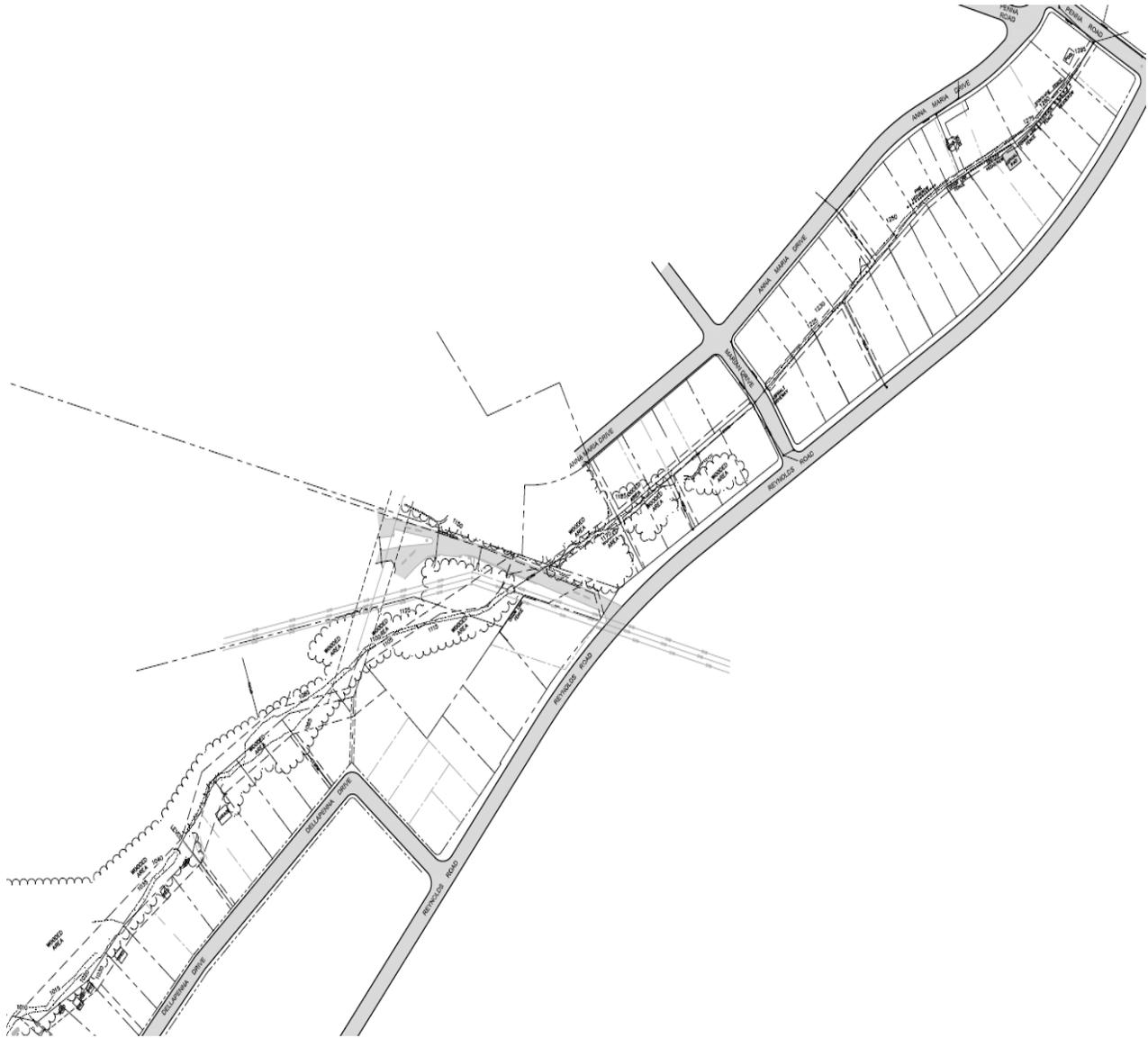


# **ANNA MARIA DRIVE DITCH STORM WATER MANAGEMENT** **ENVIRONMENTAL ASSESSMENT**



**New York State Governor's Office of Storm Recovery**  
February 25, 2015

<b>ANNA MARIA DRIVE DITCH STORM WATER MANAGEMENT ENVIRONMENTAL ASSESSMENT &amp; ERR PROJECT SUMMARY</b>	
<b>Responsible Entity:</b>	New York State Homes & Community Renewal – Housing Trust Fund Corporation Cooperating with the Governor’s Office of Storm Recovery (GOSR)
<b>Certifying Officer:</b>	Thomas King, Esq., Certifying Environmental Officer, GOSR
<b>Project Name:</b>	Anna Maria Drive Ditch Storm Water Management – Village of Johnson City
<b>Funding Recipient:</b>	Village of Johnson City
<b>Federal Agency:</b>	U.S. Department of Housing & Urban Development (HUD)
<b>Project Sponsor:</b>	New York State Housing Trust Fund Corporation
<b>Program Name:</b>	New York State Community Development Block Grant – Disaster Recovery (NY Rising Community Reconstruction Plan)
<b>Project Address:</b>	Village of Johnson City
<b>Project County:</b>	Broome County, NY
<b>Estimated Project Cost:</b>	\$950,000
<b>Project Sponsor Address:</b>	Governor’s Office of Storm Recovery 99 Washington Avenue, Suite 1224 Albany, New York 12231
<b>Primary Contact/ Person To Direct Comments:</b>	Thomas King, Esq., Certifying Environmental Officer, Governor’s Office of Storm Recovery
<b>E-Mail address:</b>	<i>Thomas.King@stormrecovery.ny.gov</i>
<b>Telephone Number:</b>	(646) 417-4660
<b>Project NEPA Classification:</b>	24 CFR 58.36
<b>ENVIRONMENTAL FINDING:</b>	<input checked="" type="checkbox"/> <b>Finding of No Significant Impact</b> - The project will not result in a significant impact on the quality of the human environment.  <input type="checkbox"/> <b>Finding of Significant Impact</b> - The project may significantly affect the quality of the human environment.
	<p>The undersigned hereby certifies that New York State Housing Trust Fund Corporation 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.</p> <p>Preparer Signature:</p>  <p><b>NAME:</b> Thomas King, Esq.  <b>Title/Agency:</b> Certifying Environmental Officer -  Governor’s Office of Storm Recovery  <b>Date:</b> 2/25/2015</p>
<b>Environmental Assessment Prepared By:</b>	Tectonic Engineering & Surveying PO Box 37, 70 Pleasant Hill Road Mountainville, NY 10953

## **NEPA Environmental Assessment Checklist**

Anna Maria Drive Ditch Storm Water Management – Village of Johnson City  
February 25, 2015

### **Project Name and Description:**

**Project Name:** Anna Maria Drive Ditch Stormwater Management

**Location:** Village of Johnson City, Broome County, New York

The proposed action is rehabilitation of an unnamed intermittent stream/ drainage ditch spanning approximately 3,500 linear feet – bounded on the north by Penna Road, on the east by Reynolds Road, on the west by Anna Maria Drive, and the southern limits of the work on the intermittent stream is adjacent to Tokos Grove Road (see maps in ***Attachment 1***). The drainage ditch follows the natural topographic slope, and it roughly parallels Anna Maria Drive draining from the north to the southwest. The higher elevations are at the northeast end, and the topography drains towards the southwest. There is an approximate 6% slope from the northern limit of proposed work to the southern limit of the proposed work. This intermittent stream ultimately drains to the Finch Hollow Stormwater Retention Facility 1, which is in a municipal park – Finch Hollow Nature Preserve.

### **INTRODUCTION**

The Village of Johnson City is an incorporated village within the Town of Union, Broome County, NY. This area suffered flooding as a result of Tropical Storm Lee and Hurricane Irene. Extensive damage occurred during Tropical Storm Lee during which Broome County received twelve (12) inches of rain. Rising waters within the county overtopped levees and floodwalls and overloaded stormwater and sanitary systems.

Damages in the area of the proposed action were in the form of flooding and erosion along the intermittent stream channel/ drainage ditch which parallels Anna Marie Drive. According to the Broome County NY Rising Community Reconstruction (NYRCR) Program, March 2014, extensive erosion along the banks of this drainage ditch has undermined an existing concrete-encased sanitary sewer main and has caused loss of residential property beyond the boundaries of the drainage easement. There is concern that further erosion will compromise the sanitary sewer system and could cause the release of untreated sanitary waste into the Choconut Creek and the Finch Hollow Stormwater Retention Facility 1.

Residential properties bordering this intermittent stream are also susceptible to erosion which can cause continued loss of property and possible future undermining of the footing of the approximately fifty (50) residential structures along this drainage ditch. The erosion that occurs along the banks of this intermittent stream/ drainage ditch has extended to fourteen (14) feet deep at some locations (NYRCR- Broome

County), and has led to high sediment loads downstream to the Finch Hollow Stormwater Retention Facility. The sediment produced by erosion has reduced the capacity of the downstream Finch Hollow Stormwater Retention Facility and the current conditions of the channel facilitate high velocity flows in an area of steep slopes and erodible soil.

**Project Activities:** This project involves Community Development Block Grant – Disaster Recovery (CDBG – DR) program funding for rehabilitation along approximately 3,500 linear feet of intermittent stream/ drainage ditch. The project activities will permanently impact approximately 1,850 linear feet of the intermittent stream/ drainage ditch. The proposed work comprises of a combined use of concrete lined ditches, piping, and culverts. The project will involve grading and excavating the channel bottom and side slopes for hydraulic capacity enhancements, removing vegetative growth to clear the channel, removing debris that impedes water flow, stabilizing the slopes and top bank by using fill, seed, fertilizer, and vegetative mulch, and replacing culverts with culverts capable of higher capacity. This work will also include miscellaneous associated work, such as creating construction access areas.

Estimates of the work indicate that the rehabilitation will include approximately 1,040 linear feet by 10ft wide articulating concrete block mat lining at Stations 0+00 through 10+40. Approximately 300 linear feet of existing 30-inch and 60-inch piping will be replaced with 300 linear feet of 72-inch pipe. Additionally, there will be installation of 360 feet of new 72-inch pipe. Corrugated metal pipe will be used in areas where establishment of stable bank slope is not possible due to limiting conditions.

Proposed work according to the Opinion of Probable Cost and associated site plans by Keystone Associates includes approximately 1,100 linear feet of ditch excavation and for the placement of 770 linear feet of 72" Aluminized Corrugated Metal Piping (CMP), 50 linear feet of 36" Smooth Interior Corrugated Plastic Pipe (SICPP), 150 linear feet of 12" SICPP, 100 feet of 18" SICPP, three (3) 10.5 feet diameter precast manholes, two (2) six foot diameter precast manholes, six (6) catch basins, and the removal of approximately 200 linear feet of existing pipe. Additionally the project will entail the use of 500 cubic yards of Type 4 Aggregate, 60 Tons of Asphalt Type 3 Binder, 30 Tons of Asphalt Concrete Type 6 Top, 20 Cubic Yards of cast in place concrete, 150 linear feet of concrete curb and gutter, one (1) precast concrete headwall 60" pipe, two (2) precast concrete headwalls 72" pipe, 21,000 square feet of articulating concrete block (ACB) Revetment, 800 24" concrete armor units, the removal and replacement of 100 linear feet of fencing, 1,000 Soil Yards of Topsoil, 4000 Soil Yards of seed and mulch, and erosion and sediment controls. The entire project is projected to result in permanent impact to 0.6 acres.

Due to the extent of rehabilitation, and due to new construction in the form of culverts and piping along portions of the intermittent stream, an environmental assessment is being prepared in accordance with 24 CFR Part 58.36.

**Background & Context:** According to the DMA 2000 Hazard Mitigation Plan Update – Broome County, NY, the Village of Johnson City has a frequent probability of occurrence for floods and severe storms (page 9.12 - 3). This Plan highlights past

actions that have been taken in the Village to mitigate damages from natural disasters. These included elevation of properties, conversion to green space, velocity dissipation projects, and lining roadside ditches with rip-rap and large culverts. The area of the proposed project, described herein, is specifically identified as a hazard vulnerability in Section 9.12 of the Village Hazard Mitigation Plan.

The intermittent stream/ drainage ditch drains a residential neighborhood and surrounding contributing area consisting of approximately 161 acres. The intermittent stream and its banks are bordered by wooded lots, landscaped lawns, and residential homes with swimming pools. The properties bordering this intermittent stream have been eroded during high flow events such as Tropical Storm Lee and Hurricane Irene.

According to the NYRCR plan, this project will increase protection of approximately fifty (50) residential properties, and will create resiliency during future flooding events for the Village of Johnson City.

**Purpose & Need for the Project:** The funding assistance provides for rehabilitation and mitigation of an intermittent stream/ drainage ditch which will decrease sediment loads from erosion of the intermittent stream banks, therefore preventing further sedimentation and reduction on the holding capacity of the downstream stormwater retention facility. This project will also reduce risk to residents and businesses both along the intermittent stream/ drainage ditch and downstream of this area. Finally, this project will prevent further undermining of a sanitary sewer system and likely prevent future failure of this system and subsequent release of untreated sewage into the environment.

**ENVIRONMENTAL ASSESSMENT FACTORS/ SCREENING**

[Environmental Review Guide HUD CPD 782, 24 CFR 58.40; Ref. 40 CFR 1508.8 &1508.27]

Evaluate the significance of the effects of the proposal on the character, features and resources of the project area. Enter relevant base data and verifiable source documentation to support the finding. Then enter the appropriate impact code from the following list to make a determination of impact. **Impact Codes:** (1) - No impact anticipated; (2) - Potentially beneficial; (3) - Potentially adverse; (4) - Requires mitigation; (5) - Requires project modification. Note names, dates of contact, telephone numbers and page references. Attach additional material as appropriate. Note conditions or mitigation measures required.

Land Development	Code	Source or Documentation
Conformance with Comprehensive Plans and Zoning	1	<p>The <u>Johnson City Official Zoning Map</u>, adopted May 3, 2011, depicts the properties involved to be mainly within a “suburban single family home district”, with limited portions of the project area in a “suburban multifamily home district”. The proposed work is on an intermittent stream/ drainage ditch which runs through these suburban single and multi-family home parcels, and the work will occur within construction easements along the drainage canal. The proposed work will mitigate erosion of the intermittent stream banks and will protect the properties that are located adjacent to the ditch.</p> <p>This planned action is a project that is proposed in the Broome County NYRCR plan (page 4-65). Moreover, the proposed action addresses a hazard vulnerability area identified in Section 9.12 of the DMA 2000 Hazard Mitigation Plan Update – Broome County, NY.</p> <p>The project is mitigation for flooding and erosion hazards in a residential neighborhood and will create flood resiliency for the Village of Johnson City. It is in conformance with local zoning and comprehensive plans.</p>
Compatibility and Urban Impact	2	<p>Per the Town of Union’s <u>Comprehensive Plan for Neighborhood 19 – Oakdale/ Reynolds</u>, the land use in the Oakdale/ Reynolds neighborhood is 32% residential land use, including single and multi-family homes. These neighborhoods also contain the regional shopping area for the greater Binghamton area. The Plan indicates that only minor changes are expected in the neighborhood, and will mostly be related to minor changes in the mix of commercial</p>

		uses. This project promotes rehabilitation of an existing intermittent stream/ drainage ditch that will provide for resiliency measures during future flood events. Thus, the residential and commercial infrastructure in these neighborhoods will have better protection from floods as a result of this project, and the project is consistent with the Comprehensive Plan.
Slope	2	Per the applicable USGS Topographic Map, the Project Site extends along approximately 3,500 linear feet of land with construction easements of about twenty (20) feet extended perpendicularly on each side of the intermittent stream. The intermittent stream/ drainage ditch has an approximate 6% slope across the 3,500 linear foot section proposed for rehabilitation, and it drains towards the southwest. The elevation at the most northern extent of the project area is approximately 1,270 feet above sea level, and the elevation at the downstream limits of the proposed work is approximately 1,000 feet above sea level. The project calls for rehabilitation of the drainage ditch and will include re-grading of channel slopes, culvert replacements, fill and excavation, and concrete channels. The project will affect the slope immediately adjacent to the channel, but is not proposed to reconfigure the slope of the entire neighborhood– only the channel banks and portions of the channel bed. Moreover, the topography will continue to drain towards the southwest. This work is imperative to prevent further erosion of the intermittent stream/ drainage ditch banks and to create resiliency of this community during future flood events. <b>(Source Cited: Attachment 1)</b>
Erosion	2	This project proposes to rehabilitate approximately 3,500 linear feet of an intermittent stream/ drainage ditch. This includes work to mitigate erosion of the intermittent stream banks. The project calls for rehabilitation of the intermittent stream/ drainage ditch and will include re-grading of channel slopes, culvert replacements, fill and excavation, and concrete channels. Best management practices for erosion and sediment control will be used to limit impact to water quality and erosion during construction. These practices are outlined in the Storm Water Pollution Prevention Plan developed for this proposed action and includes silt fences, sediment traps, land grading, culverts, vegetation,

		<p>and other measures. Achieving improvements will reduce erosion of the residential parcel lands into the intermittent stream and subsequently in the Finch Hollow Stormwater Retention Facility 1. Reduced erosion and sediment loads to this downstream stormwater retention facility will prevent further reductions in the retention capacity of this facility. <b>(Source Cited Attachment 2)</b></p>
Soil Suitability	1	<p>US Dept. of Agriculture (USDA) Natural Resources Conservation Service (NRCS) maps provide information on soils types and properties that influence development of building sites. The information is intended for land use planning, evaluating land use alternatives, and for planning site investigations prior to design and construction. (See attached USDA Soil Map). According to the NRCS soils map data for “Shallow Excavations” and for “Surface Water Management”, the rating class and limiting features for the soil type in the location of the proposed rehabilitation for shallow excavations and surface water management is “Very Limited”. Very limited indicates that the soil has one or more features that are unfavorable for the specified use.</p> <p>Information from the engineered plans, comments from the municipality and an environmental review by the Army Corps of Engineers reveal that the soils are indeed not suitable for many slope stabilization and stream bank restoration practices. The soils are highly erodible and are located in steep terrain. The designed plans take these constraints into account and will implement the use of non-natural materials such as concrete and metal culverts. These will be implemented in conjunction with the preexisting infrastructure in the intermittent stream/ drainage ditch, and it has been determined by plan engineers, the Village, and the Army Corp of Engineers that the proposed plan appropriately addresses soil suitability limitations. No potential undesirable impacts are anticipated and the site should be improved in terms of its landscape and stability. <b>(Source Cited: Attachment 3 and Attachment 4)</b></p>
Hazards and Nuisances including Site Safety	1	<p>The proposed project involves rehabilitation of an existing intermittent stream/ drainage ditch. Normal construction hazards will be present during work. Construction management practices to promote</p>

		<p>safety would be addressed with existing applicable Federal, State, County and local municipal regulations.</p> <p>The properties through which the 3,500 feet of drainage ditch runs are not listed on a U.S. Environmental Protection Agency (EPA) Superfund National Priorities or Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) list or equivalent State list, and are not located within 3,000 feet of a toxic or solid waste landfill site. Based on review of the NYSDEC Bulk Storage database, the properties do not have underground storage tanks, and the properties are not known or suspected to be contaminated by toxic chemicals or radioactive materials. Moreover, a review of the NYSDEC Spill Incident database revealed no spills occurring on properties bordering the drainage ditch, or within the immediate vicinity of these properties.</p> <p>A review of the EPA Resource Conservation and Recovery (RCRA) and NYSDEC Environmental Remediation databases provide no indication of past uses of the surrounding properties that could contaminate the drainage ditch or potentially adversely affect the occupants of the adjacent properties. The project involves excavation of soils in a drainage ditch, which will remain onsite. If there are construction wastes generated, according to the type of waste generated, it will be appropriately disposed of according to construction waste management practices in an appropriate, legally compliant receiving facility.</p> <p><i>Conclusion:</i> Based on project description, scope of work is not expected to pose an environmental risk to the residential neighborhood or the greater Village of Johnson City. The funded activities do not involve actions that would involve potential recognized environmental conditions/ contamination. (<b>Source Cited: Attachment 5</b>)</p>
Energy Consumption	1	<p>The project will not expand energy consumption needs relative to conditions prior to the flooding events, nor will it increase long-term energy consumption.</p>

<b>Noise</b> - Contribution to Community Noise Levels	1	The proposed use is not a noise sensitive use. This project involving physical rehabilitation repairs at an existing intermittent stream/ drainage ditch will not generate excessive noise during the short-term period of physical work and work will adhere to local municipal noise control standards. There is no long-term change to the local noise characteristics of the site.
<b>Air Quality</b> Effects of Ambient Air Quality on Project and Contribution to Community Pollution Levels	1	This project involving physical rehabilitation of an intermittent stream/ drainage ditch does not involve physical work that would substantively affect the NYSDEC Air Quality State Implementation Plan (SIP). No significant impacts on air quality will result. Generally, it is recommended to conduct construction rehabilitation utilizing methods to ensure acceptable air quality during these temporary activities, including through minimization of volatile organic compounds and nitrogen oxides emissions. This includes operation of gas-powered construction equipment to avoid prolonged idling. It involves fugitive dust management in rehabilitation. It is also desirable to source low-VOC materials and inventory and energy star efficient equipment purchase, as practicable.
<b>Environmental Design</b> Visual Quality - Coherence, Diversity, Compatible Use and Scale	1	The project involves rehabilitation of an existing intermittent stream/ drainage ditch. This a presumed compatible use, considering that the proposed site is a pre-existing drainage ditch. The rehabilitation and mitigation on the drainage ditch is intended to sustain the area and to build resiliency of this particular site while not detracting from visual quality.

<b>Socioeconomic</b>	<b>Code</b>	<b>Source or Documentation</b>
Demographic Character Changes	1	The project involves rehabilitation of an intermittent stream/ drainage ditch. The project is not expected to induce any change in the demographic character of the area.
Displacement	2	The project involves rehabilitation of an intermittent stream/ drainage ditch and 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. Instead this project entails mitigation measures which will protect

		residential homes and prevent possible displacement of residents that might occur if the erosion along this drainage ditch were allowed to continue unmitigated.
Employment and Income Patterns	1	The project involves rehabilitation of an intermittent stream/ drainage ditch and has no potential to affect employment opportunities or income patterns.

**Community Facilities and Services**

	<b>Code</b>	<b>Source or Documentation</b>
Educational Facilities	1	The project involves rehabilitation of an intermittent stream/ drainage ditch and will not introduce any new populations that would increase the student population of the area. As such, the project will not have an impact on educational facilities.
Commercial Facilities	1	The project involves rehabilitation of an intermittent stream/ drainage ditch and will not introduce any new development that would require additional retail services or other commercial facilities.
Health Care	1	The project involves rehabilitation of an intermittent stream/ drainage ditch and will not introduce any new development that would require the availability of routine or emergency health services.
Social Services	1	The proposed project would not impact social services. Social services are provided by a range of non-profit and government agencies.
Solid Waste	1	The project involves rehabilitation of an intermittent stream/ drainage ditch and will not introduce new business development that would generate solid wastes on an ongoing basis. Soils will be retained on site. If there are construction wastes generated, according to the type of waste generated, it will be appropriately disposed of according to construction waste management practices in an appropriate, legally compliant receiving facility.
Waste Water	1	The proposed project involves rehabilitation and will not introduce development that would generate waste water.
Storm Water	2	The proposed project involves rehabilitation of an existing intermittent stream/ drainage ditch to mitigate the area and build resiliency of the area during future flood events. The project will involve grading and excavating the channel bottom and side slopes for hydraulic capacity enhancements, removing vegetative growth to clear the channel,

		removing debris that impedes water flow, stabilizing the slopes and top bank by using fill, seed, fertilizer, and vegetative mulch, and replacing culverts with culverts capable of higher capacity. This work will also include miscellaneous associated work, such as creating construction access areas. The proposed work aims to facilitate stormwater runoff movement downstream to a stormwater retention area whilst reducing or eliminating the up-stream flooding and erosion that is occurring. A Stormwater Pollution Prevention Permit for this project expired in January 2015. It is presumed that the Village of Johnson City will extend this permit or reapply for this permit before any work commences. It is expected that all construction activities will be performed according to the procedures outlined in the Stormwater Pollution Prevention Plan developed for this project. <b>(Source Cited Attachment 2)</b>
Water Supply	1	The proposed project will not increase demand for water.
Public Safety - Police	1	The proposed project will not generate new demand for police services.
- Fire	1	The proposed project will not generate new demand for fire services.
- Emergency Medical	1	The proposed project will not generate new demand for emergency medical services.
Open Space & Recreation - Open Space	1	The project involves rehabilitation of an existing intermittent stream/ drainage ditch and will not introduce new development that would generate demand for open space resources or impede open space access. The Finch Hollow Nature Center and Park is located approximately 1,015 feet south of the most southern extent of the proposed work. The project is not expected to encroach onto parkland and nor is it expected to have adverse effects on the park resources, including visual, ecological, and recreational resources.
- Recreation	1	The proposed project will not introduce new development that would generate demand for recreational resources and nor will it impede recreation access.
Cultural Facilities	1	Based on a Section 106 project review, in accordance with a determination by the State Historic Preservation Office (SHPO) dated February 14, 2013 this project will have no adverse effect on historic properties or cultural resources.

		<p>A notice of no adverse effects was sent to the Delaware Nation, Delaware Tribe, the Stockbridge Munsee Community Band of Mohicans, the Oneida Indian Nation, the Onondaga Nation, and the Tuscarora Nation of New York.</p> <p><b>Source Cited: Attachment 6)</b></p>
Transportation	1	<p>The project involves rehabilitation of an existing intermittent stream/ drainage ditch and besides limited trips generated by construction vehicles during a short window of construction defined to occur over up to ten (10) months, possibly less, the project will not introduce new development that generates continuing demand for transport or transport services.</p>

**Natural Features**

**Source or Documentation**

Water Resources	1	<p>The proposed project involves repairs/ replacements at an existing business and will not introduce new demand for groundwater as water supply and nor would the project introduce septic flows that may affect groundwater.</p> <p>The EPA provided comments to the environmental review performed by the United States Army Corp of Engineers and requested that alternatives which did not bury the stream channel (piping) be considered. Consideration by the applicant, USACE, and design engineers resulted in a conclusion that the most effective long-term solution is to bury the stream channel at this location.</p> <p>The project occurs on a tributary to Choconut Creek, which ultimately drains into the Susquehanna River. Water quality concerns in the Susquehanna River Watershed are agricultural/non-point sources of nutrients and other pollutants, Municipal wastewater and combined sewer overflow (Binghamton-Johnson City area), septic and rural community wastewater treatment in unsewered areas, and flooding impacts. This project will prevent negative impacts to water resources by restoring a stream channel and thereby mitigating an exposed sanitary sewer main that is currently exposed and undermined by the erosion. The inclusion of impervious and piped surfaces in</p>
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		<p>the project may decrease the absorption of nutrients and other pollutants by the stream channel sediments. However, due to the high velocity of flow and erosional forces of the water, the stream is channelized and is not connected to floodplain or wetlands which could serve to “filter” flood waters. Thus, the project is not expected to majorly impact the discharge of nutrients or similar pollution to downstream waters.</p> <p>Source Cited:  <a href="http://www.dec.ny.gov/lands/48020.html">http://www.dec.ny.gov/lands/48020.html</a></p>
Surface Water	1	<p>The proposed project involves rehabilitation of an existing drainage ditch to mitigate the area and build resiliency of the area during future flood events. The project will involve grading and excavating the channel bottom and side slopes for hydraulic capacity enhancements, removing vegetative growth to clear the channel, removing debris that impedes water flow, stabilizing the slopes and top bank by using fill, seed, fertilizer, and vegetative mulch, and replacing culverts with culverts capable of higher capacity. This work will also include miscellaneous associated work, such as creating construction access areas. The proposed project aims to reduce erosion of the intermittent stream banks and thus reduce sediment load downstream to the downstream water retention facility. As the water from this retention facility flows into Choconut Creek and ultimately the Susquehanna River, there is potential for reduced sediment loads downstream. During construction, adherence to construction best management practices will greatly reduce adverse impacts to surface waters. Moreover, this ditch flows during storm events only (as per ancillary data provided by Village of Johnson City Officials) and it is presumed that the proposed work will only occur when there is no flow/ very low flow in the channel as per SPDES requirements.</p>
Unique Natural Features and Agricultural Lands	1	<p>According to NYSDEC’s Environmental Resource Map, the site is not located in or adjacent to a “Significant Natural Communities”. This data layer identifies locations within ½ mile of an identified significant natural community. The project is also not identified to be in or adjacent to State or Federal wetlands. (<b>Source Cited: Attachment 7</b>)</p>

		<p>The project area is zoned as single and multifamily residential property and is not in an agricultural district. There are residential homes located adjacent to each side of the canal throughout the approximately 3,500 linear foot reach of the intermittent stream, sections of which will be rehabilitated. This area is developed and is not used for agriculture. This project action does not involve the conversion of farmland to other type use.</p>
Vegetation and Wildlife	1	<p>The proposed project involves rehabilitation of an intermittent stream/ drainage ditch, which will include ground disturbance and stream bed and bank disturbance. The clearing of vegetation that has grown within the drainage ditch banks will be cleared in order to allow for the unimpeded flow of stormwater. Though it is reasonable to assess that urban wildlife may use the stream corridor as a corridor to move through the neighborhood, the implemented construction practices are not anticipated to impede the movement of local wildlife. Additionally, it is not anticipated that any rare, threatened, or endangered species (either plants or animals) will be adversely affected by this proposed action. Consultation with the New York State Department of Environmental Conservation Natural Heritage Program (NYSDEC NHP) and the United States Fish and Wildlife Service (USFWS) regarding rare, threatened and endangered species is described more detail in the “Endangered Species Act [50 CFR 402]” section in the proceeding sections. NYSDEC NHP and USFWS correspondence are appended to this review in <b>Attachment 8</b>.</p>

## ENVIRONMENTAL ASSESSMENT WORK SHEET

**Directions:** *The Responsible Entity (RE) must make a determination as to whether the activities affiliated with the project will affect the resource under consideration and trigger formal compliance consultation procedures with the appropriate oversight agency and/or subsequent mitigation. You may consult guidance by clicking on links in each box below which also will take you to information from agency web sites. If the activity affects the resource, indicate (A) in the Status Determination Column below. Or indicate (B) in that column if the activity does not affect the resources under consideration. The compliance documentation column should indicate what source documentation was used to make the compliance determination and copies of all necessary documentation should be attached to the completed form for inclusion in the Environmental Review Record (ERR).*

Statutes, Executive Orders, and Regulations listed at 24 CFR Sec. 58.5	Status Determination (A or B)	Compliance Documentation
Wetland Protection [Executive Order 11990]	B	The project does not occur within or adjacent to federal or state designated wetlands. This is based on US Fish & Wildlife Service (USFWS) National Wetlands Inventory maps and the NYSDEC Environmental Resource Mapper. Thus, there was no direct consultation with USFWS or the NYSDEC regarding wetlands. It is anticipated there will be no direct impacts to state and federally regulated wetlands. <b>(Source Cited: Attachment 7)</b>
Coastal Zone Management [Coastal Zone Management Act, 1972, sec. 307 (c) and (d)]	B	Not applicable. The project does not occur in a Coastal Zone. See attached coastal zone map. <b>(Source Cited: Attachment 9)</b>
Historic Preservation [36 CFR Part 800]	B	Based on a Section 106 project review, in accordance with a determination by the State Historic Preservation Office (SHPO) dated February 14, 2013 this project will have no adverse effect on historic properties or cultural resources. <b>(Source Cited: Attachment 6)</b>  A determination of no adverse effects was sent to the Delaware Nation, Delaware Tribe, the Stockbridge Munsee Community Band of Mohicans, the Oneida Indian Nation, the

		<p>Onondaga Nation, and the Tuscarora Nation of New York.  <b>(Source Cited: Attachment 5)</b></p>
<p>Floodplain Management  [Executive Order 11988; 24 CFR Part 55]</p>	B	<p>Not applicable. No portion of the project area is within a FEMA designated flood zone. See FEMA Firmette and Preliminary Data generated for this property. <b>(Source Cited: Attachment 10)</b></p>
<p>Sole Source Aquifers  [40 CFR 149]</p>	B	<p>It is not known if the project is located in a currently designated or proposed groundwater sensitive areas such as a special Ground Water Protection Area, Critical Supply Area, or Wellhead Protection Area. Additionally, it is not known whether the project is located within ½ mile radius of a current or proposed public water supply well or wellfield.</p> <p>The project location is within the surficial boundaries of the Clinton Street Ball Park Source Aquifer. The project involves rehabilitation of an intermittent stream/ drainage ditch and includes construction work to re-grade the ditch and its banks, impervious surfaces in areas where new culverts will be placed, and other related work. However, the proposed work does not directly involve groundwater or involve pollution that could affect groundwater resources. The project involves work in the previously existing intermittent stream/ drainage ditch and adverse effects to the sole source aquifer are not anticipated.</p> <p>It was determined (via phone correspondence) that The Finding of No Significance for this project will be mailed to the EPA when it is published and the EPA will comment on the project at that time if necessary. The FONSI was mailed to the below address on February 24, 2014.</p> <p>US EPA, REGION 2  Grace Musumeci  290 Broadway, 25th Floor  New York, NY 10007  E-mail: <a href="mailto:musumeci.grace@epa.gov">musumeci.grace@epa.gov</a></p> <p><b>(Source Cited: Attachment 11).</b></p>
<p>Endangered Species Act  [50 CFR 402]</p>	B	<p>According to information reviewed on New York State Environmental Resource Mapper at <a href="http://www.dec.ny.gov/imsmaps/ERM/viewer.htm">http://www.dec.ny.gov/imsmaps/ERM/viewer.htm</a>,</p>

		<p>the site is not within NYS DEC's designated rare, threatened or endangered species generalized review area per NYS Natural Heritage Program (NHP). The USFWS lists the Northern Long-Eared Bat as a rare species for Broome County.</p> <p>The NYSDEC NHP indicated that there are no records or known occurrences of rare or state-listed animals or plants, or significant natural communities, at the project site. An analysis was performed in accordance with Section of the Endangered Species Act, and the USFWS has received documentation of the ESA determination of no effects for listed species and has not provided any objections to the proposed project relative to this section. The no effects determination is dependent on the removal of 5-10 trees before the month of April, when long-eared bats are in hibernacula. If the trees are not removed before April, an endangered species survey of the area will be performed to ensure that endangered species are not affected before the trees are removed. If species are found, DEC and USFWS will be consulted before any work in the area of the trees commences.</p> <p>The USFWS provided comments to the Army Corp of Engineers voicing concern that the project could affect hydrologic conditions downstream and affect downstream species. Options were weighed in the design of the project to encompass these concerns and it was concluded that moving forward using concrete lining would be the best available option to rehabilitate the stream channel. Other options were limited to an array of constraining factors such as the degree of erosion that has occurred already, steep slopes, and lack of room to design laterally. Moreover, the ephemeral nature of this channel/ drainage ditch does not support fish habitat in the stream itself.</p> <p><b><i>(Sources Cited: Attachment 7; Attachment 8; Attachment 4)</i></b></p>
<p>Wild and Scenic Rivers [16 U.S.C. 1271, Sec. 7(b), (c)]</p>	<p>B</p>	<p>Not applicable, as there are no wild and scenic rivers within Broome County, as designated by the U.S. Department of the Interior. Additionally, there are no State designated wild, scenic, or</p>

		recreational rivers within or near the project locations.
Clean Air Act [40 CFR Parts 6, 51, 93]	B	This project does not involve physical work that would substantively affect the NYSDEC Air Quality State Implementation Plan (SIP). No significant impacts on air quality will result. Generally, it is recommended to conduct construction rehabilitation utilizing measures to ensure acceptable air quality during these temporary activities, including through minimization of volatile organic compounds and nitrogen oxides emissions. This includes operation of gas-powered construction equipment to avoid prolonged idling. It involves fugitive dust management in rehabilitation. It is also desirable to source low-VOC materials and inventory and energy star efficient equipment purchase, as practicable.
Farmland Policy Act [7 CFR Part 658]	B	Not applicable. This project occurs in a developed area and does not involve the conversion of farmland to other type use. The project involves rehabilitation of an intermittent stream/ drainage ditch and will occur within the limits of the intermittent stream banks.
Environmental Justice [Executive Order 12898]	B	This project does not occur in a State-identified EJ area <a href="http://www.dec.ny.gov/docs/permits_ej_operations_pdf/broomeej.pdf">http://www.dec.ny.gov/docs/permits_ej_operations_pdf/broomeej.pdf</a> The project is intended to provide rehabilitation and mitigation for an existing drainage ditch in order to develop community resiliency during future flood events. The project does not contribute to or promote environmental injustice.
Noise Abatement and Control [24 CFR Part 51, Subpart B]	B	The proposed use is not a noise sensitive use. The proposed work is not expected to generate excessive noise during the short-term period of physical work and work will adhere to local noise control standards.

Explosive and Flammable Operations [24 CFR Part 51 C]	B	Acceptable separation distance requirements do not apply to this rehabilitation and economic development case project because the definition for HUD assisted projects in 24 CFR Part 51.201 is predicated on whether the project increases the number of people exposed to hazardous operations. The environmental review for this project/ activity involves a proposal to provide for the mitigation and rehabilitation of a drainage ditch and does not involve increasing the residential or commercial density of the neighborhood. Pursuant to Part 51 Subpart C 'HUD-assisted project' Definition (in 51.201), it does not involve increasing residential or business densities, converting the type of use of a building to habitation, or making a vacant building habitable; therefore, there is not a requirement to comply under 24 CFR Part 51 Subpart C.
Airport Clear Zones and Accident Potential Zones [24 CFR Part 51 Subpart D]	B	The project does not involve acquisition; therefore, airport clear zone requirements are not applicable (also confirming compliance with 58.6).

<b>Statutes, Executive Orders, and Regulations listed at 24 CFR Sec. 58.6 and Other State Laws</b>	<b>Status Determination (A or B)</b>	<b>Compliance Documentation</b>
Flood Disaster Protection Act [Flood Insurance] [§58.6(a)]	B	Based on the applicable Flood Insurance Rate Map (FIRM) for this area, effective date September 30, 1977, and Preliminary FIRM flood data dated February 5, 2010, no portions of the proposed project are located within or immediately adjacent to Special Flood Hazard Area or proposed Special Flood Hazard Areas, respectively. See attached FEMA Firmette and Preliminary Data. <b>(Source Cited: Attachment 10)</b>
Coastal Barrier Resources Act/ Coastal Barrier Improvement Act [§58.6(c)]	B	The site is NOT in or immediately adjacent to (within 150 feet) a Coastal Barrier Resource Area System Unit or Otherwise Protected Area. Additionally, based on <u>NYS Coastal Barrier Resources</u> map, the site is not located within or in close proximity to a Coastal Barrier Resource area. Therefore, no impacts would result. <b>(Source Cited: Attachment 9)</b>

Airport Runway Clear Zone or Clear Zone Disclosure [§58.6(d)]	B	The proposed project does not involve the purchase or acquisition of a property and is not within one mile of a military airport or 2,500 feet of any civil airport(s). The nearest airport is the Greater Binghamton Airport located approximately 3.75 miles north of the proposed project area. Therefore, no impacts would result.
--	---	--

## **SUMMARY OF FINDINGS**

Funding for rehabilitation of the intermittent stream/ drainage ditch supports community recovery from past flood events and creates resiliency to future flood events. Planned repairs, including re-grading of the stream banks, culverts, and piping, amongst other related work, will immediately protect approximately fifty (50) residential structures that border the intermittent stream. Moreover, this work aims to reduce severe erosion along the banks and effectively reduce the sediment load downstream. By reducing sediment loads, the Village of Johnson City is able to decelerate the sediment transport/deposition processes that are currently reducing the capacity of the Storm Water Retention Facility at Finch Hollow. By preserving the capacity of the Storm Water Retention Facility, the Village will maintain resiliency for future flood events. The project will prevent further erosion that has claimed residential property and has undermined a sewer system, and it will mitigate the erosion so that the sewer system is not undermined further during future storm events. As shown in the Environmental Assessment Checklist, no significant land development, neighborhood, socioeconomic, natural resources, community facility or other direct, indirect or cumulative impacts would result from the proposed project. Positive cumulative impacts will include reduced/ eliminated conditions that cause the erosion of the adjacent residential properties, increased stormwater control, and less sediment transport downstream to a stormwater retention facility.

A previous environmental review for the project was carried out by the Army Corps of Engineers and the public was notified of the project and provided an opportunity to provide comments. Comments received at that time were addressed by the Army Corps of Engineers and the Village of Johnson City. Comments included concern about the environmental impact due to the design of the project, alternative construction methods, stream flow conditions downstream, timing of culvert replacements related to road work and vehicle access, and tree removal. Responses addressed the need for, and the reasoning for, the construction applications that will be implemented, indicated that access to residential properties and apartment complexes will be maintained during construction, that downstream flow conditions will not be greatly altered, and the trees in question were determined to not be included in the scope of work. These comments and responses can be found in the Army Corp of Engineer's environmental review of the project which is annexed hereto as ***Attachment 3***.

## **ALTERNATIVES TO THE PROPOSED ACTION**

### **Alternatives & Project Modifications Considered [24 CFR 58.40(e), Ref. 40 CFR 1508.9]**

One potential alternative is to relocate the residents within the affected area and convert the intermittent stream/ drainage ditch and surrounding properties to green/ open space with naturally flowing intermittent stream conditions. Whilst this would eliminate the risk of erosion and flooding to residential infrastructure, sewer systems in the area would remain vulnerable to erosion, which could cause a sewer infrastructure failure and release of raw sewage to the environment. Moreover, this action would require the buyout and relocation of at least fifty (50) residential

properties. A cost benefit analysis for this project concluded that the infrastructure improvement for this project will benefit the entire community's resiliency during future flooding events, will ensure the safety of residents, and that the project would have a net benefit on the community. It was concluded that the benefits of the project outweigh the cost to implement the plan (NYRCR-Broome County page 4-66). Additionally, implementation of this plan will allow for the continued use of the adjacent properties for residential purposes, whilst providing increased protection for these properties.

A second alternative could be to implement stream rehabilitation methods other than those that are planned as the proposed action. Alternative methods could include completely armoring the stream channel along the entire 3,500 foot stretch of intermittent stream/ drainage ditch, or lining the channel with lining mats to stabilize the stream bank. However, it is noted in the Drainage Swale and Ditch Rehabilitation Engineering Assessment, prepared by Keystone Associates, LLC, for this project, that previous attempts at using channel lining appear to be comprised. It is presumed that the detailed construction plans, which are based on a hydrologic analysis of the area and were prepared by Keystone Associates for the Village of Johnson City, are the most effective and cost efficient methods to achieve the flood control measures anticipated by the Village and its residents.

**No Action Alternative [24 CFR 58.40(e)]**

The 'no action' alternative means that there would be no rehabilitation and mitigation of the 3,500 linear foot stretch of intermittent stream/ drainage ditch in the Village of Johnson City. This would leave the residential neighborhood bordering these properties vulnerable to future flood damage in the form of damage from waters and from soil erosion of property. If no action occurs, the undermined sewer system would remain vulnerable to further erosion which could cause a failure of the system and cause release of raw sewage to the environment. Additionally, erosion in the channels would continue to contribute to high sediment loads downstream to the Finch Hollow Stormwater Retention Facility 1, which will continue to reduce the capacity of this facility and leave the Village of Johnson City susceptible to floods. No action would greatly affect this residential neighborhood and greater community, as recovery would be greatly impaired due to lack of financial support. Thus, the 'no action' alternative would not support this community's recovery from these storm events, and would leave the community susceptible to further damages during future storm events.

**Mitigation Measures Recommended [24 CFR 58.40(d), 40 CFR 1508.20]**

To prevent damage during construction, best management practices for erosion and sediment control will be utilized. It is also assumed that construction work on the intermittent stream and the stream banks will only occur during no and/ or low flow conditions occurring during dry weather patterns. Work will conform to general conditions and limitations set forth in the permits which have been acquired by the Village for the proposed action. These permits include an Army Corp of Engineers Permit (permit #2012-00244) and a NYSDEC Water Quality Certification permit (permit id: 7-0346-00181/00001). Work will conform to local building and land-use regulations and codes. Additionally, work will conform to the Stormwater

Management and Pollution Prevention Plan developed for this project, and to the NYS Department of Conservation SPDES General Permit for stormwater discharges which will be renewed, extended, or reapplied for before work commences.

Any comments from the EPA regarding Sole Source Aquifers and their impacts will be adhered to throughout the construction phases of this project.

Additionally, proposed work to remove 5-10 trees will occur during winter months before the month of April, when long-eared bats are known to be in hibernacula. If the trees are not removed before April, an endangered species survey of the area will be performed to ensure that endangered species are not affected before the trees are removed. If species are found, DEC and USFWS will be consulted before any work in the area of the trees commences.

**ADDITIONAL STUDIES PERFORMED &/OR LIST OF SOURCES, AGENCIES AND PERSONS CONSULTED [40 CFR 1508.9(b)] (With studies or summaries attached)**

- Attachment 1: Location Maps (aerial, street, topographic)
- Attachment 2: Stormwater Management and Pollution Prevention Plan
- Attachment 3: USDA NRCS Soils Map and Supplemental Information
- Attachment 4: U.S. Army Corps of Engineers Environmental Review
- Attachment 5: Environmental Standards Review Report
- Attachment 6: Cultural Resources—State Historic Preservation Office consultation
- Attachment 7: NYSDEC Environmental Resource Map & USFWS NWI Map
- Attachment 8: NYSDEC Natural Heritage Program and USFWS Information Request and Consultation Correspondence
- Attachment 9: Coastal Map and General Coastal Consistency Documentation
- Attachment 10: FEMA Firmette;
- Attachment 11: Sole Source Aquifer Map & Non-Housing Project/Activity Initial Screen Criteria Form

**DETERMINATION:** The preparers have complied with all provisions of 24 CFR Part 58, Subpart E—Environmental Review Process: Environmental Assessments, examining alternatives to the project itself, feasible ways to modify the project to eliminate or minimize adverse impacts, and based on steps (a) through (f) found in the regulations, determined the following:

- (1) Finding of No Significant Impact (FONSI), whereby the Responsible Entity may proceed to Dissemination and publication of the FONSI, per regulations found at 24 CFR Part 58, sec. **58.43(a)**.

**PREPARER SIGNATURE:**

**DATE:**



February 25, 2015

---

# Attachment 1

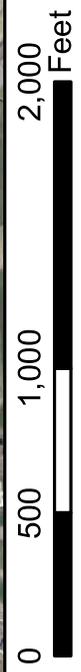
Location Maps (aerial, street, topographic)



This map is computer generated using data acquired by Tectonic from various sources and is intended only for reference, conceptual planning, and presentation purposes. This map is not intended for and should not be used to establish boundaries, property lines, location of objects or to provide any other information typically needed for construction or any other purpose when engineered plans or land surveys are required.

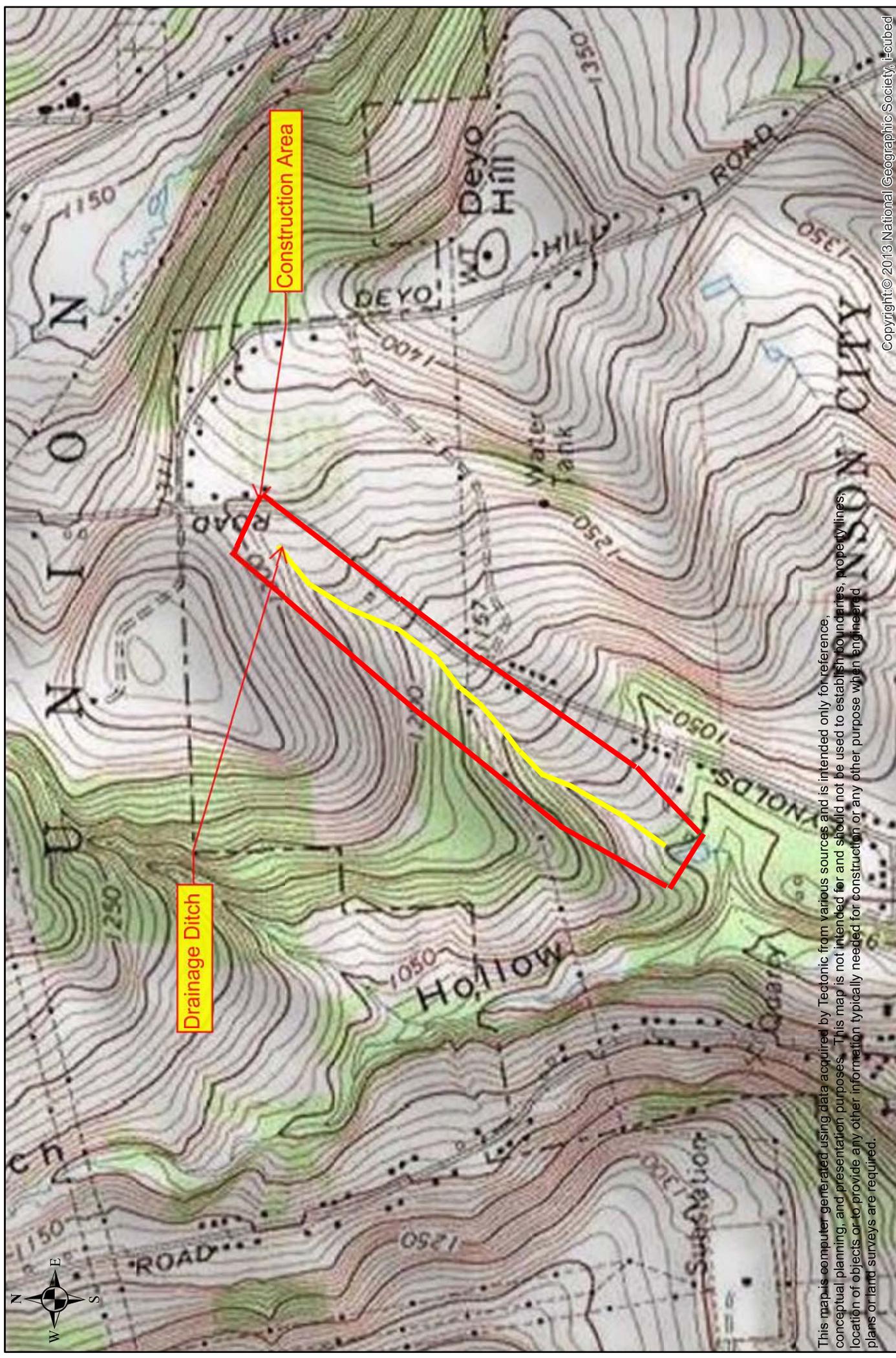


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# Drainage Improvements Reynolds Road/ Anna Maria Drive, Village of Johnson City, NY

Practical Solutions, Exceptional Service



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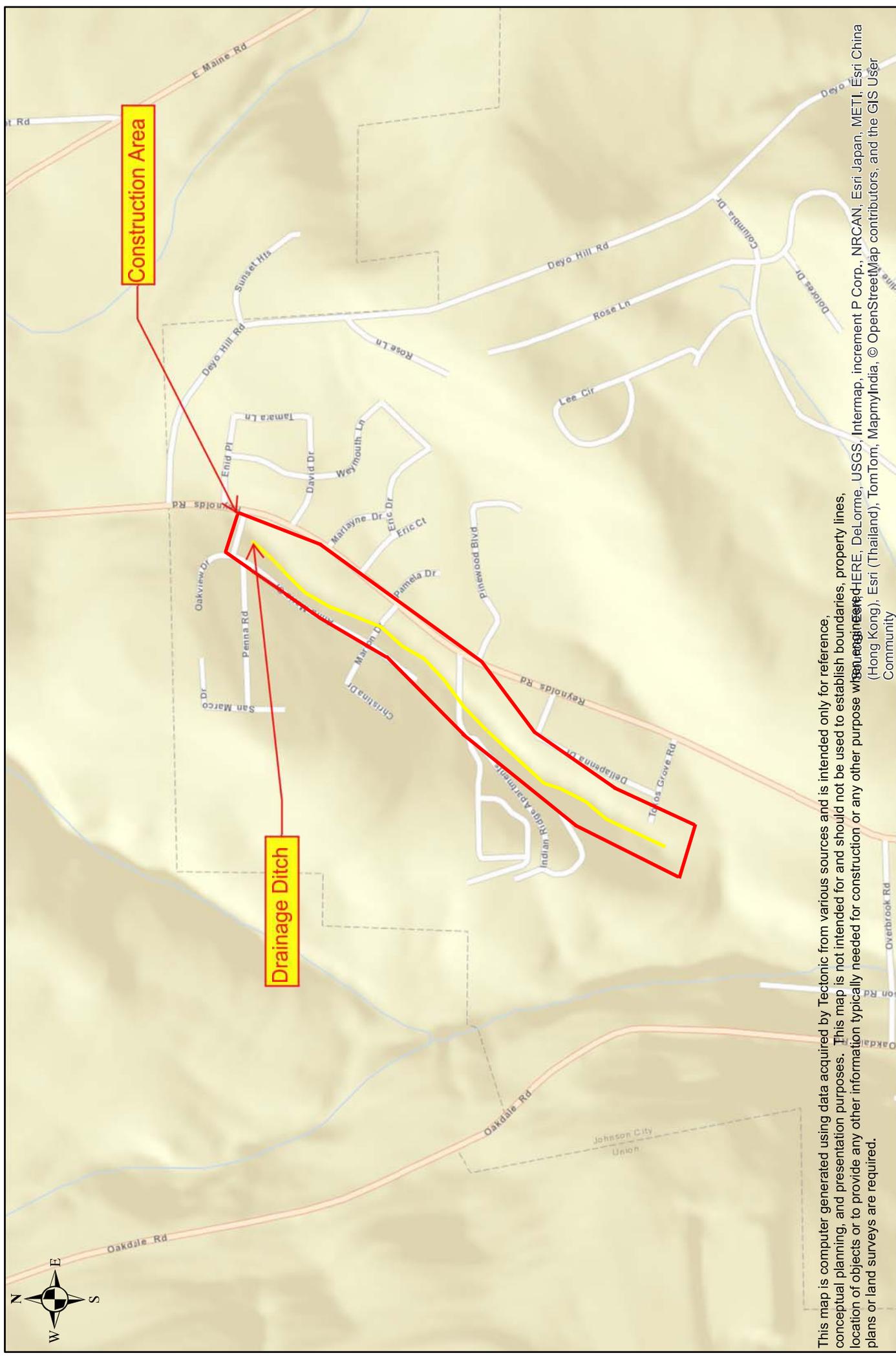


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**Topographic Map**  
**Drainage Improvements**  
 Reynolds Road/Anna Maria Drive  
 Johnson City, NY

Practical Solutions, Exceptional Service



Construction Area

Drainage Ditch

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**Street Map**  
**Drainage Improvements**  
 Reynolds Road/Anna Maria Drive  
 Johnson City, NY

# Attachment 2

## Stormwater Pollution Prevention Plan

# **STORMWATER MANAGEMENT AND POLLUTION PREVENTION PLAN**

## **REYNOLDS ROAD DRAINAGE SWALE & DITCH REHABILITATION PROJECT**

### **VILLAGE OF JOHNSON CITY COUNTY OF BROOME STATE OF NEW YORK**

PREPARED FOR:  
VILLAGE OF JOHNSON CITY  
243 Main Street  
Johnson City, New York 13790



Binghamton, New York 13901  
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Also Doing Business As (DBA):



**STORMWATER MANAGEMENT AND POLLUTION PREVENTION PLAN  
REYNOLDS ROAD DRAINAGE SWALE  
& DITCH REHABILITATION PROJECT  
VILLAGE OF JOHNSON CITY  
BROOME COUNTY, NEW YORK**

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Appendix C - Hydrologic and Hydraulic Computations
Appendix D - Construction Plans, Details, and Specifications
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Appendix F - Stormwater Construction Site Logbook

**STORMWATER MANAGEMENT AND POLLUTION PREVENTION PLAN  
REYNOLDS ROAD DRAINAGE SWALE  
& DITCH REHABILITATION PROJECT  
VILLAGE OF JOHNSON CITY  
BROOME COUNTY, NEW YORK**

**I. BACKGROUND INFORMATION**

**A. Project Background**

Keystone Associates, Architects, Engineers, and Surveyors, LLC was retained by the Village of Johnson City, New York to complete a Stormwater Management and Pollution Prevention Plan (SWPPP) to summarize the stormwater management and sediment and erosion control activities associated with site work for the proposed Reynolds Road drainage swale & ditch rehabilitation (stream restoration) project located between Tokos Grove and Penna Roads in the Village of Johnson City, Broome County, New York (see Figure 1 - Location Map, Figure 2 – USGS Vicinity Map, and Figure 3 – Aerial Photo). Construction plans were designed and prepared by Keystone Associates, LLC. There are multiple property owners along the drainage swale for which the Village of Johnson City will need to obtain easements (permanent and temporary construction) for access. The Village of Johnson City, 243 Main Street, Johnson City, New York 13790 will be responsible for the operation and maintenance of the drainage swale.

**B. Purpose of Stormwater Plan Report**

The purpose of this Stormwater Management and Pollution Prevention Plan (SWPPP) is to identify pre-development and post-development hydrologic and hydraulic conditions, and, if necessary, to delineate the stormwater control practices required to prevent, minimize, or mitigate potential water quality and flooding impacts associated with stormwater disposal for the proposed stream restoration project. These impacts include but are not limited to increases in suspended solids, colloidal and settleable solids, residuals from oil and floating substances, and other potential pollutants.

The SWPPP includes the following:

- Description of the existing site conditions including existing land use of the project area, soil types, and location of surface waters.
- Description of proposed site conditions including the site layout and changes to existing cover types.
- Identification of discharge points and breakout of associated drainage areas.
- Description of construction stormwater management controls and calculations necessary to reduce erosion, sediment and pollutants in stormwater discharge.
- Description of post-construction stormwater management practices for runoff quality and quantity control, including the use of green infrastructure techniques.
- Description of maintenance requirements.

Due to the negligible impact the construction activity will have on the overall hydrologic conditions of the surrounding area, the stream restoration project can be defined as "Construction Activities that Require the Preparation of a SWPPP that Only Includes Erosion and Sediment Controls" refer to Appendix B Table I of the General Permit for Stormwater Discharges for Construction Activities, Permit No. GP-0-10-001, effective January 29, 2010 for a complete list of activities (see Appendix A - Stormwater Discharge Permit Information).

In addition, this report identifies the submittals and signatures required to meet the regulatory requirements for a New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges for Construction Activities, including the MS4 SWPPP acceptance form from the Village of Johnson City (see Appendix A - Stormwater Discharge Permit Information). Appendix A contains a Notice of Intent Form (NOI), Municipal Separate Storm Sewer (MS4) SWPPP acceptance form, a sample Contractor Certification Statement Form, and permit signatory requirements. The NOI form should be finalized, executed, and submitted to NYSDEC as required along with the MS4 SWPPP acceptance form. The contractor's and subcontractor's certification statements should be executed and submitted with any contract agreement. This binds the contractor to the SWPPP and all associated requirements.

### **C. Regulatory and Permit Requirements**

The Federal Water Pollution Control Act of 1972 (with amendments), also referred to as the Clean Water Act (CWA), provides that stormwater discharges associated with industrial activity from a point source (including discharges through a municipal separate storm sewer system) to waters of the United States are unlawful, unless authorized by a National Pollutant Discharge Elimination System (NPDES) permit. In New York, which is a NPDES-delegated state, this is accomplished through the administration of the SPDES program administered by the NYSDEC.

A discharge that is subject to the NPDES regulations may be eligible to obtain coverage under a general permit by submitting an NOI to the administrator of the program, the NYSDEC. The NOI's are to be submitted to their Albany, New York office. Except when in compliance with the General Permit, or with a duly authorized permit from NYSDEC, discharge of stormwater associated with industrial activity by any person shall be unlawful.

The General Permit (Permit No. GP-0-10-001, effective January 29, 2010) (see Appendix A – Stormwater Discharge Permit Information) may authorize all discharges of stormwater associated with construction activity (those sites or common plans of development or sale that will result in the disturbance of one or more acres total land area) and where stormwater discharges from a point source to waters of the United States including wetlands.

The project must adhere to the stormwater and Ms4 requirements of the Village of Johnson City.

#### **D. Project and Site Description**

This project involves the rehabilitation of approximately 1,850 feet of an intermittent stream that has various signs of erosion problems mostly attributable to high velocities. The existing stream bed and banks have eroded, causing property damage (soil loss) beyond the public drainage easements. Existing conditions lead to high velocity flows that have caused further erosion and damaged previous attempts at stabilization with traditional erosion control matting. The proposed project will utilize engineered products to inhibit erosion and dissipate energy where needed. The project entails approximately 1,040 lf of articulating concrete block mat lining (with hollow cores to establish vegetation) to repair areas in which traditional erosion control matting has failed and 450 lf of culvert pipe replacement. In areas of severe erosion that have caused destabilization of the banks; physical constraints, existing easements and close proximity of existing residential structures do not allow room to establish stable bank slopes. Therefore, approximately 360 lf of 72" diameter aluminized corrugated metal pipe is proposed. 24" concrete armor units are proposed to be used at pipe outlets to dissipate energy. No mitigation activities beyond stabilization are proposed.

**Drainage, Stormwater Disposal and Natural Resources.** The project limits are located within a single drainage area consisting of approximately 161 acres. The Drainage Area includes a mixture of developed (residential subdivisions, apartment complexes and roads) and undeveloped (woods, brush and meadow) areas. Runoff from the drainage area is collected by several unnamed intermittent streams (Class C streams) which discharge into Finch Hollow Pond. Finch Hollow Pond is a Broome County flood control impoundment that releases water into Finch Hollow Creek (Class C stream). Finch Hollow Creek discharges into Little Choconut Creek (Class C stream) which ultimately outlets into the Susquehanna River (Class A stream). A review of available data indicates that mapped New York State protected waters were not identified in the vicinity of the project's drainage area and that the project area is not located within the mapped radius of New York State rare or protected plants or animals (see Figure 4 – NYSDEC Environmental Resource Map). According to the NYS Stormwater Interactive Mapper, the site is not located within a watershed improvement strategy area however it is located within the Village of Johnson City regulated MS4 area (see Figure 6 – NYS Stormwater Interactive Map).

**Historic Places.** According to the New York State Historic Preservation Office, the project is not located within mapped archeological sensitive areas (see Figure 5 – NYS Historic Preservation Office GIS Map).

**Wetlands/Floodplains.** Based on the United States Fish & Wildlife Service National Wetland Inventory online wetland mapping resource, there are no known federally regulated wetlands identified within or near the project area (see Figure 7 – National Wetland Inventory Map). State regulated wetlands have also not been identified in the vicinity of the project area (see Figure 4 – NYSDEC Environmental Resource Map).

According to the Federal Emergency Management Agency (FEMA) Community Panel Number 360047B, dated September 30, 1977, Village of Johnson City, Broome County, New York, there are no mapped flood hazard zones (100-yr. or 500-yr.) inside the project limits (see Figure 8 – Flood Zone Map). The nearest mapped flood zones are located to the southwest and run parallel to Finch Hollow Creek.

**Soils.** According to the United States Department of Agriculture Natural Resource Conservation Service’s online web soil survey, as well as the Broome County Soil Survey dated March 1971, the soils within the project limits are classified as Volusia Channery silt loam (VoC) (see Figure 9 – Soils Map). The Volusia series consists of deep, strongly acid, somewhat poorly drained loamy soils that formed in very firm, dense glacial till. Other properties of this soil are summarized in Table I - I Soil Types and are described and detailed in Appendix B – Soils Information.

---

Table I-I Soil Types

---

Symbol	Name	Slopes	SG	Depth To:		
				GW	BR	Perm. In/hr
VoC	Volusia Channery silt loam	8-15	D	6-18"	NA	0.00-0.20

---

Legend/Definitions

BR = Bedrock

Channery = a soil that is, by volume, more than 15 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches along the longest axis.

GW = Groundwater

NA = Not Available

Perm. = Permeability (based on upper soil horizons). Based on Tompkins County soils data.

SG = Soil Group

---

**E. Existing (Pre-Development) Conditions**

The unnamed intermittent stream runs parallel and east of Reynolds Road, the project limits extend from Tokos Grove Road north to Penna Road, in the Village of Johnson City. The pre-development Drainage Area includes a mixture of developed (residential subdivisions, apartment complexes and roads) and undeveloped (woods, brush and meadow) areas. See Figure 10 – Pre & Post Development Drainage Area Map. The existing stream bed and banks have eroded, causing property damage (soil loss) beyond the public drainage easements. Existing conditions lead to high velocity flows that have caused further erosion and damaged previous attempts at stabilization with traditional erosion control matting.

## **F. Proposed Future (Post-Development) Conditions**

The post-development Drainage Area will be the same as the pre-development Drainage Area. See Figure 10 – Pre & Post Development Drainage Area Map. The proposed project will utilize engineered products to inhibit erosion and dissipate energy where needed. The project entails approximately 1,040 lf of articulating concrete block mat lining (with hollow cores to establish vegetation) to repair areas in which traditional erosion control matting has failed and 450 lf of culvert pipe replacement. In areas of severe erosion that have caused destabilization of the banks; physical constraints, existing easements and close proximity of existing residential structures do not allow room to establish stable bank slopes. Therefore, approximately 360 lf of 72" diameter aluminized corrugated metal pipe is proposed. 24" concrete armor units are proposed to be used at pipe outlets to dissipate energy. No mitigation activities beyond stabilization are proposed. The construction plans are included in the stormwater plan as a basis for the preparation of the hydrologic, hydraulic, water quality and water quantity computations and erosion control plan for the project.

## **II. GREEN INFRASTRUCTURE PLANNING AND PRACTICES**

### **A. Stormwater Management Planning**

To mitigate the overall hydrological impact to the surrounding area due to the proposed development, a green infrastructure approach for stormwater management was taken through the implementation of site planning techniques and runoff reduction techniques. The goal of this approach is to maintain, as much as possible, the pre-development hydrological conditions such as pre-construction infiltration, peak runoff flow and discharge volume as well as minimizing the concentrated flow in order to address treatment in a distributed manner prior to reaching the collection system. In so doing, the overall runoff produced will be minimized as will the need for collection, storage and treatment. In order to address this approach the following five-step process that is presented in the New York State Stormwater Management Design Manual was utilized.

1. Site planning to preserve natural features and reduce impervious cover,
2. Calculation of the water quality volume for the site,
3. Incorporation of green infrastructure techniques and standard Stormwater Management Practices (SMPs) with Runoff Reduction Volume (RRv) capacity,
4. Use of standard SMPs, where applicable, to treat the portion of water quality volume not addressed by green infrastructure techniques and standard SMPs with RRv capacity, and
5. Design of volume and peak rate control practices where required.

A summary of the Green Infrastructure (GI) planning tools found in the Stormwater Management Design Manual and an explanation as to how each was either implemented or found to be non-applicable can be found below in Sections D (Green Infrastructure Planning and Practices) and E (Green Infrastructure Techniques and Practices for Runoff Reduction). NOTE: These sections only provide a general overview of each practice; reference the NYS Stormwater Management Design Manual for complete standards, details, specifications, and design variations.

## **B. Runoff Reduction Volume (RRv)**

The Runoff Reduction Volume (RRv) is the reduction of the total (100%) Water Quality Volume (WQv) on site through the implementation of a series of various green infrastructure techniques, standard stormwater management practices with runoff reduction capacity and good operation and maintenance. The Water Quality Volume is the runoff during the initial stage of a storm event that contains most runoff-related contaminants (salt, sand, etc.) transported from land (particularly impervious surfaces). If one hundred percent of the WQv cannot be treated, documentation must be provided justifying the evaluation of each of the green infrastructure planning and reduction techniques and identifying the specific limitations of the site and explaining why each of the techniques that are not used are technically infeasible. Projects that do not achieve one hundred percent runoff reduction must, at a minimum, reduce a percentage of the runoff from the proposed impervious areas on site specified by the Specific Reduction Factor which is based on the hydrologic soil group present on the site and treat the remaining WQv using standard stormwater management practices.

In accordance with Table I in Appendix B of the General Permit (Permit No. GP-0-10-001, effective January 29, 2010); construction activities that involve soil disturbances of one (1) or more acres of land, such as stormwater retrofits, stream restoration projects, slope stabilization projects and slope flattening projects that change the grade of the site, but do not significantly change the runoff characteristics require the preparation of a SWPPP that only includes erosion and sediment controls. Therefore RRv to treat 100% of the total WQV using Green Infrastructure practices is not required.

In addition, current flows carry large amounts of sediment directly into a Broome County stormwater retention facility (Finch Hollow Site #1) which diminishes its capacity while increasing the risk of future flooding during large storm events. The drainage ditch rehabilitation project will improve surface water quality by reducing velocities and inhibiting erosion (soil loss) along the unnamed tributary of Little Choconut Creek. The Spreadsheet Tool for the Estimation of Pollutant Load (STEPL Version 4.2) was used to determine the sediment pollutant load without the proposed project which was estimated at 430 tons per year. With the implementation of the stream rehabilitation project the sediment pollutant would be reduced to 50 tons per year.

## **C. Green Infrastructure Planning and Practices**

### **Preservation of Natural Resources:**

- Preservation of Undisturbed Areas - Delineate and place into permanent conservation undisturbed forests, native vegetated areas, riparian corridors, wetlands, and natural terrain. The operator of the site has drainage easements from private land owners along the existing ditch, placing areas into permanent conservation easements would prohibit owners from certain uses and restrict future development of these areas. These restrictions would potentially inconvenience the individual land owners not the site

operator therefore the preservation of undisturbed areas was determined to be an unsuitable practice for the project.

- Preservation of Buffers - Define, delineate and preserve naturally vegetated buffers along perennial streams, rivers, shorelines and wetlands. There are no perennial streams, rivers, shorelines or wetlands located on the site therefore preservation of natural vegetated buffers is not an applicable practice for the project. Vegetated buffers along the intermittent stream will be preserved to the greatest extent as possible during construction of the drainage ditch rehabilitation (e.g., culvert installation, channel armoring, outlet protection, slope tie-outs and temporary erosion control measures).
- Reduction of Clearing and Grading - Limit clearing and grading to the minimum amount needed for roads, driveways, foundations, utilities and stormwater management facilities. Reduction of clearing and grading measures are an acceptable practice for this project, clearing and grading of the site will be limited to the minimum amount needed for the drainage ditch rehabilitation (e.g., culvert installation, channel armoring, outlet protection, slope tie-outs and temporary erosion control measures).
- Locating Development in Less Sensitive Areas - Avoid sensitive resource areas such as floodplains, steep slopes, erodible soils, wetlands, mature forests and critical habitats by locating development to fit the terrain in areas that will create the least impact. There are no floodplains, wetlands, mature forests or critical habitats located within the project work limits. However steep slopes and erodible soils are within the project work limits and will need to be repaired to stabilize the drainage ditch, therefore, for these terms locating development in less sensitive areas is not an applicable practice for the project. However it is an acceptable practice in terms of locating the development to fit the terrain and create the least impact.
- Open Space Design - Use clustering, conservation design or open space design to reduce impervious cover, preserve more open space and protect water resources. The development will consist of rehabilitation of an existing drainage ditch therefore open space design is not an applicable practice for the project.
- Soil Restoration - Restore the original properties and porosity of the soil by deep till and amendment with compost to reduce the generation of runoff and enhance the runoff reduction performance of post construction practices. Stable compacted soils are required for the ditch rehabilitation work therefore soil restoration measures are not an acceptable practice for this project.

### **Reduction of Impervious Cover:**

- Roadway Reduction - Minimize roadway widths and lengths to reduce site impervious area. There is no roadway construction or reconstruction work planned for this project therefore roadway reduction is not an applicable practice.
- Sidewalk Reduction - Minimize sidewalk widths and lengths to reduce site impervious area. There is no sidewalk construction or reconstruction work planned for this project therefore sidewalk reduction is not an applicable practice.
- Driveway Reduction - Minimize driveway widths and lengths to reduce site impervious area. There is no driveway construction or reconstruction work planned for this project therefore driveway reduction is not an applicable practice.
- Cul-de-sac Reduction - Minimize the number of cul-de-sacs and incorporate landscaped areas to reduce their impervious area. There is no cul-de-sac construction or reconstruction work planned for this project therefore cul-de-sac reduction is not an applicable practice.
- Building Footprint Reduction - Reduce the impervious footprint of residences and commercial buildings by using alternate or taller buildings while maintaining the same floor to area ratio. There is no building construction or reconstruction work planned for this project therefore building footprint reduction is not an applicable practice.
- Parking Reduction - Reduce imperviousness on parking lots by eliminating unneeded spaces, providing compact car spaces and efficient parking lanes, minimizing stall dimensions, using porous pavement surfaces in overflow parking areas, and using multi-storied parking decks where appropriate. There is no parking lot construction or reconstruction work planned for this project therefore parking reduction is not an applicable practice.

### **D. Green Infrastructure Techniques and Practices for Runoff Reduction**

#### **Area and Volume Reduction:**

- Conservation of natural areas - Retain the pre-development hydrologic and water quality characteristics of undisturbed natural areas, stream and wetland buffers by restoring and/or permanently conserving these areas on a site. The operator of the site has drainage easements from private land owners along the existing ditch, placing areas into permanent conservation easements would prohibit owners from certain uses and restrict future development of these areas. These restrictions would potentially inconvenience the individual land owners not the site operator therefore the conservation of natural areas was determined to be an unsuitable runoff reduction practice for the project.

- Sheetflow to vegetated buffers - Undisturbed natural areas such as forested conservation areas and stream buffers or vegetated filter strips and riparian buffers can be used to treat and control stormwater runoff from some areas of a development project. The development will consist of stabilizing the bed and banks of an existing drainage ditch therefore, sheetflow to vegetated buffers was determined to be an unsuitable runoff reduction practice for the project.
- Vegetated open swale - conservation areas and stream buffers or vegetated filter strips and riparian buffers can be used to treat and control stormwater runoff from some areas of a development project. The development will consist of stabilizing the bed and banks of an existing drainage ditch therefore, vegetated open swale was determined to be an unsuitable runoff reduction practice for the project.
- Tree planting / tree box - Plant or conserve trees to reduce stormwater runoff, increase nutrient uptake, and provide bank stabilization. Trees can be used for applications such as landscaping, stormwater management practice areas, conservation areas and erosion and sediment control. Tree clearing will be limited to the minimum amount needed for the drainage ditch rehabilitation (e.g., culvert installation, channel armoring, outlet protection, slope tie-outs and temporary erosion control measures). Tree planting along the rehabilitated drainage ditch is encouraged wherever possible.

#### **Runoff Reduction Techniques:**

- Disconnection of rooftop runoff - Direct runoff from residential rooftop areas and upland overland runoff flow to designated pervious areas to reduce runoff volumes and rates. The development will consist of stabilizing the bed and banks of an existing drainage ditch therefore, disconnection of rooftop runoff is not applicable for this project.
- Stream daylighting for redevelopment projects - Stream Daylight previously-culverted/piped streams to restore natural habitats, better attenuate runoff by increasing the storage size, promoting infiltration, and help reduce pollutant loads. In areas of severe erosion that have caused destabilization of the banks; physical constraints, existing easements and close proximity of existing residential structures do not allow room to establish stable bank slopes and approximately 810 lf of 72" diameter aluminized corrugated metal pipe is proposed. Therefore, stream daylighting is not applicable for this project.
- Infiltration Trench - Infiltration trenches are shallow excavations that are lined with filter fabric and filled with stone to create underground reservoirs for stormwater runoff. The development will consist of stabilizing the bed and banks of an existing drainage ditch therefore, Infiltration trenches are not applicable for this project.

- Rain garden - Manage and treat small volumes of stormwater runoff using a conditioned planting soil bed and planting materials to filter runoff stored within a shallow depression. The development will consist of stabilizing the bed and banks of an existing drainage ditch therefore, Rain Gardens are not applicable for this project.
- Green roof - Capture runoff by a layer of vegetation and soil installed on top of a conventional flat or sloped roof. The rooftop vegetation allows evaporation and evapotranspiration processes to reduce volume and discharge rate of runoff entering conveyance system. There is no building construction or reconstruction work planned for the project therefore green roofs are not an applicable runoff reduction practice.
- Stormwater planter - Small landscaped stormwater treatment devices that can be designed as infiltration or filtering practices. Stormwater planters use soil infiltration and biogeochemical processes to decrease stormwater quantity and improve water quality. The development will consist of stabilizing the bed and banks of an existing drainage ditch therefore, stormwater planters are not applicable for this project.
- Rain tank/Cistern - Capture and store stormwater runoff to be used for irrigation systems or filtered and reused for non-contact activities. Irrigation and water reuse systems are not needed for this project therefore rain tank/cisterns are not an applicable runoff reduction practice.
- Porous Pavement - Pervious types of pavements that provide an alternative to conventional paved surfaces, designed to infiltrate rainfall through the surface, thereby reducing stormwater runoff from a site and providing some pollutant uptake in the underlying soils. There is no pavement construction or reconstruction work planned for the project therefore porous pavement is not an applicable runoff reduction practice.

#### **E. Channel Protection Volume (CPv)**

Channel protection volume (CPv) is calculated to determine the amount of water which must be stored to protect downstream channels from erosive velocities. The goal is attained by providing 24 hour extended detention for the post-development one-year 24 hour storm event.

In accordance with Table I in Appendix B of the General Permit (Permit No. GP-0-10-001, effective January 29, 2010); construction activities that involve soil disturbances of one (1) or more acres of land, such as stormwater retrofits, stream restoration projects, slope stabilization projects and slope flattening projects that change the grade of the site, but do not significantly change the runoff characteristics require the preparation of a SWPPP that only includes erosion and sediment controls. Computations for the water quality volume (WQv) and channel protection volume (CPv) are not required therefore; the requirements for application under the New York State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activities (NYSDEC 2010 manual) will be met.

### III. COMPARISON OF PRE-DEVELOPMENT TO POST-DEVELOPMENT RUNOFF

#### A. Approach and Concept

Due to the ditch rehabilitation construction, peak stormwater runoff rates and volumes will decrease when the project is completed. Mitigation of associated impacts is achieved through utilization of stormwater management measures that achieve reduced runoff, reduced channel erosion, prevent overbank flooding, help control extreme floods and reduces pollutants.

In accordance with Table I in Appendix B of the General Permit (Permit No. GP-0-10-001, effective January 29, 2010); construction activities that involve soil disturbances of one (1) or more acres of land, such as stormwater retrofits, stream restoration projects, slope stabilization projects and slope flattening projects that change the grade of the site, but do not significantly change the runoff characteristics require the preparation of a SWPPP that only includes erosion and sediment controls. Therefore runoff rate management is not required for the ditch rehabilitation project.

#### B. Methodologies

Stormwater runoff calculations were performed using the HydroCAD Stormwater Modeling software for pre- and post-development peak flows. Under the SCS TR 55 method, 1, 2, 10, 25, 50, and 100-year storm events were modeled for both the pre and post-development conditions based on the amount of rain anticipated during varying storm frequencies and routing through the existing and proposed drainage areas to a common discharge location. It should be noted that only the 1 year storm (Stream Channel Protection), 10 year storm (Overbank Protection) and the 100 year storm (Extreme Flood) are required to be modeled and accounted for in the Notice of Intent (NOI).

Storm frequencies are defined as the average frequency of occurrence of events having a given volume and duration. The storm frequencies used as a basis for computing peak rate of discharge with durations of 24-hours are provided below in Table 3-1 Summary of Pre and Post Development Stormwater Hydrology.

The project limits are located within a single drainage area consisting of approximately 161 acres. The Drainage Area includes a mixture of developed (residential subdivisions, apartment complexes and roads) and undeveloped (woods, brush and meadow) areas. Runoff from the drainage area is collected by several unnamed streams which discharge into Finch Hollow Pond. The existing stream bed and banks have eroded, causing property damage (soil loss) beyond the public drainage easements. Existing conditions lead to high velocity flows that have caused further erosion and damaged previous attempts at stabilization with traditional erosion control matting. The overall stream restoration area is small compared to the entire drainage area and the mitigation activities will be limited to restoration and stabilization therefore any increase associated with post-development peak flows as compared to the pre-development peak flows will be negligible. See Figure 10 – Pre & Post Development Drainage Area Map. The construction

plans are included in the stormwater plan as a basis for the preparation of the hydrologic, hydraulic, water quality and water quantity computations and erosion control plan for the project.

### C. Calculations

The pre and post-development drainage areas are determined based on topography and conveyance facilities. Peak runoff rates are calculated based on times of concentration, soil conditions, surface cover types, and routing calculations for the existing and developed conditions. The total pre and post development area is the same. For the hydrologic and hydraulic assumptions used and results calculated for pre- and post-development peak flows, see Appendix C - Hydrologic and Hydraulic Computations. Appendix C includes the input data, time of concentration (Tc), calculation of runoff curve number (CN), peak flows for each design storm event, pre-development and post-development hydrologic and hydraulic computations, and results for existing and proposed drainage areas for the proposed development for 1, 2, 10, 25, 50, and 100 year storm events. The pre-development and post-development drainage flows for the project are summarized in Table 3-1 Summary of Stormwater Hydrology.

The times of concentration (Tc) have been estimated to determine the time of the longest hydraulic route within the drainage area being analyzed. These routes may include overland flow (sheet flow), shallow-concentrated flow, and/or channel or pipe flows (concentrated flow). Curve Numbers (Cn) are determined based on soils and cover conditions. Refer to Table 3-1 and Appendix C for determined values.

<b>Table 3-1 Summary of Stormwater Hydrology</b>									
<b>Drainage Subarea 1</b>				<b>Storm Event/Peak Flow (cfs)</b>					
Description	Area	CN	Tc	1-Yr.	2-Yr.	10-Yr.	25-Yr.	50-Yr.	100-Yr.
Rainfall (inches)	NA	NA	NA	2.4	2.8	4.2	4.8	5.3	6.2
Pre DA-1	161.2	80	33.60	99.69	137.80	285.94	353.41	410.63	515.11
Post DA-1	161.2	80	33.60	99.69	137.80	285.94	353.41	410.63	515.11
<b>Difference: Post - Pre</b>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Is Post Runoff <math>\leq</math> 5% increase from Pre Runoff?				Yes	Yes	Yes	Yes	Yes	Yes
CN is a weighted value. Tc is longest overall.									
Legend: cfs = Cubic Feet per Second CN = Runoff Curve Number Tc = Time of Concentration (in minutes) Area measured in Acres NA = Not Applicable									

### D. Evaluation

The assumptions used in assessing pre-development and post-development drainage conditions include:

- Pre-development runoff curve numbers were based on vegetative conditions prior to any rehabilitation.
- Pre-development vegetative cover conditions were estimated based on a 2011 orthographic photographs downloaded from the New York State Geographic Information Clearinghouse website. These vegetative conditions were confirmed by subsequent site inspections by Keystone Associates.
- The woods and other vegetative cover curve numbers were based on "good" cover conditions, as defined in the runoff curve tables.
- Cover conditions for post development were based on the areas of the proposed stream rehabilitation and lawn, brush and wooded areas to remain.

In accordance with Table I in Appendix B of the General Permit (Permit No. GP-0-10-001, effective January 29, 2010); construction activities that involve soil disturbances of one (1) or more acres of land, such as stormwater retrofits, stream restoration projects, slope stabilization projects and slope flattening projects that change the grade of the site, but do not significantly change the runoff characteristics require the preparation of a SWPPP that only includes erosion and sediment controls. Therefore water quantity control from the area to be disturbed is not required for the ditch rehabilitation project.

#### **IV. STORMWATER MANAGEMENT**

##### **A. Stormwater Management Facilities**

1. Plans and specifications for the Stormwater management and erosion and sediment control systems are included in Appendix E - Stormwater Management Plans, Details, and Specifications.
2. The stormwater management facilities are generally described as temporary erosion and sediment control practices during construction (stabilized construction entrance, silt fences etc.), and permanent structural erosion and sediment control practices after construction (land grading, grassed swales, armored channels, culverts, outlet protection and revegetation etc.).

#### **V. EROSION AND SEDIMENT CONTROL**

##### **A. Erosion and Sediment Control Plan**

1. A key component of the SWPPP is the Erosion and Sediment Control Plan (E&SC Plan) included in Appendix D, which sets forth the measures to be implemented before the start of construction, and throughout the entire construction phase. The implementation of these measures must be monitored and maintained during construction in accordance with the SPDES regulations. Stabilization of the site shall also comply with the conditions and requirements set forth therein and further established by the local municipality, if any. Refer to Appendix A for a copy of the SPDES Permit No. GP-0-10-001.

The purpose of the E&SC Plan is to minimize the erosion of disturbed soil and to prevent the migration of sediment into surface waters and off-site properties during construction and until the site has received final stabilization. The E&SC plan accomplished that purpose through reducing runoff velocities, limiting the area of disturbed soils at any one time, and rapidly stabilizing disturbed soils. This plan contains specifications for erosion controls and associated construction details designed to mitigate potential impacts associated with erosion and sedimentation.

E&SC measures should be discussed following a pre-construction conference with appropriate agency and project staff. In addition, the Applicant must engage a qualified professional to oversee implementation of the SWPPP, including the specific E&SC Plan component. Implementation of the E&SC Plan would be based on New York State's Standards and Specifications for Erosion and Sediment Control, latest addition.

During construction, areas of active disturbance must be limited to less than five (5) acres unless otherwise approved by the NYSDEC.

## **B. Temporary Erosion and Sediment Control Facilities**

- I. Temporary erosion and sediment control facilities to be used during construction by the construction contractor are provided in Appendix E – Stormwater Management Plans, Details, and Specifications. In general, the temporary erosion and sediment control facilities to be used at the site during construction may include, but are not necessarily limited to:
  - stabilized construction entrance(s),
  - silt fences and/or hay bales,
  - grading,
  - inlet protection,
  - check dams,
  - sediment traps,
  - dust control,
  - mulching, and
  - topsoil and seeding.

## **C. Permanent Erosion and Sediment Control Facilities**

- I. Permanent erosion and sediment control facilities are provided in Appendix E – Stormwater Management Plans, Details, and Specifications. In general, the permanent erosion and sediment control facilities to be constructed include, but are not necessarily limited to:
  - land grading,
  - grassed swales and armored channels,
  - culverts,
  - outlet protection,
  - revegetation of all disturbed areas,

#### **D. Site Inspections / Winter Site Stabilization**

- I. Site inspections and winter site stabilization must be conducted in accordance with the SPDES General Permit provided in Appendix A. The guidance below has been incorporated into the SWPPP to address such requirements. In general, once weekly inspections are required for sites which disturb less than five (5) acres at any one time. Twice weekly inspections are required for sites which have been authorized to disturb greater than five (5) acres at any one time. Specific E&S requirements are identified in the permit and must be followed. The lack of this should be documented in the SWPPP Construction Duration Inspection reporting which is further discussed in Section VI.B.

At the end of the construction season when soil disturbance activities will be finalized or suspended until the following spring, it may be desirable to reduce the frequency of the required inspections. If the soil disturbance is completely suspended and the site is properly stabilized, an owner/operator may reduce the Construction Duration Inspection frequency but shall maintain a minimum of monthly inspections in all situations, even when there is total winter shutdown. Weekly or twice weekly inspections must resume no later than March 15 unless otherwise directed by the NYSDEC or local MS4 municipality.

### **VI. IMPLEMENTATION SCHEDULE AND MAINTENANCE**

#### **A. Implementation Schedule (Sequence of Operations)**

- I. The following schedule (sequence of operations) for erosion and sediment control facilities shall be implemented: (Note that no more than 5-acres will be disturbed at any one time).
  - a. Submit Notice of Intent (NOI) for Stormwater Discharges Associated with Construction Activity Under the SPDES General Permit.
  - b. Hold Pre-construction Conference.
  - c. Contractors shall sign Contractor's Certification Statement prepared for the project.
  - d. Install on-site mail box (combination lock preferred) to hold NOI, Permit Notice, SWPPP, Inspection Reports and MS4 SWPPP Acceptance Form. A sign providing SWPPP contact names and phone numbers is preferred.
  - e. Install temporary stabilized construction entrance/exits as required.
  - f. Install fabric silt fence.
  - g. Clear/grub site.
  - h. Install/Construct temporary stream diversion system(s) as needed or if applicable.
  - i. Strip and stockpile topsoil and rough grade stream channel and banks.
  - j. Remove and dispose of existing pipes to be replaced.
  - k. Install armor lining along stream channel and banks.



## **B. Record Keeping During Construction**

1. The stormwater record keeping requirements and report forms are included in Appendix F – Stormwater Construction Site Logbook. According to the permit, the owner or operator shall retain a copy of the NOI, NOI acknowledgment letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with the permit for a period of five years from the date that the site achieves final stabilization. In addition, the logbook should be maintained to address record keeping such as contractor certification statements, contractor’s “trained individual(s)” designations, final inspection reporting and notice of termination documentation. Properly completing the forms contained in the logbook will meet the inspection requirements for the NYSDEC SPDES General Permit for Construction Activities. The logbook and completed forms and this SWPPP shall be kept on site at all times during construction and made available to authorities upon request.

## **C. Construction and Waste Materials and Spill Controls**

1. Construction materials expected to be temporarily stored on site while the site is under construction include concrete, wood, metal, and plastics, and other miscellaneous materials. They shall be covered by water resistant coverings to prevent contact with rainwater and they shall be stored off the ground (on pallets for example) to prevent contact with stormwater runoff. Soil materials such as fill and topsoil stockpiles shall be surrounded with silt fence for erosion control.
2. Waste materials expected to be temporarily stored on the site during the construction may include wood and brush from clearing operations, soil from grading operations, trimmings from geotextile soil stabilization materials, excess concrete and asphalt from curb and pavement reconstruction, and other miscellaneous waste materials such as wood, metal and plastic trimmings, etc associated with construction.
3. Temporary excess soil material stockpiles shall have silt fence installed at the toe of slope for erosion control. Wood, stumps and brush shall be removed from the site and disposed of in a legal matter and must not be buried onsite unless approved by proper authority. Excess soils shall be removed from the site and disposed of in a legal matter unless fill location is provided by owner. Miscellaneous waste materials shall be stored in waste containers such as dumpsters or other appropriate containers which are periodically emptied by certified waste haulers or taken to an approved landfill or disposal site.
4. Excess concrete shall be dumped in a pre-determined location where materials are contained and cannot leach into waterways or storm sewer systems. Materials shall then be disposed in a legal matter unless approved fill location is provided by owner.

5. All petroleum spills that occur within New York State (NYS) must be reported to the NYS Spill Hotline (1-800-457-7362) within 2 hours of discovery, except spills which meet all of the following criteria:
  1. The quantity is known to be less than 5 gallons; and
  2. The spill is contained and under the control of the spiller; and
  3. The spill has not and will not reach the State's water or any land; and
  4. The spill is cleaned up within 2 hours of discovery.

A spill is considered to have not impacted land if it occurs and is contained on a paved surface such as asphalt or concrete. A spill in a dirt or gravel parking lot is considered to have impacted land and is reportable.

#### **D. Short Term Maintenance**

Short term maintenance shall occur during construction and for a post-construction period of one (1) year. Short term maintenance of any constructed cuts, fills, pavements, drainage features and vegetation is the responsibility of the owner/operator (Village of Johnson City) identified within the filed Notice of Intent (see Appendix A – Stormwater Discharge Permit Information). Also, the contractor and subcontractors engaged in work affecting stormwater drainage at the site shall sign a contractor certification statement prior to undertaking any construction activity at the site, binding them to terms and conditions of the SWPPP. Blank copies of the contractor certification statements are provided in Appendix F – Stormwater Construction Site Logbook documentation. Signed copies should be retained onsite within a Stormwater Construction Site Logbook, provided separately. Maintenance scheduling is provided in Table 6-1.

1. Vegetated areas and drainage channels are to be maintained as follows:
  - Maintain a grass height of 4" to 6",
  - Maintain sideslopes, and
  - Repair erosion by regrading, fill, and/or reseeding as necessary.
2. Culverts are to be maintained as follows:
  - Culverts shall be inspected weekly and after rainfall events and shall be immediately cleaned of any silt or debris build-up as required to provide for free flow of stormwater.
3. Open Channels are to be maintained as follows:
  - Each stormwater control feature shall be inspected weekly and after rainfall events. The system shall be cleaned of any silt, grit or debris build-up when 25 percent of the original volume has been exceeded.

**E. Long-Term Maintenance**

The municipality (Village of Johnson City) shall be responsible for maintaining the stormwater conveyance systems within their existing highway right-of-ways and or designated easements.

Maintenance activities for vegetation include mowing, fertilizing, watering, pruning, fire controls in dry weather, weed and pest control, reseeding, and repairs as necessary to maintain a vigorous, dense vegetative cover. Maintenance scheduling is provided in Table 6-1.

1. Vegetated areas of stormwater facilities (pond berms, slopes, swales, etc.) are to be maintained as follows:
  - Maintain a grass height of 4" to 6",
  - Maintain slopes, and
  - Repair erosion by re-grading, fill, and/or reseeding as necessary.
  
2. Culverts are to be maintained as follows:
  - Culverts shall be inspected monthly for the first year following construction then annually and cleaned of any silt or debris build-up as required to provide for free flow of stormwater.
  
3. Open Channels are to be maintained as follows:
  - Each stormwater control feature shall be inspected monthly for the first year following construction then annually. The swales/channels shall be cleaned of any silt, grit or debris build-up when 25 percent of the original volume has been exceeded.

**F. Maintenance Schedule**

1. The schedule for maintaining the stormwater control facilities is summarized in Table 6-1 Maintenance Schedule:

Table 6-1 Maintenance Schedule							
Symbol	Stormwater Practice	Construction Period		Short Term (1-Year)		Long Term	
		Inspect Sched.	Mow or Clean	Inspect Sched.	Mow or Clean	Inspect Sched.	Mow or Clean
V	Vegetated Areas (berms, slopes, swales, etc.)		4" to 6"	Monthly	4" to 6"	Annually	4" to 6"
CV	Culverts	weekly	As Req.	Monthly	As Req.	Annually	As Req.
OC	Open Channels	weekly	@25%	Monthly	@25%	Annually	@25%

## **REFERENCES**

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NYS Environmental Resource Mapper service: [www.dec.ny.gov/imsmaps/erm/viewer.htm](http://www.dec.ny.gov/imsmaps/erm/viewer.htm)

NYSGIS Clearinghouse Broome County Orthoimagery service: <http://gis.ny.gov/>

NYS Stormwater Interactive Mapper service: [www.dec.ny.gov/imsmaps/stormwater/viewer.htm](http://www.dec.ny.gov/imsmaps/stormwater/viewer.htm)

Soil Survey Broome County New York. March 1971. USDA/Cornell University. Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402

Federal Emergency Management Service (FEMA) online map service center. <https://msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1>

New York State Office of Parks, Recreation and Historic Preservation (SHPO) - Geographic Information System for Archeology and National Register. <http://nysparks.com/shpo/online-tools/>

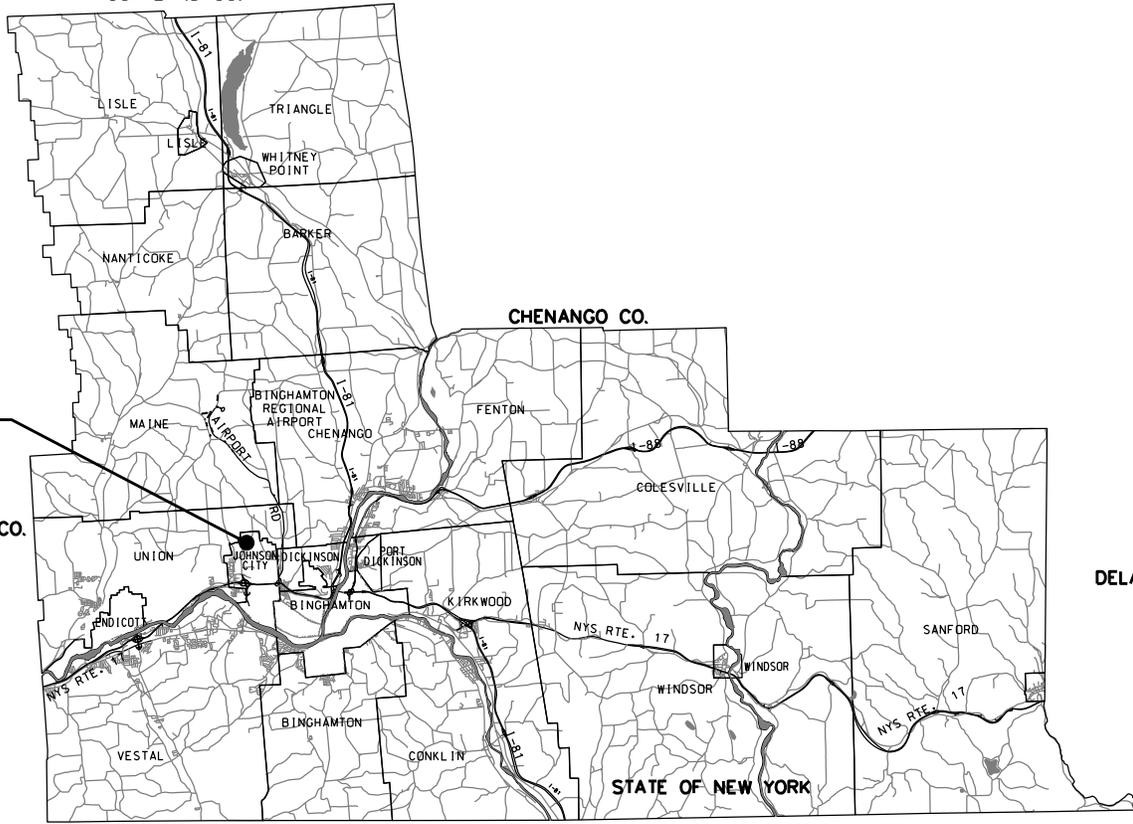
United States Fish and Wildlife Service (USF&W) National Wetlands Inventory (NWI) – Wetlands online mapper service: [www.wetlandfws.er.usgs.gov](http://www.wetlandfws.er.usgs.gov)

United States Department of Agriculture Natural Resource Conservation Service Web Soil Survey online map service center: [www.websoilsurvey.nrcs.usda.gov/app/](http://www.websoilsurvey.nrcs.usda.gov/app/)

United States Geological Survey (USGS) Map Locator and Download service: [http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm?TARGET\\_APP=Web\\_Soil\\_Survey\\_application\\_goqr\\_qwmtz4eekm45523gce45](http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm?TARGET_APP=Web_Soil_Survey_application_goqr_qwmtz4eekm45523gce45)

## FIGURES

CORTLAND CO.



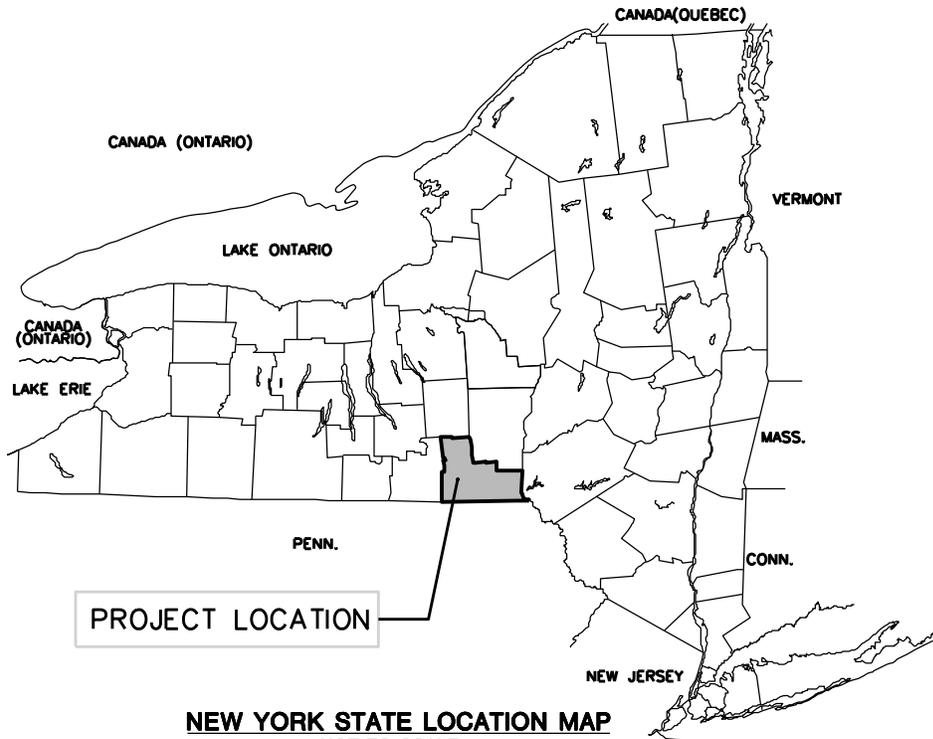
PROJECT LOCATION

TIOGA CO.

DELAWARE CO.

COMMONWEALTH OF PENNSYLVANIA

**BROOME COUNTY LOCATION MAP**  
NOT TO SCALE



PROJECT LOCATION

**NEW YORK STATE LOCATION MAP**  
NOT TO SCALE

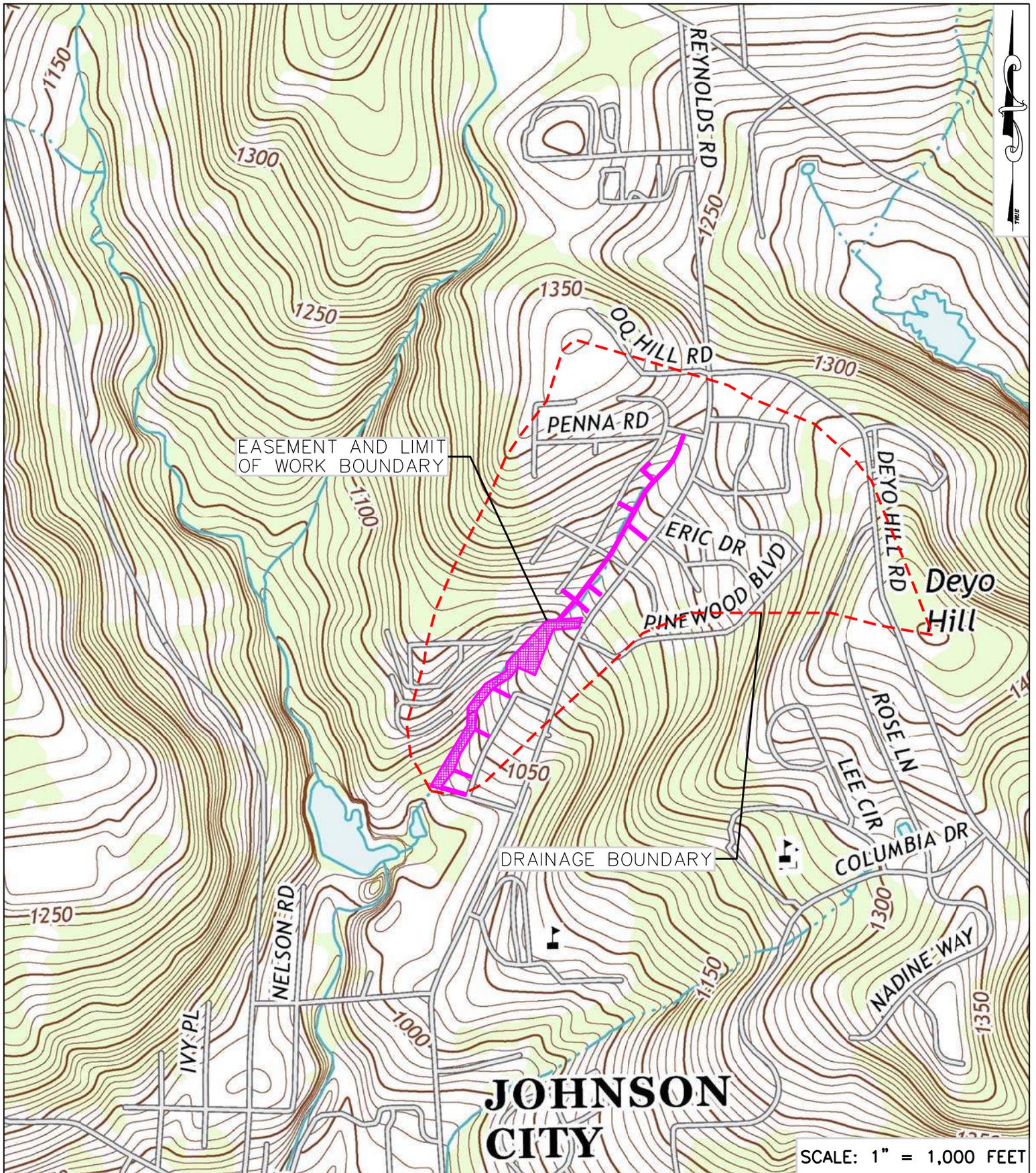


KEYSTONE PROJECT NO. 0067.12411

REYNOLDS ROAD DRAINAGE SWALE  
& DITCH REHABILITATION PROJECT

VILLAGE OF JOHNSON CITY  
BROOME COUNTY  
NEW YORK STATE

FIGURE 1  
LOCATION MAP

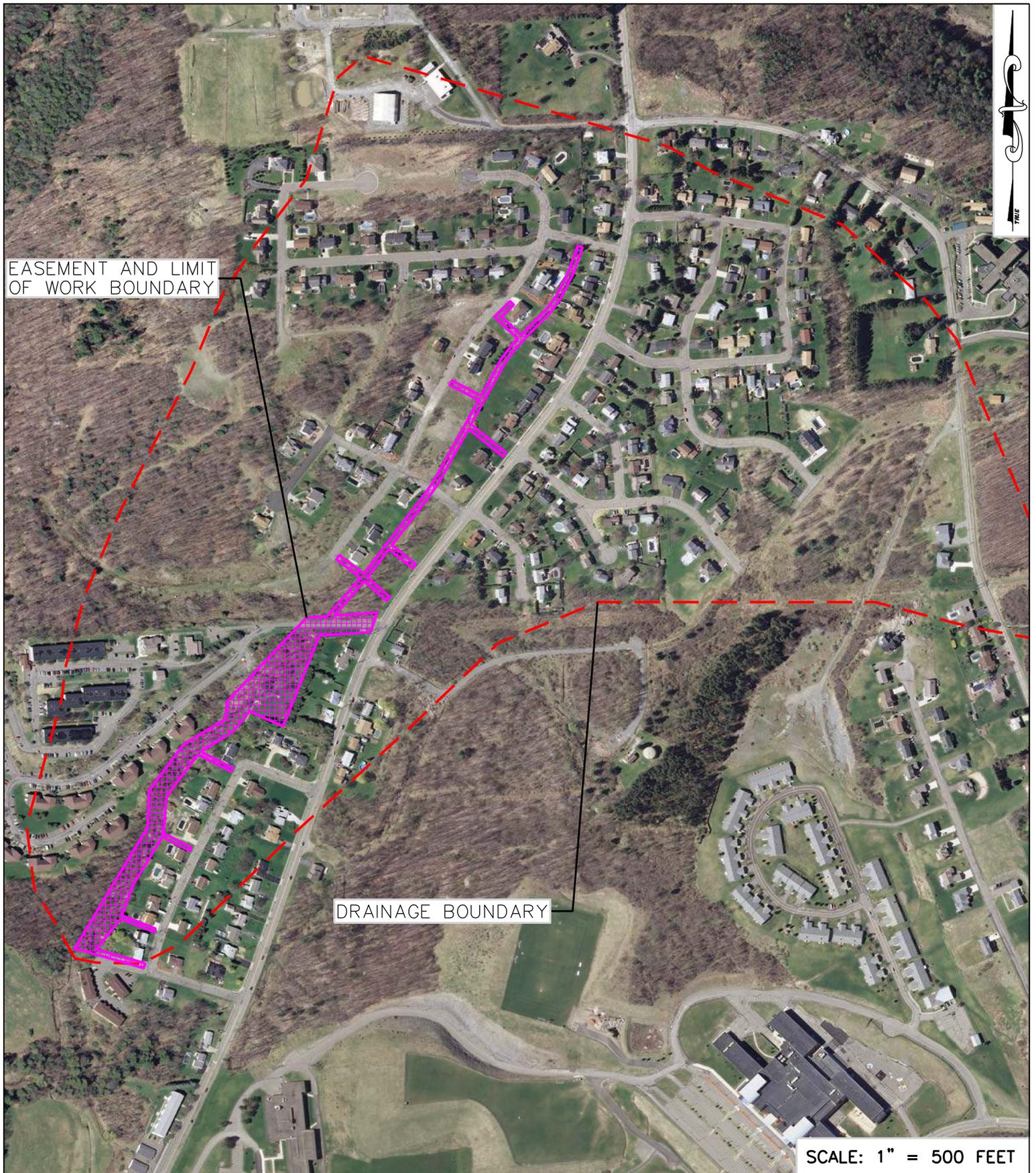


KEYSTONE PROJECT NO. 0067.12411

REYNOLDS ROAD DRAINAGE SWALE  
& DITCH REHABILITATION PROJECT

VILLAGE OF JOHNSON CITY  
BROOME COUNTY NEW YORK STATE

FIGURE 2  
USGS VICINITY MAP

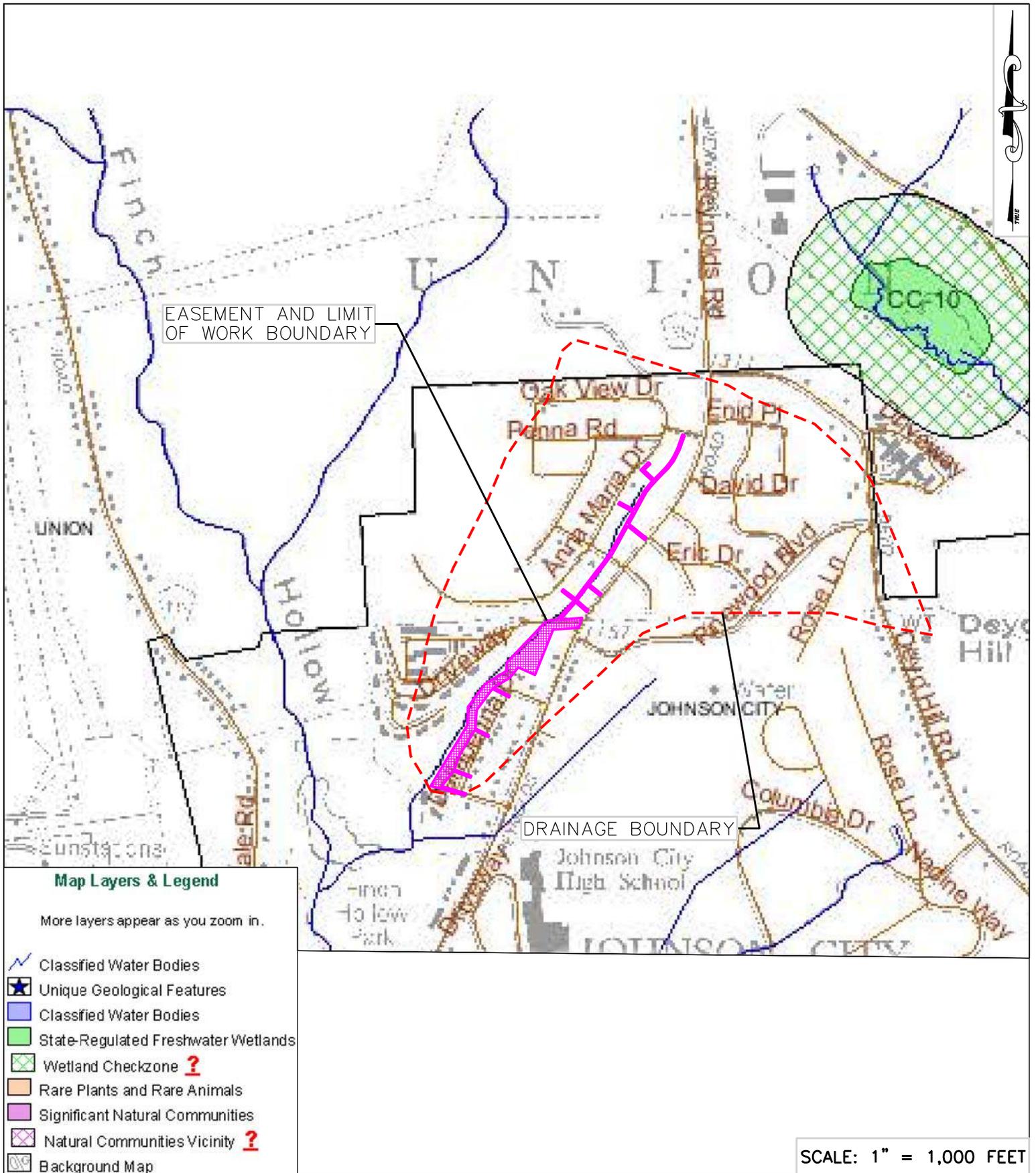


KEYSTONE PROJECT NO. 0067.12411

REYNOLDS ROAD DRAINAGE SWALE  
& DITCH REHABILITATION PROJECT

VILLAGE OF JOHNSON CITY  
BROOME COUNTY  
NEW YORK STATE

FIGURE 3  
AERIAL PHOTO



KEYSTONE PROJECT NO. 0067.12411

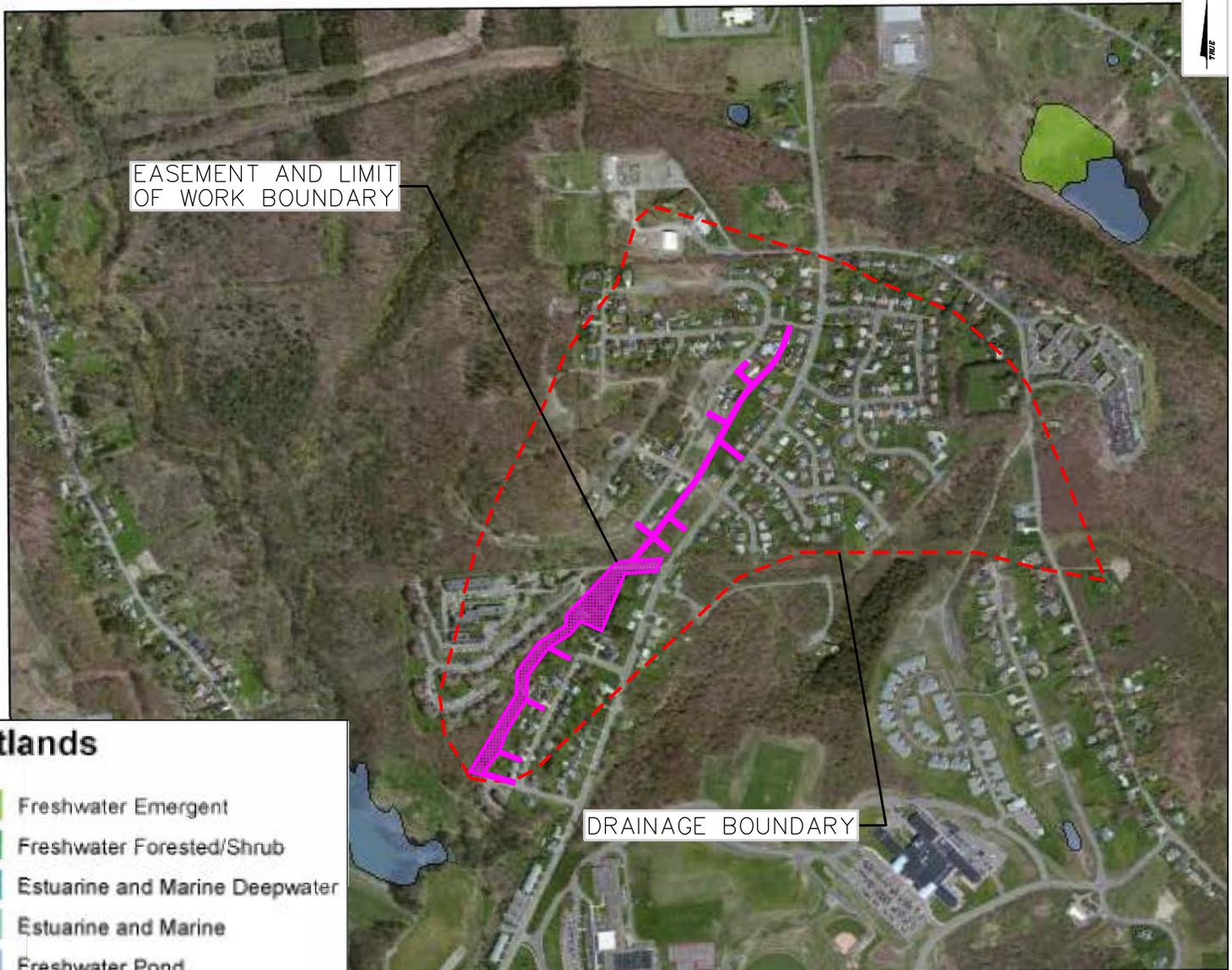
REYNOLDS ROAD DRAINAGE SWALE  
& DITCH REHABILITATION PROJECT

VILLAGE OF JOHNSON CITY  
BROOME COUNTY  
NEW YORK STATE

FIGURE 4  
NYSDEC ENVIRONMENTAL  
RESOURCE MAP



# U.S. Fish and Wildlife Service National Wetlands Inventory



EASEMENT AND LIMIT OF WORK BOUNDARY

DRAINAGE BOUNDARY

### Wetlands

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

### Riparian

- Herbaceous
- Forested/Shrub

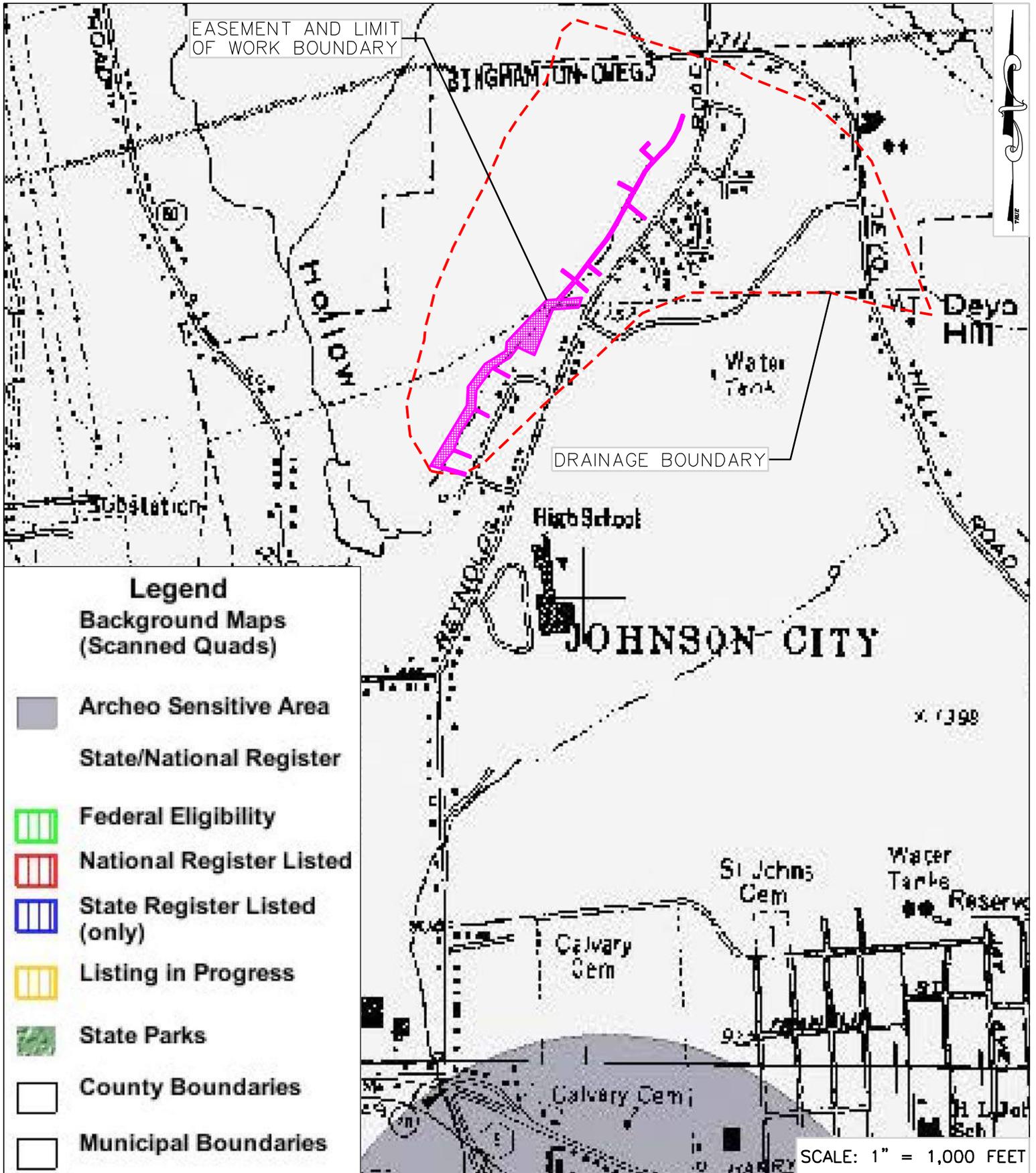
This map is for general reference only. The responsible for the accuracy or currentness of wetlands related data should be used in accord the Wetlands Mapper web site.

SCALE: 1" = 1,000 FEET



KEYSTONE PROJECT NO. 0067.12411  
REYNOLDS ROAD DRAINAGE SWALE  
& DITCH REHABILITATION PROJECT  
VILLAGE OF JOHNSON CITY  
BROOME COUNTY NEW YORK STATE

FIGURE 5  
NATIONAL WETLAND  
INVENTORY MAP



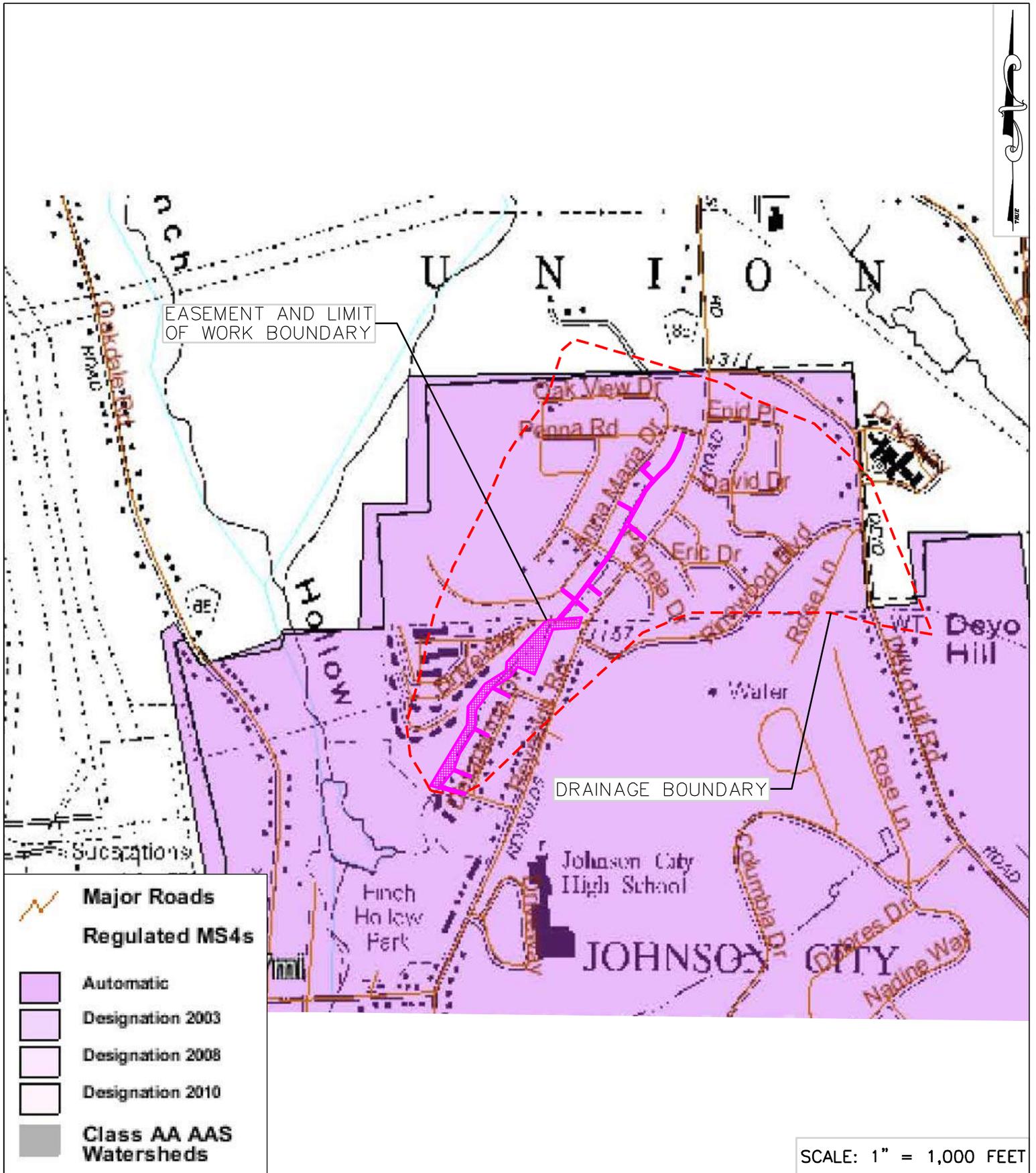
KEYSTONE PROJECT NO. 0067.12411

REYNOLDS ROAD DRAINAGE SWALE  
& DITCH REHABILITATION PROJECT

VILLAGE OF JOHNSON CITY  
BROOME COUNTY  
NEW YORK STATE

FIGURE 6

NEW YORK STATE  
HISTORIC PRESERVATION  
OFFICE GIS MAP



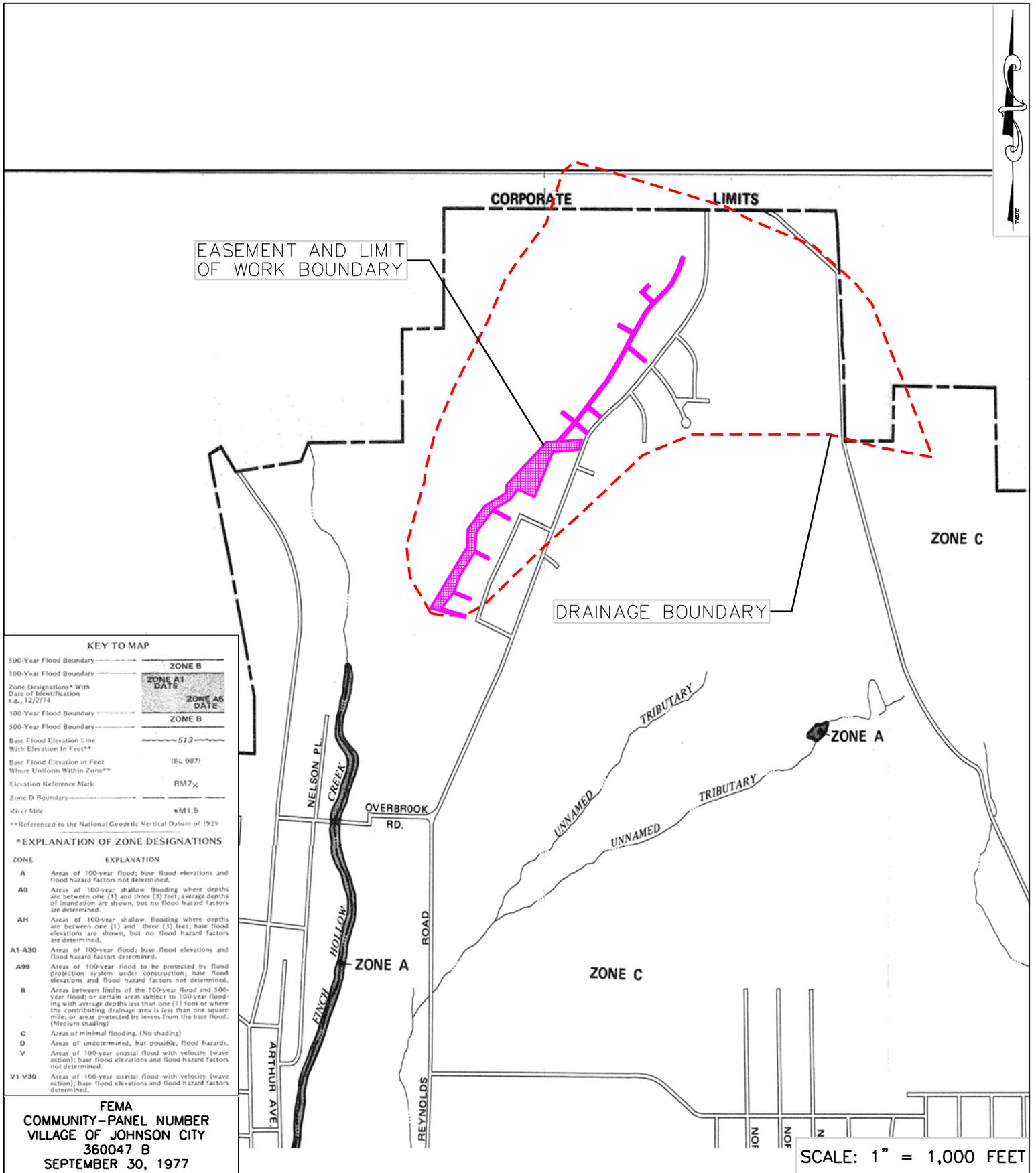
KEYSTONE PROJECT NO. 0067.12411

REYNOLDS ROAD DRAINAGE SWALE  
& DITCH REHABILITATION PROJECT

VILLAGE OF JOHNSON CITY  
BROOME COUNTY NEW YORK STATE

FIGURE 7

NYSDEC STORMWATER  
INTERACTIVE MAP

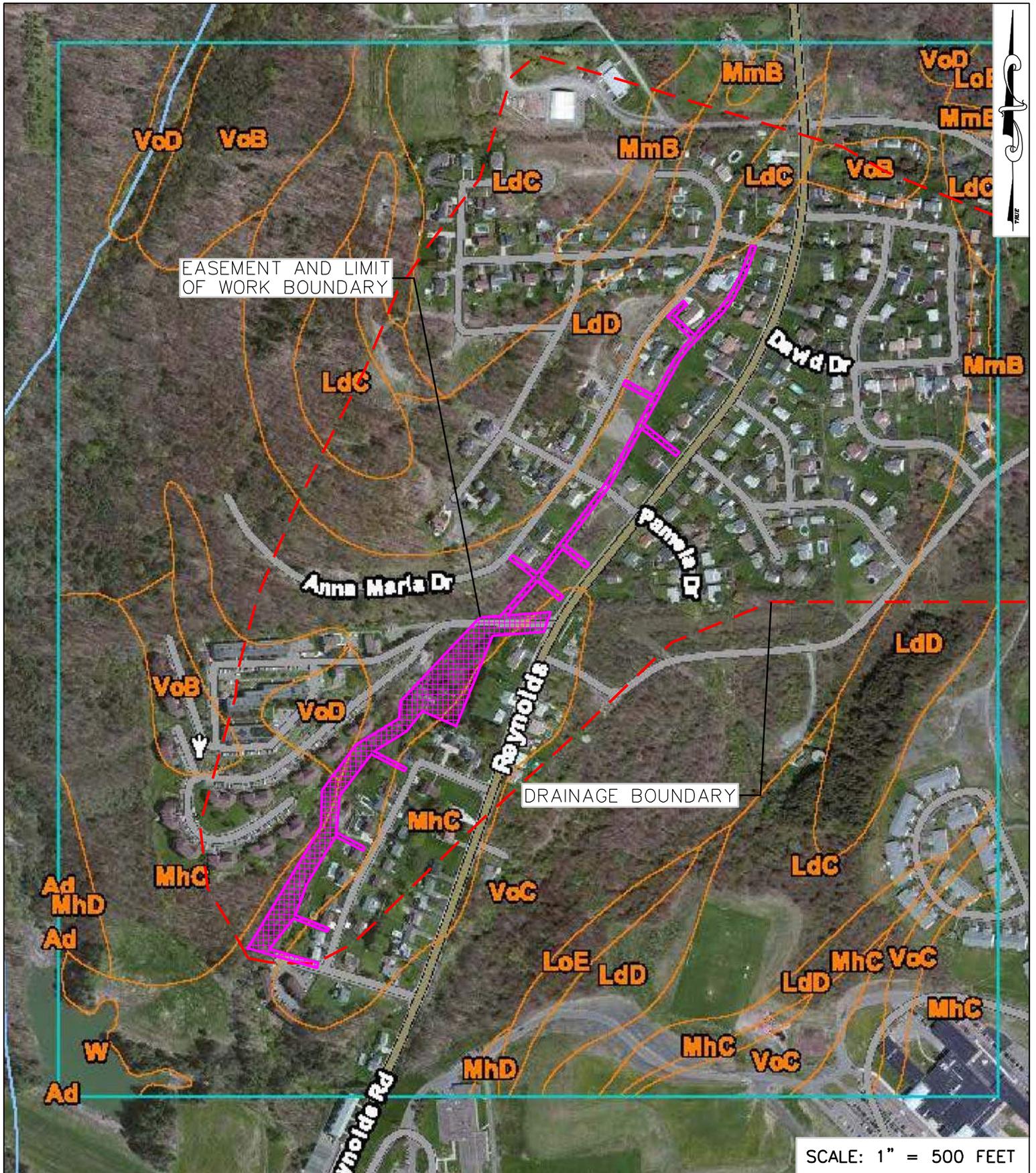


KEYSTONE PROJECT NO. 0067.12411

REYNOLDS ROAD DRAINAGE SWALE  
& DITCH REHABILITATION PROJECT

VILLAGE OF JOHNSON CITY  
BROOME COUNTY  
NEW YORK STATE

FIGURE 8  
FLOOD ZONE MAP



KEYSTONE PROJECT NO. 0067.12411

REYNOLDS ROAD DRAINAGE SWALE  
& DITCH REHABILITATION PROJECT

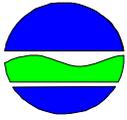
VILLAGE OF JOHNSON CITY  
BROOME COUNTY NEW YORK STATE

FIGURE 9  
SOILS MAP



**APPENDIX A  
STORMWATER DISCHARGE PERMIT INFORMATION**

**NOTICE OF INTENT**



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

**NYR**        
 (for DEC use only)

**Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-10-001**  
 All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

**- IMPORTANT -**  
**RETURN THIS FORM TO THE ADDRESS ABOVE**  
OWNER/OPERATOR MUST SIGN FORM

**Owner/Operator Information**

Owner/Operator (Company Name/Private Owner Name/Municipality Name)  
 Village of Johnson City

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

Owner/Operator Contact Person First Name  
 Robert

Owner/Operator Mailing Address  
 243 Main Street

City  
 Johnson City

State Zip  
 NY 13790 -

Phone (Owner/Operator) Fax (Owner/Operator)  
 607 - 797 - 2523 607 - 798 - 9553

Email (Owner/Operator)  
 jcdops@stny.rr.com

FED TAX ID  
 -  (not required for individuals)

**Project Site Information**

Project/Site Name

Reynolds Road Ditch Rehabilitation

Street Address (NOT P.O. BOX)

Reynolds Road

Side of Street

North  South  East  West

City/Town/Village (THAT ISSUES BUILDING PERMIT)

Johnson City

State

NY

Zip

13790

-

County

Broome

DEC Region

7

Name of Nearest Cross Street

Tokos Grove

Distance to Nearest Cross Street (Feet)

680

Project In Relation to Cross Street

North  South  East  West

Tax Map Numbers

Section-Block-Parcel

Tax Map Numbers

1. Provide the Geographic Coordinates for the project site in NYTM Units. To do this you **must** go to the NYSDEC Stormwater Interactive Map on the DEC website at:

[www.dec.ny.gov/imsmaps/stormwater/viewer.htm](http://www.dec.ny.gov/imsmaps/stormwater/viewer.htm)

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located your project site, go to the tool boxes on the top and choose "i"(identify). Then click on the center of your site and a new window containing the X, Y coordinates in UTM will pop up. Transcribe these coordinates into the boxes below. For problems with the interactive map use the help function.

**X Coordinates (Easting)**

419961

**Y Coordinates (Northing)**

4665913

2. What is the nature of this construction project?

- New Construction
- Redevelopment with increase in impervious area
- Redevelopment with no increase in impervious area

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

**SELECT ONLY ONE CHOICE FOR EACH**

**Pre-Development  
Existing Land Use**

- FOREST
- PASTURE/OPEN LAND
- CULTIVATED LAND
- SINGLE FAMILY HOME
- SINGLE FAMILY SUBDIVISION
- TOWN HOME RESIDENTIAL
- MULTIFAMILY RESIDENTIAL
- INSTITUTIONAL/SCHOOL
- INDUSTRIAL
- COMMERCIAL
- ROAD/HIGHWAY
- RECREATIONAL/SPORTS FIELD
- BIKE PATH/TRAIL
- LINEAR UTILITY
- PARKING LOT
- OTHER

Stream Channel

**Post-Development  
Future Land Use**

- SINGLE FAMILY HOME
- SINGLE FAMILY SUBDIVISION
- TOWN HOME RESIDENTIAL
- MULTIFAMILY RESIDENTIAL
- INSTITUTIONAL/SCHOOL
- INDUSTRIAL
- COMMERCIAL
- MUNICIPAL
- ROAD/HIGHWAY
- RECREATIONAL/SPORTS FIELD
- BIKE PATH/TRAIL
- LINEAR UTILITY (water, sewer, gas, etc.)
- PARKING LOT
- CLEARING/GRADING ONLY
- DEMOLITION, NO REDEVELOPMENT
- WELL DRILLING ACTIVITY \*(Oil, Gas, etc.)
- OTHER

Number of Lots

--	--	--

Stream Channel

**\*Note:** for gas well drilling, non-high volume hydraulic fractured wells only

4. In accordance with the larger common plan of development or sale, enter the total project site area; the total area to be disturbed; existing impervious area to be disturbed (for redevelopment activities); and the future impervious area constructed within the disturbed area. (Round to the nearest tenth of an acre.)

Total Site Area	Total Area To Be Disturbed	Existing Impervious Area To Be Disturbed	Future Impervious Area Within Disturbed Area
5.0	2.8	0.0	0.0

5. Do you plan to disturb more than 5 acres of soil at any one time?  Yes  No

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

A 0 %	B 0 %	C 0 %	D 100 %
----------	----------	----------	------------

7. Is this a phased project?  Yes  No

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

Start Date	End Date
/ / - / /	/ / - / /



15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)?  Yes  No  Unknown

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

Village of Johnson City

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

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law?  Yes  No

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

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

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)?  Yes  No

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)?  Yes  No  
**If No, skip questions 23 and 27-39.**

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual?  Yes  No





**Post-construction Stormwater Management Practice (SMP) Requirements**

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

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.

- Preservation of Undisturbed Areas
- Preservation of Buffers
- Reduction of Clearing and Grading
- Locating Development in Less Sensitive Areas
- Roadway Reduction
- Sidewalk Reduction
- Driveway Reduction
- Cul-de-sac Reduction
- Building Footprint Reduction
- Parking Reduction

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).

- All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).
- Compacted areas were considered as impervious cover when calculating the **WQv Required**, and the compacted areas were assigned a post-construction Hydrologic Soil Group (HSG) designation that is one level less permeable than existing conditions for the hydrology analysis.

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

**Total WQv Required**

.  acre-feet

29. Identify the RR techniques (Area Reduction), RR techniques (Volume Reduction) and Standard SMPs with RRv Capacity in Table 1 (See Page 9) that were used to reduce the Total WQv Required(#28).

Also, provide in Table 1 the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

**Note:** Redevelopment projects shall use Tables 1 and 2 to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

Table 1 - Runoff Reduction (RR) Techniques and Standard Stormwater Management Practices (SMPs)

<u>RR Techniques (Area Reduction)</u>	<u>Total Contributing Area (acres)</u>		<u>Total Contributing Impervious Area (acres)</u>	
<input type="radio"/> Conservation of Natural Areas (RR-1) ...	<input type="text"/>	<input type="text"/>	and/or	<input type="text"/>
<input type="radio"/> Sheetflow to Riparian Buffers/Filters Strips (RR-2) .....	<input type="text"/>	<input type="text"/>	and/or	<input type="text"/>
<input type="radio"/> Tree Planting/Tree Pit (RR-3) .....	<input type="text"/>	<input type="text"/>	and/or	<input type="text"/>
<input type="radio"/> Disconnection of Rooftop Runoff (RR-4) ..	<input type="text"/>	<input type="text"/>	and/or	<input type="text"/>
<u>RR Techniques (Volume Reduction)</u>				
<input type="radio"/> Vegetated Swale (RR-5) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Rain Garden (RR-6) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Stormwater Planter (RR-7) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Rain Barrel/Cistern (RR-8) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Porous Pavement (RR-9) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Green Roof (RR-10) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<u>Standard SMPs with RRv Capacity</u>				
<input type="radio"/> Infiltration Trench (I-1) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Infiltration Basin (I-2) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Dry Well (I-3) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Underground Infiltration System (I-4) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Bioretention (F-5) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Dry Swale (O-1) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<u>Standard SMPs</u>				
<input type="radio"/> Micropool Extended Detention (P-1) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Wet Pond (P-2) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Wet Extended Detention (P-3) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Multiple Pond System (P-4) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Pocket Pond (P-5) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Surface Sand Filter (F-1) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Underground Sand Filter (F-2) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Perimeter Sand Filter (F-3) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Organic Filter (F-4) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Shallow Wetland (W-1) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Extended Detention Wetland (W-2) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Pond/Wetland System (W-3) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Pocket Wetland (W-4) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="radio"/> Wet Swale (O-2) .....	<input type="text"/>	<input type="text"/>		<input type="text"/>



33. Identify the Standard SMPs in Table 1 and, if applicable, the Alternative SMPs in Table 2 that were used to treat the remaining total WQv(=Total WQv Required in 28 - Total RRv Provided in 30).

Also, provide in Table 1 and 2 the total impervious area that contributes runoff to each practice selected.

**Note:** Use Tables 1 and 2 to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question 29.

**WQv Provided**

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**PAGE SEPARATION**



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

**MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form**  
for

**Construction Activities Seeking Authorization Under SPDES General Permit**

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

**I. Project Owner/Operator Information**

1. Owner/Operator Name: Village of Johnson City

2. Contact Person: Robert A. Bennett, PE

3. Street Address: 243 Main Street

4. City/State/Zip: Johnson City, NY 13790

**II. Project Site Information**

5. Project/Site Name: REYNOLDS ROAD DRAINAGE SWALE & DITCH REHABILITATION PROJECT

6. Street Address: Reynolds Road

7. City/State/Zip: Johnson City, NY 13790

**III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information**

8. SWPPP Reviewed by: Robert A. Bennett, PE

9. Title/Position: Director of Public Services

10. Date Final SWPPP Reviewed and Accepted:

**IV. Regulated MS4 Information**

11. Name of MS4: Village of Johnson City

12. MS4 SPDES Permit Identification Number: NYR20A \_\_\_\_\_

13. Contact Person: Robert A. Bennett, PE

14. Street Address: 243 Main Street

15. City/State/Zip: Johnson City, NY 13790

16. Telephone Number: 607-797-2523

**MS4 SWPPP Acceptance Form - continued**

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

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s).

Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name: **Robert A. Bennett, PE**

Title/Position: **Director of Public Services**

Signature:

Date:

**VI. Additional Information**

**PAGE SEPARATION**

CONTRACTOR'S CERTIFICATION STATEMENT  
FOR  
COMPLIANCE WITH STORMWATER MANAGEMENT AND POLLUTION PREVENTION PLAN

The Contractor and Subcontractors engaged in work affecting storm water drainage at the subject site shall sign a copy of the following certification statement and return a signed copy of this statement to the Operator before undertaking any construction activity at the subject site, and keep a copy of the signed statement at the site during construction.

- Subject Site:  
Reynolds Road Drainage Swale & Ditch Rehabilitation  
Reynolds Road, Village of Johnson City, Broome County, New York
- Operator:  
Village of Johnson City  
243 Main Street  
Johnson City, New York 13790
- Site Plan:  
Drainage Swale & Ditch Rehabilitation  
Reynolds Road, Village of Johnson City, Broome County, New York  
Prepared by: Keystone Associates, Architects, Engineers, and Surveyors, LLC, 58 Exchange Street, Binghamton, New York 13901. January 2012, Revised October 18, 2013.
- Storm Water Management and Pollution Prevention Plan:  
Reynolds Road Drainage Swale & Ditch Rehabilitation  
Village of Johnson City, Broome County, New York  
Prepared by: Keystone Associates, Architects, Engineers, and Surveyors, LLC, 58 Exchange Street, Binghamton, New York 13901. October 2014.

Under the provision of the New York State Department of Environmental Conservation, State Pollutant Discharge Elimination System, (SPDES) General Permit for Storm Water Discharges from Construction Activities, Permit No. GP-0-10-001 issued pursuant to Article 17, Titles 7, 8, and 70 of the Environmental Conservation Law,

"I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings."

Contract Description: \_\_\_\_\_

Company: \_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Printed Name(s) of "Trained Individual(s)"

\_\_\_\_\_  
Title

**PAGE SEPARATION**



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

\*(NOTE: Submit completed form to address above)\*

**NOTICE OF TERMINATION for Storm Water Discharges Authorized  
under the SPDES General Permit for Construction Activity**

**Please indicate your permit identification number:** NYR \_\_\_\_\_

**I. Owner or Operator Information**

1. Owner/Operator Name: Village of Johnson City

2. Street Address: 243 Main Street

3. City/State/Zip: Johnson City, NY 13790

4. Contact Person: Robert A. Bennett, PE

4a. Telephone: 607-797-2523

5. Contact Person E-Mail: jcdops@stny.rr.com

**II. Project Site Information**

5. Project/Site Name: REYNOLDS ROAD DRAINAGE SWALE & DITCH REHABILITATION PROJECT

6. Street Address: Reynolds Road

7. City/Zip: Johnson City, NY 13790

8. County: Broome

**III. Reason for Termination**

9a.  All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP.  
\*Date final stabilization completed (month/year): \_\_\_\_\_

9b.  Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR \_\_\_\_\_  
(Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)

9c.  Other (Explain on Page 2)

**IV. Final Site Information:**

10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices?  yes  no (If no, go to question 10f.)

10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed?  yes  no (If no, explain on Page 2)

10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?

**NOTICE OF TERMINATION for Storm Water Discharges Authorized under the  
SPDES General Permit for Construction Activity - continued**

10d. Has the entity responsible for long-term operation and maintenance been given a copy of the operation and maintenance plan required by the general permit?  yes  no

10e. Indicate the method used to ensure long-term operation and maintenance of the post-construction stormwater management practice(s):

- Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality.
- Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).
- For post-construction stormwater management practices that are privately owned, the deed of record has been modified to include a deed covenant that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.
- For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, college, university), or government agency or authority, policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

10f. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? \_\_\_\_\_ (acres)

11. Is this project subject to the requirements of a regulated, traditional land use control MS4?  yes  no  
(If Yes, complete section VI - "MS4 Acceptance" statement)

**V. Additional Information/Explanation:**

(Use this section to answer questions 9c. and 10b., if applicable)

**VI. MS4 Acceptance - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative** (Note: Not required when 9b. is checked -transfer of coverage)

I have determined that it is acceptable for the owner or operator of the construction project identified in question 5 to submit the Notice of Termination at this time.

Printed Name: **Robert A. Bennett, PE**

Title/Position: **Director of Public Services**

Signature:

Date:

**NOTICE OF TERMINATION for Storm Water Discharges Authorized under the  
SPDES General Permit for Construction Activity - continued**

**VII. Qualified Inspector Certification - Final Stabilization:**

I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:

Title/Position:

Signature:

Date:

**VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):**

I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:

Title/Position:

Signature:

Date:

**IX. Owner or Operator Certification**

I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name: Robert A. Bennett, PE

Title/Position: Director of Public Services

Signature:

Date:

(NYS DEC Notice of Termination - January 2010)

**PAGE SEPARATION**



NEW YORK STATE  
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT  
FOR STORMWATER DISCHARGES

from

**CONSTRUCTION ACTIVITY**

Permit No. GP-0-10-001

Issued Pursuant to Article 17, Titles 7, 8 and Article 70  
of the Environmental Conservation Law

Effective Date: January 29, 2010

Expiration Date: January 28, 2015

William R. Adriance  
Chief Permit Administrator

*William R. Adriance*  
Authorized Signature

*January 28, 2010*  
Date

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

## PREFACE

Pursuant to Section 402 of the Clean Water Act (“CWA”), stormwater *discharges* from certain *construction activities* are unlawful unless they are authorized by a *National Pollutant Discharge Elimination System (“NPDES”)* permit or by a state permit program. New York’s *State Pollutant Discharge Elimination System (“SPDES”)* is a NPDES-approved program with permits issued in accordance with the *Environmental Conservation Law (“ECL”)*.

This general permit (“permit”) is issued pursuant to Article 17, Titles 7, 8 and Article 70 of the ECL. An *owner or operator* may obtain coverage under this permit by submitting a Notice of Intent (“NOI”) to the Department. Copies of this permit and the NOI for New York are available by calling (518) 402-8109 or at any New York State Department of Environmental Conservation (“the Department”) regional office (see Appendix G). They are also available on the Department’s website at:

<http://www.dec.ny.gov/>

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

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

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES**

**FROM CONSTRUCTION ACTIVITIES**

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## **Part I. PERMIT COVERAGE AND LIMITATIONS**

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

1. *Construction activities* involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a *larger common plan of development or sale* that will ultimately disturb one or more acres of land; excluding *routine maintenance activity* that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility;
2. *Construction activities* involving soil disturbances of less than one (1) acre where the Department has determined that a *SPDES* permit is required for stormwater *discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of *pollutants* to *surface waters of the State*.
3. *Construction activities* located in the watershed(s) identified in Appendix D that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land.

**B. Maintaining Water Quality** - It shall be a violation of this permit and the *ECL* for any *discharge* to either cause or contribute to a violation of *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York, such as:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;
2. There shall be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and
3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

### **C. Eligibility Under This General Permit**

1. This permit may authorize all *discharges* of stormwater from *construction activity* to *surface waters of the State* and *groundwaters* except for ineligible *discharges* identified under subparagraph D. of this Part.
2. Except for non-stormwater *discharges* explicitly listed in the next paragraph, this permit only authorizes stormwater discharges from *construction activities*.

**(Part I. C)**

3. Notwithstanding paragraphs C.1 and C.2 above, the following non-stormwater *discharges* may be authorized by this permit: discharges from fire fighting activities; fire hydrant flushings; waters to which cleansers or other components have not been added that are used to wash vehicles or control dust in accordance with the SWPPP, routine external building washdown which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; uncontaminated groundwater or spring water; uncontaminated discharges from construction site de-watering operations; and foundation or footing drains where flows are not contaminated with process materials such as solvents. For those entities required to obtain coverage under this permit, and who discharge as noted in this paragraph, and with the exception of flows from fire fighting activities, these discharges must be identified in the SWPPP. Under all circumstances, the *owner or operator* must still comply with water quality standards in Part I.B.

**D. Activities Which Are Ineligible for Coverage Under This General Permit** - All of the following are **not** authorized by this permit:

1. *Discharges* after *construction activities* have been completed and the site has undergone *final stabilization*;
2. *Discharges* that are mixed with sources of non-stormwater other than those expressly authorized under subsection C.3. of this Part and identified in the SWPPP required by this permit;
3. *Discharges* that are required to obtain an individual SPDES permit or another SPDES general permit pursuant to Part VII, subparagraph K of this permit;
4. *Discharges* from *construction activities* that adversely affect a listed, or proposed to be listed, endangered or threatened species, or its critical habitat;
5. *Discharges* which either cause or contribute to a violation of *water quality standards* adopted pursuant to the *ECL* and its accompanying regulations;
6. *Construction activities* for residential, commercial and institutional projects that:
  - a. are tributary to waters of the state classified as AA or AA-s; and

**(Part I. D. 6)**

- b. disturb one or more acres of land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey for the County in which the disturbance will occur.
7. *Construction activities* for linear transportation projects and linear utility projects that:
  - a. are tributary to waters of the state classified as AA or AA-s; and
  - b. disturb two or more acres of land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey for the County in which the disturbance will occur.
8. *Construction activities* that adversely affect a property that is listed or is eligible for listing on the State or National Register of Historic Places (Note: includes Archeological sites), unless there are written agreements in place with the NYS Office of Parks, Recreation and Historic Preservation (OPRHP) or other governmental agencies to mitigate the effects, or there are local land use approvals evidencing the same.

**Part II. OBTAINING PERMIT COVERAGE**

**A. Notice of Intent (NOI) Submittal**

1. An *owner or operator* of a *construction activity* that is not subject to the requirements of a *regulated, traditional land use control MS4* must first develop a SWPPP in accordance with all applicable requirements of this permit and then submit a completed NOI form to the address below in order to be authorized to *discharge* under this permit. The NOI form shall be one which is associated with this permit, signed in accordance with Part VII.H. of this permit.

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

2. An *owner or operator* of a *construction activity* that is subject to the requirements of a *regulated, traditional land use control MS4* must first develop a SWPPP in accordance with all applicable requirements of this permit and then have its SWPPP reviewed and accepted by the *MS4* prior to submitting the NOI to the Department. The *owner or operator* shall have the “MS4 SWPPP Acceptance” form signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4*, or by a duly authorized representative of that person, and then submit that form along with the NOI to the address referenced under “Notice of Intent (NOI) Submittal”.

**(Part II. A.2)**

This requirement does not apply to an *owner or operator* that is obtaining permit coverage in accordance with the requirements in Part II.E. (Change of Owner or Operator).

3. The *owner or operator* shall have the SWPPP preparer sign the “SWPPP Preparer Certification” statement on the NOI prior to submitting the form to the Department.
4. As of the date the NOI is submitted to the Department, the *owner or operator* shall make the NOI and SWPPP available for review and copying in accordance with the requirements in Part VII.F. of this permit.

**B. Permit Authorization**

1. An *owner or operator* shall not *commence construction activity* until their authorization to *discharge* under this permit goes into effect.
2. Authorization to *discharge* under this permit will be effective when the *owner or operator* has satisfied all of the following criteria:
  - a. project review pursuant to the State Environmental Quality Review Act (SEQRA) have been satisfied, when SEQRA is applicable,
  - b. where required, all necessary Department permits subject to the *Uniform Procedures Act (UPA)* (see 6 NYCRR Part 621) have been obtained, unless otherwise notified by the Department pursuant to 6 NYCRR 621.3(a)(4). *Owners or operators of construction activities* that are required to obtain *UPA* permits must submit a preliminary SWPPP to the appropriate DEC Regional Office in Appendix F at the time all other necessary *UPA* permit applications are submitted. The preliminary SWPPP must include sufficient information to demonstrate that the *construction activity* qualifies for authorization under this permit,
  - c. the final SWPPP has been prepared, and
  - d. an NOI has been submitted to the Department in accordance with the requirements of this permit.
3. An *owner or operator* that has satisfied the requirements of Part II.B.2 above will be authorized to *discharge* stormwater from their *construction activity* in accordance with the following schedule:

**(Part II. B. 3)**

- a. For *construction activities* that are not subject to the requirements of a *regulated, traditional land use control MS4*:
  - i. Five (5) business days from the date the Department receives a complete NOI for *construction activities* with a SWPPP that has been prepared in conformance with the technical standards referenced in Parts III.B.1, 2 and/or 3, or
  - ii. Sixty (60) business days from the date the Department receives a complete NOI for *construction activities* with a SWPPP that has not been prepared in conformance with the technical standards referenced in Parts III.B.1, 2 or 3.
- b. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4*:
  - i. Five (5) business days from the date the Department receives a complete NOI and signed “MS4 SWPPP Acceptance” form,
4. The Department may suspend or deny an *owner’s or operator’s* coverage under this permit if the Department determines that the SWPPP does not meet the permit requirements.
5. Coverage under this permit authorizes stormwater *discharges* from only those areas of disturbance that are identified in the NOI. If an *owner or operator* wishes to have stormwater *discharges* from future or additional areas of disturbance authorized, they must submit a new NOI that addresses that phase of the development, unless otherwise notified by the Department.

**C. General Requirements For Owners or Operators With Permit Coverage**

1. The *owner or operator* shall ensure that the provisions of the SWPPP are implemented from the *commencement of construction activity* until all areas of disturbance have achieved *final stabilization* and the Notice of Termination (NOT) has been submitted to the Department in accordance with Part V. of this permit. This includes any changes made to the SWPPP pursuant to Part III.A.4.
2. The *owner or operator* shall maintain a copy of the General Permit (GP-0-10-001), NOI, *NOI Acknowledgment Letter*, SWPPP, MS4 SWPPP Acceptance form and inspection reports at the construction site until all disturbed areas have achieved *final stabilization* and the NOT has been submitted to the Department.

**(Part II. C. 2)**

The documents must be maintained in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection.

3. The *owner or operator* of a *construction activity* shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the Department or, in areas under the jurisdiction of a *regulated, traditional land use control MS4*, the MS4 (provided the MS4 is not the *owner or operator* of the construction activity). At a minimum, the *owner or operator* must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:
  - a. The *owner or operator* shall have a *qualified inspector* conduct **at least** two (2) site inspections in accordance with Part IV.C. every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.
  - b. In areas where soil disturbance activity has been temporarily or permanently ceased, temporary and/or permanent soil stabilization measures shall be installed and/or implemented within seven (7) days from the date the soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control.
  - c. The *owner or operator* shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.
  - d. The *owner or operator* shall install any additional site specific practices needed to protect water quality.
  - e. The *owner or operator* shall include the requirements above in their SWPPP.
4. The Department may suspend or revoke an *owner's or operator's* coverage under this permit at any time if the Department determines that the SWPPP does not meet the permit requirements.

**(Part II. C)**

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

**D. Permit Coverage for Discharges Authorized Under GP-0-08-001**

1. Upon renewal of SPDES General Permit for Stormwater Discharges from Construction Activity (Permit No. GP-0-08-001), an *owner or operator* of *construction activity* with coverage under GP-0-08-001, as of the effective date of GP-0-10-001, shall be authorized to *discharge* in accordance with GP-0-10-001 unless otherwise notified by the Department.

**E. Change of Owner or Operator**

1. When property ownership changes or when there is a change in operational control over the construction plans and specifications, the original *owner or operator* must notify the new *owner or operator*, in writing, of the requirement to obtain permit coverage by submitting a NOI with the Department. Once the new *owner or operator* obtains permit coverage, the original *owner or operator* shall then submit a completed NOT with the name and permit identification number of the new *owner or operator* to the Department at the address in Part II.A.1.. If the original *owner or operator* maintains ownership of a portion of the *construction activity* and will disturb soil, they must maintain their coverage under the permit.

Permit coverage for the new *owner or operator* will be effective as of the date the Department receives a complete NOI, provided the original *owner or operator* was not subject to a sixty (60) business day authorization period that has not expired as of the date the Department receives the NOI from the new *owner or operator*.

**Part III. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)**

**A. General SWPPP Requirements**

1. The SWPPP shall be prepared prior to the submittal of the NOI. The NOI shall be submitted to the Department prior to the *commencement of construction activity*.

**(Part III. A)**

2. The SWPPP shall describe the erosion and sediment control practices and where required, post-construction stormwater management practices that will be used and/or constructed to reduce the pollutants in stormwater discharges and to assure compliance with the terms and conditions of this permit. In addition, the SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater *discharges*.
3. All SWPPPs that require the post-construction stormwater management practice component shall be prepared by a *qualified professional* that is knowledgeable in the principles and practices of stormwater management and treatment.
4. The *owner or operator* must keep the SWPPP current so that it at all times accurately documents the erosion and sediment controls practices that are being used or will be used during construction, and all post-construction stormwater management practices that will be constructed on the site. At a minimum, the *owner or operator* shall amend the SWPPP:
  - a. whenever the current provisions prove to be ineffective in minimizing pollutants in stormwater *discharges* from the site;
  - b. whenever there is a change in design, construction, or operation at the construction site that has or could have an effect on the discharge of pollutants; and
  - c. to address issues or deficiencies identified during an inspection by the *qualified inspector*, the Department or other regulatory authority.
5. The Department may notify the *owner or operator* at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. The notification shall be in writing and identify the provisions of the SWPPP that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by the Department, the *owner or operator* shall make the required changes to the SWPPP and submit written notification to the Department that the changes have been made. If the *owner or operator* does not respond to the Department's comments in the specified time frame, the Department may suspend the *owner's or operator's* coverage under this permit.
6. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP.

**(Part III. A. 6)**

The *owner or operator* shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor*. The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.

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

"I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings. "

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

7. For projects where the Department requests a copy of the SWPPP or inspection reports, the *owner or operator* shall submit the documents in both electronic (PDF only) and paper format within five (5) business days, unless otherwise notified by the Department.
8. The SWPPP must include documentation supporting the determination of permit eligibility with regard to Part I.D.8. (Historic Places or Archeological Resource). At a minimum, the supporting documentation shall include the following:

**(Part III. A. 8)**

- a. Information on whether the stormwater discharge or *construction activities* would have an effect on a property (historic or archeological resource) that is listed or eligible for listing on the State or National Register of Historic Places;
- b. Results of historic resources screening determinations conducted. Information regarding the location of historic places listed, or eligible for listing, on the State or National Registers of Historic Places and areas of archeological sensitivity that may indicate the need for a survey can be obtained online by viewing the New York State Office of Parks, Recreation and Historic Places (OPRHP) online resources located on their web site at: <http://nysparks.state.ny.us/shpo/online-tools/> (using The Geographic Information System for Archeology and National Register). OPRHP can also be contacted at: NYS OPRHP, State Historic Preservation Office, Peebles Island Resources Center, P.O. Box 189, Waterford, NY 12188-0189, phone: 518-237-8643;
- c. A description of measures necessary to avoid or minimize adverse impacts on places listed, or eligible for listing, on the State or National Register of Historic Places. If the *owner or operator* fails to describe and implement such measures, the stormwater *discharge* is ineligible for coverage under this permit; and
- d. Where adverse effects may occur, any written agreements in place with OPRHP or other governmental agency to mitigate those effects, or local land use approvals evidencing the same.

**B. Required SWPPP Contents**

1. Erosion and sediment control component - All SWPPPs prepared pursuant to this permit shall include erosion and sediment control practices designed in conformance with the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control. Where erosion and sediment control practices are not designed in conformance with this technical standard, the *owner or operator* must demonstrate equivalence to the technical standard. At a minimum, the erosion and sediment control component of the SWPPP shall include the following:
  - a. Background information about the scope of the project, including the location, type and size of project;

**(Part III. B. 1)**

- b. A site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map shall show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s), wetlands and drainage patterns that could be affected by the construction activity; existing and final slopes; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the stormwater discharge(s);
- c. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG);
- d. A construction phasing plan and sequence of operations describing the intended order of construction activities, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance;
- e. A description of the minimum erosion and sediment control practices to be installed or implemented for each construction activity that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented;
- f. A temporary and permanent soil stabilization plan that meets the requirements of the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, for each stage of the project, including initial land clearing and grubbing to project completion and achievement of final stabilization;
- g. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice;
- h. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any temporary sediment basins and structural practices that will be used to divert flows from exposed soils;

**(Part III. B. 1)**

- i. A maintenance inspection schedule for the contractor(s) identified in Part III.A.6., to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection schedule shall be in accordance with the requirements in the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control;
  - j. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a pollutant source in the stormwater *discharges*;
  - k. A description and location of any stormwater *discharges* associated with industrial activity other than construction at the site, including, but not limited to, stormwater *discharges* from asphalt plants and concrete plants located on the construction site; and
  - l. Identification of any elements of the design that are not in conformance with the requirements in the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is equivalent to the technical standards.
2. Post-construction stormwater management practice component - All construction projects identified in Table 2 of Appendix B as needing post-construction stormwater management practices shall prepare a SWPPP that includes practices designed in conformance with the most current version of the technical standard, New York State Stormwater Management Design Manual (“Design Manual”). If the Design Manual is revised during the term of this permit, an *owner or operator* must begin using the revised version of the Design Manual to prepare their SWPPP six (6) months from the final revision date of the Design Manual.

Where post-construction stormwater management practices are not designed in conformance with this technical standard, the *owner or operator* must demonstrate equivalence to the technical standard.

At a minimum, the post-construction stormwater management practice component of the SWPPP shall include the following:

- a. Identification of all post-construction stormwater management practices to be constructed as part of the project;

**(Part III. B. 2)**

- b. A site map/construction drawing(s) showing the specific location and size of each post-construction stormwater management practice;
  - c. The dimensions, material specifications and installation details for each post-construction stormwater management practice;
  - d. Identification of any elements of the design that are not in conformance with the Design Manual. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is equivalent to the technical standards;
  - e. A hydrologic and hydraulic analysis for all structural components of the stormwater management control system;
  - f. A detailed summary (including calculations) of the sizing criteria that was used to design all post-construction stormwater management practices. At a minimum, the summary shall address the required design criteria from the applicable chapter of the Design Manual; including the identification of and justification for any deviations from the Design Manual, and identification of any design criteria that are not required based on the design criteria or waiver criteria included in the Design Manual; and
  - g. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each post-construction stormwater management practice. The plan shall identify the entity that will be responsible for the long term operation and maintenance of each practice.
3. Enhanced Phosphorus Removal Standards - All construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the Design Manual. At a minimum, the post-construction stormwater management practice component of the SWPPP shall include items 2.a - 2.g. above.

**(Part III. C)**

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

**Part IV. INSPECTION AND MAINTENANCE REQUIREMENTS**

**A. General Construction Site Inspection and Maintenance Requirements**

1. The *owner or operator* must ensure that all erosion and sediment control practices and all post-construction stormwater management practices identified in the SWPPP are maintained in effective operating condition at all times.
2. The terms of this permit shall not be construed to prohibit the State of New York from exercising any authority pursuant to the ECL, common law or federal law, or prohibit New York State from taking any measures, whether civil or criminal, to prevent violations of the laws of the State of New York, or protect the public health and safety and/or the environment.

**B. Owner or Operator Maintenance Inspection Requirements**

1. The *owner or operator* shall inspect, in accordance with the requirements in the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, the erosion and sediment controls identified in the SWPPP to ensure that they are being maintained in effective operating condition at all times.
2. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the *owner or operator* can stop conducting the maintenance inspections. The *owner or operator* shall begin conducting the maintenance inspections in accordance with Part IV.B.1. as soon as soil disturbance activities resume.
3. For construction sites where soil disturbance activities have been shut down with partial project completion, the *owner or operator* can stop conducting the maintenance inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational.

(Part IV. C)

**C. Qualified Inspector Inspection Requirements** - The *owner or operator* shall have a *qualified inspector* conduct site inspections in conformance with the following requirements:

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

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

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

- a. the construction of a single family residential subdivision with 25% or less impervious cover at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;
- b. the construction of a single family home that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres and is not located in one of the watersheds listed in Appendix C and not directly discharging to one of the 303(d) segments listed in Appendix E;
- c. construction on agricultural property that involves a soil disturbance of one (1) or more acres of land but less than five (5) acres; and
- d. construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land.

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

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

**(Part IV. C. 2)**

- b. For construction sites where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part II.C.3 to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* shall conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.
- c. For construction sites where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the *qualified inspector* shall conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* shall notify the Regional Office stormwater contact person (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4*, the MS4 (provided the MS4 is not the *owner or operator* of the construction activity) in writing prior to reducing the frequency of inspections.
- d. For construction sites where soil disturbance activities have been shut down with partial project completion, the *qualified inspector* can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The *owner or operator* shall notify the Regional Office stormwater contact person (see contact information in Appendix F) or, in areas under the jurisdiction of a *regulated, traditional land use control MS4*, the MS4 (provided the MS4 is not the *owner or operator* of the construction activity). in writing prior to the shutdown. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* shall have the *qualified inspector* perform a final inspection and certify that all disturbed areas have achieved *final stabilization*, and all temporary, structural erosion and sediment control measures have been removed; and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP by signing the “Final Stabilization” and “Post-Construction Stormwater Management Practice” certification statements on the NOT. The *owner or operator* shall then submit the completed NOT form to the address in Part II.A.1..

**(Part IV. C. 3)**

3. At a minimum, the *qualified inspector* shall inspect all erosion and sediment control practices to ensure integrity and effectiveness, all post-construction stormwater management practices under construction to ensure that they are constructed in conformance with the SWPPP, all areas of disturbance that have not achieved *final stabilization*, all points of discharge to natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site, and all points of discharge from the construction site.
4. The *qualified inspector* shall prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report shall include and/or address the following:
  - a. Date and time of inspection;
  - b. Name and title of person(s) performing inspection;
  - c. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;
  - d. A description of the condition of the runoff at all points of discharge from the construction site. This shall include identification of any *discharges* of sediment from the construction site. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;
  - e. A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site which receive runoff from disturbed areas. This shall include identification of any *discharges* of sediment to the surface waterbody;
  - f. Identification of all erosion and sediment control practices that need repair or maintenance;
  - g. Identification of all erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;
  - h. Description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection;

**(Part IV. C 4)**

- i. Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;
  - j. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s); and
  - k. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.
5. Within one business day of the completion of an inspection, the *qualified inspector* shall notify the *owner or operator* and appropriate contractor or subcontractor identified in Part III.A.6. of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.
  6. All inspection reports shall be signed by the *qualified inspector*. Pursuant to Part II.C.2., the inspection reports shall be maintained on site with the SWPPP.

**Part V. TERMINATION OF PERMIT COVERAGE**

**A. Termination of Permit Coverage**

1. An *owner or operator* that is eligible to terminate coverage under this permit must submit a completed NOT form to the address in Part II.A.1. The NOT form shall be one which is associated with this general permit, signed in accordance with Part VII.H.
2. An *owner or operator* may terminate coverage when one or more the following conditions have been met:

**(Part V. A. 2)**

- a. Total project completion - All construction activity identified in the SWPPP has been completed; and all areas of disturbance have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational;
  - b. Planned shutdown with partial project completion - All soil disturbance activities have ceased; and all areas disturbed as of the project shutdown date have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational;
  - c. A new *owner or operator* has obtained coverage under this permit in accordance with Part II.E.
3. For *construction activities* meeting subdivision 2a. or 2b. of this Part, the *owner or operator* shall have the *qualified inspector* perform a final site inspection prior to submitting the NOT. The *qualified inspector* shall, by signing the “Final Stabilization” and “Post-Construction Stormwater Management Practice” certification statements on the NOT, certify that all disturbed areas have achieved *final stabilization*; and all temporary, structural erosion and sediment control measures have been removed; and that all post-construction stormwater management practices have been constructed in conformance with the SWPPP.
  4. For *construction activities* that are subject to the requirements of a *regulated, traditional land use control MS4* and meet subdivision 2a. or 2b. of this Part, the *owner or operator* shall also have the MS4 sign the “MS4 Acceptance” statement on the NOT. The *owner or operator* shall have the principal executive officer, ranking elected official, or duly authorized representative from the *regulated, traditional land use control MS4*, sign the “MS4 Acceptance” statement. The MS4 official, by signing this statement, has determined that it is acceptable for the *owner or operator* to submit the NOT in accordance with the requirements of this Part. The MS4 can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector’s* final site inspection certification(s) required in Part V.3.
  5. For *construction activities* that require post-construction stormwater management practices and meet subdivision 2a. of this Part, the *owner or operator* must, prior to submitting the NOT, ensure one of the following:

**(Part V. A. 5)**

- a. the post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain such practice(s) have been deeded to the municipality in which the practice(s) is located,
- b. an executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s),
- c. for post-construction stormwater management practices that are privately owned, the *owner or operator* has modified their deed of record to include a deed covenant that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan,
- d. for post-construction stormwater management practices that are owned by a public or private institution (e.g. school, college, university), or government agency or authority, the *owner or operator* has policy and procedures in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

**Part VI. REPORTING AND RETENTION OF RECORDS**

**A. Record Retention** - The *owner or operator* shall retain a copy of the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form and any inspection reports that were prepared in conjunction with this permit for a period of at least five (5) years from the date that the site achieves *final stabilization*. This period may be extended by the Department, in its sole discretion, at any time upon written notification.

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

**Part VII. STANDARD PERMIT CONDITIONS**

**A. Duty to Comply** - The *owner or operator* must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any non-compliance with this permit constitutes a violation of the Clean Water Act (CWA) and the ECL and is grounds for an enforcement action against the *owner or operator* and/or the contractor/subcontractor; permit revocation, suspension or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied.

**(Part VII. A)**

The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the *owner or operator*.

**B. Continuation of the Expired General Permit** - This permit expires five (5) years from the effective date. However, coverage may be obtained under the expired general permit, which will continue in force and effect, until a new general permit is issued. Unless otherwise notified by the Department in writing, an *owner or operator* seeking authorization under the new general permit must submit a new NOI in accordance with the terms of such new general permit.

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

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

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

**F. Duty to Provide Information** - The *owner or operator* shall make available to the Department for review and copying or furnish to the Department within five (5) business days of receipt of a Department request for such information, any information requested for the purpose of determining compliance with this permit. This can include, but is not limited to, the NOI, NOI Acknowledgment Letter, SWPPP, MS4 SWPPP Acceptance form, executed maintenance agreement, and inspection reports. Failure to provide information requested by the Department within the request timeframe shall be a violation of this permit.

The NOI, SWPPP and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five (5) business days of the *owner or operator* receiving a written request by any such person to review the NOI, SWPPP or inspection reports. Copying of documents will be done at the requester's expense.

**G. Other Information** - When the *owner or operator* becomes aware that they failed to submit any relevant facts, or submitted incorrect information in the NOI or in any other report, or have made substantive revisions to the SWPPP (e.g. the scope of the project changes significantly, the type of post-construction stormwater management practice(s))

**(Part VII. G)**

changes, there is a reduction in the sizing of the post-construction stormwater management practice, or there is an increase in the disturbance area or impervious area), which were not reflected in the original NOI submitted to the Department, they shall promptly submit such facts or information to the Department. Failure of the *owner or operator* to correct or supplement any relevant facts within five (5) business days of becoming aware of the deficiency shall constitute a violation of this permit.

**H. Signatory Requirements**

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

- a. For a corporation these forms shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:
  - i. a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or
  - ii. the manager of one or more manufacturing, production or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;
- b. For a partnership or sole proprietorship these forms shall be signed by a general partner or the proprietor, respectively; or
- c. For a municipality, State, Federal, or other public agency these forms shall be signed by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:
  - i. the chief executive officer of the agency, or

**(Part VII. H. 1. c)**

- ii. a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).
2. The SWPPP and other information requested by the Department shall be signed by a person described in Part VII.H.1. or by a duly authorized representative of that person. A person is a duly authorized representative only if:
  - a. The authorization is made in writing by a person described in Part VII.H.1.;
  - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position) and,
  - c. The written authorization shall include the name, title and signature of the authorized representative and be attached to the SWPPP.
3. All inspection reports shall be signed by the *qualified inspector* that performs the inspection.
4. The MS4 SWPPP Acceptance form shall be signed by the principal executive officer or ranking elected official from the *regulated, traditional land use control MS4*, or by a duly authorized representative of that person.

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

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

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

**(Part VII. K)**

**K. Denial of Coverage Under This Permit**

1. At its sole discretion, the Department may require any *owner or operator* authorized by this permit to apply for and/or obtain either an individual SPDES permit or another SPDES general permit. When the Department requires any discharger authorized by a general permit to apply for an individual SPDES permit, it shall notify the discharger in writing that a permit application is required. This notice shall include a brief statement of the reasons for this decision, an application form, a statement setting a time frame for the *owner or operator* to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from *owner or operator* receipt of the notification letter, whereby the authorization to discharge under this general permit shall be terminated. Applications must be submitted to the appropriate Regional Office. The Department may grant additional time upon demonstration, to the satisfaction of the Regional Water Engineer, that additional time to apply for an alternative authorization is necessary or where the Department has not provided a permit determination in accordance with Part 621 of this Title.
2. Any *owner or operator* authorized by this permit may request to be excluded from the coverage under this permit by applying for an individual permit or another general permit. In such cases, the *owner or operator* shall submit an individual application or an alternative general permit application in accordance with the requirements of this general permit, 40 CFR 122.26(c)(1)(ii) and 6 NYCRR Part 621, with reasons supporting the request, to the Department at the address for the appropriate Department Office (see addresses in Appendix F). The request may be granted by issuance of an individual permit or another general permit at the discretion of the Department.
3. When an individual SPDES permit is issued to a discharger authorized to discharge under a general SPDES permit for the same discharge(s), the general permit authorization for outfalls authorized under the individual SPDES permit is automatically terminated on the effective date of the individual permit unless termination is earlier in accordance with 6 NYCRR Part 750.

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

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

**(Part VII. M)**

1. Enter upon the *owner's or operator's* premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;
2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and
3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment).

**N. Permit Actions** - At the Department's sole discretion, this permit may, at any time, be modified, suspended, revoked, or renewed. The filing of a request by the *owner or operator* for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not limit, diminish and/or stay compliance with any terms of this permit.

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

**P. Re-Opener Clause**

1. If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with *construction activity* covered by this permit, the *owner or operator* of such discharge may be required to obtain an individual permit or alternative general permit in accordance with Part VII.K. of this permit or the permit may be modified to include different limitations and/or requirements.
2. Permit modification, suspension or revocation will be conducted in accordance with 6 NYCRR Part 621, 6 NYCRR 750-1.18, and 6 NYCRR 750-1.20.

**Q. Penalties for Falsification of Forms and Reports** – Article 17 of the ECL provides for a civil penalty of \$37,500 per day per violation of this permit. Articles 175 and 210 of the New York State Penal Law provide for a criminal penalty of a fine and/or imprisonment for falsifying forms and reports required by this permit.

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

## APPENDIX A

### Definitions

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

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

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

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

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

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

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

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

**General SPDES permit** - means a SPDES permit issued pursuant to 6 NYCRR Part 750-1.21 authorizing a category of discharges.

**Groundwater** - means waters in the saturated zone. The saturated zone is a subsurface zone in

which all the interstices are filled with water under pressure greater than that of the atmosphere. Although the zone may contain gas-filled interstices or interstices filled with fluids other than water, it is still considered saturated.

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

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

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

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

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

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

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

**Owner or Operator** - means the person, persons or legal entity which owns or leases the property on which the construction activity is occurring; and/or an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications.

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

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

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

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

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

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

**Regulated, Traditional Land Use Control MS4** - means a city, town or village with land use control authority that is required to gain coverage under New York State DEC's SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s).

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

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

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

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

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

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

**Trained Contractor** - means an employee from the contracting (construction) company, identified in Part III.A.6., that has received four (4) hours of Department endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other Department endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

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

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

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

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

## APPENDIX B

### Required SWPPP Components by Project Type

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

<p><b>The following construction activities that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:</b></p> <ul style="list-style-type: none"><li>• Single family home <u>not</u> located in one of the watersheds listed in Appendix C and <u>not directly discharging</u> to one of the 303(d) segments listed in Appendix E</li><li>• Single family residential subdivisions with 25% or less impervious cover at total site build-out and <u>not</u> located in one of the watersheds listed in Appendix C and <u>not</u> directly discharging to one of the 303(d) segments listed in Appendix E</li><li>• Construction of a barn or other agricultural building, silo, stock yard or pen.</li></ul>
<p><b>The following construction activities that involve soil disturbances of one (1) or more acres of land:</b></p> <ul style="list-style-type: none"><li>• Installation of underground, linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains</li><li>• Environmental enhancement projects, such as wetland mitigation projects, stormwater retrofits and stream restoration projects</li><li>• Bike paths and trails</li><li>• Sidewalk construction projects that are not part of a road/ highway construction or reconstruction project</li><li>• Slope stabilization projects</li><li>• Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics</li><li>• Spoil areas that will be covered with vegetation</li><li>• Land clearing and grading for the purposes of creating vegetated open space (i.e. recreational parks, lawns, meadows, fields), excluding projects that <i>alter hydrology from pre to post development</i> conditions</li><li>• Athletic fields (natural grass) that do not include the construction or reconstruction of <i>impervious area</i> <u>and</u> do not <i>alter hydrology from pre to post development</i> conditions</li><li>• Demolition project where vegetation will be established and no redevelopment is planned</li><li>• Overhead electric transmission line project that does not include the construction of permanent access roads or parking areas surfaced with <i>impervious cover</i></li><li>• Structural practices as identified in Table II in the “Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State”, excluding projects that involve soil disturbances of less than five acres and construction activities that include the construction or reconstruction of impervious area</li></ul>
<p><b>The following construction activities that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:</b></p> <ul style="list-style-type: none"><li>• All construction activities located in the watersheds identified in Appendix D that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land.</li></ul>

**Table 2**  
**CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A SWPPP**  
**THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES**

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

- Single family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix E
- Single family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% impervious cover at total site build-out
- Single family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a larger common plan of development or sale that will ultimately disturb five or more acres of land
- Multi-family residential developments; includes townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Airports
- Amusement parks
- Campgrounds
- Cemeteries that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other agricultural building(e.g. silo) and structural practices as identified in Table II in the “Agricultural Management Practices Catalog for Nonpoint Source Pollution in New York State” that include the construction or reconstruction of *impervious area*, excluding projects that involve soil disturbances of less than five acres.
- Golf courses
- Institutional, includes hospitals, prisons, schools and colleges
- Industrial facilities, includes industrial parks
- Landfills
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTW’s and water treatment plants
- Office complexes
- Sports complexes
- Racetracks, includes racetracks with earthen (dirt) surface
- Road construction or reconstruction
- Parking lot construction or reconstruction
- Athletic fields (natural grass) that include the construction or reconstruction of impervious area (>5% of disturbed area) or *alter the hydrology from pre to post development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations and well drilling pads, surfaced with *impervious cover*, and constructed as part of an over-head electric transmission line project, wind-power project, cell tower project, oil or gas well drilling project or other linear utility project
- All other construction activities that include the construction or reconstruction of *impervious area* and alter the hydrology from pre to post development conditions, and are not listed in Table 1

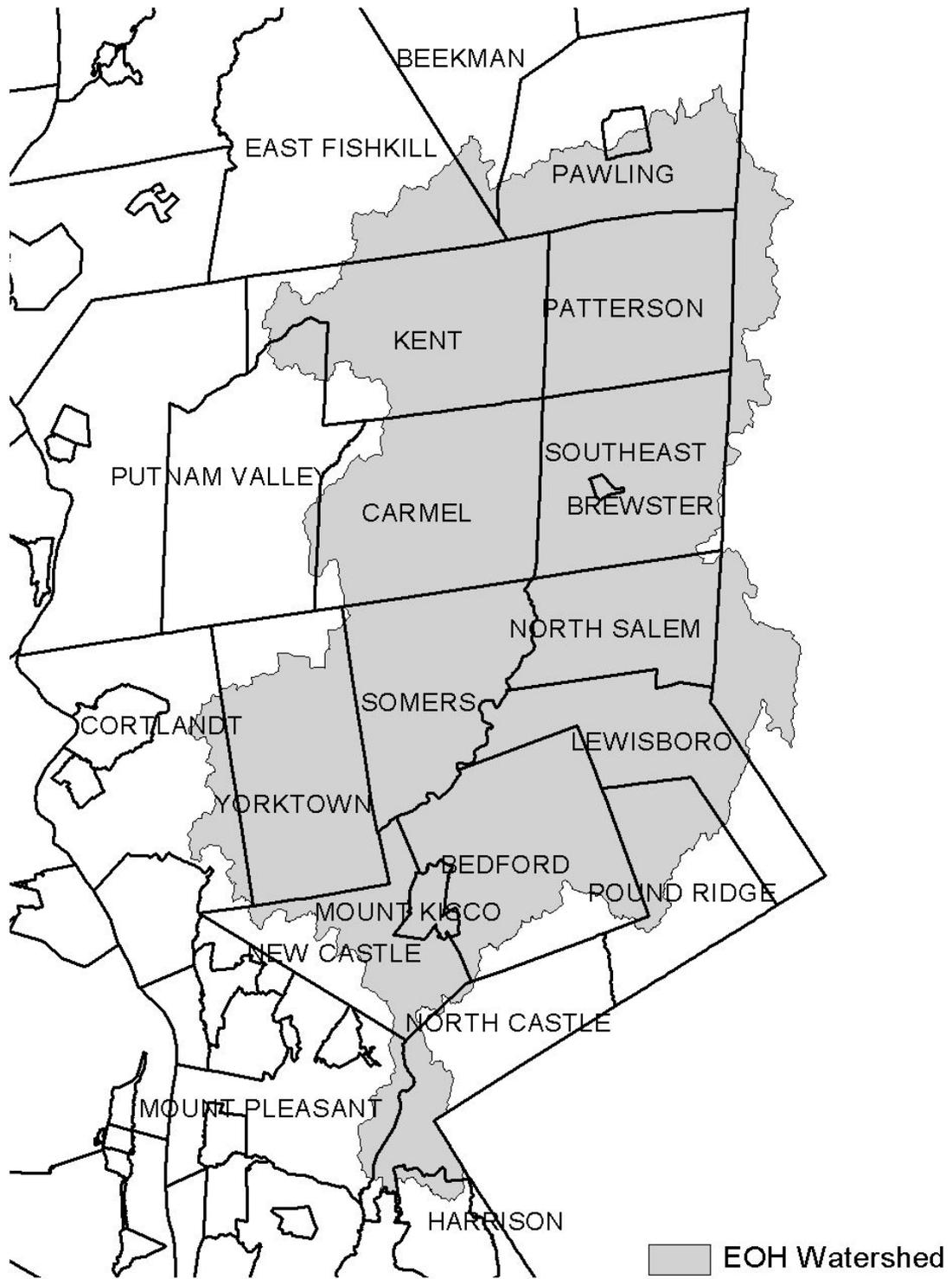
## APPENDIX C

### Watersheds Where Enhanced Phosphorus Removal Standards Are Required

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

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

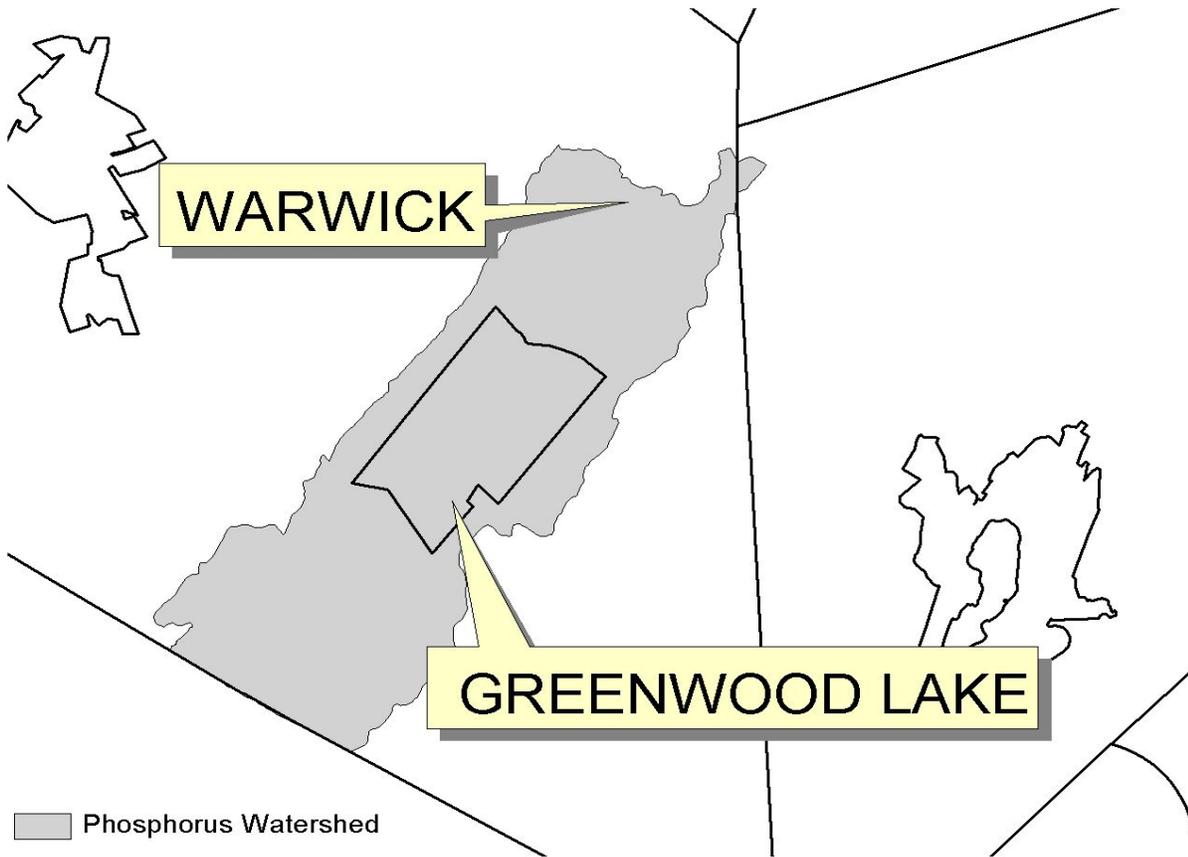
**Figure 1 - New York City Watershed East of the Hudson**



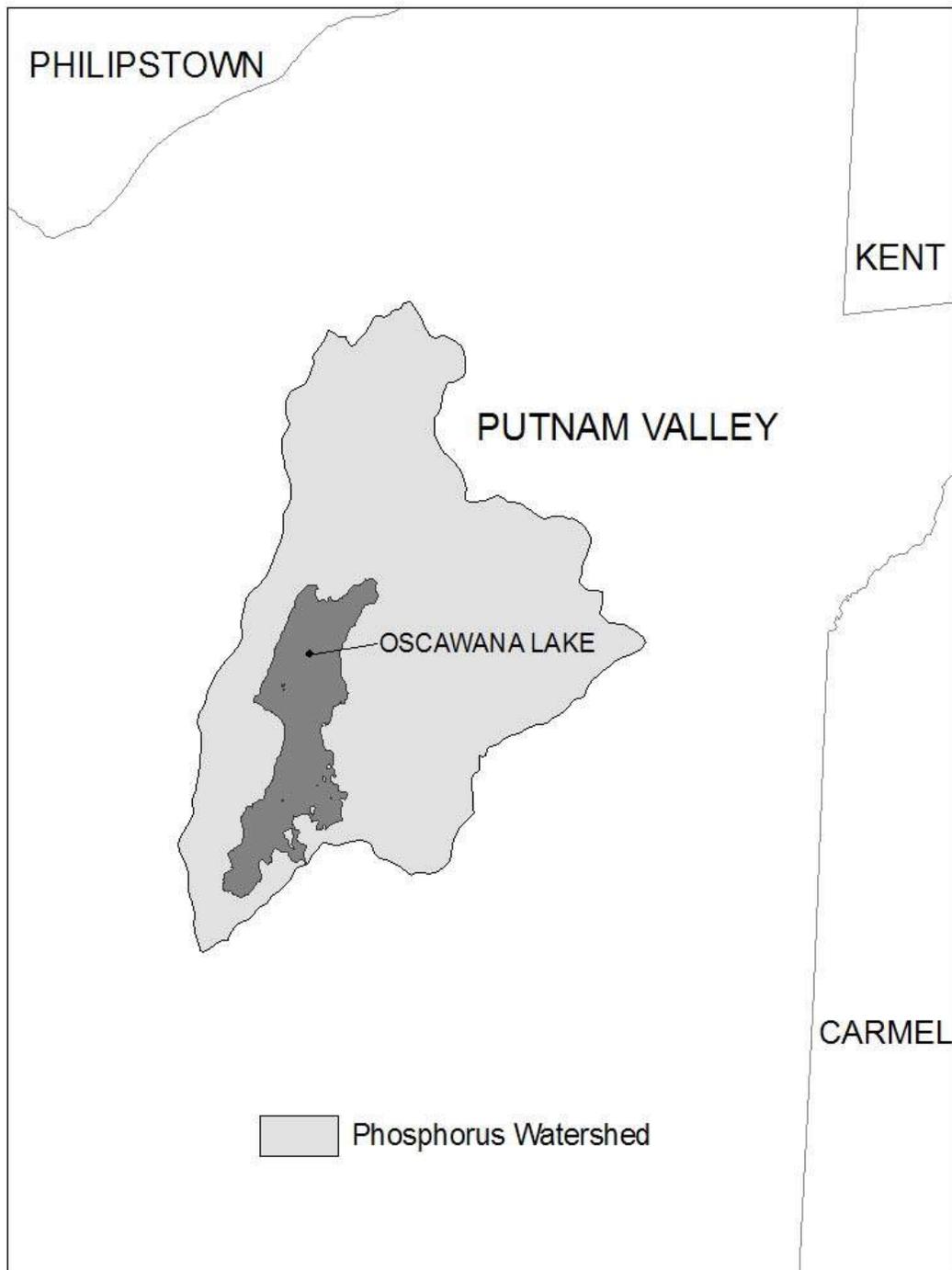
**Figure 2 - Onondaga Lake Watershed**



**Figure 3 - Greenwood Lake Watershed**



**Figure 4 - Oscawana Lake Watershed**



## APPENDIX D

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

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

## APPENDIX E

List of 303(d) segments impaired by pollutants related to construction activity (e.g. silt, sediment or nutrients). *Owners or operators* of single family home and single family residential subdivision construction activities that involve soil disturbances of one or more acres of land, but less than 5 acres, and *directly discharge* to one of the listed segments below shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the most current version of the technical standard, New York State Stormwater Management Design Manual (“Design Manual”).

COUNTY	WATERBODY	COUNTY	WATERBODY
Albany	Ann Lee (Shakers) Pond, Stump Pond	Monroe	Genesee River, Lower, Main Stem
Albany	Basic Creek Reservoir	Monroe	Genesee River, Middle, Main Stem
Bronx	Van Cortlandt Lake	Monroe	Black Creek, Lower, and minor tribs
Broome	Whitney Point Lake/Reservoir	Monroe	Buck Pond
Broome	Beaver Lake	Monroe	Long Pond
Broome	White Birch Lake	Monroe	Cranberry Pond
Chautauqua	Chautauqua Lake, North	Monroe	Mill Creek and tribs
Chautauqua	Chautauqua Lake, South	Monroe	Shipbuilders Creek and tribs
Chautauqua	Bear Lake	Monroe	Minor tribs to Irondequoit Bay
Chautauqua	Chadakoin River and tribs	Monroe	Thomas Creek/White Brook and tribs
Chautauqua	Lower Cassadaga Lake	Nassau	Glen Cove Creek, Lower, and tribs
Chautauqua	Middle Cassadaga Lake	Nassau	LI Tribs (fresh) to East Bay
Chautauqua	Findley Lake	Nassau	East Meadow Brook, Upper, and tribs
Clinton	Great Chazy River, Lower, Main Stem	Nassau	Hempstead Bay
Columbia	Kinderhook Lake	Nassau	Hempstead Lake
Columbia	Robinson Pond	Nassau	Grant Park Pond
Dutchess	Hillside Lake	Niagara	Bergholtz Creek and tribs
Dutchess	Wappinger Lakes	Oneida	Ballou, Nail Creeks
Dutchess	Fall Kill and tribs	Onondaga	Ley Creek and tribs
Dutchess	Rudd Pond	Onondaga	Onondaga Creek, Lower and tribs
Erie	Rush Creek and tribs	Onondaga	Onondaga creek, Middle and tribs
Erie	Ellicott Creek, Lower, and tribs	Onondaga	Onondaga Creek, Upper, and minor tribs
Erie	Beeman Creek and tribs	Onondaga	Harbor Brook, Lower, and tribs
Erie	Murder Creek, Lower, and tribs	Onondaga	Ninemile Creek, Lower, and tribs
Erie	South Branch Smoke Cr, Lower, and tribs	Onondaga	Minor tribs to Onondaga Lake
Erie	Little Sister Creek, Lower, and tribs	Ontario	Honeoye Lake
Essex	Lake George (primary county listed as Warren)	Ontario	Hemlock Lake Outlet and minor tribs
Genesee	Black Creek, Upper, and minor tribs	Ontario	Great Brook and minor tribs
Genesee	Tonawanda Creek, Middle, Main Stem	Oswego	Lake Neatahwanta
Genesee	Tonawanda Creek, Upper, and minor tribs	Putnam	Oscawana Lake
Genesee	Little Tonawanda Creek, Lower, and tribs	Putnam	Lake Carmel
Genesee	Oak Orchard Creek, Upper, and tribs	Queens	Jamaica Bay, Eastern, and tribs (Queens)
Genesee	Bowen Brook and tribs	Queens	Bergen Basin
Genesee	Bigelow Creek and tribs	Queens	Shellbank Basin
Greene	Schoharie Reservoir	Rensselaer	Snyders Lake
Greene	Sleepy Hollow Lake	Richmond	Grasmere, Arbutus and Wolfes Lakes
Herkimer	Steele Creek tribs	Saratoga	Dwaas Kill and tribs
Kings	Hendrix Creek	Saratoga	Tribs to Lake Lonely
Lewis	Mill Creek/South Branch and tribs	Saratoga	Lake Lonely
Livingston	Conesus Lake	Saratoga	Schuyler Creek and tribs
Livingston	Jaycox Creek and tribs	Schenectady	Collins Lake
Livingston	Mill Creek and minor tribs		

**APPENDIX E**

**List of 303(d) segments impaired by pollutants related to construction activity, cont'd.**

<b>COUNTY</b>	<b>WATERBODY</b>	<b>COUNTY</b>	<b>WATERBODY</b>
Schoharie	Engleville Pond		
Schoharie	Summit Lake		
St. Lawrence	Black Lake Outlet/Black Lake		
Steuben	Lake Salubria		
Steuben	Smith Pond		
Suffolk	Millers Pond		
Suffolk	Mattituck (Marratooka) Pond		
Suffolk	Tidal tribs to West Moriches Bay		
Suffolk	Canaan Lake		
Suffolk	Lake Ronkonkoma		
Tompkins	Cayuga Lake, Southern End		
Tompkins	Owasco Inlet, Upper, and tribs		
Ulster	Ashokan Reservoir		
Ulster	Esopus Creek, Upper, and minor tribs		
Warren	Lake George		
Warren	Tribs to L.George, Village of L George		
Warren	Huddle/Finkle Brooks and tribs		
Warren	Indian Brook and tribs		
Warren	Hague Brook and tribs		
Washington	Tribs to L.George, East Shore of Lake George		
Washington	Cossayuna Lake		
Wayne	Port Bay		
Wayne	Marbletown Creek and tribs		
Westchester	Peach Lake		
Westchester	Mamaroneck River, Lower		
Westchester	Mamaroneck River, Upper, and minor tribs		
Westchester	Sheldrake River and tribs		
Westchester	Blind Brook, Lower		
Westchester	Blind Brook, Upper, and tribs		
Westchester	Lake Lincolndale		
Westchester	Lake Meahaugh		
Wyoming	Java Lake		
Wyoming	Silver Lake		

Note: The list above identifies those waters from the final New York State “2008 Section 303(d) List of Impaired Waters Requiring a TMDL/Other Strategy”, dated May 26, 2008, that are impaired by silt, sediment or nutrients.

APPENDIX F

LIST OF NYS DEC REGIONAL OFFICES

<b><u>Region</u></b>	<b><u>COVERING THE FOLLOWING COUNTIES:</u></b>	<b><u>DIVISION OF ENVIRONMENTAL PERMITS (DEP) PERMIT ADMINISTRATORS</u></b>	<b><u>DIVISION OF WATER (DOW) WATER (SPDES) PROGRAM</u></b>
<b>1</b>	NASSAU AND SUFFOLK	50 CIRCLE ROAD STONY BROOK, NY 11790 TEL. (631) 444-0365	50 CIRCLE ROAD STONY BROOK, NY 11790-3409 TEL. (631) 444-0405
<b>2</b>	BRONX, KINGS, NEW YORK, QUEENS AND RICHMOND	1 HUNTERS POINT PLAZA, 47-40 21ST ST. LONG ISLAND CITY, NY 11101-5407 TEL. (718) 482-4997	1 HUNTERS POINT PLAZA, 47-40 21ST ST. LONG ISLAND CITY, NY 11101-5407 TEL. (718) 482-4933
<b>3</b>	DUTCHESS, ORANGE, PUTNAM, ROCKLAND, SULLIVAN, ULSTER AND WESTCHESTER	21 SOUTH PUTT CORNERS ROAD NEW PALTZ, NY 12561-1696 TEL. (845) 256-3059	100 HILLSIDE AVENUE, SUITE 1W WHITE PLAINS, NY 10603 TEL. (914) 428 - 2505
<b>4</b>	ALBANY, COLUMBIA, DELAWARE, GREENE, MONTGOMERY, OTSEGO, RENSSELAER, SCHENECTADY AND SCHOHARIE	1150 NORTH WESTCOTT ROAD SCHENECTADY, NY 12306-2014 TEL. (518) 357-2069	1130 NORTH WESTCOTT ROAD SCHENECTADY, NY 12306-2014 TEL. (518) 357-2045
<b>5</b>	CLINTON, ESSEX, FRANKLIN, FULTON, HAMILTON, SARATOGA, WARREN AND WASHINGTON	1115 STATE ROUTE 86, PO BOX 296 RAY BROOK, NY 12977-0296 TEL. (518) 897-1234	232 GOLF COURSE ROAD, PO BOX 220 WARRENSBURG, NY 12885-0220 TEL. (518) 623-1200
<b>6</b>	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
<b>7</b>	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7438	615 ERIE BLVD. WEST SYRACUSE, NY 13204-2400 TEL. (315) 426-7500
<b>8</b>	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROAD AVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
<b>9</b>	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	270 MICHIGAN AVENUE BUFFALO, NY 14203-2999 TEL. (716) 851-7165	270 MICHIGAN AVE. BUFFALO, NY 14203-2999 TEL. (716) 851-7070

## **APPENDIX B**

### **SOILS INFORMATION**



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 Broome County, New York

## Stream Rehabilitation Project



# Preface

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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 (<http://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](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

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

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

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

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# **How Soil Surveys Are Made**

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

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

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

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

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

## Custom Soil Resource Report

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

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

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

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

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

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

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

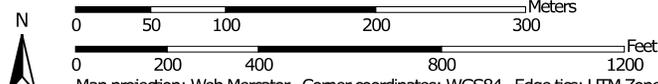
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The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce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

# Custom Soil Resource Report Soil Map



Map Scale: 1:5,020 if printed on A portrait (8.5" x 11") 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
- Water Features**
  - Streams and Canals
- Transportation**
  - Rails
  - Interstate Highways
  - US Routes
  - Major Roads
  - Local Roads
- Background**
  - Aerial Photography

## MAP INFORMATION

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

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

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

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

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>  
 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: Broome County, New York  
 Survey Area Data: Version 11, Dec 15, 2013

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

Date(s) aerial images were photographed: Jun 2, 2010—Oct 8, 2011

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

Broome County, New York (NY007)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
LdC	Lordstown channery silt loam, 5 to 15 percent slopes	0.3	1.2%
LdD	Lordstown channery silt loam, 15 to 25 percent slopes	0.5	2.1%
MhC	Mardin channery silt loam, 8 to 15 percent slopes	3.2	13.3%
VoC	Volusia channery silt loam, 8 to 15 percent slopes	19.7	82.0%
VoD	Volusia channery silt loam, 15 to 25 percent slopes	0.4	1.5%
<b>Totals for Area of Interest</b>		<b>24.1</b>	<b>100.0%</b>

## Map Unit Descriptions

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

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

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

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

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

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

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

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

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

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

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

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

## Broome County, New York

### LdC—Lordstown channery silt loam, 5 to 15 percent slopes

#### Map Unit Setting

*Elevation:* 750 to 1,800 feet

*Mean annual precipitation:* 36 to 45 inches

*Mean annual air temperature:* 43 to 48 degrees F

*Frost-free period:* 110 to 180 days

#### Map Unit Composition

*Lordstown and similar soils:* 80 percent

*Minor components:* 20 percent

#### Description of Lordstown

##### Setting

*Landform:* Benches, hills, ridges

*Landform position (two-dimensional):* Shoulder

*Landform position (three-dimensional):* Crest

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Parent material:* Loamy till derived from sandstone and siltstone

##### Properties and qualities

*Slope:* 5 to 15 percent

*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock

*Drainage class:* Well drained

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

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Available water capacity:* Low (about 3.6 inches)

##### Interpretive groups

*Farmland classification:* Farmland of statewide importance

*Land capability (nonirrigated):* 3e

*Hydrologic Soil Group:* C

##### Typical profile

*0 to 7 inches:* Channery silt loam

*7 to 26 inches:* Channery silt loam

*26 to 28 inches:* Very channery silt loam

*28 to 32 inches:* Bedrock

#### Minor Components

##### Tuller

*Percent of map unit:* 5 percent

##### Volusia

*Percent of map unit:* 5 percent

##### Arnot

*Percent of map unit:* 5 percent

## Custom Soil Resource Report

### **Mardin**

*Percent of map unit: 5 percent*

## **LdD—Lordstown channery silt loam, 15 to 25 percent slopes**

### **Map Unit Setting**

*Elevation: 750 to 1,800 feet*

*Mean annual precipitation: 36 to 45 inches*

*Mean annual air temperature: 43 to 48 degrees F*

*Frost-free period: 110 to 180 days*

### **Map Unit Composition**

*Lordstown and similar soils: 75 percent*

*Minor components: 25 percent*

### **Description of Lordstown**

#### **Setting**

*Landform: Benches, hills, ridges*

*Landform position (two-dimensional): Backslope*

*Landform position (three-dimensional): Side slope*

*Down-slope shape: Convex*

*Across-slope shape: Convex*

*Parent material: Loamy till derived from sandstone and siltstone*

#### **Properties and qualities**

*Slope: 15 to 25 percent*

*Depth to restrictive feature: 20 to 40 inches to lithic bedrock*

*Drainage class: Well drained*

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

*Depth to water table: More than 80 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Available water capacity: Low (about 3.6 inches)*

#### **Interpretive groups**

*Farmland classification: Not prime farmland*

*Land capability (nonirrigated): 4e*

*Hydrologic Soil Group: C*

#### **Typical profile**

*0 to 7 inches: Channery silt loam*

*7 to 26 inches: Channery silt loam*

*26 to 28 inches: Very channery silt loam*

*28 to 32 inches: Bedrock*

### **Minor Components**

#### **Oquaga**

*Percent of map unit: 5 percent*

## Custom Soil Resource Report

### **Arnot**

*Percent of map unit: 5 percent*

### **Mardin**

*Percent of map unit: 5 percent*

### **Rock outcrop**

*Percent of map unit: 5 percent*

### **Volusia**

*Percent of map unit: 5 percent*

## **MhC—Mardin channery silt loam, 8 to 15 percent slopes**

### **Map Unit Setting**

*Elevation: 800 to 1,800 feet*

*Mean annual precipitation: 36 to 45 inches*

*Mean annual air temperature: 43 to 48 degrees F*

*Frost-free period: 110 to 180 days*

### **Map Unit Composition**

*Mardin and similar soils: 85 percent*

*Minor components: 15 percent*

### **Description of Mardin**

#### **Setting**

*Landform: Hills, drumlinoid ridges, till plains*

*Landform position (two-dimensional): Summit*

*Landform position (three-dimensional): Crest*

*Down-slope shape: Concave*

*Across-slope shape: Convex*

*Parent material: Loamy till derived mainly from acid sedimentary rock*

#### **Properties and qualities**

*Slope: 8 to 15 percent*

*Depth to restrictive feature: 18 to 22 inches to fragipan*

*Drainage class: Moderately well drained*

*Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)*

*Depth to water table: About 16 to 22 inches*

*Frequency of flooding: None*

*Frequency of ponding: None*

*Calcium carbonate, maximum content: 15 percent*

*Available water capacity: Very low (about 2.4 inches)*

#### **Interpretive groups**

*Farmland classification: Farmland of statewide importance*

*Land capability (nonirrigated): 3e*

*Hydrologic Soil Group: D*

**Typical profile**

*0 to 7 inches:* Channery silt loam  
*7 to 18 inches:* Channery silt loam  
*18 to 58 inches:* Channery silt loam  
*58 to 70 inches:* Very channery silt loam

**Minor Components**

**Lordstown**

*Percent of map unit:* 5 percent

**Cattaraugus**

*Percent of map unit:* 5 percent

**Volusia**

*Percent of map unit:* 5 percent

**VoC—Volusia channery silt loam, 8 to 15 percent slopes**

**Map Unit Setting**

*Elevation:* 330 to 2,460 feet  
*Mean annual precipitation:* 31 to 70 inches  
*Mean annual air temperature:* 39 to 52 degrees F  
*Frost-free period:* 105 to 180 days

**Map Unit Composition**

*Volusia and similar soils:* 90 percent  
*Minor components:* 10 percent

**Description of Volusia**

**Setting**

*Landform:* Hills  
*Landform position (two-dimensional):* Footslope, summit  
*Landform position (three-dimensional):* Base slope, side slope  
*Down-slope shape:* Concave  
*Across-slope shape:* Linear  
*Parent material:* Loamy till derived from interbedded sedimentary rock

**Properties and qualities**

*Slope:* 8 to 15 percent  
*Surface area covered with cobbles, stones or boulders:* 0.0 percent  
*Depth to restrictive feature:* 10 to 22 inches to fragipan  
*Drainage class:* Somewhat poorly drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)  
*Depth to water table:* About 6 to 18 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 5 percent  
*Maximum salinity:* Nonsaline (0.0 to 2.0 mmhos/cm)

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*Available water capacity:* Very low (about 3.0 inches)

### **Interpretive groups**

*Farmland classification:* Farmland of statewide importance

*Land capability (nonirrigated):* 3e

*Hydrologic Soil Group:* D

### **Typical profile**

*0 to 9 inches:* Channery silt loam

*9 to 15 inches:* Channery silt loam

*15 to 17 inches:* Channery silt loam

*17 to 29 inches:* Channery loam

*29 to 54 inches:* Extremely channery loam

*54 to 72 inches:* Channery silt loam

### **Minor Components**

#### **Mardin**

*Percent of map unit:* 6 percent

*Landform:* Hills, drumlinoid ridges, till plains

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Concave

*Across-slope shape:* Convex

#### **Chippewa**

*Percent of map unit:* 4 percent

*Landform:* Depressions

*Landform position (two-dimensional):* Toeslope

*Landform position (three-dimensional):* Base slope

*Down-slope shape:* Concave

*Across-slope shape:* Concave

## **VoD—Volusia channery silt loam, 15 to 25 percent slopes**

### **Map Unit Setting**

*Elevation:* 330 to 2,460 feet

*Mean annual precipitation:* 31 to 70 inches

*Mean annual air temperature:* 39 to 52 degrees F

*Frost-free period:* 105 to 180 days

### **Map Unit Composition**

*Volusia and similar soils:* 90 percent

*Minor components:* 10 percent

### **Description of Volusia**

#### **Setting**

*Landform:* Hills

*Landform position (two-dimensional):* Footslope, summit

*Landform position (three-dimensional):* Base slope, side slope

## Custom Soil Resource Report

*Down-slope shape:* Concave

*Across-slope shape:* Linear

*Parent material:* Loamy till derived from interbedded sedimentary rock

### Properties and qualities

*Slope:* 15 to 25 percent

*Surface area covered with cobbles, stones or boulders:* 0.0 percent

*Depth to restrictive feature:* 10 to 22 inches to fragipan

*Drainage class:* Somewhat poorly drained

*Capacity of the most limiting layer to transmit water (Ksat):* Very low to moderately high (0.00 to 0.20 in/hr)

*Depth to water table:* About 6 to 18 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 5 percent

*Maximum salinity:* Nonsaline (0.0 to 2.0 mmhos/cm)

*Available water capacity:* Very low (about 3.0 inches)

### Interpretive groups

*Farmland classification:* Not prime farmland

*Land capability (nonirrigated):* 4e

*Hydrologic Soil Group:* D

### Typical profile

*0 to 9 inches:* Channery silt loam

*9 to 15 inches:* Channery silt loam

*15 to 17 inches:* Channery silt loam

*17 to 29 inches:* Channery loam

*29 to 54 inches:* Extremely channery loam

*54 to 72 inches:* Channery silt loam

### Minor Components

#### Mardin

*Percent of map unit:* 7 percent

*Landform:* Drumlinoid ridges, till plains, hills

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Side slope

*Down-slope shape:* Concave

*Across-slope shape:* Convex

#### Chippewa

*Percent of map unit:* 3 percent

*Landform:* Depressions

*Landform position (two-dimensional):* Toeslope

*Landform position (three-dimensional):* Base slope

*Down-slope shape:* Concave

*Across-slope shape:* Concave

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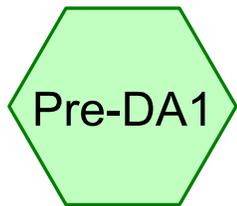
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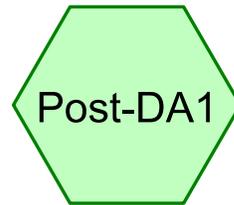
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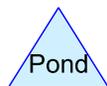
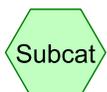
**APPENDIX C**  
**HYDROLOGIC AND HYDRAULIC COMPUTATIONS**



Pre Drainage Area 1



Post Drainage Area 1



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### Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
1,001,880	79	1 acre lots, 20% imp, HSG C (Post-DA1, Pre-DA1)
8,642,304	83	1/4 acre lots, 38% imp, HSG C (Post-DA1, Pre-DA1)
1,176,120	90	Apartment Complex (Post-DA1, Pre-DA1)
2,047,320	70	Mixed Woods & Grasses (Post-DA1, Pre-DA1)
1,176,120	65	Woods (Post-DA1, Pre-DA1)
<b>14,043,744</b>	<b>80</b>	<b>TOTAL AREA</b>

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## Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
9,644,184	HSG C	Post-DA1, Pre-DA1
0	HSG D	
4,399,560	Other	Post-DA1, Pre-DA1
<b>14,043,744</b>		<b>TOTAL AREA</b>

**0067\_124144\_Hydrology**

**Ground Covers (all nodes)**

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Sub Num
0	0	1,001,880	0	0	1,001,880	1 acre lots, 20% imp	
0	0	8,642,304	0	0	8,642,304	1/4 acre lots, 38% imp	
0	0	0	0	1,176,120	1,176,120	Apartment Complex	
0	0	0	0	2,047,320	2,047,320	Mixed Woods & Grasses	
0	0	0	0	1,176,120	1,176,120	Woods	
<b>0</b>	<b>0</b>	<b>9,644,184</b>	<b>0</b>	<b>4,399,560</b>	<b>14,043,744</b>	<b>TOTAL AREA</b>	

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Type II 24-hr 1-Year Rainfall=2.40"

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment Post-DA1: Post Drainage** Runoff Area=161.200 ac 24.81% Impervious Runoff Depth=0.82"  
Tc=33.6 min CN=80 Runoff=99.69 cfs 480,094 cf

**Subcatchment Pre-DA1: Pre Drainage** Runoff Area=161.200 ac 24.81% Impervious Runoff Depth=0.82"  
Tc=33.6 min CN=80 Runoff=99.69 cfs 480,094 cf

**Total Runoff Area = 14,043,744 sf Runoff Volume = 960,188 cf Average Runoff Depth = 0.82"**  
**75.19% Pervious = 10,559,292 sf 24.81% Impervious = 3,484,452 sf**

**Summary for Subcatchment Post-DA1: Post Drainage Area 1**

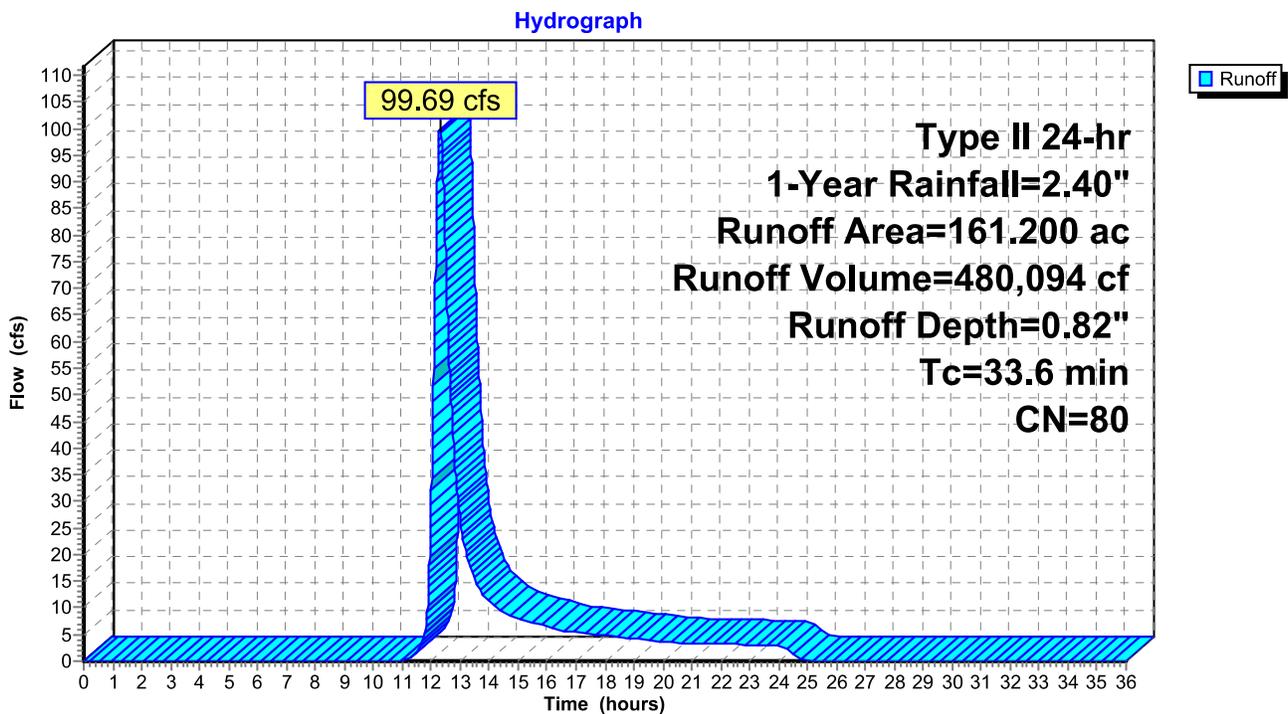
Runoff = 99.69 cfs @ 12.31 hrs, Volume= 480,094 cf, Depth= 0.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type II 24-hr 1-Year Rainfall=2.40"

Area (ac)	CN	Description
99.200	83	1/4 acre lots, 38% imp, HSG C
11.500	79	1 acre lots, 20% imp, HSG C
* 13.500	90	Apartment Complex
* 13.500	65	Woods
* 23.500	70	Mixed Woods & Grasses
161.200	80	Weighted Average
121.204		75.19% Pervious Area
39.996		24.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.6					Direct Entry,

**Subcatchment Post-DA1: Post Drainage Area 1**



**Summary for Subcatchment Pre-DA1: Pre Drainage Area 1**

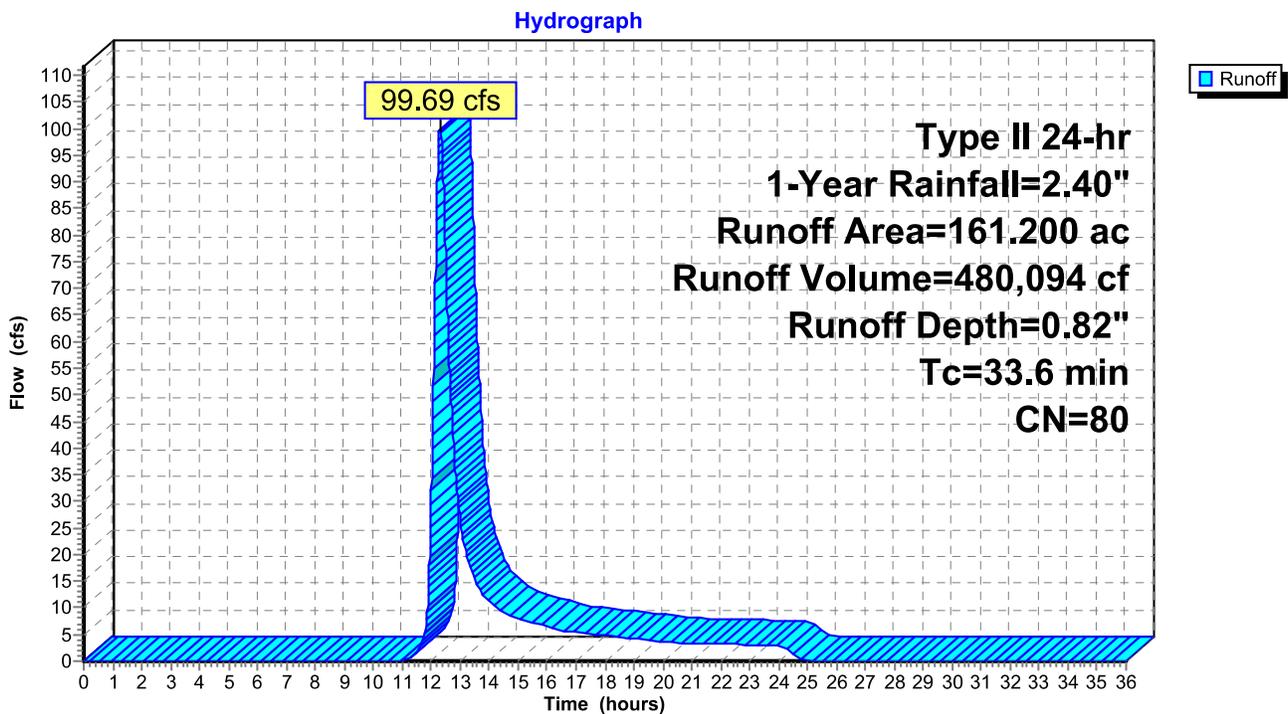
Runoff = 99.69 cfs @ 12.31 hrs, Volume= 480,094 cf, Depth= 0.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type II 24-hr 1-Year Rainfall=2.40"

Area (ac)	CN	Description
99.200	83	1/4 acre lots, 38% imp, HSG C
11.500	79	1 acre lots, 20% imp, HSG C
* 13.500	90	Apartment Complex
* 13.500	65	Woods
* 23.500	70	Mixed Woods & Grasses
161.200	80	Weighted Average
121.204		75.19% Pervious Area
39.996		24.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.6					Direct Entry,

**Subcatchment Pre-DA1: Pre Drainage Area 1**



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*Type II 24-hr 2-Year Rainfall=2.80"*

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment Post-DA1: Post Drainage** Runoff Area=161.200 ac 24.81% Impervious Runoff Depth=1.10"  
Tc=33.6 min CN=80 Runoff=137.80 cfs 644,891 cf

**Subcatchment Pre-DA1: Pre Drainage** Runoff Area=161.200 ac 24.81% Impervious Runoff Depth=1.10"  
Tc=33.6 min CN=80 Runoff=137.80 cfs 644,891 cf

**Total Runoff Area = 14,043,744 sf Runoff Volume = 1,289,781 cf Average Runoff Depth = 1.10"**  
**75.19% Pervious = 10,559,292 sf 24.81% Impervious = 3,484,452 sf**

**Summary for Subcatchment Post-DA1: Post Drainage Area 1**

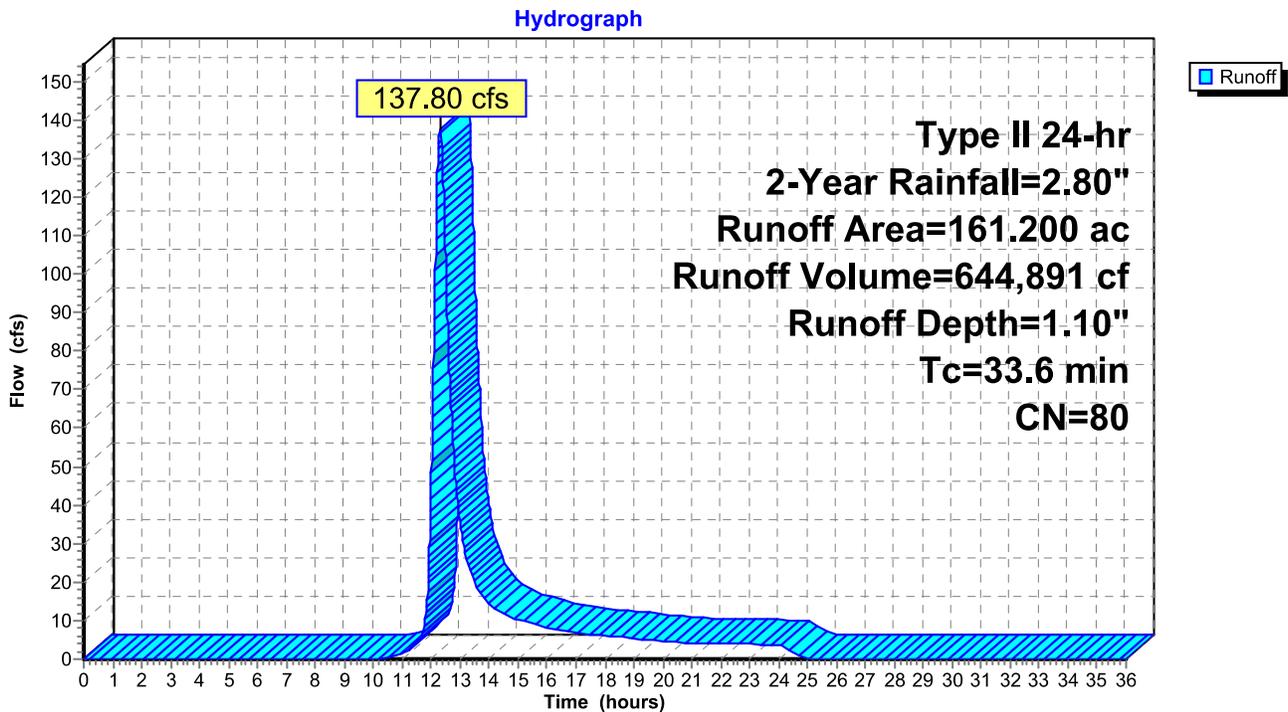
Runoff = 137.80 cfs @ 12.29 hrs, Volume= 644,891 cf, Depth= 1.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type II 24-hr 2-Year Rainfall=2.80"

Area (ac)	CN	Description
99.200	83	1/4 acre lots, 38% imp, HSG C
11.500	79	1 acre lots, 20% imp, HSG C
* 13.500	90	Apartment Complex
* 13.500	65	Woods
* 23.500	70	Mixed Woods & Grasses
161.200	80	Weighted Average
121.204		75.19% Pervious Area
39.996		24.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.6					Direct Entry,

**Subcatchment Post-DA1: Post Drainage Area 1**



**Summary for Subcatchment Pre-DA1: Pre Drainage Area 1**

Runoff = 137.80 cfs @ 12.29 hrs, Volume= 644,891 cf, Depth= 1.10"

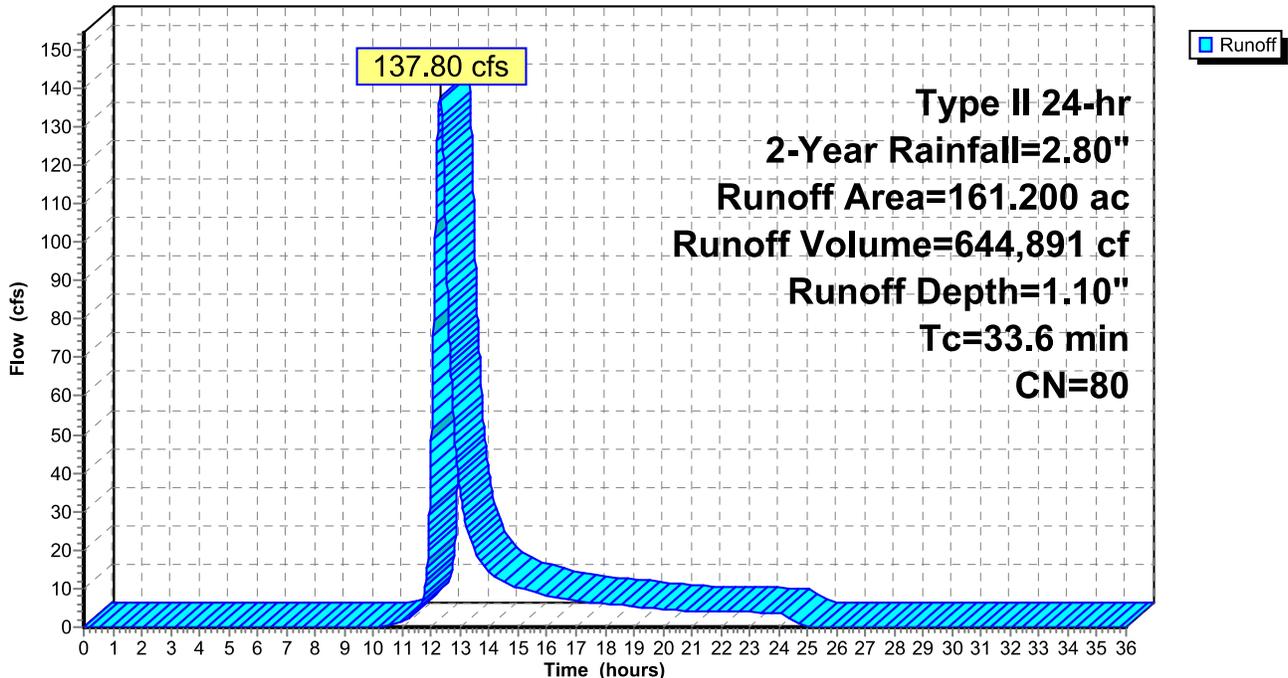
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type II 24-hr 2-Year Rainfall=2.80"

Area (ac)	CN	Description
99.200	83	1/4 acre lots, 38% imp, HSG C
11.500	79	1 acre lots, 20% imp, HSG C
* 13.500	90	Apartment Complex
* 13.500	65	Woods
* 23.500	70	Mixed Woods & Grasses
161.200	80	Weighted Average
121.204		75.19% Pervious Area
39.996		24.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.6					Direct Entry,

**Subcatchment Pre-DA1: Pre Drainage Area 1**

Hydrograph



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Type II 24-hr 10-Year Rainfall=4.20"

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment Post-DA1: Post Drainage** Runoff Area=161.200 ac 24.81% Impervious Runoff Depth=2.21"  
Tc=33.6 min CN=80 Runoff=285.94 cfs 1,292,062 cf

**Subcatchment Pre-DA1: Pre Drainage** Runoff Area=161.200 ac 24.81% Impervious Runoff Depth=2.21"  
Tc=33.6 min CN=80 Runoff=285.94 cfs 1,292,062 cf

**Total Runoff Area = 14,043,744 sf Runoff Volume = 2,584,124 cf Average Runoff Depth = 2.21"**  
**75.19% Pervious = 10,559,292 sf 24.81% Impervious = 3,484,452 sf**

**Summary for Subcatchment Post-DA1: Post Drainage Area 1**

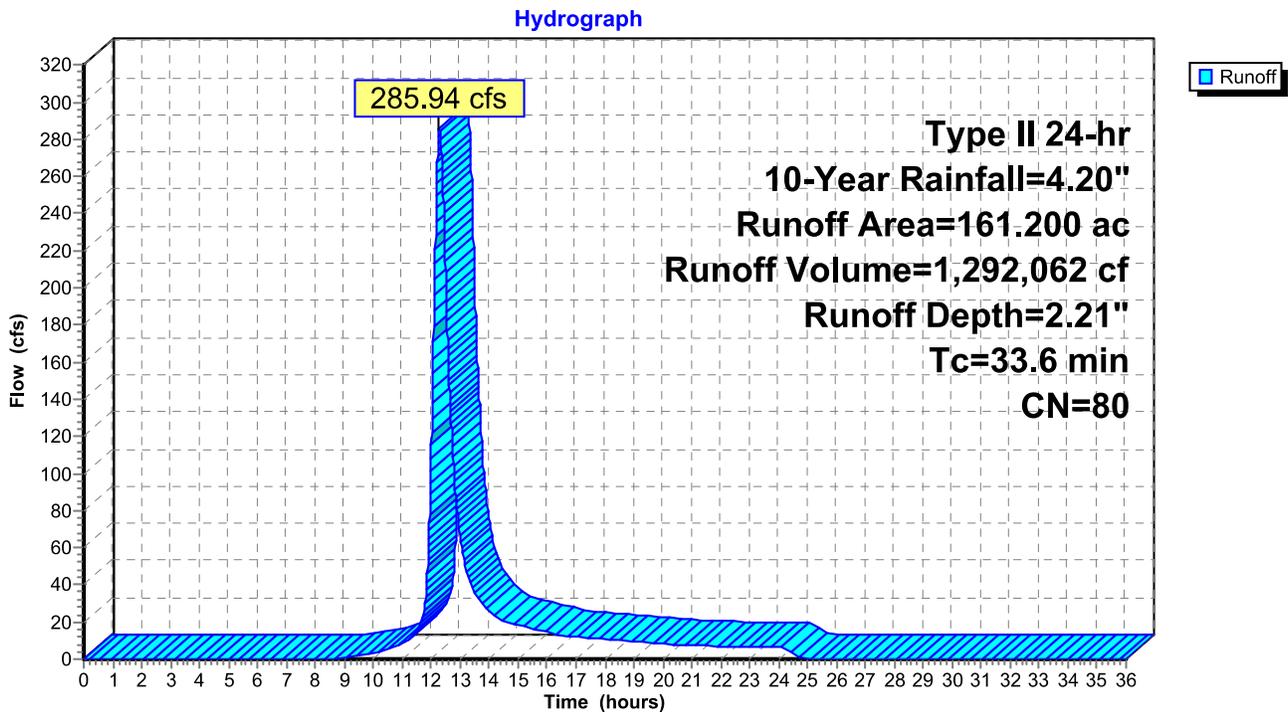
Runoff = 285.94 cfs @ 12.28 hrs, Volume= 1,292,062 cf, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type II 24-hr 10-Year Rainfall=4.20"

Area (ac)	CN	Description
99.200	83	1/4 acre lots, 38% imp, HSG C
11.500	79	1 acre lots, 20% imp, HSG C
* 13.500	90	Apartment Complex
* 13.500	65	Woods
* 23.500	70	Mixed Woods & Grasses
161.200	80	Weighted Average
121.204		75.19% Pervious Area
39.996		24.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.6					Direct Entry,

**Subcatchment Post-DA1: Post Drainage Area 1**



**Summary for Subcatchment Pre-DA1: Pre Drainage Area 1**

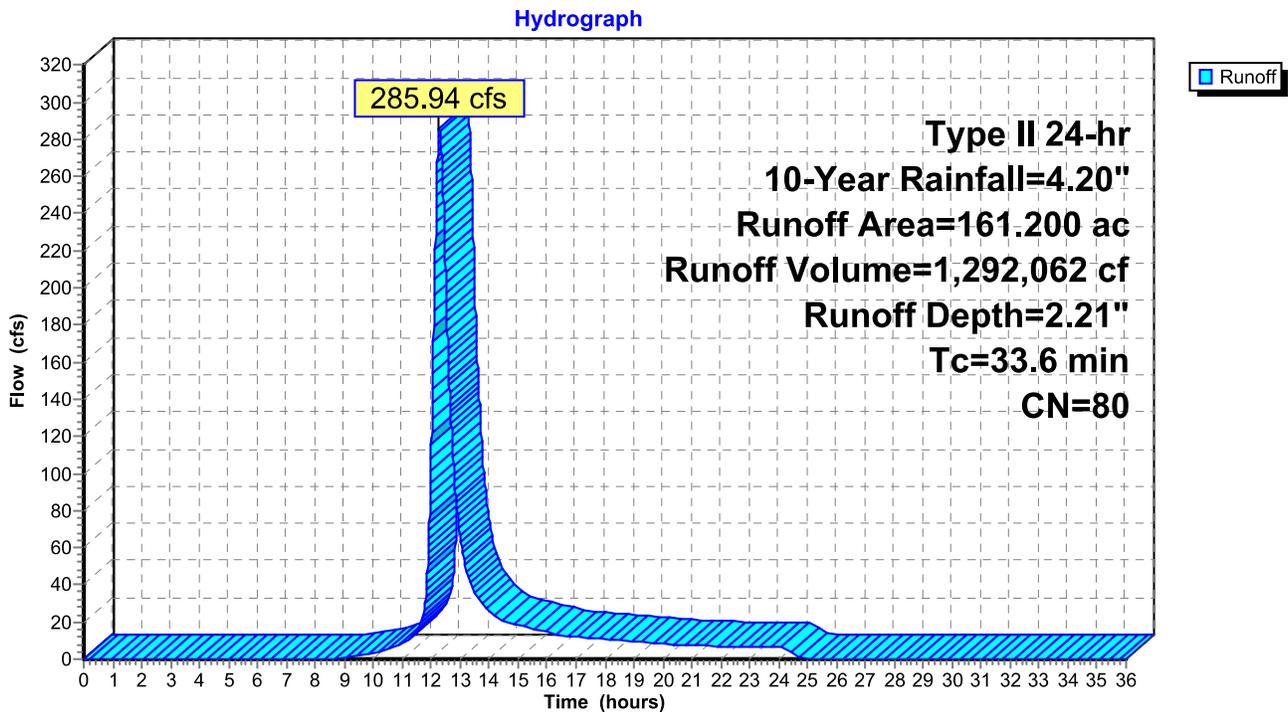
Runoff = 285.94 cfs @ 12.28 hrs, Volume= 1,292,062 cf, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type II 24-hr 10-Year Rainfall=4.20"

Area (ac)	CN	Description
99.200	83	1/4 acre lots, 38% imp, HSG C
11.500	79	1 acre lots, 20% imp, HSG C
* 13.500	90	Apartment Complex
* 13.500	65	Woods
* 23.500	70	Mixed Woods & Grasses
161.200	80	Weighted Average
121.204		75.19% Pervious Area
39.996		24.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.6					Direct Entry,

**Subcatchment Pre-DA1: Pre Drainage Area 1**



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Type II 24-hr 25-Year Rainfall=4.80"

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment Post-DA1: Post Drainage** Runoff Area=161.200 ac 24.81% Impervious Runoff Depth=2.72"  
Tc=33.6 min CN=80 Runoff=353.41 cfs 1,591,108 cf

**Subcatchment Pre-DA1: Pre Drainage** Runoff Area=161.200 ac 24.81% Impervious Runoff Depth=2.72"  
Tc=33.6 min CN=80 Runoff=353.41 cfs 1,591,108 cf

**Total Runoff Area = 14,043,744 sf Runoff Volume = 3,182,216 cf Average Runoff Depth = 2.72"**  
**75.19% Pervious = 10,559,292 sf 24.81% Impervious = 3,484,452 sf**

**Summary for Subcatchment Post-DA1: Post Drainage Area 1**

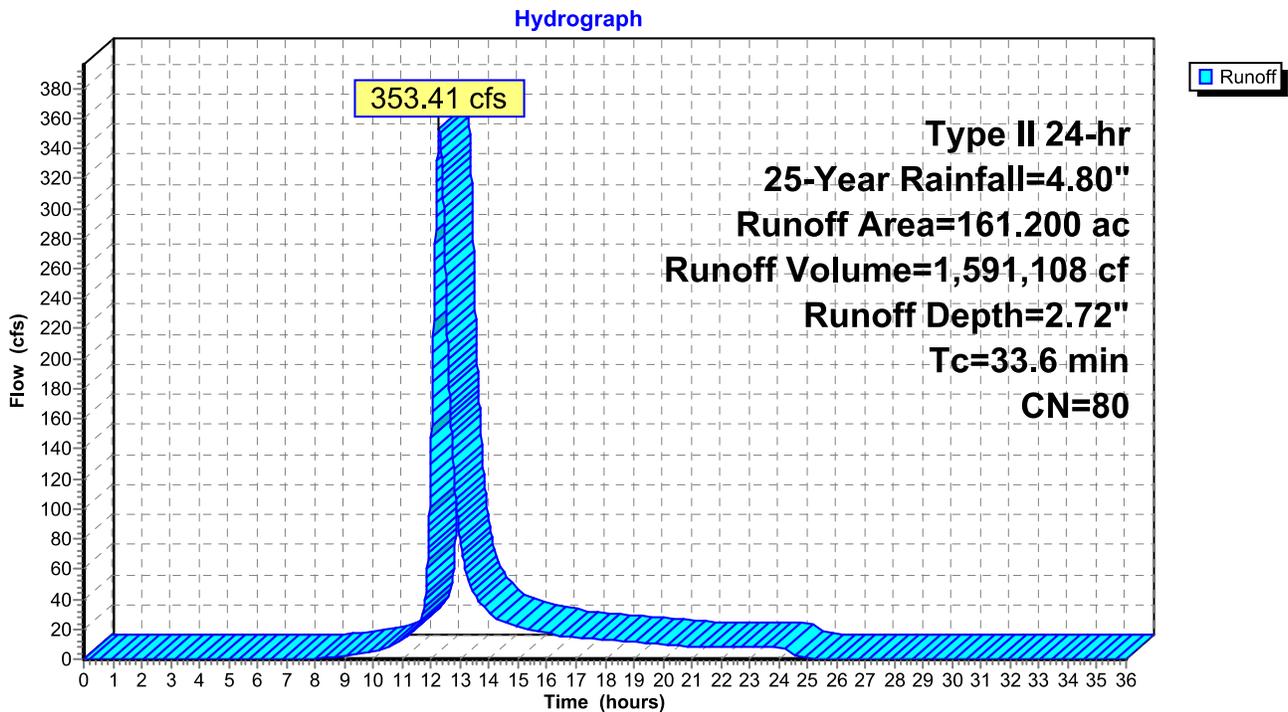
Runoff = 353.41 cfs @ 12.28 hrs, Volume= 1,591,108 cf, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type II 24-hr 25-Year Rainfall=4.80"

Area (ac)	CN	Description
99.200	83	1/4 acre lots, 38% imp, HSG C
11.500	79	1 acre lots, 20% imp, HSG C
* 13.500	90	Apartment Complex
* 13.500	65	Woods
* 23.500	70	Mixed Woods & Grasses
161.200	80	Weighted Average
121.204		75.19% Pervious Area
39.996		24.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.6					Direct Entry,

**Subcatchment Post-DA1: Post Drainage Area 1**



**Summary for Subcatchment Pre-DA1: Pre Drainage Area 1**

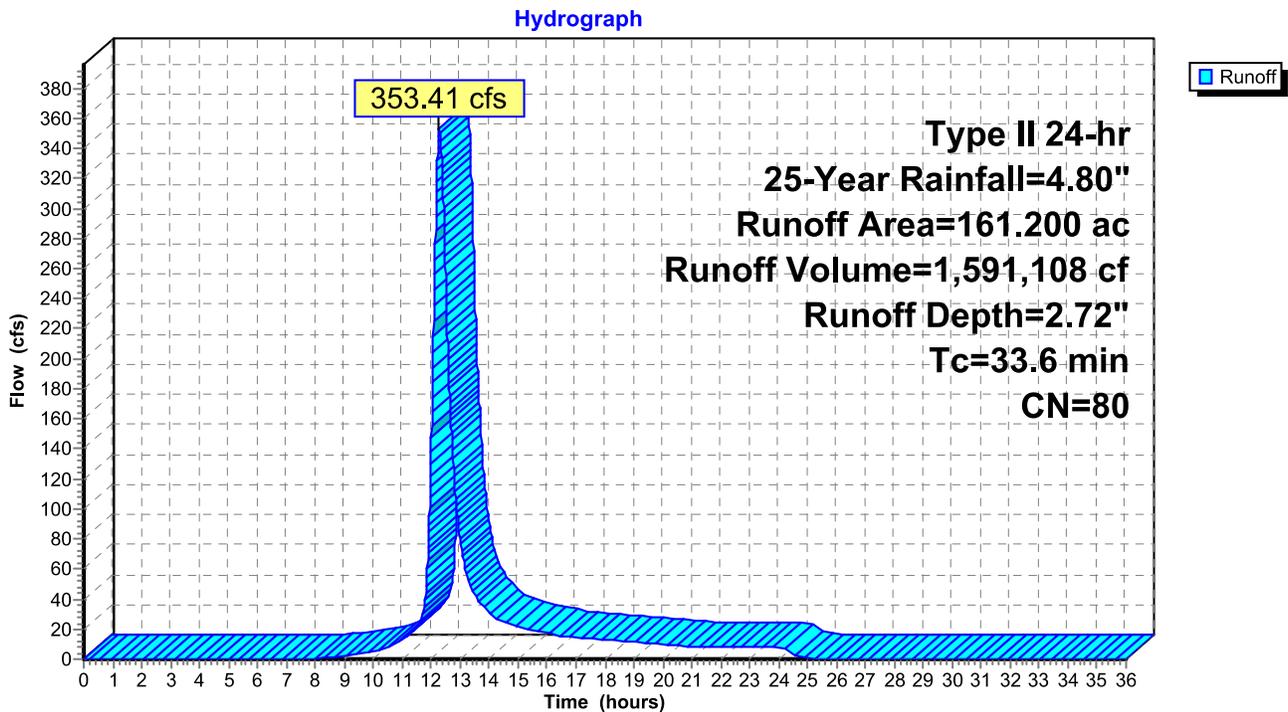
Runoff = 353.41 cfs @ 12.28 hrs, Volume= 1,591,108 cf, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type II 24-hr 25-Year Rainfall=4.80"

Area (ac)	CN	Description
99.200	83	1/4 acre lots, 38% imp, HSG C
11.500	79	1 acre lots, 20% imp, HSG C
* 13.500	90	Apartment Complex
* 13.500	65	Woods
* 23.500	70	Mixed Woods & Grasses
161.200	80	Weighted Average
121.204		75.19% Pervious Area
39.996		24.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.6					Direct Entry,

**Subcatchment Pre-DA1: Pre Drainage Area 1**



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Type II 24-hr 50-Year Rainfall=5.30"

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment Post-DA1: Post Drainage** Runoff Area=161.200 ac 24.81% Impervious Runoff Depth=3.16"  
Tc=33.6 min CN=80 Runoff=410.63 cfs 1,846,849 cf

**Subcatchment Pre-DA1: Pre Drainage** Runoff Area=161.200 ac 24.81% Impervious Runoff Depth=3.16"  
Tc=33.6 min CN=80 Runoff=410.63 cfs 1,846,849 cf

**Total Runoff Area = 14,043,744 sf Runoff Volume = 3,693,697 cf Average Runoff Depth = 3.16"**  
**75.19% Pervious = 10,559,292 sf 24.81% Impervious = 3,484,452 sf**

**Summary for Subcatchment Post-DA1: Post Drainage Area 1**

Runoff = 410.63 cfs @ 12.28 hrs, Volume= 1,846,849 cf, Depth= 3.16"

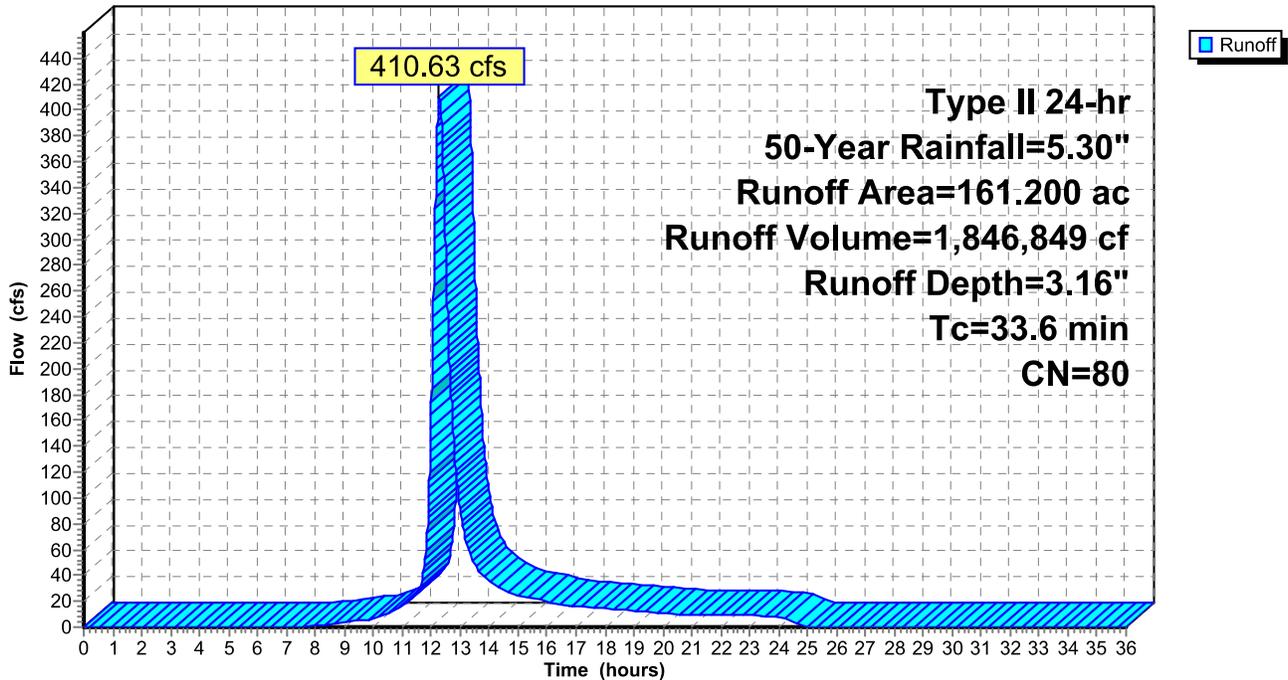
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type II 24-hr 50-Year Rainfall=5.30"

Area (ac)	CN	Description
99.200	83	1/4 acre lots, 38% imp, HSG C
11.500	79	1 acre lots, 20% imp, HSG C
* 13.500	90	Apartment Complex
* 13.500	65	Woods
* 23.500	70	Mixed Woods & Grasses
161.200	80	Weighted Average
121.204		75.19% Pervious Area
39.996		24.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.6					Direct Entry,

**Subcatchment Post-DA1: Post Drainage Area 1**

Hydrograph



**Summary for Subcatchment Pre-DA1: Pre Drainage Area 1**

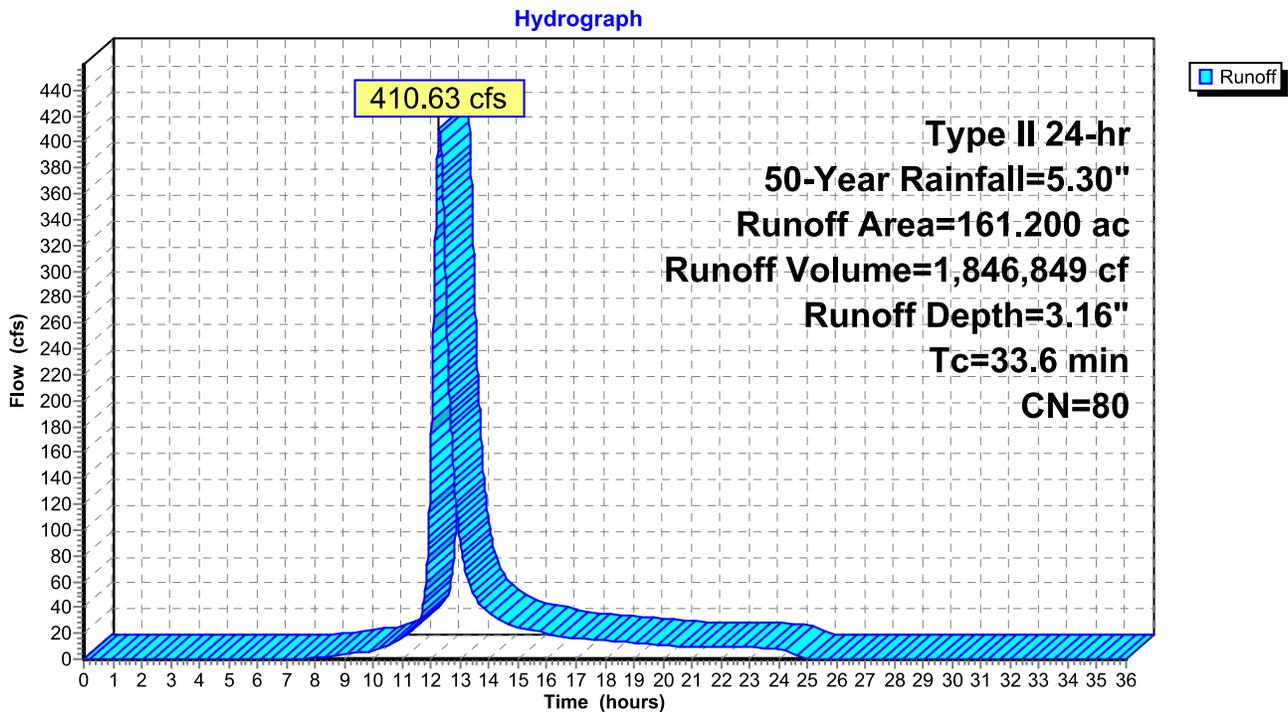
Runoff = 410.63 cfs @ 12.28 hrs, Volume= 1,846,849 cf, Depth= 3.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
Type II 24-hr 50-Year Rainfall=5.30"

Area (ac)	CN	Description
99.200	83	1/4 acre lots, 38% imp, HSG C
11.500	79	1 acre lots, 20% imp, HSG C
* 13.500	90	Apartment Complex
* 13.500	65	Woods
* 23.500	70	Mixed Woods & Grasses
161.200	80	Weighted Average
121.204		75.19% Pervious Area
39.996		24.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.6					Direct Entry,

**Subcatchment Pre-DA1: Pre Drainage Area 1**



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*Type II 24-hr 100-Year Rainfall=6.20"*

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment Post-DA1: Post Drainage** Runoff Area=161.200 ac 24.81% Impervious Runoff Depth=3.96"  
Tc=33.6 min CN=80 Runoff=515.11 cfs 2,318,502 cf

**Subcatchment Pre-DA1: Pre Drainage** Runoff Area=161.200 ac 24.81% Impervious Runoff Depth=3.96"  
Tc=33.6 min CN=80 Runoff=515.11 cfs 2,318,502 cf

**Total Runoff Area = 14,043,744 sf Runoff Volume = 4,637,004 cf Average Runoff Depth = 3.96"**  
**75.19% Pervious = 10,559,292 sf 24.81% Impervious = 3,484,452 sf**

**Summary for Subcatchment Post-DA1: Post Drainage Area 1**

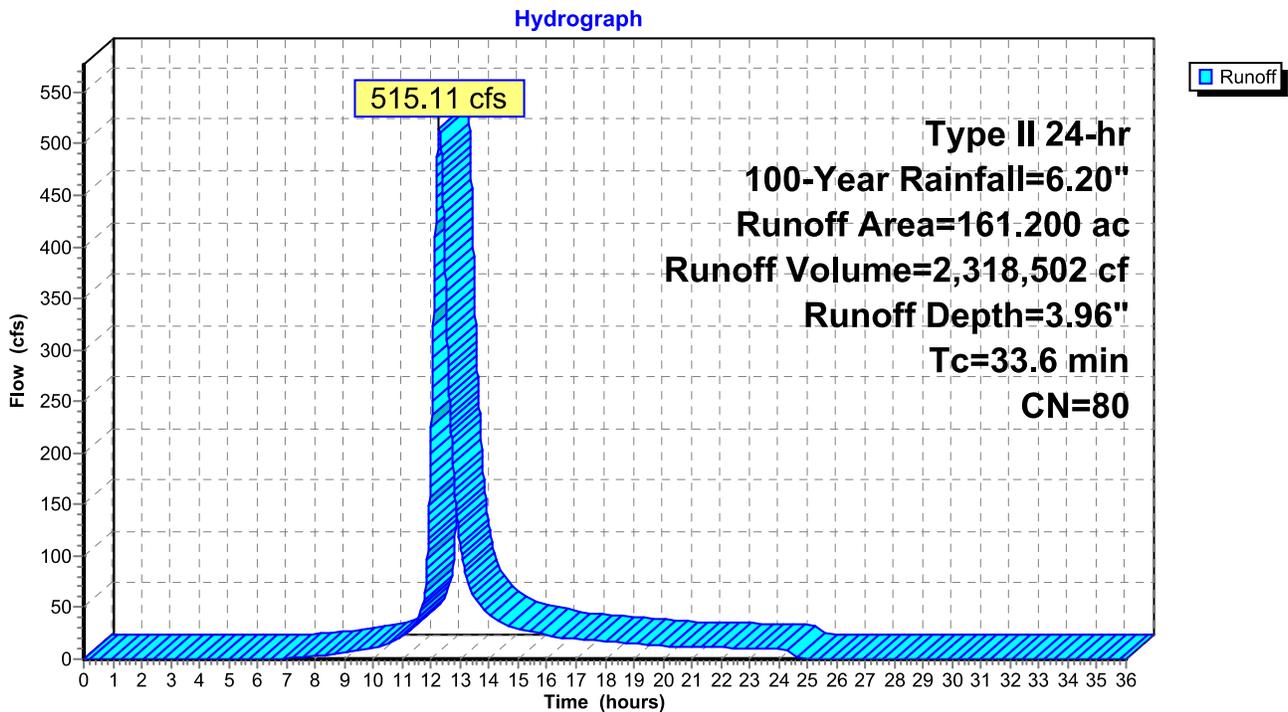
Runoff = 515.11 cfs @ 12.28 hrs, Volume= 2,318,502 cf, Depth= 3.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
 Type II 24-hr 100-Year Rainfall=6.20"

Area (ac)	CN	Description
99.200	83	1/4 acre lots, 38% imp, HSG C
11.500	79	1 acre lots, 20% imp, HSG C
* 13.500	90	Apartment Complex
* 13.500	65	Woods
* 23.500	70	Mixed Woods & Grasses
161.200	80	Weighted Average
121.204		75.19% Pervious Area
39.996		24.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.6					Direct Entry,

**Subcatchment Post-DA1: Post Drainage Area 1**



**Summary for Subcatchment Pre-DA1: Pre Drainage Area 1**

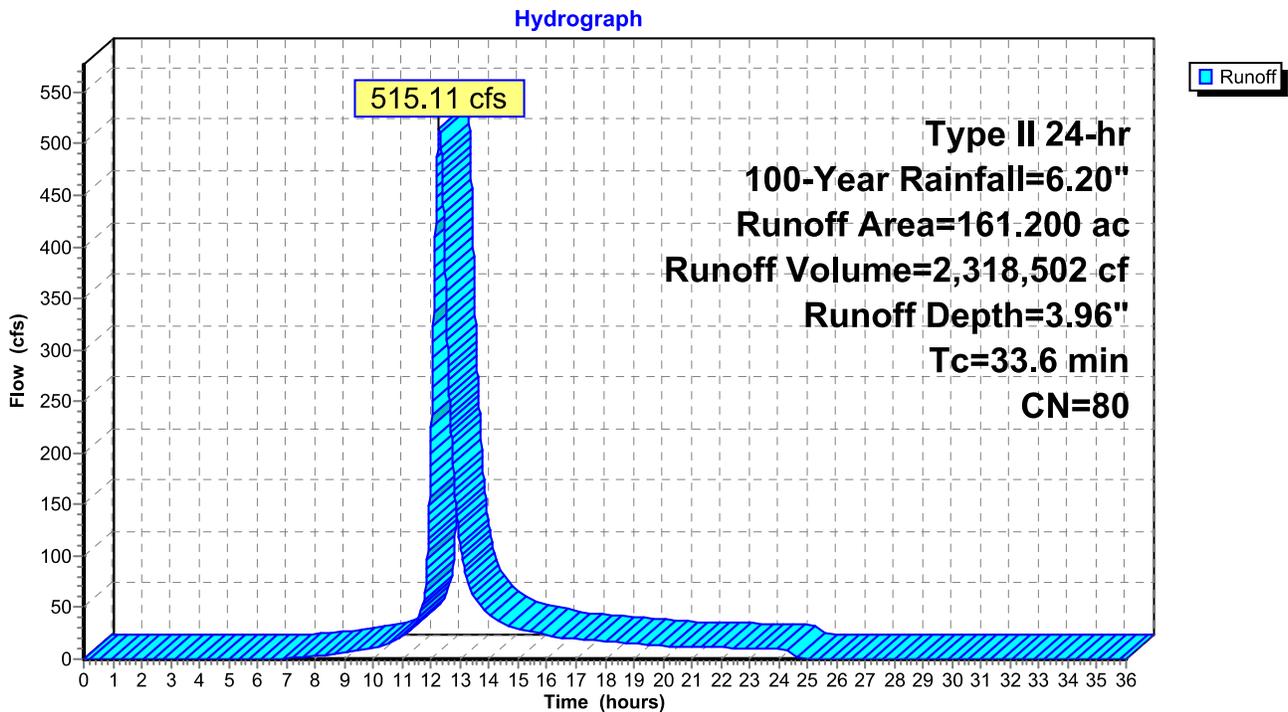
Runoff = 515.11 cfs @ 12.28 hrs, Volume= 2,318,502 cf, Depth= 3.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs  
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161.200	80	Weighted Average
121.204		75.19% Pervious Area
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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.6					Direct Entry,

**Subcatchment Pre-DA1: Pre Drainage Area 1**



**APPENDIX D  
CONSTRUCTION PLANS,  
DETAILS AND SPECIFICATIONS**

**APPENDIX E  
STORMWATER MANAGEMENT PLANS,  
DETAILS AND SPECIFICATIONS**

# STANDARD AND SPECIFICATIONS FOR STABILIZED CONSTRUCTION ENTRANCE



## **Definition**

A stabilized pad of aggregate underlain with geotextile located at any point where traffic will be entering or leaving a construction site to or from a public right-of-way, street, alley, sidewalk, or parking area.

## **Purpose**

The purpose of stabilized construction entrance is to reduce or eliminate the tracking of sediment onto public rights-of-way or streets.

## **Conditions Where Practice Applies**

A stabilized construction entrance shall be used at all points of construction ingress and egress.

## **Design Criteria**

See Figure 5A.35 on page 5A.76 for details.

**Aggregate Size:** Use a matrix of 1-4 inch stone, or reclaimed or recycled concrete equivalent.

**Thickness:** Not less than six (6) inches.

**Width:** 12-foot minimum but not less than the full width of points where ingress or egress occurs. 24-foot minimum if there is only one access to the site.

**Length:** As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum would apply).

**Geotextile:** To be placed over the entire area to be covered with aggregate. Filter cloth will not be required on a single-family residence lot. Piping of surface water under entrance shall be provided as required. If piping is impossible, a mountable berm with 5:1 slopes will be permitted.

## **Criteria for Geotextile**

The geotextile shall be woven or nonwoven fabric consisting only of continuous chain polymeric filaments or yarns of polyester. The fabric shall be inert to commonly encountered chemicals, hydro-carbons, mildew, rot resistant, and conform to the fabric properties as shown:

Fabric Properties <sup>3</sup>	Light Duty <sup>1</sup>	Heavy Duty <sup>2</sup>	Test Method
	Roads Grade Subgrade	Haul Roads Rough Graded	
Grab Tensile Strength (lbs)	200	220	ASTM D1682
Elongation at Failure (%)	50	60	ASTM D1682
Mullen Brust Strength (lbs)	190	430	ASTM D3786
Puncture Strength (lbs)	40	125	ASTM D751 modified
Equivalent Opening Size	40-80	40-80	US Std Sieve CW-02215
Aggregate Depth	6	10	--

<sup>1</sup>Light Duty Road: Area sites that have been graded to subgrade and where most travel would be single axle vehicles and an occasional multi-axle truck. Acceptable materials are Trevira Spunbond 1115, Mirafi 100X, Typar 3401, or equivalent.

<sup>2</sup>Heavy Duty Road: Area sites with only rough grading, and where most travel would be multi-axle vehicles. Acceptable materials are Trevira Spunbond 1135, Mirafi 600X, or equivalent.

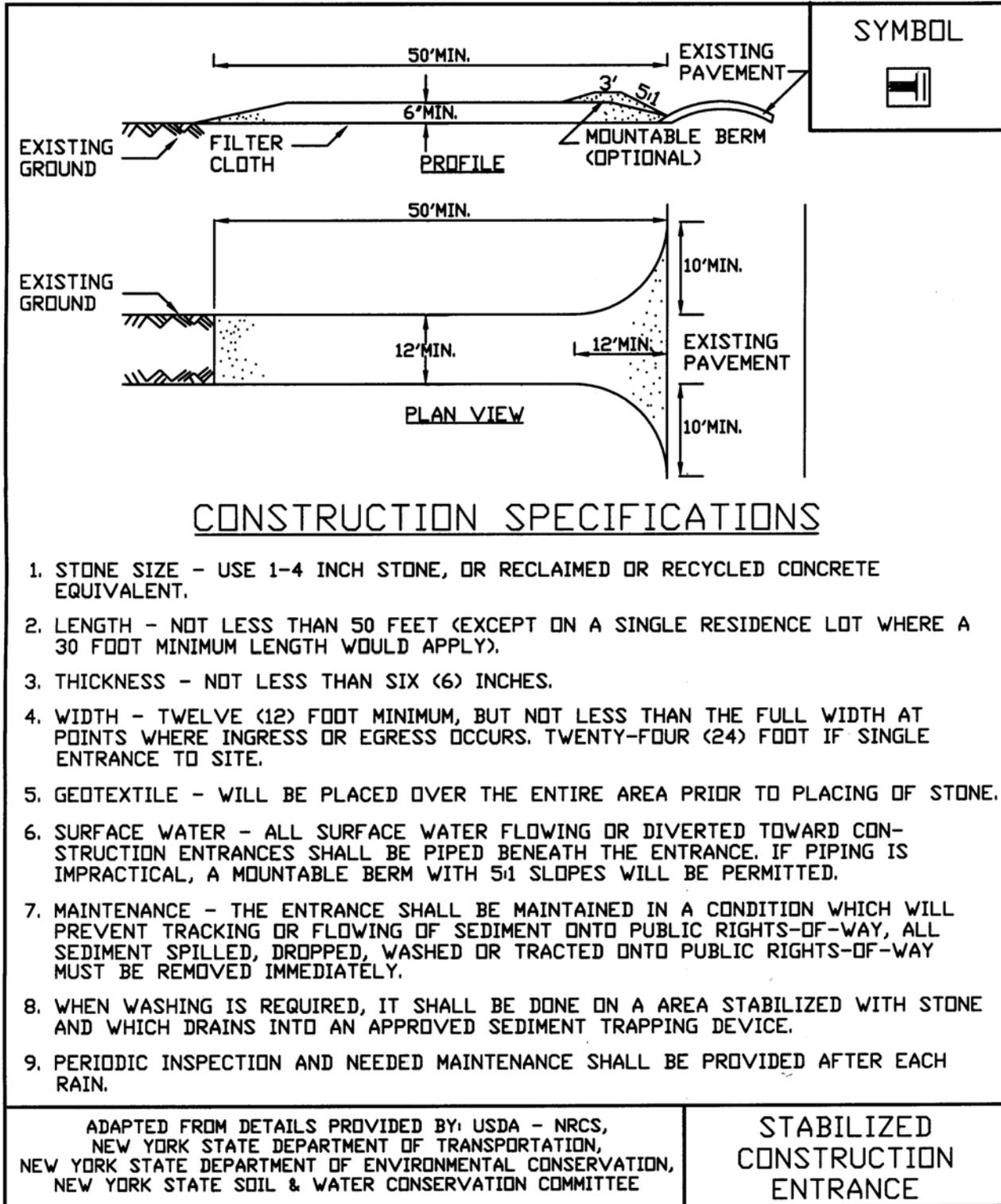
<sup>3</sup>Fabrics not meeting these specifications may be used only when design procedure and supporting documentation are supplied to determine aggregate depth and fabric strength.

## **Maintenance**

The entrance shall be maintained in a condition which will prevent tracking of sediment onto public rights-of-way or streets. This may require periodic top dressing with additional aggregate. All sediment spilled, dropped, or washed onto public rights-of-way must be removed immediately.

When necessary, wheels must be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with aggregate, which drains into an approved sediment-trapping device. All sediment shall be prevented from entering storm drains, ditches, or watercourses.

**Figure 5A.35**  
**Stabilized Construction Entrance**



# STANDARD AND SPECIFICATIONS FOR SILT FENCE



2. Maximum drainage area for overland flow to a silt fence shall not exceed ¼ acre per 100 feet of fence, with maximum ponding depth of 1.5 feet behind the fence; and
3. Erosion would occur in the form of sheet erosion; and
4. There is no concentration of water flowing to the barrier.

## **Definition**

A temporary barrier of geotextile fabric installed on the contours across a slope used to intercept sediment laden runoff from small drainage areas of disturbed soil.

## **Purpose**

The purpose of a silt fence is to reduce runoff velocity and effect deposition of transported sediment load. Limits imposed by ultraviolet stability of the fabric will dictate the maximum period the silt fence may be used (approximately one year).

## **Conditions Where Practice Applies**

A silt fence may be used subject to the following conditions:

1. Maximum allowable slope lengths contributing runoff to a silt fence placed on a slope are:

<u>Slope Steepness</u>	<u>Maximum Length (ft.)</u>
2:1	25
3:1	50
4:1	75
5:1 or flatter	100

## **Design Criteria**

Design computations are not required for installations of 1 month or less. Longer installation periods should be designed for expected runoff. All silt fences shall be placed as close to the areas as possible, but at least 10 feet from the toe of a slope to allow for maintenance and roll down. The area beyond the fence must be undisturbed or stabilized.

Sensitive areas to be protected by silt fence may need to be reinforced by using heavy wire fencing for added support to prevent collapse.

Where ends of filter cloth come together, they shall be overlapped, folded and stapled to prevent sediment bypass. A detail of the silt fence shall be shown on the plan. See Figure 5A.8 on page 5A.21 for details.

## **Criteria for Silt Fence Materials**

1. Silt Fence Fabric: The fabric shall meet the following specifications unless otherwise approved by the appropriate erosion and sediment control plan approval authority. Such approval shall not constitute statewide acceptance.

<u>Fabric Properties</u>	<u>Minimum Acceptable Value</u>	<u>Test Method</u>
Grab Tensile Strength (lbs)	90	ASTM D1682
Elongation at Failure (%)	50	ASTM D1682

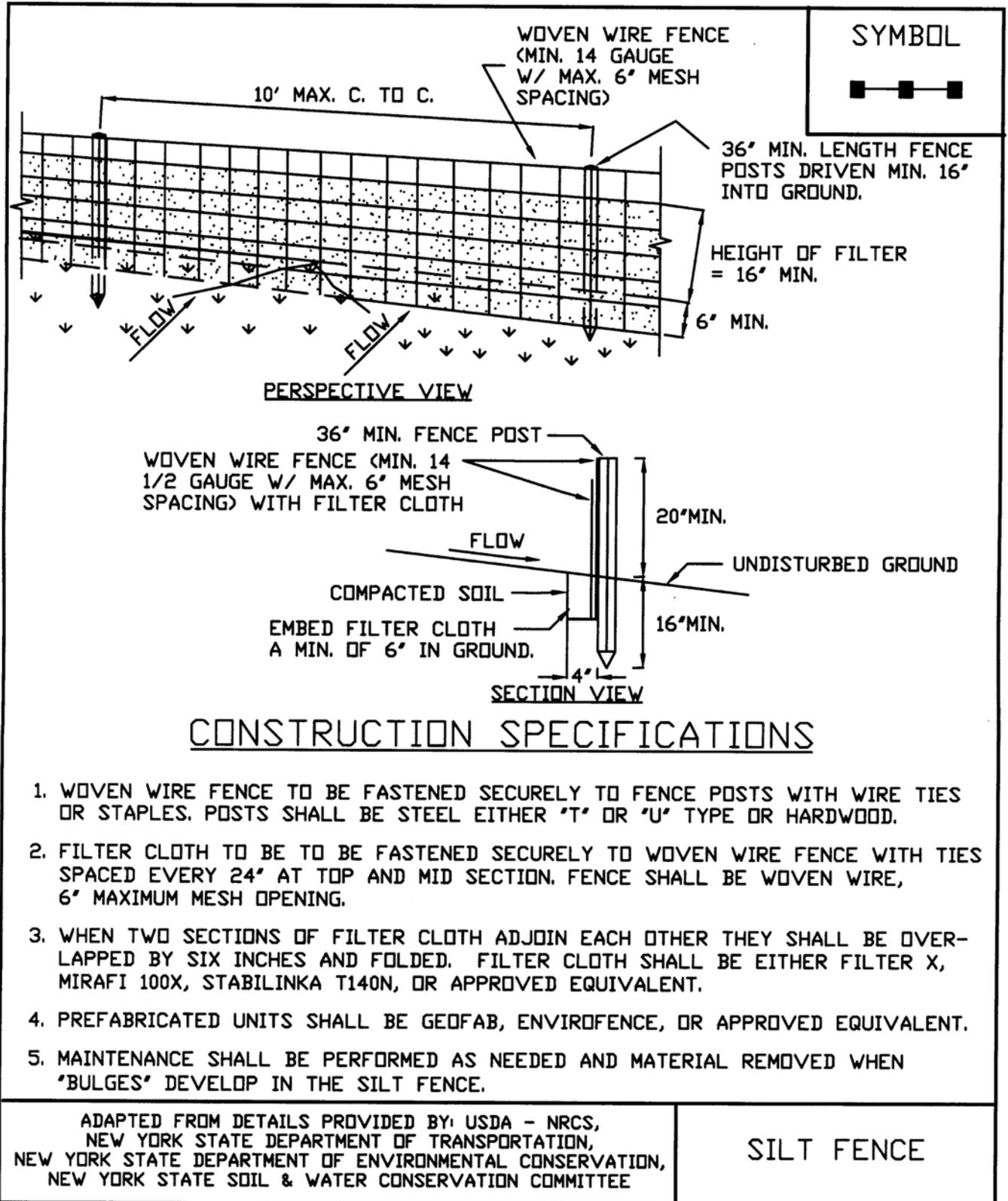
Mullen Burst Strength (PSI)	190	ASTM D3786
Puncture Strength (lbs)	40	ASTM D751 (modified)
Slurry Flow Rate (gal/min/sf)	0.3	
Equivalent Opening Size	40-80	US Std Sieve CW-02215
Ultraviolet Radiation Stability (%)	90	ASTM G-26

2. Fence Posts (for fabricated units): The length shall be a minimum of 36 inches long. Wood posts will be of sound quality hardwood with a minimum cross sectional area of 3.0 square inches. Steel posts will be standard T and U section weighing not less than 1.00 pound per linear foot.

3. Wire Fence (for fabricated units): Wire fencing shall be a minimum 14 gage with a maximum 6 in. mesh opening, or as approved.

4. Prefabricated Units: Envirofence, Geofab, or approved equal, may be used in lieu of the above method providing the unit is installed per details shown in Figure 5A.8.

**Figure 5A.8**  
**Silt Fence**



# STANDARD AND SPECIFICATIONS FOR TEMPORARY SWALE



	<u>Swale A</u>	<u>Swale B</u>
Drainage Area	<5 Ac	5-10 Ac
Bottom Width of Flow Channel	4 ft	6 ft
Depth of Flow Channel	1 ft	1 ft
Side Slopes	2:1 or flatter	2:1 or flatter
Grade	0.5% Min. 20% Max.	0.5% Min. 20% Max.

For drainage areas larger than 10 acres, refer to the Standard and Specification for Waterways on page 5B.11.

### **Stabilization**

Stabilization of the swale shall be completed within 7 days of installation in accordance with the appropriate standard and specifications for vegetative stabilization or stabilization with mulch as determined by the time of year. The flow channel shall be stabilized as per the following criteria:

### **Definition**

A temporary excavated drainage way.

### **Purpose**

The purpose of a temporary swale is to prevent runoff from entering disturbed areas by intercepting and diverting it to a stabilized outlet or to intercept sediment laden water and divert it to a sediment trapping device.

### **Conditions Where Practice Applies**

Temporary swales are constructed:

1. to divert flows from entering a disturbed area.
2. intermittently across disturbed areas to shorten overland flow distances.
3. to direct sediment laden water along the base of slopes to a trapping device.
4. to transport offsite flows across disturbed areas such as rights-of-way.

Swales collecting runoff from disturbed areas shall remain in place until the disturbed areas are permanently stabilized.

### **Design Criteria**

See Figure 5A.2 on page 5A.5 for details.

<u>Type of Treatment</u>	<u>Channel Grade<sup>1</sup></u>	<u>Flow Channel</u>	
		<u>A (&lt;5 Ac.)</u>	<u>B (5-10 Ac)</u>
1	0.5-3.0%	Seed & Straw Mulch	Seed & Straw Mulch
2	3.1-5.0%	Seed & Straw Mulch	Seed and cover with RECP, Sod, or lined with plastic or 2 in. stone
3	5.1-8.0%	Seed and cover with RECP, Sod, or line with plastic or 2 in. stone	Line with 4-8 in. or stone or Recycled Concrete Equivalent <sup>2</sup> or geotextile
4	8.1-20%	Line with 4-8 in. stone or Recycled Concrete Equivalent <sup>2</sup> or geotextile	Site Specific Engineering Design

<sup>1</sup> In highly erodible soils, as defined by the local approving agency, refer to the next higher slope grade for type of stabilization.

<sup>2</sup> Recycled Concrete Equivalent shall be concrete broken into the required size, and shall contain no steel reinforcement.

## **Outlet**

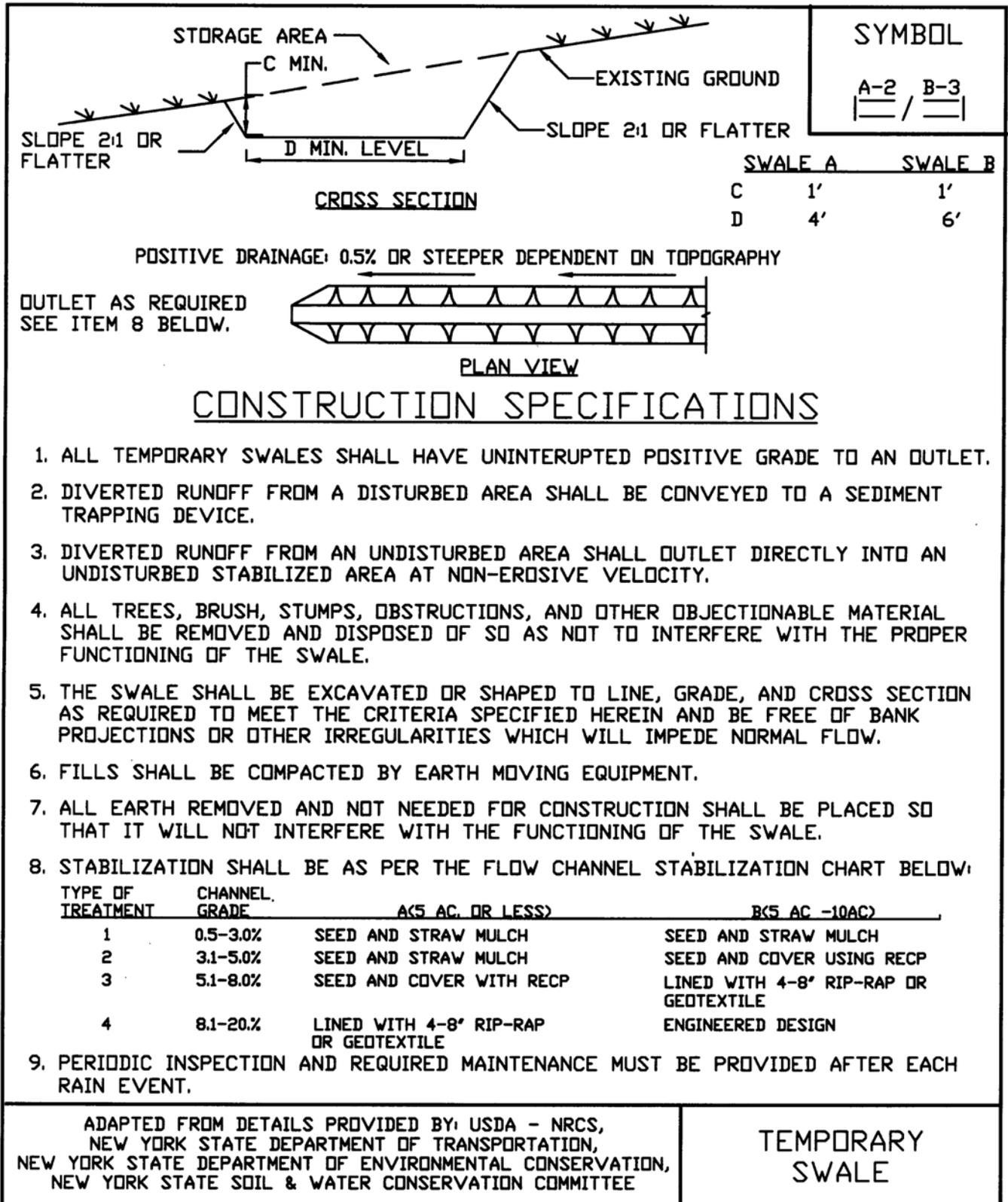
Swale shall have an outlet that functions with a minimum of erosion, and dissipates runoff velocity prior to discharge off the site.

Runoff shall be conveyed to a sediment trapping device such as a sediment trap or sediment basin until the drainage area above the swale is adequately stabilized.

The on-site location may need to be adjusted to meet field conditions in order to utilize the most suitable outlet condition.

If a swale is used to divert clean water flows from entering a disturbed area, a sediment trapping device may not be needed.

**Figure 5A.2  
Temporary Swale**



# STANDARD AND SPECIFICATIONS FOR CHECK DAM



## **Definition**

Small barriers or dams constructed of stone, bagged sand or gravel, or other durable material across a drainage way.

## **Purpose**

To reduce erosion in a drainage channel by restricting the velocity of flow in the channel.

## **Condition Where Practice Applies**

This practice is used as a temporary or emergency measure to limit erosion by reducing velocities in small open channels that are degrading or subject to erosion and where permanent stabilization is impractical due to short period of usefulness and time constraints of construction.

## **Design Criteria**

**Drainage Area:** Maximum drainage area above the check dam shall not exceed two (2) acres.

**Height:** Not greater than 2 feet. Center shall be maintained 9 inches lower than abutments at natural ground elevation.

**Side Slopes:** Shall be 2:1 or flatter.

**Spacing:** The check dams shall be spaced as necessary in the channel so that the crest of the downstream dam is at the

elevation of the toe of the upstream dam. This spacing is equal to the height of the check dam divided by the channel slope.

Therefore:

$$S = h/s$$

Where:

S = spacing interval (ft.)

h = height of check dam (ft.)

s = channel slope (ft./ft.)

Example:

For a channel with a 4% slope and 2 ft. high stone check dams, they are spaced as follows:

$$S = \frac{2 \text{ ft.}}{.04 \text{ ft./ft.}} = 50 \text{ ft.}$$

**Stone size:** Use a well graded stone matrix 2 to 9 inches in size (NYS – DOT Light Stone Fill meets these requirements).

The overflow of the check dams will be stabilized to resist erosion that might be caused by the check dam. See Figure 5A.9 on page 5A.24 for details.

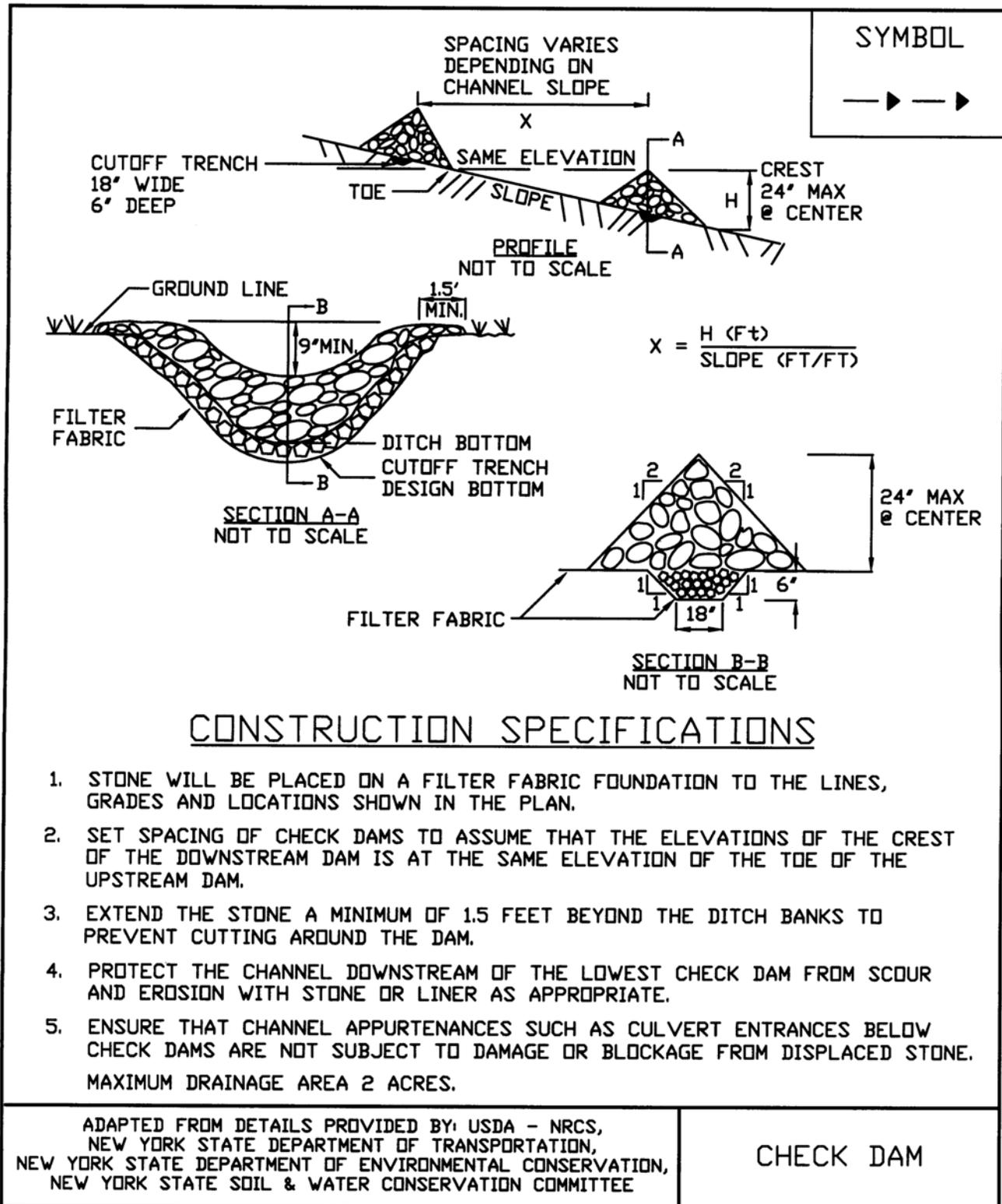
Check dams should be anchored in the channel by a cutoff trench 1.5 ft. wide and 0.5 ft. deep and lined with filter fabric to prevent soil migration.

## **Maintenance**

The check dams should be inspected after each runoff event. Correct all damage immediately. If significant erosion has occurred between structures, a liner of stone or other suitable material should be installed in that portion of the channel.

Remove sediment accumulated behind the dam as needed to allow channel to drain through the stone check dam and prevent large flows from carrying sediment over the dam. Replace stones as needed to maintain the design cross section of the structures.

**Figure 5A.9  
Check Dam**



# STANDARD AND SPECIFICATIONS FOR ROCK OUTLET PROTECTION



## **Definition**

A section of rock protection placed at the outlet end of the culverts, conduits, or channels.

## **Purpose**

The purpose of the rock outlet protection is to reduce the depth, velocity, and energy of water, such that the flow will not erode the receiving downstream reach.

## **Scope**

This standard applies to the planning, design, and construction of rock riprap and gabions for protection of downstream areas. It does not apply to rock lining of channels or streams.

## **Conditions Where Practice Applies**

This practice applies where discharge velocities and energies at the outlets of culverts, conduits, or channels are sufficient to erode the next downstream reach. This applies to:

1. Culvert outlets of all types.
2. Pipe conduits from all sediment basins, dry storm water ponds, and permanent type ponds.
3. New channels constructed as outlets for culverts and conduits.

## **Design Criteria**

The design of rock outlet protection depends entirely on the location. Pipe outlet at the top of cuts or on slopes steeper than 10 percent, cannot be protected by rock aprons or riprap sections due to re-concentration of flows and high velocities encountered after the flow leaves the apron.

Many counties and state agencies have regulations and design procedures already established for dimensions, type and size of materials, and locations where outlet protection is required. Where these requirements exist, they shall be followed.

## **Tailwater Depth**

The depth of tailwater immediately below the pipe outlet must be determined for the design capacity of the pipe. If the tailwater depth is less than half the diameter of the outlet pipe, and the receiving stream is wide enough to accept divergence of the flow, it shall be classified as a Minimum Tailwater Condition; see Figure 5B.12 on page 5B.25 as an example. If the tailwater depth is greater than half the pipe diameter and the receiving stream will continue to confine the flow, it shall be classified as a Maximum Tailwater Condition; see Figure 5B.13 on page 5B.26 as an example. Pipes which outlet onto flat areas with no defined channel may be assumed to have a Minimum Tailwater Condition; see Figure 5B.12 on page 5B.25 as an example.

## **Apron Size**

The apron length and width shall be determined from the curves according to the tailwater conditions:

- Minimum Tailwater – Use Figure 5B.12 on page 5B.25
- Maximum Tailwater – Use Figure 5B.13 on page 5B.26

If the pipe discharges directly into a well defined channel, the apron shall extend across the channel bottom and up the channel banks to an elevation one foot above the maximum tailwater depth or to the top of the bank, whichever is less.

The upstream end of the apron, adjacent to the pipe, shall have a width two (2) times the diameter of the outlet pipe, or conform to pipe end section if used.

## Bottom Grade

The outlet protection apron shall be constructed with no slope along its length. There shall be no overfall at the end of the apron. The elevation of the downstream end of the apron shall be equal to the elevation of the receiving channel or adjacent ground.

## Alignment

The outlet protection apron shall be located so that there are no bends in the horizontal alignment.

## Materials

The outlet protection may be done using rock riprap, grouted riprap, or gabions.

Riprap shall be composed of a well-graded mixture of stone size so that 50 percent of the pieces, by weight, shall be larger than the  $d_{50}$  size determined by using the charts. A well-graded mixture, as used herein, is defined as a mixture composed primarily of larger stone sizes, but with a sufficient mixture of other sizes to fill the smaller voids between the stones. The diameter of the largest stone size in such a mixture shall be 1.5 times the  $d_{50}$  size.

## Thickness

The minimum thickness of the riprap layer shall be 1.5 times the maximum stone diameter for  $d_{50}$  of 15 inches or less; and 1.2 times the maximum stone size for  $d_{50}$  greater than 15 inches. The following chart lists some examples:

$D_{50}$ (inches)	$d_{max}$ (inches)	Minimum Blanket Thickness (inches)
4	6	9
6	9	14
9	14	20
12	18	27
15	22	32
18	27	32
21	32	38
24	36	43

## Stone Quality

Stone for riprap shall consist of field stone or rough unhewn quarry stone. The stone shall be hard and angular and of a quality that will not disintegrate on exposure to water or weathering. The specific gravity of the individual stones shall be at least 2.5.

Recycled concrete equivalent may be used provided it has a

density of at least 150 pounds per cubic foot, and does not have any exposed steel or reinforcing bars.

## Filter

A filter is a layer of material placed between the riprap and the underlying soil surface to prevent soil movement into and through the riprap. Riprap shall have a filter placed under it in all cases.

A filter can be of two general forms: a gravel layer or a plastic filter cloth. The plastic filter cloth can be woven or non-woven monofilament yarns, and shall meet these base requirements: thickness 20-60 mils, grab strength 90-120 lbs; and shall conform to ASTM D-1777 and ASTM D-1682.

Gravel filter blanket, when used, shall be designed by comparing particle sizes of the overlying material and the base material. Design criteria are available in Standard and Specification for Riprap Slope Protection on page 5B.57.

## Gabions

Gabions shall be made of hexagonal triple twist mesh with heavily galvanized steel wire. The maximum linear dimension of the mesh opening shall not exceed 4 ½ inches and the area of the mesh opening shall not exceed 10 square inches.

Gabions shall be fabricated in such a manner that the sides, ends, and lid can be assembled at the construction site into a rectangular basket of the specified sizes. Gabions shall be of single unit construction and shall be installed according to manufacturers recommendations.

The area on which the gabion is to be installed shall be graded as shown on the drawings. Foundation conditions shall be the same as for placing rock riprap, and filter cloth shall be placed under all gabions. Where necessary, key, or tie, the structure into the bank to prevent undermining of the main gabion structure.

## Maintenance

Once a riprap outlet has been installed, the maintenance needs are very low. It should be inspected after high flows for evidence of scour beneath the riprap or for dislodged stones. Repairs should be made immediately.

## Design Procedure

1. Investigate the downstream channel to assure that nonerosive velocities can be maintained.
2. Determine the tailwater condition at the outlet to establish which curve to use.
3. Enter the appropriate chart with the design discharge to

determine the riprap size and apron length required. It is noted that references to pipe diameters in the charts are based on full flow. For other than full pipe flow, the parameters of depth of flow and velocity must be used to adjust the design discharges.

- Calculate apron width at the downstream end if a flare section is to be employed.

### Examples

Example 1: Pipe Flow (full) with discharge to unconfined section.

Given: A circular conduit flowing full.

$Q = 280$  cfs, diam. = 66 in., tailwater (surface) is 2 ft. above pipe invert (minimum tailwater condition).

Find: Read  $d_{50} = 1.2$  and apron length ( $L_a$ ) = 38 ft.

Apron width = diam. +  $L_a = 5.5 + 38 = 43.5$  ft.

Use:  $d_{50} = 15''$ ,  $d_{max} = 22''$ , blanket thickness = 32''

Example 2: Box Flow (partial) with high tailwater

Given: A box conduit discharging under partial flow conditions. A concrete box 5.5 ft. x 10 ft. flowing 5.0 ft. deep,

$Q = 600$  cfs and tailwater surface is 5 ft. above invert (max. tailwater condition).

Since this is not full pipe and does not directly fit the nomograph assumptions of Figure 7B.13 substitute depth as the diameter, to find a discharge equal to full pipe flow for that diameter, in this case 60 inches.

Since,  $Q = AV$  and  $A = \frac{\pi D^2}{4}$

First, compute velocity:

$V = (Q/A) = (600/(5)(10)) = 12$  fps

Then substituting:

$$Q = \frac{\pi D^2}{4} \times V = \frac{3.14 (5 \text{ ft})^2}{4} \times 12 \text{ fps} = 236 \text{ cfs}$$

At the intersection of the curve  $d = 60$  in. and  $Q = 236$  cfs, read  $d_{50} = 0.4$  ft.

Then reading the  $d = 60$  in. curve, read apron length ( $L_a$ ) = 40 ft.

Apron width,  $W = \text{conduit width} + (6.4)(L_a) = 10 + (0.4)(40) = 26$  ft.

Example 3: Open Channel Flow with Discharge to Unconfined Section

Given: A trapezoidal concrete channel 5 ft. wide with 2:1 side slopes is flowing 2 ft. deep,  $Q = 180$  cfs (velocity = 10 fps) and the tailwater surface downstream is 0.8 ft. (minimum tailwater condition).

Find: Using similar principles as Example 2, compute equivalent discharge for a 2 foot, using depth as a diameter, circular pipe flowing full at 10 feet per second.

Velocity:

$$Q = \frac{\pi (2 \text{ ft})^2}{4} \times 10 \text{ fps} = 31.4 \text{ cfs}$$

At intersection of the curve,  $d = 24$  in. and  $Q = 32$  cfs, read  $d_{50} = 0.6$  ft.

Then reading the  $d = 24$  in. curve, read apron length ( $L_a$ ) = 20 ft.

Apron width,  $W = \text{bottom width of channel} + L_a = 5 + 20 = 25$  ft.

Example 4: Pipe flow (partial) with discharge to a confined section

Given: A 48 in. pipe is discharging with a depth of 3 ft.  $Q = 100$  cfs, and discharge velocity of 10 fps (established from partial flow analysis) to a confined trapezoidal channel with a 2 ft. bottom, 2:1 side slopes,  $n = .04$ , and grade of 0.6%.

Calculation of the downstream channel (by Manning's Equation) indicates a normal depth of 3.1 ft. and normal velocity of 3.9 fps.

Since the receiving channel is confined, the maximum tailwater condition controls.

Find: discharge using previous principles:

$$Q = \frac{\pi (3 \text{ ft})^2}{4} \times 10 \text{ fps} = 71 \text{ cfs}$$

At the intersection of  $d = 36$  in. and  $Q = 71$  cfs, read  $d_{50} = 0.3$  ft.

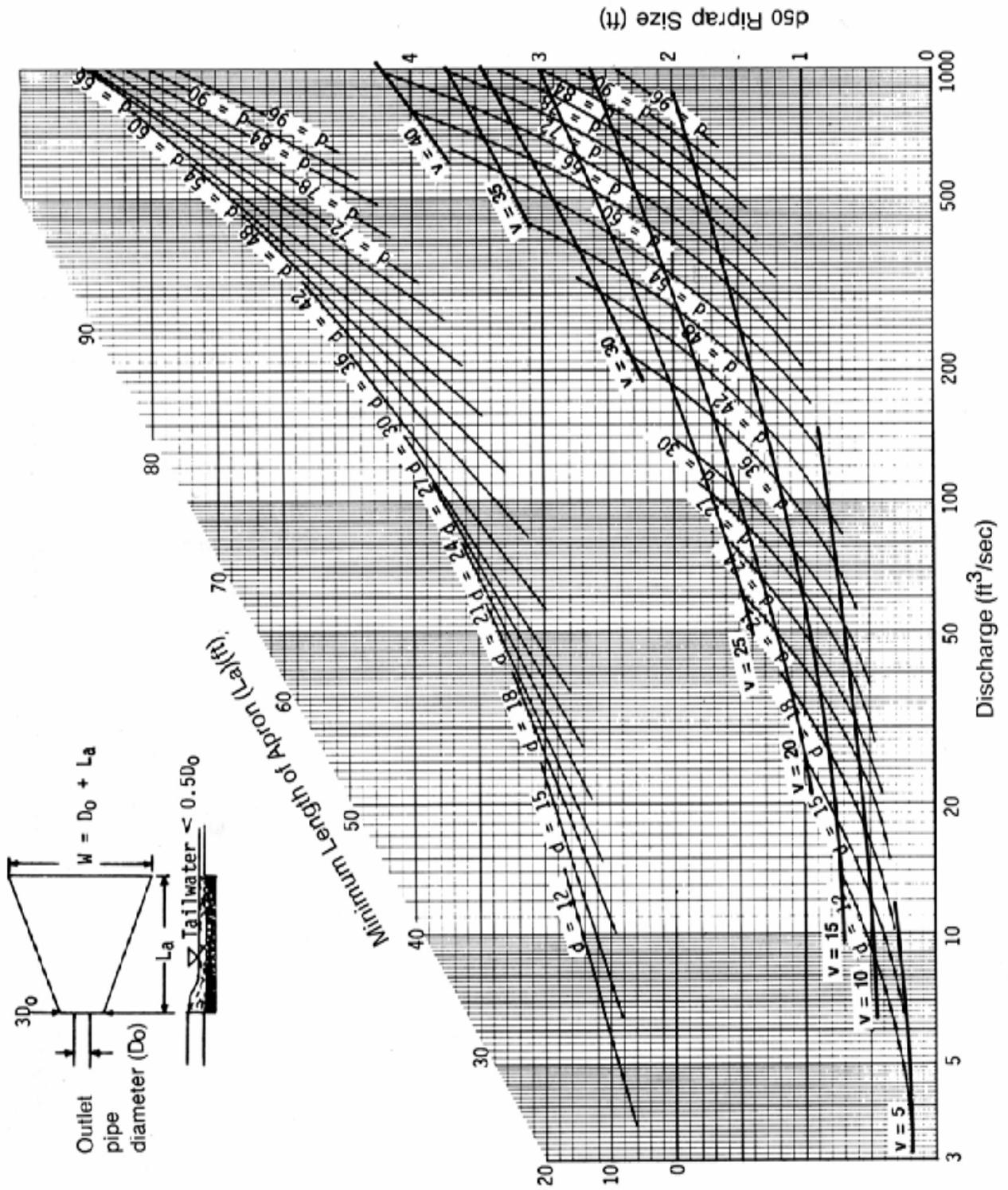
Reading the  $d = 36''$  curve, read apron length ( $L_a$ ) = 30 ft.

Since the maximum flow depth in this reach is 3.1 ft., that is the minimum depth of riprap to be maintained for the entire length.

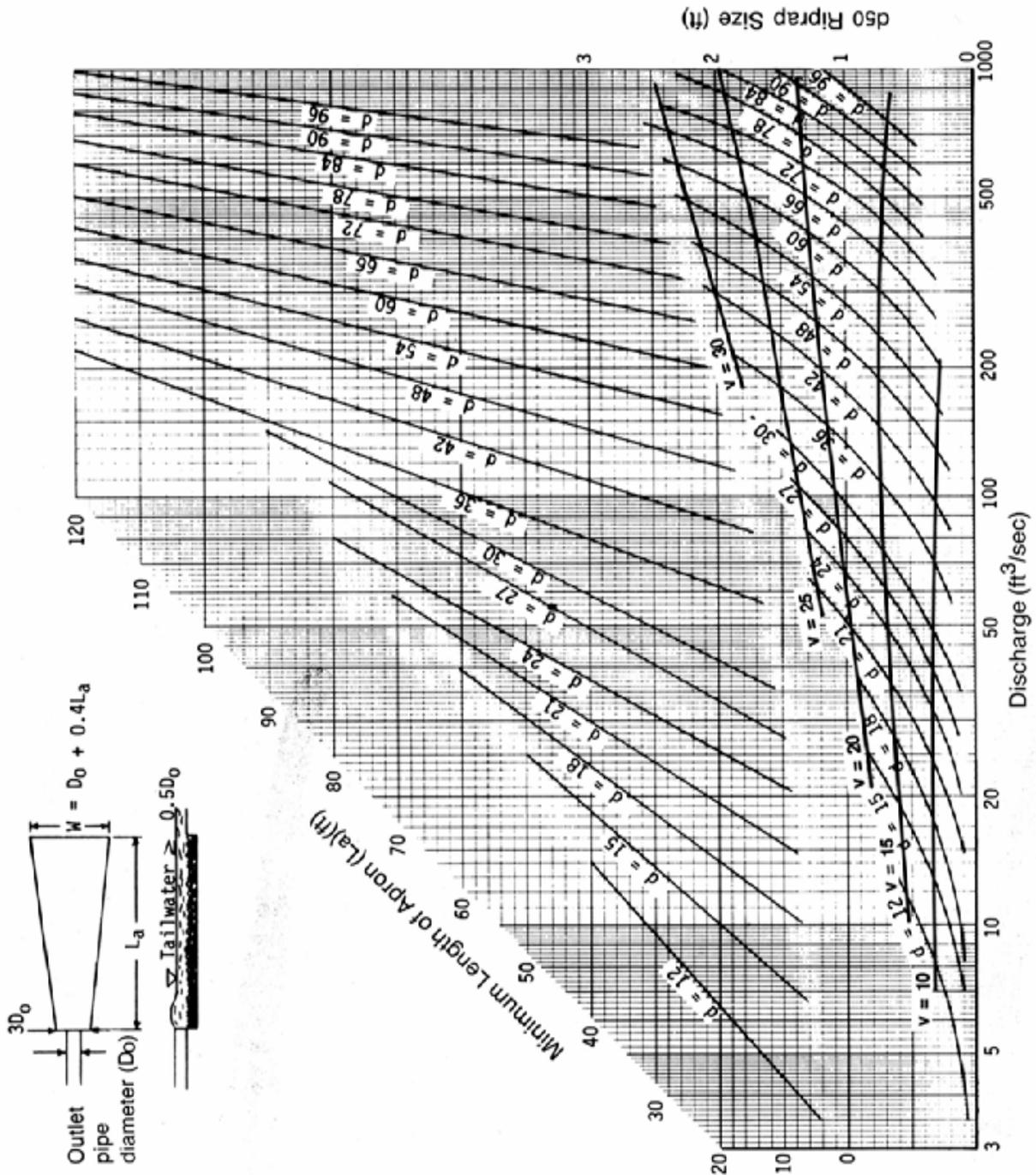
## **Construction Specifications**

1. The subgrade for the filter, riprap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
2. The rock or gravel shall conform to the specified grading limits when installed respectively in the riprap or filter.
3. Filter cloth shall be protected from punching, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of cloth over the damaged part or by completely replacing the cloth. All overlaps, whether for repairs or for joining two pieces of cloth shall be a minimum of one foot.
4. Stone for the riprap or gabion outlets may be placed by equipment. Both shall each be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for riprap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogenous with the smaller stones and spalls filling the voids between the larger stones. Riprap shall be placed in a manner to prevent damage to the filter blanket or filter cloth. Hand placement will be required to the extent necessary to prevent damage to the permanent works.

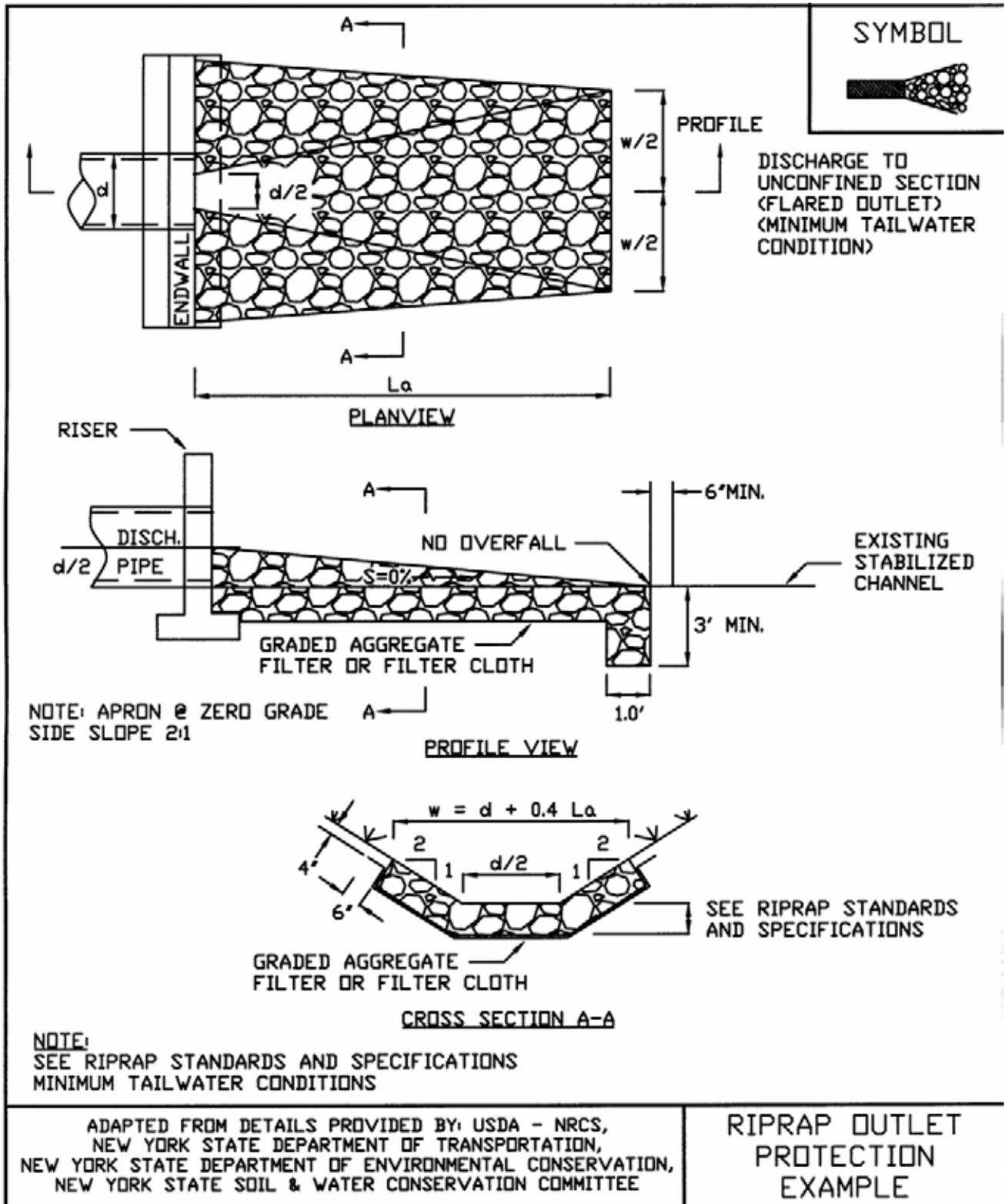
**Figure 5B.12**  
**Outlet Protection Design—Minimum Tailwater Condition**  
**(Design of Outlet Protection from a Round Pipe Flowing Full,**  
**Minimum Tailwater Condition:  $T_w < 0.5D_o$ ) (USDA - NRCS)**



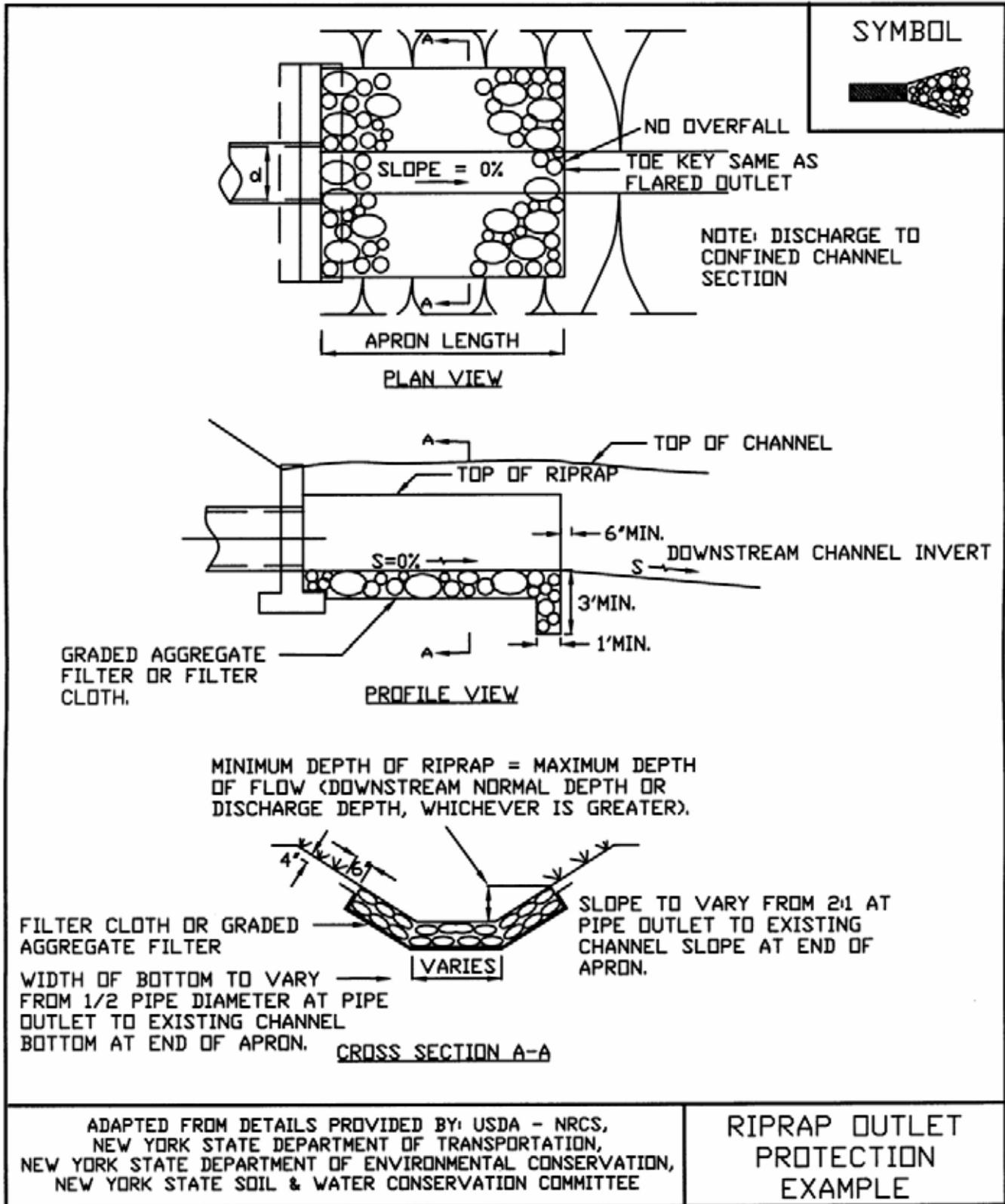
**Figure 5B.13**  
**Outlet Protection Design—Maximum Tailwater Condition**  
**(Design of Outlet Protection from a Round Pipe Flowing Full,**  
**Maximum Tailwater Condition:  $T_w \geq 0.5D_o$ ) (USDA - NRCS)**



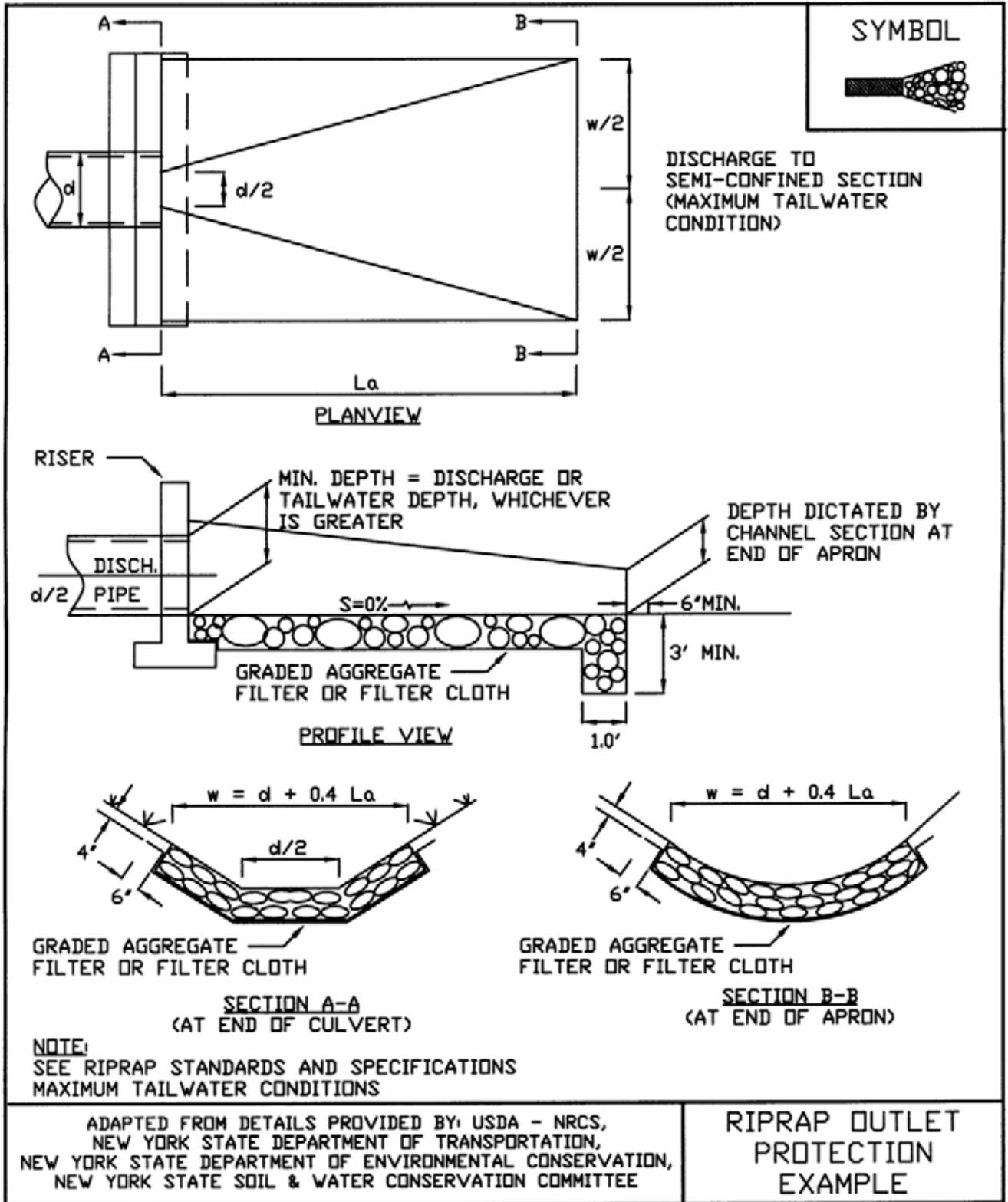
**Figure 5B.14  
Riprap Outlet Protection Detail (1)**



**Figure 5B.15  
Riprap Outlet Protection Detail (2)**



**Figure 5B.16  
Riprap Outlet Protection Detail (3)**



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# STANDARD AND SPECIFICATIONS FOR SEDIMENT TRAP



## **Definition**

A temporary sediment control device formed by excavation and/or embankment to intercept sediment laden runoff and retain the sediment.

## **Purpose**

The purpose of the structure is to intercept sediment-laden runoff and trap the sediment in order to protect drainage ways, properties, and rights-of-way below the sediment trap from sedimentation.

## **Conditions Where Practice Applies**

A sediment trap is usually installed in a drainage way, at a storm drain inlet, or other points of collection from a disturbed area.

Sediment traps should be used to artificially break up the natural drainage area into smaller sections where a larger device (sediment basin) would be less effective.

## **Design Criteria**

If any of the design criteria presented here cannot be met, see Standard and Specification for Sediment Basin on page 5A.49.

## **Drainage Area**

The drainage area for sediment traps shall be in accordance with the specific type of sediment trap used (Type I through V).

## **Location**

Sediment traps shall be located so that they can be installed

prior to grading or filling in the drainage area they are to protect. Traps must not be located any closer than 20 feet from a proposed building foundation if the trap is to function during building construction. Locate traps to obtain maximum storage benefit from the terrain and for ease of cleanout and disposal of the trapped sediment.

## **Trap Size**

The volume of a sediment trap as measured at the elevation of the crest of the outlet shall be at least 3,600 cubic feet per acre of drainage area. The volume of a constructed trap shall be calculated using standard mathematical procedures. The volume of a natural sediment trap may be approximated by the equation: Volume (cu.ft.) = 0.4 x surface area (sq.ft.) x maximum depth (ft.).

## **Trap Cleanout**

Sediment shall be removed and the trap restored to the original dimensions when the sediment has accumulated to ½ of the design depth of the trap. Sediment removed from the trap shall be deposited in a protected area and in such a manner that it will not erode.

## **Embankment**

All embankments for sediment traps shall not exceed five (5) feet in height as measured at the low point of the original ground along the centerline of the embankment. Embankments shall have a minimum four (4) foot wide top and side slopes of 2:1 or flatter. The embankment shall be compacted by traversing with equipment while it is being constructed. The embankment shall be stabilized with seed and mulch as soon as it is completed

The elevation of the top of any dike directing water to any sediment trap will equal or exceed the maximum height of the outlet structure along the entire length of the trap.

## **Excavation**

All excavation operations shall be carried out in such a manner that erosion and water pollution shall be minimal. Excavated portions of sediment traps shall have 1:1 or flatter slopes.

## **Outlet**

The outlet shall be designed, constructed, and maintained in such a manner that sediment does not leave the trap and that erosion at or below the outlet does not occur.

Sediment traps must outlet onto stabilized (preferable undisturbed) ground, into a watercourse, stabilized channel, or into a storm drain system. Distance between inlet and outlet should be maximized to the longest length practicable.

**Trap Details Needed on Erosion and Sediment Control Plans**

Each trap shall be delineated on the plans in such a manner that it will not be confused with any other features. Each trap on a plan shall indicate all the information necessary to properly construct and maintain the structure. If the drawings are such that this information cannot be delineated on the drawings, then a table shall be developed. If a table is developed, then each trap on a plan shall have a number and the numbers shall be consecutive.

The following information shall be shown for each trap in a summary table format on the plans.

1. Trap number
2. Type of trap
3. Drainage area
4. Storage required
5. Storage provided (if applicable)
6. Outlet length or pipe sizes
7. Storage depth below outlet or cleanout elevation
8. Embankment height and elevation (if applicable)

**Type of Sediment Traps**

There are five (5) specific types of sediment traps which vary according to their function, location, or drainage area.

- I. Pipe Outlet Sediment Trap
- II. Grass Outlet Sediment Trap
- III. Catch Basin Sediment Trap
- IV. Stone Outlet Sediment Trap
- V. Riprap Outlet Sediment Trap

**I. Pipe Outlet Sediment Trap**

A Pipe Outlet Sediment Trap consists of a trap formed by embankment or excavation. The outlet for the trap is through a perforated riser and a pipe through the embankment. The outlet pipe and riser shall be made of steel, corrugated metal or other suitable material. The top of the embankment shall be at least 1 ½ feet above the crest of the riser. The top 2/3 of the riser shall be perforated with one (1) inch nominal diameter holes or slits spaced six (6) inches vertically and horizontally placed in the concave portion of the corrugated pipe.

No holes or slits will be allowed within six (6) inches of the top of the horizontal barrel. All pipe connections shall be watertight. The riser shall be wrapped with ½ to ¼ inch hardware cloth wire then wrapped with filter cloth with a sieve size between #40-80 and secured with strapping or

connecting band at the top and bottom of the cloth. The cloth shall cover an area at least six (6) inches above the highest hole and six (6) inches below the lowest hole. The top of the riser pipe shall not be covered with filter cloth. The riser shall have a base with sufficient weight to prevent flotation of the riser. Two approved bases are:

1. A concrete base 12 in. thick with the riser embedded 9 in. into the concrete base, or
2. One quarter inch, minimum, thick steel plate attached to the riser by a continuous weld around the circumference of the riser to form a watertight connection. The plate shall have 2.5 feet of stone, gravel, or earth placed on it to prevent flotation. In either case, each side of the square base measurement shall be the riser diameter plus 24 inches.

Pipe outlet sediment traps shall be limited to a five (5) acre maximum drainage area. Pipe outlet sediment traps may be interchangeable in the field with stone outlet or riprap sediment traps provided that these sediment traps are constructed in accordance with the detail and specifications for that trap.

Select pipe diameter from the following table:

Minimum Sizes

Barrel Diameter <sup>1</sup> (in.)	Riser Diameter <sup>1</sup> (in.)	Maximum Drainage Area (ac.)
12	15	1
15	18	2
18	21	3
21	24	4
21	27	5

<sup>1</sup> Barrel diameter may be same size as riser diameter.

See details for Pipe Outlet Sediment Trap ST-I in Figure 5A.16 (1) and 5A.16 (2) on pages 5A.38 and 5A.39.

**II. Grass Outlet Sediment Trap**

A Grass Outlet Sediment Trap consists of a trap formed by excavating the earth to create a holding area. The trap has a discharge point over natural existing grass. The outlet crest width (feet) shall be equal to four (4) times the drainage area (acres) with a minimum width of four (4) feet. The outlet shall be free of any restrictions to flow. The outlet lip must remain undisturbed and level. The volume of this trap shall be computed at the elevation of the crest of the outlet. Grass outlet sediment traps shall be limited to a five (5) acre maximum drainage area.

See details for Grass Outlet Sediment Trap ST-II in Figure 5A.17 on page 5A.40.

### III. Catch Basin Sediment Trap

A Catch Basin Sediment Trap consists of a basin formed by excavation on natural ground that discharges through an opening in a storm drain inlet structure. This opening can either be the inlet opening or a temporary opening made by omitting bricks or blocks in the inlet.

A yard drain inlet or an inlet in the median strip of a dual highway could use the inlet opening for the type outlet. The trap should be out of the roadway so as not to interfere with future compaction or construction. Placing the trap on the opposite side of the opening and diverting water from the roadway to the trap is one means of doing this. Catch basin sediment traps shall be limited to a three (3) acre maximum drainage area. The volume of this trap is measured at the elevation of the crest of the outlet (invert of the inlet opening).

See details for Catch Basin Sediment Trap ST-III in Figure 5A.18 on page 5A.41.

### IV. Stone Outlet Sediment Trap

A Stone Outlet Sediment Trap consists of a trap formed by an embankment or excavation. The outlet of this trap is over a stone section placed on level ground. The minimum length (feet) of the outlet shall be equal to four (4) times the drainage area (acres).

Required storage shall be 3,600 cubic feet per acre of drainage area.

The outlet crest (top of stone in weir section) shall be level, at least one (1) foot below top of embankment and no more than one (1) foot above ground beneath the outlet. Stone used in the outlet shall be small riprap (4 in. x 8 in.). To provide more efficient trapping effect, a layer of filter cloth should be embedded one (1) foot back into the upstream face of the outlet stone or a one (1) foot thick layer of two (2) inch or finer aggregate shall be placed on the upstream face of the outlet.

Stone Outlet Sediment Traps may be interchangeable in the field with pipe or riprap outlet sediment traps provided they are constructed in accordance with the detail and specifications for those traps. Stone outlet sediment traps shall be limited to a five (5) acre maximum drainage area.

See details for Stone Outlet Sediment Trap ST-IV in Figure 5A.19 on page 5A.42.

### V. Riprap Outlet Sediment Trap

A Riprap Outlet Sediment Trap consists of a trap formed by an excavation and embankment. The outlet for this trap

shall be through a partially excavated channel lined with riprap. This outlet channel shall discharge onto a stabilized area or to a stable watercourse. The riprap outlet sediment trap may be used for drainage areas of up to a maximum of 15 acres.

#### Design Criteria for Riprap Outlet Sediment Trap

1. The total contributing drainage area (disturbed or undisturbed either on or off the developing property) shall not exceed 15 acres.
2. The storage needs for this trap shall be computed using 3600 cubic feet of required storage for each acre of drainage area. The storage volume provided can be figured by computing the volume of storage area available behind the outlet structure up to an elevation of one (1) foot below the level weir crest.
3. The maximum height of embankment shall not exceed five (5) feet.
4. The elevation of the top of any dike directing water to a riprap outlet sediment trap will equal or exceed the minimum elevation of the embankment along the entire length of this trap.

#### Riprap Outlet Sediment Trap ST-V (for Stone Lined Channel)

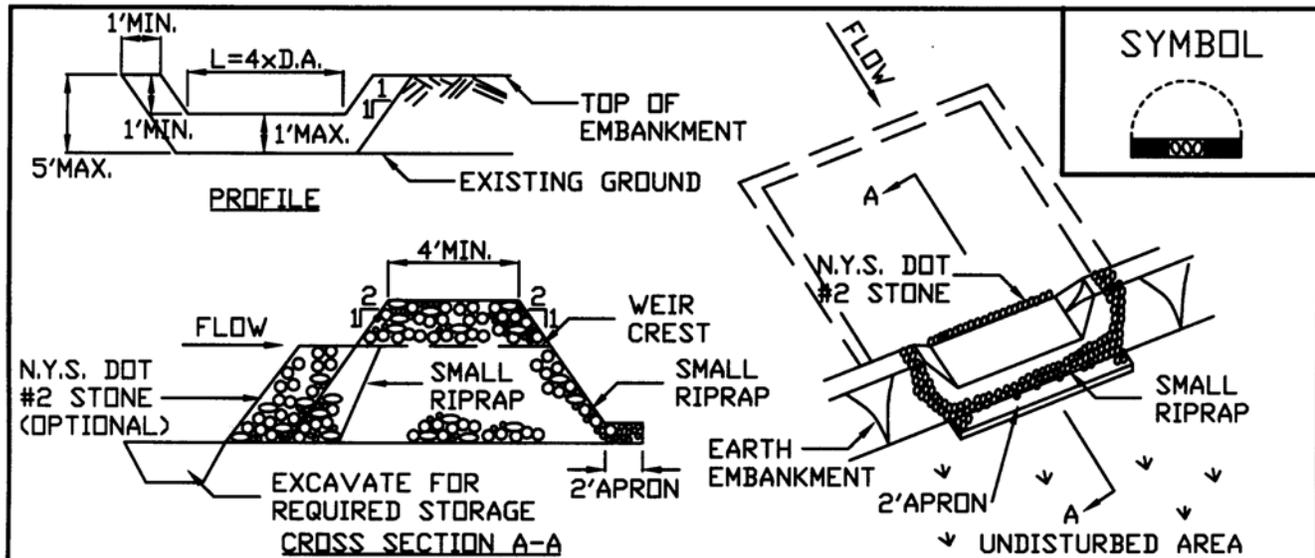
Contributing Drainage Area (ac.)	Depth of Channel (a) (ft.)	Length of Weir (b) (ft.)
1	1.5	4.0
2	1.5	5.0
3	1.5	6.0
4	1.5	10.0
5	1.5	12.0
6	1.5	14.0
7	1.5	16.0
8	2.0	10.0
9	2.0	10.0
10	2.0	12.0
11	2.0	14.0
12	2.0	14.0
13	2.0	16.0
14	2.0	16.0
15	2.0	18.0

See details for Riprap Outlet Sediment Trap ST-V on Figures 5A.20(1) and 5A.20(2) on pages 5A.43 and 5A.44.

#### Optional Dewatering Methods

Optional dewatering devices may be designed for use with sediment traps. Included are two methods, which may be used. See Figure 5A.21 on page 5A.45 for details.

**Figure 5A.19**  
**Stone Outlet Sediment Trap: ST-IV**



OPTION: A ONE FOOT LAYER OF N.Y.S. DOT #2 STONE MAY BE PLACED ON THE UPSTREAM SIDE OF THE RIPRAP IN PLACE OF THE EMBEDDED FILTER CLOTH.

### CONSTRUCTION SPECIFICATIONS

1. AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED AND STRIPPED OF ANY VEGETATION AND ROOT MAT. THE POOL AREA SHALL BE CLEARED.
2. THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS AND OTHER WOODY VEGETATION AS WELL AS OVER-SIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT WHILE IT IS BEING CONSTRUCTED.
3. ALL CUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER.
4. THE STONE USED IN THE OUTLET SHALL BE SMALL RIPRAP 4'-8' ALONG WITH A 1' THICKNESS OF 2' AGGREGATE PLACED ON THE UP-GRADE SIDE ON THE SMALL RIPRAP OR EMBEDDED FILTER CLOTH IN THE RIPRAP.
5. SEDIMENT SHALL BE REMOVED AND TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE TRAP. IT SHALL BE PLACED ON SITE AND STABILIZED.
6. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.
7. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND SEDIMENT ARE CONTROLLED.
8. THE STRUCTURE SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

MAXIMUM DRAINAGE AREA 5 ACRES

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STONE OUTLET  
SEDIMENT TRAP  
ST-IV

# STANDARD AND SPECIFICATIONS FOR LANDGRADING



## **Definition**

Reshaping of the existing land surface in accordance with a plan as determined by engineering survey and layout.

## **Purpose**

The purpose of a landgrading specification is to provide for erosion control and vegetative establishment on those areas where the existing land surface is to be reshaped by grading according to plan.

## **Design Criteria**

The grading plan should be based upon the incorporation of building designs and street layouts that fit and utilize existing topography and desirable natural surrounding to avoid extreme grade modifications. Information submitted must provide sufficient topographic surveys and soil investigations to determine limitations that must be imposed on the grading operation related to slope stability, effect on adjacent properties and drainage patterns, measures for drainage and water removal, and vegetative treatment, etc.

Many counties have regulations and design procedures already established for land grading and cut and fill slopes. Where these requirements exist, they shall be followed.

The plan must show existing and proposed contours of the area(s) to be graded. The plan shall also include practices for erosion control, slope stabilization, safe disposal of runoff water and drainage, such as waterways, lined ditches, reverse slope benches (include grade and cross section), grade stabilization structures, retaining walls, and surface and subsurface drains. The plan shall also include phasing

of these practices. The following shall be incorporated into the plan:

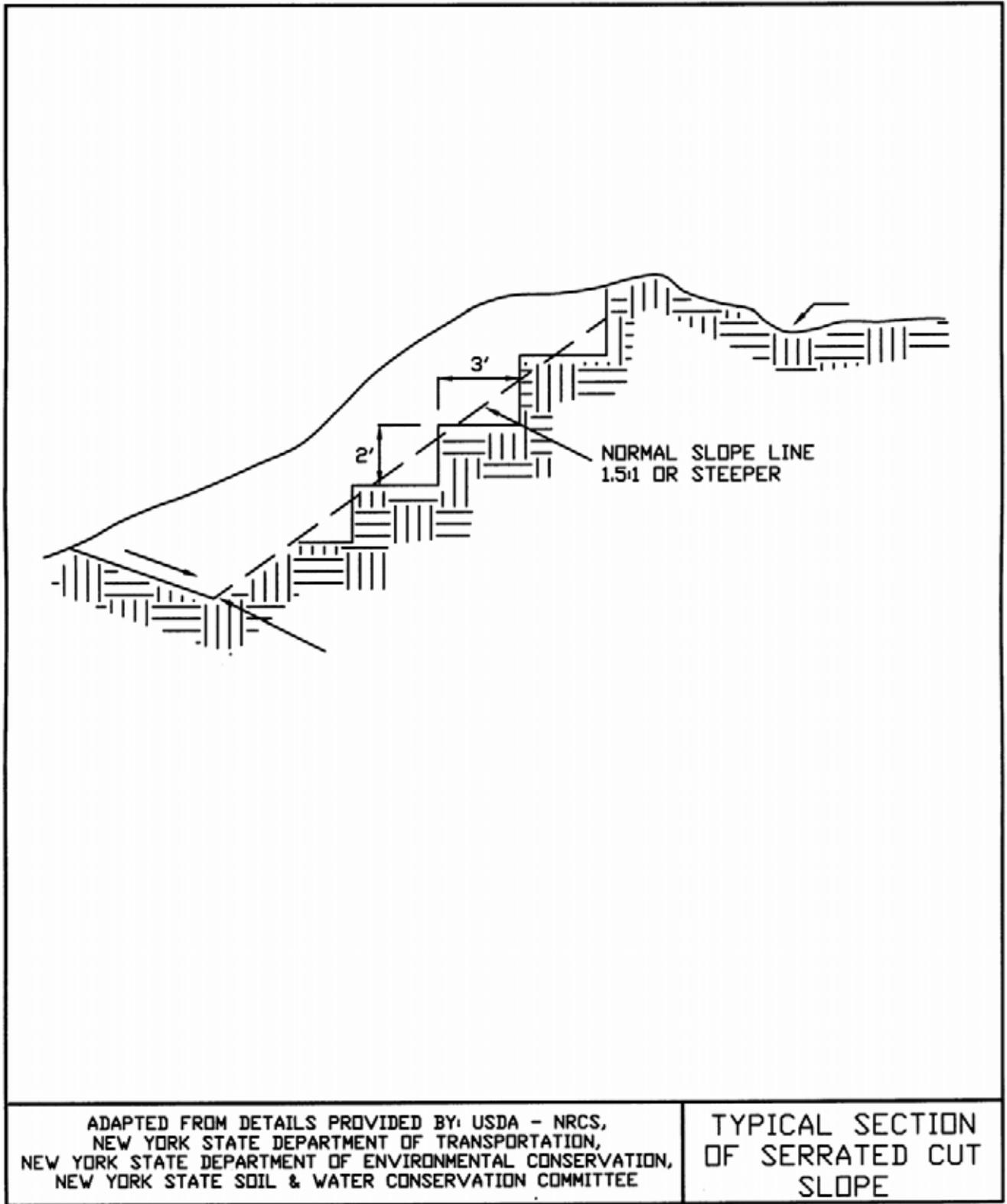
1. Provisions shall be made to safely conduct surface runoff to storm drains, protected outlets, or to stable water courses to ensure that surface runoff will not damage slopes or other graded areas; see standards and specifications for Grassed Waterway, Diversion, Grade Stabilization Structure.
2. Cut and fill slopes that are to be stabilized with grasses shall not be steeper than 2:1. When slopes exceed 2:1, special design and stabilization consideration are required and shall be adequately shown on the plans. (Note: Where the slope is to be mowed, the slope should be no steeper than 3:1, although 4:1 is preferred because of safety factors related to mowing steep slopes.)
3. Reverse slope benches or diversion shall be provided whenever the vertical interval (height) of any 2:1 slope exceeds 20 feet; for 3:1 slope it shall be increased to 30 feet and for 4:1 to 40 feet. Benches shall be located to divide the slope face as equally as possible and shall convey the water to a stable outlet. Soils, seeps, rock outcrops, etc., shall also be taken into consideration when designing benches.
  - A. Benches shall be a minimum of six feet wide to provide for ease of maintenance.
  - B. Benches shall be designed with a reverse slope of 6:1 or flatter to the toe of the upper slope and with a minimum of one foot in depth. Bench gradient to the outlet shall be between 2 percent and 3 percent, unless accompanied by appropriate design and computations.
  - C. The flow length within a bench shall not exceed 800 feet unless accompanied by appropriate design and computations; see Standard and Specifications for Diversion on page 5B.1
4. Surface water shall be diverted from the face of all cut and/or fill slopes by the use of diversions, ditches and swales or conveyed downslope by the use of a designed structure, except where:
  - A. The face of the slope is or shall be stabilized and the face of all graded slopes shall be protected from surface runoff until they are stabilized.

- B. The face of the slope shall not be subject to any concentrated flows of surface water such as from natural drainage ways, graded swales, downspouts, etc.
  - C. The face of the slope will be protected by special erosion control materials, sod, gravel, riprap, or other stabilization method.
5. Cut slopes occurring in ripable rock shall be serrated as shown in Figure 5B.23 on page 5B.51. The serrations shall be made with conventional equipment as the excavation is made. Each step or serration shall be constructed on the contour and will have steps cut at nominal two-foot intervals with nominal three-foot horizontal shelves. These steps will vary depending on the slope ratio or the cut slope. The nominal slope line is 1 ½: 1. These steps will weather and act to hold moisture, lime, fertilizer, and seed thus producing a much quicker and longer-lived vegetative cover and better slope stabilization. Overland flow shall be diverted from the top of all serrated cut slopes and carried to a suitable outlet.
  6. Subsurface drainage shall be provided where necessary to intercept seepage that would otherwise adversely affect slope stability or create excessively wet site conditions.
  7. Slopes shall not be created so close to property lines as to endanger adjoining properties without adequately protecting such properties against sedimentation, erosion, slippage, settlement, subsidence, or other related damages.
  8. Fill material shall be free of brush, rubbish, rocks, logs, stumps, building debris, and other objectionable material. It should be free of stones over two (2) inches in diameter where compacted by hand or mechanical tampers or over eight (8) inches in diameter where compacted by rollers or other equipment. Frozen material shall not be placed in the fill nor shall the fill material be placed on a frozen foundation.
  9. Stockpiles, borrow areas, and spoil shall be shown on the plans and shall be subject to the provisions of this Standard and Specifications.
  10. All disturbed areas shall be stabilized structurally or vegetatively in compliance with the Standard and Specifications for Critical Area Treatment in Section 3.
  1. All graded or disturbed areas, including slopes, shall be protected during clearing and construction in accordance with the erosion and sediment control plan until they are adequately stabilized.
  2. All erosion and sediment control practices and measures shall be constructed, applied and maintained in accordance with the sediment control plan and the "New York Standards and Specifications for Erosion and Sediment Control."
  3. Topsoil required for the establishment of vegetation shall be stockpiled in amount necessary to complete finished grading of all exposed areas.
  4. Areas to be filled shall be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots, or other objectionable material.
  5. Areas that are to be topsoiled shall be scarified to a minimum depth of four inches prior to placement of topsoil.
  6. All fills shall be compacted as required to reduce erosion, slippage, settlement, subsidence, or other related problems. Fill intended to support buildings, structures, and conduits, etc., shall be compacted in accordance with local requirements or codes.
  7. All fill shall be placed and compacted in layers not to exceed 9 inches in thickness.
  8. Except for approved landfills or nonstructural fills, fill material shall be free of frozen particles, brush, roots, sod, or other foreign objectionable materials that would interfere with, or prevent, construction of satisfactory fills.
  9. Frozen material or soft, mucky or highly compressible materials shall not be incorporated into fill slopes or structural fills.
  10. Fill shall not be placed on saturated or frozen surfaces.
  11. All benches shall be kept free of sediment during all phases of development.
  12. Seeps or springs encountered during construction shall be handled in accordance with the Standard and Specification for Subsurface Drain on page 5B.44 or other approved methods.
  13. All graded areas shall be permanently stabilized immediately following finished grading.
  14. Stockpiles, borrow areas, and spoil areas shall be shown on the plans and shall be subject to the provisions of this Standard and Specifications.

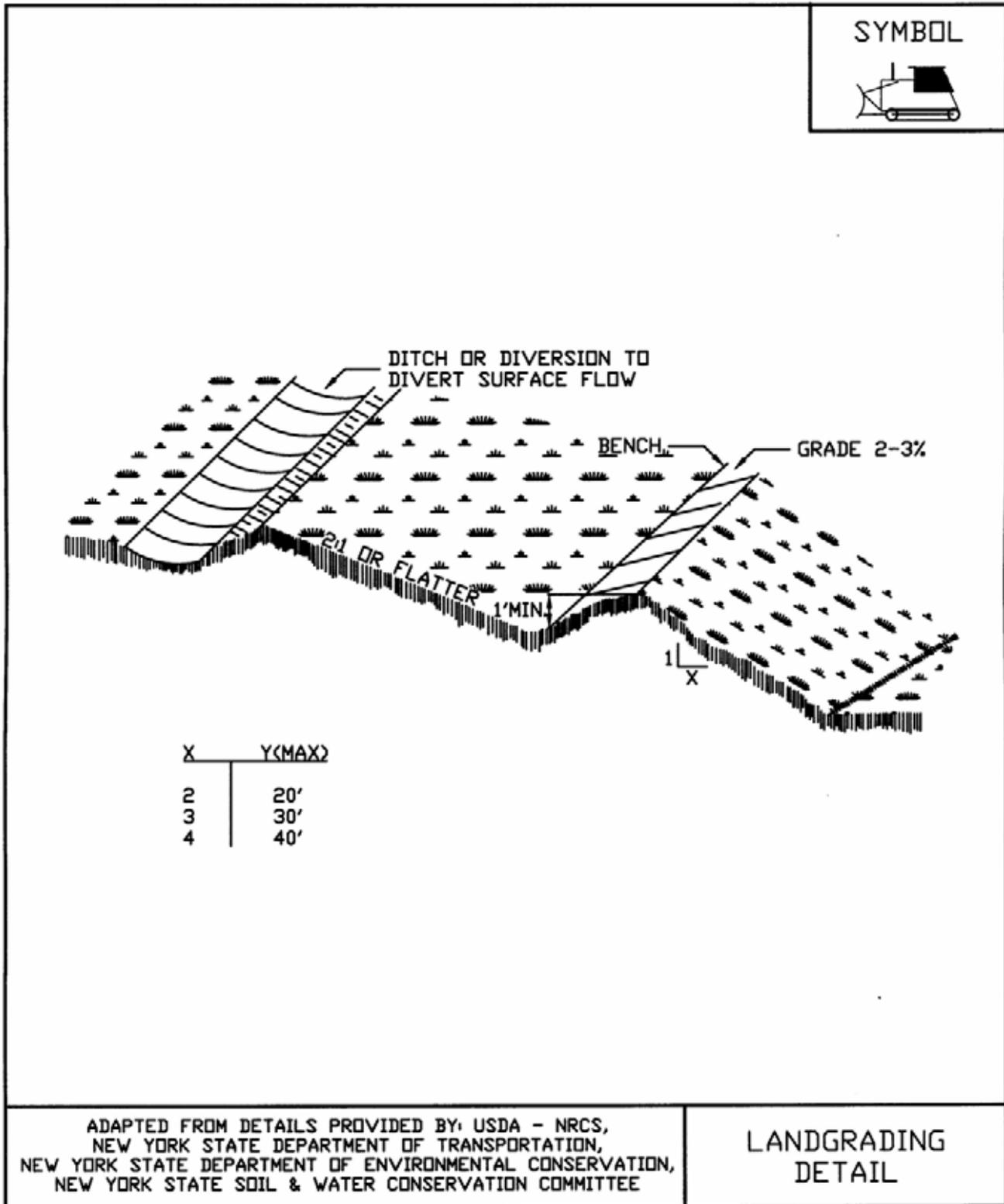
### **Construction Specifications**

See Figures 5B.23 and 5B.24 for details.

**Figure 5B.23**  
**Typical Section of Serrated Cut Slope**



**Figure 5B.24 (1)**  
**Landgrading**



**Figure 5B.24 (2)**  
**Landgrading—Construction Specifications**

CONSTRUCTION SPECIFICATIONS

1. ALL GRADED OR DISTURBED AREAS INCLUDING SLOPES SHALL BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED SEDIMENT CONTROL PLAN UNTIL THEY ARE PERMANENTLY STABILIZED.
2. ALL SEDIMENT CONTROL PRACTICES AND MEASURES SHALL BE CONSTRUCTED, APPLIED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED SEDIMENT CONTROL PLAN AND THE "STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL IN DEVELOPING AREAS".
3. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED IN AMOUNT NECESSARY TO COMPLETE FINISHED GRADING OF ALL EXPOSED AREAS.
4. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL.
5. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF FOUR INCHES PRIOR TO PLACEMENT OF TOPSOIL.
6. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.
7. ALL FILL TO BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.
8. EXCEPT FOR APPROVED LANDFILLS, FILL MATERIAL SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.
9. FROZEN MATERIALS OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED IN FILLS.
10. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.
11. ALL BENCHES SHALL BE KEPT FREE OF SEDIMENT DURING ALL PHASES OF DEVELOPMENT.
12. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.
13. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.
14. STOCKPILES, BORROW AREAS AND SPOIL AREAS SHALL BE SHOWN ON THE PLANS AND SHALL BE SUBJECT TO THE PROVISIONS OF THIS STANDARD AND SPECIFICATION.

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LANDGRADING  
SPECIFICATIONS

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# STANDARD AND SPECIFICATIONS FOR SURFACE ROUGHENING



## **Definition**

Roughening a bare soil surface whether through creating horizontal grooves across a slope, stair-stepping, or tracking with construction equipment.

## **Purpose**

To aid the establishment of vegetative cover from seed, to reduce runoff velocity and increase infiltration, and to reduce erosion and provide for trapping of sediment.

## **Conditions Where Practice Applies**

All construction slopes require surface roughening to facilitate stabilization with vegetation, particularly slopes steeper than 3:1.

## **Design Criteria**

There are many different methods to achieve a roughened soil surface on a slope. No specific design criteria is required. However, the selection of the appropriate method depends on the type of slope. Methods include tracking, grooving, and stair-stepping. Steepness, mowing requirements, and/or a cut or fill slope operation are all factors considered in choosing a roughening method.

## **Construction Specifications**

### A. Cut Slope, No mowing.

1. Stair-step grade or groove cut slopes with a gradient steeper than 3:1 (Figure 5B.25).
2. Use stair-step grading on any erodible material soft

enough to be ripped with a bulldozer. Slopes of soft rock with some soil are particularly suited to stair-step grading.

3. Make the vertical cut distance less than the horizontal distance, and slightly slope the horizontal position of the “step” to the vertical wall.
4. Do not make vertical cuts more than 2 feet in soft materials or 3 feet in rocky materials.

Grooving uses machinery to create a series of ridges and depressions that run perpendicular to the slope following the contour. Groove using any appropriate implement that can be safely operated on the slope, such as disks, tillers, spring harrows, or the teeth of a front-end loader bucket. Do not make the grooves less than 3 inches deep or more than 15 inches apart.

### B. Fill Slope, No mowing

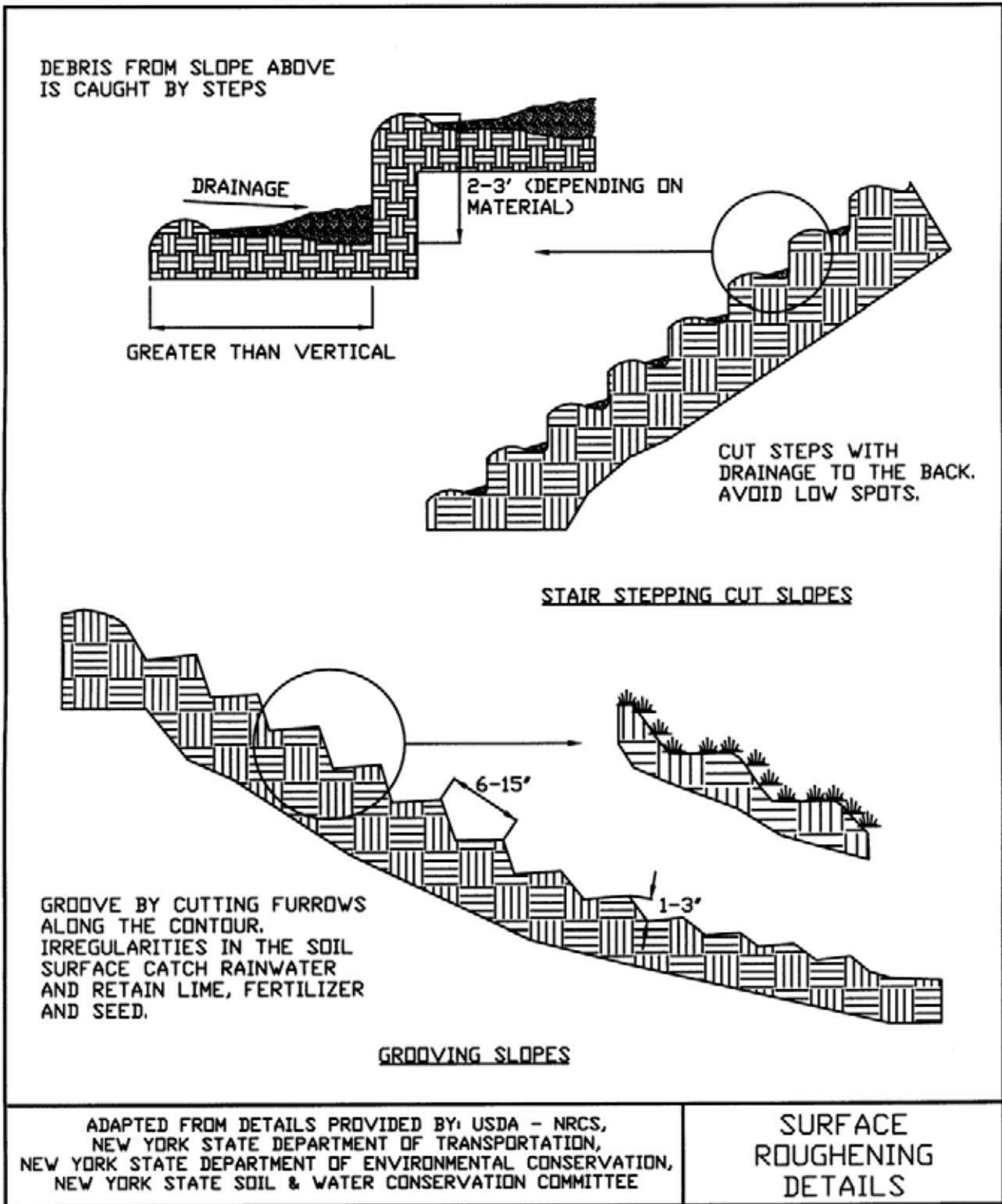
1. Place fill to create slopes with a gradient steeper than 3:1 in lifts 9 inches or less and properly compacted. Ensure the face of the slope consists of loose, uncompacted fill 4 to 6 inches deep. Use grooving as described above to roughen the slope, if necessary.
2. Do not blade or scrape the final slope face.

### C. Cuts/Fills, Mowed Maintenance

1. Make mowed slopes no steeper than 3:1.
2. Roughen these areas to shallow grooves by normal tilling, disking, harrowing, or use of cultipacker-seeder. Make the final pass of such tillage equipment on the contour.
3. Make grooves at least 1 inch deep and a maximum of 10 inches apart.
4. Excessive roughness is undesirable where mowing is planned.

Tracking should be used primarily in sandy soils to avoid undue compaction of the soil surface. Tracking is generally not as effective as the other roughening methods described. (It has been used as a method to track down mulch.) Operate tracked machinery up and down the slope to leave horizontal depressions in the soil. Do not back-blade during the final grading operation.

**Figure 5B.25**  
**Surface Roughening**



# STANDARD AND SPECIFICATIONS FOR TOPSOILING



## **Definition**

Spreading a specified quality and quantity of topsoil materials on graded or constructed subsoil areas.

## **Purpose**

To provide acceptable plant cover growing conditions, thereby reducing erosion; to reduce irrigation water needs; and to reduce the need for nitrogen fertilizer application.

## **Conditions Where Practice Applies**

Topsoil is applied to subsoils that are droughty (low available moisture for plants), stony, slowly permeable, salty or extremely acid. It is also used to backfill around shrub and tree transplants. This standard does not apply to wetland soils.

## **Design Criteria**

1. Preserve existing topsoil in place where possible, thereby reducing the need for added topsoil.
2. Conserve by stockpiling topsoil and friable fine textured subsoils that must be stripped from the excavated site and applied after final grading where vegetation will be established.
3. Refer to USDA Soil Conservation Service (presently Natural Resource Conservation Service) soil surveys or soil interpretation record sheets for further soil texture information for selecting appropriate design topsoil depths.

## **Site Preparation**

1. As needed, install erosion control practices such as diversions, channels, sediment traps, and stabilizing measures, or maintain if already installed.
2. Complete rough grading and final grade, allowing for depth of topsoil to be added.
3. Scarify all compact, slowly permeable, medium and fine textured subsoil areas. Scarify at approximately right angles to the slope direction in soil areas that are steeper than 5 percent. Areas that have been overly compacted shall be decompacted to a minimum depth of 12 inches with a deep ripper or chisel plow prior to topsoiling.
4. Remove refuse, woody plant parts, stones over 3 inches in diameter, and other litter.

## **Topsoil Materials**

1. Topsoil shall have at least 6 percent by weight of fine textured stable organic material, and no greater than 20 percent. Muck soil shall not be considered topsoil.
2. Topsoil shall have not less than 20 percent fine textured material (passing the NO. 200 sieve) and not more than 15 percent clay.
3. Topsoil treated with soil sterilants or herbicides shall be so identified to the purchaser.
4. Topsoil shall be relatively free of stones over 1 1/2 inches in diameter, trash, noxious weeds such as nut sedge and quackgrass, and will have less than 10 percent gravel.
5. Topsoil containing soluble salts greater than 500 parts per million shall not be used.

## **Application and Grading**

1. Topsoil shall be distributed to a uniform depth over the area. It shall not be placed when it is partly frozen, muddy, or on frozen slopes or over ice, snow, or standing water puddles.
2. Topsoil placed and graded on slopes steeper than 5 percent shall be promptly fertilized, seeded, mulched, and stabilized by "tracking" with suitable equipment.

3. Apply topsoil in the following amounts:

<b>Site Conditions</b>	<b>Intended Use</b>	<b>Minimum Topsoil Depth</b>
1. Deep sand or loamy sand	Mowed lawn	6 in.
	Tall legumes, unmowed	2 in.
	Tall grass, unmowed	1 in.
2. Deep sandy loam	Mowed lawn	5 in.
	Tall legumes, unmowed	2 in.
	Tall grass, unmowed	none
3. Six inches or more: silt loam, loam, or silt	Mowed lawn	4 in.
	Tall legumes, unmowed	1 in.
	Tall grass, unmowed	1 in.

# STANDARD AND SPECIFICATIONS FOR MULCHING



## **Definition**

Applying coarse plant residue or chips, or other suitable materials, to cover the soil surface.

## **Purpose**

The primary purpose is to provide initial erosion control while a seeding or shrub planting is establishing. Mulch will conserve moisture and modify the surface soil temperature and reduce fluctuation of both. Mulch will prevent soil surface crusting and aid in weed control. Mulch is also used alone for temporary stabilization in non-growing months.

## **Conditions Where Practice Applies**

On soils subject to erosion and on new seedlings and shrub plantings. Mulch is useful on soils with low infiltration rates by retarding runoff.

## **Criteria**

Site preparation prior to mulching requires the installation of necessary erosion control or water management practices and drainage systems.

Slope, grade and smooth the site to fit needs of selected mulch products.

Remove all undesirable stones and other debris to meet the needs of the anticipated land use and maintenance required.

Apply mulch after soil amendments and planting is accomplished or simultaneously if hydroseeding is used.

Select appropriate mulch material and application rate or material needs. Determine local availability.

Select appropriate mulch anchoring material.

NOTE: The best combination for grass/legume establishment is straw (cereal grain) mulch applied at 2 ton/acre (90 lbs./1000sq.ft.) and anchored with wood fiber mulch (hydromulch) at 500 – 750 lbs./acre (11 – 17 lbs./1000 sq. ft.). The wood fiber mulch must be applied through a hydroseeder immediately after mulching.

**Table 3.7**  
**Guide to Mulch Materials, Rates, and Uses**

<b>Mulch Material</b>	<b>Quality Standards</b>	<b>per 1000 Sq. Ft.</b>	<b>per Acre</b>	<b>Depth of Application</b>	<b>Remarks</b>
Wood chips or shavings	Air-dried. Free of objectionable coarse material	500-900 lbs.	10-20 tons	2-7"	Used primarily around shrub and tree plantings and recreation trails to inhibit weed competition. Resistant to wind blowing. Decomposes slowly.
Wood fiber cellulose (partly digested wood fibers)	Made from natural wood usually with green dye and dispersing agent	50 lbs.	2,000 lbs.	—	Apply with hydromulcher. No tie down required. Less erosion control provided than 2 tons of hay or straw.
Gravel, Crushed Stone or Slag	Washed; Size 2B or 3A—1 1/2"	9 cu. yds.	405 cu. yds.	3"	Excellent mulch for short slopes and around plants and ornamentals. Use 2B where subject to traffic. (Approximately 2,000 lbs./cu. yd.). Frequently used over filter fabric for better weed control.
Hay or Straw	Air-dried; free of undesirable seeds & coarse materials	90-100 lbs. 2-3 bales	2 tons (100-120 bales)	cover about 90% surface	Use small grain straw where mulch is maintained for more than three months. Subject to wind blowing unless anchored. Most commonly used mulching material. Provides the best micro-environment for germinating seeds.
Jute twisted yarn	Undyed, unbleached plain weave. Warp 78 ends/yd., Weft 41 ends/yd. 60-90 lbs./roll	48" x 50 yds. or 48" x 75 yds.	—	—	Use without additional mulch. Tie down as per manufacturers specifications. Good for center line of concentrated water flow.
Excelsior wood fiber mats	Interlocking web of excelsior fibers with photodegradable plastic netting	8" x 100" 2-sided plastic, 48" x 180" 1-sided plastic	—	—	Use without additional mulch. Excellent for seeding establishment. Tie down as per manufacturers specifications. Approximately 72 lbs./roll for excelsior with plastic on both sides. Use two sided plastic for centerline of waterways.
Compost	Up to 3" pieces, moderately to highly stable	3-9 cu. yds.	134-402 cu. yds.	1-3"	Coarser textured mulches may be more effective in reducing weed growth and wind erosion.
Straw or coconut fiber, or combination	Photodegradable plastic net on one or two sides	Most are 6.5 ft. x 3.5 ft.	81 rolls	—	Designed to tolerate higher velocity water flow, centerlines of waterways, 60 sq. yds. per roll.

**Table 3.8**  
**Mulch Anchoring Guide**

Anchoring Method or Material	Kind of Mulch to be Anchored	How to Apply
1. Peg and Twine	Hay or straw	After mulching, divide areas into blocks approximately 1 sq. yd. in size. Drive 4-6 pegs per block to within 2" to 3" of soil surface. Secure mulch to surface by stretching twine between pegs in criss-cross pattern on each block. Secure twine around each peg with 2 or more tight turns. Drive pegs flush with soil. Driving stakes into ground tightens the twine.
2. Mulch netting	Hay or straw	Staple the light-weight paper, jute, wood fiber, or plastic nettings to soil surface according to manufacturer's recommendations. Should be biodegradable. Most products are not suitable for foot traffic.
3. Wood cellulose fiber	Hay or straw	Apply with hydroseeder immediately after mulching. Use 500 lbs. wood fiber per acre. Some products contain an adhesive material ("tackifier"), possibly advantageous.
4. Mulch anchoring tool	Hay or straw	Apply mulch and pull a mulch anchoring tool (blunt, straight discs) over mulch as near to the contour as possible. Mulch material should be "tucked" into soil surface about 3".
5. Tackifier	Hay or straw	Mix and apply polymeric and gum tackifiers according to manufacturer's instructions. Avoid application during rain. A 24-hour curing period and a soil temperature higher than 45 <sup>0</sup> Fahrenheit are required.

**APPENDIX F  
STORMWATER CONSTRUCTION  
SITE LOGBOOK**

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# Stormwater Construction Site Logbook

## **STORMWATER MANAGEMENT AND POLLUTION PREVENTION PLAN**

### **REYNOLDS ROAD DRAINAGE SWALE & DITCH REHABILITATION PROJECT**

#### **VILLAGE OF JOHNSON CITY COUNTY OF BROOME STATE OF NEW YORK**

PREPARED FOR:

VILLAGE OF JOHNSON CITY

243 Main Street

Johnson City, New York 13790



58 Exchange Street • Binghamton, NY 13901 • Phone: 607.722.1100 • Fax: 607.722.2515 • [www.keyscomp.com](http://www.keyscomp.com)

## APPENDIX H

### STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM FOR CONSTRUCTION ACTIVITIES CONSTRUCTION SITE LOG BOOK

#### Table of Contents

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- I. Pre-Construction Meeting Documents
  - a. Preamble to Site Assessment and Inspections
  - b. Operator's Certification
  - c. Qualified Professional's Credentials & Certification
  - d. Pre-Construction Site Assessment Checklist
  
- II. Construction Duration Inspections
  - a. Directions
  - b. Modification to the SWPPP
  
- III. Monthly Summary Reports
  
- IV. Monitoring, Reporting, and Three-Month Status Reports
  - a. Operator's Compliance Response Form

Properly completing forms such as those contained in Appendix H meet the inspection requirement of NYS-DEC SPDES GP for Construction Activities. Completed forms shall be kept on site at all times and made available to authorities upon request.

**I. PRE-CONSTRUCTION MEETING DOCUMENTS**

**Project Name** REYNOLDS ROAD DRAINAGE SWALE & DITCH REHABILITATION PROJECT

**Permit No.** \_\_\_\_\_ **Date of Authorization** \_\_\_\_\_

**Name of Operator** Village of Johnson City

**Prime Contractor** \_\_\_\_\_

**a. Preamble to Site Assessment and Inspections**

The Following Information To Be Read By All Person’s Involved in The Construction of Stormwater Related Activities:

The Operator agrees to have a qualified professional<sup>1</sup> conduct an assessment of the site prior to the commencement of construction<sup>2</sup> and certify in this inspection report that the appropriate erosion and sediment controls described in the SWPPP have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction.

Prior to the commencement of construction, the Operator shall certify in this site logbook that the SWPPP has been prepared in accordance with the State’s standards and meets all Federal, State and local erosion and sediment control requirements.

When construction starts, site inspections shall be conducted by the qualified professional at least every 7 calendar days ~~and within 24 hours of the end of a storm event of 0.5 inches or greater~~ (Construction Duration Inspections). The Operator shall maintain a record of all inspection reports in this site logbook. The site logbook shall be maintained on site and be made available to the permitting authorities upon request. The Operator shall post at the site, in a publicly accessible location, a summary of the site inspection activities on a monthly basis (Monthly Summary Report).

The operator shall also prepare a written summary of compliance with this general permit at a minimum frequency of every three months (Operator’s Compliance Response Form), while coverage exists. The summary should address the status of achieving each component of the SWPPP.

Prior to filing the Notice of Termination or the end of permit term, the Operator shall have a qualified professional perform a final site inspection. The qualified professional shall certify that the site has undergone final stabilization<sup>3</sup> using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed. In addition, the Operator must identify and certify that all permanent structures described in the SWPPP have been constructed and provide the owner(s) with an operation and maintenance plan that ensures the structure(s) continuously functions as designed.

1 “Qualified Professional means a person knowledgeable in the principles and practice of erosion and sediment controls, such as a Certified Professional in Erosion and Sediment Control (CPESC), soil scientist, licensed engineer or someone working under the direction and supervision of a licensed engineer (person must have experience in the principles and practices of erosion and sediment control).

2 “Commencement of construction” means the initial removal of vegetation and disturbance of soils associated with clearing, grading or excavating activities or other construction activities.

3 “Final stabilization” means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

**b. Operators Certification**

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. Further, I hereby certify that the SWPPP meets all Federal, State, and local erosion and sediment control requirements. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 210.45 of the Penal Law.

**Name (please print):** Robert A. Bennett, PE  
**Title** Director of Public Services **Date:** \_\_\_\_\_  
**Address:** 243 Main Street, Johnson City, NY 13790  
**Phone:** 607-797-2523 **Email:** jcdops@stny.rr.com  
**Signature:** \_\_\_\_\_

**c. Qualified Professional's Credentials & Certification**

"I hereby certify that I meet the criteria set forth in the General Permit to conduct site inspections for this project and that the appropriate erosion and sediment controls described in the SWPPP and as described in the following Pre-construction Site Assessment Checklist have been adequately installed or implemented, ensuring the overall preparedness of this site for the commencement of construction."

**Name (please print):** \_\_\_\_\_  
**Title** \_\_\_\_\_ **Date:** \_\_\_\_\_  
**Address:** \_\_\_\_\_  
**Phone:** \_\_\_\_\_ **Email:** \_\_\_\_\_  
**Signature:** \_\_\_\_\_

**d. Pre-construction Site Assessment Checklist**

**(NOTE: Provide comments below as necessary)**

1. Notice of Intent, SWPPP, and Contractors Certification:

**Yes No NA**

- Has a Notice of Intent been filed with the NYS Department of Conservation?
- Is the SWPPP on-site? Where? \_\_\_\_\_
- Is the Plan current? What is the latest revision date? \_\_\_\_\_
- Is a copy of the NOI (with brief description) onsite? Where? \_\_\_\_\_
- Have all contractors involved with stormwater related activities signed a contractor's certification?

2. Resource Protection

**Yes No NA**

- Are construction limits clearly flagged or fenced?
- Important trees and associated rooting zones, on-site septic system absorption fields, existing vegetated areas suitable for filter strips, especially in perimeter areas, have been flagged for protection.
- Creek crossings installed prior to land-disturbing activity, including clearing and blasting.

3. Surface Water Protection

**Yes No NA**

- Clean stormwater runoff has been diverted from areas to be disturbed.
- Bodies of water located either on site or in the vicinity of the site have been identified and protected.
- Appropriate practices to protect on-site or downstream surface water are installed.
- Are clearing and grading operations divided into areas <5 acres?

4. Stabilized Construction Entrance

**Yes No NA**

- A temporary construction entrance to capture mud and debris from construction vehicles before they enter the public highway has been installed.
- Other access areas (entrances, construction routes, equipment parking areas) are stabilized immediately as work takes place with gravel or other cover.
- Sediment tracked onto public streets is removed or cleaned on a regular basis.

5. Perimeter Sediment Controls

**Yes No NA**

- Silt fence material and installation comply with the standard drawing and specifications.
- Silt fences are installed at appropriate spacing intervals
- Sediment/detention basin was installed as first land disturbing activity.
- Sediment traps and barriers are installed.

6. Pollution Prevention for Waste and Hazardous Materials

**Yes No NA**

- The Operator or designated representative has been assigned to implement the spill prevention avoidance and response plan.
- The plan is contained in the SWPPP on page \_\_\_\_\_
- Appropriate materials to control spills are onsite. Where? \_\_\_\_\_

## II. CONSTRUCTION DURATION INSPECTIONS

### a. Directions:

**Inspection Forms will be filled out during the entire construction phase of the project.**

Required Elements:

- (1) On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period;
- (2) Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization;
- (3) Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period;
- (4) Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of sediment storage volume (for example, 10 percent, 20 percent, 50 percent);
- (5) Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water; and
- (6) Immediately report to the Operator any deficiencies that are identified with the implementation of the SWPPP.

**SITE PLAN/SKETCH**

\_\_\_\_\_  
**Inspector (print name)**

\_\_\_\_\_  
**Date of Inspection**

\_\_\_\_\_  
**Qualified Professional (print name)**

\_\_\_\_\_  
**Qualified Professional Signature**

The above signed acknowledges that, to the best of his/her knowledge, all information provided on the forms is accurate and complete.

**Maintaining Water Quality**

**Yes No NA**

- Is there an increase in turbidity causing a substantial visible contrast to natural conditions?
- Is there residue from oil and floating substances, visible oil film, or globules or grease?
- All disturbance is within the limits of the approved plans.
- Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

**Housekeeping**

1. General Site Conditions

**Yes No NA**

- Is construction site litter and debris appropriately managed?
- Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
- Is construction impacting the adjacent property?
- Is dust adequately controlled?

2. Temporary Stream Crossing

**Yes No NA**

- Maximum diameter pipes necessary to span creek without dredging are installed.
- Installed non-woven geotextile fabric beneath approaches.
- Is fill composed of aggregate (no earth or soil)?
- Rock on approaches is clean enough to remove mud from vehicles & prevent sediment from entering stream during high flow.

**Runoff Control Practices**

1. Excavation Dewatering

**Yes No NA**

- Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
- Clean water from upstream pool is being pumped to the downstream pool.
- Sediment laden water from work area is being discharged to a silt-trapping device.
- Constructed upstream berm with one-foot minimum freeboard.

2. Level Spreader

**Yes No NA**

- Installed per plan.
- Constructed on undisturbed soil, not on fill, receiving only clear, non-sediment laden flow.
- Flow sheets out of level spreader without erosion on downstream edge.

3. Interceptor Dikes and Swales

**Yes No NA**

- Installed per plan with minimum side slopes 2H:1V or flatter.
- Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.
- Sediment-laden runoff directed to sediment trapping structure

**Runoff Control Practices (continued)**

4. Stone Check Dam

**Yes No NA**

- Is channel stable? (flow is not eroding soil underneath or around the structure).
- Check is in good condition (rocks in place and no permanent pools behind the structure).
- Has accumulated sediment been removed?.

5. Rock Outlet Protection

**Yes No NA**

- Installed per plan.
- Installed concurrently with pipe installation.

**Soil Stabilization**

1. Topsoil and Spoil Stockpiles

**Yes No NA**

- Stockpiles are stabilized with vegetation and/or mulch.
- Sediment control is installed at the toe of the slope.

2. Revegetation

**Yes No NA**

- Temporary seedings and mulch have been applied to idle areas.
- 4 inches minimum of topsoil has been applied under permanent seedings

**Sediment Control Practices**

1. Stabilized Construction Entrance

**Yes No NA**

- Stone is clean enough to effectively remove mud from vehicles.
- Installed per standards and specifications?
- Does all traffic use the stabilized entrance to enter and leave site?
- Is adequate drainage provided to prevent ponding at entrance?

2. Silt Fence

**Yes No NA**

- Installed on Contour, 10 feet from toe of slope (not across conveyance channels).
  - Joints constructed by wrapping the two ends together for continuous support.
  - Fabric buried 6 inches minimum.
  - Posts are stable, fabric is tight and without rips or frayed areas.
- Sediment accumulation is \_\_\_% of design capacity.

**Sediment Control Practices (continued)**

**3. Storm Drain Inlet Protection (Use for Stone & Block; Filter Fabric; Curb; or, Excavated practices)**

**Yes No NA**

- Installed concrete blocks lengthwise so open ends face outward, not upward.
  - Placed wire screen between No. 3 crushed stone and concrete blocks.
  - Drainage area is 1acre or less.
  - Excavated area is 900 cubic feet.
  - Excavated side slopes should be 2:1.
  - 2" x 4" frame is constructed and structurally sound.
  - Posts 3-foot maximum spacing between posts.
  - Fabric is embedded 1 to 1.5 feet below ground and secured to frame/posts with staples at max 8-inch spacing.
  - Posts are stable, fabric is tight and without rips or frayed areas.
- Sediment accumulation \_\_\_% of design capacity.

**4. Temporary Sediment Trap**

**Yes No NA**

- Outlet structure is constructed per the approved plan or drawing.
  - Geotextile fabric has been placed beneath rock fill.
- Sediment accumulation is \_\_\_% of design capacity.

**5. Temporary Sediment Basin**

**Yes No NA**

- Basin and outlet structure constructed per the approved plan.
  - Basin side slopes are stabilized with seed/mulch.
  - Drainage structure flushed and basin surface restored upon removal of sediment basin facility.
- Sediment accumulation is \_\_\_% of design capacity.

Note: Not all erosion and sediment control practices are included in this listing. Add additional pages to this list as required by site specific design.  
Construction inspection checklists for post-development stormwater management practices can be found in Appendix F of the New York Stormwater Management Design Manual.



3. Will the project/activity include or directly cause: (check appropriate items)

Yes No N/A

- construction or expansion of solid waste disposal, recycling or conversion facilities
- construction or expansion or closure of landfills
- construction or expansion of water supply facilities (i.e., treatment plant, pump house, etc.)
- construction or expansion of on-site wastewater treatment plants or sewage trunk lines, greater than 1/4 mile
- construction or expansion of gas or petroleum trunk lines, greater than 1200 feet
- construction or expansion of railroad spurs or similar extensions
- construction or expansion of municipal sewage treatment plants

— ✓ —  
— ✓ —  
— ✓ —  
— ✓ —  
— ✓ —  
— ✓ —  
— ✓ —

4. Will the project/activity include storage or handling of any hazardous constituents as listed in Attachment 4, Hazardous Constituents?

— ✓ —

If these constituents are used during the construction phase of the project, than an assurance statement must be provided indicating that chemicals will be used in a safe and proper manner, and that they will be promptly removed after construction is completed.

5. Will the project/activity include bulk storage of petroleum in underground or above ground tanks in excess of 1100 gallons?

— ✓ —

6. Will the project/activity require a federal or state discharge elimination permit or modification of an existing permit?

— ✓ —

This attachment was completed by:

Name:

Joshua Gomez

Title:

Environmental Scientist

Address:

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Mountainville NY 10953

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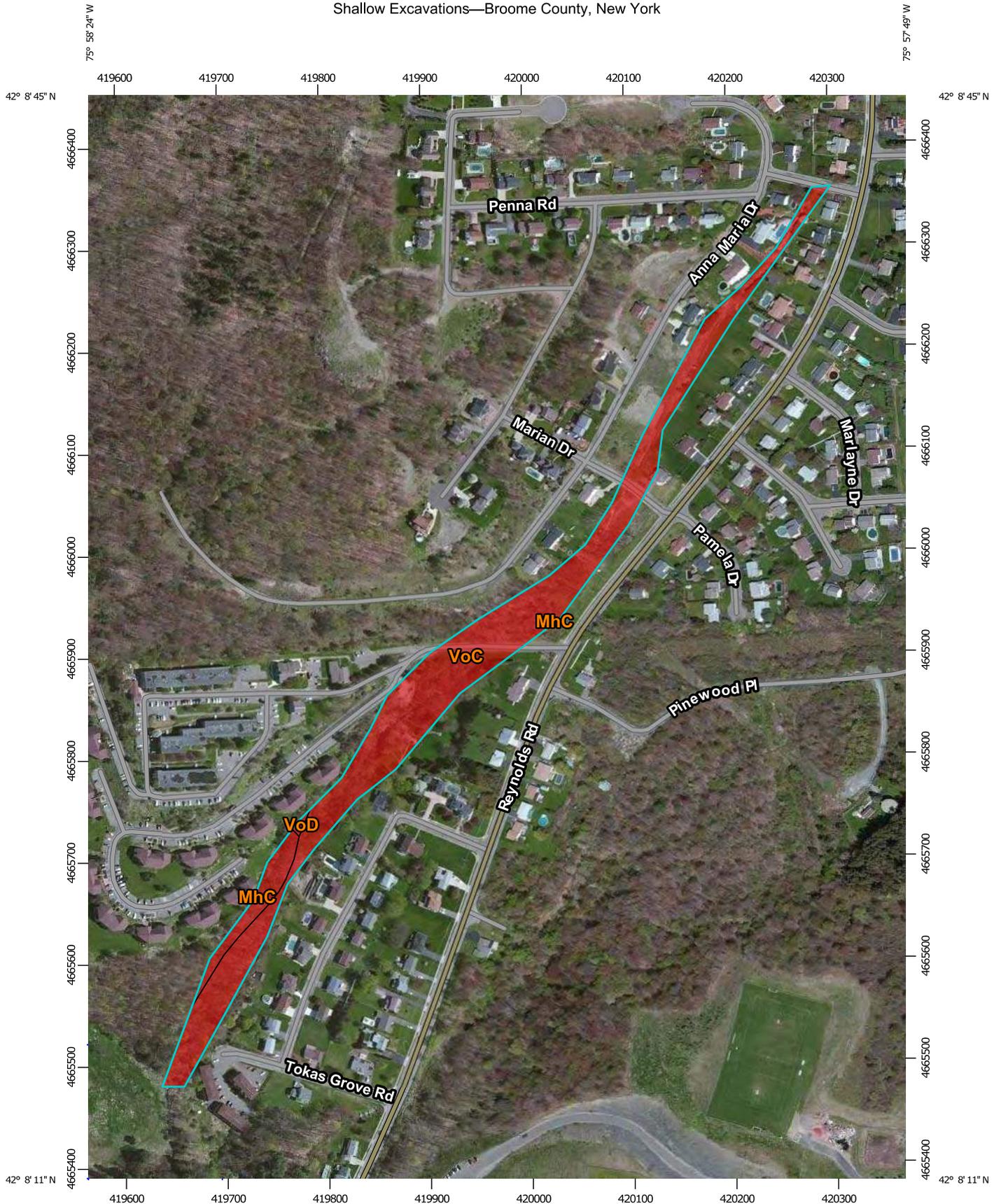
Date:

2/24/2015

# Attachment 3

USDA NRCS Soils Map and  
Supplemental Information

Shallow Excavations—Broome County, New York



Map Scale: 1:5,180 if printed on A portrait (8.5" x 11") sheet.

0 50 100 200 300 Meters

0 250 500 1000 1500 Feet

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



## 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 1:15,800.

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

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

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

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>  
 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: Broome County, New York  
 Survey Area Data: Version 12, Sep 13, 2014

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

Date(s) aerial images were photographed: Jun 2, 2010—Oct 8, 2011

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.

## Shallow Excavations

Shallow Excavations— Summary by Map Unit — Broome County, New York (NY007)						
Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
MhC	Mardin channery silt loam, 8 to 15 percent slopes	Very limited	Mardin (88%)	Depth to thin cemented pan (1.00)	0.6	7.7%
				Depth to saturated zone (1.00)		
				Slope (0.63)		
				Unstable excavation walls (0.01)		
				Dusty (0.01)		
			Bath (5%)	Depth to thin cemented pan (1.00)		
				Slope (1.00)		
				Depth to saturated zone (1.00)		
				Unstable excavation walls (0.01)		
				Dusty (0.01)		
			Volusia (5%)	Depth to thin cemented pan (1.00)		
				Depth to saturated zone (1.00)		
				Dense layer (0.50)		
				Unstable excavation walls (0.01)		
				Dusty (0.01)		
			Lordstown (2%)	Depth to hard bedrock (1.00)		
				Slope (1.00)		
				Large stones (0.68)		
				Unstable excavation walls (0.36)		

Shallow Excavations— Summary by Map Unit — Broome County, New York (NY007)						
Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Dusty (0.01)		
VoC	Volusia channery silt loam, 8 to 15 percent slopes	Very limited	Volusia (90%)	Depth to thin cemented pan (1.00)	7.4	91.8%
				Depth to saturated zone (1.00)		
				Slope (0.63)		
				Dense layer (0.50)		
				Unstable excavation walls (0.01)		
			Mardin (6%)	Depth to thin cemented pan (1.00)		
				Slope (1.00)		
				Depth to saturated zone (1.00)		
				Unstable excavation walls (0.01)		
				Dusty (0.01)		
			Chippewa (4%)	Depth to thin cemented pan (1.00)		
				Depth to saturated zone (1.00)		
				Unstable excavation walls (0.01)		
				Dusty (0.01)		
VoD	Volusia channery silt loam, 15 to 25 percent slopes	Very limited	Volusia (90%)	Depth to thin cemented pan (1.00)	0.0	0.4%
				Slope (1.00)		
				Depth to saturated zone (1.00)		
				Dense layer (0.50)		
				Unstable excavation walls (0.01)		

Shallow Excavations— Summary by Map Unit — Broome County, New York (NY007)						
Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Mardin (7%)	Depth to thin cemented pan (1.00)		
				Slope (1.00)		
				Depth to saturated zone (1.00)		
				Unstable excavation walls (0.01)		
				Dusty (0.01)		
			Chippewa (3%)	Depth to thin cemented pan (1.00)		
				Depth to saturated zone (1.00)		
				Unstable excavation walls (0.01)		
				Dusty (0.01)		
<b>Totals for Area of Interest</b>					<b>8.0</b>	<b>100.0%</b>

Shallow Excavations— Summary by Rating Value		
Rating	Acres in AOI	Percent of AOI
Very limited	8.0	100.0%
<b>Totals for Area of Interest</b>	<b>8.0</b>	<b>100.0%</b>

## Description

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 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.

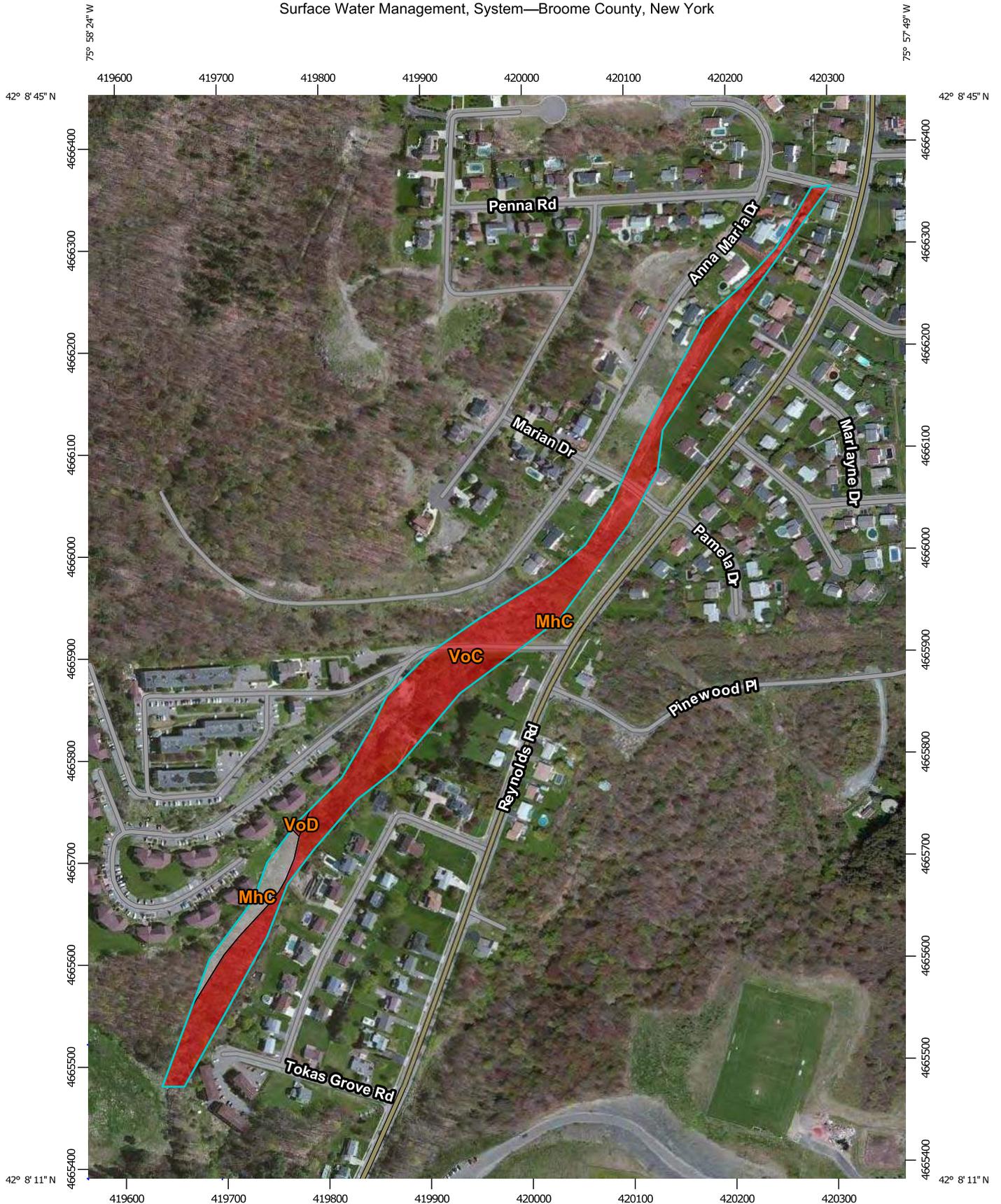
## Rating Options

*Aggregation Method:* Dominant Condition

*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Higher

Surface Water Management, System—Broome County, New York



Map Scale: 1:5,180 if printed on A portrait (8.5" x 11") sheet.

0 50 100 200 300 Meters

0 250 500 1000 1500 Feet

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



## 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 1:15,800.

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

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

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

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>  
 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: Broome County, New York  
 Survey Area Data: Version 12, Sep 13, 2014

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

Date(s) aerial images were photographed: Jun 2, 2010—Oct 8, 2011

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.

## Surface Water Management, System

Surface Water Management, System— Summary by Map Unit — Broome County, New York (NY007)						
Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
MhC	Mardin channery silt loam, 8 to 15 percent slopes	Not Rated	Mardin (88%)		0.6	7.7%
			Bath (5%)			
VoC	Volusia channery silt loam, 8 to 15 percent slopes	Very limited	Volusia (90%)	Slope (1.00)	7.4	91.8%
				Water Erosion (1.00)		
				Slow water movement (1.00)		
				Large rock fragments (0.75)		
VoD	Volusia channery silt loam, 15 to 25 percent slopes	Very limited	Volusia (90%)	Slope (1.00)	0.0	0.4%
				Water Erosion (1.00)		
				Slow water movement (1.00)		
				Large rock fragments (0.75)		
<b>Totals for Area of Interest</b>					<b>8.0</b>	<b>100.0%</b>

Surface Water Management, System— Summary by Rating Value		
Rating	Acres in AOI	Percent of AOI
Very limited	7.4	92.3%
Not Rated	0.6	7.7%
Null or Not Rated	0.6	7.7%
<b>Totals for Area of Interest</b>	<b>8.0</b>	<b>100.0%</b>

## Description

The ratings for Surface Water Management, System are based on the soil properties that affect the capacity of the soil to convey surface water across the landscape. Factors affecting the system installation and performance are considered. Water conveyances include graded ditches, grassed waterways, terraces, and diversions. The ratings are for soils in their natural condition and do not consider present land use. The properties that affect the surface system performance include depth to bedrock, saturated hydraulic conductivity, depth to cemented pan, slope, flooding, ponding, large stone content, sodicity, surface water erosion, and gypsum content.

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 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.

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 that listed for the map unit. The percent composition of each component in a particular map unit is given so that the user will realize the percentage of each map unit that has the specified rating.

A map unit may have other components with different ratings. 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.

## Rating Options

*Aggregation Method:* Dominant Condition

*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Higher

# Attachment 4

U.S. Army Corps of Engineers Environmental  
Review



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# Public Notice

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Applicant: Village of Johnson City    Published: 16 November 2012  
Expires: 1 December 2012

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U.S. Army Corps  
of Engineers  
Buffalo District  
CELRB-TD-R

Application No: 2012-00244  
Section: NY

All written comments should reference the above Application No. and be addressed to:

**U.S. Army Corps of Engineers**  
(Attn:) **Judy A. Robinson**  
7413 County House Road  
Auburn, New York 13021

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**THE PURPOSE OF THIS PUBLIC NOTICE IS TO SOLICIT COMMENTS FROM THE PUBLIC REGARDING THE WORK DESCRIBED BELOW. NO DECISION HAS BEEN MADE AS TO WHETHER OR NOT A PERMIT WILL BE ISSUED AT THIS TIME.**

Note that this is a 15-day Public Notice Period

**Application for Permit under Authority of  
Section 404 of the Clean Water Act (33 U.S.C. 1344).**

**APPLICANT:**            Village of Johnson City  
243 Main Street  
Johnson City, New York 13790  
Attn: Robert Bennett

**WATERWAY & LOCATION:** Unnamed Tributary to Choconut Creek that runs parallel to Reynolds Road between Penna Road and Anna Maria Drive, Village of Johnson City, Broome County, New York

**LATITUDE & LONGITUDE:**    Latitude North:            42.1439°  
Longitude West:            -75.9658°

**EXISTING CONDITIONS:** An unnamed tributary to Choconut Creek has experienced severe erosion and head-cutting. The tributary runs parallel to Reynolds Road between Penna Road and Anna Maria Drive and forms the back lot boundary of adjacent residences. In some areas, severe erosion is causing the substantial loss of residential property into the eroded gully. In addition, a concrete-encased sanitary sewer line that was once embedded within the tributary has been exposed across the width of the gully, and a concrete culvert downstream that houses a sewerline has been compromised. The damage has occurred beyond the public drainage easements. It appears that residential development was constructed on highly erodible soil on hillside slopes and stormwater

outfalls from the surrounding developments have contributed to instability and rapid erosion of the streambanks. Existing conditions facilitate high velocity flows that will eventually cause failure of the sewer line and continue the dangerous loss of residential property.

### **PROPOSED WORK:**

- The current proposal is for the installation of approximately 1,040 linear feet x 10 feet wide (0.24 acre) of articulating concrete block mat lining with hollow cores to repair the tributary's eroded headwater reach located at Stations 0+00 through 10+40. Headcuts are scattered throughout the reach, ranging from 1-5 foot drops at the upper reaches to 10-12 foot drops as the stream nears Marian Drive (Sheets 3, 8-23, 48-49). This headwater area collects water from "back-to-back" residential developments into channels of various widths that exhibit unstable, incised banks. Installation of the articulating concrete block mats will require filling eroded and head cut areas to grade for installation. The 20% voids between blocks will allow for the establishment of both natural and planted vegetation along the channel bottom. Note that in 2000, the City installed mesh netting along the reach in order to maintain a more natural character of the channel. However, flow velocities and further erosion have dislodged the structures, rendering them non-functional.
  - A portion of the stream located at approximately Station 0+00 through Station 7+00 exhibits ephemeral stream characteristics. Stormwater discharges from adjacent residential streets enter the channel along this reach. At approximately Station 7+00, the stream becomes intermittent for the remainder of the project area. (Sheets 3, 8-19)
- Replace 300 linear feet of existing 30-inch and 60-inch piping with 300 linear feet of 72-inch pipe. (Sheets 3, 23-29)
- Installation of 360 linear feet of new 72-inch pipe to connect with the 300 linear feet of replacement pipe described above (Stations 10+40 – 13+40). This area has been eroded to a deep gully-like channel approximately 15-20 feet deep, with trees and residential lawn areas literally sliding down the slope. At approximately Station 15+00, an existing sanitary sewer line is totally exposed with approximately 3-5 feet of eroded channel under the pipe. (Sheets 3, 29-34)
  - Installation of new aluminized corrugated metal pipe is proposed in this severe erosion area because physical constraints, existing easements, and close proximity of existing residential structures do not allow room to establish stable bank slopes.
- Replacement of an existing 100-foot long 60-inch culvert with a 100-foot long 72-inch culvert that extends under the Indian Ridge Apartment entrance road Stations 17+00-18+00) (Sheets 3, 33-35). The inlet fills with medium to large stone carried down the eroded channel, reducing flow capacity. Periodically, flow overtops the entrance road, causing further hazard to residents. The proposed pipe is designed to pass the 100-year 24-hour storm event.
- Replace a 17-foot long 18-inch diameter culvert outlet near station 24+57 and install approximately 100 cubic yards of riprap for scour protection (Sheet 3, 37).

- Install three 126-inch storm manhole structures (STMH) between Stations 11+00 – 15+00 are proposed with drops as much as 6 feet in order to flatten the pipe runs and dissipate energy throughout the section. (Sheets 3, 5, 27-34, 50)
- Replace concrete headwall at Station 28+06 and install 24-inch A-Jacks Concrete Armor Units (16-feet wide x 20-feet long) for scour protection and energy dissipation. (Sheets 3, 38-39, 51-52)
- Repair the headwall to protect an existing 60-inch culvert outlet at Station 28+52 (Sheets 3, 38-39, 51-52). This culvert carries stormwater from Dellapenna Drive and outfalls on the bank of the main tributary channel and was installed to carry a sanitary sewer main crossing above the channel invert. Approximately 50 feet of stream was previously piped under the sewer main. New concrete headwalls with apron and turndown are proposed on the inlet and outlet side to increase efficiency and protect the inlet. In addition, 24-inch A-Jacks Concrete Armor Units (16-feet wide x 20-long) will be installed for scour protection, energy dissipation and protection of the culvert outlet.

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**Summary:**

- 1,040 linear feet 10,040 square feet articulating concrete block = 0.24 acre
- 300 linear feet new 72-inch diameter pipe (.15 acre)
- 360 linear feet replacement 72-inch diameter pipe (.11 acre)
- 100 linear feet pipe replacement 72-inch diameter pipe (0.05 acre)
- 17 linear feet replacement 18-inch diameter pipe (0.005 acre)
- 50 linear feet of existing 60-inch diameter pipe (0.007 acre) that did not receive previous written authorization
- 1,580 square feet of various – headwall, A-Jacks Concrete Armor Units, riprap (.04 acre)
  - The project will result in approximately 0.6 acre of permanent impact.
  - The entire stream reach within the project area is approximately 2,850 linear feet. The stream channel will be concrete lined or piped for approximately 1,850 linear feet.

**PROJECT PURPOSE:**

**Basic:** Erosion Control

**Overall:** Improve water quality and protect private property on tributary between Penna Road and Tokas Grove Road.

**Avoidance and Minimization Information:**

**Alternatives for Headwater Area Stations 0+00 to Station 10+42 (Penna Avenue to Marian Drive)**

**Alternative 1:** Do Nothing. This alternative would not address 1) the origin for the continued loss of private property into the gully-like stream channel; 2) personal safety issues to residents; 3) protection for the exposed sanitary sewer line; 3) water quality concerns caused by the substantial sediment load to downstream waters (Choconut Creek); 4) dissipating/controlling destructive flow velocities.

**Alternative 2:** Install flexible fabric erosion control matting in the headwater area. This method was tried in 2000 and failed several years later due to the high headwater velocities during storm events that dislodged and undercut the structures.

**Alternative 3:** Install hollow core articulating concrete matting system which will withstand high stream velocities. This is a semi-rigid lining with hollow cores that will allow natural vegetation to develop and which will be supplemented with plantings within the core hollows. This is the preferred alternative.

### **Alternatives Stations 0+40 to Station 18+07 (Marian Drive to Indian Ridge Apartment Entrance Driveway)**

**Alternative 1:** Do Nothing. This alternative would not address 1) the continued loss of private property into the gully-like stream channel; 2) personal safety issues to residents; 3) protection for the exposed sanitary sewer line; 3) water quality concerns caused by the substantial sediment load to downstream waters (Choconut Creek); 4) dissipating/controlling destructive flow velocities.

**Alternative 2:** Provide improvements to the locations exhibiting the most severe erosion and protect the sanitary sewer line. If the entire section is not addressed as a whole, the spot improvements will stabilize the local area, but will transfer stream energy to other areas of the section, moving the erosion problem to new locations.

**Alternative 3:** Pipe the entire section. This alternative will address erosion along the entire reach, including protection of the sanitary sewer and protection and restoration of property loss. Energy dissipation can be controlled with the use of drop structures (STMH) and placement of an energy dissipation system (A-Jacks Concrete Armor Units) at pipe outlets downstream. This is the preferred alternative.

### **Alternatives Lower Section Station 28+06 Sanitary Sewer Crossing, repair 18-inch culvert outlet**

**Alternative 1:** Do Nothing. This alternative will not protect the outlet end of the pipe. Further erosion will occur, eventually undermining enough of the pipe to cause collapse, resulting in the discharge of raw sewage into the stream.

**Alternative 2:** Install a new concrete headwall and an energy dissipation system. This alternative will repair the existing damage to the pipe outlet and prevent future erosion. Replacing the damaged 18-inch pipe outlet protection from erosion will stabilize both the pipe and outlet. This is the preferred alternative.

**Proposed Mitigation:** No additional compensatory mitigation has been proposed for the loss of approximately 1800 linear feet of open stream channel. The improvements gained from the proposed project include reduction/prevention of what is estimated to be thousands of cubic yards of sediment to downstream waters and protection of two sanitary sewer lines that have been compromised by severe erosion. The gully-like banks are highly unstable and do not allow establishment of natural vegetation. Given the residential property constraints, there is no opportunity to conduct restoration activities to try to establish streambank integrity, such as changing the slope, planting buffers, integrating bio-engineering, etc. The stream is located between Reynolds Road and the back yards of the housing developments between Penna Road

and Tokas Grove Road. Early second-growth trees have re-established in the adjacent area that acts as a visual/noise shield between Reynolds Road and residential areas.

The ephemeral/intermittent tributary provides limited wildlife habitat; it does not support fish, and the gully-like channel and steep slopes likely impede accessibility to the channel by mammals for uses such as corridor travel or drinking pools. Movement of aquatic organisms is currently impeded due to the various existing culverts and concrete energy dissipater already in place at approximately Station 13+50. Although the majority of the project area is adjacent to maintained lawns, some second growth forested areas will be cut in order to conduct work activities. This may have a minor impact on use by avian species, but the surrounding area will remain forested and the impacted areas will be restored and replanted.

The tributary functions primarily for the conveyance of stormwater from surrounding roads and housing developments. Piping the stream would facilitate safer and less damaging stormwater management by controlling velocity and sediment load.

Location and details of the above described work are shown on the attached maps and drawings.

Comments or questions pertaining to the work described in this notice should be reference the Application Number and be directed to the attention of **Judy Robinson** who can be contacted at the above address, by calling **(315) 704-0255**, or by e-mail at: **judy.a.robinson@usace.army.mil**. A lack of response will be interpreted as meaning that there is no objection to the work as proposed.

**The following authorization is required for this project:**

Water Quality Certification (WQC) (or waiver thereof) from the New York State Department of Environmental Conservation (NYSDEC). WQC was issued by the NYSDEC on June 21, 2012 (Permit No. 7-0346-00181/00001).

The project permit area, as shown on Sheet 3 of 53, is not mapped as an archaeologically sensitive area as identified by the New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP) and does not contain any known properties listed in, or eligible for listing in, the National Register of Historic Places. Further, the proposed work will occur within a stream channel with active erosion and deposition. Due to the scope of the work proposed, the USACE has determined that the project will have No Effect on historic resources listed in, or eligible for listing in the National Register of Historic Places. This notice constitutes initiation of consultation with the NYSOPRHP per Section 106 of the National Historic Preservation Act and the USACE hereby requests the NYSOPRHP to concur with this determination. All currently available historic resource information pertaining to this proposed project, if any, has been provided to the NYSOPRHP. Additional information concerning historic properties should be submitted to the USACE before the end of the comment period of this notice. The USACE will forward that information to the NYSOPRHP for their review.

Available evidence indicates that the proposed work will not affect a species proposed or designated by the U.S. Department of the Interior as threatened or endangered, or will it affect the critical habitat of any such species. There are no species listed as protected pursuant to the Endangered Species Act in Broome County, New York, and therefore the USACE is not consulting with the U.S. Fish and Wildlife Service beyond this Public Notice.

This notice is promulgated in accordance with Title 33, Code of Federal Regulations, parts 320-330. Any interested party desiring to comment on the work described herein may do so by submitting their comments, in writing, so that they are received no later than 4:30 pm on the expiration date of this notice.

Comments submitted in response to this notice will be fully considered during the public interest review for this permit application. All written comments will be made a part of the administrative record which is available to the public under the Freedom of Information Act. The Administrative Record, or portions thereof may also be posted on a Corps of Engineers internet web site. Due to resource limitations, this office will normally not acknowledge the receipt of comments or respond to individual letters of comment.

Any individual may request a public hearing by submitting their written request, stating the specific reasons for holding a hearing, in the same manner and time period as other comments.

Public hearings for the purposes of the Corps permit program will be held when the District Commander determines he can obtain additional information, not available in written comments, that will aid him in the decision making process for this application. A Corps hearing is not a source of information for the general public, nor a forum for the resolution of issues or conflicting points of view (witnesses are not sworn and cross examination is prohibited). Hearings will not be held to obtain information on issues unrelated to the work requiring a permit, such as property ownership, neighbor disputes, or the behavior or actions of the public or applicant on upland property not regulated by the Department of the Army. Information obtained from a public hearing is given no greater weight than that obtained from written comments. Therefore, you should not fail to make timely written comments because a hearing might be held.

The decision to approve or deny this permit request will be based on an evaluation of the probable impact, including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among these are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and in general, the needs and welfare of the people.

The Corps of Engineers is soliciting comments from the public; Federal, state and local agencies and officials; Indian Tribes, and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

**SIGNED**

Diane C. Kozlowski  
Chief, Regulatory Branch

**NOTICE TO POSTMASTER:** It is requested that this notice be posted continuously and conspicuously for 15 days from the date of issuance.



# DRAINAGE SWALE AND DITCH REHABILITATION

## REYNOLDS ROAD

VILLAGE OF JOHNSON CITY

COUNTY OF BROOME

STATE OF NEW YORK

\* ORIGINAL CONSTRUCTION PLAN SET REDUCED TO 8.5x11 FOR PERMIT ATTACHMENTS.  
THE FOLLOWING INDEX REFERENCES ORIGINAL SHEET NUMBERS.

### INDEX OF DRAWINGS

SHEET	TITLE
C010	EXISTING CONDITIONS PLAN
C100	OVERALL SITE PLAN
C200	PLAN AND PROFILE STATIONS 0+00 - 5+50
C210	PLAN AND PROFILE STATIONS 5+50 - 11+50
C220	PLAN AND PROFILE STATIONS 11+50 - 17+50
C230	PLAN AND PROFILE STATIONS 17+50 - 23+50
C240	PLAN AND PROFILE STATIONS 23+50 - 29+50
C250	PLAN AND PROFILE STATIONS 29+50 - 34+78
C300	CROSS SECTIONS STATIONS 0+00 - 17+00
C310	CROSS SECTIONS STATIONS 17+50 - 34+50
C400	EROSION AND SEDIMENT CONTROL PLAN
C410	EROSION AND SEDIMENT CONTROL DETAILS
C500	SITE DETAILS
C510	SITE DETAILS

DRAWINGS PREPARED BY



38 Exchange Street  
Binghamton, New York 13901

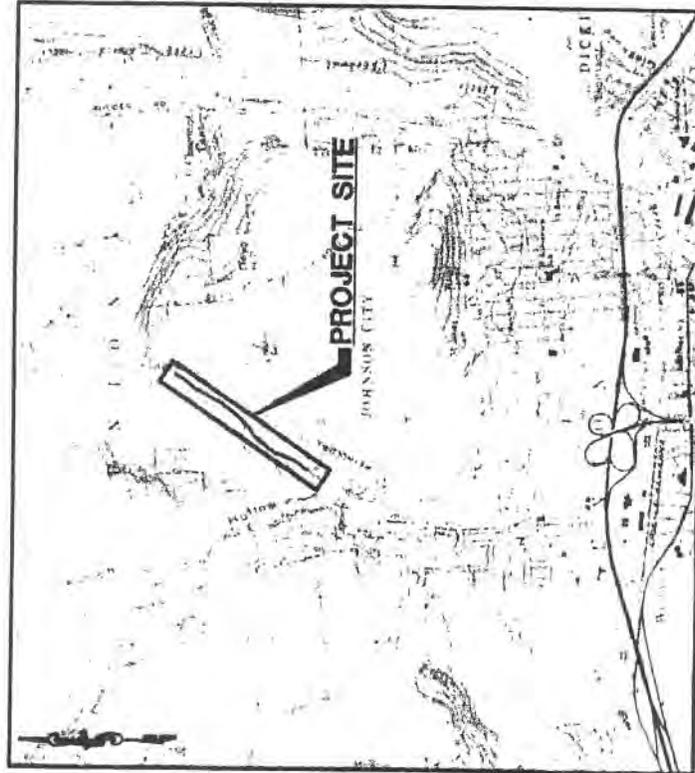
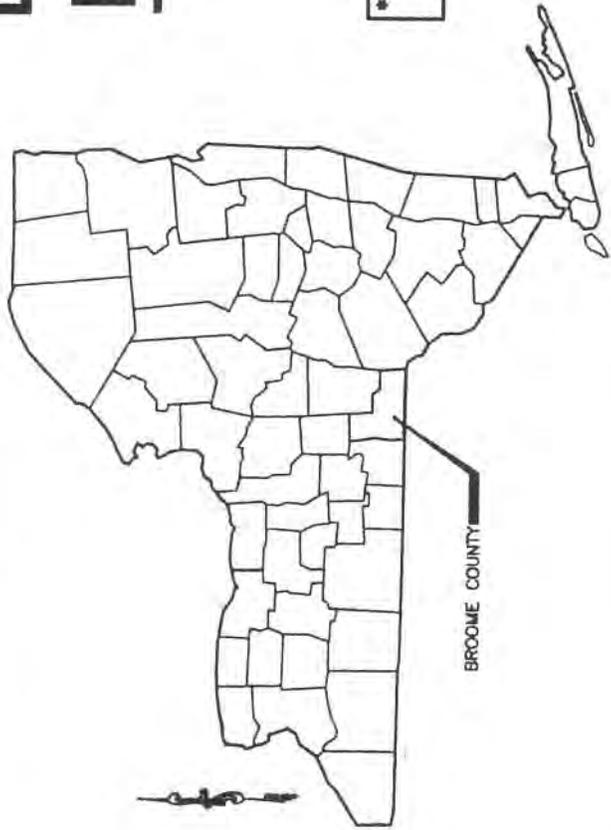
Johnson City, Village of (Permit)  
(Stream Piping)

D/A Processing No. 2012-00244

Broome County, New York

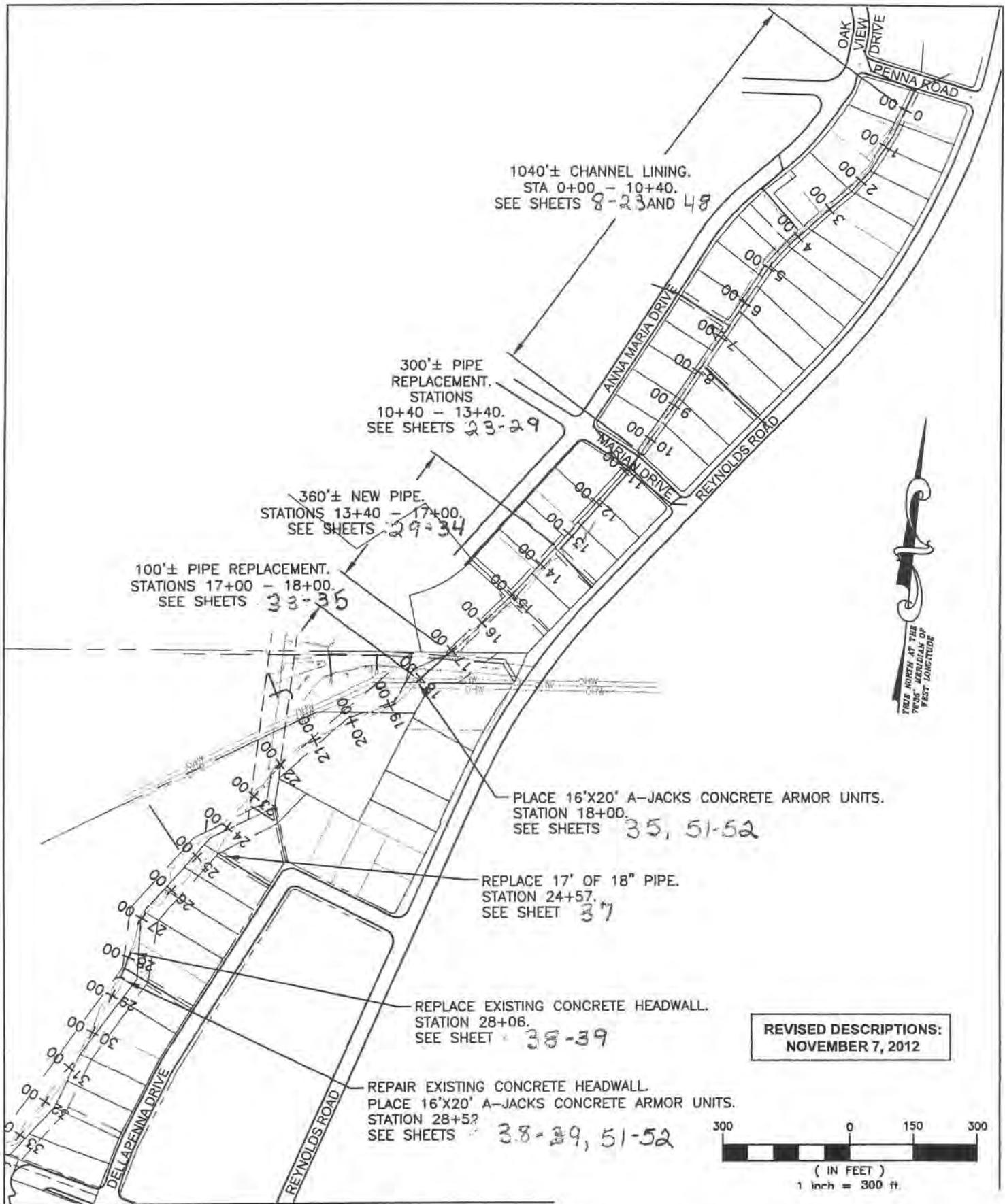
Quad - Castle Creek, NY

Sheet 2 of 53



LOCATION MAP





1040± CHANNEL LINING.  
 STA 0+00 - 10+40.  
 SEE SHEETS 8-23 AND 48

300± PIPE  
 REPLACEMENT.  
 STATIONS  
 10+40 - 13+40.  
 SEE SHEETS 23-29

360± NEW PIPE.  
 STATIONS 13+40 - 17+00.  
 SEE SHEETS 29-34

100± PIPE REPLACEMENT.  
 STATIONS 17+00 - 18+00.  
 SEE SHEETS 33-35

PLACE 16'X20' A-JACKS CONCRETE ARMOR UNITS.  
 STATION 18+00.  
 SEE SHEETS 35, 51-52

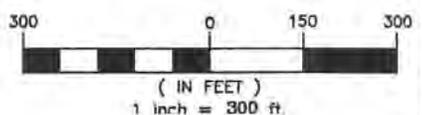
REPLACE 17' OF 18" PIPE.  
 STATION 24+57.  
 SEE SHEET 37

REPLACE EXISTING CONCRETE HEADWALL.  
 STATION 28+06.  
 SEE SHEET 38-39

REPAIR EXISTING CONCRETE HEADWALL.  
 PLACE 16'X20' A-JACKS CONCRETE ARMOR UNITS.  
 STATION 28+52  
 SEE SHEETS 38-39, 51-52



REVISED DESCRIPTIONS:  
 NOVEMBER 7, 2012



58 Exchange Street  
 Binghamton, New York 13901  
 Phone: 607.722.1100  
 Fax: 607.722.2510  
 Email: info@keystone.com  
 www.keystone.com

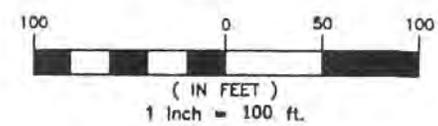
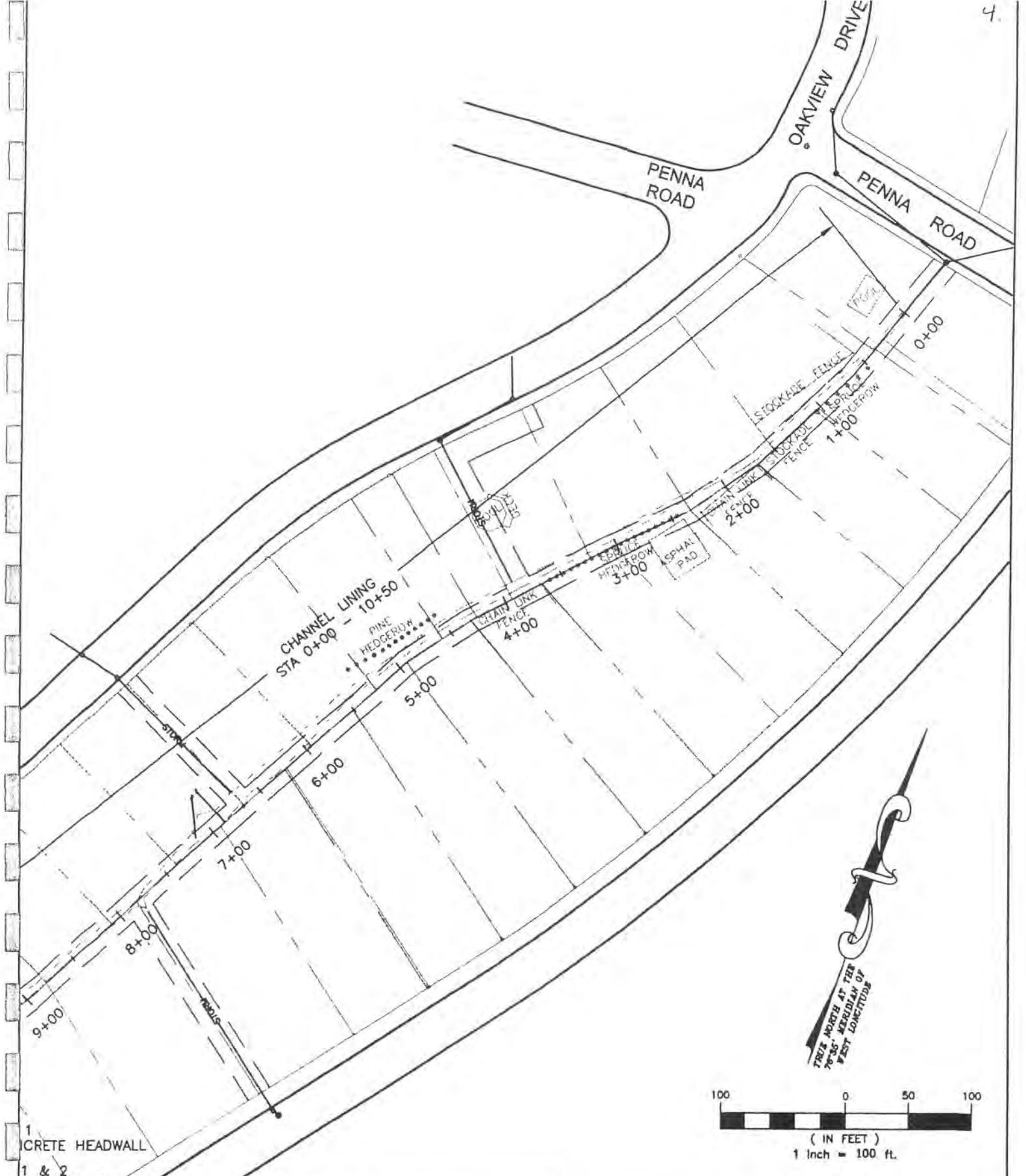
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VILLAGE OF JOHNSON CITY  
**DRAINAGE SWALE  
 AND DITCH  
 REHABILITATION**  
 VILLAGE OF JOHNSON CITY BROOME COUNTY, N

Johnson City, Village of (Permit)  
 (Stream Piping)  
 D/A Processing No. 2012-00244  
 Broome County, New York  
 Quad: Castle Creek, NY





1  
CRETE HEADWALL  
1 & 2  
CRETE CATCH BASIN

**KEYSTONE ASSOCIATES**  
INCORPORATED  
REGISTERED PROFESSIONAL ENGINEERS AND SURVEYORS

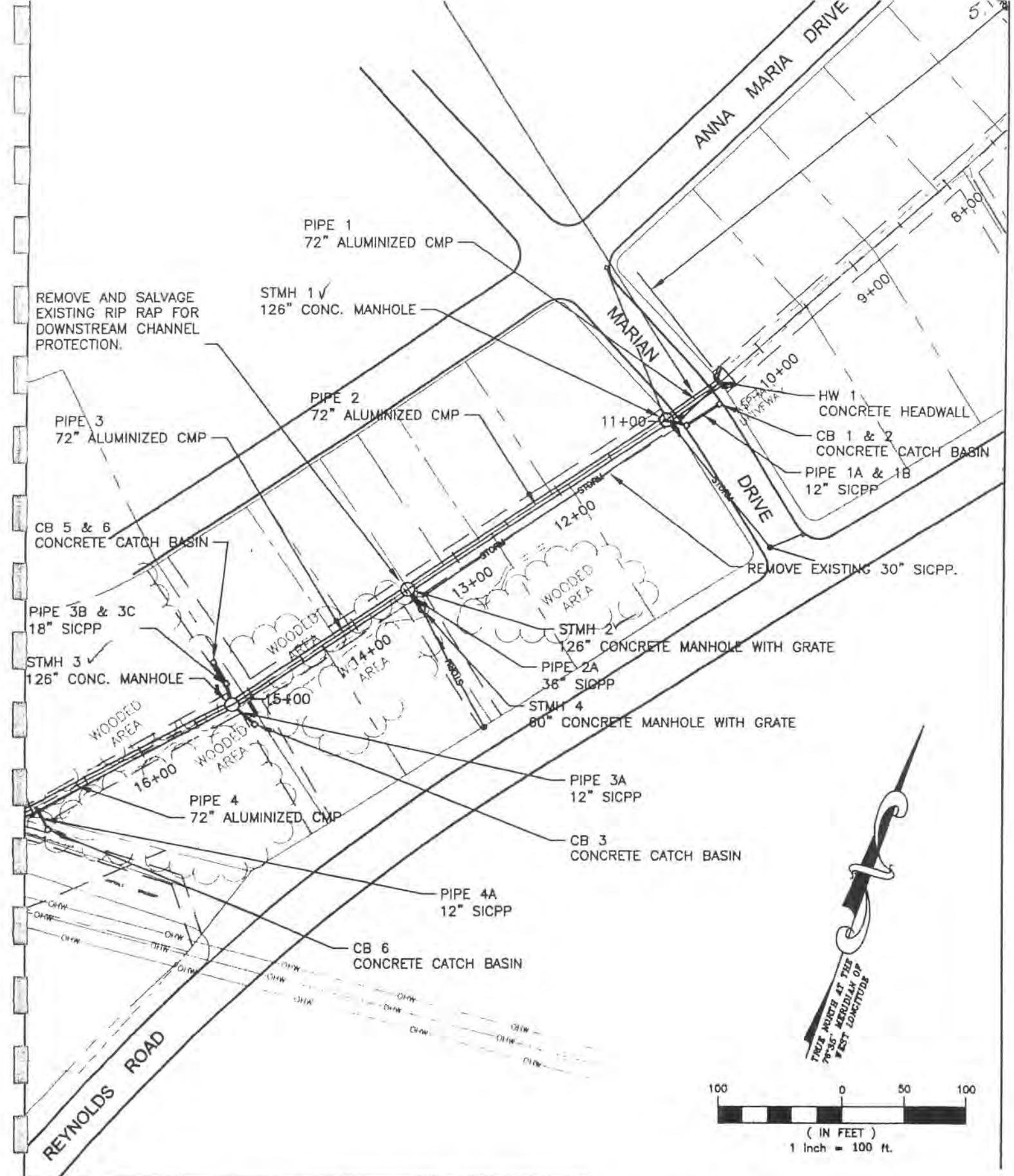
18 Exchange Street  
Binghamton, New York 13901  
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www.keystone.com

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KEYSTONE ASSOCIATES  
REGISTERED PROFESSIONAL ENGINEERS AND SURVEYORS  
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Keystone Associates  
Professional Engineers  
and Surveyors, LLC

VILLAGE OF JOHNSON CITY  
**DRAINAGE SWALE  
AND DITCH  
REHABILITATION**  
VILLAGE OF JOHNSON CITY BROOME COUNTY, NY

Johnson City, Village of (Permit)  
(Stream Piping)  
D/A Processing No. 2012-00244  
Broome County, New York  
Quad: Castle Creek, NY





REMOVE AND SALVAGE EXISTING RIP RAP FOR DOWNSTREAM CHANNEL PROTECTION.

PIPE 1  
72" ALUMINIZED CMP

STMH 1 ✓  
126" CONC. MANHOLE

PIPE 3  
72" ALUMINIZED CMP

PIPE 2  
72" ALUMINIZED CMP

HW 1  
CONCRETE HEADWALL  
CB 1 & 2  
CONCRETE CATCH BASIN  
PIPE 1A & 1B  
12" SICPP

CB 5 & 6  
CONCRETE CATCH BASIN

PIPE 3B & 3C  
18" SICPP

STMH 3 ✓  
126" CONC. MANHOLE

STMH 2  
126" CONCRETE MANHOLE WITH GRATE  
PIPE 2A  
38" SICPP  
STMH 4  
80" CONCRETE MANHOLE WITH GRATE

PIPE 4  
72" ALUMINIZED CMP

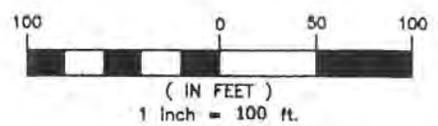
PIPE 3A  
12" SICPP

CB 3  
CONCRETE CATCH BASIN

PIPE 4A  
12" SICPP

CB 6  
CONCRETE CATCH BASIN

REYNOLDS ROAD



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www.keystone.com

REGISTERED  
Professional Engineer  
No. 10000  
Professional Surveyor  
No. 10000  
Professional Architect  
No. 10000  
Professional Engineer  
No. 10000  
Professional Surveyor  
No. 10000  
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VILLAGE OF JOHNSON CITY  
**DRAINAGE SWALE  
AND DITCH  
REHABILITATION**  
VILLAGE OF JOHNSON CITY BROOME COUNTY, NY

Johnson City, Village of (Permit)  
(Stream Piping)  
D/A Processing No. 2012-00244  
Broome County, New York  
Quad Castle Creek, NY



REMOVE EXISTING 60" RCP  
AND HEADWALL

HW 2  
CONCRETE HEADWALL

17+00

24" CONCRETE ARMOR UNITS FOR  
OUTLET PROTECTION

P. 37

18+00

20+00 WOODED AREA

19+00

WOODED AREA

WOODED AREA

21+00

22+00

CB 7  
CONCRETE CATCH BASIN

PIPE 4B  
12" SICPP

REYNOLDS

24+00

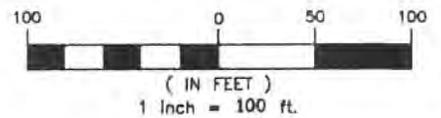
HW 3  
CONCRETE HEADWALL

PIPE 5  
18" SICPP

CB 8  
CONCRETE CATCH BASIN

25+00

STORM



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HW 4  
CONCRETE HEADWALL

EXISTING CULVERT  
60" CONCRETE PIPE

EXISTING HEADWALL  
REGRADE DITCH BOTTOM AND INSTALL  
CONCRETE APRON WITH TURNDOWN.

24" CONCRETE  
ARMOR UNITS FOR  
OUTLET PROTECTION  
**R 40**  
**16x20**

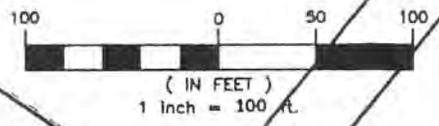
WOODED  
AREA

WOODED  
AREA

DELLAPENNA DRIVE

TOKAS GROVE ROAD

ASPHAL  
DRIVEWAY



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N/F  
THOMAS F. TROEGER  
SHERRY L. TROEGER  
L 1294 P. 499  
REC. AUG. 23, 1979  
TM# 127 06-1-22

TRUE NORTH AT THE  
79°38' MERIDIAN OF  
WEST LONGITUDE

CONCRETE CURB

PENNA. ROAD

BEGIN CHANNEL LINING STA 0+00  
AT EXISTING 36" RCP OUTLET

POOL

10'  
CONSTRUCTION  
EASEMENT

ACE

24" RCP

36" RCP

STORM

10'  
CONSTRUCTION  
EASEMENT

SPRUCE HEDGEROW

REMOVE SPRUCE  
HEDGEROW

1V:1.5H MAX. CUT SLOPE

FLAT BOTTOM,  
1.5' MIN. DEPTH.

REMOVE FENCE UP TO  
DRAINAGE EASEMENT

N/F  
ROBERT BERRY  
MICHELLE BERRY  
L 1605 P. 322  
REC. APRIL 7, 1987  
TM# 127.06-1-24

N/F  
RONALD W. FURCH  
KATHLEEN FURCH  
L 1711 P. 257  
REC. FEB. 06, 1980  
TM# 127.06-1-23



( IN FEET )  
1 inch = 20 feet



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VILLAGE OF JOHNSON CITY BROOME COUNTY, NY

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Broome County, New York  
Quad Castle Creek, NY





TRUE NORTH AT THE  
76°35' MERIDIAN OF  
WEST LONGITUDE

N/F  
STEPHEN HOLOWINSKI  
DEBRA HOLOWINSKI  
L. 1847 P. 106  
REC. JAN. 05, 1995  
TM# 127.06-1-25

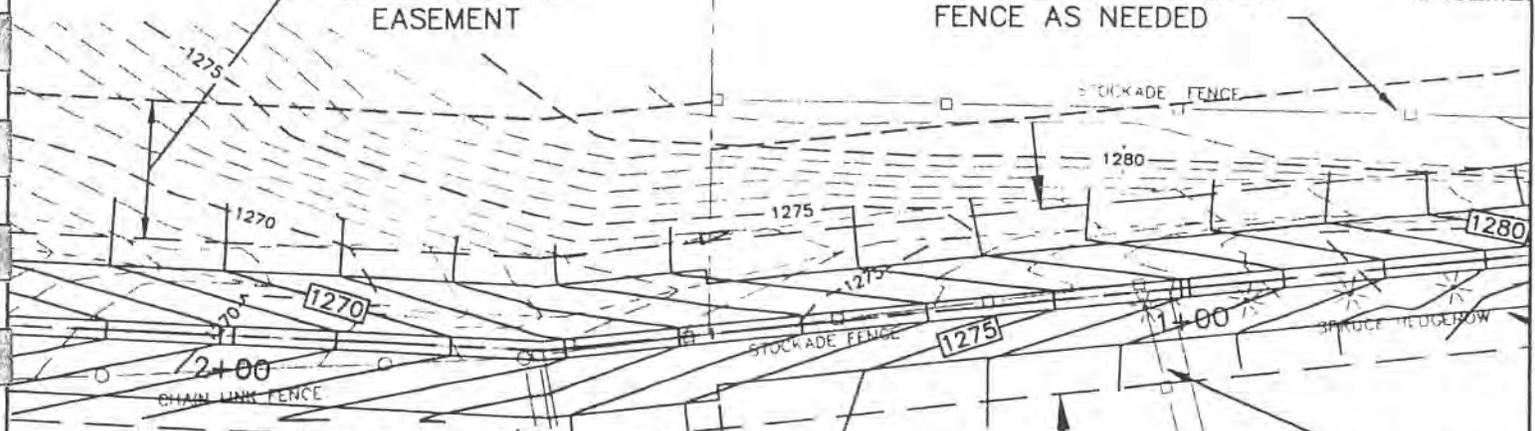
BEGIN CHANGE  
AT EXIST

CHANNEL LINING

15'  
CONSTRUCTION  
EASEMENT

REMOVE AND REPLACE  
FENCE AS NEEDED

10'  
CONSTRUCTION  
EASEMENT



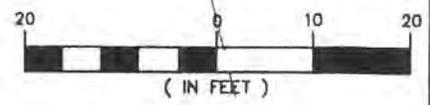
REMOVE FENCE UP TO  
DRAINAGE EASEMENT

20' DRAINAGE  
EASEMENT  
STATIONS 0+00 - 1+50  
CHANNEL LINING WITH 2' FLAT BOTTOM,  
1V:3H SIDE SLOPES AND 1.5' MIN. DEPTH.  
SEE DETAIL SHEET C510

ASPHALT TO  
CONCRETE EASEMENT

N/F  
EDWARD M. KADYLAK  
DEBRA J. KADYLAK  
L. 1793 P. 127  
REV. DEC. 07, 1990  
TM# 127.10-1-14

N/F  
CITIMORTGAGE, INC  
L. 2097 P. 505  
REC. JAN. 27, 2005  
TM# 127.10-1-13



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VILLAGE OF JOHNSON CITY BROOME COUNTY

Johnson City, Village of (Permit)  
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D/A Processing No. 2012-00244  
Broome County, New York  
Quad: Castle Creek, NY  
Sheet 10 of 53





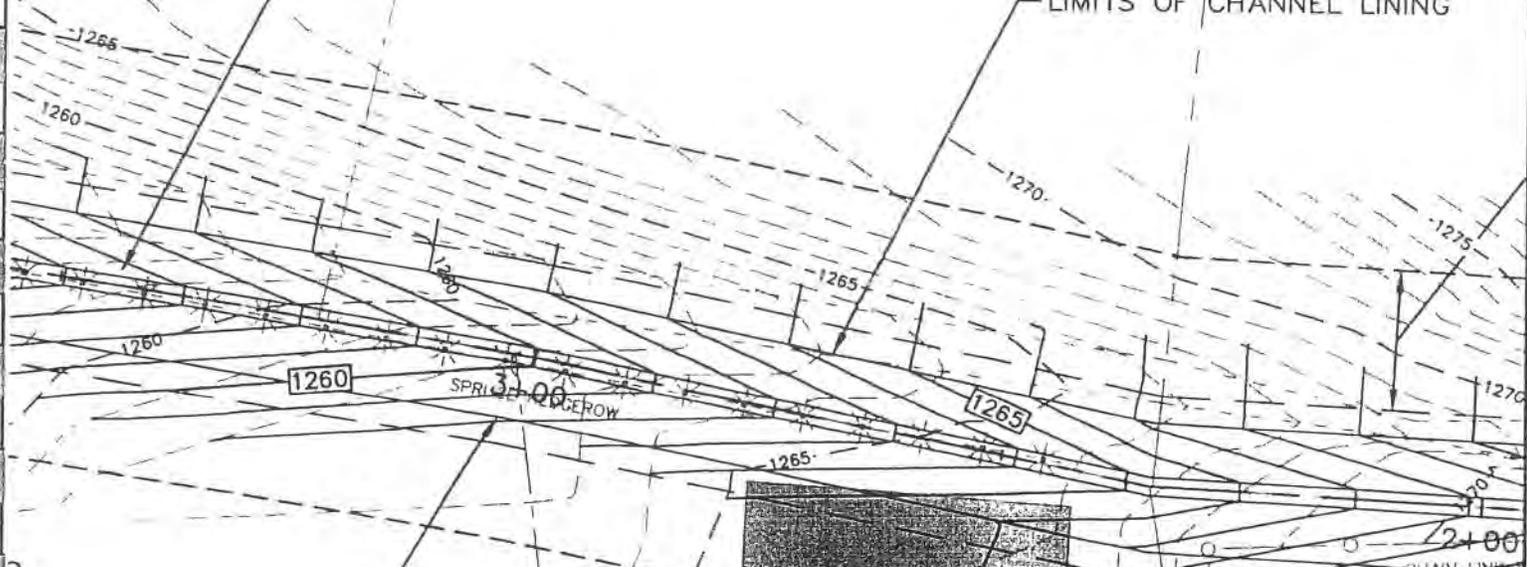
N/F  
TIMOTHY CARR  
JENNIFER M. CAMPBELL  
JAIME M. MCMURRAY  
JENNIFER HENSEL  
MARK RADICCHI  
L. 2277 P. 435  
REC. APRIL 20, 2009  
TM# 127.10-1-35

TRUE NORTH AT THE  
76°36' MERIDIAN OF  
WEST LONGITUDE

20' DRAINAGE  
EASEMENT  
1968 P. 271

REMOVE HEDGEROW

LIMITS OF CHANNEL LINING



FLAT BOTTOM,  
2' MIN. DEPTH.

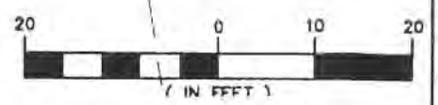
CHANNEL LINING

REMOVE FENCE  
DRAINAGE EA

REMOVE ASPHALT TO  
DRAINAGE EASEMENT

N/F  
CHUKYM ALEXIS JOHNSON  
BEATRICE JOHNSON  
L. 2128 P. 431  
REC. NOV. 04, 2007  
TM# 127.10-1-11

EDWARD  
DEBRA  
1 1/8  
REC. DEC  
TM# 12



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**DRAINAGE SWALE  
AND DITCH  
REHABILITATION**  
VILLAGE OF JOHNSON CITY BROOME COUNTY, NY

Johnson City, Village of (Permit)  
(Stream Piping)  
D/A Processing No. 2012-00244  
Broome County, New York  
Quad: Castle Creek, NY

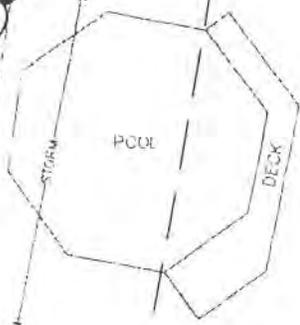




MOHANTY  
L. 489  
REC. SEPT. 28, 2007  
TM# 127.10-1-34-1

N/F  
RADHARANI MOHANTY  
L. 2204 P. 489  
REC. SEPT. 28, 2007  
TM# 127.10-1-34-1

TRUE NORTH AT THE  
76°36' MERIDIAN OF  
WEST LONGITUDE



REMOVE AND REPLACE  
HEDGEROW AS NEEDED

20' DRAINAGE  
EASEMENT  
L. 1968 P. 271



10'  
CONSTRUCTION  
EASEMENT

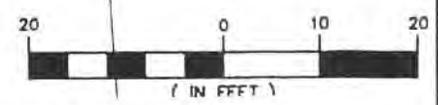
REMOVE FENCE TO  
DRAINAGE EASEMENT

STATIONS 1+50 - 4+00  
CHANNEL LINING WITH 2' FLAT BOTTOM,  
1V: 3H SIDE SLOPES AND 2' MIN. DEPTH.  
SEE DETAIL SHEET C510

LIMITS OF CHANNEL LINING

N/F  
WILLIAM M. MUSKA  
L. 2176 P. 653  
REC. JULY 27, 2005  
TM# 127.10-1-18

N/F  
SCOTT C. LADD  
WENDY M. LADD  
L. 2295 P. 489  
REC. OCT. 07, 2009  
TM# 127.10-1-17



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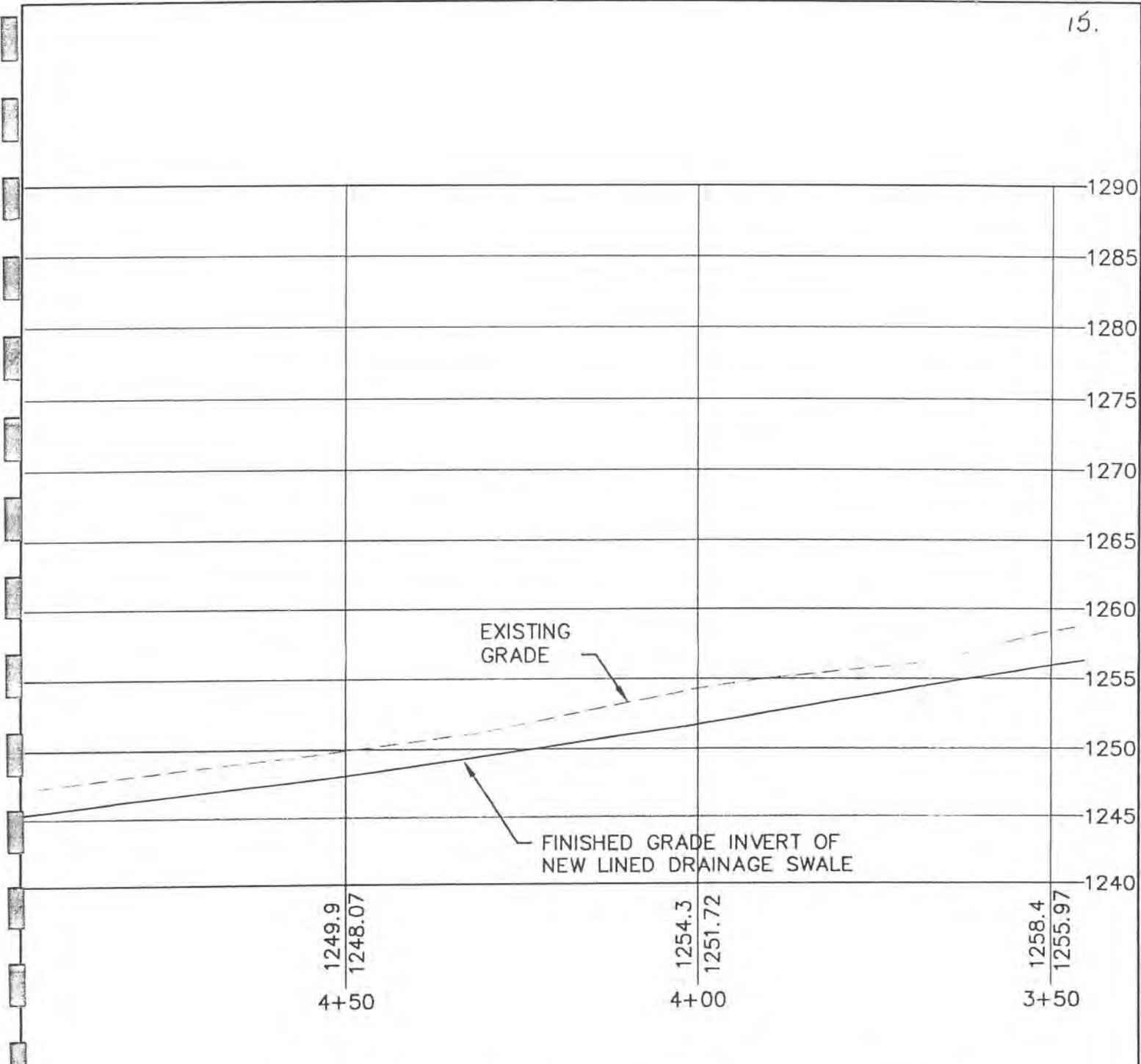
Professional Seal  
Registered Professional Engineer  
No. 12710-1-17  
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No. 12710-1-17  
Registered Professional Surveyor  
No. 12710-1-17  
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**DRAINAGE SWALE  
AND DITCH  
REHABILITATION**

VILLAGE OF JOHNSON CITY BROOME COUNTY, NY

Johnson City, Village of (Permit)  
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D/A Processing No. 2012-00244  
Broome County, New York  
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### PROFILE STATIONS 0+00 - 5+50

SCALE: HORIZONTAL 1" = 20'  
VERTICAL 1" = 10'



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VILLAGE OF JOHNSON CITY BROOME COUNTY, NY

Johnson City, Village of (Permit)  
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N/F  
APENNA KLINKEL  
L P. 294  
REC. 23, 2004  
TM# 127 10-1-31

N/F  
ROBERT J. HAWKINS  
L 2251 P 106  
REC. NOV. 06, 2008  
TM# 127 10-1-32

N/F  
RADHARANI MOHA  
L 2204 P 48  
REC. SEPT 28, 2008  
TM# 127, 10-1-

TRUE NORTH AT THE  
76°36' MERIDIAN OF  
WEST LONGITUDE

IMAGE  
ENT

15'  
CONSTRUCTION  
EASEMENT

15'  
CONSTRUCTION  
EASEMENT

PINE HEDGEROW

1250

1255

1245

1245

1240 3/4" REBAR  
1240 "STS"

6+00

5+00

1240

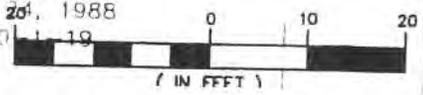
20' DRAINAGE  
EASEMENT

1  
CONSTR  
EASE

MATCHLINE: C210  
C200

N/F  
NARENDRA C. SHAH  
MANDAKINI N. SHAH  
L 1852 P 431  
REC. JUNE 29, 1995  
TM# 127 10-1-20

N/F  
ANILKUMAR C. BHATT  
GITABEN A. BHATT  
L 1681 P 316  
REC. MARCH 20, 1988  
TM# 127 10-1-19



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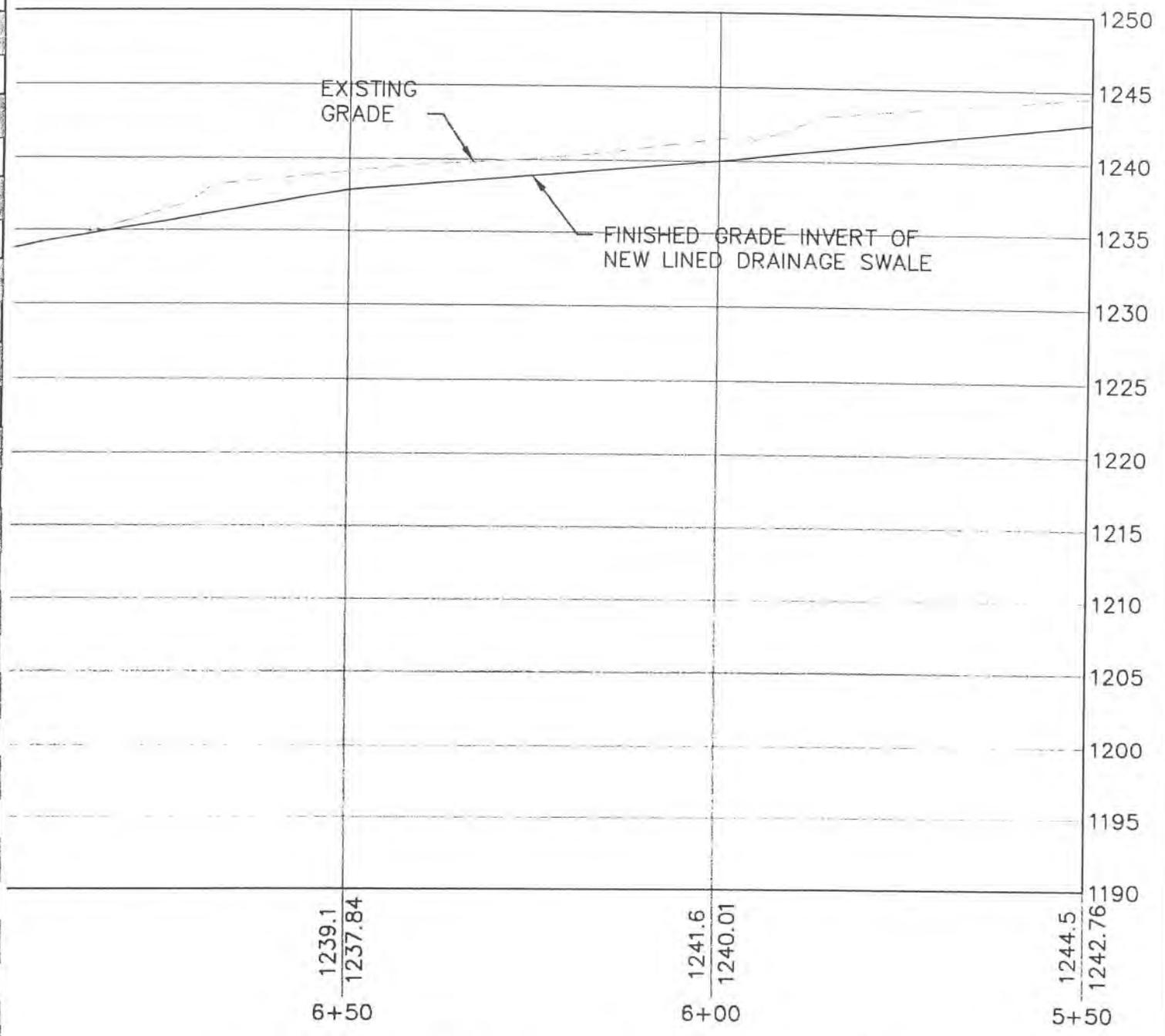
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PROFILE STATIONS 5+50 - 11+50

SCALE: HORIZONTAL 1" = 20'  
 VERTICAL 1" = 10'



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N/E  
ERIN/SITINE DELLAPENNA KUNKEL  
L. 2080 P. 294  
REC. AUG. 23, 2004  
TM# 127.10-1-30

N/E  
ERIN/SITINE DELLAPENNA KUNKEL  
L. 2080 P. 294  
REC. AUG. 23, 2004  
TM# 127.10-1-30

TON  
438  
8, 2011  
1-29

TRUE NORTH AT THE  
76°36' MERIDIAN OF  
WEST LONGITUDE

15'  
CONSTRUCTION  
EASEMENT

20' DRAINAGE  
EASEMENT

20' DRAINAGE  
EASEMENT

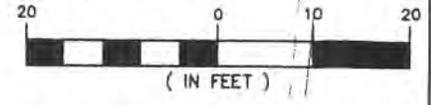
10'  
CONSTRUCTION  
EASEMENT

20' DRAINAGE  
EASEMENT

STATIONS 4+00 - 7+50  
CHANNEL LINING WITH 3' FLAT BOTTOM,  
1V:3H SIDE SLOPES AND 2' MIN. DEPTH.  
SEE DETAIL SHEET C510

N/E  
BONNIE A. FORCONI  
L. 2105 P. 158  
REC. APRIL 07, 2005  
TM# 127.10-1-22

N/E  
WALTER N. CZEGINIAK  
CHRYSITINA CZEBINIAK  
L. 1836 P. 1112  
REC. APRIL 13, 1994  
TM# 127.10-1-21



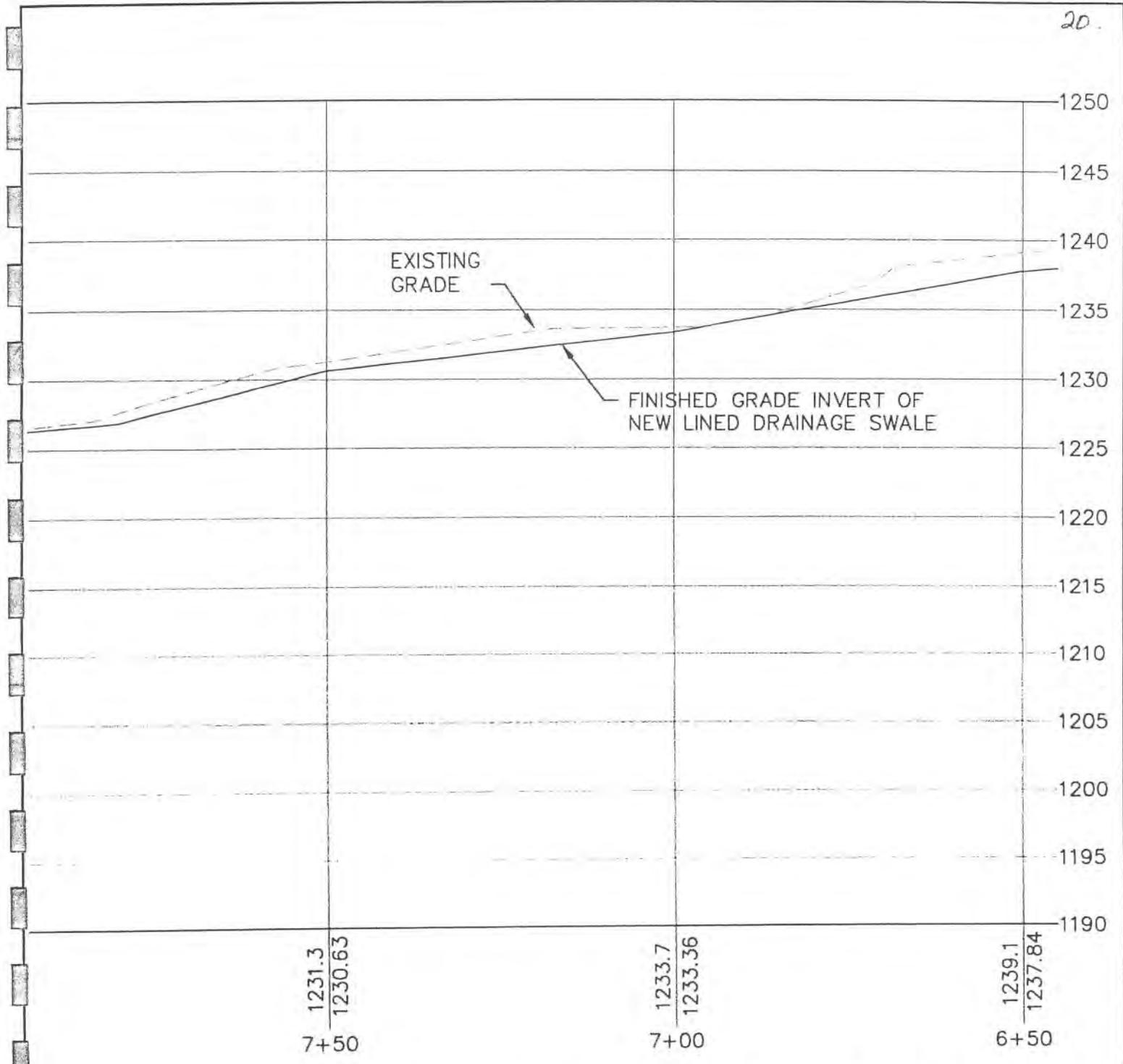
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Professional Engineer  
No. 12710-1-30  
Date of Issue: 08/23/04  
Project: DRAINAGE SWALE AND DITCH REHABILITATION  
Sheet No. 19 of 53  
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**DRAINAGE SWALE  
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REHABILITATION**  
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Johnson City, Village of (Permit)  
(Stream Piping)  
D/A Processing No. 2012-00244  
Broome County, New York  
Quad: Castle Creek, NY





**PROFILE STATIONS 5+50 - 11+50**

SCALE: HORIZONTAL 1" = 20'  
 VERTICAL 1" = 10'



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 3. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED.  
 4. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED.  
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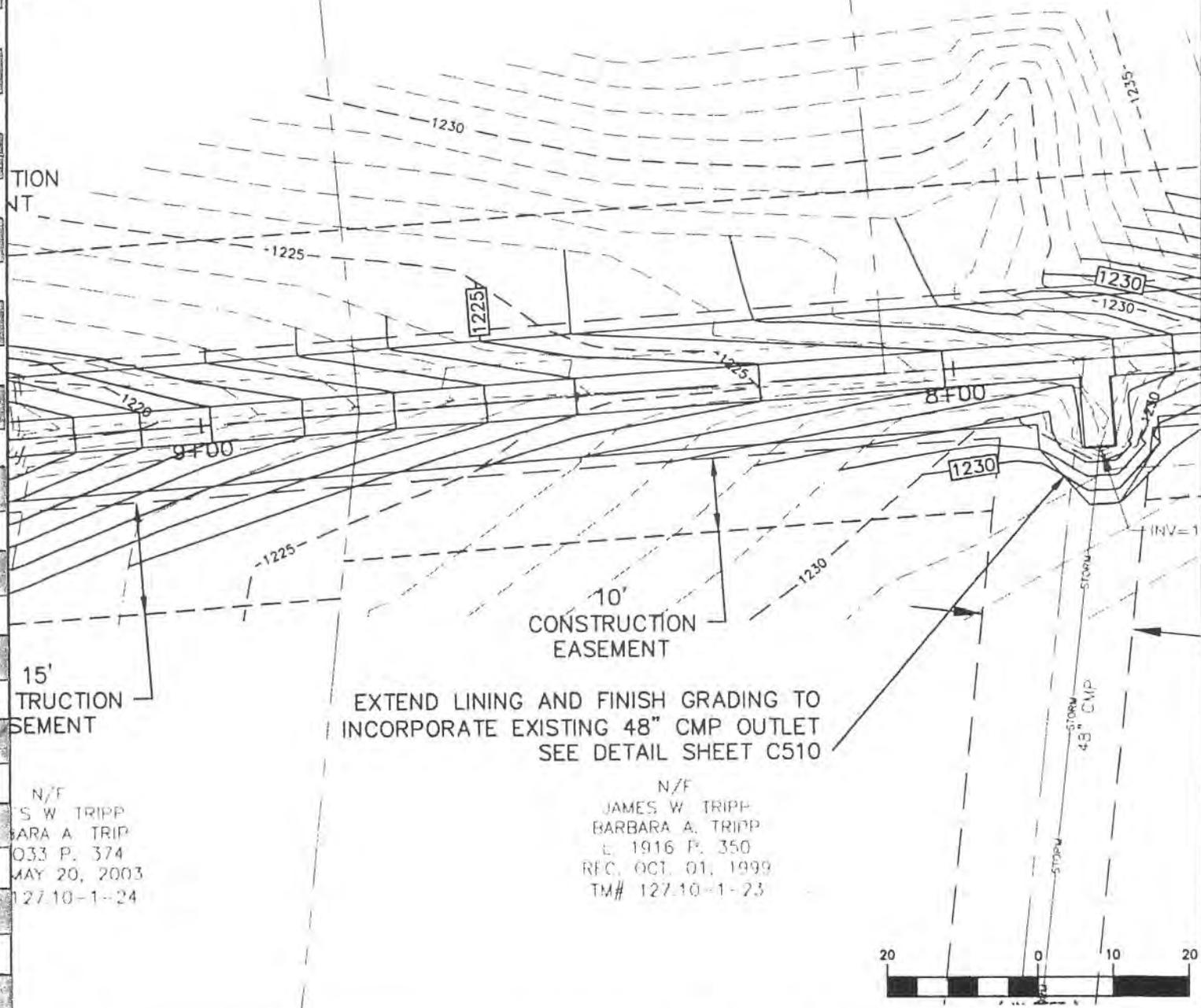
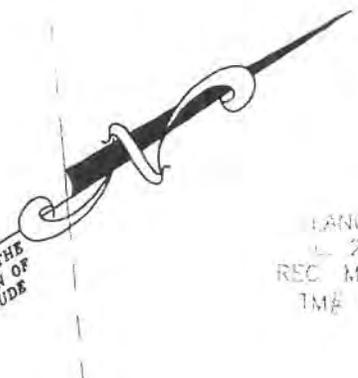


N/F  
ENNA RESIDUARY TRUST,  
ENNA, JR., TRUSTEE  
E. 7 P. 262  
REC. MARCH 24, 2010  
TM# 127.10-1-27

N/F  
LANCE HAMILTON  
E. 2341 P. 438  
REC. MARCH 28, 2011  
TM# 127.10-1-28

N/F  
LANCE HAMILTON  
E. 2341 P. 438  
REC. MARCH 28, 2011  
TM# 127.10-1-29

TRUE NORTH AT THE  
78°35' MERIDIAN OF  
WEST LONGITUDE



TION  
NT

15'  
TRUCTION  
SEMENT

N/F  
S W TRIPP  
BARBARA A. TRIPP  
E. 1033 P. 374  
REC. MAY 20, 2003  
TM# 127.10-1-24

10'  
CONSTRUCTION  
EASEMENT

EXTEND LINING AND FINISH GRADING TO  
INCORPORATE EXISTING 48" CMP OUTLET  
SEE DETAIL SHEET C510

N/F  
JAMES W. TRIPP  
BARBARA A. TRIPP  
E. 1916 P. 350  
REC. OCT. 01, 1999  
TM# 127.10-1-23



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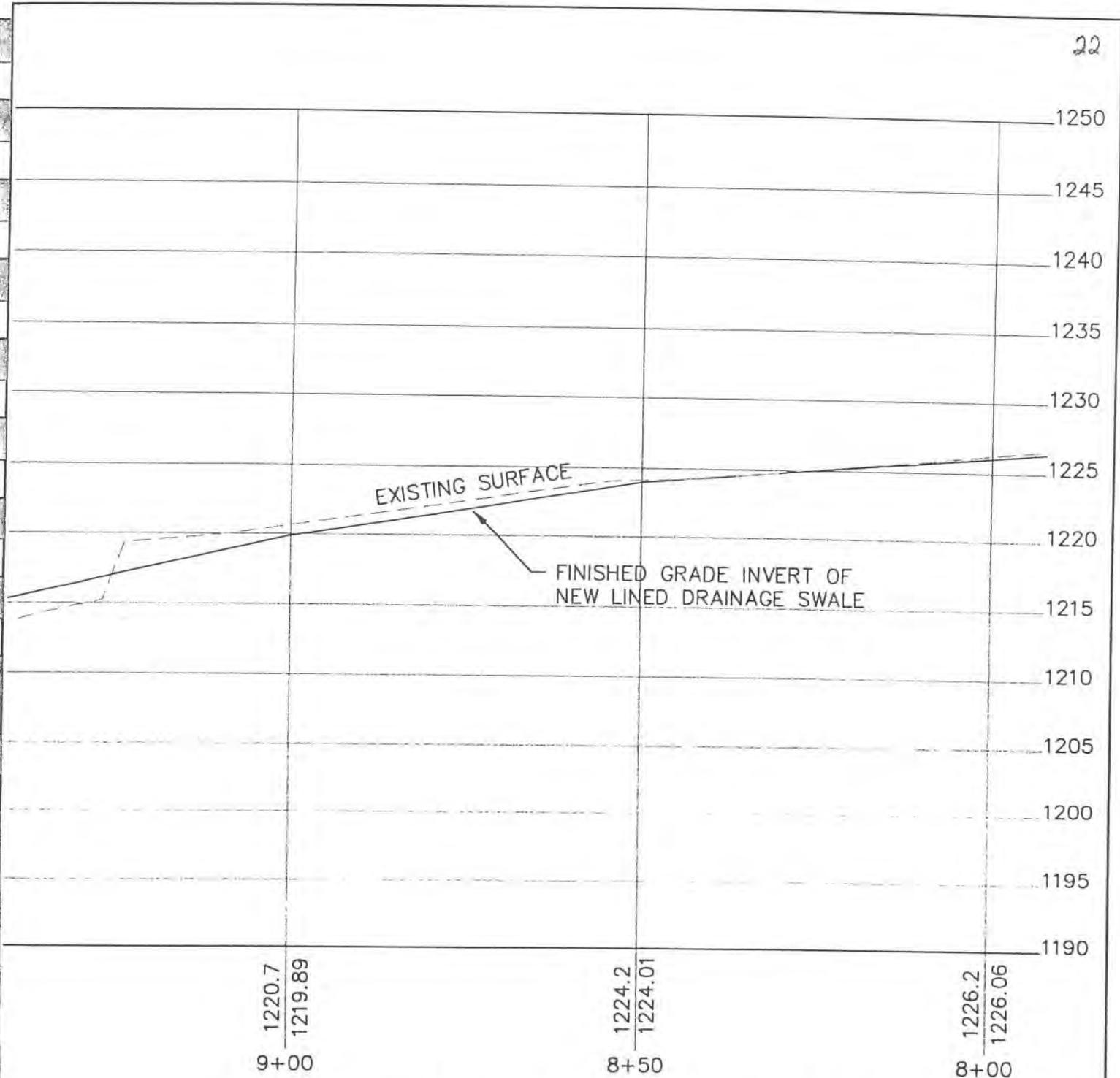
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**DRAINAGE SWALE  
AND DITCH  
REHABILITATION**  
VILLAGE OF JOHNSON CITY BROOME COUNTY, NY

Johnson City, Village of (Permit)  
(Stream Piping)  
D/A Processing No. 2012-00244  
Broome County, New York  
Quad: Castle Creek, NY





**PROFILE STATIONS 5+50 - 11+50**

SCALE: HORIZONTAL 1" = 20'  
 VERTICAL 1" = 10'



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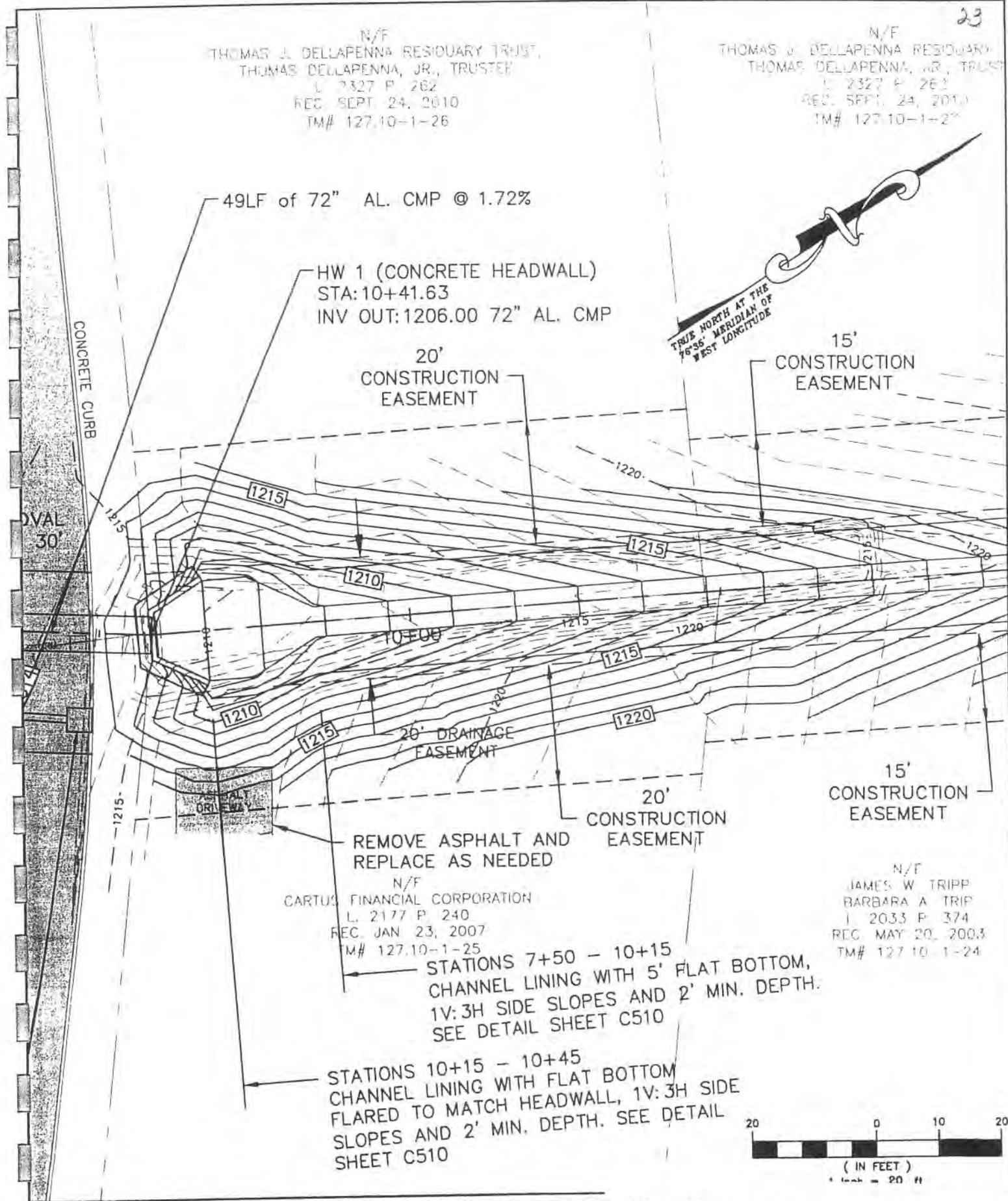
VILLAGE OF JOHNSON CITY  
**DRAINAGE SWALE  
 AND DITCH  
 REHABILITATION**  
 VILLAGE OF JOHNSON CITY BROOME COUNTY, NY

Johnson City, Village of (Permit)  
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 Broome County, New York  
 Quad: Castle Creek, NY



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THOMAS J. DELLAPENNA RESIDUARY TRUST  
THOMAS DELLAPENNA, JR., TRUSTEE  
L. 2327 P. 262  
REC. SEPT. 24, 2010  
TM# 127.10-1-26

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L. 2327 P. 262  
REC. SEPT. 24, 2010  
TM# 127.10-1-26

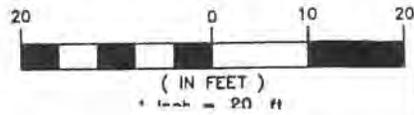


N/F  
CARTUS FINANCIAL CORPORATION  
L. 2177 P. 240  
REC. JAN. 23, 2007  
TM# 127.10-1-25

N/F  
JAMES W. TRIPP  
BARBARA A. TRIPP  
L. 2033 P. 374  
REC. MAY 20, 2003  
TM# 127.10-1-24

STATIONS 7+50 - 10+15  
CHANNEL LINING WITH 5' FLAT BOTTOM,  
1V:3H SIDE SLOPES AND 2' MIN. DEPTH.  
SEE DETAIL SHEET C510

STATIONS 10+15 - 10+45  
CHANNEL LINING WITH FLAT BOTTOM  
FLARED TO MATCH HEADWALL, 1V:3H SIDE  
SLOPES AND 2' MIN. DEPTH. SEE DETAIL  
SHEET C510



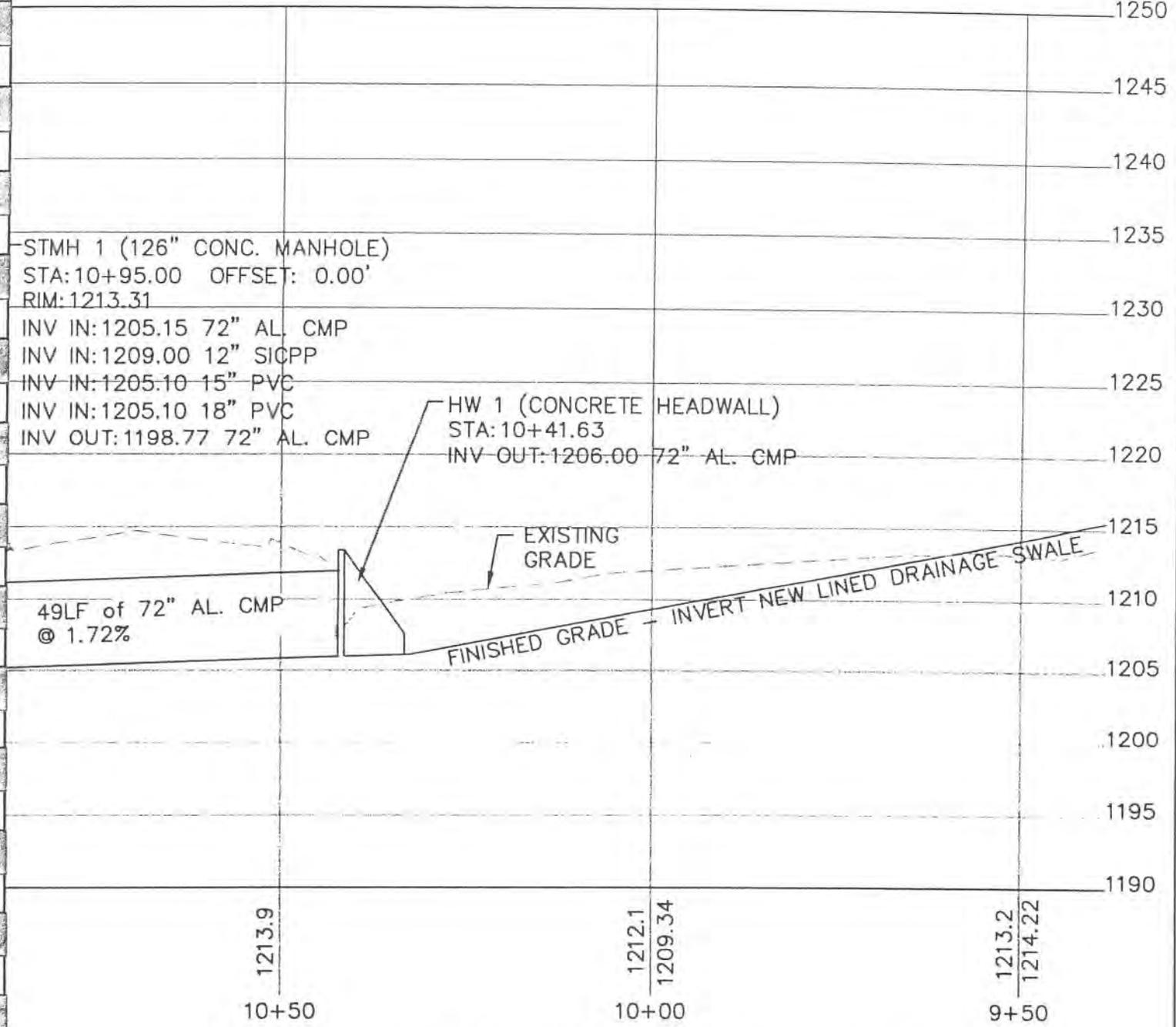
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**PROFILE STATIONS 5+50 - 11+50**

SCALE: HORIZONTAL 1" = 20'  
 VERTICAL 1" = 10'



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MATCHLINE: C220  
C210

N/A  
RAJINDER RAI  
RAMINDER RAI  
L 1881 P 192  
REC JUNE 23, 1997  
TM# 127.10-1-36

TRUE NORTH AT THE  
76°39' MERIDIAN OF  
WEST LONGITUDE

MARIAN

TIE IN EXISTING  
15" PVC PIPE

STMH 1 (126" CONC. MANHOLE)  
STA: 10+95.00 OFFSET: 0.00'  
RIM: 1213.31  
INV IN: 1205.15 72" AL. CMP  
INV IN: 1209.00 12" SICPP  
INV IN: 1205.10 15" PVC  
INV IN: 1205.10 18" PVC  
INV OUT: 1198.77 72" AL. CMP

CONCRETE CURB

CONCRETE CURB

LIMITS OF  
PAVEMENT REMOVAL  
APPROXIMATELY 30'

12+00

1205

1210

32" SICPP

INV=1205.1

TIE IN EXISTING  
18" PVC PIPE

20' DRAINAGE  
EASEMENT

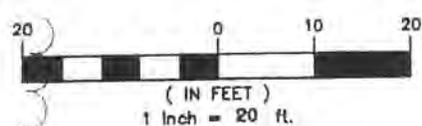
17LF of 12" SICPP @ 7.13%

CB 2 (CONCRETE CATCH BASIN)  
STA: 10+84.55 OFFSET: -13.00'  
RIM: 1213.19  
INV IN: 1210.19 12" SICPP  
INV OUT: 1210.19 12" SICPP

32LF of 12" SICPP @ 1.31%

N/A  
WILLIAM YONKOSKI BUILDERS, LLC  
L 2124 P 10  
P.L.C. SEPT 27, 2005  
TM# 127.10-1-37

CB 1 (CONCRETE CATCH BASIN)  
STA: 10+52.58 OFFSET: -14.35'  
RIM: 1213.61  
INV OUT: 1210.61 12" SICPP



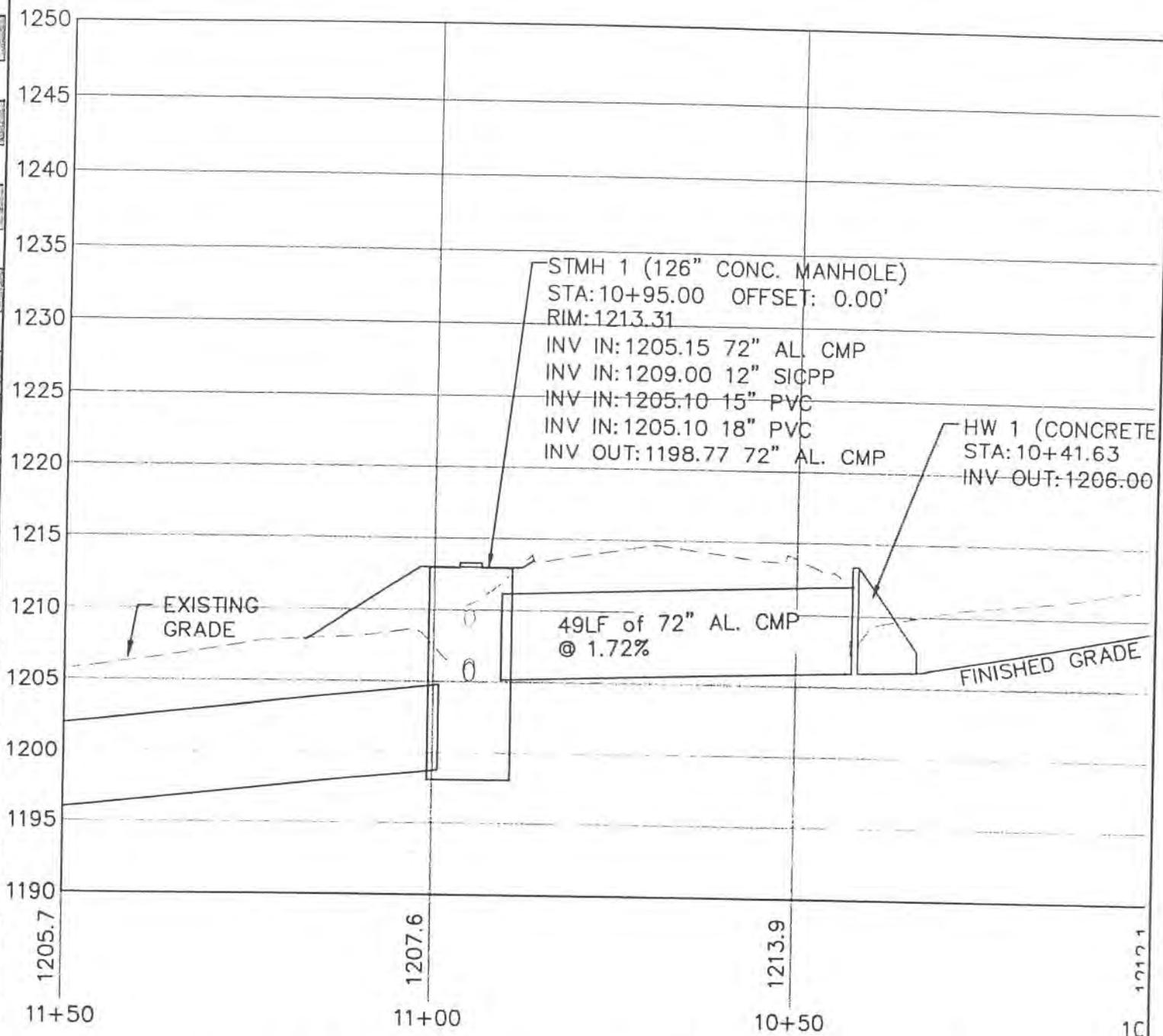
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D/A Processing No. 2012-00244  
Broome County, New York  
Quad: Castle Creek, NY





**PROFILE STATIONS 5+50 - 11+50**

SCALE: HORIZONTAL 1" = 20'  
 VERTICAL 1" = 10'

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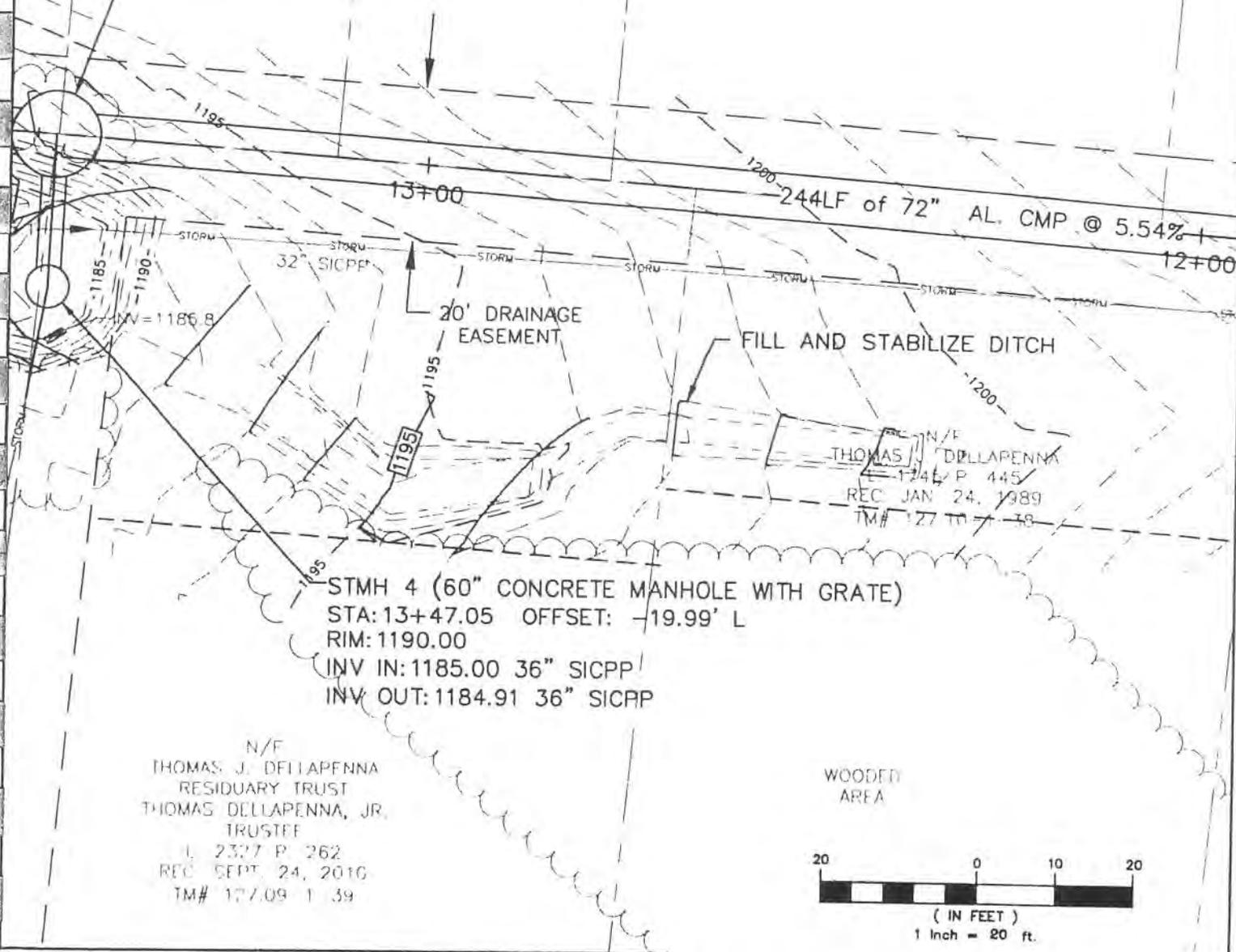
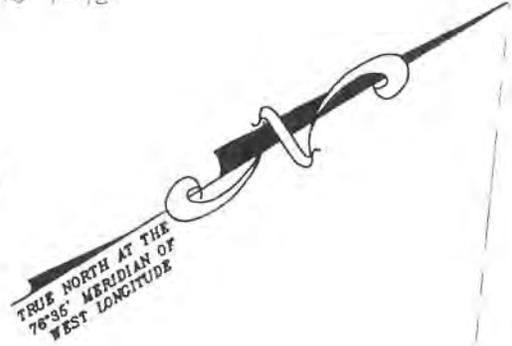
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STOUGHTON  
STOUGHTON  
P. 683  
04, 1993  
10-1-44

N/F  
JEFFREY A. STOUGHTON  
DENISE B. STOUGHTON  
L. 2095 P. 592  
REC. JAN. 10, 2005  
TM# 127-10-1-45

STMH 2 (126" CONCRETE MANHOLE WITH GRATE)  
STA: 13+47.63 OFFSET: 0.00'  
RIM: 1192.67  
INV IN: 1185.25 72" AL. CMP  
INV IN: 1184.00 36" SICPP  
INV OUT: 1182.75 72" AL. CMP

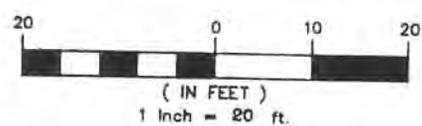


N/F  
THOMAS J. DELLAPENNA  
L. 1246 P. 445  
REC. JAN. 24, 1989  
TM# 127-10-1-38

STMH 4 (60" CONCRETE MANHOLE WITH GRATE)  
STA: 13+47.05 OFFSET: -19.99' L  
RIM: 1190.00  
INV IN: 1185.00 36" SICPP  
INV OUT: 1184.91 36" SICPP

N/F  
THOMAS J. DELLAPENNA  
RESIDUARY TRUST  
THOMAS DELLAPENNA, JR.  
TRUSTEE  
L. 2327 P. 262  
REC. SEPT. 24, 2010  
TM# 127-09-1-39

WOODED  
AREA



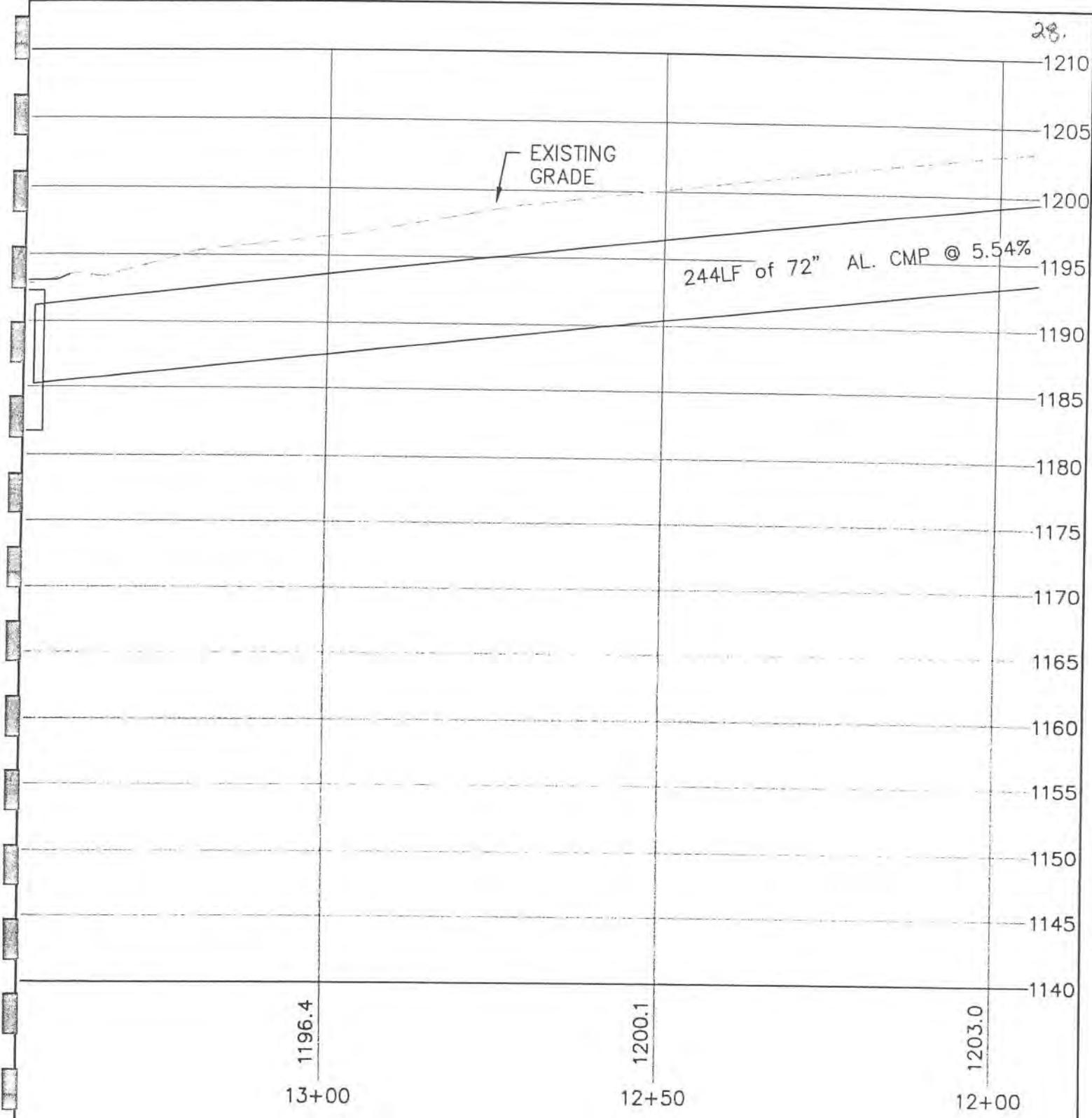
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**PROFILE STATIONS 11+50 - 17+50**

SCALE: HORIZONTAL 1" = 20'  
 VERTICAL 1" = 10'

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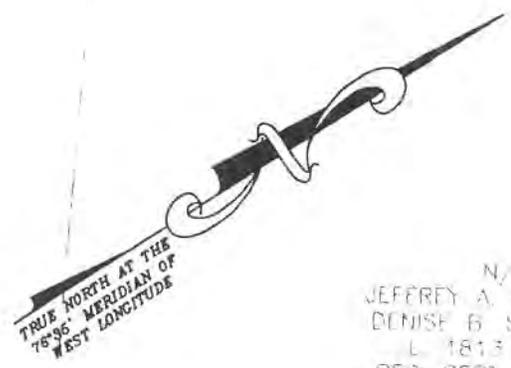
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N/F  
TA, MA, LLC  
L. 2162 P. 76  
REC. SEPT. 06, 2006  
TM# 127 10-1-43

N/F  
JEFFREY A. STOUGHTON  
DENISE B. STOUGHTON  
L. 1813 P. 683  
REC. SEPT. 04, 1993  
TM# 127 10-1-44



17LF of 18" SICPP @ 9.20%

CB 4 (CONCRETE CATCH BASIN)  
STA: 15+12.06 OFFSET: 17.12' R  
RIM: 1176.13  
INV IN: 1174.13 18" SICPP  
INV OUT: 1173.92 18" SICPP

20' DRAINAGE &  
SANITARY SEWER  
EASEMENT

17LF of 18" SICPP @ 5.47%

WOODED  
AREA

161LF of 72" AL CMP @ 5.88%

14+00

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161LF of 72" AL. CMP @ 5.88%

STMH 2 (126" CONCRETE MANHOLE WITH GRATE)  
STA: 13+47.63 OFFSET: 0.00'  
RIM: 1192.67  
INV IN: 1185.25 72" AL. CMP  
INV IN: 1184.00 36" SICPP  
INV OUT: 1182.75 72" AL. CMP

1183.2 1184.82	1185.0 1187.93	1192.1 1193.02
14+50	14+00	13+50

# PROFILE STATIONS 11+50 - 17+50

SCALE: HORIZONTAL 1" = 20'  
VERTICAL 1" = 10'



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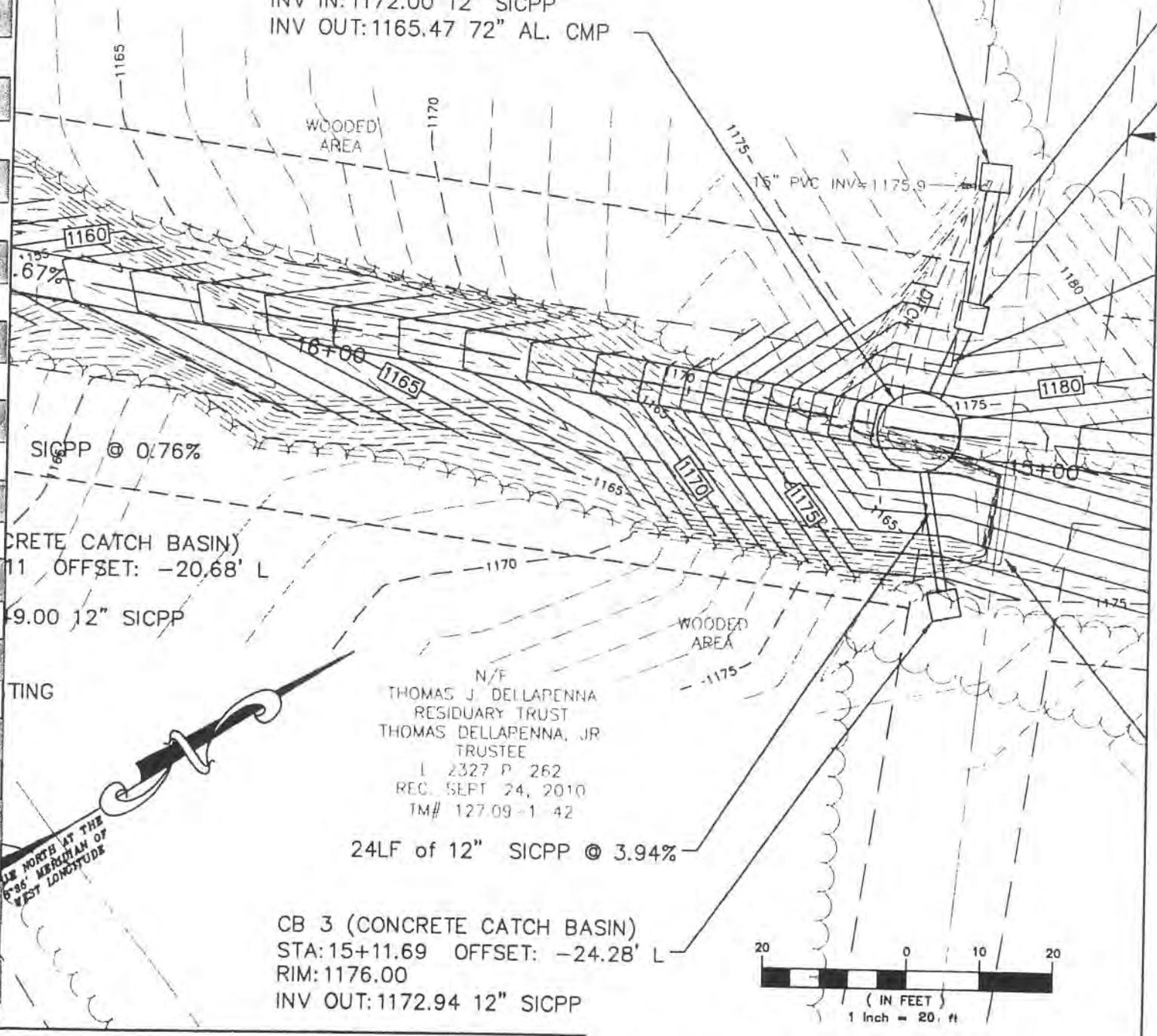
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N/F  
 BASIN) THOMAS J. DELLAPENNA  
 12.00' R RESIDUARY TRUST  
 THOMAS DELLAPENNA, JR.  
 TRUSTEE  
 L 2327 P, 262  
 REC. SEPT. 24, 2010  
 TM# 127.09-1-33

CB 5 (CONCRETE CATCH BASIN)  
 STA:15+10.82 OFFSET: 37.08' R  
 RIM:1177.97  
 INV IN:1175.90 15" PVC  
 INV OUT:1175.72 18" SICPP

STMH 3 (126" CONC. MANHOLE)  
 STA:15+17.63 OFFSET: 0.00'  
 RIM:1181.30  
 INV IN:1173.26 72" AL. CMP  
 INV IN:1173.00 18" SICPP  
 INV IN:1172.00 12" SICPP  
 INV OUT:1165.47 72" AL. CMP

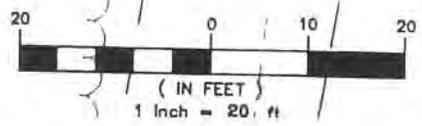


TING  
 N  
 6°36' MERIDIAN OF  
 WEST LONGITUDE

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 TRUSTEE  
 L 2327 P 262  
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24LF of 12" SICPP @ 3.94%

CB 3 (CONCRETE CATCH BASIN)  
 STA:15+11.69 OFFSET: -24.28' L  
 RIM:1176.00  
 INV OUT:1172.94 12" SICPP



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STMH 3 (126" CONC. MANHOLE)  
 STA: 15+17.63 OFFSET: 0.00'  
 RIM: 1181.30  
 INV IN: 1173.26 72" AL. CMP  
 INV IN: 1173.00 18" SICPP  
 INV IN: 1172.00 12" SICPP  
 INV OUT: 1165.47 72" AL. CMP

EXISTING  
 GRADE

286LF of 72" AL. CMP @ 10.67%

APPROXIMATE LOCATION OF  
 EXISTING SANITARY SEWER  
 CROSSING. FIELD VERIFY.

1159.5  
 1165.04  
 16+00

1168.9  
 1172.23  
 15+50

1174.8  
 1181.73  
 15+00

# PROFILE STATIONS 11+50 - 17+50

SCALE: HORIZONTAL 1" = 20'  
 VERTICAL 1" = 10'



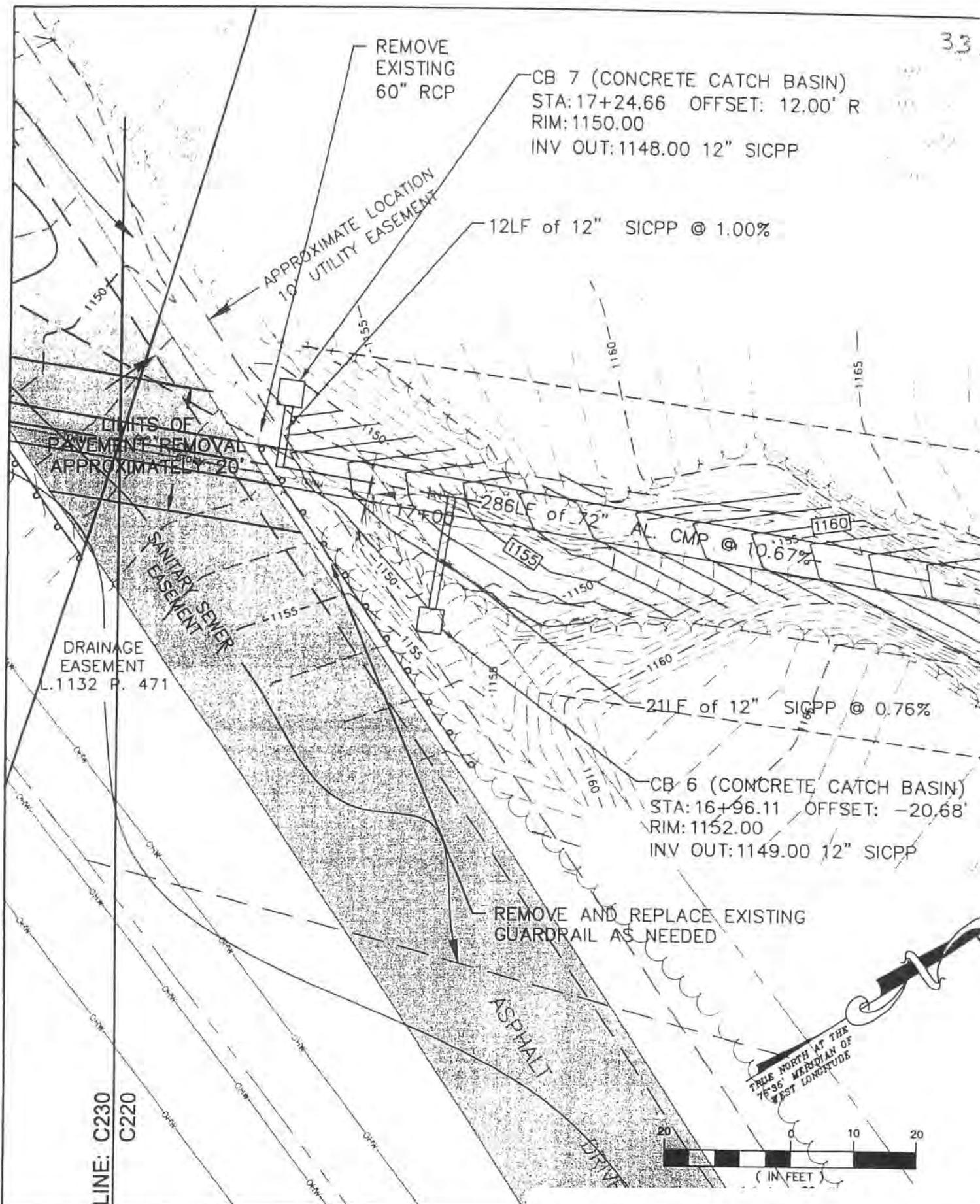
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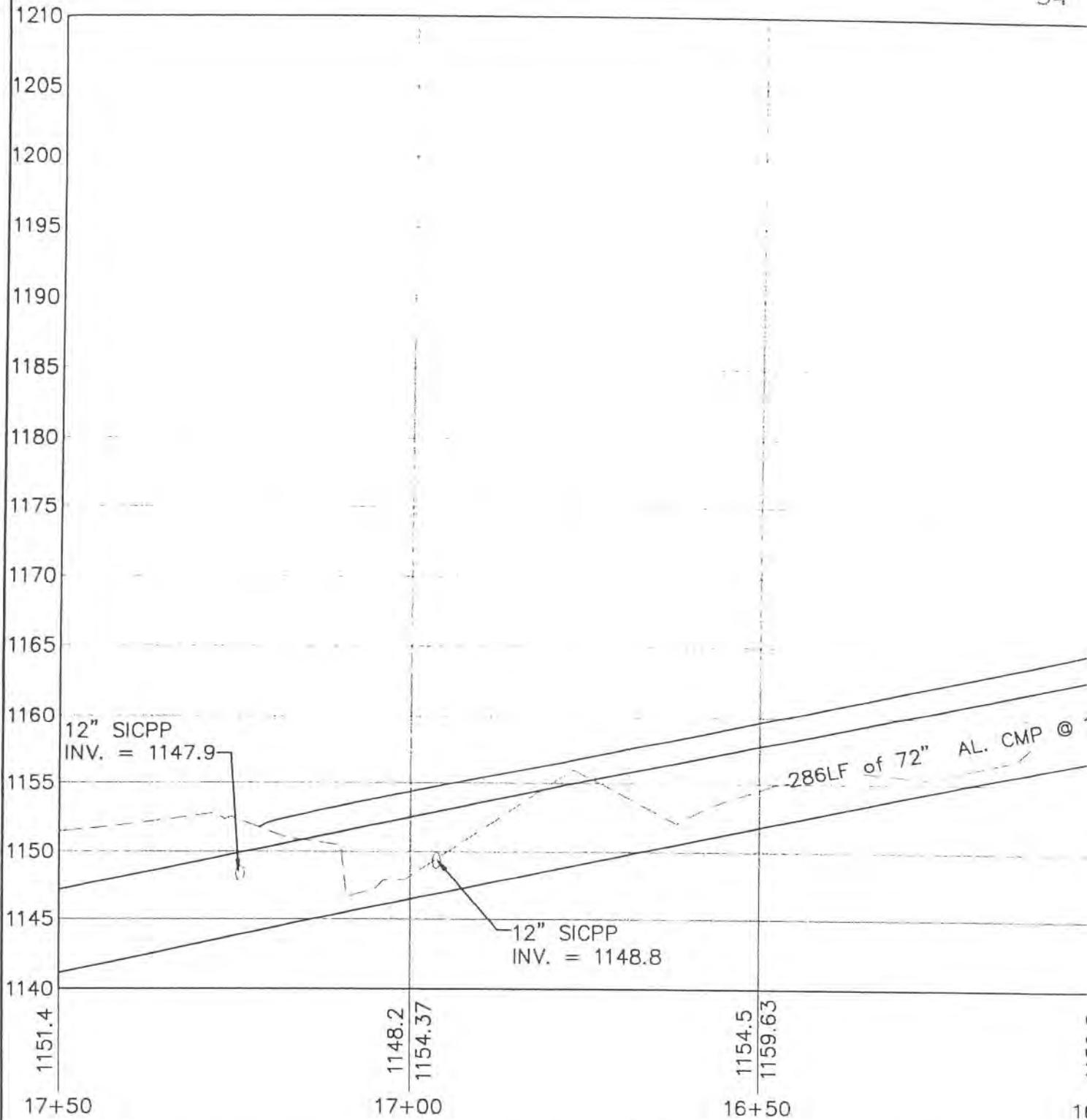
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VILLAGE OF JOHNSON CITY BROOME COUNTY

Johnson City, Village of (Permit)  
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D/A Processing No. 2012-00244  
Broome County, New York  
Quad: Castle Creek, NY





# PROFILE STATIONS 11+50 - 17+50

SCALE: HORIZONTAL 1" = 20'  
VERTICAL 1" = 10'



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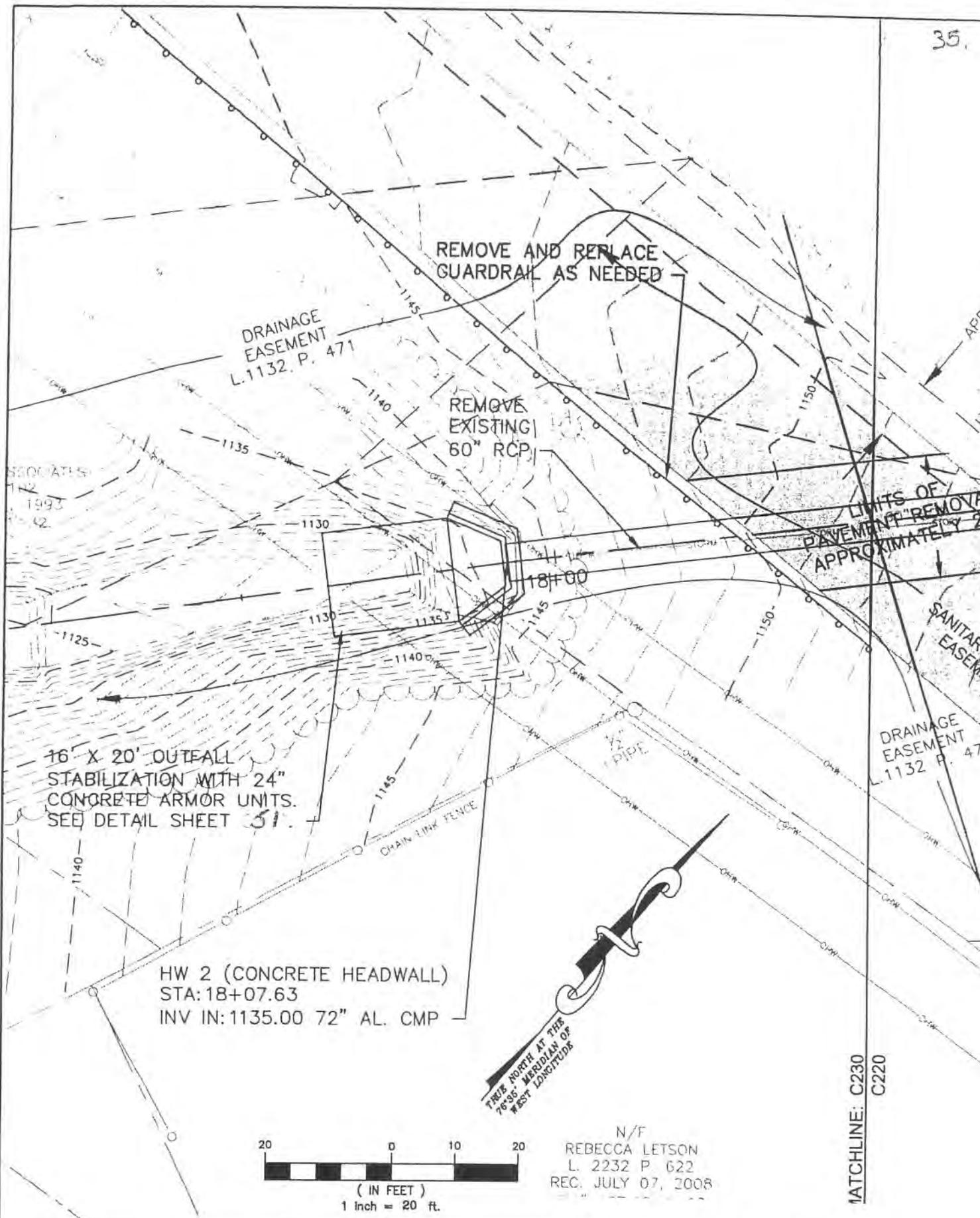
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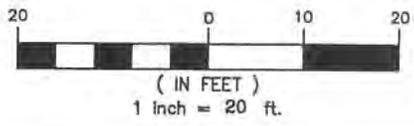
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16' X 20' OUTFALL STABILIZATION WITH 24" CONCRETE ARMOR UNITS. SEE DETAIL SHEET 31.

HW 2 (CONCRETE HEADWALL)  
 STA: 18+07.63  
 INV IN: 1135.00 72" AL. CMP



N/F  
 REBECCA LETSON  
 L. 2232 P. 622  
 REC. JULY 07, 2008

MATCHLINE: C230  
C220

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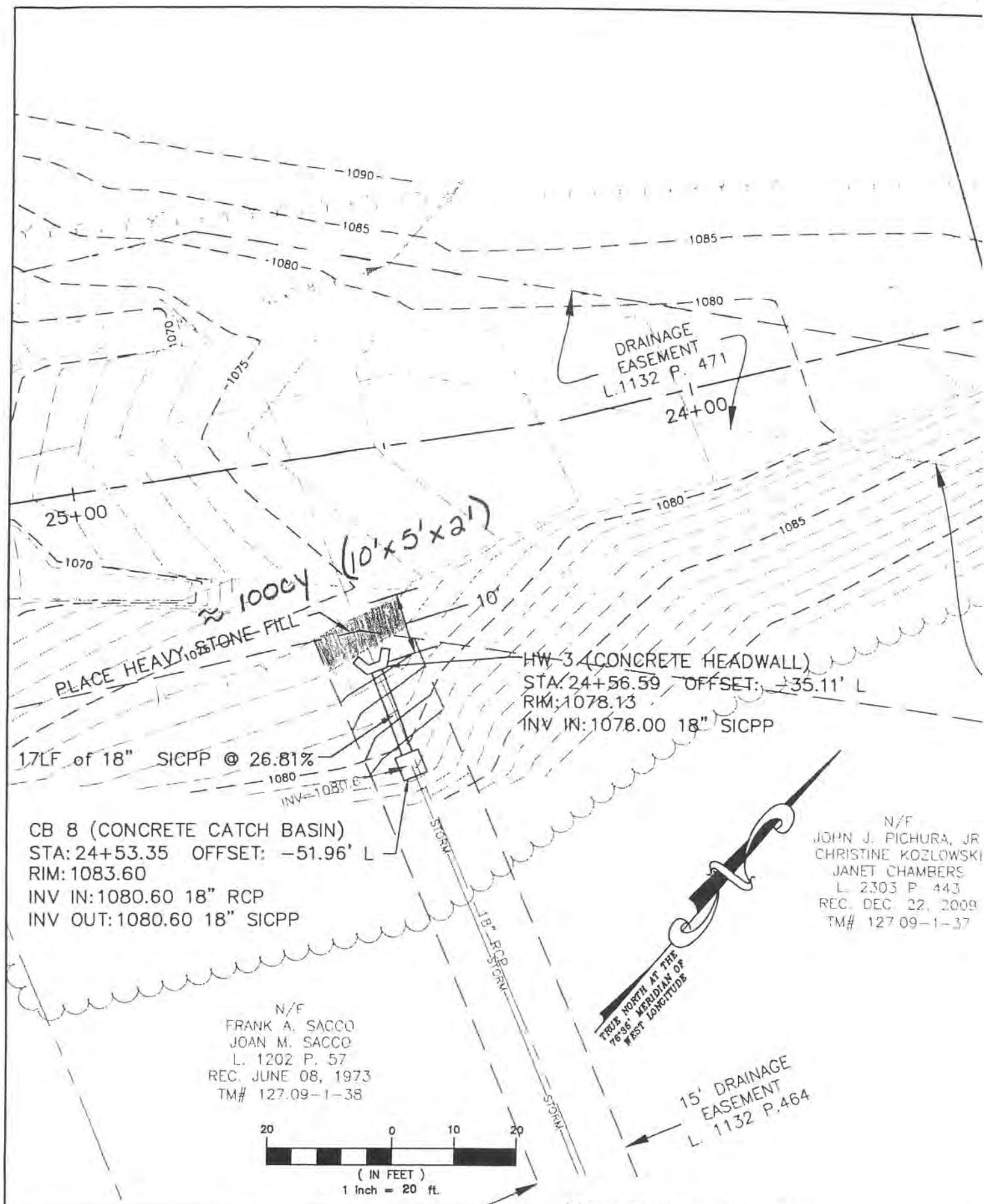
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**DRAINAGE SWALE  
 AND DITCH  
 REHABILITATION**  
 VILLAGE OF JOHNSON CITY BROOME COUNTY,

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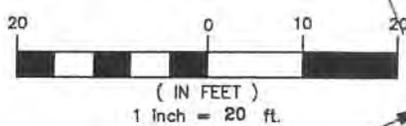






N/F  
 JOHN J. PICHURA, JR  
 CHRISTINE KOZLOWSKI  
 JANET CHAMBERS  
 L. 2303 P. 443  
 REC. DEC. 22, 2009  
 TM# 127.09-1-37

N/F  
 FRANK A. SACCO  
 JOAN M. SACCO  
 L. 1202 P. 57  
 REC. JUNE 08, 1973  
 TM# 127.09-1-38



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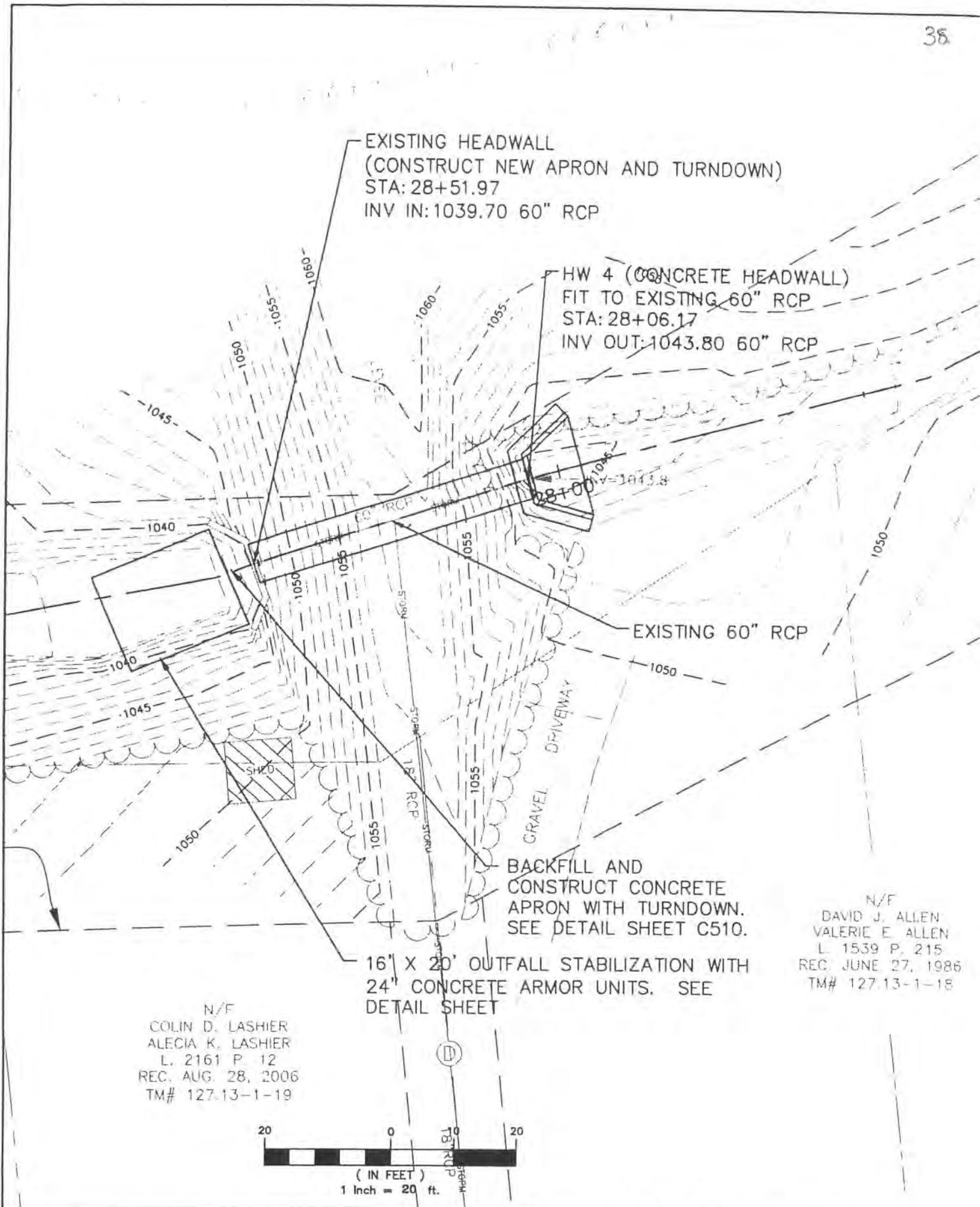
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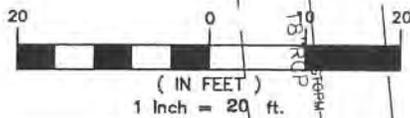


N/F  
 COLIN D. LASHIER  
 ALECIA K. LASHIER  
 L. 2161 P. 12  
 REC. AUG. 28, 2006  
 TM# 127-13-1-19

BACKFILL AND  
 CONSTRUCT CONCRETE  
 APRON WITH TURNDOWN.  
 SEE DETAIL SHEET C510.

N/F  
 DAVID J. ALLEN  
 VALERIE E. ALLEN  
 L. 1539 P. 215  
 REC. JUNE 27, 1986  
 TM# 127-13-1-18

16" X 20' OUTFALL STABILIZATION WITH  
 24" CONCRETE ARMOR UNITS. SEE  
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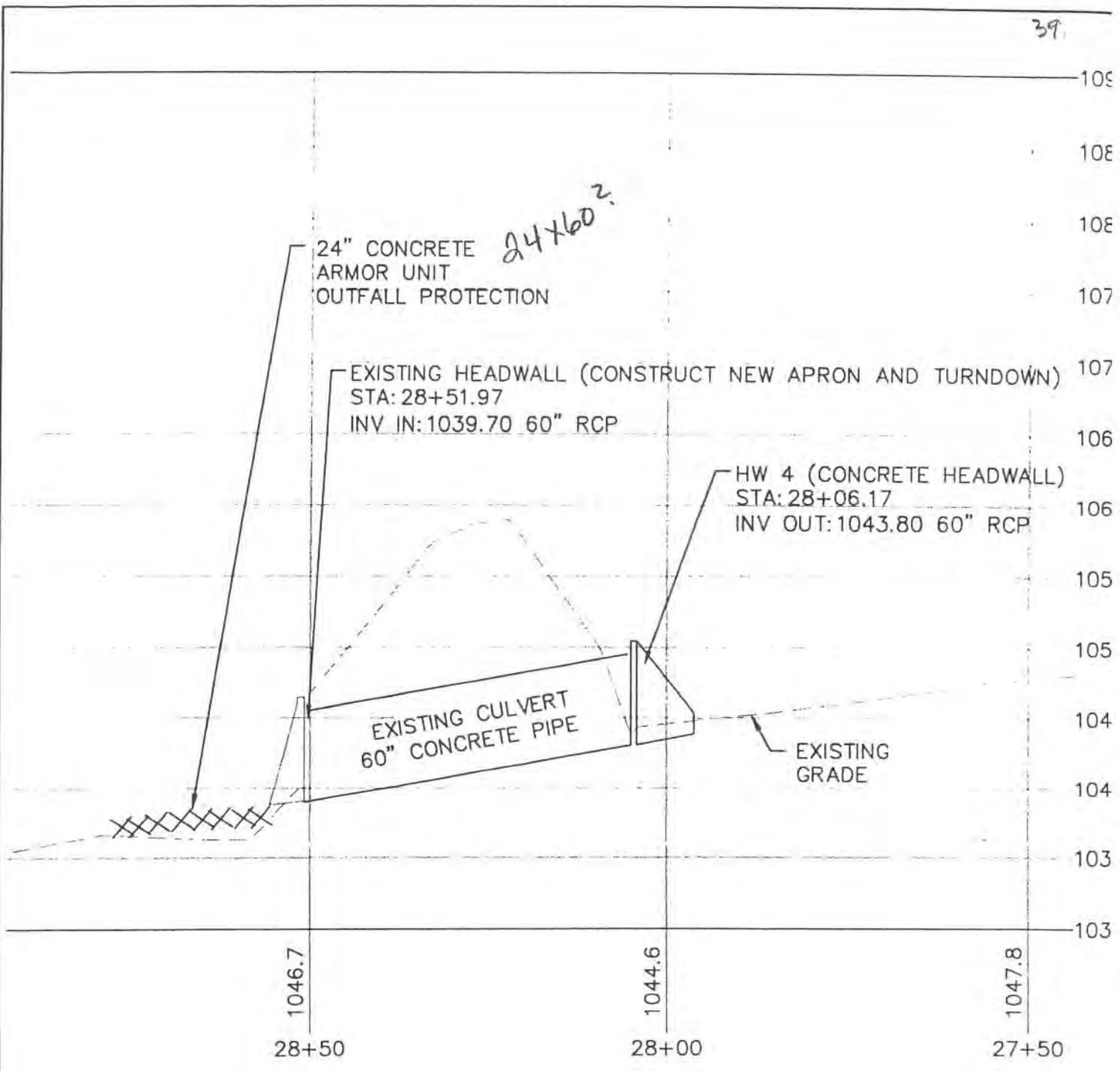
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**PROFILE STATIONS 23+50 - 29+50**

SCALE: HORIZONTAL 1" = 20'  
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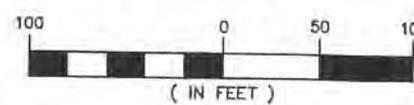
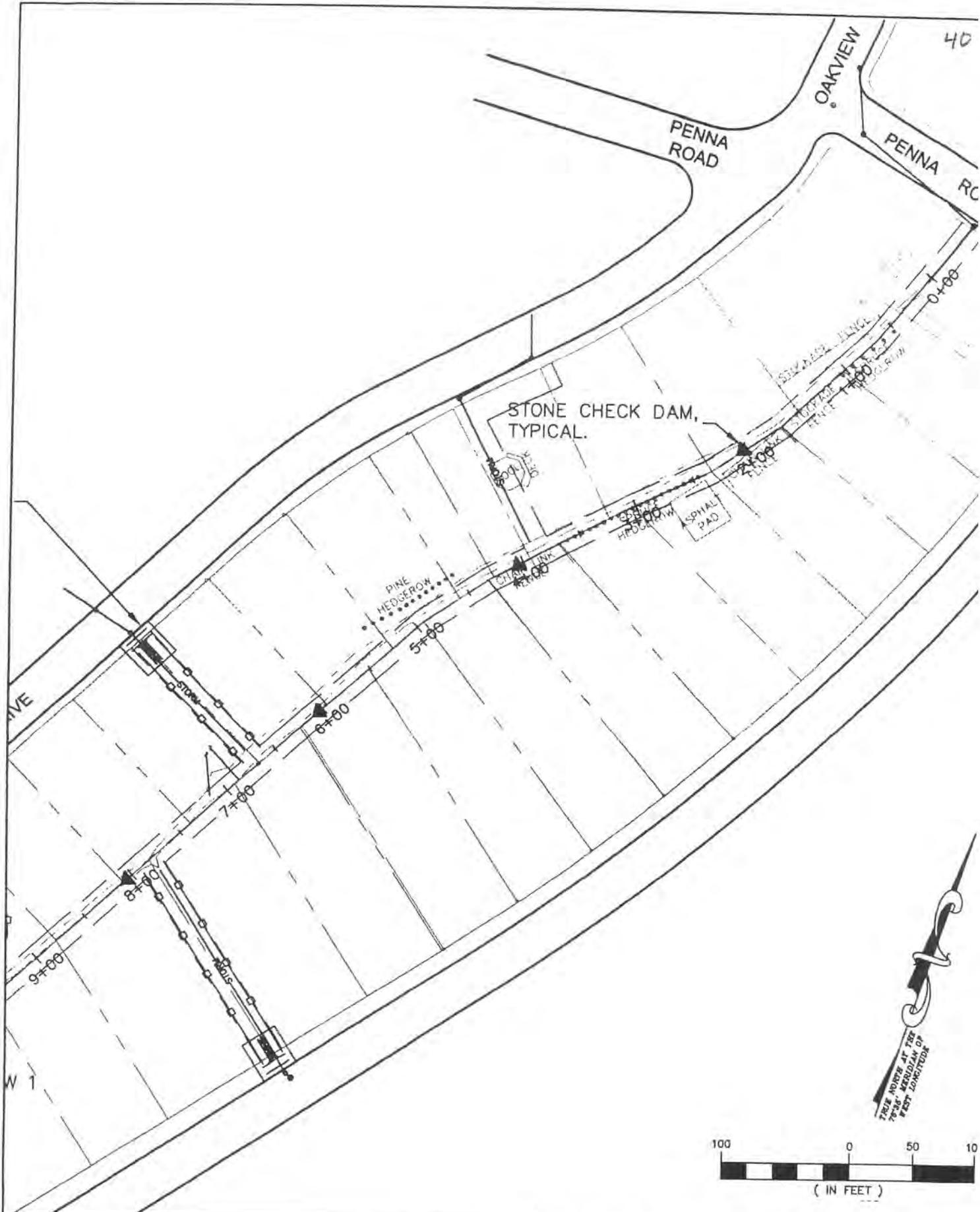
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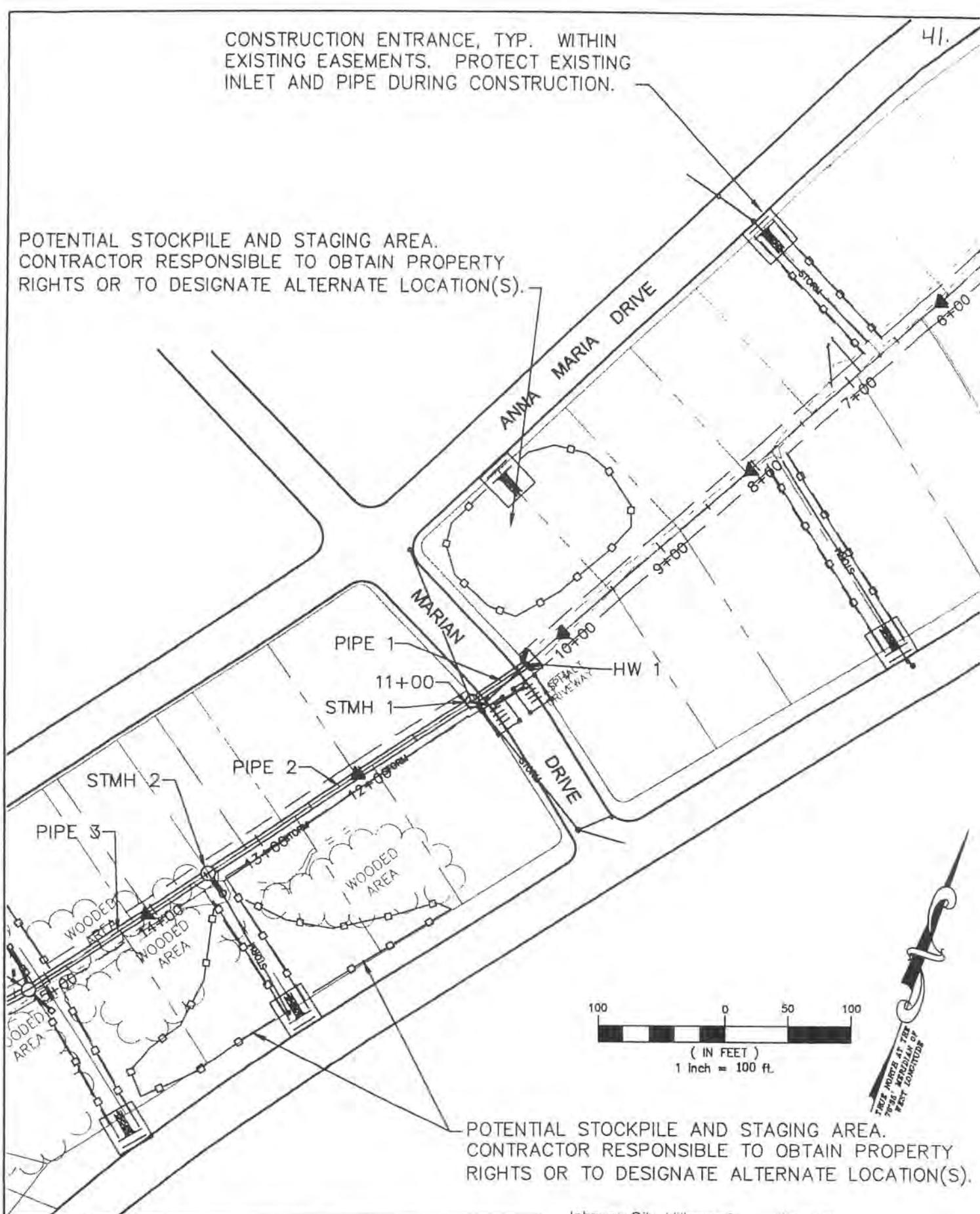
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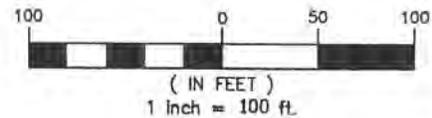
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41.

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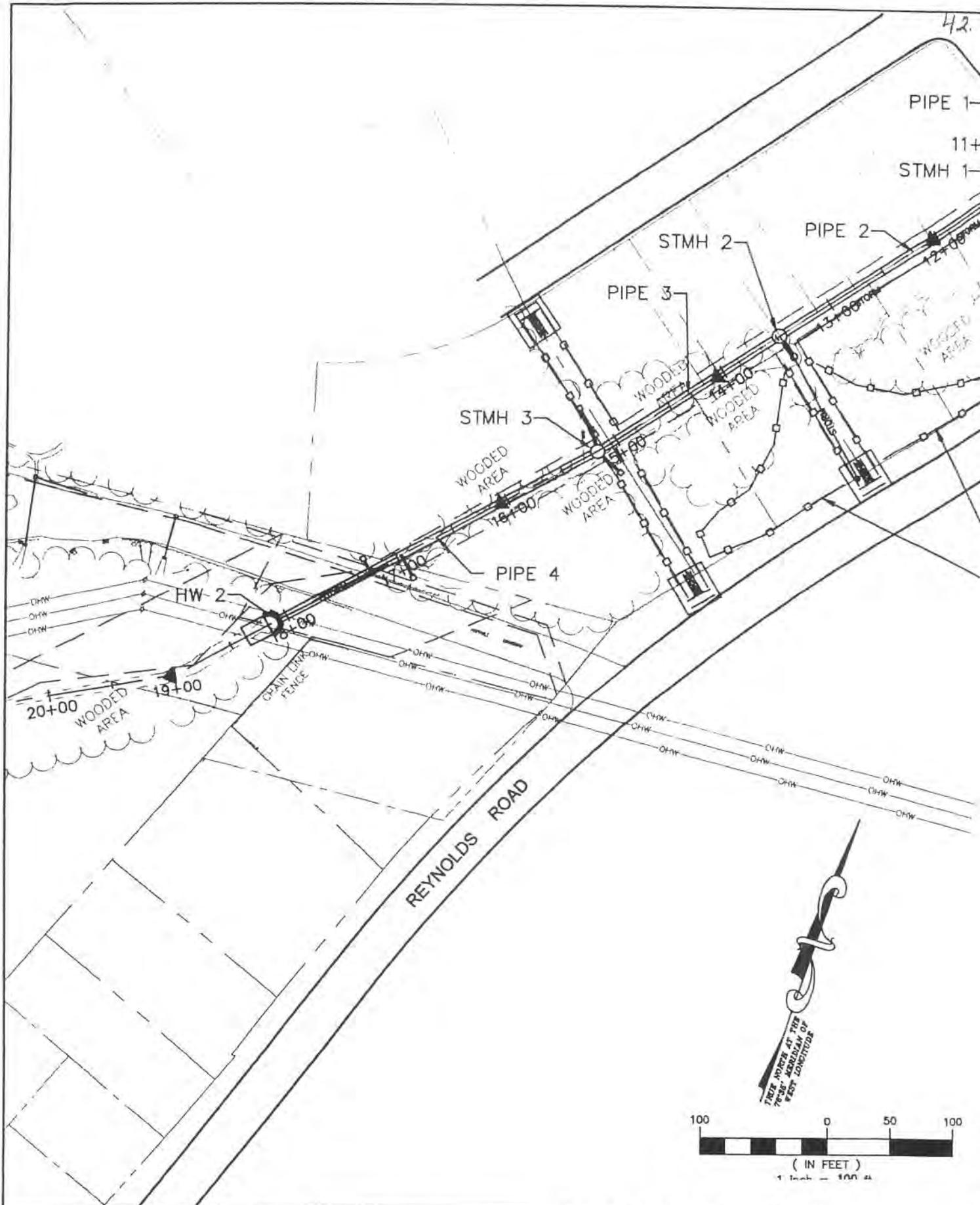
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42.

PIPE 1-

11+

STMH 1-

PIPE 2-

STMH 2-

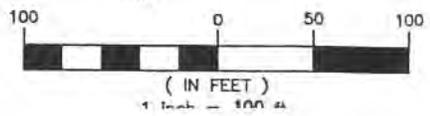
PIPE 3-

STMH 3-

PIPE 4-

HW 2-

REYNOLDS ROAD



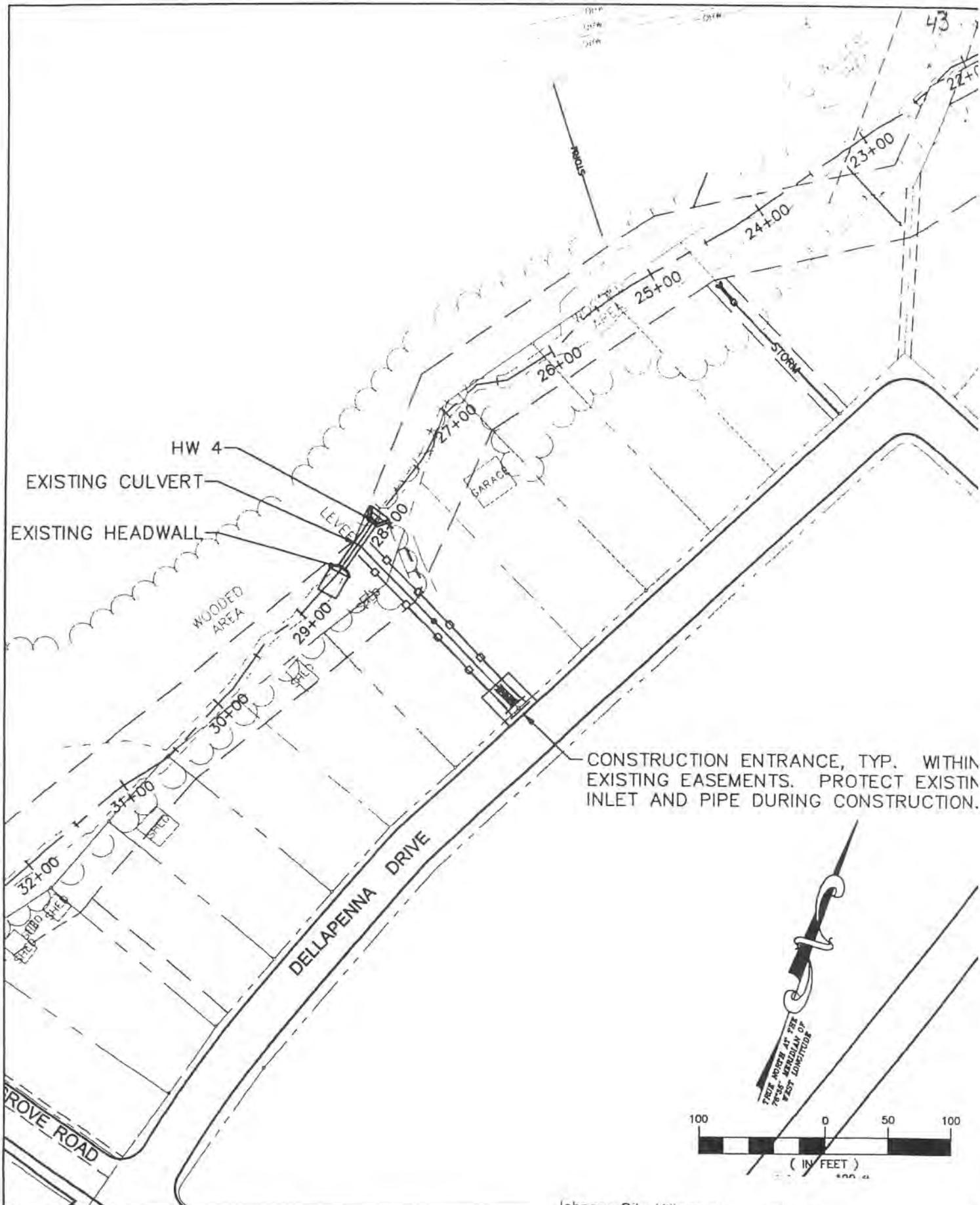
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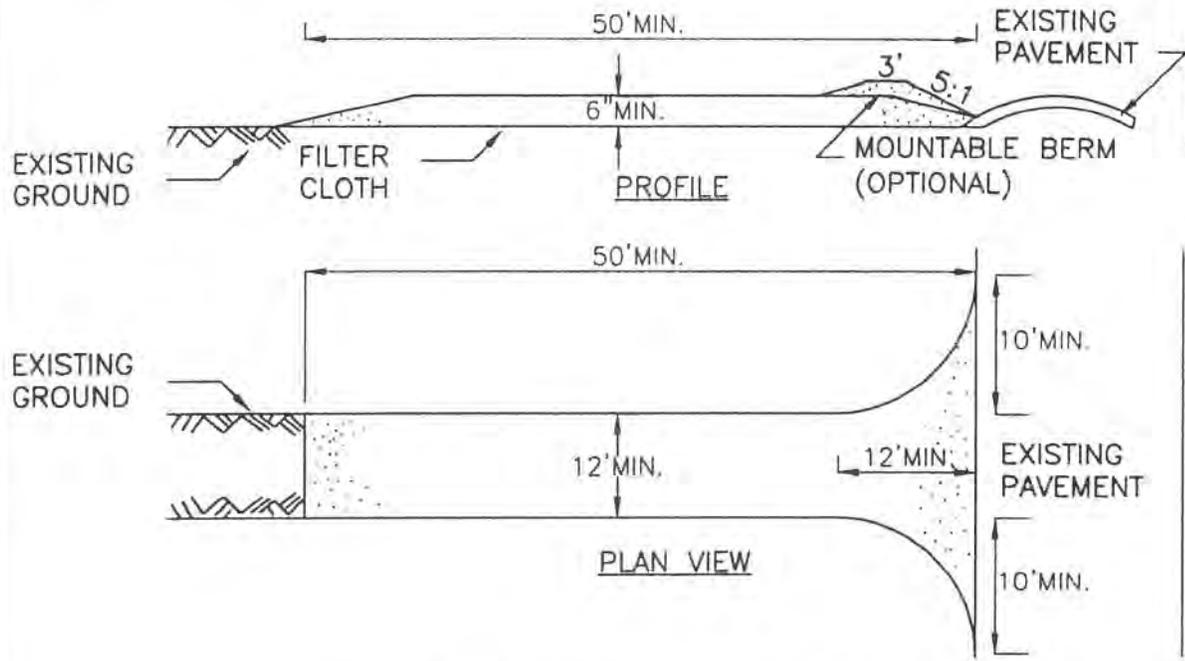
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 VILLAGE OF JOHNSON CITY BROOME COUNTY

Johnson City, Village of (Permit)  
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SYMBOL



### CONSTRUCTION SPECIFICATIONS

1. STONE SIZE – USE 1-4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT
2. LENGTH – NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS – NOT LESS THAN SIX (6) INCHES.
4. WIDTH – TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

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STABILIZED  
 CONSTRUCTION  
 ENTRANCE



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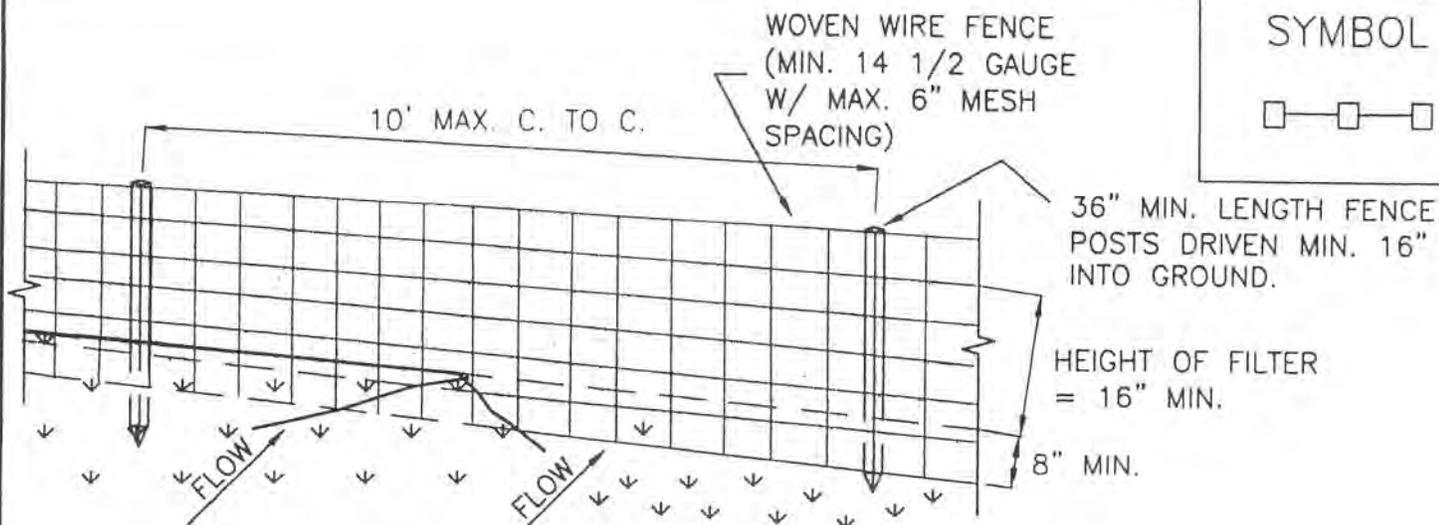
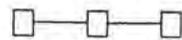
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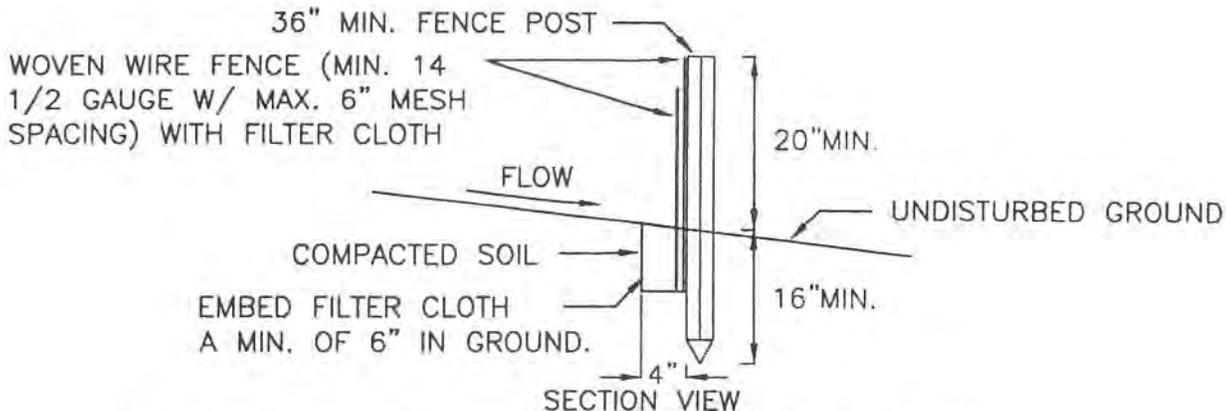
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SYMBOL



PERSPECTIVE VIEW



SECTION VIEW

CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 12 1/2 GAUGE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

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SILT FENCE



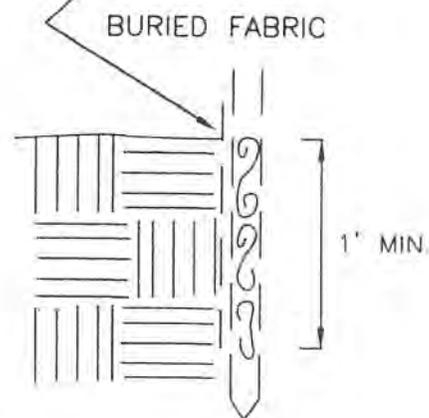
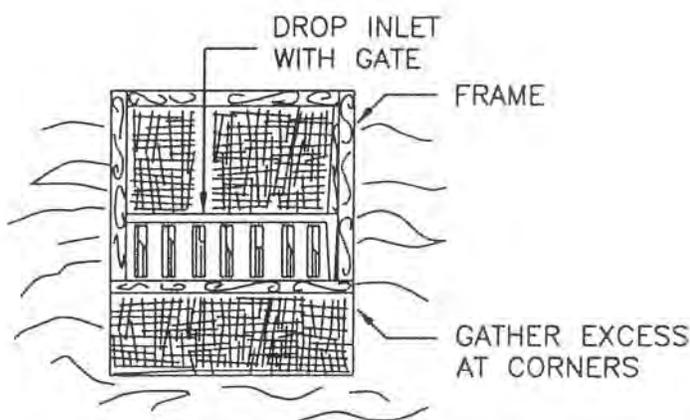
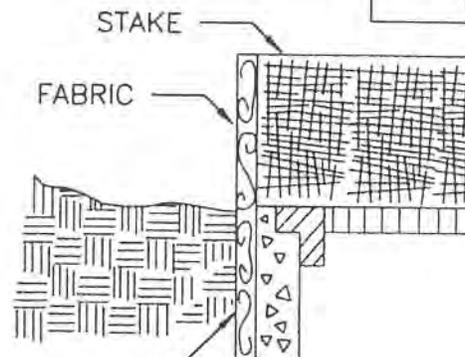
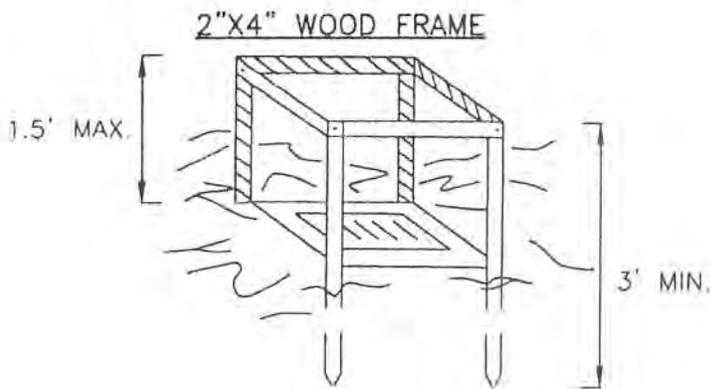
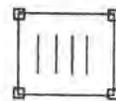
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SYMBOL



### CONSTRUCTION SPECIFICATIONS

1. FILTER FABRIC SHALL HAVE AN EOS OF 40-85. BURLAP MAY BE USED FOR SHORT TERM APPLICATIONS.
2. CUT FABRIC FROM A CONTINUOUS ROLL TO ELIMINATE JOINTS. IF JOINTS ARE NEEDED THEY WILL BE OVERLAPPED TO THE NEXT STAKE.
3. STAKE MATERIALS WILL BE STANDARD 2" x 4" WOOD OR EQUIVALENT, METAL WITH A MINIMUM LENGTH OF 3 FEET.
4. SPACE STAKES EVENLY AROUND INLET 3 FEET APART AND DRIVE A MINIMUM 18 INCHES DEEP. SPANS GREATER THAN 3 FEET MAY BE BRIDGED WITH THE USE OF WIRE MESH BEHIND THE FILTER FABRIC FOR SUPPORT.
5. FABRIC SHALL BE EMBEDDED 1 FOOT MINIMUM BELOW GROUND AND BACKFILLED. IT SHALL BE SECURELY FASTENED TO THE STAKES AND FRAME.
6. A 2" x 4" WOOD FRAME SHALL BE COMPLETED AROUND THE CREST OF THE FABRIC FOR OVER FLOW STABILITY.

MAXIMUN DRAINAGE AREA 1 ACRE

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FILTER FABRIC  
 DROP INLET  
 PROTECTION



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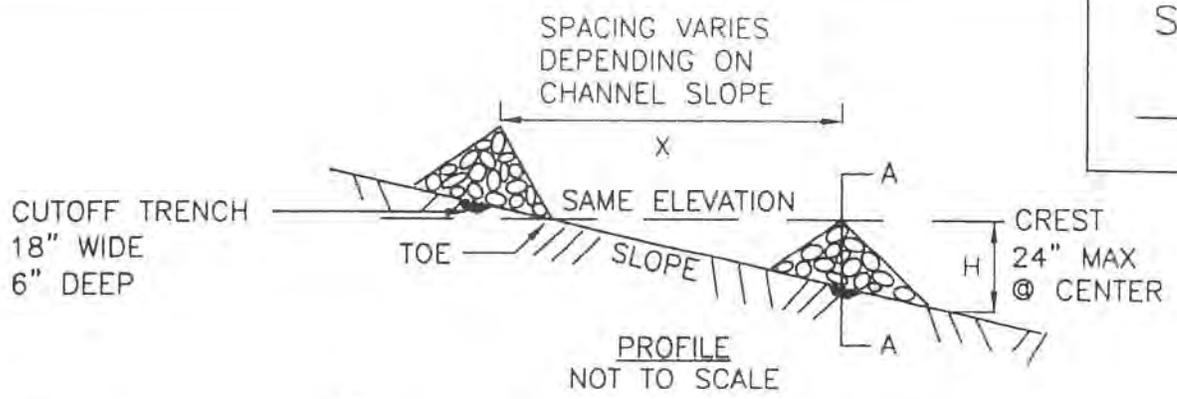
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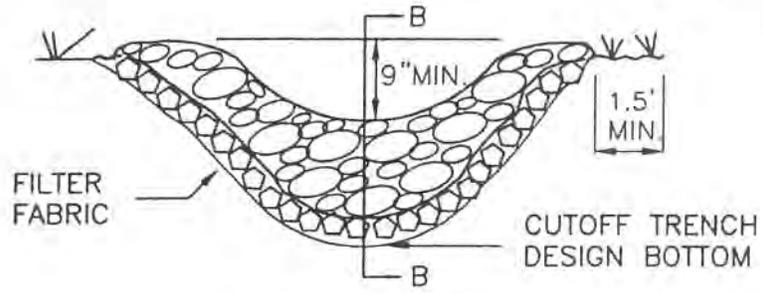


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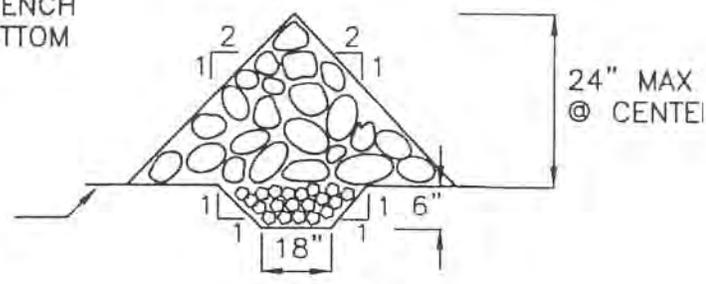


PROFILE NOT TO SCALE

$$X = \frac{H \text{ (Ft)}}{\text{SLOPE (FT/FT)}}$$



SECTION A-A NOT TO SCALE



SECTION B-B NOT TO SCALE

## CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN IN THE PLAN.
  2. SET SPACING OF CHECK DAMS TO ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
  3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
  4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
  5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.
- MAXIMUM DRAINAGE AREA 2 ACRES.

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CHECK DAM



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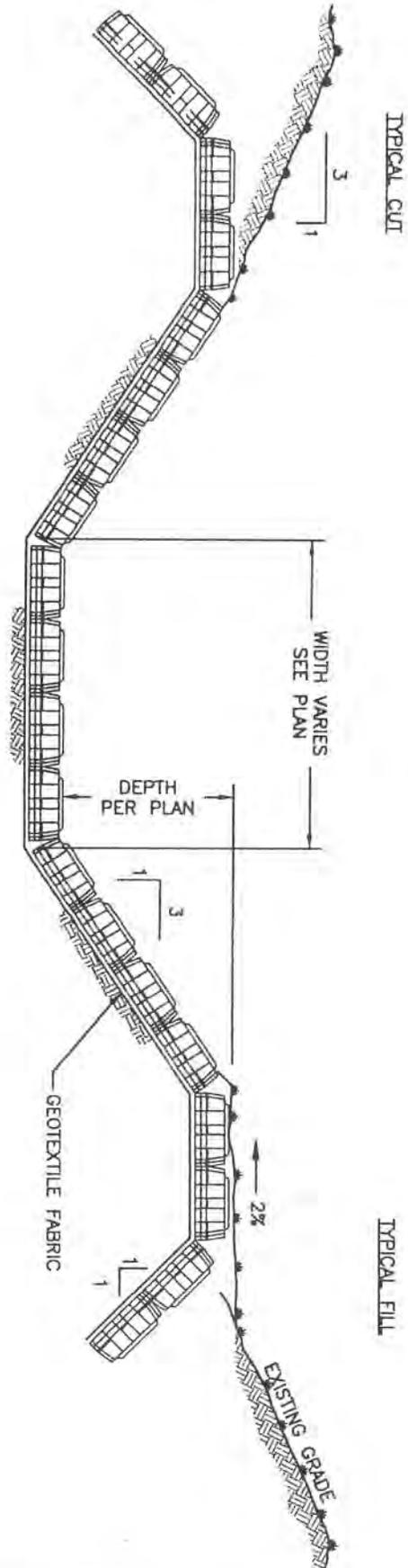
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**ARTICULATING CONCRETE BLOCK (ACB) REVETMENT SYSTEM**

N.T.S.



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49.

Figure 1: Example ACB Bank Restoration During Construction

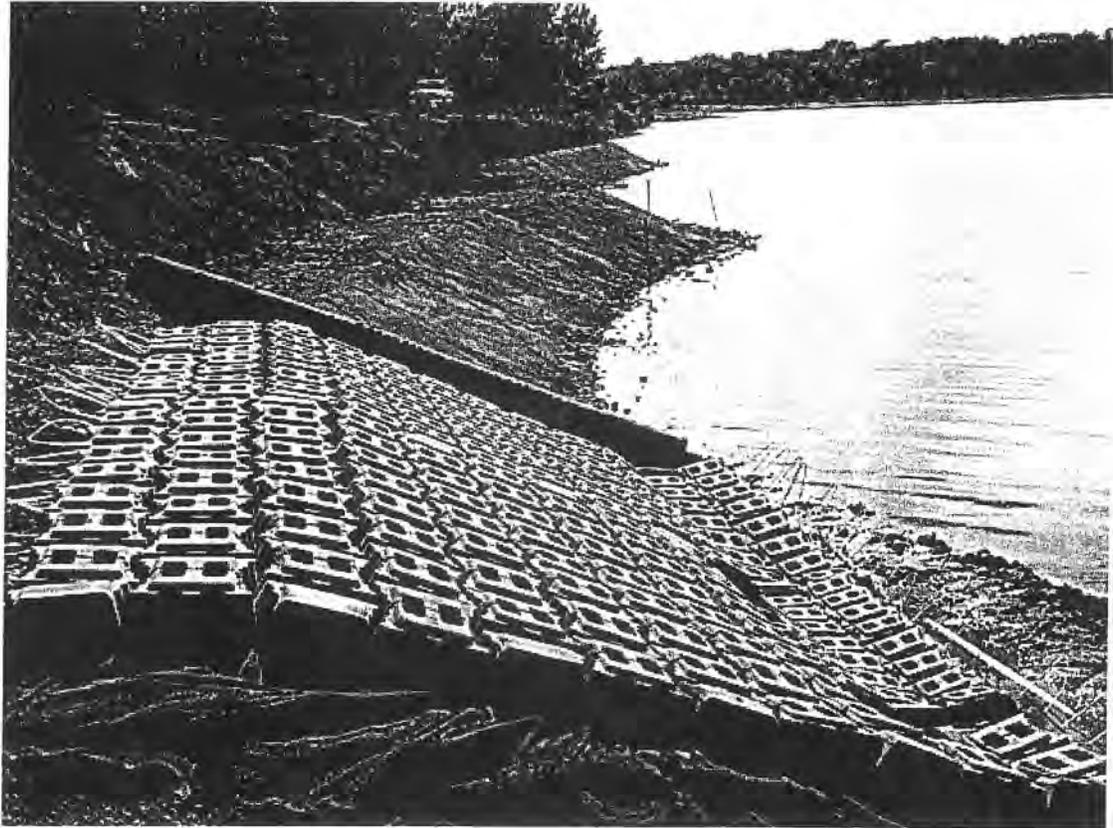
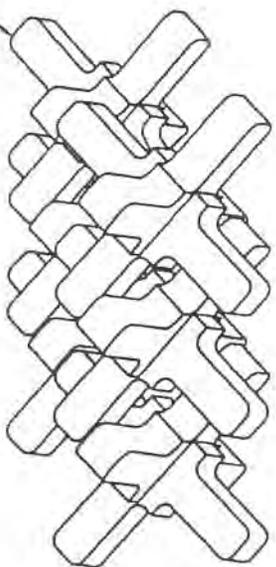


Figure 2: Example ACB Bank Restoration After Construction (vegetated)

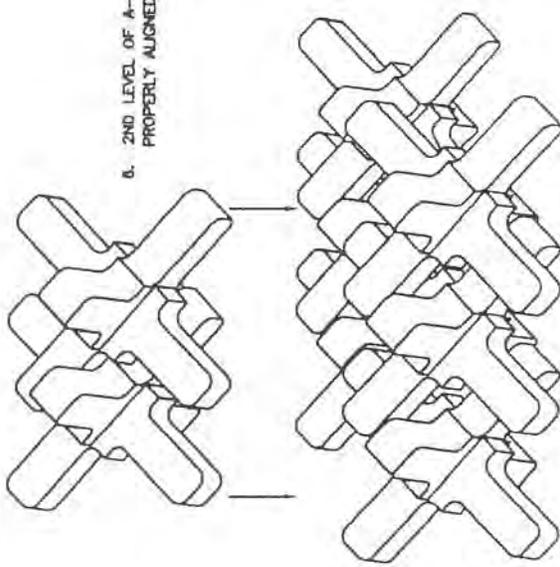




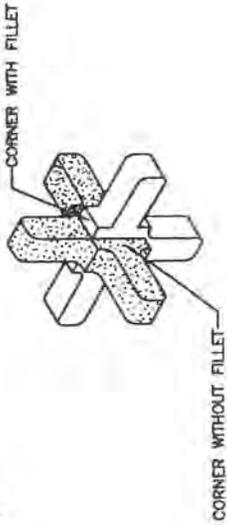
5. INSTALL 2ND ROW OF A-Jacks USING SAME ALIGNMENT.  
2ND ROW OF A-Jacks



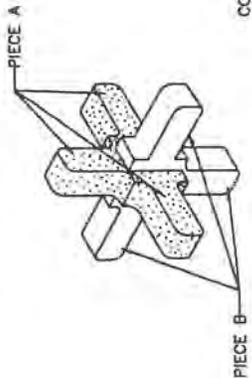
6. 2ND LEVEL OF A-Jacks WILL FIT WHEN PROPERLY ALIGNED WITH 1ST LEVEL.



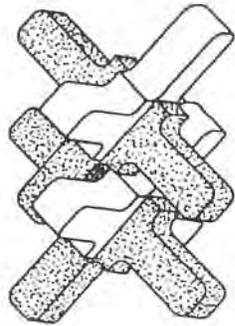
2. IDENTIFY CORNERS WITH AND WITHOUT FILLETS.



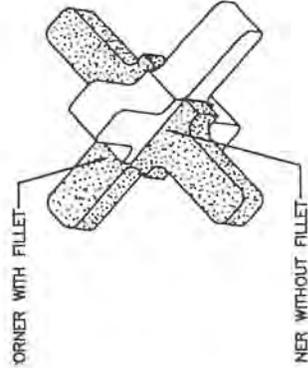
1. IDENTIFY A-Jack COMPONENTS.



4. ALIGN ALL A-Jacks IN SAME DIRECTION. CORNERS WITHOUT FILLET MUST LINE UP.



3. PROPER ROTATION OF A-Jacks.



24" CONCRETE ARMOR UNITS  
N.T.S.

A-Jacks

**KEYSTONE ASSOCIATES**  
ARCHITECTS, ENGINEERS AND SURVEYORS, LLC

58 Exchange Street  
Binghamton, New York 13901  
Phone: 607.721.1100  
Fax: 607.721.2015  
Email: info@keystonecorp.com  
www.keystonecorp.com

**WARNING:**  
This is a technical drawing. It is not to be used for construction without the approval of the design professional. It is the responsibility of the user to verify the accuracy of the information provided. © Copyright, 2011 Keystone Associates Architects, Engineers and Surveyors, LLC.

VILLAGE OF JOHNSON CITY  
**DRAINAGE SWALE AND DITCH REHABILITATION**  
VILLAGE OF JOHNSON CITY BROOME CO.

Johnson City, Village of (Permit)  
(Stream Piping)  
D/A Processing No. 2012-00244  
Broome County, New York  
Quad Castle Creek, NY



# A-Jacks: Concrete Armor Units

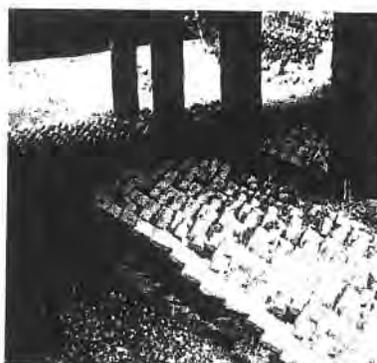
A-Jacks® are high stability concrete armor units designed to interlock into a flexible, highly permeable matrix. A-Jacks can be installed either randomly or in a uniform pattern. The voids formed within the A-Jacks matrix provide approximately 40% open space in the uniform placement pattern. These voids provide habitat for fish and other marine life when applied as a reef, revetment or as a soil support system in river applications. In addition, the voids may be backfilled with suitable soils and planted with a variety of vegetation including grasses, shrubs and trees above the normal base flow.

## Applications

- Drop structures
- Weirs
- Energy dissipation
- Bridge scour protection
- Streambank/toe stabilization

## Streambank Applications

Streambank erosion often produces steep banks with little or no vegetation. These unprotected banks are even more susceptible to erosion due to over steepening, loss of ground cover, groundwater discharge and stream erosion at the base of the bank. A-Jacks concrete armor units provide an alternative which when used with bio stabilization technique, develops a cost-effective solution.



A-Jacks Unit



## Bridge Scour Applications

The ability of the A-Jacks system to dissipate energy and resist the erosive forces of flowing water allows this system to protect channel boundaries from scour and erosion. Extensive laboratory research was performed on both model and full scale units in order to evaluate the hydraulic properties of the A-Jacks units. An A-Jacks Design Manual for the hydraulic design of open-channel conveyance ways and pier scour countermeasure is available upon request.

## Energy Dissipation

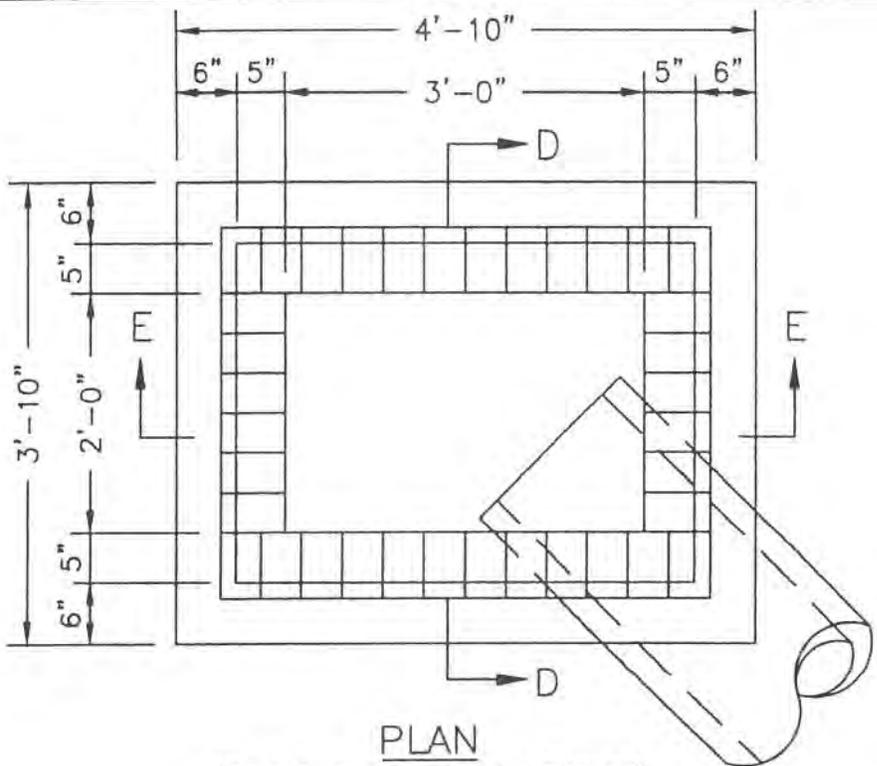
A-Jacks' ability to dissipate energy in channel, spillway or culvert outfall applications relies on the inherent roughness of the units. For A-Jacks, the design value for Manning's roughness coefficient is  $n=0.1$ . This value was determined from extensive full and quarter scale laboratory testing. The ability of A-Jacks to increase roughness creates a hydraulic jump when flow encounters the units. Creating the hydraulic jump effectively releases the energy associated with high velocity and/or steep embankment flow conditions. By releasing the energy, the erosive forces associated with the hydraulic jump are also greatly diminished. As the flow travels downstream through the A-Jacks matrix, the energy grade line slope continues to be reduced until the desired flow conditions are obtained downstream of the A-Jacks units.

ArmorFlex Design Software and Guidelines are available through

Johnson City, Village of (Permit)  
 (Stream Piping)  
 D/A Processing No. 2012-00244  
 Broome County, New York  
 Quad: Castle Creek, NY

Sheet 52 of 53

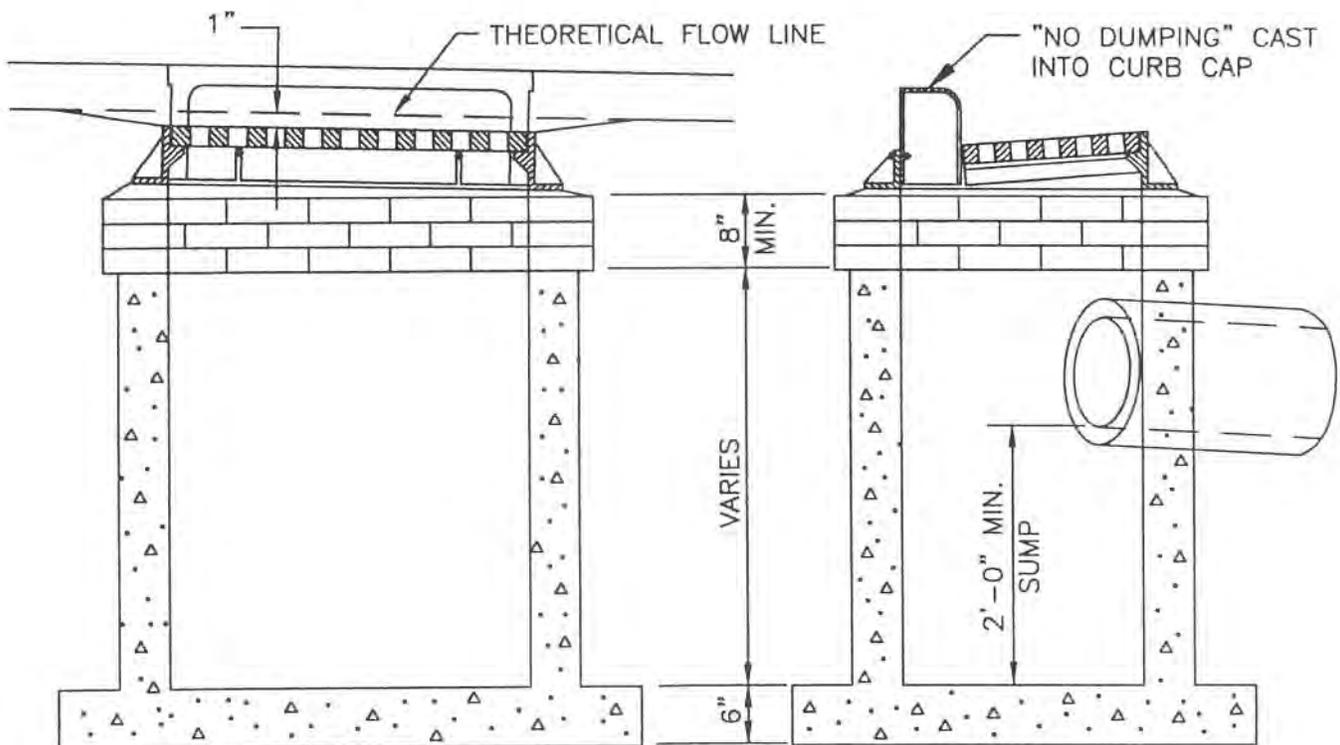




PLAN

(FRAME & GRATE NOT SHOWN)

SEE STANDARD PRE-CAST CONCRETE MANHOLE FOR ADDITIONAL NOTES.



SECTION E-E

SECTION D-D

CATCH BASIN

**KEYSTONE ASSOCIATES**  
ARCHITECTURAL, ENGINEERING AND SURVEYING, LLC

51 Exchange Street  
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Phone: 607.722.1100  
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VILLAGE OF JOHNSON CITY  
**DRAINAGE SWALE  
AND DITCH  
REHABILITATION**  
VILLAGE OF JOHNSON CITY BROOME COU

Johnson City, Village of (Permit)  
(Stream Piping)  
D/A Processing No. 2012-00244  
Broome County, New York  
Quad: Castle Creek, NY



# Attachment 5

HUD Environmental Standards Review

## **Project: Anna Maria Drive Ditch Storm Water Management – Village of Johnson City**

**Introduction:** The purpose of this review is to ensure that the project complies with 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 Property referenced in the title of this document complies with the following criteria:

- (i) is not Listed on an 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.

### **Project Description:**

This project involves Community Development Block Grant - Disaster Recovery (CDBG-DR) program funding for rehabilitation of approximately 3500 feet of drainage ditch/drainage canal. The drainage canal will comprise of a combined use of concrete lined ditches, piping, and culverts. The project will involve grading and excavating the channel bottom and side slopes for hydraulic capacity enhancements, removing vegetative growth to clear the channel, removing debris that impedes water flow, stabilizing the slopes and top bank by using fill, seed, fertilizer, and vegetative mulch, and replacing culverts with culverts capable of higher capacity. This work will also include miscellaneous associated work, such as creating temporary construction access areas.

### **Summary of Findings:**

The properties through which the 3,500 feet of drainage ditch runs are not listed on a U.S. Environmental Protection Agency (EPA) Superfund National Priorities or Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) list or equivalent State list, and are not located within 3,000 feet of a toxic or solid waste landfill site. Based on review of the NYSDEC Bulk Storage database, the properties do not have underground storage tanks, and the properties are not known or suspected to be contaminated by toxic chemicals or radioactive materials. Moreover, a review of the NYSDEC Spill Incident database revealed no spills occurring on properties bordering the drainage ditch, or within the immediate vicinity of these properties.

A review of the EPA Resource Conservation and Recovery (RCRA) and NYSDEC Environmental Remediation databases provide no indication of past uses of the surrounding properties that could contaminate the drainage ditch or potentially

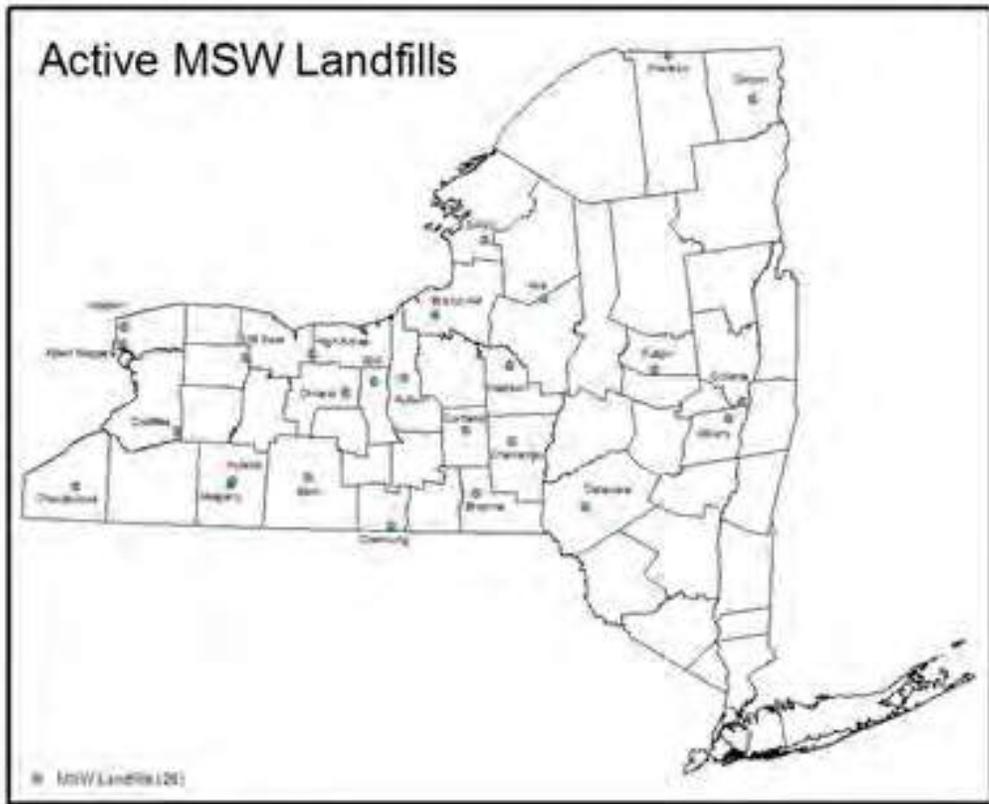
adversely affect the occupants of the adjacent properties. The project involves excavation of soils in a drainage ditch, which will remain onsite. If there are construction wastes generated, according to the type of waste generated, it will be appropriately disposed of according to construction waste management practices in an appropriate, legally compliant receiving facility.

*Conclusion:* Based on project description, scope of work is not expected to pose an environmental risk to the residential neighborhood or the greater Village of Johnson City. The funded activities do not involve actions that would involve potential recognized environmental conditions/contamination.

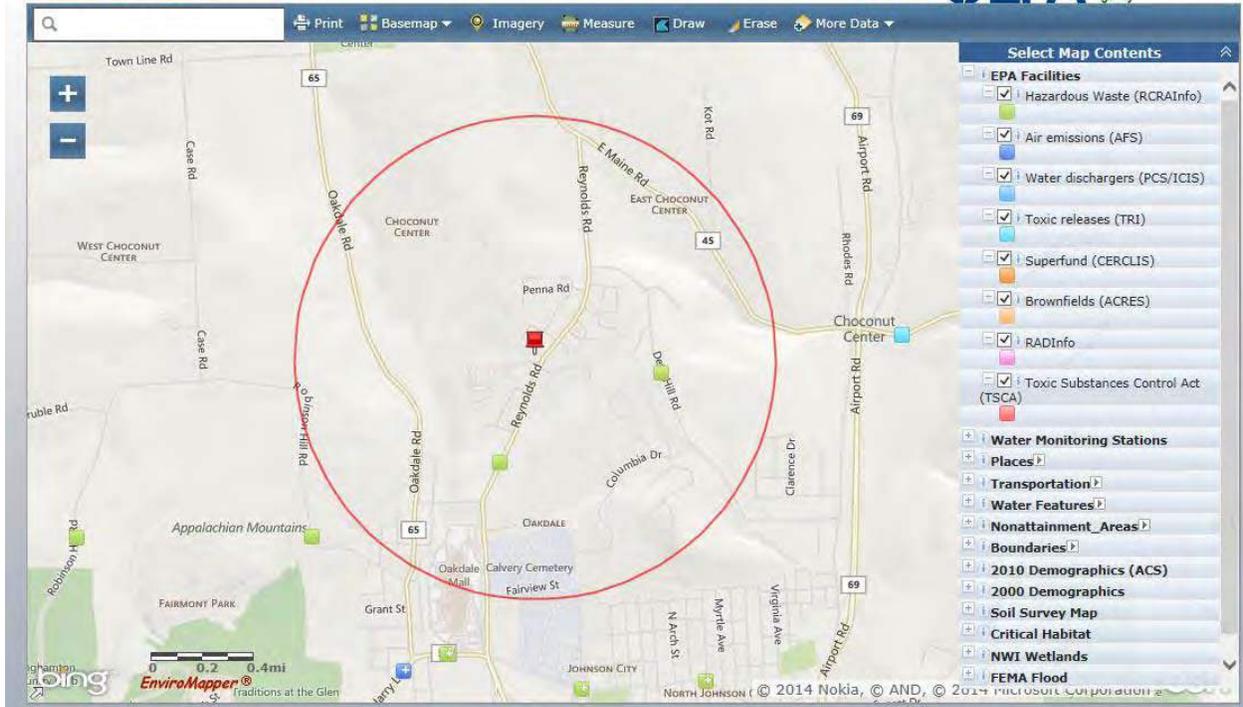
**Data Sources:** Tectonic has reviewed the following sources to make the above determinations: Hazardous Waste records contained in the Resource Conservation and Recovery Act Information (RCRA), the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) for sites listed under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA (otherwise known as Superfund)), EPA's Toxic Release Inventory database (TRI), and the EPA Radiation Information Database (RADInfo). RCRA includes data on small and large quantity hazardous waste material generators and handlers. EPA's Toxic Release Inventory provides information on toxic chemical releases and waste management activities by certain industries. The RADInfo database provides information about facilities that are regulated by the U.S. EPA for radiation and radioactivity.

Tectonic reviewed the NYS DEC Remedial Site Database to assess whether the project site is registered as a NYS Superfund or Environmental Restoration site. The DEC Remedial 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. Tectonic reviewed the NYSDEC Bulk Storage Database to determine if the project area has an underground storage tank (which is not a residential fuel tank), or other registered storage tanks. 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- Petroleum Bulk Storage, 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 Property. A desktop review of Google Earth was used in conjunction with a map of active municipal landfills (provided by the DEC), and a list of landfills provided by the DEC to determine whether a non-active or active landfill is located within 3000 feet of the Property.

# Maps



**Figure 1:** Active municipal solid waste landfills in New York (map provide by NYSDEC).



**Figure 2:** Hazardous waste sites and handlers (green marker), toxic release sites (blue marker), Superfund and brownfield sites (orange markers), and facilities regulated by the U.S. EPA for radiation and radioactivity (pink marker). The project property is indicated by a purple cross symbol, and a 3000 foot buffer around the Property is represented by the red circle.



**Figure 3:** Environmental remediation sites listed in the NYSDEC Environmental Remediation Database. Brownfield cleanups are depicted by dark red symbols, Environmental Restoration Programs by yellow symbols, State Superfund sites by black symbols, RCRA sites by white symbols, and Voluntary Cleanup sites by gray symbols.



**Figure 4:** Properties listed on the NYSDEC Bulk Storage Database. Petroleum Bulk Storage is represented by green markers, Chemical Bulk Storage by purple markers, and Major Oil Storage Facilities by red markers.

# Attachment 6

Cultural Resources - State Historic Preservation  
Office Consultation



## New York State Office of Parks, Recreation and Historic Preservation

Division for Historic Preservation  
P.O. Box 189, Waterford, New York 12188-0189  
518-237-8643

Andrew M. Cuomo  
Governor

Rose Harvey  
Commissioner

14 February 2013

Ms. Judy A. Robinson  
U.S. Army Corps of Engineers  
7413 County House Road  
Auburn, NY 13021

Re: CORPS PERMITS  
Choconut Creek Erosion Control (Corps #2012-00244)  
Village of Johnson City, Broome County  
13PR00677

Dear Ms. Robinson:

The State Historic Preservation Office (SHPO) has reviewed the information submitted for this project. Our review has been in accordance with Section 106 of the National Historic Preservation Act and relevant implementing regulations.

Based on the information provided, SHPO concurs with the Corps' determination that the planned project will have **No Effect** on historic properties listed or eligible for listing on the National Register of Historic Places. This recommendation pertains only to the Area of Potential Effects (APE) described in the submitted materials. Should the project design be changed SHPO recommends further consultation with this office.

These comments are those of the Division for Historic Preservation and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8) and its implementing regulations (6 NYCRR Part 617).

If you have any questions please don't hesitate to contact me.

Sincerely,

Philip A. Perazio, OPRHP  
Phone: 518-237-8643 x3276; FAX: 518-233-9049  
Email: [Philip.Perazio@parks.ny.gov](mailto:Philip.Perazio@parks.ny.gov)



## GOVERNOR'S OFFICE OF STORM RECOVERY

Andrew M. Cuomo  
Governor

James Rubin  
Executive Director



January 26, 2015

Mr. John A. Bonafide, Director  
Technical Preservation Service Bureau  
Division for Historic Preservation  
Peebles Island State Park  
P.O. Box 189  
Waterford, New York 12188-0189

Re: CDBG-DR, NYRCR Anna Maria Drive/Reynolds Road Drainage Ditch Improvements,  
Village of Johnson City, Broome County, NY  
Section 106 Review and Tribal Screening Requests

Dear Mr. Bonafide,

The Governor's Office of Storm Recovery (GOSR) New York Rising Community Reconstruction Program (NYRCRP) was established to aid the statewide recovery of disaster-affected communities in New York State. The environmental reviews for projects funded under the NYRCRP are processed on a case-by-case basis, often in accordance with the applicable Programmatic Agreement for Superstorm Sandy recovery of February 2013, and as amended, between your office and the New York State Division of Homes and Community Renewal, et al. (Programmatic Agreement). Projects are reviewed, as necessary by Project Archaeologist, Jim Turner, RPA, of Tectonic Engineering and Surveying Consultants, P.C., and when appropriate directly referred to your office for assistance with historic properties review. Since the NYRCRP encompasses projects resulting from the Hurricane Irene and Tropical Storm Lee natural disasters, these projects are also forwarded to your office for review although those natural disasters are outside the scope of the aforementioned Programmatic Agreement.

Therefore, GOSR respectfully submits for your review, pursuant to Section 106 of the National Historic Preservation Act, the attached documentation for one (1) project where use of grant funds is contemplated.

GOSR is available to answer any questions that you may have regarding this action. If you have any questions, please feel free to contact me at (518) 473-0015.

Sincerely,

Thomas J. King  
Legal Counsel and Certifying Officer

Enclosure.

PO Box 37, 70 Pleasant Hill Road  
Mountainville, NY 10953

(845) 534-5959 FAX: (845) 534-5999  
www.tectonicengineering.com

January 26, 2015

Bureau of Technical Preservation Services  
Division for Historic Preservation  
Peebles Island State Park  
P.O. Box 189  
Waterford, New York 12188-0189

Attn: Mr. John A. Bonafide, Director

**RE: CDBG-DR, NYRCR Anna Maria Drive/Reynolds Road Drainage Ditch Improvements  
Village of Johnson City, Broome County, NY  
Section 106 Review and Tribal Screening Requests**

Dear Mr. Bonafide:

In association with the preceding cover letter, the purpose of this submittal is to formally request New York State Historic Preservation Office (SHPO) review, along with facilitated tribal consultation, if necessary, for project(s) identified herein in accordance with Section 106 of the National Historic Preservation Act of 1966 (NHPA) and the federal laws and authorities in 24 CFR Section 58.5(a)(1)-(4).

**Background:** Tectonic Engineering & Surveying Consultants, PC (Tectonic) is assisting the NY State Housing Trust Fund Corporation (NYHTFC)/ Division of Homes & Community Renewal (DHCR)/ Governor's Office of Storm Recovery (GOSR) with implementation of the NY Rising Community Reconstruction Program (Program). GOSR is assisting storm disaster-impacted communities with physical recovery and mitigation development. Program funding is from the U.S. Dept. of Housing & Urban Development (HUD) Community Development Block Grant – Disaster Recovery (CDBG-DR) Program under the Disaster Relief Appropriation Act of 2013, as amended.

The physical work within this support program is designed to encompass rebuilding and revitalization construction activities. Typically, projects are focused within generally the same footprint and envelope of buildings/structures as they existed prior to the applicable natural disaster(s). However, in some cases there may be new aspects of site work, such as to augment buildings, or provide for some development beyond pre-existing storm-impacted sidewalks, driveways, parking lots, or other developed areas and infrastructure.

**Request for SHPO Section 106 Review along with Facilitated Tribal Consultation, if necessary** for the following project:

**Project Name and Description:**

**Project Name:** Anna Maria Drive/Reynolds Road Drainage Ditch Improvements

**Location:** Village of Johnson City, Broome County, New York

The proposed action is rehabilitation of a drainage ditch spanning approximately 3,500 feet – bounded on the north by Penna Road, on the east by Reynolds Road, and on the west by Anna Maria Drive. The drainage ditch is configured in a northeast to southwest arrangement running parallel with Anna Maria Drive. The higher elevations are at the northeast end, and the topography drains towards the southwest. The southern boundary of the proposed action on the drainage ditch is adjacent to

Tokos Grove Road. This drainage ditch ultimately drains to the Finch Hollow Stormwater Retention Facility 1, which is in the Finch Hollow Nature Preserve, a municipal park.

The project will involve grading and excavating the channel bottom and side slopes for hydraulic capacity enhancements, removing vegetative growth to clear the channel, removing debris that impedes water flow, stabilizing the slopes and top bank by using fill, seed, fertilizer, and vegetative mulch, and replacing culverts with culverts capable of higher capacity. This work will also include miscellaneous associated work, such as creating construction access areas. All work will occur within existing construction easements (approximately 20 feet on each side of the drainage ditch). Additionally, the Village is currently obtaining temporary construction easements for the access areas. All permanent construction work will be within the drainage ditch channel.

The existing drainage ditch follows a natural topographic contour down a hillside with slopes approaching 8%. The environmental setting does not suggest a sensitivity for the presence of cultural resources. All proposed rehabilitation work is within the existing drainage ditch channel and its banks in an area of steep slope. Thus, it is not expected that historical, archaeological, or tribal resources are present at the work location.

**Conclusion:** It is Tectonic's recommendation that the proposed rehabilitation of the Anna Maria Drive/Reynolds Road Drainage Ditch be approved as having no adverse effect on cultural, archaeological, or tribal resources.

If you have any questions or require additional information, please contact Andrea Gievers, Senior Environmental Management Analyst, at 845.234.8234.

Sincerely,  
**TECTONIC ENGINEERING & SURVEYING CONSULTANTS P.C.**



Jim Turner, RPA  
Senior Environmental Analyst/ Project Archaeologist

**Attachments (A through E) Covering Each Case:**

- A – CDBG-DR Review Cover Forms;**
- B – Project Description Form;**
- C – Street Maps & Topographic Maps;**
- D – Photographs; and**
- E – Resume of Secretary of the Interior Qualified Staff Supervising Submission.**

Copy: Thomas King, DHCR Certifying Officer; Lori Brady, P.E., Tectonic Program Manager/Senior Engineer III.

## CDBG-DR REVIEW COVER FORM

Please complete this form and attach it to the top of any **and all information submitted to this office** for review. Accurate and complete forms will assist this office in the timely processing and response to your request.

**PROJECT NUMBER**

**PR**

(only if a project was previously submitted)

This is a new project (If checked, complete **ALL** the following)

**Project Name:** Reynolds Road/Anna Maria Drive Drainage Improvements – 3,500 feet of drainage ditch

**Location:** Project area is bounded on the north by Penna Road, on the east by Reynolds Road, and on the west by Anna Maria Drive. The drainage ditch is configured in a northeast to southwest arrangement running parallel with Anna Maria Drive. The higher elevations are at the northeast end, and the topography drains towards the southwest. The southern boundary of the proposed action on the drainage ditch is adjacent to Tokos Grove Road. This drainage ditch ultimately drains to the Finch Hollow Stormwater Retention Facility 1, which is in a municipal park, Finch Hollow Nature Preserve.

Include street number, street name and/or County, State or Interstate route number if applicable

**City/Town/Village:** Village of Johnson City

List the correct municipality in which the project is being undertaken. If in a NON-INCORPORATED hamlet/village, provide the name of the town.

**County:** Broome County, New York

### TYPE OF REVIEW REQUIRED/REQUESTED

Section 106 of the National Historic Preservation Act of 1966 (NHPA)/ Section 14.09 of the New York State Parks, Recreation and Historic Preservation Law of 1980

Send Correspondence to:

**Mr. Thomas King**  
Certifying Environmental Officer  
Governor's Office of Storm Recovery  
99 Washington Avenue  
Suite 1224  
Albany, New York 12231  
Office: (518) 473-0015  
Mobile: (646) 417-4660

**Ms. Andrea Gievers**  
Sr. Environmental Management Analyst  
Tectonic Engineering  
PO Box 37  
70 Pleasant Hill Rd  
Mountainville, New York 10953  
Voice: (845) 234-8234  
Fax: (845) 534-5999

## **Attachment B**

### **Project Name and Description:**

**Project Name:** Anna Maria Drive Drainage Improvements

**Location:** Village of Johnson City, Broome County, New York

The proposed action is rehabilitation of a drainage ditch spanning approximately 3,500 feet – bounded on then north by Penna Road, on the east by Reynolds Road, and on the west by Anna Maria Drive. The drainage ditch is configured in a northeast to southwest arrangement running parallel with Anna Maria Drive. The higher elevations are at the northeast end, and the topography drains towards the southwest. The southern boundary of the proposed action on the drainage ditch is adjacent to Tokos Grove Road. This drainage ditch ultimately drains to the Finch Hollow Stormwater Retention Facility 1, which is in a municipal park, Finch Hollow Nature Preserve.

### **INTRODUCTION**

The Village of Johnson City is an incorporated village within the Town of Union, Broome County, NY. This area suffered flooding as a result of Tropical Storm Lee and Hurricane Irene. Extensive damage occurred during Tropical Storm Lee when Broome County received twelve (12) inches of rain. Rising waters within the county overtopped levees and floodwalls and overloaded storm water and sanitary systems.

Damage in the area of the proposed action were in the form of flooding and erosion along the current drainage ditch running parallel to the Anna Marie Drive. According to the Broome County NY Rising Community Reconstruction Program (NYRCRP), March 2014, extensive erosion along the banks of this drainage ditch undermined an existing concrete-encased sanitary sewer main. There is concern that further erosion will compromise the sanitary sewer system and could cause the release of untreated sanitary waste into the Choconut Creek and the Finch Hollow Stormwater Retention Facility 1.

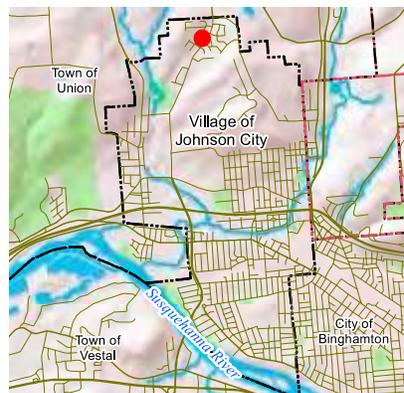
Residential properties bordering this drainage ditch are also susceptible to erosion which can cause continued loss of property and possible future undermining of the footing of the approximately fifty (50) residential structures along this drainage ditch. The erosion that occurs along the banks of this creek has extended to fourteen (14) feet deep at some locations (NYRCRP - Broome County), and has led to high sediment loads downstream to the Finch Hollow Stormwater Retention Facility; the sediment has reduced the capacity of the downstream Finch Hollow Stormwater Retention Facility.

**Project Activities:** This project involves Community Development Block Grant - Disaster Recovery (CDBG-DR) program funding for rehabilitation of approximately 3,500 feet of drainage ditch/canal. The drainage canal will consist of a combined use of concrete-lined ditches, piping, and culverts. The project will involve grading and excavating the channel bottom and side slopes for hydraulic capacity enhancements, removing vegetative growth to clear the channel, removing debris that impedes water flow, stabilizing the slopes and top bank by using fill, seed, fertilizer, and vegetative mulch, and replacing culverts with culverts capable of higher capacity. This work will also include miscellaneous associated work, such as creating construction access areas. All work will occur within existing construction easements (approximately 20 feet on each side of the drainage ditch). Additionally, the Village is currently obtaining temporary construction easements for the access area. All permanent construction work will be within the drainage ditch channel.

## Anna Maria Drive Ditch Stormwater Management Village of Johnson City

**Project Type.** Proposed.

**Project Description.** Tropical Storm Lee and other storms have caused erosion along the banks of a drainage ditch that is east of and parallel to Anna Maria Drive. The erosion has undermined an existing concrete-encased sanitary sewer main, which if compromised, could release untreated effluent into the creek and ultimately to the Finch Hollow Stormwater Retention Facility 1, located at the southern end of the ditch. Given the approximate 6% slope of the ditch, this erosion endangers properties that are adjacent to the ditch. In some cases, the erosion is 14 feet deep and approximately 30 feet from the rear of existing residences. It also has caused increased sediment loads downstream at the Finch Hollow Stormwater Retention Facility 1. The additional sedimentation reduces the capacity of the retention system. The project would rehabilitate approximately 3,500 feet of drainage ditch to eliminate erosion at 50 residential properties and increase holding capacity of Broome County's Finch Hollow Stormwater Retention Facility 1. The required permits from the Army Corps of Engineers have been obtained by the Village.



*Vicinity Map of Anna Maria Drive Ditch Stormwater Management.*

**Project Cost.** The estimated cost is approximately \$950,000.

**Project Benefits.** Benefits of the project include:

- **Risk Reduction Benefits.** The project increases holding capacity at the stormwater retention facility, reducing flood risk to downstream residents and businesses.
- **Environmental Benefits.** It reduces erosion of residential properties in proximity to Anna Maria Ditch.

**Cost Benefit Analysis.** Core environmental infrastructure improvements will benefit community resilience in future storm events, ensuring the protection of the Village of Johnson City's assets and the safety of its residents. Based on available information and preliminary designs, the proposed project would have a net benefit on community safety and increased protection for nearly 50 properties from the rehabilitation of 3,500 linear feet of drainage ditch. Additionally, increased stormwater holding capacity at the Finch Hollow Stormwater Retention Facility No.1 will create resiliency during future flooding for the



*Severe erosion on the banks of the Anna Maria Drive Ditch.*

**Section IV:** Implementation—Project Profiles

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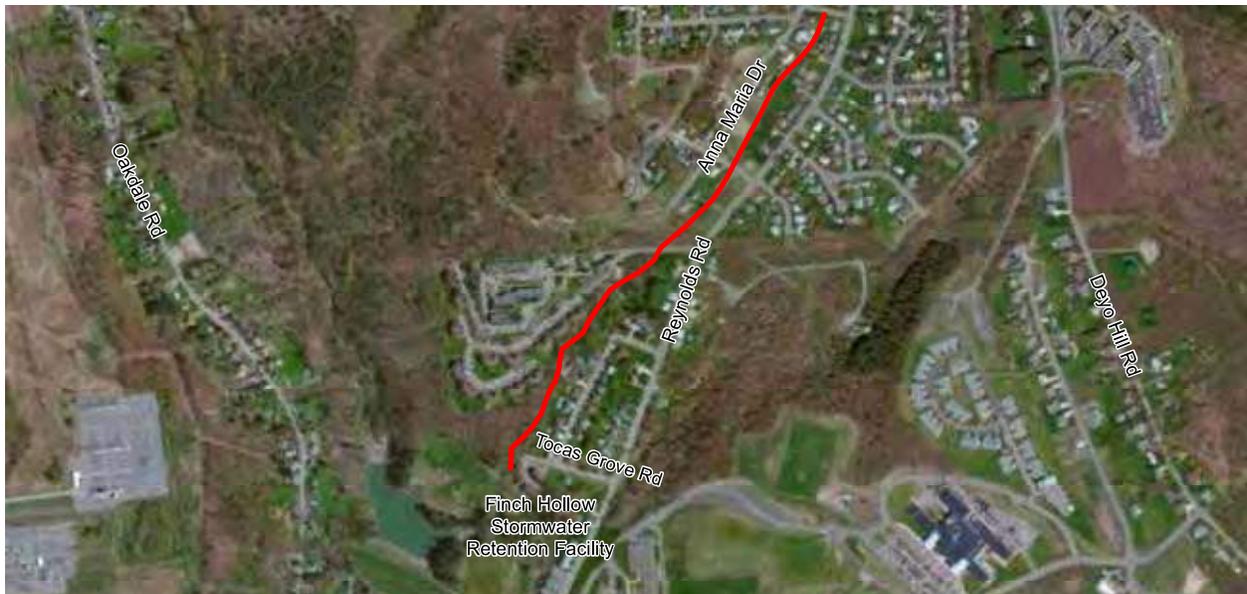
neighborhood. The potential benefits of this project are considered to outweigh the approximately \$950,000 investment required to plan, design, and construct the stormwater management system.

**Risk Reduction Analysis.** The stabilization of the drainage structure would reduce the risk of localized flooding to downstream residents, and businesses. Given the information and data analyzed to date, other risk reduction benefits include decreasing stormwater runoff, protecting riverine ecosystems and limiting contributing to flood waters, and reducing overall exposure to flood waters.

**Timeframe for Implementation.** 10 months.

**Regulatory Requirements.** A dam safety permit may be needed and coordinated through the NYS DEC.

**Jurisdiction.** Village of Johnson City.



*Location Map of Anna Maria Drive Ditch Stormwater Management.*



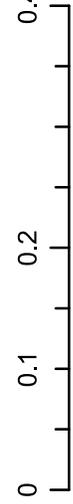
Project Area

Drainage Ditch

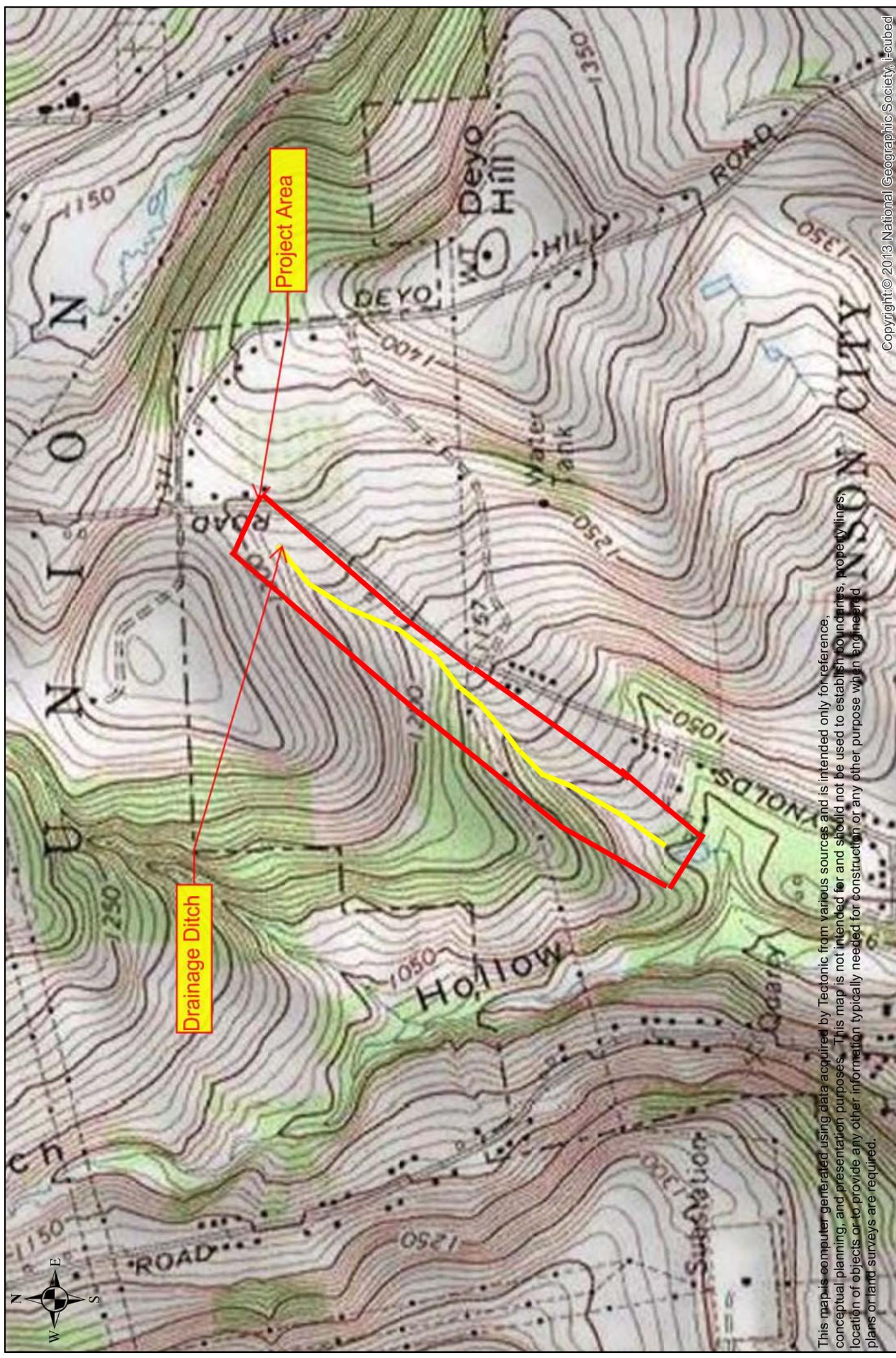
This map is computer generated using data acquired by Tectonic from various sources and is intended only for reference, conceptual planning, and presentation purposes. This map is not intended for and should not be used to establish boundaries, property lines, location of objects or to provide any other information typically needed for construction or any other purpose without the aid of a professional surveyor. Tectonic is not responsible for any errors or omissions in this map. Tectonic Engineering, Inc. (HERE, Delorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community)

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845.534.5959 voice 845.534-5999 fax  
[www.tectonicengineering.com](http://www.tectonicengineering.com)

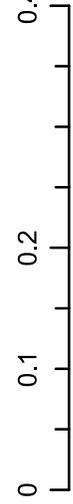


**Street Map**  
**Drainage Improvements**  
**Reynolds Road/Anna Maria Drive**  
**Johnson City, NY**

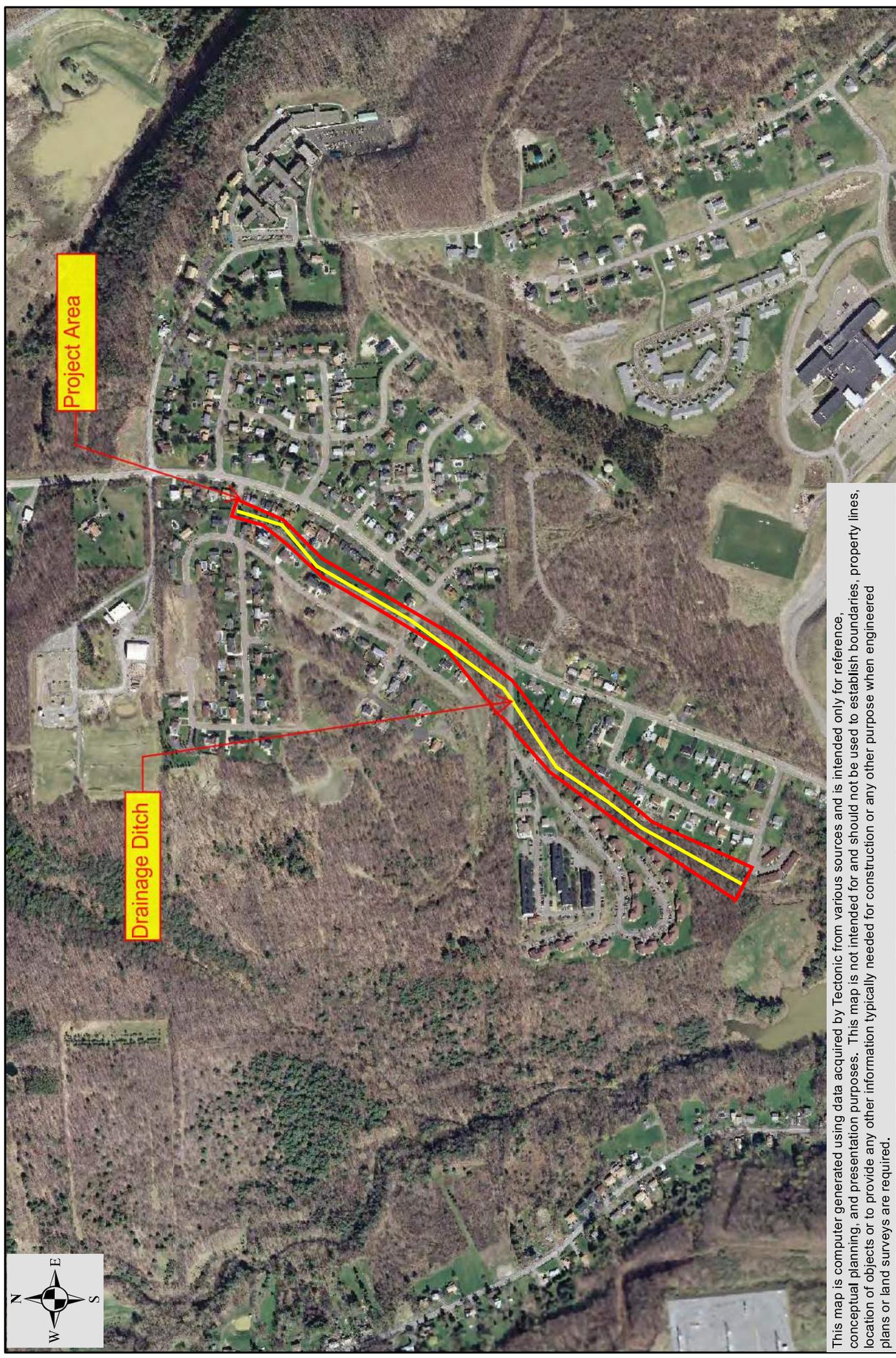


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**Topographic Map**  
**Drainage Improvements**  
 Reynolds Road/Anna Maria Drive  
 Johnson City, NY



Project Area

Drainage Ditch

This map is computer generated using data acquired by Tectonic from various sources and is intended only for reference, conceptual planning, and presentation purposes. This map is not intended for and should not be used to establish boundaries, property lines, location of objects or to provide any other information typically needed for construction or any other purpose when engineered plans or land surveys are required.

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0 500 1,000 2,000  
 Feet

**Drainage Improvements  
 Reynolds Road/ Anna  
 Maria Drive, Village of  
 Johnson City, NY**

**Attachment D**



*Figure 1: North from Marion Drive towards drainage ditch currently covered by vegetation.*



*Figure 2: South from Marion Drive towards drainage ditch.*

**Attachment D**



*Figure 3: South from Penna Road towards eroded residential property and drainage canal.*



*Figure 4: Picture provided in the NYRCR Plan showing eroded drainage ditch.*

## Jim Turner

Project Archaeologist



**Years of Experience:** 15  
**Years with Firm:** 1

**Education:**

**Masters of Arts**

Anthropology Awarded 2005  
 State University of New York at Albany  
 Albany, NY  
 Thesis Title: Mayan Zodiac Models Derived  
 from the Venus Tables of the  
 Dresden Codex, 2005

**Bachelor of Arts**

Philosophy & Literary Studies  
 University of Toronto  
 Toronto, Canada, 1989-1993

**Highlights:**

**Town of Wawarsing Historic Preservation  
 Commission**

Wawarsing, NY  
 Inaugural Commission Member, 2010

**Sam's Point Preserve**

Cragsmoor, NY  
 Ridge Ramblers Day Camp Archeology Field  
 Day, 2008-2010

**Cragsmoor Free Library**

Cragsmoor, NY  
 Trustee 2005-2007

**Summary:**

As Archaeologist, Mr. Turner is responsible for conducting Cultural Resource Surveys under the provisions of Section 106 of the National Historic Preservation Act (NHPA), the Archaeological and Historic Preservation Act and the Nationwide Programmatic Agreement for review by State Historic Preservation Offices (SHPO) and Tribal Consultants. Responsibilities include determining the Area of Potential Effect (APE), conducting background and literature searches of prehistoric and historic sites, reviewing environmental records, assessing archaeological sensitivity, conducting field investigations and evaluating visual and direct effects. Further responsibilities include preparing National Environmental Policy Act (NEPA) reports and Environmental Assessments (EA) by consulting with appropriate federal and state regulatory agencies and reviewing available published lists, files and maps.

**Relevant Project Experience:**

**New York State Housing Trust Fund Corporation (HTFC), Consulting  
 Environmental Analyst (CEA), Albany, New York, Senior Environmental**

**Analyst** - As part of a term contract awarded to Tectonic by the New York State (NYS) Department of Housing and Community Renewal (DHCR)/Housing Trust Fund Corporation (HTFC), responsibilities include working closely with Local Program Administrators (LPAs), during the environmental review process required by the U.S. Department of Housing and Urban Development (HUD) HOME Program pursuant to 24 CFR 58.5 and 58.6. Requested LPA funding approval is associated with activities such as owner-occupied home rehabilitation, home ownership assistance, rental property rehabilitation and tenant based rental assistance. Mr. Turner provides review, comments and guidance for required LPA documents including Environmental Review Records (ERR), Statutory Checklist, Notice of Intent to Request Release of Funds (NOIRROF), and Request for Release of Funds (RROF). Mr. Turner coordinates directly with the LPAs and the NYS HTFC Environmental Analysis Unit to provide timely reviews of project documents.

**STRATA, LLC, A Cultural Resource Management Company, Cragsmoor,  
 NY, Co-Founder/Principal Investigator:**

- Co-founded STRATA Cultural Resource Management.
- Established a broad network of over 60 clients.
- Managed a staff of up to 20 professional archaeologists and researchers.
- Developed work scopes and cost estimates for all projects.
- Hired project personnel and supervised field investigators.
- Managed payroll including timecard processing and coordination with PAYCHEX Inc.
- Designed and developed content for company website.
- Wrote and submitted all Phase I, II & III cultural resource management (CRM) reports to clients, municipalities/ lead agencies and The State Historic Preservation Office (SHPO).
- Coordinated Phase III artifact collection curation with the New York State Museum in Albany.
- Created Cultural Resources Exhibits for temporary and permanent display.
- Designated as 36CFR64-qualified Principal Investigator and Registered
- Professional Archeologist (RPA).



**Parks, Recreation  
and Historic Preservation**

**ANDREW M. CUOMO**  
Governor

**ROSE HARVEY**  
Commissioner

February 6, 2015

Mr. Tom King  
Assistant General Counsel  
Governor's Office of Storm Recovery  
99 Washington Avenue, Suite 1224  
Albany, NY 12231

Re: GOSR  
CDBG Anna Marie Drive/Reynolds Road Drainage Ditch Improvements  
Johnson City, Broome County  
15PR00398 and 15PR00250

Dear Mr. King:

Thank you for requesting the comments of the State Historic Preservation Office (SHPO). We have reviewed the projects 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 potential environmental impacts to New York State Parkland that may be involved in or near your projects. Such impacts must be considered as part of the environmental review of the projects pursuant to the National Environmental Policy Act and/or the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8).

Based on our review the New York State Historic Preservation Office (SHPO) recommends a finding of No Historic Properties Affected for this undertaking.

If I can be of any further assistance do not hesitate to contact me at (518) 237-8643, ext. 3263.

Sincerely,

John A. Bonafide  
Director,  
Technical Preservation Services Bureau

# Attachment 7

NYSDEC Environmental Resource  
Map & USFWS NWI Map



U.S. Fish and Wildlife Service

# National Wetlands Inventory

Dec 17, 2014



## Wetlands

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

## Riparian

- Herbaceous
- Forested/Shrub

## Riparian Status

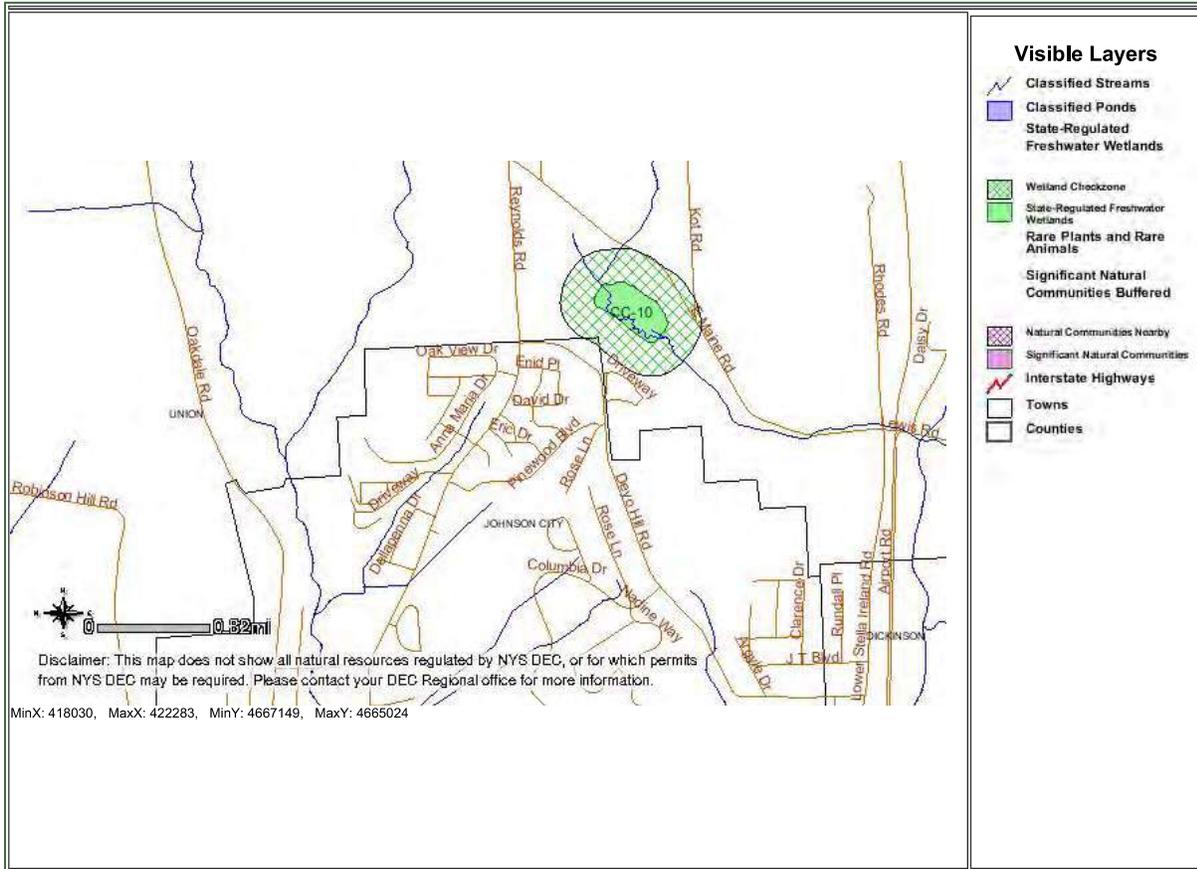
- Digital Data

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

User Remarks:

[print page] [close window]

Please set your printer orientation to "Landscape".



Disclaimer: This map was prepared by the New York State Department of Environmental Conservation using the most current data available. It is deemed accurate but is not guaranteed. NYS DEC is not responsible for any inaccuracies in the data and does not necessarily endorse any interpretations or products derived from the data.

# Attachment 8

NYSDEC Natural Heritage Program & USFWS  
Consultation Correspondence

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION**  
**Division of Fish, Wildlife & Marine Resources**  
**New York Natural Heritage Program**  
625 Broadway, 5<sup>th</sup> Floor, Albany, New York 12233-4757  
**Phone:** (518) 402-8935 • **Fax:** (518) 402-8925  
**Website:** [www.dec.ny.gov](http://www.dec.ny.gov)



Joe Martens  
Commissioner

January 22, 2015

Joshua Gomez  
Tectonic  
PO Box 37, 70 Pleasant Hill Road  
Mountainville, NY 10953

Re: W.O. # 7463.03 Johnson City Site Drainage Improvements at Reynolds Road / Anna Maria Drive  
Town/City: Union. County: Broome.

Dear Joshua Gomez :

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 your site or in its immediate vicinity.

The absence of data does not necessarily mean that rare or state-listed species, natural communities or other significant habitats do not exist on or adjacent to the proposed site. Rather, our files currently do not contain information which 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 Data bases. 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 appropriate NYS DEC Regional Office, Division of Environmental Permits, as listed at [www.dec.ny.gov/about/39381.html](http://www.dec.ny.gov/about/39381.html).

Sincerely,

A handwritten signature in black ink that reads "Andrea Chaloux".

Andrea Chaloux  
Environmental Review Specialist  
New York Natural Heritage Program



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: Thomas J. King

Date: Feb 6, 2015

USFWS File No: 150412

Regarding your: Letter Fax  Email

Dated: Feb. 4, 2015

For project: Reynolds Road / Anna Maria Drive drainage ditch improvements

Located: \_\_\_\_\_

In Town/County: Village of Johnson City / Broome 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): Robyn

Supervisor: Anne d. Secord Date: 2/6/15



## 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: Thomas King

Date: Feb 23, 2015

USFWS File No: 150412

Regarding your:  Letter  Fax  Email

Dated: Feb 4, 2015

For project: Reynolds Road / Anna Maria Drive drainage ditch improvements

Located: \_\_\_\_\_

In Town/County: Village of Johnson City / Broome 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.

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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): Robyn A

Supervisor: Patricia Cole Date: 2/23/15

# Attachment 9

## Coastal Boundary Map



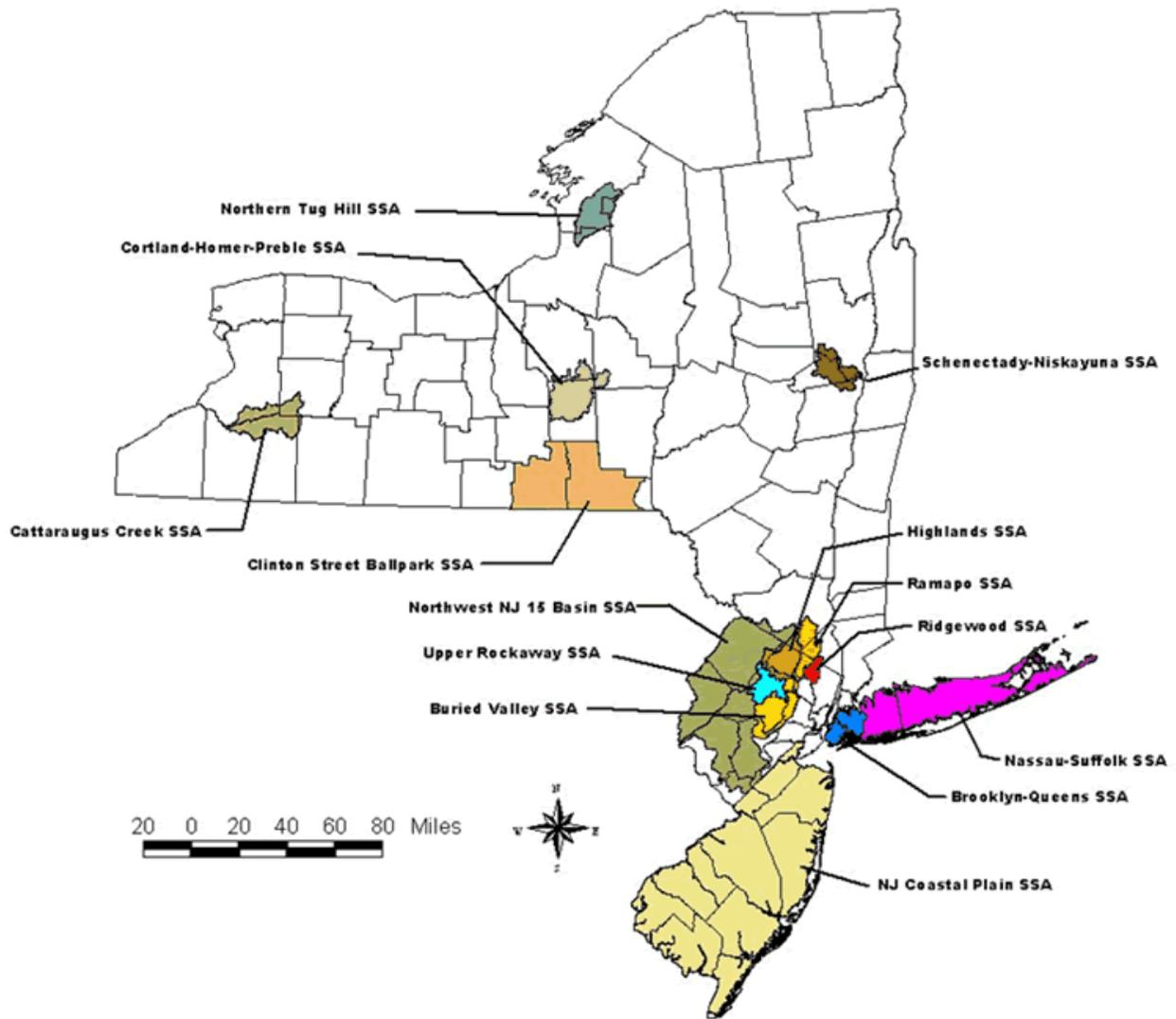
ESRI, HERE, DeLorme, TomTom, Mapbox, Swatch, © OpenStreetMap contributors, and the GIS user community | EsriPartner Gateway

# Attachment 10

FEMA Firmette

# Attachment 11

## Sole Source Aquifer Map



<http://www.epa.gov/region02/water/aquifer/>

ATTACHMENT 2.A

**NON-HOUSING PROJECT/ACTIVITY INITIAL SCREEN CRITERIA**  
(For projects in a designated Sole Source Aquifer area)

The following list of criteria questions are to be used as an initial screen to determine which non-housing projects/activities should be forwarded to the Environmental Protection Agency (EPA) for Preliminary Sole Source Aquifer (SSA) Review. (For housing projects/activities see Attachment 2.B) If any of the questions are answered affirmatively, Attachment 3, SSA Preliminary Review Requirements, should also be completed. The application/final statement, this Attachment, Attachment 3, and any other pertinent information should than be forwarded to EPA at the address below.

Any project/activity not meeting the criteria in this Attachment, but suspected of having a potential adverse effect on the Sole Source Aquifer should also be forwarded. Contact EPA if you have any questions.

Chief, Environmental Impacts Branch  
USEPA Region II  
26 Federal Plaza, Room 500  
New York, New York 10278  
(212) 264-1840

CRITERIA QUESTIONS

1. Is the project/activity located within a currently designated or proposed groundwater sensitive area such as a special Ground Water Protection Area, Critical Supply Area, Wellhead Protection Area etc.? [This information can be obtained from the County or Regional planning board, the local health department, the State health department or the State environmental agency.]
2. Is the project/activity located within a one half mile radius (2640 feet) of a current or proposed public water supply well or wellfield? [This information can be obtained from the local health department, the State Health department or the State environmental agency.]

YES NO N/A

unknown

unknown

3. Will the project/activity include or directly cause: (check appropriate items)

Yes No N/A

- construction or expansion of solid waste disposal, recycling or conversion facilities
- construction or expansion or closure of landfills
- construction or expansion of water supply facilities (i.e., treatment plant, pump house, etc.)
- construction or expansion of on-site wastewater treatment plants or sewage trunk lines, greater than 1/4 mile
- construction or expansion of gas or petroleum trunk lines, greater than 1200 feet
- construction or expansion of railroad spurs or similar extensions
- construction or expansion of municipal sewage treatment plants

— ✓ —  
— ✓ —  
— ✓ —  
— ✓ —  
— ✓ —  
— ✓ —  
— ✓ —

4. Will the project/activity include storage or handling of any hazardous constituents as listed in Attachment 4, Hazardous Constituents?

— ✓ —

If these constituents are used during the construction phase of the project, than an assurance statement must be provided indicating that chemicals will be used in a safe and proper manner, and that they will be promptly removed after construction is completed.

5. Will the project/activity include bulk storage of petroleum in underground or above ground tanks in excess of 1100 gallons?

— ✓ —

6. Will the project/activity require a federal or state discharge elimination permit or modification of an existing permit?

— ✓ —

This attachment was completed by:

Name:

Joshua Gomez

Title:

Environmental Scientist

Address:

Po Box 37

70 Pleasant Hill Road

Mountainville NY 10953

Telephone number:

(845) 534-5959

Date:

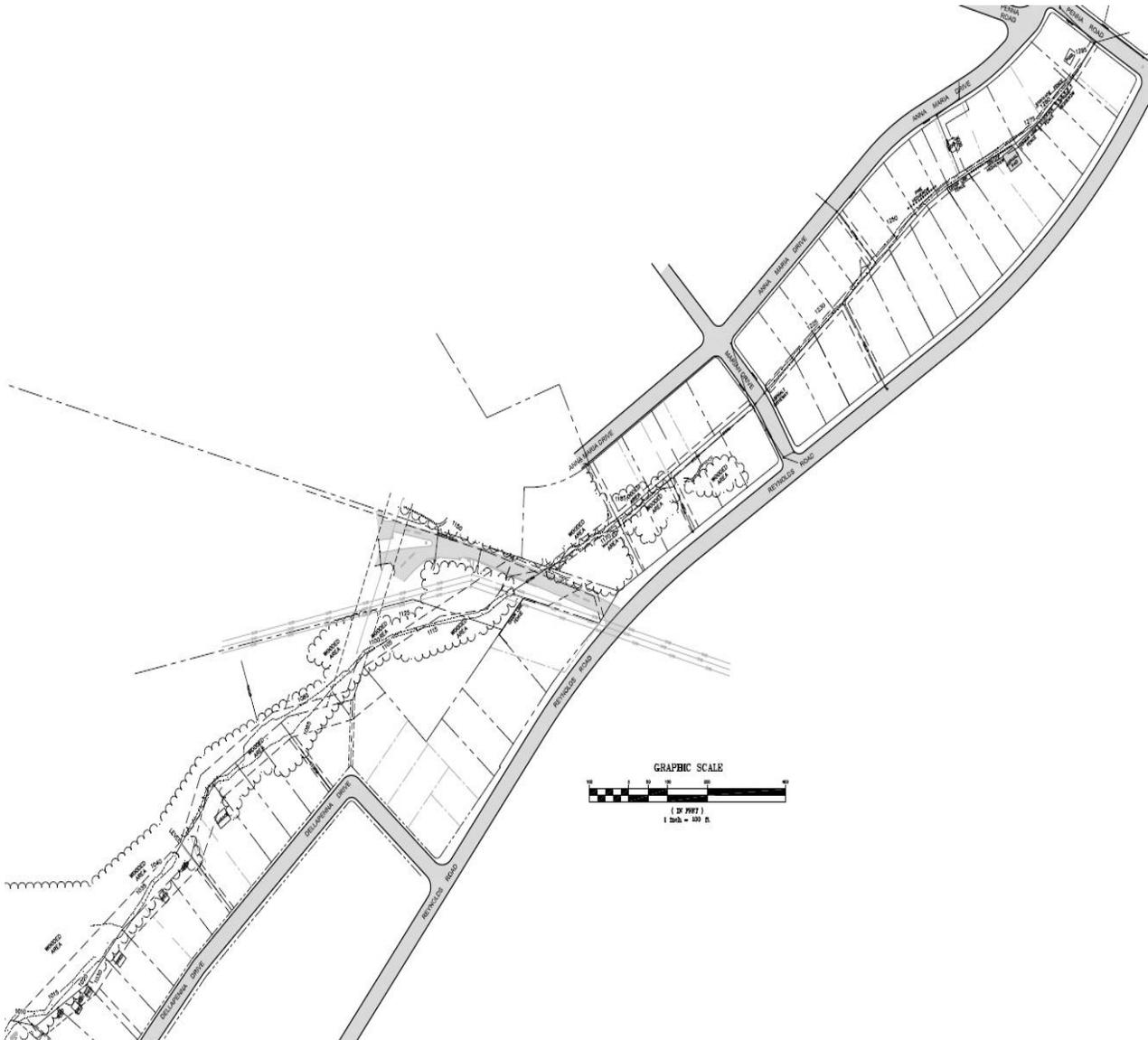
2/24/2015

# **Attachment 4**

# **Supplemental Report**

# **ANNA MARIA DRIVE DITCH STORM WATER MANAGEMENT**

## **ENVIRONMENTAL ASSESSMENT**



**New York State Governor's Office of Storm Recovery**  
March 16, 2015

**Tribal Historic Preservation Consultation Response Letters:**

Page 1..... Oneida Indian Nation

Page 2..... Stockbridge-Munsee Band of the  
Mohicans

# ONEIDA INDIAN NATION



JESSE J. BERGEVIN  
HISTORIC RESOURCES SPECIALIST

DIRECT DIAL: (315) 829-8463  
FACSIMILE: (315) 829-8473  
E-MAIL: [jbergevin@oneida-nation.org](mailto:jbergevin@oneida-nation.org)

## ONEIDA NATION HOMELANDS

February 26, 2015

Tom King  
Assistant General Counsel  
Governor's Office of Storm Recovery  
99 Washington Avenue Suite 1224  
Albany, New York 12231  
*(Transmitted by email)*

Re: Section 106 Discussion  
CDBG-DR, NYRCR Anna Maria Drive/Reynolds Road Drainage Ditch Improvements  
Village of Johnson City, Broome County, NY

Dear Mr. King,

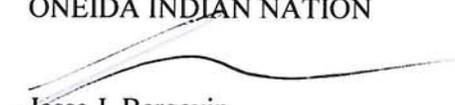
On February 25, 2015, the Oneida Indian Nation (the "Nation") received an email with documentation from the Governor's Office of Storm Recovery (GOSR) regarding the proposed rehabilitation of a drainage ditch (the "Project") in the Village of Johnson City, New York. Your letter indicated that the GOSR *"is acting under the auspices of New York State Homes and Community Renewal's Housing Trust Fund Corporation as a recipient of Community Development Block Grant – Disaster Recovery ("CDBGDR") funds from the United States Department of Housing and Urban Development ("HUD"). GOSR is the entity responsible for compliance with the HUD environmental review procedures set forth in 24 CFR Part 58. GOSR is acting on behalf of HUD in providing the enclosed project information and inviting this discussion with your Nation to respond with any concerns or comments"*.

The Nation has reviewed the information provided and it appears the Project lies outside of the Oneida's aboriginal territory and is, therefore, beyond our purview.

Please feel free to contact me at (315) 829-8463 with any questions.

Very truly yours,

ONEIDA INDIAN NATION

  
Jesse J. Bergevin

***Stockbridge-Munsee Tribal Historic Preservation***

*Main Office  
W13447 Camp 14 Rd  
Bowler, WI 54416*

*New York Office  
P.O. Box 718  
Troy, NY 12181*

Mr. Thomas King  
Certifying Environmental Officer  
Governor's Office of Storm Recovery  
99 Washington Ave  
Suite 1224  
Albany, New York 12231  
*Via email only*

March 12, 2015

**RE: Comment on CDBG-DR, NYRCR Anna Maria Drive/Reynolds Road Drainage Ditch  
Improvements  
Village of Johnson City, Broome County NY**

Dear Mr. King:

We are in receipt of materials for the above-referenced project received 2/26/15.

We have completed cultural resource review and found that we do not have significant concerns as we do not know of cultural sites within the project APE.

However, as always, should any cultural materials inadvertently be discovered during project construction, we request that the project is stopped and that we are notified.

In addition, please note that I conduct these reviews for our tribe now and am based out of New York to better carry out site visits. Please update your distribution list to send future projects to me at the address in the upper right of the letterhead. Materials sent to Wisconsin are forwarded to me in New York, so sending directly to me by mail or email would expedite the process.

Thank you & Kind regards,



Bonney Hartley  
Tribal Historic Preservation Assistant- NY Office