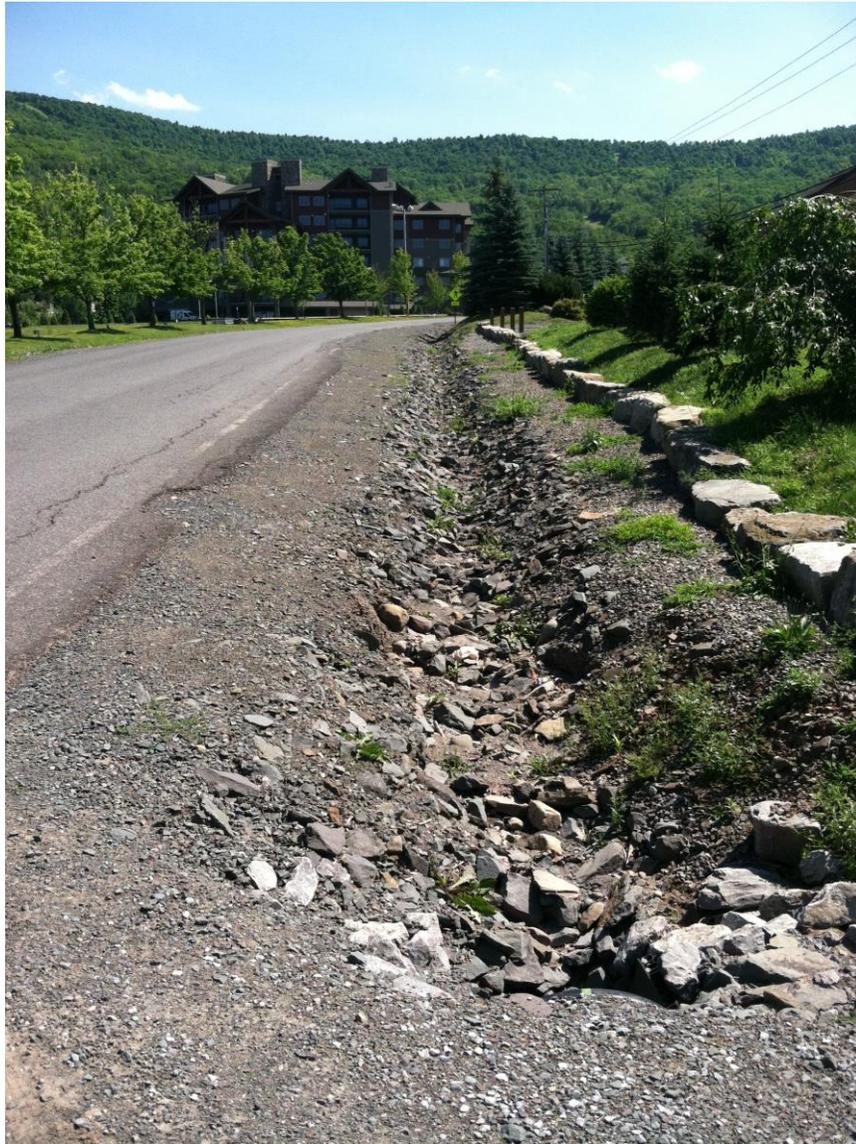


SOUTH STREET STORMWATER COLLECTION SYSTEM PROJECT

ENVIRONMENTAL ASSESSMENT



New York State Governor's Office of Storm Recovery
March 14, 2019

SOUTH STREET STORMWATER COLLECTION SYSTEM PROJECT

Environmental Assessment

March 14, 2019

Project Name: South Street Stormwater Collection System Project

Project Location: South Street and Clarence D Lane Road,
Town of Windham, Greene County, New York

Federal Agency: US Department of Housing and Urban Development
Responsible Entity: New York State Homes and Community Renewal (HCR)
Governor's Office of Storm Recovery (GOSR)

**Responsible Agency's
Certifying Officer:** Lori A. Shirley, Certifying Environmental Officer
38-40 State Street, Hampton Plaza
Albany, New York 12207
(518) 474-0755, Lori.Shirley@nyshcr.org

Project Sponsor: Town of Windham
Primary Contact: Robert J. Pelham, Town Supervisor
371 State Route 296
Hensonville, NY 12439
Phone: (518) 734-4170
Email: supervisor@townofwindhamny.com

Project NEPA Classification: 24 CFR 58.36 (Environmental Assessment)

Environmental Finding:	<input checked="" type="checkbox"/> Finding of No Significant Impact - The project will not result in a significant impact on the quality of the human environment.
	<input type="checkbox"/> Finding of Significant Impact - The project may significantly affect the quality of the human environment.
Certification	The undersigned hereby certifies that New York State Homes and Community Renewal has conducted an environmental review of the project identified above and prepared the attached environmental review record in compliance with all applicable provisions of the National Environmental Policy Act of 1969, as amended (42 USC Sec. 4321 et seq.) and its implementing regulations at 24 CFR Part 58.
Signature	 Lori A. Shirley

**Environmental
Assessment Prepared
By:** Tectonic Engineering & Surveying
PO Box 37, 70 Pleasant Hill Road
Mountainville, NY 10953

CERTIFICATION OF NEPA CLASSIFICATION

It is the finding of the New York State Housing Trust Fund Corporation that the activity(ies) proposed in its 2019 NYS CDBG-DR project, South Street Stormwater Collection System Project are:
Project Year Project Name

Check the applicable classification.

- Exempt as defined in 24 CFR 58.34 (a).
- Categorically Excluded as defined in 24 CFR 58.35(b).
- Categorically Excluded as defined in 24 CFR 58.35(a) and no activities are affected by federal environmental statutes and executive orders [i.e., exempt under 58.34(a)(12)].
- Categorically Excluded as defined in 24 CFR 58.35(a) and some activities are affected by federal environmental statutes and executive orders.
- "Other" neither exempt (24 CFR 58.34(a)) nor categorically excluded (24 CFR 58.35).
- Part or all of the project is located in an area identified as a floodplain or wetland. For projects located in a floodplain or wetland, evidence of compliance with Executive Orders 11988 and/or 11990 is required.

For activities excluding those classified as "Other", attached is the appropriate Classification Checklist (Exhibit 2-4) that identifies each activity and the corresponding citation.


Signature of Certifying Officer

March 14, 2019
Date

Lori A. Shirley
Print Name

Environmental – Certifying Officer
Title

Description of the Proposed Project [24 CFR 50.12 & 58.32; 40 CFR 1508.25]:

The Town of Windham is requesting CDBG-DR funding for the South Street Stormwater Collection System Project (Project) which is located on South Street/ County Route 12 (CR12) and Clarence D Lane Road, Town of Windham, Greene County, New York. The Project will improve conveyance of tributary culverts that transport stormwater that originates on the slopes of mountains immediately south of the town via enhancements to existing stormwater collection infrastructure and construction of new culverts beneath South Street.

Construction activities will include the replacement of existing undersized culverts with culverts designed to meet 100-year storm event requirements, cleaning and formalization of existing drainage swales, and installation of stabilized drainage swales. Replacement culvert materials would include precast concrete box culverts and smooth interior corrugated high density polyethylene pipe (HDPE) culverts, with both types of culverts to be fitted with reinforced concrete headwalls, wingwalls, and trash racks. Other stormwater structures would include precast concrete stormwater manholes and flared end sections for culverts (either reinforced concrete or HDPE) and a rock spillway to be constructed for an existing stormwater outfall to prevent further scouring and erosion actions at that location. The bottoms and sides of the stabilized drainage swales would be armored using either riprap stone or grass-lined turf reinforcement mat geosynthetic materials. The Project will also involve restoring existing drainage swales, re-grading road shoulders to restore sheet flow, roadway guide railing, and a 1.5" overlay of asphalt on Clarence D Lane Road. All improvements will be designed and constructed to improve resilience in future storm events.

Statement of Purpose and Need for the Proposal [40 CFR 1508.9(b)]:

The Project, as envisioned by the Town of Windham, will ensure that town residents have dependable access to emergency response services during future storm events, safely convey stormwater, and lessen negative environmental impacts caused by sediment-laden run-off from Batavia Kill's tributaries. There will be extensive ground disturbance involving the construction of upgraded and new culverts, removal of old infrastructure, replacement of existing infrastructure, and disturbance of road asphalt and sub-bases.

Following Hurricane Irene and Tropical Storm Lee, during the NY Rising Community Reconstruction (NYRCR) planning process, the Town resolved to address solutions to flooding, and more specifically stormwater collection systems. The creation of a stormwater collection system will reduce future stormwater damage through a system of drainage improvements that include the upgrade and construction of culverts. The proposed improvements will result in the ability to keep this vital corridor open during future storm events. The Project will help reduce environmental damage caused by the introduction of large amounts of sediment into Batavia Kill. The proposed flood prevention improvements will aid in the mitigation of damage caused by flooding in future storm events, as well as being a key component in the overall flood protection plan for the Town of Windham.

Existing Conditions and Trends [24 CFR 58.40(a)]:

The Town of Windham is situated in a valley between two mountain ridges with steep slopes. The Town is traversed east-to-west by Batavia Kill and several small tributaries that are prone to flood during significant rain events. During Hurricane Irene and Tropical Storm Lee, excessive amounts of rainfall caused these tributaries to flood and exacerbated flooding of Batavia Kill. This flooding overwhelmed culvert infrastructure on South Street and its feeder streets. This flooding caused heavy damage to homes and businesses along the South Street corridor and isolated residents from critical emergency services, which are coordinated in Hensonville, the town's seat of government, which is accessible primarily via South Street.

Funding Information

Estimated Total HUD Funded Amount: \$1,705,052.04

Estimated Total Project Cost (HUD and non-HUD funds) [24 CFR 58.32(d)]: \$1,705,052.04

Compliance with 24 CFR 58.5, and 58.6 Laws and Authorities

Record below the compliance or conformance determinations for each statute, executive order, or regulation. Provide credible, traceable, and supportive source documentation for each authority. Where applicable, complete the necessary reviews or consultations and obtain or note applicable permits of approvals. Clearly note citations, dates/names/titles of contacts, and page references. Attach additional documentation as appropriate.

Compliance Factors: Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6	Are formal compliance steps or mitigation required?	Compliance determinations
STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR 50.4 and 58.6		
<p>Airport Hazards 24 CFR Part 51 Subpart D</p>	<p>Yes No <input type="checkbox"/> <input checked="" type="checkbox"/></p>	<p>Based on guidance provided by HUD via Fact Sheet #D1¹, the National Plan of Integrated Airport Systems (NPIAS) was reviewed for civilian, commercial service and military airports located near the Project area. An Airport Hazards map showing the Project area, airport locations, heliport locations, and their associated buffers is included in Attachment 3.</p> <p>There are no civilian, commercial service airports located within 2,500 feet of the proposed Project. There are no military airports located within 15,000 feet of the Project. No additional review is required.</p>
<p>Coastal Barrier Resources Coastal Barrier Resources Act, as amended by the Coastal Barrier Improvement Act of 1990 [16 USC 3501]</p>	<p>Yes No <input type="checkbox"/> <input checked="" type="checkbox"/></p>	<p>Based on the USFWS Coastal Barrier Resources System Map², the Project is not located in, or immediately adjacent to (within 150 feet), a Coastal Barrier Resource System Unit or Otherwise Protected Area.</p> <p>USFWS Coastal Barrier Resources System Map included in Attachment 3.</p>
<p>Flood Insurance Flood Disaster Protection Act of 1973 and National Flood Insurance Reform Act of 1994 [42 USC 4001-4128 and 42 USC 5154a]</p>	<p>Yes No <input type="checkbox"/> <input checked="" type="checkbox"/></p>	<p>Based on the FEMA FIRMette included in <i>Appendix II</i> of Attachment 4, the Project is partially located within a FEMA³ Special Flood Hazard Area; however, the proposed scope of work does not include any insurable structures. Therefore, flood insurance will not be required.</p>

¹ Fact Sheet #D1: Siting HUD-Assisted Projects in Accident Potential Zones.

https://www.michigan.gov/documents/mshda/mshda_cd_nsp2_air_accident_315724_7.pdf

² USFWS Coastal Barrier Resources System mapper. <https://www.fws.gov/ecological-services/habitat-conservation/cbra/maps/mapper.html>

³ FEMA Flood Map Portal. <https://msc.fema.gov/portal>

STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR 50.4 & 58.5

<p>Clean Air Clean Air Act, as amended, particularly section 176(c) & (d); 40 CFR Parts 6, 51, 93</p>	<p>Yes No <input type="checkbox"/> <input checked="" type="checkbox"/></p>	<p>This Project is located in Greene County, which is listed as a current Nonattainment Area⁴ for 8-hour Ozone (2008). Temporary emissions would result from equipment during construction with no increased emissions occurring due to the operation of the proposed Project. Therefore, a conformity and screening analysis was performed according to the requirements of 40 CFR 93, Subpart B (federal general conformity regulations). The screening analysis assumed that the emissions intensity per expenditure (tons per dollar) for the proposed Project would be similar to the average intensity of the construction sector in the county. Projects with a projected construction expenditure substantially lower than the average construction de minimis expenditure would not exceed de minimis emissions levels for general conformity purposes.</p> <p>Based on the screening analysis, the construction expenditure threshold for Greene County is \$237 million before a project may be expected to exceed the de minimis expenditure thresholds requiring further analysis or conformity determination (Attachment 5). The estimated construction cost of the proposed Project is approximately \$1.7 million, which is less than the \$237 million threshold; thus, the proposed Project would not require further analysis for a conformity determination.</p> <p>Construction of the proposed Project would not generate significant levels of vehicular traffic; therefore, no exceedances of the National Ambient Air Quality Standard (NAAQS) associated with carbon monoxide (CO) or particulate matter (PM) is anticipated occur. The proposed Project will not result in siting any new source of air pollutants. The proposed Project will not adversely affect the State Implementation Plan (SIP). Any air quality impacts would be short-term and localized during construction and, therefore, no</p>
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⁴ EPA, *Nonattainment Areas for Criteria Pollutants*. <https://www.epa.gov/green-book>
EPA, *Recent Updates: Federal Register Notices Published or Effective After September 22, 2016*
<http://www.epa.gov/airquality/greenbook/adden.html>

<p>Clean Air Clean Air Act, as amended, particularly section 176(c) & (d); 40 CFR Parts 6, 51, 93</p>		<p>significant adverse impacts to air quality are anticipated.</p> <p>Additionally, the following measures will be incorporated into the contract documents and a more detailed conformity analysis will be required to be completed for the bid package using the “General Conformity Worksheet.”</p> <p><i>Idling Restriction.</i> In addition to adhering to the local law restricting unnecessary idling on roadways, on-site vehicle idle time will also be restricted to five minutes for all equipment and vehicles that are not using their engines to operate a loading, unloading, or processing device (e.g., concrete mixing trucks) or otherwise required for the proper operation of the engine.</p> <p><i>Utilization of Newer Equipment.</i> EPA’s Tier 1 through 4 standards for non-road engines regulates the emission of criteria pollutants from new engines, including PM, CO, NOx, and hydrocarbons (HC). All non-road construction equipment with a power rating of 50 horsepower (hp) or greater would meet at least the Tier 2 emissions standard to the extent practicable.</p> <p><i>Best Available Tailpipe Reduction Technologies.</i> Non-road diesel engines with a power rating of 50 hp or greater and controlled truck fleets (i.e., truck fleets under long-term contract with the Project) including but not limited to concrete mixing and pumping trucks would utilize the best available tailpipe (BAT) technology for reducing DPM emissions. Diesel particulate filters (DPFs) have been identified as being the tailpipe technology currently proven to have the highest reduction capability. Construction contracts would specify that all diesel non-road engines rated at 50 hp or greater would utilize DPFs, either installed by the original equipment manufacturer (OEM) or retrofitted. Retrofitted DPFs must be verified by EPA or the California Air Resources Board (CARB). Active DPFs or other technologies proven to achieve an equivalent reduction may also be used.</p>
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<p>Coastal Zone Management Coastal Zone Management Act, sections 307(c) & (d)</p>	<p>Yes No <input type="checkbox"/> <input checked="" type="checkbox"/></p>	<p>The proposed Project is not located within the New York State Department of State (NYS DOS) Coastal Boundary as documented in Attachment 3. As the Project will not involve work within the New York State Coastal Boundary, it will not require Coastal Consistency concurrence from the NYSDOS.</p>
<p>Contamination and Toxic Substances 24 CFR Part 50.3(i) & 58.5(i)(2)</p>	<p>Yes No <input type="checkbox"/> <input checked="" type="checkbox"/></p>	<p>The proposed Project activities are located along or adjacent to South Street and Clarence D Lane Road in the Town of Windham, NY.</p> <p>Based on a review of available environmental records for the Project and the surrounding area, the Project area is unlikely to contain hazardous materials, contamination, toxic chemicals and gases, or radioactive substances which would constitute a hazard that could affect the health and safety of occupants or conflict with the intended utilization of the Project locations. Therefore, a Phase I Environmental Site Assessment (ESA) or Phase II Investigation is not warranted. An in depth review of New York State and Federal records, including maps, NYSDEC reports, and EPA reports, are included as part of Attachment 6.</p>
<p>Endangered Species Endangered Species Act of 1973, particularly section 7; 50 CFR Part 402</p>	<p>Yes No <input type="checkbox"/> <input checked="" type="checkbox"/></p>	<p>A New York Natural Heritage Program (NYNHP) records request response dated November 9, 2018 indicated that the NYNHP has no records of state-listed animals or plants, or significant natural communities at the Project site or in the immediate vicinity. The NYNHP records request response is included in Attachment 7.</p> <p>The U.S. Fish and Wildlife Service (USFWS) lists the northern long-eared bat (threatened) as the only federally endangered or threatened species under USFWS jurisdiction that may occur within the boundaries of the proposed Project. The Project will involve stormwater collection system improvements in a developed area to mitigate future flood damage and increase safety and access for residents and businesses within the town. The Project will not involve removal of any trees in the Project Area. There is no suitable habitat for the USFWS threatened species listed in the Project Area. The Project will involve construction in</p>

<p>Endangered Species Endangered Species Act of 1973, particularly section 7; 50 CFR Part 402</p>		<p>areas that do not support or provide habitat for any rare, threatened or endangered plant or animal species. Therefore GOSR determined that the proposed Project would have “no effect” on species under the jurisdiction of the USFWS.</p> <p>On November 7, 2018, the USFWS issued an acknowledgement of receipt of the “no effect” determination and noted that no further ESA coordination or consultation is required, as documented in Attachment 7.</p>
<p>Explosive and Flammable Hazards 24 CFR Part 51 Subpart C</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>Not applicable. Pursuant to Part 51 Subpart C “HUD-assisted project” Definition (in 51.201), the Project does not involve increasing residential densities, converting the type of use of a building to habitation, or making a vacant building habitable.</p> <p>Therefore, regulations pursuant to 24 CFR Part 51 Subpart C are not applicable to the Project.</p>
<p>Farmlands Protection Farmland Protection Policy Act of 1981, particularly sections 1504(b) and 1541; 7 CFR Part 658</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>Not applicable. The Project is not located within an Agricultural District as identified by New York State and the University of Cornell.</p> <p>U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) maps provide information on soils types and properties that influence development of sites. According to the USDA NRCS soils map data, the soil at the proposed Project area primarily designated as “prime farmland if drained,” but there are portions of the Project area that are designated as “all areas are prime farmland” and “not prime farmland”. The Project area is currently a residential development and the Project will not involve the conversion of farmland to non-agricultural use. Therefore, the proposed Project would not violate the Farmland Protection Policy Act, and no further review is required. The New York State Agricultural Districts Map and the USDA NRCS Soil Resources Report are included as part of Attachment 8.</p>
<p>Floodplain Management Executive Order 11988, particularly section 2(a); 24 CFR Part 55</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	<p>The Project activities are partially located within the 100-year floodplain, as documented in <i>Appendix I</i> of Attachment 4.</p>

<p>Floodplain Management Executive Order 11988, particularly section 2(a); 24 CFR Part 55</p>		<p>An 8-step Floodplain Management Determination was completed pursuant to 24 CFR 55.20. See the <u>Floodplain Management & Wetlands Protection Determination</u>, annexed hereto as Attachment 4.</p>
<p>Historic Preservation National Historic Preservation Act of 1966, particularly sections 106 and 110; 36 CFR Part 800; Tribal notification for new ground disturbance.</p>	<p>Yes No <input type="checkbox"/> <input checked="" type="checkbox"/></p>	<p>Section 106 approval was obtained. The New York State Historic Preservation Office (SHPO) responded to project material submitted by GOSR on November 23, 2018 indicating that GOSR should provide documentation of prior ground disturbance for portions of the project that occur beyond the current limits of the paved road and roadside drainage swales. GOSR submitted a response that included documentation of prior scouring and construction activity that resulted from storm damage in the Project area. On February 21, 2019, SHPO sent a letter that stated that there will be “No Historic Properties Affected” by the proposed Project. No further action is required. See SHPO findings, annexed hereto as Attachment 9.</p> <p>Additionally, as the construction work solely involves repairs to an existing structure and work in previously disturbed soils and sediment, there is no adverse effect on tribal resources, and no consultation with the Tribal Historic Preservation Officer is required.</p> <p>In the event of any inadvertent discoveries of human remains and/or cultural resources including, but not limited to, funerary objects, sacred objects and objects of cultural patrimony are made during execution of the Project scope, then work shall be halted immediately and the SHPO and THPO of all appropriate Tribes, Nations and Communities shall be consulted before work can be resumed.</p>
<p>Noise Abatement and Control Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978; 24 CFR Part 51 Subpart B</p>	<p>Yes No <input type="checkbox"/> <input checked="" type="checkbox"/></p>	<p>The Project use is not a noise-sensitive use, and the funded scope is defined as none-substantial. The proposed activities are not expected to generate excessive noise during the short-term construction work and will adhere to local noise control standards. The proposed Project will be completed in accordance with all applicable federal, state and local permit requirements and conditions. Therefore, the</p>

		proposed Project would not generate any significant adverse noise impacts.
Sole Source Aquifers Safe Drinking Water Act of 1974, as amended, particularly section 1424(e); 40 CFR Part 149	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Not applicable. The Project is not located above a Sole Source Aquifer as documented in Attachment 3 . No further review is required.
Wetlands Protection Executive Order 11990, particularly sections 2 and 5	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	The proposed Project is located adjacent to and partially within both federally and state designated wetlands as shown in <i>Appendix I</i> of Attachment 4 . Therefore, a formal wetland management review process is required for compliance with Executive Order 11990 Protection of Wetlands. This 8-step decision making process is detailed in Attachment 4 .
Wild and Scenic Rivers Wild and Scenic Rivers Act of 1968, particularly section 7(b) and (c)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<p>The Project is located approximately 900 feet upstream in a tributary waterway of a Nationwide Rivers Inventory⁵ (NRI) listed waterway; this waterway, the Batavia Kill, is listed as a recreational and scenic river of outstandingly remarkable values. The Project Area is not located within or adjacent to any other wild, scenic, or recreational rivers as designated by the U.S. Department of the Interior, Congress, or NYSDEC⁶; the Project is not located in or immediately adjacent to a National Wild and Scenic Rivers System⁷ or NYSDEC Wild, Scenic, and Recreational waterway.</p> <p>While the Batavia Kill is included in the NRI, there is no direct construction within the Batavia Kill and the proposed construction will adhere to best management practices (BMPs). Additionally, consultation with the National Parks Service was requested on December 4, 2018; a response was not received within 30 days. However, the Project activities are not anticipated to impact the Batavia Kill, as work will not be occurring within, or otherwise altering, the waterway. Additionally, while the project involves the construction of culverts under existing roadways and the formalization of existing drainage swales running adjacent to, and under, South Street/ CR 12, the Project is</p>

⁵ U.S. Department of Interior: Nationwide Rivers Inventory.

<http://www.nps.gov/ncrc/programs/rtca/nri/states/ny.html>

⁶ NYSDEC Wild, Scenic, and Recreational Rivers. <http://www.dec.ny.gov/permits/32739.html>

⁷ U.S. Department of Interior: National Wild and Scenic Rivers System. <http://www.rivers.gov/new-york.php>

		<p>anticipated to protect down-stream water quality by preventing area-wide flooding due to stormwater runoff backing up in an under-performing stormwater system. Thus this Project will protect the Batavia Kill and is in conformance with the Wild and Scenic Rivers Act.</p>
<p>ENVIRONMENTAL JUSTICE</p>		
<p>Environmental Justice Executive Order 12898</p>	<p>Yes No <input type="checkbox"/> <input checked="" type="checkbox"/></p>	<p>Not applicable.</p> <p>The Project is not located in an area defined by the NYSDEC as a potential environmental justice area⁸, as shown by the map included in Attachment 3.</p>

⁸ NYSDEC Environmental Justice. <https://www.dec.ny.gov/public/333.html>

Environmental Assessment Factors [24 CFR 58.40; Ref. 40 CFR 1508.8 &1508.27] Recorded below is the qualitative and quantitative significance of the effects of the proposal on the character, features and resources of the project area. Each factor has been evaluated and documented, as appropriate and in proportion to its relevance to the proposed action. Verifiable source documentation has been provided and described in support of each determination, as appropriate. Credible, traceable and supportive source documentation for each authority has been provided. Where applicable, the necessary reviews or consultations have been completed and applicable permits of approvals have been obtained or noted. Citations, dates/names/titles of contacts, and page references are clear. Additional documentation is attached, as appropriate. **All conditions, attenuation or mitigation measures have been clearly identified.**

Impact Codes: Use an impact code from the following list to make the determination of impact for each factor.

- (1) Minor beneficial impact
- (2) No impact anticipated
- (3) Minor Adverse Impact – May require mitigation
- (4) Significant or potentially significant impact requiring avoidance or modification which may require an Environmental Impact Statement

Environmental Assessment Factor	Impact Code	Impact Evaluation
LAND DEVELOPMENT		
Conformance with Plans / Compatible Land Use and Zoning / Scale and Urban Design	1	<p>The proposed Project would continue the existing land use and is in accordance with local zoning. According to the Greene County Comprehensive Economic Development Plan⁹, “the Mountaintop Towns of Prattsville, Ashland, Windham, Jewett, Hunter, Tannersville, Lexington, and Halcott need to address problems with continued development on steep slopes, such as soil erosion and flooding, and water quality”. The proposed Project involves stormwater infrastructure improvements that will help decrease the amount of flooding associated with stormwater events and protecting against scouring and erosion at a stormwater outfall location within the Town of Windham. Therefore, this Project is compatible with the Greene County Comprehensive Economic Development Plan.</p> <p>The proposed Project would not cause changes to the current use or community characteristics of the local area, and it will not alter residential or commercial density. Residential and commercial infrastructure in the area would not be adversely affected. The proposed Project would protect public access throughout the Project area by creating a reliable and resilient travel routes. The proposed Project is intended to provide flood, hurricane and stormwater control, and increase the economic and environmental resiliency of the Windham community to future climate related events.</p>

⁹ Greene County Comprehensive Economic Development Plan, Chapter 8: Land Use Planning Analysis.
http://greenegovernment.com/wp-content/uploads/2013/10/ChapterEight_LandUsePlanningAnalysis.pdf

Soil Suitability/ Slope/ Erosion/ Drainage/ Storm Water Runoff	1	<p>Per the USGS Topographic Map for the Project area, the Project is located in an area of low to moderate slope as shown in Attachment 1. The proposed Project activities would not significantly alter the slope of the Project area.</p> <p>USDA NRCS maps provide information on soils types and properties that influence development sites. The information is intended for land use planning, evaluating land use alternatives, and planning site investigations prior to design and construction. According to the USDA NRCS soil suitability and limitations for Shallow Excavation use classifications, the Project area is somewhat to very limited for shallow excavations as documented in Attachment 7. The same report also notes that the Project area soils are also classified as farmland of statewide importance or prime farmland areas. The Project will involve the installation of green armor and riprap to prevent erosion while allowing for continued stormwater infiltration and transportation, while the replacement of under-sized culverts and construction of new culverts will prevent future storm events from overtopping the roadway due to an overwhelmed stormwater system. Additionally, a stormwater outfall area will be protected from further scouring and erosion with the addition of a spillway, protecting the waterways downstream of this outfall from excessive sediment.</p> <p>These lands are not proposed to be converted to another use. As such, it is expected that soils will not limit the Project's realignment and modification of the existing waterway. No potential undesirable impacts are anticipated and the Project area should be improved in terms of its landscape and stability during the course of the Project.</p> <p>The proposed Project will incorporate mitigative measures and best management practices (BMPs) to reduce construction-related pollutants and similar concerns noted in the Mohawk River Watershed Management Plan¹⁰.</p> <p>All work will be completed utilizing engineered site plans and in accordance with all applicable Federal, State and local regulations, laws and permit requirements and conditions, including State and local building codes. Thus, no potential impacts from erosion, drainage, or stormwater runoff are anticipated.</p>
Hazards and Nuisances including Site Safety and Noise	2	<p>Based on a review of available environmental records for the proposed Project and surrounding area, the proposed Project is unlikely to be impacted by hazardous materials, contamination, toxic chemicals and gases, and radioactive substances. No hazards are anticipated to affect the health and safety of</p>

¹⁰ Mohawk River Watershed Management Plan. <http://mohawkriver.org/management-plan/>

		<p>occupants or conflict with the intended utilization of the proposed Project. An in depth review of New York State and Federal records, including maps, NYSDEC reports, and EPA reports, are included as part of Attachment 6.</p> <p>The proposed Project is not a noise-sensitive use. The proposed activities are not expected to generate excessive noise during the short-term construction work and will adhere to local noise control standards. The proposed Project will be completed in accordance with all applicable federal, state and local permit requirements and conditions. Therefore, the proposed Project would not generate any significant adverse noise impacts.</p>
Energy Consumption	2	The proposed Project would not cause an increase in long-term energy consumption.

Environmental Assessment Factor	Impact Code	Impact Evaluation
SOCIOECONOMIC		
Employment and Income Patterns	2	The proposed Project would not adversely affect employment opportunities or income patterns, would not impact traffic and potential customer access to residences and businesses in the area, either during construction or operation. Rather, the proposed Project would decrease the vulnerability of the community by managing stormwater flow and retention, and maintaining and enhancing economic viability in the surrounding community.
Demographic Character Changes, Displacement	2	The Project is not expected to cause any change in the demographic character of the area. This Project does not involve residential development or activities. There is no known potential for the Project to cause the displacement of individuals or families, destroy jobs, local businesses or public community facilities, or disproportionately affect particular populations.

Environmental Assessment Factor	Impact Code	Impact Evaluation
COMMUNITY FACILITIES AND SERVICES		
Educational and Cultural Facilities	2	The proposed Project will not introduce any new populations that would increase the student population of the area. As such, the proposed Project would not have an impact on educational or cultural facilities.
Commercial Facilities	2	The proposed Project will not introduce any new commercial development that would require additional retail services or other commercial facilities.

Health Care and Social Services	1	The proposed Project will not introduce any new development that would require the availability of additional routine or emergency health services. Rather, the proposed Project is likely to help provide better access for emergency health services to the local community during future storm events.
Solid Waste Disposal / Recycling	2	The proposed Project will not introduce new development that would generate solid wastes on an ongoing basis. All construction wastes will be appropriately disposed of according to the type of waste generated and construction waste management practices in an appropriate, legally compliant receiving facility.
Waste Water / Sanitary Sewers	2	The proposed Project will not introduce any new development that would generate waste water. Mitigative measures and BMPs will be utilized during construction to prevent soil and/or debris from being washed off-site. No additional waste water will be generated during construction.
Water Supply	2	The proposed Project will not increase demand for water. As such, the proposed Project will not have an impact on local water supplies.
Public Safety - Police, Fire and Emergency Medical	1	The proposed Project will not generate new demand for police, fire, or emergency services. The proposed Project will not impact traffic. Therefore, there will be no adverse effect on the access and travel time for emergency services. Rather, the proposed Project is likely to help provide better access for emergency health services to the local community during future storm events.
Parks, Open Space and Recreation	2	This Project will not introduce new development that would generate new demand for open space resources or impede open space access. No parks, open space areas, or recreational facilities are located adjacent to the Project area. Therefore, the Project is not expected to encroach onto parkland nor is it expected to have adverse effects on park resources, including visual, ecological, and recreational resources.
Transportation and Accessibility	1	Besides limited trips generated by construction vehicles during a short window of construction, the proposed Project will not introduce new development that generates continuing demand for transportation access or transportation services.

Environmental Assessment Factor	Impact Code	Impact Evaluation
NATURAL FEATURES		
Unique Natural Features,	2	According to the NYSDEC, there are no unique geological features located on or adjacent to the proposed Project.

<p>Water Resources</p>	<p>According to NYSDEC’s Environmental Resource Map, the proposed Project is not located in or adjacent to “Significant Natural Communities.” This data layer identifies locations within ½ mile of an identified significant natural community as shown in Attachment 3.</p> <p>The Batavia Kill, a recreational and scenic waterway listed in the Nationwide Rivers Inventory, is located approximately 900 feet downstream of the proposed work area. The Batavia Kill runs approximately 22 miles before entering Schoharie Creek.</p> <p>The stormwater infrastructure installation and modification Project will involve the construction of new armored green swales and the replacement or installation of stormwater culverts that empty into a tributary of the Batavia Kill.</p> <p>The objective of the Project is to improve conveyance of tributary culverts that transport stormwater that originates on the slopes of mountains immediately south of the town. The proposed improvements will consist of enhancements to existing stormwater collection infrastructure and construction of new culverts beneath South Street.</p> <p>The proposed Project will ensure town residents have dependable access to emergency response surfaces during future storm events by safely conveying stormwater and lessen negative environmental impacts caused by sediment laden runoff from Batavia Kill¹¹’s tributaries. The Project will alleviate flooding in the surrounding residential areas by allowing stormwater to not backup behind undersized culverts and will reduce urban waste deposited into the stream from the surrounding yards during storm events. The Project will contribute to community resiliency and reduce its vulnerability to flooding. Project activities will be completed in accordance with all applicable federal, state and local permit requirements and conditions. Permits required for this project will be obtained by the Town before commencing work and appended to the ERR as Attachment 12 when received from the permitting agencies. Additionally, best management practices and erosion control measures will be incorporated into the proposed Project. As such, no adverse potential impacts are anticipated from the stormwater infrastructure upgrades to the water resources of the Batavia Kill.</p>
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¹¹ Greene County Soil & Water Conservation District: Batavia Kill Stream Project Watershed Description. <https://www.gcsxcd.com/swp/wap/lid-resources/22-stream-restoration/batavia-kill/86-batavia-kill-stream-project-watershed-description>

		<p>Watershed Analysis</p> <p>The Project is located within the New York City Watershed – Catskill / Delaware Watershed Area and one (1) of the 47 identified watersheds with watershed plans in NYS¹². The New York City Watershed Protection Program’s goal is to aid in the long term protection of New York City’s drinking water and the economic vitality of the Upstate Watershed communities. The Mohawk River watershed covers approximately 3,460 square miles of land area within New York. The Mohawk River Watershed Management Plan¹³ recommends actions that communities can take to restore and preserve the watershed, and envisions a future where the natural hydrologic conditions are respected, diverse fish and wildlife habitats and agriculture are flourishing, and vibrant watershed communities find prosperity in the strong economy where water-based recreation and tourism thrive along the water front. This plan notes that the majority of the recommended actions for this watershed involve implementing Best Management Practices to natural hydrology, reduce erosion and sedimentation, minimize pollution, and protect and restore habitats. The Project will provide flood protection, improve water quality, and reduce erosion and sedimentation into waterways within the New York City and Mohawk River Watersheds. The Project will enact Best Management Practices during construction, and Project activities will be completed in accordance with all applicable federal, state and local permit requirements and conditions. Therefore, this Project is in compliance with the New York City Watershed Program and Mohawk River Watershed Management plan’s recommended actions and implementations.</p>
Vegetation, Wildlife	2	<p>The proposed Project will not introduce nuisance or non-indigenous species of vegetation. Moreover, the Project will involve work in areas that are primarily previously disturbed, and include areas immediately adjacent to the existing roadway. The Project will not damage or destroy rare, threatened, or endangered species or their habitat. The Project will have no effect on State or Federal threatened species, endangered species or species of concern. The Natural Heritage Map, USFWS Official Species List and IPaC Resource List, and USFWS No Effect Determination letter are annexed in Attachment 7.</p>
Other Factors		<p>There are no other factors identified or evaluated for the proposed Project.</p>

¹² NYSDEC Watershed Plans. <http://www.dec.ny.gov/chemical/99985.html>

¹³ Mohawk River Watershed Management Plan. <http://mohawkriver.org/management-plan/>

Additional Studies Performed:

- H&H Study Report. November 8, 2018.

Attachments:

- **Attachment 1:** Project Location Maps
 - Street Map
 - Topographic Map
 - Aerial Photograph
- **Attachment 2:** South Street Stormwater Collection System Project Design Plans and Studies
 - Project Work Limits (10/18/2018)
 - Easements (10/18/2018)
 - Design Plans (11/8/18)
 - H&H Study Report (11/8/2018)
- **Attachment 3:** Project Reference Maps
 - Airport Hazards Map
 - USFWS Coastal Barrier Resources System Map
 - NYS DOS Coastal Boundary Map
 - EPA Sole Source Aquifer Map
 - NYSDEC & NPS Wild and Scenic Rivers Map
 - Potential Environmental Justice Areas Map
 - NYSDEC Environmental Resource Map
- **Attachment 4:**
 - Floodplain Management and Protection of Wetlands Determination
 - Appendix 1
 - USFWS NWI Map
 - NYSDEC Environmental Resources Maps
 - Appendix II
 - FEMA Firmette
 - Appendix III
 - Notice of Early Public Review
 - Appendix IV
 - Notice of Early Public Review Affidavit
- **Attachment 5:** CAA De Minimis Threshold Analysis & General Conformity Worksheet
- **Attachment 6:** HUD Environmental Standards Review
 - NYS Environmental Report Maps, EPA NEPA Assist Map
 - U.S. EPA-permitted Facilities located within 3,000 feet of the Project Area and in non-compliance with the EPA permit requirements
 - NYSDEC Reports for Spills, Environmental Remediation Sites, or Bulk Storage Sites located on, or in close proximity to, the Subject Property
- **Attachment 7:** Endangered Species Consultation Documents
 - NHP Documentation (11/9/2018)
 - USFWS Consultation Acknowledgment (11-9-2018)
 - USFWS Consultation Letter (10/31/2018)
- **Attachment 8:** Agricultural, NRCS Soils Documentation, and Zoning Maps
 - New York State Agricultural Districts Map (2018)
 - USDA NRCS Soil Resource Map
 - USDA NRCS Shallow Excavations
 - USDA NRCS Farmland Classification
- **Attachment 9:** SHPO Documentation

- SHPO Responses
- Documentation of Scour Evidence

List of Sources, Agencies and Persons Consulted [40 CFR 1508.9(b)]:

- Federal Aviation Administration (FAA)
- Federal Emergency Management Agency (FEMA)
- United States Environmental Protection Agency (USEPA)
- United States Fish and Wildlife Service (USFWS)
- United States Department of Agriculture (USDA)
- Natural Resources Conservation Service (NRCS)
- United States Department of Interior (USDOI)
- National Parks Service (NPS)
- United States Geological Survey (USGS)
- New York State Department of Environmental Conservation (NYSDEC)
- New York State Department of Environmental Protection (NYSDEP)
- Natural Heritage Program (NHP)
- New York State Department of State (NYSDOS)
- New York State Historic Preservation Office (SHPO)
- Tribal Historic Preservation Office (THPO)
- Town of Windham, *NY Rising Community Reconstruction Program Plan*, December 2014.
https://stormrecovery.ny.gov/sites/default/files/crp/community/documents/tte14107_windham_ada-compressed.pdf

List of Permits Potentially Required:

- USACE Section 404 of the Clean Water Act Permit
- NYSDEC Section 401 Water Quality Certification
- NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity
- NYCDEP Crossing, Piping, or Diversion Permit
- Greene County Right of Way Road Work Permit
- Town of Windham Floodplain Development Permit

Public Outreach [24 CFR 50.23 & 58.43]:

- March 23, 2017 – Town of Windham Town Board Meeting
- April 13, 2017 – Town of Windham Town Board Meeting
- May 25, 2017 – Town of Windham Town Board Meeting
- April 13, 2017 – Town of Windham Town Public Meeting
- December 14, 2017 – Town of Windham Town Board Meeting

Cumulative Impact Analysis [24 CFR 58.32]:

This Project was evaluated according to the Project Design Plans included as **Attachment 2**. There are no other known future projects in the vicinity of the Project that would create environmental or social impacts in the area. The Project is compatible with the existing land use and will contribute to community resiliency and its reduced vulnerability to flooding.

Alternatives [24 CFR 58.40(e); 40 CFR 1508.9]

The primary alternative for the proposed Project is the “no action” alternative. This alternative means that there would be no work undertaken to alleviate the flood problem, rehabilitate the Project area, or mitigate the future flooding. This would leave the surrounding community vulnerable to future flood damage. The “no action” alternative would provide no protection to the residential neighborhoods and greater community

from future flood events, as mitigation would be compromised due to lack of financial support. Thus, the “no action” alternative is not feasible in relation to the desired objective of creating area resiliency to future flooding events.

Summary of Findings and Conclusions:

The preceding Statutory Checklist, Environmental Assessment Checklist and the discussion below document that the proposed work will comply with regulations in 24 CFR part 58 and that there are no direct or cumulative adverse environmental impacts anticipated as a result of the proposed action.

Mitigation Measures and Conditions [40 CFR 1505.2(c)]

Summarize below all mitigation measures adopted by the Responsible Entity to reduce, avoid, or eliminate adverse environmental impacts and to avoid non-compliance or non-conformance with the above-listed authorities and factors. These measures/ conditions must be incorporated into project contracts, development agreements, and other relevant documents. The staff responsible for implementing and monitoring mitigation measures should be clearly identified in the mitigation plan.

Any change to the approved scope of work will require re-evaluation by the Certifying Officer for compliance with NEPA and other laws and Executive Orders.

This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize federal funding.

If there is any unanticipated discovery of endangered or threatened species, cultural resources, soils contamination, or any other conditions affecting the factors, executive orders, stipulations, and/ or regulations discussed within this assessment, work shall be halted immediately and the appropriate agency will be consulted before work can be resumed.

Law, Authority, or Factor	Mitigation Measure
Floodplain Management	<p>An 8-step Floodplain Management Determination was completed pursuant to 24 CFR 55.20. It was determined that It there is no better alternative than to provide funding for the Project. The Project does not propose to significantly alter floodplain or increase the amount of impervious surfaces within the work area. In fact, with the construction of green armored drainage swales and the usage of riprap, this Project will allow for better stormwater infiltration after a storm event while protecting against erosion. The Project will provide flood protection, improve water quality, and reduce erosion and sedimentation of Batavia Kill and the adjacent tributaries.</p> <p>Project activities will be completed in accordance with all applicable federal, state and local laws, regulations, and permit requirements and conditions. Permits required for this project shall be obtained before commencing work and appended to the environmental review record when received from the permitting agencies.</p>
Wetlands Protection	A formal wetland management review process is required for compliance with Executive Order 11990 Protection of Wetlands. As the work will create new swales and allow for

	<p>unimpeded water flow during storm events, it is presumed that there will not be new adverse impacts on the existing flora/ fauna, habitat, natural hydrologic function, or natural resources at the location. The Project will provide flood protection, improve water quality, and reduce erosion and sedimentation of Batavia Kill and the adjacent tributaries.</p> <p>Project activities will be completed in accordance with all applicable federal, state and local laws, regulations, and permit requirements and conditions. Permits required for this project shall be obtained before commencing work and appended to the environmental review record when received from the permitting agencies.</p>
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Determination:

Finding of No Significant Impact [24 CFR 58.40(g)(1); 40 CFR 1508.27]
 The project will not result in a significant impact on the quality of the human environment.

Finding of Significant Impact [24 CFR 58.40(g)(2); 40 CFR 1508.27]
 The project may significantly affect the quality of the human environment.

Preparer Signature:  Date: March 14, 2019

Name/Title/Organization: Kristofer Mierisch, Senior Environmental Analyst

Certifying Officer Signature:  Date: March 14, 2019

Name/Title: Lori A. Shirley – Environmental Certifying Officer

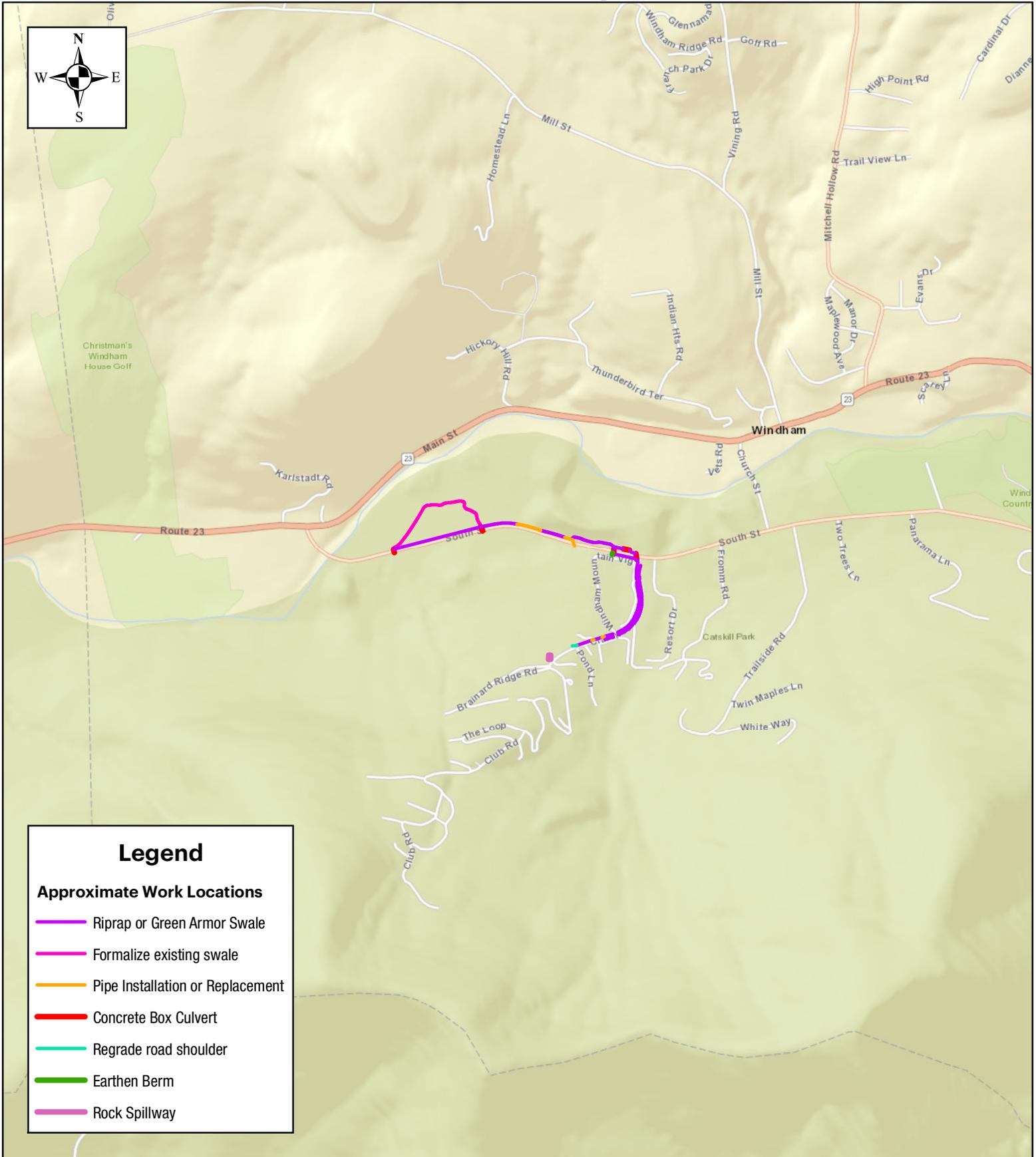
This original, signed document and related supporting material must be retained on file by the Responsible Entity in an Environmental Review Record (ERR) for the activity/project (ref: 24 CFR Part 58.38) and in accordance with recordkeeping requirements for the HUD program(s).

Attachment 1

Project Location Maps

Street Map
Topographic Map
Aerial Photograph

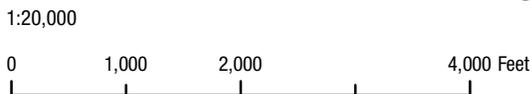
Street Map



Legend

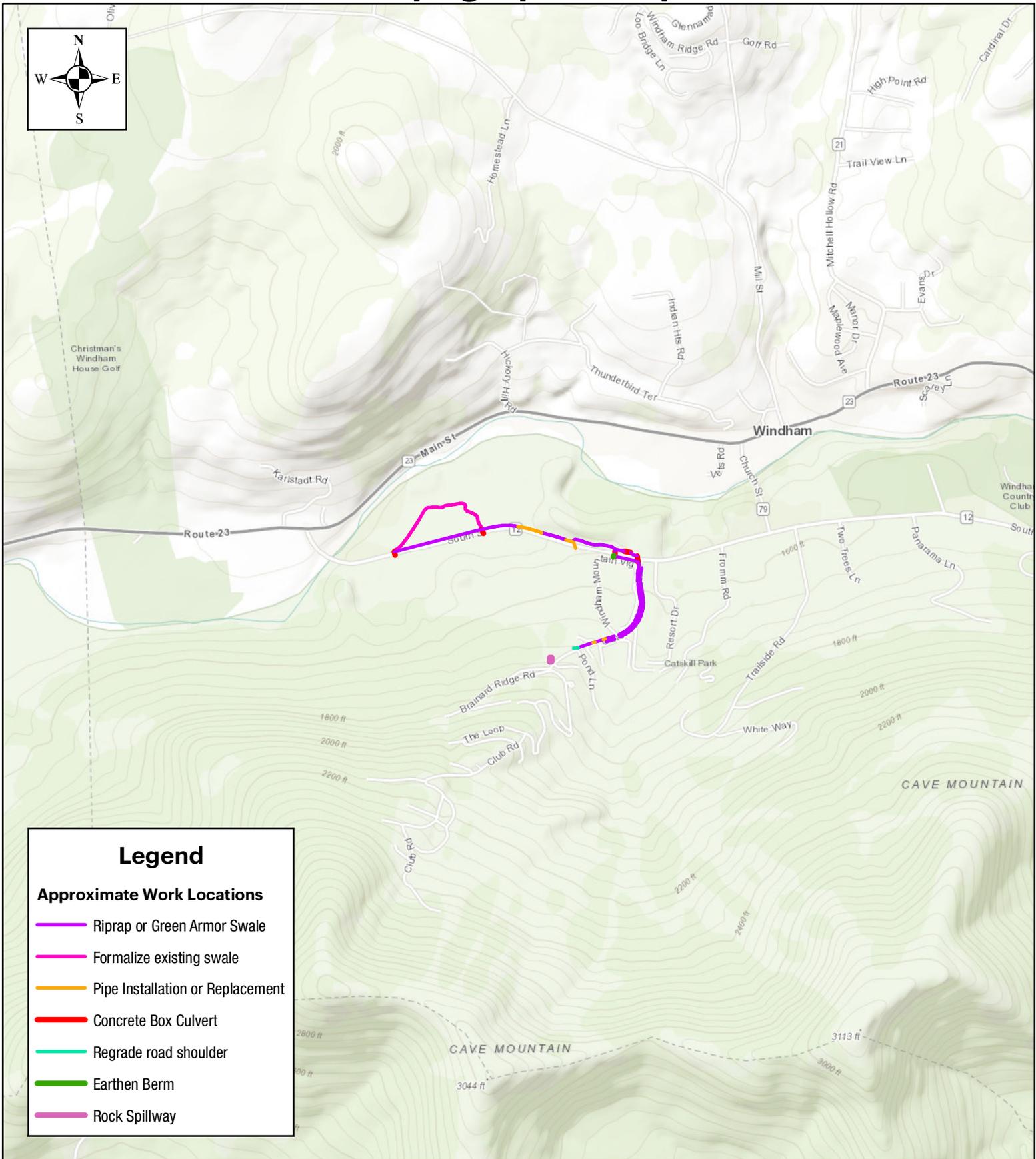
Approximate Work Locations

- Riprap or Green Armor Swale
- Formalize existing swale
- Pipe Installation or Replacement
- Concrete Box Culvert
- Regrade road shoulder
- Earthen Berm
- Rock Spillway

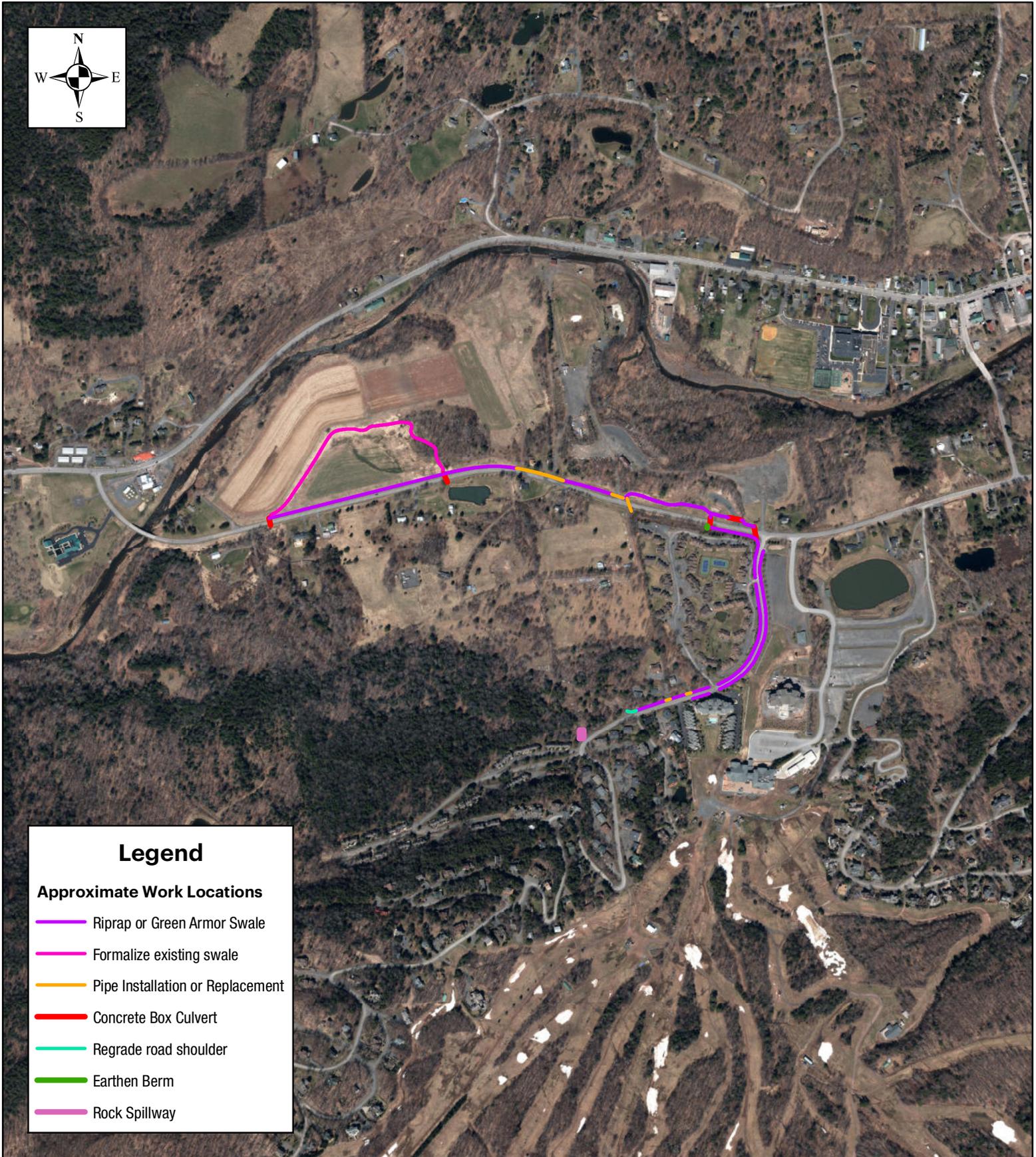


South Street Stormwater Collection System Project
South Street and Clarence D Lane Road
Town of Windham
Greene County, New York

Topographic Map



Aerial Map



Legend

Approximate Work Locations

-  Riprap or Green Armor Swale
-  Formalize existing swale
-  Pipe Installation or Replacement
-  Concrete Box Culvert
-  Regrade road shoulder
-  Earthen Berm
-  Rock Spillway



1:10,000

0 500 1,000 2,000 Feet

South Street Stormwater Collection System Project
South Street and Clarence D Lane Road
Town of Windham
Greene County, New York

Attachment 2

South Street Stormwater Collection System Project Design Plans and Studies

Project Work Limits (10/18/2018)

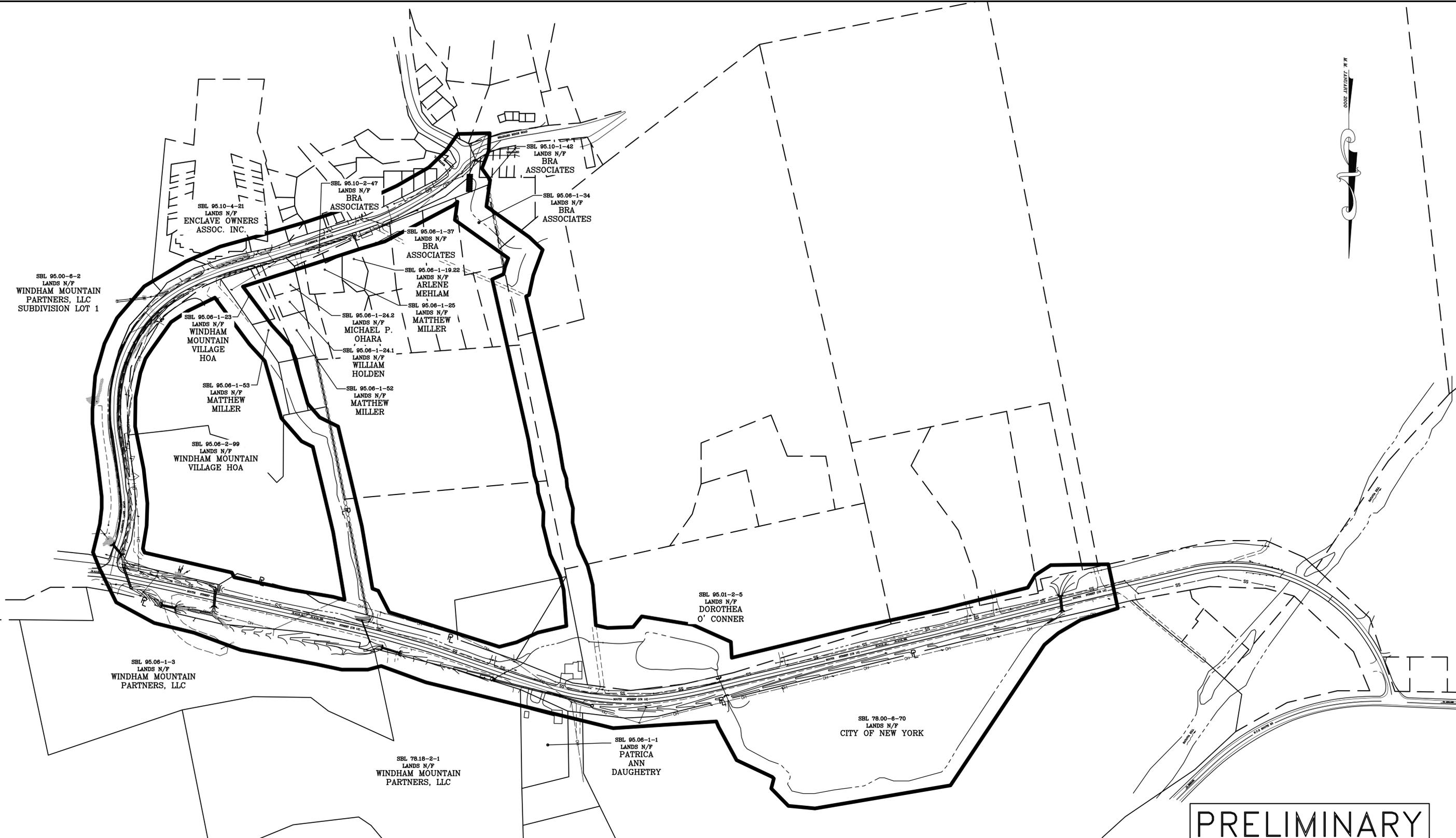
Easements (10/18/2018)

Design Plans (11/8/18)

H&H Study Report (11/8/2018)

The Appendices have been removed from the H&H Study Report for this Environmental Assessment.

11/18/2018

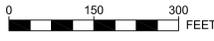


PROJECT WORK LIMITS
SCALE: 1" = 150'

PRELIMINARY

PROJECT WORK LIMITS
FOR ENVIROMENTAL IMPACT EVALUATIONS

NOTE:
ALL PROPOSED STORMWATER IMPROVEMENT STRUCTURE SIZING IS PRELIMINARY AND WILL BE SPECIFIED AFTER COMPLETING THE H&H STUDY.

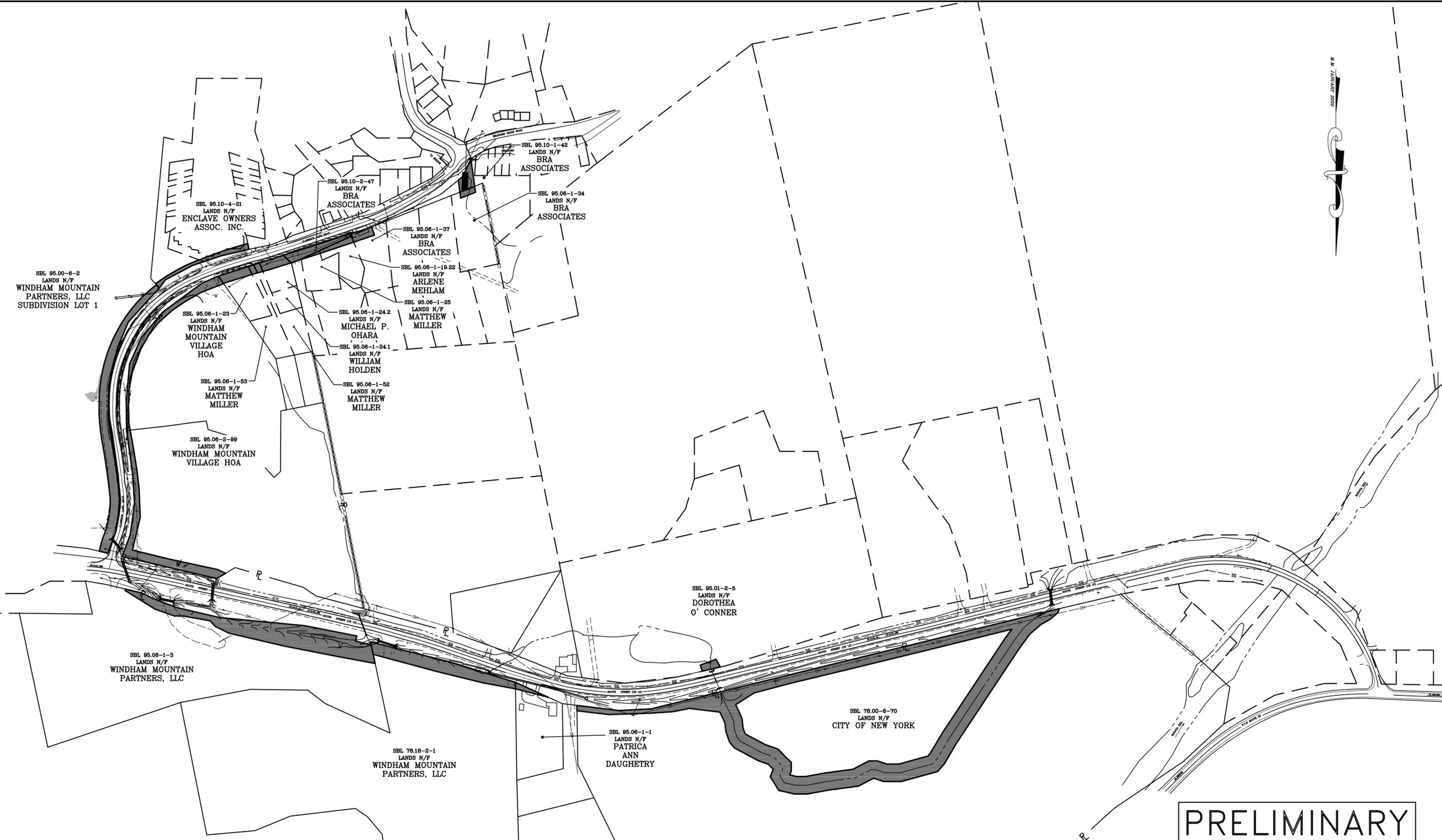


Unauthorized alteration or addition to a plan bearing a licensed engineer's seal is a violation of section 7209, subdivision 2, of the New York State Education Law.

NOTE:
The location of existing underground utilities are shown in an approximate way only and have not been independently verified by the owner or its representative. The contractor shall determine the exact location of all existing utilities before commencing work, and agrees to be fully responsible for any and all damages which might be occasioned by the contractor's failure to exactly locate and preserve any and all underground utilities.

SOUTH STREET STORMWATER COLLECTION SYSTEM NY RISING COMMUNITY RECONSTRUCTION PROGRAM NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY	
TOWN OF WINDHAM	GREENE COUNTY NEW YORK
DATE 10/18/18	REVISION RECORD PRELIMINARY LAYOUT
BRINNIER & LARIOS, P.C. ENGINEERS & LAND SURVEYORS 67 MAIDEN LANE KINGSTON, N.Y. Phone: 845-338-7622 Fax: 845-338-7660	
SCALE 1" = 150'	DATE OCT. 2018 DWG RJS
	SHEET NO. X OF X

N
M. JANUARY 2000



LEGEND

-  EASEMENT BOUNDARY
-  EASEMENT AREA

EASEMENTS
SCALE: 1" = 150'

NOTE:
ALL PROPOSED STORMWATER IMPROVEMENT STRUCTURE SIZING IS PRELIMINARY AND WILL BE SPECIFIED AFTER COMPLETING THE H&H STUDY.

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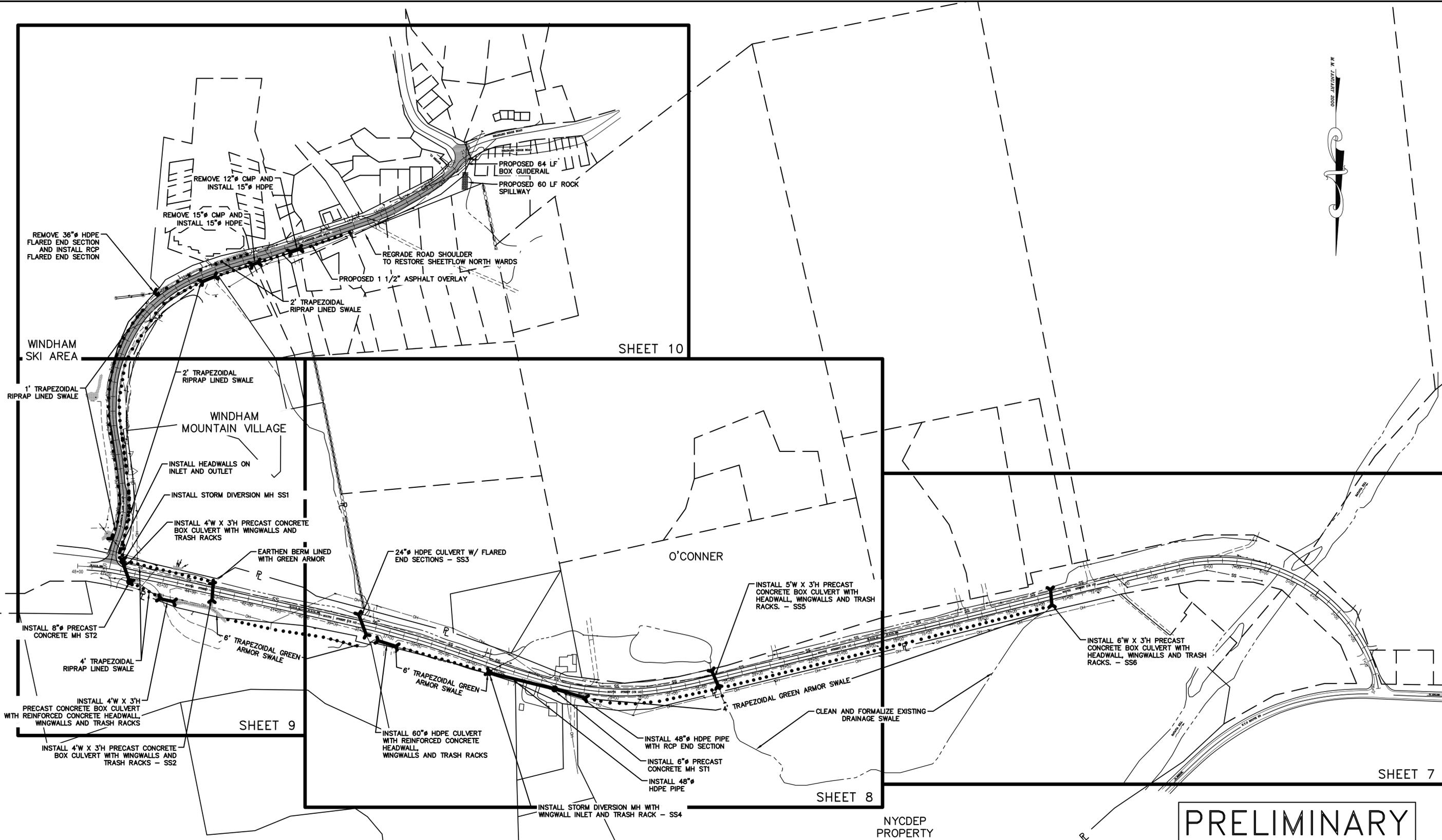
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PRELIMINARY

EASEMENTS

SOUTH STREET STORMWATER COLLECTION SYSTEM		NY RISING COMMUNITY RECONSTRUCTION PROGRAM	
TOWN OF WINDHAM		GREENE COUNTY NEW YORK	
DATE	REVISION RECORD	BRINNIER & LARIOS, P.C.	
10/18/18	PRELIMINARY LAYOUT	ENGINEERS & LAND SURVEYORS	
		67 MAIDEN LANE KINGSTON, N.Y.	
		Phone: 845-338-7622 Fax: 845-338-7660	
SCALE	DATE	SHEET NO.	
1" = 150'	OCT. 2018	X OF X	
	DWG. RJS	CHK	

M. J. JANUARY 2008



SHEET 10

SHEET 9

SHEET 8

SHEET 7

KEY MAP
SCALE: 1" = 150'

PRELIMINARY

KEY MAP
PROPOSED STORMWATER IMPROVEMENTS

SOUTH STREET STORMWATER COLLECTION SYSTEM
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF WINDHAM GREENE COUNTY NEW YORK



BRINNIE & LARIOS, P.C.
ENGINEERS & LAND SURVEYORS
67 MAIDEN LANE KINGSTON, N.Y.
Phone: 845-338-7622 Fax: 845-338-7660

DATE	REVISION RECORD
11/8/18	PRELIMINARY LAYOUT

SCALE	DATE	SHEET NO.
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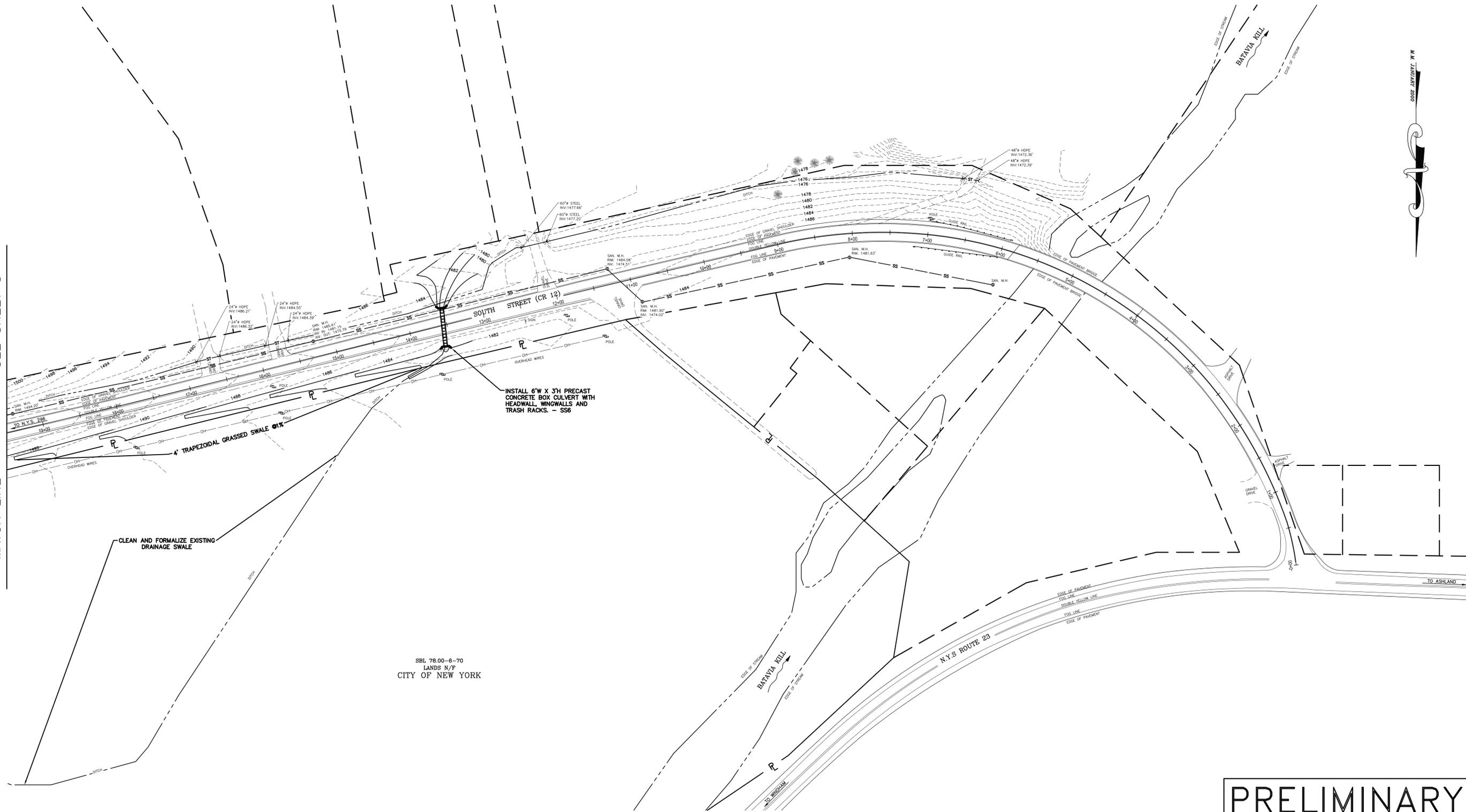


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SEE SHEET 8

MATCH LINE



SBL 78.00-6-70
LANDS N/F
CITY OF NEW YORK

SITE PLAN
SCALE: 1" = 60'

LEGEND

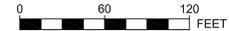
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--- 1488 ---	CONTOURS (MAJOR)		STONE RETAINING WALL
— P —	PROPERTY LINE		UTILITY POLE
- - - - -	PROPERTY LINE (ESTIMATED)		SIGN
--- ST ---	STORMWATER CULVERT		TREE
--- SS ---	SANITARY SEWER		SANITARY MANHOLE
--- UG ---	GRAVEL SHOULDER		CATCH BASIN
--- OH ---	UNDERGROUND WIRES		HYDRANT
---	OVERHEAD WIRES		
---	GUIDERAIL		



NOTE:
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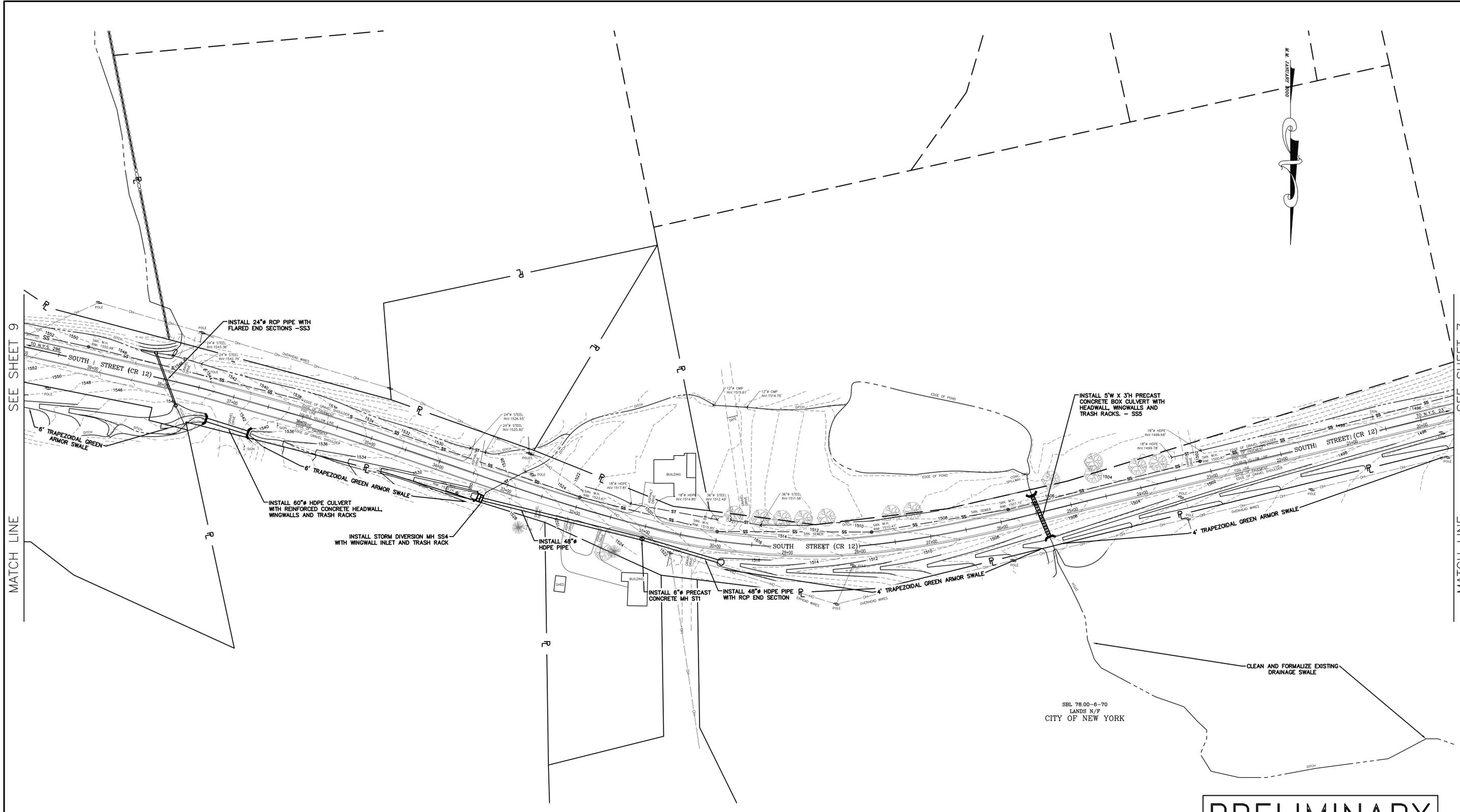
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PRELIMINARY

PROPOSED STORMWATER IMPROVEMENTS

SOUTH STREET STORMWATER COLLECTION SYSTEM NY RISING COMMUNITY RECONSTRUCTION PROGRAM NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY	
TOWN OF WINDHAM	GREENE COUNTY NEW YORK
DATE: 11/8/18	REVISION RECORD: PRELIMINARY LAYOUT
BRINNIER & LARIOS, P.C. ENGINEERS & LAND SURVEYORS 67 MAIDEN LANE KINGSTON, N.Y. Phone: 845-338-7622 Fax: 845-338-7660	
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	SHEET NO.: 7 OF X



MATCH LINE SEE SHEET 9

MATCH LINE SEE SHEET 7

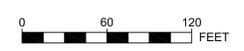
SITE PLAN
SCALE: 1" = 60'

LEGEND

--- 1490 ---	CONTOURS (MINOR)		RIPRAP
--- 1488 ---	CONTOURS (MAJOR)		STONE RETAINING WALL
---	PROPERTY LINE		UTILITY POLE
---	PROPERTY LINE (ESTIMATED)		SIGN
--- ST ---	STORMWATER CULVERT		TREE
--- SS ---	SANITARY SEWER		SANITARY MANHOLE
---	GRAVEL SHOULDER		CATCH BASIN
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---	OVERHEAD WIRES		
---	GUIDERAIL		



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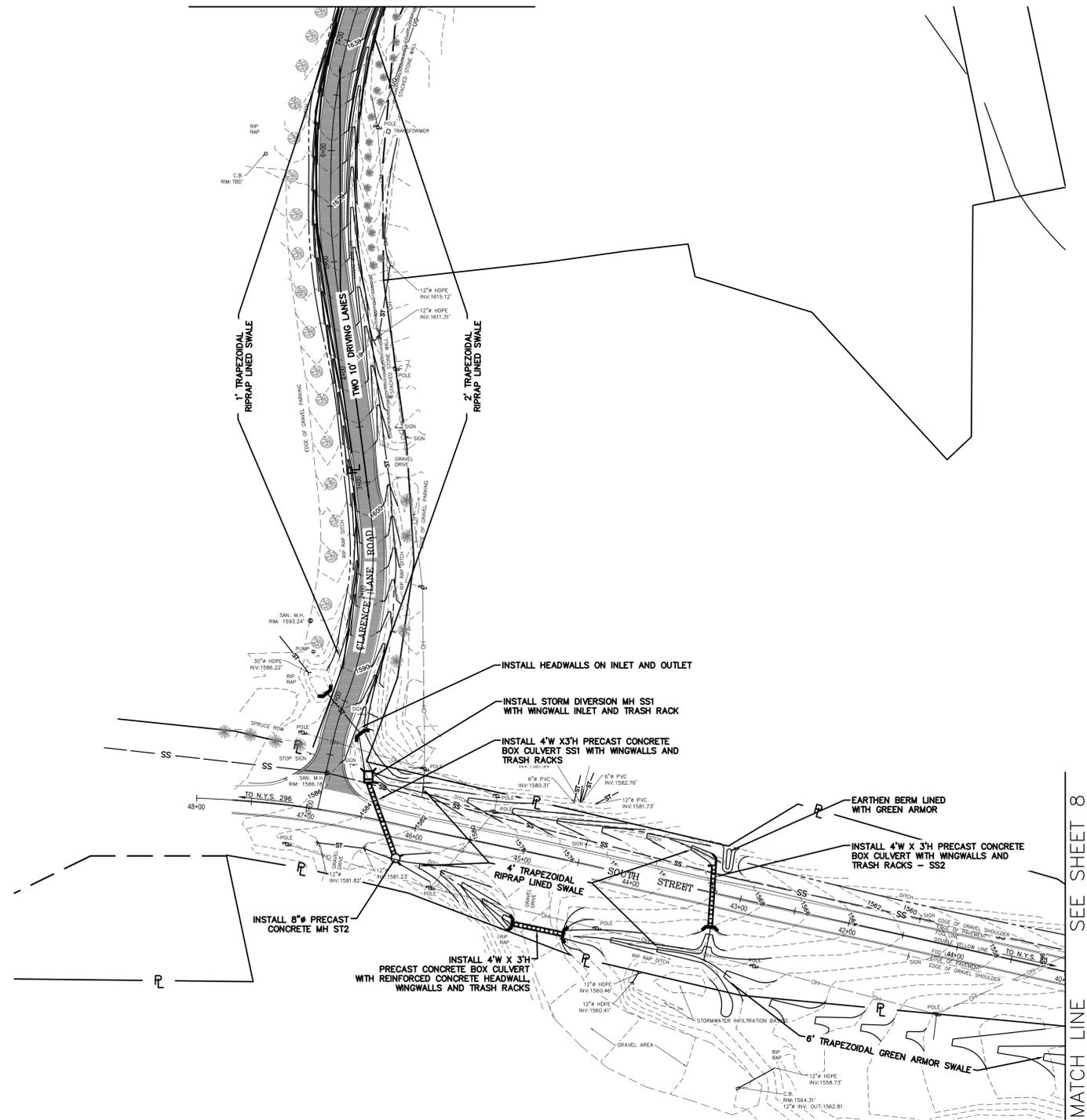
PRELIMINARY

PROPOSED STORMWATER IMPROVEMENTS

SOUTH STREET STORMWATER COLLECTION SYSTEM		NY RISING COMMUNITY RECONSTRUCTION PROGRAM	
TOWN OF WINDAHM		GREENE COUNTY NEW YORK	
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		Phone: 845-338-7622 Fax: 845-338-7660	
SCALE	DATE	DWG	CHK
1" = 60'	NOV. 2018	RJS	
			SHEET NO. 8 OF X

MATCH LINE SEE SHEET 10

N.M. JANUARY 2000



SITE PLAN
SCALE: 1" = 60'

LEGEND

---	1490	CONTOURS (MINOR)		RIPRAP
---	1488	CONTOURS (MAJOR)		STONE RETAINING WALL
---	---	PROPERTY LINE		UTILITY POLE
---	---	PROPERTY LINE (ESTIMATED)		SIGN
---	ST	STORMWATER CULVERT		TREE
---	SS	SANITARY SEWER		SANITARY MANHOLE
---	UG	GRAVEL SHOULDER		CATCH BASIN
---	OH	UNDERGROUND WIRES		HYDRANT
---	---	OVERHEAD WIRES		1 1/2" ASPHALT OVERLAY
---	---	GUIDERAIL		



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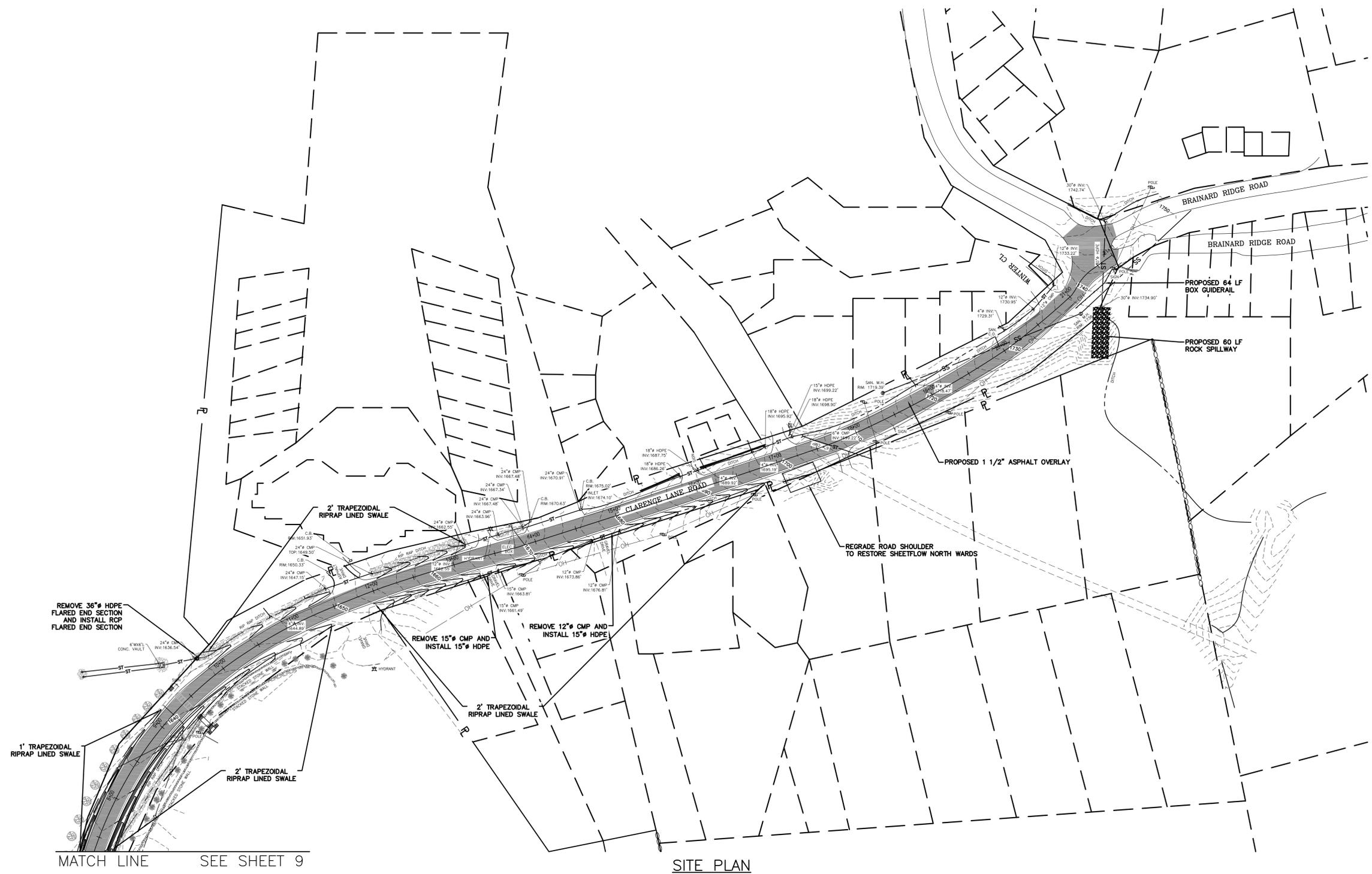
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PRELIMINARY

PROPOSED STORMWATER IMPROVEMENTS

SOUTH STREET STORMWATER COLLECTION SYSTEM
NY RISING COMMUNITY RECONSTRUCTION PROGRAM
NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY
TOWN OF WINDHAM GREENE COUNTY NEW YORK

DATE	REVISION RECORD	BRINNIER & LARIOS, P.C. ENGINEERS & LAND SURVEYORS 67 MAIDEN LANE KINGSTON, N.Y. Phone: 845-338-7622 Fax: 845-338-7660	DATE NOV. 2018 DWG RJS	CHECK CHK	SHEET NO. 9 OF X
11/9/18	PRELIMINARY LAYOUT				
SCALE		1" = 60'			



MATCH LINE SEE SHEET 9

SITE PLAN
SCALE: 1" = 60'

PRELIMINARY



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LEGEND

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|-----|------|---------------------------|--|------------------------|
| --- | 1490 | CONTOURS (MINOR) | | RIPRAP |
| --- | 1488 | CONTOURS (MAJOR) | | STONE RETAINING WALL |
| --- | | PROPERTY LINE | | UTILITY POLE |
| --- | | PROPERTY LINE (ESTIMATED) | | SIGN |
| --- | ST | STORMWATER CULVERT | | TREE |
| --- | SS | SANITARY SEWER | | SANITARY MANHOLE |
| --- | UG | GRAVEL SHOULDER | | CATCH BASIN |
| --- | OH | UNDERGROUND WIRES | | HYDRANT |
| --- | | OVERHEAD WIRES | | |
| --- | | GUIDERAIL | | 1 1/2" ASPHALT OVERLAY |



Unauthorized alteration or addition to a plan bearing a licensed engineer's seal is a violation of section 7209, subdivision 2, of the New York State Education Law.



PROPOSED STORMWATER IMPROVEMENTS

SOUTH STREET STORMWATER COLLECTION SYSTEM NY RISING COMMUNITY RECONSTRUCTION PROGRAM NEW YORK STATE GOVERNORS OFFICE OF STORM RECOVERY			
TOWN OF WINDHAM		GREENE COUNTY NEW YORK	
DATE	REVISION RECORD	BRINNIER & LARIOS, P.C. ENGINEERS & LAND SURVEYORS 67 MAIDEN LANE KINGSTON, N.Y. Phone: 845-338-7622 Fax: 845-338-7660	
11/9/18	PRELIMINARY LAYOUT	SCALE	DATE
		1" = 60'	NOV. 2018
		DWG	CHK
		RJS	
			SHEET NO.
			10 OF X

DENNIS M. LARIOS, P.E.
Lic. No. 58747

CHRISTOPHER J. ZELL, L.L.S.
Lic. No. 49629

BRINNIER and LARIOS, P.C.
PROFESSIONAL ENGINEERS & LAND SURVEYORS
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DESIGN
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SUBDIVISIONS
TITLE SURVEYS
TOPOGRAPHIC SURVEYS

November 8, 2018

Gary Thorington, Highway Superintendent
Town of Windham
371 NY Route 296
Hensonville, New York 12439

Re: H&H Study Report
South Street Stormwater Collection System

Dear Gary,

Here is the Hydrologic and Hydraulic (H&H) Study Report for the South Street Stormwater Collection System project for your review and comment.

Introduction

The Town of Windham is addressing flooding issues along Clarence D Lane Road (CD Lane) and South Street through the construction of stormwater collection system improvements to mitigate future flood damage and increase safety and access for residents and businesses within the town. The location of the project is shown on Figure 1. The project is being funded by a U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant for Disaster Recovery (CBDG-DR) administered by the Governor's Office of Storm Recovery (GOSR), an office of the NYS Homes and Community Renewal's (NYSHCR) Housing Trust Fund Corporation.

Surfacewater runoff from a 135 acre watershed area starting near the top of Club Road on the western side of the Windham Mountain Ski Area drains northward to both CD Lane and South Street (Greene County Route 12) and discharges to the Batavia Kill. The runoff is conveyed by a series of open channels and storm sewer structures, many of which are undersized for large storm events. This H&H Study evaluates the existing conditions and proposes stormwater collection system improvements.

Existing Conditions

The South Street Stormwater Collection System project is located in central Greene County in the Town of Windham, New York. The study area includes CD Lane from Brainard Ridge Road to the CD Lane-South Street intersection and a portion of South Street westward from this interaction approximately 0.63 miles to the point where the primary drainage swale crosses under South Street and discharge to the Batavia Kill. Topographic maps of the study area at a scale of 1 inch equals 60 feet is given in Appendix C.

The flow path for runoff is described as follows. Stormwater runoff starts on Cave Mountain near the top of Club Road at approximately Elevation 2,070 feet (USGS datum) and generally flows northward and is

discharged via an open drainage swale on South Street at approximate Elevation 1,482 feet. The runoff from the upper parts of the watershed flows northward through the property known as the Brainard Farm (Subcatchment 8S). At the CD Lane-Brainard Ridge Road intersection, there is a thirty inch diameter smooth interior corrugated high density polyethylene (30" HDPE) culvert that discharges to the north into a steep unlined drainage swale that is eroded. After this point, runoff is conveyed in the rock-lined or grassed road drainage swales on both sides of CD Lane. The road drainage swale on the south side of CD Lane near the Enclave Resort is conveyed into a 36" HDPE culvert that flows eastward into the Windham Mountain stormwater collection system which is used for snowmaking. The runoff on the northern CD Lane drainage swale flows eastward to the Windham Village driveway entrance at which point it flows northward in an open channel on the west side of the Windham Village property. On the east side of CD Lane, the grassed beginners ski slope flows northward and is collected into a 30" HDPE storm sewer that discharges on the southeast corner of the CD Lane-South Street intersection. Also on the east side of CD Lane, the runoff from the Windham Mountain gravel parking area flows northward to the southeast corner of the CD Lane-South Street intersection and is discharged westward under CD Lane via a 71" wide by 47" high corrugated steel arch culvert. Runoff then flows westward where it crisscrosses South Street four times before ultimately discharging to the Batavia Kill. There is a 44" diameter steel culvert at STA 43+30, a 36" HDPE culvert at STA 33+00, a 36" HDPE culvert at STA 25+45 and two 42" wide by 29" high corrugated metal arch culverts at STA 13+55.

Other key drainage features include a pond at the Brainard Farm property and an open channel through the New York City Environmental Protection (NYCEP) property (Section-Lot-Block Number 78.00-6-70) at the western end of the study area. The NYCEP property is actively farmed.

The soil types in the watershed area were obtained from the USDA Soil Resource Report which is included in Appendix A. There are sixteen different types of soil in the watershed area. The soils in the watershed area fall into the following Hydrologic Soil Groups (HSG). A complete listing of surficial soils in the watershed area is given in Appendix A.

Table 1. Hydrologic Soil Group

HSG A	HSG B	HSG C	HSG D
18%	31%	15%	35%

Hydrologic Analysis

Methodology Used

The hydrologic analysis was performed using methodology developed by the U.S.D.A. Soil Conservation Service known as the Technical Release 55 (TR-55), Urban Hydrology for Small Watersheds. The hydrologic runoff calculations are performed using the computer software program titled HydroCAD (version 10) developed by HydroCAD Software Solutions LLC (HydroCAD).

Watershed Conditions

The South Street Stormwater Collection System watershed was modeled with ten subcatchment areas. The subcatchment area boundaries, flow paths and soil types are shown in Figure 2. The subcatchment areas are described below and hydrologic model input parameters are given in Appendix B.

- Subcatchment 1S – This subcatchment area drains to the southern side of CD Lane and then discharges to a 36” HDPE culvert that is part of the Windham Mountain storm sewer system. The flared inlet end section of the 36” HDPE culvert is partially collapsed and should be replaced. This subcatchment area is developed with a series of townhomes.
- Subcatchment 2S – This subcatchment is part of the Windham Mountain ski area and includes the grassed beginners ski slope and a gravel parking area accessed from Resort Drive. This subcatchment drains northward. Runoff from the grassed beginners ski slope area is collected in a stone-lined drainage swale which is drained by a 30” HDPE culvert that discharges to the southeast corner of the CD Lane-South Street intersection. The runoff from the gravel parking area sheet flows to the northwest and drains to the southeast corner of the CD Lane-South Street intersection. The runoff that collects in the southeast corner of the CD Lane-South Street intersection is discharged under CD Lane via a 71” wide by 47” high corrugated metal arch culvert (CD Lane Culvert) that was installed in 2012 (approximately 6 years old and in good condition). The CD Lane Culvert discharges westward into a grass lined drainage swale on the south side of South Street.
- Subcatchment 3S – This is the small drainage area along the east side of CD Lane that drains to the southeast corner of the CD Lane-South Street intersection. This subcatchment area collects sheet flow from the east half of CD Lane.
- Subcatchment 4S – This is the small drainage area along the west side of CD Lane starting at the southern entrance to Windham Village and drains to the southwest corner of the CD Lane-South Street intersection. This subcatchment area collects sheet flow from the west half of CD Lane.
- Subcatchment 5S – This subcatchment drains runoff from the Windham Village area which includes a series of townhome buildings and associated parking. Subcatchment 5S drains to the grass lined drainage swale on the south side of South Street. This drainage swale discharges under South Street (at STA43+30) via a 44” diameter steel culvert into a grass line swale that flows through Subcatchment Area 9S.
- Subcatchment 6S – This is the small drainage area on the north side of CD Lane from Brainard Ridge Road to the Windham Village southern driveway entrance. This subcatchment area collects sheet flow from the north half of CD Lane.
- Subcatchment 7S – This subcatchment extends from CD Lane to South Street and includes a large undeveloped area and the western portion of Windham Village. This area drains to the swale located on the south side of South Street and then flows westward.
- Subcatchment 8S – This subcatchment extends from Club Road to South Street and includes some mountainside homes in the upper part of the subcatchment and a large undeveloped area in the middle of the subcatchment and then the Brainard Farm property. Subcatchment 8S has a large pond located on the south side of South Street. Subcatchment 8S drains under South Street via a 36” HPDE culvert.
- Subcatchment 9S – This subcatchment includes the lands on the northern side of South Street which drain to a grassed swale that flows westward along South Street. There are two driveway embankments with 36” HDPE culverts along this swale. Subcatchment 9S flows under South Street via a 36” HDPE culvert at STA 33+00 and then flows into the Brainard Farm pond.

- **Subcatchment 10S** - This subcatchment is mainly comprised of the farmed NYCEP property (Section-Lot-Block Number 78.00-6-70) at the western end of the study area. There is a vegetated open drainage swale that arcs through the NYCEP property and then discharges under South Street via two (2) 42” wide by 29” high corrugated metal arch culverts at STA 13+55.

Design Storms

The design storms for the 1, 5, 10, 25 50 and 100 year frequencies utilized were obtained from the Cornell University’s Northeast Regional Climate Center (NRCC) precipitation database (<http://precip.eas.cornell.edu/>). This database provides site-specific design storms including the Type II rainfall distribution thereby allowing more accurate modeling of the hydrologic conditions at the exact site. The 24-hour rainfall depths for the design storms are shown below in Table 2. The complete site specific rain event information for the site is given in Appendix A.

Table 2. Design Storm Rainfall Amounts

Design Storm	Rainfall Amount (inches)
10-year 24 hour	4.18
25-year 24 hour	5.26
50-year 24 hour	6.27
100-year 24 hour	7.48

Hydrologic and Hydraulic Analysis

A reconnaissance of the existing site conditions was performed by inspecting the drainageways in the watershed area. The key features are described above in the Watershed Conditions section. Using the field reconnaissance, topographic mapping and soils information, each of the input parameters for the hydrologic model were developed.

The existing conditions (EC) hydrologic model was calibrated and run for the various design storms. The full HydroCAD inputs and outputs are given in Appendix B. The Existing Conditions peak water elevations at each of the main road culverts are summarized in Table 3.

Table 3. Existing Conditions

South Street Stormwater Collection					
Existing Conditions - Peak Water Elevations (feet)					
Storm Event	Structure Number				
	CD Lane (at South St. intersection)	SS2 South Street (by Windham Village)	SS4 South Street (cross-over to Brainard Farm)	SS5 South Street (into DEP field)	SS6 South Street (out of DEP field)
100 Year	1,585.7	1,571.3	1,530.5	1,507.8	1,484.2
50 Year	1,585.5	1,570.3	1,530.0	1,507.5	1,483.8
25 Year	1,585.2	1,569.6	1,529.5	1,507.2	1,483.4
10 Year	1,585.0	1,569.1	1,528.1	1,505.6	1,483.2
Structure Size	71"x47" Arch	44" Dia. Steel	36" Dia. HDPE	36" Dia. HDPE	Two 42"x29" Arch
Road Elevation	1,586.00	1,570.50	1,529.00	1,507.00	1,485.50
Top of Culvert Elevation	1,587.56	1,570.29	1,526.67	1,505.42	1,484.42
Culvert Invert Elevation	1,583.64	1,566.62	1,523.67	1,502.42	1,482.00
Notes:					
Point where runoff overtops road					

The HydroCAD model shows that under Existing Conditions:

- The 71” wide by 47” high corrugated metal arch CD Lane culvert (Structure Named CD Lane) can safely pass the 100 year storm flow.
- The South Street 44” steel culvert at STA 43+30 (Structure Named SS2) is undersized and will be overtopped during a 50 year or greater storm event.
- The South Street 36” HDPE culvert at STA 33+00 (Structure Named SS4) is undersized and is overtopped by a 25 year or greater storm event.
- The South Street 36” HDPE culvert at STA 25+45 (Structure Named SS5) is undersized and is overtopped by a 25 year or greater storm event.
- The South Street twin 42” high by 29” wide corrugated metal arch culverts at STA 13+55 (Structure Named SS6) do not get overtopped during a 100 year storm because the NYCEP farm field provides a large area for stormwater detention.

The HydroCAD model was then used to simulate stormwater collection system improvements which would be capable of conveying flows from a 100 year design storm. The model was re-run in an iterative fashion adjusting the various culvert sizes at different locations until the CD Lane-South Street stormwater collection system pass the 100 year storm without overtopping the roadways. The full HydroCAD inputs and outputs for the proposed stormwater collection system improvements are given in Appendix B and summarized in Table 4.

Table 4. Proposed Stormwater Collection System Improvements

South Street Stormwater Collection
 Proposed Conditions - Peak Water Elevations (feet)

Storm Event	Structure Number								
	CD Lane (at South St. intersection)	SS1 South St. Diversion Structure 1 (at CD Lane - South St. intersection)		SS2 South Street (by Windham Village)	SS3	SS4 South St. Diversion Structure 4 (cross-over by Brainard Farm)		SS5 South Street (into DEP field)	SS6 South Street (out of DEP field)
100 Year	1,585.72	1,582.96		1,569.34	1,546.08	1,528.10		1,505.64	1,484.01
50 Year	1,585.46	1,582.78		1,568.99	1,545.02	1,527.32		1,504.76	1,483.58
25 Year	1,585.22	1,582.63		1,568.68	1,544.52	1,526.74		1,504.16	1,483.29
10 Year	1,584.95	1,582.45		1,568.31	1,544.04	1,526.15		1,503.55	1,483.07
Structure Size	71"x47" Arch	4'Wx3'H Box	4'Wx3'H Box	4'Wx3'H Box	24" Dia. HDPE	36" Dia. HDPE	48" Dia. HDPE	5'Wx3'H Box	6'Wx3'H Box
Road Elevation	1,586.00	1,585.00		1,570.50		1,529.00		1,507.00	1,485.50
Top of Culvert Elevation	1,587.56	1,584.50	1,585.00	1,570.29		1,526.67	1,528.00	1,505.42	1,484.42
Culvert Invert Elevation	1,583.64	1,581.50	1,582.00	1,566.62		1,523.67	1,524.50	1,502.42	1,482.00

Notes:
 1. Culvert improvements are all sized so that the replacement culverts can pass the 100 year storm without over-topping the road elevation.

The storm sewer structure improvements include:

- Leave the 71” wide by 47” high corrugated metal arch CD Lane culvert in place but adding headwalls to improve its hydraulic performance.
- Install a new stormwater diversion manhole (Structure Named SS1) on the southwest side of the CD Lane-South Street intersection that allows low flows to continue flowing westward along South Street but once the water level in the structure was deeper than 0.5 feet, the flow would split and allow the higher flows to be conveyed to the northern side of South Street via a new 4’ wide by 3’ high box culvert. Replace the 36” HDPE driveway culvert for the access road with the same upstream sized culvert of a 4’ wide x 3’ high box culvert.
- Replace the existing 44” steel culvert at STA 43+30 with a new 4’ wide by 3’ high box culvert (Structure Named SS2) with headwalls capable of conveying the 100 year flow under South Street without overtopping.
- Install a new 24” RCP culvert (Structure Named SS3) under South Street to divert half of the runoff to the north side of South Street. Replace the 36” HDPE culvert under the Windham Adventure Park driveway with a new 60” HDPE culvert.
- Install a new stormwater diversion manhole (Structure Named SS4) on the north side of South Street near STA 33+00 that allows low flows to continue flowing northwestward to the Brainard Farm pond but once the water level in the structure increases to a depth of 0.83 feet, the flow would split and allow the higher flows to be conveyed westward on the north side of South Street via a new 48” HDPE culvert. The drainage swale on the northern side of South Street from STA25+50 to STA 30+00 would be improved to handle the flows from the new 48” HDPE storm sewer.
- Replace the existing 36” HDPE culvert at STA 25+45 with a new 5’ wide by 3’ high box culvert (Structure Named SS5) with headwalls capable of conveying the 100 year flow under South Street without overtopping.
- Install a new drainage swale on the northern side of South Street from STA 25+50 to STA 13+55 to carry the majority of the runoff from the study area and to reduce the flow in the existing drainage swale that flows through the NYCEP property.
- Replace the twin 42” high by 29” wide corrugated metal arch culverts at STA 13+55 with a new 6’ wide by 3’ high box culvert (Structure Named SS6).

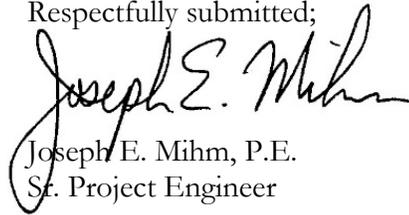
The road drainage swales between these structures would also be improved as follows:

- The drainage swales on CD Lane that have slopes ranging from 7% to 10% would be improved to be riprap lined trapezoidal shaped swales with a minimum two feet bottom width, side slopes of two horizontal to 1 vertical and minimum depths of two feet.
- The South Street drainage swales would be either grass-lined or riprap lined depending on their slopes and flow velocities. The design would evaluate and select the proper lining for the South Street drainage swales.
- As noted above, improve the road drainage swale on the northern side of South Street from STA25+50 to STA 30+00 to handle the flows from the new 48” HDPE storm sewer.
- As noted above, construct a new drainage swale along the northern side of South Street from STA 25+50 to STA 13+55 to carry the majority of the runoff from the study area.

The preliminary layout of the proposed stormwater collection system improvements are illustrated on the drawings given in Appendix D.

Please send me any comments you may have on the proposed stormwater collection system improvements and we will incorporate them into the 30% design drawings.

Respectfully submitted;

A handwritten signature in black ink that reads "Joseph E. Mihm". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Joseph E. Mihm, P.E.
Sr. Project Engineer

cc: Bill Blankenship, GOSR Grant Manager
Suzanna R. Randal, GOSR Senior Program Manager
Robert Van Valkenburg, Greene County Highway Superintendent

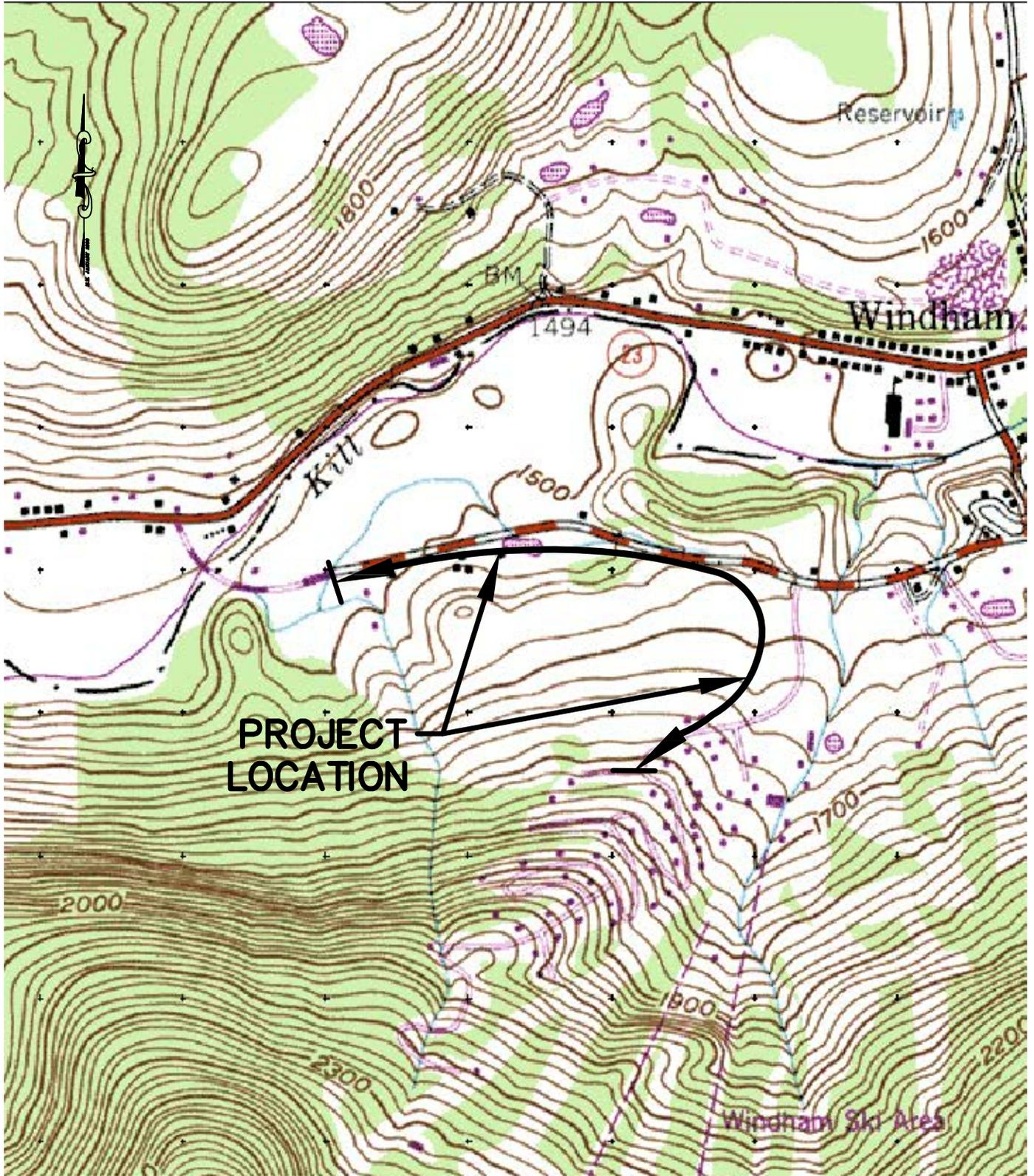
Attachments:

Figure 1 – Location Map
Figure 2 – Watershed Map

Appendix A – Extreme Precipitation Table, USDA Soil Report
Appendix B – Existing Conditions and Proposed Conditions HydroCAD Model Reports
Appendix C – Existing Conditions Maps
Appendix D – Preliminary Layout of Stormwater Improvements

Appendixes have been removed from the Environmental Assessment Document Attachment 2.

Figure 1
Location Map



SOURCE:
USGS 7.5 MINUTE QUADRANGLE, ASHLAND

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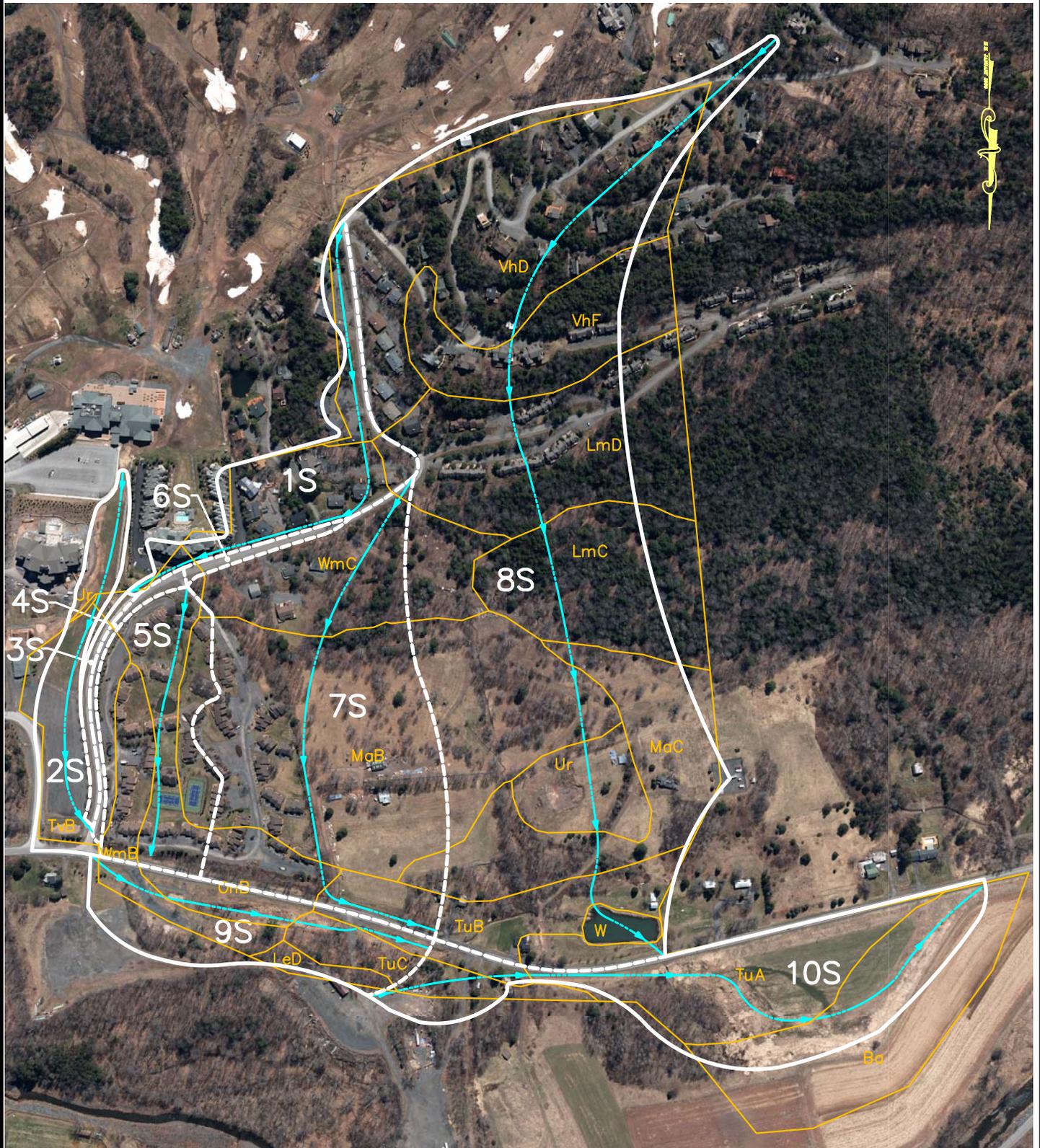
PROJECT LOCATION MAP
SOUTH STREET STORMWATER COLLECTION SYSTEM
TOWN OF WINDHAM ULSTER COUNTY, N. Y.

SCALE
1"=1,000'

DATE	NOV. 2018
DWG	CHK
RJS	JEM

FIGURE NO.
1

Figure 2
Watershed Map



LEGEND

- WATERSHED BOUNDARY (WHITE)
- - - SUBCATCHMENT BOUNDARY (WHITE)
- FLOW PATH
- SOIL TYPE BOUNDARY

- 1S SUBCATCHMENT NUMBER (WHITE)
- LeD SOIL TYPE

SOURCE:
MAP: N.Y. GIS

NOTE:
SOIL TYPES FROM USDA NRCS CUSTOM SOIL RESOURCE REPORT FOR GREENE COUNTY, NY.

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WATERSHED BOUNDARY
SOUTH STREET STORMWATER COLLECTION SYSTEM
TOWN OF WINDHAM ULSTER COUNTY, N. Y.

SCALE
1" = 500'

DATE	NOV. 2018
DWG	RJS
CHK	JEM

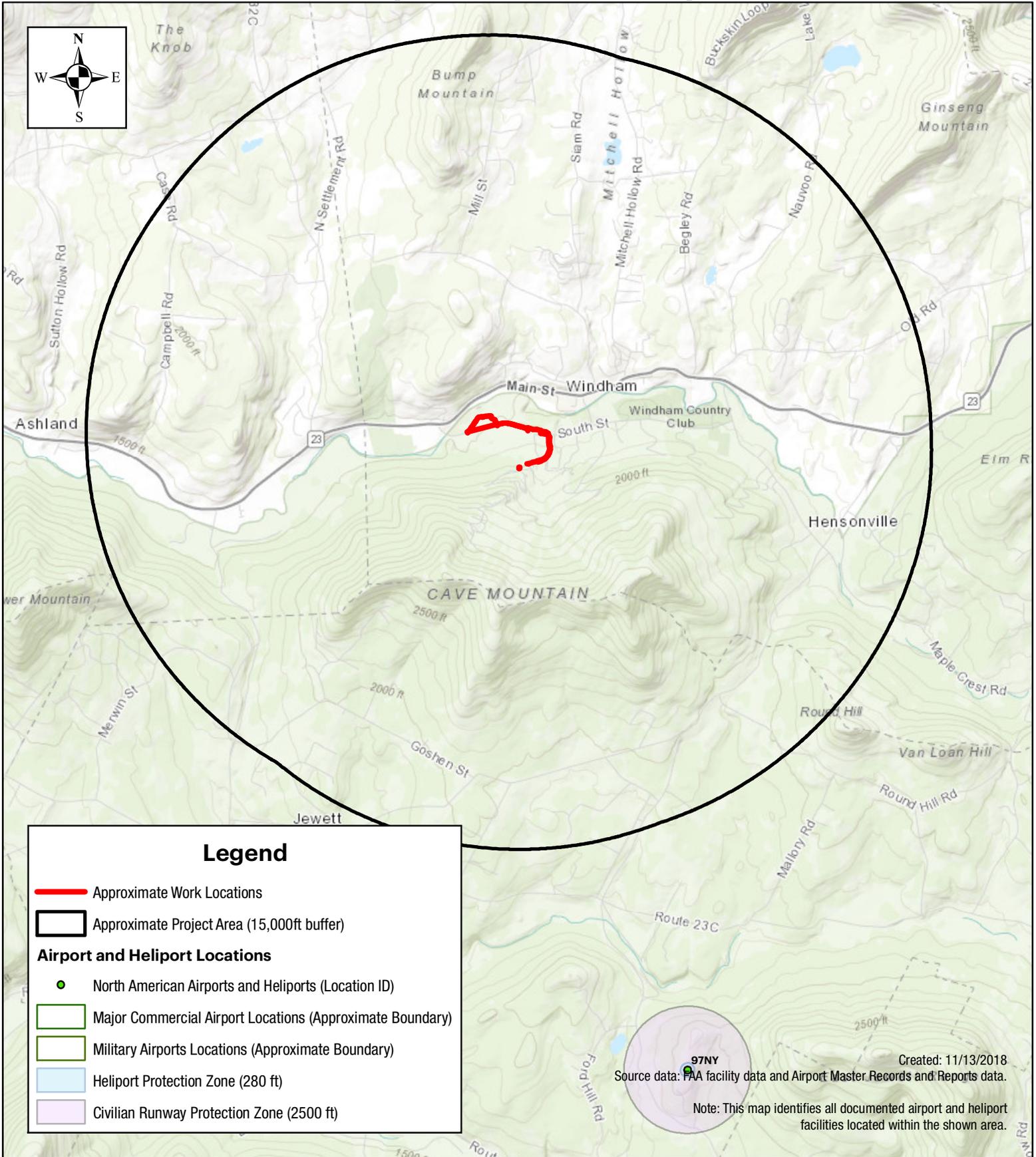
FIGURE NO.
2

Attachment 3

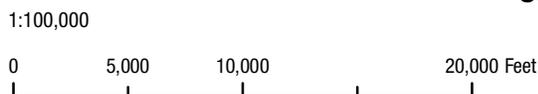
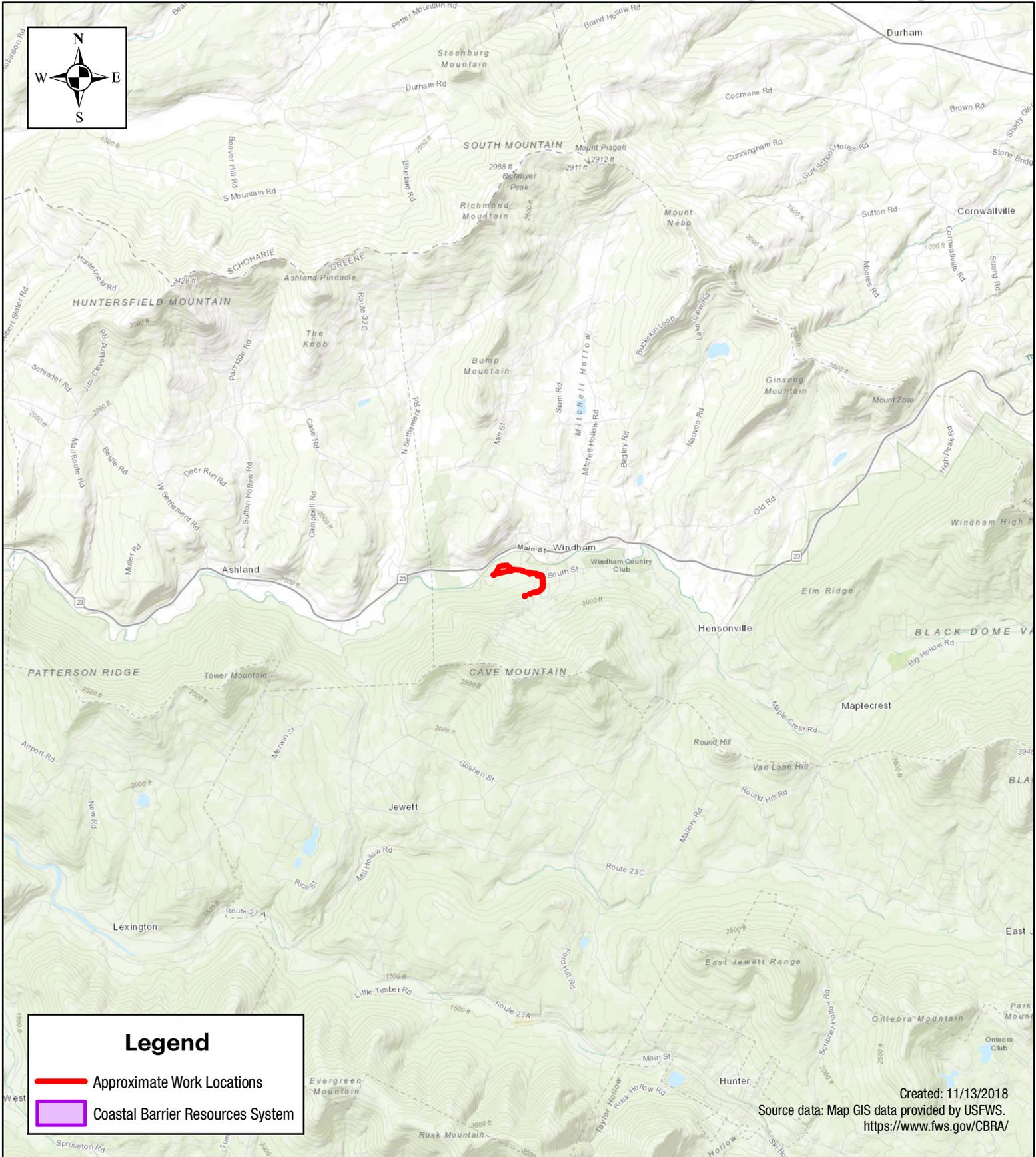
Project Reference Maps

Airport Hazards Map
USFWS Coastal Barrier Resources System Map
NYS DOS Coastal Boundary Map
EPA Sole Source Aquifer Map
NYSDEC & NPS Wild and Scenic Rivers Map
Potential Environmental Justice Areas Map
NYSDEC Environmental Resource Map

Airport Hazards Map

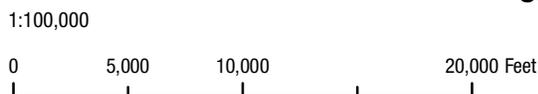
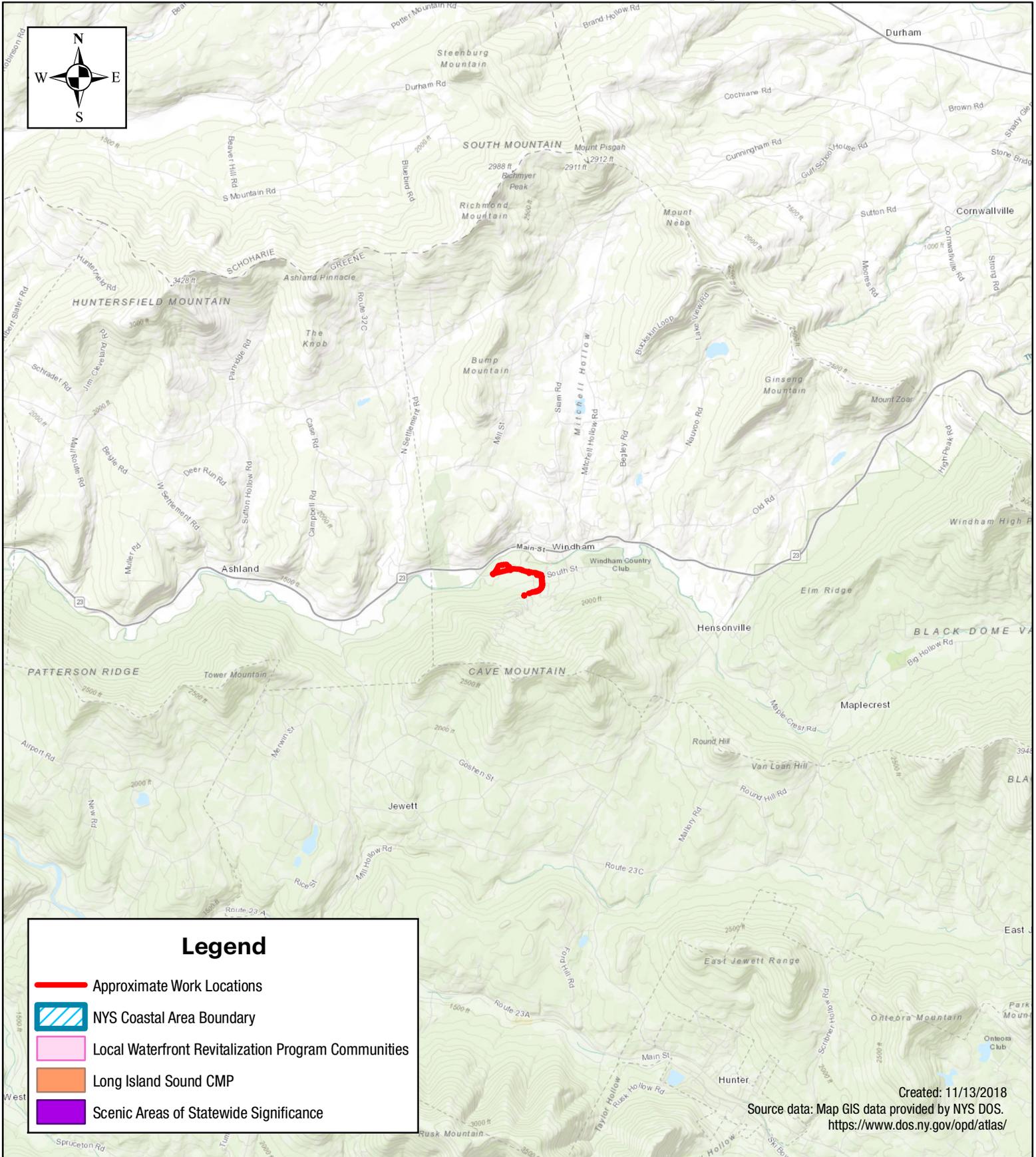


USFWS Coastal Barrier Resources System Map



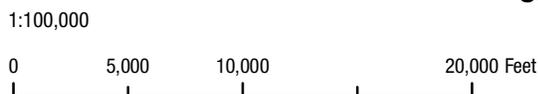
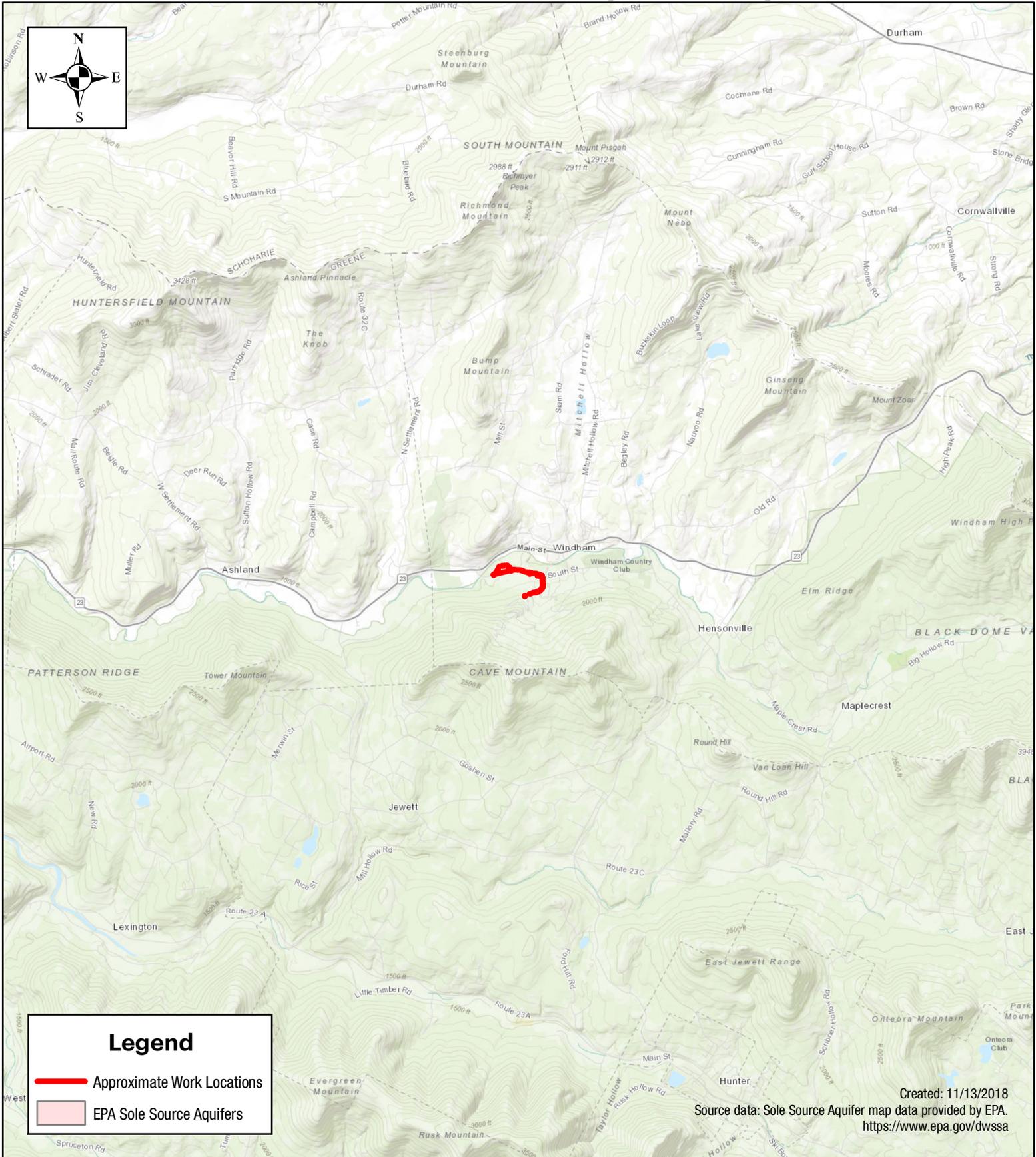
South Street Stormwater Collection System Project
South Street and Clarence D Lane Road
Town of Windham
Greene County, New York

NYS DOS Coastal Boundary Map



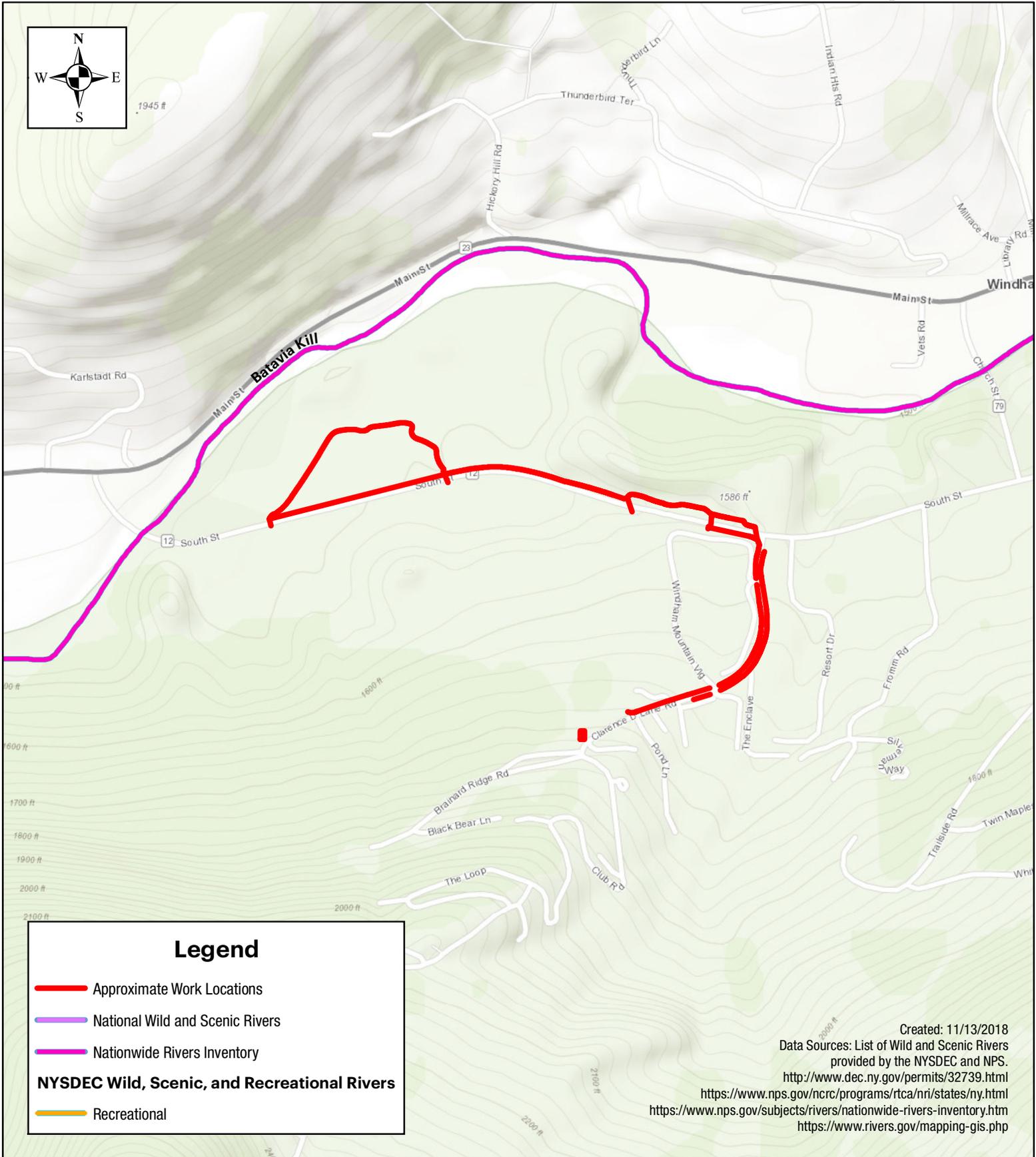
South Street Stormwater Collection System Project
South Street and Clarence D Lane Road
Town of Windham
Greene County, New York

EPA Sole Source Aquifer Map



South Street Stormwater Collection System Project
South Street and Clarence D Lane Road
Town of Windham
Greene County, New York

NYSDEC & NPS Wild and Scenic Rivers Map



Legend

- Approximate Work Locations
- National Wild and Scenic Rivers
- Nationwide Rivers Inventory

NYSDEC Wild, Scenic, and Recreational Rivers

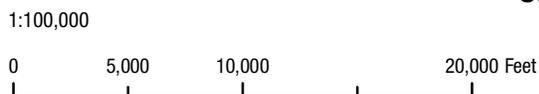
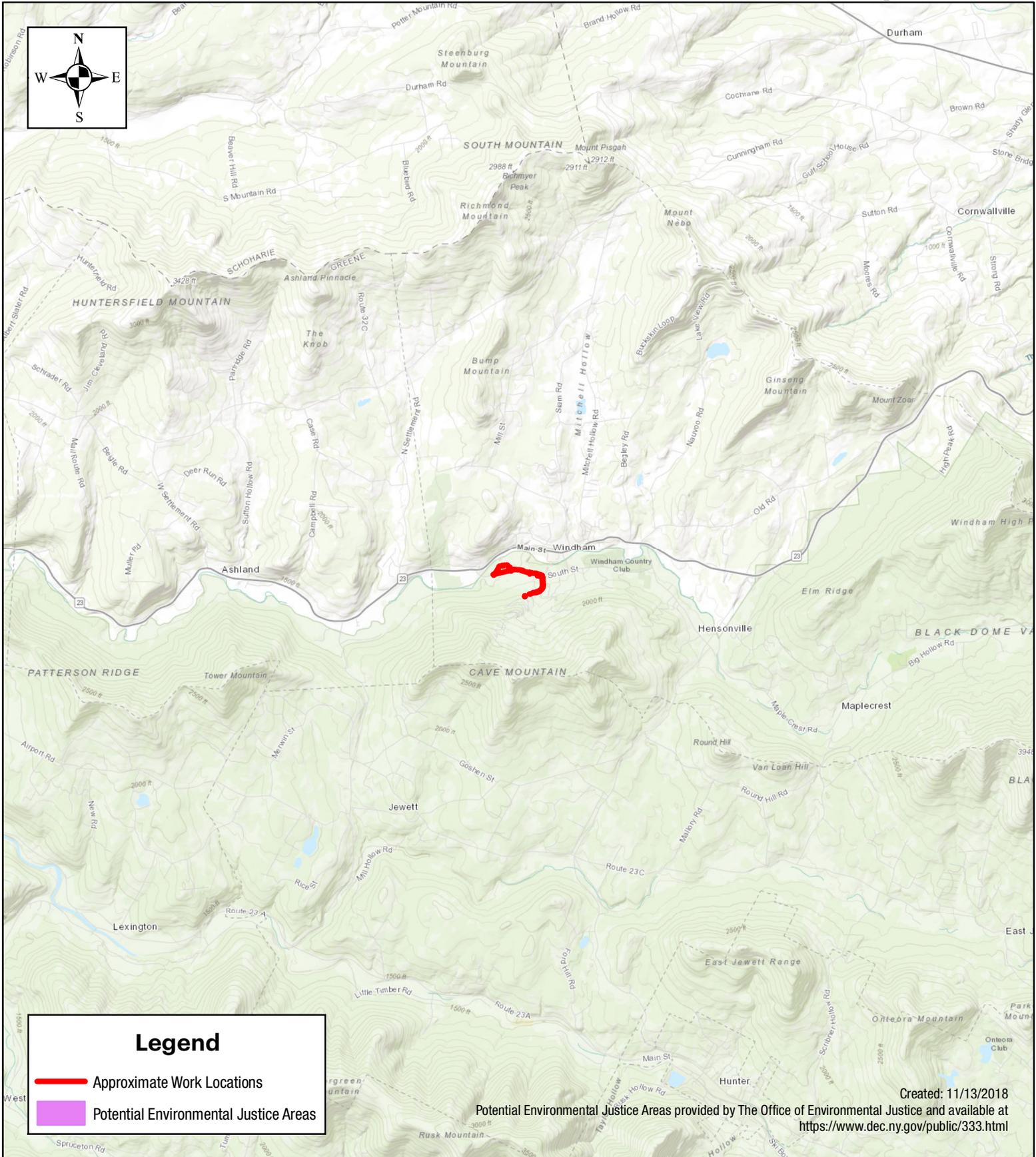
- Recreational

Created: 11/13/2018
 Data Sources: List of Wild and Scenic Rivers provided by the NYSDEC and NPS.
<http://www.dec.ny.gov/permits/32739.html>
<https://www.nps.gov/nrcr/programs/rtca/nri/states/ny.html>
<https://www.nps.gov/subjects/rivers/nationwide-rivers-inventory.htm>
<https://www.rivers.gov/mapping-gis.php>



South Street Stormwater Collection System Project
South Street and Clarence D Lane Road
Town of Windham
Greene County, New York

Potential Environmental Justice Areas Map



South Street Stormwater Collection System Project
South Street and Clarence D Lane Road
Town of Windham
Greene County, New York



Environmental Resource Mapper

Base Map: Topographical Using this map

Search

Tools

Layers and Legend

All Layers

Unique Geological Features

Waterbody Classifications for Rivers/Streams

Waterbody Classifications for Lakes

State Regulated Freshwater Wetlands

State Regulated Wetland Checkzone

Significant Natural Communities

Natural Communities Near This Location

Rare Plants or Animals

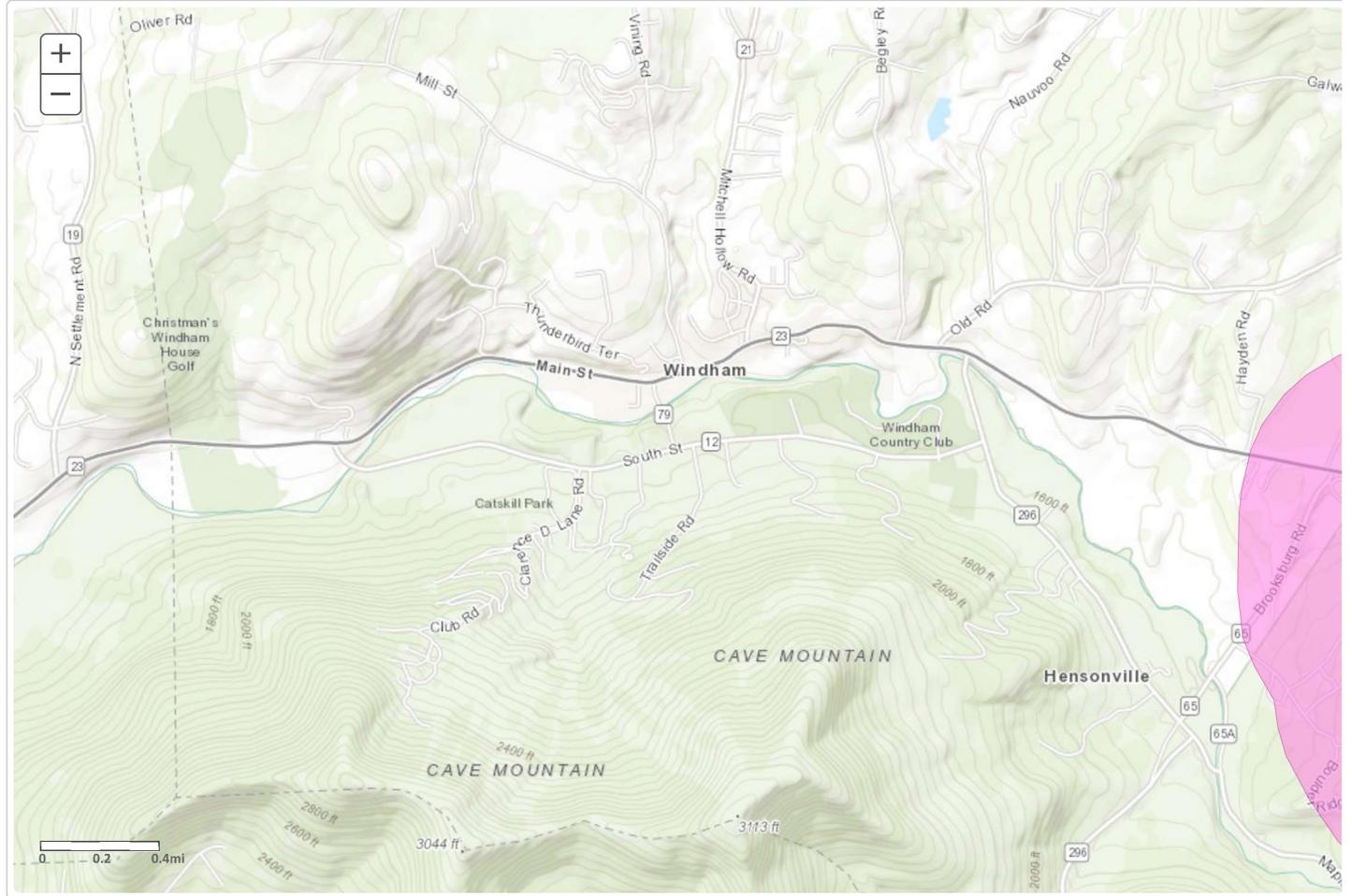
Other Wetland Layers

Reference Layers

Tell Me More...

Need A Permit?

Contacts



Attachment 4

Floodplain Management &
Wetlands Protection Determination

South Street Stormwater Collection System Project
Floodplain Management & Wetlands Protection Determination
Commercial & Economic Development Initiative within
NY State Community Development Block Grant Disaster Recovery Program
March 14, 2019

Introduction & Overview

The purpose of Executive Order 11988, Floodplain Management, is “to avoid to the extent possible the long- and short-term adverse impacts associated with occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative.” The purpose of EO 11990 Protection of Wetlands is “to avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative.” This report contains the analysis prescribed by 24 CFR Part 55.

This project involves U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant Program – Disaster Recovery (CDBG-DR) funding for stormwater collection system improvements to mitigate future flood damage and increase safety and access for residents and businesses within the Town of Windham. The analysis that follows focuses on the direct wetland and floodplain impacts associated with this project. Based on the type of land use, facility, and other case characteristics described herein, it is concluded that there is a reasonable basis to proceed with funding for this project/ activity within floodplain and wetland. The HUD CDBG-DR funding is administered through the New York State Rising Community Reconstruction (NYRCR) Program which is using bottom-up community participation and State-provided technical expertise to develop resilient and sustainable communities. Thus, alternatives preventing or impeding the development of resilient and sustainable communities are not considered reasonable alternatives.

Description of Proposed Action & Land Use

The South Street Stormwater Collection System Project (Project) is located on properties on South Street and Clarence D Lane Road, within the Town of Windham, in Greene County, New York. This Project will be conducted primarily along or immediately adjacent to, existing roadways; work not located on, or within the existing right of way for South Street or Clarence D Lane Road will be conducted on parcels known as tax map numbers 78.00-6-70, 95.10-1-3 and 95.06-1-42, per Greene County Assessment Data. This Project is located within the Catskill State Park.

Construction activities will include the replacement of existing undersized culverts with properly sized culverts and installation of stabilized drainage swales. Replacement culvert materials would include precast concrete box culverts and smooth interior corrugated high density polyethylene pipe (HDPE) culverts, with both types of culverts to be fitted with reinforced concrete headwalls, wingwalls, and trash racks. Other stormwater structures would include precast concrete stormwater manholes and flared end sections for culverts (either reinforced concrete or HDPE) and a rock spillway to be constructed for an existing stormwater outfall to prevent further scouring and erosion actions at that location. The bottoms and sides of the stabilized drainage swales would be armored using either riprap stone or grass-lined turf reinforcement mat geosynthetic materials. The Project will also involve restoring existing drainage swales, re-grading road shoulders to restore sheet flow, roadway guide railing, and an 1.5” overlay of asphalt on Clarence D Lane Road. All improvements will be designed and constructed to improve resilience in future storm events.

Applicable Regulatory Procedure Per EO 11988

The proposed action corresponds with a noncritical action not excluded under 24 CFR §55.12(b) or (c). Funding is permissible for the use in the floodplain if the proposed action is processed under §55.20 and the findings of the determination are affirmative to suggest that the project may proceed.

Based on online data, including data managed and updated by the U.S. Fish & Wildlife Service (USFWS) and NYSDEC, there will be new construction within federal and state mapped riverine wetlands and 100-year floodplain at the project location. Thus, in accordance with the decision-making process set forth in 24 CFR Part 55, this analysis focuses on both floodplains and wetlands.

According to 24 CFR §55, the activity planned to install improvements to the existing stormwater infrastructure and construct new culverts along South Street occurs in a community, the Town of Windham, that is in good standing in the regular program of the National Flood Insurance Program (NFIP). Substantial Improvement/ Substantial Damage calculations do not apply to this project. However, this proposed action is considered new construction in floodplain and riverine wetlands, since the proposed action involves the creation of stormwater drainage swales, installation of culverts, and other work within existing wetlands and 100 year floodplain. As such, the full eight-step floodplain determination process in §55.20 is required and the following analysis examines each step in a floodplain management determination process.

Step 1. Determine Whether the Proposed Action is Located in the 100-year Floodplain (500-year for Critical Actions) or results in New Construction in Wetlands.

The location of the proposed action, per the applicable FEMA flood map Firmette, is within 100-year floodplain (SFHA - AE Zone) as shown in **Appendix 1**. There is an established Base Flood Elevation (BFE) of approximately 1,482 to 1,486 feet across the property. Per the USFWS and NYSDEC, there are mapped federal riverine wetlands and mapped state rivers/streams within the Project area as shown in **Appendix 1**. This action may require a Section 404 permit under the Clean Water Act (see 55.20(a)(1)).

Step 2. Initiate Public Notice for Early Review of Proposal.

Because the proposed Project is located in floodplain and wetlands, the Governor's Office of Storm Recovery (GOSR) published an early notice that allowed for public and public agency input on the decision to provide funding for reconstruction and development activities. The early public notice and 15-day comment period is complete. No public comments were received.

The early notice and corresponding 15-day public comment period started on November 29, 2018 with the "Early Notice of a Proposed Activity in a 100-Year Floodplain and Wetlands" being published in the Catskill Daily Mail newspaper, with the 15-day period expiring on December 14, 2018. The notice targeted local residents, including those in the floodplain. The notice was also sent to the following state and federal agencies on November 29, 2018: Federal Emergency Management Agency (FEMA); U.S. Housing and Urban Development; U.S. Army Corps of Engineers (USACE); New York State (NYS) Office of Parks, Recreation and Historic Preservation (OPRHP); NYS Office of Emergency Services (OEM); and NYS Department of Environmental Conservation (DEC). The notice was also sent to the Town of Windham. See **Appendixes III and IV** of this Floodplain Management & Wetlands Protection Determination for the letter distributed to these agencies and the associated newspaper notice affidavit.

Step 3. Identify and Evaluate Practicable Alternatives to Locating the Proposed Action in a 100-year Floodplain (or 500-year Floodplain if a Critical Action) or Wetland.

The New York State Rising Community Reconstruction Program is structured to provide eligible communities resources and expertise to build communities resilient to future flooding events. This

community was impacted by Hurricane Irene and Tropical Storm Lee. During these storms, excessive amounts of rainfall caused these tributaries to flood and exacerbated flooding of Batavia Kill. This flooding overwhelmed culvert infrastructure on South Street and its feeder streets. This flooding caused heavy damage to homes and businesses along the South Street corridor and isolated residents from critical emergency services, which are coordinated in Hensonville, the town's seat of government, which is accessible primarily via South Street. Given the history of flooding at this community, and the nature of the proposed work, potential alternatives must be considered in order to try and mitigate the amount of damage during future flood events.

The primary alternative for the current proposed action is the "no action" alternative. This alternative means that there would be no mitigation to the existing Project area and no work would be undertaken to alleviate the flood problem. This would leave the surrounding community vulnerable to future flood damage. The "no action" alternative would provide no protection to the residential neighborhoods and greater community from future flood events, as mitigation would be compromised due to lack of financial support. Thus, the "no action" alternative is not feasible in relation to the desired objective of creating area resiliency to future flooding events.

Due to the number of developed parcels within this Catskill Park community, prohibition of the proposed stormwater infrastructure repairs and modifications within floodplain and wetland is not practicable.

The above identified alternatives will be re-evaluated in response to public comments received.

Step 4. Identify & Evaluate Potential Direct & Indirect Impacts Associated with Occupancy or Modification of 100-year Floodplain and Potential Direct & Indirect Support of Floodplain and Wetland Development that Could Result from Proposed Action.

The focus of floodplain evaluation should be on adverse impacts to lives and property, and on natural and beneficial floodplain values. Natural and beneficial floodplain values include water resources, living resources, cultural resources, and agricultural/ aquacultural/ forestry resources. Potential impacts to these resources are described below.

Water Resources – Natural moderation of floods, water quality maintenance, and groundwater recharge

The Project does not propose to significantly alter floodplain or increase the amount of impervious surfaces within the work area. In fact, with the construction of green armored drainage swales and the usage of riprap, this Project will allow for better stormwater infiltration after a storm event while protecting against erosion. As such, the existing natural moderation of floodplain and floodway will remain intact and groundwater recharge will not be impeded. Additionally, best management practices (BMP) will be implemented and permit specified conditions will be followed during construction to minimize the potential effects on water resources. A qualitative evaluation suggests the potential for impacts would be relatively minor, and if such releases do occur, it would likely be part of an area wide impact. Given the nature of the Project, the potential for an acute or chronic level of water quality impact from the proposed Project is low.

Living resources – Flora and fauna

The Town of Windham is situated in a valley between two mountain ridges with steep slopes, and is traversed east-to-west by Batavia Kill and several small tributaries that are prone to flood during significant rain events. During Hurricane Irene and Tropical Storm Lee, excessive amounts of rainfall caused these tributaries to flood and exacerbated flooding of Batavia Kill. This flooding overwhelmed culvert infrastructure on South Street and its feeder streets. The stormwater drainage improvements will result in the ability to keep this vital corridor open during future storm events while helping reduce environmental damage caused by the introduction of large amounts of sediment into Batavia Kill. The proposed flood prevention improvements will aid in the mitigation of damage caused by flooding in

future storm events, as well as being a key component in the overall flood protection plan for the Town of Windham.

Occupancy of the Town of Windham has been documented since approximately 1780. The land in Tioga Center is primarily agricultural, rural residential, or undeveloped; considering the context Project and the area, the Project does not directly support occupancy of the floodplain though it does constitute indirect continued support of floodplain occupancy and development. In the event of severe flooding and associated natural hazards in the future, there is potential for further damage to the surrounding community. The Project will allow the surrounding community to have added resiliency during future storm events and allow for greater emergency access during storm events. If the Project were not funded, this community would remain vulnerable to compounded damage due to lack of access during future storm events.

Cultural resources – Archaeological, historic, & recreational aspects

The New York State Historic Preservation Office has determined that this project will have “No Impact” upon cultural resources in or eligible for inclusion in the State and National Register of Historic Places. The letter documenting this determination and supporting studies are included in the environmental review record in **Attachment 9** of *South Street Stormwater Collection System Project* Environmental Review Record document.

According to the Outdoor Industry Association’s two-page fact sheet [New York The Outdoor Recreation Economy](#), outdoor recreation generates \$33.8 Billion in consumer spending and 305,000 direct jobs within the State. The Project will allow for continued use of the area for recreational purposes while allowing for increased warning for the surrounding community during future storm and flooding events.

Agricultural, aquacultural, & forestry resources

The Project area is located within the Catskill Park, with undeveloped forests and informal trails leading throughout the area and to the river. The Batavia Kill is designated in the National Rivers Inventory and a trout fishery in the upper and lower reaches, and both the informal trails located within the Catskill Park and the fishing on the recreational river act as an economic driver for tourism in the area. The proposed Project will help protect the surrounding areas’ scenic and economic value and natural resiliency will flourish. The Project will prevent area-wide flooding during future storm events, protecting the local flora, fauna, and community from these flood waters.

It is possible that if there is a materials release from this property during construction activities, it could potentially affect natural resources including agricultural and forestry. However, a qualitative analysis suggests that the impact would be minor as mitigative measures and BMPs will be utilized during construction. These measures include, but are not limited to, installing temporary silt fencing on land to prevent soil and/or debris from being washed off-site and installing turbidity curtains in the water to minimize sediment transportation from the area of disturbance to the larger body of water per the soil erosion control plan. Project activities will be completed in accordance with all applicable federal, state and local permit requirements and conditions. Thus, no or minor temporary impacts from the proposed project activities are anticipated.

Wetland Evaluation

The purpose of wetland evaluation is to consider factors relevant to a proposal’s effect on the survival and quality of the wetland. These factors should include public health (including water supply and water quality), maintenance of natural systems, cost increases attributed to construction in wetland, and other uses of wetland in the public interest.

Public health, safety, and welfare, including water supply, quality, recharge, and discharge; pollution; flood and storm hazards and hazard protection; and sediment and erosion.

The proposed action is located in wetlands that are designated riverine (USFWS). It is located along a NYSDEC designated Class C stream, which is for waters supporting fisheries and suitable for non-contact activities. These waters are not directly used for water supply. The proposed Project activities are not suspected to pose a threat to public health and safety, or to increase flood and storm hazards, as the proposed action includes a combination of culvert replacements and construction, swale restoration and creation, and the creation of a new culvert spillway. The proposed action will not decrease the area of wetlands but rather includes the creation of new green armor and riprap swales.

Maintenance of natural systems, including conservation and long-term productivity of existing flora and fauna; species and habitat diversity and stability; natural hydrologic function; wetland type; fish; wildlife; timber; and food and fiber resources.

The proposed action will not significantly affect the natural systems or wetlands at Project area. The proposed work associated with the construction of new culverts, replacing existing culverts, the creation of new swales, and the formalizing existing drainage swales. The Project shall comply with all best management practices and permit conditions that are set forth in the applicable federal, state, and local environmental permits, when and as they are acquired. As the work will create new swales and allow for unimpeded water flow during storm events, it is presumed that there will not be new adverse impacts on the existing flora/ fauna, habitat, natural hydrologic function, or natural resources at the location.

Cost increases attributed to wetland-required new construction and mitigation measures to minimize harm to wetlands that may result from such use.

The proposed scope of work does not involve changing the area of the wetland by dredging, diking, filling, or by some other means. Consequently, there are no cost increases attributed to necessary mitigation measures to minimize harm to wetlands that may result from such use.

Other uses of wetland in the public interest, including recreational, scientific, and cultural uses.

According to the Outdoor Industry Association's two page fact sheet New York The Outdoor Recreation Economy, outdoor recreation generates \$338 Billion in consumer spending and 305,000 direct jobs within New York. This is an important sector of the regional and local economy, with the local fisheries and scenic location being an important economic driver for the area. Protecting this area against future flood events would further protect the existing fish and wildlife resources, aesthetic quality, and other cultural and archaeologically significant features in the area.

Step 5. Where Practicable, Design or Modify the Proposed Action to Minimize the Potential Adverse Impacts To and From the 100-Year Floodplain and to Restore and Preserve its Natural and Beneficial Functions and Values.

The proposed action involves stormwater infrastructure improvements that involve a combination of culvert installation or replacement, swale creation or formalization, and the construction of a protective spillway, it is a direct policy requirement to specify standards that mitigate flood risk. These mitigation measures provide flood protection, improve water quality, and reduce erosion and sedimentation of Batavia Kill and the adjacent tributaries. However, it is still reasonable to promote awareness of future risks of natural hazards, plus the physical, social and economic impacts that potential storm events could convey, including the potential for future physical damage to the surrounding property.

Step 6. Reevaluate the Alternatives and Proposed Action.

The "no action" alternative would not address the purpose and need of the proposed action. Without the proposed action, the impacted community would be left more susceptible to future floods in the particular location than it would after the implementation of the proposed action. Therefore, the "no action" alternative examined is not considered desirable and the proposed action is still practicable in light of

exposure to flood hazards in floodplain, possible adverse impacts on floodplain, the extent to which it may aggravate current hazards to other floodplains, and the potential to disrupt natural and beneficial functions and values of floodplains. Additionally, implementation of the proposed action will abide by all applicable state and local codes for floodplain development. As such, the impact of the proposed action on a floodplain would be less the “no action” alternative.

The impacts of these alternatives will be re-evaluated in response to any public comments received.

Step 7. Issue Findings and Public Explanation.

A final notice, formally known as “Final Notice and Public Review of a Proposed Activity in a 100-Year Floodplain and Wetland”, was published in accordance with 24 CFR 55. This public notice was combined with the “Notice of Finding of No Significant Impact and Notice of Intent to Request Release of Funds (FONSI-NOIRROF).” The final notice requires a 7-day comment period after publication; however, the FONSI-NOIRROF requires a 15-day comment period. As such, a 15-day comment period was used for this Final Notice. The 15-day comment period started with the Final Notice publishing in the Catskill Daily Mail newspaper on March 14, 2019 and the 15-day comment period expires at 5pm on March 29, 2019. The combined notice describes the reasons why the project must be located in the floodplain, alternatives considered, and all mitigation measures to be taken to minimize adverse impacts and preserve natural and beneficial floodplain values.

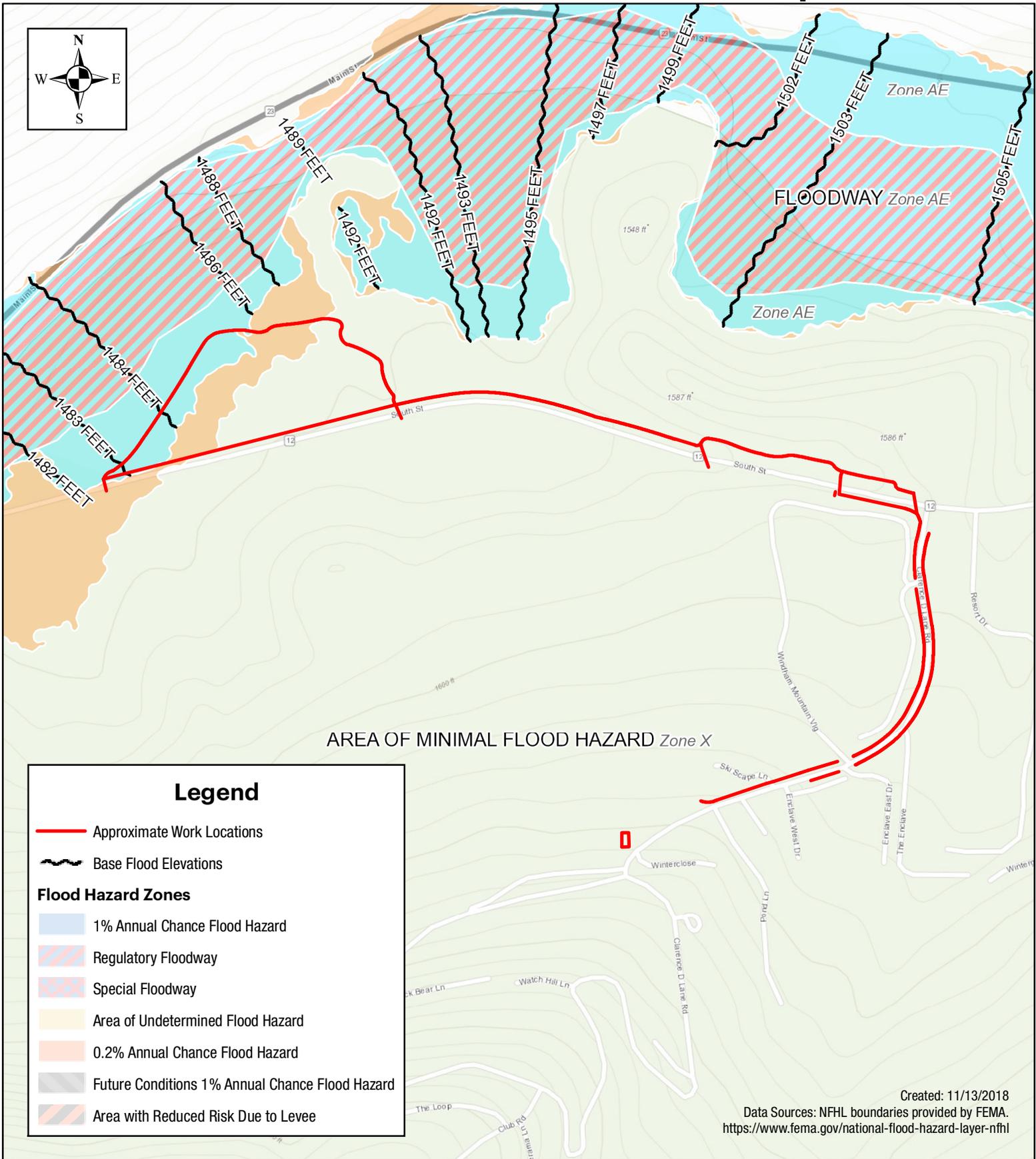
Step 8. Continuing Responsibility of Responsible Entity & Recipient.

The Governor's Office of Storm Recovery (GOSR), operating under the auspices of the New York State Homes and Community Renewal’s (NYSHCR) Housing Trust Fund Corporation, is the responsible entity. The responsible entity will make available educational materials regarding best practices for structures located in floodplains. It is acknowledged there is a continuing responsibility by the responsible entity to ensure, to the extent feasible and necessary, compliance with Steps 5 through 7.

Appendix I

FEMA Firmette Map(s)

FEMA National Flood Hazard Map



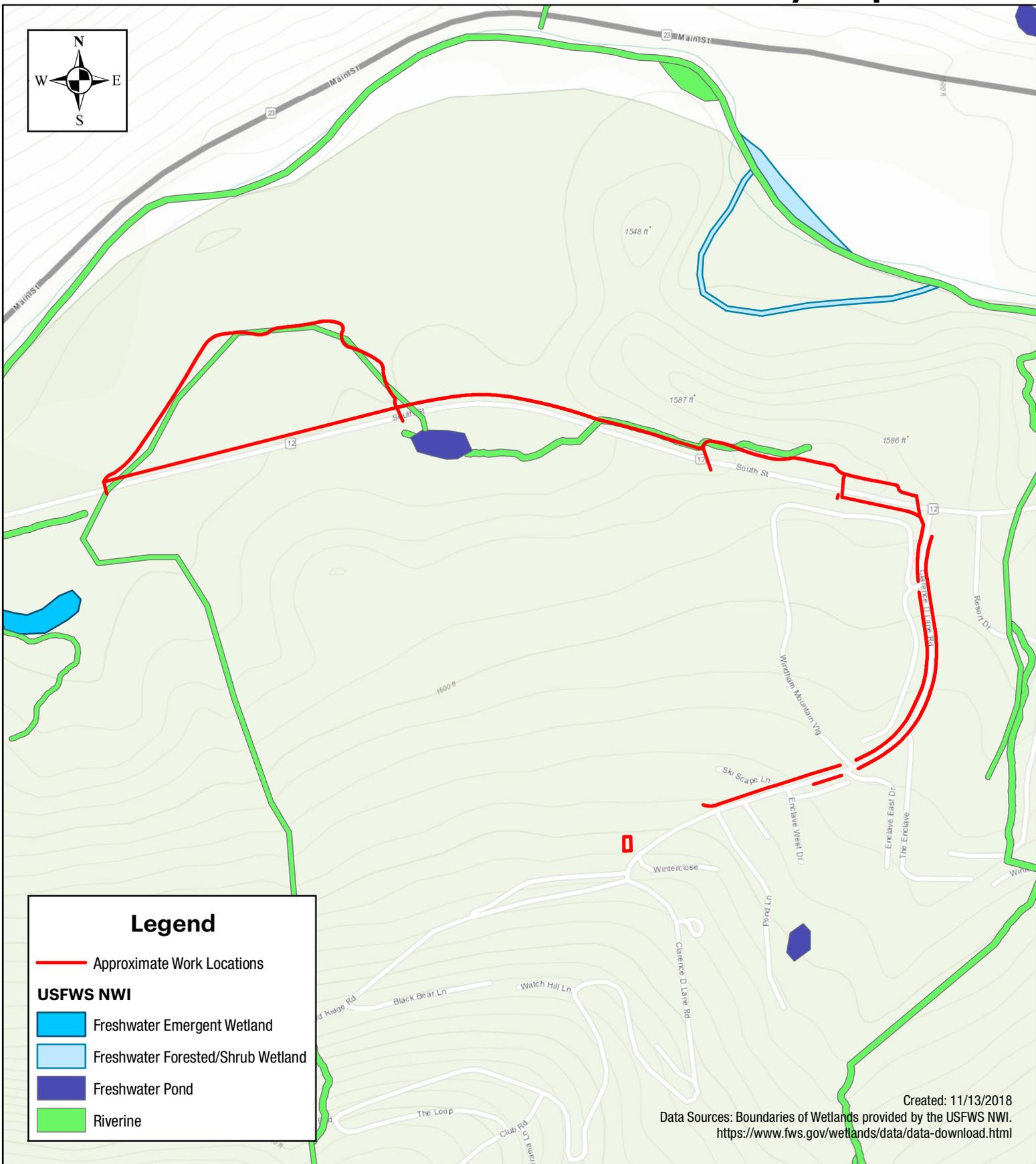
South Street Stormwater Collection System Project
South Street and Clarence D Lane Road
Town of Windham
Greene County, New York

Appendix II

NYSDEC Environmental Resources Map

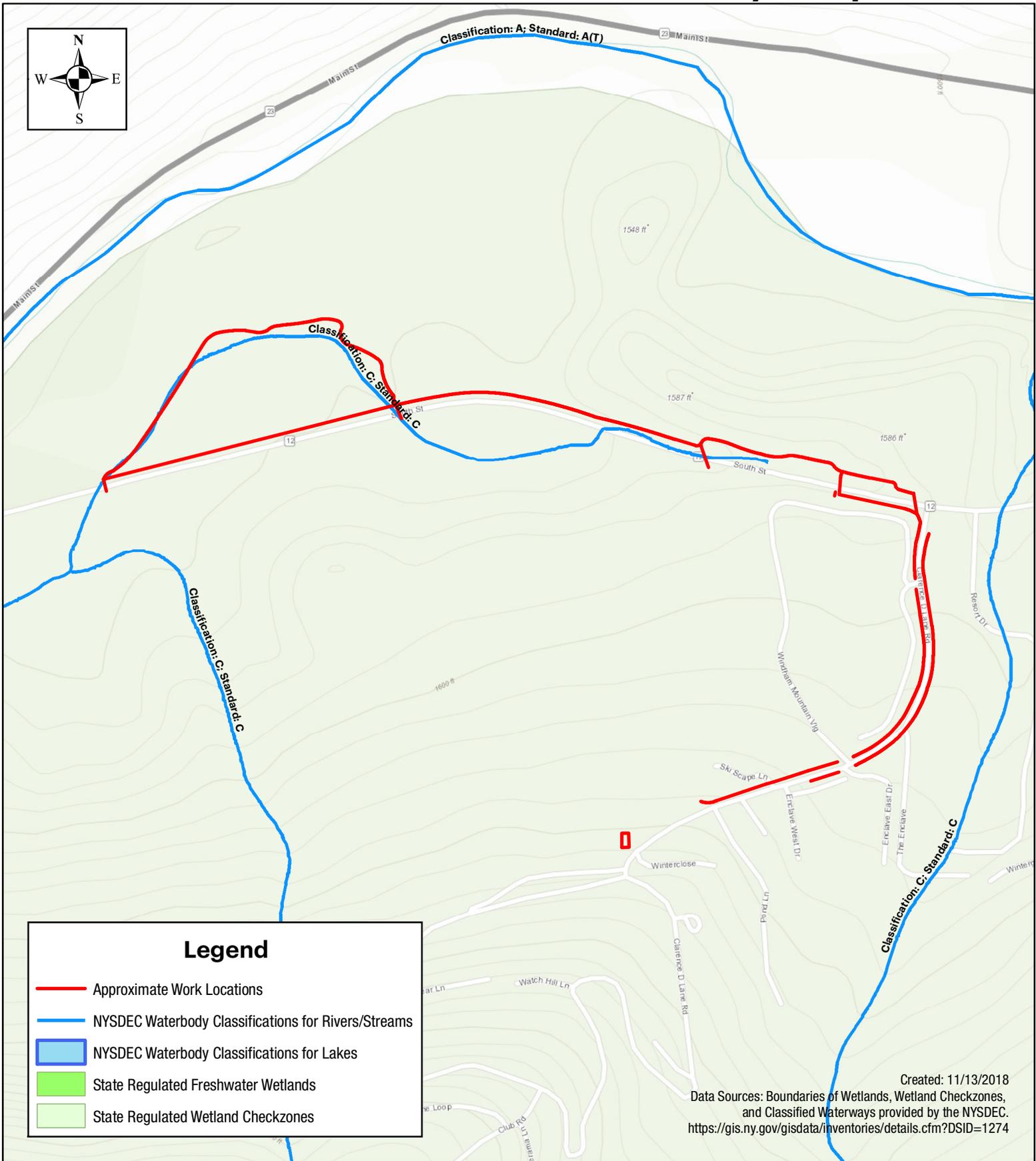
USFWS NWI Map

USFWS National Wetlands Inventory Map



South Street Stormwater Collection System Project
South Street and Clarence D Lane Road
Town of Windham
Greene County, New York

NYSDEC Wetlands and Waterways Map



Legend

- Approximate Work Locations
- NYSDEC Waterbody Classifications for Rivers/Streams
- NYSDEC Waterbody Classifications for Lakes
- State Regulated Freshwater Wetlands
- State Regulated Wetland Checkzones

Created: 11/13/2018
 Data Sources: Boundaries of Wetlands, Wetland Checkzones,
 and Classified Waterways provided by the NYSDEC.
<https://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1274>



South Street Stormwater Collection System Project
South Street and Clarence D Lane Road
Town of Windham
Greene County, New York

Appendix III

Notice of Early Public Review Floodplain Management & Protection of Wetlands Determination



**Governor's Office of
Storm Recovery**

ANDREW M. CUOMO
Governor

**EARLY NOTICE OF A PROPOSED ACTIVITY
IN A 100-YEAR FLOODPLAIN AND WETLANDS**

**SOUTH STREET STORMWATER COLLECTION SYSTEM PROJECT
SOUTH STREET AND CLARENCE D LANE ROAD
TOWN OF WINDHAM, GREENE COUNTY, NEW YORK
November 29, 2018**

To: All Interested Agencies, Groups, and Individuals

This is to give notice that the Governor's Office of Storm Recovery (GOSR), an office of the New York State Housing Trust Fund Corporation (HTFC), has received an application from the Town of Windham to use Community Development Block Grant – Disaster Recovery (CDBG-DR) funding from the NY Rising Community Reconstruction Program to implement the South Street Stormwater Collection System Project (hereinafter, the "Proposed Activity") and is conducting an evaluation as required by Executive Order 11988 and Executive Order 11990 in accordance with U.S. Department of Housing and Urban Renewal (HUD) regulations (24 CFR Part 55). There are three primary purposes for this notice. First, to provide the public an opportunity to express their concerns and share information about the Proposed Activity, including alternative locations outside of the floodplain and wetland. Second, adequate public notice is an important public education tool. The dissemination of information about floodplains and wetlands facilitates and enhances governmental efforts to reduce the risks associated with the occupancy and modification of these special areas. Third, as a matter of fairness, when the government determines it will participate in actions taking place in floodplain and wetland, it must inform those who may be put at greater or continued risk. Funding for the Proposed Activity will be provided by the HUD CDBG-DR program for storm recovery activities in New York State.

The Proposed Activity is necessary to provide solutions to flooding, and more specifically stormwater collection, after flooding overwhelmed culvert infrastructure located on South Street and its feeder streets during Hurricane Irene and Tropical Storm Lee. The creation of a stormwater collection system will reduce future stormwater damage through a system of drainage improvements that include the upgrade and construction of culverts. The proposed improvements will result in the ability to keep this vital corridor open during future storm events, will aid in the mitigation of damage caused by flooding in future storm events, and will be a key component in the overall flood protection plan for the Town of Windham.

The Proposed Activity will improve conveyance of tributary culverts that transport stormwater that originates on the slopes of mountains immediately south of the town via enhancements to existing stormwater collection infrastructure and construction of new culverts beneath South Street. Construction activities will include the replacement of existing undersized culverts with culverts designed to meet 100 year storm event requirements and installation of stabilized drainage swales. The Project will also involve

restoring existing drainage swales, re-grading road shoulders to restore sheet flow, roadway guide railing, and an 1.5” overlay of asphalt on Clarence D Lane Road.

The Proposed Activity will result in direct temporary impacts to approximately 0.2 acre of 100-year floodplain and approximately 0.8 acres of USFWS National Wetland Inventory (NWI) mapped wetlands. The USFWS NWI mapped wetlands that would be impacted are designated as a Class C watercourse by the New York State Department of Environmental Conservation. Impacts to the floodplain and wetlands would be associated with replacement of existing culverts, installation of stabilized drainage swales, armoring drainage swales, and restoring existing drainage swales. The Proposed Activity would reduce future stormwater damage and lessen negative environmental impacts caused by sediment-laden run-off. The Proposed Activity would not adversely affect the beneficial functions and values of the floodplain and wetlands.

Floodplain maps based on the FEMA Flood Insurance Rate Maps and wetlands and waterway maps based on the NWI and New York State Department of Environmental Conservation (NYSDEC) data have been prepared and are available for review with additional information at: <http://www.stormrecovery.ny.gov/environmental-docs>.

Any individual, group, or agency may submit written comments on the Proposed Activity or request further information by contacting Lori A. Shirley, Certifying Officer, GOSR, 38-40 State Street, Hampton Plaza, Albany, NY 12207; email: NYSCDBG_DR_ER@nyshcr.org. Standard office hours are 9:00 AM to 5:00 PM Monday through Friday. For more information, call (518) 474-0755. All comments received by 5pm on **December 14, 2018** will be considered.

Appendix IV

Notice of Early Public Review Affidavit Floodplain Management & Protection of Wetlands Determination

COLUMBIA GREENE MEDIA CORPORATION
LEGAL ADVERTISEMENT AFFIDAVIT
STATE OF NEW YORK
GREENE AND COLUMBIA COUNTY CATSKILL DAILY MAIL
HUDSON REGISTER STAR

CHRISTOPHER CAMACHO
TELECTRONIC ENGINEERING SURVEYING CONSTR
70 PLEASANT HILL RD
P O BOX 37
MOUNTAINVILLE NY 10953

REFERENCE: 118680
20419010 EARLY NOTICE OF A PR

Mary Rogers, being duly sworn says that she is the
billing clerk for COLUMBIA GREENE MEDIA, a
corporation duly organized and existing under the
laws of the State Of New York, and having its
principal place of business in the City of Hudson
New York, and that said corporation is the
publisher of the HUDSON REGISTER STAR, a newspaper
published in the City of Hudson, Columbia County
and the State of New York, and is also publisher
for the CATSKILL DAILY MAIL, a newspaper published
in the City of Catskill, County of Greene and
State of New York and that a LEGAL NOTICE, of
which the annexed is a printed copy, has been
published in said newspapers on the dates below:

Mary Rogers

Mary Rogers Billing Clerk

PUBLISHED ON: 11/29

AD SPACE: 235 LINE
FILED ON: 12/01/18

Sworn to before me this

~~12~~ day of December 2018

Notary Public

TAMMI L. ULLRICH
NOTARY PUBLIC, STATE OF NEW YORK
Registration No. 01UL6096910
Qualified in Columbia County
Commission Expires August 11, 2019

EARLY NOTICE OF A
PROPOSED ACTIVITY
IN A 100-YEAR
FLOODPLAIN AND
WETLANDS SOUTH
STREET STORMWATER
COLLECTION
SYSTEM PROJECT
SOUTH STREET AND
CLARENCE D LANE
ROAD
TOWN OF WINDHAM,
GREENE COUNTY,
NEW YORK

November 29, 2018

To: All Interested
Agencies, Groups, and
Individuals

This is to give notice
that the Governor's Office
of Storm Recovery
(GOSR), an office of
the New York State
Housing Trust Fund
Corporation (HTFC),
has received an application
from the Town
of Windham to use
Community Development
Block Grant -
Disaster Recovery
(CDBG-DR) funding
from the NY Rising
Community Reconstruction
Program to
implement the South
Street Stormwater Collection
System Project
(hereinafter, the "Proposed
Activity") and is
conducting an evaluation
as required by Executive
Order 11988
and Executive Order
11990 in accordance
with U.S. Department
of Housing and Urban
Renewal (HUD) regulations
(24 CFR Part 55).
There are three primary
purposes for this
notice. First, to provide
the public an opportunity
to express their
concerns and share information
about the
Proposed Activity, including
alternative locations
outside of the
floodplain and wetland.
Second, adequate
public notice is
an important public
education tool. The
dissemination of information
about floodplains

and wetlands facilitates and enhances governmental efforts to reduce the risks associated with the occupancy and modification of these special areas. Third, as a matter of fairness, when the government determines it will participate in actions taking place in floodplain and wetland, it must inform those who may be put at greater or continued risk. Funding for the Proposed Activity will be provided by the HUD CDBG-DR program for storm recovery activities in New York State.

The Proposed Activity is necessary to provide solutions to flooding, and more specifically stormwater collection, after flooding overwhelmed culvert infrastructure located on South Street and its feeder streets during Hurricane Irene and Tropical Storm Lee. The creation of a stormwater collection system will reduce future stormwater damage through a system of drainage improvements that include the upgrade and construction of culverts. The proposed improvements will result in the ability to keep this vital corridor open during future storm events, will aid in the mitigation of damage caused by flooding in future storm events, and will be a key component in the overall flood protection plan for the Town of Windham. The Proposed Activity will improve conveyance of tributary culverts that transport stormwater that originates on the slopes of mountains immediately south of the town via enhancements to existing

stormwater collection infrastructure and construction of new culverts beneath South Street. Construction activities will include the replacement of existing undersized culverts with culverts designed to meet 100 year storm event requirements and installation of stabilized drainage swales. The Project will also involve restoring existing drainage swales, regrading road shoulders to restore sheet flow, roadway guide railing, and an 1.5" overlay of asphalt on Clarence D Lane Road.

The Proposed Activity will result in direct temporary impacts to approximately 0.2 acre of 100-year floodplain and approximately 0.8 acres of USFWS National Wetland Inventory (NWI) mapped wetlands. The USFWS NWI mapped wetlands that would be impacted are designated as a Class C watercourse by the New York State Department of Environmental Conservation.

Impacts to the floodplain and wetlands would be associated with replacement of existing culverts, installation of stabilized drainage swales, armoring drainage swales, and restoring existing drainage swales. The Proposed Activity would reduce future stormwater damage and lessen negative environmental impacts caused by sedimentladen run-off. The Proposed Activity would not adversely affect the beneficial functions and values of the floodplain and wetlands. Floodplain maps based on the FEMA Flood Insurance Rate

3

Maps and wetlands
and waterway maps
based on the NWI and
New York State Department
of Environmental
Conservation
(NYSDEC) data have
been prepared and are
available for review
with additional information
at:

http://www.stormrecovery.
ny.gov/environmental-
docs.

Any individual, group,
or agency may submit
written comments on
the Proposed Activity
or request further information
by contacting

Lori A. Shirley, Certifying
Officer, GOSR,
38-40 State Street,
Hampton Plaza, Albany,
NY 12207; email:
NYSDBG_DR_ER@n
yshr.org. Standard
office hours are 9:00
AM to 5:00 PM Monday
through Friday.

For more information,
call (518) 474-0755. All
comments received by
5pm on December 14,
2018 will be considered.

Attachment 5

CAA De Minimis Threshold Analysis
& General Conformity Worksheet

Most construction work would not require a general conformity evaluation, since construction activity in general is included in the SIP estimates, based on past activity levels and assumptions regarding growth in future years. However, there may be projects which are not considered to be included in the SIP if they were beyond the scope of what was anticipated during SIP preparation. If a project is not included in the SIP or there is uncertainty regarding its inclusion, a preliminary evaluation of emissions may be sufficient to demonstrate that the project's emissions would be de minimis under the above general conformity regulations. If that is the case, a detailed conformity analysis and determination would not be required. The following analysis provides a simplified approach to preliminary evaluation, based on construction expenditure.

As a conservative estimate, the analysis below assumes that the emissions intensity per expenditure (tons per dollar) for the project would be similar to the average intensity of the construction sector in the county. This would not be applicable for projects with higher intensity (emissions per dollar) such as large infrastructure projects or intense development projects including substantial excavation and foundations work. Given this and other limitations of this analysis, it is recommended that this approach not be seen as definitive if the results are not clearly de minimis. In such cases, a more refined approach may be needed.

Construction expenditure data is available from the U.S. Census Bureau's 2007 Survey of Business Owners¹. Since the expenditure data represent firms by their location and not necessarily the location where construction takes place, applying this data at the county level may skew the results in some cases. As a broader estimate, we have categorized the expenditure as 'upstate' and 'downstate', reflecting the higher cost of construction in the downstate area. Downstate counties include Bronx, Kings, Nassau, New York, Orange, Queens, Richmond, Rockland, Suffolk, and Westchester. Total construction expenditure in 2007 was approximately 23.1 billion dollars in the upstate area, and 71.8 billion in the downstate area.

Construction emissions by county for the year 2007 were obtained from the New York State Department of Environmental Conservation (NYSDEC)². The fraction each de minimis emissions level represents of total regional emissions was calculated for each pollutant and area (upstate and downstate). The fraction of construction expenditure in each area equivalent to those emission fractions were then calculated, representing de minimis project construction expenditures which would be equivalent to de minimis emissions.

For example, the downstate VOC emissions were 2,401.6 tons per year (tpy), and the relevant de minimis VOC emissions are 50 tpy; therefore –

$$\begin{array}{l}) \text{ de minimis as fraction of total emissions: } 50 \text{ tpy} \div 2,401.6 \text{ tpy} = 2.08\% \\) \text{ de minimis fraction of total expenditure: } 2.08\% \times \$71.8 \text{ bn} = \mathbf{\$1.5 \text{ bn}} \end{array}$$

The total SIP emissions by pollutant and region and the resulting average project expenditure equivalent to de minimis levels are presented in **Table 2**.

¹ U.S. Census Bureau. 2007 Survey of Business Owners, Statistics for All U.S. Firms by Industry, Gender, Ethnicity, and Race for the U.S., States, Metro Areas, Counties, and Places: 2007; SB0700CSA01.

² NYSDEC. 2007 SIP data. (provided by DEC, 2014).

Table 2: Regional SIP Emissions and de minimis Construction Expenditure

Pollutant	Region	2007 SIP Emissions (tpy)	De Minimis (tpy)	Average Construction De Minimis Expenditure (million \$)
VOC	Downstate	2,401.6	50	1,496
	Upstate	1,464.3	50	789
NO _x	Downstate	16,332.1	100	440
	Upstate	9,745.2	100	237
CO	Downstate	17,522.1	100	410
	Upstate	11,746.2	100	197
PM ₁₀	Downstate	1,489.6	100	4,823
PM _{2.5}	Downstate	1,442.3	100	4,981
SO ₂	Downstate	1,251.9	100	5,738
Notes: Only relevant pollutants by area are presented; see Table 3 for details.				

Based on the above analysis, projects with projected construction expenditure substantially lower than the average construction de minimis expenditure would clearly not exceed de minimis emissions levels for general conformity purposes. **Table 3** identifies the minimum de minimis expenditure threshold in each county, based on the lowest level for all nonattainment or attainment maintenance areas within which the county is located. For example, New York County is in 4 nonattainment/maintenance areas; of all the pollutants relevant to those areas, the CO de minimis emissions have the lowest corresponding construction expenditure of 410 million dollars. Standard construction projects in Manhattan with construction expenditure substantially lower than 410 million dollars in New York County would not exceed the de minimis level for any of the relevant pollutants and would not require any further analysis or conformity determination. For projects with components in more than one county, use the lowest threshold for all counties (if that exceeds de minimis levels, this can be refined by reviewing all appropriate pollutants based on the nonattainment/maintenance areas identified in **Table 3**, the appropriate pollutant for the area type from **Table 1**, and the de minimis expenditure for each pollutant from **Table 2**).

Table 3: De Minimis Construction Expenditure Threshold by County

County	Nonattainment / Maintenance Area				Critical Pollutant	De Minimis Expenditure Threshold (million \$)
	Ozone	CO	PM _{2.5}	PM ₁₀		
Upstate:						
Albany	X				NO _x	237
Erie	X				NO _x	237
Genesee	X				NO _x	237
Greene	X				NO _x	237
Livingston	X				NO _x	237
Monroe	X				NO _x	237
Montgomery	X				NO _x	237
Niagara	X				NO _x	237
Onondaga		X			CO	197
Ontario	X				NO _x	237
Orleans	X				NO _x	237
Rensselaer	X				NO _x	237
Saratoga	X				NO _x	237
Schenectady	X				NO _x	237
Schoharie	X				NO _x	237
Wayne	X				NO _x	237
Downstate:						
Bronx	X	X	X		CO	410
Dutchess	X				NO _x	440
Kings	X	X	X		CO	410
Nassau	X	X	X		CO	410
New York	X	X	X	X	CO	410
Orange	X		X		NO _x	440
Putnam	X				NO _x	440
Queens	X	X	X		CO	410
Richmond	X	X	X		CO	410
Rockland	X		X		NO _x	440
Suffolk	X		X		NO _x	440
Westchester	X	X	X		CO	410

GENERAL CONFORMITY WORKSHEET

Air Emissions Information

PROJECT NAME _____

LOCATION (COUNTY, STATE) _____

FOR CALENDAR YEAR _____

Estimated Construction Start Date: _____ End Date: _____

A. ON-ROAD VEHICLES

ACTIVITY	VEHICLE TYPE	# OPERATING	ON / OFF SITE	GVWR PER VEHICLE	TOTAL MILES PER VEHICLE	TOTAL MILES ALL VEHICLES
Example: Demolition	Truck	2	ON	33,000	36	72

B. OFF-ROAD VEHICLES

ACTIVITY	EQUIPMENT TYPE	# OPERATING	HORSE-POWER	GAS/ DIESEL	TOTAL HRS PER VEHICLE	TOTAL HRS ALL VEHICLES
Example: Site Clearing	Backhoe	3	90	Diesel	80	240

Notes:

- If construction occurs over more than one calendar year, provide a separate table for each calendar year.
- For ACTIVITY, include a short description of the type of activity
 - On-Road examples: workers commuting to/from job site, materials deliveries, material movement to site, etc.
 - Off-Road examples: site clearing, demolition, excavation, construction, material placement, etc.
- For EQUIPMENT
 - On-Road examples: auto, pickup truck (gas or diesel), heavy trucks (gas or diesel), etc.
 - Off-road examples: crane, backhoe, dozer, mixer, chain saw, forklift, etc.
- Specify whether the on-road vehicles listed are being used for transportation to/from site, or are used exclusively on the site, as this will affect the emission estimates.
- Specify the Gross Vehicle Weight Ratings for any on-road heavy-duty diesel vehicles, as these are necessary to determine the correct emissions factors.
- For worker commutation, the number of vehicles and miles traveled can be estimated by using any available data to estimate commuting distance, carpool rates, etc., (e.g., Census Journey-to-Work data).

Attachment 6

HUD Environmental Standards Review

SOUTH STREET STORMWATER COLLECTION SYSTEM PROJECT

HUD Environmental Standards Review

Subject Property: South Street and Clarence D Lane Road, Town of Windham, Greene County, New York

Introduction

The purpose of this review is to ensure that the project complies with U.S. Department of Housing and Urban Development (HUD) environmental standards in relation to 24 CFR Part 58.5. Properties that are proposed for use in HUD programs “must be free of hazardous materials, contamination, toxic chemicals and gases, and radioactive substances, where a hazard could affect the health and safety of occupants or conflict with the intended utilization of the property.”

A desktop review was performed to identify whether the Subject Property referenced in the title of this document complies with the following criteria:

- (i) is not Listed on an U.S. Environmental Protection Agency (EPA) Superfund National Priorities or Comprehensive Environmental Response Superfund National Priorities or Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) List, or equivalent State list;
- (ii) is not located within 3,000 feet of a toxic or solid waste landfill site;
- (iii) does not have an underground storage tank;
- (iv) is not known or suspected to be contaminated by toxic chemicals or radioactive materials.

Summary of Findings

Records Review for the Subject Property

The Proposed Project activities are located along or adjacent to South Street and Clarence D Lane Road in the Town of Windham, NY. The Project Area will be known as the Subject Property in this report, unless otherwise noted.

EPA Records:

The Subject Property is not listed on an EPA Superfund National Priorities or CERCLA list or equivalent State list. A review of the EPA Facilities Database provides no indication of past uses of the Subject Property that could have contaminated the Subject Property, or potentially adversely affect the occupants of the Subject Property.

New York State Department of Environmental Conservation (NYSDEC) and County Records:

The Subject Property is not located within 3,000 feet of a toxic or solid waste landfill site. The Subject Property is not listed in the NYSDEC Bulk Storage or Remedial Site Databases. The Subject Property is listed three (3) times in the NYSDEC Spill Incidents Database. All three (3) spills have been closed by the NYSDEC. A spill being closed means that the records and data submitted indicate that the necessary cleanup and removal actions have been completed and no further remedial activities are necessary, or the case was closed for administrative reasons (e.g., multiple reports of a single spill consolidated into a single spill number). If the case has been administratively closed and did not meet NYSDEC closure criteria, then another spill report number would have been identified covering the case. As such, these closed spills are not considered a hazard that could affect the health and safety of occupants or conflict with the intended utilization of the Subject Property.

Records Review for the Surrounding Properties

EPA Records:

There are three (3) EPA-permitted water discharger facilities located within 3,000 feet of the Subject Property. Of the three (3) facilities, two (2) have expired NPDES discharge permits and no violations have

been reported at the facilities; as such, these facilities are not considered a hazard that could affect the health and safety of occupants or conflict with the intended utilization of the Subject Property.

The remaining active NPDES-permitted facility has two (2) violations, one of which has been resolved. This facility, the **Windham Wastewater Treatment Plant**, is located approximately 1,300 feet west and down-gradient from the Subject Property. The second violation is associated with pH and total residual Chlorine exceedances in the facility discharge. While this facility is currently in violation with permit conditions, this facility is located down-gradient from the Subject Property and across the Batavia Kill, which would act as a hydraulic barrier for any releases at the Subject Property. As such, this facility is not considered a hazard that could affect the health and safety of occupants or conflict with the intended utilization of the Subject Property.

NYSDEC Records:

NYSDEC records for spills within 1,000 feet of the Subject Property were reviewed. Six spills have been reported within 1,000 feet of the Subject Property. All six spills have been closed by the NYSDEC. A spill being closed means that the records and data submitted indicate that the necessary cleanup and removal actions have been completed and no further remedial activities are necessary, or the case was closed for administrative reasons (e.g., multiple reports of a single spill consolidated into a single spill number). If the case has been administratively closed and did not meet NYSDEC closure criteria, then another spill report number would have been identified covering the case. As such, these closed spills are not considered a hazard that could affect the health and safety of occupants or conflict with the intended utilization of the Subject Property.

The **NYSDEC Bulk Storage Database** indicates that there are seven (7) bulk storage sites located within 3,000 feet of the Subject Property. Of these seven (7) bulk storage sites, five (5) of them are located approximately 1,000 feet from the Subject Property and across the Batavia Kill, which acts as a hydraulic barrier for any potential releases at these sites. As such, these five (5) sites are not considered a hazard that could affect the health and safety of occupants or conflict with the intended utilization of the Subject Property. The remaining two (2) facilities are described below.

The **Windham Mountain** site (Site No. 4-395404) is a Petroleum Bulk Storage (PBS) site located approximately 633 feet south and upgradient of the Subject Property. Eight aboveground storage tanks and five underground storage tanks are listed for the site. Four aboveground storage tanks are in service, and four aboveground storage tanks and the five underground storage tanks are listed as closed or removed. Due to the distance from the Subject Property and the active regulated status, this Bulk Storage site is not considered a hazard that could affect the health and safety of occupants or conflict with the intended utilization of the Project Site.

The **Peter J. Carini** site (Site No. 4-415502) is a Petroleum Bulk Storage (PBS) site located approximately 1,332 feet southwest and upgradient of the Subject Property. The status of the site is listed as unregulated / closed. One underground storage tank is listed for the site which is indicated as closed / removed. Due to the distance from the Subject Property and the closed status, this Bulk Storage site is not considered a hazard that could affect the health and safety of occupants or conflict with the intended utilization of the Project Site.

According to the **NYSDEC Environmental Site Remediation Database**, there are no environmental remediation sites located within 3,000 feet of the Subject Property

In Summary: Based on a review of available environmental records for the Subject Property and surrounding area, the Subject Property is unlikely to contain hazardous materials, contamination, toxic chemicals and gases, and radioactive substances, where a hazard could affect the health and safety of

occupants or conflict with the intended utilization of the property. As a result, the funded activities do not involve actions that would involve potential recognized environmental conditions/ contamination. Therefore, a Phase I Environmental Site Assessment (ESA) or Phase II Investigation is not warranted. As such, no further action is required at this time. Maps, EPA reports, and NYSDEC reports are provided at the end of this report.

Data Sources:

Tectonic has reviewed the following sources to make the above determinations: Hazardous Waste records contained in the RCRA, the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) for sites listed under the CERCLA (otherwise known as Superfund), EPA's Toxic Release Inventory Database (TRI), and the EPA Radiation Information Database (RADInfo).

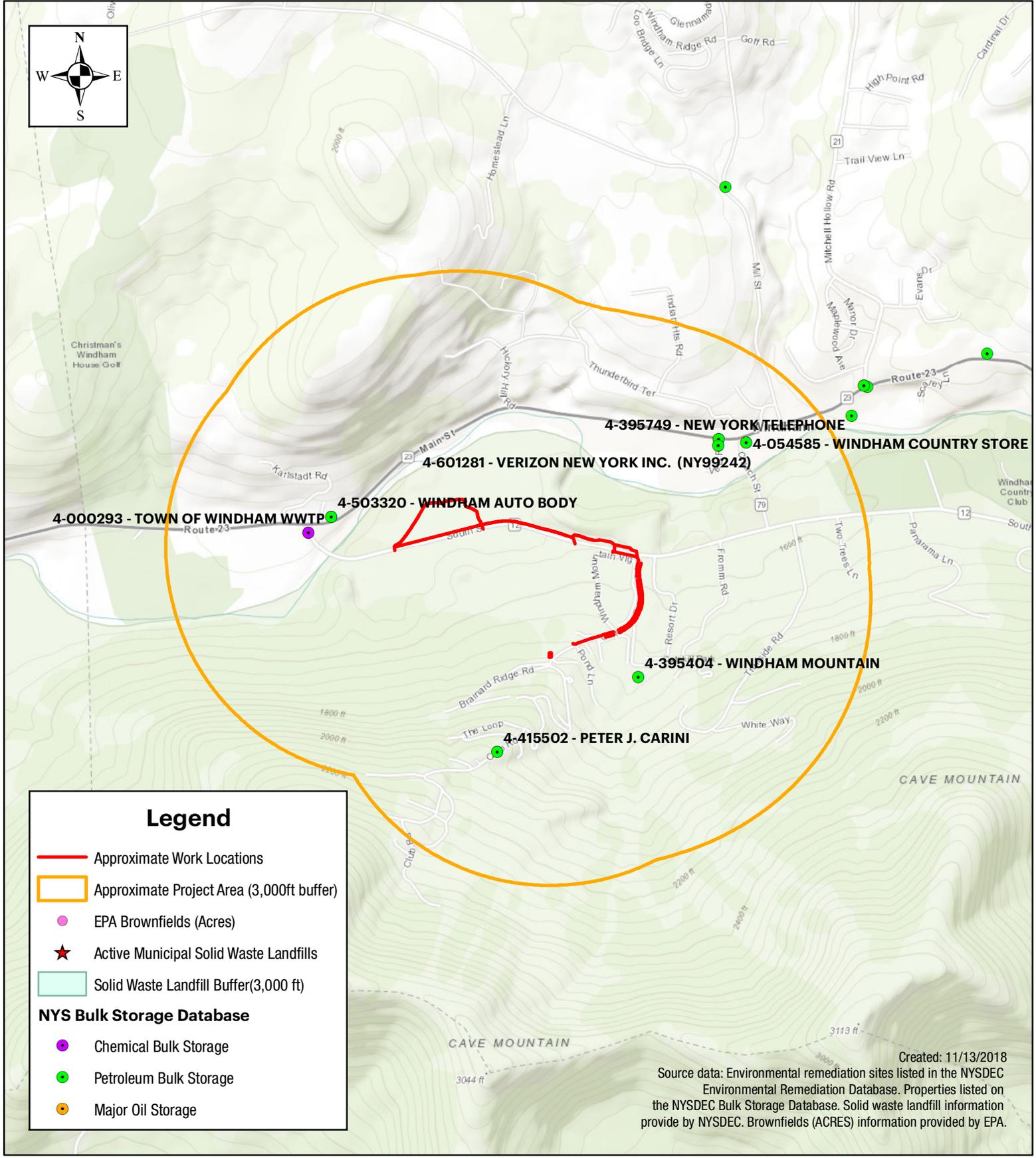
Tectonic reviewed the NYSDEC Remedial Site Database to assess whether the site is registered as a NYS Superfund or Environmental Restoration site. The NYSDEC Environmental Remediation Database includes records of sites that are part of the NYS Superfund, Brownfield Cleanup, Environmental Restoration, and Voluntary Cleanup Programs. The Database also includes a Registry of Inactive Hazardous Waste Disposal Sites.

The NYSDEC Bulk Storage Database was reviewed for records of facilities that are or have been regulated according to one of the Bulk Storage Programs - Chemical Bulk Storage or Major Oil Facility. The NYSDEC Spill Incident Database was used to determine the potential effects of spills on or near the Subject Property. A desktop review of ArcGIS was used in conjunction with a map of active municipal landfills (provided by the NYSDEC) in determining whether there was a landfill within 3,000 feet of the Subject Property.

Maps

HUD Environmental Report Maps
EPA NEPA Assist Map

HUD Environmental Report Maps



Legend

- Approximate Work Locations
- Approximate Project Area (3,000ft buffer)
- EPA Brownfields (Acres)
- ★ Active Municipal Solid Waste Landfills
- Solid Waste Landfill Buffer(3,000 ft)

NYS Bulk Storage Database

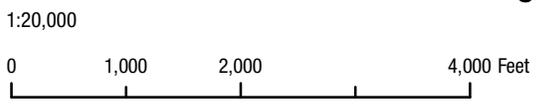
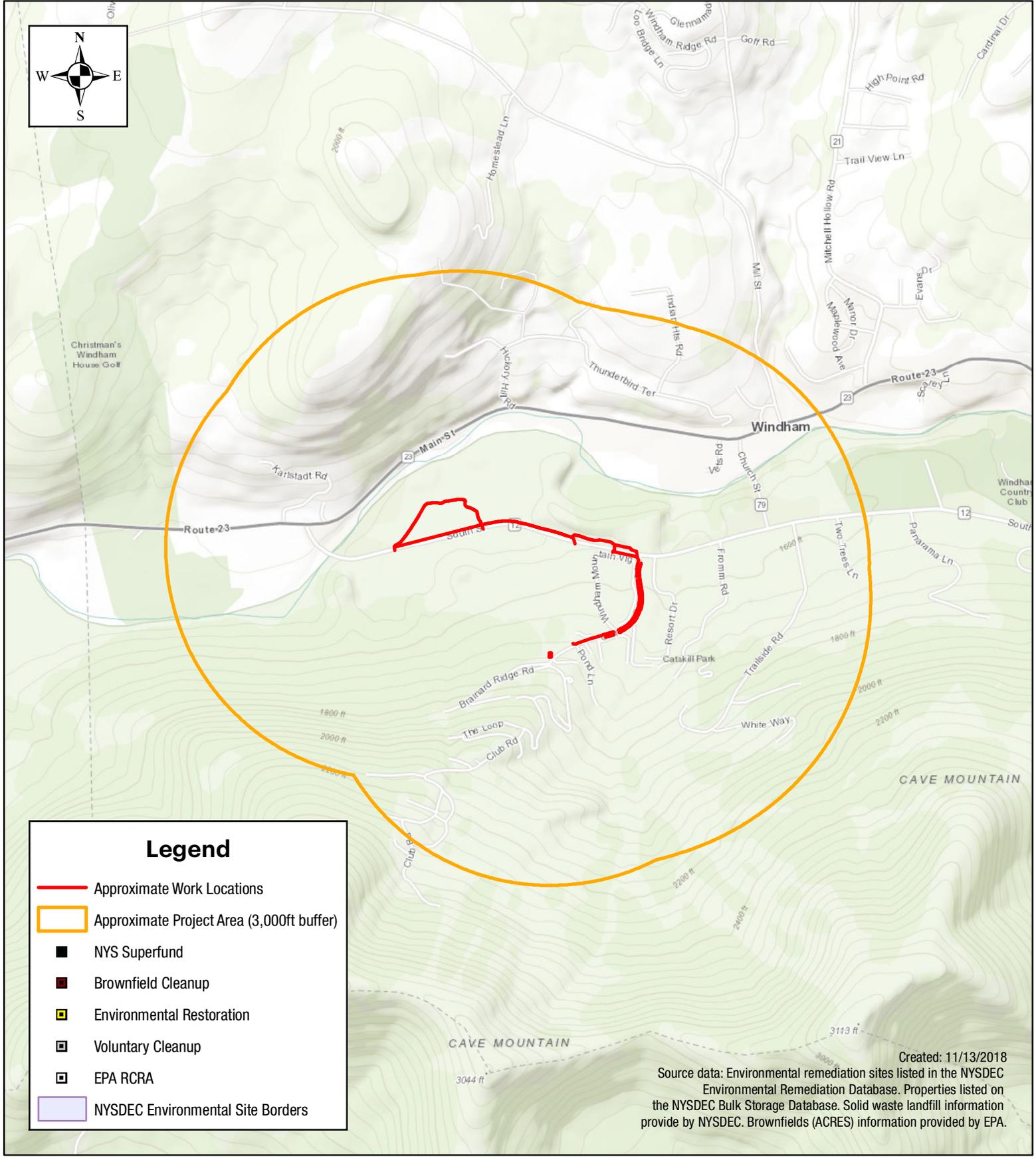
- Chemical Bulk Storage
- Petroleum Bulk Storage
- Major Oil Storage

Created: 11/13/2018
 Source data: Environmental remediation sites listed in the NYSDEC Environmental Remediation Database. Properties listed on the NYSDEC Bulk Storage Database. Solid waste landfill information provide by NYSDEC. Brownfields (ACRES) information provided by EPA.



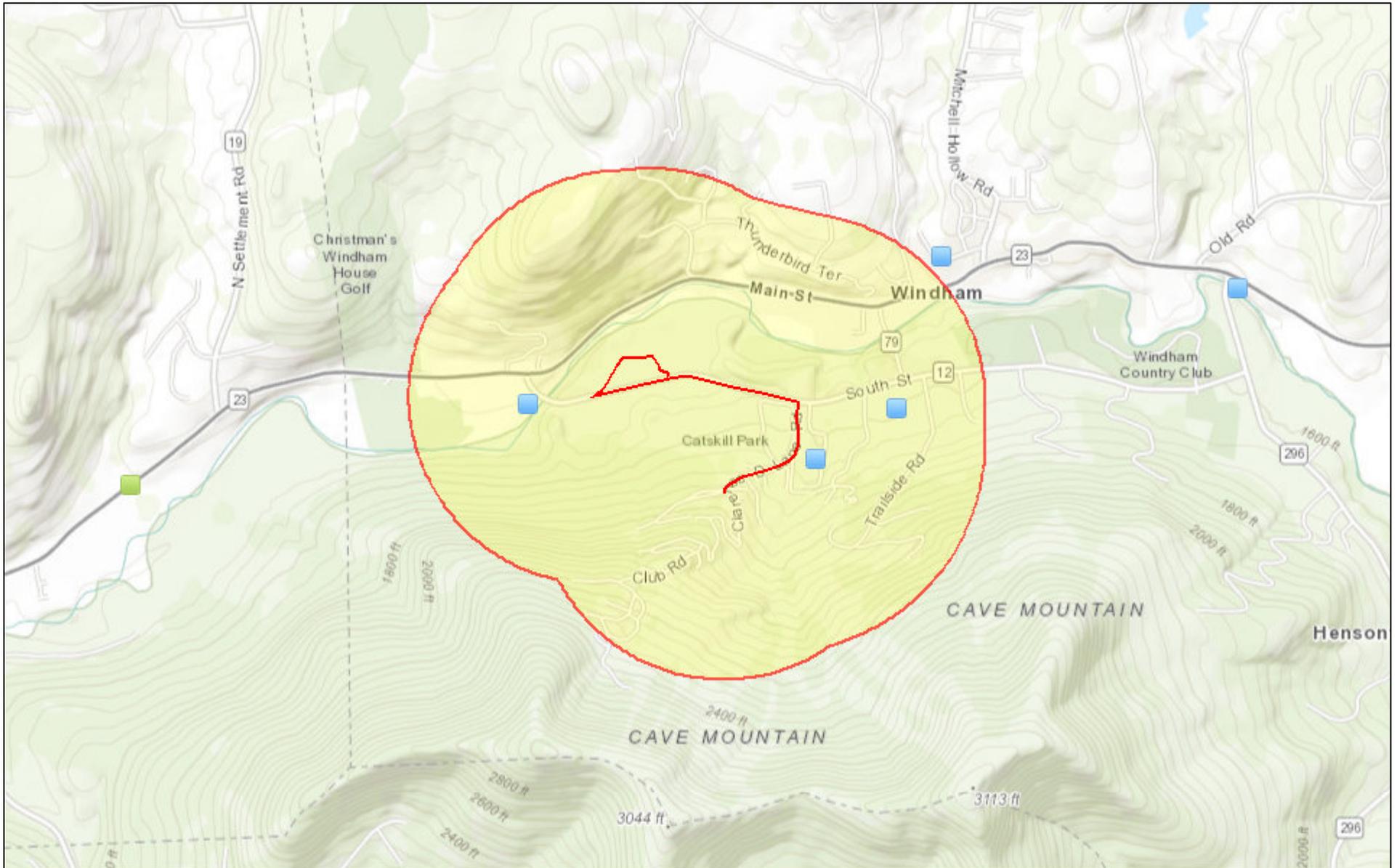
South Street Stormwater Collection System Project
South Street and Clarence D Lane Road
Town of Windham
Greene County, New York

HUD Environmental Report Maps



South Street Stormwater Collection System Project
South Street and Clarence D Lane Road
Town of Windham
Greene County, New York

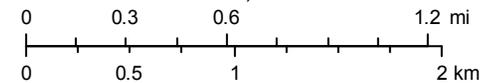
South Street Stormwater Collection System Project



December 19, 2018

-  RCRAINFO (single)
-  Buffer Area
-  PCS (single)
-  Project 1

1:36,112



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri

Environmental Reports

U.S. EPA-permitted Facilities located on or within 3,000 feet of the Subject Property and in non-compliance with the EPA permit requirements

Detailed Facility Report

Facility Summary

WINDHAM WASTEWATER TREATMENT PLANT
SOUTH ST @ CO RTE 12 & ST RTE 23, WINDHAM, NY
12496 ⓘ

FRS (Facility Registry Service) ID: 110019052585
 EPA Region: 02
 Latitude: 42.302929
 Longitude: -74.272844
 Locational Data Source: FIS
 Industry: Sewerage Systems
 Indian Country: N

Enforcement and Compliance Summary ⚠

Statute	Insp (5 Years)	Date of Last Inspection	Compliance Status	Qtrs with NC (Noncompliance) (of 12)	Qtrs with Significant Violation	Informal Enforcement Actions (5 years)	Formal Enforcement Actions (5 years)	Penalties from Formal Enforcement Actions (5 years)	EPA Cases (5 years)	Penalties from EPA Cases (5 years)
CWA	4	02/27/2018	Noncompliance	2	0	--	--	--	--	--

Regulatory Information

Clean Air Act (CAA): No Information
 Clean Water Act (CWA): Minor, Permit Effective (NY0262935)
 Resource Conservation and Recovery Act (RCRA): No Information
 Safe Drinking Water Act (SDWA): No Information

Other Regulatory Reports

Air Emissions Inventory (EIS): No Information
 Greenhouse Gas Emissions (eGGRT): No Information
 Toxic Releases (TRI): No Information
 Compliance and Emissions Data Reporting Interface (CEDRI): No Information

Facility/System Characteristics

Facility/System Characteristics

System	Statute	Identifier	Universe	Status	Area	Permit Expiration Date	Indian Country	Latitude	Longitude
FRS		110019052585					N	42.302929	-74.272844
ICP	CWA	NY0262935	Minor: NPDES Individual Permit	Effective	POTW	08/31/2022	N	42.303056	-74.280833

Facility Address

System	Statute	Identifier	Facility Name	Facility Address
FRS		110019052585	WINDHAM WASTEWATER TREATMENT PLANT	SOUTH ST @ CO RTE 12 & ST RTE 23, WINDHAM, NY 12496
ICP	CWA	NY0262935	WINDHAM (T) WWTF	SOUTH STREET, WINDHAM, NY 12496

Facility SIC (Standard Industrial Classification) Codes

System	Identifier	SIC Code	SIC Desc
ICP	NY0262935	4952	Sewerage Systems

Facility NAICS (North American Industry Classification System) Codes

System	Identifier	NAICS Code	NAICS Description
--------	------------	------------	-------------------

System	Identifier	NAICS Code	NAICS Description
No data records returned			

Facility Tribe Information

Reservation Name	Tribe Name	EPA Tribal ID	Distance to Tribe (miles)
No data records returned			

Enforcement and Compliance

Compliance Monitoring History (5 years)

Statute	Source ID	System	Inspection Type	Lead Agency	Date	Finding
CWA	NY0262935	ICP	Evaluation	State	02/27/2018	
CWA	NY0262935	ICP	Evaluation	State	01/20/2017	
CWA	NY0262935	ICP	Evaluation	State	03/29/2016	
CWA	NY0262935	ICP	Evaluation	State	03/19/2014	

Entries in italics are not considered inspections in official counts.

Compliance Summary Data

Statute	Source ID	Current SNC (Significant Noncompliance)/HPV (High Priority Violation)	Current As Of	Qtrs with NC (Noncompliance) (of 12)	Data Last Refreshed
CWA	NY0262935	No	09/30/2018	2	12/14/2018

Three-Year Compliance History by Quarter

Statute	Program/Pollutant/Violation Type	QTR 1	QTR 2	QTR 3	QTR 4	QTR 5	QTR 6	QTR 7	QTR 8	QTR 9	QTR 10	QTR 11	QTR 12	QTR 13+ 	
CWA	Source ID: NY0262935	10/01-12/31/15	01/01-03/31/16	04/01-06/30/16	07/01-09/30/16	10/01-12/31/16	01/01-03/31/17	04/01-06/30/17	07/01-09/30/17	10/01-12/31/17	01/01-03/31/18	04/01-06/30/18	07/01-09/30/18	10/01-12/14/18	
Facility-Level Status		No Violation	Violation	No Violation	No Violation	No Violation	No Violation	No Violation	No Violation	Violation					
SNC (Significant Noncompliance)/RNC (Reportable Non-Compliance) History					R(Resolved)	R(Resolved)	VI(NonRNCV)								
	Pollutant	Disch Point	Freq												
CWA	Chlorine, total residual	001	Neither												25%
CWA	pH	001	Neither												LIMIT VIOL
Permit Schedule Violations															
CWA	Schedule Event achieved late but reported: Self Monitoring Annual Certification														03/28/2017-03/30/2017

Informal Enforcement Actions (5 Years)

Statute	System	Source ID	Type of Action	Lead Agency	Date
No data records returned					

Formal Enforcement Actions (5 Years)

Statute	System	Law/Section	Source ID	Action Type	Case No.	Lead Agency	Case Name	Issued/Filed Date	Settlements/Actions	Settlement/Action Date	Federal Penalty	State/Local Penalty	SEP Cost	Comp Action Cost
No data records returned														

Environmental Conditions

Water Quality

Permit ID	Combined Sewer System?	Number of CSO (Combined Sewer Overflow) Outfalls	12-Digit WBD (Watershed Boundary Dataset) HUC	WBD (Watershed Boundary Dataset) Subwatershed Name (RAD/Reach Address Database)	State Waterbody Name (CIS/Integrated Compliance Information System)	Impaired Waters	Impaired Class	Causes of Impairment(s) by Group(s)	Watershed with ESA (Endangered Species Act)-listed Aquatic Species?
NY0262935			020200050201	Headwaters Batavia Kill	BATAVIA KILL	303(D) Listed	5	NUISANCE EXOTIC SPECIES SEDIMENT	No

Waterbody Designated Uses

Reach Code	Waterbody Name	Exceptional Use	Recreational Use	Aquatic Life Use	Shellfish Use	Beach Closure Within Last Year	Beach Closure Within Last Two Years
02020605000190	Batavia Kill	No	No	No	No	No	No

Air Quality

Nonattainment Area?	Pollutant(s)	Applicable Nonattainment Standard(s)
Yes	Ozone	8-Hour Ozone (1997)
No	Lead	
No	Particulate Matter	
No	Carbon Monoxide	
No	Nitrogen Dioxide	
No	Sulfur Dioxide	

Pollutants

Toxics Release Inventory History of Reported Chemicals Released in Pounds per Year at Site i

TRI Facility ID	Year	Total Air Emissions	Surface Water Discharges	Off-Site Transfers to POTWs (Publicly Owned Treatment Works)	Underground Injections	Releases to Land	Total On-site Releases	Total Off-site Releases
No data records returned								

Toxics Release Inventory Total Releases and Transfers in Pounds by Chemical and Year i

Chemical Name
No data records returned

Demographic Profile

Demographic Profile of Surrounding Area (3 Miles)

This section provides demographic information regarding the community surrounding the facility. ECHO compliance data alone are not sufficient to determine whether violations at a particular facility had negative impacts on public health or the environment. Statistics are based upon the 2010 US Census and American Community Survey data, and are accurate to the extent that the facility latitude and longitude listed below are correct. The latitude and longitude are obtained from the EPA Locational Reference Table (LRT) when available.

Radius of Area:	3	Land Area:	100%	Households in Area:	634
Center Latitude:	42.302929	Water Area:	0%	Housing Units in Area:	1,921
Center Longitude:	-74.272844	Population Density:	49/sq.mi.	Households on Public Assistance:	8
Total Persons:	1,360	Percent Minority:	7%	Persons Below Poverty Level:	392

Race Breakdown	Persons (%)	Age Breakdown	Persons (%)
White:	1,313 (97%)	Child 5 years and younger:	45 (3%)
African-American:	5 (0%)	Minors 17 years and younger:	241 (18%)
Hispanic-Origin:	61 (4%)	Adults 18 years and older:	1,119 (82%)
Asian/Pacific Islander:	7 (1%)	Seniors 65 years and older:	330 (24%)
American Indian:	5 (0%)		
Other/Multiracial:	30 (2%)		

Education Level (Persons 25 & older)	Persons (%)	Income Breakdown	Households (%)
Less than 9th Grade:	27 (2.91%)	Less than \$15,000:	91 (16.98%)
9th through 12th Grade:	74 (7.97%)	\$15,000 - \$25,000:	52 (9.7%)
High School Diploma:	367 (39.5%)	\$25,000 - \$50,000:	125 (23.32%)
Some College/2-yr:	265 (28.53%)	\$50,000 - \$75,000:	154 (28.73%)
B.S./B.A. or More:	196 (21.1%)	Greater than \$75,000:	114 (21.27%)

Environmental Reports

NYSDEC Reports for Spills, Environmental
Remediation Sites, or Bulk Storage Sites located
on, or within close proximity to, the Subject Property



**Department of
Environmental
Conservation**

Spill Incidents Database Search Results

Record Count: 5 Rows: 1 to 5

Export XLS

Export CSV

	Spill Number	Date Spill Reported	Spill Name	County	City/Town	Address
1.	0314234	03/29/2004	VIGANI RES	Greene	WINDHAM	366 SOUTH ST
2.	0512009	01/18/2006	SKI WINDHAM MAINCARE	Greene	WINDHAM	SOUTH ST
3.	0707631	10/11/2007	DINER SOUTH ST	Greene	WINDHAM	134 SOUTH ST
4.	1107328	09/10/2011	RUF RES SOUTH ST HURRICANE IRENE FLOOD	Greene	WINDHAM	355 SOUTH ST (CO RTE 12)
5.	1609143	12/30/2016	BRAINARD RIDGE ASSOC SOUTH ST	Greene	WINDHAM	339 SOUTH ST

Refine This Search



Department of
Environmental
Conservation

Spill Incidents Database Search Results

Record Count: 14 Rows: 1 to 14

[Export XLS](#)

[Export CSV](#)

	Spill Number	Date Spill Reported	Spill Name	County	City/Town	Address
1.	8703258	07/21/1987	WINDHAM ASHLAND JEWETT SCHOOL	Greene	WINDHAM	MAIN ST (RT 23) RT 23 @ SCHOOL
2.	9112372	03/04/1991	WINDHAM ASHLAND JEWETT SCHOOL RT 23 BUS GARAGE	Greene	WINDHAM	BUS GARAGE (MAIN ST?)
3.	9209158	11/06/1992	WINDHAM ASHLAND JEWETT SCHOOL	Greene	WINDHAM	MAIN ST (RT 23)
4.	9405067	07/13/1994	WINDHAM HWY DEPT MAIN ST	Greene	WINDHAM	MAIN ST
5.	9615043	03/30/1997	WINDHAM COUNTRY STORE	Greene	WINDHAM	MAIN ST
6.	0100570	04/16/2001	ANDRUS RES MAIN ST	Greene	WINDHAM	5406 MAIN ST (RT 23?)
7.	0202973	06/20/2002	MAIN ST	Greene	WINDHAM	5428 MAIN ST
8.	0404972	08/05/2004	WINDHAM HARDWARE MAIN ST	Greene	WINDHAM	5390 MAIN ST 5373 RT 23 (MAIN ST @ CHURCH ST?)
9.	0411617	01/30/2005	WINDHAM COUNTRY STORE RT 23	Greene	WINDHAM	ST @ CHURCH ST?)
10.	0607083	09/20/2006	LEAKING TRUCK RT 23	Greene	WINDHAM	RT 23/MAIN ST
11.	0612822	02/27/2007	MULBURY RES MAIN ST	Greene	WINDHAM	5370 MAIN ST
12.	0705168	08/06/2007	WINDHAM ASHLAND JEWETT SCHOOL RT 23 (MAIN ST)	Greene	WINDHAM	RT 23 (MAIN ST)
13.	1106401	08/30/2011	WINDHAM METHODIST CHURCH PARSONAGE FLOOD	Greene	WINDHAM	5304 MAIN ST HURRICANE IRENE FLOOD CREEK 5351 MAIN ST (RT 23) HURRICANE IRENE FLOOD CREEK
14.	1106558	08/31/2011	ZEREGA RES MAIN ST RT 23 HURRICANE IRENE FLOOD	Greene	WINDHAM	23) HURRICANE IRENE FLOOD CREEK

[Refine This Search](#)



**Department of
Environmental
Conservation**

Spill Incidents Database Search Results

Record Count: 1 Rows: 1 to 1

[Export XLS](#)

[Export CSV](#)

	Spill Number	Date Spill Reported	Spill Name	County	City/Town	Address
1.	<input type="text" value="1006658"/>	09/20/2010	CIAMPA RES POND LN	Greene	WINDHAM	44 POND LN

[Refine This Search](#)



**Department of
Environmental
Conservation**

Spill Incidents Database Search Results

Record Count: 2 Rows: 1 to 2

Export XLS

Export CSV

	Spill Number	Date Spill Reported	Spill Name	County City/Town	Address
1.	1406959	10/02/2014	WHISTLER PARTNERS PROPERTY	Greene WINDHAM	19 RESORT DR - 15 WHISPER CREEK COURT
2.	1610691	02/28/2017	WINDHAM MOUNTAIN	Greene WINDHAM	19 RESORT DRIVE

Refine This Search



**Department of
Environmental
Conservation**

Bulk Storage Database Search Details

[First Site](#)
[Previous Site](#)
[Next Site](#)
[Last Site](#)

Facility Information

Site No.: 4-395404

Status: Active

Expiration Date: 07/20/2022

Site Type: PBS

Facility Type: Other

Site Name: WINDHAM MOUNTAIN

Address: 33 C.D. LANE ROAD

Locality: WINDHAM

State: NY

Zipcode: 12496

County: Greene

Facility(Property) Owner(s) Information

Facility Owner: SKI WINDHAM OPER. CORP.

C.D. LANE RD. . WINDHAM, NY. 12496

Mail Contact: SKI WINDHAM OPERATING CORP.

P.O. BOX 459 . WINDHAM, NY. 12496

Facility Operator

Facility Operator: SKI WINDHAM

Tank Information

13 Tanks Found

Tank No	Tank Location	Status	Capacity (Gal.)
1993	Aboveground on saddles, legs, stilts, rack or cradle	In Service	275
1BG	Underground including vaulted with no access for inspection	Closed - Removed	10000
2BG	Underground including vaulted with no access for inspection	Closed - Removed	3000
3AG	Aboveground on saddles, legs, stilts, rack or cradle	Closed - Removed	3000
4	Underground including vaulted with no access for inspection	Closed Prior to 03/1991	1000
4AG	Aboveground on saddles, legs, stilts, rack or cradle	In Service	1000
5	Underground including vaulted with no	Closed -	275

	access for inspection	Removed	
5AG	Aboveground on saddles, legs, stilts, rack or cradle	Closed - Removed	1000
6AG	Aboveground on saddles, legs, stilts, rack or cradle	In Service	300
7AG	Aboveground - in contact with impervious barrier	In Service	1000
8AG	Aboveground on saddles, legs, stilts, rack or cradle	Closed - Removed	2000
9AG	Aboveground on saddles, legs, stilts, rack or cradle	Closed - Removed	275
BL	Underground including vaulted with no access for inspection	Closed Prior to 03/1991	4000

[Return To Results](#)[Refine This Search](#)



**Department of
Environmental
Conservation**

Bulk Storage Database Search Details

[First Site](#)
[Previous Site](#)
[Next Site](#)
[Last Site](#)

Facility Information

Site No.: 4-415502

Status: Unregulated/Closed

Expiration Date: 11/16/2002

Site Type: PBS

Facility Type: Private Residence

Site Name: PETER J. CARINI

Address: CLARENCE LANE RD 90 CLUB RD

Locality: WINDHAM

State: NY

Zipcode: 12496

County: Greene

Facility(Property) Owner(s) Information

Facility Owner: PETER J. CARINI

THE PJC GROUP, 4 GREENWICH OFFICE PARK . GREENWICH , CT. 06830

Mail Contact: THE PJC GROUP

4 GREENWICH OFFICE PARK . GREENWICH , CT. 06831

Facility Operator

Facility Operator: PETER J. CARINI

Tank Information

1 Tanks Found

Tank No	Tank Location	Status	Capacity (Gal.)
1	Underground including vaulted with no access for inspection	Closed - Removed	2000

[Refine This Search](#)
[Return To Results](#)

Attachment 7

Endangered Species Consultation Documents

NHP Documentation (11/9/2018)

USFWS Consultation Acknowledgement (11/9/2018)

USFWS Consultation Letter (10/31/2018)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Fish and Wildlife, New York Natural Heritage Program
625 Broadway, Fifth Floor, Albany, NY 12233-4757
P: (518) 402-8935 | F: (518) 402-8925
www.dec.ny.gov

November 9, 2018

Alicia Shultz
Governor's Office of Storm Recovery
38-40 State Street
Albany, NY 12207

Re: South Street Stormwater Collection System Project
County: Greene Town/City: Windham

Dear Ms. Shultz:

In response to your recent request, we have reviewed the New York Natural Heritage Program database with respect to the above project.

We have no records of rare or state-listed animals or plants, or significant natural communities at the project site or in its immediate vicinity.

The absence of data does not necessarily mean that rare or state-listed species, significant natural communities, or other significant habitats do not exist on or adjacent to the proposed site. Rather, our files currently do not contain information that indicates their presence. For most sites, comprehensive field surveys have not been conducted. We cannot provide a definitive statement on the presence or absence of all rare or state-listed species or significant natural communities. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other resources may be required to fully assess impacts on biological resources.

This response applies only to known occurrences of rare or state-listed animals and plants, significant natural communities, and other significant habitats maintained in the Natural Heritage database. Your project may require additional review or permits; for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the NYS DEC Region 4 Office, Division of Environmental Permits, as listed at dep.r4@dec.ny.gov.

Sincerely,



Nicholas Conrad
Information Resources Coordinator
New York Natural Heritage Program

1295



Department of
Environmental
Conservation



United States Department of the Interior



FISH AND WILDLIFE SERVICE

New York Field Office

3817 Luker Road

Cortland, NY 13045

Phone: (607) 753-9334 Fax: (607) 753-9699

<http://www.fws.gov/northeast/nyfo>

To: Alicia Shultz

Date: Nov 7, 2018

USFWS File No: 19TA0136

Regarding your: Letter Fax Email

Dated: Oct 31, 2018

For project: South Street Stormwater Collection System

Located: South Street and Clarence D Lane Road

In Town/County: Town of Windham, Greene County

Pursuant to the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*), the U.S. Fish and Wildlife Service:

Acknowledges receipt of your "no effect" and/or no impact determination. No further ESA coordination or consultation is required.

Acknowledges receipt of your determination. Please provide a copy of your determination and supporting materials to any involved Federal agency for their final ESA determination.

Is taking no action pursuant to ESA or any legislation at this time, but would like to be kept informed of project developments.

As a reminder, until the proposed project is complete, we recommend that you check our website (<http://www.fws.gov/northeast/nyfo/es/section7.htm>) every 90 days from the date of this letter to ensure that listed species presence/absence information for the proposed project is current. Should project plans change or if additional information on listed or proposed species or critical habitat becomes available, this determination may be reconsidered.

USFWS Contact(s): 

Supervisor:  Date: 11/8/18



**Governor's Office of
Storm Recovery**

ANDREW M. CUOMO
Governor

October 31, 2018

Robyn A. Niver
Endangered Species Biologist,
U.S. Fish & Wildlife Service
New York Field Office
3817 Luker Rd.
Cortland, NY 13045

VIA EMAIL: robyn_niver@fws.gov

**Re: ESA/MBTA/BGEPA consultation for the South Street Stormwater Collection System Project,
South Street and Clarence D Lane Road, Town of Windham, Greene County, New York**

Dear Ms. Niver:

The Governor's Office of Storm Recovery (GOSR), operating under the auspices of the New York State Homes and Community Renewal's (NYSHCR) Housing Trust Fund Corporation, was established to aid the statewide recovery of disaster-affected communities in New York State. GOSR is administering a U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant for Disaster Recovery (CDBG-DR), including the New York Rising Community Reconstruction (NYRCR) Program. The environmental review for projects funded under the NYRCR Program are processed on a case by case basis in accordance with the United States Fish and Wildlife Service (USFWS) New York Field Office's online project review process.

The purpose of this letter is to provide the USFWS New York Field Office notice of the proposed project and to document compliance with Section 7 of the Endangered Species Act (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), as well as the Migratory Bird Treaty Act of 1918 (MBTA) (40 Stat. 755, as amended; 16 U.S.C. 703-712), and the Bald and Golden Eagle Protection Act of 1940 (BGEPA) (54 Stat. 240, as amended; 16 U.S.C. 668-668c). As discussed below, we have reviewed the project and found that the proposed project does not jeopardize the continued existence of ESA species or destroy or adversely modify their critical habitat. We are submitting project materials to document that GOSR has made a "**No Effect**" determination for the project described herein. If the USFWS does not respond within 30 days from submittal of this form, then GOSR may presume that its determination for the project is informed by the best available information and its project responsibilities under Section 7 of the ESA have been fulfilled.

If the USFWS does not respond within 30 days from submittal of this form, then GOSR may presume that its determination for the project is informed by the best available information and its project responsibilities under Section 7 of the ESA have been fulfilled.

1.0 PROJECT DESCRIPTION

The Town of Windham is requesting CDBG-DR funding for the South Street Stormwater Collection System Project (Project) which is located on South Street and Clarence D Lane Road, Town of Windham, Greene County, New York. The Project will involve stormwater collection system improvements to mitigate future flood damage and increase safety and access for residents and businesses within the town. The Project will improve conveyance of tributary culverts that transport stormwater that originates on the slopes of mountains immediately south of the town. The proposed improvements will consist of enhancements to existing stormwater collection infrastructure and construction of new culverts beneath South Street. It is not anticipated that the Project will involve tree removal. Project location maps are included in **Appendix A** and Project site plans are included in **Appendix B**.

The Town of Windham is situated in a valley between two mountain ridges with steep slopes. The Town is traversed east-to-west by Batavia Kill and several small tributaries that are prone to flood during significant rain events. During Hurricane Irene and Tropical Storm Lee, excessive amounts of rainfall caused these tributaries to flood and exacerbated flooding of Batavia Kill. This flooding overwhelmed culvert infrastructure on South Street and its feeder streets. This flooding caused heavy damage to homes and businesses along the South Street corridor and isolated residents from critical emergency services, which are coordinated in Hensonville, the town's seat of government, which is accessible primarily via South Street.

Following the storms, during the NY Rising Community Reconstruction (NYRCR) planning process, the Town resolved to address solutions to flooding, and more specifically stormwater collection systems. The creation of a stormwater collection system will reduce future stormwater damage through a system of drainage improvements that include the upgrade and construction of culverts. The proposed improvements will result in the ability to keep this vital corridor open during future storm events. The Project will help reduce environmental damage caused by the introduction of large amounts of sediment into Batavia Kill. The proposed flood prevention improvements will aid in the mitigation of damage caused by flooding in future storm events, as well as being a key component in the overall flood protection plan for the Town of Windham.

Construction activities will include the replacement of existing undersized culverts with properly sized culverts and installation of stabilized drainage swales. Replacement culvert materials would include precast concrete box culverts and smooth interior corrugated high density polyethylene pipe (HDPE) culverts fitted with reinforced concrete headwalls, wingwalls, and trash racks. Other stormwater structures would include precast concrete stormwater manholes and flared end sections for culverts (either reinforced concrete or HDPE) and a rock spillway. The bottoms and sides of the stabilized drainage swales would be armored using either riprap stone or grass-lined turf reinforcement mat geosynthetic materials. The Project will also involve restoring existing drainage swales, re-grading road shoulders to restore sheet flow, roadway guide railing and the overlay of asphalt on Clarence D Lane Road. All improvements will be designed and constructed to improve resilience in future storm events.

The Project, as envisioned by the Town of Windham, will ensure that town residents have dependable access to emergency response services during future storm events, safely convey stormwater, and lessen negative environmental impacts caused by sediment-laden run-off from Batavia Kill's tributaries. There will be extensive ground disturbance involving the construction of upgraded and new culverts, removal of old infrastructure, replacement of existing infrastructure, and disturbance of road asphalt and sub-bases.

2.0 ENDANGERED SPECIES ACT, MIGRATORY BIRD TREATY ACT, AND BALD AND GOLDEN EAGLE PROTECTION ACT PROTECTED SPECIES

The USFWS New York Ecological Services Field Office was contacted through the Information, Planning, and Conservation System (IPaC) regarding the potential presence of species under the jurisdiction of the USFWS within the Project area. According to the USFWS Official Species List, there is one (1) federally threatened species (northern long-eared bat) that might potentially occur at the proposed Project location (**Appendix C**). According to the USFWS Official Species List, there is no critical habitat for federally protected threatened and endangered species in the Project area.

The IPaC Resource List (included in **Appendix D**) obtained from the USFWS for the Project area indicates that there are migratory bird species of concern protected under the Migratory Bird Treaty Act and/or the Bald and Golden Eagle Protection Act that could potentially be affected by the proposed Project. There are no known breeding bald eagles within the vicinity of the Project area; therefore, no adverse impacts to breeding bald eagles are expected as a result of the Project. The primary nesting season for migratory birds is early April to mid-July. Precautions will be used to protect any migratory birds that may be found in or near the Project area. Such precautions include minimizing construction noise to the extent practicable, using care to avoid birds when operating machinery or vehicles near birds, and general contractor awareness of potential bird presence. We anticipate that these measures should avoid any take of migratory birds.

A description of the one (1) federally threatened species identified by USFWS, and an evaluation of the likelihood that this species occurs within the Project area and would be affected by the Project is provided below. The species description is summarized from the NYSDEC fact sheet and USFWS species profile.

2.1 NORTHERN LONG-EARED BAT

The northern long-eared bat (NLEB) is a medium-sized bat that is distinguished by its long ears, particularly as compared to other bats in its genus. The northern long-eared bat is found across much of the eastern and north central United States. White-nose syndrome is the predominant threat to this bat, especially throughout the northeast where the species has declined by up to 99 percent from pre-white-nose syndrome levels at many hibernation sites. During summer, northern long-eared bats roost singly or in colonies underneath bark, in cavities, or in crevices of both live and dead trees, using tree species based on suitability to retain bark or provide cavities or crevices. They emerge at dusk to fly through the understory of forested hillsides and ridges feeding on moths, flies, leafhoppers, caddisflies, and beetles or by gleaning insects from vegetation and water surfaces. Northern long-eared bats spend winter hibernating in caves and mines. This bat prefers habitat with abundant stands of trees with sufficient bark crevices and snags for roosting habitat.

The Project is not anticipated to involve tree removal and is located along and adjacent to existing roadways, which do not provide suitable habitat for the NLEB. Based on the NYSDEC Environmental Resource Mapper, there are no records of rare plants or animals, including the northern long-eared bat, in the vicinity of the Project area (**Appendix E**). Since the Project will not involve tree removal, will not disturb suitable NLEB habitat, and the NLEB has not been documented by the NYSDEC in the vicinity of the Project area, GOSR has determined that the proposed Project would have “**No Effect**” on the NLEB.

3.0 CONCLUSION

Project implementation would be conditioned upon issuance of applicable federal and State permits and would be constructed in accordance with federal and state permit requirements and their conditions. The proposed Project would not jeopardize the continued existence of ESA species or destroy or adversely modify their critical habitat. GOSR is submitting the above information as notification of its “**No Effect**” determination and requests acknowledgement from USFWS that they have received this determination that

the proposed Project would have **No Effect** on endangered/threatened species, migratory birds, or critical habitat for species under USFWS jurisdiction.

For additional information, please contact me by email at Alicia.Shultz@nyshcr.org or by telephone at (518) 474-0647.

Sincerely,

Alicia Shultz
Senior Environmental Scientist
New York State Homes & Community Renewal
38-40 State Street, 408N
Hampton Plaza
Albany, NY 12207

Attachments:

- Appendix A:** Project Location Maps
(Street Map, USGS Topographic Map, and Aerial Map)
- Appendix B:** Project Site Plans
- Appendix C:** USFWS Official Species List
- Appendix D:** USFWS IPaC Resource List
- Appendix E:** NYSDEC Environmental Resource Map

Attachments removed from Environmental Assessment

Attachment 8

Agricultural and NRCS Soil Resource Documents

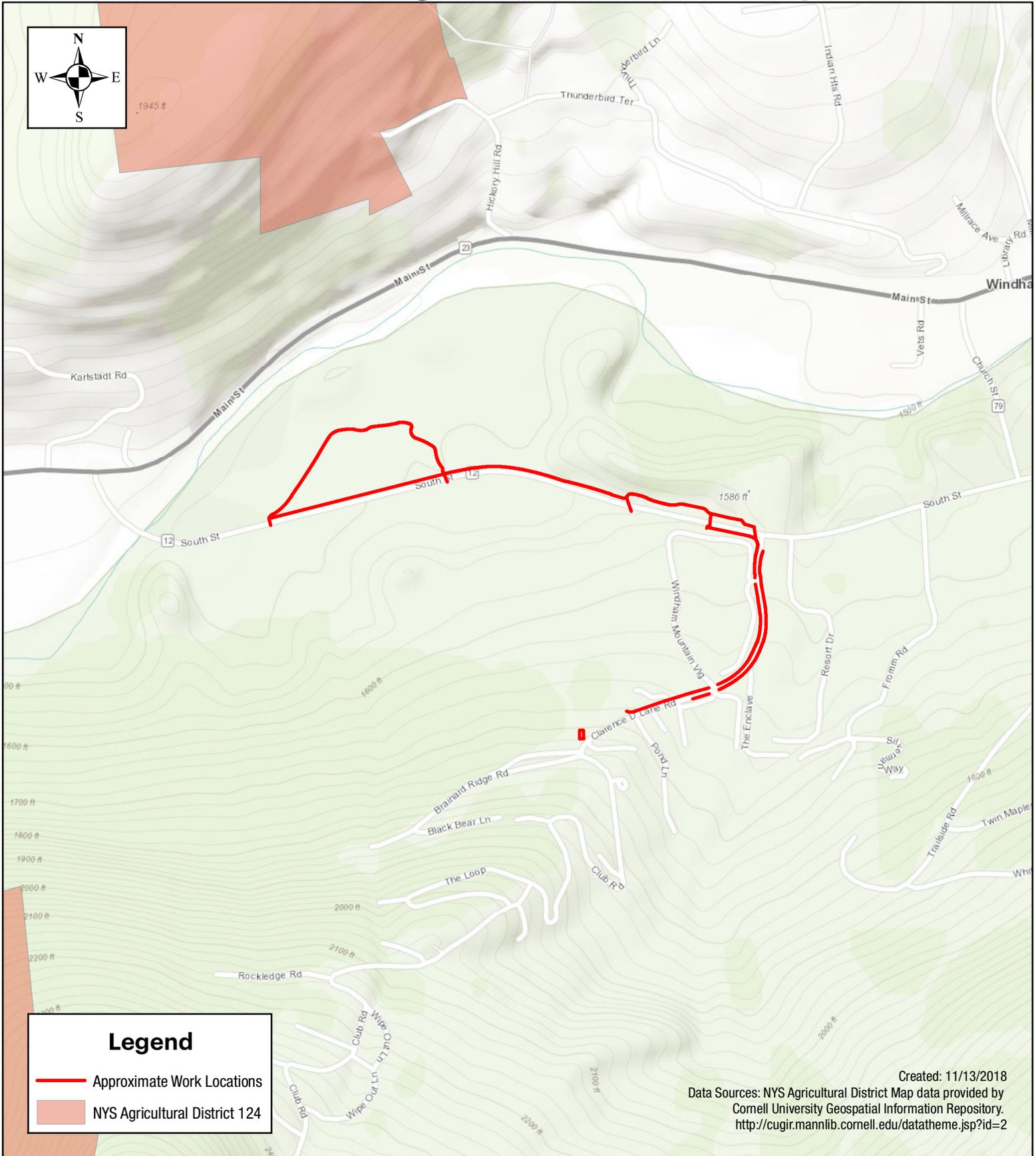
New York State Agricultural Districts Map (2018)

USDA NRCS Soil Resource Report

USDA NRCS Shallow Excavation Report

USDA NRCS Farmland Classification Report

New York State Agricultural District Map (2018)



South Street Stormwater Collection System Project
South Street and Clarence D Lane Road
Town of Windham
Greene County, New York



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 Greene County, New York

South Street Stormwater Collection System Project



Preface

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

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

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

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

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

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

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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How Soil Surveys Are Made

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

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

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

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

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

Custom Soil Resource Report

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

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

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

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

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

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

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

Custom Soil Resource Report

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

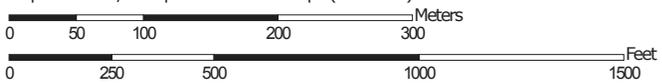
Soil Map

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

Custom Soil Resource Report Soil Map



Map Scale: 1:5,590 if printed on A landscape (11" x 8.5") sheet.



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

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

Water Features

 Streams and Canals

Transportation

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

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: Greene County, New York
 Survey Area Data: Version 17, Sep 5, 2018

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

Date(s) aerial images were photographed: Jul 30, 2012—Feb 26, 2017

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ba	Barbour loam	4.4	21.7%
LmD	Lewbeach and Willowemoc channery silt loams, moderately steep, very bouldery	0.3	1.2%
OnB	Onteora silt loam, 3 to 8 percent slopes	2.6	12.8%
TuA	Tunkhannock gravelly loam, 0 to 3 percent slopes	7.8	38.5%
TuB	Tunkhannock gravelly loam, 3 to 8 percent slopes	1.3	6.4%
TuC	Tunkhannock gravelly loam, rolling	0.1	0.4%
TvB	Tunkhannock gravelly loam, fan, 3 to 8 percent slopes	1.9	9.4%
W	Water	0.0	0.0%
WmB	Willowemoc channery silt loam, 3 to 8 percent slopes	0.5	2.2%
WmC	Willowemoc channery silt loam, 8 to 15 percent slopes	1.5	7.3%
Totals for Area of Interest		20.3	100.0%

Map Unit Descriptions

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

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

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties

Custom Soil Resource Report

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.

Custom Soil Resource Report

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

Greene County, New York

Ba—Barbour loam

Map Unit Setting

National map unit symbol: 9sfl
Elevation: 250 to 1,500 feet
Mean annual precipitation: 36 to 44 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 135 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Barbour and similar soils: 70 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Barbour

Setting

Landform: Flood plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy over sandy and gravelly alluvium derived mainly from areas of acid, reddish sandstone, siltstone, and shale

Typical profile

H1 - 0 to 9 inches: loam
H2 - 9 to 28 inches: fine sandy loam
H3 - 28 to 78 inches: very gravelly coarse sand

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
Available water storage in profile: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Basher

Percent of map unit: 10 percent
Hydric soil rating: No

Chenango

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

Tunkhannock

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

Udifulvents

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

Middlebury

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

LmD—Lewbeach and Willowemoc channery silt loams, moderately steep, very bouldery

Map Unit Setting

National map unit symbol: 2w0ck
Elevation: 1,390 to 3,610 feet
Mean annual precipitation: 32 to 70 inches
Mean annual air temperature: 39 to 48 degrees F
Frost-free period: 110 to 155 days
Farmland classification: Not prime farmland

Map Unit Composition

Lewbeach, very bouldery, and similar soils: 55 percent
Willowemoc, very bouldery, and similar soils: 25 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lewbeach, Very Bouldery

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Mountaintop, mountainflank, interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Parent material: Loamy till derived mainly from reddish sandstone, siltstone, and shale

Typical profile

A - 0 to 4 inches: channery silt loam
Bw1 - 4 to 17 inches: channery silt loam
Bw2 - 17 to 26 inches: channery loam
Bx - 26 to 60 inches: channery loam
C - 60 to 72 inches: very channery loam

Custom Soil Resource Report

Properties and qualities

Slope: 15 to 35 percent
Percent of area covered with surface fragments: 1.6 percent
Depth to restrictive feature: 17 to 36 inches to fragipan
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 16 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Willowemoc, Very Bouldery

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, head slope, side slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy till from reddish sandstone, siltstone, and shale

Typical profile

A - 0 to 4 inches: channery silt loam
Bw - 4 to 22 inches: channery silt loam
Bx - 22 to 55 inches: channery loam
C - 55 to 72 inches: very channery loam

Properties and qualities

Slope: 15 to 35 percent
Percent of area covered with surface fragments: 1.6 percent
Depth to restrictive feature: 17 to 26 inches to fragipan
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 13 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Elka, very stony

Percent of map unit: 5 percent
Landform: Hills

Custom Soil Resource Report

Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Vly, very stony

Percent of map unit: 5 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Halcott, very stony

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Onteora, very bouldery

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

OnB—Onteora silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w0d1
Elevation: 1,390 to 3,610 feet
Mean annual precipitation: 32 to 70 inches
Mean annual air temperature: 39 to 48 degrees F
Frost-free period: 110 to 155 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Onteora and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Onteora

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Foothlope, summit
Landform position (three-dimensional): Interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy till from reddish sandstone, siltstone, and shale

Typical profile

Ap - 0 to 8 inches: silt loam
Bw - 8 to 12 inches: gravelly silt loam
Eg - 12 to 16 inches: gravelly silt loam
Bx - 16 to 60 inches: gravelly silt loam
C - 60 to 72 inches: gravelly loam

Properties and qualities

Slope: 3 to 8 percent
Percent of area covered with surface fragments: 0.0 percent
Depth to restrictive feature: 10 to 25 inches to fragipan
Natural drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Willowemoc

Percent of map unit: 5 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Norchip

Percent of map unit: 5 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

TuA—Tunkhannock gravelly loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 9sk8
Elevation: 700 to 2,000 feet
Mean annual precipitation: 36 to 44 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 135 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Tunkhannock

Setting

Landform: Valley trains, terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, derived mainly from reddish sandstone, siltstone, and shale

Typical profile

H1 - 0 to 7 inches: gravelly loam
H2 - 7 to 25 inches: very gravelly loam
H3 - 25 to 60 inches: stratified extremely gravelly sand

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): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Basher

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

Barbour

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

Oquaga

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

Wellsboro

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

TuB—Tunkhannock gravelly loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9sk9
Elevation: 700 to 2,000 feet
Mean annual precipitation: 36 to 44 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 135 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Tunkhannock

Setting

Landform: Valley trains, terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, derived mainly from reddish sandstone, siltstone, and shale

Typical profile

H1 - 0 to 7 inches: gravelly loam
H2 - 7 to 25 inches: very gravelly loam
H3 - 25 to 60 inches: stratified extremely gravelly sand

Custom Soil Resource Report

Properties and qualities

Slope: 3 to 8 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components

Basher

Percent of map unit: 5 percent

Hydric soil rating: No

Barbour

Percent of map unit: 5 percent

Hydric soil rating: No

Oquaga

Percent of map unit: 5 percent

Hydric soil rating: No

Wellsboro

Percent of map unit: 5 percent

Hydric soil rating: No

TuC—Tunkhannock gravelly loam, rolling

Map Unit Setting

National map unit symbol: 9skb

Elevation: 700 to 2,000 feet

Mean annual precipitation: 36 to 44 inches

Mean annual air temperature: 45 to 50 degrees F

Frost-free period: 135 to 170 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Tunkhannock and similar soils: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tunkhannock

Setting

Landform: Valley trains, terraces

Landform position (two-dimensional): Shoulder

Landform position (three-dimensional): Tread

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, derived mainly from reddish sandstone, siltstone, and shale

Typical profile

H1 - 0 to 7 inches: gravelly loam

H2 - 7 to 25 inches: very gravelly loam

H3 - 25 to 60 inches: stratified extremely gravelly sand

Properties and qualities

Slope: 5 to 15 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components

Valois

Percent of map unit: 5 percent

Hydric soil rating: No

Lackawanna

Percent of map unit: 5 percent

Hydric soil rating: No

Oquaga

Percent of map unit: 5 percent

Hydric soil rating: No

Wellsboro

Percent of map unit: 5 percent

Hydric soil rating: No

TvB—Tunkhannock gravelly loam, fan, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9skd
Mean annual precipitation: 36 to 44 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 135 to 170 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Tunkhannock

Setting

Landform: Valley trains, terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Gravelly loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, derived mainly from reddish sandstone, siltstone, and shale

Typical profile

H1 - 0 to 7 inches: gravelly loam
H2 - 7 to 25 inches: very gravelly loam
H3 - 25 to 60 inches: stratified extremely gravelly sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 36 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Lackawanna

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

Valois

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

Basher

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

Wellsboro

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

Barbour

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

W—Water

Map Unit Setting

National map unit symbol: 9sl3
Mean annual precipitation: 36 to 44 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 135 to 170 days
Farmland classification: Not prime farmland

Map Unit Composition

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

WmB—Willowemoc channery silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w0cn
Elevation: 1,390 to 3,610 feet
Mean annual precipitation: 32 to 70 inches
Mean annual air temperature: 39 to 48 degrees F
Frost-free period: 110 to 155 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Willowemoc and similar soils: 85 percent
Minor components: 15 percent

Custom Soil Resource Report

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Willowemoc

Setting

Landform: Hills, mountains

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Mountainflank, interfluve, side slope

Down-slope shape: Convex

Across-slope shape: Convex

Parent material: Loamy till from reddish sandstone, siltstone, and shale

Typical profile

Ap - 0 to 8 inches: channery silt loam

Bw - 8 to 22 inches: channery silt loam

Bx - 22 to 55 inches: channery loam

C - 55 to 72 inches: very channery loam

Properties and qualities

Slope: 3 to 8 percent

Percent of area covered with surface fragments: 0.0 percent

Depth to restrictive feature: 17 to 26 inches to fragipan

Natural drainage class: Moderately well drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)

Depth to water table: About 13 to 24 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Low (about 3.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: D

Hydric soil rating: No

Minor Components

Lewbeach

Percent of map unit: 5 percent

Landform: Mountains, hills

Landform position (two-dimensional): Backslope, shoulder

Landform position (three-dimensional): Mountainflank, interfluve, side slope

Down-slope shape: Convex

Across-slope shape: Linear

Hydric soil rating: No

Onteora

Percent of map unit: 5 percent

Landform: Hills, mountains

Landform position (two-dimensional): Summit, footslope

Landform position (three-dimensional): Interfluve, base slope

Down-slope shape: Concave

Across-slope shape: Linear

Hydric soil rating: No

Vly

Percent of map unit: 5 percent

Custom Soil Resource Report

Landform: Mountains, hills
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Mountaintop, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

WmC—Willowemoc channery silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2w0cp
Elevation: 1,390 to 3,610 feet
Mean annual precipitation: 32 to 70 inches
Mean annual air temperature: 39 to 48 degrees F
Frost-free period: 110 to 155 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Willowemoc and similar soils: 88 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Willowemoc

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Mountainbase, mountainflank, side slope, interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy till from reddish sandstone, siltstone, and shale

Typical profile

Ap - 0 to 8 inches: channery silt loam
Bw - 8 to 22 inches: channery silt loam
Bx - 22 to 55 inches: channery loam
C - 55 to 72 inches: very channery loam

Properties and qualities

Slope: 8 to 15 percent
Percent of area covered with surface fragments: 0.0 percent
Depth to restrictive feature: 17 to 26 inches to fragipan
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 13 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.8 inches)

Custom Soil Resource Report

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: D

Hydric soil rating: No

Minor Components

Lewbeach

Percent of map unit: 5 percent

Landform: Mountains, hills

Landform position (two-dimensional): Backslope, shoulder

Landform position (three-dimensional): Mountainflank, nose slope, side slope

Down-slope shape: Convex, linear

Across-slope shape: Linear

Hydric soil rating: No

Onteora

Percent of map unit: 5 percent

Landform: Hills, mountains

Landform position (two-dimensional): Summit, footslope

Landform position (three-dimensional): Interfluve, base slope

Down-slope shape: Concave

Across-slope shape: Linear

Hydric soil rating: No

Vly

Percent of map unit: 2 percent

Landform: Mountains, hills

Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Mountainflank, side slope

Down-slope shape: Convex

Across-slope shape: Convex

Hydric soil rating: No

Soil Information for All Uses

Suitabilities and Limitations for Use

The Suitabilities and Limitations for Use section includes various soil interpretations displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each interpretation.

Building Site Development

Building site development interpretations are designed to be used as tools for evaluating soil suitability and identifying soil limitations for various construction purposes. As part of the interpretation process, the rating applies to each soil in its described condition and does not consider present land use. Example interpretations can include corrosion of concrete and steel, shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping.

Shallow Excavations (South Street Stormwater Collection System)

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by

Custom Soil Resource Report

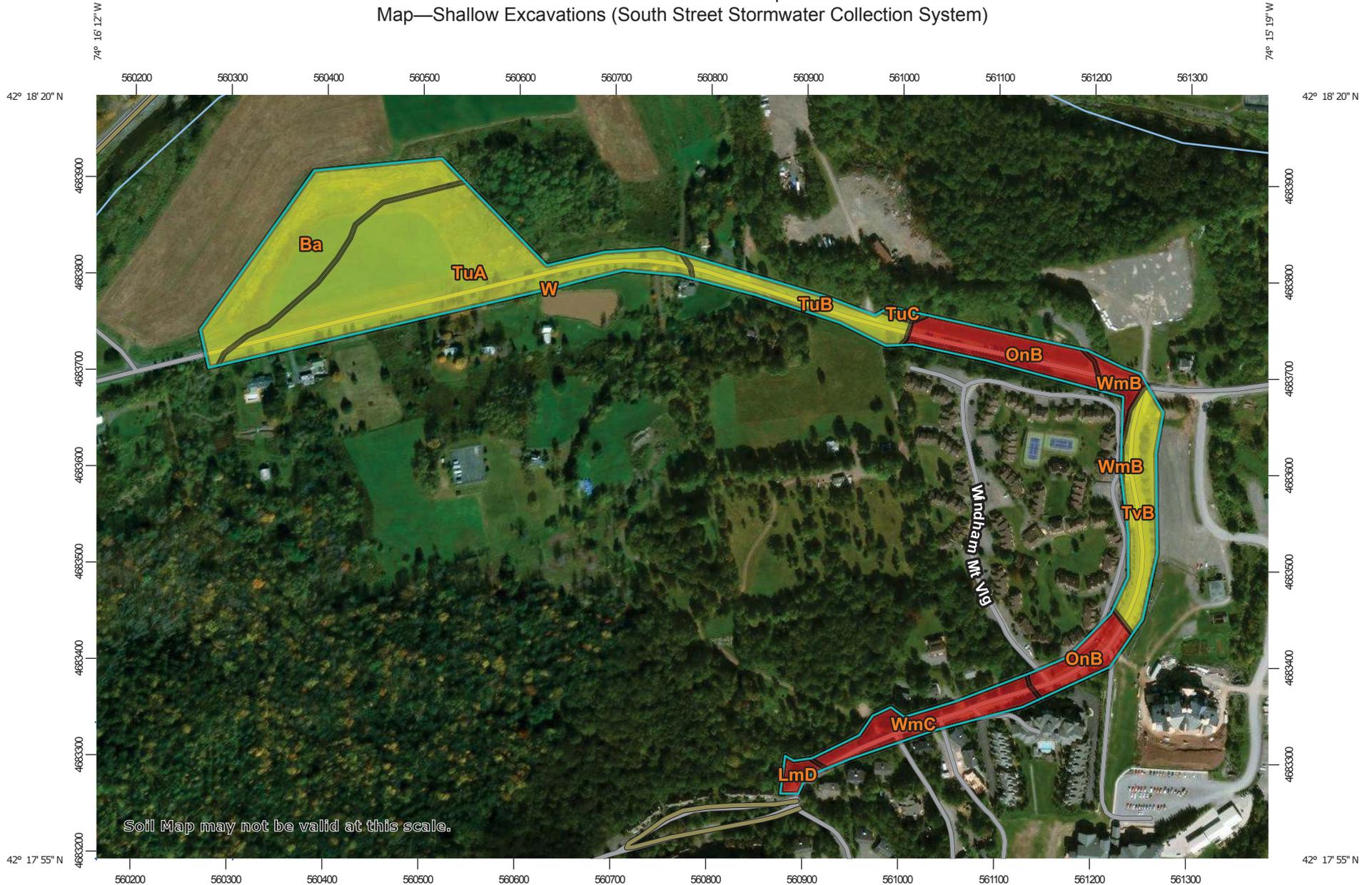
special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

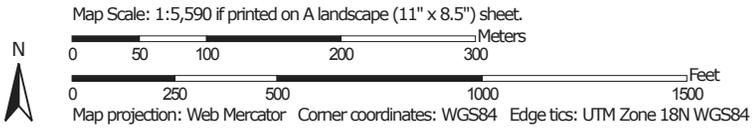
The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Custom Soil Resource Report
 Map—Shallow Excavations (South Street Stormwater Collection System)

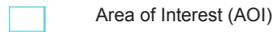


Soil Map may not be valid at this scale.



MAP LEGEND

Area of Interest (AOI)



Area of Interest (AOI)

Background



Aerial Photography

Soils

Soil Rating Polygons



Very limited



Somewhat limited



Not limited



Not rated or not available

Soil Rating Lines



Very limited



Somewhat limited



Not limited



Not rated or not available

Soil Rating Points



Very limited



Somewhat limited



Not limited



Not rated or not available

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: Greene County, New York
 Survey Area Data: Version 17, Sep 5, 2018

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

Date(s) aerial images were photographed: Jul 30, 2012—Feb 26, 2017

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

Custom Soil Resource Report

Tables—Shallow Excavations (South Street Stormwater Collection System)

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
Ba	Barbour loam	Somewhat limited	Barbour (70%)	Unstable excavation walls (0.93)	4.4	21.7%
				Flooding (0.60)		
				Depth to saturated zone (0.35)		
				Dusty (0.00)		
LmD	Lewbeach and Willowemoc channery silt loams, moderately steep, very bouldery	Very limited	Lewbeach, very bouldery (55%)	Slope (1.00)	0.3	1.2%
				Depth to saturated zone (1.00)		
				Unstable excavation walls (0.01)		
				Dusty (0.00)		
			Willowemoc, very bouldery (25%)	Slope (1.00)		
				Depth to saturated zone (1.00)		
				Unstable excavation walls (0.01)		
				Dusty (0.00)		
			Onteora, very bouldery (5%)	Depth to saturated zone (1.00)		
				Slope (0.63)		
				Unstable excavation walls (0.01)		
				Dusty (0.00)		
			Elka, very stony (5%)	Slope (1.00)		
				Unstable excavation walls (0.01)		
				Dusty (0.00)		
			Vly, very stony (5%)	Depth to hard bedrock (1.00)		
Slope (1.00)						
Unstable excavation walls (0.01)						

Custom Soil Resource Report

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Dusty (0.00)		
			Halcott, very stony (5%)	Depth to hard bedrock (1.00)		
				Slope (1.00)		
				Organic matter content (1.00)		
				Unstable excavation walls (0.01)		
				Dusty (0.00)		
OnB	Onteora silt loam, 3 to 8 percent slopes	Very limited	Onteora (90%)	Depth to saturated zone (1.00)	2.6	12.8%
				Unstable excavation walls (0.01)		
				Dusty (0.00)		
			Norchip (5%)	Depth to saturated zone (1.00)		
				Unstable excavation walls (0.01)		
				Dusty (0.00)		
			Willowemoc (5%)	Depth to saturated zone (1.00)		
				Slope (0.63)		
				Unstable excavation walls (0.01)		
				Dusty (0.00)		
TuA	Tunkhannock gravelly loam, 0 to 3 percent slopes	Somewhat limited	Tunkhannock (80%)	Unstable excavation walls (0.28)	7.8	38.5%
				Dusty (0.01)		
TuB	Tunkhannock gravelly loam, 3 to 8 percent slopes	Somewhat limited	Tunkhannock (80%)	Unstable excavation walls (0.28)	1.3	6.4%
				Dusty (0.01)		
TuC	Tunkhannock gravelly loam, rolling	Somewhat limited	Tunkhannock (80%)	Unstable excavation walls (0.28)	0.1	0.4%
				Slope (0.16)		
				Dusty (0.01)		
TvB	Tunkhannock gravelly loam,	Somewhat limited	Tunkhannock (75%)	Depth to saturated zone (0.35)	1.9	9.4%

Custom Soil Resource Report

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI		
	fan, 3 to 8 percent slopes			Unstable excavation walls (0.28) Dusty (0.01)				
W	Water	Not rated	Water (100%)		0.0	0.0%		
WmB	Willowemoc channery silt loam, 3 to 8 percent slopes	Very limited	Willowemoc (85%)	Depth to saturated zone (1.00) Unstable excavation walls (0.01) Dusty (0.00)	0.5	2.2%		
			Lewbeach (5%)	Depth to saturated zone (1.00) Slope (0.63) Unstable excavation walls (0.01) Dusty (0.00)				
			Onteora (5%)	Depth to saturated zone (1.00) Unstable excavation walls (0.01) Dusty (0.00)				
			Vly (5%)	Depth to hard bedrock (1.00) Slope (0.63) Unstable excavation walls (0.01)				
WmC	Willowemoc channery silt loam, 8 to 15 percent slopes	Very limited	Willowemoc (88%)	Depth to saturated zone (1.00) Slope (0.63) Unstable excavation walls (0.01) Dusty (0.00)			1.5	7.3%
			Lewbeach (5%)	Slope (1.00) Depth to saturated zone (1.00) Unstable excavation walls (0.01)				

Custom Soil Resource Report

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Dusty (0.00)		
			Onteora (5%)	Depth to saturated zone (1.00)		
				Unstable excavation walls (0.01)		
				Dusty (0.00)		
			Vly (2%)	Depth to hard bedrock (1.00)		
				Slope (1.00)		
				Unstable excavation walls (0.01)		
				Dusty (0.00)		
Totals for Area of Interest					20.3	100.0%

Rating	Acres in AOI	Percent of AOI
Somewhat limited	15.5	76.4%
Very limited	4.8	23.6%
Null or Not Rated	0.0	0.0%
Totals for Area of Interest	20.3	100.0%

Rating Options—Shallow Excavations (South Street Stormwater Collection System)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

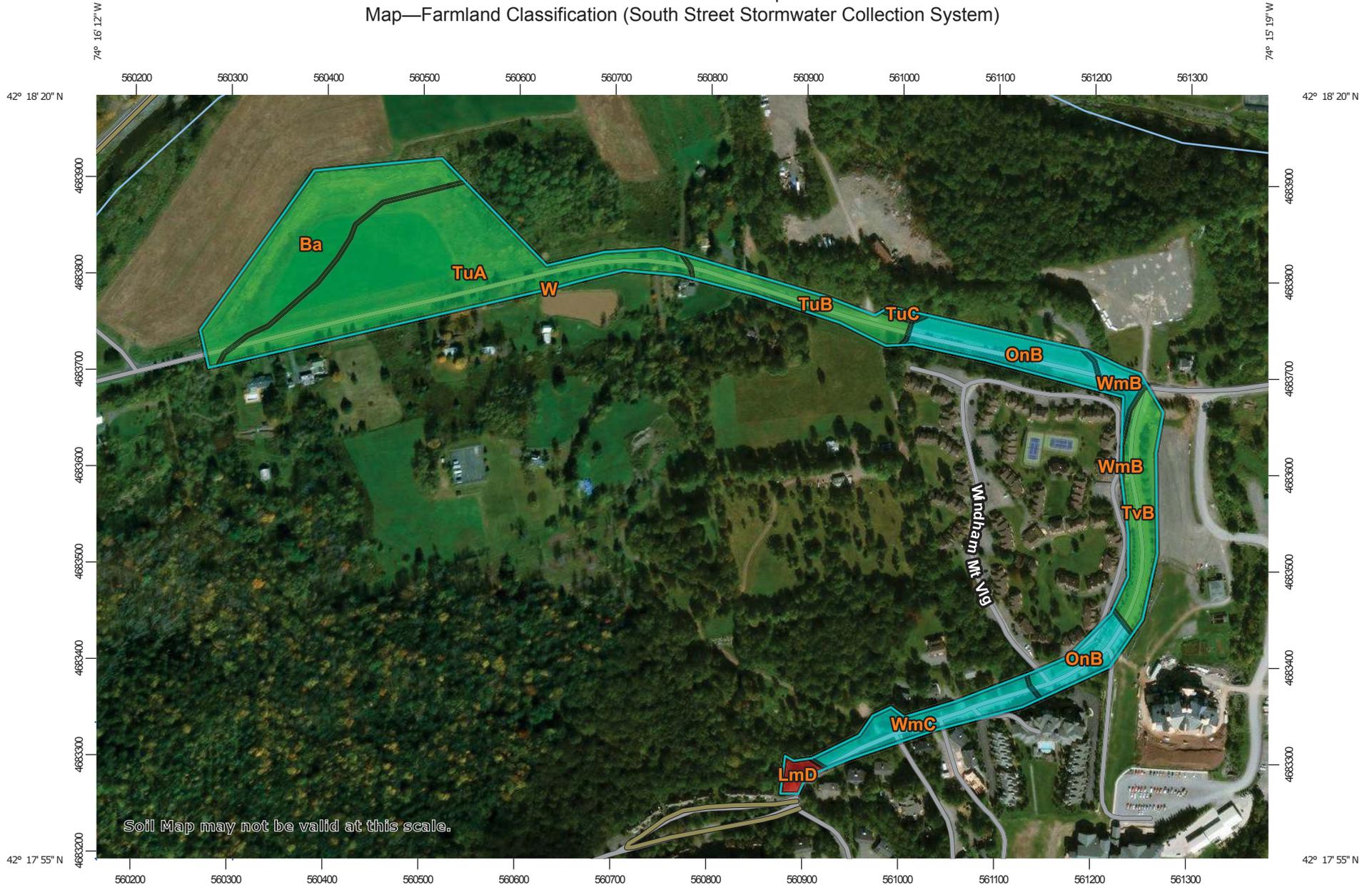
Land Classifications

Land Classifications are specified land use and management groupings that are assigned to soil areas because combinations of soil have similar behavior for specified practices. Most are based on soil properties and other factors that directly influence the specific use of the soil. Example classifications include ecological site classification, farmland classification, irrigated and nonirrigated land capability classification, and hydric rating.

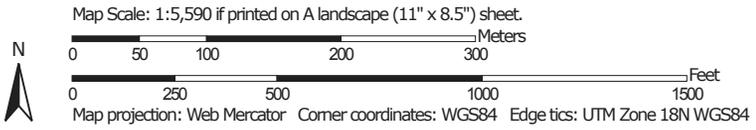
Farmland Classification (South Street Stormwater Collection System)

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

Custom Soil Resource Report
 Map—Farmland Classification (South Street Stormwater Collection System)



Soil Map may not be valid at this scale.



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained
-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

-  Prime farmland if subsoiled, completely removing the root inhibiting soil layer
-  Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
-  Prime farmland if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance
-  Farmland of local importance
-  Farmland of unique importance
-  Not rated or not available

Soil Rating Lines

-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained

-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if subsoiled, completely removing the root inhibiting soil layer
-  Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

-  Prime farmland if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance
-  Farmland of local importance
-  Farmland of unique importance
-  Not rated or not available

Soil Rating Points

-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained
-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season

-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if subsoiled, completely removing the root inhibiting soil layer
-  Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
-  Prime farmland if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance
-  Farmland of local importance
-  Farmland of unique importance
-  Not rated or not available

Water Features

MAP INFORMATION

-  Streams and Canals
- Transportation**
-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads
- Background**
-  Aerial Photography

The soil surveys that comprise your AOI were mapped at 1:24,000.

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Table—Farmland Classification (South Street Stormwater Collection System)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Ba	Barbour loam	All areas are prime farmland	4.4	21.7%
LmD	Lewbeach and Willowemoc channery silt loams, moderately steep, very bouldery	Not prime farmland	0.3	1.2%
OnB	Onteora silt loam, 3 to 8 percent slopes	Farmland of statewide importance	2.6	12.8%
TuA	Tunkhannock gravelly loam, 0 to 3 percent slopes	All areas are prime farmland	7.8	38.5%
TuB	Tunkhannock gravelly loam, 3 to 8 percent slopes	All areas are prime farmland	1.3	6.4%
TuC	Tunkhannock gravelly loam, rolling	Farmland of statewide importance	0.1	0.4%
TvB	Tunkhannock gravelly loam, fan, 3 to 8 percent slopes	All areas are prime farmland	1.9	9.4%
W	Water	Not prime farmland	0.0	0.0%
WmB	Willowemoc channery silt loam, 3 to 8 percent slopes	Farmland of statewide importance	0.5	2.2%
WmC	Willowemoc channery silt loam, 8 to 15 percent slopes	Farmland of statewide importance	1.5	7.3%
Totals for Area of Interest			20.3	100.0%

Rating Options—Farmland Classification (South Street Stormwater Collection System)

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

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- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
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Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

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United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Attachment 9

State Historic Preservation Office Documentation

SHPO Responses
Documentation of Scour Evidence



Parks, Recreation, and Historic Preservation

ANDREW M. CUOMO
Governor

ERIK KULLESEID
Acting Commissioner

February 21, 2019

Alicia Shultz
New York State Homes & Community Renewal
38-40 State St, Hampton Plaza
Albany, NY 12207

Re: GOSR/ NYSHCR/ HUD CDBG-DR/ Mitigation to stormwater collection system:
South Street and Clarence D Lane Road, Windham/ Greene County.
18PR7367

Dear Ms. Shultz:

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

Based on this review, it is the opinion of SHPO that there will be No Historic Properties Affected by the proposed undertaking.

If I can be of further assistance, please contact me at (518) 268-2187 Larry.moss@parks.ny.gov

Sincerely,

Larry K Moss, Historic Preservation Technical Specialist

CC: Kim Croshier & Kristofer Mierisch, Tectonic Engineers



ANDREW M. CUOMO
Governor

ROSE HARVEY
Commissioner

November 23, 2018

Alicia Shultz
New York State Homes & Community Renewal
38-40 State St, Hampton Plaza
Albany, NY 12207

Re: GOSR/ NYSHCR/ HUD CDBG-DR/ Mitigation to stormwater collection system:
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Based on this review, it is the opinion of SHPO that you should provide documentation of prior ground disturbance for those portions of the project that will occur beyond the current limits of the paved road and roadside drainage swales. Documentation of prior ground disturbance typically consists of soil bore logs, photos of the site showing disturbance, or as-built drawings which show the ground disturbing impacts. Thank you.

If I can be of further assistance, please contact me at (518) 268-2187 Larry.moss@parks.ny.gov

Sincerely,

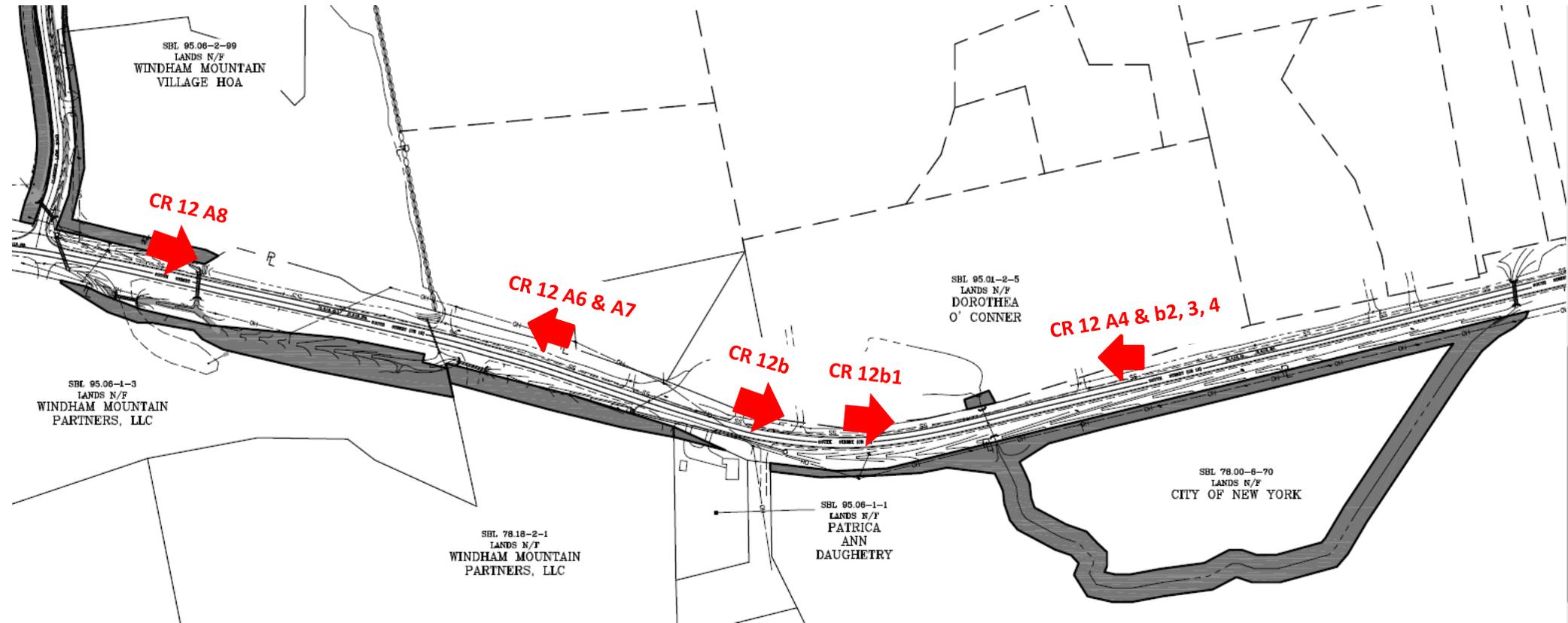
A handwritten signature in black ink that reads "Larry K Moss".

Larry K Moss, Historic Preservation Technical Specialist

CC: Kim Croshier & Kristofer Mierisch, Tectonic Engineers

South Street Stormwater Collection System Project Photo Log of Storm Scour Disturbance

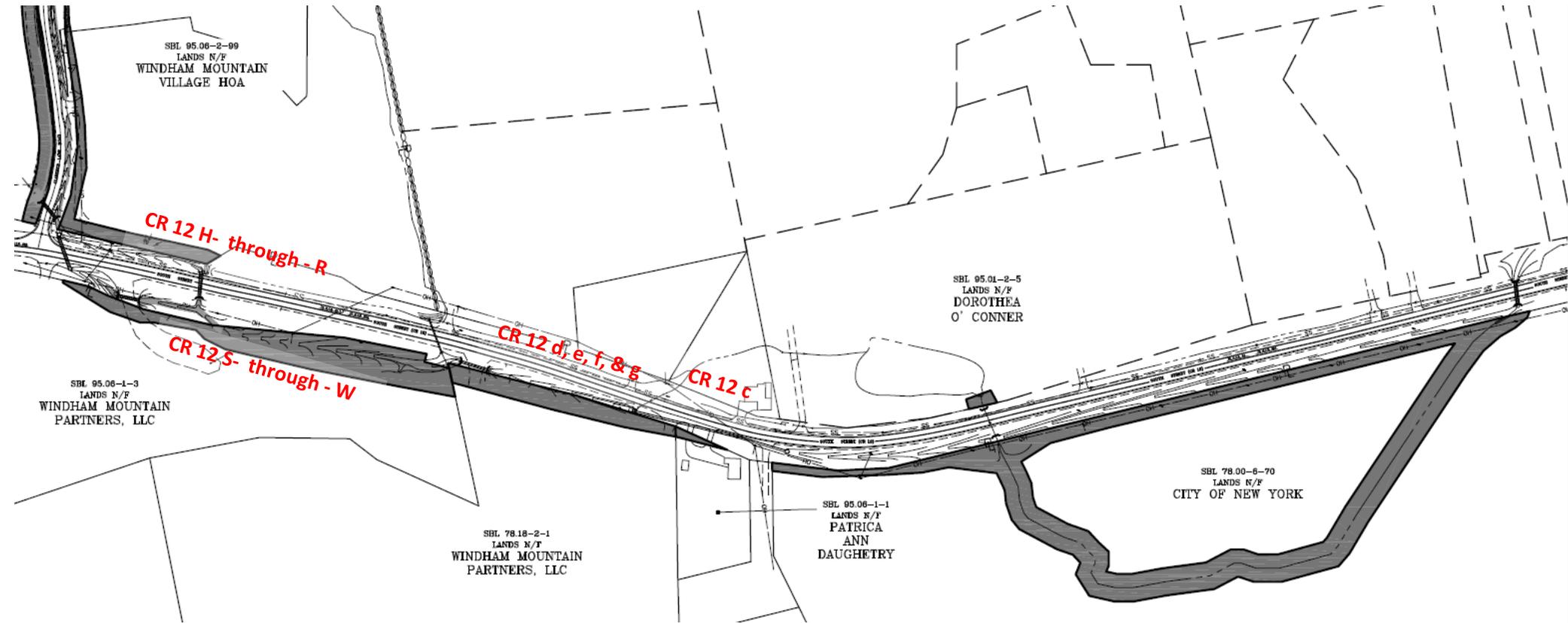
Photographs labeled CR 12 a & b



Photographs labeled CR 12 c, d, e, f, & g

H - through - R

S - through - W



South Street Stormwater Collection System Project Photo Log of Storm Scour Disturbance

Town of Windham Greene County, New York



Photo CR12 A4

Corporate Office

70 Pleasant Hill Road, PO Box 37 | Mountainville, NY 10953
845.534.5959 Tel | 845.534.5999 Fax

tectonicengineering.com
Equal Opportunity Employer



Photo CR12 A6



Photo CR12 A7



Photo CR12 A8



Photo CR12 B



Photo CR12 B1



Photo CR12 B2



Photo CR12 B3



Photo CR12 B4



Photo CR12 C



Photo CR12 D



Photo CR12 E



Photo CR12 F



Photo CR12 G



Photo CR12 H



Photo CR12 I



Photo CR12 J



Photo CR12 K



Photo CR12 L



Photo CR12 M



Photo CR12 N



Photo CR12 O



Photo CR12 P



Photo CR12 R



Photo CR12 S



Photo CR12 T



Photo CR12 U



Photo CR12 V



Photo CR12 W