NextEra Energy Transmission New York, Inc.

(NEETNY)

Empire State Line

Town of Royalton in Niagara County, and the Towns of Alden, Newstead, Lancaster, and Elma in Erie County

Stormwater Pollution Prevention Plan

in compliance with NYSDEC General Permit GP-0-20-001 for stormwater discharges

June 2020

NEXTera® ENERGY TRANSMISSION NEW YORK

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1.0 Introduction

NextEra Energy Transmission New York, Inc. (NEETNY) has prepared this Stormwater Pollution Prevention Plan (SWPPP) for construction activities associated with the Empire State Line 345 kilovolt (kV) Transmission Project (Project).

The New York State Public Service Commission issued an Order Granting a Certificate of Environmental Compatibility and Public Need for the Project on June 16, 2020 (Certificate). The Project includes a new approximately 20-mile 345 kV transmission line and associated switchyards in the town of Royalton in Niagara County, New York, and the towns of Alden, Newstead, Lancaster, and Elma in Erie County, New York; a new 345 kV switchyard (Dysinger Switchyard) in Niagara County; and a second, new switchyard (East Stolle Switchyard) in Erie County. The approximately 20-mile 345 kV transmission line will be built on an existing utility corridor, owned by New York State Electric & Gas Corporation (NYSEG), and will connect the Dysinger and East Stolle Switchyards to each other. In turn, the Dysinger Switchyard will be connected to the Power Authority of the State of New York (NYPA) 345 kV Niagara lines via two double circuit structures approximately 0.30 miles in length and the NYSEG 345 kV Kintigh lines via two single circuit structures approximately 0.15 miles in length (Dysinger Tie-Ins). Likewise, the East Stolle Switchyard will be connected to the NYSEG Stolle Road Substation via single circuit structures approximately 0.2 miles in length and NYSEG 345 kV Stolle Road to Homer City transmission line via single circuit structures approximately 0.2 miles in length (East Stolle Tie-Ins). Acquisition of additional ROW and off ROW access will be required in several areas for the transmission line. Temporary best management practices (BMPs) and post construction stormwater management controls will be implemented. The Project has a required in-service date of June 1, 2022.

The area of construction-related impacts is estimated to be 96.4 acres due to soil disturbance from clearing, construction access, erosion and sediment control implementation, transmission line construction operations, switchyard installation, spoil stockpiling and other construction-related disturbance. The Project will result in approximately 15 acres of impervious areas due to the installation of Dysinger Switchyard and East Stolle Switchyard.

The SWPPP has been prepared as part of the requirements for coverage under the New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) General Permit for Discharges from Construction Activity (GP-0-20-001) which results in greater than 1 acre of soil disturbance. Elma is a Municipal Separate Storm Sewer System (MS4) and the Project will be subject to the local jurisdictional authority. Construction outside the Town of Elma is not subject to MS4 jurisdiction and will meet the requirements of the NYSDEC. A Notice of Intent (NOI) has been

submitted to NYSDEC, Albany Main Office, certifying that this Project complies with the technical requirements of (GP-0-20-001) for a 5-day NYSDEC Review. The formal submittal is complete and a copy of the NOI has be included in Attachment A. The NOI has indicated that the Project will disturb more than 5 acres. Because of this, written authorization from the NYSDEC will be required. The NOI Acknowledgement Letter from the NYSDEC is included in Attachment B.

The purpose of the SWPPP is to establish requirements and instructions for the management of construction-related stormwater discharges. NYSDEC Standards and Specifications for Erosion Control (NYSSESC) are the major components of this SWPPP that mitigate potential pollutant and sediments running off-site. The standards will also be used to attenuate peak flows and dissipate stormwater velocities.

Personnel responsible for implementation of the SWPPP are identified in Attachment C.

NEETNY is the Owner and Operator of the Project. Any Contractor hired by NEETNY or the Project general contractor will be required to acknowledge understanding of the contents of this SWPPP and GP-0-20-001, included in Attachment D. The SWPPP, NOI, and NOI Acknowledgement Letter will be kept onsite in a secure and accessible location. The Owner and Contractor will sign the certification forms included in Attachment E.

Construction activities are anticipated to result in greater than 5 acres of disturbance at any one time. At a minimum, and in accordance with GP-0-020-001, documented site inspections will be performed twice every seven calendar days by a qualified inspector to ensure all required erosion and sediment control measures are installed correctly and in good condition. The twice weekly inspections will be continual for the duration of construction and until the site is permanently stabilized.

The SWPPP serves as the minimum requirements necessary for proper stormwater management during construction. If unanticipated site conditions warrant additional methods of control, the Contractor, in consultation with the Environmental Monitor shall implement those measures in accordance with this SWPPP and the NYSSESC.

This SWPPP is included as Appendix D to the Environmental Management and Construction Plan (EM&CP) filed in compliance with the requirements of the Certificate.[1]

[1] *See e.g.*, Joint Proposal at ¶140 and Certificate Conditions 31 and 34.

2.0 Construction Contact List

The construction site personnel contact list for the Project is provided in Attachment C. The listed construction site personnel have operational control of stipulated activities to ensure compliance with the SWPPP and GP-0-20-001 conditions. The duties of these personnel include one or more of the following:

- Implementation of the SWPPP;
- Oversite maintenance practices identified as BMPs in the SWPPP;
- Conduct or provide for inspection or monitoring activities;
- Identify other potential erosion, sediment and pollutant sources during construction and ensure they are appropriately addressed;
- Make any amendments to the SWPPP necessitated by field conditions and ensure they are implemented, and
- Document all activities associated with implementation of this SWPPP and supporting documents.

3.0 Existing Site Conditions

3.1 Site Location

The Proposed Line consists of the transmission line along approximately 20 miles of green field right of way ROW adjacent to an existing power line corridor and terminating at Dysinger Switchyard in the north and East Stolle Switchyard on the south. The new Dysinger to East Stolle 345 kV transmission line will primarily be built within the NYSEG Utility Corridor. From the Dysinger Switchyard, the Proposed Line will cross from the west side to the east side of the NYSEG Utility Corridor. The Proposed Line will follow the NYSEG 230 kV Line 65 on the east side of the NYSEG Utility Corridor continuing generally south for approximately 20 miles to the new East Stolle Switchyard. The majority of the Proposed Line will be located within Erie County (19.1 miles) and the remainder in Niagara County (1.4 miles).

The new Dysinger Switchyard will occupy an approximately 7-acre site in the northern portion of a 49-acre parcel in the town of Royalton, in Niagara County. The site is approximately 600 feet south of Akron Road and 900 feet east of Block Church Road. The new switchyard will be offset approximately 150 feet from the western edge of the NYSEG Utility Corridor, and approximately 1,500 feet north of the ROW utilized for the NYPA 345 kV Niagara lines. Four approximately 0.3-mile parallel transmission lines will be constructed between the south end of the Dysinger Switchyard and the two existing NYPA 345 kV lines. Two additional approximately 0.2-mile parallel transmission lines will be constructed between the north end of the Dysinger Switchyard and the NYSEG 345 kV Somerset lines.

The new East Stolle Switchyard will occupy an approximately 6-acre site directly within the NYSEG Utility Corridor in the town of Elma, in Erie County. The new switchyard will be due north and adjacent to the existing NYSEG Stolle Road Substation. The site is currently used as hayfield. The topography is nearly flat and will require minimal grading to provide a level site for development. An approximately 0.2-mile transmission line will be constructed between the East Stolle Switchyard and the existing NYSEG Stolle Road Substation, connecting into the existing bay for the NYSEG 345 kV Stolle Road to Homer City line. In addition, an approximately 0.2-mile extension of the Stolle Road to Homer City transmission line will be constructed to tie the NYSEG line into the East Stolle Switchyard.

3.2 Waterbodies and Wetlands

Sixteen NYSDEC-regulated wetlands exist within the Project ROW. Table 1 provides a summary of the NYSDEC regulated wetlands traversed by the Project. Seven of these wetlands are Class II wetlands and one is a Class III wetland. Each have combinations of shallow emergent marsh (PEM), scrub shrub (PSS) or forested wetland (PFO) classification characteristics throughout the Project ROW.

Table 1. NYSDEC-Regulated Wetlands within the Project ROW

NYSDEC Wetland ID	NYSDEC Wetland Class	Cowardin Class	Area within Proposed ROW (acres)
WO-25	II	PEM/PSS/PFO	10.82
WO-37	III	PEM/PSS/PFO	9.44
WO-13	II	PEM/PSS/PFO	3.86
WO-15	II	PEM/PSS/PFO	12.12
CL-8	II	PEM/PFO	2.56
CL-23	II	PEM/PSS/PFO	3.04
CL-10	II	PEM/PSS/PFO	7.70
CL-6	II	PEM/PSS/PFO	12.50
WO-17	III	PEM/PSS/PFO	6.51
WO-21	III	PEM/PSS/PFO	4.30
EA-17	II	PEM/PSS	1.26
Unmapped Wetland 1	N/A	PEM/PSS/PFO	5.15
Unmapped Wetland 2	N/A	PEM/PSS	10.98
Unmapped Wetland 3	N/A	PEM/PSS/PFO	11.81
Unmapped Wetland 4	N/A	PEM/PSS/PFO	13.37
Unmapped Wetland 5	N/A	PEM/PFO	1.94

Streams crossed by the Project with assigned water quality classifications are identified in Table 2. Three of the streams are category B where the best use is for recreation whereas four others are categorized as having a designation of C(T) for waters that may support trout populations.

Table 2. NYSDEC Mapped Waterbodies Located within the Project ROW

Stream Name	NYSDEC Classification and Standard	Crossing Type	
		Transmission Line[a]	Temporary Access Road[b]
Tonawanda Creek (S-T04-003)	B	X	
UNT to Ellicott Creek (S-T02-001)	C (T)	X	
UNT to Ellicott Creek (S-T02-001A)	C (T)	X	

Ellicott Creek (S-T02-004)	B	X	
Cayuga Creek (S-T01-018)	B	X	
Little Buffalo Creek (S-T01-006)	C (T)	X	X
UNT to Little Buffalo Creek (S-T01-005)	C (T)	X	X
UNT to Little Buffalo Creek (S-T07-003)	C (T)		X

Notes:

[a] All streams crossed by the transmission line will be spanned.

[b] Temporary stream crossings will involve the use of equipment matting supported by wood timbers or prefabricated temporary bridges as needed to enable the stream flow to pass beneath the equipment matting.

On behalf of NEETNY, an Ecology and Environment wetland scientist completed wetland surveys in 2019. The field team conducted delineations according to the USACE Wetland Delineation Manual, the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region and the NYSDEC Freshwater Delineations Manual for the routine delineation procedure. Vegetation, soils and hydrology were evaluated at each potential wetland. If these criteria indicated that a survey point was within a wetland, the boundary of that wetland was determined and it was flagged with wetland delineation tape. The flagged boundary was surveyed using a global positioning system unit. When streams were encountered the channel was also GPS surveyed. Table 3 lists the wetland delineated by Ecology and Environment.

Table 3. Delineated Wetlands

Wetland ID	Cowardin Class	NYSDEC Wetland Association	Area within Proposed ROW (acres)	Length Crossed by Temporary Access Road (feet)	Area within Switchyard Footprint (acres)
W-T03-001	PFO	N/A	0.02	N/A	0.02
W-T03-007	PEM	WO-17	12.31	3,158	N/A
W-T03-005	PEM	N/A	0.12	N/A	0.12
W-T03-006	PEM	N/A	0.06	N/A	0.06
W-T03-004	PEM	N/A	0.04	N/A	<0.01
W-T03-003	PEM/PSS/PFO	N/A	0.47	N/A	N/A
W-T03-002	PSS	N/A	0.16	35	N/A
W-T04-001	PFO	N/A	0.49	106	N/A
W-T04-002	PEM/PSS/PFO	WO-17	5.82	3,789	N/A
W-T04-003	PEM/PSS/PFO	Unmapped Wetland 1	5.15	463	N/A

Wetland ID	Cowardin Class	NYSDEC Wetland Association	Area within Proposed ROW (acres)	Length Crossed by Temporary Access Road (feet)	Area within Switchyard Footprint (acres)
W-T04-004	PEM	N/A	0.09	38	N/A
W-T04-005	PEM	N/A	0.10	34	N/A
W-T04-006	PEM	N/A	0.08	N/A	N/A
W-T04-007	PEM/PFO	N/A	0.46	301	N/A
W-T04-008	PEM	N/A	0.10	N/A	N/A
W-T04-009	PEM/PFO	N/A	0.58	72	N/A
W-T04-010	PEM/PSS/PFO	WO-25	10.82	3,395	N/A
W-T04-011	PEM/PSS	N/A	0.35	135	N/A
W-T04-012	PEM/PSS/PFO	WO-21	4.30	1,708	N/A
W-T04-013	PEM/PSS/PFO	WO-37	9.44	4,992	N/A
W-T04-014	PEM/PSS	N/A	0.57	622	N/A
W-T04-015	PEM/PSS/PFO	N/A	1.35	603	N/A
W-T04-016	PEM	N/A	0.14	N/A	N/A
W-T04-018	PEM	N/A	1.24	406	N/A
W-T04-019	PEM/PSS/PFO	WO-13	3.86	1,186	N/A
W-T04-020	PEM/PSS/PFO	WO-15	12.12	4,348	N/A
W-T01-029	PEM	N/A	0.14	N/A	N/A
W-T01-028	PEM	N/A	<0.01	17	N/A
W-T01-027	PEM/PSS/PFO	N/A	3.84	1,304	N/A
W-T01-026	PEM/PSS/PFO	N/A	3.80	1,022	N/A
W-T01-025	PEM/PSS/PFO	N/A	0.12	113	N/A
W-T01-024	PEM/PFO	N/A	0.91	375	N/A
W-T01-023	PEM/PFO	CL-8	2.56	816	N/A
W-T01-022	PEM	N/A	0.31	79	N/A
W-T01-021	PEM/PSS/PFO	CL-23	3.04	N/A	N/A
W-T02-001	PEM/PFO	N/A	0.63	N/A	N/A
W-T02-002	PEM/PSS/PFO	CL-10	7.70	2,430	N/A
W-T02-003	PEM	N/A	0.18	35	N/A
W-T02-004	PSS	CL-6	0.93	413	N/A
W-T02-005	PEM/PSS/PFO	CL-6	2.93	953	N/A
W-T02-006	PEM/PFO	CL-6	0.49	90	N/A
W-T02-007	PEM/PSS/PFO	CL-6	7.12	2,677	N/A
W-T02-008	PFO	CL-6	0.27	163	N/A
W-T02-009	PSS/PFO	CL-6	0.77	729	N/A
W-T12-011	PSS	N/A	0.14	N/A	N/A
W-T02-010	PEM	N/A	0.02	N/A	N/A

Wetland ID	Cowardin Class	NYSDEC Wetland Association	Area within Proposed ROW (acres)	Length Crossed by Temporary Access Road (feet)	Area within Switchyard Footprint (acres)
W-T02-011	PEM/PSS/PFO	Unmapped Wetland 2	10.98	3,140	N/A
W-T02-015	PEM/PSS/PFO	Unmapped Wetland 3	5.11	1,665	N/A
W-T02-012	PEM/PSS	Unmapped Wetland 3	6.70	1,963	N/A
W-T02-013	PEM	N/A	0.12	99	N/A
W-T02-014	PEM/PSS	N/A	1.85	576	N/A
W-T02-016	PEM/PSS	N/A	0.53	96	N/A
W-T02-017	PEM	N/A	0.07	51	N/A
W-T02-018	PEM	N/A	0.34	103	N/A
W-T02-019	PEM	N/A	0.32	146	N/A
W-T02-020	PEM/PSS	N/A	1.90	580	N/A
W-T02-021	PEM	N/A	0.25	88	N/A
W-T02-022	PEM	N/A	0.03	N/A	N/A
W-T02-023	PSS	N/A	8.44	2,751	N/A
W-T02-025	PEM	N/A	0.38	123	N/A
W-T02-026	PEM	N/A	1.78	626	N/A
W-T02-027	PFO	N/A	0.51	194	N/A
W-T01-020	PEM/PSS/PFO	N/A	0.66	338	N/A
W-T01-019	PEM/PSS	N/A	0.06	121	N/A
W-T01-018	PFO	N/A	0.04	N/A	N/A
W-T01-017	PSS	N/A	0.01	N/A	N/A
W-T01-016	PEM/PSS/PFO	Unmapped Wetland 4	13.37	4,499	N/A
W-T01-015	PSS/PFO	N/A	1.46	576	N/A
W-T01-014	PEM/PFO	N/A	0.08	18	N/A
W-T01-013	PSS	N/A	0.06	23	N/A
W-T01-012	PEM	N/A	0.03	7	N/A
W-T01-011	PEM/PSS/PFO	N/A	0.17	34	N/A
W-T01-010	PEM/PFO	N/A	0.37	N/A	N/A
W-T01-009	PEM/PFO	N/A	0.07	22	N/A
W-T01-008	PFO	N/A	0.01	N/A	N/A
W-T01-007	PSS	N/A	0.04	N/A	N/A
W-T14-003	PEM	N/A	0.00	415	N/A
W-T01-006	PFO	N/A	0.07	44	N/A

Wetland ID	Cowardin Class	NYSDEC Wetland Association	Area within Proposed ROW (acres)	Length Crossed by Temporary Access Road (feet)	Area within Switchyard Footprint (acres)
W-T01-005	PSS	N/A	0.43	222	N/A
W-T01-004	PEM/PFO	Unmapped Wetland 5	1.94	948	N/A
W-T01-003	PFO	N/A	0.11	N/A	<0.01
W-T01-002	PEM	EA-17	0.78	39	N/A
W-T01-001	PSS	EA-17	0.48	N/A	N/A

Table 4 provides a summary of delineated waterbodies traversed by the Project.

Table 4. Delineated Waterbodies

Stream ID	Stream Name	Stream Width (OHWM)	Flow Type	Crossing Type		
				Transmission Line[a]	Temporary Access Road[b]	Permanent Access Road[c]
S-T03-002[d]	UNT to Mud Creek	10	Intermittent	X		
S-T03-002A	UNT to Mud Creek	1	Ephemeral	X	X	
S-T03-001	Mud Creek	42	Perennial	X		X
S-T03-001A	UNT to Mud Creek	4	Intermittent	X	X	
S-T04-001	UNT to Mud Creek	21	Perennial	X		
S-T04-002	UNT to Tonawanda Creek	7	Intermittent	X		
S-T04-003	Tonawanda Creek	36	Perennial	X		
S-T04-004	UNT to Tonawanda Creek	5	Perennial	X		
S-T04-005	UNT to Tonawanda Creek	2	Perennial	X		

Stream ID	Stream Name	Stream Width (OHWM)	Flow Type	Crossing Type		
				Transmission Line[a]	Temporary Access Road[b]	Permanent Access Road[c]
S-T04-006	UNT to Tonawanda Creek	4	Perennial	X		
S-T04-007	UNT to Tonawanda Creek	5	Perennial	X	X	
S-T04-008	UNT to Tonawanda Creek	5	Perennial	X	X	
S-T04-009	UNT to Tonawanda Creek	6	Perennial	X		
S-T11-002A	UNT to Tonawanda Creek	3	Perennial		X	
S-T04-010	UNT to Tonawanda Creek	5	Perennial	X	X	
S-T04-011	UNT to Tonawanda Creek	22	Perennial	X	X	
S-T04-012	UNT to Tonawanda Creek	28	Perennial	X	X	
S-T04-013	UNT to Beeman Creek	10	Perennial	X	X	
S-T04-014	UNT to Beeman Creek	11	Perennial	X	X	
S-T05-001	UNT to Beeman Creek	13	Perennial	X		
S-T01-026	UNT to Beeman Creek	2	Ephemeral	X	X	
S-T01-025	UNT to Beeman Creek	3	Ephemeral	X		
S-T01-024	Beeman Creek	20	Perennial	X	X	
S-T01-024A	UNT to Beeman Creek	3	Perennial	X	X	

Stream ID	Stream Name	Stream Width (OHWM)	Flow Type	Crossing Type		
				Transmission Line[a]	Temporary Access Road[b]	Permanent Access Road[c]
S-T01-023	UNT to Beeman Creek	18	Intermittent	X		
S-T02-001	UNT to Ellicott Creek	11	Perennial	X		
S-T02-001A	UNT to Ellicott Creek	2	Perennial	X		
S-T02-002	UNT to Ellicott Creek	5	Perennial	X		
S-T02-002A	UNT to Ellicott Creek	3	Intermittent	X	X	
S-T02-003	UNT to Ellicott Creek	13	Perennial	X		
S-T02-004	Ellicott Creek	62	Perennial	X		
S-T02-005	UNT to Ellicott Creek	2	Ephemeral	X	X	
S-T02-006	UNT to Ellicott Creek	19	Perennial	X	X	
S-T02-007	UNT to Ellicott Creek	2	Intermittent	X	X	
S-T02-008	North Branch Plum Bottom Creek	2	Perennial	X	X	
WB-T02-001	Unnamed Pond	102	Pond	X		
S-T02-011A	Plum Bottom Creek	2	Perennial	X	X	
S-T02-012	UNT to Plum Bottom Creek	1	Ephemeral	X	X	
S-T02-013	UNT to Cayuga Creek	2	Ephemeral	X	X	
S-T02-014	UNT to Cayuga Creek	15	Perennial	X	X	
S-T02-015	UNT to Cayuga Creek	32	Perennial	X		
S-T02-016	UNT to Cayuga Creek	1	Ephemeral	X	X	

Stream ID	Stream Name	Stream Width (OHWM)	Flow Type	Crossing Type		
				Transmission Line[a]	Temporary Access Road[b]	Permanent Access Road[c]
S-T02-017	UNT to Cayuga Creek	16	Perennial	X	X	
S-T02-018	UNT to Cayuga Creek	14	Intermittent	X	X	
S-T02-019	UNT to Cayuga Creek	1	Perennial	X	X	
S-T01-021	UNT to Cayuga Creek	3	Intermittent	X	X	
S-T01-018	Cayuga Creek	91	Perennial	X		
S-T01-019	UNT to Cayuga Creek	3	Intermittent	X		
S-T01-020	UNT to Cayuga Creek	2	Ephemeral	X		
S-T01-016	UNT to Little Buffalo Creek	12	Intermittent	X		
S-T01-015	UNT to Little Buffalo Creek	2	Ephemeral	X		
S-T01-014	UNT to Little Buffalo Creek	4	Intermittent	X	X	
S-T01-013	UNT to Little Buffalo Creek	3	Perennial	X	X	
S-T01-012	UNT to Little Buffalo Creek	2	Intermittent	X	X	
S-T01-011	UNT to Little Buffalo Creek	5	Intermittent	X		
S-T01-010	UNT to Little Buffalo Creek	20	Perennial	X	X	
S-T01-017	UNT to Little Buffalo Creek	1	Intermittent	X	X	
S-T01-009	UNT to Little Buffalo Creek	6	Perennial	X	X	
S-T01-008	UNT to Little Buffalo Creek	2	Intermittent	X	X	
S-T01-007	UNT to Little Buffalo Creek	4	Perennial	X		
S-T01-006	Little Buffalo Creek	28	Perennial	X	X	

Stream ID	Stream Name	Stream Width (OHWM)	Flow Type	Crossing Type		
				Transmission Line[a]	Temporary Access Road[b]	Permanent Access Road[c]
S-T07-005	UNT to Little Buffalo Creek	5	Ephemeral		X	
S-T01-005	UNT to Little Buffalo Creek	22	Perennial	X	X	
S-T07-003	UNT to Little Buffalo Creek	2	Perennial		X	
S-T01-004	UNT to Little Buffalo Creek	1	Intermittent	X		
S-T01-003	UNT to Little Buffalo Creek	2	Perennial	X		
S-T07-001	UNT to Little Buffalo Creek	7	Perennial		X	

Notes:
a All streams crossed by the transmission line will be spanned.
b Temporary stream crossings will involve the use of equipment matting supported by wood timbers or prefabricated temporary bridges as needed to enable the stream flow to pass beneath the equipment matting.
c The permanent access road crossing will be via a steel bridge.
D Stream S-T03-002 is a man-altered stream that conveys water through agricultural fields near the southern boundary of the proposed Dysinger Switchyard; it will be filled and relocated approximately 25 feet to the south.

The Final New York State 2016 303(d) List of Impaired Waters Requiring a TMDL/Other strategy was reviewed, along with the NYSDEC Stormwater Interactive Mapper, to identify waters that do not support specific water uses and that may require development of a TMDL. Results of those reviews show that Cayuga Creek is listed as impaired for dioxins and Tonawanda Creek is listed as impaired for PCBs. The Project is not expected to produce either of these contaminants.

3.3 Soils

The Natural Resources Conservation Service (NRCS) Soil Surveys of Erie and Niagara Counties were reviewed for soil types along the Project ROW. The results of the soil surveys can be found in Figure 1.

The percentages of each Hydrologic Soil Group crossed by the Project are listed on page 3 of the NOI (Attachment A). Approximately 12% are Group A, 2% Group B, 2% Group C, 9% Group D, 3% A/D, 22% B/D, and 45% C/D for the Project. The rest are unclassified.

Group A soils have low runoff potential and high infiltration rates even when thoroughly wetted. They consist chiefly of deep, well to excessively drained sands or gravels and have a high rate of water transmission (greater than 0.30 in/hr).

Group B soils have moderate infiltration rates when thoroughly wetted and consist chiefly of moderately deep to deep, moderately well to well drained soils with moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission (0.15-0.30 in/hr).

Group C soils have low infiltration rates when thoroughly wetted and consist chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine to fine texture. These soils have a low rate of water transmission (0.05-0.15 in/hr).

Group D soils have high runoff potential. They have very low infiltration rates when thoroughly wetted and consist chiefly of clay soils with a high swelling potential, soils with a high permanent water table, soils with a claypan or clay layer at or near the surface, and shallow soils over nearly impervious material. These soils have a very low rate of water transmission (0-0.05 in/hr).

4.0 Descriptions of Proposed Work

4.1 General

The proposed Project work consists of: (a) construction the approximately 20-mile 345 kV Transmission Line along the existing NYSEG utility corridor between Dysinger Switchyard in the town of Royalton and East Stolle Switchyard in the town of Elma; (b) installation of Dysinger Switchyard and transmission cut-ins; (c) installation of East Stolle Switchyard and transmission cut-ins.

Transmission line construction will begin with the installation of the appropriate BMPs to mitigate for wetland, waterbody, agricultural, residential, or other sensitive resource impacts. Temporary access roads will be installed to provide access to structure work pads, stringing sites, disposal sites and other construction related areas. In upland areas and where public roads enter agricultural fields[2], geotextile fabric and gravel entrances will be installed following appropriate clearing and grubbing. In wetlands, agricultural areas and across intermittent streams and drainage ditches, equipment matting access roads will be installed. Culverts and temporary access bridges will be installed for access across streams and drainage ditches. Culvert/Construction Access Plans are included in Attachment F. Minor grading and leveling is required for some access along the ROW and off ROW to various structures. The Grading Plans are included in Attachment F. Equipment required for clearing operations will primarily include tracked equipment and may not require access road construction and development.

Clearing of the ROW will consist of mechanical clearing of brush and woodlands in upland areas. Clearing in wetlands will be conducted by hand or through non-mechanized equipment, such as a feller buncher or hydro-axe. Cleared upland vegetation will be chipped up to a maximum depth of 3 inches along the ROW or removed from the ROW to designated disposal locations. Every attempt will be made to remove cleared wetland vegetation to the designated disposal locations, however, logs and slash that are cut in wetlands may be left in place. No slash shall be collected and permanently piled within wetlands during clearing. No chipping is allowed in wetlands. Clearing within agricultural areas will be performed per the agricultural mitigation requirements of the EM&CP. Danger trees will be removed in designated areas consisting of removal or pruning of tall growing species which violate the calculated desirable clear width or are at reasonable risk of falling to the ROW and contacting a conductor.

[2] Where construction entrances are required from public roadways to the Project in agricultural fields, an underlayment of durable, geotextile fabric shall be placed over the exposed subsoil surface prior to the use of temporary gravel access fill material. In locations where underground utilities are located within 10 feet of the shoulder of the roadway, the Certificate Holder may elect, in order to minimize disturbance and protect the underground utilities, to place the geotextile fabric directly over the surface without stripping topsoil. In locations where underground utilities are located 10 feet or more from the shoulder of the roadway but still within the limits of the construction entrance, the Certificate Holder may elect to mat over the underground utilities instead of placing geotextile fabric and gravel access fill material. Complete removal of the construction entrance upon completion of the Project and restoration of the affected site is required prior to topsoil replacement, except where retention of the construction entrance would be more conducive to the existing land use than removal. Certificate Condition No. 93.

Direct embed structures will involve placing structures directly into the excavation hole and backfilling with suitable crushed rock or slurry. If needed a corrugated metal culvert pipe installed within an excavated hole in the vertical position to the appropriate depth needed for the steel structure to be self-supporting. The steel structure is set inside the culvert pipe and backfilled with stone or flowable fill. Structure foundations will involve excavated holes approximately 10 feet in diameter to a depth of approximately 25 feet. Where applicable, a casing will be used to form a secure excavation and the casing will be pulled during the concrete pour. Otherwise, a 6 to 8 foot diameter culvert will be installed within the excavated hole in the vertical position to serve as the form for the concrete caisson foundations. Excavated soils will be stockpiled at designated work areas at a safe distance from wetlands or waterbodies. Excavated wetland soils will be stockpiled on equipment matting. Topsoil will be stored separately from subsoil. Topsoil will be spread in upland areas within the ROW. Subsoils will be removed to a designated disposal area.

During construction, materials will be delivered to designated storage areas along the ROW. From the storage areas they will be transported to the work areas within the ROW. Pole delivery will occur directly to the structure pad where possible.

Conductor stringing will be performed at designated stringing sites along the ROW. Conductor stringing sites will set-up and operate mechanized pulling equipment and conductor reels.

During transmission line construction, temporary restoration measures will be implemented for idle areas. Restoration will include stabilization of disturbed areas, maintenance or improvements to temporary erosion and sediment controls, restoration of stream beds and banks, temporary seeding or mulching for erosion and sediment control, planting of trees and shrubs in disturbed areas and the buffer zones, and removal of temporary access roads, bridges and crossings. Following transmission line construction and use of access along the ROW, all disturbances will be permanently stabilized with topsoil, mulch and seeding[3]. Temporary access roads will mostly be matted to avoid wetland disturbance or topsoil removal. Temporary BMPs will be removed once permanent stabilization is achieved with 80% vegetation cover.[4]

4.2 Contractor Responsibility

It is expected that several different Contractors and Subcontractors will be occupying the Project at any given time. All Contractors involved in soil disturbance activities will sign the certification forms in

[3] Within ten days of the completion of final restoration of the Project, NEETNY shall notify the Secretary that all restoration has been completed in compliance with this Certificate and the EM&CP. See Certificate Condition 52.

[4] Following construction, all Project areas shall be restored to pre-construction contours, unless the EM&CP specifies otherwise. Erosion controls and permanent re-vegetation shall be restored as appropriate for those locations. Disturbed pavement, curbs, and sidewalks shall be restored to their original preconstruction condition or improved. See Certificate Condition 123.

Attachment E prior to construction, certifying that they will perform construction operations in strict conformance with this SWPPP and GP-0-20-001.

At least 2 weeks before Project construction begins, NEETNY will stake the edges of the ROW and mark danger trees to be reviewed by DPS staff within those two weeks. Also, NEETNY will stake access roads and other areas needed for construction.[5]

The appropriate erosion and sediment control measures will be installed and maintained in advance and during the life of construction operations[6]. Maintenance and upkeep of those measures will be the responsibility of all Contractors until soil disturbing operations have been completed or discontinued and acceptable ground cover has been established. Following completion of sections of the Project, restoration of that section of the Project will be performed.

The Contractor shall be responsible for checking all culverts within the Project limits area and assuring that they are not crushed or blocked during construction and/or restoration of the Project. If a culvert is blocked, crushed, or otherwise damaged during construction and/or restoration, the Certificate Holder shall repair the culvert or replace it with alternative measures appropriate to maintaining proper aquatic connectivity and stream flow. Culvert repairs must not result in reduced opening width or height.[7]

Site conditions are likely to be in flux during construction, therefore Contractors may be required to install additional measures to accommodate the site conditions. Alternately, Contractors may be called back to the site to maintain existing erosion and sediment controls or install additional measures, as required.

4.3 Sequence and Timing of Construction Activities

Construction is scheduled to begin Q1 2021 and finish Q1 2022. The Project is comprised of two phases. The work will be managed as to ensure that sections of the Project are completed, and restored in a timely manner. The intent is not to disturb the entire work area, but limit disturbances by containing disturbance in the direction construction proceeds. Construction of the Project requires the following steps:

- Establishment of laydown and storage areas,
- Staking and flagging the ROW and environmental protection areas;

[5] At least 14 days (or as authorized by DPS Staff) before Project construction begins in any area, the Certificate Holder shall, in such area: (a) delineate both edges of the Project ROW, as certified; (b) stake and/or flag all on- and off-ROW access roads and all work pads and pulling pads; (c) mark all environmentally sensitive areas including wetlands and the 100-foot adjacent areas associated with state-regulated wetlands; (d) flag any known danger trees to be removed in such area for review and acceptance by DPS Staff; and (e) notify DPS Staff when the above-described field stake-out is complete in such area. See Certificate Condition 47.

[6] NEETNY shall install temporary erosion control devices as soon as practicable and appropriate as indicated in the EM&CP, but in any event no later than the end of the work day in which site disturbance occurs. Certificate Condition 119.

[7] NEETNY shall be responsible for checking all culverts within the Project limits of disturbance as identified in the EM&CP and assuring that they are not crushed or blocked during construction and/or restoration of the Project. If a culvert is blocked, crushed, or otherwise damaged during construction and/or restoration, NEETNY shall repair the culvert or replace it with alternative measures appropriate to maintaining proper aquatic connectivity and stream flow. Culvert repairs must not result in reduced opening width or height. Certificate Condition 120.

- Installation of BMPs erosion and sediment controls,
- Access road improvement, driveway installation and mat installation,
- Clearing the ROW and off-ROW access areas,
- Construct Proposed Line;
- Construct switchyards (Dysinger and East Stolle) and cut ins;
- Energize Proposed Line;
- Inspection and maintenance of BMPs;
- Temporary Restoration of Idle Areas,
- Removal of laydown, storage, spoil stockpiling locations, stringing sites, equipment matting, temporary access bridges, and temporary geotextile fabric and gravel access roads;
- Removal of BMPs and erosion and sediment controls;
- Final restoration to pre-construction conditions; and
- Demobilization and Project closeout.

5.0 Stormwater Management Controls

5.1 Potential Impacts to Stormwater Contamination

ECI, Ecology and Environment and NEETNY completed a site investigation along the entire portion of the ROW and along off ROW access that will be disturbed to assess current conditions and identify the likely BMPS that would be appropriate and necessary for anticipated construction activities.

When considering the requirements for erosion and sediment control during construction, the team looked at typical operations that could add pollutants to the site. These operations include:

- Access Road Preparation and Maintenance – Preparation and maintenance of access roads can expose underlying soils and create erosion potential. Ruts caused by construction vehicles can create paths for concentrated water flows. Additionally, sediment and other debris can be tracked onto local roadways and highways.

- Tree Clearing – Clearing and slash disposal can expose underlying soils, eliminate screening areas and disturb agricultural areas, wetlands and waterbodies.

- Excavations and Grading Operations – Open excavations and grading operations for access roads, work areas and switchyard installation areas expose soils which can lead to erosion.

- Wetland, Waterbody, and Agricultural Area Crossings – Improper access roads, crossing methods, work area preparation and soil management can lead to degradation of State and Federal wetlands and waterbodies as well as agricultural areas crossed along the ROW and off ROW accesses.

- Laydown, Storage and Disposal Areas – Laydown and storage areas or marshalling yards and disposal areas are vulnerable to runoff, soil erosion and waste. These areas will require appropriate BMPs and erosion and sedimentation controls to manage equipment and material storage, handling of spoils, and waste and hazardous material spill prevention, containment and cleanup.

- De-watering procedures – Groundwater pumped from excavations can lead to erosion and sediment discharge to environmental resources.

- Construction Vehicles – Refueling of vehicles may spill or drip gasoline and diesel fuel onto the ground. On-site maintenance of excavation equipment may drip hydraulic oil, lubricants and antifreeze onto the ground.

- Waste Management Practices – Typical construction projects generate significant quantities of solid waste. Much of the waste is expected to be in the form of material wrappings, personnel generated trash and waste and construction debris.

- Fugitive Dust – Dust generated by construction vehicles can be deposited in wetlands and waterways.

5.2 Temporary Best Management Practices

Based on observed site conditions during the site investigation, as well as temporary conditions that are anticipated due to the various construction related operations, the following summarizes the likely BMPs that would be appropriate and necessary to address erosion and sediment control during construction.

- Geotextile Fabric and Gravel Access Roads to provide a safe, load bearing access road for construction to structure work areas.

- Stabilized Construction Entrances to reduce or eliminate the tracking of sediment onto public ROW, streets parking lots or driveways.

- Equipment matting to displace vehicle and equipment loads in wetlands, across drainages and intermittent streams, and in agricultural areas. Equipment matting across these environmental resources will eliminate rutting; however, decompaction will be necessary within agricultural areas.

  Mats are the preferred method for topsoil resource protection in agricultural areas.[8] Where mats are utilized, the mats shall be layered where necessary to provide a level access surface. Once access is no longer required across agricultural areas, the mats shall be removed and the Agricultural Inspector shall use a soil penetrometer to determine if soil compaction has occurred as a result of construction activities. All compacted areas shall be decompacted as specified below[9].

- Temporary Access Bridges to cross streams without rutting and disturbing soil in stream beds.

- Culverts to cross drainage without rutting and disturbing soil in stream beds.

[8] Mats are the preferred method for topsoil resource protection in agricultural areas. Where temporary access is necessary across agricultural portions of the Project, and the installation of mats is not practicable, topsoil shall be removed, including the "A" entire horizon down to the beginning of the subsoil "B" horizon, generally not to exceed a maximum of 12 inches. Topsoil removal up to a depth of 16 inches may be required in specially-designated soils encountered along the route. All topsoil shall be stockpiled directly adjacent to the travel way on the Project and separated from other excavated materials. The Agricultural Inspector shall determine depth of topsoil stripping on each affected farm by means of the County Soil Survey and onsite soil augering, if necessary. All topsoil material shall be stripped, stockpiled, and uniformly returned to restore the original soil profile. During the clearing/construction phase, site-specific depths of topsoil stripping shall be monitored by the Agricultural Inspector. See Certificate Condition 96.
[9] Certificate Condition 97.

- Silt fence to reduce the effects of runoff velocity and subsequent erosion of exposed granular surfaces. Silt fence will be installed around construction activities adjacent to environmental resources, steep slopes, storm drains and private properties.
- Erosion Control Sock to reduce the effects of runoff velocity and subsequent erosion of exposed granular surfaces.
- Straw Bales to decrease water velocity and detaining sediment-laden surface runoff.
- Wattles to shorten slope lengths, reduce water flow velocities and trap sediment on site.
- Turf Reinforcement Mats to provide temporary protection of mulch and seed during germination.
- Water Bars to restrict runoff velocities and reduce erosion and sediment transport along sloping access roads and ROW.
- Vegetative and Riprap Swales to divert large amounts of runoff that would exceed the capacity of water bars.
- Check dams to reduce the velocity of water flowing in newly constructed waterways so as to reduce erosion and promote settling of suspended sediments.
- Level Spreader to the erosive energy of concentrated flows by distributing runoff as sheet flow to stabilized vegetative surfaces.
- Dewatering with discharge to a sediment filter bag in a vegetated upland area, to prevent sediment in the pumped water from discharging to sensitive resources.
- Dust Control to prevent surface and air movement of dust from disturbed soil surfaces that may cause off-site damage, health hazards and traffic safety problems.
- Concrete Washouts to contain concrete, cement, and other waste products during cleaning of construction vehicles and equipment.
- Cleaning Stations to prevent the spread of invasive species onto or off of the ROW and off-ROW accesses.
- Mulching to temporarily or permanently stabilize backfilled trenches and restored areas which have been disturbed. In addition to backfilling and mulching, anchored steel plates will be used for stabilization of trenching within roadways and for safety precautions.

- Seeding to establish perennial groundcover to control runoff and erosion and restore disturbed areas to preconstruction conditions.

The above listed BMPs shall be implemented during construction as follows.

- The Contractor shall not cross streams, wetlands or drainages with equipment without first installing proper BMPs. This applies to clearing activities as well as construction activities.
- Construction vehicles may create ruts. The Contractor shall fill and level all ruts and other depressions as soon as practical during the course of the Project.
- Soil or sediment which is tracked onto existing roads shall be cleaned daily and shall not be allowed to accumulate throughout the Project.
- Temporary stockpiling of soil will not be permitted where it may pose a risk to the quality of any waterbodies with the vicinity of the Project or within delineated wetland boundaries. Temporary soil stockpiles will be kept away from storm drains. Stockpiled material will be appropriately protected with silt fence.
- In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures shall be initiated by the end of the next day and completed in accordance with the NYSSESC or prior to a significant rain event.
- The Contractor shall thoroughly clear the areas of the ROW and work areas where construction occurred of debris related to electric line construction.[10]
- The Contractor shall perform all construction, operation and maintenance in a manner that avoids then minimizes adverse impacts to streams, waterbodies, wetlands, and the one hundred (100) foot adjacent area associated with the State-regulated wetlands.[11]
- To the maximum extent practicable, all equipment and machinery shall be secured and safely contained more than 100 feet landward of any regulated wetland or water body at the end of each work day.[12]

Refer to the Erosion and Sediment Control Plans in Attachment F for proposed BMP and erosion and sedimentation control locations, specifications applicable to the Project, typical restoration seed mixes and other requirements associated with temporary and permanent soil stabilization groundcover.

[10] The Certificate Holder shall thoroughly clear the areas of the ROW and work areas where construction occurred of debris related to electric line construction. See Certificate Condition 121
[11] The Certificate Holder shall perform all construction, operation, and maintenance in a manner that avoids or minimizes adverse impacts to streams, waterbodies, wetlands, and the one hundred (100) foot adjacent area associated with the State regulated wetlands as specified in the EM&CP. See Certificate Condition 63
[12] To the maximum extent practicable, the Certificate Holder shall secure and safely contain all equipment and machinery more than 100 feet landward of any wetland or water body at the end of each work day. See Certificate Condition 66

5.2.1 Refueling and Spill Control

Stationery fuel tanks and hazardous chemical storage shall be a minimum of 300 feet from streams, waterbodies and wetlands, unless: (i) the EM&CP provides justification, including that impacts have been avoided or minimized to the maximum extent practicable; or (ii) adequate secondary containment (containing at least 110% of the volume stored) is otherwise provided, in which case storage can occur within 100 feet of such resources.[13]

In general, to the extent practicable, chemicals and petroleum products will not be stored, mixed, or loaded, nor will equipment be refueled, within 100 feet of any watercourse or wetland. Requirements for refueling within 100 feet of wetlands or streams will be allowed under certain circumstances as identified below.

a. Refueling of hand equipment will be allowed within 100 feet of wetlands or streams when secondary containment is used. Secondary containment will be constructed of an impervious material capable of holding the hand equipment to be refueled and at least 110% of the fuel storage container capacity. Fuel tanks of hand held equipment will be initially filled in an upland location greater than 100 feet from wetlands or streams in order to minimize the amount of refueling within these sensitive areas. Crews will have sufficient spill containment equipment on hand at the secondary containment location to provide prompt control and cleanup in the event of a release.

b. Refueling of equipment will be allowed within 100 feet of wetlands or streams when necessary to maintain continuous operations and where removing equipment from a sensitive area for refueling would increase adverse impacts to the sensitive area. Fuel tanks of such equipment will be initially filled in an upland location greater than 100 feet from wetlands or streams in order to minimize the amount of refueling within these sensitive areas. All refueling of equipment within 100 feet of wetlands or streams will be conducted under the direct supervision of the environmental monitor. Absorbent pads or portable basins will be deployed under the refueling operation. In addition, the fuel nozzle will be wrapped in an absorbent pad and the nozzle will be placed in a secondary containment vessel (e.g., bucket) when moving the nozzle from the fuel truck to the equipment to be refueled. All equipment operating within 100 feet of a wetland or stream will have sufficient spill containment equipment on board to provide prompt control and cleanup in the event of a release.[14]

A Spill Prevention, Control and Countermeasure Plan (SPCC) to minimize the potential for unintended releases of petroleum and other hazardous chemicals during Project construction and operation shall be included in the EM&CP. The Certificate Holder shall immediately notify DPS Staff of any spill, report

[13] Certificate Condition 147.
[14] Certificate Condition 148.

spills in accordance with State and/or federal regulations and provide a copy of such notification contemporaneously to NYSEG if the spill is located on NYSEG property.[15]

5.3 Permanent Water Quality and Quantity Controls

The permanent access roads along with the Dysinger and East Stolle Switchyards will contribute impervious areas. Permanent access roads will remain in place to access switchyards and where off ROW landowners have agreed for the road to be left in place following construction.

Existing access roads to be improved will also remain permanently, however, will not increase the new impervious area. To attenuate for the stormwater runoff generated by these permanent features, post construction structural controls will be installed and maintained following construction.

Permanent structural controls for access roads include the grading of drainage ditches, installation of culverts, use of check dams, outfall protection and other BMPs and erosion and sedimentation controls to manage stormwater runoff. Permanent structural controls at Dysinger Switchyard will include vegetated and underdrain system discharging to a level spreader and then to vegetated filter strips. Permanent structural controls at East Stolle will include culverts, swales and outlet structures to direct flow off-site. Details of the permanent water quality and quantity controls are summarized in Section 9.0.

6.0 Spill Prevention and Solid Waste Management

6.1 Management of Spills and Releases

A SPCC plan has been developed and is included as an appendix to the EM&CP. Should a hazardous waste spill occur during construction, the Contractor will be responsible for reporting the spill or release to the Environmental Monitor, to NEETNY, and to Local, State and Federal agencies as appropriate.

In the event of a spill or leak, the Contractor will immediately mobilize the appropriate on-site personnel to control the source of the leak and contain any spills or releases in as small an area as possible. Equipment, materials and supplies for containment and cleanup of oil and hazardous substances will be kept at the construction site and with personnel at refueling locations. The Contractor is responsible for all spill response actions. Any contaminated soils will be removed from the worksite and disposed of in accordance with NEETNY and agency guidance.

[15] A Spill Prevention, Control, and Countermeasure ("SPCC") Plan to minimize the potential for unintended releases of petroleum and other hazardous chemicals during Project construction and operation shall be included in the EM&CP. The Certificate Holder shall immediately notify DPS Staff of any spill and report spills in accordance with State and/or federal regulations and provide a copy of such notification contemporaneously to NYSEG if the spill is located on NYSEG property. See Certificate Condition 149.

6.2 Refueling and Vehicle Lubrication

Vehicles and equipment requiring refueling or lubrication shall be brought to designated portions of the site away from environmentally sensitive areas. The operator shall take precautions to ensure that drips, spills or seeps do not enter the ground. The use of absorbent towels beneath the fuel tank is recommended. Small equipment like pumps and generators should be placed in small containers, like cattle troughs, or on absorbent pads to contain any accidental fuel spills.

6.3 Solid Waste Management

Solid waste materials generated by Contractor operations and personnel shall be carefully stored and protected in acceptable upland locations, away from environmentally sensitive areas. By the end of each workday, solid waste materials will be transported to a designated repository for proper and timely disposal off-site.

6.4 Hazardous Waste Management

NEETNY's Contractor shall keep local fire department and emergency management teams apprised of onsite hazardous chemicals and waste. All hazardous chemicals and waste shall be secured in a locked and controlled area.

6.5 Emergency Response Procedure

The Contractor will place the highest priority on safety at the construction site ensuring that new hires are safety trained, onsite safety meetings and inspections are conducted, accidents are reported, spill prevention and response procedures and first aid practices are in place. During preconstruction safety and environmental training, the Contractor must abide by the SWPPP and train employees in SWPPP procedures. Safety gear, equipment and devices will be enforced onsite by the Contractor to comply with the Occupational Safety and Health Administration Programs.

7.0 Maintenance and Inspections

The NYSDEC requires that the Contractor will have a trained individual to implement the SWPPP and GP-0-20-001. A trained individual is defined as someone that received four hours of training, which has been endorsed by the NYSDEC, in proper erosion and sediment control principles. After receiving the initial training every three years.

Visual inspections of BMPs on the construction site will be performed by the Project's designated qualified SWPPP Inspector at least every seven calendar days. During construction operations resulting in 5.0 acres of disturbance, the qualified inspector shall conduct at least two inspections every 7 calendar days. These inspections will be separated by a minimum of two full calendar days. The qualified inspection personnel designated in Attachment C of this SWPPP will conduct the inspection and will have the sole authority over the appropriateness and adequacy of all required stormwater management controls during construction. The qualified inspector will also have received four hours of training endorsed by the NYSDEC, and will work under the direct supervision of a Professional Engineer licensed in New York.

The SWPPP inspections are intended to verify that the in-place BMPs and erosion and sedimentation controls are in good condition and are minimizing erosion and sediment transport. The inspection will also recommend whether corrective actions to established BMPs are required or whether additional BMPs are necessary to prevent stormwater contamination. A sample copy of the inspection report is provided in Attachment G. Completed forms will be provided to the onsite supervisor and maintained at the SWPPP mailbox during the entire construction Project.

If construction activities or design modifications are made to the Project that could impact stormwater this SWPPP will be amended. The amended SWPPP will include a description of the new activities, their associated impacts, and a summary of the appropriate BMPs to minimize impacts. Amendments to the SWPPP will be added to Attachment H.

If a portion of the site is permanently stabilized, inspections can cease in that area after the condition has been documented. Permanent stabilization is characterized by greater than 80% restored vegetative cover on disturbed areas.

8.0 Compliance with Federal, State and Local Regulations

8.1 Endangered Species

8.1.1 USFWS Official Species List

Federal and state protection for threatened and endangered species, as well as their habitat, requires the implementation of certain procedures during Project planning. Section 7(a) of the Endangered Species Act (ESA) establishes a national program, headed by the USFWS, for the conservation of threatened and endangered species and their respective habitats. The USFWS Information for Planning and Conservation (IPaC) system provides information on federally listed, proposed, or candidate species that may be present in an area. NEETNY generated an IPaC species list for the Project, and the report lists one species, the federally threatened northern long-eared bat (*Myotis sodalis*). NEETNY subsequently submitted a Project review request to the USFWS on January 30, 2018. The USFWS acknowledged receipt of NEETNY's species impact determination via correspondence dated February 21, 2018 (USFWS 2018b).

Based on the response letter from the NYNHP and information provided on the NYSDEC website, a northern long-eared bat hibernaculum is present approximately 3.1 miles east of the Proposed ROW in the town of Newstead (NYSDEC 2018j). Northern long-eared bats using this hibernaculum could potentially use trees in the Proposed ROW as roosting habitat.

All Project activities will occur greater than 3 miles from the documented northern long-eared bat hibernaculum in the town of Newstead. Therefore, construction and operation of the Project will not affect the hibernaculum. NYSDEC notified NEETNY that northern long-eared bats should be assumed present within a 5-mile buffer around the hibernaculum. This buffer covers an approximately 7.63-mile-long segment of the Proposed ROW in the town of Newstead. Tree clearing is restricted in this buffer from April 1 to November 1 to avoid impacting any northern long-eared bats that may use trees for roosting habitat (NEETNY 2018a). NEETNY will comply with this tree clearing restriction for the portion of the Proposed ROW within the hibernaculum buffer. Consequently, no impacts on northern long-eared bat are expected from construction and operation of the Project. To fulfill the Project review requirements under Section 7 of the Federal ESA, NEETNY has also determined that the Project may affect the northern long eared bat, but is relying upon the findings of the January 5, 2016, Programmatic Biological Opinion for Final 4(d) Rule on the Northern Long-Eared Bat and Activities Excepted from Take Prohibitions. This determination was provided to and acknowledged by the USFWS (USFWS 2018b).

8.1.2 NYSDEC Natural Heritage

A letter request was submitted to the New York Natural Heritage Program (NYNHP) on November 8, 2017, for information regarding the presence of state-listed threatened and endangered species and unique natural

communities in the Project area. A response from the NYNHP dated December 20, 2017, identified pied-billed grebe (*Podilymbus podiceps*; state threatened), northern long-eared bat (*Myotis septentrionalis*; state threatened), northern brook lamprey (*Ichthyomyzon fossor*; state rare), bigmouth shiner (*Notropis dorsalis*; state rare), and bigeye chub (*Hybopsis amblops*; state rare) as recorded species in the vicinity of the Project (Chaloux 2017).

The pied-billed grebe is a state listed threatened species. It is a small waterfowl species with a total length of up to 15 inches. This species has a breeding range throughout all of New York; it builds a floating nest of partially decayed plants and clipped leaves attached to emergent vegetation in marshes and quiet waters. The species typically winters in the southern United States to Central America, returning to New York State between mid-March and mid-April (NYSDEC 2017b). According to correspondence with NYSDEC, a breeding population of pied-billed grebe is supported at sensitive habitat located in the vicinity of the proposed East Stolle Switchyard (Adams 2018). NEETNY consulted with NYSDEC regarding potential impacts on pied-billed grebe from construction and operation of the Project, in particular the East Stolle Switchyard. NYSDEC indicated that the proposed switchyard site is in an acceptable location given the distance from the sensitive habitat supporting this breeding population and the presence of the existing NYSEG Stolle Road Substation. Therefore, no specific measures are necessary to protect this population of pied-billed grebe.

The northern brook lamprey is not a federal- or state-listed species, but is of conservation concern to the state and considered rare by the NYNHP. It is found in three creeks in Erie County, which are part of the Lake Erie watershed (NYSDEC 2018k). The northern brook lamprey inhabits clear, permanent, medium-sized streams with moderately warm temperatures. They use gravel and stone beds for spawning, while larvae inhabit slower parts of the streams and dig burrows in the sand bottoms.

The bigmouth shiner is not a federal- or state-listed species, but is of conservation concern to the state and considered rare by the NYNHP. It is found in medium-sized streams with clean gravel.

The bigeye chub is not a federal- or state-listed species, but is of conservation concern to the state. It lives in larger streams with clean gravel in the western New York area. The bigeye chub is native to four watersheds but has only had 40 catch records since 1977 (NYSDEC 2018l). The NYNHP letter states that the last sighting of bigeye chub in the vicinity of the Project area was August 30, 1921 (Chaloux 2017).

The northern brook lamprey and bigmouth shiner have been documented in Little Buffalo Creek. The Proposed Line crosses this stream and several of its tributaries in the towns of Lancaster and Elma. Each of the streams will be spanned by the Proposed Line, and no structures will be located within 50 feet of the stream top of banks. NEETNY anticipates an access road will need to be installed to move construction

equipment across Little Buffalo Creek between Structures 151 and 152. A prefabricated, temporary bridge is scheduled for this crossing and instream impacts are not anticipated during construction. On April 30th, NYSDEC confirmed in-water work for bridge erection is restricted from October 1st through May 31st. prefabricated bridges may be left in place during the restrictive window provided no ongoing in-water disturbance. If during final design a need is identified to impact Little Buffalo Creek or any of its tributaries, NEETNY will consult with NYSDEC to develop appropriate avoidance and minimization measures to prevent impacts on northern brook lamprey and bigmouth shiner. Based on historical records, the bigeye chub could potentially be present in Cayuga Creek in the town of Lancaster. The Proposed Line will span Cayuga Creek, no construction will be completed within 50 feet of the stream top of bank, and no access roads will be constructed across the stream. Consequently, construction and operation of the Project will not impact the bigeye chub.

8.2 Archaeological Resources

Archaeological investigations for the proposed Project were needed to support NEETNY's state and federal permits for the proposed Project, including the Article VII Public Service Law Certificate application to the New York State Siting Board and the Nationwide Permit application to the U.S. Army Corps of Engineers, Buffalo District.

Because of the federal permitting nexus, the archaeological investigations were conducted in consideration of Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations at 36 CFR part 800, and all relevant federal and state legislation, such as the United States Army Corp of Engineers (USACE) regulations at 33 CFR part 325, Appendix C. The archaeological investigation also were conducted according to the New York Archaeological Council (NYAC)'s Standards for Archaeological Investigations (1994) and New York SHPO guidelines (2005).

Background research conducted as part of the Phase IA archaeological survey indicated that the Project area is considered characteristically sensitive for both precontact and historic archaeological sites. As a result of these findings, a Phase IB archaeological field investigation was recommended for the transmission line's construction corridor and for the footprints of the two proposed switchyards, as well as any other ancillary constructions areas.

A Phase IB archaeological field investigation was conducted in order to identify any unidentified or otherwise undocumented archaeological resources and, if possible, to make recommendations regarding the eligibility of any newly identified archaeological sites for listing in the New York State and National Registers of Historic Places ("S/NRHP"). The Phase IB archaeological field investigation utilized the archaeological sensitivity assessment developed as part of the Phase IA archaeological investigation.

Fieldwork for the Phase IB archaeological field investigation was conducted between October 11 to 30, November 2 to 20, and December 11 to 17, 2018.

The archaeological field investigation resulted in the identification of five Precontact Period archaeological sites, nine Precontact Period isolated finds, on Historic Period archaeological site, and two locations with sparse historic artifacts. Avoidance or further investigations were recommended for two of the five Precontact Period archaeological sites and the one Historic Period archaeological site. No further investigations were recommended the remaining three Pre-contact Period sites, nine Pre-contact Period isolated finds and the two locations where historic artifacts were found. In addition, an archaeological field investigation was recommended for all portions of the APE that have not been surveyed. The Phase IB report was submitted to the SHPO on April 26, 2019. Additional information was requested by the SHPO, and this was submitted on June 5, 2019. The SHPO concurred with the recommendations noted within the report regarding site eligibility on June 14, 2019.

Two Pre-contact Period archaeological sites were recommended for additional work or avoidance and one Historic Period archaeological sites was recommended for avoidance. One of the two Pre-contact Period archaeological sites and the Historic Period archaeological site will be avoided per avoidance measures described in Appendix L. [redacted] The Archeological Pre-contact Site Avoidance Plan and the SHPO letter containing avoidance measures for the Historic Period archaeological site are provided in Appendix L. NEETNY will implement these avoidance measures during construction of the Project to avoid impacting these archaeological sites.

The second Pre-contact Period archaeological could not be avoided and additional archaeological investigations were conducted to mitigate the adverse effects of the Project on this site. [redacted]

[redacted]

[redacted] NEETNY provided a summary of the results to SHPO. On April 17th, 2020, SHPO indicated that no further field studies were required at this site. NEETNY will submit its final report for this site to the SHPO in June 2020, documenting the results of the mechanical soil stripping and subsequent data analysis.

8.3 Other Environmental Permits and Regulations

Various environmental permits and regulations are applicable for the Project. Below is a list of other permits and requirements for the Project.

- New York Article VII Certificate of Environmental Compatibility and Public Need from the New York State Department of Public Service
- SPDES Permit for Construction Stormwater Discharge and Section 401 Water Quality Certification from the New York Department of Environmental Conservation.
- Section 404 Permit and Nationwide Permit 12 for Utility Line Activities from the U.S. Army Corps of Engineers.

8.3.1 Retention of Records

NEETNY must maintain a copy of the SWPPP, Inspection Reports, NOI, NOT and the NOI Acknowledgement Letter for a Period of 5 years from the date of final site stabilization and completion of the Project.

9.0 Post Construction Stormwater Management Measures

The access roads required for access to switchyards and continued maintenance following the Project, along with the switchyard installations, will change existing hydrology and enlarge the existing impervious areas. To attenuate for the stormwater runoff generated by these features, post construction structural controls will be installed and maintained following construction. Permanent post-construction stormwater management controls are shown on grading plans in Attachment F.

The Dysinger Switchyard will be serviced by an underdrain system to convey water falling on the switchyard pads to the east side of the site. The site will be graded so that water collects in the underdrain system. Underdrains will be perforated pipe placed within the switchyard boundary. Outside of the switchyard fence, the underdrain pipes will connect with solid-wall pipes that will discharge to a level spreader and subsequently to a filter strip. Vegetated filter strips can be used to treat and control stormwater runoff from some areas of a development. Vegetated filter strips are vegetated surfaces designed to treat sheet flow from adjacent surfaces and remove pollutants through filtration and infiltration.

Offsite flow around the East Stolle Switchyard pad will be conveyed to the southwest corner of the switchyard via swales to outfall structures on each side of the access road. Offsite flow of water flowing around the permanent access road will be conveyed via swale/ditch west to east. These swales discharge to the same rock armored outfalls as the switchyard. The outfalls will attenuate the flow and direct flow to the north. The switchyard pad will be crowned; water will flow in cardinal direction off the pad to a vegetated buffer to the north and east and to the swale system described above to the south and west.

Hydrologic and hydraulic analyses was performed to determine the appropriate stormwater management measures including the culvert sizing, swales, and infiltration devices (Attachment I). The detailed hydrologic and hydraulic calculations for stormwater management, existing and proposed condition analyses, runoff rates, volumes, velocities, and runoff conditions for design storms with the NYSDEC Stormwater Management Design Manual are included in Appendix I.

Attachment A. Notice of Intent

NOI for coverage under Stormwater General Permit for Construction Activity

version 1.23

(Submission #: HNY-FXVP-FZ46V, version 1)

Details

Form Alias	NOI for coverage under Stormwater General Permit for Construction Activity
Form Started	3/24/2020 8:28 AM by Douglas Johnston
Form Submitted	5/15/2020 8:37 AM by Douglas Johnston
Submission #	HNY-FXVP-FZ46V
Submission Reason	New
Status	Submitted
Active Steps	Under Review
Alternate ID:	Empire State Line

Form Input

Owner/Operator Information

Owner/Operator Name (Company/Private Owner/Municipality/Agency/Institution, etc.)
NextEra Energy Transmission New York, Inc. (NEETNY)

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
Vu

Owner/Operator Contact Person First Name
JohnBinh

Owner/Operator Mailing Address
700 Universe Blvd, UST C-5666

City
Juno Beach

State
FL

Zip
33408

Phone
561-694-4831

Email
Johnbinh.vu@nexteraenergy.com

Federal Tax ID
46-3315442

Project Location

Project/Site Name
Empire State Line

Street Address (Not P.O. Box)
141 Stolle Road

Side of Street
North

City/Town/Village (THAT ISSUES BUILDING PERMIT)
Elma

State
NY

Zip
14059

County
ERIE

DEC Region
9

Name of Nearest Cross Street
Bullis Road

Distance to Nearest Cross Street (Feet)
790

Project In Relation to Cross Street
South

Tax Map Numbers Section-Block-Parcel
NONE PROVIDED

Tax Map Numbers
NONE PROVIDED

1. Coordinates

Provide the Geographic Coordinates for the project site. The two methods are:
- Navigate to the project location on the map (below) and click to place a marker and obtain the XY coordinates.
- The "Find Me" button will provide the lat/long for the person filling out this form. Then pan the map to the correct location and click the map to place a marker and obtain the XY coordinates.

Navigate to your location and click on the map to get the X,Y coordinates
42.83694685892962,-78.57991142102213

Project Details

2. What is the nature of this project?
New Construction

3. Select the predominant land use for both pre and post development conditions.

Pre-Development Existing Landuse
Cultivated Land

Post-Development Future Land Use
Linear Utility (wqter/sewer/gas, etc.)

4. In accordance with the larger common plan of development or sale, enter the total project site acreage, the acreage to be disturbed and the future impervious area (acreage) within the disturbed area.

*** ROUND TO THE NEAREST TENTH OF AN ACRE. ***

Total Site Area (acres)
374.0

Total Area to be Disturbed (acres)
96.4

Existing Impervious Area to be Disturbed (acres)
0

Future Impervious Area Within Disturbed Area (acres)
15.0

5. Do you plan to disturb more than 5 acres of soil at any one time?
Yes

---

6. Indicate the percentage (%) of each Hydrologic Soil Group(HSG) at the site.

A (%)
16

B (%)
26

C (%)
48

D (%)
10

7. Is this a phased project?
Yes

8. Enter the planned start and end dates of the disturbance activities.

Start Date
11/2/2020

End Date
6/30/2022

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.
Mud Creek, Tonawanda Creek, Beeman Creek, Ellicott Creek, Cayuga Creek and Little Buffalo Creek

9a. Type of waterbody identified in question 9?
Wetland/State Jurisdiction On Site (Answer 9b)
Wetland/Federal Jurisdiction On Site (Answer 9b)
Stream/Creek On Site
River On Site
Wetland/State Jurisdiction Off Site
Wetland/Federal Jurisdiction Off Site
Stream/Creek Off Site
River Off Site

Other Waterbody Type Off Site Description
Project is linear and will cross various unnamed tributaries and smaller streams

10. Has the surface waterbody(ies in question 9 been identified as a 303(d) segment in Appendix E of GP-0-20-001?
Yes

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-20-001?
No

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters?
No

If No, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey?
NONE PROVIDED

If Yes, what is the acreage to be disturbed?
NONE PROVIDED

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area?
Yes

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)?
Yes

16. What is the name of the municipality/entity that owns the separate storm sewer system?
Town of Elma

17. Does any runoff from the site enter a sewer classified as a Combined Sewer?
No

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law?
Yes

19. Is this property owned by a state authority, state agency, federal government or local government?
No

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.)
No

Required SWPPP Components

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)?
Yes

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)?
Yes

If you answered No in question 22, skip question 23 and the Post-construction Criteria and Post-construction SMP Identification sections.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual?
Yes

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:
Other: Consulting Firm

SWPPP Preparer
Electrical Consultants, Inc.

Contact Name (Last, Space, First)
Ryan Davis

Mailing Address
3521 Gabel Road

City
Billings

State
MT

Zip
59102

Phone
406-259-9933

Email
ryan.davis@eciusa.com

Download SWPPP Preparer Certification Form
Please take the following steps to prepare and upload your preparer certification form:

1) Click on the link below to download a blank certification form
2) The certified SWPPP preparer should sign this form
3) Scan the signed form
4) Upload the scanned document
Download SWPPP Preparer Certification Form

Please upload the SWPPP Preparer Certification
SWPPP Preparer Certification Form (GP-0-15-002)_signed.pdf - 04/23/2020 09:10 AM
Comment
NONE PROVIDED

Erosion & Sediment Control Criteria

25. Has a construction sequence schedule for the planned management practices been prepared?
Yes

26. Select all of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural
Check Dams
Construction Road Stabilization
Dust Control
Silt Fence
Stabilized Construction Entrance
Temporary Access Waterway Crossing
Water Bars

Biotechnical
None

Vegetative Measures
Mulching
Protecting Vegetation
Seeding
Streambank Protection
Topsoiling

Permanent Structural
Land Grading
Lined Waterway (Rock)
Riprap Slope Protection
Rock Outlet Protection
Streambank Protection

Other
NONE PROVIDED

Post-Construction Criteria

*** IMPORTANT: Completion of Questions 27-39 is not required if response to Question 22 is No.**

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.
Preservation of Undisturbed Area
Preservation of Buffers
Reduction of Clearing and Grading
Locating Development in Less Sensitive Areas

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).
All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout). (Acre-feet)
0.286

29. Post-construction SMP Identification
Use the Post-construction SMP Identification section to identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity that were used to reduce the Total WQv Required (#28).

Identify the SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use the Post-Construction SMP Identification section to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29. (acre-feet)
0.449

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28)?
Yes

If Yes, go to question 36. If No, go to question 32.

32. Provide the Minimum RRv required based on HSG. [Minimum RRv Required = (P) (0.95) (Ai) / 12, Ai=(s) (Aic)] (acre-feet)
NONE PROVIDED

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?
NONE PROVIDED

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.

If No, sizing criteria has not been met; therefore, NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

33. SMPs
Use the Post-construction SMP Identification section to identify the Standard SMPs and, if applicable, the Alternative SMPs to be used to treat the remaining total WQv (=Total WQv Required in #28 - Total RRv Provided in #30).

Also, provide the total impervious area that contributes runoff to each practice selected.

NOTE: Use the Post-construction SMP Identification section to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question #29. (acre-feet)
NONE PROVIDED

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a).
NONE PROVIDED

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)?
NONE PROVIDED

If Yes, go to question 36.

If No, sizing criteria has not been met; therefore, NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv required and provided or select waiver (#36a), if applicable.

CPv Required (acre-feet)
NONE PROVIDED

CPv Provided (acre-feet)
NONE PROVIDED

36a. The need to provide channel protection has been waived because:
Reduction of the total CPv is achieved on site through runoff reduction techniques or infiltration systems.

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (#37a), if applicable.

Overbank Flood Control Criteria (Qp)

Pre-Development (CFS)
NONE PROVIDED

Post-Development (CFS)
NONE PROVIDED

Total Extreme Flood Control Criteria (Qf)

Pre-Development (CFS)
NONE PROVIDED

Post-Development (CFS)
NONE PROVIDED

37a. The need to meet the Qp and Qf criteria has been waived because:
Downstream analysis reveals that the Qp and Qf controls are not required.

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed?
No

If Yes, Identify the entity responsible for the long term Operation and Maintenance
NONE PROVIDED

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). (See question #32a) This space can also be used for other pertinent project information.
The proposed project is an overhead electrical transmission line with installation of two switchyards. The Lat/Long for the project was determined at the southern end of the transmission line and corresponds with the Town of Elma MS4. The address for the project was identified using the southern switchyard and cross streets. The use of the southern switchyard allowed the generation of an address for a physical location, instead of an arbitrary location along the linear transmission line.

Post-Construction SMP Identification

Runoff Reduction (RR) Techniques, Standard Stormwater Management Practices (SMPs) and Alternative SMPs
Identify the Post-construction SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

RR Techniques (Area Reduction)

Round to the nearest tenth

Total Contributing Acres for Conservation of Natural Area (RR-1)
NONE PROVIDED

Total Contributing Impervious Acres for Conservation of Natural Area (RR-1)
NONE PROVIDED

Total Contributing Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)
8.21

Total Contributing Impervious Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)
1.72

Total Contributing Acres for Tree Planting/Tree Pit (RR-3)
NONE PROVIDED

Total Contributing Impervious Acres for Tree Planting/Tree Pit (RR-3)
NONE PROVIDED

Total Contributing Acres for Disconnection of Rooftop Runoff (RR-4)
NONE PROVIDED

RR Techniques (Volume Reduction)

Total Contributing Impervious Acres for Disconnection of Rooftop Runoff (RR-4)
NONE PROVIDED

Total Contributing Impervious Acres for Vegetated Swale (RR-5)
NONE PROVIDED

Total Contributing Impervious Acres for Rain Garden (RR-6)
NONE PROVIDED

Total Contributing Impervious Acres for Stormwater Planter (RR-7)
NONE PROVIDED

Total Contributing Impervious Acres for Rain Barrel/Cistern (RR-8)
NONE PROVIDED

Total Contributing Impervious Acres for Porous Pavement (RR-9)
3.09

Total Contributing Impervious Acres for Green Roof (RR-10)
NONE PROVIDED

Standard SMPs with RRv Capacity

Total Contributing Impervious Acres for Infiltration Trench (I-1)
NONE PROVIDED

Total Contributing Impervious Acres for Infiltration Basin (I-2)
NONE PROVIDED

Total Contributing Impervious Acres for Dry Well (I-3)
NONE PROVIDED

Total Contributing Impervious Acres for Underground Infiltration System (I-4)
NONE PROVIDED

Total Contributing Impervious Acres for Bioretention (F-5)
NONE PROVIDED

Total Contributing Impervious Acres for Dry Swale (O-1)
NONE PROVIDED

Standard SMPs

Total Contributing Impervious Acres for Micropool Extended Detention (P-1)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Pond (P-2)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Extended Detention (P-3)
NONE PROVIDED

Total Contributing Impervious Acres for Multiple Pond System (P-4)
NONE PROVIDED

Total Contributing Impervious Acres for Pocket Pond (P-5)
NONE PROVIDED

Total Contributing Impervious Acres for Surface Sand Filter (F-1)
NONE PROVIDED

Total Contributing Impervious Acres for Underground Sand Filter (F-2)
NONE PROVIDED

Total Contributing Impervious Acres for Perimeter Sand Filter (F-3)
NONE PROVIDED

Total Contributing Impervious Acres for Organic Filter (F-4)
NONE PROVIDED

Total Contributing Impervious Acres for Shallow Wetland (W-1)
NONE PROVIDED

Total Contributing Impervious Acres for Extended Detention Wetland (W-2)
NONE PROVIDED

Total Contributing Impervious Acres for Pond/Wetland System (W-3)
NONE PROVIDED

Total Contributing Impervious Acres for Pocket Wetland (W-4)
NONE PROVIDED

Total Contributing Impervious Acres for Wet Swale (O-2)
NONE PROVIDED

Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Total Contributing Impervious Area for Hydrodynamic
NONE PROVIDED

Total Contributing Impervious Area for Wet Vault
NONE PROVIDED

Total Contributing Impervious Area for Media Filter
NONE PROVIDED

"Other" Alternative SMP?
NONE PROVIDED

Total Contributing Impervious Area for "Other"
NONE PROVIDED

Provide the name and manufaturer of the alternative SMPs (i.e. proprietary practice (s)) being used for WQv treatment.

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

Manufacturer of Alternative SMP
NONE PROVIDED

Name of Alternative SMP
NONE PROVIDED

Other Permits

40. Identify other DEC permits, existing and new, that are required for this project/facility.
Water Quality Certificate

If SPDES Multi-Sector GP, then give permit ID
NONE PROVIDED

If Other, then identify
NONE PROVIDED

41. Does this project require a US Army Corps of Engineers Wetland Permit?
Yes

If "Yes," then indicate Size of Impact, in acres, to the nearest tenth
0.34

42. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned.
NONE PROVIDED

MS4 SWPPP Acceptance

43. Is this project subject to the requirements of a regulated, traditional land use control MS4?
Yes - Please attach the MS4 Acceptance form below

If No, skip question 44

44. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI?
Yes

MS4 SWPPP Acceptance Form Download
Download form from the link below. Complete, sign, and upload.
MS4 SWPPP Acceptance Form

MS4 Acceptance Form Upload
MS4 Certification.pdf - 04/23/2020 09:24 AM
Comment
NONE PROVIDED

Owner/Operator Certification

Owner/Operator Certification Form Download
Download the certification form by clicking the link below. Complete, sign, scan, and upload the form.
Owner/Operator Certification Form (PDF, 45KB)

Upload Owner/Operator Certification Form
Owner-Operator Certification Form.pdf - 04/24/2020 08:56 AM
Comment
NONE PROVIDED

Attachments

Date	Attachment Name	Context	User
4/24/2020 8:56 AM	Owner-Operator Certification Form.pdf	Attachment	Douglas Johnston
4/23/2020 9:24 AM	MS4 Certification.pdf	Attachment	Douglas Johnston

Date	Attachment Name	Context	User
4/23/2020 9:10 AM	SWPPP Preparer Certification Form (GP-0-15-002)_signed.pdf	Attachment	Douglas Johnston

Status History

	User	Processing Status
3/24/2020 8:28:59 AM	Douglas Johnston	Draft
5/15/2020 8:37:58 AM	Douglas Johnston	Submitted

Processing Steps

Step Name	Assigned To/Completed By	Date Completed
Form Submitted	Douglas Johnston	5/15/2020 8:37:58 AM
Under Review	DAVID GASPER	

Attachment B. NYSDEC Acknowledgement of NOI and MS4 Certification

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Division of Water, Bureau of Water Permits
625 Broadway, Albany, New York 12233-3505
P: (518) 402-8111 F: (518) 402-9029
www.dec.ny.gov

6/3/2020

NextEra Energy Transmission New York, Inc. (NEETNY)
JohnBinh Vu
700 Universe Blvd, UST C-5666
Juno Beach, FL 33408

RE: ACKNOWLEDGMENT of NOTICE OF INTENT for Coverage Under SPDES General Permit for Storm Water Discharges from CONSTRUCTION ACTIVITY – General Permit No. GP-0-20-001

Dear Prospective Permittee:

This is to acknowledge that the New York State Department of Environmental Conservation (Department) has received a complete Notice of Intent (NOI) for coverage under General Permit No. GP-0-20-001 for the construction activities located at:

Empire State Line
141 Stolle Road
Elma, NY 14059 County: **ERIE**

Pursuant to Environmental Conservation Law (ECL) Article 17, Titles 7 and 8, and ECL Article 70, discharges in accordance with GP-0-20-001 from the above construction site will be authorized **5** business days from **5/15/2020,** which is the date we received your final NOI, unless notified differently by the Department.

The permit identification number for this site is: **NYR11G642**. Be sure to include this permit identification number on any forms or correspondence you send us. When coverage under the permit is no longer needed, you must submit a Notice of Termination to the Department.

This authorization is conditioned upon the following:

1. The information submitted in the NOI received by the Department on **5/15/2020** is accurate and complete.

2. You have developed a Stormwater Pollution Prevention Plan (SWPPP) that complies with GP-0-20-001 which must be implemented as the first element of construction at the above-noted construction site.

3. Activities related to the above construction site comply with all other requirements of GP-0-20-001.

4. Payment of the annual $110 regulatory fee, which is billed separately by the Department in the late fall. The regulatory fee covers a period of one calendar year. In addition, since September 1, 2004, construction stormwater permittees have been assessed an initial authorization fee which is now $110 per acre of land disturbed and $675 per acre of future impervious area. The initial authorization fee covers the duration of the authorized disturbance.

5. When applicable, project review pursuant to the State Environmental Quality Review Act (SEQRA) has been satisfied.

6. You have obtained all necessary Uniform Procedures Act (UPA) permits. You should check with your Regional Permit Administrator for further information.

***Note: Construction activities cannot commence until project review pursuant to SEQRA has been satisfied, when SEQRA is applicable; and, where required, all necessary Department permits subject to the UPA have been obtained.**

7. Before disturbing greater than 5 acres of soil at any one time, you have obtained approval from our regional office. You should contact the regional office listed below to have your construction sequencing plan reviewed.

Jeffrey Konsella
NYS Department of Environmental Conservation - Region: **9**
270 Michigan Avenue
Buffalo, NY 14203-2999

Please be advised that the Department may request a copy of your SWPPP for review.

Should you have any questions regarding any aspect of the requirements specified in GP-0-20-001, please contact Dave Gasper at (518) 402-8114.

Sincerely,

David Gasper
Environmental Engineer

cc: RWE - **9**
SWPPP Preparer
Electrical Consultants, Inc.
Ryan Davis
3521 Gabel Road
Billings, MT 59102

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NYS Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

Construction Activities Seeking Authorization Under SPDES General Permit

*(NOTE: Attach Completed Form to Notice Of Intent and Submit to Address Above)

I. Project Owner/Operator Information	
1. Owner/Operator Name:	NextEra Energy Transmission New York, Inc. (NEETNY)
2. Contact Person:	Johnbinh Vu
3. Street Address:	700 Universe Boulevard
4. City/State/Zip:	Juno Beach, FL 33408
II. Project Site Information	
5. Project/Site Name:	Empire State Line
6. Street Address:	See Section 1 Above
7. City/State/Zip:	Multiple Towns, Niagara County and Erie County
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information	
8. SWPPP Reviewed by:	JAMES WYZYKIEWICZ
9. Title/Position:	TOWN ENGINEER
10. Date Final SWPPP Reviewed and Accepted:	4-22-20
IV. Regulated MS4 Information	
11. Name of MS4:	TOWN OF ELMA
12. MS4 SPDES Permit Identification Number: NYR20A	- 399
13. Contact Person:	JAMES WYZYKIEWICZ
14. Street Address:	591 POUND RD.
15. City/State/Zip:	ELMA N.Y. 14059
16. Telephone Number:	716. 652. 6730

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s). Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name:	JAMES WYZYKIEWICZ
Title/Position:	TOWN ENGINEER
Signature:	
Date:	4/22/20

VI. Additional Information

(NYS DEC - MS4 SWPPP Acceptance Form - January 2015)

Attachment C. SWPPP Contact List

Name	Title	Company	Contact
Natasha Snyder	Environmental Permits	NEETNY	651-691-7060
Jason Hoffman	Project Manager	NEETNY	561-694-3301
Johnbinh Vu	Real Estate	NEETNY	561-694-4831
	Substation Contractor	TBD	
	Transmission Line Contractor	TBD	
	SWPPP Inspector	TBD	

Attachment D. NYSDEC Construction General Permit

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP- 0-20-001

Issued Pursuant to Article 17, Titles 7, 8 and Article 70

of the Environmental Conservation Law

Effective Date: January 29, 2020

Expiration Date: January 28, 2025

John J. Ferguson

Chief Permit Administrator

1-23-20

Authorized Signature

Date

Address: NYS DEC
Division of Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

PREFACE

Pursuant to Section 402 of the Clean Water Act ("CWA"), stormwater *discharges* from certain *construction activities* are unlawful unless they are authorized by a *National Pollutant Discharge Elimination System ("NPDES")* permit or by a state permit program. New York administers the approved State Pollutant Discharge Elimination System (SPDES) program with permits issued in accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7, 8 and Article 70.

An *owner or operator* of a *construction activity* that is eligible for coverage under this permit must obtain coverage prior to the *commencement of construction activity*. Activities that fit the definition of "*construction activity*", as defined under 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), constitute construction of a *point source* and therefore, pursuant to ECL section 17-0505 and 17-0701, the *owner or operator* must have coverage under a SPDES permit prior to *commencing construction activity*. The *owner or operator* cannot wait until there is an actual *discharge* from the *construction site* to obtain permit coverage.

***Note: The italicized words/phrases within this permit are defined in Appendix A.**

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES

Table of Contents

Part 1. PERMIT COVERAGE AND LIMITATIONS

A. Permit Application

This permit authorizes stormwater *discharges* to *surface waters of the State* from the following *construction activities* identified within 40 CFR Parts 122.26(b)(14)(x), 122.26(b)(15)(i) and 122.26(b)(15)(ii), provided all of the eligibility provisions of this permit are met:

1. *Construction activities* involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a *larger common plan of development or sale* that will ultimately disturb one or more acres of land; excluding *routine maintenance activity* that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;

2. *Construction activities* involving soil disturbances of less than one (1) acre where the Department has determined that a *SPDES* permit is required for stormwater *discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of *pollutants* to *surface waters of the State.*

3. *Construction activities* located in the watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

B. Effluent Limitations Applicable to Discharges from Construction Activities

*Discharge*s authorized by this permit must achieve, at a minimum, the effluent limitations in Part I.B.1. (a) – (f) of this permit. These limitations represent the degree of effluent reduction attainable by the application of best practicable technology currently available.

1. Erosion and Sediment Control Requirements - The *owner or operator* must select, design, install, implement and maintain control measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. The selection, design, installation, implementation, and maintenance of these control measures must meet the non-numeric effluent limitations in Part I.B.1.(a) – (f) of this permit and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, using sound engineering judgment. Where control measures are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must include in the *Stormwater Pollution Prevention Plan* (“SWPPP”) the reason(s) for the

deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

a. **Erosion and Sediment Controls.** Design, install and maintain effective erosion and sediment controls to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such controls must be designed, installed and maintained to:

   (i) *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharge*s;

   (ii) Control stormwater *discharge*s, including both peak flowrates and total stormwater volume, to *minimize* channel and *streambank* erosion and scour in the immediate vicinity of the *discharge* points;

   (iii) *Minimize* the amount of soil exposed during *construction activity*;

   (iv) *Minimize* the disturbance of *steep slopes*;

   (v) *Minimize* sediment *discharge*s from the site;

   (vi) Provide and maintain *natural buffer*s around surface waters, direct stormwater to vegetated areas and maximize stormwater infiltration to reduce *pollutant discharge*s, unless *infeasible*;

   (vii) *Minimize* soil compaction. Minimizing soil compaction is not required where the intended function of a specific area of the site dictates that it be compacted;

   (viii) Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover; and

   (ix) *Minimize* dust. On areas of exposed soil, *minimize* dust through the appropriate application of water or other dust suppression techniques to control the generation of pollutants that could be discharged from the site.

b. **Soil Stabilization**. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the date the current soil disturbance activity ceased. For construction sites that *directly discharge* to one of the 303(d) segments

listed in Appendix E or is located in one of the watersheds listed in Appendix C, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. See Appendix A for definition of *Temporarily Ceased*.

c. **Dewatering**. *Discharge*s from *dewatering* activities, including *discharge*s from *dewatering* of trenches and excavations, must be managed by appropriate control measures.

d. **Pollution Prevention Measures**. Design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such measures must be designed, installed, implemented and maintained to:

(i) *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. This applies to washing operations that use clean water only. Soaps, detergents and solvents cannot be used;

(ii) *Minimize* the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, hazardous and toxic waste, and other materials present on the site to precipitation and to stormwater. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a *discharge* of *pollutants*, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use) ; and

(iii) Prevent the *discharge* of *pollutants* from spills and leaks and implement chemical spill and leak prevention and response procedures.

e. **Prohibited *Discharges*.** The following *discharge*s are prohibited:

(i) Wastewater from washout of concrete;

(ii) Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;

(iii) Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance;

(iv) Soaps or solvents used in vehicle and equipment washing; and

(v) Toxic or hazardous substances from a spill or other release.

f. Surface Outlets. When discharging from basins and impoundments, the outlets shall be designed, constructed and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion at or below the outlet does not occur.

C. Post-construction Stormwater Management Practice Requirements

1. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must select, design, install, and maintain the practices to meet the *performance criteria* in the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015, using sound engineering judgment. Where post-construction stormwater management practices ("SMPs") are not designed in conformance with the *performance criteria* in the Design Manual, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. The *owner or operator* of a *construction activity* that requires post-construction stormwater management practices pursuant to Part III.C. of this permit must design the practices to meet the applicable *sizing criteria* in Part I.C.2.a., b., c. or d. of this permit.

a. Sizing Criteria for New Development

(i) Runoff Reduction Volume ("RRv"): Reduce the total Water Quality Volume ("WQv") by application of RR techniques and standard SMPs with RRv capacity. The total WQv shall be calculated in accordance with the criteria in Section 4.2 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: Construction activities that cannot meet the criteria in Part I.C.2.a.(i) of this permit due to site limitations shall direct runoff from all newly constructed impervious areas to a RR technique or standard SMP with RRv capacity unless infeasible. The specific site limitations that prevent the reduction of 100% of the WQv shall be documented in the SWPPP.

For each impervious area that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered infeasible.

In no case shall the runoff reduction achieved from the newly constructed impervious areas be less than the Minimum RRv as calculated using the criteria in Section 4.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume ("Cpv"): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site discharges directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria ("Qp"): Requires storage to attenuate the post-development 10-year, 24-hour peak discharge rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria ("Qf"): Requires storage to attenuate the post-development 100-year, 24-hour peak discharge rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site discharges directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

b. *Sizing Criteria* for *New Development* in Enhanced Phosphorus Removal Watershed

(i) Runoff Reduction Volume (RRv): Reduce the total Water Quality Volume (WQv) by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24 hour design storm over the post-developed watershed and shall be

calculated in accordance with the criteria in Section 10.3 of the Design Manual.

(ii) Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part I.C.2.b.(i) of this permit due to *site limitations* shall direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv shall be documented in the SWPPP. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the SWPPP must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible.*

In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 10.3 of the Design Manual. The remaining portion of the total WQv that cannot be reduced shall be treated by application of standard SMPs.

(iii) Channel Protection Volume (Cpv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event; remaining after runoff reduction. The Cpv requirement does not apply when:
(1) Reduction of the entire Cpv is achieved by application of runoff reduction techniques or infiltration systems, or
(2) The site *discharge*s directly to tidal waters, or fifth order or larger streams.

(iv) *Overbank* Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:
(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

(v) Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:
(1) the site *discharge*s directly to tidal waters or fifth order or larger streams, or
(2) A downstream analysis reveals that *overbank* control is not required.

c. Sizing Criteria for Redevelopment Activity

(i) Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* shall be addressed by one of the following options. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C of this permit) shall calculate the WQv in accordance with Section 10.3 of the Design Manual. All other *redevelopment activities* shall calculate the WQv in accordance with Section 4.2 of the Design Manual.

(1) Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the Design Manual must be applied to all newly created pervious areas, or

(2) Capture and treat a minimum of 25% of the WQv from the disturbed, *impervious area* by the application of standard SMPs; or reduce 25% of the WQv from the disturbed, *impervious area* by the application of RR techniques or standard SMPs with RRv capacity., or

(3) Capture and treat a minimum of 75% of the WQv from the disturbed, *impervious area* as well as any additional runoff from tributary areas by application of the alternative practices discussed in Sections 9.3 and 9.4 of the Design Manual., or

(4) Application of a combination of 1, 2 and 3 above that provide a weighted average of at least two of the above methods. Application of this method shall be in accordance with the criteria in Section 9.2.1(B) (IV) of the Design Manual.

If there is an existing post-construction stormwater management practice located on the site that captures and treats runoff from the *impervious area* that is being disturbed, the WQv treatment option selected must, at a minimum, provide treatment equal to the treatment that was being provided by the existing practice(s) if that treatment is greater than the treatment required by options 1 – 4 above.

(ii) Channel Protection Volume (Cpv): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iii) *Overbank* Flood Control Criteria (Qp): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site.

(iv) Extreme Flood Control Criteria (Qf): Not required if there are no changes to hydrology that increase the *discharge* rate from the project site

d. Sizing Criteria for Combination of Redevelopment Activity and New Development

Construction projects that include both New Development and Redevelopment Activity shall provide post-construction stormwater management controls that meet the sizing criteria calculated as an aggregate of the Sizing Criteria in Part I.C.2.a. or b. of this permit for the New Development portion of the project and Part I.C.2.c of this permit for Redevelopment Activity portion of the project.

D. Maintaining Water Quality

The Department expects that compliance with the conditions of this permit will control *discharge*s necessary to meet applicable *water quality standards*. It shall be a violation of the *ECL* for any discharge to either cause or contribute to a violation of *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, such as:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;

2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and

3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

If there is evidence indicating that the stormwater *discharge*s authorized by this permit are causing, have the reasonable potential to cause, or are contributing to a violation of the *water quality standards*; the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this general permit and document in accordance with Part IV.C.4. of this general permit. To address the *water quality standard* violation the *owner or operator* may need to provide additional information, include and implement appropriate controls in the SWPPP to correct the problem, or obtain an individual SPDES permit.

If there is evidence indicating that despite compliance with the terms and conditions of this general permit it is demonstrated that the stormwater *discharge*s authorized by this permit are causing or contributing to a violation of *water quality standards*, or if the Department determines that a modification of the permit is necessary to prevent a violation of *water quality standards*, the authorized *discharge*s will no longer be eligible for coverage under this permit. The Department may require the *owner or operator* to obtain an individual SPDES permit to continue discharging.

E. Eligibility Under This General Permit

1. This permit may authorize all *discharges* of stormwater from *construction activity* to *surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph F. of this Part.

2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater *discharge*s; including stormwater runoff, snowmelt runoff, and surface runoff and drainage, from *construction activities*.

3. Notwithstanding paragraphs E.1 and E.2 above, the following non-stormwater discharges are authorized by this permit: those listed in 6 NYCRR 750-1.2(a)(29)(vi), with the following exception: "Discharges from firefighting activities are authorized only when the firefighting activities are emergencies/unplanned"; waters to which other components have not been added that are used to control dust in accordance with the SWPPP; and uncontaminated *discharge*s from *construction site* de-watering operations. All non-stormwater discharges must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with *water quality standards* in Part I.D of this permit.

4. The *owner or operator* must maintain permit eligibility to *discharge* under this permit. Any *discharges* that are not compliant with the eligibility conditions of this permit are not authorized by the permit and the *owner or operator* must either apply for a separate permit to cover those ineligible *discharges* or take steps necessary to make the *discharge* eligible for coverage.

F. Activities Which Are Ineligible for Coverage Under This General Permit

All of the following are **not** authorized by this permit:

1. *Discharge*s after *construction activities* have been completed and the site has undergone *final stabilization*;

2. *Discharge*s that are mixed with sources of non-stormwater other than those expressly authorized under subsection E.3. of this Part and identified in the SWPPP required by this permit;

3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII.K. of this permit;

4. *Construction activities* or *discharges* from *construction activities* that may adversely affect an *endangered or threatened species* unless the *owner or*

operator has obtained a permit issued pursuant to 6 NYCRR Part 182 for the project or the Department has issued a letter of non-jurisdiction for the project. All documentation necessary to demonstrate eligibility shall be maintained on site in accordance with Part II.D.2 of this permit;

5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;

6. *Construction activities* for residential, commercial and institutional projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb one (1) or more acres of land designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

7. *Construction activities* for linear transportation projects and linear utility projects:

   a. Where the *discharge*s from the *construction activities* are tributary to waters of the state classified as AA or AA-s; and

   b. Which are undertaken on land with no existing *impervious cover*; and

   c. Which disturb two (2) or more acres of land designated on the current USDA Soil Survey as Soil Slope Phase "D" (provided the map unit name is inclusive of slopes greater than 25%), or Soil Slope Phase "E" or "F" (regardless of the map unit name), or a combination of the three designations.

8. *Construction activities* that have the potential to affect an *historic property*, unless there is documentation that such impacts have been resolved. The following documentation necessary to demonstrate eligibility with this requirement shall be maintained on site in accordance with Part II.D.2 of this permit and made available to the Department in accordance with Part VII.F of this permit:

   a. Documentation that the *construction activity* is not within an archeologically sensitive area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the *construction site* within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the *construction site* within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant.

      - 1-5 acres of disturbance - 20 feet
      - 5-20 acres of disturbance - 50 feet
      - 20+ acres of disturbance - 100 feet, or

   b. DEC consultation form sent to OPRHP, and copied to the NYS DEC Agency Historic Preservation Officer (APO), and
      (i) the State Environmental Quality Review (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or
      (ii) documentation from OPRHP that the *construction activity* will result in No Impact; or
      (iii) documentation from OPRHP providing a determination of No Adverse Impact; or
      (iv) a Letter of Resolution signed by the owner/operator, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA); or

   c. Documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:

(i) No Affect
(ii) No Adverse Affect
(iii) Executed Memorandum of Agreement, or

d. Documentation that:

(i) SHPA Section 14.09 has been completed by NYS DEC or another state agency.

9. *Discharge*s from *construction activities* that are subject to an existing SPDES individual or general permit where a SPDES permit for *construction activity* has been terminated or denied; or where the *owner or operator* has failed to renew an expired individual permit.

Part II. PERMIT COVERAGE

A. How to Obtain Coverage

1. An *owner or operator* of a *construction activity* that is not subject to the requirements of a regulated, traditional land use control MS4 must first prepare a SWPPP in accordance with all applicable requirements of this permit and then submit a completed Notice of Intent (NOI) to the Department to be authorized to discharge under this permit.

2. An *owner or operator* of a *construction activity* that is subject to the requirements of a *regulated, traditional land use control MS4* must first prepare a SWPPP in accordance with all applicable requirements of this permit and then have the SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the “MS4 SWPPP Acceptance” form signed in accordance with Part VII.H., and then submit that form along with a completed NOI to the Department.

3. The requirement for an *owner or operator* to have its SWPPP reviewed and accepted by the *regulated, traditional land use control MS4* prior to submitting the NOI to the Department does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.F. (Change of *Owner or Operator*) or where the *owner or operator* of the *construction activity* is the *regulated, traditional land use control MS4* . This exemption does not apply to *construction activities* subject to the New York City Administrative Code.

B. Notice of Intent (NOI) Submittal

1. Prior to December 21, 2020, an owner or operator shall use either the electronic (eNOI) or paper version of the NOI that the Department prepared. Both versions of the NOI are located on the Department's website (http://www.dec.ny.gov/). The paper version of the NOI shall be signed in accordance with Part VII.H. of this permit and submitted to the following address:

   NOTICE OF INTENT
   NYS DEC, Bureau of Water Permits
   625 Broadway, 4th Floor
   Albany, New York 12233-3505

2. Beginning December 21, 2020 and in accordance with EPA's 2015 NPDES Electronic Reporting Rule (40 CFR Part 127), the *owner or operator* must submit the NOI electronically using the *Department's* online NOI.

3. The *owner or operator* shall have the SWPPP preparer sign the "SWPPP Preparer Certification" statement on the NOI prior to submitting the form to the Department.

4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

C. Permit Authorization

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.

2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied all of the following criteria:

   a. project review pursuant to the State Environmental Quality Review Act ("SEQRA") have been satisfied, when SEQRA is applicable. See the Department's website (http://www.dec.ny.gov/) for more information,

   b. where required, all necessary Department permits subject to the *Uniform Procedures Act ("UPA")* (see 6 NYCRR Part 621), or the equivalent from another New York State agency, have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators* of *construction activities* that are required to obtain *UPA* permits

must submit a preliminary SWPPP to the appropriate DEC Permit Administrator at the Regional Office listed in Appendix F at the time all other necessary *UPA* permit applications are submitted. The preliminary SWPPP must include sufficient information to demonstrate that the *construction activity* qualifies for authorization under this permit,

c. the final SWPPP has been prepared, and

d. a complete NOI has been submitted to the Department in accordance with the requirements of this permit.

3. An *owner or operator* that has satisfied the requirements of Part II.C.2 above will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:

   a. For *construction activities* that are <u>not</u> subject to the requirements of a *regulated, traditional land use control MS4*:

      (i) Five (5) business days from the date the Department receives a complete electronic version of the NOI (eNOI) for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.; or

      (ii) Sixty (60) business days from the date the Department receives a complete NOI (electronic or paper version) for *construction activities* with a SWPPP that has <u>not</u> been prepared in conformance with the design criteria in technical standard referenced in Part III.B.1. or, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C., the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, or;

      (iii) Ten (10) business days from the date the Department receives a complete paper version of the NOI for *construction activities* with a SWPPP that has been prepared in conformance with the design criteria in the technical standard referenced in Part III.B.1 and the *performance criteria* in the technical standard referenced in Parts III.B., 2 or 3, for *construction activities* that require post-construction stormwater management practices pursuant to Part III.C.

b. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*:

(i) Five (5) business days from the date the Department receives both a complete electronic version of the NOI (eNOI) and signed "*MS4* SWPPP Acceptance" form, or

(ii) Ten (10) business days from the date the Department receives both a complete paper version of the NOI and signed "MS4 SWPPP Acceptance" form.

4. Coverage under this permit authorizes stormwater *discharges* from only those areas of disturbance that are identified in the NOI. If an *owner or operator* wishes to have stormwater *discharges* from future or additional areas of disturbance authorized, they must submit a new NOI that addresses that phase of the development, unless otherwise notified by the Department. The *owner or operator* shall not *commence construction activity* on the future or additional areas until their authorization to *discharge* under this permit goes into effect in accordance with Part II.C. of this permit.

D. General Requirements For Owners or Operators With Permit Coverage

1. The *owner or operator* shall ensure that the provisions of the SWPPP are implemented from the *commencement of construction activity* until all areas of disturbance have achieved *final stabilization* and the Notice of Termination ("NOT") has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP pursuant to Part III.A.4. of this permit.

2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-20-001), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form, inspection reports, responsible contractor's or subcontractor's certification statement (see Part III.A.6.), and all documentation necessary to demonstrate eligibility with this permit at the *construction site* until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department. The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.

3. The *owner or operator* of a *construction activity* shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a *regulated, traditional land*

use control MS4, the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*). At a minimum, the *owner or operator* must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:

a. The *owner or operator* shall have a *qualified inspector* conduct **at least** two (2) site inspections in accordance with Part IV.C. of this permit every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

b. In areas where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016.

c. The *owner or operator* shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.

d. The *owner or operator* shall install any additional site-specific practices needed to protect water quality.

e. The *owner or operator* shall include the requirements above in their SWPPP.

4. In accordance with statute, regulations, and the terms and conditions of this permit, the Department may suspend or revoke an *owner's or operator's* coverage under this permit at any time if the Department determines that the SWPPP does not meet the permit requirements or consistent with Part VII.K..

5. Upon a finding of significant non-compliance with the practices described in the SWPPP or violation of this permit, the Department may order an immediate stop to all activity at the site until the non-compliance is remedied. The stop work order shall be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.

6. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*, the *owner or operator* shall notify the

regulated, traditional land use control MS4 in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP required by Part III.A. 4. and 5. of this permit. Unless otherwise notified by the *regulated, traditional land use control MS4*, the *owner or operator* shall have the SWPPP amendments or modifications reviewed and accepted by the *regulated, traditional land use control MS4* prior to commencing construction of the post-construction stormwater management practice.

E. Permit Coverage for Discharges Authorized Under GP-0-15-002

1. Upon renewal of SPDES General Permit for Stormwater Discharges from *Construction Activity* (Permit No. GP-0-15-002), an *owner or operator* of *a construction activity* with coverage under GP-0-15-002, as of the effective date of GP- 0-20-001, shall be authorized to *discharge* in accordance with GP- 0-20-001, unless otherwise notified by the Department.

   An *owner or operator* may continue to implement the technical/design components of the post-construction stormwater management controls provided that such design was done in conformance with the technical standards in place at the time of initial project authorization. However, they must comply with the other, non-design provisions of GP-0-20-001.

F. Change of Owner or Operator

1. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original *owner or operator* must notify the new *owner or operator*, in writing, of the requirement to obtain permit coverage by submitting a NOI with the Department. For *construction activities* subject to the requirements of a *regulated, traditional land use control MS4,* the original *owner or operator* must also notify the MS4, in writing, of the change in ownership at least 30 calendar days prior to the change in ownership.

2. Once the new *owner or operator* obtains permit coverage, the original *owner or operator* shall then submit a completed NOT with the name and permit identification number of the new *owner or operator* to the Department at the address in Part II.B.1. of this permit. If the original *owner or operator* maintains ownership of a portion of the *construction activity* and will disturb soil, they must maintain their coverage under the permit.

3. Permit coverage for the new *owner or operator* will be effective as of the date the Department receives a complete NOI, provided the original *owner or*

operator was not subject to a sixty (60) business day authorization period that has not expired as of the date the Department receives the NOI from the new *owner or operator*.

Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A. General SWPPP Requirements

1. A SWPPP shall be prepared and implemented by the *owner or operator* of each *construction activity* covered by this permit. The SWPPP must document the selection, design, installation, implementation and maintenance of the control measures and practices that will be used to meet the effluent limitations in Part I.B. of this permit and where applicable, the post-construction stormwater management practice requirements in Part I.C. of this permit. The SWPPP shall be prepared prior to the submittal of the NOI. The NOI shall be submitted to the Department prior to the *commencement of construction activity*. A copy of the completed, final NOI shall be included in the SWPPP.

2. The SWPPP shall describe the erosion and sediment control practices and where required, post-construction stormwater management practices that will be used and/or constructed to reduce the *pollutants* in stormwater *discharges* and to assure compliance with the terms and conditions of this permit. In addition, the SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater *discharges*.

3. All SWPPPs that require the post-construction stormwater management practice component shall be prepared by a *qualified professional* that is knowledgeable in the principles and practices of stormwater management and treatment.

4. The *owner or operator* must keep the SWPPP current so that it at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site. At a minimum, the *owner or operator* shall amend the SWPPP, including construction drawings:

    a. whenever the current provisions prove to be ineffective in minimizing *pollutants* in stormwater *discharges* from the site;

b. whenever there is a change in design, construction, or operation at the *construction site* that has or could have an effect on the *discharge* of *pollutants*;

c. to address issues or deficiencies identified during an inspection by the *qualified inspector,* the Department or other regulatory authority; and

d. to document the final construction conditions.

5. The Department may notify the *owner or operator* at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. The notification shall be in writing and identify the provisions of the SWPPP that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by the Department, the *owner or operator* shall make the required changes to the SWPPP and submit written notification to the Department that the changes have been made. If the *owner or operator* does not respond to the Department's comments in the specified time frame, the Department may suspend the *owner's or operator's* coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.D.4. of this permit.

6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor.* The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

   The *owner or operator* shall have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before they commence any *construction activity*:

   "I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with

the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharge*s from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

In addition to providing the certification statement above, the certification page must also identify the specific elements of the SWPPP that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the *trained contractor* responsible for SWPPP implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* shall attach the certification statement(s) to the copy of the SWPPP that is maintained at the *construction site*. If new or additional contractors are hired to implement measures identified in the SWPPP after construction has commenced, they must also sign the certification statement and provide the information listed above.

7. For projects where the Department requests a copy of the SWPPP or inspection reports, the *owner or operator* shall submit the documents in both electronic (PDF only) and paper format within five (5) business days, unless otherwise notified by the Department.

B. Required SWPPP Contents

1. Erosion and sediment control component - All SWPPPs prepared pursuant to this permit shall include erosion and sediment control practices designed in conformance with the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Where erosion and sediment control practices are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must demonstrate *equivalence* to the technical standard. At a minimum, the erosion and sediment control component of the SWPPP shall include the following:

    a. Background information about the scope of the project, including the location, type and size of project

b. A site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours ; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the stormwater *discharge*(s);

c. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG);

d. A construction phasing plan and sequence of operations describing the intended order of *construction activities*, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance;

e. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;

f. A temporary and permanent soil stabilization plan that meets the requirements of this general permit and the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of *final stabilization*;

g. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice;

h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any temporary sediment basins and structural practices that will be used to divert flows from exposed soils;

i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6. of this permit, to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection

schedule shall be in accordance with the requirements in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016;

j. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the stormwater *discharges*;

k. A description and location of any stormwater *discharges* associated with industrial activity other than construction at the site, including, but not limited to, stormwater *discharges* from asphalt plants and concrete plants located on the *construction site*; and

l. Identification of any elements of the design that are not in conformance with the design criteria in the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, dated November 2016. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. Post-construction stormwater management practice component – The *owner or operator* of any construction project identified in Table 2 of Appendix B as needing post-construction stormwater management practices shall prepare a SWPPP that includes practices designed in conformance with the applicable *sizing criteria* in Part I.C.2.a., c. or d. of this permit and the *performance criteria* in the technical standard, New York State Stormwater Management Design Manual dated January 2015

   Where post-construction stormwater management practices are not designed in conformance with the *performance criteria* in the technical standard, the *owner or operator* must include in the SWPPP the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

   The post-construction stormwater management practice component of the SWPPP shall include the following:

   a. Identification of all post-construction stormwater management practices to be constructed as part of the project. Include the dimensions, material specifications and installation details for each post-construction stormwater management practice;

b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice;

c. A Stormwater Modeling and Analysis Report that includes:
   (i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points;

   (ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and post-construction stormwater management practices;

   (iii) Results of stormwater modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre and post-development runoff rates and volumes for the different storm events;

   (iv) Summary table, with supporting calculations, which demonstrates that each post-construction stormwater management practice has been designed in conformance with the *sizing criteria* included in the Design Manual;

   (v) Identification of any *sizing criteria* that is not required based on the requirements included in Part I.C. of this permit; and

   (vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the Design Manual. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the Design Manual;

d. Soil testing results and locations (test pits, borings);

e. Infiltration test results, when required; and

f. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice.

3. Enhanced Phosphorus Removal Standards - All construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the applicable *sizing criteria* in Part I.C.2. b., c. or d. of this permit and the *performance criteria,* Enhanced Phosphorus Removal Standards included in the Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a - 2.f. above.

C. Required SWPPP Components by Project Type

Unless otherwise notified by the Department, *owners or operators* of *construction activities* identified in Table 1 of Appendix B are required to prepare a SWPPP that only includes erosion and sediment control practices designed in conformance with Part III.B.1 of this permit. *Owners or operators* of the *construction activities* identified in Table 2 of Appendix B shall prepare a SWPPP that also includes post-construction stormwater management practices designed in conformance with Part III.B.2 or 3 of this permit.

Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS

A. General Construction Site Inspection and Maintenance Requirements

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures) and all post-construction stormwater management practices identified in the SWPPP are inspected and maintained in accordance with Part IV.B. and C. of this permit.

2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York or protect the public health and safety and/or the environment.

B. Contractor Maintenance Inspection Requirements

1. The *owner or operator* of each *construction activity* identified in Tables 1 and 2 of Appendix B shall have a *trained contractor* inspect the erosion and sediment control practices and pollution prevention measures being implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor shall

begin implementing corrective actions within one business day and shall complete the corrective actions in a reasonable time frame.

2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections. The *trained contractor* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. of this permit as soon as soil disturbance activities resume.

3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

C. Qualified Inspector Inspection Requirements

The *owner or operator* shall have a *qualified inspector* conduct site inspections in conformance with the following requirements:

[Note: The *trained contractor* identified in Part III.A.6. and IV.B. of this permit **cannot** conduct the *qualified inspector* site inspections unless they meet the *qualified inspector* qualifications included in Appendix A. In order to perform these inspections, the *trained contractor* would have to be a:

- licensed Professional Engineer,
- Certified Professional in Erosion and Sediment Control (CPESC),
- New York State Erosion and Sediment Control Certificate Program holder
- Registered Landscape Architect, or
- someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity].

1. A *qualified inspector* shall conduct site inspections for all *construction activities* identified in Tables 1 and 2 of Appendix B, with the exception of:

   a. the construction of a single family residential subdivision with 25% or less *impervious cover* at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located

in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

b. the construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;

c. construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and

d. *construction activities* located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

2. Unless otherwise notified by the Department, the *qualified inspector* shall conduct site inspections in accordance with the following timetable:

a. For construction sites where soil disturbance activities are on-going, the *qualified inspector* shall conduct a site inspection at least once every seven (7) calendar days.

b. For construction sites where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part II.D.3 to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to reducing the frequency of inspections.

d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4,* the *regulated, traditional land use control MS4* (provided the *regulated, traditional land use control MS4* is not the *owner or operator* of the *construction activity*) in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization,* and all temporary, structural erosion and sediment control measures have been removed*;* and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice" certification statements on the NOT. The *owner or operator* shall then submit the completed NOT form to the address in Part II.B.1 of this permit.

e. For construction sites that directly *discharge* to one of the 303(d) segments listed in Appendix E or is located in one of the watersheds listed in Appendix C, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

3. At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved *final stabilization,* all points of *discharge* to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site*, and all points of *discharge* from the *construction site*.

4. The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:

a. Date and time of inspection;

b. Name and title of person(s) performing inspection;

c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;

d. A description of the condition of the runoff at all points of *discharge* from the *construction site*. This shall include identification of any *discharges* of sediment from the *construction site*. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;

e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the *construction site* which receive runoff from disturbed areas. This shall include identification of any *discharges* of sediment to the surface waterbody;

f. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance;

g. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;

h. Description and sketch of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection;

i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;

j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);

k. Identification and status of all corrective actions that were required by previous inspection; and

l. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

5. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor or subcontractor identified in Part III.A.6. of this permit of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

6. All inspection reports shall be signed by the *qualified inspector.* Pursuant to Part II.D.2. of this permit, the inspection reports shall be maintained on site with the SWPPP.

Part V. TERMINATION OF PERMIT COVERAGE

A. Termination of Permit Coverage

1. An *owner or operator* that is eligible to terminate coverage under this permit must submit a completed NOT form to the address in Part II.B.1 of this permit. The NOT form shall be one which is associated with this permit, signed in accordance with Part VII.H of this permit.

2. An *owner or operator* may terminate coverage when one or more the following conditions have been met:

   a. Total project completion - All *construction activity* identified in the SWPPP has been completed; and all areas of disturbance have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational;

b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;

c. A new *owner or operator* has obtained coverage under this permit in accordance with Part II.F. of this permit.

d. The *owner or operator* obtains coverage under an alternative SPDES general permit or an individual SPDES permit.

3. For *construction activities* meeting subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The *qualified inspector* shall, by signing the "*Final Stabilization*" and "Post-Construction Stormwater Management Practice certification statements on the NOT, certify that all the requirements in Part V.A.2.a. or b. of this permit have been achieved.

4. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4* and meet subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *regulated, traditional land use control MS4* sign the "MS4 Acceptance" statement on the NOT in accordance with the requirements in Part VII.H. of this permit. The *regulated, traditional land use control MS4* official, by signing this statement, has determined that it is acceptable for the *owner or operator* to submit the NOT in accordance with the requirements of this Part. The *regulated, traditional land use control MS4* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector*'s final site inspection certification(s) required in Part V.A.3. of this permit.

5. For *construction activities* that require post-construction stormwater management practices and meet subdivision 2a. of this Part, the *owner or operator* must, prior to submitting the NOT, ensure one of the following:

   a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,

b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),

c. for post-construction stormwater management practices that are privately owned, the *owner or operator* has a mechanism in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the *owner or operator's* deed of record,

d. for post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university, hospital), government agency or authority, or public utility; the *owner or operator* has policy and procedures in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

Part VI. REPORTING AND RETENTION RECORDS

A. Record Retention

The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the Department receives a complete NOT submitted in accordance with Part V. of this general permit.

B. Addresses

With the exception of the NOI, NOT, and MS4 SWPPP Acceptance form (which must be submitted to the address referenced in Part II.B.1 of this permit), all written correspondence requested by the Department, including individual permit applications, shall be sent to the address of the appropriate DOW Water (SPDES) Program contact at the Regional Office listed in Appendix F.

Part VII. STANDARD PERMIT CONDITIONS

A. Duty to Comply

The *owner or operator* must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any non-compliance with this permit constitutes a violation of the Clean Water

Act (CWA) and the ECL and is grounds for an enforcement action against the *owner or operator* and/or the contractor/subcontractor; permit revocation, suspension or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the *owner or operator*.

If any human remains or archaeological remains are encountered during excavation, the *owner or operator* must immediately cease, or cause to cease, all *construction activity* in the area of the remains and notify the appropriate Regional Water Engineer (RWE). *Construction activity* shall not resume until written permission to do so has been received from the RWE.

B. Continuation of the Expired General Permit

This permit expires five (5) years from the effective date. If a new general permit is not issued prior to the expiration of this general permit, an *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the terms and conditions of this general permit, if it is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, until a new general permit is issued.

C. Enforcement

Failure of the *owner or operator,* its contractors, subcontractors, agents and/or assigns to strictly adhere to any of the permit requirements contained herein shall constitute a violation of this permit. There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to $37,500 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

D. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for an *owner or operator* in an enforcement action that it would have been necessary to halt or reduce the *construction activity* in order to maintain compliance with the conditions of this permit.

E. Duty to Mitigate

The *owner or operator* and its contractors and subcontractors shall take all reasonable steps to *minimize* or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

F. Duty to Provide Information

The *owner or operator* shall furnish to the Department, within a reasonable specified time period of a written request, all documentation necessary to demonstrate eligibility and any information to determine compliance with this permit or to determine whether cause exists for modifying or revoking this permit, or suspending or denying coverage under this permit, in accordance with the terms and conditions of this permit. The NOI, SWPPP and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five (5) business days of the *owner or operator* receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

G. Other Information

When the *owner or operator* becomes aware that they failed to submit any relevant facts, or submitted incorrect information in the NOI or in any of the documents required by this permit , or have made substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of post-construction stormwater management practice(s) changes, there is a reduction in the sizing of the post-construction stormwater management practice, or there is an increase in the disturbance area or *impervious area*), which were not reflected in the original NOI submitted to the Department, they shall promptly submit such facts or information to the Department using the contact information in Part II.A. of this permit. Failure of the *owner or operator* to correct or supplement any relevant facts within five (5) business days of becoming aware of the deficiency shall constitute a violation of this permit.

H. Signatory Requirements

1. All NOIs and NOTs shall be signed as follows:

    a. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

(i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or

(ii) the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or

c. For a municipality, State, Federal, or other public agency these forms shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

(i) the chief executive officer of the agency, or

(ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. The SWPPP and other information requested by the Department shall be signed by a person described in Part VII.H.1. of this permit or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Part VII.H.1. of this permit;

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field,

superintendent, position of *equivalent* responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position) and,

c. The written authorization shall include the name, title and signature of the authorized representative and be attached to the SWPPP.

3. All inspection reports shall be signed by the *qualified inspector* that performs the inspection.

4. The MS4 SWPPP Acceptance form shall be signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4,* or by a duly authorized representative of that person.

   It shall constitute a permit violation if an incorrect and/or improper signatory authorizes any required forms, SWPPP and/or inspection reports.

I. Property Rights

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. *Owners or operators* must obtain any applicable conveyances, easements, licenses and/or access to real property prior to *commencing construction activity*.

J. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

K. Requirement to Obtain Coverage Under an Alternative Permit

1. The Department may require any owner or operator authorized by this permit to apply for and/or obtain either an individual SPDES permit or another SPDES general permit. When the Department requires any discharger authorized by a general permit to apply for an individual SPDES permit, it shall notify the discharger in writing that a permit application is required. This notice shall

include a brief statement of the reasons for this decision, an application form, a statement setting a time frame for the owner or operator to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from owner or operator receipt of the notification letter, whereby the authorization to discharge under this general permit shall be terminated. Applications must be submitted to the appropriate Permit Administrator at the Regional Office. The Department may grant additional time upon demonstration, to the satisfaction of the Department, that additional time to apply for an alternative authorization is necessary or where the Department has not provided a permit determination in accordance with Part 621 of this Title.

2. When an individual SPDES permit is issued to a discharger authorized to *discharge* under a general SPDES permit for the same *discharge*(s), the general permit authorization for outfalls authorized under the individual SPDES permit is automatically terminated on the effective date of the individual permit unless termination is earlier in accordance with 6 NYCRR Part 750.

L. Proper Operation and Maintenance

The *owner or operator* shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the *owner or operator* to achieve compliance with the conditions of this permit and with the requirements of the SWPPP.

M. Inspection and Entry

The *owner or operator* shall allow an authorized representative of the Department, EPA, applicable county health department, or, in the case of a *construction site* which *discharges* through an *MS4*, an authorized representative of the *MS4* receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the owner’s or operator's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment), practices or operations regulated or required by this permit.

4. Sample or monitor at reasonable times, for purposes of assuring permit compliance or as otherwise authorized by the Act or ECL, any substances or parameters at any location.

N. Permit Actions

This permit may, at any time, be modified, suspended, revoked, or renewed by the Department in accordance with 6 NYCRR Part 621. The filing of a request by the *owner or operator* for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not limit, diminish and/or stay compliance with any terms of this permit.

O. Definitions

Definitions of key terms are included in Appendix A of this permit.

P. Re-Opener Clause

1. If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with construction activity covered by this permit, the owner or operator of such discharge may be required to obtain an individual permit or alternative general permit in accordance with Part VII.K. of this permit or the permit may be modified to include different limitations and/or requirements.

2. Any Department initiated permit modification, suspension or revocation will be conducted in accordance with 6 NYCRR Part 621, 6 NYCRR 750-1.18, and 6 NYCRR 750-1.20.

Q. Penalties for Falsification of Forms and Reports

In accordance with 6NYCRR Part 750-2.4 and 750-2.5, any person who knowingly makes any false material statement, representation, or certification in any application, record, report or other document filed or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished in accordance with ECL §71-1933 and or Articles 175 and 210 of the New York State Penal Law.

R. Other Permits

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

APPENDIX A – Acronyms and Definitions

Acronyms

APO – Agency Preservation Officer
BMP – Best Management Practice
CPESC – Certified Professional in Erosion and Sediment Control
Cpv – Channel Protection Volume
CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)
DOW – Division of Water
EAF – Environmental Assessment Form
ECL - Environmental Conservation Law
EPA – U. S. Environmental Protection Agency
HSG – Hydrologic Soil Group
MS4 – Municipal Separate Storm Sewer System
NOI – Notice of Intent
NOT – Notice of Termination
NPDES – National Pollutant Discharge Elimination System
OPRHP – Office of Parks, Recreation and Historic Places
Qf – Extreme Flood
Qp – Overbank Flood
RRv – Runoff Reduction Volume
RWE – Regional Water Engineer
SEQR – State Environmental Quality Review
SEQRA - State Environmental Quality Review Act
SHPA – State Historic Preservation Act
SPDES – State Pollutant Discharge Elimination System
SWPPP – Stormwater Pollution Prevention Plan
TMDL – Total Maximum Daily Load
UPA – Uniform Procedures Act
USDA – United States Department of Agriculture
WQv – Water Quality Volume

Definitions

All definitions in this section are solely for the purposes of this permit.

Agricultural Building – a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products; excluding any structure designed, constructed or used, in whole or in part, for human habitation, as a place of employment where agricultural products are processed, treated or packaged, or as a place used by the public.

Agricultural Property –means the land for construction of a barn, *agricultural building*, silo, stockyard, pen or other structural practices identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" prepared by the Department in cooperation with agencies of New York Nonpoint Source Coordinating Committee (dated June 2007).

Alter Hydrology from Pre to Post-Development Conditions - means the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

Combined Sewer - means a sewer that is designed to collect and convey both "sewage" and "stormwater".

Commence (Commencement of) Construction Activities - means the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the SWPPP. See definition for "*Construction Activity(ies)*" also.

Construction Activity(ies) - means any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility.

Construction Site – means the land area where *construction activity(ies)* will occur. See definition for "*Commence (Commencement of) Construction Activities"* and "*Larger Common Plan of Development or Sale" also.*

Dewatering – means the act of draining rainwater and/or groundwater from building foundations, vaults or excavations/trenches.

Direct Discharge (to a specific surface waterbody) - means that runoff flows from a *construction site* by overland flow and the first point of discharge is the specific surface waterbody, or runoff flows from a *construction site* to a separate storm sewer system

and the first point of discharge from the separate storm sewer system is the specific surface waterbody.

Discharge(s) - means any addition of any pollutant to waters of the State through an outlet or *point source*.

Embankment –means an earthen or rock slope that supports a road/highway.

Endangered or Threatened Species – see 6 NYCRR Part 182 of the Department's rules and regulations for definition of terms and requirements.

Environmental Conservation Law (ECL) - means chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law.

Equivalent (Equivalence) – means that the practice or measure meets all the performance, longevity, maintenance, and safety objectives of the technical standard and will provide an equal or greater degree of water quality protection.

Final Stabilization - means that all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

General SPDES permit - means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 and Section 70-0117 of the ECL authorizing a category of discharges.

Groundwater(s) - means waters in the saturated zone. The saturated zone is a subsurface zone in which all the interstices are filled with water under pressure greater than that of the atmosphere. Although the zone may contain gas-filled interstices or interstices filled with fluids other than water, it is still considered saturated.

Historic Property – means any building, structure, site, object or district that is listed on the State or National Registers of Historic Places or is determined to be eligible for listing on the State or National Registers of Historic Places.

Impervious Area (Cover) - means all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

Infeasible – means not technologically possible, or not economically practicable and achievable in light of best industry practices.

Larger Common Plan of Development or Sale - means a contiguous area where multiple separate and distinct *construction activities* are occurring, or will occur, under one plan. The term “plan” in “larger common plan of development or sale” is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQRA) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that *construction activities* may occur on a specific plot.

For discrete construction projects that are located within a larger common plan of development or sale that are at least 1/4 mile apart, each project can be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same “common plan” is not concurrently being disturbed.

Minimize – means reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer (MS4) - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

(i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to surface waters of the State*;*
(ii) Designed or used for collecting or conveying stormwater;
(iii) Which is not a *combined sewer*; and
(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

National Pollutant Discharge Elimination System (NPDES) - means the national system for the issuance of wastewater and stormwater permits under the Federal Water Pollution Control Act (Clean Water Act).

Natural Buffer –means an undisturbed area with natural cover running along a surface water (e.g. wetland, stream, river, lake, etc.).

New Development – means any land disturbance that does not meet the definition of Redevelopment Activity included in this appendix.

New York State Erosion and Sediment Control Certificate Program – a certificate program that establishes and maintains a process to identify and recognize individuals who are capable of developing, designing, inspecting and maintaining erosion and sediment control plans on projects that disturb soils in New York State. The certificate program is administered by the New York State Conservation District Employees Association.

NOI Acknowledgment Letter - means the letter that the Department sends to an owner or operator to acknowledge the Department's receipt and acceptance of a complete Notice of Intent. This letter documents the owner's or operator's authorization to discharge in accordance with the general permit for stormwater discharges from *construction activity*.

Nonpoint Source - means any source of water pollution or pollutants which is not a discrete conveyance or *point source* permitted pursuant to Title 7 or 8 of Article 17 of the Environmental Conservation Law (see ECL Section 17-1403).

Overbank –means flow events that exceed the capacity of the stream channel and spill out into the adjacent floodplain.

Owner or Operator - means the person, persons or legal entity which owns or leases the property on which the *construction activity* is occurring; an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications; and/or an entity that has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit conditions.

Performance Criteria – means the design criteria listed under the "Required Elements" sections in Chapters 5, 6 and 10 of the technical standard, New York State Stormwater Management Design Manual, dated January 2015. It does not include the Sizing Criteria (i.e. WQv, RRv, Cpv, Qp and Qf) in Part I.C.2. of the permit.

Point Source - means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or landfill leachate collection system from which *pollutants* are or may be discharged.

Pollutant - means dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast discharged into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in 6 NYCRR Parts 700 et seq .

Qualified Inspector - means a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder or other Department endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any post-construction stormwater management practices that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

Qualified Professional - means a person that is knowledgeable in the principles and practices of stormwater management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other Department endorsed individual(s). Individuals preparing SWPPPs that require the post-construction stormwater management practice component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the SWPPP that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

Redevelopment Activity(ies) – means the disturbance and reconstruction of existing impervious area, including impervious areas that were removed from a project site within five (5) years of preliminary project plan submission to the local government (i.e. site plan, subdivision, etc.).

Regulated, Traditional Land Use Control MS4 - means a city, town or village with land use control authority that is authorized to discharge under New York State DEC's

SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s) or the City of New York's Individual SPDES Permit for their Municipal Separate Storm Sewer Systems (NY-0287890).

Routine Maintenance Activity - means *construction activity* that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, including, but not limited to:

- Re-grading of gravel roads or parking lots,
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and hydraulic capacity of the ditch,
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch),
- Placement of aggregate shoulder backing that stabilizes the transition between the road shoulder and the ditch or *embankment*,
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material,
- Long-term use of equipment storage areas at or near highway maintenance facilities,
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or *embankment*,
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts.

Site limitations – means site conditions that prevent the use of an infiltration technique and or infiltration of the total WQv. Typical site limitations include: seasonal high groundwater, shallow depth to bedrock, and soils with an infiltration rate less than 0.5 inches/hour. The existence of site limitations shall be confirmed and documented using actual field testing (i.e. test pits, soil borings, and infiltration test) or using information from the most current United States Department of Agriculture (USDA) Soil Survey for the County where the project is located.

Sizing Criteria – means the criteria included in Part I.C.2 of the permit that are used to size post-construction stormwater management control practices. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), *Overbank* Flood (Qp), and Extreme Flood (Qf).

State Pollutant Discharge Elimination System (SPDES) - means the system established pursuant to Article 17 of the ECL and 6 NYCRR Part 750 for issuance of permits authorizing discharges to the waters of the state.

Steep Slope – means land area designated on the current United States Department of Agriculture ("USDA") Soil Survey as Soil Slope Phase "D", (provided the map unit name is inclusive of slopes greater than 25%) , or Soil Slope Phase E or F, (regardless of the map unit name), or a combination of the three designations.

Streambank – as used in this permit, means the terrain alongside the bed of a creek or stream. The bank consists of the sides of the channel, between which the flow is confined.

Stormwater Pollution Prevention Plan (SWPPP) – means a project specific report, including construction drawings, that among other things: describes the construction activity(ies), identifies the potential sources of pollution at the *construction site*; describes and shows the stormwater controls that will be used to control the pollutants (i.e. erosion and sediment controls; for many projects, includes post-construction stormwater management controls); and identifies procedures the *owner or operator* will implement to comply with the terms and conditions of the permit. See Part III of the permit for a complete description of the information that must be included in the SWPPP.

Surface Waters of the State - shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

Temporarily Ceased – means that an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

Temporary Stabilization - means that exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

Total Maximum Daily Loads (TMDLs) - A TMDL is the sum of the allowable loads of a single pollutant from all contributing point and *nonpoint source*s. It is a calculation of the maximum amount of a pollutant that a waterbody can receive on a daily basis and still meet *water quality standards*, and an allocation of that amount to the pollutant's sources. A TMDL stipulates wasteload allocations (WLAs) for *point source* discharges, load allocations (LAs) for *nonpoint source*s, and a margin of safety (MOS).

Trained Contractor - means an employee from the contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed

training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.6., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, New York State Erosion and Sediment Control Certificate Program holder, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity).

The *trained contractor* is responsible for the day to day implementation of the SWPPP.

Uniform Procedures Act (UPA) Permit - means a permit required under 6 NYCRR Part 621 of the Environmental Conservation Law (ECL), Article 70.

Water Quality Standard - means such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

APPENDIX B – Required SWPPP Components by Project Type

Table 1
Construction Activities that Require the Preparation of a SWPPP That Only Includes Erosion and Sediment Controls

The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:

- Single family home not located in one of the watersheds listed in Appendix C or not *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions with 25% or less impervious cover at total site build-out and not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E
- Construction of a barn or other *agricultural building*, silo, stock yard or pen.

The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:

All construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains
- Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects
- Pond construction
- Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an impervious cover
- Cross-country ski trails and walking/hiking trails
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are not part of residential, commercial or institutional development;
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that include incidental shoulder or curb work along an existing highway to support construction of the sidewalk, bike path or walking path.
- Slope stabilization projects
- Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics

Table 1 (Continued) CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Spoil areas that will be covered with vegetation
- Vegetated open space projects (i.e. recreational parks, lawns, meadows, fields, downhill ski trails) excluding projects that *alter hydrology from pre to post development* conditions,
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* and do not *alter hydrology from pre to post development* conditions
- Demolition project where vegetation will be established, and no redevelopment is planned
- Overhead electric transmission line project that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*
- Structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State", excluding projects that involve soil disturbances of greater than five acres and construction activities that include the construction or reconstruction of impervious area
- Temporary access roads, median crossovers, detour roads, lanes, or other temporary impervious areas that will be restored to pre-construction conditions once the construction activity is complete

Table 2

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Single family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family home that disturbs five (5) or more acres of land
- Single family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% impervious cover at total site build-out
- Single family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a larger common plan of development or sale that will ultimately disturb five or more acres of land
- Multi-family residential developments; includes duplexes, townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- Breweries, cideries, and wineries, including establishments constructed on agricultural land
- Campgrounds
- Cemeteries that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other *agricultural building* (e.g. silo) and structural practices as identified in Table II in the "Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State" that include the construction or reconstruction of *impervious area*, excluding projects that involve soil disturbances of less than five acres.
- Golf courses
- Institutional development; includes hospitals, prisons, schools and colleges
- Industrial facilities; includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW's, water treatment plants, and water storage tanks
- Office complexes
- Playgrounds that include the construction or reconstruction of impervious area
- Sports complexes
- Racetracks; includes racetracks with earthen (dirt) surface
- Road construction or reconstruction, including roads constructed as part of the construction activities listed in Table 1

Table 2 (Continued)

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES

The following construction activities that involve soil disturbances of one (1) or more acres of land:

- Parking lot construction or reconstruction, including parking lots constructed as part of the construction activities listed in Table 1
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations and well drilling pads, surfaced with *impervious cover,* and constructed as part of an over-head electric transmission line project, wind-power project, cell tower project, oil or gas well drilling project, sewer or water main project or other linear utility project
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a residential, commercial or institutional development
- Sidewalk, bike path or walking path projects, surfaced with an impervious cover, that are part of a highway construction or reconstruction project
- All other construction activities that include the construction or reconstruction of *impervious area* or *alter the hydrology from pre to post development* conditions, and are not listed in Table 1

APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal

Watersheds where *owners or operators* of construction activities identified in Table 2 of Appendix B must prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the technical standard, New York State Stormwater Management Design Manual ("Design Manual").

- Entire New York City Watershed located east of the Hudson River **-** Figure 1
- Onondaga Lake Watershed **-** Figure 2
- Greenwood Lake Watershed **-**Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

Figure 1 - New York City Watershed East of the Hudson

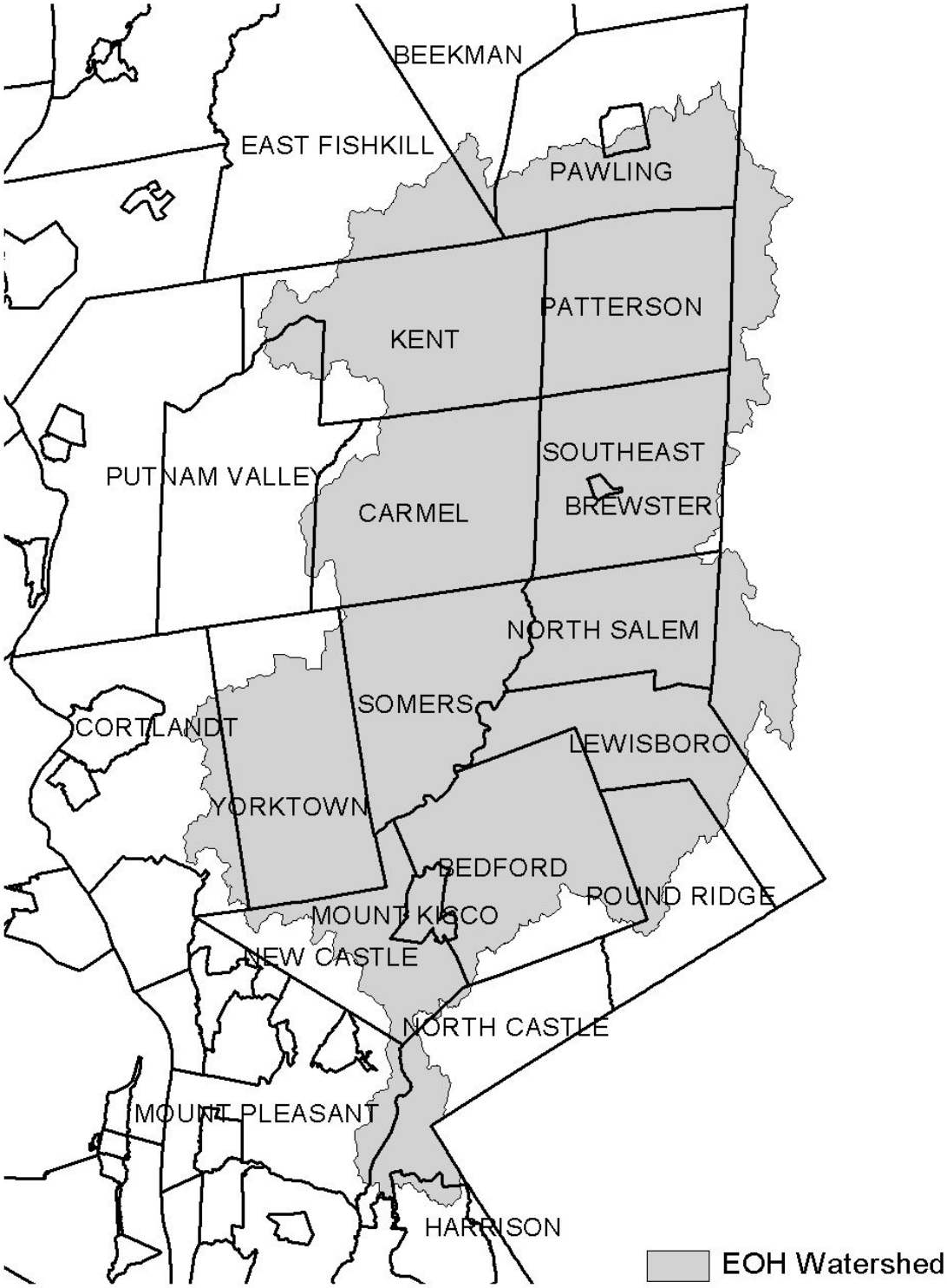


Figure 2 - Onondaga Lake Watershed

Figure 3 - Greenwood Lake Watershed

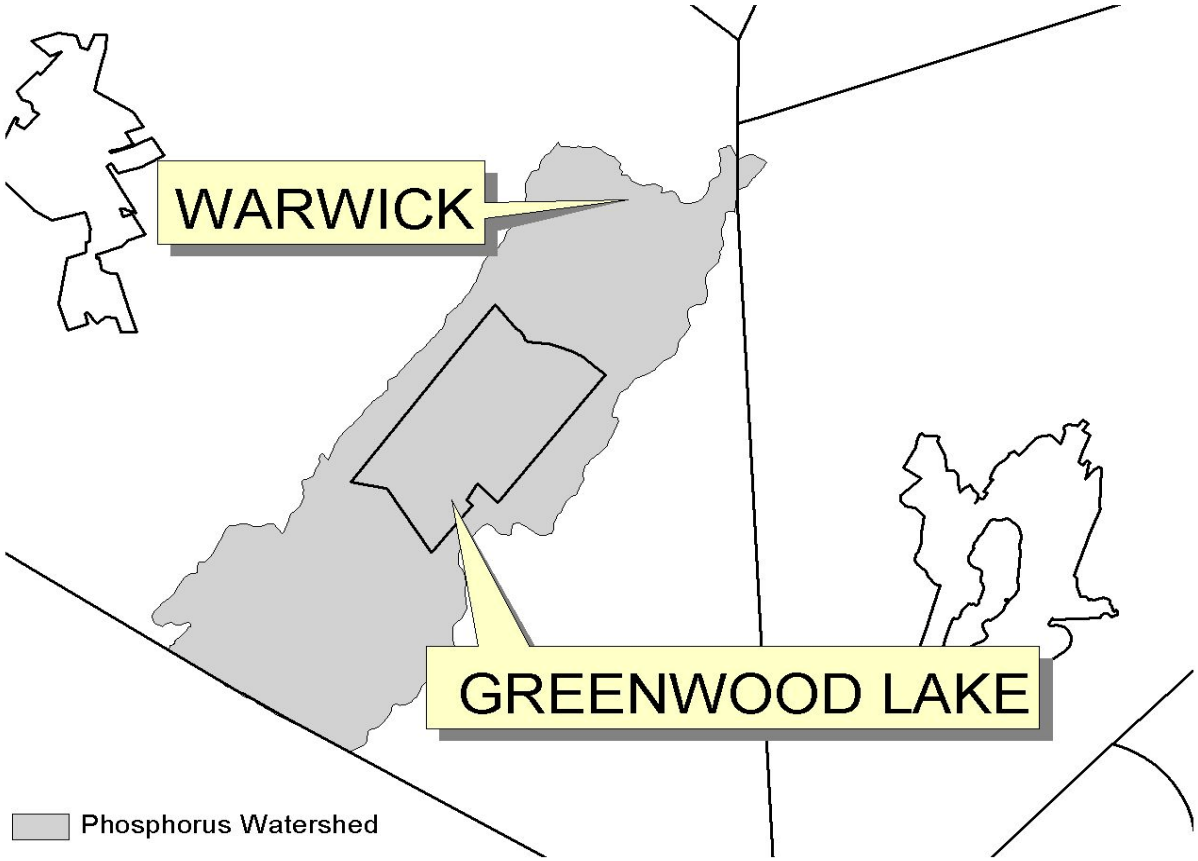


Figure 4 - Oscawana Lake Watershed

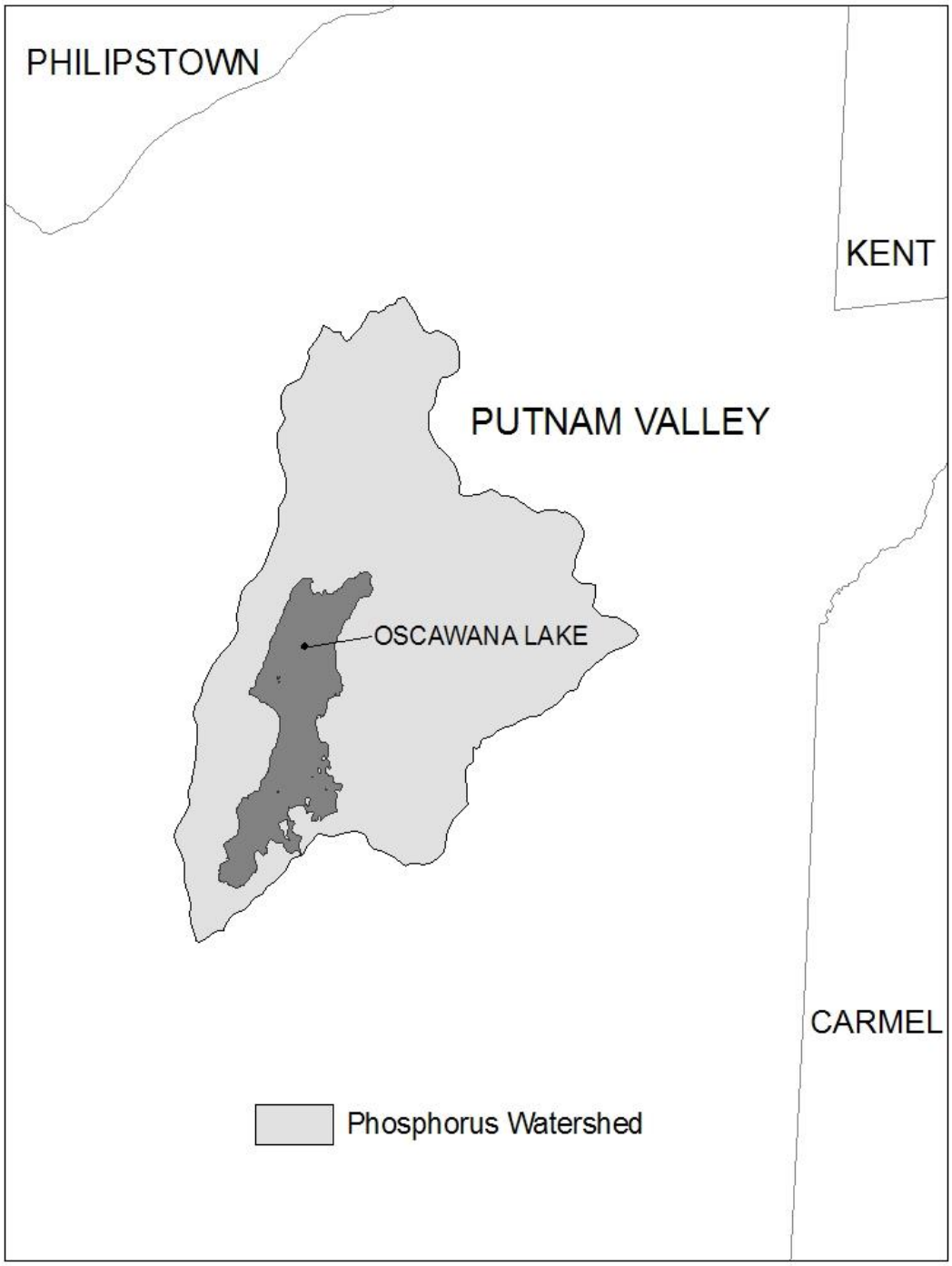
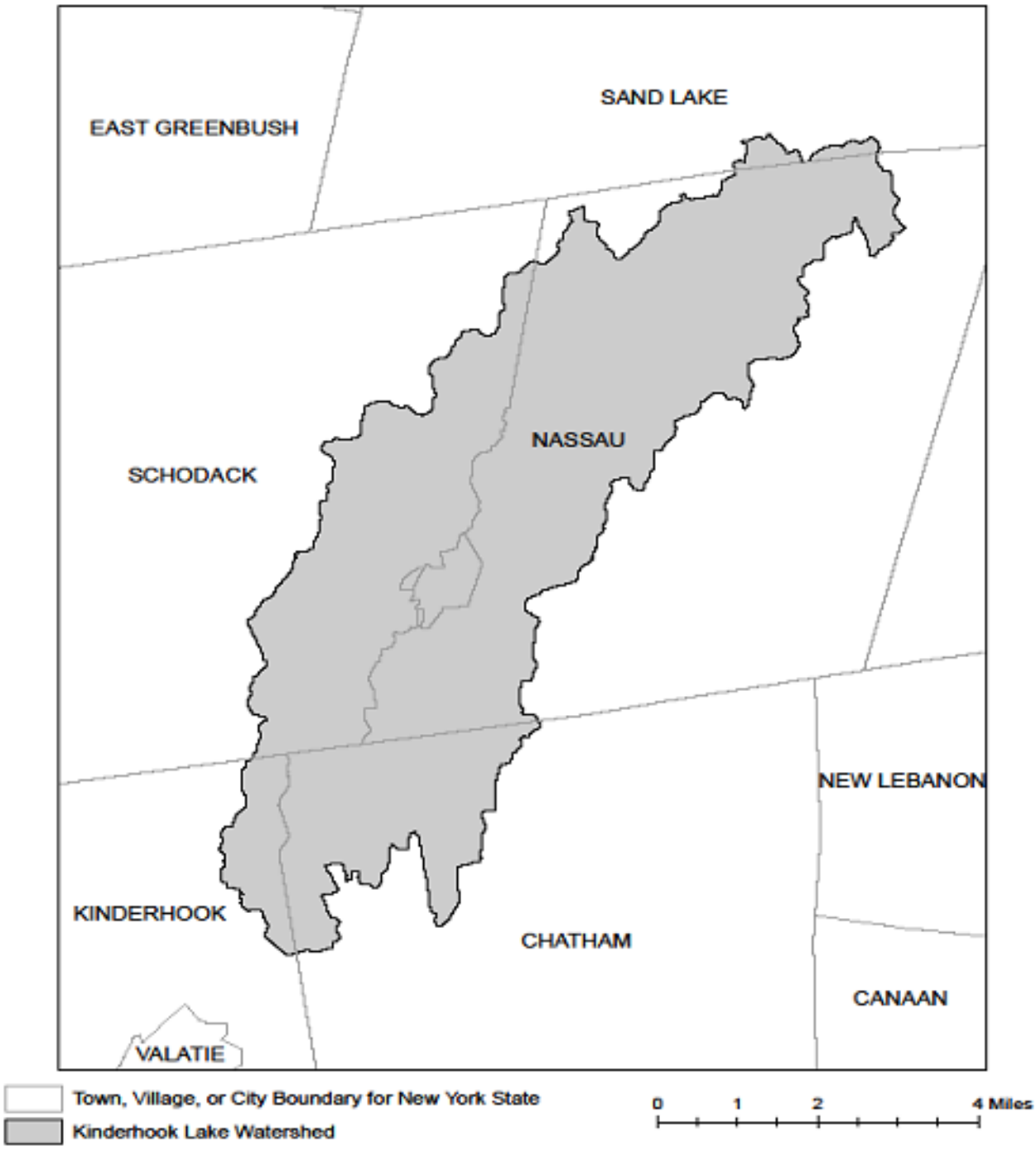


Figure 5 - Kinderhook Lake Watershed



APPENDIX D – Watersheds with Lower Disturbance Threshold

Watersheds where *owners or operators* of construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land must obtain coverage under this permit.

Entire New York City Watershed that is located east of the Hudson River **-** See Figure 1 in Appendix C

APPENDIX E – 303(d) Segments Impaired by Construction Related Pollutant(s)

List of 303(d) segments impaired by pollutants related to *construction activity* (e.g. silt, sediment or nutrients). The list was developed using "The Final New York State 2016 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy" dated November 2016. *Owners or operators* of single family home and single family residential subdivisions with 25% or less total impervious cover at total site build-out that involve soil disturbances of one or more acres of land, but less than 5 acres, and *directly discharge* to one of the listed segments below shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the New York State Stormwater Management Design Manual ("Design Manual"), dated January 2015.

COUNTY	WATERBODY	POLLUTANT
Albany	Ann Lee (Shakers) Pond, Stump Pond	Nutrients
Albany	Basic Creek Reservoir	Nutrients
Allegany	Amity Lake, Saunders Pond	Nutrients
Bronx	Long Island Sound, Bronx	Nutrients
Bronx	Van Cortlandt Lake	Nutrients
Broome	Fly Pond, Deer Lake, Sky Lake	Nutrients
Broome	Minor Tribs to Lower Susquehanna (north)	Nutrients
Broome	Whitney Point Lake/Reservoir	Nutrients
Cattaraugus	Allegheny River/Reservoir	Nutrients
Cattaraugus	Beaver (Alma) Lake	Nutrients
Cattaraugus	Case Lake	Nutrients
Cattaraugus	Linlyco/Club Pond	Nutrients
Cayuga	Duck Lake	Nutrients
Cayuga	Little Sodus Bay	Nutrients
Chautauqua	Bear Lake	Nutrients
Chautauqua	Chadakoin River and tribs	Nutrients
Chautauqua	Chautauqua Lake, North	Nutrients
Chautauqua	Chautauqua Lake, South	Nutrients
Chautauqua	Findley Lake	Nutrients
Chautauqua	Hulburt/Clymer Pond	Nutrients
Clinton	Great Chazy River, Lower, Main Stem	Silt/Sediment
Clinton	Lake Champlain, Main Lake, Middle	Nutrients
Clinton	Lake Champlain, Main Lake, North	Nutrients
Columbia	Kinderhook Lake	Nutrients
Columbia	Robinson Pond	Nutrients
Cortland	Dean Pond	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Dutchess	Fall Kill and tribs	Nutrients
Dutchess	Hillside Lake	Nutrients
Dutchess	Wappingers Lake	Nutrients
Dutchess	Wappingers Lake	Silt/Sediment
Erie	Beeman Creek and tribs	Nutrients
Erie	Ellicott Creek, Lower, and tribs	Silt/Sediment
Erie	Ellicott Creek, Lower, and tribs	Nutrients
Erie	Green Lake	Nutrients
Erie	Little Sister Creek, Lower, and tribs	Nutrients
Erie	Murder Creek, Lower, and tribs	Nutrients
Erie	Rush Creek and tribs	Nutrients
Erie	Scajaquada Creek, Lower, and tribs	Nutrients
Erie	Scajaquada Creek, Middle, and tribs	Nutrients
Erie	Scajaquada Creek, Upper, and tribs	Nutrients
Erie	South Branch Smoke Cr, Lower, and tribs	Silt/Sediment
Erie	South Branch Smoke Cr, Lower, and tribs	Nutrients
Essex	Lake Champlain, Main Lake, South	Nutrients
Essex	Lake Champlain, South Lake	Nutrients
Essex	Willsboro Bay	Nutrients
Genesee	Bigelow Creek and tribs	Nutrients
Genesee	Black Creek, Middle, and minor tribs	Nutrients
Genesee	Black Creek, Upper, and minor tribs	Nutrients
Genesee	Bowen Brook and tribs	Nutrients
Genesee	LeRoy Reservoir	Nutrients
Genesee	Oak Orchard Cr, Upper, and tribs	Nutrients
Genesee	Tonawanda Creek, Middle, Main Stem	Nutrients
Greene	Schoharie Reservoir	Silt/Sediment
Greene	Sleepy Hollow Lake	Silt/Sediment
Herkimer	Steele Creek tribs	Silt/Sediment
Herkimer	Steele Creek tribs	Nutrients
Jefferson	Moon Lake	Nutrients
Kings	Hendrix Creek	Nutrients
Kings	Prospect Park Lake	Nutrients
Lewis	Mill Creek/South Branch, and tribs	Nutrients
Livingston	Christie Creek and tribs	Nutrients
Livingston	Conesus Lake	Nutrients
Livingston	Mill Creek and minor tribs	Silt/Sediment
Monroe	Black Creek, Lower, and minor tribs	Nutrients
Monroe	Buck Pond	Nutrients
Monroe	Cranberry Pond	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Monroe	Lake Ontario Shoreline, Western	Nutrients
Monroe	Long Pond	Nutrients
Monroe	Mill Creek and tribs	Nutrients
Monroe	Mill Creek/Blue Pond Outlet and tribs	Nutrients
Monroe	Minor Tribs to Irondequoit Bay	Nutrients
Monroe	Rochester Embayment - East	Nutrients
Monroe	Rochester Embayment - West	Nutrients
Monroe	Shipbuilders Creek and tribs	Nutrients
Monroe	Thomas Creek/White Brook and tribs	Nutrients
Nassau	Beaver Lake	Nutrients
Nassau	Camaans Pond	Nutrients
Nassau	East Meadow Brook, Upper, and tribs	Silt/Sediment
Nassau	East Rockaway Channel	Nutrients
Nassau	Grant Park Pond	Nutrients
Nassau	Hempstead Bay	Nutrients
Nassau	Hempstead Lake	Nutrients
Nassau	Hewlett Bay	Nutrients
Nassau	Hog Island Channel	Nutrients
Nassau	Long Island Sound, Nassau County Waters	Nutrients
Nassau	Massapequa Creek and tribs	Nutrients
Nassau	Milburn/Parsonage Creeks, Upp, and tribs	Nutrients
Nassau	Reynolds Channel, west	Nutrients
Nassau	Tidal Tribs to Hempstead Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Nutrients
Nassau	Tribs (fresh) to East Bay	Silt/Sediment
Nassau	Tribs to Smith/Halls Ponds	Nutrients
Nassau	Woodmere Channel	Nutrients
New York	Harlem Meer	Nutrients
New York	The Lake in Central Park	Nutrients
Niagara	Bergholtz Creek and tribs	Nutrients
Niagara	Hyde Park Lake	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Niagara	Lake Ontario Shoreline, Western	Nutrients
Oneida	Ballou, Nail Creeks and tribs	Nutrients
Onondaga	Harbor Brook, Lower, and tribs	Nutrients
Onondaga	Ley Creek and tribs	Nutrients
Onondaga	Minor Tribs to Onondaga Lake	Nutrients
Onondaga	Ninemile Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Lower, and tribs	Nutrients
Onondaga	Onondaga Creek, Middle, and tribs	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Onondaga	Onondaga Lake, northern end	Nutrients
Onondaga	Onondaga Lake, southern end	Nutrients
Ontario	Great Brook and minor tribs	Silt/Sediment
Ontario	Great Brook and minor tribs	Nutrients
Ontario	Hemlock Lake Outlet and minor tribs	Nutrients
Ontario	Honeoye Lake	Nutrients
Orange	Greenwood Lake	Nutrients
Orange	Monhagen Brook and tribs	Nutrients
Orange	Orange Lake	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Orleans	Lake Ontario Shoreline, Western	Nutrients
Oswego	Lake Neatahwanta	Nutrients
Oswego	Pleasant Lake	Nutrients
Putnam	Bog Brook Reservoir	Nutrients
Putnam	Boyd Corners Reservoir	Nutrients
Putnam	Croton Falls Reservoir	Nutrients
Putnam	Diverting Reservoir	Nutrients
Putnam	East Branch Reservoir	Nutrients
Putnam	Lake Carmel	Nutrients
Putnam	Middle Branch Reservoir	Nutrients
Putnam	Oscawana Lake	Nutrients
Putnam	Palmer Lake	Nutrients
Putnam	West Branch Reservoir	Nutrients
Queens	Bergen Basin	Nutrients
Queens	Flushing Creek/Bay	Nutrients
Queens	Jamaica Bay, Eastern, and tribs (Queens)	Nutrients
Queens	Kissena Lake	Nutrients
Queens	Meadow Lake	Nutrients
Queens	Willow Lake	Nutrients
Rensselaer	Nassau Lake	Nutrients
Rensselaer	Snyders Lake	Nutrients
Richmond	Grasmere Lake/Bradys Pond	Nutrients
Rockland	Congers Lake, Swartout Lake	Nutrients
Rockland	Rockland Lake	Nutrients
Saratoga	Ballston Lake	Nutrients
Saratoga	Dwaas Kill and tribs	Silt/Sediment
Saratoga	Dwaas Kill and tribs	Nutrients
Saratoga	Lake Lonely	Nutrients
Saratoga	Round Lake	Nutrients
Saratoga	Tribs to Lake Lonely	Nutrients

303(d) Segments Impaired by Construction Related Pollutant(s)

Schenectady	Collins Lake	Nutrients
Schenectady	Duane Lake	Nutrients
Schenectady	Mariaville Lake	Nutrients
Schoharie	Engleville Pond	Nutrients
Schoharie	Summit Lake	Nutrients
Seneca	Reeder Creek and tribs	Nutrients
St.Lawrence	Black Lake Outlet/Black Lake	Nutrients
St.Lawrence	Fish Creek and minor tribs	Nutrients
Steuben	Smith Pond	Nutrients
Suffolk	Agawam Lake	Nutrients
Suffolk	Big/Little Fresh Ponds	Nutrients
Suffolk	Canaan Lake	Silt/Sediment
Suffolk	Canaan Lake	Nutrients
Suffolk	Flanders Bay, West/Lower Sawmill Creek	Nutrients
Suffolk	Fresh Pond	Nutrients
Suffolk	Great South Bay, East	Nutrients
Suffolk	Great South Bay, Middle	Nutrients
Suffolk	Great South Bay, West	Nutrients
Suffolk	Lake Ronkonkoma	Nutrients
Suffolk	Long Island Sound, Suffolk County, West	Nutrients
Suffolk	Mattituck (Marratooka) Pond	Nutrients
Suffolk	Meetinghouse/Terrys Creeks and tribs	Nutrients
Suffolk	Mill and Seven Ponds	Nutrients
Suffolk	Millers Pond	Nutrients
Suffolk	Moriches Bay, East	Nutrients
Suffolk	Moriches Bay, West	Nutrients
Suffolk	Peconic River, Lower, and tidal tribs	Nutrients
Suffolk	Quantuck Bay	Nutrients
Suffolk	Shinnecock Bay and Inlet	Nutrients
Suffolk	Tidal tribs to West Moriches Bay	Nutrients
Sullivan	Bodine, Montgomery Lakes	Nutrients
Sullivan	Davies Lake	Nutrients
Sullivan	Evens Lake	Nutrients
Sullivan	Pleasure Lake	Nutrients
Tompkins	Cayuga Lake, Southern End	Nutrients
Tompkins	Cayuga Lake, Southern End	Silt/Sediment
Tompkins	Owasco Inlet, Upper, and tribs	Nutrients
Ulster	Ashokan Reservoir	Silt/Sediment
Ulster	Esopus Creek, Upper, and minor tribs	Silt/Sediment
Warren	Hague Brook and tribs	Silt/Sediment

303(d) Segments Impaired by Construction Related Pollutant(s)

Warren	Huddle/Finkle Brooks and tribs	Silt/Sediment
Warren	Indian Brook and tribs	Silt/Sediment
Warren	Lake George	Silt/Sediment
Warren	Tribs to L.George, Village of L George	Silt/Sediment
Washington	Cossayuna Lake	Nutrients
Washington	Lake Champlain, South Bay	Nutrients
Washington	Tribs to L.George, East Shore	Silt/Sediment
Washington	Wood Cr/Champlain Canal and minor tribs	Nutrients
Wayne	Port Bay	Nutrients
Westchester	Amawalk Reservoir	Nutrients
Westchester	Blind Brook, Upper, and tribs	Silt/Sediment
Westchester	Cross River Reservoir	Nutrients
Westchester	Lake Katonah	Nutrients
Westchester	Lake Lincolndale	Nutrients
Westchester	Lake Meahagh	Nutrients
Westchester	Lake Mohegan	Nutrients
Westchester	Lake Shenorock	Nutrients
Westchester	Long Island Sound, Westchester (East)	Nutrients
Westchester	Mamaroneck River, Lower	Silt/Sediment
Westchester	Mamaroneck River, Upper, and minor tribs	Silt/Sediment
Westchester	Muscoot/Upper New Croton Reservoir	Nutrients
Westchester	New Croton Reservoir	Nutrients
Westchester	Peach Lake	Nutrients
Westchester	Reservoir No.1 (Lake Isle)	Nutrients
Westchester	Saw Mill River, Lower, and tribs	Nutrients
Westchester	Saw Mill River, Middle, and tribs	Nutrients
Westchester	Sheldrake River and tribs	Silt/Sediment
Westchester	Sheldrake River and tribs	Nutrients
Westchester	Silver Lake	Nutrients
Westchester	Teatown Lake	Nutrients
Westchester	Titicus Reservoir	Nutrients
Westchester	Truesdale Lake	Nutrients
Westchester	Wallace Pond	Nutrients
Wyoming	Java Lake	Nutrients
Wyoming	Silver Lake	Nutrients

APPENDIX F – List of NYS DEC Regional Offices

Region	Covering the following counties:	DIVISION OF ENVIRONMENTAL PERMITS (DEP) Permit Administrators	DIVISION OF WATER (DOW) Water (SPDES) Program
1	Nassau and Suffolk	50 Circle Road Stony Brook, NY 11790 Tel. (631) 444-0365	50 Circle Road Stony Brook, NY 11790-3409 Tel. (631) 444-0405
2	Bronx, Kings, New York, Queens and Richmond	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4997	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4933
3	Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester	21 South Putt Corners Road New Paltz, NY 12561-1696 Tel. (845) 256-3059	100 Hillside Avenue, Suite 1w White Plains, NY 10603 Tel. (914) 428 - 2505
4	Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady and Schoharie	1150 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2069	1130 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2045
5	Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington	1115 State Route 86, Po Box 296 Ray Brook, NY 12977-0296 Tel. (518) 897-1234	232 Golf Course Road Warrensburg, NY 12885-1172 Tel. (518) 623-1200
6	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
7	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7438	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7500
8	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROADAVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
9	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7165	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7070

Attachment E. Owner and Contractor Certification Forms

Owner's Certification

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharge*s from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations."

Printed Name of Company Official Title

Contractors's Certification

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater *discharge*s from *construction activities* and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

1) Name of Construction Company

Address Telephone

Signature of Authorized Representative Printed Name

Date

SWPPP Responsibility

2) Name of Construction Company

Address Telephone

Signature of Authorized Representative Printed Name

Date

SWPPP Responsibility

3) Name of Construction Company

Address Telephone

Signature of Authorized Representative Printed Name

Date

SWPPP Responsibility

4) Name of Construction Company

Address Telephone

Signature of Authorized Representative Printed Name

Date

SWPPP Responsibility

Attachment F. Project Drawings

EMPIRE STATE TRANSMISSION LINE

LIST OF DRAWINGS AND DOCUMENTS

DRAWINGS NO.	TITLE	SHEET	CURRENT REV
EST-D-T000-1	DRAWING INDEX	SHEET 1 OF 1	A
EST-D-T009-1	PLAN & PROFILE	SHEET 1 OF 1	I
EST-D-T009-2	PLAN & PROFILE	SHEET 1 OF 1	I
EST-D-T009-3	PLAN & PROFILE	SHEET 1 OF 1	I
EST-D-T009-4	PLAN & PROFILE	SHEET 1 OF 1	I
EST-D-T009-5	PLAN & PROFILE	SHEET 1 OF 1	I
EST-D-T009-6	PLAN & PROFILE	SHEET 1 OF 1	I
EST-D-T009-7	PLAN & PROFILE	SHEET 1 OF 1	I
EST-D-T009-8	PLAN & PROFILE	SHEET 1 OF 1	I
EST-D-T009-9	PLAN & PROFILE	SHEET 1 OF 1	I
EST-D-T009-10	PLAN & PROFILE	SHEET 1 OF 1	I
EST-D-T009-11	PLAN & PROFILE	SHEET 1 OF 1	I
EST-D-T009-12	PLAN & PROFILE	SHEET 1 OF 1	I
EST-D-T009-13	PLAN & PROFILE	SHEET 1 OF 1	I
EST-D-T009-14	PLAN & PROFILE	SHEET 1 OF 1	I
EST-D-T009-15	PLAN & PROFILE	SHEET 1 OF 1	I
EST-D-T009-16	PLAN & PROFILE	SHEET 1 OF 1	I
EST-D-T009-17	PLAN & PROFILE	SHEET 1 OF 1	I
EST-D-T009-18	PLAN & PROFILE	SHEET 1 OF 1	I
EST-D-T009-19	PLAN & PROFILE	SHEET 1 OF 1	I
EST-D-T009-20	PLAN & PROFILE	SHEET 1 OF 1	I
EST-D-T009-21	PLAN & PROFILE	SHEET 1 OF 1	I
EST-D-T009-22	PLAN & PROFILE	SHEET 1 OF 1	I
EST-D-T009-23	PLAN & PROFILE	SHEET 1 OF 1	I
EST-D-T009-24	PLAN & PROFILE	SHEET 1 OF 1	I
EST-D-T009-25	PLAN & PROFILE	SHEET 1 OF 1	I
EST-D-T010-1	ACCESS DETAILS	SHEET 1 OF 1	A
EST-D-T010-2	ACCESS DETAILS	SHEET 1 OF 1	A
EST-D-T010-3	FENCE DETAILS	SHEET 1 OF 1	A
EST-D-T010-4	GUARD STRUCTURE	SHEET 1 OF 1	A
EST-D-T010-5	PREFABRICATED BRIDGE	SHEET 1 OF 1	A
EST-D-T010-6	PREFABRICATED BRIDGE	SHEET 1 OF 1	A
EST-D-T010-7	SWPPP	SHEET 1 OF 1	A
EST-D-T010-8	SWPPP	SHEET 1 OF 1	A
EST-D-T010-9	SWPPP	SHEET 1 OF 1	A
13666-004-C1-0115_C	SITE GRADING PLAN	SHEET 1 OF 1	C
13666-005-C1-0115	SITE GRADING PLAN	SHEET 1 OF 1	E
13666-005-C1-0116	ACCESS ROAD GRADING PLAN	SHEET 1 OF 1	E
EST-D-T0XX-X	CULVERT AND ACCESS PLAN	SHEET 1 OF 1	A

"Engineering with Distinction" ECI ENGINEERING SERVICES, P.C.

Sargent & Lundy

ecology and environment, inc. Global Environmental Specialists

NO	REVISION	DATE	BY	APR
A	ISSUED FOR REVIEW	XX/XX/20	XXX	XXX

NEXTera™ ENERGY TRANSMISSION NEW YORK

ENGINEERING RECORD		DATE
DRAWN	T. WILCOX	06/18/20
DESIGNED		
CHECKED		
APPROVED		
NONE		

EMPIRE STATE TRANSMISSION LINE

DRAWING INDEX

EST-D-T000-1 REVISION NO : A

[Submitted under separate cover for confidential treatment, because the page contains condiential information]

"Engineering with Distinction"
ECI ENGINEERING SERVICES, P.C.

Sargent & Lundy

ecology and environment, inc.
Global Environmental Specialists

NO	REVISION	DATE	BY	APR

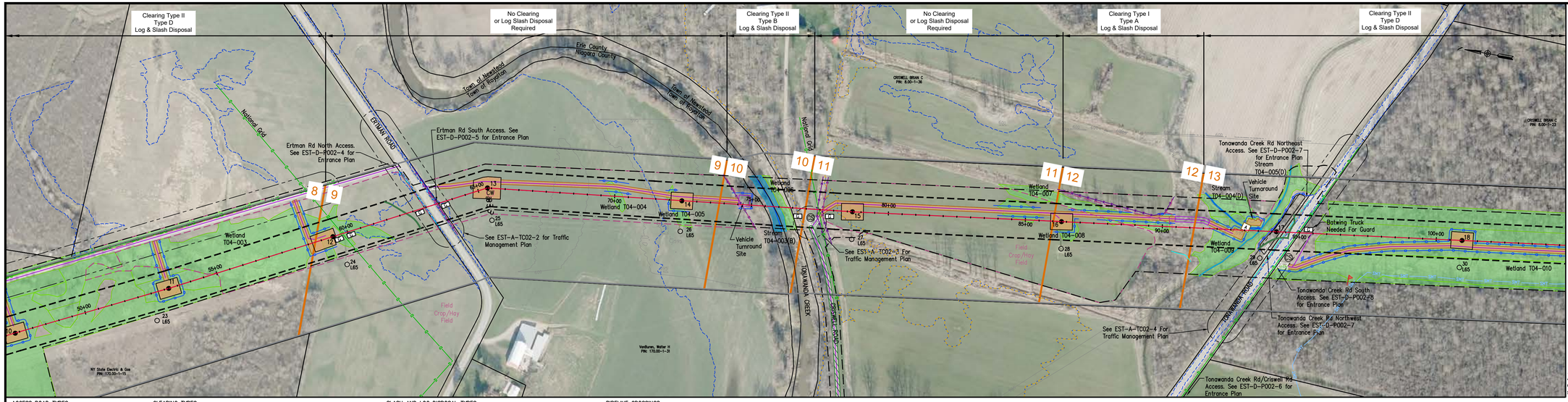
NEXTera™ ENERGY TRANSMISSION NEW YORK

ENGINEERING RECORD		DATE
DRAWN		
DESIGNED		
CHECKED		
APPROVED		

EMPIRE STATE TRANSMISSION LINE

EST-D-T009-1

REVISION NO :



- Proposed Structure
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- LoydownYard
- AST

PROFILE NOTES:
1. Conductor Wires shown at 125°C (257°F) & Shield/OPGW Wires shown at 9.4°C (49°F)
2. Conductor = 2x 795 KCMIL 26/7 DRAKE ACSR
3. Shield Wire = 3/8" EHS 7-STRAND STEEL
4. OPGW = SFPOC/SFSJ-J-4388R2

AREA NOTES:
Area 8) Temporary access with temporary timber matting (Road Type 2) from Spur Road access from the east to structures 9-12 on an existing gravel road serving a gas line station north of structure 9.
Clearing Type II
Disposal Type D
- Access to structure 9 will be via existing gravel pad next to the gas line station.
- Barrier and silt fence to be placed around the structure pads.
- Vulnerable soils VE/VW are present in this area.

Area 9) Stabilized entrance per drawing(s) EST-D-P002-4, EST-D-P002-5, Access to the north along an existing gravel access and Temporary access with temporary timber matting (Road Type 2) access off Ertman Road south to structures 13 and 14 and south to Area 10. The south entrance off of Ertman Road will have a 12" diameter culvert.
No clearing in this section.
No vegetation disposal in this section.
- Barrier and silt fencing to be placed on the access road where encroaching on wetland(s).
- Vulnerable soils VE/VW are present in this area.

Area 10) Temporary access with temporary timber matting (Road Type 2) to Tonawanda Creek for lop and drop tree clearing. No vehicle access from south to Tonawanda Creek.
Clearing Type II
Disposal Type B
- This area will be hand cleared. Barrier and silt fencing to be placed south of vehicle turnaround site north of Tonawanda Creek.
- Vulnerable soils VE/VW are present in this area.

Area 11) Temporary access with temporary timber matting (Road Type 2) from Criswell Road stabilized entrance to structures 15 and 16.
No clearing in this section.
No vegetation disposal in this section.
- Barrier and silt fence to be installed on the access road north of structure 16 where encroaching on wetland.
- Vulnerable soils VE/VW are present in this area.

Area 12) Temporary access with temporary timber matting (Road Type 2) from Structure 16 southward.
Clearing Type I
Disposal Type A
- Barrier and silt fence to be installed where encroaching on wetland.
- Vulnerable soils VE/VW are present in this area.

Area 13) Temporary access with temporary timber matting (Road Type 2) to lop and drop clearing north of streams T04-004(D) & T04-005(D). Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-7, EST-D-P002-8, access to structure 17 north and to structures 18-21 south of Tonawanda Creek Road. An 18" minimum culvert will be installed on the northern entrance.
Clearing Type II
Disposal Type D
- Timber air bridge to be placed per drawing(s) EST-D-P002-106 across stream T04-004(D) if crossing needed. Barrier and silt fence to be installed around access where encroaching on wetland.
- An elongated structure pad shall be installed adjacent to the north side of Tonawanda Creek Road to be installed with silt fence on the north side of the pad. The matted access road to structures 18-21 goes down Right of Way. Barrier and silt fence to be installed where encroaching on wetland.
- Vulnerable soils VE/VW are present in this area.

ACCESS ROAD TYPES
Type Description
1 Temporary gravel access
2 Temporary equipment matting and bridges
3 Temporary use of existing access roads
4 Permanent switchyard access

REFERENCE DRAWINGS
1. Maintenance & Protection of Traffic Plans can be found in Appendix R.

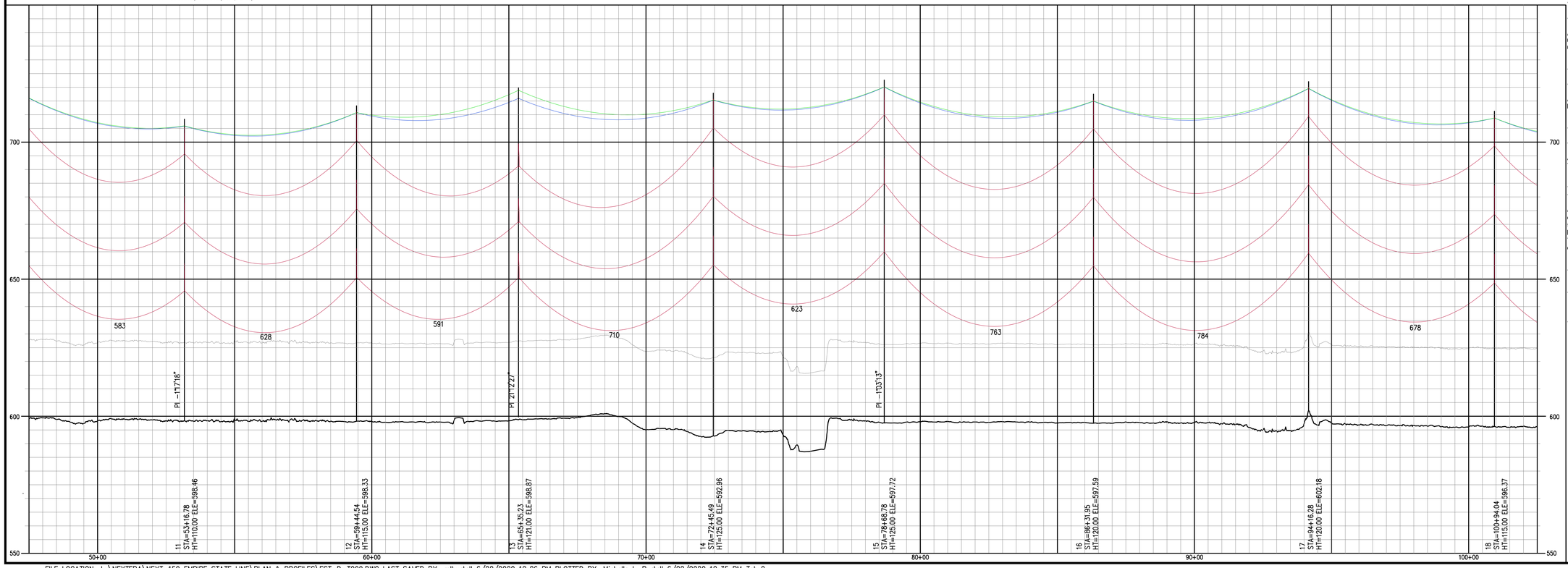
CLEARING TYPES
Type Description
I Clearing of the designated areas of all woody plants, including desirable species, in circumstances where woody plants would hinder access and construction activities.
II Clearing of the designated areas of any woody plant species that have the potential to violate the minimum clearance distance. Reasonable care will be taken to retain desirable species found within Type II clearing zones.
III Selectively clearing the designated areas and removing only those tall-growing species that can be expected to violate the minimum clearance distance at any point in their life.
IV Selectively removing or pruning.

SLASH AND LOG DISPOSAL TYPES
Type Description
A Vegetation chipping and disposal in upland areas to a maximum depth of 3 inches.
B Vegetation lop and drop so that the slash lies as close to the ground as practicable, with branches and limb wood not exceeding an average depth of twenty-four (24) inches. No log or slash will be collected and permanently piled in wetlands.
C Vegetation piling, by landowner agreement, in upland areas.
D Removal of vegetation from the ROW to designated disposal locations.

PIPELINE CROSSINGS
1. GC to field locate & verify depth of all existing utilities as shown on the plans & prior to construction.
2. Orange construction fence to be installed perpendicular to pipeline crossings.

EXISTING FENCES
1. Existing fences to be removed and replaced in kind.

GENERAL NOTES
1. Clearing Type I will be present throughout the project.
2. All ash trees encountered during clearing will be either chipped and left in place or hauled out and disposed of in accordance with NYSEC quarantine orders.



SIGNATURE
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PLOT SCALE: 1:1

"Engineering with Distinction" ECI ENGINEERING SERVICES, P.C.
Sargent & Lundy
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NEXTera ENERGY TRANSMISSION NEW YORK

ENGINEERING RECORD		DATE
DRAWN	M. BURTELL	11/19/19
DESIGNED	M. HOHN	11/19/19
CHECKED	R. DAVIS	11/22/19
APPROVED		
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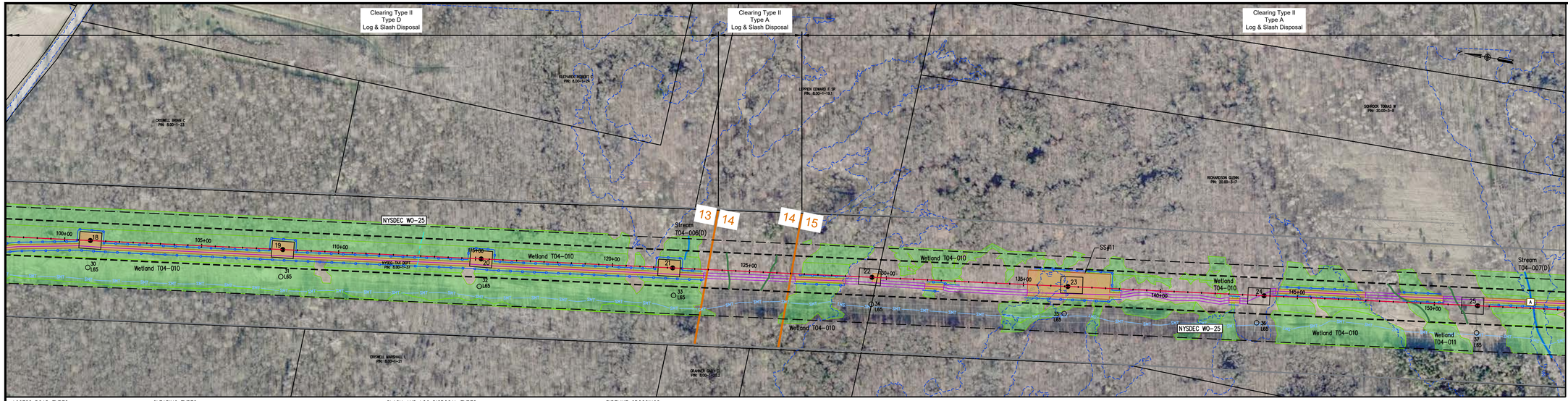
EMPIRE STATE TRANSMISSION LINE
PLAN AND PROFILE
STATION 50+00 TO 100+00

EST-D-T009-2 REVISION NO : I



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- AU Timber Air Bridge – Utility
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ACCESS ROAD TYPES
Type Description
1 Temporary gravel access
2 Temporary equipment matting and bridges
3 Temporary use of existing access roads
4 Permanent switchyard access

REFERENCE DRAWINGS
1. Maintenance & Protection of Traffic Plans can be found in Appendix R.

CLEARING TYPES
Type Description
I Clearing of the designated areas of all woody plants, including desirable species, in circumstances where woody plants would hinder access and construction activities.
II Clearing of the designated areas of any woody plant species that have the potential to violate the minimum clearance distance. Reasonable care will be taken to retain desirable species found within Type II clearing zones.
III Selectively clearing the designated areas and removing only those tall-growing species that can be expected to violate the minimum clearance distance at any point in their life.
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SLASH AND LOG DISPOSAL TYPES
Type Description
A Vegetation chipping and disposal in upland areas to a maximum depth of 3 inches.
B Vegetation lop and drop so that the slash lies as close to the ground as practicable, with branches and limb wood not exceeding an average depth of twenty-four (24) inches. No log or slash will be collected and permanently piled in wetlands.
C Vegetation piling, by landowner agreement, in upland areas.
D Removal of vegetation from the ROW to designated disposal locations.

PIPELINE CROSSINGS
1. GC to field locate & verify depth of all existing utilities as shown on the plans & prior to construction.
2. Orange construction fence to be installed perpendicular to pipeline crossings.

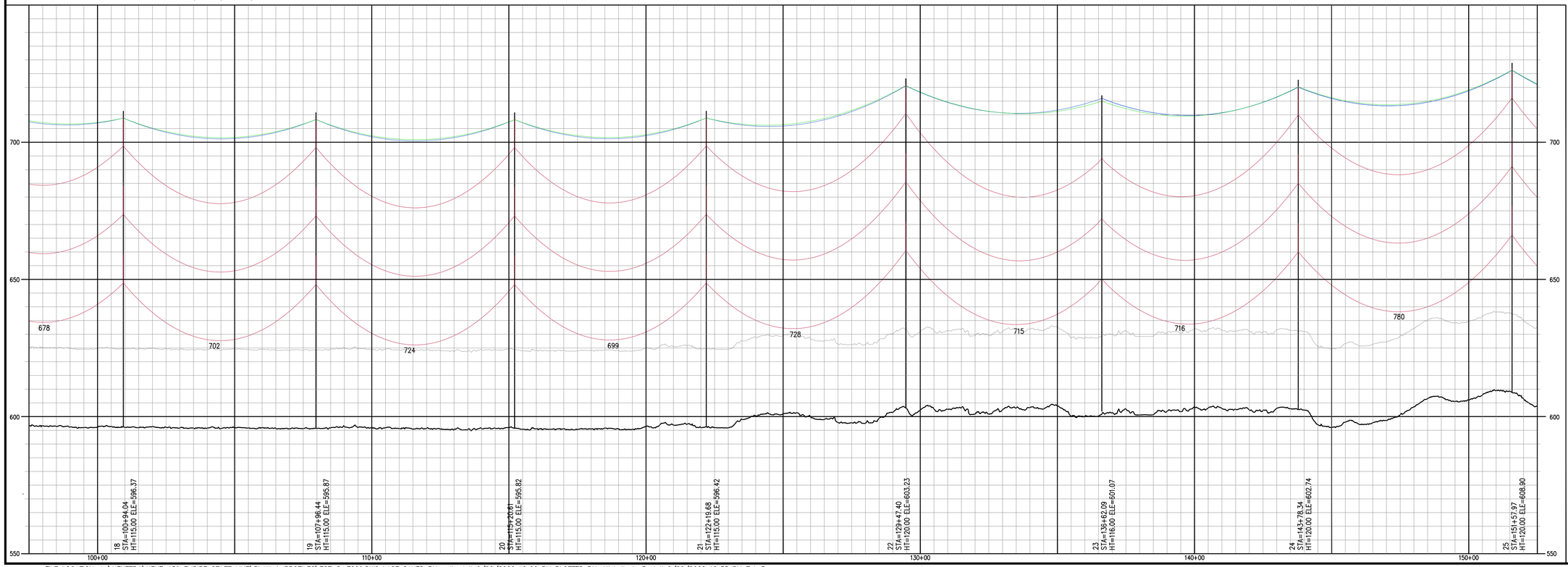
EXISTING FENCES
1. Existing fences to be removed and replaced in kind.

GENERAL NOTES
1. Clearing Type I will be present throughout the project.
2. All ash trees encountered during clearing will be either chipped and left in place or hauled out and disposed of in accordance with NYSEC quarantine orders.

AREA NOTES:
Area 13) Temporary access with temporary timber matting (Road Type 2) to lop and drop clearing north of streams T04-004(D) & T04-005(D). Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-7, EST-D-P002-8, access to structure 17 north and to structures 18-21 south of Tonawanda Creek Road. An 18" minimum culvert will be installed on the northern entrance.
Clearing Type II
Disposal Type D
- Timber air bridge to be placed per drawing(s) EST-D-P002-106 across stream T04-004(D) if crossing needed. Barrier and silt fence to be installed around access where encroaching on wetland.
- An elongated structure pad shall be installed adjacent to the north side of Tonawanda Creek Road to be installed with silt fence on the north side of the pad. The matted access road to structures 18-21 goes down Right of Way. Barrier and silt fence to be installed where encroaching on wetland.
- Vulnerable soils VE/VW are present in this area.

Area 14) Temporary access with temporary timber matting (Road Type 1) from structure 21 to 22 where wetlands are delineated. Otherwise temporary gravel access (Road Type 1).
Clearing Type II
Disposal Type A
- Barrier and silt fence to be installed where access roads and structure pads encroach wetlands.
- Vulnerable soils VE/VW are present in this area.

Area 15) Temporary access with temporary timber matting (Road Type 2) from structure 22-27 where wetlands are delineated. Otherwise temporary gravel access (Road Type 1).
Clearing Type II – Clearing is not permitted from April 1 thru October 31.
Disposal Type A
- An existing access from Moore road to between structures 26 and 27 will be used. See entrance plan per drawing(s) EST-D-P002-9. Barrier and silt fence to be installed around structure pads and along access road when encroaching wetlands. Small wetland within structure 22 pad to be protected with timber matting. Timber air bridge per drawing(s) EST-D-P002-106 across Stream T04-007(D).
- Vulnerable soils VE/VW are present in this area.



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PLOT SCALE: 1:1

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NEXTera ENERGY TRANSMISSION NEW YORK

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DESIGNED	M. HOHN	11/19/19
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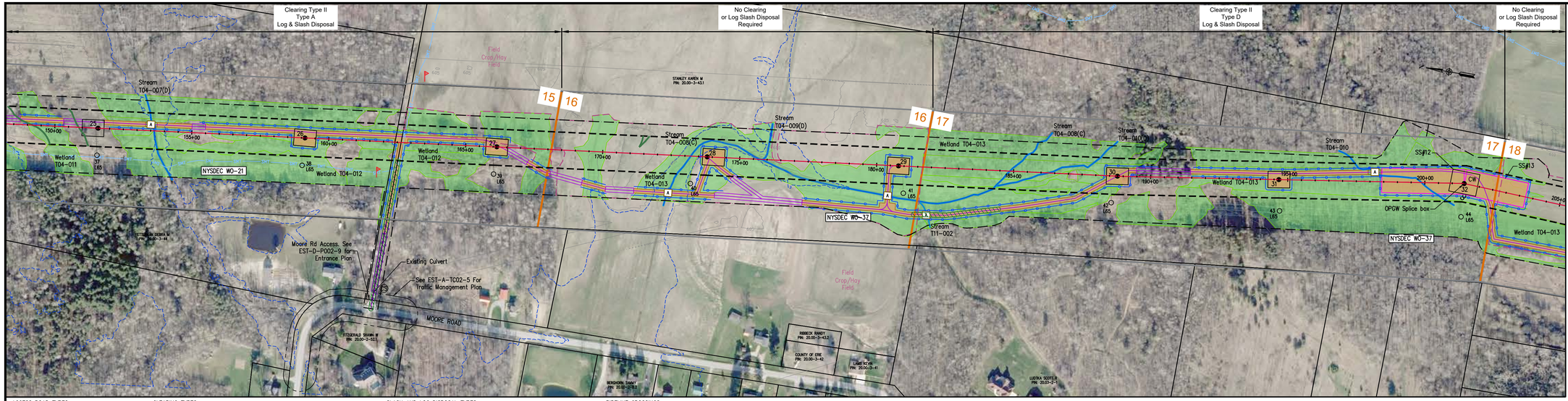
APPROVED		
VERT. SCALE: 1" = 20'	HORZ. SCALE: 1" = 200'	

EMPIRE STATE TRANSMISSION LINE
PLAN AND PROFILE
STATION 100+00 TO 150+00

EST-D-T009-3 | REVISION NO : I



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PROFILE NOTES:
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3. Shield Wire = 3/8" EHS 7-STRAND STEEL
4. OPGW = SFPOC/SFSJ-J-4388R2

AREA NOTES:

Area 15) Temporary access with temporary timber matting (Road Type 2) from structure 22-27 where wetlands are delineated. Otherwise temporary gravel access (Road Type 1).
Clearing Type II – Clearing is not permitted from April 1 thru October 31.
Disposal Type A
- An existing access from Moore rood to between structures 26 and 27 will be used. See entrance plan per drawing(s) EST-D-P002-9. Barrier and silt fence to be installed around structure pads and along access road when encroaching wetlands. Small wetland within structure 22 pad to be protected with timber matting. Timber air bridge per drawing(s) EST-D-P002-106 across Stream T04-007(D).
- Vulnerable soils VE/VW are present in this area.

Area 16) Temporary access with temporary timber matting (Road Type 2) from structure 28-29 where encroaching on wetlands, otherwise temporary gravel access (Road Type 1).
No clearing in this section.
No vegetation disposal in this section.
- Barrier and silt fence to be placed where access or structure pad encroaches wetland. Timber air bridges per drawing(s) EST-D-P002-106 across Stream T04-008(C).
- Vulnerable soils VE/VW are present in this area.

Area 17) Temporary access with temporary timber matting (Road Type 2) from structure 30-32.
Clearing Type II – Clearing is not permitted from April 1 thru October 31.
Disposal Type D
- Timber air bridges per drawing(s) EST-D-P002-106 across Stream T04-008(C) and Stream T11-002. Barrier and silt fence to be installed where access, structure pads and stringing sites encroach on wetlands.
- Vulnerable soils VE/VW are present in this area.

Area 17) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P-002-10, EST-D-P-002-11, EST-D-P002-12, EST-D-P002-13, from Rapids Road north to structures 33-34, south to structure 35, and spurs from Downey Road to structures 36-37. An 18" diameter culvert will be installed at each entrance.
No clearing in this section.
No vegetation disposal in this section.
- Timber air bridges per drawing(s) EST-D-P002-106 across Stream T04-11. Barrier and silt fence to be installed where access and structure pad encroach on wetlands and on west side of structure 36.
- Vulnerable soils VE/VW are present in this area.

ACCESS ROAD TYPES

Type	Description
1	Temporary gravel access
2	Temporary equipment matting and bridges
3	Temporary use of existing access roads
4	Permanent switchyard access

REFERENCE DRAWINGS
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CLEARING TYPES

Type	Description
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IV	Selectively removing or pruning.

SLASH AND LOG DISPOSAL TYPES

Type	Description
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B	Vegetation lop and drop so that the slash lies as close to the ground as practicable, with branches and limb wood not exceeding an average depth of twenty-four (24) inches. No log or slash will be collected and permanently piled in wetlands.
C	Vegetation piling, by landowner agreement, in upland areas.
D	Removal of vegetation from the ROW to designated disposal locations.

PIPELINE CROSSINGS
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2. Orange construction fence to be installed perpendicular to pipeline crossings.

EXISTING FENCES
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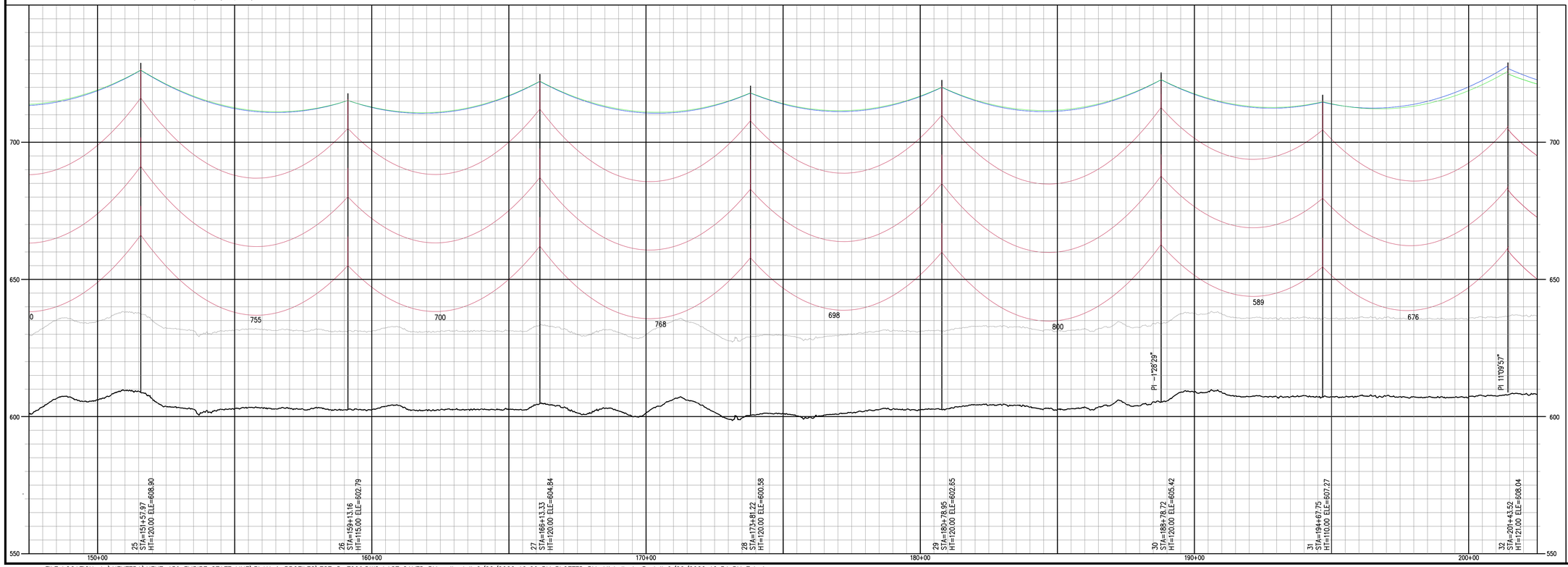

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PLOT SCALE: 1:1

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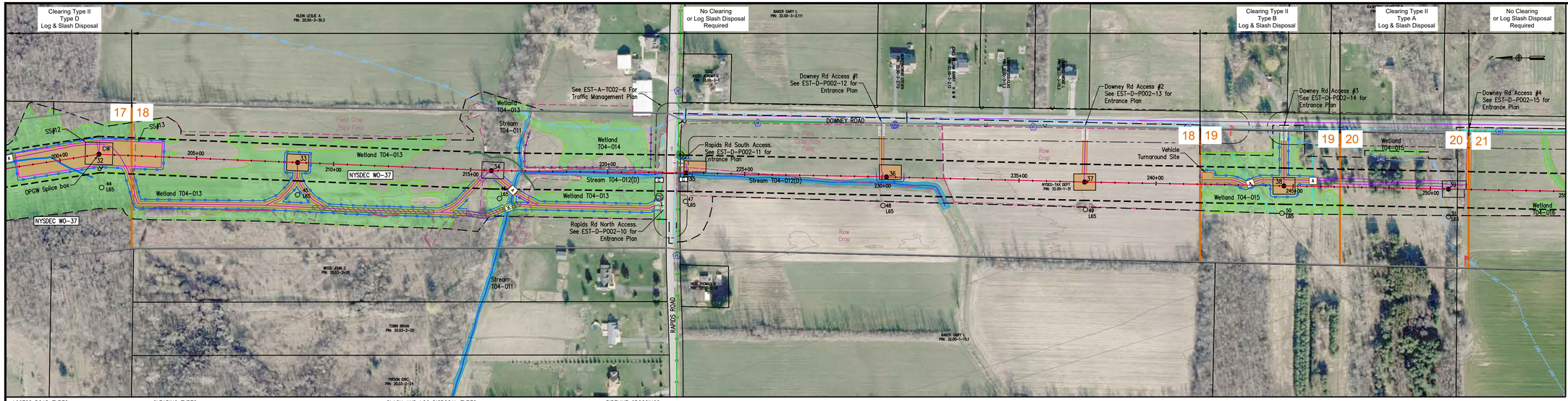
EMPIRE STATE TRANSMISSION LINE
PLAN AND PROFILE
STATION 150+00 TO 200+00

EST-D-T009-4 | REVISION NO : I



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AREA NOTES:

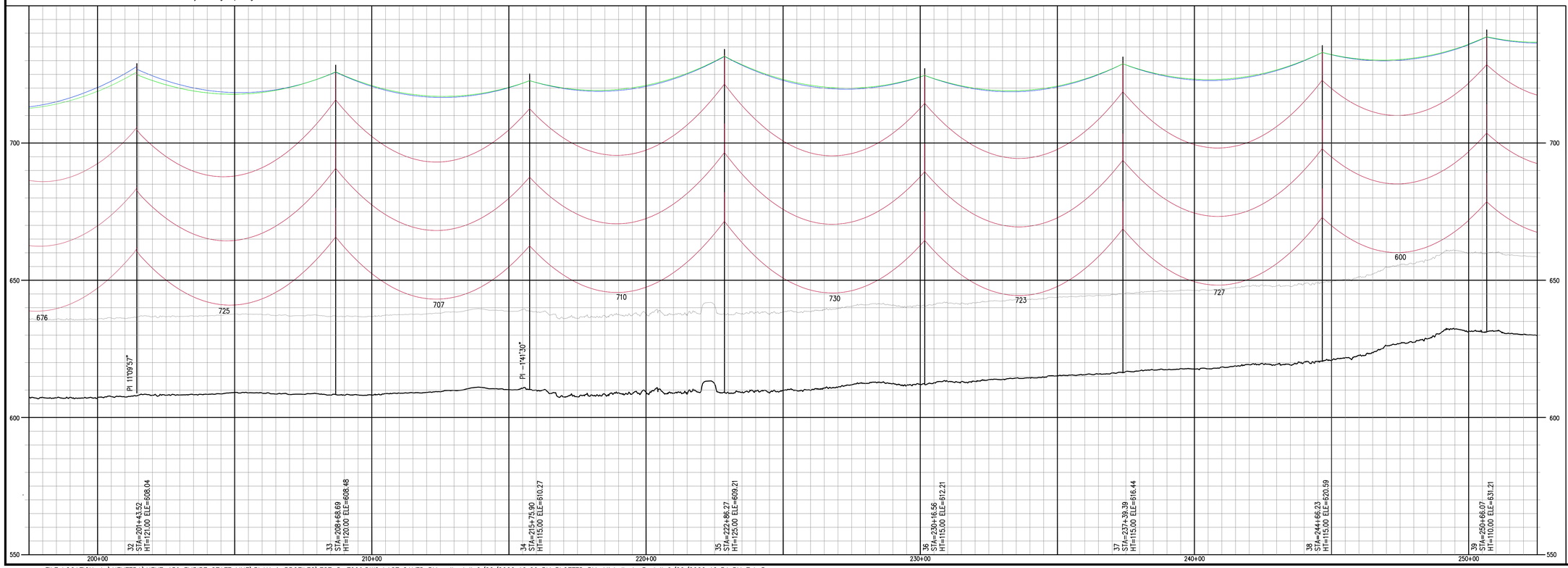
Area 17) Temporary access with temporary timber matting (Road Type 2) from structure 30-32.
Clearing Type II – Clearing is not permitted from April 1 thru October 31.
Disposal Type D
- Timber air bridges per drawing(s) EST-D-P002-106 across Stream T04-008(C) and Stream T11-002. Barrier and silt fence to be installed where access, structure pads and stringing sites encroach on wetlands.
- Vulnerable soils VE/VW are present in this area.

Area 18) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P-002-10, EST-D-P002-11, EST-D-P002-12, EST-D-P002-13, from Rapids Road north to structures 33-34, south to structure 35, and spurs from Downey Road to structures 36-37. An 18" diameter culvert will be installed at each entrance.
No clearing in this section.
No vegetation disposal in this section.
- Timber air bridges per drawing(s) EST-D-P002-106 across Stream T04-11. Barrier and silt fence to be installed where access and structure pad encroach on wetlands and on west side of structure 36.
- Vulnerable soils VE/VW are present in this area.

Area 19) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-145, from Downey Road to structure 38 and thence north to tree clearing area and vehicle turnaround site and continuing south to structure 39.
Clearing Type II – Clearing is not permitted from April 1 thru October 31.
Disposal Type B
- Barrier and silt fence to be installed around access roads and structure pad where encroaching on wetlands. Timber air bridges per drawing(s) EST-D-P002-106 across ditches to north and south of structure 38.
- Vulnerable soil VW is present in this area.

Area 20) Temporary gravel access (Road Type 1) south to structure 39.
Clearing Type II – Clearing is not permitted from April 1 thru October 31.
Disposal Type A
- Vulnerable soil VW is present in this area.

Area 21) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-16, EST-D-P002-17, EST-D-P002-18, from Downey Road spurs to structures 39 and 40, Maehl Road to structures 41-46 from the north and Hunts Corners Road to the south.
No clearing in this section.
No vegetation disposal in this section.
- Barrier and silt fence to be installed in the wetland area between structures 43 and 44.
- Vulnerable soil VW is present in this area.



ACCESS ROAD TYPES

Type	Description
1	Temporary gravel access
2	Temporary equipment matting and bridges
3	Temporary use of existing access roads
4	Permanent switchyard access

REFERENCE DRAWINGS
1. Maintenance & Protection of Traffic Plans can be found in Appendix R.

CLEARING TYPES

Type	Description
I	Clearing of the designated areas of all woody plants, including desirable species, in circumstances where woody plants would hinder access and construction activities.
II	Clearing of the designated areas of any woody plant species that have the potential to violate the minimum clearance distance. Reasonable care will be taken to retain desirable species found within Type II clearing zones.
III	Selectively clearing the designated areas and removing only those tall-growing species that can be expected to violate the minimum clearance distance at any point in their life.
IV	Selectively removing or pruning.

SLASH AND LOG DISPOSAL TYPES

Type	Description
A	Vegetation chipping and disposal in upland areas to a maximum depth of 3 inches.
B	Vegetation lop and drop so that the slash lies as close to the ground as practicable, with branches and limb wood not exceeding an average depth of twenty-four (24) inches. No log or slash will be collected and permanently piled in wetlands.
C	Vegetation piling, by landowner agreement, in upland areas.
D	Removal of vegetation from the ROW to designated disposal locations.

PIPELINE CROSSINGS
1. GC to field locate & verify depth of all existing utilities as shown on the plans & prior to construction.
2. Orange construction fence to be installed perpendicular to pipeline crossings.

EXISTING FENCES
1. Existing fences to be removed and replaced in kind.

GENERAL NOTES
1. Clearing Type I will be present throughout the project.
2. All ash trees encountered during clearing will be either chipped and left in place or hauled out and disposed of in accordance with NYSEC quarantine orders.

SIGNATURE
EXPIRATION DATE OF THE LICENSE

SIGNATURE
EXPIRATION DATE OF THE LICENSE

FILE LOCATION: L:\NEXTERA\NEXT-159 EMPIRE STATE LINE\PLAN & PROFILES\EST-D-T009.DWG LAST SAVED BY: mlburtell 6/22/2020 12:26 PM PLOTTED BY: Michelle L. Burtell 6/22/2020 12:34 PM Tab:5

PLOT SCALE: 1:1

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ECI ENGINEERING SERVICES, P.C.
Sargent & Lundy
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Global Environmental Specialists

NO	REVISION	DATE	BY	APR
I	ISSUED FOR REVIEW	06/22/20	MAH	RSD
H	PRELIMINARY	05/12/20	MAH	RSD
G	PRELIMINARY	04/24/20	MAH	RSD
F	PRELIMINARY	02/21/20	MAH	RSD
E	PRELIMINARY	02/06/20	MAH	RSD

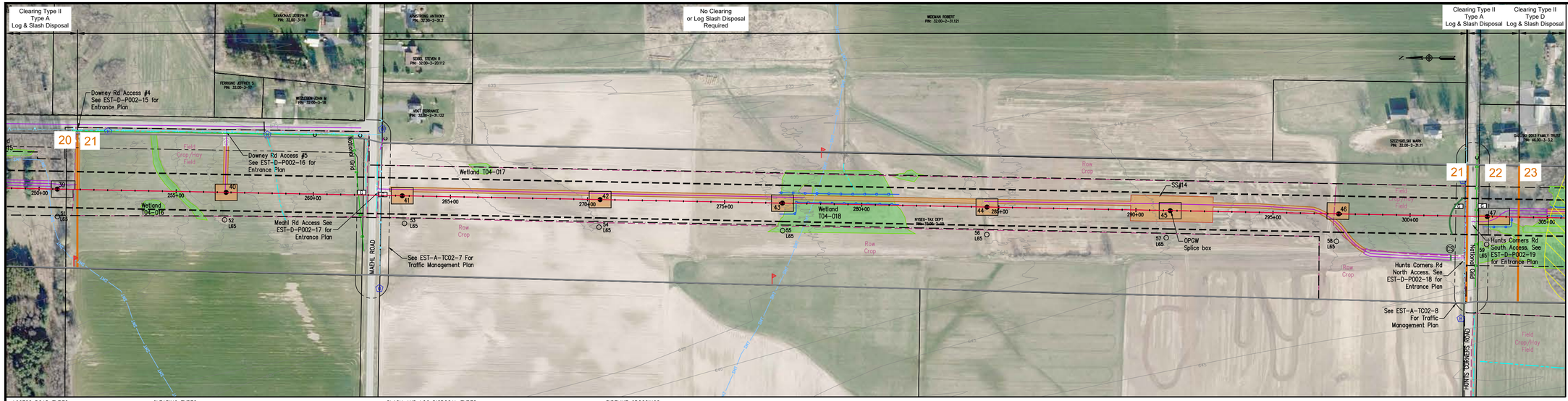
NEXTera ENERGY TRANSMISSION NEW YORK

ENGINEERING RECORD		DATE
DRAWN	M. BURTELL	11/19/19
DESIGNED	M. HOHN	11/19/19
CHECKED	R. DAVIS	11/22/19
APPROVED		

VERT. SCALE: 1" = 20' HORZ. SCALE: 1" = 200'

EMPIRE STATE TRANSMISSION LINE
PLAN AND PROFILE
STATION 200+00 TO 250+00

EST-D-T009-5 REVISION NO : I



- Proposed Structure
- Existing Structure
- Existing Structure to be Removed
- Guy Wire Anchors
- Proposed Line
- 0+00 Stationing
- Existing NYPA Line
- NEETNY ROW
- NYSEG Utility Corridor
- Property Line
- Switchyard Boundary
- Town Boundary
- Area Divider
- Temporary Access
- Permanent Access
- SS# Stringing Site Label
- Timber Air Bridge
- Timber Air Bridge – Utility
- Concrete Washout
- Guard Structures
- Cleaning Station
- Snowmobile/Walking Trail Closed Sign
- Barrier & Silt Fence
- Orange Construction Fence
- Security Fence
- Stabilized Entrance
- Timber Matting
- Structure Pad
- Survey Area Boundary
- Proposed Culvert w/Outlet Protection
- Water Bar
- VOR Soils
- Delineated Waterway – Stream
- Delineated Waterway – Ditch
- Delineated Waterbody
- Delineated Wetland
- DEC Wetland 100ft Adjacent Area
- Off ROW Access Pruning
- Environmentally Sensitive Area
- Railroad
- Snowmobile Trail
- Clarence Pathways
- Existing Fences
- Distribution Line – Overhead
- Underground Electric
- Waterline – Underground
- Hydrant
- Telephone Line – Underground
- Gasline – Underground
- Pipeline Buffer
- Brine Pipeline – Underground
- Solid State Decouplers
- Elevation Contours (5 ft)
- Substation Grading (1 ft)
- Floodway
- 100 Yr Flood Boundary
- 500 Yr Flood Boundary
- Agricultural Lands
- Abandoned Gas Well
- Active Gas Well
- LaydownYard
- AST

PROFILE NOTES:
1. Conductor Wires shown at 125°C (257°F) & Shield/OPGW Wires shown at 9.4°C (49°F)
2. Conductor = 2x 795 KCMIL 26/7 DRAKE ACSR
3. Shield Wire = 3/8" EHS 7-STRAND STEEL
4. OPGW = SFPOC/SFSJ-J-4388R2

AREA NOTES:

Area 20) Temporary gravel access (Road Type 1) south to structure 39.
Clearing Type II – Clearing is not permitted from April 1 thru October 31.
Disposal Type A
- Vulnerable soil VW is present in this area.

Area 21) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-16, EST-D-P002-17, EST-D-P002-18, from Downey Road spurs to structures 39 and 40, Meahl Road to structures 41–46 from the north and Hunts Corners Road to the south.
No clearing in this section.
No vegetation disposal in this section.
- Barrier and silt fence to be installed in the wetland area between structures 43 and 44.
- Vulnerable soil VW is present in this area.

Area 22) Temporary gravel access (Road Type 1), stabilized entrance per drawing(s) EST-D-P002-19, from Hunts Corners Road to structure 47 and continuing south. An 18" culvert will be installed on the southern entrance.
Clearing Type II – Clearing is not permitted from April 1 thru October 31.
Disposal Type A
- Timber Matting, barrier and silt fence to be installed on structure 47 pad where encroaching on wetlands.
- Vulnerable soil VW is present in this area.

Area 23) Temporary access with temporary timber matting (Road Type 2) from structures 47–49. Small segment of temporary gravel access (Road Type 1) at north end.
Clearing Type II – Clearing is not permitted from April 1 thru October 31.
Disposal Type D
- Barrier and silt fence to be installed where encroaching on wetlands.
- Vulnerable soils VOR/VW are present in this area. VOR soils contain organic mucklands.

ACCESS ROAD TYPES

Type	Description
1	Temporary gravel access
2	Temporary equipment matting and bridges
3	Temporary use of existing access roads
4	Permanent switchyard access

REFERENCE DRAWINGS
1. Maintenance & Protection of Traffic Plans can be found in Appendix R.

CLEARING TYPES

Type	Description
I	Clearing of the designated areas of all woody plants, including desirable species, in circumstances where woody plants would hinder access and construction activities.
II	Clearing of the designated areas of any woody plant species that have the potential to violate the minimum clearance distance. Reasonable care will be taken to retain desirable species found within Type II clearing zones.
III	Selectively clearing the designated areas and removing only those tall-growing species that can be expected to violate the minimum clearance distance at any point in their life.
IV	Selectively removing or pruning.

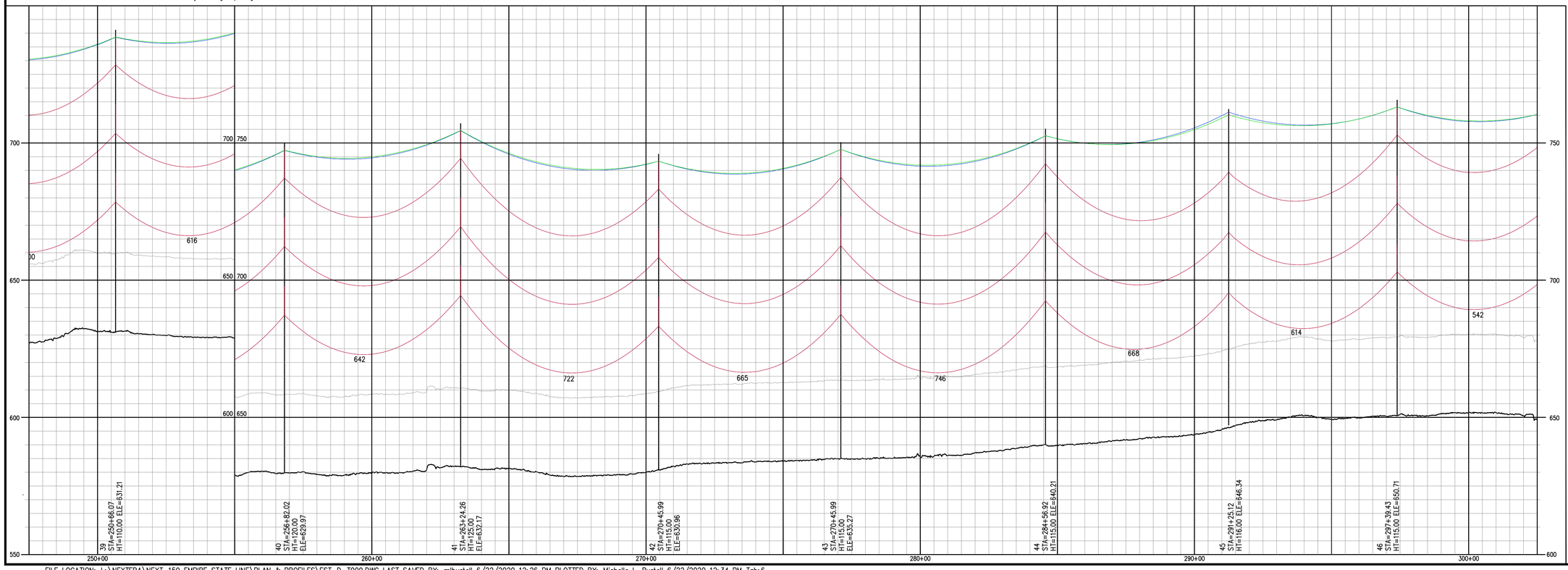
SLASH AND LOG DISPOSAL TYPES

Type	Description
A	Vegetation chipping and disposal in upland areas to a maximum depth of 3 inches.
B	Vegetation lop and drop so that the slash lies as close to the ground as practicable, with branches and limb wood not exceeding an average depth of twenty-four (24) inches. No log or slash will be collected and permanently piled in wetlands.
C	Vegetation piling, by landowner agreement, in upland areas.
D	Removal of vegetation from the ROW to designated disposal locations.

PIPELINE CROSSINGS
1. GC to field locate & verify depth of all existing utilities as shown on the plans & prior to construction.
2. Orange construction fence to be installed perpendicular to pipeline crossings.

EXISTING FENCES
1. Existing fences to be removed and replaced in kind.

GENERAL NOTES
1. Clearing Type I will be present throughout the project.
2. All ash trees encountered during clearing will be either chipped and left in place or hauled out and disposed of in accordance with NYSEC quarantine orders.



SIGNATURE
EXPIRATION DATE OF THE LICENSE

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EXPIRATION DATE OF THE LICENSE

FILE LOCATION: L:\NEXTERA\NEXT-159 EMPIRE STATE LINE\PLAN & PROFILES\EST-D-T009.DWG LAST SAVED BY: mlburtell 6/22/2020 12:26 PM PLOTTED BY: Michelle L. Burtell 6/22/2020 12:34 PM Tab:6

PLOT SCALE: 1:1

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NO	REVISION	DATE	BY	APR
I	ISSUED FOR REVIEW	06/22/20	MAH	RSD
H	PRELIMINARY	05/12/20	MAH	RSD
G	PRELIMINARY	04/24/20	MAH	RSD
F	PRELIMINARY	02/21/20	MAH	RSD
E	PRELIMINARY	02/06/20	MAH	RSD

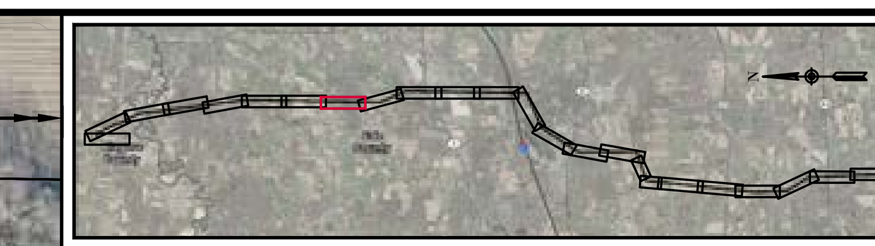
NEXTera ENERGY TRANSMISSION NEW YORK

ENGINEERING RECORD		DATE
DRAWN	M. BURTELL	11/19/19
DESIGNED	M. HOHN	11/19/19
CHECKED	R. DAVIS	11/22/19
APPROVED		
VERT. SCALE: 1" = 20'	HORZ. SCALE: 1" = 200'	

EMPIRE STATE TRANSMISSION LINE

PLAN AND PROFILE
STATION 250+00 TO 300+00

EST-D-T009-6 | REVISION NO : I



Legend

- Proposed Structure
- Existing Structure
- Existing Structure to be Removed
- Guy Wire Anchors
- Proposed Line
- 0+00 Stationing
- Existing NYPA Line
- NEETNY ROW
- NYSEG Utility Corridor
- Property Line
- Switchyard Boundary
- Town Boundary
- Area Divider
- Temporary Access
- Permanent Access
- SS# Stringing Site Label
- Timber Air Bridge
- Timber Air Bridge – Utility
- Concrete Washout
- Guard Structures
- Cleaning Station
- Snowmobile/Walking Trail Closed Sign
- Barrier & Silt Fence
- Orange Construction Fence
- Security Fence
- Stabilized Entrance
- Timber Matting
- Structure Pad
- Survey Area Boundary
- Proposed Culvert w/Outlet Protection
- Water Bar
- VOR Soils
- Delineated Waterway – Stream
- Delineated Waterway – Ditch
- Delineated Waterbody
- Delineated Wetland
- DEC Wetland 100ft Adjacent Area
- Off ROW Access Pruning
- Environmentally Sensitive Area
- Railroad
- Snowmobile Trail
- Clarence Pathways
- Existing Fences
- Distribution Line – Overhead
- Underground Electric
- Waterline – Underground
- Hydrant
- Telephone Line – Underground
- Gasline – Underground
- Pipeline Buffer
- Brine Pipeline – Underground
- Solid State Decouplers
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- Substation Grading (1 ft)
- Floodway
- 100 Yr Flood Boundary
- 500 Yr Flood Boundary
- Agricultural Lands
- Abandoned Gas Well
- Active Gas Well
- LaydownYard
- AST

PROFILE NOTES:
1. Conductor Wires shown at 125°C (257°F) & Shield/OPGW Wires shown at 9.4°C (49°F)
2. Conductor = 2x 795 KCMIL 26/7 DRAKE ACSR
3. Shield Wire = 3/8" EHS 7-STRAND STEEL
4. OPGW = SFPOC/SFSJ-J-4388R2

ACCESS ROAD TYPES

Type	Description
1	Temporary gravel access
2	Temporary equipment matting and bridges
3	Temporary use of existing access roads
4	Permanent switchyard access

REFERENCE DRAWINGS
1. Maintenance & Protection of Traffic Plans can be found in Appendix R.

CLEARING TYPES

Type	Description
I	Clearing of the designated areas of all woody plants, including desirable species, in circumstances where woody plants would hinder access and construction activities.
II	Clearing of the designated areas of any woody plant species that have the potential to violate the minimum clearance distance. Reasonable care will be taken to retain desirable species found within Type II clearing zones.
III	Selectively clearing the designated areas and removing only those tall-growing species that can be expected to violate the minimum clearance distance at any point in their life.
IV	Selectively removing or pruning.

SLASH AND LOG DISPOSAL TYPES

Type	Description
A	Vegetation chipping and disposal in upland areas to a maximum depth of 3 inches.
B	Vegetation lop and drop so that the slash lies as close to the ground as practicable, with branches and limb wood not exceeding an average depth of twenty-four (24) inches. No log or slash will be collected and permanently piled in wetlands.
C	Vegetation piling, by landowner agreement, in upland areas.
D	Removal of vegetation from the ROW to designated disposal locations.

PIPELINE CROSSINGS
1. GC to field locate & verify depth of all existing utilities as shown on the plans & prior to construction.
2. Orange construction fence to be installed perpendicular to pipeline crossings.

EXISTING FENCES
1. Existing fences to be removed and replaced in kind.

GENERAL NOTES
1. Clearing Type I will be present throughout the project.
2. All ash trees encountered during clearing will be either chipped and left in place or hauled out and disposed of in accordance with NYSEC quarantine orders.

AREA NOTES:

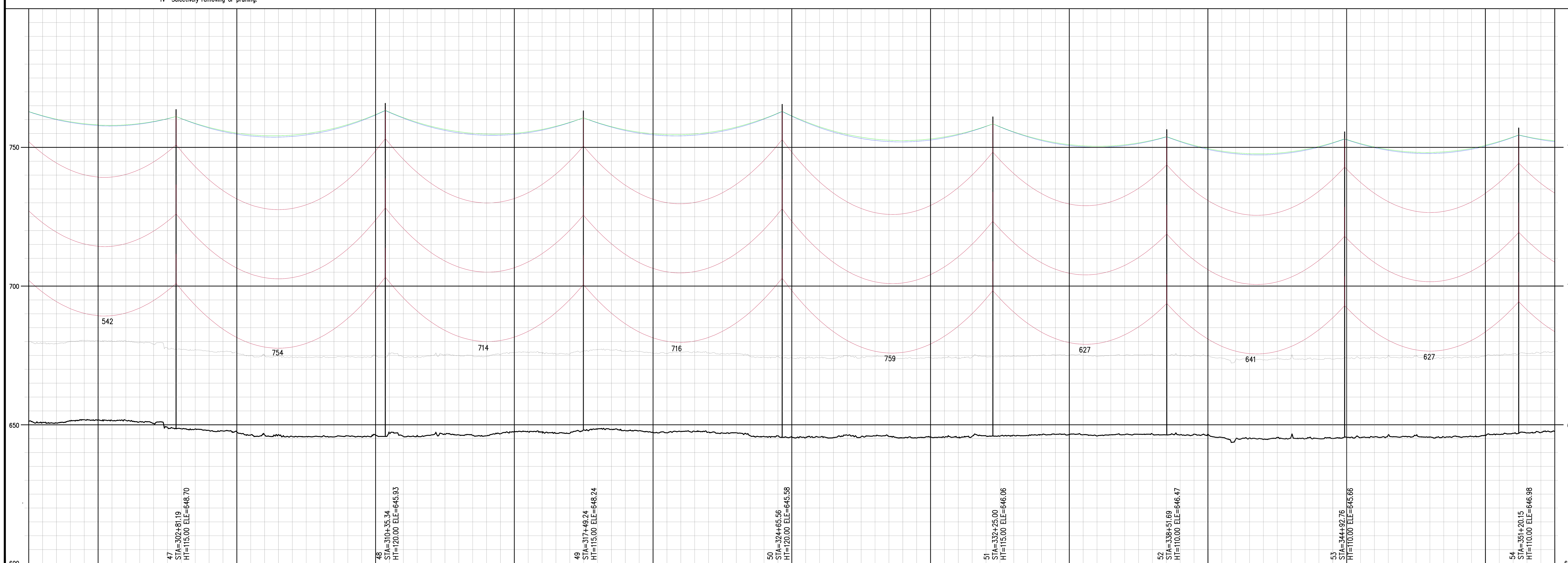
Area 21) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-16, EST-D-P002-17, EST-D-P002-18, from Downey Road spurs to structures 39 and 40, Maehl Road to structures 41-46 from the north and Hunts Corners Road to the south.
No clearing in this section.
No vegetation disposal in this section.
- Barrier and silt fence to be installed in the wetland area between structures 43 and 44.
- Vulnerable soil VW is present in this area.

Area 22) Temporary gravel access (Road Type 1), stabilized entrance per drawing(s) EST-D-P002-19, from Hunts Corners Road to structure 47 and continuing south. An 18" culvert will be installed on the southern entrance.
Clearing Type II – Clearing is not permitted from April 1 thru October 31.
Disposal Type A
- Timber Matting, barrier and silt fence to be installed on structure 47 pad where encroaching on wetlands.
- Vulnerable soil VW is present in this area.

Area 23) Temporary access with temporary timber matting (Road Type 2) from structures 47-49. Small segment of temporary gravel access (Road Type 1) at north end.
Clearing Type II – Clearing is not permitted from April 1 thru October 31.
Disposal Type D
- Barrier and silt fence to be installed where encroaching on wetlands.
- Vulnerable soils VOR/VW are present in this area. VOR soils contain organic mucklands.

Area 24) Temporary gravel access (Road Type 1).
Clearing Type II – Clearing is not permitted from April 1 thru October 31.
Disposal Type A
- Vulnerable soil VW is present in this area.

Area 25) Temporary access with temporary timber matting (Road Type 2) stabilized entrance to structures 50-55 and interconnecting with Clarence Center Road, stabilized entrance per drawing(s) EST-D-P002-20. The entrance will have a 24" diameter culvert. Temporary access with temporary timber matting (Road Type 2) spur road north of and parallel to underground brine pipelines to reach SSD mitigation site to the northwest.
Clearing Type II – Clearing is not permitted from April 1 thru October 31.
Disposal Type D
- Barrier and silt fence to be installed where encroaching on wetlands. Timber air bridges per drawing(s) EST-D-P002-106 to be installed across Stream T04-013 and Stream T04-014. BMPs over underground brine pipeline will be installed per drawing(s) EST-D-P002-105. Orange Construction Fence to be placed perpendicular to pipeline crossing.
- Vulnerable soils VE/VW are present in this area.



SIGNATURE
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PLOT SCALE: 1:1

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Sargent & Lundy

ecology and environment, inc. Global Environmental Specialists

NO	REVISION	DATE	BY	APR
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G	PRELIMINARY	04/24/20	MAH	RSD
F	PRELIMINARY	02/21/20	MAH	RSD
E	PRELIMINARY	02/06/20	MAH	RSD

NEXTera ENERGY TRANSMISSION NEW YORK

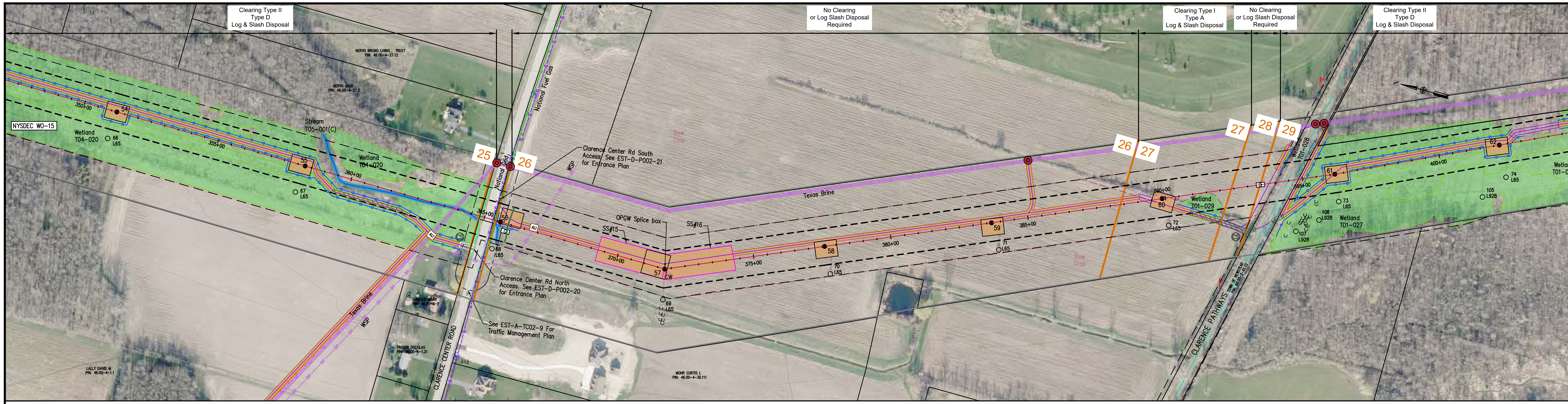
ENGINEERING RECORD		DATE
DRAWN	M. BURTELL	11/19/19
DESIGNED	M. HOHN	11/19/19
CHECKED	R. DAVIS	11/22/19
APPROVED		
VERT. SCALE: 1" = 20'	HORZ. SCALE: 1" = 200'	

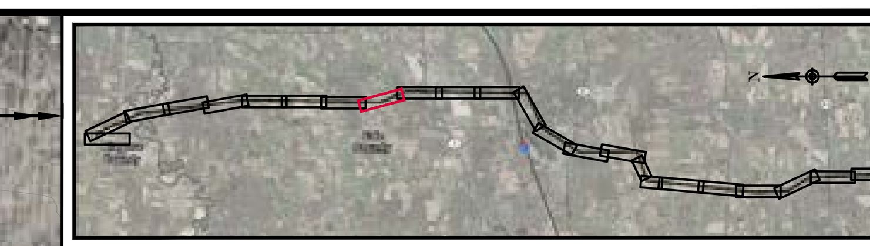
EMPIRE STATE TRANSMISSION LINE

PLAN AND PROFILE
STATION 300+00 TO 350+00

EST-D-T009-7

REVISION NO : I





- Proposed Structure
- Existing Structure
- Existing Structure to be Removed
- Guy Wire Anchors
- Proposed Line
- 0+00 Stationing
- Existing NYPA Line
- NEETNY ROW
- NYSEG Utility Corridor
- Property Line
- Switchyard Boundary
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- SS# Stringing Site Label
- Timber Air Bridge
- Timber Air Bridge – Utility
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- Guard Structures
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PROFILE NOTES:
1. Conductor Wires shown at 125°C (257°F) & Shield/OPGW Wires shown at 9.4°C (49°F)
2. Conductor = 2x 795 KCMIL 26/7 DRAKE ACSR
3. Shield Wire = 3/8" EHS 7-STRAND STEEL
4. OPGW = SFPOC/SFSJ-J-4388R2

ACCESS ROAD TYPES

Type	Description
1	Temporary gravel access
2	Temporary equipment matting and bridges
3	Temporary use of existing access roads
4	Permanent switchyard access

REFERENCE DRAWINGS
1. Maintenance & Protection of Traffic Plans can be found in Appendix R.

CLEARING TYPES

Type	Description
I	Clearing of the designated areas of all woody plants, including desirable species, in circumstances where woody plants would hinder access and construction activities.
II	Clearing of the designated areas of any woody plant species that have the potential to violate the minimum clearance distance. Reasonable care will be taken to retain desirable species found within Type II clearing zones.
III	Selectively clearing the designated areas and removing only those tall-growing species that can be expected to violate the minimum clearance distance at any point in their life.
IV	Selectively removing or pruning.

SLASH AND LOG DISPOSAL TYPES

Type	Description
A	Vegetation chipping and disposal in upland areas to a maximum depth of 3 inches.
B	Vegetation lop and drop so that the slash lies as close to the ground as practicable, with branches and limb wood not exceeding an average depth of twenty-four (24) inches. No log or slash will be collected and permanently piled in wetlands.
C	Vegetation piling, by landowner agreement, in upland areas.
D	Removal of vegetation from the ROW to designated disposal locations.

PIPELINE CROSSINGS
1. GC to field locate & verify depth of all existing utilities as shown on the plans & prior to construction.
2. Orange construction fence to be installed perpendicular to pipeline crossings.

EXISTING FENCES
1. Existing fences to be removed and replaced in kind.

GENERAL NOTES
1. Clearing Type I will be present throughout the project.
2. All ash trees encountered during clearing will be either chipped and left in place or hauled out and disposed of in accordance with NYSEC quarantine orders.

AREA NOTES:

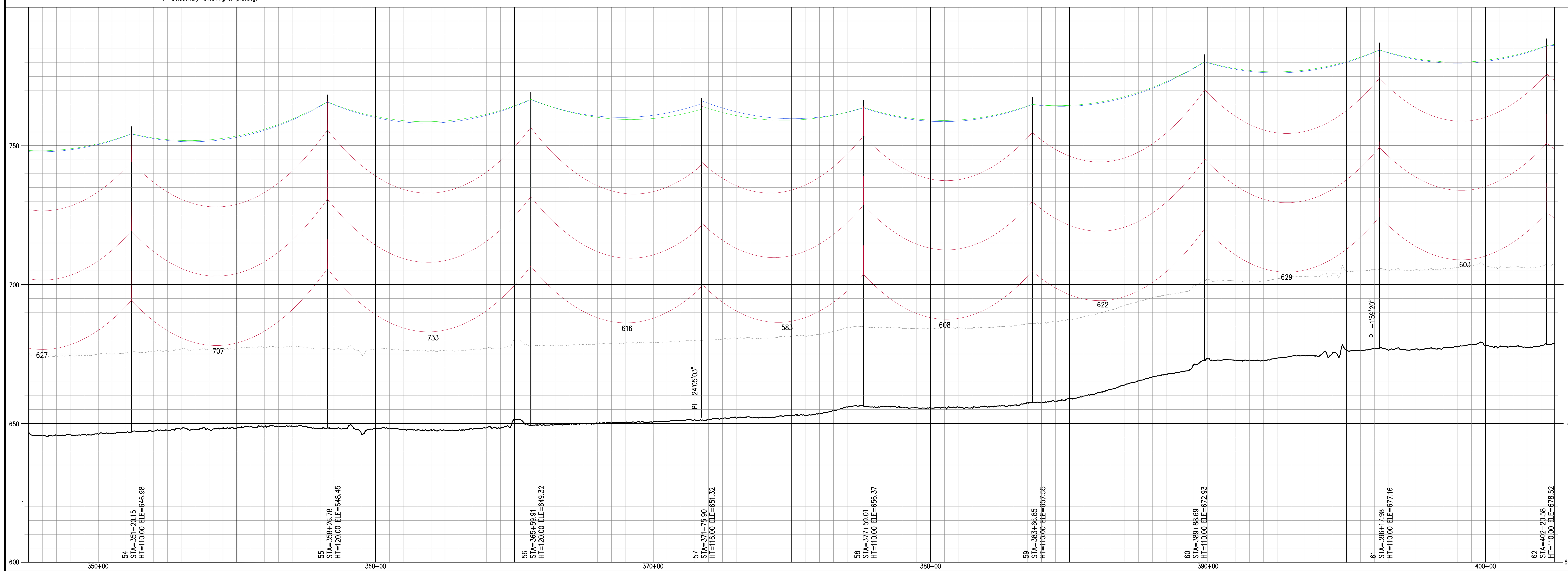
Area 25) Temporary access with temporary timber matting (Road Type 2) stabilized entrance to structures 50–55 and interconnecting with Clarence Center Road, stabilized entrance per drawing(s) EST-D-P002-20. The entrance will have a 24" diameter culvert. Temporary access with temporary timber matting (Road Type 2) spur road north of and parallel to underground brine pipelines to reach SSD mitigation site to the northwest.
Clearing Type II – Clearing is not permitted from April 1 thru October 31.
Disposal Type D
- Barrier and silt fence to be installed where encroaching on wetlands. Timber air bridges per drawing(s) EST-D-P002-106 to be installed across Stream T04-013 and Stream T04-014. BMPs over underground brine pipeline will be installed per drawing(s) EST-D-P002-105. Orange Construction Fence to be placed perpendicular to pipeline crossing.
- Vulnerable soils VE/VW are present in this area.

Area 26) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P003-21, from Clarence Center Road to structures 56–59. The entrance will have a 24" diameter culvert. Temporary access with temporary timber matting (Road Type 2) spur road between structures 59 and 60 to reach SSD mitigation site.
No clearing in this section.
No vegetation disposal in this section.
- Add barrier and silt fence around the west and north side of the structure 56 pad. BMPs over underground brine pipeline will be installed per drawing(s) EST-D-P002-105. Orange Construction Fence to be placed perpendicular to pipeline crossing.
- Vulnerable soils VE/VW are present in this area.

Area 27) Temporary access with temporary timber matting (Road Type 2) from structure 59 to structure 60 which interconnects the next section to Clarence Pathways Rails to Trails.
Clearing Type I – Clearing is not permitted from April 1 thru October 31.
Disposal Type A
- Barrier and silt fence to be installed where encroaching on wetlands.
- Vulnerable soil VW is present in this area.

Area 28) Temporary access with temporary timber matting (Road Type 2) from structure 60 to Clarence Pathways Rails to Trails.
No clearing in this section.
No vegetation disposal in this section.
- Vulnerable soil VW is present in this area.

Area 29) Temporary access with temporary timber matting (Road Type 2) from the north fork of Clarence Pathways Trail to structures 61–63 and from the south fork of Clarence Pathways from structure 64–65. Temporary gravel access (Road Type 1) where not encroaching on wetlands. Temporary spur roads to SSD mitigation sites located adjacent to both north and south spurs of Clarence Pathways.
Clearing Type II – Clearing is not permitted from April 1 thru October 31.
Disposal Type D
- South of structure 63 the matted access road interconnects with a different spur of Clarence Pathways where there is an existing road that grants access to the ROW on the north side of the trail. Only light vehicle traffic allowed on trail or the existing side road. Heavy equipment will not be allowed to cross trails. South of structure 65 part of a temporary gravel access (Road Type 1) spur to structure 66 crosses through.
- Vulnerable soil VW is present in this area.



SIGNATURE
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PLOT SCALE: 1:1

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NO	REVISION	DATE	BY	APR
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G	PRELIMINARY	04/24/20	MAH	RSD
F	PRELIMINARY	02/21/20	MAH	RSD
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NEXTera ENERGY TRANSMISSION NEW YORK

ENGINEERING RECORD		DATE
DRAWN	M. BURTELL	11/19/19
DESIGNED	M. HOHN	11/19/19
CHECKED	R. DAVIS	11/22/19
APPROVED		
VERT. SCALE: 1" = 20'	HORZ. SCALE: 1" = 200'	

EMPIRE STATE TRANSMISSION LINE
PLAN AND PROFILE
STATION 350+00 TO 400+00

EST-D-T009-8 — REVISION NO : I

[Submitted under separate cover for confidential treatment, because the page contains confidential information]

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ECI ENGINEERING SERVICES, P.C.

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ecology and environment, inc.
Global Environmental Specialists

NO	REVISION	DATE	BY	APR

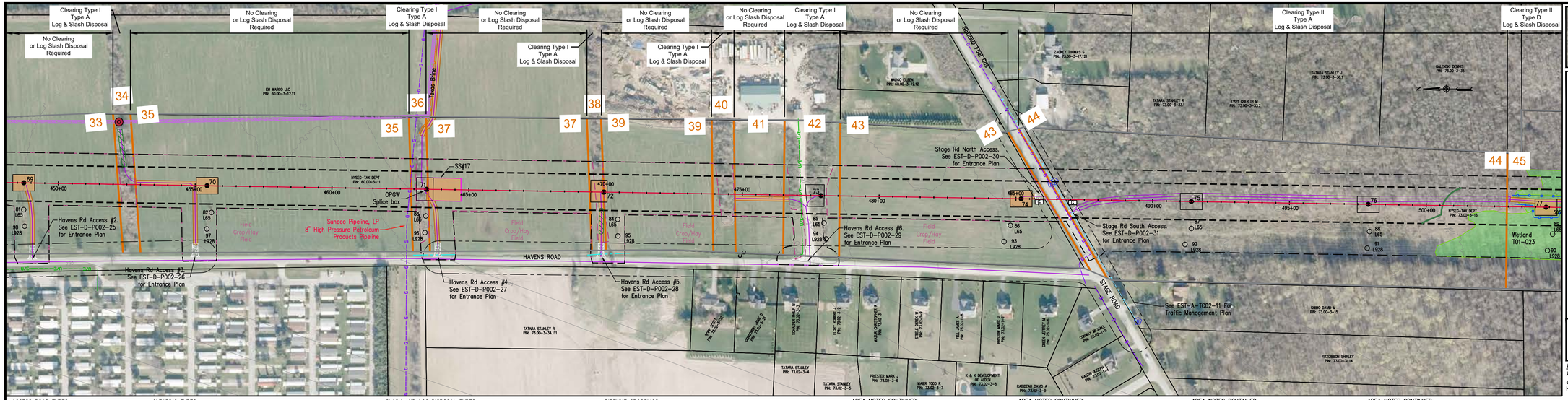
NEXTera™ ENERGY TRANSMISSION NEW YORK

ENGINEERING RECORD		DATE
DRAWN		
DESIGNED		
CHECKED		
APPROVED		

EMPIRE STATE TRANSMISSION LINE

EST-D-T009-9

REVISION NO :



- Proposed Structure
- Existing Structure
- Existing Structure to be Removed
- Guy Wire Anchors
- Proposed Line
- 0+00 Stationing
- Existing NYPA Line
- NEETNY ROW
- NYSEG Utility Corridor
- Property Line
- Switchyard Boundary
- Town Boundary
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- SS# Stringing Site Label
- Timber Air Bridge
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- Agricultural Lands
- Abandoned Gas Well
- Active Gas Well
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PROFILE NOTES:
1. Conductor Wires shown at 125°C (257°F) & Shield/OPGW Wires shown at 9.4°C (49°F)
2. Conductor = 2x 795 KCMIL 26/7 DRAKE ACSR
3. Shield Wire = 3/8" EHS 7-STRAND STEEL
4. OPGW = SFPOC/SFSJ-J-4388R2

ACCESS ROAD TYPES
Type Description
1 Temporary gravel access
2 Temporary equipment matting and bridges
3 Temporary use of existing access roads
4 Permanent switchyard access

REFERENCE DRAWINGS
1. Maintenance & Protection of Traffic Plans can be found in Appendix R.

CLEARING TYPES
Type Description
I Clearing of the designated areas of all woody plants, including desirable species, in circumstances where woody plants would hinder access and construction activities.
II Clearing of the designated areas of any woody plant species that have the potential to violate the minimum clearance distance. Reasonable care will be taken to retain desirable species found within Type II clearing zones.
III Selectively clearing the designated areas and removing only those tall-growing species that can be expected to violate the minimum clearance distance at any point in their life.
IV Selectively removing or pruning.

SLASH AND LOG DISPOSAL TYPES
Type Description
A Vegetation chipping and disposal in upland areas to a maximum depth of 3 inches.
B Vegetation lop and drop so that the slash lies as close to the ground as practicable, with branches and limb wood not exceeding an average depth of twenty-four (24) inches. No log or slash will be collected and permanently piled in wetlands.
C Vegetation piling, by landowner agreement, in upland areas.
D Removal of vegetation from the ROW to designated disposal locations.

PIPELINE CROSSINGS
1. GC to field locate & verify depth of all existing utilities as shown on the plans & prior to construction.
2. Orange construction fence to be installed perpendicular to pipeline crossings.

EXISTING FENCES
1. Existing fences to be removed and replaced in kind.

GENERAL NOTES
1. Clearing Type I will be present throughout the project.
2. All ash trees encountered during clearing will be either chipped and left in place or hauled out and disposed of in accordance with NYSEC quarantine orders.

AREA NOTES CONTINUED:
Area 42) Temporary use of existing road (Road Type 3) from, stabilized entrance per drawing(s) EST-D-P002-29, spur road using existing access to Structure 73 to south and access to windrows to the north.
Clearing Type I
Disposal Type A
- Vulnerable soils VB/VW are present in this area.

AREA NOTES CONTINUED:
Area 43) Temporary access with temporary timber matting (Road Type 2) from, stabilized entrance per drawing(s) EST-D-P002-30, from Stage Road north to Structure 74.
No Clearing in this Section
No vegetation disposal in this section.
- Vulnerable soils VB/VW are present in this area.

AREA NOTES CONTINUED:
Area 44) Temporary gravel access (Road Type 1), stabilized entrance per drawing(s) EST-D-P002-31, from Stage Road south to structures 75 and 76.
Clearing Type II – Clearing is not permitted from April 1 thru October 31.
Disposal Type A
- Vulnerable soils VB/VW are present in this area.

AREA NOTES CONTINUED:
Area 45) Temporary access with temporary timber matting (Road Type 2) from north of structure 77 where encroaching on wetlands or agricultural field, otherwise temporary gravel access (Road Type 1) continuing south to Area 46.
Clearing Type II – Clearing is not permitted from April 1 thru October 31.
Disposal Type D
- Barrier and silt fence placed where encroaching wetlands.
- Vulnerable soils VB/VE/VW are present in this area.

AREA NOTES:
Area 33) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-24, EST-D-P002-25, spur road access from Havens Road to structures 68 and 69.
No clearing in this section.
No vegetation disposal in this section.
- The spur road to structure 68 will have barrier and silt fence installed around the matting.
- Vulnerable soils VE/VW are present in this area.

Area 34) Right of way clearing windrow between structures 69 and 70. Temporary spur road within windrow to reach SSD mitigation site.
Clearing Type I – Clearing is not permitted from April 1 thru October 31.
Disposal Type A
- Vulnerable soil VW is present in this area.

Area 35) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-26, spur road access from Havens Road to structure 70 and northward from structure 70 to windrow.
No clearing in this section.
No vegetation disposal in this section.
- Vulnerable soil VW is present in this area.

Area 36) Right of way clearing windrow for structure 71. Temporary access with temporary timber matting (Road Type 2) to edge of agricultural field to reach SSD mitigation site on golf course.
Clearing Type I – Clearing is not permitted from April 1 thru October 31.
Disposal Type A
- Vulnerable soil VW is present in this area.

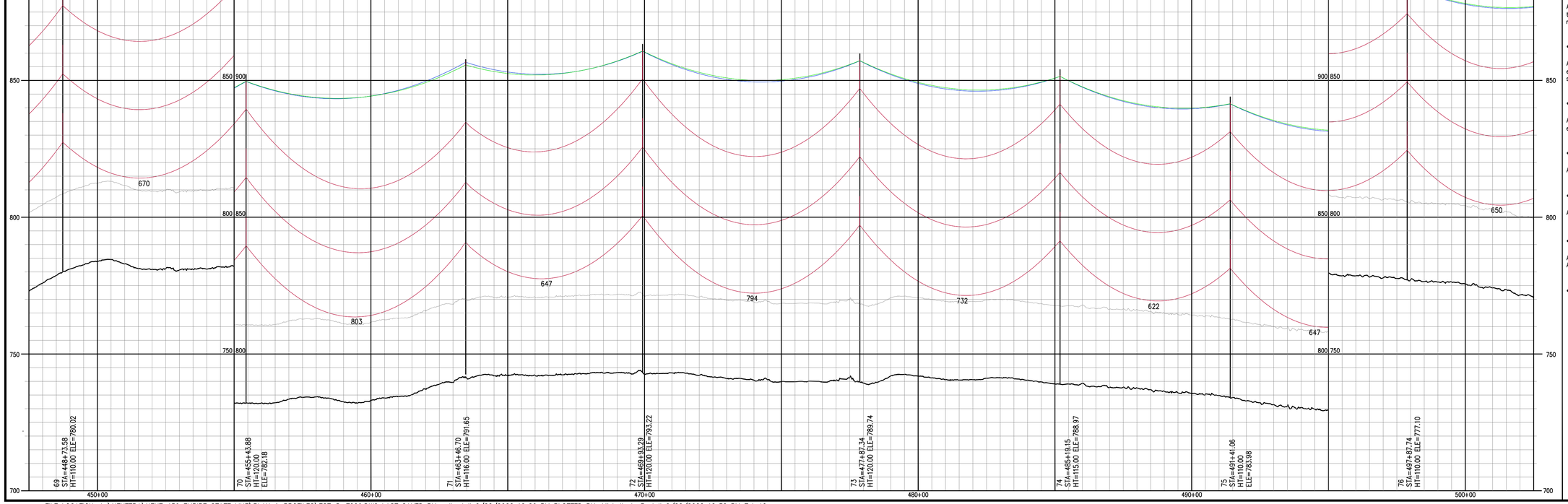
Area 37) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-27, spur road access from Havens Road to structure 71.
No clearing in this section.
No vegetation disposal in this section.
- Vulnerable soil VW is present in this area.

Area 38) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-28, spur road to structure 72.
Clearing Type I – Clearing is not permitted from April 1 thru October 31.
Disposal Type A
- Vulnerable soil VW is present in this area.

Area 39) No access continuing toward structure 73.
No clearing in this section.
No vegetation disposal in this section.
- Vulnerable soils VE/VW are present in this area.

Area 40) Clearing windrow between structure 72 and structure 73.
Clearing Type I – Clearing is not permitted from April 1 thru October 31.
Disposal Type A
- Vulnerable soils VB/VW are present in this area.

Area 41) Temporary access with temporary timber matting (Road Type 2) to windrow in Area 40.
No Clearing in this Section
No vegetation disposal in this section.
- Vulnerable soils VB/VW are present in this area.



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PLOT SCALE: 1:1

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CHECKED	R. DAVIS	11/22/19
APPROVED		
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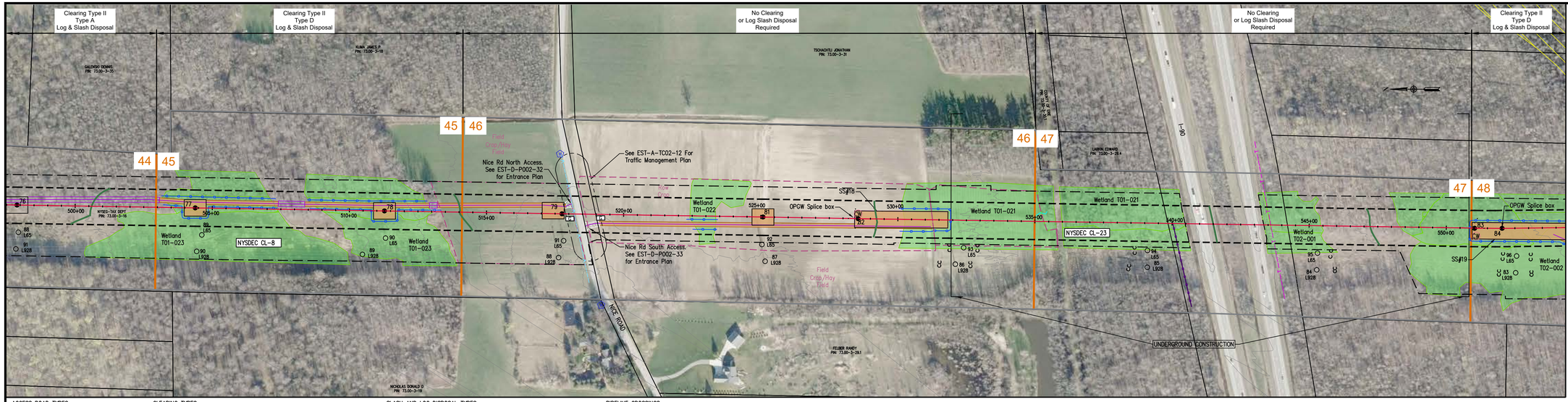
EMPIRE STATE TRANSMISSION LINE
PLAN AND PROFILE
STATION 450+00 TO 500+00

EST-D-T009-10 REVISION NO : I



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- Substation Grading (1 ft)
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- 500 Yr Flood Boundary
- Agricultural Lands
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PROFILE NOTES:
1. Conductor Wires shown at 125°C (257°F) & Shield/OPGW Wires shown at 9.4°C (49°F)
2. Conductor = 2x 795 KCMIL 26/7 DRAKE ACSR
3. Shield Wire = 3/8" EHS 7-STRAND STEEL
4. OPGW = SFPOC/SFSJ-J-4388R2

AREA NOTES:

Area 44) Temporary gravel access (Road Type 1), stabilized entrance per drawing(s) EST-D-P002-31, from Stage Road south to structures 75 and 76.
Clearing Type II – Clearing is not permitted from April 1 thru October 31.
Disposal Type A
- Vulnerable soils VB/VW are present in this area.

Area 45) Temporary access with temporary timber matting (Road Type 2) from north of structure 77 where encroaching on wetlands or agricultural field, otherwise temporary gravel access (Road Type 1) continuing south to Area 46.
Clearing Type II – Clearing is not permitted from April 1 thru October 31.
Disposal Type D
- Barrier and silt fence placed where encroaching wetlands.
- Vulnerable soils VB/VE/VW are present in this area.

Area 46) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-32, EST-D-P002-33, from Nice Road north to structure 79 and continuing north and from Nice Road south to structures 79, 81, & 82.
No clearing in this section.
No vegetation disposal in this section.
- Barrier and silt fence to be installed on the access road where encroaching on wetlands.
- Vulnerable soils VE/VW are present in this area.

Area 47) Underground crossing of I-90 between structures 82 and 83.
No clearing in this section.
No vegetation disposal in this section.
- Vulnerable soils VE/VW are present in this area.

Area 48) Temporary access with temporary timber matting (Road Type 2) from structures 83 to 86 and to log disposal pile south of structure 85.
Clearing Type II – Clearing is not permitted from April 1 thru October 31.
Disposal Type D
- Spur roads and structure pads to be surrounded by barrier and silt fence where encroaching wetlands.
- Vulnerable soils VE/VOR/VW are present in this area. VOR soils contain organic mucklands.

ACCESS ROAD TYPES

Type	Description
1	Temporary gravel access
2	Temporary equipment matting and bridges
3	Temporary use of existing access roads
4	Permanent switchyard access

REFERENCE DRAWINGS
1. Maintenance & Protection of Traffic Plans can be found in Appendix R.

CLEARING TYPES

Type	Description
I	Clearing of the designated areas of all woody plants, including desirable species, in circumstances where woody plants would hinder access and construction activities.
II	Clearing of the designated areas of any woody plant species that have the potential to violate the minimum clearance distance. Reasonable care will be taken to retain desirable species found within Type II clearing zones.
III	Selectively clearing the designated areas and removing only those tall-growing species that can be expected to violate the minimum clearance distance at any point in their life.
IV	Selectively removing or pruning.

SLASH AND LOG DISPOSAL TYPES

Type	Description
A	Vegetation chipping and disposal in upland areas to a maximum depth of 3 inches.
B	Vegetation lop and drop so that the slash lies as close to the ground as practicable, with branches and limb wood not exceeding an average depth of twenty-four (24) inches. No log or slash will be collected and permanently piled in wetlands.
C	Vegetation piling, by landowner agreement, in upland areas.
D	Removal of vegetation from the ROW to designated disposal locations.

PIPELINE CROSSINGS
1. GC to field locate & verify depth of all existing utilities as shown on the plans & prior to construction.
2. Orange construction fence to be installed perpendicular to pipeline crossings.

EXISTING FENCES
1. Existing fences to be removed and replaced in kind.

GENERAL NOTES
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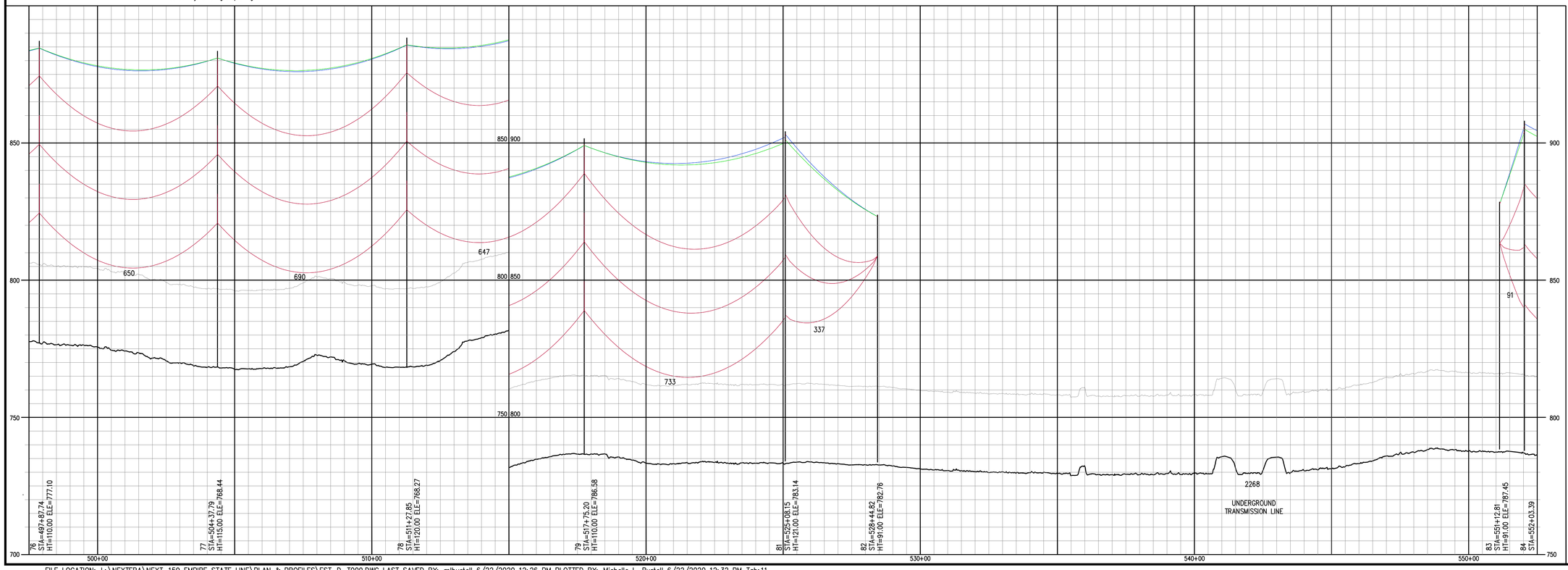
2. All ash trees encountered during clearing will be either chipped and left in place or hauled out and disposed of in accordance with NYSEC quarantine orders.



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NEXTera ENERGY TRANSMISSION NEW YORK

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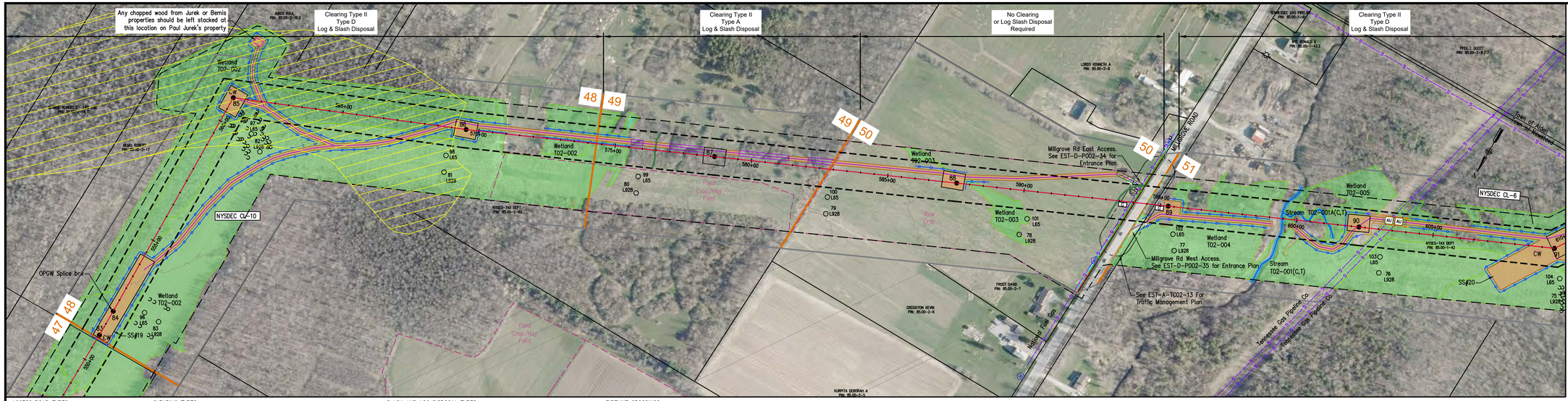
EMPIRE STATE TRANSMISSION LINE

PLAN AND PROFILE
STATION 500+00 TO 550+00

EST-D-T009-11

REVISION NO : I



PROFILE NOTES:
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2. Conductor = 2x 795 KCMIL 26/7 DRAKE ACSR
3. Shield Wire = 3/8" EHS 7-STRAND STEEL
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AREA NOTES:
Area 48) Temporary access with temporary timber matting (Road Type 2) from structures 83 to 86 and to log disposal pile south of structure 85.
Clearing Type II – Clearing is not permitted from April 1 thru October 31.
Disposal Type D
- Spur roads and structure pads to be surrounded by barrier and silt fence where encroaching wetlands.
- Vulnerable soils VE/VOR/VW are present in this area. VOR soils contain organic mucklands.

Area 49) Temporary gravel access (Road Type 1) to and from structure 87.
Clearing Type II
Disposal Type A
- Timber mats to be installed where encroaching on upland agricultural field. Timber mats, barrier and silt fence to be installed on the access road where encroaching on wetlands.
- Vulnerable soils VE/VW are present in this area.

Area 50) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-34, east of Millgrove Road to structure 88. A minimum 18" diameter culvert will be installed for the entrance.
No clearing in this section.
No vegetation disposal in this section.
- Barrier and silt fence to be placed where access encroaches wetland.
- Vulnerable soils VE/VW are present in this area.

Area 51) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-35, west of Millgrove Road to structure 89 and Temporary access with temporary timber matting (Road Type 2) north from Genesee Street to structures 90-96. A minimum 18" diameter culvert will be installed for the entrance.
Clearing Type II
Disposal Type D
- No access crossing the stream between structures 89 and 90. The access road and line crosses three pipelines between structures 90 and 92 that will be protected per drawing(s) EST-D-P002-105. Two air bridges per drawing(s) EST-D-P002-106 will be installed between structures 93 and 96. A turnaround area will be located between structures 94 & 95.
- Barrier and silt fencing to be placed where structure pads, access road, or turnaround area encroach the wetland.
- Vulnerable soils VE/VW are present in this area.

ACCESS ROAD TYPES
Type Description
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REFERENCE DRAWINGS
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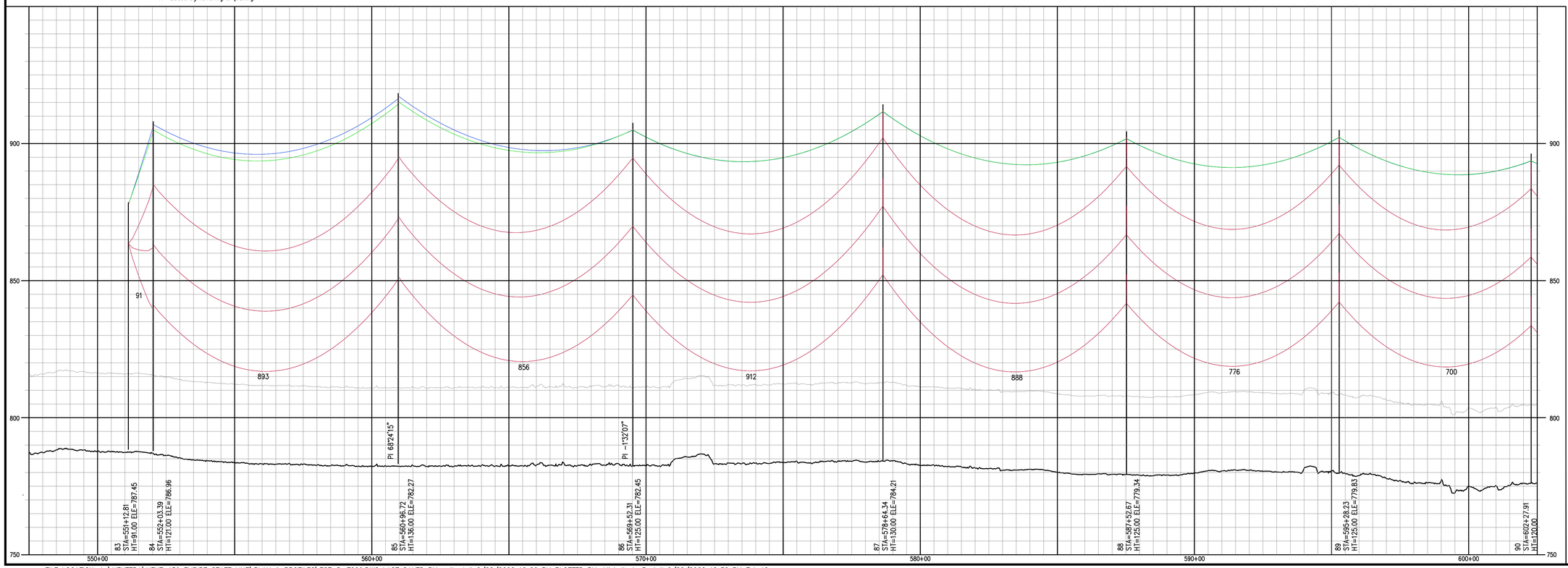

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EMPIRE STATE TRANSMISSION LINE
PLAN AND PROFILE
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EST-D-T009-12 REVISION NO : I

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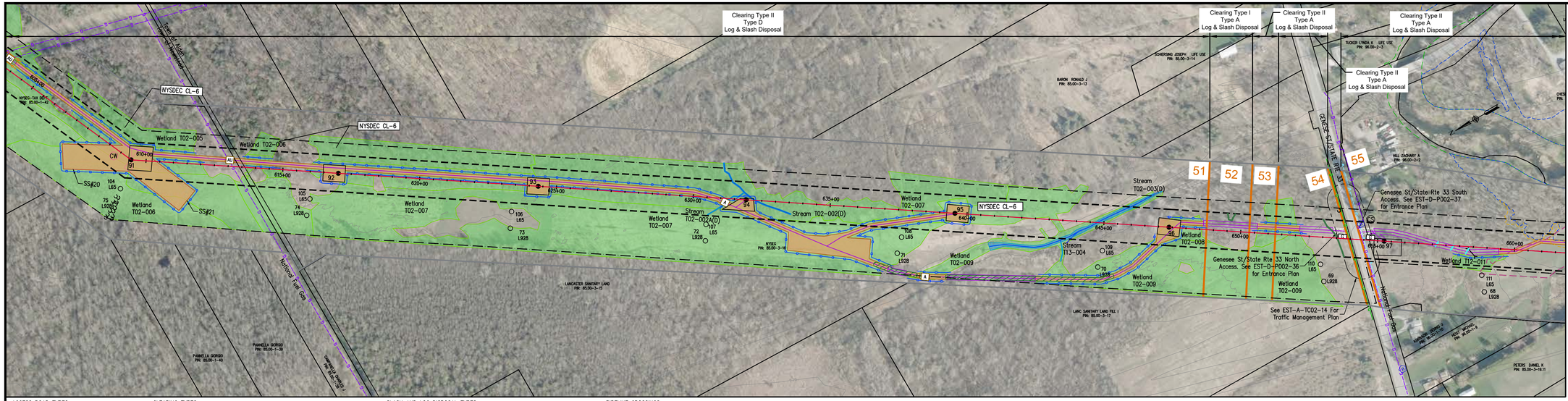

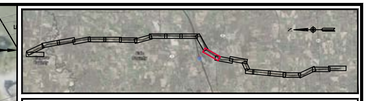

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- Delineated Wetland
- DEC Wetland 100ft Adjacent Area
- Off ROW Access Pruning
- Environmentally Sensitive Area
- Railroad
- Snowmobile Trail
- Clarence Pathways
- Existing Fences
- Distribution Line – Overhead
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- Pipeline Buffer
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- Solid State Decouplers
- Elevation Contours (5 ft)
- Substation Grading (1 ft)
- Floodway
- 100 Yr Flood Boundary
- 500 Yr Flood Boundary
- Agricultural Lands
- Abandoned Gas Well
- Active Gas Well
- LaydownYard
- AST

PROFILE NOTES:
1. Conductor Wires shown at 125°C (257°F) & Shield/OPGW Wires shown at 9.4°C (49°F)
2. Conductor = 2x 795 KCMIL 26/7 DRAKE ACSR
3. Shield Wire = 3/8" EHS 7-STRAND STEEL
4. OPGW = SFPOC/SFSJ-J-4388R2

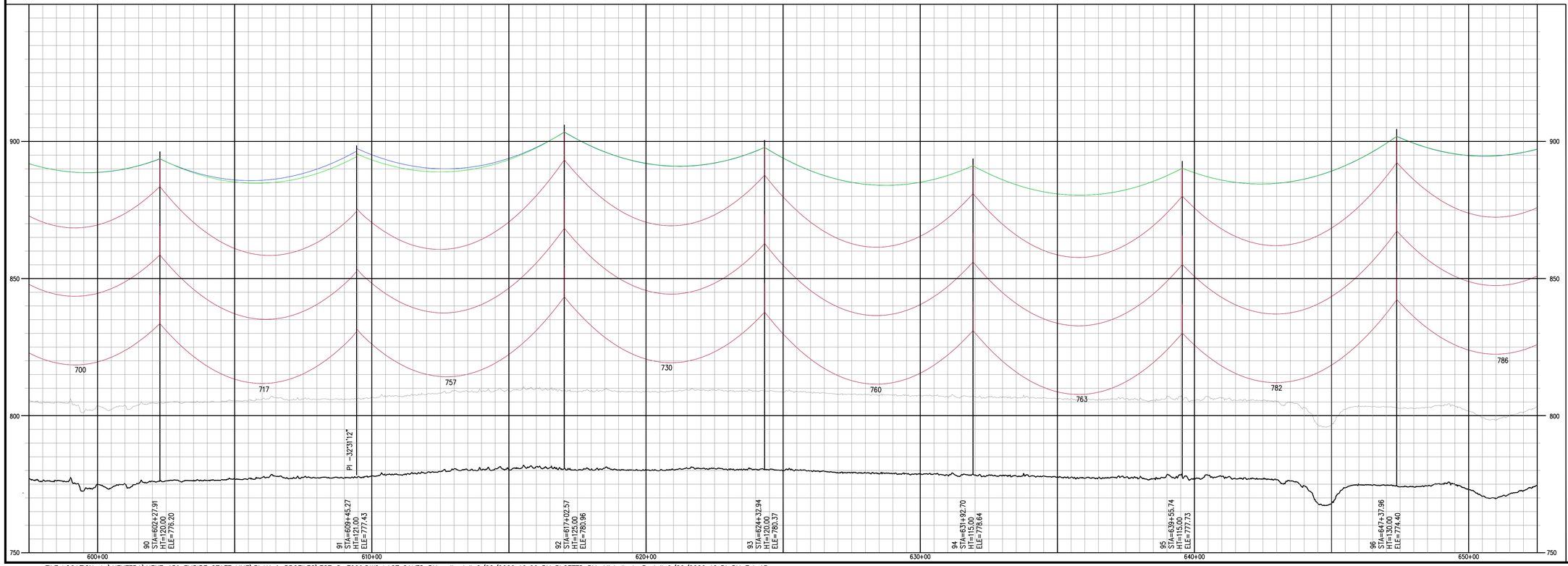
AREA NOTES:
Area 51) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-35, west of Millgrove Road to structure 89 and Temporary access with temporary timber matting (Road Type 2) north from Genesee Street to structures 90-96. A minimum 18" diameter culvert will be installed for the entrance.
Clearing Type II
Disposal Type D
- No access crossing the stream between structures 89 and 90. The access road and line crosses three pipelines between structures 90 and 92 that will be protected per drawing(s) EST-D-P002-105. Two air bridges per drawing(s) EST-D-P002-106 will be installed between structures 93 and 96. A turnaround area will be located between structures 94 & 95.
- Barrier and silt fencing to be placed where structure pads, access road, or turnaround area encroach the wetland.
- Vulnerable soils VE/VW are present in this area.

Area 52) Temporary Gravel Access (Road Type 1) north from road in area 53.
Clearing Type I
Disposal Type A
- Vulnerable soil VW is present in this area.

Area 53) Temporary access with temporary timber matting (Road Type 2) north from the road in Area 54.
Clearing Type II
Disposal Type A
- Barrier and silt fence to be placed where access encroaches wetland.
- Vulnerable soil VW is present in this area.

Area 54) Temporary gravel access (Road Type 1) and Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-36, north from Genesee Street to approach structures 90-96. A 15" diameter culvert will be installed for the northern entrance.
Clearing Type II
Disposal Type A
- Barrier and silt fence to be placed where access encroaches wetland.
- Vulnerable soil VW is present in this area.

Area 55) Temporary gravel access (Road Type 1) stabilized entrance per drawing(s) EST-D-P002-37, south of Genesee Street to structure 97 and then southward. Water bars and outlet protection to be placed on slope to structure 98. Temporary access with temporary timber matting (Road Type 2) to be installed from base of hill to Structure 98 over agricultural land.
Clearing Type II
Disposal Type A
- Barrier and silt fence to be placed where access encroaches wetland.
- Vulnerable soil VW is present in this area.



ACCESS ROAD TYPES
Type Description
1 Temporary gravel access
2 Temporary equipment matting and bridges
3 Temporary use of existing access roads
4 Permanent switchyard access

REFERENCE DRAWINGS
1. Maintenance & Protection of Traffic Plans can be found in Appendix R.

CLEARING TYPES
Type Description
I Clearing of the designated areas of all woody plants, including desirable species, in circumstances where woody plants would hinder access and construction activities.
II Clearing of the designated areas of any woody plant species that have the potential to violate the minimum clearance distance. Reasonable care will be taken to retain desirable species found within Type II clearing zones.
III Selectively clearing the designated areas and removing only those tall-growing species that can be expected to violate the minimum clearance distance at any point in their life.
IV Selectively removing or pruning.

SLASH AND LOG DISPOSAL TYPES
Type Description
A Vegetation chipping and disposal in upland areas to a maximum depth of 3 inches.
B Vegetation lop and drop so that the slash lies as close to the ground as practicable, with branches and limb wood not exceeding an average depth of twenty-four (24) inches. No log or slash will be collected and permanently piled in wetlands.
C Vegetation piling, by landowner agreement, in upland areas.
D Removal of vegetation from the ROW to designated disposal locations.

PIPELINE CROSSINGS
1. GC to field locate & verify depth of all existing utilities as shown on the plans & prior to construction.
2. Orange construction fence to be installed perpendicular to pipeline crossings.

EXISTING FENCES
1. Existing fences to be removed and replaced in kind.

GENERAL NOTES
1. Clearing Type I will be present throughout the project.
2. All ash trees encountered during clearing will be either chipped and left in place or hauled out and disposed of in accordance with NYSEC quarantine orders.

SIGNATURE
EXPIRATION DATE OF THE LICENSE

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FILE LOCATION: L:\NEXTERA\NEXT-159 EMPIRE STATE LINE\PLAN & PROFILES\EST-D-T009.DWG LAST SAVED BY: mlburtell 6/22/2020 12:26 PM PLOTTED BY: Michelle L. Burtell 6/22/2020 12:31 PM Tab:13

PLOT SCALE: 1:1

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Sargent & Lundy

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NO	REVISION	DATE	BY	APR
I	ISSUED FOR REVIEW	06/22/20	MAH	RSD
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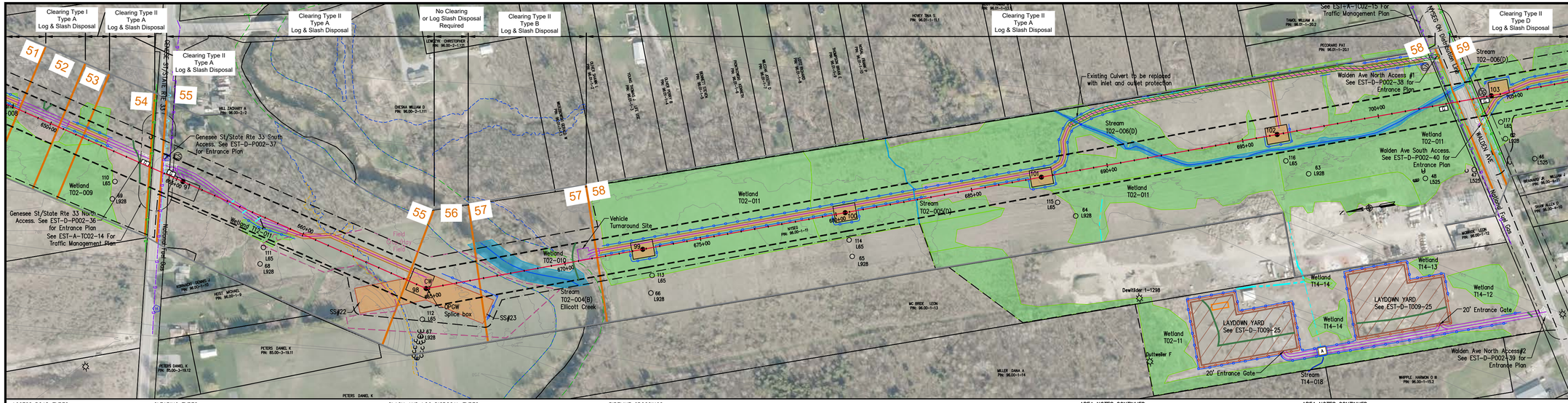
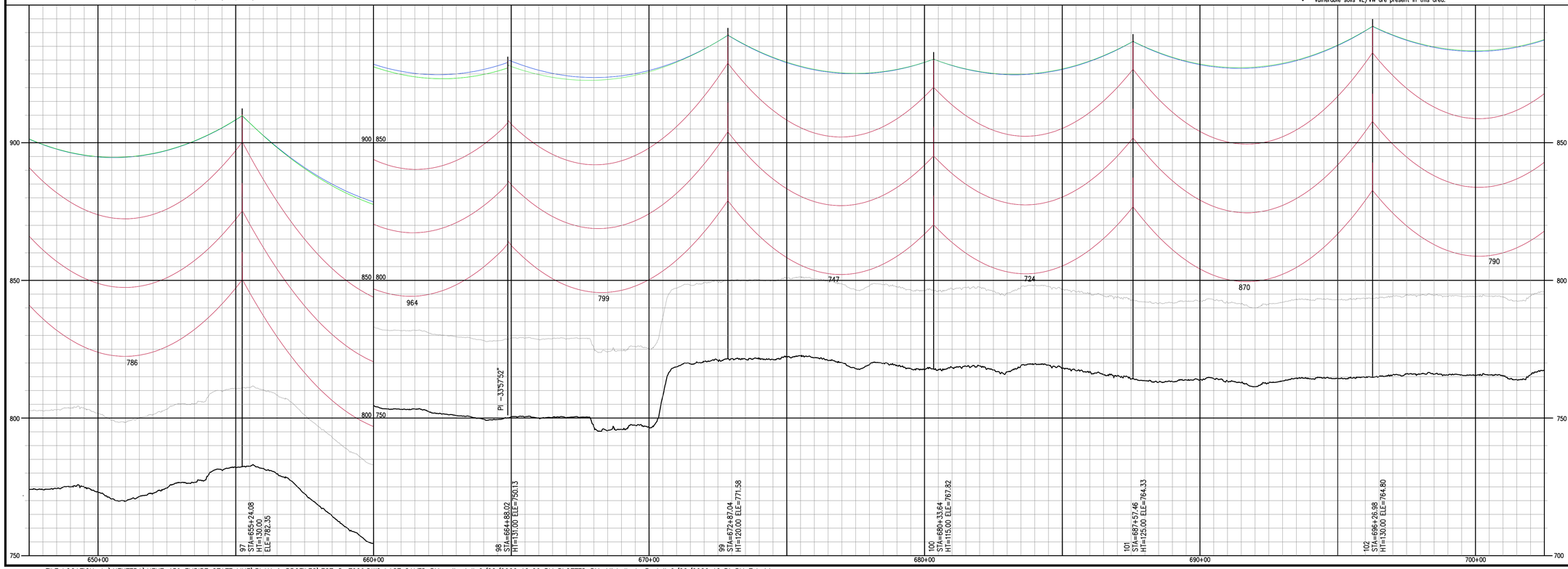
NEXTera ENERGY TRANSMISSION NEW YORK

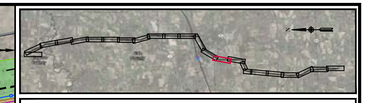
ENGINEERING RECORD		DATE
DRAWN	M. BURTELL	11/19/19
DESIGNED	M. HOHN	11/19/19
CHECKED	R. DAVIS	11/22/19
APPROVED		
VERT. SCALE: 1" = 20'	HORZ. SCALE: 1" = 200'	

EMPIRE STATE TRANSMISSION LINE
PLAN AND PROFILE
STATION 600+00 TO 650+00

EST-D-T009-13 REVISION NO : I







- Proposed Structure
- Existing Structure
- Existing Structure to be Removed
- Guy Wire Anchors
- Proposed Line
- 0+00 Stationing
- Existing NYPA Line
- NEETNY ROW
- NYSEG Utility Corridor
- Property Line
- Switchyard Boundary
- Town Boundary
- Area Divider
- Temporary Access
- Permanent Access
- SS# Stringing Site Label
- Timber Air Bridge
- AB Timber Air Bridge – Utility
- CW Concrete Washout
- Guard Structures
- Cleaning Station
- Snowmobile/Walking Trail Closed Sign
- Barrier & Silt Fence
- Orange Construction Fence
- Security Fence
- Stabilized Entrance
- Timber Matting
- Structure Pad
- Survey Area Boundary
- Proposed Culvert w/Outlet Protection
- Water Bar
- VOR Soils
- Delineated Waterway – Stream
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3. Shield Wire = 3/8" EHS 7-STRAND STEEL
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ACCESS ROAD TYPES

Type	Description
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2	Temporary equipment matting and bridges
3	Temporary use of existing access roads
4	Permanent switchyard access

REFERENCE DRAWINGS
1. Maintenance & Protection of Traffic Plans can be found in Appendix R.

CLEARING TYPES

Type	Description
I	Clearing of the designated areas of all woody plants, including desirable species, in circumstances where woody plants would hinder access and construction activities.
II	Clearing of the designated areas of any woody plant species that have the potential to violate the minimum clearance distance. Reasonable care will be taken to retain desirable species found within Type II clearing zones.
III	Selectively clearing the designated areas and removing only those tall-growing species that can be expected to violate the minimum clearance distance at any point in their life.
IV	Selectively removing or pruning.

SLASH AND LOG DISPOSAL TYPES

Type	Description
A	Vegetation chipping and disposal in upland areas to a maximum depth of 3 inches.
B	Vegetation lop and drop so that the slash lies as close to the ground as practicable, with branches and limb wood not exceeding an average depth of twenty-four (24) inches. No log or slash will be collected and permanently piled in wetlands.
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D	Removal of vegetation from the ROW to designated disposal locations.

PIPELINE CROSSINGS
1. GC to field locate & verify depth of all existing utilities as shown on the plans & prior to construction.
2. Orange construction fence to be installed perpendicular to pipeline crossings.

EXISTING FENCES
1. Existing fences to be removed and replaced in kind.

GENERAL NOTES
1. Clearing Type I will be present throughout the project.
2. All ash trees encountered during clearing will be either chipped and left in place or hauled out and disposed of in accordance with NYSEC quarantine orders.

AREA NOTES CONTINUED:
Laydown Yard Area) Temporary use of existing access road (Road Type 3) stabilized entrance per drawing(s) EST-D-P002-39, north from Walden Avenue.
Clearing Type I
Disposal Type A
- Air bridge per drawing(s) EST-D-P002-106 installed over Stream T14-018.
- Vulnerable soils VE/VW are present in this area.

AREA NOTES CONTINUED:
Area 59) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-40, south from Walden Avenue to structures 103-104 and east and north to structures 105-111 from access points in Area 60. No crossing of CSX Transportation railway. An 18" diameter culvert will be installed at the entrance.
Clearing Type II
Disposal Type D
- Barrier and silt fence to be installed where structure pads or access encroach into wetlands.
- Alternate access includes temporary use of existing access road (Road Type 3) intersecting main access road between structures 107 and 108
- Vulnerable soils VE/VW are present in this area.

AREA NOTES:
Area 52) Temporary Gravel Access (Road Type 1) north from Genesee Street.
Clearing Type I
Disposal Type A
- Vulnerable soil VW is present in this area.

Area 53) Temporary access with temporary timber matting (Road Type 2) north from the road in Area 54.
Clearing Type II
Disposal Type A
- Barrier and silt fence to be placed where access encroaches wetland.
- Vulnerable soil VW is present in this area.

Area 54) Temporary gravel access (Road Type 1) and Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-36, north from Genesee Street to approach structures 90-96. A 15" diameter culvert will be installed for the northern entrance.
Clearing Type II
Disposal Type A
- Barrier and silt fence to be placed where access encroaches wetland.
- Vulnerable soil VW is present in this area.

Area 55) Temporary gravel access (Road Type 1) stabilized entrance per drawing(s) EST-D-P002-37, south of Genesee Street to structure 97 and then southward. Water bars and outlet protection to be placed on slope to structure 98. Temporary access with temporary timber matting (Road Type 2) to be installed from base of hill to Structure 98 over agricultural land.
Clearing Type II
Disposal Type A
- Barrier and silt fence to be placed where access encroaches wetland.
- Vulnerable soil VW is present in this area.

Area 56) Temporary access with temporary timber matting (Road Type 2) to structure 98.
No Clearing in this Section
No vegetation disposal in this section.
- Install barrier and silt fence on south and east sides of southern stringing site.
- Vulnerable soil VW is present in this area.

Area 57) Area from structures 98 and 99. Hand clearing around Ellicott Creek.
Clearing Type II
Disposal Type B
- No road crossing of Ellicott Creek.
- Vulnerable soil VW is present in this area.

Area 58) Temporary use of existing access roads (Road Type 3) stabilized entrance per drawing(s) EST-D-P002-38, north from Walden Avenue to existing culvert, then Temporary access with temporary timber matting (Road Type 2) to structure 99. A minimum 15" diameter culvert will be installed.
Clearing Type II
Disposal Type A
- Timber Matting, barrier and silt fence to be installed where structure pads or access encroach into wetlands.
- Vulnerable soils VE/VW are present in this area.

SIGNATURE
EXPIRATION DATE OF THE LICENSE

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FILE LOCATION: L:\NEXTERA\NEXT-159 EMPIRE STATE LINE\PLAN & PROFILES\EST-D-T009.DWG LAST SAVED BY: mlburtell 6/22/2020 12:26 PM PLOTTED BY: Michelle L. Burtell 6/22/2020 12:31 PM Tab:14

PLOT SCALE: 1:1

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Sargent & Lundy

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G	PRELIMINARY	04/24/20	MAH	RSD
F	PRELIMINARY	02/21/20	MAH	RSD
E	PRELIMINARY	02/06/20	MAH	RSD

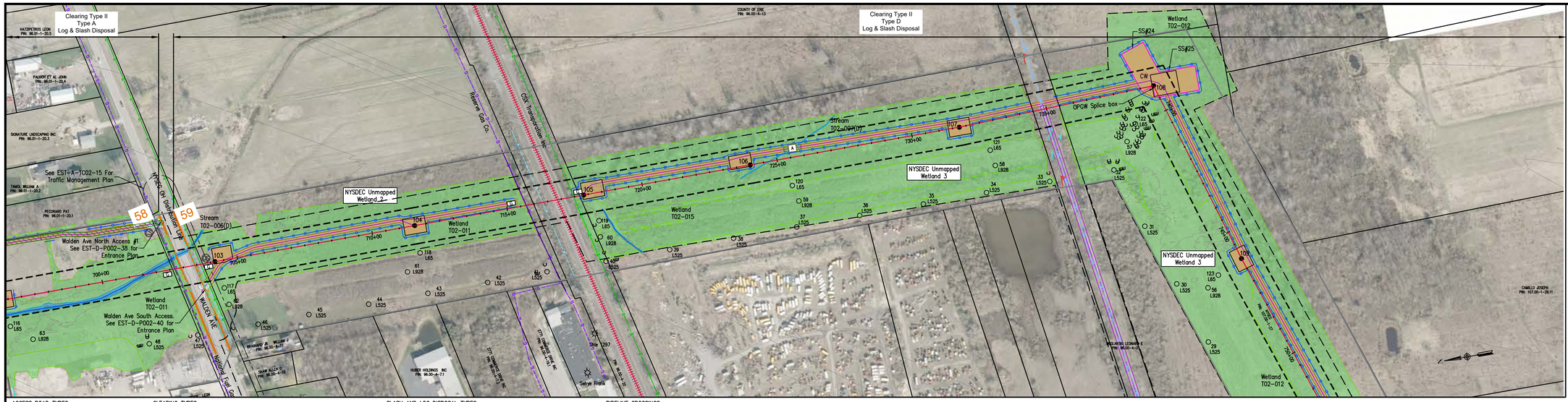
NEXTera ENERGY TRANSMISSION NEW YORK

ENGINEERING RECORD		DATE
DRAWN	M. BURTELL	11/19/19
DESIGNED	M. HOHN	11/19/19
CHECKED	R. DAVIS	11/22/19
APPROVED		
VERT. SCALE: 1" = 20'	HORZ. SCALE: 1" = 200'	

EMPIRE STATE TRANSMISSION LINE

PLAN AND PROFILE
STATION 650+00 TO 700+00

EST-D-T009-14 | REVISION NO : I



- Proposed Structure
- Existing Structure
- Existing Structure to be Removed
- Guy Wire Anchors
- Proposed Line
- 0+00 Stationing
- Existing NYPA Line
- NEETNY ROW
- NYSEG Utility Corridor
- Property Line
- Switchyard Boundary
- Town Boundary
- Area Divider
- Temporary Access
- Permanent Access
- SS# Stringing Site Label
- A Timber Air Bridge
- AU Timber Air Bridge – Utility
- CW Concrete Washout
- Guard Structures
- Cleaning Station
- Snowmobile/Walking Trail Closed Sign
- Barrier & Silt Fence
- Orange Construction Fence
- Security Fence
- Stabilized Entrance
- Timber Matting
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PROFILE NOTES:
1. Conductor Wires shown at 125°C (257°F) & Shield/OPGW Wires shown at 9.4°C (49°F)
2. Conductor = 2x 795 KCMIL 26/7 DRAKE ACSR
3. Shield Wire = 3/8" EHS 7-STRAND STEEL
4. OPGW = SFPOC/SFSJ-J-4388R2

AREA NOTES:
Area 58) Temporary use of existing access roads (Road Type 3) stabilized entrance per drawing(s) EST-D-P002-38, north from Walden Avenue to existing culvert, then Temporary access with temporary timber matting (Road Type 2) to structure 99. A minimum 15" diameter culvert will be installed.

Clearing Type II
Disposal Type A

- Timber Matting, barrier and silt fence to be installed where structure pads or access encroach into wetlands.
- Vulnerable soils VE/VW are present in this area.

Area 59) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-40, south from Walden Avenue to structures 103-104 and east and north to structures 105-111 from access points in Area 60. No crossing of CSX Transportation railway. An 18" diameter culvert will be installed at the entrance.

Clearing Type II
Disposal Type D

- Barrier and silt fence to be installed where structure pads or access encroach into wetlands.
- Alternate access includes temporary use of existing access road (Road Type 3) intersecting main access road between structures 107 and 108
- Vulnerable soils VE/VW are present in this area.

ACCESS ROAD TYPES
Type Description
1 Temporary gravel access
2 Temporary equipment matting and bridges
3 Temporary use of existing access roads
4 Permanent switchyard access

REFERENCE DRAWINGS
1. Maintenance & Protection of Traffic Plans can be found in Appendix R.

CLEARING TYPES
Type Description
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SLASH AND LOG DISPOSAL TYPES
Type Description
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C Vegetation piling, by landowner agreement, in upland areas.
D Removal of vegetation from the ROW to designated disposal locations.

PIPELINE CROSSINGS
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EXISTING FENCES
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GENERAL NOTES
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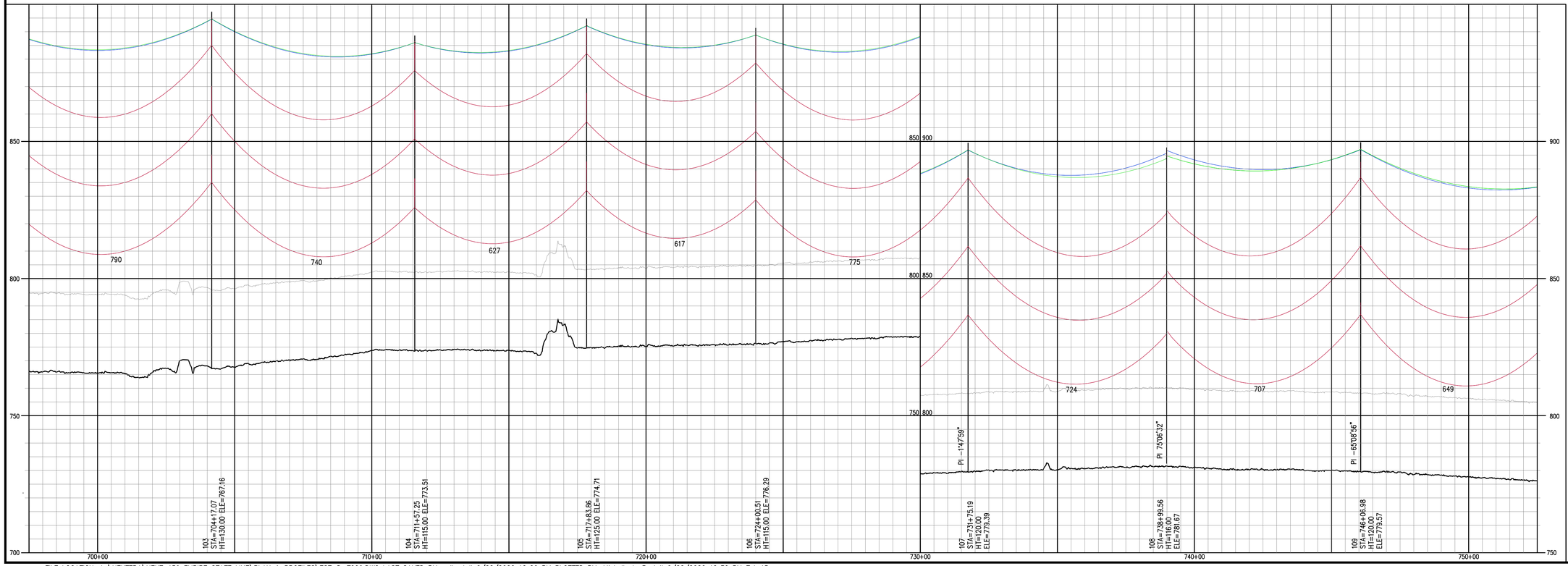

FILE LOCATION: L:\NEXTERA\NEXT-159 EMPIRE STATE LINE\PLAN & PROFILES\EST-D-T009.DWG LAST SAVED BY: mlburtell 6/22/2020 12:26 PM PLOTTED BY: Michelle L. Burtell 6/22/2020 12:30 PM Tab:15

PLOT SCALE: 1:1

SIGNATURE — EXPIRATION DATE OF THE LICENSE

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NEXTera ENERGY TRANSMISSION NEW YORK

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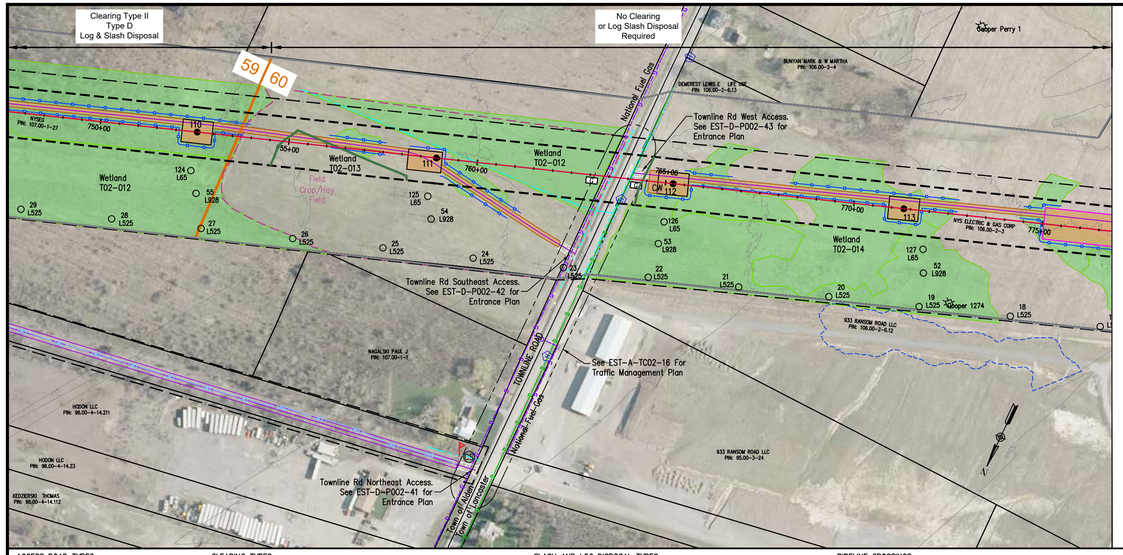
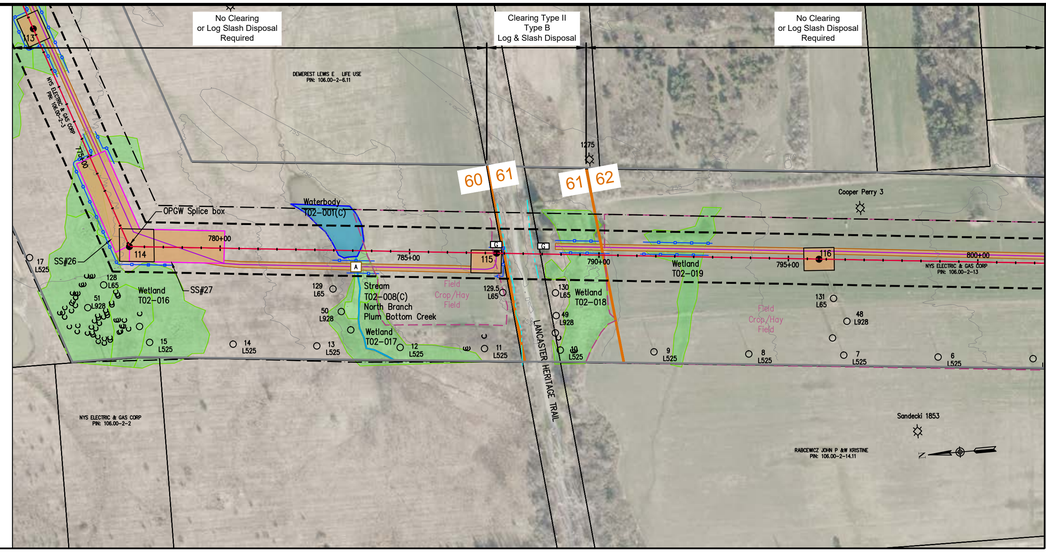
VERT. SCALE: 1" = 20'	HORZ. SCALE: 1" = 200'	

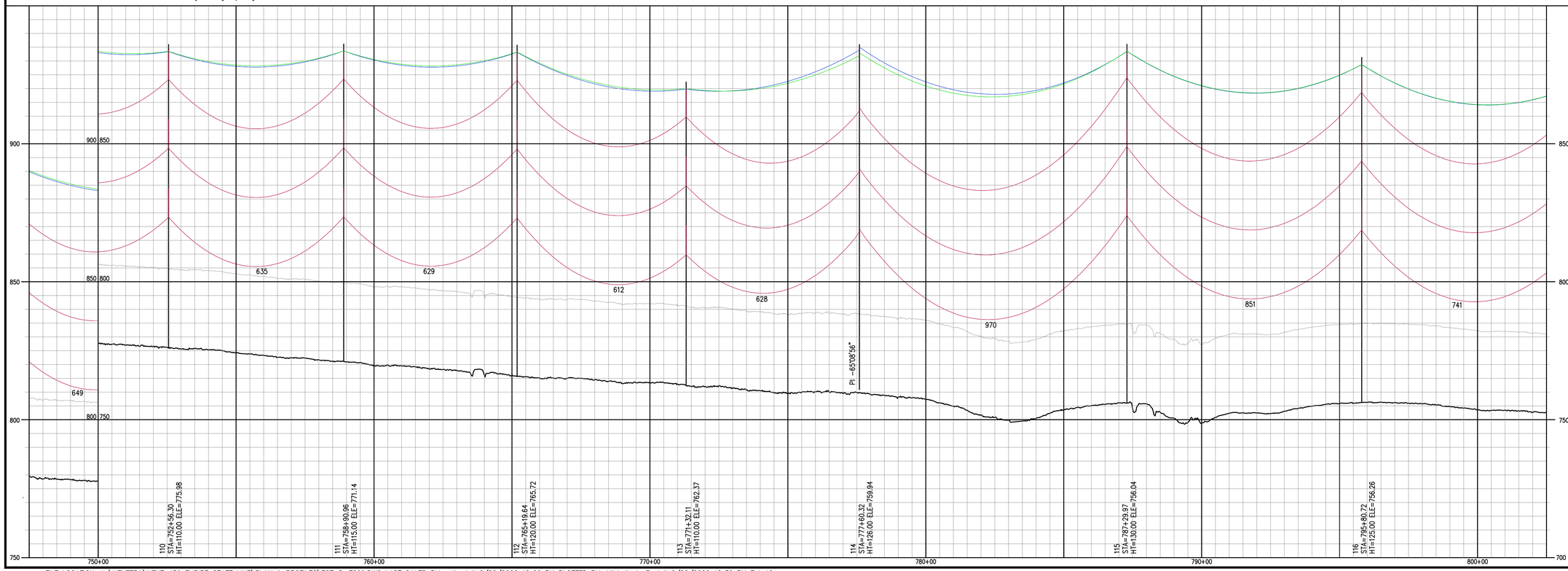
EMPIRE STATE TRANSMISSION LINE

PLAN AND PROFILE
STATION 700+00 TO 750+00

EST-D-T009-15 — REVISION NO : I







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GENERAL NOTES
1. Clearing Type I will be present throughout the project.
2. All ash trees encountered during clearing will be either chipped and left in place or hauled out and disposed of in accordance with NYSEC quarantine orders.

AREA NOTES:
Area 59) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-40, south from Walden Avenue to structures 103-104 and east and north to structures 105-111 from access points in Area 60. No crossing of CSX Transportation railway. An 18" diameter culvert will be installed at the entrance.
Clearing Type II
Disposal Type D
- Barrier and silt fence to be installed where structure pads or access encroach into wetlands.
- Alternate access includes temporary use of existing access road (Road Type 3) intersecting main access road between structures 107 and 108
- Vulnerable soils VE/VW are present in this area.

Area 60) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-41, EST-D-P002-42, east from Townline Road to structure 111 and continuing on toward structure 110; west from Townline Road to structures 112 to 115 stabilized entrance per drawing(s) EST-D-P002-43. An 18" diameter culvert will be installed for the western entrance.
No clearing in this section.
No vegetation disposal in this section.
- Each structure, structure pad, and the main access roads have a significant amount of barrier, silt fence and matting where the facilities encroach into wetlands.
- Vulnerable soils VE/VW are present in this area.

Area 61) Temporary access from structure 115 to 116 will be for tree clearing only. Heavy equipment will be prohibited from crossing the trail. Access for tree clearing will be either from structure 115 or structure 116 but will not occur on the trail system. One time passes to cross the trail for wire stringing operations will occur with flagging and traffic control in place.
Clearing Type II
Disposal Type B
- Pipeline protection measures should be installed on either side of the trail to prevent collapse of the drainage facilities per drawing(s) EST-D-P002-106, EST-D-P002-105. Barrier and silt fence should be installed on the south side of the structure 115.
- Vulnerable soils VE/VW are present in this area.

Area 62) Temporary access with temporary timber matting (Road Type 2) from structure 117 north to structure 116.
No clearing in this section.
No vegetation disposal in this section.
- Barrier and silt fence to be installed along the access road north of structure 116 where the matted road encroaches into wetlands.
- Vulnerable soils VE/VW are present in this area.

SIGNATURE
EXPIRATION DATE OF THE LICENSE
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FILE LOCATION: L:\NEXTERA\NEXT-159 EMPIRE STATE LINE\PLAN & PROFILES\EST-D-T009.DWG LAST SAVED BY: mlburtell 6/22/2020 12:26 PM PLOTTED BY: Michelle L. Burtell 6/22/2020 12:30 PM Tab:16

PLOT SCALE: 1:1

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NO	REVISION	DATE	BY	APR
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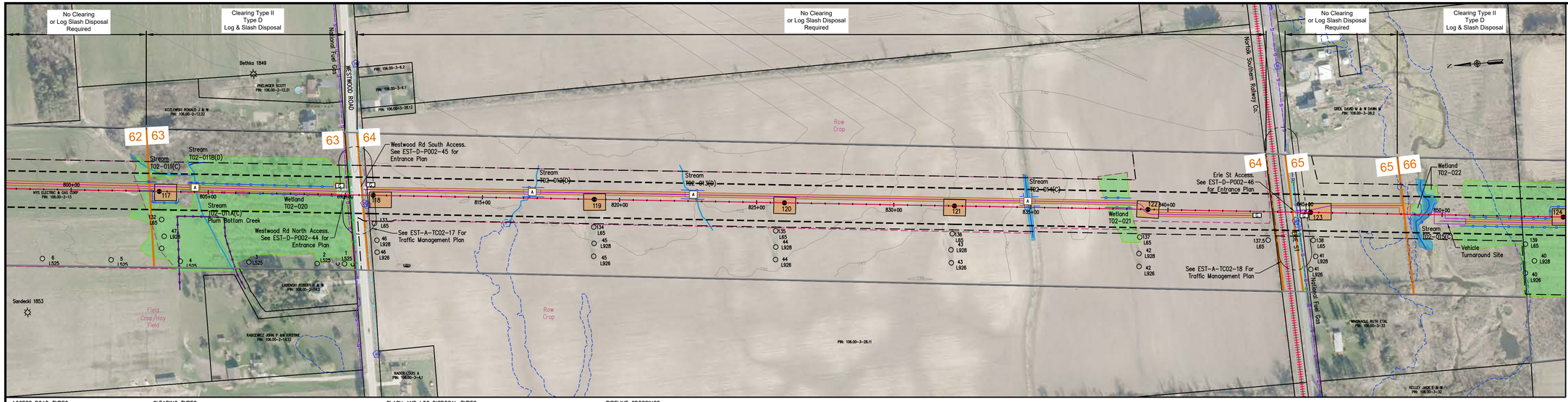
F	PRELIMINARY	02/21/20	MAH	RSD
E	PRELIMINARY	02/06/20	MAH	RSD

NEXTera ENERGY TRANSMISSION NEW YORK

ENGINEERING RECORD		DATE
DRAWN	M. BURTELL	11/19/19
DESIGNED	M. HOHN	11/19/19
CHECKED	R. DAVIS	11/22/19
APPROVED		
VERT. SCALE: 1" = 20'	HORZ. SCALE: 1" = 200'	

EMPIRE STATE TRANSMISSION LINE
PLAN AND PROFILE
STATION 750+00 TO 800+00

EST-D-T009-16 REVISION NO : I



- Proposed Structure
- Existing Structure
- Existing Structure to be Removed
- Guy Wire Anchors
- Proposed Line
- 0+00 Stationing
- Existing NYPA Line
- NEETNY ROW
- NYSEG Utility Corridor
- Property Line
- Switchyard Boundary
- Town Boundary
- Area Divider
- Temporary Access
- Permanent Access
- Stringing Site Label
- Timber Air Bridge
- Timber Air Bridge – Utility
- Concrete Washout
- Guard Structures
- Cleaning Station
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- Substation Grading (1 ft)
- Floodway
- 100 Yr Flood Boundary
- 500 Yr Flood Boundary
- Agricultural Lands
- Abandoned Gas Well
- Active Gas Well
- LoydownYard
- AST

PROFILE NOTES:
1. Conductor Wires shown at 125°C (257°F) & Shield/OPGW Wires shown at 9.4°C (49°F)
2. Conductor = 2x 795 KCMIL 26/7 DRAKE ACSR
3. Shield Wire = 3/8" EHS 7-STRAND STEEL
4. OPGW = SFPOC/SFSJ-J-4388R2

AREA NOTES:

Area 62) Temporary access with temporary timber matting (Road Type 2) from structure 117 north to structure 116.
No clearing in this section.
No vegetation disposal in this section.
- Barrier and silt fence to be installed along the access road north of structure 116 where the matted road encroaches into wetlands.
- Vulnerable soils VE/VW are present in this area.

Area 63) Temporary access with timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-44, from Westwood Rood north to structure 117. An 18" diameter culvert will be installed for each entrance.
Clearing Type II
Disposal Type D
- Timber air bridge to be installed over the stream that is south of structure 117. Gate needed thru fences south of structure 117.
- Vulnerable soils VE/VW are present in this area.

Area 64) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-45, from Westwood road south to structures 118 to 122.
No clearing in this section.
No vegetation disposal in this section.
- Timber air bridge should be installed across field drawings north and south of structure 119 and south of 121. Fiber rolls and barrier fence should be installed around the north side of the structure 122 pad and on both sides of the access road just north of structure 122.
- Vulnerable soils VE/VW are present in this area.

Area 65) Temporary gravel access with no drainage ditches (Road Type 1) stabilized entrance per drawing(s) EST-D-P002-46, from Erie Street south to structure 123 A matted access (Road Type 2) continues south to Stream T02-015(c) for tree clearing along the stream.
No clearing from structure 123 toward the banks of stream T02-015(c). Type II clearing along the stream.
Disposal Type B
- Vulnerable soil VW is present in this area.

Area 66) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-47, EST-D-P002-48, from Broadway Street north to structures 124 through 126 and from Broadway Street south along an existing road (Road Type 3) and then west and north to structure 127 (Road Types 4 & 1). A 60" diameter culvert would be installed on the northern entrance.
Clearing Type II
Disposal Type D
- Barrier and silt fence should be placed around each structure pad except structure 127 and the access road leading to structure 127. A timber air bridge should be installed north of the driveway leading toward structure 126 and timber matting, silt and barrier fences installed as the access road approaches structure 127 per drawing(s) EST-D-P002-106. An underground utility air bridge should be installed just south of structure 125 over the Buckeye Partner LP pipeline in accordance with drawing(s) EST-D-P002-105.
- Vulnerable soils VE/VW are present in this area.

ACCESS ROAD TYPES

Type	Description
1	Temporary gravel access
2	Temporary equipment matting and bridges
3	Temporary use of existing access roads
4	Permanent switchyard access

REFERENCE DRAWINGS
1. Maintenance & Protection of Traffic Plans can be found in Appendix R.

CLEARING TYPES

Type	Description
I	Clearing of the designated areas of all woody plants, including desirable species, in circumstances where woody plants would hinder access and construction activities.
II	Clearing of the designated areas of any woody plant species that have the potential to violate the minimum clearance distance. Reasonable care will be taken to retain desirable species found within Type II clearing zones.
III	Selectively clearing the designated areas and removing only those tall-growing species that can be expected to violate the minimum clearance distance at any point in their life.
IV	Selectively removing or pruning.

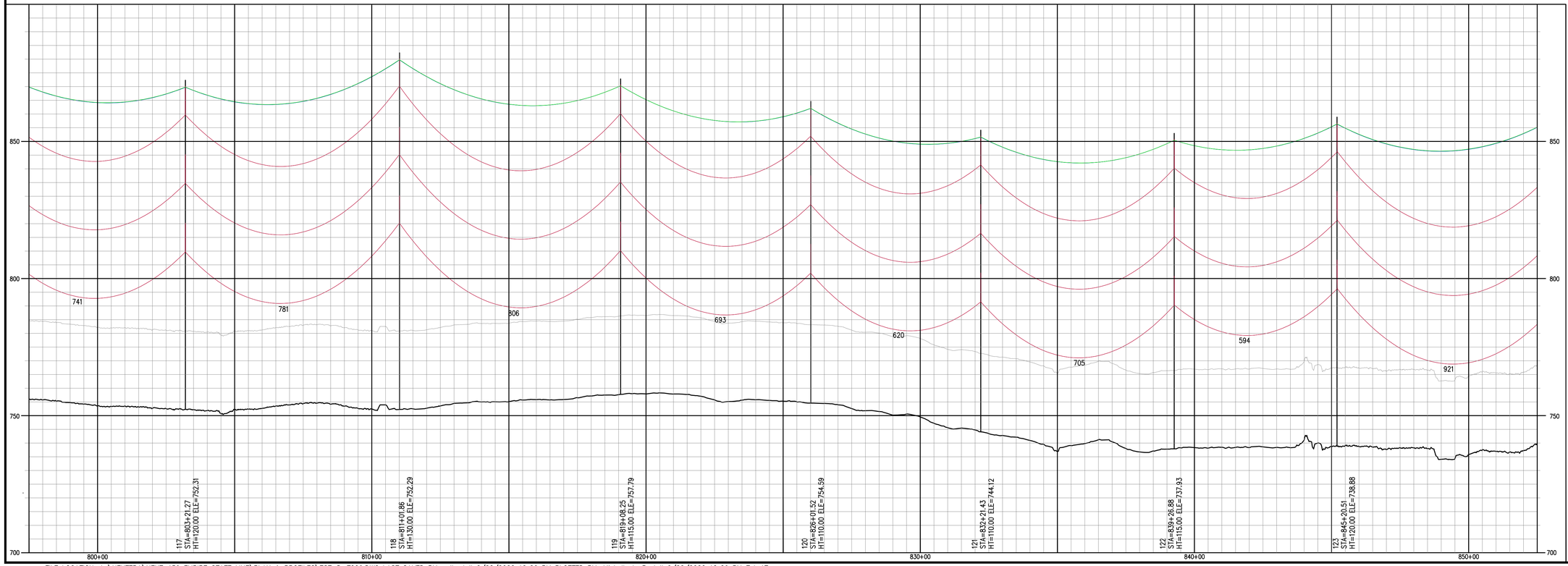
SLASH AND LOG DISPOSAL TYPES

Type	Description
A	Vegetation chipping and disposal in upland areas to a maximum depth of 3 inches.
B	Vegetation lop and drop so that the slash lies as close to the ground as practicable, with branches and limb wood not exceeding an average depth of twenty-four (24) inches. No log or slash will be collected and permanently piled in wetlands.
C	Vegetation piling, by landowner agreement, in upland areas.
D	Removal of vegetation from the ROW to designated disposal locations.

PIPELINE CROSSINGS
1. GC to field locate & verify depth of all existing utilities as shown on the plans & prior to construction.
2. Orange construction fence to be installed perpendicular to pipeline crossings.

EXISTING FENCES
1. Existing fences to be removed and replaced in kind.

GENERAL NOTES
1. Clearing Type I will be present throughout the project.
2. All ash trees encountered during clearing will be either chipped and left in place or hauled out and disposed of in accordance with NYSEC quarantine orders.



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PLOT SCALE: 1:1

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NEXTera ENERGY TRANSMISSION NEW YORK

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EMPIRE STATE TRANSMISSION LINE
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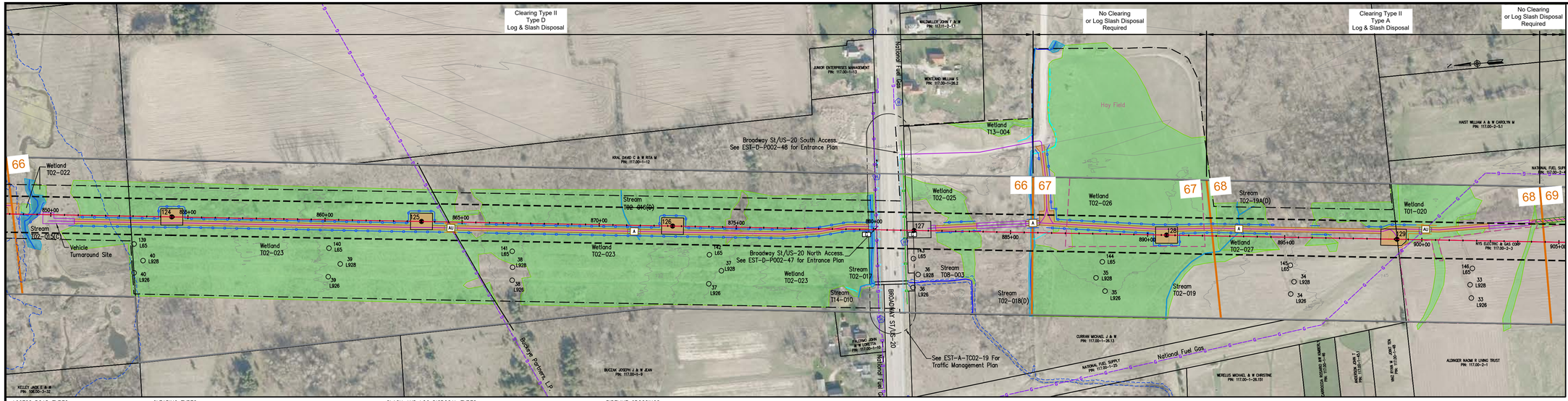

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PROFILE NOTES:
1. Conductor Wires shown at 125°C (257°F) & Shield/OPGW Wires shown at 9.4°C (49°F)
2. Conductor = 2x 795 KCMIL 26/7 DRAKE ACSR
3. Shield Wire = 3/8" EHS 7-STRAND STEEL
4. OPGW = SFPOC/SFSJ-J-4388R2

AREA NOTES:

Area 66) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-47, EST-D-P002-48, from Broadway Street north to structures 124 through 126 and from Broadway Street south along an existing road (Road Type 3) and then west and north to structure 127 (Road Types 4 & 1). A 60" diameter culvert would be installed on the northern entrance.

Clearing Type II
Disposal Type D

- Barrier and silt fence should be placed around each structure pad except structure 127 and the access road leading to structure 127. A timber air bridge should be installed north of the driveway leading toward structure 126 and timber matting, silt and barrier fences installed as the access road approaches structure 127 per drawing(s) EST-D-P002-106. An underground utility air bridge should be installed just south of structure 125 over the Buckeye Partner LP pipeline in accordance with drawing(s) EST-D-P002-105.
- Vulnerable soils VE/VW are present in this area.

Area 67) Temporary use of existing access road (Road Type 3) from an intersection between structures 127 and 128 to structure 128. Matting, silt and barrier fences to be install where it encroaches on wetland.

No clearing in this section.
No vegetation disposal in this section.

- Vulnerable soils VE/VW are present in this area.

Area 68) Temporary access with temporary timber matting (Road Type 2) 128 access to structure 129 and then toward structure 130. Some areas between structure 129 and 130 are Type 1 roads when the road is outside of the wetland boundary and then toward structure 130. Matting, silt and barrier fence to be installed where encroaches wetlands.

Clearing Type II
Disposal Type A

- Timber matting, silt and barrier fences placed on the access north of structure 129, around the structure 129 pad and the access road south of 129, where it encroaches on wetland. Pruning will be required where the access road leaves the right of way between structures 128 and 129.
- Vulnerable soils VE/VW are present in this area.

Area 69) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-49, EST-D-P002-50, from William Kidder Road to north to structure 130 and south to structure 131.

The majority of this section is on the edge of agriculture without clearing, however pruning will be required where the access road leaves the project ROW.
Type D disposal will be required for pruned area.

- Vulnerable soils VE/VW are present in this area.

ACCESS ROAD TYPES

Type	Description
1	Temporary gravel access
2	Temporary equipment matting and bridges
3	Temporary use of existing access roads
4	Permanent switchyard access

REFERENCE DRAWINGS
1. Maintenance & Protection of Traffic Plans can be found in Appendix R.

CLEARING TYPES

Type	Description
I	Clearing of the designated areas of all woody plants, including desirable species, in circumstances where woody plants would hinder access and construction activities.
II	Clearing of the designated areas of any woody plant species that have the potential to violate the minimum clearance distance. Reasonable care will be taken to retain desirable species found within Type II clearing zones.
III	Selectively clearing the designated areas and removing only those tall-growing species that can be expected to violate the minimum clearance distance at any point in their life.
IV	Selectively removing or pruning.

SLASH AND LOG DISPOSAL TYPES

Type	Description
A	Vegetation chipping and disposal in upland areas to a maximum depth of 3 inches.
B	Vegetation lop and drop so that the slash lies as close to the ground as practicable, with branches and limb wood not exceeding an average depth of twenty-four (24) inches. No log or slash will be collected and permanently piled in wetlands.
C	Vegetation piling, by landowner agreement, in upland areas.
D	Removal of vegetation from the ROW to designated disposal locations.

PIPELINE CROSSINGS
1. GC to field locate & verify depth of all existing utilities as shown on the plans & prior to construction.
2. Orange construction fence to be installed perpendicular to pipeline crossings.

EXISTING FENCES
1. Existing fences to be removed and replaced in kind.

GENERAL NOTES
1. Clearing Type I will be present throughout the project.
2. All ash trees encountered during clearing will be either chipped and left in place or hauled out and disposed of in accordance with NYSEC quarantine orders.

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PLOT SCALE: 1:1

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APPROVED		
VERT. SCALE: 1" = 20'	HORZ. SCALE: 1" = 200'	

EMPIRE STATE TRANSMISSION LINE
PLAN AND PROFILE
STATION 850+00 TO 900+00

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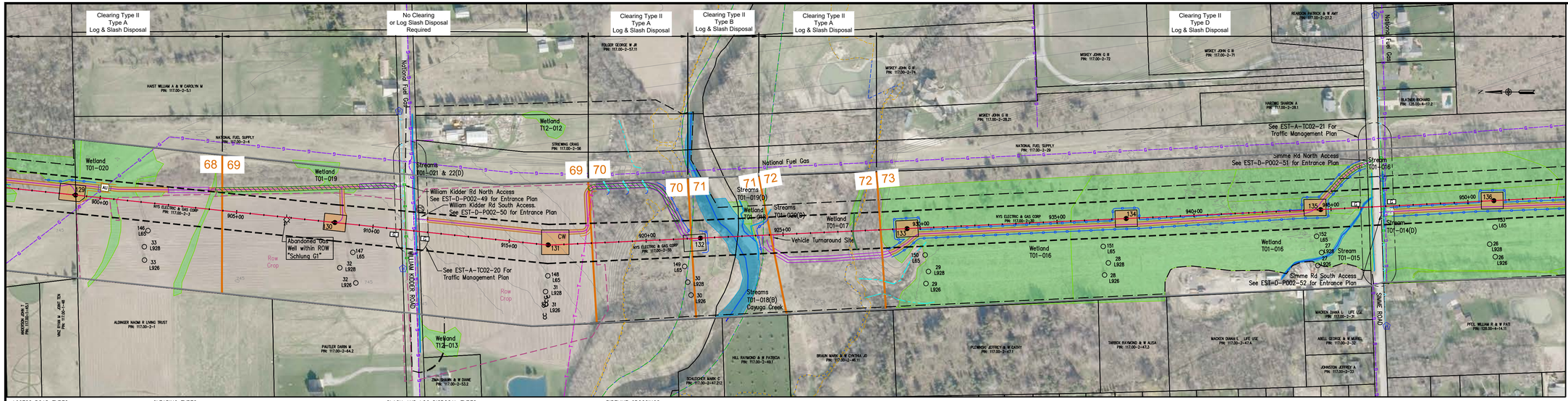

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PROFILE NOTES:
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2. Conductor = 2x 795 KCMIL 26/7 DRAKE ACSR
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ACCESS ROAD TYPES

Type	Description
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4	Permanent switchyard access

REFERENCE DRAWINGS
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CLEARING TYPES

Type	Description
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II	Clearing of the designated areas of any woody plant species that have the potential to violate the minimum clearance distance. Reasonable care will be taken to retain desirable species found within Type II clearing zones.
III	Selectively clearing the designated areas and removing only those tall-growing species that can be expected to violate the minimum clearance distance at any point in their life.
IV	Selectively removing or pruning.

SLASH AND LOG DISPOSAL TYPES

Type	Description
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B	Vegetation lop and drop so that the slash lies as close to the ground as practicable, with branches and limb wood not exceeding an average depth of twenty-four (24) inches. No log or slash will be collected and permanently piled in wetlands.
C	Vegetation piling, by landowner agreement, in upland areas.
D	Removal of vegetation from the ROW to designated disposal locations.

PIPELINE CROSSINGS
1. GC to field locate & verify depth of all existing utilities as shown on the plans & prior to construction.
2. Orange construction fence to be installed perpendicular to pipeline crossings.

EXISTING FENCES
1. Existing fences to be removed and replaced in kind.

GENERAL NOTES
1. Clearing Type I will be present throughout the project.
2. All ash trees encountered during clearing will be either chipped and left in place or hauled out and disposed of in accordance with NYSEC quarantine orders.

AREA NOTES:
Area 68) Temporary access with temporary timber matting (Road Type 2) 128 access to structure 129 and then toward structure 130. Some areas between structure 129 and 130 are Type 1 roads when the road is outside of the wetland boundary and then toward structure 130. Matting, silt and barrier fence to be installed where encroaches wetlands.
Clearing Type II
Disposal Type A
- Timber matting, silt and barrier fences placed on the access north of structure 129, around the structure 129 pad and the access road south of 129, where it encroaches on wetland. Pruning will be required where the access road leaves the right of way between structures 128 and 129.
- Vulnerable soils VE/VW are present in this area.

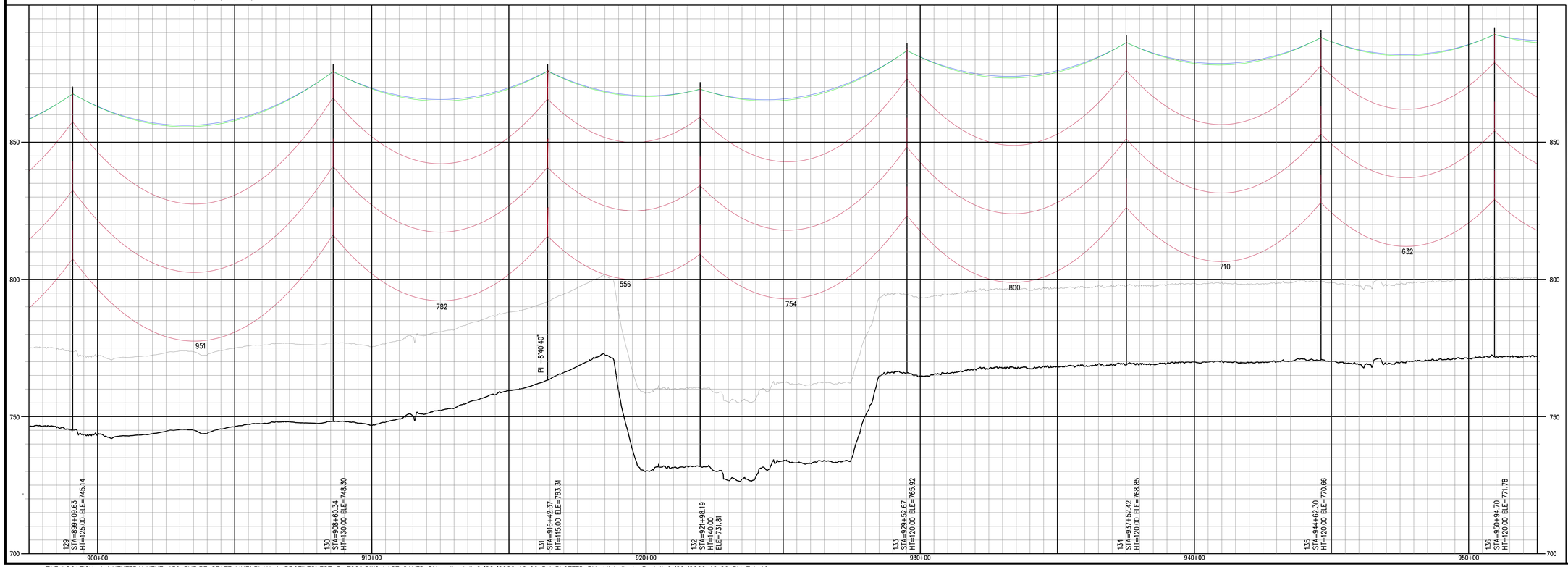
Area 69) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-49, EST-D-P002-50, from William Kidder Road to north to structure 130 and south to structure 131.
The majority of this section is on the edge of agriculture without clearing, however pruning will be required where the access road leaves the project ROW.
Type D disposal will be required for pruned area.
- Vulnerable soils VE/VW are present in this area.

Area 70) Temporary gravel access (Road Type 1) proceeding from structure 131 to 132.
Clearing Type II
Disposal Type A
- Install barrier and silt fence south of the access road and structure pad adjacent to Cayuga Creek. Waterbars would be installed down the slope toward Cayuga Creek per drawings (X).
- Vulnerable soils VE/VW are present in this area.

Area 71) Structure 132, structure pad and Cayuga Creek.
Clearing Type II
Disposal Type B
- Hand clearing of trees along Cayuga Creek.
- Vulnerable soil VW is present in this area.

Area 72) Temporary gravel access (Road Type 1) coming from structure 33. Area south of Cayuga Creek, North of structure 133.
Clearing Type II
Disposal Type A
- Vulnerable soils VE/VW are present in this area.

Area 73) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-51, EST-D-P002-52, matted access from Simme Road north to structures 133-135 and south to structures 136-139.
Clearing Type II
Disposal Type D
- Barrier and silt fence should be installed around each of the structure pads and where the matted access encroaches wetlands. A timber air bridge should be installed on the main access road south of structure 139 per drawing(s) EST-D-P002-106. Pipeline crossing BMPs should be installed on the south side of Simme Road and near structure 138 per drawing(s) EST-D-P002-105.
- Vulnerable soils VE/VW are present in this area.



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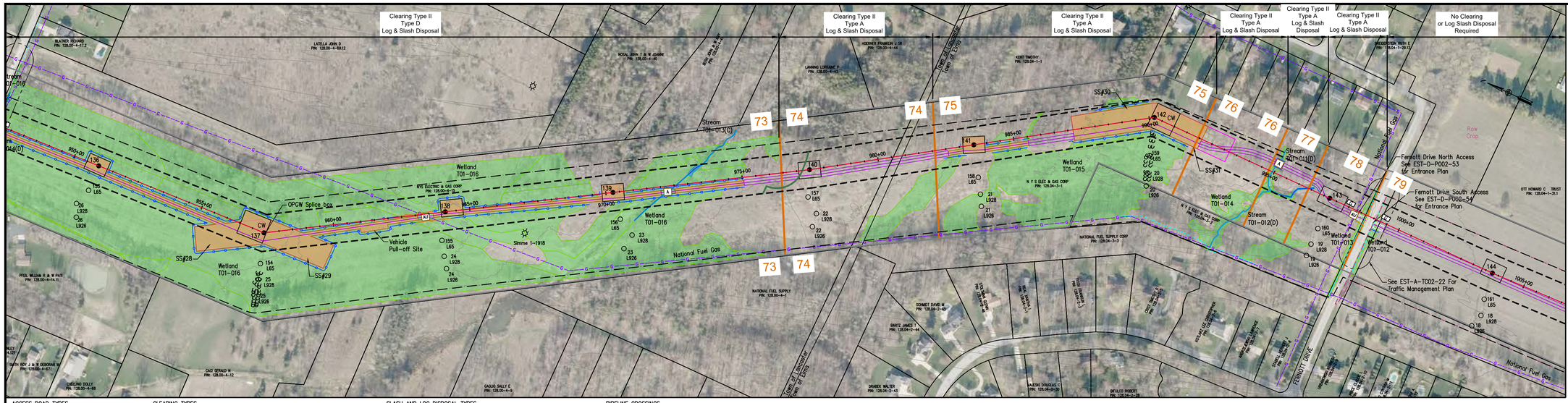
EMPIRE STATE TRANSMISSION LINE
PLAN AND PROFILE
STATION 900+00 TO 950+00

EST-D-T009-19 | REVISION NO : I



- Proposed Structure
- Existing Structure
- Existing Structure to be Removed
- Guy Wire Anchors
- Proposed Line
- 0+00 Stationing
- Existing NYPA Line
- NEETNY ROW
- NYSEG Utility Corridor
- Property Line
- Switchyard Boundary
- Town Boundary
- Area Divider
- Temporary Access
- Permanent Access
- SS# Stringing Site Label
- A Timber Air Bridge
- AU Timber Air Bridge – Utility
- CW Concrete Washout
- Guard Structures
- Cleaning Station
- Snowmobile/Walking Trail Closed Sign
- Barrier & Silt Fence
- Orange Construction Fence
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- Stabilized Entrance
- Timber Matting
- Structure Pad
- Survey Area Boundary
- Proposed Culvert w/Outlet Protection
- Water Bar
- VOR Soils
- Delineated Waterway – Stream
- Delineated Waterway – Ditch
- Delineated Waterbody
- Delineated Wetland
- DEC Wetland 100ft Adjacent Area
- Off ROW Access Pruning
- Environmentally Sensitive Area
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- Solid State Decouplers
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- Substation Grading (1 ft)
- Floodway
- 100 Yr Flood Boundary
- 500 Yr Flood Boundary
- Agricultural Lands
- Active Gas Well
- Abandoned Gas Well
- LaydownYard
- AST

PROFILE NOTES:
1. Conductor Wires shown at 125°C (257°F) & Shield/OPGW Wires shown at 9.4°C (49°F)
2. Conductor = 2x 795 KCMIL 26/7 DRAKE ACSR
3. Shield Wire = 3/8" EHS 7-STRAND STEEL
4. OPGW = SFPOC/SFSJ-J-4388R2

AREA NOTES:

Area 73) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-51, EST-D-P002-52, matted access from Simme Road north to structures 133-135 and south to structures 136-139.
Clearing Type II
Disposal Type D
- Barrier and silt fence should be installed around each of the structure pads and where the matted access encroaches wetlands. A timber air bridge should be installed on the main access road south of structure 139 per drawing(s) EST-D-P002-106. Pipeline crossing BMPs should be installed on the south side of Simme Road and near structure 138 per drawing(s) EST-D-P002-105.
- Vulnerable soils VE/VW are present in this area.

Area 74) Temporary gravel access with no drainage ditches (Road Type 1) from continuing from structure 139 toward structure 140. Matting, silt and barrier fence to be installed where encroaches wetlands.
Clearing Type II
Disposal Type A
- Vulnerable soils VE/VW are present in this area.

Area 75) Temporary access with temporary timber matting (Road Type 1) continuing from structure 140 to structure 141 and structure 142 pad and access road from the south.
Clearing Type II
Disposal Type A
- Barrier and silt fence should be installed around each structure pad.
- Vulnerable soils VE/VW are present in this area.

Area 76) Area between Structures 142 and 143 will be temporary gravel access (Road Type 1 except where it encroaches wetlands. Within wetlands install timber matting (Road Type 2), silt and barrier fence.
Clearing Type II
Disposal Type A
- Vulnerable soils VE/VW are present in this area.

Area 77) Temporary gravel access road (Road Type 1) through wetland between structure 142 and 143.
Clearing Type II
Disposal Type A
- A timber air bridge in compliance with drawing(s) EST-D-P002-106 should be installed south of structure 142.
- Vulnerable soils VE/VW are present in this area.

Area 78) Temporary gravel access (Road Type 1) from, stabilized entrance per drawing(s) EST-D-P002-53, north of Fernott Drive to structure 143. A 12" diameter culvert will be installed for the entrance.
Clearing Type II
Disposal Type A
- Vulnerable soils VE/VW are present in this area.

Area 79) Temporary gravel access (Road Type 1) stabilized entrance per drawing(s) EST-D-P002-54, south of Fernott Drive to structures 144 and 145. A 12" diameter culvert will be installed for the entrance.
No clearing in this section.
No vegetation disposal in this section.
- Install silt fence on the south side of structure 145.
- Vulnerable soil VW is present in this area.

ACCESS ROAD TYPES

Type	Description
1	Temporary gravel access
2	Temporary equipment matting and bridges
3	Temporary use of existing access roads
4	Permanent switchyard access

REFERENCE DRAWINGS
1. Maintenance & Protection of Traffic Plans can be found in Appendix R.

CLEARING TYPES

Type	Description
I	Clearing of the designated areas of all woody plants, including desirable species, in circumstances where woody plants would hinder access and construction activities.
II	Clearing of the designated areas of any woody plant species that have the potential to violate the minimum clearance distance. Reasonable care will be taken to retain desirable species found within Type II clearing zones.
III	Selectively clearing the designated areas and removing only those tall-growing species that can be expected to violate the minimum clearance distance at any point in their life.
IV	Selectively removing or pruning.

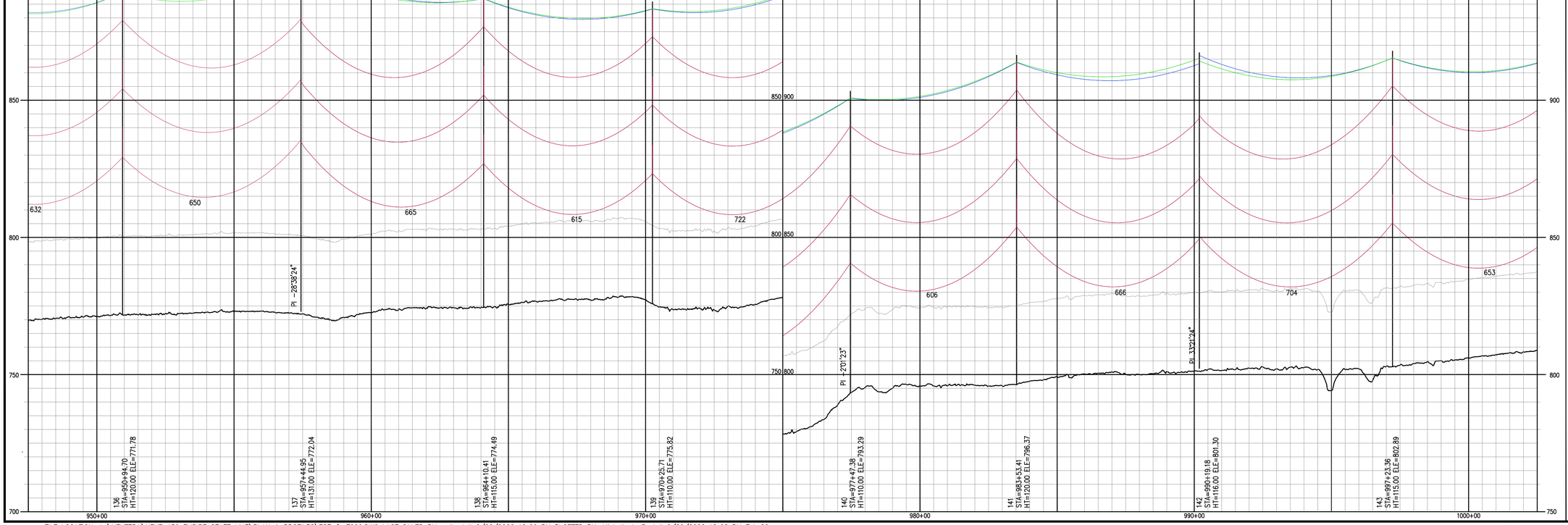
SLASH AND LOG DISPOSAL TYPES

Type	Description
A	Vegetation chipping and disposal in upland areas to a maximum depth of 3 inches.
B	Vegetation lop and drop so that the slash lies as close to the ground as practicable, with branches and limb wood not exceeding an average depth of twenty-four (24) inches. No log or slash will be collected and permanently piled in wetlands.
C	Vegetation piling, by landowner agreement, in upland areas.
D	Removal of vegetation from the ROW to designated disposal locations.

PIPELINE CROSSINGS
1. GC to field locate & verify depth of all existing utilities as shown on the plans & prior to construction.
2. Orange construction fence to be installed perpendicular to pipeline crossings.

EXISTING FENCES
1. Existing fences to be removed and replaced in kind.

GENERAL NOTES
1. Clearing Type I will be present throughout the project.
2. All ash trees encountered during clearing will be either chipped and left in place or hauled out and disposed of in accordance with NYSEC quarantine orders.



SIGNATURE
EXPIRATION DATE OF THE LICENSE

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PLOT SCALE: 1:1

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NO	REVISION	DATE	BY	APR
I	ISSUED FOR REVIEW	06/22/20	MAH	RSD
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G	PRELIMINARY	04/24/20	MAH	RSD
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E	PRELIMINARY	02/06/20	MAH	RSD

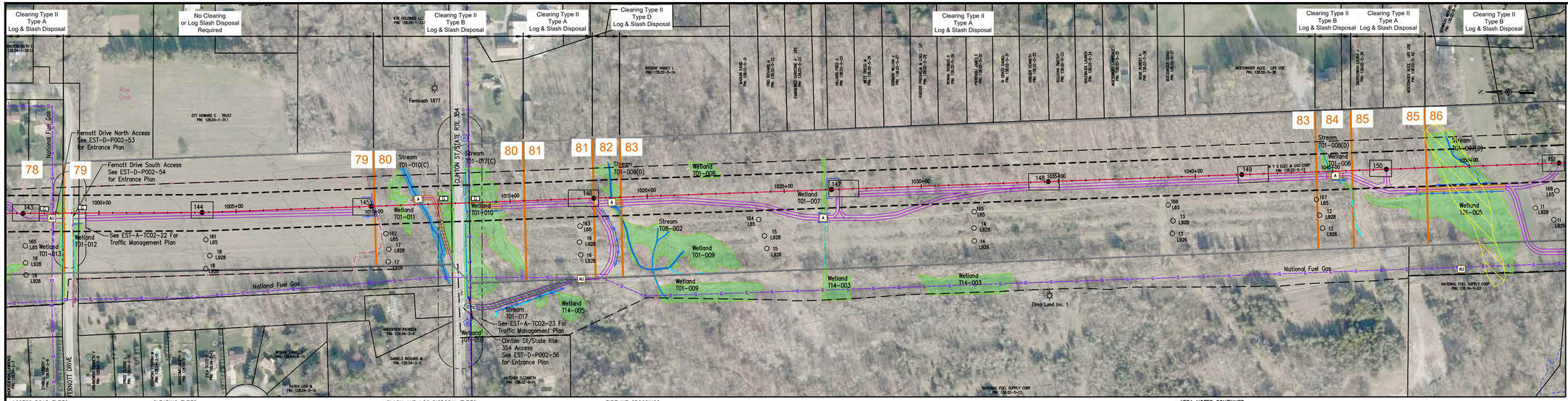
NEXTera ENERGY TRANSMISSION NEW YORK

ENGINEERING RECORD		DATE
DRAWN	M. BURTELL	11/19/19
DESIGNED	M. HOHN	11/19/19
CHECKED	R. DAVIS	11/22/19
APPROVED		
VERT. SCALE: 1" = 20'	HORZ. SCALE: 1" = 200'	

EMPIRE STATE TRANSMISSION LINE

PLAN AND PROFILE
STATION 950+00 TO 1000+00

EST-D-T009-20 | REVISION NO : I



- Proposed Structure
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- Guy Wire Anchors
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PROFILE NOTES:
1. Conductor Wires shown at 125°C (257°F) & Shield/OPGW Wires shown at 9.4°C (49°F)
2. Conductor = 2x 795 KCMIL 26/7 DRAKE ACSR
3. Shield Wire = 3/8" EHS 7-STRAND STEEL
4. OPGW = SFPOC/SFSJ-J-4388R2

ACCESS ROAD TYPES
Type Description
1 Temporary gravel access
2 Temporary equipment matting and bridges
3 Temporary use of existing access roads
4 Permanent switchyard access

REFERENCE DRAWINGS
1. Maintenance & Protection of Traffic Plans can be found in Appendix R.

CLEARING TYPES
Type Description
I Clearing of the designated areas of all woody plants, including desirable species, in circumstances where woody plants would hinder access and construction activities.
II Clearing of the designated areas of any woody plant species that have the potential to violate the minimum clearance distance. Reasonable care will be taken to retain desirable species found within Type II clearing zones.
III Selectively clearing the designated areas and removing only those tall-growing species that can be expected to violate the minimum clearance distance at any point in their life.
IV Selectively removing or pruning.

SLASH AND LOG DISPOSAL TYPES
Type Description
A Vegetation chipping and disposal in upland areas to a maximum depth of 3 inches.
B Vegetation lop and drop so that the slash lies as close to the ground as practicable, with branches and limb wood not exceeding an average depth of twenty-four (24) inches. No log or slash will be collected and permanently piled in wetlands.
C Vegetation piling, by landowner agreement, in upland areas.
D Removal of vegetation from the ROW to designated disposal locations.

PIPELINE CROSSINGS
1. GC to field locate & verify depth of all existing utilities as shown on the plans & prior to construction.
2. Orange construction fence to be installed perpendicular to pipeline crossings.

EXISTING FENCES
1. Existing fences to be removed and replaced in kind.

GENERAL NOTES
1. Clearing Type I will be present throughout the project.
2. All ash trees encountered during clearing will be either chipped and left in place or hauled out and disposed of in accordance with NYSEC quarantine orders.

AREA NOTES CONTINUED:
Area 86) Temporary access with temporary timber matting (Road Type 2) through wetlands T01-004 T01-005 Gravel access (Road Type 1) from the wetland boundary to Structure 151 and to the clearing area between Little Buffalo Creek and its tributary to the south. A matted forestry extends all the way to the south edge of T01-004. Pruning will be required where access roads are installed outside of the project right of way.
Clearing Type II
Disposal Type B
- Timber air bridge per drawing(s) EST-D-P002-106 on the main access south of structure 152 on the main access road.
- Silt fence to be installed south of structure 161. Timber air bridges per drawing(s) EST-D-P002-106 should be installed on the creek crossings to access to structure 152 from Townline Road. Larger timber air bridge or prefabricated bridge may be required. Pipeline crossing BMPs to be installed for protection of the gas line west of structure 152 and 153.
- Vulnerable soils VOR/VE/VW are present in this area. VOR soils contain organic mucklands.

Area 78) Temporary gravel access (Road Type 1) from, stabilized entrance per drawing(s) EST-D-P002-53, north of Fernott Drive to structure 143. A 12" diameter culvert will be installed for the entrance.
Clearing Type II
Disposal Type A
- Vulnerable soils VE/VW are present in this area.

Area 79) Temporary gravel access (Road Type 1) stabilized entrance per drawing(s) EST-D-P002-54, south of Fernott Drive to structures 144 and 145. A 12" diameter culvert will be installed for the entrance.
No clearing in this section.
No vegetation disposal in this section.
- Install silt fence on the south side of structure 145.
- Vulnerable soil VW is present in this area.

Area 80) Area between structures 145 and 146. Temporary access with temporary timber matting (Road Type 2) from stabilized entrance, per drawing(s) EST-D-P002-56, south from Clinton St. towards structure 146. A forestry road (Type 1) will also be installed extending north from structure 146 to clear trees near Clinton Street. A forestry road will also be installed north from Clinton St., per drawing(s) EST-D-P002-55.
Clearing Type II
Disposal Type B
- An air bridge will be installed across Stream T01-010.
- Pruning will be required for off right of way access on each side of Clinton Street.
- Vulnerable soils VE/VW are present in this area.

Area 81) Temporary gravel access headed east from the Clinton Street Access (Road Type 1) toward structure 146.
Clearing Type II
Disposal Type A
- Vulnerable soils VE/VW are present in this area.

Area 82) Temporary gravel access with (Road Type 1) from small area just south of structure 146.
Clearing Type II
Disposal Type D
- Silt fence on the south side of the spur access road to protect stream system.
- Vulnerable soils VE/VW are present in this area.

Area 83) Temporary gravel Access (Road Type 1) proceeding south from structure 146 toward structures 147–149. There is a spur road to structure 147.
Clearing Type II
Disposal Type A
- Timber air bridges per drawing(s) EST-D-P002-106 on the main access south of structure 146 on the main access road and approaching structure 147.
- Vulnerable soils VE/VW are present in this area.

Area 84) Temporary gravel access with temporary timber matting (Road Type 1) between structures 149 and 150.
Clearing Type II
Disposal Type B
- Vulnerable soil VW is present in this area.

Area 85) Temporary gravel access (Road Type 1) including the structure 150 work pad.
Clearing Type II
Disposal Type A
- Vulnerable soil VE/VW is present in this area.

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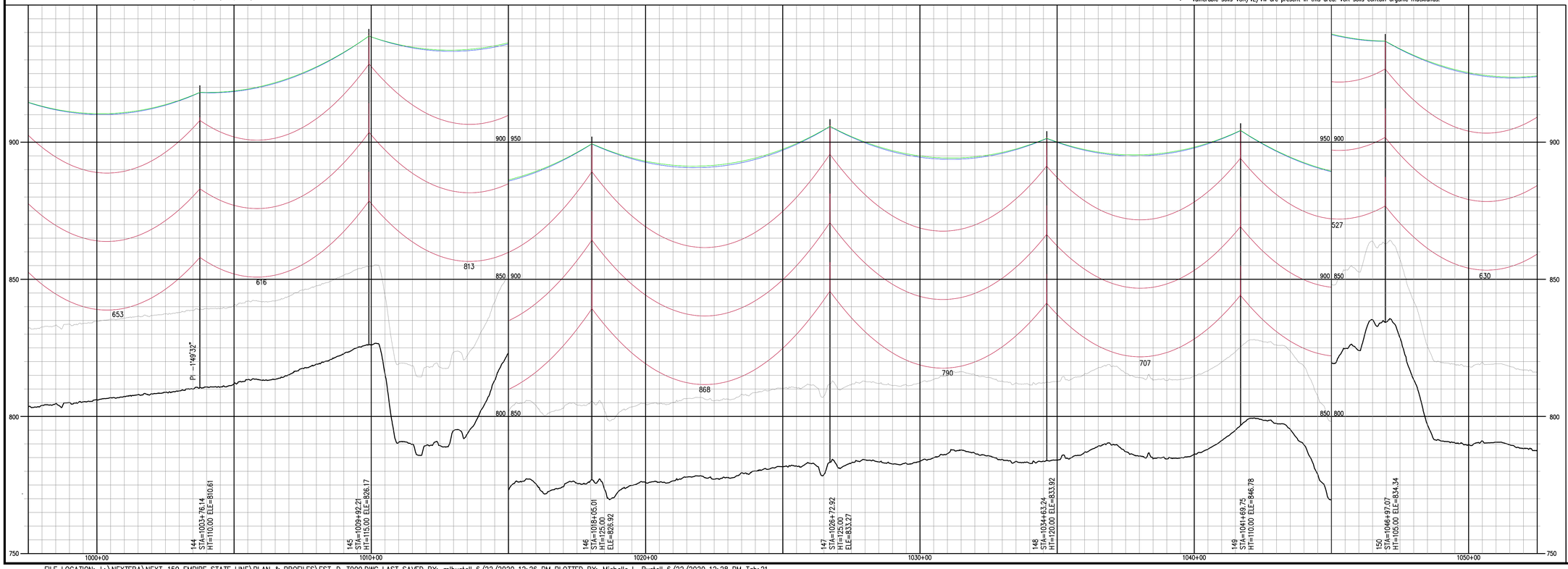

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PLOT SCALE: 1:1

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NEXTera ENERGY TRANSMISSION NEW YORK

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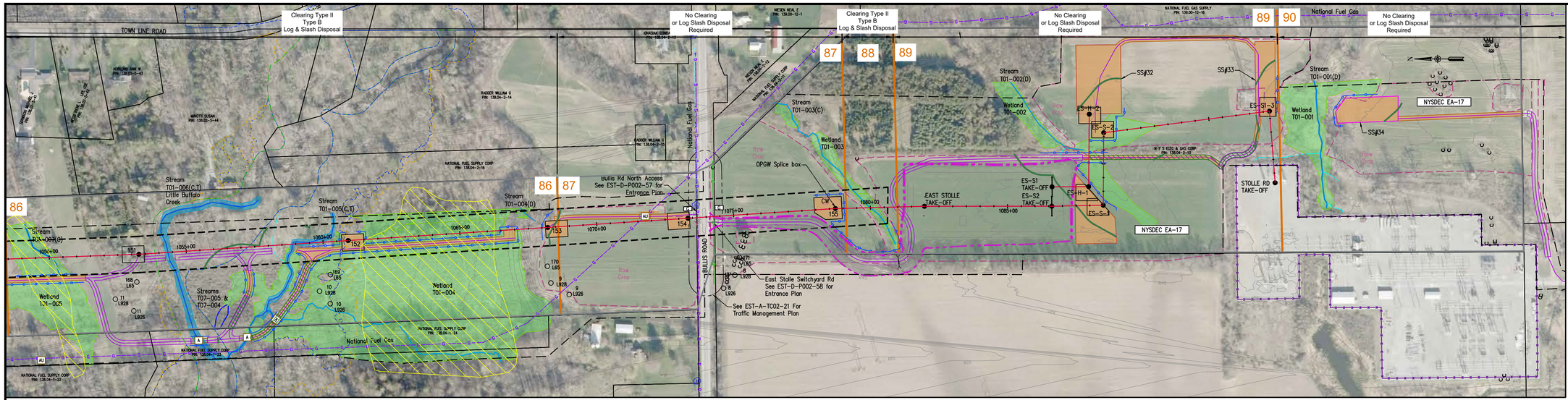
DRAWN	M. BURTELL	11/19/19
DESIGNED	M. HOHN	11/19/19
CHECKED	R. DAVIS	11/22/19
APPROVED		
VERT. SCALE: 1" = 20'	HORZ. SCALE: 1" = 200'	

EMPIRE STATE TRANSMISSION LINE
PLAN AND PROFILE
STATION 1000+00 TO 1050+00

EST-D-T009-21 | REVISION NO : I



PROFILE NOTES:
1. Conductor Wires shown at 125°C (257°F) & Shield/OPGW Wires shown at 9.4°C (49°F)
2. Conductor = 2x 795 KCMIL 26/7 DRAKE ACSR
3. Shield Wire = 3/8" EHS 7-STRAND STEEL
4. OPGW = SFPOC/SFSJ-J-4388R2

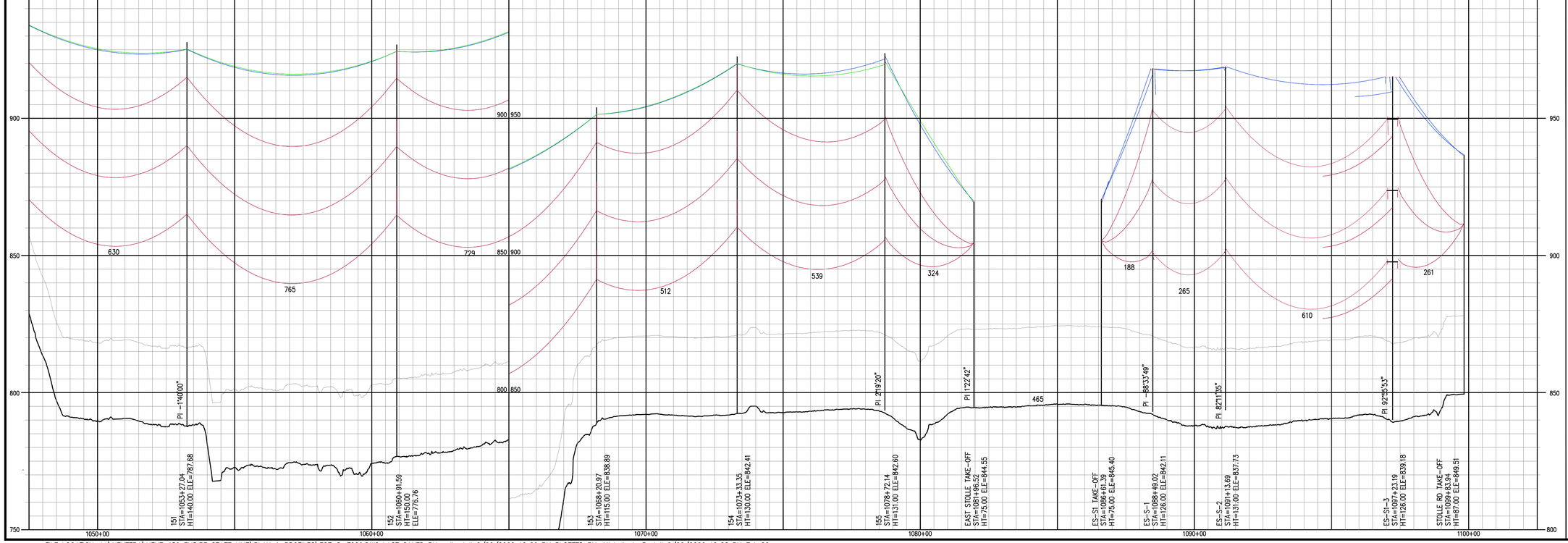
AREA NOTES:
Area 86) Temporary access with temporary timber matting (Road Type 2) through wetlands T01-004 T01-005 Gravel access (Road Type 1) from the wetland boundary to Structure 151 and to the clearing area between Little Buffalo Creek and its tributary to the south. A matted forestry extends all the way to the south edge of T01-004. Pruning will be required where access roads are installed outside of the project right of way.
Clearing Type II
Disposal Type B
- Timber air bridge per drawing(s) EST-D-P002-106 on the main access south of structure 152 on the main access road.
- Silt fence to be installed south of structure 161. Timber air bridges per drawing(s) EST-D-P002-106 should be installed on the creek crossings to access to structure 152 from Townline Road. Larger timber air bridge or prefabricated bridge may be required. Pipeline crossing BMPs to be installed for protection of the gas line west of structure 152 and 153.
- Vulnerable soils VOR/VE/VW are present in this area. VOR soils contain organic mucklands.

Area 87) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-57, Bullis Road north to structure 153 and switchyard access road (Road Type 4) stabilized entrance per drawing(s) EST-D-P002-58, south to structure 155. An air bridge to protect a gas line will be installed per drawing X south of structure 154. An 18" culvert would be installed for the north entrance.
No clearing in this section.
No vegetation disposal in this section.
- Barrier and silt fence north of structure 153 and south of structure 155. Access to structure 155 should use permanent road to East Stolle Switchyard (Road Type 6).
- Vulnerable soils VE/VW are present in this area.

Area 88) Permanent switchyard access road (Road Type 4) from portion of permanent access to East Stolle Switchyard.
Clearing Type II
Disposal Type B
- Vulnerable soils VE/VW are present in this area.

Area 89) Permanent switchyard access road (Road Type 4) to East Stolle Road Switchyard. Several matted structure work areas are included in this area for East Stolle's interconnection into the adjacent substation.
No clearing in this section.
No vegetation disposal in this section.
- Vulnerable soils VE/VW are present in this area.

Area 90) Temporary gravel access (Road Type 1) proceeding from existing Stolle Substation access driveway, turning east then north and transitioning to temporary access with temporary timber matting (Road Type 2) continuing to southernmost pull site.
No clearing in this section.
No vegetation disposal in this section.
- Vulnerable soils VE/VW are present in this area.



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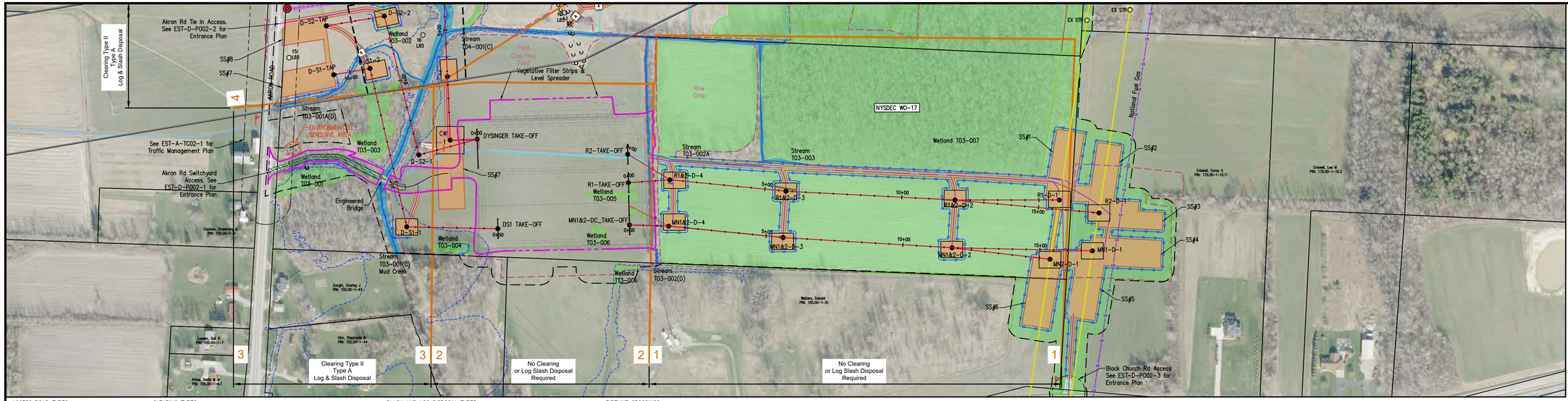
EMPIRE STATE TRANSMISSION LINE

PLAN AND PROFILE
STATION 1050+00 TO 1100+00

EST-D-T009-22 REVISION NO : I



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- Timber Air Bridge – Utility
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- Guard Structures
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- Barrier & Silt Fence
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PROFILE NOTES:
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2. Conductor = 2x 795 KCMIL 26/7 DRAKE ACSR
3. Shield Wire = 3/8" EHS 7-STRAND STEEL
4. OPGW = SFPOC/SFSJ-J-4388R2

AREA NOTES:
Area 1) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-3 with a culvert diameter of 18", from Block Church Rood to the intertie structures, intertie structure pads and intertie stringing pads. Alternate temporary access with temporary timber matting (Road Type 2) proceeds from Dysinger south to the existing transmission line.
No clearing in this section.
No vegetation disposal in this section.
- BMPs to protect natural gas line under wire stringing pads will follow gas line safety plan.
- Vulnerable soils VE/VW are present in this area.

Area 2) Permanent switchyard access road (Road Type 4) from Dysinger access road to Dysinger Switchyard pad.
No clearing in this section.
No vegetation disposal in this section.
- BMPs will be installed per the Grading and Stabilization Plans in Appendix A.
- Vulnerable soils VE/VW are present in this area.

Area 3) Permanent switchyard access road (Road Type 4) stabilized entrance per drawing(s) EST-D-P002-1, State Route 93/Akron Rd toward Dysinger Switchyard with a minimum culvert diameter of 15".
Clearing Type II
Disposal Type A
- A bridge or culvert(s) will be installed over Mud Creek as shown on drawing 13666-005-C1-0120 in Appendix A. Switchyard pad will be completely cleared of vegetation.
- Environmentally Sensitive Area: Follow avoidance measures outlined in the Avoidance Plan for Environmentally Sensitive Area (USN 06309.000166) (EM&CP Appendix L) avoid Environmentally Sensitive Area.
- Vulnerable soils VE/VW are present in this area.

Area 4) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-2 with a 15" diameter minimum culvert from State Route 93/Akron Road to cut-in structures.
Clearing Type II
Disposal Type A
- Barrier and silt fence to be installed on the west side of the structure pads. Timber air bridge per drawing(s) EST-D-P002-106 across Mud Creek to access cut-in structure to the west.
- Vulnerable soils VE/VW are present in this area.

ACCESS ROAD TYPES
Type Description
1 Temporary gravel access
2 Temporary equipment matting and bridges
3 Temporary use of existing access roads
4 Permanent switchyard access

REFERENCE DRAWINGS
1. Maintenance & Protection of Traffic Plans can be found in Appendix R.

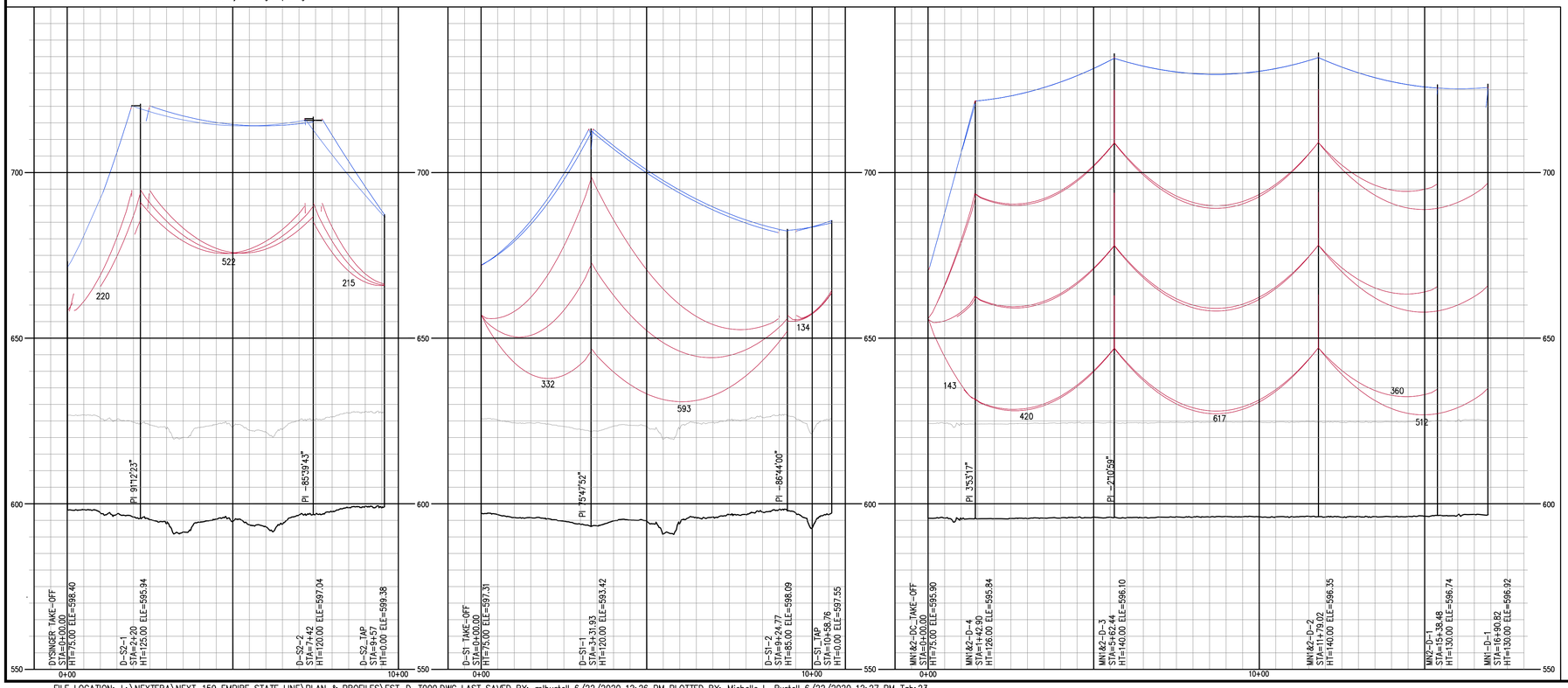
CLEARING TYPES
Type Description
I Clearing of the designated areas of all woody plants, including desirable species, in circumstances where woody plants would hinder access and construction activities.
II Clearing of the designated areas of any woody plant species that have the potential to violate the minimum clearance distance. Reasonable care will be taken to retain desirable species found within Type II clearing zones.
III Selectively clearing the designated areas and removing only those tall-growing species that can be expected to violate the minimum clearance distance at any point in their life.
IV Selectively removing or pruning.

SLASH AND LOG DISPOSAL TYPES
Type Description
A Vegetation chipping and disposal in upland areas to a maximum depth of 3 inches.
B Vegetation lop and drop so that the slash lies as close to the ground as practicable, with branches and limb wood not exceeding an average depth of twenty-four (24) inches. No log or slash will be collected and permanently piled in wetlands.
C Vegetation piling, by landowner agreement, in upland areas.
D Removal of vegetation from the ROW to designated disposal locations.

PIPELINE CROSSINGS
1. GC to field locate & verify depth of all existing utilities as shown on the plans & prior to construction.
2. Orange construction fence to be installed perpendicular to pipeline crossings.

EXISTING FENCES
1. Existing fences to be removed and replaced in kind.

GENERAL NOTES
1. Clearing Type I will be present throughout the project.
2. All ash trees encountered during clearing will be either chipped and left in place or hauled out and disposed of in accordance with NYSEC quarantine orders.



FILE LOCATION: L:\NEXTERA\NEXT-159 EMPIRE STATE LINE\PLAN & PROFILES\EST-D-T009.DWG LAST SAVED BY: mlburtell 6/22/2020 12:26 PM PLOTTED BY: Michelle L. Burtell 6/22/2020 12:27 PM Tab:23

PLOT SCALE: 1:1

SIGNATURE — EXPIRATION DATE OF THE LICENSE

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NO	REVISION	DATE	BY	APR
I	ISSUED FOR REVIEW	06/22/20	MAH	RSD
H	PRELIMINARY	05/12/20	MAH	RSD
G	PRELIMINARY	04/24/20	MAH	RSD
F	PRELIMINARY	02/21/20	MAH	RSD
E	PRELIMINARY	02/06/20	MAH	RSD

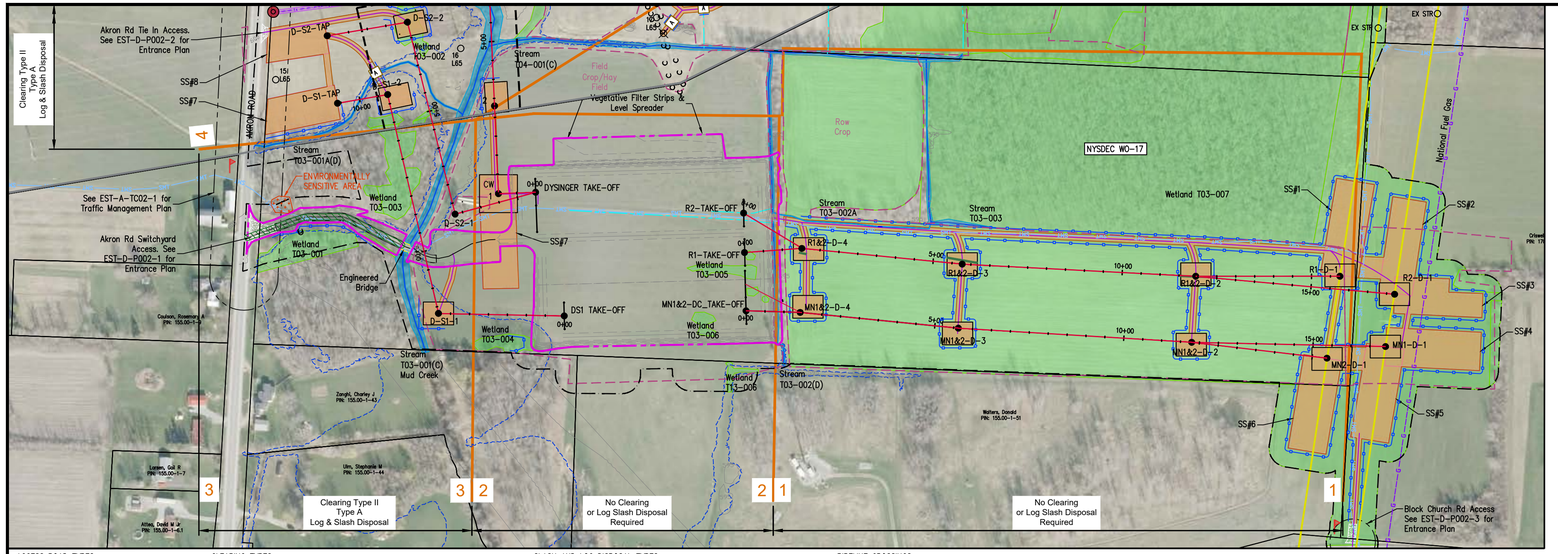
NEXTera ENERGY TRANSMISSION NEW YORK

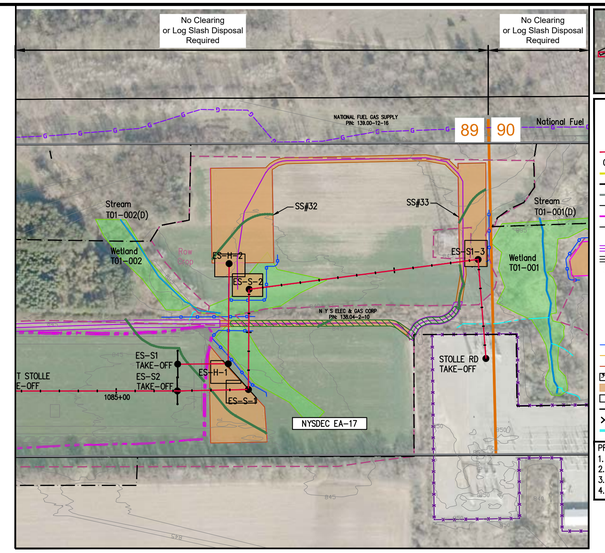
ENGINEERING RECORD		DATE
DRAWN	M. BURTELL	11/19/19
DESIGNED	M. HOHN	11/19/19
CHECKED	R. DAVIS	11/22/19
APPROVED		
VERT. SCALE: 1" = 20'	HORZ. SCALE: 1" = 200'	

EMPIRE STATE TRANSMISSION LINE

PLAN AND PROFILE SWITCHYARD

EST-D-T009-23 — REVISION NO : I





- Proposed Structure
- Existing Structure
- Existing Structure to be Removed
- Guy Wire Anchors
- Proposed Line
- 0+00 Stationing
- Existing NYPA Line
- NEETNY ROW
- NYSEG Utility Corridor
- Property Line
- Switchyard Boundary
- Town Boundary
- Area Divider
- Temporary Access
- Permanent Access
- SS# Stringing Site Label
- Timber Air Bridge
- Timber Air Bridge – Utility
- Concrete Washout
- Guard Structures
- Cleaning Station
- Snowmobile/Walking Trail Closed Sign
- Barrier & Silt Fence
- Orange Construction Fence
- Security Fence
- Stabilized Entrance
- Timber Matting
- Structure Pad
- Survey Area Boundary
- Proposed Culvert w/Outlet Protection
- Water Bar
- VOR Soils
- Delineated Waterway – Stream
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- Delineated Waterbody
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- DEC Wetland 100ft Adjacent Area
- Off ROW Access Pruning
- Environmentally Sensitive Area
- Railroad
- Snowmobile Trail
- Clarence Pathways
- Existing Fences
- Distribution Line – Overhead
- Underground Electric
- Waterline – Underground
- Hydrant
- Telephone Line – Underground
- Gasline – Underground
- Pipeline Buffer
- Brine Pipeline – Underground
- Solid State Decouplers
- Elevation Contours (5 ft)
- Substation Grading (1 ft)
- Floodway
- 100 Yr Flood Boundary
- 500 Yr Flood Boundary
- Agricultural Lands
- Abandoned Gas Well
- Active Gas Well
- LaydownYard
- AST

PROFILE NOTES:
1. Conductor Wires shown at 125°C (257°F) & Shield/OPGW Wires shown at 9.4°C (49°F)
2. Conductor = 2x 795 KCMIL 26/7 DRAKE ACSR
3. Shield Wire = 3/8" EHS 7-STRAND STEEL
4. OPGW = SFPOC/SFSJ-J-4388R2

ACCESS ROAD TYPES
Type Description
1 Temporary gravel access
2 Temporary equipment matting and bridges
3 Temporary use of existing access roads
4 Permanent switchyard access

REFERENCE DRAWINGS
1. Maintenance & Protection of Traffic Plans can be found in Appendix R.

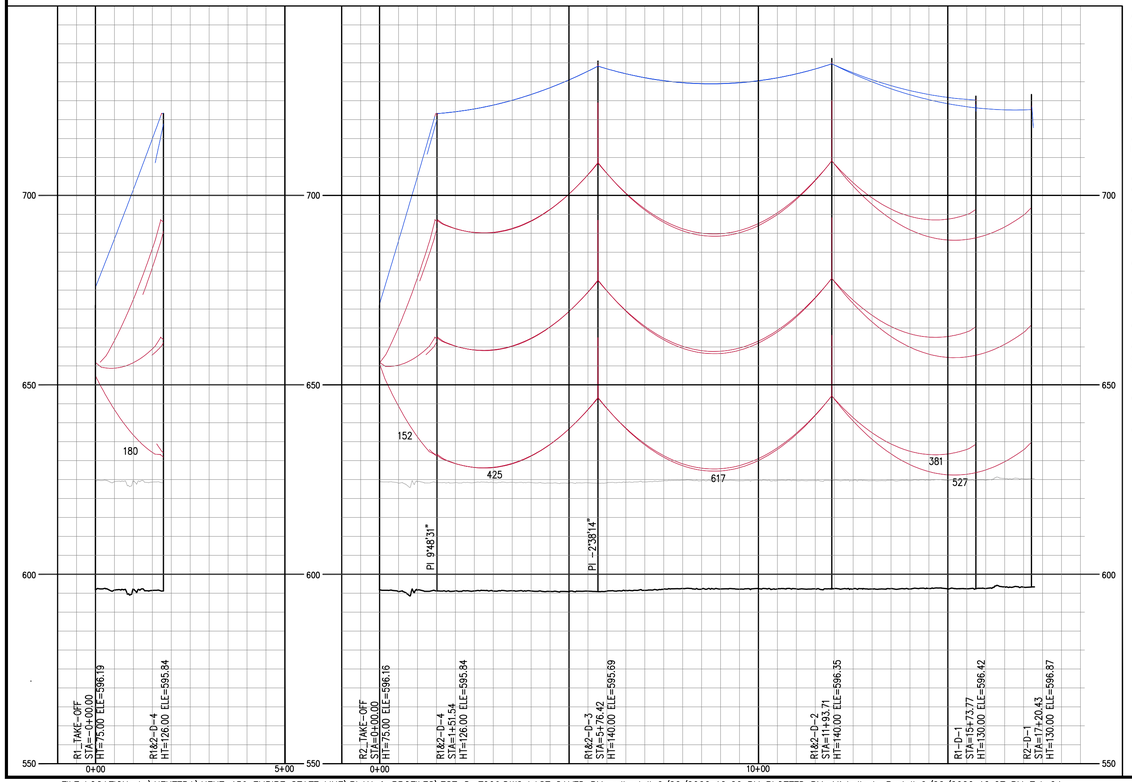
CLEARING TYPES
Type Description
I Clearing of the designated areas of all woody plants, including desirable species, in circumstances where woody plants would hinder access and construction activities.
II Clearing of the designated areas of any woody plant species that have the potential to violate the minimum clearance distance. Reasonable care will be taken to retain desirable species found within Type II clearing zones.
III Selectively clearing the designated areas and removing only those tall-growing species that can be expected to violate the minimum clearance distance at any point in their life.
IV Selectively removing or pruning.

SLASH AND LOG DISPOSAL TYPES
Type Description
A Vegetation chipping and disposal in upland areas to a maximum depth of 3 inches.
B Vegetation lop and drop so that the slash lies as close to the ground as practicable, with branches and limb wood not exceeding an average depth of twenty-four (24) inches. No log or slash will be collected and permanently piled in wetlands.
C Vegetation piling, by landowner agreement, in upland areas.
D Removal of vegetation from the ROW to designated disposal locations.

PIPELINE CROSSINGS
1. GC to field locate & verify depth of all existing utilities as shown on the plans & prior to construction.
2. Orange construction fence to be installed perpendicular to pipeline crossings.

EXISTING FENCES
1. Existing fences to be removed and replaced in kind.

GENERAL NOTES
1. Clearing Type I will be present throughout the project.
2. All ash trees encountered during clearing will be either chipped and left in place or hauled out and disposed of in accordance with NYSEC quarantine orders.

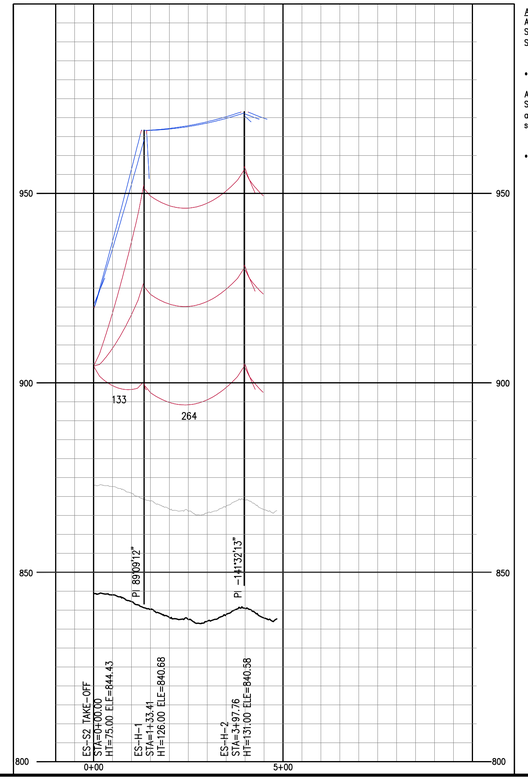


AREA NOTES:
Area 1) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-3 with a culvert diameter of 18", from Block Church Road to the intertie structures, intertie structure pads and intertie stringing pads. Alternate temporary access with temporary timber matting (Road Type 2) proceeds from Dysinger south to the existing transmission line.
No clearing in this section.
No vegetation disposal in this section.
- BMPs to protect natural gas line under wire stringing pads will follow gas line safety plan.
- Vulnerable soils VE/VW are present in this area.

Area 2) Permanent switchyard access road (Road Type 4) from Dysinger access road to Dysinger Switchyard pad.
No clearing in this section.
No vegetation disposal in this section.
- BMPs will be installed per the Grading and Stabilization Plans in Appendix A.
- Vulnerable soils VE/VW are present in this area.

Area 3) Permanent switchyard access road (Road Type 4) stabilized entrance per drawing(s) EST-D-P002-1, State Route 93/Akron Rd toward Dysinger Switchyard with a minimum culvert diameter of 15".
Clearing Type II
Disposal Type A
- A bridge or culvert(s) will be installed over Mud Creek as shown on drawing 13666-005-C1-0120 in Appendix A. Switchyard pad will be completely cleared of vegetation.
- • Environmentally Sensitive Area: Follow avoidance measures outlined in the Avoidance Plan for Environmentally Sensitive Area (USN 06309.000166) (EM&CP Appendix L) avoid Environmentally Sensitive Area.
- Vulnerable soils VE/VW are present in this area.

Area 4) Temporary access with temporary timber matting (Road Type 2) stabilized entrance per drawing(s) EST-D-P002-2 with a 15" diameter minimum culvert from State Route 93/Akron Road to cut-in structures.
Clearing Type II
Disposal Type A
- Barrier and silt fence to be installed on the west side of the structure pads. Timber air bridge per drawing(s) EST-D-P002-106 across Mud Creek to access cut-in structure to the west.
- Vulnerable soils VE/VW are present in this area.



AREA NOTES:
Area 89) Permanent switchyard access road (Road Type 4) to East Stolle Road Switchyard. Several matted structure work areas are included in this area for East Stolle's interconnection into the adjacent substation.
No clearing in this section.
No vegetation disposal in this section.
- Vulnerable soils VE/VW are present in this area.

Area 90) Temporary gravel access (Road Type 1) proceeding from existing Stolle Substation access driveway, turning east then north and transitioning to temporary access with temporary timber matting (Road Type 2) continuing to southernmost pull site.
No clearing in this section.
No vegetation disposal in this section.
- Vulnerable soils VE/VW are present in this area.

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PLOT SCALE: 1:1

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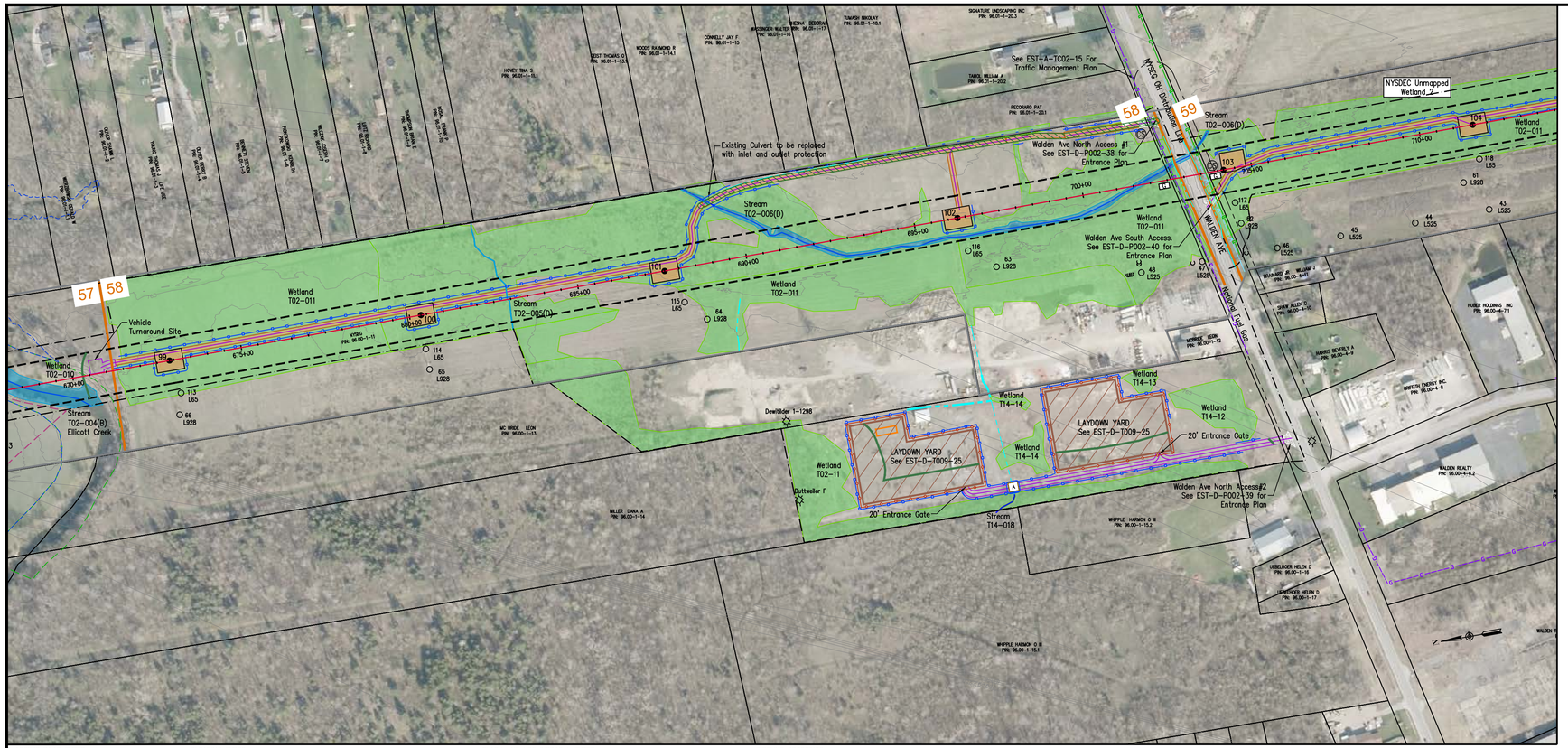
NEXTera ENERGY TRANSMISSION NEW YORK

ENGINEERING RECORD		DATE
DRAWN	M. BURTELL	11/19/19
DESIGNED	M. HOHN	11/19/19
CHECKED	R. DAVIS	11/22/19
APPROVED		
VERT. SCALE: 1" = 20'	HORZ. SCALE: 1" = 200'	

EMPIRE STATE TRANSMISSION LINE
PLAN AND PROFILE SWITCHYARD

EST-D-T009-24 REVISION NO : I



ACCESS ROAD TYPES

Type	Description
1	Temporary gravel access
2	Temporary equipment matting and bridges
3	Temporary use of existing access roads
4	Permanent switchyard access

REFERENCE DRAWINGS

1. Maintenance & Protection of Traffic Plans can be found in Appendix R.

CLEARING TYPES

Type	Description
I	Clearing of the designated areas of all woody plants, including desirable species, in circumstances where woody plants would hinder access and construction activities.
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Type	Description
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EXISTING FENCES

1. Existing fences to be removed and replaced in kind.

GENERAL NOTES

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- Proposed Structure
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- Proposed Line
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- Temporary Access
- Permanent Access
- SS# Stringing Site Label
- Timber Air Bridge
- Timber Air Bridge – Utility
- Concrete Washout
- Guard Structures
- Cleaning Station
- Snowmobile/Walking Trail Closed Sign
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- Security Fence
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- Solid State Decouplers
- Elevation Contours (5 ft)
- Substation Grading (1 ft)
- Floodway
- 100 Yr Flood Boundary
- 500 Yr Flood Boundary
- Agricultural Lands
- Abandoned Gas Well
- Active Gas Well
- Laydown Yard
- AST

AREA NOTES:

Laydown Yard Area) Temporary use of existing access road (Road Type 3) stabilized entrance per drawing(s) EST-D-P002-39, north from Walden Avenue.
Clearing Type I
Disposal Type A

- Air bridge per drawing(s) EST-D-P002-106 installed over Stream T14-018.
- Vulnerable soils VE/VW are present in this area.

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PLOT SCALE: 1:1

FILE LOCATION: L:\NEXTERA\NEXT-159 EMPIRE STATE LINE\PLAN & PROFILES\EST-D-T009.DWG LAST SAVED BY: mlburtell 6/22/2020 12:26 PM PLOTTED BY: Michelle L. Burtell 6/22/2020 12:27 PM Tab:25

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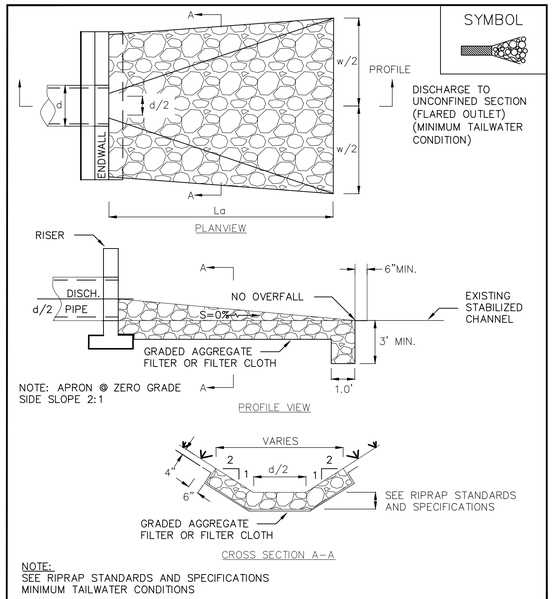
ENGINEERING RECORD		DATE
DRAWN	M. BURTELL	11/19/19
DESIGNED	M. HOHN	11/19/19
CHECKED	R. DAVIS	11/22/19
APPROVED		
PLAN SCALE: 1" = 200'		

EMPIRE STATE TRANSMISSION LINE

PLAN
LAYDOWN YARD

EST-D-T009-25

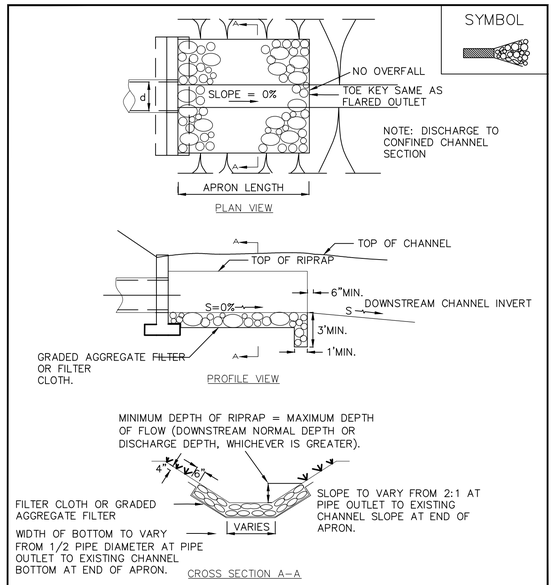
REVISION NO : I



ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

RIPRAP OUTLET PROTECTION EXAMPLE

TYPICAL RIPRAP OUTLET 1A
SCALE: NONE



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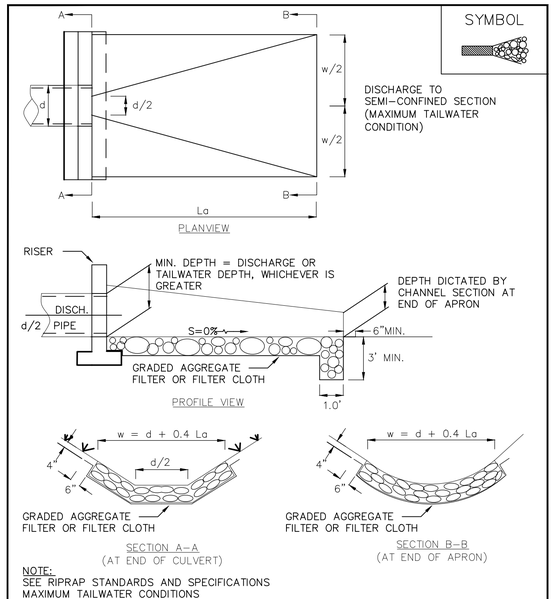
RIPRAP OUTLET PROTECTION EXAMPLE

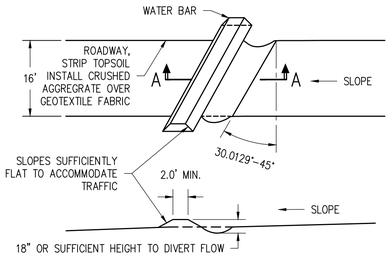
TYPICAL RIPRAP OUTLET 1B
SCALE: NONE

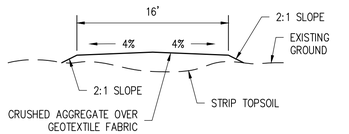


ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE

RIPRAP OUTLET PROTECTION EXAMPLE

TYPICAL RIPRAP OUTLET 1C
SCALE: NONE

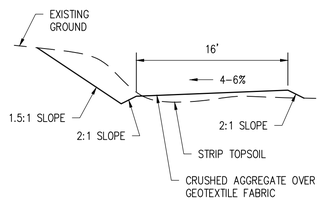




NOTES:
1. ADJUST FIELD LOCATION AS NEEDED TO PROVIDE A STABILIZED SAFE OUTLET.
2. DIVERTED RUNOFF SHALL BE DIRECTED TO AN UNDISTURBED VEGETATIVE AREA.
3. SPACING:

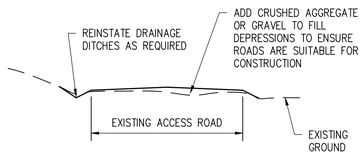
ROAD GRADE %	DISTANCE (FT.)
8	100
10	80
12	70

TYPE 1 GRAVEL ACCESS 2
SCALE: NONE

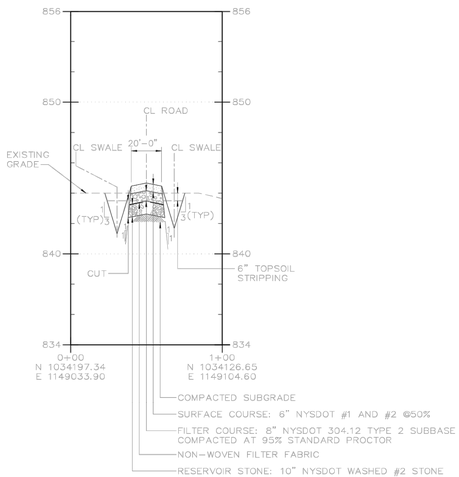


NOTE:
1. LOCATE CHECK DAMS, CULVERTS, OUTLET PROTECTION AND SILT FENCE AS SHOWN IN PERSPECTIVE VIEW.

TYPE 1 GRAVEL ACCESS 3
SCALE: NONE



TYPE 3 ACCESS ROAD 4
SCALE: NONE



TYPE 4 ACCESS ROAD 5
SCALE: NONE

NOTES

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NO	REVISION	DATE	BY	APR
A	ISSUED FOR REVIEW	XX/XX/20	XXX	XXX

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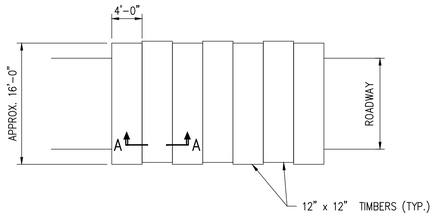
DESIGNED		
CHECKED		
APPROVED		
NONE		

EMPIRE STATE TRANSMISSION LINE

ACCESS DETAILS

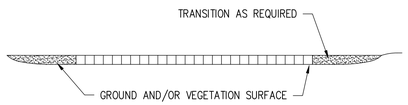
EST–D–T010–1 | REVISION NO : A



TYPICAL PLAN VIEW

SECTION A–A

BOLTED TOGETHER



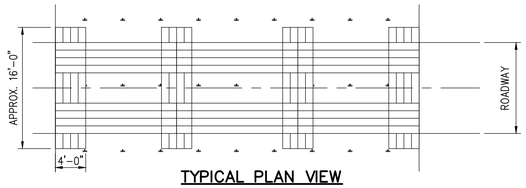
TYPICAL SECTION VIEW

NOTES:

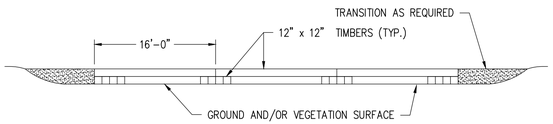
1. TO BE INSTALLED IF NECESSARY TO PREVENT RUTTING.
2. DETAIL SHOWS TYPICAL DIMENSIONS. SOME MATS ARE DIMENSIONALLY DIFFERENT FROM WHAT IS SHOWN HERE.
3. DEPENDING ON SITE CONDITIONS, MULTIPLE LAYERS OF MATS MAY BE INSTALLED.

TYPE 2 ACCESS ROAD – MATTED "DRY" CROSSING — 6A / –

SCALE: NONE



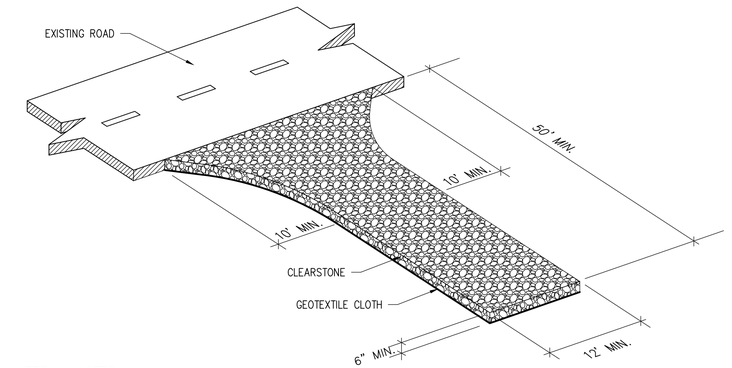
TYPICAL PLAN VIEW



TYPICAL SECTION VIEW

TYPE 2 ACCESS ROAD – MATTED WETLAND CROSSING — 7A / –

SCALE: NONE



MATERIAL NOTES

1. THE AGGREGATE FOR TRACKING PAD SHALL BE 1"–4" CLEAR, ANGULAR STONE.
2. THE TRACKING PAD SHALL BE UNDERLAIN WITH A WDOT TYPE R GEOTEXTILE CLOTH.

INSTALLATION NOTES

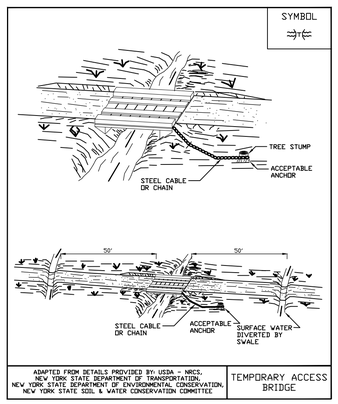
1. INSTALLATION SHALL CONFORM WITH THE REQUIREMENTS OF STATE/COUNTY AND LOCAL REQUIREMENTS.
2. THE TRACKING PAD SHALL BE INSTALLED PRIOR TO ANY TRAFFIC LEAVING THE SITE. STONE TRACKING PAD SHALL BE USED AT ALL POINTS OF CONSTRUCTION EGRESS.
3. DIMENSIONS OF THE TRACKING PAD SHALL BE MINIMUM AS NOTED ON THE FIGURE ABOVE. THE WIDTH SHALL BE 12' MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY–FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
4. SURFACE WATER SHALL BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY FROM TRACKING PADS OR CONVEYED UNDER AND AROUND THEM USING CULVERTS. WHERE PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
5. TRACKING PAD SHALL BE REMOVED FROM THE SITE ONLY AFTER CONSTRUCTION IS COMPLETE AND THE SITE HAS BEEN STABILIZED.

INSPECTION & MAINTENANCE NOTES

1. STONE TRACKING PADS SHALL BE INSPECTED WEEKLY AND WITHIN 24 HOURS AFTER EVERY PRECIPITATION EVENT THAT PRODUCES 0.5 INCHES OF RAIN OR MORE DURING A 24 HOUR PERIOD.
2. ADDITIONAL AGGREGATE SHALL BE PLACED IF THE TRACKING PAD BECOMES BURIED OR IF SEDIMENT IS NOT BEING REMOVED EFFECTIVELY FROM THE VEHICLE TIRES.
3. A MINIMUM 6–INCH THICK PAD SHALL BE MAINTAINED AT ALL TIMES.
4. THE TRACKING PAD PERFORMANCE SHALL BE MAINTAINED BY SCRAPING OR TOP–DRESSING WITH ADDITIONAL AGGREGRATE.
5. ANY SEDIMENT TRACKED ONTO A PUBLIC OR PRIVATE ROAD SHOULD BE REMOVED EMMEDIATELY.
6. MAINTENANCE SHALL BE COMPLETED AS SOON AS POSSIBLE WITH CONSIDERATION FOR SITE CONDITIONS.
7. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

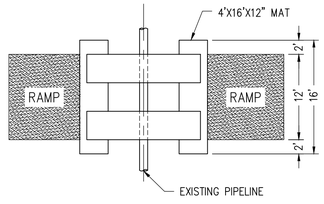
TEMPORARY CONSTRUCTION ENTRANCE — 8 / –

SCALE: NONE

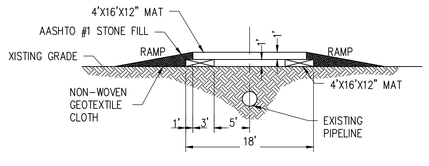


TEMPORARY ACCESS BRIDGE — 9 / –

SCALE: NONE



PLAN VIEW



TEMPORARY CONSTRUCTION RAMP OVER PIPELINE

SPECIAL NOTE:
PROPOSED VEHICLE AND EQUIPMENT WHEEL/TRACK LOADS WEIGHTS SHALL BE PROVIDE TO PIPELINE ENGINEERING SERVICES TO DETERMINE IF ADDITIONAL MEASURES ARE NECESSARY BASED ON THE SPACIFIC PIPELINE TO BE CROSSED.

NOTES:
1. WOOD MATS WILL BE SUPPLIED AND INSTALLED BY CONTRACTOR.
2. STONE FILL TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.
3. ADDITIONAL MATS, IF NEEDED, WILL BE SUPPLIED AND INSTALLED BY CONTRACTOR.

PIPELINE CROSSING — 10 / –

SCALE: NONE

NOTES

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EMPIRE STATE TRANSMISSION LINE

ACCESS DETAILS

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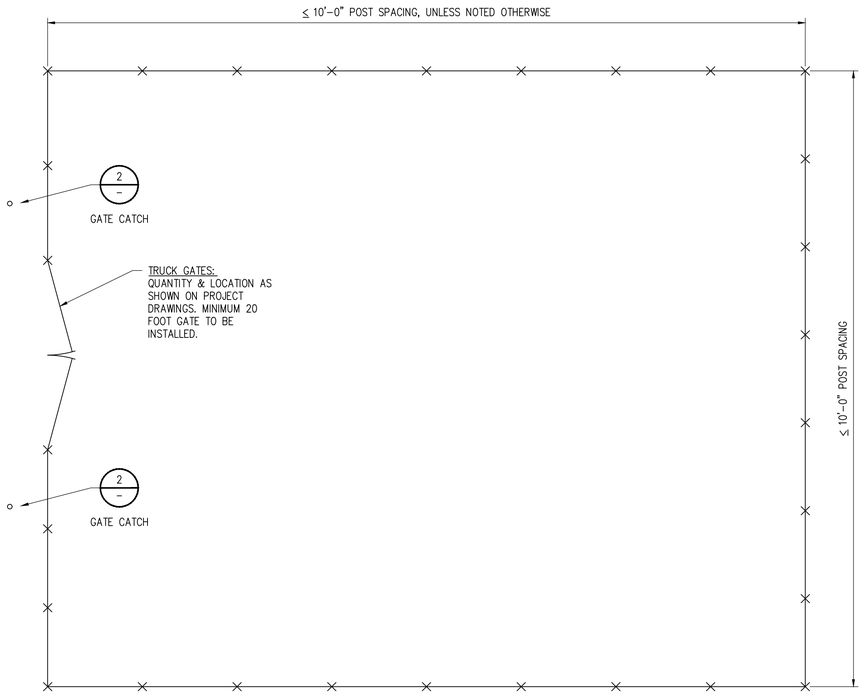
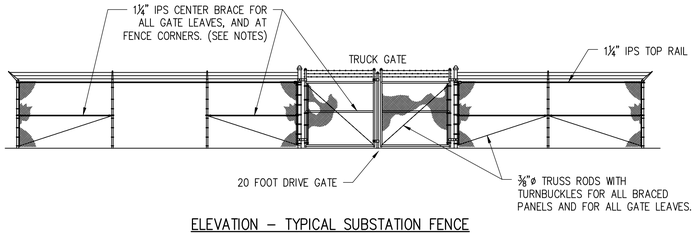


PLAN VIEW – TYPICAL SUBSTATION FENCE

(SEE FOUNDATION PLAN (P006-1) FOR ACTUAL FENCE DIMENSIONS AND GATE LOCATIONS.)



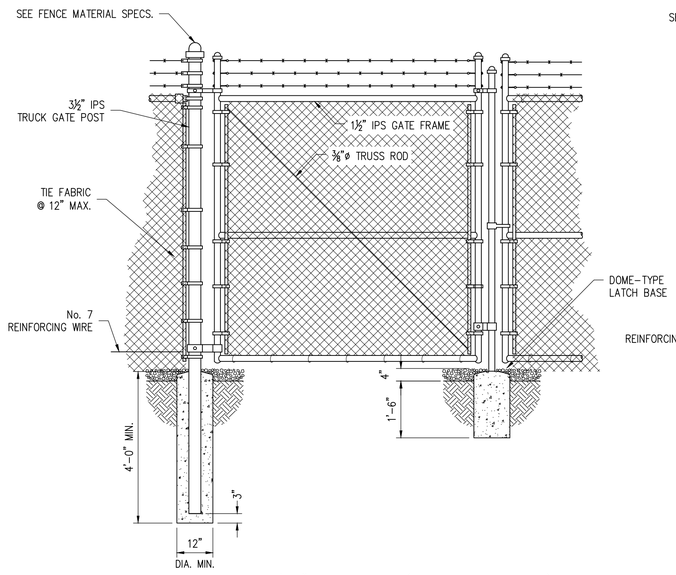
ELEVATION – TYPICAL SUBSTATION FENCE

(NO SCALE)

FENCE POST AND PIPE SIZES		
ITEM	POST	FRAME
TRUCK GATES TO 10'-0" (SINGLE PANEL)	3 1/2" IPS	1 1/2" IPS
TRUCK GATES OVER 10'-0" (SINGLE PANEL)	6" IPS	1 3/4" IPS
WALK GATES	2 1/2" IPS	1 1/2" IPS
CORNER POSTS	2 1/2" IPS	-----
LINE POSTS	2" IPS	-----
TOP RAIL & CENTER BRACE	-----	1 1/4" IPS

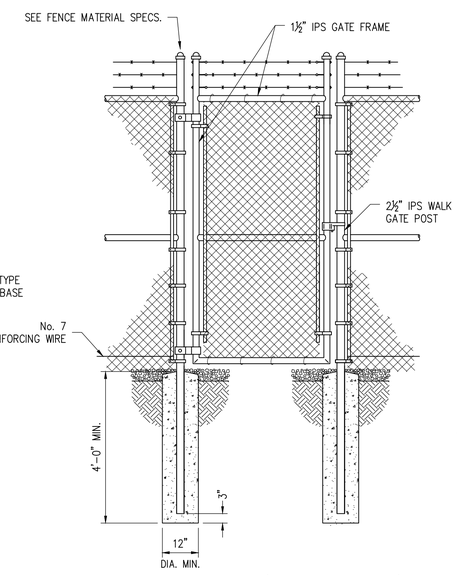
FABRIC & HARDWARE SPECIFICATIONS	
ITEM	DESCRIPTION
FABRIC	2" MESH, 9 GAUGE GALV. STEEL
STRETCHER BAR	3/16"x3/4" MIN. EQUIV. AREA
BARB WIRE	2 STRAND, 12 1/2 GAUGE TWISTED, WITH 4-PT. BARBS @ 5" O.C.
LATCH	VERTICAL PLUNGER ROD WITH SLOTTED DOME LATCH BASE
TIE WIRE	ALUMINUM, 6 GAUGE
CONCRETE	3200 PSI 28 DAY COMPRESSIVE STRENGTH

FENCE MATERIAL SPECIFICATIONS

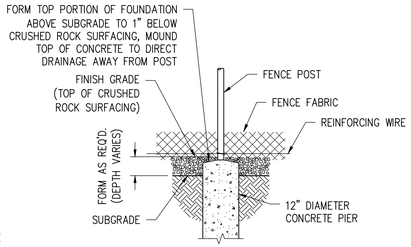


TYPICAL 10'-0" GATE DETAIL (EXTERIOR ELEVATION)

(SHOWN WITHOUT WALK-IN PANEL)

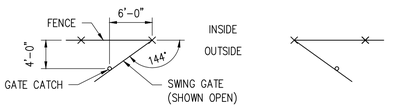


TYPICAL MAN GATE (EXTERIOR ELEVATION)

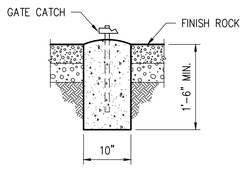


TYPICAL PIER INSTALLATION

DETAIL 1 – SCALE: NONE



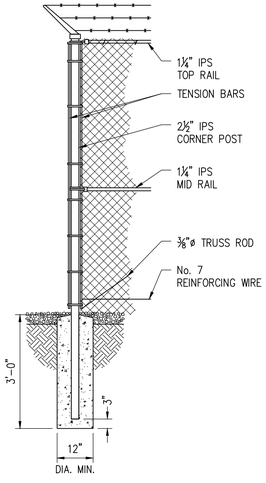
PLAN VIEW



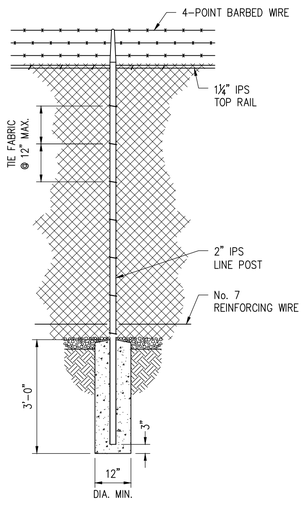
TWO GATE CATCHES SHALL BE INSTALLED W/EACH DOUBLE SWING GATE

ELEVATION

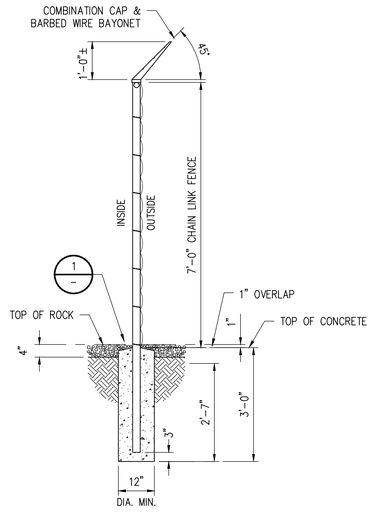
GATE CATCH 2 – SCALE: NONE



TYPICAL CORNER POST (EXTERIOR ELEVATION)



TYPICAL LINE POST (EXTERIOR ELEVATION)



TYPICAL LINE POST SECTION

NOTES

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FENCE DETAILS

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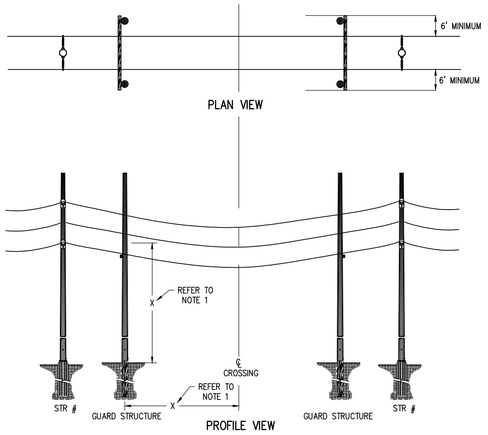

GUARD STRUCTURES
SCALE: N.T.S.

NOTES:
1. CONDUCTOR STRINGING AND INSTALLMENT SHALL MEET ALL STANDARDS AND REQUIREMENTS SET FORTH WITHIN THE CROSSING PERMIT. AND SHALL BE DONE IN AN MANNER SATISFACTORY TO THE CROSSING FACILITY OWNER.
2. THE OWNER OF CROSSING FACILITY SHALL BE NOTIFIED A MINIMUM OF FORTY EIGHT (48) HOURS PRIOR TO STRINGING CONDUCTOR, OR PER THE REQUIREMENTS AS STATED WITHIN THE CROSSING PERMIT.
3. CONTRACTOR MAY PROPOSE ALTERNATE METHOD FOR GUARD STRUCTURES. THIS DRAWING HAS BEEN PROVIDED AS TYPICAL IN EFFORTS TO TABULATE CROSSING LOCATIONS AND TO SET FORTH THE MINIMUM REQUIREMENTS.
4. CROSSINGS OVER EXISTING DISTRIBUTION AND TRANSMISSION LINES SHALL BE COORDINATED WITH THE UTILITY OWNER. WARNING TAGS SHALL BE PLACED ON ALL ENERGIZED CIRCUITS.
5. CONDUCTOR SPLICES SHALL NOT BE LOCATED OVER RAILROADS, MAJOR ROADWAYS, DISTRIBUTION, AND OR TRANSMISSION CROSSINGS.
6. PLACEMENT OF GUARD STRUCTURES SHALL BE WITHIN THE TERMS OF THE ROW AGREEMENT. LAND DISTURBANCE CAUSED BY PLACEMENT OF GUARD STRUCTURE SHALL BE MINIMIZED BY THE CONTRACTOR. ANY GUARD STRUCTURE DRILL HOLE SHALL BE PROPERLY ABANDONED IN ACCORDANCE WITH ALL LOCAL, COUNTY, STATE, AND FEDERAL REQUIREMENTS, AND SITE PROPERLY CLEARED OF ALL DEBRIS.

NOTES

1. FOR GENERAL NOTES SEE SHEET P00X-X

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ACCESS 57
GUARD STRUCTURE

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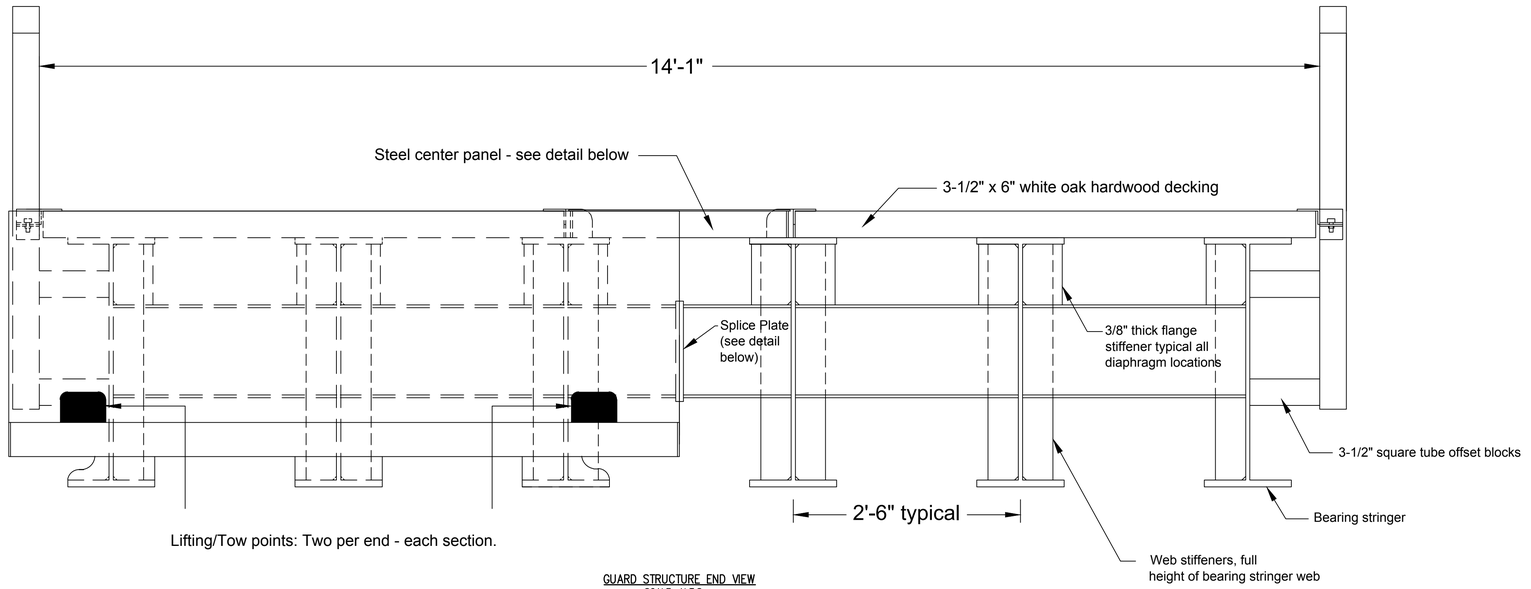
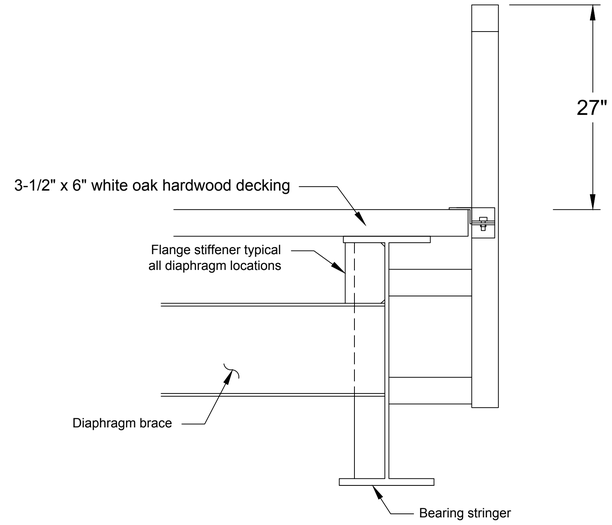


GUARD STRUCTURE END VIEW
SCALE: N.T.S.



GUARD STRUCTURE RAILING DETAIL
SCALE: N.T.S.

Notes:
1. All connections welded with a 1/4" minimum fillet weld unless otherwise specified.
2. Interior and exterior retainer angles extend full length of bridge. Interior retainer angles are welded to 1/4" gussets (that are welded to the bearing stringer on 5' centers) and are not removable. Exterior retainer angles are attached to the guide rail system via retainer angle clips and are removable. One retainer angle clip is welded to the guide rail post and one retainer angle clip is welded to the retainer angle (see Sheet 2 for detail). Retainer angle clips are bolted together using one 1/2" x 1-1/4" bolt.

NOTES

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PREFABRICATED BRIDGE

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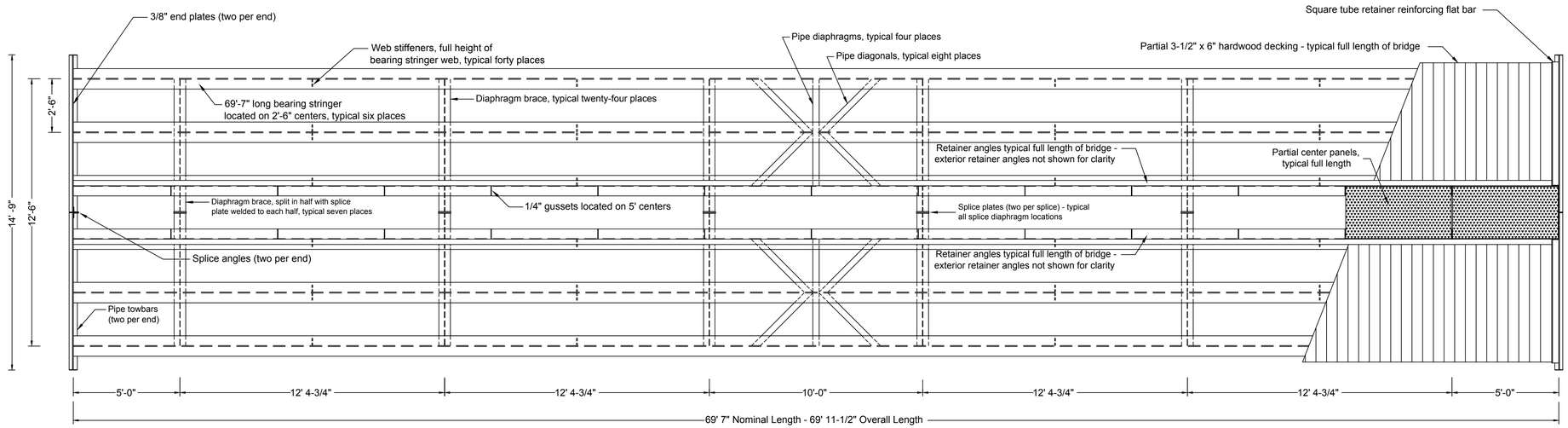
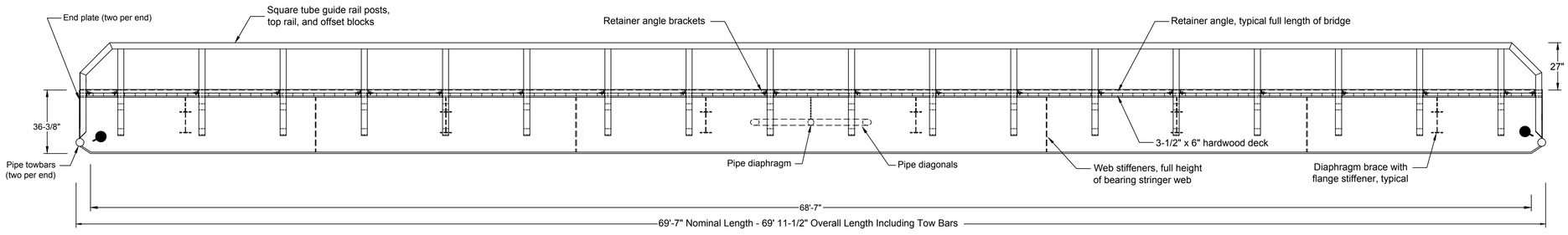


GUARD STRUCTURE PLAN VIEW
SCALE: N.T.S.



GUARD STRUCTURE ELEVATION VIEW
SCALE: N.T.S.

NOTES

Notes:
1. Railing, full decking, and full center panels not shown on plan view for clarity.
2. All connections welded with a 1/4" minimum fillet weld unless otherwise specified.
3. Distance from top of deck to bottom of bearing stringer: 36-3/8"
4. Distance from top of deck to top of guide rail: 27"
5. Interior and exterior retainer angles extend full length of bridge. Interior retainer angles are welded to 1/4" gussets (that are welded to the bearing stringer on 5' centers) and are not removable. Exterior retainer angles are attached to the guide rail system via retainer angle clips and are removable. One retainer angle clip is welded to the guide rail post and one retainer angle clip is welded to the retainer angle (see Sheet 2 for detail). Retainer angle clips are bolted together using one 1/2" x 1-1/4" bolt.

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PREFABRICATED BRIDGE

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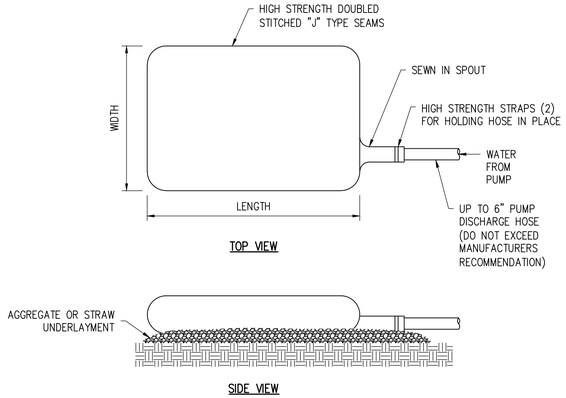
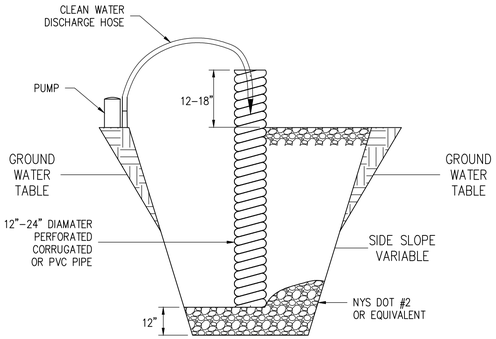


TYPICAL DEWATERING BAG
SCALE: N.T.S.

Permanent Construction Area Planting Mixture Recommendations

Seed Mixture	Variety	Rate in lbs./acre (PLS)	Rate in lbs./ 1, 000 ft^2
Mix #1			
Creeping red fescue	Ensylva, Pennlawn, Boreal	10	.25
Perennial ryegrass	Pennfine, Linn	10	.25
*This mix is used extensively for shaded areas.			
Mix #2			
Switchgrass	Shelter, Pathfinder, Trailblazer, or Blackwell	20	.50
*This rate is in pure live seed, this would be an excellent choice along the upland edge of a wetland to filter runoff and provide wildlife benefits. In areas where erosion may be a problem, a companion seeding of sand lovegrass should be added to provide quick cover at a rate of 2 lbs. per acre (0.05 lbs. per 1000 sq. ft.).			
Mix #3			
Switchgrass	Shelter, Pathfinder, Trailblazer, or Blackwell	4	.10
Big bluestem	Niagara	4	.10
Little bluestem	Aldous or Camper	2	.05
Indiangrass	Rumsey	4	.10
Coastal panicgrass	Atlantic	2	.05
Sideoats grama	El Reno or Trailway	2	.05
Wildflower mix		.50	.01
*This mix has been successful on sand and gravel plantings. It is very difficult to seed without a warm season grass seeder such as a Truax seed drill. Broadcasting this seed is very difficult due to the fluffy nature of some of the seed, such as bluestems and indiangrass.			
Mix #4			
Switchgrass	Shelter, Pathfinder, Trailblazer, or Blackwell	10	.25
Coastal panicgrass	Atlantic	10	.25
*This mix is salt tolerant, a good choice along the upland edge of tidal areas and roadsides.			
Mix #5			
Saltmeadow cordgrass (Spartina patens)—This grass is used for tidal shoreline protection and tidal marsh restoration. It is planted by vegetative stem divisions. 'Cape' American beachgrass can be planted for sand dune stabilization above the saltmeadow cordgrass zone.			
Mix #6			
Creeping red fescue	Ensylva, Pennlawn, Boreal	20	.45
Chewings Fescue	Common	20	.45
Perennial ryegrass	Pennfine, Linn	5	.10
Red Clover	Common	10	.45
*General purpose erosion control mix. Not to be used for a turf planting or play grounds.			

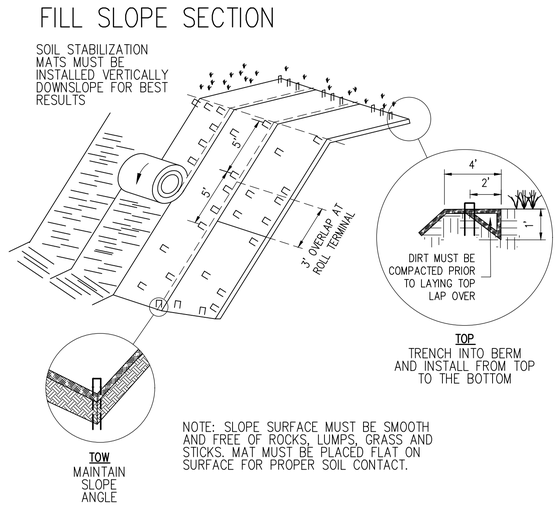
PRELIMINARY WETLAND SEED MIX
SCALE: N.T.S.



CONSTRUCTION SPECIFICATIONS

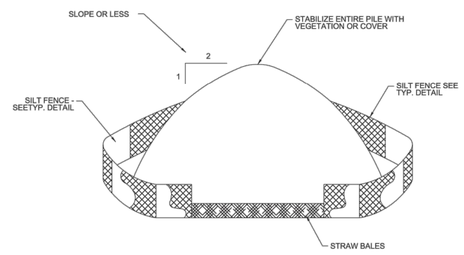
1. PIT DIMENSION ARE VARIABLE.
2. THE STANDPIPE SHOULD BE CONSTRUCTED BY PERFORATING A 12–24" DIAMETER CORRUGATED OR PVC PIPE.
3. A BASE OF NYS DOT #2 OR EQUIVALENT AGGREGATE SHOULD BE PLACED IN THE PIT TO A DEPTH OF 12". AFTER INSTALLING THE STANDPIPE, THE PIT SURROUNDING THE STANDPIPE SHOULD BE BACKFILLED WITH NYS DOT #2 OR EQUIVALENT AGGREGATE.
4. THE STANDPIPE SHOULD BE EXTEND 12–18" ABOVE THE LIP OF THE PIT.
5. IF DISCHARGE WILL BE PUMPED DIRECTLY TO A STORM DRAINAGE SYSTEM, THE STANDPIPE SHALL BE WRAPPED WITH FILTERCLOTH BEFORE INSTALLATION. IT IS RECOMMENDED THAT 1/4"–1/2" HARDWARE CLOTH MAY BE PLACED AROUND THE STANDPIPE, PRIOR TO ATTACHING THE FILTERCLOTH.

TYPICAL DEWATERING SUMP PIT
SCALE: N.T.S.



NOTE: SLOPE SURFACE MUST BE SMOOTH AND FREE OF ROCKS, LUMPS, GRASS AND STICKS. MAT MUST BE PLACED FLAT ON SURFACE FOR PROPER SOIL CONTACT.

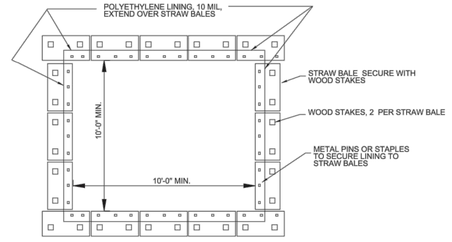
TYPICAL EROSION CONTROL
SCALE: N.T.S.



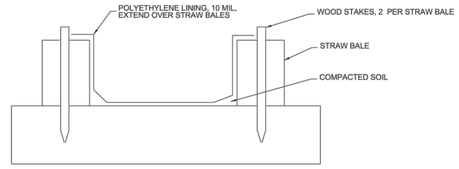
INSTALLATION NOTES:

1. AREA CHOSEN FOR STOCKPILING OPERATIONS SHALL BE DRY AND STABLE.
2. MAXIMUM SLOPE OF STOCKPILE SHALL BE 2H:1V.
3. UPON COMPLETION OF SOIL STOCKPILING, EACH PILE SHALL BE SURROUNDED WITH EITHER SILT FENCING OR STRAW BALES, THEN STABILIZED WITH VEGETATION OR COVERED.

TYPICAL TOP SOIL DETAIL
SCALE: N.T.S.



PLAN



TYPICAL CONCRETE WASHOUT DETAIL
SCALE: N.T.S.

NOTES

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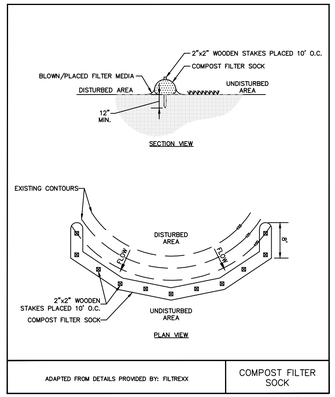
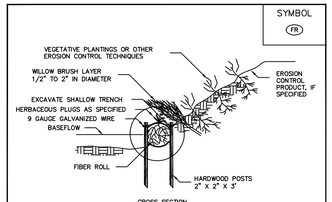


1. SOCK FABRIC SHALL MEET STANDARDS OF TABLE 5.1. COMPOST SHALL MEET THE STANDARDS LISTED ON 0F TABLE 5.2.
2. COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE SOCK SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN SOCK ALIGNMENT (FIGURE 5.22). MAXIMUM SLOPE LENGTH ABOVE ANY SOCK SHALL BE AS SPECIFIED IN TABLE SHOWN ON FIGURE 5.0. STAKES MAY BE INSTALLED IMMEDIATELY DOWNSLOPE OF THE SOCK IF SO SPECIFIED BY THE MANUFACTURER.
3. TRAFFIC SHALL NOT BE PERMITTED TO CROSS FILTER SOCKS.
4. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES HALF THE ABOVEGROUND HEIGHT OF THE SOCK AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.
5. SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.
6. BIODEGRADABLE FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS. PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
7. UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCKS, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

ADAPTED FROM DETAILS PROVIDED BY: FILTREXX | COMPOST FILTER SOCK

COMPOST FILTER SOCK
SCALE: N.T.S.

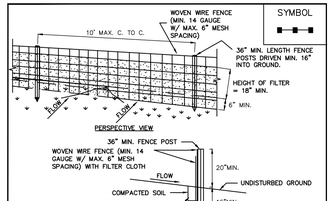


CONSTRUCTION SPECIFICATIONS

1. EXCAVATE A SHALLOW TRENCH SLIGHTLY BELOW BASEFLOW OR A 4" TRENCH ON SLOPE CONTOURS.
2. PLACE THE ROLL IN THE TRENCH AND ANCHOR WITH 2" x 2" POSTS PLACED ON BOTH SIDES OF THE ROLL AND SPACED LATERALLY ON 2' TO 4' CENTERS. TRIM THE TOP OF THE POSTS EVEN WITH THE EDGE OF THE ROLL, IF NECESSARY.
3. NOTCH THE POSTS AND TIE TOGETHER, ACROSS THE ROLL, WITH 9 GAUGE GALVANIZED WIRE OR 1/8" DIAMETER BRAIDED NYLON ROPE..
4. PLACE SOIL EXCAVATED FROM THE TRENCH BEHIND THE ROLL AND HAND TAMP. PLANT WITH SUITABLE HERBACEOUS OR WOODY VEGETATION AS SPECIFIED ELSEWHERE IN THE CONTRACT DOCUMENTS. VEGETATION SHALL BE PLACED IMMEDIATELY ADJACENT TO THE ROLL TO PROMOTE ROOT GROWTH INTO THE FIBER. HERBACEOUS VEGETATION, IF SPECIFIED, SHALL BE PLANTED INTO THE FIBER ROLL.

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE | FIBER ROLL

FIBER ROLL
SCALE: N.T.S.

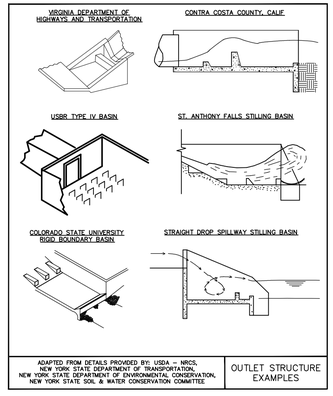


CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL MEET THE MINIMUM REQUIREMENTS SHOWN.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

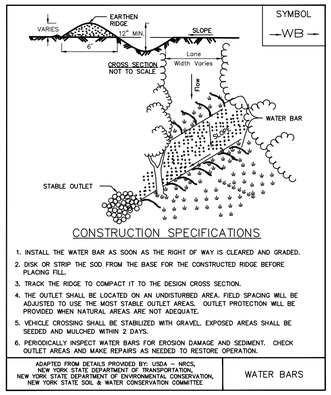
ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE | REINFORCED SILT FENCE

REINFORCED SILT FENCE
SCALE: N.T.S.



ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE | OUTLET STRUCTURE EXAMPLES

OUTLET STRUCTURE EXAMPLES
SCALE: N.T.S.

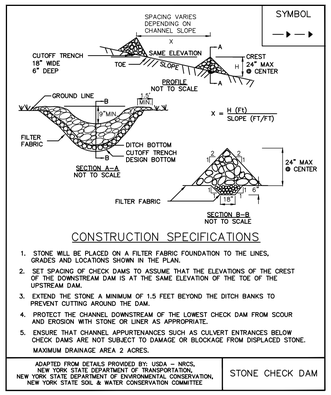


CONSTRUCTION SPECIFICATIONS

1. INSTALL THE WATER BAR AS SOON AS THE RIGHT OF WAY IS CLEARED AND GRADED.
2. DISK OR STRIP THE SOD FROM THE BASE FOR THE CONSTRUCTED RIDGE BEFORE PLACING FILL.
3. TRACK THE RIDGE TO COMPACT IT TO THE DESIGN CROSS SECTION.
4. THE OUTLET SHALL BE LOCATED ON AN UNDISTURBED AREA. FIELD SPACING WILL BE ADJUSTED TO USE THE MOST STABLE OUTLET AREAS. OUTLET PROTECTION WILL BE PROVIDED WHEN NATURAL AREAS ARE NOT ADEQUATE.
5. VEHICLE CROSSING SHALL BE STABILIZED WITH GRAVEL. EXPOSED AREAS SHALL BE SEEDED AND MULCHED WITHIN 2 DAYS.
6. PERIODICALLY INSPECT WATER BARS FOR EROSION DAMAGE AND SEDIMENT. CHECK OUTLET AREAS AND MAKE REPAIRS AS NEEDED TO RESTORE OPERATION.

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE | WATER BARS

WATER BARS
SCALE: N.T.S.



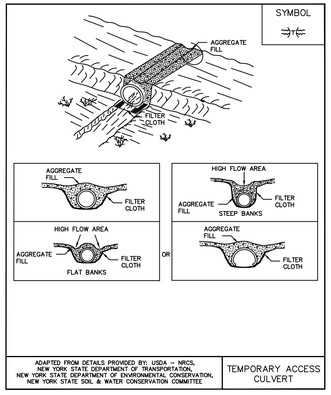
CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN IN THE PLAN.
2. SET SPACING OF CHECK DAMS TO ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.

MAXIMUM DRAINAGE AREA 2 ACRES.

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE | STONE CHECK DAM

STONE CHECK DAM
SCALE: N.T.S.



ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE | TEMPORARY ACCESS CULVERT

TEMPORARY ACCESS CULVERT
SCALE: N.T.S.

NOTES

FILE LOCATION: L:\NEXTERA\NEXT-159 EMPIRE STATE LINE\TYPICALS\EST-D-T010-8.DWG LAST SAVED BY: tjwilcox 6/22/2020 11:41 AM PLOTTED BY: Tony J. Wilcox 6/22/2020 11:42 AM Tab:EST-D-T010-8

"Engineering with Distinction" ECI ENGINEERING SERVICES, P.C. | Sargent & Lundy | ecology and environment, inc. Global Environmental Specialists

NO	REVISION	DATE	BY	APR
A	ISSUED FOR REVIEW	XX/XX/20	XXX	XXX

NEXTera ENERGY TRANSMISSION NEW YORK

ENGINEERING RECORD		DATE
DRAWN	T. WILCOX	06/19/20
DESIGNED		
CHECKED		
APPROVED		
NONE		

EMPIRE STATE TRANSMISSION LINE

SWPPP

EST-D-T010-8 | REVISION NO : A

Preliminary Wetland Seed Mix		
%	***Species Name***	**Common Name**
33	*Carex vulpinoidea*	Fox Sedge
20	*Elymus virginicus*	Virginia Wildrye
16.8	*Carex scoparia*	Blunt Broom Sedge
6.4	*Carex lurida*	Lurid Sedge
5.2	*Cinna arundinacea*	Wood Reedgrass
4	*Verbena hastata*	Blue Vervain
3	*Juncus effusus Soft Rush*	
2	*Asclepias incarnata*	Swamp Milkweed
2	*Bidens cernua*	Nodding Bur Marigold
2	*Heliopsis helianthoides*	Oxeye Sunflower
1	*Helenium autumnale*	Common Sneezeweed
1	*Zizia aurea Golden Alexanders*	
0.6	*Aster puniceus*	Purplestem Aster
0.5	*Alisma subcordatum*	Mud Plantain
0.4	*Aster novae-angliae*	New England Aster
0.4	*Aster prenanthoides*	Zigzag Aster
0.4	*Aster umbellatus*	Flat Topped White Aster
0.4	*Eupatorium fistulosum*	Joe Pye Weed
0.3	*Lobelia siphilitica*	Great Blue Lobelia
0.3	*Scirpus cyperinus*	Woolgrass
0.2	*Penthorum sedoides*	Ditch Stonecrop
0.1	*Solidago rugosa*	Wrinkleleaf Goldenrod
Application Rate	*20 lbs/Acre*	

PRELIMINARY WETLAND SEED MIX
SCALE: N.T.S.

NOTES

FILE LOCATION: L:\NEXTERA\NEXT-159 EMPIRE STATE LINE\TYPICALS\EST-D-T010-9.DWG LAST SAVED BY: tjwilcox 6/22/2020 11:42 AM PLOTTED BY: Tony J. Wilcox 6/22/2020 11:42 AM Tab:EST-D-T010-9

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ecology and environment, inc.
Global Environmental Specialists

NO	REVISION	DATE	BY	APR
A	ISSUED FOR REVIEW	XX/XX/20	XXX	XXX

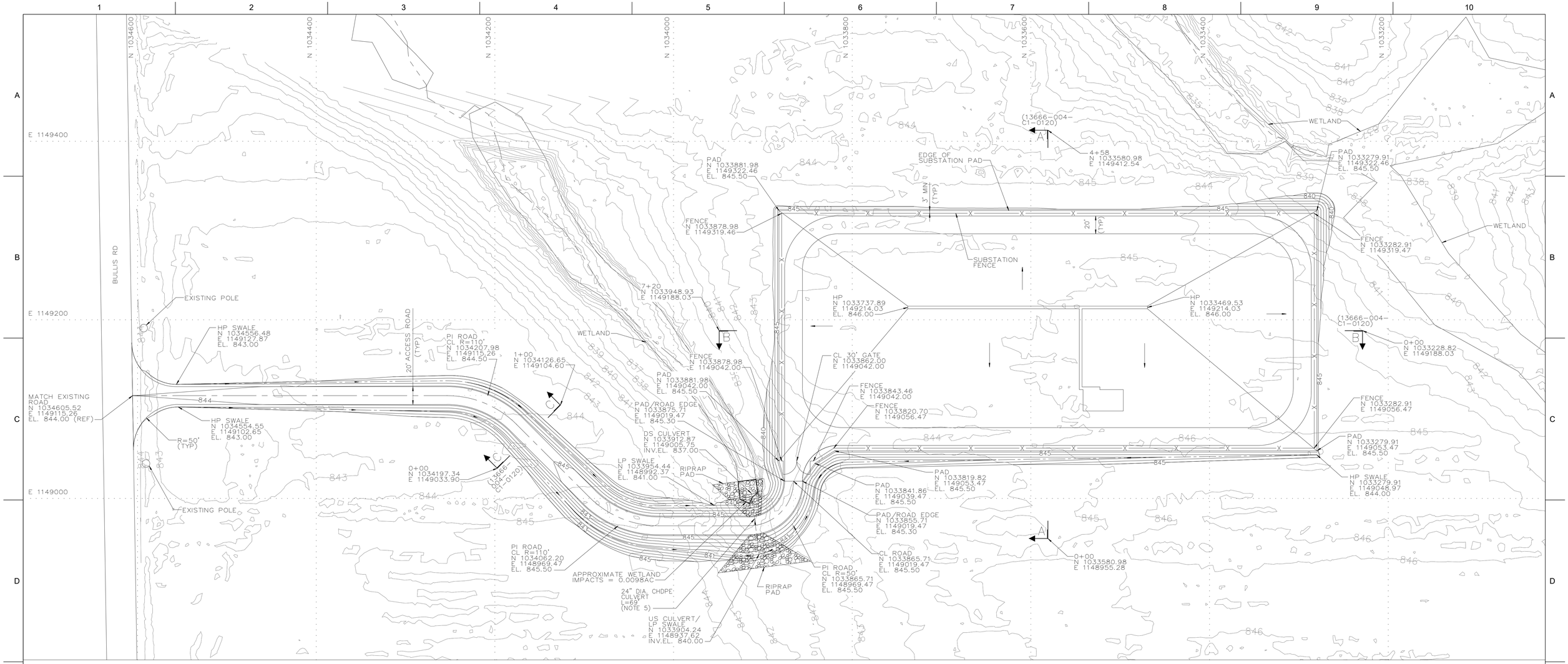
NEXTera™ ENERGY
TRANSMISSION NEW YORK

ENGINEERING RECORD		DATE
DRAWN	*T. WILCOX*	06/19/20
DESIGNED		
CHECKED		
APPROVED		
NONE		

EMPIRE STATE TRANSMISSION LINE

SWPPP

EST-D-T010-9 | REVISION NO : A



SARGENT & LUNDY CERTIFICATE OF AUTHORIZTION NO. 080442 (VALID THROUGH 08/31/2021)

NORTH

50 0 50 100 150

GRAPHIC SCALE

DRAWING SCALE
1" = 50'-0"

LEGEND

849	EXISTING CONTOUR
848	FINISHED GRADE MINOR CONTOUR
845	FINISHED GRADE MAJOR CONTOUR
CHDPE	CORRUGATED HIGH DENSITY POLYETHYLENE PIPE

NOTES

1. COORDINATE SYSTEM IS NEW YORK STATE PLANE WEST, US FOOT.
2. TOPOGRAPHY FOR THE SITE WAS OBTAINED FROM SAM, LLC.
3. PRIVILEGED AND CONFIDENTIAL ATTORNEY-CLIENT COMMUNICATION/ ATTORNEY WORK PRODUCT PREPARED AT THE DIRECTION OF LEGAL COUNSEL.
4. IT IS A VIOLATION OF THE GUIDELINES FOR PROFESSIONAL ENGINEERING PRACTICE IN NEW YORK STATE LAW FOR ANY PERSON TO ALTER THIS DOCUMENT IN ANY WAY, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER.
5. CULVERT AND RIPRAP SHALL BE PLACED PER DETAIL 2, DRAWING 13666-004-C1-0116. FLARED END SECTIONS SHALL BE PLACED AT EACH END OF THE CULVERT.

ESTIMATED QUANTITIES

PAD:
TOTAL FILL VOLUME = 13,600 CY
#1 STONE = 1,575 CY
#2 STONE = 6,820 CY
TYPE 2 SUBBASE = 4,200 CY
TOPSOIL STRIPPING (6") = 3,235 CY
FILL VOLUME WITHOUT STONE = 1,005 CY
CUT = 6,000 CY

ROAD:
TOTAL FILL VOLUME = 1,245 CY
#1 STONE = 155 CY
#2 STONE = 675 CY
TYPE 2 SUBBASE = 415 CY
TOPSOIL STRIPPING (6") = 425 CY
FILL VOLUME WITHOUT STONE = 0 CY
CUT = 620 CY

CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR'S/INSTALLER'S PERSONNEL (OR THAT OF ITS SUBCONTRACTOR(S)) PERFORMING THE WORK.

UNDERGROUND OR EMBEDDED UTILITIES MAY BE LOCATED WITHIN OR ADJACENT TO THE AREA IN WHICH EXCAVATION, DEMOLITION, FOUNDATION, OR MODIFICATION WORK IS TO BE PERFORMED.

REFERENCES RELATING TO THE UNDERGROUND OR EMBEDDED UTILITIES ARE PROVIDED TO ASSIST THE CONTRACTOR/INSTALLER IN THE FIELD LOCATING THOSE UTILITIES AND OTHER POSSIBLE UNDERGROUND OR EMBEDDED INTERFERENCES WITH THE WORK.

THE CONTRACTOR/INSTALLER SHALL EXERCISE DUE CAUTION DURING ALL EXCAVATION/FOUNDATION/DEMOLITION WORK.

NO	DATE	REVISIONS AND RECORD OF ISSUE	DRWN	REV'D	APPR	COMP
C	10/25/19	PRELIMINARY RELEASE - ISSUED FOR REVIEW	CAF	JTP	KVP	S&L
B	03/13/19	PRELIMINARY RELEASE - ISSUED FOR REVIEW	CAF	JTP	KVP	S&L
A1	04/17/18	PRELIMINARY RELEASE - FOR INFORMATION	CAF	VBP	KVP	S&L
A	03/30/18	PRELIMINARY RELEASE - FILING SKETCH	CAF	VBP	KVP	S&L

SCALE: 1"=50' (0 50)

PREP: CAF CHKD: VBP
APPD: KVP DATE: 03/30/2018

CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE; INCLUDING CONTRACTOR'S /INSTALLER'S PERSONNEL (OR THAT OF IT'S SUB-CONTRACTOR(S)) PERFORMING THE WORK.

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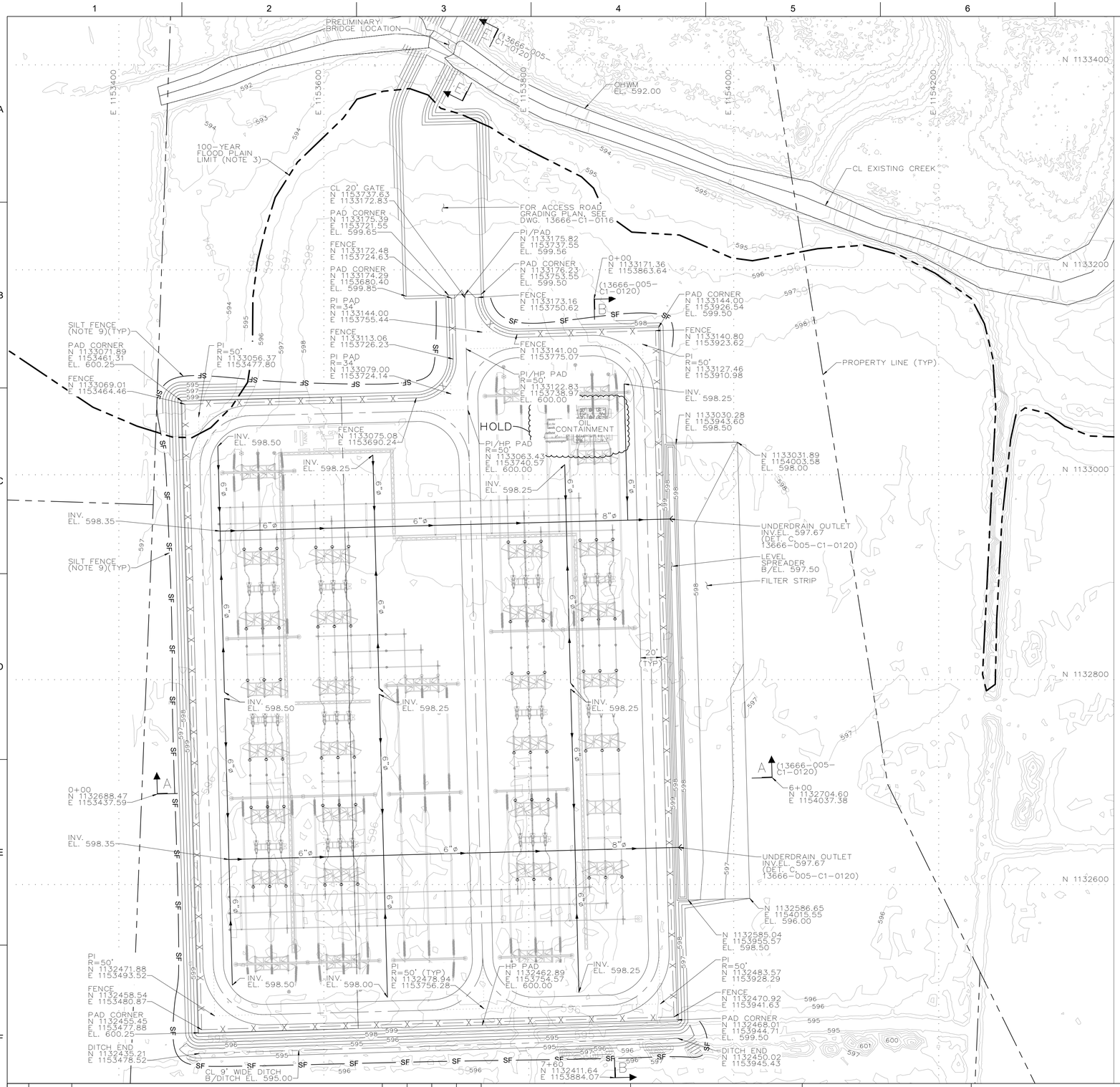
Sargent & Lundy
55 EAST MONROE ST., CHICAGO, ILL.

NEXTera ENERGY TRANSMISSION NEW YORK

NEXTERA ENERGY TRANSMISSION NEW YORK, INC
EMPIRE STATE LINE
STOLLE SUBSTATION
SITE GRADING PLAN

13666-004-C1-0115



ESTIMATED QUANTITIES (NOTE 2)	
CUT	300 CY
FILL (NOTE 1)	39,730 CY
#1 AND #2 STONE	23,300 CY
FILL VOLUME WITHOUT STONE	16,430 CY

ESTIMATED QUANTITIES NOTES:

1. FILL QUANTITY IS TOTAL FILL, INCLUDING CRUSHED STONE VOLUME. NO FILL COMPACTION FACTOR IS INCLUDED, AND QUANTITIES DO NOT ACCOUNT FOR ANY TOPSOIL OR UNSUITABLE MATERIAL REMOVAL.
2. QUANTITIES SHOWN ARE FOR THE SUBSTATION AND ACCESS ROAD PORTION SOUTH OF MUD CREEK.

LEGEND

- 594 — EXISTING CONTOUR
- 598 — FINISHED GRADE MINOR CONTOUR
- 600 — FINISHED GRADE MAJOR CONTOUR
- 6"ø — UNDERDRAIN PIPE (NOTE 7)
- SF — SILT FENCE
- X — X — SITE FENCE
- PROPERTY LINE
- HP — HIGH POINT
- B/EL. — BOTTOM ELEVATION

NOTES

1. COORDINATE SYSTEM IS NEW YORK STATE PLANE WEST, US FOOT.
2. TOPOGRAPHY FOR THE SITE WAS OBTAINED FROM SAM, LLC. TOPOGRAPHY SOUTH OF EXISTING CREEK CENETERLINE IS FROM "DYSINGER EXISTING TOPO.DWG", TOPOGRAPHY NORTH OF EXISTING CREEK CENTERLINE IS FROM "MORE ADDITIONAL TOPO FROM POINTS-04-13-20.DWG."
3. 100-YEAR FLOOD PLAIN LIMIT OBTAINED FROM FLOOD INSURANCE RATE MAP NUMBER 36063C0402E AND 36063C0410E.
4. PRIVILEGED AND CONFIDENTIAL ATTORNEY-CLIENT COMMUNICATION/ ATTORNEY WORK PRODUCT PREPARED AT THE DIRECTION OF LEGAL COUNSEL.
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6. THE OHWM INFORMATION WAS RECEIVED FROM ECOLOGY AND ENVIRONMENT, INC., IN A ZIP FILE TITLED MUDCREEK_FEATURES_20191008.ZIP.
7. UNDERDRAIN PIPE SHALL BE PERFORATED DRAIN WITH SOCK, MEETING THE REQUIREMENTS OF ASTM F667. PERFORATED PIPE SHALL BE PLACED WITHIN THE SUBSTATION PERIMETER FENCE, EXTENDING 3' BEYOND THE SUBSTATION FENCE. SOLID-WALL PIPE SHALL BE PLACED FROM THE SUBSTATION PAD EDGE TO THE LEVEL SPREADERS.
8. FOR TEMPORARY CONSTRUCTION ENTRANCE DETAIL, REFER TO ECI ENGINEERING SERVICES, P.C. DRAWING EST-D-P002-105, DATED 11/19/19.
9. FOR SILT FENCE DETAIL, REFER TO ECI ENGINEERING SERVICES, P.C. DRAWING EST-D-P002-202, DATED 11/19/19.

SARGENT & LUNDY CERTIFICATE OF AUTHORIZATION NO. 080442 (VALID THROUGH 08/31/2021)

NORTH

50 0 50 100 150

GRAPHIC SCALE

DRAWING SCALE
1" = 50'-0"

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F						
E	03/02/20	PRELIMINARY RELEASE - ISSUED FOR PERMITS	CAF	JTP	KVP	S&L
D	12/19/19	PRELIMINARY RELEASE - ISSUED FOR PERMITS	CAF	JTP	KVP	S&L
C	10/25/19	PRELIMINARY RELEASE - ISSUED FOR REVIEW	CAF	JTP	KVP	S&L
B	05/25/18	PRELIMINARY RELEASE - FILING SKETCH	CAF	VBP	KVP	S&L
A	03/30/18	PRELIMINARY RELEASE - FILING SKETCH	CAF	VBP	KVP	S&L

SCALE: 1"=50' (0 50)

PREP: CAF CHKD: VBP
APPD: KVP DATE: 03/30/2018

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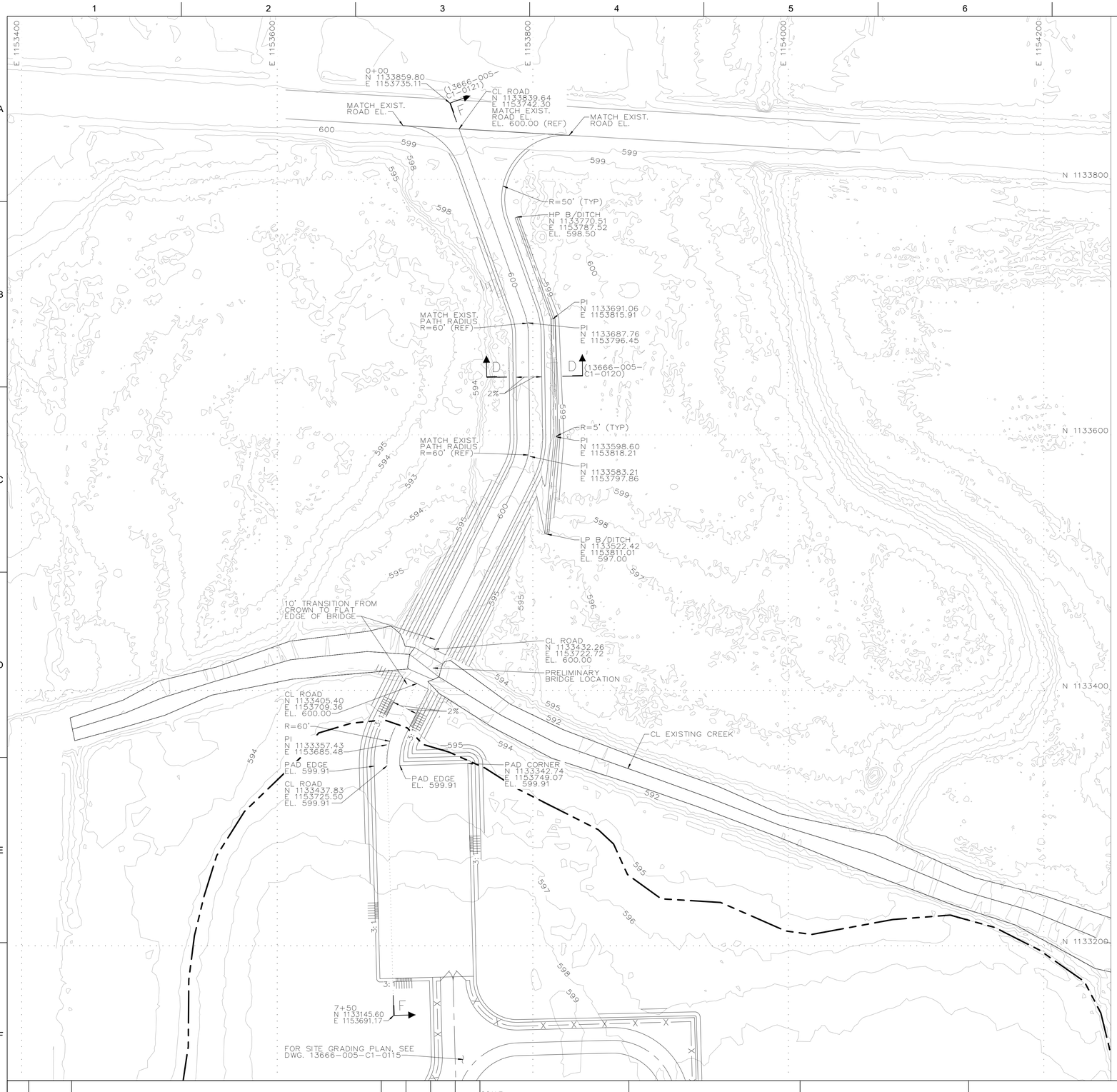
NEXTera ENERGY TRANSMISSION NEW YORK

NEXTERA ENERGY TRANSMISSION NEW YORK, INC
EMPIRE STATE LINE
DYSINGER SWITCHYARD
SITE GRADING PLAN

13666-005-C1-0115



ESTIMATED QUANTITIES (NOTE 2)	
CUT	100 CY
FILL (NOTE 1)	1,500 CY
#1 AND #2 STONE	475 CY
FILL VOLUME WITHOUT STONE	1,025 CY

ESTIMATED QUANTITIES NOTES:

1. FILL QUANTITY IS TOTAL FILL, INCLUDING CRUSHED STONE VOLUME. NO FILL COMPACTION FACTOR IS INCLUDED, AND QUANTITIES DO NOT ACCOUNT FOR ANY TOPSOIL OR UNSUITABLE MATERIAL REMOVAL.
2. QUANTITIES SHOWN ARE FOR THE ACCESS ROAD PORTION NORTH OF MUD CREEK.

SARGENT & LUNDY CERTIFICATE OF AUTHORIZATION NO. 080442 (VALID THROUGH 08/31/2021)

NORTH

40 0 40 80 120
GRAPHIC SCALE

DRAWING SCALE
1" = 40'-0"

LEGEND

- 594 — EXISTING CONTOUR
- 598 — FINISHED GRADE MINOR CONTOUR
- 600 — FINISHED GRADE MAJOR CONTOUR
- 6"ø → UNDERDRAIN PIPE (NOTE 7)
- SF — SILT FENCE
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NOTES

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9. FOR SILT FENCE DETAIL, REFER TO ECI ENGINEERING SERVICES, P.C. DRAWING EST-D-P002-202, DATED 11/19/19.

CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR'S/INSTALLER'S PERSONNEL (OR THAT OF ITS SUBCONTRACTOR(S)) PERFORMING THE WORK.

UNDERGROUND OR EMBEDDED UTILITIES MAY BE LOCATED WITHIN OR ADJACENT TO THE AREA IN WHICH EXCAVATION, DEMOLITION, FOUNDATION, OR MODIFICATION WORK IS TO BE PERFORMED.

REFERENCES RELATING TO THE UNDERGROUND OR EMBEDDED UTILITIES ARE PROVIDED TO ASSIST THE CONTRACTOR/INSTALLER IN THE FIELD LOCATING THOSE UTILITIES AND OTHER POSSIBLE UNDERGROUND OR EMBEDDED INTERFERENCES WITH THE WORK.

THE CONTRACTOR/INSTALLER SHALL EXERCISE DUE CAUTION DURING ALL EXCAVATION/FOUNDATION/DEMOLITION WORK.

NO	DATE	REVISIONS AND RECORD OF ISSUE	DRWN	REV'D	APPR	COMP
F						
E	03/02/20	PRELIMINARY RELEASE - ISSUED FOR PERMITS	CAF	JTP	KVP	S&L
D	12/19/19	PRELIMINARY RELEASE - ISSUED FOR PERMITS	CAF	JTP	KVP	S&L
C	10/25/19	PRELIMINARY RELEASE - ISSUED FOR REVIEW	CAF	JTP	KVP	S&L
B	05/25/18	PRELIMINARY RELEASE - FILING SKETCH	CAF	VBP	KVP	S&L
A	03/30/18	PRELIMINARY RELEASE - FILING SKETCH	CAF	VBP	KVP	S&L

SCALE: 1"=40' (0 — 40)

PREP: CAF CHK'D: VBP
APP'D: KVP DATE: 03/30/2018

Sargent & Lundy
55 EAST MONROE ST., CHICAGO, ILL.

NEXTera ENERGY TRANSMISSION NEW YORK

NEXTERA ENERGY TRANSMISSION NEW YORK, INC
EMPIRE STATE LINE
DYSINGER SWITCHYARD
ACCESS ROAD GRADING PLAN

13666-005-C1-0116

DETAILS PENDING AND TO BE
INCLUDED AT A LATER DATE

FILE LOCATION: L:\NEXTERA\NEXT-159 EMPIRE STATE LINE\TYPICALS\CULVERT AND ACCESS PLAN.DWG LAST SAVED BY: tjwilcox 6/19/2020 2:41 PM PLOTTED BY: Tony J. Wilcox 6/19/2020 2:42 PM Tab:EST-D-TOXX-X

"Engineering with Distinction"
ECI ENGINEERING SERVICES, P.C.

Sargent & Lundy

ecology and environment, inc.
Global Environmental Specialists

NO	REVISION	DATE	BY	APR
A	ISSUED FOR REVIEW	XX/XX/20	XXX	XXX

NEXTera ENERGY TRANSMISSION NEW YORK

ENGINEERING RECORD		DATE
DRAWN	T. WILCOX	06/18/20
DESIGNED		
CHECKED		
APPROVED		
NONE		

EMPIRE STATE TRANSMISSION LINE

CULVERT AND ACCESS PLAN

EST-D-TOXX-X

REVISION NO : A

Attachment G. Sample Inspection Report

APPENDIX F
CONSTRUCTION SITE INSPECTION AND MAINTENANCE LOG BOOK

STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM FOR CONSTRUCTION ACTIVITIES

SAMPLE CONSTRUCTION SITE LOG BOOK

Table of Contents

I. **PRE-CONSTRUCTION MEETING DOCUMENTS**

Project Name _____

Permit No. _____ **Date of Authorization** _____

Name of Operator _____

Prime Contractor _____

a. **Preamble to Site Assessment and Inspections**

The Following Information To Be Read By All Person's Involved in The Construction of Stormwater Related Activities:

The Operator agrees to have a qualified inspector[1] conduct an assessment of the site prior to the commencement of construction[2] and certify in this inspection report that the appropriate erosion and sediment controls described in the SWPPP have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction.

Prior to the commencement of construction, the Operator shall certify in this site logbook that the SWPPP has been prepared in accordance with the State's standards and meets all Federal, State and local erosion and sediment control requirements. A preconstruction meeting should be held to review all of the SWPPP requirements with construction personnel.

When construction starts, site inspections shall be conducted by the qualified inspector at least every 7 calendar days. The Operator shall maintain a record of all inspection reports in this site logbook. The site logbook shall be maintained on site and be made available to the permitting authorities upon request.

Prior to filing the Notice of Termination or the end of permit term, the Operator shall have a qualified inspector perform a final site inspection. The qualified inspector shall certify that the site has undergone final stabilization[3] using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed. In addition, the Operator must identify and certify that all permanent structures described in the SWPPP have been constructed and provide the owner(s) with an operation and maintenance plan that ensures the structure(s) continuously functions as designed.

1 Refer to "Qualified Inspector" inspection requirements in the current SPDES General Permit for Stormwater Discharges from Construction Activity for complete list of inspection requirements.
2 "Commencement of construction" means the initial removal of vegetation and disturbance of soils associated with clearing, grading or excavating activities or other construction activities.
3 "Final stabilization" means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

b. Pre-construction Site Assessment Checklist
(NOTE: Provide comments below as necessary)

1. Notice of Intent, SWPPP, and Contractors Certification:

Yes No NA

[ ] [ ] [ ] Has a Notice of Intent been filed with the NYS Department of Conservation?
[ ] [ ] [ ] Is the SWPPP on-site? Where?_____
[ ] [ ] [ ] Is the Plan current? What is the latest revision date?_____
[ ] [ ] [ ] Is a copy of the NOI (with brief description) onsite? Where?_____
[ ] [ ] [ ] Have all contractors involved with stormwater related activities signed a contractor's certification?

2. Resource Protection

Yes No NA

[ ] [ ] [ ] Are construction limits clearly flagged or fenced?
[ ] [ ] [ ] Important trees and associated rooting zones, on-site septic system absorption fields, existing vegetated areas suitable for filter strips, especially in perimeter areas, have been flagged for protection.
[ ] [ ] [ ] Creek crossings installed prior to land-disturbing activity, including clearing and blasting.

3. Surface Water Protection

Yes No NA

[ ] [ ] [ ] Clean stormwater runoff has been diverted from areas to be disturbed.
[ ] [ ] [ ] Bodies of water located either on site or in the vicinity of the site have been identified and protected.
[ ] [ ] [ ] Appropriate practices to protect on-site or downstream surface water are installed.
[ ] [ ] [ ] Are clearing and grading operations divided into areas <5 acres?

4. Stabilized Construction Access

Yes No NA

[ ] [ ] [ ] A temporary construction entrance to capture mud and debris from construction vehicles before they enter the public highway has been installed.
[ ] [ ] [ ] Other access areas (entrances, construction routes, equipment parking areas) are stabilized immediately as work takes place with gravel or other cover.
[ ] [ ] [ ] Sediment tracked onto public streets is removed or cleaned on a regular basis.

5. Sediment Controls

Yes No NA

[ ] [ ] [ ] Silt fence material and installation comply with the standard drawing and specifications.
[ ] [ ] [ ] Silt fences are installed at appropriate spacing intervals
[ ] [ ] [ ] Sediment/detention basin was installed as first land disturbing activity.
[ ] [ ] [ ] Sediment traps and barriers are installed.

6. Pollution Prevention for Waste and Hazardous Materials

Yes No NA

[ ] [ ] [ ] The Operator or designated representative has been assigned to implement the spill prevention avoidance and response plan.
[ ] [ ] [ ] The plan is contained in the SWPPP on page _____
[ ] [ ] [ ] Appropriate materials to control spills are onsite. Where? _____

II. CONSTRUCTION DURATION INSPECTIONS

a. Directions:

Inspection Forms will be filled out during the entire construction phase of the project.

Required Elements:

1) On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period;

2) Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization;

3) Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period;

4) Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of sediment storage volume (for example, 10 percent, 20 percent, 50 percent);

5) Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water; and

6) Immediately report to the Operator any deficiencies that are identified with the implementation of the SWPPP.

SITE PLAN/SKETCH

_____ _____

Inspector (print name) **Date of Inspection**

_____ _____

Qualified Inspector (print name) **Qualified Inspector Signature**

The above signed acknowledges that, to the best of his/her knowledge, all information provided on the forms is accurate and complete.

Maintaining Water Quality

Yes No NA
[ ] [ ] [ ] Is there an increase in turbidity causing a substantial visible contrast to natural conditions at the outfalls?
[ ] [ ] [ ] Is there residue from oil and floating substances, visible oil film, or globules or grease at the outfalls?
[ ] [ ] [ ] All disturbance is within the limits of the approved plans.
[ ] [ ] [ ] Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

Housekeeping

1. General Site Conditions

Yes No NA
[ ] [ ] [ ] Is construction site litter, debris and spoils appropriately managed?
[ ] [ ] [ ] Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
[ ] [ ] [ ] Is construction impacting the adjacent property?
[ ] [ ] [ ] Is dust adequately controlled?

2. Temporary Stream Crossing

Yes No NA
[ ] [ ] [ ] Maximum diameter pipes necessary to span creek without dredging are installed.
[ ] [ ] [ ] Installed non-woven geotextile fabric beneath approaches.
[ ] [ ] [ ] Is fill composed of aggregate (no earth or soil)?
[ ] [ ] [ ] Rock on approaches is clean enough to remove mud from vehicles & prevent sediment from entering stream during high flow.

3. Stabilized Construction Access

Yes No NA
[ ] [ ] [ ] Stone is clean enough to effectively remove mud from vehicles.
[ ] [ ] [ ] Installed per standards and specifications?
[ ] [ ] [ ] Does all traffic use the stabilized entrance to enter and leave site?
[ ] [ ] [ ] Is adequate drainage provided to prevent ponding at entrance?

Runoff Control Practices

1. Excavation Dewatering

Yes No NA
[ ] [ ] [ ] Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
[ ] [ ] [ ] Clean water from upstream pool is being pumped to the downstream pool.
[ ] [ ] [ ] Sediment laden water from work area is being discharged to a silt-trapping device.
[ ] [ ] [ ] Constructed upstream berm with one-foot minimum freeboard.

Runoff Control Practices (continued)

2. Flow Spreader

Yes No NA

[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Constructed on undisturbed soil, not on fill, receiving only clear, non-sediment laden flow.
[ ] [ ] [ ] Flow sheets out of level spreader without erosion on downstream edge.

3. Interceptor Dikes and Swales

Yes No NA

[ ] [ ] [ ] Installed per plan with minimum side slopes 2H:1V or flatter.
[ ] [ ] [ ] Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.
[ ] [ ] [ ] Sediment-laden runoff directed to sediment trapping structure

4. Stone Check Dam

Yes No NA

[ ] [ ] [ ] Is channel stable? (flow is not eroding soil underneath or around the structure).
[ ] [ ] [ ] Check is in good condition (rocks in place and no permanent pools behind the structure).
[ ] [ ] [ ] Has accumulated sediment been removed?.

5. Rock Outlet Protection

Yes No NA

[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Installed concurrently with pipe installation.

Soil Stabilization

1. Topsoil and Spoil Stockpiles

Yes No NA

[ ] [ ] [ ] Stockpiles are stabilized with vegetation and/or mulch.
[ ] [ ] [ ] Sediment control is installed at the toe of the slope.

2. Revegetation

Yes No NA

[ ] [ ] [ ] Temporary seedings and mulch have been applied to idle areas.
[ ] [ ] [ ] 4 inches minimum of topsoil has been applied under permanent seedings

Sediment Control Practices

1. Silt Fence and Linear Barriers

Yes No NA

[ ] [ ] [ ] Installed on Contour, 10 feet from toe of slope (not across conveyance channels).
[ ] [ ] [ ] Joints constructed by wrapping the two ends together for continuous support.
[ ] [ ] [ ] Fabric buried 6 inches minimum.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.
Sediment accumulation is ___% of design capacity.

Sediment Control Practices (continued)

2. Storm Drain Inlet Protection (Use for Stone & Block; Filter Fabric; Curb; or, Excavated; Filter Sock or Manufactured practices)

Yes No NA

[ ] [ ] [ ] Installed concrete blocks lengthwise so open ends face outward, not upward.
[ ] [ ] [ ] Placed wire screen between No. 3 crushed stone and concrete blocks.
[ ] [ ] [ ] Drainage area is 1acre or less.
[ ] [ ] [ ] Excavated area is 900 cubic feet.
[ ] [ ] [ ] Excavated side slopes should be 2:1.
[ ] [ ] [ ] 2" x 4" frame is constructed and structurally sound.
[ ] [ ] [ ] Posts 3-foot maximum spacing between posts.
[ ] [ ] [ ] Fabric is embedded 1 to 1.5 feet below ground and secured to frame/posts with staples at max 8-inch spacing.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.
[ ] [ ] [ ] Manufactured insert fabric is free of tears and punctures.
[ ] [ ] [ ] Filter Sock is not torn or flattened and fill material is contained within the mesh sock.

Sediment accumulation ___% of design capacity.

3. Temporary Sediment Trap

Yes No NA

[ ] [ ] [ ] Outlet structure is constructed per the approved plan or drawing.
[ ] [ ] [ ] Geotextile fabric has been placed beneath rock fill.
[ ] [ ] [ ] Sediment trap slopes and disturbed areas are stabilized.

Sediment accumulation is ___% of design capacity.

4. Temporary Sediment Basin

Yes No NA

[ ] [ ] [ ] Basin and outlet structure constructed per the approved plan.
[ ] [ ] [ ] Basin side slopes are stabilized with seed/mulch.
[ ] [ ] [ ] Drainage structure flushed and basin surface restored upon removal of sediment basin facility.
[ ] [ ] [ ] Sediment basin dewatering pool is dewatering at appropriate rate.

Sediment accumulation is ___% of design capacity.

Note: Not all erosion and sediment control practices are included in this listing. Add additional pages to this list as required by site specific design. All practices shall be maintained in accordance with their respective standards.

Construction inspection checklists for post-development stormwater management practices can be found in Appendix F of the New York Stormwater Management Design Manual.

CONSTRUCTION DURATION INSPECTIONS

b. Modifications to the SWPPP (To be completed as described below)

The Operator shall amend the SWPPP whenever:

1. There is a significant change in design, construction, operation, or maintenance which may have a significant effect on the potential for the discharge of pollutants to the waters of the United States and which has not otherwise been addressed in the SWPPP; or
2. The SWPPP proves to be ineffective in:
   a. Eliminating or significantly minimizing pollutants from sources identified in the SWPPP and as required by this permit; or
   b. Achieving the general objectives of controlling pollutants in stormwater discharges from permitted construction activity; and
3. Additionally, the SWPPP shall be amended to identify any new contractor or subcontractor that will implement any measure of the SWPPP.

Modification & Reason:

Attachment H. Amendments to the SWPPP

Amendment No.	Description of the Amendment	Date of Amendment	Amendment Prepared by [Name(s) and Title]

Attachment I. Hydrologic and Hydraulic Analysis

Licensed Professional Engineer Certification Page
Page 1 of 1

CERTIFICATION OF CALCULATION NUMBER: DYS-C-001, Revision 0

This is to confirm that this Calculation has been prepared, reviewed and approved in accordance with Sargent & Lundy's Standard Operating Procedure SOP-402, Design Calculations, which is part of our Quality Management System.

Certified by: James T. Perry Date: 11/22/2019

Seal Below

It is a violation of the guidelines for professional engineering practice in New York State Law for any person to alter this document in any way unless acting under the direction of a licensed Professional Engineer.

Sargent & Lundy Certification of Authorization No. 080442 (Valid Through 08/30/2021)

ISSUE SUMMARY
Form SOP-0402-07, Revision 12

DESIGN CONTROL SUMMARY

CLIENT:	Nextera Energy Transmission New York, Inc	UNIT NO.: N/A	PAGE NO. 1
PROJECT NAME:	**Dysinger Substation**		
PROJECT NO.:	13666-005	S&L NUCLEAR QA PROGRAM APPLICABLE ☐ YES ☒ NO	
CALC. NO..:	DYS-C-001		
TITLE:	Stormwater Design		
EQUIPMENT NO.:	N/A		

IDENTIFICATION OF PAGES ADDED/REVISED/SUPERSEDED/VOIDED & REVIEW METHOD

Pages: 6 (Including Issue Summary)
Attachments (4): 23 Pages
Total Number of Pages: 29 (Including Issue Summary and Attachments)
Issued for Permits

INPUTS/ ASSUMPTIONS
☒ VERIFIED
☐ UNVERIFIED

REVIEW METHOD:	Detailed	REV.:	0
STATUS:	☐ APPROVED ☐ SUPERSEDED BY CALCULATION NO. ☐ VOID	DATE FOR REV.:	10/25/19
PREPARER:	Vasudev Patel	DATE:	10/25/19
REVIEWER:	Nikhil Patel	DATE:	10/25/19
APPROVER:	James Perry	DATE:	11/22/19

IDENTIFICATION OF PAGES ADDED/REVISED/SUPERSEDED/VOIDED & REVIEW METHOD

INPUTS/ ASSUMPTIONS
☐ VERIFIED
☐ UNVERIFIED

REVIEW METHOD:	Detailed	REV.:	
STATUS:	☐ APPROVED ☐ SUPERSEDED BY CALCULATION NO. ☐ VOID	DATE FOR REV.:	
PREPARER:		DATE:	
REVIEWER:		DATE:	
APPROVER:		DATE:	

IDENTIFICATION OF PAGES ADDED/REVISED/SUPERSEDED/VOIDED & REVIEW METHOD

INPUTS/ ASSUMPTIONS
☐ VERIFIED
☐ UNVERIFIED

REVIEW METHOD:		REV.:	
STATUS:	☐ APPROVED ☐ SUPERSEDED BY CALCULATION NO. ☐ VOID	DATE FOR REV.:	
PREPARER:		DATE:	
REVIEWER:		DATE:	
APPROVER:		DATE:	

NOTE: PRINT AND SIGN IN THE SIGNATURE AREAS

TABLE OF CONTENTS

ATTACHMENTS

1.0 PURPOSE AND SCOPE

Dysinger Substation is located in the town of Royalton, Niagara County, New York. A new access road from the substation will be constructed. The purpose of this calculation is to document that the substation drainage design meets the requirements of the New York Stormwater Design Manual (Reference 8.1).

2.0 DESIGN INPUT

2.1 The substation drainage area is illustrated in Attachment 1.

2.2 Site information (location, ground elevation, etc.) are taken from the design drawings (Reference 8.2).

2.3 Precipitation information for the site was obtained from the NOAA Precipitation Frequency Data Server for the 2-year and 100-year precipitation events (Reference 8.4, Attachment 2) which is presented in Table 1.

Table 1: Precipitation (Inches)

Duration (min)	Return Period (Years)	
	2	100
5	0.328	0.796
10	0.464	1.130
15	0.546	1.330
30	0.755	1.830
60	0.963	2.340
1440	2.230	4.920

2.4 Hydrologic Soil Group (HSG) classification D is used (Attachment 4).

2.5 Filter strip length and width are 60’ and 106’ respectively (Attachment 1).

3.0 ASSUMPTIONS

3.1 It is assumed that if New York State Department of Environmental Conservation’s approved “Alternative Stormwater Management Practices for Substations” (References 8.6 and 8.7) is used, then no further computations are required. This assumption is verified from above references and no further verification is required.

3.2 An average infiltration rate at the site is less than 0.5 inch/hour. HSG D soils consists of clay soil with lo permeability. Since conservative infiltration rate less than 0.5 inch/hour is used no further verification is required.

4.0 METHODOLOGY

The new storm water system consisting of filter course, reservoir course, underdrain and filter strips will be installed to meet NYSDEC stormwater requirements.

5.0 ACCEPTANCE CRITERIA

The following acceptance criteria are established for this calculation based on requirements specified in References 8.6 and 8.7:

5.1 The minimum underdrain pipe shall be 4-inch.

5.2 The minimum length of the filter strip shall be 50'.

5.3 The minimum filter strip width per acre of drainage area shall be 50'.

6.0 CALCULATIONS AND RESULTS

6.1 Substation Pad

As indicated in References 8.6 and 8.7 (Attachment 3), the substation pad is designed in such a way that porosity of the 6-inch surface course, 8-inch filter course and 10-inch reservoir stone course will provide the storage volume for the precipitation, and therefore, will satisfy the New York State Department Environmental Conservation (NYSDEC) requirements for runoff reduction and water quality management. NYSDEC has approved the design and thickness of layers for the Substation area subject to conditions prescribed in above references. The section discusses the requirements.

The Substation pad is approved section C-102 for infiltration rate < 0.5 inches/hour.
100-year, 24-hour precipitation P100 = 4.92 inches (Table 1)
Volume of P100 on 1 sq.ft area = 4.92/12 x 1 = 0.41 ft^3

Storage available in 8-inch filter course (NYSDOT 304.12, Type 2 subbase compacted at 95% Standard Proctor porosity of 0.335) V1 = 1 sq.ft x 8/12 x 0.335 = 0.22 ft^3

Storage available in 10-inch reservoir stone course (NYSDOT washed #2 stone), porosity 0.485

V2 = 1 sq.ft x 10/12 x 0.485 = 0.40 ft^3

Total available storage volume V1 + V2 = 0.62 ft^3 > required volume of 0.41 ft^3

Therefore, the substation pad (Reference 8.2, Attachment 1) satisfies the requirements indicated in References 8.6 and 8.7 to NYSDEC pre-approved cross section for the water quality and peak runoff requirements.

6.2 Underdrain

6" diameter underdrain provided under the pad (Attachment 1). Size exceeds the minimum underdrain size (4").

6.3 Filter Strip

Maximum area draining to the filter strip is 2.10 acres.

Filter strip width per acre = 50' (Attachment 3)

Filter strip width required = 50 x 2.10 = 105'

Filter strip width provided = 106' (Attachment 1)

Minimum filter strip length = 60' (Attachment 3)

Filter strip length provided = 60' (Attachment 1)

7.0 CONCLUSIONS

The substation pad, underdrain and filter strip meets the following criteria defined in Section 5.0:

7.1 The proposed substation pad satisfies NYSDEC requirements for storm water.
7.2 The minimum underdrain pipe shall be 4 inch.
7.3 The minimum length of the filter strip shall be 60'.
7.4 The minimum filter strip width per acre of drainage area shall be 50'.

8.0 REFERENCES

8.1 New York State Stormwater Management Design Manual, New York State Department of Environmental Conservations, January 2015.

8.2 Site Design Drawings:
Drawing No. 13666-005-C1-0115-2 Site Grading Plan.
Drawing No. 13666-005-C1-0120 Site Grading Sections and Details.

8.3 Design and Construction of Urban Stormwater Management System, American Society of Civil Engineers, ASCE Manual and Reports of Engineering Practice No. 77.

8.4 NOAA's National Weather Service, Hydrometeorological Design Studies Center, Precipitation Frequency Data Server, NOAA Atlas 14, Volume 10, Version 3, Location – Town of Royalton, New York, https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html, accessed on 10/21/2019.

8.5 TR-55, "Urban Hydrology for Small Watersheds" by U.S. Department of Agriculture, June 1986.

8.6 Approval of National Grid's Alternative Stormwater Management Practices for Substations, National Grid's Letter to NYSDEC, dated February 2016 (Attachment 3).

8.7 Environmental Design and Research (EDR), NYSDEC Approval of Alternative Substation Cross-Sections (Attachment 3, Page 9 of 9).

8.8 CulvertMaster Computer Program, S&L Verified and Validated (V&Ved) Program CULVERTMSTR (S&L Program No. 03.7.713-3.03.00.04), Status: N. Program run on S&L PC # ZD9547.

8.9 Hydraulic Engineering Circular No.14, Third Edition, Hydraulic Design of Energy Dissipators for Culverts and Channels.

8.10 Geotechnical Evaluation Report, WMA Engineering DPC/DBA, Empire GEO Technical Engineering Services, Project No. WB-18-115 DS.

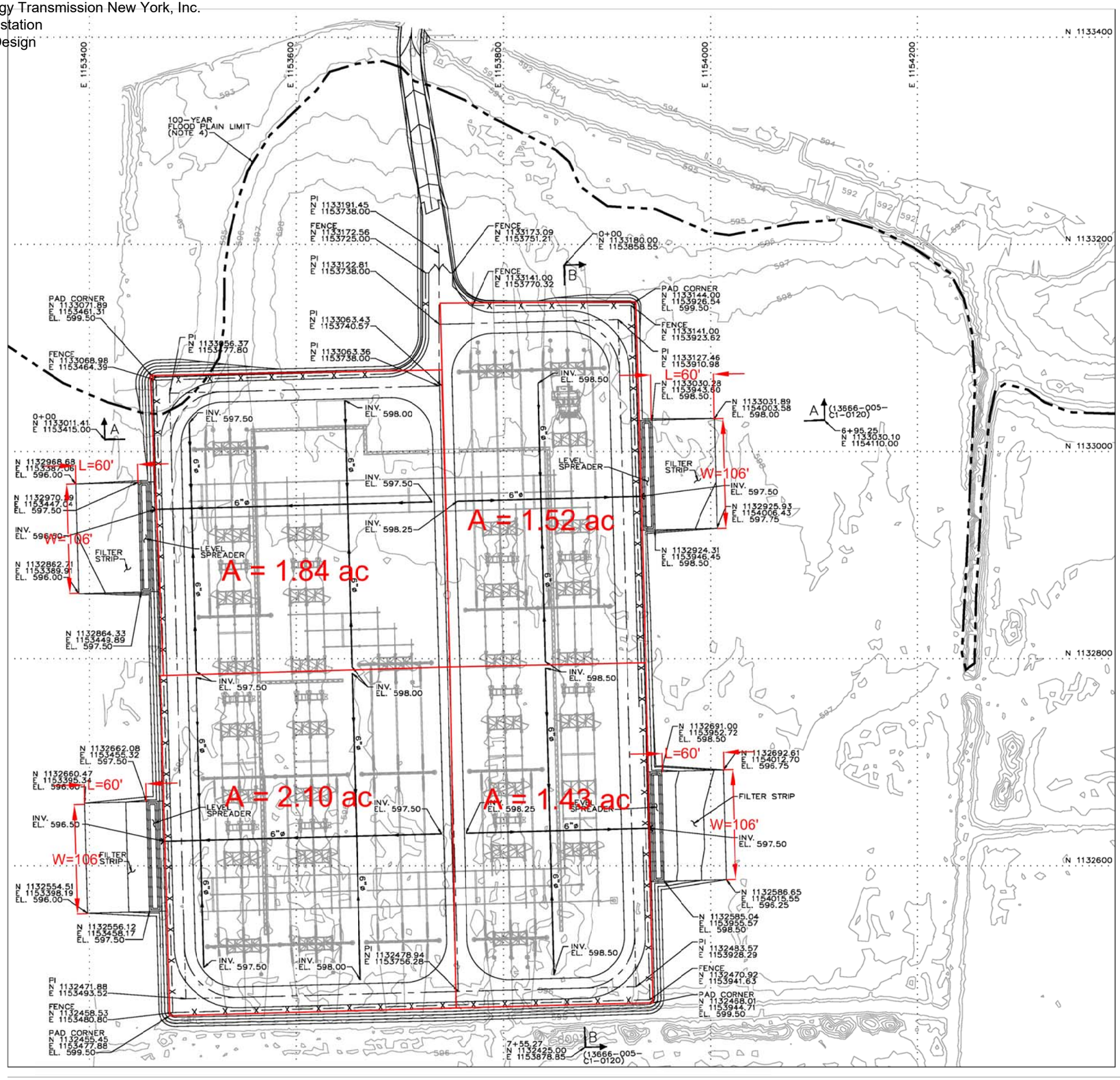
9.0 ATTACHMENTS

1 DRAINAGE AREAS.

2 PRECIPITATION DATA.

3. APPROVAL OF NATIONAL GRID'S ALTERNATIVE STORMWATER MANAGEMENT PRACTICES FOR SUBSTATIONS

4. HYDRAULIC SOIL GROUP


100-YEAR FLOOD PLAIN LIMIT (NOTE 4)
A = 1.84 ac
A = 1.52 ac
A = 2.10 ac
A = 1.43 ac
L=60'
W=106'
LEVEL SPREADER
FILTER STRIP
INV. EL. 597.50
INV. EL. 598.00
INV. EL. 598.25
INV. EL. 598.50
INV. EL. 596.50
6"ø
PAD CORNER N 1133071.89 E 1153461.31 EL. 599.50
PAD CORNER N 1133144.00 E 1153926.54 EL. 599.50
PAD CORNER N 1132455.45 E 1153477.88 EL. 599.50
PAD CORNER N 1132458.01 E 1153944.71 EL. 599.50
FENCE N 1133068.98 E 1153464.39
FENCE N 1133172.56 E 1153725.00
FENCE N 1133173.09 E 1153751.21
FENCE N 1133141.00 E 1153770.32
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FENCE N 1132458.53 E 1153480.80
FENCE N 1132470.92 E 1153941.63
PI N 1133191.45 E 1153738.00
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PI N 1133063.36 E 1153738.00
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PI N 1133127.46 E 1153910.98
PI N 1132478.94 E 1153756.28
PI N 1132483.57 E 1153928.29
PI N 1132471.88 E 1153493.52
0+00 N 1133180.00 E 1153858.55
0+00 N 1133011.41 E 1153415.00
7+55.27 N 1132425.00 E 1153878.85
6+95.25 N 1133030.10 E 1154110.00
N 1133030.28 E 1153943.60 EL. 598.50
N 1133031.89 E 1154003.58 EL. 598.00
N 1132925.93 E 1154006.43 EL. 597.75
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N 1132970.39 E 1153447.04 EL. 597.50
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E 1153600
E 1153800
E 1154000
E 1154200
A (13666-005-C1-0120)
B (13666-005-C1-0120)
NORTH
50 0 50 100 150
GRAPHIC SCALE
DRAWING SCALE
1" = 50'-0"

NOAA Atlas 14, Volume 10, Version 3
Location name: Town of Royalton, New York, USA*
Latitude: 43.1093°, Longitude: -78.564°
Elevation: 594.65 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.267 (0.207-0.344)	0.328 (0.254-0.422)	0.427 (0.330-0.552)	0.509 (0.391-0.661)	0.622 (0.464-0.841)	0.706 (0.517-0.973)	0.796 (0.569-1.14)	0.903 (0.606-1.30)	1.06 (0.688-1.57)	1.20 (0.758-1.80)
10-min	0.378 (0.294-0.488)	0.464 (0.360-0.599)	0.604 (0.467-0.782)	0.721 (0.554-0.936)	0.881 (0.657-1.19)	1.00 (0.733-1.38)	1.13 (0.806-1.61)	1.28 (0.859-1.84)	1.50 (0.974-2.23)	1.70 (1.07-2.56)
15-min	0.445 (0.346-0.574)	0.546 (0.424-0.704)	0.711 (0.550-0.919)	0.848 (0.652-1.10)	1.04 (0.773-1.40)	1.18 (0.861-1.62)	1.33 (0.948-1.89)	1.50 (1.01-2.17)	1.77 (1.15-2.62)	2.00 (1.26-3.01)
30-min	0.615 (0.478-0.793)	0.755 (0.585-0.973)	0.983 (0.760-1.27)	1.17 (0.901-1.52)	1.43 (1.07-1.94)	1.63 (1.19-2.24)	1.83 (1.31-2.62)	2.08 (1.40-3.00)	2.45 (1.58-3.63)	2.76 (1.74-4.15)
60-min	0.785 (0.610-1.01)	0.963 (0.747-1.24)	1.25 (0.970-1.62)	1.50 (1.15-1.94)	1.83 (1.37-2.47)	2.08 (1.52-2.86)	2.34 (1.67-3.34)	2.65 (1.78-3.82)	3.12 (2.02-4.63)	3.52 (2.23-5.30)
2-hr	0.980 (0.766-1.25)	1.19 (0.930-1.53)	1.54 (1.20-1.97)	1.82 (1.41-2.35)	2.22 (1.66-2.97)	2.51 (1.85-3.43)	2.83 (2.03-3.99)	3.19 (2.15-4.56)	3.73 (2.42-5.48)	4.18 (2.66-6.25)
3-hr	1.10 (0.865-1.40)	1.34 (1.05-1.70)	1.71 (1.34-2.19)	2.03 (1.58-2.60)	2.46 (1.85-3.28)	2.78 (2.06-3.78)	3.13 (2.25-4.39)	3.53 (2.39-5.01)	4.11 (2.68-6.01)	4.60 (2.93-6.84)
6-hr	1.33 (1.05-1.68)	1.60 (1.26-2.03)	2.05 (1.61-2.60)	2.42 (1.89-3.08)	2.92 (2.21-3.87)	3.30 (2.45-4.45)	3.71 (2.67-5.16)	4.17 (2.84-5.87)	4.85 (3.18-7.03)	5.42 (3.47-7.99)
12-hr	1.59 (1.26-1.99)	1.91 (1.51-2.39)	2.42 (1.92-3.05)	2.85 (2.24-3.61)	3.44 (2.62-4.52)	3.89 (2.90-5.19)	4.36 (3.16-6.02)	4.90 (3.35-6.85)	5.71 (3.75-8.20)	6.39 (4.10-9.33)
24-hr	1.88 (1.50-2.34)	2.23 (1.78-2.77)	2.80 (2.23-3.49)	3.27 (2.59-4.10)	3.92 (3.00-5.10)	4.40 (3.30-5.84)	4.92 (3.59-6.74)	5.53 (3.79-7.65)	6.43 (4.24-9.16)	7.20 (4.63-10.4)
2-day	2.23 (1.79-2.75)	2.58 (2.07-3.19)	3.15 (2.53-3.91)	3.63 (2.89-4.52)	4.29 (3.31-5.54)	4.78 (3.61-6.29)	5.30 (3.89-7.21)	5.93 (4.09-8.14)	6.86 (4.54-9.68)	7.65 (4.94-11.0)
3-day	2.48 (2.01-3.05)	2.84 (2.29-3.50)	3.42 (2.76-4.22)	3.91 (3.13-4.84)	4.57 (3.54-5.87)	5.07 (3.84-6.62)	5.60 (4.12-7.55)	6.22 (4.30-8.49)	7.14 (4.74-10.0)	7.92 (5.13-11.3)
4-day	2.70 (2.19-3.31)	3.06 (2.48-3.76)	3.66 (2.95-4.50)	4.15 (3.33-5.13)	4.83 (3.75-6.18)	5.34 (4.05-6.95)	5.88 (4.32-7.89)	6.50 (4.51-8.84)	7.41 (4.93-10.4)	8.17 (5.30-11.6)
7-day	3.24 (2.64-3.94)	3.64 (2.96-4.43)	4.29 (3.48-5.24)	4.83 (3.89-5.93)	5.57 (4.33-7.05)	6.14 (4.66-7.89)	6.72 (4.93-8.87)	7.34 (5.12-9.91)	8.21 (5.48-11.4)	8.90 (5.78-12.5)
10-day	3.74 (3.06-4.53)	4.17 (3.41-5.07)	4.88 (3.98-5.94)	5.47 (4.43-6.69)	6.29 (4.90-7.90)	6.91 (5.26-8.82)	7.54 (5.52-9.86)	8.18 (5.72-11.0)	9.05 (6.06-12.5)	9.71 (6.32-13.6)
20-day	5.25 (4.32-6.32)	5.79 (4.76-6.98)	6.68 (5.47-8.07)	7.42 (6.04-8.99)	8.43 (6.61-10.5)	9.22 (7.04-11.6)	9.99 (7.34-12.9)	10.8 (7.56-14.3)	11.7 (7.90-16.0)	12.5 (8.14-17.3)
30-day	6.53 (5.40-7.82)	7.16 (5.91-8.58)	8.18 (6.73-9.83)	9.03 (7.39-10.9)	10.2 (8.03-12.6)	11.1 (8.52-13.9)	12.0 (8.84-15.4)	12.9 (9.07-17.0)	14.0 (9.42-19.0)	14.7 (9.66-20.4)
45-day	8.15 (6.77-9.73)	8.88 (7.37-10.6)	10.1 (8.31-12.0)	11.0 (9.06-13.3)	12.4 (9.78-15.2)	13.4 (10.3-16.8)	14.5 (10.7-18.4)	15.4 (10.9-20.3)	16.6 (11.3-22.5)	17.5 (11.5-24.0)
60-day	9.54 (7.95-11.3)	10.3 (8.60-12.3)	11.6 (9.65-13.9)	12.7 (10.5-15.2)	14.2 (11.2-17.4)	15.4 (11.9-19.1)	16.5 (12.2-20.9)	17.5 (12.4-23.0)	18.8 (12.8-25.3)	19.7 (12.9-27.0)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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PF graphical

Michael McPeck, P.E.
Lead Civil/Structural Engineer-
Substation Design & Engineering
National Grid

nationalgrid

February 25, 2016

Mr. David Gasper, P.E.
NYSDEC
Division of Water
625 Broadway, 4th Floor
Albany, NY 12233-3505

RE: Approval of National Grid's Alternative Stormwater Management Practices for Substations

Dear Mr. Gasper:

National Grid has been working with Environmental & Design and Research for more than 24 months to develop a stormwater management system (**system**) that is integrated into National Grid's substation pad cross-section and meets the requirements of the current version of the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity. The **system** that has been developed is included in the attached package Alternative Stormwater Management for National Grid Substations, dated February 12, 20116. The attached design memorandum provides a stormwater management system that is compliant with the requirements of the current version of the NYSDEC General Permit for Stormwater Discharges from Construction Activity, including Water Quality Volume (WQ_v), Runoff Reduction Volume (RRv), Channel Protection Volume (Cp_v), Overbank Flood Control (Q_p), and Extreme Flood Control (Q_f). The **systems** listed below include the following on-site infiltrations rate scenarios:

- Sites with infiltration rates greater than or equal to 0.5 inches per hour – Detail 1 on Drawing C-101, dated February 12, 2016
- Sites with infiltration rates less than 0.5 inches per hour – Detail 1 on Drawing C-102, dated February 12, 2016

National Grid requests official approval of these **systems,** as compliant stormwater management practices with the New York State Stormwater Management Design Manual (current version), and approval as a NYSDEC Stormwater Standard Stormwater Management Practice. Following the receipt of this approval, the projects utilizing this system will be subject to the standard of five or ten business day permit authorization, provided that the other portions of the project follow the standard General Permit and the Design Manual requirements.

National Grid also grants NYSDEC permission to distribute these **system** designs to other potential users with the understanding that the following disclaimer is to be added to all stormwater reports and contract drawings by the user:

> "National Grid (NG) together with the consulting firm, Environmental Design & Research (EDR), prepared a NYSDEC approved stormwater management prototype system (**system**), which may be applicable to substations projects. The user assumes the sole responsibility for the use of this system, its applicability to the project site, and the verification of appropriate use and compliance with village, town, city, county, state and federal stormwater requirements for this location."

Thank you for your continued support and consideration of this system.

Sincerely,

Michael McPeck, P.E.
Lead Civil/Structural Engineer

300 Erie Boulevard West, Syracuse, NY 13202
T: 315 428-5727 ■ Michael.McPeck@nationalgrid.com ■ www.nationalgrid.com

Environmental Design & Research,
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memorandum

To:	David Gasper, PE, NYSDEC	**EDR Project No:**	12073
From:	Carolyne Bean, EIT & Thomas Dussing, PE		
Date:	February 25, 2016		
Reference:	Alternate Stormwater Management for National Grid Substations		

Discussion

Environmental Design and Research (EDR) has worked with National Grid, the New York State Department of Environmental Conservation (NYSDEC), and the State University of New York, College of Environmental Science and Forestry (SUNY ESF) for more than 24 months to develop a stormwater management system (**system**) that is integrated into National Grid's substation pad construction and meets the requirements of the current version of the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity. The **system** that has been developed is included in the substation pad cross-section and provides a stormwater management compliant design that meets the requirements of the current version of the NYSDEC General Permit for Stormwater Discharges from Construction Activity, including Water Quality Volume (WQ_v), Runoff Reduction Volume (RRv), Channel Protection Volume (Cp_v), Overbank Flood Control (Q_p), and Extreme Flood Control (Q_f). Our combined efforts have produced two **systems** for the following on-site soil infiltrations rate scenarios, which include:

- Sites with infiltration rates greater than or equal to 0.5 inches per hour – Detail 1 on Drawing C-101
- Sites with infiltration rates less than 0.5 inches per hour – Detail 1 on Drawing C-102

National Grid requests approval of these two **systems,** as compliant stormwater management practices with the New York State Stormwater Manual (current version), and that they be approved as standard stormwater management practices, as required by the current version of the NYSDEC Stormwater General Permit. If a project utilizing one of the cross sections is subject to review by a Municipal Separate Storm Sewer System (MS4), it would be responsibility of the MS4 to review and approve the Stormwater Pollution Prevention Plan (SWPPP) by signing the MS4 SWPPP Acceptance form. If the project is not subject to review by a MS4, the SWPPP would follow the normal approval process for a non-MS4 project that is in conformance with the current version of the NYSDEC Stormwater General Permit.

Based on the demonstration project results, we offer the following in support of this request:

- The proposed stormwater management **systems** are designed for 7 inches of rainfall. This represents the largest 100-year storm rainfall depth within National Grid's service area or greater than six back to back 90% storms (1.1 inches).
- The **systems** provide treatment and management of WQ_v, RRv, Cp_v, Q_p, and Q_f by providing storage and infiltration (as applicable), of all rain events, up to and including, the 100-year storm.
- The **systems** are self-contained which reduces the impact to the surrounding environment by eliminating additional site disturbance that would be necessary for green infrastructure and traditional stormwater practices.
- National Grid has provided testing at a demonstration area that is supported by laboratory tested infiltration rates and porosities. A portion of the construction and testing of the demonstration project was witnessed by a former NYSDEC representative, Ellen Hahn Kubek. The demonstration area testing results show that the **systems** can accept and hold the 100-year storm volume without ponding or surface runoff.

Demonstration Area Test Results

100-Year Storm Demonstration

Ellen Hahn Kubek, a former NYSDEC representative, was present for the 100-Year storm test on November 21, 2013. 1,800 gallons of water was applied uniformly with a hose over a 30-minute duration, or at rate of 9.2 inches per hour. (Note that according to the Natural Resource Conservation Service (NRCS) Type 2 Rainfall Distribution, the highest 30-minute precipitation intensity of a 24-hour storm is between 11.5 hours and 12 hours. During this 30-minute time frame, 35% of the storm rainfall depth occurs. For a 7 inch, 100-Year Storm this translates to 2.5 inches of rainfall, or a rate of 5.0 inches per hour. Therefore, the application rate used during the test was greater than the maximum intensity that would occur during an NRCS Type 2 rain event.) The November 21, 2013 demonstration showed that the proposed cross section does have an acceptable infiltration rate, with no surface runoff being created during the test even with the high application intensity. (Also, note that the compaction results for the demonstration area were greater than National Grid's requirement of 95% standard proctor for the filter course.)

Demonstration Area Volume Correction

Following the construction of the demonstration area, it was determined that an insufficient depth of the reservoir course had been placed. Measurements from the surface of the test area to the bottom of the observation wells determined that it had been constructed with 4 inches of reservoir course material rather than the 10 inches that is proposed in the attached drawings. Since the 100-Year storm is proposed to be stored within the reservoir and filter courses, EDR calculated the equivalent storage volume required for testing the 100-Year storm based on the cross section as constructed (4–inch reservoir course). Based on this calculation the volume of water used for the 100-Year storm test was 1,800 gallons rather than initially proposed 2,800 gallons.

NYSDEC Stormwater Requirements

Runoff Reduction and Water Quality Volume Management

The proposed **system** for sites with **infiltration rates greater than or equal to 0.5 inches per hour** provides 100% storage and infiltration of the 7-inch rainfall event. This exceeds minimum RRv and WQv requirements for any Hydrologic Soil Group (HSG).

The proposed **system** for sites with **infiltration rates less than 0.5 inches per hour** will meet the RRv and WQv requirements by using practices from the 2010 NYS Stormwater Management Design Manual (Design Manual): vegetated filter strip or riparian forest buffer. Per the Design Manual, a maximum of 75 feet of flow length over impervious area can discharge to these practices. According to the hydrologic modeling reports attached, a 50 feet-wide by 75 feet-long impervious area with CN of 98 creates a peak discharge rate of 114 gallons per minute and an average discharge rate of 57 gallons per minute. Per the Design Manual, this discharge rate can be directed to a 50 feet wide by 60 feet long filter strip or buffer with a slope of 0% to 8% on HSG D soils. A 1-acre substation was modeled using the average porosity provided by the **system** with a 4 inch underdrain outlet. This resulted in a peak discharge rate of 56 gallons per minute. The average discharge rate from the impervious area is similar to the peak discharge rate from the substation area; therefore, it is reasonable to consider the same stormwater management via sheet flow to a filter strip or buffer to be acceptable. National Grid proposes for their **system** to meet the RRv and WQv requirements for sites with an infiltration rate of less than 0.5 inches per hour by using the following design criteria:

- A filter strip or buffer 50 feet wide, with the necessary length per the Design Manual, will be provided for each acre of substation area.
- Per the Design Manual, the length of the filter strip or buffer would be based on the attainable or existing site slopes. Filter strips or buffers with slopes of 0% to 8% would be 50 feet long, 8% to 12% would be 75 feet long and 12% to 15% would be 100 feet long. In HSG C or D soils, the length will be increased by 15% or 20%, respectively.

National Grid proposes that in this site condition, the substation underdrain(s) discharge to a flow dissipater (to create sheet flow) then to a filter strip or buffer sized as described. An example layout for a 5-acre substation on HSG D soils is shown on drawing C-103.

Volume Management

The proposed **system** for sites with infiltration rates greater than or equal to 0.5 inches per hour provide storage of Cp_v, Q_p, and Q_f and discharged via infiltration. The proposed **system** for sites with infiltration rates less than 0.5 inches per hour will provide storage for volume management and will discharge via an underdrain system that will be appropriately sized to meet the Cp_v, Q_p, and Q_f requirements. The underdrains will discharge to a flow dissipater and sheet flow over a filter strip or buffer as previously discussed to meet RRv and WQv requirements. Supporting stormwater detention calculations are attached.

Stormwater Management System Summary

In summary, the **systems** proposed by National Grid would provide stormwater management as detailed in the table below.

Site Infiltration (in/hr)	RRv & WQv	Cp_v	Q_p	Q_f
≥ 0.5	100% Infiltration (2.5 hours or less)*	100% Infiltration	100% Infiltration	100% Infiltration (14 hours or less)**
< 0.5	100% Vegetated Filter or Riparian Forest Buffer	Attenuation	Attenuation	Attenuation

* Calculated based on the largest 90% storm rainfall depth within National Grid's service area – 1.1 inches.
** Calculated based on the largest 100-Year storm rainfall depth within National Grid's service area – 7.0 inches

Attachments: C-101 Proposed Substation Sections for Infiltration Rates of 0.5 in/hr and Greater
C-102 Proposed Substation Sections for Infiltration Rates Less Than 0.5 in/hr
C-103 Example Substation Filter Strip Layout for Infiltration Rates Less Than 0.5 in/hr
1 and 100 year Hydrologic Modeling Reports
National Grid Proposed Sections – Volume Storage Calculation
Photo of 11/22/20130 White Board Discussion with Ellen Hahn Kubek
12/27/2013 Email from Ellen Hahn Kubek

Copies To: Michael McPeck, National Grid
Carol Lamb-Lafay, NYSDEC
David Follansbee, NYSDEC
File

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5/1/2014
Revised 7/16/2015

National Grid Proposed Sections – Volume Storage Calculation

For all proposed sections, storage for the 100-Year Storm (7") is provided in the reservoir and filter courses

7" of rain of a 1 sq-ft area
= (7"/12")(1 sq-ft)
= 0.58 cu-ft

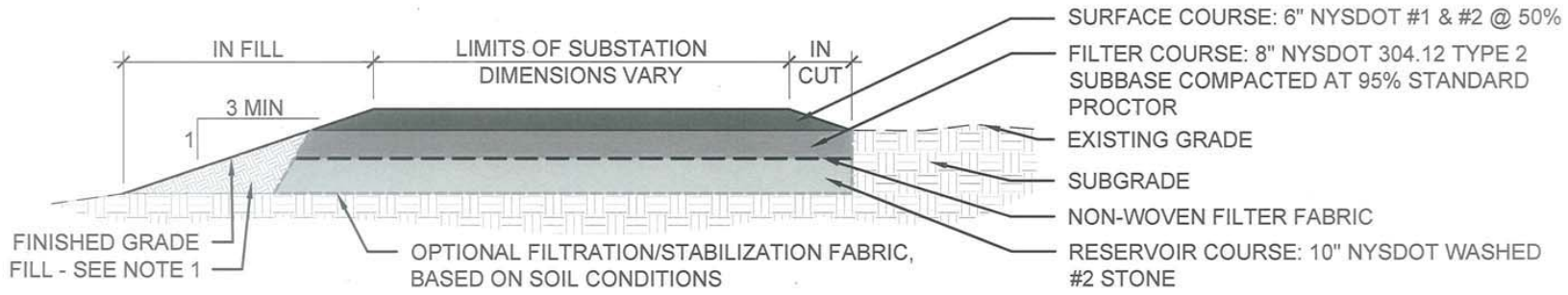
Per the 2/11/2013 Stormwater Management Research Report:
Porosity of the Reservoir Course – NYSDOT #2 Washed Stone = 0.485

Per the 9/27/2013 Sample Analysis by SUNY ESF (Revised Value)
Porosity of the Filter Course – NYSDOT 304.12 Type 2 Subbase = 0.335

Storage in 10" Reservoir Course for a 1 sq-ft area
= (10"/12")(1 sq-ft)(0.485)
= 0.40 cu-ft

Storage in 8" Filter Course for a 1 sq-ft area
= (8"/12")(1 sq-ft)(0.335)
= 0.22 cu-ft

Total Storage in the Reservoir and Filter Courses
= 0.40 cu-ft + 0.22 cu-ft
= 0.62 cu-ft



1 / C-101 SUBSTATION SECTION - INFILTRATION RATE ≥ 0.5 IN/HR

Scale: NTS

nationalgrid

NOTES:

1. ALL FILL USED FOR SIDE SLOPES SHALL BE ONSITE MATERIAL FROM AREA CUT TO CREATE THE SUBSTATION OR SHALL BE OFFSITE FILL COMPACTED TO HAVE AN INFILTRATION RATE LESS THAN THE SUBSTATION SUBGRADE.
2. INFILTRATION TESTING SHALL BE COMPLETED AS REQUIRED BY APPENDIX D OF THE 2010 NYS STORMWATER MANAGEMENT DESIGN MANUAL, OR AS APPROVED BY THE NYS DEC REGIONAL OFFICE OR MS4 REPRESENTATIVE.
3. THIS SECTION SHALL BE APPLICABLE TO MEET THE STORMWATER MANAGEMENT REQUIREMENTS OF NEW DEVELOPMENT AND REDEVELOPMENT PROJECTS, PER THE 2010 NYS STORMWATER MANAGEMENT DESIGN MANUAL, FOR SITES WITH INFILTRATION RATES OF GREATER THAN OR EQUAL TO 0.5 INCHES PER HOUR.
4. ALL THOSE UTILIZING THIS SECTION, WITH THE EXCEPTION OF NATIONAL GRID, SHALL INCLUDE THE FOLLOWING NOTE IN ALL STORMWATER REPORTS AND DRAWINGS:

   "NATIONAL GRID (NG) TOGETHER WITH THE CONSULTING FIRM, ENVIRONMENTAL DESIGN & RESEARCH (EDR), PREPARED A NYSDEC STORMWATER MANAGEMENT PROTOTYPE SYSTEM (SYSTEM), WHICH MAY BE APPLICABLE TO SUBSTATION PROJECTS. THE USER ASSUMES THE SOLE RESPONSIBILITY FOR THE USE OF THIS SYSTEM, ITS APPLICABILITY TO THE PROJECT SITE, AND VERIFICATION OF THE APPROPRIATE USE AND COMPLIANCE WITH VILLAGE, TOWN, CITY, COUNTY, STATE, AND FEDERAL STORMWATER REQUIREMENTS FOR THIS LOCATION."

PROJECT TITLE: **NATIONAL GRID - SUBSTATION STORMWATER MANAGEMENT PRACTICES**	edr JOB NUMBER: **12073**
DRAWING TITLE: **PROPOSED SUBSTATION SECTIONS FOR INFILTRATION RATES OF 0.5 IN/HR AND GREATER**	DRAWING NUMBER: **C-101**
DRAWN BY: **CB** / CHECKED BY: **TD**	SCALE: **NTS** / DATE: **2/25/2016**

Environmental Design & Research,
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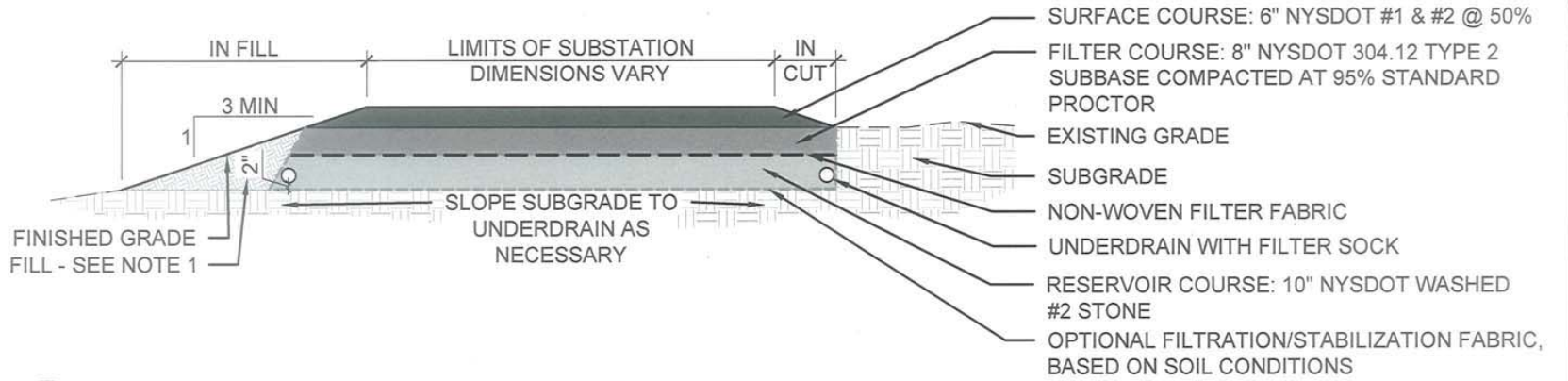

1 / C-102 SUBSTATION SECTION - INFILTRATION RATE < 0.5 IN/HR

Scale: NTS

nationalgrid

NOTES:

1. ALL FILL USED FOR SIDE SLOPES SHALL BE ONSITE MATERIAL FROM AREA CUT TO CREATE THE SUBSTATION OR SHALL BE OFFSITE FILL COMPACTED TO HAVE AN INFILTRATION RATE LESS THAN THE SUBSTATION SUBGRADE.
2. UNDERDRAIN SIZE AND LAYOUT WILL VARY DEPENDING ON THE SIZE OF THE SUBSTATION.
3. UNDERDRAIN WILL DAYLIGHT AND DISCHARGE TO A LEVEL SPREADER THEN A VEGETATED FILTER STRIP OR RIPARIAN FOREST BUFFER TO MEET RUNOFF REDUCTION VOLUME REQUIREMENTS.
4. LEVEL SPREADER SHALL BE DESIGNED PER THE NYS STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL TO CREATE SHEET FLOW PRIOR TO DISCHARGE TO THE VEGETATED FILTER STRIP OR RIPARIAN FOREST BUFFER.
6. VEGETATED FILTER STRIP OR RIPARIAN FOREST BUFFER WIDTH SHALL BE 50 FEET PER ACRE OF SUBSTATION. LENGTH AND REMAINING DESIGN CRITERIA SHALL BE PER THE 2010 NYS STORMWATER MANAGEMENT DESIGN MANUAL.
7. UNDERDRAINS SHALL BE SIZED TO MEET CHANNEL PROTECTION VOLUME (Cpv), OVER BANK FLOOD CONTROL (Qp) AND EXTREME FLOOD CONTROL (Qf) DESIGN CRITERIA.
8. THIS SECTION SHALL BE APPLICABLE TO MEET THE STORMWATER MANAGEMENT REQUIREMENTS OF NEW DEVELOPMENT AND REDEVELOPMENT PROJECTS, PER THE 2010 NYS STORMWATER MANAGEMENT DESIGN MANUAL, FOR SITES WITH INFILTRATION RATES LESS THAN 0.5 INCHES PER HOUR.
9. ALL THOSE UTILIZING THIS SECTION, WITH THE EXCEPTION OF NATIONAL GRID, SHALL INCLUDE THE FOLLOWING NOTE IN ALL STORMWATER REPORTS AND DRAWINGS:

   "NATIONAL GRID (NG) TOGETHER WITH THE CONSULTING FIRM, ENVIRONMENTAL DESIGN & RESEARCH (EDR), PREPARED A NYSDEC STORMWATER MANAGEMENT PROTOTYPE SYSTEM (SYSTEM), WHICH MAY BE APPLICABLE TO SUBSTATION PROJECTS. THE USER ASSUMES THE SOLE RESPONSIBILITY FOR THE USE OF THIS SYSTEM, ITS APPLICABILITY TO THE PROJECT SITE, AND VERIFICATION OF THE APPROPRIATE USE AND COMPLIANCE WITH VILLAGE, TOWN, CITY, COUNTY, STATE, AND FEDERAL STORMWATER REQUIREMENTS FOR THIS LOCATION."

PROJECT TITLE: **NATIONAL GRID - SUBSTATION STORMWATER MANAGEMENT PRACTICES**	edr JOB NUMBER: **12073**
DRAWING TITLE: **PROPOSED SUBSTATION SECTIONS FOR INFILTRATION RATES LESS THAN 0.5 IN/HR**	DRAWING NUMBER: **C-102**
DRAWN BY: **CB** / CHECKED BY: **TD**	SCALE: **NTS** / DATE: **2/25/2016**

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P. 315.471.0688

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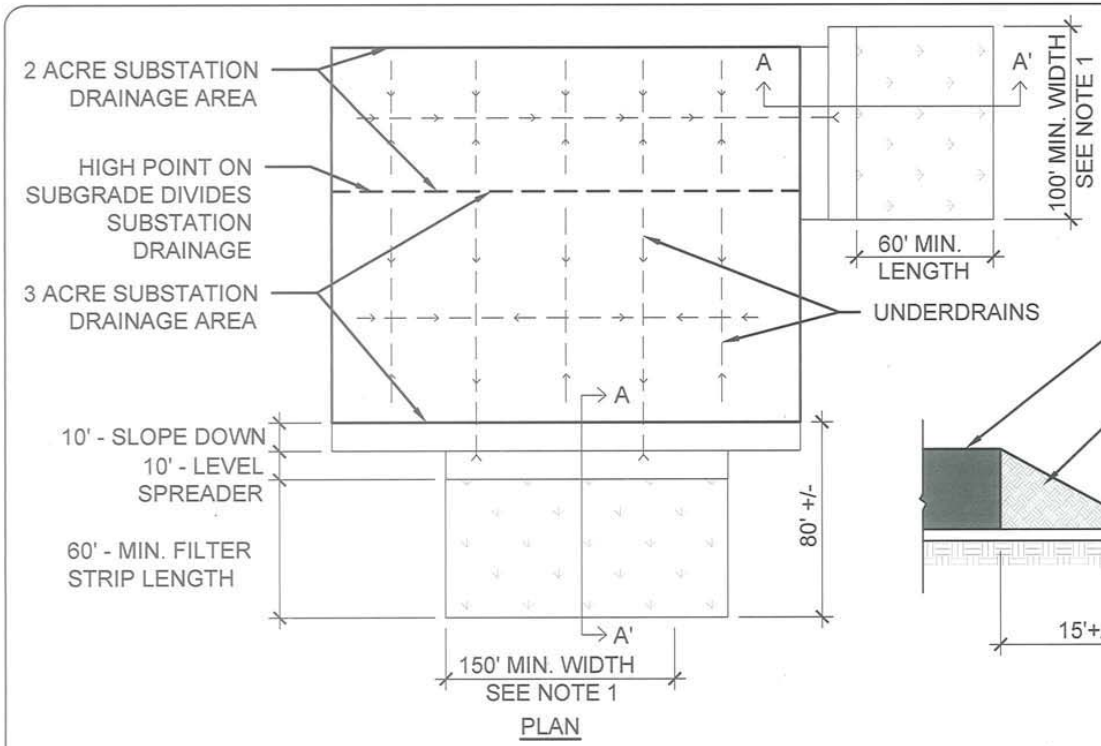

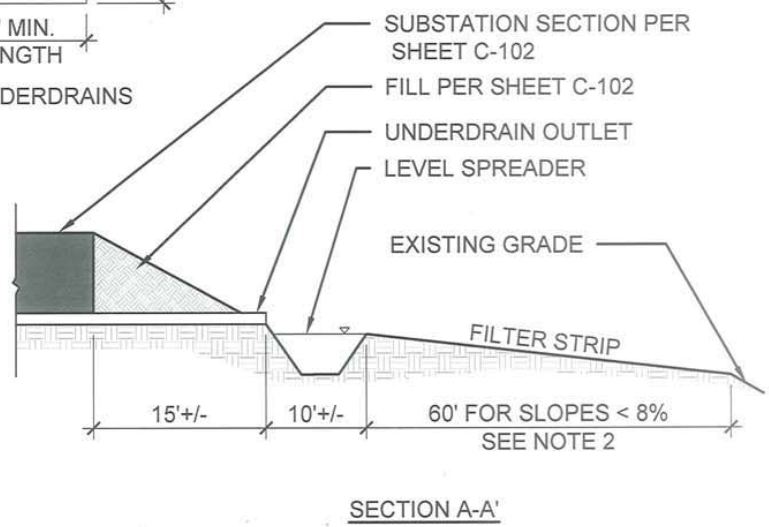

NOTES:
1. FILTER STRIP WIDTH PER ACRE = 50'
   5 ACRES X 50' WIDTH = 250' TOTAL WIDTH
2. SEE 2010 NYS STORMWATER MANAGEMENT DESIGN MANUAL FOR FILTER STRIP LENGTH REQUIREMENTS BASED ON SITE SLOPES AND HSG. EXAMPLE IS FOR HSG D.
3. FILTER STRIP LAYOUT/ORIENTATION IS AN EXAMPLE. FILTER STRIPS SHOULD BE LOCATED BASED ON SITE CHARACTERISTICS. UNDERDRAIN LAYOUTS MUST BE CONFIGURED TO DRAIN AN AREA THE SUBSTATION TO AN APPROPRIATELY SIZED FILTER STRIP.
4. SLOPE DOWN AND LEVEL SPREADER WIDTH ARE EXAMPLES AND REQUIRE PROJECT SPECIFIC DESIGN.
5. SEE NOTE 9, DRAWING NUMBER C-102.

1 / C-103

5 ACRE SUBSTATION EXAMPLE

Scale: NTS

nationalgrid

PROJECT TITLE: NATIONAL GRID - SUBSTATION STORMWATER MANAGEMENT PRACTICES	edr JOB NUMBER: 12073
DRAWING TITLE: EXAMPLE SUBSTATION FILTER STRIP LAYOUT FOR INFILTRATION RATES LESS THAN 0.5 IN/HR	DRAWING NUMBER: C-103
DRAWN BY: CB / CHECKED BY: TD	SCALE: NTS / DATE: 2/25/2016

Environmental Design & Research,
Landscape Architecture, Engineering & Environmental Services, D.P.C.
217 Montgomery Street, Suite 1000
Syracuse, New York 13202
P. 315.471.0688

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NYSDEC Approval of Alternative Substation Cross-Sections

Photo: Construction of test plot, placing the surface course on the filter course.

EDR and our client, National Grid, are thrilled to have recently received formal approval from the New York State Department of Environmental Conservation (NYSDEC) for an innovative stormwater management design solution for substations. Substations are typically constructed on confined sites, and standard stormwater management practices often require a substantial footprint that may exceed the available space on a given site. In 2012, EDR initiated research and design of alternative cross-section designs that incorporates stormwater management into the substation pad, minimizing the need for additional stormwater management outside of the substation footprint. Our Civil Engineering team then collaborated with National Grid and State University of New York College of Environmental Science and Forestry (SUNY ESF) to do material testing, develop many iterations of cross-sections, and build a test plot on SUNY ESF's property in Tully (Onondaga County, New York). In February 2016, the NYSDEC provided verbal approval to begin using the cross-sections for new projects. EDR has subsequently designed five new substations and two substation expansions for National Grid that employ this innovative method. One of these, constructed in 2016, is functioning well, providing proof-of-concept that this design solution is an effective means to manage stormwater within the footprint of the substation pad. EDR Project Engineer, Carolyne Bean, presented this project at the 2016 New York Water Environment Association (NYWEA) annual conference, held in February of last year. We are very pleased to be able to offer this alternative stormwater management solution to National Grid and to other utility clients, which we anticipate will expedite regulatory reviews and approvals for substation projects.

Congratulations to our Civil Engineering Team for this achievement!

For More Information

Carolyne Bean, EIT, CPESC | Project Engineer
cbean@edrdpc.com (mailto:cbean@edrdpc.com)

United States Department of Agriculture

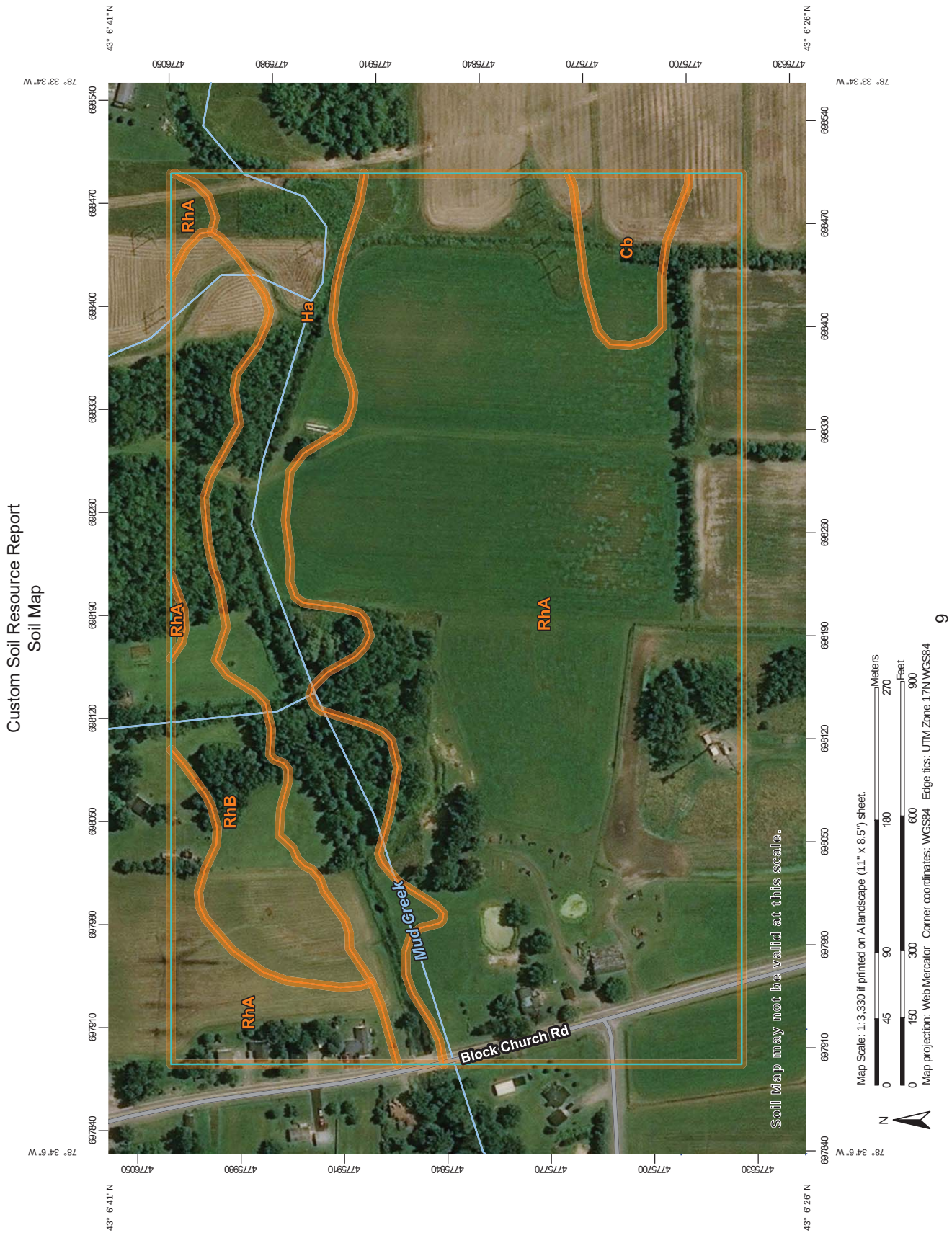
NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Niagara County Area, New York

October 21, 2019


Custom Soil Resource Report
Soil Map
RhA
RhA
RhA
RhB
RhA
Ha
Cb
Mud Creek
Block Church Rd
Soil Map may not be valid at this scale.
Map Scale: 1:3,330 if printed on A landscape (11" x 8.5") sheet.
Meters
Feet
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84
N
9

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Niagara County Area, New York
Survey Area Data: Version 18, Sep 16, 2019

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

Date(s) aerial images were photographed: Aug 3, 2016—Oct 18, 2017

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Cb	Canandaigua silty clay loam	1.7	2.9%
Ha	Hamlin silt loam	9.3	16.0%
RhA	Rhinebeck silty clay loam, sandy substratum, 0 to 2 percent slopes	40.8	70.3%
RhB	Rhinebeck silty clay loam, sandy substratum, 2 to 6 percent slopes	6.3	10.9%
Totals for Area of Interest		**58.0**	**100.0%**

Map Unit Descriptions

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

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

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

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

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

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

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

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

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

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

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

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

Custom Soil Resource Report

Niagara County Area, New York

Cb—Canandaigua silty clay loam

Map Unit Setting

National map unit symbol: 9tvp
Elevation: 100 to 1,000 feet
Mean annual precipitation: 31 to 37 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 145 to 190 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Canandaigua

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Silty and clayey glaciolacustrine deposits

Typical profile

H1 - 0 to 7 inches: silty clay loam
H2 - 7 to 24 inches: silty clay loam
H3 - 24 to 60 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: High (about 12.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Minor Components

Lakemont

Percent of map unit: 4 percent
Landform: Depressions
Hydric soil rating: Yes

Raynham
Percent of map unit: 4 percent
Hydric soil rating: No

Rhinebeck
Percent of map unit: 4 percent
Hydric soil rating: No

Lamson
Percent of map unit: 4 percent
Landform: Depressions
Hydric soil rating: Yes

Madalin
Percent of map unit: 4 percent
Landform: Depressions
Hydric soil rating: Yes

Ha—Hamlin silt loam

Map Unit Setting
National map unit symbol: 9twm
Mean annual precipitation: 31 to 37 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 145 to 190 days
Farmland classification: All areas are prime farmland

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

Description of Hamlin

Setting
Landform: Flood plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Silty alluvium mainly from areas of siltstone, shale, and limestone

Typical profile
H1 - 0 to 8 inches: silt loam
H2 - 8 to 29 inches: silt loam
H3 - 29 to 40 inches: silt loam
H4 - 40 to 60 inches: silty clay loam

Properties and qualities
Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 36 to 72 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum in profile: 1 percent
Available water storage in profile: High (about 10.9 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

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

Phelps
Percent of map unit: 4 percent
Hydric soil rating: No

Raynham
Percent of map unit: 3 percent
Hydric soil rating: No

Wayland
Percent of map unit: 3 percent
Landform: Flood plains
Hydric soil rating: Yes

RhA—Rhinebeck silty clay loam, sandy substratum, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: 9ty4
Mean annual precipitation: 31 to 37 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 145 to 190 days
Farmland classification: Prime farmland if drained

Map Unit Composition
Rhinebeck, sandy substratum, and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rhinebeck, Sandy Substratum

Setting

Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey and silty glaciolacustrine deposits

Typical profile

H1 - 0 to 10 inches: silt loam
H2 - 10 to 23 inches: silty clay loam
H3 - 23 to 60 inches: stratified fine sand to silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

Madalin

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

Unnamed soils

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

Canandaigua

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

Raynham

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

RhB—Rhinebeck silty clay loam, sandy substratum, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 9ty5
Mean annual precipitation: 31 to 37 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 145 to 190 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Rhinebeck, sandy substratum, and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Rhinebeck, Sandy Substratum

Setting

Landform: Lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Clayey and silty glaciolacustrine deposits

Typical profile

H1 - 0 to 10 inches: silt loam
H2 - 10 to 23 inches: silty clay loam
H3 - 23 to 60 inches: stratified fine sand to silt loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

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

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

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

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

References

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United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

Licensed Professional Engineer Certification Page
Page 1 of 1

CERTIFICATION OF CALCULATION NUMBER: STL-C-001, Revision 0

This is to confirm that this Calculation has been prepared, reviewed and approved in accordance with Sargent & Lundy's Standard Operating Procedure SOP-402, Design Calculations, which is part of our Quality Management System.

Certified by: James T. Perry Date: 11/22/2019

Seal Below

It is a violation of the guidelines for professional engineering practice in New York State Law for any person to alter this document in any way unless acting under the direction of a licensed Professional Engineer.

Sargent & Lundy Certification of Authorization No. 080442 (Valid Through 08/30/2021)

ISSUE SUMMARY

Form SOP-0402-07, Revision 12

DESIGN CONTROL SUMMARY			
CLIENT:	Nextera Energy Transmission New York, Inc	UNIT NO.: N/A	PAGE 1
PROJECT NAME:	**Stolle Road Substation**		
PROJECT NO.:	13666-004	S&L NUCLEAR QA PROGRAM	
CALC. NO..:	STL-C-001	APPLICABLE ☐ YES ☒ NO	
TITLE:	Stormwater Design		
EQUIPMENT NO.:	N/A		

IDENTIFICATION OF PAGES ADDED/REVISED/SUPERSEDED/VOIDED & REVIEW METHOD

Pages: 13 (Including Issue Summary)
Attachments (4): 13 Pages
Total Number of Pages: 26 (Including Issue Summary and Attachments)
Issued for Permits

INPUTS/ ASSUMPTIONS
☒ VERIFIED
☐ UNVERIFIED

REVIEW METHOD:	Detailed	REV.:	0
STATUS:	☒ APPROVED ☐ SUPERSEDED BY CALCULATION NO. ☐ VOID	DATE FOR REV.:	10/31/19
PREPARER:	Nikhil Patel	DATE:	10/31/19
REVIEWER:	Vasudev Patel	DATE:	10/31/19
APPROVER:	James Perry	DATE:	11/22/19

IDENTIFICATION OF PAGES ADDED/REVISED/SUPERSEDED/VOIDED & REVIEW METHOD

INPUTS/ ASSUMPTIONS
☐ VERIFIED
☐ UNVERIFIED

REVIEW METHOD:	Detailed	REV.:	
STATUS:	☐ APPROVED ☐ SUPERSEDED BY CALCULATION NO. ☐ VOID	DATE FOR REV.:	
PREPARER:		DATE:	
REVIEWER:		DATE:	
APPROVER:		DATE:	

IDENTIFICATION OF PAGES ADDED/REVISED/SUPERSEDED/VOIDED & REVIEW METHOD

INPUTS/ ASSUMPTIONS
☐ VERIFIED
☐ UNVERIFIED

REVIEW METHOD:		REV.:	
STATUS:	☐ APPROVED ☐ SUPERSEDED BY CALCULATION NO. ☐ VOID	DATE FOR REV.:	
PREPARER:		DATE:	
REVIEWER:		DATE:	
APPROVER:		DATE:	

NOTE: PRINT AND SIGN IN THE SIGNATURE AREAS

TABLE OF CONTENTS

ATTACHMENTS

1.0 PURPOSE AND SCOPE

Stolle Road Substation is located near Elma, Erie County, New York. A new access road from the substation to Bullis Road will be constructed. The purpose of this calculation is to verify the adequacy of the proposed culvert under the access road and to documents the compliance of the substation area drainage design with the requirements of the New York Storm Water Design Manual (Reference 8.1).

2.0 DESIGN INPUT

2.1 The substation drainage area is illustrated in Attachment 1.

2.2 Site information (location, ground elevation, etc.) are taken from the design drawings (Reference 8.2).

2.3 Manning's roughness coefficient (n) for grass (ditch flow) is 0.03 (Reference 8.3, Table 6.5, Page 144).

2.4 The Runoff Coefficient (C) are 0.35 and 0.75 for grass and gravel areas respectively (Reference 8.3, Table 5.5, Page 91).

2.5 Precipitation information for the site was obtained from the NOAA Precipitation Frequency Data Server for the 2-year and 50-year precipitation events (Reference 8.4, Attachment 2) which is presented in Table 1.

Table 1: Precipitation (Inches)

Duration (min)	Return Period (Years)		
	2	50	100
5	0.343	0.715	0.803
10	0.485	1.010	1.140
15	0.571	1.190	1.340
30	0.783	1.640	1.840
60	0.996	2.090	2.350
1440	2.320	4.640	5.200

2.6 An average infiltration rate at the site is 13.9 inch/hour (Reference 8.10, Page 5 of 35).

3.0 ASSUMPTIONS

3.1 Precipitation duration less than 5 minutes do not create sustained flow conditions considered necessary for storm water design. A minimum time of concentration (T_C) of 5 minutes is used for drainage areas with calculated T_C values less than 5 minutes. No further verification is required.

3.2 It is assumed that New York State Department of Environmental Conservation's approved "Alternative Stormwater Management Practices for Substations" (References 8.6 and 8.7) is used, then no further computations are required. This assumption is verified from above references and no further verification is required.

4.0 METHODOLOGY

The new storm water culvert for the site access road drains storm water runoff from the drainage area as shown on Attachment 1. The Rational Method is used to determine peak storm water runoff from the drainage area.

The time of concentration, Tc, is used to determine the precipitation intensity from site precipitation data (Table 1). The peak storm water runoff for the drainage area is the product of the runoff 'C', the intensity, I, and the area, A.

$$Q = C \times I \times A$$ (Reference 8.3, Eq 5-13, Page 90)

Where,

Q = Peak Surface Flow, cfs

C = Surface Runoff Coefficient

I = Precipitation Intensity, in/hour

A= Drainage Area, acres

A composite surface runoff coefficient is calculated according to the surface characteristics shown on Attachment 1.

The acreage of the drainage area is determined from Attachment 1.

The culvert capacity is calculated using the CulvertMaster Computer Program (Reference 8.8).

5.0 ACCEPTANCE CRITERIA

The culvert shall be sized to meet the following criteria:

5.1 The proposed culvert shall be sized to pass peak runoff from 50-year storm event with the head water elevation remaining below the top of the road at the culvert crossing.

5.2 The proposed swale shall be sized to pass peak runoff from 50-year storm event with water elevation below the top of the swale.

6.0 CALCULATIONS AND RESULTS

6.1 Substation Pad

As indicated in References 8.6 and 8.7 (Attachment 3), the substation pad is designed in such a way that porosity of the 6-inch surface course, 8-inch filter course and 10-inch reservoir stone course will provide the storage volume for the precipitation, and therefore, will satisfy the New York State Department Environmental Conservation (NYSDEC) requirements for runoff reduction and water quality management. NYSDEC has approved the design and thickness of layers for the substation area subject to conditions prescribed in above references. The section below discusses the requirements.

The Substation pad is approved section C-101(Reference 8.6, Attachment 3, Page 6) for infiltration rate ≥ 0.5 inches/hour.
From Reference 8.10, applicable infiltration rate = 13.9 inches/hour > 0.5 inches/hour required
100-year, 24-hour precipitation P100 = 5.20 inches (Table 1)
Volume of P100 on 1 sq.ft area = 5.20/12 x 1 = 0.43 ft^3

Storage available in 8-inch filter course (NYSDOT 304.12, Type 2 subbase compacted at 95% Standard Proctor porosity of 0.335) V1 = 1 sq.ft x 8/12 x 0.335 = 0.22 ft^3

Storage available in 10-inch reservoir stone course (NYSDOT washed #2 stone), porosity 0.485
V2 = 1 sq.ft x 10/12 x 0.485 = 0.40 ft^3

Total available storage volume V1 + V2 = 0.62 ft^3 > required volume of 0.43 ft^3

Therefore, the substation pad (Reference 8.2, Attachment 1) satisfies the requirements indicated in References 8.6 and 8.7 for the NYSDEC pre-approved cross section for the water quality and peak runoff requirements.

6.2 Time of Concentration (Tc) for Culvert Design

Precipitation intensity for calculating the peak storm water runoff from the drainage area is based on the time of concentration. The travel time is calculated using TR-55 methodology (Reference 8.5).

Travel time for sheet flow, which is assumed to be the first 300 feet of travel distance is calculated below.

$$T_{sheet\ flow} = \frac{0.007(n_{sheet}L)^{0.8}}{(P_2)^{0.5}S^{0.4}}$$ (Page 3-3, Reference 8.5)

$T_{sheet\ flow}$ = Sheet Flow Travel Time (hour)

n_{sheet} = Manning's Roughness Coefficient for Sheet Flow

L = Flow Length (ft)

P_2 = 2-year, 24-hour precipitation (in)

S = Slope of Hydraulic Grade Line (land slope, ft/ft)

After a maximum of 300 feet, sheet flow becomes shallow concentrated flow;

$$T_{shallow\ concentrated\ flow} = \frac{L}{3600V}$$ (Page 3-1, Reference 8.5)

$T_{shallow\ concentrated\ flow}$ = Shallow Concentrated Flow Travel Time (hour)

V = Average Velocity (ft/s) (Figure 3-1, Reference 8.4)

Ditch flow is calculated as;

$$T_{ditch\ flow} = \frac{L}{3600\ x\ V_{ditch}}$$

$$V_{ditch} = \left(\frac{1.49}{n_{ditch}}\right) R^{2/3}\sqrt{S}$$ (Page 3-4, Reference 8.5)

$T_{ditch\ flow}$= Ditch Flow Travel Time (hour)

V_{ditch} = Average Ditch Velocity (ft/s)

n_{ditch} = Manning's Roughness Coefficient for Ditch Flow

R = Hydraulic Radius (ft) = Area (ft^2) / Wetted Perimeter (ft)

The time of concentration calculation shown below is for the longest travel path.

Sheet Flow (300 feet)

n = 0.15 for grass (Reference 8.5, Table 3-1, Page 3-3)

L = 300 feet (Attachment 1)

P_2 = 2.32" (Table 1)

s = 0.0033 ft/ft (Attachment 1) {(El. 845.00 – El. 844.00)/300'}

$$T_{sheet\ flow} = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5}S^{0.4}} = \frac{0.007(0.15\ x\ 300)^{0.8}}{(2.32)^{0.5}(0.0033)^{0.4}} = 0.95\ hours = 57\ minutes$$

Shallow Concentrated Flow (830 feet)

After a maximum of 300 feet, sheet flow becomes shallow concentrated flow;

$$T_{shallow\ concentrated\ flow} = \frac{L}{3600V}$$ (Page 3-1, Reference 8.2)

$T_{shallow\ concentrated\ flow}$ = Shallow Concentrated Flow Travel Time (hr)

Slope = (844 – 843)/830 = 0.0012 ft/ft (See Attachment 1)

V = Average Velocity (ft/s) (Figure 3-1, Reference 8.2) = 1.2 ft/s

$$T_{shallow\ concentrated\ flow} = \frac{830}{3600*1.2}$$ = 0.19 hours = 11 minutes

Total travel time = 57 + 11 = 68 min

Conservatively, a time of concentration of 60 minutes is used.

6.3 Peak Storm Water Runoff

The peak storm water runoff for the 50-year precipitation event is calculated using the Rational Method. A composite surface runoff coefficient is calculated below;

Culvert C1

Drainage area A = 11.3 + 14.8 + 1.6 = 27.7 ac (Attachment 1)

50-Year Precipitation Event

Where,

Q = Peak Surface Flow, cfs

Substation Area 1.6 ac with runoff coefficient C = 0.75 for gravel

Other Area 26.1 ac with runoff coefficient C = 0.35 for grass and wooded area

Weighted runoff coefficient C = (0.75 x 1.6 + 0.35 x 26.1) / 27.7 = 0.37

C = 0.37

60-minute 50-year precipitation from Table 1 = 2.09 inches

i = 2.09/60 x 60 = 2.09 inches/hour (60 minute 50-year precipitation intensity)

A= 27.7 acres

Q = 0.37 x 2.09 x 27.7 = 21.4 cfs

6.4 Culvert C1 Capacity

From Attachment 1:

Culvert Length L = 70 ft

Upstream Invert Elu = 837.75 ft

Downstream Invert Eld = 837.00 ft

Culvert Size D = 2.0 ft (24-inch) CHDPE with Manning's n = 0.012

Design discharge = 21.4 cfs

Maximum allowable head water 845.35 (Top of road at culvert)

Reference 8.9 suggests tailwater depth from 0.4D to D for energy dissipation apron at the downstream. For the current case 0.5D is used.

Tailwater elevation = 837.00 + 0.5 x 2.0 = 838.00 ft

Above data input to CulverMaster Computer program to compute the head water upstream of the culvert.

CulvertMaster Computer program output is presented in Attachment 4.

From Attachment 4, head water level upstream of the Culvert C1 = 840.93 ft.

To verify the effect of tailwater, CulvertMaster computer program is also run with tailwater using full culvert depth at downstream.

Tailwater elevation = 837.00 + 2.0 = 839.00 ft.

CulvertMaster Computer program output is presented in Page 2 of Attachment 4 which indicates same head water elevation of 840.93 ft.

6.5 Culvert Riprap Protection

At downstream end of culvert

Riprap apron at downstream is calculated as per HEC14 (Reference 8.9)

Riprap size D_{50} as per equation:

$D_{50} = 0.2D \left(\frac{Q}{\sqrt{g}D^{2.5}}\right)^{\frac{4}{3}} \left(\frac{D}{TW}\right)$ (Equation 10.4, Reference 8.9, Page 10-17)

Where:

D_{50} = riprap size, ft

TW = tailwater depth, ft

D = culvert diameter, ft

Q = design discharge, cfs

Design discharge Q = 21.4 cfs

Culvert diameter D = 2.0 ft

Tailwater depth TW = 0.5 D = 1.00 ft (Lower value of TW is conservative)

$D_{50} = 0.2x2.0 \left(\frac{21.4}{\sqrt{32.2}x2.0^{2.5}}\right)^{\frac{4}{3}} \left(\frac{2.0}{1.00}\right)$ = 0.465 ft =5.6 inches

From Table 10.1 of Reference 8.9, for D_{50} of 6-inch, Riprap class = 2

Length of apron L = 4 times D = 4 x 2.0 = 8.0 ft

Depth = 3.3 D_{50} = 3.3 x 6-inch = 19.8 inch = use 20 inch

Apron width at upstream of apron = 3D = 6.0 ft

Apron width at downstream of apron = 3D +2/3 L = 6.0 + 2/3x 8.0 = 11.3 ft say 12 ft

<u>At upstream end of culvert</u>

D_{50}= 6- inch

Width of apron at culvert = 3D = 6.0 ft

Length of apron 8.0 ft used as similar to downstream

Width of apron at upstream of apron = 3D + ½ L = 6.0 + ½ x 8.0 = 10.0 ft

6.6 Pad Area Storm Water Swale Capacity

The storm water swale shall be able to convey the peak runoff from the 50-year precipitation event as stated in Section 5.0. The peak runoff from a 50-year precipitation event is compared to the capacity of the swale which is calculated using Manning's equation.

Drainage Area A= 1.6 ac (Attachment 1)

Runoff coefficient C = 0.75

Time of concentration TC = 5 min (Minimum)

Precipitation intensity for 50-year, 5-minute (Table 1) I = 0.715/5 x 60 = 8.58 inches/hour

Design peak discharge = CIA = 0.75 x 8.58 x 1.6 = 10.3 cfs

Manning's equation is used to calculate the storm water diversion swale capacity:

$$Q_{swale} = \left(\frac{1.49}{n_{swale}}\right) x\ A\ x\ R^{2/3}\ x\ S^{1/2}$$

Where,

Q_{swale} = Peak flow in ditch, cfs

n_{swale} = Manning's roughness coefficient for swale flow

S = longitudinal swale slope (ft/ft)

R = *A/P* = Hydraulic radius (ft)

A = Flow area (ft^2)

P = Wetted perimeter (ft)

Storm water swale characteristics are obtained from design drawings (Reference 8.2 and Attachment 1).

<u>Swale S1</u>

L = 680 feet

Depth D = 1.1 feet;

3H:1V side slopes

bottom width = 0 ft

Slope = 0.0092 ft/ft (Attachment 1, Elevation 844.00 ft 837.75 ft in 680 ft)

A = Flow area = 1.1 x 3 x 1.1/ 2 x 2 = 3.63 ft^2

P = Wetter perimeter = $(1+3^2)^{1/2}$ x 2 x 1.1 = 6.96 ft

R = A/P = 3.63 / 6.96 = 0.52 ft

n = 0.03

$$Q_{ditch} = \left(\frac{1.49}{0.03}\right) x\ 3.63\ x\ 0.52^{2/3}\ x\ 0.0092^{1/2}\ = 11.18\ cfs$$

$$Q_{ditch}\ (11.18\ cfs) > Q_{100-year}(10.30\ cfs)$$

Velocity V = 11.18/3.63 = 3.08 ft/sec

At a depth of 1.1 feet, the ditch capacity is adequate for 50-year peak runoff.

The velocity of 3.08 ft/sec is less than 4 ft/sec permissible velocity for seeded swale for slope less than 5% (Reference 8.3, Table 9.3).

6.7 Access Road Area Storm Water Swale Capacity

The storm water swale shall be able to convey the peak runoff from the 50-year precipitation event as stated in Section 5.0. The peak runoff from a 50-year precipitation event is compared to the capacity of the swale which is calculated using Manning's equation.

Drainage Area A= 11.3 ac (Attachment 1)
Grass runoff coefficient C = 0.35
Time of concentration TC =60 min (section 6.5)
60-minute 50-year precipitation from Table 1 = 2.09 inches
i = 2.09/60 x 60 = 2.09 inches/hour (60 minute 50-year precipitation intensity)

Design peak discharge = CIA =0.35 x 2.09 x 11.3 = 8.26 cfs
Manning's equation is used to calculate the storm water swale capacity:

$$Q_{swale} = \left(\frac{1.49}{n_{swale}}\right) x\ A\ x\ R^{2/3}\ x\ S^{1/2}$$

Where,
Q_{swale} = Peak flow in ditch, cfs
n_{swale} = Manning's roughness coefficient for swale flow
S = longitudinal swale slope (ft/ft)
R = *A/P* = Hydraulic radius (ft)
A = Flow area (ft^2)
P = Wetted perimeter (ft)
Storm water swale characteristics are obtained from design drawings (Reference 8.2 and Attachment 1).

Swale S2
L = 706 feet
Depth D = 1.03 feet;
3H:1V side slopes
bottom width = 0 ft
Slope = 0.0074 ft/ft (Attachment 1, Elevation 843.00 ft 837.75 ft in 706 ft)
A = Flow area = (1.03x 3 x 1.03/ 2) x 2 = 3.18 ft^2

P = Wetter perimeter = $(1+3^2)^{1/2}$ x 2 x 1.03 = 6.51 ft

R = A/P = 3.18 / 6.51 = 0.49 ft

n = 0.03

$$Q_{ditch} = \left(\frac{1.49}{0.03}\right) x\ 3.18\ x\ 0.49^{2/3}\ x\ 0.0074^{1/2}\ = 8.44\ cfs$$

$$Q_{ditch}\ (8.44\ cfs) > Q_{50-year}(8.26\ cfs)$$

Velocity V = 8.44/3.18 = 2.65 ft/sec

At a depth of 1.03 feet, the ditch capacity is adequate for 50-year peak runoff.

The velocity of 2.65 ft/sec is less than 4 ft/sec permissible velocity for seeded swale for slope less than 5% (Reference 8.3, Table 9.3).

7.0 CONCLUSIONS

The storm water ditch meets the following criteria defined in Section 5.0:

7.1 The proposed substation pad satisfies NYSDEC requirements for storm water.

7.2 The proposed culvert C1 can handle 50-year peak discharge without overtopping the access road.

7.3 The proposed stormwater swales have adequate capacity to handle 50-year peak discharge.

8.0 REFERENCES

8.1 New York State Stormwater Management Design Manual, New York State Department of Environmental Conservations, January 2015.

8.2 Site Design Drawings:
Drawing No. 13666-004-C1-0115-2 Site Grading Plan Option 2;
Drawing No. 13666-004-C1-0120 Site Grading Sections and Details.

8.3 Design and Construction of Urban Stormwater Management System, American Society of Civil Engineers, ASCE Manual and Reports of Engineering Practice No. 77.

8.4 NOAA's National Weather Service, Hydrometeorological Design Studies Center, Precipitation Frequency Data Server, NOAA Atlas 14, Volume 10, Version 3, Location – Elma, New York, https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html, accessed on 10/14/2019.

8.5 TR-55, "Urban Hydrology for Small Watersheds" by U.S. Department of Agriculture, June 1986.

8.6 Approval of National Grid's Alternative Stormwater Management Practices for Substations, National Grid's Letter to NYSDEC, dated February 2016 (Attachment 3).

8.7 Environmental Design and Research (EDR), NYSDEC Approval of Alternative Substation Cross-Sections (Attachment 3, Page 9 of 9).

8.8 CulvertMaster Computer Program, S&L Verified and Validated (V&Ved) Program CULVERTMSTR (S&L Program No. 03.7.713-3.03.00.04), Status: N. Program run on S&L PC # ZD9547.

8.9 Hydraulic Engineering Circular No.14, Third Edition, Hydraulic Design of Energy Dissipators for Culverts and Channels.

8.10 Geotechnical Evaluation Report, WMA Engineering DPC/DBA, Empire GEO Technical Engineering Services, Project No. WB-18-115 SS.

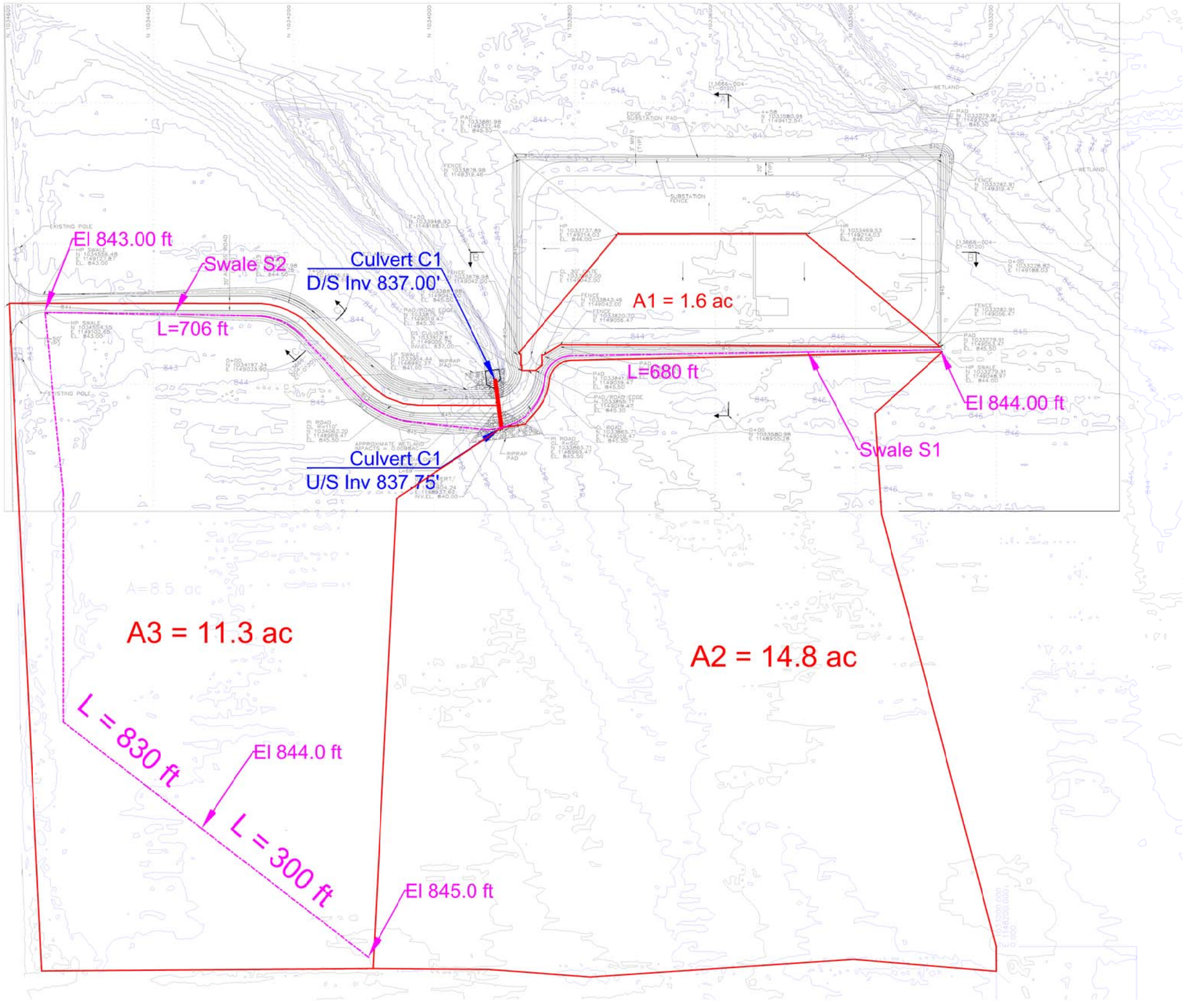
9.0 ATTACHMENTS

1 DRAINAGE AREAS.

2 PRECIPITATION DATA.

3. APPROVAL OF NATIONAL GRID'S ALTERNATIVE STORMWATER MANAGEMENT PRACTICES FOR SUBSTATIONS

4 CULVERTMASTER COMPUTER PROGRAM OUTPUT


El 843.00 ft
Swale S2
L=706 ft
Culvert C1
D/S Inv 837.00'
A1 = 1.6 ac
L=680 ft
El 844.00 ft
Swale S1
Culvert C1
U/S Inv 837.75'
A3 = 11.3 ac
A2 = 14.8 ac
L = 830 ft
El 844.0 ft
L = 300 ft
El 845.0 ft

Precipitation Frequency Data Server

NOAA Atlas 14, Volume 10, Version 3
Location name: Elma, New York, USA*
Latitude: 42.8381°, Longitude: -78.58°
Elevation: 838.82 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.283 (0.225-0.358)	0.343 (0.272-0.433)	0.440 (0.349-0.559)	0.521 (0.410-0.663)	0.632 (0.481-0.837)	0.715 (0.533-0.964)	0.803 (0.581-1.12)	0.908 (0.614-1.28)	1.06 (0.691-1.54)	1.20 (0.758-1.76)
10-min	0.401 (0.319-0.507)	0.485 (0.386-0.614)	0.623 (0.494-0.790)	0.737 (0.580-0.938)	0.895 (0.681-1.19)	1.01 (0.754-1.37)	1.14 (0.823-1.59)	1.29 (0.871-1.81)	1.51 (0.979-2.19)	1.70 (1.07-2.50)
15-min	0.472 (0.376-0.596)	0.571 (0.454-0.722)	0.733 (0.581-0.930)	0.868 (0.683-1.11)	1.05 (0.802-1.40)	1.19 (0.887-1.61)	1.34 (0.968-1.87)	1.51 (1.02-2.13)	1.78 (1.15-2.57)	2.00 (1.26-2.94)
30-min	0.647 (0.515-0.817)	0.783 (0.623-0.991)	1.01 (0.798-1.28)	1.19 (0.938-1.52)	1.45 (1.10-1.92)	1.64 (1.22-2.21)	1.84 (1.33-2.57)	2.08 (1.41-2.93)	2.44 (1.58-3.53)	2.74 (1.73-4.03)
60-min	0.822 (0.654-1.04)	0.996 (0.792-1.26)	1.28 (1.01-1.62)	1.52 (1.19-1.93)	1.84 (1.40-2.44)	2.09 (1.55-2.81)	2.35 (1.69-3.27)	2.65 (1.80-3.73)	3.10 (2.02-4.50)	3.48 (2.20-5.13)
2-hr	1.02 (0.817-1.28)	1.24 (0.989-1.55)	1.59 (1.27-2.00)	1.88 (1.49-2.38)	2.29 (1.75-3.01)	2.59 (1.94-3.47)	2.91 (2.11-4.03)	3.28 (2.23-4.59)	3.84 (2.50-5.52)	4.31 (2.74-6.29)
3-hr	1.15 (0.920-1.43)	1.39 (1.11-1.74)	1.78 (1.43-2.24)	2.11 (1.68-2.66)	2.56 (1.97-3.36)	2.90 (2.18-3.87)	3.26 (2.37-4.50)	3.68 (2.51-5.13)	4.31 (2.81-6.17)	4.83 (3.08-7.03)
6-hr	1.38 (1.11-1.71)	1.67 (1.35-2.07)	2.14 (1.72-2.67)	2.53 (2.02-3.17)	3.07 (2.37-4.00)	3.47 (2.62-4.60)	3.90 (2.86-5.35)	4.41 (3.02-6.10)	5.17 (3.39-7.35)	5.82 (3.72-8.40)
12-hr	1.64 (1.33-2.02)	1.97 (1.60-2.44)	2.53 (2.04-3.13)	2.98 (2.40-3.71)	3.61 (2.80-4.67)	4.08 (3.10-5.38)	4.58 (3.38-6.25)	5.19 (3.57-7.12)	6.10 (4.02-8.61)	6.89 (4.42-9.87)
24-hr	1.94 (1.59-2.38)	2.32 (1.89-2.84)	2.93 (2.38-3.60)	3.43 (2.77-4.24)	4.13 (3.22-5.30)	4.64 (3.55-6.08)	5.20 (3.85-7.04)	5.87 (4.06-8.00)	6.88 (4.55-9.64)	7.74 (4.99-11.0)
2-day	2.32 (1.91-2.83)	2.71 (2.23-3.31)	3.35 (2.74-4.09)	3.87 (3.15-4.75)	4.60 (3.60-5.85)	5.14 (3.94-6.66)	5.72 (4.24-7.64)	6.39 (4.44-8.64)	7.39 (4.91-10.3)	8.23 (5.32-11.6)
3-day	2.61 (2.15-3.16)	3.00 (2.47-3.64)	3.65 (3.00-4.44)	4.19 (3.41-5.12)	4.93 (3.87-6.23)	5.48 (4.21-7.06)	6.07 (4.50-8.05)	6.74 (4.70-9.07)	7.73 (5.15-10.7)	8.55 (5.54-12.0)
4-day	2.84 (2.35-3.44)	3.25 (2.68-3.93)	3.91 (3.22-4.75)	4.46 (3.65-5.44)	5.22 (4.11-6.58)	5.79 (4.45-7.42)	6.39 (4.74-8.43)	7.07 (4.93-9.47)	8.04 (5.37-11.1)	8.84 (5.74-12.4)
7-day	3.44 (2.86-4.14)	3.88 (3.22-4.68)	4.61 (3.81-5.56)	5.21 (4.28-6.31)	6.03 (4.76-7.54)	6.66 (5.13-8.45)	7.31 (5.42-9.52)	8.00 (5.61-10.7)	8.96 (6.01-12.3)	9.72 (6.33-13.5)
10-day	4.00 (3.33-4.79)	4.48 (3.73-5.37)	5.26 (4.36-6.33)	5.91 (4.87-7.15)	6.81 (5.39-8.47)	7.50 (5.78-9.46)	8.19 (6.07-10.6)	8.92 (6.28-11.8)	9.90 (6.66-13.5)	10.7 (6.96-14.8)
20-day	5.69 (4.77-6.78)	6.28 (5.26-7.48)	7.24 (6.04-8.66)	8.04 (6.66-9.65)	9.15 (7.28-11.3)	9.99 (7.75-12.5)	10.8 (8.07-13.9)	11.7 (8.29-15.4)	12.9 (8.71-17.4)	13.8 (9.04-19.0)
30-day	7.14 (6.01-8.47)	7.82 (6.57-9.28)	8.93 (7.48-10.6)	9.86 (8.19-11.8)	11.1 (8.89-13.7)	12.1 (9.41-15.1)	13.1 (9.77-16.7)	14.1 (10.00-18.4)	15.4 (10.5-20.8)	16.4 (10.8-22.5)
45-day	8.99 (7.59-10.6)	9.79 (8.25-11.6)	11.1 (9.30-13.1)	12.2 (10.1-14.5)	13.6 (10.9-16.7)	14.8 (11.5-18.3)	15.9 (11.9-20.2)	17.1 (12.1-22.2)	18.6 (12.6-24.9)	19.7 (13.0-26.9)
60-day	10.6 (8.96-12.5)	11.5 (9.69-13.5)	12.9 (10.9-15.3)	14.1 (11.8-16.8)	15.8 (12.7-19.2)	17.0 (13.3-21.0)	18.3 (13.7-23.1)	19.6 (14.0-25.4)	21.2 (14.5-28.3)	22.5 (14.8-30.5)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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PF graphical

Michael McPeck, P.E.
Lead Civil/Structural Engineer-
Substation Design & Engineering
National Grid

nationalgrid

February 25, 2016

Mr. David Gasper, P.E.
NYSDEC
Division of Water
625 Broadway, 4th Floor
Albany, NY 12233-3505

RE: Approval of National Grid's Alternative Stormwater Management Practices for Substations

Dear Mr. Gasper:

National Grid has been working with Environmental & Design and Research for more than 24 months to develop a stormwater management system (**system**) that is integrated into National Grid's substation pad cross-section and meets the requirements of the current version of the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity. The **system** that has been developed is included in the attached package Alternative Stormwater Management for National Grid Substations, dated February 12, 20116. The attached design memorandum provides a stormwater management system that is compliant with the requirements of the current version of the NYSDEC General Permit for Stormwater Discharges from Construction Activity, including Water Quality Volume (WQ_v), Runoff Reduction Volume (RRv), Channel Protection Volume (Cp_v), Overbank Flood Control (Q_p), and Extreme Flood Control (Q_f). The **systems** listed below include the following on-site infiltrations rate scenarios:

- Sites with infiltration rates greater than or equal to 0.5 inches per hour – Detail 1 on Drawing C-101, dated February 12, 2016
- Sites with infiltration rates less than 0.5 inches per hour – Detail 1 on Drawing C-102, dated February 12, 2016

National Grid requests official approval of these **systems,** as compliant stormwater management practices with the New York State Stormwater Management Design Manual (current version), and approval as a NYSDEC Stormwater Standard Stormwater Management Practice. Following the receipt of this approval, the projects utilizing this system will be subject to the standard of five or ten business day permit authorization, provided that the other portions of the project follow the standard General Permit and the Design Manual requirements.

National Grid also grants NYSDEC permission to distribute these **system** designs to other potential users with the understanding that the following disclaimer is to be added to all stormwater reports and contract drawings by the user:

> "National Grid (NG) together with the consulting firm, Environmental Design & Research (EDR), prepared a NYSDEC approved stormwater management prototype system (**system**), which may be applicable to substations projects. The user assumes the sole responsibility for the use of this system, its applicability to the project site, and the verification of appropriate use and compliance with village, town, city, county, state and federal stormwater requirements for this location."

Thank you for your continued support and consideration of this system.

Sincerely,

Michael McPeck, P.E.
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memorandum

To:	David Gasper, PE, NYSDEC	**EDR Project No:**	12073
From:	Carolyne Bean, EIT & Thomas Dussing, PE		
Date:	February 25, 2016		
Reference:	Alternate Stormwater Management for National Grid Substations		

Discussion

Environmental Design and Research (EDR) has worked with National Grid, the New York State Department of Environmental Conservation (NYSDEC), and the State University of New York, College of Environmental Science and Forestry (SUNY ESF) for more than 24 months to develop a stormwater management system (**system**) that is integrated into National Grid's substation pad construction and meets the requirements of the current version of the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity. The **system** that has been developed is included in the substation pad cross-section and provides a stormwater management compliant design that meets the requirements of the current version of the NYSDEC General Permit for Stormwater Discharges from Construction Activity, including Water Quality Volume (WQ_v), Runoff Reduction Volume (RRv), Channel Protection Volume (Cp_v), Overbank Flood Control (Q_p), and Extreme Flood Control (Q_f). Our combined efforts have produced two **systems** for the following on-site soil infiltrations rate scenarios, which include:

- Sites with infiltration rates greater than or equal to 0.5 inches per hour – Detail 1 on Drawing C-101
- Sites with infiltration rates less than 0.5 inches per hour – Detail 1 on Drawing C-102

National Grid requests approval of these two **systems,** as compliant stormwater management practices with the New York State Stormwater Manual (current version), and that they be approved as standard stormwater management practices, as required by the current version of the NYSDEC Stormwater General Permit. If a project utilizing one of the cross sections is subject to review by a Municipal Separate Storm Sewer System (MS4), it would be responsibility of the MS4 to review and approve the Stormwater Pollution Prevention Plan (SWPPP) by signing the MS4 SWPPP Acceptance form. If the project is not subject to review by a MS4, the SWPPP would follow the normal approval process for a non-MS4 project that is in conformance with the current version of the NYSDEC Stormwater General Permit.

Based on the demonstration project results, we offer the following in support of this request:

- The proposed stormwater management **systems** are designed for 7 inches of rainfall. This represents the largest 100-year storm rainfall depth within National Grid's service area or greater than six back to back 90% storms (1.1 inches).
- The **systems** provide treatment and management of WQ_v, RRv, Cp_v, Q_p, and Q_f by providing storage and infiltration (as applicable), of all rain events, up to and including, the 100-year storm.
- The **systems** are self-contained which reduces the impact to the surrounding environment by eliminating additional site disturbance that would be necessary for green infrastructure and traditional stormwater practices.
- National Grid has provided testing at a demonstration area that is supported by laboratory tested infiltration rates and porosities. A portion of the construction and testing of the demonstration project was witnessed by a former NYSDEC representative, Ellen Hahn Kubek. The demonstration area testing results show that the **systems** can accept and hold the 100-year storm volume without ponding or surface runoff.

Demonstration Area Test Results

100-Year Storm Demonstration

Ellen Hahn Kubek, a former NYSDEC representative, was present for the 100-Year storm test on November 21, 2013. 1,800 gallons of water was applied uniformly with a hose over a 30-minute duration, or at rate of 9.2 inches per hour. (Note that according to the Natural Resource Conservation Service (NRCS) Type 2 Rainfall Distribution, the highest 30-minute precipitation intensity of a 24-hour storm is between 11.5 hours and 12 hours. During this 30-minute time frame, 35% of the storm rainfall depth occurs. For a 7 inch, 100-Year Storm this translates to 2.5 inches of rainfall, or a rate of 5.0 inches per hour. Therefore, the application rate used during the test was greater than the maximum intensity that would occur during an NRCS Type 2 rain event.) The November 21, 2013 demonstration showed that the proposed cross section does have an acceptable infiltration rate, with no surface runoff being created during the test even with the high application intensity. (Also, note that the compaction results for the demonstration area were greater than National Grid's requirement of 95% standard proctor for the filter course.)

Demonstration Area Volume Correction

Following the construction of the demonstration area, it was determined that an insufficient depth of the reservoir course had been placed. Measurements from the surface of the test area to the bottom of the observation wells determined that it had been constructed with 4 inches of reservoir course material rather than the 10 inches that is proposed in the attached drawings. Since the 100-Year storm is proposed to be stored within the reservoir and filter courses, EDR calculated the equivalent storage volume required for testing the 100-Year storm based on the cross section as constructed (4–inch reservoir course). Based on this calculation the volume of water used for the 100-Year storm test was 1,800 gallons rather than initially proposed 2,800 gallons.

NYSDEC Stormwater Requirements

Runoff Reduction and Water Quality Volume Management

The proposed **system** for sites with **infiltration rates greater than or equal to 0.5 inches per hour** provides 100% storage and infiltration of the 7-inch rainfall event. This exceeds minimum RRv and WQv requirements for any Hydrologic Soil Group (HSG).

The proposed **system** for sites with **infiltration rates less than 0.5 inches per hour** will meet the RRv and WQv requirements by using practices from the 2010 NYS Stormwater Management Design Manual (Design Manual): vegetated filter strip or riparian forest buffer. Per the Design Manual, a maximum of 75 feet of flow length over impervious area can discharge to these practices. According to the hydrologic modeling reports attached, a 50 feet-wide by 75 feet-long impervious area with CN of 98 creates a peak discharge rate of 114 gallons per minute and an average discharge rate of 57 gallons per minute. Per the Design Manual, this discharge rate can be directed to a 50 feet wide by 60 feet long filter strip or buffer with a slope of 0% to 8% on HSG D soils. A 1-acre substation was modeled using the average porosity provided by the **system** with a 4 inch underdrain outlet. This resulted in a peak discharge rate of 56 gallons per minute. The average discharge rate from the impervious area is similar to the peak discharge rate from the substation area; therefore, it is reasonable to consider the same stormwater management via sheet flow to a filter strip or buffer to be acceptable. National Grid proposes for their **system** to meet the RRv and WQv requirements for sites with an infiltration rate of less than 0.5 inches per hour by using the following design criteria:

- A filter strip or buffer 50 feet wide, with the necessary length per the Design Manual, will be provided for each acre of substation area.
- Per the Design Manual, the length of the filter strip or buffer would be based on the attainable or existing site slopes. Filter strips or buffers with slopes of 0% to 8% would be 50 feet long, 8% to 12% would be 75 feet long and 12% to 15% would be 100 feet long. In HSG C or D soils, the length will be increased by 15% or 20%, respectively.

National Grid proposes that in this site condition, the substation underdrain(s) discharge to a flow dissipater (to create sheet flow) then to a filter strip or buffer sized as described. An example layout for a 5-acre substation on HSG D soils is shown on drawing C-103.

Volume Management

The proposed **system** for sites with infiltration rates greater than or equal to 0.5 inches per hour provide storage of Cp_v, Q_p, and Q_f and discharged via infiltration. The proposed **system** for sites with infiltration rates less than 0.5 inches per hour will provide storage for volume management and will discharge via an underdrain system that will be appropriately sized to meet the Cp_v, Q_p, and Q_f requirements. The underdrains will discharge to a flow dissipater and sheet flow over a filter strip or buffer as previously discussed to meet RRv and WQv requirements. Supporting stormwater detention calculations are attached.

Stormwater Management System Summary

In summary, the **systems** proposed by National Grid would provide stormwater management as detailed in the table below.

Site Infiltration (in/hr)	RRv & WQv	Cp_v	Q_p	Q_f
≥ 0.5	100% Infiltration (2.5 hours or less)*	100% Infiltration	100% Infiltration	100% Infiltration (14 hours or less)**
< 0.5	100% Vegetated Filter or Riparian Forest Buffer	Attenuation	Attenuation	Attenuation

* Calculated based on the largest 90% storm rainfall depth within National Grid's service area – 1.1 inches.
** Calculated based on the largest 100-Year storm rainfall depth within National Grid's service area – 7.0 inches

Attachments:
C-101 Proposed Substation Sections for Infiltration Rates of 0.5 in/hr and Greater
C-102 Proposed Substation Sections for Infiltration Rates Less Than 0.5 in/hr
C-103 Example Substation Filter Strip Layout for Infiltration Rates Less Than 0.5 in/hr
1 and 100 year Hydrologic Modeling Reports
National Grid Proposed Sections – Volume Storage Calculation
Photo of 11/22/20130 White Board Discussion with Ellen Hahn Kubek
12/27/2013 Email from Ellen Hahn Kubek

Copies To:
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Carol Lamb-Lafay, NYSDEC
David Follansbee, NYSDEC
File

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5/1/2014
Revised 7/16/2015

National Grid Proposed Sections – Volume Storage Calculation

For all proposed sections, storage for the 100-Year Storm (7") is provided in the reservoir and filter courses

7" of rain of a 1 sq-ft area
= (7"/12")(1 sq-ft)
= 0.58 cu-ft

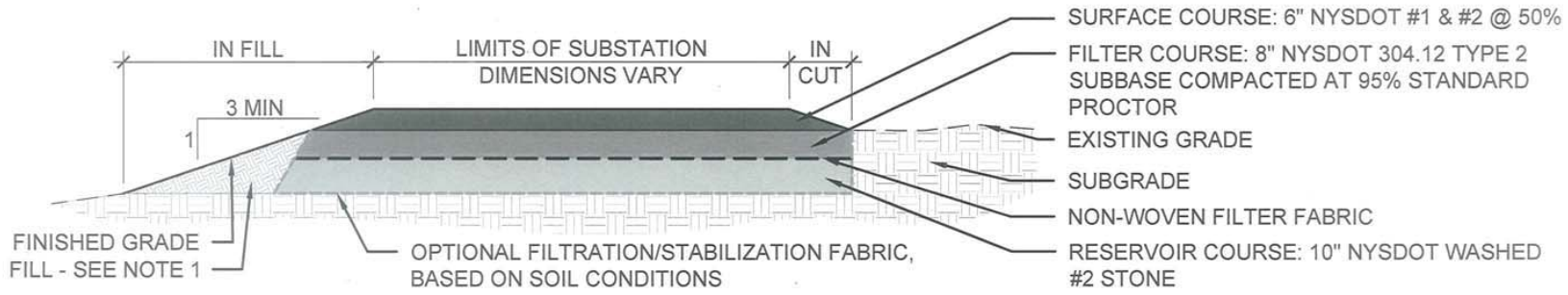
Per the 2/11/2013 Stormwater Management Research Report:
Porosity of the Reservoir Course – NYSDOT #2 Washed Stone = 0.485

Per the 9/27/2013 Sample Analysis by SUNY ESF (Revised Value)
Porosity of the Filter Course – NYSDOT 304.12 Type 2 Subbase = 0.335

Storage in 10" Reservoir Course for a 1 sq-ft area
= (10"/12")(1 sq-ft)(0.485)
= 0.40 cu-ft

Storage in 8" Filter Course for a 1 sq-ft area
= (8"/12")(1 sq-ft)(0.335)
= 0.22 cu-ft

Total Storage in the Reservoir and Filter Courses
= 0.40 cu-ft + 0.22 cu-ft
= 0.62 cu-ft



1 / C-101 SUBSTATION SECTION - INFILTRATION RATE ≥ 0.5 IN/HR

Scale: NTS

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NOTES:

1. ALL FILL USED FOR SIDE SLOPES SHALL BE ONSITE MATERIAL FROM AREA CUT TO CREATE THE SUBSTATION OR SHALL BE OFFSITE FILL COMPACTED TO HAVE AN INFILTRATION RATE LESS THAN THE SUBSTATION SUBGRADE.
2. INFILTRATION TESTING SHALL BE COMPLETED AS REQUIRED BY APPENDIX D OF THE 2010 NYS STORMWATER MANAGEMENT DESIGN MANUAL, OR AS APPROVED BY THE NYS DEC REGIONAL OFFICE OR MS4 REPRESENTATIVE.
3. THIS SECTION SHALL BE APPLICABLE TO MEET THE STORMWATER MANAGEMENT REQUIREMENTS OF NEW DEVELOPMENT AND REDEVELOPMENT PROJECTS, PER THE 2010 NYS STORMWATER MANAGEMENT DESIGN MANUAL, FOR SITES WITH INFILTRATION RATES OF GREATER THAN OR EQUAL TO 0.5 INCHES PER HOUR.
4. ALL THOSE UTILIZING THIS SECTION, WITH THE EXCEPTION OF NATIONAL GRID, SHALL INCLUDE THE FOLLOWING NOTE IN ALL STORMWATER REPORTS AND DRAWINGS:

   "NATIONAL GRID (NG) TOGETHER WITH THE CONSULTING FIRM, ENVIRONMENTAL DESIGN & RESEARCH (EDR), PREPARED A NYSDEC STORMWATER MANAGEMENT PROTOTYPE SYSTEM (SYSTEM), WHICH MAY BE APPLICABLE TO SUBSTATION PROJECTS. THE USER ASSUMES THE SOLE RESPONSIBILITY FOR THE USE OF THIS SYSTEM, ITS APPLICABILITY TO THE PROJECT SITE, AND VERIFICATION OF THE APPROPRIATE USE AND COMPLIANCE WITH VILLAGE, TOWN, CITY, COUNTY, STATE, AND FEDERAL STORMWATER REQUIREMENTS FOR THIS LOCATION."

PROJECT TITLE: **NATIONAL GRID - SUBSTATION STORMWATER MANAGEMENT PRACTICES**	edr JOB NUMBER: **12073**
DRAWING TITLE: **PROPOSED SUBSTATION SECTIONS FOR INFILTRATION RATES OF 0.5 IN/HR AND GREATER**	DRAWING NUMBER: **C-101**
DRAWN BY: **CB** / CHECKED BY: **TD**	SCALE: **NTS** / DATE: **2/25/2016**

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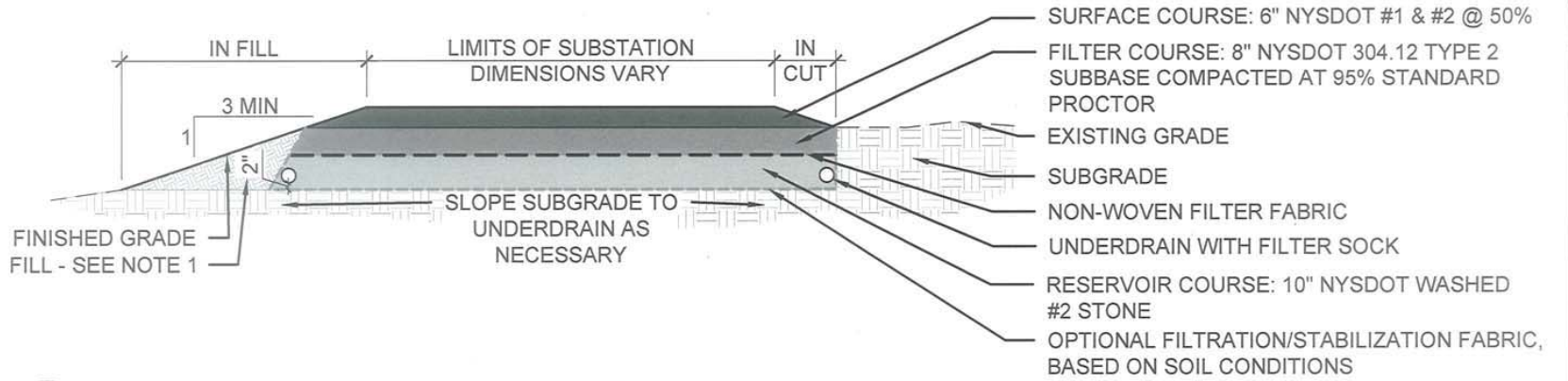

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C-102

SUBSTATION SECTION - INFILTRATION RATE < 0.5 IN/HR

Scale: NTS

nationalgrid

NOTES:

1. ALL FILL USED FOR SIDE SLOPES SHALL BE ONSITE MATERIAL FROM AREA CUT TO CREATE THE SUBSTATION OR SHALL BE OFFSITE FILL COMPACTED TO HAVE AN INFILTRATION RATE LESS THAN THE SUBSTATION SUBGRADE.
2. UNDERDRAIN SIZE AND LAYOUT WILL VARY DEPENDING ON THE SIZE OF THE SUBSTATION.
3. UNDERDRAIN WILL DAYLIGHT AND DISCHARGE TO A LEVEL SPREADER THEN A VEGETATED FILTER STRIP OR RIPARIAN FOREST BUFFER TO MEET RUNOFF REDUCTION VOLUME REQUIREMENTS.
4. LEVEL SPREADER SHALL BE DESIGNED PER THE NYS STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL TO CREATE SHEET FLOW PRIOR TO DISCHARGE TO THE VEGETATED FILTER STRIP OR RIPARIAN FOREST BUFFER.
6. VEGETATED FILTER STRIP OR RIPARIAN FOREST BUFFER WIDTH SHALL BE 50 FEET PER ACRE OF SUBSTATION. LENGTH AND REMAINING DESIGN CRITERIA SHALL BE PER THE 2010 NYS STORMWATER MANAGEMENT DESIGN MANUAL.
7. UNDERDRAINS SHALL BE SIZED TO MEET CHANNEL PROTECTION VOLUME (Cpv), OVER BANK FLOOD CONTROL (Qp) AND EXTREME FLOOD CONTROL (Qf) DESIGN CRITERIA.
8. THIS SECTION SHALL BE APPLICABLE TO MEET THE STORMWATER MANAGEMENT REQUIREMENTS OF NEW DEVELOPMENT AND REDEVELOPMENT PROJECTS, PER THE 2010 NYS STORMWATER MANAGEMENT DESIGN MANUAL, FOR SITES WITH INFILTRATION RATES LESS THAN 0.5 INCHES PER HOUR.
9. ALL THOSE UTILIZING THIS SECTION, WITH THE EXCEPTION OF NATIONAL GRID, SHALL INCLUDE THE FOLLOWING NOTE IN ALL STORMWATER REPORTS AND DRAWINGS:

   "NATIONAL GRID (NG) TOGETHER WITH THE CONSULTING FIRM, ENVIRONMENTAL DESIGN & RESEARCH (EDR), PREPARED A NYSDEC STORMWATER MANAGEMENT PROTOTYPE SYSTEM (SYSTEM), WHICH MAY BE APPLICABLE TO SUBSTATION PROJECTS. THE USER ASSUMES THE SOLE RESPONSIBILITY FOR THE USE OF THIS SYSTEM, ITS APPLICABILITY TO THE PROJECT SITE, AND VERIFICATION OF THE APPROPRIATE USE AND COMPLIANCE WITH VILLAGE, TOWN, CITY, COUNTY, STATE, AND FEDERAL STORMWATER REQUIREMENTS FOR THIS LOCATION."

PROJECT TITLE: **NATIONAL GRID - SUBSTATION STORMWATER MANAGEMENT PRACTICES**	edr JOB NUMBER: **12073**
DRAWING TITLE: **PROPOSED SUBSTATION SECTIONS FOR INFILTRATION RATES LESS THAN 0.5 IN/HR**	DRAWING NUMBER: **C-102**
DRAWN BY: **CB** / CHECKED BY: **TD**	SCALE: **NTS** / DATE: **2/25/2016**

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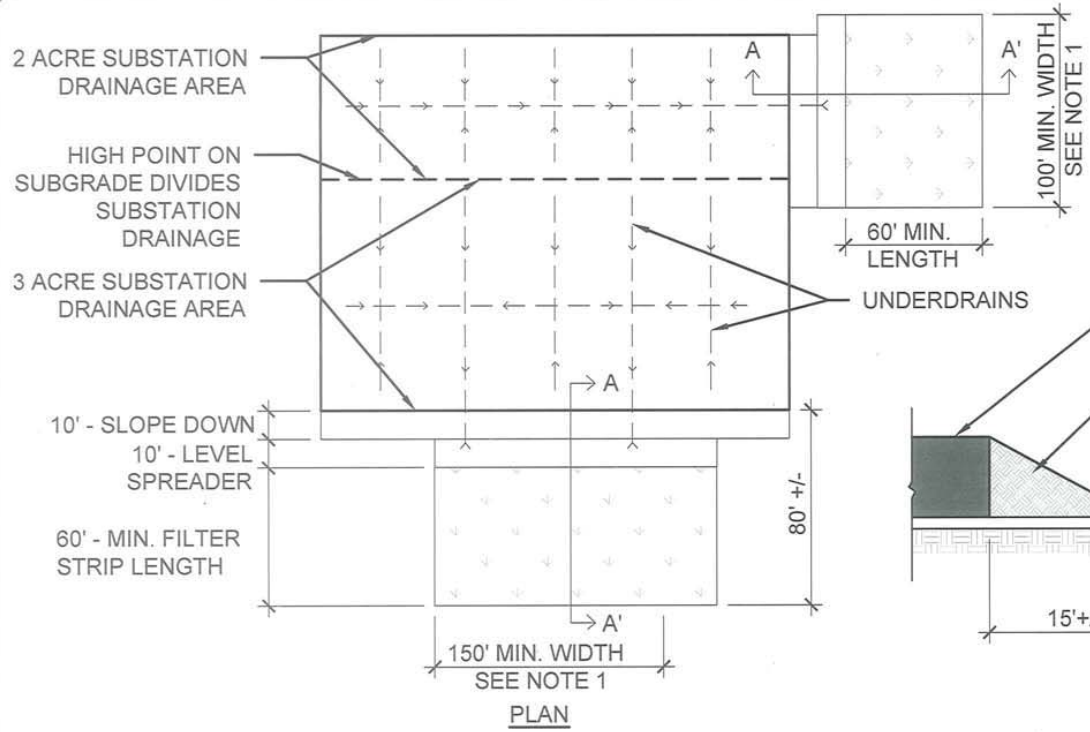

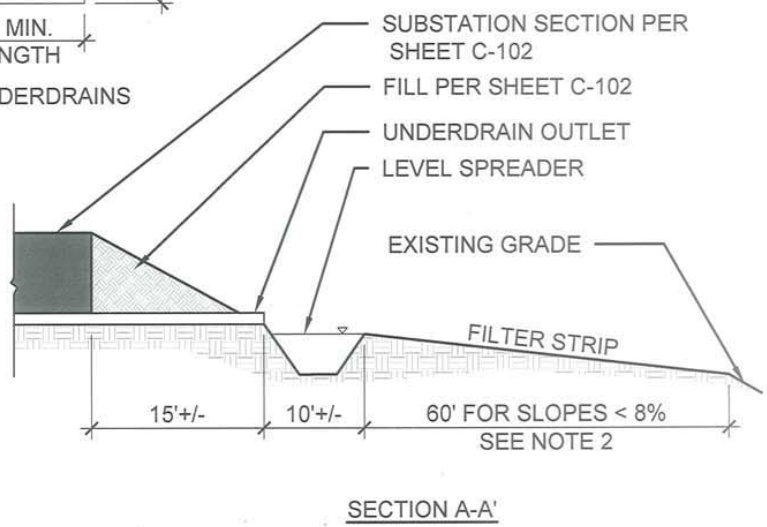

NOTES:
1. FILTER STRIP WIDTH PER ACRE = 50'
   5 ACRES X 50' WIDTH = 250' TOTAL WIDTH
2. SEE 2010 NYS STORMWATER MANAGEMENT DESIGN MANUAL FOR FILTER STRIP LENGTH REQUIREMENTS BASED ON SITE SLOPES AND HSG. EXAMPLE IS FOR HSG D.
3. FILTER STRIP LAYOUT/ORIENTATION IS AN EXAMPLE. FILTER STRIPS SHOULD BE LOCATED BASED ON SITE CHARACTERISTICS. UNDERDRAIN LAYOUTS MUST BE CONFIGURED TO DRAIN AN AREA THE SUBSTATION TO AN APPROPRIATELY SIZED FILTER STRIP.
4. SLOPE DOWN AND LEVEL SPREADER WIDTH ARE EXAMPLES AND REQUIRE PROJECT SPECIFIC DESIGN.
5. SEE NOTE 9, DRAWING NUMBER C-102.

1 / C-103

5 ACRE SUBSTATION EXAMPLE

Scale: NTS

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PROJECT TITLE: NATIONAL GRID - SUBSTATION STORMWATER MANAGEMENT PRACTICES	edr JOB NUMBER: 12073
DRAWING TITLE: EXAMPLE SUBSTATION FILTER STRIP LAYOUT FOR INFILTRATION RATES LESS THAN 0.5 IN/HR	DRAWING NUMBER: C-103
DRAWN BY: CB / CHECKED BY: TD	SCALE: NTS / DATE: 2/25/2016

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NYSDEC Approval of Alternative Substation Cross-Sections

Photo: Construction of test plot, placing the surface course on the filter course.

EDR and our client, National Grid, are thrilled to have recently received formal approval from the New York State Department of Environmental Conservation (NYSDEC) for an innovative stormwater management design solution for substations. Substations are typically constructed on confined sites, and standard stormwater management practices often require a substantial footprint that may exceed the available space on a given site. In 2012, EDR initiated research and design of alternative cross-section designs that incorporates stormwater management into the substation pad, minimizing the need for additional stormwater management outside of the substation footprint. Our Civil Engineering team then collaborated with National Grid and State University of New York College of Environmental Science and Forestry (SUNY ESF) to do material testing, develop many iterations of cross-sections, and build a test plot on SUNY ESF's property in Tully (Onondaga County, New York). In February 2016, the NYSDEC provided verbal approval to begin using the cross-sections for new projects. EDR has subsequently designed five new substations and two substation expansions for National Grid that employ this innovative method. One of these, constructed in 2016, is functioning well, providing proof-of-concept that this design solution is an effective means to manage stormwater within the footprint of the substation pad. EDR Project Engineer, Carolyne Bean, presented this project at the 2016 New York Water Environment Association (NYWEA) annual conference, held in February of last year. We are very pleased to be able to offer this alternative stormwater management solution to National Grid and to other utility clients, which we anticipate will expedite regulatory reviews and approvals for substation projects.

Congratulations to our Civil Engineering Team for this achievement!

For More Information

Carolyne Bean, EIT, CPESC | Project Engineer
cbean@edrdpc.com (mailto:cbean@edrdpc.com)

Culvert Calculator Report
Culvert C1 24"

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	845.35	ft	Headwater Depth/Height	1.59	
Computed Headwater Elev	840.93	ft	Discharge	21.40	cfs
Inlet Control HW Elev.	840.93	ft	Tailwater Elevation	838.00	ft
Outlet Control HW Elev.	840.79	ft	Control Type	Inlet Control	

Grades					
Upstream Invert	837.75	ft	Downstream Invert	837.00	ft
Length	70.00	ft	Constructed Slope	0.010714	ft/ft

Hydraulic Profile					
Profile	S2		Depth, Downstream	1.43	ft
Slope Type	Steep		Normal Depth	1.41	ft
Flow Regime	Supercritical		Critical Depth	1.66	ft
Velocity Downstream	8.89	ft/s	Critical Slope	0.007495	ft/ft

Section					
Section Shape	Circular		Mannings Coefficient	0.012	
Section Material	HDPE (Smooth Interior)		Span	2.00	ft
Section Size	24 inch		Rise	2.00	ft
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	840.79	ft	Upstream Velocity Head	0.92	ft
Ke	0.50		Entrance Loss	0.46	ft

Inlet Control Properties					
Inlet Control HW Elev.	840.93	ft	Flow Control	Submerged	
Inlet Type	Square edge w/headwall		Area Full	3.1	ft²
K	0.00980		HDS 5 Chart	1	
M	2.00000		HDS 5 Scale	1	
C	0.03980		Equation Form	1	
Y	0.67000				

Culvert Calculator Report
Culvert C1 24"

Solve For: Headwater Elevation

Culvert Summary					
Allowable HW Elevation	845.35	ft	Headwater Depth/Height	1.59	
Computed Headwater Elev	840.93	ft	Discharge	21.40	cfs
Inlet Control HW Elev.	840.93	ft	Tailwater Elevation	839.00	ft
Outlet Control HW Elev.	840.79	ft	Control Type	Inlet Control	

Grades					
Upstream Invert	837.75	ft	Downstream Invert	837.00	ft
Length	70.00	ft	Constructed Slope	0.010714	ft/ft

Hydraulic Profile					
Profile	CompositeS1S2		Depth, Downstream	1.43	ft
Slope Type	Steep		Normal Depth	1.41	ft
Flow Regime	N/A		Critical Depth	1.66	ft
Velocity Downstream	8.89	ft/s	Critical Slope	0.007495	ft/ft

Section					
Section Shape	Circular		Mannings Coefficient	0.012	
Section Material	HDPE (Smooth Interior)		Span	2.00	ft
Section Size	24 inch		Rise	2.00	ft
Number Sections	1				

Outlet Control Properties					
Outlet Control HW Elev.	840.79	ft	Upstream Velocity Head	0.92	ft
Ke	0.50		Entrance Loss	0.46	ft

Inlet Control Properties					
Inlet Control HW Elev.	840.93	ft	Flow Control	Submerged	
Inlet Type	Square edge w/headwall		Area Full	3.1	ft²
K	0.00980		HDS 5 Chart	1	
M	2.00000		HDS 5 Scale	1	
C	0.03980		Equation Form	1	
Y	0.67000				