Public Meeting on Alternatives
Dean Creek Watershed
Pelto and Pylkas Dams
Tioga County, New York

JANUARY 18, 2022

Meeting Protocol and Expectations

Meeting is Being Recorded

Agenda on County Website

Q&A Session at End of Presentations

- Raise Hand Icon
- Chat Icon for Typing Questions

PowerPoint will be Posted to the Website

Today's Objectives

- Explain Roles and Responsibilities of Key Parties
  - NRCS
  - Local Sponsors
  - Contractor and Subcontractors
  - NY Dam Safety Agency
- Review Alternatives for Rehab. of Both Dams
- Present Analyses, Effects, and Costs
- Encourage Input and Contributions By Others

USDA

United States Department of Agriculture

New York
Natural
Resources
Conservation
Service

Dean Creek Watershed Dam Rehabilitation
Public Meeting – Why Are We Here?

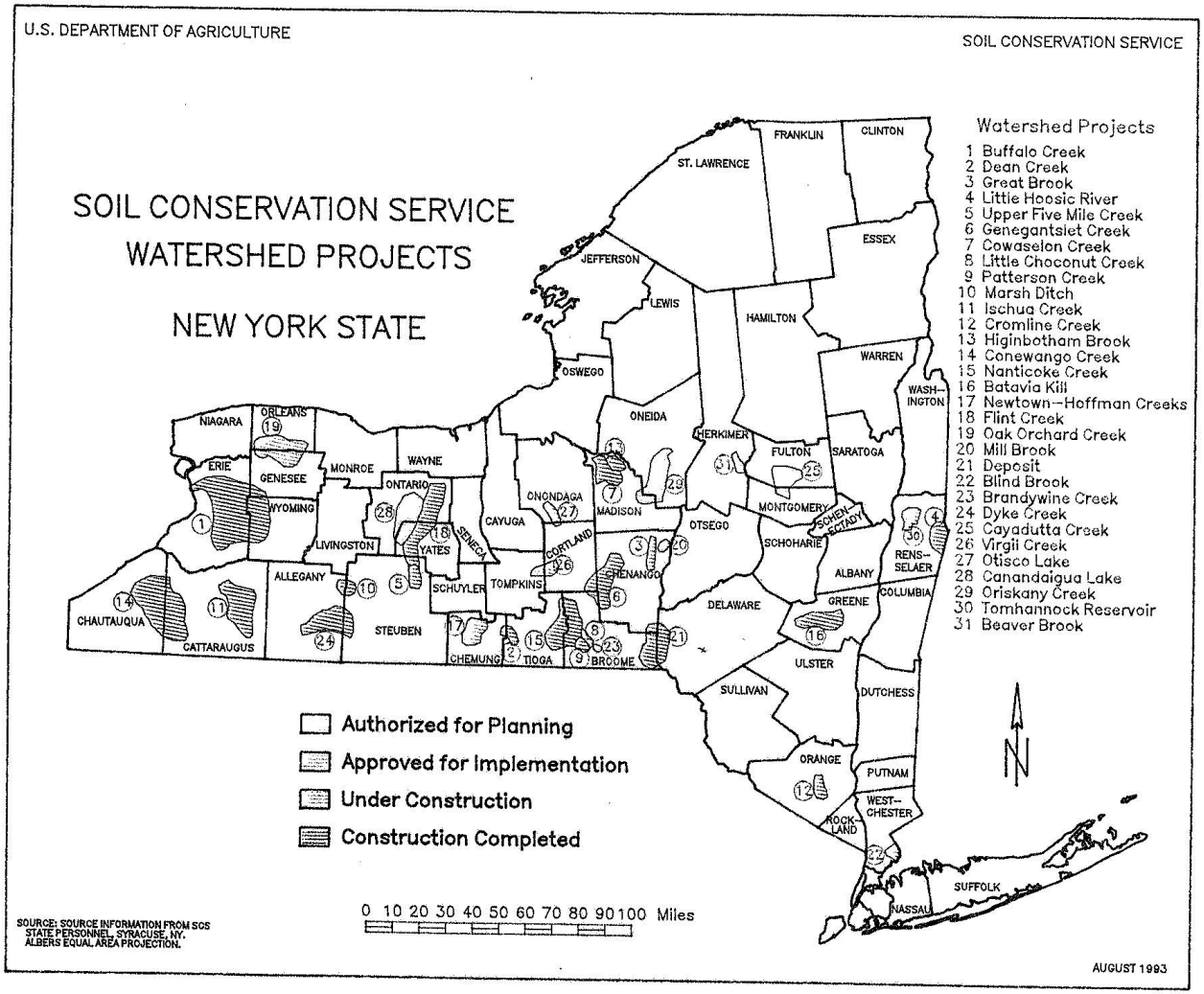
January 18, 2022| David M. Walowsky, Jr., Civil Engineer, NRCS, Syracuse, NY

Natural
Resources
Conservation
Service

nrcs.usda.gov/

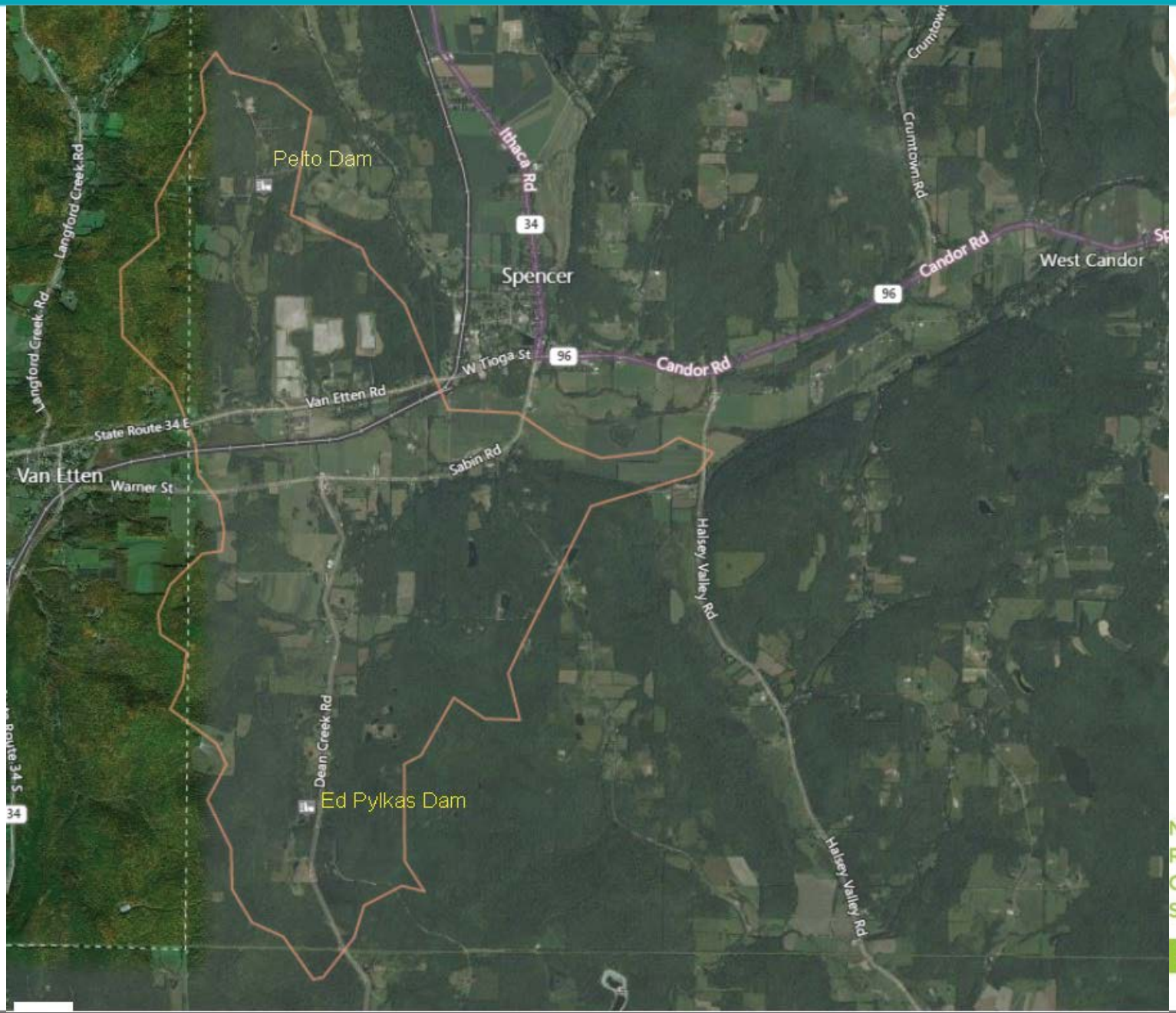
Dean Creek Watershed Dam Rehabilitation Overview

- Brief History of the Dams
- Why Rehab.?
- How does the process work?



PL83-566 Watershed Protection and Flood Prevention Act (Public Law 83-566) of 1954

USDA
United States Department of Agriculture



Natural Resources Conservation Service

nrcs.usda.gov/


65+ years later,
now what?

The Small Watershed Rehabilitation Amendments of 2000 (Dam Rehabilitation Program)

- Watershed Protection and Flood Prevention Act (PL-566) was amended in 2000.
  - Allows NRCS to assist communities with rehabilitation of their aging dams.
- Address public health and safety concerns and potential environmental impacts
- Provides technical and financial assistance in planning, designing, and implementing watershed rehabilitation projects.

A Proactive Approach…

Tioga County Soil & Water Conservation District applied to have the dams assessed, which compare how the dams were originally designed to today's modern dam design criteria and best practices.

What has changed in 65 years?

- Rainfall
- Population
- Infrastructure
- Safety Standards

Inspected annually by Tioga County and NRCS. Inspected bi-annually by NYS DEC, Division of Dam Safety.

No imminent dam safety hazards have been identified.

The dams are aging gracefully.

The Watershed Rehabilitation Process

Cost-Share With Dam Rehab.

- NRCS Pays 100% of Planning Costs & Design Costs
- Construction is Cost-Shared
  - 65% by NRCS
  - 35% by Local Sponsor

A Proactive Approach…

The Tioga County Soil & Water Conservation District has applied to rehabilitate both of the Dean Creek Watershed dams.

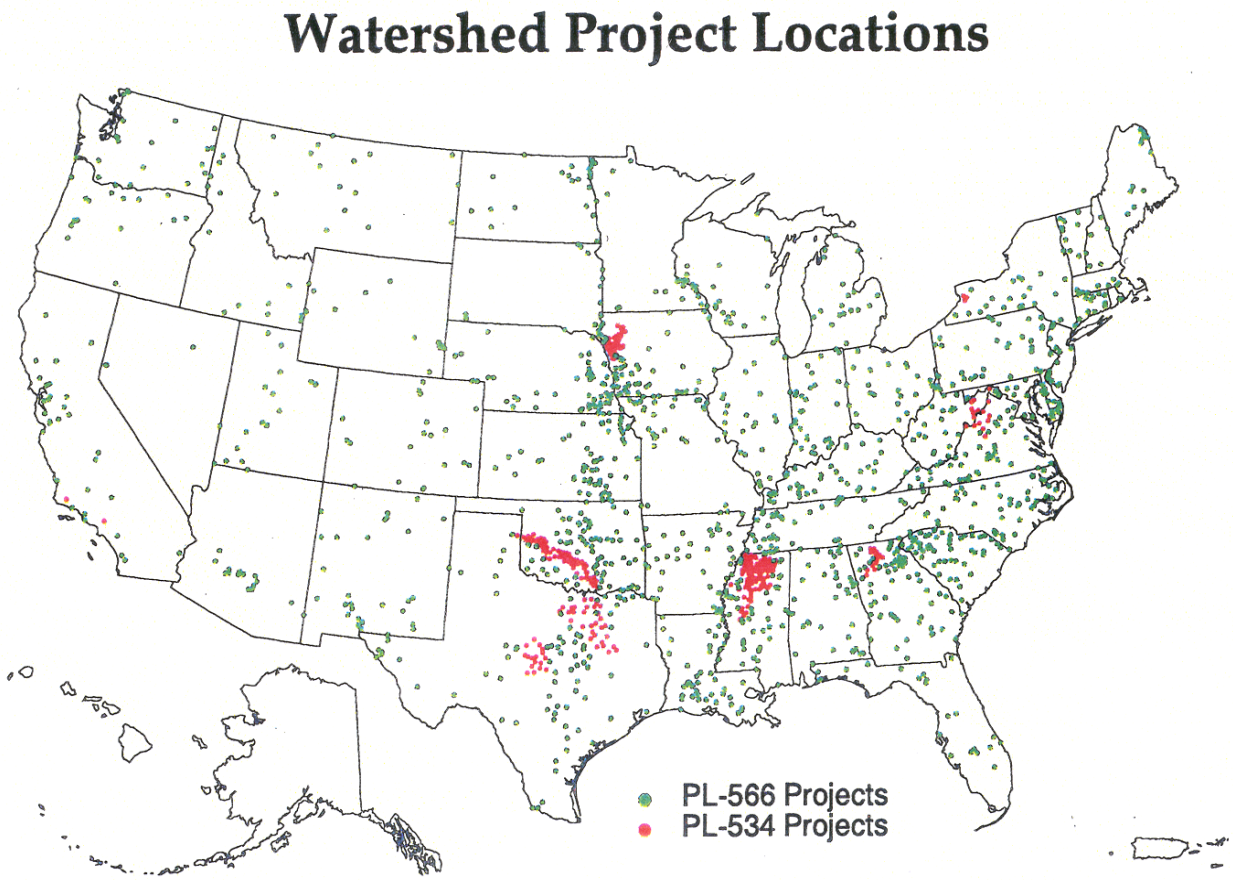
Supplemental Watershed Plan

- Feasibility Study
- Considers all reasonable alternatives
- Evaluates alternatives against environmental and public concerns
- Determines if rehabilitation (or another alternative) should be funded.

Turn it over to Wendy Walsh

Role of Local Sponsors and New York Dam Safety Agency

Small Watershed Program



NRCS has assisted communities build almost 12,000 dams since 1948

Rehabilitation Actions

- Protect the integrity of the dam, extend service life, and meet applicable safety and performance standards
- Replace deteriorating components
- Repair after catastrophic events
- Upgrade to meet dam safety laws
- Decommission (removal)

Purpose and Need for Action

Purpose: Maintain the current level of flood protection provided by Pelto and Pylkas Dams for the next 50-100 years while minimizing environmental, economic, and social impacts.

Need: The current structures do not meet current NRCS and NY State Dam Safety performance and safety standards. Action is necessary to reduce the risk of flood damage to homes, commercial facilities, and an expanded infrastructure as well as to reduce the risk of loss of life and property damage due to a flood event.

Statistics for Pelto Dam

- Located in Town of Spencer
- Maintained by the Tioga County SWCD
- Built in 1955 as a single purpose flood control dam
- Drainage area = 275 acres or 0.43 square miles
- Length = 350 feet
- Height = 42 feet
- Spillway Width = 45 feet
- Principal Spillway is 24” Reinforced Concrete Conduit that transitions to a 24” Corrugated Metal Pipe (last 18 feet)
- Classified as a “High” hazard potential dam

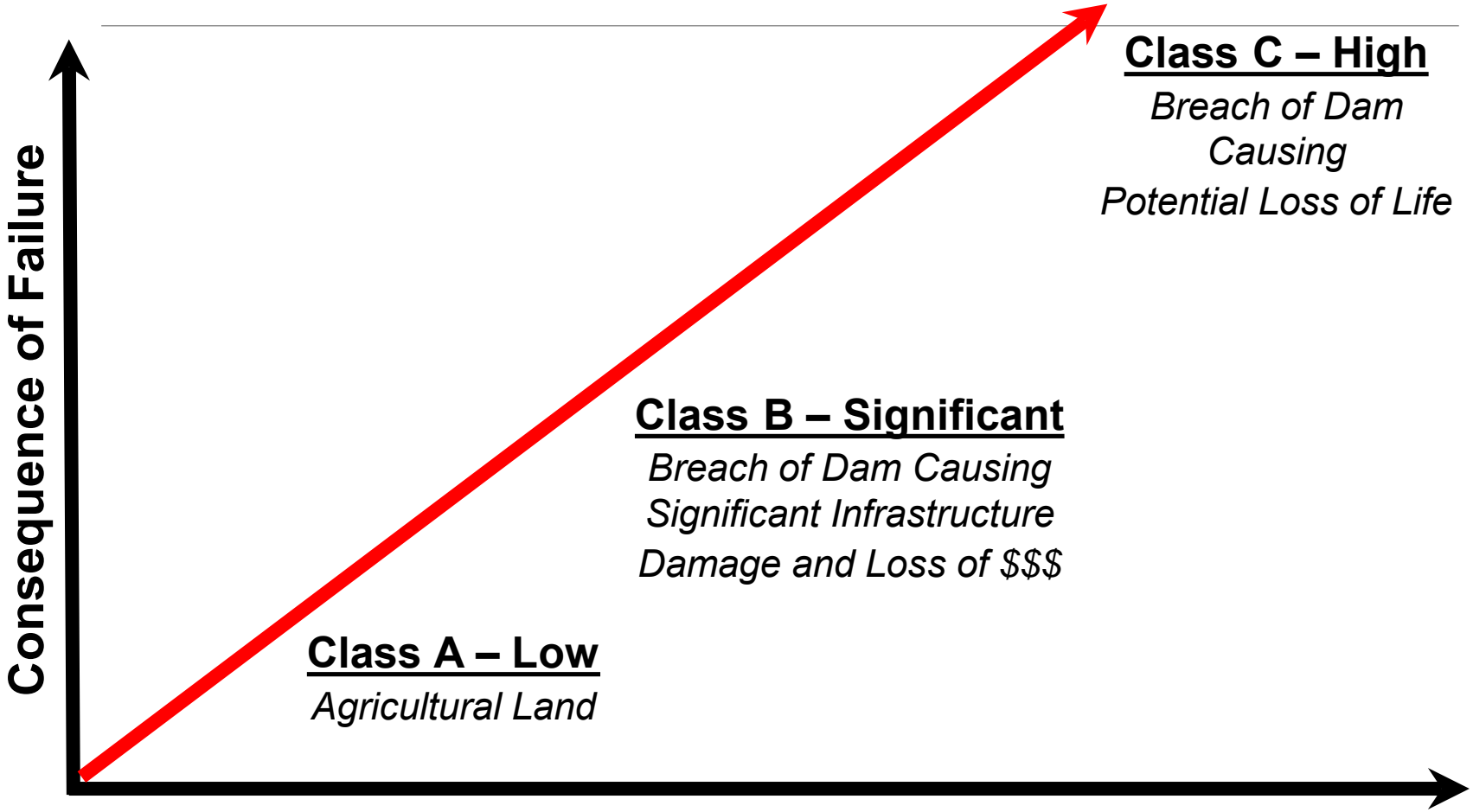
Pelto Dam Photos – December 2020

Statistics for Pylkas Dam

- Located in Town of Spencer
- Maintained by the Tioga County SWCD
- Built in 1955 as a single purpose flood control dam
- Drainage area = 435 acres or 0.68 square miles
- Length = 420 feet
- Height = 37 feet
- Spillway Width = 54 feet
- Principal Spillway is 24” Reinforced Concrete Conduit that transitions to a 24” Corrugated Metal Pipe (last 18 feet)
- Classified as a “High” hazard potential dam


Pylkas Dam Photos – December 2020

Hazard Classes of Dams



Scoping

- The resource issues relevant to decision-making were identified through Scoping Meetings in January 2021.

Groups of Resource Concerns

- Soils
- Water
- Air
- Plants
- Animals
- Humans
- Ecosystem Services

- Key - Is it **Relevant** (**Yes** or **No**) to the Proposed Action?

Existing Conditions

- Soils - Prime farmland soils and soils of statewide importance
  - 1.05 acres of Prime Farmland Soils in Pylkas Dam LOD
  - 5.80 acres of Soils of Statewide Importance in Pylkas Dam LOD
  - 5.91 acres of Soils of Statewide importance in Pelto Dam LOD
- Water Quality – No impaired waterbodies in LOD or immediately downstream
  - Tioga County falls within the Chesapeake Bay TMDL
- Sole Source Aquifers
  - Tioga County is in the Clinton Street-Ballpark Valley Sole Source Aquifer Area
- No wild, scenic, or designated recreational rivers in or near project area

Existing Conditions (cont.)

- Waters of the U.S. and Wetlands
  - Streams, ponds, and freshwater wetlands present in the LODs for both dams
  - Delineated wetlands areas within the LOD

Wetlands Type	Pelto LOD (acres)	Pylkas LOD (acres)
Freshwater Emergent	0.06	0.06
Freshwater Forested/shrub	0.03	0.01
Freshwater Pond	0.18	0.46
Total wetlands	0.27	0.53

Existing Conditions (cont.)

- Plants:
  - **No federally-listed or state-listed T&E plants** in the project area.
  - Three NYSDEC-listed **invasive plant species** observed at Pylkas Dam during a 2021 site visit: bush honeysuckle (Lonicera sp.), multiflora rose (Rosa multiflora), and black swallow-wort (Cynanchum louiseae).
- Animals:
  - **No federally-listed threatened or endangered animal species** in project areas.
  - **NYNHP - suitable habitat for at least one rare state-listed animal species** in Pelto Dam staging area (0.14 acres in LOD) – does not imply occurrence of rare species, just that the habitat may be suitable.
  - No known invasive fish or wildlife species.
  - No known occurrences of bald or golden eagle nesting site near either dam site.

Social and Cultural Resources

- No historic properties within a 1-mile radius of either dam site.
- The dams are over 50 years old and are eligible for consideration for the National Register.
- Natural Areas and Scenic Beauty
  - Not in federally or state designated natural areas.
  - The dams are located on private property.
  - The dam sites are valued for their scenic beauty by the landowners and used by the owners to walk, fish, and enjoy nature.
- There are 13 Tribes which are either Federally recognized or have ancestral ties to New York.
  - All tribes will be contacted to solicit their interest and input.

Social and Economic Issues

George Oamek - Economist

Environmental Justice / Civil Rights

- The area population has the following diversity:
  - **Race** = 92% White; 2% Black; 3% Hispanic; and 3% Multiracial
  - **Ethnicity** = 97% Non-Hispanic and 3% Hispanic
- The area within the breach inundation zone (compared to Tioga County and the State of New York) has:
  - Slightly lower per capita and median household incomes
  - Lower level of poverty
  - Lower presence of minority population

Economic Impacts of Existing Dam

- Watershed modeled with dam in place and dam removed.
- Flood reduction to downstream properties:
  - Residential Buildings = 82
  - Apartment Complexes = 6
  - Commercial Buildings = 7
  - Public Buildings = 4
  - Churches = 3
  - Total = 102
- 456 acres of cropland.

Economic Impacts / Damages 1/

Without Dams

- Residential Bldgs. = $1.55 mil
- Commercial Bldgs. = $0.51 mil
- Public Bldgs. = $0.076 mil
- Crossings/Roadways = $0.77 mil
- Cropland = $0.23 mil
- **Total Damages = $3.14 mil**

With Dams in Place

- Residential Bldgs. = $1.53 mil
- Commercial Bldgs. = $0.50 mil
- Public Bldgs. = $0.073
- Crossings/Roadways = $0.72 mil
- Cropland = $0.22 mil
- **Total Damages = $3.04 mil**

1/ Floodwater damage reduction to buildings and contents

Benefits of the Dams

- Flood Reduction Associated with the Dams:
  - One less structure impacted but flood damages reduced for 101 structures
  - 1,200 fewer feet of roadway flooded
  - 14 fewer acres of cropland flooded
- **$10,000 average annual benefits**

ENGINEERING

Brian Toombs – Dam Safety Engineer

Engineering

Hydrologic & Hydraulic

Sediment Storage

Geotechnical / Subsurface Conditions

Structural

Hydrologic & Hydraulic (H&H) Analysis

- Watershed Hydrology for both dams
  - Land cover, Soil/Hydrologic Group, Runoff Curves, Time of Concentration
- Route flood event flows through dams for storms from 2-year frequency to Probable Maximum Flood (PMF).
- Evaluate ability of existing dam to store (flood storage) and/or safely pass flood flows (spillway capacity).
- Evaluate potential for erosion of the vegetated auxiliary spillways at each dam during flood flows.

Pelto Dam - Updated H&H

- NRCS – Full Probable Maximum Flood (PMF) is Design Event for High Hazard Dams.
  - Dam is overtopped during PMF – Would have to be raised by 2 ft to EL 1382.9 without increasing spillway capacity OR would need to increase auxiliary spillway capacity.
- NYSDEC – ½ Probable Maximum Flood (PMF) is Design Event for High Hazard Dams in NY.
  - Dam is NOT overtopped during ½ PMF – Auxiliary spillway has sufficient capacity for NYSDEC criteria.
- Auxiliary spillway would NOT erode and breach during PMF event, and therefore satisfies NRCS and NYSDEC criteria.

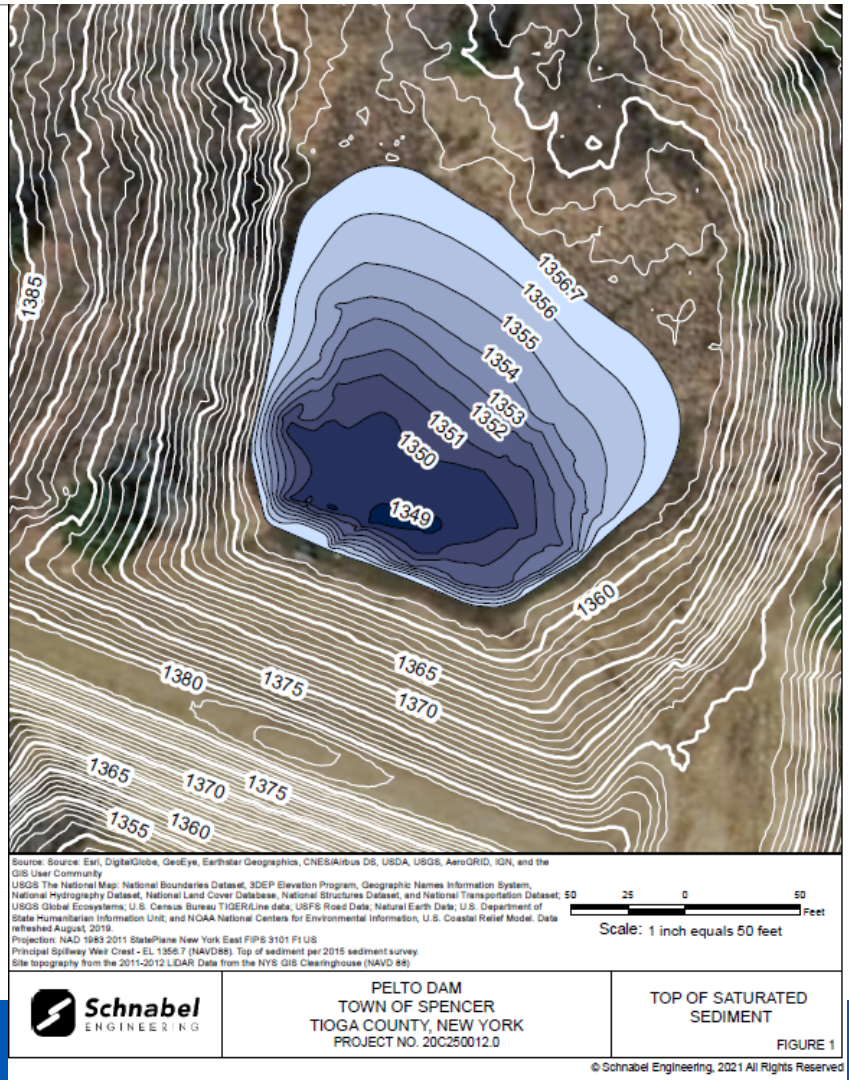
Pylkas Dam - Updated H&H

- NRCS – Full Probable Maximum Flood (PMF) is Design Event for High Hazard Dams.
  - Dam is overtopped during PMF – Would have to be raised by 2.4 ft to EL 1291.7 without increasing spillway capacity OR would need to increase auxiliary spillway capacity.
  - Auxiliary spillway could breach during PMF event, and therefore does NOT satisfy NRCS criteria for headcutting erosion of the vegetated spillway.
- NYSDEC – ½ Probable Maximum Flood (PMF) is Design Event for High Hazard Dams in NY.
  - Dam is NOT overtopped during ½ PMF – Auxiliary spillway has sufficient capacity for NYS DEC criteria.
  - Auxiliary spillway would NOT breach during ½ PMF event, and therefore satisfies NYSDEC criteria.

Sedimentation in the Reservoirs

Pelto Dam

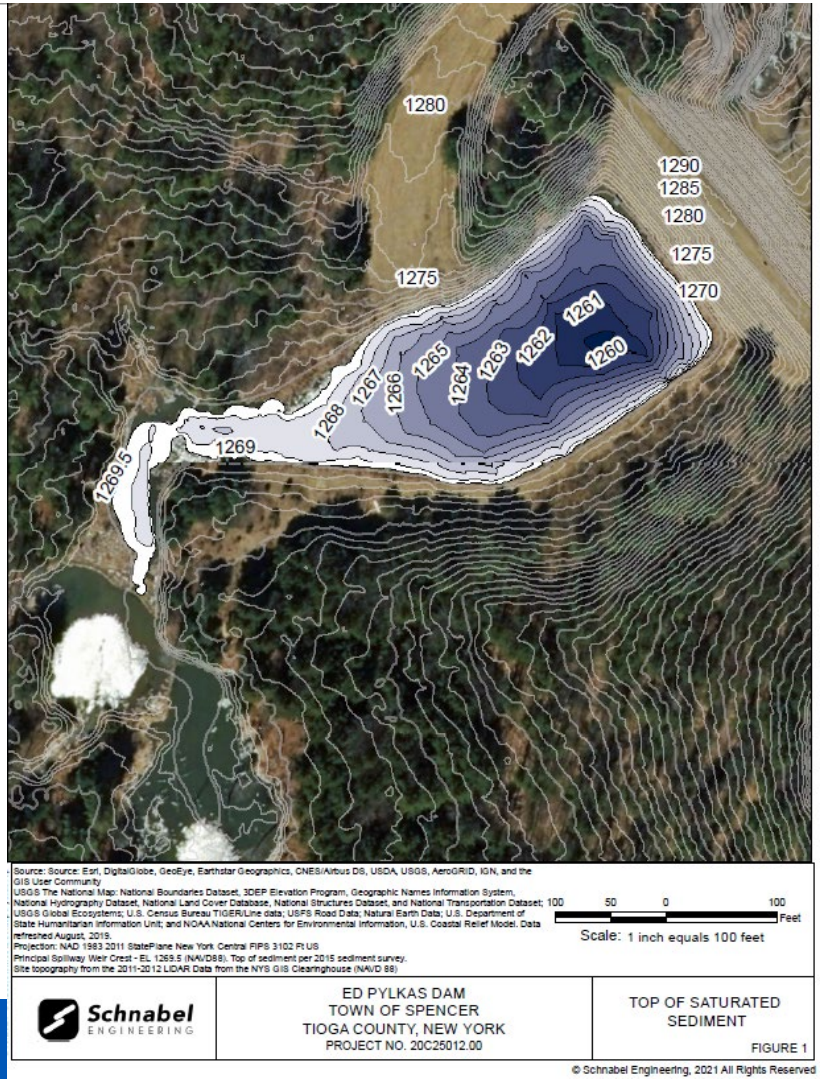
- Sediment survey completed in December 2015.
  - 1.2 ac-ft remaining storage
  - 90 years remaining storage (as of 2021)
- Meets minimum required remaining storage of 50 years.
- Reservoir dredging or pool modifications not required.



Sedimentation in the Reservoirs

Pylkas Dam

- Sediment survey completed in December 2015.
  - 5.5 ac-ft remaining storage
  - 56 years remaining storage (as of 2021)
- Meets minimum required remaining storage of 50 years.
- Reservoir dredging or pool modifications not required.



Pelto and Pylkas Dams - Geotechnical

- Separate but Similar Investigations, Evaluations, and Results for Both Dams
- Soil Borings
  - Auxiliary Spillway and Dam Embankment
- In situ and Laboratory Testing of Soils
- Geotechnical Analyses
- Seepage and Filters
  - No internal filters in the dams
  - No filter diaphragm around the spillway conduits
  - Potential for dispersive fill soils
  - Historical seepage at downstream abutments
- Slope stability
  - Inadequate factors of safety for static normal and floodpool loading
- Seismic Performance
  - Meet criteria

Pelto & Pylkas Dams - Geotechnical Recommendations

- Install chimney filters and toe drains.
- Install filter diaphragms on spillway conduits.
- Stabilize embankment downstream slopes.
- Level dam crests (both dams currently cambered in center).

Pelto & Pylkas Dams – Principal Spillways

- Visual inspections in 2020 / Video Inspections in 2016.
  - Risers are open top “non-standard” risers and are prone to clogging from debris and wood. Pylkas is especially problematic.
  - Deteriorated concrete and corroded trashracks.
  - No low level outlets (LLO) (i.e. no reservoir drain).
  - Concrete conduit remaining life < 50 years.
  - 24” Concrete conduits undersized per NRCS criteria.
  - Corrugated Metal Pipe end segments are not acceptable today.
- Risers meet current design criteria for stability.

- Principal Spillway Recommendations
  - Replace risers with standard covered risers with LLO (NRCS and NY).
  - New 30” concrete conduits (NRCS) or slip-line existing conduit (NY).
  - New concrete impact basin (NRCS) or riprap plunge pool (NY).

Formulation and Evaluation of Alternatives

Formulation Process

The process begins with identifying alternatives that meet the Purpose and Need statement goals. This “Statement” requires that alternatives meet current safety and performance standards and provide at least the level of flood protection that was provided originally.

Required Alternatives to be Considered

- No Federal Action (Future Without Federal Investment – FWOFI)
- Structural Rehabilitation to current criteria
- Decommissioning (removal)
- Nonstructural Alternatives (elevation, relocation, zoning, etc.)

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Alternatives Considered But Eliminated From Detailed Study

Decommissioning the Dam – This alternative removes the storage function of the dam and reconnects, restores, and stabilizes the stream and floodplain functions. Downstream flooding conditions would be similar to those that existed prior to construction of the dam. Therefore, all properties within the 100-year floodplain would need to be protected. This includes addressing induced damages to downstream properties, roadways, and crossings. Estimated Cost: $15 – 20 Million.

Nonstructural – This alternative modifies the dam to meet criteria for a significant hazard structure while relocating and/or floodproofing properties downstream that would be at incremental risk from a dam failure. It would involve elevating, floodproofing, and/or relocating buildings downstream of the dam; elevating/modifying roadways and stream crossings; and purchasing deed restrictions to restrict future development of land located between the 100-year storm and breach elevations. Affected structures include 58 single residences, 9 multi-family residences, 8 commercial buildings, 2 government buildings, and approximately 1.9 miles of roadway. Estimated cost: $20 – 25 Million.

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Alternatives Considered But Eliminated From Detailed Study

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Alternatives Evaluated / Analyzed

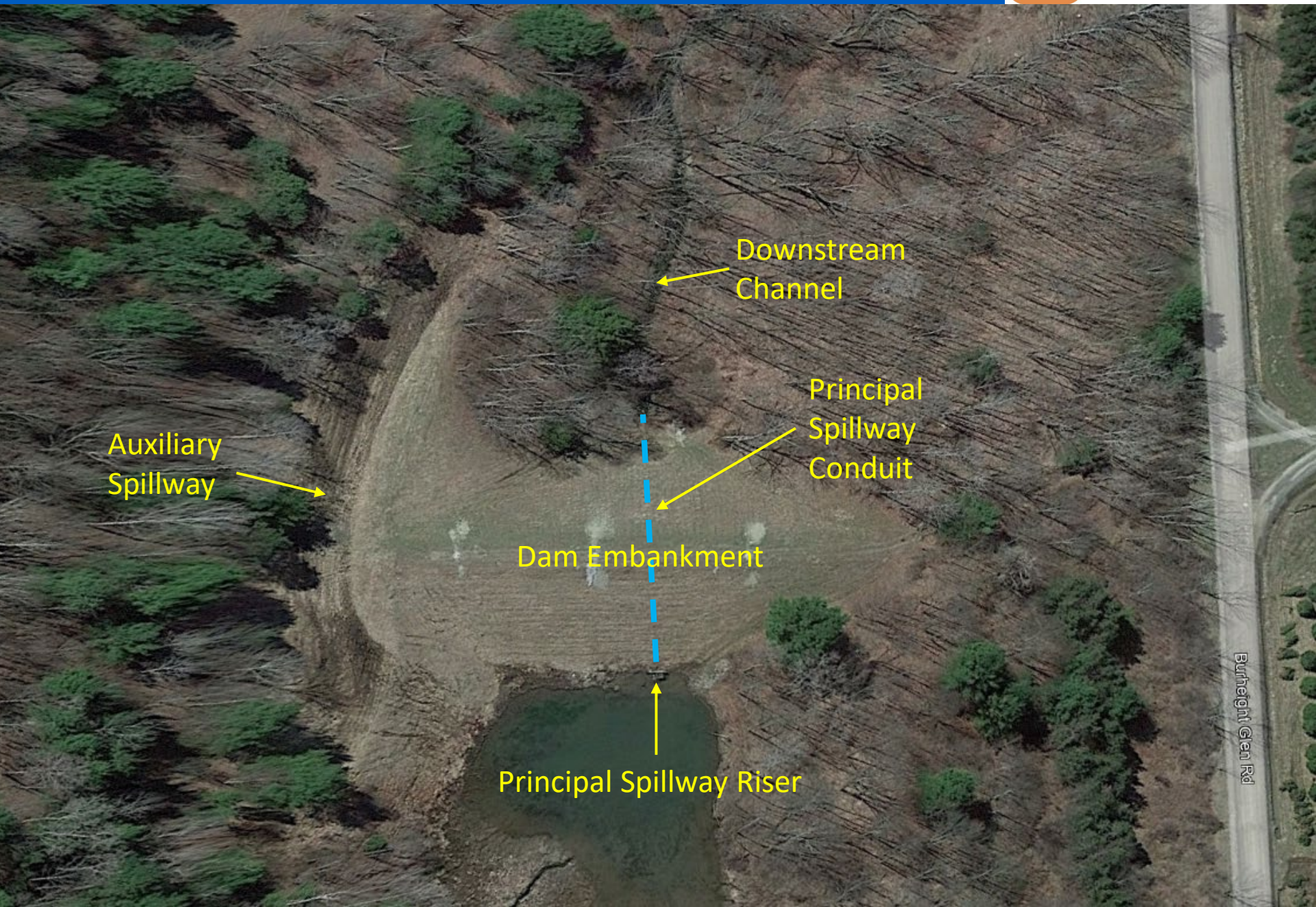
No Action – the Future Without Federal Investment (FWOFI). In the absence of federal funding, the Sponsors would implement the least cost alternative that meets only New York State Dam Safety design and performance standards. This requires the dam structure to pass the **½ PMF** for existing watershed conditions without overtopping the dam.

Structural Alternatives 1 and 2 – Involves structurally rehabilitating the dams to meet NRCS and NYSDEC Dam Safety design and performance standards. The dam's spillway system would have the capacity and stability to pass the flow resulting from the **full PMF** without overtopping the dam.

Conceptual Design of Alternatives

PELTO DAM

PELTO DAM


Downstream Channel
Principal Spillway Conduit
Auxiliary Spillway
Dam Embankment
Principal Spillway Riser
Burheight Glen Rd

Pelto Dam Safety Deficiencies

- The auxiliary spillway does not have hydraulic capacity to pass the 6-hour storm without overtopping the dam. The dam would overtop by 2 feet in the probable maximum flood (PMF).
- Inadequate factors of safety for embankment slope stability.
- No seepage filter drainage system or conduit filter diaphragm.
- Non-standard spillway risers are prone to clogging.
- 24-inch spillway conduit is undersized.
- Trees encroaching on embankment.

All Rehabilitation Alternatives include:

- New principal spillway riser with a standard covered riser with trashrack and gated low level outlet (reservoir drain).
- Demolition of the existing principal spillway riser.
- Stabilization of the embankment downstream slope, installation of internal filters and toe drains with collector and outlet pipes.
- Construction of a filter diaphragm around the principal spillway conduit.
- Clearing of trees encroaching on the embankment.
- There will be no change in the current levels of flood protection downstream as a result of the project activity.

Description of No Action Alt.

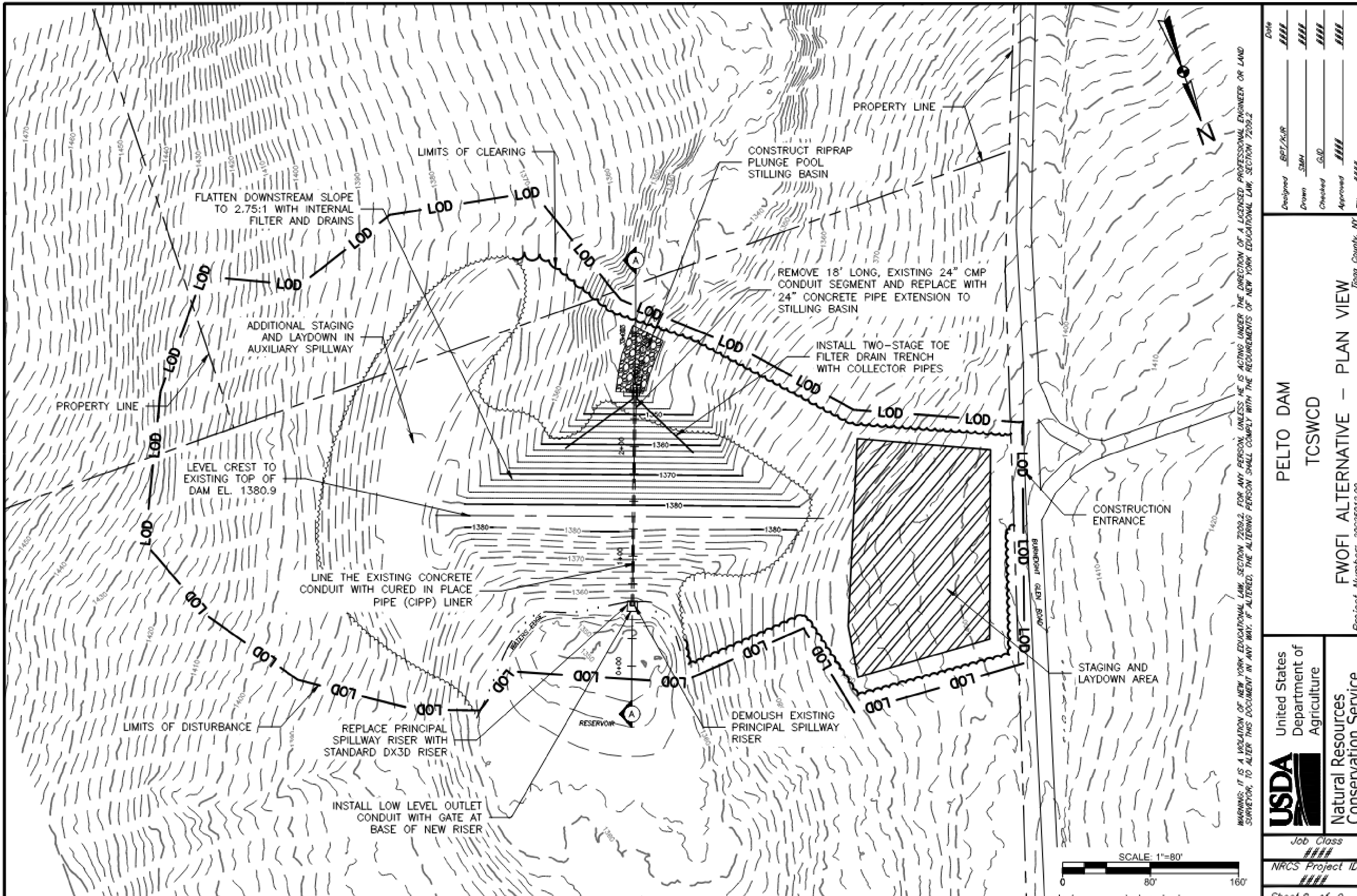
Rehabilitate the dam to NY requirements:

Replace the principal spillway with a new standard Dx3D covered concrete riser with gated low level inlet; sliplining the existing 24-inch diameter concrete conduit with a cured-in-place pipe (CIPP) liner; removing the existing end segment of CMP Pipe and replacing with a 24-inch conduit; and installing a riprap lined plunge pool stilling basin.

The auxiliary spillway will be unchanged as a vegetated earthen spillway (EL 1375.5). The auxiliary spillway will pass 50% of the PMF without overtopping the embankment.

The embankment crest will be leveled to EL 1380.9, widened to 16 ft, and the downstream slope will be flattened to 2.75H:1V for slope stability. A chimney filter and two-stage toe drain with seepage collector pipes will be incorporated into the downstream slope of the embankment.

PELTO DAM



PROPERTY LINE
LIMITS OF CLEARING
CONSTRUCT RIPRAP PLUNGE POOL STILLING BASIN
FLATTEN DOWNSTREAM SLOPE TO 2.75:1 WITH INTERNAL FILTER AND DRAINS
REMOVE 18' LONG, EXISTING 24" CMP CONDUIT SEGMENT AND REPLACE WITH 24" CONCRETE PIPE EXTENSION TO STILLING BASIN
ADDITIONAL STAGING AND LAYDOWN IN AUXILIARY SPILLWAY
INSTALL TWO-STAGE TOE FILTER DRAIN TRENCH WITH COLLECTOR PIPES
PROPERTY LINE
LEVEL CREST TO EXISTING TOP OF DAM EL. 1380.9
CONSTRUCTION ENTRANCE
LINE THE EXISTING CONCRETE CONDUIT WITH CURED IN PLACE PIPE (CIPP) LINER
STAGING AND LAYDOWN AREA
LIMITS OF DISTURBANCE
REPLACE PRINCIPAL SPILLWAY RISER WITH STANDARD DX3D RISER
DEMOLISH EXISTING PRINCIPAL SPILLWAY RISER
INSTALL LOW LEVEL OUTLET CONDUIT WITH GATE AT BASE OF NEW RISER
LOD
RESERVOIR
BURNSIGHT GLEN ROAD
SCALE: 1"=80'
0 80' 160'
WARNING: IT IS A VIOLATION OF NEW YORK EDUCATIONAL LAW, SECTION 7209.2, FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR, TO ALTER THIS DOCUMENT IN ANY WAY. IF ALTERED, THE ALTERING PERSON SHALL COMPLY WITH THE REQUIREMENTS OF NEW YORK EDUCATIONAL LAW, SECTION 7209.2
PELTO DAM
TCSWCD
FWOFI ALTERNATIVE – PLAN VIEW
Tioga County, NY
Project Number: 20C25012.00
United States Department of Agriculture
Natural Resources Conservation Service
Job Class ####
NRCS Project ID ####
Sheet 8 of 9

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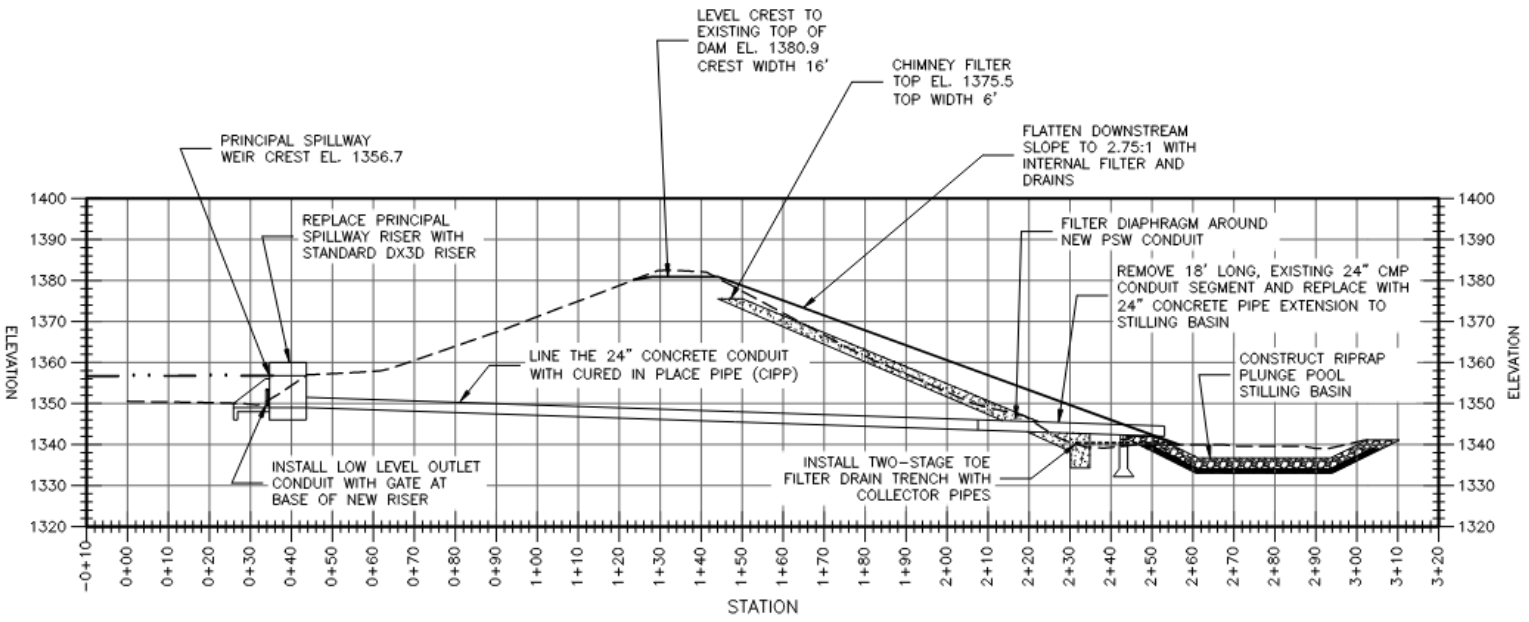

A SECTION

SCALE: 1"=30'

0 30' 60'

PELTO DAM
TCSWCD

FWOFI ALTERNATIVE – SECTION A–A

Project Number: 20c25012.00

Designed RPT/MJR
Drawn SMH
Checked GJD
Approved
Title
Date

United States Department of Agriculture
Natural Resources Conservation Service

Job Class
NRCS Project ID
Sheet 9 of 9

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Description of Alternative 1

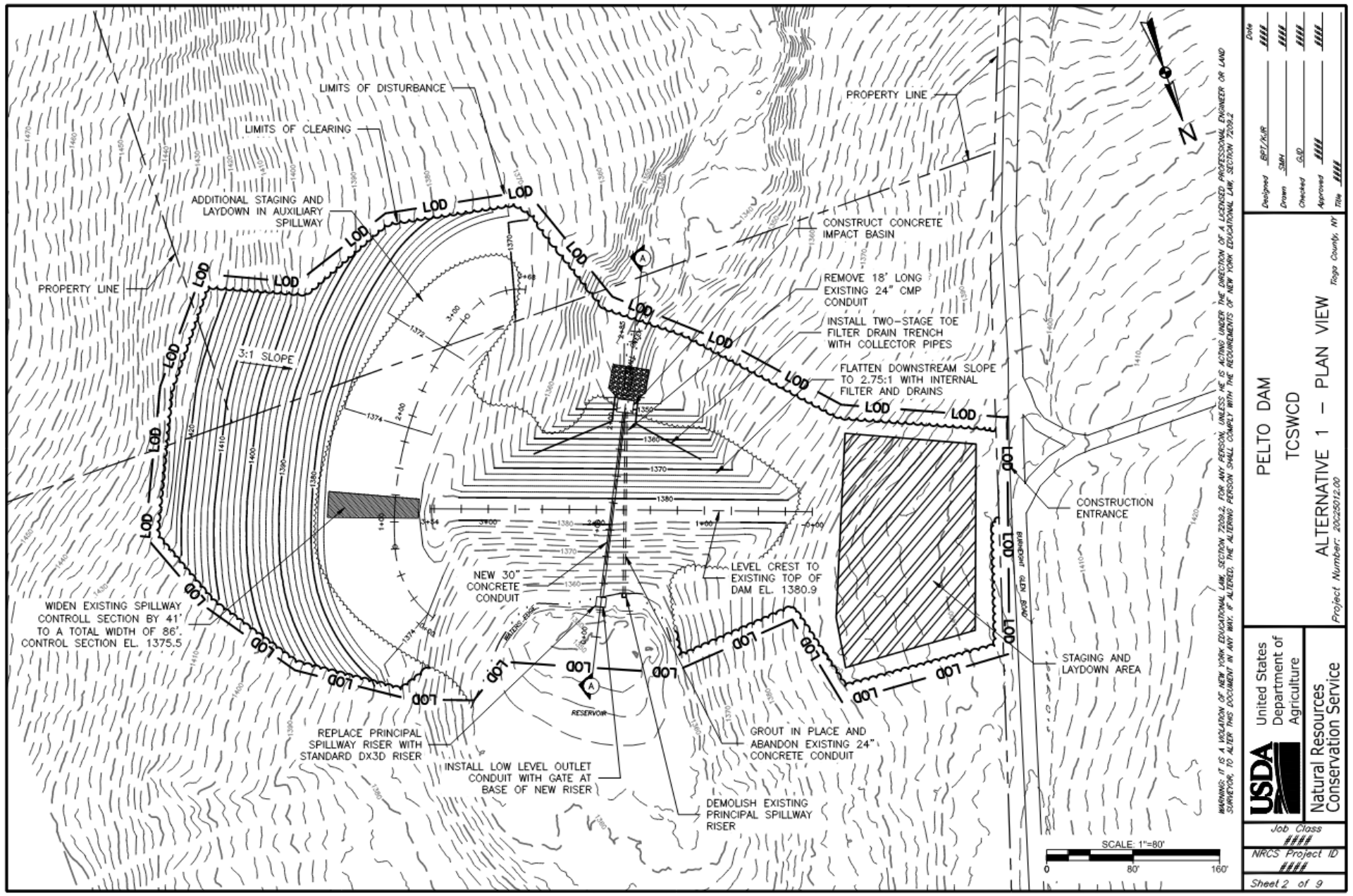
Rehabilitate the dam to NRCS and NY requirements:

Replace the principal spillway with a new standard Dx3D covered concrete riser with gated low level inlet, a new 30-inch diameter concrete conduit, and a concrete impact basin at the outlet. The existing riser will be demolished and the existing concrete conduit will be abandoned in place via grouting. The existing CMP end segment will be removed.

The auxiliary spillway will be widened by 41 ft to a total of 86 ft by excavating into the left hillside. The control section will remain at EL 1375.5 and the channel will be vegetated. The revised auxiliary spillway will pass the full PMF without overtopping the embankment.

The embankment crest will be leveled to EL 1380.9, widened by 16 ft, and the downstream slope will be flattened to 2.75H:1V for slope stability. A chimney filter and two-stage toe drain with seepage collector pipes will be incorporated into the downstream slope of the embankment.

PELTO DAM


LIMITS OF DISTURBANCE
LIMITS OF CLEARING
ADDITIONAL STAGING AND LAYDOWN IN AUXILIARY SPILLWAY
PROPERTY LINE
3:1 SLOPE
PROPERTY LINE
CONSTRUCT CONCRETE IMPACT BASIN
REMOVE 18' LONG EXISTING 24" CMP CONDUIT
INSTALL TWO-STAGE TOE FILTER DRAIN TRENCH WITH COLLECTOR PIPES
FLATTEN DOWNSTREAM SLOPE TO 2.75:1 WITH INTERNAL FILTER AND DRAINS
CONSTRUCTION ENTRANCE
STAGING AND LAYDOWN AREA
WIDEN EXISTING SPILLWAY CONTROLL SECTION BY 41' TO A TOTAL WIDTH OF 86'. CONTROL SECTION EL. 1375.5
NEW 30" CONCRETE CONDUIT
LEVEL CREST TO EXISTING TOP OF DAM EL. 1380.9
REPLACE PRINCIPAL SPILLWAY RISER WITH STANDARD DX3D RISER
INSTALL LOW LEVEL OUTLET CONDUIT WITH GATE AT BASE OF NEW RISER
GROUT IN PLACE AND ABANDON EXISTING 24" CONCRETE CONDUIT
DEMOLISH EXISTING PRINCIPAL SPILLWAY RISER
RESERVOIR
BURNHOUT GLEN ROAD
LOD
N
SCALE: 1"=80'
0
80'
160'
WARNING: IT IS A VIOLATION OF NEW YORK EDUCATIONAL LAW, SECTION 7209-2, FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR, TO ALTER THIS DOCUMENT IN ANY WAY. IF ALTERED, THE ALTERING PERSON SHALL COMPLY WITH THE REQUIREMENTS OF NEW YORK EDUCATIONAL LAW, SECTION 7209-2
Date
Designed BPZ/DJR
Drawn SMH
Checked GJD
Approved
Title
PELTO DAM
TCSWCD
ALTERNATIVE 1 – PLAN VIEW
Roga County, NY
Project Number: 20c25012.00
United States Department of Agriculture
Natural Resources Conservation Service
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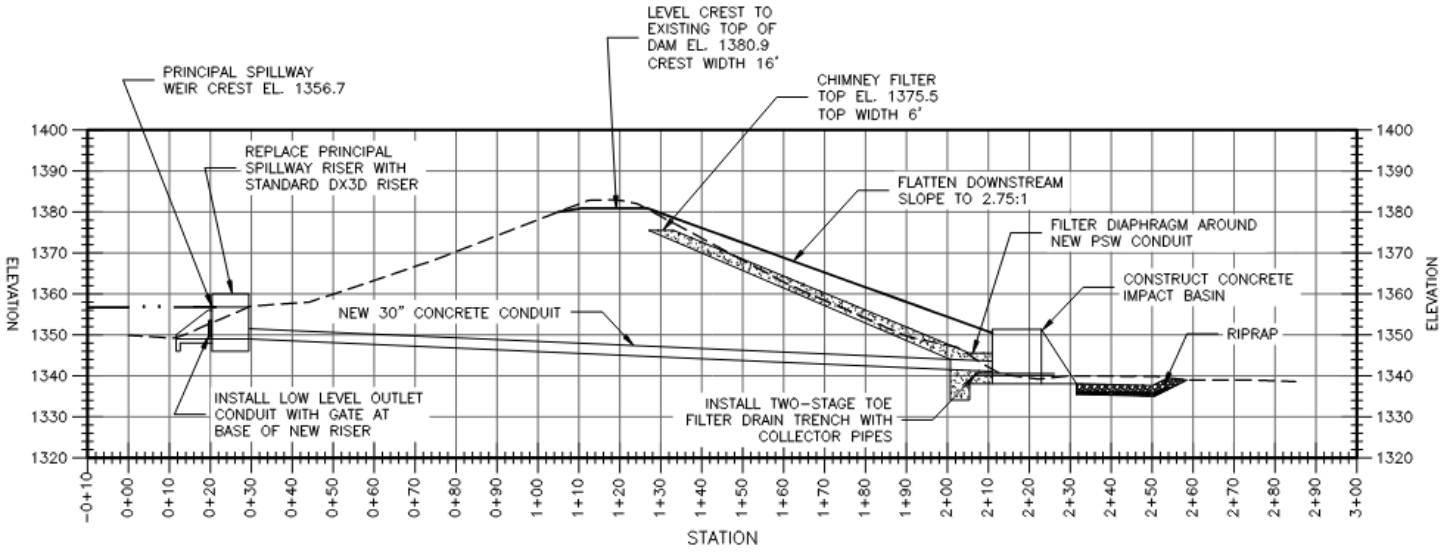
Sheet 2 of 9



A SECTION

SCALE: 1"=30'

0 30' 60'

PELTO DAM
TCSWCD
ALTERNATIVE 1 – SECTION A–A
Tioga County, NY
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Designed BRT/MJR
Drawn SMH
Checked GJD
Approved
Title
Date

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NRCS Project ID
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Description of Alternative 2

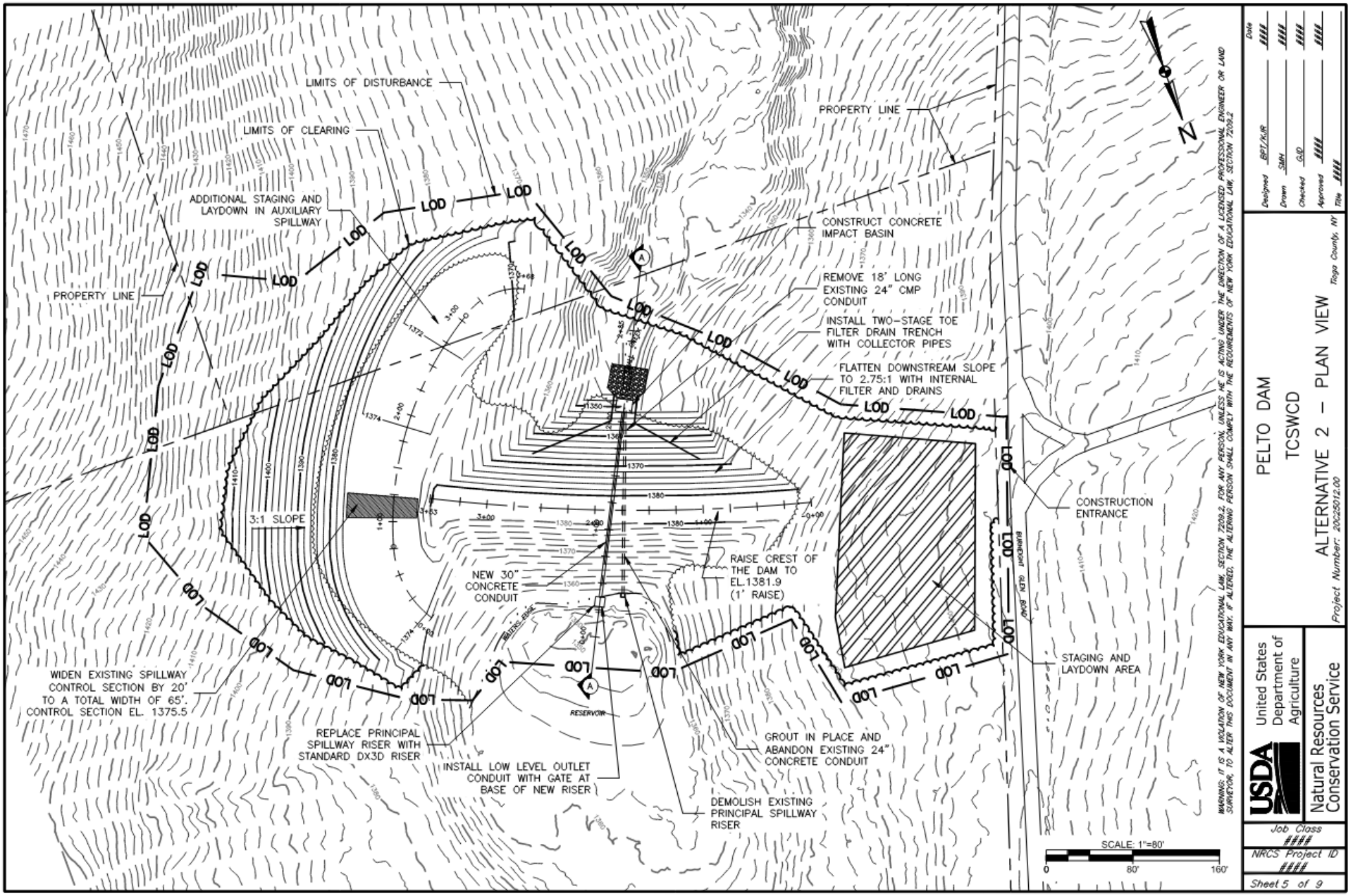
Rehabilitate the dam to NRCS and NY requirements:

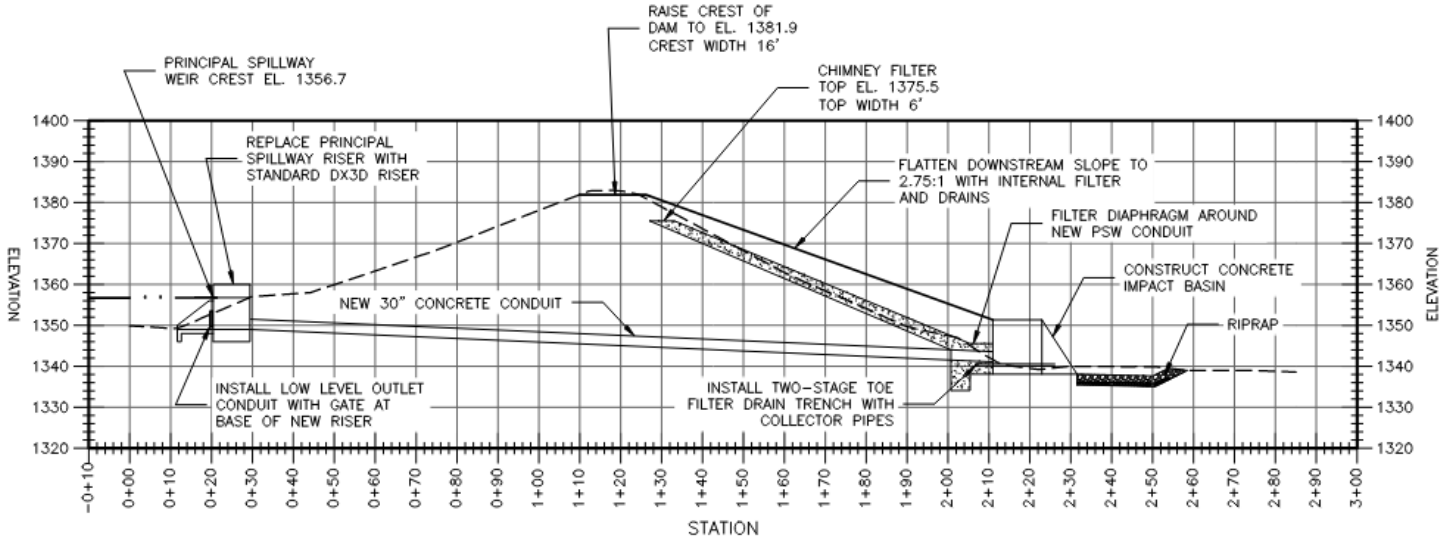
Replace the principal spillway with a new standard Dx3D covered concrete riser with gated low level inlet, a new 30-inch diameter concrete conduit, and a concrete impact basin at the outlet. The existing riser will be demolished and the existing concrete conduit will be abandoned in place via grouting. The existing CMP end segment will be removed.

The auxiliary spillway will be widened by 20 ft to a total of 65 ft by excavating into the left hillside. The control section will remain at EL 1375.5 and the channel will be vegetated. The revised auxiliary spillway, combined with an embankment raise, will pass the full PMF without overtopping.

The embankment crest will be raised by one foot to EL 1381.9, widened to 16 ft, and the downstream slope will be flattened to 2.75H:1V for slope stability. A chimney filter and two-stage toe drain with seepage collector pipes will be incorporated into the downstream slope of the embankment.

PELTO DAM


LIMITS OF DISTURBANCE
LIMITS OF CLEARING
ADDITIONAL STAGING AND LAYDOWN IN AUXILIARY SPILLWAY
PROPERTY LINE
PROPERTY LINE
CONSTRUCT CONCRETE IMPACT BASIN
REMOVE 18' LONG EXISTING 24" CMP CONDUIT
INSTALL TWO-STAGE TOE FILTER DRAIN TRENCH WITH COLLECTOR PIPES
FLATTEN DOWNSTREAM SLOPE TO 2.75:1 WITH INTERNAL FILTER AND DRAINS
CONSTRUCTION ENTRANCE
3:1 SLOPE
NEW 30" CONCRETE CONDUIT
RAISE CREST OF THE DAM TO EL.1381.9 (1' RAISE)
STAGING AND LAYDOWN AREA
WIDEN EXISTING SPILLWAY CONTROL SECTION BY 20' TO A TOTAL WIDTH OF 65'. CONTROL SECTION EL. 1375.5
REPLACE PRINCIPAL SPILLWAY RISER WITH STANDARD DX3D RISER
INSTALL LOW LEVEL OUTLET CONDUIT WITH GATE AT BASE OF NEW RISER
GROUT IN PLACE AND ABANDON EXISTING 24" CONCRETE CONDUIT
DEMOLISH EXISTING PRINCIPAL SPILLWAY RISER
RESERVOIR
BURNHAM GLEN ROAD
LOD
N
SCALE: 1"=80'
0
80'
160'
PELTO DAM
TCSWCD
ALTERNATIVE 2 – PLAN VIEW
Project Number: 20225012.00
Designed BPZ/AJR
Drawn SMH
Checked GJD
Approved
Title
Date
United States Department of Agriculture
Natural Resources Conservation Service
Job Class
NRCS Project ID
Sheet 5 of 9
WARNING: IT IS A VIOLATION OF NEW YORK EDUCATIONAL LAW, SECTION 7209-2, FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR, TO ALTER THIS DOCUMENT IN ANY WAY. IF ALTERED, THE ALTERING PERSON SHALL COMPLY WITH THE REQUIREMENTS OF NEW YORK EDUCATIONAL LAW, SECTION 7209-2.



A SECTION

SCALE: 1"=30'

0 30' 60'

Date
Designed BRT/MJW
Drawn SMH
Checked GJD
Approved
Title

PELTO DAM
TCSWCD
ALTERNATIVE 2 – SECTION A–A
Tioga County, NY
Project Number: 20C25012.00

United States Department of Agriculture
Natural Resources Conservation Service

Job Class ####
NRCS Project ID ####
Sheet 6 of 9

Schnabel ENGINEERING

Comparison of Alternatives (Pelto)

Alternative Description	Estimated Construction Costs
Rehab. to NY state standards at least cost (without federal assistance)	$1,598,000
Alt. 1 – Rehab to NRCS and NY standards with federal assistance (41-ft widening of Auxiliary Spillway)	$2,700,000
Alt. 2 – Rehab to NRCS and NY standards with federal assistance (20-ft widening of Auxiliary Spillway, Raise Dam 1 ft)	$2,449,000

Price Base: January 2022

Schnabel ENGINEERING

Comparison of Alternatives (Pelto)

Alternative Description	Estimated Total Project Costs
Rehab. to NY state standards at least cost (without federal assistance)	$ 2,249,000
Alt. 1 – Rehab to NRCS and NY standards with federal assistance (41-ft widening of Auxiliary Spillway)	$3,761,300
Alt. 2 – Rehab to NRCS and NY standards with federal assistance (20-ft widening of Auxiliary Spillway and Raise Dam 1 ft)	$3,456,200

Price Base: January 2022

National Economic Efficiency Alt.

NEE alternative maximizes net economic benefits.

We can also consider nonmonetary items such as environmental issues, site/logistical issues, social, and cultural issues (if there are significant issues to weigh into the decision).

NEE Alternative for PELTO

Alternative 2 – Raise the dam 1 ft and widen ASW 20 ft.

Estimated Total Project Cost = $3,456,200

Simplified Calculations are:

- NRCS Share is 65% = $2,429,600
- Local Sponsors Share is 35% = $1,026,600

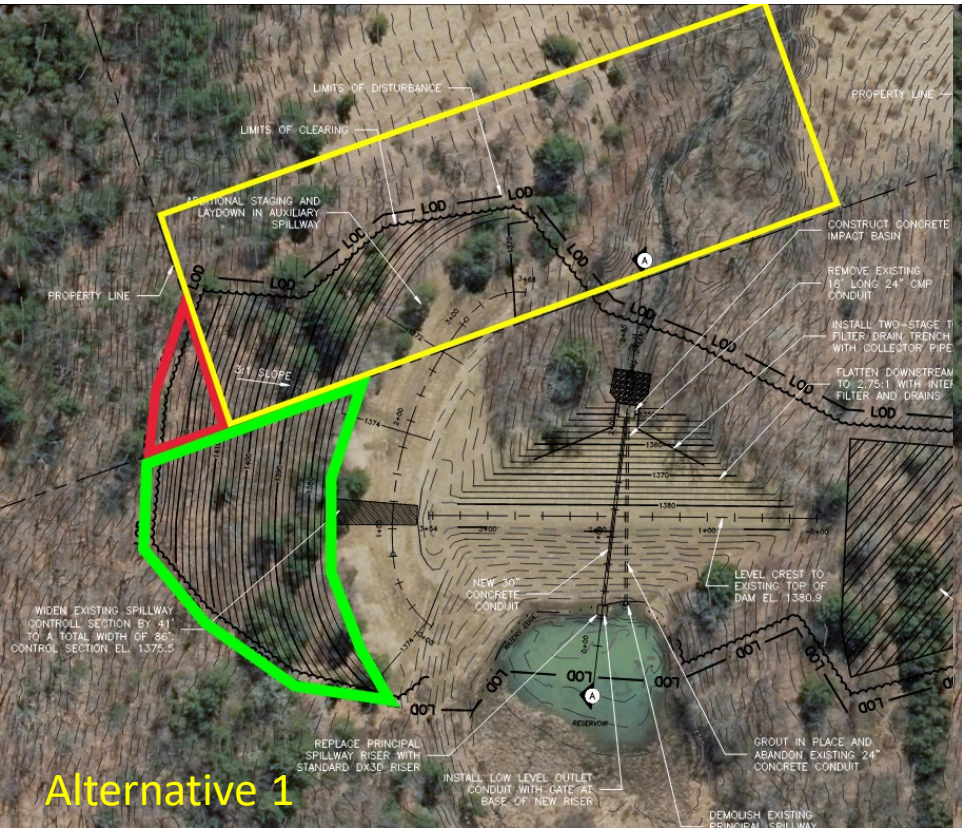
Landrights / Easement Issues

- For original construction, the Sponsors secured flood easements to the top of dam elevation and for areas needed for ingress/egress, construction, and O&M.
- For dam rehabilitation projects, NRCS policy requires the minimum landrights area upstream of the dam to be the crest of the ASW elevation or the 100-year, 24-hour storm, whichever is higher.

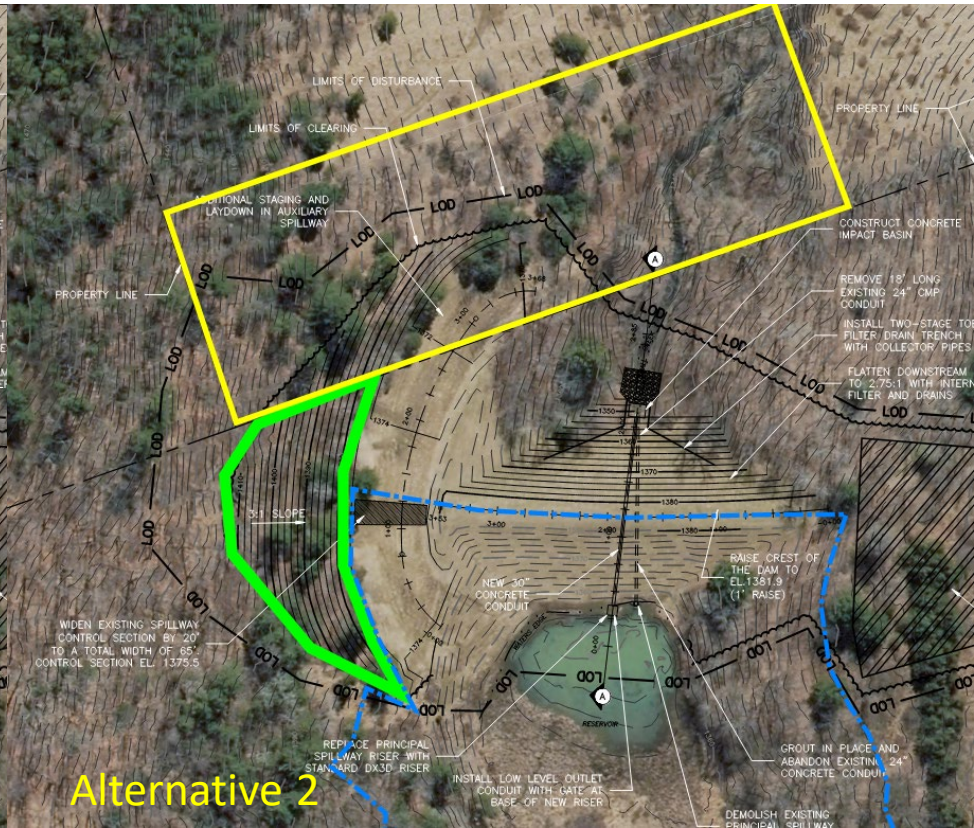
Schnabel ENGINEERING

Pelto Dam - Additional Easements Required			
Parcel	FWOFI Alt - Existing Top of Dam	Alt 1 - Existing Top of Dam + Widen ASW	Alt 2 - Raise Top of Dam by 1 ft + Widen ASW
Easement 16	No Change	**0.8 Ac.**	**1.3 Ac.**[1]
Easement 20	No Change	No Change	No Change
Additional Parcel	N/A	**0.1 Ac.**	N/A

1. For Alternative 2, Easement 16 increases by 0.5 acre for the ASW widening and 0.8 acre due to raising the dam crest 1 ft. Note that the current dam overtops by 2 ft so no additional upstream flooding is induced.



Alternative 1



Alternative 2

Conceptual Design of Alternatives

PYLKAS DAM

PYLKAS DAM


Dean Creek
Downstream Channel
Auxiliary Spillway
Principal Spillway Conduit
Dam Embankment
Principal Spillway Riser

Pylkas Dam Safety Deficiencies

- Inadequate spillway capacity for NRCS criteria. Dam would overtop by 2.4 feet in the probable maximum flood (PMF).
- Inadequate integrity of the vegetated auxiliary spillway during the PMF. Headcutting erosion would breach the auxiliary spillway.
- Inadequate factors of safety for embankment slope stability.
- No seepage filter drainage system or conduit filter diaphragm.
- Non-standard spillway riser is prone to clogging.
- 24-inch spillway conduit is undersized.
- Trees encroaching on embankment.

All Rehabilitation Alternatives include:

- New principal spillway riser with a standard covered riser with trashrack and gated low level outlet (reservoir drain).
- Demolition of the existing principal spillway riser.
- Stabilization of the embankment downstream slope, installation of internal filters and toe drains with plastic collector and outlet pipes.
- Construction of a filter diaphragm around the principal spillway conduit.
- Clearing of trees encroaching on the embankment .
- There will be no change in the current levels of flood protection downstream up to the 500-year flood elevation as a result of the project activity. Alternatives 1 and 2 propose lowering the auxiliary spillway crest to the 500-year flood elevation since the the spillway crest is currently above the 500-year elevation and therefore can be lowered.

Description of No Action Alt.

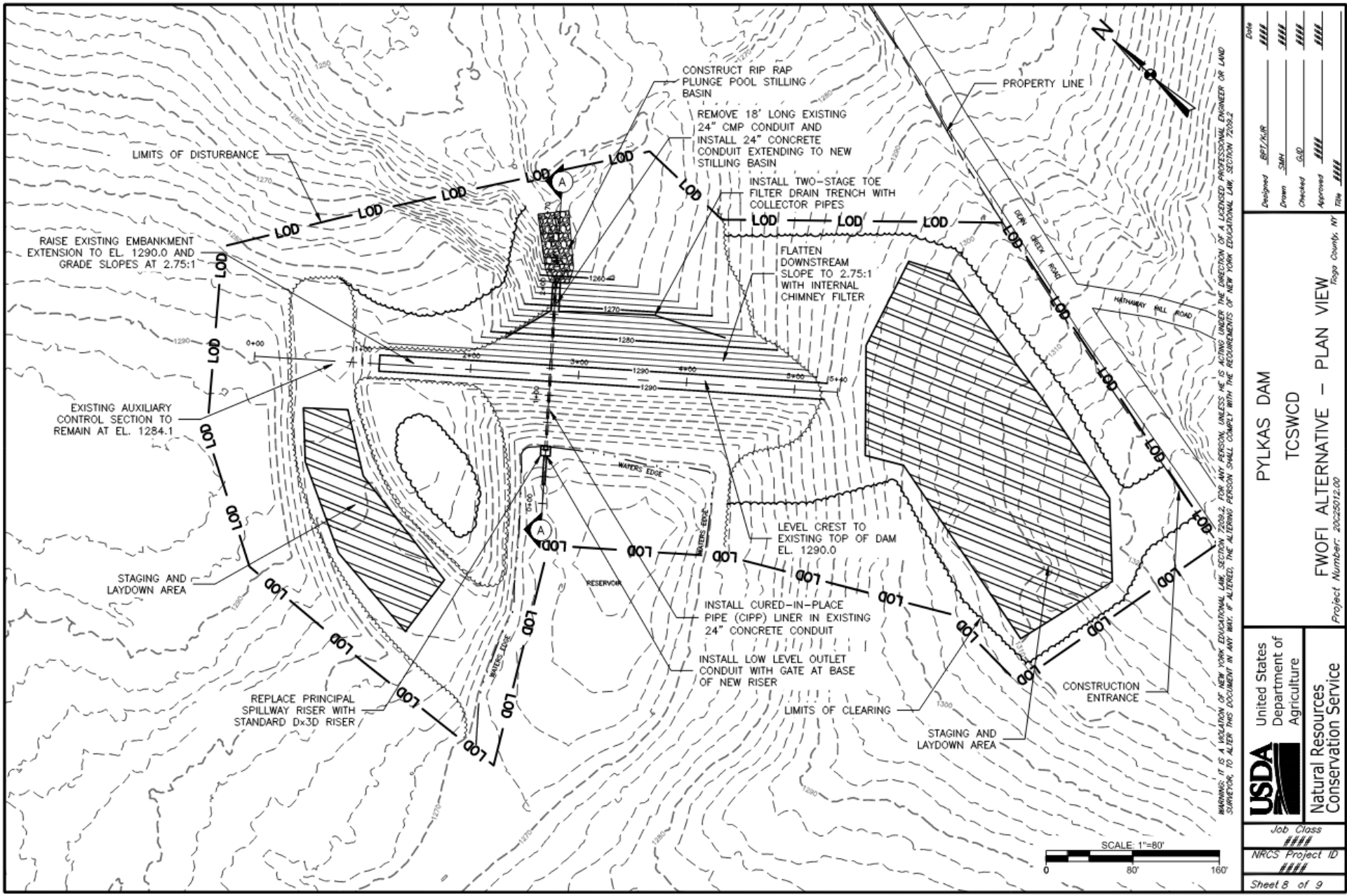
Rehabilitate the dam to NY requirements:

Replace the principal spillway with a new standard Dx3D covered concrete riser with gated low level inlet; sliplining the existing 24-inch diameter concrete conduit with a cured-in-place pipe (CIPP) liner; removing the CMP end segment and replacing with a 24-inch conduit; and installing a riprap lined plunge pool stilling basin.

The auxiliary spillway will be unchanged (EL 1284.1) and the channel will be vegetated. The auxiliary spillway will pass the 50% of the PMF without overtopping the embankment.

The embankment crest will be leveled to EL 1290.0, widened to 15 ft, and the downstream slope will be flattened to 2.75H:1V for slope stability. A chimney filter and two-stage toe drain with seepage collector pipes will be incorporated into the downstream slope of the embankment.

PYLKAS DAM



Schnabel ENGINEERING

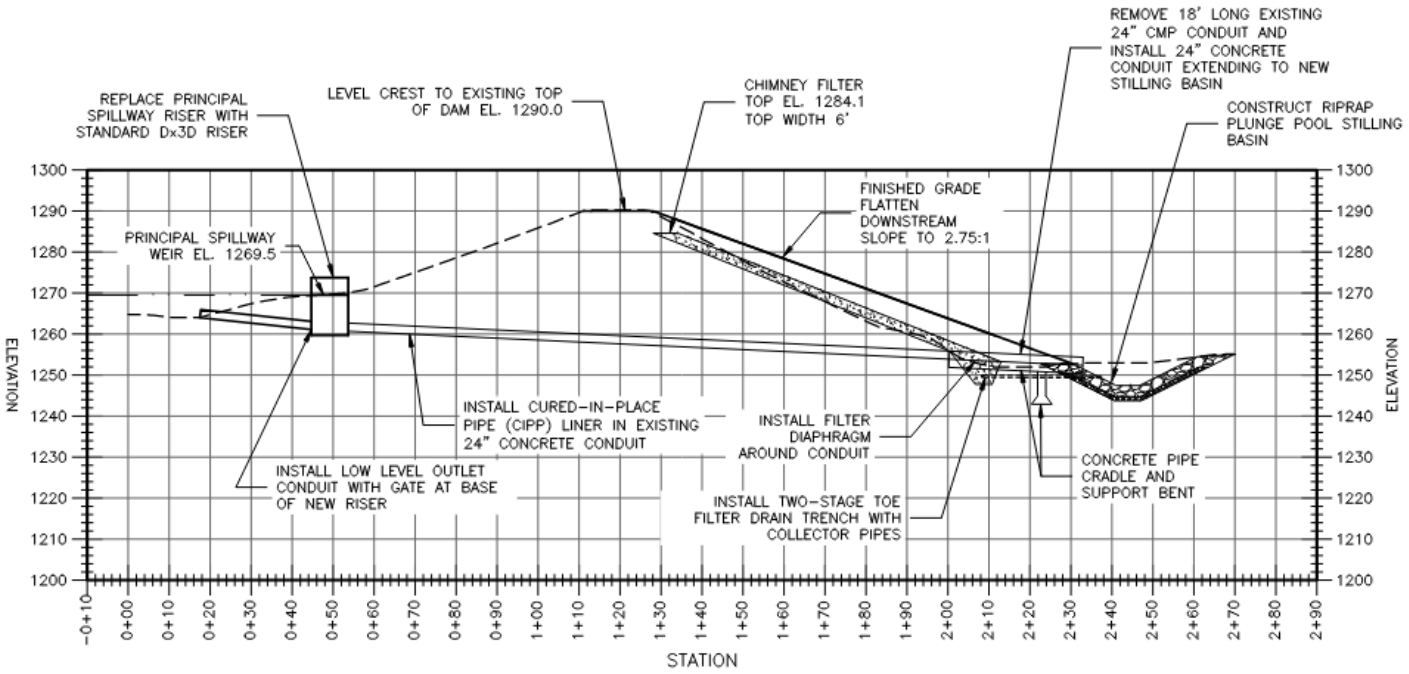
Designed BPT/KvR
Drawn SMH
Checked GJD
Approved
Title
Date

PYLKAS DAM
TCSWCD
FWOFI ALTERNATIVE – PLAN VIEW
Tioga County, NY
Project Number: 20225012.00

United States Department of Agriculture
Natural Resources Conservation Service

Job Class ####
NRCS Project ID ####
Sheet 8 of 9

Schnabel ENGINEERING



A SECTION

SCALE: 1"=30'

0 30' 60'

Date
Designed BRT/KJR
Drawn SMH
Checked GJD
Approved ####
Title ####

PYLKAS DAM
TCSWCD
FWOFI ALTERNATIVE – SECTION VIEW
Tioga County, NY
Project Number: 20225012.00

USDA United States Department of Agriculture
Natural Resources Conservation Service

Job Class ####
NRCS Project ID ####
Sheet 9 of 9

Description of Alternative 1

Rehabilitate the dam to NRCS and NY requirements:

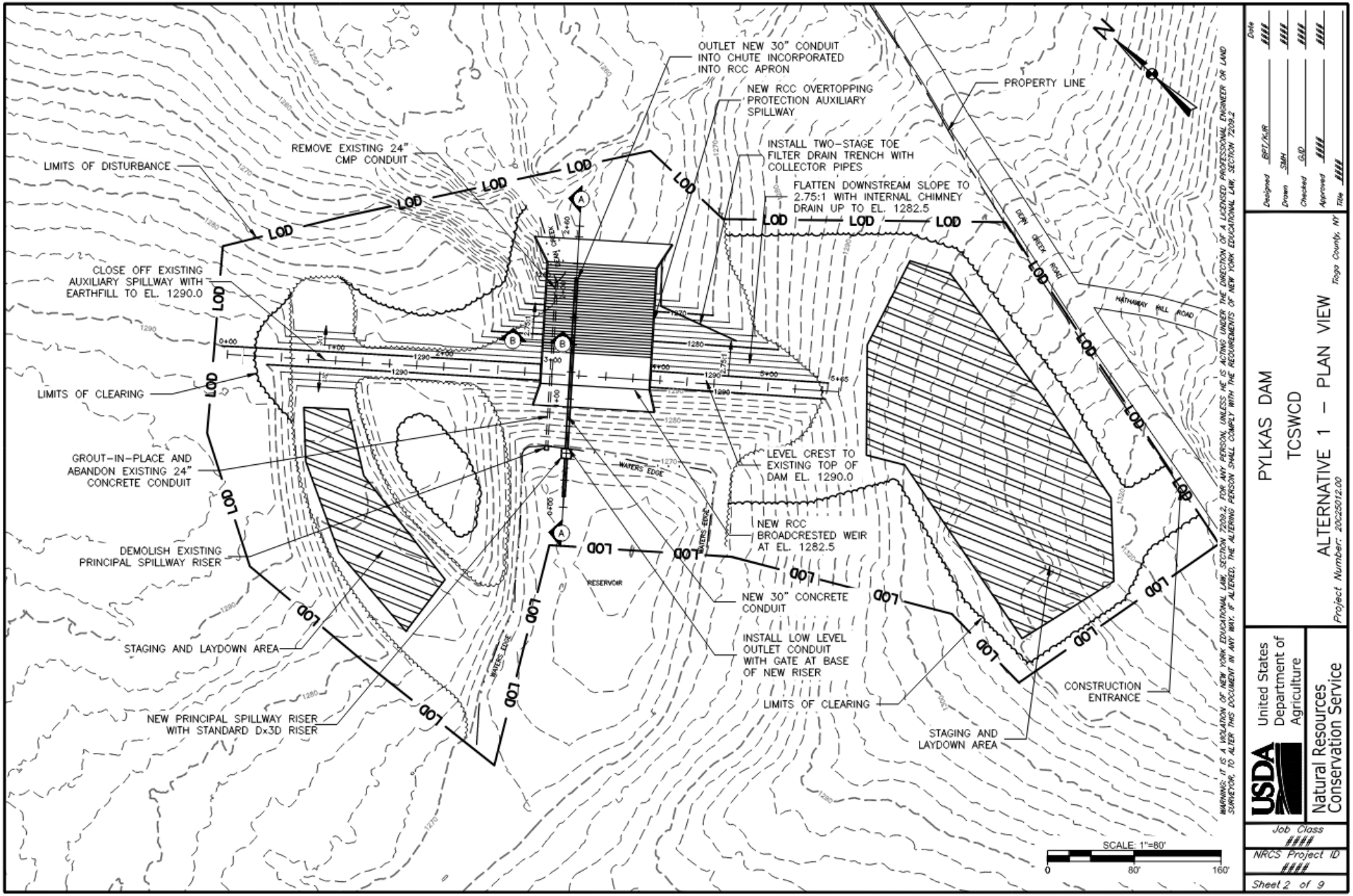
Replace the principal spillway with a new standard Dx3D covered concrete riser with gated low level inlet, a new 30-inch diameter concrete conduit, and a concrete impact basin at the outlet. The existing riser will be demolished and the existing concrete conduit will be abandoned in place via grouting. The CMP end segment will be removed.

Close off the existing auxiliary spillway by placing an earthfill berm across it at EL 1290.0. Construct a roller compacted concrete (RCC) auxiliary spillway over a portion of the crest and downstream slope of the embankment. The RCC spillway will have a 100-ft wide broadcrested weir control section at EL 1282.5, a stepped chute with reinforced concrete sidewalls, and an RCC apron and end sill at the embankment toe. The revised auxiliary spillway will pass the full probable maximum flood (PMF) without overtopping the embankment.

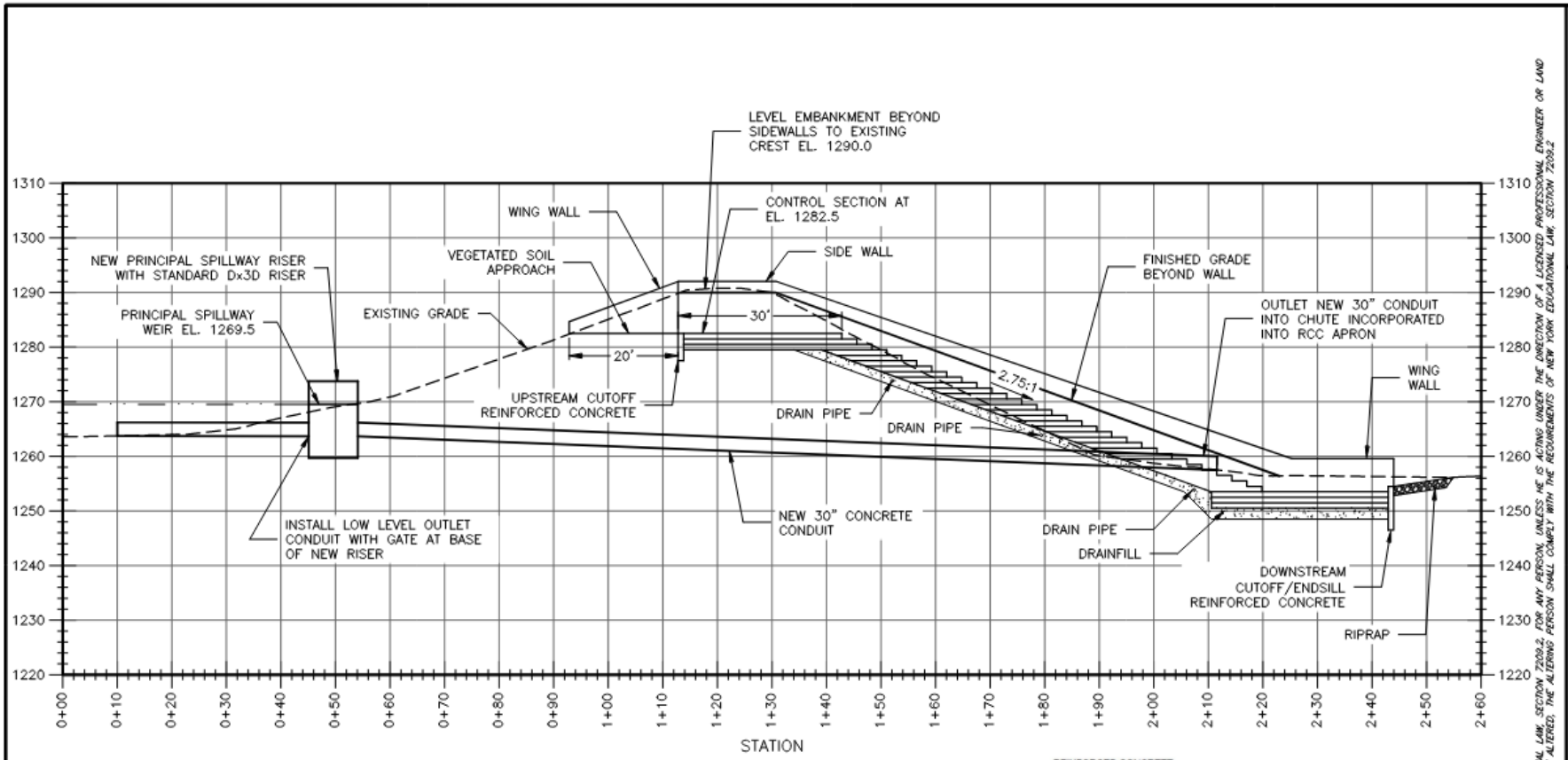
Level the embankment crest adjacent to the RCC structure to EL 1290.0, widen it to 15 ft, and flatten the downstream slope to 2.75H:1V for slope stability. Incorporate a chimney filter and two-stage toe drain with seepage collector pipes into the downstream slope of the embankment.

Lower the auxiliary spillway control section from EL 1284.1 to 1282.5 (-1.6 ft) such that it will activate only for storms exceeding the 500-year flood event.

PYLKAS DAM


OUTLET NEW 30" CONDUIT INTO CHUTE INCORPORATED INTO RCC APRON
NEW RCC OVERTOPPING PROTECTION AUXILIARY SPILLWAY
PROPERTY LINE
REMOVE EXISTING 24" CMP CONDUIT
INSTALL TWO-STAGE TOE FILTER DRAIN TRENCH WITH COLLECTOR PIPES
FLATTEN DOWNSTREAM SLOPE TO 2.75:1 WITH INTERNAL CHIMNEY DRAIN UP TO EL. 1282.5
LIMITS OF DISTURBANCE
CLOSE OFF EXISTING AUXILIARY SPILLWAY WITH EARTHFILL TO EL. 1290.0
LIMITS OF CLEARING
GROUT-IN-PLACE AND ABANDON EXISTING 24" CONCRETE CONDUIT
LEVEL CREST TO EXISTING TOP OF DAM EL. 1290.0
NEW RCC BROADCRESTED WEIR AT EL. 1282.5
DEMOLISH EXISTING PRINCIPAL SPILLWAY RISER
NEW 30" CONCRETE CONDUIT
INSTALL LOW LEVEL OUTLET CONDUIT WITH GATE AT BASE OF NEW RISER
STAGING AND LAYDOWN AREA
CONSTRUCTION ENTRANCE
LIMITS OF CLEARING
NEW PRINCIPAL SPILLWAY RISER WITH STANDARD D×3D RISER
STAGING AND LAYDOWN AREA
HATHAWAY HILL ROAD
DUNN CREEK ROAD
RESERVOIR
WATERS EDGE
SCALE: 1"=80'
0
80'
160'
PYLKAS DAM
TCSWCD
ALTERNATIVE 1 – PLAN VIEW
Tioga County, NY
Project Number: 20c25012.00
Designed BPT/MJR
Drawn SMH
Checked GJD
Approved
Title
Date
United States Department of Agriculture
Natural Resources Conservation Service
Job Class
NRCS Project ID
Sheet 2 of 9

Schnabel ENGINEERING



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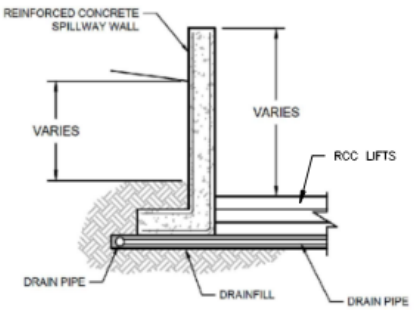


B SECTION
NOT TO SCALE

Date
Designed BET/KJR
Drawn SMH
Checked GJD
Approved
Title

PYLKAS DAM
TCSWCD
Tioga County, NY
ALTERNATIVE 1 – SECTION VIEWS
Project Number: 20C25012.00

USDA United States Department of Agriculture
Natural Resources Conservation Service

Job Class ####
NRCS Project ID ####
Sheet 3 of 9

Roller Compacted Concrete Spillway (Example)

Description of Alternative 2

Rehabilitate the dam to NRCS and NY requirements:

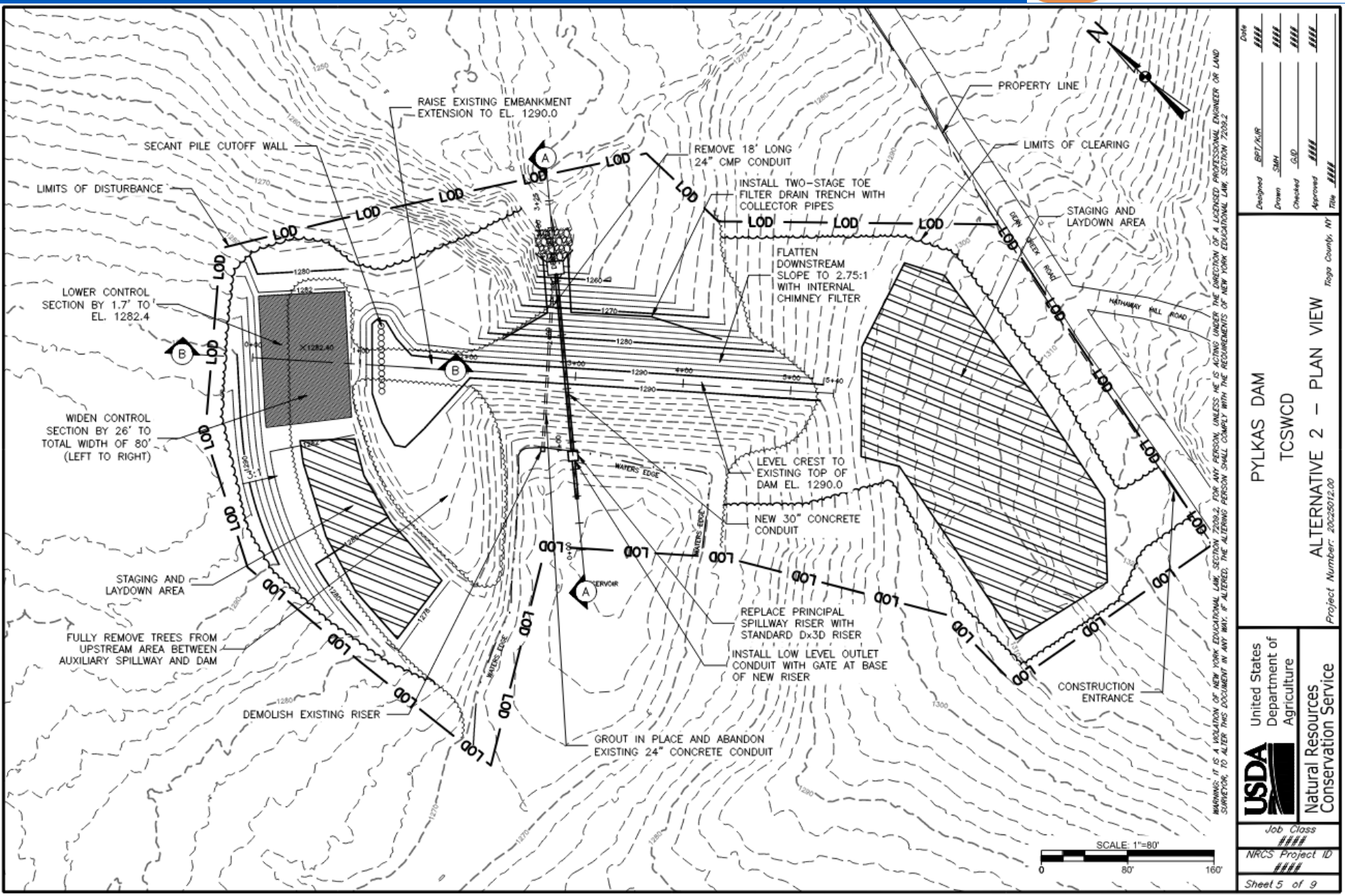
Replace the principal spillway with a new standard Dx3D covered concrete riser with gated low level inlet, install a new 30-inch diameter concrete conduit, and a concrete impact basin at the outlet. The existing riser will be demolished and the existing concrete conduit will be abandoned in place via grouting. The CMP end segment will be removed.

Widen the auxiliary spillway by 26 ft to a total of 80 ft by excavating into the left hillside. Lower the control section to EL 1282.4 and the channel will remain vegetated. The lowered control section results in lengthening the control section in the upstream to downstream directions such that potential erosion of the auxiliary spillway outlet channel during flood flows will not breach the control section. Install a secant pile cutoff and retaining wall parallel to flow adjacent to the control section between the left abutment of the embankment and the auxiliary spillway channel to protect the abutment and embankment from potential headcutting in the auxiliary spillway channel. The revised auxiliary spillway will pass the full PMF without overtopping the embankment.

Level the embankment crest to EL 1290.0, widen to 15 ft, and flatten the downstream slope to 2.75H:1V for slope stability. Incorporate a chimney filter and two-stage toe drain with seepage collector pipes into the downstream slope of the embankment.

The auxiliary spillway control section will be lowered from the current EL 1284.1 to 1282.4 (-1.7 ft) and will activate only for the 500-year and less frequent flood events.

Schnabel ENGINEERING



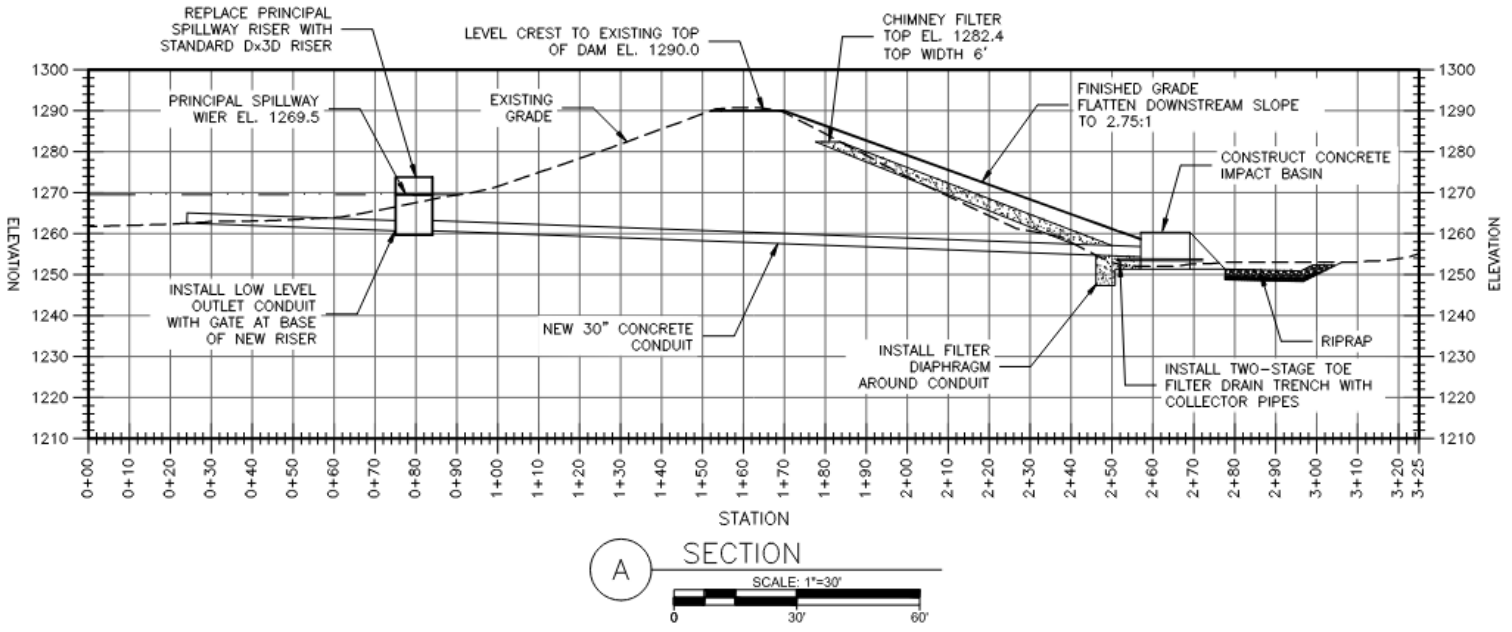
Date
Designed BFT/KJR
Drawn SMH
Checked GJD
Approved
Title

PYLKAS DAM
TCSWCD
ALTERNATIVE 2 – PLAN VIEW
Tioga County, NY
Project Number: 20C25012.00

United States Department of Agriculture
Natural Resources Conservation Service

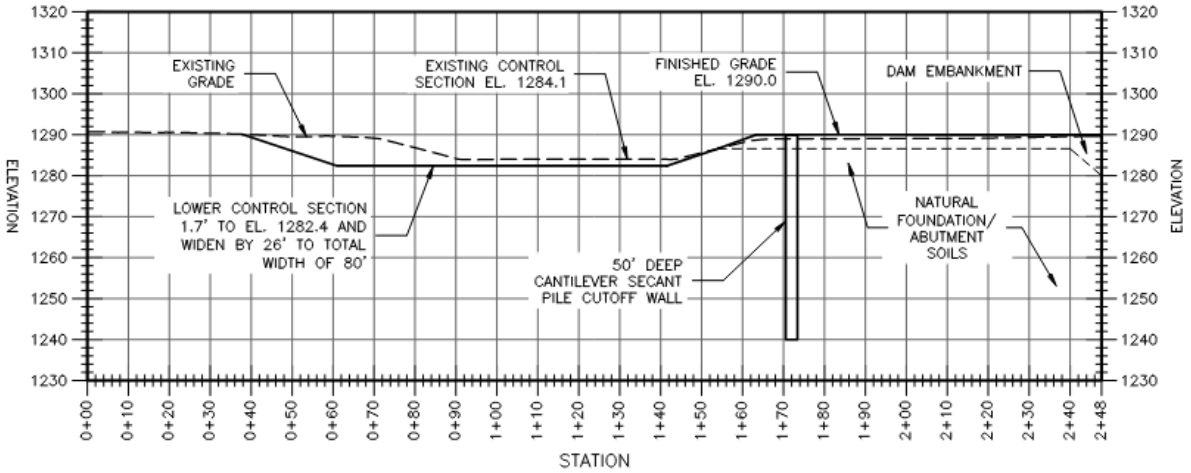
Job Class
NRCS Project ID
Sheet 5 of 9

Schnabel ENGINEERING



A SECTION

SCALE: 1"=30'



B SECTION

SCALE: 1"=30'

Date
Designed BFT/KJR
Drawn SMH
Checked GJD
Approved
Title

PYLKAS DAM
TCSWCD
ALTERNATIVE 2 – SECTION VIEWS
Tioga County, NY
Project Number: 200225012.00

USDA United States Department of Agriculture
Natural Resources Conservation Service

Job Class
NRCS Project ID
Sheet 6 of 9

Schnabel ENGINEERING

Comparison of Alternatives (Pylkas)

Alternative Description	**Estimated Construction Costs**
Rehab. to NY state standards at least cost (without federal assistance)	$1,763,000
Alt. 1 – Rehab to NRCS and NY standards with federal assistance (100-ft Wide RCC Spillway Over Dam; Close Off Existing Auxiliary Spillway)	$4,461,000
Alt. 2 – Rehab to NRCS and NY standards with federal assistance (26-ft widening of Existing Auxiliary Spillway with Secant Cutoff Wall)	$2,766,000

Price Base: January 2022

Schnabel ENGINEERING

Comparison of Alternatives (Pylkas)

Alternative Description	**Estimated Total Project Costs**
Rehab. to NY state standards at least cost (without federal assistance)	$2,394,560
Alt. 1 – Rehab to NRCS and NY standards with federal assistance (100-ft Wide RCC Spillway Over Dam; Close Off Existing Auxiliary Spillway)	$5,813,320
Alt. 2 – Rehab to NRCS and NY standards with federal assistance (26-ft widening of Existing Auxiliary Spillway with Secant Cutoff Wall)	$3,827,020

Price Base: January 2022

NEE Alternative for PYLKAS

Alternative 2 – Widen ASW 26 ft. and install cutoff wall

Estimated Total Project Cost = $3,827,020

Simplified Cost Breakdown:

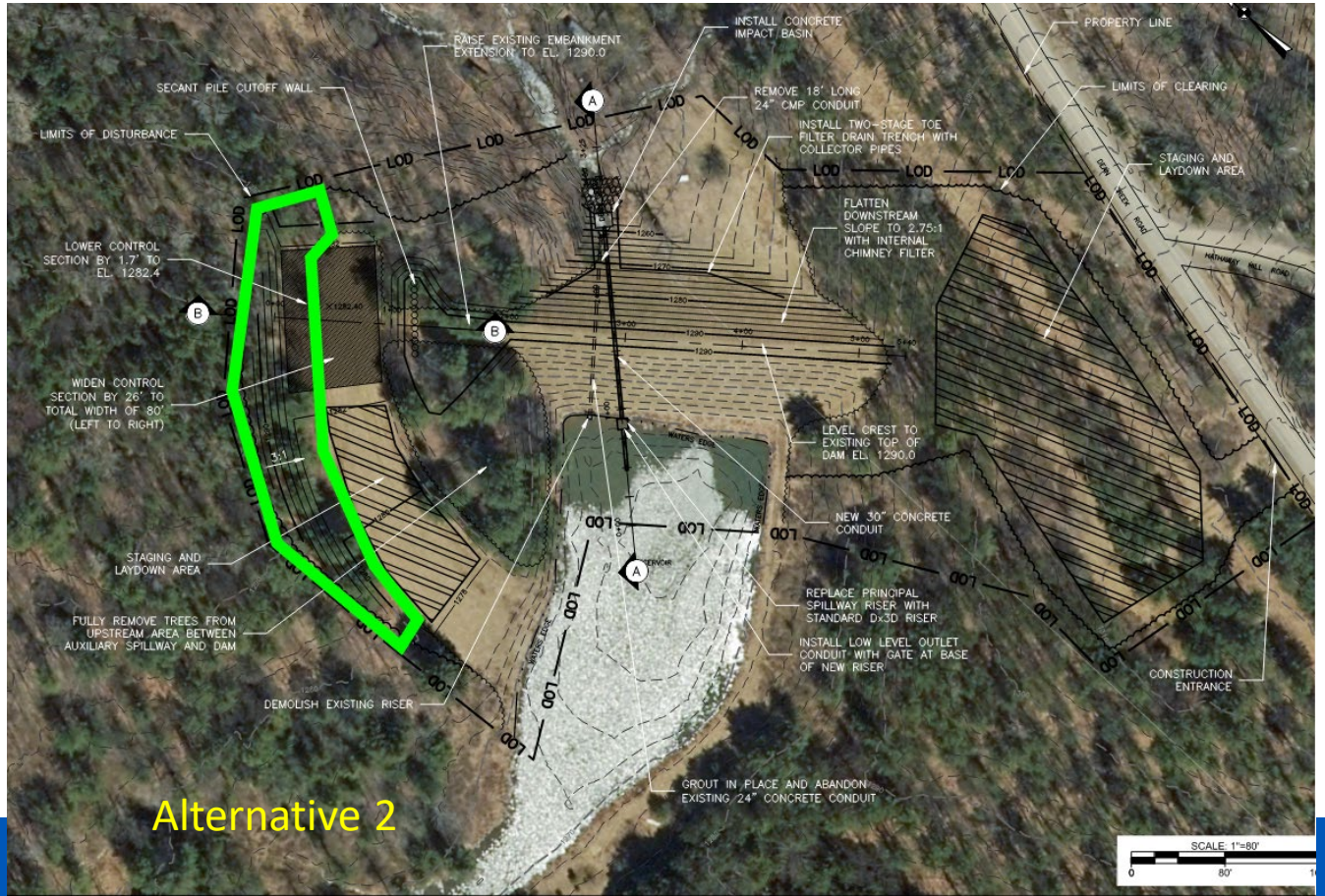
- NRCS Share 65% = $2,688,570
- Local Sponsors Share 35% = $1,138,450

Landrights / Easement Issues

For original construction, the Sponsors secured flood easements to the top of dam elevation and for areas needed for ingress/egress, construction, and O&M.

PYLKAS Dam - Additional Easements Required			
Parcel	FWOFI Alt - Existing Top of Dam	Alt 1 - Existing Top of Dam + Close Off ASW	Alt 2 – Existing Top of Dam + Widen ASW
Easement 17	No Change	No Change	**0.6 Ac.**

Easements 18 and 19 are located in the upstream flood pool. No change is proposed to these easements for any rehabilitation alternative.



Environmental Effects / Impacts

Sal DeCarli – Environmental Specialist

Pelto Limits of Disturbance

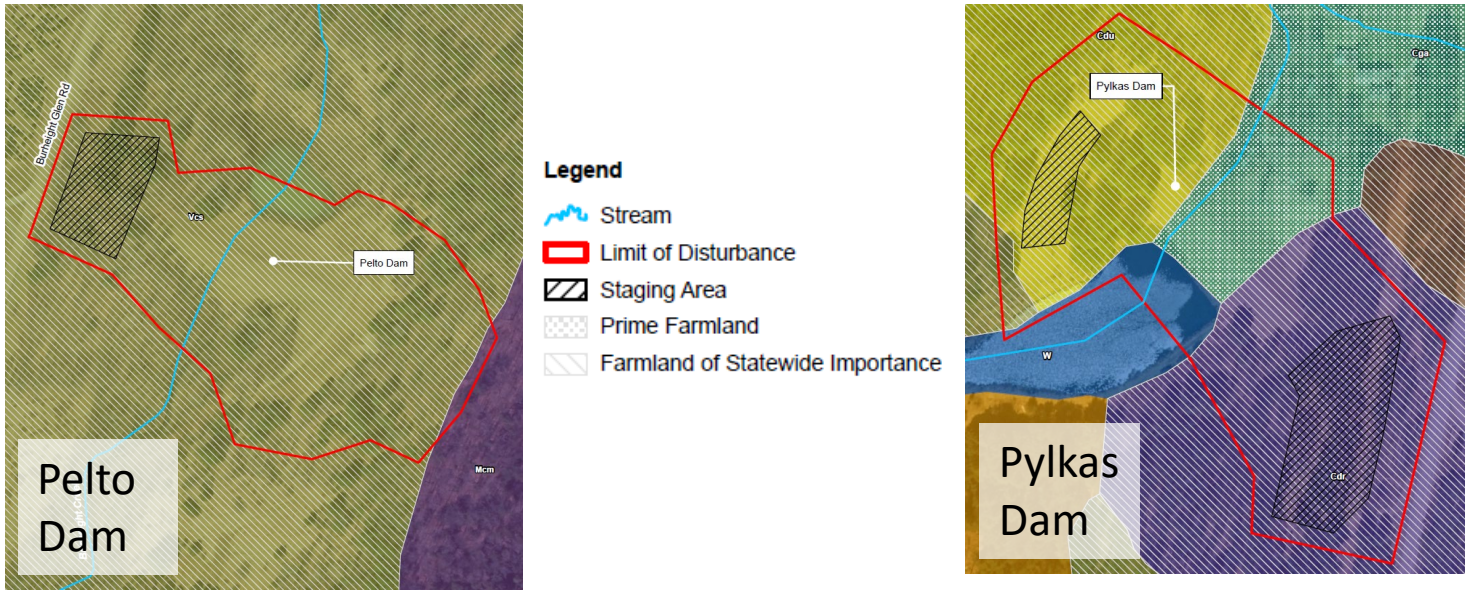
Pylkas Limits of Disturbance

Environmental Effects / Impacts

Soils – Prime Farmland and Soils of Statewide Importance in LODs

- Likely to experience temporary disturbance/compaction from construction work
- Some negligible long-term impacts to soils from widening of auxiliary spillways

	Prime Farmland Soils (acres)	Soils of Statewide Importance (acres)
Pelto Dam	0	5.91
Pylkas Dam	1.05	5.80



Environmental Effects / Impacts

Waters of the U.S. – Present in LODs

- Permanent loss of water courses in both LODs from downstream rehabilitation work.

Pelto Dam

	Permanent Stream Impacts (linear ft)
Alternative 1	-60.0
Alternative 2	-60.0
FWOFI Alternative	-82.0

Pylkas Dam

	Permanent Stream Impacts (linear ft)
Alternative 1	-39.0
Alternative 2	-47.0
FWOFI Alternative	-64.0

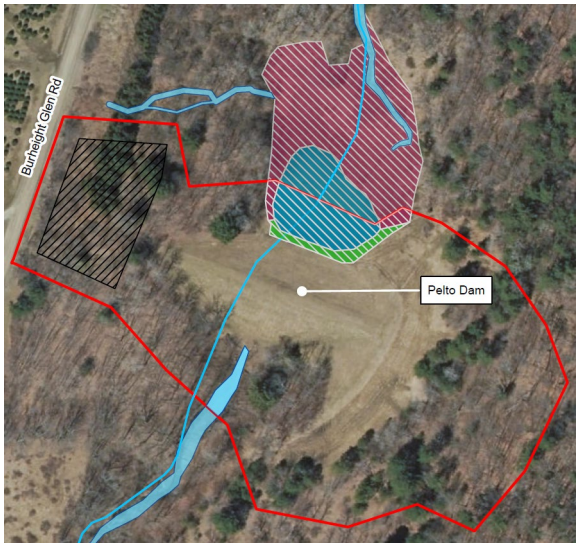
Environmental Effects / Impacts

Wetlands

- No permanent impacts to wetlands are anticipated. Wetlands are likely to experience temporary disturbance from construction work.

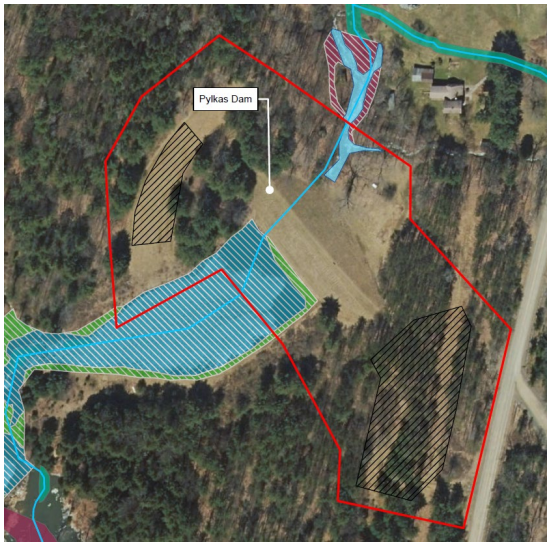
Wetlands Impacts: Pelto Dam

	Temporary (acres)	Permanent (acres)
Alternative 1	0.27	0
Alternative 2	0.27	0
FWOFI	0.27	0



Wetlands Impacts: Pylkas Dam

	Temporary (acres)	Permanent (acres)
Alternative 1	0.53	0
Alternative 2	0.53	0
FWOFI	0.53	0



Environmental Effects / Impacts

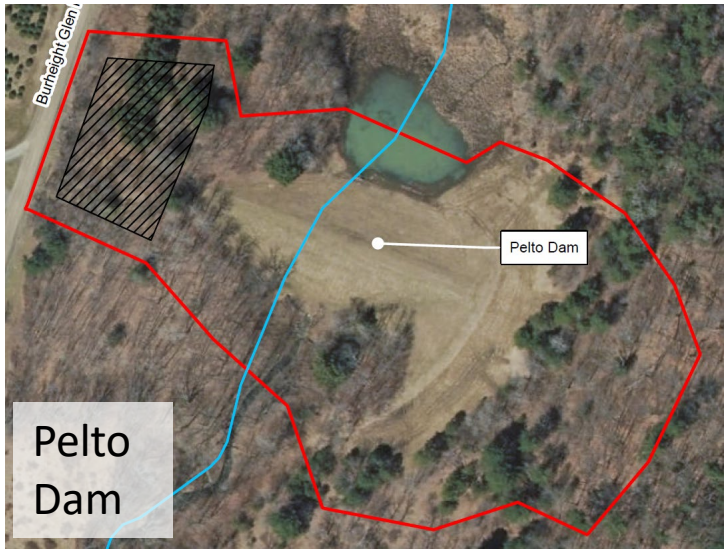
- Wildlife
  - Temporary impacts to fish and wildlife species during construction from construction work.
  - The suitable rare species habitat at Pelto Dam will be temporarily impacted from the clearing of trees, but the areas will be seeded or replanted to the maximum extent practicable post-construction.
- Human Environment
  - Temporary impacts to scenic beauty due to the appearance of an active construction site during rehabilitation work.

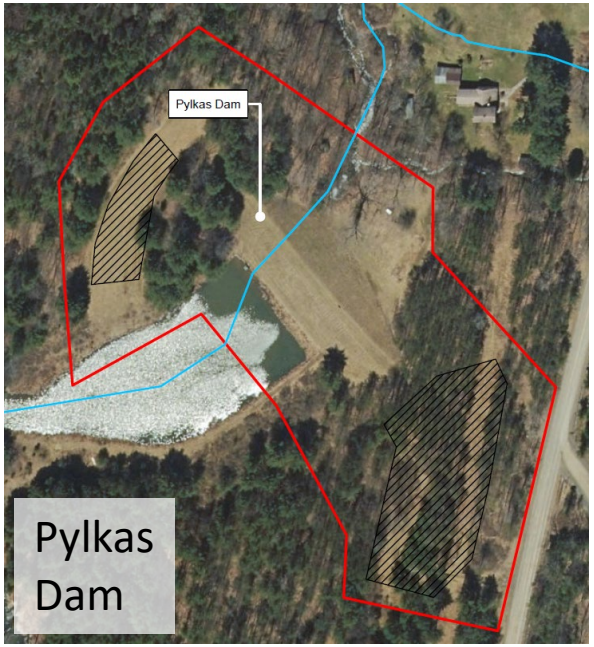
Environmental Effects / Impacts

- Vegetation – Trees will be cleared as necessary to facilitate ingress, egress, staging of materials and construction at both dam sites.

Maximum Potential Extent of Tree Clearing (acres)

	Pelto Dam	Pylkas Dam
Alternative 1	3.51	2.43
Alternative 2	2.42	3.12
FWOFI Alternative	1.87	2.30





Ecosystem Services Effects / Impacts

Flood and Disease Control

- The key metric used as the surrogate metric of the flood control service was the number of structures located within the breach inundation areas.
- No anticipated impacts to flood control.

Flood and Disease Control Metrics

	Structures in Breach Inundation Area Existing Condition	Structures in Breach Inundation Area Post Construction
Pelto Dam	77	77
Pylkas Dam	74	74

Ecosystem Services Effects / Impacts

Nutrient Cycling

- The key metric used to represent nutrient cycling is vegetation. Any change in extent of established vegetation, will have an impact on nutrient cycling.

Nutrient Cycling Metrics: Pylkas Dam
Established Vegetation in LOD (acres)

	Existing Condition	Post Construction	Change
Alternative 1	7.2	6.83	-0.37
Alternative 2	7.2	7.2	0
FWOFI Alternative	7.2	7.2	0

Pylkas Dam Alternative 1: Permanent impacts to established vegetation from construction of roller compacted concrete auxiliary spillway.

No anticipated nutrient cycling impacts at Pelto Dam because no impervious surfaces are proposed.

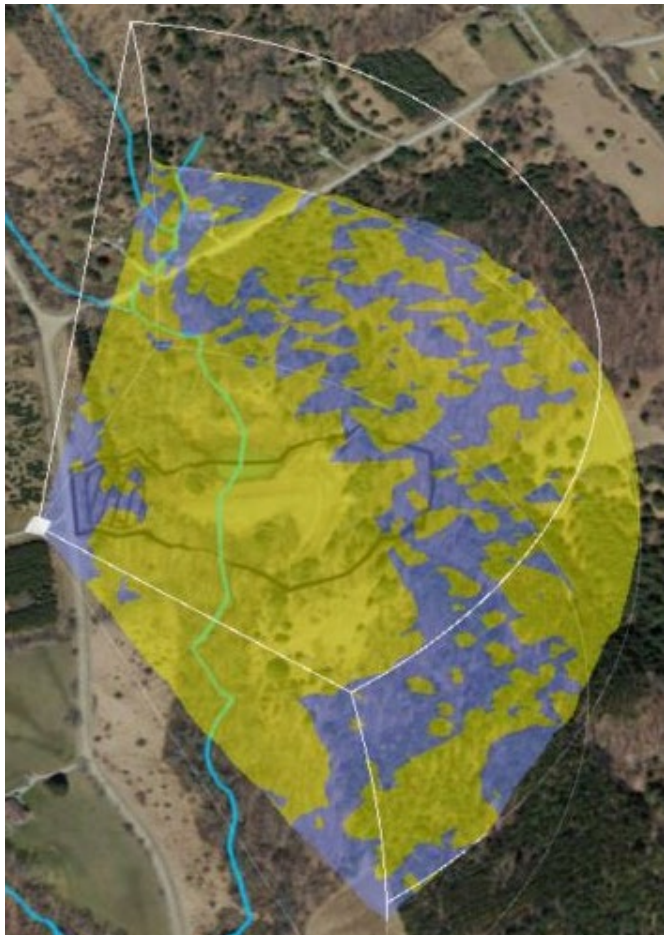
Ecosystem Services Effects / Impacts

Aesthetic Viewsheds

- The key metric used to assess aesthetic viewshed impacts was the acres of trees to be cleared in the LOD that are in the viewshed of one selected viewpoint for each dam site.
- This may differ seasonally.

Aesthetic Viewshed Metrics:
Trees Cleared in Viewshed (acres)

	Pelto Dam
Alternative 1	1.00
Alternative 2	0.59
FWOFI Alternative	0.41



Pelto Dam Viewshed: Viewpoint from Burheight Glen Road.

Ecosystem Services Effects / Impacts

Aesthetic Viewsheds

- The key metric used to assess aesthetic viewshed impacts was the acres of trees to be cleared in the LOD that are in the viewshed of one selected viewpoint for each dam site.
- This may differ seasonally.

Aesthetic Viewshed Metrics:
Trees Cleared in Viewshed (acres)

	Pylkas Dam
Alternative 1	0
Alternative 2	0.04
FWOFI Alternative	0

Pylkas Dam Viewshed: Viewpoint from adjacent home.

Ecosystem Services Effects / Impacts

Recreational Use

- The key metric used to represent recreational use was the change in impoundment size from existing conditions.
- No permanent impacts to recreational use at either site since none of the alternatives will impact the impoundment sizes.

Recreational Use Metric: Pelto Dam
Impoundment size (acres)

	Existing conditions	Post construction	Change
Alternative 1	0.35	0.35	0
Alternative 2	0.35	0.35	0
FWOFI Alternative	0.35	0.35	0

Recreational Use Metric: Pylkas Dam
Impoundment size (acres)

	Existing conditions	Post construction	Change
Alternative 1	1.50	1.50	0
Alternative 2	1.50	1.50	0
FWOFI Alternative	1.50	1.50	0

Next Steps

Wade Biddix

Agency Consultations

Consultation letters will be sent to the following agencies:

- U.S. Army Corp of Engineers
- U.S. Fish and Wildlife Service
- FEMA
- State Historic Preservation Office
- New York Department of Environmental Conservation
- New York Dam Safety Agency
- Tribal Organizations with ancestral lands in NY

Planning Schedule

Initial Draft Plan for Internal Review – by 4/1/22

Preliminary Plan for NRCS Technical Review– by 5/8/22

Draft Plan for NRCS Programmatic Review – by 7/29/22

Draft Plan for Public and Interagency Review– by 8/26/22

Final Plan for Approval and Signatures – by 10/14/22

Steps by NRCS and Sponsors to Proceed to Design and Construction:

- Request Authorization of Plan by Chief of NRCS
- Request Funding for Design and/or Construction

Public Input

If you have any specific concerns or questions related to the proposed project, please contact:

Points of Contact

David Walowsky, Jr.
NRCS State Design Engineer
(315) 477-6531
David.Walowsky@usda.gov

Wendy Walsh, Manager
Tioga County SWCD
(607) 687-3553
walshw@co.tioga.ny.us

Note: Meeting Recorded and PowerPoint posted to Website

Tioga County Website

Tioga County Website is www.tiogacountyny.com

Information on the dams and planning process will be posted here (including this PowerPoint and a recording of the meeting).

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Cost-Share With Dam Rehab.

- NRCS Funds
  - 100% of Planning Costs
  - 100% of Design Costs
  - 65% of Total Project Costs (NTE 100% of Construction costs)
  - NRCS Staff Costs are paid 100% by NRCS
- Local Sponsors Fund
  - 35% of Total Project Costs (Cash or In-Kind Credit)
  - 100% of Permit Costs