

Site Analysis

Data Collection / Methodology

Base-mapping information for the Sweet Arrow Lake County Park master plan was compiled from a variety of sources. Schuylkill County provided a property boundary survey of the park and the US Army Corps provided a digital copy of a preliminary topographic survey of the site. The topographic data used in preparation of the master had not yet been field verified and was provided by the Army Corps under the condition that it be used only for planning purposes. GIS tax map parcel information was provided by Schuylkill County along with miscellaneous mapping data such as municipal boundaries, roads, and streams. Additional GIS data including soils information and USGS aerial photographic images were compiled from available data posted on the internet.

The consultant performed initial site reconnaissance trips in the winter of 2003 and early spring of 2004 to inventory, analyze, and document the existing conditions of the park. Site analysis and programming for the site was reviewed with the project Steering Committee at meetings held throughout the planning process. Additionally, public meetings were held to present initial concepts and the draft plan. These meetings provided additional information and community feedback that contributed to the development of the master plan.

The consultant visited the project site several times to conduct site analysis studies and compile a photographic inventory of existing site features. The data and images collected from the site analysis allowed the consultant to gain an understanding of the existing site conditions, as well as, opportunities and constraints to the development of recreational facilities. Additionally, the consultant visited the site with the Steering Committee to review the proposed improvements in relationship to the existing conditions in the vicinity of the Sweet Arrow Lake Clubhouse.

General Site Data

Land Use

Sweet Arrow Lake and the Sweet Arrow Lake Clubhouse have historically been used for recreational purposes. The park property is bordered by a variety of land uses including agricultural, residential, and woodland land uses. Small cottage style housing, on lots ranging from one tenth of an acre to one half an acre, is located on the south side of the lake bordering the County owned land. Many of these residences contain improvements that encroach upon, or are entirely located within, the County owned land. The proximity of these residences must be considered when implementing future park improvements and the boundaries between public and privately owned land must be clearly identified.

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Zoning

R-C Rural Conservation District (Pine Grove Township)

Sweet Arrow Lake County Park is located in Pine Grove and Washington Townships. The western portion of the park is located in Pine Grove Township and is zoned Rural Conservation (R-C). The intent of the R-C District is to preserve the rural character of the Township that is characterized by woodland, farmland, and open space. Restrictions limit the type of development that is permitted within the R-C District. Recreation areas are permitted by special exception. It is important to consider that County owned land has historically been used for recreational purposes, and that the Clubhouse was in place prior to the adoption of the Pine Grove Township Zoning Ordinance in 1989.

Minimum Requirements:

- Building Setback 40 ft
- Side Yard
 - Total 60 ft
 - One Side 30 ft
- Rear Yard 30 ft

Maximum Permitted:

- Building Height 35 ft
- Lot Coverage 10 %
- Paved Area 20 %
- Clear Cutting of Wooded Area 50%

A Agricultural (Washington Township – Schuylkill County Zoning Ordinance)

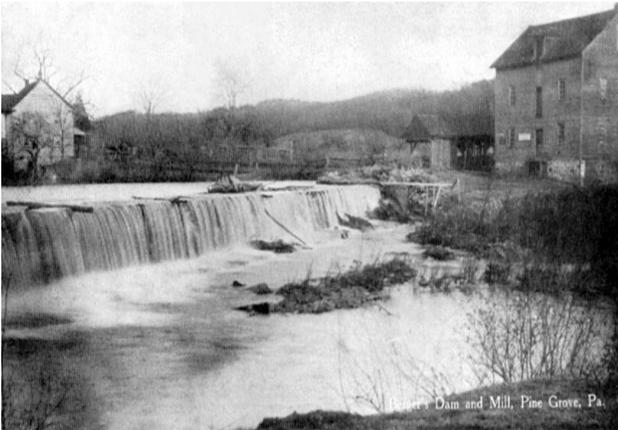
The eastern part of the park is located within the Washington Township Agricultural District (A) per the Schuylkill County Zoning Ordinance. The goal of the Agricultural District is to provide for the pursuit of agriculture, agribusiness activities, and other land uses that are compatible with agriculture and require large open spaces. Public recreation facilities are a principal permitted use within the A District.

Minimum Requirements:

- Building Setback 25 ft
- Side Yard
 - Total 20 ft
 - One Side 10 ft
- Rear Yard 25 ft

Maximum Permitted:

- Building Height 35 ft
- Lot Coverage 25 %
- Impervious Coverage 50 %



The former Berger's Dam that was located below the lake.



Recreational use of the lake, circa 1930's.



Sweet Arrow Lake Dam reconstruction, 2002-2003.

Historic Overview

A feeder branch of the Union Canal was completed in 1830 between Pine Grove and Lebanon. The canal was critical to the transportation of anthracite coal and lumber from Schuylkill County to Philadelphia. Sweet Arrow Lake originated in the 1850's as a dam was constructed on the Upper Little Swatara Creek to serve as a water source for the Union Canal. The dam at Sweet Arrow Lake was known as Big Dam.

During the Flood of 1862, Big Dam was destroyed along with two other dams that supported the canal. The loss of the dams and the completion of the Lebanon Valley Railroad made the canal obsolete and the Union Canal was closed in 1881. Remnants of Berger's Dam, a former ice pond on the Upper Little Swatara Creek, are visible from PA Route 443 (below the lake) at the southernmost portion of the park.

Sweet Arrow Lake was not restored until the 1920's when East Penn Electric repaired the dam to support a new electric plant. Pennsylvania Power and Light (PP&L) owned and operated the electric facility from 1923 to 1972 when ownership of the lake was transferred to Pine Grove Borough. Throughout this time, the lake and surroundings were used for recreational activities including fishing, swimming, boating, picnicking, and private social functions at the Clubhouse.

Sweet Arrow Lake's survival was once again threatened when the PA Department of Environmental Protection declared the dam unsafe. In order to restore and save this significant asset, Schuylkill County purchased the lake and surrounding lands in 2001. To rebuild the dam, Schuylkill County secured a \$650,000 Growing Greener Grant that was matched by \$650,000 of County Municipal Bond Funding. Dam reconstruction was completed in 2003.

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Regional Open Space, Parks and Recreational Areas

Swatara State Park

Swatara State Park is located 4 miles east of Sweet Arrow Lake County Park. The 3,515 acre park is comprised of rolling fields and woodlands that surround Swatara Creek as it flows for approximately eight miles through the park. Presently, the park is undeveloped. The Swatara State Park Master Plan was completed in 2003 and facilities are planned to accommodate activities including: canoeing, fishing, hiking, picnicking, bicycling, swimming, camping and environmental education. The facilities that are intended for development at the state park have been considered in the planning of the Sweet Arrow Lake County Park improvements so that facilities are not duplicated.

Appalachian Trail

The Appalachian Trail (AT) is located approximately four miles south of Sweet Arrow Lake where the trail follows Blue Mountain along the southern boundary of Schuylkill County. The AT is a continuous marked footpath that goes from Katahdin in Maine to Springer Mountain in Georgia, a distance of about 2160 miles. Several thousands of through-hikers attempt to hike the AT each year. The trail serves as a regional asset for local hikers.

Schuylkill River Corridor

Located approximately nine miles east of Sweet Arrow Lake, the Schuylkill River Corridor has been designated as a National and State Heritage area. The Schuylkill River Heritage area includes 128-miles of the Schuylkill River, and offers a remarkable diversity of historic, recreational, and cultural attractions. A large range of recreational activities take place along the Schuylkill River Heritage Corridor including: tourism, hiking, biking, jogging, canoeing, kayaking, tubing, fishing, camping, and shopping.

Bartram Trail

The John Bartram Trail is located approximately eight miles east of Sweet Arrow Lake. The Bartram Trail is a planned 38 mile system stretching from Hamburg to Minersville and possibly onward to Frackville. While much of the trail is accessible today, improvements are soon planned for the Hamburg to Schuylkill Haven section. The Bartram Trail will ultimately become part of the Schuylkill River Trail that will connect from Frackville to Philadelphia.

State Forests

Part of the Weiser State Forest System is located a few miles north of Sweet Arrow Lake. State Forest lands are open to the public for hunting, fishing, and general recreation including: camping, hiking, mountain biking, horseback riding, birding, canoeing, rafting, and scenic-driving.



Sweet Arrow Lake Road, S.R. 3002.



Sweet Arrow Lake Road at the "Beach".



Sight distance looking south on Waterfall Road from lower dam parking entrance.

State Game Lands

Various State Game Lands are located in the vicinity of the Sweet Arrow Lake County Park. Hunting is the primary use of State Game Lands although there are designated routes for both biking and horseback riding. These routes are used during the hunting off-season and on Sundays when hunting is not permitted.

Schools

The Pine Grove Area Schools are located approximately one mile southwest of Sweet Arrow Lake. The district's recreational facilities are open to the community and include: lighted tennis courts, lighted track, fields, and playgrounds. The Pottsville Area Schools are located approximately eight miles northeast of Sweet Arrow Lake. The Pottsville Area School recreational facilities are also open to the community and include: indoor and outdoor pools, basketball courts, sports fields, and playgrounds.

Site Access

Sweet Arrow Lake is located about 1.5 miles east of Pine Grove and 5 miles east of I-81 exit 31. Schuylkill Haven Borough and the city of Pottsville are located respectively about 12 and 15 miles east of the lake along State Routes 443, 183, and 61. The state and interstate system in the area creates easy access to the park for recreational use by County residents.

The main roads to the park are Sweet Arrow Lake Road (SR 3002) and State Route 443 which is called Pleasant Valley Road in Pine Grove Township and Deturksville Road in Washington Township. Both roads are two lane roads with speed limits of 40 and 45 miles per hour. Sweet Arrow Lake Road carries between 850 and 2300 vehicles per day while SR 443 carries about 5400 vehicles per day according to PennDOT's 2002 Type 4 Maps.

Waterfall Road (T-408) follows the western boundary of the Park. This road has many curves

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and is hilly with limited sight distance at many locations. Numerous private driveways are located on the west side of the road. Sweet Arrow Lake Road has similar geometry with numerous horizontal and vertical curves limiting speeds and sight distances along the road. Existing road curve warning signs with 20 and 25 mile per hour advisory speed reduction plaques are posted at numerous locations along the roadways.

The existing access to the Clubhouse on the south side of the lake is from SR 443 along Shoreline Drive, T-801. The Clubhouse Road intersection directs visitors along this narrow paved, private road that shares access with several adjoining properties until it reaches the park property, where the road is gated to control access. From the gate to the Clubhouse, the road has no paved surface. Speed limits along Shoreline Drive are 25 miles per hour. Clubhouse Road speed limits are not posted, but safe speeds are less than 20 miles per hour.

A preliminary review of intersection sight distances was conducted for several intersections where park access points are proposed. It is anticipated that the existing sight distances for each roadway would not meet the design sight distance requirements which are a function of road grade, speed limit, vehicle characteristics, and specific maneuvers (left, right or cross). As part of the design development phase of Sweet Arrow Lake County Park improvements, a complete engineering analysis of intersection sight distance must be completed utilizing available crash data and surveyed or roadway record plans.

Topography

The Sweet Arrow Lake water surface is approximately 549 feet above sea level and the topography of the park is varied with low areas around the lake and areas of steep slope. The highest point within the park is the area where Clubhouse Road enters the park property while the lowest elevation of the park is located at the southernmost portion of the park where the Upper



Clubhouse Road (left) intersection with Shoreline Drive.



Clubhouse Road.



Clubhouse Road at the entrance to Sweet Arrow Lake County Park.



Sun Pipe Line Easement.



View from wetland area to the west.



Upper Little Swatara Creek water fall.

Little Swatara Creek flows under Route 443. Areas of steep slope greater than 15% are shown on the Soils and Slope Analysis Map at the end of this chapter.

Utilities - On the south side of the lake, the existing Clubhouse area is served by public sanitary sewer service. A sanitary sewer lateral and easement are located within the existing parking area and the sanitary sewer line runs in a southern direction away from the County park property. A well is located in the basement of the Clubhouse and electrical service to this area is provided from Clubhouse Road. On the northern and western shore of the lake, public sanitary sewer service and electrical service are also available. These utilities are located within the Sweet Arrow Lake Road and Waterfall Road right of way.

Sun Pipe Line has an underground petroleum line and associated easement that crosses through the County park in the vicinity of the Sweet Arrow Lake Road intersection with Wolfes Road.

Views

At various points around Sweet Arrow Lake, park users can experience dramatic views throughout the year when looking across the water body and wetland areas. In many locations, Blue Mountain is visible in the background when looking to the south, and the Second Mountain is visible when looking to the north. The Upper Little Swatara Creek waterfall is one of the most dramatic views within the park.

Natural Features

Hydrology

Ranges of hills and mountains with inner-lying valleys characterize the topography and drainage of Schuylkill County. Beginning with Blue Mountain along the southeast boundary of the County, there is a succession of ridges running parallel to one another in a southwest to northeast direction. Sweet Arrow Lake is located in a valley

Site Analysis

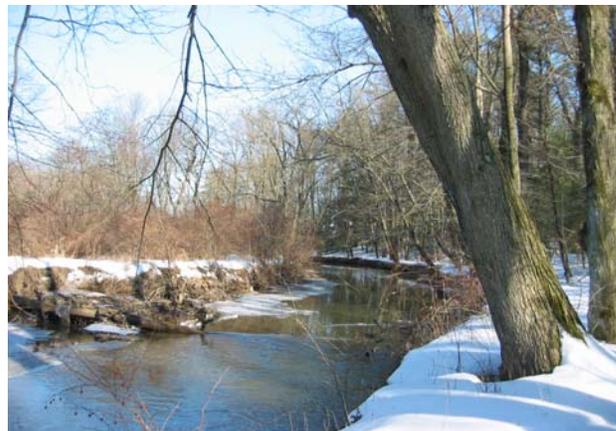
between the ridges of Blue Mountain four miles to the south and Second Mountain three miles to the north. The two major watersheds within this area are the Schuylkill River and the Swatara Creek.

Upper Little Swatara Creek has a drainage area of 24.3 square miles and flows from the northeast to the southwest. Sweet Arrow Lake is located in the southwestern part of the watershed and is fed directly by the Upper Little Swatara Creek along with smaller streams, springs, and ground water. After passing through the lake, Upper Little Swatara Creek flows south for approximately one mile until it joins Swatara Creek in Pine Grove Borough. Swatara Creek feeds into the Susquehanna River at Middletown, PA and the Susquehanna ultimately feeds into the Chesapeake Bay.

Vegetation

Sweet Arrow Lake County Park contains a wide diversity of vegetation types. These correspond to upland areas, the Upper Little Swatara Creek riparian corridor, the lake shoreline, and wetland areas located throughout the park. These various vegetation types provide habitat for many different species and are important in defining the overall character of the park. The mature vegetation around the lake and along the roadways also acts as a buffer to screen the park from adjacent properties and residences. Mature vegetation also acts as a buffer to filter pollutants from entering the lake and protects the stream and lake banks from erosion. Vegetative management of mature woodland areas must incorporate measures to prevent the establishment of non-native and invasive vegetation.

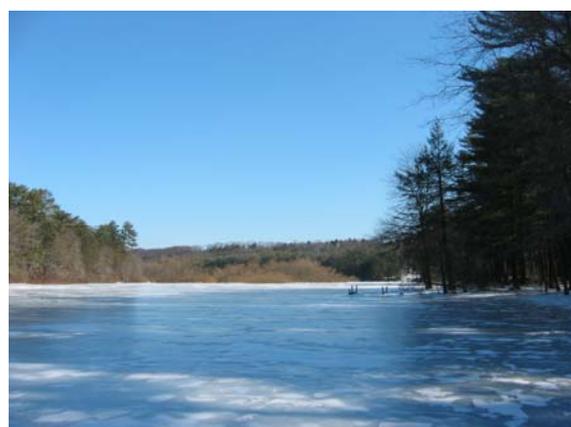
The Sweet Arrow Lake Conservation Association has identified 31 species of trees and 7 types of shrubs growing at the Sweet Arrow Lake County Park. Seventy-four species of summer and fall wildflowers have also been identified along with seventy species of spring wildflowers. A listing of identified wildflowers are included in the appendix of this report.



Upper Little Swatara Creek above Sweet Arrow Lake.



Wetland vegetation.



Mature vegetation along the perimeter of Sweet Arrow Lake.

Soils

Soil information from the Schuylkill County Soil Survey was analyzed to determine the types and properties of soils found within Sweet Arrow Lake County Park. While the soils within the park vary greatly, there are areas that share defining soil characteristics.

The soils at the Clubhouse and parking area on the south side of the lake tend to be well drained with low runoff. The bedrock is typically located 20" to 40" below the surface and the depth to seasonal high water table varies from 30" to 72". The dominant Laidig soils in this area are noted as having severe erosion limitations.

The soils at the boat launch area on the northwest shore of the lake are well drained with low runoff. The bedrock is typically located 20" to 40" below the surface and the depth to seasonal high water table is greater than 6'.

The soils in the area known as the beach, located on the northeast shore of the lake, are moderately well drained with high runoff. The soils are hydric with a depth to seasonal high water table that ranges from 18" to 36". These soils have a moderate shrink/swell potential and are classified as having moderate limitations associated with excess water.

Soils located on the eastern shore of the lake, north of S.R. 3002, tend to be poorly drained with very high runoff. The soils are hydric with a depth to seasonal high water table ranging from 0" to 12". The soils tend to be classified as having severe to very severe limitations associated with excess water. There are regions of non-hydric soils within the area that are moderately well drained with low runoff. The depth to bedrock in these areas is 40" and the depth to seasonal high water table is 18"- 36". These soils are classified as having moderate limitations due to excess water.

The Buchanan Extremely Stony Loam soil type is the dominate soil typed found on the south shore of the lake. This soil type is moderately well drained with high runoff. The depth to seasonal high water table ranges from 6" to 36". Buchanan Extremely Stony Loam is classified as having very severe soil limitations in regards to the root zone.

The soil types within Sweet Arrow Lake County Park are shown on the Soils and Slope Analysis Map located at the end of this chapter.

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Environmentally Sensitive Areas

Sweet Arrow Lake County Park contains a diversity of environmentally important areas that include numerous wetlands in the upper reaches of the lake. The wetlands provide habitat for a wide variety of wildlife and also serve as a stopover area for migratory birds. As part of the Preliminary Restoration Plan, the US Army Corps will delineate the jurisdictional wetlands located within the park.

The Pennsylvania Natural Diversity Inventory (PNDI) uses a site-specific information system to identify significant natural resources with the Commonwealth and includes plant and animal species of special concerns, exemplary natural communities, and unique geologic features. A PNDI review for Sweet Arrow Lake County Park was completed in October 2004 and PNDI records indicated that no occurrences of species of special concern are known to exist within the limits of the park property. A copy of the PNDI review letter is included in the appendix of this report.

Approximately 20 acres of County owned land located north of Sweet Arrow Lake Road has been enrolled in the Conservation Reserve Enhancement Program (CREP). CREP is a federal land retirement program that strives to protect environmentally sensitive land, decrease erosion, restore wildlife habitat, and safeguard ground and surface water. Within this area, native trees have been planted at a density of approximately 150 per acre and fencing has been installed to keep livestock out of the Upper Little Swatara Creek.

Opportunities and Constraints

The presence of a diversity of natural features offers an exciting opportunity for the County to provide recreational facilities within the park while also protecting environmentally sensitive areas and maintaining the character and scenic beauty of the area.

Sweet Arrow Lake County Park contains areas of open water, steep slopes, wetlands, and woodlands that favor the use of the park for passive recreation facilities such as picnic areas, trails, and wildlife viewing areas. The existing natural features provide many opportunities for environmental education and interpretation. The Sweet Arrow Clubhouse offers possibilities for indoor educational programs, retreats, and organized group use throughout all four seasons.

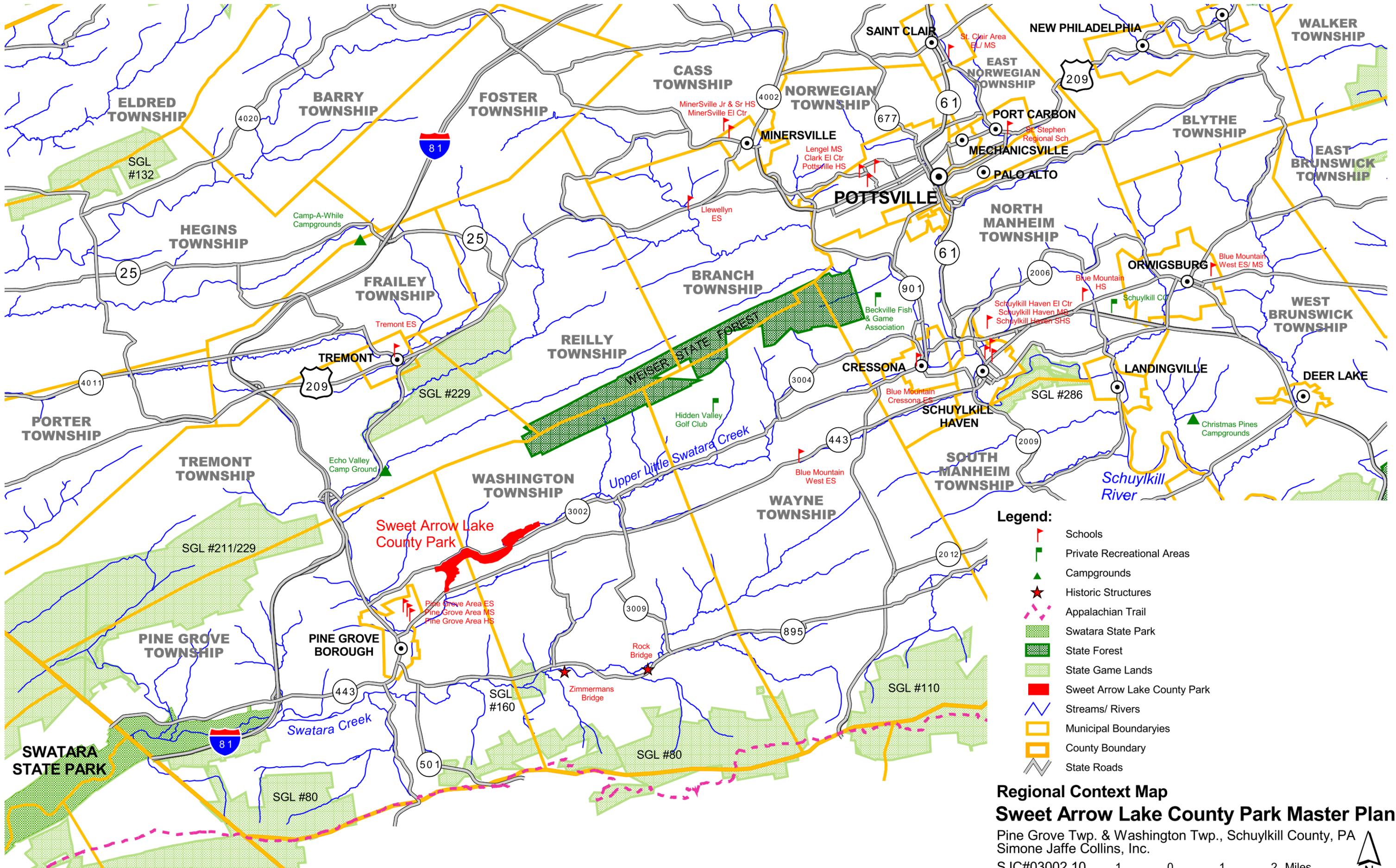
The US Army Corps of Engineers Restoration Project which proposes dredging and removal of sediment from the Sweet Arrow Lake presents a unique opportunity to create enhanced and varied aquatic habitats within the park. Additionally, the removal of sediment from the lake and efficient placement of dredged material within the park creates additional opportunities for creating recreational amenities at Sweet Arrow Lake County Park.

The natural features of the site present limited constraints to the development of the area for recreational uses, however the number of active recreational facilities that can be constructed at the site are limited. Site appropriate recreational facilities must be designed in a way that minimizes impact to the existing natural features to ensure that proposed improvements do not detract from the scenic character of the park.

Site access to the Sweet Arrow Lake Clubhouse is an additional constraint to the development of facilities in this area of the park. The narrow character and existing roadway conditions found along Clubhouse Road limit the amount of traffic that can safely access this section of the park. Roadway reconstruction, widening, and drainage improvements are needed to adequately provide two-way traffic access to the Clubhouse area of the park, while still maintaining the charming character of this road. The amount of parking that can be accommodated at the Clubhouse area must be limited so as not to overwhelm this part of the park.

The proximity of private residential properties to County park property along the south side of the lake presents additional constraints. This situation is complicated by the fact that many of the property owners use County owned property for seasonal docks on the lake while other residents have constructed permanent improvements on the County park land. In moving forward with park improvements, it will be critical for the County to keep lines of communication open with adjacent property owners.

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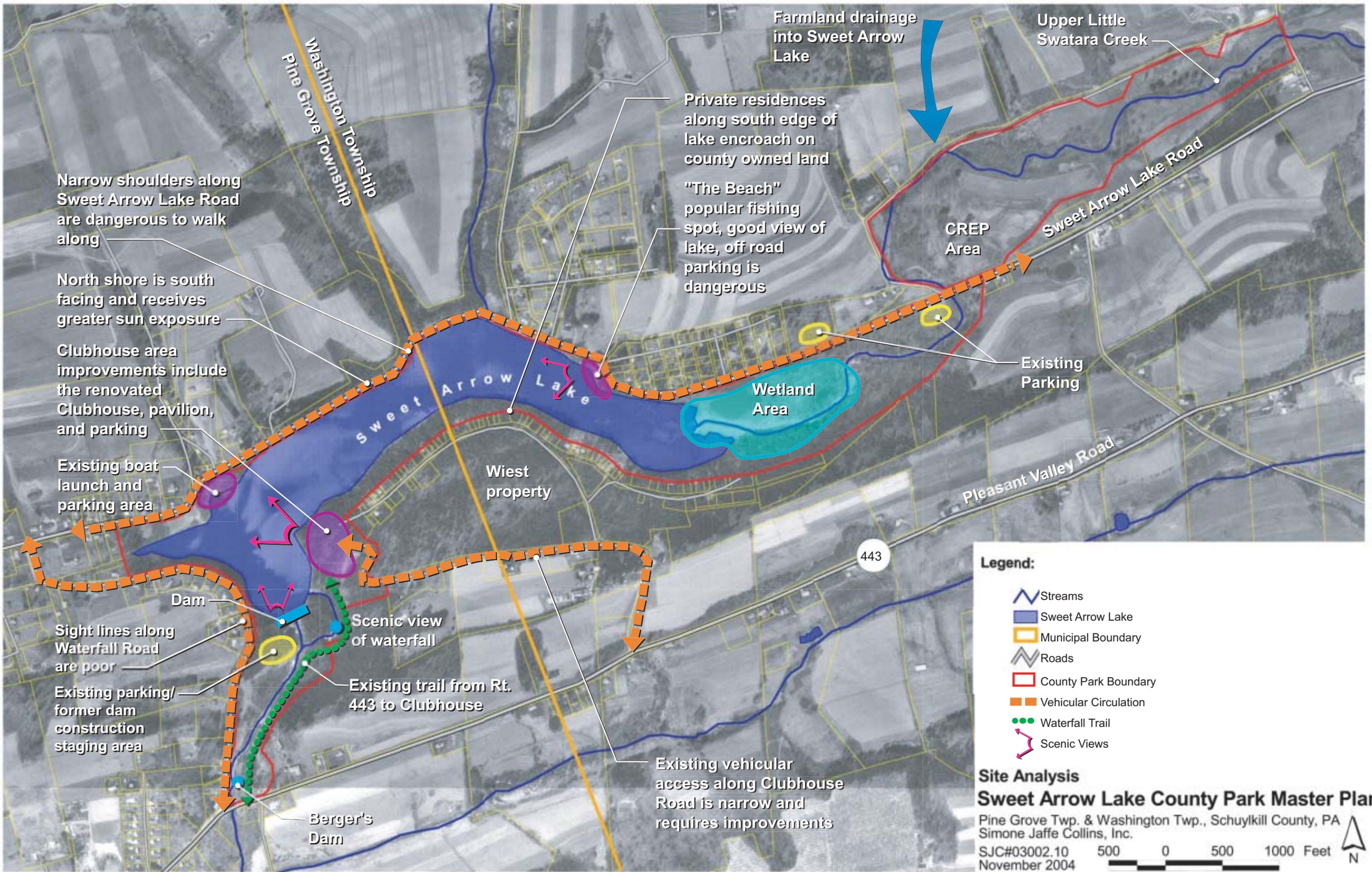


- Legend:**
- Schools
 - Private Recreational Areas
 - Campgrounds
 - Historic Structures
 - Appalachian Trail
 - Swatara State Park
 - State Forest
 - State Game Lands
 - Sweet Arrow Lake County Park
 - Streams/ Rivers
 - Municipal Boundaries
 - County Boundary
 - State Roads

Regional Context Map
Sweet Arrow Lake County Park Master Plan

Pine Grove Twp. & Washington Twp., Schuylkill County, PA
 Simone Jaffe Collins, Inc.
 SJC#03002.10
 November 2004





Farmland drainage into Sweet Arrow Lake

Upper Little Swatara Creek

Washington Township
Pine Grove Township

Private residences along south edge of lake encroach on county owned land

"The Beach" popular fishing spot, good view of lake, off road parking is dangerous

CREP Area

Existing Parking

Narrow shoulders along Sweet Arrow Lake Road are dangerous to walk along

North shore is south facing and receives greater sun exposure

Clubhouse area improvements include the renovated Clubhouse, pavilion, and parking

Existing boat launch and parking area

Wiest property

Pleasant Valley Road

443

Legend:

- Streams
- Sweet Arrow Lake
- Municipal Boundary
- Roads
- County Park Boundary
- Vehicular Circulation
- Waterfall Trail
- Scenic Views

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Sweet Arrow Lake County Park Master Plan

Pine Grove Twp. & Washington Twp., Schuylkill County, PA
Simone Jaffe Collins, Inc.

SJC#03002.10 500 0 500 1000 Feet
November 2004



Sight lines along Waterfall Road are poor

Existing parking/former dam construction staging area

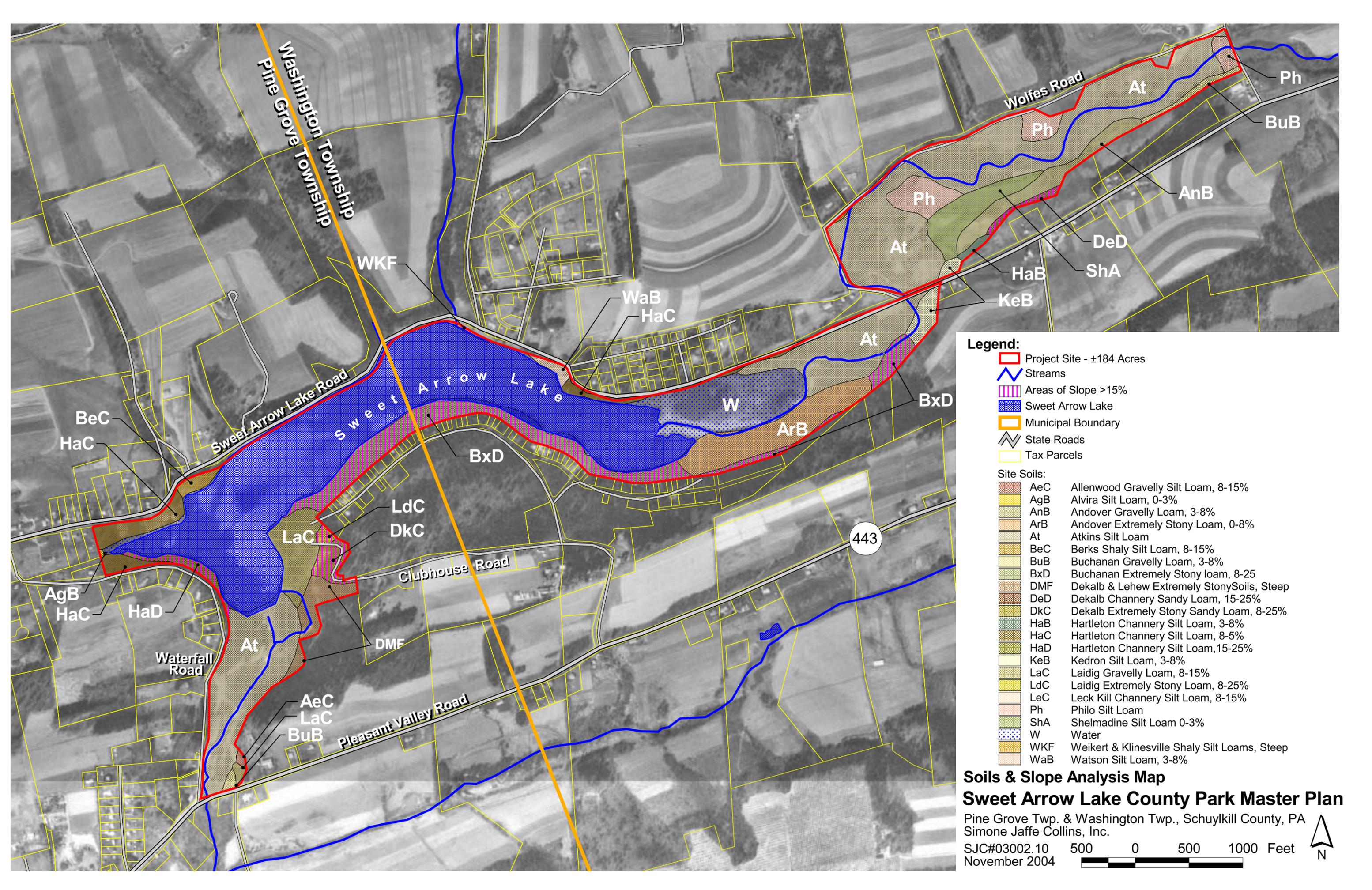
Dam

Scenic view of waterfall

Existing trail from Rt. 443 to Clubhouse

Berger's Dam

Existing vehicular access along Clubhouse Road is narrow and requires improvements



Legend:

- Project Site - ±184 Acres
 - ~ Streams
 - Areas of Slope >15%
 - Sweet Arrow Lake
 - Municipal Boundary
 - State Roads
 - Tax Parcels
-
- Site Soils:**
- | | | |
|---|-----|--|
| | AeC | Allenwood Gravelly Silt Loam, 8-15% |
| | AgB | Alvira Silt Loam, 0-3% |
| | AnB | Andover Gravelly Loam, 3-8% |
| | ArB | Andover Extremely Stony Loam, 0-8% |
| | At | Atkins Silt Loam |
| | BeC | Berks Shaly Silt Loam, 8-15% |
| | BuB | Buchanan Gravelly Loam, 3-8% |
| | BxD | Buchanan Extremely Stony loam, 8-25 |
| | DMF | Dekalb & Lelew Extremely StonySoils, Steep |
| | DeD | Dekalb Channery Sandy Loam, 15-25% |
| | DkC | Dekalb Extremely Stony Sandy Loam, 8-25% |
| | HaB | Hartleton Channery Silt Loam, 3-8% |
| | HaC | Hartleton Channery Silt Loam, 8-5% |
| | HaD | Hartleton Channery Silt Loam, 15-25% |
| | KeB | Kedron Silt Loam, 3-8% |
| | LaC | Laidig Gravelly Loam, 8-15% |
| | LdC | Laidig Extremely Stony Loam, 8-25% |
| | LeC | Leck Kill Channery Silt Loam, 8-15% |
| | Ph | Philo Silt Loam |
| | ShA | Shelmadine Silt Loam 0-3% |
| | W | Water |
| | WKF | Weikert & Klinsville Shaly Silt Loams, Steep |
| | WaB | Watson Silt Loam, 3-8% |

Soils & Slope Analysis Map
Sweet Arrow Lake County Park Master Plan

Pine Grove Twp. & Washington Twp., Schuylkill County, PA
 Simone Jaffe Collins, Inc.
 SJC#03002.10 November 2004



Sweet Arrow Lake County Park Soil Analysis Summary

Source: Soil Survey of Schuylkill County PA, 1982

Map Unit Symbol	Soil Name	Slope	Depth to Bedrock	Depth to Seasonal High Water Table	Hydric Soil (Yes or No)	Limitations for Shallow Excavations	Limitations for Roads & Parking Lots	Limitations for Lawns & Landscaping	Limitations for Buildings (Three Stories or Less)
AeC	Allenwood Gravelly Silt Loam	8 - 15%	60" +	greater than 6'	No	Moderate: Slope	Moderate: Slope, Frost Action.	Moderate: Small Stones.	Moderate: Slope, Frost Action
AgB	Alvira Silt Loam	3 - 8%	60" +	6 - 8 "	No	Severe: Wetness	Severe: Frost Action	Moderate: Wetness	Severe: Wetness, Frost Action
AnB	Andover Gravelly Loam	3 - 8%	60" +	0 - 6"	Yes	Severe: Wetness	Severe: Wetness, Frost Action	Severe: Wetness, Frost Action	Severe: Wetness, Frost Action
ArB	Andover Extremely Stony Loam	0 - 8%	60" +	0 - 6"	Yes	Severe: Large Stone, Wetness	Severe: Wetness, Frost Action	Severe: Large Stones, Wetness	Severe: Large Stones, Wetness, Frost Action
At	Atkins Silt Loam	0 - 3%	60" +	0 - 12"	Yes	Severe: Floods, Wetness	Severe: Floods, Wetness	Severe: Floods, Wetness	Severe: Floods, Wetness
BeC	Berks Shaly Silt Loam	0 - 8%	20 - 40 "	greater than 6'	No	Moderate: Slope, Depth to Bed Rock	Moderate: Slope	Severe: Small Stones	Moderate: Slope
BuB	Buchanan Gravelly loam	3 - 8%	60 - 120"	6 - 36"	No	Severe: Wetness	Moderate: Wetness, Frost Action	Moderate: Small Stones, Wetness	Severe: Wetness
BxD	Buchanan Extremely Stony Loam	8 - 25%	60 - 120"	6 - 36"	No	Severe: Slope, Wetness, Large Stones	Severe: Slope	Severe: Slope, Large Stones	Severe: Slope, Wetness, Large Stones
DeD	Dekalb Channery Sandy Loam	15 -25%	20 - 40"	greater than 6'	No	Severe: Slope	Severe: Slope	Severe: Slope, Small Stones	Severe: Slope
DkC	Dekalb Extremely Stony Sandy Loam	8 - 25%	20 - 40"	greater than 6'	No	Severe: Slope, Depth to Bed Rock, Large Stones	Severe: Slope, Large Stones	Severe: Slope, Large Stones, Small Stones	Severe: Slope, Large Stones
DMF	Dekalb and Lehew Extremely Stony Soil: Dekalb 45%	8 - 25%	20 - 40"	greater than 6'	No	Severe: Slope, Depth to Bed Rock, Large Stones	Severe: Slope, Large Stones	Severe: Slope, Large Stones, Small Stones	Severe: Slope, Large Stones
DMF	Dekalb and Lehew Extremely Stony Soil: Lehew 35%	8 - 25%	20 - 40"	greater than 6'	No	Severe: Slope, Depth to Bed Rock, Large Stones	Severe: Slope, Large Stones	Severe: Slope, Large Stones, Small Stones	Severe: Slope, Large Stones
HaB	Hartleton Channery Silt Loam	3 - 8%	42 - 60"	greater than 6'	No	Slight	Moderate: Frost Action	Severe: Small Stones	Moderate: Frost Action
HaC	Hartleton Channery Silt Loam	8 - 15 %	42 - 60"	greater than 6'	No	Moderate: Slope	Moderate: Slope, Frost Action	Severe: Small Stones	Moderate: Slope, Frost Action

Sweet Arrow Lake County Park Soil Analysis Summary

Source: Soil Survey of Schuylkill County PA, 1982

Map Unit Symbol	Soil Name	Slope	Depth to Bedrock	Depth to Seasonal High Water Table	Hydric Soil (Yes or No)	Limitations for Shallow Excavations	Limitations for Roads & Parking Lots	Limitations for Lawns & Landscaping	Limitations for Buildings (Three Stories or Less)
HaD	Hartleton Channery Silt Loam	15 - 25 %	42 - 60"	greater than 6'	No	Severe: Slope	Severe: Slope	Severe: Slope, Small Stones	Severe: Slope
KeB	Kedron Silt Loam	8 - 15%	60 - 96"	6 - 36"	No	Severe: Wetness	Moderate: Wetness, Frost Action	Severe: Wetness	Severe: Wetness
LaC	Laidig Gravelly Loam	8 - 15%	96" +	30 - 48"	No	Moderate: Small Stones, Wetness, Slope	Moderate: Slope, Frost Action	Moderate: Slope, Small Stones	Severe: Slope
LdC	Laidig Extremely Stony Loam	8 - 25 %	96" +	30 - 48"	No	Severe: Slope	Severe: Slope	Severe: Slope, Large Stones	Severe: Slope, Large Stones
Ph	Philo Silt Loam	0 - 3%	40"	18 - 36"	No	Severe: Floods, Wetness	Severe: Floods	Moderate: Floods, Wetness	Severe: Floods, Wetness
ShA	Shelmadine Silt Loam	0 - 3%	60 - 144"	0 - 6"	Yes	Severe: Wetness	Severe: Wetness, Frost Action	Severe: Wetness	Severe: Wetness, Frost Action
WaB	Watson Silt Loam	3 - 8%	60" +	18 - 36"	No	Severe: Wetness	Moderate: Frost Action	Slight.	Moderate: Slope, Wetness, Frost Action
WKF	Weikert & Klinesville Shaly Silt Loams: Weikert 45%	25 - 75%	10 - 20"	Greater than 6'	No	Severe: Slope	Severe: Slope	Severe: Slope	Severe: Slope
WKF	Weikert & Klinesville Shaly Silt Loams: Klinesville 45%	25 - 75%	10 - 20"	Greater than 6'	No	Severe: Slope	Severe: Slope	Severe: Slope	Severe: Slope