

**Appendix C**

**ENVIRONMENTAL EVALUATIONS AND CONSULTATIONS**

**Attachment 1**

**US Army Corps of Engineers SEQR Comments**



DEPARTMENT OF THE ARMY  
US Army Corps of Engineers, ATTN: CENAN-OP-RU  
Upstate Regulatory Field Office  
1 Buffington St., Building 10, 3<sup>rd</sup> Fl. North  
Watervliet, New York 12189-4000

JUN 23 2015

JUN 25 2015

Upstate New York Section

SUBJECT: Permit Application Number NAN-2015-00630-UBO  
by Cobleskill, Village of  
Village of Cobleskill, Schoharie County, New York

Linda Holmes, Mayor  
Village of Cobleskill  
378 Mineral Springs Road, Suite 2  
Cobleskill, New York 12043

Dear Mayor Holmes:

This letter is in response to your March 23, 2015 request for SEQR Classification and Lead Agency Determination regarding the Water Supply Protection Project located in the Village of Cobleskill, Schoharie County, New York.

The New York District, U.S. Army Corps of Engineers does not take a position for or against lead agency selection in the New York State SEQR process for this proposed action. However, we would like to continue to be apprised of the project as an "involved agency". It should be noted that if there are water of the US or wetlands located on the parcel and if the construction will involve work in waters of the United States, including the discharge of fill material into streams or wetlands, then the proposed activities may require a Department of the Army permit.

The Army Corps of Engineers regulates activities that include dredging or construction activities in or over any navigable waters of the United States, the placement of any dredged or fill material in any waters of the United States (including coastal or inland wetlands), or the accomplishment of any work affecting the course, location, condition or capacity of such areas. Such activities may require a Department of the Army permit, in accordance with 33 CFR 320-332.

Most waterbodies, including wetlands, intermittent streams and natural drainage courses, are considered to be waters of the United States. Currently, the New York State Department of Environmental Conservation (NYSDEC) recognizes and maps state freshwater wetlands as those wetland areas that are 12.4 acres or more and/or are ecologically unique. A NYSDEC determination classifying an area as a non-state regulated wetland does not free a property owner from his or her obligations under the Clean Water Act; the Corps regulates the discharge of dredged or fill material into most freshwater wetlands, regardless of size.

PLEASE USE THE ABOVE 18-CHARACTER FILE NUMBER ON ALL CORRESPONDENCE WITH THIS OFFICE

To remain out of Department of the Army jurisdiction completely, we recommend that the applicant limit the project to those areas upland of any waters or wetlands of the United States. Not only is this environmentally sound, but it could potentially save the applicant considerable time and expense while attempting to obtain necessary federal, state or local permits. It is possible that a project may qualify for a nationwide general permit, in accordance with 33 CFR 330 and the Reissuance of Nationwide Permits in the Federal Register dated February 21, 2012 (77 FR 10184). An activity is authorized under a nationwide general permit only if that activity and the permittee satisfy all of the nationwide permit's terms and conditions. Unless a nationwide general permit contains a condition requiring the applicant to notify the Corps prior to undertaking the proposed activity, a written authorization is not necessary. Activities that do not qualify for authorization under a nationwide general permit may still be authorized by an individual or regional general permit.

To apply for a Department of the Army permit, the applicant should submit a completed Joint Application for Permit form, a work description and project drawings identifying all proposed activities shown in reference to the limits of waters of the United in the project area, and specify the total proposed impacts to waters of the U.S. proposed to be lost or substantially modified, in acres, square feet, linear feet, or as appropriate.

Additional information on the New York District Corps of Engineers regulatory program can also be found at <http://www.nan.usace.army>.

In order for us to better serve you, please complete our Customer Service Survey located at:

<http://www.nan.usace.army.mil/Missions/Regulatory/CustomerSurvey.aspx>

If you have any questions concerning the above, please contact the undersigned at (518) 266-6352.

Sincerely,



Victoria Bova  
Legal Instruments Examiner  
Upstate New York Section

cc: NYSDEC Region 4, Stamford  
B. Becker, Lamont Engineers

**Attachment 2**

**NYSDEC Lead Agency Coordination Response**

**New York State Department of Environmental Conservation**

**Division of Environmental Permits, Region 4**

1130 North Westcott Road, Schenectady, New York 12306-2014

**Phone:** (518) 357-2069 **FAX:** (518) 357-2460

**Website:** www.dec.ny.gov



Joe Martens  
Commissioner

March 24, 2015

Mr. Brendon Becker  
Lamont Engineers  
PO Box 610  
Cobleskill, NY 12043

MAR 25 2015

**RE: LEAD AGENCY COORDINATION RESPONSE**  
DEC ID #4-4326-00113  
Smith Reservoir (Dam #174-3138B) and Dow  
Reservoir (Dam #174-3138A) Spillway Replacement  
Town of Cobleskill, Schoharie County

Dear Mr. Becker:

This letter responds to your correspondence of March 20, 2015, regarding lead agency coordination for the project referenced herein, under Article 8 (State Environmental Quality Review – SEQR) of the Environmental Conservation Law and 6 NYCRR Part 617. The New York State Department of Environmental Conservation (“DEC” or “Department”) has the following interest in this project:

**Name of Action:** Smith and Dow Reservoir Spillway Replacement Project

**DEC Contact Person:** Kristy E. Primeau, Environmental Analyst

**SEQR Classification:** Unlisted

**DEC Position:** Based on the information provided, DEC has no objection to the Village of Cobleskill assuming lead agency status for this action.

**Possible DEC Permits:**

- **Article 15, Protection of Waters Permit** – The reservoir, streams (Tributaries of Cobleskill Creek) and ponds within the project area are all Class A protected waterbodies which contribute to the drinking water system. Disturbance to the bed or banks of these streams or ponds will require an Article 15, Protection of Waters Permit.
- **Section 401 Water Quality Certification** - If this project will impact federally-regulated wetlands or waterbodies, which require a Section 404 Permit (Individual or Nationwide Permit) from the U.S. Army Corps of Engineers, a Section 401 Water Quality Certification may be required from the Department.

- Article 15, Title 5 – Dam Safety Permit – This project involves two Class C water impoundment structures, Smith Reservoir Dam (#174-3138B) and Dow Reservoir (#174-3138A). Work on these structures may require a dam safety permit. As such, in addition to project drawings, an engineering report/assessment in accordance with the dam safety regulations will likely be required. Information on Dam Safety Permits may be found online at: <http://www.dec.ny.gov/lands/4991.html>.
- SPDES General Permit for Stormwater Discharges from Construction Activity – If this project will disturb more than one acre of land, the applicant must comply with the State Pollutant Discharge Elimination System (SPDES) Phase II regulations for Stormwater Discharges Associated with Construction Activities.

**Additional Comments:**

The project appears to be located within an area of potential historical or archeological significance. If approvals/permits are ultimately needed from this Department, we may need to consult with the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) in order to better evaluate this project's impact on these resources. You may wish to inform the applicant/project sponsor of this potential requirement.

In January 2015 you contacted this office regarding the option for separate dredging and disposal of material from the Smith and Dow reservoirs. Sediment analysis provided to this office indicated that if separate dredging of the material is possible, then separate management of the material could be explored. More options may be available for managing the Class A and B material. A Beneficial Use Determination (BUD) will be required for the use of this dredged material as fill material, aggregate, or for other purposes. The Class C material would be taken to a DEC approved landfill.

If you choose to pursue separate dredging of material, you may be required to collect additional samples and have them analyzed for copper. Or, if you have any of the original samples archived, those could be submitted for copper analyses. Additional information regarding BUDs and submitting a sampling and analysis plan for review/approval may be found online at: [http://www.dec.ny.gov/docs/water\\_pdf/togs519.pdf](http://www.dec.ny.gov/docs/water_pdf/togs519.pdf) or <http://www.dec.ny.gov/permits/94755.html>.

Please feel free to contact me by telephone at 518-357-2373 or by e-mail at [kristy.primeau@dec.ny.gov](mailto:kristy.primeau@dec.ny.gov) if you have any questions.

Sincerely,

  
Kristy E. Primeau  
Environmental Analyst

**ESTABLISHMENT OF LEAD AGENCY**

**PURSUANT TO THE NEW YORK STATE ENVIRONMENTAL QUALITY REVIEW ACT**

Proposed Lead Agency: Village of Cobleskill, located in Schoharie County

Proposed Action/Project: Cobleskill Water Supply Protection Project

Project Sponsor: Village of Cobleskill

On behalf of NYS DEC (agency name), I acknowledge receipt of the Village of Cobleskill's notice of intent to be lead agency with respect to the project noted above, issued pursuant to the State Environmental Quality Review Act. I hereby:

1.  endorse the Village of Cobleskill acting as lead agency  
OR  
 do not endorse the Village of Cobleskill acting as lead agency and desire \_\_\_\_\_ serve as lead agency instead  
OR  
 take no position on who acts as lead agency
2.  provide comments on the proposed project (as an attachment)  
OR  
 have no comments on the proposed project

Agency Name NYS DEC  
(please print)  
Signature Brendon Becker  
Date 3.23.15

Please return this form by April 21, 2015 to:

Brendon Becker, P.E.  
Project Engineer  
Lamont Engineers  
P.O. Box 610  
548 Main Street  
Cobleskill, New York 12043

**Attachment 3**

**SHPO No Effect Letter**



# Parks, Recreation, and Historic Preservation

**ANDREW M. CUOMO**  
Governor

**ROSE HARVEY**  
Commissioner

March 31, 2015

Mr. Brendon Becker  
Lamont Engineers  
PO Box 610  
548 Main Street  
Cobleskill, NY 12043

Re: USDA  
Smith Reservoir Spillway Replacement Project  
Between Greenbush Hill Road and Dow Street, Cobleskill, NY  
12PR01170

Dear Mr. Becker:

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

We have reviewed the recently submitted materials regarding the expansion of the project. SHPO continues to recommend that your project will have No Effect upon cultural resources in or eligible for inclusion in the National Registers of Historic Places.

If further correspondence is required regarding this project, please refer to the OPRHP Project Review (PR) number noted above. If you have any questions I can be reached at 518-268-2186.

Sincerely,

Tim Lloyd, Ph.D., RPA  
Historic Preservation Specialist - Archaeology  
timothy.lloyd@parks.ny.gov

via e-mail only

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## Division for Historic Preservation

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

ESTABLISHMENT OF LEAD AGENCY

PURSUANT TO THE NEW YORK STATE ENVIRONMENTAL QUALITY REVIEW ACT

Proposed Lead Agency: Village of Cobleskill, located in Schoharie County  
Proposed Action/Project: Cobleskill Water Supply Protection Project  
Project Sponsor: Village of Cobleskill

On behalf of Saint Regis Mohawk Tribe (agency name), I acknowledge receipt of the Village of Cobleskill's notice of intent to be lead agency with respect to the project noted above, issued pursuant to the State Environmental Quality Review Act. I hereby:

1.  endorse the Village of Cobleskill acting as lead agency  
OR  
 do not endorse the Village of Cobleskill acting as lead agency and desire \_\_\_\_\_ serve as lead agency instead  
OR  
 take no position on who acts as lead agency
2.  provide comments on the proposed project (as an attachment)  
OR  
 have no comments on the proposed project

Agency Name (please print) Saint Regis Mohawk Tribe  
Signature Amel Z Prutic II  
Date 3-27-2015

Please return this form by April 21, 2015 to:

Brendon Becker, P.E.  
Project Engineer  
Lamont Engineers  
P.O. Box 610  
548 Main Street  
Cobleskill, New York 12043

**Attachment 4**

**St. Regis Mohawk Tribe Comment Letter**



# St. Regis Mohawk Tribe

March 27, 2015

She:kon Mr. Becker,

This letter is in response to a request for a Section 106 consultation between your agency and the Saint Regis Mohawk Tribe. The following project that you requested my office to consult on is considered being of "No Effect" in regards to cultural properties of concern to the Saint Regis Mohawk Tribe:

## **Smith Reservoir Spillway Replacement Project 2015**

The St. Regis Mohawk Tribe requests to be immediately contacted in the event any inadvertent discoveries of human remains, funerary objects, sacred objects and objects of cultural patrimony are made during the scope of this project.

Should you or your office have any further questions in regards to these comments please feel free to contact my office at your earliest convenience.

Nia:wen,

A handwritten signature in cursive script that reads "Arnold L. Printup III".

Arnold L. Printup  
Saint Regis Mohawk Tribe  
Tribal Historic Preservation Office  
1(518)358-2272 Ext. 163

**Attachment 5**

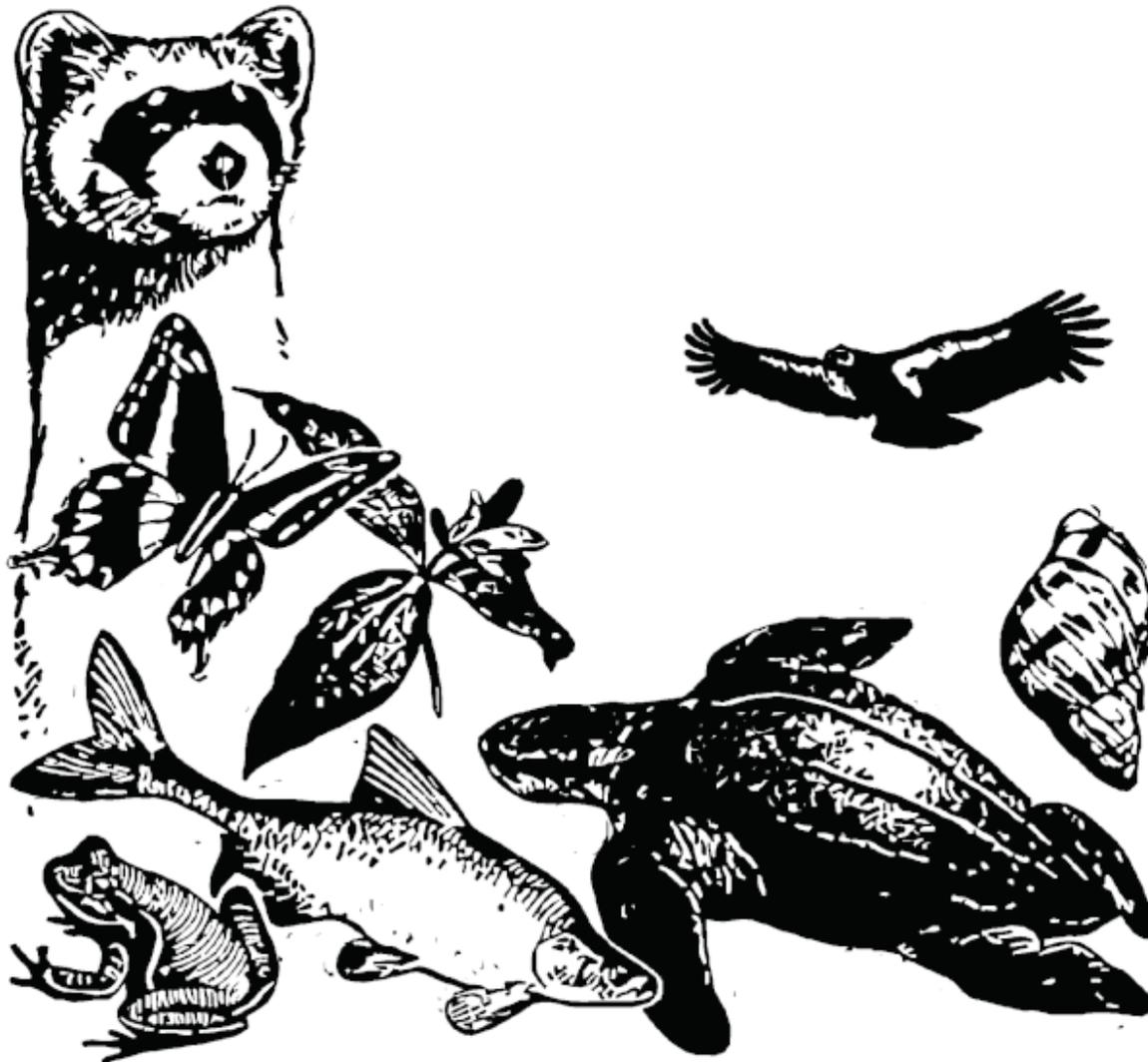
**IPaC Report**

# Cobleskill Water Supply Protection Project

## *IPaC Trust Resource Report*

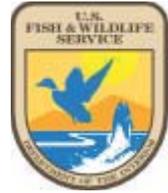
Generated February 24, 2016 07:22 AM MST, IPaC v2.3.2

This report is for informational purposes only and should not be used for planning or analyzing project level impacts. For project reviews that require U.S. Fish & Wildlife Service review or concurrence, please return to the IPaC website and request an official species list from the Regulatory Documents page.



US Fish & Wildlife Service

# IPaC Trust Resource Report



NAME

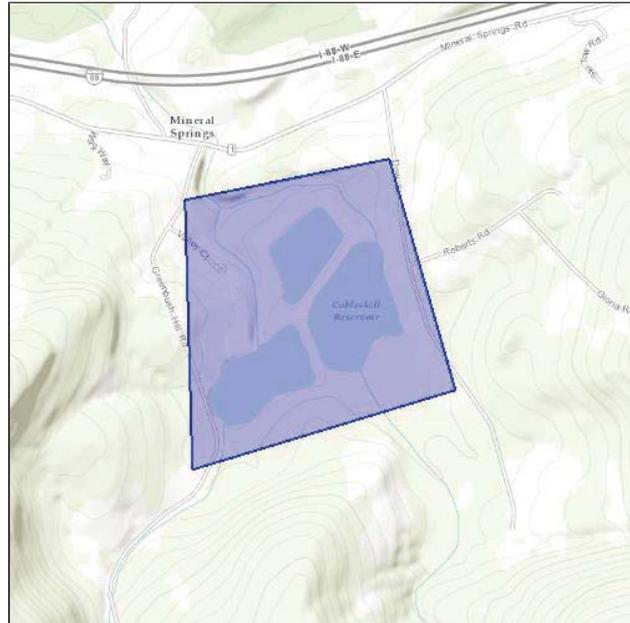
Cobleskill Water Supply Protection Project

LOCATION

Schoharie County, New York

IPAC LINK

<https://ecos.fws.gov/ipac/project/WVS2P-45DKN-HTPMB-PEQH3-U3HQIM>



## U.S. Fish & Wildlife Contact Information

Trust resources in this location are managed by:

**New York Ecological Services Field Office**

3817 Luker Road

Cortland, NY 13045-9349

(607) 753-9334

## Endangered Species

Proposed, candidate, threatened, and endangered species are managed by the [Endangered Species Program](#) of the U.S. Fish & Wildlife Service.

**This USFWS trust resource report is for informational purposes only and should not be used for planning or analyzing project level impacts.**

For project evaluations that require FWS concurrence/review, please return to the IPaC website and request an official species list from the Regulatory Documents section.

[Section 7](#) of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency.

**A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list from the Regulatory Documents section in IPaC.**

The list of species below are those that may occur or could potentially be affected by activities in this location:

### Mammals

**Northern Long-eared Bat** *Myotis septentrionalis* Threatened

CRITICAL HABITAT

**No critical habitat** has been designated for this species.

[https://ecos.fws.gov/tess\\_public/profile/speciesProfile.action?scode=A0JE](https://ecos.fws.gov/tess_public/profile/speciesProfile.action?scode=A0JE)

### Critical Habitats

**There are no critical habitats in this location**

# Migratory Birds

Birds are protected by the [Migratory Bird Treaty Act](#) and the [Bald and Golden Eagle Protection Act](#).

Any activity which results in the take of migratory birds or eagles is prohibited unless authorized by the U.S. Fish and Wildlife Service (1). There are no provisions for allowing the take of migratory birds that are unintentionally killed or injured.

Any person or organization who plans or conducts activities that may result in the take of migratory birds is responsible for complying with the appropriate regulations and implementing appropriate conservation measures.

Additional information can be found using the following links:

- Birds of Conservation Concern  
<http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Conservation measures for birds  
<http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Year-round bird occurrence data  
<http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/akn-histogram-tools.php>

The following species of migratory birds could potentially be affected by activities in this location:

<b>American Bittern</b> <i>Botaurus lentiginosus</i>	Bird of conservation concern
Season: Breeding <a href="https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0F3">https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0F3</a>	
<b>Bald Eagle</b> <i>Haliaeetus leucocephalus</i>	Bird of conservation concern
Year-round <a href="https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B008">https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B008</a>	
<b>Black-billed Cuckoo</b> <i>Coccyzus erythrophthalmus</i>	Bird of conservation concern
Season: Breeding <a href="https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HI">https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0HI</a>	
<b>Blue-winged Warbler</b> <i>Vermivora pinus</i>	Bird of conservation concern
Season: Breeding	
<b>Canada Warbler</b> <i>Wilsonia canadensis</i>	Bird of conservation concern
Season: Breeding	
<b>Golden-winged Warbler</b> <i>Vermivora chrysoptera</i>	Bird of conservation concern
Season: Breeding <a href="https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0G4">https://ecos.fws.gov/tess_public/profile/speciesProfile.action?spcode=B0G4</a>	
<b>Louisiana Waterthrush</b> <i>Parkesia motacilla</i>	Bird of conservation concern
Season: Breeding	

**Olive-sided Flycatcher** *Contopus cooperi*

Season: Breeding

[https://ecos.fws.gov/tess\\_public/profile/speciesProfile.action?sPCODE=B0AN](https://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0AN)

Bird of conservation concern

**Peregrine Falcon** *Falco peregrinus*

Season: Breeding

[https://ecos.fws.gov/tess\\_public/profile/speciesProfile.action?sPCODE=B0FU](https://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0FU)

Bird of conservation concern

**Pied-billed Grebe** *Podilymbus podiceps*

Season: Breeding

Bird of conservation concern

**Prairie Warbler** *Dendroica discolor*

Season: Breeding

Bird of conservation concern

**Red-headed Woodpecker** *Melanerpes erythrocephalus*

Season: Breeding

Bird of conservation concern

**Short-eared Owl** *Asio flammeus*

Season: Wintering

[https://ecos.fws.gov/tess\\_public/profile/speciesProfile.action?sPCODE=B0HD](https://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0HD)

Bird of conservation concern

**Willow Flycatcher** *Empidonax traillii*

Season: Breeding

[https://ecos.fws.gov/tess\\_public/profile/speciesProfile.action?sPCODE=B0F6](https://ecos.fws.gov/tess_public/profile/speciesProfile.action?sPCODE=B0F6)

Bird of conservation concern

**Wood Thrush** *Hylocichla mustelina*

Season: Breeding

Bird of conservation concern

## Refuges

Any activity proposed on [National Wildlife Refuge](#) lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

**There are no refuges in this location**

# Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal Statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

## DATA LIMITATIONS

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

## DATA EXCLUSIONS

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

## DATA PRECAUTIONS

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

This location overlaps all or part of the following wetlands:

## Freshwater Pond

**PUS**

16.0 acres

## Lake

**L**

58.2 acres

A full description for each wetland code can be found at the National Wetlands Inventory website: <http://107.20.228.18/decoders/wetlands.aspx>

**Attachment 6**

**North County Ecological Services Endangered, Threatened, and Rare**

**Species Evaluation**

January 15, 2015

Mr. Aaron Jackson, P.E.  
Lamont Engineers  
548 Main Street  
Cobleskill, New York 12043

***Re: Endangered, Threatened and Rare Species Evaluation  
Cobleskill Reservoir Protection Project  
Town of Cobleskill, Schoharie County, New York***

Dear Mr. Jackson:

Pursuant to your request and as required for compliance with State Environmental Quality Review Act (SEQRA) procedures associated with the construction related activities proposed within the above-referenced property, North Country Ecological Services, Inc. (NCES) has completed an ecological review of the subject parcel in search of habitats conducive to the presence of state and federally listed endangered, threatened and/or rare species of flora and fauna. The formal ecological review included the following:

- 1) An in-house review of literature sources and direct consultations with regulatory agencies regarding records of known occurrences of state and/or federally listed endangered, threatened or rare species of flora and fauna for the subject property and surrounding area.
- 2) An on-site formal field review of the existing ecological communities, habitats and indigenous flora/fauna present within the project area to determine the likelihood of endangered, threatened and/or rare species presence.

To initiate the in-house review, NCES consulted directly with the New York State Department of Environmental Conservation Natural Heritage Office (NHO) and the United States Fish and Wildlife Service (USFWS) to obtain information relative to any existent or historical records of occurrence of endangered, threatened or rare species of flora/fauna. Additionally, information pertaining to the potential for presence of significant ecological community types or other sensitive habitats that are known to be found within the immediate geographic area of the property was also requested. Copies of the response letters that were subsequently issued by the NHO and USFWS are attached for reference.

According to the response received from the NHO (dated January 2, 2015) the Natural Heritage Database possesses one records of a rare or state-listed animals or plants, significant natural communities or other significant habitats, on or in the immediate vicinity of the site. Specifically, the NHO references a hibernaculum that is known to harbor Northern Long-eared Bats (*Myotis septentrionalis*). This information indicates that the hibernaculum is within 5 miles of the site and that individual bats are known to travel more than 5 miles from documented locations.

Upon consultation with the USFWS District Office in Cortland, New York, NCES was directed to review the USFWS website for federally-listed endangered, threatened and rare species and habitat information. Subsequently, the information obtained from the website indicates that the Northern Long-eared Bat (*Myotis septentrionalis*), a candidate species proposed as endangered, is a species that has the potential to be present. In addition, while not currently listed on the endangered species list the USFWS also identified the Bald Eagle (*Haliaeetus leucocephalus*) as being known to occur within the general geographic region and they noted that it is also federally protected under the Bald and Golden Eagle Protection Act (BGEPA).

The information provided by the USFWS was not accompanied by any supportive information detailing approximate locations of the listed species or their associated habitats within Schoharie County. As a result, the response information provided is not project specific as, according to the USFWS, detailed information regarding precise locations of endangered and threatened species is to remain confidential. However, according to the information provided, the speculated presence of these species is recognized by the USFWS based upon extant populations and/or historically recorded occurrences of the species within all of Schoharie County, New York.

As a result of the in-house review, it was determined by NCES that formal a field review was warranted. Subsequently, NCES visited the property in October and November of 2014 conducted the formal field reviews. During the field reviews, NCES traversed the entire subject parcel to document the existing ecological conditions and identify the ecological community types present. During the field reviews, NCES actively searched the existing community types for endangered, threatened and/or rare species of flora and fauna. NCES also specifically assessed the land for habitats that would be deemed conducive to the presence of those species documented by the NHO and USFWS and also for other unique communities and/or endangered, threatened or rare species that were not specifically referenced by the agencies. As a result of the ecological reviews, NCES offers the following information:

### **Site location/Description**

The Site is located between Greenbush Hill Road and Dow Street, immediately west of the intersection of Dow Street and Roberts Road, in the Town of Cobleskill, Schoharie County, New York (Figure 1). The centralized Site coordinates are 42° 39' 52.5" N Latitude and 74° 26' 44.8" W Longitude. Elevations within the Site boundaries range

from 1,200± feet above Mean Sea Level (MSL), located along an upland ridge found along the western property boundary, to 1,130± feet above MSL, found along the northern boundary of the Site, resulting in an elevation difference of 70± feet.

The Site can be generally characterized as an actively maintained, municipal reservoir system. Three (3) separate reservoir basins are found on the property. The easternmost basin is known as the Dow Reservoir and the westernmost basin is known as the Smith Reservoir. The third basin is simply identified as the Holding Pond. The basins are separated from one another by earthen berms and levees that were established during the construction of the basins. These berms are routinely mowed by Village DPW personnel and exist as mowed lawn. In addition to the basins, a pump station is found within the northeastern portion of the Site. A gravel access road extends from Dow Street to the pump station. Lands immediately surrounding the pump station are also mowed. Lands that are not mowed and/or brush-hogged by the Village DPW exist as fallow early successional field; early successional forested upland; and/or Palustrine scrub-shrub or emergent wetland.

Based upon the definitions presented in the *Ecological Communities of New York State* (Edinger, 2002) and *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, 1979), the following ecological communities have been identified on the property:

- Mowed Lawn with trees (Edinger)
- Successional old field (Edinger)
- Successional northern hardwood forest (Edinger)
- Reservoir/artificial impoundment
- Shallow emergent marsh (Edinger)\*\*
- Palustrine Scrub-shrub wetland (Cowardin)
- Palustrine emergent wetland (Cowardin)\*\*

\*\* The Shallow emergent community defined by Edinger is the same as the Palustrine emergent wetland community defined by Cowardin.

Land use surrounding the Site consists of single-family residential development, active agricultural land and undeveloped forested land. Single family residences border the Site to the north and east, along Dow Street. Active agricultural fields and an active farmstead border the Site to the south and east of Dow Street. Undeveloped, forested land borders the Site to the southwest. The Village of Cobleskill and the Cobleskill Country Club is located within 1.5 miles northwest of the Site. Photographs of the property, taken during the delineation to depict existing conditions observed, are attached for reference.

## Existing Conditions

### Soils

According to the Schoharie County soils information as detailed on the USDA Natural Resources Conservation Service Web Soil Survey 3.0 (the "Soil Survey"), there are five (5) separate soil series that are found on the Site. The soils are: Alluvial land (A1); Darien silt loam, with 2-15% slopes (DeB & DeC), Darien silty clay loam, with 8-15% slopes, eroded (DuC3); Mohawk and Lima silt loams, with 2-10% slopes (MIB3); and, Wayland soils complex, with 0-3% slopes, frequently flooded (Wa). In addition, the Soil survey also indicates several areas of open water (W). Each of the soil types referenced were confirmed in the field by NCES during Site evaluations.

### Vegetation

During the delineation, a total of five (5) ecological communities were identified on the Site. The ecological communities identified are as follows: Mowed lawn with trees; Successional old field; Successional northern hardwood forest; Palustrine scrub-shrub wetland; and, Palustrine emergent wetland. Each of these ecological communities possess different vegetative cover types that are associated with them. The dominant species of vegetation observed within the ecological communities are identified below:

Some of the dominant species of vegetation observed within the Mowed lawn with trees ecological community included but are not limited to; red clover (*Trifolium pratense*), white clover (*Trifolium repens*), birdsfoot trefoil (*Lotus corniculatus*), common plantain (*Plantago major*), dandelion (*Taraxacum officinale*), Canada thistle (*Cirsium arvense*), and various grasses (Graminae).

Some of the dominant species observed within the Successional Old Field ecological communities included, but are not limited to; gray dogwood (*Cornus racemosa*), honeysuckle (*Lonicera tatarica*), multiflora rose (*Rosa multiflora*), common buckthorn (*Rhamnus cathartica*), hawthorn (*Crataegus crus-galli*), wild apple (*Malus* spp), staghorn sumac (*Rhus typhina*), Canada goldenrod (*Solidago canadensis*), early goldenrod (*Solidago juncea*), reed canary grass (*Phalaris arundinacea*), spotted knapweed (*Centurea maculosa*), daisy (*Chrysanthemum leucanthemum*), dandelion, red clover, white clover, common milkweed (*Asclepias syriaca*) timothy (*Phleum pratense*), orchard grass (*Dactylis glomerata*), common burdock (*Arctium minus*) and birdsfoot trefoil.

Some of the dominant species of vegetation observed within the Successional northern hardwoods ecological community included, but are not limited to; northern red oak (*Quercus rubra*), black cherry (*Prunus serotina*), red maple (*Acer rubrum*), sugar maple (*Acer saccharum*), white pine (*Pinus strobus*), shagbark hickory (*Carya ovata*), white ash (*Fraxinus americana*), common buckthorn, tatarian honeysuckle, virginia creeper (*Parthenocissus quinquefolia*), poison ivy (*Rhus radicans*), common blue violet (*Viola sororia*), garlic mustard (*Alliaria officinalis*), wood fern (*Dryopteris intermedia*) and Christmas fern (*Polystichum agrostichoides*).

Some of the dominant species of vegetation observed within the Palustrine scrub-shrub wetlands communities included, but are not limited to, silky dogwood (*Cornus amomum*), gray dogwood, nannyberry (*Viburnum lentago*), arrowwood (*Viburnum recognitum*), witch hazel (*Hamamelis virginiana*), jewelweed (*Impatiens capensis*), sensitive fern (*Onoclea sensibilis*), fowl manna grass (*Glyceria striata*) and tussock sedge (*Carex stricta*).

Some of the dominant species observed within the Palustrine emergent wetlands included, but are not limited to; cattail (*Typha latifolia*), joe-pye weed (*Eupatorium maculatum*), reed canary grass, purple loosestrife (*Lythrum salicaria*), dark green bulrush (*Scirpus atrovirens*), blue flag (*Iris versicolor*), wool grass (*Scirpus cyperinus*), fox sedge (*Carex vulpinoidea*), fringed sedge (*Carex crinita*), soft rush (*Juncus effusus*), late goldenrod (*Solidago gigantea*), slender goldenrod (*Solidago tenuifolia*), jewelweed, sensitive fern and tussock sedge.

### **Proposed Project**

Based upon consultation with your office, the proposed project is the dredging of accumulated sediments from within the existing reservoir basins and enhancement of existing outfalls. The dredging activities are required to restore the reservoir basins to original design capacity. In order to complete the project, barges will be placed within the confines of the open water bodies and excavators will remove accumulated sediments and then deposit the material into trucks that will transport it to early successional areas adjacent to the open water basins. The material will then be de-watered and then graded to create new field areas/berms that will be maintained (mowed and/or brush-hogged on a routine basis) by the Village of Cobleskill DPW.

### **Endangered/Threatened Species Assessment**

NCES visited the project area in October and November of 2014 and January of 2015 and actively searched the property for endangered, threatened and rare species as well as habitat types that would be deemed conducive to rare species inhabitation.

To complete the field survey, NCES utilized opportunistic visual survey methodologies as well as cover object search techniques and auditory monitoring. NCES visually scanned each of the ecological communities and assessed general condition and species presence. Where logs, rocks or other natural debris were found, NCES physically moved/lifted the debris to search for species. NCES documented species present by sight, sound and or physical remains (tracks, scat, feathers, etc.). During the survey, NCES compiled a list of the species of flora and fauna identified. A copy of this list is also attached for reference. Specific assessments for the agency-listed species are provided below:

## Northern Long-eared Bat Habitat Assessment

NCES reviewed the property in search of habitats that exhibit the criteria for potential summer roosting sites and suitable foraging habitat for the Northern Long-eared Bat. NCES also searched for any caves, mines or other man-made structures that could be used as a potential roosts or as an over-wintering hibernacula. NCES utilized information obtained from the USFWS, including the "*Northern Long-eared Bat Fact Sheet*", which defines criteria of potential habitat for the species. Being that Northern Long-eared bats occupy similar habitats as the Indiana Bat, NCES conducted the habitat analysis following the recommended procedures outlined by the USFWS and DEC protocols for Indiana bat surveys.

According to the USFWS, suitable, potential Northern Long-eared bat summer habitats are characterized as forested communities that possess live and dead trees with "loose bark, cavities or crevices" as well as within "...cooler places like caves and mines". These bats have also been reported to be found roosting in "structures like barns and sheds". Northern Long-eared bats are known to roost independently or within colonies. Wintering habitat for the Northern Long-eared bat is defined as being within "caves and mines" that possess "large passages and entrances; constant temperatures; and high humidity with no air currents". Potential foraging habitat for the Northern Long-eared bat is defined as "...understory of forested hillsides and ridges". This bat species is also known to glean "motionless insects from vegetation and water surfaces".

Based upon the information provided, NCES conducted a review of the property for habitat suitable for Northern Long-eared Bats. NCES focused the search for potential roosting habitat within the forested components of the property, which included the forested hedgerows and the forested ravines that are located within the vicinity of the reservoir basins. During the review, NCES did identify trees that appeared suitable for use by the species for roosting activities. These trees included several (10±) shagbark hickories; several (5-10) dead white ash and elms; and two (2) damaged red oak trees. These trees are not within the locations of the proposed spoil deposition and therefore will not be impacted. No caves, mines or other man-made structures were identified within the property boundaries that could be construed as potential over-wintering habitat. It should be known that a existing bat hibernaculum is found within 5 miles of the project site.

Potential foraging habitat for Northern Long-eared bats was found on the property and it includes the forested uplands; over the open early successional fields and within the edge habitat that immediately borders the property. Potential foraging areas consist of a variety of different habitats that are relatively common throughout the geographic region. Therefore, it should be noted that sufficient habitat exists in the vicinity of the Site that would sustain healthy populations of a variety of species of bats in the event of displacement.

## Bald Eagle Assessment

The Bald Eagle has been removed from the Endangered and Threatened Species List by the USFWS. However, as requested by the agencies, NCES conducted a general assessment for bald eagle habitat and visually searched for eagles utilizing the information presented in the U.S. Fish and Wildlife Service's "Northern States Bald Eagle Recovery Plan" (Grier et. al., 1983) (the "Recovery Plan") and Bald Eagle Management Guidelines (BEMG). The Recovery Plan and BEMG provide information and guidance regarding procedures and habitats to review and techniques to avoid impact to potential habitat. The purpose of the habitat assessment was to document whether or not suitable habitat exists at the site that could be utilized by bald eagles.

According to the Recovery Plan "essential" or "suitable" habitats are ecosystems that are identified as being conducive to nesting, perching, and foraging by bald eagles. If at any point during the habitat assessment bald eagles were observed or evidence of utilization (nesting, perching, foraging) of the Site by bald eagles was documented, it would be determined that suitable habitat exists and additional studies may be required.

Suitable nesting trees are typically located in areas with 30-50 percent canopy cover and Bald Eagles prefer tall living trees, often the tallest available for nesting (Ontario MNR, 1987). Eagles create large, easily recognizable stick nests, approximately five (5) feet in diameter that are typically found near the top of "super canopy" trees that are taller than the adjacent trees surrounding it (Andrew & Mosher, 1982). Given that paired bald eagles are monogamous and mate for life, they often utilize the same nest year after year and some nests may be up to nine (9) feet in diameter and weigh as much as two (2) tons (baldeagleinfo.com, Internet). Bald Eagle nests are also found in areas associated with low human disturbance, suitable forest structure, and abundant prey (Fraser et. al., 1985).

Because fish are the most important prey for Bald Eagles, nests are typically located immediately adjacent to, or along the banks of, open bodies of water where prey species are readily available (Livingston et. al., 1990). Supporting research conducted by the Ontario Ministry of Natural Resources (MNR) also revealed that Bald Eagles require large expanses of mixed or deciduous forest around the shores of larger rivers and lakes. Perch sites are also associated with open water. A perch site is defined as a tree or series of trees possessing an open canopy, offer a clear approach from all directions, and that are adjacent to open bodies of water (Ontario MNR, 1987). Perch sites are often found within 1.5 km of active nest sites (Livingston et. al., 1990). Mainly perch sites are used for foraging practices (Andrew and Mosher, 1982), however, eagles will utilize other tall, trees near the nest for perching during rest (Ontario MNR, 1987).

Foraging habitat for the Bald Eagle is typically associated with lakes and rivers that support fish (Ontario MNR, 1987). The Recovery Plan also states that Bald Eagles are also known to be scavengers during winter months and as water bodies freeze over eagles may feast upon carrion and that carrion becomes a main portion of their diet.

During the assessment, no Bald Eagles or evidence of their historic utilization of the project area was observed on, or immediately adjacent to, the project area. NCES reviewed the property and immediately adjacent lands for existing active or remnant abandoned eagle and/or other birds-of-prey nests. Consequently, no eagle nests were identified and based on consultations with DEC Staff, no known eagle nests are found within 600 feet of the property.

NCES also reviewed the on-site ecological communities and associated vegetative cover types for potential perching sites and, potential foraging habitat. It was determined by NCES that the on-site habitats do possess potential perch trees and provide viable foraging habitat for Bald Eagles. Several large trees are found along Smith Reservoir that could be utilized as perching sites by eagles or other birds of prey. The reservoir basins possess fish and therefore, foraging habitat for eagles exists.

### **Other Sensitive Species and Habitats**

During the review, NCES did not observe any endangered or threatened species on the property. Additionally, NCES did not identify any Species of Special Concern, or otherwise considered rare, according to the *New York Rare Animal and Rare Plant Lists* as established by the DEC.

### **Conclusion**

Based upon the proposed activities, it has been determined by NCES that no direct disturbances to any trees suitable for use as potential roosts by Northern Long-eared bats are to occur. Additionally, the proposed activities within the open water bodies are not likely to have a direct impact upon bats. As a result, it is in the opinion of NCES that the dredging of the existing reservoir basins, enhancement of outfalls and the deposition of dredged materials within adjacent upland field areas will be highly unlikely to result in any significant, adverse effect upon Northern Long-eared Bats.

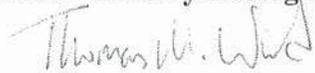
The proposed activities are not to impact any trees that are immediately adjacent to the open water reservoirs, and therefore, it has been determined by NCES that the project will not result in any direct impact upon perching habitat for Bald Eagles. The proposed dredging operation will result in work being conducted within potential foraging habitat for Bald Eagles. As a result, the project does have the potential to impact routine foraging activities. However, not all foraging habitat would be impacted at one time and dredging operations will impact only one reservoir at once. Therefore potential foraging habitats for eagles would be maintained throughout the projects duration. No eagle nests are located within 660 feet of the reservoirs, so no impacts to eagle nesting/breeding is to occur.

As confirmed through consultations with the DEC and USFWS, should routine Bald Eagle perching or active foraging activity become established within the project area at any time during the implementation of the project, the USFWS and DEC shall be contacted to determine the potential for impact and to establish Best Management Practices to comply with the BGEPA guidelines.

If you have any questions regarding this evaluation, please do not hesitate to contact NCES at any time.

Sincerely,

**North Country Ecological Services, Inc.**



Thomas M. Ward  
Vice President/Ecologist

**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 02, 2015

Thomas Ward  
North Country Ecological Services, Inc.  
25 West Fulton Street  
Gloversville, NY 12078

Re: Cobleskill Reservoir  
Town/City: Cobleskill. County: Schoharie.

Dear Thomas Ward :

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

Enclosed is a report of rare or state-listed animals and plants, and significant natural communities, which our databases indicate occur, or may occur, on your site or in the immediate vicinity of your site.

For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our databases. We cannot provide a definitive statement as to the presence or absence of all rare or state-listed species or significant natural communities. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

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

The presence of the plants and animals identified in the enclosed report may result in this project requiring additional review or permit conditions. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact 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,

Andrea Chaloux  
Environmental Review Specialist  
New York Natural Heritage Program

1317



**The following state-listed animals have been documented at your project site, or in its vicinity.**

The following list includes animals that are listed by NYS as Endangered, Threatened, or Special Concern; and/or that are federally listed or are candidates for federal listing. The list may also include significant natural communities that can serve as habitat for Endangered or Threatened animals, and/or other rare animals and rare plants found at these habitats.

**For information about potential impacts of your project on these populations, how to avoid, minimize, or mitigate any impacts, and any permit considerations, contact the Wildlife Manager or the Fisheries Manager at the NYSDEC Regional Office for the region where the project is located. A listing of Regional Offices is at <http://www.dec.ny.gov/about/558.html>.**

**The following species have been documented within 5 mi of the project site. Individual animals may travel 5 mi from documented locations.**

<i>COMMON NAME</i>	<i>SCIENTIFIC NAME</i>	<i>NY STATE LISTING</i>	<i>FEDERAL LISTING</i>	
<b>Mammals</b>				
<b>Northern Long-eared Bat</b> <i>Hibernaculum</i>	<i>Myotis septentrionalis</i>	Unlisted	Candidate	14183

This report only includes records from the NY Natural Heritage databases. For most sites, comprehensive field surveys have not been conducted, and we cannot provide a definitive statement as to the presence or absence of all rare or state-listed species. Depending on the nature of the project and the conditions at the project site, further information from on-site surveys or other sources may be required to fully assess impacts on biological resources.

If any rare plants or animals are documented during site visits, we request that information on the observations be provided to the New York Natural Heritage Program so that we may update our database.

Information about many of the listed animals in New York, including habitat, biology, identification, conservation, and management, are available online in Natural Heritage’s Conservation Guides at [www.guides.nynhp.org](http://www.guides.nynhp.org), and from NYSDEC at [www.dec.ny.gov/animals/7494.html](http://www.dec.ny.gov/animals/7494.html).



## United States Department of the Interior



FISH AND WILDLIFE SERVICE  
New York Ecological Services Field Office  
3817 LUKER ROAD  
CORTLAND, NY 13045  
PHONE: (607)753-9334 FAX: (607)753-9699  
URL: [www.fws.gov/northeast/nyfo/es/section7.htm](http://www.fws.gov/northeast/nyfo/es/section7.htm)

Consultation Tracking Number: 05E1NY00-2015-SLI-0242

December 11, 2014

Project Name: Cobleskill Reservoir

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

### To Whom It May Concern:

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

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

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

should follow the Services wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

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

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

Attachment



United States Department of Interior  
Fish and Wildlife Service

Project name: Cobleskill Reservoir

## Official Species List

**Provided by:**

New York Ecological Services Field Office

3817 LUKER ROAD

CORTLAND, NY 13045

(607) 753-9334

<http://www.fws.gov/northeast/nyfo/es/section7.htm>

**Consultation Tracking Number:** 05E1NY00-2015-SLI-0242

**Project Type:** Dredge / Excavation

**Project Description:** Village of Cobleskill is proposing to dredge accumulated sediments from within the existing reservoir basins to restore original constructed volume capacity for municipal use in the Village.



United States Department of Interior  
Fish and Wildlife Service

Project name: Cobleskill Reservoir

### Project Location Map:



**Project Coordinates:** MULTIPOLYGON (((-74.441668 42.6686622, -74.4414105 42.6669582, -74.441153 42.6660115, -74.4421829 42.6657591, -74.4412817 42.6635501, -74.4402947 42.6636132, -74.4399084 42.662982, -74.4452728 42.6614041, -74.4457878 42.6615935, -74.4460453 42.6615619, -74.4463886 42.6614672, -74.4468178 42.6614357, -74.4480194 42.6609623, -74.4485773 42.6603942, -74.4488348 42.6602996, -74.4490923 42.6602996, -74.4493498 42.6601418, -74.449779 42.6600786, -74.4501652 42.660268, -74.4504227 42.6603311, -74.4506373 42.6604574, -74.4508089 42.6606783, -74.4508518 42.6609623, -74.4516672 42.6625087, -74.4505514 42.6630136, -74.4509377 42.6640866, -74.4489636 42.6642759, -74.4488348 42.662982, -74.448234 42.6634238, -74.4482769 42.6656644, -74.4498219 42.6669898, -74.4496931 42.667968, -74.4464337 42.6686306, -74.4445862 42.6686306, -74.4429125 42.6668951, -74.4422259 42.6668951, -74.4438566 42.6685991, -74.441668 42.6686622))))



United States Department of Interior  
Fish and Wildlife Service

Project name: Cobleskill Reservoir

**Project Counties:** Schoharie, NY



United States Department of Interior  
Fish and Wildlife Service

Project name: Cobleskill Reservoir

## Endangered Species Act Species List

There are a total of 1 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Mammals	Status	Has Critical Habitat	Condition(s)
northern long-eared Bat ( <i>Myotis septentrionalis</i> )	Proposed Endangered		



United States Department of Interior  
Fish and Wildlife Service

Project name: Cobleskill Reservoir

## **Critical habitats that lie within your project area**

There are no critical habitats within your project area.



**Photograph 1)** View of the western boundary of Wetland Area 1, as observed from the southwestern corner of the wetland, looking north toward the Dow Reservoir.



**Photograph 2)** View of an old farm road that extends from the adjacent agricultural fields, northward, towards Dow Reservoir.



**Photograph 3)** View of the southern boundary of Wetland Area 1, while looking west along the transition between emergent wetland and upland field.



**Photograph 4)** View of center of Wetland Area 1, as observed from a point immediately adjacent to Dow Street. This photograph shows the transition from mowed field to emergent wetland.



**Photograph 5)** View of the western edge of Dow Reservoir. This photograph was taken while looking south along the edge of the open water.



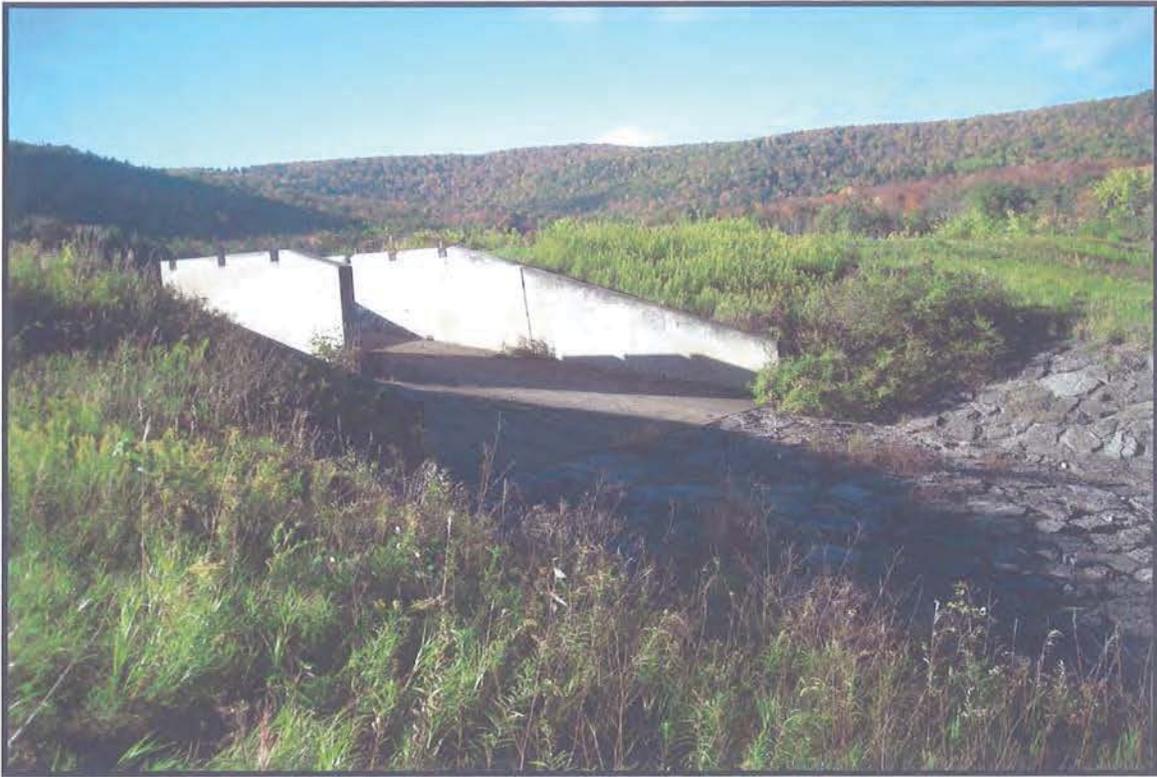
**Photograph 6)** View of concrete outfall structure of the Dow Reservoir.



**Photograph 7)** View of Wetland Area 2, which exists as a man-made swale between Dow Reservoir and the Holding Pond.



**Photograph 8)** View of Wetland Area A, which is a potentially isolated wetland found in a natural depression located between the Smith Reservoir and the Holding Pond.



**Photograph 9)** View of the constructed outfall of the Smith Reservoir.



**Photograph 10)** View of Wetland Area B. This wetland is also potentially isolated and located in a natural depression found adjacent to Smith Reservoir. This photograph was obtained while looking northeast through the center of the wetland.



**Photograph 11)** Typical view of the forested upland community that exists between Smith Reservoir and the Holding Pond.



**Photograph 12)** View of Smith Reservoir. This photograph was taken while looking south across the reservoir.



**Photograph 13)** View of the constructed berm that encompasses Smith Reservoir. This photograph was taken while looking east along the berm.



**Photograph 14)** View of early successional upland field vegetation that exists adjacent to the northwestern corner of Smith Reservoir.

# Cobleskill Reservoir Protection Project

## *Observed Flora & Fauna Species List*

This species inventory lists only the species physically observed and identified during the 2014/15 site visits associated with the endangered/threatened species investigations and formal wetland delineation. Most species were identified visually or by vocalization. However, those species denoted with \*\* indicates that the species were identified by tracks, scat or physical remains (fur, feathers, bones, nests) confirmed during the site visits.

### Fauna

#### **Mammals:**

<u>Common Name</u>	<u>Scientific Name</u>
Eastern Coyote**	<i>Canis latrans</i>
Woodchuck**	<i>Marmota monax</i>
Mink**	<i>Mustela vison</i>
White-tailed Deer	<i>Odocoileus virginiana</i>
Muskrat	<i>Ondatra zibethica</i>
Raccoon**	<i>Procyon lotor</i>
Eastern Gray Squirrel	<i>Sciurus carolinensis</i>
Cottontail Rabbit	<i>Sylvilagus floridanus</i>
Red Squirrel	<i>Tamiasciurus hudsonicus</i>
Eastern Chipmunk	<i>Tamias striatus</i>
Gray Fox**	<i>Urocyon cinereoargenteus</i>

#### **Birds:**

Red-winged Blackbird	<i>Agelaius phoeniceus</i>
Green-wing Teal	<i>Anas crecca</i>
Mallard	<i>Anas platyrhynchos</i>
Black Duck	<i>Anas rubripes</i>
Great Blue Heron	<i>Ardea herodias</i>
Ruffed Grouse	<i>Bonasa umbellus</i>
Canada Goose	<i>Branta canadensis</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>
Northern Cardinal	<i>Cardinal cardinalis</i>
American Goldfinch	<i>Carduelis tristis</i>
Hermit Thrush	<i>Catharus guttatus</i>
Killdeer	<i>Charadrius vociferous</i>
Northern Flicker	<i>Colaptes auratus</i>

American Crow  
Blue Jay  
Pileated Woodpecker\*\*  
Gray Catbird  
Tree Swallow  
Dark-eyed Junco  
Ring-billed Gull  
Belted Kingfisher  
Eastern Wild Turkey  
Song Sparrow  
Common Merganser  
Black-capped Chickadee  
Downy Woodpecker  
Common Grackle  
Eastern Phoebe  
American Woodcock  
Eastern Bluebird  
White-breasted Nuthatch  
Barred Owl  
European Starling  
House Wren  
American Robin  
Eastern Kingbird  
Mourning Dove

*Corvus brachyrhynchos*  
*Cyanocitta cristata*  
*Dryocopus pileatus*  
*Dumetella carolinensis*  
*Iridoprocne bicolor*  
*Junco hyemalis*  
*Larus delawarensis*  
*Megaceryle alcyon*  
*Meleagris gallopavo*  
*Melospiza melodia*  
*Mergus merganser*  
*Parus atricapillus*  
*Picoides pubescens*  
*Quiscalus quiscula*  
*Sayornis phoebe*  
*Scolopax minor*  
*Sialia sialis*  
*Sitta carolinensis*  
*Strix varia*  
*Sturnus vulgaris*  
*Troglodytes aedon*  
*Turdus migratorius*  
*Tyrannus tyrannus*  
*Zenaida macroura*

#### **Amphibians/Reptiles:**

American Toad  
Redback Salamander  
Green Frog  
Pickerel Frog  
Garter Snake

*Anaxyrus americanus*  
*Plethodon cinereus*  
*Lithobates melanota clamitans*  
*Lithobates palustris*  
*Thamnophis sirtalis*

### **Flora**

#### **Trees:**

Box Elder Maple  
Norway Maple  
Red Maple  
Sugar Maple  
Shadbush  
Ironwood  
Shagbark hickory  
White Ash  
Green Ash

*Acer negundo*  
*Acer platanoides*  
*Acer rubrum*  
*Acer saccharum*  
*Amelanchier canadensis*  
*Carpinus caroliniana*  
*Carya ovata*  
*Fraxinus americana*  
*Fraxinus pennsylvanica*

Wild Apple  
White Pine  
Quaking Aspen  
Black Cherry  
White Oak  
Red Oak  
White Willow  
Basswood  
American Elm

*Malus sylvestris*  
*Pinus strobus*  
*Populus tremuloides*  
*Prunus serotina*  
*Quercus alba*  
*Quercus rubra*  
*Salix alba*  
*Tilia americana*  
*Ulmus americana*

**Shrubs:**

Speckled Alder  
Silky Dogwood  
Gray Dogwood  
Red-osier Dogwood  
Honeysuckle  
Common Buckthorn  
Staghorn Sumac  
Wild Black Currant  
Multiflora Rose  
Black Raspberry  
Red Raspberry  
Blackberry  
Pussy Willow  
Meadowsweet  
Nannyberry  
Arrowwood

*Alnus rugosa*  
*Cornus amomum*  
*Cornus racemosa*  
*Cornus sericea*  
*Lonicera tatarica*  
*Rhamnus cathartica*  
*Rhus typhina*  
*Ribes americanum*  
*Rosa multiflora*  
*Rubus allegheniensis*  
*Rubus ideaus*  
*Rubus occidentalis*  
*Salix discolor*  
*Spiraea tomentosa*  
*Viburnum lentago*  
*Viburnum recognitum*

**Vines:**

Ground Ivy  
Virginia Creeper  
Poison Ivy  
Common Dewberry  
Summer Grape

*Glechoma hederacea*  
*Parthenocissus quinquefolia*  
*Rhus radicans*  
*Rubus procumbens*  
*Vitis aestivalis*

**Herbaceous Plants:**

Yarrow  
Redtop  
Garlic Mustard  
Wild Onion  
Ragweed  
Spreading Dogbane  
Common Burdock  
Common Mugwort

*Achillea millefolium*  
*Agrostis alba*  
*Alliaria officinalis*  
*Allium stellatum*  
*Ambrosia artemisiifolia*  
*Apocynum androsaemifolium*  
*Arctium minus*  
*Artemisia vulgaris*

Common Milkweed  
New England Aster  
New York Aster  
Beggar Ticks  
Fringed Sedge  
Yellow Nut Sedge  
Awl-fruited Sedge  
Tussock sedge  
Fox Sedge  
Spotted Knapweed  
Daisy  
Chickory  
Canada Thistle  
Bull Thistle  
Orchard Grass  
Wild Carrot  
Teasel  
Spikerush  
Willow Herb  
Daisy Fleabane  
Joe-Pye Weed  
Boneset  
Wild Strawberry  
Wild Madder  
Sweet-scented Bedstraw  
Wild Geranium  
St. Johnswort  
Jewelweed  
Stick-tight  
Butter and Eggs  
Birdsfoot Trefoil  
Moneywort  
Purple loosestrife  
White Sweet Clover  
Evening Primrose  
Sensitive Fern  
Reed Canary Grass  
Timothy  
English Plantain  
Common Plantain  
Water Smartweed  
Herbaceous cinquefoil  
Heal-all  
Buttercup  
Black-eyed Susan  
Curled Dock

*Asclepias syraca*  
*Aster novae-angilae*  
*Aster novi-belgii*  
*Bidens frondosa*  
*Carex crinita*  
*Carex esculentus*  
*Carex stipata*  
*Carex stricta*  
*Carex vulpinoidea*  
*Centaurea maculosa*  
*Chrysanthemum leucanthemum*  
*Cichorium intybus*  
*Cirsium arvense*  
*Cirsium vulgare*  
*Dactylis glomerata*  
*Daucus carota*  
*Dipsacus sylvestris*  
*Eleocharis rostellata*  
*Epilobium glandulosum*  
*Erigeron annuus*  
*Eupatorium maculatum*  
*Eupatorium perfoliatum*  
*Fragaria virginiana*  
*Galium mollugo*  
*Galium triflorum*  
*Geranium maculatum*  
*Hypericum perforatum*  
*Impatiens capensis*  
*Lappula virginiana*  
*Linaria vulgaris*  
*Lotus corniculatus*  
*Lysimachia nummularia*  
*Lythrum salicaria*  
*Melilotus alba*  
*Oenothera biennis*  
*Onoclea sensibilis*  
*Phalaris arundinacea*  
*Phleum pratense*  
*Plantago lanceolata*  
*Plantago major*  
*Polygonum amphibium*  
*Potentilla simplex*  
*Prunella vulgaris*  
*Ranunculus acris*  
*Rudbeckia hirta*  
*Rumex crispus*

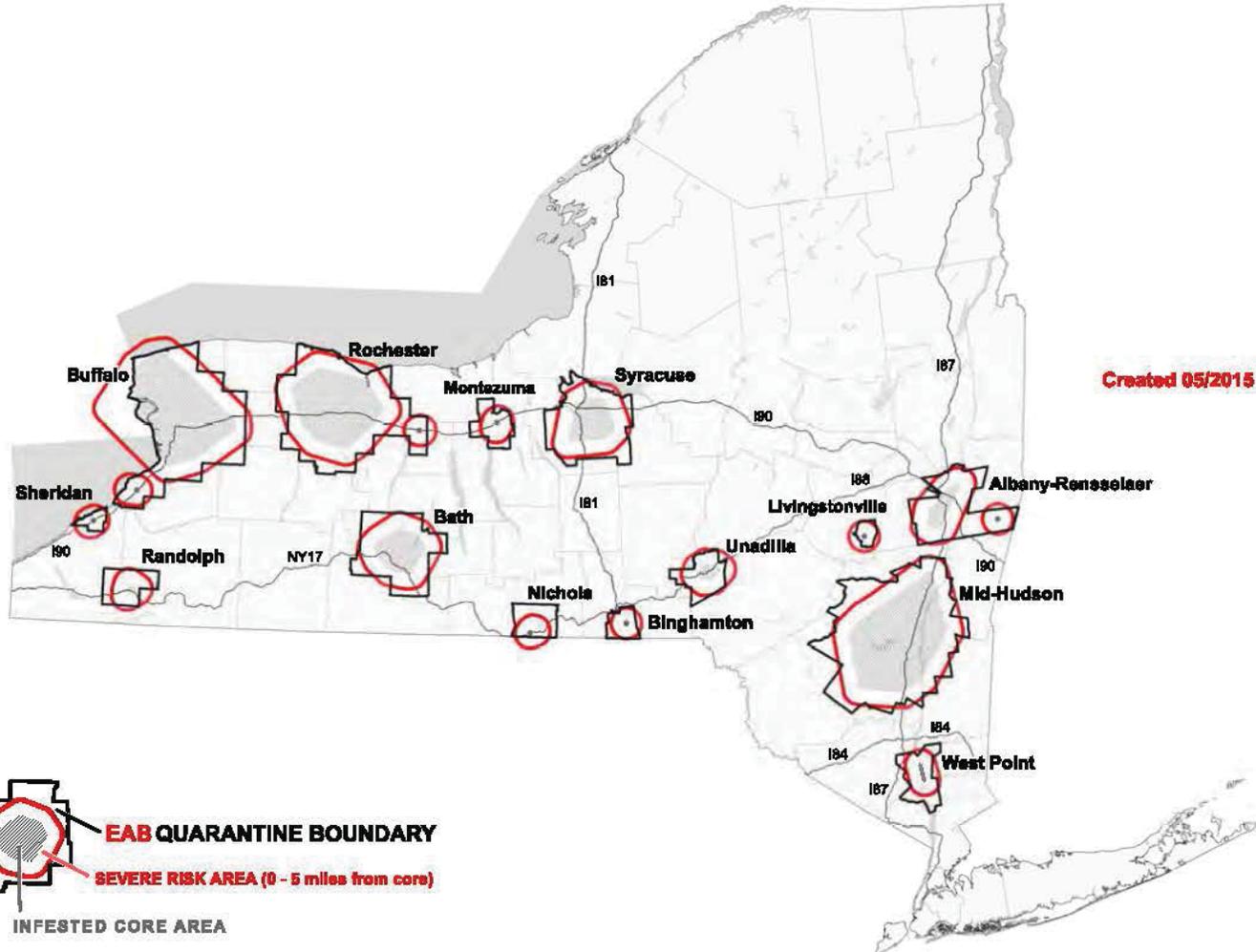
Bristly foxtail  
Dark Green Bulrush  
Wool Grass  
Canada Goldenrod  
Late Goldenrod  
Early Goldenrod  
Rough-stem Goldenrod  
Slender-leaved Goldenrod  
Dandelion  
White Clover  
Red Clover  
Coltsfoot  
Cattail  
Mullein  
Blue Vervain  
Cow Vetch  
Common Blue Violet

*Setaria faberii*  
*Scirpus atrovirens*  
*Scirpus cyperinus*  
*Solidago canadensis*  
*Solidago gigantea*  
*Solidago juncea*  
*Solidago rugosa*  
*Solidago tenuifolia*  
*Taraxacum officinale*  
*Trifolium arvense*  
*Trifolium pratense*  
*Tussilago farfara*  
*Typha latifolia*  
*Verbascum thapsus*  
*Verbena hastata*  
*Vicia cracca*  
*Viola sororia*

**Attachment 7**  
**Emerald Ash Borer Quarantine Boundary and**  
**Quarantine Areas Maps**

# Emerald Ash Borer (EAB) Quarantine Boundaries

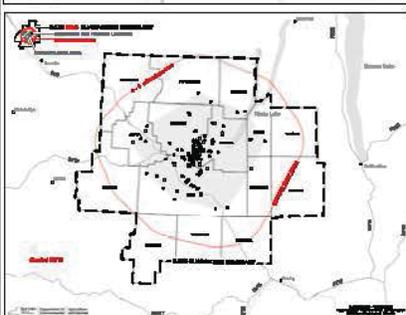
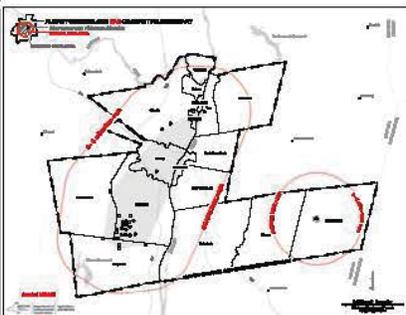
Albany-Rensselaer, Bath, Binghamton, Buffalo, Livingstonville,  
Mid-Hudson, Montezuma, Nichols, Randolph, Rochester,  
Sheridan, Syracuse, Unadilla, West Point



Created 05/2015



S. McDonnell - Geographer  
Division of Lands and Forests  
Forest Health Unit



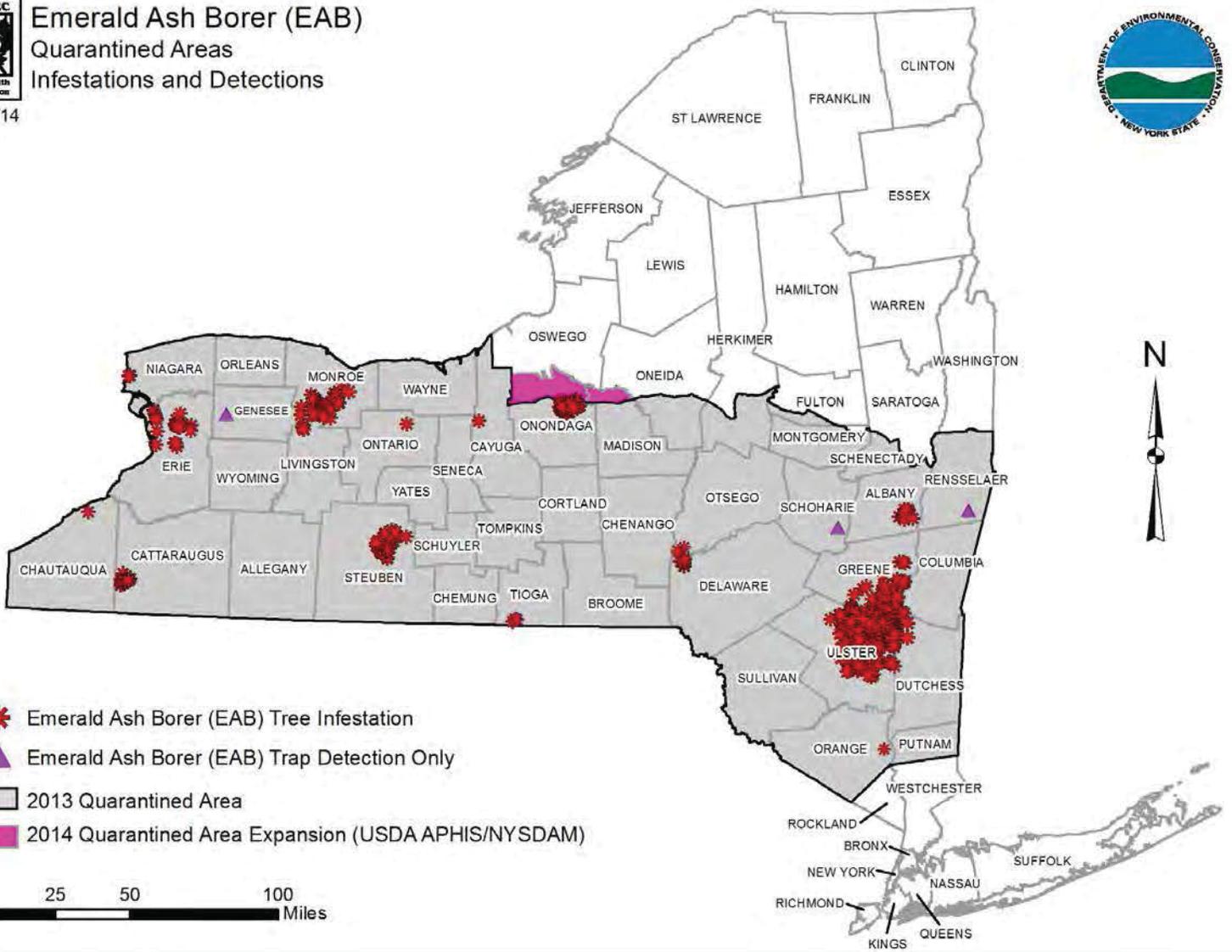


# Emerald Ash Borer (EAB)

## Quarantined Areas

### Infestations and Detections

06/26/14



**Attachment 8**

**NYSDEC Priority Waterbody Listing, Cobleskill Reservoir**

# Cobleskill Reservoirs ( 1202-0015)

**Need Verific**

## Waterbody Location Information

Revised: 02/08/2010

<b>Water Index No:</b>	H-240- 82- 63- 9-P583	<b>Drain Basin:</b>	Mohawk River
<b>Hydro Unit Code:</b>	02020005/100	<b>Str Class:</b>	A
<b>Waterbody Type:</b>	Lake(R) (Unknown Trophic)	<b>Reg/County:</b>	4/Schoharie Co. (48)
<b>Waterbody Size:</b>	71.1 Acres	<b>Quad Map:</b>	COBLESKILL (K-23-1)
<b>Seg Description:</b>	total area of all three reservoirs		

## Water Quality Problem/Issue Information

(CAPS indicate MAJOR Use Impacts/Pollutants/Sources)

<b>Use(s) Impacted</b>	<b>Severity</b>	<b>Problem Documentation</b>
Water Supply	Threatened	Suspected

### Type of Pollutant(s)

Known: ---  
Suspected: ---  
Possible: OTHER POLLUTANTS

### Source(s) of Pollutant(s)

Known: ---  
Suspected: AGRICULTURE  
Possible: On-Site/Septic Syst

## Resolution/Management Information

**Issue Resolvability:** 3 (Strategy Being Implemented)  
**Verification Status:** 5 (Management Strategy has been Developed)  
**Lead Agency/Office:** ext/  
**TMDL/303d Status:** n/a

**Resolution Potential:** Medium

## Further Details

### Overview

Water supply use of Cobleskill Reservoirs is thought to experience threats from various pollutants due to runoff from agricultural lands in the watershed.

### Source (Drinking) Water Assessment

A source water assessment of Cobleskill Reservoirs found a high level of susceptibility to contaminants due to the amount of agricultural pastureland in the watershed. This assessment was conducted through the NYSDOH Source Waters Assessment Program (SWAP) which compiles, organizes, and evaluates information regarding possible and actual threats to the quality of public water supply (PWS) sources. The information contained in SWAP assessment reports assists in the oversight and protection of public water systems. It is important to note that SWAP reports estimate the potential for untreated drinking water sources to be impacted by contamination and do not address the quality of treated finished potable tap water. This water supply source provides water to the Village of Cobleskill. (NYSDOH, Source Water Assessment Program, 2005)

The Cobleskill Reservoirs include two raw water reservoirs: Dow and Smith Reservoirs. The Smith Reservoir watershed is largely forested and water quality is very good. The Dow Reservoir watershed is a mix of woodland and agricultural lands. Water quality is considered lower in this reservoir. Both reservoirs feed a third holding pond reservoir through connection piping. Chemical testing of reservoir water (for inorganic compounds and synthetic organics) have revealed no water quality

problems. All test results fall below federal and state maximum contaminant levels. (Cobleskill Water Department, April 2002)

The three reservoirs have been sampled periodically as part of the Lake Classification and Inventory Survey (LCI), beginning in 1997. Results of this study indicate that water clarity levels in Smith Reservoir fell below the criteria associated with stressed conditions, due to high algae levels, and phosphorus levels in Dow Reservoir exceeded the criteria associated with impacted conditions, although this did not result in water clarity readings associated with any use impairments. Water quality conditions in the Holding Reservoir appear to be adequate to support uses. There was insufficient data collected to evaluate the impact of these problems on potability or aesthetic uses of the lake. (DEC/DOW, BWM/Lake Services, August 2000)

#### Source Assessment

The Village of Cobleskill Water Department has concerns regarding impacts from on-site septic systems and agricultural activity adjacent to and immediately upgradient of the reservoirs. Homes in the immediate area have been reported to be discharging grey-water separate from on-site septic systems. (Cobleskill Water Department, April 2002)

**Attachment 9**

**Town of Cobleskill Water District Rules and Regulations**

Corresp.  
- next BOT?

**RULES AND REGULATIONS  
FOR  
PROTECTION FROM CONTAMINATION  
OF THE  
PUBLIC WATER SUPPLY  
OF THE  
VILLAGE OF COBLESKILL  
SCHOHARIE COUNTY, NEW YORK**

**Promulgated by the New York State Commissioner of Health  
Under Section 1100 of the Public Health Law**

I HEREBY CERTIFY the attached amendments to add a new section 143.4 to Part 143 of Subchapter A of Chapter III of Title 10 (Health) of the Official Compilation of Codes, Rules and Regulations of the State of New York, pursuant to the authority vested in the Commissioner of Health by section 1100 of the Public Health Law, to be effective upon filing with the Secretary of State.

PRIOR NOTICE OF this action, required under the Administrative Procedure Act was published in the New York State Register on September 26, 1984.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the New York State Department of Health to be affixed this 24 day of November, 1984.

  
\_\_\_\_\_  
David Axelrod, M.D.  
COMMISSIONER OF HEALTH

Pursuant to the authority vested in the Commissioner of Health by section 1100 of the Public Health Law, a new section 143.4 is added to Part 143 of Title 10 (Health) of the Official Compilation of Codes, Rules and Regulations of the State of New York, to be effective upon filing with the Secretary of State, to read as follows:

Section 143.4 Village of Cobleskill, Schoharie Co.

(a) Application. The rules and regulations set forth in this section, duly made and adopted in accordance with the provisions of Sections 1100 - 1107 of the Public Health Law, shall apply to the Holding Pond, Dow , and Smith Reservoirs, and all watercourses tributary thereto or which may ultimately discharge into said reservoirs or which may be developed in the future to serve as sources of the water supply of the Village of Cobleskill.

(b) Definitions.

(1) Agricultural associated animal waste shall mean manure obtained from agricultural industries.

(2) Agricultural associated animal waste area shall mean land used for the deposition of agricultural associated animal waste on the surface of the ground for fertilization purposes.

(3) Agricultural associated animal waste storage

area shall mean land used for the temporary or permanent deposition of agricultural associated animal waste where said deposition is not directly for the purpose of fertilization.

(4) Chloride salt shall mean the solid compounds or solutions of potassium chloride (commonly used as fertilizer), calcium chloride (commonly used for winter road maintenance) or sodium chloride (commonly used for water softener regeneration).

(5) Herbicide shall mean any substance used to destroy or inhibit plant growth.

(6) Human excreta shall mean human feces and urine.

(7) Junkyard shall mean an area where two or more unregistered, old or second hand motor vehicles are being accumulated for purposes of disposal, resale of used parts or reclaiming certain materials such as metal, glass, fabric, and/or the like.

(8) Linear distance shall mean the shortest horizontal distance from the nearest point of the structure or object to the high water mark of a reservoir or the edge, margin and steep bank forming the ordinary high water line of a watercourse.

(9) Manure shall mean animal feces and urine.

(10) Nonagricultural associated animal waste shall mean manure obtained from nonagricultural industries.

(11) Pesticides shall mean any substance used to destroy or inhibit pests such as rodents and insects.

(12) Pollutant shall mean dredge, spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, chemical waste, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, industrial and municipal waste, and agricultural and nonagricultural associated animal waste.

(13) Radiation shall mean ionizing radiation, that is, any alpha particle, beta particle, gamma ray, x-ray, neutron, high speed proton and any other atomic particle producing ionization, but shall not mean any sound or radio wave, or visible, infrared, or ultraviolet light.

(14) Radioactive material shall mean any material in any form that emits radiation spontaneously.

(15) Refuse shall mean all putrescible and nonputrescible solid wastes including garbage, manure, rubbish, ashes, incinerator residue, street cleanings, dead animals, offal and solid commercial and industrial wastes.

(16) Refuse disposal area shall mean land used for the depositing of refuse except that it shall not include the land used for the depositing of refuse from a single family, a member of which is the owner, occupant or lessee of said land, or any part of a farm on which only agricultural associated animal wastes resulting from the operation of such

farm are deposited.

(17) Reservoir shall mean any natural or artificial lake or pond which is tributary to or serves as a source of the public water supply of the Village of Cobleskill.

(18) Sewage shall mean any liquid or solid waste matter from a domestic, commercial, private, or industrial establishment which is normally carried off in sewers or waste pipes.

(19) Sewage disposal system shall mean any system used for disposing of sewage and includes treatment works.

(20) Toxic substance shall mean any toxic substance as so defined by subdivision two of section 4801 of the Public Health Law.

(21) Treatment works shall mean any treatment plant, sewer, disposal field, lagoon, pumping station, septic system, constructed drainage ditch or surface water intercepting ditch, incinerator, area devoted to sanitary landfills or other works not specifically mentioned in this paragraph, installed for the purpose of treating, neutralizing, stabilizing or disposing of sewage.

(22) Watercourse shall mean every spring, stream marsh, or channel of water of any kind which flow or may flow into the water supply of the Village of Cobleskill.

(23) Watershed shall mean the entire drainage

area contributing water to the water supply of the Village of Cobleskill.

(24) Water supply shall mean the public water supply of the Village of Cobleskill.

(c) General prohibitions. No person, including State agencies or political subdivisions having jurisdiction, shall perform any act or grant any permit or approval which may result in the contravention of the standards for raw water quality as contained in Part 170 of Title 10 (Health) of the Official Compilation of Codes, Rules and Regulations of the State of New York (10 NYCRR Part 170).

(d) Specific prohibitions.

(1) Agricultural associated animal waste area. No agricultural associated animal waste area shall be located within a 250 foot linear distance of any reservoir or watercourse. Beyond that distance such area shall be maintained in such a manner that surface run-off will not carry agricultural associated animal waste directly into the reservoir or watercourse.

(2) Agricultural associated animal waste storage area. No agricultural associated animal waste area shall be located within a 250 foot linear distance of any reservoir or watercourse.

(3) Cemeteries. No interment of a human body shall be made within a 500 foot linear distance of any

reservoir or watercourse.

(4) Chloride salt. No chloride salt shall be stored within a 500 foot linear distance of any reservoir or watercourse except in weatherproof buildings or watertight vessels.

(5) Herbicides and pesticides. No herbicides or pesticides shall be stored, discharged, applied or allowed to enter into any reservoir or watercourse unless a permit to do so has been obtained from the appropriate State agency having jurisdiction.

(6) Human excreta and sewage.

(i) No human excreta or sewage shall be deposited or allowed to escape into any reservoir or watercourse on the watershed.

(ii) No human excreta or sewage shall be deposited or spread upon the surface of the ground at any point on the watershed. Composted sludge, pursuant to a permit issued by an appropriate State or local agency having jurisdiction, if any, shall be allowed.

(iii) No human excreta or sewage shall be buried in the soil on the watershed unless deposited in trenches or pits at a linear distance of not less than 1000 feet from any reservoir or watercourse and with minimal vertical distance of five feet from the bottom of any trench or pit to groundwater and covered with not less than one foot of soil

in such a manner as to effectually prevent its being washed into any reservoir or watercourse by rain or melting snow.

(iv) No privy receptacle or facilities of any kind for the deposit, movement, treatment or storage of human excreta or sewage shall be constructed, placed, maintained or allowed to remain within a 500 foot linear distance of any reservoir or watercourse except (a) watertight receptacles; (b) water-flushed toilets connected by a watertight pipe to a sewage disposal system that has been approved by the appropriate State agency having jurisdiction over such facilities; (c) a Properly designed, constructed, and operated treatment works that has been approved by the appropriate State agency having jurisdiction over such facility.

(v) No portion of the seepage unit (tile field, seepage pit or equivalent) of a subsurface sewage disposal system shall be constructed, placed or rebuilt within a 500 foot linear distance of any reservoir or watercourse. All system constructed must have a vertical distance of at least two feet from the lowest position of the system to the high water mark. An exemption may be granted by the County Health Department for the repair of any existing system within 100 linear feet of any reservoir or watercourse.

(vi) Every watertight receptacle used for containing human excreta or sewage shall be emptied when the

receptacle is filled to within six inches of the top.

(vii) In emptying a watertight receptacle or in transferring its contents to a transportable receptacle, all necessary care shall be exercised to prevent contamination of any reservoir or watercourse. all such transportable receptacles shall be provided with drip-proof connections and tight-fitting covers which are securely fastened when transporting wastes to the place of ultimate disposal. The contents of the watertight receptacles shall be disposed of in accordance with subparagraph (iii) of this paragraph or at a properly designed, constructed and operated sewage disposal system that has been approved by the appropriate State agency having jurisdiction over such facility. (viii) Before any existing sewage disposal system is altered or any new sewage disposal system is constructed on the watershed, the plans in relation thereto shall have been first approved by the appropriate State agency having jurisdiction over such facility. Standards for waste treatment works are published from time to time by the appropriate State agency having jurisdiction over such facility and subparagraph (v) of this paragraph shall comprise the criteria to approve any proposed sewage disposal system.

(ix) When an existing subsurface sewage disposal system fails, the entire system must be inspected and the site thoroughly evaluated in a manner acceptable to the

appropriate State or county health agency having jurisdiction over such facility, prior to modifications or alterations to the existing system.

(x) No sewage or polluted liquid of any kind shall be discharged or allowed to flow beneath the surface of the ground on the watershed except into watertight pipes connected to a sewage disposal system or holding tank approved in accordance with subparagraph (iv) of this paragraph.

(xi) In-house composting facilities of the type that make use of human excreta, washwaters and sink wastes will be acceptable provided that properly designed systems for the disposal of gray water are included within the plans for their construction and are approved by the appropriate State or county health agency having jurisdiction over such facilities.

(7) Junkyards. No junkyard shall be located within a 500 foot linear distance of any reservoir or watercourse.

(8) Animal wastes.

(i) No manure or compost shall be located, placed, maintained or allowed to remain within a 500 foot linear distance of any reservoir or watercourse.

(ii) No manure or compost pile shall be located, placed, maintained or allowed to remain where drainings,

leachings or washings from the same may enter any reservoir or watercourse without having first passed over or through such an extent of soil to have properly purified. In no case shall it be deemed that proper purification has been secured unless the above noted drainings, leachings, or washings shall be percolated over or through the soil in a scattered, dissipated form and not concentrated in perceptible lines of drainage for a distance of not less than 500 feet from any reservoir or watercourse.

(iii) No structures of any kind for the purpose of sheltering or corralling animals shall be constructed within a 250 foot linear distance of any reservoir or watercourse.

(iv) No animal shall be allowed to stand, wallow, wade or swim in any reservoir or watercourse.

(9) Radioactive material. No radioactive material shall be disposed of within the total watershed.

(10) Recreation.

(i) Bathing and swimming. No bathing and swimming shall be allowed in any reservoir or watercourse owned by the Village of Cobleskill.

(ii) Boating. No boating shall be allowed in or upon the waters of any reservoir or watercourse owned by the Village of Cobleskill except by duly authorized employees of the Village of Cobleskill in the performance of their duties if the supervision and maintenance of the water supply.

(iii) Ice fishing. No ice fishing shall be permitted on the reservoirs or watercourses owned by the Village of Cobleskill.

(iv) Fishing. Fishing is permitted from shore of the reservoirs and watercourses owned by the Village of Cobleskill under the rules of the appropriate State agency having jurisdiction over such matters.

(v) Hunting. Hunting is not permitted on the lands and watercourses owned by the Village of Cobleskill except by special permit.

(vi) Trapping. Trapping is not permitted unless a special permit is granted by the Village of Cobleskill.

(vii) Campfires. No campfires are permitted on the lands and watercourses owned by the Village of Cobleskill.

(11) Refuse. No refuse shall be deposited on or beneath the surface of the ground within a 250 foot linear distance of any reservoir or watercourse.

(12) Refuse disposal area. No refuse disposal area shall be located within a 500 foot linear distance of any reservoir or watercourse.

(13) Structures. No hut, tent, shelter or building of any kind, except a waterworks structure, shall be permitted on the watershed or ice of any reservoir or watercourse owned by the Village of Cobleskill.

(14) Toxic substances. No container used for the storage of toxic substances shall be buried beneath the surface of the ground within a 1000 foot linear distance of any reservoir or watercourse.

(15) Other wastes. No pollutant of any kind shall be discharged or allowed to flow into any reservoir or watercourse or on or beneath the surface of the ground or watershed within 500 feet of any reservoir or watercourse, except as otherwise permitted by the provisions of the subparagraph (x) of paragraph (6) of this subdivision. This restriction shall not apply to the effluent from a treatment works installed in accordance with plans which first have been submitted to and approved by the appropriate State agency having jurisdiction over such facilities.

(e) Inspections. The Board of Trustees of the Village of Cobleskill or any person or persons charged with the maintenance or supervision of the public water supply system shall by its officers, or their duly appointed representative, make regular and thorough inspections of the reservoirs, watercourses and watershed to ascertain whether the rules and regulations set forth in this section are being complied with. It shall be the duty of the aforesaid Board of Trustees to cause copies of any rules and regulations violated to be served upon the persons violating the same together with notices of such violations. If such persons

served do not immediately comply with the rules and regulations, it shall be the further duty of the aforesaid Board of Trustees to promptly notify the State Commissioner of Health of such violations. The aforesaid Board of Trustees shall report to the State Commissioner of Health in writing annually, prior to the 30th day of January, the results of the regular inspections made during the preceding year. The report shall state the number of notices served, the number of violations abated and the general condition of the watershed at the time of the last inspection.

(f) Penalties for violations. Penalties for violations of this section shall be those specified by section 1103 of the Public Health Law.

**Attachment 10**

**Environmental Justice Community of Concern**

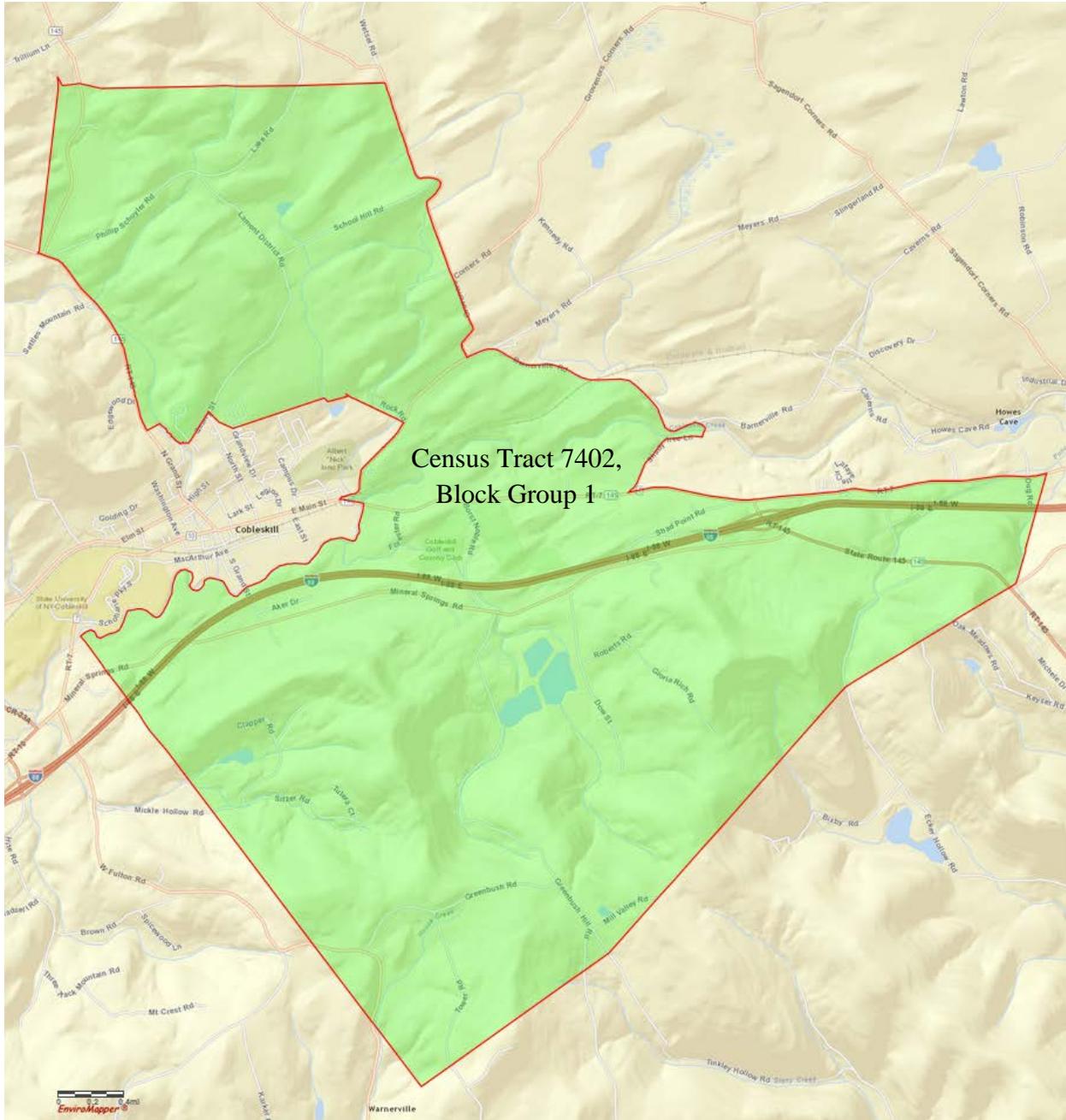
Environmental Justice Community of Concern

<b>Demographic</b>	<b>Schoharie County</b>	<b>Census Tract 7402, Block Group 1 (COC)</b>
White alone	95.9%	98.6%
Black or African American alone	1.3%	0.1%
American Indian and Alaska Native alone	0.2%	0.0%
Asian alone	0.7%	0.3%
Native Hawaiian and Other Pacific Islander alone	0.0%	0.0%
Some other race alone	.5%	0.4%
Two or more races	1.4%	0.7%
Hispanic or Latino	2.8%	2.0%
Total Minority Population non-Hispanic	4.1%	1.4%
Total Population	32,749	1,200
Population with Income below Poverty Level	15.9%	4%

“Census Demographic Profiles” <http://www.census.gov/2010census/popmap/>

“American Community Survey” <https://www.census.gov/acs/www/data/data-tables-and-tools/data-profiles/2014/>

# Community of Concern Location



**Attachment 11**

**Village of Cobleskill Water Supply Reservoirs Emergency Action Plan**

**with Dams Hydrologic & Hydraulic Assessment/**

**Inundation Mapping Report**

# ATTACHMENT 13

## EMERGENCY ACTION PLAN

For

### Cobleskill Reservoir Dams

#### Lower Reservoir Dam

NYSDEC Dam I.D. Number: 174-3138A

Dam location (latitude/ longitude) 43° 39' 40.001" N/ 74° 26' 35.002" W

#### Upper Reservoir Dam

NYSDEC Dam I.D. Number: 174-3138B

Dam location (latitude/ longitude) 43° 39' 47.002" N/ 74° 26' 57.001" W

#### Holding Pond Dam

NYSDEC Dam I.D. Number: 174-4836

Dam location (latitude/ longitude) 43° 40' 3.0" N/ 74° 26' 49.999" W

Dam Location: (Nearest road address) 174 Dow Street

Town/County: Town of Cobleskill, Schoharie County

River: 879-12- Cobleskill Creek and tributary stream 879-26

Owner/Operator: Village of Cobleskill

Address: 378 Mineral Springs Road, Cobleskill, NY 12043

Prepared By: Lamont Engineers

Address: 548 Main St.

Cobleskill, NY 12043

Date: December 12, 2011

Revision Dates:\*

1st Revision: \_\_\_\_\_

2nd Revision: \_\_\_\_\_

3rd Revision: \_\_\_\_\_

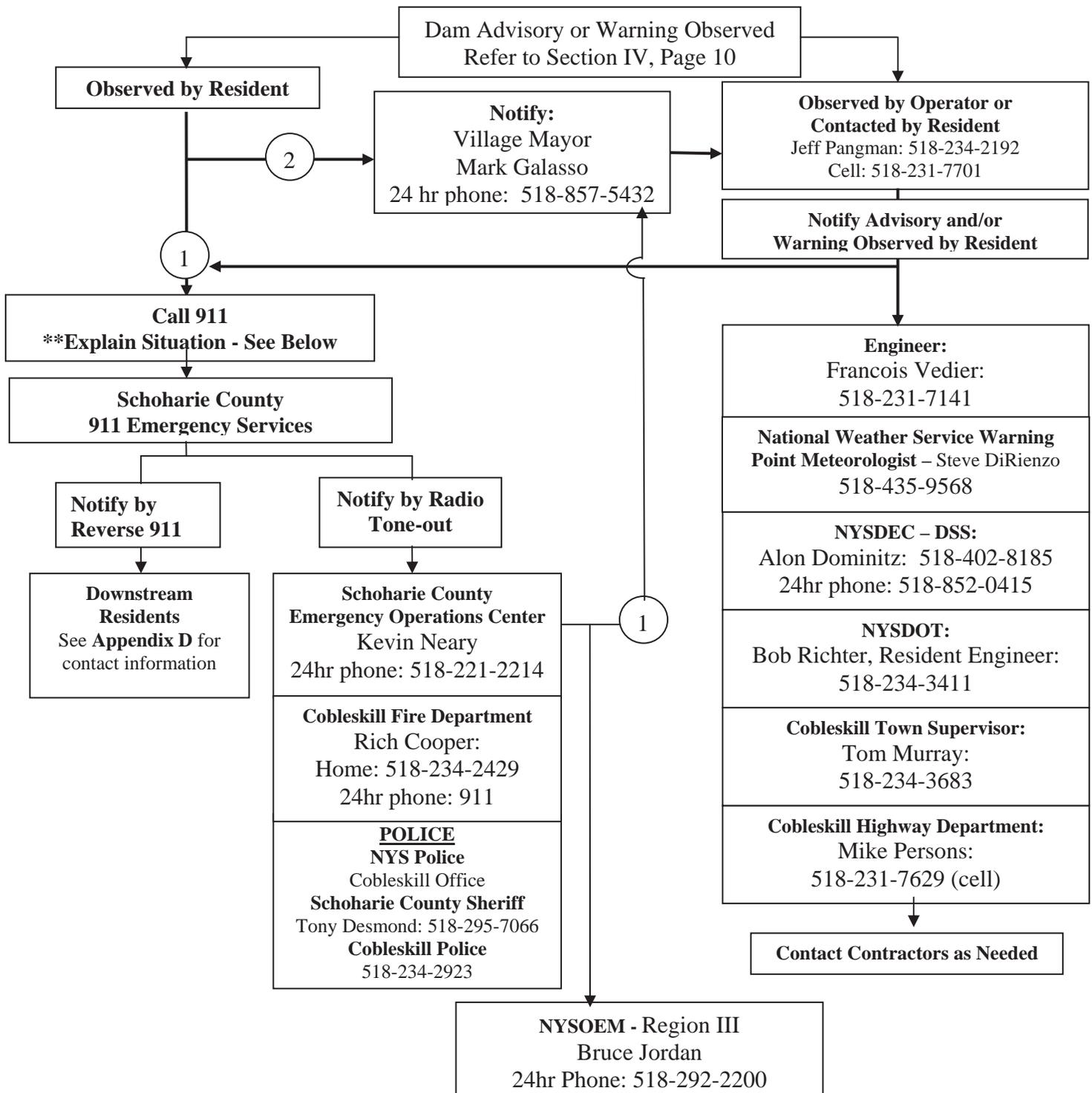
\* THE DAM OWNER/OPERATOR IS RESPONSIBLE FOR THE ANNUAL REVIEW

## AND UPDATING OF THE EAP.

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# I. Emergency Notification

## Notification Flow Chart for Conditions C (Advisory) and B (Warning)



**Report:** This is (Name) reporting an **advisory** or **warning** condition in accordance with the Emergency Action Plan for Cobleskill Reservoir Dams on Dow Street, Town of Cobleskill. **(Explain the situation)**

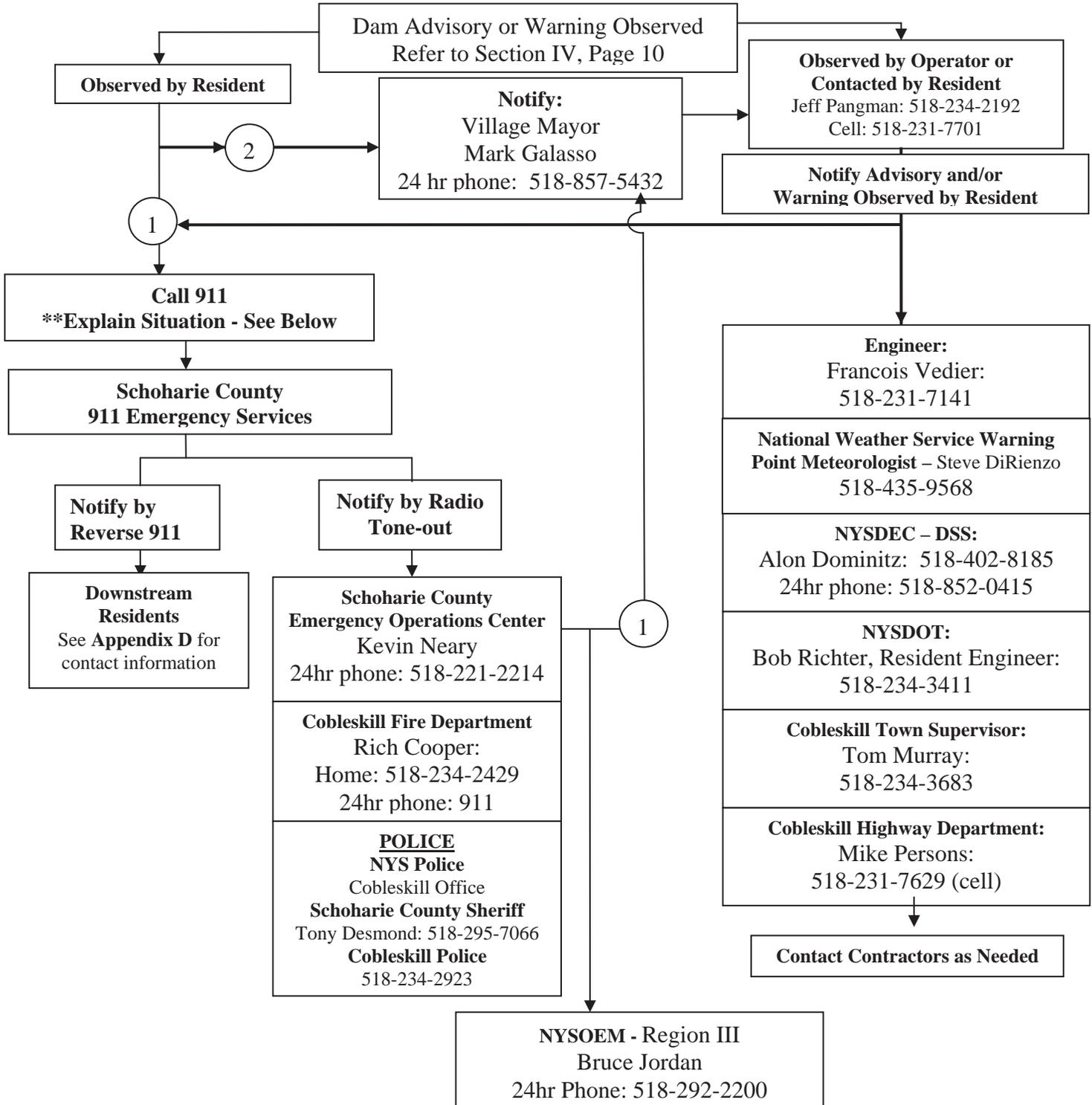
**Condition C – Dam Advisory Condition:**

- A. Dam Advisory Condition is a situation where an unusual problem or situation has occurred, but a failure of the dam is not imminent. Examples of a Dam Advisory Condition are:
  - a. Undocumented seepage: For example, seepage from around or near the low level outlet, seepage from masonry walls along the spillway or any spring on the downstream face of the embankment.
  - b. Cracks, slumps or other developing irregularity in the embankment; upstream; crest or downstream.
  - c. Any substantial obstruction in the spillway such that heavy equipment will be required for removal.

**Condition B – Dam Warning Condition:**

- A. Dam Warning condition is any developing or occurring event or circumstance which is or may adversely affect the integrity of the dam but is considered controllable. The Dam Warning Condition has the potential of evolving into a Dam Emergency condition.
  - a. Accelerating Seepage and/or developing erosion: For example, seepage from around or near the low level outlet, seepage from masonry spillway walls or from a spring on the downstream face of the embankment is increasing in rate and the seepage is carrying silt (muddy water)
  - b. Water level of the lake is high, is rising and threatening to overtop the dam. Spillway is blocked by debris which cannot be removed because of high water.

**Notification Flow Chart for Condition A – Emergency**



**\*\*Inform 911 Operator:** This is (Name) reporting an emergency condition in accordance with the Emergency Action Plan for Cobleskill Reservoir Dams on Dow Street, Town of Cobleskill.

**Condition A - Dam Emergency Condition:**

- A. Dam Emergency Condition (Condition A) is defined as one or more of the following situations:
  - a. Water has overtopped or will overtop the dam.
  - b. Any uncontrollable erosion, settlement or upheaval occurring on the downstream slope or at the toe of the dam.
  - c. Any uncontrollable leakage through the dam structure (spillway or embankment).
  - d. Dam is failing, about to fail or has failed.

**Notification Information:**

Dam Emergency Information for the Emergency Condition Level (Advisory, Warning, Emergency)

Name of person reporting the emergency: \_\_\_\_\_

Affiliation: \_\_\_\_\_

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

Dam Name & NYS-DEC ID #: Lower Reservoir: 174-3138A

Upper Reservoir: 174-3138B

Holding Pond: 174-3846

Location of dam:

County: Schoharie County

Municipality: Town of Cobleskill

Stream: Tributary to Cobleskill Creek

Road(s): Mineral Springs Road, I-88, NYS Route 7

Time and Date of Dam Emergency: \_\_\_\_\_

Type of Emergency: \_\_\_\_\_

Phone appropriate parties: *[refer to the Emergency Notifications Flow Chart, page 1.]*

“This is (your name, title & affiliation).

You are being contacted per the Emergency Action Plan for the Cobleskill Reservoir Dams. Please be advised: A Dam (Advisory, Warning, or Emergency) Condition has been identified at the Cobleskill Reservoir Dams.

Observation was at (time and date).

The situation is (briefly explain the condition).”

\*\*\*\*\*

**Important !!! If you cannot contact an organization or individual promptly, proceed to the next contact on the Notification Flowchart. Try to re-contact the unavailable or busy number after you have contacted all others.**

## II. Statement of Purpose and Scope

**Purpose:** This Emergency Action Plan (EAP) will establish procedures necessary to protect life and property in areas affected by the failure of a dam or the uncontrolled release of stored water from Cobleskill Reservoir Dam.

**Scope:**

This Emergency Action Plan:

- Identifies a routine monitoring system which can activate the EAP, consistent with the I&M Plan for the dam;
- Identifies the officials, organizations, agencies, and their respective responsibilities for implementing the plan;
- Identifies those areas, residences, facilities and roads which might be affected by a dam failure.

### III. Site Description

#### Dam Site Description:

Dam Name: Cobleskill Reservoir Dams Hazard Classification: C

Lower Reservoir: NYSDEC-ID #: 174-3138A Federal ID (NID): NY00657

Upper Reservoir: NYSDEC-ID #: 174-3138B Federal ID (NID): NY00656

Holding Pond: NYSDEC-ID #: 174-4836 Federal ID (NID): NY01554

City/Town: Town of Cobleskill County: Schoharie

Location & Access:

See Project Location Map – next section

Lot No: N/A Block No: N/A

Latitude: 42° 39' 51.90" N Longitude: 74° 26' 49.45" W

River/Stream: Outlets Creeks (Class A Streams) and Cobleskill Creek (Class C Streams)

Quad Sheet: Cobleskill Nearest City/Town: Village of Cobleskill

#### Lower Reservoir Dam: 174-3138A

Height (ft): 26± Normal Surface (ac): 30

Length (ft): 1,200± Normal Capacity (ac-ft): 272±

Dam Type: Earth Embankment Maximum Capacity (ac-ft): 365±

Spillway: 38' wide concrete spillway Spillway Capacity (cfs): 200±

Dike: N/A Drainage Area (sq mls): 1.78

Outlet other than spillway: Emergency Spillway Channel, 12" Drain Pipe

#### Upper Reservoir Dam: 174-3138B

Height (ft): 30± Normal Surface (ac): 25

Length (ft): 2,200± Normal Capacity (ac-ft): 239±

Dam Type: Earth Embankment Maximum Capacity (ac-ft): 353±

Spillway: 41' wide concrete spillway Spillway Capacity (cfs): 1195±

Dike: N/A Drainage Area (sq mls): 1.26

Outlet other than spillway: 12" Intake/Drain line and 24" Outlet to Holding Pond

**Holding Pond Dam: 174-4836**

Height (ft): 38± Normal Surface (ac): 16

Length (ft): 3,180± Normal Capacity (ac-ft): 311±

Dam Type: Earth Embankment Maximum Capacity (ac-ft): 325±

Spillway: 12" Outlet drain pipe Spillway Capacity (cfs): 50±

Dike: N/A Drainage Area (sq mls): 2.92

Outlet other than spillway: 12" Intake line/ 200' Emergency Spillway

Purpose/Operation of Dam (attach additional sheets if necessary): Water Supply

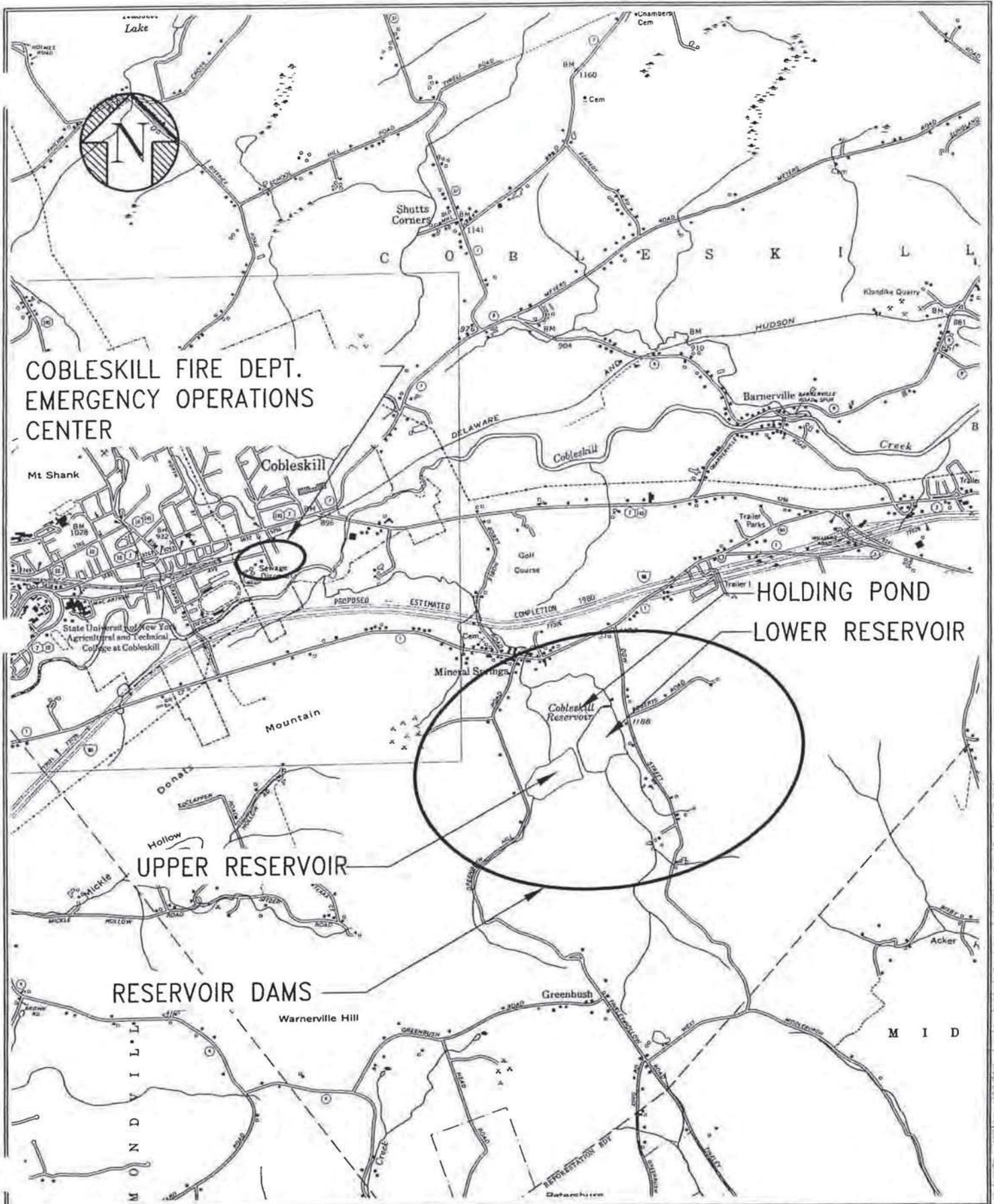
Instrumentation (if any): None

Significant upstream or downstream dams (if any): None

Overview of Inundation Area: Mineral Springs Road, Borst Noble Road, I-88, Cobleskill Creek,

See Appendix A for detailed description

Method of emergency drawdown: Outlet drains



COBLESKILL FIRE DEPT.  
EMERGENCY OPERATIONS  
CENTER

HOLDING POND  
LOWER RESERVOIR

UPPER RESERVOIR

RESERVOIR DAMS

VILLAGE OF  
COBLESKILL  
RESERVOIR DAMS 160

DATE  
12/19/11

SCALE  
1" = 1,000'

PROJECT NO.  
2010089

DRAWN  
BJB



**Lamont Engineers**  
ENGINEERS - PLANNERS - FACILITY OPERATIONS

## IV. Emergency Detection, Evaluation, and Classification

### Emergency Condition Identification:

Since the goal of dam emergency planning is to protect lives and property, the timely identification of emergency conditions by trained personnel becomes paramount. Three (3) dam emergency conditions of varying severity have been identified and are described below.

**Advisory/ Non-failure condition (Condition C).** An unusual problem or situation has occurred, but failure of the dam is not expected. Examples are:

- Flow conditions are such that flooding is expected to occur downstream and/ or upstream of the dam
- Instrumentation readings reach pre-determined numerical limits.
- Any undocumented or unusual spring or seep.
- Any sign of possible piping.
- Any sign of slumping.
- Any sinkhole.
- Any newly detected crack.
- Any unusual wet spot or boggy area.
- Any seismic event regardless of how slight.
- Any significant obstruction in the spillway.
- Evidence of damage due to vandalism at any structure(s).
- Bomb threat.
- A civil disorder near the reservoir structure(s).
- Any aircraft accident near the reservoir structure(s).

Required responses are: *[refer to Emergency Notification Flow Chart, page 1.]*

- Notify municipal EMO.
- Notify county EMO
- Notify dam owner and their Engineer.
- Notify NYSDEC-DSS.
- Investigation.
- Assessment and response.

**Warning Condition (Condition B).** A potential failure situation is developing, but is still considered controllable. Some amount of time is still available for further analysis and decisions to be made before dam failure is likely. Examples of a Warning Condition are:

- Water level of the lake is at an unsafe level and is rising threatening to overtop the dam.
- Any developing erosion, settlement, or upheaval occurring on the downstream slope or at the toe of the dam that is considered to be controllable.
- Any undocumented leakage through any dam structure considered to be controllable.

Responses are: *[refer to EAP Template's Emergency Notification Flow Chart]*

- Notify municipal EMO;
- Notify County EMO;
- Notify dam owner and owner's engineer; and
- Notify NYSDEC-DSS;
- Investigation;
- Assessment and response.

**Emergency Condition (Condition A).** Failure is imminent or has occurred. There is no time left to attempt corrective measures to prevent failure. Examples of an Emergency Condition are:

- Water has overtopped or will overtop any dam or dike.
- Any uncontrollable erosion, settlement or upheaval occurring on the downstream slope or at the toe of the dam.
- Any uncontrollable leakage through any dam structure.
- A dislocation or failure of any structure which allows for an expanding, uncontrollable discharge of water through the spillway, dam, or dikes indicating a breach is occurring.
- Dam is failing, about to fail or has failed.

Required responses are: *[refer to Emergency Notification Flow Chart, page 1.]*

**EVERYONE LISTED ON THE NOTIFICATION FLOWCHART MUST BE CONTACTED.**

## V. General Responsibilities under the EAP

### Dam Owner/Operator Responsibilities:

During an emergency condition:

- Identification of the emergency condition.
- Notification of *[refer to the Emergency Notification Flow Chart on page 1.]*

**Person responsible for the notification:** Mark Galasso (Mayor)

- Implementation and direction of emergency repairs.
- Update the emergency status to the local emergency officials.

**Person responsible for the updates:** Jeff Pangman (Operator)

- Provisions for security measures at the dam.
- Provision of technical assistance to local emergency officials, when necessary.
- Reporting termination of emergency situation on-site at the dam.

During non-emergency conditions, owner/operator must also provide for:

- Routine maintenance and operations of the dam.
- Routine program of surveillance of the dam.
- Annual review, updating, and distribution of the EAP.

### Owner/Operators EAP Coordinator Responsibility:

Once the dam owner/operator has designated an EAP Coordinator, that person shall be responsible for EAP related activities including:

- Inclusion and distribution of document revisions.
- Establish training seminars.
- Coordinate EAP exercises.
- Contact person for any EAP related inquiries.

**EAP Coordinator Name:** Mark Galasso (Mayor)

**Phone Number:** 24 hour phone: (518) 234-3891 or (518) 857-5432

### Local Municipality, Emergency Fire and Police Responsibilities:

- Warn the public of emergency conditions at the dam as appropriate.
- Implement and direct required evacuations of threatened areas.
- Establish reception centers for evacuated people.
- Secure and control access to evacuated areas.
- Conduct rescue and recovery operations as required.
- Determination and declaration of termination of the emergency/disaster response activities off-site.

### **County EMO Responsibilities:**

Provide overall coordination and resource management of county response activities in support of local and county government, as appropriate. For example, this could include:

- Pass warning of emergency conditions at the dam to all affected municipalities.
- Provide assistance to municipalities to help fulfill the emergency responsibilities.

### **NYSOEM Responsibilities:**

Provides overall coordination of state response activities, which are supplement to local efforts, as appropriate. For example, such efforts could include:

- Provision of assistance to the affected municipalities and counties (when requested and beyond local authority capabilities).
- Coordination of specialized assistance.
- Notification of appropriate State agencies.

### **NYSDEC-DSS Responsibilities:**

- Provide technical assistance to the dam owner/operator.
- Assist in the evaluation and resolution of potential emergency conditions.
- Has the authority to direct the owner/operator to take necessary safety measures.

### **Termination:**

The owner/operator is responsible for evaluating a declared emergency condition and should consult with the NYSDEC-DSS that an emergency condition no longer exists on-site at the dam.

### **Recovery:**

The basic goal of the recovery phase is to demobilize and return to the pre-emergency situation. The owner/operator is responsible for implementing all actions necessary to achieve this goal on-site at the dam.

The Owner/Operator is responsible for directing all on-site recovery activities. The basic recovery actions common to the four dam emergency conditions are:

- Secure access to emergency site;
- Restore basic facilities and services;
- Assess damage;
- Long term remedial measures which may require permits may be needed;
- A Post Incident Report describing the conditions which led to the emergency must be submitted to the NYSDEC-DSS within five (5) days. (See Appendix C)

## VI. Preparedness

### Emergency Notification Directory:

1. Dam Owner: Village of Cobleskill

Contact Person: Mark Galasso (Mayor)

Address: 378 Mineral Springs Road, Suite 2, Cobleskill NY 12043

Phone No: 518-234-3891 24-Hr No: 518-857-5432

2. Dam Operator: Jeff Pangman

Address: 174 Dow Street, Cobleskill NY 12043

Phone No: 518-234-2195 24-Hr No: 518-925-1477 E-mail address: water@midtel.net

3. EAP Development Crew

Coordinator: Mark Galasso (Mayor)

Phone No: 518-857-5432

Crew: Jeff Pangman

Phone No. : (518)-234-2195

4. Maintenance & Operations Crew

Supervisor: Jeff Pangman

Phone No: (518)-234-2195

Crew: Water Dept. Employees

Phone No. : (518)-231-7701

5. Inspectors

Name: Jeff Pangman

Phone No. : (518)-234-2195

6. Owner's Engineer

Name:

Lamont

Engineers

Contact Person: Francois Vedier, PE

Address: 548 Main St Cobleskill, NY 12043

Phone No: (518) 234-4028 24-Hr No: (518) 231-7141

7. Municipalities:

Municipality

Phone No.

Police No.

14

165

Town of Cobleskill (518) 234-1719 n/a

8. Counties:

County EMO	Phone No.
<u>Schoharie County – Kevin Neary</u>	<u>518-221-2214</u>

9. State Agencies:

Agency	Phone No.	24-Hr No.
<u>NYSEMO</u>		<u>(518) 457-2200</u>
<u>NYS Police</u>		<u>(518) 234-9400</u>
<u>NYSDEC-DSS</u>	<u>(518) 402-8185</u>	<u>(518) 852-0415</u>

10. National Weather Service Albany, NY (518) 435-9568

11. List remaining contacts listed on the Notification Flowchart entries.

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**Emergency Operation Center (EOC):**

*\*EOC should be located upstream of the dam.\**

Address: Town of Cobleskill Fire Department

Main Street

Cobleskill NY 12043

Phone No.: (518) 234-2429

Directions to the Emergency Operations Center from the nearest State or County highway:

Follow NYS Route 7 to the Village of Cobleskill. EOC is located off of Route 7 (Main Street) between Spring and Center Street across from the Lutheran Church.



## **SURVEILLANCE FOR Cobleskill Reservoir Dams**

### 1. Normal conditions

a. The dam owner/operator or their designated representative will conduct an on-site visual inspection of the dam, the dam's spillway, and the toe area below the dam at a minimum of once every three (3) months. Any abnormal or questionable conditions will be immediately brought to the attention of the owner's engineer and the Division of Dam Safety of NYSDEC.

### 2. Unusual Event Conditions

a. Possible failure of this dam is most likely to occur during severe thunderstorms, heavy rains with local flood warnings, tropical storms and hurricanes, or heavy rains with frozen ground and/or snow cover.

b. The dam operator, Jeff Pangman, or his designated representative will commence 24-hour continuous around-the-clock surveillance of conditions at the dam site when:

- (1) The water level in the impoundment area has reached the threshold level of engaging flow to the auxiliary spillway.
- (2) The National Weather Service issues a flash flood watch or warning and conditions warrant, or
- (3) Following the occurrence of an earthquake in the general region of the dam.

## **TERMINATION OF SURVEILLANCE**

1. Jeff Pangman, dam operator, or his designated representative may terminate 24-hour surveillance of dam site conditions when:

- a. The National Weather Service ends a flash flood watch or warning, and
- b. Heavy rains have ended and the water level in the lake has dropped to below the auxiliary spillway crest elevations and is receding.
- c. After personal inspection by a knowledgeable professional engineer of the dam site, following an earthquake, overtopping of the dam, or an evacuation of the inundation area as a result of the EAP, or other serious problems resulting in a notification of a dam site emergency.

## List of Contractors:

*It will be the responsibility of the owner to keep current the list of contractors that may be contacted during an emergency condition for equipments, materials, and repairs.*

1. Contractor: Andre Nadeau

Contact person: Andre Nadeau Phone No: (518) 234-3124

Address: 129 Bridge Street, Cobleskill NY 12043

Services contracted for: Excavation, earth moving operations, portable pumps

2. Contractor: Lancaster Development Inc.

Contact person: Mark Galasso Phone No: (518) 294-9964

Address: 145 Podpadic Road, Richmondville NY 12149

Services contracted for: Portable Pumps, excavation, earth moving operations

### Available On-Site Materials:

<u>Material</u>	<u>Location</u>	<u>Quantity</u>
None		

### Available On-Site Equipment:

<u>Equipment</u>	<u>Location</u>	<u>Quantity</u>
None		

### Available Off-Site Materials:

<u>Material</u>	<u>Company &amp; Location</u>	<u>Phone No.</u>	<u>Approximate Arrival Time to Dam (Min)</u>
sand, gravel, borrow material	Cobleskill Stone Products PO Box 220 Cobleskill, NY 12043	(518) 234-0221 (518) 234-0226 (cell)	30 minutes

### Available Off-Site Equipment:

<u>Material</u>	<u>Company &amp; Location</u>	<u>Phone No.</u>	<u>Approximate Arrival Time to Dam (Min)</u>
earth moving equipment/portable pumps	Nadeau and Sons 129 Bridge Street Cobleskill, NY 12043	(518) 234-3124 (518) 376-3426 (cell)	15 minutes
earth moving equipment/portable pumps	Lancaster Development Inc. 145 Podpadic Road Richmondville, NY 12149	(518) 294-9964	15 minutes
earth moving equipment/portable pumps	Cobleskill Highway Dept. Rock Road Cobleskill, NY 12043	(518) 234-2990 (518) 231-7629	15 minutes

## **VII. Inundation Map**

### **Description of Inundated Area:**

**See Appendix A for discussion of Inundation area, hydrologic and hydraulic analysis.**

**Inundation Map:** See map, Appendix A.

## **VIII. Plans for Training, Exercising, Updating & Posting:**

### **Training:**

Dam inspectors, as well as maintenance & operations crews, shall receive training regarding emergency condition identification within six months of the adoption of the EAP and biennially (every two years) thereafter for as long as this plan is in effect. Dam inspectors shall receive training regarding dam inspection procedures within six months of the adoption of this EAP, with refresher training as needed. Maintenance & operations crews shall receive training regarding the maintenance & operation of the dam within twelve months of the adoption of this EAP, with refresher training as needed.

### **Exercising:**

This EAP (for the Cobleskill Reservoir Dams) shall be exercised as part of the annual Cobleskill Reservoir Dams EAP review and training and/or Schoharie County's Comprehensive Emergency Management Plan exercises.

### **Updating:**

This plan shall be reviewed annually by The Village of Cobleskill, Dam Owner, and updated as necessary.

### **Posting of the Notification Flowchart:**

The notification flowchart for Cobleskill Reservoir Dams shall be prominently posted at:

1. Village Offices:           Village Office  
                                  378 Mineral Springs Road  
                                  Cobleskill, NY 12043  
                                  (518) 234-3891
  
2. Fire Department:       Cobleskill Fire Department  
                                  610 East Main Street  
                                  Andes, NY 13731  
                                  (518) 234-2429  
                                  24 hour phone: 911
  
3. Schoharie County:      Department of Emergency Services  
                                  2783 State route 7  
                                  Howes Cave, NY 12092  
                                  24 hour phone: 518-221-2214



**COBLESKILL DAMS (NYSDEC ID #'S 174-3138B, 174-3138A, 174-4836)  
HYDROLOGIC & HYDRAULIC ASSESSMENT/  
INUNDATION MAPPING REPORT**

Town of Cobleskill  
Schoharie County, New York



Prepared for:

Lamont Engineers  
548 Main Street  
Cobleskill, NY 12043

Prepared by:

Woidt Engineering & Consulting, P.C.  
41 Chenango Street, Suite 200  
Binghamton, NY 13901

November 17<sup>th</sup>, 2011

COBLESKILL DAMS (NYSDEC #'S 174-3138B, 174-3138A, 174-4836)  
HYDROLOGIC & HYDRAULIC ASSESSMENT/  
INUNDATION MAPPING REPORT

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4. Dam Break Analysis and Inundation Mapping	3
5. Conclusions & Recommendations	5

Appendix A

- Inundation Map
- Drainage Area Maps - 1" = 2000'
- Schoharie County Soil Mapping
- HEC-HMS Summary Tables – Lower Reservoir Dam
- HEC-HMS Summary Tables – Upper Reservoir Dam
- HEC-HMS Summary Tables – Holding Pond Dam
- HEC-HMS Summary Tables – Summary
- HEC-RAS Summary Tables – Lower Reservoir Dam
- HEC-RAS Summary Tables – Upper Reservoir Dam
- HEC-RAS Summary Tables – Holding Pond Dam
- HEC-RAS Summary Tables - Summary

## **1.0 Purpose of Investigation**

This investigation was conducted to assess and develop downstream inundation mapping for a sudden failure of Cobleskill Upper Reservoir Dam (DEC # 174-3138B), Cobleskill Lower Reservoir Dam (DEC# 174-3138A) and Cobleskill Holding Pond Dam (DEC # 174-4836). The dam break analysis and preparation of inundation mapping will benefit the Village of Cobleskill as it will provide a clearer definition of the downstream hazard area and impacts that will be included in an Emergency Action Plan (EAP). A secondary purpose of the investigation was to confirm the spillway capacity and current hazard classification of each dam. It is noted that the current hazard NYSDEC classification for all three dams is High (Class C). The investigation was conducted by Woitdt Engineering & Consulting (WEC) of Binghamton, NY. The preparation of the inundation mapping and study complies with the Rules and Regulations for Dam Safety (6 NYCRR PARTS 608, 621 and 673).

## **2.0 Project Location & Description**

The three dams are located in close proximity to each other in the Town of Cobleskill. Cobleskill Upper Reservoir Dam and Cobleskill Lower Reservoir Dam have different upstream drainage areas, however outlet to the same receiving stream (see drainage area maps - Appendix A) just downstream of the dams. Cobleskill Holding Pond Dam is located adjacent to Cobleskill Lower Reservoir Dam and has an embankment berm surrounding its entire perimeter, thus has no contributory area.

The Upper Reservoir Dam is an earth embankment water supply dam with a 41' +/- wide concrete spillway. Other water releases from the reservoir are via a 12" diameter CIP overflow pipe that discharges directly to the water supply of the Lower Reservoir. There is also a 24" pipe connecting the Upper Reservoir to the Holding Pond. This allows operators to fill the Holding Pond directly from the Upper Reservoir. There is no auxiliary or emergency spillway. The Upper Reservoir Dam has approximately 25 acres of surface area at normal pool and has a maximum dam height of approximately 28'. Records indicate that the dam was originally built in 1967.

The Lower Reservoir Dam is an earth embankment water supply dam. The dam is equipped with a 20" diameter drop inlet structure that sets the normal pool elevation and provides the water supply function. The structure can also be set to drain the Lower Reservoir. There is also a 24" connecting pipe between the Lower Reservoir and the Holding Pond, allowing operators to fill the Holding Pond from the Lower Reservoir when the Holding Pond levels are low enough.

A 37' wide concrete weir spillway set 6" higher than the water supply intake provides the primary outflow capacity for the dam. There is no apparent emergency spillway for the dam (see further discussion, section 5.0). The Lower Reservoir Dam has approximately 32 acres of surface area at normal pool and a maximum height of 26'.

The Holding Pond Dam is an earth embankment dam that is used for water supply storage. The impoundment is entirely surrounded by an earth embankment berm, therefore there is no natural drainage area entering the dam. The only flow the dam receives is from the Lower and Upper Reservoir Dams via gated water supply lines. The dam is equipped with a 12" diameter drain pipe and a 200' wide emergency overflow spillway that is set 1 foot above normal pool level. The dam has a maximum height of approximately 33' and 17 acres of surface area at normal pool level.

### **3.0 Hydrologic Analysis/Spillway Capacity**

Inflow hydrographs for the Lower and Upper Reservoir Dams were developed using the Snyder Unit hydrograph transform method contained in the HEC-HMS software package. The respective Snyder Unit hydrograph input parameters Time to Peak ( $T_p$ ) and peaking coefficient ( $C_p$ ) were obtained from the 1980 US Army Corps of Engineers Phase I Inspection report for the Lower and Upper Reservoir Dams. Loss rates were estimated using the Soil Conservation Service curve number method. The average CN values of 73 for the respective drainage areas to the dams were computed from Schoharie County Soil Mapping and land use review.

The respective transform and loss rate parameters are:

Lower Reservoir Dam	$T_p = 2.66$ hours	$C_p = 0.625$	CN= 72
Upper Reservoir Dam	$T_p = 2.87$ hours	$C_p = 0.625$	CN= 67

The 24 hour precipitation value for the Probable Maximum Precipitation (PMP) was obtained from HMR-51 All Season PMP for a 24-hour, 10 square mile storm. The full Probable Maximum Flood (PMF) inflows to the dam were developed in the US Army Corps of Engineers HEC-HMS program based on the PMP rainfall (30.0 inches). A flow ratio of 50% was then applied to the PMF inflow hydrograph to develop the 0.50PMF inflow hydrograph. It is noted that the SCS rainfall distribution (Type 2) was used in lieu of the HMR-52 rainfall distribution due to the very small drainage area to the dams.

For the Holding Reservoir Dam, the contributory area is limited to the footprint of the impoundment area, thus hydrologic analysis was not performed.

Reservoir routings for the Lower and Upper Reservoir were performed assuming normal pool conditions. Stage-storage relationships were developed from aerial photos, storage data from the Phase 1 Inspection report and USGS mapping. Stage-discharge rating curves for the dams were developed using hydraulic routing methods imbedded within the HEC-HMS software for broad crested weir configurations based on field measurements and available plans/survey. The peak outflow, reservoir stages and duration/depth of overtopping for selected storm events for the Lower and Upper Reservoir Dams are presented in Tables 1 and 2.

**TABLE 1 – LOWER RESERVOIR DAM DISCHARGES/STAGES/DURATIONS OF OVERTOPPING FOR VARIOUS STORM EVENTS**

Storm Event	Peak Inflow (cfs)	Peak Outflow (cfs)	Maximum Stage	Depth of Overtopping* (feet)	Duration of overtopping (hours)
0.50 PMF	2372	1616	1174.0	1.0	8.6
0.14 PMF	664	452	1173.0	0.0	0

\* Top of Dam = 1173.0, Normal Pool Elevation = 1170.0

As can be observed from Table 1, the Lower Reservoir Dam spillway capacity is approximately equal to the 0.14 PMF flood with a spillway capacity flow of 452cfs.

**TABLE 2 – UPPER RESERVOIR DAM DISCHARGES/STAGES/DURATIONS OF OVERTOPPING FOR VARIOUS STORM EVENTS**

Storm Event	Peak Inflow (cfs)	Peak Outflow (cfs)	Maximum Stage	Depth of Overtopping* (feet)	Duration of overtopping (hours)
0.50 PMF	1533	1520	1184.7	0.10	3.3
0.40 PMF	1225	1050	1184.6	0.0	0

\* Top of Dam = 1184.6, Normal Pool Elevation = 1180.6

Since the Holding Pond does not have a natural drainage area, a hydrologic analysis was not performed as part of this study. However, since the Holding Pond does impound a significant volume of water, a hypothetical dam break analysis was conducted (see section 4.0)

Selected HEC-HMS computer output for the Lower and Upper Reservoir Dams is included in Appendix A.

#### **4.0 Dam Break Analysis and Inundation Mapping**

Reservoir routing and ensuing downstream channel routing were performed using the dam break and routing functions of the US Army Corps of Engineers HEC-HMS and HEC-RAS computer program for the Spillway Design Flood (0.50PMF), Spillway Design Flood with dam failure, as well as the "sunny day" dam failure scenario. The Muskingum-Cunge 8-point section method was used for routing outflow hydrographs in the initial downstream reaches of the dam (along the outlet channel from the dams to Mineral Springs Road) due to the steep slope of the outlet channel and undeveloped floodplain. An unsteady flow model using the Army Corps of Engineers HEC-RAS computer program was then used along Smith Creek, utilizing stream and floodplain cross sections developed from field survey sections (in the developed near Mineral

Springs) and USGS mapping (in undeveloped areas) and from Flood Insurance Study data (for Cobleskill Creek). The cross section locations are depicted on the Inundation Mapping.

Sunny Day Failure

Initially, a sunny day failure analysis was conducted for each of the dams assuming a sudden dam failure would occur at the normal summer pool elevation with low base flow conditions in the downstream channel. The parameters used in the dam break were developed in accordance with recommended guidelines for dam safety and engineering judgment. Breach parameters used for the sunny day failure at each of the dams are shown in Table 3.

**Table 3 - Dam Breach Parameters**

Dam/Reservoir Name	Elevation Breach Bottom	Bottom width of breach (ft)	Side slopes of breach	Development time of breach (hours)	Trigger elevation of breach
Lower	1152.0	42	0.5H:1V	0.50	1170.0*
Upper	1157.0	56	0.5H:1V	0.50	1180.6*
Holding Pond	1145.0	66	0.5H:1V	0.50	1176.0*

\*normal pool elevation

Note that the sunny day failure obviously does not overtop the dam, thus the failure mode is assumed to be a piping type failure.

Rainy Day Event (0.50PMF)

The "rainy-day event" compares the 0.50 PMF (the spillway design flood) with a dam break to the 0.50PMF without a dam break to assess the incremental effects of the dam break. Similar dam break parameters were used for this analysis with the exception that the failure was triggered at elevations which represent a reservoir stage just below the peak reservoir elevation during the storm (for the Lower and Upper Reservoirs). Note that a "rainy-day event" was not performed for the Holding Pond Reservoir since it has no natural drainage area. Since both the Lower and Upper Reservoir Dams overtop during the 0.50PMF, the failure mode was assumed to be an overtopping failure.

### Downstream Flood Routings

The sunny day dam failure hydrograph, 0.50PMF without dambreak and the 0.50PMF with dambreak were then routed downstream for each of the dam failure conditions. The downstream routings were terminated approximately 2.0 miles downstream of the dams where the incremental effect of the dam break is absorbed by the large floodplain storage of Cobleskill Creek and the additional contributory downstream drainage area inflows (for the rainy day scenarios).

Key information regarding flooding depths, arrival times of flood wave and peak stages for each of the sunny day and rainy day (spillway design flood) events are identified at key cross sections on the inundation mapping in the Emergency Action Plan. A separate inundation map was prepared for each of the dams. Additional detailed hydraulic information from HEC-HMS and HEC-RAS computer runs are included in Appendix A.

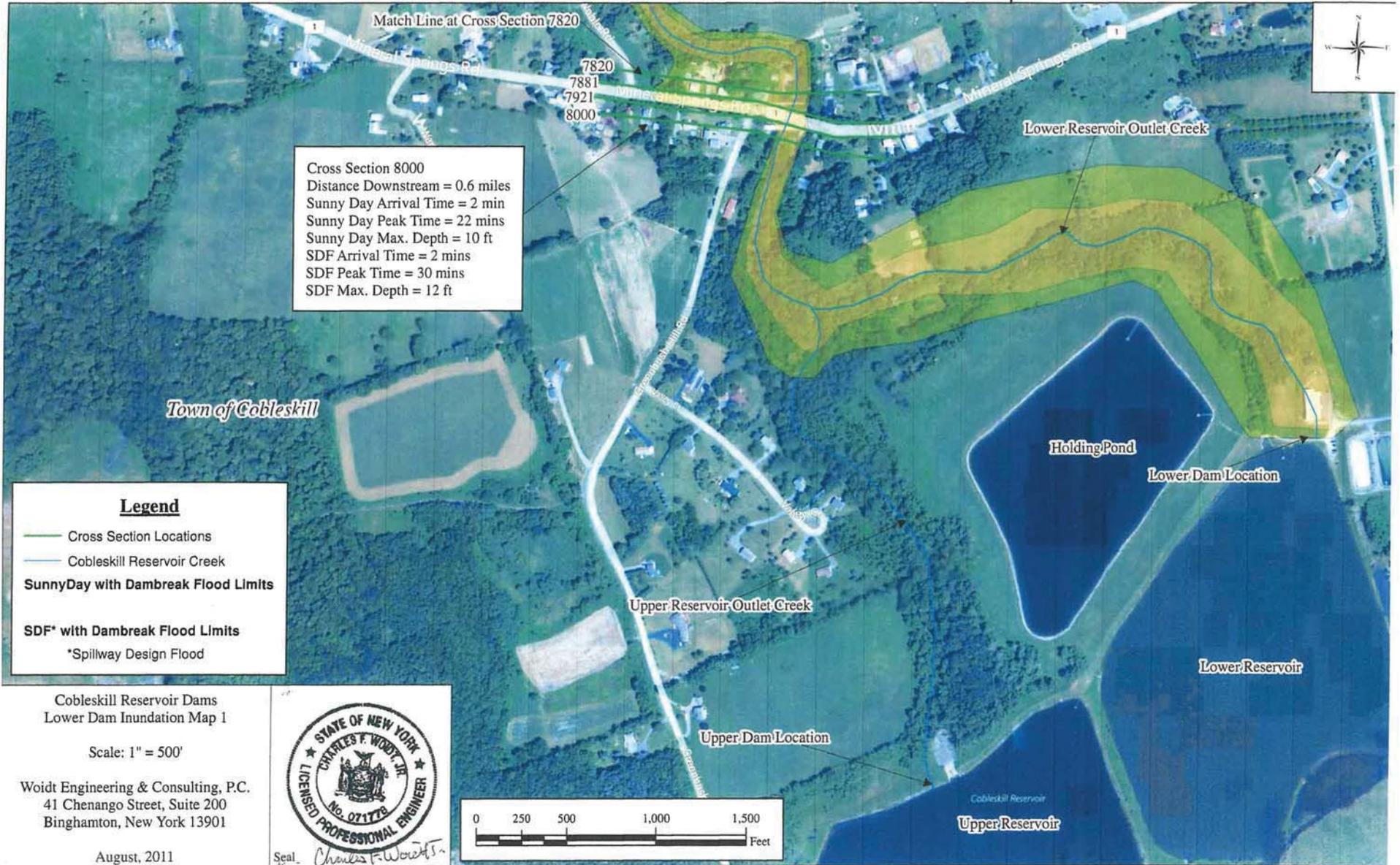
## **5.0 Conclusions & Recommendations**

The hydrologic and hydraulic analysis identified that both the Lower and Upper Reservoir Dams have respective spillway capacities equal to approximately a 0.14 and 0.40 PMF storm event, which is less than the recommended spillway design flood of 0.50PMF. The analysis generally used existing information from the 1980 Phase 1 Dam Inspection Reports for the Lower and Upper Reservoir Dams and Design/As built plan information for the Holding Pond Reservoir. Although field review of the dams revealed that the spillway configurations have generally remained the same as described in the Phase 1 reports, it is suggested that detailed survey be obtained to more accurately define the respective spillway and corresponding crest elevations of the dams. Review of the Holding Pond Dam as-built plans (1985) indicate that there may have also been some improvements made to the Lower Reservoir Dam spillway capacity through addition of an emergency spillway. However, the as-built plans did not provide details to confirm the specifics of the improvements. Therefore, detailed survey should be obtained for both reservoirs to refine/verify the hydrologic analysis in conjunction with preparation of the detailed engineering assessment reports for the dams. The reports, for small Class C hazard dams such as the Lower and Upper Reservoir Dams, should be completed by August 19<sup>th</sup>, 2014 per revised NYSDEC Dam Safety Regulations.

With regard to hazard class, a dam break analysis and subsequent downstream hydraulic routings were conducted to assess downstream hazards. The inundation area generally includes the channel and adjacent floodplain along Smith Creek from the dam to the confluence with Cobleskill Creek. The primary impact area is in the vicinity of Mineral Springs immediately upstream and downstream of Mineral Springs Road. Mineral Springs Road will be overtopped by all the dam break scenarios for each of the three dams. Four or five occupied structures will be inundated by the flood wave adjacent to Mineral Springs Road.

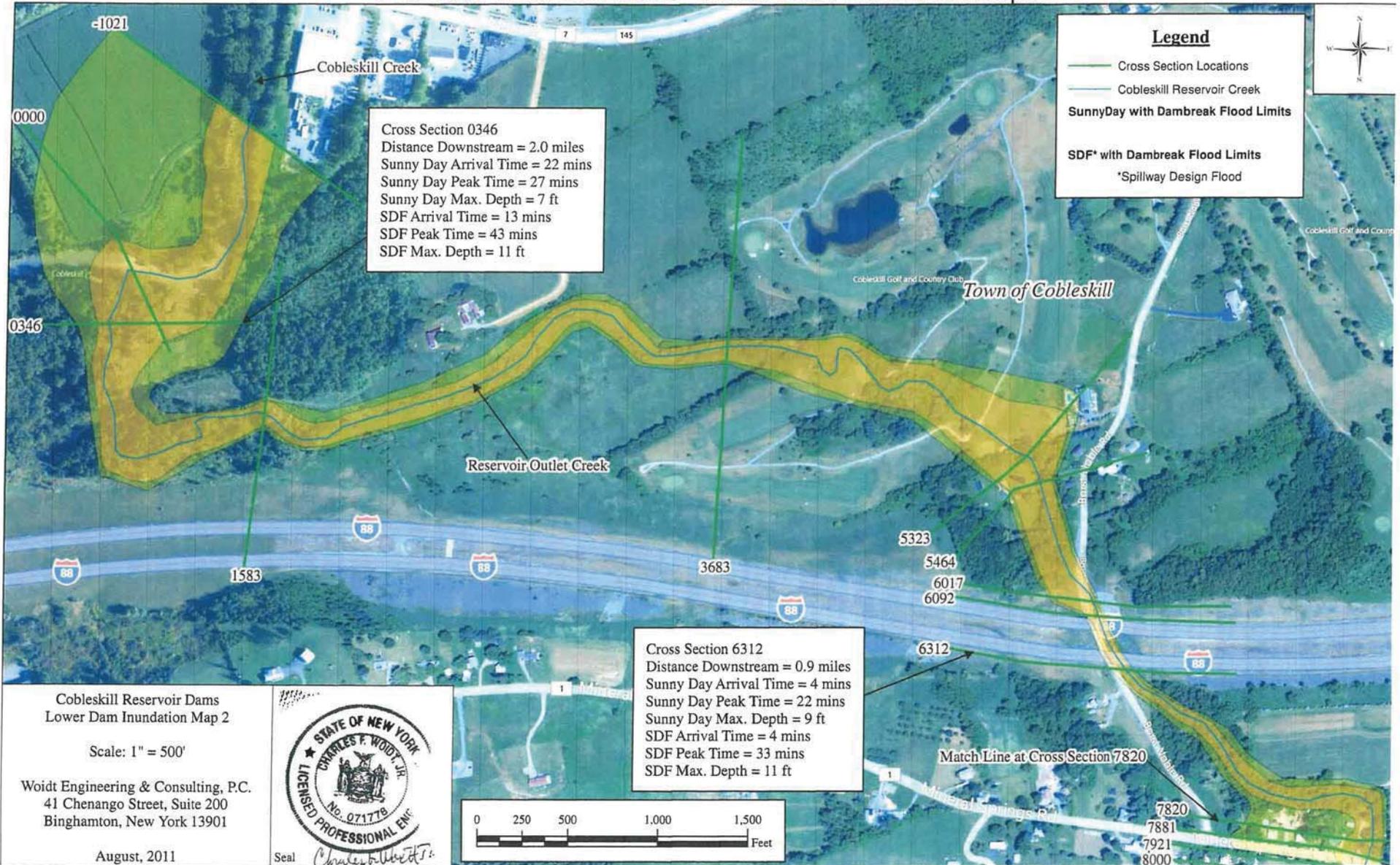
Continuing downstream, the flood wave will pass underneath Interstate 88 and will overtop Borst Noble Road, a low volume local roadway. Proceeding downstream, the flood wave will traverse across the undeveloped floodplain of Smith Creek until it's confluence with Cobleskill Creek. Due to the very short arrival time to the Mineral Springs area and potential high flood wave depths and velocities, we concur that the existing high (Class C) hazard class is appropriate for each of the three dams.

# Cobleskill Reservoir Dams - Lower Dam Inundation Map 1



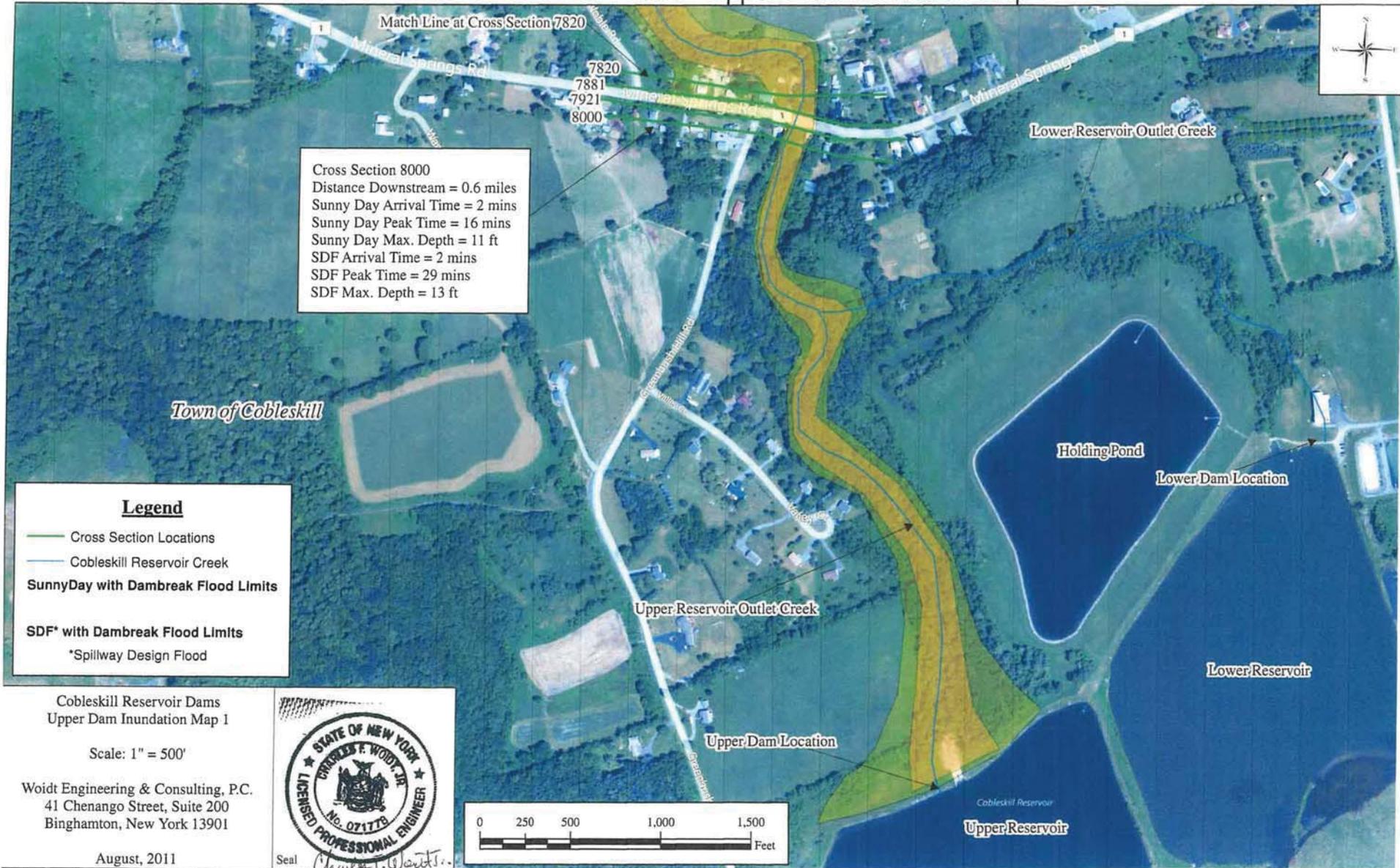
Note: Flood limits are approximate and should be used as a guideline during an actual dam failure.

## Cobleskill Reservoir Dams - Lower Dam Inundation Map 2



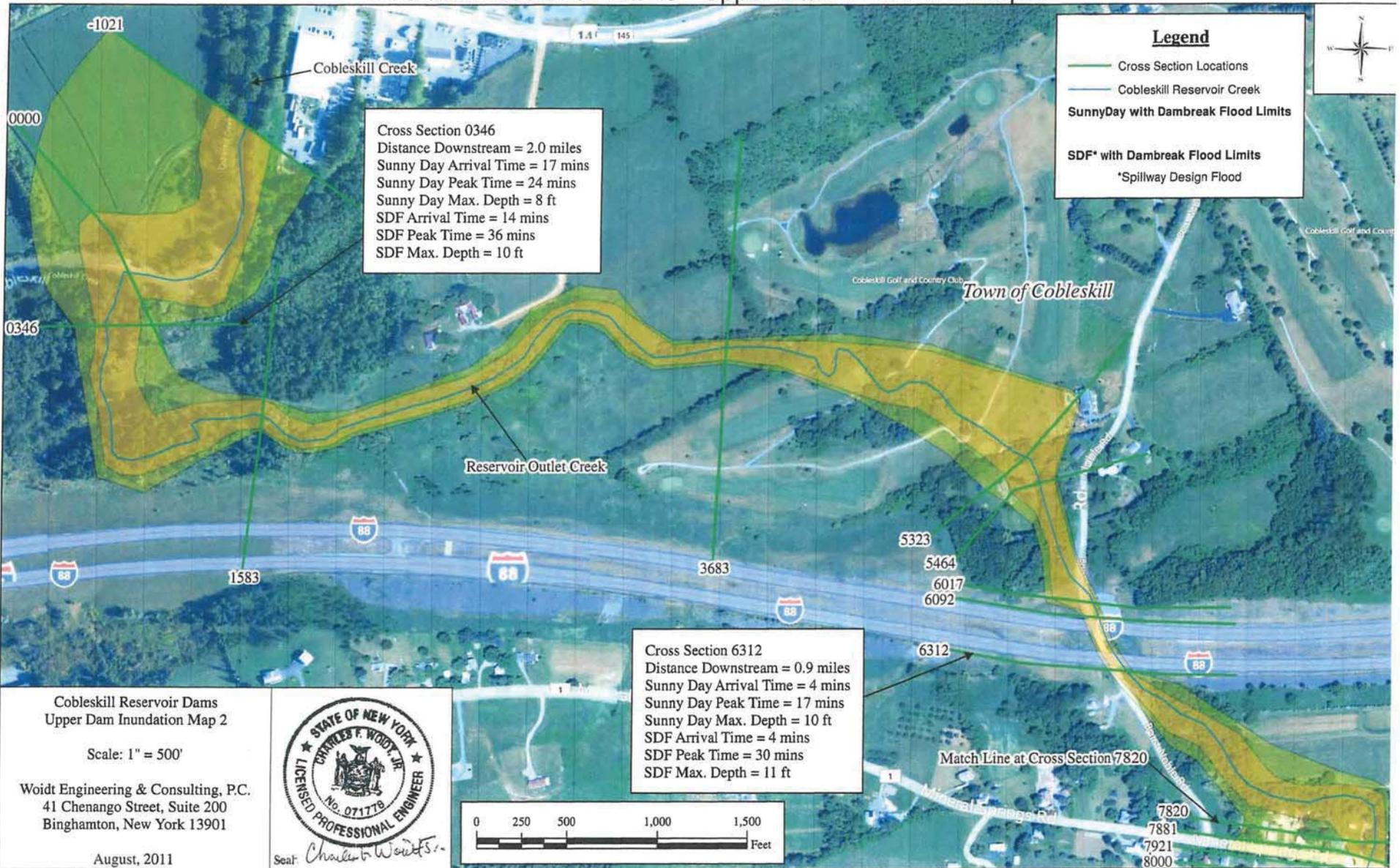
Note: Flood limits are approximate and should be used as a guideline during an actual dam failure.

# Cobleskill Reservoir Dams - Upper Dam Inundation Map 1

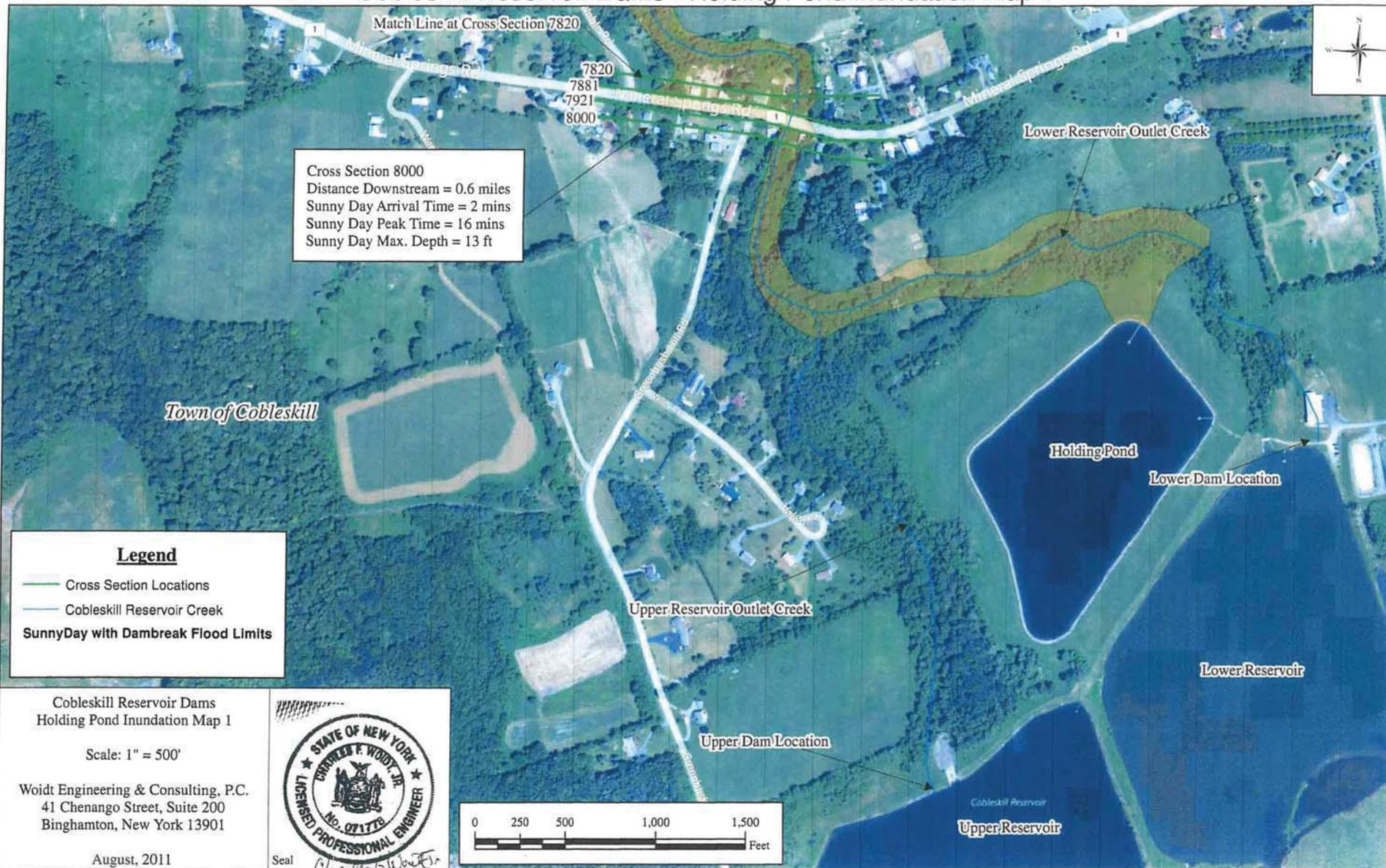


Note: Flood limits are approximate and should be used as a guideline during an actual dam failure.

## Cobleskill Reservoir Dams - Upper Dam Inundation Map 2



# Cobleskill Reservoir Dams - Holding Pond Inundation Map 1



Cross Section 8000  
 Distance Downstream = 0.6 miles  
 Sunny Day Arrival Time = 2 mins  
 Sunny Day Peak Time = 16 mins  
 Sunny Day Max. Depth = 13 ft

**Legend**

- Cross Section Locations
- Cobleskill Reservoir Creek

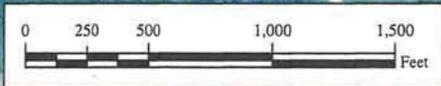
**SunnyDay with Dambreak Flood Limits**

Cobleskill Reservoir Dams  
 Holding Pond Inundation Map 1

Scale: 1" = 500'

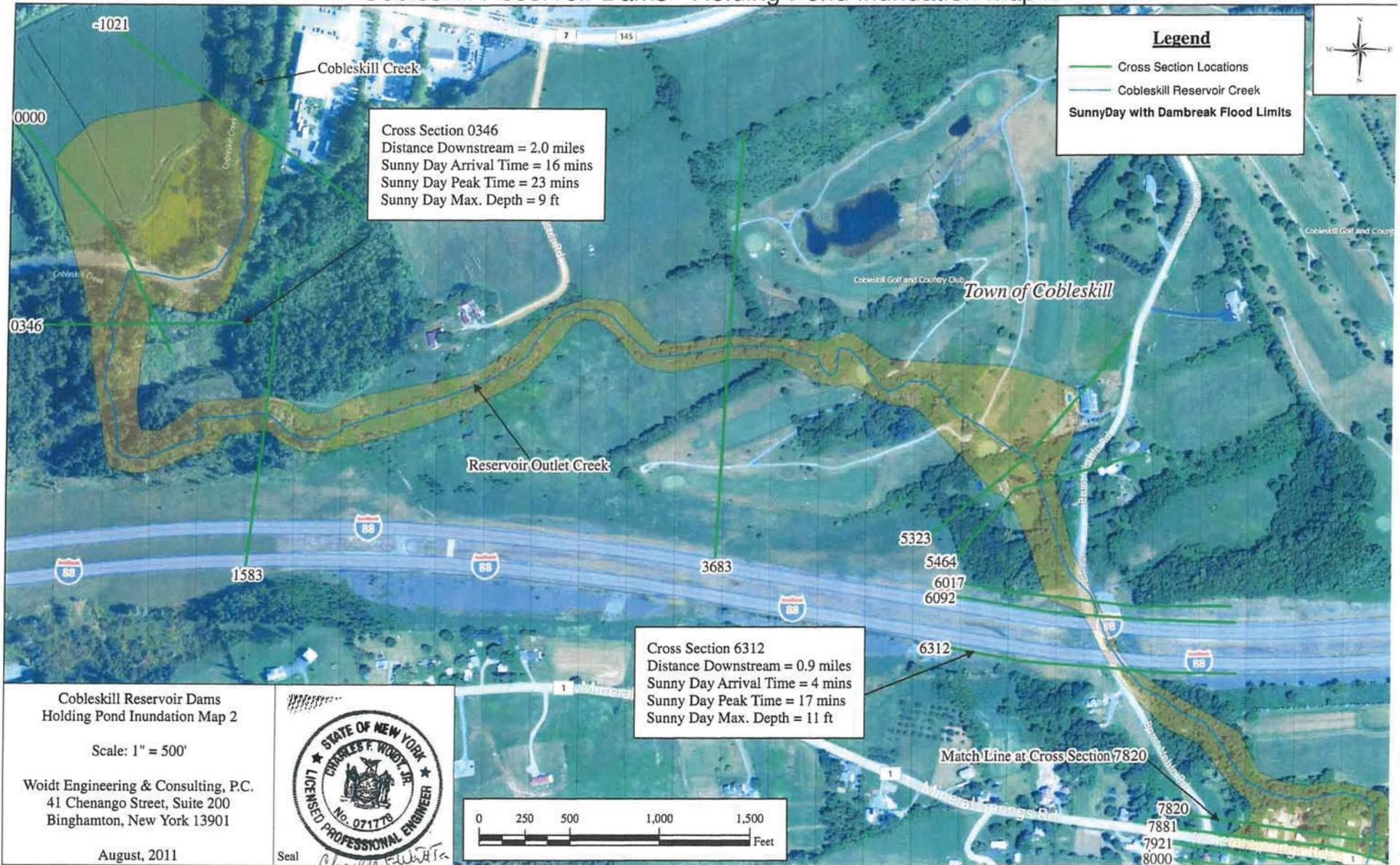
Woldt Engineering & Consulting, P.C.  
 41 Chenango Street, Suite 200  
 Binghamton, New York 13901

August, 2011

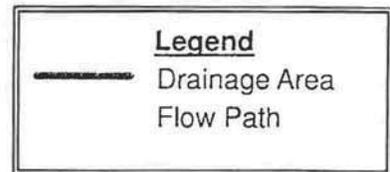
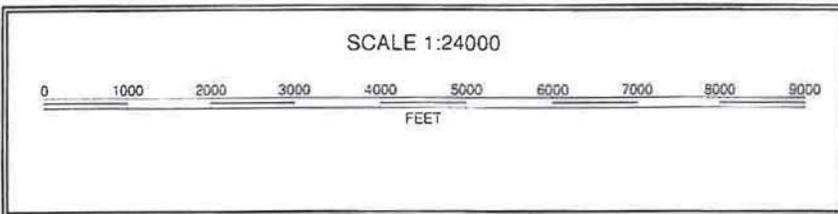
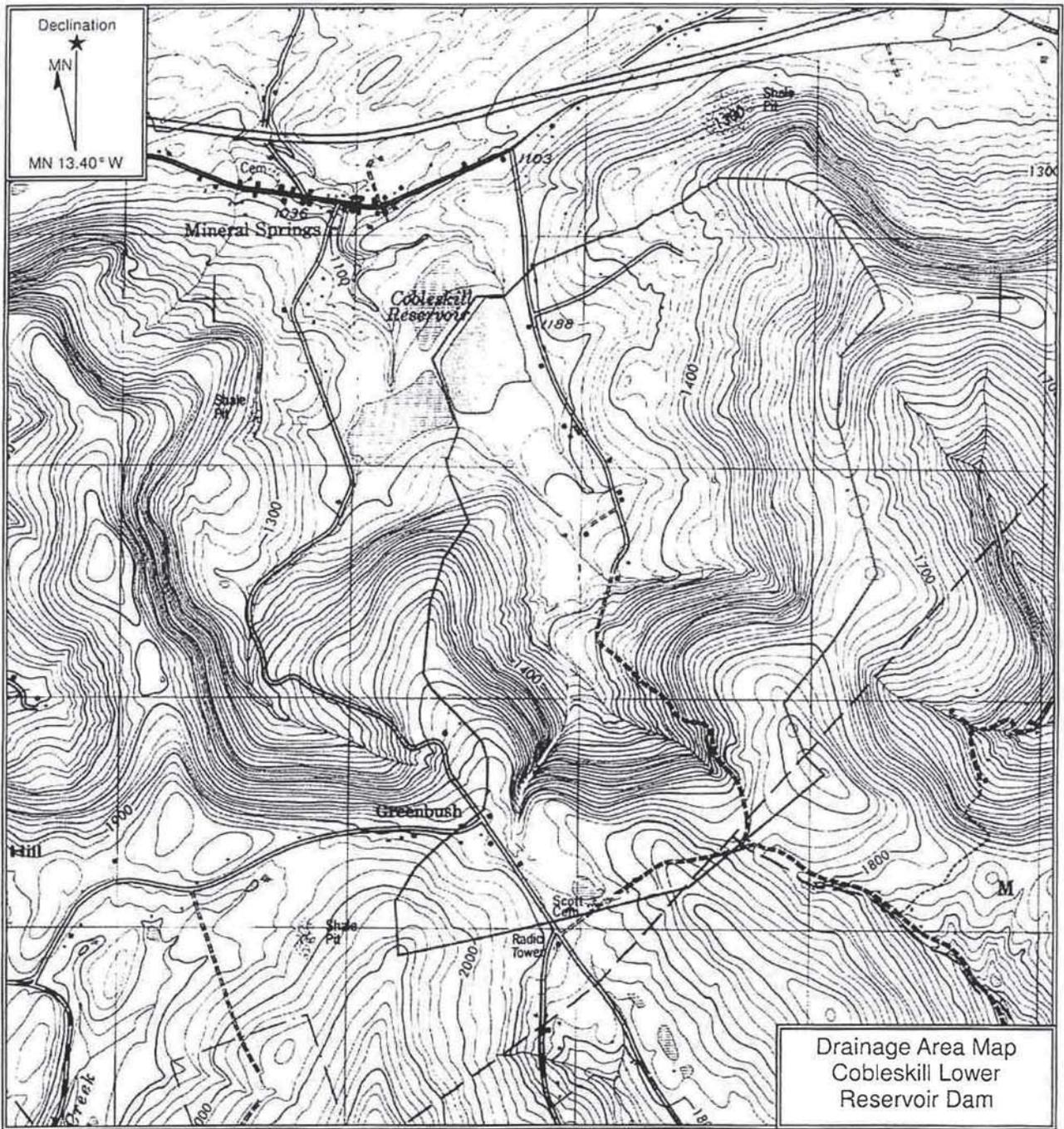


Note: Flood limits are approximate and should be used as a guideline during an actual dam failure.

## Cobleskill Reservoir Dams - Holding Pond Inundation Map 2



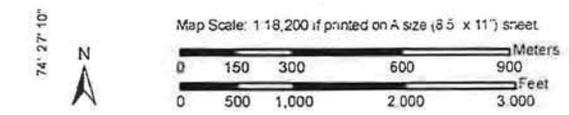
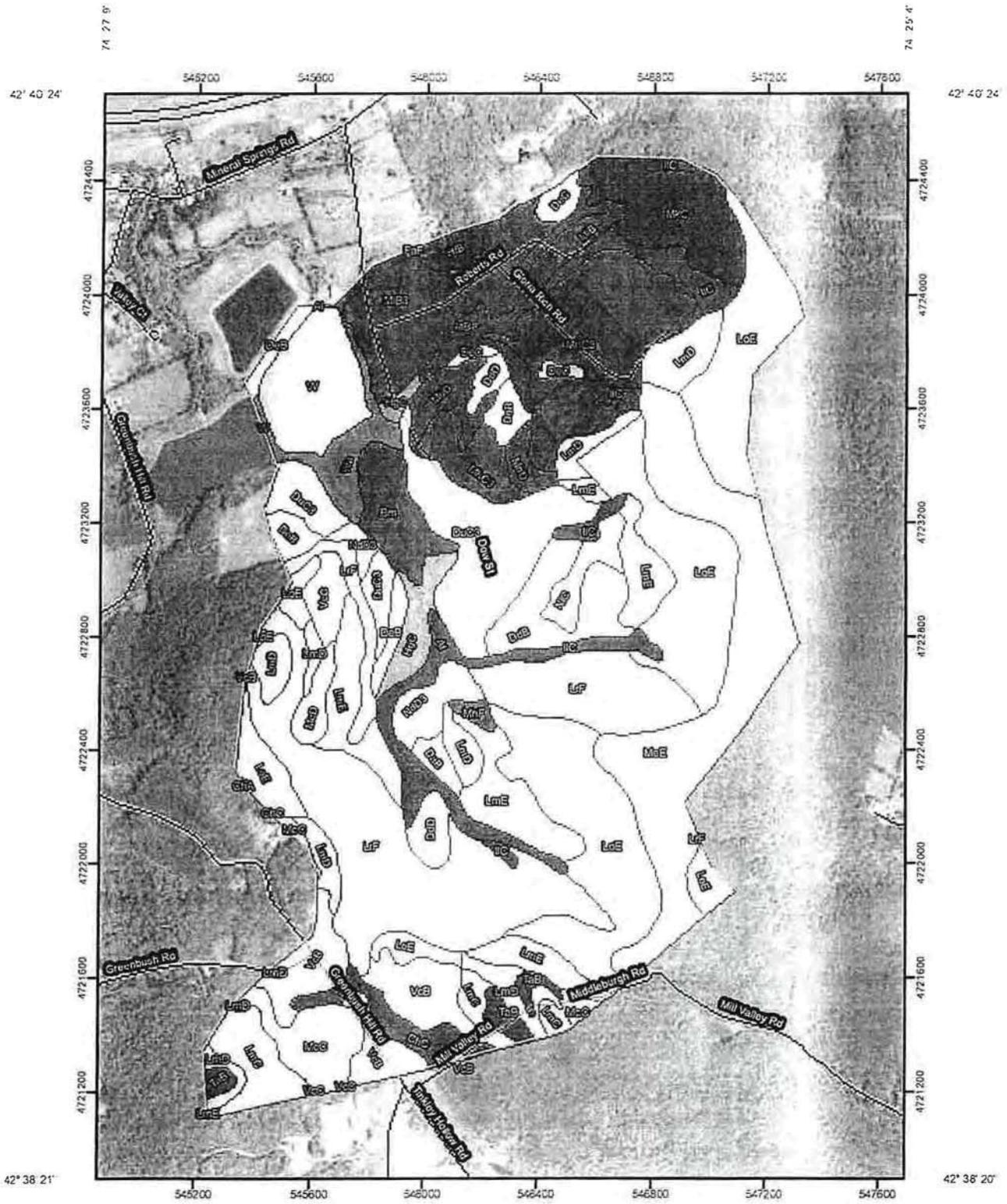
Note: Flood limits are approximate and should be used as a guideline during an actual dam failure.



Scale: 1" = 2,000'



Hydrologic Soil Group—Schoharie County, New York  
(Cobleskill Lower Reservoir Dam)



Hydrologic Soil Group—Schoharie County, New York  
(Cobleskill Lower Reservoir Dam)

### MAP LEGEND

#### Area of Interest (AOI)

 Area of Interest (AOI)

#### Soils

Soil Map Units

#### Soil Ratings

-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D

Not rated or not available

#### Political Features

 Cities

#### Water Features

Streams and Canals

#### Transportation

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

### MAP INFORMATION

Map Scale: 1:18,200 if printed on A size (8.5" x 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:15,840.

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

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>  
Coordinate System: UTM Zone 18N NAD83

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

Soil Survey Area: Schoharie County, New York  
Survey Area Data: Version 7, Mar 10, 2011

Date(s) aerial images were photographed: 8/22/2006; 8/12/2006

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.

## Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Schoharie County, New York (NY095)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Al	Alluvial land	D	20.4	1.7%
Bm	Basher and Middlebury silt loams	B	21.8	1.8%
ChA	Chippewa and Norwich stony silt loams, 0 to 3 percent slopes	D	0.2	0.0%
ChC	Chippewa and Norwich stony silt loams, 3 to 15 percent slopes	D	13.6	1.1%
DaB	Darien channery silt loam, 2 to 8 percent slopes	C	4.6	0.4%
DdB	Darien silt loam, gently undulating, 2 to 8 percent slopes	C	25.6	2.1%
DdD	Darien silt loam, undulating, 15 to 25 percent slopes	C	11.2	0.9%
DeB	Darien silt loam, 2 to 8 percent slopes	C	18.7	1.5%
DeC	Darien silt loam, 8 to 15 percent slopes	C	7.7	0.6%
DuC3	Darien silty clay loam, undulating, 8 to 15 percent slopes, eroded	C	68.3	5.7%
FaF	Farmington very rocky silt loam, 10 to 70 percent slopes	C	0.0	0.0%
HfB	Honeoye-Farmington complex, 2 to 10 percent slopes	B	6.9	0.6%
HgC	Howard gravelly silt loam, 5 to 15 percent slopes	A	14.5	1.2%
IaB	Ilion and Appleton silt loams, 3 to 8 percent slopes	D	2.4	0.2%
IIC	Ilion and Lyons silt loams, 3 to 15 percent slopes	D	45.8	3.8%
LmC	Lordstown channery silt loam, 5 to 15 percent slopes	C	24.8	2.1%
LmD	Lordstown channery silt loam, 15 to 25 percent slopes	C	47.7	3.9%
LmE	Lordstown channery silt loam, 25 to 35 percent slopes	C	63.4	5.3%
LoE	Lordstown and Oquaga very stony soils, 0 to 35 percent slopes	C	189.5	15.7%
LrF	Lordstown, Oquaga, and Nassau soils, 35 to 70 percent slopes	C	154.1	12.8%
McC	Mardin channery silt loam, 8 to 15 percent slopes	C	22.7	1.9%
McD	Mardin channery silt loam, 15 to 25 percent slopes	C	6.8	0.6%
MeE	Mardin and Culvers very stony soils, 0 to 35 percent slopes	C	101.2	8.4%

Hydrologic Soil Group— Summary by Map Unit — Schoharie County, New York (NY095)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
MhC3	Mohawk and Honeoye silt loams, 10 to 20 percent slopes, eroded	B	81.1	6.7%
MhD	Mohawk and Honeoye silt loams, 20 to 30 percent slopes	B	17.8	1.5%
MhF	Mohawk and Honeoye soils, 30 to 50 percent slopes	B	2.7	0.2%
MkC	Mohawk and Lansing very stony silt loams, 3 to 20 percent slopes	B	37.1	3.1%
MIB	Mohawk and Lima silt loams, 2 to 10 percent slopes	B	7.8	0.6%
MIB3	Mohawk and Lima silt loams, 2 to 10 percent slopes, eroded	B	51.9	4.3%
NdD3	Nunda channery silt loam, 20 to 30 percent slopes, eroded	C	15.4	1.3%
NIC	Nunda and Langford channery silt loams, 8 to 15 percent slopes	C	10.3	0.9%
TaB	Tuller and Allis silt loams, 0 to 8 percent slopes	D	9.0	0.7%
VcB	Volusia channery silt loam, 3 to 8 percent slopes	C	43.8	3.6%
VcC	Volusia channery silt loam, 8 to 15 percent slopes	C	8.5	0.7%
W	Water		33.7	2.8%
Wa	Wayland silt loam	C/D	17.1	1.4%
<b>Totals for Area of Interest</b>			<b>1,208.1</b>	<b>100.0%</b>

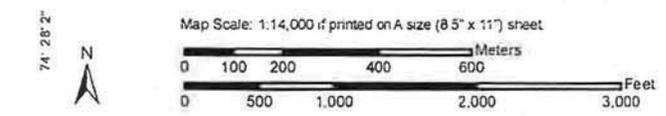
## Rating Options

*Aggregation Method:* Dominant Condition

*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Higher

Hydrologic Soil Group—Schoharie County, New York  
(Cobleskill Upper Reservoir Dam)



Hydrologic Soil Group—Schoharie County, New York  
(Cobleskill Upper Reservoir Dam)

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Survey Area Data: Version 7, Mar 10, 2011

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## Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Schoharie County, New York (NY095)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Al	Alluvial land	D	0.1	0.0%
ArC	Arnot flaggy silt loam, 0 to 15 percent slopes	C/D	10.6	1.6%
ChA	Chippewa and Norwich stony silt loams, 0 to 3 percent slopes	D	4.6	0.7%
ChC	Chippewa and Norwich stony silt loams, 3 to 15 percent slopes	D	5.0	0.7%
DdB	Darien silt loam, gently undulating, 2 to 8 percent slopes	C	0.2	0.0%
DdD	Darien silt loam, undulating, 15 to 25 percent slopes	C	27.4	4.0%
DeB	Darien silt loam, 2 to 8 percent slopes	C	66.5	9.7%
DeC	Darien silt loam, 8 to 15 percent slopes	C	10.7	1.6%
DuC3	Darien silty clay loam, undulating, 8 to 15 percent slopes, eroded	C	31.6	4.6%
IIC	Ilion and Lyons silt loams, 3 to 15 percent slopes	D	16.9	2.6%
LmC	Lordstown channery silt loam, 5 to 15 percent slopes	C	7.1	1.0%
LmD	Lordstown channery silt loam, 15 to 25 percent slopes	C	51.7	7.5%
LmE	Lordstown channery silt loam, 25 to 35 percent slopes	C	34.1	5.0%
LoE	Lordstown and Oquaga very stony soils, 0 to 35 percent slopes	C	70.8	10.3%
LrF	Lordstown, Oquaga, and Nassau soils, 35 to 70 percent slopes	C	222.1	32.4%
McC	Mardin channery silt loam, 8 to 15 percent slopes	C	24.9	3.6%
McD	Mardin channery silt loam, 15 to 25 percent slopes	C	25.4	3.7%
TaB	Tuller and Allis silt loams, 0 to 8 percent slopes	D	2.9	0.4%
VcB	Volusia channery silt loam, 3 to 8 percent slopes	C	25.7	3.7%
VcC	Volusia channery silt loam, 8 to 15 percent slopes	C	13.0	1.9%
W	Water		25.4	3.7%
Wa	Wayland silt loam	C/D	9.2	1.3%
<b>Totals for Area of Interest</b>			<b>685.9</b>	<b>100.0%</b>

## Rating Options

*Aggregation Method:* Dominant Condition

*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Higher

Project: Cobleskill Reservoir Dams Simulation Run: 0.50PMF Lower Dam Breach

Start of Run: 06Jun2011, 00:00 Basin Model: 0.50PMF Lower Dam Breach  
 End of Run: 07Jun2011, 12:00 Meteorologic Model: 1.0PMF  
 Compute Time: 21Nov2011, 09:27:49 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI <sup>2</sup> )	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Lower Reservoir DA	1.7800000	2372.1	06Jun2011, 14:26	12.89
Cobleskill Lower Reservoir	1.7800000	12117.1	06Jun2011, 14:51	14.94
Holding Pond DA	0.0256614	621.9	06Jun2011, 11:58	29.76
Holding Pond	0.0256614	303.8	06Jun2011, 12:06	21.55
Junction-2	1.8056614	12136.4	06Jun2011, 14:51	15.03
Reach-2	1.8056614	11948.2	06Jun2011, 14:52	15.03
Upper Reservoir DA	1.2600000	1532.5	06Jun2011, 14:39	12.40
Cobleskill Upper Reservoir	1.2600000	1519.5	06Jun2011, 14:50	12.30
Reach-1	1.2600000	1519.5	06Jun2011, 14:50	12.30
Junction-1	3.0656614	13467.1	06Jun2011, 14:52	13.91
Reach-3	3.0656614	13389.8	06Jun2011, 14:52	13.91

Project: Cobleskill Reservoir Dams Simulation Run: SunnyDay Lower Dam Breach

Start of Run: 06Jun2011, 00:00 Basin Model: SunnyDay Lower Dam Breach  
 End of Run: 07Jun2011, 12:00 Meteorologic Model: Sunny Day  
 Compute Time: 21Nov2011, 09:14:16 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Lower Reservoir DA	1.7800000	12.7	06Jun2011, 15:46	0.11
Cobleskill Lower Reservoir	1.7800000	9153.8	07Jun2011, 00:28	3.58
Holding Pond DA	0.0256614	29.6	06Jun2011, 11:58	1.28
Holding Pond	0.0256614	0.1	07Jun2011, 00:08	0.09
Junction-2	0.0256614	0.1	07Jun2011, 00:08	0.09
Reach-2	1.8056614	8680.9	07Jun2011, 00:28	3.53
Upper Reservoir DA	1.2600000	3.3	06Jun2011, 18:51	0.05
Cobleskill Upper Reservoir	1.2600000	2.0	07Jun2011, 02:13	0.03
Reach-1	1.2600000	2.0	07Jun2011, 02:19	0.03
Junction-1	3.0656614	8682.8	07Jun2011, 00:28	2.09
Reach-3	3.0656614	8384.1	07Jun2011, 00:28	2.09

Project: Cobleskill Reservoir Dams Simulation Run: 0.50PMF Upper Dam Breach

Start of Run: 06Jun2011, 00:00 Basin Model: 0.50PMF Upper Dam Breach  
 End of Run: 07Jun2011, 12:00 Meteorologic Model: 1.0PMF  
 Compute Time: 06Sep2011, 09:06:54 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI <sup>2</sup> )	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Lower Reservoir DA	1.7800000	2372.1	06Jun2011, 14:26	12.89
Cobleskill Lower Reservoir	1.7800000	1615.6	06Jun2011, 14:36	5.56
Holding Pond DA	0.0256614	621.9	06Jun2011, 11:58	29.76
Holding Pond	0.0256614	303.8	06Jun2011, 12:06	21.55
Junction-2	0.0256614	303.8	06Jun2011, 12:06	21.55
Reach-2	1.8056614	1636.6	06Jun2011, 14:36	5.79
Upper Reservoir DA	1.2600000	1532.5	06Jun2011, 14:39	12.40
Cobleskill Upper Reservoir	1.2600000	13727.4	06Jun2011, 15:05	15.07
Reach-1	1.2600000	13700.8	06Jun2011, 15:05	15.08
Junction-1	3.0656614	15217.2	06Jun2011, 15:05	9.60
Reach-3	3.0656614	15181.2	06Jun2011, 15:05	9.60

Project: Cobleskill Reservoir Dams Simulation Run: SunnyDay Upper Dam Breach

Start of Run: 06Jun2011, 00:00 Basin Model: SunnyDay Upper Dam Breach  
 End of Run: 07Jun2011, 12:00 Meteorologic Model: Sunny Day  
 Compute Time: 21Nov2011, 09:19:14 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI <sup>2</sup> )	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Lower Reservoir DA	1.7800000	12.7	06Jun2011, 15:46	0.11
Cobleskill Lower Reservoir	1.7800000	2.5	07Jun2011, 03:43	0.03
Holding Pond DA	0.0256614	29.6	06Jun2011, 11:58	1.28
Holding Pond	0.0256614	0.1	07Jun2011, 00:08	0.09
Junction-2	0.0256614	0.1	07Jun2011, 00:08	0.09
Reach-2	1.8056614	2.5	07Jun2011, 03:50	0.03
Upper Reservoir DA	1.2600000	3.3	06Jun2011, 18:51	0.05
Cobleskill Upper Reservoir	1.2600000	11331.5	06Jun2011, 21:53	2.70
Reach-1	1.2600000	10886.6	06Jun2011, 21:53	2.70
Junction-1	3.0656614	10888.4	06Jun2011, 21:53	1.13
Reach-3	3.0656614	10498.8	06Jun2011, 21:53	1.13

Project: Cobleskill Reservoir Dams Simulation Run: SunnyDay Holding Pond Breach

Start of Run: 06Jun2011, 00:00 Basin Model: SunnyDay Holding Pond Breach  
 End of Run: 07Jun2011, 12:00 Meteorologic Model: Sunny Day  
 Compute Time: 13Dec2011, 09:55:42 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Lower Reservoir DA	1.7800000	12.7	06Jun2011, 15:46	0.11
Cobleskill Lower Reservoir	1.7800000	2.5	07Jun2011, 03:43	0.03
Holding Pond DA	0.0256614	29.6	06Jun2011, 11:58	1.28
Holding Pond	0.0256614	17046.0	06Jun2011, 13:53	244.21
Junction-2	0.0256614	17046.0	06Jun2011, 13:53	244.21
Reach-2	1.8056614	16342.2	06Jun2011, 13:53	3.50
Upper Reservoir DA	1.2600000	3.3	06Jun2011, 18:51	0.05
Cobleskill Upper Reservoir	1.2600000	2.0	07Jun2011, 02:13	0.03
Reach-1	1.2600000	2.0	07Jun2011, 02:19	0.03
Junction-1	3.0656614	16342.2	06Jun2011, 13:53	2.08
Reach-3	3.0656614	15861.8	06Jun2011, 13:53	2.08

Project: Cobleskill Reservoir Dams Simulation Run: 0.50PMF NO Dambreak

Start of Run: 06Jun2011, 00:00 Basin Model: Cobleskill 0.50PMF  
 End of Run: 07Jun2011, 12:00 Meteorologic Model: 1.0PMF  
 Compute Time: 13Dec2011, 14:37:38 Control Specifications: Control 1

Hydrologic Element	Drainage Area (MI <sup>2</sup> )	Peak Discharge (CFS)	Time of Peak	Volume (IN)
Lower Reservoir DA	1.7800000	2372.1	06Jun2011, 14:26	12.89
Cobleskill Lower Reservoir	1.7800000	1615.6	06Jun2011, 14:36	5.56
Holding Pond DA	0.0256614	311.0	06Jun2011, 11:58	14.88
Holding Pond	0.0256614	16.9	06Jun2011, 12:58	6.79
Junction-2	0.0256614	16.9	06Jun2011, 12:58	6.79
Reach-2	1.8056614	1626.2	06Jun2011, 14:37	5.58
Upper Reservoir DA	1.2600000	1532.5	06Jun2011, 14:39	12.40
Cobleskill Upper Reservoir	1.2600000	1519.5	06Jun2011, 14:50	12.30
Reach-1	1.2600000	1519.5	06Jun2011, 14:50	12.30
Junction-1	3.0656614	3126.5	06Jun2011, 14:45	8.34
Reach-3	3.0656614	3126.2	06Jun2011, 14:45	8.34

HEC-RAS Plan NEW Sunny Low DB River Cobleskill Reser Reach Outlet Creek Profile: Max WS

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Outlet Creek	-1021	Max WS	5481.78	872.75	878.71	876.47	878.97	0.007121	4.08	1358.97	348.47	0.35
Outlet Creek	-0920	Max WS	5483.25	873.95	879.87		880.10	0.015723	3.89	1417.14	371.39	0.33
Outlet Creek	-0819	Max WS	5487.41	874.11	881.18		881.33	0.009875	3.12	1822.23	520.68	0.27
Outlet Creek	-0718	Max WS	5490.83	874.27	881.87		881.92	0.003755	2.20	3012.09	698.21	0.16
Outlet Creek	-0617	Max WS	5493.10	874.45	882.26		882.37	0.004311	3.76	2768.03	647.13	0.28
Outlet Creek	-0517	Max WS	5510.10	874.64	882.53		882.65	0.000485	3.73	3792.73	921.36	0.28
Outlet Creek	-0413	Max WS	5515.24	875.02	882.62		882.69	0.001222	2.79	3781.13	1014.72	0.22
Outlet Creek	-0309	Max WS	5521.61	875.02	882.76		882.88	0.000699	3.34	3828.19	1049.03	0.26
Outlet Creek	-0208	Max WS	5575.23	874.33	882.86		882.92	0.000305	2.14	4371.94	1089.60	0.15
Outlet Creek	-0104	Max WS	5580.37	875.16	882.90		882.94	0.000265	1.59	3916.76	1103.77	0.11
Outlet Creek	0000	Max WS	5582.15	876.49	882.94		883.00	0.001137	1.59	3113.47	1045.48	0.12
Outlet Creek	0346	Max WS	6820.13	878.33	885.88	886.92	889.17	0.018882	15.05	569.18	214.77	1.17
Outlet Creek	522.714*	Max WS	6843.52	879.27	888.20	887.76	890.00	0.007837	11.37	804.31	237.25	0.79
Outlet Creek	699.428*	Max WS	6861.70	880.20	889.59		891.16	0.006242	10.61	837.11	206.11	0.71
Outlet Creek	876.142*	Max WS	6874.21	881.14	890.66		892.20	0.005955	10.50	822.70	187.08	0.70
Outlet Creek	1052.85*	Max WS	6944.41	882.08	891.69		893.25	0.005883	10.52	811.50	174.48	0.69
Outlet Creek	1229.57*	Max WS	7011.40	883.02	892.71		894.27	0.005788	10.51	805.97	166.10	0.69
Outlet Creek	1406.28*	Max WS	7032.17	883.95	893.72		895.26	0.005602	10.42	804.01	160.08	0.68
Outlet Creek	1563	Max WS	7109.43	884.89	894.69		896.25	0.005631	10.48	797.57	155.15	0.68
Outlet Creek	1773.90*	Max WS	7169.02	888.89	896.77	897.38	900.02	0.016529	14.77	530.51	127.14	1.11
Outlet Creek	1964.81*	Max WS	7182.86	892.89	900.33	901.29	904.13	0.021050	15.86	483.20	119.48	1.24
Outlet Creek	2155.72*	Max WS	7208.04	896.89	904.28	905.18	908.01	0.020538	15.67	486.52	117.12	1.23
Outlet Creek	2346.63*	Max WS	7222.38	900.89	908.19	909.04	911.90	0.020692	15.62	485.52	115.94	1.23
Outlet Creek	2537.54*	Max WS	7228.95	904.89	912.11	912.94	915.79	0.020759	15.54	485.76	115.70	1.23
Outlet Creek	2728.45*	Max WS	7253.13	908.89	916.03	916.87	919.69	0.020853	15.48	487.15	115.88	1.23
Outlet Creek	2919.36*	Max WS	7268.91	912.89	919.96	920.78	923.59	0.020875	15.39	489.04	116.27	1.23
Outlet Creek	3110.27*	Max WS	7277.04	916.89	923.89	924.68	927.48	0.020908	15.30	490.83	116.82	1.23
Outlet Creek	3301.18*	Max WS	7297.60	920.89	927.83	928.60	931.39	0.020947	15.22	493.35	117.55	1.23
Outlet Creek	3492.09*	Max WS	7316.20	924.89	931.77	932.53	935.29	0.020955	15.13	496.22	118.42	1.22
Outlet Creek	3683	Max WS	7327.23	928.89	935.72	936.46	939.20	0.020952	15.04	499.01	119.38	1.22
Outlet Creek	3885.22*	Max WS	7330.83	931.67	938.03	939.43	942.06	0.015731	14.08	541.95	121.33	1.08
Outlet Creek	4047.44*	Max WS	7366.56	934.45	941.93	942.43	945.13	0.016125	14.53	533.60	120.21	1.10
Outlet Creek	4229.66*	Max WS	7383.72	937.22	944.84	945.48	948.19	0.016234	14.90	529.74	120.75	1.11
Outlet Creek	4411.88*	Max WS	7391.38	940.00	947.78	948.42	951.23	0.016205	15.22	531.01	124.01	1.11
Outlet Creek	4594.11*	Max WS	7432.84	942.78	950.72	951.83	954.31	0.016399	15.66	551.41	160.97	1.12
Outlet Creek	4776.33*	Max WS	7456.43	945.56	953.61	954.90	956.96	0.015709	15.57	615.19	213.37	1.10
Outlet Creek	4958.55*	Max WS	7520.01	948.33	956.35	957.43	959.22	0.015018	15.22	775.21	373.90	1.08
Outlet Creek	5140.77*	Max WS	7613.96	951.11	958.69	959.01	960.22	0.011539	12.74	1072.89	488.77	0.93
Outlet Creek	5323	Max WS	7683.90	953.89	960.79		961.47	0.007482	9.48	1398.02	541.67	0.73
Outlet Creek	5464	Max WS	7804.41	957.26	965.31	966.57	969.41	0.058578	22.56	554.11	239.00	1.40
Outlet Creek	5851	Max WS	7889.98	964.83	980.36	980.76	982.59	0.018894	16.93	912.62	233.09	0.76
Outlet Creek	5934		Culvert									
Outlet Creek	6017	Max WS	7889.98	968.36	981.87		982.88	0.009127	12.68	1243.73	263.56	0.61
Outlet Creek	6092	Max WS	7908.63	970.05	982.66	983.01	986.33	0.011924	15.85	589.03	107.95	0.98
Outlet Creek	6312	Max WS	7953.07	981.20	990.08	992.89	999.57	0.056785	24.88	340.16	95.51	1.98
Outlet Creek	6500.5*	Max WS	8001.81	987.47	997.60	998.97	1002.37	0.024039	18.36	534.49	134.12	1.33
Outlet Creek	6689.*	Max WS	8038.10	993.73	1003.05	1004.93	1009.13	0.034693	21.05	485.55	136.84	1.58
Outlet Creek	6877.5*	Max WS	8058.37	999.99	1009.13	1010.78	1014.47	0.031055	20.47	531.15	148.50	1.50
Outlet Creek	7066.*	Max WS	8112.54	1006.26	1014.99	1016.58	1020.08	0.031998	20.79	554.50	160.09	1.52
Outlet Creek	7254.5*	Max WS	8173.96	1012.52	1020.87	1022.27	1025.39	0.031224	20.57	592.14	174.90	1.50
Outlet Creek	7443.*	Max WS	8218.67	1018.79	1026.64	1027.88	1030.59	0.030746	20.20	623.32	190.42	1.49
Outlet Creek	7631.5*	Max WS	8243.21	1025.05	1032.37	1033.38	1035.77	0.030317	19.69	655.18	207.55	1.46
Outlet Creek	7820	Max WS	8281.27	1031.32	1038.00	1038.83	1040.94	0.030004	18.94	678.11	225.13	1.44
Outlet Creek	7881	Max WS	8292.66	1033.32	1042.03	1043.81	1054.58	0.112153	35.53	482.17	394.05	2.25
Outlet Creek	7901		Culvert									
Outlet Creek	7921	Max WS	8292.66	1033.32	1045.58		1046.86	0.009477	13.28	1153.26	924.21	0.70
Outlet Creek	8000	Max WS	8304.03	1035.02	1045.46	1045.65	1048.25	0.011005	16.06	741.22	142.19	0.95

HEC-RAS Plan NEW Lower DB River Cobleskill Reser Reach Outlet Creek Profile: Max WS

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S Elev (ft)	Crit W S (ft)	E.G Elev (ft)	E.G Slope (ft/ft)	Vei Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Outlet Creek	-1021	Max WS	25878.17	872.75	884.04	880.59	884.68	0.007159	6.91	4796.60	1386.09	0.40
Outlet Creek	-0920	Max WS	25878.79	873.95	884.97		885.35	0.010399	5.20	5271.31	1402.90	0.31
Outlet Creek	-0819	Max WS	25892.49	874.11	885.81		886.07	0.006990	4.21	6373.32	1423.01	0.25
Outlet Creek	-0718	Max WS	25896.91	874.27	886.47		886.68	0.007230	4.44	8256.74	1443.42	0.24
Outlet Creek	-0617	Max WS	25899.21	874.45	887.19		887.51	0.007742	7.16	8186.05	1499.44	0.41
Outlet Creek	-0517	Max WS	25929.62	874.64	887.66		888.04	0.000921	7.02	10507.82	1629.38	0.39
Outlet Creek	-0413	Max WS	25936.99	875.02	887.85		888.04	0.001862	4.95	10785.09	1807.42	0.27
Outlet Creek	-0309	Max WS	25950.92	875.02	888.03		888.41	0.001264	6.57	10699.98	1815.74	0.36
Outlet Creek	-0208	Max WS	25958.49	874.33	888.24		888.47	0.000617	4.55	11546.54	2017.93	0.23
Outlet Creek	-0104	Max WS	26061.00	875.16	888.36		888.46	0.000365	2.83	11876.08	2180.77	0.15
Outlet Creek	0000	Max WS	11647.47	876.49	888.51		888.52	0.000133	0.89	11102.38	2130.89	0.05
Outlet Creek	0346	Max WS	12173.85	878.33	889.17	888.96	891.07	0.007000	12.77	1673.20	456.12	0.78
Outlet Creek	522.714*	Max WS	12478.80	879.27	890.21	890.34	892.70	0.008397	14.09	1417.59	373.82	0.85
Outlet Creek	699.428*	Max WS	12516.57	880.20	891.61	891.38	894.08	0.007535	13.83	1368.18	327.01	0.81
Outlet Creek	876.142*	Max WS	12531.91	881.14	892.86	891.88	895.31	0.006995	13.63	1311.80	277.11	0.79
Outlet Creek	1052.85*	Max WS	12536.32	882.08	894.11		896.40	0.006247	13.17	1296.20	232.06	0.75
Outlet Creek	1229.57*	Max WS	12591.97	883.02	895.22		897.46	0.005948	13.00	1278.81	210.88	0.73
Outlet Creek	1406.28*	Max WS	12600.78	883.95	896.24		898.47	0.005796	12.91	1258.06	199.73	0.73
Outlet Creek	1583	Max WS	12660.05	884.89	897.26		899.48	0.005707	12.88	1241.78	191.31	0.72
Outlet Creek	1773.90*	Max WS	12706.98	888.89	899.12	899.93	903.34	0.013992	17.25	870.52	161.87	1.09
Outlet Creek	1964.81*	Max WS	12714.15	892.89	902.34	903.87	907.73	0.019853	19.25	754.24	149.54	1.27
Outlet Creek	2155.72*	Max WS	12740.98	896.89	906.19	907.80	911.74	0.020611	19.43	738.60	146.49	1.29
Outlet Creek	2346.63*	Max WS	12745.29	900.89	910.11	911.71	915.65	0.020646	19.35	732.80	143.86	1.29
Outlet Creek	2537.54*	Max WS	12758.75	904.89	914.02	915.59	919.55	0.020679	19.27	728.55	140.82	1.29
Outlet Creek	2728.45*	Max WS	12768.12	908.89	917.93	919.43	923.41	0.020656	19.15	726.25	137.40	1.29
Outlet Creek	2919.36*	Max WS	12773.47	912.89	921.84	923.31	927.26	0.020622	19.01	725.66	135.09	1.29
Outlet Creek	3110.27*	Max WS	12782.22	916.89	925.76	927.17	931.13	0.020692	18.92	725.70	135.15	1.29
Outlet Creek	3301.18*	Max WS	12793.18	920.89	929.68	930.99	935.00	0.020695	18.81	727.24	135.46	1.29
Outlet Creek	3492.09*	Max WS	12800.43	924.89	933.60	935.01	938.87	0.020686	18.69	729.05	135.96	1.28
Outlet Creek	3683	Max WS	12804.14	928.89	937.53	938.89	942.73	0.020676	18.56	731.08	136.58	1.28
Outlet Creek	3865.22*	Max WS	12815.48	931.67	940.91	941.77	945.55	0.016504	17.65	787.08	140.56	1.16
Outlet Creek	4047.44*	Max WS	12826.55	934.45	943.89	945.11	948.61	0.016266	17.91	791.03	142.40	1.16
Outlet Creek	4229.66*	Max WS	12834.87	937.22	946.85	948.43	951.77	0.016440	18.37	808.95	174.46	1.17
Outlet Creek	4411.88*	Max WS	12838.35	940.00	949.79	951.40	954.56	0.016004	18.43	866.86	216.29	1.16
Outlet Creek	4594.11*	Max WS	12871.23	942.78	952.64	954.24	957.09	0.015575	18.35	961.81	276.52	1.15
Outlet Creek	4776.33*	Max WS	12878.71	945.56	955.35	956.60	959.11	0.014677	17.75	1137.28	382.62	1.11
Outlet Creek	4958.55*	Max WS	12922.46	948.33	957.80	958.53	960.35	0.012620	16.04	1422.69	499.87	1.02
Outlet Creek	5140.77*	Max WS	12941.31	951.11	959.99		961.39	0.009420	13.17	1750.46	550.44	0.87
Outlet Creek	5323	Max WS	13026.02	953.89	961.92		962.75	0.007397	10.74	2070.65	674.50	0.75
Outlet Creek	5464	Max WS	13098.66	957.26	966.36	967.87	971.06	0.057046	24.16	830.07	286.50	1.41
Outlet Creek	5851	Max WS	13136.64	964.83	981.86	982.26	984.51	0.022352	19.60	1285.22	263.37	0.84
Outlet Creek	5934		Culvert									
Outlet Creek	6017	Max WS	13136.64	968.36	983.03		984.66	0.013947	16.57	1563.92	289.51	0.77
Outlet Creek	6092	Max WS	13137.99	970.05	984.19	985.80	990.60	0.017152	21.32	761.46	117.14	1.21
Outlet Creek	6312	Max WS	13164.59	981.20	991.89	995.16	1003.28	0.053587	27.94	553.38	129.87	1.99
Outlet Creek	6500.5*	Max WS	13177.73	987.47	999.23	1001.19	1005.80	0.025250	22.14	765.21	147.71	1.42
Outlet Creek	6689.*	Max WS	13186.40	993.73	1004.68	1007.09	1012.28	0.032896	24.35	724.28	155.35	1.60
Outlet Creek	6877.5*	Max WS	13200.94	999.99	1010.67	1012.80	1017.49	0.031083	23.96	776.26	170.87	1.56
Outlet Creek	7066.*	Max WS	13225.71	1006.26	1016.50	1018.51	1022.78	0.031200	23.96	816.74	187.24	1.56
Outlet Creek	7254.5*	Max WS	13242.80	1012.52	1022.30	1024.03	1027.87	0.030714	23.63	865.41	206.53	1.55
Outlet Creek	7443.*	Max WS	13249.56	1018.79	1028.01	1029.50	1032.83	0.030127	23.05	908.28	227.30	1.52
Outlet Creek	7631.5*	Max WS	13289.96	1025.05	1033.66	1034.90	1037.87	0.030175	22.55	950.17	250.15	1.51
Outlet Creek	7820	Max WS	13310.63	1031.32	1039.24	1040.26	1042.85	0.029582	21.58	987.07	275.33	1.48
Outlet Creek	7881	Max WS	13313.81	1033.32	1042.86	1044.51	1051.38	0.090828	34.21	872.16	545.73	2.06
Outlet Creek	7901		Culvert									
Outlet Creek	7921	Max WS	13313.81	1033.32	1046.55		1048.23	0.011813	15.66	1501.76	963.58	0.79
Outlet Creek	8000	Max WS	13389.77	1035.02	1047.18	1047.46	1051.19	0.013200	19.77	998.61	161.10	1.07

HEC-RAS Plan: NEW Sunny Up DB River Cobleskill Reser Reach Outlet Creek Profile Max WS

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W S Elev (ft)	Crit W S (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Outlet Creek	-1021	Max WS	5032.90	872.75	878.50	876.34	878.74	0.007097	3.95	1285.19	342.64	0.35
Outlet Creek	-0920	Max WS	5041.24	873.95	879.65		879.87	0.015480	3.77	1339.12	353.09	0.33
Outlet Creek	-0819	Max WS	5046.44	874.11	880.97		881.11	0.009996	3.04	1711.63	505.01	0.26
Outlet Creek	-0718	Max WS	5068.85	874.27	881.65		881.70	0.003739	2.14	2862.28	691.57	0.16
Outlet Creek	-0617	Max WS	5082.28	874.45	882.04		882.15	0.004332	3.68	2626.01	645.13	0.28
Outlet Creek	-0517	Max WS	5088.26	874.64	882.30		882.42	0.000482	3.65	3583.28	912.09	0.28
Outlet Creek	-0413	Max WS	5168.60	875.02	882.40		882.46	0.001283	2.81	3550.33	1003.16	0.22
Outlet Creek	-0309	Max WS	5207.39	875.02	882.54		882.65	0.000732	3.36	3593.09	1037.09	0.27
Outlet Creek	-0208	Max WS	5393.83	874.33	882.64		882.70	0.000331	2.18	4126.89	1084.16	0.15
Outlet Creek	-0104	Max WS	5418.68	875.16	882.68		882.72	0.000302	1.66	3667.82	1101.52	0.12
Outlet Creek	0000	Max WS	5429.10	876.49	882.72		882.78	0.001365	1.70	2883.76	1024.14	0.13
Outlet Creek	0346	Max WS	8102.90	878.33	886.34	887.52	889.96	0.019034	15.99	674.07	248.01	1.20
Outlet Creek	522.714*	Max WS	8139.68	879.27	888.72	888.46	890.75	0.008150	12.20	936.72	272.59	0.81
Outlet Creek	699.428*	Max WS	8168.93	880.20	890.10	889.38	891.93	0.006733	11.56	948.26	230.39	0.75
Outlet Creek	876.142*	Max WS	8186.51	881.14	891.28		893.02	0.006085	11.23	944.88	202.73	0.71
Outlet Creek	1052.85*	Max WS	8296.00	882.08	892.33		894.10	0.006055	11.30	927.71	187.79	0.71
Outlet Creek	1229.57*	Max WS	8310.37	883.02	893.37		895.11	0.005848	11.20	919.37	177.87	0.70
Outlet Creek	1406.28*	Max WS	8431.23	883.95	894.40		896.15	0.005768	11.22	916.17	170.70	0.70
Outlet Creek	1583	Max WS	8547.38	884.89	895.40		897.17	0.005768	11.27	910.44	165.09	0.70
Outlet Creek	1773.90*	Max WS	8570.56	888.89	897.43	898.10	900.96	0.015598	15.49	618.69	136.84	1.10
Outlet Creek	1964.81*	Max WS	8666.38	892.89	900.91	902.06	905.22	0.020853	16.98	555.57	128.20	1.26
Outlet Creek	2155.72*	Max WS	8709.77	896.89	904.84	905.98	909.15	0.020809	16.91	554.55	125.72	1.25
Outlet Creek	2346.63*	Max WS	8730.79	900.89	908.76	909.86	913.03	0.020748	16.81	553.80	122.63	1.25
Outlet Creek	2537.54*	Max WS	8740.33	904.89	912.68	913.72	916.91	0.020715	16.70	554.23	121.72	1.25
Outlet Creek	2728.45*	Max WS	8778.99	908.89	916.61	917.59	920.81	0.020767	16.63	556.06	121.80	1.25
Outlet Creek	2919.36*	Max WS	8803.77	912.89	920.54	921.55	924.70	0.020725	16.53	558.52	122.09	1.25
Outlet Creek	3110.27*	Max WS	8817.21	916.89	924.48	925.47	928.59	0.020689	16.42	560.87	122.57	1.24
Outlet Creek	3301.18*	Max WS	8845.92	920.89	928.41	929.39	932.49	0.020688	16.33	563.85	123.22	1.24
Outlet Creek	3492.09*	Max WS	8877.14	924.89	932.36	933.31	936.39	0.020677	16.25	567.26	124.04	1.24
Outlet Creek	3683	Max WS	8896.82	928.89	936.30	937.24	940.30	0.020719	16.16	569.90	124.88	1.24
Outlet Creek	3865.22*	Max WS	8904.77	931.67	939.62	940.23	943.15	0.016040	15.25	615.39	127.40	1.11
Outlet Creek	4047.44*	Max WS	8958.57	934.45	942.55	943.27	946.25	0.016249	15.68	610.84	127.27	1.12
Outlet Creek	4229.66*	Max WS	8989.28	937.22	945.50	946.09	949.32	0.016229	16.02	611.19	129.05	1.13
Outlet Creek	4411.88*	Max WS	9006.74	940.00	948.44	949.65	952.42	0.016346	16.43	620.24	147.80	1.14
Outlet Creek	4594.11*	Max WS	9076.58	942.78	951.39	952.64	955.32	0.016120	16.65	670.10	196.59	1.13
Outlet Creek	4776.33*	Max WS	9132.51	945.56	954.24	955.58	957.86	0.015534	16.52	768.00	275.33	1.11
Outlet Creek	4958.55*	Max WS	9254.29	948.33	956.88	957.82	959.68	0.014246	15.65	989.19	433.17	1.06
Outlet Creek	5140.77*	Max WS	9307.84	951.11	959.12	959.36	960.61	0.010857	12.96	1289.48	509.30	0.91
Outlet Creek	5323	Max WS	9480.71	953.89	961.23		961.95	0.007305	9.88	1639.93	582.16	0.73
Outlet Creek	5464	Max WS	9620.77	957.26	965.71	967.05	970.00	0.057954	23.18	652.68	256.97	1.41
Outlet Creek	5851	Max WS	9693.52	964.83	980.95	981.29	983.29	0.020013	17.87	1052.74	243.72	0.79
Outlet Creek	5934		Culvert									
Outlet Creek	6017	Max WS	8407.24	968.36	982.15		983.14	0.008940	12.72	1316.79	269.70	0.61
Outlet Creek	6092	Max WS	9720.37	970.05	982.97	984.07	987.99	0.015644	18.61	622.88	109.81	1.13
Outlet Creek	6312	Max WS	9762.37	981.20	990.81	993.77	1001.03	0.056255	26.02	416.78	115.65	1.99
Outlet Creek	6500.5*	Max WS	9783.67	987.47	998.27	999.79	1003.56	0.023710	19.58	626.09	139.67	1.34
Outlet Creek	6689.*	Max WS	9842.09	993.73	1003.66	1005.72	1010.33	0.034026	22.36	571.71	143.80	1.59
Outlet Creek	6877.5*	Max WS	9909.74	999.99	1009.74	1011.59	1015.63	0.030924	21.83	623.82	157.33	1.52
Outlet Creek	7066.*	Max WS	9957.44	1006.26	1015.58	1017.35	1021.12	0.031557	22.04	652.94	170.79	1.54
Outlet Creek	7254.5*	Max WS	9980.58	1012.52	1021.43	1023.03	1026.34	0.030814	21.74	694.25	187.21	1.52
Outlet Creek	7443.*	Max WS	10077.86	1018.79	1027.19	1028.58	1031.49	0.030538	21.38	730.98	204.63	1.50
Outlet Creek	7631.5*	Max WS	10143.51	1025.05	1032.89	1034.08	1036.64	0.030426	20.92	767.56	223.85	1.49
Outlet Creek	7820	Max WS	10259.49	1031.32	1038.52	1039.53	1041.77	0.030022	20.15	800.32	245.20	1.46
Outlet Creek	7881	Max WS	10331.62	1033.32	1042.37	1044.08	1053.46	0.107328	35.77	627.14	456.36	2.21
Outlet Creek	7901		Culvert									
Outlet Creek	7921	Max WS	10331.62	1033.32	1046.03		1047.45	0.010350	14.24	1311.86	941.81	0.73
Outlet Creek	8000	Max WS	10498.61	1035.02	1046.11	1046.49	1049.60	0.012774	18.13	835.57	147.68	1.03

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Outlet Creek	-1021	Max WS	27574.08	872.75	884.29	880.83	884.92	0.007023	6.97	5145.79	1438.02	0.40
Outlet Creek	-0920	Max WS	27579.93	873.95	885.20		885.58	0.009838	5.14	5591.01	1415.42	0.30
Outlet Creek	-0819	Max WS	27583.51	874.11	886.00		886.27	0.006908	4.25	6648.18	1428.80	0.25
Outlet Creek	-0718	Max WS	27612.28	874.27	886.67		886.88	0.007425	4.56	8542.09	1446.05	0.24
Outlet Creek	-0617	Max WS	27630.60	874.45	887.41		887.74	0.007873	7.30	8514.16	1525.30	0.41
Outlet Creek	-0517	Max WS	27644.57	874.64	887.88		888.28	0.009955	7.23	10870.79	1667.73	0.40
Outlet Creek	-0413	Max WS	27651.78	875.02	888.08		888.27	0.001905	5.07	11201.44	1828.44	0.28
Outlet Creek	-0309	Max WS	27660.46	875.02	888.26		888.66	0.001299	6.75	11127.07	1859.66	0.37
Outlet Creek	-0208	Max WS	27844.03	874.33	888.48		888.72	0.000646	4.72	12036.79	2068.28	0.24
Outlet Creek	-0104	Max WS	27865.66	875.16	888.61		888.71	0.000367	2.88	12410.81	2189.88	0.15
Outlet Creek	0000	Max WS	13453.06	876.49	888.75		888.77	0.000153	0.97	11629.08	2143.60	0.05
Outlet Creek	0346	Max WS	14286.87	878.33	889.51	889.56	891.73	0.008014	14.02	1829.07	480.53	0.84
Outlet Creek	522.714*	Max WS	14441.06	879.27	890.72	890.97	893.40	0.008606	14.83	1619.64	408.95	0.87
Outlet Creek	699.428*	Max WS	14449.76	880.20	892.08	892.12	894.84	0.008024	14.77	1531.65	357.64	0.85
Outlet Creek	876.142*	Max WS	14503.13	881.14	893.45	892.97	896.16	0.007278	14.49	1487.49	313.40	0.81
Outlet Creek	1052.85*	Max WS	14520.77	882.08	894.69	893.83	897.34	0.006754	14.24	1439.88	265.74	0.79
Outlet Creek	1229.57*	Max WS	14527.37	883.02	895.93		898.36	0.005994	13.67	1433.08	223.56	0.75
Outlet Creek	1406.28*	Max WS	14593.28	883.95	896.99		899.42	0.005825	13.60	1412.47	211.54	0.74
Outlet Creek	1583	Max WS	14609.31	884.89	898.00		900.42	0.005733	13.54	1387.68	201.78	0.73
Outlet Creek	1773.90*	Max WS	14665.23	888.89	899.82	900.66	904.31	0.013503	17.93	987.04	172.46	1.08
Outlet Creek	1964.81*	Max WS	14675.54	892.89	902.95	904.63	908.79	0.019523	20.16	847.90	159.27	1.28
Outlet Creek	2155.72*	Max WS	14699.56	896.89	906.76	908.58	912.85	0.020659	20.48	823.40	155.37	1.31
Outlet Creek	2346.63*	Max WS	14708.52	900.89	910.67	912.50	916.77	0.020661	20.40	816.99	152.83	1.31
Outlet Creek	2537.54*	Max WS	14713.48	904.89	914.59	916.42	920.67	0.020623	20.30	811.99	150.16	1.31
Outlet Creek	2728.45*	Max WS	14724.20	908.89	918.51	920.31	924.55	0.020590	20.18	808.44	147.10	1.31
Outlet Creek	2919.36*	Max WS	14736.04	912.89	922.42	924.16	928.40	0.020519	20.04	806.44	143.36	1.30
Outlet Creek	3110.27*	Max WS	14744.46	916.89	926.33	927.93	932.24	0.020498	19.90	805.70	140.85	1.30
Outlet Creek	3301.18*	Max WS	14749.75	920.89	930.24	931.66	936.10	0.020565	19.80	805.74	140.97	1.30
Outlet Creek	3492.09*	Max WS	14752.07	924.89	934.16	935.52	939.96	0.020615	19.69	806.20	141.29	1.30
Outlet Creek	3683	Max WS	14769.00	928.89	938.08	939.61	943.84	0.020686	19.59	807.32	141.77	1.30
Outlet Creek	3865.22*	Max WS	14778.64	931.67	941.46	942.46	946.62	0.016737	18.69	867.34	146.31	1.19
Outlet Creek	4047.44*	Max WS	14786.12	934.45	944.48	946.12	949.76	0.016508	19.00	880.90	162.77	1.18
Outlet Creek	4229.66*	Max WS	14791.25	937.22	947.46	949.12	952.76	0.016302	19.25	923.10	202.51	1.18
Outlet Creek	4411.88*	Max WS	14813.39	940.00	950.36	952.11	955.40	0.015831	19.21	997.88	243.51	1.17
Outlet Creek	4594.11*	Max WS	14830.95	942.78	953.18	954.77	957.78	0.015285	18.99	1122.70	317.19	1.15
Outlet Creek	4776.33*	Max WS	14841.73	945.56	955.84	957.15	959.55	0.014035	18.08	1336.04	421.62	1.10
Outlet Creek	4958.55*	Max WS	14879.41	948.33	958.21	958.86	960.69	0.012029	16.21	1631.19	518.00	1.01
Outlet Creek	5140.77*	Max WS	14909.11	951.11	960.52		961.81	0.008223	12.90	2045.33	574.66	0.82
Outlet Creek	5323	Max WS	14968.47	953.89	962.22		963.12	0.007584	11.22	2285.98	731.08	0.77
Outlet Creek	5464	Max WS	14982.80	957.26	966.68	968.34	971.58	0.056406	24.58	923.08	300.83	1.41
Outlet Creek	5851	Max WS	15013.69	964.83	982.33	982.72	985.09	0.023140	20.31	1409.57	273.74	0.86
Outlet Creek	5934		Culvert									
Outlet Creek	6017	Max WS	15013.69	968.36	983.54		985.27	0.014302	17.17	1715.35	301.00	0.78
Outlet Creek	6092	Max WS	15017.26	970.05	984.75	986.65	991.95	0.018089	22.73	828.03	120.49	1.25
Outlet Creek	6312	Max WS	15021.58	981.20	992.39	995.90	1004.43	0.052023	28.94	619.22	132.57	1.99
Outlet Creek	6500.5*	Max WS	15029.21	987.47	999.69	1001.90	1006.95	0.026123	23.42	833.84	151.52	1.46
Outlet Creek	6689.*	Max WS	15041.27	993.73	1005.19	1007.71	1013.27	0.032428	25.32	805.14	161.14	1.61
Outlet Creek	6877.5*	Max WS	15051.91	999.99	1011.14	1013.44	1018.42	0.031024	24.97	859.43	177.82	1.58
Outlet Creek	7066.*	Max WS	15059.16	1006.26	1016.96	1019.06	1023.62	0.031030	24.89	905.23	195.90	1.58
Outlet Creek	7254.5*	Max WS	15073.13	1012.52	1022.74	1024.57	1028.64	0.030688	24.56	957.70	216.78	1.56
Outlet Creek	7443.*	Max WS	15098.08	1018.79	1028.42	1029.98	1033.54	0.030195	23.97	1004.58	238.42	1.54
Outlet Creek	7631.5*	Max WS	15121.99	1025.05	1034.05	1035.35	1038.48	0.030019	23.34	1050.87	259.39	1.52
Outlet Creek	7820	Max WS	15144.57	1031.32	1039.61	1040.73	1043.40	0.029354	22.29	1090.69	283.31	1.48
Outlet Creek	7881	Max WS	15152.53	1033.32	1043.06	1044.78	1051.23	0.089837	34.56	986.63	581.10	2.05
Outlet Creek	7901		Culvert									
Outlet Creek	7921	Max WS	15152.53	1033.32	1047.06		1048.70	0.011087	15.58	1692.09	990.03	0.77
Outlet Creek	8000	Max WS	14948.30	1035.02	1047.75	1048.36	1052.04	0.013422	20.63	1093.98	174.06	1.08

HEC-RAS Plan: SunnyDay Holding River: Cobleskill Reser Reach: Outlet Creek Profile: Max WS

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W S (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Outlet Creek	-1021	Max WS	7854.58	872.75	879.73	877.07	880.06	0.007140	4.63	1768.40	435.33	0.36
Outlet Creek	-0920	Max WS	7856.49	873.95	880.89		881.18	0.015886	4.38	1836.87	449.90	0.34
Outlet Creek	-0819	Max WS	7864.87	874.11	882.20		882.38	0.009373	3.46	2380.72	570.45	0.27
Outlet Creek	-0718	Max WS	7870.69	874.27	882.89		882.97	0.003968	2.50	3788.14	857.52	0.17
Outlet Creek	-0617	Max WS	7875.14	874.45	883.33		883.49	0.005142	4.54	3535.85	820.96	0.32
Outlet Creek	-0517	Max WS	7914.35	874.64	883.66		883.81	0.000526	4.16	4900.37	1050.52	0.29
Outlet Creek	-0413	Max WS	7925.13	875.02	883.76		883.84	0.001217	3.06	4988.15	1131.62	0.22
Outlet Creek	-0309	Max WS	7940.54	875.02	883.89		884.02	0.000693	3.67	5040.03	1082.63	0.26
Outlet Creek	-0208	Max WS	8062.48	874.33	884.00		884.07	0.000327	2.47	5621.03	1112.70	0.16
Outlet Creek	-0104	Max WS	8076.74	875.16	884.04		884.08	0.000242	1.70	5185.12	1135.52	0.11
Outlet Creek	0000	Max WS	8084.91	876.49	884.06		884.12	0.000836	1.56	4326.93	1097.06	0.11
Outlet Creek	0346	Max WS	12374.35	878.33	887.41	889.03	892.15	0.021116	18.95	983.46	326.93	1.30
Outlet Creek	522.714*	Max WS	12439.70	879.27	890.07	890.33	892.69	0.008993	14.41	1365.43	364.21	0.88
Outlet Creek	699.428*	Max WS	12371.11	880.20	891.56	891.32	894.02	0.007512	13.76	1354.24	324.27	0.81
Outlet Creek	878.142*	Max WS	12558.35	881.14	892.83	891.87	895.31	0.007102	13.71	1304.65	275.53	0.79
Outlet Creek	1052.85*	Max WS	12722.56	882.08	894.10		896.46	0.006469	13.39	1292.79	231.20	0.76
Outlet Creek	1229.57*	Max WS	12776.39	883.02	895.21		897.52	0.006125	13.19	1278.70	210.87	0.74
Outlet Creek	1406.28*	Max WS	12968.24	883.95	896.26		898.60	0.006099	13.26	1261.30	199.99	0.74
Outlet Creek	1583	Max WS	13017.72	884.89	897.31		899.62	0.005912	13.15	1251.83	192.05	0.73
Outlet Creek	1773.90*	Max WS	13188.58	888.89	899.22	900.12	903.62	0.014367	17.63	886.89	163.40	1.10
Outlet Creek	1964.81*	Max WS	13215.33	892.89	902.48	904.07	908.02	0.019924	19.54	775.82	151.69	1.28
Outlet Creek	2155.72*	Max WS	13310.28	896.89	906.36	908.03	912.07	0.020623	19.74	763.44	149.07	1.30
Outlet Creek	2346.63*	Max WS	13331.97	900.89	910.29	911.95	915.99	0.020583	19.66	759.07	146.72	1.30
Outlet Creek	2537.54*	Max WS	13368.10	904.89	914.20	915.86	919.91	0.020683	19.61	754.37	143.77	1.30
Outlet Creek	2728.45*	Max WS	13414.10	908.89	918.12	919.73	923.80	0.020666	19.51	753.07	140.64	1.30
Outlet Creek	2919.36*	Max WS	13445.08	912.89	922.04	923.53	927.65	0.020608	19.38	752.78	137.08	1.29
Outlet Creek	3110.27*	Max WS	13461.56	916.89	925.96	927.43	931.52	0.020668	19.28	753.04	137.12	1.29
Outlet Creek	3301.18*	Max WS	13507.84	920.89	929.88	931.26	935.42	0.020769	19.22	754.59	137.41	1.29
Outlet Creek	3492.09*	Max WS	13549.88	924.89	933.81	935.27	939.31	0.020765	19.12	757.58	137.95	1.29
Outlet Creek	3683	Max WS	13578.39	928.89	937.74	939.22	943.18	0.020763	19.01	760.37	138.59	1.29
Outlet Creek	3865.22*	Max WS	13593.58	931.67	941.13	941.91	945.98	0.016623	18.08	818.83	142.86	1.17
Outlet Creek	4047.44*	Max WS	13644.77	934.45	944.13	945.62	949.10	0.016432	18.39	826.15	148.47	1.17
Outlet Creek	4229.66*	Max WS	13702.83	937.22	947.12	948.76	952.24	0.016444	18.80	857.95	187.96	1.18
Outlet Creek	4411.88*	Max WS	13750.52	940.00	950.06	951.75	954.97	0.015938	18.81	926.81	229.14	1.16
Outlet Creek	4594.11*	Max WS	13852.88	942.78	952.89	954.51	957.48	0.015665	18.79	1034.07	295.48	1.16
Outlet Creek	4776.33*	Max WS	13944.35	945.56	955.61	956.91	959.38	0.014472	18.01	1238.75	403.00	1.11
Outlet Creek	4958.55*	Max WS	14099.08	948.33	958.02	958.72	960.58	0.012485	16.27	1536.93	509.88	1.02
Outlet Creek	5140.77*	Max WS	14291.37	951.11	960.29		961.68	0.008993	13.23	1918.03	564.65	0.86
Outlet Creek	5323	Max WS	14596.85	953.89	962.14		963.04	0.007730	11.23	2224.23	715.31	0.77
Outlet Creek	5464	Max WS	14632.90	957.26	966.61	968.26	971.50	0.056813	24.56	904.22	297.98	1.42
Outlet Creek	5851	Max WS	14808.63	964.83	982.29	982.67	985.03	0.022966	20.20	1398.47	272.83	0.86
Outlet Creek	5934		Culvert									
Outlet Creek	6017	Max WS	14808.63	968.36	983.49		985.20	0.014278	17.12	1698.52	299.75	0.78
Outlet Creek	6092	Max WS	14832.99	970.05	984.69	986.57	991.83	0.018041	22.61	820.92	120.14	1.25
Outlet Creek	6312	Max WS	14862.16	981.20	992.35	995.84	1004.34	0.052274	28.87	613.21	132.32	1.99
Outlet Creek	6500.5*	Max WS	14915.86	987.47	999.67	1001.86	1006.88	0.026069	23.34	829.77	151.30	1.45
Outlet Creek	6689.*	Max WS	15000.22	993.73	1005.17	1007.70	1013.26	0.032558	25.33	802.24	160.93	1.61
Outlet Creek	6877.5*	Max WS	15075.55	999.99	1011.14	1013.45	1018.44	0.031105	25.00	859.60	177.83	1.58
Outlet Creek	7066.*	Max WS	15130.77	1006.26	1016.97	1019.08	1023.66	0.031083	24.94	907.97	196.17	1.58
Outlet Creek	7254.5*	Max WS	15158.90	1012.52	1022.76	1024.61	1028.67	0.030663	24.60	962.25	217.27	1.56
Outlet Creek	7443.*	Max WS	15279.74	1018.79	1028.46	1030.03	1033.61	0.030277	24.07	1012.71	238.90	1.54
Outlet Creek	7631.5*	Max WS	15365.61	1025.05	1034.10	1035.42	1038.56	0.030075	23.46	1062.83	260.17	1.53
Outlet Creek	7820	Max WS	15400.02	1031.32	1039.66	1040.80	1043.47	0.029339	22.39	1104.59	284.37	1.49
Outlet Creek	7881	Max WS	15519.17	1033.32	1043.10	1044.79	1051.21	0.089677	34.63	1008.23	586.49	2.05
Outlet Creek	7901		Culvert									
Outlet Creek	7921	Max WS	15519.17	1033.32	1047.18		1048.80	0.010814	15.48	1737.81	996.24	0.76
Outlet Creek	8000	Max WS	15861.62	1035.02	1047.86	1048.81	1052.55	0.014526	21.61	1113.43	176.59	1.13

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W S Elev (ft)	Crit W S (ft)	E G Elev (ft)	E G Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Outlet Creek	-1021	Max WS	17528.10	872.75	882.55	879.08	883.09	0.007096	6.13	3292.55	690.62	0.39
Outlet Creek	-0920	Max WS	17528.19	873.95	883.61		884.04	0.014238	5.44	3472.53	1093.57	0.35
Outlet Creek	-0819	Max WS	17528.22	874.11	884.73		884.94	0.007378	3.96	4869.16	1365.99	0.25
Outlet Creek	-0718	Max WS	17528.41	874.27	885.37		885.51	0.005969	3.75	6697.66	1374.76	0.21
Outlet Creek	-0617	Max WS	17528.40	874.45	885.95		886.20	0.006256	6.03	6403.91	1300.88	0.36
Outlet Creek	-0517	Max WS	17529.05	874.64	886.34		886.60	0.000719	5.75	8386.78	1471.29	0.34
Outlet Creek	-0413	Max WS	17528.69	875.02	886.48		886.62	0.001510	4.12	8461.38	1491.64	0.24
Outlet Creek	-0309	Max WS	17529.75	875.02	886.64		886.88	0.000912	5.14	8392.30	1371.96	0.30
Outlet Creek	-0208	Max WS	17530.82	874.33	886.80		886.94	0.000437	3.51	9036.32	1396.66	0.19
Outlet Creek	-0104	Max WS	17531.58	875.16	886.87		886.95	0.000268	2.22	8865.51	1711.52	0.12
Outlet Creek	0000	Max WS	3110.01	876.49	887.01		887.01	0.000018	0.30	8139.94	1663.84	0.02
Outlet Creek	0346	Max WS	3115.70	878.33	887.19		887.53	0.001553	5.02	911.99	310.49	0.35
Outlet Creek	522.714*	Max WS	3119.69	879.27	887.40		887.94	0.002708	6.12	633.77	192.95	0.45
Outlet Creek	699.428*	Max WS	3121.46	880.20	887.84		888.53	0.003853	6.87	525.00	151.02	0.53
Outlet Creek	876.142*	Max WS	3122.45	881.14	888.49		889.29	0.004765	7.36	474.78	135.21	0.59
Outlet Creek	1052.85*	Max WS	3122.82	882.08	889.31		890.17	0.005237	7.58	453.38	127.57	0.61
Outlet Creek	1229.57*	Max WS	3122.94	883.02	890.21		891.09	0.005377	7.65	445.52	123.36	0.62
Outlet Creek	1406.28*	Max WS	3123.15	883.95	891.14		892.02	0.005364	7.64	443.03	120.55	0.62
Outlet Creek	1583	Max WS	3123.56	884.89	892.08		892.95	0.005390	7.65	439.91	118.26	0.62
Outlet Creek	1773.90*	Max WS	3123.88	888.89	894.49	894.78	896.51	0.020231	11.43	278.48	95.48	1.13
Outlet Creek	1964.81*	Max WS	3123.93	892.89	898.38	898.70	900.41	0.020804	11.44	276.72	94.57	1.14
Outlet Creek	2155.72*	Max WS	3123.97	896.89	902.31	902.61	904.30	0.020730	11.35	278.22	94.56	1.13
Outlet Creek	2346.63*	Max WS	3124.10	900.89	906.21	906.52	908.21	0.021226	11.36	277.19	94.50	1.14
Outlet Creek	2537.54*	Max WS	3124.15	904.89	910.13	910.45	912.12	0.021317	11.33	277.63	94.83	1.15
Outlet Creek	2728.45*	Max WS	3124.22	908.89	914.06	914.37	916.03	0.021408	11.28	278.39	95.49	1.15
Outlet Creek	2919.36*	Max WS	3124.27	912.89	917.99	918.30	919.94	0.021449	11.22	279.60	96.41	1.15
Outlet Creek	3110.27*	Max WS	3124.36	916.89	921.93	922.24	923.87	0.021506	11.16	280.97	97.55	1.15
Outlet Creek	3301.18*	Max WS	3124.37	920.89	925.88	926.18	927.79	0.021490	11.08	282.78	98.88	1.14
Outlet Creek	3492.09*	Max WS	3124.44	924.89	929.83	930.12	931.71	0.021521	11.01	284.55	100.35	1.14
Outlet Creek	3683	Max WS	3124.47	928.89	933.79	934.07	935.64	0.021522	10.93	286.58	101.96	1.14
Outlet Creek	3865.22*	Max WS	3124.57	931.67	937.01	936.93	938.52	0.014722	9.88	317.65	100.56	0.96
Outlet Creek	4047.44*	Max WS	3124.65	934.45	939.79	939.79	941.46	0.015965	10.37	302.65	96.02	1.00
Outlet Creek	4229.66*	Max WS	3124.71	937.22	942.66	942.68	944.41	0.015885	10.62	296.28	92.97	1.01
Outlet Creek	4411.88*	Max WS	3124.74	940.00	945.52	945.61	947.38	0.016163	10.97	288.46	90.85	1.02
Outlet Creek	4594.11*	Max WS	3124.82	942.78	948.41	948.56	950.38	0.016224	11.30	283.26	90.88	1.03
Outlet Creek	4776.33*	Max WS	3124.91	945.56	951.32	951.60	953.38	0.016061	11.59	282.41	95.17	1.03
Outlet Creek	4958.55*	Max WS	3124.95	948.33	954.22	954.77	956.37	0.016259	11.96	291.12	132.62	1.04
Outlet Creek	5140.77*	Max WS	3125.11	951.11	957.01	957.85	958.96	0.015767	11.86	340.74	279.10	1.03
Outlet Creek	5323	Max WS	3125.64	953.89	959.28	959.36	959.99	0.010182	8.78	637.96	462.11	0.81
Outlet Creek	5464	Max WS	3126.54	957.26	963.90	964.97	968.07	0.059873	20.40	261.89	178.04	1.40
Outlet Creek	5851	Max WS	3127.33	964.83	978.03	978.71	980.23	0.015686	13.81	418.55	190.97	0.68
Outlet Creek	5934		Culvert									
Outlet Creek	6017	Max WS	3127.51	968.36	978.95		980.11	0.010808	11.70	558.04	207.60	0.64
Outlet Creek	6092	Max WS	3110.31	970.05	979.43		981.31	0.010721	11.01	283.00	62.78	0.86
Outlet Creek	6312	Max WS	3125.96	981.20	987.15	989.28	993.50	0.060796	20.22	154.60	45.41	1.93
Outlet Creek	6500.5*	Max WS	3122.06	987.47	994.85	995.72	997.84	0.022125	13.90	228.14	71.04	1.20
Outlet Creek	6689.*	Max WS	3125.92	993.73	1000.38	1002.11	1004.86	0.037416	16.99	184.51	60.71	1.54
Outlet Creek	6877.5*	Max WS	3125.95	999.99	1006.81	1008.12	1010.65	0.031841	15.97	222.72	104.52	1.43
Outlet Creek	7066.*	Max WS	3126.01	1006.26	1012.86	1013.98	1016.50	0.032512	16.07	250.27	130.55	1.44
Outlet Creek	7254.5*	Max WS	3126.04	1012.52	1018.83	1019.78	1021.93	0.030976	15.65	280.86	135.30	1.40
Outlet Creek	7443.*	Max WS	3125.98	1018.79	1024.65	1025.47	1027.34	0.031917	15.51	296.15	138.81	1.41
Outlet Creek	7631.5*	Max WS	3126.10	1025.05	1030.43	1031.10	1032.67	0.031387	15.10	311.67	146.95	1.39
Outlet Creek	7820	Max WS	3126.21	1031.32	1036.13	1036.62	1037.97	0.030365	14.34	322.66	154.22	1.35
Outlet Creek	7881	Max WS	3126.09	1033.32	1040.08	1042.62	1053.27	0.103656	29.15	107.60	27.49	2.11
Outlet Creek	7901		Culvert									
Outlet Creek	7921	Max WS	3126.09	1033.32	1043.57		1044.57	0.007234	10.18	550.86	653.73	0.59
Outlet Creek	8000	Max WS	3126.23	1035.02	1044.10		1044.82	0.003336	7.92	556.03	130.74	0.51

6/6/2012

**COBLESKILL RESERVOIR DAMS  
EMERGENCY ACTION PLAN  
DISTRIBUTION LIST**

**VILLAGE OF COBLESKILL  
PROJECT # 2010089**

Village of Cobleskill  
378 Mineral Springs Rd.  
Suite 2  
Cobleskill, NY 12043  
518/234-3891 Phone  
518/234-4075 Fax

**VILLAGE OF COBLESKILL  
MAYOR:**

Mark Galasso  
378 Mineral Springs Rd.  
Suite 2  
Cobleskill, N.Y. 12043  
Office: (518) 234-3891  
Cell: (518) 234-4075

**VILLAGE OF COBLESKILL  
WATER SUPERINTENDANT:**

Jeffery Pangman  
Village of Cobleskill  
378 Mineral Springs Rd.  
Suite 2  
Cobleskill, NY 12043  
518/234-2195 Phone  
518/234-2775 Fax  
[water@midtel.net](mailto:water@midtel.net)

**TOWN OF COBLESKILL  
SUPERVISOR:**

Mr. Tom Murray  
Town of Cobleskill  
378 Mineral Springs Rd.  
Cobleskill, NY 12043  
(518) 234-1719 office  
(518) 234-2068 (Fax)  
[Coby1@nycap.rr.com](mailto:Coby1@nycap.rr.com)

**TOWN OF COBLESKILL  
HIGHWAY SUPERINTENDENT:**

Mr. Mike Persons  
Rock Road  
Cobleskill, NY 12043  
(518) 234-2990

**TOWN OF COBLESKILL  
CODE ENFORCEMENT OFFICER:**

Mr. Mike Piccolo  
378 Mineral Springs Rd.  
Cobleskill, NY 12043  
(518) 234-4661

**COBLESKILL FIRE DEPARTMENT:**

Fire Chief  
Main Street  
Cobleskill, NY 12043  
(518) 234-2429

**SCHOHARIE COUNTY  
EMERGENCY MANAGEMENT:**

Kevin Neary  
P.O. Box 439  
295 Main Street  
Richmondville, NY 12149  
(518) 294-6681  
(518) 221-2214 (cell)

**NYS DOT**

Bob Richter, P.E.,  
Resident Engineer  
310 Mineral Springs Road  
Cobleskill, NY 12043  
(518) 234-3411

**NYS DEC:**

John Stawski, P.E.  
Environmental Engineer 2  
Division of Water, Dam Safety Section  
625 Broadway  
Albany, NY 12233-3504  
[jistawski@gw.dec.state.ny.us](mailto:jistawski@gw.dec.state.ny.us)  
(518) 402-8257

**ENGINEER:**

Lamont Engineers  
548 Main Street, PO Box 610  
Cobleskill, NY 12043  
(518) 234-4028 Phone  
(518) 234-4613 Fax

François Vedier, P.E.  
Principal Engineer  
(518) 234-7428 (home)  
(518) 231-7141 (cell)  
fvedier@lamontengineers.com

**HYDROLOGIST  
ENGINEERING CONSULTANT:**

Charles F. "Rick" Woidt, Jr., P.E.  
President, Woidt Engineering  
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41 Chenango Street  
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Binghamton, NY 13910  
[rwoidt@woidtengineering.com](mailto:rwoidt@woidtengineering.com)  
[www.woidtengineering.com](http://www.woidtengineering.com)  
(607) 722-1014  
(607) 722-1614 (Fax)  
(607) 237-5536 (Cell)

New York State Department of Environmental Conservation  
Division of Water

Bureau of Flood Protection and Dam Safety, 4<sup>th</sup> Floor  
625 Broadway, Albany, New York 12233-3504  
Phone: (518) 402-8185 • FAX: (518) 402-9029  
Website: [www.dec.ny.gov](http://www.dec.ny.gov)



**Dam – Incident Report Form**

6 NYCRR Part 673 requires Dam Owners to submit a written Incident Report to NYSDEC when either of the following incidents occurs at a Class C - High Hazard or a Class B - Intermediate Hazard dam:

- 1) Activation of the Emergency Action Plan (Part 673.7(h)); or
- 2) Flow through an erodible auxiliary spillway (Part 673.9);

Submit the completed form within 5 days of the end of the incident to:

NYSDEC - Dam Safety Section  
625 Broadway, 4<sup>th</sup> floor  
Albany, NY 12233-3504  
phone: (518) 402-8185  
fax: (518) 402-9029

NYS Dam ID No. : \_\_\_\_\_ Hazard Class: (select one):  B – Intermediate  C – High

Dam Name: \_\_\_\_\_ Reservoir/Impoundment Name: \_\_\_\_\_

Dam Location: Street Address: \_\_\_\_\_

Town/City: \_\_\_\_\_ County: \_\_\_\_\_

Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_

Description of incident and cause(s): (Please Continue on Additional Pages as Necessary) \_\_\_\_\_

Start date, time of incident: \_\_\_\_\_  (AM)  (PM)

Was the Emergency Action Plan activated?  (Yes)  (No) If so, when? : \_\_\_\_\_  (AM)  (PM)

Has the emergency ended?  (Yes)  (No) If so, when? : \_\_\_\_\_  (AM)  (PM)

Did flow pass through an erodible Auxiliary Spillway?  (Yes)  (No)

Depth and Duration of Auxiliary Spillway flow: \_\_\_\_\_

Spillway/Auxiliary Spillway condition (did any damage occur?): \_\_\_\_\_

Immediate responses to incident: \_\_\_\_\_

Long term response to incident: \_\_\_\_\_

**Contact Information**

Dam Owner Name: \_\_\_\_\_ Form Prepared By: \_\_\_\_\_

Dam Owner Address: \_\_\_\_\_ Form Preparer's Phone: \_\_\_\_\_

Form Preparer's Fax: \_\_\_\_\_

Form Preparer's Email: \_\_\_\_\_

Dam Owner Phone: \_\_\_\_\_

Attach additional sheets, including maps, sketches or photos as necessary to fully describe the incident.

PROMULGATION AND CONCURRENCE

I, the undersigned, on the date indicated, have reviewed the Emergency Action Plan (EAP) for the Cobleskill Reservoir Dams, State Dam ID numbers: 174-3138A, 174-3138B, 174-3846. I have received the concurrence of the necessary emergency managers, who are listed below;

Name	Title	Organization	Date
Kevin Neary	Director	Scho. Co EMO	6/29/12

Date of most recent Orientation Meeting: \_\_\_\_\_

**Certification of Promulgation and Concurrence:**

I certify under penalty of law that the answers and information provided in and with this Promulgation and Concurrence Form were prepared by me or under my direction or supervision. The answers and information I submit are, to the best of my knowledge and belief, true, accurate, and complete.

**This Certification must be signed by an individual who is the EAP coordinator, on his or her own behalf.**

Name: Kevin Neary

Title: Director

Company: Schoharie County Emergency Management

Signature: [Handwritten Signature] Date: 6-29-12

PROMULGATION AND CONCURRENCE

I, the undersigned, on the date indicated, have reviewed the Emergency Action Plan (EAP) for the Cobleskill Reservoir Dams, State Dam ID numbers: 174-3138A, 174-3138B, 174-3846. I have received the concurrence of the necessary emergency managers, who are listed below;

Name	Title	Organization	Date
Kevin Neary	Director	Schoharie County E.M.O.	6/29/12

Date of most recent Orientation Meeting: \_\_\_\_\_

**Certification of Promulgation and Concurrence:**

I certify under penalty of law that the answers and information provided in and with this Promulgation and Concurrence Form were prepared by me or under my direction or supervision. The answers and information I submit are, to the best of my knowledge and belief, true, accurate, and complete.

This Certification must be signed by an individual who is the EAP coordinator, on his or her own behalf.

Name: Mark A. Galasso

Title: Mayor

Company: Village of Cobleskill

Signature: *Mark A. Galasso* Date: 7/11/12

## Downstream Residence of Cobleskill Reservoirs

Name	Address	Phone
<del>Baptist Church</del>	745 Mineral Springs	234-2302
<del>Lowel Abrams</del>	716 Mineral Springs	823-4112
<del>Warren Boggs</del>	719 Mineral Springs	234-7354
<del>Robert Worthington</del>	713 Mineral Springs	234-8169
<del>Methodist Church</del>	712 Mineral Springs	No phone
<del>James Volo</del>	706 Mineral Springs	254-0083
<del>Maurits Modin</del>	709 Mineral Spring	234-7207
<del>Fredrick Witt</del>	704 Mineral Springs	234-1234
<del>Clayton Tillapaugh</del>	698 Mineral Springs	234-7479
<del>Agnes Scott</del>	694 Mineral Springs	234-3733
<del>Art Rumph</del>	689 Mineral Springs	234-4272
<del>Peter Delcoro</del>	681 Mineral Springs	234-7060
<del>KG Lawyer</del>	670 Mineral Springs	234-2490
<del>Marilyn Vinzi</del>	679 Mineral Springs	234-3068
<del>Frieda Thorington</del>	690 Mineral Springs	234-2406
<del>Vacant</del>	666 Mineral Springs	-----
<del>Mossey</del>	676 Mineral Springs	823-4092
<del>Tim McGuire</del>	677 Mineral Springs	No Phone
<del>Robert Hills</del>	661 Mineral Springs	234-4238
<del>Jeramey Moore</del>	655 Mineral Springs	234-3229
<del>Jerry Lape</del>	656 Mineral Springs	234-2067
<del>Dave Rapant</del>	711 Mineral Springs	234-2247
<del>Walter Mau</del>	634 Mineral Springs	234-3690
<del>David Maranville</del>	123 Borst Noble	234-4308
<del>Gerald Law</del>	160 Borst Noble	234-3304
<del>Kim Law</del>	682 Mineral Springs	234-8163
<del>Ann Kingsbury</del>	161 Borst Noble	234-1888
<del>Ed Downing</del>	168 Borst Noble	234-8943
<del>Kelly Jordan</del>	173 Borst Noble	234-2965
<del>TL Wright</del>	188 Borst Noble	234-1625
<del>Pete Mauhs</del>	199 Borst Noble	234-2824
<del>Sam Warner</del>	236 Borst Noble	234-2602
<del>Country Club</del>	Rt 7-Borst Noble	234-4045

\* - RESIDENTS CROSSED OFF OF LIST ARE NOT WITHIN THE FLOOD LIMITS BASED ON THE INUNDATION MAPPING PROVIDED BY WOODT ENGINEERING.