

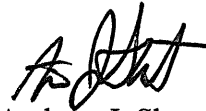
Stonewall Jackson Lake 2021 Master Plan



Stonewall Jackson Lake
Master Plan

The attached Master Plan for Stonewall Jackson Lake is in compliance with ER/EP 1130-2-550, Project Operations, Recreation Operations and Maintenance Policies. No further action is required.

Master Plan is approved.

A handwritten signature in black ink, appearing to read 'A. Short', is positioned above the printed name.

Andrew J. Short
Colonel, Corps of Engineers
Commanding

Executive Summary

A Master Plan is required for each Civil Works Project and all fee-owned lands for which the U.S. Army Corps of Engineers (Corps) has administrative responsibility. It serves as a strategic land use management document that guides the comprehensive management and development of all recreational, natural, and cultural resources throughout the life of the Project, anticipating what could and should happen at the Corps Project, while remaining flexible enough to address changing conditions.

The primary goals of this Stonewall Jackson Lake (Project) Master Plan, revised in 2021, are to prescribe an overall strategic land use management plan, resource objectives, and associated design and management concepts, which: 1) use sound environmental principles to protect and enhance public lands; 2) cultivate volunteers, public-private partnerships, and apply for grants; 3) provide safe and memorable connections as part of multiple destination points; and 4) leverage emerging technology to tell the Corps' story and enhance visitor experiences.

Upon completion of this Master Plan, an Operational Management Plan (OMP) will be updated reflecting the resource objectives outlined in this Plan. OMPs implement the resource objectives and development needs identified in the Master Plan. OMPs are to be reviewed annually and revised every five years. The below table reflects the years in which key resource objectives should be implemented.

Five Year	Ten Year	Conditions Based Actions*
Upgrade Information Center displays to encourage engagement by all ages, such as Science, Technology, Engineering, Arts and Math (STEAM) and digital media	Project Site Areas (PSAs) with degraded facilities/infrastructure are prioritized for enhancement funding	Oil, gas and coal mining leveraging and mitigation
Update Gas Well Inventory and assure wells and pipelines are compliant	Enhanced security features	Endangered species conservation methods
Initiate Water Safety Council for the Project	Comprehensive Interpretive Plan established	Invasive species control methods
Baseline inventories of biological and cultural resources are documented	Operational Geospatial Data Base for Natural and Cultural Resources are developed	Climate change impacts

***Condition Based Actions will be evaluated as new requests or information become available.**

This Master Plan lays out future recommendations for the management of both recreation and natural resources at the Project with an emphasis on conserving our resources and responding to community needs.

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1. Project Authorization

The construction of the Project was authorized by the Flood Control Act of 1966. Authorizations prior to construction (Table 1-1, full list in Appendix A) provided incidental benefits, including water quality improvement, fish and wildlife management, and recreational uses.

Table 1-1. Project Purposes and Authorities

Operating Purpose	Authority	Citation
Flood Control Low Flow Augmentation Water Supply Water Quality Control	Rivers and Harbors Act of 1966	Public Law (PL) 89-789
Recreation	Rivers and Harbors Act of 1966 Water Resources Development Act of 1988	PL 89-789 PL 100-676
Fish and Wildlife	Fish and Wildlife Coordination Act of 1934 (as amended)	PL 85-624

1.1 Project Purpose

The Project is operated for flood protection in the West Fork, Tygart, Monongahela, and Ohio River Valleys. In addition to flood control, the purposes of the Project, as stated in the authorizing legislation, are water quality control, water supply and recreation. Additional uses of the reservoir include fish and wildlife management. These additional uses shall not conflict with the primary function of flood control.

1.2 Watershed and Project Description

The Project is multi-purpose and provides a storage system for flood risk reduction on the West Fork, Tygart, Monongahela, and Ohio River Valleys (see Appendix B, Plate 1 for Watershed map). The Project is situated in West Virginia approximately 200 miles south of Pittsburgh. The Project's land and waters extend over Lewis County (see Appendix B, Plate 2 for Project Overview and Transportation Corridors map). Refer to Table 1-2 below for Reservoir Information.

Table 1-2. Reservoir Information

Pool	Elevation * (feet)	Storage (acre-feet)
Minimum	1037.80	3,120
Winter Conservation Pool	1067.50	36,100
Summer Conservation Pool	1072.50	48,170
Full Pool	1081.30	74,650

* Elevation is determined using The North American Vertical Datum of 1988 (NAVD 88)

The Project consists of 20,385.3 acres of fee land and water as well as 429.3 acres as flowage and road easement. Near the dam, the Corps maintains the resource manager's office and Information Center, maintenance complex, government launch ramp, Friendship Trail, tailwater fishing pier, and picnic areas.

The Corps leases 19,894.5 acres of Project lands and waters to the West Virginia Division of Natural Resources (WVDNR) (Table 1-3, below). Appendix B, Plate 3 shows the Boundary map for the Project.

Table 1-3. Outgrant Areas

Grantee	Type	Acres
West Virginia Division of Natural Resources (Wildlife Resources Section)	Wildlife	18,174.3
West Virginia Division of Natural Resources (Parks and Recreation)	Recreation	1,720.2

1.3 Listing of Pertinent Project Information

While the Master Plan is focused on management of land and water surface area related to Project purposes, the following information is provided to aid in understanding Project information regarding water storage levels and Project construction (Table 1-4, below).

Table 1-4. Project Information

Project Attribute	Description
Average Annual Rainfall	51 in.
Drainage Area above Dam	101 square miles
Construction Completed	March 1988
Operation Started	January 1990
Dam Type	Concrete, gravity-type structure
Dam Length	620 ft.
Dam Height	95 ft. above streambed
Base Width	101 ft.
Outlet Works	5 sluice gates; three 3.5 ft. x 7 ft. (flood control), two 2.5 ft. x 4 ft. (water quality)
Spillway	71 ft. in length x 117 ft. total width (effective width 105 ft.)
Highest Inflows Recorded	12,700 cubic feet per second (c.f.s.) (March 20, 2002)
Highest Outflows Recorded	1,730 c.f.s. (February 13, 1996)
Highest Elevation (NAVD 88)	1,078 ft. (May 20, 1995)

1.4 Purpose & Scope of the Master Plan

This Master Plan presents updated land use categories, management objectives, resource plans, and recommendations for the management of Project lands and waters to meet current and future needs. It is a vital tool for the responsible stewardship of Project resources for the benefit of present and future generations, guiding the comprehensive management and development of the natural, cultural, and man-made resources at the Project.

This Master Plan takes into consideration regional and local needs, resource capabilities, suitability, and expressed public interests consistent with authorized Project purposes, pertinent legislation, applicable regulations, national objectives, and other state and regional goals and programs. The Master Plan is distinct from the OMP. Specifically, policies in the Master Plan are guidelines implemented through provisions of the OMP and the Annual Work Plan. A Master Plan is the strategic land use management document that guides the comprehensive management and development of all Project recreational, natural, and cultural resources throughout the life of the Project. OMPs implement the resource objectives and development needs identified in the Master Plan. Annual Work Plans are a description of management tasks and initiatives, complete with labor, material, and cost requirements to be completed for use in the current fiscal year. The Annual Work Plan is synonymous with the current fiscal year plan in the OMP.

1.5 Management Goals

This section sets forth goals and objectives necessary to achieve the vision for the future of the Project. In the context of this Master Plan, goals express the overall desired end state of the cumulative land and recreation management programs, whereas resource objectives specify task-oriented actions necessary to achieve the Master Plan goals. The following goals are the priorities for consideration when determining resource objectives and development activities.

1. Use sound environmental principles to protect and enhance public lands.
2. Cultivate volunteers, public-private partnerships, and apply for grants.
3. Provide safe and memorable connections as part of multiple destination points.
4. Leverage emerging technology to tell the Corps' story and enhance visitor experiences.

Implementation of these goals is dependent upon time, manpower, and budget. These goals will be pursued using a variety of mechanisms such as: volunteer efforts, hired labor, contract labor, permit conditions, remediation, and special lease conditions.

The Corps management activities are guided by Corps-wide Environmental Operating Principles (EOPs) in accordance with Engineering Regulation (ER) 200-1-5. The EOPs are as follows:

1. Strive to achieve environmental sustainability. An environment maintained in a healthy, diverse, and sustainable condition is necessary to support life.
2. Recognize the interdependence of life and the physical environment.

3. Proactively consider environmental consequences of Corps programs and act accordingly in all appropriate circumstances.
4. Seek balance and synergy among human development activities and natural systems by designing economic and environmental solutions that support and reinforce one another.
5. Continue to accept corporate responsibility and accountability under the law for activities and decisions under our control that impact human health and welfare and the continued viability of natural systems.
6. Seek ways and means to assess and mitigate cumulative impacts to the environment; bring system approaches to the full life cycle of our processes and work.
7. Build and share an integrated scientific, economic, and social knowledge base that supports a greater understanding of the environment and impacts of our work.
8. Respect the views of individuals and groups interested in Corps activities; listen to them actively and learn from their perspective in the search to find innovative solutions to the nation's problems that also protect and enhance the environment.

1.6 Resource Objectives

Resource Objectives are defined as clearly written statements that both respond to identified issues and specify measurable and attainable activities for resource development and/or management of the lands and waters under Corps jurisdiction. Resource Objectives provided in this section are established to provide high levels of stewardship to managed lands and resources, while simultaneously providing a high level of public service.

Each of the following Resource Objectives has a current and future component (see below). The current component is the near-term focus of the current Master Plan and is the impetus of efforts of this review cycle (i.e. five years). The future component is the long-term focus to be addressed in subsequent reviews (i.e. ten years).

Goal 1: Use sound environmental principles to protect and enhance public lands¹

Management and Development Activity	Five-year	Ten-year	Resource Objective
Inventory natural and cultural resources	Baseline inventories of biological and cultural resources are documented (S&E)	Operational geospatial database for natural and cultural resources are developed (E)	Completed and maintained biological/cultural resource inventory and associated land management documents
	OMP is revised (S&E)	Information within the database registered with the State Historic Preservation Office (SHPO) (E)	
	Enhance relationship with WVDNR, and other partners to utilize their species inventories and other resources (S&E)		
Identify and address threats to the Project	Internal or external subject matter experts are being engaged to resolve identified issues (S&E)	Reclamation plan for impacted resources is written (E)	Conservation and enhancement of Project land
	A Vegetative Management Plan is established in order to avoid, minimize, and mitigate impacts to natural resources (E)		
	Partner with cooperating stakeholders to develop an Invasive Species Management Plan (E)	Ongoing execution of Mitigation Plan is occurring (E)	
	Best Management Practices are implemented (S&E)		
	Continuously update Gas Well Inventory and assure wells and pipelines are compliant; partner with Real Estate and the Bureau of Land Management (BLM) (S&E)		
Achieve and maintain desired natural and cultural resource conditions	Specific conservation organizations (federal and state agencies, tribal governments, academia, nonprofits) have been asked to engage (S&E)	Working relationships with federal, state, academia, and NGOs are being utilized to achieve these conditions (S&E)	Increased stakeholder buy-in and protection of the resources in and surrounding the Project
	Project staff are trained on how to study and manage Project resources (S&E)		
	Identify indicator species to monitor environmental changes, efficacy of management, and provide warnings for impending ecological shifts (E)		

¹ S = Sustain
E = Establish

	Habitat enhancement initiatives such as fish attractor structures, avian habitats, and pollinator plots (S&E)		
	Available skill sets and equipment across projects are leveraged (S&E)	Implement species specific management plans for indicator species (E)	
	New equipment that can be used at multiple reservoirs are acquired (E)		
	Annual Work Plans are being implemented (E)		

Goal 2: Cultivate volunteers, public-private partnerships, and grants1

Management and Development Activity	Five-year	Ten-year	Resource Objective
Develop appropriate MOU/MOA’s with potential partners	Opportunities with action groups, local organizations, and corporation involvement such as Fishing Report WV, Lewis County First, Lewis County CVB, Lewis and Upshur County School Systems, WVDNR, Stonewall Jackson Reenactment Unit, Davis and Elkins Upward Bound, West Fork Action Groups, Stonewall Foundation, etc., have been initiated and maintained (S&E)	Appropriate MOU/MOA(s) with land management, cultural, and historical partners are established (S&E)	Partners are helping to share the Corps vision for the Project and West Fork Watershed
Establishing the right partnership, at the right place, at the right time	Educational/Interpretive programs are developed and supported (S&E)	An organization which supplies assistance to the Project, such as Davis and Elkins Upward Bound, and Lewis/Upshur County High Schools has established a relationship with the Project (E)	Partners, volunteers, and interns are amplifying Project staff responsibilities to further protect and enhance natural and cultural resources
	Partner with WVDNR Fisheries, Wildlife, Forestry, Law Enforcement, and State Parks to participate in outreach events and programs (S&E)		
	Establish Water Safety Council for the Project (S&E)	Establish Staffed Information Center (S)	
	Initiate Volunteer-Staffed Information Center (E)		
	Establish a “Friends of Stonewall Jackson Lake” Group (E)		

Goal 3: Provide safe and memorable connections, as part of multiple destination points¹

Management and Development Activity	Five-year	Ten-year	Resource Objective
Ranger safety	Update radio systems to maintain communication with Lewis County Emergency Operations (S)	Update video surveillance systems at dam site area (S)	Project staff is working in a safe environment
	Establish a broadband/cellular network Project wide through a partnership with Lewis County Commission and other organizations (S&E)	In accordance with Corps standards and guidance manuals, communication and security features have been met. Necessary upgrades have been made accordingly (S&E)	
Visitor Safety	Consistent visitor assistance experience through area inspections, removal of hazard trees, updates to boat patrol manual etc., is being ensured (S&E)	Facility and Equipment Maintenance (FEM) system is established, maintained, and upgraded to ensure safety in all areas (S)	Low chances of incidents and quick response times for emergency personnel; routine maintenance has diminished likelihood of an accident/incident
	Update emergency Corps Point of Contacts (POCs) for local emergency response agencies (S&E)		
	Continue maintaining trail signage for emergency response purposes within Project operation areas (S)	Project Site Areas (PSAs) with degraded facilities/infrastructure are prioritized for enhancement funding (S&E)	
	Emergency groups practice emergency safety/trainings at the Project on a regular basis such as Annual Interagency Dam Safety Exercises (S)		
	Regular Recreation Operational Condition Assessments (OCAs) are established to inventory road and facility conditions (E)		
Connect with other District/Division Projects	Joint ventures with other Projects have been explored (E)	If established, review of joint ventures for modifications or additions (S&E)	Public is aware of the recreational facilities at multiple Corps projects

Serve as part of multiple destination points, increasing off-season, non-peak visitation to the Project	Project staff are engaged with local Tourist Promotion Bureaus, Chambers of Commerce, Regional Planning Commissions, and Stonewall Resort State Park (S&E)	Promote regional activities (E)	Diverse user groups from regional areas are coming to the Project and visitation has increased
		Continue Outreach to schools during the off-season, such as, Junior Ranger, and High School/College Tours to share Corps Mission (S)	
Promoting all that the Project has to offer, bringing in visitors with varying interests and of varying ages	School groups, clubs, etc. have been reached out to and invited to the Project (S)	An annual signature event is being hosted, bringing visitors to the Project (e.g. West Virginia National Hunting and Fishing Days). Continuing partnership with WVDNR (S)	Visitors are aware and utilizing all available resources at the Project
	Dam Tours are being conducted as a way to educate visitors and increase visitation (S)		
	Wayside exhibit upgrades on Friendship Trail and around dam site area (S)		
	Upgrade Information Center displays to encourage engagement by all ages, such as STEAM and digital media (E&S)		
	Infrastructure improvements at dam site facilities to enhance visitors' recreational experience (E&S)		

Goal 4: Leverage emerging technology to tell the Corps stories and enhance visitor experiences1

Management and Development Activity	Five-year	Ten-year	Resource Objective
Public interaction with the Project is occurring through technology	Interpretive programming, interactive display upgrades (S)	Adding more digital and interactive displays in the Information Center to provide new experiences to returning visitors (E&S)	Technology is used in interpretive services, improved visitor experience, and showcasing Project opportunities
	Interactive exhibits along Friendship Trail to improve visitor experience (S&E)	Modernize 4th floor pylon building of dam for water safety and Corps mission education (E)	
	Visitors are being encouraged to submit photos and posts about the Project on social media (e.g. hashtag established) (S&E)		
Embrace emerging technology to improve information collection	Locations for fish habitat structures, trails, reservoir mile markers, and other amenities are in a digital, interactive format that the public can utilize and offer comments and suggestions on future improvements to these areas (E)	Project boundary inventory and monitoring are being conducted wirelessly through Project staff and public using future apps (E)	Project staff are utilizing technology to better monitor and communicate about the Project
Enhance public outreach	Emerging social media technologies are being utilized for promotion and public outreach (S&E)	The Visitor Information Center is updated to a Type B, Project Visitor Center (E)	Visitation is increasing due to greater public awareness of events and opportunities at the Project
	Informational bulletin boards, kiosks, and Information Center is updated to reflect most current information (S&E)	Conference Room Updated with the latest audio/video/teleconferencing capabilities and equipment to be compatible with changing formats to promote and enhance community outreach, education, and relationships with partner workshops and meetings (S&E)	
	Regional outdoor recreational activities are promoted on social media (e.g. Instagram, Facebook) (S&E)		
	Success stories are being shared on local news outlets and coordinated with Public Affairs Office (S&E)		

2. Project Setting and Factors Influencing Management and Development

2.1 Resource Analysis

2.1.1 Fish and Wildlife Resources

The Project's forested habitat, scrub-shrub uplands, wetlands, streams, and river and reservoir support a variety of wildlife species common to West Virginia. A few of the more common species likely to be observed in the Project area, include: bald eagle (*Haliaeetus leucocephalus*), osprey (*Pandion haliaetus*), turkey (*Meleagris gallopavo*), cardinal (*Cardinalis cardinalis*), red-winged blackbirds (*Agelaius phoeniceus*), robins (*Turdus migratorius*), song sparrows (*Melospiza melodia*), common mergansers (*Mergus merganser*), mallards (*Anas platyrhynchos*), black bear (*Ursus americanus*), coyote (*Canis latrans*), red fox (*Vulpes vulpes*), grey fox (*Urocyon cinereoargenteus*), white-tailed deer (*Odocoileus virginianus*), raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), grey squirrel (*Sciurus carolinensis*), and fox squirrel (*Sciurus niger*). In addition, the Project supports a variety of amphibians and reptiles, including multiple frog, turtle, salamander, and snake species.

The Project also provides habitat for a diverse array of fish species which include largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), spotted bass (*Micropterus punctulatus*), muskellunge (*Esox masquinongy*), walleye (*Sander vitreus*), bluegill (*Lepomis macrochirus*), white bass (*Morone chrysops*), rock bass (*Ambloplites rupestris*), black crappie (*Pomoxis nigromaculatus*), white crappie (*Pomoxis annularis*), yellow perch (*Perca flavescens*), various catfish (*Ictalurus punctatus*, *Ameiurus catus*, etc.), and common carp (*Cyprinus carpio*), among others. Golden rainbow trout (*Oncorhynchus mykiss*, color variant) are stocked in the tailwaters below the dam. The depths of the reservoir accompanied by the dissolved oxygen coming out of the ringjets provide optimal habitat for cold water fisheries.

2.1.2 Vegetative and Timber Resources

Virtually all of the Project has been timbered and much has been grazed or farmed since European settlement in the eighteenth century. Consequently, forest cover on the Project has been extensively altered, and is currently comprised of second and third growth stands, which dominate the Project land cover (see Appendix B, Plate 4 for Vegetative Classification map).

In the area immediately adjacent to the reservoir, both the mixed mesophytic and northern hardwood forest associations are present. The mixed mesophytic is characteristically found in the moister soils and on the lower slopes in valleys protected from the drying action of winds. The northern hardwoods are characteristically found on the upland slopes and in drier soils (USACE, 1982).

The mesophytic forest communities often support multiple canopy tree species at a single site, and rich understories of ferns, fungi, perennial and annual herbaceous plants, shrubs, small trees, and diverse animal communities. Songbirds, salamanders, land snails, and beetles are examples of some particularly diverse taxa. The ecoregion harbors some of the richest and most endemic land snail, amphibian, and herbaceous plant biotas in the United States and Canada. The ecoregion's freshwater communities are the richest temperate freshwater ecosystems in the world, with globally high richness and endemism in mussels, fish, crayfish, and other invertebrates (USACE, 1982).

Northern hardwood forests are composed of a mixture of deciduous trees and understory shrubs that typically grow together at more northern latitudes. Common trees include American beech (*Fagus grandifolia*), red maple (*Acer rubrum*), black cherry (*Prunus serotina*), sugar maple (*Acer saccharum*), red oak (*Quercus rubra*), white oak (*Quercus alba*), black walnut (*Juglans nigra*), tulip poplar (*Liriodendron tulipifera*), shagbark hickory (*Carya ovata*), American sycamore (*Platanus occidentalis*), and yellow birch (*Betula alleghaniensis*).

Northern hardwood forests provide habitat for everything from the smallest insects to the widest-ranging mammals and birds. If these animals are to remain common, these and other species require forested habitats within the rapidly developing landscapes.

The Project supports the below best management practices of forest sustainability:

- Conserve and manage working forest landscapes for multiple values and uses
- Protect forests from threats
- Enhance public benefits from trees and forests

2.1.3 Threatened and Endangered Species

Lists of threatened and endangered species are maintained by the U.S. Fish and Wildlife Service (USFWS). Threatened and endangered species that may exist in the region are listed in Table 2-1. There is no critical habitat within the Project area. There are no confirmed federally threatened and endangered species at the Project. However, potentially occupied habitat may be present (See Table 2-1, below). Periodic surveys should be conducted through coordination with local conservation groups and academia. Any proposed development would include protective measures and consultations as needed to ensure no listed species are impacted.

Table 2-1. Threatened and Endangered Species (USFWS IPaC, 16 April 2020)

Species	Scientific Name	Class	Status	Habitat
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	Mammal	Threatened	Cavities or crevices in both live trees and snags (dead trees) during the summer. In the winter these bats hibernate in caves and mines.
Indiana Bat	<i>Myotis sodalis</i>	Mammal	Endangered	Roost under the peeling bark of dead and dying trees during the summer. In the winter these bats hibernate in caves, or, occasionally, in abandoned mines.
Clubshell Mussel	<i>Pleurobema clava</i>	Mussel	Endangered	Prefers clean, loose sand and gravel in medium to small rivers and streams. Will bury itself in the bottom substrate to depths of up to four inches.
Snuffbox Mussel	<i>Epioblasma triquetra</i>	Mussel	Endangered	Prefers clean, stable, coarse sand and gravel runs, often just downstream of riffle areas in medium to small rivers and streams. Burrows completely beneath the substrate to a depth of two to four inches.

2.1.4 Invasive Species

Under Executive Order (EO) 13112, Invasive Species (FR: 03 Feb 1999), as amended by EO 13751, Safeguarding the Nation From the Impacts of Invasive Species (FR: 08 Dec 2016), an invasive species is defined as a non-native species whose introduction does, or is likely to cause, economic or environmental harm or harm to human health. Invasive species can be microbes, plants, or animals that are non-native to an ecosystem. Invasive species can out compete native species by consuming their food, occupying their territory, and altering the ecosystem in ways that harm native species. Invasive species can be accidentally transported or they can be deliberately introduced because they are thought to be helpful in some way. Invasive species cost local, state, and federal agencies billions of dollars annually. The most common invasive terrestrial plant species occurring at the Project are: Japanese honeysuckle (*Lonicera japonica*), Japanese knotweed (*Polygonum cuspidatum*), autumn olive (*Elaeagnus umbellata*), buckthorns (*Rhamnus frangula*, *R. cathartica*), purple loosestrife (*Lythrum salicaria*), common reed or phragmites (*Phragmites australis*), reed canarygrass (*Phalaris arundinacea*), garlic mustard (*Alliaria petiolata*), multiflora rose (*Rosa multiflora*), giant hogweed (*Heracleum mantegazzianum*), Japanese stiltgrass (*Microstegium vimineum*), Asiatic bittersweet (*Celastrus orbiculatus*), and bush honeysuckles (*Lonicera maackii*, *L. tatarica*, *L. morrowii*). The most common invasive insects are: emerald ash borer (EAB) (*Agrilus planipennis*), gypsy moth (*Lymantria dispar*), and the hemlock woolly adelgid (HWA) (*Adelges tsugae*). The most common aquatic invasive species are: hydrilla (*Hydrilla verticillata*), parrot feather milfoil

(*Myriophyllum aquaticum*), Asian clam (*Corbicula fluminea*), zebra mussel (*Dreissena polymorpha*), virile crayfish (*Orconectes virilis*), and rusty crayfish (*Orconectes rusticus*).

Climate change will likely benefit many of the aforementioned non-native species, potentially enhancing their ability to outcompete native organisms. Left unchecked, invasive species have the potential to undermine ecosystem structure and function, resulting in a degraded resource that fails to meet many of the key objectives of the Project.

2.1.5 Ecological Setting

The purpose of the ecological land classification is to provide information for research, assessment, monitoring, and management of ecosystem components. The Natural Resource Management mission statement (ER 1130-2-550; Change 5, 30 Jan 2013) directly supports this paradigm. According to the U.S. Environmental Protection Agency's designation of ecoregions, the Project is located within the Western Allegheny Plateau Ecoregion. This region covers most of the central Appalachian Plateau and includes southwestern Pennsylvania, southeastern Ohio, northwestern West Virginia, and a small portion of the Bluegrass Region of Kentucky. The hilly and wooded terrain of the Western Allegheny Plateau was not subject to glaciation and is more rugged than the plains of the Erie Drift Plain and the Eastern Corn Belt Plains to the north and west.

2.1.6 Wetlands

According to the National Wetland Inventory (NWI), the Project includes approximately 2.9 acres of freshwater emergent wetlands, 1.6 acres of freshwater forested/shrub wetlands, 15.7 acres of freshwater pond wetlands, 90.7 acres of riverine wetlands, and 2,401.6 acres of lake wetlands.

Wetlands serve important water quality and wildlife habitat functions. Conservation interest should be given to these features. See Appendix B, Plate 5 for Wetlands map.

2.1.7 Water Quality & Sedimentation

Water Quality

The Pittsburgh District Water Quality Program has sampled water quality conditions at the Project since 1990. Data collected includes chemical, physical, and biological constituents at numerous sampling locations on tributaries, bays, reservoir, and outflow. Routine water quality monitoring includes:

- Bi-weekly sample collection by Project staff from the outflow
- Yearly limnology surveys of the reservoir by water quality staff
- Once every ten years, monthly intensive limnology surveys from the months of March through November are performed to understand decadal/spatial changes in limnological dynamics

The Project reservoir is a relatively warm, shallow, slightly mineralized, and biologically productive impoundment, which develops very strong and highly persistent thermal and chemical stratification patterns starting in early summer and continuing through late fall. As a consequence of stratification, very high concentrations of iron, manganese, nutrients and hydrogen sulfide accumulate within and are flushed out of the reservoir during periods of strong stratification. Water quality parameters of primary concern at the Project include: water temperature, dissolved oxygen, oxidation and reduction of primary nutrients and metals, and hydrogen sulfide at the dam outflow. During late summer, blue-green algae blooms have been observed in the reservoir, but, to date, these blooms have not reached nuisance level concentrations. Future increased nutrient loading from recreational and residential development at or near the Project could result in eutrophication problems for the reservoir.

Sedimentation

Preliminary sedimentation surveys were conducted in 1986-1988 to determine a preconstruction survey baseline. However, sedimentation rate surveys have not been conducted at the Project since construction. Originally, there were a total of 60 range transects (including monuments and witness markers) established during the construction of the dam. However, an officially approved sedimentation survey plan of ranges was not prepared. Although a sedimentation survey was planned for 1999, there is no evidence that this survey was ever conducted. The lack of sedimentation rate surveys points to a fundamental lack of understanding regarding reservoir storage capacity through time. The lack of sedimentation rate surveys points to a fundamental lack of understanding regarding reservoir storage capacity through time. A sedimentation survey is recommended to confirm the available storage capacity of the reservoir.

For more information regarding sedimentation, the Project Water Control Manual can be found here: <https://intranet.usace.army.mil/lrd/lrp/Pages/wcm.aspx>.

2.2 Cultural Resources

Cultural resources are generally defined as archaeological or historical sites and objects, buildings, structures, and landscapes that are related to the history of past human land use. These land use activities include, but are not limited to, activities of Native American peoples as well as early historic European and American settlers, early industrial sites, like gristmills, and more modern engineering structures.

Cultural resources are protected under several Federal laws and regulations including: Antiquities Act, National Historic Preservation Act (NHPA), Archaeological Resources Protection Act (ARPA), Federal Curation Regulations 36 CFR Part 79, Native American Graves Protection and Repatriation Act (NAGPRA), and Executive Order 13007: Indian Sacred Sites among others. Furthermore, the Corps has established policies regarding the management of cultural resources under the Corps' jurisdiction. These policies can be found in ER 1130-2-540

(15 Nov 1996) Project Operations Environmental Stewardship Operations and Maintenance Policies; and Engineering Pamphlet (EP) 1130-2-540 (15 Nov 1996) Project Operations Environmental Stewardship and Maintenance Guidance and Procedures. The Corps must comply with all these laws, regulations and policies when performing any works either funded, regulated or within Corps fee owned lands or easements. These laws and regulations provide the Corps with processes for understanding how Corps projects affect cultural resources and how the Corps can avoid, minimize, or mitigate potential effects on these resources.

The Project area is one of rich cultural history. A total of six cultural resources surveys, covering approximately 10.6% of the Project lands, have been conducted within the Project area. Most of the surveys were project specific and only focused on areas proposed to be modified or disturbed by construction and other ground disturbing activities. A total of 42 cultural resources have been identified within the Project area. These resources include prehistoric and historic archaeological sites, historic structures, and historic districts. Additional research has identified five of these resources as eligible for the National Register of Historic Places (NRHP). The remaining resources have yet to be evaluated for the NRHP.

Required Reconnaissance

According to ER 1130-2-540, the District Commander shall ensure that a Cultural Resources Management Plan (CRMP), where appropriate, is developed for Corps projects. The Project does not have a CRMP. However, the Corps continues to follow all cultural resources management laws, regulations, and policies prior to conducting work or allowing others to conduct work at the Project. ER 1130-2-540 directs that the District Commander shall implement a program, upon availability of funds, to accomplish an inventory of historic properties and site evaluation at each civil works water resource project under his/her jurisdiction and administration to comply with Section 110(a)(2) of the NHPA. As referenced above, only portions of this Project were surveyed prior to construction.

EP 1130-2-540 directs the agency that on lands held in fee by the Federal government under the administration and jurisdiction of the Corps of Engineers, District Commanders shall ensure that historic properties are given full consideration in all management and construction activities. The District Commander has full responsibility within existing statutes, administrative guidelines and policy to protect, preserve, manage, and/or mitigate damage to historic properties on project lands. These responsibilities include but are not limited to the following actions: real estate grants and land disposals, recreational development, wildlife management, construction, and operation and maintenance.

As referenced above, only portions of the Project area have been surveyed for cultural resources. Pursuant to cultural resources regulations and policies, new cultural resources surveys may need to be conducted to determine the effects that any proposed activity may have on cultural

resources. Furthermore, pursuant to Section 106 of the NHPA, the Corps must provide the State Historic Preservation Office, and appropriate Tribal Historic Preservation Office a reasonable opportunity to comment on the proposed activity and its potential effects on cultural resources prior to any decision making.

2.3 Socioeconomics

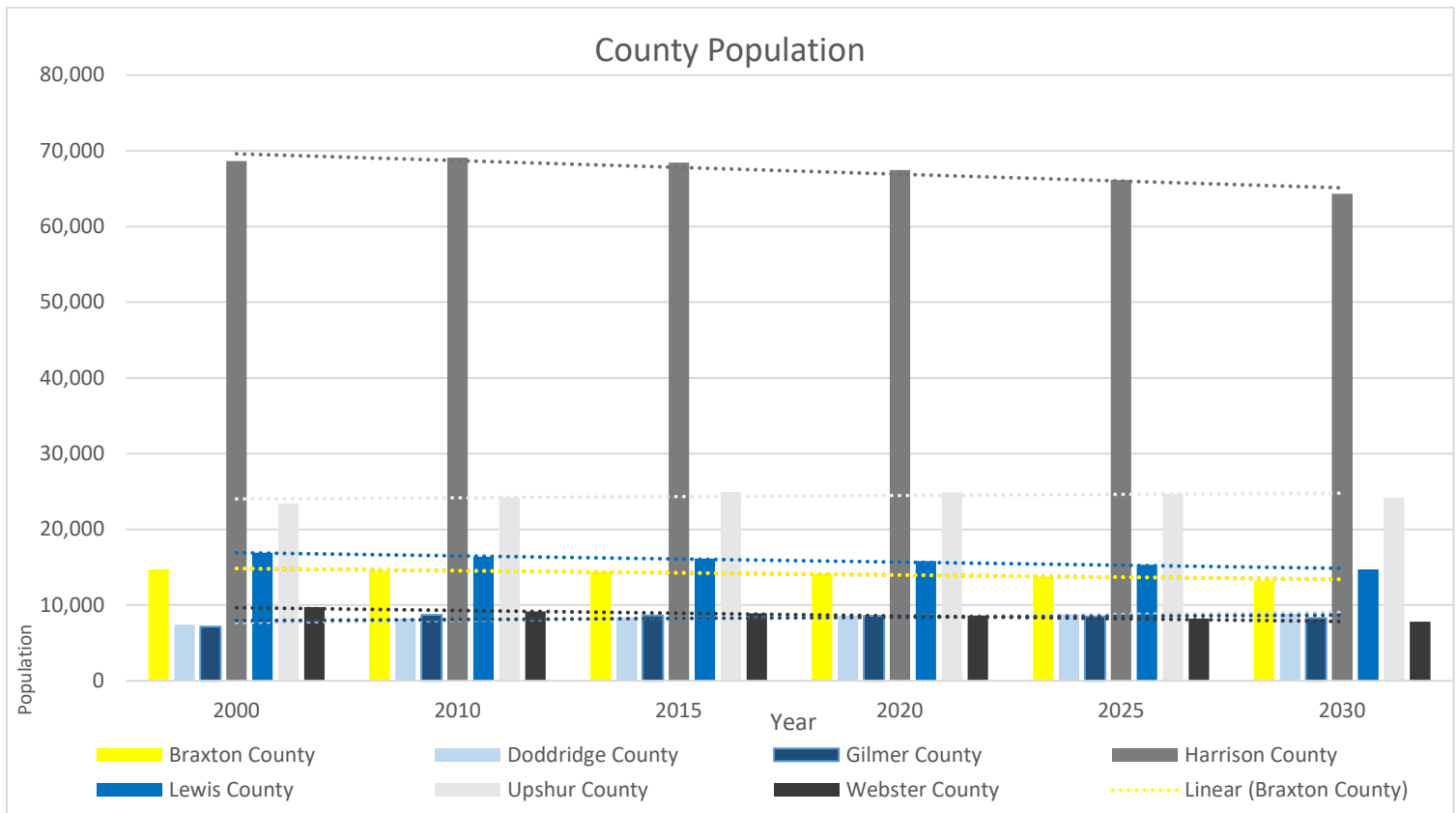
2.3.1 Market Area

The Project was constructed on the West Fork River located in Lewis County West Virginia, three miles south of the county seat at Weston, West Virginia. The Project receives visitors primarily from Lewis County and these neighboring counties: Braxton, Doddridge, Gilmer, Harrison, Upshur, Webster.

2.3.2 Population

Based on census data and population predictions through 2030 around the adjacent counties, we can assume that all things being equal, recreation at the Project will decrease. Lewis County loses approximately 400 residents every five years. Braxton County loses approximately 300 residents every five years. Doddridge County gains approximately 150 residents every five years. Gilmer County loses approximately 100 residents every five years. Harrison County loses approximately 1,200 residents every five years. Upshur County's population is relatively unchanging, not losing or gaining many residents on average every five years resulting in very little change between now and 2030. Webster County loses approximately 350 residents every five years. The total population of these seven counties is expected to shrink by approximately 2,200 residents every five years (Christiadi, Deskins, & Lego, 2014). Figure 2-1 below shows the historic and projected populations for the counties in the market area.

Figure 2-1: Population of Counties in the Market Area



2.3.3 Income and Poverty Status

The median household income and poverty rate of each county in the market area were considered for the purpose of determining what choices the public might make when seeking recreation. 2017 Census data for the seven counties in the market area and the state of West Virginia were gathered for this update. Table 2-2 below shows the median household income and poverty rate (percentage of population that fall below the poverty line) for each county in the market area as well as the state of West Virginia (US Census Bureau, 2017a) and (US Census Bureau, 2017b).

Table 2-2: Median Household Income and Poverty Rate by County in the Market Area

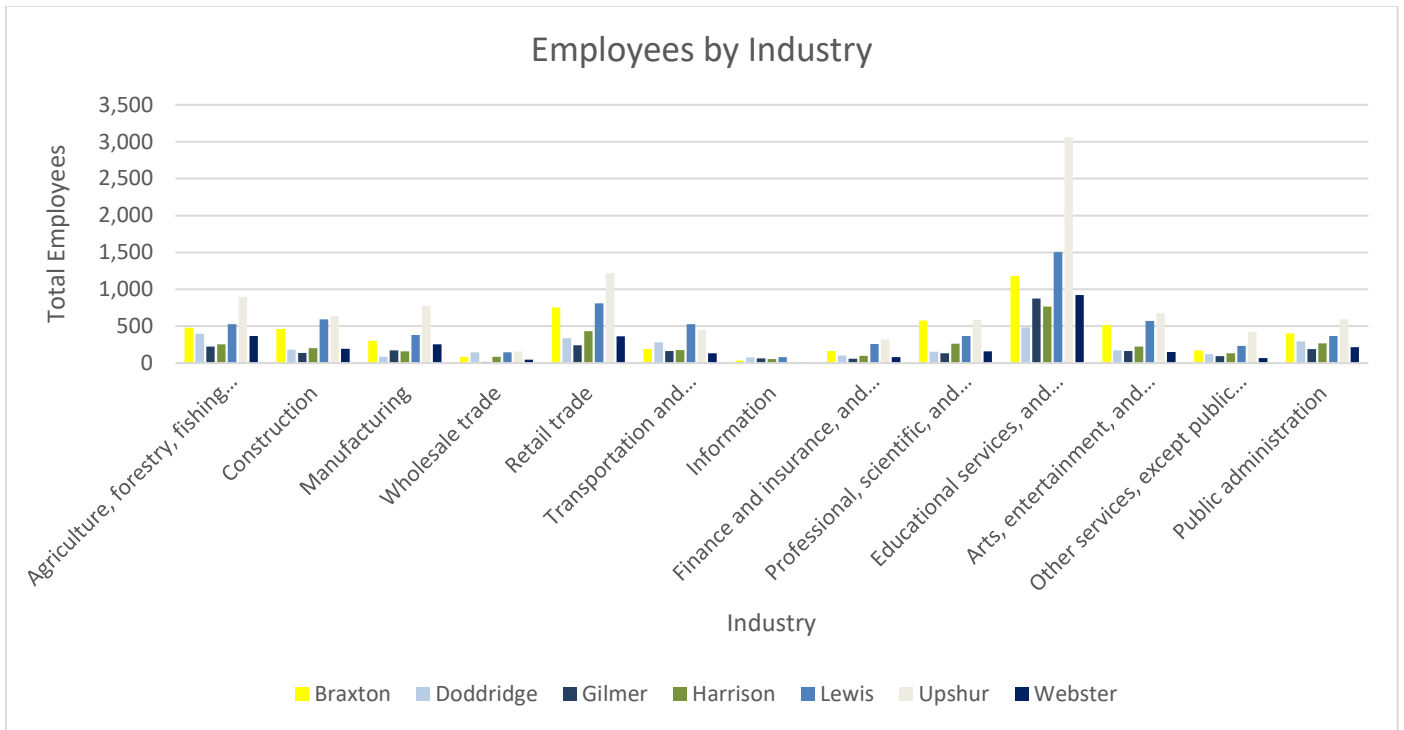
County	Braxton	Doddridge	Gilmer	Harrison	Lewis	Upshur	Webster	WV
Median Household Income	\$41,266	\$44,437	\$37,175	\$48,315	\$39,793	\$39,434	\$33,390	\$44,061
Poverty Rate	22.1%	14.9%	25.0%	15.0%	19.8%	21.2%	26.7%	17.8%

Only Doddridge County and Harrison County are above the state of West Virginia's average household income of \$44,061. Similarly, Doddridge County and Harrison County have lower than the state of West Virginia's 17.8% of population below the poverty line. This data is discussed in greater detail in section 2.3.5, Economic Impact of Recreation Related Spending, below.

2.3.4 Area Industries

Lewis, Braxton, Doddridge, Gilmer, Harrison, Upshur, and Webster Counties are quite diverse regarding the primary industries of employment. The three highest paying industries in Lewis County are Professional, Scientific, & Technical Services (\$66,250), Utilities (\$56,971), and Public Administration (\$56,316). In Braxton, the three highest paying industries are Mining, Quarrying, & Oil & Gas Extraction (\$56,944), Manufacturing (\$50,787), and Agriculture, Forestry, Fishing & Hunting, & Mining (\$50,759). In Doddridge, the three highest paying industries are Wholesale Trade (\$57,660), Utilities (\$56,491), and Transportation & Warehousing, & Utilities (\$55,548). In Gilmer, the three highest paying industries are Utilities (\$71,250), Mining, Quarrying, & Oil & Gas Extraction (\$65,577), and Agriculture, Forestry, Fishing & Hunting, & Mining (\$63,750). In Harrison, the three highest paying industries are Utilities (\$75,096), Mining, Quarrying, & Oil & Gas Extraction (\$57,674), and Transportation & Warehousing, & Utilities (\$56,011). In Upshur, the three highest paying industries are Professional, Scientific, & Technical Services (\$58,816), Mining, Quarrying, & Oil & Gas Extraction (\$52,354), and Agriculture, Forestry, Fishing & Hunting, & Mining (\$50,862). In Webster, the three highest paying industries are Wholesale Trade (\$83,875), Mining, Quarrying, & Oil & Gas Extraction (\$64,211), and Agriculture, Forestry, Fishing & Hunting, & Mining (\$51,184) (Data USA, 2020). Given these top paying industries for Lewis County, there could be increased pressure for utility rights of way onto the Project. Figure 2-2 below shows number of employees in each industry for each of these seven counties in the market area.

Figure 2-2: Employment by Industry of Counties in the Market Area



2.3.5 Economic Impact of Recreation Related Spending

The Corps provides water-based recreation opportunities throughout the country, which provide economic benefits to the local and regional communities in which Corps' projects exist. To estimate the economic impact from the recreation-related spending at the Project, the Corps' Institute for Water Resources, in collaboration with the Louis Berger Group and Michigan State University, have developed a regional economic impact modeling tool called the Regional ECONomic System (RECONS). This modeling tool automates calculations and generates estimates of jobs and other economic measures. This is done by extracting multipliers and other economic measures from more than 1,500 regional economic models that were built specifically for Corps Project locations (Chang, W.H., et al., 2019). For 2019, RECONS shows an estimated 116,391 visits (person-days/nights) at the Project, predicted to result in direct benefits to the region of \$2,884,268 in sales, \$1,135,357 in labor income, \$1,603,571 in economic value added (wages and salaries, payroll benefits, profits, rents, and indirect business taxes), and 40 jobs supported in the region (Recreation Fast Facts, 2020). Based on the population, income, and poverty facts presented in the sections above, a sizable portion of the local population will likely use the Project as a vacation destination based on proximity and the relatively lower costs associated with recreating closer to home as opposed to incurring additional costs by choosing a site further away. By choosing to go to the Project for recreational needs, the populace will also contribute to the local economy of the area.

2.3.6 Zones of Influence

The primary zone of influence encompasses counties within the Clarksburg Micropolitan Statistical Area and is partially the basis in summarizing the population associated with the Project. The Clarksburg Micropolitan Statistical Area includes Doddridge County and Harrison County which had a total population of 77,301 in 2010 (American Fact Finder, 2020). Braxton County, Gilmer County, Upshur County, and Webster County are not included in any Combined Statistical Area, and they had a combined population of 56,624 in 2010. The Project is located in Lewis County, near the city of Weston, WV. Lewis County's population as of the 2010 census is 16,372, a 3.2% decrease from the 2000 census.

2.4 Recreation Facilities, Activities and Needs

2.4.1 Visitation Profile

Visitation is common at the dam site, resort, and day-use areas as the Project is near Interstate 79 and the midway point between Pittsburgh, PA and Charleston, WV. Peak recreation season is from May through October. The Project had an average annual visitation of approximately 120,499 from 2017 to 2019. Visitation is concentrated during the weekends throughout the recreation season. Popular recreational activities at the Project include golfing, lodging, angling, paddlecraft (e.g. canoes, kayaks), boating, fishing, camping, hunting, bird watching, and hiking.

2.4.2 Recreation Analysis

Description of Facilities

The Project is a popular attraction with a resort providing a 191-room lodge, cottages, 18-hole Arnold Palmer Golf Course, marina, spa, 46-site campground, three tennis courts, disc golf, escape rooms, campground store, two restaurants, bar/grill, and over 15,000 acres of Wildlife Management Area for sightseeing, hiking, hunting, and fishing.

The Project has seven boat launches total (five ramps, and two cartopper), two located at the resort, one at Vandalia, Georgetown, Jacksonville, Glady Fork (cartopper), and Pen Run (cartopper). Visitor use and the increase in popularity of paddlecraft such as kayaks, canoes, and paddleboards indicates that additional small-craft launches would be desirable at the Project. Other recreation facilities managed by WVDNR, Parks and Recreation, include a resort with restaurants, rental equipment, and a total of 324 dock slips, with 12 transient slips at the 13 cottages; 15.62 miles of hiking trails at the resort and 131 miles of trails on the Wildlife Management Area; and a Nature Center with wildlife displays from all over the world. Recreation facilities managed by the Corps include an Information Center, five picnic tables, picnic shelter, men and women's restrooms, fishing pier, overlook, and one mile of the Friendship Trail.

Customer Satisfaction and Considerations

According to comment cards and verbal opinions expressed to Project staff, the areas that need most improvement are dam site recreation amenities, improved access to tailwaters, swimming area/beach, new activities/displays at the Information Center, and non-peak season recreation activities at the resort.

2.4.3 Recreational Carrying Capacity

Carrying capacity, which includes both environmental (how much use can the resource support without being compromised) and social (how much use can occur before the quality of visitor experience is diminished) dimensions, is currently balanced at the Project. The Project experiences few fatalities or boating accidents, and the Stonewall Resort State Park is booked throughout the recreation season, especially holidays. Stonewall Marina has most dock slips rented.

2.5 Related Recreational, Historical and Cultural Areas

The Project is located within the Mountain Lakes tourism region by West Virginia Tourism. The Project is located within a short distance of several historical attractions including the Jackson Mills 4-H Historic Camp, the Walkersville Covered Bridge, Weston Historic District, Weston and Gauley Bridge Turnpike Access at Abrams Run, Holly River Historic District, the Museum of American Glass in West Virginia, and the Mountaineer Military Museum.

2.6 Real Estate and Acquisition Policy

The total Real Estate at the Project encompasses 20,385.3 acres of fee land and water as well as 429.3 acres as flowage and road easement. There are approximately 1,199 active outgrants which include mineral tracts.

3. Land Allocation, Land Classification, Water Surface and Project Easement Lands

This Master Plan is intended to guide the comprehensive management and development of recreation, natural, and cultural resources at the Project and define the Corps' responsibilities pursuant to federal laws to preserve, conserve, restore, maintain, manage, and develop lands, waters, and resources. An important aspect in managing these goals is properly defining the appropriate use for lands and waters consistent with their congressionally authorized purpose.

3.1 Land Allocation

In accordance with EP 1130-2-550 (Change 5, 30 Jan 13), land allocations are the congressionally authorized purposes for which Corps lands were acquired. There are four categories of allocation:

Operations

Lands acquired for the congressionally authorized purpose of constructing and operating the Project. The entirety of the Project has a land allocation of Operations, which means that all Project lands were originally acquired to provide safe, efficient operation of the Project and its authorized purposes. No specific parcels were acquired for, or assigned to individual purposes of recreation, fish and wildlife management, or mitigation.

Recreation

Lands acquired specifically for the congressionally authorized purpose of recreation. Lands in this allocation can only be given a land classification of "Recreation". No specific parcels at the Project were acquired for or assigned to the purpose of recreation.

Fish and Wildlife

Lands acquired specifically for the congressionally authorized purpose of fish and wildlife management. Lands in this allocation can only be given a land classification of "Wildlife Management". No specific parcels at the Project were acquired for or assigned to the purpose of fish and wildlife.

Mitigation

Lands acquired specifically for the congressionally authorized purpose of offsetting losses associated with development of the Project. Lands in this allocation can only be given a land classification of "Mitigation". No specific parcels at the Project were acquired for or assigned to the purpose of mitigation.

3.2 Land Classification

Land classifications are the primary use for which Project lands are managed. The previous Master Plan dated 1982, used a now obsolete classification scheme that has been updated in this document to meet current standards. Current standards identify six classification categories:

- Project Operations
- High-Density Recreation
- Mitigation
- Environmentally Sensitive Areas
- Multiple Resource Managed Lands
- Water Surface

The classification process refines the land allocations to fully utilize Project lands and considers public desires, legislative authority, regional and Project specific resource requirements, and suitability. Land classification indicates the primary use for which Project lands are managed. The Project manages lands according to five of the above six classifications (sans Mitigation). The system for classification has been realigned to meet current standards (see Appendix B, Plate 6 for the Land Classification map).

3.2.1 Project Operations

This classification includes lands required for the dam and associated structures, administrative offices, maintenance compound, and other areas that are used to operate and maintain the Project. Where compatible with operational requirements, Project Operations lands may be used for wildlife habitat management and recreational use, as long as the proposed activities do not negatively impact Project operations. Likewise, licenses, permits, easements, or other outgrants are issued only for uses that do not conflict with operational requirements. Public access to these areas is often restricted. For example, mooring private vessels or modification of land and vegetation are prohibited without explicit permission. Requests for a permit for a compatible use within an area designated for Project operations will be evaluated on a case-by-case basis and a decision will be made as to whether or not the proposed activity will be permitted, based on the potential impact to operations.

3.2.2 High-Density Recreation

These lands are designated for intensive levels of recreational use to accommodate and support the recreational needs and desires of visitors. They include lands on which existing or planned major recreational facilities are located and allow for developed public recreation facilities, concession development, and high-density or high impact recreational use. In general, any uses of these lands that interfere with public enjoyment of recreational opportunities are prohibited. Low density recreation and wildlife management activities compatible with intensive recreation use are acceptable, most usually on an interim basis. No agricultural uses are permitted on these lands, except on an interim basis for maintenance of scenic or open space values. Permits, licenses, and easements are not issued for non-compatible manmade intrusions such as pipelines, overhead transmission lines, and non-Project roads, except where warranted by the public interest and no viable alternative area or route is available.

The facilities in these areas will accommodate the recreation needs of visitors in concentrated numbers, while also offering open space lands for the purpose of providing more complete and attractive recreation areas. The modernization of campsites and recreation facilities is anticipated to occur on a funds-available basis. Modernization may include hardening, leveling, and paving of campsites, upgrading electrical and plumbing infrastructure, adding or upgrading restroom and shower facilities,

and adding or expanding roads and parking lots to provide better access and accommodate additional visitors.

Requests for permits to conduct concessions, rentals, or conducting any other business in these areas will be reviewed on a case-by-case basis and will involve real estate instruments and fee payment to the Corps.

Given the difficulty of maintaining current facilities, the development of more modern facilities demanded by recreational visitors will likely include partnering with stakeholders to share in the cost, operation, and maintenance of any such asset.

3.2.3 Environmentally Sensitive Areas

This classification consists of areas where scientific, ecological, cultural, or aesthetic features have been identified. Designation of these lands is not limited to just lands that are otherwise protected by laws such as the Endangered Species Act, the National Historic Preservation Act, or applicable state statutes. These areas must be identified and protected by management to ensure they are not adversely impacted. Typically, limited or no development of public use is allowed on these lands. No agricultural or grazing uses are permitted on these lands, unless necessary to implement a specific resource management benefit. These areas are typically distinct parcels located within another, larger land classification area.

Defining sensitive areas as part of the Master Plan process assists in the protection of valuable resources. These sites are mapped and managed by the Corps. Environmentally Sensitive Areas include locations of threatened and endangered species and cultural sites. Many factors contribute in identifying environmentally sensitive areas. The degree of sensitivity varies by location and other contributing factors. An area may be available to construct a properly designed hiking trail or may be actively managed by forest practices such as timber stand improvement that do not negatively impact the site's sensitivity. Other sites can be very sensitive to human disturbance and need adequate protection from development. Examples of this degree of sensitivity would involve eagle nests, osprey nests, and heron rookeries. These animals are threatened by human activities especially during active breeding seasons.

Areas designated as sensitive can change over time, and continuous monitoring through programs like Multiple Species Inventory and Monitoring (MSIM) will provide valuable information to keep identified sensitive areas current. Using Geographic Information System (GIS) databases maintained with separated layers, the dynamic nature of sensitivity can be managed in an up-to-date program. Some areas may be highly sensitive to change, while other areas may need prescribed management to remain viable. The goal of sensitive area management is to protect and preserve known areas that contribute to the diversity and health of the Project area.

3.2.4 Multiple Resource Management Lands

These lands can be divided into the following four subclassifications: Low Density Recreation, Wildlife Management, Vegetative Management, and Future/Inactive Recreation Areas. In the future, some of these areas may be converted to High-Density Recreation. Conversion to High-Density Recreation may

occur based on future recreation needs within the Project area. The Corps must continue to carefully evaluate land use requests in these areas to include road and utility easements, rights of way for pipelines, resource mining activities, and other potential ground and resource-disturbing activities and to ensure that these actions do not negatively impact the environment in a significant manner.

Low Density Recreation

These lands are designated for dispersed and/or low impact recreation use. Development of facilities on these lands is limited. Emphasis is on providing opportunities for non-motorized activities such as walking, fishing, hunting, or nature study. Site-specific, low-impact activities such as primitive camping and picnicking are allowed. Facilities may include boat ramps, boat docks, trails, parking areas and vehicle controls, vault toilets, picnic tables, and fire rings.

In these areas, natural conditions preclude intensive public use development because extensive alteration of natural systems would be required. Difficult access is also a factor indicating low density use as most appropriate for these lands.

Private or long-term exclusive group use of these lands will not be permitted. Management practices leading to habitat improvements for the benefit of wildlife are encouraged. No licenses, permits, or easements will be issued for non-compatible manmade intrusions, such as underground or exposed pipelines, cables, overhead transmission lines, or non-Project roads. Exceptions to this restriction may be made where necessary to serve a demonstrated public need only in those instances where no reasonable alternative is available. Agricultural uses are permitted on this land. The focus for areas under the Low Density Recreation classification is on a balance of low-impact recreational activities along with conservation of natural areas and native species. Management of invasive species is also a priority for these areas to prevent their spread throughout the Project area. Hunting is permitted in most areas under this classification to promote healthy populations of game species.

Low density recreation areas have the potential to be converted to High-Density Recreation through the development of new trail systems, campgrounds, boat launches, or other recreational features. These areas also have the potential to be used for utility lines, timber sales, or mining activities if a third-party makes a request for such an activity. However, these actions would require additional study and would be approved on a case-by-case basis based on the anticipated impacts associated.

Wildlife Management

Proper management techniques will be applied wherever the opportunity exists to improve conditions for scenic value, timber stand improvement, wildfire prevention, pest control, and watershed protection. While all Project lands are managed for fish and wildlife habitat in conjunction with other land uses, Wildlife Management Area lands are designated specifically for wildlife management. They contain valuable wildlife habitat components that are managed, using guidance that includes the State Wildlife Action Plan (SWAP) provided by the West Virginia Division of Natural Resources, Wildlife Resources Section, to yield habitat suitable for designated game and non-game species. Licenses, permits, and

easements for such man-made intrusions such as pumping plants, pipelines, cables, transmission lines, and non-Project roads are usually not allowed on these lands; however, exceptions to this policy are allowable, if properly mitigated.

Vegetation Management

Vegetation management, including agricultural activities that do not greatly alter the natural character of the environment, are permitted for a variety of purposes, including erosion control, retention and improvement of scenic qualities, and wildlife management. Management activities focus on the protection and enhancement of forest resources and vegetative cover. Forests are managed as a multipurpose resource for sustained yield when consistent with recreation and wildlife management objectives and approved land uses. Hunting and fishing are allowed pursuant to tribal or state fish and wildlife management regulations where these activities are not in conflict with the safety of visitors and Project personnel. Other activities are conducted under the guidance of the Project's forest management and wildlife management plans.

Future or Inactive Recreation Areas

These areas have site characteristics compatible either with future recreational development or recreation areas that are closed. Until there is an opportunity to develop or reopen these areas, they will be managed for multiple resources.

3.2.5 Water Surface

There are four possible sub-classifications.

- **Restricted.** Water areas restricted for Project operations, safety, and security purposes.
- **Designated No-Wake.** To protect environmentally sensitive shoreline and recreational water access areas from disturbance, and/or to protect public safety.
- **Fish and Wildlife Sanctuary.** Annual or seasonal restrictions on areas to protect fish and wildlife species during periods of migration, resting, feeding, nesting, and/or spawning.
- **Open Recreation.** Those waters available for year-round or seasonal water-based recreational use.

3.3 Easement Lands

Project easement lands are lands on which easement interests are held, but no fee title ownership exists. Planned use and management of easement lands will be in strict accordance with the terms and conditions of the easement estate acquired for the Project. Easements were acquired for specific purposes and do not convey the same rights or ownership to the Corps as other lands.

3.3.1 Flowage Easement

Flowage easements are utilized for the purpose of temporarily overflowing, flooding, and submerging private land. Generally, the purpose of these easements is to provide adequate storage for flood waters.

3.3.2 Road Easement

Road easements are utilized for the location, construction, operation, maintenance, alteration, and replacement of roadways.

4. Resource Plan

The resource plan describes, in broad terms, how Project lands will be managed according to the established land classifications. Each classification is discussed in terms of anticipated public use and resource stewardship needs.

4.1 Classification and Justification

The land classifications are:

- **Project Operations.** Lands required for the dam, spillway and other areas that are used solely for operation of the Project (more fully described in Sec. 3.2.1 above).
- **High-Density Recreation.** Lands developed for intensive recreational activities (more fully described in Sec. 3.2.2 above).
- **Environmentally Sensitive Areas.** Areas including scientific, ecological or cultural features such as those protected under the Endangered Species Act, National Historic Preservation Act, or other laws (more fully described in Sec. 3.2.3 above).
- **Multiple Resource Managed Lands.** Includes areas of low density recreation, wildlife management, vegetative management, and future/inactive recreation areas (more fully described in Sec. 3.2.4 above).
- **Water Surface.** Water surface areas restricted for Project operations, no-wake zones, used for open recreation, or restricted for fish and wildlife sanctuary (more fully described in Sec. 3.2.5 above).

Further details for managing these lands will be included in the OMP, as revised. Management tasks described in the OMP will support the resource objectives, land classifications, and resource plans set forth in this Master Plan. While the following sections address specific plans for the land classifications listed above, the Corps will strive to meet the following universal Project purposes at all Project lands: 1) take proactive measures to improve and enhance access areas and facilities, 2) improve safety for visitors, and 3) identify and eliminate encroachments and trespasses. As development occurs in the future, the Corps will seek to protect these areas and may require mitigation for development actions that would negatively impact these sites. As these sites are identified, they will be included in future updates to the Master Plan and may also be included in the OMP.

4.1.1 Project Operations

This category includes lands required for the concrete gravity dam and outflow structures, Information Center, Project Office, maintenance complex, radio tower, government launch/dock and other areas used to operate and maintain the Project. There are 309.7 acres classified as Project Operations. The management plan (stated as “resource objectives”) for these areas is to continue providing physical security necessary to ensure continued operations of the dam and related facilities.

4.1.2 High-Density Recreation

Lands developed for intensive recreational activities for the public are considered as high-density recreation including day-use areas, campgrounds, commercial concessions (marinas, restaurants, resorts, etc.), and quasi-public development. There is a total of 1,775.6 acres classified as High-Density Recreation (see Appendix B, Plate 7 for the Recreation map).

Stonewall Resort State Park Lodge

The resort is comprised of a 191-room lodge, 13 cottages, two restaurants, bar/grill, spa, 18-hole Arnold Palmer Golf Course, disc golf course, three tennis courts, escape rooms, activity building, campground store, visitor center, picnic shelter and picnic sites, paddle board rentals, and WVDNR Headquarters. Lodging is available year-round.

Stonewall Resort State Park

Stonewall Resort State Park is leased by the WVDNR, Parks and Recreation and operated by a private developer. The campground consists of 46 sites, 41 with water and electric and five that are non-electric tent sites. There are two shower houses/restrooms. The campground is open year-round. In addition, there are 15.62 miles of hiking trails located here.

The Marina at Stonewall Resort

The Marina at Stonewall Resort is leased by the WVDNR, Parks and Recreation and operated by a private developer. The building is a single-story building. There is a restroom facility at the marina. Boat rentals (pontoon and fishing boats), gasoline, and supplies are available at the marina. There are 324 slips at the marina that can accommodate jet skis up to house boats. The marina is open from May through September. There is a three-lane boat launch located at the marina and a single lane launch at the cottages. Both are open year-round.

Resource Manager’s Office and Information Center

This area consists of an Information Center, men and women’s restroom, the Friendship Trail, five picnic tables, and a picnic shelter. This area has approximately 90 parking spaces. The Information Center is open year-round. Interpretive programming and visitor information provided by Corps staff are available year-round and feature STEAM activities and hands-on interactive educational programs. Most common uses of this area by the public include participation in programs, inquiries, picnicking, and access to the dam for sightseeing, birding, hiking, fishing, and hunting.

Best Management Practices for High-Density Recreation Lands:

- Provide access for and use by the elderly and people with disabilities
- No ground-disturbing activities in high-density recreation areas, unless authorized by the Corps
- Interpret cultural resources to benefit visitors
- Protect the viewshed (geographical area that is visible from a location) in order to maintain current aesthetic values
- Prescribed fire should be considered as a management method for this land classification in appropriate locations

4.1.3 Environmentally Sensitive Areas

This classification consists of areas where scientific, ecological, cultural, or aesthetic features have been identified. Designation of these lands is not limited to just lands that are otherwise protected by laws such as the Endangered Species Act, the National Historic Preservation Act, or applicable state statutes. These areas must be identified and protected by management to ensure they are not adversely impacted. Typically, limited or no development of public use is allowed on these lands.

Environmentally Sensitive Areas include locations of threatened and endangered species and cultural sites. Some areas may be highly sensitive to change, while other areas may need prescribed management to remain viable. The goal of sensitive area management is to protect and preserve known areas that contribute to the diversity and health of the Project area. There is a total of 300.6 acres classified as Environmentally Sensitive Areas. In addition to the archeological sites and freshwater wetlands listed below, 156.3 acres of mature woodlands have been designated as an Environmentally Sensitive Area.

The following types of landscape may be classified as an Environmentally Sensitive Area:

- Known or discovered cultural sites
- Large tract woodlands
- Mature woodlands
- Reforestations
- Wetlands identified in the National Wetlands Inventory
- Lands possessing unique wildlife value by diversity or conservative species
- Steep slopes, often with outcrops or talus slopes
- Areas of aesthetic quality or having aesthetic “scenic” views
- Corridors between habitats that protect connectivity (e.g. riverine woodlands)

Archaeological Sites

Approximately 33.6 acres are classified as lands containing cultural resources. These include prehistoric and historic sites such as historic settlements and homesteads, bridges, and other historic structures. These sites will be managed to protect these resources in accordance with the provisions of applicable laws, including the Archaeological Resources Protection Act, National Historic Preservation Act, and

Native American Graves Protection and Repatriation Act. These areas, along with any other possible archaeological sites, will continue to be surveyed for the presence of archeological resources when development activities are proposed to ensure that utilities placement, mining, installation of recreation features, and other actions do not impact unknown resources. If additional resources are discovered, these parcels would be converted to this management category and additional protections would be afforded to ensure compliance with applicable laws.

Wetlands

There approximately 2.9 acres of freshwater emergent wetlands, 1.6 acres of freshwater forested/shrub wetlands, 15.7 acres of freshwater pond wetlands, 90.7 acres of riverine wetlands, and 2,401.6 acres of lake wetlands. There are multiple acres of wetlands that are not classified as Environmentally Sensitive Areas but rather under the Water Surface classification.

Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For the purposes of this classification, wetlands must have one or more of the following three attributes: 1) at least periodically, the land supports predominantly hydrophytes; 2) the substrate is predominantly undrained hydric soil; and 3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year. Wetland areas are functioning properly when adequate vegetation and landforms are present to: 1) dissipate stream energy associated with high waterflows, thereby reducing erosion and improving water quality; 2) filter sediment, capture bedload, and aid floodplain development; 3) improve flood-water retention and ground-water recharge; 4) develop root masses that stabilize streambanks against cutting action; 5) develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and 6) support greater biodiversity.

Best Management Practices for Environmentally Sensitive Areas:

- Control noxious weeds and other pests in a manner that avoids damage to existing desirable vegetation and sensitive areas (wetlands and streams)
- Preserve and protect existing wetland and other sensitive or unique habitats that support threatened and endangered species along with other wildlife
- Proponents of surface disturbing activities shall identify important, sensitive, or unique habitats in the vicinity of the Project and design the proposed project to avoid, minimize, or mitigate impacts to these resources
- Riparian areas are maintained and improved for the protection and enhancement of fisheries
- As a standard practice, ephemeral and perennial drainages and wetland/riparian areas will be avoided as locations for oil and gas related facilities, including drilling locations, production facilities, roads, and pipelines. Whenever possible, facilities will be confined to existing alignments or locations, minimizing width requirements and maximizing multiple occupancy

- Surface disturbance will not be allowed within 660 feet of the source of a spring or seep, or within downstream riparian areas created by flows from the source or resulting from riparian area management
- Trees shall not be removed within 25 feet of wetlands, including springs or seeps. From 25 feet to 100 feet, maintain at least an average of 50 percent canopy cover
- Trees shall not be cut within 100 feet of the high water mark of vernal pool. From 100 to 200 feet from the vernal pool, maintain at least an average of 50 percent canopy cover to protect amphibian habitat
- Maintain late-successional forest stands
- Proponents of surface disturbing activities shall conduct surveys for federally and state-protected species and other species of concern as well as cultural resources within action areas and design the project to avoid, minimize, or mitigate impacts to these resources
- The Corps will prohibit the disturbance of any population of federal or state listed plant species
- No motorized use, unless previously authorized, will be allowed within Environmentally Sensitive Area boundaries; other trails (i.e., foot trails, mountain bike trails, cross country skiing trails, etc.) will be analyzed on a case by case basis. Trail design, construction, and maintenance will ensure all criteria in which the Environmentally Sensitive Area was established will remain protected
- Prescribed fire should be considered as a management method for this land classification

4.1.4 Multiple Resource Managed Lands

This category includes areas where the predominant use is for game and wildlife management or dispersed recreation. However, there are other compatible uses which may occur on these lands without impacting the predominant use.

4.1.4.1 Low Density Recreation

Low density refers to lands with minimal development or infrastructure that support passive public recreational use (e.g. primitive camping, fishing, hunting, trails, wildlife viewing). There are 53.5 acres at the Project that fall under this category.

Best Management Practices for Low Density Recreation Lands:

- Provide access for and use by the elderly and people with disabilities
- No ground disturbing activities in low density recreation areas unless authorized by the Corps
- Interpret cultural resources to benefit visitors
- Protect the viewshed to maintain current aesthetic values
- Prescribed fire should be considered as a management method for this land classification in appropriate locations

The Non-Recreation Outgrant Policy, which reflects nationwide guidance developed in 2009, will be used to evaluate requests for use of Corps lands and waters. Future non-recreation outgrant requests

may be granted if one of the following two conditions are met and as long as Project purposes are not compromised:

- There is no viable alternative to the activity or structure being placed on Corps lands
- There is a direct benefit to the Project and their respective authorized mission

4.1.4.2 Wildlife Management Areas

Wildlife lands are available for sightseeing, wildlife viewing, nature study, hunting, and hiking. There are 15,496.7 acres classified as Wildlife Management Areas with access sites managed by The West Virginia Division of Natural Resources located throughout. These access sites include three boat launch ramps, two cartopper boat launches, and multiple access points to the 131 mile trail system. Taking of wildlife, including hunting, fishing, and trapping, may be allowed when compatible with the wildlife objectives for a given area and within federal and state fish and wildlife management regulations as established with ER 1130-2-540.

Wildlife management activities include upland small game and deer management through natural succession control, brush pile construction, and orchard improvement. Waterfowl, small game, and large game hunting is also permitted on the reservoir.

Best Management Practices for Wildlife Management Areas:

- Surface disturbance will not be allowed within 660 feet (or if there are any more stringent state species-specific buffers) of active raptor nests on natural habitat features, such as trees, large brush and cliff faces
- The Master Memorandum of Understanding between the Corps and the Animal and Plant Health Inspection Service (APHIS), Wildlife Services (WS), will guide nuisance species damage control
- Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 45 db measured at 30 feet from the source of the noise
- Manage forest resources and other vegetation for balanced uses of recreation, wildlife, and fisheries
- Monitor forest conditions to document health and identify pests
- A habitat restoration plan shall be developed to avoid, minimize, or mitigate negative impacts on vulnerable wildlife while maintaining or enhancing habitat values for other species. The plan shall identify revegetation, soil stabilization, and erosion reduction measures that shall be implemented to ensure that all temporary use areas are restored. The plan shall require that restoration occur as soon as possible after completion of activities to reduce the amount of habitat converted at any one time and to shorten the length of recovery time to natural habitats
- Recovery plans for species federally listed as threatened or endangered will be implemented under the authority of the Endangered Species Act, including the reintroduction or relocation of native special status species in areas on public land in coordination and cooperation with local governments

- Increased intensity of research and monitoring will be needed to evaluate changes in habitat condition, land use threats to the species, species use and distribution, reclamation efforts, propagation, and other projects that may help in enlarging the knowledge base of these species
- All land use management prescriptions will be maintained as currently established to ensure aesthetics, habitat quality, and overland water flow. All existing ground disturbing activities will not be impacted by this designation
- No motorized use, unless previously authorized, will be allowed within Wildlife Management Area boundaries; other trails (i.e., foot trails, mountain bike trails, cross country skiing trails, etc.) will be analyzed on a case by case basis
- Prescribed fire should be considered as a management method for this land classification

4.1.4.3 Future or Inactive Recreation Areas

There are no acres that fall under this land classification.

4.1.5 Water Surface

There are four Water Surface categories within the boundaries of the Project: Restricted, Open Recreation, Fish and Wildlife Sanctuary, and Designated No-Wake. These areas make up 2,449.2 acres that are within the reservoir's conservation pool. See Appendix B, Plate 7 for the Recreation map which shows the Water Surface categories.

4.1.5.1 Restricted

Restricted areas include those portions of the reservoir pool where public access is prohibited due to Project operations, security concerns, or to promote public safety. This includes the areas between the outlet structure and the upstream portion of the dam and the area immediately downstream of the dam. There are 14.5 acres at the Project that fall under this category.

4.1.5.2 Designated No-Wake

Designated no-wake zones are marked with buoys to protect environmentally sensitive shoreline areas, recreational areas (such as boat ramps and docks), and for public safety. Boats are required to slow down in these areas to prevent waves from impacting these areas. There are 1,428.3 acres at the Project that fall under this category.

4.1.5.3 Open Recreation

Open recreation areas are waters that are available year-round or seasonally for water-based recreational use. There are 1,006.4 acres at the Project that fall under this category.

4.1.5.4 Fish and Habitat Management

Fish and wildlife sanctuary zones have annual or seasonal restrictions on areas to protect fish and wildlife species during periods of migration, resting, feeding, nesting, and/or spawning. There are no acres at the Project that fall under this category.

Best Management Practices for Water Surface Areas:

- Maintain, and if possible, improve water quality and fisheries habitat structure to support a productive sport fishery and maintain healthy populations of native fish species
- Water quality monitoring at established stations should continue throughout the Project property and watershed, as the data gathered aids in conservation of the Projects aquatic resources
- Fish and macroinvertebrate surveys at established stations should continue throughout the Project property and watershed, as the data gathered aids in conservation of the Projects aquatic resources
- Continue coordinating monitoring activities at the Project with state and federal resource agencies

4.2 Easement Lands

There are 429.3 acres of easement lands at the Project.

4.2.1 Flowage Easement

The Corps has 335.7 acres of flowage easement lands at the Project.

4.2.2 Road Easement

The Corps has 93.6 acres of road easement lands at the Project.

Best Management Practices for Easement Lands:

- Monitor any activities occurring on easement lands to ensure that Corps rights, according to terms and conditions of the legal easement, remain unimpeded
- Promote an understanding of Corps boundary and mission by both the public and the owners of underlying private property
- Restrict development on easement lands and discharges of treated wastewater and other pollutants into the reservoir

5. Special Considerations Affecting Natural Resources

During the development of this Master Plan, several issues were identified that could affect or are affecting the stewardship and management potential of the lands and waters at the Project.

5.1 Coal Mines

Currently, there are no active or abandoned coal mines on Project property. Ownership of the mineral rights underlying the Project may be owned outright by the federal government, may be third party owned, or a combination thereof. There may be subordination agreements or surface restrictions in place. It is also possible for the Bureau of Land Management (BLM) to lease federally owned mineral interests beneath the surface of Project land. It is necessary to review and consider the specific ownership documentation of each tract to determine the rights and controls that the Corps has on said tracts.

Historical coal mining activities in the area may result in negative environmental impacts such as abandoned mine drainage. Abandoned mine drainage is water that is polluted from contact with mining activity, and normally associated with coal mining. It is a common form of water pollution in areas where mining took place in the past. There are several issues with abandoned mines that impact water quality:

- Acid mine drainage (the most prevalent; see below)
- Alkaline mine drainage (this typically occurs when calcite or dolomite is present)
- Metal mine drainage (high levels of lead or other metals that drain from these abandoned mines)

Acid mine drainage is the formation and movement of highly acidic water rich in heavy metals. This acidic water forms through the chemical reaction of surface water (rainwater, snowmelt, pond water) and shallow subsurface water with rocks that contain sulfur-bearing minerals, resulting in sulfuric acid. Heavy metals can be leached from rocks that come in contact with the acid, a process that may be substantially enhanced by bacterial action. The resulting fluids may be highly toxic and, when mixed with groundwater, surface water, and soil, may have harmful effects on humans, animals, and plants (USEPA, 2018). Coal mine locations will be managed for water quality concerns, overland water flow, erosion control, and environmental impacts. Surface occupancy will be avoided for coal mines.

5.2 Oil and Gas Development

Currently, there are no proposals for new oil and gas related activities on Project lands. There are two known abandoned gas wells on Corps fee owned property. The mineral rights may be owned outright by the federal government, may be third party owned, or a combination thereof. There may be subordination agreements or surface restrictions in place. It is also possible for the BLM to lease federally-owned mineral interests beneath the surface of Project land. It is necessary to review and consider the specific ownership documentation of each tract in order to determine the rights and controls that the Corps has on said tracts. Oil and gas well locations will be managed for surface disturbance such as invasive species, water quality, overland water flow, and erosion control. Potential impacts of mineral extraction activities include the footprint of the extraction site and construction and operation of access roads. Mineral extraction within the Project boundary could infringe on general recreational areas or fish and wildlife related recreation, either directly or from pollutants that are a result of extraction operations. Surface occupancy will be avoided for oil and gas development.

5.3 Federally-Owned Minerals

Under the multiple-use principle, federal minerals beneath the surface of Corps lands may be made available for mineral exploration and extraction, consistent with Project activities. The General Mining Act of 1872 (30 U.S.C. 22-42) authorizes and governs prospecting and mining for economic minerals. The Mineral Leasing Act of 1920 (30 U.S.C. 181 et. seq.), authorizes and governs leasing of public lands for developing deposits of coal, petroleum, natural gas, and other hydrocarbons. The Materials Act of 1947 (30 U.S.C. 601-604) authorizes BLM to dispose of mineral materials on federal lands provided that the disposal is not otherwise expressly authorized or prohibited by law, and is not

detrimental to the public interest. While the Mineral Leasing Act authorizes the BLM to issue oil and gas and coal leases, it does not require that leases be issued (Darin & Stills, 2002). The BLM must obtain the Army's approval and the Army, through the Engineering District, can place limitations in the lease regarding the extractions of these minerals (See Army Regulation (AR) 405-30; *see, e.g.*, 43 Code of Federal Regulations (CFR) § 3503.20). If a developer approaches the BLM for access to a certain parcel or mineral interest, the BLM notifies the Corps and requests title information for the parcel and any use stipulations the Corps might require. The Real Estate Office for the Corps provides the BLM with title information and any stipulations (AR 405-30). The BLM would, in turn, inform the party interested in leasing the federal minerals of all associated stipulations. If the developer is still interested, the BLM follows its procedures to make the minerals available. The Corps has the final say in whether minerals will be made available, and the Assistant Secretary of the Army (ASA) has final approval on any non-availability determination.

5.4 Owners of Private and State Minerals

Owners of private and state oil and gas and coal rights have a property right to develop their interests, which generally includes reasonable use of the surface to the extent necessary to accomplish such development. However, this does not mean their operations are free from limitation or reasonable regulation that might originate under state and/or federal law, whether pursuant to property law concepts or other legal authorities. Under applicable state and federal laws and regulations, the mineral owner, whether it is private or state, and/or the lessee must coordinate with the Project to use the federally-controlled surface. For all types of mineral leases where surface occupancy is approved under a lease, the lessees must obtain prior approval for any surface activities on Corps-managed lands (Title 43 – Public Lands: Interior Code of Federal Regulations [CFR] Part 3160). It is the Project's responsibility to protect Project purposes when allowing surface use. Moreover, while owners of oil and gas and coal interests generally have the right to reasonable use of the surface to the extent necessary for private oil and gas and coal exploration and development, they are not exempt from possible liability to the surface owner for damages stemming from such exploration and development.

5.5 State or Privately-Owned Minerals Accessed from State or Privately-Owned Land

When the Corps does not own the necessary estates in real property to control development within close proximity of dams and other Project structures, effective control of mineral extraction activities requires close coordination among the Project staff and the District Office, especially Operations, Real Estate, Engineering-Construction, and Office of Counsel. Operations personnel are often the first Corps employees to become aware of new or proposed mineral extraction activities near the Project. Mineral extraction activities may include exploration operations, mining operations, drilling operations, production operations, reworking operations (including hydraulic fracturing), and high-pressure pipeline operations. Real Estate personnel must investigate the location of activities and determine the federal real property interests in the location. Engineering-Construction personnel must evaluate any new or proposed activities in order to make a determination as to whether the proposed activity is compatible with the structural integrity of the dam and other major structures. The Corps' ability to regulate and dictate private mineral extraction on adjacent private lands is minimal; however, federal agencies have a

duty to protect federal resources for authorized purposes. EC 1165-2-220 provides policy and procedural guidance for processing requests by private, public, tribal, or other federal entities to make alterations to, or temporarily or permanently occupy or use, any Corps Project under Section 408. Proposed alterations must not be injurious to the public interest or impair the usefulness of the Project.

5.6 Indiana and Northern Long-Eared Bat

Currently listed as federally endangered, the Indiana bat (*Myotis sodalis*) is a small, gray to chestnut-brown colored bat that hibernates in caves and abandoned mines during winter months (starting mid-September into November) and roosts under peeling tree bark, under bridges, and sometimes in buildings, during warmer months (starting mid-April into May). The total body length of an adult Indiana bat averages between 2-3 inches, with a wingspan of 9.5-10.5 inches. Populations have been declining since the 1960's, largely due to disturbance of winter cave hibernacula. The northern long-eared bat (*Myotis septentrionalis*), currently listed as federally threatened, is a medium-sized bat with a total body length of 3.0-3.7 inches, and a wingspan of 9-10 inches. Their fur color can be medium to dark brown on the back and pale brown on the underside, primarily distinguishable by its long ears. The northern long-eared bat and Indiana bat are similar with respect to their behavior, habitat use, and range, as well as the anthropogenic activities threatening existing populations.

While no known hibernacula for these bats exist on Project property, there is considerable suitable summer roosting habitat present in and amongst the forested components of the Project. At present, there is no current management or survey plan in effect; however, the USFWS has adopted regional, seasonal cutting/disturbance restrictions. Generally, tree-cutting activities should be carried out from mid-November through the end of March during which time bats are hibernating in non-forest habitats. If any tree-cutting is necessary from the beginning of April to mid-November, trees greater than or equal to three inches in diameter at breast height should not be cut or physically disturbed in order to avoid potentially killing or injuring roosting bats. Special considerations should be given to trees with the following characteristics indicative of suitable roosting habitat: 1) dead or dying trees and snags (with exfoliating bark); 2) live trees with exfoliating or defoliating bark in the trunk or branches (e.g., shagbark and shellbark hickory); and 3) trees or snags that have characteristics typical of roost sites for bats (i.e., have exfoliating or defoliating bark, or contain cracks, crevices, or holes).

Currently, no known occurrence of these bats has been reported or observed at the Project. Regardless, Project staff adhere to the cutting/disturbance restrictions. Corps staff at the Project will continue to work with USFWS and partner with other state and federal resource agencies to ensure that potential detrimental effects to managed resources are minimized on public lands entrusted to the Corps.

5.7 Bald Eagle

The bald eagle (*Haliaeetus leucocephalus*), is protected by the Bald and Golden Eagle Protection Act (Eagle Act) and the Migratory Bird Treaty Act (MBTA). The MBTA and the Eagle Act protect Bald Eagles from a variety of harmful actions and impacts. The USFWS established the National Bald Eagle Management Guidelines to advise landowners, land managers, and others who share public and private lands with Bald Eagles of protective provisions that apply to human activities. A variety of human

activities can potentially interfere with Bald Eagles, affecting their ability to forage, nest, roost, breed, or raise young. The guidelines are intended to help minimize impacts to bald eagles, particularly where they may constitute “disturbance,” which is prohibited by the Eagle Act (USFWS, 2007).

5.8 Invasive Aquatic and Terrestrial Species

The most common invasive terrestrial plant species occurring at the Project are: Japanese honeysuckle (*Lonicera japonica*), Japanese knotweed (*Polygonum cuspidatum*), autumn olive (*Elaeagnus umbellata*), buckthorns (*Rhamnus frangula*, *R. cathartica*), purple loosestrife (*Lythrum salicaria*), common reed or phragmites (*Phragmites australis*), reed canarygrass (*Phalaris arundinacea*), garlic mustard (*Alliaria petiolata*), multiflora rose (*Rosa multiflora*), giant hogweed (*Heracleum mantegazzianum*), Japanese stiltgrass (*Microstegium vimineum*), Asiatic bittersweet (*Celastrus orbiculatus*), and bush honeysuckles (*Lonicera maackii*, *L. tatarica*, *L. morrowii*). The most common invasive insects are: emerald ash borer (EAB) (*Agrilus planipennis*), gypsy moth (*Lymantria dispar*), and the hemlock woolly adelgid (HWA) (*Adelges tsugae*). The most common aquatic invasive species are: hydrilla (*Hydrilla verticillata*), parrot feather milfoil (*Myriophyllum aquaticum*), Asian clam (*Corbicula fluminea*), zebra mussel (*Dreissena polymorpha*), virile crayfish (*Orconectes virilis*), and rusty crayfish (*Orconectes rusticus*). While no management plan is currently in effect for invasive species, terrestrial or aquatic, on Corps managed property, considerations are taken when performing tasks on the Project to prevent the spread or introduction of invasive species. Efforts to educate the public on preventing the spread and introduction of invasive species is made through signage (e.g. Don’t Move Firewood! signs), ranger led interpretive programs, and information on displays and pamphlets at the Information Center.

5.9 Unmanned Aircraft

Title 36, Parks, Forest and Public Property, Chapter III, Part 327.4 states “The operation of “aircraft” on Project lands at locations other than those designated by the District Commander is prohibited. This provision shall not be applicable to aircraft engaged in official business of federal, state, or local governments or law enforcement agencies, aircraft used in emergency rescue in accordance with the direction of the District Commander or aircraft forced to land due to circumstances beyond the control of the operator.” The use of drones for recreational purposes is currently prohibited under this regulation. It is possible in the future that the Project can designate a specific area for the operation of drones.

5.10 Climate Change

Long-term changes in West Virginia’s climate (i.e., altered air temperature and/or precipitation rates) will affect habitats and species. Intolerant flora and fauna, as well as species currently existing on the edge of their range, are at greatest risk of local extirpation resulting from altered environmental conditions under climate change. Existing data regarding climate change was predicted on models and climate data from 60 years ago. Given predictions, it may result in water management and water quality difficulties such as not being able to make summer pool in time for the recreation season or not having enough water in the late summer to meet downstream flow targets. Increased storm runoff due to climate change also has the potential to result in greater inputs of pollution which in turn can affect

water quality of the reservoir and downstream of the Project. Similarly, increased runoff may alter rates of sedimentation within the reservoir. Ecosystems and associated species impacted by pre-existing anthropogenic stressors are also at greater risk. Thus, preserving and promoting healthy and connected habitats will be critical to ensuring long-term persistence of all species under climate change.

6. Agency and Public Coordination

Throughout the master planning update process, the Corps involved the public, engaged with partners and stakeholders representing interests at the local, regional, state, and federal levels, and coordinated with sovereign (recognized) tribal nations.

Comments from the various partner, stakeholder, and public meetings were received on a variety of topics, including but not limited to:

Preferred qualities, characteristics, and components of the Project:

- Balance between wildlife habitat improvement and recreational amenity expansion
- Provision of a high-quality recreation experience including a resort and a Certified Audubon Cooperative Sanctuary golf course
- Ability to use the natural areas of the Project to illustrate the benefits of environmental stewardship
- Prime destination for tourists in West Virginia
- Opportunities provided for new types of recreation to attract new audiences while maintaining the preferred characteristics of the Project

Anticipated Changes or Challenges:

- Visitation increases via Corridor H of the Appalachian Development Highway System. Corridor H would extend from Interstate 79 in Weston, West Virginia eastward across the crest of the Allegheny Mountains to I-81 in Strasburg, Virginia resulting in anticipated impacts such as increase in usage of the amenities and resources, criminal activity, need for more frequent maintenance and trash clean up, etc.
- Decline of oil and gas development and change in leasing opportunities
- Potential to accumulate abandoned/orphaned gas wells
- Populations seeking enjoyment from illicit activities
- Increase in the need to find volunteers to maintain the Project sites
- Clarity of governance between those who own, lease, and monitor the Project
- Sedimentation in the reservoir creating unnavigable waters and harming aquatic vegetation
- Encroachment of recreationists on wildlife management areas and wetlands

Regional Needs/Opportunities:

With expected increases in visitation resulting from Corridor H, below are the identified regional needs/opportunities it was thought that the Project could undertake:

- Focusing on the provision of high quality, exclusive habitat areas to be used both for resource protection as well as for recreational uses such hunting and fishing.
- Improving existing trails and expanding upon trails, particularly for mountain bike use
- Increasing ability to use technologies within recreation areas as well as cell phone and radio coverage throughout the entire Project area
- Growing the ability to satisfy the interest of bass fisherman by holding tournaments
- Increasing public awareness of the Project and coordinating with current tourism efforts in the county
- Improving access for boats (particularly kayaks), both in number of access points, placement of those access points, and quality of access currently provided
- Providing better ADA access to the amenities, in particular access into areas designated for hunting

All comments made during the Scoping and Public Comment periods were considered during the development of the current Master Plan. All formal comments submitted during the Public Comment Period meeting, along with Corps responses, can be found in Appendix C.

6.1 Scoping Meetings

Scoping efforts began on October 10, 2019, with a meeting between Corps staff and Project partners and key stakeholders representing Stonewall Resort State Park, Stonewall Resort, Lewis County Commission, Stonewall Jackson Civil War Reenactment Unit, Friends of Bulltown, Lewis County, Harrison County Emergency Management, Bureau of Land Management, West Virginia Division of Natural Resources, GKC Properties, and West Virginia American Water. A public meeting was held that same evening. The objective of these scoping meetings were to 1) communicate the Corps' intent and need to revise the Master Plan; 2) establish the scope of the Master Plan update; and 3) learn about the needs, opportunities, and concerns of partners, stakeholders, and the public. For interested parties unable to attend the scheduled meetings or not located close to the Project site, they were given the opportunity to email the Pittsburgh District with their comments.

6.2 Draft Release Meetings

A public comment period was available in February through March of 2021 with the purpose of unveiling the proposed recommendations and land use classifications and eliciting feedback on the proposed updates to the Master Plan and accompanying Environmental Assessment.

6.3 Outreach Efforts

The following outreach efforts were conducted to notify the public, stakeholders, and partners of the opportunities for involvement and to solicit input into the Master Plan update process:

- **Fact Sheet:** A Master Plan update fact sheet was developed to inform partners, stakeholders, and the public on the purpose and scope of the Master Plan update. This fact sheet was sent in email invitations and handed out at the meetings.
- **Agency, Partner, and Stakeholder Email Invitations:** Email invitations for the partner and stakeholder meeting were sent out via email to all partners and stakeholders with available contact information, inviting them to attend all meetings and providing information for how to submit comments.
- **Press Release:** Sent to local media before the public meeting in an effort to notify the public of the upcoming meetings and opportunities to comment.
- **Agency, Partner, and Stakeholder Letters:** Letters were sent to agencies, partners, and stakeholders inviting them to participate in the public comment period and to send any comments or concerns to the Corps. These letters were sent via an email invitation or mail depending on address availability and preference of the recipients.
- **Notice of Availability:** Pittsburgh District sent a Notice of Availability (NOA), required for National Environmental Policy Act compliance, to partners and stakeholders indicating the 30-day comment period for the Master Plan and Environmental Assessment, along with the web address to access the documents.
- **Indian Nation Coordination Letters:** Letters were sent directly to Indian Nations in recognition of the Corps' Federal Tribal Trust responsibilities. The letters inquired as to whether the Indian Nations had any information relevant to the Project, invited them to contact the Pittsburgh District either via mail, email, or phone in order to submit any comments or concerns, and requested comments on the proposed revision of the Master Plan.

7. Summary of Recommendations

This Master Plan conceptually establishes and guides the orderly development, administration, maintenance, conservation, enhancement, and management of all natural, cultural, and recreational resources at the Project. This section summarizes the proposed changes that can be found within this Master Plan and provides specific recommendations to be considered that will help guide the direction of Project management into the future.

Derived through correspondences, comments, scoping meetings (described in further detail below) by local citizens, stakeholders, and current and potential Project partners, along with Corps staff knowledge of the Project, the recommendations below address the regional needs, threats, and

opportunities identified throughout the planning process. Section 2 describes those identified topics and the Project conditions that inspired the recommendations.

These management recommendations are non-regulatory and available for use by any citizen, group, or agency. They have been analyzed in the Environmental Assessment associated with this Master Plan to identify potential impacts and any additional analysis and coordination that may be necessary.

7.1 Coordination and Partnerships

The modest size of the staff at the Project creates a prime opportunity for partners and volunteers to augment and advance the operations and management at the Project.

Therefore, an overarching recommendation for the Project is to create partnerships to leverage fiscal resources and continue to involve local communities and stakeholders in achieving the resource objectives set forth in Section 1.6. This recommendation includes working with federal and state agencies to leverage resources for complimentary natural resources management, with recreation service providers to improve user experiences, with environmental groups to improve habitat, and with educational and community groups to encourage volunteer activities that are mutually beneficial.

In order to keep in accordance with other plans regarding resources and opportunities within Lewis County, the Corps shall keep abreast of content within the existing plans reviewed during the update of this Master Plan as well as any future plans that are developed for the area.

The Corps should also seek to continuously stay engaged and further coordination efforts. To encourage coordination and partnership, the Project staff should engage with external partners including but not limited to:

- Fishing Report WV
- Lewis County First
- Lewis County CVB
- Lewis and Upshur County School Systems
- WVDNR
- Stonewall Jackson Reenactment Unit
- Davis and Elkins Upward Bound
- West Fork Action Groups
- Stonewall Foundation
- Lewis County Commission
- Tourist Promotion Bureaus
- Chambers of Commerce
- Regional Planning Commissions

- Stonewall Resort State Park
- Bureau of Land Management

Opportunities ripe for partnerships include: development of more comprehensive natural and cultural resource inventories, creation of an Invasive Species Management Plan, initiation of a Water Safety Council, completion of a Project-wide broadband/cellular network, establishment of a signature event and other programming activities, educational and wildlife improvement projects, and establishing a staffed Information Center.

7.2 Facility Modernization

The Corps will continue to modernize current facilities at the Project. Modernization activities will occur within existing footprints of recreation areas and prioritize actions that improve visitor safety and experience where funding is available and in accordance with Engineer Manual (EM) 1110-1-400, Engineering and Design – Recreation Facility and Customer Service Standards, 1 Nov 2004. Potential improvements are described in detail in Section 1.6 of this Master Plan and were developed using information gathered during the public input process and expert knowledge of the Project staff. Examples of potential improvement projects are provided below.

Specific potential improvements for safety if resourcing and/or a successful partnership becomes available at the Project should include:

- Maintain existing informational and directional signs around the Project and trails
- Demarcation of property lines (fee and flowage)
- Improvements to roads leading to, and surrounding, the Project

Specific potential improvements for improved visitor experience if resourcing and/or a successful partnership becomes available at the Project should include:

- Development of an Emergency Response Plan
- Identification of Project Site Areas (PSAs) with low use and degraded facilities; divest when appropriate
- Establishment of different ways for visitors to explore the Project, including: brochures, maps, and/or development of a phone app that enables visitors to access park maps, learn about the Project, and log information from their experience

7.3 Land Classification Changes

The land use classification changes discussed in this document and evaluated in the attached Environmental Assessment represent the changes in land use, management strategies, and guidance concerning naming conventions that have occurred since the original Master Plan for this Project was developed. Specifically, the previous Land Classifications (Recreation Low Density Use; Wildlife Management; Fish and Wildlife Lands) are now consolidated under the Multiple Resource

Management Land Classification (Low Density Recreation; Wildlife Management; Vegetative Management; and Future or Inactive Recreation Areas) in this revised Master Plan. Additionally, Intensive Recreation is now considered High-Density Recreation in this revised Master Plan.

Other updates to this Master Plan include renaming of lands previously identified as archeological and historical sites as to reflect the new land classification of Environmentally Sensitive Areas (see Tables 7-1 and 7-2, below). Updating and highlighting naming conventions and/or classifications as part of the Master Plan will ensure the conservation of valuable resources continues uninhibited.

Table 7-1. Conversion of Land and Water Classifications

Original	Proposed
Public Hunting and Fishing (Wildlife and Mitigation Lands)	Wildlife Management Area or Environmentally Sensitive Area
Intensive Recreation	High-Density Recreation
Low Density Recreation	Low Density Recreation
Project Operation	Operations
Restricted Use Unrestricted Boating No-Wake	Restricted Open Recreation Designated No-Wake

This table reflects a change in terminology classifications of land and water.

Table 7-2. Summary of Land Use Classification Changes

Existing Land Use Class	Existing Land Use Acres	Proposed Land Use Class	Proposed Land Use Acres
Public Hunting and Fishing (Wildlife and Mitigation Lands)	13,040	Wildlife Management Area Environmentally Sensitive Area	15,496.7 300.6
Project Operations	344	Project Operations	309.7
Intensive Recreation	1,811	High-Density Recreation	1,775.6
Low Density Recreation	2,185	Low Density Recreation	53.5
n/a	n/a	Future or Inactive Recreation	0.0
Unclassified	556	n/a	0.0
Restricted Use	17	Restricted	14.5
Unrestricted Boating	1,230	Open Recreation	1,006.4
No-Wake	45	Designated No-Wake	1,428.3
Fishery Development and Zone Management	1,151	Fish and Wildlife Sanctuary	0.0

Acreage numbers for historical land use classifications were calculated in GIS software by scanning, georeferencing, and digitizing the 1982 Land Use Classification Map. Due to the scale and other limitations of the original hand-drawn map, acreages should be considered very approximate.

While these land use classifications may be updated in the future, those described in this document, dated 2021, represent the most current and relevant uses of various Project lands. Additional details of the uses and management goals for individual Project site areas will be provided in a forthcoming OMP for the Project.

7.4 Development Requests

Expansions or modernizations at the Project Office to include a new conference room have been considered. This room would serve several purposes including hosting meetings and school groups to better present educational materials.

Implementing hydroelectric power operations at the Project is another consideration that has received interest. Hydropower is a clean fuel source that will give the Project the opportunity to produce its own energy, saving utility costs and providing essential back up power during major electricity outages or disruptions. If it is determined that operating the existing hydropower facility is physically and economically feasible, full consideration will be given to effects on other Project purposes, environmental impacts, and public opinion prior to formulating more detailed plans and recommendations.

Proposed development requests at the resort include, but are not limited to: relocating the existing maintenance facility to another area within the resort, adding full hook-up camping in the area where the existing maintenance facility is located, adding fishing and observation platforms and courtesy docks along the shoreline, and increasing trails. Other development ideas include increasing outdoor adventure activities such as developing an observation tower, creating an outdoor adventure center, a bicycle learning and certification center, a bicycle pump park, a skateboard center, and constructing a pedestrian suspension bridge walkway from the campground across the reservoir. When specific plans and details are available in the future, the development requests at Stonewall Resort State Park will need to be evaluated for environmental compliance (Clean Water Act, Endangered Species Act, National Historic Preservation Act and other environmental laws as applicable).

7.5 Wildlife Management and Environmentally Sensitive Areas

The Corps land at the Project represents a significantly sized riparian corridor consisting of valuable wildlife lands. These lands are vulnerable to change by human disturbance. Therefore, large portions of these lands are outgranted to other agencies with the primary purpose of wildlife management and recreation representing a secondary use. At the Project there are large portions of land acreage remaining in an undeveloped natural state (i.e., heavily forested and rich in riverine habitat and wetlands). The Corps will continue to coordinate with resource agency partners to successfully manage these lands for the use and enjoyment of our visitors and the conservation of our valuable natural resources. In the future, the Corps should develop survey methods to identify sensitive habitats, possibly using MSIM, and use the results to designate additional Environmentally Sensitive Areas, which would be converted from multiple resource managed lands. These lands should be protected from human disturbance and development activities to the extent possible in

compliance with all applicable laws and regulations. If development activities are proposed for these areas, the Corps will work with partners to minimize the disturbance or mitigate the impacts. The Corps will also consider proactive steps to enhance natural areas for sensitive species and to restore sensitive habitats through native vegetation plantings, removal of invasive species, and/or other efforts targeted at non-game species habitat. In addition, the Corps will continue to protect cultural resources in existing Environmentally Sensitive Areas and promote education related to these resources.

7.6 Threatened and Endangered Species

Federally listed threatened and endangered plant and animal species will be managed according to USFWS Recovery Plans. State listed species will be protected through partnerships and agreements with state agencies. Best Management Practices, which should be used to manage threatened and endangered species at the Project, have been outlined in Sections 4 and 5.

8. Bibliography

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APPENDIX A

APPLICABLE PUBLIC LAWS, FEDERAL STATUTES, AND EXECUTIVE ORDERS

The following public laws, federal statutes, and executive orders are applicable to the Project.

A.1 PL59-209, Antiquities Act of 1906: The first federal law established to protect what are now known as "cultural resources" on public lands. It provides a permit procedure for investigating "antiquities" and consists of two parts: An act for the Preservation of American Antiquities, and Uniform Rules and Regulations.

A.2 PL74-292, Historic Sites Act of 1935: Declares it to be a national policy to preserve for (in contrast to protecting from) the public, historic (including prehistoric) sites, buildings, and objects of national significance. This act provides both authorization and a directive for the Secretary of the Interior, through the National Park Service, to assume a position of national leadership in the area of protecting, recovering, and interpreting national archeological historic resources. It also establishes an "Advisory Board on National Parks; Historic Sites, Buildings, and Monuments, a committee of eleven experts appointed by the Secretary to recommend policies to the Department of the Interior".

A.3 PL74-409, Rivers and Harbors Act of 1935: This act authorizes the construction, repair, and preservation of certain public works on rivers and harbors, and for other purposes.

A.4 PL74-738, Flood Control Act of 1936: This act authorizes the construction of certain public works on rivers and harbors for flood control, and for other purposes.

A.5 PL75-761, Flood Control Act of 1938: This act authorizes the construction of certain public works on rivers and harbors for flood control, and for other purposes.

A.6 PL78-534, Flood Control Act of 1944: Section 4 of the act, as amended, authorizes the Corps to construct, maintain, and operate public parks and recreational facilities in reservoir areas and to grant leases and licenses for lands, including facilities, preferably to federal, state or local governmental agencies.

A.7 PL85-500, Rivers and Harbors Act of 1958: This act authorizes the construction, repair, and preservation of certain public works on rivers and harbors for navigation, flood control, and for other purposes.

A.8 PL85-624, Fish and Wildlife Coordination Act 1934: This act, as amended, sets down the general policy that fish and wildlife conservation shall receive equal consideration with other Project purposes and be coordinated with other features of water resource development programs. Opportunities for improving fish and wildlife resources and adverse effects on these resources shall be examined along with other purposes which might be served by water resources development.

Appendix A

A.9 PL86-645, Rivers and Harbors Act of 1960: This act authorizes the construction, repair, and preservation of certain public works on rivers and harbors for navigation, flood control, and for other purposes.

A.10 PL86-717, Forest Conservation: This act provides for the protection of forest cover for reservoir areas under this jurisdiction of the Secretary of the Army and the Chief of Engineers.

A.11 PL88-578, Land and Water Conservation Fund Act of 1965: This act established a fund from which Congress can make appropriations for outdoor recreation. Section 2 makes entrance and user fees at reservoirs possible by deleting the words "without charge" from Section 4 of the 1944 Flood Control Act, as amended.

A.12 PL89-72, Federal Water Project Recreation Act of 1965: This act requires that not less than one-half the separable costs of developing recreational facilities and all operation and maintenance costs at federal reservoir projects shall be borne by a non-federal public body. An OCE/OMB implementation policy made these provisions applicable to projects completed prior to 1965.

A.13 PL89-90, Water Resources Planning Act (1965): This act established the Water Resources Council and gives it the responsibility to encourage the development, conservation, and use of the Nation's water and related land resources on a coordinated and comprehensive basis.

A.14 PL89-272, Solid Waste Disposal Act, as amended: This act authorized a research and development program with respect to solid-waste disposal. It proposes (1) to promote a national research and development program for new and improved methods of proper and economic solid-waste disposal, including studies directed toward the conservation of national resources by reducing the amount of waste and unsalvageable materials and by recovery and utilization of potential resources in solid waste; and (2) to provide technical and financial assistance to state and local governments and interstate agencies in the planning, development, and conduct of solid-waste disposal programs.

A.15 PL89-665, National Historic Preservation Act of 1966: This act provides for: (1) an expanded National Register of significant sites and objects; (2) matching grants to states undertaking historic and archeological resource inventories; and (3) a program of grants-in aid to the National Trust for Historic Preservation; and (4) the establishment of an Advisory Council on Historic Preservation. Section 106 requires that the President's Advisory Council on Historic Preservation have an opportunity to comment on any undertaking which adversely affects properties listed, nominated, or considered important enough to be included on the National Register of Historic Places.

A.16 PL90-483, Rivers and Harbors and Flood Control Act of 1968, Mitigation of Shore Damages: Section 210 restricted collection of entrance fee at Corps lakes and reservoirs to users of highly developed facilities requiring continuous presence of personnel.

A.17 PL91-190, National Environmental Policy Act of 1969 (NEPA): NEPA declared it a national policy to encourage productive and enjoyable harmony between man and his environment, and for other purposes. Specifically, it declared a "continuing policy of the federal Government...to use all practicable means and measures...to foster and promote the general welfare, to create

conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.” Section 102 authorized and directed that, to the fullest extent possible, the policies, regulations and public law of the United States shall be interpreted and administered in accordance with the policies of the Act.

A.18 PL91-611, Rivers and Harbors and Flood Control Act of 1970: Section 234 provides that persons designated by the Chief of Engineers shall have authority to issue a citation for violations of regulations and rules of the Secretary of the Army, published in the Code of Federal Regulations.

A.19 PL92-463, Federal Advisory Committee Act: The Federal Advisory Committee Act, as amended, is the legal foundation defining how federal advisory committees operate. The law has special emphasis on open meetings, chartering, public involvement, and reporting.

A.20 PL92-500, Federal Water Pollution Control Act Amendments of 1972: The Federal Water Pollution Control Act of 1948 (PL 845, 80th Congress), as amended in 1956, 1961, 1965 and 1970 (PL 91- 224), established the basic tenet of uniform State standards for water quality. PL92-500 strongly affirms the federal interest in this area. “The objective of this act is to restore and maintain the chemical, physical and biological integrity of the Nation’s waters.”

A.21 PL92-516, Federal Environmental Pesticide Control Act of 1972: This act completely revises the Federal Insecticide, Fungicide and Rodenticide Act. It provides for complete regulation of pesticides to include regulation, restrictions on use, actions within a single State, and strengthened enforcement.

A.22 PL93-81, Collection of Fees for Use of Certain Outdoor Recreation Facilities: This act amends Section 4 of the Land and Water Conservation Act of 1965, as amended to require each federal agency to collect special recreation use fees for the use of sites, facilities, equipment, or services furnished at federal expense.

A.23 PL93-251, Water Resources Development Act of 1974: Section 107 of this law establishes a broad federal policy which makes it possible to participate with local governmental entities in the costs of sewage treatment plant installations.

A.24 PL93-291, Archaeological Conservation Act of 1974: The Secretary of the Interior shall coordinate all federal survey and recovery activities authorized under this expansion of the 1960 act. The Federal Construction Agency may transfer up to one percent of project funds to the Secretary with such transferred funds considered non-reimbursable project costs.

A.25 PL93-303, Recreation Use Fees: This act amends Section 4 of the Land and Water Conservation Act of 1965, as amended, to establish less restricted criteria under which federal agencies may charge fees for the use of campgrounds developed and operated at federal areas under their control.

A.26 PL93-523, Safe Drinking Water Act: The act assures that water supply systems serving the public meet minimum national standards for protection of public health. The act (1) authorizes the Environmental Protection Agency to establish federal standards for protection from all harmful contaminants, which standards would be applicable to all public water systems, and (2) establishes a

Appendix A

joint federal-state system for assuring compliance with these standards and for protecting underground sources of drinking water.

A.27 PL94-422, Amendment of the Land and Water Conservation Fund Act of 1965: Expands the role of the Advisory Council. Title 2 - Section 102a amends Section 106 of the Historical Preservation Act of 1966 to say that the Council can comment on activities which will have an adverse effect on sites either included in or eligible for inclusion in the National Register of Historic Places.

A.28 PL98-63, Supplemental Appropriations Act of 1983: The act authorized the Corps of Engineers Volunteer Program. The United States Army Chief of Engineers may accept the services of volunteers and provide for their incidental expenses to carry out any activity of the Army Corps of Engineers except policy making or law or regulatory enforcement.

A.29 PL99-662, The Water Resources Development Act of 1986: Provides for the conservation and development of water and related resources and the improvement and rehabilitation of the Nation's water resources infrastructure.

A.30 PL101-640, Water Resource Development Act of 1990: Provides for the conservation and development of water and related resources and the improvement and rehabilitation of the Nation's water resources infrastructure.

A.31 PL101-646, Coastal Wetlands Planning, Protection, & Restoration Act of 1990: Provides authorization to carry out projects for the protection, restoration, or enhancement of aquatic and associated ecosystems, including projects for the protection, restoration, or creation of wetlands and coastal ecosystems.

A.32 PL100-676, Water Resource Development Act of 1988: Provides for the conservation and development of water and related resources and the improvement and rehabilitation of the Nation's water resources infrastructure.

A.33 PL102-580, Water Resource Development Act of 1992: Provides for the conservation and development of water and related resources and the improvement and rehabilitation of the Nation's water resources infrastructure.

A.34 PL104-303, Water Resource Development Act of 1996: Provides for the conservation and development of water and related resources and the improvement and rehabilitation of the Nation's water resources infrastructure.

A.35 PL106-53, Water Resource Development Act of 1999: Provides for the conservation and development of water and related resources and the improvement and rehabilitation of the Nation's water resources infrastructure.

A.36 PL106-541, Water Resource Development Act of 2000: Provides for the conservation and development of water and related resources and the improvement and rehabilitation of the Nation's water resources infrastructure.

A.37 PL110-114, Water Resource Development Act of 2007: Provides for the conservation and development of water and related resources and the improvement and rehabilitation of the Nation's water resources infrastructure.

A.38 PL113-121, The Water Resources Reform and Development Act of 2014: This act authorizes the U.S. Army Corps of Engineers to carry out missions to develop, maintain, and support the nations vital ports and waterways infrastructure needs and support effective and targeted flood protection and restoration needs.

A.39 30 U.S.C. 22-42, General Mining Act of 1872: Authorizes and governs prospecting and mining for economic minerals, such as gold, platinum, and silver, on federal public lands.

A.40 30 U.S.C. 181, Mineral Leasing Act of 1920, as amended by the Federal Onshore Oil and Gas Leasing Reform Act of 1987: Authorizes and governs leasing of public lands for developing deposits of coal, petroleum, natural gas, and other hydrocarbons, in addition to phosphates, sodium, sulfur, and potassium.

A.41 30 U.S.C. 226, Lease of Oil and Gas Lands: Authorizes the use of public lands for oil and gas exploration and development.

A.42 30 U.S.C. 601-604, Materials Act of 1947: Authorizes the BLM to dispose of mineral materials on federal lands provided that the disposal is not otherwise expressly authorized or prohibited by law, and is not detrimental to the public interest.

A.43 16 U.S.C. 661-664, Fish and Wildlife Coordination Act of 1934, as amended by PL85-624: Provides the basic authority of the U.S. Fish and Wildlife Service to become involved in the evaluation of impacts to fish and wildlife from proposed water resource development projects or when federal actions result in the control or modification of a natural stream or body of water.

A.44 16 U.S.C. 668-668d, Bald and Golden Eagle Protection Act of 1940, as amended: Prohibits anyone, without a permit issued by the Secretary of the Interior, from taking bald eagles (*Haliaeetus leucocephalus*) or golden eagles (*Aquila chrysaetos*), including their nests or eggs.

A.45 16 U.S.C. 1531-1544, Endangered Species Act of 1973: Provides for the conservation of species that are endangered or threatened throughout all or a significant portion of their range, and the conservation of the ecosystems on which they depend.

A.46 16 U.S.C. 703-712, Migratory Bird Treaty Act of 1918: Makes it illegal for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued pursuant to federal regulations.

A.47 AR 405-30, Mineral Exploration and Extraction of (15 July 1984): Governs exploration and extraction of minerals on Department of Army property.

A.48 43 CFR § 3503.20, Available Areas Managed by Others: The Bureau of Land Management will consult with the surface management agency before issuing a permit or lease for public domain lands where the surface is administered by another federal agency.

A.49 43 CFR Part 3160, Onshore Oil and Gas Operations: Gives the Bureau of Land Management authority to issue permits or leases on public lands for the purposes of exploration, extraction, or removal of oil or gas.

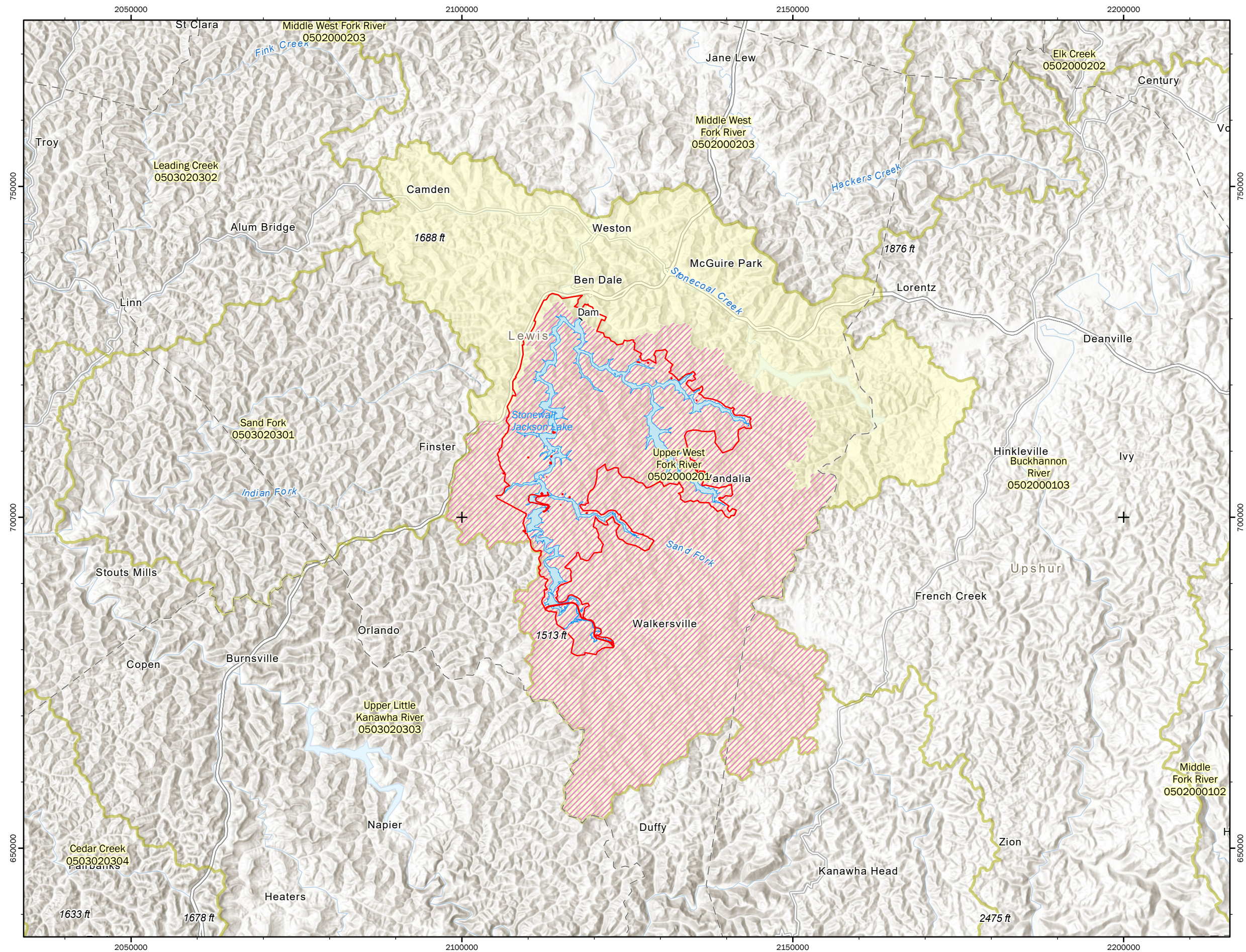
A.50 CFR, Title 36, Parks, Forests and Public Property, Chapter III: Principle set of rules and regulations issued by the U.S. Army Corps of Engineers regarding public use of water resource development projects.

A.51 Executive Order (EO) 13112, Invasive Species (FR: 03 Feb 1999), as amended by EO 13751, Safeguarding the Nation From the Impacts of Invasive Species (FR: 08 Dec 2016): Executive order to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause.

APPENDIX B

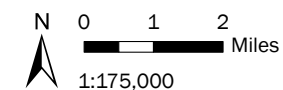
MAP PLATES

Maps are for graphical purposes only. They do not represent a legal survey. While every effort has been made to ensure that this data is accurate and reliable within the limits of the current state of the art technology, the Corps cannot assume liability for any damages caused by any errors or omissions in the data, nor as a result of the failure of the data to function on a particular system. The Corps makes no warranty, expressed or implied, nor does the fact of distribution constitute such a warranty.



Legend

- Fee Boundary
- Reservoir Drainage Basin
- HUC-10 Watershed Basin (USGS Watershed Boundary Dataset)
 - Upper West Fork River, 0502000201
 - Other HUC-10 Watersheds

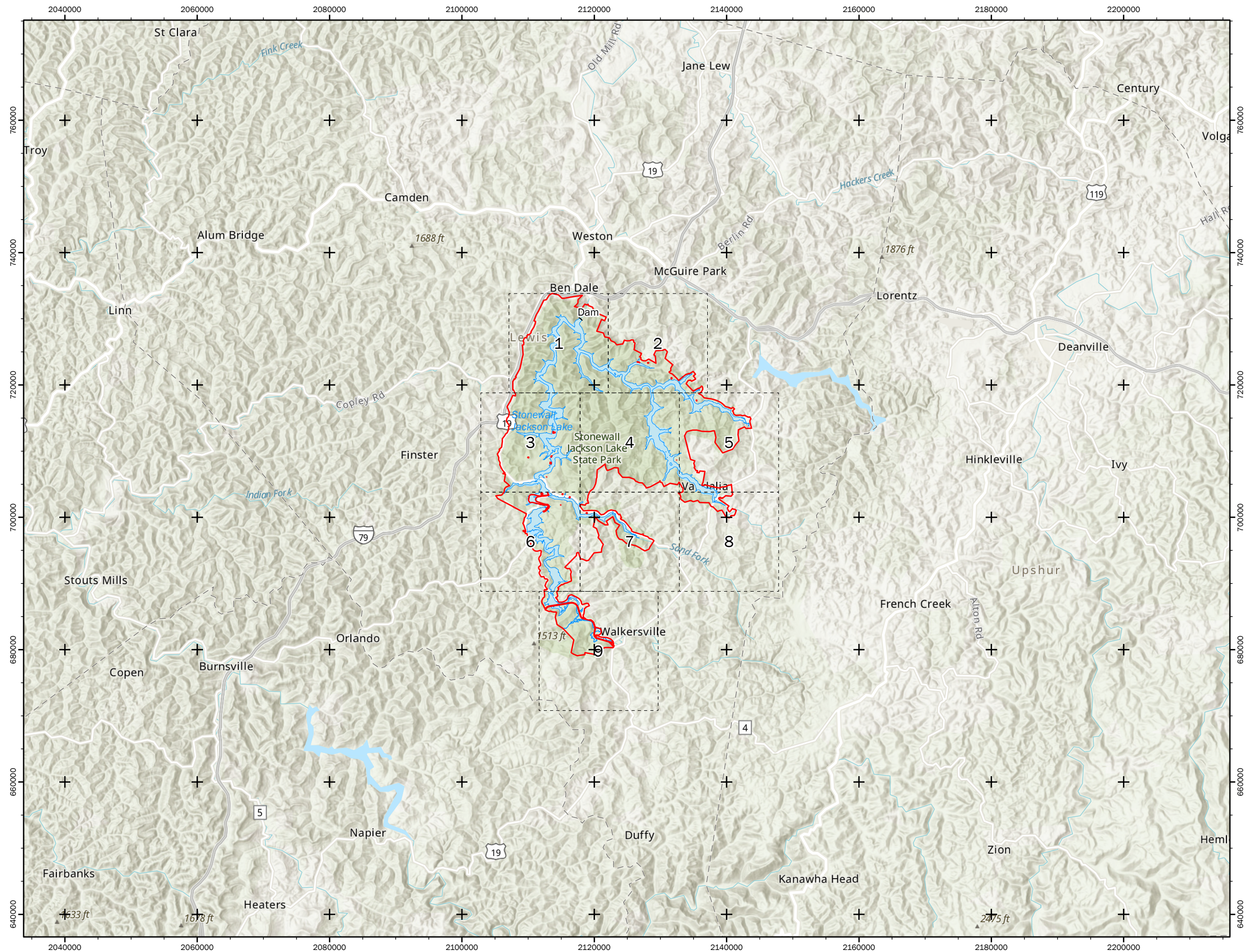


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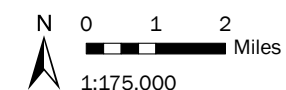


Stonewall Jackson Lake
Plate 1: Watershed



Legend

- Map Sheet
- Fee Boundary

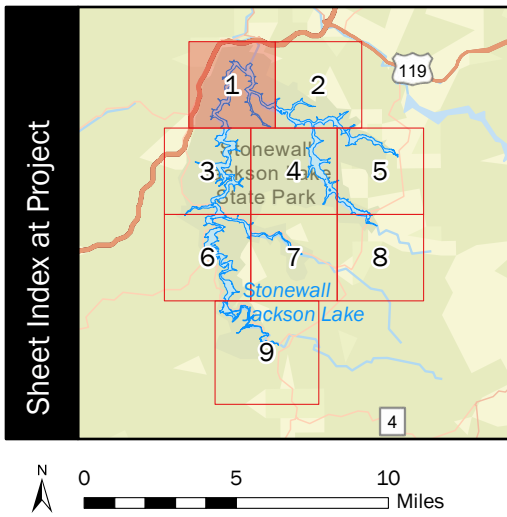
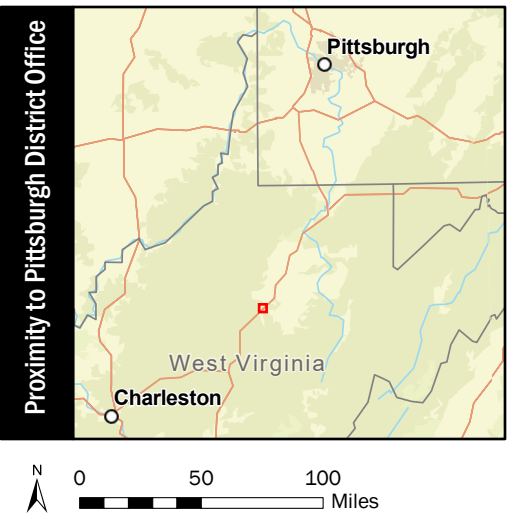
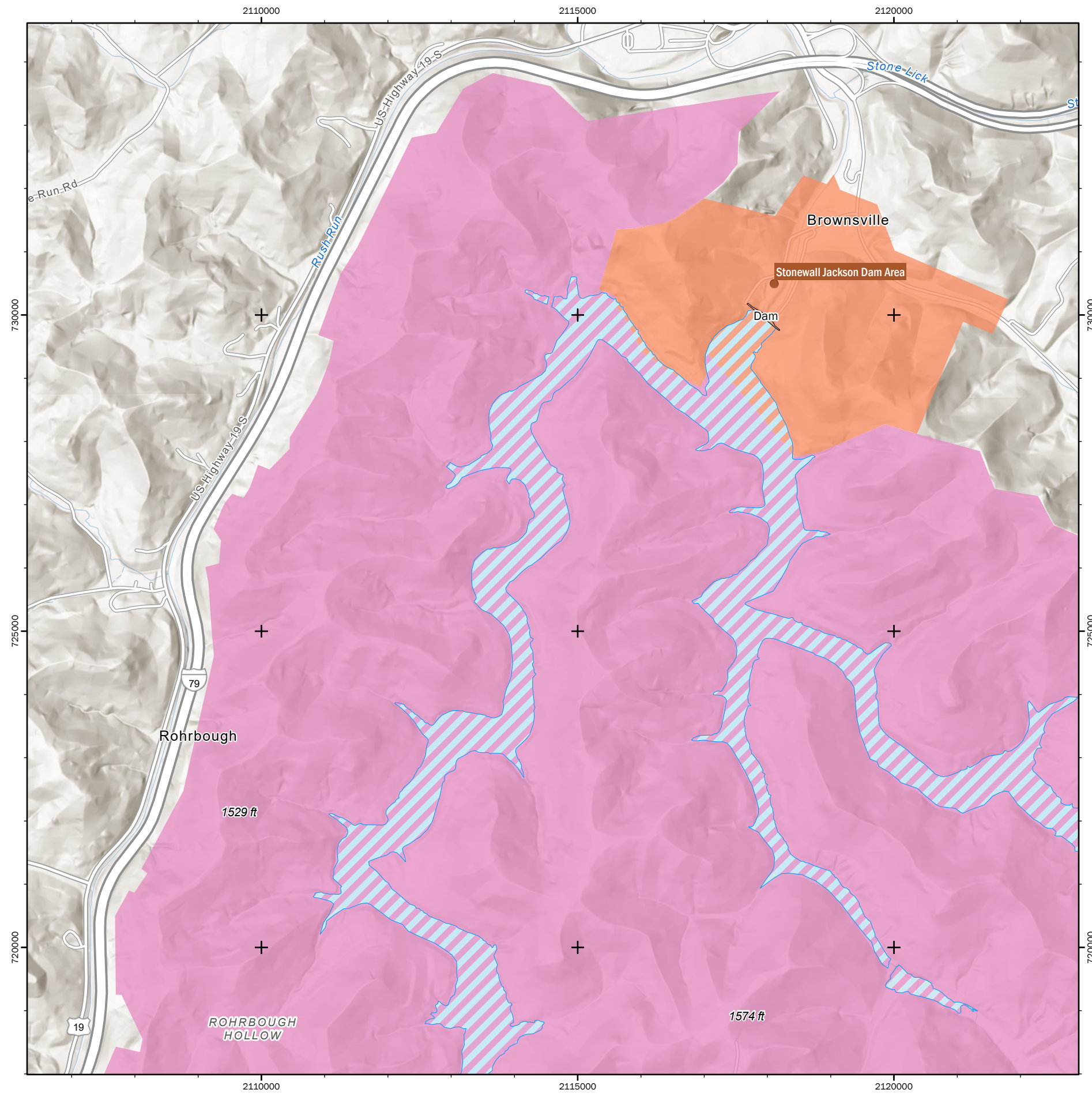


Data Source: USACE

Date: May 2021
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Stonewall Jackson Lake
Plate 2: Overview



Legend

- Recreation Area
- Boundaries**
- Ownership, Management, Pool**
- Fee, No Outgrant, Above Pool
- Fee, No Outgrant, Within Pool
- Fee, Outgrant - WVDNR Fish Wildlife, Above Pool
- Fee, Outgrant - WVDNR Fish Wildlife, Within Pool
- Fee, Outgrant - WVDNR Public Land, Above Pool
- Fee, Outgrant - WVDNR Public Land, Within Pool
- Easement, Flowage, Above Pool
- Easement, Flowage, Within Pool
- No Ownership or Easement, Within Pool

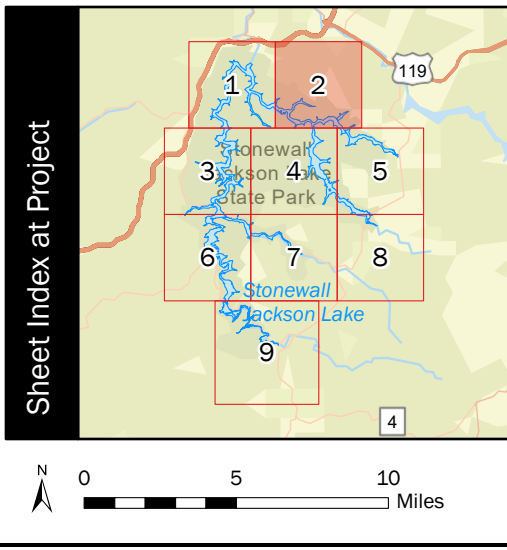
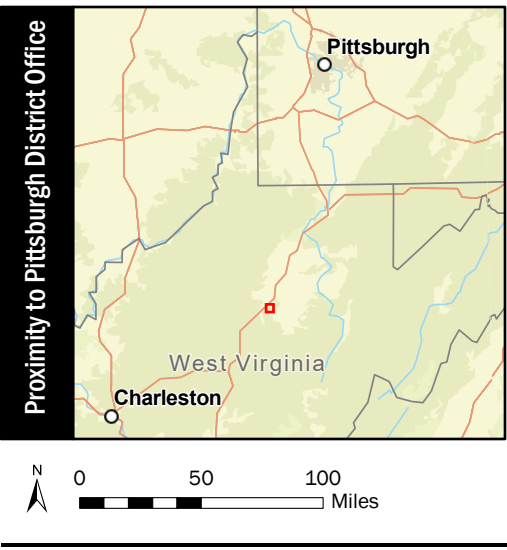
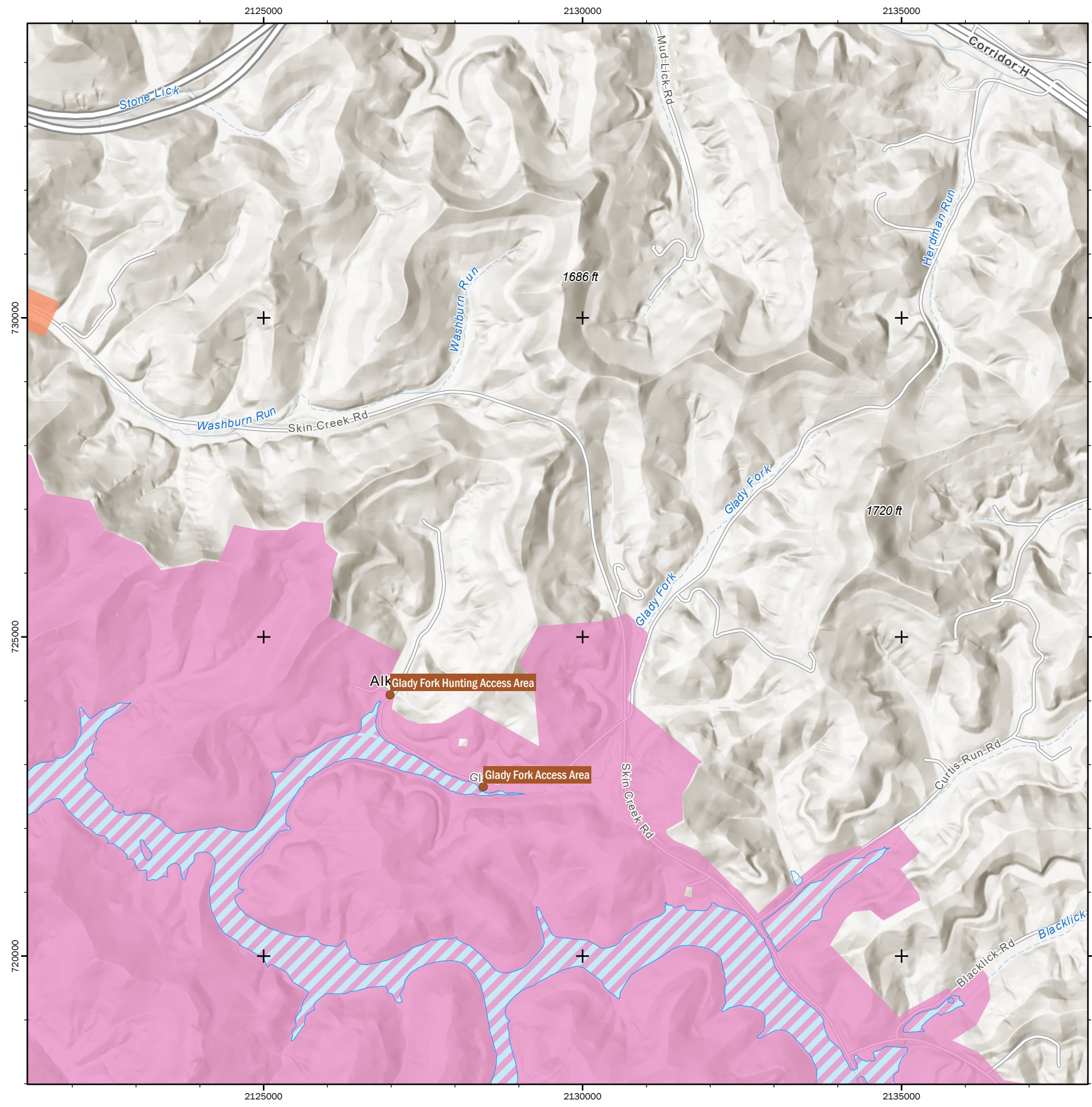
* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

Data Source: USACE
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553
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**Stonewall Jackson Lake
Master Plan**
Plate 3: Boundary
Sheet 1 of 9 (Dam)





Legend

- Recreation Area
- Boundaries**
- Ownership, Management, Pool**
- Fee, No Outgrant, Above Pool
- Fee, No Outgrant, Within Pool
- Fee, Outgrant - WVDNR Fish Wildlife, Above Pool
- Fee, Outgrant - WVDNR Fish Wildlife, Within Pool
- Fee, Outgrant - WVDNR Public Land, Above Pool
- Fee, Outgrant - WVDNR Public Land, Within Pool
- Easement, Flowage, Above Pool
- Easement, Flowage, Within Pool
- No Ownership or Easement, Within Pool

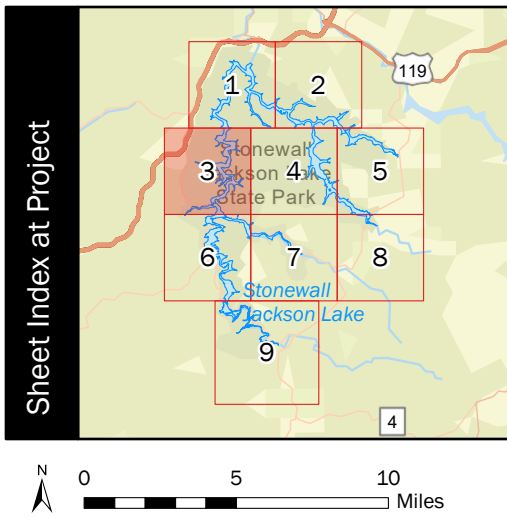
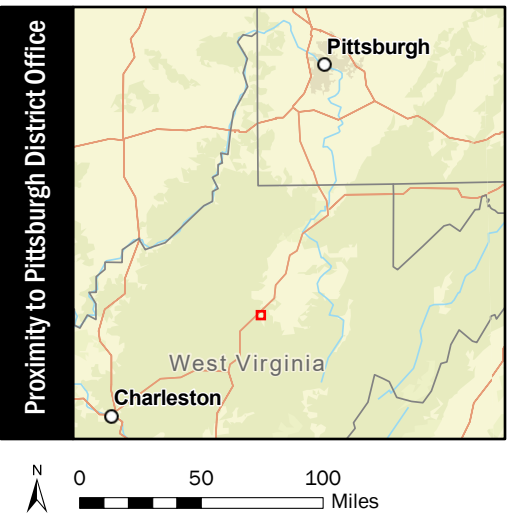
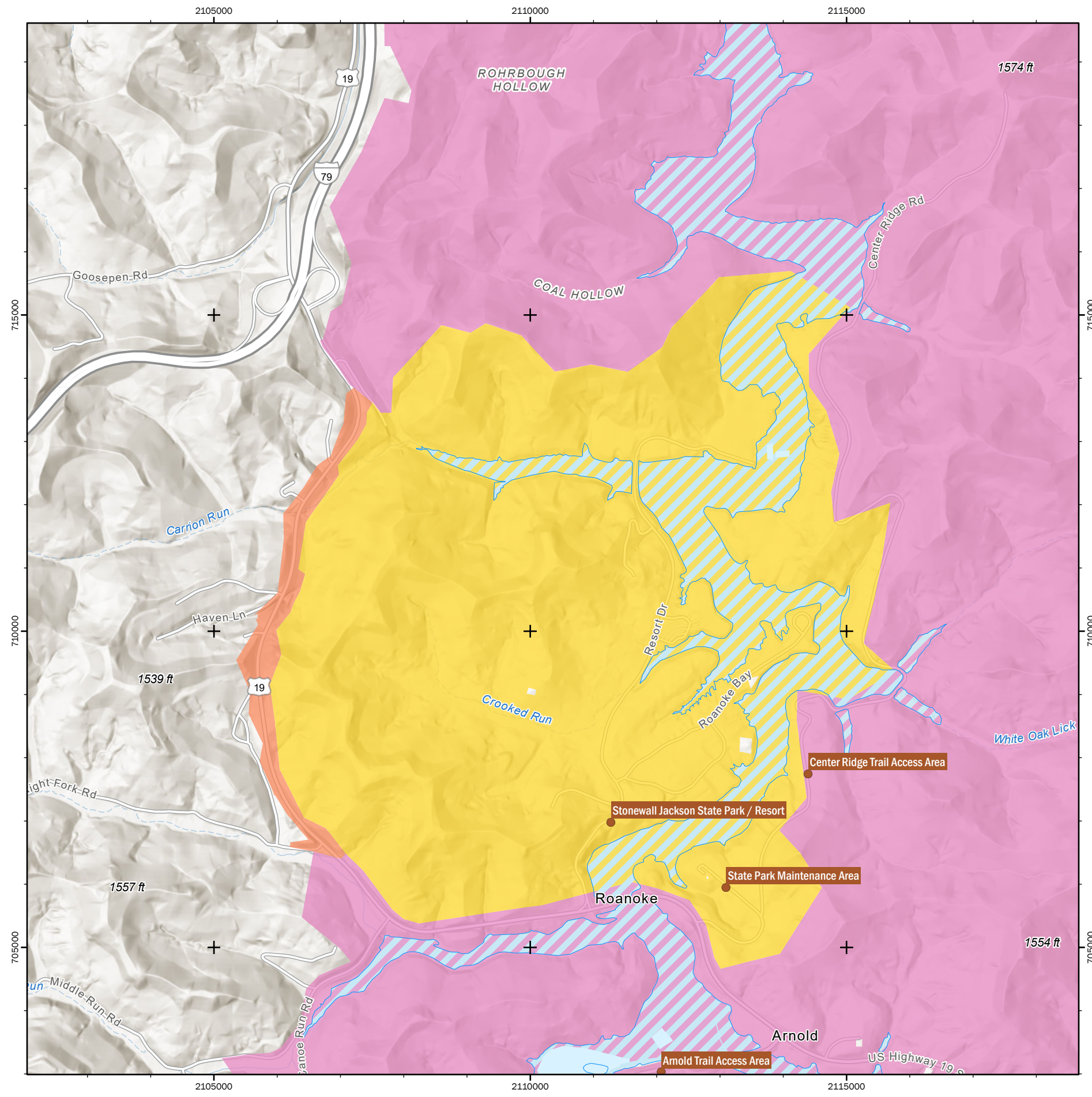
* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

Data Source: USACE
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553
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**Stonewall Jackson Lake
Master Plan**
Plate 3: Boundary
Sheet 2 of 9 (Glady Fork)





Legend

- Recreation Area
- Boundaries**
- Ownership, Management, Pool**
- Fee, No Outgrant, Above Pool
- Fee, No Outgrant, Within Pool
- Fee, Outgrant - WVDNR Fish Wildlife, Above Pool
- Fee, Outgrant - WVDNR Fish Wildlife, Within Pool
- Fee, Outgrant - WVDNR Public Land, Above Pool
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- Easement, Flowage, Above Pool
- Easement, Flowage, Within Pool
- No Ownership or Easement, Within Pool

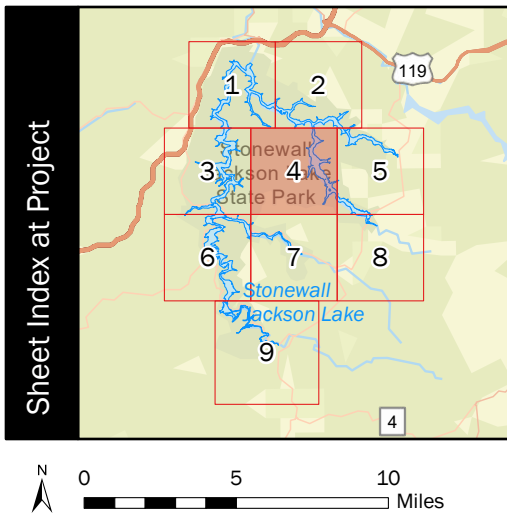
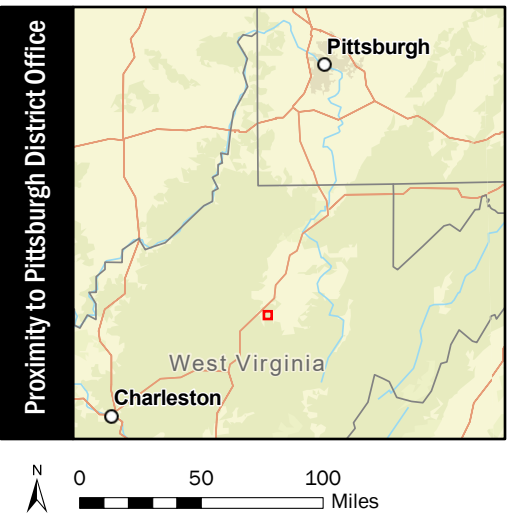
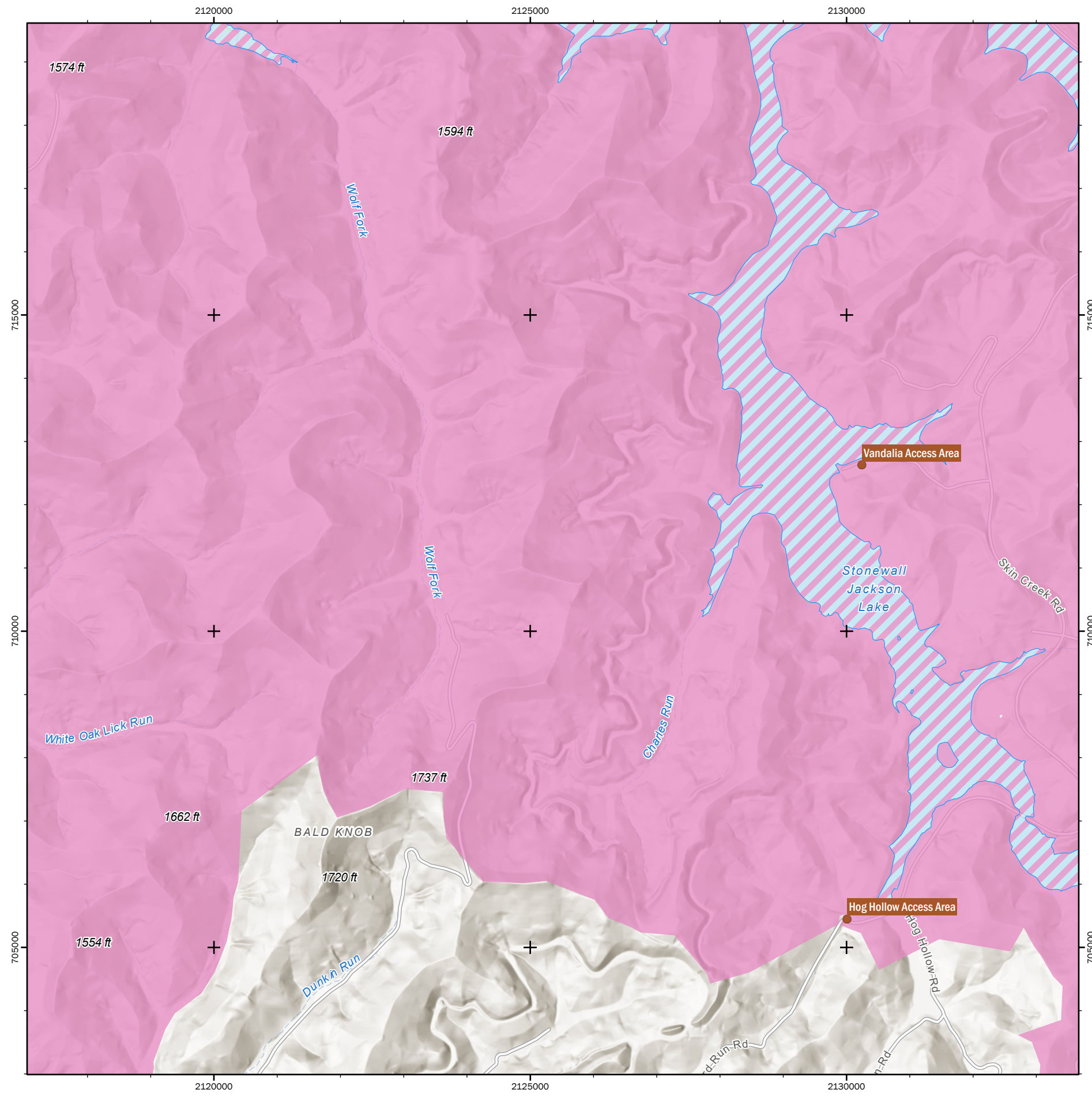
* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

Data Source: USACE
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553
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**Stonewall Jackson Lake
Master Plan**
Plate 3: Boundary
Sheet 3 of 9 (Resort)



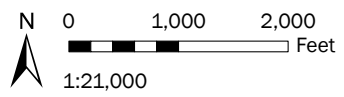


Legend

- Recreation Area
- Boundaries**
- Ownership, Management, Pool**
 - Fee, No Outgrant, Above Pool
 - Fee, No Outgrant, Within Pool
 - Fee, Outgrant - WVDNR Fish Wildlife, Above Pool
 - Fee, Outgrant - WVDNR Fish Wildlife, Within Pool
 - Fee, Outgrant - WVDNR Public Land, Above Pool
 - Fee, Outgrant - WVDNR Public Land, Within Pool
 - Easement, Flowage, Above Pool
 - Easement, Flowage, Within Pool
 - No Ownership or Easement, Within Pool

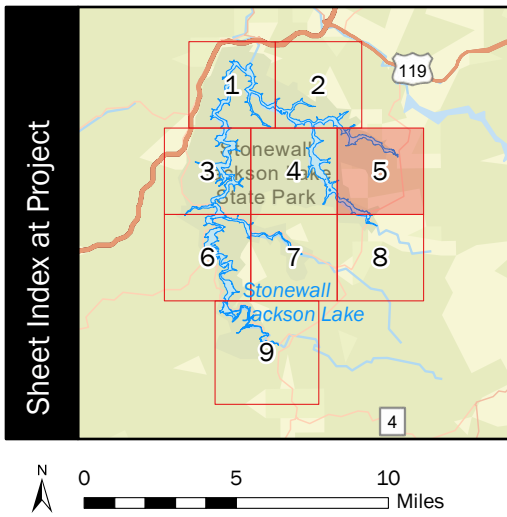
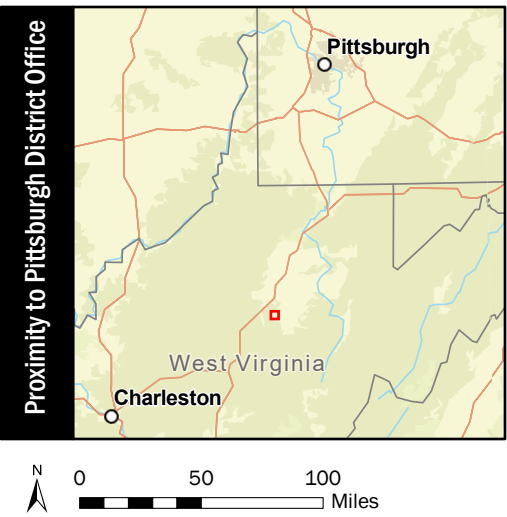
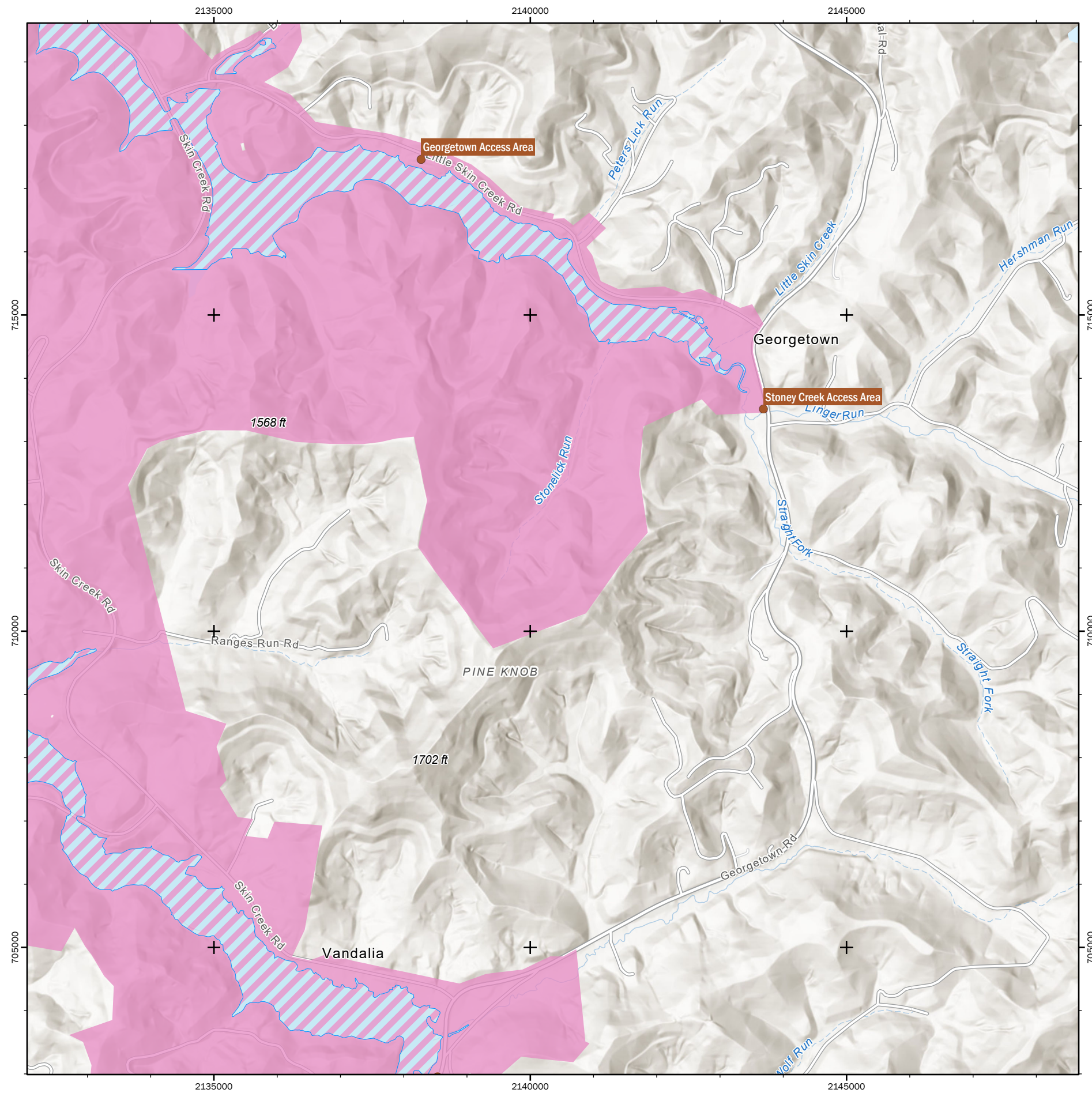
* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

Data Source: USACE
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553
Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



**Stonewall Jackson Lake
Master Plan**
Plate 3: Boundary
Sheet 4 of 9 (Vandalia / Hog Hollow)





Legend

● Recreation Area

Boundaries

Ownership, Management, Pool

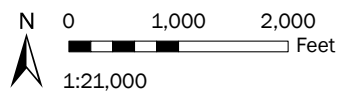
- Fee, No Outgrant, Above Pool
- Fee, No Outgrant, Within Pool
- Fee, Outgrant - WVDNR Fish Wildlife, Above Pool
- Fee, Outgrant - WVDNR Fish Wildlife, Within Pool
- Fee, Outgrant - WVDNR Public Land, Above Pool
- Fee, Outgrant - WVDNR Public Land, Within Pool
- Easement, Flowage, Above Pool
- Easement, Flowage, Within Pool
- No Ownership or Easement, Within Pool

* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

Data Source: USACE

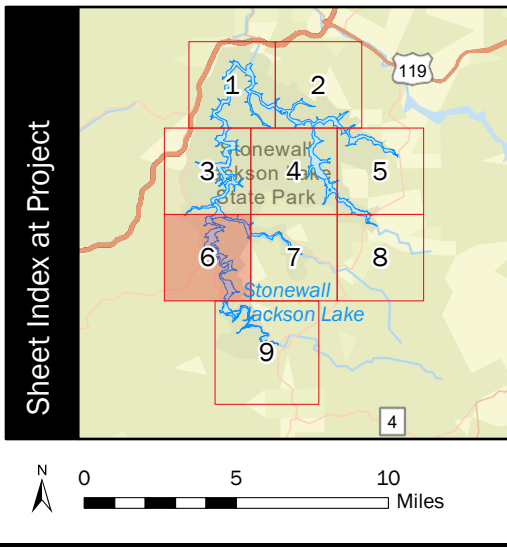
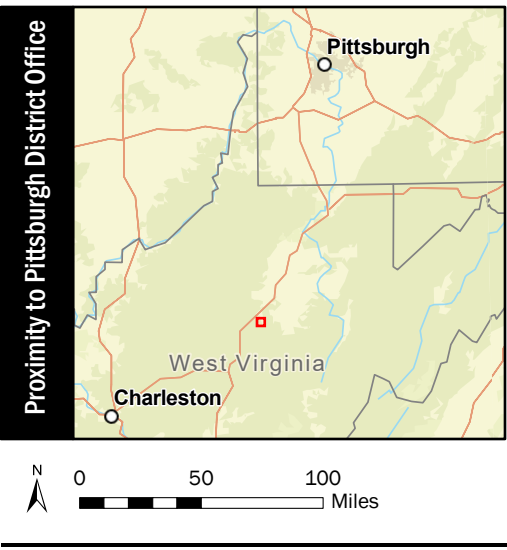
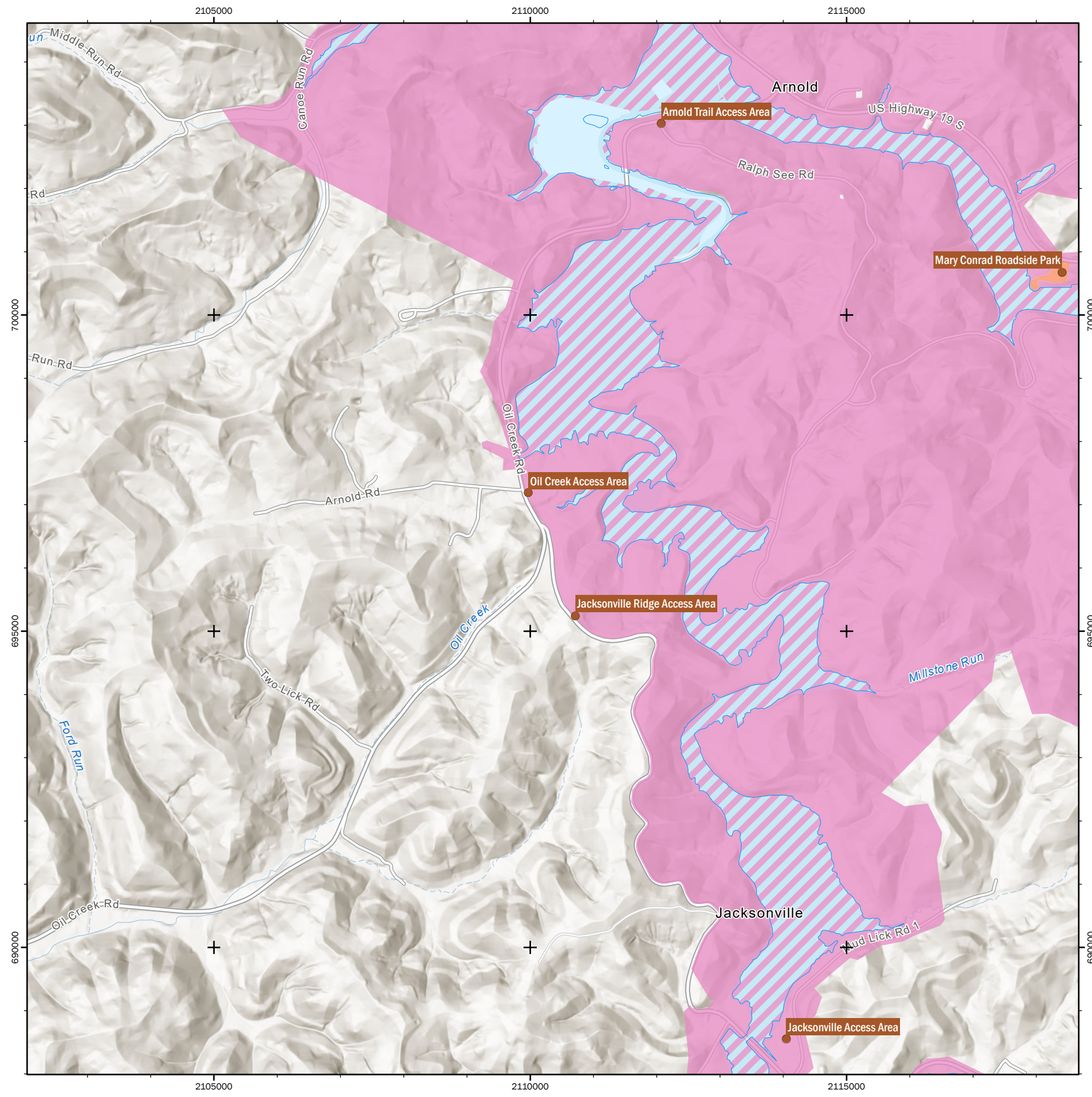
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



Stonewall Jackson Lake
Master Plan
Plate 3: Boundary
Sheet 5 of 9 (Georgetown / Stoney Creek)





Legend

- Recreation Area
- Boundaries**
- Ownership, Management, Pool**
- Fee, No Outgrant, Above Pool
 - Fee, No Outgrant, Within Pool
 - Fee, Outgrant - WVDNR Fish Wildlife, Above Pool
 - Fee, Outgrant - WVDNR Fish Wildlife, Within Pool
 - Fee, Outgrant - WVDNR Public Land, Above Pool
 - Fee, Outgrant - WVDNR Public Land, Within Pool
 - Easement, Flowage, Above Pool
 - Easement, Flowage, Within Pool
 - No Ownership or Easement, Within Pool

* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

Data Source: USACE

Date: May 2021

USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS

0 1,000 2,000 Feet

1:21,000

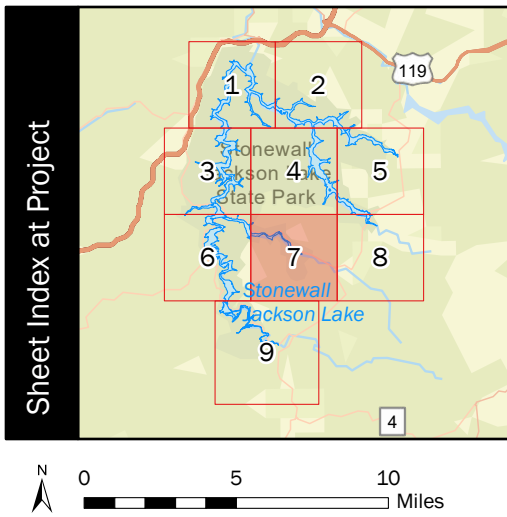
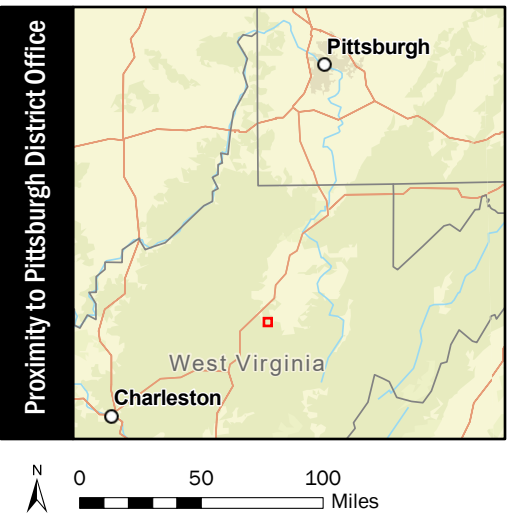
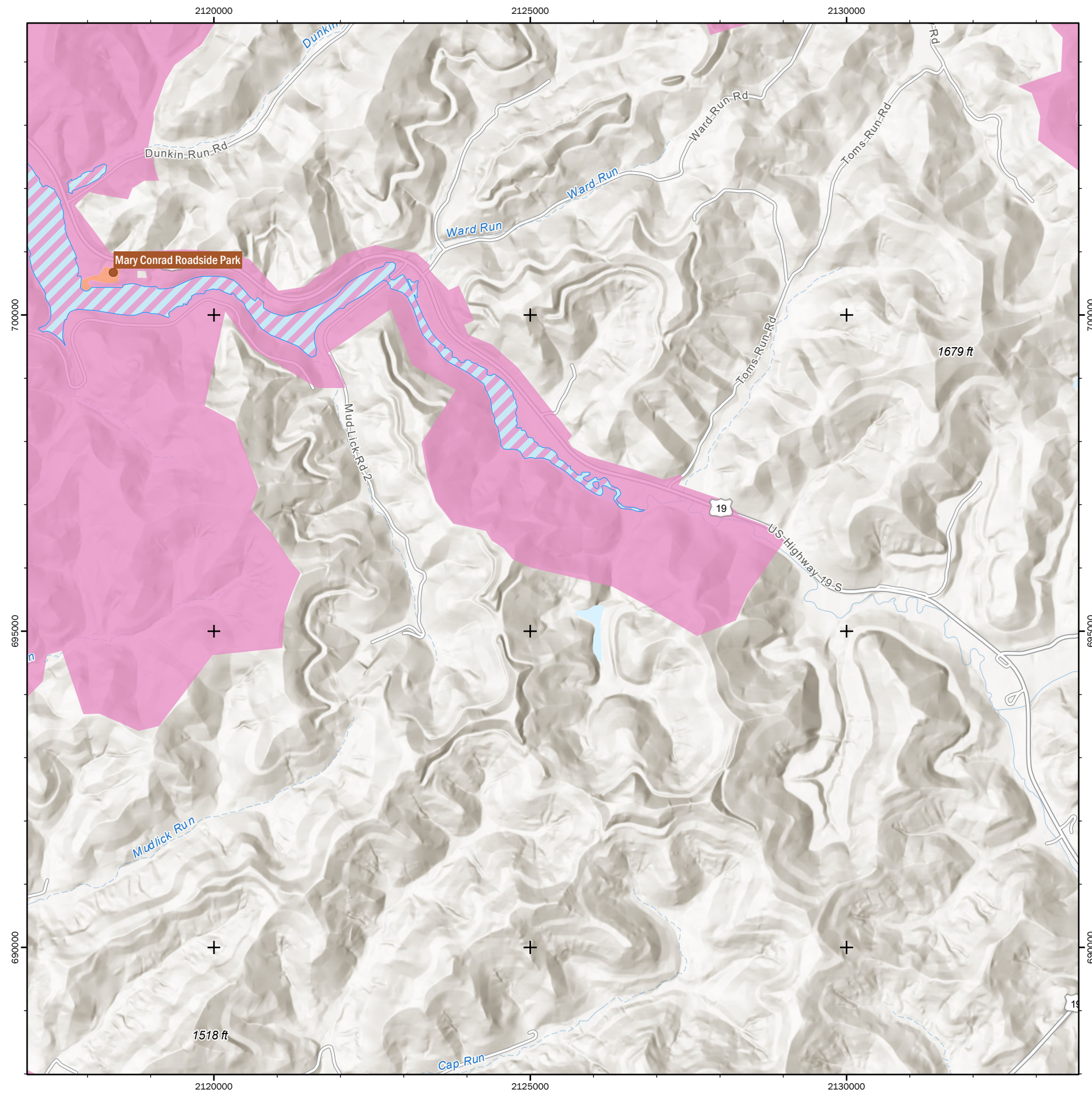


Stonewall Jackson Lake Master Plan

Plate 3: Boundary

Sheet 6 of 9 (Jacksonville)





Legend

- Recreation Area
- Boundaries**
- Ownership, Management, Pool**
- Fee, No Outgrant, Above Pool
- Fee, No Outgrant, Within Pool
- Fee, Outgrant - WVDNR Fish Wildlife, Above Pool
- Fee, Outgrant - WVDNR Fish Wildlife, Within Pool
- Fee, Outgrant - WVDNR Public Land, Above Pool
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- Easement, Flowage, Above Pool
- Easement, Flowage, Within Pool
- No Ownership or Easement, Within Pool

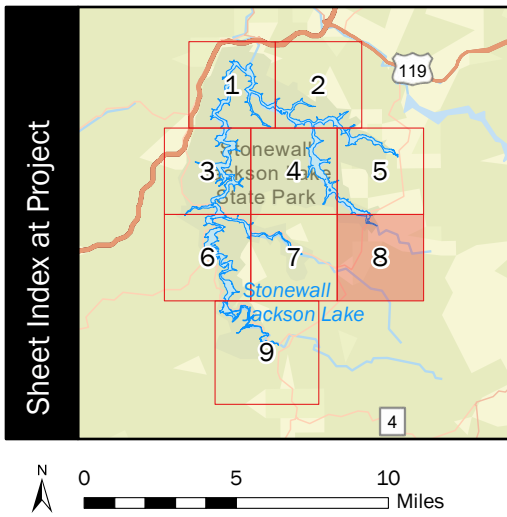
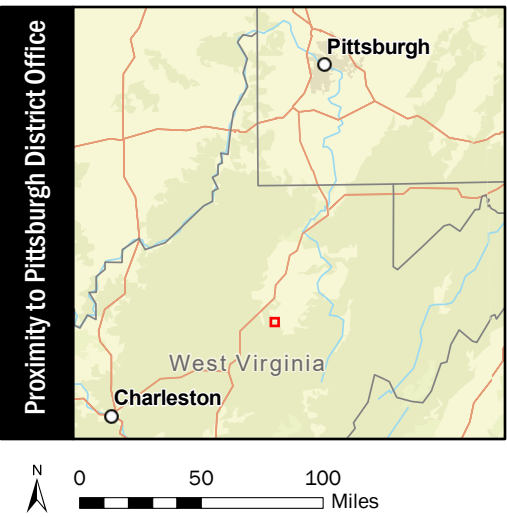
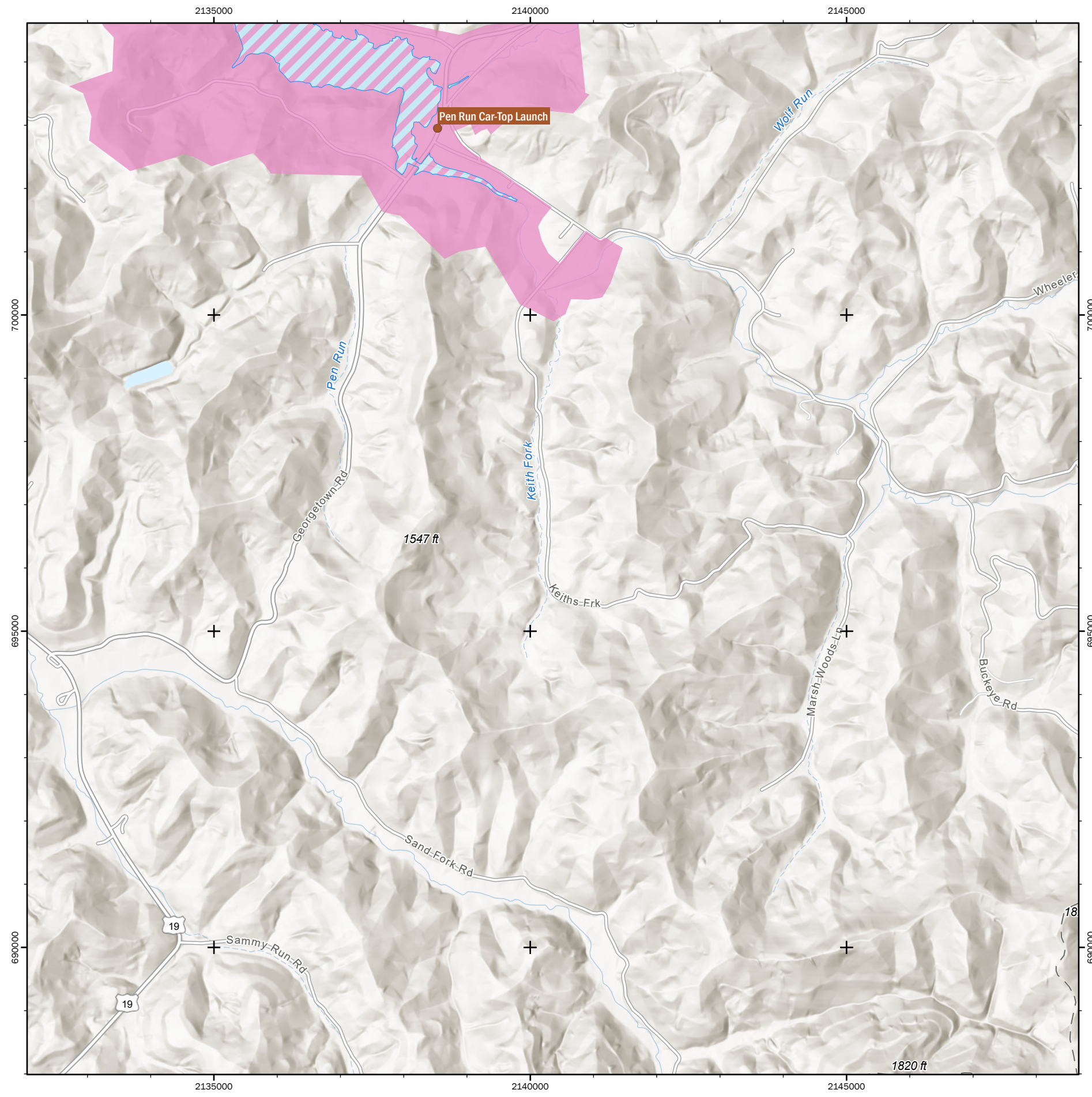
* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

Data Source: USACE
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553
Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



**Stonewall Jackson Lake
Master Plan**
Plate 3: Boundary
Sheet 7 of 9 (Mary Conrad)





Legend

- Recreation Area
- Boundaries**
- Ownership, Management, Pool**
- Fee, No Outgrant, Above Pool
 - Fee, No Outgrant, Within Pool
 - Fee, Outgrant - WVDNR Fish Wildlife, Above Pool
 - Fee, Outgrant - WVDNR Fish Wildlife, Within Pool
 - Fee, Outgrant - WVDNR Public Land, Above Pool
 - Fee, Outgrant - WVDNR Public Land, Within Pool
 - Easement, Flowage, Above Pool
 - Easement, Flowage, Within Pool
 - No Ownership or Easement, Within Pool

* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

Data Source: USACE

Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

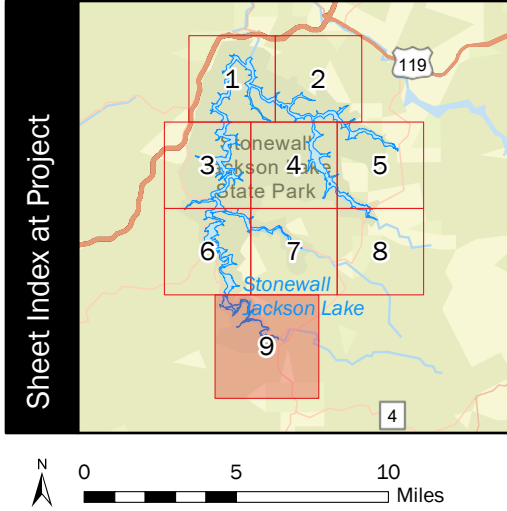
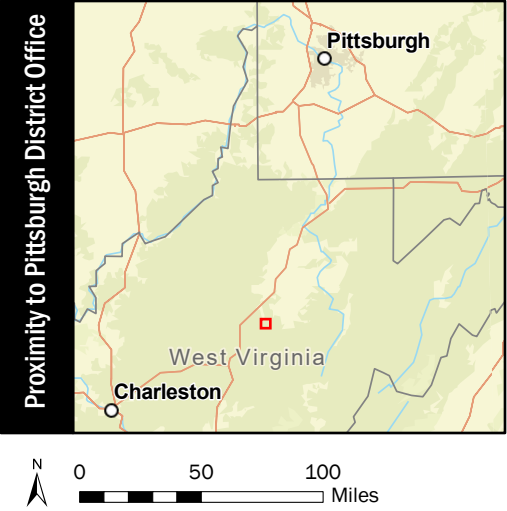
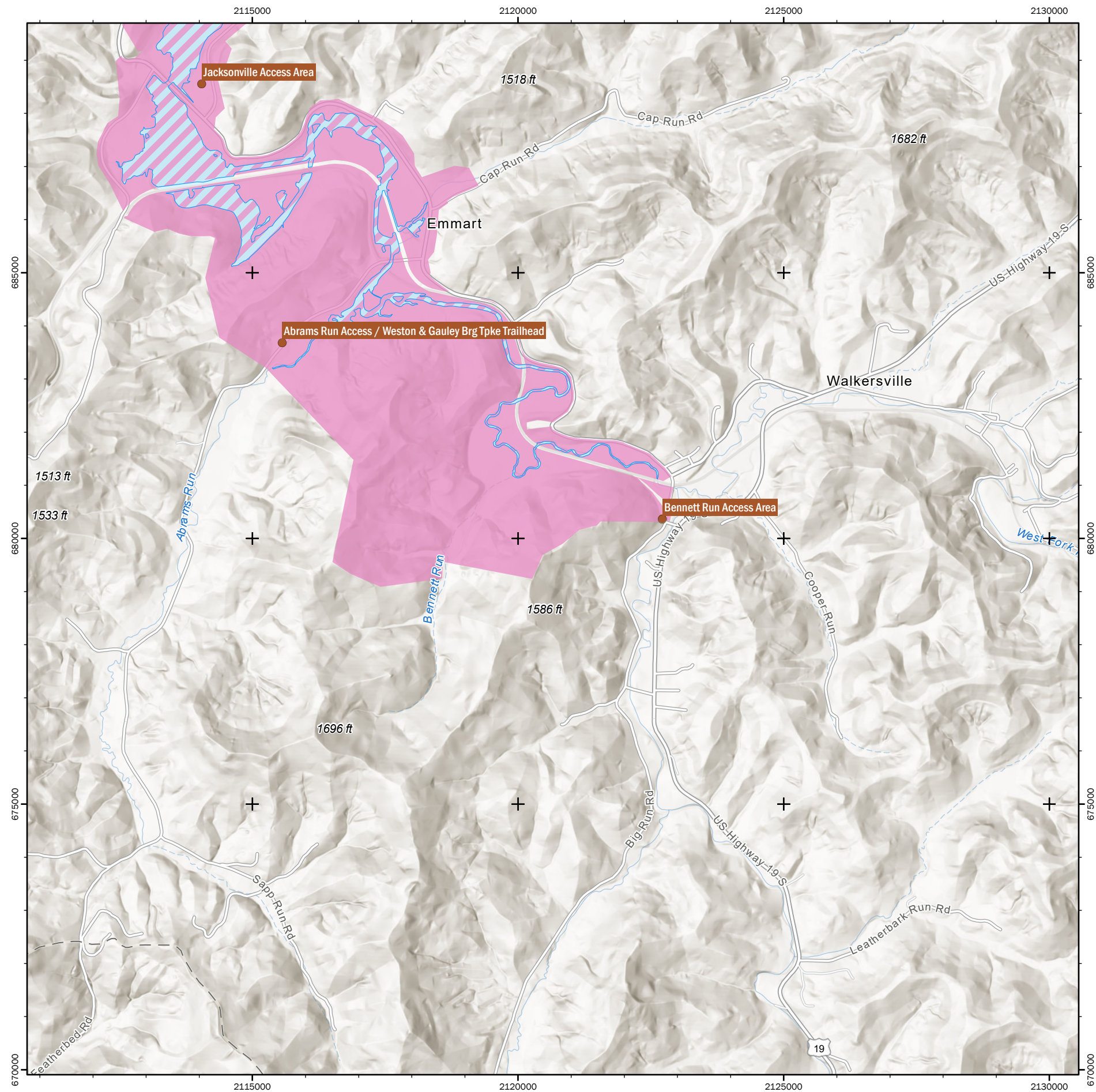
Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS

0 1,000 2,000 Feet
 1:21,000



Stonewall Jackson Lake
Master Plan
 Plate 3: Boundary
 Sheet 8 of 9 (Pen Run)





Legend

- Recreation Area
- Boundaries**
- Ownership, Management, Pool**
- Fee, No Outgrant, Above Pool
 - Fee, No Outgrant, Within Pool
 - Fee, Outgrant - WVDNR Fish Wildlife, Above Pool
 - Fee, Outgrant - WVDNR Fish Wildlife, Within Pool
 - Fee, Outgrant - WVDNR Public Land, Above Pool
 - Fee, Outgrant - WVDNR Public Land, Within Pool
 - Easement, Flowage, Above Pool
 - Easement, Flowage, Within Pool
 - No Ownership or Easement, Within Pool

* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

Data Source: USACE

Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

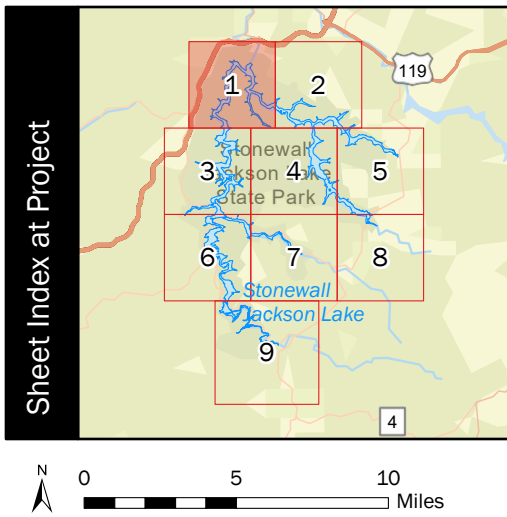
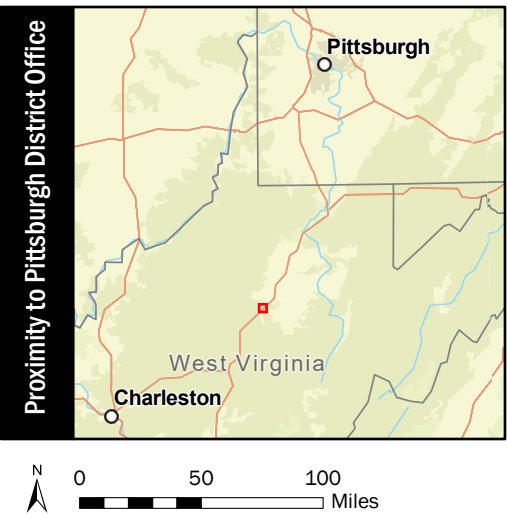
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Stonewall Jackson Lake Master Plan

Plate 3: Boundary
Sheet 9 of 9 (Abrams / Bennett)





Legend

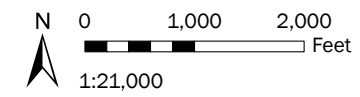
- Fee Boundary
- NVC within Fee Boundary**
 - Agricultural Vegetation
 - Developed & Other Human Use
 - Forest & Woodland
 - Introduced & Semi Natural Vegetation
 - Open Water
 - Recently Disturbed or Modified
 - Shrubland & Grassland

* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

Data Sources: USACE, USGS GAP/LANDFIRE
(National Vegetation Classification (NVC))
WV GIS Technical Center

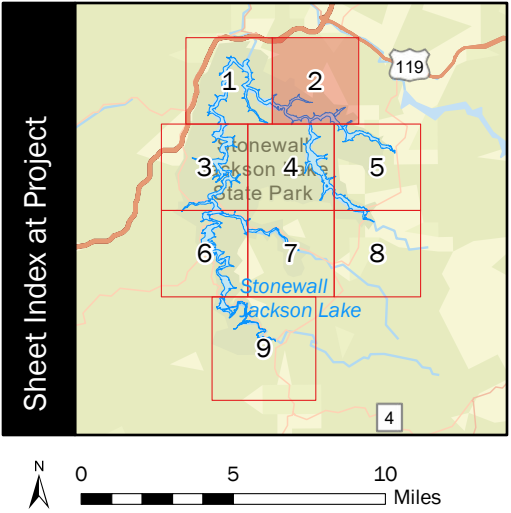
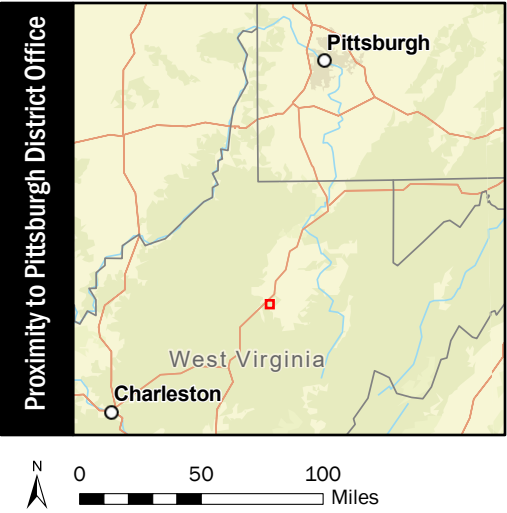
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



**Stonewall Jackson Lake
Master Plan**
Plate 4: Vegetative Classification
Sheet 1 of 9 (Dam)





Legend

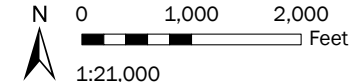
- Fee Boundary
- NVC within Fee Boundary**
 - Agricultural Vegetation
 - Developed & Other Human Use
 - Forest & Woodland
 - Introduced & Semi Natural Vegetation
 - Open Water
 - Recently Disturbed or Modified
 - Shrubland & Grassland

* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

Data Sources: USACE, USGS GAP/LANDFIRE
(National Vegetation Classification (NVC))
WV GIS Technical Center

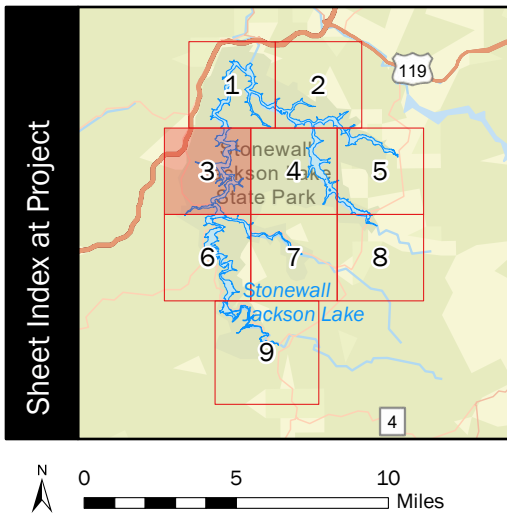
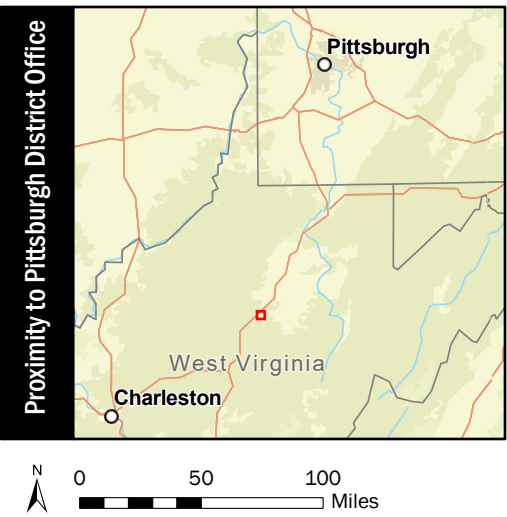
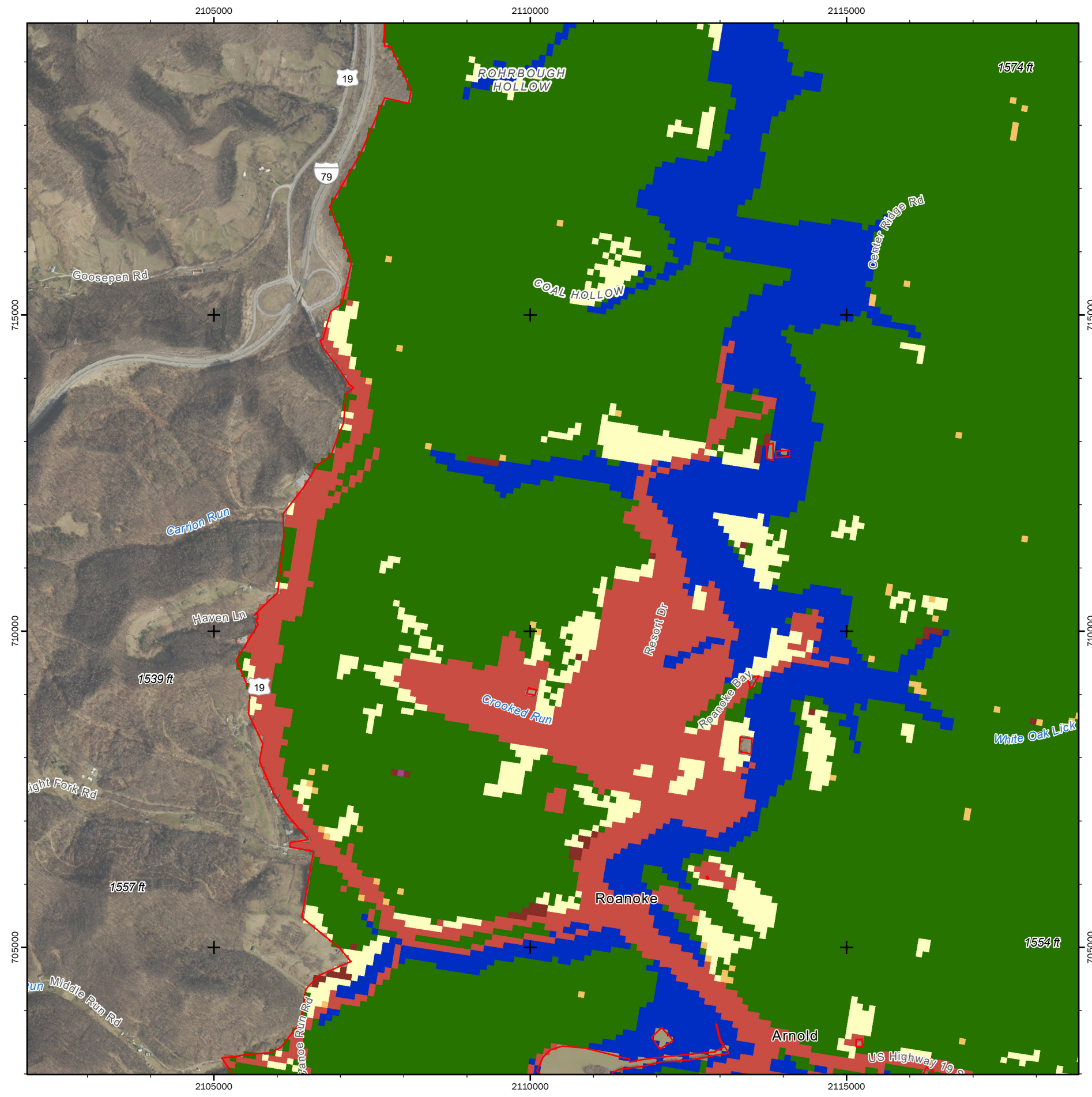
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



**Stonewall Jackson Lake
Master Plan**
Plate 4: Vegetative Classification
Sheet 2 of 9 (Gladly Fork)





Legend

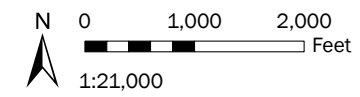
- Fee Boundary
- NVC within Fee Boundary**
 - Agricultural Vegetation
 - Developed & Other Human Use
 - Forest & Woodland
 - Introduced & Semi Natural Vegetation
 - Open Water
 - Recently Disturbed or Modified
 - Shrubland & Grassland

* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

Data Sources: USACE, USGS GAP/LANDFIRE
(National Vegetation Classification (NVC))
WV GIS Technical Center

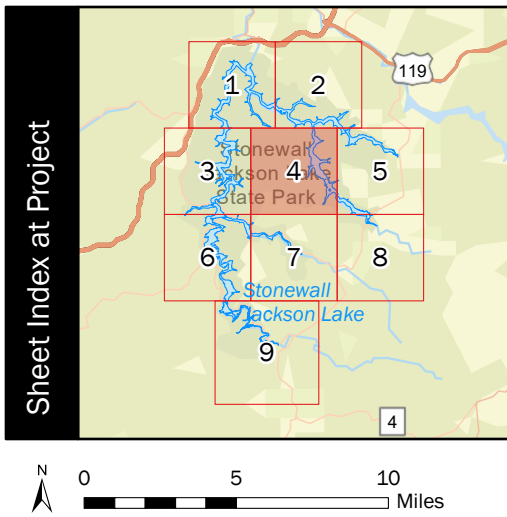
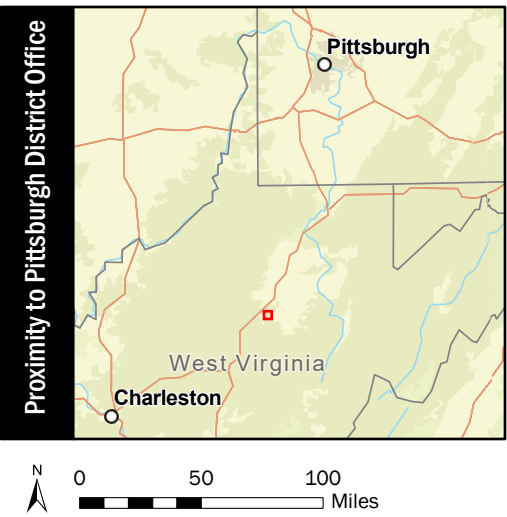
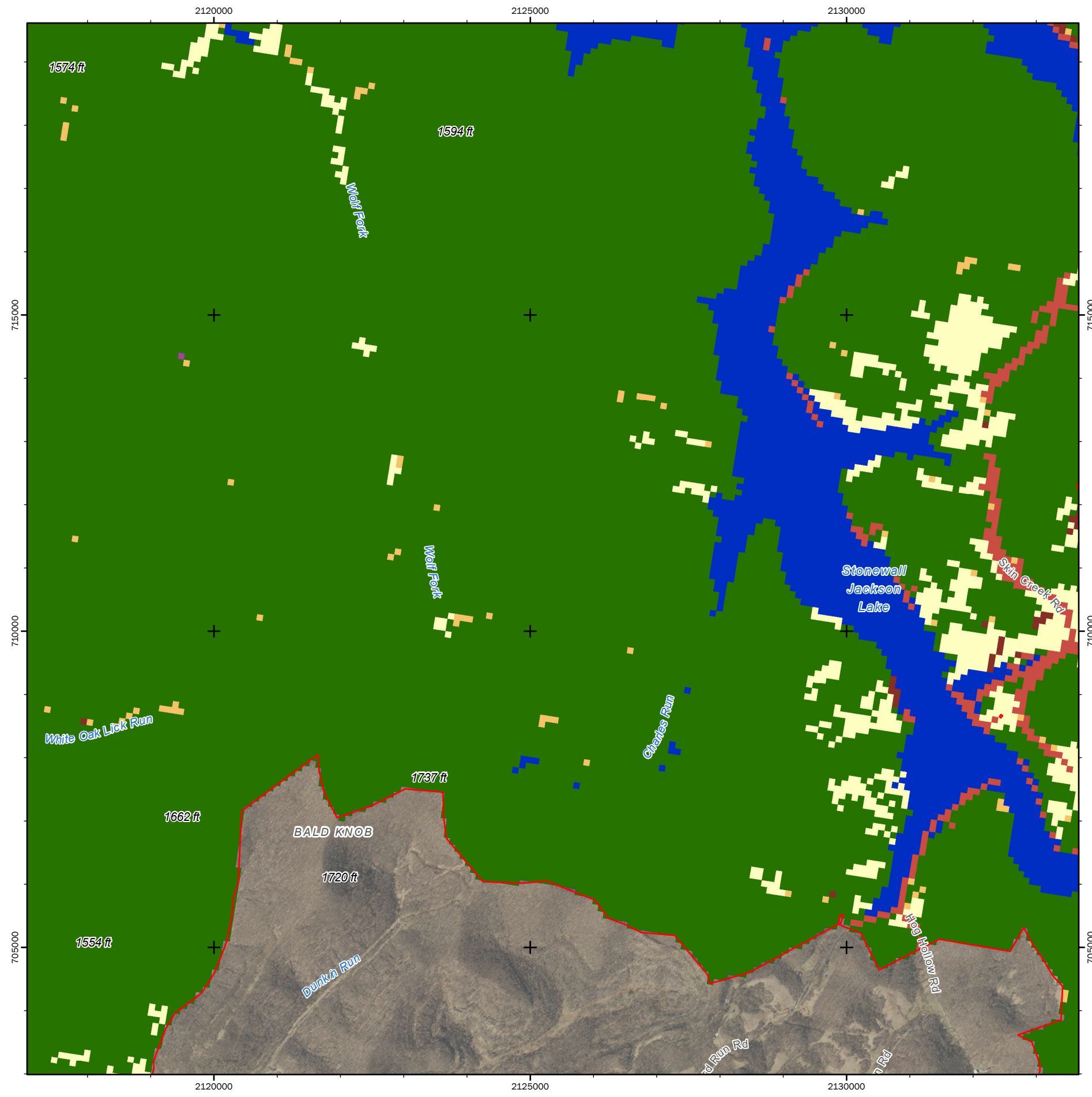
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



**Stonewall Jackson Lake
Master Plan**
Plate 4: Vegetative Classification
Sheet 3 of 9 (Resort)





Legend

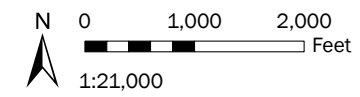
- Fee Boundary
- NVC within Fee Boundary**
 - Agricultural Vegetation
 - Developed & Other Human Use
 - Forest & Woodland
 - Introduced & Semi Natural Vegetation
 - Open Water
 - Recently Disturbed or Modified
 - Shrubland & Grassland

* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

Data Sources: USACE, USGS GAP/LANDFIRE
(National Vegetation Classification (NVC))
WV GIS Technical Center

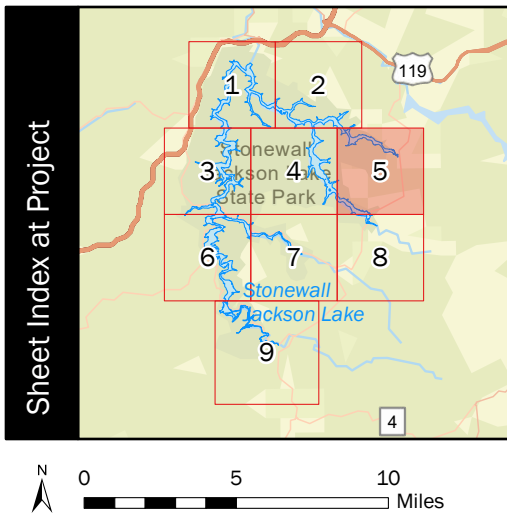
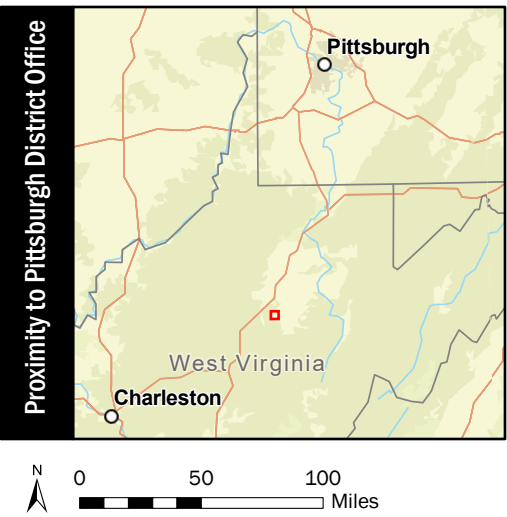
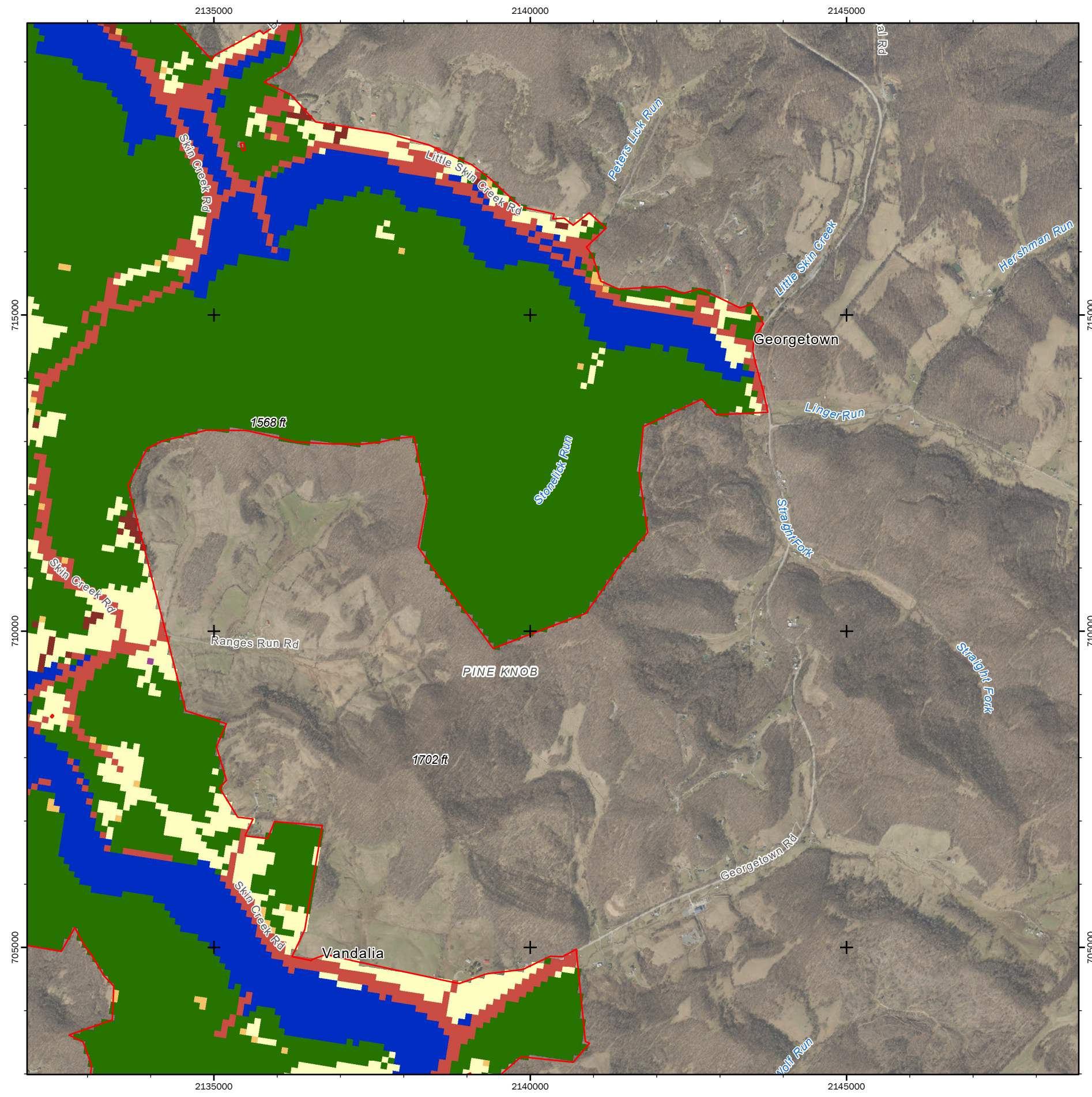
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



**Stonewall Jackson Lake
Master Plan**
Plate 4: Vegetative Classification
Sheet 4 of 9 (Vandalia / Hog Hollow)





Legend

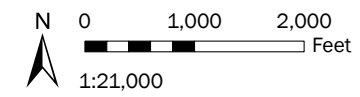
- Fee Boundary
- NVC within Fee Boundary**
 - Agricultural Vegetation
 - Developed & Other Human Use
 - Forest & Woodland
 - Introduced & Semi Natural Vegetation
 - Open Water
 - Recently Disturbed or Modified
 - Shrubland & Grassland

* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

Data Sources: USACE, USGS GAP/LANDFIRE
(National Vegetation Classification (NVC))
WV GIS Technical Center

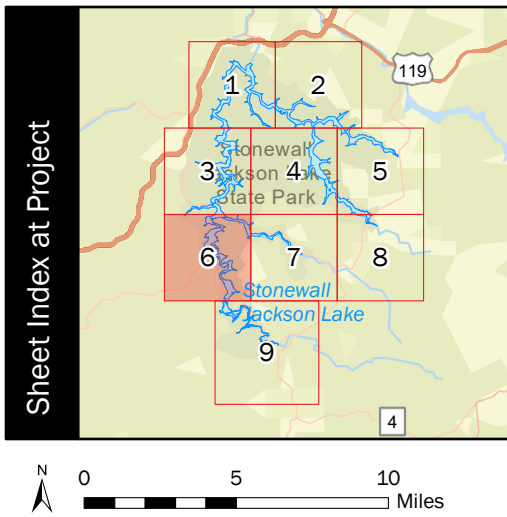
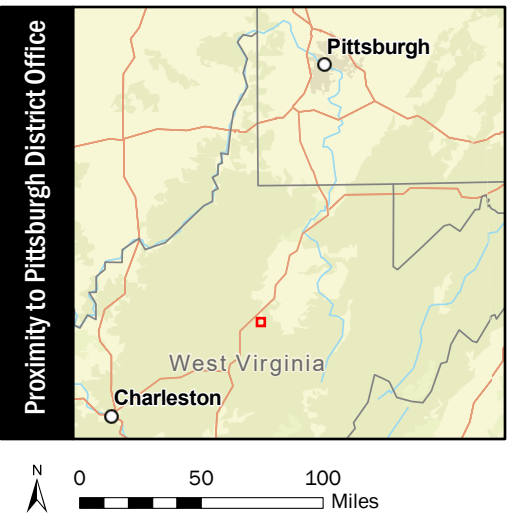
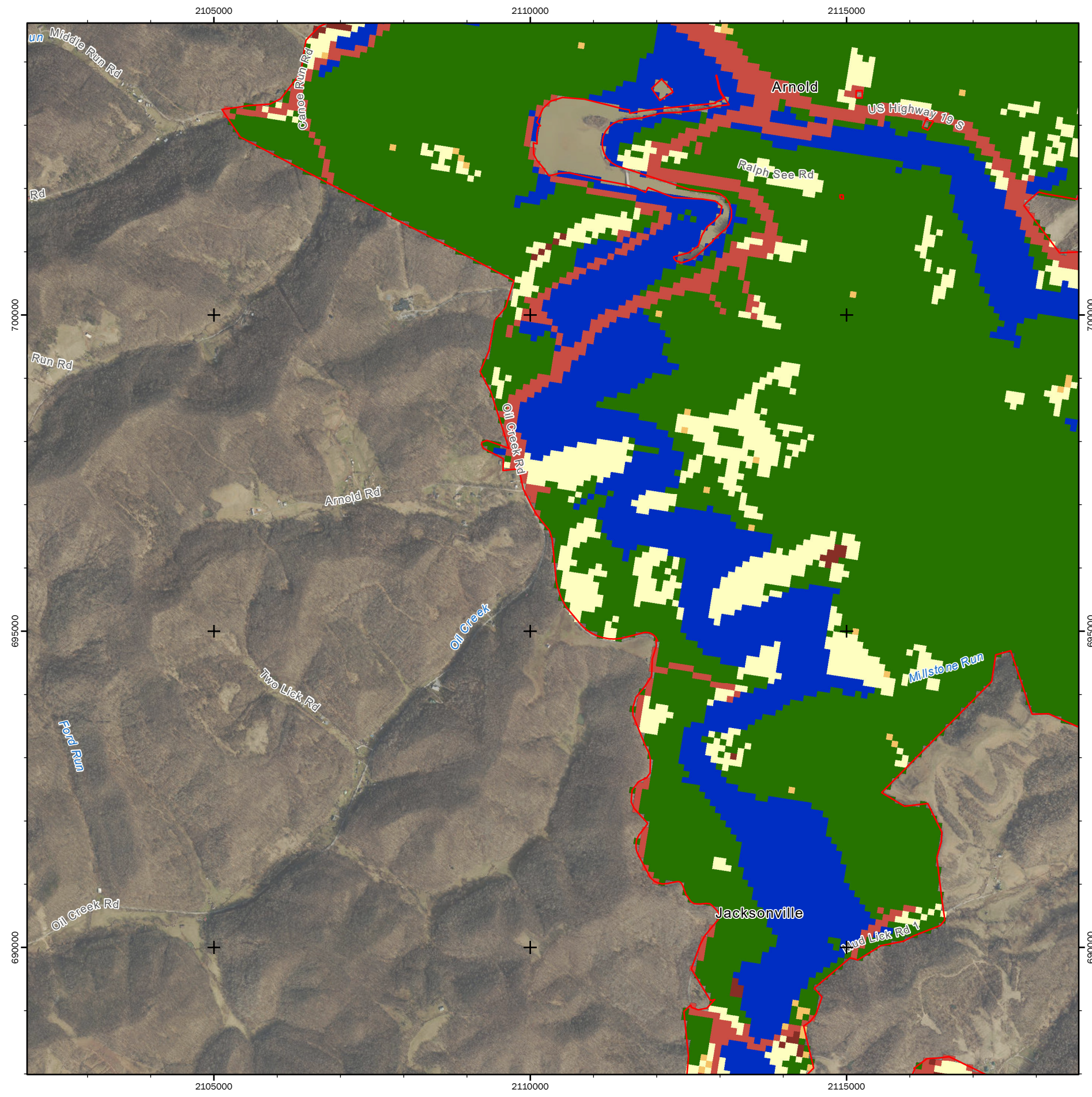
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



**Stonewall Jackson Lake
Master Plan**
Plate 4: Vegetative Classification
Sheet 5 of 9 (Georgetown / Stoney Creek)





Legend

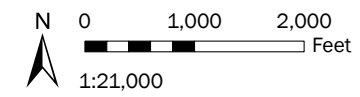
- Fee Boundary
- NVC within Fee Boundary**
 - Agricultural Vegetation
 - Developed & Other Human Use
 - Forest & Woodland
 - Introduced & Semi Natural Vegetation
 - Open Water
 - Recently Disturbed or Modified
 - Shrubland & Grassland

* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

Data Sources: USACE, USGS GAP/LANDFIRE
(National Vegetation Classification (NVC))
WV GIS Technical Center

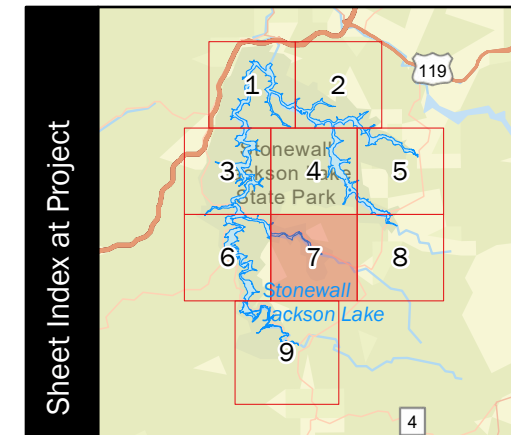
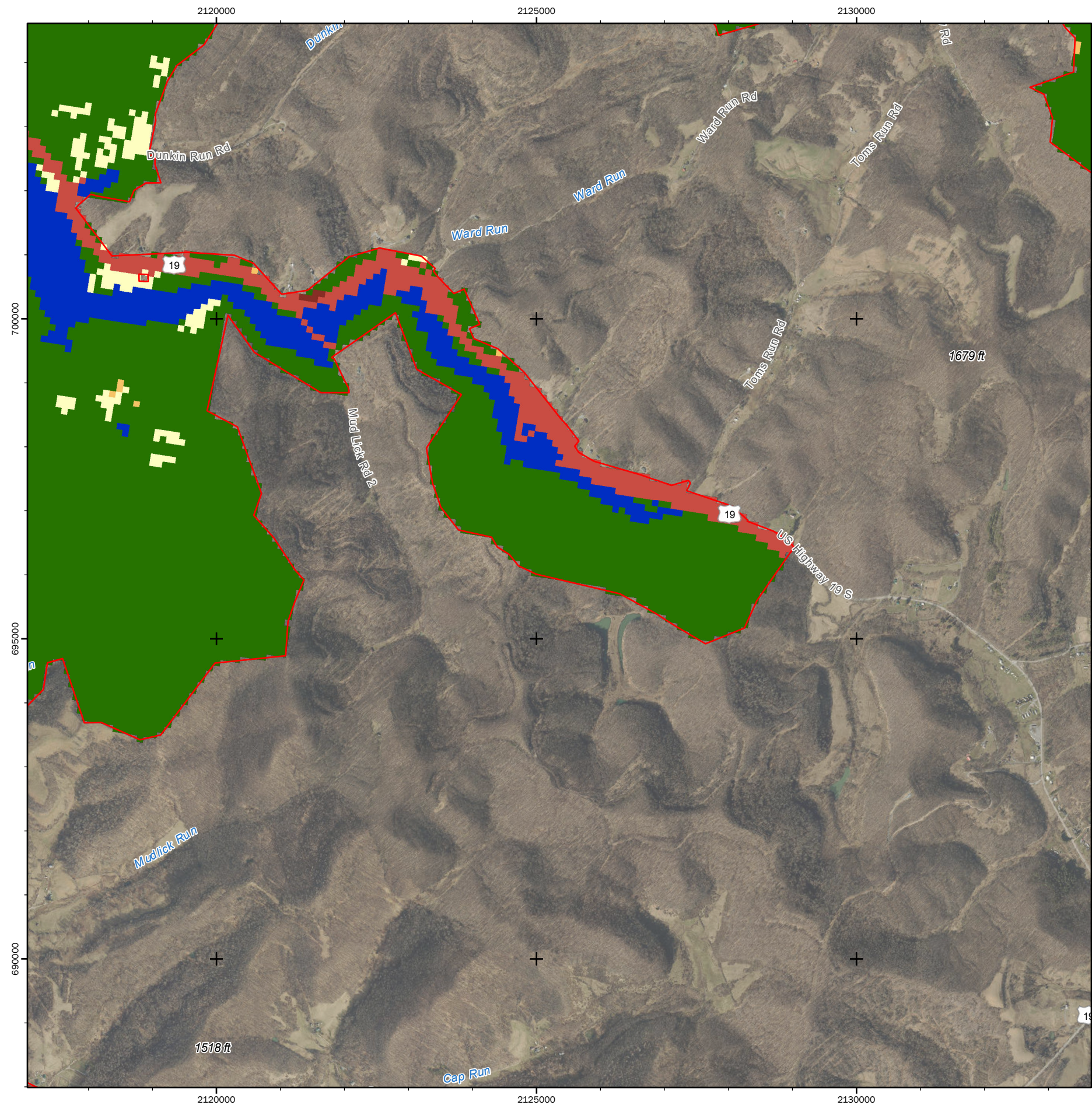
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



**Stonewall Jackson Lake
Master Plan**
Plate 4: Vegetative Classification
Sheet 6 of 9 (Jacksonville)





Legend

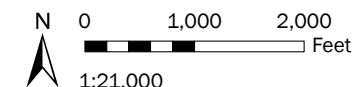
- Fee Boundary
- NVC within Fee Boundary**
 - Agricultural Vegetation
 - Developed & Other Human Use
 - Forest & Woodland
 - Introduced & Semi Natural Vegetation
 - Open Water
 - Recently Disturbed or Modified
 - Shrubland & Grassland

* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

Data Sources: USACE, USGS GAP/LANDFIRE
(National Vegetation Classification (NVC))
WV GIS Technical Center

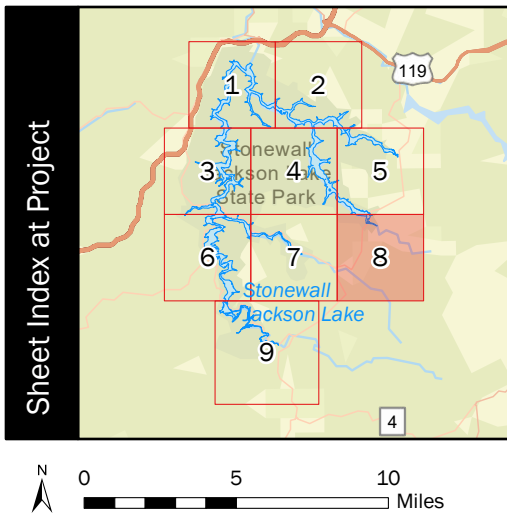
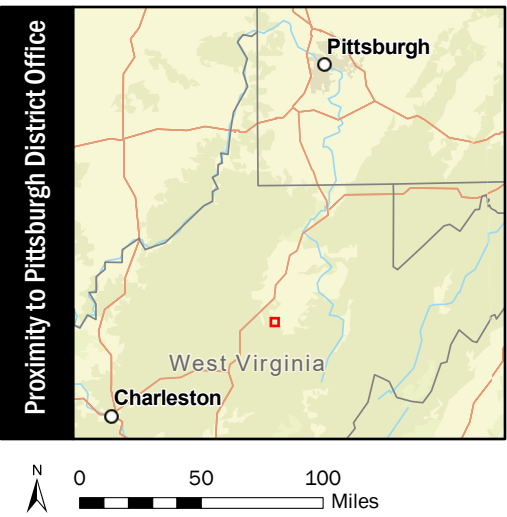
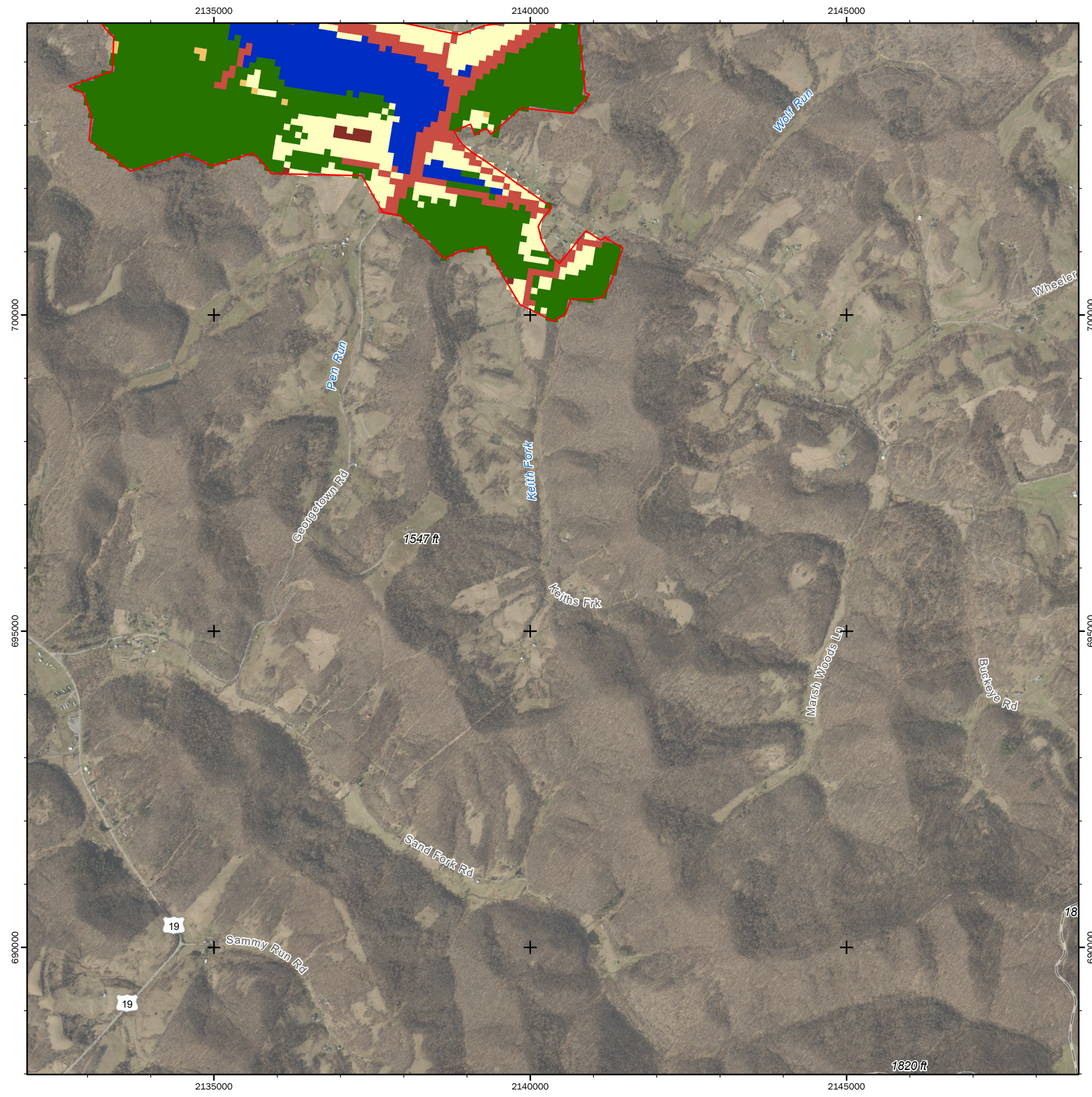
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



**Stonewall Jackson Lake
Master Plan**
Plate 4: Vegetative Classification
Sheet 7 of 9 (Mary Conrad)





Legend

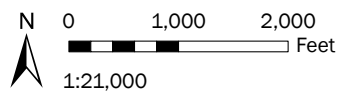
- Fee Boundary
- NVC within Fee Boundary**
 - Agricultural Vegetation
 - Developed & Other Human Use
 - Forest & Woodland
 - Introduced & Semi Natural Vegetation
 - Open Water
 - Recently Disturbed or Modified
 - Shrubland & Grassland

* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

Data Sources: USACE, USGS GAP/LANDFIRE
(National Vegetation Classification (NVC))
WV GIS Technical Center

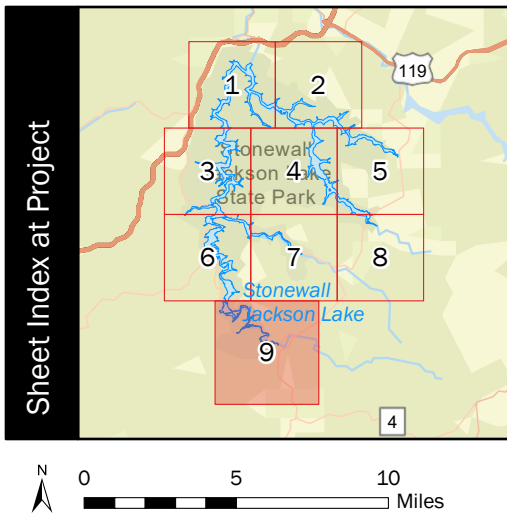
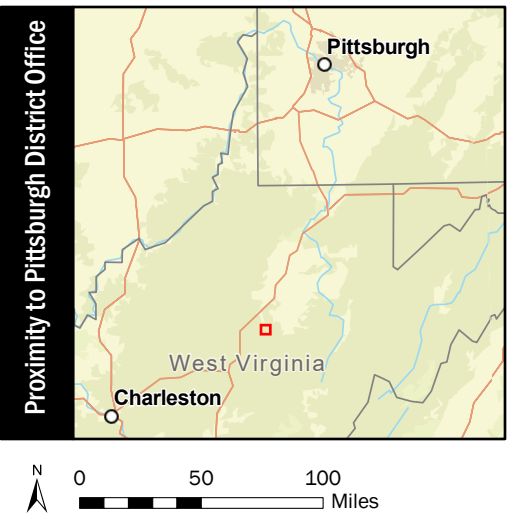
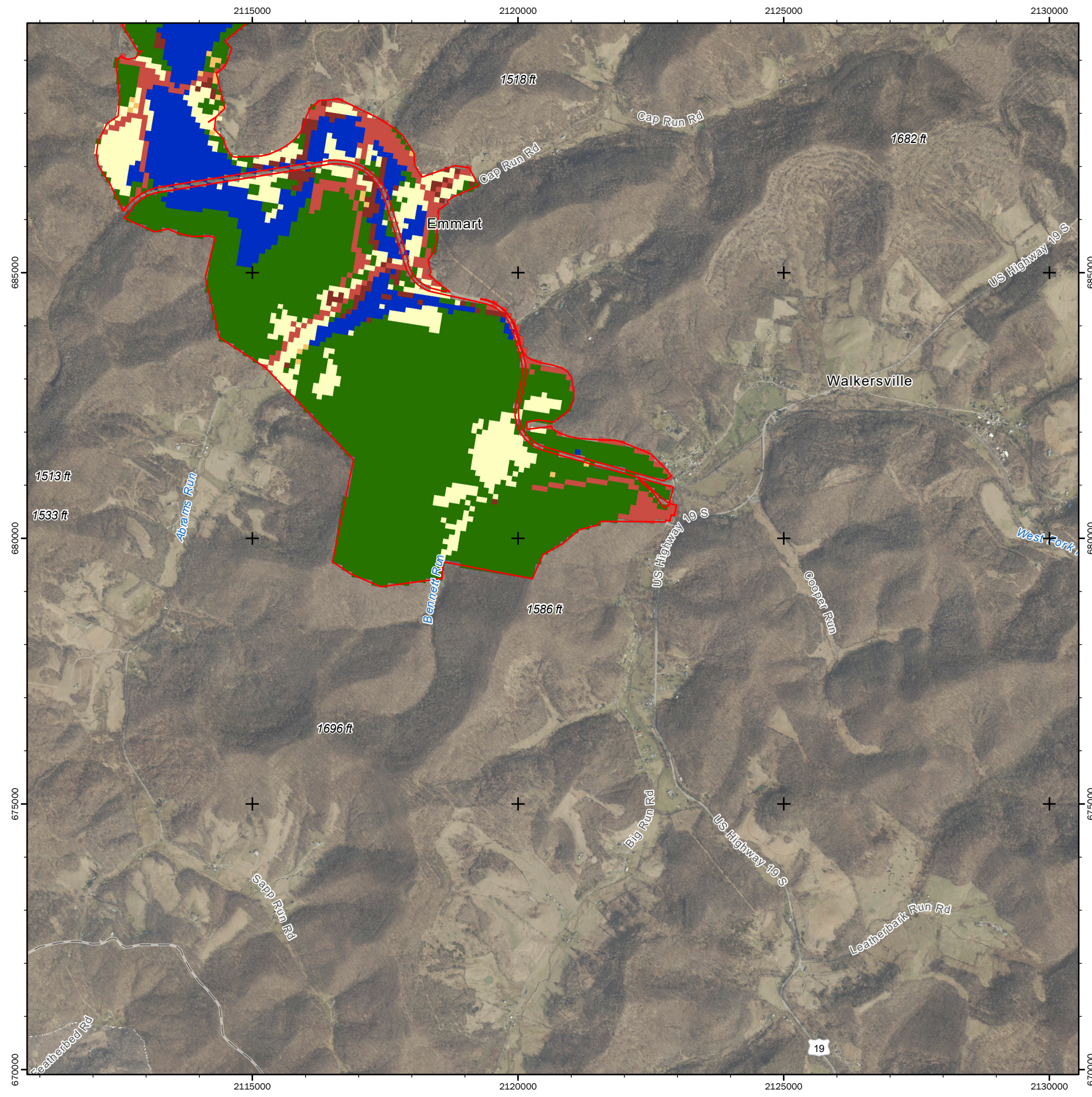
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



**Stonewall Jackson Lake
Master Plan**
Plate 4: Vegetative Classification
Sheet 8 of 9 (Pen Run)





Legend

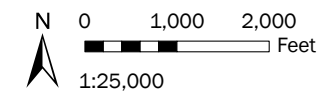
- Fee Boundary
- NVC within Fee Boundary**
 - Agricultural Vegetation
 - Developed & Other Human Use
 - Forest & Woodland
 - Introduced & Semi Natural Vegetation
 - Open Water
 - Recently Disturbed or Modified
 - Shrubland & Grassland

* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

Data Sources: USACE, USGS GAP/LANDFIRE
(National Vegetation Classification (NVC))
WV GIS Technical Center

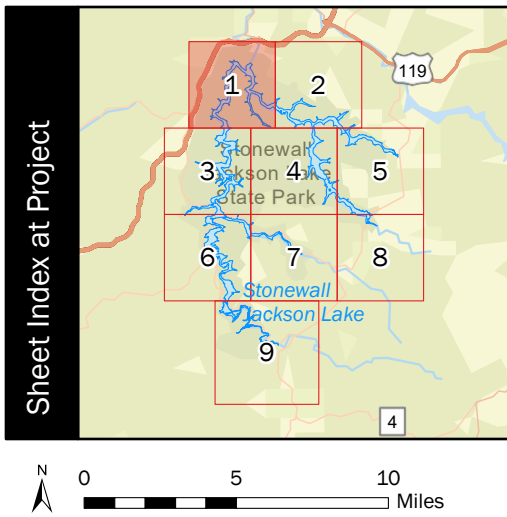
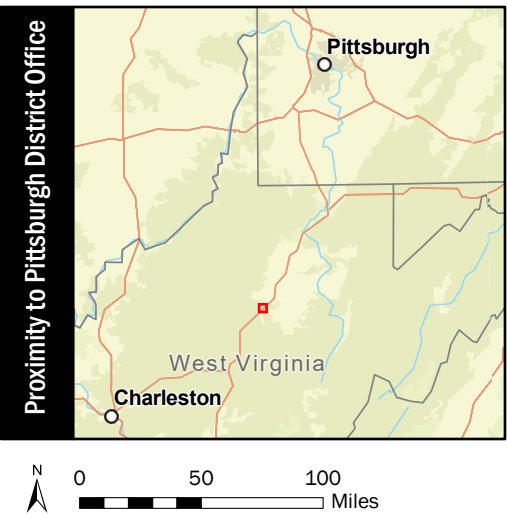
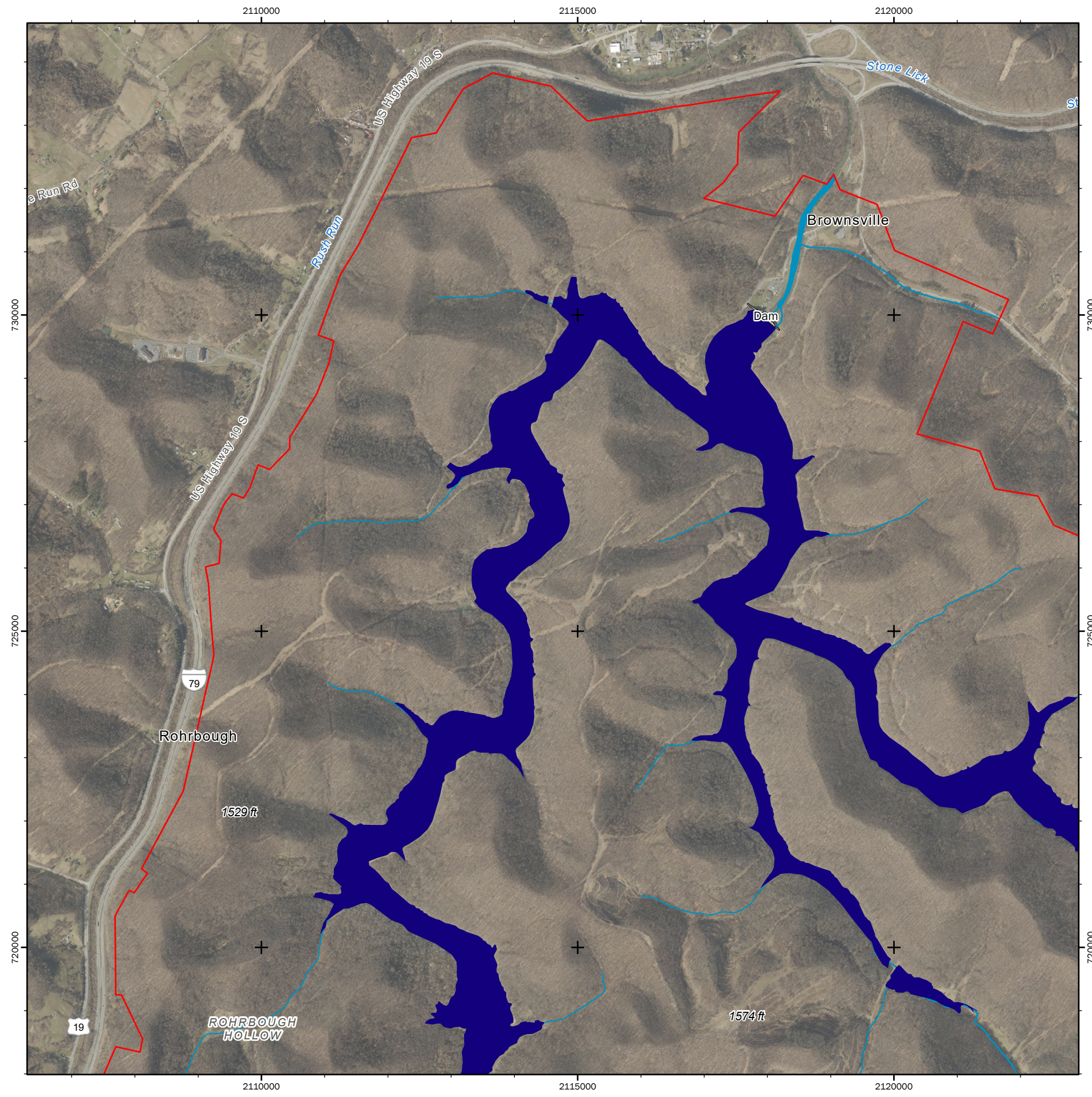
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



**Stonewall Jackson Lake
Master Plan**
Plate 4: Vegetative Classification
Sheet 9 of 9 (Abrams / Bennett)





Legend

- Fee Boundary
- National Wetlands Inventory**
- Wetland Type**
 - Freshwater Emergent Wetland
 - Freshwater Forested/Shrub Wetland
 - Freshwater Pond
 - Lake
 - Riverine

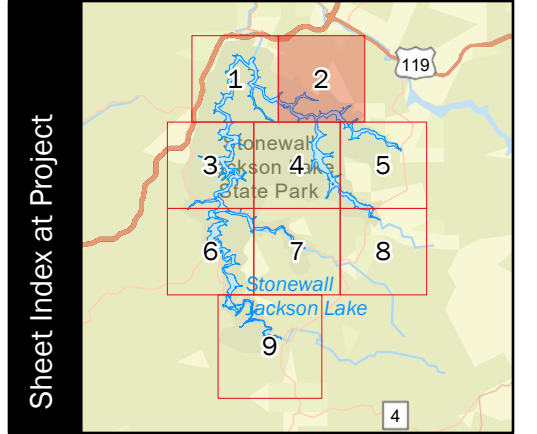
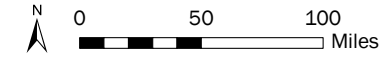
* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

According to National Wetlands Inventory Mapper (<https://www.fws.gov/wetlands/data/mapper.html>), "The wetlands and deepwater habitats in this area were photo interpreted using 1:58,000 scale, color infrared imagery from 1985." This predates reservoir completion. Therefore, National Wetlands Inventory data was supplemented with the lake pool polygon used throughout this master plan.

Data Sources: USACE, USFWS, WV GIS Technical Center

Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



Legend

- Fee Boundary
- National Wetlands Inventory**
- Wetland Type**
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

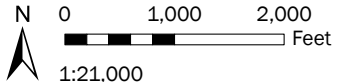
* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

According to National Wetlands Inventory Mapper (<https://www.fws.gov/wetlands/data/mapper.html>), "The wetlands and deepwater habitats in this area were photo interpreted using 1:58,000 scale, color infrared imagery from 1985." This predates reservoir completion. Therefore, National Wetlands Inventory data was supplemented with the lake pool polygon used throughout this master plan.

Data Sources: USACE, USFWS, WV GIS Technical Center

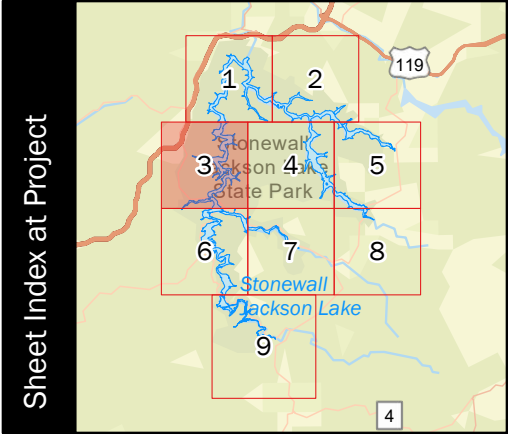
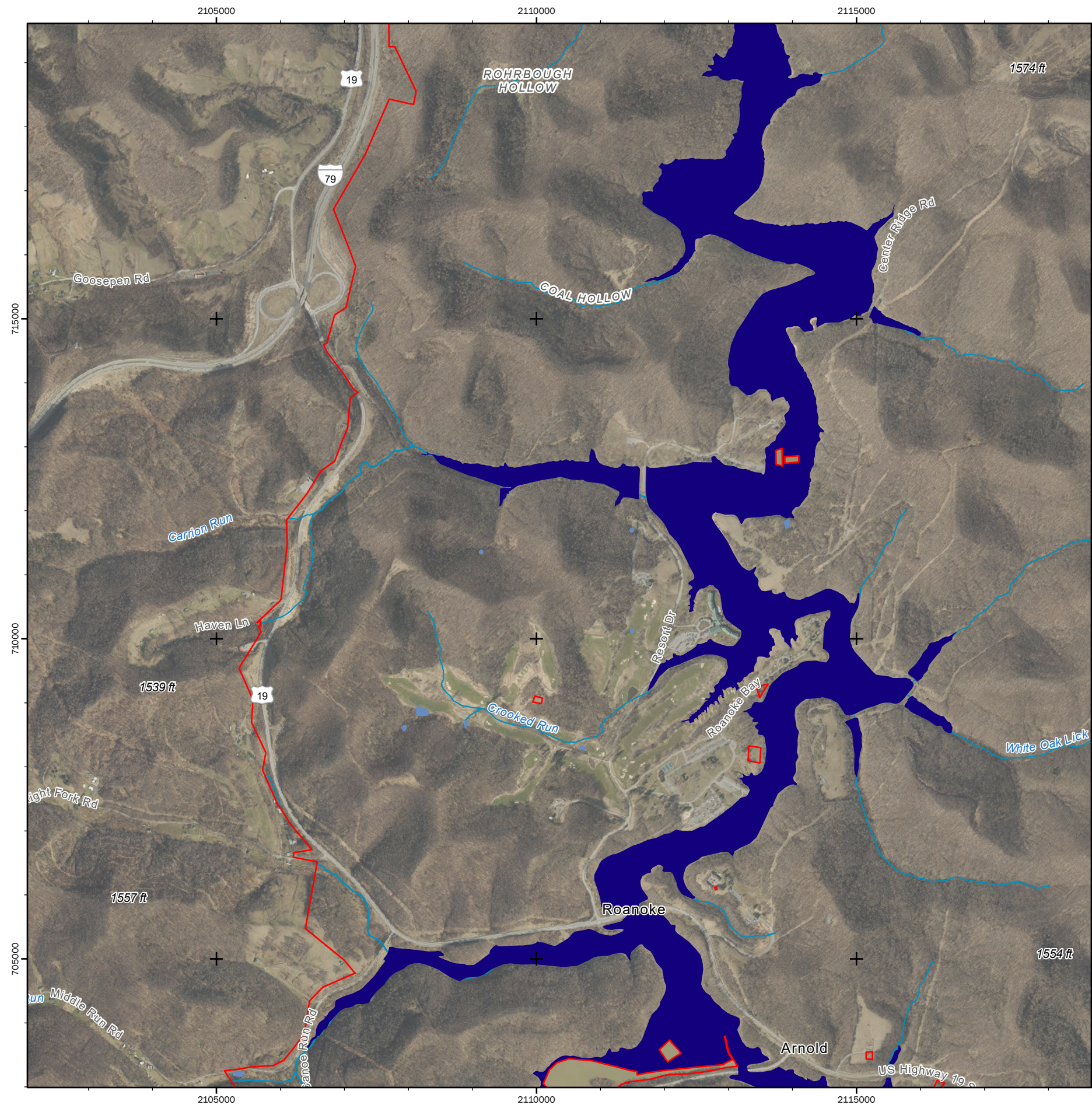
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



**Stonewall Jackson Lake
Master Plan**
Plate 5: Wetlands
Sheet 2 of 9 (Glady Fork)





Legend

- Fee Boundary
- National Wetlands Inventory**
- Wetland Type**
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

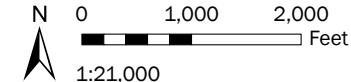
* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

According to National Wetlands Inventory Mapper (<https://www.fws.gov/wetlands/data/mapper.html>), "The wetlands and deepwater habitats in this area were photo interpreted using 1:58,000 scale, color infrared imagery from 1985." This predates reservoir completion. Therefore, National Wetlands Inventory data was supplemented with the lake pool polygon used throughout this master plan.

Data Sources: USACE, USFWS, WV GIS Technical Center

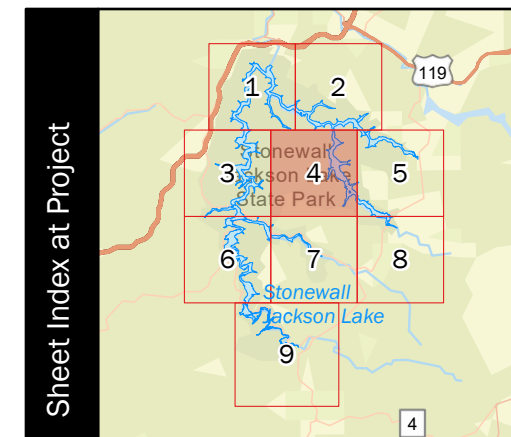
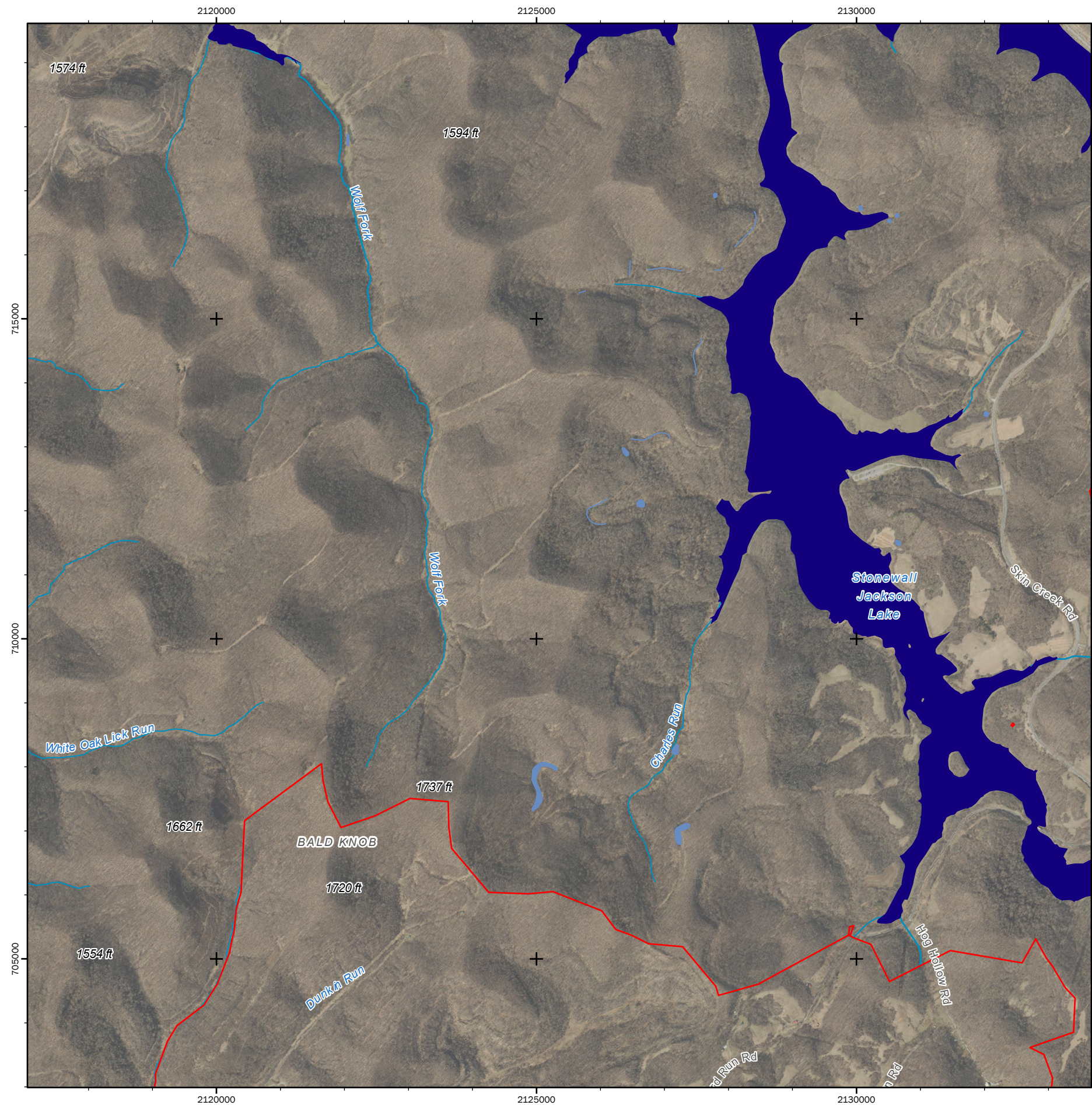
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



Stonewall Jackson Lake
Master Plan
Plate 5: Wetlands
Sheet 3 of 9 (Resort)










Legend

 Fee Boundary

National Wetlands Inventory

Wetland Type

-  Freshwater Emergent Wetland
-  Freshwater Forested/Shrub Wetland
-  Freshwater Pond
-  Lake
-  Riverine

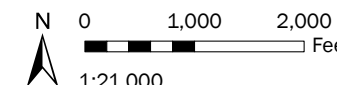
* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

According to National Wetlands Inventory Mapper (<https://www.fws.gov/wetlands/data/mapper.html>), "The wetlands and deepwater habitats in this area were photo interpreted using 1:58,000 scale, color infrared imagery from 1985." This predates reservoir completion. Therefore, National Wetlands Inventory data was supplemented with the lake pool polygon used throughout this master plan.

Data Sources: USACE, USFWS, WV GIS Technical Center

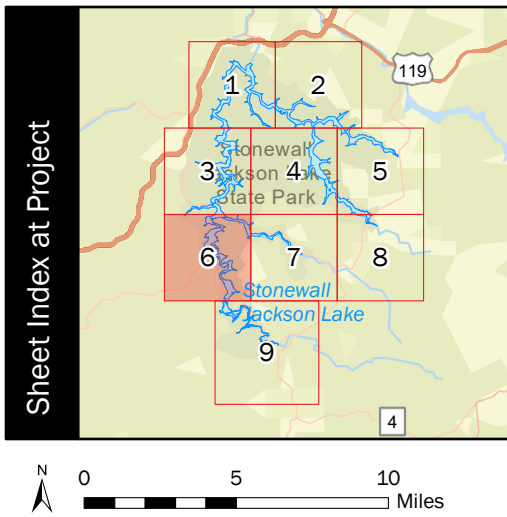
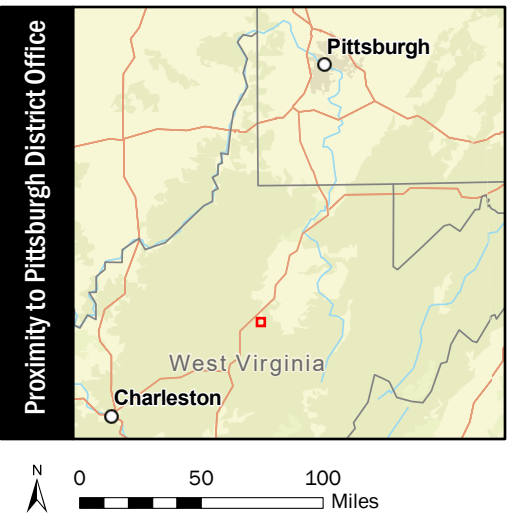
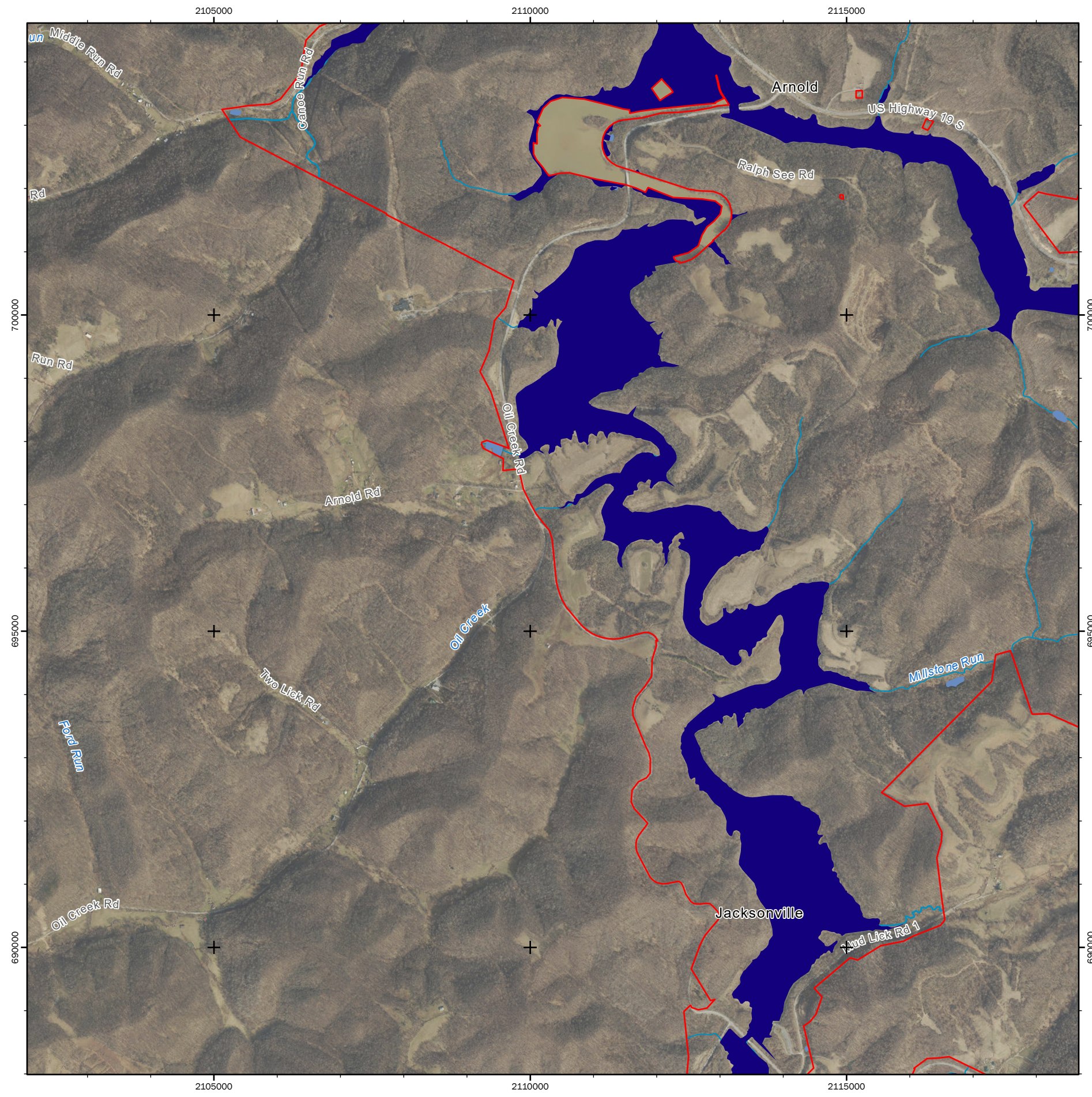
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



**Stonewall Jackson Lake
Master Plan**
Plate 5: Wetlands
Sheet 4 of 9 (Vandalia / Hog Hollow)





Legend

- Fee Boundary
- National Wetlands Inventory**
- Wetland Type**
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

According to National Wetlands Inventory Mapper (<https://www.fws.gov/wetlands/data/mapper.html>), "The wetlands and deepwater habitats in this area were photo interpreted using 1:58,000 scale, color infrared imagery from 1985." This predates reservoir completion. Therefore, National Wetlands Inventory data was supplemented with the lake pool polygon used throughout this master plan.

Data Sources: USACE, USFWS, WV GIS Technical Center

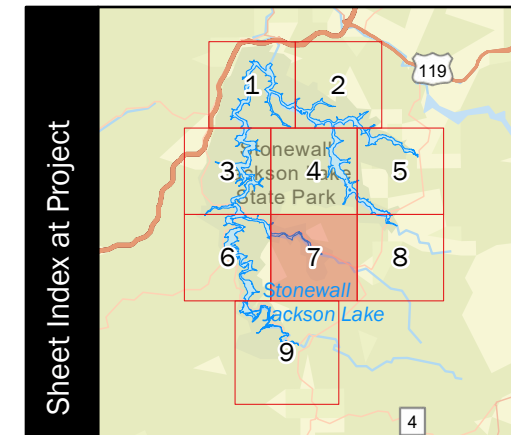
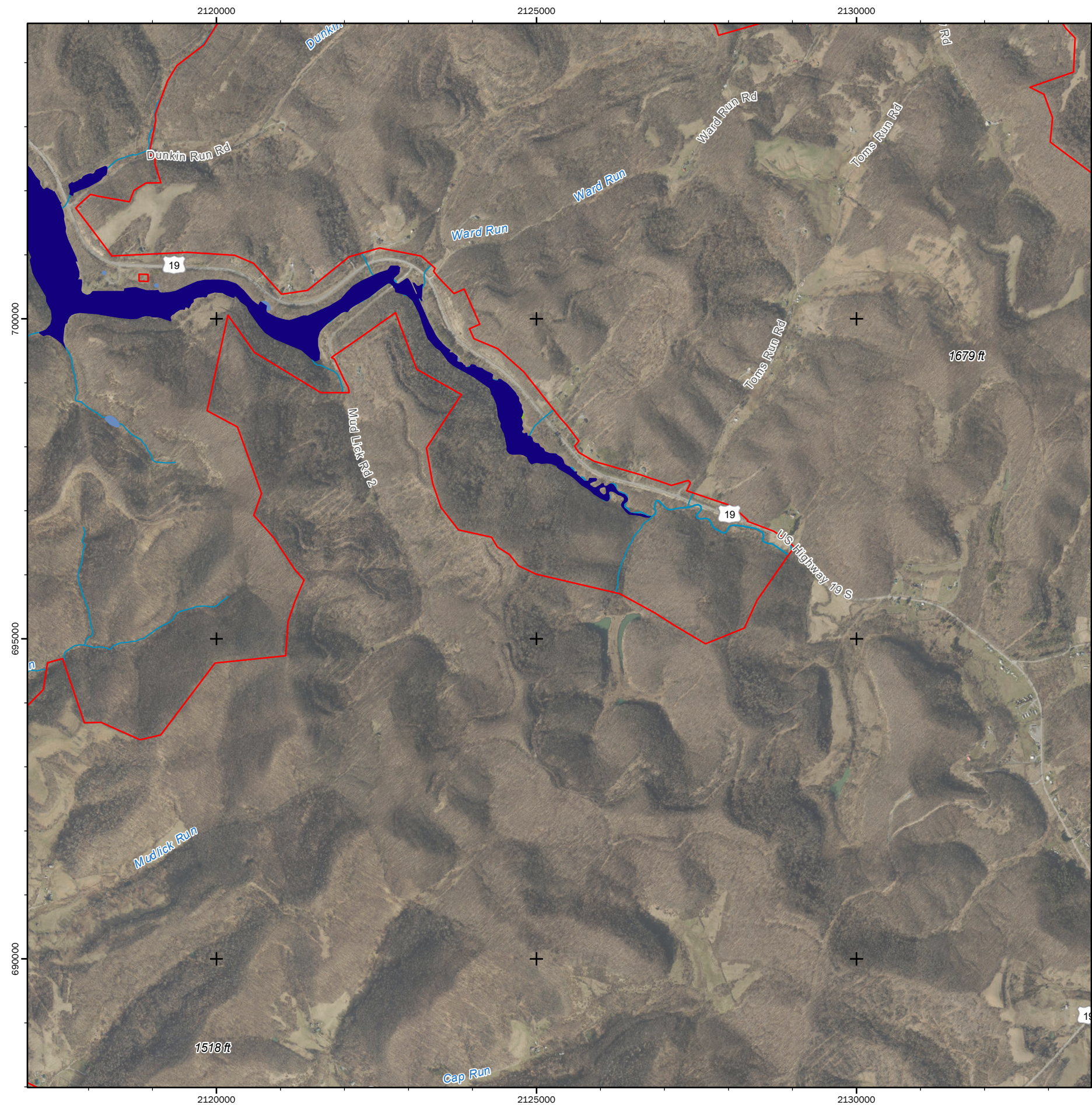
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS




**Stonewall Jackson Lake
Master Plan**
Plate 5: Wetlands
Sheet 6 of 9 (Jacksonville)










Legend

 Fee Boundary

National Wetlands Inventory

Wetland Type

-  Freshwater Emergent Wetland
-  Freshwater Forested/Shrub Wetland
-  Freshwater Pond
-  Lake
-  Riverine

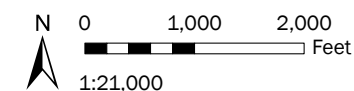
* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

According to National Wetlands Inventory Mapper (<https://www.fws.gov/wetlands/data/mapper.html>), "The wetlands and deepwater habitats in this area were photo interpreted using 1:58,000 scale, color infrared imagery from 1985." This predates reservoir completion. Therefore, National Wetlands Inventory data was supplemented with the lake pool polygon used throughout this master plan.

Data Sources: USACE, USFWS, WV GIS Technical Center

Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

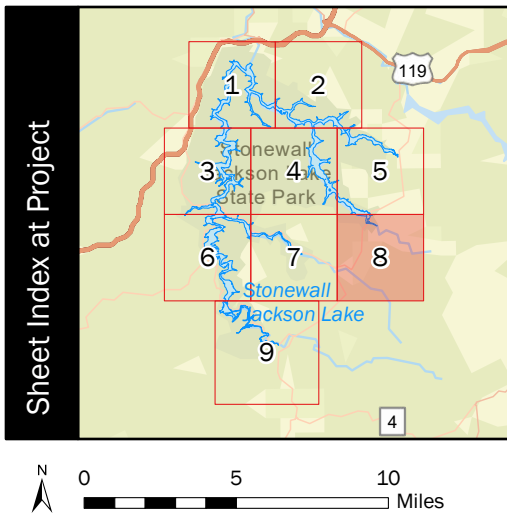
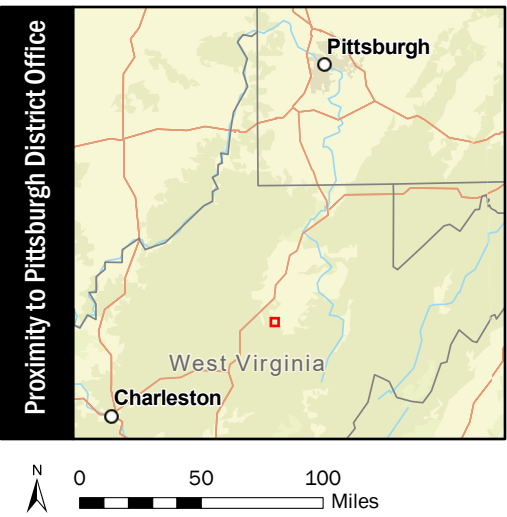
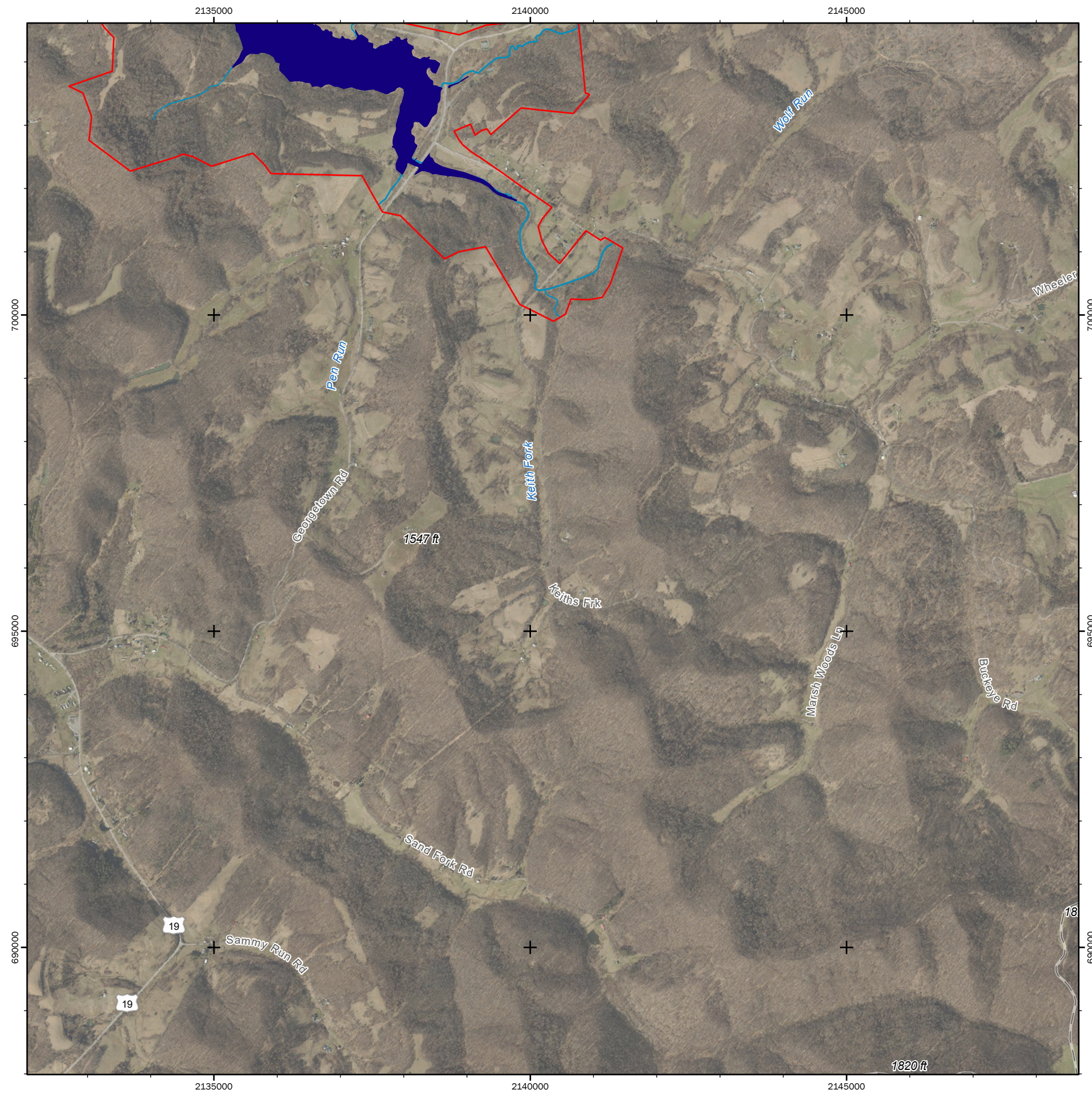
Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



Stonewall Jackson Lake Master Plan

Plate 5: Wetlands
Sheet 7 of 9 (Mary Conrad)





Legend

- Fee Boundary
- National Wetlands Inventory**
- Wetland Type**
 - Freshwater Emergent Wetland
 - Freshwater Forested/Shrub Wetland
 - Freshwater Pond
 - Lake
 - Riverine

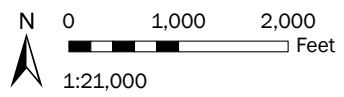
* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

According to National Wetlands Inventory Mapper (<https://www.fws.gov/wetlands/data/mapper.html>), "The wetlands and deepwater habitats in this area were photo interpreted using 1:58,000 scale, color infrared imagery from 1985." This predates reservoir completion. Therefore, National Wetlands Inventory data was supplemented with the lake pool polygon used throughout this master plan.

Data Sources: USACE, USFWS, WV GIS Technical Center

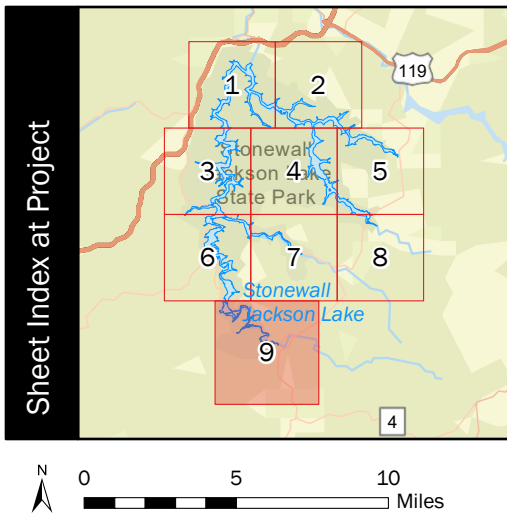
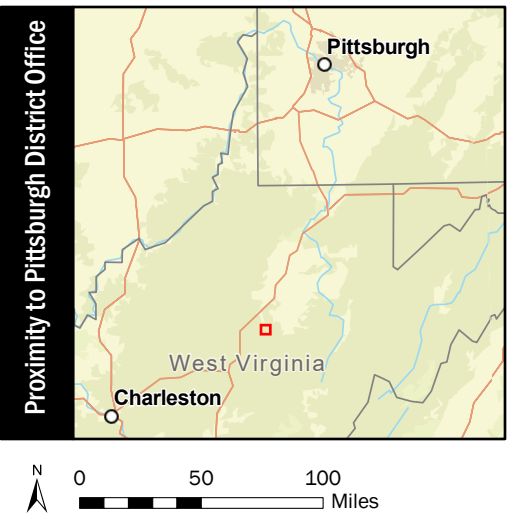
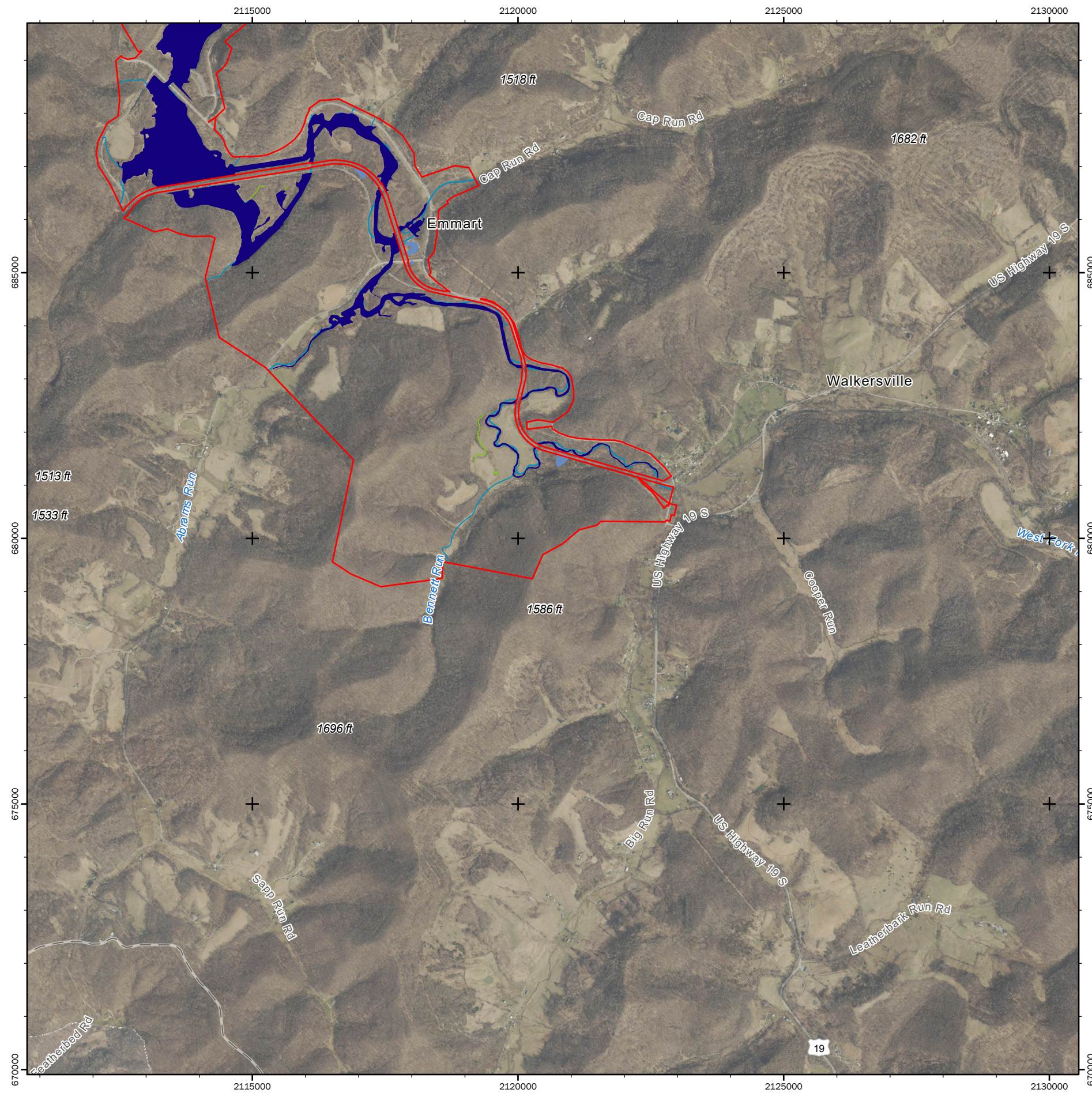
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



**Stonewall Jackson Lake
Master Plan**
Plate 5: Wetlands
Sheet 8 of 9 (Pen Run)





Legend

- Fee Boundary
- National Wetlands Inventory**
- Wetland Type**
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

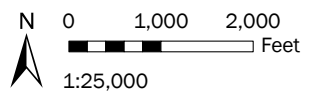
* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

According to National Wetlands Inventory Mapper (<https://www.fws.gov/wetlands/data/mapper.html>), "The wetlands and deepwater habitats in this area were photo interpreted using 1:58,000 scale, color infrared imagery from 1985." This predates reservoir completion. Therefore, National Wetlands Inventory data was supplemented with the lake pool polygon used throughout this master plan.

Data Sources: USACE, USFWS, WV GIS Technical Center

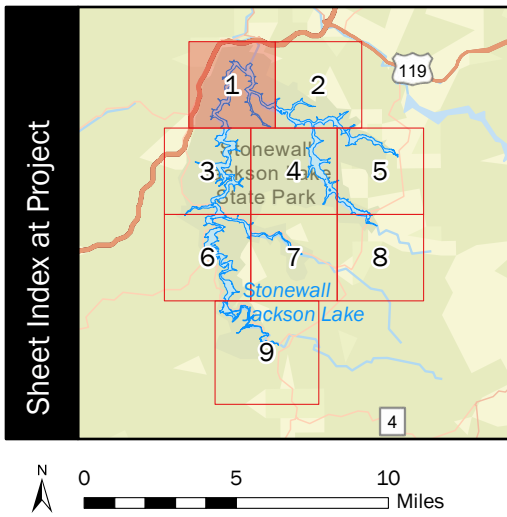
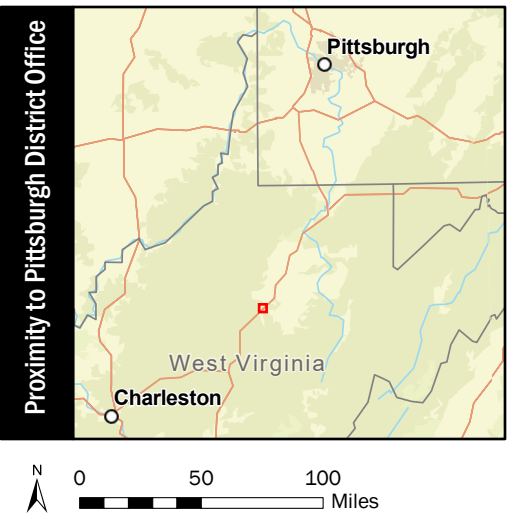
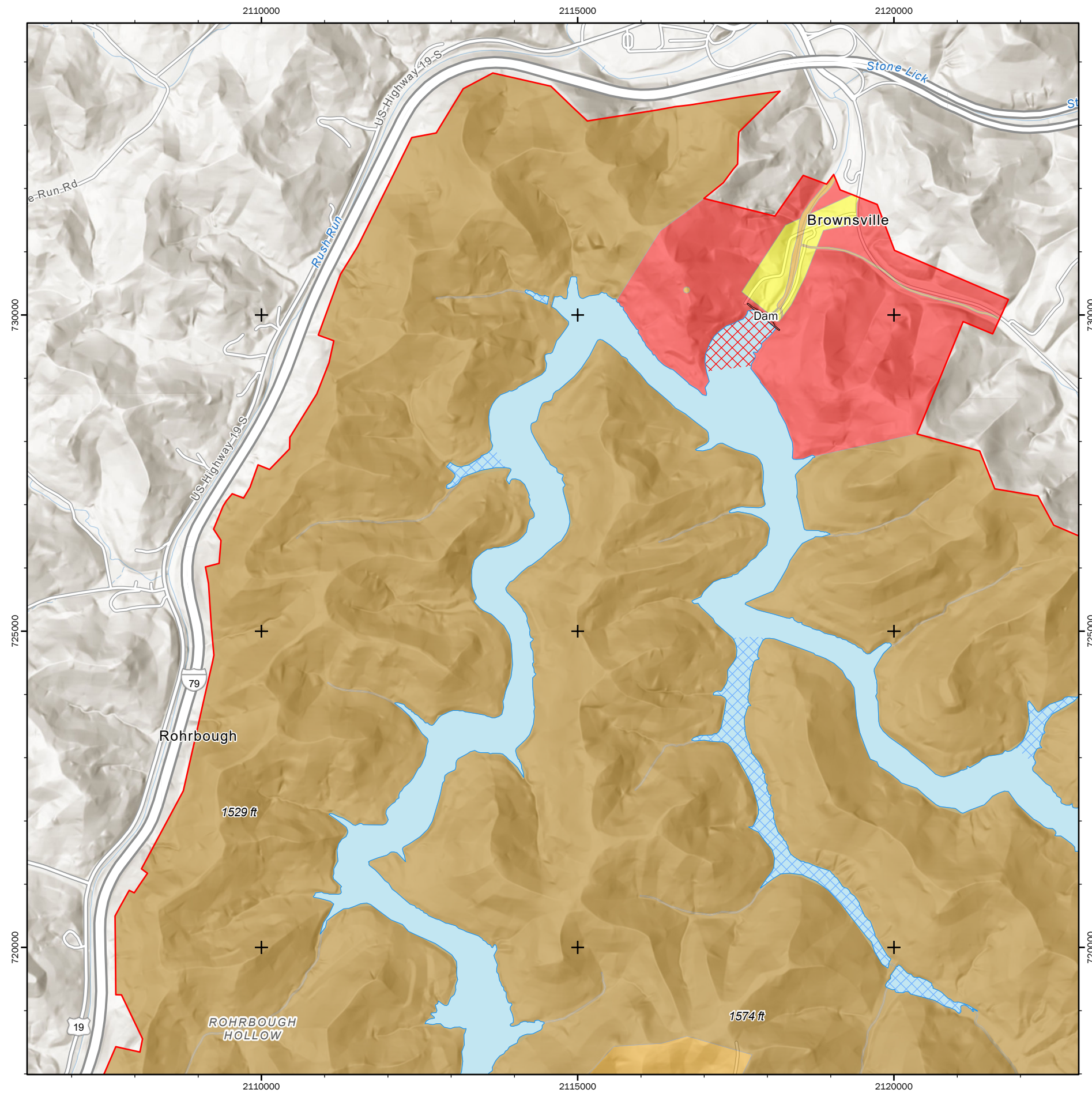
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



Stonewall Jackson Lake
Master Plan
Plate 5: Wetlands
Sheet 9 of 9 (Abrams / Bennett)





Legend

- Fee Boundary
- Land Use Classification**
 - Project Operations
 - Environmentally Sensitive Areas
 - High Density Recreation
 - Multiple Resource: Low Density Recreation
 - Multiple Resource: Wildlife Management
- Water Zoning**
 - Restricted
 - No-Wake
 - Open Recreation

* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

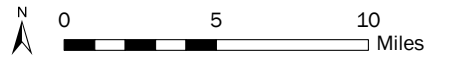
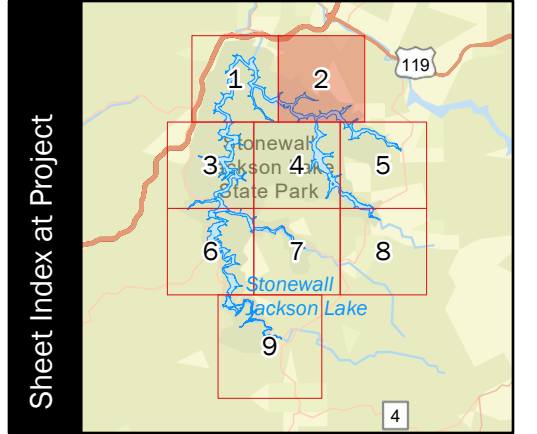
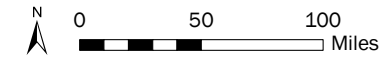
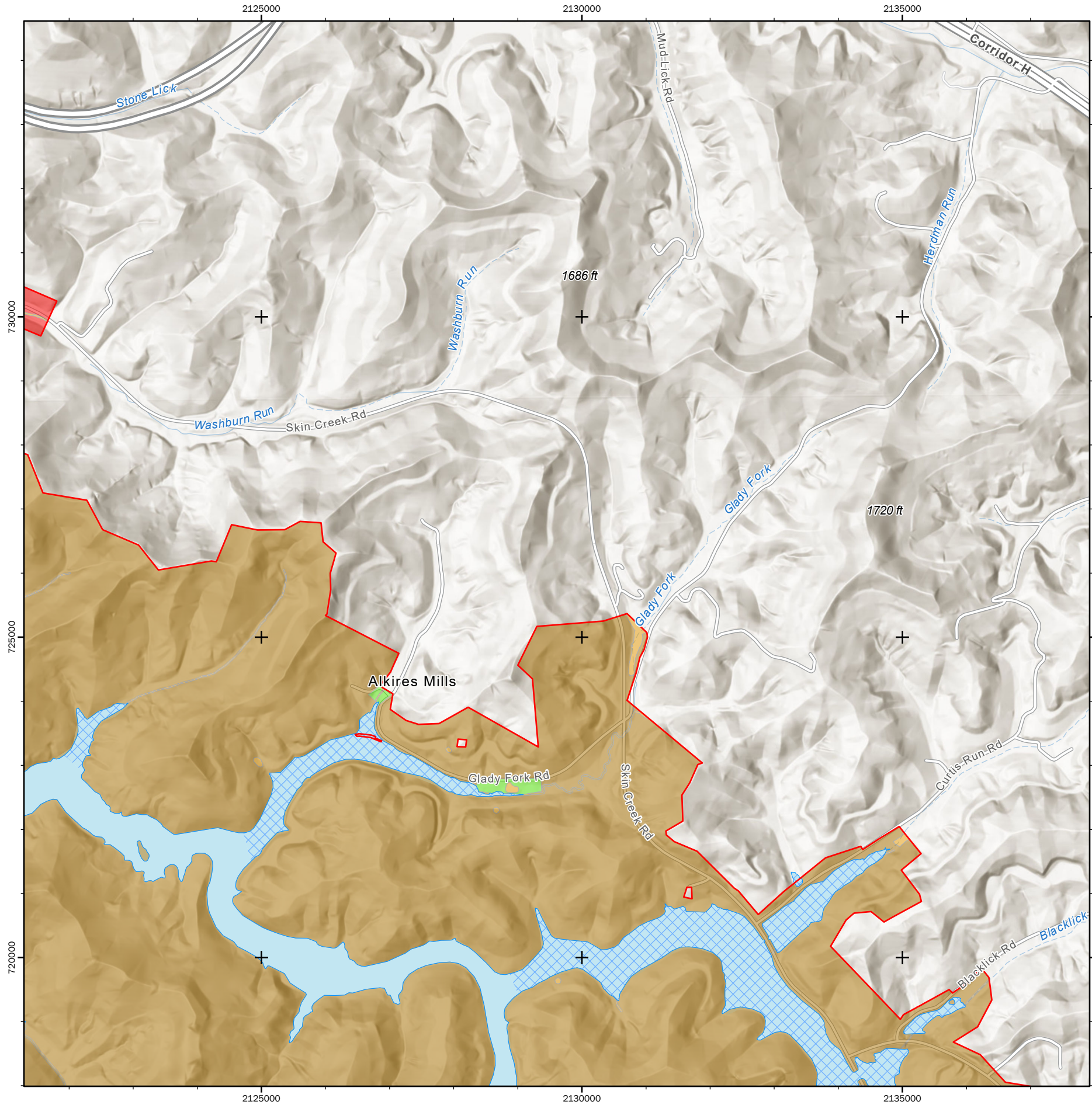
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Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553
Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS

1:21,000



**Stonewall Jackson Lake
Master Plan**
Plate 6: Land Use Classification
Sheet 1 of 9 (Dam)





Legend

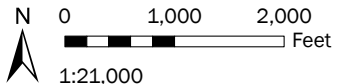
- Fee Boundary
- Land Use Classification**
 - Project Operations
 - Environmentally Sensitive Areas
 - High Density Recreation
 - Multiple Resource: Low Density Recreation
 - Multiple Resource: Wildlife Management
- Water Zoning**
 - Restricted
 - No-Wake
 - Open Recreation

* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

Data Source: USACE

Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

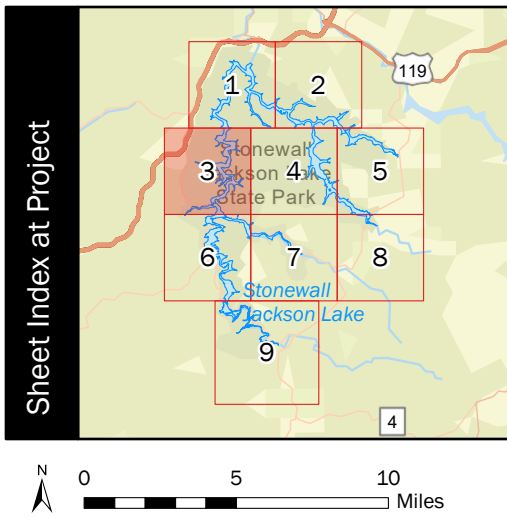
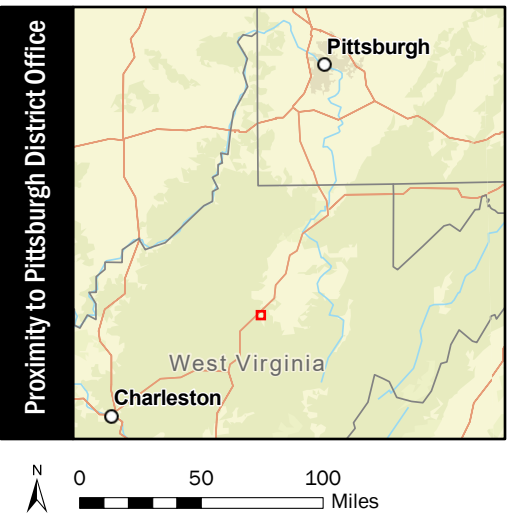
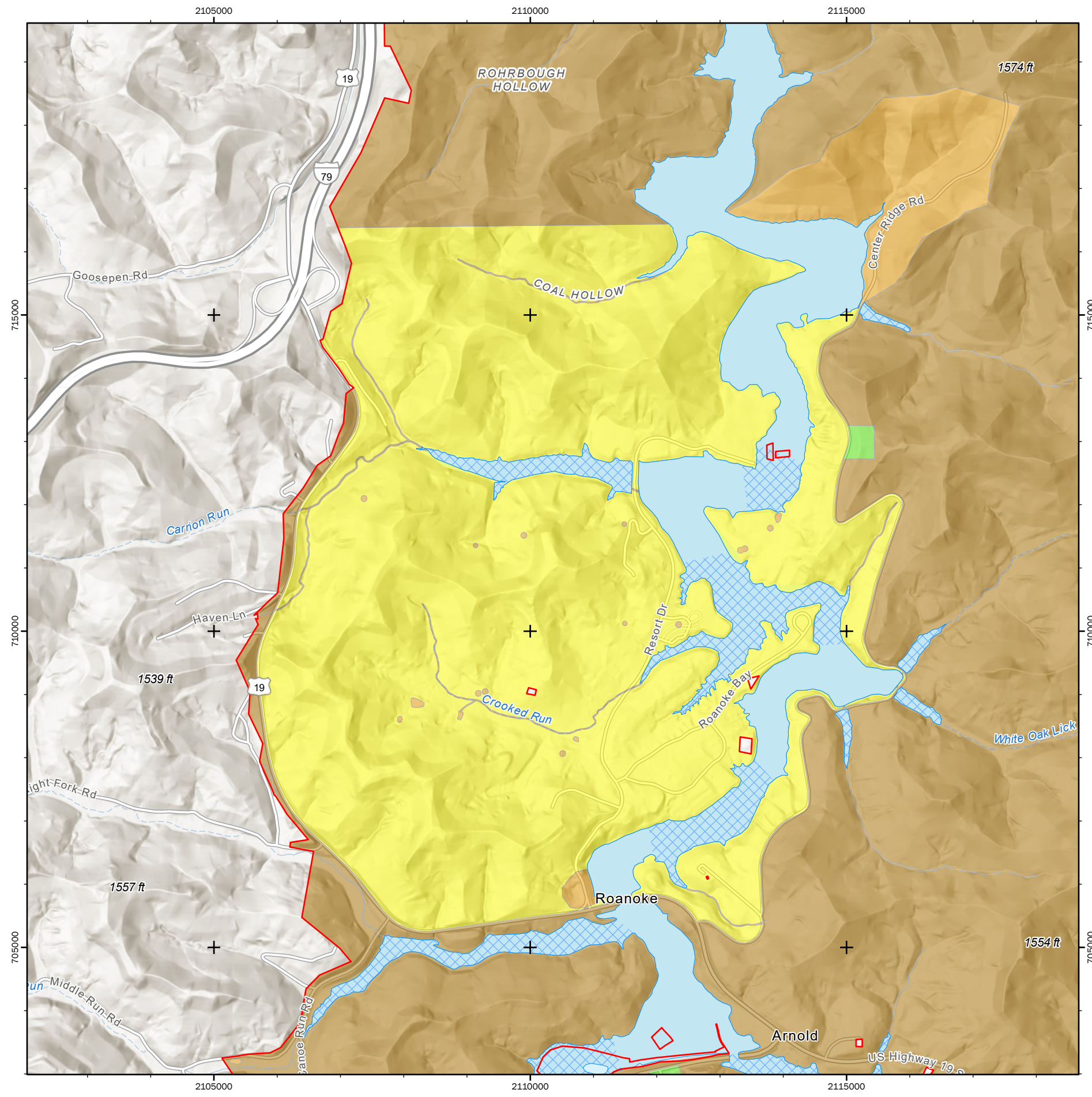
Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



Stonewall Jackson Lake Master Plan

Plate 6: Land Use Classification
Sheet 2 of 9 (Gladys Fork)





Legend

- Fee Boundary
- Land Use Classification**
 - Project Operations
 - Environmentally Sensitive Areas
 - High Density Recreation
 - Multiple Resource: Low Density Recreation
 - Multiple Resource: Wildlife Management
- Water Zoning**
 - Restricted
 - No-Wake
 - Open Recreation

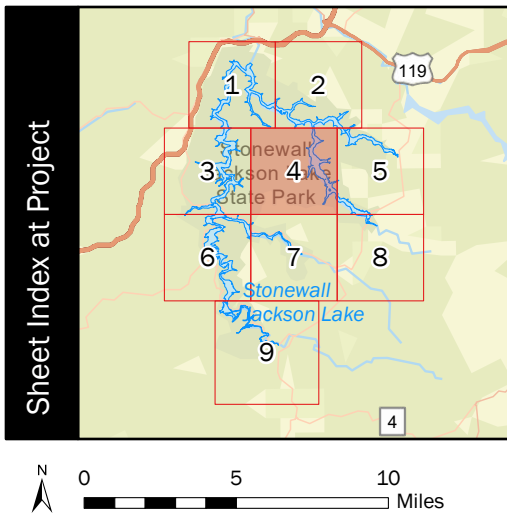
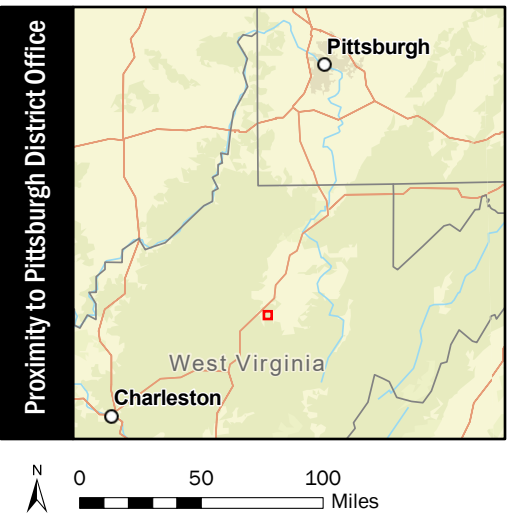
* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

Data Source: USACE
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553
Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



**Stonewall Jackson Lake
Master Plan**
Plate 6: Land Use Classification
Sheet 3 of 9 (Resort)





Legend

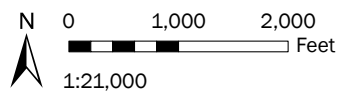
- Fee Boundary
- Land Use Classification**
 - Project Operations
 - Environmentally Sensitive Areas
 - High Density Recreation
 - Multiple Resource: Low Density Recreation
 - Multiple Resource: Wildlife Management
- Water Zoning**
 - Restricted
 - No-Wake
 - Open Recreation

* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

Data Source: USACE

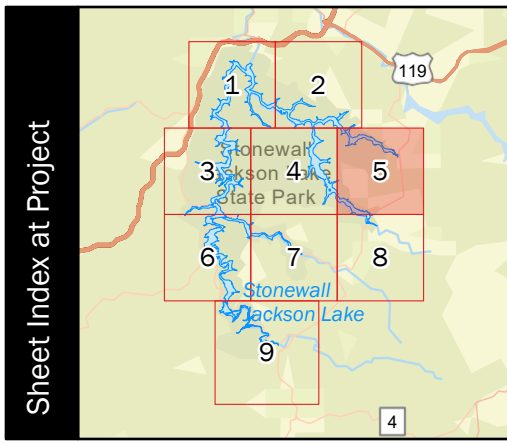
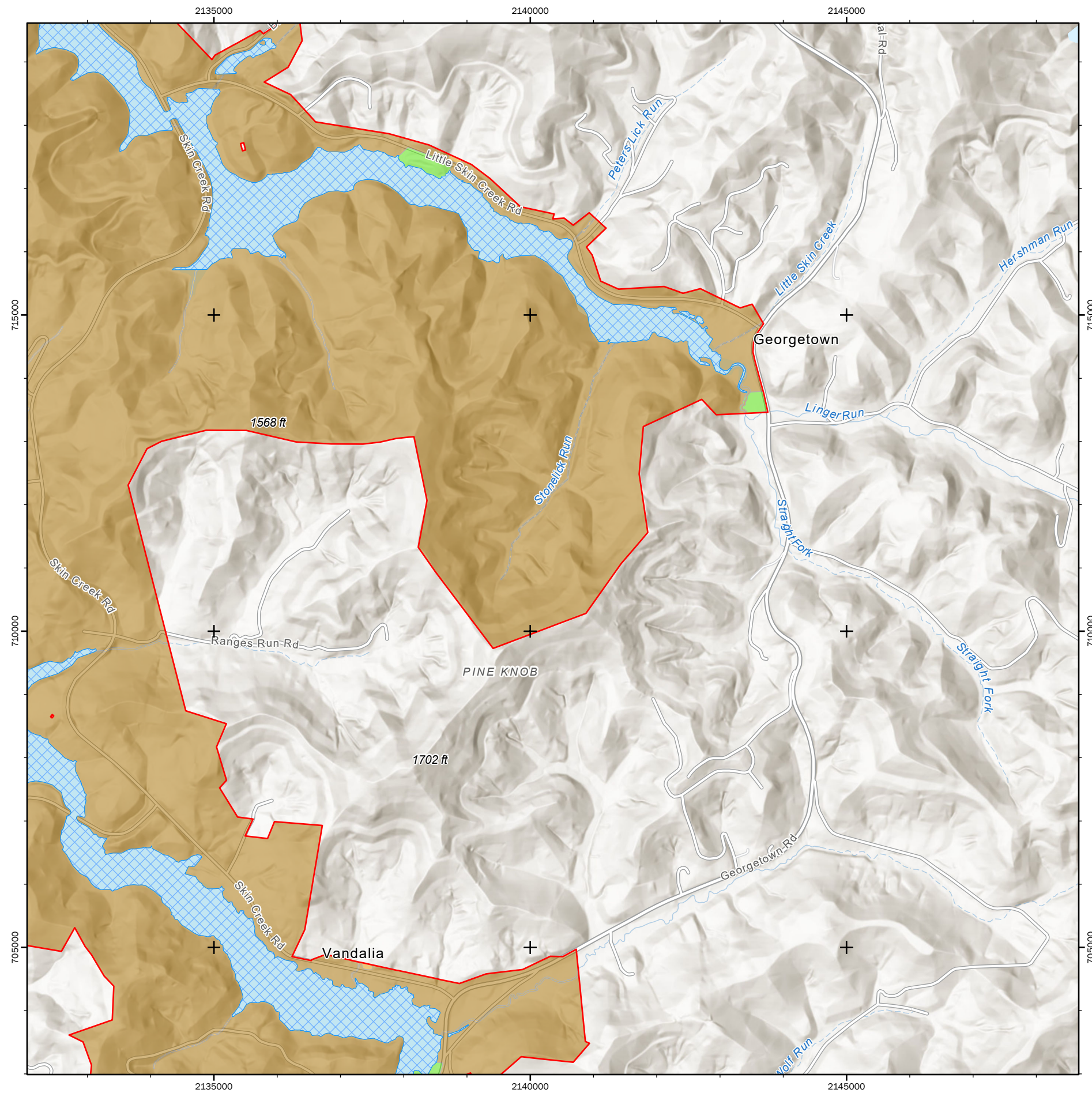
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



**Stonewall Jackson Lake
Master Plan**
Plate 6: Land Use Classification
Sheet 4 of 9 (Vandalia / Hog Hollow)



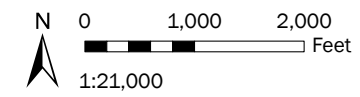


Legend

- Fee Boundary
- Land Use Classification**
 - Project Operations
 - Environmentally Sensitive Areas
 - High Density Recreation
 - Multiple Resource: Low Density Recreation
 - Multiple Resource: Wildlife Management
- Water Zoning**
 - Restricted
 - No-Wake
 - Open Recreation

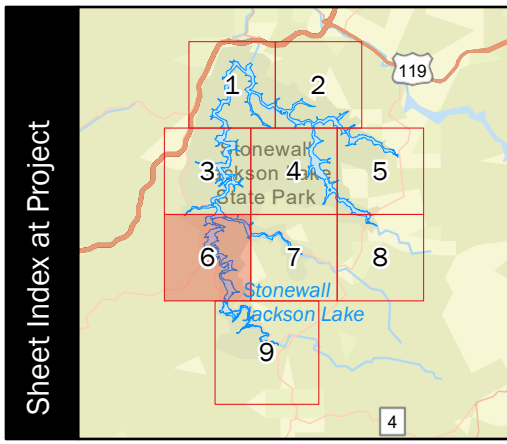
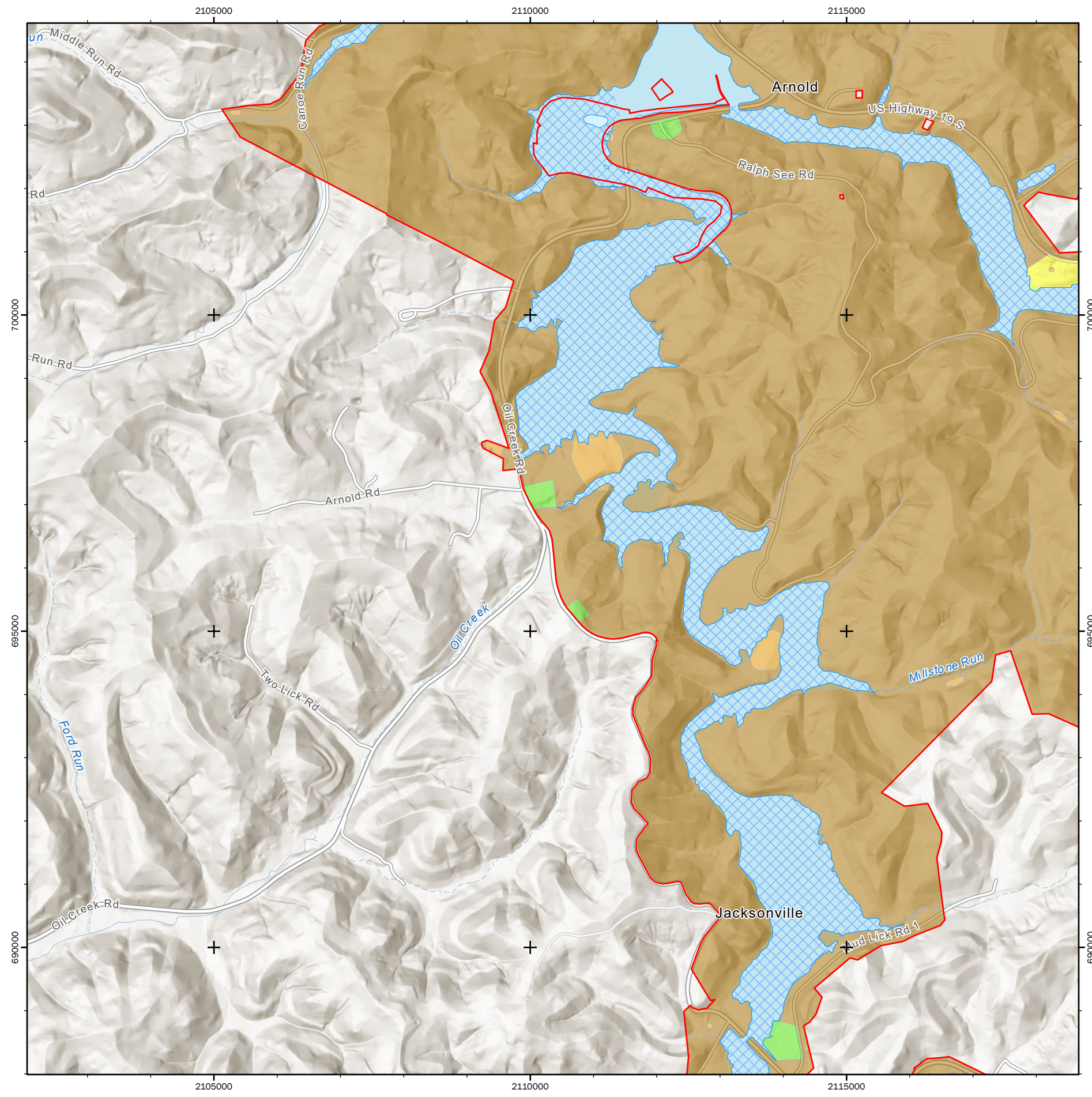
* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

Data Source: USACE
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553
Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



**Stonewall Jackson Lake
Master Plan**
Plate 6: Land Use Classification
Sheet 5 of 9 (Georgetown / Stoney Creek)





Legend

- Fee Boundary
- Land Use Classification**
 - Project Operations
 - Environmentally Sensitive Areas
 - High Density Recreation
 - Multiple Resource: Low Density Recreation
 - Multiple Resource: Wildlife Management
- Water Zoning**
 - Restricted
 - No-Wake
 - Open Recreation

* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

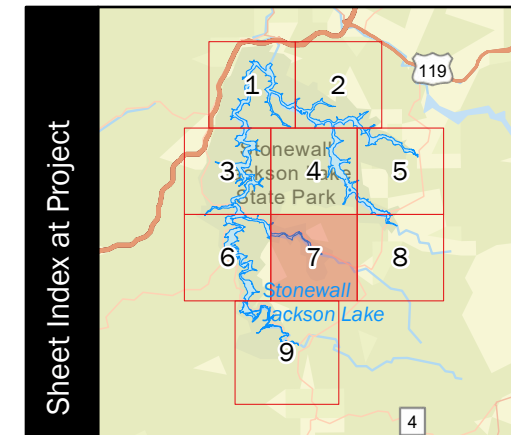
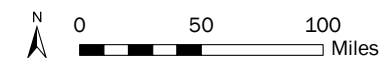
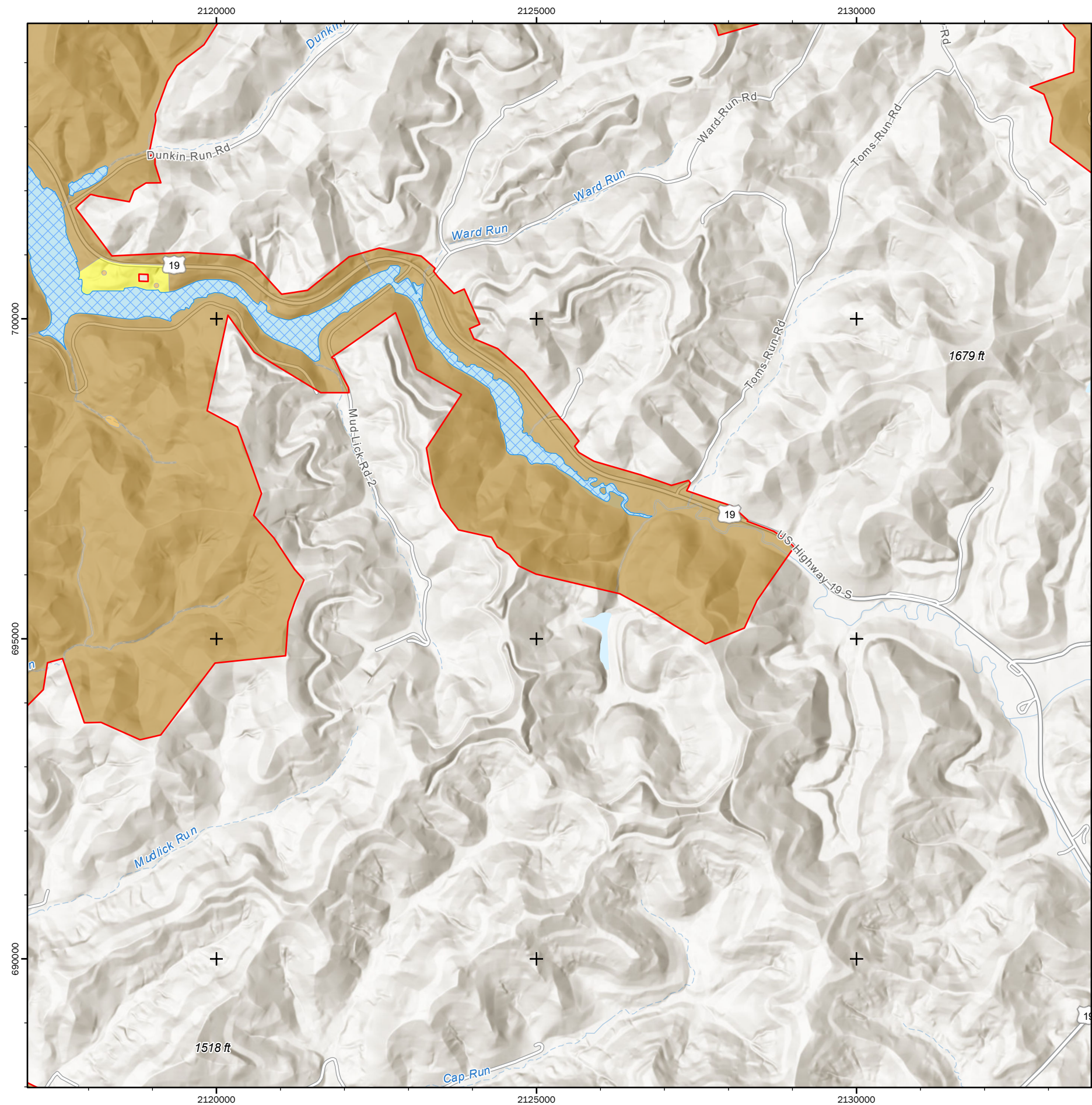
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Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553
Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS

1:21,000



**Stonewall Jackson Lake
Master Plan**
Plate 6: Land Use Classification
Sheet 6 of 9 (Jacksonville)





Legend

Fee Boundary

Land Use Classification

- Project Operations
- Environmentally Sensitive Areas
- High Density Recreation
- Multiple Resource: Low Density Recreation
- Multiple Resource: Wildlife Management

Water Zoning

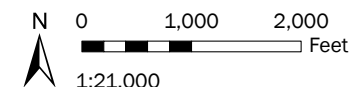
- Restricted
- No-Wake
- Open Recreation

* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

Data Source: USACE

Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS

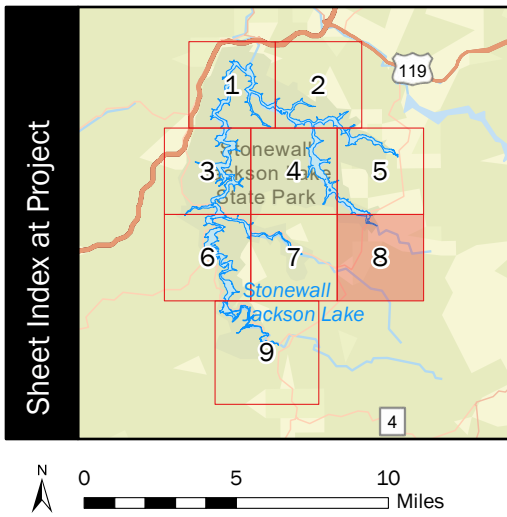
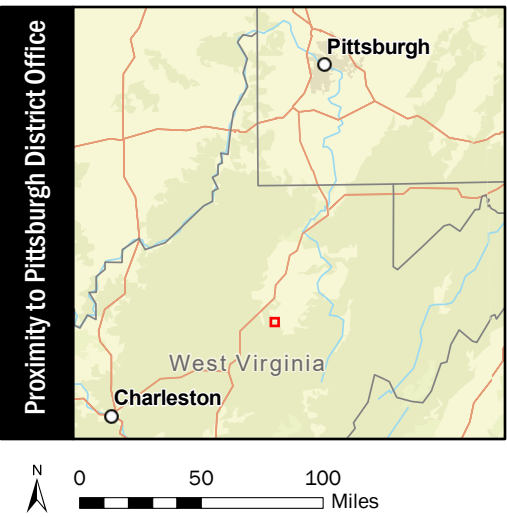
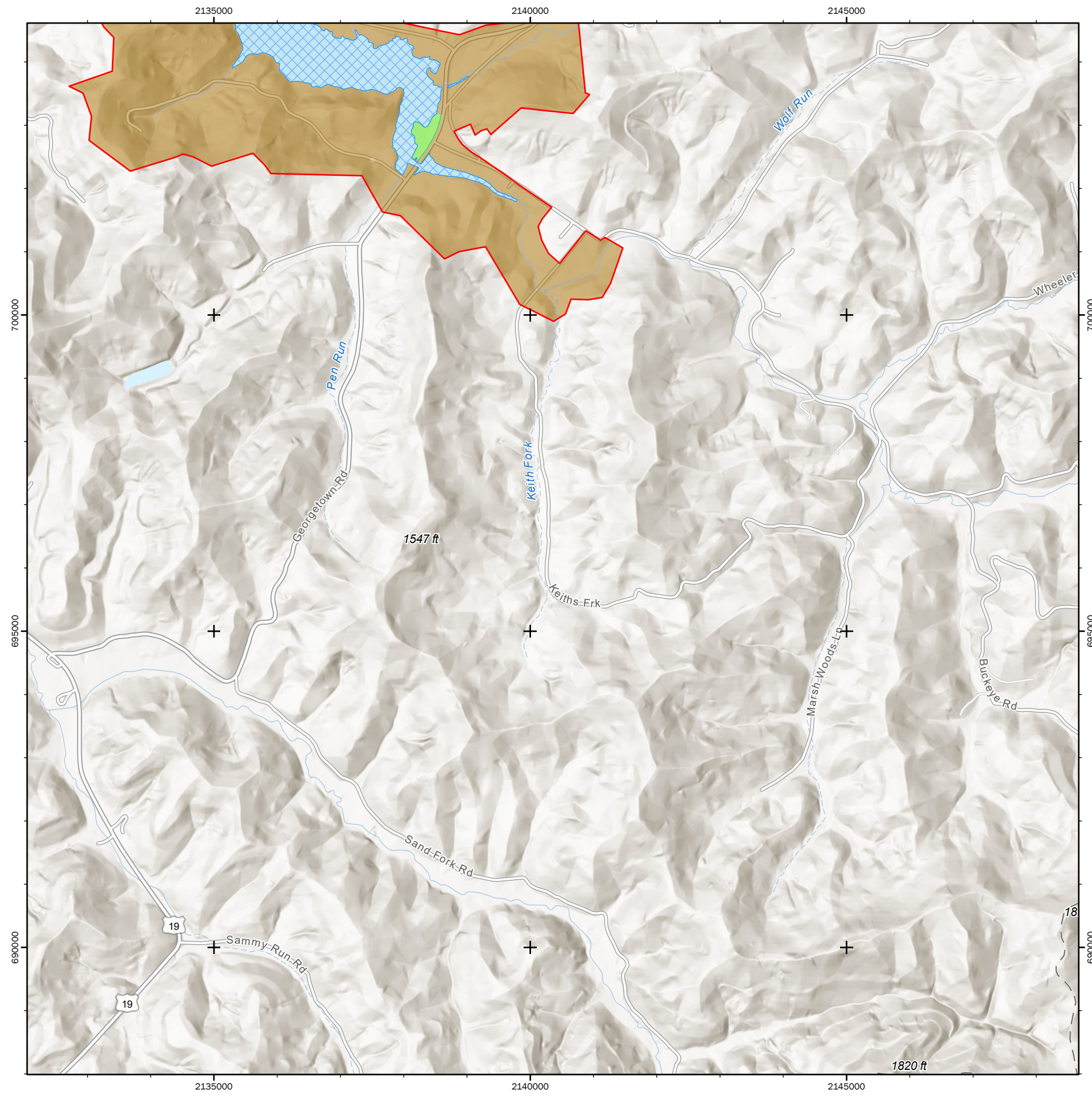


1:21,000



**Stonewall Jackson Lake
Master Plan**
Plate 6: Land Use Classification
Sheet 7 of 9 (Mary Conrad)





Legend

- Fee Boundary
- Land Use Classification**
 - Project Operations
 - Environmentally Sensitive Areas
 - High Density Recreation
 - Multiple Resource: Low Density Recreation
 - Multiple Resource: Wildlife Management
- Water Zoning**
 - Restricted
 - No-Wake
 - Open Recreation

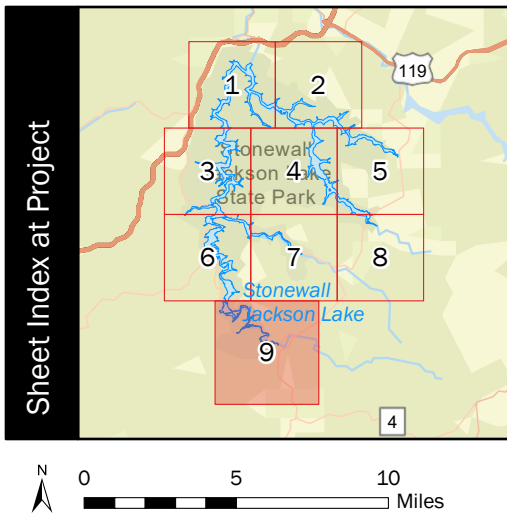
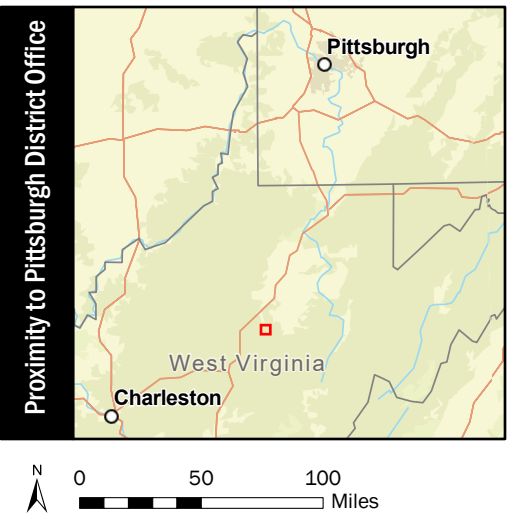
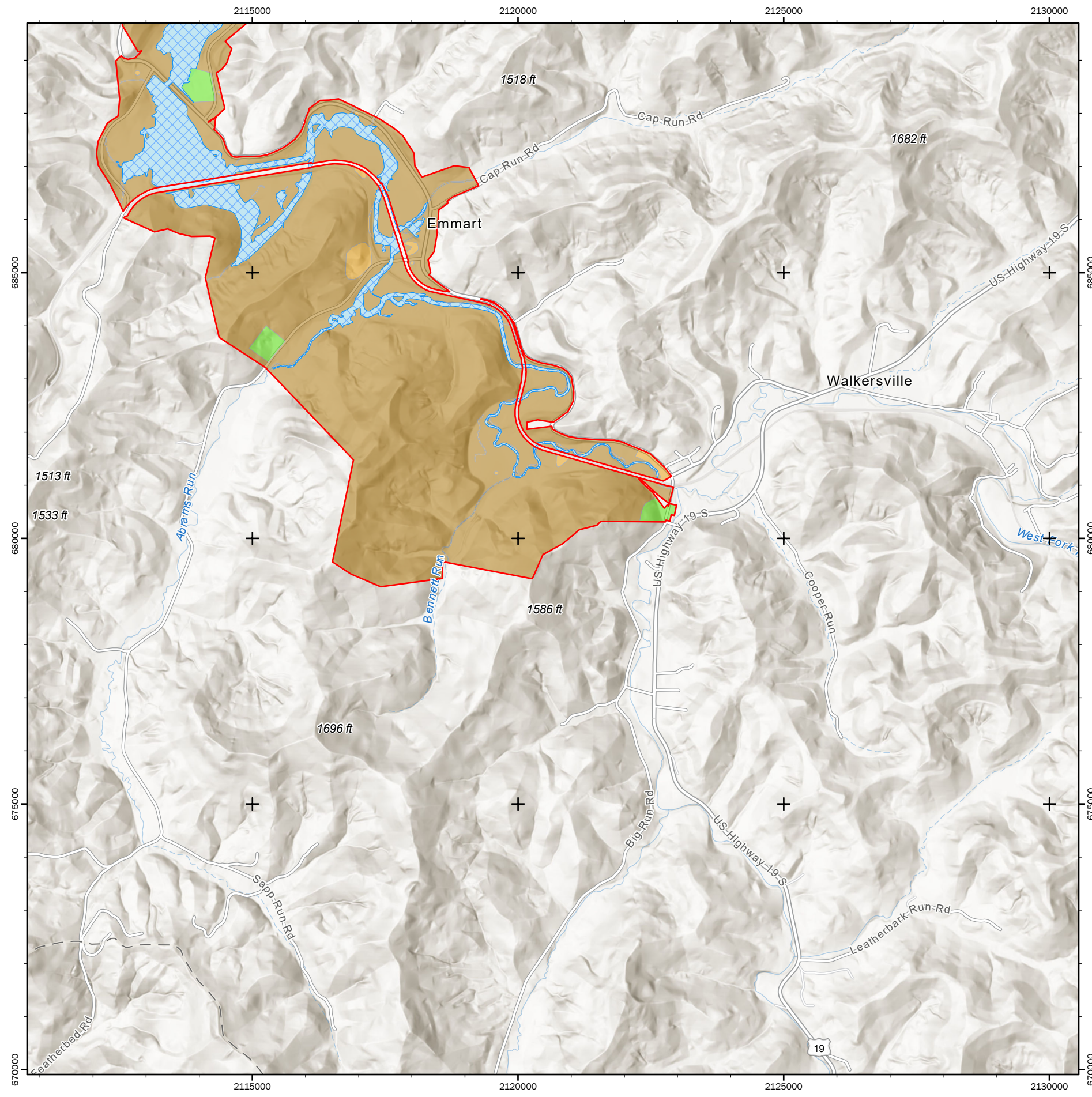
* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

Data Source: USACE
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553
Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



**Stonewall Jackson Lake
Master Plan**
Plate 6: Land Use Classification
Sheet 8 of 9 (Pen Run)





Legend

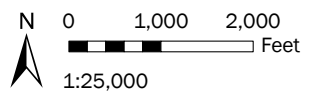
- Fee Boundary
- Land Use Classification**
 - Project Operations
 - Environmentally Sensitive Areas
 - High Density Recreation
 - Multiple Resource: Low Density Recreation
 - Multiple Resource: Wildlife Management
- Water Zoning**
 - Restricted
 - No-Wake
 - Open Recreation

* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)

Data Source: USACE

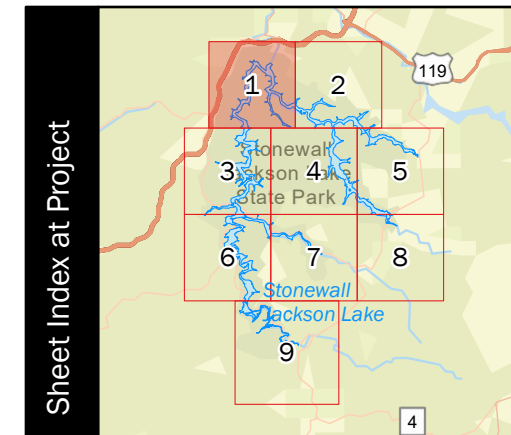
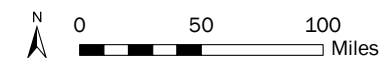
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



**Stonewall Jackson Lake
Master Plan**
Plate 6: Land Use Classification
Sheet 9 of 9 (Abrams / Bennett)





Legend

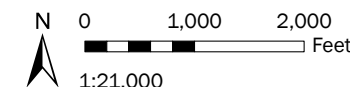
- Recreation Area
- - - Trail
- Fee Boundary
- ▨ Full Pool Level (1081.3 ft)
- Water Zoning**
 - ▨ Restricted
 - ▨ No-Wake
 - Open Recreation

* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)
Full pool is adapted from USGS 3DEP.

Data Sources: USACE, USGS 3DEP, State of West Virginia

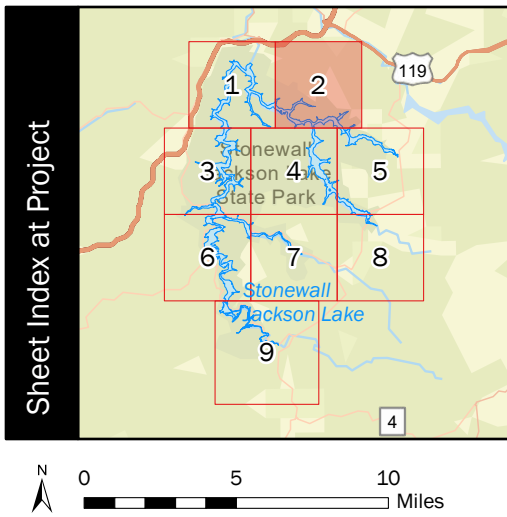
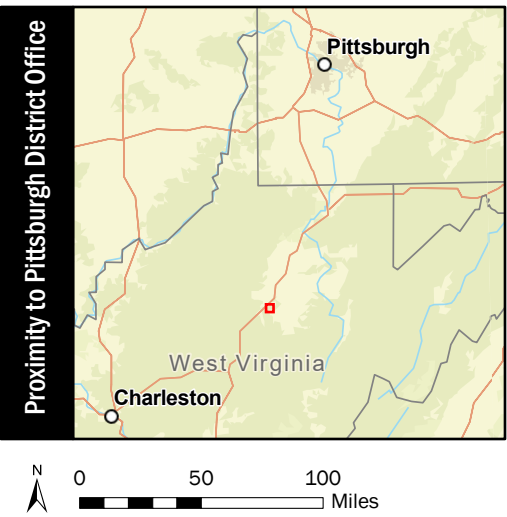
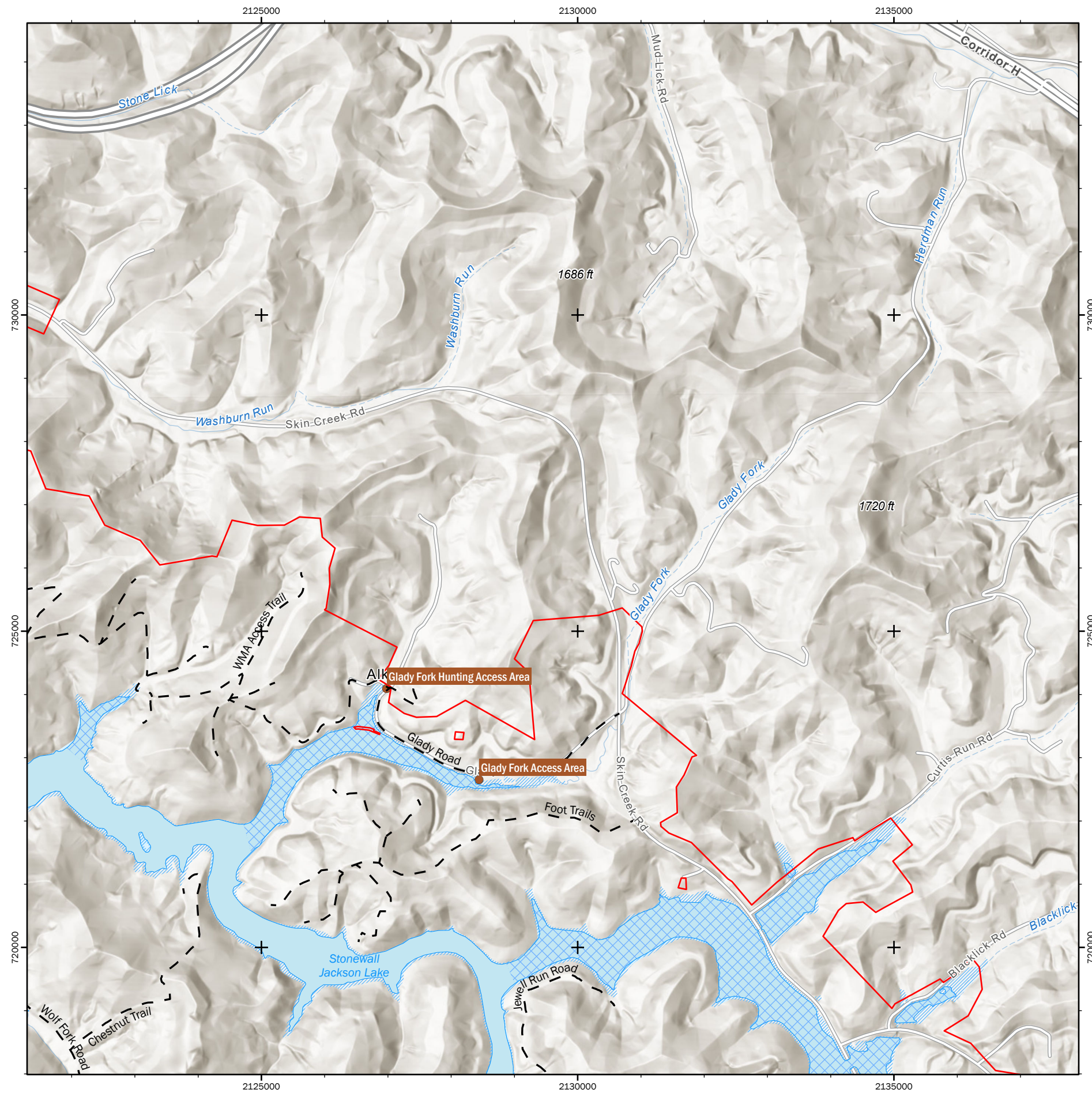
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



Stonewall Jackson Lake Master Plan Plate 7: Recreation Sheet 1 of 9 (Dam)





Legend

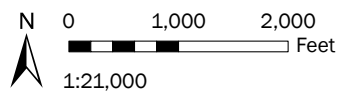
- Recreation Area
- - - Trail
- Fee Boundary
- ▨ Full Pool Level (1081.3 ft)
- Water Zoning**
- ▨ Restricted
- ▨ No-Wake
- ▨ Open Recreation

* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)
Full pool is adapted from USGS 3DEP.

Data Sources: USACE, USGS 3DEP, State of West Virginia

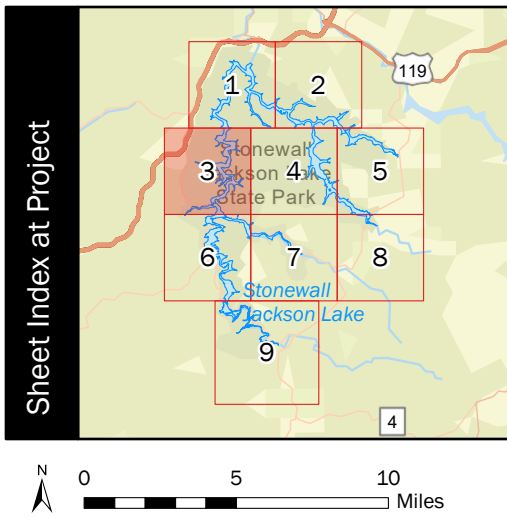
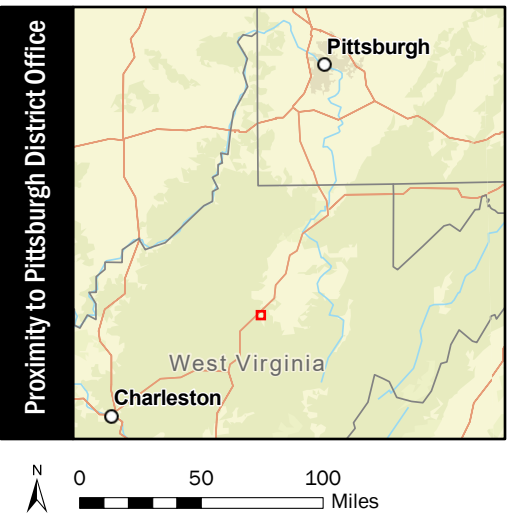
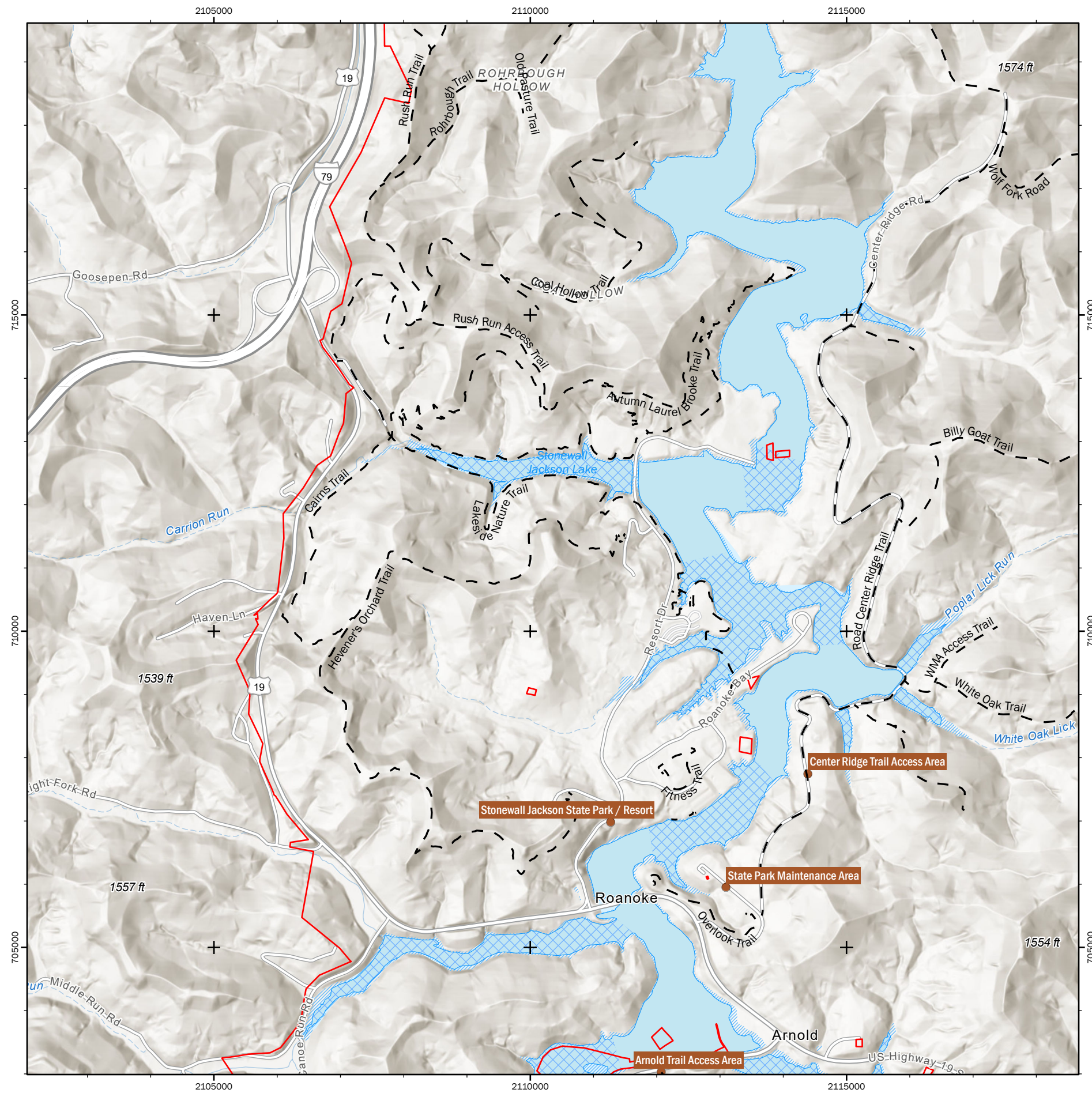
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



**Stonewall Jackson Lake
Master Plan**
Plate 7: Recreation
Sheet 2 of 9 (Gladly Fork)





Legend

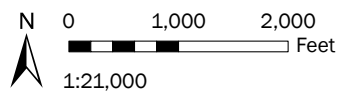
- Recreation Area
 - - - Trail
 - Fee Boundary
 - ▨ Full Pool Level (1081.3 ft)
- Water Zoning**
- ▨ Restricted
 - ▨ No-Wake
 - ▨ Open Recreation

* Stonewall Jackson Lake is shown at approximate summer pool (1072.5 ft)
Full pool is adapted from USGS 3DEP.

Data Sources: USACE, USGS 3DEP, State of West Virginia

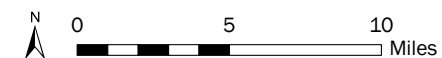
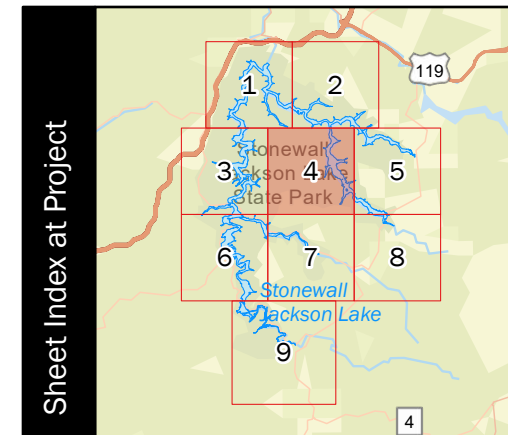
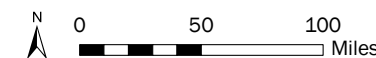
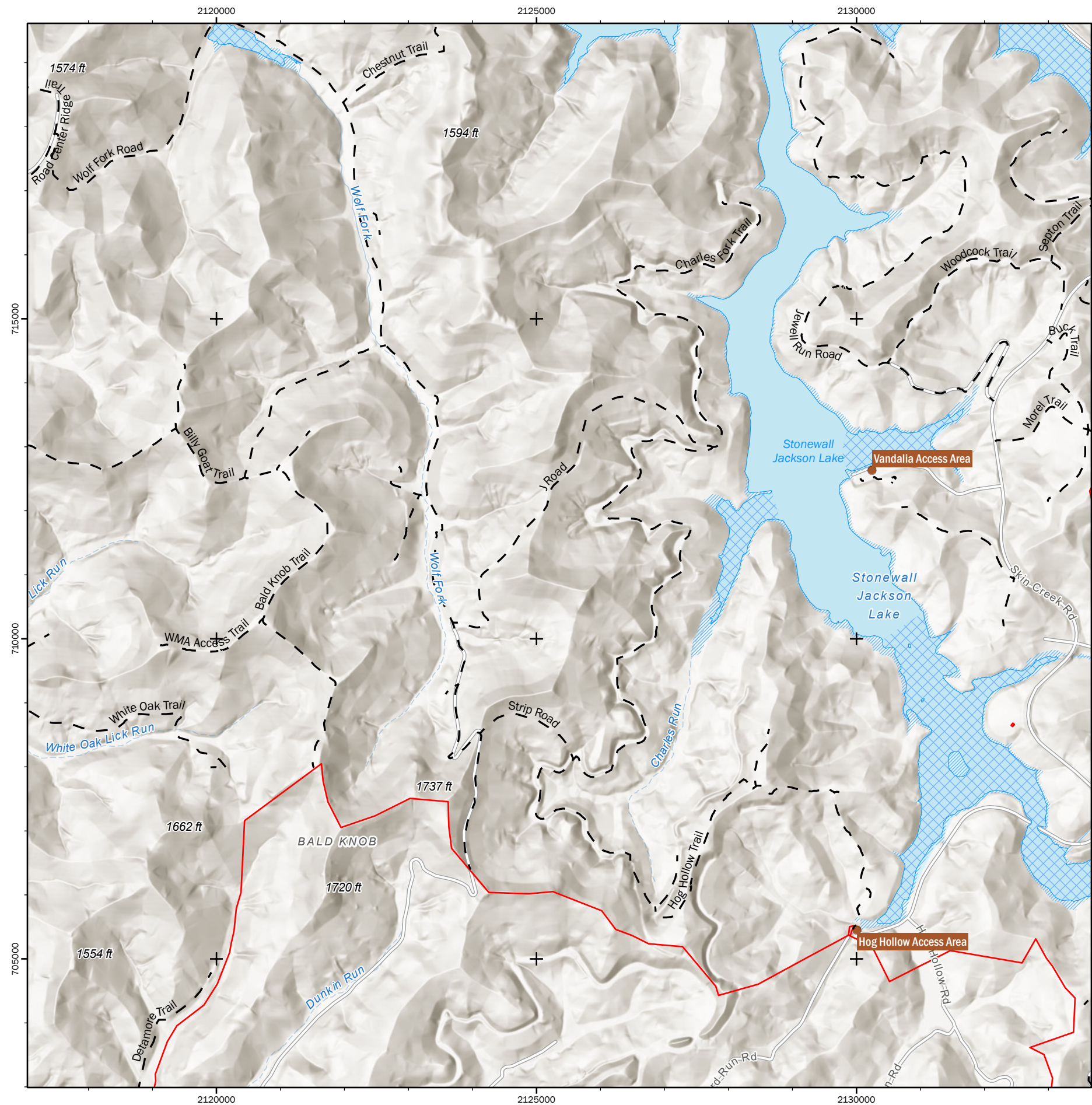
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USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



Stonewall Jackson Lake
Master Plan
 Plate 7: Recreation
 Sheet 3 of 9 (Resort)





Legend

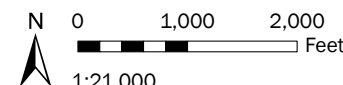
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- Fee Boundary
- ▨ Full Pool Level (1081.3 ft)
- Water Zoning**
 - ▨ Restricted
 - ▨ No-Wake
 - ▨ Open Recreation

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Full pool is adapted from USGS 3DEP.

Data Sources: USACE, USGS 3DEP, State of West Virginia

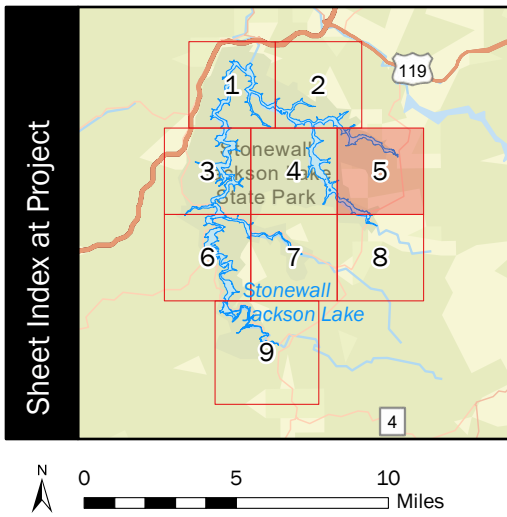
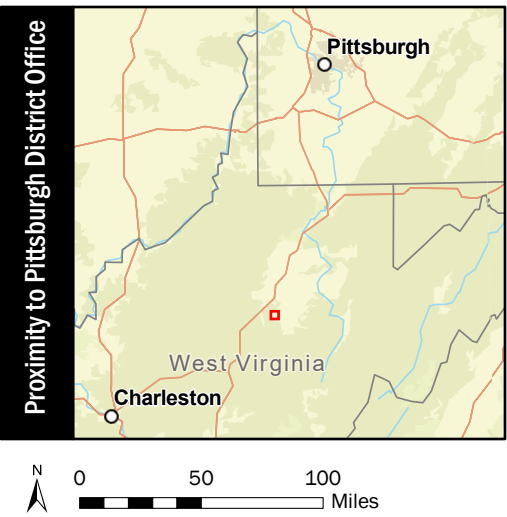
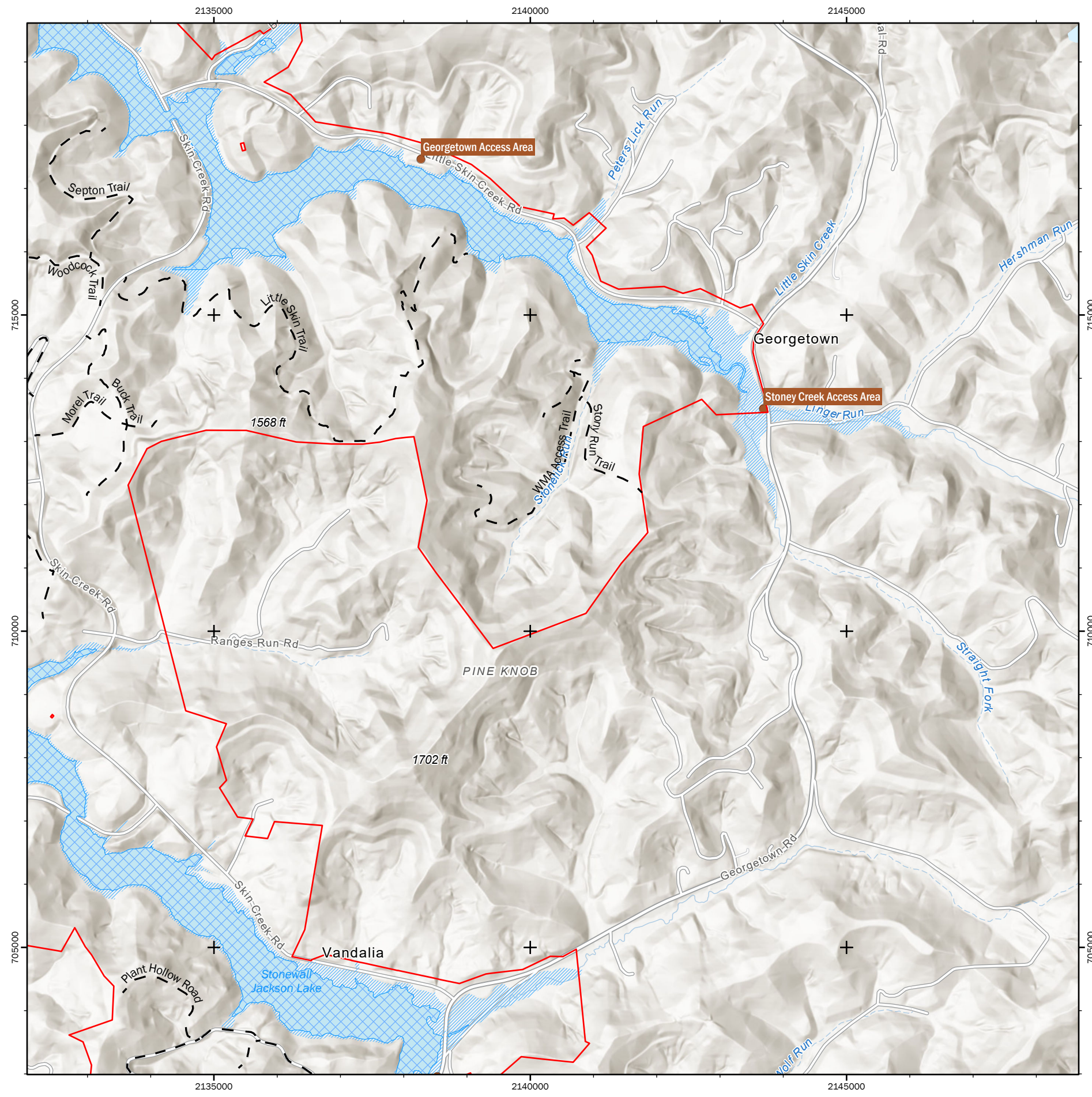
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



Stonewall Jackson Lake Master Plan Plate 7: Recreation Sheet 4 of 9 (Vandalia / Hog Hollow)





Legend

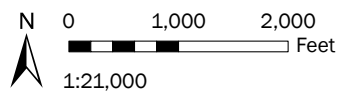
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- - - Trail
- Fee Boundary
- ▨ Full Pool Level (1081.3 ft)
- Water Zoning**
 - ▨ Restricted
 - ▨ No-Wake
 - ▨ Open Recreation

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Full pool is adapted from USGS 3DEP.

Data Sources: USACE, USGS 3DEP, State of West Virginia

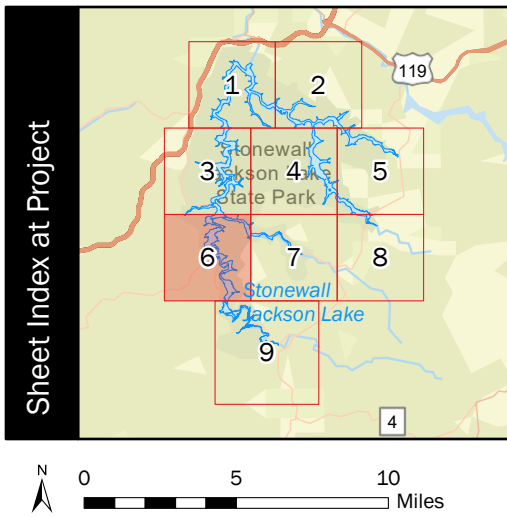
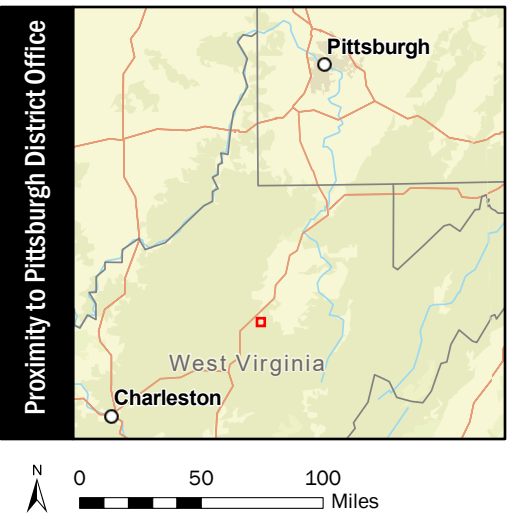
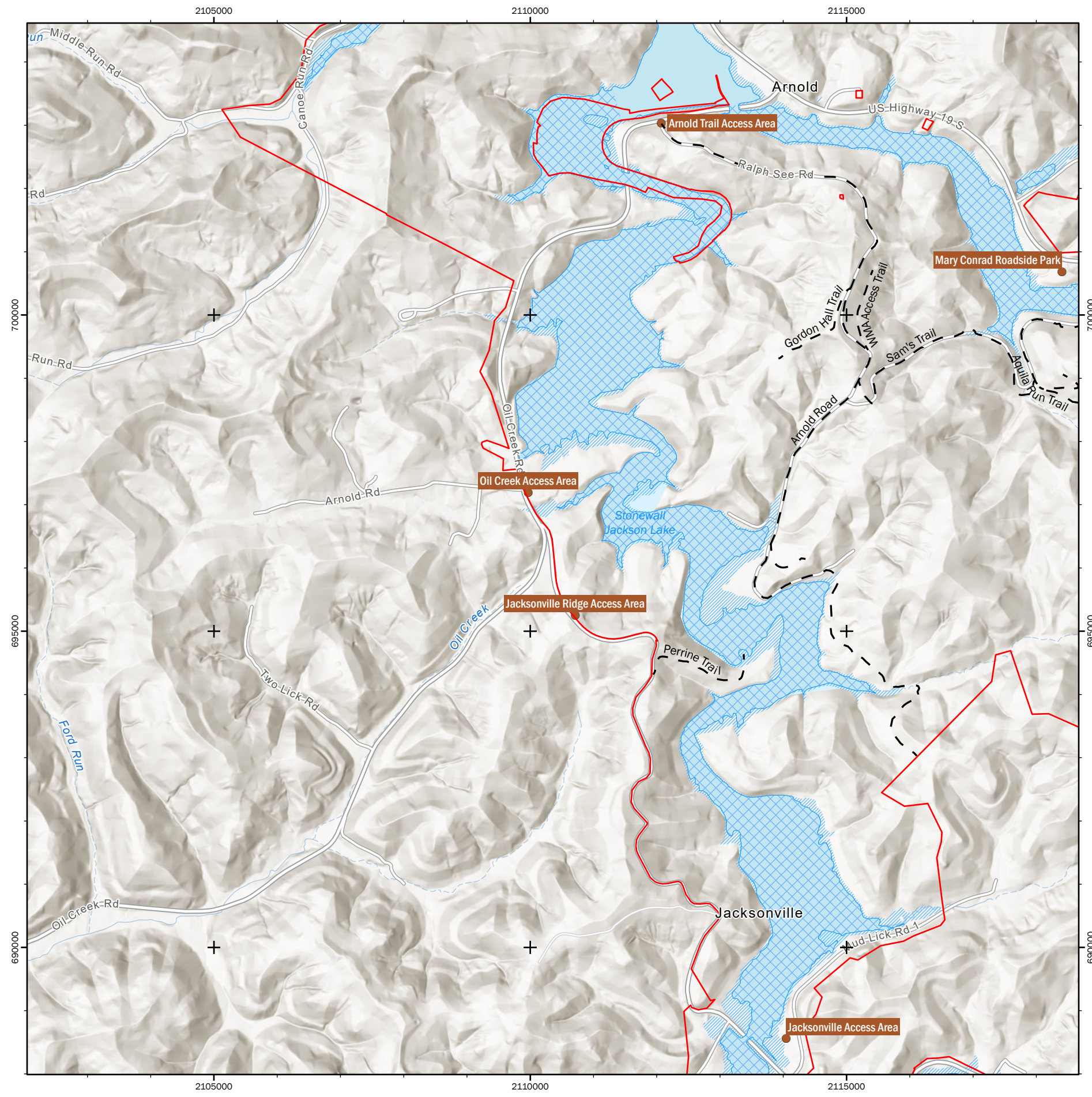
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



**Stonewall Jackson Lake
Master Plan**
Plate 7: Recreation
Sheet 5 of 9 (Georgetown / Stoney Creek)





Legend

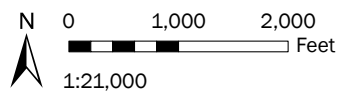
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- - - Trail
- Fee Boundary
- ▨ Full Pool Level (1081.3 ft)
- Water Zoning**
 - ▨ Restricted
 - ▨ No-Wake
 - Open Recreation

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Data Sources: USACE, USGS 3DEP, State of West Virginia

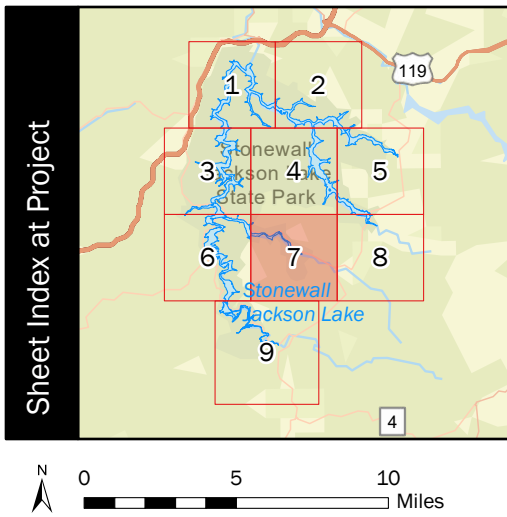
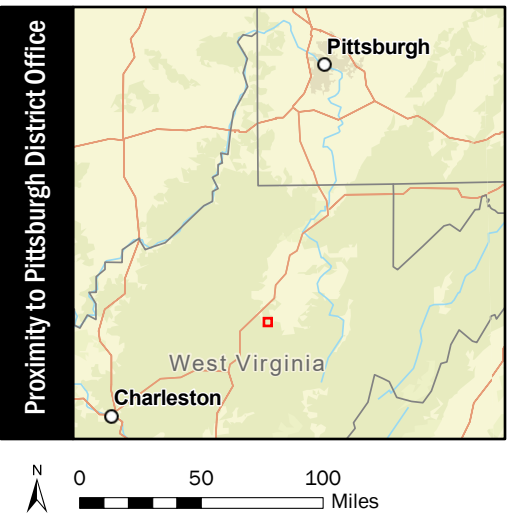
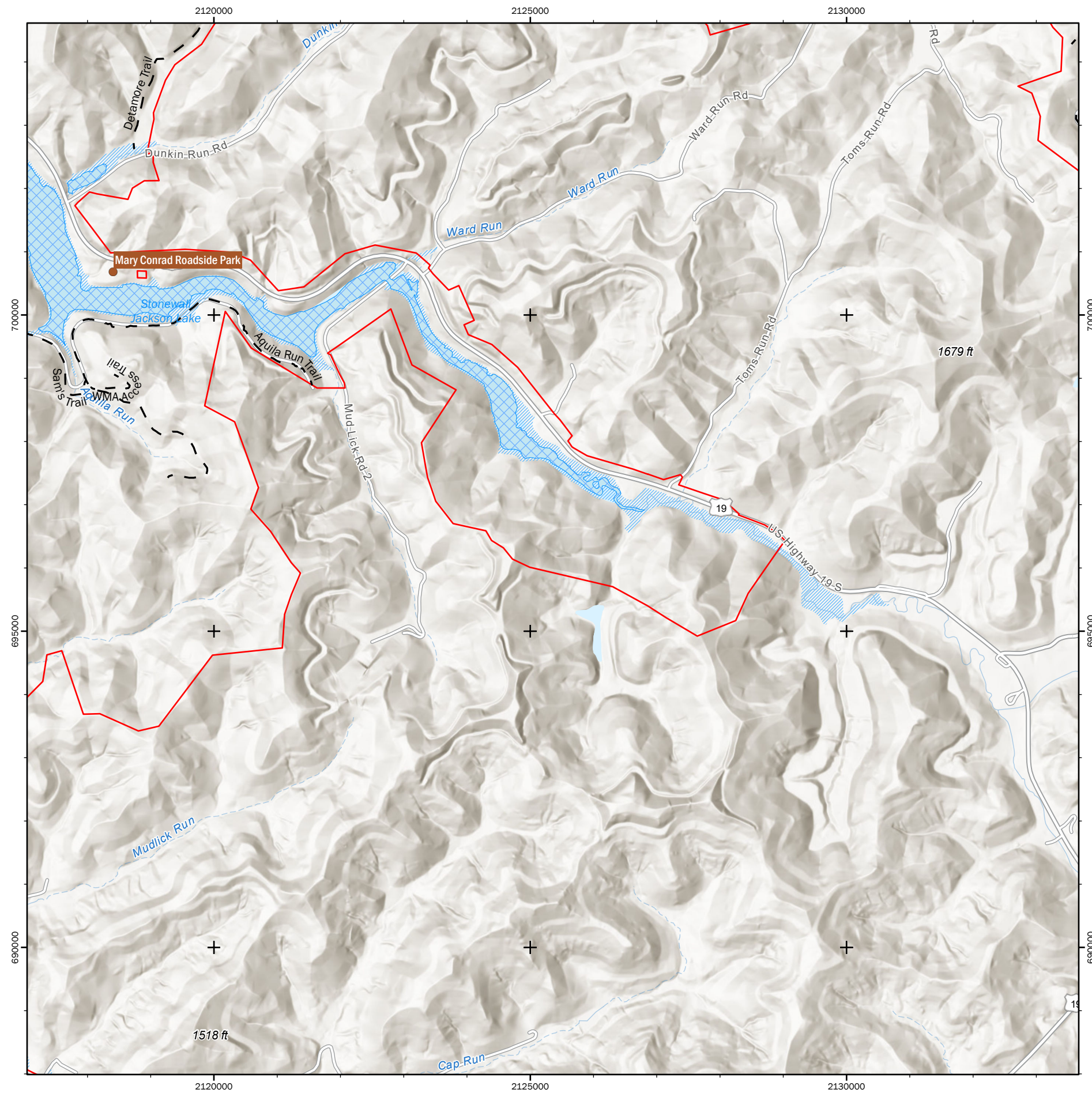
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



**Stonewall Jackson Lake
Master Plan**
Plate 7: Recreation
Sheet 6 of 9 (Jacksonville)





Legend

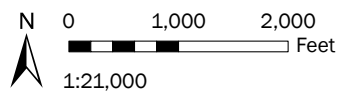
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- - - Trail
- Fee Boundary
- ▨ Full Pool Level (1081.3 ft)
- Water Zoning**
 - ▨ Restricted
 - ▨ No-Wake
 - ▨ Open Recreation

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Full pool is adapted from USGS 3DEP.

Data Sources: USACE, USGS 3DEP, State of West Virginia

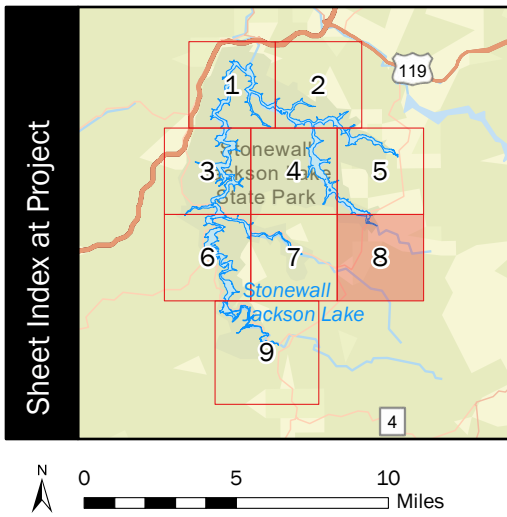
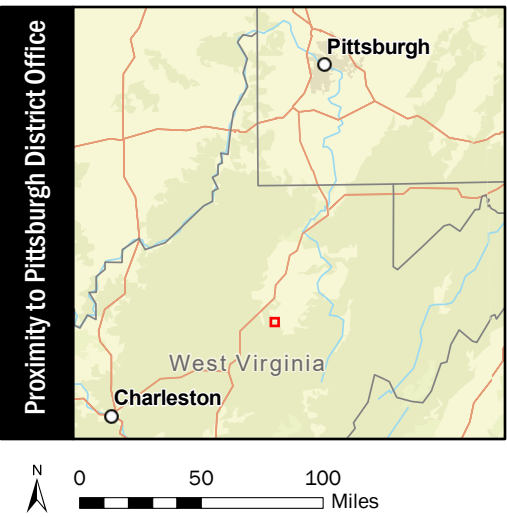
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



**Stonewall Jackson Lake
Master Plan**
Plate 7: Recreation
Sheet 7 of 9 (Mary Conrad)





Legend

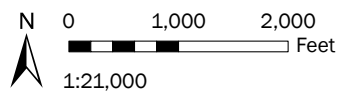
- Recreation Area
 - - - Trail
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 - ▨ Full Pool Level (1081.3 ft)
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Data Sources: USACE, USGS 3DEP, State of West Virginia

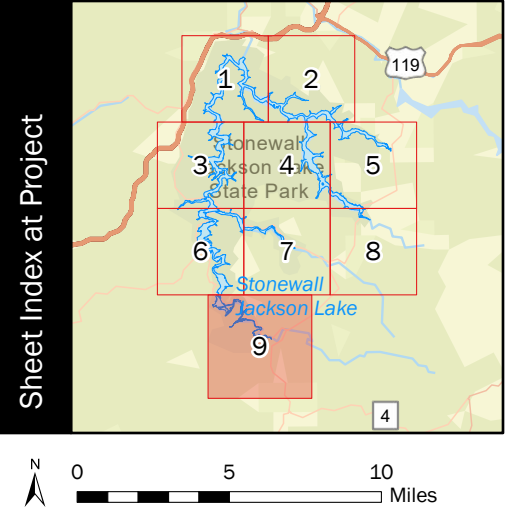
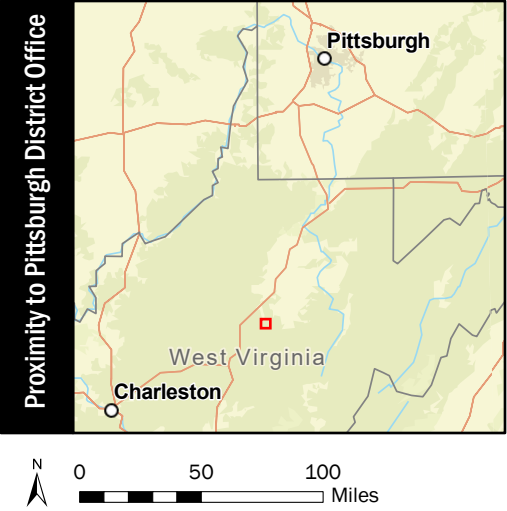
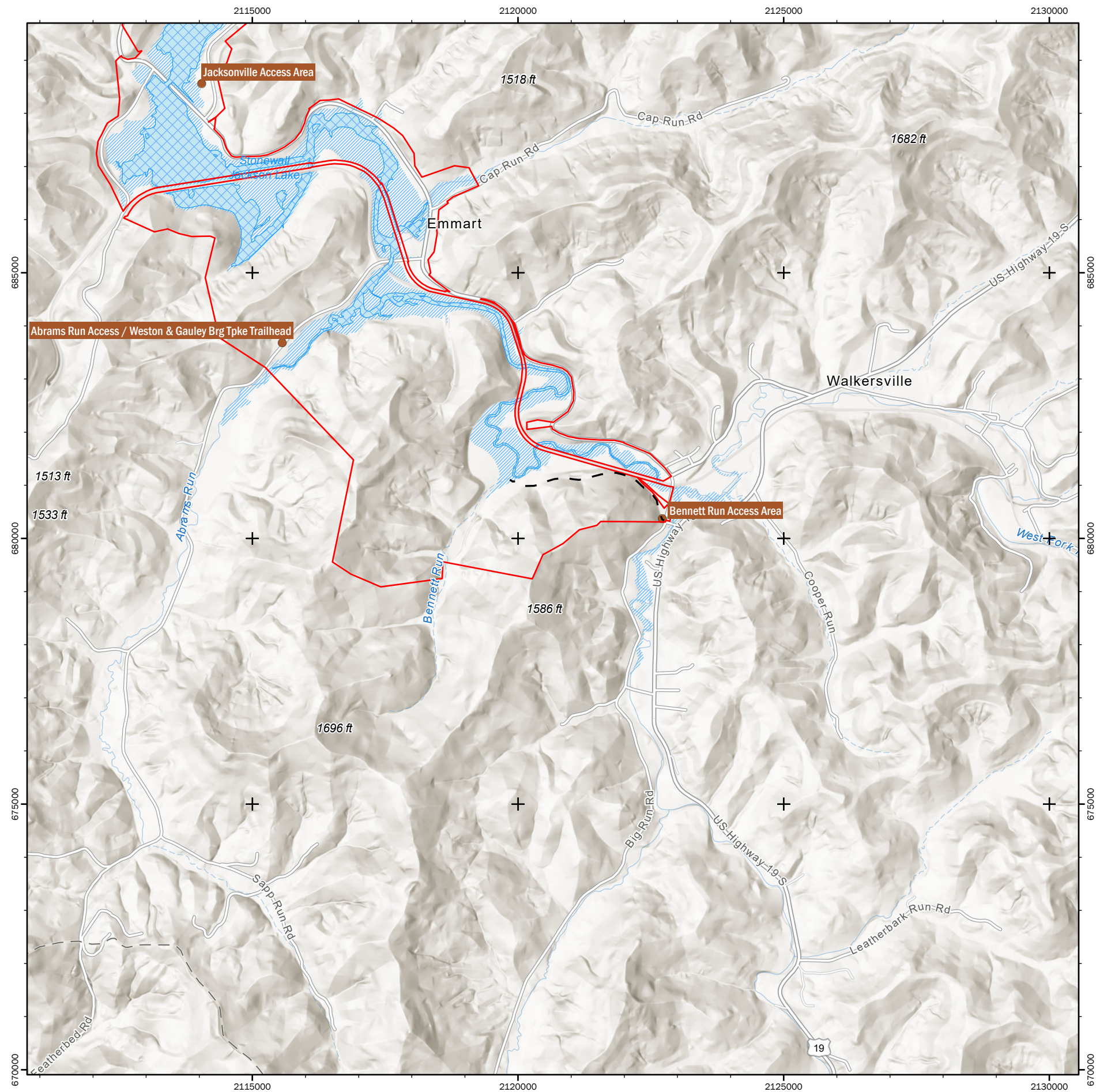
Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



**Stonewall Jackson Lake
Master Plan**
Plate 7: Recreation
Sheet 8 of 9 (Pen Run)





Legend

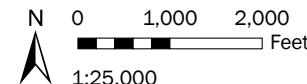
- Recreation Area
- - - Trail
- Fee Boundary
- ▨ Full Pool Level (1081.3 ft)
- Water Zoning**
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Data Sources: USACE, USGS 3DEP, State of West Virginia

Date: May 2021
USACE Pittsburgh Geospatial, 412-395-7553

Coordinate system: NAD 1983 2011 StatePlane West Virginia South FIPS 4702 FtUS



**Stonewall Jackson Lake
Master Plan**
Plate 7: Recreation
Sheet 9 of 9 (Abrams / Bennett)



APPENDIX C

SUMMARY OF PUBLIC COMMENTS

Master Plan Update Fact Sheet

Stonewall Jackson Lake

Master Plan Revision

The US Army Corps of Engineers, Pittsburgh District, is updating the Stonewall Jackson Lake Master Plan which guides the management of government owned and leased lands around the reservoir and use of the waters within. This Master Plan will influence future use of natural resources and recreational activities at Stonewall Jackson Lake for the next 25 years.

This is your opportunity to let the Corps know how you would like the reservoir to be managed in the future. The planning process will include an analysis of potential effects of any proposed changes to the Master Plan on the natural and social environment, including: fish and wildlife, cultural and historic resources, recreational opportunities, economics, land use and public health and safety.



Objectives of Update

- Conserve the resources of the reservoir within the current policies and guidelines of the Corps of Engineers
- Accommodate current and projected use patterns with maximum efficiency
- Identify and protect cultural and natural resources
- Attract maximum participation by the general public and local government

Why Update

The original Master Plan was last updated 37 years ago and does not accurately reflect current conditions at the reservoir. Changes in Corps regulations and community needs necessitate a revision to this Master Plan.

The Master Plan revision will classify the government lands around the reservoir based on environmental and socioeconomic considerations, public input and an evaluation of past, present, and forecasted recreation trends. This update seeks to balance recreational development and use with the goal of conservation of natural and cultural resources.

About the Lake

Authorized by the Flood Control Acts of 1966, Stonewall Jackson Lake is one of 16 flood control projects in the Pittsburgh District. The project provides flood protection for West Fork River, and in conjunction with other projects in the District, substantially reduced flooding in the Monongahela and upper Ohio River Valleys. Since its completion in 1988, Stonewall has prevented flood damages estimated to be in excess of \$365 million.

The reservoir also provides water to be released during dry periods. These releases have the effect of reducing pollution and improving the quality and quantity of water for domestic, industrial and recreation uses. Flow regulation also helps to maintain navigable depths for commercial traffic on the Monongahela and upper Ohio Rivers.

Recreational activities at Stonewall Jackson Lake are managed by the following partners:

- West Virginia Department of Natural Resources
- Lewis County Shrine Club



Master Plan 101

The Corps is responsible for the maintenance, restoration and stewardship of natural resources on the multipurpose reservoir projects it manages. To facilitate the management and use of these lands, a Master Plan is maintained for each reservoir.

A Master Plan is a strategic land and water use management document that guides the comprehensive management and development of recreation, natural and cultural resources at Corps reservoirs and provides a vision for how the reservoir should look in the future. It does not address water management operations, associated prime facilities (dam, spillway etc.), or shoreline management as those operations are outlined in separate documents. After a master plan is revised, the operational management plan and shoreline management plan would both be revised to be consistent with the goals identified in the master plan.

The Pittsburgh District is revising the Stonewall Jackson Master Plan which was originally developed in 1982.



Share your perspective, sign up for our mailing list, and/or let us know how you'd prefer to be involved in the Stonewall Jackson Lake Master Plan Update by emailing us at: celrp-pa@usace.army.mil.





REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
PITTSBURGH DISTRICT, CORPS OF ENGINEERS
WILLIAM S. MOORHEAD FEDERAL BUILDING
1000 LIBERTY AVENUE
PITTSBURGH, PA 15222-4186

September 30, 2019

CELRP-OPT-O

Dear Stonewall Jackson Lake Partner:

Invitation to Scoping Meeting for the Stonewall Jackson Lake Master Plan Revision: The U.S. Army Corps of Engineers (USACE), Pittsburgh District is in the process of revising the Stonewall Jackson Lake Master Plan (MP). A Master Plan is a strategic land use management document that guides the comprehensive management, conservation, and development of recreation, natural and cultural resources at USACE reservoirs. The current MP was developed in 1982; however, changes in USACE regulations and community needs necessitate a revision. Enclosed is a fact sheet which provides additional information on the MP. We invite you to help us shape the future of recreation activities and environmental stewardship opportunities at Stonewall Jackson Lake.

As the initial step to scoping potential revisions to the Master Plan, we would like to invite you to attend a project scoping meeting to be held on 10 OCT 2019, 2:00 pm – 4:00 pm. The hours for the public portion of the meeting is 5:00 pm – 7:00 pm.

Stonewall Jackson Lake Project Office
1012 Skin Creek Rd.
Weston, WV 26452

If able to attend, please RSVP to christopher.w.schuster@usace.army.mil by 07 OCT 2019. Should you be unable to attend the partners meeting but are interested in project updates, please send your email address.

Thank you in advance for your participation and interest in the Stonewall Jackson Lake Master Plan Revision. Your input is valuable to this effort. If you have any questions regarding the Master Plan or the partners meeting, please contact Christopher Schuster at 412.395.7592 or the above email address.

Sincerely,

A handwritten signature in black ink, reading "Kathy M. Griffin".

Kathy M. Griffin
Chief, Operations Division

Enclosure



NEWS RELEASE

U.S. ARMY CORPS OF ENGINEERS

BUILDING STRONG®

Pittsburgh District
Public Affairs Office
1000 Liberty Avenue
22nd Floor
Pittsburgh, PA 15222-4186

FOR IMMEDIATE RELEASE

October 01, 2019

Release No. NR17-0xx

Contact: John Kelly
Phone 412-395-7500
CELRP-PA@usace.army.mil

Stonewall Jackson Lake Seeks Public Input on Master Plan Update

Who: U.S. Army Corps of Engineers, Pittsburgh District

What: The U.S. Army Corps of Engineers (USACE), Pittsburgh District is seeking input on the public's preferences for the future management of the lands and waters of Stonewall Jackson Lake. The MP update, which was last updated in 1982, may affect future use of natural resources and recreational activities at Stonewall Jackson Lake for the next 25 years.

Where:
Stonewall Jackson Lake Project Office
1012 Skin Creek Rd.
Weston, WV 26452

When: Thursday, October 10, 2019, 5:00 – 7 p.m., drop-in.

If members of the public are unable to attend this information session, they can visit the Pittsburgh District homepage [<http://www.lrp.usace.army.mil/>] and click on the master plans logo or visit the Stonewall Jackson Lake Visitor Information Center to learn more about the project, share their perspective and sign up for the project mailing list.

Why: Public input is critical to the MP update. We invite the public to tell us what about Stonewall Jackson Lake is most important to them and share what they'd like to do and see changed in the future at the Reservoir. An open-house-style meeting will be held to capture the public's preferences for the management of Stonewall Jackson Lake, inform the public about the master plan update process and share the proposed MP content as it's been developed through discussions with Corps partners. This is everyone's opportunity to let the Corps know how they would like the Reservoir to be managed in the future.

Changes in Corps regulations and community needs necessitate a revision to this Master Plan. The revision will classify the government lands around the reservoir based on environmental and socioeconomic considerations, public input and an evaluation of past, present, and forecasted trends.

A Master Plan is the strategic land use management document that guides the comprehensive management and development of recreation, natural and cultural resources at Corps reservoirs now and into the future. The Master Plan

does not address water management operations, associated prime facilities (dam, spillway etc.), or shoreline management as those operations are outlined in separate documents.

For additional information, please contact Andrea Carson, 412-395-7444, andrea.l.carson@usace.army.mil.

APPENDIX D

ENGINEER REGULATIONS, PAMPHLETS, MANUALS, AND CIRCULARS

- D.1** ER 200-1-5, Environmental Quality – Policy for Implementation and Integrated Application of the U.S. Army Corps of Engineers Environmental Operating Principles and Doctrine, 30 Oct 2003
- D.2** ER 1130-2-540, Environmental Stewardship Operations and Maintenance Policies, 15 Nov 1996 (with changes 4 Nov 2002, 31 Jul 2005, and 11 Aug 2008)
- D.3** ER 1130-2-550, Project Operations – Recreation Operations and Maintenance Guidance and Procedures, 15 Nov 1996 (with changes 1 Oct 1999, 1 Mar 2002, 15 Aug 2002, 30 Aug 2008, 30 Mar 2009, 30 Jan 2013, and 30 Sep 2013)
- D.4** EP 1130-2-550, Project Operations – Recreation Operations and Maintenance Guidance and Procedures, 15 Nov 1996 (with changes 1 Oct 1999, 1 Mar 2002, 15 Aug 2002, 30 Aug 2008, and 30 Jan 2013)
- D.5** EM 1110-1-400, Engineering and Design – Recreation Facility and Customer Service Standards, 1 Nov 2004
- D.6** EC 1165-2-220, Water Resource Policies and Authorities – Policy and Procedural Guidance for Processing Requests to Alter U.S. Army Corps of Engineers Civil Works Projects Pursuant to 33 U.S.C. 408, 10 Sep 2018