

**Sleepy Hollow lake Dam**  
**National Inventory of Dams # NY00142**  
**NY State ID# 209-3977**

## **Complying with Dam Safety Regulations** **The Sleepy Hollow lake Story**



**Association of Property Owners  
of Sleepy Hollow lake  
Unit 1095  
92 Randy Road  
Athens, NY 12015  
(518) 731-6175**

**Laurel Mann**  
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**Association Manager**  
**Association of Property Owners of Sleepy**  
**Hollow Lake**

# The Community

- **Private Homeowners Association Developed in the 1970's**
- **Governed by the SHL Board of Directors through Protective Covenants and By-laws**
- **Staffing**
  - **Administrative - 5**
  - **Maintenance - 11**
  - **Public Safety 24/7 - 19**
  - **Seasonal lifeguards/ID Checkers – 30**
  - **Water Treatment Plant - 3**
  - **Waste Water Treatment Plant - 3**

# The lake

- **Our Reservoir**
- **324 acres**
- **2 1/2 miles long**
- **70-feet deep at deepest**
- **17-miles of shoreline**
- **Boating, Swimming, fishing, Waterskiing**

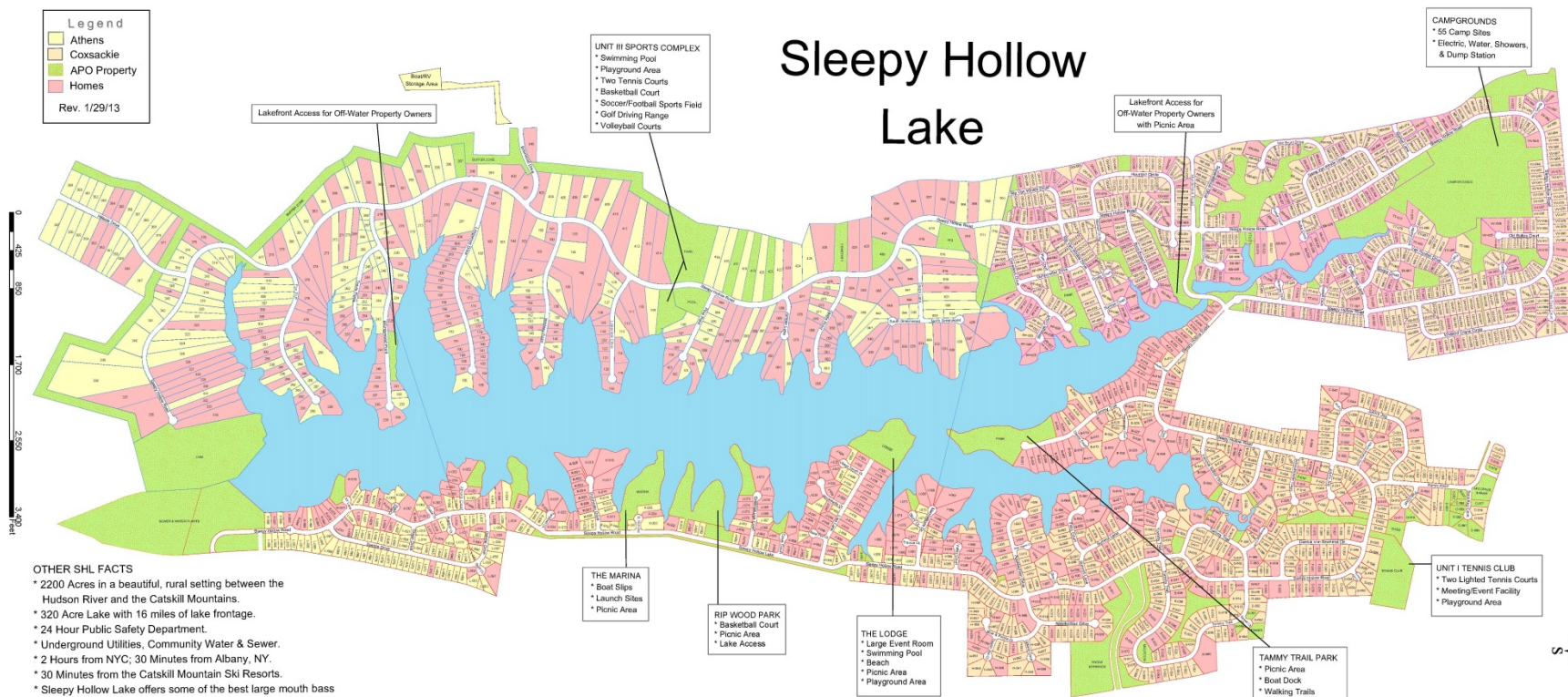


**Legend**

- Athens
- Coxsackie
- APO Property
- Homes

Rev. 1/29/13

# Sleepy Hollow Lake



## OTHER SHL FACTS

- \* 2200 Acres in a beautiful, rural setting between the Hudson River and the Catskill Mountains.
- \* 320 Acre Lake with 16 miles of lake frontage.
- \* 24 Hour Public Safety Department.
- \* Underground Utilities, Community Water & Sewer.
- \* 2 Hours from NYC; 30 Minutes from Albany, NY.
- \* 30 Minutes from the Catskill Mountain Ski Resorts.
- \* Sleepy Hollow Lake offers some of the best large mouth bass fishing in New York State.
- \* The New York State Record Crappie was caught in Sleepy Hollow Lake.







## • Amenities

- lodge
- Beach
- 2-Pools
- 2-Tennis Courts
- Tennis Club
- 2-Basketball Courts
- Several Parks

## • Infrastructure

- 22 Miles of Roads
- Water Treatment Plant
- 2-Water Towers
- Fire Hydrants
- Wastewater Treatment Plant (Pressurized System)
- 3-Pump Stations
- DAM

# The Dam

- **Completed in 1973**
- **Murderers' Creek**
- **Class "A" drinking water reservoir**
  - **§701.6 Class A fresh surface waters**
  - **A source of water supply for drinking**
  - **Recreation and fishing**
- **Class "C" High Hazard Dam**

# Sleepy Hollow Dam Athens, NY





# Dam Construction Data

- **Earthen Dam with Clay Soil Core**
  - **Embankment (Earth)**
  - **Concrete Spillway**
  - **Drainage System**
  - **Regulating Outlet**
  - **Plunge Pool**
  - **Downstream Channels**
  - **Monitoring Instrumentation**

# Spillway Components



OGEE WEIR



TRAINING WALLS



CHUTE APRON - SLAB



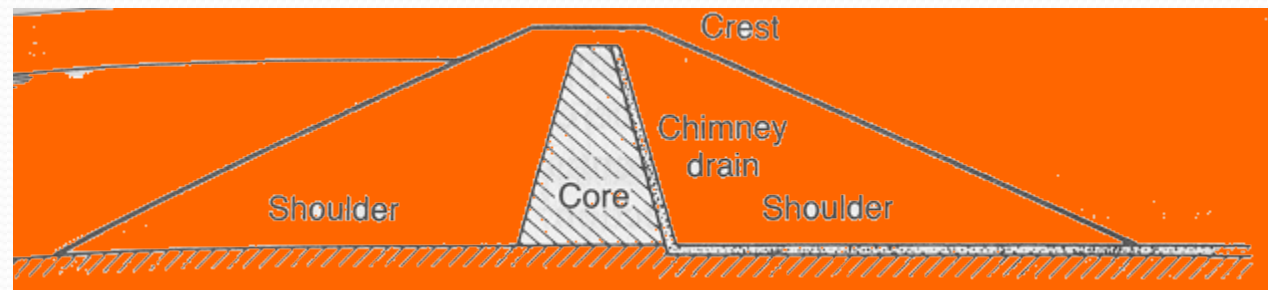
RETAINING ("WING") WALLS







# Chimney Drain & Base Drains





# Outlet Works

- Regulating outlet is a 48" diameter concrete pipe controlled by a mechanically activated sluice gate.
- Downstream Channel –
  - Spillway empties directly into original Murderer's Creek
  - the regulating outlet into an auxillary channel that directs flow to the creek and out to the Hudson River



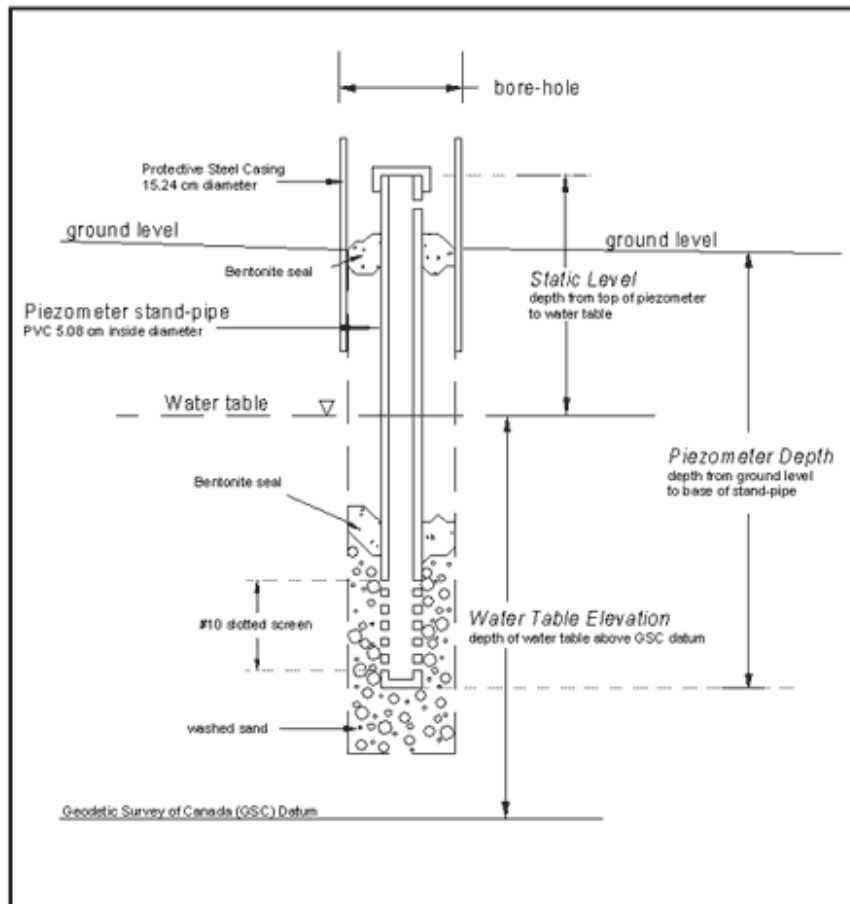


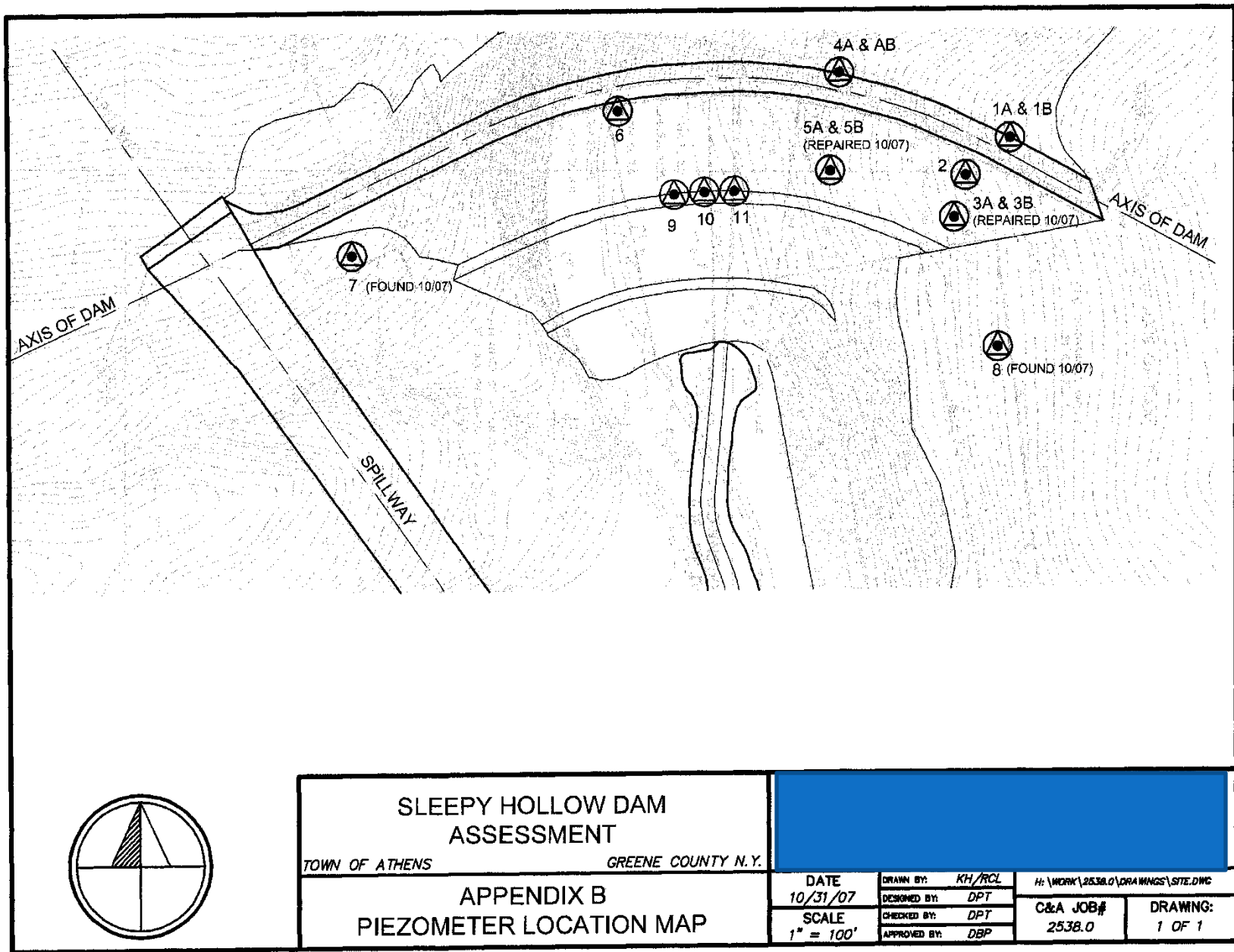


# Monitoring Instrumentation

## PIEZOMETER WELLS

- A **piezometer** is a small diameter observation well used to measure the hydraulic head of groundwater.
- SHL dam has 15 wells







# Critical Dam Data

- **Dam length:** 753 feet
- **Dam depth:** 150 at top to 350 ft at bottom
- **Year Complete:** 1973
- **River:** Murderers' Creek
- **Reservoir:** 3.9 Billion Gallons of Water
- **Raw Water Intakes:** 5-feet and 15-feet deep
- **Filtration Plant Capacity:** 2 Million Gallons per day
- **Watershed:** 13.3 Square Miles
- **Dam Elevation:** 82.5 feet
- **Spillway Elevation:** 70 feet
- **Spillway Type:** Ogee
- **Spillway dimensions:** 80' x 550'

**New York State Inventory of Dams****Name of Dam: SLEEPY HOLLOW DAM****State ID: 209-3977****Hazard Code: C**

See below for hazard code definition

**Year Completed: 1972****Most Recent Inspection: 6/18/2008****Location Information:**

County	Section, Township, or Range	River or Stream	Latitude	Longitude
GREENE	ATHENS	MURDERERS CREEK	42°16'50"	73°48'17"

**Type:**

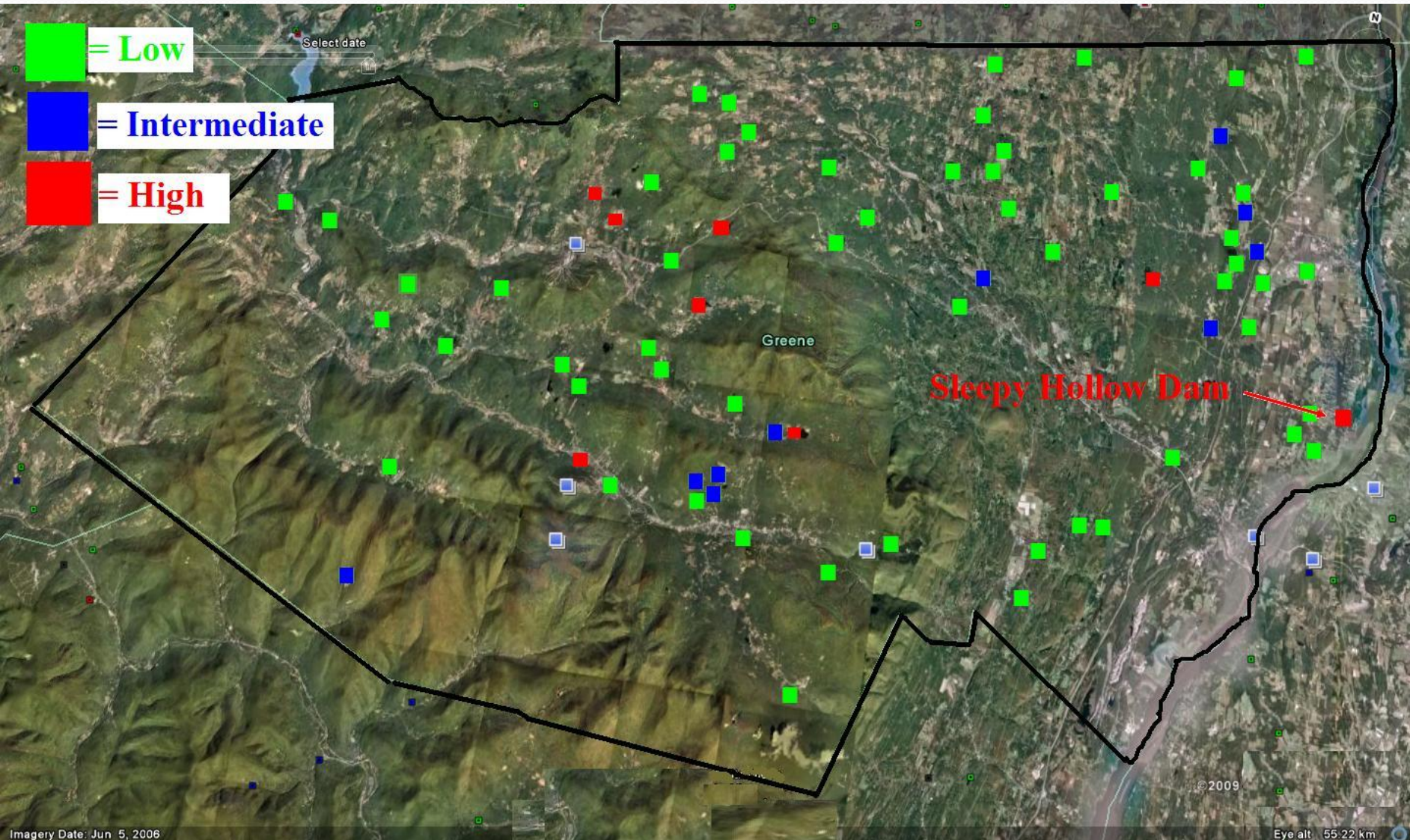
Type of Construction	Purpose	Owner Type
EARTH	RECREATION, WTR SUPPLY	PRIVATE

**Technical Information:**

Dam Length (feet)	750
Dam Height (feet)	83
Spillway Width (feet)	80
Maximum Discharge (cubic feet per second)	14100
Maximum Storage (acre-feet)	13500
Normal Storage (acre-feet)	8400
Reservoir Surface Area (acres)	324
Drainage Area (square miles)	13.3
Basin	LOWER HUDSON
Date of Data Update	7/23/2008

**Note:** Hazard Code denotes the downstream hazard potential in the event of a dam failure.**C** = High**B** = Intermediate**A** = Low**0** = Null; No hazard code assigned**Also Note:** This data was exported from DEC's database in October 2008. Updates to data that occurred after October 2008 are not reflected here.

# New York State Inventory of Dams



# **Dam Safety Revisions**

- **EAP Due August 2010 - Submitted June 2008**
- **Inspection and Maintenance Plan Due August 2010 – Completed January 2010**
- **Engineering Assessment Due August 2012 and every 10-years after**
- **Annual Certification by January 31 each year beginning 2010**



# **Sleepy Hollow Lake Dam Emergency Action Plan**

- **The Plan**
  - **Inundation Map**
  - **Notification Flow Chart**
  - **Engineering Assessment**
  - **Inspection and Maintenance Plan**
- **Action Items**
  - **Table-Top**
  - **Physical Drill**
  - **Promulgation and Concurrence**
  - **Continuing Education**
  - **Networking**

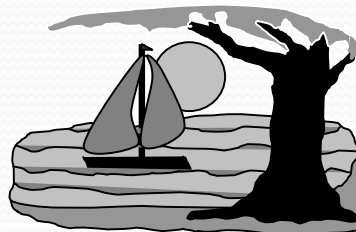
# EMERGENCY ACTION PLAN

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NATIONAL INVENTORY OF DAMS #NY00142

## SLEEPY HOLLOW LAKE DAM

Association of Property Owners  
of Sleepy Hollow Lake, Inc  
Unit 1095  
92 Randy Road  
Athens, NY 12015  
(518) 731-6175



*Sleepy Hollow Lake*

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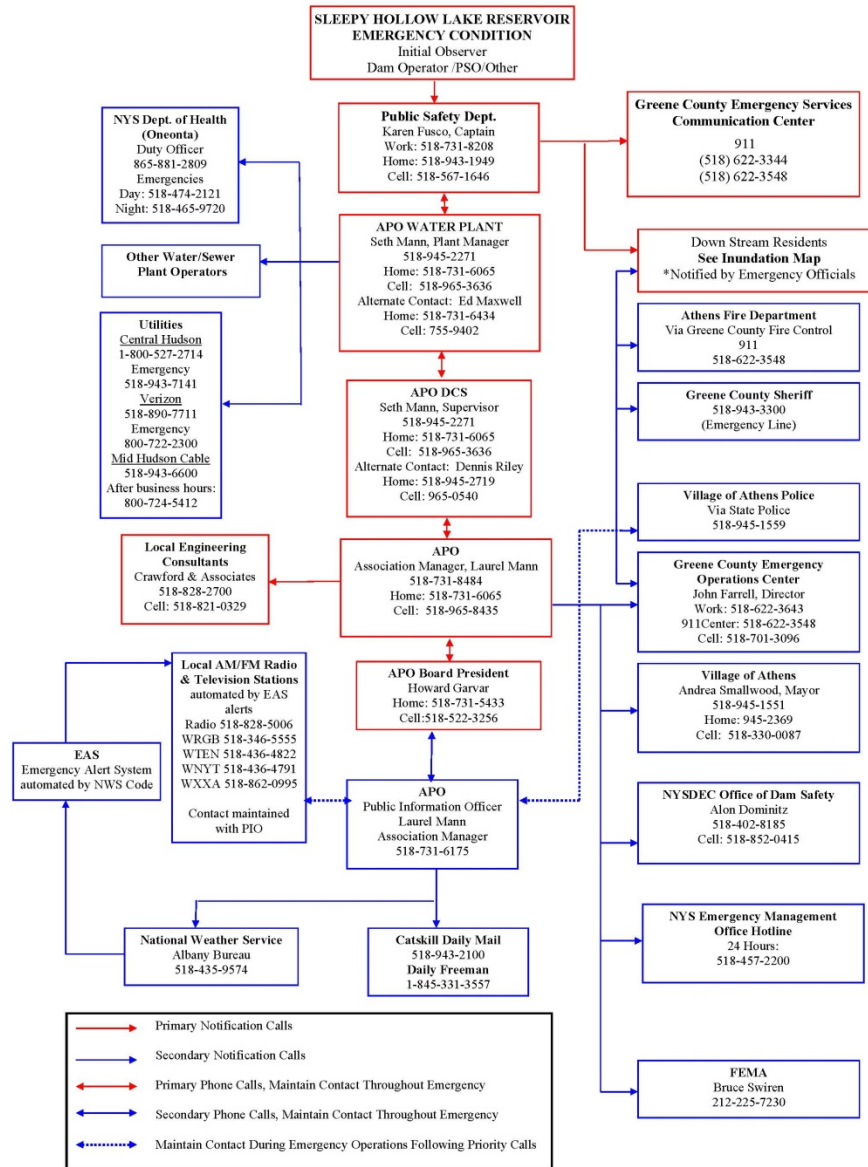
## APPENDICES

- A. Figures
  - 1. Regional Vicinity Map
  - 2. Dam Location Map
- B. Procedures By Classification
- C. Plans for Training, Exercising, Updating and Posting the EAP
- D. Site-Specific Concerns
- E. Guidance Documents for the Dam Operator
  - 1. Dam Incident Report Form
  - 2. Visual Inspection Checklist & Diagram





# SLEEPY HOLLOW LAKE DAM EMERGENCY ACTION PLAN Notification Flowchart



# Working with local and State EMS

- **Table Top**

- **November 2009**

- **AAR NYSEMO REGION II** “The tabletop exercise was valuable and well-organized to bring all the agencies together for numerous reasons. **The time for all the necessary personnel to meet is before an actual incident occurs in order to develop a relationship based on trust and respect.** There are many examples of disasters being managed more proficiently if the significant staff had worked together previously. Also, this exercise revealed what supplies, equipment and personnel are available during a disaster from different agencies.”

- **Physical Drill – Greene County Emergency Services and New York State Office of Emergency Management**

**“DamEx10”**

**Sleepy Hollow Lake Dam  
Alert and Notification Drill  
25 September 2010**

**AFTER ACTION  
REPORT/IMPROVEMENT PLAN**



# Participating Organizations

- Athens Fire Department
- Catskill Fire Department
- Coxsackie Fire Department
- Greene County Emergency Services
- Greene County Sheriff
- American Red Cross
- Sleepy Hollow Association
- West Athens Lime Street Fire

# Promulgation and Concurrence

- A form must be submitted for all EAP's to indicate that consultation with local emergency managers has been completed.
- The **owner** is required to be fully familiar with the entire EAP, as the **owner** is responsible for the implementation of the EAP in the event of an emergency.
- An EAP is useful only if it accurately reflects site conditions, is kept up to date, and the roles of the various participants are understood and agreed to.
- It is the responsibility of each dam **owner** to develop an EAP tailored to their dam, and to coordinate the EAP with County Emergency Managers, other emergency responders, and local officials. The dam **owner** should seek to work with county and local emergency managers to develop a planning team that is aware of the dam, conditions at the dam site, and the unique conditions that must be considered should a dam incident occur.

# Engineering Assessment

- **Hydraulics and Hydrology – Spillway Capacity**
  - The dam must handle a design flow rate of  $\frac{1}{2}$  the probable maximum flood = must handle drainage runoff imposed by a hurricane event
  - Old standard – HMR-33 analysis
  - New standard – HMR 51/52
- **Stability Analysis**
  - Spillway and Ogee Weir
  - Slope Stability Analysis of Earthen Dam



# Inspection & Maintenance Plan

- **Quarterly Inspection by staff**
  - **Piezometer Readings**
  - **Overgrowth of Vegetation**
  - **Animal Burrows**
- **Annual Staff meetings**
- **Regular inspections by P.E. Dan Proper, Proper and O'leary Engineering**
  - **Monitoring Points**



# SLEEPY HOLLOW LAKE DAM

## GREENE COUNTY, NEW YORK

### PIEZOMETER AND FLOW DATA SHEET

Date: \_\_\_\_\_ Weather & Temp: \_\_\_\_\_ Insp. Initials \_\_\_\_\_

Weather Conditions Preceding Readings: \_\_\_\_\_

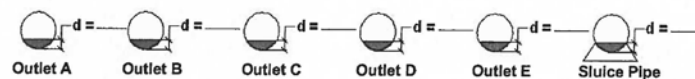
Piez. #	(1) Elev. at Top of Piezometer (A)	(2) Elev. at Bottom of Piezometer	(2) Piezometer Depth	Depth to Water from Top of Piezometer (B)	(3) Water Elevation (A) - (B)	Average Water Elevation
1A	80.76	43.39	37.37			45.67
1B	81.74	20.57	61.17			34.23
2	81.53	35.93	45.60			36.28
3A	57.05	34.21	22.84			36.34
3B	57.05	36.63	20.42			40.66
4A	81.49	38.54	42.95			42.83
4B	81.04	14.22	66.82			25.34
5A	54.35	39.58	14.77			
5B	55.95	9.15	46.80			18.49
6	82.93	16.90	66.03			17.26
7	72.89	57.59	15.30			
8	60.61	38.31	22.30			56.86
9	46.58	24.43	22.15			30.13
10	46.23	13.76	32.47			19.70
11	46.29	3.07	43.22			11.30

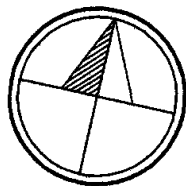
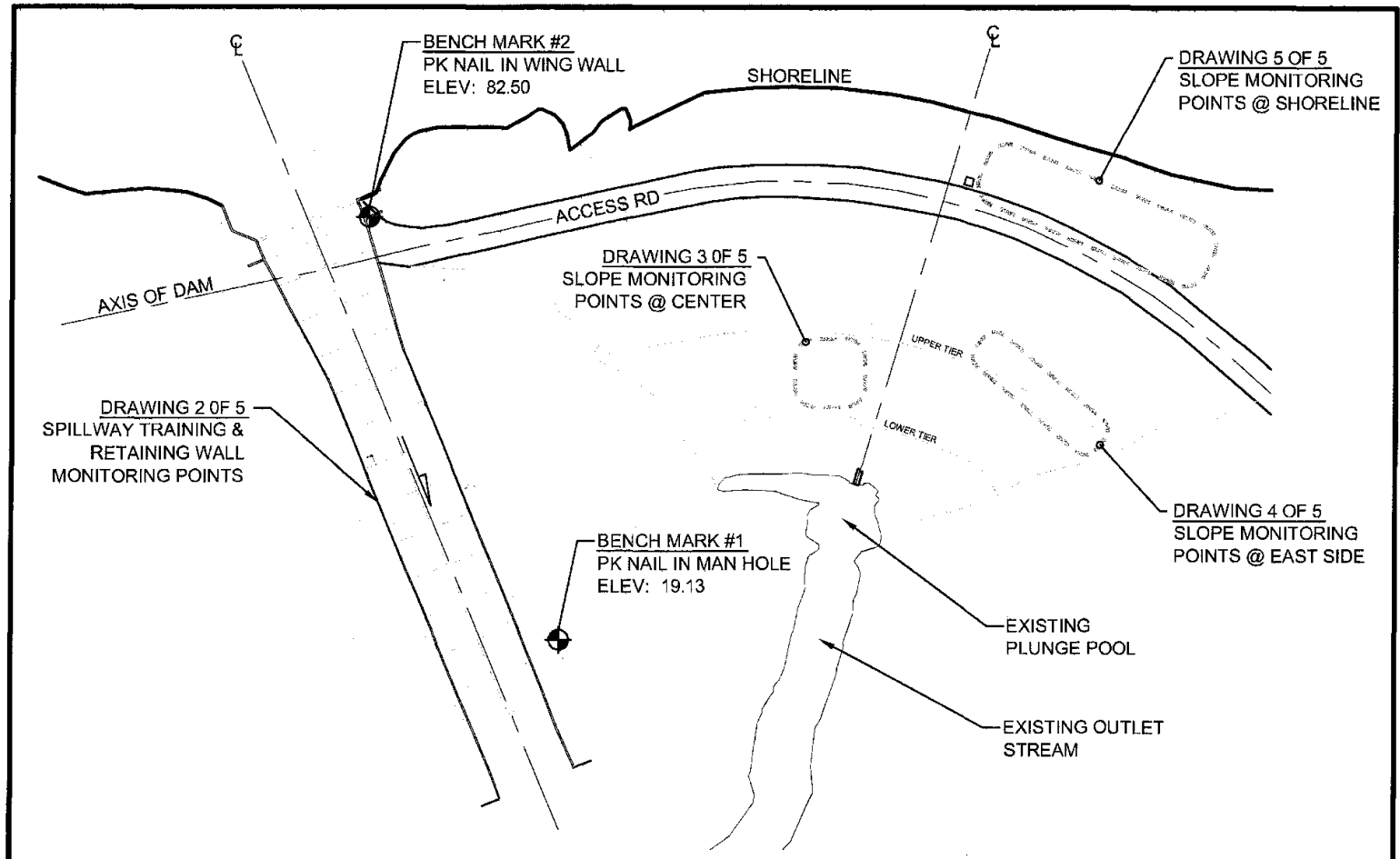
(1) - Top of piezometers field surveyed by Crawford and Associates Engineering, P.C. on 1/8 & 10/25/07.

(2) - Piezometer depth measured by Crawford and Associates Engineering, P.C. on 1/8 & 10/25/07.

(3) - Inspector shall compare to the Average Water Elevation to determine extent of fluctuation

#### Relief Drain: Outlet Works Flow





## SLEEPY HOLLOW LAKE DAM MONITORING POINTS

VILLAGE OF ATHENS

GREENE COUNTY, N.Y.

OVERALL SITE

DATE  
1/6/09

DRAWN BY: RCL  
DESIGNED BY: DBP  
CHECKED BY: DBP  
APPROVED BY: DBP

H:\WORK\12947.0\DRAWINGS\UPDATED PTS.DWG

C&A JOB#  
2947.0

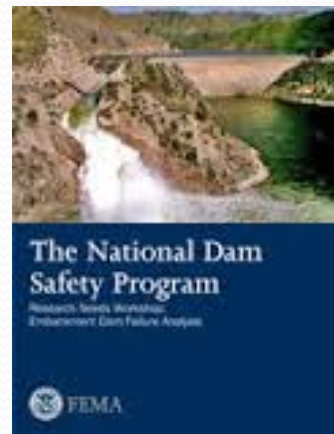
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# Continuing Education Opportunities

- **NYS DEC**
- **FEMA**
  - **National Dam Safety Program Technical Seminar in Emmitsburg, MD every february**
- **ASDSO**
  - **Association of State Dam Safety Officials**
  - **Annual Conference**
  - **Regional Conferences**
  - **Publications**



# Networking

- **Sharing of information – Village of Athens**
- **Confirming Engineering advice – NRCS**
- **learn from others' Experiences**
- **NYS Chapter of Dams??**



**Thank You!**

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