

Village of



Croton-on-Hudson

Engineering Department
Stanley H. Kellerhouse Municipal Building
One Van Wyck Street
Croton-on-Hudson, NY 10520-2501
Tel: 914-271-4783
engineering@crotononhudson-ny.gov

Application for Wetlands Activity Permit

(Form # Eng-§227)

(Revised 03 2012)

Application Date: _____ Is this application relevant to an open building permit? ☐ Yes ☒ No

Application #: _____ **Building Permit #:** _____

Property Information: Section: N/A Block: _____ Lot: _____

Property Location (street address): Quaker Bridge Road Bridge

of Acres or Sq. Ft: _____ Zoning District RA-5 Commercial Lot: ☐ Yes ☒ No Vacant Lot: ☐ Yes ☒ No

Applicant Information: Person or Company Doing Work: ☒ Owner ☐ Contractor ☐ Other: _____

Last Name: Greechan, Jr., P.E. First Name: Hugh MI: J.

Company: Westchester County Department of Public Works and Transportation

Address: 148 Martine Avenue

Address: _____

Phone #: 914-995-2546 Cell #: _____ E-mail: hjj7@westchestercountyny.gov

Property Owner: ☒ Same As Above

Last Name: _____ First Name: _____ MI: _____

Company: _____

Address: _____

Address: _____

Phone #: _____ Cell #: _____ E-mail: _____

Description of proposed work in wetland or wetland buffer:

Plans & Specifications: Note: See §227-7 of the Village Code for all requirements.

Detail plans & specifications for the proposed wetland activity, drawn to a scale of not smaller than 1" = 50', shall show the following:

1. Estimated quantities of material to be deposited or removed.
2. Pre- and post-development impervious surface area.
3. Location of any well and any septic or other waste disposal system with 50 ft. of the area to be disturbed.
4. Details of any proposed drainage system, both for the construction and the final development & maintenance requirements.
5. If creation, modification or enlargement of a pond is proposed, details of the construction of any dams, embankments, outlets or other water-control devices & deposition of the spoil material.
6. List all beneficial functions of the wetland, waterbody or watercourse which will be affected by the proposed activities.
7. Erosion and sediment controls must be provided and a schedule for their installation & maintenance.

INSTRUCTIONS:

1. Submit eight (8) copies of all specified supporting plans & documentation when WCC is approving authority, three (3) copies when Village Engineer is approving authority and fourteen (14) copies when Planning Board is approving authority. (Note: PDF's or other acceptable electronic copies of all documents must be submitted if WCC or Planning Board is approving authority.)
2. Include a completed environmental assessment form (EAF), a Coastal Assessment Form (CAF) and a USGS topographic map with the property outlined. When the Village Engineer is approving authority, an EAF and CAF are not required.

3. If proposed project qualifies as a land development activity, a Stormwater Pollution Prevention Plan (SWPP) consistent with the requirements of Chapter 196, Article I must be submitted.
4. The approving authority for all applications is the Water Control Commission; exceptions are listed on page 2.
5. Attach Certificate of Liability Insurance naming the Village of Croton-on-Hudson as additional insured and certificate holder and documentation of Disability and Workers Compensation Insurance with the Village listed as certificate holder.

I certify that the above information is accurate, and I am the property owner or authorized by the owner to file this application on their behalf and that I will indemnify and hold the Village harmless against any damage or injury that may be caused by or arise out of any entry onto the property in connection with the processing of the application, during construction or performance of the work or within one year after the completion of the work.

Hugh J. Greechan, Jr., P.E.

Applicant's Name (please print)



Applicant's Signature

7/9/25
Date

FOR VILLAGE USE ONLY:

Fee \$ _____ Fee Paid (date): _____ Received by: _____
APPROVED BY: ☐ WCC ☐ VILLAGE ENGINEER ☐ PLANNING BOARD

Approving authorities –Wetlands Law -Section 227 –F:

The approving authority for all applications shall be the Water Control Commission, except as follows:

- (1) The Planning Board shall be the approving authority for any application involving property that is also the subject of a pending site plan, minor site plan, subdivision or special permit application, or fill or excavation permit, in accordance with the Code of the Village of Croton-on-Hudson, and for any application that also involves the construction or establishment of a principal building or use.
- (2) The Village Engineer shall be the approving authority for any of the following activities proposed to be conducted on property not subject to regulation by the State of New York, and no public hearing shall be required:
 - (a) Removing water-deposited silt and/or other material in order to restore the preexisting land elevations, provided that the total amount removed does not exceed 15 cubic yards of material.
 - (b) Restoring land elevations that have been altered by erosion or storm damage.
 - (c) The construction, expansion or improvement of private residential or recreational facilities, as otherwise legally permitted, provided that the total amount of material deposited, removed or regraded does not exceed 15 cubic yards.
 - (d) The construction of driveways not associated with any other construction approvals where alternative means of access are proved to be impractical, provided that the amount of material to be deposited or regraded in connection with such construction does not exceed 100 cubic yards.
 - (e) The use of harmless chemicals, dyes and other similar substances to maintain or study any wetland.
 - (f) Decorative landscaping and planting in wetlands when covering less than 1/10 of an acre.
- (3) Where the Water Control Commission or Village Engineer initiates a review of an application submitted pursuant to this chapter and determines that because of the scope, nature, location or potential environmental impact of the action which could result from approval of the wetlands permit a public hearing would be either necessary or appropriate, the application shall be immediately forwarded to the Planning Board for public hearing, whereupon the Planning Board shall become the approving authority for such application.

Phone: 518.636.9956
E-Mail ospa@ospaengineering.com
Web site WWW.OSPAENGINEERING.COM

Tricolored Bat (*Perimyotis subflavus*), and the federally proposed threatened Monarch Butterfly (*Danaus plexippus*) to occur within the project area. Approximately 76 trees with a diameter at breast height (DBH) equal to or greater than 2 inches are expected to be removed within the clearing window, November 1st – March 31st. The nearest hibernacula is located approximately 10.7 miles from the project site. The EAF Mapper indicates the project is within the Westchester County, County and State Park Lands Critical Environmental Area for its exceptional or unique character. The EAF Mapper indicates that there are no other known records of federally or state-listed rare or endangered animals or plants or significant natural communities, at the project site or in its immediate vicinity. The project site was evaluated for Bog turtle habitat and it was determined that habitat for the Bog Turtle is not present.

A completed Joint Application Form and attachments, including project plans and additional pertinent documentation are included in this submission. If you have any questions, please contact me at 518-636-9956 or at mosterhout@ospaengineering.com.

Sincerely,



Melanie Osterhout, P.E.
President

Enclosures

c:
Westchester County
Creighton Manning Engineering
file

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1.	Project Database Mapping, Wetland Delineation Report and FEAF
2.	Plans
3.	SHPO Documentation



JOINT APPLICATION FORM

For Permits for activities affecting streams, waterways, waterbodies, wetlands, coastal areas, sources of water, and endangered and threatened species.

You must separately apply for and obtain Permits from each involved agency before starting work. Please read all instructions.

1. Applications To:

>NYS Department of Environmental Conservation

☒ Check here to confirm you sent this form to NYSDEC.

Check all permits that apply:

☒ Stream Disturbance

☐ Excavation and Fill in
Navigable Waters

☐ Docks, Moorings or
Platforms

☐ Dams and Impound-
ment Structures

☒ 401 Water Quality
Certification*

☐ Freshwater Wetlands

☐ Tidal Wetlands

☐ Wild, Scenic and
Recreational Rivers

☐ Coastal Erosion
Management

☐ Water Withdrawal

☐ Long Island Well

☐ Incidental Take of
Endangered /
Threatened Species

* See Instructions (page 3)

>US Army Corps of Engineers

☒ Check here to confirm you sent this form to USACE.

Check all permits that apply: ☐ Section 404 Clean Water Act

☐ Section 10 Rivers and Harbors Act

Is the project Federally funded? Yes ☒ No

If yes, name of Federal Agency:

General Permit Type(s), if known:

Preconstruction Notification: ☒ Yes ☐ No

>NYS Office of General Services

☐ Check here to confirm you sent this form to NYSOGS.

Check all permits that apply:

☐ State Owned Lands Under Water

☐ Utility Easement (pipelines, conduits, cables, etc.)

☐ Docks, Moorings or Platforms

>NYS Department of State

☐ Check here to confirm you sent this form to NYSDOS.

Check if this applies: ☐ Coastal Consistency Concurrence

2. Name of Applicant

Taxpayer ID (if applicant is NOT an individual)

Mailing Address

Post Office / City

State

Zip

Telephone

Email

Applicant Must be (check all that apply): ☒ Owner ☐ Operator ☐ Lessee

3. Name of Property Owner (if different than Applicant)

Mailing Address

Post Office / City

State

Zip

Telephone

Email

For Agency Use Only

Agency Application Number:

4. Name of Contact / Agent

Melanie Osterhout, OSPA Engineering Services, P.C.

Mailing Address

800 Route 146, Bldg. 200, Suite 280

Post Office / City

Clifton Park

State

NY

Zip

12065

Telephone (518) 636-9956

Email mosterhout@ospaengineering.com

5. Project / Facility Name

Quaker Bridge Road Bridge Replacement

Property Tax Map Section / Block / Lot Number:

N/A

Project Street Address, if applicable

N/A

Post Office / City

Cortlandt/Croton-on-Hudson

State

NY

Zip

10520

Provide directions and distances to roads, intersections, bridges and bodies of water

From US-9 in Croton-on-Hudson, turn onto Old Albany Post Road. In 0.8 miles, stay straight onto Quaker Bridge Road. The project site will be on the left in 1.4 miles.

☒ Town ☒ Village City County Stream/Waterbody Name

Cortlandt/Croton-on-Hudson

Westchester

Croton River

Project Location Coordinates: Enter Latitude and Longitude in degrees, minutes, seconds:

Latitude: 41 ° 12 ' 43.1 " Longitude: 73 ° 52 ' 8.6 "

6. Project Description: Provide the following information about your project. Continue each response and provide any additional information on other pages. **Attach plans on separate pages.**

a. Purpose of the proposed project:

The project proposes the complete replacement of the existing bridge and abutments on Quaker Bridge Road over the Croton River with a new structure.

b. Description of current site conditions:

The project area is comprised of a truss bridge, roadways, a stream, and forested cover.

c. Proposed site changes:

The bridge will be replaced. Areas adjacent to the bridge will be graded to accommodate the new structure and construction access.

d. Type of structures and fill materials to be installed, and quantity of materials to be used (e.g., square feet of coverage, cubic yards of fill material, structures below ordinary/mean high water, etc.):

550 CY of stone fill within 2,290 SF of disturbance below OHW. 250 LF of the river will be impacted during construction.

e. Area of excavation or dredging, volume of material to be removed, location of dredged material placement:

550 CY of excavation within 2,290 SF of disturbance below OHW.

f. Is tree cutting or clearing proposed? ☒ Yes ☐ No If Yes, explain below.

Timing of the proposed cutting or clearing (month/year): November 1- March 31

Number of trees to be cut: 76

Acreage of trees to be cleared:

g. Work methods and type of equipment to be used:

Excavators, front end loaders, bulldozers and paving equipment will be on site. After erosion and sediment controls are installed, typical site work methods will be utilized.

h. Describe the planned sequence of activities:

Install temporary erosion and sediment control measures, where appropriate. Silt fencing, erosion control mats, sediment traps, turbidity curtains and cofferdams will be utilized. Temporary erosion and sediment control measures will be established prior to disturbance. Finalization of grading will be followed by site stabilization and the removal of the erosion and sediment controls.

i. Pollution control methods and other actions proposed to mitigate environmental impacts:

Pollution prevention and controls include on-site spills kits, equipment cleaning, maintenance, and repair will be conducted in designated areas protected by berms. Toxic materials such as paints, solvents, etc... must be stored in waterproof containers and kept in storage facilities.

j. Erosion and silt control methods that will be used to prevent water quality impacts:

Silt fencing, turbidity curtains and cofferdams will be utilized. Temporary erosion and sediment control measures will be established prior to disturbance.

k. Alternatives considered to avoid regulated areas. If no feasible alternatives exist, explain how the project will minimize impacts:

The bridge has been closed to traffic due to the structural condition. Rehabilitation was not deemed feasible.

l. Proposed use: ☐ Private ☒ Public ☐ Commercial

m. Proposed Start Date: November 2025 Estimated Completion Date: December 2026

n. Has work begun on project? Yes If Yes, explain below. ☒ No

o. Will project occupy Federal, State, or Municipal Land? ☒ Yes If Yes, explain below. No

The project will occupy the county-owned right-of-way.

p. List any previous DEC, USACE, OGS or DOS Permit / Application numbers for activities at this location:

None

q. Will this project require additional Federal, State, or Local authorizations, including zoning changes?

☒ Yes If Yes, list below. ☐ No

Village of Croton on Hudson and Town of Cortlandt approvals/permitting.

7. Signatures.

Applicant and Owner (If different) must sign the application. If the applicant is the landowner, the **landowner attestation form** can be used as an electronic signature as an alternative to the signature below, if necessary. Append additional pages of this Signature section if there are multiple Applicants, Owners or Contact/Agents.

I hereby affirm that information provided on this form and all attachments submitted herewith is true to the best of my knowledge and belief.

Permission to Inspect - I hereby consent to Agency inspection of the project site and adjacent property areas. Agency staff may enter the property without notice between 7:00 am and 7:00 pm, Monday - Friday. Inspection may occur without the owner, applicant or agent present. If the property is posted with "keep out" signs or fenced with an unlocked gate, Agency staff may still enter the property. Agency staff may take measurements, analyze site physical characteristics, take soil and vegetation samples, sketch and photograph the site. I understand that failure to give this consent may result in denial of the permit(s) sought by this application.

False statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the NYS Penal Law. Further, the applicant accepts full responsibility for all damage, direct or indirect, of whatever nature, and by whomever suffered, arising out of the project described herein and agrees to indemnify and save harmless the State from suits, actions, damages and costs of every name and description resulting from said project. In addition, Federal Law, 18 U.S.C., Section 1001 provides for a fine of not more than \$10,000 or imprisonment for not more than 5 years, or both where an applicant knowingly and willingly falsifies, conceals, or covers up a material fact; or knowingly makes or uses a false, fictitious or fraudulent statement.

Signature of Applicant

Date



7/3/25

Applicant Must be (check all that apply): ☐ Owner ☐ Operator ☐ Lessee

Printed Name

Title

Hugh J. Greechan, Jr., P.E.

Commissioner of Public Works and Transportation

Signature of Owner (if different than Applicant)

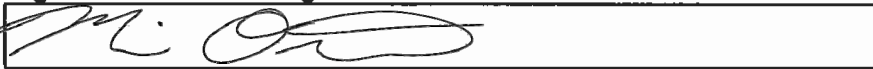
Date

Printed Name

Title

Signature of Contact / Agent

Date



7/5/25

Printed Name

Title

Melanie Osterhout, P.E.

Consultant

For Agency Use Only

DETERMINATION OF NO PERMIT REQUIRED

Agency Application Number

(Agency Name) has determined that No Permit is required from this Agency for the project described in this application.

Agency Representative:

Printed Name

Title

Signature

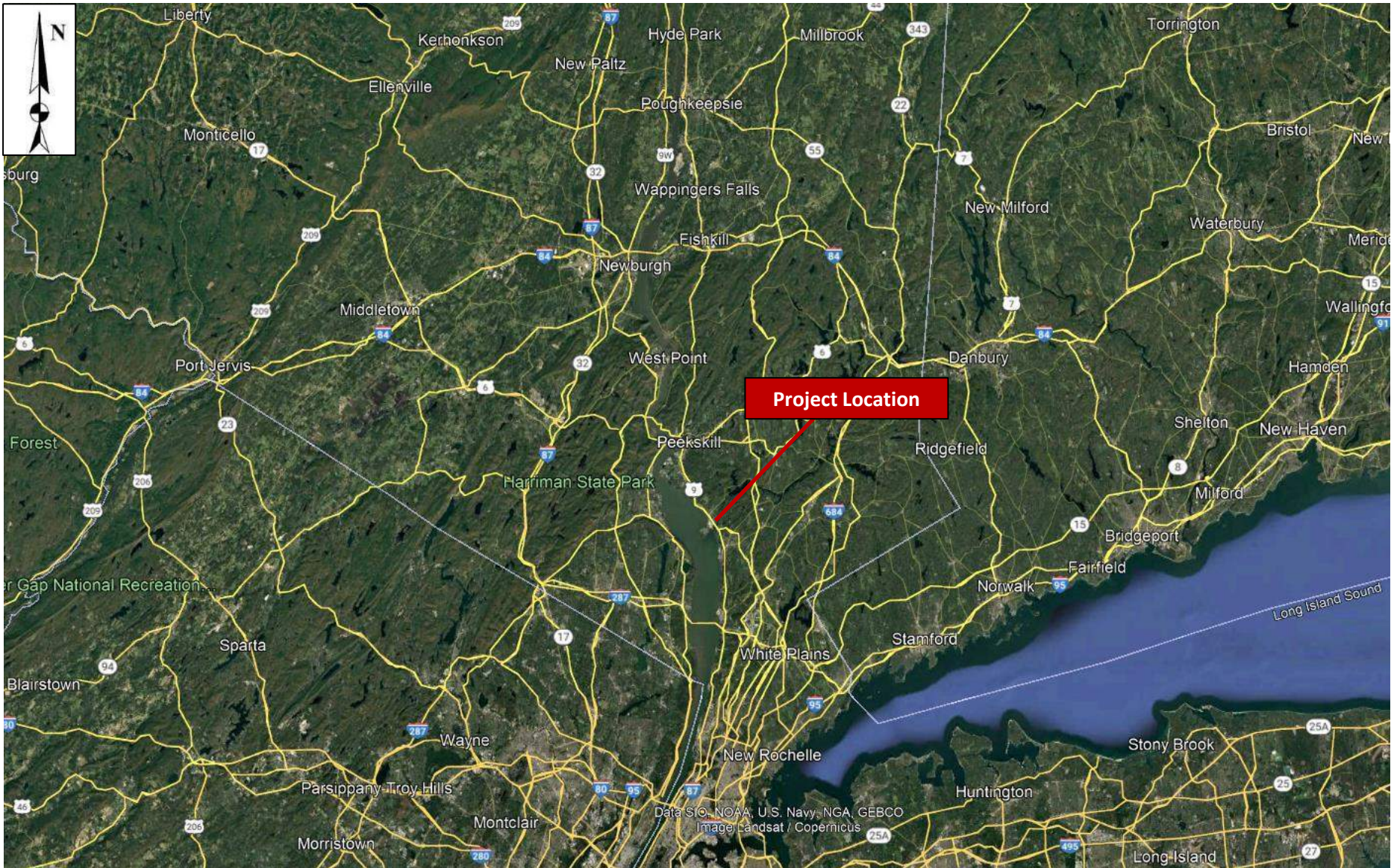
Date

**ATTACHMENT A: PROJECT DATABASE MAPPING,
WETLAND DELINEATION REPORT AND FEAF**



USGS Topographic Map
Quaker Bridge Replacement
Town of Cortlandt
Westchester County

NOT TO SCALE

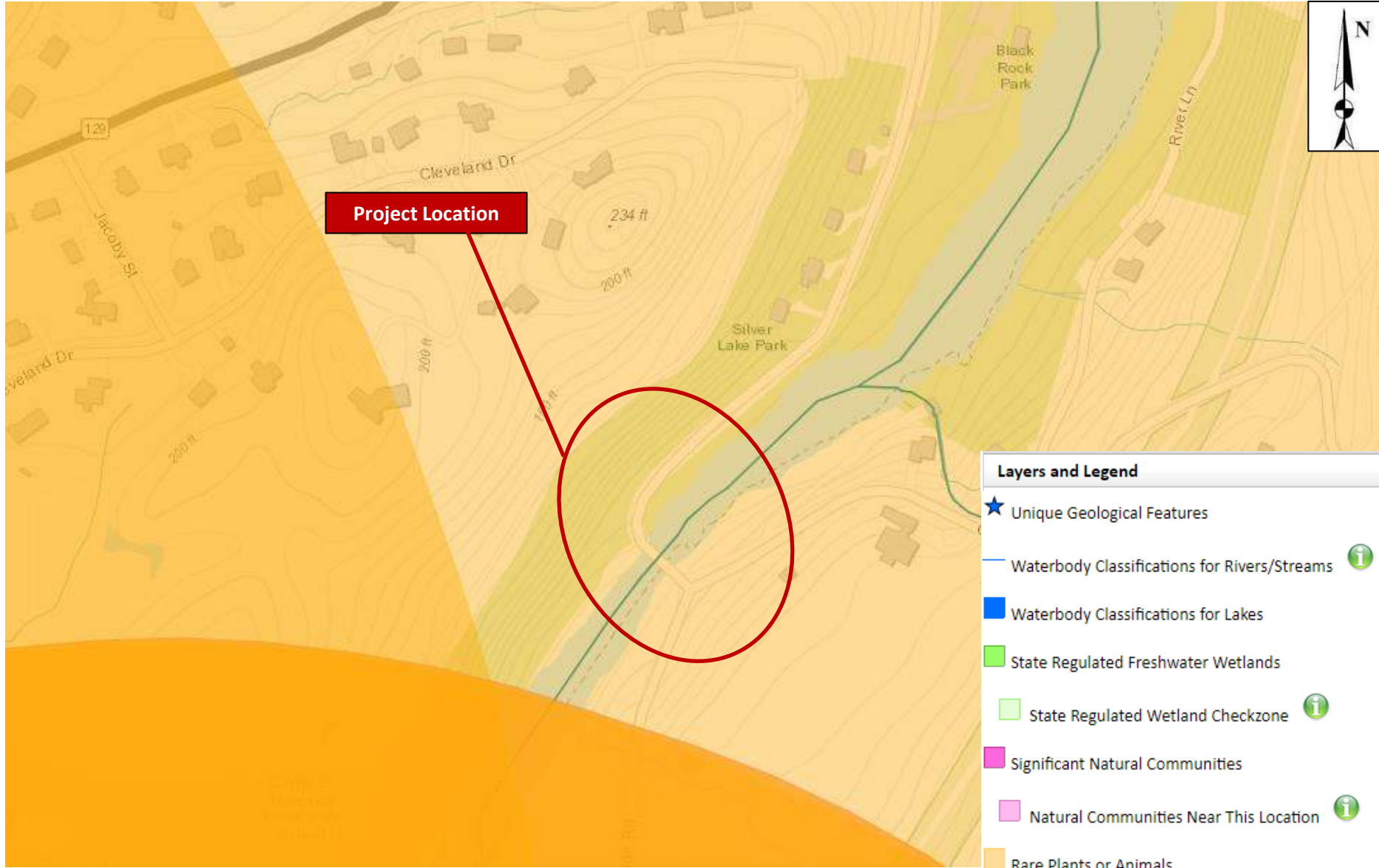


NOT TO SCALE



Site Aerial
Quaker Bridge Replacement
Town of Cortlandt
Westchester County

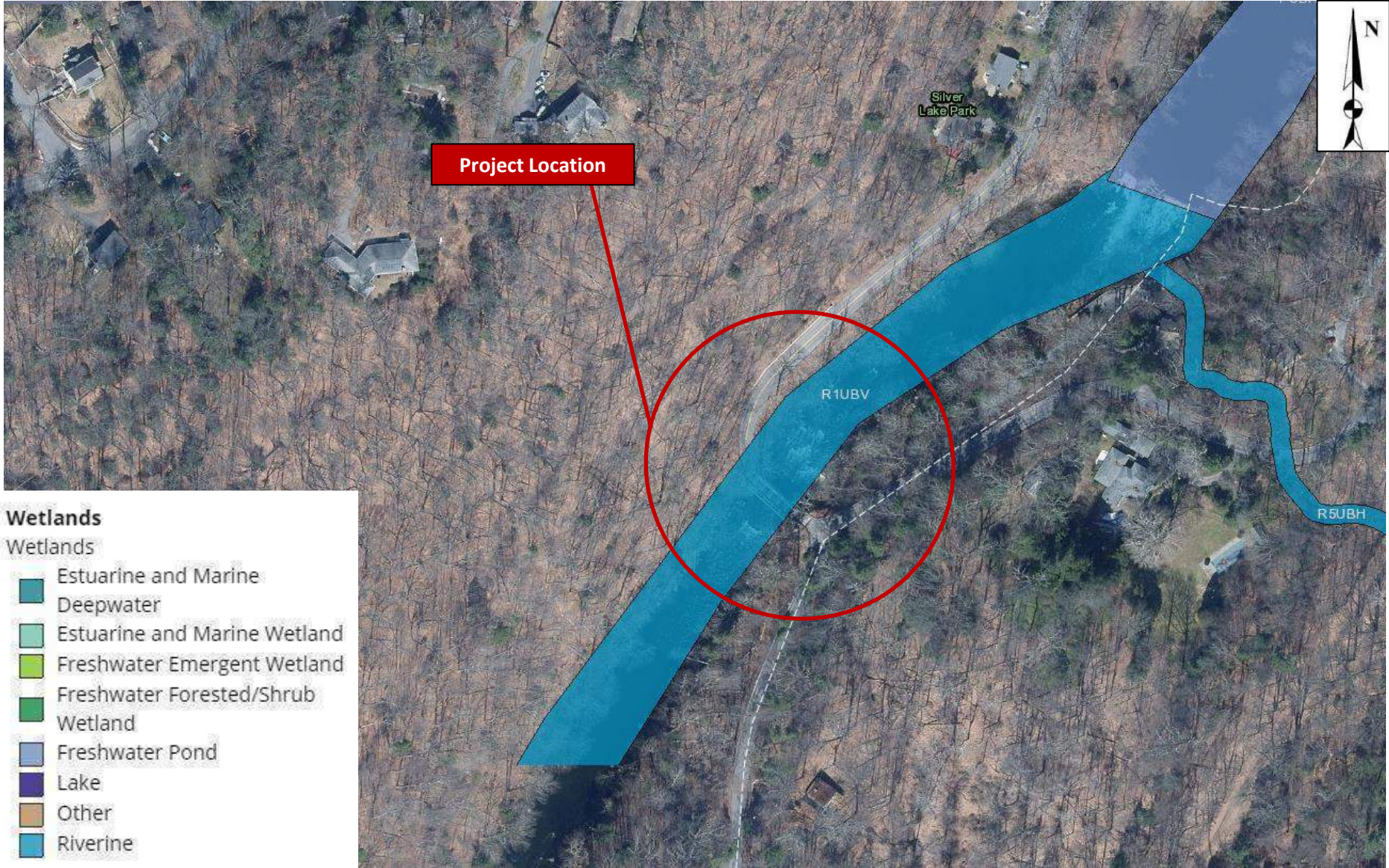
NOT TO SCALE



NYSDEC Environmental Resource Mapper

Quaker Bridge Replacement
Town of Cortlandt
Westchester County

NOT TO SCALE



- Wetlands**
- Wetlands
- Estuarine and Marine
 - Deepwater
 - Estuarine and Marine Wetland
 - Freshwater Emergent Wetland
 - Freshwater Forested/Shrub Wetland
 - Freshwater Pond
 - Lake
 - Other
 - Riverine



USFWS NWI Mapper
Quaker Bridge Replacement
Town of Cortlandt
Westchester County

NOT TO SCALE

National Register Building Sites (View)



USN Building Districts (View)



Survey Archaeology Areas (View)



Survey Building Areas (View)



Consultation Projects (View)

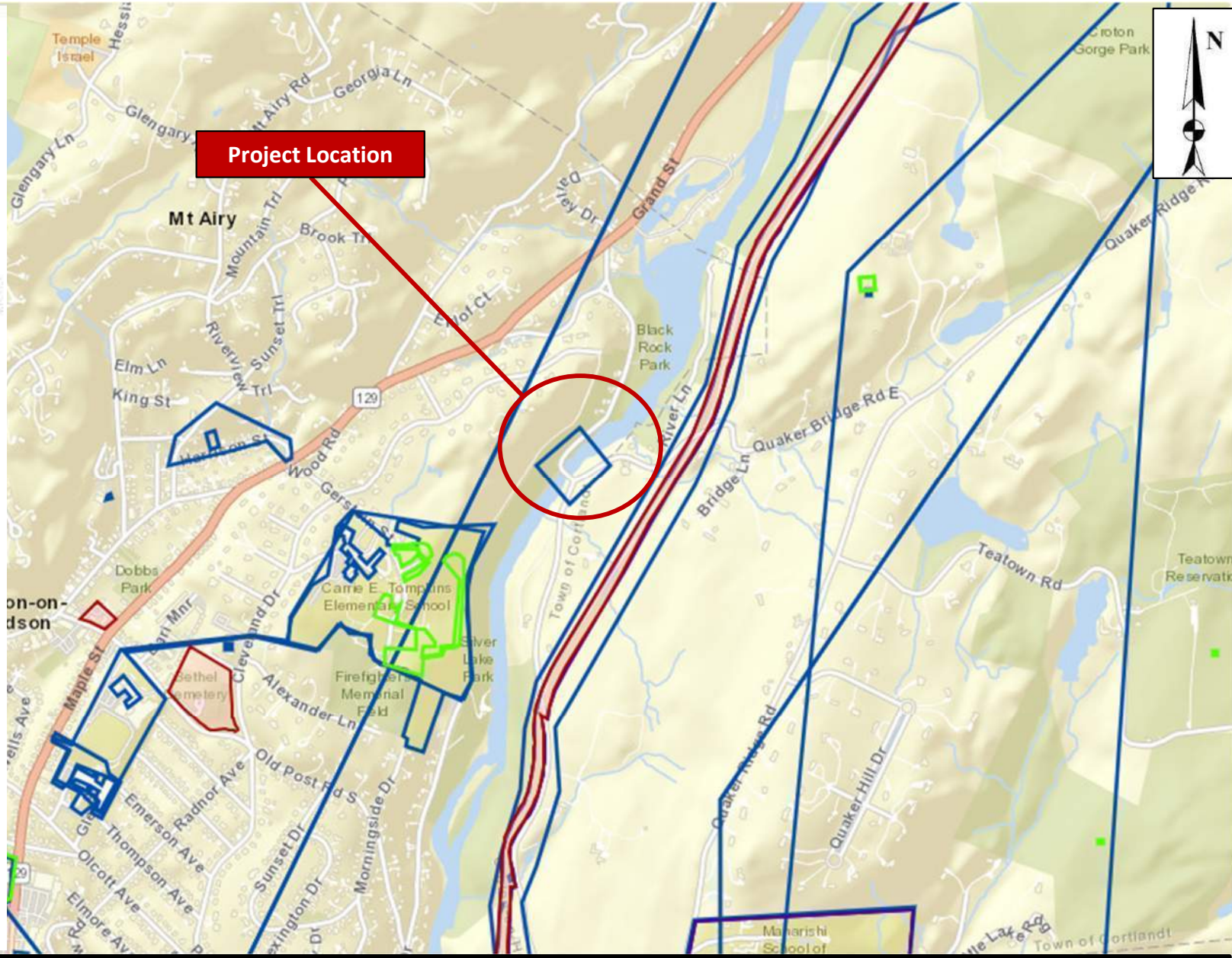


Archeologically Sensitive Areas



USN Building Points (View)

- Eligible
- Listed
- Not Eligible
- Not Eligible - Demolished
- Undetermined

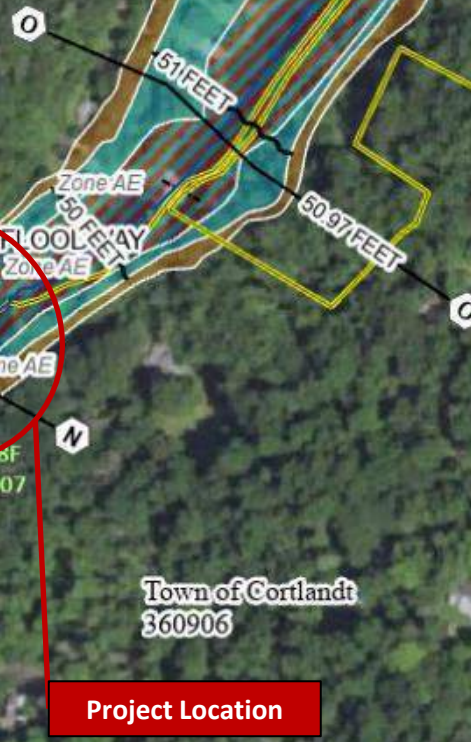


NYSHPO CRIS Mapper
Quaker Bridge Replacement
Town of Cortlandt
Westchester County

NOT TO SCALE



Village of Croton-on-Hudson
360907
AREA OF MINIMAL FLOOD HAZARD
Zone X



Project Location

Town of Cortlandt
360906

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS

- Without Base Flood Elevation (BFE)
Zone A, V, A99
- With BFE or Depth Zone AE, AO, AH, VE, AR
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD

- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
- Future Conditions 1% Annual Chance Flood Hazard Zone X
- Area with Reduced Flood Risk due to Levee. See Notes. Zone X
- Area with Flood Risk due to Levee Zone D

OTHER AREAS

- NO SCREEN Area of Minimal Flood Hazard Zone X
- Effective LOMRs
- Area of Undetermined Flood Hazard Zone D

GENERAL STRUCTURES

- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES

- 20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
- 17.5 Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS

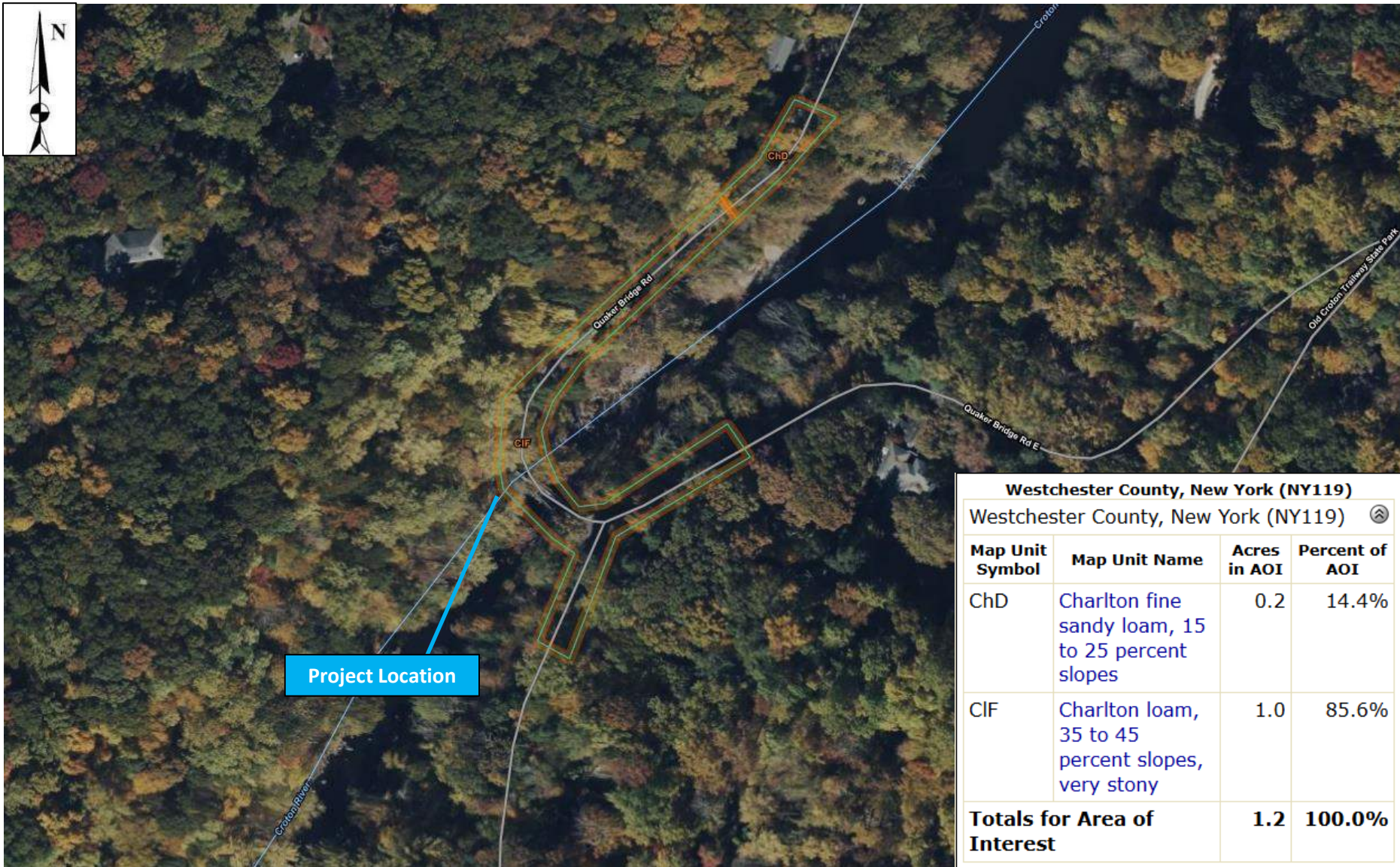
- Digital Data Available
- No Digital Data Available
- Unmapped



FEMA Floodplains Mapper

Quaker Bridge Replacement
Town of Cortlandt
Westchester County

NOT TO SCALE



Westchester County, New York (NY119)			
Westchester County, New York (NY119)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
ChD	Charlton fine sandy loam, 15 to 25 percent slopes	0.2	14.4%
CIF	Charlton loam, 35 to 45 percent slopes, very stony	1.0	85.6%
Totals for Area of Interest		1.2	100.0%



USDA Soils Map
Quaker Bridge Replacement
Town of Cortlandt
Westchester County

NOT TO SCALE

WETLAND AND ORDINARY HIGH WATER DELINEATION REPORT

Quaker Bridge Replacement Town of Cortlandt, Westchester County



November 2024

Prepared for:



For:

**Westchester County Department of Public
Works and Transportation
148 Martine Ave. Room 512
White Plains, NY 10601**



By:

**800 Route 146, Bldg. 200
Suite 280, Clifton Park
NY 12065
(518) 636-9956**

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APPENDIX B:	PRELIMINARY ORDINARY HIGH WATER DELINEATION WITH DATA POINT
APPENDIX C:	WETLAND DETERMINATION DATA FORMS

1.0 INTRODUCTION

This Wetland and Ordinary High Water (OHW) Delineation Report was prepared for a project site located where Quaker Bridge Road crosses the Croton River in the Town of Cortlandt, Westchester County, New York. The "Site Location Map", in Appendix A – Project Database Mapping, illustrates the site location.

2.0 EXISTING CONDITIONS

2.1 Topography

Surface water generally drains to the south by channel or sheet flow. The New York State Department of Environmental Conservation (NYSDEC) Environmental Resource Mapper (ERM), United State Department of Agriculture (USDA) Soil Survey Map, and the United States Geological Survey (USGS) topographic mapping do not identify wetlands within the project area. The United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) Map and the NYSDEC ERM both identify a river within the project site.

2.2 Soils

The following is a description of the soil found on the site. The Soil Survey Mapping with the approximate project boundaries is included in Appendix A.

Charlton fine sandy loam, 15 to 25 percent slopes (ChD): This series is comprised of well drained, coarse loamy melt out till derived from granite, gneiss and/or schist.

Charlton loam, 35 to 45 percent slopes, very stones (CIF): This series is comprised of well drained, acid loamy till derived mainly from schist, gneiss, or granite.

2.3 Hydrology

Surface water generally drains to the south by channel or sheet flow which enters the Croton River (NYSDEC Class B), and eventually the Hudson River (NYSDEC Class SB). The best usage for Class B water is swimming and contact recreation, not suitable for drinking. The best usage for Class SB water is swimming, contact recreation, and fishing.

Additionally, Flood Emergency Management Act (FEMA) floodplain maps (36119C0128F, 2007) were reviewed to identify any potential flood risk to the project site. The project site in the vicinity of the crossing is located within the regulatory floodway and in the 100-year floodplain of the Croton River.

A review of the National Resources Conservation Service (NRCS) Wetland Determination Climate Data (WETS Table.36119. WESTCHESTER CO AP) for Westchester County indicates that the 20-year average annual rainfall is 58.44 inches per year.

2.4 Vegetative Communities

Wetland plant communities follow the Cowardin system as identified in the “Classification of Wetlands and Deepwater Habitats of the United States” as utilized by the United States Fish and Wildlife Services (USFWS) National Wetland Inventory (NWI) mapping. The NWI mapping identifies a riverine, tidal, unconsolidated bottom, permanently flooded- tidal riverine community (R1UBV) within the project site.

Based on the site visit, the subject property has one waterbody (Croton River). The project corridor is currently comprised of forested tree and shrub cover with an understory of herbaceous cover. The tree cover included Red Maple (*Acer rubrum*), American Beech (*Fagus grandifolia*), Eastern Hemlock (*Tsuga canadensis*), Eastern Sycamore (*Platanus occidentalis*), and Tulip Tree (*Liriodendron tulipifera*). The shrub layer included Burning Bush (*Euonymus alatus*), Witch Hazel (*Hamamelis virginiana*), and Ironwood (*Ostrya virginiana*). The herbaceous cover included Christmas Fern (*Polystichum acrostichoides*), Marginal Wood Fern (*Dryopteris marginalis*), Shagbark Hickory (*Carya ovata*), Bitternut Hickory (*Carya cordiformis*), and Slender Goldenrod (*Solidago erecta*).

2.5 Wetland Mapping

The NYSDEC ERM identifies the approximate locations of the wetlands, streams, and other environmental features on or near the project site that are regulated by the NYSDEC (Appendix A). According to the NYSDEC ERM, there are no state-regulated wetlands on the project site. There is one mapped NYSDEC river (Croton River). Additionally, the NWI mapping for the project site, located in Appendix A, identifies a riverine vegetative community on the site (Croton River).

3.0 METHODOLOGY AND RESULTS

The ordinary high water (OHW) determination for the area of investigation was conducted on November 18th, 2024. The delineation was performed using the three-parameter approach described in the United States Army Corps of Engineers’ (USACE) Wetland Delineation Manual and the Northcentral and Northeast Regional Supplement.

Data was collected within the regulated areas and uplands at representative points to document the existing vegetation, soils and hydrology. Data sampling protocols followed the *USACE Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast* guidance for vegetation analysis. The sampling plot sizes were selected to ensure an accurate assessment of the vegetation present within the existing wetland boundaries. A 20’ x 60’ plot (1200 sf) was utilized for both tree and shrub strata, and a 5’ x 20’ plot (100 sf) was utilized for the herb stratum. These plots sizes were selected based on the narrow rectangular shape of the subject property, the site vegetation composition, and the relative vegetation density in each of the strata.

Using a soil auger, soil samples were taken approximately 12 inches below the ground surface to characterize soils. Soil colors were documented using a Munsell Soil Color Chart. Hydrology was assessed by evaluating for inundation, saturation, and other site conditions.

Vegetation found at the sampling locations was identified in terms of the dominant species in the tree, shrub/sapling, herbaceous, and vine layers. The indicator status of the dominant plant species was determined using the "The National Wetland Plant List - Northcentral and Northeast Region 1" (Lichvar, R.W., 2016).

Following the establishment of the OHW boundaries in the field, the boundary was collected by hand-held GPS and plotted on the field sketch. This OHW line and approximate property boundary is included within Appendix B ("Preliminary Ordinary High Water and Delineation with Data Point") and includes the location of a representative data point. The information collected at the data point locations is included in this report as Appendix C – Wetland Determination Data Forms.

The field efforts identified one (1) perennial river (Croton River), the OHW was delineated as a flag series of LB (1-16) and RB (1-27). No wetlands were identified during the site visit.

The upland areas are generally dominated by maintained right of way, residential homes and maintained lawns, forested shrub and tree cover.

4.0 WETLAND AND WATERWAY IMPACTS

It was concluded that Stream LB (1-16) and RB (1-27) will be regulated by the USACE and the NYSDEC as a Class B waterbody.

While the site is currently in preliminary design, impacts to regulated waterbodies will be minimized as part of the proposed bridge replacement. It is anticipated that a USACE Section 404 Nationwide Permit 3 will be required based on the anticipated impacts (less than 0.5 acres). In addition, a NYSDEC Article 15 Protection of Waters Permit and a NYSDEC Section 401 Water Quality Certification would be required.

Ultimately, the exact permitting pathway can only be confirmed through coordination with the USACE and the NYSDEC.

References

- U.S. Army Corps of Engineers. 1987. Wetlands Delineation Manual.
- U.S. Army Corps of Engineers. 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0)
- National Wetland Inventory Map, USFWS.
- USDA Natural Resource Conservation Service. Soil Survey for Westchester County, New York.
- USDA Natural Resources Conservation Service. National Cooperative Soil Survey. Official Soil Descriptions from the National Soils Database.
- U.S. Geological Survey. Bridgeport, NY Quadrangle. 2023.
- Federal Emergency Management Agency. Flood Insurance Rate Map. Map Number 36119C0128F, 2007.
- Lichvar, R.W. 2016. The National Wetland Plant List - Northcentral and Northeast Region
1. U.S. Army Corps of Engineers, Cold Regions Research and Engineering Laboratory.

Appendix A

Project Database Mapping

DATABASE MAPPING PROVIDED PREVIOUSLY

Appendix B

Preliminary Wetland and Ordinary High Water Delineation with Data Point



Preliminary Wetland and Ordinary High Water Delineation with Data Points

Quaker Bridge Replacement
Town of Cortlandt
Westchester County

NOT TO SCALE

Appendix C

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Quaker Bridge Replacement City/County: Westchester County Sampling Date: 11/18/2024
Applicant/Owner: Westchester County State: NY Sampling Point: DP-RBU
Investigator(s): N. Laing, G. Koetzle Section, Township, Range: Town of Cortlandt
Landform (hillside, terrace, etc.): Streambank Local relief (concave, convex, none): Concave Slope (%): 10
Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: 41.211978° Long: 73.869444° Datum: NAD 83
Soil Map Unit Name: Charlton laom, 35 to 45 percent slopes, very stony NWI classification: _____
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> If yes, optional Wetland Site ID: _____
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks: (Explain alternative procedures here or in a separate report.) Data point was sampled on streambank, upland.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ☐ Surface Water (A1) ☐ Water-Stained Leaves (B9) ☐ High Water Table (A2) ☐ Aquatic Fauna (B13) ☐ Saturation (A3) ☐ Marl Deposits (B15) ☐ Water Marks (B1) ☐ Hydrogen Sulfide Odor (C1) ☐ Sediment Deposits (B2) ☐ Oxidized Rhizospheres on Living Roots (C3) ☐ Drift Deposits (B3) ☐ Presence of Reduced Iron (C4) ☐ Algal Mat or Crust (B4) ☐ Recent Iron Reduction in Tilled Soils (C6) ☐ Iron Deposits (B5) ☐ Thin Muck Surface (C7) ☐ Inundation Visible on Aerial Imagery (B7) ☐ Other (Explain in Remarks) ☐ Sparsely Vegetated Concave Surface (B8)		<u>Secondary Indicators (minimum of two required)</u> ☐ Surface Soil Cracks (B6) ☐ Drainage Patterns (B10) ☐ Moss Trim Lines (B16) ☐ Dry-Season Water Table (C2) ☐ Crayfish Burrows (C8) ☐ Saturation Visible on Aerial Imagery (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 <u>X</u> Depth (inches): <u>0</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION – Use scientific names of plants.

Sampling Point: DP-RBU

Tree Stratum (Plot size: <u>30'x30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Liriodendron tulipifera</u>	<u>25</u>	<u>Yes</u>	<u>FACU</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B)																
2. <u>Platanus occidentalis</u>	<u>18</u>	<u>Yes</u>	<u>FACW</u>																	
3. <u>Betula populifolia</u>	<u>12</u>	<u>No</u>	<u>FACU</u>																	
4. <u>Quercus coccinea</u>	<u>8</u>	<u>No</u>	<u>UPL</u>																	
5. <u>Acer rubrum</u>	<u>6</u>	<u>No</u>	<u>FAC</u>																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
			<u>69</u> =Total Cover	Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>18</u></td> <td>x 2 = <u>36</u></td> </tr> <tr> <td>FAC species <u>36</u></td> <td>x 3 = <u>108</u></td> </tr> <tr> <td>FACU species <u>117</u></td> <td>x 4 = <u>468</u></td> </tr> <tr> <td>UPL species <u>8</u></td> <td>x 5 = <u>40</u></td> </tr> <tr> <td>Column Totals: <u>179</u> (A)</td> <td><u>652</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>3.64</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>18</u>	x 2 = <u>36</u>	FAC species <u>36</u>	x 3 = <u>108</u>	FACU species <u>117</u>	x 4 = <u>468</u>	UPL species <u>8</u>	x 5 = <u>40</u>	Column Totals: <u>179</u> (A)	<u>652</u> (B)	Prevalence Index = B/A = <u>3.64</u>	
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Prevalence Index = B/A = <u>3.64</u>																				
			<u>55</u> =Total Cover																	
Sapling/Shrub Stratum (Plot size: <u>15'x15'</u>)																				
1. <u>Acer rubrum</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>																	
2. <u>Tsuga canadensis</u>	<u>15</u>	<u>Yes</u>	<u>FACU</u>																	
3. <u>Euonymus alatus</u>	<u>10</u>	<u>No</u>	<u>FACU</u>																	
4. <u>Fraxinus americana</u>	<u>10</u>	<u>No</u>	<u>FACU</u>																	
5. <u>Ostrya virginiana</u>	<u>5</u>	<u>No</u>	<u>FACU</u>																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
			<u>55</u> =Total Cover																	
Herb Stratum (Plot size: <u>5'x5'</u>)																				
1. <u>Euonymus alatus</u>	<u>20</u>	<u>Yes</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u>Problematic Hydrophytic Vegetation¹ (Explain)</u> ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Equisetum arvense</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>																	
3. <u>Polystichum acrostichoides</u>	<u>6</u>	<u>No</u>	<u>FACU</u>																	
4. <u>Carya cordiformis</u>	<u>6</u>	<u>No</u>	<u>FACU</u>																	
5. <u>Solidago erecta</u>	<u>5</u>	<u>No</u>	<u>FACU</u>																	
6. <u>Botrychium multifidum</u>	<u>3</u>	<u>No</u>	<u>FACU</u>																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
			<u>55</u> =Total Cover																	
Woody Vine Stratum (Plot size: _____)																				
1. _____	_____	_____	_____	Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) 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.																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
			_____ =Total Cover	Hydrophytic Vegetation Present? Yes _____ No _____																

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-RBU

[illegible]

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Quaker Bridge Replacement City/County: Westchester County Sampling Date: 11/18/2024
 Applicant/Owner: Westchester County State: NY Sampling Point: DP-LBU
 Investigator(s): N. Laing, G. Koetzle Section, Township, Range: Town of Cortlandt
 Landform (hillside, terrace, etc.): Streambank Local relief (concave, convex, none): Concave Slope (%): 10
 Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: 41.212078° Long: 73.868333° Datum: NAD 83
 Soil Map Unit Name: Charlton laom, 35 to 45 percent slopes, very stony NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> If yes, optional Wetland Site ID: _____
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks: (Explain alternative procedures here or in a separate report.) Data point was sampled on streambank, upland.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)		<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) <u>X</u> _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		

VEGETATION – Use scientific names of plants.

Sampling Point: DP-LBU

Tree Stratum (Plot size: <u>30'x30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>Fragus grandifolia</u>	<u>15</u>	<u>Yes</u>	<u>FACU</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)																
2. <u>Tsuga canadensis</u>	<u>12</u>	<u>Yes</u>	<u>FACU</u>																	
3. <u>Acer rubrum</u>	<u>6</u>	<u>No</u>	<u>FAC</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
<u>33</u>		=Total Cover		Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>9</u></td> <td>x 3 = <u>27</u></td> </tr> <tr> <td>FACU species <u>100</u></td> <td>x 4 = <u>400</u></td> </tr> <tr> <td>UPL species <u>15</u></td> <td>x 5 = <u>75</u></td> </tr> <tr> <td>Column Totals: <u>124</u> (A)</td> <td><u>502</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = <u>4.05</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>9</u>	x 3 = <u>27</u>	FACU species <u>100</u>	x 4 = <u>400</u>	UPL species <u>15</u>	x 5 = <u>75</u>	Column Totals: <u>124</u> (A)	<u>502</u> (B)	Prevalence Index = B/A = <u>4.05</u>	
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Prevalence Index = B/A = <u>4.05</u>																				
Sapling/Shrub Stratum (Plot size: <u>15'x15'</u>)																				
1. <u>Euonymus alatus</u>	<u>15</u>	<u>Yes</u>	<u>UPL</u>																	
2. <u>Fraxinus americana</u>	<u>10</u>	<u>Yes</u>	<u>FACU</u>																	
3. <u>Fagus grandifolia</u>	<u>8</u>	<u>No</u>	<u>FACU</u>																	
4. <u>Hamamelis virginiana</u>	<u>6</u>	<u>No</u>	<u>FACU</u>																	
5. <u>Quercus rubra</u>	<u>5</u>	<u>No</u>	<u>FACU</u>																	
6. <u>Acer rubrum</u>	<u>3</u>	<u>No</u>	<u>FAC</u>																	
7. _____	_____	_____	_____																	
<u>47</u>		=Total Cover																		
Herb Stratum (Plot size: <u>5'x5'</u>)																				
1. <u>Polystichum acrostichoides</u>	<u>12</u>	<u>Yes</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Fagus grandifolia</u>	<u>12</u>	<u>Yes</u>	<u>FACU</u>																	
3. <u>Dryopteris marginalis</u>	<u>10</u>	<u>Yes</u>	<u>FACU</u>																	
4. <u>Carya ovata</u>	<u>5</u>	<u>No</u>	<u>FACU</u>																	
5. <u>Carya cordiformis</u>	<u>5</u>	<u>No</u>	<u>FACU</u>																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
<u>44</u>		=Total Cover																		
Woody Vine Stratum (Plot size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____		=Total Cover																		

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP-LBU

[illegible]

Full Environmental Assessment Form
Part 1 - Project and Setting

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the applicant or project sponsor to verify that the information contained in Part 1 is accurate and complete.

A. Project and Applicant/Sponsor Information.

Name of Action or Project: Quaker Bridge Road Bridge Replacement (RB03W)		
Project Location (describe, and attach a general location map): Quaker Bridge Road over Croton River, Town of Cortlandt and Village of Croton-On-Hudson, Westchester County, NY		
Brief Description of Proposed Action (include purpose or need): Replacement of the steel truss bridge which carries Quaker Bridge Road over the Croton River. Constructed in 1894, it is a 98-foot long, single-lane bridge with stone abutments that is now closed due to structural deficiencies. The new bridge will be also be a truss bridge made of galvanized steel and built on the existing alignment, but will be approximately 12 feet wider to allow for 2-way vehicular traffic as well as 2-way pedestrian passage. Scope of work will include new concrete abutments and the removal of trees to accommodate construction staging areas and overhead construction activities, such as those utilizing cranes for pile and bridge installation, wingwall installation and site grading. Project limits will be Quaker bridge and approximately 200 feet along the south approach and 500 feet along the north approach to the bridge to accommodate the bridge replacement and reconstructing the roadway impacted by the construction activities, including excavation for the bridge abutment removal and reconstruction. An overhead electrical line may need to be relocated to accommodate overhead construction activities.		
Name of Applicant/Sponsor: County of Westchester	Telephone: 914-995-2000	
	E-Mail:	
Address: 148 Martine Avenue		
City/PO: White Plains	State: NY	Zip Code: 10601
Project Contact (if not same as sponsor; give name and title/role): Hugh J. Greechan, Jr., P.E., Commissioner of Westchester County PW&T	Telephone: 914-995-2546	
	E-Mail: hjg7@westchestercountyny.gov	
Address: Department of Public Works and Transportation, 148 Martine Avenue, Room 512		
City/PO: White Plains	State: NY	Zip Code: 10601
Property Owner (if not same as sponsor): Bridge owned by County; riverbanks & roads owned by Town of Cortlandt, Village of Croton & NYS	Telephone:	
	E-Mail:	
Address:		
City/PO:	State:	Zip Code:

B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. (“Funding” includes grants, loans, tax relief, and any other forms of financial assistance.)

Government Entity	If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Counsel, Town Board, ☒ Yes ☐ No or Village Board of Trustees	Village of Croton-on-Hudson (property transfer & easement); Town of Cortlandt (various)	Coordination ongoing
b. City, Town or Village Planning Board or Commission ☐ Yes ☒ No		
c. City, Town or Village Zoning Board of Appeals ☐ Yes ☒ No		
d. Other local agencies ☒ Yes ☐ No (Village of Croton)	Water Control Commission (Wetland permit) Waterfront Advisory Committee (LWRP review)	TBD
e. County agencies ☒ Yes ☐ No	Westchester County Board of Legislators (project authorization and funding)	June 2025 (projected)
f. Regional agencies ☐ Yes ☒ No		
g. State agencies ☒ Yes ☐ No	NYSDEC Section 401/Article 15 NYSHPO (consultation)	TBD
h. Federal agencies ☒ Yes ☐ No	USACE NWP#3, USFWS (consultation)	TBD
i. Coastal Resources. i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☒ Yes ☐ No ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☒ Yes ☐ No iii. Is the project site within a Coastal Erosion Hazard Area? ☐ Yes ☒ No		

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐ Yes ☒ No

- If Yes, complete sections C, F and G.
- If No, proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☐ Yes ☒ No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☐ Yes ☐ No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway; Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☒ Yes ☐ No

If Yes, identify the plan(s):

Both Town of Cortlandt and Village of Croton-on-Hudson are Greenway Compact Communities. Site is within the County's Critical Environmental Areas under County and State Park Lands and Croton Point Park. Part of the project area is also within the Village of Croton-on-Hudson's LWRP.

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐ Yes ☒ No

If Yes, identify the plan(s):

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☒ Yes ☐ No

If Yes, what is the zoning classification(s) including any applicable overlay district?

Croton: PRE-1 Park Recreation and Education and RA-25 One Family Residence; Cortlandt: R-80 Single Family Residential

b. Is the use permitted or allowed by a special or conditional use permit? ☐ Yes ☒ No

c. Is a zoning change requested as part of the proposed action? ☐ Yes ☒ No

If Yes,

i. What is the proposed new zoning for the site? _____

C.4. Existing community services.

a. In what school district is the project site located? Croton-Harmon Union Free School District

b. What police or other public protection forces serve the project site?

Croton-on-Hudson Police Department, NYS Police and Westchester County Public Safety

c. Which fire protection and emergency medical services serve the project site?

The Croton Fire District and Westchester Emergency Medical Services

d. What parks serve the project site?

N/A

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)? Infrastructural (transportation)

b. a. Total acreage of the site of the proposed action? _____ 1.2 acres

b. Total acreage to be physically disturbed? _____ 0.50 acres

c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? _____ 0.60 acres

c. Is the proposed action an expansion of an existing project or use? ☒ Yes ☐ No

i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % _____ 75 Units: 1,200 SF increase in deck

d. Is the proposed action a subdivision, or does it include a subdivision? ☐ Yes ☒ No

If Yes,

i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)

ii. Is a cluster/conservation layout proposed? ☐ Yes ☐ No

iii. Number of lots proposed? _____

iv. Minimum and maximum proposed lot sizes? Minimum _____ Maximum _____

e. Will the proposed action be constructed in multiple phases? ☐ Yes ☒ No

i. If No, anticipated period of construction: _____ 10 months

ii. If Yes:

- Total number of phases anticipated _____
- Anticipated commencement date of phase 1 (including demolition) _____ month _____ year
- Anticipated completion date of final phase _____ month _____ year

• Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases: _____

f. Does the project include new residential uses? ☐ Yes ☒ No If Yes, show numbers of units proposed.				
	<u>One Family</u>	<u>Two Family</u>	<u>Three Family</u>	<u>Multiple Family (four or more)</u>
Initial Phase	_____	_____	_____	_____
At completion	_____	_____	_____	_____
of all phases	_____	_____	_____	_____

g. Does the proposed action include new non-residential construction (including expansions)? ☒ Yes ☐ No If Yes,	
i. Total number of structures <u>1</u>	
ii. Dimensions (in feet) of largest proposed structure: <u>20</u> height; <u>32</u> width; and <u>100</u> length	
iii. Approximate extent of building space to be heated or cooled: <u>N/A</u> square feet	

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☐ Yes ☒ No If Yes,	
i. Purpose of the impoundment: _____	
ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐ Surface water streams ☐ Other specify: _____	
iii. If other than water, identify the type of impounded/contained liquids and their source. _____	
iv. Approximate size of the proposed impoundment. Volume: _____ million gallons; surface area: _____ acres	
v. Dimensions of the proposed dam or impounding structure: _____ height; _____ length	
vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete): _____	

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? ☐ Yes ☒ No (Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite) If Yes:	
i. What is the purpose of the excavation or dredging? _____	
ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?	
• Volume (specify tons or cubic yards): _____ • Over what duration of time? _____	
iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them. Suitable materials to be reused for wider roadway or will be disposed of in off-site location approved by engineer in charge. _____	
iv. Will there be onsite dewatering or processing of excavated materials? ☒ Yes ☐ No If yes, describe. <u>Dewatering may be required for full depth removal of abutments.</u> _____	
v. What is the total area to be dredged or excavated? _____ 0.1 acres	
vi. What is the maximum area to be worked at any one time? _____ 0.1 acres	
vii. What would be the maximum depth of excavation or dredging? _____ 6 feet	
viii. Will the excavation require blasting? ☐ Yes ☒ No	
ix. Summarize site reclamation goals and plan: _____ Site will be restored to existing conditions. _____	

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☒ Yes ☐ No If Yes:	
i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description): <u>Croton River</u> _____	

ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet or acres:
Croton River, less than 0.1 acres of permanent impacts. New wing walls will be constructed on both banks, with site grading and placement of riprap on banks.

iii. Will the proposed action cause or result in disturbance to bottom sediments? ☐ Yes ☒ No
 If Yes, describe: _____

iv. Will the proposed action cause or result in the destruction or removal of aquatic vegetation? ☐ Yes ☒ No
 If Yes:

- acres of aquatic vegetation proposed to be removed: _____
- expected acreage of aquatic vegetation remaining after project completion: _____
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access): _____
- proposed method of plant removal: _____
- if chemical/herbicide treatment will be used, specify product(s): _____

v. Describe any proposed reclamation/mitigation following disturbance: _____

c. Will the proposed action use, or create a new demand for water? ☐ Yes ☒ No
 If Yes:

i. Total anticipated water usage/demand per day: _____ gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☐ Yes ☐ No
 If Yes:

- Name of district or service area: _____
- Does the existing public water supply have capacity to serve the proposal? ☐ Yes ☐ No
- Is the project site in the existing district? ☐ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☐ No
- Do existing lines serve the project site? ☐ Yes ☐ No

iii. Will line extension within an existing district be necessary to supply the project? ☐ Yes ☐ No
 If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____
- Source(s) of supply for the district: _____

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐ Yes ☐ No
 If Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- Proposed source(s) of supply for new district: _____

v. If a public water supply will not be used, describe plans to provide water supply for the project: _____

vi. If water supply will be from wells (public or private), what is the maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? ☐ Yes ☒ No
 If Yes:

i. Total anticipated liquid waste generation per day: _____ gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each): _____

iii. Will the proposed action use any existing public wastewater treatment facilities? ☐ Yes ☐ No
 If Yes:

- Name of wastewater treatment plant to be used: _____
- Name of district: _____
- Does the existing wastewater treatment plant have capacity to serve the project? ☐ Yes ☐ No
- Is the project site in the existing district? ☐ Yes ☐ No
- Is expansion of the district needed? ☐ Yes ☐ No

• Do existing sewer lines serve the project site? _____ • Will a line extension within an existing district be necessary to serve the project? _____ If Yes: • Describe extensions or capacity expansions proposed to serve this project: _____ _____ _____	☐ Yes ☐ No ☐ Yes ☐ No	
iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? _____ If Yes: • Applicant/sponsor for new district: _____ • Date application submitted or anticipated: _____ • What is the receiving water for the wastewater discharge? _____	☐ Yes ☐ No	
v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge or describe subsurface disposal plans): _____ _____ _____		
vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____ _____ _____		
e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? _____ If Yes: i. How much impervious surface will the project create in relation to total size of project parcel? _____ Square feet or _____ acres (impervious surface) _____ Square feet or _____ acres (parcel size) ii. Describe types of new point sources. _____ _____ iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)? _____ _____ • If to surface waters, identify receiving water bodies or wetlands: _____ _____ • Will stormwater runoff flow to adjacent properties? _____	☐ Yes ☒ No ☐ Yes ☐ No ☐ Yes ☐ No	
iv. Does the proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? _____		
f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? _____ If Yes, identify: i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles) _____ ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers) _____ iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation) _____	☐ Yes ☒ No	
g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? _____ If Yes: i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) _____ ii. In addition to emissions as calculated in the application, the project will generate: • _____ Tons/year (short tons) of Carbon Dioxide (CO₂) • _____ Tons/year (short tons) of Nitrous Oxide (N₂O) • _____ Tons/year (short tons) of Perfluorocarbons (PFCs) • _____ Tons/year (short tons) of Sulfur Hexafluoride (SF₆) • _____ Tons/year (short tons) of Carbon Dioxide equivalent of Hydrofluorocarbons (HFCs) • _____ Tons/year (short tons) of Hazardous Air Pollutants (HAPs)		☐ Yes ☒ No ☐ Yes ☐ No

h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐ Yes ☒ No If Yes: i. Estimate methane generation in tons/year (metric): _____ ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____			
i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐ Yes ☒ No If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust): _____			
j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐ Yes ☒ No If Yes: i. When is the peak traffic expected (Check all that apply): ☐ Morning ☐ Evening ☐ Weekend ☐ Randomly between hours of _____ to _____. ii. For commercial activities only, projected number of truck trips/day and type (e.g., semi trailers and dump trucks): _____ iii. Parking spaces: Existing _____ Proposed _____ Net increase/decrease _____ iv. Does the proposed action include any shared use parking? ☐ Yes ☐ No v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe: _____ vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☐ Yes ☐ No vii. Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐ Yes ☐ No viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐ Yes ☐ No			
k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☐ Yes ☒ No If Yes: i. Estimate annual electricity demand during operation of the proposed action: _____ ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other): _____ iii. Will the proposed action require a new, or an upgrade, to an existing substation? ☐ Yes ☐ No			
l. Hours of operation. Answer all items which apply. <table style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> i. During Construction: • Monday - Friday: _____ 7am-5pm • Saturday: _____ N/A • Sunday: _____ N/A • Holidays: _____ N/A </td> <td style="width: 50%; vertical-align: top;"> ii. During Operations: • Monday - Friday: _____ N/A • Saturday: _____ • Sunday: _____ • Holidays: _____ </td> </tr> </table>		i. During Construction: • Monday - Friday: _____ 7am-5pm • Saturday: _____ N/A • Sunday: _____ N/A • Holidays: _____ N/A	ii. During Operations: • Monday - Friday: _____ N/A • Saturday: _____ • Sunday: _____ • Holidays: _____
i. During Construction: • Monday - Friday: _____ 7am-5pm • Saturday: _____ N/A • Sunday: _____ N/A • Holidays: _____ N/A	ii. During Operations: • Monday - Friday: _____ N/A • Saturday: _____ • Sunday: _____ • Holidays: _____		

m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☒ Yes ☐ No If yes: i. Provide details including sources, time of day and duration: During construction only for the hours previously listed. _____	
ii. Will the proposed action remove existing natural barriers that could act as a noise barrier or screen? ☐ Yes ☒ No Describe: _____	
n. Will the proposed action have outdoor lighting? ☐ Yes ☒ No If yes: i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures: _____	
ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☐ Yes ☐ No Describe: _____	
o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☒ No If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures: _____	
p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? ☐ Yes ☒ No If Yes: i. Product(s) to be stored _____ ii. Volume(s) _____ per unit time _____ (e.g., month, year) iii. Generally, describe the proposed storage facilities: _____	
q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☐ Yes ☒ No If Yes: i. Describe proposed treatment(s): _____	
ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☐ No	
r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☐ Yes ☒ No If Yes: i. Describe any solid waste(s) to be generated during construction or operation of the facility: • Construction: _____ tons per _____ (unit of time) • Operation : _____ tons per _____ (unit of time) ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste: • Construction: _____ • Operation: _____ iii. Proposed disposal methods/facilities for solid waste generated on-site: • Construction: _____ • Operation: _____	

s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☒ No
 If Yes:
 i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____
 ii. Anticipated rate of disposal/processing:
 • _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
 • _____ Tons/hour, if combustion or thermal treatment
 iii. If landfill, anticipated site life: _____ years

t. Will the proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☒ No
 If Yes:
 i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

 ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

 iii. Specify amount to be handled or generated _____ tons/month
 iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

 v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☐ No
 If Yes: provide name and location of facility: _____

 If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility:

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.
 i. Check all uses that occur on, adjoining and near the project site.
☐ Urban ☐ Industrial ☐ Commercial ☐ Residential (suburban) ☐ Rural (non-farm)
☒ Forest ☐ Agriculture ☒ Aquatic ☒ Other (specify): Shoreline
 ii. If mix of uses, generally describe:

b. Land uses and covertypes on the project site.

Land use or Covertypes	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	0.20	0.21	+0.01
• Forested	0.50	0.19	-0.31
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	0	0.30	+0.30
• Agricultural (includes active orchards, field, greenhouse etc.)			
• Surface water features (lakes, ponds, streams, rivers, etc.)	0.40	0.39	-0.01
• Wetlands (freshwater or tidal)			
• Non-vegetated (bare rock, earth or fill)	0.10	0.11	+0.01
• Other Describe: _____ _____			

c. Is the project site presently used by members of the community for public recreation? i. If Yes: explain: <u>Pedestrian use for Croton Gorge Trail Access</u>	☒ Yes ☐ No																									
d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? If Yes, i. Identify Facilities:	☐ Yes ☒ No																									
		e. Does the project site contain an existing dam? If Yes: i. Dimensions of the dam and impoundment:	☐ Yes ☒ No	• Dam height: _____ feet • Dam length: _____ feet • Surface area: _____ acres • Volume impounded: _____ gallons OR acre-feet		ii. Dam's existing hazard classification: _____ iii. Provide date and summarize results of last inspection: _____ 		f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? If Yes: i. Has the facility been formally closed? • If yes, cite sources/documentation: _____ ii. Describe the location of the project site relative to the boundaries of the solid waste management facility: _____ _____	☐ Yes ☒ No ☐ Yes ☐ No	iii. Describe any development constraints due to the prior solid waste activities: _____ 		g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? If Yes: i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred: _____ _____	☐ Yes ☒ No			h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? If Yes: i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply:	☐ Yes ☒ No ☐ Yes ☒ No	☐ Yes – Spills Incidents database ☐ Yes – Environmental Site Remediation database ☐ Neither database Provide DEC ID number(s): _____ Provide DEC ID number(s): _____		ii. If site has been subject of RCRA corrective activities, describe control measures: _____ 		iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? If yes, provide DEC ID number(s): _____		☐ Yes ☒ No	iv. If yes to (i), (ii) or (iii) above, describe current status of site(s): _____ 	
e. Does the project site contain an existing dam? If Yes: i. Dimensions of the dam and impoundment:	☐ Yes ☒ No																									
• Dam height: _____ feet • Dam length: _____ feet • Surface area: _____ acres • Volume impounded: _____ gallons OR acre-feet																										
ii. Dam's existing hazard classification: _____ iii. Provide date and summarize results of last inspection: _____ 																										
f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? If Yes: i. Has the facility been formally closed? • If yes, cite sources/documentation: _____ ii. Describe the location of the project site relative to the boundaries of the solid waste management facility: _____ _____	☐ Yes ☒ No ☐ Yes ☐ No																									
iii. Describe any development constraints due to the prior solid waste activities: _____ 																										
g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? If Yes: i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred: _____ _____	☐ Yes ☒ No																									
		h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? If Yes: i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply:	☐ Yes ☒ No ☐ Yes ☒ No	☐ Yes – Spills Incidents database ☐ Yes – Environmental Site Remediation database ☐ Neither database Provide DEC ID number(s): _____ Provide DEC ID number(s): _____		ii. If site has been subject of RCRA corrective activities, describe control measures: _____ 		iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? If yes, provide DEC ID number(s): _____		☐ Yes ☒ No	iv. If yes to (i), (ii) or (iii) above, describe current status of site(s): _____ 															
h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? If Yes: i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply:	☐ Yes ☒ No ☐ Yes ☒ No																									
☐ Yes – Spills Incidents database ☐ Yes – Environmental Site Remediation database ☐ Neither database Provide DEC ID number(s): _____ Provide DEC ID number(s): _____																										
ii. If site has been subject of RCRA corrective activities, describe control measures: _____ 																										
iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? If yes, provide DEC ID number(s): _____		☐ Yes ☒ No																								
iv. If yes to (i), (ii) or (iii) above, describe current status of site(s): _____ 																										

v. Is the project site subject to an institutional control limiting property uses? ☐ Yes ☒ No	
- If yes, DEC site ID number: _____ - Describe the type of institutional control (e.g., deed restriction or easement): _____ - Describe any use limitations: _____ - Describe any engineering controls: _____ - Will the project affect the institutional or engineering controls in place? ☐ Yes ☐ No - Explain: _____ 	
E.2. Natural Resources On or Near Project Site	
a. What is the average depth to bedrock on the project site? _____ >7 feet	
b. Are there bedrock outcroppings on the project site? ☐ Yes ☒ No If Yes, what proportion of the site is comprised of bedrock outcroppings? _____ %	
c. Predominant soil type(s) present on project site:	
Charlton loam (Clf)	98.3 %
Paxton fine Sandy loam (PnB)	1.7 %
_____	_____ %
d. What is the average depth to the water table on the project site? Average: _____ >6 feet	
e. Drainage status of project site soils: ☒ Well Drained: _____ 100 % of site	
☐ Moderately Well Drained: _____ % of site	
☐ Poorly Drained _____ % of site	
f. Approximate proportion of proposed action site with slopes: ☒ 0-10%: _____ 1.7 % of site	
☐ 10-15%: _____ % of site	
☒ 15% or greater: _____ 98.3 % of site	
g. Are there any unique geologic features on the project site? ☐ Yes ☒ No If Yes, describe: _____ 	
h. Surface water features.	
i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☒ Yes ☐ No	
ii. Do any wetlands or other waterbodies adjoin the project site? ☒ Yes ☐ No	
If Yes to either i or ii, continue. If No, skip to E.2.i.	
iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☒ Yes ☐ No	
iv. For each identified regulated wetland and waterbody on the project site, provide the following information:	
• Streams: Name 864-68 Classification ^B _____	
• Lakes or Ponds: Name _____ Classification _____	
• Wetlands: Name Federal Waters, Federal Waters, Federal Waters,... Approximate Size _____	
• Wetland No. (if regulated by DEC) _____	
v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐ Yes ☒ No	
If yes, name of impaired water body/bodies and basis for listing as impaired: _____ 	
i. Is the project site in a designated Floodway? ☒ Yes ☐ No	
j. Is the project site in the 100-year Floodplain? ☒ Yes ☐ No	
k. Is the project site in the 500-year Floodplain? ☒ Yes ☐ No	
l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☒ Yes ☐ No If Yes: i. Name of aquifer: Principal Aquifer, Primary Aquifer _____ 	



m. Identify the predominant wildlife species that occupy or use the project site: <u>Consultant observed: Grey Squirrel</u> <u>Bald Eagle, Mallard, White-tailed Deer</u> <u>Nearby eBird sitings: Canada Goose</u> <u>Tufted Titmouse, Common Merganser</u> <u>Common Grackle, Dark-eyed Junco</u> <u>Prior observations: Bass, Minnows,</u> <u>Chubs, Shiners, American Eel, Herons,</u> <u>Green Frogs, Chipmunks, Raccoons</u>		
n. Does the project site contain a designated significant natural community? ☐ Yes ☒ No If Yes: <i>i.</i> Describe the habitat/community (composition, function, and basis for designation): _____ _____ <i>ii.</i> Source(s) of description or evaluation: _____ <i>iii.</i> Extent of community/habitat: • Currently: _____ acres • Following completion of project as proposed: _____ acres • Gain or loss (indicate + or -): _____ acres		
o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☐ Yes ☒ No If Yes: <i>i.</i> Species and listing (endangered or threatened): _____ _____ _____		
p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☐ Yes ☒ No If Yes: <i>i.</i> Species and listing: _____ _____		
q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☒ Yes ☐ No If yes, give a brief description of how the proposed action may affect that use: _____ Croton River is used for fishing and is accessible at multiple locations beyond the project area, which will not be impacted.		
E.3. Designated Public Resources On or Near Project Site		
a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☐ Yes ☒ No If Yes, provide county plus district name/number: _____		
b. Are agricultural lands consisting of highly productive soils present? ☐ Yes ☒ No <i>i.</i> If Yes: acreage(s) on project site? _____ <i>ii.</i> Source(s) of soil rating(s): _____		
c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐ Yes ☒ No If Yes: <i>i.</i> Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature <i>ii.</i> Provide brief description of landmark, including values behind designation and approximate size/extent: _____ _____ _____		
d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☒ Yes ☐ No If Yes: <i>i.</i> CEA name: <u>County & State Park Lands</u> <i>ii.</i> Basis for designation: <u>Exceptional or unique character</u> <i>iii.</i> Designating agency and date: <u>Agency: Westchester County, Date: 1-31-90</u>		

e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places? ☒ Yes ☐ No	
If Yes: i. Nature of historic/archaeological resource: ☐ Archaeological Site ☒ Historic Building or District ii. Name: <u>Eligible property: Quaker Bridge. BIN 3348560, Old Croton Aqueduct</u> iii. Brief description of attributes on which listing is based: <u>Bridge is architecturally significant, recognizing it as a rare and outstanding example of a late nineteenth-century Pratt Truss bridge.</u>	
f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? ☒ Yes ☐ No	
g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐ Yes ☒ No	
If Yes: i. Describe possible resource(s): _____ ii. Basis for identification: _____	
h. Is the project site within five miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☒ Yes ☐ No	
If Yes: i. Identify resource: <u>Black Rock Park, Silver Lake Park, Croton Gorge Trail, Croton Gorge Park, Old Croton Aqueduct State Historic Park</u> ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.): <u>Local, County and State parks and trails</u> iii. Distance between project and resource: _____ <u>0 - 0.1</u> miles.	
i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☐ Yes ☒ No	
If Yes: i. Identify the name of the river and its designation: _____ ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☐ Yes ☐ No	

F. Additional Information

Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

G. Verification

I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name County of Westchester Date April 15, 2025 (Revised: June 26, 2025)

Signature  Title Assistant Commissioner



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.



B.i.i [Coastal or Waterfront Area]	Yes
B.i.ii [Local Waterfront Revitalization Area]	Yes
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.iv [Surface Water Features - Stream Name]	864-68
E.2.h.iv [Surface Water Features - Stream Classification]	B
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	Yes
E.2.j. [100 Year Floodplain]	Yes
E.2.k. [500 Year Floodplain]	Yes

E.2.l. [Aquifers]	Yes
E.2.l. [Aquifer Names]	Principal Aquifer, Primary Aquifer
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	No
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	No
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	Yes
E.3.d [Critical Environmental Area - Name]	County & State Park Lands
E.3.d.ii [Critical Environmental Area - Reason]	Exceptional or unique character
E.3.d.iii [Critical Environmental Area – Date and Agency]	Agency:Westchester County, Date:1-31-90
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Yes - Digital mapping data for archaeological site boundaries are not available. Refer to EAF Workbook.
E.3.e.ii [National or State Register of Historic Places or State Eligible Sites - Name]	Eligible property:Quaker Bridge. BIN 3348560, Old Croton Aqueduct
E.3.f. [Archeological Sites]	Yes
E.3.i. [Designated River Corridor]	No

Full Environmental Assessment Form
Part 2 - Identification of Potential Project Impacts

Agency Use Only [If applicable]	
Project :	RB03W
Date :	June 2025

Part 2 is to be completed by the lead agency. Part 2 is designed to help the lead agency inventory all potential resources that could be affected by a proposed project or action. We recognize that the lead agency's reviewer(s) will not necessarily be environmental professionals. So, the questions are designed to walk a reviewer through the assessment process by providing a series of questions that can be answered using the information found in Part 1. To further assist the lead agency in completing Part 2, the form identifies the most relevant questions in Part 1 that will provide the information needed to answer the Part 2 question. When Part 2 is completed, the lead agency will have identified the relevant environmental areas that may be impacted by the proposed activity.

If the lead agency is a state agency **and** the action is in any Coastal Area, complete the Coastal Assessment Form before proceeding with this assessment.

Tips for completing Part 2:

- Review all of the information provided in Part 1.
- Review any application, maps, supporting materials and the Full EAF Workbook.
- Answer each of the 18 questions in Part 2.
- If you answer “**Yes**” to a numbered question, please complete all the questions that follow in that section.
- If you answer “**No**” to a numbered question, move on to the next numbered question.
- Check appropriate column to indicate the anticipated size of the impact.
- Proposed projects that would exceed a numeric threshold contained in a question should result in the reviewing agency checking the box “Moderate to large impact may occur.”
- The reviewer is not expected to be an expert in environmental analysis.
- If you are not sure or undecided about the size of an impact, it may help to review the sub-questions for the general question and consult the workbook.
- When answering a question consider all components of the proposed activity, that is, the “whole action”.
- Consider the possibility for long-term and cumulative impacts as well as direct impacts.
- Answer the question in a reasonable manner considering the scale and context of the project.

1. Impact on Land Proposed action may involve construction on, or physical alteration of, the land surface of the proposed site. (See Part 1. D.1) <i>If “Yes”, answer questions a - j. If “No”, move on to Section 2.</i> ☐ NO ☒ YES			
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may involve construction on land where depth to water table is less than 3 feet.	E2d	☒	☐
b. The proposed action may involve construction on slopes of 15% or greater.	E2f	☐	☒
c. The proposed action may involve construction on land where bedrock is exposed, or generally within 5 feet of existing ground surface.	E2a	☒	☐
d. The proposed action may involve the excavation and removal of more than 1,000 tons of natural material.	D2a	☒	☐
e. The proposed action may involve construction that continues for more than one year or in multiple phases.	D1e	☒	☐
f. The proposed action may result in increased erosion, whether from physical disturbance or vegetation removal (including from treatment by herbicides).	D2e, D2q	☒	☐
g. The proposed action is, or may be, located within a Coastal Erosion hazard area.	B1i	☒	☐
h. Other impacts: _____ _____		☐	☐

2. Impact on Geological Features The proposed action may result in the modification or destruction of, or inhibit access to, any unique or unusual land forms on the site (e.g., cliffs, dunes, minerals, fossils, caves). (See Part 1. E.2.g) ☒ NO ☐ YES <i>If "Yes", answer questions a - c. If "No", move on to Section 3.</i>			
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. Identify the specific land form(s) attached: _____	E2g	☐	☐
b. The proposed action may affect or is adjacent to a geological feature listed as a registered National Natural Landmark. Specific feature: _____	E3c	☐	☐
c. Other impacts: _____		☐	☐

3. Impacts on Surface Water The proposed action may affect one or more wetlands or other surface water bodies (e.g., streams, rivers, ponds or lakes). (See Part 1. D.2, E.2.h) ☐ NO ☒ YES <i>If "Yes", answer questions a - l. If "No", move on to Section 4.</i>			
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may create a new water body.	D2b, D1h	☒	☐
b. The proposed action may result in an increase or decrease of over 10% or more than a 10 acre increase or decrease in the surface area of any body of water.	D2b	☒	☐
c. The proposed action may involve dredging more than 100 cubic yards of material from a wetland or water body.	D2a	☒	☐
d. The proposed action may involve construction within or adjoining a freshwater or tidal wetland, or in the bed or banks of any other water body.	E2h	☐	☒
e. The proposed action may create turbidity in a waterbody, either from upland erosion, runoff or by disturbing bottom sediments.	D2a, D2h	☒	☐
f. The proposed action may include construction of one or more intake(s) for withdrawal of water from surface water.	D2c	☒	☐
g. The proposed action may include construction of one or more outfall(s) for discharge of wastewater to surface water(s).	D2d	☒	☐
h. The proposed action may cause soil erosion, or otherwise create a source of stormwater discharge that may lead to siltation or other degradation of receiving water bodies.	D2e	☒	☐
i. The proposed action may affect the water quality of any water bodies within or downstream of the site of the proposed action.	E2h	☒	☐
j. The proposed action may involve the application of pesticides or herbicides in or around any water body.	D2q, E2h	☒	☐
k. The proposed action may require the construction of new, or expansion of existing, wastewater treatment facilities.	D1a, D2d	☒	☐

l. Other impacts: _____ _____		☐	☐
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4. Impact on groundwater The proposed action may result in new or additional use of ground water, or may have the potential to introduce contaminants to ground water or an aquifer. (See Part 1. D.2.a, D.2.c, D.2.d, D.2.p, D.2.q, D.2.t) <i>If "Yes", answer questions a - h. If "No", move on to Section 5.</i>			
		☒ NO	☐ YES
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may require new water supply wells, or create additional demand on supplies from existing water supply wells.	D2c	☐	☐
b. Water supply demand from the proposed action may exceed safe and sustainable withdrawal capacity rate of the local supply or aquifer. Cite Source: _____	D2c	☐	☐
c. The proposed action may allow or result in residential uses in areas without water and sewer services.	D1a, D2c	☐	☐
d. The proposed action may include or require wastewater discharged to groundwater.	D2d, E2l	☐	☐
e. The proposed action may result in the construction of water supply wells in locations where groundwater is, or is suspected to be, contaminated.	D2c, E1f, E1g, E1h	☐	☐
f. The proposed action may require the bulk storage of petroleum or chemical products over ground water or an aquifer.	D2p, E2l	☐	☐
g. The proposed action may involve the commercial application of pesticides within 100 feet of potable drinking water or irrigation sources.	E2h, D2q, E2l, D2c	☐	☐
h. Other impacts: _____ _____		☐	☐

5. Impact on Flooding The proposed action may result in development on lands subject to flooding. (See Part 1. E.2) <i>If "Yes", answer questions a - g. If "No", move on to Section 6.</i>			
		☐ NO	☒ YES
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may result in development in a designated floodway.	E2i	☐	☒
b. The proposed action may result in development within a 100 year floodplain.	E2j	☐	☒
c. The proposed action may result in development within a 500 year floodplain.	E2k	☒	☐
d. The proposed action may result in, or require, modification of existing drainage patterns.	D2b, D2e	☒	☐
e. The proposed action may change flood water flows that contribute to flooding.	D2b, E2i, E2j, E2k	☒	☐
f. If there is a dam located on the site of the proposed action, is the dam in need of repair, or upgrade?	E1e	☒	☐

g. Other impacts: _____ _____		☐	☐
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6. Impacts on Air The proposed action may include a state regulated air emission source. (See Part 1. D.2.f., D.2.h, D.2.g) <i>If “Yes”, answer questions a - f. If “No”, move on to Section 7.</i>				☒ NO	☐ YES
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur		
a. If the proposed action requires federal or state air emission permits, the action may also emit one or more greenhouse gases at or above the following levels:					
i. More than 1000 tons/year of carbon dioxide (CO ₂)	D2g	☐	☐		
ii. More than 3.5 tons/year of nitrous oxide (N ₂ O)	D2g	☐	☐		
iii. More than 1000 tons/year of carbon equivalent of perfluorocarbons (PFCs)	D2g	☐	☐		
iv. More than .045 tons/year of sulfur hexafluoride (SF ₆)	D2g	☐	☐		
v. More than 1000 tons/year of carbon dioxide equivalent of hydrochloroflourocarbons (HFCs) emissions	D2g	☐	☐		
vi. 43 tons/year or more of methane	D2h	☐	☐		
b. The proposed action may generate 10 tons/year or more of any one designated hazardous air pollutant, or 25 tons/year or more of any combination of such hazardous air pollutants.	D2g	☐	☐		
c. The proposed action may require a state air registration, or may produce an emissions rate of total contaminants that may exceed 5 lbs. per hour, or may include a heat source capable of producing more than 10 million BTU's per hour.	D2f, D2g	☐	☐		
d. The proposed action may reach 50% of any of the thresholds in “a” through “c”, above.	D2g	☐	☐		
e. The proposed action may result in the combustion or thermal treatment of more than 1 ton of refuse per hour.	D2s	☐	☐		
f. Other impacts: _____ _____		☐	☐		

7. Impact on Plants and Animals The proposed action may result in a loss of flora or fauna. (See Part 1. E.2. m.-q.) <i>If “Yes”, answer questions a - j. If “No”, move on to Section 8.</i>				☐ NO	☒ YES
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur		
a. The proposed action may cause reduction in population or loss of individuals of any threatened or endangered species, as listed by New York State or the Federal government, that use the site, or are found on, over, or near the site.	E2o	☒	☐		
b. The proposed action may result in a reduction or degradation of any habitat used by any rare, threatened or endangered species, as listed by New York State or the federal government.	E2o	☒	☐		
c. The proposed action may cause reduction in population, or loss of individuals, of any species of special concern or conservation need, as listed by New York State or the Federal government, that use the site, or are found on, over, or near the site.	E2p	☒	☐		
d. The proposed action may result in a reduction or degradation of any habitat used by any species of special concern and conservation need, as listed by New York State or the Federal government.	E2p	☒	☐		

e. The proposed action may diminish the capacity of a registered National Natural Landmark to support the biological community it was established to protect.	E3c	☒	☐
f. The proposed action may result in the removal of, or ground disturbance in, any portion of a designated significant natural community. Source: _____	E2n	☒	☐
g. The proposed action may substantially interfere with nesting/breeding, foraging, or over-wintering habitat for the predominant species that occupy or use the project site.	E2m	☒	☐
h. The proposed action requires the conversion of more than 10 acres of forest, grassland or any other regionally or locally important habitat. Habitat type & information source: _____	E1b	☒	☐
i. Proposed action (commercial, industrial or recreational projects, only) involves use of herbicides or pesticides.	D2q	☒	☐
j. Other impacts: <u>The project will require the removal of approximately 76 trees with DBH of 2 inches or greater; of which 45 are between 6-inch to 32-inch DBH.</u>		☒	☐

8. Impact on Agricultural Resources The proposed action may impact agricultural resources. (See Part 1. E.3.a. and b.) ☒ NO ☐ YES <i>If "Yes", answer questions a - h. If "No", move on to Section 9.</i>			
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may impact soil classified within soil group 1 through 4 of the NYS Land Classification System.	E2c, E3b	☐	☐
b. The proposed action may sever, cross or otherwise limit access to agricultural land (includes cropland, hayfields, pasture, vineyard, orchard, etc).	E1a, E1b	☐	☐
c. The proposed action may result in the excavation or compaction of the soil profile of active agricultural land.	E3b	☐	☐
d. The proposed action may irreversibly convert agricultural land to non-agricultural uses, either more than 2.5 acres if located in an Agricultural District, or more than 10 acres if not within an Agricultural District.	E1b, E3a	☐	☐
e. The proposed action may disrupt or prevent installation of an agricultural land management system.	E1 a, E1b	☐	☐
f. The proposed action may result, directly or indirectly, in increased development potential or pressure on farmland.	C2c, C3, D2c, D2d	☐	☐
g. The proposed project is not consistent with the adopted municipal Farmland Protection Plan.	C2c	☐	☐
h. Other impacts: _____		☐	☐

9. Impact on Aesthetic Resources The land use of the proposed action are obviously different from, or are in sharp contrast to, current land use patterns between the proposed project and a scenic or aesthetic resource. (Part 1. E.1.a, E.1.b, E.3.h.) <i>If "Yes", answer questions a - g. If "No", go to Section 10.</i>			
		☒ NO	☐ YES
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. Proposed action may be visible from any officially designated federal, state, or local scenic or aesthetic resource.	E3h	☐	☐
b. The proposed action may result in the obstruction, elimination or significant screening of one or more officially designated scenic views.	E3h, C2b	☐	☐
c. The proposed action may be visible from publicly accessible vantage points: i. Seasonally (e.g., screened by summer foliage, but visible during other seasons) ii. Year round	E3h	☐ ☐	☐ ☐
d. The situation or activity in which viewers are engaged while viewing the proposed action is: i. Routine travel by residents, including travel to and from work ii. Recreational or tourism based activities	E3h E2q, E1c	☐ ☐	☐ ☐
e. The proposed action may cause a diminishment of the public enjoyment and appreciation of the designated aesthetic resource.	E3h	☐	☐
f. There are similar projects visible within the following distance of the proposed project: 0-1/2 mile 1/2 -3 mile 3-5 mile 5+ mile	D1a, E1a, D1f, D1g	☐	☐
g. Other impacts: _____ _____		☐	☐

10. Impact on Historic and Archeological Resources The proposed action may occur in or adjacent to a historic or archaeological resource. (Part 1. E.3.e, f. and g.) <i>If "Yes", answer questions a - e. If "No", go to Section 11.</i>			
		☐ NO	☒ YES
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may occur wholly or partially within, or substantially contiguous to, any buildings, archaeological site or district which is listed on the National or State Register of Historical Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places.	E3e	☐	☒
b. The proposed action may occur wholly or partially within, or substantially contiguous to, an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory.	E3f	☒	☐
c. The proposed action may occur wholly or partially within, or substantially contiguous to, an archaeological site not included on the NY SHPO inventory. Source: _____	E3g	☒	☐

d. Other impacts: <u>The project will remove a structure that is eligible for listing.</u>		☐	☒
e. If any of the above (a-d) are answered "Moderate to large impact may occur", continue with the following questions to help support conclusions in Part 3:			
i. The proposed action may result in the destruction or alteration of all or part of the site or property.	E3e, E3g, E3f	☐	☒
ii. The proposed action may result in the alteration of the property's setting or integrity.	E3e, E3f, E3g, E1a, E1b	☒	☐
iii. The proposed action may result in the introduction of visual elements which are out of character with the site or property, or may alter its setting.	E3e, E3f, E3g, E3h, C2, C3	☒	☐

11. Impact on Open Space and Recreation The proposed action may result in a loss of recreational opportunities or a reduction of an open space resource as designated in any adopted municipal open space plan. (See Part 1. C.2.c, E.1.c., E.2.q.) If "Yes", answer questions a - e. If "No", go to Section 12.			
		☒ NO	☐ YES
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may result in an impairment of natural functions, or "ecosystem services", provided by an undeveloped area, including but not limited to stormwater storage, nutrient cycling, wildlife habitat.	D2e, E1b E2h, E2m, E2o, E2n, E2p	☐	☐
b. The proposed action may result in the loss of a current or future recreational resource.	C2a, E1c, C2c, E2q	☐	☐
c. The proposed action may eliminate open space or recreational resource in an area with few such resources.	C2a, C2c E1c, E2q	☐	☐
d. The proposed action may result in loss of an area now used informally by the community as an open space resource.	C2c, E1c	☐	☐
e. Other impacts: _____		☐	☐

12. Impact on Critical Environmental Areas The proposed action may be located within or adjacent to a critical environmental area (CEA). (See Part 1. E.3.d) If "Yes", answer questions a - c. If "No", go to Section 13.			
		☐ NO	☒ YES
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may result in a reduction in the quantity of the resource or characteristic which was the basis for designation of the CEA.	E3d	☒	☐
b. The proposed action may result in a reduction in the quality of the resource or characteristic which was the basis for designation of the CEA.	E3d	☒	☐
c. Other impacts: _____		☐	☐

13. Impact on Transportation

The proposed action may result in a change to existing transportation systems.

☐ NO☒ YES

(See Part 1. D.2.j)

If "Yes", answer questions a - f. If "No", go to Section 14.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. Projected traffic increase may exceed capacity of existing road network.	D2j	☒	☐
b. The proposed action may result in the construction of paved parking area for 500 or more vehicles.	D2j	☒	☐
c. The proposed action will degrade existing transit access.	D2j	☒	☐
d. The proposed action will degrade existing pedestrian or bicycle accommodations.	D2j	☒	☐
e. The proposed action may alter the present pattern of movement of people or goods.	D2j	☒	☐
f. Other impacts: <u>Temporary detour required during construction. Project will restore a pre-existing vehicular travel route with added pedestrian accommodations.</u>		☒	☐

14. Impact on Energy

The proposed action may cause an increase in the use of any form of energy.

☒ NO☐ YES

(See Part 1. D.2.k)

If "Yes", answer questions a - e. If "No", go to Section 15.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action will require a new, or an upgrade to an existing, substation.	D2k	☐	☐
b. The proposed action will require the creation or extension of an energy transmission or supply system to serve more than 50 single or two-family residences or to serve a commercial or industrial use.	D1f, D1q, D2k	☐	☐
c. The proposed action may utilize more than 2,500 MWhrs per year of electricity.	D2k	☐	☐
d. The proposed action may involve heating and/or cooling of more than 100,000 square feet of building area when completed.	D1g	☐	☐
e. Other Impacts: _____		☐	☐

15. Impact on Noise, Odor, and Light

The proposed action may result in an increase in noise, odors, or outdoor lighting.

☒ NO☐ YES

(See Part 1. D.2.m., n., and o.)

If "Yes", answer questions a - f. If "No", go to Section 16.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may produce sound above noise levels established by local regulation.	D2m	☐	☐
b. The proposed action may result in blasting within 1,500 feet of any residence, hospital, school, licensed day care center, or nursing home.	D2m, E1d	☐	☐
c. The proposed action may result in routine odors for more than one hour per day.	D2o	☐	☐

d. The proposed action may result in light shining onto adjoining properties.	D2n	☐	☐
e. The proposed action may result in lighting creating sky-glow brighter than existing area conditions.	D2n, E1a	☐	☐
f. Other impacts: _____ _____		☐	☐

16. Impact on Human Health

The proposed action may have an impact on human health from exposure to new or existing sources of contaminants. (See Part 1.D.2.q., E.1. d. f. g. and h.)

☒ NO

☐ YES

If "Yes", answer questions a - m. If "No", go to Section 17.

	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action is located within 1500 feet of a school, hospital, licensed day care center, group home, nursing home or retirement community.	E1d	☐	☐
b. The site of the proposed action is currently undergoing remediation.	E1g, E1h	☐	☐
c. There is a completed emergency spill remediation, or a completed environmental site remediation on, or adjacent to, the site of the proposed action.	E1g, E1h	☐	☐
d. The site of the action is subject to an institutional control limiting the use of the property (e.g., easement or deed restriction).	E1g, E1h	☐	☐
e. The proposed action may affect institutional control measures that were put in place to ensure that the site remains protective of the environment and human health.	E1g, E1h	☐	☐
f. The proposed action has adequate control measures in place to ensure that future generation, treatment and/or disposal of hazardous wastes will be protective of the environment and human health.	D2t	☐	☐
g. The proposed action involves construction or modification of a solid waste management facility.	D2q, E1f	☐	☐
h. The proposed action may result in the unearthing of solid or hazardous waste.	D2q, E1f	☐	☐
i. The proposed action may result in an increase in the rate of disposal, or processing, of solid waste.	D2r, D2s	☐	☐
j. The proposed action may result in excavation or other disturbance within 2000 feet of a site used for the disposal of solid or hazardous waste.	E1f, E1g E1h	☐	☐
k. The proposed action may result in the migration of explosive gases from a landfill site to adjacent off site structures.	E1f, E1g	☐	☐
l. The proposed action may result in the release of contaminated leachate from the project site.	D2s, E1f, D2r	☐	☐
m. Other impacts: _____ _____		☐	☐

17. Consistency with Community Plans The proposed action is not consistent with adopted land use plans. (See Part 1. C.1, C.2. and C.3.) <i>If “Yes”, answer questions a - h. If “No”, go to Section 18.</i>			
		☒ NO	☐ YES
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action’s land use components may be different from, or in sharp contrast to, current surrounding land use pattern(s).	C2, C3, D1a E1a, E1b	☐	☐
b. The proposed action will cause the permanent population of the city, town or village in which the project is located to grow by more than 5%.	C2	☐	☐
c. The proposed action is inconsistent with local land use plans or zoning regulations.	C2, C2, C3	☐	☐
d. The proposed action is inconsistent with any County plans, or other regional land use plans.	C2, C2	☐	☐
e. The proposed action may cause a change in the density of development that is not supported by existing infrastructure or is distant from existing infrastructure.	C3, D1c, D1d, D1f, D1d, E1b	☐	☐
f. The proposed action is located in an area characterized by low density development that will require new or expanded public infrastructure.	C4, D2c, D2d D2j	☐	☐
g. The proposed action may induce secondary development impacts (e.g., residential or commercial development not included in the proposed action)	C2a	☐	☐
h. Other: _____ _____		☐	☐

18. Consistency with Community Character The proposed project is inconsistent with the existing community character. (See Part 1. C.2, C.3, D.2, E.3) <i>If “Yes”, answer questions a - g. If “No”, proceed to Part 3.</i>			
		☒ NO	☐ YES
	Relevant Part I Question(s)	No, or small impact may occur	Moderate to large impact may occur
a. The proposed action may replace or eliminate existing facilities, structures, or areas of historic importance to the community.	E3e, E3f, E3g	☐	☐
b. The proposed action may create a demand for additional community services (e.g. schools, police and fire)	C4	☐	☐
c. The proposed action may displace affordable or low-income housing in an area where there is a shortage of such housing.	C2, C3, D1f D1g, E1a	☐	☐
d. The proposed action may interfere with the use or enjoyment of officially recognized or designated public resources.	C2, E3	☐	☐
e. The proposed action is inconsistent with the predominant architectural scale and character.	C2, C3	☐	☐
f. Proposed action is inconsistent with the character of the existing natural landscape.	C2, C3 E1a, E1b E2g, E2h	☐	☐
g. Other impacts: _____ _____		☐	☐

Full Environmental Assessment Form
Part 3 - Evaluation of the Magnitude and Importance of Project Impacts
and
Determination of Significance

Part 3 provides the reasons in support of the determination of significance. The lead agency must complete Part 3 for every question in Part 2 where the impact has been identified as potentially moderate to large or where there is a need to explain why a particular element of the proposed action will not, or may, result in a significant adverse environmental impact.

Based on the analysis in Part 3, the lead agency must decide whether to require an environmental impact statement to further assess the proposed action or whether available information is sufficient for the lead agency to conclude that the proposed action will not have a significant adverse environmental impact. By completing the certification on the next page, the lead agency can complete its determination of significance.

Reasons Supporting This Determination:

To complete this section:

- Identify the impact based on the Part 2 responses and describe its magnitude. Magnitude considers factors such as severity, size or extent of an impact.
- Assess the importance of the impact. Importance relates to the geographic scope, duration, probability of the impact occurring, number of people affected by the impact and any additional environmental consequences if the impact were to occur.
- The assessment should take into consideration any design element or project changes.
- Repeat this process for each Part 2 question where the impact has been identified as potentially moderate to large or where there is a need to explain why a particular element of the proposed action will not, or may, result in a significant adverse environmental impact.
- Provide the reason(s) why the impact may, or will not, result in a significant adverse environmental impact
- For Conditional Negative Declarations identify the specific condition(s) imposed that will modify the proposed action so that no significant adverse environmental impacts will result.
- Attach additional sheets, as needed.

Impact on Land/Water: Steep slopes of 50% or more exist throughout the project site, extending both down the banks to the stream as well as on the upland side along the approaches. Temporary soldier pile retaining walls will be installed to limit the extent of disturbance needed for construction. Erosion and sediment controls during construction will include silt fencing, coffer dams and turbidity curtains, among other controls as may be required by NYSDEC. NYSDOT Environmental Ground and Water Protection specifications will also be followed during demolition and construction. Site restoration will include biodegradable erosion control matting and live staking where appropriate.

Impact on Flooding: Hydraulic analyses were performed for the existing and proposed bridges, which determined that the water surface elevation for both the 50- and 100-year storm events are unchanged. As such, the new bridge will not result in any new flooding impacts.

Impact on Plants and Animals: The project will disturb between approximately 40 - 80 feet of the land area next to the bridge, which includes a mix of young and mature trees. Of the 76 trees that must be removed to enable construction, 31 are less than 6 inches DBH and only 5 are equal to or above 20-inch DBH. Tree removals will be offset by the planting of 99 new trees. Since part of the project area must remain cleared for continued access and maintenance of the bridge, approximately half of the trees will be planted offsite. To prevent potential impacts to endangered bats that may be roosting in these trees, all tree removals will occur between November 1st and March 31st in accordance NYSDEC guidelines.

Impact on Historic and Archeological Resources: SHPO concurred that the bridge must be replaced for long-term safety and has no concerns regarding archaeological resources. A Historic American Engineering Record Level II Documentation has been prepared for the bridge. In addition, the historic plaque and certain components of the original bridge will be salvaged and set aside for preservation options. The new bridge will replicate the truss design. The project is not adjacent to and will not affect the Old Croton Aqueduct.

Impact on Open Space: While there will be no reduction in open space, a village trail that connects to Croton Gorge Trail will not be accessible during construction. The trail connection will be restored following construction, which is targeted to begin in the fall and conclude by the following summer.

Impact on Critical Environmental Areas (CEA): The project area is in the County's Croton Point Park and River CEA, which was designated for its geological, archaeological and ecological significance. It also encompasses an underlying aquifer that provides drinking water to the Village of Croton. As the project involves replacement of a bridge in its existing location with appropriate construction mitigation and restoration, there will be no significant adverse impacts as it relates to the CEA and is consistent in general with the Village of Croton's LWRP.

Impact on Transportation: The bridge replacement will restore a vital corridor between the Town and Village, reducing extended travel times currently experienced by school buses and emergency vehicles due to the closure of the existing bridge, along with reducing associated energy consumption and carbon emissions. Widening of the bridge to provide 2-way traffic as well as pedestrian lanes will improve safety and encourage non-motorized uses.

Determination of Significance - Type 1 and Unlisted Actions

SEQR Status: ☐ Type 1 ☒ Unlisted

Identify portions of EAF completed for this Project: ☒ Part 1 ☒ Part 2 ☒ Part 3

Upon review of the information recorded on this EAF, as noted, plus this additional support information

and considering both the magnitude and importance of each identified potential impact, it is the conclusion of the _____ as lead agency that:

☒ A. This project will result in no significant adverse impacts on the environment, and, therefore, an environmental impact statement need not be prepared. Accordingly, this negative declaration is issued.

☐ B. Although this project could have a significant adverse impact on the environment, that impact will be avoided or substantially mitigated because of the following conditions which will be required by the lead agency:

There will, therefore, be no significant adverse impacts from the project as conditioned, and, therefore, this conditioned negative declaration is issued. A conditioned negative declaration may be used only for UNLISTED actions (see 6 NYCRR 617.7(d)).

☐ C. This Project may result in one or more significant adverse impacts on the environment, and an environmental impact statement must be prepared to further assess the impact(s) and possible mitigation and to explore alternatives to avoid or reduce those impacts. Accordingly, this positive declaration is issued.

Name of Action: Quaker Bridge Road Bridge Replacement (RB03W)

Name of Lead Agency: County of Westchester

Name of Responsible Officer in Lead Agency: Malika Vanderberg

Title of Responsible Officer: Clerk and Chief Administrative Officer, Westchester County Board of Legislators

Signature of Responsible Officer in Lead Agency:

Date:

Signature of Preparer (if different from Responsible Officer)



Date: June 26, 2025

For Further Information:

Contact Person: David S. Kvinge, Assistant Commissioner, Westchester County Department of Planning

Address: 148 Martine Avenue, White Plains, NY 10601

Telephone Number: 914-995-2089

E-mail: dsk2@WestchesterCountyNY.gov

For Type 1 Actions and Conditioned Negative Declarations, a copy of this Notice is sent to:

Chief Executive Officer of the political subdivision in which the action will be principally located (e.g., Town / City / Village of)

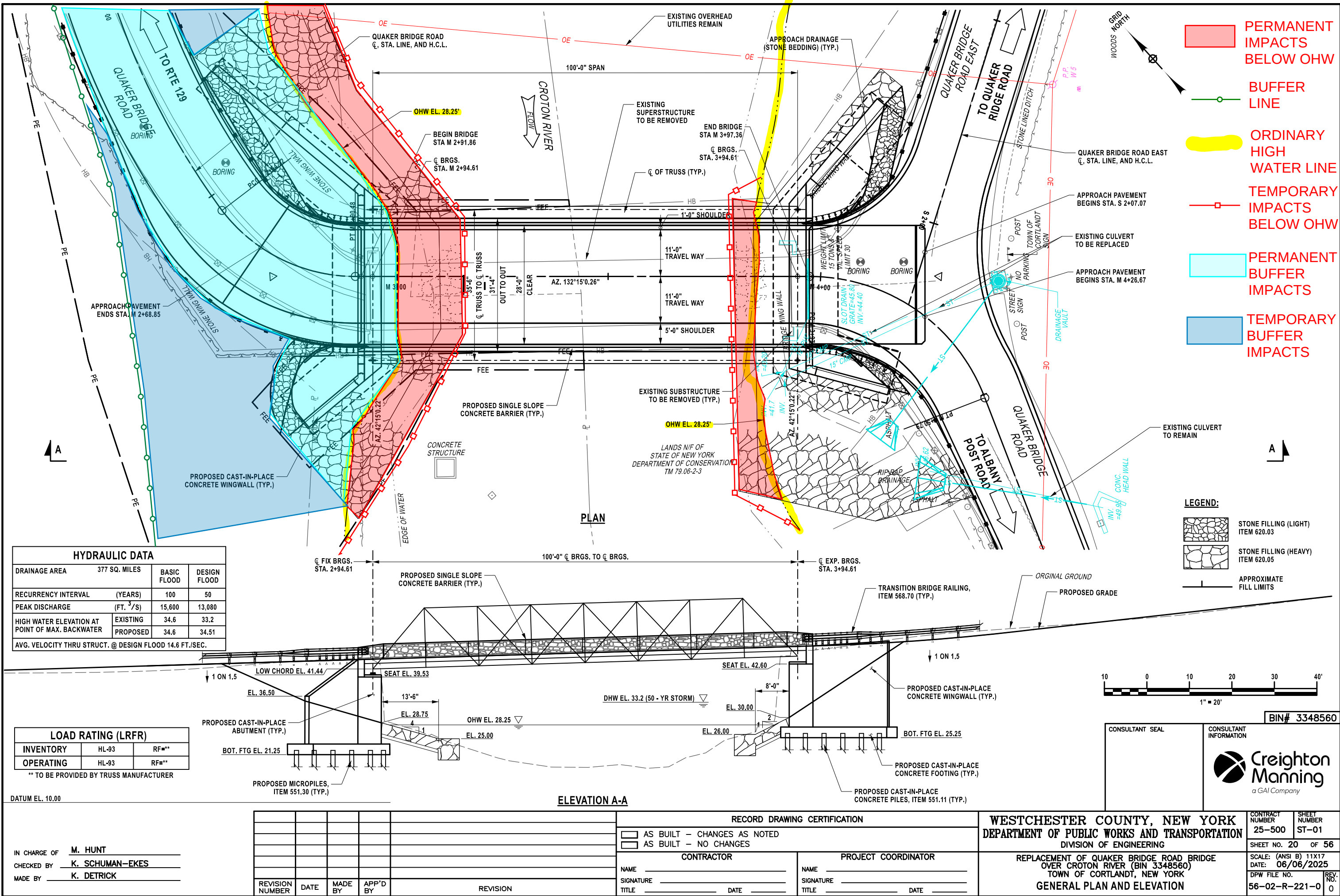
Other involved agencies (if any)

Applicant (if any)

Environmental Notice Bulletin: <http://www.dec.ny.gov/enb/enb.html>

ATTACHMENT B: PLANS

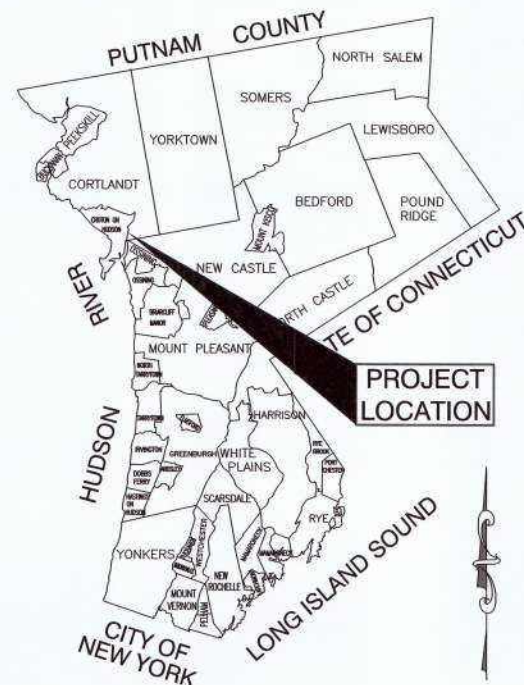
FILE NAME = N:\Projects\2024\124-296 Westchester Co - Quaker Bridge Replacement\Working\CADD\dwg connect\2024\124-296_cpb_gen_01.dgn
DATE/TIME = 03/07/25 2:46:16 PM
USER = mch
PLOT = NY_PDF.plt



WESTCHESTER COUNTY

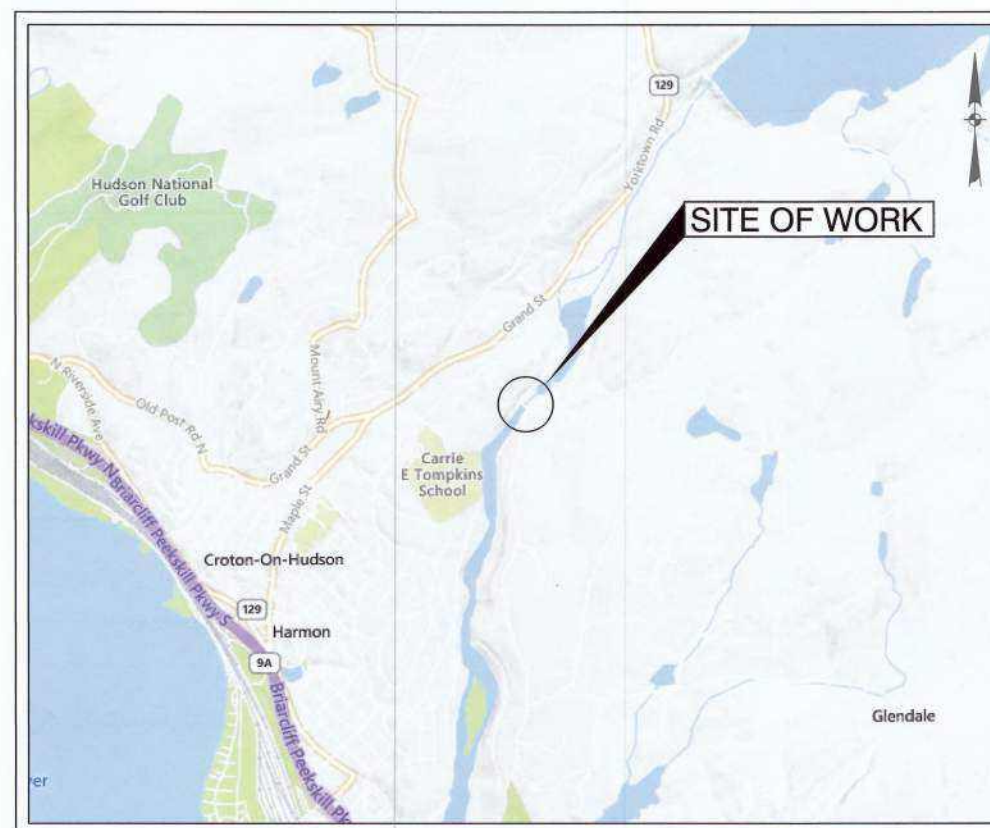
WESTCHESTER COUNTY, NEW YORK
DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION
DIVISION OF ENGINEERING

CONTRACT No. 25-500 REPLACEMENT OF QUAKER BRIDGE ROAD BRIDGE OVER CROTON RIVER (BIN 3348560) TOWN OF CORTLANDT AND VILLAGE OF CROTON-ON-HUDSON, NEW YORK



WESTCHESTER COUNTY

THE LATEST REVISIONS OF THE STANDARD SHEETS MAINTAINED BY NYSDOT, WHICH ARE CURRENT AS OF THE STANDARD SPECIFICATIONS ADOPTION DATE SHOWN ON THE PROPOSAL COVER, SHALL BE CONSIDERED TO BE IN EFFECT. ALL PAY ITEMS AND WORK CONTAINED IN THE CONTRACT AND ANY ADDITIONAL PAY ITEMS AND WORK ENCOUNTERED DURING THE COURSE OF THE CONTRACT SHALL BE SUBJECT TO THE APPLICABLE STANDARD SHEET(S) UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.



LOCATION MAP

SCALE: N.T.S.

IT IS A VIOLATION OF NYS LAW FOR ANY PERSON TO ALTER THIS DOCUMENT IN ANY WAY, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. IF A DOCUMENT BEARING THE SEAL OF AN ENGINEER IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE DOCUMENT THEIR SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

IN CHARGE OF M. HUNT
CHECKED BY K. SCHUMAN-EKES
MADE BY J. WONG

Angelo M. Gobbio 6/9/25
RECOMMENDED FOR DESIGN DATE
ANGELO SGOBBO, P.E.
DIRECTOR OF DESIGN COORDINATION
DEPARTMENT OF PUBLIC WORKS
AND TRANSPORTATION

Hernane N. De Almeida 6/9/25
RECOMMENDED FOR CONSTRUCTION DATE
HERNANE N. DE ALMEIDA, P.E.
DEPUTY COMMISSIONER
DEPARTMENT OF PARKS, RECREATION
AND CONSERVATION

Gayle M. Katzman 6-9-2025
RECOMMENDED FOR CONSTRUCTION DATE
GAYLE M. KATZMAN, P.E.
FIRST DEPUTY COMMISSIONER
DEPARTMENT OF PUBLIC WORKS
AND TRANSPORTATION

Hugh J. Greechan, Jr. 6/9/25
APPROVED FOR CONSTRUCTION DATE
HUGH J. GREECHAN, JR., P.E.
COMMISSIONER
DEPARTMENT OF PUBLIC WORKS
AND TRANSPORTATION

PROFESSIONAL SEAL 		CONSULTANT INFORMATION  CREIGHTON MANNING ENGINEERING, LLP 2 WINNERS CIRCLE - ALBANY - NEW YORK - 12205 P: (518) 446-0396 F: (518) 446-0397 WWW.CMELLP.COM		
REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION
RECORD DRAWING CERTIFICATION				
☐ AS BUILT - CHANGES AS NOTED ☐ AS BUILT - NO CHANGES				
CONTRACTOR NAME: _____ SIGNATURE: _____ TITLE: _____ DATE: _____		PROJECT COORDINATOR NAME: _____ SIGNATURE: _____ TITLE: _____ DATE: _____		
WESTCHESTER COUNTY, NEW YORK DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION DIVISION OF ENGINEERING		CONTRACT NUMBER: 25-500 SHEET NUMBER: COVER SHEET NO.1 OF 56 SCALE: NONE DATE: 06/06/2025 DPW FILE NO.: 56-02-T-202-0 REV. NO.: 0		

FILE NAME = 5FILES
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USER = m.hunt
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ALIGNMENT			DRAINAGE			ITS			ROW MAPPING			SIGNS			UTILITIES			
CELL	NAME	DESCRIPTION	CELL	NAME	DESCRIPTION	CELL	NAME	DESCRIPTION	CELL	NAME	DESCRIPTION	CELL	NAME	DESCRIPTION	CELL	NAME	DESCRIPTION	
	ACC	CENTER OF CURVATURE		DINV	INVERT		IANT_P	ANTENNAS		MDL1P	DEED LINE, TYPE 1		S	SINGLE POST		UEB	ELECTRIC, BOX	
	ACOGO	COGO		DS	STRUCTURE, RECTANGULAR		IASCTS	ACCOU. SPEED/COUNT SNSR.S		MDL2P	DEED LINE, TYPE 2		S_P	SINGLE POST, PROPOSED		UEM	ELECTRIC, METER	
	ACS	CURVE TO SPIRAL		DSI	STRUCTURE, INVERT		ICABPAD	CABINET & PAD		MDL3P	DEED LINE, TYPE 3		SB_P	BACK TO BACK, PROPOSED		UEMH	ELECTRIC, MANHOLE	
	ADPL_P	DETOUR, POINT OF INTERSECT.		DSM	STRUCTURE, MANHOLE		ICCTV	CCTV SITE		MDL4P	DEED LINE, TYPE 4		SDEL	DELINEATORS		UEPT	ELECTRIC, POLE, TRANS.	
	ADPL_P	DETOUR, POINT ON LINE			DSMTXX_P	STRUCTURE, MANHOLE, TYPE "XX" "XX" = 48, 60, 72, 84, 96		ICDPD	CDPD TRANSCEIVER		MDL5P	DEED LINE, TYPE 5		SPM	PARKING METER		UGM	GAS, METER
	AEQN	EQUATION				DSR	STRUCTURE, ROUND		ICELLT	CELL PHONE TOWER		MEEP	EASEMENT, EXISTING		SRM	REFERENCE MARKERS		UGMH
	AEQNAHD	EQUATION AHEAD				DST"X"CB_P	STRUCTURE, RECT., WITH CURB TYPE "X" "X" = F, G, N, O, P, R		ICJB	CONDUIT JACK OR BORING		MEPAP_P	EASEMENT, PERM., APPROX.		SRSC3	SHLD, CTY, 123 DIG.		UGLM
	AEQNBK	EQUATION BACK			DST"X"_P			STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U		ICNTLCAB	CONTROLLER CABINET		MEPP_P	EASEMENT, PERM., BACK LINE		SRSC4	SHLD, CTY, 4 DIG.	
	AEVT	EVENT STATION				DST"X"_P	STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U			ICPB	COMMUNICATION PULL BOX		MEPSP_P	EASEMENT, PERM., SHAPE		SRSCT2	SHLD, CTY TOUR, 1-2 DIG.	
	APC	POINT OF CURVATURE			DST"X"_P			STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U		ICTD	CONDUIT TURNING DOWN		MFAP_P	FEE ACQUISITION, APPROX.		SRSCT4	SHLD, CTY TOUR, 3-4 DIG.	
	APCC	POINT OF COMPOUND CURVATURE				DST"X"_P	STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U			ICTU	CONDUIT TURNING UP		MFP_P	FEE ACQUISITION, BACK LINE		SRSI	SHLD, INTERSTATE	
	API	POINT OF INTERSECTION			DST"X"_P			STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U		ICVTRT	COMM. VEH. ROAD TRANSCEIVER		MFSP_P	FEE ACQUISITION, SHAPE		SRSN2	SHLD, NATIONAL, 2 DIG.	
	APOB	POINT OF BEGINNING				DST"X"_P	STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U			IDEFAULT	DEFAULT		MHBAP	HIGHWAY BNDRY., APPROX.		SRSN3	SHLD, NATIONAL, 3 DIG.	
	APOC	POINT OF CURVATURE			DST"X"_P			STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U		IEZR	E-ZPASS READER		MHBCP	HISTORICAL, BLDG. CORNERS		SRSS2	SHLD, STATE, 2 DIG.	
	APOE	POINT OF END				DST"X"_P	STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U			IEZTR	TRANSMITTAL READER		MHBP	HIGHWAY BNDRY, PT.		SRSS3	SHLD, STATE, 3 DIG.	
	APOL	POINT ON LINE			DST"X"_P			STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U		IFOXCAB	FIBER OPTIC X-CONNECT CABINET		MJCP	PT., JURIS. CITY		SRSS4	SHLD, STATE, 4 DIG.	
	APOS	POINT ON SPIRAL				DST"X"_P	STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U			IFUSSPL	FUSION SPLICE		MPBC	PT., BUILDING CORNER	TRAFFIC CONTROL TCBJ BOX, JUNCTION TCBP BOX, PULL BOX TCBS BOX, SPLICE TCMC MICROCOMPUTER CABINET TCPP PED POLE TCSH SIGNAL HEADS TCSP SIGNAL POLE		UPD	POLE, DEAD (NO UTILITY)
	APOT	POINT ON TANGENT			DST"X"_P			STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U		IHARADV	HAR ADVISORY SIGN		MPCC	PT., CROSS CUT			UPL	POLE, WITH LIGHT
	APOVC	POINT ON VERTICAL CURVE				DST"X"_P	STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U			IHARST	HAR SITE		MPDH	PT., DRILL HOLE			USMH	SANITARY SEWER MANHOLE
	APOVT	POINT ON VERTICAL TANGENT			DST"X"_P			STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U		ILC	LOAD CENTER		MPF	PT., FENCE LOCATION			UTB	TELEPHONE, BOOTH
	APRC	POINT ON REVERSE CURVE				DST"X"_P	STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U			IMECSPL	MECHANICAL SPLICE		MPIP	PT., IRON PIPE		UTLM	TELEPHONE, LINE MARKER	
	APT	POINT OF TANGENCY			DST"X"_P			STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U		IMSCS	PORT. SPEED & COUNT SENSOR		MPIR	PT., IRON ROD		UTMH	TELEPHONE, MANHOLE	
	APVC	POINT OF VERTICAL CURVATURE				DST"X"_P	STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U			IMSCTS	MICRO SPEED & COUNT SENSOR		MPM	PT., MONUMENT		UTVLM	CABLE TV, LINE MARKER	
	APVCC	POINT OF VERT. CMPND CURVE			DST"X"_P			STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U		IMT	MICROWAVE TRANSCEIVER		MPMM	PT., MONUMENT, MISC.		UTVPB	CABLE TV, PULL BOX	
	APVI	POINT OF VERT. INTERSECTION				DST"X"_P	STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U			IOVHVMS	PERM. OVERHEAD VMS		MPN	PT., NAIL	TRAFFIC WORK ZONE TWZAP_P ARROW PANEL TWZAPC_P ARROW PANEL, CAUTION MODE TWZAPT_P ARROW PANEL, TRAILER OR SUPPORT TWZBCD_P BARRICADE (TYPE III) TWZCMS_P CHANGEABLE MESSAGE SIGN (PVMS) TWZFLG_P FLAGGER TWZFT_P FLAG TREE TWZIA_P IMPACT ATTENUATOR / CRASH CUSHION (TEMPORARY) TWZLUM_P LUMINAIRE (TEMPORARY) TWZSDT_P SYMBOL, DIRECTION OF TRAFFIC TWZSDTD_P SYMBOL, DIRECTION OF TEMPORARY TRAFFIC DETOUR TWZSGN_P SIGN (TEMPORARY) TWZSIG_P SIGNAL, TRAFFIC OR PEDESTRIAN (TEMPORARY) TWZWL_P WARNING LIGHT TWZWV_P WORK VEHICLE TWZWVA_P WORK VEHICLE WITH TRUCK MOUNTED ATTENUATOR		UUB	UNKNOWN, BOX
	APVRC	POINT OF VERT. REVERSE CURVE			DST"X"_P			STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U		IPASCS	PORT. ACCOU. SPD & CNT. SENSOR		MPRS	PT., RAILROAD SPIKE			UUJB	UNKNOWN, JUNCTION BOX
	APVT	POINT OF VERTICAL TANGENCY				DST"X"_P	STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U			IPEDS	PEDESTRIAN SIGNAL HEAD		MPSP	PT., SPIKE			UUMH	UNKNOWN, MANHOLE
	ASC	SPIRAL TO CURVE			DST"X"_P			STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U		IPSS	PAVEMENT SURFACE SENSOR		MPST	PT., STAKE			UUPB	UNKNOWN, PULL BOX
	ASPI	SPIRAL POINT OF INTERSECTION				DST"X"_P	STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U			IPVMS	PERM. VMS		MPTW	PT., TREE W/ WIRE		UUVL	UNKNOWN, VALVE	
	ASTS	SPIRAL TO SPIRAL			DST"X"_P			STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U		IRM	RAMP METER		MPWL	PT., WALL LOCATION		UUVT	UNKNOWN, VENT	
	AST	SPIRAL TO TANGENT				DST"X"_P	STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U			IRWIS	RDWY WEATHER INFO. SENSOR	ROW ACQUISITION				UUW	UNKNOWN, WELL	
	ATS	TANGENT TO SPIRAL			DST"X"_P			STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U		ISP	SOLAR PANEL					MFS_P_T	FEE ACQUISITION	
	AVEVT	VERTICAL EVENT POINT				DST"X"_P	STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U			ISST	SPREAD SPECT. TRANSCEIVER		MEPS_P_T	EASEMENT, PERMANENT		UWM	WATER, METER	
	AVHIGH	VERTICAL HIGH POINT			DST"X"_P			STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U		ITDB	TELEPHONE DEMARCATION BLK		METS_P_T	EASEMENT, TEMPORARY		UWMH	WATER, MANHOLE	
	AVLOW	VERTICAL LOW POINT				DST"X"_P	STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U			ITP	SUBSURFACE TEMP. PROBE		METS_P_T	OCCUPANCY, TEMPORARY		UWV	WATER, VALVE	
BRIDGE					DST"X"_P			STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U		IVTRT	VEHICLE TO RDWY TRANSCEIVER		METS_P_T	FEE ACQUISITION W/O ACCESS		UWV	WATER, WELL	
						IWIMD	WEIGHT IN MOTION DETECTOR		ROADWAY				RES_P	ELEVATION, SPOT				
	BSC	BRIDGE, SCUPPER		DST"X"_P	STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U		IWVR	WIRELESS VIDEO REPEATER					RGA	GUIDE RAIL, ANCHOR				
CONTROL							DST"X"_P	STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U		IWVRC	WIRELESS VIDEO RECEIVER		RGP	GUIDE POST, SINGLE				
				LTW_P	TREE, WELL OR WALL													
	CBP	BASLINE, POINT		DST"X"_P	STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U		IWVTT	WIRELESS VIDEO TRANSMITTER										
	CBPOL	BASLINE, POINT ON LINE																
	CBSP	BASLINE, SPUR POINT		DST"X"_P	STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U													
	CBTP	BASLINE, TIE POINT																
	CPBM	BENCHMARK		DST"X"_P	STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U													
	CPH	POINT, HORIZ. PHOTOGRAMMETRY																
	CPSM	POINT, SURVEY MARKER, PERM.		DST"X"_P	STRUCTURE, RECT., TYPE "X" "X" = I, K, L, M, O, P, U													
	CPV	POINT, VERT., PHOTOGRAMMETRY																

RECORD DRAWING CERTIFICATION

AS BUILT - NO CHANGES

WESTCHESTER COUNTY, NEW YORK

DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION

CONSULTANT SEAL

CONSULTANT INFORMATION

IN CHARGE OF **M. HUNT**
CHECKED BY **K. SCHUMAN-EKES**
MADE BY **K. DETRICK**

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION	

RECORD DRAWING CERTIFICATION					
☐ AS BUILT - CHANGES AS NOTED					
☐ AS BUILT - NO CHANGES					
CONTRACTOR			PROJECT COORDINATOR		
NAME _____			NAME _____		
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TITLE _____			TITLE _____		

WESTCHESTER COUNTY, NEW YORK DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION DIVISION OF ENGINEERING					
REPLACEMENT OF QUAKER BRIDGE ROAD BRIDGE OVER CROTON RIVER (BIN 3348560) TOWN OF CORTLANDT, NEW YORK					
LEGEND POINT SYMBOLS					

CONTRACT NUMBER 25-500	SHEET NUMBER LEG-01
SHEET NO. 3 OF 56	
DATE: 06/24/2025	
DPW FILE NO. 56-02-G-204-0	REV. 0

CONSULTANT SEAL

CONSULTANT INFORMATION

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BIN# 3348560

FILE NAME = \$FILES
DATE/TIME = 02/24/2025 9:34:46 AM
USER = mch
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ALIGNMENT			LANDSCAPE			ROADWAY			TRAFFIC WORK ZONE		
STYLE	NAME	DESCRIPTION	STYLE	NAME	DESCRIPTION	STYLE	NAME	DESCRIPTION			
	AC	CONTROL (CENTERLINE)		LABL	AREA, BRUSH LINE		RCZ_P	CLEAR ZONE		TWZBT_P	BARRIER, TEMPORARY
	AD_P	DETOUR		LAHR	AREA, HEDGE ROW		RG	GUIDE RAIL, MISCELLANEOUS		TWZBTWL_P	BARRIER, TEMPORARY, W/ WARNING LIGHTS
	AT_P	TRANSITION CONTROL		LAPB	AREA, PLANTING BED		RGB	GUIDE RAIL, BOX BEAM		TWZCD_P	CHANNELIZING DEVICE
BRIDGE				LAWA	AREA, WOODED AREA OUTLINE		RGBM	GUIDE RAIL, BOX BEAM, MEDIAN		TWZPMRC_P	PAVEMENT MARKING REMOVAL OR COVERING
	BR	RAIL		Lawe	AREA, WATERS EDGE		RGC	GUIDE RAIL, CABLE	UTILITIES		
	BSHT	SHEET PILING		LCUT_P	CUT LIMIT		RGCB	GUIDE RAIL, CONCRETE BARRIER	STYLE	NAME	DESCRIPTION
CONTROL				LFILL_P	FILL LIMIT		RGP_P	GUIDE POST		UC	CONDUIT, UNDERGROUND
	CB	BASELINE		LFNC	FENCE		RGW	GUIDE RAIL, W BEAM		UCH	CONDUIT, HANGING
	CBPR	BASELINE, PROJECTION		LTRC	TREE ROW, CONIFEROUS		RGWM	GUIDE RAIL, W BEAM, MEDIAN		UCO	CONDUIT, OVERHEAD
DRAINAGE				LTRD	TREE ROW, DECIDUOUS		RPB	PARKING BUMPER		UE	ELECTRIC LINE, UNDERGROUND
	DCP	CULVERT PIPE		LWH	WALL, H PILE		RRC	RAIL ROAD, CATENARY		UEH	ELECTRIC LINE, HANGING
	DCP_P	CULVERT PIPE (DIR)		LWR	WALL, RETAINING		RRER	RAIL ROAD, 3RD RAIL		UEO	ELECTRIC LINE, OVERHEAD
	DDG_P	DITCH, GRASS LINED		LWS	WALL, STONE		RRPLS_P	RAIL, PHOTO, LARGE SCALE		UETO	ELECTRIC TRANSMISSION, OVERHEAD
	DDP_P	DITCH, PAVED INVERT	ROW MAPPING				RRPS	RAIL, PHOTO, SMALL SCALE		UESS	ELECTRIC, SUBSTATIONS
	DDS_P	DITCH, STONE LINED		MDL	DEED LINE		RRS	RUMBLE STRIP		UFO	FIBER OPTIC, UNDERGROUND
	DFL_P	FLOW LINE		MEE	EASEMENT, EXISTING		RRSLS_P	RAIL, SURVEY, LARGE SCALE		UFOH	FIBER OPTIC, HANGING
	DSSD	SLOTTED DRAIN		MEP_P	EASEMENT, PERMANENT		RRSS	RAIL, SURVEY, SMALL SCALE		UFOO	FIBER OPTIC, OVERHEAD
	DUD_P	UNDERDRAIN		MEPA_P	EASEMENT, PERMANENT, APPROX.	SIGNS				UG	GAS, UNDERGROUND
ENVIRONMENTAL				MET_P	EASEMENT, TEMPORARY		SBLB	BILLBOARDS		UGH	GAS, HANGING
	ECT	CURTAIN, TURBIDITY		META_P	EASEMENT, TEMPORARY, APPROX.		SM	MULTIPLE POST		UGO	GAS, OVERHEAD
	EDMC	DAM, COFFER		MF_P	FEE ACQUISITION, W/ ACCESS		SSO	STRUCTURE, OVERHEAD		UIC	INFORM CABLE, UNDERGROUND
	EDMEC_P	DAM, EARTHEN CHECK		MFA_P	FEE ACQUISITION, APPROXIMATE		SSOC	STRUCTURE, OVHD. CANTILEVER		UICH	INFORM CABLE, HANGING
	EDMGSC_P	DAM, GRAVEL BAG/SAND BAG CHECK		MFS_P	FEE ACQUISITION, SHAPE	STRIPING				UO	OIL LINE, UNDERGROUND
	EDMPC_P	DAM, PREFABRICATED CHECK		MFWOA_P	FEE ACQUISITION, W/O ACCESS		STB*	BROKEN LINE		UOH	OIL LINE, HANGING
	EDMSC_P	DAM, STONE CHECK		MHA	HISTORICAL, ACQUISITION		STDB*	DOUBLE BROKEN LINE		UPBP	POLE, BRACE, PUSH BRACE
	EFNS	FENCE, SILT		MHB	HIGHWAY BOUNDARY, W/ ACCESS		STD*	DOTTED LINE LONG		UPGW	POLE, GUY WIRE
	EFNSV	FENCE, SILT & VEGETATION		MHBW	HIGHWAY BOUNDARY, APPROX.		STD*	DOTTED LINE SHORT		USA	SANITARY SEWER, UNDERGROUND
	EFNV	FENCE, VEGETATION		MHBWOA	HIGHWAY BOUNDARY, W/O ACCESS		STFB*	FULL BARRIER LINE		USAH	SANITARY SEWER, HANGING
	ESFL	FILTER, SEDIMENT LOG		MJC	JURISDICTION, CITY		STH*	HATCH LINE		USAF	SANITARY SEWER, FORCE MAIN, UGND
	EWAA_P	WETLAND, ADJACENT AREA		MJCY	JURISDICTION, COUNTY		STPB*	PARTIAL BARRIER LINE		USAFH	SANITARY SEWER, FORCE MAIN, HANG
	EWf	WETLAND, FEDERAL		MJHD	JURISDICTION, HISTORIC DISTRICT		STRCT	ROUNDABOUT, CAT TRACKS		UT	TELEPHONE, UNDERGROUND
	EWFS	WETLAND, FEDERAL AND STATE		MJLL	JURISDICTION, GREAT, MILITARY) LOT LINE		STRYL	ROUNDABOUT, YIELD LINE		UTH	TELEPHONE, HANGING
	EWM	WETLAND, MITIGATION AREA		MJN	JURISDICTION, NATION		STSB	STOP BAR		UTO	TELEPHONE, OVERHEAD
	EWS	WETLAND, STATE		MJPB	JURISDICTION, PUBLIC LANDS		STSE*	SOLID, EDGE		UTV	CABLE TV, UNDERGROUND
				MJS	JURISDICTION, STATE		STXL	X WALK, LADDER LINE		UTVH	CABLE TV, HANGING
				MJT	JURISDICTION, TOWN		STXLB	X WALK, LADDER BAR LINE		UTVO	CABLE TV, OVERHEAD
				MJV	JURISDICTION, VILLAGE	* = W (WHITE) OR Y (YELLOW)				UUU	UNKNOWN, UNDERGROUND
				MPL	PROPERTY LOT LINE	TRAFFIC CONTROL				UUH	UNKNOWN, HANGING
				MPLA	PROPERTY LOT LINE, APPROXIMATE		TCSW	SIGNAL, SPAN WIRE		Uuo	UNKNOWN, OVERHEAD
				MSL	SUB LOT LINE					UW	WATER LINE, UNDERGROUND

1. THE LEGEND ILLUSTRATES MAPPING FEATURES (EXISTING AND PROPOSED).
2. FEATURES ARE SHOWN AS EITHER LINEAR (ROADWAY GUIDERAIL, ROADWAY SIDEWALK, UTILITY LINES, ETC.) OR POINT (SIGN, UTILITY POLE, ETC.).
3. FEATURES SHOWN ON THE LEGEND AS EXISTING FEATURES ALSO HAVE CORRESPONDING PROPOSED FEATURES.
4. PROPOSED FEATURE SYMBOLOGY IS IDENTICAL TO EXISTING FEATURE SYMBOLOGY EXCLUDING LINE WEIGHT. LINE WEIGHT FOR PROPOSED FEATURES IS THICKER (0.015 IN ON B SIZE DRAWINGS).
5. MAPPING FEATURES NOT INCLUDED ON THE LEGEND SHEET DO NOT HAVE A UNIQUE SYMBOLOGY (SUCH AS THE PAVEMENT EDGE, PAVEMENT EDGE OF TRAVEL WAY) AND SHOULD BE LABELED ON THE PLANS.
6. FEATURES SHOWN AT THE HEAVIER WEIGHT ARE PROPOSED ONLY AND DO NOT HAVE CORRESPONDING EXISTING FEATURES.

IN CHARGE OF **M. HUNT**
CHECKED BY **K. SCHUMAN-EKES**
MADE BY **K. DETRICK**

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION			
☐ AS BUILT - CHANGES AS NOTED			
☐ AS BUILT - NO CHANGES			
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WESTCHESTER COUNTY, NEW YORK
DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION
DIVISION OF ENGINEERING

REPLACEMENT OF QUAKER BRIDGE ROAD BRIDGE
OVER CROTON RIVER (BIN 3348560)
TOWN OF CORTLANDT, NEW YORK
LEGEND LINE SYMBOLS

CONTRACT NUMBER	25-500	SHEET NUMBER	LEG-02
SHEET NO.	4	OF	56
DATE:	06/24/2025	SCALE:	AS SHOWN
DPW FILE NO.	56-02-G-205-0	REV.	0

BIN# 3348560

CONSULTANT SEAL

CONSULTANT INFORMATION

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GENERAL NOTES:

DESIGN SPECIFICATIONS: NYSDOT LRFD BRIDGE DESIGN SPECIFICATIONS WITH ALL PROVISIONS IN EFFECT AS OF JUNE 2025 (FOR DESIGN PURPOSES, COMPRESSIVE STRENGTH OF CONCRETE FOR SUBSTRUCTURES AND DECK SLABS AT 28 DAYS: f'c = 4,000 psi.)

CONSTRUCTION SPECIFICATIONS: NYSDOT STANDARD SPECIFICATIONS - CONSTRUCTION AND MATERIALS WITH ALL PROVISIONS IN EFFECT AS OF JUNE 2025.

THIS BRIDGE SHALL BE MAINTAINED IN ACCORDANCE WITH THE GUIDELINES CONTAINED IN THE CURRENT VERSION OF THE AASHTO MAINTENANCE MANUAL FOR ROADWAYS AND BRIDGES.

THE LOAD RATINGS ARE IN ACCORDANCE WITH THE AASHTO MANUAL FOR BRIDGE EVALUATION.

DESIGN LIVE LOAD: AASHTO HL - 93.

DETAILS ON THE DRAWINGS LABELED AS "NOT TO SCALE" ARE INTENTIONALLY DRAWN NOT TO SCALE FOR VISUAL CLARITY. ALL OTHER DETAILS FOR WHICH NO SCALE IS SHOWN ARE DRAWN PROPORTIONALLY AND ARE FULLY DIMENSIONED.

ALL SHOP DRAWINGS FOR THIS PROJECT SHALL BE PREPARED IN U.S. CUSTOMARY UNITS.

MATERIALS CONTAINING ASBESTOS ARE BELIEVED TO EXIST AT VARIOUS LOCATIONS ON OR IN CERTAIN STRUCTURES CONTAINED IN THIS CONTRACT. THESE MATERIALS WERE NOTED ON THE ORIGINAL CONTRACT PLANS OF THE STRUCTURE(S) AND/OR ENCOUNTERED DURING FIELD INSPECTIONS. ALL KNOWN ASBESTOS CONTAINING MATERIALS HAVE BEEN INDICATED IN THE CONTRACT DOCUMENTS.

HIGH VOLTAGE ELECTRICAL LINES ARE IN PROXIMITY TO THIS BRIDGE.

FOUNDATION NOTES:

EMBANKMENT IN PLACE, ITEM 203.03, AND SELECT STRUCTURE FILL, ITEM 203.21, SHALL BE PLACED SIMULTANEOUSLY, ON BOTH SIDES OF THE VERTICAL PAYMENT LINE.

THE COST OF WATER USED FOR COMPACTION OF THE SELECT STRUCTURAL FILL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 203.21 - SELECT STRUCTURE FILL.

THE COST OF WATER USED FOR COMPACTION OF EMBANKMENT IN PLACE MATERIAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 203.03 - EMBANKMENT IN PLACE.

SUBSTRUCTURE NOTES:

TOP OF BACKWALLS SHALL BE STEEL TROWEL FINISHED. TWO SHEETS OF SHEET GASKET (TREATED BOTH SIDES), §728-06, SHALL BE PLACED ON THE TOP OF THE BACKWALLS OF FIXED AND EXPANSION ABUTMENTS. THE CONTRACTOR SHALL INCLUDE COSTS FOR THIS WORK IN THE UNIT PRICE BID FOR THE APPROACH SLAB ITEM.

THE CONTRACTOR, WITH THE APPROVAL OF THE COUNTY, MAY ELECT TO INTRODUCE CONSTRUCTION JOINTS IN THE ABUTMENTS AND/OR WINGWALLS AT LOCATIONS NOT SHOWN IN THE PLANS. CONSTRUCTION JOINTS SHALL BE PROVIDED WITH SHEAR KEYS AND WATERSTOPS. VERTICAL CONSTRUCTION JOINTS INTRODUCED IN THE ABUTMENTS AND/OR WINGWALLS SHOULD PREFERABLY BE PLACED MIDWAY BETWEEN THE PEDESTALS.

THE COST OF ALL JOINT MATERIAL AND WATERSTOPS AT CONCRETE CONSTRUCTION JOINTS, CONTRACTION AND EXPANSION JOINTS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE VARIOUS CONCRETE ITEMS IN THE CONTRACT.

COFFERDAM AND HYDRAULIC NOTES:

SHOULD THE CONTRACTOR ELECT TO LAY BACK A PORTION OF THE EXISTING EARTH ADJACENT TO AN EXCAVATION REQUIRING A COFFERDAM, ANY REQUIRED EXTENSIONS TO THE COFFERDAM NECESSARY TO KEEP WATER FROM ENTERING THE EXCAVATION SHALL BE FURNISHED AND PLACED AT NO COST TO THE COUNTY.

WHEN A COFFERDAM IS USED, THE COST OF DEWATERING THE ENTIRE EXCAVATION, REGARDLESS OF THE SOURCE OF WATER, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE COFFERDAM ITEM.

SHOULD FIELD CONDITIONS REQUIRE A CHANGE IN THE TYPE OF COFFERDAM SYSTEM CALLED FOR IN THE PLANS, THE CONTRACTOR SHALL SUBMIT THE CHANGES TO THE COUNTY FOR REVIEW AND APPROVAL.

THE COFFERDAM AND TREMIE SYSTEM SHALL BE DESIGNED TO AUTOMATICALLY FLOOD BY NON-MECHANICAL MEANS WHEN THE WATER ELEVATION EXCEEDS 28.25 FT.

IF MULTIPLE COFFERDAMS ARE REPLACED BY A SINGLE SYSTEM, WHEN APPROVED BY THE COUNTY,PAYMENT SHALL BE BASED ON ALL OF THE APPLICABLE COFFERDAM ITEMS INDICATED IN THE PLANS.

DEWATER THE COFFERDAM BY PUMPING THE WATER TO AN APPROVED UPLAND VEGETATED AREA OUTSIDE OF THE STREAMBED AS SHOWN IN THE PLANS AND/OR APPROVED BY THE ENGINEER. TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL, SUCH AS SEDIMENT FILTER LOGS OR APPROVED EQUAL, MAY BE REQUIRED AS DETERMINED BY THE ENGINEER. NO SETTLEMENT BASIN SHALL BE CONSTRUCTED.

ORDINARY HIGH-WATER IS ESTIMATED TO BE 28.25 FT. ORDINARY HIGH-WATER IS DEFINED AS THE WATER SURFACE ELEVATION FOR THE MEAN ANNUAL FLOOD, WHICH IS THE FLOOD THAT HAS A RECURRENCE INTERVAL OF 2.33 YEARS.

ORDINARY WATER IS ESTIMATED TO BE 25.75 FT. ORDINARY WATER IS DEFINED AS THE HIGHEST SURFACE WATER ELEVATION LIKELY TO BE ENCOUNTERED DURING ONE CONSTRUCTION SEASON (EXCLUDING MAJOR FLOODS). IT IS ALWAYS LESS THAN THE ORDINARY HIGH-WATER ELEVATION AND IT IS USUALLY AN OBSERVED ELEVATION RATHER THAN A COMPUTED ONE.

LOW WATER IS ESTIMATED TO BE 24.30 FT. LOW WATER IS DEFINED AS THE NORMAL LOW WATER ELEVATION PREVALENT DURING ONE CONSTRUCTION SEASON FOR MORE THAN 25% OF THE TIME. IT IS AN OBSERVED ELEVATION RATHER THAN A COMPUTED ONE.

SUPERSTRUCTURE NOTES:

ALL STRUCTURAL STEEL SHALL CONFORM TO ASTM A709, GRADE 50.

GALVANIZING NOTES:

STUD SHEAR CONNECTORS SHALL BE INSTALLED PRIOR TO GALVANIZING. THE CONTRACTOR'S WORKER SAFETY PLAN SHALL SPECIFY THE TYPE OF WALKING/WORKING PRECAUTIONS TO BE IMPLEMENTED TO PROTECT THE WORKERS.

REASONABLE ACCOMMODATIONS FOR THE PREVENTION OF WET STORAGE STAINING (WHITE RUST) OF HOT-DIP GALVANIZED (HDG) MATERIALS SHALL BE PROVIDED AT ALL TIMES. STORAGE OF HDG MATERIALS OUTDOORS SHOULD BE AVOIDED. STORAGE (OR SHIPPING) OF HDG MATERIALS IN CONTACT WITH ONE ANOTHER SHALL BE AVOIDED. IF OUTDOOR STORAGE IS UNAVOIDABLE, EXAMPLES OF REASONABLE ACCOMMODATIONS ARE AS FOLLOWS: STORE MATERIALS OFF OF THE GROUND AWAY FROM ALL VEGETATION, USE NON-RESINOUS WOODEN SPACERS TO ALLOW VENTILATION AND AVOID MOISTURE BUILD UP, INCLINE MEMBERS TO ALLOW DRAINAGE. EXAMPLES OF NON-RESINOUS WOODS ARE: POPLAR, ASH AND SPRUCE. WHITE RUST THAT IS DETERMINED TO BE DETRIMENTAL TO THE INTENDED USE OF THE MEMBER OR HAVE A NEGATIVE VISUAL IMPACT ON THE STRUCTURE SHALL BE REPAIRED IN ACCORDANCE WITH THE NYS STEEL CONSTRUCTION MANUAL. WHITE RUST THAT IS DETERMINED TO BE CAUSED BY IMPROPER STORAGE OR SHIPPING OF HDG MATERIALS SHALL BE REPAIRED AT NO COST TO THE COUNTY.

ALL EXPOSED STEEL COMPONENTS OF BRIDGE BEARINGS, INCLUDING THE SOLE PLATE AND THE MASONRY PLATE, SHALL BE METALIZED. THE COST OF METALIZING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEMS 565.2025 AND 565.2035.

ALL BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH THE NEW YORK STATE STEEL CONSTRUCTION MANUAL.

DRILLED HOLES SHALL BE CLEANED OF ALL EXCESS MATERIAL THAT PREVENTS THE PROPER INSTALLATION OF THE BOLTS.

STEEL FRECTION NOTES:

THE CONTRACTOR SHALL PROVIDE FOR THE STABILITY OF STRUCTURAL STEEL DURING ALL PHASES OF ERECTION AND CONSTRUCTION, IN ACCORDANCE WITH SECTION 2, SUBSECTION 204 OF THE NEW YORK STATE STEEL CONSTRUCTION MANUAL (SCM). THE TRUSSES FOR THIS BRIDGE SHALL BE STABILIZED DURING ERECTION BY USE OF FALSEWORK, TEMPORARY BRACING, COMPRESSION FLANGE STIFFENING TRUSSES, CHOOSING ALTERNATE PICKING POINTS, OR BY USE OF A HOLDING CRANE UNTIL A SUFFICIENT NUMBER OF FLOORBEAMS HAVE BEEN ERECTED AND CROSS FRAMES INSTALLED. THE MEANS AND METHODS USED BY THE CONTRACTOR SHALL BE DOCUMENTED ON THE ERECTION DRAWINGS AND INCLUDED IN THE SUPPORTING STABILITY CALCULATIONS. THE ERECTION DRAWINGS AND STABILITY CALCULATIONS SHALL BE SEALED BY A REGISTERED NEW YORK STATE PROFESSIONAL ENGINEER AND SUBMITTED TO THE COUNTY IN ACCORDANCE WITH THE SCM.

STEEL CONSTRUCTION NOTES:

- IN ADDITION TO THE STRUCTURAL STEEL ELEMENTS LISTED IN §715-01 - STRUCTURAL STEEL OF THE NYSDOT STANDARD SPECIFICATIONS - CONSTRUCTION AND MATERIALS, THE FOLLOWING ELEMENTS SHALL MEET THE MINIMUM CHARPY V-NOTCH FRACTURE TOUGHNESS REQUIREMENTS:
- TENSION FLANGES AND WEBS PLATES OF BASCULE GIRDERS
 - CANTILEVER BRACKETS AND TIE PLATES
 - SPLICE PLATES
 - VERTICAL GUSSET PLATES
 - TOP AND BOTTOM LATERAL BRACING
 - SWAY FRAMES
 - END PORTAL FRAMES
 - TENSION COMPONENTS OF LIFTING BOXES AND LIFTING FRAMES

DIMENSIONS FOR THICKNESSES OF STEEL ROLLED ANGLE SHAPES AND STRUCTURAL TUBING ARE SHOWN ACCORDING TO THE AISC MANUAL.

SUPERSTRUCTURE SLAB NOTES:

THE CONTRACTOR SHALL MAKE NO DEVIATIONS FROM THE HAUNCH DETAILS SHOWN IN THE PLANS WITHOUT THE PERMISSION OF THE ENGINEER.

THE DETAILS FOR THE BARRIER REINFORCEMENT ARE FOR THE SLIP-FORMED OR CAST-IN-PLACE OPTION ONLY. COST OF BARRIER AND ANCHORAGE REINFORCEMENT ORIGINATING IN THE SLAB SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE BARRIER ITEM.

TOP SURFACES OF NEW BRIDGE DECKS AND APPROACH SLABS SHALL BE SEALED IN ACCORDANCE WITH ITEM 559.01 - PROTECTIVE SEALING OF STRUCTURAL CONCRETE ON NEW BRIDGE DECKS AND BRIDGE DECK OVERLAYS.

TOP SURFACES OF NEW SIDEWALKS AND EXPOSED SURFACES OF NEW CONCRETE PARAPETS OR BARRIERS SHALL BE SEALED IN ACCORDANCE WITH ITEM 559.01 - PROTECTIVE SEALING OF STRUCTURAL CONCRETE ON NEW BRIDGE DECKS AND BRIDGE DECK OVERLAYS. ONLY PENETRATING TYPE SEALERS SHALL BE USED.

BARLISTS ARE NOT PROVIDED FOR SUPERSTRUCTURE SLABS, APPROACH SLABS, AND/OR SUBSTRUCTURES. THE PROVISIONS OF §557-3.17 - NO BARLIST PROVIDED, OF THE NYSDOT STANDARD SPECIFICATIONS - CONSTRUCTION AND MATERIALS SHALL APPLY. A REVIEW TIME OF TWO DAYS PER PLACEMENT DRAWING, WITH A MINIMUM OF 15 DAYS FOR EACH SUBMISSION, WILL BE ALLOWED UPON RECEIPT OF THE SUBMISSION.

CARE SHALL BE TAKEN TO PREVENT CONTAMINATION OF THE WATERWAY BY THE SEALER. IF THE MANUFACTURER'S INSTRUCTIONS REQUIRE MIXING OF THE SEALER PRIOR TO APPLICATION, MIXING SHALL OCCUR IN A MANNER THAT WILL PREVENT CONTAMINATION OF THE WATERWAY. THE CONTRACTOR SHALL HAVE AVAILABLE FOR IMMEDIATE USE MATERIALS TO SOAK UP OR CONTAIN ANY ACCIDENTAL SPILLS. PRIOR TO THE APPLICATION OF THE SEALER, ANY OPENINGS IN THE SURFACE OF THE BRIDGE DECK OR IN THE WALKING SURFACE, SUCH AS SCUPPERS OR OPEN DRAINS SHALL BE COVERED TO PREVENT CONTAMINATION OF THE WATERWAY. CARE SHALL BE TAKEN TO PREVENT SPRAYED SEALER FROM ENTERING THE WATERWAY BY ROLLING THE SEALER OR BY PHYSICALLY ISOLATING THE AREA TO BE SPRAYED FROM THE WATERWAY BY THE USE OF TARPS OR OTHER BARRIER-TYPE MEANS TO THE SATISFACTION OF THE EIC.

REMOVAL NOTES:

EXISTING SUBSTRUCTURE SHALL BE REMOVED WITHIN THE PAY LIMITS SHOWN IN THE PLANS UNDER ITEM 202.19 - REMOVAL OF SUBSTRUCTURES..

EXISTING SUPERSTRUCTURE SHALL BE REMOVED UNDER ITEM 202.120001 - REMOVING EXISTING SUPERSTRUCTURES.

SUPERSTRUCTURE REMOVAL SHALL MEET THE PROVISIONS OF §202-3.01 - GENERAL AND SAFETY REQUIREMENTS, OF THE NYSDOT STANDARD SPECIFICATIONS - CONSTRUCTION AND MATERIALS. A REMOVAL PLAN, SEALED BY A REGISTERED NEW YORK STATE PROFESSIONAL ENGINEER, SHALL BE SUBMITTED TO THE ENGINEER THIRTY (30) DAYS PRIOR TO BEGINNING THE DEMOLITION.

SUPERSTRUCTURE REMOVAL SHALL MEET THE PROVISIONS OF §202-3.01 GENERAL AND SAFETY REQUIREMENTS, OF THE NYSDOT STANDARD SPECIFICATIONS - CONSTRUCTION AND MATERIALS. THE COST OF PAINT REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE SUPERSTRUCTURE REMOVAL ITEM(S) (OR THE UNIT PRICE BID FOR THE SUBSTRUCTURE REMOVAL ITEM). PAINT WASTE NOT COLLECTED BY VACUUM METHODS SHALL BE COLLECTED USING THE ENVIRONMENTAL GROUND AND/OR WATERWAY PROTECTION ITEM(S). WASTE SHALL BE DISPOSED OF USING THE TREATMENT AND DISPOSAL OF PAINT REMOVAL WASTE ITEM.

RECORD PLANS FOR THIS STRUCTURE ARE NOT AVAILABLE.

LIMITS AND METHODS FOR THE REMOVAL OF PAINT AT LOCATIONS OF FASTENER REMOVAL OR FLAME CUTTING SHALL MEET THE PROVISIONS OF §202-3.01 - GENERAL, OF THE NYSDOT STANDARD SPECIFICATIONS - CONSTRUCTION AND MATERIALS. AND §574 OF THE STANDARD SPECIFICATIONS. THE COST OF PAINT REMOVAL SHALL BE INCLUDED IN THE LUMP SUM PRICE(S) BID FOR THE SUPERSTRUCTURE REMOVAL ITEM(S) (OR THE UNIT PRICE BID FOR THE SUBSTRUCTURE REMOVAL ITEM). PAINT WASTE NOT COLLECTED BY VACUUM METHODS SHALL BE COLLECTED USING THE ENVIRONMENTAL GROUND AND/OR WATERWAY PROTECTION ITEM(S). WASTE SHALL BE DISPOSED OF USING THE TREATMENT AND DISPOSAL OF PAINT REMOVAL WASTE ITEM.

LOOSE AND/OR PEELING PAINT ON STEEL SURFACES MAY BECOME DISLODGED DURING REMOVAL OPERATIONS OR DURING TRANSPORTATION FROM THE SITE UNLESS APPROPRIATE MEASURES ARE TAKEN. THE CONTRACTOR SHALL FORMULATE AND SUBMIT A METHOD OF REMEDIATING THE CONDITION FOR APPROVAL BY THE ENGINEER. WORKER LEAD PROTECTION IN ACCORDANCE WITH 29 CFR 1926.62 SHALL BE SATISFIED. REMEDIATION METHODS COULD INCLUDE TRANSPORTING AFFECTED MEMBERS IN CLOSED TRUCKS, WRAPPING AFFECTED MEMBERS PRIOR TO REMOVAL, ENCAPSULATING THE LOOSE PAINT OR REMOVAL OF LOOSE PAINT PRIOR TO DISMANTLING OPERATIONS. THE COST OF REMEDIATING THIS CONDITION SHALL BE INCLUDED IN THE LUMP SUM PRICE(S) BID FOR THE SUPERSTRUCTURE REMOVAL ITEM(S) (OR THE UNIT PRICE BID FOR THE SUBSTRUCTURE REMOVAL ITEM.) THE USE OF ENVIRONMENTAL GROUND AND/OR WATERWAY PROTECTION ITEMS WILL BE REQUIRED, DEPENDING ON THE ALTERNATIVE CHOSEN, THE TREATMENT AND DISPOSAL OF PAINT REMOVAL WASTE ITEM MAY BE REQUIRED. BECAUSE OF THE ABOVE-MENTIONED CONDITION, THE CONTRACTOR SHALL EXAMINE THE CONDITION OF THE STRUCTURE'S PAINT PRIOR TO SUBMITTING A BID.

BIN# 3348560



IN CHARGE OF M. HUNT
CHECKED BY K. SCHUMAN-EKES
MADE BY K. DETRICK

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

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WESTCHESTER COUNTY, NEW YORK DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION DIVISION OF ENGINEERING	CONTRACT NUMBER 25-500	SHEET NUMBER GNN-01
	SHEET NO. 5 OF 56	
REPLACEMENT OF QUAKER BRIDGE ROAD BRIDGE OVER CROTON RIVER (BIN 3348560) TOWN OF CORTLANDT, NEW YORK GENERAL NOTES - 1	SCALE: AS SHOWN DATE: 06/24/2025	
	DPW FILE NO. 56-02-G-206-0	REV. NO. 0

FILE NAME = \$FILES
DATE/TIME = 02/23/2025 9:34:49 AM
USER = mch
PLOT = NY_PDE.pltcfq

RECONSTRUCTION NOTES:

1. DUE TO THE NATURE OF RECONSTRUCTION PROJECTS, THE EXACT EXTENT OF RECONSTRUCTION WORK CANNOT BE ACCURATELY DETERMINED PRIOR TO THE COMMENCEMENT OF WORK. THE CONTRACT DOCUMENTS HAVE BEEN PREPARED BASED ON FIELD INSPECTION AND OTHER INFORMATION AVAILABLE AT THE TIME. ACTUAL FIELD CONDITIONS MAY REQUIRE MODIFICATIONS TO CONSTRUCTION DETAILS AND WORK QUANTITIES. THE CONTRACTOR SHALL PERFORM THE WORK IN ACCORDANCE WITH FIELD CONDITIONS.
2. THE CONTRACTOR SHALL PERFORM ALL WORK WITH CARE SO THAT ANY MATERIALS WHICH ARE TO REMAIN IN PLACE, OR WHICH ARE TO REMAIN THE PROPERTY OF THE STATE, WILL NOT BE DAMAGED. IF THE CONTRACTOR DAMAGES ANY MATERIALS WHICH ARE TO REMAIN IN PLACE OR WHICH ARE TO REMAIN THE PROPERTY OF THE STATE, THE DAMAGED MATERIALS SHALL BE REPAIRED OR REPLACED IN A MANNER SATISFACTORY TO THE ENGINEER AT THE EXPENSE OF THE CONTRACTOR.
3. WHEN ITEMS IN THE CONTRACT REQUIRE MATERIALS TO BE REMOVED AND DISPOSED OF, THE COST OF SUPPLYING A DISPOSAL AREA AND TRANSPORTATION TO THAT AREA SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THOSE ITEMS.
4. DURING REMOVAL OPERATIONS, THE CONTRACTOR SHALL NOT DROP WASTE CONCRETE, DEBRIS, AND OTHER MATERIAL TO THE AREA BELOW THE BRIDGE EXCEPT WHERE THE PLANS SPECIFICALLY PERMIT THE DROPPING OF MATERIAL. PLATFORMS, NETS, SCREENS OR OTHER PROTECTIVE DEVICES SHALL BE USED TO CATCH THE MATERIAL. IF ADEQUATE PROTECTIVE DEVICES ARE NOT BEING EMPLOYED, THE WORK WILL BE STOPPED UNTIL ADEQUATE PROTECTION IS PROVIDED.
5. ALL MATERIAL FALLING ON THE AREA BELOW AND ADJACENT TO THE BRIDGE SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR AT NO COST TO THE COUNTY.
6. THE COST OF FURNISHING, INSTALLING, MAINTAINING, REMOVING AND DISPOSING OF ALL PLATFORMS, NETS, SCREENS OR OTHER PROTECTIVE DEVICES SHALL BE INCLUDED IN THE UNIT PRICE BID USING THE APPROPRIATE ITEMS IN THE CONTRACT.
7. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE TOP OF PEDESTAL ELEVATIONS PRIOR TO CASTING NEW PEDESTALS AND INSTALLING THE NEW BEARINGS.

B.I.N. PLATE NOTE:

1. IF THE STRUCTURE HAS A BRIDGE IDENTIFICATION NUMBER (B.I.N.) PLATE ATTACHED, THE CONTRACTOR SHALL PROTECT IT DURING CONSTRUCTION OR REMOVE AND REMOUNT IT AFTER CONSTRUCTION IS COMPLETED.

MISCELLANEOUS NOTE:

STREAM PROTECTION NOTE

1. DURING THE COURSE OF CONSTRUCTION, THE CONTRACTOR SHALL CONDUCT OPERATIONS IN SUCH A MANNER AS TO PREVENT OR REDUCE TO A MINIMUM ANY DAMAGE TO ANY STREAM FROM POLLUTION BY DEBRIS, SEDIMENT, CONSTRUCTION MATERIALS OR OTHER FOREIGN MATERIALS, OR FROM THE OPERATION OF EQUIPMENT IN OR NEAR SUCH STREAMS. THE CONTRACTOR SHALL NOT RETURN DIRECTLY TO A STREAM ANY WATER WHICH HAS BEEN USED FOR WASH PURPOSES OR OTHER SIMILAR OPERATIONS WHICH CAUSE THE STREAM TO BECOME POLLUTED WITH SAND, SILT, CEMENT, OIL, OR OTHER IMPURITIES. IF THE CONTRACTOR USES WATER FROM A STREAM, THE CONTRACTOR SHALL CONSTRUCT AN INTAKE OR TEMPORARY DAM TO PROTECT AND MAINTAIN WATER RIGHTS AND TO SUSTAIN FISH LIFE DOWNSTREAM. PAYMENT FOR ALL THIS WORK SHALL BE MADE UNDER THE VARIOUS ITEMS IN THIS CONTRACT. THE CONTRACTOR SHALL SUBMIT A RIVER/STREAM PROTECTION PLAN TO THE ENGINEER FOR APPROVAL PRIOR TO THE COMMENCEMENT OF WORK.

Alignment Name: Quaker Bridge Road East					
Alignment Description:					
Alignment Style: Alignment(AC_P					
		Station	Northing	Easting	
Element: Linear					
START	(START)	S 1+00.000	867061.33	665850.59	
	EQNBK	1+00.000	867061.33	665850.59	
	EQNAHD	S 1+00.000	867061.33	665850.59	
END	(END)	S 2+20.063	867000.46	665747.1	
	Tangential Direction:		S59.540°W		
	Tangential Length:		120.063		

		Alignment Name: Quaker Bridge Road			
		Alignment Description:			
		Alignment Style: Alignment(AC_P			
		StationNorthingEasting			
Element: Linear					
START	(START)	M 1+00.000	867255.78	665717.18	
	EQNBK	0	867255.78	665717.18	
	EQNAHD	M 1+00.000	867255.78	665717.18	
PC	(PC)	M 1+26.291	867237.76	665698.04	
	Tangential Direction:	S46.728°W			
	Tangential Length:	26.291			
Element: Circular					
PC	(PC)	M 1+26.291	867237.76	665698.04	
HPI	(HPI)	M 1+93.091	867191.97	665649.4	
CC	(CC)		867106.7	665821.42	
PCC	(PCC)	M 2+54.220	867125.54	665642.41	
	Radius:	180			
	Delta:	40.72 Left			
	Degree of Curvature (Arc):	31.83			
	Length:	127.929			
	Tangent:	66.8			
	Chord:	125.254			
	Middle Ordinate:	11.246			
	External:	11.996			
	Back Tangent Direction:	S46.728°W			
	Back Radial Direction:	N43.272°W			
	Chord Direction:	S26.367°W			
	Ahead Radial Direction:	N83.993°W			
	Ahead Tangent Direction:	S6.007°W			
Element: Circular					
PCC	(PCC)	M 2+54.220	867125.54	665642.41	
HPI	(HPI)	M 2+73.745	867106.08	665640.74	
CC	(CC)		867122.16	665681.73	
PT	(PT)	M 2+90.483	867092.95	665655.19	
	Radius:	39.469			
	Delta:	52.64 Left			
	Degree of Curvature (Arc):	145.17			
	Length:	36.263			
	Tangent:	19.525			
	Chord:	35.001			
	Middle Ordinate:	4.092			
	External:	4.565			
	Back Tangent Direction:	S4.906°W			
	Back Radial Direction:	N85.094°W			
	Chord Direction:	S21.415°E			
	Ahead Radial Direction:	S42.263°W			
	Ahead Tangent Direction:	S47.737°E			
Element: Linear					
PT	(PT)	M 2+90.483	867092.95	665655.19	
PC	(PC)	M 3+97.398	867021.06	665734.33	
	Tangential Direction:	S47.750°E			
	Tangential Length:	106.915			
Element: Circular					
PC	(PC)	M 3+97.398	867021.06	665734.33	
HPI	(HPI)	M 4+27.922	867000.54	665756.92	
CC	(CC)		866988.44	665704.7	
PT	(PT)	M 4+50.791	866972.17	665745.66	
	Radius:	44.076			
	Delta:	69.41 Right			
	Degree of Curvature (Arc):	129.99			
	Length:	53.393			
	Tangent:	30.524			
	Chord:	50.188			
	Middle Ordinate:	7.841			
	External:	9.537			
	Back Tangent Direction:	S47.750°E			
	Back Radial Direction:	S42.250°W			
	Chord Direction:	S13.046°E			
	Ahead Radial Direction:	N68.343°W			
	Ahead Tangent Direction:	S21.657°W			
Element: Linear					
PT	(PT)	M 4+50.791	866972.17	665745.66	
HPI	(HPI)	M 5+19.475	866908.1	665720.9	
	Tangential Direction:	S21.130°W			
	Tangential Length:	68.684			
Element: Linear					
HPI	(HPI)	M 5+19.475	866908.1	665720.9	
END	(END)	M 5+41.583	866887.92	665711.87	
	Tangential Direction:	S24.103°W			
	Tangential Length:	22.109			

BIN# 3348560



IN CHARGE OF M. HUNT
CHECKED BY K. SCHUMAN-EKES
MADE BY K. DETRICK

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION			
☐ AS BUILT – CHANGES AS NOTED			
☐ AS BUILT – NO CHANGES			
CONTRACTOR		PROJECT COORDINATOR	
NAME	_____	NAME	_____
SIGNATURE	_____	SIGNATURE	_____
TITLE	_____ DATE _____	TITLE	_____ DATE _____

WESTCHESTER COUNTY, NEW YORK		CONTRACT NUMBER	SHEET NUMBER
DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION		25-500	GNN-02
DIVISION OF ENGINEERING		SHEET NO. 6 OF 56	
REPLACEMENT OF QUAKER BRIDGE ROAD BRIDGE OVER CROTON RIVER (BIN 3348560) TOWN OF CORTLANDT, NEW YORK		SCALE: AS SHOWN DATE: 06/24/2025	
GENERAL NOTES - 2		DPW FILE NO. 56-02-G-207-0	REV. NO. 0

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RECONSTRUCTION NOTES:

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BIN# 3348560

CONSULTANT SEAL

CONSULTANT INFORMATION



IN CHARGE OF M. HUNT
CHECKED BY K. SCHUMAN-EKES
MADE BY K. DETRICK

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION			
☐ AS BUILT - CHANGES AS NOTED			
☐ AS BUILT - NO CHANGES			
CONTRACTOR		PROJECT COORDINATOR	
NAME		NAME	
SIGNATURE		SIGNATURE	
TITLE		TITLE	
	DATE		DATE

WESTCHESTER COUNTY, NEW YORK	
DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION	
DIVISION OF ENGINEERING	
REPLACEMENT OF QUAKER BRIDGE ROAD BRIDGE OVER CROTON RIVER (BIN 3348560) TOWN OF CORTLANDT, NEW YORK	
GENERAL NOTES - 2	

CONTRACT NUMBER	SHEET NUMBER
25-500	GNN-02
SHEET NO. 6	OF XX
SCALE: AS SHOWN	
DATE: 03/06/2025	
DPW FILE NO.	REV. NO.
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IN CHARGE OF M. HUNT
CHECKED BY K. SCHUMAN-EKES
MADE BY K. DETRICK

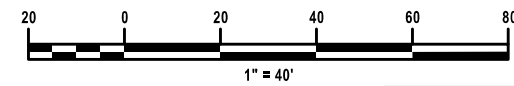
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RECORD DRAWING CERTIFICATION			
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☐ AS BUILT - NO CHANGES			
CONTRACTOR		PROJECT COORDINATOR	
NAME		NAME	
SIGNATURE		SIGNATURE	
TITLE		TITLE	
	DATE		DATE

WESTCHESTER COUNTY, NEW YORK DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION DIVISION OF ENGINEERING		CONTRACT NUMBER 25-500	SHEET NUMBER GNP-01
REPLACEMENT OF QUAKER BRIDGE ROAD BRIDGE OVER CROTON RIVER (BIN 3348560) TOWN OF CORTLANDT, NEW YORK HIGHWAY GENERAL PLAN		SHEET NO. 11 OF 56 SCALE: AS SHOWN DATE: 06/24/2025 DPW FILE NO. 56-02-R-212-0 REV. 0	

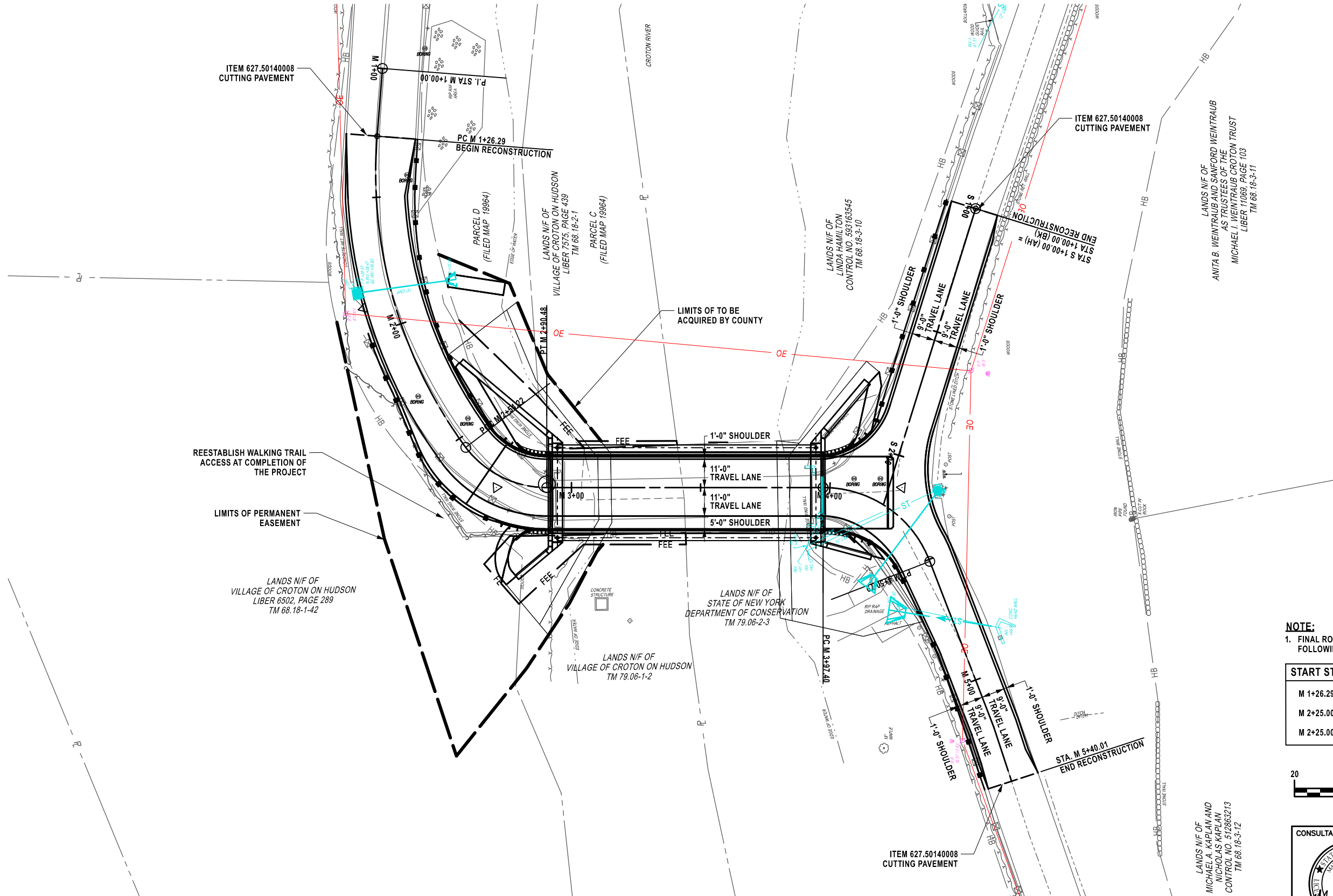
NOTE:
1. FINAL ROAD STRIPING SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS.

START STA.	END STA.	ITEM NO.	DESCRIPTION
M 1+26.29	M 4+00.00	685.1202	DOUBLE YELLOW C
M 2+25.00	M 4+00.00	685.1102	SINGLE WHITE RT. SHLDR.
M 2+25.00	M 4+00.00	685.1102	SINGLE WHITE LT. SHLDR.

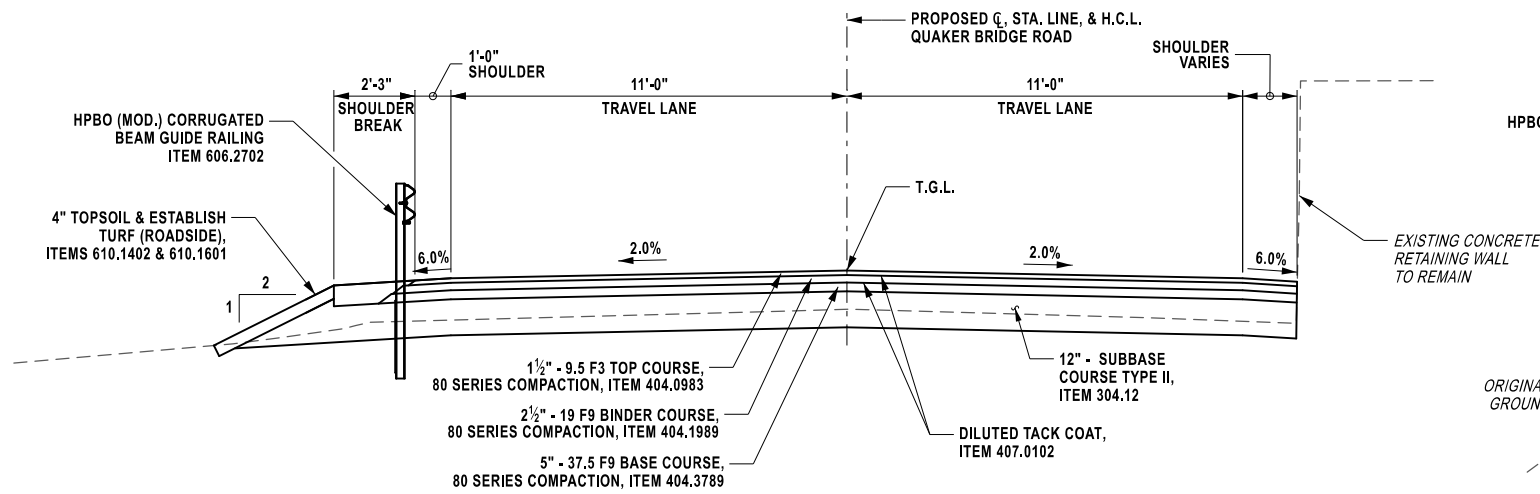


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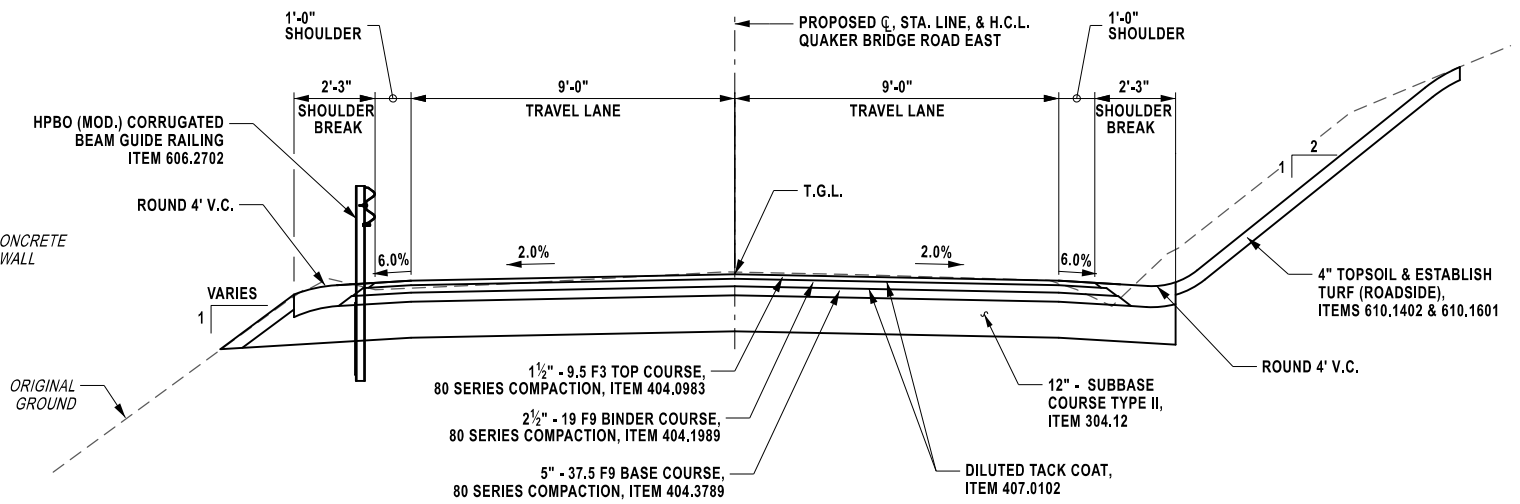
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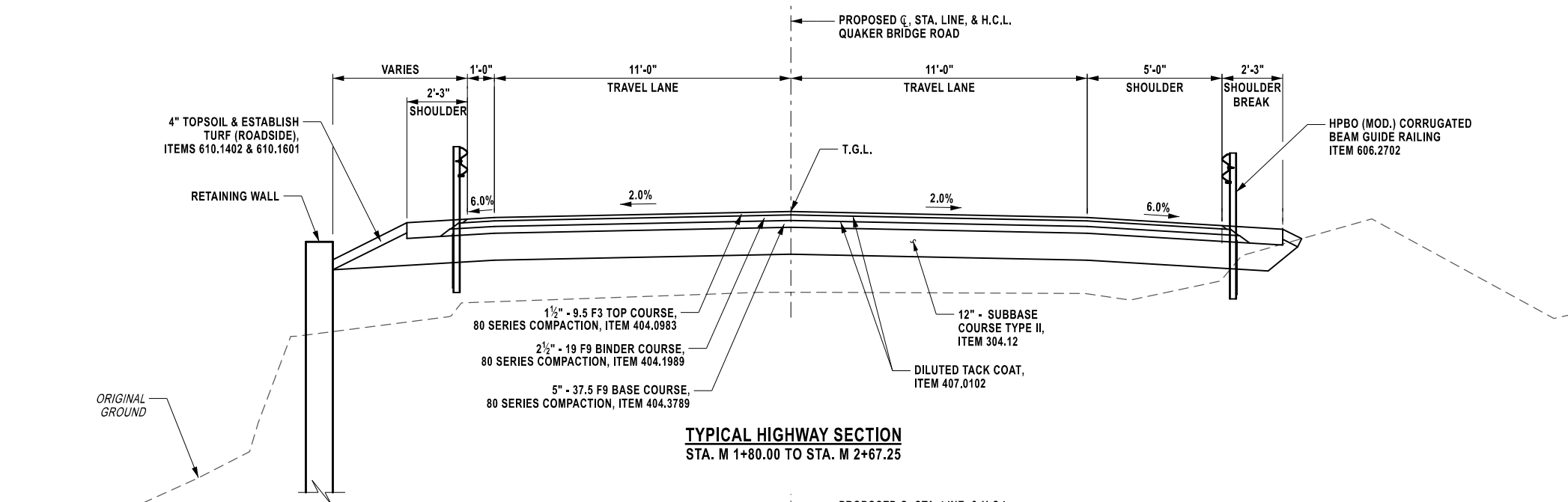
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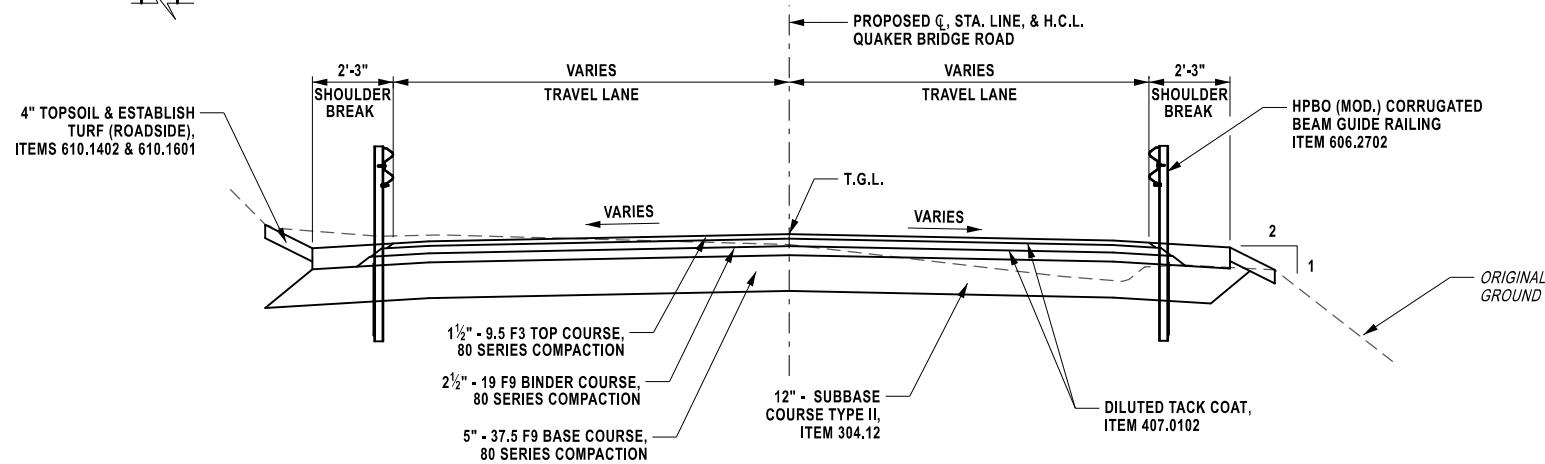
TYPICAL HIGHWAY SECTION
STA. M 1+26.29 TO STA. M 1+80.00



TYPICAL HIGHWAY SECTION
STA. S 1+00.00 TO STA. S 2+05.74



TYPICAL HIGHWAY SECTION
STA. M 1+80.00 TO STA. M 2+67.25

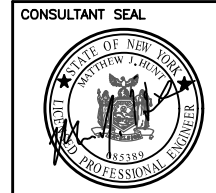


TYPICAL HIGHWAY SECTION
STA. M 4+27.17 TO STA. M 5+40.01

NOTE:
1. REMOVAL OF EXISTING PAVEMENT TO BOTTOM OF PROPOSED SUBBASE TO BE PAID UNDER ITEM 203.02 - UNCLASSIFIED EXCAVATION AND DISPOSAL.



BIN# 3348560



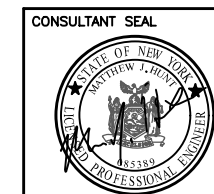
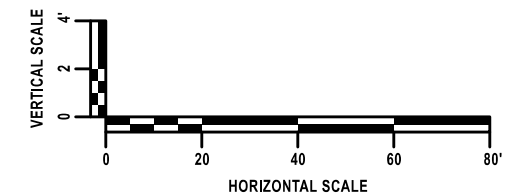
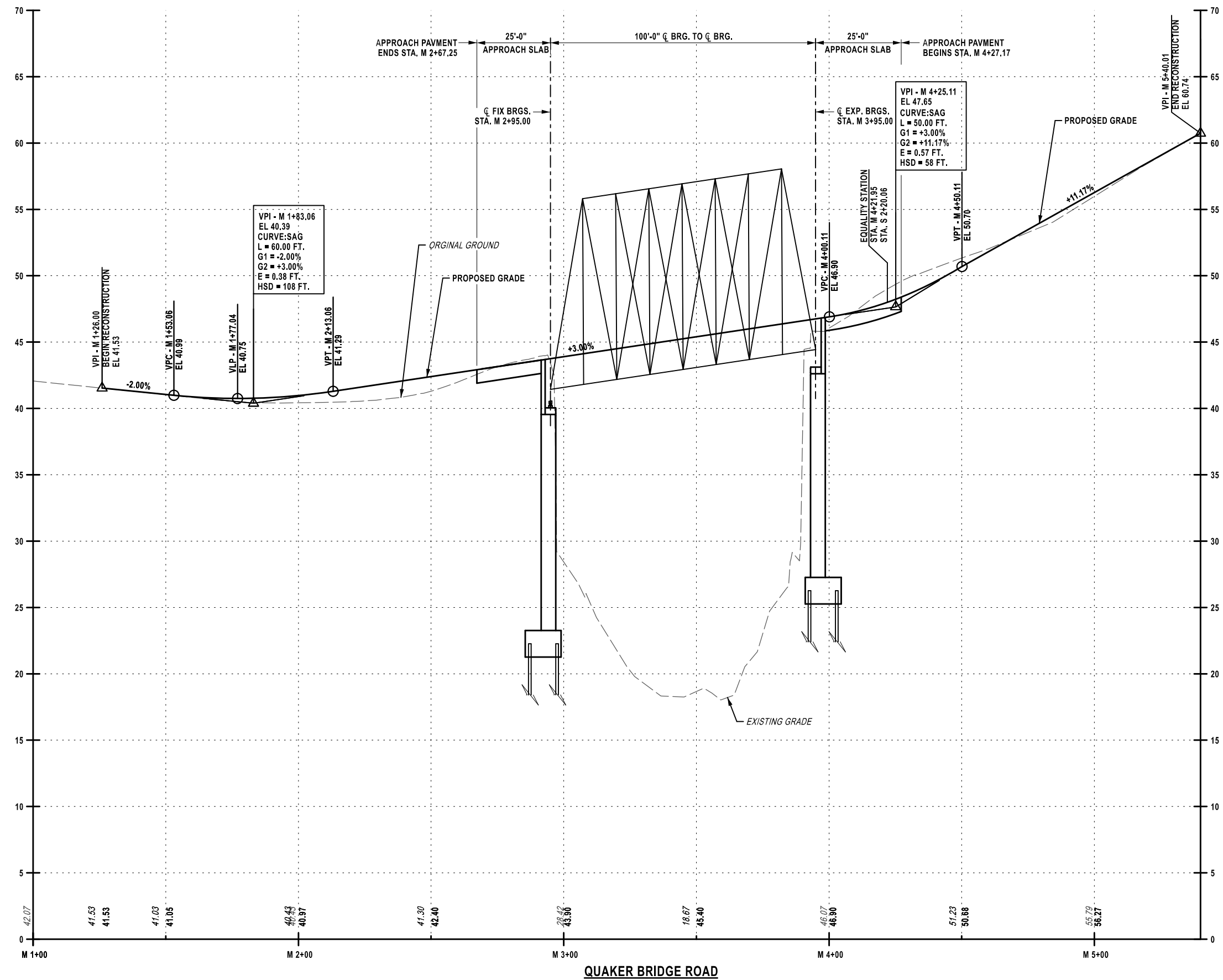
Creighton Manning
a GAI Company

IN CHARGE OF **M. HUNT**
CHECKED BY **K. SCHUMAN-EKES**
MADE BY **K. DETRICK**

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION			
☐ AS BUILT - CHANGES AS NOTED			
☐ AS BUILT - NO CHANGES			
CONTRACTOR		PROJECT COORDINATOR	
NAME		NAME	
SIGNATURE		SIGNATURE	
TITLE		TITLE	

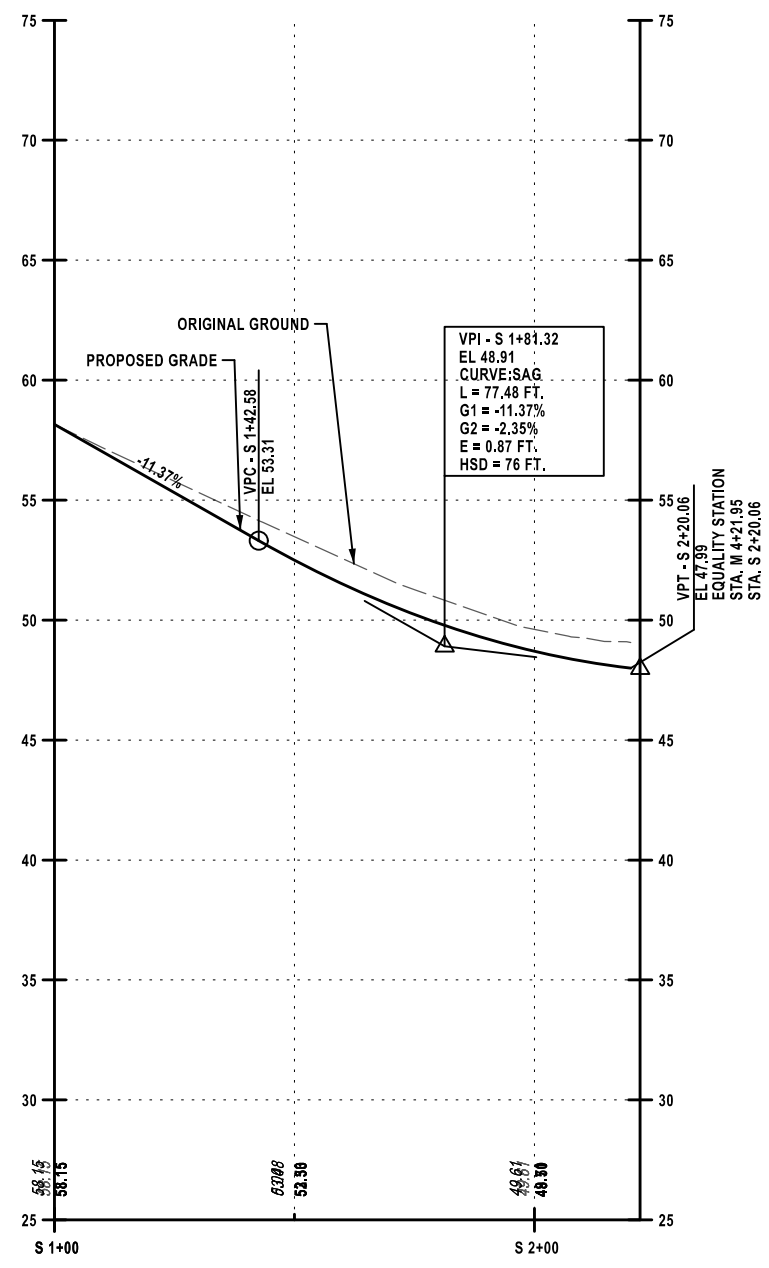
WESTCHESTER COUNTY, NEW YORK DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION DIVISION OF ENGINEERING			
CONTRACT NUMBER	25-500	SHEET NUMBER	TYP-01
SHEET NO. 12 OF 56			
REPLACEMENT OF QUAKER BRIDGE ROAD BRIDGE OVER CROTON RIVER (BIN 3348560) TOWN OF CORTLANDT, NEW YORK HIGHWAY TYPICAL SECTIONS			
SCALE: AS SHOWN	DATE: 06/24/2025	DPW FILE NO.	56-02-R-213-0
REV. NO.	0		



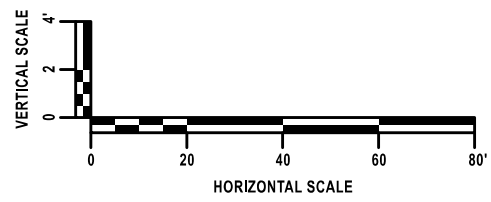
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CONTRACTOR		PROJECT COORDINATOR	
NAME _____	NAME _____		
SIGNATURE _____	SIGNATURE _____		
TITLE _____ DATE _____	TITLE _____ DATE _____		

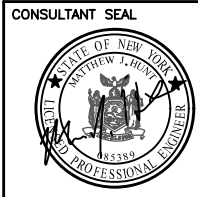
WESTCHESTER COUNTY, NEW YORK DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION DIVISION OF ENGINEERING	CONTRACT NUMBER 25-500	SHEET NUMBER PRO-01
	SHEET NO. 13 OF 56	
REPLACEMENT OF QUAKER BRIDGE ROAD BRIDGE OVER CROTON RIVER (BIN 3348580) TOWN OF CORTLANDT, NEW YORK PROFILE - QUAKER BRIDGE ROAD	SCALE: AS SHOWN DATE: 06/24/2025 DPW FILE NO. 56-02-R-214-0 REV. NO. 0	



QUAKER BRIDGE ROAD EAST



BIN# 3348560



IN CHARGE OF M. HUNT
CHECKED BY K. SCHUMAN-EKES
MADE BY K. DETRICK

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION			
☐ AS BUILT - CHANGES AS NOTED			
☐ AS BUILT - NO CHANGES			
CONTRACTOR		PROJECT COORDINATOR	
NAME _____	NAME _____	NAME _____	NAME _____
SIGNATURE _____	SIGNATURE _____	SIGNATURE _____	SIGNATURE _____
TITLE _____	TITLE _____	TITLE _____	TITLE _____

WESTCHESTER COUNTY, NEW YORK DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION DIVISION OF ENGINEERING		CONTRACT NUMBER 25-500	SHEET NUMBER PRO-02
REPLACEMENT OF QUAKER BRIDGE ROAD BRIDGE OVER CROTON RIVER (BIN 3348560) TOWN OF CORTLANDT, NEW YORK		SHEET NO. 14 OF 56	
PROFILE - QUAKER BRIDGE ROAD EAST		DATE: 06/24/2025	REV: 0
		DPW FILE NO. 56-02-R-215-0	

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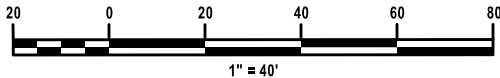
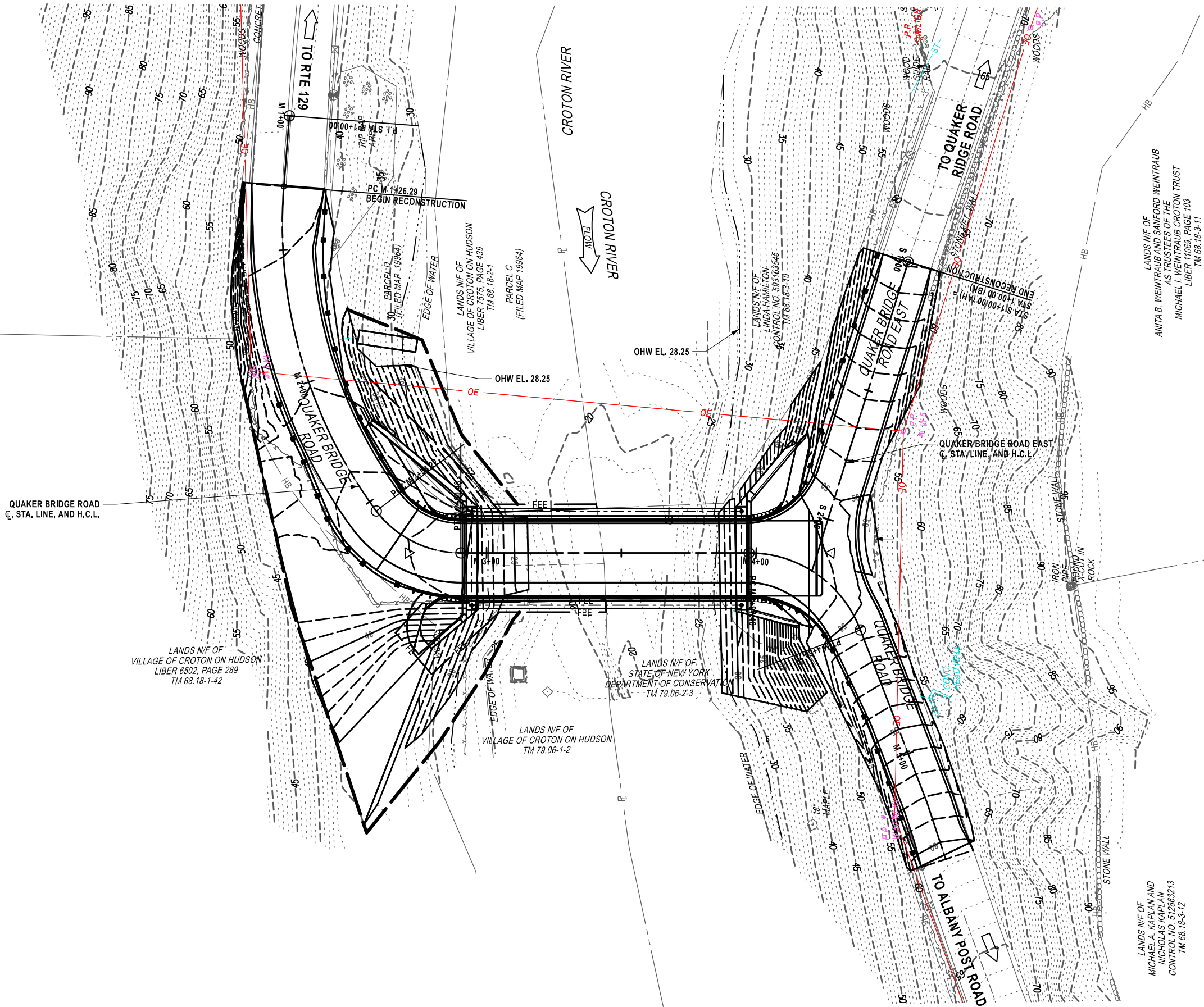
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IN CHARGE OF M. HUNT
CHECKED BY K. SCHUMAN-EKES
MADE BY K. DETRICK

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

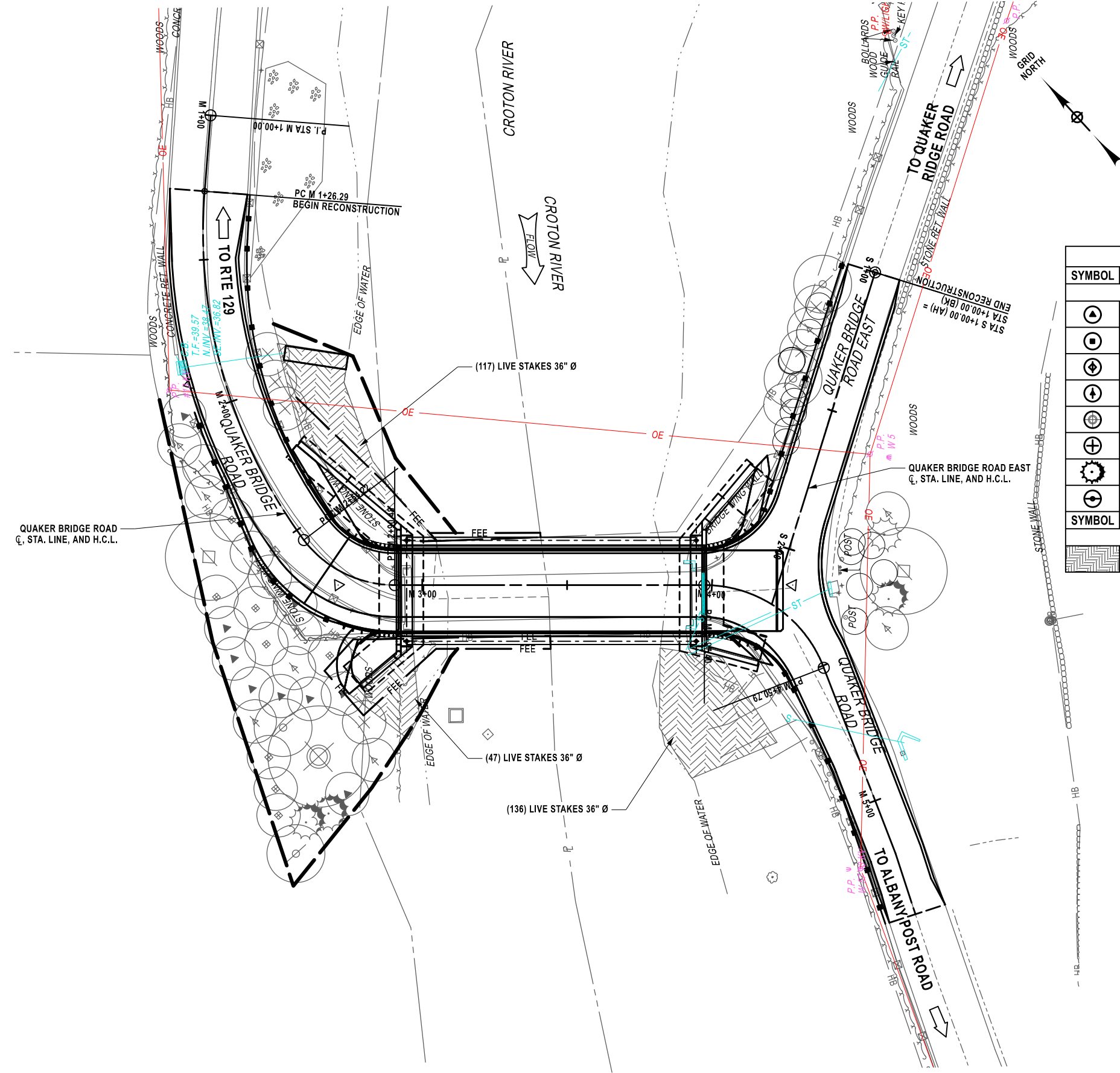
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☐ AS BUILT - NO CHANGES			
CONTRACTOR		PROJECT COORDINATOR	
NAME		NAME	
SIGNATURE		SIGNATURE	
TITLE		TITLE	

WESTCHESTER COUNTY, NEW YORK	
DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION	
DIVISION OF ENGINEERING	
REPLACEMENT OF QUAKER BRIDGE ROAD BRIDGE OVER CROTON RIVER (BIN 3348560) TOWN OF CORTLANDT, NEW YORK	
GRADING PLAN	
CONTRACT NUMBER 25-500	SHEET NUMBER GRD-01
SHEET NO. 15 OF 56	
SCALE: AS SHOWN DATE: 06/24/2025	
DPW FILE NO. 56-02-R-216-0	REV. 0



BIN# 3348560

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NYDOT ITEM NUMBER	DESCRIPTION	QUANTITY	UNIT
LANDSCAPING:			
611.0114	PLANTING - MAJOR DECIDUOUS TREES - 6' HEIGHT, 2-3" CALIPER	75	EA
611.19	POST-PLANTING CARE	75	EA
616.08000024	LIVE STAKE PLANTINGS 1" TO 2"	300	EA
610.1401	TOPSOIL - REUSE ON-SITE MATERIALS	90	CY
610.1101	MULCH FOR PLANTING TYPE A,B & D WOOD CHIPS & SHREDDED BARK	90	CY
610.19	WATERING VEGETATION	0.225	1000 GAL

PLANTING LIST						
SYMBOL	CODE	QTY	BOTANICAL/COMMON NAME	CONTAINER		REMARKS
TREES						
	AS	17	ACER SACCHARUM/SUGAR MAPLE	2" CAL. MIN.		6-8' MINIMUM HEIGHT ONCE PLANTED
	BL	11	BETULA LENTA/SWEET BIRCH	2" CAL. MIN.		6-8' MINIMUM HEIGHT ONCE PLANTED
	FA	4	FRAXINUS AMERICANA/WHITE ASH	2" CAL. MIN.		6-8' MINIMUM HEIGHT ONCE PLANTED
	LT	11	LIRIODENDRON TULIPFERA/TULIP POPLAR	2" CAL. MIN.		6-8' MINIMUM HEIGHT ONCE PLANTED
	PO	4	PLATANUS OCCIDENTALIS/AMERICAN SYCAMORE	2" CAL. MIN.		6-8' MINIMUM HEIGHT ONCE PLANTED
	QR	15	QUERCUS RUBRA/NORTHERN RED OAK	2" CAL. MIN.		6-8' MINIMUM HEIGHT ONCE PLANTED
	TC	5	TSUGA CANADENSIS/EASTERN HEMLOCK	2" CAL. MIN.		6-8' MINIMUM HEIGHT ONCE PLANTED
	UA	9	ULMUS AMERICANA/AMERICAN ELM	2" CAL. MIN.		6-8' MINIMUM HEIGHT ONCE PLANTED
SYMBOL	CODE	QTY	BOTANICAL/COMMON NAME	CONTAINER	SPACING	REMARKS
SHRUB AREAS						
	SN	300	SALIX NIGRA/LIVE STAKES	1" MIN. CAL. LIVE STAKE	36" O.C.	1-2" DIAMETER, 2-6' LONG DEPENDING ON SITE APPLICATION

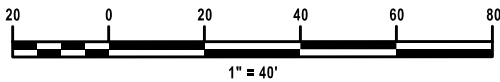
IN CHARGE OF M. HUNT
CHECKED BY K. SCHUMAN-EKES
MADE BY K. DETRICK

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION			
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CONTRACTOR		PROJECT COORDINATOR	
NAME		NAME	
SIGNATURE		SIGNATURE	
TITLE		TITLE	
DATE		DATE	

WESTCHESTER COUNTY, NEW YORK
DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION
DIVISION OF ENGINEERING
REPLACEMENT OF QUAKER BRIDGE ROAD BRIDGE
OVER CROTON RIVER (BIN 3348560)
TOWN OF CORTLANDT, NEW YORK
LANDSCAPE PLAN

CONTRACT NUMBER	SHEET NUMBER
25-500	LAP-01
SHEET NO. 16 OF 56	
SCALE: AS SHOWN DATE: 06/24/2025	
DPW FILE NO.	REV.
56-02-R-217-0	0



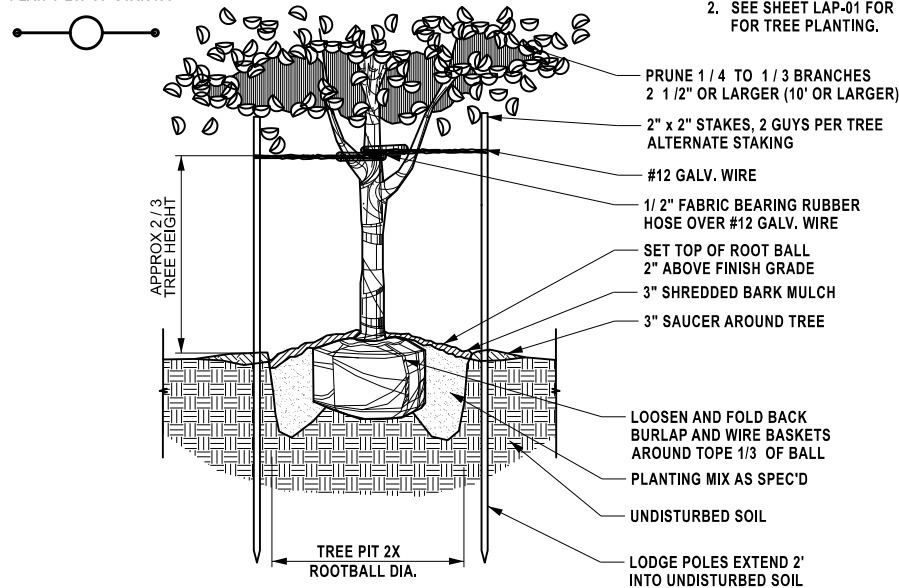
BIN# 3348560



Creighton Manning
a GAI Company

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PLAN VIEW OF STAKING

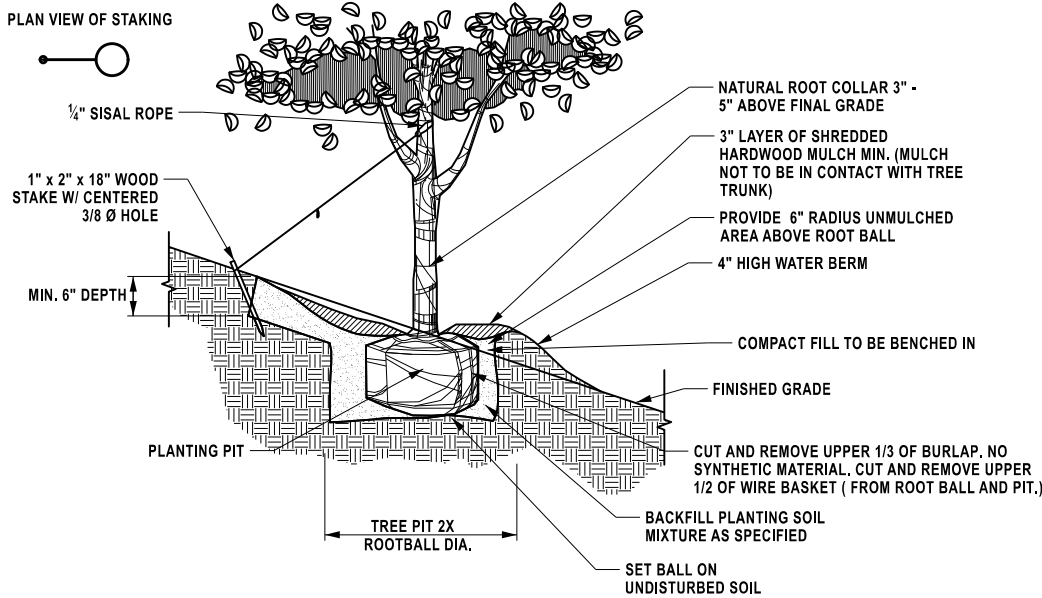


TREE PLANTING DETAIL
(NOT TO SCALE)

NOTES:

1. REMOVE GUYING, TREE WRAP, ETC. AFTER ONE GROWING SEASON.
2. SEE SHEET LAP-01 FOR PAY ITEMS FOR TREE PLANTING.

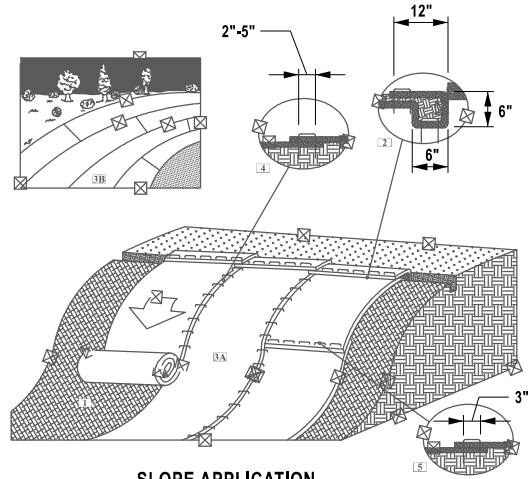
PLAN VIEW OF STAKING



NOTES:

1. THIS DETAIL SHALL APPLY TO ALL TREES PLANTED ON A SLOPE.
2. PROVIDE MINIMAL PRUNING. ONLY TO CORRECT DAMAGED BRANCHES. DO NOT CUT LEADERS.
3. FLUORESECNT FLAGGING ON WIRE.

SLOPE TREE PLANTING DETAIL
(NOT TO SCALE)



SLOPE APPLICATION

SLOPE INSTALLATION GUIDELINES:

THESE GUIDELINES ARE RECOMMENDATIONS ONLY. ANY QUESTIONS WITH THE INSTALLATION SHOULD BE CONFIRMED WITH YOUR LOCAL DISTRIBUTOR. PAYMENT FOR ROLLED EROSION CONTROL PRODUCT AND ALL ASSOCIATED LABOR AND MATERIALS SHALL BE PAID FOR UNDER ITEM 209.1801.

1. DIG A 6" BY 6" TRENCH BOTH UP-SLOPE AND DOWN-SLOPE OF THE AREA THE MATTING IS TO BE APPLIED. PREPARE THE SLOPE SOIL SURFACE (RAKING, SEEDING AND FERTILIZING).
2. BEGIN BY PLACING THE BLANKET A MINIMUM OF 12" DOWN-SLOPE OF THE UP-SLOPE TRENCH. SECURE THE BLANKET AT THE BOTTOM OF THE TRENCH WITH STAPLES PLACED 12" APART. BACKFILL AND COMPACT THE TRENCH. APPLY SEED, AND FOLD THE BLANKET OVER SOIL, SECURE WITH A ROW OF STAPLES PLACED 12" APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKET VERTICALLY DOWN THE SLOPE. SECURE USING THE APPROPRIATE STAPLE PATTERN BELOW, SPECIFIED BY SLOPE.
4. PARALLEL BLANKETS MUST BE OVERLAPPED BY A MINIMUM OF 4", AND SECURED WITH A ROW OF STAPLES PLACED APPROXIMATELY 3'-0" APART.
5. ADDITIONAL VERTICAL BLANKETS CAN BE JOINED USING A MINIMUM 4" OVERLAPPING OF SHINGLE STYLE IN THE DIRECTION OF WATER FLOW. CONNECT THE BLANKETS BY PLACING STAPLES APPROXIMATELY 12" APART ACROSS THE WIDTH OF BLANKETS.
6. FOR MAXIMUM PERFORMANCE A CHECK SLOT SHOULD BE PLACED AT 25'-40' INTERVALS. PLACE A ROW OF STAPLES 4" APART ALONG ENTIRE WIDTH OF THE SLOPE. A SECOND ROW SHOULD BE PLACED 4" BELOW IN A STAGGERED PATTERN. THEN CONTINUE WITH GENERAL INSTALLATION.
7. THE END OF BLANKET MUST BE SECURED IN A 6"x6" TRENCH WITH A ROW OF STAPLES PLACED AT 12" INTERVALS.

ROLLED EROSION CONTROL PRODUCT DETAIL
(NOT TO SCALE)

BIN# 3348560



CONSULTANT INFORMATION
Creighton Manning
a GAI Company

IN CHARGE OF **M. HUNT**
CHECKED BY **K. SCHUMAN-EKES**
MADE BY **K. DETRICK**

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

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WESTCHESTER COUNTY, NEW YORK
DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION
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REPLACEMENT OF QUAKER BRIDGE ROAD BRIDGE
OVER CROTON RIVER (BIN 3348560)
TOWN OF CORTLANDT, NEW YORK
LANDSCAPING DETAILS

CONTRACT NUMBER	SHEET NUMBER
25-500	LAD-01
SHEET NO. 17 OF 56	
SCALE: AS SHOWN	
DATE: 06/24/2025	
DPW FILE NO. 56-02-R-218-0	
REV. NO. 0	

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LANDSCAPE SPECIFICATIONS:

WARRANTY

1. WARRANT PLANT MATERIAL TO REMAIN ALIVE AND BE IN HEALTHY, VIGOROUS CONDITION FOR A PERIOD OF 1 YEAR AFTER COMPLETION AND ACCEPTANCE OF EACH PROJECT AREA. PROJECT AREAS WILL BE ACCEPTED UPON FULL COMPLETION OF PROJECT SITE.
2. REPLACE, IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS, ALL PLANTS THAT ARE DEAD OR, AS DETERMINED BY THE LANDSCAPE ARCHITECT, ARE IN AN UNHEALTHY OR UNSIGHTLY CONDITION, AND HAVE LOST THEIR NATURAL SHAPE DUE TO DEAD BRANCHES, OR OTHER CAUSES DUE TO THE CONTRACTOR'S NEGLIGENCE. THE COST OF SUCH REPLACEMENT(S) IS AT CONTRACTOR'S EXPENSE. WARRANT ALL REPLACEMENT PLANTS FOR 1 YEAR AFTER INSTALLATION. CORRECT DEFECTIVE WORK AS SOON AS POSSIBLE AFTER DEFICIENCIES BECOME APPARENT AND WEATHER AND SEASON PERMIT.
3. WARRANTY SHALL NOT INCLUDE DAMAGE OR LOSS OF TREES, PLANTS, OR GROUND COVER CAUSED BY FIRES, FLOODS, FREEZING RAINS, LIGHTNING STORMS, OR WINDS OVER 75 MILES PER HOUR, WINTER KILL CAUSED BY EXTREME COLD AND SEVER WINTER CONDITIONS NOT TYPICAL OF PLANTING AREA, ACTS OF VANDALISM, OR NEGLIGENCE ON THE PART OF THE OWNER.
4. REMOVE AND IMMEDIATELY REPLACE ALL PLANTS, AS DETERMINED BY THE LANDSCAPE ARCHITECT (OR ENGINEER AUTHORIZED REPRESENTATIVE) TO BE UNSATISFACTORY DURING THE INITIAL PLANTING INSTALLATION.

MATERIALS

1. PLANTS: PROVIDE PLANTS TYPICAL OF THEIR SPECIES OR VARIETY; WITH NORMAL, DENSELY-DEVELOPED BRANCHES AND VIGOROUS, FIBROUS ROOT SYSTEMS. PROVIDE ONLY SOUND, HEALTHY, VIGOROUS PLANTS FREE FROM DEFECTS, DISFIGURING KNOTS, SUN SCALD INJURIES, FROST CRACKS, ABRASIONS OF THE BARK, PLANT DISEASES, INSECT EGGS, BORERS, AND ALL FORMS OF INFESTATION. ALL PLANTS SHALL HAVE A FULLY DEVELOPED FORM WITHOUT VOIDS AND OPEN SPACES. PLANTS HELD IN STORAGE WILL BE REJECTED IF THEY SHOW SIGNS OF GROWTH DURING STORAGE.
- a. BALLED AND BURLAPPED PLANTS: DIG BALLED AND BURLAPPED PLANTS WITH FIRM NATURAL BALLS OF EARTH OF SUFFICIENT DIAMETER AND DEPTH TO ENCOMPASS THE FIBROUS AND FEEDING ROOT SYSTEM NECESSARY FOR FULL RECOVER OF THE PLANT. PROVIDE BALL SIZES COMPLYING WITH THE LATEST EDITION OF THE "AMERICAN STANDARD FOR NURSERY STOCK". CRACKED OR MUSHROOMED BALLS ARE NOT ACCEPTABLE.
- b. CONTAINER GROWN STOCK: GROWN IN A CONTAINER FOR SUFFICIENT LENGTH OF TIME FOR THE ROOT SYSTEM TO HAVE DEVELOPED TO HOLD ITS SOIL TOGETHER, FIRM AND WHOLE.
- 1) NO PLANTS SHALL BE LOOSE IN CONTAINER.
2) CONTAINER STOCK SHALL NOT BE POT BOUND.
- c. PROVIDE TREE SPECIES WITH A SINGLE MAIN TRUNK. TREES THAT HAVE THE MAIN TRUNK FORMING A "Y" SHAPE ARE NOT ACCEPTABLE.
- d. PLANTS PLANTED IN ROWS OR MASS SHALL BE MATCHED IN FORM.
- e. PLANTS LARGER THAN THOSE SPECIFIED IN THE PLANT LIST MAY BE USED WHEN ACCEPTABLE TO THE LANDSCAPE ARCHITECT.
- 1) IF THE USE OF LARGER PLANTS IS ACCEPTABLE, INCREASE THE SPREAD OF ROOTS OR ROOTBALL IN PROPORTION TO THE SIZE OF THE PLANT.
- f. SHRUBS AND SMALL PLANTS SHALL MEET THE REQUIREMENTS FOR A SPREAD AND HEIGHT INDICATED IN THE PLANT LIST.
- 1) THE MEASUREMENT FOR HEIGHT SHALL BE TAKEN FROM THE GROUND LEVEL TO THE AVERAGE HEIGHT OF THE TOP OF THE PLANT AND NOT THE LONGEST BRANCH.
2) SINGLE STEMMED OR THIN PLANTS WILL NOT BE ACCEPTED.
3) SIDE BRANCHES SHALL BE GENEROUS, WELL-TWIGGED, AND THE PLANT AS A WHOLE WELL-BUSHED TO THE GROUND.
4) PLANTS SHALL BE IN A MOIST, VIGOROUS CONDITION, FREE FROM DEAD WOOD, BRUISES, OR OTHER ROOT OR BRANCH INJURIES.

ACCESSORIES

1. TOPSOIL FOR PLANTING BEDS; FERTILE, FRIABLE, NATURAL TOPSOIL OF LOAMY CHARACTER, WITHOUT ADMIXTURE OF SUBSOIL MATERIAL, OBTAINED FROM A WELL-DRAINED ARABLE SITE, REASONABLY FREE FROM CLAY, LUMPS, COARSE SANDS, STONES, PLANTS, ROOTS, STICKS, AND OTHER FOREIGN MATERIALS.
- a. IDENTIFY SOURCE LOCATION OF TOPSOIL PROPOSED FOR USE ON THE PROJECT.
- b. PROVIDE TOPSOIL FREE OF SUBSTANCES HARMFUL TO THE PLANTS WHICH WILL BE GROWN IN THE SOIL.
2. PEAT MOSS: BROWN TO BLACK IN COLOR, WEED AND SEED FREE GRANULATED RAW PEAT OR BALED PEAT, CONTAINING NOT MORE THAN 9 PERCENT MINERAL ON A DRY BASIS.
3. FERTILIZER: TYPE "A": COMMERCIAL TYPE APPROVED BY THE LANDSCAPE ARCHITECT, CONTAINING 12 PERCENT NITROGEN, 12 PERCENT PHOSPHORIC ACID, AND 12 PERCENT POTASH BY WEIGHT. ONE-FOURTH OF NITROGEN IN THE FORM OF NITRATES, ONE-FOURTH IN FORM OF AMMONIA SALT, AND ONE-HALF IN FORM OF ORGANIC NITROGEN OR EQUAL.
4. ANTI-DESICCANT: PROTECTIVE FILM EMULSION PROVIDING A PROTECTIVE FILM OVER PLANT SURFACES; PERMEABLE TO PERMIT TRANSPIRATION, MIXED AND APPLIED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
5. MULCH: TREES, SHRUBS, AND PERENNIAL BEDS - SHREDDED HARDWOOD MULCH FURNISHED IN BAGS OR BULK.
6. WATER: FREE OF SUBSTANCES HARMFUL TO PLANT GROWTH. HOSES OR OTHER METHODS OF TRANSPORTATION FURNISHED BY CONTRACTOR. CONTRACTOR WILL PROVIDE WATER ON SITE.

PREPARATION

1. TIME OF PLANTING:
- a. DECIDUOUS MATERIAL: PLANT DECIDUOUS MATERIAL IN A DORMANT CONDITION. IF DECIDUOUS TREES ARE PLANTED IN-LEAF, THEY SHALL BE SPRAYED WITH AN ANTI-DESICCANT PRIOR TO PLANTING OPERATION.
- b. SPRING PLANTING: MARCH 15TH THROUGH MAY 15TH
- c. FALL PLANTING: SEPTEMBER 15TH THROUGH OCTOBER 15TH
- d. PLANTING TIMES SHALL BE APPROVED BY LANDSCAPE ARCHITECT.
2. PLANTING SHALL BE PERFORMED ONLY BY EXPERIENCED WORKMEN FAMILIAR WITH PLANTING PROCEDURES UNDER THE SUPERVISION OF A QUALIFIED SUPERVISOR.
3. CONTRACTOR TO LOCATE PLANTS IN THE FIELD BY STAKING. LANDSCAPE ARCHITECT TO APPROVE LOCATIONS. IF OBSTRUCTIONS ARE ENCOUNTERED THAT ARE NOT SHOWN ON THE DRAWINGS, DO NOT PROCEED WITH PLANTING OPERATIONS UNTIL ALTERNATE PLANT LOCATIONS HAVE BEEN SELECTED AND APPROVED BY LANDSCAPE ARCHITECT.
4. EXCAVATED CIRCULAR PLANT PITS WITH VERTICAL SIDES, EXCEPT FOR PLANTS SPECIFICALLY INDICATED TO BE PLANTED IN BEDS. PROVIDE TREE AND SHRUB PITS AT LEAST TWO (2) TIMES GREATER THAN THE DIAMETER OF THE ROOT SYSTEM. EXCAVATE TREE PITS TO THE DEPTH OF THE TREE BALL AND BACK FILL IN PLANTING MIX TO CORRECT ELEVATION FOR TREE BALLS. MULCH BEDS ARE TO BE PROVIDED FOR ALL LANDSCAPE MASSINGS. CIRCULAR MULCH AREAS FOR INDIVIDUAL TREES WILL BE CONSISTENT IN SIZE THROUGHOUT THE PROJECT AREAS.
5. PROVIDE PLANTING MIXTURE TO USE AROUND THE BALLS AND ROOTS OF ALL PLANTS CONSISTING OF THREE (3) PARTS EXISTING SOIL, TWO (2) PARTS PLANTING TOPSOIL, ONE (1) PART PEAT MOSS, AND ONE-HALF (½) LB. PLANT FERTILIZER TYPE "A" FOR EACH CU. YD. OF MIXTURE OR APPROVED EQUAL.
6. INSTALL ORGANIC MATTER LAYER - AFTER THE SPECIFIED TOPSOIL OR PLANTING MIX IS INSTALLED AND JUST PRIOR TO FINAL GRADING AND INSTALLATION OF TREE, SHRUB, OR FLOWER PLANTINGS, SPREAD 100 MM (4") OF ORGANIC MATTER OVER ALL MULCHED BED AREAS DESIGNATED ON THE DRAWINGS AND ROTOTILL INTO THE TOP 100 MM (4") OF THE PLANTING MIX OR TOPSOIL. ALLOW THE FINISHED GRADES TO REMAIN 50-75 MM (2-3") HIGHER THAN THE GRADES ON THE GRADING PLAN TO ANTICIPATE SETTLEMENT OVER THE FIRST YEAR. AT THE END OF THE PLANTING GUARANTEE PERIOD, RESET THE GRADES IN THIS AREA, IF REQUIRED, TO THE FINAL GRADES SHOWN ON THE GRADING PLAN.
7. WEEDING - BEFORE AND DURING PRELIMINARY GRADING AND FINISH GRADING, FINISH GRADING AND PLANTING BED PREPARATION, ALL WEEDS AND GRASSES SHALL BE DUG OUT BY THE ROOTS AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL ALSO APPLY A PREEMERGIENT TO ALL LANDSCAPE BEDS AT THE CONTRACTOR'S EXPENSE.

INSTALLATION

1. SET PLANT MATERIAL IN THE PLANTING PIT TO PROPER GRADE AND ALIGNMENT. SET PLANTS UPRIGHT, PLUMB, AND FACED TO GIVE THE BEST APPEARANCE OR RELATIONSHIP TO OTHER OR ADJACENT STRUCTURE. SET PLANT MATERIAL 2-3" ABOVE THE FINISH GRADE. NO FILLING WILL BE PERMITTED AROUND TRUNKS OR STEMS. BACKFILL THE PIT WITH PLANTING MIXTURE. DO NOT USE FROZEN OR MUDDY MIXTURES FOR BACKFILLING. FORM A RING OF SOIL AROUND THE EDGE OF EACH PLANTING PIT TO RETAIN WATER.
2. AFTER BALLED AND BURLAPPED PLANTS ARE SET, MUDDLE PLANTING SOIL MIXTURE AROUND THE BASES OF BALLS AND FILL ALL VOIDS.
- a. REMOVE ALL BURLAP, ROPES, AND WIRES FROM THE TOP 1/3 OF BALLS AFTER ONE YEAR GUARANTEE PERIOD.
3. MULCHING: MULCH TREE, SHRUB PLANTING PITS, AND PERENNIAL BEDS WITH REQUIRED MULCH MATERIAL 3" DEEP IMMEDIATELY AFTER PLANTING. THOROUGHLY WATER MULCHED AREAS. AFTER WATERING, RAKE MULCH TO PROVIDE A UNIFORM FINISHED SURFACE.
4. NO TREE WRAPPING, STAKING, OR GUYING IS PERMITTED UNLESS AUTHORIZED BY THE LANDSCAPE ARCHITECT.
5. UPON THE COMPLETION OF ALL PLANTING WORK AND BEFORE FINAL ACCEPTANCE, THE CONTRACTOR SHALL REMOVE ALL MATERIAL, EQUIPMENT, AND DEBRIS RESULTING FROM HIS/HER WORK. ALL PAVED AREAS SHALL BE BROOM CLEANED AND THE SITE LEFT IN A NEAT AND ACCEPTABLE CONDITION AS APPROVED BY THE LANDSCAPE ARCHITECT.
6. TREE PLACEMENT TO BE FIELD VERIFIED BY CONTRACTOR AND APPROVED BY ENGINEER PRIOR TO INSTALLATION. CONTRACTOR TO NOTIFY ENGINEER IF FIELD CONDITIONS PREVENT REQUIRED NUMBER OF TREES TO BE PLANTREES REPLACED ON CORTLANDT SIDE

AT THE 2:1 RATIO, 12 TREES WERE REMOVED, 3TREES HAVE BEEN SITED FOR REPLACEMENT ON SITE.
THE REMAINING 21 TREES WILL NEED TO BE PLANTED OFF-SITE. RECOMMENDED SPECIES TO BE SELECTED FROM PLANT SCHEDULE (LOCATION TO BE DETERMINED BY CLIENT)

TREES REPLACED ON VILLAGE OF CROTON-ON-HUDSON SIDE

AT THE 1:1 RATIO, 35 OF THE 35 REMOVED TREES HAVE BEEN SITED FOR REPLACEMENT ON SITE.

PER COMMENTS RECEIVED BY CORTLANDT

1. ANY TREE REMOVED FOR TEMPORARY STAGING AND CONSTRUCTION SHALL BE MITIGATED AT A RATIO OF 1:1. TREES REMOVED ON SLOPES IN EXCESS OF 25% SHALL BE MITIGATED AT A RATIO OF 2:1.
- REPLANTED TREES SHALL BE AS FOLLOWS:
- a. 2-3" DBH
b. 6-8 FT ONCE PLANTED
c. 3 LOW MATURING TREES WILL BE CONSIDERED THE EQUIVALENT OF A TREE
d. 10 SHRUBS (3 GALLONS) WILL BE CONSIDERED THE EQUIVALENT OF A TREE

ROLLED EROSION CONTROL MAT

1. ALL SLOPES STEEPER THAN 25% THAT ARE NOT PROTECTED BY STONE FILL SHALL HAVE TURF ESTABLISHED AND HAVE A ROLLED EROSION CONTROL PRODUCT, CLASS I TYPE A, SHORT TERM INCORPORATED INTO THE WORK.
2. THE SELECTED ROLLED EROSION CONTROL PRODUCT SHALL BE BIODEGRADABLE.

BIN# 3348560

CONSULTANT SEAL


CONSULTANT INFORMATION

a GAI Company

WESTCHESTER COUNTY, NEW YORK
DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION
DIVISION OF ENGINEERING

REPLACEMENT OF QUAKER BRIDGE ROAD BRIDGE
OVER CROTON RIVER (BIN 3348560)
TOWN OF CORTLANDT, NEW YORK
LANDSCAPING NOTES

CONTRACT NUMBER
25-500

SHEET NUMBER
LAN-01

SHEET NO. 18 OF 56

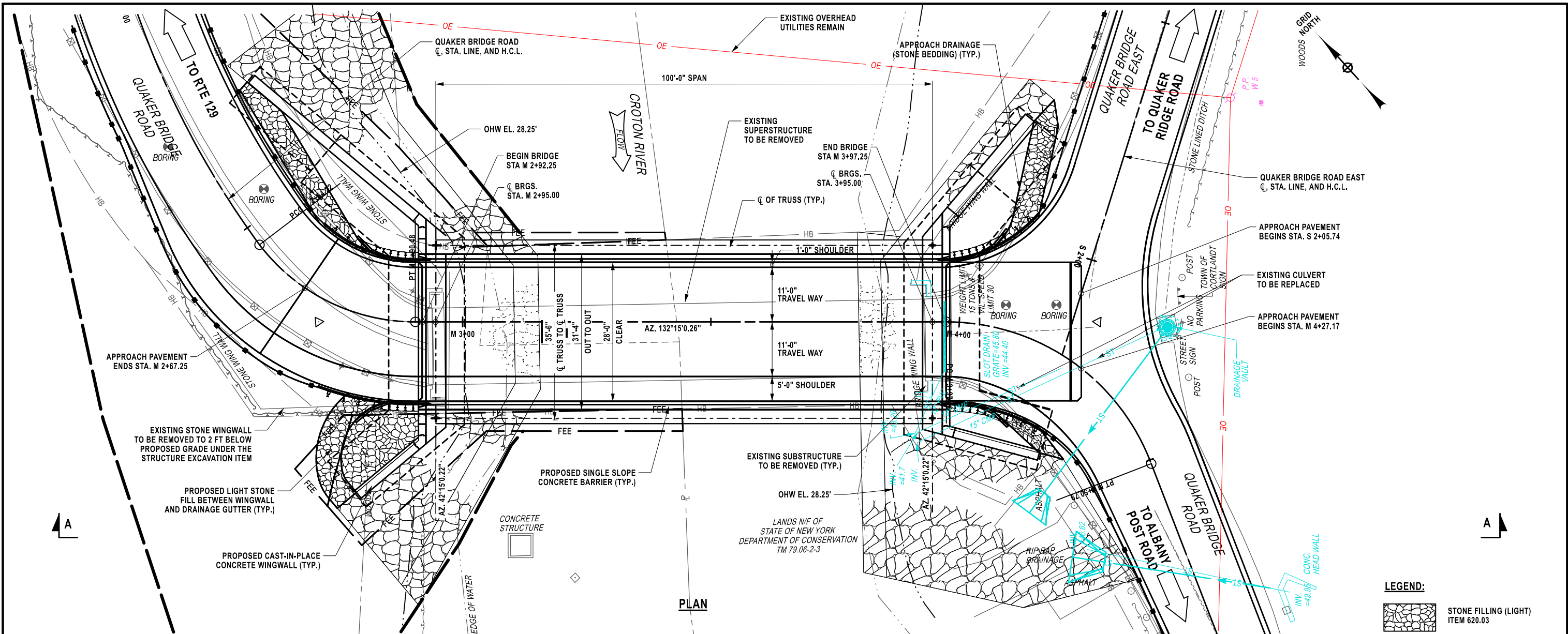
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DPW FILE NO.
56-02-R-219-0

REV.
NO.
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IN CHARGE OF M. HUNT
CHECKED BY K. SCHUMAN-EKES
MADE BY K. DETRICK

					RECORD DRAWING CERTIFICATION	
					☐ AS BUILT - CHANGES AS NOTED	
					☐ AS BUILT - NO CHANGES	
					CONTRACTOR	PROJECT COORDINATOR
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REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION		

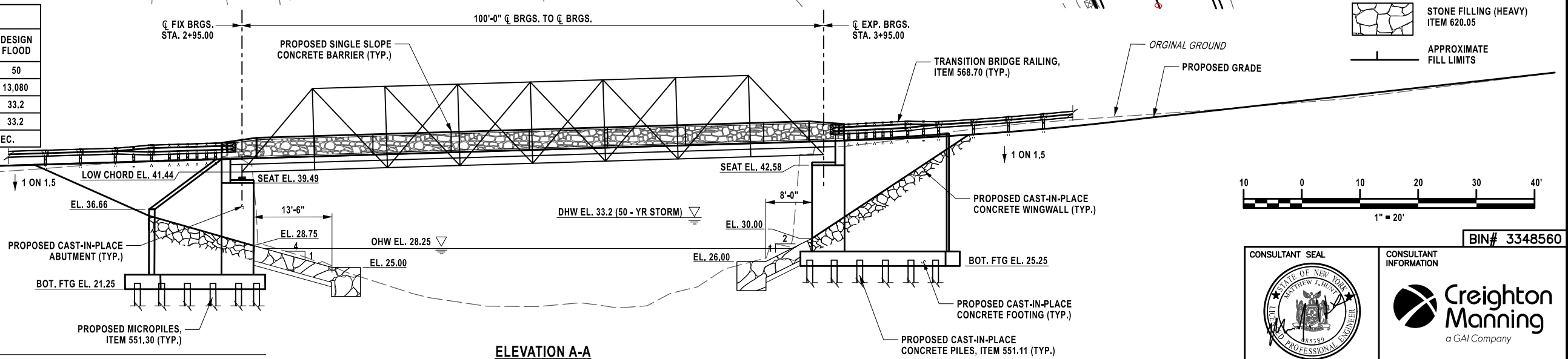


HYDRAULIC DATA			
DRAINAGE AREA	377 SQ. MILES	BASIC FLOOD	DESIGN FLOOD
RECURRENCE INTERVAL (YEARS)	100	100	50
PEAK DISCHARGE (FT. ³ /S)	15,600	15,600	13,080
HIGH WATER ELEVATION AT POINT OF MAX. BACKWATER	EXISTING 34.6	PROPOSED 34.6	33.2
AVG. VELOCITY THRU STRUCT. @ DESIGN FLOOD	14.6 FT./SEC.		

LOAD RATING (LRFR)		
INVENTORY	HL-93	RF=**
OPERATING	HL-93	RF=**

** TO BE PROVIDED BY TRUSS MANUFACTURER

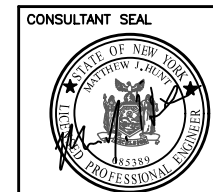
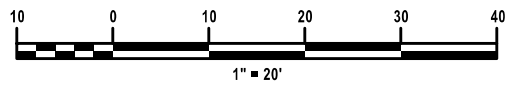
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ELEVATION A-A

LEGEND:

- STONE FILLING (LIGHT) ITEM 620.03
- STONE FILLING (HEAVY) ITEM 620.05
- APPROXIMATE FILL LIMITS



BIN# 3348560

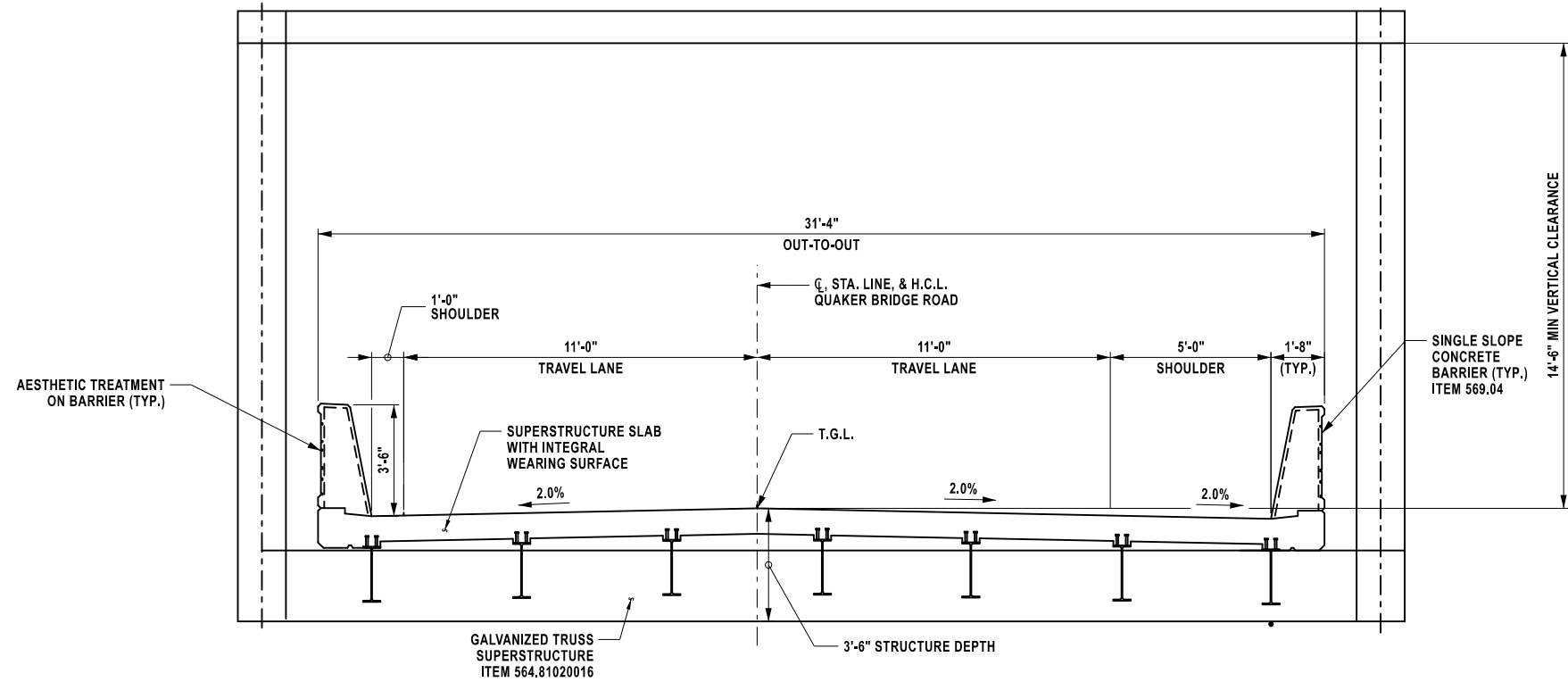
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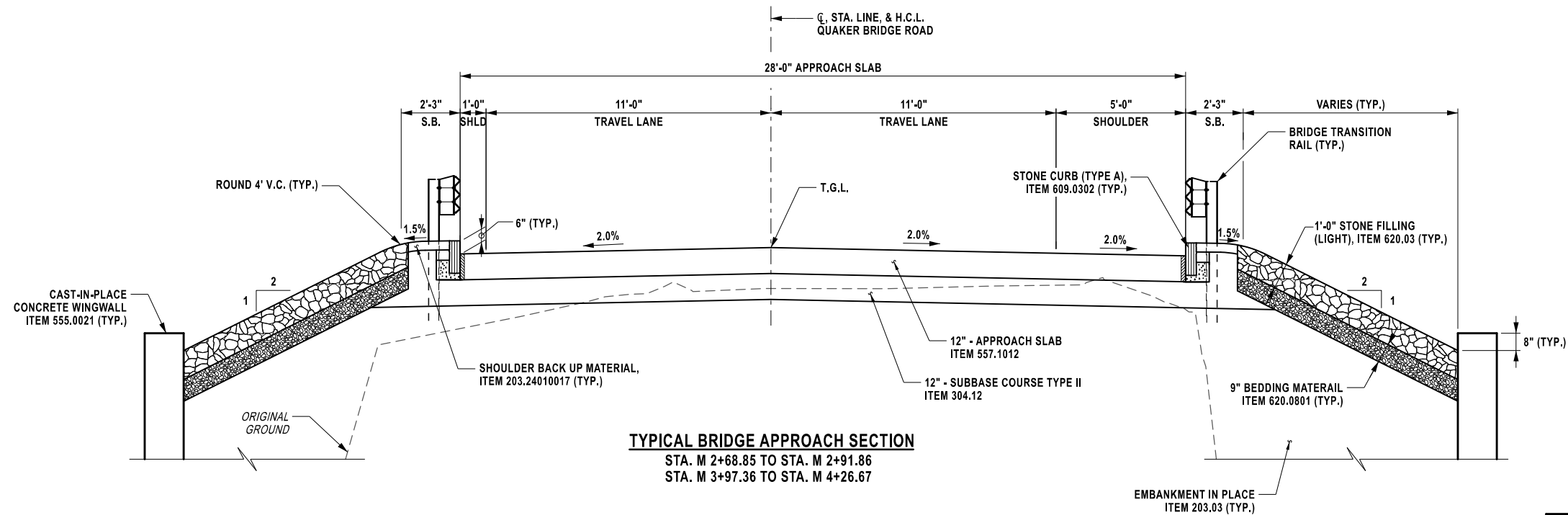
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TOWN OF CORTLANDT, NEW YORK			
GENERAL PLAN AND ELEVATION			
CONTRACT NUMBER	25-500	SHEET NUMBER	ST-01
SHEET NO.	20	OF	56
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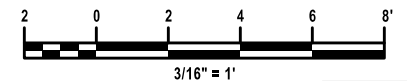
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TYPICAL BRIDGE SECTION
STA. M 2+91.86 TO STA. M 3+97.36



TYPICAL BRIDGE APPROACH SECTION
STA. M 2+68.85 TO STA. M 2+91.86
STA. M 3+97.36 TO STA. M 4+26.67



BIN# 3348560



CONSULTANT INFORMATION
Creighton Manning
a GAI Company

IN CHARGE OF **M. HUNT**
CHECKED BY **K. SCHUMAN-EKES**
MADE BY **K. DETRICK**

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TOWN OF CORTLANDT, NEW YORK			
TYPICAL BRIDGE SECTIONS			
CONTRACT NUMBER	25-500	SHEET NUMBER	ST-02
SHEET NO. 21		OF 56	
SCALE: AS SHOWN		DATE: 06/24/2025	
DPW FILE NO.		REV.	
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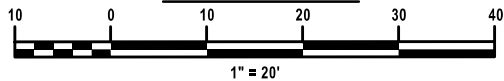
LAGGING WALL NOTES

1. WHEN NO LONGER NECESSARY FOR EXCAVATION SUPPORT, REMOVE LAGGING TO A MINIMUM OF 2'-0" BELOW FINAL GROUND SURFACE. CUT OFF AND REMOVE SOLDIER PILES TO A MINIMUM OF 2'-0" BELOW FINAL GROUND SURFACE.
2. PROVIDE SOLDIER PILE SECTIONS MEETING THE REQUIREMENTS OF ASTM A572 GRADE 50 STEEL.
3. TEMPORARY SLEEVES OR CASINGS ARE REQUIRED FOR ITEM HOLES IN EARTH FOR SOLDIER PILE AND LAGGING WALLS. NO EXTRA PAYMENT WILL BE MADE FOR THE CASING.
4. DUE TO THE PRESENCE OF BOULDERS, PROGRESSING THE HOLES IN EARTH FOR SOLDIER PILE AND LAGGING WALL, ITEM MAY REQUIRE SPECIAL EQUIPMENT AND/OR PROCEDURES. NO EXTRA PAYMENT WILL BE MADE FOR SPECIAL EQUIPMENT AND/OR PROCEDURES.
5. DO NOT USE WEATHERING STEEL (ASTM A588) FOR SOLDIER PILES.
6. THE INTENT OF THE SOE WALL #1 IS TO AVOID IMPACTING PRIVATE PROPERTY. CONTRACTOR MAY PURSUE A GRADING RELEASE WITH THE PROPERTY OWNER TO FACILITATE A VALUE ENGINEERING PROPOSAL TO BE CONSIDERED BY THE COUNTY.

NOTE:

1. FOR INFORMATION REGARDING EXISTING TREES TO BE REMOVED, REFER TO THE LANDSCAPING PLAN AND THE SPECIAL NOTES IN THE BID DOCUMENTS. EXISTING TREE REMOVAL SHALL BE AS SPECIFIED UNDER NYSOT SPECIFICATION SECTION 614.

EARTHWORK PLAN



IN CHARGE OF **M. HUNT**
CHECKED BY **K. SCHUMAN-EKES**
MADE BY **K. DETRICK**

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION			
☐ AS BUILT - CHANGES AS NOTED ☐ AS BUILT - NO CHANGES			
CONTRACTOR		PROJECT COORDINATOR	
NAME	NAME	NAME	NAME
SIGNATURE	SIGNATURE	SIGNATURE	SIGNATURE
TITLE	TITLE	TITLE	TITLE
DATE	DATE	DATE	DATE

WESTCHESTER COUNTY, NEW YORK
DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION
DIVISION OF ENGINEERING
REPLACEMENT OF QUAKER BRIDGE ROAD BRIDGE
OVER CROTON RIVER (BIN 3348560)
TOWN OF CORTLANDT, NEW YORK
EARTHWORK PLAN

CONTRACT NUMBER	SHEET NUMBER
25-500	ST-12
SHEET NO. 31 OF 56	
SCALE: AS SHOWN	
DATE: 06/24/2025	DPW FILE NO.
56-02-S-232-0	REV: 0

LEGEND:

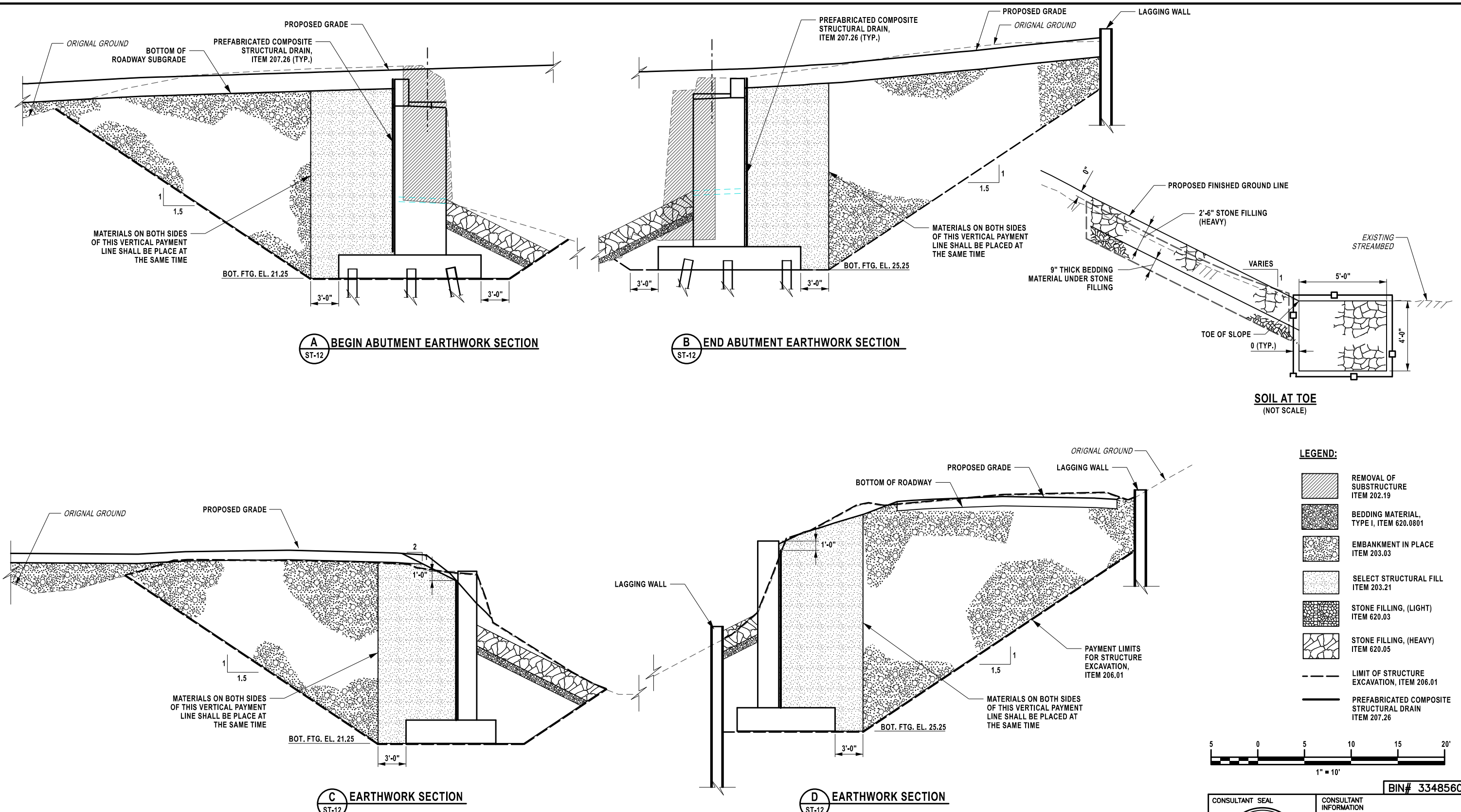
- REMOVAL OF SUBSTRUCTURES ITEM 202.19
- BEDDING MATERIAL, TYPE 1, ITEM 620.0801
- EMBANKMENT IN PLACE ITEM 203.03
- SELECT STRUCTURAL FILL ITEM 203.21
- STONE FILLING, (LIGHT) ITEM 620.03
- STONE FILLING, (HEAVY) ITEM 620.05
- LIMIT OF STRUCTURE EXCAVATION ITEM 206.01
- PREFABRICATED COMPOSITE STRUCTURAL DRAIN ITEM 207.26
- SILT FENCE ITEM 209.13
- TRENCH AND CULVERT EXCAVATION, ITEM 206.0201
- TURBIDITY CURTAIN, ITEM 209.1501
- COFFERDAM (TYPE 2) ITEMS 553.020001 & 553.020002



CONSULTANT INFORMATION

Creighton Manning
a GAI Company

BIN# 3348560



NOTE:
1. EXISTING SUBSTRUCTURE DIMENSIONS ARE ASSUMED.

IN CHARGE OF **M. HUNT**
CHECKED BY **K. SCHUMAN-EKES**
MADE BY **K. DETRICK**

REVISION NUMBER	DATE	MADE BY	APP'D BY	REVISION

RECORD DRAWING CERTIFICATION			
☐ AS BUILT - CHANGES AS NOTED			
☐ AS BUILT - NO CHANGES			
CONTRACTOR		PROJECT COORDINATOR	
NAME		NAME	
SIGNATURE		SIGNATURE	
TITLE		TITLE	
DATE		DATE	

WESTCHESTER COUNTY, NEW YORK DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION DIVISION OF ENGINEERING		CONTRACT NUMBER 25-500	SHEET NUMBER ST-13
REPLACEMENT OF QUAKER BRIDGE ROAD BRIDGE OVER CROTON RIVER (BIN 3348560) TOWN OF CORTLANDT, NEW YORK		SHEET NO. 32 OF 56	
EARTHWORK SECTIONS		DATE: 06/24/2025	SCALE: AS SHOWN
		DPW FILE NO. 56-02-S-233-0	REV. 0

FILE NAME = 5FILES
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ATTACHMENT C: SHPO DOCUMENTATION



Parks, Recreation, and Historic Preservation

ANDREW M. CUOMO
Governor

ROSE HARVEY
Commissioner

May 8, 2017

Mr. Matt Hunt
Creighton Manning
2 Winners Circle
Albany, NY 12205

Re: DOT
Quaker Bridge Road Bridge Study
Quaker Bridge Rd, Cortlandt, NY
17PR02639

Dear Mr. Hunt:

Thank you for requesting the comments of the Division for Historic Preservation of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the submitted materials in accordance with the New York State Historic Preservation Act of 1980 (section 14.09 of the New York Parks, Recreation and Historic Preservation Law). These comments are those of the Division for Historic Preservation and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the State Environmental Quality Review Act (NY Environmental Conservation Law Article 8) and its implementing regulations (6NYCRR Part 617).

We note that the Quaker Road Bridge is eligible for listing in the State and National Registers of Historic Places, and that the project area is located in an archaeologically sensitive area. Please see attached, the Resource Evaluation for the property. We understand that the proposed work entails a study of repair vs. replacement of the bridge. We would remind you that Section 14.09 of the State Historic Preservation Act is clear that demolition of a historic resource is deemed an Adverse Impact, and we advocate for repair of the bridge rather than replacement. In order to continue our review, please provide the following additional information:

1. Please provide a description and map of the proposed Area of Potential Effect
2. Please provide a description of any evidence of the extent of prior ground disturbance, as well as a description of the proposed ground disturbance. Based on this, OPRHP will make further recommendations with regard to archaeology.
3. Please provide the name and contact information of the DOT contact person for this project

We would appreciate if the requested information could be provided via our Cultural Resource Information System (CRIS) at www.nysparks.com/shpo/online-tools/. Once on the CRIS site, you can log in as a guest and choose "submit" at the very top menu. Next choose "submit new information for an existing project". You will need this project number and your e-mail address. If you have any questions, I can be reached at (518) 268-2182.

Sincerely,

Olivia Brazee
Historic Site Restoration Coordinator
olivia.brazee@parks.ny.gov

via e-mail only

Division for Historic Preservation

P.O. Box 189, Waterford, New York 12188-0189 • (518) 237-8643 • www.nysparks.com

May 25, 2017

Ms. Olivia Brazee
New York State Parks, Recreation & Historic Preservation
Peebles Island State Park, P.O. Box 189
Waterford, NY 12188-0189

RE: BIN 3348560 – Quaker Bridge Road Bridge over Croton River; Town of Cortlandt, Westchester County: 17PR02639

Dear Ms. Brazee,

This letter is in response to your request for more information in the initial project review letter dated May 8, 2017.

The 2010 'as-built' rehabilitation plans, previously uploaded to CRIS, were referenced to locate previous deep excavation limits in lieu of unavailable original construction plans. The previous deep excavation limits have been established by projecting a 1 vertical to 2 horizontal line from the bottom of existing abutments, wing walls, and retaining walls. Approach roadway areas were assumed to be previously disturbed along with the rip rap drainage and asphalt driveways found along the bridge approaches.

The intent of this study is to evaluate rehabilitation and replacement options. For the bridge rehabilitation alternative, there is potential for disturbance outside previous limits for the construction of a temporary bridge and/or temporary staging area upstream. Bridge replacement alternatives currently include a new bridge on existing, parallel adjacent, or diagonal alignments. For the adjacent and diagonal alignment alternatives, the new bridge will be constructed upstream of the existing. Approximate limits of proposed disturbance for the northwest bank approach will extend 180 ft upstream of the existing bridge and comprise a 40 ft wide area from the stream edge. Additionally, approximate limits of proposed disturbance for the southeast bank will extend 110 ft upstream of the existing bridge and comprise a 45 ft wide area from the stream edge. Proposed disturbance is delineated on the attached figure (area contained within the dashed red line). The roadway reconstruction associated with the bridge replacement will tie into the existing approaches within the limits of proposed disturbance shown in the figure. If deemed necessary, temporary shoring and/or retaining walls will be utilized to avoid impacts to existing structures during excavation and construction of new substructures.

As we discussed during a phone call on May 8, 2017, the NYSDOT is not the lead agency for this project. The study and eventual rehabilitation or replacement is being progressed by Westchester County, and construction is anticipated to be completed with 100% county funds. The County's contact for this project is R. Scott Donnelly (rsd1@westchestergov.com). There will be State and Federal involvement in the form of environmental permits from NYSDEC and the US Army Corps of Engineers, respectively.

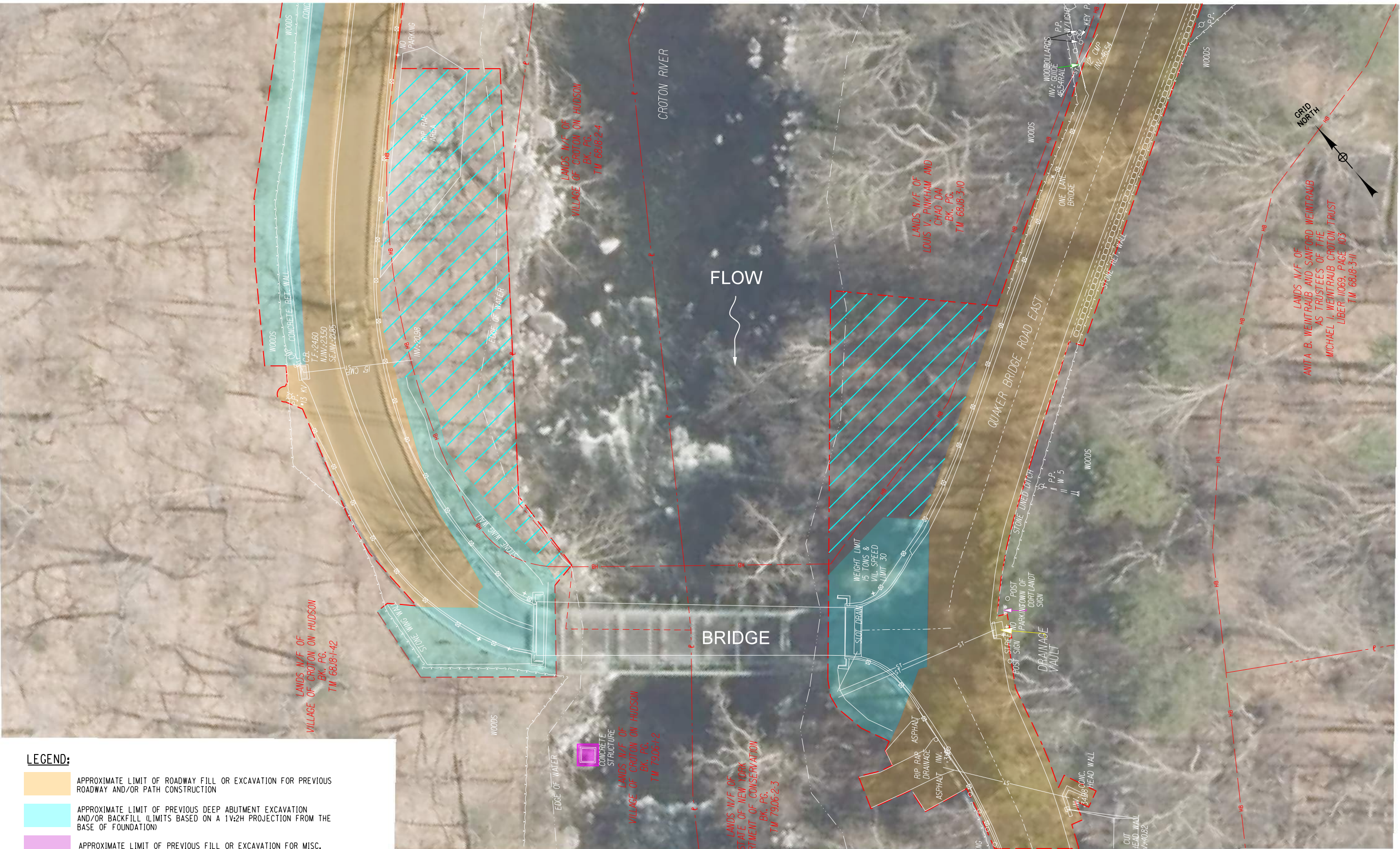
Sincerely,



Matt Hunt, PE
Lead Project Engineer

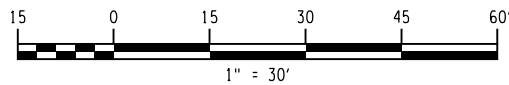
CC: Bud Nicoletti & R. Scott Donnelly, Westchester DPW

FILE NAME = N:\Projects\2016\116-043 Quaker Bridge\cadd\gn\graphics\116-043.cpb.shpo.plt.dgn
DATE/TIME = 5/25/2017
USER = ishort



LEGEND:

- APPROXIMATE LIMIT OF ROADWAY FILL OR EXCAVATION FOR PREVIOUS ROADWAY AND/OR PATH CONSTRUCTION
- APPROXIMATE LIMIT OF PREVIOUS DEEP ABUTMENT EXCAVATION AND/OR BACKFILL (LIMITS BASED ON A 1V:2H PROJECTION FROM THE BASE OF FOUNDATION)
- APPROXIMATE LIMIT OF PREVIOUS FILL OR EXCAVATION FOR MISC. STRUCTURE CONSTRUCTION
- AREA OF POTENTIAL EFFECT FOR BRIDGE AND APPROACH ROADWAY CONSTRUCTION ON PREVIOUSLY UNDISTURBED SOIL
- AREA OF POTENTIAL EFFECT FOR BRIDGE AND APPROACH ROADWAY CONSTRUCTION



AREA OF POTENTIAL EFFECT MAP

**QUAKER BRIDGE ROAD BRIDGE OVER
CROTON RIVER BRIDGE STUDY
SHPO # 17PR02639**





Parks, Recreation, and Historic Preservation

ANDREW M. CUOMO
Governor

ROSE HARVEY
Commissioner

June 15, 2017

Mr. Matt Hunt, PE
Creighton Manning
2 Winners Circle
Albany, NY 12205

Re: USACE
Quaker Bridge Road Bridge Study
Quaker Bridge Rd, Cortlandt, NY
17PR02639

Dear Mr. Hunt:

Thank you for requesting the comments of the New York State Historic Preservation Office (SHPO). We have reviewed the provided documentation in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources. They do not include other environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the National Environmental Policy Act and/or the State Environmental Quality Review Act (NY Environmental Conservation Law Article 8).

We have reviewed your letter and the accompanying map of the Area of Potential Effect (APE) that was provided to our office on May 25th, 2017. Based upon our office's review, we have no concerns with regards to archaeological resources. However, from the provided map it appears that the National Register eligible Quaker Bridge Road bridge is not included in the APE. Under section 106 regulations, the APE must include all identified historic and cultural resources that may be directly or indirectly affected by the proposed undertaking. For this undertaking, the APE must include the Quaker Bridge Road bridge and the project must evaluate the potential direct physical impacts resulting from replacement and/or the potential indirect visual and setting impacts resulting from any new construction adjacent to the bridge.

We look forward to continued consultation as the project progresses and the specific nature of the undertaking is determined. We would appreciate if the requested information could be provided via our Cultural Resource Information System at www.nysparks.com/shpo/online-tools/. Once on the CRIS site, you can log in as a guest and choose "submit" at the very top menu. Next choose "submit new information for an existing project". You will need this project number and your e-mail address. If you have any questions, I can be reached at (518) 268-2182.

Sincerely,

Olivia Brazee
Historic Site Restoration Coordinator
olivia.brazee@parks.ny.gov

via e-mail only

Division for Historic Preservation

P.O. Box 189, Waterford, New York 12188-0189 • (518) 237-8643 • www.nysparks.com

DRAFT MEMORANDUM



ENGINEERS
PLANNERS
SURVEYORS

Date: November 17, 2017

To: Phil Abenavoli, P.E.
Westchester County Dept. of Public Works and Transportation
148 Martine Avenue
White Plains, NY 10601

From: Charles Tutunjian, P.E.
Creighton Manning Engineering, LLP

Project: Quaker Bridge Road over Croton River (BIN 3348560)
Bridge Replacement Study
Town of Cortlandt, Westchester County, NY

Re: Draft Scope Summary Memorandum

1. Introduction

The purpose of this memorandum is to summarize the feasible replacement options, identify the scope of work, document the existing conditions, establish project objectives, and document environmental concerns for the above referenced project.

The Quaker Bridge Road Bridge over the Croton River is located approximately 1.25 miles southwest of the Croton Dam at the border of the Town of Cortlandt and the Village of Croton on Hudson. The project area is primarily residential with significant elevation changes within a wooded setting. Quaker Bridge Road is a winding two-lane road that connects Rt. 129 to the west and Old Albany Post Road to the east of the bridge. The asphalt roadway width is approximately 26 ft north of the bridge and 20 ft south of the bridge.

Originally built in 1894, the existing bridge is a 98 ft. single span steel through-truss structure on stone abutments founded on soil or bedrock. The existing structure is oriented perpendicular to the river and has no skew. The clear bridge roadway width is 15'-6" and therefore functions as a single-lane bridge as it is less than 16'-0". "One lane bridge" signs are present on all approaches to the bridge.



2. Conditions

A bridge rehabilitation project was conducted in 2010 that provided various steel member retrofits in addition to providing a new paint system. Despite this recent rehabilitation, the Quaker Bridge Road Bridge is currently load posted for 15 tons. The NYSDOT has determined that the bridge should be posted for 12 tons, and there is an outstanding Yellow Flag for this inconsistent posting. The bridge has a long history of Yellow and Red Structural Flags with some of the most recent Yellow Flags being for the inconsistent load posting noted above, a cracked cover plate weld on a fracture critical floor beam 1, and a missing nut at the pin connection on the fracture critical lower chord.



Cracked cover plate weld



*Missing nut on bottom chord.
Also shows retrofit
attachment to floorbeams*

In addition to the Yellow Flags noted above, the bridge superstructure exhibits widespread deterioration. Various truss members have deterioration approaching 25% of the cross-sectional member area. In most locations on the bridge, previous corrosion was cleaned and painted over during the 2010 rehabilitation project. Additionally, both the left and right end chords are slightly twisted and bowed upward, indicating a past incident of being overstressed.

The 2010 rehabilitation also retrofit the vertical members, which consisted of thin forged-eye tension rods, with steel cables looped around the top and bottom chords.

This was necessary to keep the bridge open to traffic, as numerous tension members were cracked around the forge lines at the connection to the bottom chord. The failure of these types of members would result in complete failure of the bridge.

The deck consists of open steel grating with concrete filled sections above the truss floor beams. The steel grating is in fair condition, but concrete infill present at the floorbeams, is severely deteriorated and crumbled. The presence of the concrete has resulted in trapped water in those areas, leading to corrosion of the floor beams. While not yet deteriorated, the steel stringers spanning between floorbeams exhibit significant deflection under live loading.

The bridge is posted for a vertical clearance of 11'-5", which is significantly less than the standard of 14'-0" and restricts some vehicles from using the bridge. There is evidence of past impacts to the upper bracing members of the end portal.

Both stone abutments are overall in good condition. No undermining or scour is present, but without original as-built plans, the NYSDOT has flagged this structure as a potential scour critical bridge due to its unknown foundation type. The approaches of the bridge are in poor condition. The east approach has up to 1.25" of differential settlement at the joint between the bridge deck and the pavement, and a slot drain located within the roadway at the west end of the bridge is clogged and not performing as originally intended. Approach guide rail consists of w-rail and is in fair condition with minor deformations due field bending of the rail and impact damage.



*Truss diagonal bowed due to
overstress (right of photo)*



*Existing truss members
retrofit with steel cables*

3. Project Objective

- Provide a structurally and geometrically sufficient structure meeting current NYSDOT standards with a 75+ year design life.

4. Design Criteria

The design criteria for this project are based on the NYSDOT Highway Design Manual, Chapter 2 and the NYSDOT Bridge Design Manual, 2014. The project is being designed for an anticipated annual average daily traffic (AADT) of 800 vpd for the design year 2048, and an urban local road classification with a design speed of 30 mph.

4.1 Critical Design Elements

Table 4.1-A - Critical Design Elements for Quaker Bridge Road over Croton River							
Route No. & Name:		Quaker Bridge Road		Project Type:		Bridge Replacement	
Roadway Classification:		Urban Local		ETC+30 AADT (2048):		800	
Element			Standard			Existing Condition	Proposed Condition
1	Design Speed		30 mph – HDM 2.7.4.3			30 mph	30 mph
2	Lane Width		9 ft Min. - BM Table R and N, Appendix 2A			7.8 ft	11 ft ⁽¹⁾
	Approach Lane Width					13 ft NW 9 ft SE	11 ft
3	Shoulder Width		3 ft Min. - BM Table R and N, Appendix 2A			0 ft	1 ft (LT shldr.)* 5 ft (RT shldr.)
	Approach Shoulder Width					0 ft	1 ft (LT shldr.)* 5 ft (RT shldr.)
4	Horizontal Curvature		188 ft. - HDM Sect 2.7.4.3, Exhibit 2-8			58 ft.*	38 ft.*
5	Superelevation Rate		4% Max. – HDM Sect 2.7.4.3, Exhibit 2-8			None*	None*
6	Stopping Site Distance		175 ft. – HDM Sect 2.7.4.3, Exhibit 2-8			78 ft*	63 ft*
7	Grade		15% Max – HDM Sect 2.7.4.3, Exhibit 2-8			10%	11.2%
8	Cross Slope		1.5% Min. - 3% Max. – HDM Sect 2.7.4.3, Exhibit 2-8			0.0%	2.0%
9	Vertical Clearance		14.5 ft. - BM Sect 2.4			11.5 ft.*	Unlimited
10	Structural Capacity		AASHTO HL-93 Live Load - BM Sect 2.6.1			12 Tons*	HL-93
11	ADA Compliance		HDM Chapter 18			N/A	5 ft shoulder ⁽²⁾
12	Freeboard		Q ₅₀ + 2 ft (BM 2.4.3)			9.2 ft	7.5 ft
* Non-Standard Feature							
⁽¹⁾ 11'-0" lane widths are proposed at the request of Westchester County							
⁽²⁾ 5 ft shoulder accommodates two-way pedestrian traffic							

5. Alternatives Considered

5.1 Recommended Alternative - Replacement on Existing Alignment with Road Closure - (Alt. 2A)

This alternative will replace the existing bridge with a new 100 ft. single span on the existing alignment. The bridge roadway will consist of two 11 ft wide travel lanes, a 5 ft wide shoulder on the downstream side, and a 1 ft wide shoulder on the upstream side of the bridge. The 5 ft wide shoulder is proposed on the downstream side of the bridge to accommodate two-way pedestrian traffic in the vicinity of the Croton Gorge Trail. The rail-to-rail clear bridge roadway width of 28 ft (12.5 ft increase over existing) and an out to out bridge width of 31'-4".

The proposed structure type will be evaluated and selected in a subsequent phase of this project, but superstructure options include either steel or prestressed concrete beams with a composite concrete deck or a precast concrete twin-leaf arch. Factors to be considered in selecting the superstructure type include long-term maintenance, initial cost, and aesthetic treatment options. Superstructure types will also be contingent upon the feasibility of delivering superstructure components to the site. After evaluating the shipping route, it is anticipated that delivery of full length beams or precast arch units associated with this alternative is feasible from the north approach.

The substructures will consist of cast-in-place conventional cantilever concrete abutments supported by a spread footing founded on bedrock. The precast concrete arch structure only requires a cast-in-place concrete footing founded on bedrock. The proposed west abutment will be located in the same location as the existing abutment while the east abutment will be set approximately 2 ft back from the centerline of bearings of the existing abutment. The proposed bridge will be perpendicular to the stream with non-skewed substructures.

Retaining walls in addition to abutment wingwalls will be required to retain the northeast and southeast approach roadways. The retaining wall along the northeast approach roadway will replace an existing laid up stone wall, while the wall along the southeast approach will accommodate a slight change in roadway geometry at the top of a very steep embankment slope (1.3H to 1.0V). The retaining wall type will be selected in a subsequent phase of this project, but wall options include precast fill type walls, Geosynthetically reinforced soil walls, or cast-in-place concrete cantilever walls.

The proposed horizontal alignment of the new bridge and its approaches will closely match the existing roadway on the north side and be modified on the south side. The north approach roadway alignment will consist a compound curve with radii of 180 ft and 38 ft connecting into a tangent across the bridge. The tangent then connects to a curve on the south approach with a radii of 51 ft followed by another tangent section continuing along Quaker Bridge Road. Quaker Bridge Road East consists of a single tangent intersecting into the Quaker Bridge Road alignment. The modifications to the alignment on the south approach creates a through-movement pattern for Quaker Bridge Road. The proposed vertical alignment will consist of a 3.0% grade across the bridge that will tie into the south approach at the reconstruction limit and will tie into the reconstructed Quaker Bridge Road/Quaker Bridge Road East roadway. The proposed vertical profile will raise the south end of the bridge approximately 1 ft. The approaches will be reconstructed for approximately 165 ft and 225 ft to the north and south of the bridge, respectively. See the Alternative Comparison Table in the appendices.

This alternative will have Right-of-Way (ROW) impacts due to the increased bridge roadway width, embankment construction, and close proximity of existing highway boundary to the existing structure. See the ROW section of this report for additional details.

Overhead utilities are located within the project area, it is anticipated that these lines will need to be temporarily relocated to facilitate erection of the new beams and demolition of the existing bridge.

The bridge will be closed during construction and traffic detoured via an offsite detour route. The full length detour from one side of the bridge to the other side will be 5.7 miles long and add approximately 11 minutes to travel times. The detour route will utilize Rt. 129, Rt. 9, and Old Albany Post Road. Construction is anticipated to last 6 months.

This Alternative will meet most current NYSDOT geometric and structural standards while providing a 75+ year design life. This alternative is a feasible replacement solution while balancing total costs and impacts to adjacent properties. The total cost of Alternative 2A which includes design, ROW acquisition, construction, and construction inspection is approximately \$7,100,000.

5.2 Dismissed Alternatives

Several additional alternatives were evaluated with respect to bridge location, span length, feasible superstructure types, approach reconstruction work, impact to Right-of-Way, and constructability. A summary of Alternatives in tabular format and schematic level plan details are contained in the Alternatives Comparison Table included in the appendices. They are as follows:

Alternatives 1A & 1B

Bridge Rehabilitation was studied due to the historic eligibility of the bridge and to serve as a cost comparison to the other alternatives. Both of these alternatives will keep the existing truss and substructures, thus retaining the existing nonstandard geometric features and load carrying capacity. The majority of the work involved with these alternatives would consist of steel repairs and strengthening, deck replacement, painting and the reconstruction of the approach pavement. The traffic maintenance plan for Alternative 1A would consist of a road closure with an offsite detour, while Alternative 1B would maintain traffic on an onsite temporary detour structure. Closing the road during construction would be the most efficient and least expensive traffic maintenance plan while providing a temporary bridge to maintain traffic on site would add cost and complexity to the project. The total cost of Alternative 1A which includes design, ROW acquisition, construction, and construction inspection is approximately \$5,700,000. The total cost of Alternative 1B which includes design, ROW acquisition, construction, and construction inspection is approximately \$7,000,000.

Reason for Dismissal

These alternatives although lower in the initial construction cost, will retain non-standard bridge roadway width, vertical clearance, and substandard load carrying capacity. In addition, the design service life for this alternative is expected to be less than 20 years and require greater continued complex and costly maintenance efforts on fracture-critical members when compared to a replacement structure. Since the project objectives will not be achieved, alternatives 1A and 1B have been dismissed.

Alternative 2B

Alternative 2B is the same as the recommended Alternative 2A, except traffic is detoured on site with a temporary bridge. See the Alternative 2A write up for a description of new the alignment and structure. Alternative 2B will construct temporary abutments upstream of the new bridge location and install a temporary bridge to maintain traffic through the site. Temporary GRSS walls and additional fill will be required to build up the approach roadway over the steep side slopes. The total cost of Alternative 2B which includes design, ROW acquisition, construction, and construction inspection is approximately \$8,400,000.

Reason for Dismissal

This alternative has been dismissed due to the more significant ROW acquisitions and higher construction costs relative to Alternative 2A.

Alternative 3

The Replacement on Adjacent Alignment alternative will construct a new parallel structure upstream from the existing bridge. A new 115 ft. single span structure will provide the same clear bridge width as described in Alternative 2A and will be constructed while maintaining traffic on the existing bridge. The approach configuration will not change significantly from the existing. Right-of-way impacts with this alternative will be significantly greater than Alternative 2A, as it will be constructed entirely outside of the existing highway boundary. The feasible superstructure type is limited to spliced steel beams due to geometric constraints of the delivery route. The total cost of Alternative 3 which includes design, ROW acquisition, construction, and construction inspection is approximately \$7,500,000.

Reason for Dismissal

This alternative has more significant ROW acquisitions and higher construction costs relative to Alternative 2A. The possible feasible superstructure types are also limited when compared to the preferred alternative. For these reasons alternate 3 has been dismissed.

Alternatives 4 & 5

Both of the Replacement on a Diagonal Alignment alternatives will construct a new 140 ft. structure on a 20° skew across the river from the north quadrant to the south quadrant. The new structure will provide the same clear bridge width as described in Alternative 2A and will improve the horizontal alignment by providing increased curve radii at each approach. Right-of-way impacts will be significantly greater than Alternative 2A, as a majority of the new structure will be constructed outside of the existing highway boundary. Alternative 4 would include a roadway alignment shifted to the north of the existing bridge to allow traffic to be maintained on the existing bridge during construction of the new bridge. Shifting the entire bridge upstream of the existing structure results in more significant ROW acquisitions in the form of Fee takings, and would necessitate temporary staging walls to maintain traffic on the approaches while raising the profile for the new bridge. The roadway alignment for Alternative 5 would overlap with the existing bridge alignment, resulting in the bridge being closed and traffic being detoured around the site similar to Alternative 2A. Closing the road during construction will allow the new structure to be partially built within the existing bridge footprint but ROW impacts are still significantly greater than Alternative 2A. The total cost of Alternative 4 which includes design, ROW acquisition, construction, and construction inspection is approximately \$7,900,000. The total cost of Alternative 5 which includes design, ROW acquisition, construction, and construction inspection is approximately \$7,600,000.

Reason for Dismissal

These alternatives have more significant ROW acquisitions and higher construction costs relative to Alternative 2A. The possible feasible superstructure types are also very limited due to the larger span length. For these reasons alternate 4 & 5 has been dismissed.

See the Alternatives Comparison Table & Plans in the appendix of the memo for further details of each alternative evaluated within this bridge study.

6. Recommended Alternative

Alternative 2A is the preferred alternative, as it meets all of the project objectives while having the least ROW impacts and lowest anticipated construction cost of all concepts evaluated except the rehabilitation concept.

7. Geotechnical

At least one (1) soil boring and rock core will be progressed at each proposed abutment location. Additional borings and rock cores should be taken if soldier pile and lagging walls will be utilized during

construction or incorporated into the final substructures. The borings will be progressed using a standard rotary drill rig equipped with a hollow stem auger until refusal on bedrock and then progress a rock core. Soil borings will be scheduled as soon as the final location of the proposed abutments have been finalized.

The subsurface soil profile/boring logs will be prepared by Atlantic Testing Laboratories.

8. Hydraulics

The hydraulic model was developed using the as-built record plans, inspection reports for the existing bridge (BIN 3348560), NYS stream stats, USGS gauge stations, and FEMA maps. The Croton River is a relatively straight flowing river with several manmade features built within the river channel including the Black Rock Dam located approximately 650 ft upstream of the Quaker Bridge Road Bridge. The most notable manmade feature affecting stream flow data is the Croton Dam. The hydraulic model determines the water surface elevations for the 50- and 100-yr storm events as required per NYSDOT Bridge Manual 2.4.3. Flow data for the 50- and 100-yr storm events came from NYS Stream Stats and are 10,800 cf and 12,800 cf respectively. As part of testing and calibrating the model to ensure accuracy, flow data for the Hurricane Irene storm event measured by an upstream USGS gauging station was entered in the model. The Irene storm event produced a flow of 22,600 cf, and the hydraulic model was adjusted to reflect water surface elevations similar to documented observations.

The hydraulic analysis for the existing Quaker Bridge Road Bridge over the Croton River indicates water surface elevations at the structure inlet of 31.7 ft and 33.0 ft for the 50- and 100-yr storms respectively. With the low chord at elevation 40.9 ft for the existing structure, there is 9.2 ft and 7.9 ft of freeboard provided for each respective storm event.

Summary of Existing Hydraulics		
Drainage Area, 377 square miles	Design Flood	Base Flood
Recurrence Interval (years)	50	100
Peak Discharge (ft ³ /s)	10,800	12,800
WSE at Structure Inlet (ft)	31.7	33.0
Freeboard Provided (ft)	9.2	7.9
Average Velocity thru Structure (ft/s)	13.8	14.6

Hydraulic analyses were performed for both a proposed structure utilizing conventional concrete abutments and beams and a twin-leaf arch structure. The low chord for the proposed conventional structure is set at 39.2 ft and the arch crown is at 41.1 ft. Based on the analyses, the water surface elevations for the conventional structure did not change from the existing. For the arch structure, the water surface elevations were 31.7 ft and 33.1 ft respectively for the 50- and 100-yr storm event. Water surface elevation for the 100 yr storm increased slightly when compared to existing for the arch superstructure option. Freeboard provided by the conventional structure is at 7.5 ft and 6.2 ft respectively for the 50- and 100-yr storm event. For the arch, freeboard provided is at 9.4 ft and 8.0 ft respectively for the 50- and 100-yr storm event. See tables below for a summary of the hydraulic information.

Summary of Proposed Hydraulics – Steel Superstructure		
Drainage Area, 377 square miles	Design Flood	Base Flood
Recurrence Interval (years)	50	100
Peak Discharge (ft ³ /s)	10,800	12,800
WSE at Structure Inlet (ft)	31.7	33.0
Freeboard Provided (ft)	7.5	6.2
Average Velocity thru Structure (ft/s)	13.8	14.6

Summary of Proposed Hydraulics – Twin-leaf Arch			
Drainage Area, 377 square miles		Design Flood	Base Flood
Recurrence Interval (years)		50	100
Peak Discharge (ft ³ /s)		10,800	12,800
WSE at Structure Inlet (ft)		31.7	33.1
Freeboard Provided (ft)	@ arch crown	9.4	8.0
	@ face of abutments	-1.5	-2.9
Average Velocity thru Structure (ft/s)		14.0	15.1

9. Utilities

Overhead utilities are located within the project area along the upstream side of the existing bridge. Utility lines are approximately 35 ft to 45 ft away from the upstream fascia. The utilities consist of electric and telephone/cable lines owned by Con Edison and Verizon respectively. It is anticipated that these lines will need to be temporarily relocated to facilitate erection of the new beams.

10. Right of Way

Right-of-way acquisitions are required in Alternative 2A. There are four properties owned by the Village of Croton on Hudson surrounding the highway boundary on the north end of the bridge. In the northeast quadrant, there is a private property owned by Louis Pinkham and Chao Dai, and in the southeast quadrant, there is a parcel of land owned by NYSDEC. It is anticipated that FEE takings will be required from all four of the Village of Croton on Hudson parcels, and one Temporary Easement Taking will be required from the private parcel.

Table 10.1-A - Summary of ROW Acquisitions			
Tax Map #	Property Owner	Area (SF)	Type of Acquisition
68.18-1-42 & 79.06-1-2	Village of Croton On Hudson	2500	FEE Taking
68.18-2-4	Village of Croton On Hudson	400	FEE Taking
68.18-2-1	Village of Croton On Hudson	2000	FEE Taking
68.18-3-10	Louis V. Pinkham & Chao Dai	3090	Temporary Easement

11. Environmental

11.1 SEQR

Westchester County is the SEQR lead agency. In accordance with 6 NYCRR, Part 617, "Procedures for Implementation of State Environmental Quality Review Act", the project is a SEQR Type II Action, therefore no further SEQR processing is required.

11.2 SHPO

A consultation with the New York State Historic Preservation Office has been initiated for the Quaker Bridge Road Bridge Study. The initial screening on the NYSHPO website did not identify any other cultural resources located within or immediately adjacent to the project site other than the bridge itself, which is eligible for National Register listing. Hartgen Archeological Associates, Inc. has completed a Historic American Engineering Record (HAER) Level II Documentation package. No determination has been made at this time.

11.3 Environmental Screenings

An environmental screening of the project area was performed and it has been determined that the proposed construction will not have an impact nor adverse affect on any of the following:

- Floodplains (Flood elevations remain the same);
- Prime or unique agricultural land;
- Agricultural districts, when more than one acre may be affected;
- Water resources, including lakes, reservoirs, rivers and streams;
- Water supply sources;

- Designated wild, scenic and recreational rivers;
- Unique ecological, natural wooded or scenic areas;
- Rare, threatened or endangered species;
- Any area designated as a critical environmental area pursuant to 6 NYCRR, Part 617

11.3.1 Wetlands

An initial review on the NYSDEC Environmental Resource Mapper, accessed on August 15, 2017, indicates there are no NYSDEC regulated freshwater wetlands within the project area. It is anticipated that no impacts to wetlands will occur as a result of this project.

11.3.2 Surface Waterbodies and Watercourses

The Croton River is classified by the NYSDEC as a class B stream through the project site. The best usage for Class “B” water is for swimming and other contact recreational uses, but not for drinking water.

This construction project will require substructure work that will occur in the stream. Stream work, as well as any work that may result in suspension of sediment, can be accomplished any time of the year with no seasonal restriction dates.

11.3.3 Endangered and Threatened Species

The USFWS IPAC system, accessed August 16, 2017, indicates one endangered and one threatened species within the project area. The endangered species include the Indiana Bat and the threatened species is the Northern Long-eared Bat. Since this project will likely require a federal permit from the US Army Corp of Engineers, the regulations enforced by the USFWS to protect endangered and threatened species are mandatory to follow.

The Indiana Bat is known to occur at elevations below 900’ NGVD within 10 to 40 miles away from the nearest hibernaculum. Their roosting habitat is in trees greater than 4” in diameter. The project site has an approximate elevation of 45’ NGVD and is located approximately 20 miles from the nearest hibernaculum located at Williams Lake Roost Site. The Northern Long-Eared Bat whose range encompasses all of New York State, is proposed for inclusion on the USFWS Endangered Species List. To ensure that this project will not adversely impact the Indiana or Northern Long-eared bat populations, tree removals shall occur between October 1 and March 31.

11.4 Anticipated Environmental Permits

The proposed project will require a New York Department of Environmental Conservation (NYSDEC) permits for stream disturbance and 401 water quality certification. In addition, a Temporary Revocable Permit from NYSDEC will be required for temporary access to NYSDEC land during construction.

It is anticipated that project will proceed under the U.S. Army Corps of Engineers (ACOE) Nationwide Permit #3.

12. Project Schedule

Project Schedule	
Milestone	Date
Stakeholder Meeting	February 2018
Address Stakeholder Comments	April 2018
Final Report	May 2018

DRAFT

ACCEPTANCE OF FINAL REPORT: _____ DATE: _____

Responsible Local Official

Appendices

Preferred Alternative Preliminary Plans

Preferred Alternative Estimate

Alternative Comparison Table

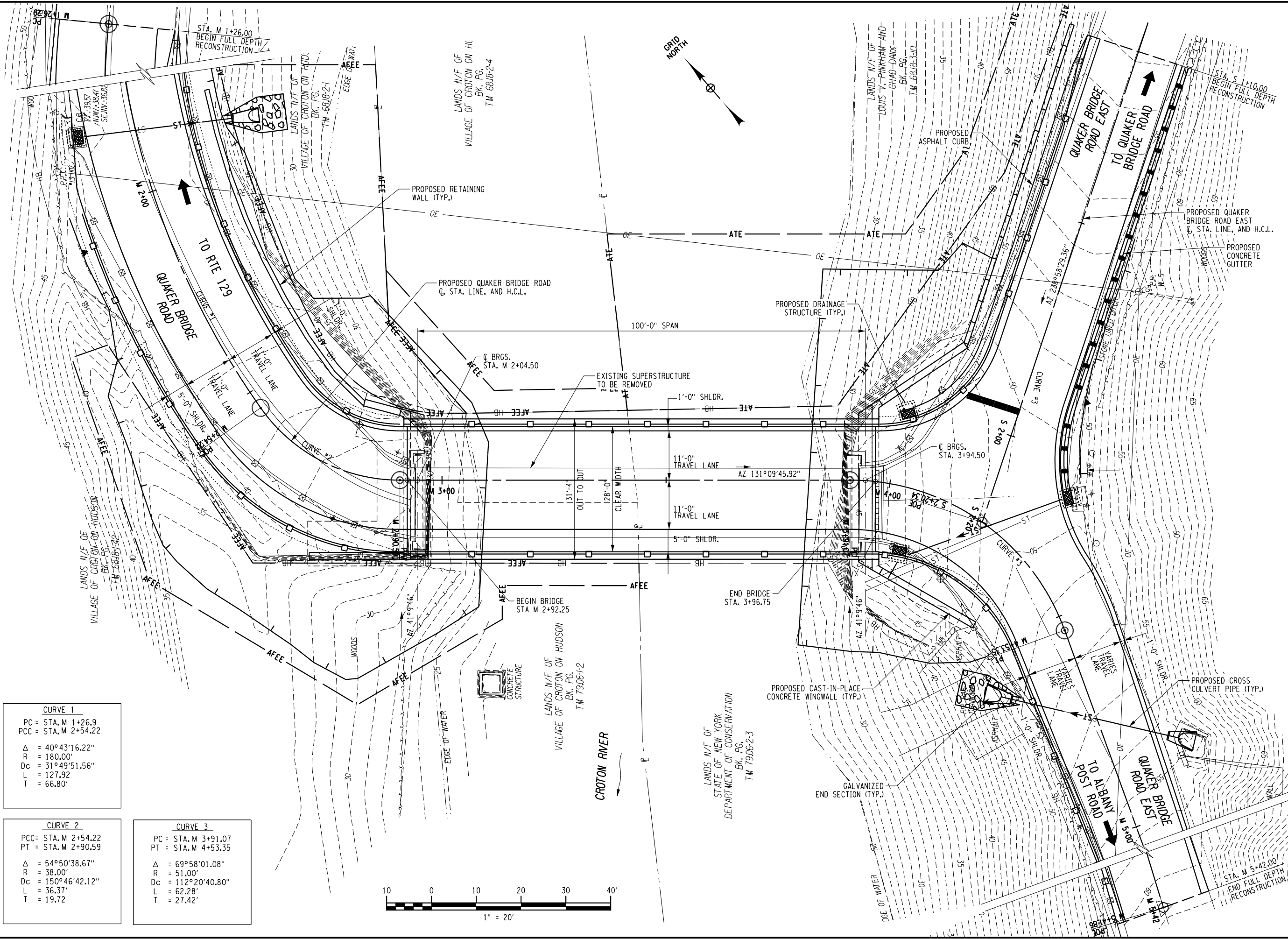
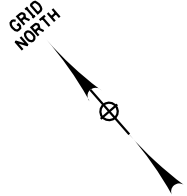
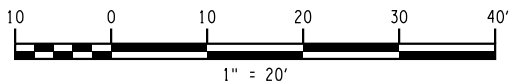
Dismissed Alternative Plan Views

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L = 127.92'	
T = 66.80'	

CURVE 2	
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PT = STA. M 2+90.59	
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R = 38.00'	
Dc = 150°46'42.12"	
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CURVE 3	
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PT = STA. M 4+53.35	
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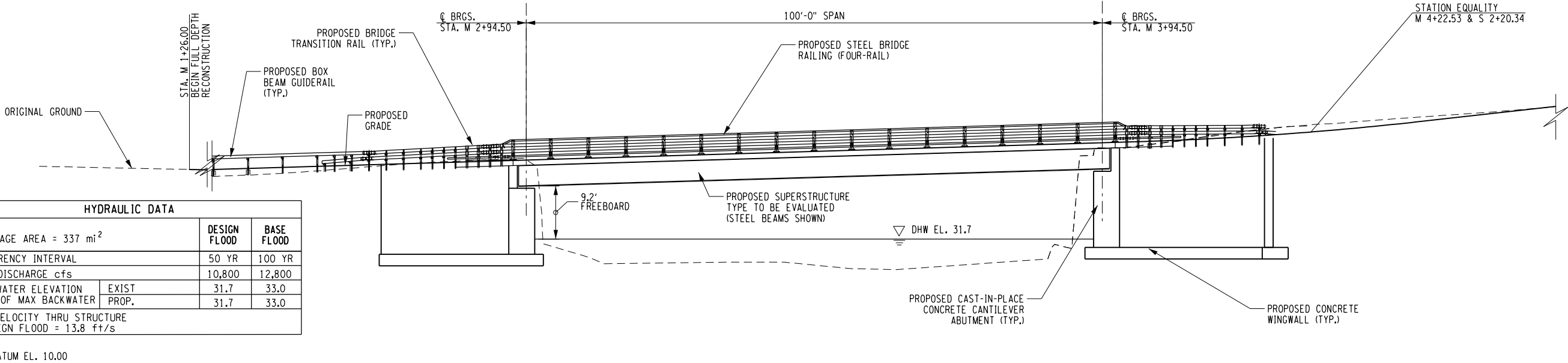
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WESTCHESTER COUNTY DEPARTMENT OF PUBLIC WORKS 148 MARTINE AVENUE WHITE PLAINS, NEW YORK 10601		NO. 1		REVISION		DATE		BY	
		Description		mm/dd/yyyy		XXX			

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DATE = 10/5/2017
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HYDRAULIC DATA			
DRAINAGE AREA = 337 mi ²		DESIGN FLOOD	BASE FLOOD
RECURRENCE INTERVAL		50 YR	100 YR
PEAK DISCHARGE cfs		10,800	12,800
HIGH WATER ELEVATION	EXIST	31.7	33.0
@ PT. OF MAX BACKWATER	PROP.	31.7	33.0
AVG. VELOCITY THRU STRUCTURE			
@ DESIGN FLOOD = 13.8 ft/s			

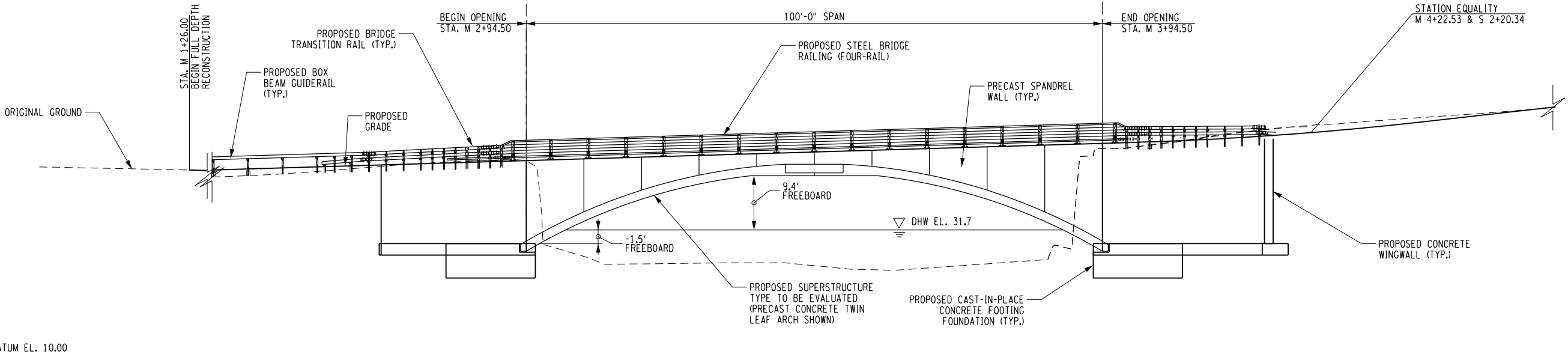
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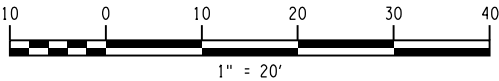
STEEL SUPERSTRUCTURE ELEVATION

HYDRAULIC DATA			
DRAINAGE AREA = 337 mi ²		DESIGN FLOOD	BASE FLOOD
RECURRENCE INTERVAL		50 YR	100 YR
PEAK DISCHARGE cfs		10,800	12,800
HIGH WATER ELEVATION	EXIST	31.7	33.0
@ PT. OF MAX BACKWATER	PROP.	31.7	33.1
AVG. VELOCITY THRU STRUCTURE			
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DATUM EL. 10.00

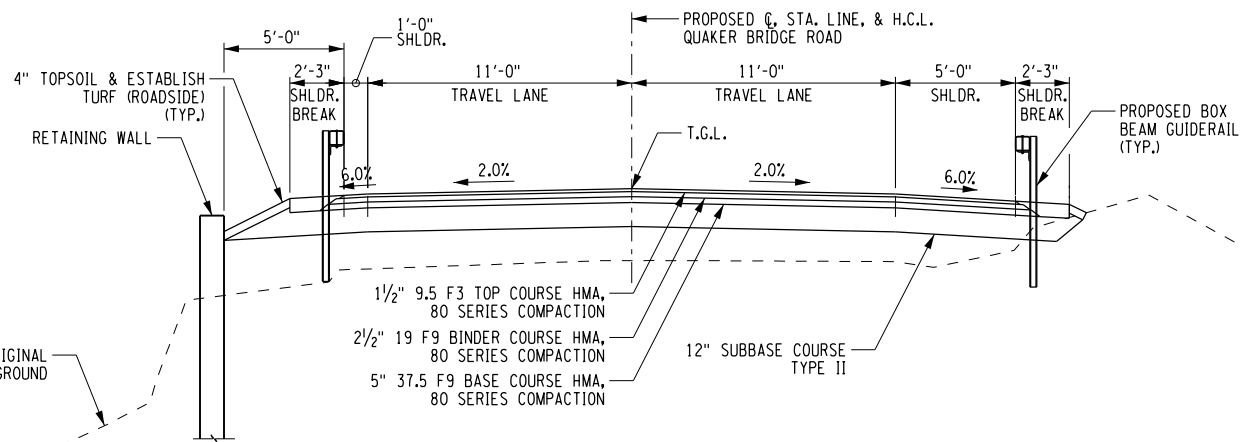


TWIN-LEAF ARCH SUPERSTRUCTURE ELEVATION

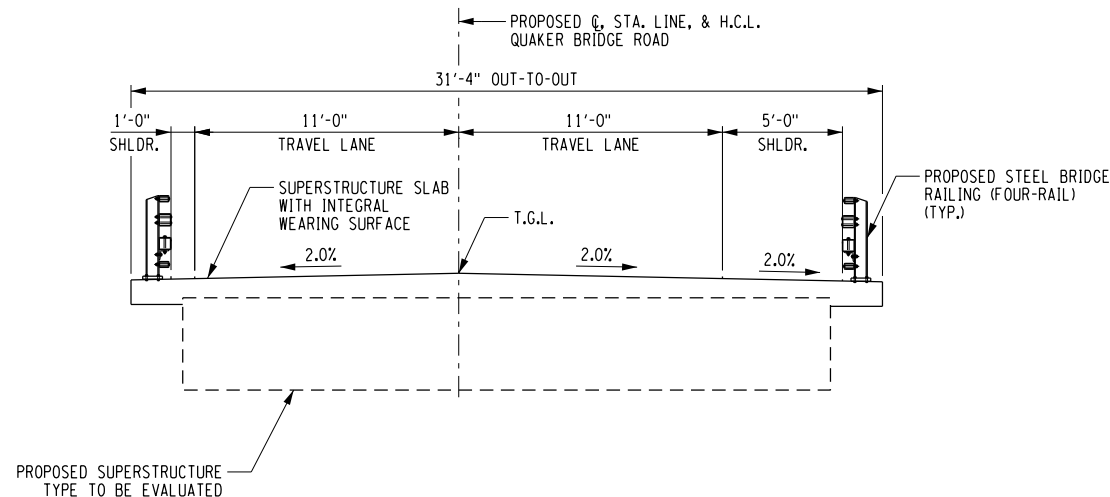


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QUAKER BRIDGE ROAD BRIDGE OVER CROTON RIVER (BIN 3348560) BRIDGE REPLACEMENT STUDY TOWN OF CORTLANDT, WESTCHESTER COUNTY, NEW YORK	PROPOSED ELEVATIONS	Creighton Manning	DESIGNED:	A/JB	DRAWN BY:	K/D	CHECKED:	M/JH
DATE: AUGUST 2017		CM No.: 116-043	SCALE: AS NOTED					
SHEET NUMBER		2 of 6		ST-2				

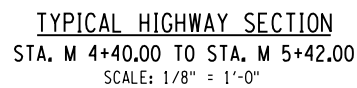
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TYPICAL HIGHWAY SECTION
STA. M 1+80.00 TO STA. M 2+77.00
SCALE: 1/8" = 1'-0"



TYPICAL BRIDGE SECTION
SCALE: 1/8" = 1'-0"



WESTCHESTER COUNTY DEPARTMENT
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148 MARTINE AVENUE
WHITE PLAINS, NEW YORK 10601

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Creighton Manning

CREIGHTON MANNING ENGINEERING, LLP
2000 N. 10TH STREET, SUITE 200
FARGO, ND 58103
P: (701) 446-0385 F: (701) 446-0397 WWW.CME-LLP.COM

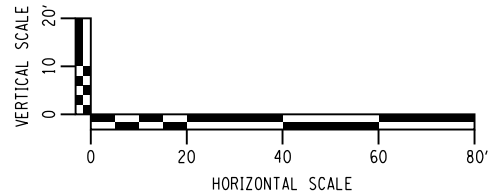
QUAKER BRIDGE ROAD BRIDGE
OVER CROTON RIVER (BIN 3348560)
BRIDGE REPLACEMENT STUDY
TOWN OF CORTLANDT,
WESTCHESTER COUNTY, NEW YORK

TYPICAL SECTIONS - 01

DATE: AUGUST 2017	CM No.: 116-043	SCALE: AS NOTED
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THEORETICAL GRADE LINE (T.G.L.)

RT. E.O.P. (e=-2.00%)

LT. E.O.P. (e=-2.00%)

BANKING DIAGRAM

PROFILE

CREIGHTON MANNING ENGINEERING, LLP
2 WINNERS CIRCLE - ALBANY - NEW YORK - 12205
P: (518) 446-0396 F: (518) 446-0397 WWW.CMELLP.COM

DESIGNED:	AJB	DRAWN BY:	KHD	CHECKED:	MJH
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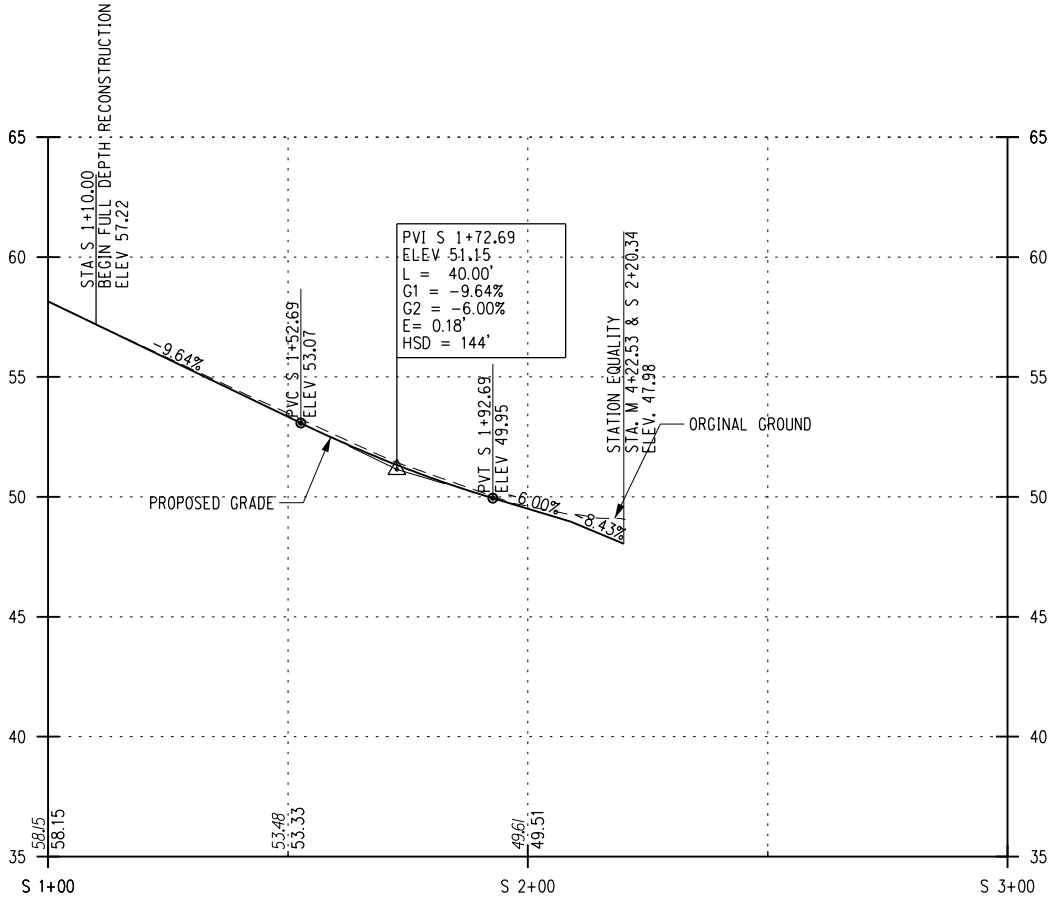
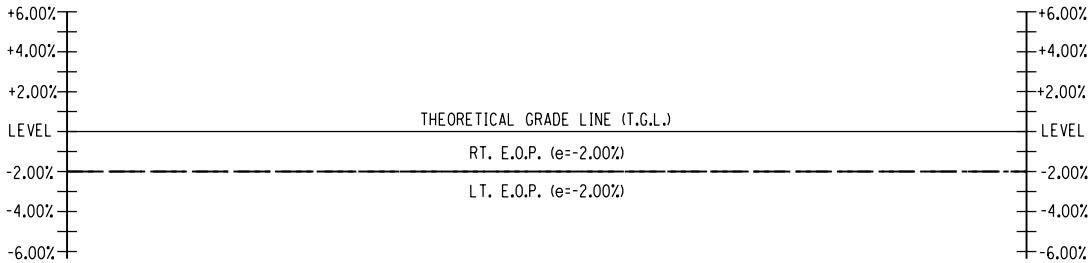
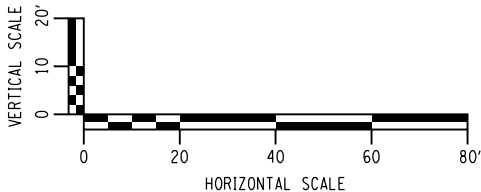
WESTCHESTER COUNTY DEPARTMENT
OF PUBLIC WORKS
148 MARTINE AVENUE,
WHITE PLAINS, NEW YORK 10601

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QUAKER BRIDGE ROAD EAST

BANKING DIAGRAM - QUAKER ROAD EAST

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QUAKER BRIDGE ROAD BRIDGE OVER CROTON RIVER (BIN 3348560) BRIDGE REPLACEMENT STUDY TOWN OF CORTLANDT, WESTCHESTER COUNTY, NEW YORK		Creighton Manning CREIGHTON MANNING ENGINEERING, LLP 2 WINNERS CIRCLE • ALBANY • NEW YORK • 12245 P: (518) 446-0396 F: (518) 446-0397 WWW.CMELLP.COM						
PROFILE		UNAUTHORIZED ALTERATION OR ADDITION APPLYABLE STATE AND / OR LOCAL LAWS						
WESTCHESTER COUNTY DEPARTMENT OF PUBLIC WORKS 148 MARTINE AVENUE WHITE PLAINS, NEW YORK 10601		PROGRESS PRINT NOT FOR CONSTRUCTION						
NO.	1	Description	REVISION				DATE	BY
							mm/dd/yy	XXX



QUAKER BRIDGE ROAD OVER CROTON RIVER

CME#: 116-043

Preliminary Engineer's Estimate - Alternative 2A Replacement on existing alignment with detour
Oct-17

Item No.	Description	Unit	Quantity	Unit Price	Total Cost
201.06	CLEARING AND GRUBBING	LS	1	\$50,000.00	\$50,000.00
202.120001	REMOVING EXISTING SUPERSTRUCTURES	LS	1	\$400,000.00	\$400,000.00
202.19	REMOVAL OF SUBSTRUCTURES	CY	278	\$500.00	\$139,000.00
203.02	UNCLASSIFIED EXCAVATION AND DISPOSAL	CY	670	\$75.00	\$50,250.00
203.03	EMBANKMENT IN PLACE	CY	429	\$50.00	\$21,450.00
203.21	SELECT STRUCTURE FILL	CY	289	\$115.00	\$33,235.00
206.01	STRUCTURE EXCAVATION	CY	1865	\$75.00	\$139,875.00
209.1801	ROLLED EROSION CONTROL PRODUCT, CLASS I TYPE A, SHORT TERM	SY	56	\$10.00	\$560.00
304.12	SUBBASE COURSE, TYPE 2	CY	452	\$100.00	\$45,200.00
402.128903	12.5 F9 TOP COURSE HMA, SHOULDER COURSE, 80 SERIES COMPACTION	TON	95	\$250.00	\$23,750.00
402.198903	19 F9 BINDER COURSE HMA, 80 SERIES COMPACTION	TON	164	\$250.00	\$41,000.00
402.378903	37.5 F9 BASE COURSE HMA, 80 SERIES COMPACTION	TON	338	\$250.00	\$84,500.00
552.2101	ROCK SOCKETS FOR SOLDIER PILE AND LAGGING WALL	LF	259	\$2,250.00	\$582,750.00
552.2201	SOLDIER PILES FOR SOLDIER PILE AND LAGGING WALL	LF	689	\$325.00	\$223,925.00
552.230301	PRECAST CONCRETE PANEL LAGGING FOR SOLDIER PILE AND LAGGING WALL	SF	5418	\$75.00	\$406,350.00
555.08	FOOTING CONCRETE, CLASS HP	CY	151	\$800.00	\$120,800.00
555.09	CONCRETE FOR STRUCTURES, CLASS HP	CY	249	\$1,600.00	\$398,400.00
556.03	STUD SHEAR CONNECTORS FOR BRIDGES	EACH	2583	\$5.00	\$12,915.00
557.0102	SUPERSTRUCTURE SLAB WITH INTEGRAL WEARING SURFACE - BOTTOM FORMWORK REQUIRED - TYPE 2 FRICT	SY	364	\$425.00	\$154,700.00
557.2002	STRUCTURAL APPROACH SLAB WITH INTEGRAL WEARING SURFACE - TYP E 2 FRICTION	SY	63	\$325.00	\$20,475.00
558.02	LONGITUDINAL SAWCUT GROOVING OF STRUCTURAL SLAB SURFACE	SY	388	\$15.00	\$5,820.00
564.0501	STRUCTURAL STEEL, TYPE 1	LS	1	\$590,000.00	\$590,000.00
564.20010008	HOT-DIP GALVANIZING OF STRUCTURAL STEEL	LB	116020	\$1.00	\$116,020.00
565.2022	TYPE E.B. FIXED BEARING (56 TO 111 KIPS)	EACH	4	\$5,000.00	\$20,000.00
565.2032	TYPE E.B EXPANSION BEARING (56 TO 111 KIPS)	EACH	4	\$5,000.00	\$20,000.00
568.51	STEEL BRIDGE RAILING (FOUR RAIL)	LF	212	\$250.00	\$53,000.00
568.70	TRANSITION BRIDGE RAILING	LF	128	\$175.00	\$22,400.00
603.171316	GALVANIZED STEEL END SECTIONS-PIPE (2-2/3" X 1/2" CORRUGATIONS) 21 INCH DIAMETER, 16 GAUGE	EACH	3	\$500.00	\$1,500.00
603.9815	SMOOTH INTERIOR CORRUGATED POLYETHYLENE CULVERT AND STORM DRAIN 15 INCH DIAMETER	LF	130	\$60.00	\$7,800.00
604.300611	RECTANGULAR DRAINAGE STRUCTURE TYPE F FOR #11 WELDED FRAME	LF	20	\$1,500.00	\$30,000.00
606.10	BOX BEAM GUIDE RAILING	LF	342	\$40.00	\$13,680.00
606.120101	BOX BEAM END PIECE	EACH	1	\$600.00	\$600.00
619.01	BASIC WORK ZONE TRAFFIC CONTROL	LS	1	\$200,000.00	\$200,000.00
620.05	STONE FILLING (HEAVY)	CY	311	\$120.00	\$37,320.00
625.01	SURVEY OPERATIONS	LS	1	\$40,000.00	\$40,000.00
637.12----25	ENGINEER'S FIELD OFFICE - TYPE 2	MNTH	9	\$5,000.00	\$45,000.00
637.34	OFFICE TECHNOLOGY AND SUPPLIES	DC	10000	\$1.00	\$10,000.00
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				Wetland Mitigation	\$0
				Incidentals (25%)	\$1,041,000
				Subtotal 1	\$5,204,000
				Field Change Order	\$261,000
				Subtotal 2	\$5,465,000
				Mobilization (4%)	\$219,000
				Subtotal 3	\$5,684,000
				Design	\$750,000
				Construction Inspection	\$500,000
				ROW Costs	\$100,000
				Total Cost	\$7,100,000

Alternatives Comparison Table

	Description	Bridge Span & Roadway Width	Maintenance of Traffic	Right-of-Way	SHPO	General Constructability Concerns	Structure Type Options	Total Project Cost	Pros	Cons
1A	Bridge Rehabilitation (Road Closure)	98'-0" 15'-6"	Road Closed Offsite Detour	None	- Retains historic register eligible truss - No new ground disturbance	- Use existing approaches for staging - No utility Relocation	Existing truss to remain	\$5.7M	- No new ground disturbance - Lowest cost alternative	- Road Closed - Retains non-standard bridge features - Less than 20-yr design life - Ongoing maintenance costs higher than replacement alternatives
1B	Bridge Rehabilitation (Temporary Bridge)	98'-0" 15'-6"	Onsite with temporary bridge	<u>2 TEs:</u> - Village of Croton on Hudson - Private property (Louis Pinkham)	- Retains historic register eligible truss - New ground disturbance anticipated for construction of temporary bridge substructures	- GRSS wall substructures lengthened to create a staging area. - Steep grades and lack of open space around site pose a challenge to launching or lifting a temporary bridge. - Utility relocation required for temporary bridge	Existing truss to remain	\$7.0M	Low traffic impact	- Retains non-standard bridge features - Less than 20-yr design life - New ground disturbance anticipated - Temporary bridge (added cost) - Utility conflicts with temporary bridge - ROW Required - Ongoing maintenance costs higher than replacement alternatives

Alternatives Comparison Table

	Description	Bridge Span & Roadway Width	Maintenance of Traffic	Right-of-Way	SHPO	General Constructability Concerns	Structure Type Options	Total Project Cost	Pros	Cons
2A	Replacement on Existing Alignment (Road Closure)	100'-0" 28'-0"	Road Closed Offsite Detour	<u>4 Fees:</u> - Village of Croton on Hudson (3) - Private property (Louis Pinkham)	- Removes historic register eligible truss and substructures - No new ground disturbance	- Existing approaches used for material storage and crane setup - New beam length limited to 100 FT +/- for pre-stressed concrete box beams due to shipping route. - Steel I-beam can be erected with a splice for shorter individual beam lengths - Utility relocation required for erection	- Pre-stressed concrete box beam units - Twin Leaf Arch - Steel I-Beam	\$7.1M	- No new ground disturbance - Standard bridge roadway width - Lowest cost replacement alternative 75+ year design life	- Road closed - Utility conflict for erection of beams - No roadway geometry improvements
2B	Replacement on Existing Alignment (Temporary Bridge)	100'-0" 26'-0"	Onsite with temporary bridge	<u>4 Fees:</u> - Village of Croton on Hudson - Private property (Louis Pinkham)	- Removes historic register eligible truss and substructures - New ground disturbance anticipated for a temporary bridge substructure	- GRSS Wall required for staging - Short duration road closures during erection of superstructure elements. - Steep grades and lack of open space around site pose a challenge to launching or lifting a temporary bridge - New beam length limited to 100 FT +/- for pre-stressed concrete box beams due to shipping route. - Steel I-beam can be erected with a splice for shorter individual beam lengths	- Pre-stressed concrete box beam units - Twin Leaf Arch - Steel I-Beam	\$8.4M	- Standard bridge roadway width 75+ year design life	- Utility conflicts with temporary bridge - New ground disturbance anticipated - ROW Required - Temporary bridge (added cost) - Limited construction staging areas/access (added costs) - No roadway geometry improvements

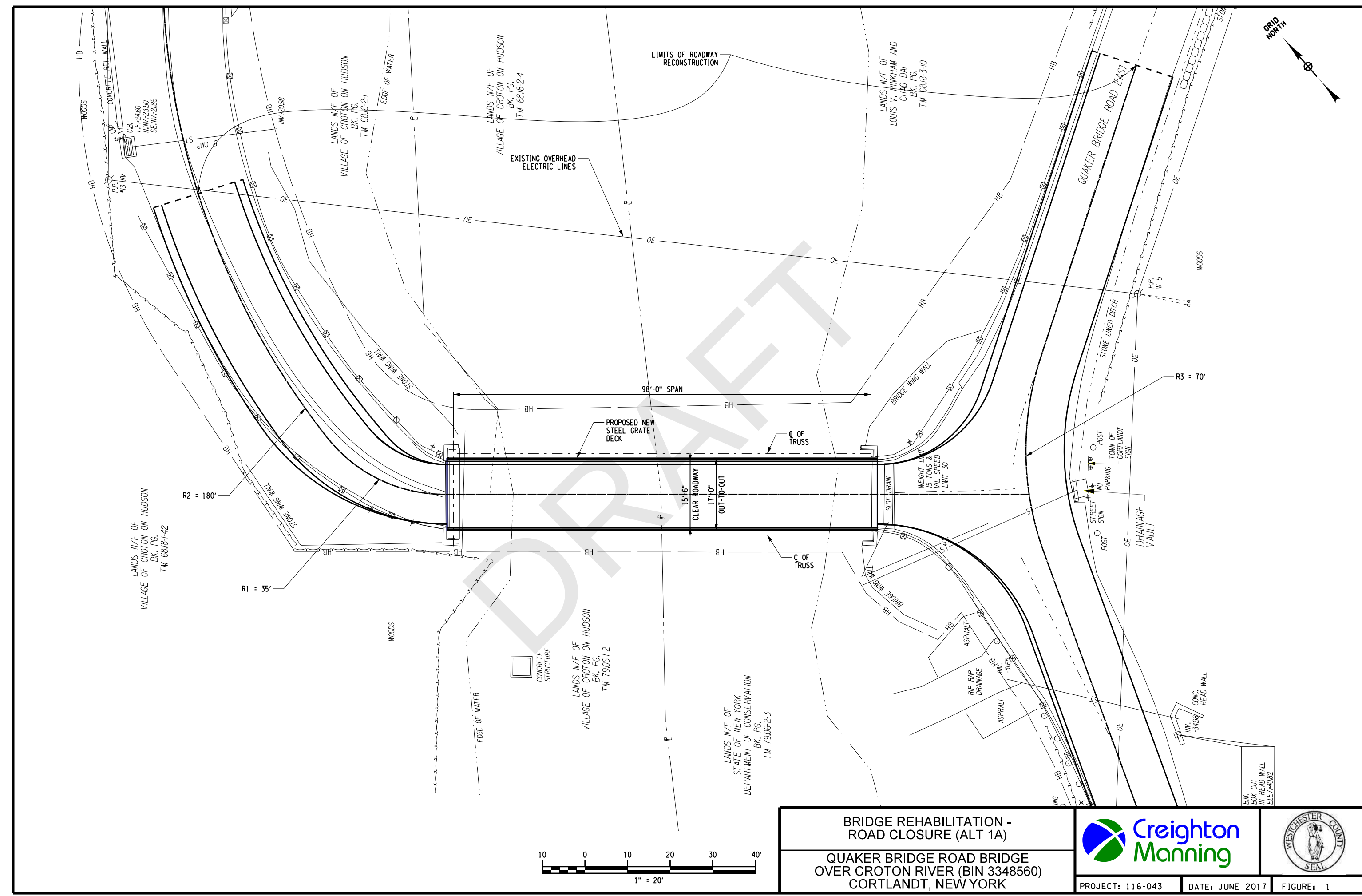
Alternatives Comparison Table

	Description	Bridge Span & Roadway Width	Maintenance of Traffic	Right-of-Way	SHPO	General Constructability Concerns	Structure Type Options	Total Project Cost	Pros	Cons
3	Replacement on Adjacent Alignment (Upstream)	115'-0" 26'-0"	Onsite utilizing existing bridge	<u>3 Fees and 3 TEs:</u> - Village of Croton on Hudson (2) - Private property (Louis Pinkham)	- Removes historic register eligible truss and substructures, but has the potential to retain, if required. - New ground disturbance anticipated for a new bridge substructure	- GRSS Wall required for staging - Short duration road closures during construction superstructure elements. - New beam segments limited to 100 FT +/- for shipping (Splice Required) - Utility relocation required for new bridge	Steel I-Beam	\$7.5M	- Standard bridge roadway width 75+ year design life	- Utility conflicts with new bridge location - New ground disturbance anticipated - ROW Required - Limited construction staging areas/access (added costs) - Impact to retaining wall on NW approach
4	Replacement on a Diagonal Alignment (Upstream)	140'-0" 26'-0"	Onsite utilizing existing bridge	<u>2 Fees and 2 TEs:</u> - Village of Croton on Hudson - Private property (Louis Pinkham)	- Removes historic register eligible truss and substructures, but has the potential to retain, if required. - New ground disturbance anticipated for new bridge substructure	- GRSS Wall required for staging - Short duration road closures during construction superstructure elements. - New beam segments limited to 100 FT +/- for shipping (Splice Required) - Utility relocation required for new bridge	Steel I-Beam	\$7.9M	- Standard bridge roadway width - Improves horizontal approach radius and increases stream opening 75+ year design life	- Utility conflicts with new bridge location - New ground disturbance anticipated - ROW Required - Limited construction staging areas/access (added costs) - Longer structure (added costs)

Alternatives Comparison Table

	Description	Bridge Span & Roadway Width	Maintenance of Traffic	Right-of-Way	SHPO	General Constructability Concerns	Structure Type Options	Total Project Cost	Pros	Cons
5	Replacement on a Diagonal Alignment (Road Closure)	140'-0" 26'-0"	Road Closed Offsite Detour	<u>2 Fees:</u> - Village of Croton on Hudson - Private property (Louis Pinkham)	- Removes historic register eligible truss and substructures. - New ground disturbance anticipated for new bridge substructure	- Existing approaches used for material storage and crane setup. - New beam segments limited to 100 FT +/- for shipping (Splice Required)	Steel I-Beam	\$7.6M	- Improves horizontal approach radius and increases stream opening - Standard bridge roadway width - Best roadway geometry 75+ year design life	- Road Closed - ROW Required - Utility conflicts with new bridge - New ground disturbance anticipated - Limited construction staging areas/access (added costs) - Longer structure (added costs)

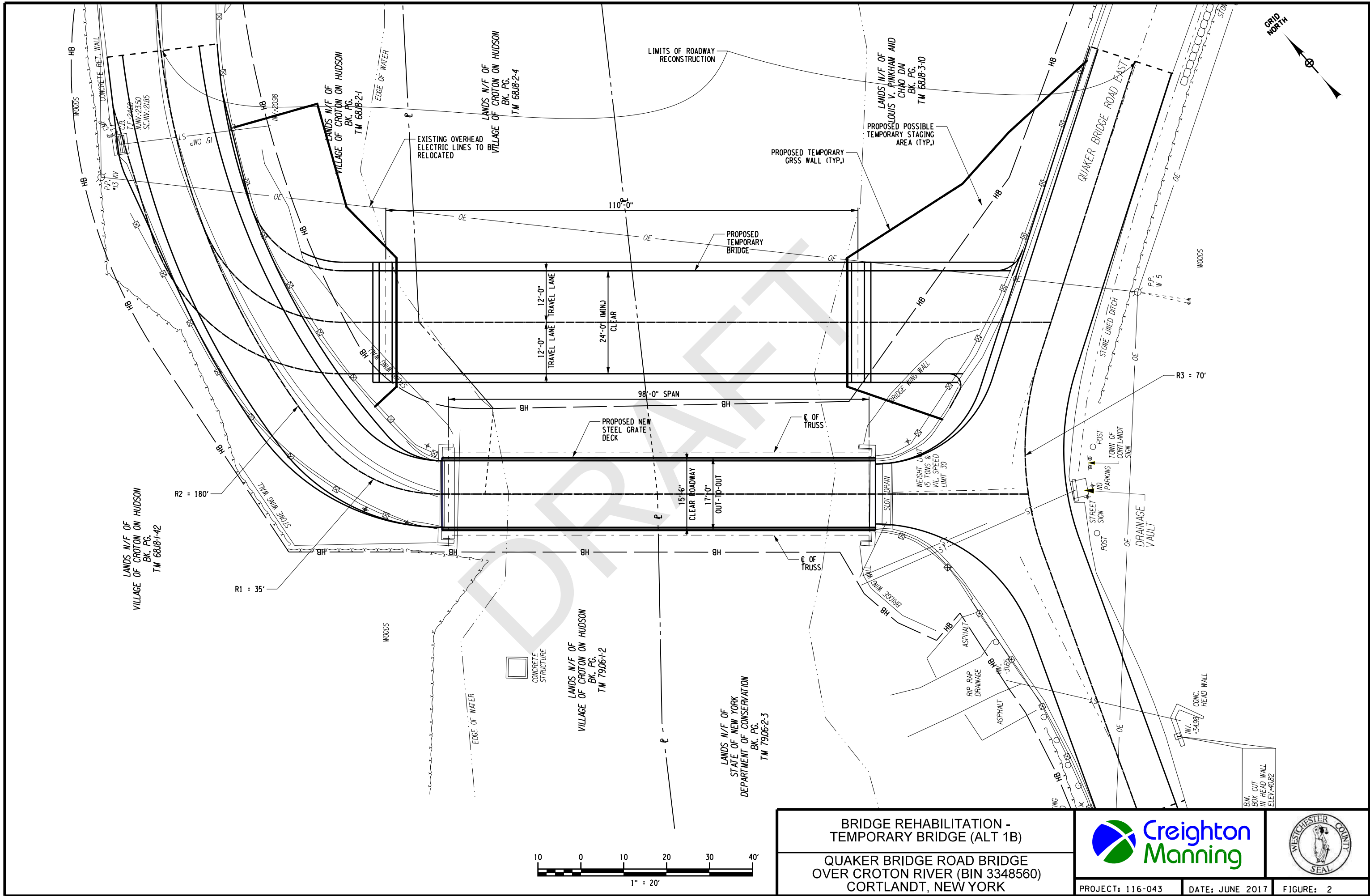
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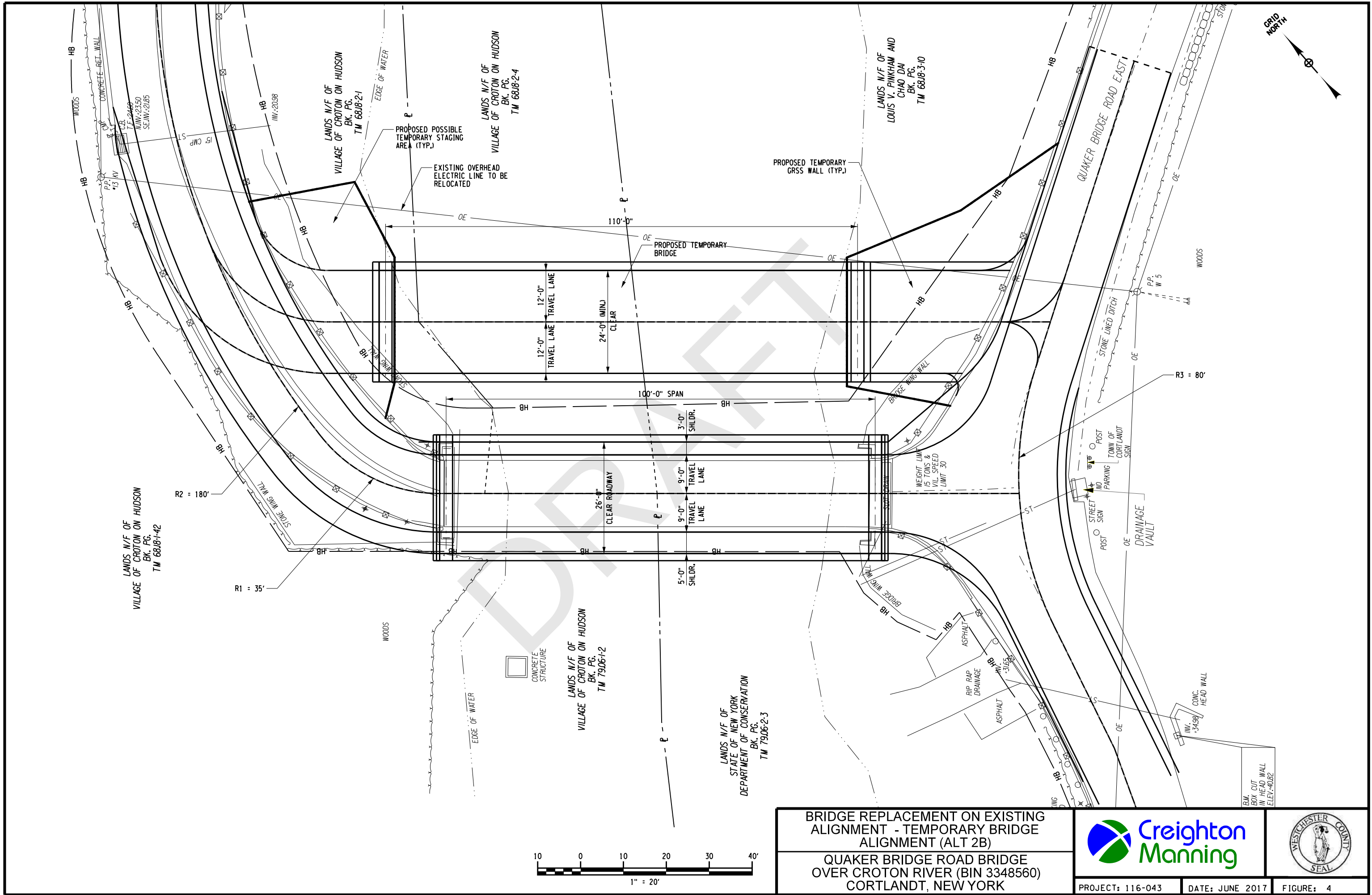
BRIDGE REHABILITATION -
ROAD CLOSURE (ALT 1A)
QUAKER BRIDGE ROAD BRIDGE
OVER CROTON RIVER (BIN 3348560)
CORTLANDT, NEW YORK

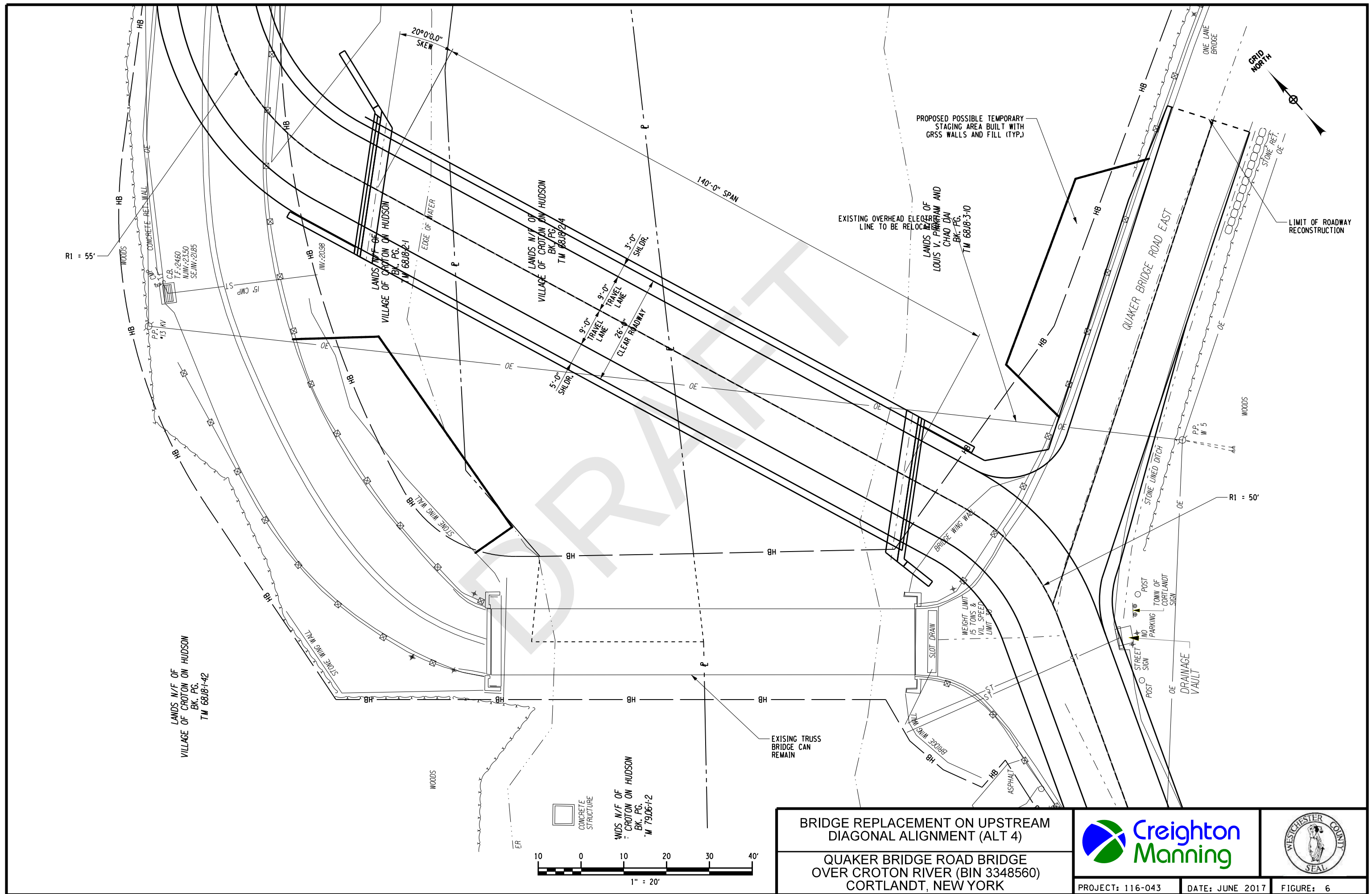
	
PROJECT: 116-043	DATE: JUNE 2017
FIGURE: 1	

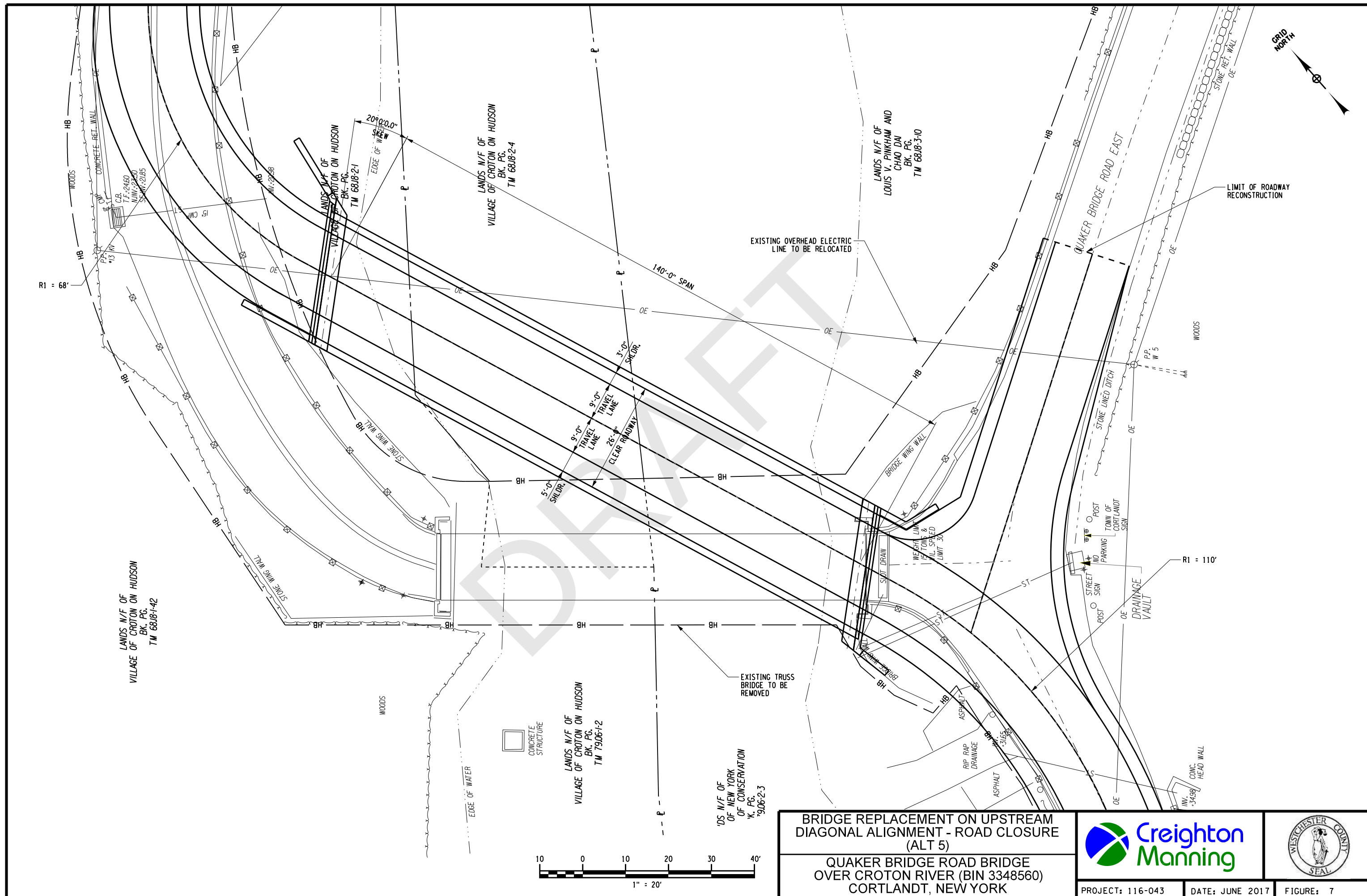
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USER : Munt



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DATE/TIME : 6/16/2017
USER : mhunt









HAER Level II Documentation

Quaker Bridge Road Bridge

Town of Cortlandt, Westchester County, New York.

(BIN 3348560)

NYS OPRHP 17PR02639
(HAA #5157-61)

Sponsored by:

Westchester County Department of Public Works and Transportation

Prepared By:

WALTER RICHARD WHEELER

HARTGEN ARCHEOLOGICAL ASSOCIATES, INC.

1744 Washington Avenue Extension

Rensselaer, New York 12144

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AN ACRA MEMBER FIRM

www.acra-crm.org

October 2017

Quaker Bridge Road Bridge
Town of Cortlandt
Westchester County
New York

HAER No. NY-

OUTLINE FORM REPORT

Historic American Engineering Record
National Park Service
Department of the Interior
Washington, D. C. 20240

HISTORIC AMERICAN ENGINEERING RECORD

QUAKER BRIDGE ROAD BRIDGE

HAER No. NY-

Location: The Quaker Bridge Road Bridge is located approximately 6,500 feet southwest of the Croton Dam, in the Town of Cortlandt, New York. The bridge carries Quaker Bridge Road over the Croton River.

USGS Tarrytown, NY Quadrangle
UTM Zone 18N 594802 Easting 4562908 Northing

Owner: Westchester County, New York

Significance:

J. A. Bonafide of the NYSOPRHP wrote the following statement of significance in 1994:

The Quaker Bridge Road Bridge (BIN 3348560) is architecturally significant as a rare and outstanding example of a late nineteenth century Pratt Truss bridge. Built by the New York City firm of Dean and Westbrook, the bridge retains an outstanding degree of integrity. The bridge is further distinguished as the earliest example of its type in the county.

PART I. HISTORICAL INFORMATION

A. Physical History:

1. Date of erection:

The bridge was constructed in 1894.

2. Architect:

Bridge designers and contractors Dean & Westbrook of New York city designed and built the bridge.

3. Original and subsequent owners, occupants, uses:

The bridge was initially owned by the Town of Croton; at an unknown date ownership was transferred to Westchester County.

4. Builder, Contractor, suppliers:

Dean & Westbrook, with materials provided by the Phoenix Iron Works, in Phoenixville, PA. Some of the principal structural members of the bridge bear the embossed mark of that firm.

5. Original plans and construction:

Unlocated.

6. Alterations and additions:

The bridge was altered by the replacement of its original latticed guard rails in c. 1938. At that time the original wood decking, stringers and wheel guards were removed and replaced with new wood decking consisting of 4" x 10" creosoted planks, with ¼" spacing between. Over these ¼" thick rolled steep traffic treads were laid. Some of the lattice bars in the vertical columns, top chord and end post were replaced in-kind at that time. This scope of work is recorded in contract documents from the period; the annual report to the Board of Supervisors described a slightly different scope of work:

This contract consisted of the removal of old steel bars, replacement of new bars, and the painting of the bridge. The award was made on August 29th, 1938, to the lowest bidder, Vitale, Gagliardi, Pisani and Company, from bids submitted August 24th, 1938, at the contract bid of \$1,820.00 (Proceedings 1939: 650).

The work was reported complete as of 19 December 1938, and, according to a "final estimate" had cost \$1,784.25 (Proceedings 1939: 650).

Repairs to the framing in the summer of 1951 are recorded in embossed dates on the flanges of principal members, some of which also record engineer's initials. Despite this, in the summer of 1954 it was reported that the bridge was "soon to be replaced by a modern structure" (Hunt 1954: 88). This did not come to pass.

The next recorded alterations and repairs to the bridge occurred c. 1977. In that year drawings were generated which detailed the replacement of the wood deck with new concrete-filled 3" steel grid decking, and the installation of corrugated bridge rails, with associated outriggers, stringers, and guide rail supports. This work was largely replaced in 1994, under the direction of Maser Sosinski & Associates, NYC, engineers, when new steel stringers, new outriggers, and new steel grid decking was installed. The corrugated beam type bridge railings installed in 1977 were reused in the new work.

In 2009, the bridge was rehabilitated. Work undertaken at that time included painting, repairs to the wing walls and abutments, and some structural repairs and minor

replacements. This work was accomplished under the direction of Lockwood, Kessler & Bartlett, Inc., consulting engineers of Syosset, New York.

B. Historical Context:

The Quaker Bridge for which Quaker Bridge Road was named, and which was replaced by the current structure, was a covered bridge initially constructed in 1847. The early history of this span has been recorded in a recent publication by the Croton-on-Hudson Historical Society.

In 1807, New York State created the Croton Turnpike Company, which called for the building of roads and bridges. By 1809, a new bridge carried Albany Post Road traffic across the Croton River. The bridge was later rebuilt in 1830 by local Quaker preacher William Purdy. He named the structure Quaker Bridge. The dam collapse of 1841 swept the bridge away, but it was replaced again in 1847 (Croton-on-Hudson Historical Society: 42).

A brief biography of the firm that designed and built the bridge, Dean & Westbrook, was published in 1894, the same year the Quaker Bridge was built.

This firm have [sic] become widely and justly celebrated for reliability and skill as bridge engineers and contractors. They established their business in 1871, and the reputation they enjoy has been secured upon the legitimate basis of superior workmanship and the substantial character of all construction. They are engineers, designers and contractors for both railroad, highway, iron and steel, and stone bridges, making a specialty of high-class work, and are recognized as authority upon all matters pertaining to bridge building. They built the first electric drawbridge in the United states [sic], at Bridgeport, Conn.; also one at Wilmington, Del.; a magnificent stone arch bridge at New Brunswick, N. J., across the Raritan River; over fifty bridges for Monmouth County, N. J., and thirty for Bergen County, N. J.; the Washington Bridge between Stratford and Milford, Conn., for the counties of New Haven and Fairfield, Connecticut; the Princess Louise Bridge at Winnipeg, Manitoba, the first iron bridge built in the Canadian Northwest; three other bridges at Winnipeg, and one at Emerson, Manitoba; a highway bridge at Harrisburg, Pa., over the Susquehanna River, seven-eighths of a mile long; a bridge for the Passaic Park Company at Passaic, N. J.; and one at Woonsocket, R. I.: while they have also designed and built several bridges for the Brazilian Government, and are now engaged in designing a number of important bridges for the Engineering Department of the State of New York, and their services are in constant and important requisition throughout the country. The firm are earnest and unremitting in their efforts to afford entire satisfaction to all their patrons, and are actuated in all their undertakings by a laudable spirit of enterprise and an ambition to excel. The co-partners. Messrs. C. W. Dean and J. A. Westbrook, are eminent in their

profession and thoroughly practical in all their methods. Mr. Dean is a native of Milan, O., a well-known resident of New York, and a member of the Ohio Society and Colonial Club. Mr. Westbrook is a Pennsylvanian by birth, a citizen of Englewood, N. J., and a director of the People's Bridge Company of Harrisburg, Pa (New York 1894: 140).

Dean & Westbrook were responsible for the design of other Westchester County bridges, including a concrete span at Harrison in 1890, and Pines Bridge over the Croton Lake, in 1896 (Supervisor 1891; Proceedings 1897:498). The Phoenix Bridge Company, headquartered in New York City, has sometimes been attributed as the builders of the Quaker Bridge Road Bridge (Croton-on-Hudson Historical Society: 42). It may be that that firm, which appears to have had a close working relationship with Dean & Westbrook, undertook the actual assembly of the bridge on site.

PART II. ARCHITECTURAL INFORMATION

A. General statement:

1. Architectural Character:

The Quaker Bridge Road Bridge is a Pratt through-truss type bridge constructed of cast and wrought iron elements. It is a representative example of what was once a large group of vehicular bridges constructed in the late 19th and early 20th century, but from which an ever-decreasing number of examples survive.

2. Condition of fabric:

The bridge is in a fair state of repair.

B. Description:

1. Superstructure:

The superstructure of the bridge is comprised of two Pratt trusses consisting of seven truss panels, each 14'-0" in length, for an overall length of 98'-0". The trusses are spaced 19'-2" apart, center-to-center. The deck width measures 16'-0" in width, and there is a posted vertical clearance of 11'-5". The portals are 16'-0" high.

2. Abutments and wingwalls:

The west (called north) abutment measures approximately 29'-6" in width. Wingwalls extend approximately 59 feet and 64 feet from either side this abutment. The east (called south) abutment measures 26'-3" in width; wingwalls measuring approximately 29'-6" and 36 feet extend from this abutment. The abutments consist of local granitic stone laid in mortar; the wingwalls are of the same material, dry laid.

3. Plaques:

Construction plaques remain in situ at both portals of the bridge. That on the south portal reads, from left to right:

Committee: Jas. F. Lawrence, Wm. R. Torne, Chas. W. Underhill.
Built on the site of the old "Quaker Bridge" by order of the Board
of Supervisors of Westchester County. Built by Dean & Westbrook,
Engineers & Contractors, New York.

A date plaque, affixed to the east side of the south portal, bears the date 1894.

The north portal plaques are of similar form, although the larger plaque lacks the decorative cresting which is retained at the south. The construction plaque and the date plaque bear the same information as recorded on those affixed to the south portal.

C. Site:

1. Setting:

The Quaker Bridge Road Bridge is in a rural setting, located within a shallow valley created by the Croton River. The adjacent areas are largely overgrown with second-growth trees and underbrush. A hiking trail is located to the north and west of the bridge site.

PART III. SOURCES OF INFORMATION

A. Architectural drawings:

No drawings are known to survive for the initial construction of the bridge. Drawings dating from as early as 1930 and as recently as 2009 exist. These include as-built drawings by Lockwood, Kessler & Bartlett, Inc., of Syosset, New York, and are on file with the Westchester County Department of Public Works and Transportation.

B. Early Views:

Postcard views, reproduced here in the Supplemental Material section of this report, were generated at the turn of the 19th century.

C. Bibliography:

Croton-on-Hudson Historical Society

2001 *Croton-on-Hudson*. Charleston, SC: Arcadia Publishing.

Hunt, Elliot Baldwin

1954 "Quaker Bridge," *The Quarterly Bulletin* [Westchester County Historical Society] 30: 3 (Summer 1954), 83-89.

New York

1894 *New York, 1894, Illustrated*. New York: A. F. Parsons Publishing Co.

Proceedings

1897 *Proceedings of the Board of Supervisors of Westchester County, N. Y. Session of 1896*. White Plains, NY: Press of The Westchester County Reporter.

1939 *Proceedings of the Board of Supervisors of Westchester County, N. Y. Session of 1938*. White Plains, NY: Artcraft Press.

Supervisor

1891 "Supervisor's and Town Officers' Reports. Town of Harrison, 1890," *The Eastern State Journal* (White Plains, NY), 4 April 1891, 1.

D. Likely Sources Not Yet Investigated:

None known.

E. Supplemental Material:



Figure 1. The previous bridge on the site of the Quaker Bridge Road Bridge (Collection Westchester County Historical Society).

QUAKER BRIDGE ROAD BRIDGE
HAER NY- (page 8)



Figure 2. Postcard dating between 1901 and 1906, from a photograph by J. A. Given. Printed by the Albertype Company of Brooklyn, NY.



Figure 3. C. 1910 postcard view.



Figure 4. Postcard view dating to c. 1914, published by Frank L. Simone.



Figure 5. Postcard view, c. 1930. This view shows the original railings in place, and the original location of the date plaque, which was attached to the bottom of the portal lintel.

QUAKER BRIDGE ROAD BRIDGE
HAER NY- (page 12)

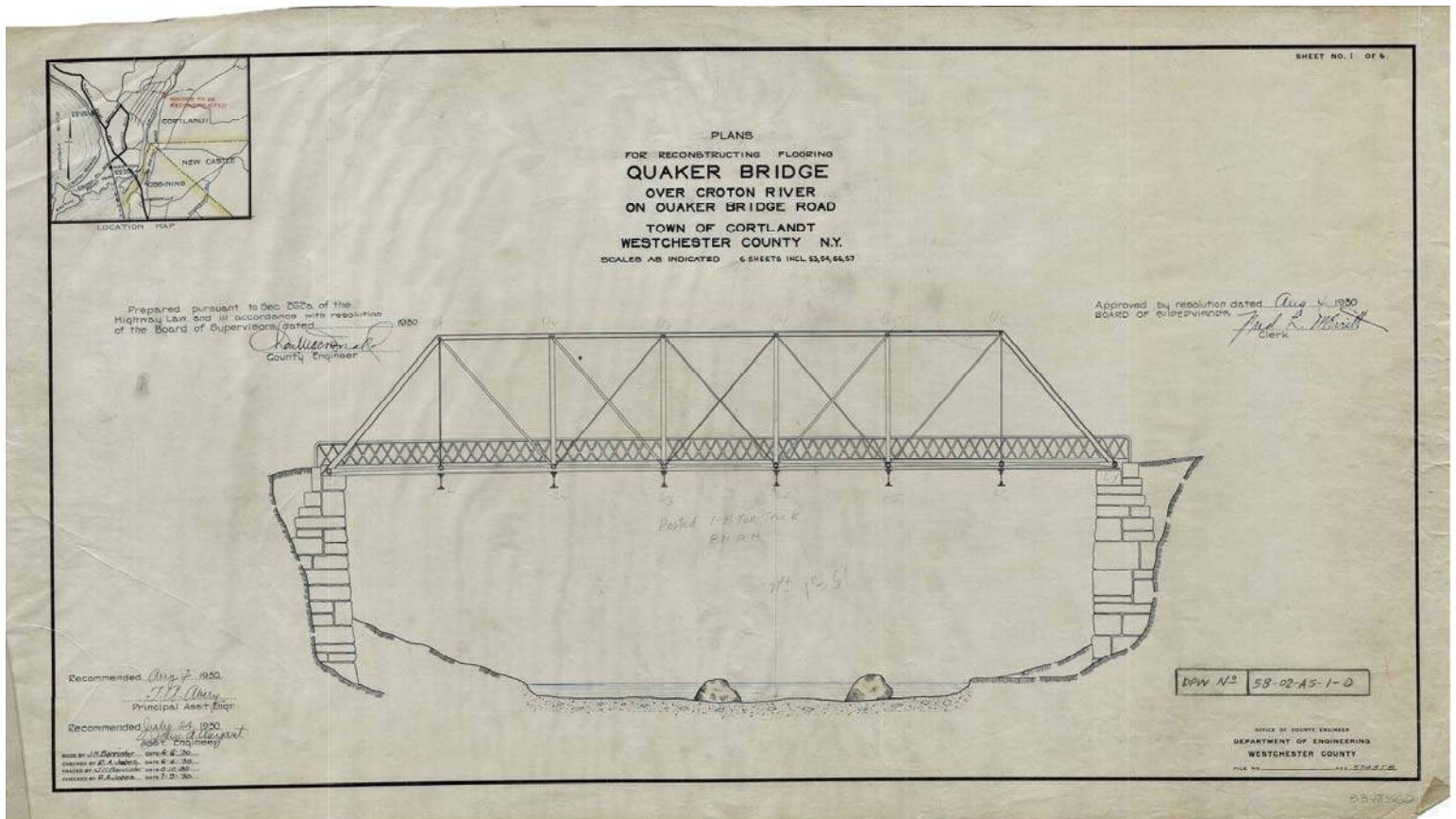


Figure 6. Elevation view, 1930 (Westchester County Department of Public Works and Transportation).

QUAKER BRIDGE ROAD BRIDGE HAER NY- (page 13)

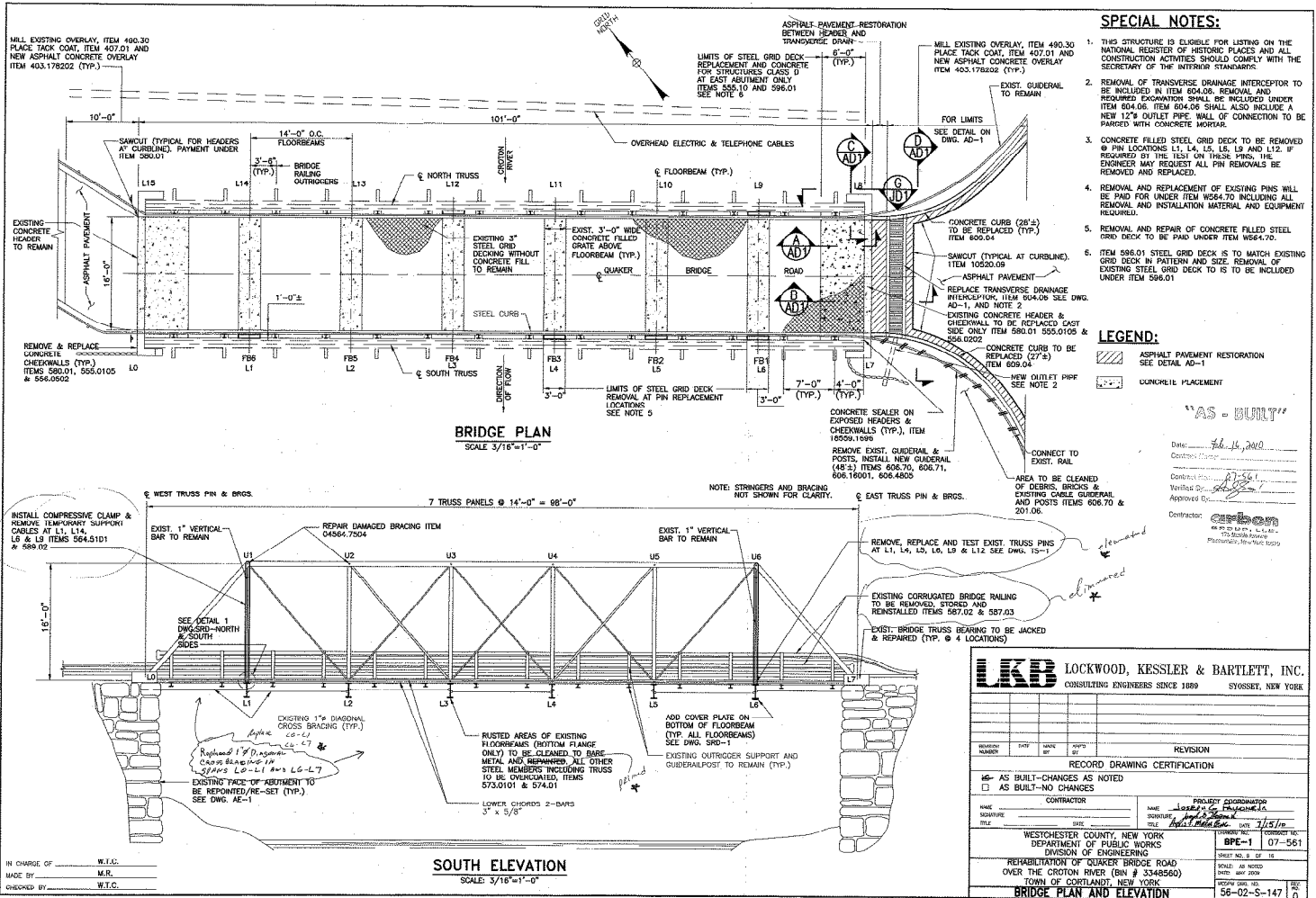


Figure 7. Plan and elevation of the bridge, as-builts, 2010 (Lockwood, Kessler & Bartlett, Inc., on file at Westchester County Department of Public Works and Transportation).

QUAKER BRIDGE ROAD BRIDGE
HAER NY- (page 14)

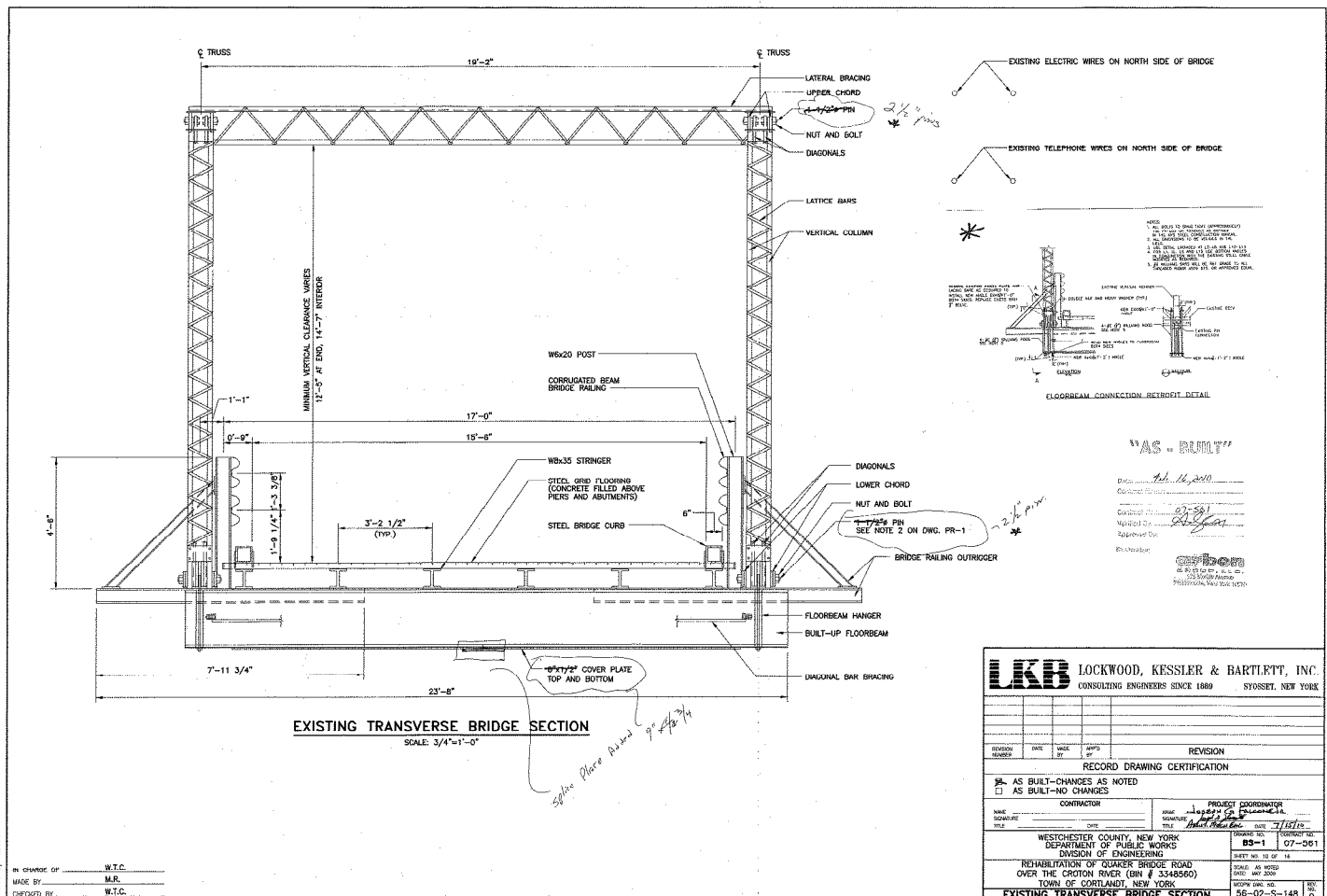
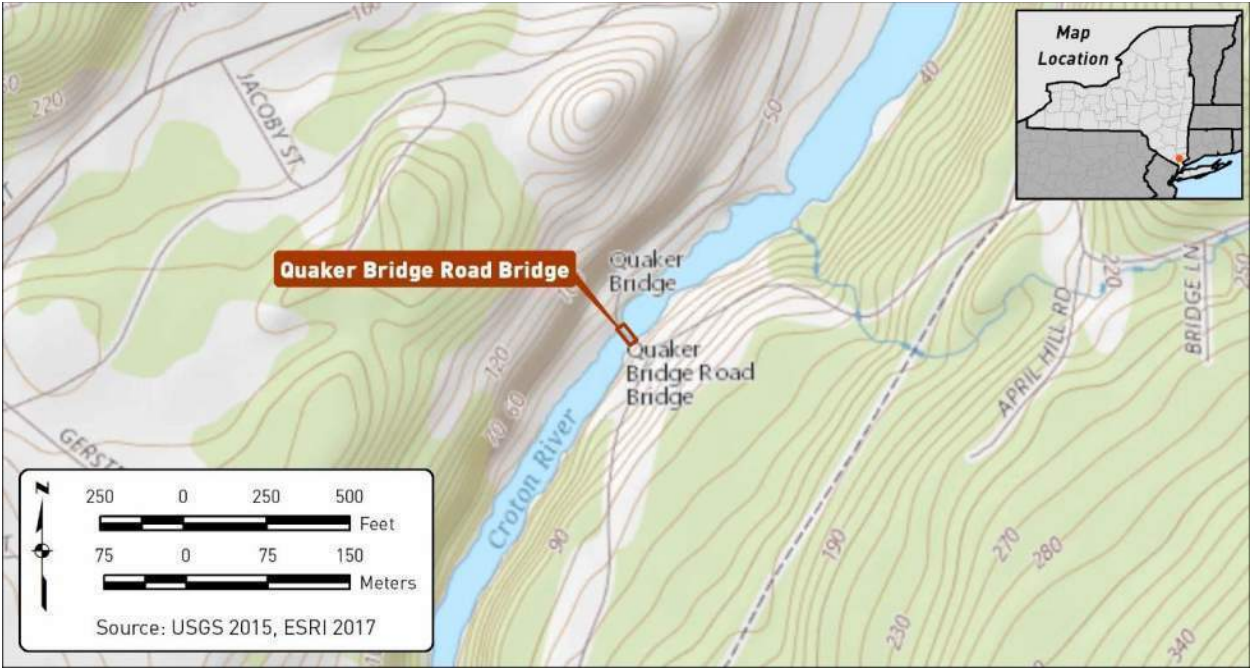


Figure 8. Plan and elevation of the bridge, as-builts, 2010 (Lockwood, Kessler & Bartlett, Inc., on file at Westchester County Department of Public Works and Transportation).

F. Location Map



PART IV. PROJECT INFORMATION

This report was assembled by Walter Richard Wheeler. Mr. Wheeler wrote all sections of the documentation. A site visit was undertaken on 18 July 2017 by Mr. Wheeler and Stephen Penson Ross, who executed the HAER photography.

HISTORIC AMERICAN BUILDINGS SURVEY

QUAKER BRIDGE ROAD BRIDGE
HAER No. NY-

INDEX TO PHOTOGRAPHS

Photographer: Stephen Penson Ross

18 July 2017

1. Bridge approach, looking south
2. Bridge approach, looking north
3. South portal, looking northwest, with scale stick
4. South portal, looking southeast
5. East façade, looking north, with scale stick
6. Detail, showing screw pin shackles, cables, outriggers and guide rail supports, looking northwest
7. Undercarriage of bridge, deck, and north abutment, looking northwest
8. South abutment and west façade, looking east
9. North abutment, looking northeast
10. General view, looking southwest from Croton River bed

Bridge approach, looking south



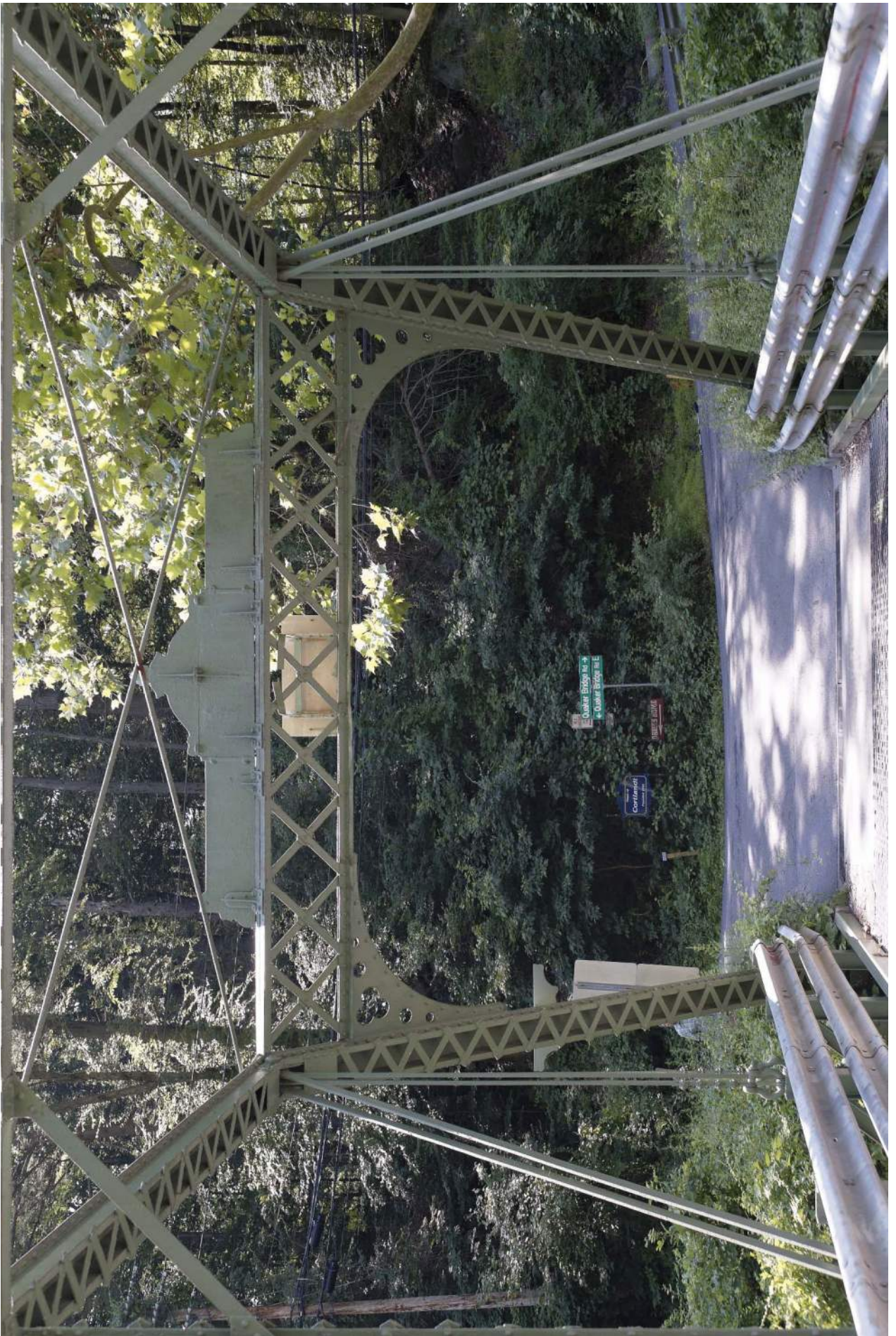
Bridge approach, looking north



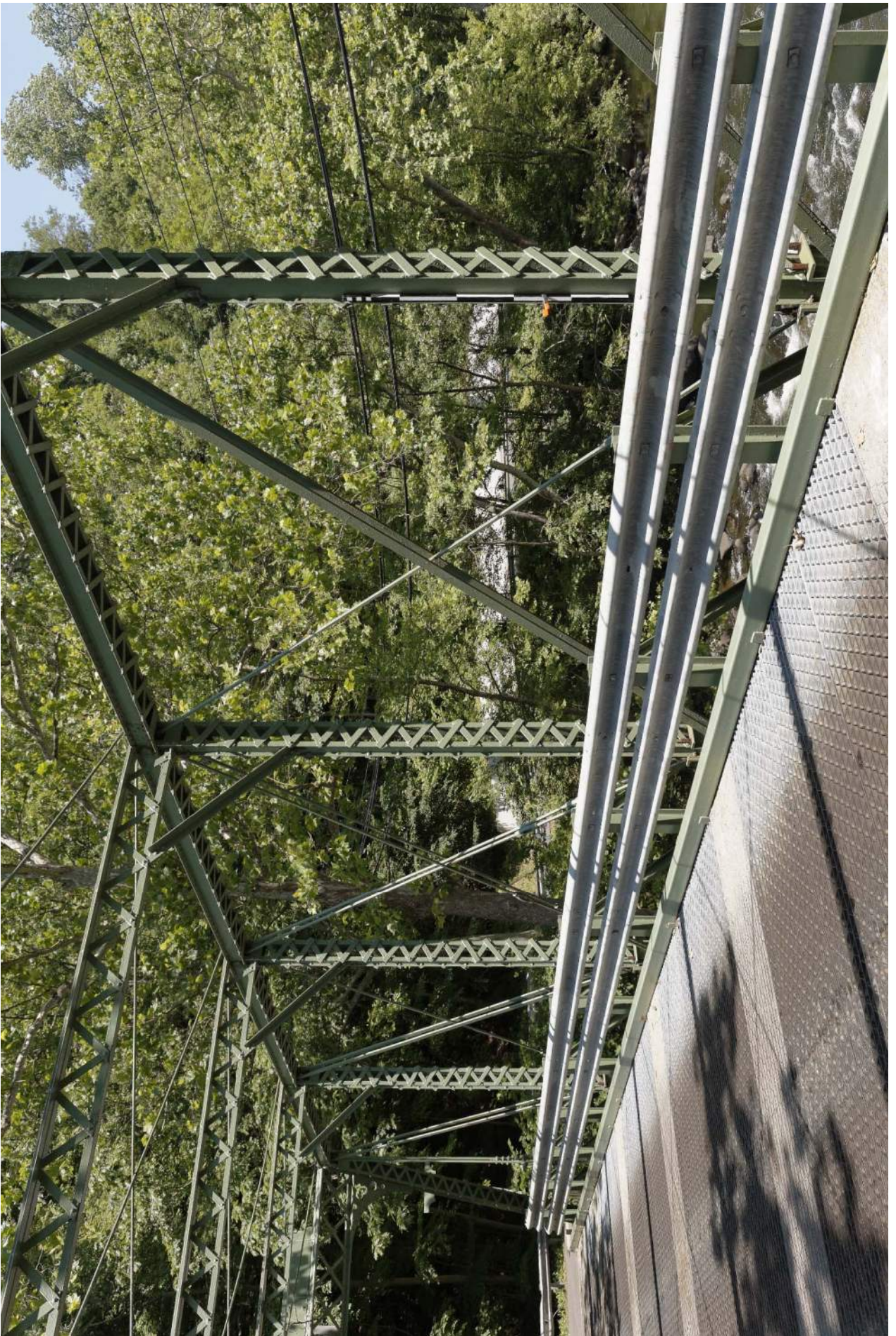
South portal, looking northwest, with scale stick



South portal, looking southeast



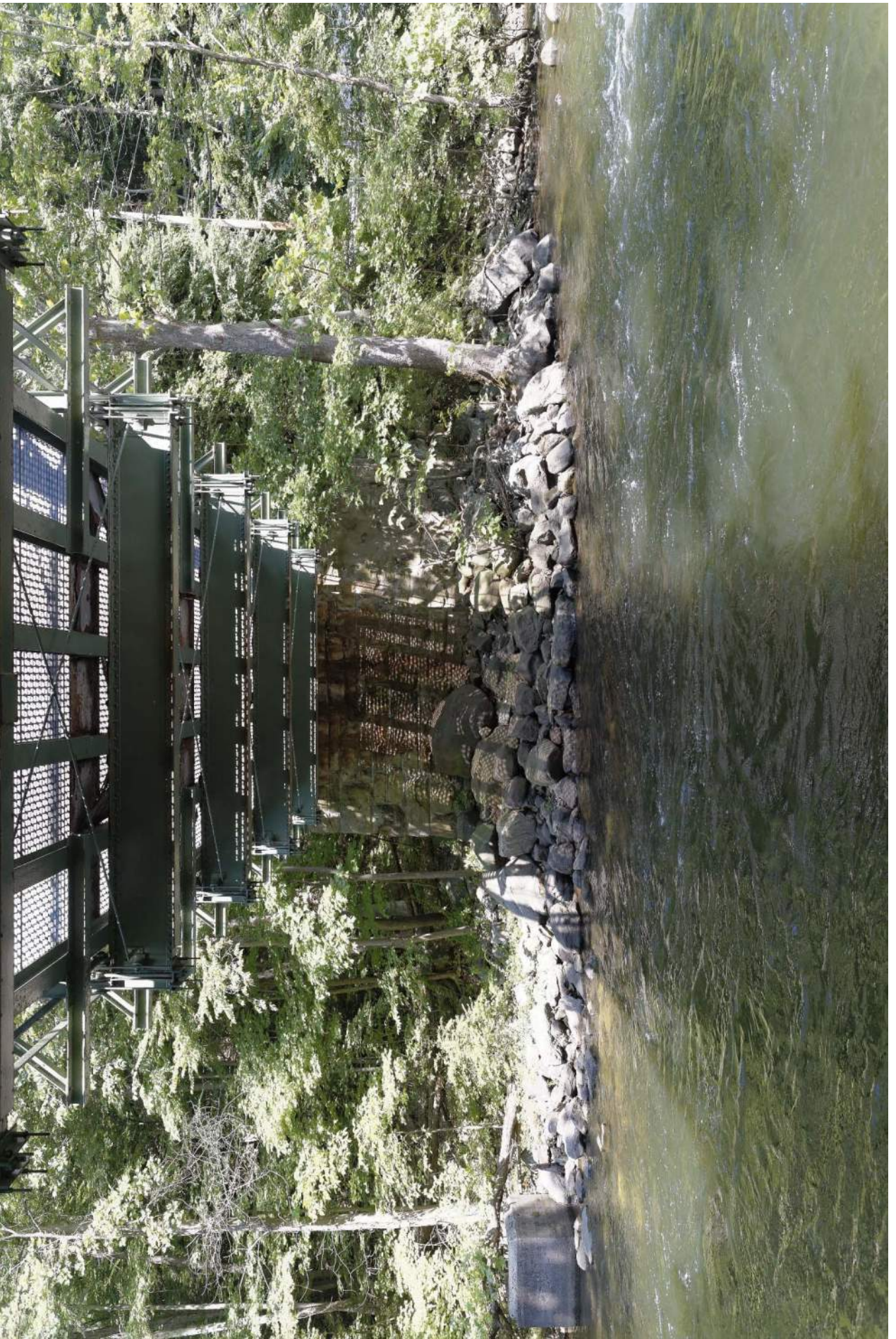
East façade, looking north, with scale stick



Detail, showing screw pin shackles, cables, outriggers and
guide rail supports, looking northwest



Undercarriage of bridge, deck, and north abutment, looking northwest



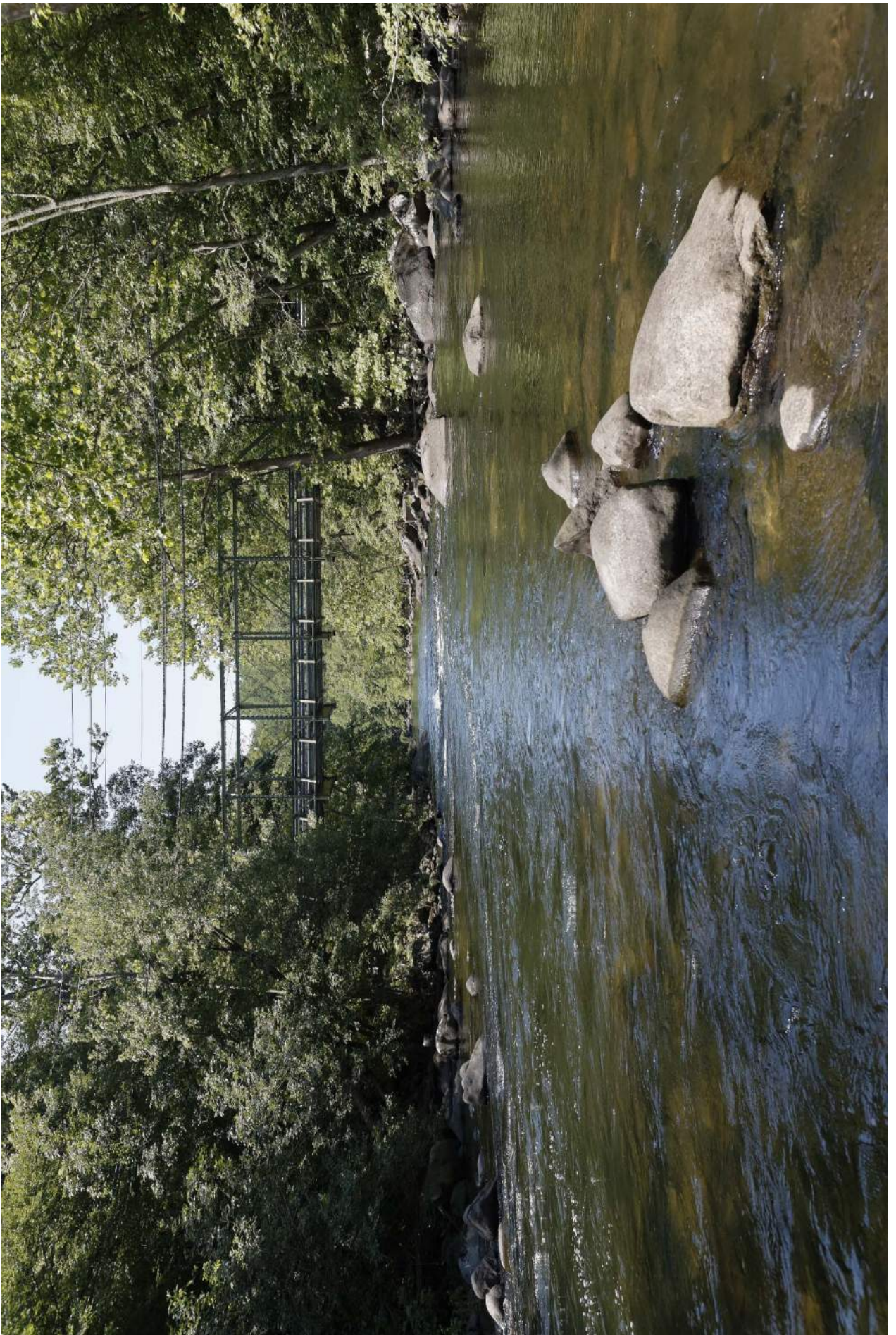
South abutment and west façade, looking east



North abutment, looking northeast



General view, looking southwest from Croton River bed





Parks, Recreation, and Historic Preservation

ANDREW M. CUOMO
Governor

ROSE HARVEY
Commissioner

January 9, 2018

Mr. Matt Hunt, P.E.
Creighton Manning
2 Winners Circle
Albany, NY 12205

Re: USACE
Quaker Bridge Road Bridge Study
Quaker Bridge Rd, Cortlandt, NY
17PR02639

Dear Mr. Hunt:

Thank you for continuing to consult with the New York State Historic Preservation Office (SHPO). We have reviewed the provided documentation in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources. They do not include other environmental impacts to New York State Parkland that may be involved in or near your project.

We have reviewed the revised APE map, the memorandum and alternatives analysis dated November 17th, 2017, and the HAER Level II documentation provided to our office on December 12th, 2017. We understand that demolition of the bridge is being proposed. As such, by definition under applicable state and federal historic preservation laws, demolition would be considered an Adverse Effect. Before our office can concur with the proposal it must be demonstrated that all reasonable alternatives to demolition have been considered. Based upon our review of the memorandum and alternatives analysis, it appears that all reasonable alternatives have not been satisfactorily explored. Specifically, we would request that the project team look at two additional alternatives:

1. Retrofitting the bridge to meet current performance standards while retaining some or all of the components of the historic truss. For example, retaining the truss but inserting a new bridge deck supported on new abutments.
2. An adaptive reuse alternative that would preserve the bridge for pedestrian use

Once we have reviewed the additional alternatives analysis and can agree that demolition is the most reasonable approach, we would move to an Agreement that admits the Adverse Effect, identifies mitigation, and includes the signature of the involved parties. We note that the public must be involved in the consultation process, per 106 regulations, and also that at this point review of mitigation such as the submitted HAER documentation is premature.

Please provide the additional analysis so that we can continue our review of the proposal and resolution of the project. We also note that for many 106 projects NYS DOT typically forwards a Finding Document to our office for review. Please provide this Finding Document, if available.

We would appreciate if the requested information could be provided via our Cultural Resource Information System (CRIS) at www.nysparks.com/shpo/online-tools/ Once on the CRIS site, you

can log in as a guest and choose "submit" at the very top menu. Next choose "submit new information for an existing project". You will need this project number and your e-mail address. If you have any questions, I can be reached at (518) 268-2182.

Sincerely,

A handwritten signature in black ink, appearing to read "Olivia Brazee". The signature is fluid and cursive, with the first name "Olivia" and last name "Brazee" clearly distinguishable.

Olivia Brazee
Historic Site Restoration Coordinator
olivia.brazee@parks.ny.gov

via e-mail only

June 1, 2018

Ms. Olivia Brazee
New York State Parks, Recreation & Historic Preservation
Peebles Island State Park, P.O. Box 189
Waterford, NY 12188-0189

**RE: BIN 3348560 – Quaker Bridge Road Bridge over Croton River; Town of Cortlandt,
Westchester County: 17PR02639**

Dear Ms. Brazee,

This letter is in response to the New York State Historic Preservation Office's (SHPO) letter dated January 9, 2018 requesting additional alternatives be evaluated for the above referenced project. The alternatives SHPO requested to be evaluated included:

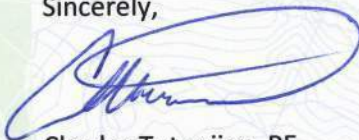
1. *"Retrofitting the bridge to meet current performance standards while retaining some or all of the components of the historic truss. For example, retaining the truss but inserting a new bridge deck supported on new abutments."*
2. *"An adaptive reuse alternative that would preserve the bridge for pedestrian use"*

After consideration of SHPO's comments and further consultation with the Westchester County Department of Public Works (WCDPW), the alternatives under consideration for this project have been revised. The revised Scope Summary Memorandum dated June 1, 2018 (attached) includes a detailed evaluation of three (3) feasible alternatives under consideration: one (1) Rehabilitation Alternative, one (1) Replacement Alternative and one (1) Replacement and Rehabilitation Alternative.

The Rehabilitation Alternative (Alternative 1 in the attached SSM) addresses the *"retrofitting the bridge"* evaluation required, and the Replacement and Rehabilitation Alternative (Alternative 7 in the attached SSM) addresses the *"adaptive reuse alternative"* evaluation request.

We respectfully request your review of the attached information and provide SHPO's opinion on the recommend alternative as identified in the Scope Summary Memorandum. If you have any questions, do not hesitate to reach out to me at ph: 518.689.1821 or ctutunjian@cmellp.com.

Sincerely,



Charles Tutunjian, PE
Project Manager

cc: Bud Nicoletti, WCDPW
E. Rivas, WCDPW

MEMORANDUM



ENGINEERS
PLANNERS
SURVEYORS

Date: June 1, 2018

To: Olivia Brazee
New York State Parks, Recreation & Historic Preservation Office
Peebles Island State Park, P.O. Box 189
Waterford, NY 12188-0189

From: Matt Hunt, P.E.
Creighton Manning Engineering, LLP

Project: Quaker Bridge Road over Croton River (BIN 3348560)
Bridge Replacement Study
Town of Cortlandt, Westchester County, NY

Re: Scope Summary Memorandum

1. Introduction

The Existing Quaker Road Bridge is in a deteriorated state and does not meet many of the modern day standards for roadway bridges. The project proposes to replace the existing bridge with a new structure that meets most current standards and eliminates all existing bridge deficiencies. The purpose of this memorandum is to describe the existing conditions, project objectives, and environmental review, as well as, to summarize the feasible alternatives and identify a preferred alternative for the above referenced project.

The Quaker Bridge Road Bridge over the Croton River is located approximately 1.25 miles southwest of the Croton Dam at the border of the Town of Cortlandt and the Village of Croton on Hudson. The project area is primarily residential with significant elevation changes within a wooded setting. Quaker Bridge Road is a winding two-lane road that connects Rt. 129 to the west and Old Albany Post Road to the east of the bridge. The asphalt roadway width is approximately 26 ft north of the bridge and 20 ft south of the bridge.

Originally built in 1894, the existing bridge is a 98 ft. single span steel through-truss structure on stone abutments founded on soil or bedrock. The existing structure is oriented perpendicular to the river and has



Existing Bridge Elevation View

no skew. The clear bridge roadway width is 16'-5" and functions as a single-lane bridge. "One lane bridge" signs are present on all approaches to the bridge.

2. Conditions

Westchester County conducted a bridge rehabilitation project in 2010 that provided various steel member retrofits in addition to providing a new paint system. Despite this recent rehabilitation, the Quaker Bridge Road Bridge is currently load posted for 15 tons. The NYSDOT has determined that the bridge should be posted for 12 tons, and there is an outstanding Yellow Flag for this inconsistent posting. The bridge has a long history of Yellow and Red Structural Flags with some of the most recent Yellow Flags being for the inconsistent load posting noted above, a cracked cover plate weld on a fracture critical floor beam 1, and a missing nut at the pin connection on the fracture critical lower chord.



Cracked cover plate weld



*Missing nut on bottom chord.
Also shows retrofit
attachment to floorbeams*

In addition to the Yellow Flags noted above, the bridge superstructure exhibits widespread deterioration. Various truss members have deterioration approaching 25% of the cross-sectional member area. In most locations on the bridge, previous corrosion was cleaned and painted over during the 2010 rehabilitation project. Additionally, both the left and right end chords are slightly twisted and bowed upward, indicating a past incident of being overstressed.

The 2010 rehabilitation also retrofit the vertical members, which consisted of thin forged-eye tension rods, with steel cables looped around the top and bottom chords. This

was necessary to keep the bridge open to traffic, as numerous tension members were cracked around the forge lines at the connection to the bottom chord. The failure of these types of members would result in complete failure of the bridge.

The deck consists of open steel grating with concrete filled sections above the truss floor beams. The steel grating is in fair condition, but concrete infill present at the floorbeams is severely deteriorated and crumbled. The presence of the concrete has resulted in trapped water in those areas, leading to corrosion of the floor beams. While not yet deteriorated, the steel stringers spanning between floorbeams exhibit significant deflection under live loading.

The bridge is posted for a vertical clearance of 11'-5", which is significantly less than the standard of 14'-0" and restricts some vehicles from using the bridge. There is evidence of past impacts to the upper bracing members of the end portal.



*Truss diagonal bowed due to
overstress (right of photo)*



*Existing truss members
retrofit with steel cables*

Both stone abutments are overall in good condition. No undermining or scour is present, but without original as-built plans, the NYSDOT flagged this structure as a potential scour critical bridge due to its unknown foundation type. The borings progressed for this study confirm that the abutments are not founded on bedrock and are therefore susceptible to failure due to scour. The approaches of the bridge are in poor condition. The east approach has up to 1.25" of differential settlement at the joint between the bridge deck and the pavement, and a slot drain located within the roadway at the west end of the bridge is clogged and not performing as originally intended. Approach guide rail consists of w-rail and is in fair condition with minor deformations due field bending of the rail and impact damage.

3. Project Objective

- Provide a structurally sufficient structure meeting current NYSDOT standards with a 75+ year design life.

4. Design Criteria

The design criteria are based on the NYSDOT Highway Design Manual, Chapter 2 and the NYSDOT Bridge Design Manual, 2017. The project is being designed for an anticipated annual average daily traffic (AADT) of 800 vpd for the design year 2048, and an urban local road classification with a design speed of 30 mph.

4.1 Critical Design Elements

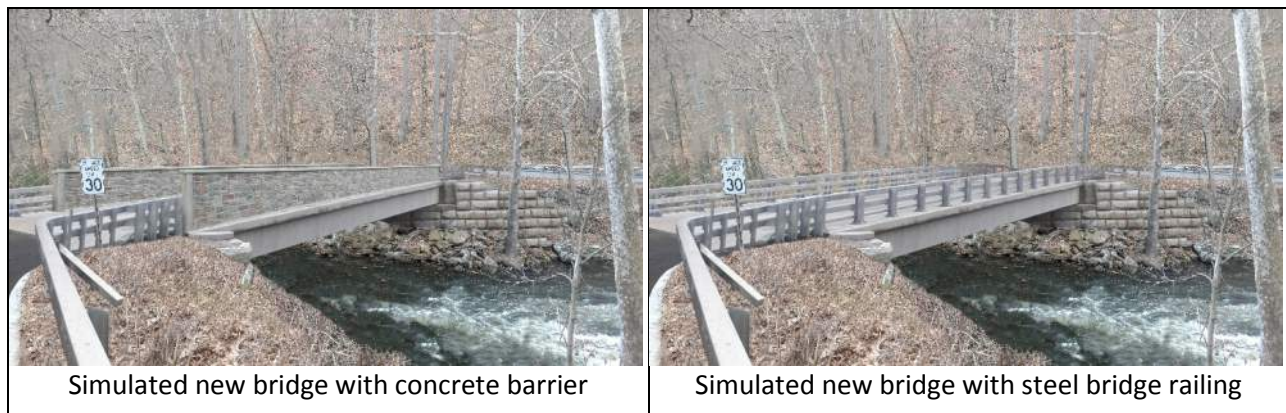
Table 4.1-A - Critical Design Elements for Quaker Bridge Road over Croton River				
Route No. & Name:		Quaker Bridge Road	Project Type:	Bridge Rehab/Replacement
Roadway Classification:		Urban Local	ETC+30 AADT (2048):	800
Element	Standard		Existing Condition	Alternative 2
1	Design Speed	30 mph – HDM 2.7.4.3	30 mph	30 mph
2	Lane Width	9 ft Min. - BM Table R and N, Appendix 2A	8.2 ft*	11 ft ⁽¹⁾
	Approach Lane Width		13 ft NW 9 ft SE	11 ft
3	Shoulder Width	3 ft Min. - BM Table R and N, Appendix 2A	0 ft*	1 ft (LT shldr.)* 5 ft (RT shldr.)
	Approach Shoulder Width		0 ft*	1 ft (LT shldr.)* 5 ft (RT shldr.)
4	Horizontal Curvature	188 ft. - HDM Sect 2.7.4.3, Exhibit 2-8	58 ft.*	38 ft.*
5	Superelevation Rate	4% Max. – HDM Sect 2.7.4.3, Exhibit 2-8	None*	None*
6	Stopping Site Distance	175 ft. – HDM Sect 2.7.4.3, Exhibit 2-8	78 ft*	63 ft*
7	Grade	15% Max – HDM Sect 2.7.4.3, Exhibit 2-8	10%	11.2%
8	Cross Slope	1.5% Min. - 3% Max. – HDM Sect 2.7.4.3, Exhibit 2-8	0.0%	2.0%
9	Vertical Clearance	14.5 ft. - BM Sect 2.4	12.4 ft.*	Unlimited
10	Str Capacity	HS-20 Live Load - BM Sect 2.5.2	12 Tons*	HL-93
11	ADA Compliance	HDM Chapter 18	N/A	5 ft shoulder ⁽²⁾
12	Freeboard	Q ₅₀ + 2 ft (BM 2.4.3)	9.2 ft	7.5 ft
13	Design Life		N/A	75+ Years
* Non-Standard Feature ⁽¹⁾ 11'-0" lane widths are proposed at the request of Westchester County ⁽²⁾ 5 ft shoulder accommodates two-way pedestrian traffic				

5. Feasible Alternatives

5.1 Preferred Alternative - Replacement on Existing Alignment with Road Closure (Alternative 2)

This alternative will replace the existing bridge with a new 100 ft. single span on the existing alignment. The bridge roadway will consist of two 11 ft wide travel lanes, a 5 ft wide shoulder on the downstream side, and a 1 ft wide shoulder on the upstream side of the bridge. The 5 ft wide shoulder is proposed on the downstream side of the bridge to accommodate two-way pedestrian traffic in the vicinity of the Croton Gorge Trail. The rail-to-rail clear bridge roadway width is 28 ft (12.5 ft increase over existing) and the out to out bridge width is 31'-4". See drawing ST2-1 in Appendix A.

The proposed structure type will be evaluated and selected in a subsequent phase of this project, but superstructure options include either steel or prestressed concrete beams with a composite concrete deck. Factors to be considered in selecting the superstructure type include long-term maintenance, initial cost, and aesthetic treatment options. Superstructure types will also be contingent upon the feasibility of delivering superstructure components to the site. After evaluating the shipping route, it is anticipated that delivery of full length beams associated with this alternative is feasible from the north approach. See the visual simulations below and drawing ST2-2 in Appendix A for an elevation view of this alternative.



The substructures will consist of cast-in-place conventional cantilever concrete abutments supported by a footing founded on piles bearing on bedrock. Both of the proposed abutments will be located in approximately the same location as the existing abutments. The proposed bridge will be perpendicular to the stream with non-skewed substructures.

Retaining walls in addition to abutment wingwalls will be required to retain the northeast and southeast approach roadways. The retaining wall along the northeast approach roadway will replace an existing laid up stone wall, while the wall along the southeast approach will accommodate a slight change in roadway geometry at the top of a very steep embankment slope (1.3H to 1.0V). The retaining wall type will be selected in a subsequent phase of this project, but wall options include precast fill type walls, Geosynthetically reinforced soil walls, or cast-in-place concrete cantilever walls.

The proposed horizontal alignment of the new bridge and its approaches will closely match the existing roadway on the north side and will be modified on the south side. The north approach roadway alignment will consist of a compound curve with radii of 180 ft and 38 ft connecting into a tangent across the bridge. The tangent then connects to a curve on the south approach with a radius of 51 ft followed by another tangent section continuing along Quaker Bridge Road. Quaker Bridge Road East consists of a single tangent intersecting into the Quaker Bridge Road alignment. The modifications to the alignment on the south approach creates a through-movement pattern for Quaker Bridge Road. The proposed vertical alignment will consist of a 3.0% grade across the bridge that will tie into the south approach at the reconstruction limit and will tie into the reconstructed Quaker Bridge Road/Quaker Bridge Road East roadway. The proposed vertical profile will raise the south end of the bridge approximately 1 ft. The approaches will be reconstructed for

approximately 165 ft and 225 ft to the north and south of the bridge, respectively. See the alternative 2 plans in the Appendix.

This alternative will have Right-of-Way (ROW) impacts due to the increased bridge roadway width, embankment construction, and close proximity of existing highway boundary to the existing structure. See the ROW section of this report for additional details.

Overhead utilities are located within the project area, it is anticipated that these lines will need to be temporarily relocated to facilitate erection of the new beams and demolition of the existing bridge.

The bridge will be closed during construction and traffic detoured via an offsite detour route. The full length detour from one side of the bridge to the other side will be 5.7 miles long and add approximately 11 minutes to travel times. The detour route will utilize Rt. 129, Rt. 9, and Old Albany Post Road. Construction is anticipated to last 8 months.

This Alternative will meet most current NYSDOT geometric and structural standards while providing a 75+ year design life. It will; however, remove the historic eligible truss bridge from the site. This alternative is a feasible replacement solution while balancing total costs and impacts to adjacent properties. The total cost of Alternative 2 including design, ROW acquisition, construction, and construction inspection is approximately \$7,100,000.

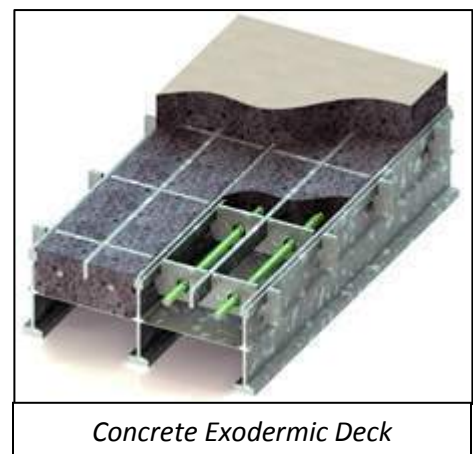
5.2 Dismissed Alternatives

Several additional alternatives were evaluated with respect to bridge location, span length, feasible superstructure types, approach reconstruction work, impact to Right-of-Way, and constructability. These additional alternatives were provided in a previous submission and will not be included in this package. Two of the feasible alternatives considered are bridge rehabilitation and bridge replacement with adaptive reuse of the existing bridge. A summary of these feasible alternatives and the reasons for dismissal are as follows:

Bridge Rehabilitation – Alternative 1

This alternative will rehabilitate and strengthen the existing bridge to remove the existing load posting and prolong its service life. Geometric improvements to the bridge roadway or the roadway approaches are not feasible with this alternative, as the location of the bridge will not change. The project will retain all of the non-standard features noted in the design criteria table with the exception of the load carrying capacity.

The original truss was not designed to carry loads equivalent to modern vehicles, so based on an analysis completed by Creighton Manning, this bridge rehabilitation project will replace and/or strengthen 16 of the 28 members along with the associated pins and other connection elements on each truss (see member summary table in Appendix B). The floorbeams will also be replaced to both ensure adequate strength for the increased bridge load carrying capacity and to eliminate reoccurring yellow flags for cracking floorbeam cover plate welds. See drawing ST1-2 in Appendix A for a visual representation of the members to be replaced. The steel grating deck will be replaced with a cast-in-place concrete exodermic deck with new painted steel bridge railing. This type of deck incorporates steel stringers into the deck, thereby eliminating the need for separate stringers and provides a concrete surface to protect the steel floorbeams below. The bridge roadway width will be reduced by 5'± to 16'-0" to accommodate the new bridge railing and a decorative fencing that will mimic the original 1894 X-patterned railing.



The existing substructures will be retained and modified to accept the rehabilitated truss along with new elastomeric bearings. The existing concrete bridge seat will be removed and a new seat will be installed to accommodate taller replacement bearings. In addition to the new bridge seat, the laid-up stone joints in the abutment will be cleaned and repointed.

The bridge approaches will be reconstructed in the vicinity of the bridge to ensure the roadway will exactly match the rehabilitated bridge. As previously noted, geometric improvements are not feasible, so the work will be limited to repaving to match the existing roadway widths along with minimal drainage improvements at the ends of the bridge to eliminate the existing trench drains extending across the both approach roadways. See drawing ST1-1 in Appendix A for reconstruction limits.

All of the existing steel members will be sandblasted to bare metal and the entire bridge will be painted with a 3-coat paint system after it has been reassembled.

This alternative will have temporary Right-of-Way (ROW) impacts to provide the contractor access for construction.

It is likely that the entire bridge superstructure will be removed from its abutments and disassembled in order to make the necessary repairs and improvements. The rehabilitated truss will then be reinstalled, which will likely require relocation of the overhead utilities.

The bridge will be closed during construction and traffic detoured via an offsite detour route. The full length detour from one side of the bridge to the other side will be 5.7 miles long and add approximately 11 minutes to travel times. The detour route will utilize Rt. 129, Rt. 9, and Old Albany Post Road. Construction is anticipated to last 8-12 months.

This Alternative will not improve the geometric characteristics of the bridge and its approaches. It will, however, upgrade the structure to accept HS-20 loading standards and provide an estimated 20-year extension of the bridge service life before additional repairs are required. This alternative is feasible inasmuch as it will maintain connectivity between the Village of Croton and Town of Cortlandt. The total cost of Alternative 1 including design, temporary ROW acquisition, construction, and construction inspection is approximately \$6,700,000.

Reason for Dismissal

The design and construction cost of this rehabilitation alternative is estimated to be 94% of the preferred alternative, which is an initial savings of approximately \$400,000. While the rehabilitated structure will be able to carry standard highway loading, the non-standard bridge roadway width and vertical clearance will be retained. The bridge service life is also anticipated to be only 20 years (55 years less than the preferred alternative). For these reasons, alternative 1 has been dismissed.

New Bridge on Adjacent Alignment and Adaptive Reuse of Existing Bridge for Pedestrians – Alternative 7

This alternative will retain the existing bridge and construct a new bridge on an adjacent parallel alignment upstream from the existing bridge. A new 115 ft. single span structure will provide two 11 ft wide travel lanes, and 3 ft wide shoulders on the each side of the bridge for a clear bridge roadway width of 28 ft (12.5 ft increase over existing).

The structure and scope of work for the new bridge will essentially be the same as described in Alternative 3 of the draft scope summary memorandum (SSM) dated November 17, 2017 except the existing bridge will be closed during construction so it can be rehabilitated for use as a pedestrian bridge. The face of the new substructures will utilize a custom formliner and staining to mimic the existing stone abutments, which will also remain in place.

In addition to constructing a new bridge, the existing bridge will be rehabilitated to adapt its use to a pedestrian bridge to accommodate users of the nearby Croton Gorge Trail. Pedestrian design criteria requires at least an 8 ft bridge path width and an 8 ft vertical clearance must be provided. The existing bridge deck geometry of 15.5 ft wide by 11.4 ft vertical clearance meets this design criteria, but the load carrying capacity is not sufficient for the standard 80 pounds per square foot live load. The existing bridge will therefore need to be rehabilitated to increase its strength to ensure the ongoing safety of its users.

The scope of the bridge rehabilitation portion of this alternative will be the same as described in Alternative 1 in this memorandum. However, the approaches to the rehabilitated existing bridge will be reconfigured to be a 10 ft wide connection to the Croton Gorge Trail on the north end and a 15.5 ft wide connection to Quaker Bridge Rd on the south end. The north end will be entirely shielded from vehicular traffic by new box beam guiderail, while removable bollards will be installed on the south end. Asphalt outside of the new multi-use path will be removed and the areas will be topsoiled and seeded.

The total cost of Alternative 7 including design, ROW acquisition, construction, and construction inspection is approximately \$11,600,000.

Reason for Dismissal

This alternative meets the project objective for providing a new vehicular bridge meeting all current structural standards. However, compared to the preferred alternative, this alternative has more significant permanent ROW acquisitions and environmental impacts, a 63% higher (\$4.5M) total project cost, and the possible feasible superstructure types are more limited due to the increased span length. Additionally, this alternative will retain the existing structure, which is anticipated to require costly maintenance and/or replacement within 20 years. For these reasons, Alternative 7 has been dismissed from further consideration.

6. Geotechnical

Three soil borings were progressed at the project site; two on the Cortlandt end and one on the Croton end. On the Cortlandt side, the soil consists primarily of very compact gravelly sand with a trace amount of silt. Bedrock was encountered at a depth of 54 feet below the roadway surface.

Soil characteristics were similar on the Croton end with the soil consisting of gravelly sand with trace silt to a depth of approximately 10 feet below the roadway surface. A gravelly sand mixture with possible weathered rock fragments exists from a depth of 10 ft to 26 ft, where a silver-black-brown-grey schist was encountered.

7. Hydraulics

The hydraulic model was developed using the as-built record plans, inspection reports for the existing bridge (BIN 3348560), NYS stream stats, USGS gauge stations, and FEMA maps. The Croton River is a relatively straight flowing river with several manmade features built within the river channel including the Black Rock Dam located approximately 650 ft upstream of the Quaker Bridge Road Bridge. The most notable manmade feature affecting stream flow data is the Croton Dam. The hydraulic model determines the water surface elevations for the 50- and 100-yr storm events as required per NYSDOT Bridge Manual 2.4.3. Flow data for the 50- and 100-yr storm events came from NYS Stream Stats and are 10,800 cf and 12,800 cf respectively. As part of testing and calibrating the model to ensure accuracy, flow data for the Hurricane Irene storm event measured by an upstream USGS gauging station was entered in the model. The Irene storm event produced a flow of 22,600 cf, and the hydraulic model was adjusted to reflect water surface elevations similar to documented observations.

The hydraulic analysis for the existing Quaker Bridge Road Bridge over the Croton River indicates water surface elevations at the structure inlet of 31.7 ft and 33.0 ft for the 50- and 100-yr storms respectively. With the low chord at elevation 40.9 ft for the existing structure, there is 9.2 ft and 7.9 ft of freeboard provided for each respective storm event.

Summary of Existing Hydraulics		
Drainage Area = 377 square miles	Design Flood	Base Flood
Recurrence Interval (years)	50	100
Peak Discharge (ft ³ /s)	10,800	12,800
WSE at Structure Inlet (ft)	31.7	33.0
Freeboard Provided (ft)	9.2	7.9
Average Velocity thru Structure (ft/s)	13.8	14.6

Creighton Manning performed a hydraulic analysis for a conventional concrete abutment and beam type structure. The low chord for the proposed structure is set at 39.2 ft. Based on the analysis, the water surface elevations for the conventional structure did not change from the existing. Freeboard provided by the conventional structure is at 7.5 ft and 6.2 ft respectively for the 50- and 100-yr storm event. See table below for a summary of the hydraulic information.

Summary of Proposed Alternative 2 Hydraulics		
Drainage Area = 377 square miles	Design Flood	Base Flood
Recurrence Interval (years)	50	100
Peak Discharge (ft ³ /s)	10,800	12,800
WSE at Structure Inlet (ft)	31.7	33.0
Freeboard Provided (ft)	7.5	6.2
Average Velocity thru Structure (ft/s)	13.8	14.6

8. Utilities

Overhead utilities are located within the project area along the upstream side of the existing bridge. Utility lines are approximately 35 ft to 45 ft away from the upstream fascia. The utilities consist of electric and telephone/cable lines owned by Con Edison and Verizon respectively. It is anticipated that these lines will need to be temporarily relocated to facilitate erection of the new beams and removal of the existing bridge.

9. Right of Way

Right-of-way acquisitions are required for Alternatives 2. There are four properties owned by the Village of Croton on Hudson surrounding the highway boundary on the north end of the bridge. In the northeast quadrant, there is a private property owned by Louis Pinkham and Chao Dai, and in the southeast quadrant, there is a parcel of land owned by NYSDEC. The anticipated acquisitions for the preferred alternative are as follows:

Table 9.1-A - Summary of ROW Acquisitions		
Tax Map #	Property Owner	Alternative 2
68.18-1-42 & 79.06-1-2	Village of Croton On Hudson	2500 SF FEE Taking
68.18-2-4	Village of Croton On Hudson	400 SF FEE Taking
68.18-2-1	Village of Croton On Hudson	2000 SF FEE Taking
68.18-3-10	Louis V. Pinkham & Chao Dai	3100 SF Temporary Easement

10. Work Zone Traffic Control

The bridge will be closed during construction and traffic detoured via an offsite detour route. The full length detour from one side of the bridge to the other side will be 5.7 miles long and add approximately 11 minutes to travel times. The detour route will utilize Rt. 129, Rt. 9, and Old Albany Post Road.

As an alternative to detouring traffic, the use of a temporary bridge to maintain traffic onsite was investigated. However, this option is estimated to cost \$1.3 million more than the detour option and would result in additional right-of-way easements and environmental impacts due to the construction of temporary abutments and roads. For the reasons of cost, ROW, and environmental impacts, this option for traffic management during construction has been dismissed.

11. Environmental

11.1 SEQR

Westchester County is the SEQR lead agency. In accordance with 6 NYCRR, Part 617, "Procedures for Implementation of State Environmental Quality Review Act", the project is a SEQR Type II Action, therefore no further SEQR processing is required.

11.2 SHPO

A consultation with the New York State Historic Preservation Office has been initiated for the Quaker Bridge Road Bridge Study. The initial screening on the NYSHPO website did not identify any other cultural resources located within or immediately adjacent to the project site other than the bridge itself, which is eligible for National Register listing. Hartgen Archeological Associates, Inc. has completed a Historic American Engineering Record (HAER) Level II Documentation package. An effect determination has not been made by SHPO at this time regarding the preferred alternative.

11.3 Environmental Screenings

An environmental screening of the project area was performed and it has been determined that the proposed construction will not have an impact nor adverse affect on any of the following:

- Floodplains (Flood elevations remain the same);
- Prime or unique agricultural land;
- Agricultural districts, when more than one acre may be affected;
- Water resources, including lakes, reservoirs, rivers and streams;
- Water supply sources;
- Designated wild, scenic and recreational rivers;
- Unique ecological, natural wooded or scenic areas;
- Rare, threatened or endangered species;
- Any area designated as a critical environmental area pursuant to 6 NYCRR, Part 617

11.3.1 Wetlands

An initial review on the NYSDEC Environmental Resource Mapper, accessed on August 15, 2017, indicates there are no NYSDEC regulated freshwater wetlands within the project area. It is anticipated that no impacts to wetlands will occur as a result of this project.

11.3.2 Surface Waterbodies and Watercourses

The Croton River is classified by the NYSDEC as a class B stream through the project site. The best usage for Class “B” water is for swimming and other contact recreational uses, but not for drinking water.

This construction project will require substructure work that will occur in the stream. Stream work, as well as any work that may result in suspension of sediment, can be accomplished any time of the year with no seasonal restriction dates.

11.3.3 Endangered and Threatened Species

The USFWS IPAC system, accessed August 16, 2017, indicates one endangered and one threatened species within the project area. The endangered species include the Indiana Bat and the threatened species is the Northern Long-eared Bat. Since this project will likely require a federal permit from the US Army Corp of Engineers, the regulations enforced by the USFWS to protect endangered and threatened species are mandatory to follow.

The Indiana Bat is known to occur at elevations below 900’ NGVD within 10 to 40 miles away from the nearest hibernaculum. Their roosting habitat is in trees greater than 4” in diameter. The project site has an approximate elevation of 45’ NGVD and is located approximately 20 miles from the nearest hibernaculum located at Williams Lake Roost Site. The Northern Long-Eared Bat whose range encompasses all of New York State, is proposed for inclusion on the USFWS Endangered Species List. To ensure that this project will not adversely impact the Indiana or Northern Long-eared bat populations, tree removals shall occur between October 1 and March 31.

11.4 Anticipated Environmental Permits

The proposed project will require a New York Department of Environmental Conservation (NYSDEC) permits for stream disturbance and 401 water quality certification. In addition, a Temporary Revocable Permit from NYSDEC will be required for temporary access to NYSDEC land during construction.

It is anticipated that project will proceed under the U.S. Army Corps of Engineers (ACOE) Nationwide Permit #3.

12. Project Schedule

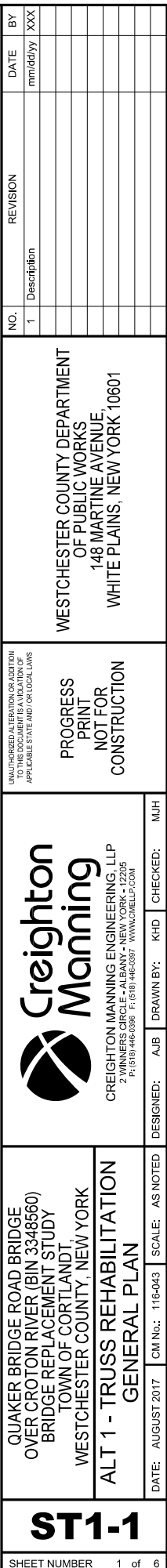
Project Schedule	
Milestone	Date
Stakeholder Meeting	July 2018
Address Stakeholder Comments	August 2018
Final Report	September 2018

Appendix A

Feasible Alternatives Preliminary Plans

Feasible Alternatives Estimate

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY, IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.



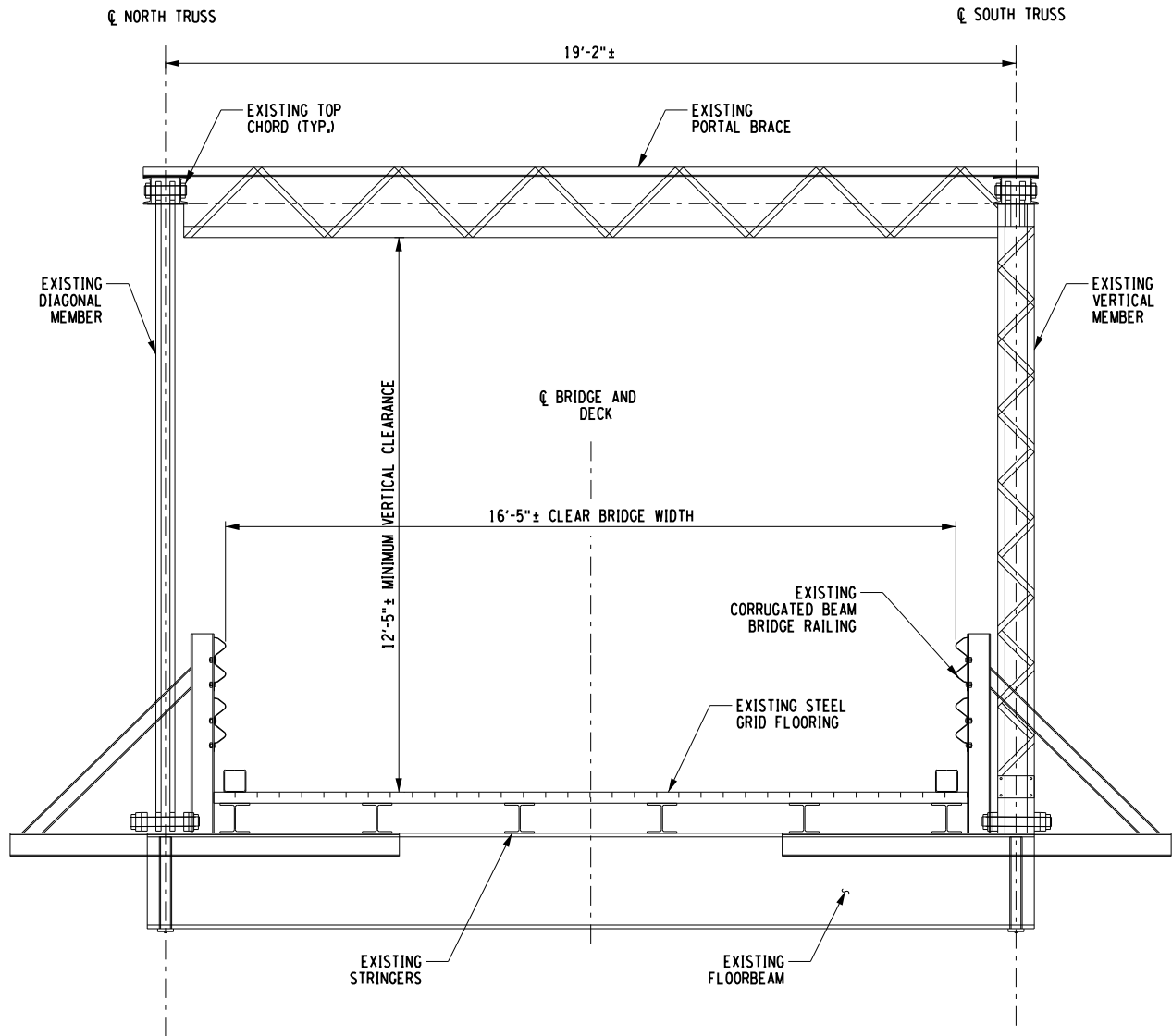
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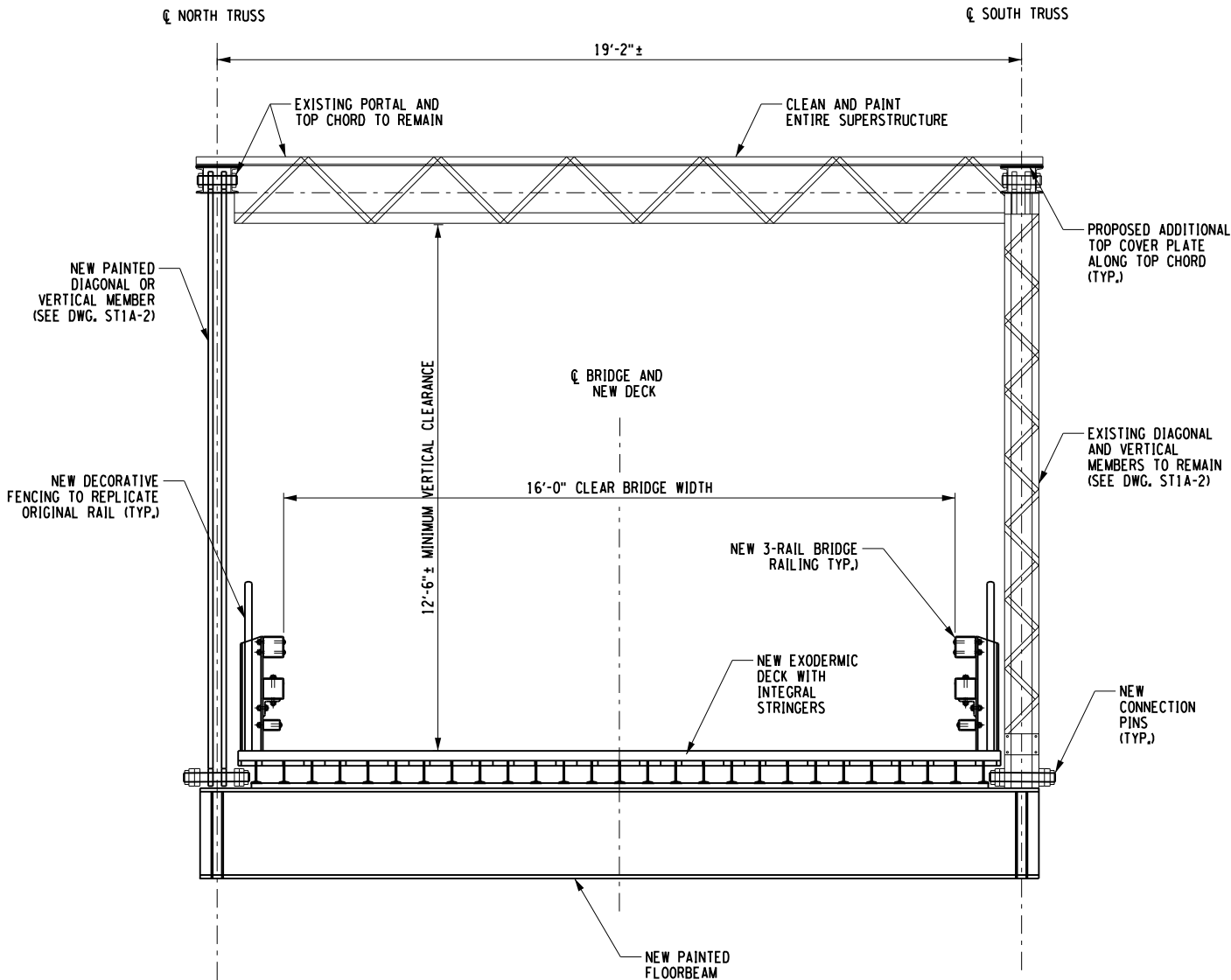
ST1-2		QUAKER BRIDGE ROAD BRIDGE OVER CROTON RIVER (BIN 3348560) BRIDGE REPLACEMENT STUDY TOWN OF CORTLANDT WESTCHESTER COUNTY, NEW YORK	
		ALT 1 - TRUSS REHABILITATION ELEVATION	
DATE:	AUGUST 2017	CM No.:	116-043
		SCALE:	AS NOTED

FILE : N:\P-projects\2016\116-043 Quaker Bridge\cadd\dwg\175971_cpb_tup_02.dwg
DATE : 6/7/2018
USER : M Morrissey

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EXISTING BRIDGE SECTION
NOT TO SCALE



PROPOSED BRIDGE SECTION
NOT TO SCALE

NOTES:
1. ALL STEEL TO BE SAND BLASTED AND PAINTED.

DATE: AUGUST 2017		CM No.: 116-043	SCALE: AS NOTED	DESIGNED: AJB	DRAWN BY: KHD	CHECKED: MJH
ST1-3						
SHEET NUMBER ## of 6						
QUAKER BRIDGE ROAD BRIDGE OVER CROTON RIVER (BIN 3348560) BRIDGE REPLACEMENT STUDY TOWN OF CORTLANDT, WESTCHESTER COUNTY, NEW YORK						
ALT 1 - TRUSS REHABILITATION SECTIONS						
 CREIGHTON MANNING ENGINEERING, LLP 2 WINNERS CIRCLE • ALBANY • NEW YORK • 12245 P: (518) 446-0396 F: (518) 446-0397 WWW.CMEELP.COM						
PROGRESS PRINT NOT FOR CONSTRUCTION						
UNAUTHORIZED ALTERATION OR ADDITION APPLICABLE STATE AND/OR LOCAL LAWS						
WESTCHESTER COUNTY DEPARTMENT OF PUBLIC WORKS 148 MARTINE AVENUE WHITE PLAINS, NEW YORK 10601						
NO.	1	Description				
REVISION						
DATE	mm/dd/yyyy					
BY	XXX					

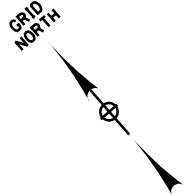
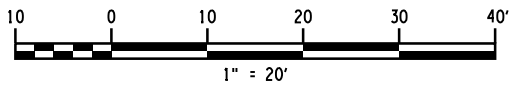
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DATE = 6/7/2018
USER = mhorrissey

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CURVE 1	
PC =	STA. M 1+26.9
PCC =	STA. M 2+54.22
Δ	= 40°43'16.22"
R	= 180.00'
Dc	= 31°49'51.56"
L	= 127.92'
T	= 66.80'

CURVE 2	
PCC =	STA. M 2+54.22
PT =	STA. M 2+90.59
Δ	= 54°50'38.67"
R	= 38.00'
Dc	= 150°46'42.12"
L	= 36.37'
T	= 19.72'

CURVE 3	
PC =	STA. M 3+91.07
PT =	STA. M 4+53.35
Δ	= 69°58'01.08"
R	= 51.00'
Dc	= 112°20'40.80"
L	= 62.28'
T	= 27.42'



LANDS N/F OF
STATE OF NEW YORK
DEPARTMENT OF CONSERVATION
BK. PG.
TM 7906-2-3

LANDS N/F OF
VILLAGE OF CROTON ON HUDSON
BK. PG.
TM 7906-1-2

LANDS N/F OF
VILLAGE OF CROTON ON HL
BK. PG.
TM 6818-2-4

LANDS N/F OF
LOUIS V. PINKHAM AND
GHAD-DALOC
BK. PG.
TM 6818-3-10

ST2-1

SHEET NUMBER 1 of 6

ALT 2 - PROPOSED PLAN

QUAKER BRIDGE ROAD BRIDGE
OVER CROTON RIVER (BIN 3348560)
BRIDGE REPLACEMENT STUDY
TOWN OF CORTLANDT,
WESTCHESTER COUNTY, NEW YORK

DESIGNED: AJB

DRAWN BY: KHD

CHECKED: MJH

DATE: AUGUST 2017

CM No.: 116-043

SCALE: AS NOTED

UNAUTHORIZED ALTERATION OR ADDITION
APPLICABLE STATE AND/OR LOCAL LAWS

PROGRESS
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CONSTRUCTION

WESTCHESTER COUNTY DEPARTMENT
OF PUBLIC WORKS
148 MARTINE AVENUE
WHITE PLAINS, NEW YORK 10601

NO. 1

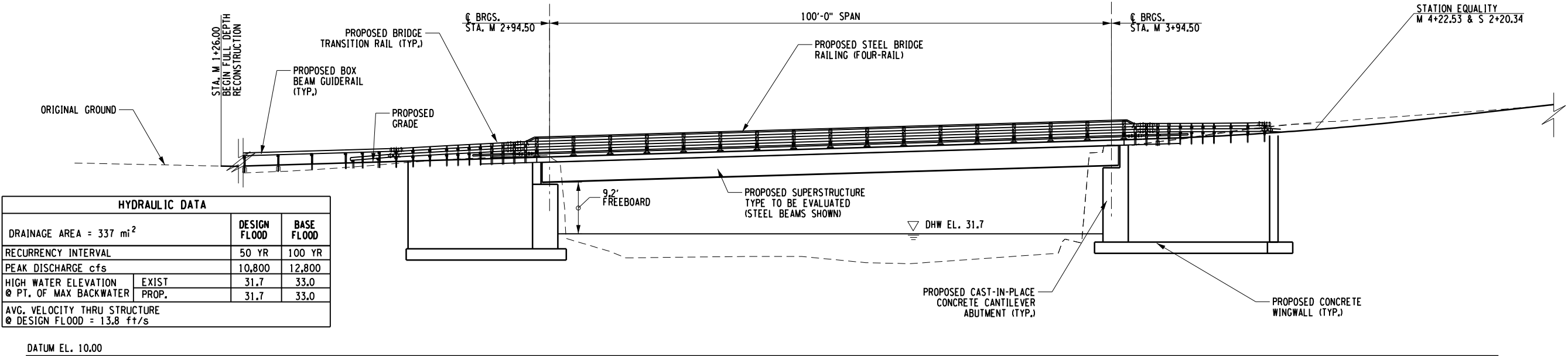
DESCRIPTION

REVISION

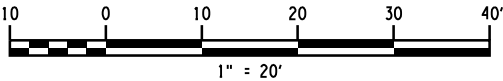
DATE

BY

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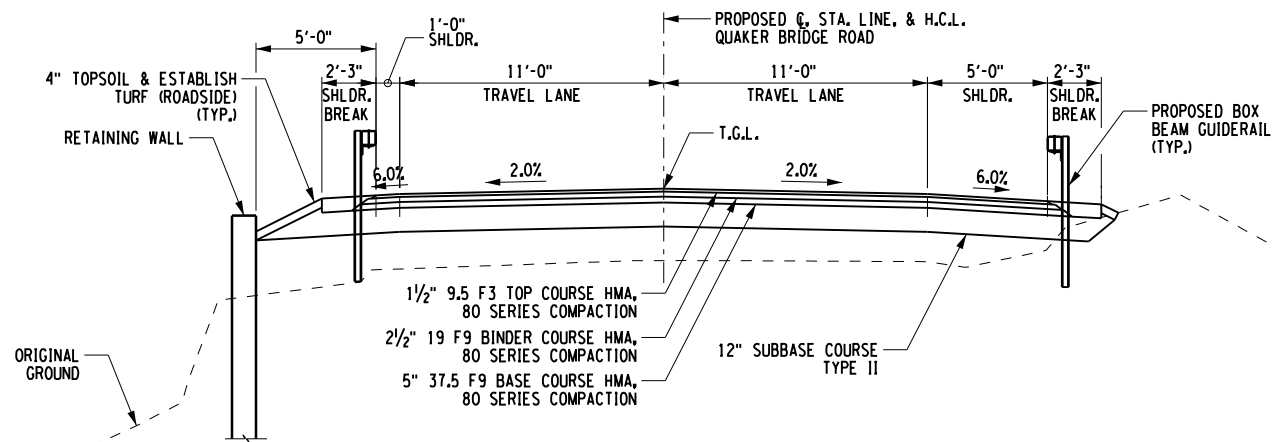


ELEVATION

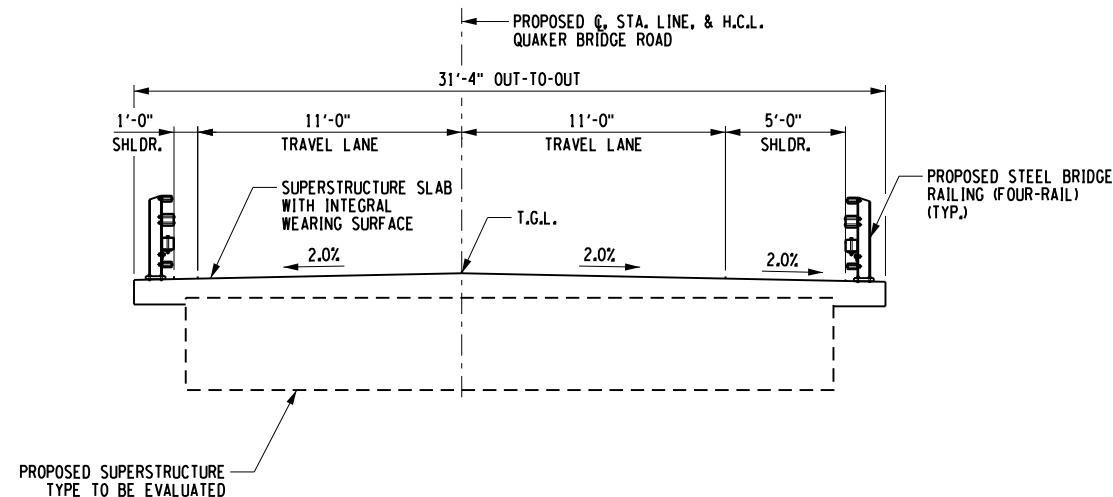


QUAKER BRIDGE ROAD BRIDGE OVER CROTON RIVER (BIN 3348560) BRIDGE REPLACEMENT STUDY TOWN OF CORTLANDT, WESTCHESTER COUNTY, NEW YORK		DATE: AUGUST 2017		CM No.: 116-043	SCALE: AS NOTED	DESIGNED: AJB		DRAWN BY: KHD	CHECKED: MJH
ALT 2 - PROPOSED ELEVATION		UNAUTHORIZED ALTERATION OR ADDITION APPLICABLE STATE AND / OR LOCAL LAWS		PROGRESS PRINT NOT FOR CONSTRUCTION		WESTCHESTER COUNTY DEPARTMENT OF PUBLIC WORKS 148 MARTINE AVENUE WHITE PLAINS, NEW YORK 10601		NO. 1	
ST2-2		DATE		mm/dd/yy	XXX	REVISION		BY	
SHEET NUMBER		2		of		6			

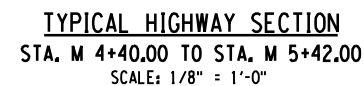
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TYPICAL HIGHWAY SECTION
STA. M 1+80.00 TO STA. M 2+77.00
SCALE: 1/8" = 1'-0"



TYPICAL BRIDGE SECTION
SCALE: 1/8" = 1'-0"



WESTCHESTER COUNTY DEPARTMENT
OF PUBLIC WORKS
148 MARTINE AVENUE,
WHITE PLAINS, NEW YORK 10601

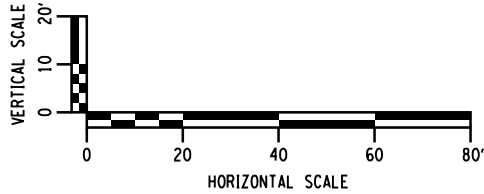
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Creighton Manning
CREIGHTON MANNING ENGINEERING, LLP
2 WINNERS CIRCLE • ALBANY • NEW YORK • 12205

QUAKER BRIDGE ROAD BRIDGE
OVER CROTON RIVER (BIN 3348560)
BRIDGE REPLACEMENT STUDY
TOWN OF CORTLANDT,
WESTCHESTER COUNTY, NEW YORK

ST2-3

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**Creighton
Manning**

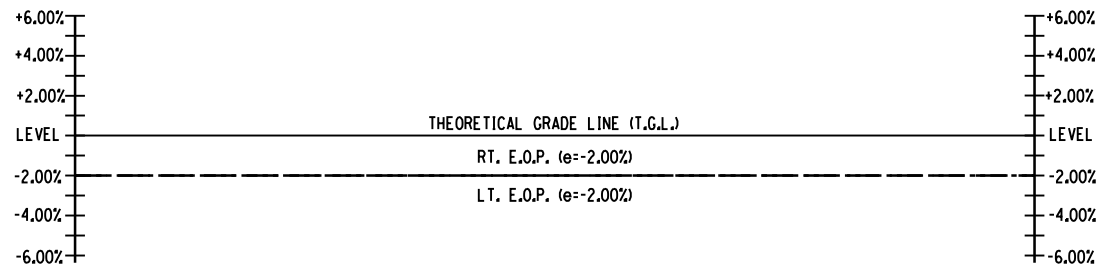
CREIGHTON MANNING ENGINEERING, LLP
2 WINNERS CIRCLE - ALBANY, NEW YORK 12205
P: (518) 446-0397 F: (518) 446-0397 WWW.CMEELP.COM

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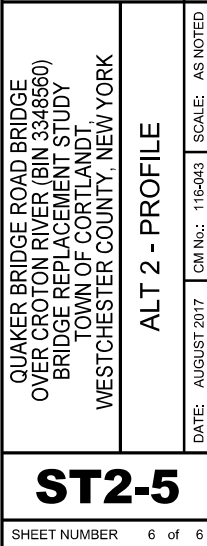
WESTCHESTER COUNTY DEPARTMENT
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QUAKER BRIDGE ROAD EAST



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148 MARTINE AVENUE,
WHITE PLAINS, NEW YORK 10601

[illegible]

Quaker Bridge over Croton River

CME#: 116-043

Bridge Rehabilitation - Offsite Detour Alternative (Alt 1)

Preliminary Rehabilitation Estimate
Jun-18

Description	Unit	Quantity	Unit Price	Total Cost
CLEARING AND GRUBBING	LS	1	\$50,000.00	\$50,000.00
REMOVING EXISTING SUPERSTRUCTURES	LS	1	\$400,000.00	\$400,000.00
REINSTALLATION OF REHABILITATED SUPERSTRUCTURE	LS	1	\$400,000.00	\$400,000.00
SUBBASE COURSE, TYPE 2	CY	1000	\$100.00	\$100,000.00
9.5 F3 TOP COURSE HMA, 80 SERIES COMPACTION	TON	40	\$250.00	\$10,000.00
19 F9 BINDER COURSE HMA, 80 SERIES COMPACTION	TON	50	\$250.00	\$12,500.00
37.5 F9 BASE COURSE HMA, 80 SERIES COMPACTION	TON	108	\$250.00	\$27,000.00
SUPERSTRUCTURE SLAB WITH INTEGRAL WEARING SURFACE - BOT	SY	213	\$300.00	\$63,900.00
EXODERMIC BRIDGE DECK PANELS	SY	213	\$450.00	\$95,850.00
CLEAN AND REPOINT RUBBLE STONE MASONRY	SY	94	\$500.00	\$47,000.00
STRUCTURAL STEEL, TYPE 1	LS	1	\$30,000.00	\$30,000.00
STRUCTURAL STEEL REPLACEMENT	LB	4100	\$15.00	\$61,500.00
STRUCTURAL STEEL REPLACEMENT	LB	2100	\$15.00	\$31,500.00
STRUCTURAL STEEL REPLACEMENT	LB	1400	\$15.00	\$21,000.00
STRUCTURAL STEEL REPLACEMENT	LB	7000	\$15.00	\$105,000.00
STRUCTURAL STEEL REPLACEMENT	LB	11000	\$15.00	\$165,000.00
STRUCTURAL STEEL REPLACEMENT - MISCELLANEOUS	LB	15000	\$15.00	\$225,000.00
CLASS A CONTAINMENT FOR PAINT REMOVAL	LS	1	\$100,000.00	\$100,000.00
DISPOSAL OF NON-HAZARDOUS INDUSTRIAL SOLID PAINT WASTE	LB	57750	\$1.00	\$57,750.00
STRUCTURAL STEEL PAINTING FIELD APPLIED, TOTAL REMOVAL	LS	1	\$750,000.00	\$750,000.00
REMOVAL OF RIVETS - REPLACEMENT WITH HIGH STRENGTH BOLTS	EACH	1900	\$110.00	\$209,000.00
BOX BEAM GUIDE RAILING	LF	202	\$50.00	\$10,100.00
REMOVAL OF EXISTING STEEL	LB	4300	\$20.00	\$86,000.00
REMOVAL OF EXISTING STEEL	LB	2200	\$20.00	\$44,000.00
REMOVAL OF EXISTING STEEL	LB	1400	\$20.00	\$28,000.00
REMOVAL OF EXISTING STEEL	LB	7300	\$20.00	\$146,000.00
REMOVAL OF EXISTING STEEL	LB	8300	\$20.00	\$166,000.00
STEEL BRIDGE RAILING (THREE RAIL)	LF	204	\$175.00	\$35,700.00
DECORATIVE RAILING	LF	204	\$150.00	\$30,600.00
BASIC WORK ZONE TRAFFIC CONTROL	LS	1	\$340,000.00	\$340,000.00
SURVEY OPERATIONS	LS	1	\$80,000.00	\$80,000.00
Construction Cost				\$3,929,000
Wetland Mitigation				\$0
Incidentals (25%)				\$983,000
Subtotal 1				\$4,912,000
Field Change Order (5%)				\$246,000
Subtotal 2				\$5,158,000
Mobilization (4%)				\$207,000
Subtotal 3				\$5,365,000
Design				\$750,000
Construction Inspection				\$500,000
ROW Costs				\$80,000
Total Cost				\$6,700,000



QUAKER BRIDGE ROAD OVER CROTON RIVER

CME#: 116-043

Preliminary Engineer's Estimate - Alternative 2 Replacement on existing alignment with detour
Jun-18

Item No.	Description	Unit	Quantity	Unit Price	Total Cost
201.06	CLEARING AND GRUBBING	LS	1	\$50,000.00	\$50,000.00
202.120001	REMOVING EXISTING SUPERSTRUCTURES	LS	1	\$400,000.00	\$400,000.00
202.19	REMOVAL OF SUBSTRUCTURES	CY	278	\$500.00	\$139,000.00
203.02	UNCLASSIFIED EXCAVATION AND DISPOSAL	CY	670	\$75.00	\$50,250.00
203.03	EMBANKMENT IN PLACE	CY	429	\$50.00	\$21,450.00
203.21	SELECT STRUCTURE FILL	CY	289	\$115.00	\$33,235.00
206.01	STRUCTURE EXCAVATION	CY	1865	\$75.00	\$139,875.00
209.1801	ROLLED EROSION CONTROL PRODUCT, CLASS I TYPE A, SHORT TERM	SY	56	\$10.00	\$560.00
304.12	SUBBASE COURSE, TYPE 2	CY	452	\$100.00	\$45,200.00
402.128903	12.5 F9 TOP COURSE HMA, SHOULDER COURSE, 80 SERIES COMPACTION	TON	95	\$250.00	\$23,750.00
402.198903	19 F9 BINDER COURSE HMA, 80 SERIES COMPACTION	TON	164	\$250.00	\$41,000.00
402.378903	37.5 F9 BASE COURSE HMA, 80 SERIES COMPACTION	TON	338	\$250.00	\$84,500.00
552.2101	ROCK SOCKETS FOR SOLDIER PILE AND LAGGING WALL	LF	259	\$2,250.00	\$582,750.00
552.2201	SOLDIER PILES FOR SOLDIER PILE AND LAGGING WALL	LF	689	\$325.00	\$223,925.00
552.230301	PRECAST CONCRETE PANEL LAGGING FOR SOLDIER PILE AND LAGGING WALL	SF	5418	\$75.00	\$406,350.00
555.08	FOOTING CONCRETE, CLASS HP	CY	151	\$800.00	\$120,800.00
555.09	CONCRETE FOR STRUCTURES, CLASS HP	CY	249	\$1,600.00	\$398,400.00
556.03	STUD SHEAR CONNECTORS FOR BRIDGES	EACH	2583	\$5.00	\$12,915.00
557.0102	SUPERSTRUCTURE SLAB WITH INTEGRAL WEARING SURFACE - BOTTOM	SY	364	\$425.00	\$154,700.00
557.2002	STRUCTURAL APPROACH SLAB WITH INTEGRAL WEARING SURFACE - TYPE	SY	63	\$325.00	\$20,475.00
558.02	LONGITUDINAL SAWCUT GROOVING OF STRUCTURAL SLAB SURFACE	SY	388	\$15.00	\$5,820.00
564.0501	STRUCTURAL STEEL, TYPE 1	LS	1	\$590,000.00	\$590,000.00
564.20010008	HOT-DIP GALVANIZING OF STRUCTURAL STEEL	LB	116020	\$1.00	\$116,020.00
565.2022	TYPE E.B. FIXED BEARING (56 TO 111 KIPS)	EACH	4	\$5,000.00	\$20,000.00
565.2032	TYPE E.B. EXPANSION BEARING (56 TO 111 KIPS)	EACH	4	\$5,000.00	\$20,000.00
568.51	STEEL BRIDGE RAILING (FOUR RAIL)	LF	212	\$250.00	\$53,000.00
568.70	TRANSITION BRIDGE RAILING	LF	128	\$175.00	\$22,400.00
603.171316	GALVANIZED STEEL END SECTIONS-PIPE (2-2/3" X 1/2" CORRUGATIONS) 23	EACH	3	\$500.00	\$1,500.00
603.9815	SMOOTH INTERIOR CORRUGATED POLYETHYLENE CULVERT AND STORM	LF	130	\$60.00	\$7,800.00
604.300611	RECTANGULAR DRAINAGE STRUCTURE TYPE F FOR #11 WELDED FRAME	LF	20	\$1,500.00	\$30,000.00
606.10	BOX BEAM GUIDE RAILING	LF	342	\$40.00	\$13,680.00
606.120101	BOX BEAM END PIECE	EACH	1	\$600.00	\$600.00
619.01	BASIC WORK ZONE TRAFFIC CONTROL	LS	1	\$200,000.00	\$200,000.00
620.05	STONE FILLING (HEAVY)	CY	311	\$120.00	\$37,320.00
625.01	SURVEY OPERATIONS	LS	1	\$40,000.00	\$40,000.00
637.12---25	ENGINEER'S FIELD OFFICE - TYPE 2	MNTH	9	\$5,000.00	\$45,000.00
637.34	OFFICE TECHNOLOGY AND SUPPLIES	DC	10000	\$1.00	\$10,000.00
				Construction Cost	\$4,163,000
				Wetland Mitigation	\$0
				Incidentals (25%)	\$1,041,000
				Subtotal 1	\$5,204,000
				Field Change Order	\$261,000
				Subtotal 2	\$5,465,000
				Mobilization (4%)	\$219,000
				Subtotal 3	\$5,684,000
				Design	\$750,000
				Construction Inspection	\$500,000
				ROW Costs	\$100,000
				Total Cost	\$7,100,000



QUAKER BRIDGE ROAD OVER CROTON RIVER

CME#: 116-043

Preliminary Engineer's Estimate - Alternative 7 Replacement on adjacent alignment adaptive use of existing
Jun-18

Item No.	Description	Unit	Quantity	Unit Price	Total Cost
201.06	CLEARING AND GRUBBING	LS	1	\$50,000.00	\$50,000.00
202.120001	TEMPORARY BRIDGE SUPPORT SYSTEM	LS	1	\$500,000.00	\$500,000.00
203.02	UNCLASSIFIED EXCAVATION AND DISPOSAL	CY	670	\$75.00	\$50,250.00
203.03	EMBANKMENT IN PLACE	CY	429	\$50.00	\$21,450.00
203.21	SELECT STRUCTURE FILL	CY	289	\$115.00	\$33,235.00
206.01	STRUCTURE EXCAVATION	CY	1865	\$75.00	\$139,875.00
209.1801	ROLLED EROSION CONTROL PRODUCT, CLASS I TYPE A, SHORT TERM	SY	56	\$10.00	\$560.00
304.12	SUBBASE COURSE, TYPE 2	CY	452	\$100.00	\$45,200.00
402.128903	12.5 F9 TOP COURSE HMA, SHOULDER COURSE, 80 SERIES COMPACTION	TON	95	\$250.00	\$23,750.00
402.198903	19 F9 BINDER COURSE HMA, 80 SERIES COMPACTION	TON	164	\$250.00	\$41,000.00
402.378903	37.5 F9 BASE COURSE HMA, 80 SERIES COMPACTION	TON	338	\$250.00	\$84,500.00
551.99420017	MICROPILES (CONTRACTOR DESIGNED) - WITH EXTENDED LENGTHS - DESIGN LOAD LESS THAN 100 TONS	EACH	60	\$10,000.00	\$600,000.00
551.99450017	PERMANENT CASING FOR MICROPILES	LF	400	\$200.00	\$80,000.00
552.2101	ROCK SOCKETS FOR SOLDIER PILE AND LAGGING WALL	LF	259	\$2,250.00	\$582,750.00
552.2201	SOLDIER PILES FOR SOLDIER PILE AND LAGGING WALL	LF	689	\$325.00	\$223,925.00
552.230301	PRECAST CONCRETE PANEL LAGGING FOR SOLDIER PILE AND LAGGING WALL	SF	5418	\$75.00	\$406,350.00
555.08	FOOTING CONCRETE, CLASS HP	CY	151	\$1,500.00	\$226,500.00
555.09	CONCRETE FOR STRUCTURES, CLASS HP	CY	249	\$2,200.00	\$547,800.00
556.03	STUD SHEAR CONNECTORS FOR BRIDGES	EACH	2583	\$10.00	\$25,830.00
557.0101	SUPERSTRUCTURE SLAB WITH INTEGRAL WEARING SURFACE - BOTTOM FORMWORK REQUIRED - TYPE 1 FRICTION	SY	190	\$550.00	\$104,500.00
557.0102	SUPERSTRUCTURE SLAB WITH INTEGRAL WEARING SURFACE - BOTTOM FORMWORK REQUIRED - TYPE 2 FRICTION	SY	401	\$425.00	\$170,425.00
557.2002	STRUCTURAL APPROACH SLAB WITH INTEGRAL WEARING SURFACE - TYPE 2 FRICTION	SY	63	\$375.00	\$23,625.00
558.02	LONGITUDINAL SAWCUT GROOVING OF STRUCTURAL SLAB SURFACE	SY	577	\$20.00	\$11,540.00
560.10010007	CLEAN AND REPOINT RUBBLE STONE MASONRY	SY	105	\$650.00	\$68,250.00
564.0501	STRUCTURAL STEEL, TYPE 1	LS	1	\$850,000.00	\$850,000.00
564.0502	STRUCTURAL STEEL, TYPE 2	LS	1	\$87,000.00	\$87,000.00
564.700001	STRUCTURAL STEEL REPLACEMENT	EACH	1	\$15,000.00	\$15,000.00
564.700002	STRUCTURAL STEEL REPLACEMENT	EACH	2	\$50,000.00	\$100,000.00
564.700003	STRUCTURAL STEEL REPLACEMENT	EACH	1	\$15,000.00	\$15,000.00
564.700004	STRUCTURAL STEEL REPLACEMENT	EACH	1	\$75,000.00	\$75,000.00
564.700005	STRUCTURAL STEEL REPLACEMENT	EACH	4	\$50,000.00	\$200,000.00
564.700006	STRUCTURAL STEEL REPLACEMENT	EACH	7	\$15,000.00	\$105,000.00
564.700007	STRUCTURAL STEEL REPLACEMENT	EACH	2	\$30,000.00	\$60,000.00
573.010001	STRUCTURAL STEEL PAINTING FIELD APPLIED, TOTAL REMOVAL	LS	1	\$500,000.00	\$500,000.00
565.2021	TYPE E.B. FIXED BEARING (0 TO 55 KIPS)	EACH	2	\$5,000.00	\$10,000.00
565.2031	TYPE E.B. EXPANSION BEARING (0 TO 55 KIPS)	EACH	2	\$5,000.00	\$10,000.00
565.2022	TYPE E.B. FIXED BEARING (56 TO 111 KIPS)	EACH	4	\$2,500.00	\$10,000.00
565.2032	TYPE E.B. EXPANSION BEARING (56 TO 111 KIPS)	EACH	4	\$2,500.00	\$10,000.00
568.10010011	BIKEWAY WALKWAY FENCE	LF	200	\$300.00	\$60,000.00
568.51	STEEL BRIDGE RAILING (FOUR RAIL)	LF	212	\$250.00	\$53,000.00
568.70	TRANSITION BRIDGE RAILING	LF	128	\$175.00	\$22,400.00
585.01	STRUCTURAL LIFTING OPERATIONS - TYPE A	EACH	4	\$15,000.00	\$60,000.00
585.02	STRUCTURAL LIFTING OPERATIONS - TYPE B	EACH	2	\$15,000.00	\$30,000.00
585.03	STRUCTURAL LIFTING OPERATIONS - TYPE C	EACH	1	\$15,000.00	\$15,000.00
603.171316	GALVANIZED STEEL END SECTIONS-PIPE (2-2/3" X 1/2" CORRUGATIONS) 21 INCH DIAMETER, 16 GAUGE	EACH	3	\$500.00	\$1,500.00
603.9815	SMOOTH INTERIOR CORRUGATED POLYETHYLENE CULVERT AND STORM DRAIN 15 INCH DIAMETER	LF	130	\$60.00	\$7,800.00
604.300611	RECTANGULAR DRAINAGE STRUCTURE TYPE F FOR #11 WELDED FRAME	LF	20	\$1,500.00	\$30,000.00
606.10	BOX BEAM GUIDE RAILING	LF	342	\$40.00	\$13,680.00
606.120101	BOX BEAM END PIECE	EACH	1	\$600.00	\$600.00
607.45120011	ORNAMENTAL STEEL MESH FENCE 4 FT HIGH	LF	180	\$250.00	\$45,000.00
608.71145108	BOLLARD-FIXED SURFACE MOUNTED, WITHOUT LIGHTING, WIDTH OVER 7 TO 9 INCHES, HEIGHT 30 TO 36 INCHES	EACH	4	\$2,000.00	\$8,000.00
619.01	BASIC WORK ZONE TRAFFIC CONTROL	LS	1	\$500,000.00	\$500,000.00
620.05	STONE FILLING (HEAVY)	CY	311	\$120.00	\$37,320.00
625.01	SURVEY OPERATIONS	LS	1	\$40,000.00	\$40,000.00
637.12-----25	ENGINEER'S FIELD OFFICE - TYPE 2	MNTH	9	\$5,000.00	\$45,000.00
637.34	OFFICE TECHNOLOGY AND SUPPLIES	DC	10000	\$1.00	\$10,000.00
				Construction Cost	\$7,088,000
				Wetland Mitigation	\$0
				Incidentals (25%)	\$1,772,000
				Subtotal 1	\$8,860,000
				Field Change Order	\$443,000
				Subtotal 2	\$9,303,000
				Mobilization (4%)	\$373,000
				Subtotal 3	\$9,676,000
				Design	\$1,000,000
				Construction Inspector	\$800,000
				ROW Costs	\$100,000
				Total Cost	\$11,600,000

Appendix B

Load Rating Summary Table

QUAKER BRIDGE LOAD RATING SUMMARY

TRUSS MEMBERS (REHABILITATED WITH NEW EXODERMIC DECK)

All Spans

Member		Member Capacity (k)	Applied Load - Axle Loading		Applied Load - Lane Loading		PASS/FAIL
			Tension (k)	Compression (k)	Tension (k)	Compression (k)	
Top Chord	L0-U1	206.2	-	206.66	-	193.74	FAIL
	U1-U2	230.1	-	223.47	-	195.62	PASS
	U2-U3	230.1	-	265.15	-	234.45	FAIL
	U3-U4	230.1	-	266.84	-	234.52	FAIL
	U4-U5	230.1	-	264.80	-	234.10	FAIL
	U5-U6	230.1	-	222.70	-	194.84	PASS
	U6-U7	206.2	-	205.66	-	192.74	PASS
Bottom Chord	L0-L1	107.3	136.08	-	117.32	-	FAIL
	L1-L2	107.3	136.08	-	117.32	-	FAIL
	L2-L3	136.5	223.47	-	195.62	-	FAIL
	L3-L4	156.0	259.67	-	222.83	-	FAIL
	L4-L5	136.5	222.70	-	194.84	-	FAIL
	L5-L6	107.3	135.42	-	116.66	-	FAIL
	L6-L7	107.3	135.42	-	116.66	-	FAIL
Verticals	L1-U1	52.0	76.64	-	82.00	-	FAIL
	L2-U2	93.6	-	82.49	-	69.29	PASS
	L3-U3	93.6	-	44.49	-	33.33	PASS
	L4-U4	93.6	-	45.30	-	34.14	PASS
	L5-U5	93.6	-	82.98	-	69.78	PASS
	L6-U6	52.0	76.02	-	81.38	-	FAIL
Diagonals	U1-L2	107.3	157.53	-	140.62	-	PASS
	U2-L3	107.3	107.22	-	89.68	-	PASS
	U3-L4	39.8	56.72	-	42.04	-	FAIL
	U4-L5	19.9	5.69	-	3.58	-	PASS
	L2-U3	19.9	5.84	-	3.73	-	PASS
	L3-U4	39.8	57.79	-	43.10	-	FAIL
	L4-U5	107.3	107.87	-	90.33	-	FAIL
	L5-U6	107.3	157.36	-	140.44	-	FAIL

QUAKER BRIDGE LOAD RATING SUMMARY

STRINGERS & FLOORBEAMS (REHABILITATED W/NEW EXODERMIC DECK)

All Spans

Member	Capacity		Axle Loading		Lane Loading		
	Flexure (k-ft)	Shear (k)	LL Flexure (k-ft)	Shear (k)	LL Flexure (k-ft)	Shear (k)	
Stringers - 2 & 5	93.84	46.15	44.11	15.25	31.15	15.51	PASS
Floorbeam - 1	431.60	78.42	483.52	95.26	438.97	86.55	FAIL

Notes:

1. Analysis assumes all deficient members of the truss has been repaired to full capacity.
2. Analysis assumes no section loss to members
3. No slack eye bar in analysis
4. Analysis assumes all floorbeams are similar
5. All ratings are based off of inventory ratings



Parks, Recreation, and Historic Preservation

ANDREW M. CUOMO
Governor

ROSE HARVEY
Commissioner

June 19, 2018

Mr. Matt Hunt, P.E.
Creighton Manning
2 Winners Circle
Albany, NY 12205

Re: USACE
Quaker Bridge Road Bridge Study
Quaker Bridge Rd, Cortlandt, NY
17PR02639

Dear Mr. Hunt:

Thank you for continuing to consult with the New York State Historic Preservation Office (SHPO). We have reviewed the provided documentation in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources. They do not include other environmental impacts to New York State Parkland that may be involved in or near your project.

We have reviewed the additional Alternatives Analysis information that was provided to our office on June 1st, 2018. Based upon our review, we concur with the determination that the existing bridge must be replaced for long-term safety, performance, and cost reasons. The removal and replacement will have an Adverse Effect on the historic bridge, and therefore, at this time we suggest drafting a Memorandum of Agreement to memorialize the Adverse Effect and stipulate appropriate mitigation measures. Remember that the Advisory Council on Historic Preservation and Tribal Historic Preservation Officers must be consulted on the adverse effect and proposed mitigation under Section 106.

We would appreciate if the requested information could be provided via our Cultural Resource Information System (CRIS) at www.nysparks.com/shpo/online-tools/. Once on the CRIS site, you can log in as a guest and choose "submit" at the very top menu. Next choose "submit new information for an existing project". You will need this project number and your e-mail address. If you have any questions, I can be reached at (518) 268-2182.

Sincerely,

Olivia Brazee
Historic Site Restoration Coordinator
olivia.brazee@parks.ny.gov

via e-mail only

Division for Historic Preservation

P.O. Box 189, Waterford, New York 12188-0189 • (518) 237-8643 • www.nysparks.com