Seven Lakes Drive Bikeway Connection Feasibility Study

Palisades Interstate Parkway

Bear Mountain State Park
Town of Highlands, Orange County, NY
NYSOPRHP Work Order No. D005476/PAL-006

Prepared For:
NYS OPR&HP – Palisades Region

NEW YORK STATE OF OPPORTUNITY. | Parks, Recreation and Historic Preservation

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Table of Contents

Introduction 1

Overview of Scope of Work 2

Summary of Project Kickoff Meeting and Design Research 4

Review of Aquatic Resources 6

Ecological Resources 8

Topographic Survey and GIS Mapping 9

Preliminary Design, Alternatives Evaluation and Site Assessment 10

Stakeholder Engagement Meeting Summary 13

Final Conceptual Design for the Preferred Alternative 14

- Conceptual Design Overview
- Phasing
- Permitting & SEQR
- Projected Implementation Schedule
- Opinion of Probable Cost
- Funding

Attachments/Appendix

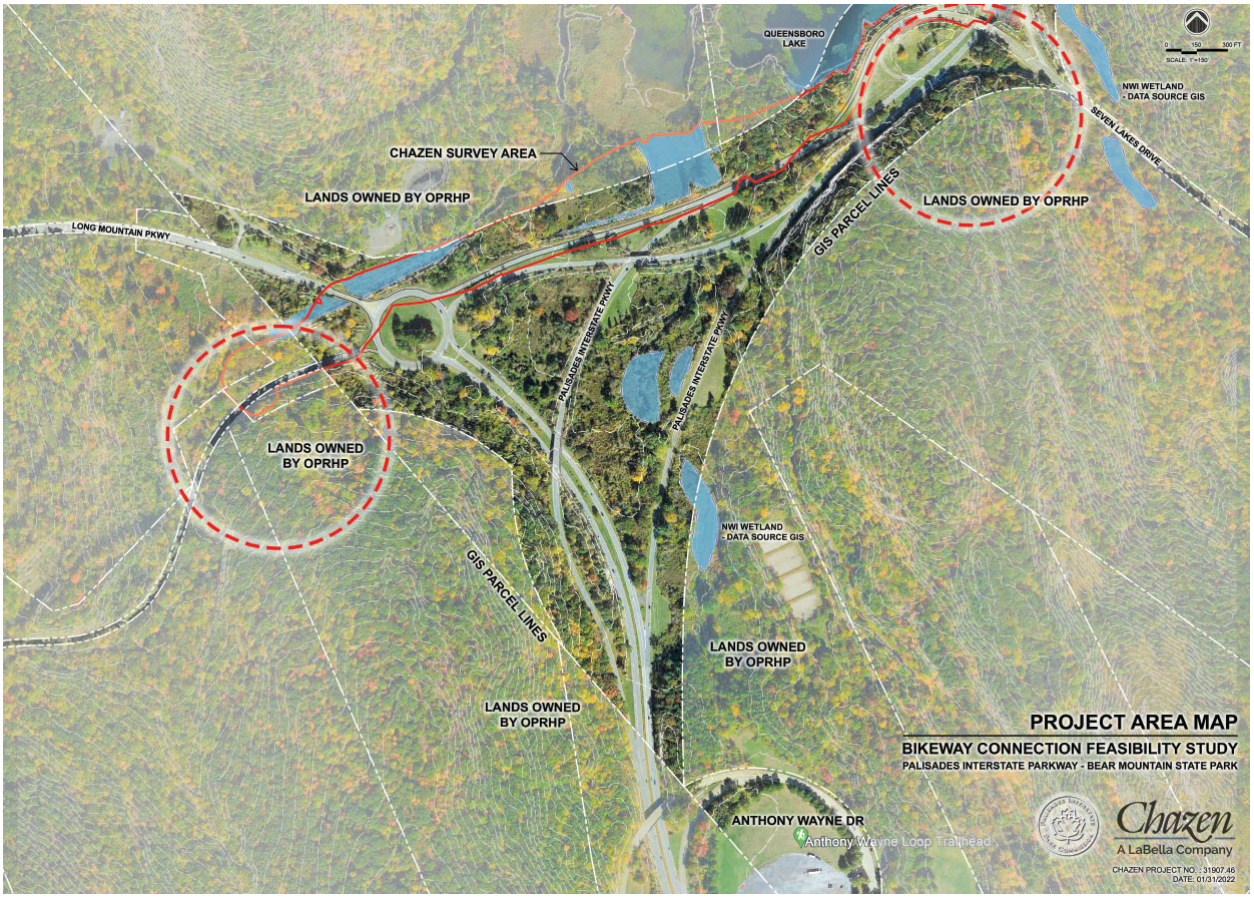
SEVEN LAKES DRIVE BIKEWAY CONNECTION FEASIBILITY STUDY
BEAR MOUNTAIN STATE PARK

Introduction

The focus of this project is to study the feasibility of creating a shared use trail between the east and west intersections of Seven Lakes Drive and the Palisades Interstate Parkway (PIP) at Bear Mountain State Park in the Town of Highlands, New York.

One of the primary objectives of this study is to create a safe and enjoyable alternative for cyclists wishing to pass through the PIP portion of Seven Lakes Drive. The Office of Parks, Recreation and Historic Preservation (OPRHP) and the Palisades Interstate Park Commission (PIPC) have determined there is demand for this connection. Additionally, the PIP in this location is a high-volume roadway that presents notable safety concerns to cyclists who wish to ride Seven Lakes Drive east and west. Another objective of this study is to provide a safe level of service for this connection and perhaps also provide enhanced connections to the many hiking trails in the project vicinity.

This report will further present the various considerations for potential alignments and subordinate alignments. The project area is generally located south of Queensboro Lake/Brook from the east and west intersections of Seven Lakes Drive south toward Anthony Wayne Recreation Area.



Overview of the Scope of Work

The scope of work outlined below, represents a variety of tasks that were conducted in an incremental process. In general, the scope of work included the following:

- **Aquatic Delineation and Ecological Resource Review**
  Chazen reviewed applicable local, state and federal mapping to identify the potential limits of aquatic resources in the primary study area, which is defined as the 8–10-acre component of the project, located north of the PIP from the east and west intersections of Seven Lakes Drive and the PIP. Additionally, in this focused area, Chazen completed a delineation of aquatic resources and a report describing them to support a Preliminary Jurisdictional Determination (PJD) for submission to the NY District Corps of Engineers, and a request for validation for submission to the NYSDEC. A copy of the report and mapping can be found in the Appendix.

- **Ecological Resource Review**
  Within the primary study area noted above, Chazen reviewed the NYSDEC online resources to identify whether there are any records of endangered species on the site and submitted a letter to the NY Natural Heritage Program to determine if there are any record occurrences, inquired with NYSOPRHP's Jesse Jaycox regarding those resources, and reviewed the USFWS IPAC Information Resource Planner for federal species.

  During the field review, Chazen examined ecological communities within the primary study area and generally defined and identified the limits of those communities using GIS. Chazen evaluated whether any of the ecological communities have the potential to support endangered, threatened or rare species, and/or if habitat communities on the site are rare. A copy of this review is provided in the Appendix.

- **Topographic Survey**
  A topographic survey was prepared for the primary study area, which is defined as the 8–10-acre component of the project located north of the PIP from the east and west intersections of Seven Lakes Drive and the PIP. All other areas of the project utilized GIS information for topographic data. The surveyed area provided 2-foot contour interval topography. The contours are based on publicly available 2014 USGS DEM (digital elevation model) with a 1-meter resolution cell size and/or LiDAR point cloud data. A detailed survey of the culvert under Long Mountain Parkway, was also conducted. A copy of the survey is provided in the Appendix.

- **Design Research**
  This task included review of applicable bikeway and trail design standards to be utilized in the design of the trail alignments and profile. During this phase of the project OPRHP and PIPC determined that The American Association of Highway and Transportation Officials (AASHTO) standards should be utilized as design guidelines for the layout and design of the alternative trail routes.

- **Preliminary Design and Alternatives Evaluation**
  The preliminary design process aimed to develop conceptual alignment alternatives that provided the most feasible, safe and inviting route. The conceptual designs were developed incorporating AASHTO standards and with the goal of minimizing impacts to existing environmental conditions. Additionally, the trail alignment alternatives considered existing trailheads, bikeway connection

locations and the desired trail geometry. The concepts were developed utilizing available topographic mapping prepared for this project, environmental context, feasible construction methods and input from OPRHP, PIPC and NYS Department of Transportation (NYSDOT). The preliminary alternatives were presented to OPRHP, PIPC and NYSDOT for review and comment, and memorialized in this feasibility study. A copy of the Site Assessment and Preliminary Design Alternatives is provided in the Appendix.

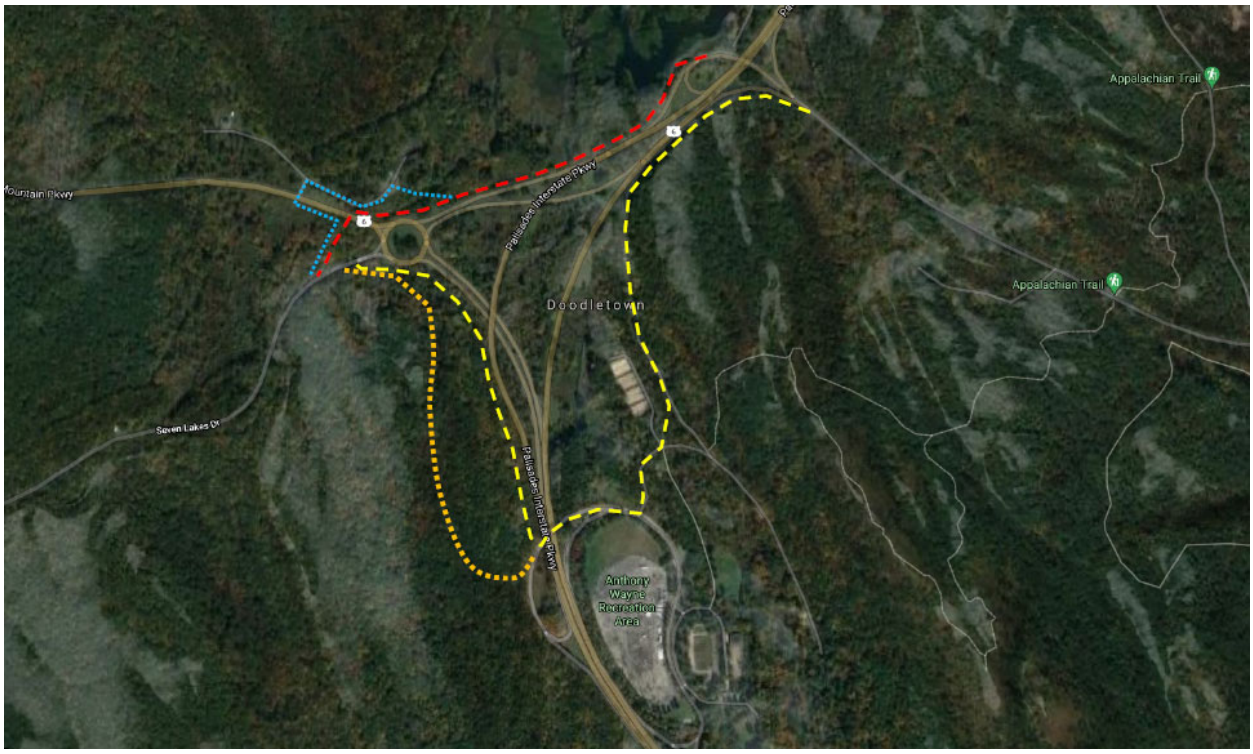
- **Stakeholder Engagement**
  In addition to OPRHP and PIPC, the NYSDOT was engaged to review the project approach. OPRHP and PIPC representatives communicated the project goals to NYSDOT to gain their input regarding the potential use of the Queensboro Brook culvert (for potential access through the culvert), at-grade crossing implications along Long Mountain Parkway, and setbacks associated with trail location adjacent to the PIP ROW. The purpose of the meeting was to present preliminary findings, potential trail alignment opportunities and challenges, and to solicit design ideas to aid in identifying potential permitting requirements. The results of this meeting are provided later in this document.

- **Final Concept Design for the Preferred Alternative**
  From the preliminary design alternative described above, OPRHP and the PIPC identified a preferred alignment for the trail, which served as the basis of a conceptual design for the trail. A draft Final Concept Plan for the project was prepared and included an opinion of probable costs (OPC). A general overview of the permitting, phasing and implementation schedule was developed and can be found in other sections of this report.

- **Preliminary SEQR Analysis**
  At the onset of this project, OPRHP and PIPC were focused on the proposed route north of the PIP between the east and west intersections of the PIP and Seven Lakes Drive. During this feasibility study, this route was determined not to be the preferred route for the proposed trail alignment. Accordingly, a SEQR overview is being provided for the preferred project route. The preferred route is located near the northeast intersection of Seven Lakes Drive and the PIP, south to the northern tip of Anthony Wayne Recreation Area and north (on the west side of the PIP) to the western intersection of Seven Lakes Drive and the PIP. Please note, the only portion of the project that was evaluated for wetlands and aquatic resources was the northern portion of the project; an 8–10-acre area north of the PIP between the east and west intersections of the PIP and Seven Lakes Drive. The SEQR review for the preferred alignment (that runs south to the northern tip of Anthony Wayne Recreation Area) is generalized due to the absence of field review. An initial review of SEQR is summarized later in this report and is provided in the Appendix.

Summary of Project Kickoff Meeting and Design Research

A project area field walk was conducted in July 2021 to observe the potential alignments considered in this feasibility study and were selected by OPRHP and PIPC. Please see the map below depicting the study area trail alignments and potential subordinate routes. The primary trail routes are shown in red and yellow. Subordinate and alternative connectors are shown in blue and orange.



During the site meeting, representatives of the PIPC and OPRHP determined that two primary alignments (red and yellow alignments) should be considered as follows:

- One alignment (Red Route) could be located north of the PIP between the east and west intersection of Seven Lake Drive and the PIP. This route would require a bridge crossing of the Queensboro Brook prior to the intersection of the PIP and Long Mountain Parkway, north and east of the existing traffic circle. This primary route could terminate in one of two ways:
    - One terminus (Red Route at the traffic circle towards Seven Lakes Drive) could cross under Long Mountain Parkway at the existing Queensboro Brook culvert and connect back to grade at Seven Lakes Drive. This would also likely require crossing wetlands as it connects from Long Mountain Parkway south to Seven Lakes Drive.
    - The other terminus (Blue Route) would cross the Queensboro Brook with a bridge and extend northwest to an existing maintenance yard. From this point, the trail could provide an at grade crossing on Long Mountain Parkway and head south through a wetland area back to an at grade access point with Seven Lakes Drive. This option would likely require an elevated boardwalk and bridge crossing of the

Queensboro Brook, south from Long Mountain Parkway toward Seven Lakes Drive.

- Either terminus would require crossing the Queensboro Brook with a bridge and creating a trail through existing wetlands west of the PIP traffic circle.

A second alignment (Yellow Route) would extend west, from the eastern intersection of the PIP and Seven Lakes Drive, and head south through to the northern tip of Anthony Wayne Recreation Area. The trail could connect with the entry/access drive of Anthony Wayne Recreation Area and head east/west over the PIP and then continue north via one of two routes:

- The easterly Yellow Route, west of the PIP, would run somewhat parallel to the PIP through OPRHP parkland and PIPC ROW to an at grade access point with the western terminus of the PIP and Seven Lakes Drive.
- The western Orange Route would climb over a significant knoll and connect with Seven Lakes Drive.

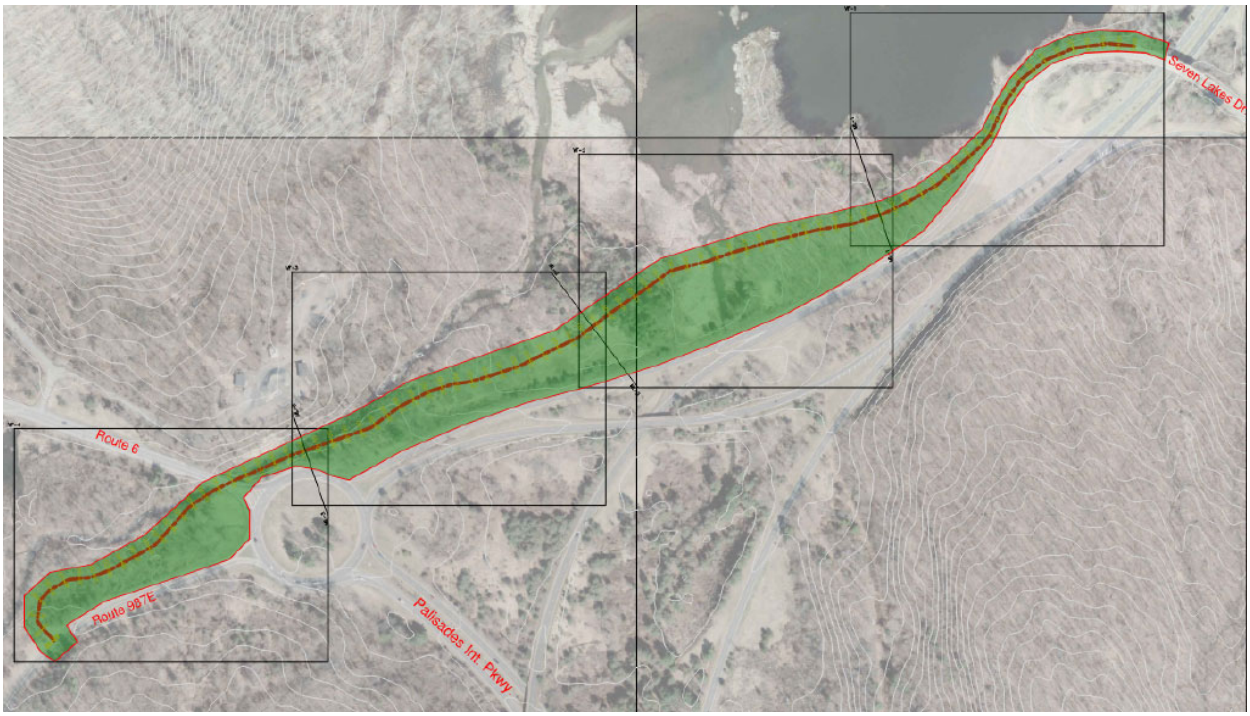
This task included review of applicable bikeway and trail design standards to be utilized in the design of the trail alignments. During the project Kickoff Meeting OPRHP and PIPC determined that The American Association of Highway and Transportation Officials (AASHTO) standards should be utilized as design guidelines for the layout and design of the alternative trail routes.

Review of Aquatic Resources

Chazen reviewed applicable local, state and federal mapping to identify the potential limits of aquatic resources within a small portion of the study area, which is defined as an 8–10-acre component of the project located north of the PIP from the east and west intersections of Seven Lakes Drive and the PIP. This trail alignment is north and parallel to the PIP and includes a culvert for the Queensboro Brook Crossing under the PIP northeast of the existing traffic circle. This is the area identified for the alignment of the Red Route. Please see the image below.

Additionally, in this focused area, a delineation of aquatic resources was conducted, and a report was prepared describing them to support a Preliminary Jurisdictional Determination (PJD) for submission to the NY District Corps of Engineers. At this time no PJD has been submitted. Additionally, no request for validation for submission to the NYSDEC was conducted because this alignment was not considered to be the preferred trail. Chazen flagged and surveyed aquatic resources within this portion of the study area. A copy of the report and mapping can be found in the Appendix.

Aquatic resource field review was not conducted outside of the 8–10-acre project area north of the PIP.



The identification of wetlands and delineation of their boundaries was carried out according to the methods in the Corps of Engineers Delineation Manual (Environmental Laboratory, 1987) and the regional supplement to that manual (USACOE, 2012). On August 4 and 5, 2021 Chazen environmental scientists delineated the boundaries of aquatic resources including wetlands on the site area noted above. Flags were used to mark the location of the upland and wetland boundaries. An Aquatic Resources Survey Map, showing the delineated aquatic resources in this portion of the study area, is presented in the Wetland Delineation Report located in the Appendix.

A total of two streams and two wetlands were delineated in this area. One stream is a perennial stream that flows from the southwest, under Route 6, on the northern boundary of the Site and continues northeast into Queensboro Lake. Another stream, also a perennial stream, flows from under the Palisades Interstate Parkway and into Queensboro Lake. Both streams are class A streams that are mapped and regulated by the NYSDEC. If disturbance to the "bed and banks" of any of these NYSDEC regulated streams is anticipated, a stream disturbance permit (Article 15) would be required.

Queensboro Lake is a palustrine emergent/palustrine unconsolidated bottom (PEM/PUB) wetland located on the northeastern portion of the study area. Queensboro Lake receives flow from both perennial streams noted above. Another wetland is located on the north-central portion of this sub- study area and is a palustrine emergent (PEM) wetland. This wetland is a small depressional wetland and appears to potentially connect to one of the perennial streams. Both wetlands appear to be regulated by the USACE. If disturbance to either wetland is proposed, an application to the USACE for a Nationwide permit would likely be required.

Please see a copy of the Wetland Delineation Report in the Appendix.

Ecological Resources

Within in the 8–10-acre project area, north of the PIP, ecological resources were reviewed by utilizing NYSDEC online resources to identify whether there are any records of endangered, threatened, or rare species. A letter was submitted to the NY Natural Heritage Program to determine if there are any record occurrences. Additionally, OPRHP's Jesse Jaycox was contacted regarding potential resources. This review also included review of the USFWS IPAC Information Resource Planner for federal species.

During the field review, Chazen examined the ecological communities within the 8–10-acre study area and generally defined and identified the limits of those communities using GIS. These areas were evaluated to determine if any of the ecological communities have the potential to support endangered, threatened or rare species, and/or if habitat communities on the site are rare. A copy of this review is provided in the Appendix.

Ecological resource review was not conducted outside of the 8–10-acre project area north of the PIP.

The USFWS Information Resource Planner (iPaC) indicates the site lies within the range of the Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), bog turtle (*Glyptemys muhlenbergii*), and small whorled pogonia (*Isotria medeoloides*). Based on field review of this 8–10-acre portion of the study area, few trees fitting the size criteria and physical characteristics for summer roost habitat were identified for either bat species. Assuming this project would involve minor tree clearing (less than 10 acres), and assuming such tree clearing occurs during winter months (November 1 to March 31) when bats are not on the landscape, then it is likely that a determination of *May Affect but Not Likely to Adversely Affect* should be made for bat species under Section 7 of the federal Endangered Species Act. The delineated wetlands in this portion of the study area were evaluated for their potential to support bog turtle habitat and it was determined that neither wetland provided suitable habitat. Therefore, it is likely a determination of *No Effect* would be made for this species under Section 7 of the federal Endangered Species Act. Additionally, based on the field review of this portion of the study area, there is likely little/no potential habitat for the small whorled pogonia species.

NYSDEC Environmental Resource Mapper and the SEQRA EAF Mapper indicates this portion of the study area lies within the potential range of the NYSDEC listed northern long-eared bat, timber rattlesnake (*Crotalus horridus*), and eastern wormsnake (*Carphophis amoenus*). As stated above, it is likely that a determination of *May Affect but Not Likely to Adversely Affect* should be made for the northern long-eared bat species. Based on the field review, little ideal timber rattlesnake habitat is present in this portion of the study area. The forested areas, in this portion of the project area, could potentially be used for foraging so avoidance and minimization measures may be requested by the NYSDEC to avoid take of this species. Additionally, few areas fitting the ideal habitat criteria for the eastern wormsnake were observed within this portion of the study area.

Please see a copy of the Endangered, Threatened, and Rare Species Review Letter in the Appendix.

Topographic Survey and GIS Mapping

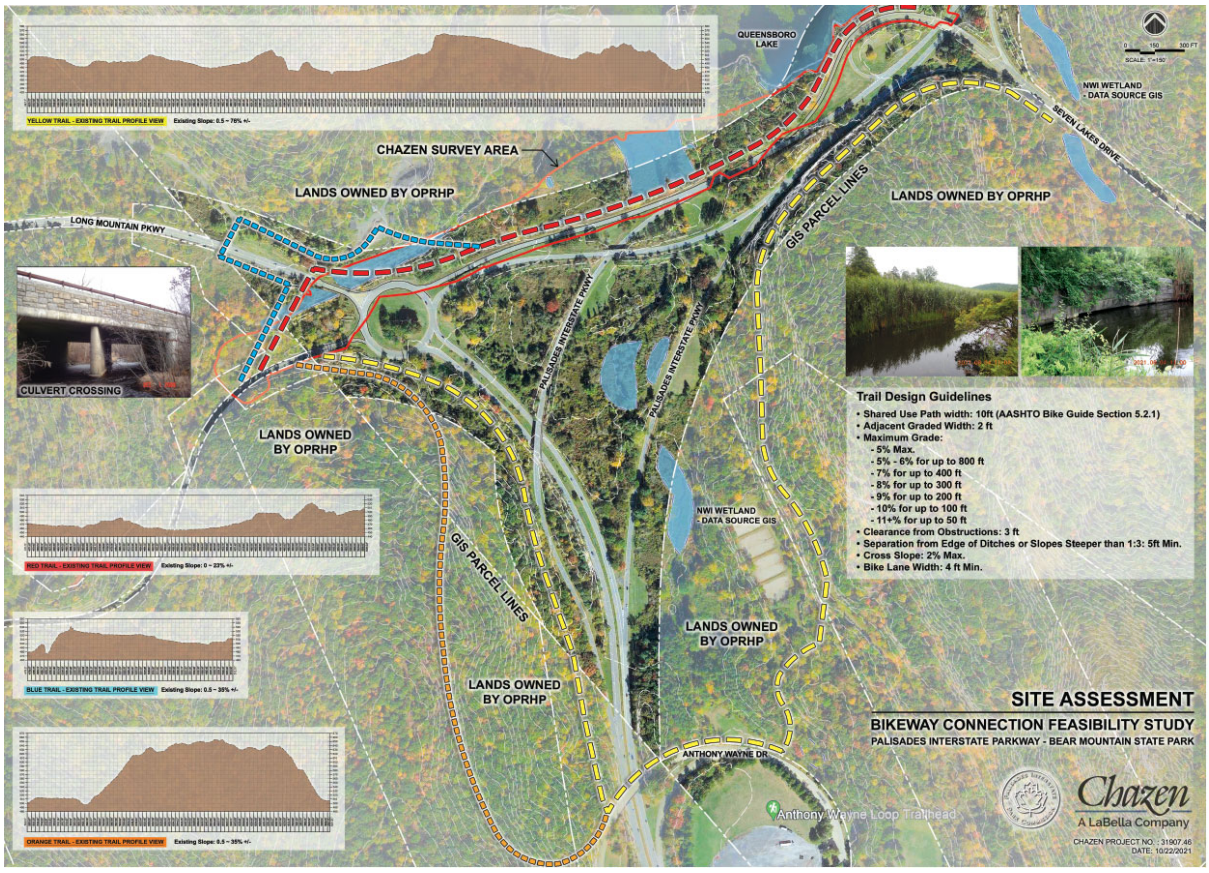
Chazen prepared a topographic survey within an 8–10-acre component of the project located north of the PIP from the east and west intersections of Seven Lakes Drive and the PIP. All other areas of the project utilized GIS information for topographic data. The surveyed areas provided 2-foot contour interval topography. The contours are based on publicly available 2014 USGS DEM (digital elevation model) with a 1-meter resolution cell size and/or LiDAR point cloud data.

GIS based mapping was utilized for the other portions of the project areas. GIS data was utilized to develop conceptual designs for the Yellow and Orange Routes. This generally includes the project area south of the Red Route, from the intersections of the east and west connections of the PIP with Seven Lake Drive, south to Anthony Wayne Recreation Area. This mapping was developed using GIS LiDAR topography and readily available desktop resources. Property Lines, topography and potential mapped wetland areas were all sourced by desktop and will need to be surveyed during subsequent stages of the project.

A detailed survey of the culvert under Long Mountain Parkway, was also conducted. A copy of the survey map is provided in the Appendix. If a preferred trail alternative is located outside of the 8-10-acre surveyed area, where wetlands were delineated, additional field work will be required.

Preliminary Design, Alternatives Evaluation and Site Assessment

The preliminary design process aimed to develop and assess the conceptual alignment alternatives. The conceptual designs were developed utilizing the topographic survey and GIS LiDAR topography and



incorporated AASHTO standards. Additionally, the trail alignment alternatives considered existing trailheads, bikeway connection locations and the desired trail geometry based on AASHTO standards. The concepts were developed utilizing available environmental conditions, feasible construction methods and input from OPRHP and PIPC. The preliminary alternatives were presented to OPRHP, PIPC and NYSDOT for review and comment, and memorialized in this feasibility study. A copy of the Site Assessment and Preliminary Design Alternatives is provided below and in the Appendix.

Based on direction by OPRHP and PIPC, four route segments were studied as shown in the image above. These routes will be described based on the color of the alignment. The four routes are Red, Yellow, Blue and Orange.

- Red Route

  The Red Route could be located north of the PIP between the east and west intersection of Seven Lake Drive and the PIP. This route would require a bridge crossing of the Queensboro Brook prior to the intersection of the PIP and Long Mountain Parkway, north and east of the existing traffic circle. After crossing the Queensboro Brook the trail would cross through the existing culvert at Long Mountain Parkway and head south through a wetland area to an at grade connection with Seven Lakes Drive.

At the onset of the project, OPHRP and PIPC provided a NYSDOT Inspection Study of the Queensboro Brook Culvert and Bridge Crossing of the Long Mountain Parkway. A copy of the report is provided in the Appendix.

Opportunities:

- Provides a direct route from the eastern connection of the PIP and Seven Lakes Drive to the western connection of Seven Lakes Drive.
- Is a highly visible location for the trail alignment.
- Provides good viewsheds of Queensboro Lake and Brook and passes through scenic woodlands.

Challenges:

- The alignment requires significant construction efforts to address the steep slopes along south shore Queensboro Lake and the banks along Queensboro Brook. This would likely require extensive engineering design and construction costs.
- Requires numerous wetland crossings or elevated bridge columns to minimize impact to the wetlands.
- Would require two bridge crossings along Queensboro Brook.
- Would require the use and adaptation of the Queensboro Brook Culvert crossing under Long Mountain Parkway, which would not likely be permissible by NYSDOT due to design and water volume/flow requirements.
- Would likely require a boardwalk system extending from the culvert back to Seven Lakes Drive.
- Would likely require a significant amount of permitting related to the wetlands and the PIP ROW.

- <u>Blue Route</u>

  The Blue Route would connect from a midpoint of the Red Route and cross Queensboro Brook with a bridge. From this point it would extend northwest to an existing maintenance yard. The trail could provide an at grade crossing on Long Mountain Parkway and head south through a wetland area back to an at grade access point with Seven Lakes Drive. This option would likely require an elevated boardwalk and another bridge crossing Queensboro Brook south from Long Mountain Parkway toward Seven Lakes Drive.

  Opportunities:

  - Would provide a scenic crossing of Queensboro Brook at the proposed bridge location.
  - Could utilize existing access roads associated with the maintenance area.
  - Provides a visible crossing off Long Mountain Parkway.
  - Would not require the use of the existing culvert under Long Mountain Parkway northeast of the traffic circle.

  Challenges:

  - Would require two bridge crossings of the Queensboro Brook.
  - Safety of trail users is still an issue related to the at grade crossing of Long Mountain Parkway.
  - Requires extensive elevated boardwalks or bridge-like structures to access an extensive wetland west of the PIP traffic circle.

- Would likely require a significant amount of permitting related to the wetlands and the PIP ROW.

- Yellow Route

  The Yellow Route would extend west, from the eastern intersection of the PIP and Seven Lakes Drive, and head south through to the northern tip of Anthony Wayne Recreation Area. The trail could connect with the entry/access drive of Anthony Wayne Recreation Area and utilize the PIP overpass. From this point the trail would continue north to an at grade connection with Seven Lakes Drive. The Yellow Route, west of the PIP, would run somewhat parallel to the PIP through OPRHP parkland and PIPC ROW.

  Opportunities:
  - Provides a scenic and safe connection from the eastern connection with Seven Lakes Drive and the PIP south to Anthony Wayne Recreation Area and the western connection of the PIP and Seven Lakes Drive.
  - Provides access to an existing trailhead at Anthony Wayne Recreation Area, associated trail networks and extensive parking.
  - For a small portion of the trail in Anthony Wayne Recreation Area, the alignment would follow existing maintenance roads located through the woodlands.
  - Would likely require less permitting because the trail alignment is located on OPRHP and PIPC land.

  Challenges:
  - Existing topography through this alignment is steep in some locations, which may require significant earthwork and rock blasting to construct the trail.

- Orange Route

  The western Orange Route would connect to the Yellow Route on the west side of the Anthony Wayne Recreation Area entrance overpass on the western side of the PIP. From this point the Orange Route alignment would climb over a significant knoll and provide an at grade connection with Seven Lakes Drive.

  Opportunities:
  - Provides a scenic route over a large knoll in the location of existing trails.

  Challenges:
  - Based on our preliminary investigations to achieve an appropriate trail grade, it appears this alignment is too steep to comply with AASHTO trail standards.

Stakeholder Engagement Meeting Summary

The preliminary route design and site assessment plans were vetted by OPHRP, PIPC and NYSDOT. During a meeting with OPHRP, PIPC and NYSDOT on December 3, 2021, the three primary stakeholders reviewed the Site Assessment Plan and engaged in dialogue about the opportunities and challenges associated with each route. The meeting summary minutes are summarized below.

The primary objective of the meeting was to provide an overview of the project to NYSDOT and to discuss the goals and objectives of providing safe routing alternatives between the Bear Mountain and Harriman sections of Seven Lakes Drive at the east and west intersections/connections of the PIP and Seven Lakes Drive without accessing the travel lanes of the PIP. The Red, Blue, Yellow and Orange Routes were presented and discussed among the stakeholders.

NYSDOT provided their thoughts and concerns related to each of the proposed routes. Additionally, OPRHP and PIPC comments are included in the results of the meeting as outlined below.

1. NYSDOT is in the process of reviewing Control and Break-In Access Route concerns related to the PIP ROW. This presents a higher concern related to access to the PIP for the Red Route, on the eastern side of the northeast connection of the PIP and Seven Lakes Drive.

2. NYSDOT noted that an at grade crossing, as proposed in the Blue Route, is a significant safety concern and noted numerous previous traffic conflicts at the intersection of Long Mountain Parkway and the PIP traffic circle in the northwest portion of the project area.

3. Regarding use of the culvert under Long Mountain Parkway, as shown on the Red Route, NYSDOT suggested that permitting and design requirements would make use of this culvert extremely difficult and would likely not meet design requirements for two-way shared use trail traffic or meet vertical clearance requirements. OPRHP noted that PIPC assumed this condition, had assumed a narrower travel lane may be required and that users may need to dismount and walk bikes through the culvert. In response and because of the persistent water flow through the culvert there is likely a significant liability concern.

4. Any routes along the PIP (Red Route) would be required to be outside the recovery width for vehicles within in the jurisdiction of the NYSDOT. Otherwise, the potential trail alignment would need to be protected by guardrails.

5. OPRHP asked if there were any potential funding sources for the work within NYSDOT management. NYSDOT is in the process of considering funding sources.

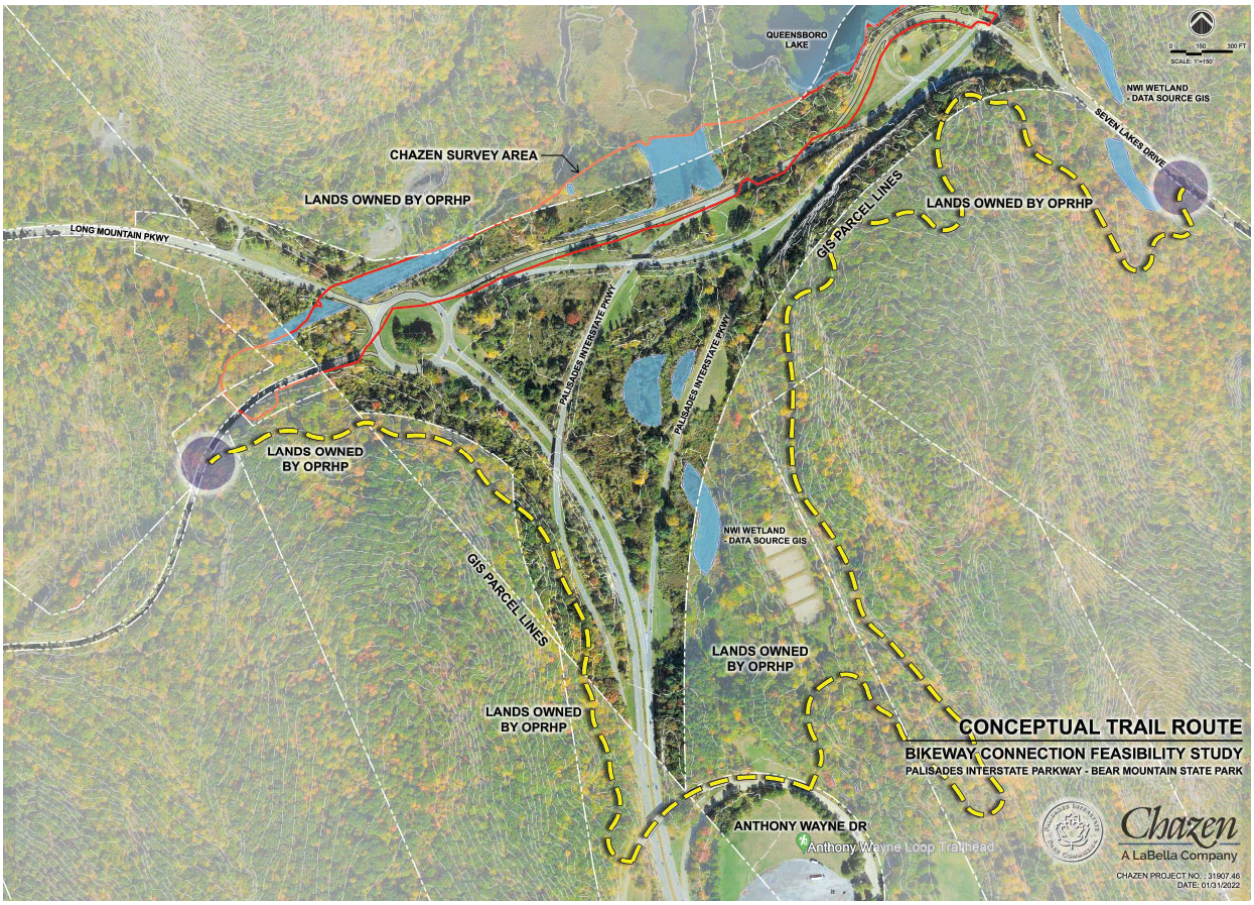
After considering the various points discussed during the stakeholder meeting and based on the results of the preliminary trail route alternatives design and site assessment, OPRHP and PIPC determined that the Yellow Route should be the preferred route for this feasibility study.

Final Conceptual Design for the Preferred Alternative

From the preliminary design alternatives previously outlined, OPRHP and the PIPC identified a preferred alternative which served as the basis of the conceptual design. The Yellow Route, as shown on the mapping provided below, was determined to be the preferred trail alignment. A Final Concept Design was prepared and includes a trail alignment and profiles. This included conceptual site grading to achieve a trail alignment that reflects AASHTO design standards. A set of drawings illustrating the design alignment and grading are provided in the Appendix.

Conceptual Design Overview

Upon determining that the Yellow Route was the preferred trail alignment for this feasibility study, a detailed conceptual design was prepared to further test the layout, grading and earthwork associated with the proposed project. Since this area was not surveyed during the initial part of the project GIS LiDAR topography was utilized for the existing conditions base mapping. The project mapping used to develop the Site Assessment and Concept Grading Plans utilized 2' contour intervals. Similarly, this area was not field reviewed for aquatic resources or ecological resources. However, desktop mapping resources were utilized to locate potential New York State Department of Environmental Conservation (NYSDEC) mapped wetlands and National Wetland Inventory (NWI) mapping to provide a planning level analysis of potential aquatic resources in this portion of the project. Additional information on environmental elements of the project area is further described below under Permitting & SEQR Summary.



As a reminder, the focus of this project is to study the feasibility of creating a shared use trail between the east and west intersections of Seven Lakes Drive and the PIP at Bear Mountain State Park in the Town of Highlands, New York. One of the primary objectives of this study is to create a safe and enjoyable alternative for cyclists wishing to pass through the PIP portion of Seven Lakes Drive. OPRHP and the PIPC have determined there is demand for this connection. Additionally, the PIP in this location, is a high-volume roadway that presents notable safety concerns to cyclists who wish to ride Seven Lakes Drive east and west. Therefor priority was given to those trail segments that did not cross or interact directly with the PIP and associated ROW. The Yellow Route would provide the safest most scenic route and modest environmental impacts as compared to the other routes studied.

One of the primary objectives of this study is to provide a safe level of service for the proposed connection and perhaps also provide enhanced connections to the various hiking trails in the vicinity. Other thematic design objectives considered during the development of the final Conceptual Design included the following:

- Provide for connections at existing trailheads and at grade crossings/connections with the PIP, Seven Lakes Drive and Anthony Wayne Recreation Area.
- Select a trail alignment that best follows the existing topography, minimizes impacts to sensitive environmental features and balances earthwork cut and fill operations.
- Limiting the amount of woodland clearing.
- Avoided dangerous crossings of the PIP.

For this phase of the project, we utilized AASHTO Design Standards for Shared Use Trails (AASHTO Bike Guide Section 5.2.1). In general, these standards included the following:

- Shared Use Path width 10’
- Adjacent graded shoulder 2’ (each side)
- Maximum alignment gradient
    - 5 % maximum
    - 5-6% up to 800’ in length
    - 7% up to 400’ in length
    - 8% up to 300’ in length
    - 9% up to 200’ in length
    - 10% up to 100’ in length
    - 11+% up to 50’ in length
- Clearance from obstructions 3’
- Separations from edge of ditches/slopes steeper than 1:3 5’ minimum
- Cross Slope 2% maximum
- Bike lane width 4’ each direction

Conceptual Design Points to Consider:

- The proposed trail is approximate 2 miles in length. Additional sections of trail may be required to connect the trail to the existing Anthony Wayne Recreation Area parking lot.
- Based on review of the USDA Web Soil Survey, the soil profile contains significant rock outcropping and minimal depth to bedrock. Significant rock and bedrock removal will be required

to implement the trail and will likely escalate the cost of construction relative to typical considerations to construct shared use trails.

- It is likely that rock crushing equipment will be required to utilize the rock spoils cut from the existing topography. However, at this early stage of design it is anticipated that proposed cut and fill earthwork strategies will likely be less expensive than building elevated sections of the trail alignment in steep sections of the proposed trail.

For the purposes of this feasibility study a conceptual trail alignment and grading plan was prepared. A copy of the design set is provided in the Appendix.

Phasing

Phased implementation and/or construction of this project is likely to be conducted in a single phase largely because the primary objective of the project is to provide a continuous connection from the east and west intersections of the PIP and Seven Lakes Drive. However, constructing the alignment in two distinct phases cold be accomplished. One phase of the project could extend from the northeast connection of the PIP and Seven Lakes Drive south to Anthony Wayne Recreation Area parking area and trailhead. Another phase of the project could be constructed from Anthony Wayne Recreation Area to the northwest intersection of the PIP and Seven Lakes Drive. Each of these scenarios could utilize the large parking area at Anthony Wayne Recreation Area as a new hub that currently supports access to a variety of trails and parkland.

Permitting & SEQR Summary

OPRHP and the PIPC are proposing to design and construct an approximately 12,000-foot-long (2.27 mile) shared use trail, in the Town of Highlands and the Town of Woodbury, Orange County, New York. The proposed shared use path width is proposed to be ten feet with an adjacent graded width of two feet (on each side), and a bike lane width of four feet minimum. It is estimated from the current property research that the trail will cross five parcels (Parcel Lots 234-1-13, 234-1-14, 19-1-28, 234-1-11, 19-1-26) owned by NYSOPRHP and to cross within the PIPC ROW. The proposed trail is proposed to connect with the Anthony Wayne Recreation Area and trailhead located to the south. The path/trail would occupy areas that are currently wooded, with some portions of the trail running coterminous with Anthony Wayne Drive. Parking for the proposed trail will be at the existing parking lot at the Anthony Wayne Recreation Area. The anticipated total ground disturbance to accommodate the new path/trail is approximately 5.5 acres. Since the project site is located on NYS park lands, the proposed action is exempt from local zoning regulations. The proposed action would be classified as a Type I Action due to the anticipated amount of ground disturbance and location on publicly owned parkland and the National Register of Historic Places listed PIP.

At the onset of this project, OPRHP and PIPC were focused on the proposed Red Route, which is located north of the PIP from the east and west intersections of the PIP and Seven Lakes Drive. During this feasibility study, this route was determined not to be the preferred route for the proposed trail alignment. Please note that the only a portion of the project that was field evaluated for wetlands and aquatic resources was the Red Route. Accordingly, a preliminary SEQR overview is being provided for the proposed Yellow Route without utilizing field verification.

The proposed action is classified as a Type I Action due to the anticipated amount of ground disturbance and location on publicly owned parkland and the National Register of Historic Places listed PIP. The following next steps are recommended:

1) Complete FEAF Part 1 Form and associated desktop analysis. Detailed field analysis may be required to assess potential impacts to regulated species, regulated wetlands, and potential traffic impacts.

2) The Lead Agency will need to declare their intent to act as Lead Agency and classify the action as Type I for the purpose of conducting the State Environmental Quality Review (SEQRA. The Full Environmental Assessment Form (FEAF) along with a Notice requesting Lead Agency status will need to be circulated to involved agencies.

3) Assuming there is no objection from the noted agencies regarding lead agency, the lead agency may establish itself as SEQR Lead Agency and conduct the environmental review any time after a thirty-day consent period has ended.

4) At that time, the Lead Agency should complete its review of the FEAF and issue a SEQR determination.

Projected Implementation Schedule

Based on the permitting schedule as noted above and including this element in the project schedule, we anticipate eight to 12 months to accomplish the professional services related to the project. Once the project is awarded to a successful bidder, we anticipate that the project could be constructed within approximately eight to 12 months. Given these factors we anticipate that the overall project would likely require two to three years to accomplish.

Opinion of Probable Construction Costs (OPC)

While finalizing the conceptual design of the Yellow Route, we prepared a schematic design for the project that generally focused on the construction and earthwork required to build the trail. Although there are cost allocations for some ancillary project elements like guard rails, fencing and signage, the OPC does not include improvements to the parking area at Anthony Wayne Recreation Area or small parking areas on the east and west connections of the PIP and Seven Lakes Drive.

Given the level conceptual design at this stage of the project, we estimate the construction of the Yellow Route to be $3,774,600.00. A copy of the OPC detail is provided in the Appendix.

Funding Opportunities

There are a variety of funding mechanisms available to advance this project. Based on our understanding of the scope of work associated with this proposed shared use trail we have researched various ways to secure funding for the advancement of this project. This could include funding for planning, design and construction phases of the project. These funding programs could potentially be sourced from the following:

- Empire State Development (ESD). ESD has several programs to consider including a capital project fund and the Market New York program.

  - Empire State Development Grants (typically focused on downtown/urban areas and capital-based economic development projects intended to create/retain jobs).
  - Market New York provides funding for projects that create/retain jobs and/or increase tourism in a region. Market New York generally provides two funding tracks including Regional Tourism Marketing and Tourism Capital.

- Office of Parks, Recreation and Historic Preservation (OPRHP). OPRHP provides several programs to consider for potential funding. These include the following:
  - Environmental Protection Fund (EPF) Grants Program for Parks, Preservation and Heritage. EPF identifies eligible activities under three categories including Parks, Historic Preservation and Heritage Area Programs.
  - Recreational Trails Program (RTP), funds can be utilized to develop and maintain recreational trails and trail related facilities for both motorized and nonmotorized recreational trail uses. RTP funding comes from the Federal Highway Administration and is administered by OPRHP.

- TAP – Transportation Alternatives Program. NYSDOT provides funding to support bicycle, pedestrian, multi-use path and non-motorized transportation related projects and programs that support the goals of New York's national let Climate Leadership and Community Protection Act (CLCPA). Administered by NYSDOT, these funds are made available to the State through the TAP and the Congestion Mitigation and Air Quality Improvement Program (CMAQ). Combined, NYS DOT's TAP-CMAQ program provides reimbursement for project related costs.

- TIP – Transportation Improvement Program. The TIP is a multi-year program of transportation projects that implements the products of a planning process organized at a regional level through Metropolitan Planning Organizations (MPO) representatives. This is a federal process for projects that are approved by the MPO to receive federal funding. Orange County Transportation Council (OCTC) is the MPO.

- Hudson Valley Greenway (HVG). HVG grant program provides matching grants to Greenway Communities that are eligible to receive funding to develop plans or projects consistent a prescribed criteria including: natural and cultural resource protection, economic development, public access regional planning and heritage and environmental education.

- Scenic Hudson could be a possible source of funding through a partnership approach.

Attachments

Appendix A – Aquatic Delineation and Ecological Resource Review

Appendix B – Ecological Resource Review

Appendix C – Topographic Survey

Appendix D – Site Assessment/Preliminary Design and Alternatives Evaluation

Appendix E – DOT Report

Appendix F – Final Concept Design

Appendix G – Conceptual Layout and Grading Plan

Appendix H – Opinion of Probable Construction Costs

Appendix I – Preliminary SEQR Analysis

Attachment A – Aquatic Delineation and Ecological Resource Review

THE Chazen COMPANIES®

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Wetland Delineation Report

for

New York State Office of Parks, Recreation, & Historic Preservation

Palisades Interstate Parkway
Town of Highlands
Orange County, New York

Issued: December 31, 2021

Prepared for:

NYS Office of Parks, Recreation, & Historic Preservation – Palisades Region
Palisades Interstate Park Commission
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Chazen Project No. 31907.46

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It is noted that as of January 1, 2022, The Chazen Companies was acquired by LaBella Associates.
This delineation report was completed as The Chazen Companies, and so has not been reformatted to reflect LaBella Associates, DPS ownership

TABLE OF CONTENTS

1.0 CONTEXT OF THE SITE 1

2.0 MAPPED RESOURCES 1

2.1 Topography 1

2.2 Soils 1

2.3 Wetlands and Streams 4

3.0 ECOLOGICAL COMMUNITIES 4

4.0 AQUATIC RESOURCE DELINEATION 6

5.0 DESCRIPTION OF WETLANDS AND STREAMS 6

6.0 JURISDICTION OVER WETLANDS AND STREAMS ON THE PROJECT SITE 8

7.0 LITERATURE CITED 9

LIST OF TABLES

Table 1: Summary of Soils Mapped within Area of Review 3
Table 2: Aquatic Resources on the Project Site 7

APPENDICES

Appendix A: Figures
Appendix B: Aquatic Resources Survey Map
Appendix C: Soils
Appendix D: Plant Table
Appendix E: Photographs of the Project Site
Appendix F: Wetland Determination Data Forms

LIMITATIONS: Only the U.S. Army Corps of Engineers and/or New York State Department of Environmental Conservation (NYSDEC) can legally make a determination of the extent of regulated aquatic resources on any property. This wetland delineation report represents the professional opinion of The Chazen Companies regarding the extent and jurisdiction of aquatic resources on the Site and is non-binding on the Corps of Engineers or NYSDEC. Opinions presented in this report also apply to Site conditions and regulations existing only at the time of Chazen's delineation and may not necessarily apply to future Site conditions and/or regulations, which may change over time. Reliance on this report without validation or approval by the Corps of Engineers and/or the NYSDEC is solely at the risk of the Client.

1.0 CONTEXT OF THE SITE

The Project is located on the northern side of Palisades Interstate Parkway on an ±10 acre portion ("Study Area") of a larger parcel identified as Tax Parcel 234-1-10 in Town of Highlands, Orange County, New York. Appendix A, Figure 1 shows the location of the Site (in red) on the Popolopen Lake, NY USGS topographic quadrangle. See also Appendix A, Figure 2, "Aerial Map." The intention of the project is to develop a bicycle path to connect Palisades Interstate Parkway and Seven Lakes Drive in the Town of Highlands. The Study Area is mostly occupied by vacant forested and successional land, streams, and wetlands.

On August 4 and 5, 2021, Chazen scientists delineated the boundaries of aquatic resources, including wetlands and stream channels within the Study Area. Flags were used to mark the location of wetland and stream boundaries. Appendix B, Aquatic Resources Survey Map, contains the results of the aquatic resource survey.

2.0 MAPPED RESOURCES

2.1 Topography

Figure 1 (Appendix A) is a topographic map of the Study Area. The Study Area lies within an area of moderately steep to gently sloping to relatively flat topography, with approximately 80 feet of relief and multiple rock outcroppings. The Study Area contains a portion of the southern bank of Queensboro Lake and lies within the watershed of the Lower Hudson River.

2.2 Soils

According to the soil survey map of the USDA Natural Resources Conservation Service, there are 6 soil mapping unit types within the Study Area. These soils are described[1] and their approximate locations[2] shown in Appendix C, "Soils Report."

- Alden Extremely Stony Soils (AC): These soils are deep, very poorly drained, nearly level and are found in depressions and low areas. They formed in glacial till that is commonly mantled with local silty colluvial material. Stones and boulders more than 10 inches in diameter are less than 5 feet apart on the surface. The surface layer is silt loam or loam. The slope ranges from 0 to 3 percent. Areas are generally round and 5 to 15 acres in size. Included in mapping are several small areas of soils that have no stones on the surface or have fewer stones on the surface than Alden soils. Also included are a few areas of somewhat poorly drained Eire soils on slight rises and several areas where the surface layer is mucky. The water table is at or near the surface for prolonged periods. This soil map unit has a hydric soil rating of 95%.

[1] Olsson, K. S. et al. 1981. Soil Survey of Orange County, New York. United States Department of Agriculture Soil Conservation Service in cooperation with Cornell University Agricultural Experiment-Station. See Soil Survey of Orange County, New York (usda.gov)

[2] The original soil data were mapped at a scale of 1:24,000, and so the soil unit boundaries shown in Appendix C, which is at a scale of 1:13,700, are not likely to be accurate.

- Charlton Fine Sandy Loam, 3 to 8 percent slopes (ChB): This deep, well drained, gently sloping soil formed in glacial till deposits derived from schist and gneiss. It is on ridge crests, hilltops, and mountaintops in uplands. Areas are generally round and 5 to 15 acres in size. Included with this soil in mapping are areas of a well-drained Paxton soil that has a fragipan. In a few large areas the surface is very stony. Also included are a few areas of a somewhat poorly drained glacial till soil that has an extremely stony surface and areas of shallow Hollis soils on a few ridge crests. Depth of water table is more than 6 feet. Permeability is moderate to moderately rapid. Most areas of this soil are either forested or idle. This soil map unit has a hydric soil rating of 1%.

- Charlton-Paxton Complex, 8 to 15 percent slopes, very rocky (CLC): These deep, well drained, gently sloping to slopping soils formed in glacial till deposits derived from schist and gneiss. They occur on ridge crests, hilltops, and mountaintops in uplands. The slope is mainly 8 to 15 percent but ranges from 3 to 15 percent. The surface layer is fine sandy loam, loam, or sandy loam and is commonly gravelly. Large stones and boulders are 3 to 5 feet apart on the surface. Areas are mostly oblong and 15 to 100 acres in size. This complex is about 60 percent Charlton soil, 30 percent Paxton soil, and 10 percent other soils. Areas of Charlton and Paxton soils occur in such an intricate patter that they were not mapped separately. In the Charlton soil, depth to the seasonally high water table is more than 6 feet. In the Paxton soil the water table is perched above the dense fragipan for brief periods early in spring. Most areas of this complex are either forested or idle. This soil map unit has a hydric soil rating of 2%.

- Erie Extremely Stony Soils, gently sloping (ESB): These deep, somewhat poorly drained, gently sloping soils have a fragipan. They formed in glacial till deposits derived from shale, slate, and sandstone. They are on lower hillsides, foot slopes, and hilltops and along shallow drainageways of the uplands. The slope ranges from 3 to 8 percent. Stones and boulders more than 10 inches in diameter and less than 5 feet apart cover the surface. Texture of the surface layer, excluding large stones, is gravelly silt loam, gravelly loam, or gravelly fine sandy loam. Areas are mostly round and 5 to 15 acres in size. Included with these soils in mapping are small areas of moderately well drained Mardin soils on slightly higher rises and knolls and very poorly drained Alden soils on a few small concave toe slopes. Some small areas have very few if any large stones on the surface. Most areas are either idle or forested. A few are unimproved pasture. This soil map unit has a hydric soil rating of 5%.

- Hollis Soils, sloping (HLC): These shallow, well drained to somewhat excessively drained, sloping and gently sloping soils formed in glacial till deposits derived from crystalline rock that is dominantly schist, gneiss, and granite. This map unit is on hillcrests, hilltops, valley sides, and ridges of the mountainous uplands. The slope is dominantly 8 to 15 percent but ranges from 3 to 15 percent. The surface layer is loam, fine sandy loam, or sandy loam and is commonly gravelly. Areas are mostly oblong and 10 to 100 acres. Included with these soils in mapping are small areas of the well-drained Charlton and Paxton soils where the soil mantle is thicker than 5 feet and some areas of soils that are similar to Hollis soils but are 20 to 60 inches deep over rock. A few spots where rock crops out are identified by spot symbols on the soil map. Also included are a few small depressions of very poorly drained Alden soils or organic Palms soils. Some nearly level areas are included. Most areas are either idle or forested. A few are pastured or used for hay. This soil map unit has a hydric soil rating of 0%.

- Rock Outcrop-Hollis Complex, sloping (ROC): This complex of exposed bedrock and the shallow, somewhat excessively drained to well drained Hollis soil is on hill crests, hilltops, and ridges of the mountainous uplands. The Hollis soil formed in a thin mantle of glacial till deposits over schist, gneiss, or granite. This gently sloping to sloping complex has an irregular surface because of the large protruding blocks and ledges of bedrock. Areas of Hollis soil are intermingled with Rock outcrop on benches and the lower part of slopes. The slope ranges from 3 to 15 percent but is dominantly 8 to 15 percent. Areas are wide and oval and commonly 15 to 75 acres. This complex is about 45 percent Rock outcrop, 45 percent Hollis loam, sandy loam, gravelly sandy loam, or gravelly loam, and 10 percent other soils. Areas of Rock outcrop and the Hollis soil occur in such an intricate pattern that they were not mapped separately. The Rock outcrop protrudes as exposed ledges and angular blocks of gneiss, schist, and granite. Included with this complex in mapping are small areas of a very shallow soil and a moderately deep soil that are similar to the Hollis soil but have bedrock at depths of 1 to 10 inches and 20 to 40 inches respectively. Also included where the soil mantle is thicker than 5 feet are some areas of the well-drained Charlton soils and well drained Paxton soils, which have a fragipan. Pockets of Palms muck and a few spots of a poorly drained, very stony mineral soil are identified by spot symbols on the soil map. Most areas of this complex are forested. In some areas the plant cover is sparse because of the high percentage of exposed bedrock. This soil map unit has a hydric soil rating of 0%.

Four of the soils mapped in the Project Site have a hydric soil rating of greater than 0 percent. These soil series are Alden Extremely Stony Soils (AC), Charlton Fine Sandy Loam (ChB), Charlton-Paxton Complex (CLC), and Erie Extremely Stony Soils (ESB). See the table below. This rating indicates the percentage of the soils in a map unit that are likely to be hydric (i.e., wetland soils).

Table 1: Summary of Soils Mapped within Area of Review

Map Unit Symbol	Map Unit Name	Hydric Soil Rating	Depth to Water Table	Natural Drainage Class
AC	Alden Extremely Stony Soils	95	About 0 inches	Very poorly drained
ChB	Charlton Fine Sandy Loam, 3 to 8 percent slopes	1	Greater than 80 inches	Well drained
CLC	Charlton-Paxton Complex, 8 to 15 percent slopes, very rocky	2	Greater than 80 inches	Well drained
ESB	Erie Extremely Stony Soils, gently sloping	5	About 6 to 18 inches	Somewhat poorly drained
HLC	Hollis Soils, sloping	0	Greater than 80 inches	Well drained
ROC	Rock Outcrop-Hollis Complex, sloping	0	Greater than 80 inches	Well drained

2.3 Wetlands and Streams

As shown in Appendix A, Figure 3 "NYSDEC and NWI Wetland & Streams Map," there are three NYSDEC mapped streams located on the Project Site.

- A portion of the stream that flows from the southwest, under Route 6, on the northern boundary of the Site and continues northeast into Queensboro Lake (Wetland A) is mapped and regulated by NYSDEC (Stream ID: 862-17 (Class A/Standard A)).
- The stream that flows from under the Palisades Interstate Parkway and into Wetland A, on the central portion of the Project Site is mapped by the NYSDEC (Stream ID: 862-11 (Class A/Standard A)).
- The NYSDEC maps a third stream (Stream ID: 862-12 (Class A/Standard A(T))), in the southwestern portion of the Study Area. This steam was observed outside and north of the Study Area, connecting to the Class A stream 862-17 prior to the Class A stream 862-17 entering the Study Area. Therefore, the third stream (862-12) was not delineated within the Study Area.

All of the streams within the Study Area are regulated by the NYSDEC as Protected Streams due to their classification of being Class A streams and/or trout (T) water and area within the designated drainage basin of the Lower Hudson River (6 NYCRR 862).

There are multiple National Wetland Inventory (NWI[3]) mapped aquatic resources within the Study Area. The NWI mapping illustrates a perennial riverine (R3UBH) resource that flows from the southwest, under Route 6, on the northern boundary of the Study Area and continues northeast into Queensboro Lake (Wetland A); a freshwater lake (L1UBHh) (Queensboro Lake) on the southeastern portion of the Study Area; and one freshwater emergent wetland (PEM1Fh) on the central portion of the Study Area. The NWI mapping is not a regulatory map but rather a tool for identifying the location of the potential wetlands in the field.

3.0 ECOLOGICAL COMMUNITIES

A list of the plant species identified during the wetland delineation work is provided in Appendix D. Following are descriptions of the plant communities found in the Site, as defined according to the ecological community classification system used by the New York Natural Heritage Program (Edinger et al. 2014). Photographs of these resources are found in Appendix E.

- Eutrophic Dimictic Lake: This community is defined as an aquatic community of a nutrient-rich lake that occurs in a broad, shallow basin. These lakes are dimictic: they have two periods of mixing or turnover (spring and fall), they are thermally stratified in the summer (warmest water at the surface), and they freeze over and become inversely stratified in the winter (coldest water at the surface). Characteristic features of a eutrophic lake include the following: yellow, green, or brownish-green water that is murky, with low transparency, water rich in plant nutrients, high primary productivity, lake sediments that are rich in organic matter, and water that is well-oxygenated above the summer thermocline, but oxygen-depleted below the summer thermocline or under ice. Characteristic fishes are warmwater fishes such as yellow perch (*Perca flavescens*), largemouth bass (*Micropterus salmoides*), chain pickerel (*Esox niger*), bluegill (*Lepomis*

[3] USFWS. 2020. National Wetlands Inventory surface waters and wetlands. https://www.fws.gov/wetlands/data/mapper.html. Reviewed August 10, 2021.

macrochirus), pumpkinseed (*Lepomis gibbosus*), yellow bullhead (*Ameiurus natalis*), brown bullhead (*Ameiurus nebulosus*), white sucker (*Catostomus commersoni*), golden shiner (*Notemigonus crysoleucas*), common shiner (*Luxilus cornutus*), and northern redbelly dace (*Phoxinus eos*). Characteristic plants include tapegrass or wild celery (*Vallisneria americana*), pondweeds (*Potamogeton* sp.), bur-reeds (*Sparganium* sp.), and the floating aquatic plants white water-lily (*Nymphaea odorata*), common yellow pond-lily (*Nuphar variegata*), and water-shield (*Brasenia schreberi*). This community is observed in Wetland A (Queensboro Lake) (see Photo 1, Appendix E).

- Confined River: This community is defined as an aquatic community of relatively large, fast flowing sections of streams with a moderate to gentle gradient. Although these rivers can have a well-defined pattern of alternating pools, riffles, and runs, riffles tend to predominate. Confined rivers usually have poorly defined meanders and are most typical of the midreaches of stream systems. These rivers are typically of moderate depth, width, and have low flow discharge. They usually represent a network of 3rd to 4th order stream segments. Most of the erosion is lateral, creating braids, channel islands, and bars, and deposition is moderate with a mix of coarse rocky to sandy substrate. Waterfalls are typically present; these are treated as features of the more broadly defined community. Perennial Stream 1 mapped on the Site is of this community. See Appendix E, Photos 7-9.

- Unconfined River: This community id defined as an aquatic community of large, quiet, base level sections of streams with a very low gradient. These rivers are typically dominated by runs with interspersed pool sections and a few short or no distinct riffles. Unconfined rivers usually have clearly distinguished meanders (*i.e.,* high sinuosity) and well developed natural levees, are in unconfined valleys and are most typical of the lowest reaches of stream systems. These rivers are typically deep, wide, have a high low flow discharge, and usually represent a network of 5th to 6th and up to 7th order stream segments. They are characterized by considerable deposition, predominated by fine substrates such as silt, with a relatively minor amount of erosion. Waterfalls may be present; these are treated here as features of the more broadly defined community. The predominant source of food energy to the river biota is generated in the river. These rivers are usually warm water, may have high turbidity and be somewhat poorly oxygenated. They are typically surrounded by floodplain forest or eroded sand or clay banks or fine sediment bars. Perennial Stream 1 mapped on the Site is of this community. See Appendix E, Photos 2, 3, and 10.

- Shallow Emergent Marsh: This community occurs on mineral or muck soils that are permanently saturated and seasonally flooded. In shallow emergent marsh areas, water depths typically range from 6 inches to 3 feet during spring or high water conditions, but the water may be lower in mid to late-summer, and the soil surface may be exposed during average years. This is a broadly defined community and typical plants observed on Site during the field investigation included sensitive fern (*Onoclea sensibilis*), spotted touch-me-not (*Impatiens capensis*), northern spicebush (*Lindera benzoin*), cinnamon fern (*Osmundastrum cinnamoneum*), and broom-like sedge (*Carex bromoides*). This community is observed in Wetlands A and B (see Photos 2 and 5, Appendix E).

- Beech-Maple Mesic Forest: This community is defined as northern hardwood forest with sugar maple (*Acer saccharum*) and American beech (*Fagus grandifolia*) co-dominant. This is a broadly defined community type with several regional and edaphic variants. These forests occur on moist,

well-drained, usually acid soils. Common associates are yellow birch (*Betula alleghaniensis*), white ash (*Fraxinus americana*), hop hornbeam (*Ostrya virginiana*), and red maple. Characteristic small trees or tall shrubs are hobblebush (*Viburnum lantanoides*), American hornbeam, striped maple (*Acer pensylvanicum*), witch hazel (*Hamamelis virginiana*), and alternate-leaved dogwood (*Cornus alternifolia*). Typically, there is also an abundance of tree seedlings, especially of sugar maple; American beech and sugar maple saplings are often the most abundant "shrubs" and small trees. Eastern hemlock may be present at a low density. This community is found within the forested areas of the Site (see Photos 4, 6, and 11, Appendix E).

It should be noted that based on NYSDEC resources, the Chestnut Oak Forest natural significant community is potentially located in the general vicinity of the Study Area, however this community was not observed in the specific Study Area.

4.0 AQUATIC RESOURCE DELINEATION

The identification of wetlands and delineation of their boundaries was carried out according to the methods in the Corps of Engineers Delineation Manual (Environmental Laboratory, 1987) and the regional supplement to that manual (USACOE, 2012). On August 4 and 5, 2021 Chazen environmental scientists delineated the boundaries of aquatic resources including wetlands on the Site. Flags were used to mark the location of the upland and wetland boundaries. An Aquatic Resources Survey Map, showing the delineated aquatic resources in the Study Area, is presented in Appendix B.

Points on the aquatic resource boundaries were marked using pieces of vinyl flagging tape tied to trees and shrubs, each of which was given an ID number consisting of a letter identifying the line plus a sequential number. During the field work, photographs of the upland and wetland boundary and other general site conditions were taken as provided in Appendix E. Data points were taken on the wetland and upland side of each boundary line, with the location specified by the wetland flag number. This data included details of vegetative strata, hydrology, and soils, which is provided on the datasheets in Appendix F.

5.0 DESCRIPTION OF WETLANDS AND STREAMS

Following is a brief description of the wetlands delineated within the Site as of August 2021. The Study Area is ±10 acres, with a centroid at 41°18'25.0"N and -74°01'50.90"W. Table 2 lists the wetlands identified within the Study Area, their centroid coordinates (WGS84 datum), Cowardin Class, and likely regulatory status.

Wetland A and Wetland AA (Queensboro Lake) is a palustrine emergent/palustrine unconsolidated bottom (PEM/PUB) wetland located on the northeastern portion of the Study Area. Vegetation is dominated by white water lily (*Nymphaea odorata*) and common reed grass (*Phragmites australis*) with lesser amounts of sensitive fern (*Onoclea sensibilis*), pickerelweed (*Pontederia cordata*), sweet pepperbush (*Clethra alnifolia*), and spotted touch-me-not (*Impatiens capensis*) (see Photos 1, 2, and 10, Appendix E). Wetland A receives flow from both perennial stream 1 (P-STR-1) and perennial stream 2 (P-STR-2).

Wetland B is located on the north-central portion of the Study Area and is a palustrine emergent (PEM) wetland. Vegetation dominance includes hop sedge (*Carex lupulina*) with lesser amounts of blunt broom

sedge (*Carex tribuloides*), fowl mana grass (*Glyceria striata*), and fringed sedge (*Carex crinita*) (see Photo 5, Appendix E). Wetland B is a small depressional wetland and appears to potentially connect to Perennial Stream 1.

Perennial Stream 1 (P-STR-1) flows from the southwest, under Route 6, on the northern boundary of the Study Area and continues northeast into Queensboro Lake. The channel width ranges from approximately 5-15 feet with a channel depth ranging from approximately 6 inches to 3 feet. There was strong flowing water of approximately 6 inches to 2 feet at the time of observation. Substrate consists of silt, gravel, and cobble (see Photos 7-9, Appendix E). This stream is regulated by the NYSDEC as a Class A stream.

Perennial Stream 2 (P-STR-2) flows north in the central portion of the Study Area, from under the Palisades Interstate Parkway into Wetland A/AA (Queensboro Lake). The channel width is approximately 5-12 feet and the channel depth is approximately 1-2 feet. There was moderate flowing water of approximately 6-10 inches at the time of observation. Substrate consists of silt and gravel (see Photo 10, Appendix E). This stream is regulated by the NYSDEC due to it being a Class A stream.

Table 2: Aquatic Resources On-Site in Project Limits

Wetland or Stream	On-site area (ac)* or length (lf)*	Centroid (on the Site)		Cowardin Class	Stream Type	Regulated By
		Latitude	Longitude			
Wetland A	1.3 ac	41° 18' 32" N	-74° 01' 37" W	PEM/PUB	N/A	ACOE
Wetland AA	2.4	41° 18' 262" N	-74° 01' 48" W	PEM/PUB	N/A	ACOE
Wetland B	0.03 ac	41° 18' 25" N	-74° 01' 55" W	PEM	N/A	ACOE
Perennial Stream 1 (P-STR-1) (Flags 1-1 through 1-20)	1,155 lf	41° 18' 21" N	-74° 02' 04" W	R3UBH	Perennial	ACOE/NYS DEC (Class A/Standard A(T))
Perennial Stream 2 (P-STR-2)**	20 lf	41° 18' 27" N	-74° 01' 48" W	R3UBH	Perennial	ACOE/NYS DEC (Class A/Standard A)

* The wetland and stream areas are open ended and so area here reflects the shaded area on the delineation map.

** Perennial Stream 2 is mapped within flooded wetland AA, and so was not flagged in the field, but is included in this table.

6.0 JURISDICTION OVER WETLANDS AND STREAMS ON THE PROJECT SITE

The following identifies the jurisdiction over wetlands by the federal, state, and local government.

New York State Department of Environmental Conservation (NYSDEC): There are three NYSDEC streams mapped in the Study Area.

- P-STR-1 is a perennial stream that flows from the southwest, under Route 6, on the northern boundary of the Site and continues northeast into Queensboro Lake (Wetland A) and is mapped and regulated by NYSDEC (Stream ID: 862-17 (Class A/Standard A)).

- P-STR-2 is a perennial stream that flows from under the Palisades Interstate Parkway and into Wetland A, in the central portion of the Study Area and is mapped by the NYSDEC (Stream ID: 862-11 (Class A/Standard A)).

- The NYSDEC maps a third stream (Stream ID: 862-12 (Class A/Standard A(T))) in the western portion of the Project Site. This steam was observed outside of the Study Area.

The two delineated streams on-site are regulated by the NYSDEC as Protected Streams If disturbance to the "bed and banks" of any of these NYSDEC regulated streams are anticipated, a stream disturbance permit (Article 15) would be required. If federal permitting is anticipated this would trigger the need for a NYSDEC Section 401 Water Quality Certificate.

US Army Corps of Engineers (ACOE): Under Section 404 of the Clean Water Act, the ACOE regulates (i.e., "Waters of the United States" or WOTUS). Under Section 404 of the Clean Water Act, the ACOE regulates the discharge of dredge or fill material into waters and wetlands. The ACOE would also regulate work or structures placed in the Hudson River under Section 10 of the Rivers and Harbors Act. Nationwide permits are available for impacts less than 0.5 acre with compensatory mitigation required for impacts greater than 0.1 acre. An individual permit is required for impacts greater than 0.5 acre.

Within the Study Area, the ACOE would likely find Perennial Streams 1 and 2 and Wetlands A and B jurisdictional as these features are tributaries to interstate navigable waters and the wetlands are adjacent to these tributaries. Table 2 above summarizes likely federal jurisdiction for these aquatic resources.

New York State Department of State Coastal Management Program (NYSDOS CMP): The project does not fall within the New York State Coastal Zone and no LWRP is in place.

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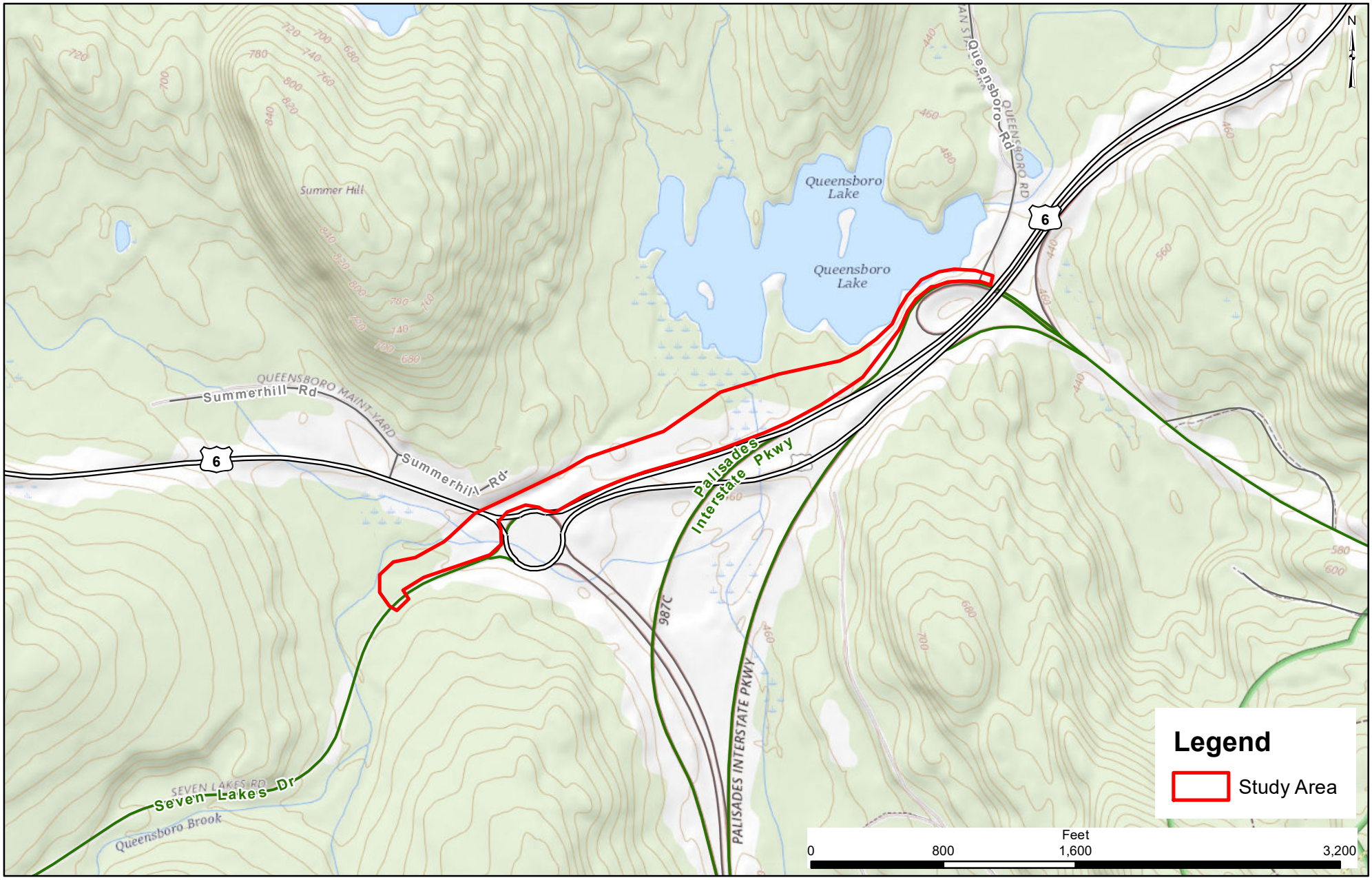
Appendix A: Figures



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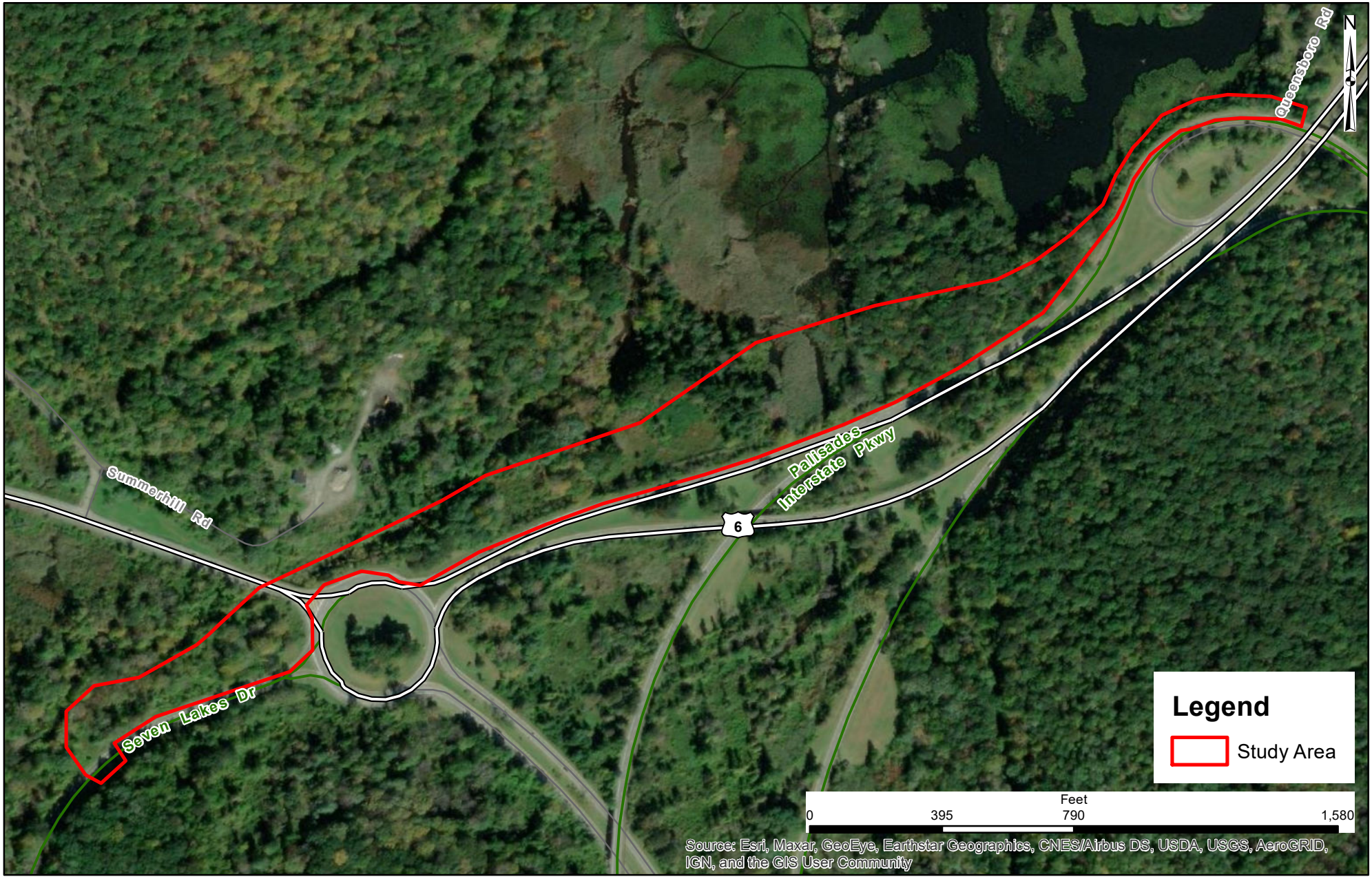
NYS OPRHP Bikeway Connection

Figure 1: USGS Topographic Map

Palisades Interstate Parkway, Town of Highlands, Orange County, NY

Drawn:	AKP
Date:	08/11/2021
Scale:	1 inch equals 800 feet
Project:	31907.46
Figure:	1

Document Path: Z:\projects\31900-31999\31907.xx_Parks D005476\31907.46 PIPC Bikeway Connection Feas Study_PAL-006\GIS\ECOWL Fieldwork\2021_08_11_Figure 1 USGS Topo Map.mxd



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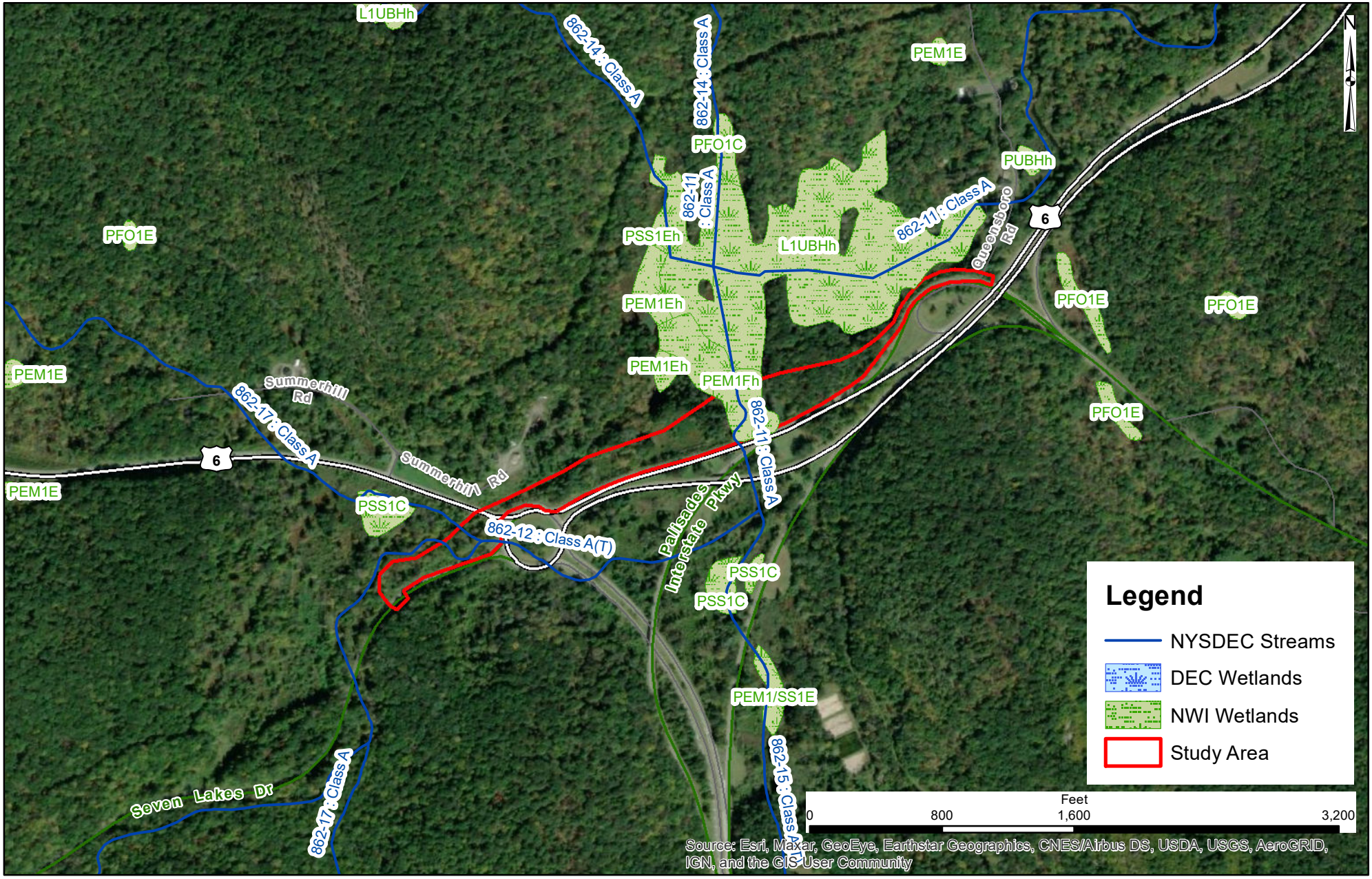
NYS OPRHP Bikeway Connection

Figure 2: Aerial Map

Palisades Interstate Parkway, Town of Highlands, Orange County, NY

Drawn:	AKP
Date:	08/11/2021
Scale:	1 inch equals 396 feet
Project:	31907.46
Figure:	2

Document Path: Z:\projects\31900-31999\31907.xx_Parks D005476\31907.46 PIPC Bikeway Connection Feas Study_PAL-006\GIS\ECOWL Fieldwork\2021_08_11_Figure 2 Aerial Map.mxd



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NYS OPRHP Bikeway Connection

Figure 3: NYSDEC and NWI Wetlands and Streams

Palisades Interstate Parkway, Town of Highlands, Orange County, NY

Drawn:	AKP
Date:	08/11/2021
Scale:	1 inch equals 800 feet
Project:	31907.46
Figure:	3

Document Path: Z:\projects\31900-31999\31907.xx_Parks D005476\31907.46 PIPC Bikeway Connection Feas Study_PAL-006\GIS\ECOWL Fieldwork\2021_08_11_Figure 3 NYSDEC and NWI Wetlands and Streams.mxd

Appendix B:
Delineated Wetland Survey Map

LEGEND:

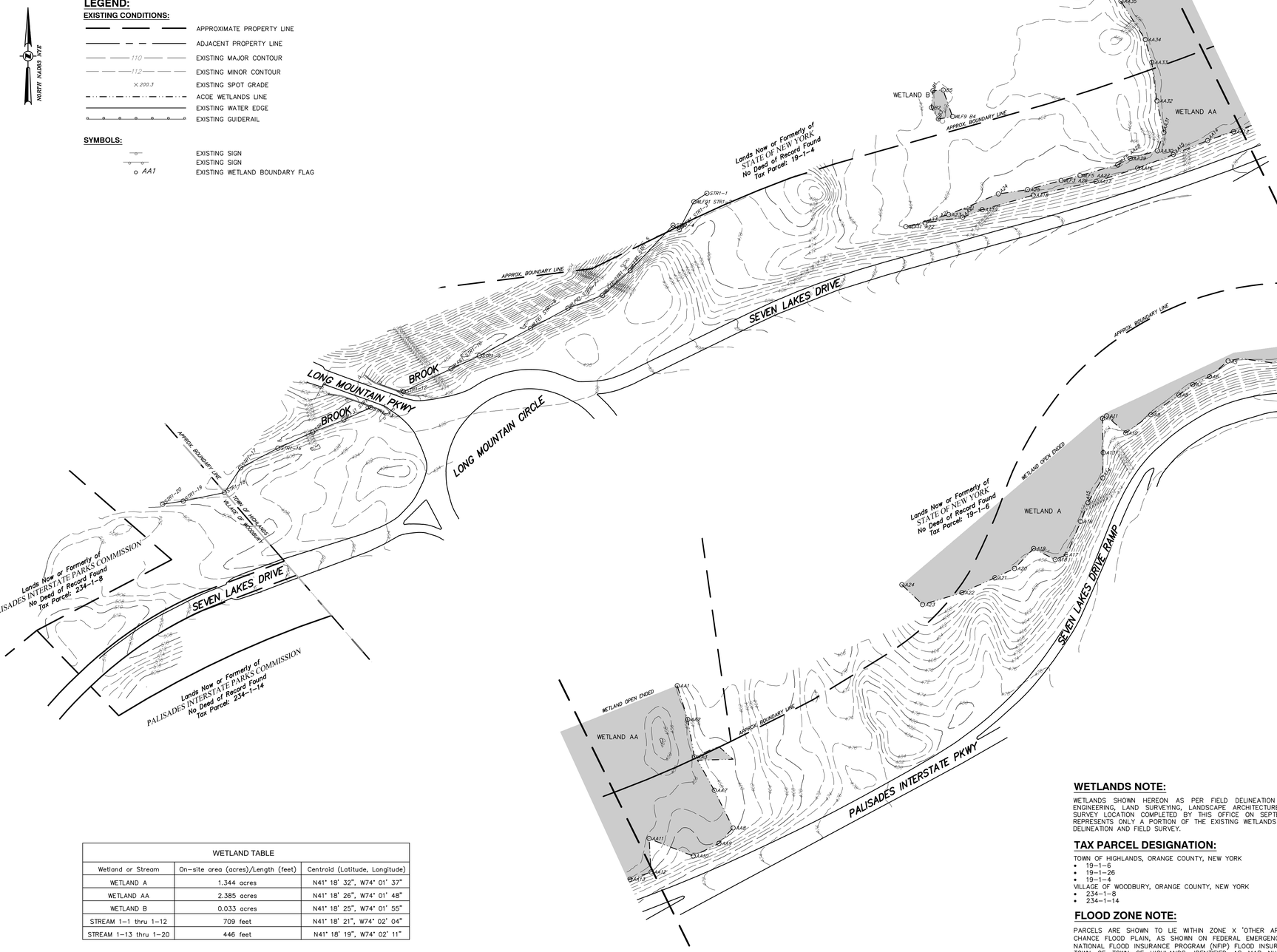
EXISTING CONDITIONS:

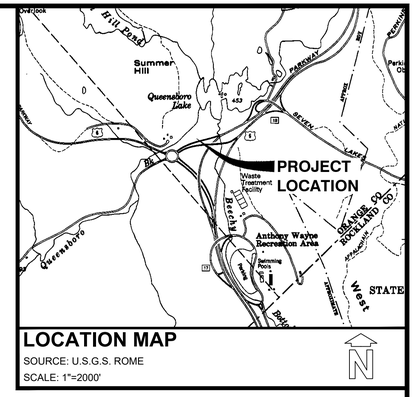
- APPROXIMATE PROPERTY LINE
- ADJACENT PROPERTY LINE
- 110 — EXISTING MAJOR CONTOUR
- 112 — EXISTING MINOR CONTOUR
- ×200.3 — EXISTING SPOT GRADE
- ACOE WETLANDS LINE
- EXISTING WATER EDGE
- EXISTING GUIDERAIL

SYMBOLS:

- EXISTING SIGN
- EXISTING SIGN
- AA1 — EXISTING WETLAND BOUNDARY FLAG

NORTH MAGNETIC NYS





LOCATION MAP

SOURCE: U.S.G.S. ROME

SCALE: 1"=2000'

N

WETLAND TABLE		
Wetland or Stream	On-site area (acres)/Length (feet)	Centroid (Latitude, Longitude)
WETLAND A	1.344 acres	N41° 18' 32", W74° 01' 37"
WETLAND AA	2.385 acres	N41° 18' 26", W74° 01' 48"
WETLAND B	0.033 acres	N41° 18' 25", W74° 01' 55"
STREAM 1-1 thru 1-12	709 feet	N41° 18' 21", W74° 02' 04"
STREAM 1-13 thru 1-20	446 feet	N41° 18' 19", W74° 02' 11"

WETLANDS NOTE:

WETLANDS SHOWN HEREON AS PER FIELD DELINEATION AUGUST 4, 2021 BY CHAZEN ENGINEERING, LAND SURVEYING, LANDSCAPE ARCHITECTURE & GEOLOGY CO., D.P.C., AND SURVEY LOCATION COMPLETED BY THIS OFFICE ON SEPTEMBER 13, 2021. THIS LOCATION REPRESENTS ONLY A PORTION OF THE EXISTING WETLANDS AND IS SUBJECT TO ADDITIONAL DELINEATION AND FIELD SURVEY.

TAX PARCEL DESIGNATION:

TOWN OF HIGHLANDS, ORANGE COUNTY, NEW YORK
- 19-1-6
- 19-1-26
- 19-1-4

VILLAGE OF WOODBURY, ORANGE COUNTY, NEW YORK
- 234-1-8
- 234-1-14

FLOOD ZONE NOTE:

PARCELS ARE SHOWN TO LIE WITHIN ZONE X 'OTHER AREAS', AREAS OUTSIDE THE 0.2% CHANCE FLOOD PLAIN, AS SHOWN ON FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), NATIONAL FLOOD INSURANCE PROGRAM (NFIP) FLOOD INSURANCE RATE MAP (FIRM) FOR THE TOWN OF TOWN OF HIGHLANDS, IDENTIFIED AS MAP NUMBER 36071C0520E BEARING AN EFFECTIVE DATE OF AUGUST 3, 2009.

THIS INTERPRETATION OF THE BASE FLOOD ELEVATION SHOULD NOT BE RELIED UPON FOR DESIGN PURPOSES WITHOUT OBTAINING CONFIRMATION FROM THE LOCAL FLOOD ADMINISTRATOR

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VERTICAL CONTROL IS BASED UPON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) UTILIZING GNSS OBSERVATIONS ON THE NYSDOT RTN NETWORK, NAVD88, GEOID 18 AT THE TIME OF FIELD SURVEY SEPTEMBER 13, 2021.

HORIZONTAL DATUM AND NORTH ORIENTATION ARE BASED ON THE NYS PLANE COORDINATE SYSTEM (NAD83-NY EAST ZONE) UTILIZING GNSS OBSERVATIONS ON THE NYSDOT RTN NETWORK, NAVD88, GEOID 18 AT THE TIME OF FIELD SURVEY SEPTEMBER 13, 2021.

THE CONTRACTOR SHALL COMPLY WITH NEW YORK STATE INDUSTRIAL CODE RULE 753 – 48 HOURS PRIOR TO DIGGING CALL DIGSAFELY NEW YORK 1-800-962-7962 TO HAVE PUBLIC UTILITY LOCATIONS PAINTED.

100 0 100
SCALE IN FEET
1"=100'

0 1 2 3
ORIGINAL SCALE IN INCHES

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I HEREBY CERTIFY THAT THIS SURVEY MAP IS BASED ON AN ACTUAL FIELD SURVEY COMPLETED SEPTEMBER 13, 2021 AND THAT THIS SURVEY MAP WAS MADE BY ME OR UNDER MY DIRECTION, AND CONFORMS WITH THE MINIMUM STANDARD OF PRACTICE ADOPTED BY THE NEW YORK STATE ASSOCIATION OF PROFESSIONAL LAND SURVEYORS.

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rev.	date	description

PALISADES INTERSTATE PARKWAY - BEAR MOUNTAIN STATE PARK

AQUATIC RESOURCES PREPARED FOR NYSOPRHP

TOWN OF HIGHLANDS, ORANGE COUNTY, NEW YORK

designed	checked
MTH	BB
date	scale
10/01/21	1"=100'
project no.	
31907.46	
sheet no.	
SV-A	

Drawing Name: Z:\projects\31900-31999\31907_xx_Parks D005476\31907.46 PIPC Bikeway Connection Feas Study_PAL-006\DWG\ZZ_31907-46_WETLAND_OPRHP.dwg
Xref's Attached: XBASE-SVY_31907-46; XTB_31907-46
Date Printed: Oct 27, 2021, 3:23pm

Appendix C:
Soils

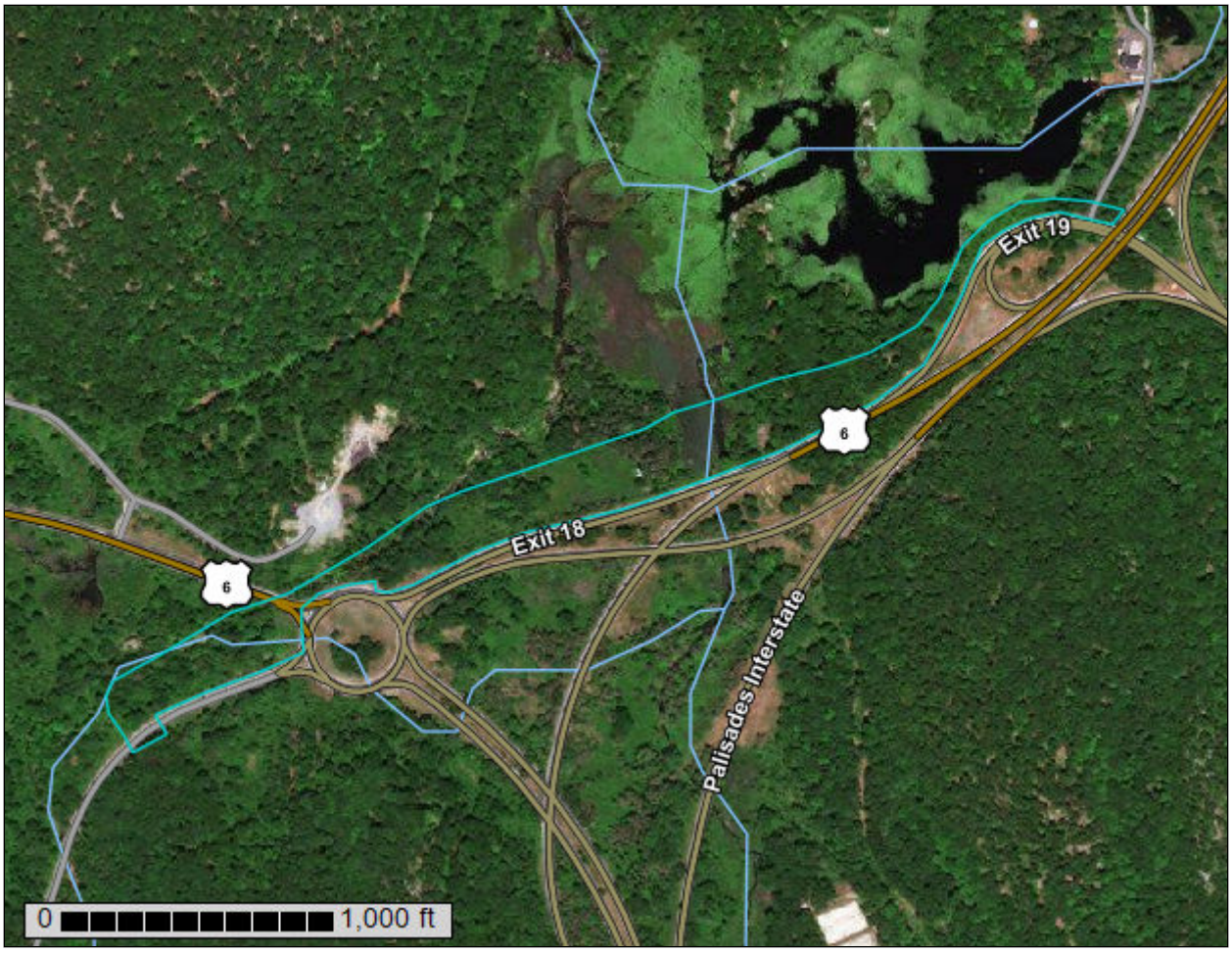
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Orange County, New York



August 10, 2021

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

Preface.....2
How Soil Surveys Are Made.....5
Soil Map.....8
Soil Map.....9
Legend.....10
Map Unit Legend.....11
Map Unit Descriptions.....11
Orange County, New York.....13
AC—Alden extremely stony soils.....13
ChB—Charlton fine sandy loam, 3 to 8 percent slopes.....14
CLC—Charlton-Paxton complex, 8 to 15 percent slopes, very rocky.....16
ESB—Erie extremely stony soils, gently sloping.....18
HLC—Hollis soils, sloping.....19
ROC—Rock outcrop-Hollis complex, sloping.....21
W—Water.....22
References.....23

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:6,250 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Orange County, New York
Survey Area Data: Version 21, Jun 11, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 7, 2013—Feb 26, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AC	Alden extremely stony soils	1.6	9.5%
ChB	Charlton fine sandy loam, 3 to 8 percent slopes	6.5	37.7%
CLC	Charlton-Paxton complex, 8 to 15 percent slopes, very rocky	2.2	12.8%
ESB	Erie extremely stony soils, gently sloping	0.8	4.9%
HLC	Hollis soils, sloping	1.5	8.5%
ROC	Rock outcrop-Hollis complex, sloping	4.6	26.4%
W	Water	0.0	0.3%
Totals for Area of Interest		**17.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it

was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Orange County, New York

AC—Alden extremely stony soils

Map Unit Setting

National map unit symbol: 9vtd
Elevation: 130 to 1,480 feet
Mean annual precipitation: 42 to 52 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 135 to 215 days
Farmland classification: Not prime farmland

Map Unit Composition

Alden, extremely stony, and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Alden, Extremely Stony

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: A silty mantle of local deposition overlying loamy till

Typical profile

H1 - 0 to 9 inches: silt loam
H2 - 9 to 36 inches: silt loam
H3 - 36 to 60 inches: gravelly fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 1 percent
Available water capacity: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C/D
Ecological site: F144AY040NY - Semi-Rich Very Wet Till Depressions
Hydric soil rating: Yes

Minor Components

Lyons

Percent of map unit: 5 percent

Landform: Depressions
Hydric soil rating: Yes

Palms

Percent of map unit: 5 percent
Landform: Swamps, marshes
Hydric soil rating: Yes

Canandaigua

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Erie

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: No

Wayland

Percent of map unit: 5 percent
Landform: Flood plains
Hydric soil rating: Yes

ChB—Charlton fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2wh0n
Elevation: 0 to 1,440 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Charlton and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Charlton

Setting

Landform: Ground moraines, ridges, hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Side slope, crest, nose slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Ap - 0 to 7 inches: fine sandy loam
Bw - 7 to 22 inches: gravelly fine sandy loam

C - 22 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Minor Components

Sutton

Percent of map unit: 8 percent
Landform: Ground moraines, hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Paxton

Percent of map unit: 5 percent
Landform: Drumlins, hills, ground moraines
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: No

Leicester

Percent of map unit: 1 percent
Landform: Drainageways, depressions
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

Chatfield

Percent of map unit: 1 percent
Landform: Hills, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

CLC—Charlton-Paxton complex, 8 to 15 percent slopes, very rocky

Map Unit Setting

National map unit symbol: 2w6b4
Elevation: 130 to 1,290 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Charlton, extremely stony, and similar soils: 55 percent
Paxton, extremely stony, and similar soils: 30 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Charlton, Extremely Stony

Setting

Landform: Hills, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Parent material: Coarse-loamy melt-out till derived from granite, gneiss, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 4 inches: fine sandy loam
Bw - 4 to 27 inches: gravelly fine sandy loam
C - 27 to 65 inches: gravelly fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: B
Ecological site: F144AY034CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Paxton, Extremely Stony

Setting

Landform: Drumlins, hills, ground moraines
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear, convex
Across-slope shape: Convex, linear
Parent material: Coarse-loamy lodgment till derived from gneiss, granite, and/or schist

Typical profile

Oe - 0 to 2 inches: moderately decomposed plant material
A - 2 to 10 inches: fine sandy loam
Bw1 - 10 to 17 inches: fine sandy loam
Bw2 - 17 to 28 inches: fine sandy loam
Cd - 28 to 67 inches: gravelly fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 20 to 43 inches to densic material
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 18 to 37 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: F144AY007CT - Well Drained Dense Till Uplands
Hydric soil rating: No

Minor Components

Hollis, extremely stony

Percent of map unit: 5 percent
Landform: Hills, ridges
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Crest, side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Rock outcrop

Percent of map unit: 5 percent
Landform: Ridges, hills

Hydric soil rating: No

Ridgebury, somewhat poorly drained, extremely stony

Percent of map unit: 3 percent
Landform: Drumlins, drainageways, hills, ground moraines, depressions
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope, head slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Alden, extremely stony

Percent of map unit: 2 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

ESB—Erie extremely stony soils, gently sloping

Map Unit Setting

National map unit symbol: 9vvb
Elevation: 180 to 1,460 feet
Mean annual precipitation: 42 to 52 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 135 to 215 days
Farmland classification: Not prime farmland

Map Unit Composition

Erie, extremely stony, and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Erie, Extremely Stony

Setting

Landform: Drumlinoid ridges, hills, till plains
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy till derived from siltstone, sandstone, shale, and limestone

Typical profile

H1 - 0 to 4 inches: gravelly silt loam
H2 - 4 to 18 inches: channery silt loam
H3 - 18 to 50 inches: channery silt loam
H4 - 50 to 70 inches: channery silt loam

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: 10 to 21 inches to fragipan
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water capacity: Very low (about 2.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F144AY037MA - Moist Dense Till Uplands
Hydric soil rating: No

Minor Components

Mardin

Percent of map unit: 5 percent
Hydric soil rating: No

Alden

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Wurtsboro

Percent of map unit: 5 percent
Hydric soil rating: No

Bath

Percent of map unit: 5 percent
Hydric soil rating: No

HLC—Hollis soils, sloping

Map Unit Setting

National map unit symbol: 9vvh
Elevation: 30 to 1,440 feet
Mean annual precipitation: 42 to 52 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 135 to 215 days
Farmland classification: Not prime farmland

Map Unit Composition

Hollis and similar soils: 80 percent

Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hollis

Setting

Landform: Hills, ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: A thin mantle of loamy till derived mainly from schist, granite, and gneiss

Typical profile

Oa - 0 to 3 inches: highly decomposed plant material
H1 - 3 to 8 inches: gravelly loam
H2 - 8 to 18 inches: gravelly loam
H3 - 18 to 22 inches: unweathered bedrock

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: F144AY033MA - Shallow Dry Till Uplands
Hydric soil rating: No

Minor Components

Paxton

Percent of map unit: 5 percent
Hydric soil rating: No

Rock outcrop

Percent of map unit: 5 percent
Hydric soil rating: Unranked

Charlton

Percent of map unit: 5 percent
Hydric soil rating: No

Unnamed soils

Percent of map unit: 5 percent
Hydric soil rating: No

ROC—Rock outcrop-Hollis complex, sloping

Map Unit Setting

National map unit symbol: 9vws
Elevation: 0 to 1,490 feet
Mean annual precipitation: 42 to 52 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 135 to 215 days
Farmland classification: Not prime farmland

Map Unit Composition

Rock outcrop: 50 percent
Hollis and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rock Outcrop

Typical profile

H1 - 0 to 60 inches: unweathered bedrock

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydric soil rating: Unranked

Description of Hollis

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: A thin mantle of loamy till derived mainly from schist, granite, and gneiss

Typical profile

Oa - 0 to 3 inches: highly decomposed plant material
H1 - 3 to 8 inches: gravelly loam
H2 - 8 to 14 inches: gravelly loam
H3 - 14 to 22 inches: unweathered bedrock

Properties and qualities

Slope: 8 to 15 percent

Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F144AY033MA - Shallow Dry Till Uplands
Hydric soil rating: No

Minor Components

Paxton

Percent of map unit: 5 percent
Hydric soil rating: No

Charlton

Percent of map unit: 5 percent
Hydric soil rating: No

W—Water

Map Unit Setting

National map unit symbol: 9vxh
Mean annual precipitation: 42 to 52 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 135 to 215 days
Farmland classification: Not prime farmland

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

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Appendix D:
Plant Table

Table 1. Plants Identified Growing on the Project Site

Scientific Name*	Common Name	Wetland indicator†
Trees		
Acer rubrum	Red Maple	FAC
Acer saccharum	Sugar Maple	FACU
Betula alleghaniensis	Yellow Birch	FAC
Betula populifolia	Gray Birch	FAC
Carpinus caroliniana	American Hornbeam	FAC
Carya ovata	Shag-Bark Hickory	FACU
Fagus grandifolia	American Beech	FACU
Fraxinus americana	White Ash	FACU
Fraxinus pennsylvanica	Green Ash	FACW
Liriodendron tulipifera	Tuliptree	FACU
Nyssa sylvatica	Black Gum	FAC
Pinus strobus	Eastern White Pine	FACU
Populus deltoides	Eastern Cottonwood	FAC
Prunus serotina	Black Cherry	FACU
Quercus alba	Northern White Oak	FACU
Quercus palustris	Pin Oak	FACW
Quercus rubra	Northern Red Oak	FACU
Tsuga canadensis	Eastern Hemlock	FACU
Tilia americana	American Basswood	FACU
Shrubs		
Berberis thunbergii	Japanese Barberry	FACU
Carpinus caroliniana	American Hornbeam	FAC
Clethra alnifolia	Sweet Pepperbush	FAC
Cornus amomum	Silky Dogwood	FACW
Cornus racemose	Gray dogwood	FAC
Hamamelis virginiana	American Witch-Hazel	FACU
Lindera benzoin	Northern Spicebush	FACW
Lonicera morrowii	Morrow's Honeysuckle	FACU
Lyonia ligustrina	Maleberry	FACW
Ostrya virginiana	Eastern Hop-Hornbeam	FACU
Rosa multiflora	Rambler Rose	FACU
Tilia americana	American Basswood	FACU
Woody Vines		
Celastrus orbiculatus	Oriental Bittersweet	UPL
Parthenocissus quinquefolia	Virginia-Creeper	FACU
Toxicodendron radicans	Eastern Poison Ivy	FAC
Vitis riparia	River-Bank Grape	FAC

Scientific Name*	Common Name	Wetland indicator†
Herbaceous Plants		
Alliaria petiolata	Garlic-Mustard	FACU
Apios americana	Groundnut	FACW
Carex comosa	Bearded Sedge	OBL
Carex crinita	Fringed Sedge	OBL
Carex intumescens	Greater Bladder Sedge	FACW
Carex lupulina	Hop Sedge	OBL
Celastrus orbiculatus	Oriental Bittersweet	UPL
Celastrus scandens	American Bittersweet	FACU
Cinna arundinacea	Sweet Wood-Reed	FACW
Cirsium arvense	Canadian Thistle	FACU
Comptonia peregrina	Sweet Fern	NL
Dryopteris carthusiana	Spinulose Wood Fern	FACW
Equisetum arvense	Field Horsetail	FAC
Fragaria virginiana	Common Wild Strawberry	FACU
Galium mollugo	White Bedstraw	FACU
Geum canadense	White Avens	FAC
Glyceria striata	Fowl Manna Grass	OBL
Impatiens capensis	Spotted Touch-me-not	FACW
Lobelia cardinalis	Cardinal Flower	OBL
Lythrum salicaria	Purple Loosestrife	OBL
Microstegium vimineum	Japanese Stilt Grass	FAC
Nymphaea odorata	American White Water-Lily	OBL
Onoclea sensibilis	Sensitive Fern	FACW
Osmunda spectabilis	Royal Fern	OBL
Osmundastrum cinnamomeum	Cinnamon Fern	FACW
Parathelypteris noveboracensis	New York Fern	FAC
Persicaria arifolia	Halberd-Leaf Tearthumb	OBL
Persicaria pensylvanica	Pennsylvania Smartweed	FACW
Persicaria sagittata	Arrow-Leaf Tearthumb	OBL
Phragmites australis	Common Reed	FACW
Plantago lanceolata	English Plantain	FACU
Pontederia cordata	Pickerelweed	OBL
Rubus allegheniensis	Common Blackberry	FACU
Rubus flagellaris	Northern Dewberry	FACU
Smilax rotundifolia	Common Greenbrier	FAC
Solidago canadensis	Canadian Goldenrod	FACU
Toxicodendron radicans	Eastern Poison Ivy	FAC
Typha angustifolia	Narrow-leaf Cattail	OBL
Urtica dioica	Stinging Nettle	FAC

*Scientific names, common names, and wetland indicators are obtained from the National Wetland Plant List (US Army Corps of Engineers, 2016). For plants not on the list (i.e. having an "NL" wetland indicator), scientific and common names are taken from Weldy et al. (2018).

†The Wetland Indicator refers to the affinity of the plant for wetland environments:
Obligate Wetland (OBL) = Almost always occur in wetlands
Facultative Wetland (FACW) = Usually occur in wetlands, but may occur in non-wetlands
Facultative (FAC) = Occur in wetlands or non-wetlands
Facultative Upland (FACU) = Usually occur in non-wetlands, but may occur in wetlands
Obligate Upland (UPL) = Almost never occur in wetlands
Plants not on the list (NL) are considered to be the same as UPL for delineation purposes.

Appendix E:
Photographs of the Project Site

Photo #1
Description: View facing north which characterizes the southeastern portion of Wetland A, located on the northeastern portion of the Site.

Photo #2
Description: View facing northwest which characterizes the southwestern portion of Wetland A, located on the northeastern portion of the Site.

Photo #3
Description: View facing southwest of the existing concrete culvert at its inlet to Wetland A from under Palisades Interstate Parkway.

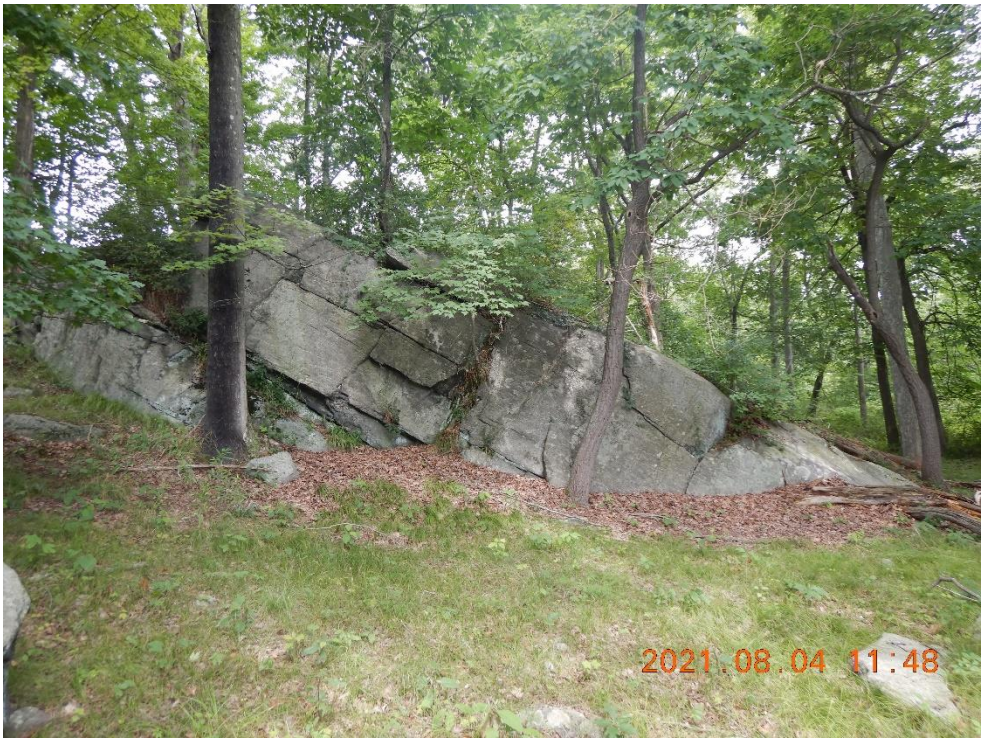

Photo #4
Description: View facing north showing the rock outcroppings in the upland area southeast of Wetland A.

Photo #5
Description: View facing south which characterizes Wetland B, located on the north-central portion of the Site.

Photo #6
Description: View facing south which characterizes the upland area west of Wetland B, located on the north-central portion of the Site.

Photo #7
Description: View facing northeast which characterizes Stream 1, located on the northwestern portion of the Site, looking downstream.

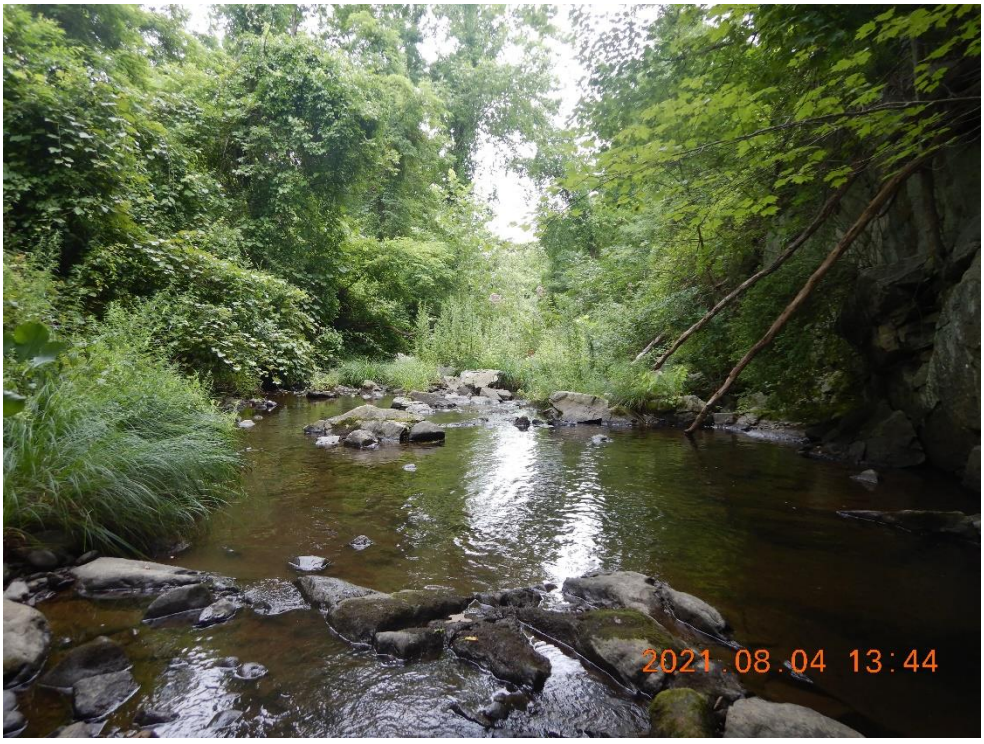

Photo #8
Description: View facing southwest which characterizes Stream 1, located on the northwestern portion of the Site, looking upstream.

Photo #9
Description: View facing northeast of Stream 1 flowing under the Route 6 bridge, looking downstream.

Photo #10
Description: View facing north of Stream 2 flowing from under Palisades Interstate Parkway into Wetland A, looking downstream.

Photo #11
Description: View facing southwest of uplands located south of Wetland A, Beech-Maple Mesic Forest type.

Appendix F:
Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Bikeway Connection Feasibility Study City/County: Orange Sampling Date: 8/4/2021

Applicant/Owner: NYS Office of Parks, Recreation, & Historic Preservation State: New York Sampling Point: WL-B-1 W

Investigator(s): D. MacDougall, A. Pasquini Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Terrace Local Relief (concave, convex, none): concave Slope %: 1

Subregion (LRR or MLRA): LRR R Latitude: 41° 18' 25.03" ° N Longitude: 74° 01' 54.98" ° W Datum: WGS 84

Soil Map Unit Name: ESB: Erie extremely stony soils NWI Classification: None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ , Soil ☐ , or hydrology ☐ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☑ No ☐ **Is the Sampled Area within a Wetland? Yes ☑ No ☐**

Hydric Soil Present? Yes ☑ No ☐

Wetland Hydrology Present? Yes ☑ No ☐ If yes, optional Wetland Site ID: Wetland B; wetland data @ flag WL-B-2

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☑ Water Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ Microtopographic Relief (D4)
- ☑ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? Yes ☐ No ☑ Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes ☑ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use Scientific Names of Plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Acer rubrum*	5	Yes	FAC
2			
3			
4			
5			
6			
7			
(50%/20% = 2.5 / 1)	5	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' radius)			
1 *Carpinus caroliniana*	2	No	FAC
2 *Rosa multiflora*	5	Yes	FACU
3			
4			
5			
6			
7			
(50%/20% = 3.5 / 1.4)	7	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	70	x 1	70
FACW species	15	x 2	30
FAC species	7	x 3	21
FACU species	5	x 4	20
UPL Species	0	x 5	0
Column Totals:	97 (A)		141 (B)

Prevalence Index = B/A = 1.45

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WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Vegetation (continued)

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Carex tribuloides*	10	No	FACW
2 *Carex lupulina*	50	Yes	OBL
3 *Glyceria striata*	10	No	OBL
4 *Carex crinita*	10	No	OBL
5 *Carex intumescens*	5	No	FACW
6			
7			
8			
9			
10			
11			
12			
(50%/20% = 43 / 17)	85	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1 *None present*			
2			
(50%/20% = 0 / 0)		= Total Cover	

Hydrophytic Vegetation Indicators:

- ☑ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance test is >50%
- ☑ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide Supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree: Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub: Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb: All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vines: All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)
Area is adjacent to delineated Stream 1.

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/1	100					Clay loam	
8-11	10YR 4/1	90	10YR 4/6	10	C	M	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ☐ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ☐ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ☐ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ☐ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ☐ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ☐ Dark Surface (S7) **(LRR K, L)**
- ☐ Polyvalue Below Surface (S8) **(LRR K, L)**
- ☐ Thin Dark Surface (S9) **(LRR K, L)**
- ☐ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ☐ Mesic Spodic (TX6) **(MLRA 144A, 145, 149B)**
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock
Depth (inches): 11

Hydric Soil Present? Yes ☑ No ☐

Remarks:

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Bikeway Connection Feasibility Study City/County: Orange Sampling Date: 8/4/2021

Applicant/Owner: NYS Office of Parks, Recreation, & Historic Preservation State: New York Sampling Point: WL-B-4 U

Investigator(s): D. MacDougall, A. Pasquini Section, Township, Range: N/A

Landform (hillslope, terrace, etc.): Terrace Local Relief (concave, convex, none): concave Slope %: 1

Subregion (LRR or MLRA): LRR R Latitude: 41° 18' 24.37" ° N Longitude: 74° 01' 55.46" ° W Datum: WGS 84

Soil Map Unit Name: ESB: Erie extremely stony soils NWI Classification: None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☑ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ No ☐

Are Vegetation ☐ , Soil ☐ , or hydrology ☐ naturally problematic? (If needed, explain any answers in remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Hydric Soil Present? Yes ☐ No ☑

Wetland Hydrology Present? Yes ☐ No ☑

Is the Sampled Area within a Wetland? Yes ☐ No ☑

If yes, optional Wetland Site ID: Wetland B; upland data @ flag WL-B-4

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches):

Water Table Present? Yes ☐ No ☑ Depth (inches):

Saturation Present? Yes ☐ No ☑ Depth (inches):

(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☑

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use Scientific Names of Plants.

Tree Stratum (Plot size: 30' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Acer rubrum*	2	No	FAC
2 *Carpinus caroliniana*	10	Yes	FAC
3			
4			
5			
6			
7			
(50%/20% = 6 / 2.4)	12	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15' radius)			
1 *Berberis thunbergii*	20	Yes	FACU
2 *Clethra alnifolia*	5	Yes	FAC
3			
4			
5			
6			
7			
(50%/20% = 13 / 5)	25	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1	0
FACW species	10	x 2	20
FAC species	32	x 3	96
FACU species	20	x 4	80
UPL Species	0	x 5	0
Column Totals:	62 (A)		196 (B)

Prevalence Index = B/A = 3.16

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Vegetation (continued)

Herb Stratum (Plot size: 5' radius)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Dichanthelium clandestinum*	10	Yes	FACW
2 *Toxicodendron radicans*	10	Yes	FAC
3 *Microstegium vimineum*	5	Yes	FAC
4			
5			
6			
7			
8			
9			
10			
11			
12			
(50%/20% = 13 / 5)	25	= Total Cover	
Woody Vine Stratum (Plot size: 30' radius)			
1 *None present*			
2			
(50%/20% = 0 / 0)		= Total Cover	

Hydrophytic Vegetation Indicators:

- ☑ Rapid Test for Hydrophytic Vegetation
- ☑ Dominance test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide Supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree: Woody plants 3 in. (7.6cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub: Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall.

Herb: All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vines: All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: (Include photo numbers here or on a separate sheet.)
Area is adjacent to delineated Stream 1.

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 4/3	100					Clay loam	Rocky soil

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ☐ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ☐ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ☐ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ☐ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ☐ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ☐ Dark Surface (S7) **(LRR K, L)**
- ☐ Polyvalue Below Surface (S8) **(LRR K, L)**
- ☐ Thin Dark Surface (S9) **(LRR K, L)**
- ☐ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ☐ Mesic Spodic (TX6) **(MLRA 144A, 145, 149B)**
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock
Depth (inches): 6

Hydric Soil Present? Yes ☐ No ☑

Remarks:

Attachment B – Ecological Resource Review

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December 31, 2021

NYS Office of Parks, Recreation, and
Historic Preservation – Palisades Region
Palisades Interstate Park Commission
Bear Mountain, NY 10911-0427

Re: End of Fieldwork Summary– ETR Review
Palisades Interstate Parkway Bikeway Project
Town of Highlands, Orange County, NY
Chazen Project # 31907.46

Dear NYSOPRHP:

The purpose of this letter is to provide a summary of field work for the endangered, threatened, and rare/special concern (ETR) species review for the proposed Project. The Project consists of a proposed bicycle path to connect Palisades Interstate Parkway and Seven Lakes Drive in the Town of Highlands, Orange County, NY. The Study Area is an approximately 10 acre portion of a larger tax parcel (Tax ID: 234-1-10). As part of this field work, Chazen[1] reviewed the area where the proposed bikeway is to be located (Study Area). See Figure 1 below.

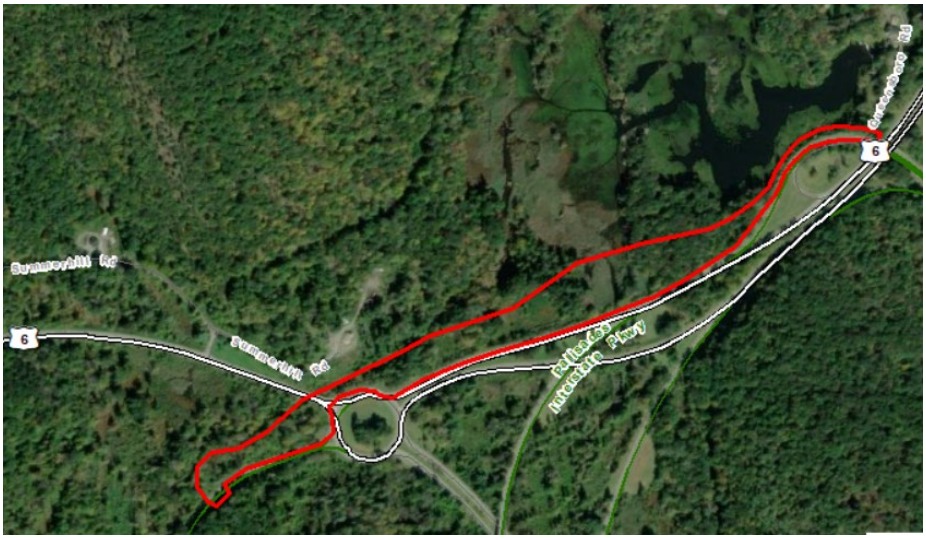


Figure 1: Limit of Project/Study Area for the Palisades Interstate Parkway Bikeway Project

[1] It is noted that The Chazen Companies was acquired by LaBella Associates on December 31, 2021. This work was completed by Chazen prior to the acquisition, and so has not been reformatted.

Chazen environmental scientists visited the Study Area on August 4 and 5, 2021 and reviewed the Study Area for wetlands and endangered, threatened, and rare/special concern (ETR) species habitat. This letter addresses the result of the reviews of the United States Fish and Wildlife Service (USFWS) database, the New York Natural Heritage Program (NYNHP) database as well as the ecological resources observed on the Study Area and their potential to support any endangered, threatened, and rare species.

DESKTOP AND FIELD REVIEWS

Desktop and field reviews identified the following.

USFWS: The USFWS Information Resource Planner (iPaC) indicates the site lies within the range of the Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), bog turtle (*Glyptemys muhlenbergii*), and small whorled pogonia (*Isotria medeoloides*). See Attachment A, Figure 2 and Attachment C Agency Correspondence.

- *Indiana bat (Endangered)*: The habitat of concern for the Indiana bat are trees used for summer daytime roosting by females and their young, and such suitable roost trees contain features that can shelter the bats, such as exfoliating bark, cracks, crevices, cavities, and or deep furrows. Indiana bats utilize trees greater than or equal to 5" diameter at breast height (dbh) for summer roosting. The NYNHP program does not indicate any occurrence records for Indiana bat in the area.

  Few trees fitting the size criteria and physical characteristics for summer roost habitat were identified within the Study Area. Assuming this Project involves minor tree clearing (less than 10 acres), and assuming such tree clearing occurs during winter months (November 1 to March 31) when bats are not on the landscape, then it is Chazen's opinion that a determination of May Affect but Not Likely to Adversely Affect should be made for this species under Section 7 of the federal Endangered Species Act.

- *Northern long-eared bat (Threatened)*: Similar to the Indiana bat, habitat of concern for the northern long-eared bat are trees used for summer daytime roosting by females and their young, and such suitable roost trees contain features that can shelter the bats, such as exfoliating bark, cracks, crevices, cavities, and or deep furrows. Northern long-eared bats utilize trees greater than or equal to 3" diameter at breast height (dbh) for summer roosting.

  As previously mentioned, few trees fitting the size criteria and physical characteristics for summer roost habitat were identified within the Study Area. Assuming this Project involves minor tree clearing (less than 10 acres), and assuming such tree clearing occurs during winter months (November 1 to March 31) when bats are not on the landscape, then it is Chazen's opinion that a determination of May Affect but Not Likely to Adversely Affect should be made for this species under Section 7 of the federal Endangered Species Act.

- *Bog Turtle (Threatened)*: The NYNHP program does not indicate any known occurrence records for bog turtle in the Study Area. Known habitat use or suitability for the bog turtle is generally similar in the states where the bog turtle is found and includes three main components: vegetation, hydrology

and soils (Bury, 1979 and USFWS, 2001)[2]. The vegetation found in bog turtle habitat usually consists of grasses, rushes, and sedges with some variation to the genera found between sites (MacDougall, 2016 and USFWS, 2001)[3]. The vegetation usually promotes an open emergent wetland type and typically has a scrub-shrub bordering component (MacDougall, 2016 and USFWS, 2001)[4]. Hydrology is usually provided by groundwater springs and seeps and quite often sites will be associated with streams (Brennan et. al., 2001 and USFWS, 2001)[5]. The soils that are typically found in associated bog turtle habitats consist of a deep, soft, muck that allows for burrowing and protection from the sun in the hottest times of the summer (Bury, 1979 and USFWS, 2001).

Wetlands in the Study Area were delineated. See Attachment A, Aquatic Resources Map prepared for New York State Office of Parks and Recreation. The delineated wetlands in the Study Area were evaluated for their potential to support bog turtle habitat (see descriptions below), and it was determined that neither wetland provided suitable habitat. Therefore, it is Chazen's opinion that a determination of No Effect should be made for this species under Section 7 of the federal Endangered Species Act.

- **Wetland A/AA (Queensboro Lake)** (Flagged with the A and AA flagging series) is a palustrine emergent/palustrine unconsolidated bottom (PEM/PUB) wetland located on the northeastern portion of the Study Area. Vegetation is dominated by white water lily (*Nymphaea odorata*) and common reed grass (*Phragmites australis*) with lesser amounts of sensitive fern (*Onoclea sensibilis*), pickerelweed (*Pontederia cordata*), sweet pepperbush (*Clethra alnifolia*), and spotted touch-me-not (*Impatiens capensis*) in the herb strata. Wetland A receives flow from both perennial stream 1 (P-STR-1) and perennial stream 2 (P-STR-2). The soils were not easily probed due to the ponded nature of the wetland. Wetland A is flooded and lacks an open emergent wetland type that is typically characteristic of ideal bog turtle habitat. It is Chazen's opinion that this wetland does not support potential bog turtle habitat due to a lack of appropriate vegetative habitat and the flooded conditions.

- **Wetland B** (Flagged with the B flagging series) is located on the north-central portion of the Study Area and is a palustrine emergent (PEM) wetland. Vegetation dominance includes hop sedge (*Carex lupulina*) with lesser amounts of blunt broom sedge (*Carex tribuloides*), fowl mana grass (*Glyceria striata*), and fringed sedge (*Carex crinita*). Wetland B is a small depressional wetland and appears to potentially connect to Perennial Stream 1 during high water events. The soils were easily probed, and the probe depth was typically around 11 inches. The soil texture in this area consisted of a clay loam. It is Chazen's opinion that this

[2] Bury, R. B. (1979). Review of the ecology and conservation of the bog turtle, *Clemmys muhlenbergii*. U.S. Fish and Wildlife Service Special Scientific Report Wildlife 219.

[3] MacDougall, D. W. (2016). Habitat suitability for Muhlenberg's (Bog) Turtle (*Glyptemys muhlenbergii*): Vegetation and soils in the Hudson Housatonic Recovery Unit of New York, Connecticut, & Massachusetts, USA. M.S. Thesis, Green Mountain College, Poultney, Vermont, U.S.A.

[4] United States Fish & Wildlife Service. (2001). Bog turtle (*Clemmys muhlenbergii*), northern population recovery plan. Hadley, Massachusetts, U.S.A. 103pp.

[5] Brennan, K. E., O'Leary, D. J., & Buckley, S. P. (2001). Hydrologic Analysis of the Wetland Habitat of the Federally Threatened Bog Turtle. IN: Proceedings of the 2001 International Conference on Ecology and Transportation, Eds. Irwin, C. L., P. Garrett, and K. P. McDermott. Center for Transportation and the Environment, North Carolina State University, Raleigh, NC: 51-64.

wetland does not support potential bog turtle habitat due to a lack of appropriate vegetative habitat and hydrology.

- *Small whorled pogonia (Threatened)*: The USFWS describes small whorled pogonia habitat as older hardwood stands of beech, birch, maple, oak, and hickory that have an open understory. Sometimes it grows in stands of softwoods such as hemlock. It prefers acidic soils with a thick layer of dead leaves, often on slopes near small streams (USFWS, 2019)[6].

  Based on the field review of the proposed Study Area, there is no potential habitat for the small whorled pogonia species. A large portion of the Study Area consists of successional roadside and wetland edges, which does not provide habitat for the small whorled pogonia. The wooded areas on the Study Area did not contain a thick organic layer nor were any small whorled pogonia plants observed.

NYSDEC: NYSDEC ERM Mapper and the SEQRA EAF Mapper indicates the site lies within the potential range of the NYSDEC listed northern long-eared bat, timber rattlesnake (*Crotalus horridus*), and eastern wormsnake (*Carphophis amoenus*). See Attachment A. The OPRHP responded on October 14, 2021 with an official list, Attachment C.

- *Northern long-eared bat (Threatened)*: Refer to the above paragraph for habitat details and likelihood for the species in the proposed Study Area.

- *Timber rattlesnake (Threatened)*: Timber rattlesnakes are generally found in deciduous hardwood forests in rugged terrain and in open areas with rocky surfaces which are used for basking, shedding, and birthing (NYSDEC, 2013)[7]. The open, rocky areas are an important aspect to the timber rattlesnake habitat.

  Based on the field review, little ideal timber rattlesnake habitat is present in the Study Area. As discussed above, open, rocky areas are an important aspect to the timber rattlesnake habitat. This habitat type was very sparse in the Study Area, with only one small area of exposed rock. Further, this area was shaded. The forested areas could potentially be used for foraging so avoidance and minimization measures may be requested by the NYSDEC to avoid take of this species.

- *Eastern wormsnake (Rare)*: Eastern worm snakes use second-growth deciduous forests, typically in moist areas near streams. Worm snakes use sand plains and pitch pine/scrub oak woodlands in New

[5]U.S. Fish and Wildlife Service. 2019. Midwest Region Endangered Species: Small Whorled Pogonia (*Isotria medeoloides*). https://www.fws.gov/midwest/endangered/plants/swpo/smallwhorledpogoniafs.html. Reviewed August 30, 2021.

[6] New York State Department of Environmental Conservation. 2013. Species Assessment for Timber Rattlesnake. https://www.dec.ny.gov/docs/wildlife_pdf/sgcntimberrattlesnak.pdf. Reviewed August 30, 2021.

[7]New York State Department of Environmental Conservation. 2013. Species Assessment for Eastern wormsnake. https://www.dec.ny.gov/docs/wildlife_pdf/sgcnewormsnake.pdf. Reviewed August 30, 2021.

York as well as rocky forested areas at woodland edges where there is an abundance of rocky cover (NYSDEC, 2013)[8].

Few areas fitting the ideal habitat criteria were observed within the Study Area. Very little rock cover was present in the Study Area, which, as described by the NYSDEC, is a characteristic of the known habitat type for the eastern wormsnake. Therefore, it is Chazen's opinion that the eastern wormsnake is likely not present in the Study Area.

Summary

Per the USFWS, the project is in the range of Indiana bat, northern long-eared bat, and bog turtle. Consultation between the USFWS and the Corps of Engineers would be undertaken during likely wetland permit processing via Section 7 of the federal Endangered Species Act. Since there is no bog turtle habitat on the site, no review for that species would be required.

Per the NYSDEC, the project is in the range northern long-eared bat, timber rattlesnake, and eastern wormsnake. Information on any specific species occurrence records of any of the listed species would need to be requested from NYNHP and should be reviewed as part of project planning. Consultation will be needed with the NYSDEC under State's endangered species regulations. A non-jurisdictional determination request could be submitted to the NYSDEC to request confirmation that the project does not result in "take" and no additional review is required. If the NYSDEC did not agree that the proposed project would be unlikely to result in take, an Incidental Take Permit may be required for any of the listed species with an occurrence record within the Study Area. The USFWS should be copied on correspondence with the NYSDEC for bats and, as stated above, would undertake consultation with the Corps via processing of the Joint Permit Application.

If you have any questions or comments regarding this letter, please contact me at (518) 796-9049 or dmacdougall@labellapc.com.

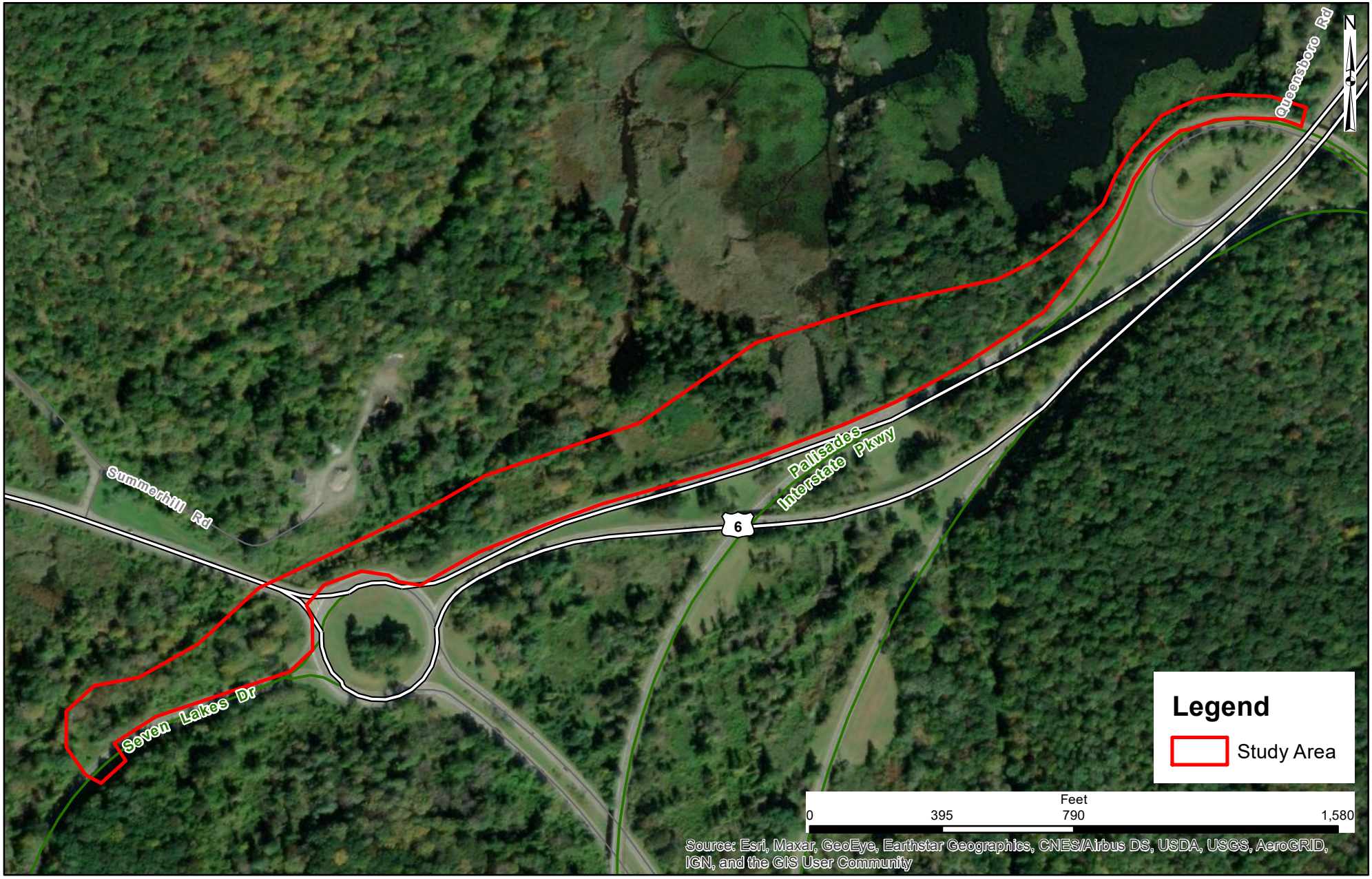
Sincerely,

David MacDougall

David W. MacDougall, CWB®, PWS
Ecological Services Project Manager

cc: Barbara Beall, Chazen

Enclosures:
Attachment A: Figures
Attachment B: Photographs of the Site
Attachment C: Agency Correspondence



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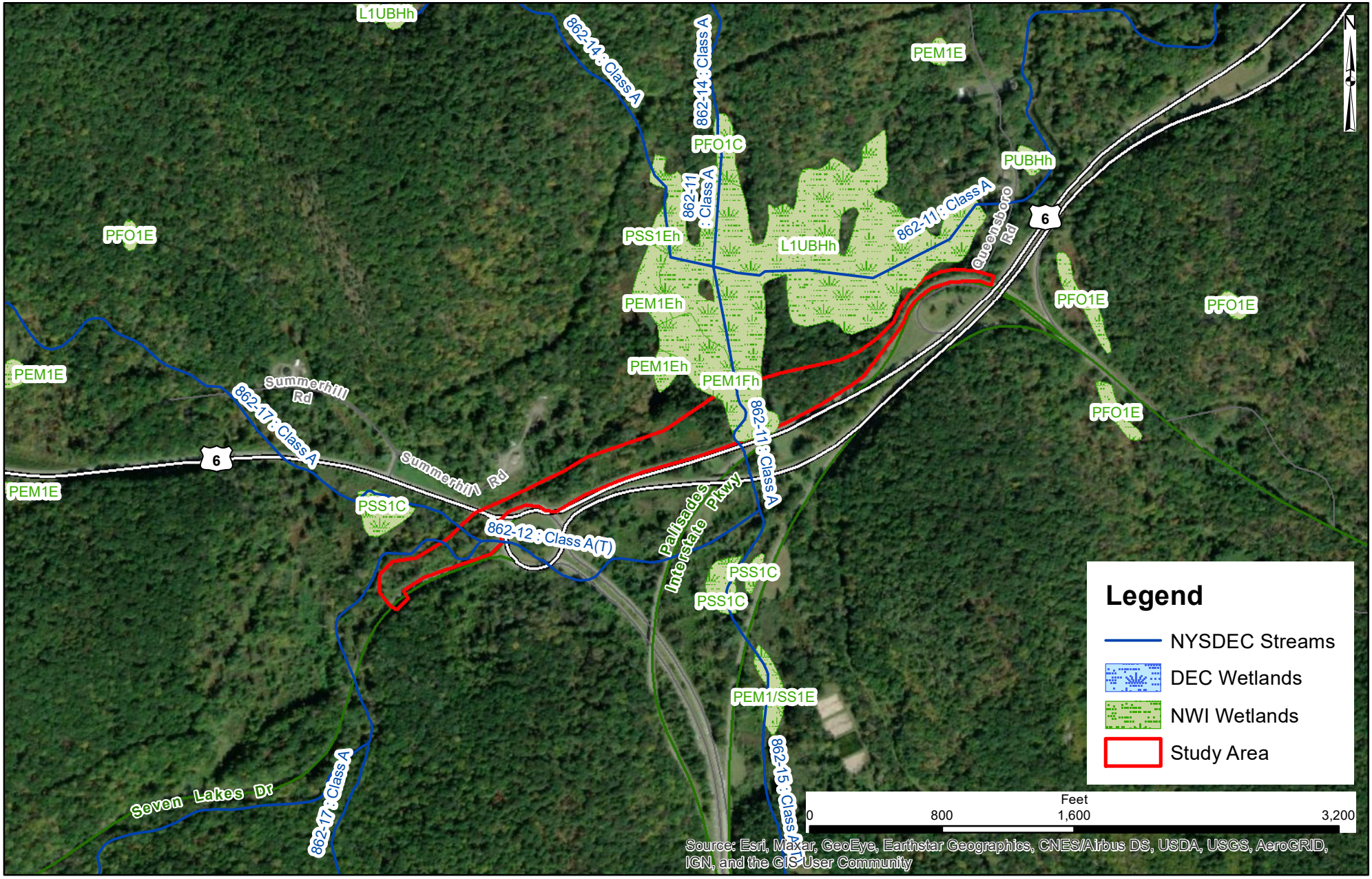
NYS OPRHP Bikeway Connection

Figure 2: Aerial Map

Palisades Interstate Parkway, Town of Highlands, Orange County, NY

Drawn:	AKP
Date:	08/11/2021
Scale:	1 inch equals 396 feet
Project:	31907.46
Figure:	2

Document Path: Z:\projects\31900-31999\31907.xx_Parks D005476\31907.46 PIPC Bikeway Connection Feas Study_PAL-006\GIS\ECOWL Fieldwork\2021_08_11_Figure 2 Aerial Map.mxd



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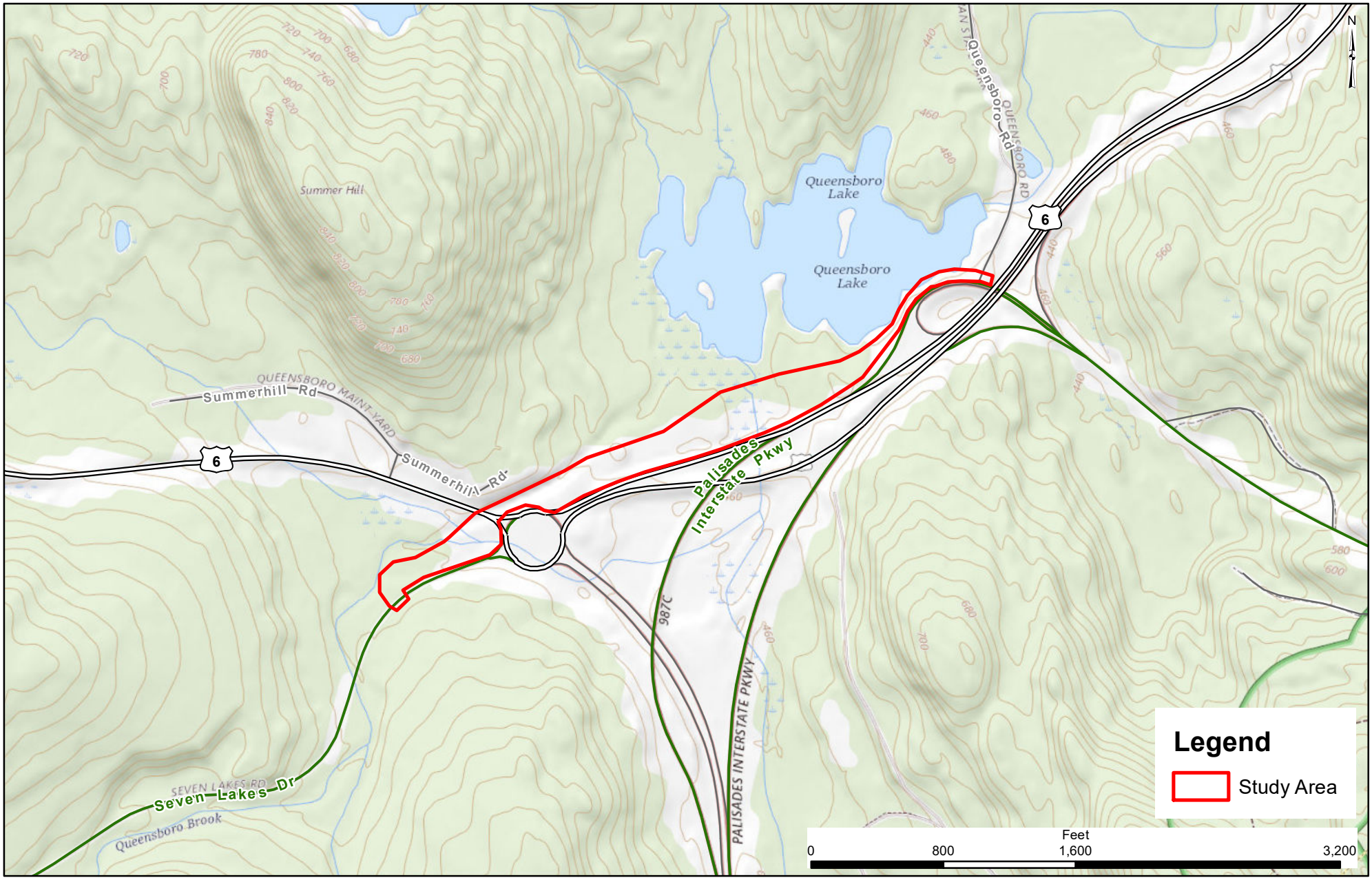
NYS OPRHP Bikeway Connection

Figure 3: NYSDEC and NWI Wetlands and Streams

Palisades Interstate Parkway, Town of Highlands, Orange County, NY

Drawn:	AKP
Date:	08/11/2021
Scale:	1 inch equals 800 feet
Project:	31907.46
Figure:	3

Document Path: Z:\projects\31900-31999\31907.xx_Parks D005476\31907.46 PIPC Bikeway Connection Feas Study_PAL-006\GIS\ECOWL Fieldwork\2021_08_11_Figure 3 NYSDEC and NWI Wetlands and Streams.mxd



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NYS OPRHP Bikeway Connection

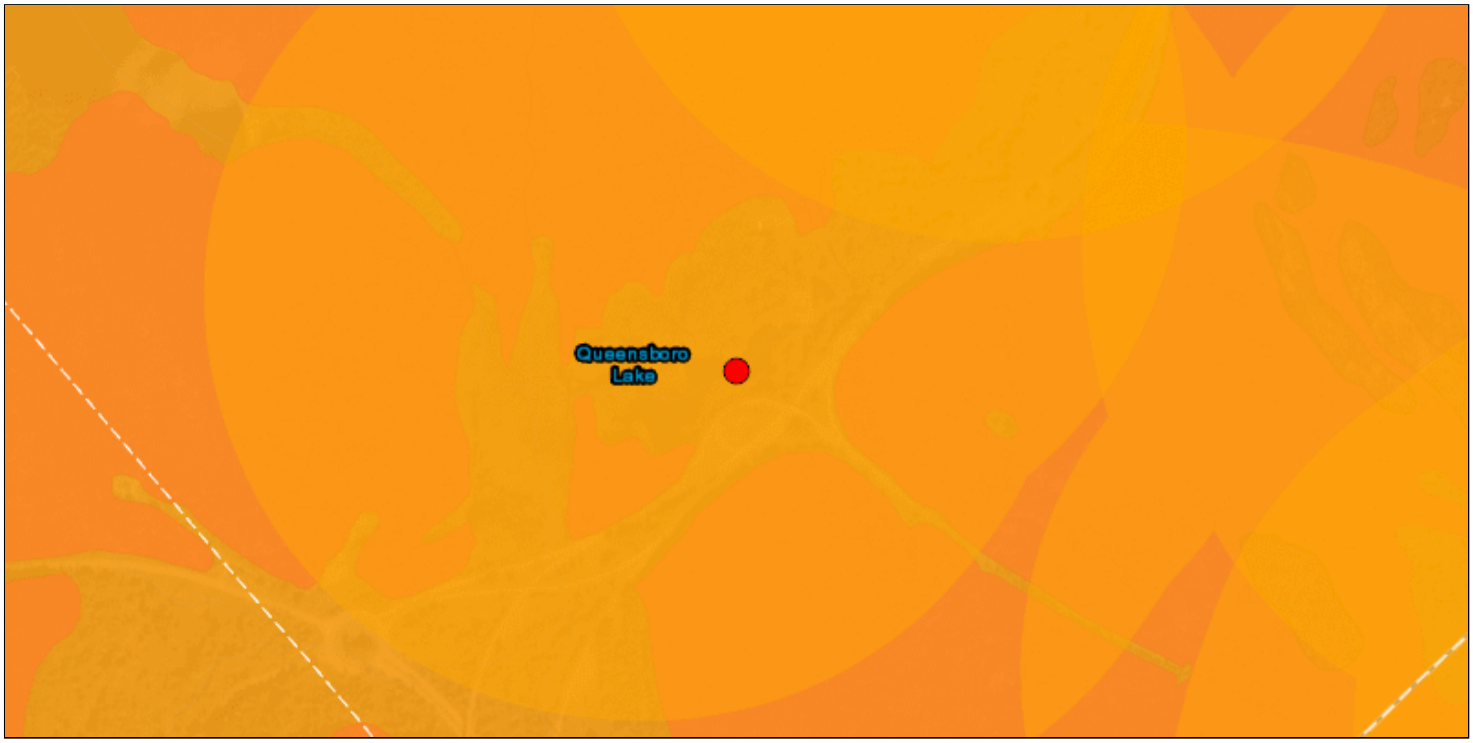
Figure 1: USGS Topographic Map

Palisades Interstate Parkway, Town of Highlands, Orange County, NY

Drawn:	AKP
Date:	08/11/2021
Scale:	1 inch equals 800 feet
Project:	31907.46
Figure:	1

Document Path: Z:\projects\31900-31999\31907.xx_Parks D005476\31907.46 PIPC Bikeway Connection Feas Study_PAL-006\GIS\ECOWL Fieldwork\2021_08_11_Figure 1 USGS Topo Map.mxd

Environmental Resource Mapper



The coordinates of the point you clicked on are:

UTM 18	**Easting:**	581540.9821795924	**Northing:**	4573629.449216562
Longitude/Latitude	**Longitude:**	-74.02587500485633	**Latitude:**	41.31001657773389

The approximate address of the point you clicked on is:
1-55 Queensboro Rd, Fort Montgomery, New York, 10922

County: Orange
Town: Highlands
USGS Quad: POPOLOPEN LAKE

Old or Potential Records (Not displayed on the map)

Common Name: Bog Turtle
Scientific Name: Glyptemys muhlenbergii
Date Last Documented: 1952-05-18
Location: Queensboro Lake
NYS Protected: Endangered

Waterbody Classifications for Rivers/Streams

Regulation: 862-11
Standard: A
Classification: A

Natural Communities in the Vicinity

Natural Community Name: Chestnut oak forest
Location: Harriman
Ecological System: Uplands

Rare Plants and Rare Animals

This location is in the vicinity of Rare Animals Listed as Special Concern by NYS

This location is in the vicinity of Rare Dragonflies and Damselflies – Not Listed by NYS

This location is in the vicinity of Bats Listed as Endangered or Threatened -- Contact NYSDEC Regional Office

This location is in the vicinity of Animals Listed as Endangered or Threatened - Contact NYSDEC Regional Office

National Wetands Inventory

Attribute: L1UBHh
Type: Lake
Acres: 30.724639347

For more information about the National Wetands Inventory wetlands visit **http://www.fws.gov/wetlands/**

If your project or action is within or near an area with a rare animal, a permit may be required if the species is listed as endangered or threatened and the department determines the action may be harmful to the species or its habitat.

If your project or action is within or near an area with rare plants and/or significant natural communities, the environmental impacts may need to be addressed.

The presence of a unique geological feature or landform near a project, unto itself, does not trigger a requirement for a NYS DEC permit. Readers are advised, however, that there is the chance that a unique feature may also show in another data layer (ie. a wetland) and thus be subject to permit jurisdiction.

Please refer to the "Need a Permit?" tab for permit information or other authorizations regarding these natural resources.

Disclaimer: If you are considering a project or action in, or near, a wetland or a stream, a NYS DEC permit may be required. The Environmental Resources Mapper does not show all natural resources which are regulated by NYS DEC, and for which permits from NYS DEC are required. For example, Regulated Tidal Wetlands, and Wild, Scenic, and Recreational Rivers, are currently not included on the maps.

Photo #1
Description: View facing north which characterizes the southeastern portion of Wetland A, located on the northeastern portion of the Site.

Photo #2
Description: View facing northwest which characterizes the southwestern portion of Wetland A, located on the northeastern portion of the Site.

Photo #3
Description: View facing southwest of the existing concrete culvert at its inlet to Wetland A from under Palisades Interstate Parkway.

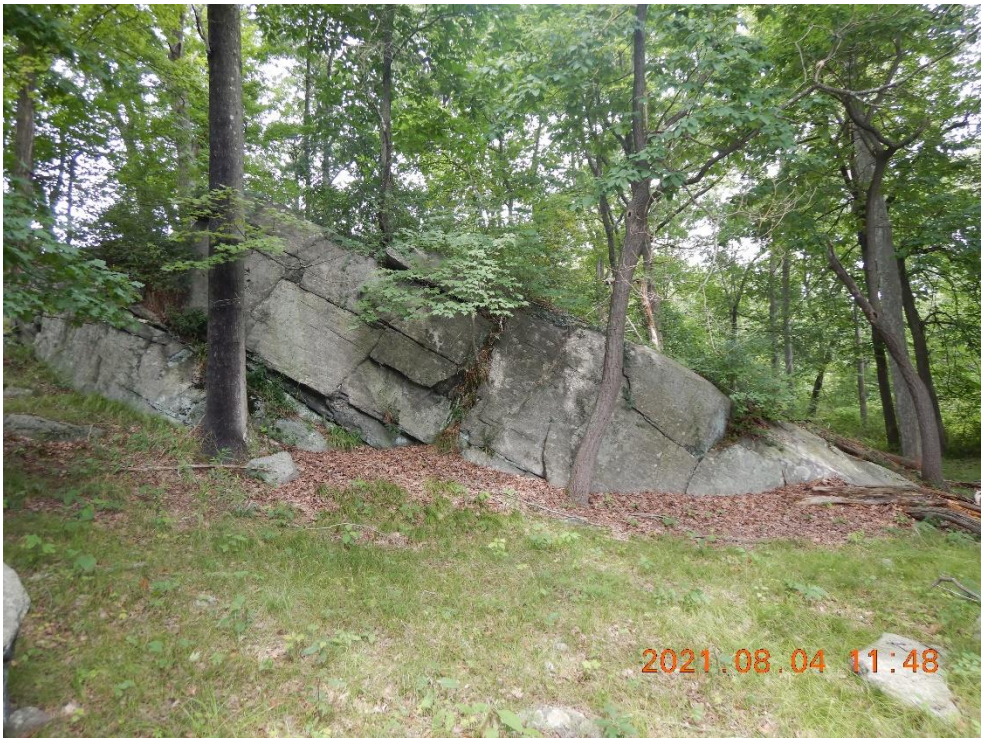


Photo #4
Description: View facing north showing the rock outcroppings in the upland area southeast of Wetland A.

Photo #5
Description: View facing south which characterizes Wetland B, located on the north-central portion of the Site.

Photo #6
Description: View facing south which characterizes the upland area west of Wetland B, located on the north-central portion of the Site.

Photo #7
Description: View facing northeast which characterizes Stream 1, located on the northwestern portion of the Site, looking downstream.

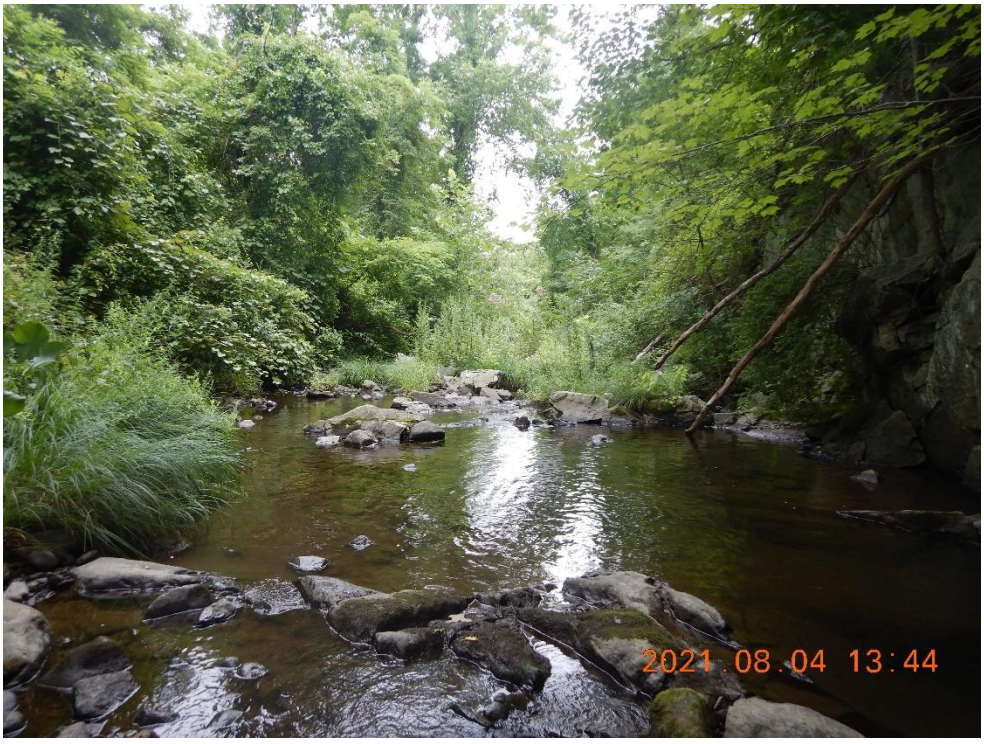


Photo #8
Description: View facing southwest which characterizes Stream 1, located on the northwestern portion of the Site, looking upstream.

Photo #9
Description: View facing northeast of Stream 1 flowing under the Route 6 bridge, looking downstream.

Photo #10
Description: View facing north of Stream 2 flowing from under Palisades Interstate Parkway into Wetland A, looking downstream.

Photo #11
Description: View facing southwest of uplands located south of Wetland A, Beech-Maple Mesic Forest type.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
http://www.fws.gov/northeast/nyfo/es/section7.htm

In Reply Refer To: August 30, 2021
Consultation Code: 05E1NY00-2021-SLI-4010
Event Code: 05E1NY00-2021-E-12263
Project Name: Palisades Interstate Parkway Bikeway

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). This list can also be used to determine whether listed species may be present for projects without federal agency involvement. New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list.

Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the ESA, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC site at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list. If listed, proposed, or candidate species were identified as potentially occurring in the project area, coordination with our office is encouraged. Information on the steps involved with assessing potential impacts from projects can be found at: http://www.fws.gov/northeast/nyfo/es/section7.htm

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the Services wind

energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the ESA. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
(607) 753-9334

Project Summary

Consultation Code: 05E1NY00-2021-SLI-4010
Event Code: 05E1NY00-2021-E-12263
Project Name: Palisades Interstate Parkway Bikeway
Project Type: RECREATION CONSTRUCTION / MAINTENANCE
Project Description: The Project consists of a proposed bicycle path to connect Palisades Interstate Parkway and Seven Lakes Drive in the Town of Highlands, Orange County, NY. The Study Area is an approximately 8-10 acre portion of a larger tax parcel (Tax ID: 234-1-10).

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.306890949999996,-74.03102824989011,14z

Counties: Orange County, New York

Endangered Species Act Species

There is a total of 4 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Reptiles

NAME	STATUS
Bog Turtle *Clemmys muhlenbergii* Population: Wherever found, except GA, NC, SC, TN, VA No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6962	Threatened

Flowering Plants

NAME	STATUS
Small Whorled Pogonia *Isotria medeoloides* Population: No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1890	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

NEW YORK STATE OF OPPORTUNITY. | Parks, Recreation and Historic Preservation

KATHY HOCHUL
Governor

ERIK KULLESEID
Commissioner

October 14, 2021

Chazen Companies
Anthony Pasquini
4 British American Blvd
Latham, New York 12110

RE: Palisades Interstate Parkway Bikeway
OPRHP Facility: Harriman State Park

Dear Mr. Pasquini:

In response to your recent request, we have reviewed the New York Natural Heritage Program (NYNHP) database with respect to the above project. The New York State Office of Parks, Recreation & Historic Preservation (OPRHP) is reviewing the NYNHP database specifically for use in analysis of this proposed project. OPRHP has a data use agreement with NYNHP for use of their database.

Attached below is a table of rare or state-listed animals and plants and significant natural communities that the database indicates occur within or in the vicinity of the project site.

For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from the NYNHP database. NYNHP nor OPRHP can provide a definitive statement as to the presence or absence of all rare or state-listed species or significant natural communities. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

The NYNHP database is continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

The presence of the plants and animals identified in the attached table may result in this project requiring additional review or permit conditions. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g. regulated wetlands), please contact NYS DEC Region 3 Office, Division of Environmental Permits, as listed at http://www.dec.ny.gov/about/39381.html.

Information about many of the rare animals and plants in New York are available online in NYNHP's Conservation Guides at https://guides.nynhp.org/, https://www.nynhp.org/rare-animals/, and https://www.nynhp.org/documents/5/rare_plants_2020.pdf, from NatureServe Explorer at http://explorer.natureserve.org/, from USDA's Plants Database at https://plants.usda.gov/java/ (for plants) and DEC's https://www.dec.ny.gov/animals/7494.html. Information about many of the natural community types in New York is available online in NYNHP's Conseravation Guides at

https://guides.nynhp.org/. For descriptions of all community types, go to https://www.nynhp.org/documents/39/ecocomm2014.pdf.

Please note that the NYNHP data provided by OPRHP contain sensitive information that is <u>not for public distribution</u>. This includes the names and locations of rare species within the park and potentially adjacent lands. Sensitive information in this report should not be detailed in any power point presentation, environmental review document or other report without prior permission from OPRHP and NYNHP. This information is for your use and other pertinent staff only. **Please be aware that the release of information on the location of sensitive species is prohibited because it may lead to the collection or disturbance of these plants and/or animals.**

Should you have any questions, please feel free to contact me at (518) 369 0931 or daniel.lewis@parks.ny.gov.

Sincerely,

Daniel E. Lewis

Daniel Lewis
Environmental Analyst I
Division of Environmental Stewardship & Planning

Rare or State-Listed Animals and Plants				
SCIENTIFIC NAME	COMMON NAME	LOCATION	NY LISTED	US LISTED
Rhionaeschna mutata	Spatterdock Darner	Queensboro Lake	Unlisted	
Cordulegaster obliqua	Arrowhead Spiketail	Doodletown	Unlisted	
Myotis septentrionalis	Northern Long-eared Bat	Cranberry Mine	Threatened	Threatened
Myotis septentrionalis	Northern Long-eared Bat	Greenwood Mine	Threatened	Threatened
Myotis septentrionalis	Northern Long-eared Bat	Zint Mine	Threatened	Threatened
Crotalus horridus	Timber Rattlesnake	Long Mountain	Threatened	
Crotalus horridus	Timber Rattlesnake	Queensboro Brook Hillside	Threatened	
Crotalus horridus	Timber Rattlesnake	Black Mountain	Threatened	
Crotalus horridus	Timber Rattlesnake	West Mountain	Threatened	
Carphophis amoenus	Eastern Wormsnake	Summer Hill	Special Concern	
Significant Natural Community				
COMMUNITY NAME		LOCATION		
Chestnut Oak Forest		West Point		
Rocky Summit Grassland		West Mountain		

Attachment C – Topographic Survey

LEGEND:

EXISTING CONDITIONS:

- APPROXIMATE PROPERTY LINE
- ADJACENT PROPERTY LINE
- 110 EXISTING MAJOR CONTOUR
- 112 EXISTING MINOR CONTOUR
- ×200.3 EXISTING SPOT GRADE
- NYSDEC WETLANDS LINE
- EXISTING GUIDERAIL

SYMBOLS:

- EXISTING SIGN
- EXISTING SIGN
- AA1 EXISTING WETLAND BOUNDARY FLAG

WETLANDS NOTE:

WETLANDS SHOWN HEREON AS PER FIELD DELINEATION AUGUST 4, 2021 BY CHAZEN ENGINEERING, LAND SURVEYING, LANDSCAPE ARCHITECTURE & GEOLOGY CO., D.P.C., AND SURVEY LOCATION COMPLETED BY THIS OFFICE ON SEPTEMBER 13, 2021. THIS LOCATION REPRESENTS ONLY A PORTION OF THE EXISTING WETLANDS AND IS SUBJECT TO ADDITIONAL DELINEATION AND FIELD SURVEY.

TAX PARCEL DESIGNATION:

TOWN OF HIGHLANDS, ORANGE COUNTY, NEW YORK
- 19-1-6
- 19-1-26
- 19-1-4

VILLAGE OF WOODBURY, ORANGE COUNTY, NEW YORK
- 234-1-8
- 234-1-14

FLOOD ZONE NOTE:

PARCELS ARE SHOWN TO LIE WITHIN ZONE X 'OTHER AREAS', AREAS OUTSIDE THE 0.2% CHANCE FLOOD PLAIN, AS SHOWN ON FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), NATIONAL FLOOD INSURANCE PROGRAM (NFIP) FLOOD INSURANCE RATE MAP (FIRM) FOR THE TOWN OF TOWN OF HIGHLANDS, IDENTIFIED AS MAP NUMBER 36071C0520E BEARING AN EFFECTIVE DATE OF AUGUST 3, 2009.

NOTES:

UNAUTHORIZED ALTERATION OR ADDITION TO A SURVEY MAP BEARING A LICENSED LAND SURVEYOR'S SEAL IS A VIOLATION OF SECTION 7209, SUBDIVISION 2 OF THE NEW YORK STATE EDUCATION LAW.

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SURVEYED WITHOUT THE BENEFIT OF A TITLE SEARCH.

SUBJECT TO COVENANTS, EASEMENTS, RESTRICTIONS, CONDITIONS AND AGREEMENTS OF RECORD.

THE LOCATION OF UNDERGROUND IMPROVEMENTS OR ENCROACHMENTS ARE NOT ALWAYS KNOWN AND OFTEN MUST BE ESTIMATED. IF ANY UNDERGROUND IMPROVEMENTS OR ENCROACHMENTS EXIST OR ARE SHOWN, THE IMPROVEMENTS OR ENCROACHMENTS ARE NOT COVERED BY THIS CERTIFICATE.

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LOCATION OF EXISTING PROPERTY MARKERS NOT SHOWN OR CERTIFIED BY THIS SURVEY.

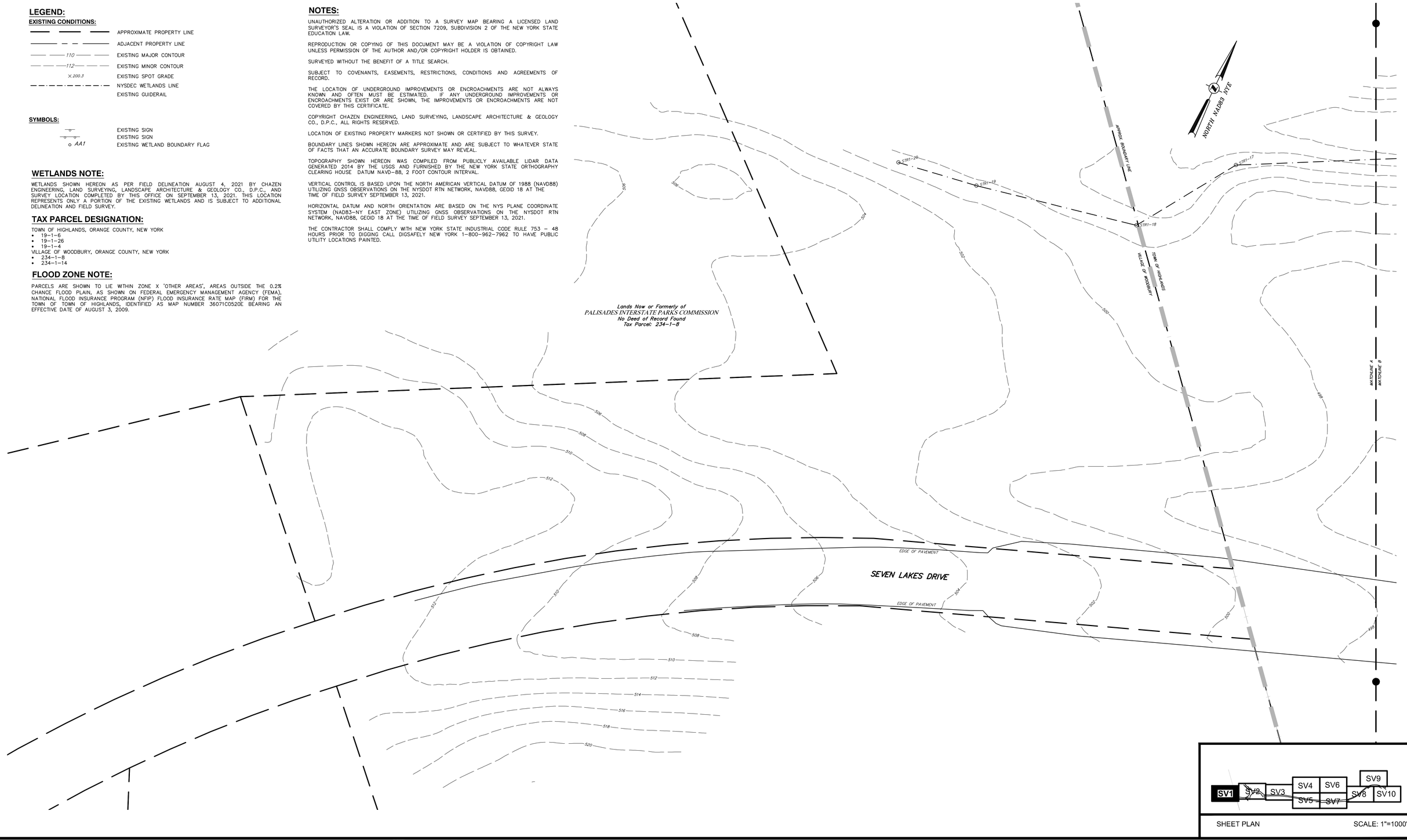
BOUNDARY LINES SHOWN HEREON ARE APPROXIMATE AND ARE SUBJECT TO WHATEVER STATE OF FACTS THAT AN ACCURATE BOUNDARY SURVEY MAY REVEAL.

TOPOGRAPHY SHOWN HEREON WAS COMPILED FROM PUBLICLY AVAILABLE LIDAR DATA GENERATED 2014 BY THE USGS AND FURNISHED BY THE NEW YORK STATE ORTHOGRAPHY CLEARING HOUSE DATUM NAVD-88, 2 FOOT CONTOUR INTERVAL.

VERTICAL CONTROL IS BASED UPON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) UTILIZING GNSS OBSERVATIONS ON THE NYSDOT RTN NETWORK, NAVD88, GEOID 18 AT THE TIME OF FIELD SURVEY SEPTEMBER 13, 2021.

HORIZONTAL DATUM AND NORTH ORIENTATION ARE BASED ON THE NYS PLANE COORDINATE SYSTEM (NAD83-NY EAST ZONE) UTILIZING GNSS OBSERVATIONS ON THE NYSDOT RTN NETWORK, NAVD88, GEOID 18 AT THE TIME OF FIELD SURVEY SEPTEMBER 13, 2021.

THE CONTRACTOR SHALL COMPLY WITH NEW YORK STATE INDUSTRIAL CODE RULE 753 – 48 HOURS PRIOR TO DIGGING CALL DIGSAFELY NEW YORK 1-800-962-7962 TO HAVE PUBLIC UTILITY LOCATIONS PAINTED.



SHEET PLAN SCALE: 1"=1000'

SCALE IN FEET
1"=20'
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ORIGINAL SCALE IN INCHES
0 1 2 3

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050677
LICENSED LAND SURVEYOR

DAVID H. DIPPEL, PLS NO. 050677

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rev.	date	description

PALISADES INTERSTATE PARKWAY - BEAR MOUNTAIN STATE PARK

MAP OF TOPOGRAPHIC SURVEY PREPARED FOR NYSOPRHP

TOWN OF HIGHLANDS, ORANGE COUNTY, NEW YORK

designed	checked
MTH	DHD
date	scale
10/01/21	1"=20'
project no.	
31907.46	
sheet no.	
SV1	

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Xref's Attached: XBASE-SVY_31907-46
Date Printed: Oct 15, 2021, 12:35pm

LONG MOUNTAIN PKWY OVERPASS CULVERT

INSET 1 SCALE: 1"=10'

SCALE: 1"=10'

SHEET PLAN SCALE: 1"=1000'

20 0 20
SCALE IN FEET
1"=20'

0 1 2 3
ORIGINAL SCALE IN INCHES

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LICENSED LAND SURVEYOR

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rev.	date	description

PALISADES INTERSTATE PARKWAY - BEAR MOUNTAIN STATE PARK

MAP OF TOPOGRAPHIC SURVEY PREPARED FOR NYSOPRHP

TOWN OF HIGHLANDS, ORANGE COUNTY, NEW YORK

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MTH	DHD
date	scale
10/01/21	1"=20'
project no.	
31907.46	
sheet no.	
SV2	

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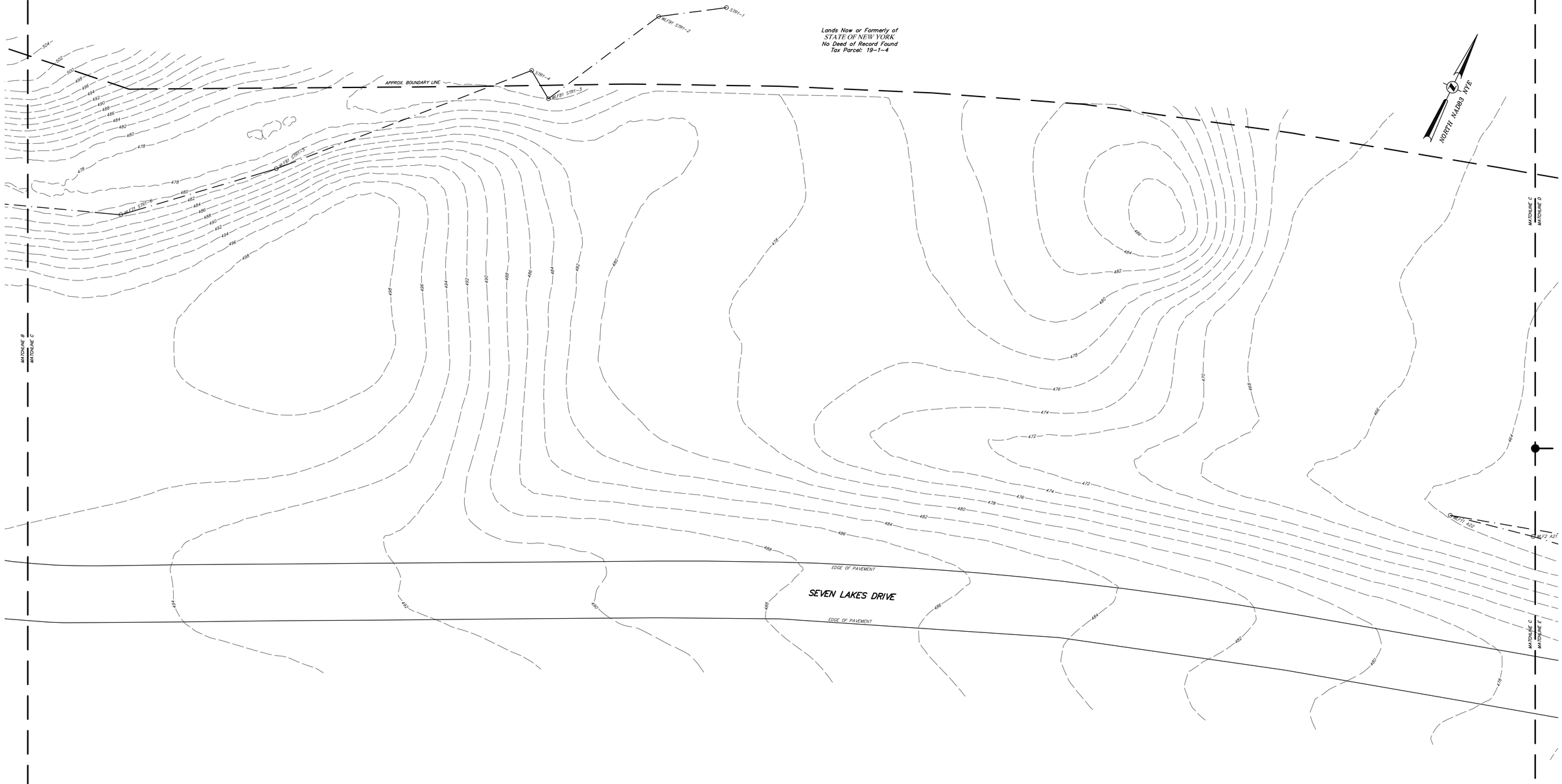

SV1 | SV2 | SV3 | SV4 | SV5 | SV6 | SV7 | SV8 | SV9 | SV10

SHEET PLAN SCALE: 1"=1000'

SCALE IN FEET
1"=20'

ORIGINAL SCALE IN INCHES

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- New York City, NY

rev.	date	description

PALISADES INTERSTATE PARKWAY - BEAR MOUNTAIN STATE PARK

MAP OF TOPOGRAPHIC SURVEY PREPARED FOR NYSOPRHP

TOWN OF HIGHLANDS, DUTCHESS COUNTY, NEW YORK

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MTH	DHD
date	scale
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sheet no.	
SV3	

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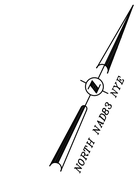

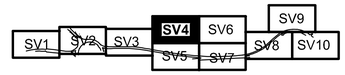

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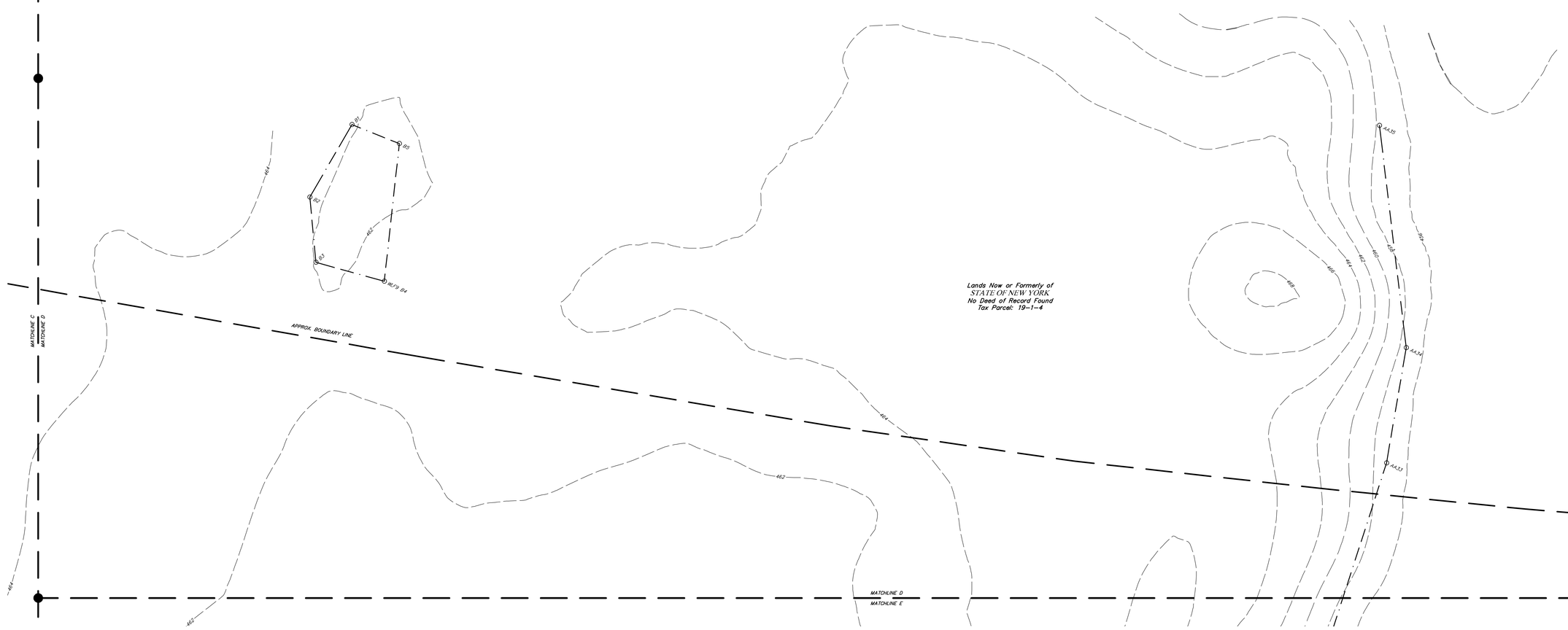

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STATE OF NEW YORK
DAVID H. DIPPEL
LICENSED LAND SURVEYOR
050677

DAVID H. DIPPEL, PLS NO. 050677

20 0 20
SCALE IN FEET
1"=20'

0 1 2 3
ORIGINAL SCALE IN INCHES

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rev.	date	description

PALISADES INTERSTATE PARKWAY - BEAR MOUNTAIN STATE PARK

MAP OF TOPOGRAPHIC SURVEY PREPARED FOR NYSOPRHP

TOWN OF HIGHLANDS, ORANGE COUNTY, NEW YORK

designed MTH	checked DHD
date 10/01/21	scale 1"=20'
project no. 31907.16	
sheet no. SV4	

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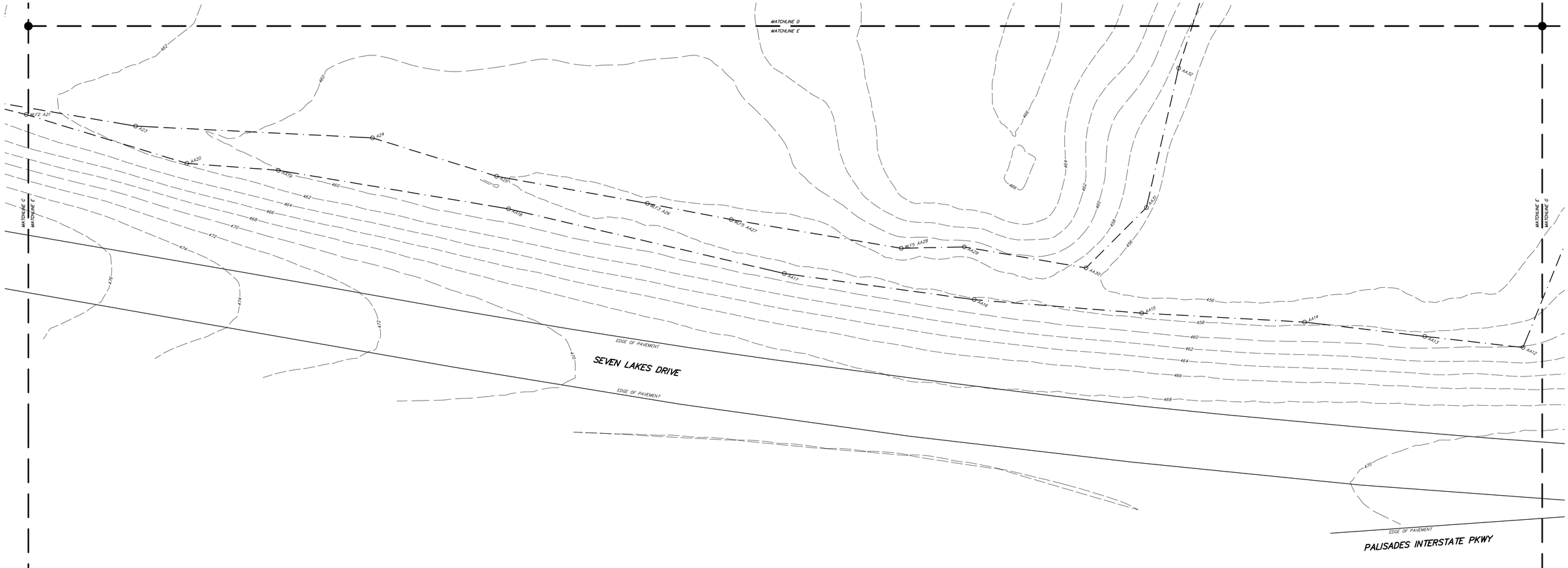
Date Printed: Oct 15, 2021, 12:40pm



SV1 | SV2 | SV3 | SV4 | SV5 | SV6 | SV7 | SV8 | SV9 | SV10

SHEET PLAN SCALE: 1"=1000'

SCALE IN FEET
1"=20'

ORIGINAL SCALE IN INCHES

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LICENSED LAND SURVEYOR
050677

DAVID H. DIPPER, PLS NYS LIC. #050677

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rev.	date	description

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MAP OF TOPOGRAPHIC SURVEY PREPARED FOR NYSOPRHP

TOWN OF HIGHLANDS, ORANGE COUNTY, NEW YORK

designed	checked
MTH	DHD
date	scale
10/1/21	1"=20'
project no.	
31907.46	
sheet no.	
SV5	

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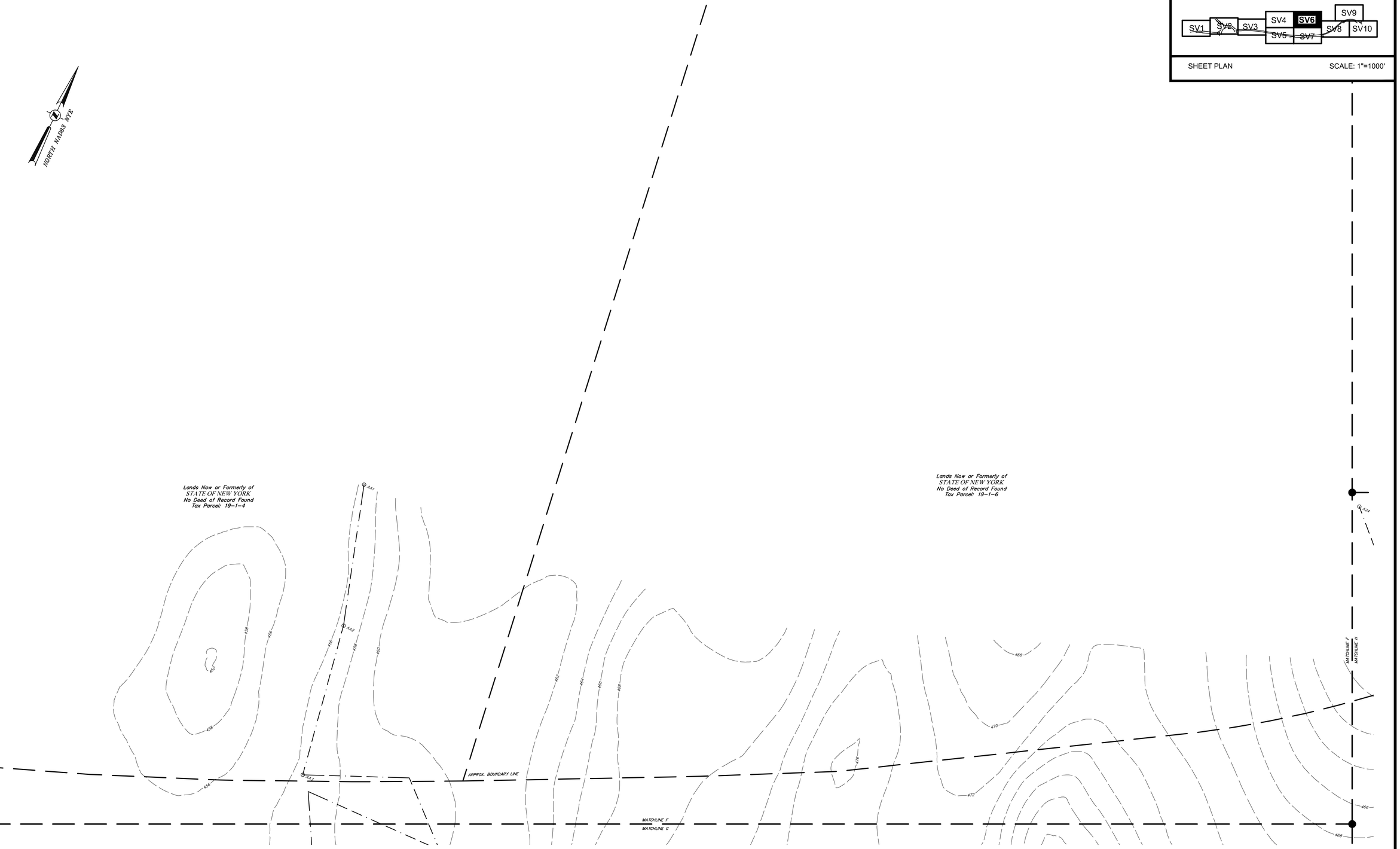

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SCALE IN FEET
1"=20'

0 1 2 3
ORIGINAL SCALE IN INCHES

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STATE OF NEW YORK
DAVID H. DIPPEL JR.
050677
LICENSED LAND SURVEYOR
DAVID H. DIPPEL JR. 050677

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- Poughkeepsie, NY
- White Plains, NY
- New York City, NY

rev.	date	description

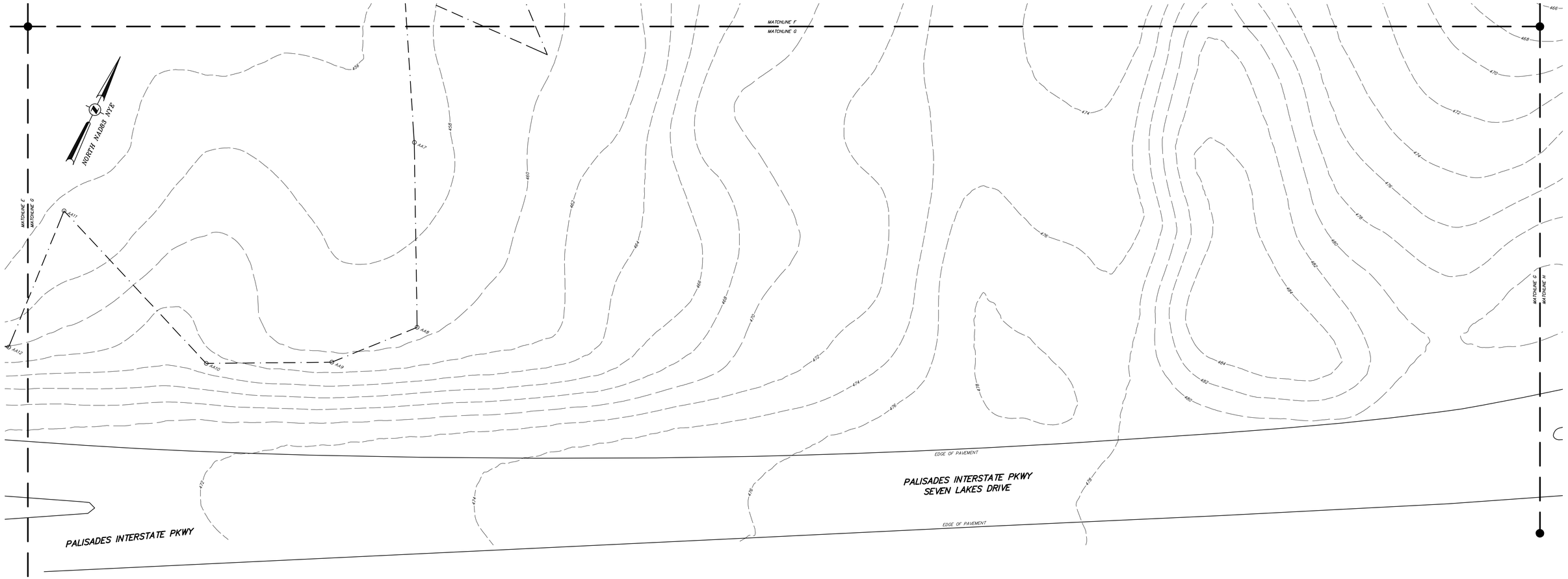
PALISADES INTERSTATE PARKWAY - BEAR MOUNTAIN STATE PARK

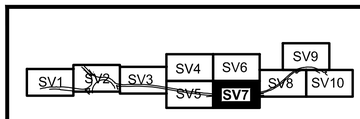
MAP OF TOPOGRAPHIC SURVEY PREPARED FOR NYSOPRHP

TOWN OF HIGHLANDS, ORANGE COUNTY, NEW YORK

designed MTH	checked DHD
date 10/1/21	scale 1"=20'
project no. 31907.46	
sheet no. SV6	

Drawing Name: Z:\projects\31900-31999\31907.xx_Parks DO05476\31907.46 PIPC Bikeway Connection Feas Study_PAL-006\SVY\dwg\05-SVY_31907-46_EXCOND.dwg
Xref's Attached: XBASE-SVY_31907-46
Date Printed: Oct 15, 2021, 12:42pm





SHEET PLAN SCALE: 1"=1000'

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SCALE IN FEET
1"=20'

0 1 2 3
ORIGINAL SCALE IN INCHES

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PALISADES INTERSTATE PARKWAY - BEAR MOUNTAIN STATE PARK

MAP OF TOPOGRAPHIC SURVEY PREPARED FOR NYSOPRHP

TOWN OF HIGHLANDS, ORANGE COUNTY, NEW YORK

designed	checked
MTH	DHD
date	scale
10/1/21	1"=20'
project no.	
31907.46	
sheet no.	
SV7	

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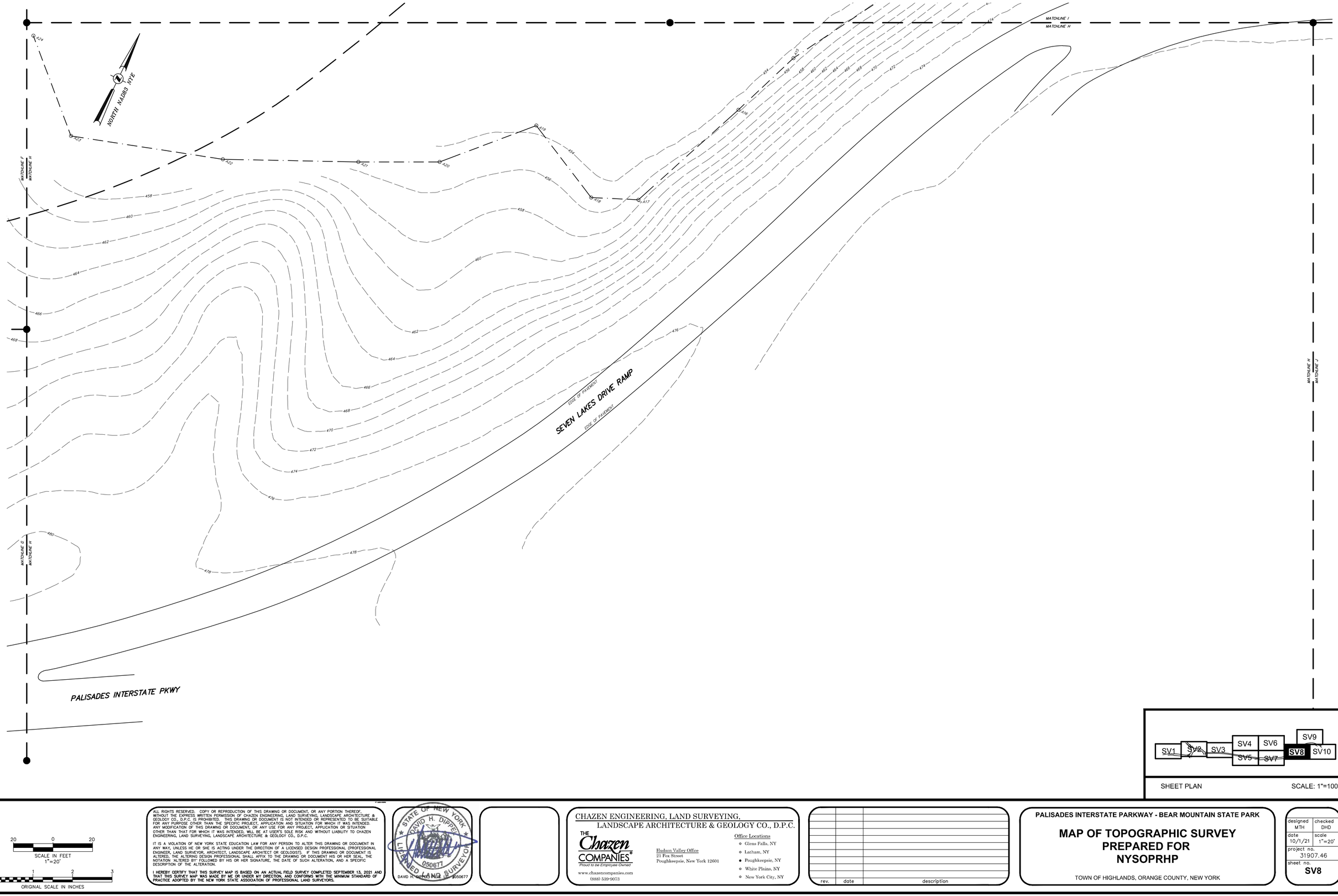
Date Printed: Oct 15, 2021, 12:42pm



SV1 | SV2 | SV3 | SV4 | SV5 | SV6 | SV7 | SV8 | SV9 | SV10

SHEET PLAN SCALE: 1"=1000'

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SCALE IN FEET
1"=20'

0 1 2 3
ORIGINAL SCALE IN INCHES

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TOWN OF HIGHLANDS, ORANGE COUNTY, NEW YORK

designed	checked
MTH	DHD
date	scale
10/1/21	1"=20'
project no.	
31907.46	
sheet no.	
SV8	

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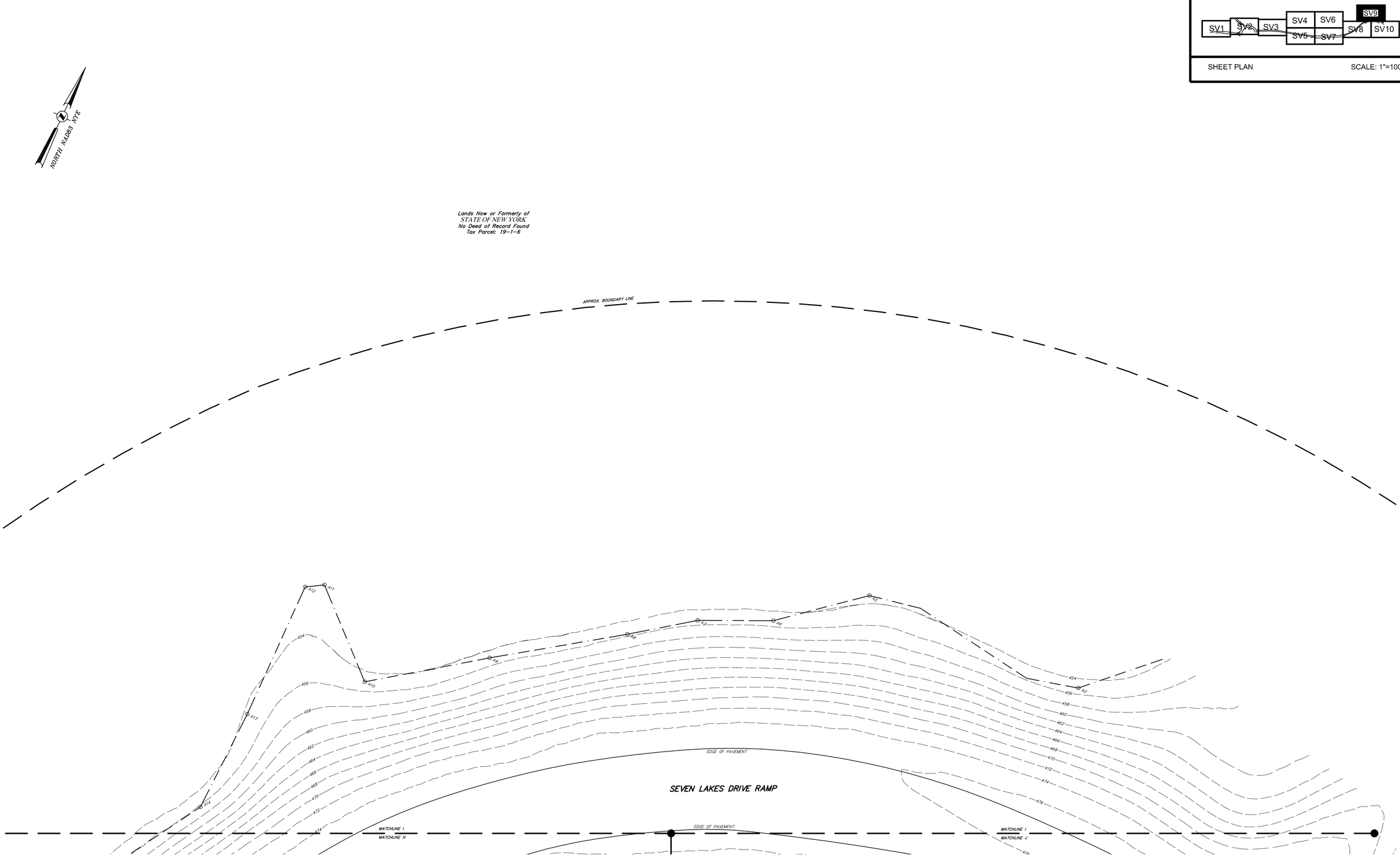

20 0 20
SCALE IN FEET
1"=20'

0 1 2 3
ORIGINAL SCALE IN INCHES

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MAP OF TOPOGRAPHIC SURVEY PREPARED FOR NYSOPRHP

TOWN OF HIGHLANDS, ORANGE COUNTY, NEW YORK

designed	checked
MTH	DHD
date	scale
10/1/21	1"=20'
project no.	
31907.46	
sheet no.	
SV9	

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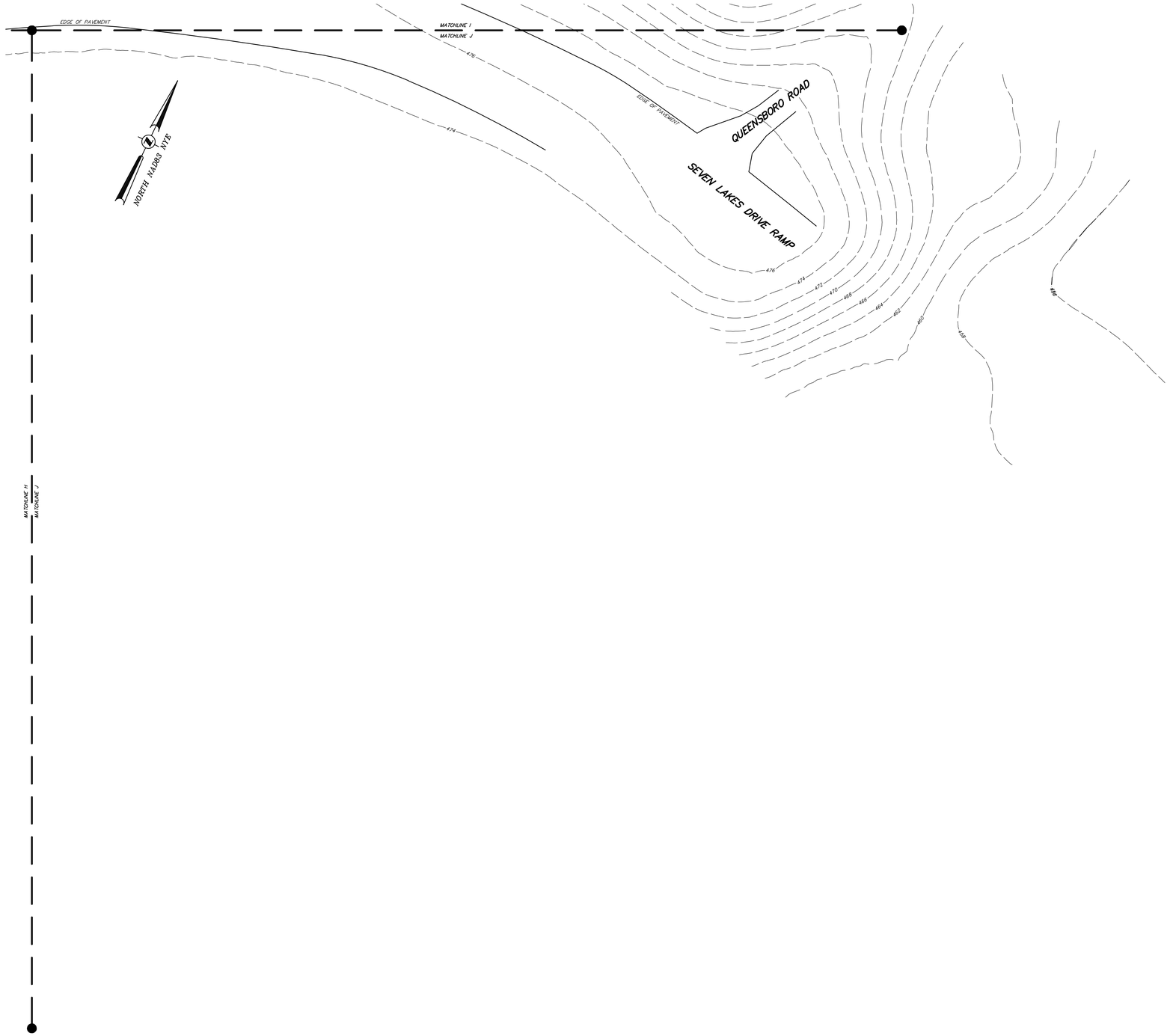

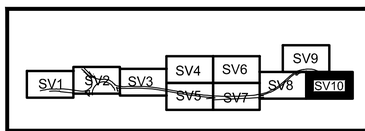

SHEET PLAN SCALE: 1"=1000'

20 0 20
SCALE IN FEET
1"=20'

0 1 2 3
ORIGINAL SCALE IN INCHES

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DAVID H. DIPPEL, PLS NYS LIC. #050677

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MAP OF TOPOGRAPHIC SURVEY PREPARED FOR NYSOPRHP

TOWN OF HIGHLANDS, ORANGE COUNTY, NEW YORK

designed	checked
MTH	DHD
date	scale
10/1/21	1"=20'
project no.	
31907.46	
sheet no.	
SV10	

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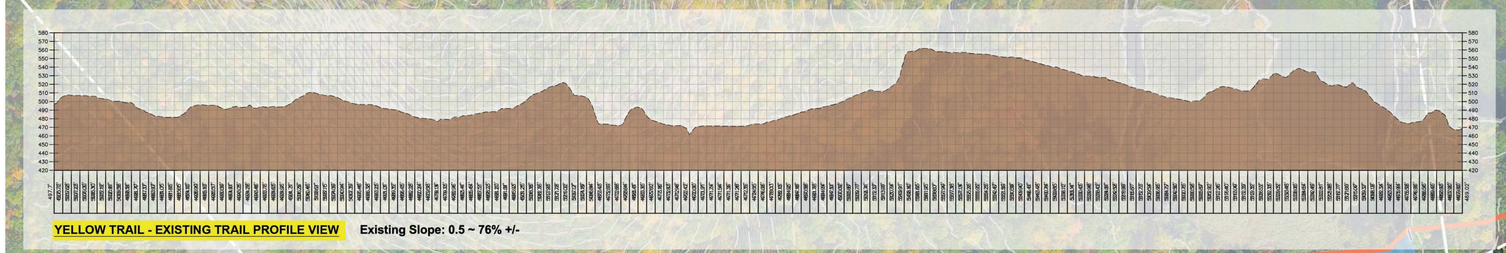
Attachment D – Site Assessment/Preliminary Design and Alternatives Evaluation



YELLOW TRAIL - EXISTING TRAIL PROFILE VIEW Existing Slope: 0.5 ~ 76% +/-

QUEENSBORO LAKE

0 150 300 FT
SCALE: 1"=150'

NWI WETLAND
- DATA SOURCE GIS

SEVEN LAKES DRIVE

CHAZEN SURVEY AREA

LANDS OWNED BY OPRHP

LONG MOUNTAIN PKWY

GIS PARCEL LINES

LANDS OWNED BY OPRHP

CULVERT CROSSING

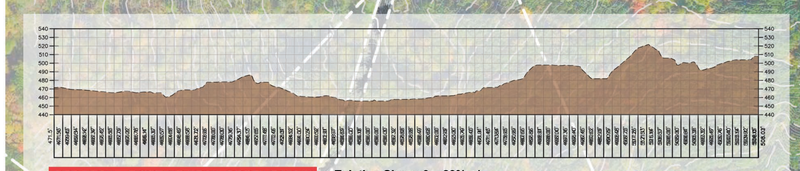
PALISADES INTERSTATE PKWY

PALISADES INTERSTATE PKWY

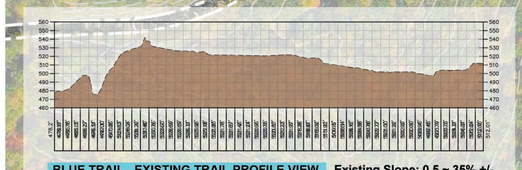
LANDS OWNED BY OPRHP

Trail Design Guidelines

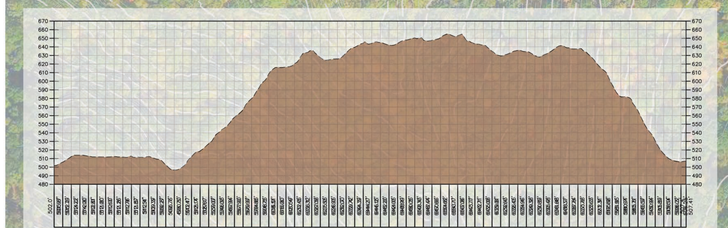
- Shared Use Path width: 10ft (AASHTO Bike Guide Section 5.2.1)
- Adjacent Graded Width: 2 ft
- Maximum Grade:
  - 5% Max.
  - 5% - 6% for up to 800 ft
  - 7% for up to 400 ft
  - 8% for up to 300 ft
  - 9% for up to 200 ft
  - 10% for up to 100 ft
  - 11+% for up to 50 ft
- Clearance from Obstructions: 3 ft
- Separation from Edge of Ditches or Slopes Steeper than 1:3: 5ft Min.
- Cross Slope: 2% Max.
- Bike Lane Width: 4 ft Min.



RED TRAIL - EXISTING TRAIL PROFILE VIEW Existing Slope: 0 ~ 23% +/-



BLUE TRAIL - EXISTING TRAIL PROFILE VIEW Existing Slope: 0.5 ~ 35% +/-



ORANGE TRAIL - EXISTING TRAIL PROFILE VIEW Existing Slope: 0.5 ~ 35% +/-

NWI WETLAND
- DATA SOURCE GIS

GIS PARCEL LINES

LANDS OWNED BY OPRHP

LANDS OWNED BY OPRHP

ANTHONY WAYNE DR

Anthony Wayne Loop Trailhead

SITE ASSESSMENT

BIKEWAY CONNECTION FEASIBILITY STUDY

PALISADES INTERSTATE PARKWAY - BEAR MOUNTAIN STATE PARK

PALISADES INTERSTATE PARK COMMISSION

Chazen
A LaBella Company

CHAZEN PROJECT NO. : 31907.46
DATE: 10/22/2021

Attachment E – NYS DOT Report

Inspection Date: 12/1/2009 RC: 83 BIN: 1068940

Bridge Ratings

Carried: 6 6 83012403 Crossed: QUEENSBORO BROOK CheckValue: 1,740,714,232

Inspection Agency: 10 - NYSDOT Type of Inspection: 1 - BIENNIAL
GTMS: 219 -- Concrete Continuous - Culvert
POSTINGS: See Gen Rec Page 1 for Postings at time of inspection.
Further Investigation Needed: No
State Highway Number: 65-2 Milepoint: 43.02 AADT/Yr: 25106 / 2007
Orientation: 3 - East Political Unit: 0392 - Town of HIGHLANDS Year Built: 1958
Total Spans: 2 Ramp Bridge Attached To Span: NA BIN: NA
General Recommendation: 6 Computed Condition Rating: 5.667

Abutment Ratings:	Beg Abut	End Abut
Joint with Deck	8	8
Bearings, Bolts, Pads	8	8
Seats and Pedestals	6	6
Backwall	8	8
Stem (Breastwall)	6	6
Erosion or Scour	4	4
Footings	6	6
Piles	8	8
Recommendation	5	5

Wingwall Ratings:	Beg Abut	End Abut
Walls	6	5
Footings	9	9
Erosion or Scour	7	7
Piles	8	8

Channel Ratings:	Channel
Stream Alignment	5
Erosion and Scour	5
Waterway Opening	5
Bank Protection	5

Approach Ratings:	Approaches
Drainage	6
Embankment	6
Settlement	6
Erosion	5
Pavement	4
Guide Railing	5

Number of Flags Issued:

RED: 0 Yellow: 0 Safety: 0

Vulnerability Reviews Recommended: 1=Yes, 2=No, 3=NA, X=NotActive

Hydraulic: 2	Overload: X	Steel: 3
Collision: 3	Concrete: X	Seismic: X

Inspector's Signature: CheckValue: 1,740,714,232 Date: 12/1/2009

Glenn R. Snyder,PE () (Inspector ID:8000029)

Signed copy of this inspection report is available in the appropriate NYSDOT Regional Office

Reviewed By: Date: 12/4/2009

HENRY CARPINO,PE () (QC ID:8000031)

Signed copy of this inspection report is available in the appropriate NYSDOT Regional Office

Inspection Date: 12/1/2009 RC: 83 BIN: 1068940

Span Ratings

Carried: 6 6 83012403 Crossed: QUEENSBORO BROOK CheckValue: 1,740,714,232

Deck Element Ratings:	001	002
Wearing Surface	4	4
Curbs	5	5
Sidewalks, Fascias	8	8
Railings, Parapets	5	5
Scuppers	8	8
Gratings	8	8
Median	8	8
Mono Deck Surface	8	8

Superstructure Ratings:	001	002
Structural Deck	8	8
Primary Members	6	6
Secondary Members	8	8
Paint	8	8
Joints	8	8
Recommendation	6	6

Pier Ratings:	001	002
Bearings, Bolts, Pads	8	8
Pedestals	8	8
Top of Cap or Beam	6	8
Stem Solid Pier	6	8
Cap Beam	8	8
Pier Columns	8	8
Footings	6	8
Erosion or Scour	4	8
Piles	8	8
Recommendation	5	8

Utility Ratings:	001	002
Lighting	8	8
Sign Structure	8	8
Utilities and Support	8	8

Field Notes:

Field Date	Arrival	Departure	Temp (C)	Temp (F)	Weather Conditions
12/1/2009	10:05:00 AM	12:00:00 PM		45	Partly cloudy

Inspection Date: 12/1/2009 RC: 83 BIN: 1068940

Inspection Notes

Carried: 6 6 83012403 Crossed: QUEENSBORO BROOK CheckValue: 1,740,714,232

Note ID: 820910689400000

General Note for Bridge
Referenced Photos:
At the time of inspection, Queensboro Brook water is clear and generally less than 3 inches deep with moderate velocity thru both spans. Direction of flow is from right to left thru the two span reinforced concrete box culvert bridge. The culvert floors are fully exposed. The upcreek and downcreek cutoff walls are partially exposed. The plans indicate that the from the top of the floor to the bottom of the cutoff wall height is 4 feet deep. No undermining is noted. There are no piles present. No scour readings are necessary. The channel bottom consists of a combination of large stones, cobbles, stones and gravel. The hydraulic vulnerability classification is low. Record plans are available in the BIN folder.

Note ID: 820910689400001

Beg Abut -- Abutment: Erosion or Scour -- Rated 4, Was 4
Span 001 -- Pier: Erosion or Scour -- Rated 4, Was 4
End Abut -- Abutment: Erosion or Scour -- Rated 4, Was 4
Referenced Photos: "1"
At the time of the inspection, Queensboro Brook is clear with moderate velocity. The brook bed is mostly rip rap and stones with some gravel and cobbles. This bridge is a culvert type bridge with a concrete slab floor.
Minimum vertical face of the upbrook cutoff wall exists. The vertical face of the upbrook cutoff wall is not exposed but the edge of the floor is exposed for about 4 inches at span 1, 2 inches at the upbrook pier nose and for 2 inches at span 2.
The downbrook cutoff wall is mostly exposed. The vertical face from the top of the floor and the cutoff wall is exposed between 23 inches to 51 inches at span 1, 38 inches at the downbrook pier nose and between 30 inches to 48 inches at span 2. Undermining was not found. The plans indicate that from the top of the floor to the bottom of the cutoff wall height is 4 feet at the invert. Begin and end abutment scour is rated 4. Pier scour is rated 4.

Note ID: 820910689400004

Stream Channel: Erosion and Scour -- Rated 5, Was 5
Referenced Photos:
See channel cross section reference and readings in the stream erosion and scour sketch link for more details.

Note ID: 820910689400002

Approaches: Pavement -- Rated 4, Was 4
Referenced Photos: "2"
The approach pavement and bridge wearing surface consist of the original portland cement concrete pavement overlaid with about 1-1/2 inches of asphalt concrete. The begin and end asphalt approach pavement is worn with random mostly transverse cracking. Some of the cracks have been poorly asphalt concrete patched. Begin and end approach pavement is rated 4.

Inspection Date: 12/1/2009 RC: 83 BIN: 1068940

Inspection Notes

Carried: 6 6 83012403 Crossed: QUEENSBORO BROOK CheckValue: 1,740,714,232

Note ID: 820910689400003

Span 001 -- Deck Elements: Wearing Surface -- Rated 4, Was 4
Span 002 -- Deck Elements: Wearing Surface -- Rated 4, Was 4
Referenced Photos: "3"
The asphalt wearing surface is worn with random mostly transverse cracking. Some of the cracks have been poorly asphalt patched. Both spans are similar. Wearing surface is rated 4.

Inspection Date: 12/1/2009 RC: 83 BIN: 1068940

Inspection Photos in Photo Number Order

Carried: 6 6 83012403 Crossed: QUEENSBORO BROOK CheckValue: 1,740,714,232

Begin abutment scour
End abutment scour
Pier scour

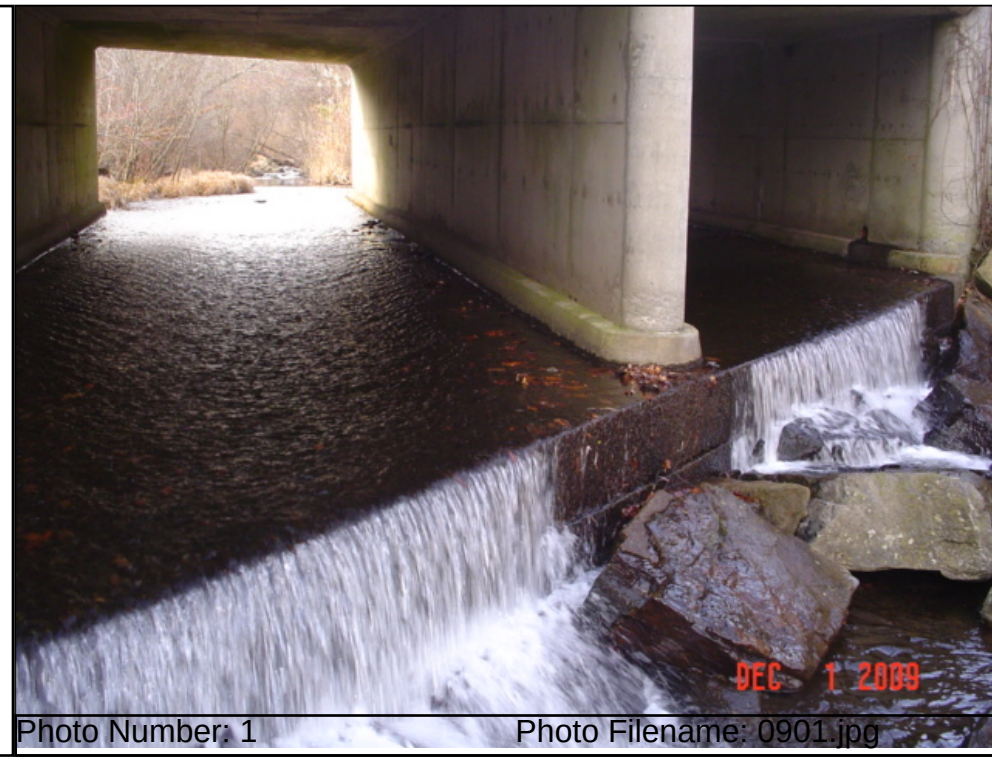


Photo Number: 1 Photo Filename: 0901.jpg

Begin approach pavement

Photo Number: 2 Photo Filename: 0902.jpg

Inspection Date: 12/1/2009 RC: 83 BIN: 1068940

Inspection Photos in Photo Number Order

Carried: 6 6 83012403 Crossed: QUEENSBORO BROOK CheckValue: 1,740,714,232

Span 1 and span 2 wearing surface

Photo Number: 3 Photo Filename: 0903.jpg

No Photo

Inspection Date: 12/1/2009 RC: 83 BIN: 1068940

Inspection Sketches in Sketch SysID Order

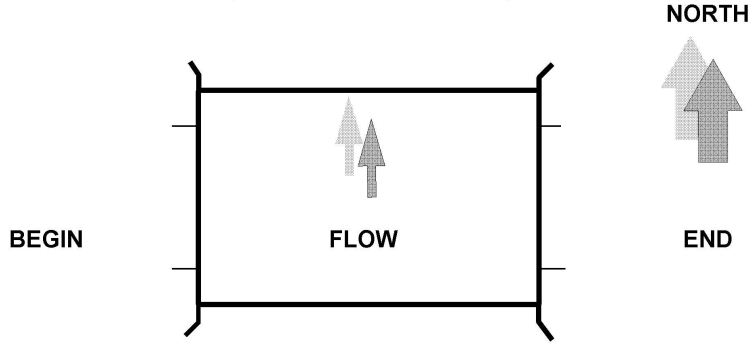
Carried: 6 6 83012403 Crossed: QUEENSBORO BROOK CheckValue: 1,740,714,232

Sketch ID: 820910689400000 Sketch Filename: BD227.09.WPD

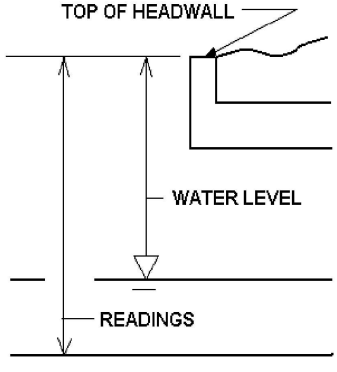
Stream Channel: Erosion and Scour -- Rated 5, Was 5
Referenced Photos:

Channel cross section reference

CHANNEL CROSS-SECTIONS ALONG FASCIAS
BIN 1068940 December 1, 2009
(ALL READINGS IN FEET)



Estimated stream skew angle = 45° Velocity = Moderate



REFERENCE

YEAR	NOTES:
2007	No significant changes noted.
2009	No significant changes noted.

Inspection Date: 12/1/2009 RC: 83 BIN: 1068940

Inspection Sketches in Sketch SysID Order

Carried: 6 6 83012403 Crossed: QUEENSBORO BROOK CheckValue: 1,740,714,232

Sketch ID: 820910689400001 Sketch Filename: Bd226.09.wpd

Stream Channel: Erosion and Scour -- Rated 5, Was 5
Referenced Photos:

Channel cross section readings

CHANNEL CROSS-SECTION READINGS

BIN 1068940 December 1, 2009

(ALL READINGS IN FEET)

DOWNSTREAM UPSTREAM

(BA) = Begin Abutment (EA) = End Abutment (✱) = Edge of Stream

(WL) = Water Level (TF) = Top of Footing (BF) = Bottom of Footing/Stream Bed

STATION	LEFT SIDE READINGS			STATION	RIGHT SIDE READINGS		
	2007	2009			2007	2009	
	FEET	FEET			FEET	FEET	
BA	15.5	15.4		BA	13.6	13.5	
5'		17.1 ✱		5'		13.2	
10'	17.6	17.2		10'	14.6	14.4 ✱	
15'		17.0		15'		14.2	
20'	16.5	17.1		20'	14.2	14.2	
25'		16.1		25'		14.1	
30'	17.6	17.1		30'	14.2	14.1	
35'		17.5		35'		14.1	
40'	16.4	16.2 ✱		40'	14.1	14.0 ✱	
EA	15.3	15.0		EA	13.9	13.5	
WL @ 30'	16.9	16.6		WL @ 30'		13.9	

Inspection Date: 12/1/2009 RC: 83 BIN: 1068940

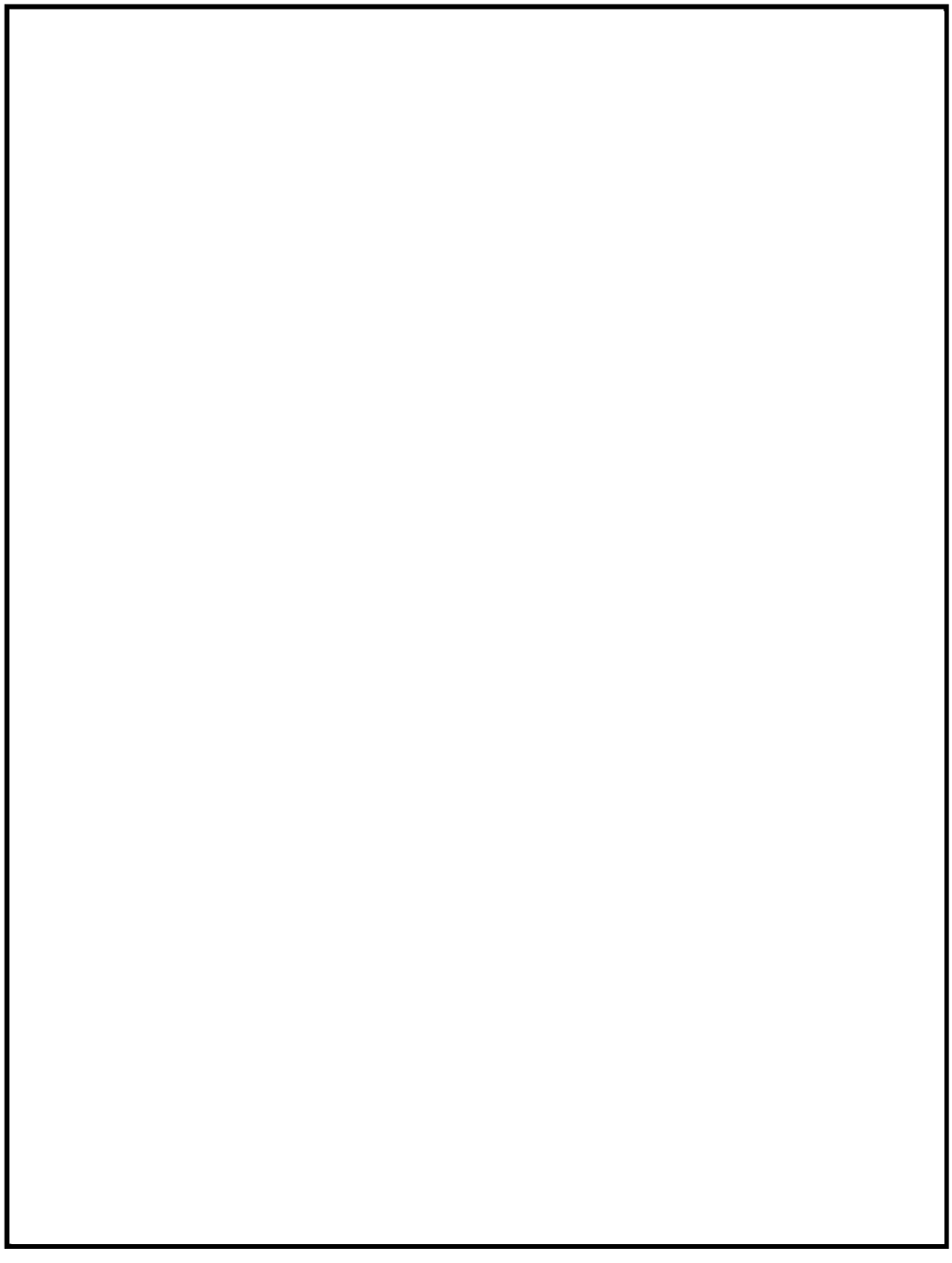
Inspection Sketches in Sketch SysID Order

Carried: 6 6 83012403 Crossed: QUEENSBORO BROOK CheckValue: 1,740,714,232

Sketch ID: 820910689400001 Sketch Filename: Bd226.09.wpd

Stream Channel: Erosion and Scour -- Rated 5, Was 5
Referenced Photos:

Channel cross section readings



Inspection Date: 12/1/2009 RC: 83 BIN: 1068940

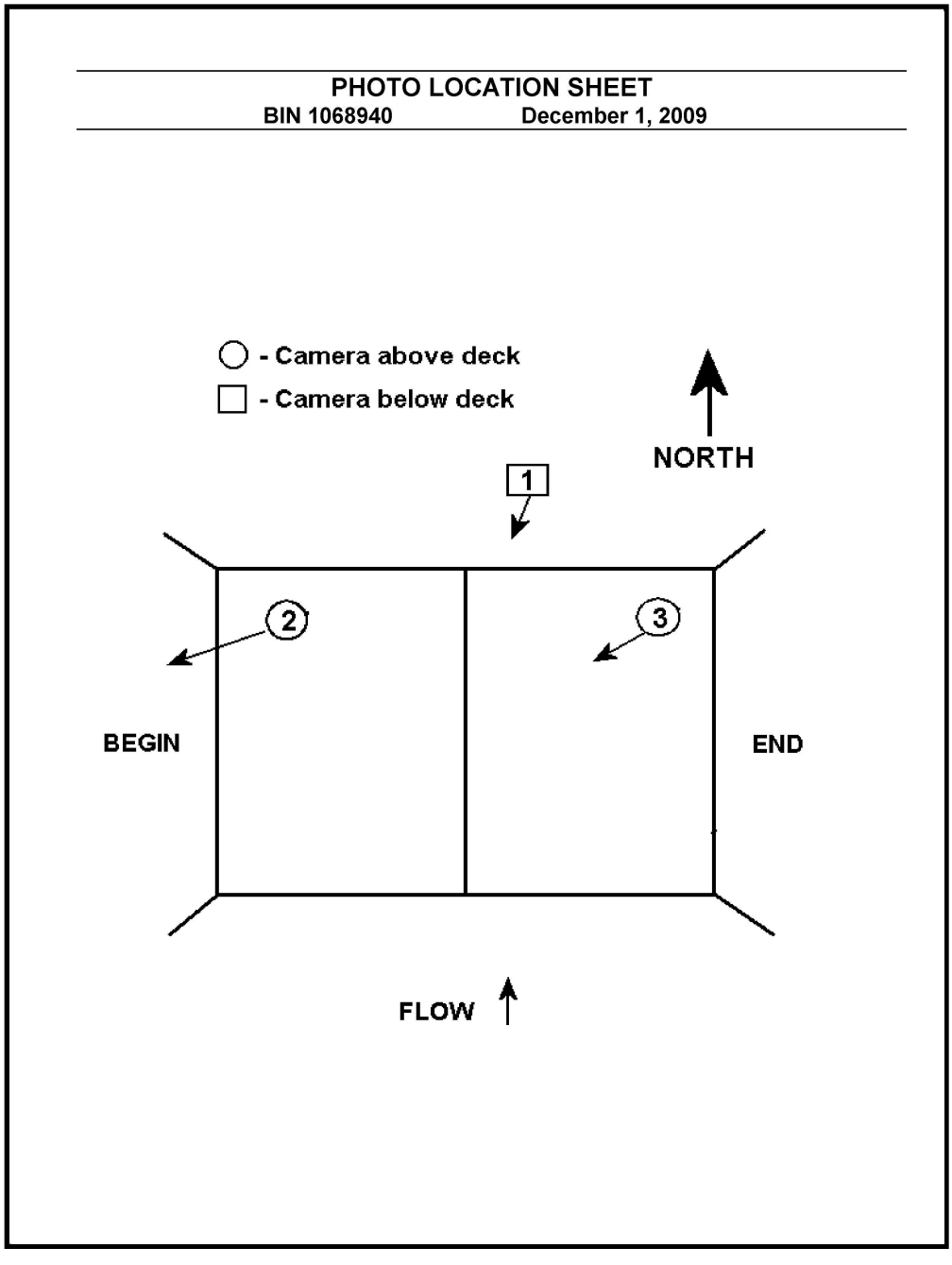
Inspection Sketches in Sketch SysID Order

Carried: 6 6 83012403 Crossed: QUEENSBORO BROOK CheckValue: 1,740,714,232

Sketch ID: 820910689400002 Sketch Filename: PHOTO.09.wpd

General Sketch for Bridge
Referenced Photos:

Photo location plan



Inspection Date: 12/1/2009 RC: 83 BIN: 1068940

Gen. Rec., Postings, Federal Ratings, etc.

Carried: 6 6 83012403 Crossed: QUEENSBORO BROOK CheckValue: 1,740,714,232

Overall Condition:

GENERAL RECOMMENDATION: 6

Computed Condition Rating: 5.667

Problems Requiring Action:

NO Further Investigation Needed

NO Flags Issued

POSTINGS:

Inspector Confirmed existing Posting data as correct.
Posted Vertical Clearance ON the bridge is: No Posting
Posted Vertical Clearance UNDER the bridge is: No Posting
No Load Restriction is posted on this bridge

Overloads Observed:

NO Overload Vehicles were observed on this bridge

FEDERAL RATINGS:

NBI Deck Condition: N
NBI Superstruct Condition: N
NBI Substruct Condition: N
NBI Channel Condition: 7
NBI Culvert Condition: 7

Diving Inspection Needs:

Diving Inspection Required? No Date of Last Diving Inspection: No Date

Inventory Problems:

Inventory Problems Exist? No

Miscellaneous:

Time Required to Inspect Bridge: 3 Hours

Lane Closure Needs: None Required

No Railroad Flagging Required

No Pedestrian Fence

No Snow Fence

The BIN Plate is in OK condition

Inspection Date: 12/1/2009 RC: 83 BIN: 1068940

Gen. Rec., Postings, Federal Ratings, etc.

Carried: 6 6 83012403 Crossed: QUEENSBORO BROOK CheckValue: 1,740,714,232

Special Emphasis Inspection Required:

Non-Redundant/Fracture Critical Members - No
Pin and Hangers - No
Fatigue-Prone Welds - No
Non-Categorized Fatigue-Prone Details - No
Other (Specified in Text) - No

Special Emphasis Details:

No Special Emphasis Inspection Required.

General Notes To the Next Inspector:

The BIN plate is attached to the end right wingwall.
The BIN Location Map and the Electric Survey Form can be found in the BIN report.
Scour Readings along the Abutments and Pier were not taken.
A possible migratory bird nest was found below the bridge.

Improvements Observed:

Inspection Date: 12/1/2009 RC: 83 BIN: 1068940

Review Progress and Personnel Present at Inspection

Carried: 6 6 83012403 Crossed: QUEENSBORO BROOK CheckValue: 1,740,714,232

Inspection Submission Status:

Submitted to QC Engineer on: 12/2/2009
QC Submission Number: 258915

QC Review Completed: 12/4/2009
QC Engineer: HENRY CARPINO

Submitted to Liaison Engineer on: 12/4/2009
Liaison Submission Number: 58940

Liaison Review Completed: 1/11/2010
Liaison Engineer: ID: 51000040

Submitted for BIIS Processing on: 1/11/2010
BIIS Submission Number: .kp1

Current Status: Keypunched, Sent to BIIS
Check Value: 1,740,714,232

Personnel Present During Inspection:

Glenn R. Snyder - Team Leader
Joseph Poczciwinski - Assistant Team Leader
Joe Kospa -

Inspection Date: 12/1/2009 RC: 83 BIN: 1068940

Inspection Access Requirements

Carried: 6 6 83012403 Crossed: QUEENSBORO BROOK CheckValue: 1,740,714,232

Equipment Required for Inspection

No Access Requirement Changes Noted During This Inspection.
This Listing is from the Inventory Database.

ACCESS CATEGORIES FOR ENTIRE BRIDGE
Required: Walking

ACCESS CATEGORIES FOR SPAN 1
Required: Walking

ACCESS CATEGORIES FOR SPAN 2
Required: Walking

Inspection Date: 12/1/2009 RC: 83 BIN: 1068940

Culvert Measurements

Carried: 6 6 83012403 Crossed: QUEENSBORO BROOK CheckValue: 1,740,714,232

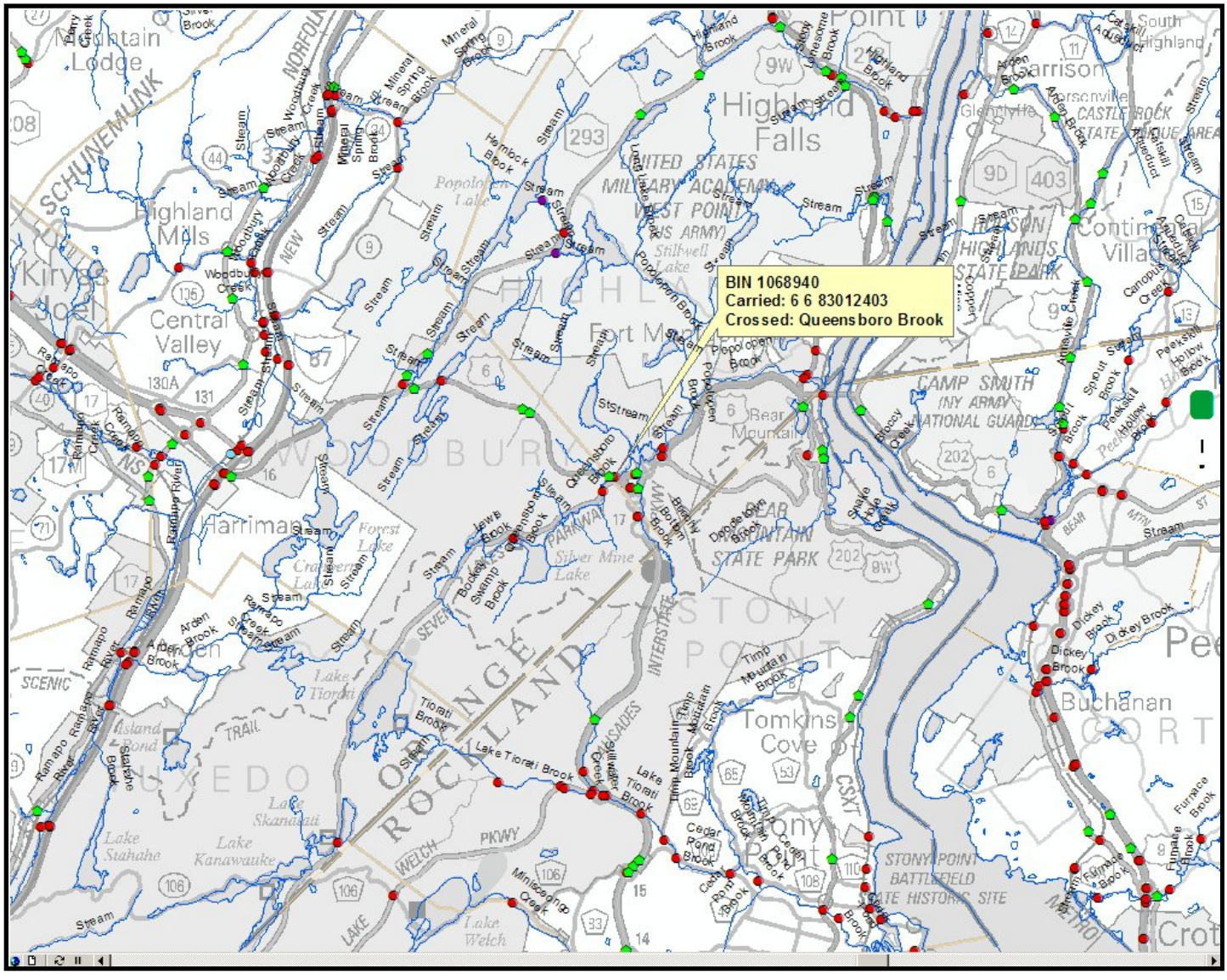
Culvert Measurements

NO CULVERT DATA FOR BIN 1068940

Standard Photos RC: 83 BIN: 1068940

Carried: 6 6 83012403 Crossed: QUEENSBORO BROOK

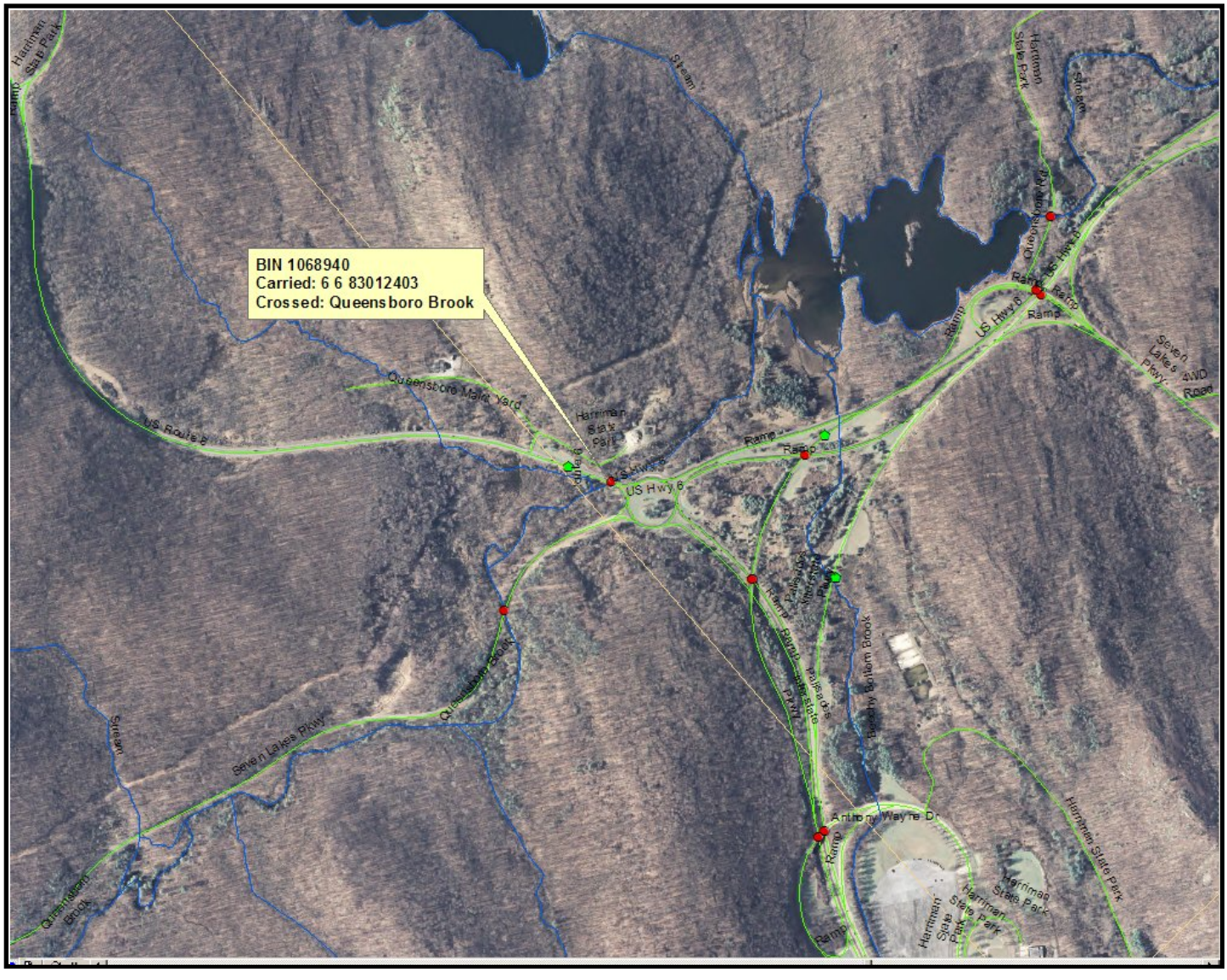
1068940_Location_Map.jpg



Standard Photos RC: 83 BIN: 1068940

Carried: 6 6 83012403 Crossed: QUEENSBORO BROOK

1068940_Quad_Map.jpg



Abutment Begin.jpg

Approach Begin.jpg

Standard Photos **RC: 83 BIN: 1068940**

Carried: 6 6 83012403 Crossed: QUEENSBORO BROOK

Approach End.jpg

Standard Photos **RC: 83 BIN: 1068940**

Carried: 6 6 83012403 Crossed: QUEENSBORO BROOK

Elevation.jpg

Standard Photos RC: 83 BIN: 1068940

Carried: 6 6 83012403 Crossed: QUEENSBORO BROOK

Feature Crossed Left.jpg

Standard Photos RC: 83 BIN: 1068940

Carried: 6 6 83012403 Crossed: QUEENSBORO BROOK

Feature Crossed Right.jpg

Standard Photos **RC: 83 BIN: 1068940**

Carried: 6 6 83012403 Crossed: QUEENSBORO BROOK

Framing Span 1.jpg

Standard Photos **RC: 83 BIN: 1068940**

Carried: 6 6 83012403 Crossed: QUEENSBORO BROOK

Pier Span1 Begin Face.jpg

Standard Photos **RC: 83 BIN: 1068940**

Carried: 6 6 83012403 Crossed: QUEENSBORO BROOK

Top of Deck.jpg

Standard Photos **RC: 83 BIN: 1068940**

Carried: 6 6 83012403 Crossed: QUEENSBORO BROOK

Wingwall End Right.jpg

Attachment F – Final Concept Design

QUEENSBORO LAKE

0 150 300 FT
SCALE: 1"=150'

NWI WETLAND
- DATA SOURCE GIS

SEVEN LAKES DRIVE

CHAZEN SURVEY AREA

LANDS OWNED BY OPRHP

LONG MOUNTAIN PKWY

GIS PARCEL LINES

LANDS OWNED BY OPRHP

PALISADES INTERSTATE PKWY

PALISADES INTERSTATE PKWY

LANDS OWNED BY OPRHP

GIS PARCEL LINES

NWI WETLAND
- DATA SOURCE GIS

LANDS OWNED BY OPRHP

LANDS OWNED BY OPRHP

ANTHONY WAYNE DR

Anthony Wayne Loop Trailhead

CONCEPTUAL TRAIL ROUTE

BIKEWAY CONNECTION FEASIBILITY STUDY

PALISADES INTERSTATE PARKWAY - BEAR MOUNTAIN STATE PARK

PALISADES INTERSTATE PARK COMMISSION

Chazen
A LaBella Company

CHAZEN PROJECT NO. : 31907.46
DATE: 01/31/2022

Attachment G – Conceptual Layout and Grading Plan

SEVEN LAKES DRIVE BIKEWAY CONNECTION
FEASIBILITY STUDY
BEAR MOUNTAIN STATE PARK

TOWN OF HIGHLANDS & WOODBURY, ORANGE COUNTY, NEW YORK

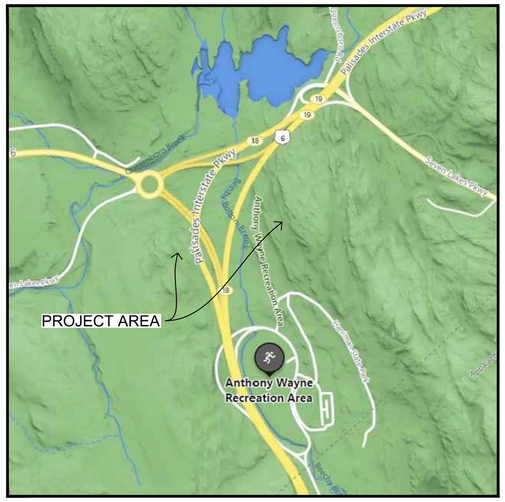
JANUARY 31, 2022

PREPARED FOR:

NEW YORK STATE OFFICE OF PARKS,
RECREATION AND HISTORIC PRESERVATION

INDEX OF DRAWINGS

PAGE NO.	REV	SHEET NO.	DATE	DESCRIPTION
1	0	G001	01/31/22	TITLE SHEET
2	0	C100	01/31/22	MULTI-USE TRAIL ALIGNMENT
3	0	C101	01/31/22	MULTI-USE TRAIL ALIGNMENT ENLARGEMENT PLAN (EAST SIDE OF PKWY)
4	0	C102	01/31/22	MULTI-USE TRAIL ALIGNMENT ENLARGEMENT PLAN (WEST SIDE OF PKWY)
5	0	C110	01/31/22	MULTI-USE TRAIL PROFILES
6	0	C111	01/31/22	MULTI-USE TRAIL PROFILES



LOCATION MAP
SCALE: N.T.S.

CONCEPT PLAN - NOT FOR CONSTRUCTION

CONCEPT PLAN - NOT FOR CONSTRUCTION

ORIGINAL SCALE IN INCHES
0 1 2 3

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rev.	date	description

PALISADES INTERSTATE PARKWAY - BEAR MOUNTAIN STATE PARK

TITLE SHEET

TOWN OF HIGHLANDS, ORANGE COUNTY, NEW YORK

designed	checked
LL	BB
date	scale
01/31/22	NA
project no.	
31907.46	
sheet no.	
G001	

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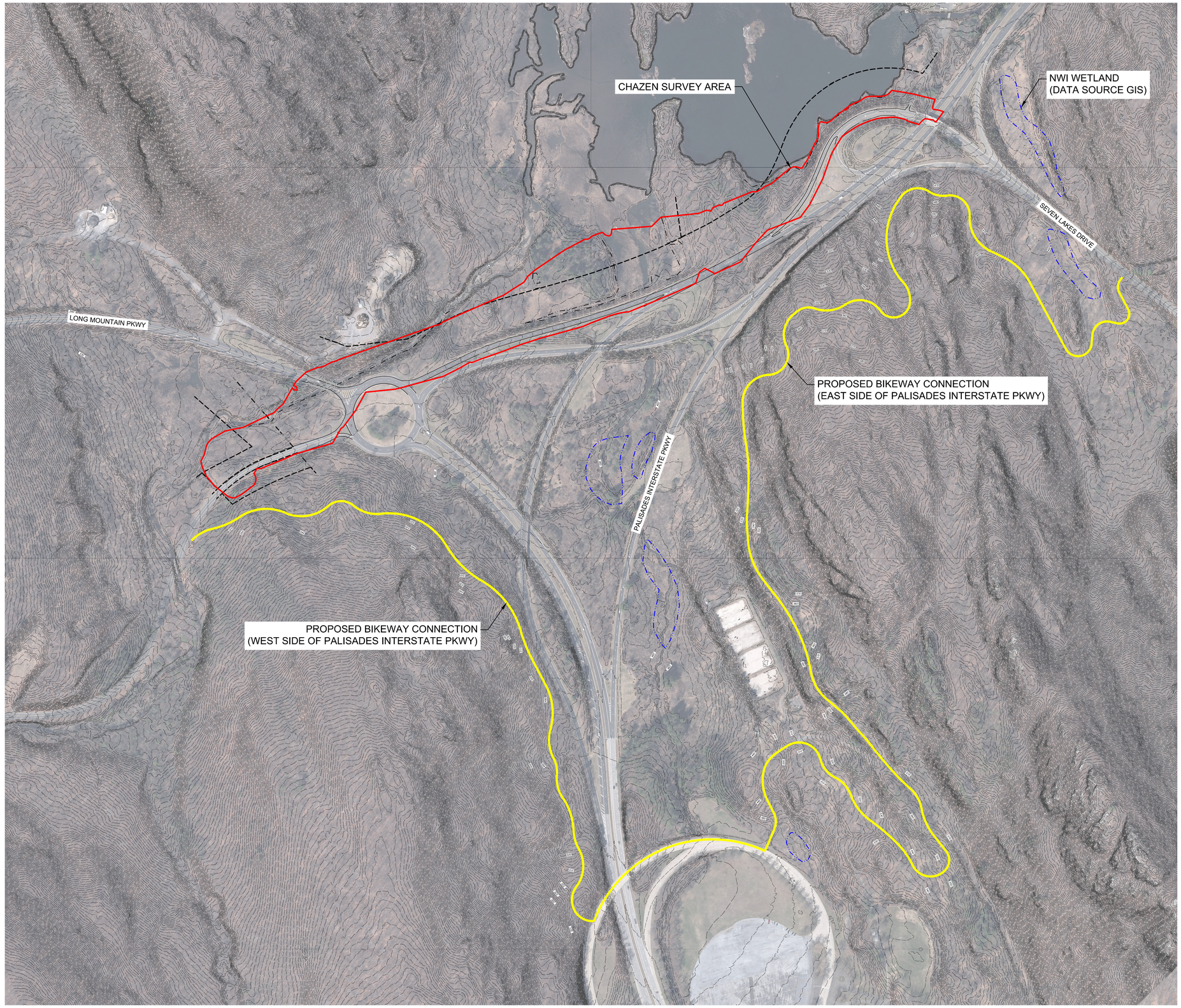
Date Printed: Jan 26, 2022, 5:32pm



GENERAL NOTE:

TOPOGRAPHY SHOWN HEREON WAS COMPILED FROM EXISTING GIS DATA. EXISTING TOPOGRAPHY AND SITE CONDITIONS NEED TO BE SURVEYED AND FIELD VERIFIED PRIOR TO CONSTRUCTION DOCUMENTS PREPARATION AND CONSTRUCTION.

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rev.	date	description

PALISADES INTERSTATE PARKWAY - BEAR MOUNTAIN STATE PARK

MULTI-USE TRAIL ALIGNMENT

TOWN OF HIGHLANDS, ORANGE COUNTY, NEW YORK

designed	checked
LL	BB
date	scale
01/31/22	1"=200'
project no.	
31907.46	
sheet no.	
C100	

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rev.	date	description

PALISADES INTERSTATE PARKWAY - BEAR MOUNTAIN STATE PARK

MULTI-USE TRAIL ALIGNMENT ENLARGEMENT PLAN (EAST SIDE OF PKWY)

TOWN OF HIGHLANDS, ORANGE COUNTY, NEW YORK

designed	checked
LL	BB
date	scale
01/31/22	1"=200'
project no.	
31907.46	
sheet no.	
C101	

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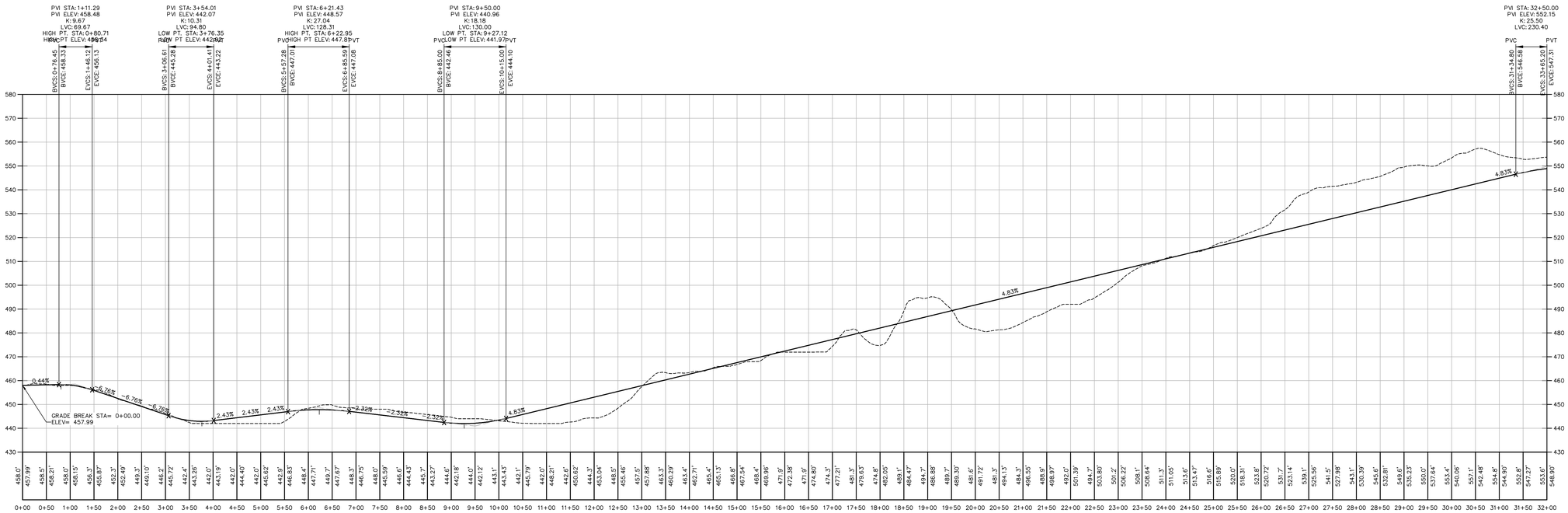
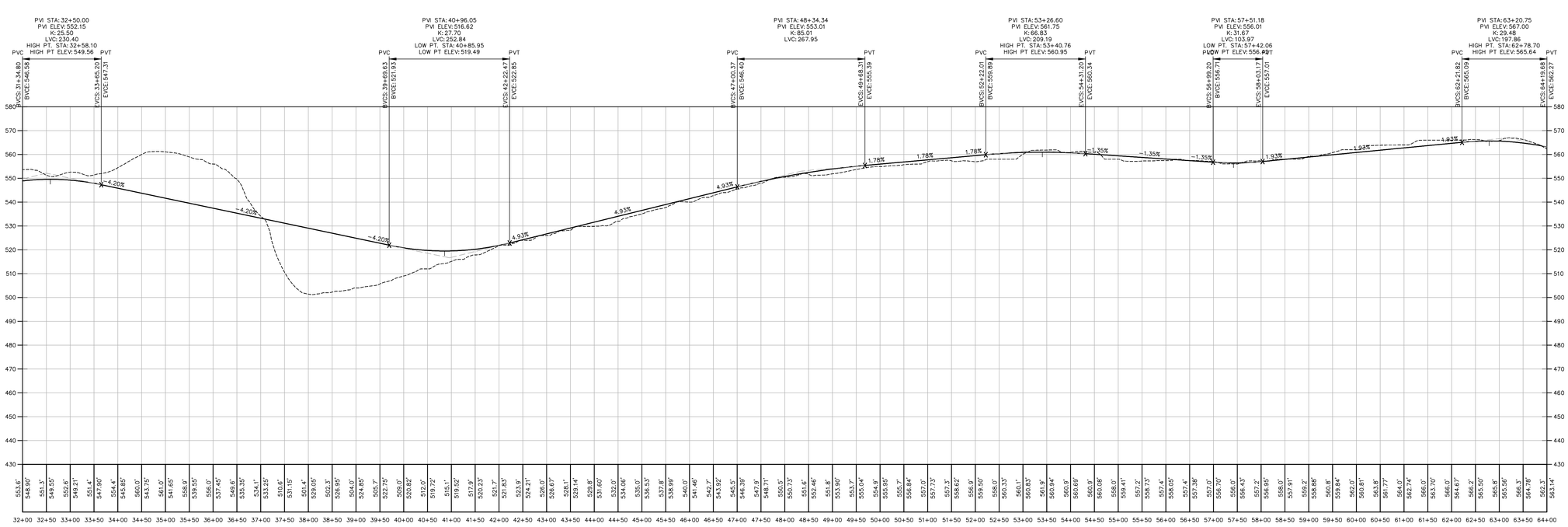
Date Printed: Jan 26, 2022, 5:34pm

LONG MOUNTAIN PKWY
PROPOSED BIKEWAY CONNECTION,
SEE TRIAL PROFILE 2/C111
(WEST SIDE OF PALISADES INTERSTATE PKWY)
CHAZEN SURVEY AREA
NWI WETLAND (TYP)
(DATA SOURCE GIS)
ANTHONY WAYNE DR
PALISADES INTERSTATE PKWY
PALISADES INTERSTATE PKWY
WEST MOUNTAIN ROAD N
WEST MOUNTAIN ROAD S
WEST MOUNTAIN ROAD
WEST MOUNTAIN ROAD
WEST MOUNTAIN ROAD



1 **YELLOW TRAIL (EAST SIDE) - PROFILE VIEW**
SCALE: H: 1"=100'
V: 1"=20'



2 **YELLOW TRAIL (EAST SIDE) - PROFILE VIEW**
SCALE: H: 1"=100'
V: 1"=20'

CONCEPT PLAN - NOT FOR CONSTRUCTION

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Capital District Office
4 British American Boulevard
Latham, New York 12110

rev.	date	description

PALISADES INTERSTATE PARKWAY - BEAR MOUNTAIN STATE PARK

MULTI-USE TRAIL PROFILES

TOWN OF HIGHLANDS, ORANGE COUNTY, NEW YORK

designed	checked
LL	BB
date	scale
01/31/22	AS NOTED
project no.	
31907.46	
sheet no.	
C110	

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ORIGINAL SCALE IN INCHES

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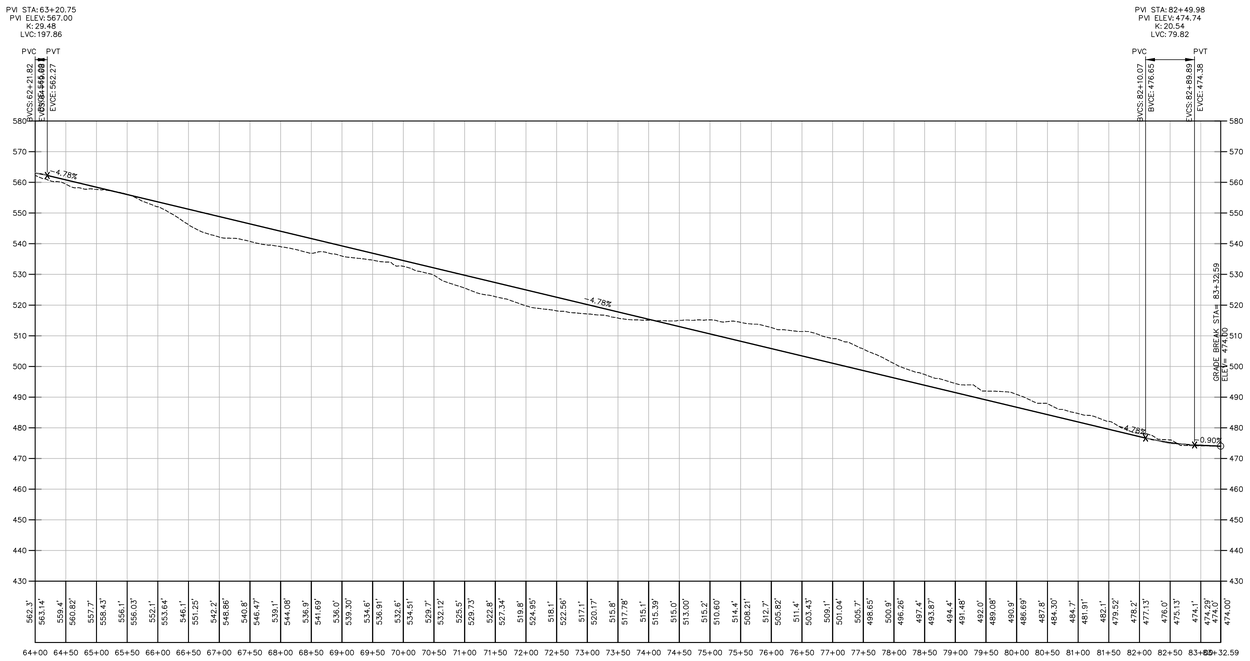
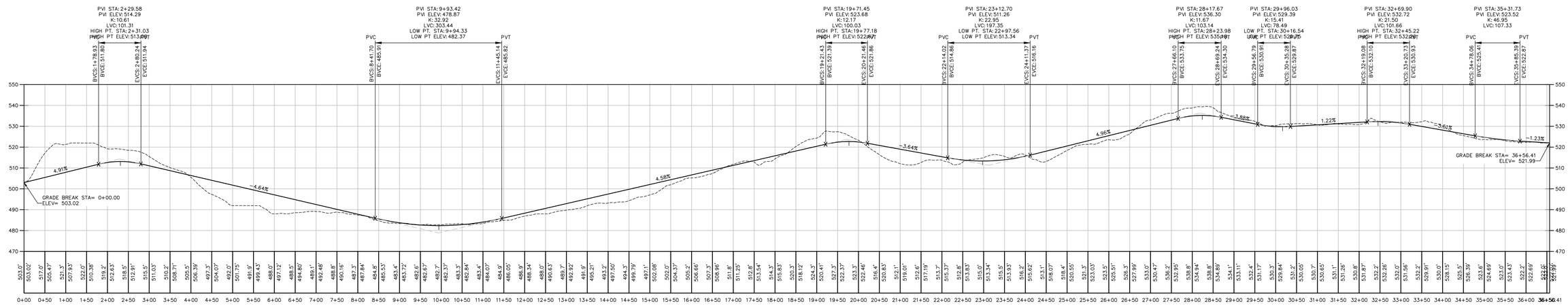
Date Printed: Jan 26, 2022, 5:35pm



1 YELLOW TRAIL (EAST SIDE) - PROFILE VIEW

SCALE: H: 1"=100'
V: 1"=20'



2 YELLOW TRAIL (WEST SIDE) - PROFILE VIEW

SCALE: H: 1"=100'
V: 1"=20'

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TOWN OF HIGHLANDS, ORANGE COUNTY, NEW YORK

designed	checked
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01/31/22	AS NOTED
project no.	
31907.46	
sheet no.	
C111	

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Xref's Attached: XBASE_GIS_TOPO_31907-46; XBASE_GIS_31907-46; XAERIAL_31907-46; XLAYOUT_31907-46; XTB_31907-46; XBASE-ENG_31907-46_CHAZEN
Date Printed: Jan 26, 2022, 5:35pm

Attachment H – Opinion of Probable Construction Costs

CHAZEN ENGINEERING, LAND SURVEYING & LANDSCAPE ARCHITECTURE CO., D.P.C.
Capital District Office
4 British American Blvd, Latham, NY 12110
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Opinion of Probable Cost for Palisades Interstate Parkway Bikeway Connection **Date: Jan 31, 2022**

Chazen Project No. 31907.46 ***CONCEPT LEVEL***

Description	QTY	Unit	Unit Price	Total Cost
Site Removals & Preparation				
Earthwork / Rock Removal (cut / fill allowance)	1	LS	$875,000.00	$875,000.00
Excavation to Export	1	LS	$175,000.00	$175,000.00
Tree & Brush Clearing 20' Wide	5.5	ACRE	$9,000.00	$49,500.00
Temporary & Permanent Erosion & Sediment Control	1	LS	$30,000.00	$30,000.00
			Subtotal for Site Removals & Preparation:	***$1,129,500.00***
Site Improvements				
Asphalt Pavement - 1.5" Top Course, 2.5" Base Course	120,000	SF	$5.50	$660,000.00
NYSDOT Subbase Course 12"	4,500	CY	$80.00	$360,000.00
Fabric 10' Wide	120,000	SF	$2.00	$240,000.00
Fine Grading	120,000	SF	$0.30	$36,000.00
Storm Drainage	1	LS	$45,000.00	$45,000.00
Trail Signs	20	EA	$500.00	$10,000.00
Orientation / Interpretive Kiosks	4	EA	$4,500.00	$18,000.00
Wooden Guardrail	2,500	LF	$45.00	$112,500.00
8' High Metal Picket Fencing	3,500	LF	$50.00	$175,000.00
Lawn Repair / Restore	1	LS	$2,000.00	$2,000.00
Imported Topsoil	1	LS	$8,000.00	$8,000.00
			Subtotal for Site Improvements	***$1,666,500.00***
			Construction Item Subtotal	***$2,796,000.00***
			Design Contingency (20% of Construction Costs)	**$559,200.00**
			Mobilization, Overhead and Profit (10% of Construction Costs)	**$279,600.00**
			General Conditions (Project Closeout/Demob 5% of Construction Costs)	**$139,800.00**
			General Construction Estimate Total	**$3,774,600.00**

[1] This Opinion of Probable Cost is intended to be used for order of magnitude pricing for budget purposes only.

Attachment I – Preliminary SEQR Analysis

LaBella
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MEMORANDUM

To:	NYS Office of Parks, Recreation and Historic Preservation & Palisades Interstate Park Commission
From:	LaBella Associates, Caren LoBrutto, Senior Planner
Date:	January 26, 2022
Re:	Palisades Interstate Parkway (PIP) Seven Lakes Connection – Bikeway Connection Feasibility Study Palisades Interstate Parkway – Bear Mountain State Park, Orange County, NY
Project #:	31907.46

SUMMARY

The New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP) & Palisades Interstate Park Commission (PIPC) are proposing to design and construct an approximately 12,000-foot-long shared use path/trail with a bike lane, in the Town of Highlands and the Town of Woodbury, Orange County, New York. The path/trail connection is located at the Palisades Interstate Parkway intersection with Seven Lakes Drive and Bear Mountain State Park. The proposed shared use path width is proposed to be ten feet with an adjacent graded width of two feet (on each side), and a bike lane width of four feet minimum. The path/trail is anticipated to cross five parcels (Parcel Lots 234-1-13, 234-1-14, 19-1-28, 234-1-11, 19-1-26) owned by NYSOPRHP and to cross within the PIPC right-of-way. The proposed path/trail would connect with the Anthony Wayne Recreation Area and trailhead located to the south. The path/trail would occupy areas that are currently wooded, with some portions of the path/trail running coterminous with Anthony Wayne Drive. Parking for the proposed path/trail will be at the existing parking lot at the Anthony Wayne Recreation Area. The anticipated total ground disturbance to accommodate the new path/trail is approximately 5.5 acres. Since the project site is located on NYS park lands, the proposed action is exempt from local zoning regulations. The proposed action is classified as a Type I Action due to the anticipated amount of ground disturbance and location on publicly owned parkland and the National Register of Historic Places listed PIP.

At the onset of this project, OPRHP and PIPC were focused on the proposed Red Route, which is located north of the PIP from the east and west intersections of the PIP and Seven Lakes Drive. During the course of this feasibility study, this route was determined not to be the preferred route for the proposed trail alignment. Please note that the only a portion of the project that was evaluated for wetlands and aquatic resources was the Red Route. Accordingly, a preliminary SEQR overview is being provided for the proposed Yellow Route.

Interested and Involved Agencies

A list of interested and involved agencies, their respective roles, and a list of discretionary approvals required for the implementation of the proposed project, are listed below:

Involved Agencies:

- New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP)
- New York State Department of Environmental Conservation (NYSDEC) – General Permit GP-0-20-001 for SPDES;

- New York State Department of Transportation
- New York State Department of State – Coastal Consistency Assessment

Interested Agencies:

- Palisades Interstate Park Commission (PIPC)
- New York State Historic Preservation Office
- Orange County
- Town of Highlands
- Town of Woodbury

PRELIMINARY STATE ENVIRONMENTAL QUALITY REVIEW (SEQR) ANALYSIS

Discretionary approvals (e.g. decision to fund) by State agencies require review under the State Environmental Quality Review Act (SEQRA), which discloses information about relevant environmental resources and site conditions and potential impacts from the proposed project. The SEQR review would likely involve an analysis including:

- Land use, zoning, and public policy pertinent to the site;
- Soil, surface water, and groundwater resources existing on site;
- Vegetation and wildlife, including endangered, threatened and rare species on or near the site;
- Available and proposed utility infrastructure, including stormwater;
- Historic and cultural resources on or near the site;
- Traffic conditions existing and proposed; and
- Other environmental resource areas.

Land Use

The project site (the "Yellow Route") starts from the eastern intersection of the PIP and Seven Lakes Drive, and heads south through to the northern tip of Anthony Wayne Recreation Area. The trail connects with the entry/access drive of Anthony Wayne Recreation Area and utilizes the PIP overpass and continues north to and at grade connection with Seven Lakes Drive. The Yellow Route travels through OPRHP parkland and PIPC ROW. The land uses located within approximately 1,000 feet of the project site are characterized by wooded, undeveloped land, trails (Anthony Wayne Loop Trailhead), recreation areas (Anthony Wayne Recreation Area – picnic ground), and Bear Mountain State Park. The additional of a path/trail is not anticipated to adversely affect local land use.

Zoning

As stated above, since the proposed path/trail is located on NYS park lands and PIPC land, the proposed action is exempt from local zoning regulations.

Public Policy

The PIP is a designated National and State Scenic Byway and is managed under a Corridor Management Plan last updated in June 2002. Section 403.1 of the Palisades Interstate Park

Commission, rules and regulations, states that the magnificent State parks, recreational and historic sites administered by the OPRHP and the PIPC encourage and facilitate the use and enjoyment of such resources by the public and thereby promote and enhance the well-being of each individual.

The New York State Office of Parks, Recreation and Historic Preservation (OPRHP) released the 2020 State Greenways Trails Plan, which provides a vision, goals and recommendations to guide future planning and development of greenway trails, including expanding greenway trails in underserved communities and improving connections between trails and other transportation modes. The 2020 State Greenways Trails Plan states that the focus on greenway trail planning is shifting from solely recreational and transportation functions to including community health.

The proposed trail/path is anticipated to be consistent with the 2020 State Greenways Trails Plan and PIPC policy.

Coastal Zone

The project site is located partially within the State's Coastal Zone boundary and within a Scenic Area of Statewide Significance (SASS). Any State action will require a coastal consistency assessment and related analysis to consider potential impacts to the SASS by the proposed project. The site is not located within a Local Waterfront Revitalization Program area. The proposed trail/path is anticipated to be consistent with the State's coastal zone policies and is not anticipated to adversely affect the SASS.

Soils

According to the United Stated Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) website, the following soils table provides the soil characteristics for each soil type expected to be found on the project site. The installation of the proposed path/trail is not anticipated to result in adverse conditions related to soil due to its relatively shallow depth and the implementation of a Stormwater Pollution Prevention Plan (SWPPP).

Table 1: Characteristics of Anticipated Soil Types within Project Area

% of SITE	SOIL SYMBOL	SOIL TYPE	SLOPES	DRAINAGE	DEPTH TO WATER TABLE	DEPTH TO BEDROCK
4.8	AC	Alden extremely stony	0-3%	Very poorly drained	~0 inches	>80 inches
9.1	ChB	Charlton fine sandy loam	3-8%	Well drained	>80 inches	>80 inches
13.8	HLC	Hollis	8-15%	Well drained	>80 inches	10-20 inches to lithic bedrock

% of SITE	SOIL SYMBOL	SOIL TYPE		SLOPES	DRAINAGE	DEPTH TO WATER TABLE	DEPTH TO BEDROCK
21.7	HLD	Hollis		15-25%	Well drained	>80 inches	10-20 inches to lithic bedrock
21.2	ROC	Rock outcrop-Hollis complex	Rock Outcrop	8-15%	Unranked		0 inches to lithic bedrock
			Hollis	8-15%	Well drained	>80 inches	10-20 inches to lithic bedrock
17.9	ROD	Rock outcrop-Hollis complex	Rock Outcrop	15-35%			0 inches to lithic bedrock
			Hollis, Very stony	15-35%	Somewhat excessively drained	>80 inches	8-23 inches to lithic bedrock
11.5	UH	Udorthents, smoothed		0-8%	Somewhat excessively drained	About 36-72 inches	>80 inches

Wetlands and Surface Waters

According to NYSDEC EAF Mapper, the NYSDEC Environmental Resource Mapper, and available GIS mapping, the site does not contain nor is contiguous to a State regulated DEC wetland. According to National Wetland Inventory information available through GIS, there are five federally regulated NWI wetlands located off site, approximately 70 feet away at the nearest point, to the proposed Yellow Route. These wetlands are described as follows:

- 0.72 ± acre freshwater forested/shrub wetland (PF01E), classified as a palustrine system with woody vegetation that is at least 20 feet tall or taller.
- 1.11 ± acre freshwater forested/shrub wetland (PSS1C), classified as a palustrine system dominated by woody vegetation less than 20 feet tall. Species include true shrubs, young trees (saplings), and trees or shrubs that are small or stunted because of environmental conditions.
- 0.36 ± acre freshwater forested/shrub wetland (PSS1C), classified as a palustrine system dominated by woody vegetation less than 20 feet tall. Species include true shrubs, young trees (saplings), and trees or shrubs that are small or stunted because of environmental conditions.
- 1.2 ± acre freshwater emergent wetland (PEM1/SS1E), classified as a palustrine system that includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to

ocean-derived salts is below 0.5 ppt. It is characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens.

- 0.26 ± acre freshwater emergent wetland (PEM1E), classified as a palustrine system that includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 ppt. It is characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens.

The Beechy Bottom Brook, a riverine that spans 6 ± acre (R3UBH), which is classified as a riverine system would likely be traversed by the proposed Yellow Route where it travels coterminous with Anthony Wayne Drive. Depending on the status of this stream (e.g. in a culvert) in this location no impacts may occur, but this crossing should be considered further for potential impacts and permitting. Based on the NWI map there appears to be a stream, Queensboro Brook (riverine R3UBH 1.96 acres), at the northwest corner of the Yellow Route where it travels south of a traffic circle. It is not clear if this stream exists, but this potential crossing should be considered further for potential impacts and permitting.

The Yellow Route is not located within any designated floodway, within either 100- or 500-year floodplain, nor above a principal or sole source aquifer.

Vegetation and Wildlife

According to the NYSDEC Environmental Resource Mapper (ERM), there are known occurrences of endangered, threatened, or rare species and significant natural communities, on or in the vicinity of the project site. The FEAF mapper identifies two significant natural communities within the area proposed for the Yellow Route. These communities are identified as the Chestnut Oak Forest and Rocky Summit Grasslands. A field survey has not yet been conducted to verify the current or proposed acreages of these significant natural communities on or in the vicinity of the project site.

The FEAF mapper states that the project site may contain areas identified as potential habitat for the Northern long-eared bat, Timber rattlesnake, and Bog turtle, which are regulated by the NYSDEC. Additionally, the FEAF mapper states that the project site may contain habitat for the Eastern wormsnake, a species listed by NYSDEC as rare. Rare species are not regulated by the NYSDEC.

According to the US Fish & Wildlife Service (USFWS) online consultation, there is potential for the following species on or in the vicinity of the project site: Indiana bat (endangered), Northern long-eared bat (threatened), Bog turtle (threatened), Monarch butterfly (candidate), and Small whorled pogonia (threatened). Candidate species are not regulated by the USFWS. There are no critical environmental areas within or in the vicinity of the project site.

Further information will be required to determine potential impacts to regulated species.

Utilities

There are no proposed utilities included in the proposed action at this stage.

Stormwater

Since the proposed overall ground disturbance will be greater than 1 acre, the Applicant will require a Stormwater Pollution Prevention Plan (SWPPP) to ensure no significant adverse impacts related to stormwater will occur. Coverage under the State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activities will be sought. A stormwater design for this project has not yet been completed, however, there may be some culverts installed for drainage.

Cultural/Historic Resources

According to the FEAF Mapper and NYS Office of Parks, Recreation, and Historic Preservation (NYSOPRHP) Cultural Resource Information System (CRIS) mapping, there are National Historic Register sites adjacent to the project site. The CRIS mapping indicates that the project site is within a known archeologically sensitive area.

According to the CRIS mapper, the stretch of the Palisades Interstate Parkway (PIP) (NR #98NR01343), from Fort Lee, NJ to Bear Mountain, NY, is listed on the National Historic Register as a National Register building site. It is a designated State Scenic Byway in New York, and is a unique scenic byway corridor, historic parkway and major transportation facility. As stated by NYSDOT Scenic Byways section, much of the original parkway is still intact over fifty years after its completion, including the stone arched bridges, the forested buffers, landscaped medians and scenic views. However, over 6.5 million vehicles travel this corridor every year. This stretch of the PIP was listed on the State Register in 1998 and listed on the National Register in 2000.

According to the CRIS mapper, the project site is within Harriman State Park (USN# 07109.001181) and is in an eligible Building District. This District covers Orange County, and specifically the Town of Highlands. Based on the Determination of NR Eligibility letter in 2016, Harriman State Park is significant under criteria A and C in the areas of conservation, recreation, landscape architecture, social history and architecture as one of New York's earliest and most influential state parks, for its association with precedent-setting recreational and social welfare programs, for its enormous naturalist designed landscape, and for its outstanding collection of rustic park architecture. The period of significance extends from 1910, the year the park was acquired, and development began, through 1965, as the park's recreational and social programs continue today. The County Commissioner accepted State Register and National Register eligibility in 2018.

The proposed trail/path is not anticipated to result in significant adverse impacts to historic or cultural resources; however, consultation with the State's Historic Preservation Office is required to determine any impacts.

Traffic and Parking

The proposed trail/path will utilize the large, parking lot at the Anthony Wayne Recreation Area for parking, as it has more than sufficient parking for the proposed action. Traffic conditions are not anticipated to be significantly changed as the parking lot currently provides access to several existing trails. However, further analysis should be undertaken to determine the number of new users seeking to access the new connection made by the proposed path/trail.

Lighting

No lighting is proposed as part of the proposed path/trail at this time.

NEXT STEPS IN THE SEQR PROCESS

1) Complete FEAF Part 1 Form and associated desktop analysis. Detailed analysis may be required to assess potential impacts to regulated species, regulated wetlands, and potential traffic impacts.
2) The Lead Agency will need to declare their intent to act as Lead Agency and classify the action as Type I for the purpose of conducting the State Environmental Quality Review Act (SEQRA). The Full Environmental Assessment Form (FEAF) along with a Notice requesting Lead Agency status will need to be circulated to involved agencies, including but not limited to those listed above. The noted agencies have thirty days to respond to the request from the date of circulation.
3) Assuming there is no objection from the noted agencies regarding lead agency, the lead agency may establish itself as SEQRA Lead Agency and conduct the environmental review any time after the thirty-day consent period has ended.
4) At that time, the Lead Agency should complete its review of the FEAF and issue a SEQRA determination.