U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
NEW YORK CONSERVATION PRACTICE GUIDELINE

POND

(NUMBER)

CODE 378

REFERENCE

National Handbook of Conservation Practices - Code 378 Pond.

Commonly Associated Processes or Practices

The following conservation practices are commonly used in conjunction with this practice to address natural resource concerns and opportunities in New York. This does not imply that any or all of the listed practices must be included or that others may not be included in a conservation management system (CMS). Consult Section III of the Field Office Technical Guide for assistance in developing CMS.

Note: To determine whether a National or New York Conservation Standard applies to this and any other associated practices, check the following website: www.ny.nrcs.usda.gov. Click on the Technical Resources button, and look in the left-hand column for "eFOTG" on the next screen. Next, click on the "eFOTG" link, and look for the Conservation Standards in Section IV.

Table A: Commonly Associated Processes or Practices

Number	Name	Job/Engineering Sheets
356	Dike	
362	Diversion	NY ENG 22 and 23
382	Fence	
NY393s	Filter Strip – Strip	NY Jobsheets 17 and 25A
399	Fishpond Management	
412	Grassed Waterway	NY ENG 24/24A and 25/25A
432	Dry Hydrant	
468	Lined Waterway or Outlet	
516	Pipeline	
521A-C	Pond Sealing or Lining: Flexible Membrane Soil Dispersant Bentonite Sealant	
528A	Prescribed Grazing	
560	Access Road	
614	Watering Facility	
644	Wetland Wildlife Habitat Management	
645	Upland Wildlife Habitat Management	
648	Wildlife Watering Facility	

EFH-2	Estimating Runoff Process	NY ENG 20 EFH Worksheets 1 & 2

OTHER REFERENCES

Engineering Field Handbook, Chapters 1, Engineering Surveys, 2, Estimating Runoff and Peak Discharges, 4, Elementary Soils Engineering, 6, Structures, and 11, Ponds and Reservoirs.

Current Soil Survey Data

New York Plant Materials Technical Reference No. 11, "A Guide to Conservation Plantings on Critical Erosion Areas".

Technical Release 62, Engineering Layout, Notes, Staking, and Calculations.

Ponds – Planning, Design, Construction. USDA-NRCS Agriculture Handbook Number 590.

Guidelines for Design of Dams, Rev Jan 1989, NYS DEC

NYS Consolidated Laws, Environmental Conservation Title 5, Protection of Water, Section 15-0503, Protection of Water Bodies: Permit.

Article 15 Environmental Conservation Law, 6NYCRR, Part 608, Protection of Waters.

http://www.dec.state.ny.us/website/dcs/streamprotection/index.html

NYS Consolidated Laws, Environmental Conservation Title 10, Water Pollution Control, Section 17-0803, SPDES Permits; Application.

Article 17 Environmental Conservation Law, 6NYCRR, Part 750, State Pollution Discharge Elimination System (SPDES).

http://www.dec.state.ny.us/website/dow/PhaseII.html

CULTURAL RESOURCES

Cultural resource reviews will be conducted for all ground disturbing practices, components, or other activities, as per the State Level Agreement between NRCS and the New York State Historic Preservation Officer.

PERMITS AND NOTIFICATIONS

Constructed ponds in New York have specific permitting requirements, which is determined by the height of the dam (measured at the downstream toe) and the volume of storage created (in gallons) at top of dam elevation. The following references address the permitting process by the State of New York Department of Environmental Conservation:

Guidelines for Design of Dams, Rev. January 1989, NYS DEC.

NYS Consolidated Laws, Environmental Conservation Title 5, Protection of Water, Section 15-0503, Protection of Water Bodies: Permit.

Article 15 Environmental Conservation Law, 6NYCRR, Part 608, Protection of Waters.

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All permits, easements, and rights-of-way are the responsibility of the landowner. **Dig Safely NY** (formerly the Underground Facilities Protection Organization, or UFPO) and non-member local utilities will be contacted according to the time required before construction to mark all applicable facilities in the construction area. This is the responsibility of the excavator.

Identification and the location of all other farmstead underground or overhead facilities is the responsibility of the landowner.

INVENTORY AND EVALUATION

1. Select a suitable site giving proper consideration to the intended use, desired size, drainage area and recharge potential, construction costs, property boundaries, zoning ordinances, topography, existing watercourses, obvious soil limitations, utilities, environmental impacts, and downstream hazards. Determine the available locations and alignments for the principal and auxiliary spillways. Utilize the soil survey information to evaluate map units and potential inclusions for project compatibility on the site.
2. A geologic site investigation shall be conducted by a qualified individual. Excavate a sufficient number of test pits to check for evidence of seepage, water table elevation, proximity to bedrock, permeability, and suitability for fill material. These test pits shall be excavated to a minimum depth of two feet below proposed pool bottom, and located along the centerline of the dam (if an embankment pond), principal spillway, auxiliary spillway and borrow areas. The results shall be recorded on the NRCS NY-ENG-1, Backhoe Pit Log, and using the Unified Soil Classification System. Along the centerline of dam, note the depth necessary for a positive cutoff trench and/or the need for seepage control.
3. If the site conditions and soils are favorable, conduct a detailed survey to develop a topographic map with 2 foot contours, locate test pits, property lines, buildings, utilities, and any other features in the pond site area. Survey should allow contour closure above top of dam elevation.
4. Determine locations, materials, and equipment needed for other appurtenances such as dry hydrants, stock water tanks, etc.

DESIGN PROCEDURE

1. Prepare a topographic map using the survey data. Show locations of test pits, property lines, buildings, utilities, watercourses, centerline of dam, appurtenances, and other important features. The map is to include the pool area to one contour interval above the top of dam elevation. Use 2 foot contour intervals and scale as appropriate.
2. Establish desired normal pool elevation, and determine pool area size at this selected elevation. Determine the size of the principal and auxiliary spillways and stage requirements by using the NY Spillway Design Tables, Pages 11-70 through 74 of the Engineering Field Handbook, or by a complete hydrologic and hydraulic analysis. Determine pond drain size and method of operation. Record information on NY-ENG-31, NY-ENG-32, or design folder, as appropriate to the type of project.

3 Adhering to current standards, establish the top of dam elevation, freeboard and settlement requirements, top width, and side slopes. Determine all materials needed for the principal spillway including length, type and quality of pipe, watertight connections, cutoff collars, anti-vortex device, trash rack and drain valve or cap. Design a base plate or concrete junction block for the riser. Design a seepage control system if needed. For excavated ponds, determine the size, depth, and side slopes of the excavation.

4 To provide an adequate outlet for the principle spillway, design a plunge pool or another appropriate energy dissipating structure. Include details on bedding, riprap size, pipe support, etc.

5. Compute the cut and fill volumes for the dam, auxiliary spillway, cutoff trench, borrow areas, and waste areas and record on form NRCS-ENG –342-Earthfill Computations. Cut and fill volumes should be based on the quantity of suitable fill material available, excluding topsoil. The volume of cut material must meet or exceed fill material quantity requirements. Determine volume of excavation for excavated ponds.

6. Any site disturbance over one acre in size requires a Storm Water Pollution Prevention Plan. Additionally, the site may require a formal Erosion and Sediment Control Plan with construction details.

7. Prepare final drawings. Include plan view, profiles and cross sections of the principal and auxiliary spillways, profile and cross-section of the dam. Label all elevations, grades, and side slopes. Prepare details of anti-vortex devices, trash racks, plunge pools, pipe connections, cutoff collars, and seepage control systems. Details of stock water tanks, pipelines and dry hydrants are to be included when used. Excavated pond designs will include one or more cross-sections of the pool area and final grade of the spoil disposal area. Forms NRCS-NY-ENG-33 through 34A may be used when appropriate.

8. A statement requiring the excavator to notify **Dig Safely NY** and non-member utilities for proper utility notification is **REQUIRED** on the drawings.

9. Determine the appropriate seeding mix and rate for the soil type and design rate of flow (Q) of auxiliary spillway. Also select an appropriate seeding mix and rate for final site erosion and sediment control for disturbed areas based on soil type. Select seeding mixture from Plant Materials Technical Reference #11, "A Guide to Conservation Plantings on Critical Areas". Complete the job seeding requirements on Job Sheets NY-17, Seeding Grasses and Legumes, and NY-19, Mulching, or on equivalent form(s).

10. Attach appropriate construction specifications, design data, construction notes, test pit logs and estimated quantities to the drawings. Create a project file or folder to contain these items.

11. Develop a cost estimate, an O & M Plan, and an inspection plan for the project, and review these in addition to the completed construction drawings and specifications with the landowner.

12. Determine your level of Job Approval Authority for the design class of this project, obtain approval from appropriate individual, if not qualified.

13. Assemble a complete final construction package.

PRE-CONSTRUCTION ACTIVITIES

1. Provide copies of NY-ENG-31 through 34A, construction specifications and drawings to the landowner. Explain all aspects of the job before a contractor is secured. Review the O&M plan with the landowner, to assure proper maintenance of the completed practice.

2. Thoroughly review the job, including the inspection plan with the landowner and contractor prior to construction. Insure that all utilities applicable to the job site have been notified and are marked prior to construction.

3. Schedule the construction start date with the landowner and contractor. Coordination of all staking and construction timing with the contractor and landowner can assure an efficient use of manpower. Plan the start of construction such that the completion time will permit optimal establishment of vegetative cover.

4. Any required erosion and sediment control measures must be installed according to the plan, PRIOR to any construction activities taking place.

5. Set toe stakes for the embankment and mark fill heights with consideration for overbuild.

6. Set cut stakes with cuts marked for required excavations.
7. Set stakes for alignment and grade of the principal spillway and other structures.
8. Set grade for top of embankment and bottom of excavations for finish grading.
9. As earthwork progresses, set slope stakes as necessary to assure construction to line, grade, and elevation.

CONSTRUCTION INSPECTION

1. Visit the site as frequently as necessary to assure that the pond is being constructed according to the construction drawings and specifications. Any changes from the approved construction drawings and specifications will need to be reviewed and approved by the Approving Official. Make sufficient progress checks to prevent gross errors. The key inspection checks will document the following:
   - Site preparation, including stripping of topsoil and removal of structures or debris.
   - Cutoff trench excavation and determine and record final depth.
   - Periodically observe fill material, moisture content and compaction procedures to assure adequate embankment construction according to specification requirements. Check proper inclusion of topsoil in embankments.
   - The type, size, quality and quantity of the construction materials brought to the site PRIOR to installation.
   - The installation of the principal spillway, anti-seep collars, and other structures and materials for size, location, grade, elevation, joint tightness, and proper soil compaction around pipes and collars, and other design factors.
   - Document finished elevations, dimensions and side slopes of embankments, auxiliary spillway and other excavations.
2. Prior to the completion of construction, schedule and complete a final construction check with the landowner, contractor, and the Approving Official present. During this final construction check, assure that the:
   - Spillway(s) are stable and free of spoil and debris;
   - Construction spoil and debris are properly disposed of;
   - Final seeding requirements have been installed in accordance with the seeding plan.

Document the progress of the construction in the Cooperator Assistance Notes (NRCS-CPA-6/6A) or a similar job log. In addition, photographs documenting construction progress are useful and will be taken.

FINAL DOCUMENTATION REQUIREMENTS

All properly planned, designed, and installed conservation practices require documentation in the appropriate case file. Documentation must be sufficient to show:

1. The design conforms to the applicable standard;
2. The prepared construction drawings and specifications accurately reflect the design;
3. The installed practice meets the requirements of the construction drawings and specifications; and
4. The documented drawings are to be marked "As Built", with changes shown in red.

When required, the completed project shall bear the final approval of and signature of the appropriate Approving Official.

REPORTING

Enter all documentation on the Conservation Plan (NRCS-CPA-68), Conservation Assistance Notes (NRCS-CPA-6/6A) and the contract document (NRCS-LTP-11), if applicable.

Report the practice and applicable components in the NRCS progress reporting system. Be certain to report benefits for all applicable resources and resource concerns as allowed in the NRCS progress reporting system.

OPERATION AND MAINTENANCE

Facilities, structure, and practices must be operated and maintained to ensure proper function and longevity. Periodic follow-up with the landowner is essential to ensure that all operation and maintenance (O&M) requirements are understood and followed.