Environmental Assessment
for
Stonewall Resort
940 Resort Drive
Roanoke, Lewis County, West Virginia

Prepared for:

US Army Corps of Engineers
Pittsburgh District
1000 Liberty Avenue
Pittsburgh, Pennsylvania 15222

Prepared by:

The Thrasher Group, Inc
600 White Oaks Boulevard
Bridgeport, West Virginia 2630

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Acronyms and Abbreviations

AIRFA	American Indian Religious Freedom Act
AOI	Area of Interest
BMPs	Best Management Practices
CERCLA	Comprehensive, Environmental Response, Compensation, and Liability Act
CEQ	President's Council on Environmental Quality
CFR	United States Code of Federal Regulations
CMI	Compliance Monitoring Inspection
CO	Carbon Monoxide
DNL	Day-Night Average Sound Level
dB	Decibels
EA	Environmental Assessment
EDR	Environmental Data Resources, Inc.
EJ	Environmental Justice
EMP	Eastern Mountains and Piedmont
EO	Executive Order
EPA	Environmental Protection Agency
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FOIA	Freedom of Information Act
FPPA	Farmland Protection Policy Act
IPAC	Information for Planning and Conservation
MP	Master Plan
$\mu g/m^3$	micrograms per meter cubed
N/A	Not Applicable
NAGPRA	Native American Graves Protection and Repatriation Act
NCA	Noise Control Act of 1972
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NLEB	Northern Long-eared bat
NOx	Oxides of Nitrogen
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
OWoUS	Other Waters of the US
PA	Programmatic Agreement
PEM	Palustrine Emergent
PM	Particulate Matter
ppb	Part Per Billion
ppm	Parts Per Million
PWTP	Package Water Treatment Plant
RCRA	Resource Conservation and Recovery Act
ROW	Rights-of-Way
RV	Recreational Vehicle

Acronyms and Abbreviations (Continued)

RTE	Rare, Threatened, and Endangered
STPs	Shovel Test Probes
SWAP	West Virginia State Wildlife Action Plan
TMR	Timber Market Report
TNW	Traditional Navigable Water
TSCA	Toxic Substances Control Act
US	United States
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground Storage Tanks
VOC	Volatile Organic Compounds
WMA	Wildlife Management Area
WoUS	Water of the United States
WV	West Virginia
WVDEP	West Virginia Department of Environmental Protection
WVDNR WRS	West Virginia Division of Natural Resources: Wildlife Resources Section
WVDNR	West Virginia Division of Natural Resources
WVDOH	West Virginia Division of Highways
WVDOT	West Virginia Department of Transportation
WVSHPO	West Virginia Division of Cultural and History

I. Introduction

This Environmental Assessment (EA) has been prepared pursuant to the National Environmental Policy Act (NEPA) of 1969 as amended, to address the potential environmental impacts associated with additional recreational development at Stonewall Jackson Lake. The proposed action would involve the United States Army Corps of Engineers (USACE) approval of the West Virginia Department of Natural Resources' (WVDNR) ten-year development plan to expand the existing facilities and amenities at Stonewall Resort.

Stonewall Jackson Lake is a multi-purpose USACE project in Lewis County, West Virginia that includes recreation as one of its congressionally authorized purposes. Stonewall Jackson State Park is an approximate 2,000 acre park surrounding the lake that has been leased to the WVDNR, Parks and Recreation Section. The Stonewall Resort provides recreational amenities and facilities to the public.

When developing this EA for the 2014 10-Year Development Plan, four (4) alternatives were analyzed for potential environmental affects and the ability of the alternatives to meet the purpose and need of the project.

- **Alternative I**, the no action alternative, would involve the facilities or developments already approved and result in minimal or no environmental impacts, however; it would not meet the purpose and need of the project, potentially resulting in budget shortfalls and a strain on operational and maintenance integrity.
- **Alternative II**, the preferred alternative, would involve the full implementation, in phases, of the 2014 10-Year Development Plan. This alternative would involve some minor environmental impacts such as land use changes, tree felling, and habitat loss; however, it would also involve beneficial effects such as job opportunities, investment in the community and local businesses, increased tourism, and a stronger local economy. This could result in a few businesses or developers relocating to areas near the resort causing cumulative impacts to those environmental resources; however, this is very unlikely due to the location of the site and the majority of the surrounding area being under management of the WVDNR. Additionally, mitigative measures, such as avoidance of streams and wetlands, will be implemented in order to reduce environmental impacts. **Alternative II** would fully meet the purpose and need of the project as it will develop facilities which will produce optimum revenues to offset operation and maintenance costs as well as provide facilities which will extend the recreational season beyond the traditional season and possibly turning Stonewall into a year-long recreational facility, which will alleviate the rising costs of operating and maintaining public recreational facilities and reduce the fiscal constraints upon public agencies.
- **Alternative III** would involve the developments of Zone 6 and Zone 2 as described in the 2014 10-Year Development Plan. **Alternative III** would not fully meet the purpose and need of the project because it would not provide facilities that will generate sufficient revenue and provide a vast array of activities that will extend the recreational season. This alternative also requires Stonewall to continually request approval for individual developments, which could cause financial pressures from the request and additional time for approval to operation. **Alternative III** would involve less land use changes, tree felling, and habitat loss than **Alternative II**;

however, **Alternative III** would not result in the same beneficial socio-economic effects that **Alternative II** would be expected to create and **Alternative II** would result in a fiscally and structurally stronger Stonewall which would be able to compete in a competitive recreation destination market and avoid the pitfalls of rising operation and maintenance costs.

- **Alternative IV** would involve the developments, new cottages as well as other small day-use facilities of Zone 6 as described in the 2014 10-Year Development Plan. **Alternative IV** would not meet the purpose and need of the project and would not produce optimum revenues to offset operation and maintenance costs. This alternative could potentially extend the recreational season but without the other developments as proposed in **Alternative II**, the incentive for visitors would not increase, reducing the potential revenue gains. Alternative **IV** would involve less land use changes, tree felling, and habitat loss than **Alternative II** and **III**; however, **Alternative IV** would not result in the same beneficial socio-economic effects that **Alternative II** would be expected to create and **Alternative II** would result in a stronger Stonewall which would be able to compete in a competitive recreation destination market and avoid the pitfalls of rising operation and maintenance costs.

Overall, **Alternative II** meets the purpose and need of the project and would only result in minor amounts of land use changes, habitat loss, temporary stream, wetland, and water quality impacts within the resort area but would also result in beneficial impacts such as job opportunity growth, a more diverse array of recreational opportunities, local small business investment, and will limit the amount of interagency reviews and costs as opposed to **Alternatives III** and **IV**, **Alternative II**, the full implementation of the 2014 10-Year Development Plan, was chosen as the preferred alternative.

A. Background

Stonewall Jackson Lake was created in 1987 when USACE completed the dam across the West Fork River at Brownsville, West Virginia. This dam created a 2,650 acre lake, with average depths between 70 and 20 feet (normal summer pool), and with approximately 82 miles of shoreline. Stonewall Jackson Lake State Park was opened in August, 1990 and is a 2,000 acre state park surrounding the lake, operated by the WVDNR, Parks and Recreation Section under a lease agreement with USACE. The park is part of a larger 20,000 acre tract also owned by USACE, which includes a wildlife management area (WMA) also leased and managed by the WVDNR.

Stonewall now proposes to continue the effort to expand the recreational opportunities and activities at the resort as stipulated in the 1982 Master Plan (MP). Previously, the request for individual developments has caused delays in the development and integration of new facilities and attractions in Stonewall; therefore, it was determined to develop a plan for potential future developments over the next ten (10) years. As a result, the 2014 10-Year Development Plan for Stonewall was created and included developments such as additional lodging and camping areas, marina upgrades, day use area developments, a welcome center, and new recreational venues.

B. Purpose and Need

The purpose of the proposed development plan for Stonewall Resort is to continue the original objectives of the USACE 1982 Stonewall Jackson Lake MP, which sets forth the objective to develop facilities which will produce optimum revenues to offset operation and maintenance costs, as well as provide facilities extending the recreation season. The proposed resort expansion includes a reasonable range of foreseeable development and facility upgrades within Stonewall Resort that may be built within the next ten years to expand upon the MP objectives. The need for this project is for regional economic development and to offset operational and maintenance expenses of the facility. This EA has been developed to incorporate all potential development within the ten-year timeframe to adequately assess the cumulative environmental impacts.

C. Prior NEPA Documentation

A Final Environmental Impact Statement (FEIS) for the Stonewall Jackson Lake/West Fork River Project was filed in October 1971. Because this report predated the enactment of the Clean Water Act and did not address the Section 404 considerations of that act, a supplemental information report was completed in April 1982 and attached to the FEIS. At the State's request, USACE, in 1990, suspended work on developing the MP of 1982, and considered major revisions to this plan. In 1992 USACE concurred with the proposed changes in the park's MP, subject to resolution of several engineering and environmental questions. Among other things, they noted that the proposed changes to the Park MP of 1982 for the Roanoke Bay Recreation Area were not covered by the 1982 FEIS Supplement.

An EA was then prepared in 1999 to evaluate the potential negative environmental impacts to changes made in the MP of 1982 and items that were not covered under the FEIS supplement. The 1999 EA primarily discussed the developments which to date have been constructed,

including the existing golf course, lodge, conference center, utilities, etc. This EA was prepared to evaluate the environmental impacts of the 2014 10-Year development plan which includes resort additions, upgrades, and expansion.

II. Alternatives Dismissed From Further Consideration

A. Alternative III: Zone 6 and Zone 2 Development

This alternative will involve the development of Zone 6 and Zone 2 as described in **Section III (B, 6 and 2)**. These two zones which involve increasing the amount of available lodging and day-use attractions are currently the top priorities of the 2014 10-Year Development Plan. Five (5) lakeside cottages have already been approved for construction in Zone 6 with this alternative increasing that number by 22-25 units (based upon investor demand). Utilities (i.e., power, water, sewage, and gas) have already been extended to this zone, limiting the amount of additional work necessary to make the area operational. The remaining proposed developments in Zone 6 will provide additional facilities for visitors to enjoy while also adding attractions that will increase usage of the proposed units.

Development within Zone 2 could occur simultaneously, beginning with the proposed game courts (i.e., tennis, basketball, shuffle, board, etc.), picnic area, adventure golf, and open play area. The extent of the development in Zone 2 will be driven by funding sources including the Stonewall State Park Foundation. The water attractions in Zone 2 are not as critical or emphasized as the other day-use facilities. The proposed developments would provide the additional visitors utilizing the cottages in Zone 6 more options to spend their day at the resort as well as any day-use visitors.

Alternative III does not meet the purpose and need of the project because it will not generate sufficient revenue and does not provide for a vast array of activities that can produce optimum revenues from increased visitation the extended the recreational season. This alternative will also require Stonewall to continually request approval for individual developments, which could cause financial strains from the request and additional time from approval to operation. **Alternative III** would involve less land use changes, tree felling, temporary stream, wetland, and water quality impacts, and habitat loss than **Alternative II**; however, **Alternative III** would not result in the same beneficial socio-economic effects that **Alternative II** would be expected to create and **Alternative II** would result in a stronger Stonewall which would be able to contend in the recreation destination market and avoid the pitfalls of rising operation and maintenance costs; therefore, **Alternative III** was dismissed from further consideration because it does not provide a vast array of facilities and developments that would meet the requirements of the purpose and need of the 2014 10-Year Development Plan.

B. Alternative IV: Zone 6 Lakeside Cottage Development

This alternative would entail the development of 21-25 lake side cottages within Zone 6 as described in **Section III (A6),** in addition to the five (5) units already approved. This

development would be consistent with the scope of the original MP. The addition of these lake side cottages alone is unlikely to increase the use of other revenue building attractions such as the golf course through increased visitation, but may serve as a vehicle to increase the amount of time visitors stay at the resort (e.g., day use to extended stay).

Alternative IV would not meet the purpose and need because the developments in Zone 6 would not produce optimum revenues to offset increasing operation and maintenance costs. This alternative could potentially extend the recreational season but without the additional developments proposed in **Alternative II**, the incentive for visitors overall would not increase, reducing the potential revenue gains. **Alternative IV** would involve less land use changes, tree felling, and habitat loss than **Alternative II** and **III**; however, **Alternative IV** would not result in the same beneficial socio-economic effects that **Alternative II** would be expected to create. **Alternative II** would result in a stronger Stonewall which would be able to contend in the competitive recreation destination market and avoid the pitfalls of rising operation and maintenance costs. Therefore, **Alternative IV** does not meet the purpose and need of the 2014 10-Year Development Plan and was dismissed from further consideration.

III. Proposed Actions and Alternatives

A. Alternative I: No Action Alternative

A No Action Alternative (a.k.a. no further development at Stonewall) would result in Stonewall operating with the facilities and improvements currently in place, such as the five (5) cabins in Zone 6, the campground, marina and boat launching ramp, Roanoke activity plaza, multi-purpose building, golf course and clubhouse, lodge, cabins, trails and administrative and maintenance facilities. This alternative would not result in any anticipated environmental impacts. Stonewall revenues would likely remain the same and be limited to those revenues generated by visitor use of existing facilities, and could be subject to the constraints of revenues potentially lower than those anticipated. The existing infrastructure of the resort was constructed with expectations of a significantly higher use population and without the economic relief provided by additional recreational use and visitation; there are concerns that operating revenues would be insufficient to service existing and additional debts in addition to the rising operating and maintenance costs. The No Action Alternative was not selected as the preferred alternative. However, the No Action Alternative has been carried forward in the planning process in order to provide a comparison between it and the impacts of implementing the Preferred Alternative.

B. Alternative II: 2014 10-Year Development Plan (Preferred Alternative)

The Preferred Alternative proposes to implement, in phases, the developments and facilities in the 2014 10-Year Development Plan (**Appendix I**). The proposed area-of-interest (AOI) for the Stonewall 2014 10-Year Development Plan contains approximately 120.00 acres and consists of eight (8) zones of future proposed development (referred to as the “project area”) within Stonewall. The proposed existing facility upgrades, development of new facilities, and multiple

types of accommodations, described below are anticipated to enhance the current and newly attracted visitor's recreational experience at Stonewall. The development of the project area will occur in phases to be determined upon demand and available funds. Initial development emphasis will be placed on the proposed actions in Zones 6 and 2.

Section III discusses in detail the resources in the affected area and **Section IV** discusses and compares the potential impacts on those resources from implementation of the No Action Alternative and the 2014 10-Year Development Plan (Preferred Alternative).

1. Zone 1

Zone 1 will focus on creating a welcoming and attractive entrance to the resort in order to capture the attention of the incoming resort visitor. Zone 1 is separated into two (2) separate areas that will be divided by a new entry road which will be utilized as the resort and park entrance.

The first section of Zone 1 is approximately 9.9 acres in size and borders Stonewall Jackson Lake on the southern side. Currently, this section of Zone 1 is largely undeveloped and has a steep, wooded terrain that will be utilized during planning and design. Proposed development in this section includes an adventure camp that will feature attractions such as zip-lines, ropes courses, challenge courses, rock climbing, and winter attractions such as a sledding and tubing run. Additionally, 10-14 permanent housing units are proposed including a ranger residence associated with the adventure camp.

The second section of Zone 1 is approximately 1.9 acres in size and borders the existing entrance road (State Park Road) on the west. Currently, this section of Zone 1 includes the existing welcome kiosk, previously disturbed open lawn, and some steep, wooded areas. Proposed development in this section of Zone 1 includes a welcome center, park security building, and an observation tower. The welcome center will be the first and last feature guests will experience when visiting Stonewall and may include features such as a general store, and a local history museum.

2. Zone 2

Zone 2 is approximately 36 acres in size and is located in close proximity to the main lodge encompassing several existing facilities such as the Roanoke Building, parking lots, and park offices. As much of Zone 2 is currently developed, development in this zone will focus on day-use activities that will blend with the current use of the area. The development in Zone 2 is referred to as "Roanoke Village".

Zone 2 developments will feature a new road connection that will join the proposed entrance road in Zone 1 with features proposed in Zone 2. The current facilities remaining (parking, the Roanoke Building, the State Park building, boat ramps, etc.) will be adaptively reused and incorporated into the village community.

There are many options for development in Zone 2 that can all be designed to utilize the existing facilities and use the available land to the fullest potential. One proposed attraction is the Old Roanoke Farm will include attractions that are related to agricultural and/or environmental education such as a horse pasture, barn and silo, farm house, and petting zoo. Game courts (tennis, basketball, shuffle, board, etc.), a picnic area, adventure golf, and an open play area are all options for Zone 2 that will focus on creating activity areas that can be used daily by park visitors. A wedding pavilion, amphitheater, and event lawn are all potential development options that can be used to cater towards events that have larger crowds.

Other proposed attractions in Zone 2 include water features (i.e., pools and/or splash parks) and related retail shopping stores.

3. Zone 3

Zone 3 is located within Stonewall Jackson Lake and is adjacent to Zone 2. Zone 3 is approximately 8.30 acres in size and is the current marina and main boat docking area of the resort. The existing boat dock and parking associated with the marina are to remain; however, the proposed development within this zone will involve upgrades to the existing facilities to improve the overall function of the marina. The developments include upgrades to the electrical and anchoring systems, in addition to a reconfiguration to accommodate larger boat slips.

4. Zone 4

Zone 4 is located north of Zone 2 on a peninsula that juts into Stonewall Jackson Lake. This zone encompasses the existing RV and campground facilities and is approximately 6.06 acres in size. Because of the anticipated increase of resort customers, an expansion of the existing RV/campground facilities is proposed for Zone 4. The expansion will include additional RV lots with water, sewer, and electric utilities; the exact number of additional lots will be based on demand and available funds. A new bathhouse is also proposed for Zone 4.

5. Zone 5

Zone 5 is approximately 14.12 acres in size and includes the area surrounding the existing lodge and main resort facilities on the central peninsula. Because Zone 5 includes several established buildings, development in this zone will focus on utilizing and enhancing existing facilities.

Zone 5 will include features that will expand and diversify the existing lodge such as a spa expansion, new food and beverage outlets, and expansion of the outdoor pool and deck area. Utilizing the natural beauty of the resort, an arboretum is proposed that will showcase the native tree and shrub species to enhance the visual appeal of the natural

landscape. Additionally, portions of proposed development will focus on utilizing the close proximity to Stonewall Jackson Lake to construct features and attractions. Some of these proposed developments include bank fishing, increasing lake access, and increasing docking areas which will be determined as demand is assessed. The bank fishing and increased lake access, especially for kayaks and canoes, will be dependent upon the installation of a water detainment structure that will allow for the water to flow freely back and forth but will help maintain the water levels in the small inlet where the proposed features and attractions will be located, including the aforementioned arboretum. The structure will consist mainly of rip rap that will maintain the water elevation in an existing section of the lake during periods with reduced water levels. However, the structure will not affect the lake water levels. During times of low water levels, the area becomes an unattractive mucky area that cannot be utilized. Maintaining relatively constant water levels in this inlet will be critical to the enjoyment of the above mentioned water based activities by park visitors.

6. Zone 6

Zone 6 is located on the northern side of the lake and is approximately 31.01 acres in size. Proposed development within Zone 6 will focus primarily on the expansion of existing lodging. Additional lakeside cottages are planned for Zone 6 throughout the peninsula, with 5 units already approved for development, subject to final approval of the investor contract and operational rules by USACE. Additional units are planned that will be added as demand increases. Recreation and community amenities proposed for development include a passive park, community building, pool, wedding pavilion, lake-side park, immersive pedestrian trails, hospitality pavilion, and a lakeside pavilion. Public water and the existing sewage treatment plant will be utilized by the proposed developments in Zone 6. Proposed development associated with the lake includes between one (1) and two (2) rows of slips that could be utilized by parties staying in the lakeside cottages. These slips will be transferred from Zone 3.

Within Zone 6, there is an existing palustrine emergent (PEM) wetland that will be preserved and featured within the design and development of this zone. The existing wetland will be used as a backdrop in combination with the wooded areas for the passive park and walking trails. Construction of the walking trails will consist of clearing an approximate four (4) to five (5) foot path of brush and undergrowth to obtain a clear path of travel. Areas near the head of the trails could be upgraded to consist of a compactable fine crushed aggregate finished surface to limit erosion due to the larger amount foot traffic expected in these areas.

7. Zone 7

Zone 7 is located near Zone 6 on the northern side of Stonewall Jackson Lake and is approximately 3.55 acres in size. Zone 7 will also focus on the expansion of lodging; approximately 4-12 lodging units are proposed for Zone 7. Golf club villas or townhouse style homes are planned for development within Zone 7, which is situated below the

existing golf clubhouse. The ease of access to the golf course and associated amenities, as well as a view of a large area of the resort, makes this an attractive area for guest lodging.

8. Zone 8

Zone 8 is located near the entrance of the park and is approximately 9.11 acres in size. Hillside golf view cottages and a maintenance/laundry facility are planned for Zone 8; however, the amount of cottages proposed is not known at this time and would be dependent upon demand at the time of development. Zone 8 offers a raised vantage of the majority of the golf course and surrounding forested areas, providing a spectacular view scape of the resort and surrounding area.

IV. Environmental Setting of the Project Area

A. Location

Stonewall is located in Lewis County in the north central portion of West Virginia (**Figure 1**). Development within the project area of the 2014 10-Year Development Plan (**Figure 1**) will occur within the areas leased to the state of West Virginia for park and recreation purposes which is bordered on the north, south, and east by the Stonewall Jackson WMA. The entrance to the resort is approximately 2.75 miles south of the intersection of Interstate 79 and United States (US) Route 19 at exit 91. Proposed development will occur within the following areas: 11.81 acres near the existing gate house at the entrance to the resort (Zone 1), 35.93 acres surrounding the existing Roanoke Building and day-use area (Zone 2), 14.12 acres surrounding the existing marina (Zone 3), 6.06 acres surrounding the existing RV camping area (Zone 4), 8.3 acres surrounding the existing lodge area (Zone 5), 31.01 acres within the northwest peninsula adjacent lake shore (Zone 6), 3.55 acres below the existing golf clubhouse (Zone 7), and 9.11 acres northwest of the park entrance (Zone 8).

B. Land Use

The proposed development is entirely within the areas leased to the state of West Virginia for park and recreation purposes. The majority of the land use throughout the project area is purely recreational which includes lakeside cabins, lodging, day-use areas, fishing, boating, and camping. Other current facilities include the park maintenance building, entrance gate house, employee housing, and the WMA access road. Also included within the project area are areas of immature to mature hardwood forest with open maintained lawns and graminoid-forb meadows interspersed among the existing facilities. Existing paved roadways link the project area and are used primarily by resort employees and clientele.

C. Floodplain

Stonewall Jackson Lake has a max summer pool depth of 1072.50 feet with the winter pool averaging approximately 1067.50 feet. Flood elevations for the Federal Emergency Management Agency (FEMA) 100-year floodplain within the project area, according to flood insurance rate map (FIRM) panel 250 of 350 of Lewis County, WV, range from 1074 feet around the lodge area to 1080 feet with the highest elevations within the steep ravines on the eastern side of the lake. The floodplain generally follows the edge of the lake and extends up any ravines or swales along the boundary. Zone 3 is the only zone entirely located within the existing floodplain.

D. Wetlands

According to data from the National Wetlands Inventory (NWI) as shown on **Figure 2**, there are no wetland areas identified within the project area; however, within the project area, nine (9) wetland habitats were identified during field delineations (**Figure 4**). Wetland delineations were conducted by Thrasher staff according to USACE 1987 Wetland Delineation Manual (87 Manual) and the appropriate USACE Eastern Mountains and Piedmont (EMP) Regional Supplement. Delineations performed were based on the identification of hydrology, hydrophytic vegetation, and hydric soils. Any issues or problematic areas were identified and addressed using the 87 Manual and the EMP "difficult wetland situations" sections. Each aquatic feature was determined a Water of the US (WoUS) or Other Waters of the US (OWoUS) using Thrasher staff's best professional judgment and data collection from other sources, including but not limited to, US Geological Survey (USGS) Quadrangle maps, stream and tidal gage data, and NWI data.

Six (6) PEM wetlands (Cowardin, 1979) were identified within Zone 4 and Zone 6. The location of the wetlands were abutting or in the immediate area surrounding the lake shore with the lake as the probable source of hydrology. Common hydrology indicators included saturation, high water tables, and oxidized rhizospheres along living roots. Common dominant hydrophytic vegetation was primarily emergent graminoid which included various rushes (*Juncus spp., Eleocharis spp., and Scirpus spp.) sedges (Carex spp.),* Broad Leaved Cattail (*Typha latifolia),* and wetland grasses such as Fowl Mana Grass (*Glyceria striata).* A partial list of species identified can be found in **Table 2**. Soils within the six (6) wetlands consisted mostly of sandy silt loams within the first twelve (12) inches. Hydric soils were indicated by depleted matrices with more than 2 percent redoximorphic concentrations along pore linings. A depleted matrix is a soil layer with 60 percent or more chroma of 2 or less and a value of 4 or more that has a minimum thickness of 2 inches in the first 6 inches of soil or 6 inches in the first 10 inches of soil (NRCS, 2010).

Three (3) PEM wetlands were identified within Zone 5. The wetlands were located at the outlets of storm water drainage culverts from parking areas, most likely being the major source of hydrology. One of the three wetlands within Zone 5, Wetland 2, also appeared to have the lake as a source of hydrology due to its proximity to the lake shore. Hydrology indicators included saturation, iron staining, high water tables, and oxidized rhizospheres along living roots. Common dominant hydrophytic vegetation was primarily emergent graminoid which included various rushes (*Juncus spp., Eleocharis spp., and Scirpus spp.)* sedges *(Carex spp.),* Broad

Leaved Cattail (*Typha latifolia),* and Rice Cut Grass (*Leersia oryzoides).* Soils within the three (3) wetlands consisted of mostly of silty clay loams within the first twelve (12) inches. Hydric soils were indicated by depleted matrices with more than 2 percent redoximorphic concentrations along pore linings. Wetland determination data forms in USACE EMP Supplement to the 87 Manual are provided in **Appendix E** and photo documentation is included as **Appendix A**.

E. Fish and Wildlife Resources and Habitats

1. Birds:

Over 160 species of birds are known to occur or expected to occur within the project area throughout the year and are displayed in combination with their preferred habitat in **Table 3** (Venable, 1989). Bird species observed during site investigations included green heron, great blue heron, mourning dove, eastern blue bird and turkey vulture.

2. Mammals:

A total of 55 species of mammals are known to occur or expected to occur in Lewis County (WVDNR WRS, 2001) and are displayed in **Table 4**. These mammals may occupy habitats in the park within the proposed project area and potentially include the endangered Indiana Bat and the threatened Northern Long-Eared Bat (NLEB). Mammal species observed during site investigation included white-tailed deer, eastern chipmunk, gray and red squirrel, and woodchuck.

3. Game Species:

A total of 38 game species are known to occur in Lewis County and are displayed in **Table 5**. This includes four (4) species of upland birds, fourteen species of waterfowl, five species of marsh and shore birds, nine species of upland game mammals, and six species of wetland game mammals. The white-tailed deer was the only game species observed during field activities.

4. Amphibians:

A total of 31 amphibians are known or expected to occur in Lewis County (Marshall University Herpetology Lab) and are displayed in **Table 7**. This includes 22 species of salamanders and 9 species of toads and frogs. These vertebrates are generally found in all habitats of the park (**Table 7**), although their preferred habitats and breeding habitats are concentrated in wetland areas.

5. Reptiles:

A total of 28 reptiles are known or expected to occur in Lewis County (Marshall University Herpetology Lab) and are displayed in **Table 8**. This includes 8 species of turtles, 4 species of lizards, and 16 species of snakes. Most of the turtles inhabit wetland habitats, but require terrestrial habitats such as mature hardwood forests that are adjacent to wetlands for reproduction (**Table 8**). Snakes and lizards are generally terrestrial. There are two poisonous snakes expected in the project area, the northern copperhead and timber rattler, require hardwood forest habitats with rock outcrops (Marshall University Herpetology Lab).

6. Fish:

A total of seven (7) sport fish species are known to occur in Stonewall Jackson Lake (West Fork River) (Stonewall Resort) and are displayed in **Table 9**. Lake dwelling fish generally inhabit the deeper areas of the lake away from the shoreline to take advantage of the cooler water and higher dissolved oxygen levels. However, fish utilize shallow areas for spawning where eggs can be hidden in submerged vegetation (Johnke, 1995). Before becoming adults, the young fish live in and around the shallow shoreline utilizing the cover they can find.

F. Threatened and Endangered Species

According to the United States Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPAC) database and a technical assistance letter (**Appendix B**), dated May 30, 2015, from the USFWS, the Indiana Bat (*Myotis sodalis),* Clubshell mussel (*Pleurobema clava),* and Snuffbox mussel (*Epioblasma triquetra)* are listed as endangered species and the NLEB (*Myotis septentrionalis)* is listed as a threatened species known or expected to occur within Lewis County, WV (**Table 6**). Due to the recent legislative changes regarding the NLEB, an additional project review request was submitted to the USFWS on June 23rd, 2016. The response will be provided upon receipt.

The clubshell mussel is a small to medium size mussel that is known or believed to occur within Illinois, Indiana, Kentucky, Michigan, New York, Ohio, Pennsylvania, Tennessee, and West Virginia. The clubshell prefers small to medium sized rivers or streams with a clean, loose gravel and sand substrate. The clubshell mussel, once released from the female, will attach to a fish via clasping valves until they detach upon reaching the juvenile stage, living for up to fifty (50) years. Stream degradation involving silt deposition, substrate disturbance, alterations of river hydrology such as damming or the construction of a reservoir, and agricultural and industrial runoff have led to a reduction in clubshell mussel numbers. Reduced populations may take several decades to recover given no additional degrading events occur.

The snuffbox mussel is a small to medium sized, freshwater mussel with brown, yellow, or green shells with green lines. Historically, the snuffbox occurred in 18 states and Ontario, Canada. Currently the snuffbox is found in small, geographically isolated populations throughout the South and Midwest US and Ontario, Canada. The snuffbox is typically found in areas with swift currents and adults often burrow deep in sand, gravel, or cobble substrate. Dams, pollution, sedimentation, and nonnative species are all threats to snuffbox populations.

The Indiana bat is listed as “endangered” under the federal Endangered Species Act. The bat is a migratory species that roosts and forages during the summer months within a range from a few miles to over 300 miles from their hibernacula. They can be found from lower Iowa and the entire state of Missouri east to the upper eastern edge of New York which includes the states of Arkansas, Florida, Georgia, Illinois, Indiana, Kentucky, Maryland, Michigan, Mississippi, New Jersey, North Carolina, Ohio, Oklahoma, Pennsylvania, Tennessee, Vermont, Virginia, and West

Virginia. Potential summer habitat is found throughout West Virginia while winter hibernacula is limited to geographic areas having natural cave systems, abandoned mine portals, or abandoned limestone mines. Maternity colonies are formed by reproductive females who give birth to a single pup typically in early summer. Trees selected for maternity roosts typically have good morning solar exposure, exfoliating bark, are free from entangling vines and vegetation near the top of the tree, and limited amounts of bark near the bottom of the tree. The roosting areas can be found in riparian areas and bottom land and upland forests. Primary threats to the Indiana bat are white nose syndrome and habitat losses due to a wide variety of land development and land use practices that remove forest. The loss of forest habitat can affect the bat in two ways. Tree clearing during the summer months can result in the direct take of bats from injuries or death when the trees are cut. The bats exhibit fidelity to their summer foraging areas and when these areas are cleared, the bats have to exert more energy and effort to find another suitable area which results in additional stress and can cause issues with pregnancy in females. The time needed to attain the same level of roosting cohesiveness that is experienced prior to the loss of primary roost areas is not known but it is critical to survival and reproductive success.

On May 4, 2015, the NLEB was officially listed as a threatened species as defined by the Endangered Species Act of 1973. White-nose syndrome, impacts to hibernacula and summer habitat, and wind farm operations are the main contributors to the species' decline and subsequent listing. The range for the NLEB extends from the mid-west of the US to the Atlantic Coast and as far north as Canada and as far south as Louisiana. During the summer months, the bats roost singly or in colonies underneath bark, in cavities, or in crevices of both live and dead trees (snags). Forested areas within West Virginia are considered to be potential summer foraging habitats according to the USFWS. The Northern Long-Eared Bats tend to be flexible in selecting roosts, choosing roost trees based on suitability to retain bark or provide cavities or crevices. During winter, the bats spend their time in caves and mines called hibernacula. During the initial site walkthrough, no evidence of caves or mines was observed. Breeding begins in late summer or early fall when males begin to swarm near hibernacula. The females store the sperm until the next spring and after emerging from hibernacula, ovulate and fertilize the egg using a process called delayed fertilization. The females roost after migrating to their summer areas, giving birth to a single pup. After learning to fly around 18 to 21 days after birth, the bats typically live up to 18.5 years.

According a technical assistance letter (**Appendix B**), dated November 6, 2014, from the West Virginia Division of Natural Resources: Wildlife Resources Section (WVDNR WRS), there are no records of any rare, threatened, and endangered (RTE) species or sensitive habitats within the proposed project area. Due to the recent legislative changes regarding the NLEB, an additional project review request was submitted to the WVDNR WRS. The WVDNR WRS responded on July 20, 2016 that based upon a review of available file information on RTE species and sensitive habitat for use in the Stonewall Resort's 10-year Development Plan no records of any RTE species or sensitive habits are recorded within the project area. However, the area is located within the Central Reservoirs Conservation Focus Area, as described in the WV State Wildlife Action Plan (SWAP). Because no surveys have been conducted in this area, the WVDNR WRS

recommends surveys in all areas that have not been previously disturbed for species listed as Species of Greatest Conservation Need in the SWAP.

Twelve species listed by the WVDNR as species of special concern, special interest, or status undetermined are expected to occur within Stonewall Jackson State Park. These include one (1) amphibian (Jefferson salamander), two (2) reptiles (coal skink and broadhead skink), five (5) birds (American bittern, Cooper's hawk, northern harrier, osprey, and golden-winged warbler), and four (4) mammals (pygmy shrew, rock shrew, star-nosed mole, and meadow jumping mouse).

The Jefferson salamander is found from New England south to southwestern Virginia, and west to Indiana. It has a subterranean existence in deciduous forests, and emerges in late winter and early spring and migrates to wetlands where it breeds and deposits its eggs. Larvae remain in the wetlands approximately three months.

The coal skink has a scattered distribution throughout its general range in the eastern US. It is found in a variety of habitats, including dry hillsides and humid, wooded hillsides. All habitats generally have ground cover with rocks and logs. The broadhead skink is known only from the western counties of West Virginia, although its total range extends from Texas to the Atlantic Coast and from southern Pennsylvania to Florida. Typical habitats range from upland dry forest to wetlands, although it has occasionally been observed in old field habitats.

Northern harriers are rare winter visitors and do not nest in Stonewall Jackson State Park. When present, the majority of their time would be spent feeding in and around the wetlands and fields that are dominated by low herbaceous vegetation and lack tree cover. Ospreys are also winter visitors, and there are two active nests in the area on platforms installed by the WVDNR and USACE. Ospreys feed on fish and spend little, if any, time in the proposed project area. The golden-winged warbler, if present, would frequent hardwood forests, scrub-shrub, and old field habitats.

The four (4) mammal species (star-nosed mole, pygmy shrew, rock shrew, and meadow jumping mouse) prefer upland habitats and probably occur in the hardwood forest and scrub-shrub habitats.

G. Prime or Unique Farmland

The U.S. Department of Agriculture (USDA) (NRCS, 1995) defines prime farmland as land best suited to food, feed, forage, fiber, and oilseed crops. Prime farmland can consist of cultivated land, pasture, woodland or other land but is not urban or built-up land or water areas. There are no soils in the project area that are listed as prime farmland (NRCS, 1995). However, five (5) soil types within the project area were identified as “Farmland of Statewide Importance” and are listed below and displayed in **Appendix F** (Custom Soil Resource Report for Lewis County, West Virginia). The majority of the areas where “Farmland of Statewide Importance” soils are found are located within areas disturbed by previous development within the Stonewall Resort.

Table 12: Farmland of Statewide Importance			
Map Symbol	**Map Unit Name**	**Farmland Classification**	**Percentage of Project Area**
GuC	Gilpin-Upshur silt loams, 8 to 15 percent slopes	Farmland of statewide importance	17.5%
GuD	Gilpin-Upshur silt loams, 15 to 25 percent slopes	Farmland of statewide importance	15.9%
MoB	Monongahela silt loam, 3 to 8 percent slopes	Farmland of statewide importance	20.3%
VaC	Vandalia silt loam, 8 to 15 percent slopes	Farmland of statewide importance	0.3%
VaD	Vandalia silt loam, 15 to 25 percent slopes	Farmland of statewide importance	13.4%

H. Recreation Areas

Zone 2, 3, 4, 5, and 6 are where existing recreational facilities within the proposed project area are located.

Zone 2 is a predominantly developed and maintained area that includes office buildings, the Roanoke Activity Center, basketball and volleyball courts, a disc golf course, playground, and large maintained lawns. A paved roadway encircles the zone with six (6) linked parking lots adjacent to the lake.

Zone 3 is the marina and main boat dock. The marina consists of eight (8) dock arms with seven (7) to twelve (12) boat slips with two (2) boat spaces per slip. A convenience store/marina building is located at the center of the area. The maximum boat occupancy is 182 boats.

Zone 4 is the Briar Point Campground area. The campground consists of forty (40) recreational vehicle (RV) sites and six (6) tent sites with mooring posts available for boats. The zone consists mostly of open maintained lawns in and around the camp sites but also includes areas of immature hardwood forest and vegetated shoreline. Multiple picnic areas are located within the forested area of the zone. A single paved roadway runs through the center of the zone.

Zone 5 is main lodge and conference area of the resort. The zone consists of the main lodge building which has meeting and conference rooms, guestrooms and suites, day spa, swimming pools, outdoor activities on maintained lawn, and a restaurant.

Zone 6 is located on the northwestern peninsula. Zone 6 consists of ten existing lakeside cottages with water, gas, sewer, and electric utilities. There is also one (1) boat slip on the southeastern corner of the peninsula.

Additionally, three (3) recreation areas are located in close proximity to Stonewall (**Figure 7**). They are the Stonewall Jackson WMA, surrounding the resort; Stonecoal Lake WMA, seven (7) miles east of Stonewall; and Burnsville Lake WMA, eight (8) miles southwest of Stonewall. These recreational areas are typically utilized for basic outdoor recreation activities such as

hiking, hunting, biking, canoeing, fishing, and camping. Please see **Figure 7** which displays these recreation areas in comparison to the project area.

I. Wild and Scenic Rivers

The West Fork River has not been designated as a component of the Federal Wild and Scenic River System. The only river classified as a Wild and Scenic River within the state of West Virginia is the Bluestone River in Summers and Mercer Counties (National Wild and Scenic Rivers System).

J. Timber

According to the June 2014 West Virginia Timber Market Report (TMR) the top ten (10) species for price per million board feet were red oak, white oak, mixed oak, black cherry, yellow-poplar, hard maple (sugar maple), soft maple (red maple), ash, hickory, and walnut ((West Virginia Division of Forestry, 2014). Within Zones 1, 4, 6, and 8 that contained immature to mature hardwood forests, the most common species of trees were hickory, sugar maple, red oak, white oak, and yellow-poplar. The USDA Departmental Regulation Number 9500-003 (Land Use Policy) of 1983 states that "Prime timberland is land that has soil capable of growing wood at the rate of 85 cubic feet or more/acre/year (at culmination of mean annual increment) in natural stands and is not in urban or built-up land uses or water". This generally means any land currently forested but doesn't exclude qualifying lands that could realistically be returned to forest. According to this definition, current forested areas of the project area could be considered prime forestland and would need additional evaluation.

K. Physiography/Geology/Soils

1. Physiography:

The project area is located in the Allegheny Plateau Physiographic Province of the Appalachian Region (NRCS, 1995). Its topography is irregular and dissected, characterized by rounded ridge tops, steep side slopes, and gently sloping to flat valleys. Slope varies from 0-10 percent in the valley along lower Crooked Run and lakeside bottomland areas, to greater than 15 percent in the upper reaches of Crooked Run. Relief is approximately 400 feet, from a maximum elevation of 1,486 feet at the head of Crooked Run, to a minimum of 1,073 feet at lakeside, normal summer pool. Stream drainage is dendritic in character, and includes primarily intermittent and ephemeral tributaries of Stonewall Jackson Lake. Streams typically dry up in late summer.

2. Geology:

Geologic series present, in descending order, consist of the Dunkard Series of the Permian Period and the Monongahela and Conemaugh Series of the Pennsylvanian Period (NRCS, 1995). The Dunkard Series includes the most recent formations that occur in the project area, with the exception of stream alluviums. This formation is found in outcrops along the ridge tops, and is usually buff-colored sandstone with interbedded quartz pebbles. The Monongahela Series occurs on the side slopes of the project area. It consists mainly of greenish or gray sandstone, with thin,

alternating layers of shale. The base of this series forms the base of the Pittsburgh Coal. The Conemaugh Series occurs along the lower slopes of the project near the lakeshore. It is composed of numerous sandstone beds, usually separated by red or indurated clays or sandy shales. Each of these series contains sandstone, indurated clays, and shales interspersed with coal seams and minor amounts of limestone. The occurrence of indurated clay inhibits internal drainage and creates more surface runoff and seepage zones along hillsides. The soils derived from these parent materials may cause severe sliding, especially on slopes greater than 15 percent. These potential slide areas and slip terraces should be avoided for all types of intensive development, including access roads, unless investigation shows the area is stable.

The Redstone seam of the Monongahela Series is the only mineable coal seam in the project area. It outcrops at the streambed near the dam site, and extends along the ridge tops south of Sand Fork. Although past mining practices in the Stonewall Lake Project Area, particularly surface mining, have had a detrimental impact on the land, there are no indications of previous mining in the proposed development area.

3. Soils:

The soils of the proposed development area fall into three natural divisions: upland soils, terrace soils, and alluvial deposits. Please refer to **Appendix F** for the Custom Soil Resource Report for Lewis County, West Virginia or **Figure 3**. Based on soils map of Lewis County as prepared by the Natural Resources Conservation Service (NRCS) (NRCS, 1995), none of these soils are classified as Prime Farm Land; however, five (5) soil types within the project area were identified as “Farmland of Statewide Importance”. Ridge top and side slope soils are Gilpin-Upshur Series silt loams. These are dark brown, heavily eroded, well drained soils, formed in material weathered from interbedded siltstone, shale, and sandstone. Gilpin-Upshur soils are shallow to moderately deep. Depth to bedrock varies between 20-40 inches for Gilpin soils, to 40-60 inches for Upshur soils. They are also strongly to extremely acidic. Natural fertility is low to medium in Gilpin soils, and medium to high in the Upshur soil. They occur under, and are best suited for woodlands. Factors limiting alternate uses include typically steep slopes, slow permeability, moderate to high shrink-swell potential, low strength, and erosion. The presence of thin clay and shale strata in these soils makes the potential for hillside slippage high.

Terrace soils consist primarily of Vandalia silt loams, with smaller sections consisting of Gilpin-Upshur Series. Typically the surface layer is dark reddish brown silt loam, nine inches thick. Subsoils are silty clay loams, 40 inches deep. Depth to bedrock is often greater than 60 inches. These soils are moderately fertile, very deep and well drained. Because of their clayey texture, they have moderately slow or slow permeability, and are subject to flooding and severe erosion. Hillside slippage and water seeps are also common. As a result, surface disturbances associated with such developments as buildings, septic tank absorption fields, and roads increase the hazard of land slips. Typical cover crops are graminoid species for hayfields and pastures and forests stands. Bottom lands consist of alluvial deposits from upland and terrace soils, and belong primarily to the Monongahela Series, although there are several small areas of highly eroded Gilpin-Upshur silt loams found along the Crooked Run stream channel. There are also two areas of disturbed Udorthents on the eastern shore of the reservoir near the mouth of White Oak Lick

Run, and at the mouth of Carrion Bay. Monongahela soils are very deep and moderately drained. The surface layer is brown silt loam about 10 inches thick, while the lower 27 inches is a firm and brittle fragipan of strong brown, mottled silt loam. The available water capacity of the Monongahela soil is moderate or high. Permeability is moderate above the fragipan, and slow in the fragipan.

Runoff is medium, and natural fertility is low. These soils are best suited for hay and pasture, although the depth to water table and fragipan restrict root development of some plants, and the use of heavy equipment is limited during wet periods when the soil is soft.

L. Vegetation

The potential natural vegetation of the proposed development area is classified as Mixed Mesophytic Forest (Braun, 1941). This is a biologically rich system, with as many as thirty (30) canopy species present, and a rich understory and forest floor. Due to previous disturbances from the development of Stonewall, the present day vegetation of the area is a mosaic of fragmented plant communities with indistinct boundaries (**Figure 6**).

The actual vegetation can be described in terms of several gradients along which the cover type varies: grassland-forest, wet-dry, bottom land-ridges. For purposes of this discussion, four (4) landscape/cover types best describe this vegetation: wetlands, maintained lawns/graminoid-forb meadows, immature hardwood forests, and mature hardwood forests. Wetlands were discussed in **Section IV (D)**. The general character of each will be discussed below, and will include typical or notable plant species of each stratum (**Table 1**). The species lists provided for each cover type should be considered representative, not comprehensive.

1. Maintained Lawns/Graminoid-forb meadows:

The majority of this cover type is found in Zones 2, 5, 6 and 7 while small areas occur in Zones 1, 4, and 8. Maintained lawns can be found surrounding facilities within the project area. These lawns consist of mostly introduced grasses such as tall fescue and Kentucky bluegrass and noxious weeds such as broadleaf plantain and crabgrass. The lawns are maintained for aesthetic and recreational purposes for the resort clientele. The graminoid-forb meadows can be found along the border of roads, parking lots, maintained lawns, and forested areas. These are mostly disturbed areas from prior development that are not maintained by the resort. Vegetation within the herb stratum of the graminoid-forb meadows consists of grasses such as meadow fescue, sweet vernal grass, orchard grass, Japanese stilt grass, and Kentucky blue grass. These perennial grasses are spreading by dense mats of rhizomes and stolons, forming thick sod. Beneath these grasses are a number of creeping ground level plants such as small flowered agrimony, cinquefoil, wild vetch, and yellow hop clover. Interspersed within the dense stands of grasses are weedy forbs such as common milk weed, wingstem, and tall thistle. Multi-flora rose, a noxious introduced shrub, is found in all the zones but mostly within the graminoid-forb meadows creating dense thickets in some areas.

Trees are not as common in this cover type but species such as sycamore, silver maple, black willow, and black locust occur along roadways throughout the project area. Trees planted for shade and aesthetic value within the maintained lawn areas include Norway spruce, purpleleaf plum, sugar maple, and Norway maple. Species such as flowering dogwood, redbud, and crabapple are also common in the border between the maintained lawns and the more forested areas.

2. Immature Forest:

The majority of Zone 4, Zone 8, and the northern peninsula of Zone 6 were covered in immature forest. Lower canopy heights and high stem densities identify these forests. The most successful tree species of the immature hardwood forests are the hickories: mockernut hickory, pignut hickory, and shellbark hickory. Red maple, sugar maple, and yellow poplar were also common in these stands, as were black cherry, white ash, black gum, American beech, and black locust. Very few oaks occurred in these woods, either as mature trees or seedlings. The small tree stratum was dominated by dogwood, muscle wood, and red bud. Autumn olive, an exotic shrub often introduced as a source of food and shelter for wildlife, was scattered within and along the edges of these stands, although abundant.

3. Mature Forest:

The mature forest occurred on side slopes, along the highest ridgetops, within Zone 1. In combination with immature forest, the two cover types represent the majority of the proposed project area. These woods are much less even-aged than the immature hardwood forests; the tree canopy is higher, imposing more densely shaded conditions, and there are relatively fewer shade intolerant species present. Mature hardwood forests have greater species diversity, and fewer introduced plant species. The largest trees of the study area were found in these forests, and the canopy was fully developed into five distinguishable strata: 1) large canopy trees such as sugar maples, oaks, hickories, black cherry, and yellow poplar, 2) smaller overtopped maples and white ash, 3) a sub canopy of dogwoods, sassafras, spice bush, witch hazel, and other saplings, and fully developed 4) shrub and 5) herbaceous strata. These mature hardwoods forests were also notable for having numerous oaks and American beech of varied ages and sizes. The rich herbaceous layer of these woods was typical of central Appalachian Mixed Mesophytic Forests. Ferns noted included Christmas fem, New York fem, southern lady fem, and ebony spleenwort. Common forbs included wild comfrey, white snakeroot, golden ragwort, yellow wood sorrel, bedstraws, and rattlesnake plantain. Woody vines such as greenbrier and poison ivy were also present. Many of the early spring ephemerals had already bloomed, but may apple, spring beauty, Solomon’s seal, and false Solomon’s seal were still apparent.

M. Hydrology

1. Surface Waters:

The major source of hydrology for the proposed project area is surface water. Several of the natural resource characteristics of the project area (steep topography, impervious shale and clay bedding in soils, and lack of forest cover) are conducive to low infiltration and rapid runoff during high intensity rainfall. Runoff and the potential for soil erosion are greatest during the winter months when rainfall is augmented by snow melt, and soils are frozen or saturated. Land usage in the project area influences the degree of runoff and erosion, and resultant turbidity of the lake and larger streams.

The most significant surface water of the project area is Stonewall Jackson Lake. The lake is formed by a concrete gravity dam, fully operational in 1988, which was placed in the West Fork River. The West Fork River flows north from Upshur County and makes confluence with the Tygart Valley River forming the Monongahela River which is a perennial tributary of the Ohio River, a traditional navigable water (TNW). The lake covers 2,650 acres with a drainage area of 102 square miles and is an important recreational attraction in the area (Johnson, 2010). The lake is also the source of water for the resort facilities and maintenance. A package water treatment plant (PWTP) is present that consists of two (2) units with a total treatment capacity of 100,000 gallons per day.

Stonewall Jackson Lake is also a sink for many ephemeral and intermittent tributaries in the area. A total of fourteen (14) streams, mostly ephemeral and intermittent, were identified within the project area (**Figure 4** and **Table 11**). Ephemeral channels are defined as streams that have flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral streambeds are located above the water table year-around. Groundwater is not a significant source of water for an ephemeral stream; instead runoff from rainfall is the primary source of water for stream flow. They typically have flowing water for a few hours to a few days after a storm event and have no discernable floodplain. In contrast, intermittent streams have flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow. Typically, ephemeral channels grade into intermittent streams, but they can flow directly into perennial streams, as seen during the site investigation. The identified features were primarily linear drainages located within the upper portions of the drainage basin. The documented streams were formed along steep upland landscape and were characterized as low sinuosity, gravel or cobble controlled channels. Most of the identified streams channels exhibited minimal to moderate erosion along banks, presenting as exposed roots and minor shelving. Leaf litter and debris was present within the identified stream channels, and exhibited flow patterns and evident transport, indicating past water flow. Other physical characteristics observed within the identified streams include observable sediment sorting, destruction of vegetation along stream channels, natural lines impressed along stream banks. All

identified streams were direct or indirect tributaries of Stonewall Lake and the West Fork River, which is a tributary of the Monongahela River, a TNW.

The majority of the streams were found on the steep forested slopes of Zone 1. With the construction of roadways and parking lots, storm water drainage has become a major contributor to the overall hydrology of the area. Many of the storm water outlets feed ephemeral tributaries or wetlands within the proposed project area.

2. Groundwater:

Unconsolidated alluvial deposits and sedimentary bedrock are the two major types of aquifers in West Virginia (Ferrell, 1986). The major aquifer type in the area of Lewis County is the sedimentary bedrock-aquifer system characterized as being located in the Upper and Lower Pennsylvanian aquifer. This type of aquifer is typically composed of cyclic cycles of sandstone, siltstone, shale, limestone, and Pennsylvanian aged coal. Groundwater flow is driven primarily through fractures, bedding-plain separations, and in solution opening in limestone areas. Throughout much of the state, topography affects the shallow ground-water flow path. Recharge occurs along all topographic settings with the flow of groundwater mainly toward valleys. This results in the youngest ground water being from hilltop wells and the oldest groundwater being from valley wells (Ferrell, 1986). Water wells drilled within the Upper and Lower Pennsylvanian aquifers are typically 50-300 feet below ground surface and are used mainly for domestic and farm supplies. The water is good for most uses but is generally hard to very hard and has large iron and manganese concentrations locally (Mark D. Kozar, 2001).

The 1982 MP prepared for the park noted that ground water supplies were not considered sufficient to support the intensive recreational developments planned for the Roanoke Bay Recreation Area. A municipal water line design operated by West Virginia American Water is currently out to bid, which would extend to the resort and be used as the principal source of potable water and should provide for any foreseeable increase in demand.

N. Cultural Resources

1. Previous Cultural Resource Surveys:

The National Historic Preservation Act (36 United States Code of Federal Regulations (CFR) Part 800: “Protection of Historic Properties”) requires the WV Division of Cultural and History (WVSHPO) to review and determine the effect of proposed actions on historic properties. This review entails the identification of cultural resources within the project area that may be eligible for listing in the National Register of Historic Places (NRHP). Historical properties may include archeological (objects or archeologic sites) or architectural (structures or districts) resources.

A Phase I archeological investigation was conducted in September of 1998 by Big Blue Archaeological Research, Inc. to locate and record cultural resources which may be

located in and/or near portions of Stonewall Jackson Lake State Park and assess what impact planned land use might have on any such sites. All work was performed in accordance with Guidelines for Phase I Surveys, Phase II Testing, Phase III Mitigation and Cultural Resource Reports promulgated by the Historic Preservation Unit of the WVSHPO. A summary of the report is provided below and a full copy of this report is attached as **Appendix H**.

A review of detailed maps and on-site inspection of the project area allowed the formulation of a thorough survey strategy. In order to establish provenience control, the project area was divided into sections and fields. The project area was divided into sections based on project area boundaries and topographic features. Fields were identified as portions of sections which required subsurface testing, i.e., all undisturbed portions of the project area with less than 20 percent surface slope.

Subsurface testing was conducted on narrow to moderately wide, relatively level hilltops, hillside benches, and the bottomlands of tributary drainage valleys. Subsurface testing was conducted by excavating shovel test probes (STPs) approximately sixteen (16) inches in diameter at fifty (50) foot intervals on transects situated to ensure that each field was thoroughly tested. Excavated soils were passed through one-quarter inch mesh cloth screens and material which remained in the screens was examined for artifacts. The horizontal dimensions of all subsurface sites located as a result of this survey were defined by excavating additional STPs at twenty five (25) foot intervals in a cruciform pattern around artifact-bearing STPs. The project area was also visually inspected by a pedestrian survey to identify artifacts and/or features associated with prehistoric and/or historic activities which were visible on the surface.

Surface conditions and vegetation were recorded for each section. Soil description and soil profiles were also recorded where subsurface testing was done. Locations of transects and individual STPs were recorded in field notes and on a topographic map using measurements from prominent landmarks and project area boundaries.

Historic artifacts were recovered from three loci. Recent historic artifacts, i.e., post 1960, were found in two (2) loci. In each loci, artifacts are interpreted as being associated with previously recorded and no longer extant structures. Prehistoric artifacts, representing two (2) sites interpreted as ephemeral lithic scatters, were also recorded. No significant prehistoric or historic archeological resources were identified. Each site is described below.

The Square Nail Site is a historic site located on a low terrace above the confluence of Crooked Run and the West Fork River, at an elevation of approximately 1,120 feet. Findings consist of a square, cut nail and two (2) unidentified types of nail fragments. This site, interpreted as a secondary deposit of structural elements associated with a no longer extant structure, is about 75 feet north to south and 125 feet east to west. Artifacts were recovered from three (3) STPs which exhibit a disturbed soil profile suggesting a

significantly disturbed context. The Blue Plate Site is a historic site located on a low terrace north of Crooked Run at an elevation of approximately 1,090 feet. Findings here consist of glass vessel fragments and ceramic shards recovered from a single STP. This site, interpreted as a secondary deposit of domestic refuse associated with a no longer extant structure, is about 50 feet north to south, and 50 feet east to west. Artifacts were recovered from a soil profile interpreted as representing disturbance associated with demolition of the structure which once stood in the vicinity of this site. The Deer Stomp Site is a historic site located on a wide hillside bench south of Crooked Run at an elevation of 1,140 feet. The site consists of a single ceramic shard recovered from one (1) STP. This site, interpreted as a secondary deposit of domestic refuse associated with a no longer extant structure, measures about 50 feet by 50 feet. The artifact was recovered from an STP which exhibits a disturbed soil profile suggesting a disturbed context.

The three (3) historic archeological sites identified here are interpreted as representing secondary deposits associated with structures previously recorded and no longer extant. Artifacts were recovered from disturbed contexts suggesting the archaeological contexts from which the artifacts were recovered are not intact. Disturbance may have occurred during demolition of the structures circa 1987.

Two (2) prehistoric sites were also identified during this survey. The Double Yew #1 Site is a prehistoric site located on a hilltop overlooking the West Fork River at an elevation of about 1,120 feet. The Double Yew #2 Site is located approximately 100 feet southwest. Findings at each site consist of two (2) pieces of chert debitage, and are interpreted as ephemeral lithic scatter. Both sites measure about 75 feet x 75 feet. Artifacts were recovered from two (2) STPs at each of the Double Yew Sites, which exhibit a disturbed soil profile suggesting old plow zones.

This survey identified one (1) archeological resource within the Zone 5 project area and one (1) archaeological resource adjacent to Zone 8. Both of these resources have been determined by WVSHPO to be not eligible for inclusion the NRHP. Due to a change in the scope of the project, the Phase I archaeological survey does not cover all of the areas for development in the 2014 10-Year Development Plan.

2. Cultural Resource Consultations and Cultural Resources Identified During Site Investigations:

WVSHPO has reviewed the proposed project for potential impact to cultural resources (FR#: 15-101-LE). WVSHPO has determined that there are no architectural properties eligible for inclusion in the NRHP that will be affected by this project. In addition to the two (2) resources identified in the previous Phase I, WVSHPO has records indicating a prehistoric camp site adjacent to Zone 1. Additionally, there are rock cairns of unknown temporal origin near the project area. WVSHPO has requested additional information regarding the proposed ground disturbing actives within the project area.

One (1) cemetery was identified during field investigations by Thrasher staff in between Zones 2 and 4. Three (3) additional cemeteries were identified via topographic mapping and aerial imagery; one (1) is located north of Zone 8, one (1) is located within or near the northern portion of Zone 4, and one (1) is located to the east of Zone 4 outside of the project areas. There are no proposed developments within the immediate vicinity of the identified cemeteries. Additional investigations regarding the cemetery may be required.

O. Native American Concerns

NEPA was enacted to promote efforts to prevent or eliminate damage to the vast resources of the US. While the purpose of NEPA is the productive and enjoyable harmony between man and his environment the processes developed by the Council on Environmental Quality (CEQ) for implementing NEPA are designed to analyze and disclose specific effects of their actions on all aspects of the human environment. This entails addressing the requirements of Federal and State laws, regulations, and Presidential Executive Orders (EO) which include the Native American Graves Protection and Repatriation Act (NAGPRA), the American Indian Religious Freedom Act (AIRFA), and tribal coordination under the National Historic Preservation Act (NHPA) when preparing appropriate NEPA documentation for a project.

Many of these laws and regulations have some connection to Native Americans tribal rights. These include the rights to self-govern and to regulate trade and travel on Indian lands. Under the treaties, tribes ceded certain lands, but reserved other lands and retained perpetual rights to perform certain activities on certain ceded lands (Tallbear, 2003). This includes rights to access natural and other cultural resources; hunt, gather, fish, and engage in traditional activities. The Federal government must uphold these rights, and actions taken may not impede these rights.

Environmental impacts on Tribal members from pollution, public health, air pollution, transportation and other resource areas, on and off the reservation, are included in these definitions, and impacts on tribal members from these impacts must be assessed in NEPA documents.

Tribal coordination will be handled on behalf of Stonewall by USACE via government-to-government protocols.

P. Minority and Low-Income Populations

There are no minority or low-income populations within the project area; however, according to The American Community Survey 5-Year Estimates report, approximately 20.3% of Lewis County lives below the poverty line and approximately 2% of the population are considered minority.

Q. Air Quality

The Clean Air Act requires the Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (40 CFR part 50) for pollutants considered harmful to public health and the environment. The Clean Air Act identifies two types of national ambient air quality standards.

Primary standards provide public health protection, including protecting the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards provide public health welfare protection, including protection against decreased visibility and damage to animals, vegetation, and buildings.

The EPA has set National Ambient Air Quality Standards for six principal pollutants, which are called "criteria pollutants". These include: ozone, carbon monoxide (CO), nitrogen dioxide, particulate matter (PM), sulfur dioxide, and lead. Lewis County, West Virginia is in attainment with the National Ambient Air Quality Standards for all criteria pollutants. Attainment means that an area is meeting or is below a given safe standard set by the EPA for the particular criteria pollutant.

Additionally, the Environmental Justice (EJ) mapping and screening tool called EJScreen Report indicated that the five (5) mile circumference of the project area had an anticipated PM 2.5 of 9.61 micrograms per meter cubed ($\mu g/m^3$) and Ozone of 43.3 parts per billion (ppb) (**Appendix J**).

R. Transportation and Traffic

The West Virginia Department of Transportation (WVDOT) is responsible for the design, construction, and maintenance of the State of West Virginia's Highway System, as well as the portion of federal interstate highways within West Virginia's boundaries. Arterials, connectors, rural roads, and local roads are constructed and maintained by the county or city governments.

The major roadway that surrounds the project area that allows for entrance into the resort is US Route 19. This route is proceeded onto from exit 91 from Interstate 79 and is deemed in good condition (WVDOT). In regards to our project area, US Route 19 serves as a thru-traffic way from exit 91 from Interstate 79 to a reconnection of Interstate 79 at Flatwoods, WV. The entrance into the resort from US Route 19 is State Park Road. This entrance serves as the only major exit/entry point to the entire resort. This roadway continues throughout the entirety of the resort and provides the pathway to Resort Drive. Both of these roads are within the project area.

Before anyone enters the resort and continues travel on State Park Road, they are greeted at a Welcome Gate entrance where an Outdoor Services Attendant is present. This person serves as the point of contact for all outdoor services at Stonewall Resort and is responsible to maintain the proper flow of traffic entering the resort at the welcome gate. Outbound traffic is not dictated by the Outdoor Services Attendant. These resort roads that personnel and clientele travel are both two-lane roads allowing for the flow of traffic for one lane inbound and outbound.

S. Public Health and Safety

Within the project area, public safety is maintained through a combined effort of WVDNR Officers, hired security guards, local and state police officers, and security cameras within the resort. According to the carrying capacity study conducted by Stonewall, the resort is well below the threshold of visitation capacity. During large scale scheduled events, the resort requests additional help from local and state authorities as well as ramping up the amount of hired security officials to aid in keeping the visitors safe.

T. Noise

Sound is most commonly measured in decibels (dB) on the A-weighted scale, which is the scale most similar to the range of sound that the human ear can hear. The Day-Night Average Sound Level (DNL) is an average measure of sound. The DNL descriptor is accepted by federal agencies as a standard for estimating sound impacts and establishing guidelines for compatible land uses.

Noise, defined herein as an undesirable sound that interferes with normal activities or in some way reduces the quality of the environment, is federally regulated by the Noise Control Act of 1972 (NCA). Although the NCA gives the EPA authority to prepare guidelines for acceptable ambient noise levels, it only charges those federal agencies that operate noise-producing facilities or equipment to implement noise standards. EPA guidelines, and those many other federal agencies, state that outdoor sound levels in excess of 55 dB DNL are "normally unacceptable" for noise-sensitive land uses such as residences, schools, and hospitals.

Ambient noise levels are very low in the project area due to its rural character. The main source of noise in summer is boat traffic on the lake, and a vegetation zone along much of the shore helps to muffle much of this sound. Noise from vehicular traffic, including incoming clientele and golf carts, is very low and buffered by the local topography and vegetation. In addition, the coves at Crooked Run and Carrion Bay are narrow, shallow, and rimmed by inundated trees. These are primarily fishing areas, and are not subject to loud noise from fast moving boats. The speed of vehicular traffic, and thus noise, from the developed portion of the park is restricted; distance, natural vegetation, and topography all tend to insulate the project area from highway noise of US Route 19.

U. Aesthetics

Aesthetics pertain to the elements that make an environment visually pleasing. While the criteria to evaluate this perceived quality of the environment are subjective, contributing elements may include a distinct element or the comparison of multiple elements that compose a visual setting. Key aesthetic elements may include open space, scenery, historic features, vegetation, public artwork, and/or architecture. Adverse effects may occur through the removal, alteration, or addition of these important visual resources.

The aesthetic qualities of the project area rely little on scenic attractions; as there are no dominant features to which the larger landscape is subordinate. The distinctive and pleasing character of the area is a result of the combined effects of the natural environment described above, and compatible human alterations of that environment such as broad vistas, open meadows, and Stonewall Jackson Lake. Two (2) landscape composition types' best typify the visually pleasing character of the project area.

1. Enclosed Landscapes

Enclosed landscapes present the first visual impression to visitors as they travel to the project area from the Park entrance road. This landscape represents an expression of

somewhat limited, three-dimensional space, although the gently sloping character of the valley, and distant horizons formed by the lake and surrounding hills is not confining. The vegetation lines formed by the forest, meadows, wetlands, streams and lake are all irregular in shape, variable in color, and visually pleasing in their diversity. Irregular topography, rolling landforms, and level lakeside areas combine to give the viewer a variety of images.

2. Panoramic Landscapes:

Panoramas provide complementary aesthetic values. From the ridge tops above Crooked Run and the promontories along the lake, the boundaries of the viewer's vision are much more distant and unrestricted. Edges where dissimilar components converge, where sky meets mountain for example, are key to this landscape composition type, and provide the reference point to define the view.

V. Regulated Hazardous Wastes

Resource Conservation and Recovery Act (RCRA) establishes the regulatory standards for the generation, transportation, storage, treatment, and disposal of hazardous wastes. Hazardous waste is regulated under RCRA Subtitle C.

Hazardous material means any material that, because of its quantity, concentration, or physical and chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or environment.

A computerized search of federal and state environmental databases was compiled by Environmental Data Resources, Inc. (EDR) on October 20, 2014 (Inquiry No. 4109882.2s). EDR compiled the search of federal and state databases that included records of hazardous waste permits and activities, compliance histories and documented on-site contamination within the specified radius. Based upon a review of the EDR report, two (2) listing were identified with the confines of Stonewall Jackson State Park. The two (2) listings identified records of registered underground storage tanks (UST) that are regulated under Subtitle I of the RCRA and must be registered with the West Virginia Department of Environmental Protection (WVDEP).

According to the EDR report, three (3) 1,000 gallon USTs were removed from the Stonewall Jackson Lake State Park Maintenance Area in August 2001. Based upon the findings of the EDR report, a Freedom of Information Act (FOIA) request was placed with the WVDEP for the identified files. According to the UST Closure Report, Stonewall Jackson State Park Maintenance Facility was assigned closure number C-6599-2001 on September 21, 2001 and two (2) 1,000 gallon USTs and one (1) 550 gallon UST were removed from the ground. The USTs reportedly contained gasoline, diesel, and kerosene. No indications of leakage were observed and the analytical results from the UST closure activities had non-detectable concentrations of petroleum constituents. Based upon the information reviewed, these USTs are unlikely to have negatively impacted the project area.

The EDR report also identified a 12,000 gallon gasoline UST that is currently in use at the WVDNR Stonewall Jackson State Park. Based upon the most recent Compliance Monitoring Inspection (CMI) performed by the WVDEP dated September 18, 2015, no deficiencies were identified during the inspection of the UST system. The UST system on the WVDNR Stonewall Jackson State Park is regulated by the WVDEP UST Section in compliance with state rules and federal regulations. This UST system is unlikely to have adversely affected the environmental integrity of the project area at this time. The EDR report is presented as **Appendix D,** the WVDEP records are presented as **Appendix K**, and an Emergency Spill Plan is presented as **Appendix L**.

During this assessment, an interview was conducted with a representative of Stonewall Resort, the details of this interview are provided in **Appendix C**. Based on the interview response, Stonewall Resort maintains onsite supplies of unleaded gasoline and diesel fuel; fertilizers, fungicides, and pesticides; and various automotive fluids and pool related chemicals.

W. Socio-economic Profile/Environmental Justice

EO 12898, EJ in Minority Populations and Low-Income Populations, requires federal agencies, departments, and their contractors to consider any potentially disproportionate human health or environmental effects of their activities, policies, or programs on minority or low-income populations. EJ is the fair treatment and meaningful involvement of people of all races, cultures, or incomes, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

A low income or minority community exists when the percentage of people in a minority group, or living in poverty within the area under consideration is significantly greater than the region. The US Census Bureau defines six (6) minority groups on the basis of race: Black or African American, American Indian or Alaskan Native, Asian, Native Hawaiian or Other Pacific Islander, Other Single Race, and Two or More Races.

Lewis County is located in north central WV and is bordered by Harrison County to the north, Upshur County to the east, Webster County to the south, Braxton County to the south and southwest, Gilmer County to the west, and Doddridge County to the northwest. The county has two (2) municipalities; the City of Weston and the Town of Jane Lew. The county also contains many unincorporated communities including the community of Roanoke which is where Stonewall is located.

The population of Lewis County experienced fairly consistent growth from 1820 until 1950. Population numbers were their highest in the 1940 Census at 22,271 people. Since then, a trend of slow but steady population decline has continued with the 2010 Census listing 16,372 residents. The continued decline is expected with the county having a population of 15,104 in 2035 (Lewis County Planning Comission, 2013). In the 2010 Census, Lewis County had a median age of 43.4 year with over half of the county (54.1%) within the “prime working years” between ages 25 and 64. The population is slightly older than the state (41.3) and national (37.2)

averages but contains more people within the "prime working years" than both the state (54%) and national (53%) averages.

Of the 16,372 residents listed in the 2010 Census, approximately 2% were considered minority, with the majority being of African American heritage. The American Community Survey 5-Year Estimates report, dated 2009-2013, states that approximately 20.3% of the population of Lewis County is below the poverty level. The median household income during the same time frame was $36,199 with approximately 6.2% of the population unemployed. In terms of poverty, the percentages of minority populations living below the poverty level were the highest with approximately 69.7% of the African American population in that category. However, the majority of employed individuals are living above the poverty level with only 11.3% living below poverty level. Therefore, for those that are employed, the majority of their salaries are enough to maintain status above the poverty level.

The economic base of Lewis County is predominantly natural resources and mining consisting of 19% of the calculated economic base. The education and health care and trade, transportation, and utilities categories are the next highest percentages consisting of 12.4% and 18.3% of the economic base respectively (Lewis County Planning Comission, 2013). Leisure and hospitality, of which Stonewall would be considered, only makes up 9.9% of the economy of Lewis County with 0.3% of it consisting of arts, entertainment, and recreation. The Lewis County Commission currently seeks to improve and diversify the economy of the area by attracting new businesses and industries to aid in employment opportunities. However, the main focus of development is pinpointing development around existing municipalities (i.e., Weston and Jane Lew) and also developing in areas where there are existing available resources, infrastructure, and public services to better suit the goal of creating a neighborhood-based town structure which involves a focus on growth centers rather than unrestrained, low-density development (Lewis County Planning Comission, 2013). An additional focus of the Lewis County Planning Commission is community design which involves enhancing existing assets like natural, historic, cultural, and service attractions while preserving the rural characteristics of Lewis County. This falls directly in line with the proposed development within the 2014 10-Year Development Plan which includes upgrades and enhancements at the resort.

V. Probable Impacts of the Proposed Action

A. Land Use

1. Alternative I (No Action Alternative)

With **Alternative I**, land use within the surrounding areas would most likely remain in the same condition due to no development occurring. There would not be any additional housing units or recreational facilities constructed through phased construction such as tree felling and earth moving activities; therefore, no anticipated increase in resort visitation or local population would be anticipated. There would be no future stress to utility systems and no need for land usage to update the sewer system or other utilities to suffice the additional housing units. The larger urban areas of Weston and Flatwoods would remain more attractive

to local businesses as park visitation can fluctuate seasonally and customer demand would not be as high in the immediate area.

2. Alternative II – 2014 10-Year Development Plan (Preferred Alternative)

Some moderate land use changes may occur in portions of Zones 1, 6, and 8 in the form of transferring from undeveloped land to maintain recreational or destination residential areas; however, significant portions of Zone 6 alterations have already been approved with roads and infrastructure being developed. Stonewall plans to expand on its lodging units which will consist of some minor earth moving activities and tree removal. During the on-site investigations some of these changes had occurred with the installation of access roads and public utilities.

Development, according to **Alternative II**, would be expected to occur in phases being determinate upon available funds and customer demand. In regard to impacts to surrounding land usage, the most significant development would be the addition of lodging. In total, approximately 45 to 50 additional housing units are proposed which includes lake side cottages and golf villas.

Although the housing units would not be constructed all at once, the stress applied to the utility systems is one factor that could cause land usage to change in the future. The current sewage system may not be able to treat the additional amount of output from 45 to 50 new housing units and a new sewage treatment plant may be necessary. This could involve selecting a new location for the plant which could cause an existing undeveloped wooded area to be cleared as well as any additional utility rights-of-way required. Currently, a water line in conjunction with Lewis County and West Virginia American Water is out to bid that would supply the resort with public water. This will limit land use changes by preventing the need to use additional water from the lake. If the addition of these housing units is popular and succeeds, more housing units could be added in future plans beyond the 2014 10-Year Development Plan. Regardless, future development will not encroach upon the Stonewall Jackson WMA.

B. Floodplain

1. Alternative I (No Action Alternative)

No impact.

2. Alternative II – 2014 10-Year Development Plan (Preferred Alternative)

Alternative II, even with development, would not involve direct impacts to the 100-year floodplain of the West Fork River. Development within the project area would not involve placing fill material within Stonewall Jackson Lake, reducing the ability of the lake to contribute to flood control of the West Fork River. Any above-ground structure development would likely require flood-proofing devices such as crawl space flood vents in order to allow flood waters to expand and retreat effectively. There are also no proposed bridges or lake spanning structures avoiding impacts to the 100-year floodplain. However, only the local

Lewis County Floodplain Administrator can make a floodplain determination and a project review request will be submitted to the floodplain administrator when a final design is completed.

C. Wetlands

1. Alternative I (No Action Alternative)

There are no anticipated impacts to the nine (9) wetlands identified within the project area as a result of the no action alternative, **Alternative I.** This alternative entails no development outside of the five (5) approved cottages in Zone 6 and any other approved developments, avoiding impacts to wetlands.

2. Alternative II – 2014 10-Year Development Plan (Preferred Alternative)

There are a total of nine (9) wetlands identified within the project area that could potentially be impacted by construction of developments and facilities proposed in **Alternative II.** Please see **Figure 4** which shows the location of the identified wetlands.

Final design of the proposed developments and construction activities has not been developed; therefore, the amount of temporary or permanent impacts to wetlands cannot be calculated at this time. It is a priority of Stonewall to avoid impacts to wetlands by designing the developments outside of wetland areas, installing Best Management Practices (BMPs) at the limits of disturbance (LOD) of construction activities, and also the development of a wetland walking path in Zone 6, outside of the determined wetland boundaries, to further educate visitors on the importance of preserving wetland areas. Temporary impacts to wetlands from erosion, sedimentation and unintentional releases of hazardous materials used during construction will be avoided through the implementation of BMPs such as filter sock, silt fence, secondary containment, and temporary diversion ditches and interceptor trenches. Permanent BMP's such as post-construction storm water management facilities will be developed as the 2014 10-Year Development Plan progresses to the design and construction phases.

D. Fish and Wildlife Resources

1. Alternative I (No Action Alternative)

Because the resort is situated around a large body of open-water and is surrounded by large tracts of forest, a diverse array of animal species is present, please see **Tables 3-9**. The resort itself consists mainly of forested edge, maintained open meadow, and water-based habitats. With **Alternative I**, these habitats would remain intact, avoiding impacts to the species present. The animals would be exposed to existing levels of human contact, noise, and pollution.

2. Alternative II – 2014 10-Year Development Plan (Preferred Alternative)

Alternative II would involve the removal of some forested and meadow habitat, mainly in Zone 1, Zone 6, and Zone 8. **Table 10** compares the amount of specific habitats currently existing within the project area to the maximum potential amount of habitat loss that could occur as a result of actions proposed in **Alternative I** and **Alternative II.** Additionally, **Tables 3-5** and **7-8** compare the species that are known or expected to occur within Stonewall to the habitats they occupy.

The animals most vulnerable to the fragmentation of their habitat are amphibians. Amphibian populations exist as an interconnected series of populations within a large geographic area (D.M. Marsh, 2001). This connectivity is appears to play a key role in regional viability of amphibian populations (Cushman, 2006). Isolated populations are more likely to go extinct than populations that are slightly connected (Hanski, 1999); therefore, developments within Zone 6 and 8, where most fragmentation would occur, could have an impact on local amphibian populations. Amphibians typically occupy wetland and stream habitats (**Table 7**). Development within the project area is not anticipated to permanently impact or remove wetlands or streams, avoiding impacts to the amphibian species present.

Fragmentation generally does not affect total numbers or species richness in regard to reptiles; however, any specialist species could be affected by forested clearing within the project area, especially those who prefer core forested habitat (MacNally, 2001). Approximately 4,000 acres of forested area surround the resort and are protected under the authority of the WVDNR, preserving habitat for the specialist reptile species that prefer core forested habitat.

Construction within the project area will remove habitat for small mammals such as shrews, mice, and voles; however, small mammal populations tend to be inversely related to total forest area (Thomas E. Nupp, 1996). Medium-sized mammals, such as opossum, skunk, raccoons, and foxes, will likely not experience a population decrease as they have a larger home range and there is similar habitat nearby. Also larger animals such as white-tailed deer and black bears will not be directly impacted in negative way as they can thrive in mixed habitat areas and their home range is large enough to relocate, if necessary. However, species in areas with large habitat patches, such as those present in the areas adjacent to Stonewall, respond better to the initial stages of habitat fragmentation than species who reside in areas heavily fragmented (Andren, 1994). Birds also adjust quickly to modified habitats and many birds will use the developed land.

During construction, sedimentation and potential releases of hazardous materials used during construction could cause degradation to wetland stream and lake habitats, particularly affecting amphibians, reptiles, and fish. Temporary and permanent BMPs will be utilized to avoid sedimentation and significantly reduce the potential for unintentional releases that could affect the habitats of the local fish and wildlife. An increase of visitation as a result of the actions proposed in **Alternative II**, could potentially lead to increased amounts of littering which could affect animal species from ingestion or suffocation. Refuse bins will be strategically placed throughout the resort in order to encourage proper disposal of refuse.

After much of the development has been completed, noise and artificial light pollution could affect animal species. These types of pollution can cause irrational behavior in animals and could lead to death. Research on insects, turtles, birds, fish, reptiles, and other wildlife species indicate that light pollution can alter behaviors, foraging areas, and breeding cycles not just in urban centers but in rural areas, as well (Chepesiuk, 2009). Additionally, noisy habitats can interfere with detection of warning signals, elevate stress levels, and affect reproduction in birds. The proposed development will cause an increase in noise and artificial light from current levels; however, unlike an urban environment, the noise and light increases will be periodic and may not account for much of an overall increase on a large scale (Francis, Ortega, & Cruz, 2009).

E. Threatened and Endangered Species

1. Alternative I (No Action Alternative)

With **Alternative I**, impacts to threatened and endangered species would be avoided. No forested area would be felled and there would be no potential sedimentation or hazardous substance releases to the lake via construction activities. Land use in the surrounding area would generally remain the same which would not affect the over 4,000 acres of forested area within a 2-mile buffer of the project area, which according to the USFWS in their 2014 Technical Assistance Letter for the 2014 10-Year Development Plan (**Appendix B**), is considered potential Indiana Bat and NLEB summer foraging and roosting habitat. Boating and other water use activities would likely remain near current levels which would not result in increased stress or impact on freshwater mussel species including the two endangered species described in **Section IV (F)**. There would also not be an anticipated increase of discharge from the existing sewage treatment plant avoiding additional or new impacts to endangered mussel species that may be present in the West Fork River.

2. Alternative II – 2014 10-Year Development Plan (Preferred Alternative)

Alternative II could potentially have direct and/or indirect impacts on threatened species expected to occur within or near the project area. The proposed developments in accordance with actions proposed in **Alternative II** would require some tree clearing.

Tree felling can affect the bats in two ways; it can cause incidental take and it can remove potential roost and maternity trees potentially causing stress on the bats to find a new tree in which to roost the next year. A typical primary roost is located under exfoliating bark of a dead ash, elm, hickory, maple, oak, or poplar, although any tree that retains large, thick slabs of peeling bark is likely suitable. Average diameter of maternity roost trees is 45 cm (18 in) and average diameter of roosts used by adult males is 33 cm (13 in). Height of the tree (snag) is greater than 3 meters (10 feet), but height of the roosting tree is not as important as height relative to surrounding trees and the position of the snag relative to other trees, because relative height and position affect the amount of solar exposure. Primary roosts usually receive direct sunlight for more than half the day. Access to the roost site is unimpeded by vines or small branches. The tree is typically within canopy gaps in a forest, in a fence line, or

along a wooded edge. Primary roosts usually are not found in the middle of extensive open fields but often are within 15 meters (50 feet) of a forest edge. Primary roosts usually are in trees that are in early-to-mid stages of decay (Bossart, 2015). The area an Indiana bat chooses for its roosting site must retain snag creation if the bats are expected to remain there; thus, large timbering efforts (over 17 acres), can significantly reduce the pace of forest succession and available habitat for the Indiana bat, which can cause them to succumb to White Nose Disease NLEBs typically choose similar roosting areas as Indiana bats; however, they will also make extensive use out of trees with cavities and crevices, expanding the options for these bats (Carter & Feldhamer, 2005). Therefore, the USFWS only considers timbering within a NLEB maternity roost or hibernacula buffer area as adversely affecting the species. Legal timbering activities outside of these areas are considered exempt under the Final 4(d) Rule.

Approximately 27.7 acres are forested within the project area. The design and placement of the developments and facilities within the project area will attempt to avoid as much impact to forested areas as possible. It is anticipated that tree felling activities within the project area will not exceed 17 acres; however, as the project progresses to the design phase, further coordination with the USFWS will be required in order to determine the effects to threatened and endangered species.

With the proposed increase in facilities, mainly housing, proposed in **Alternative II**, additional light pollution could potentially impact endangered and/or threatened bat species. Artificial illumination near a bat roost tree can delay the emergence of the bats for foraging and could also cause the bats to miss the peak of nocturnal insect abundance. Bat roosts could also be abandoned due to artificial light near the roost access location (Editor, 2008). However, these housing units would potentially include between one (1) and two (2) outdoor lights that emit more directional than broad light and the lights could act as a saturated source of prey for the bats. If the light did affect any roost trees, the amount of potential roost and foraging habitat surrounding the project area, approximately 4,000 acres, could provide a replacement for any habitat affected.

F. Prime or Unique Farmland

1. Alternative I (No Action Alternative)

Alternative I, the no action alternative, would not involve construction and earth disturbance activities in areas within the project area that are known to contain soils that are identified as prime or other important farmlands. The previously approved developments in Zone 6 are located within MoB, Monongahela silt loam (3 to 8% slopes), and GuD, Gilpin-Upshur silt loams (15 to 25% slopes) soil units which are considered farmlands of statewide importance. The potential impacts to prime or unique farmlands can only be determined through coordination with the NRCS which is to be initiated by the responsible federal or state agency involved with the project as required under the Farmland Protection Policy Act (FPPA).

2. Alternative II – 2014 10-Year Development Plan (Preferred Alternative)

Alternative II would involve construction activities and earth disturbance activities within areas that contain soils that are considered farmlands of statewide importance, MoB, GuD, GuC, VaD, and VaC. The largest portion of farmlands of statewide importance is in Zone 6 which contains approximately 16.68 acres of GuD soils. The second largest portion of farmlands of statewide importance is approximately 16.64 acres of GuC soils within Zone 1, Zone 2, and Zone 8. A total of 82.92 acres within the project area contain soils that are considered farmlands of statewide importance and could potentially be disturbed during construction activities and development; however, these areas have been previously disturbed and are not likely to become farmland in the future. The potential impacts to prime or unique farmlands can only be determined through coordination with the NRCS which is to be initiated by the responsible federal or state agency involved with the project as required under the FPPA.

G. Recreation Areas

1. Alternative I (No Action Alternative)

Alternative I, the no action alternative, direct impacts to recreation areas outside of Stonewall areas such as the Stonewall Jackson WMA, Burnsville Lake WMA, and Stonecoal Lake WMA would most likely be avoided. These areas are mainly utilized for outdoor activities such as fishing, hunting, and hiking. Construction activities and developments would be limited to those in association with the five (5) cabins approved in Zone 6; therefore, those outdoor activities would most likely not be affected. **Figure 7** shows the location of these recreation areas in relation to Stonewall.

Current visitors within Stonewall would also not be directly impacted by **Alternative I**. The activities and developments already approved in Zone 6 are in an area of the resort that does not involve the main day-use activities at the resort such as fishing, golf, and camping and would not result in a disruption or enjoyment of those activities. However, the possibility of financial hardship at Stonewall from limited revenues generated from the existing facilities could leave the existing facilities in a state of disrepair resulting in maintenance and service staff layoffs. Areas of the resort could also be closed to the public for portions of the operating season in order to off-set budget shortfalls from limited revenues. These indirect effects of **Alternative I**, could significantly impact the enjoyment and utilization of existing recreation activities at Stonewall.

2. Alternative II – 2014 10-Year Development Plan (Preferred Alternative)

The actions proposed in **Alternative II,** could temporarily impact recreation activities within Stonewall and could result in indirect impacts to the neighboring recreation areas mentioned above.

Construction activities associated with the actions of **Alternative II,** would temporarily close portions of the park and also temporarily generate noise, traffic, and dust that could affect the

enjoyment of the resorts existing recreation areas; however, these activities would be conducted outside of the peak season of the resort as well as local hunting seasons when visitation amounts are low, avoiding significant impacts to recreation areas within the local recreation areas and the resort.

Alterative II involves the development of additional cottages and cabins as well as many day-use activities within the project area which are described in **Section II**. The additional lodging would allow for visitors who do not wish to camp, the opportunity to stay for an extended period of time to enjoy all of the recreation activities within the resort. The lodging could also benefit the neighboring recreation areas mentioned above which do not currently offer camping, giving those individuals and families the opportunity to stay for an extended period of time to enjoy those areas. Furthermore, the development of additional day-use activities and other facilities would benefit frequent visitors to Stonewall that would like additional activities to enjoy as well.

The development of **Alternative II** which meets the purpose and need of the 2014 10-Year Development Plan is to produce facilities that generate revenue and offset operating expenses that ensures Stonewall remains competitive in the local tourism market and the facilities within Stonewall will continue to be maintained, preserving a recreation area expected to have up to approximately 856,000 total visitors in 2030 (U.S. Army Corps of Engineers, 1982). The financial stability of Stonewall would also directly benefit the local recreation areas by not requiring significant amounts of funds appropriated to the WVDNR by the state to conduct improvements to state parks which totaled $5,000,000 in 2012 (George W. Hammond, 2012).

H. Wild and Scenic Rivers

1. Alternative I (No Action Alternative)

There are no Wild and Scenic Rivers, as designated by the Wild and Scenic Rivers Act of 1968, within Stonewall.

2. Alternative II – 2014 10-Year Development Plan (Preferred Alternative)

There are no Wild and Scenic Rivers, as designated by the Wild and Scenic Rivers Act of 1968, within project area as defined in **Alternative II**; therefore, no impacts to Wild and Scenic Rivers are anticipated.

I. Timber

1. Alternative I (No Action Alternative)

Alternative I would not result in any timbering activities.

2. Alternative II – 2014 10-Year Development Plan (Preferred Alternative)

Approximately 27.7 acres are currently forested within the project area (**Figure 5**). Although the final amount of tree felling required to complete the actions proposed in **Alternative II** is not known with certainty, it is estimated that the amount of tree felling would be less than 17 acres. **Alternative II** will attempt to incorporate the local flora, including existing timber stands, in the proposed developments as much as possible to maintain the aesthetic properties of the surrounding woodland as well as to minimize any erosion and sedimentation issues that could arise from significant amounts of deforestation and land cover conversion. The USACE will require compensation or mitigation for the felling of trees in the project area as the project progresses pursuant to lease requirements.

J. Physiography/Geology/Soil

1. Physiography:

1.1 Alternative I (No Action Alternative)

With **Alternative I**, due to the lack of development and construction activities, there is no assessed impact to the physiography of Stonewall Resort

1.2 Alternative II – 2014 10-Year Development Plan (Preferred Alternative)

With **Alternative II**, though development through construction activities will occur, no probable impacts are expected to hinder the physiography within the project area

2. Geology

2.1 Alternative I (No Action Alternative)

With **Alternative I**, there would be no impact to the geology of the project area as this alternative would involve no development within Stonewall Resort.

2.2 Alternative II – 2014 10-Year Development Plan (Preferred Alternative)

With **Alternative II**, though development will occur through phased construction activities, no probable impacts to the geology are expected in the project area.

3. Soils

3.1 Alternative I (No Action Alternative)

With **Alternative I**, impacts to soil would most likely be avoided. There would not be any soil disturbed throughout the project area due to the lack of earth moving activities. There would be no soil loss that would occur directly from construction activities. There would be a lesser potential for soil to build up in stream channels from direct impacts to the soils of the project area. Soil quality management should remain the same as there will be no anticipated increase in erosion or sedimentation. Also, there would be no anticipated increase in the

potential of hillside slippage due to the lack of development on the steeper slopes within Stonewall Resort.

3.2 Alternative II – 2014 10-Year Development Plan (Preferred Alternative)

With **Alternative II**, the direct impact is that the soils that span throughout the entire project area will be disturbed due to earth moving activities associated with development. There are no anticipated long term impacts to soils or topography, yet there will be short-term impacts to soils during these mentioned construction activities. There is potential for soil loss to occur directly from disturbance or indirectly via wind and water. Soil loss directly or indirectly has the potential for varying amount of impacts within the project area. This has the potential to cause soil density to increase and allow for compaction to occur lowering the holding capacity of water. There would also be potential for sediment build up in stream channels. BMPs will be developed and implemented, such as erosion and sedimentation control to ensure the goal of soil quality management. This will allow for the construction within the zones to protect against off-site damage and to allow for organic matter levels to stay consistent with levels before on-site action occurred.

Generally speaking, areas of steep slopes will be found in Zones 1 and 8 with the rest of the areas being relatively flat. For Zone 1, the soil is Gilpin-Upshur silt loams, a ridge top and side slope soil that are split based on percent slope. There are two (2) base percent slopes for Zone 1, GuC (8 to 15 percent slopes) and GwF3 (35-70 percent slopes). The GwF3 is already a severely eroded soil; however, GuC could be susceptible to large amounts of soil loss due to erosion. The Gilpin Upshur silt loams also are a low strength soil that allows for a high possibility of hillside slippage. Zone 8 is mainly comprised of the terrace soil of Vandalia silt loams, as well as consisting of the above mentioned Gilpin-Upshur Series. Due to the clayey texture of Vandalia silt loams, they are subject to flooding and severe erosion. Hillside slippage and water seeps are also a common feature. Due to phased construction activities within these zones, a result from surface disturbances associated with the developments specified within these zones could be an increase in the potential for land slips due to the higher percentage of slope within these two zones.

K. Vegetation

1. Alternative I (No Action Alternative)

Because of the lack of construction activities and development outlined in **Alternative I**, the vegetation of the project area would remain the same. Wooded areas remain intact and the existing amount of forest fragmentation would also remain the same. The local environment would remain a conglomerate of large wooded tracts and small communities.

2. Alternative II – 2014 10-Year Development Plan (Preferred Alternative)

A key goal of the proposed developments in **Alternative II** is to maintain the scenic and rural atmosphere of the resort. This will be achieved by placing the proposed facilities and attractions in areas that have already been developed within the resort and are currently

maintained. In areas where this is not possible, the natural landscape will be integrated as much as possible with the proposed developments, such as the passive park and lakeside cottages in Zone 6.

Direct impacts to vegetation would be limited to areas within the current confines of the resort and would result in the tree felling wooded areas and the loss of maintained lawns and meadows through construction of the proposed developments. Approximately 27.7 acres are currently forested within the project area. This is less than 2% of the total amount of forested acres within a two (2)-mile radius of the resort (**Figure 5**). It is not known with certainty the precise amount of felling that will be required; however, it is not likely to exceed 17 acres.

While the majority of tree felling will take place inside existing fragmented habitat, tree felling within Zone 6 will occur adjacent to a large tract of wooded area. The expansion of the forest edge would not be expected to deteriorate the overall health of the forest; however, it could impact shade tolerant species that might be present near the new forest edge. While these shade tolerant species disappear, invasive species could become predominant which may cause negative impacts to the local flora; however, the loss of these shade tolerant species could also mean beneficial sun tolerant species thrive, positively impacting the local environment. Cumulatively, the overall vegetation setting of the resort (e.g., forest, meadow, maintained lawn) will remain after the completion of proposed developments in **Alternative II** although the amounts of each may change.

L. Hydrology

1. Alternative I (No Action Alternative)

Fourteen (14) streams were identified and delineation within the project area. These streams would not be impacted or destroyed due to the implementation of **Alternative I** based on the lack of proposed developments and facilities except for the five (5) cottages in Zone 6.

Water quality in the resort and surrounding area would not be anticipated to change with **Alternative I.** Boating activity would likely remain the same limiting incidental impacts to the lake through leaking fluids or litter. Overall demand of potable water and sewage capacity would remain the same, avoiding additional impacts to the water quality and quantity in Stonewall Jackson Lake (West Fork River) and downstream areas. Additionally, there would be no proposed construction activities, preventing direct impacts to aquatic resources through grading activities, or indirect impacts such as sedimentation, unintended releases of petroleum products, and storm water distribution.

2. Alternative II – 2014 10-Year Development Plan (Preferred Alternative)

Alternative II could potentially have direct and/or indirect impacts on surface waters and water quality within or near the project area.

Overall the primary impacts that could occur to existing water quality conditions from **Alternative II** are through earth moving construction activities. Direct impacts to streams and surface water bodies will most likely be avoided by designing the developments and facilities to avoid those aquatic resources. The identified streams and surface water bodies and amounts of these aquatic resources are listed in **Table 11**. Indirect impacts would primarily occur as a result of earth disturbance and construction activities. These impacts could be in the form of sedimentation reaching water bodies during rain events or by releases of petroleum products (e.g., gasoline, diesel, or hydraulic fluids) from construction equipment, which could then impact both surface and groundwater. To prevent sedimentation and pollution, BMPs will be installed near water resources during construction activities and attempts to limit construction activities during poor weather conditions should be taken.

As the developments included in **Alternative II** are completed, post-construction storm water management measures and controls would be implemented. Areas that were previously undisturbed ground will no longer allow for permeation of precipitation and will create larger areas of storm water run-off. If large amounts of storm water breach future BMPs and transfer sediment or other substances to the lake, water quality could be affected. A specific example would be the Old Roanoke Farm in Zone 2. A plan to limit the discharge of storm water laden with animal excrement and fertilizers would need to be prepared. If such storm water reached the lake, it could cause harmful impacts such as algal blooms, fish kills, or human-related impacts from degradation of water quality. A vegetative buffer or other appropriate BMP would be used to filter the storm water discharging from the farm as well as non-structural BMP's such as reducing the amount of fertilizer used and effective clean-up of nutrient-rich waste materials.

As additional housing units are constructed, a higher demand will be placed on the existing sewage treatment plant. The plant may have to be upgraded at some point in the 10-Year Development Plan phasing to maintain the quality of water being discharged from the plant; however, these upgrades will be modular in nature, avoiding the need to construct a new plant. Demand of potable water would also likely increase; however, the increase in demand should not become an issue as the resort will be utilizing a public water source currently being installed, reducing the amount of water withdrawn from the lake. Water for irrigation of the golf course will continue to be withdrawn from the lake, but at a much lower rate than before the public water source was installed.

M. Cultural Resources

1. Alternative I (No Action Alternative)

With **Alternative I**, there would be no further development of the project area; therefore, destruction, damage or alteration of culturally significant objects is not anticipated within the project area.

2. Alternative II – 2014 10-Year Development Plan (Preferred Alternative)

Alternative II could potentially have direct and/or indirect impacts on cultural resources within or near the project area. Such potential impacts include the destruction, damage or alteration of culturally significant objects and the isolation of the objects that may alter its character and alter the resources qualifications for inclusion in the NRHP. Before potential impact to cultural resources can be quantified, ground disturbing actives must be defined and subsequent studies for impacts to cultural resources would be required. The initial Phase I archaeological survey (**Appendix H)** does not cover all of the areas for development in the 2014 10-Year Development Plan. It is intended that as phased developments occur a Programmatic Agreement (PA) would be developed with WVSHPO and USACE to conduct surveys if deemed to be necessary before any plans are put into construction. Implementation of the PA will ensure destruction, damage or alteration of any culturally significant objects will not occur within the project area. Below is a table which depicts the areas surveyed and not surveyed from the Big Blue Study.

Table 13: Areas Covered Under Big Blue Phase I Cultural Resources Study

2014 10-Year Development Plan Zone	Amount Covered under Big Blue Study	Big Blue Study Zone Designation*
1	None	Not Applicable (N/A)
2	None	N/A
3	None	N/A
4	None	N/A
5	All	A
6	Majority	L and K
7	Portions	B
8	All	D

*As shown in Figure 5 of the referenced Phase I study in **Appendix H**.

It is also important to mention that Zones 2 and 4 may have been previously surveyed by USACE during the initial park development and that a survey in Zone 3 would likely not be applicable, considering it is located within the lake.

N. Native American Concerns

1. Alternative I (No Action Alternative)

With **Alternative I**, there would be no anticipated impact to Native American tribal rights due to no additional development occurring throughout Stonewall.

2. Alternative II – 2014 10-Year Development Plan (Preferred Alternative)

With **Alternative II**, as previously stated in the above, Tribal coordination will be handled on behalf of Stonewall by USACE via government-to-government protocols.

O. Minority and Low-Income Populations

1. Alternative I (No Action Alternative)

For **Alternative I**, since there are no minority and low-income populations within the project area, there would be no observed impact. Due to the lack of precipitated development, the area surrounding Stonewall Resort and Lewis County should not anticipate potential job opportunities for the minority and low-income populations. Regardless of the lack job opportunities resulting from the lack precipitated development, there would be not any expected negative impacts on the low-income and minority populations.

2. Alternative II – 2014 10-Year Development Plan (Preferred Alternative)

For **Alternative II**, there would be no impact within the project area again due to the fact that there is no minority or low-income populations within the project area. From the EJ mapping and screening tool called EJScreen Report indicated that for the five (5) mile circumference of the project area, there are 2,101 residents. Out of those 2,101 residents, the minority population was approximately 1% and the low income population was approximately 42% (**Appendix J**). For Lewis County, of the 16,372 residents listed in the 2010 Census of Lewis County, approximately 2% were considered minority. From, the American Community Survey 5-Year Estimates report, which runs from 2009-2013, states that approximately 20.3% of the population of Lewis County, is below the poverty level. The median household income during the same time frame was $36,199 with approximately 6.2% of the population unemployed. With the proposed developments, there could be potential for job opportunities for low-income and minority populations throughout the surrounding areas. These jobs would be related to the temporary construction activities for the proposed developments, as well as any precipitated development that would occur outside the project area from increased visitation. If the outside area were to develop, new businesses could be potentially attracted to the area that would allow for more potential job opportunities. Therefore, the local economy could potentially benefit from the proposed developments associated with **Alternative II** by lowering demographic factors such as the percentage of low-income and unemployed individuals.

P. Air Quality

1. Alternative I (No Action Alternative)

With **Alternative I**, the main factors in air quality affecting the resort are local traffic, resort maintenance vehicles, golf carts, and any pollution transported to the area from natural resource exploration, power plants, or manufacturing facilities via wind patterns. Because of the distance from any large manufacturing facilities or power plants to the project area, it is unlikely these activities would affect the resort. Ground level ozone concentrations and PM (mainly from dust) would be the most likely pollutant to affect the area. Ground level ozone is created by chemical reactions between oxides of nitrogen (NOx) and volatile organic compounds (VOC) in the presence of sunlight (EPA, 2015).

Local traffic, golf carts, resort maintenance vehicles, and the marina fueling station all attribute to the reactants that combine to cause ground level ozone. According to the EPA's 2014 Annual Air Quality Statistics Report for WV, Gilmer County, the closest site to the project area, had the 4th highest daily max 8-hour average ozone concentration cited as 0.058 parts per million (ppm), well below the EPA Air Quality Standard of 0.075 ppm.

With no major improvements or upgrades to the resort proposed in this alternative, it is unlikely that any of the sources that contribute to the reactants that cause ground level ozone or PM would increase, avoiding adverse impacts to air quality.

2. Alternative II – 2014 10-Year Development Plan (Preferred Alternative)

Alternative II will involve construction activities with a wide variety of earth moving and other construction equipment, a source of NOx, VOCs and dust. The main source of NOx would be the exhaust from the construction equipment with the majority being of the diesel variety. VOC's could come from re-fueling areas, asphalt paving, or painting as the developments progress. Dust could be a factor during the initial grading stages of development. The amount of ground level ozone created is dependent upon the amount of reactants available. Sunlight and heat are also contributing factors as well as air patterns. Phasing of construction will limit the amount of ozone reactants released and constructing during cooler seasons (i.e., winter, spring, and fall) should limit the amount of ground level ozone created and keep levels below EPA standards. Creating speed limits for construction vehicles within vegetated areas, frequently wetting areas used by construction vehicles, prohibiting the burning of waste, and transporting earth materials in dump trucks covered with tarpaulin sheets will limit the amount of PM created, mainly dust.

As the new developments and facilities are created, visitation is expected to increase with an increase in resort traffic likely. Additionally, an increase of maintained lawns and ornamental vegetation would be expected resulting in increased demand and usage of lawn maintenance equipment which can contribute large amounts of reactants. This could create more ground level ozone reactants, especially during the high-use months. With the combination of heat, sunlight, and an increase in reactants during the hot summer months, higher levels of ground level ozone could concentrate within the resort area. However, the traffic flow and lawn maintenance activities would not be expected to be consistent and with the majority of the increase in visitation expected to be by overnight visitors, the traffic volume at any one time would not necessarily increase. Therefore, a large rise in ground level ozone levels due to increased amounts of visitation is not likely. Dust and PM would also not be expected to increase as the roads throughout the resort are paved. To mitigate increased emissions of reactants, idling rules could be created in parking areas and no motor traffic areas can be set up near hiking trails or day-use areas. Motor boats are also a contributor to the emission of reactants; however, with existing no-wake zones near the shore line and no significant increase in the amount of boat slips, there would not likely be an adverse effect on air quality.

Q. Transportation and Traffic

The roads that may receive foreseeable impacts from the development involved with this project and other alternatives are the roads within Stonewall (i.e., State Park Road and Resort Drive), as well as the adjacent US Route 19 and Interstate 79.

1. Alternative I (No Action Alternative)

With **Alternative I**, there would be no foreseeable impacts through increased traffic volumes or road deterioration on the proposed roads of impact mentioned above. There would be no temporary construction conditions that could cause potential harms to road safety or increased road deterioration due to the vast amounts of construction equipment using these roads. There would also be no anticipated increase in the amount of the visitation to the resort due to no development occurring within the resort by the no action alternative. This would therefore only provide minimal variance within the patterns of traffic flow.

2. Alternative II – 2014 10-Year Development Plan (Preferred Alternative)

With **Alternative II**, construction activities would temporarily alter traffic flow patterns for the project area as well as US Route 19. There would be an increased amount of traffic on these pathways due to the transportation of construction equipment to the project area. From continued usage of these roads for construction equipment travel, road deterioration would be expected based on the amount of usage these roads encounter. If it would become necessary to close a lane of traffic for construction, road traffic control measures would be employed to ensure that both traffic flow impacts are kept to a minimum and travelers and construction workers safety is ensured. West Virginia Division of Highways (WVDOH) guidelines for traffic control would be implemented and emergency access would be maintained.

Through the developments proposed in **Alternative II**, there could also potentially be a significant increase in the amount of visitation that occurs at the resort. Therefore, there is an expected potential increase in the amount of through traffic occurring on the roads involved with not only short term temporary construction conditions, but long term after development has been completed. However, it is anticipated that most of the people visiting the resort would be overnight guests and consistently higher traffic volumes is not expected. The roads that would see the largest volume of through traffic would be roads within the project area (i.e., State Park Road and Resort Drive) as well as Interstate 79 and US Route 19. Road deterioration would have to be monitored to assess the overall road condition based on the amount of usage these roads could potentially encounter. The Welcome Gate entrance would be able to regulate traffic flow into the resort and provide direction for people visiting; however, outbound traffic would not be delegated by an exit gate. If pedestrian/vehicular accidents become a foreseeable problem, traffic volume controls would have to be implemented to ensure the traffic flow impacts are kept to a minimum and travelers safety.

R. Public Health and Safety

Stonewall maintains public safety through a combined effort of WVDNR Officers, hired security guards, local and state police officers, and security cameras within the resort. According to the carrying capacity study conducted by Stonewall, the resort is well below the threshold of visitation capacity. During large scale scheduled events, the resort requests additional help from local and state authorities as well as increasing the amount of hired security officials to aid in ensuring visitors safety.

1. Alternative I (No Action Alternative)

Public safety would most likely not be affected by **Alternative I**. The amount of security that is currently available is adequate. With no increase in visitation expected, additional security measures outside of the currently utilized measures would not be necessary.

2. Alternative II – 2014 10-Year Development Plan (Preferred Alternative)

Development proposed with **Alternative II** could potentially involve a significant increase in visitation, promoting the potential need for more security. However, increases are not expected to be outside of the carrying capacity of the resort and the increase in visitation would occur on an annual basis and not at one time. Regardless, with increased visitation there could be a greater potential for acts of vandalism, theft, and other unlawful acts. The frequency of patrols around the resort could also be increased when visitation is at higher levels. Additional security cameras would be necessary to aid in patrolling the new developments; although many occur in areas already developed.

Large events at the resort during peak times of the year may become more frequent with the additional developments proposed in **Alternative II**. This could potentially cause an increased likelihood of illicit acts. Public emergency procedures will need to be reevaluated to account for these spikes in visitation. Additional security personnel may be necessary to maintain public safety. As each facility or attraction is built, fire safety will also need to be reevaluated. The possible addition of new fire hydrants will need to be evaluated as well as existing fire emergency procedures.

S. Noise

1. Alternative I (No Action Alternative)

Alternative I would likely result in little to no increase in ambient noise levels currently experienced by visitors of the resort. Visitors who come to the resort would be subjected to noise from boats, golf carts, and resort traffic in periodic intervals throughout the year. Natural quiet includes the absence of any mechanical noise and containing only the sounds of nature (TSG 1, 2012). The ambient noise levels of Stonewall are already outside the limits of natural quiet as users of Stonewall are currently subjected to watercraft and other recreational noise impacts.

2. Alternative II – 2014 10-Year Development Plan (Preferred Alternative)

Alternative II would involve some increase of noise levels associated with construction activity of the proposed developments consisting mainly of earth moving equipment. Visitors during construction periods could potentially be impacted. As mentioned above, people who seek quietness as a form of relaxation could be affected as well as fisherman, hunters, and any other recreational user.

Anthropogenic noise can cause stress, changes in foraging and reproductive success, and avoidance of noisy areas in birds (Ortega, 2012) and can cause birds to flush from their nests in response to noise, breaking eggs and exposing young to injury and predators (Bunnell, Dunbar, Koza, & Ryder, 1981). Mammals can also be affected in similar ways including milk release inhibition in mothers disturbed by noise (Harringoton & Veitch, 1992). The referenced studies reflect noise impact on levels associated with jet aircraft, but they show that noise can affect animal populations in significant ways.

Because of the nature of the work and the phasing of development, the construction noise would be temporary and periodic. Construction could also be conducted during off-season times (i.e., winter) and outside of popular hunting seasons to limit its impact on visitors and wildlife. Periodic increases in noise could resort from the activities proposed in Zone 2 including festivals and concerts but based on the temporary nature of these events, no significant impacts are anticipated. Resort traffic would also increase due to increased visitation; however, it would be periodic and noise travel would be limited due to the nature of the topography and vegetation of the area.

T. Aesthetics

Impacts to viewsheds and localized aesthetics were determined based on analysis of the existing quality of the landscape views and the scale of the proposed buildings to the existing visual environment. Visual effects can be caused by a change in aesthetic values or by obstruction of views. During review of potential impacts to aesthetics consideration must be given to the location, design, placement, materials, and workmanship of proposed development. Quantifying potential visual impacts can be assessed by evaluating whether the landscape is commonplace or rare, whether the landscape is of particular interest, is of statutory importance, or cultural interest.

1. Alternative I (No Action Alternative)

With **Alternative I**, there would be no expected impact to aesthetic resources as this alternative would involve no further development. There would be no land usage from construction activities that would cause visual impacts that may be temporary or potentially permanent. There would be no tree clearing activities that would eliminate the large tracts of wooded forest area that people find aesthetically pleasing. There would be no additional housing units that would impede open space or scenic views. The overall aesthetic makeup of Stonewall Resort should remain unchanged.

2. Alternative II – 2014 10-Year Development Plan (Preferred Alternative)

Alternative II would result in some visual impacts within the project area. Construction within the project area would result in some visual impacts, although most impacts associated with construction would be temporary. Temporary impacts associated with construction would include clearing and removal of existing vegetation, earthwork and grading, signage and stockpiling, and site equipment and machinery. These impacts would occur intermittently throughout construction. Construction would not occur at night; therefore, night lighting, other than security lighting, would not be required. Potential permanent visual impacts include the elimination of open space or a scenic view, introduction with a visual element that is incompatible, out of scale, or in great contrast to the surrounding area, intruding or blocking a scenic view or providing a visual element that would detract from a scenic view. Although the additions of housing units may limit open space or scenic view areas, these items proposed within **Alternative II** already occur within the resort to some degree, so the overall aesthetic makeup of the property would essentially remain the same. However, impacts to the aesthetic view will be reduced by limiting tree clearing, utilizing aspects of the original setting in the décor of the resort facilities, integrating natural resources into the design, and planting design.

Current land use in the surrounding areas is undeveloped and rural consisting mainly of large tracts of wooded areas with steep hill slopes. Interspersed between the wooded areas are groups of single family homes and some pasture fields. Some impacts to aesthetics would occur as land use within the proposed zones would change from undeveloped forested land to developed land and grass land. As impacts to the visual landscape are subjective and change person to person, this shift in land use patterns may be viewed as either adverse or favorable. Alterations of land use and changes in view sheds will be minimized by implementing BMPs such as utilizing native vegetation as a screen for buildings, maintaining existing contours, slopes, and natural drainage areas, planting native shrubs and trees as part of landscaping, and utilizing colors and building materials that are compatible with the natural landscape.

U. Regulated Hazardous Wastes

1. Alternative I (No Action Alternative)

Alternative I would not involve an anticipated increase in resort visitation, including boat traffic. The need for additional maintenance vehicles for the resort also would most likely not increase; therefore, eliminating the need for additional hazardous waste storage such as used oil, transmission fluid, old batteries, etc. Also, since no development would occur, there would also not be any increased threat of a release to the current gasoline UST system.

2. Alternative II – 2014 10-Year Development Plan (Preferred Alternative)

Alternative II could potentially involve a temporary and/or permanent increase in the amount of regulated hazardous wastes within the project and surrounding area. Construction of the proposed facilities in the project area would involve a temporary storage of hazardous

waste such as used hydraulic fluid or oil potentially increasing the risk of a release within the project area. Phasing of project construction would aid in reducing the risk from a release at any one time; however, there is an increased risk for releases from greater quantities of hazmat stored for future operations and maintenance. Proper storage containers, secondary containment, and proper siting of storage areas away from sensitive receptors such as streams, wetlands, Stonewall Jackson Lake, and open lawn and activity areas will all be utilized in order to reduce the probability of releases.

V. Socio-economic Profile/Environmental Justice

Potential impacts to socioeconomic resources can be quantified by analyzing potential changes in community demographics, the retail/service and housing markets, increase in need of public services, changes in employment and income levels, and changes in aesthetic quality of the community.

1. Alternative I (No Action Alternative)

With **Alternative I**, there would be no impact to socioeconomic resources as this alternative would involve no further development. The amount of employment at the resort would likely remain the same and there would be no anticipated impact to the local economy through precipitated development in the surrounding area. Due to no expected increase in visitation, there would be no anticipated increase in revenues for local businesses. There would also be no expected increase in development in the surrounding area outside of Stonewall Resort; therefore, concluding that there would be no expected increase in the population of the area. There would be no further stresses on the utilities of the area, thus not impacting rate changes for fees within the resort area or in the surrounding area. There is not any expected adverse human health or environmental effects to minority or low-income populations.

2. Alternative II – 2014 10-Year Development Plan (Preferred Alternative)

EO 12898 requires federal agencies, departments, and their contractors to consider any potentially disproportionate human health or environmental effects of their activities, policies, or programs on minority or low-income populations. EJ is the fair treatment and meaningful involvement of people of all races, cultures, or incomes, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

A low income or minority community exists when the percentage of people in a minority group, or living in poverty within the area under consideration is significantly greater than the region. The US Census Bureau defines six (6) minority groups on the basis of race: Black or African American, American Indian or Alaskan Native, Asian, Native Hawaiian or Other Pacific Islander, Other Single Race, and Two or More Races.

Beneficial impacts to the community and surrounding area include a better standard of living due to increased access to employment, business opportunities, training, and education, greater access to and from a community, and increased funding to improve the

social infrastructure and community maintenance programs. The proposed action is anticipated to have an overall net benefit to the health and well-being of the surrounding community. It will provide additional employment opportunities for both local and regional residents and assist in population sustainability

Alternative II consists of the construction of developments within the project area. Construction activities could potentially result in the addition of temporary jobs through the active construction companies. These workers would likely purchase goods, services, and accommodations within the area, especially if the company is from outside of the area. Construction of the facilities requires the purchase of raw materials which could likely be sourced through local businesses and industries, further enhancing the local economy. Other consulting firms and inspection services would also be needed during this time to oversee the construction activity which could also be sources through local businesses. However, these increases would be temporary and intermittent as development will occur in phases. Additionally, the construction would not be conducted outside of the confines of the resort, and with the resort being surrounded by steep wooded hill sides and the absence of residential areas nearby, local populations would most likely not be negatively affected.

As each development is completed, visitation is expected to increase. The increased visitation could result in higher revenues for local businesses through the purchase of goods, services, and accommodations. Also with the new developments, additional employment opportunities could be created that could benefit the unemployed populations that are in their prime working years but still live below the poverty level. Minority populations could also benefit as many are unemployed and through the resorts Equal Opportunity Employer guidelines could find careers and work their way out of poverty. Individuals requiring full time jobs may not be able to acquire the salaries necessary to provide for their families and if demand for the facilities drops, their jobs may be eliminated.

The increase in visitation to the resort could also lead to more businesses and industries moving to the local area to benefit from a larger customer base. This could lead to even more employment opportunities and benefits to the local economy. Utilities would need extended to these establishments and services such as high speed internet, sewage, and water, that otherwise would not be developed, could be offered to populations in the local area. Population numbers could increase within the area as a result of additional employment opportunities. This could mean aggressive acquisitions of property that could negatively affect minority or low-income populations. The rural character of the area that the local populations are used to could change to a more suburban character. This could be seen as a negative result of the developments at the resort. However, with an increase in population, new schools or other public services could be offered to the local area potentially improving current conditions.

Land value could rise significantly if the above scenarios are realized. This could likely cause taxes, utility bills, and other monthly purchases to increase such as groceries. The aforementioned results could significantly impact the minority and low-income populations which account for 20.3% of the population of Lewis County. Another potential issue that could be realized is the seasonal nature of the potential employment opportunities.

However, based upon the local topography, current land use, availability of utilities, and unpredictability of development, it is unlikely that large amounts of development and urbanization of the local area will occur.

Overall, since the proposed action will occur within USACE owned and operated Stonewall boundary, it is not expected to result in any adverse human health or environmental effects to minority or low-income populations. Additionally, the project will not result in the relocation of residences and businesses or disrupt established communities or planned developments and will equally benefit the community by providing a permanent facility for recreational and community activities. The project does not disproportionately impact minority or low-income populations. Therefore, no EJ issues exist.

VI. Cumulative Effects

USACE must consider the cumulative effects of the proposed project on the environment as stipulated in Act NEPA. Cumulative effects are "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or Non-Federal) or person undertakes such actions". Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR Part 1508.7, CEQ Regulations).

Geographical limits for the preferred alternative, no action alternative, and the other remaining alternatives must be established in order to frame the analysis. These limits can vary by the resources that are affected. The geographical extent would be broadened to consider effects beyond the preferred alternative and other alternatives. The geographical extent considered is Lewis County.

Resort visitation along with its influence on the local economy, is the most significant factor contributing to cumulative effects. A larger visitation base can attract businesses, factories, home developers, public service districts, and numerous other markets to expand to the areas surrounding Stonewall as well as Lewis County in general.

A. Alternative I – (No Action Alternative)

Alternative I, the no action alternative, would involve no further development at Stonewall Resort other than previously approved facilities such as water, sewer, and gas utility extensions, a cabin access road, and five (5) cabins in Zone 6. Visitation to the resort would most likely remain

at current levels or may even decrease. With the static amount of visitation, the attractiveness of adjacent or nearby land to businesses, home developers, public service districts, and local residents would remain low. This would most likely result in land use in the area surrounding the resort continuing to remain primarily undeveloped woodland. Surrounding municipal areas (e.g.; Weston) would remain more attractive to those businesses thus limiting any new developments in Lewis County to medium to high density developed areas. The large tracts of forested areas interspersed with open farmland, surface water bodies, and flat meadows in river valley areas would most likely remain intact. With a minimal change in vegetation and habitat types, fish and wildlife would not be affected by **Alternative I.**

With minimal to no changes in land use, aquatic resources in the area, including wetlands; streams; and lakes, would also not likely be affected and would remain in a similar condition to the present day. Water quality and quantity would most likely be maintained in the local watershed and surrounding areas because of the lack of effects to aquatic resources due to precipitated development as well as incremental increases or even possible decreases in potable water and sanitary sewer demand in areas surrounding the resort. The use and amount of regulated hazardous wastes, a critical factor to water quality, within the surrounding area would also not be affected by **Alternative I**. A lack of commercial or industrial development outside the resort due to similar visitation levels would entail a similar or reduced amount of hazardous wastes utilized or produced in the area. The potential for additional fueling stations being constructed adjacent to the resort or in the areas abutting Interstate 79 to support the anticipated average visitation amounts as a result of **Alterative I** would not be likely. Traffic volumes would also remain similar and reduce the potential for spills and unintentional releases of regulated hazardous substances in areas surrounding the resort.

The success and vitality of fish and wildlife species is based on the availability of suitable habitat, access to clean water, and minimal effects from air pollution, erosion and sedimentation, noise, and other anthropogenic effects. The lack of development in the area due mostly from the amount of visitation within Stonewall remaining at similar levels, would not increase the amount of pressure applied to fish and wildlife species from current human activities. The largest amount of habitat in the surrounding area is mixed-mesopyhytic forest. Approximately 76% of a two (2)-mile buffer (4,060 acres) surrounding the resort is forested, of which; a great number is comprised of large contiguous tracts. With these large forest tracts and other habitat types, the birds, mammals, game species, and other animals that live in these core forest, meadow, and wetland/stream habitats would not likely be impacted. Two (2) of the endangered species that could be present in Lewis County, the Indiana bat and NLEB, would also benefit from these large tracts of forest remaining intact as all forested areas in West Virginia are considered potential Indiana bat and NLEB habitat by the USFWS; however, the current level of effects from white-nose syndrome would most likely remain the same, further emphasizing the importance of habitat availability. The animal species in the areas within and surrounding the resort would not be pressured to find alternative suitable habitat, making those species more viable and limiting unintentional deaths resulting from road deaths and nuisance killings.

The socio-economic climate of the area surrounding Stonewall as well as Lewis County as a whole would not likely be effected by “No Action Alternative” (**Alternative I**). However, the

local economy would not benefit from an increased visitor base and potential local population increase as the result of additional attractions and lodging at Stonewall or the potential increase in job opportunities for those that are unemployed. Without the increase in visitation, the potential for commercial, residential, and industrial development in the areas surrounding the resort and Lewis County would be minimal. The majority of land use would not change from its current state of large tracts of forest, resulting in land values in the surrounding area similar to the present day. Demand on public resources and utilities such as potable water, electricity, sanitary sewer, public transportation, and public roadways would also not likely increase, avoiding an increase in fiscal, physical, and emotional pressure on the population of Lewis County. As of 2010, approximately 6.2% of the population of Lewis County was unemployed; however, individuals seeking employment could miss the opportunity for temporary construction jobs and permanent service jobs that development within the resort would create. According to "The State of Working West Virginia 2014" report by the West Virginia Center on Budget and Policy, coal mining related jobs, comprising 19% of the working community of Lewis County, are on a steady decline in the state. The combined losses of coal mining and other natural resources jobs and the lack of investment in non-natural resources extraction related sectors of the economy and their related job growth (**Alternative I**), more working age people and families could enter into poverty.

One (1) factor in attracting visitors to Stonewall is its aesthetic appeal and natural beauty intertwined with modern facilities and attractions. With **Alternative I**, the natural landscape within Stonewall and the surrounding areas would remain unchanged because development of residential, commercial, and industrial facilities as a result of increased visitation would not occur. The land use in the surrounding area would remain primarily forest and rural in character. The amount of noise would also not increase due to **Alternative I**. Development in the surrounding areas would be minimal avoiding noise from construction activities and the development and utilization of utility substations, residential developments, factories, and large commercial centers. Traffic volumes and traffic types (i.e.; light or heavy commercial) would also be limited to current levels resulting in similar amounts of noise. Amounts of air pollution would also not be affected as traffic volumes would likely remain static and the lack of new developments within area would also limit any further air quality impacts or issues.

An increase of visitation to Stonewall, precipitation of development within the surrounding areas and communities, traffic volume increases, and an increase in the local population can place a significant strain on public emergency services. With **Alternative I**, there would be no increase of visitation to Stonewall, no precipitation of development within the surrounding areas and communities, and no increase in the local population. Local police stations would not need to increase patrols or allocate additional officers or security personnel to large events at Stonewall, hospitals would not see an increase in emergency room visitation, and local volunteer emergency services would not require significant increases in funding or new equipment. Because of no anticipated increase in resort visitation and no precipitated development or population growth as a result of **Alterative I,** the no action alternative would not involve impacts to the public health and safety.

Because of no anticipated increase in resort visitation and no precipitated development or population growth as a result of **Alterative I,** the no action alternative, would not be expected to involve cumulative impacts to water quality, fish and animal species, noise, air quality, public health and safety, cultural resources, and aesthetics. However, the most probable cumulative effects due to the no action alternative mainly includes concerns that operating revenues would be insufficient to service existing and additional debts in addition to current operating and maintenance costs. As previously stated, **Alternative I** does not meet the purpose and need of Stonewall Resort, which is to develop facilities that will produce optimum revenues to offset operation and maintenance costs. The first effect would be the loss of jobs. With the high unemployment rate in Lewis County, citizens who lose their job at Stonewall would have difficulty finding other employment and could fall into poverty. Local businesses and services that benefit from tourists visiting Stonewall could lose customers which would lead to further job losses. The resort could fall into disrepair thus further affecting the aesthetic value of the area to populations that live within close vicinity to Stonewall and regularly visit the resort. Lewis County and the State of West Virginia could also be expected to lose revenue as Stonewall is a significant attraction to out of state visitors via tolls, fishing license fees, motor fuel taxes, and other fees associated with the goods and services visitors use.

B. Alternative II – 2014 10-Year Development Plan (Preferred Alternative)

Alternative II, the 2014 10-Year Development Plan, preferred alternative, would involve the construction and operation of new facilities as well as improvements to existing facilities within Stonewall. The 2014 10-Year Development Plan is described in detail in **Section III** and is depicted in **Appendix I**.

The developments and upgrades in the 2014 10-Year Development Plan were designed to produce optimum revenues to offset operation and maintenance cost by increasing the amount of visitation and investment. With the implementation of **Alternative II**, it is anticipated that visitation to the resort would increase in both frequency and quantity above the current amount of visitation; however, the visitation is expected to be below the resort carrying capacity of 11,100 visitors on an average weekend day as described in the 1982 MP.

With the potential increased visitation, the land in the general area surrounding the resort may become attractive to businesses, factories, and commercial and residential developers. The current land use in the general area surrounding the resort is mostly mixed mesophytic forest interspersed with crop land, hay fields, wetlands, and small communities. Large portions of the forested areas surrounding the resort are currently managed by the WVDNR as the Stonewall Jackson Lake WMA.

Businesses and factories could locate to areas adjacent to Stonewall to take advantage of the larger visitor and customer base. This may involve a land use change from mixed mesophytic forest to mid to high density development. As more businesses and factories move to this area, workers at these facilities may need to relocate to either nearby communities or within some of the forested areas surrounding the resort. A residential developer may purchase property in the

area to create a large residential development, further fragmenting the land use in the area. These developments could also potentially impact large areas of prime and unique farmland within the surrounding area. Public utilities such as water, gas, electric, and internet would then be required to purchase extended linear rights-of-way (ROW) throughout the general vicinity of Stonewall as well as Lewis County.

Stonewall Jackson WMA, Stonecoal Lake WMA, and Burnsville WMA are the three (3) main recreation areas near Stonewall in Lewis County and attribute to the local rural character that many residents find appealing to living in this area. Businesses, residents, factories, public utilities, and other facilities that locate to the area around Stonewall as a result of the increased visitation and popularity of the resort could encroach on the boundaries of these recreation areas. Noise, artificial light pollution, water quality degradation, habitat removal, and potential releases of hazardous substances could affect the quality of recreation activities in these areas. These areas are mainly utilized for hunting, fishing, hiking, boating and other outdoor activities that benefit from low noise and a healthy environment. An increased local population due to the precipitated developments could also affect the recreation areas by potentially raising utilization rates above the designed carrying capacity, affecting the existing local population, especially low-income populations, who are used to the availability of these low or no cost recreation areas. However, if the potential population increases result in more hunting/fishing license fees, user fees, and local taxes collected, the recreation areas could benefit from a larger allocation of funding to maintain or potentially improve those areas.

In addition to the rural character, cultural resources, especially historical architecture, is integral to the aesthetic appeal of the Stonewall area. The precipitated development within the areas surrounding Stonewall could encroach in the view-shed of historic architectural resources and could also impact unknown archeological sites that contain artifacts of historic or cultural significance. This could lead to a devalued experience by anyone that would like to enjoy or experience these areas. An increase in population could also lead to vandalism, especially if local emergency services cannot maintain their quality due to budget shortfalls and increased demand. However, the developments could also unearth cultural and historical materials that otherwise would not have been identified, which could lead to more opportunities for the local, state, and federal historic preservation offices to educate the local public about artifacts and historic events that occurred in the area.

As land use within the areas surrounding the resort is modified from the large tracts of forest, forest fragmentation would increase. Although fragmentation from the proposed activities within the resort would not be significant and not likely to adversely affect any animal species; any development that occurs within the surrounding area as a result of an increase in park visitation and development could result in adverse impacts to local fish and wildlife species. Potentially, new businesses, homes, and utilities could be built in the surrounding areas of the resort and have the ability to cause significant fragmentation to these core forested areas that would have been a buffer for impacts within the resort. Reduced species richness and populations could result from these impacts; however, the increase in fragmentation can also benefit game species such as white-tailed deer and turkey that thrive in edge habitat environments. An increase in game populations could benefit low-income populations as well as the general public who rely on wild

game to supplement their food supplies. The increase in game populations would also attract sportsman from other counties or states who would pay license fees that benefits conservation and other government services. These sportsmen would also spend money at local establishments helping those businesses and the jobs they provide thrive.

Wetland areas, a core habitat for amphibians, could be lost further reducing available habitat in the local area. As animals relocate to find preferred habitat, more road deaths could result from an increase in local traffic. The potential increased traffic volumes caused by the increased visitation could also affect the local water shed by the illegal disposal of litter. As traffic volume increases, it could be expected that increased amounts of litter would be disposed along the roadsides of US Route 19, Interstate 79, and the local roads in Lewis County. The removal of the litter could cause unexpected costs covered by the local or state government. The illegally disposed litter could be transported by wind, rain, or animals into the surrounding streams, wetlands, lakes, or ponds, potentially impacting the local water quality and/or fish and wildlife species.

Threatened and endangered species also could be affected by the precipitation of development and population growth that would accompany the increase in visitation and use of Stonewall. This development would reasonably involve tree clearing and construction activity that could potentially cause sedimentation and hazardous releases. Any tree clearing would reduce the amount of existing potential habitat for the listed bat species in **Section IV (F)** that would be necessary to offset any loss of habitat from tree clearing as a result of **Alternative II**. With businesses and people moving to the area, artificial light and anthropogenic noise would also increase. Artificial light near a bat roost tree can delay the emergence of the bats for foraging and could also cause the bats to miss the peak of nocturnal insect abundance. Bat roosts could also be abandoned due to artificial light near the roost access location (Editor, 2008). Anthropogenic noise can cause stress, changes in foraging and reproductive success, and avoidance of noisy areas in birds (Ortega, 2012) and can cause birds to flush from their nests in response to noise, breaking eggs and exposing young to injury and predators (Bunnell, Dunbar, Koza, & Ryder, 1981). Mammals, including the listed bat species, can also be affected in similar ways including milk release inhibition in mothers disturbed by noise (Harringoton & Veitch, 1992). The animal species that live in the area of Stonewall could be pressured to find more suitable habitat in response to the impacts listed above. Currently, there are over 4,000 acres of forest in a two (2)-mile buffer of Stonewall; however, with the potential development outside of Stonewall, additional stress would occur within these species due to a reduced forested buffer from potential impacts within the resort from activities proposed in **Alternative II.** Nevertheless; the potential forest fragmentation can create fly-ways used during feeding for the listed bat species, improving their fitness.

Sedimentation from future development construction activities and reduced vegetation cover outside of the resort could cause impacts to endangered mussel species and game fish species located in the local watershed, including upstream and downstream of Stonewall Jackson Lake. This potential sedimentation can also cause impacts to local wetlands and reduce their filtering capacities and function. Amphibians, birds, and invertebrates would be impacted from the

increased impacts and potential loss of wetland areas. Wetlands could also be filled to accommodate the large developments that could potentially occur.

The loss of wetland areas as a result of precipitated development would not only impact fish and wildlife resources but also water quality in the local watershed. Wetlands, specifically riparian wetlands that abut streams, can filter out potential pollutants such as nitrate-nitrogen, sediment, phosphorus, and pesticides from developed areas (Evans, Gilliam, & Lilly, 1996). These pollutants could occur as the result of erosion and sedimentation from construction activities, increased acreage of post construction storm water, large housing developments, increased amount of maintained lawns, large fruit or nut producers, factories, or various other activities.

With a potential increase of development in the surrounding areas and Lewis County, an increase in demand for potable water and sanitary sewer would be expected. An expansion of water service to areas adjacent to and surrounding the resort would increase the amount of water needed by the local public service districts. Sewer utility expansion could cause an increase in effluent discharge and a decrease in treatment efficiency. Older sewage treatment plants or water treatment plants would possibly require upgrades or additional units to be constructed. This could cause rate increases and additional land use changes for the new units. The expansion of these utilities could also benefit local water quality. Direct sewage flows from residences would be eliminated, benefiting the streams and wetlands in the area. Additionally, water demand on limited groundwater supplies would be reduced benefiting the local watershed. However, the expansion of these utility services could also impact local aquatic resources during construction and installation activities. The installation of the utility lines could involve temporary wetland and stream impacts; however, utility line substations could involve the filling of wetlands and streams, impacting those resources, in addition to, water quality, animal species, and people who utilize those aquatic resources. Along with an increased demand for water and sewer, electricity demand would also be expected to increase.

The expansion of these utilities to provide electricity to additional development within the area surrounding Stonewall would involve similar impacts to the sewer and water utility line installations; however, the potential impacts would be on a greater scale. An increase of electrical demand would cause an increase in the burning of fossil fuels at the local power generating facility which in turn would cause impacts to water quality, animal species, low-income and minority populations, noise, air quality, and land use from natural resource extraction. Air quality could be impacted from the increased amount of emissions from the power generating facility creating dust, green-house gases, PM, and ozone reactants. The increased fragmentation from potential development in the surrounding areas would reduce the amount of trees and other vegetation that can benefit air quality and counteract the increased amount of emissions from the local power generating facility and factories that locate to the area to produce goods visitors to Stonewall may purchase. Additional air quality degradation could result from increases in traffic volumes, small internal combustion engine use (e.g., lawn mowers, trimmers, leaf blowers), and construction activities.

Alternative II would result in minor and short-term construction-related contributions to PM and sulfur dioxide stemming from the operation of construction equipment and potentially an increase

in automobile emissions. These impacts would be similar to those that occur from existing urban sources such as automobiles, road work, and industry. BMPs that would likely be implemented before the project include, preparing the construction area before grading activities to minimize dust, mulching or covering earthen material to prevent wind-blown dust, and avoiding construction equipment idling when not performing neecessary tasks to minimize sulfur dioxide. With implementation of these BMPs, temporary construction-related impacts to air quality and a potential increase in automobile emissions would not be considered significant. Therefore, no long-term impacts to air quality would occur from implementation of the **Alternative II**.

The actions proposed in **Alternative II**, combined with the precipitated development in the surrounding areas caused by those actions could provide positive impacts to the local socio-economic setting. The precipitated development would involve sudden job growth due to construction activities, necessary construction materials and supplies, engineering consulting needs, and various other services required to build commercial, industrial, or residential developments that will support the growth in local population and customer base. Many of these jobs could be filled by local workers, lowering the 6.2% unemployment rate thus offsetting the decrease in natural resource extraction related jobs expected over time. A larger working class and additional businesses and factories in the area would generate greater tax revenues which would benefit the low-income and minority populations through long-term social and economic programs. An increase of population and development of residential and commercial establishments and expansion of public utilities within the surrounding area could also cause an increase in property value. A significant contributing factor to land value is the physical attributes of the land including quality of location, fertility and climate; convenience to shopping, schools and parks; availability of water, sewers, utilities and public transportation; absence of nuisance smells, smoke and noise; and patterns of land use, frontage, depth, topography, streets and lot sizes (Gwartney). With the potential development that could occur in the area, these physical attributes would be met. The increase in property value could provide a benefit to local rural, low-income, and minority populations where property values may not be as high as in neighboring cities and states.

A potential increase in population due to the precipitated developments in the areas surrounding Stonewall could strain available public services. Local schools could become overcrowded resulting in the need of upgrades, expansions, or the construction of new schools which could cause effects to land use, vegetation, fish and wildlife, noise, air pollution, minority and low-income populations, and water quality.

Additionally, public transportation routes may need to be added to accommodate the increased population and workers at these new business, attractions, and developments. This could be a benefit to low-income populations who need reliable transportation to work and activities in the area. However, if more routes are added but additional operators are not employed or the infrastructure is not upgraded, longer wait times could be encountered throughout the service area of the public transportation, affecting the population using these services.

County and state roads would experience higher traffic volumes if the potential developments occur within the local area. These roads may not be sufficient to handle heavy traffic volumes as

well as large construction equipment and/or delivery vehicles. The potentially inadequate local roads could suffer from degradation or disrepair from the potential volume of traffic. These roads may need upgraded to accommodate the extra traffic volumes which could in turn provide for a smoother, safer, more reliable roadway for the local residents creating additional jobs and boosting the local economy. The road upgrades could also affect land use, vegetation, fish and wildlife, noise, air pollution, minority and low-income populations, and water quality during construction; however, these impacts would be short-term and only during the duration of construction activities.

The deployment of local emergency services could also increase. Local volunteer fire departments, hospitals, and police departments could potentially require more employees, supplies, and/or additional facilities. Public service districts may also need to upgrade their sewage and water distribution systems and refuse disposal companies may need to offer more routes and possibly add new landfills. To provide for these public service upgrades and new facilities, local levies and additional monies may be necessary. This would impact the local residents, specifically low-income and minority populations. Additionally, the quality of these services could be affected by the over-use of existing resources. This could result in more deaths, injuries, or accidents due to extended response times and inadequate quantities of personnel and/or equipment. Another public emergency service that could be affected by an increase in population due to local precipitated developed would be local hospitals and clinics. A potential increase in population coupled with likely over extended public health and safety resources could cause longer waits in emergency rooms or potential delays in obtaining an appointment to see a physician.

The new facilities, attractions, and facility upgrades proposed in **Alternative II** are expected to increase visitation to the resort which is the intended purpose of the actions of the 2014 10-Year Development Plan. The 1982 MP projected a visitation total of 856,000 in 2020 with an average increase of approximately 50-100 additional visitors every 10 years. Due to the lack of prime developable and available land in the areas surrounding Stonewall, it would be expected that this gradual increase in visitation would not precipitate a large expanse of commercial, residential, or industrial development within the surrounding area and Lewis County; therefore, avoiding significant land use changes that could affect water quality, fish and animal species, low-income and minority populations, noise, air quality, public health and safety, cultural resources, aesthetics, and the local socio-economic profile.

Overall, the cumulative effects that could be expected would be increases in traffic from visitation and deliveries of goods to the resort, as well as potential increases in jobs at existing establishments that provide goods and services to the resort. The increases in traffic could result in increased traffic accident rates, minor increases in air, noise, and light pollution, animal road deaths, and emergency service responses; however, these effects may not ever come to realization due to the sporadic nature of the traffic increases. Deterioration of the roadways leading to the resort could be expected to occur but the types of vehicles that visitors to the resort would drive will most likely not significantly contribute to road deterioration outside of the normal rates of decline. An increase in service industry jobs that are related to new activities or facilities at the resort could be expected and could positively impact low-income and minority populations as

well as the local economy. The full development of **Alternative II** would provide for a more financially stable and sustainable Stonewall, fulfilling the purpose and need of the 2014 10-Year Development Plan. This would help increase tourism to the area which benefits the local economy by creating jobs and businesses in an area with a high unemployment rate. A financially strong Stonewall that attracts a large visitor base could also potentially prevent an undisturbed area from being developed for the same purpose, avoiding potentially significant direct, indirect, and cumulative impacts to water quality, fish and animal species, low-income and minority populations, noise, air quality, public health and safety, cultural resources, aesthetics, and the local socio-economic profile of Lewis County and possibly the state of West Virginia. **Alternative II** meets the purpose and need of the project while only potentially producing minor cumulative effects to the local population and environment.

Beneficial impacts to the community and surrounding area include a better standard of living due to increased access to employment, business opportunities, training, and education, greater access to and from the community, and increased funding to improve the social infrastructure and community maintenance programs. **Alternative II** is anticipated to have an overall net benefit to the health and well-being of the surrounding community. It will provide additional employment opportunities for both local and regional residents and assist in population sustainability. Projects similar to the proposed development at Stonewall typically result in long-term social and economic benefits and the potential adverse environmental effects are typically minor/short-term construction related. The minor impacts associated with these projects are typically outweighed by the overall long-term social and economic benefits of these projects.

The rise in visitation and in particular boat population could precipitate businesses and possibly industries that could take advantage. New gasoline service stations could locate near the resort resulting in the possibility of used oil and other motor fluids being stored at these facilities. An industry supporting the boating population of the resort such as a machining facility that makes and repairs boat parts could also locate in the area and result in the storage of hazardous wastes. However, both of these options are very unlikely due to the unpredictability of the development schedule and the increase in visitation in addition to the steep local topography, amount of usable land, and availability of utilities.

The table below summarizes the potential cumulative impacts of each alternative to the various environmental resources.

Table 14: Potential Cumulative Impacts

	Preferred Alternative	No Action Alternative
Land Use	*Present:* Minimal land use changes occur within the resort confines from forested areas to low density developed areas. *Future:* The increased visitation and growth of the resort is not expected to cause a precipitation in development in the surrounding areas; a small convenience station or bed and breakfast may arise near the Interstate 79, resulting in minimal land use changes.	*Present:* Land use would likely remain the same within the resort. *Future:* Land use in the local and surrounding areas not likely to change; no incentive for businesses, residential developers, or factories to relocate to local area; large tracts of forest remain.

Table 14: Potential Cumulative Impacts		
	Preferred Alternative	**No Action Alternative**
Vegetation	*Present:* Minimal vegetation impacts occur within resort; forested areas become low-density developed areas *Future:* The increased visitation and growth of the resort is not expected to cause a precipitation in development in the surrounding areas; avoiding large regional vegetation losses or modifications; large tracts of forest land surrounding the resort remains; other nearby parks unlikely to develop same facilities, preserving the vegetation types present.	*Present:* Vegetation would likely remain the same within the resort. *Future:* Lack of interest or feasibility of businesses, residences, or factories resulting from stagnant or reduced visitation to the resort as well as a lack of new job opportunities and local recreation spending leads to no anticipated vegetation type changes in local area; Immature forests surrounding the resort and in the local area potentially transition into mature forests.
Fish & Wildlife	*Present*: Fragmentation from the proposed activities within the resort would not be significant and not likely to adversely affect any animal species. Sedimentation and potential releases of petroleum products could cause degradation to wetland stream and lake habitats. *Future:* The increased visitation and growth of the resort could cause the amount of disposed litter and use of petroleum products to increase that could potentially impact fish and wildlife species. The increased visitation and growth of the resort is not expected to cause a precipitation in development in the surrounding areas; avoiding significant land use changes that could affect water quality, fish and animal species habitats.	*Present:* With no further development expected to occur within the resort, there is not any anticipated impacts to the fish and wildlife species within the project area. *Future:* There is not any anticipated development within the surrounding area, thus sedimentation and fragmentation from tree felling would not occur. Therefore, there are no expected impacts to occur to the fish and wildlife habitats within the surrounding area.
Threatened & Endangered Species	*Present*: Tree felling activities during development could cause the loss of roosting and maternity trees for threatened and endangered species. *Future:* Results of increased visitation and growth of the resort could result in additional light pollution that could potentially impact endangered and/or threatened bat species. Artificial light near a bat roost tree can delay the emergence of the bats for foraging and could also cause the bats to miss the peak of nocturnal insect abundance. The increased visitation and growth of the resort is not expected to cause a precipitation in development in the surrounding areas; avoiding tree felling activities that could cause the loss of roosting and maternity trees for threatened and endangered bat species; avoiding additional light pollution from housing and business development.	*Present*: With no further development expected to occur, no adverse impacts to threatened and endangered species are expected to occur. *Future*: Since there would be any anticipated development in the surrounding area, land use in the surrounding area would generally remain the same which would not affect the over 4,000 acres of forested area within a two (2)-mile buffer of the project area, thus not promoting any further impacts to threatened and endangered species.

Table 14: Potential Cumulative Impacts

	Preferred Alternative	No Action Alternative
Floodplains	*Present*: Development within the project area would not involve direct impacts to the 100-year flood plain of the West Fork River. *Future*: The increased visitation and growth of the resort is not projected to cause development within the neighboring areas of the resort, thus preventing any potential impacts to floodplains within or outside the project area.	*Present:* Since no development will occur, there would not be any direct impacts to the 100-year flood plain of the West Fork River. *Future:* Without the precipitation of development within the project area, there is not any expected development to occur outside the project area. Thus, there are not any anticipated impacts to the floodplains within or outside the project area.
Recreation	*Present*: Construction activities would temporarily close portions of the park and also temporarily generate noise, traffic, and dust that could affect the enjoyment of the resorts existing recreation areas. *Future:* With the increased visitation and growth of the resort, visitors now have the opportunity to stay for an extended period of time to enjoy all of the recreation activities within the resort. The development of recreational activities and other facilities would benefit those who frequently visit Stonewall, yet provide other activities to enjoy as well. The lodging could benefit existing areas mentioned above which do not currently offer camping, giving visitors the opportunities to stay for an extended period of time to enjoy those areas.	*Present:* With no further development occurring, current recreational facilities are expected to maintain current visitation rates. *Future:* Without the precipitation of new development, present visitation rates may reduce or become stagnant due to the lack of new attractions. Due to no precipitation of development in the surrounding area, no increase in visitation is expected to enhance current visitation rates. Continued usage of current recreational facilities could degrade current facilities and could cause more regular maintenance to occur.
Hydrology	*Present:* Streams and wetlands could be impacted indirectly by equipment operation and/or surface runoff and could experience altered hydrology. Streams and wetlands could experience degradation from contaminants from spills involving hazardous materials. Wetlands are anticipated to be preserved at all possibilities; however, the loss of wetland areas as a result of precipitated development would not only impact fish and wildlife resources but also water quality in the local watershed. *Future:* The increased visitation and growth of the resort is not expected to cause a precipitation in development of the surrounding areas; avoiding the degradation or loss of wetlands and streams.	*Present:* With no further development, the current water quality within the resort would be expected to be unchanged. There would be no direct or indirect impacts to the water quality through construction activities, hazardous wastes, surface runoff, or sedimentation. Future: No impacts to aquatic resources or water quality are expected in the resulting future due to no further development occurring.

Table 14: Potential Cumulative Impacts		
	Preferred Alternative	**No Action Alternative**
Geology & Soils	*Present*: There are no anticipated impacts to the geology of the area. Soils that span throughout the entire project area will be disturbed due to earth moving activities associated with development. There is the potential for soil loss to occur directly from disturbance or indirectly via wind and water. Sedimentation and erosion could be potential impacts associated with the development of these zones. *Future*: The increased visitation and growth of the resort is not expected to cause a precipitation in development in the surrounding areas; avoiding a loss of soil; avoiding the potential for increased erosion or sedimentation.	There are not any anticipated impacts to the geology of the area. *Present*: With no further development to occur, there would not be any anticipated soil loss, sedimentation or soil erosion to occur. *Future*: Soil loss and sedimentation are not expected to occur in the resulting future due to soils remaining undisturbed.
Wild & Scenic Rivers	No cumulative impacts to Wild & Scenic Rivers within the project area.	No cumulative impacts to Wild & Scenic Rivers within the project area.
Air Quality	*Present:* Construction activities with a wide variety of earth moving and other construction equipment, a source of NOx, VOCs and PM are also possible air pollutants in relation to construction activities and equipment. Emissions in relation to CO, VOC's and NOx are possible due to increased lawn maintenance and transportation/traffic entering the project area. *Future:* With increased visitation and growth of the resort, higher traffic volumes could result in more associated emissions (highly dependent on consistency and timing of traffic volumes).	Present: With no further development occurring, current air quality levels and standards should be unaffected. Future: With no increased development occurring outside the project area, current air quality levels are anticipated to remain unchanged.
Noise	*Present:* Increase of noise levels associated with construction activity of the proposed developments consisting mainly of earth moving equipment. Noise from temporary construction activities could cause irrational behavior in some animal species. *Future:* With the increase in visitation and growth of the resort, anthropogenic noise would be expected to increase. These associated increases have the potential to cause irrational behavior in some animal species. These anthropogenic noise increases also could impact visitors who find it sufficiently distracting.	Present: There would most likely not be an increase anthropogenic noise within the area. Future: Anthropogenic noise increase is not expected for the future since there is no precipitation of development expected in the surrounding area.

Table 14: Potential Cumulative Impacts		
	Preferred Alternative	**No Action Alternative**
Prime Farmland	*Present: S*oils that span throughout the entire project area will be disturbed due to earth moving activities associated with development. Yet, these areas have been previously disturbed and are not likely to become farmland in the future. NRCS coordination is necessary to assess potential impacts. *Future*: The increased visitation and growth of the resort is not expected to cause a precipitation of development in the surrounding areas; avoiding a loss of soil of statewide importance avoiding potential problems with sedimentation and erosion associated with developmental construction activities.	*Present*: With no further development to occur, there would not be any anticipated loss of soil considered of statewide importance, sedimentation or soil erosion to occur. *Future*: Loss of soil of statewide disturbance and sedimentation are not expected to occur in the resulting future due to soils remaining undisturbed.
Aesthetics	*Present:* Temporary visual impact due to construction. Potential permanent visual impacts include the elimination of open space or a scenic view, introduction with a visual element that is incompatible, out of scale, or in great contrast to the surrounding area, intruding or blocking a scenic view or providing a visual element that would detract from a scenic view. *Future:* The increased visitation and growth of the resort is not expected to cause a precipitation in development in the surrounding areas; avoiding the loss of open spaces or scenic views, or large tracts of forested areas that people may find aesthetically pleasing; Overall aesthetic makeup is projected to remain the same.	*Present:* Since no further development would occur, the overall aesthetic makeup of the area would remain unchanged. Open and scenic views would remain. Large tracts of forested area would also remain. *Future:* Overall aesthetic makeup within and outside the project area would be expected to remain unchanged.
Hazardous Materials	*Present:* Construction of the proposed facilities in the two zones of 2 and 6 would involve a temporary storage of hazardous waste such as used hydraulic fluid or oil potentially increasing the risk of a release within the project area. With the amount of increased facilities and maintained lawns, the need for additional storage of hazardous wastes, such as used oil, batteries, transmission fluid, etc. used in resort vehicles could likely occur, increasing the risk of a release. *Future:* The rise in visitation and in particular boat population could influence the boating industry and businesses to take advantage. New gasoline service stations could locate near the resort resulting in the possibility of used oil and other motor fluids being stored at these facilities.	*Present:* No cumulative impacts pertaining to hazardous materials. No forested area would be felled and there would not be any hazardous substance releases to the lake via construction activities. *Future:* A lack of commercial or industrial development outside of resort due to similar visitation levels would entail a similar or reduced amount of hazardous wastes utilized or produced in the area.

Table 14: Potential Cumulative Impacts		
	Preferred Alternative	**No Action Alternative**
Transportation and Traffic	*Present:* Traffic flow volumes within the resort could be temporarily impacted due to the travel of construction equipment. Traffic safety protocols may have to be implemented to maintain safety. *Future:* The increased visitation and growth of the resort is not expected to cause a precipitation in development in the surrounding areas. Yet, there are anticipated increases in traffic volume due to the increase in visitation. These traffic flow volumes may or may not be inconsistent. With the increased amounts in traffic volume highly likely, vehicular accidents along the US Route 19 corridor adjacent to Stonewall Resort could become more prevalent.	Present: Current traffic volumes would most likely not change. Future: Lack of interest or feasibility of businesses, residences, or factories resulting from stagnant or reduced visitation to the resort as well as a lack of new job opportunities and local recreation spending leads to no change in current traffic volumes. There would not be any expected increase in the potential for safety concerns for roads within the project area or the adjacent US Route 19 corridor.
Cultural Resources	*Present*: Potential impacts include the destruction, damage or alteration of culturally significant objects and the isolation of the objects that may alter its character and alter the resources qualifications for inclusion in the NRHP *Future*: The increased visitation and growth of the resort is not expected to cause a precipitation in development in the surrounding areas. Therefore, potential cultural resources will remain preserved.	*Present:* With no further development occurring, culturally significant objects are expected to remain intact in their current state with no expected damages to occur. *Future:* Since no development is expected to occur in the surrounding area, there is not any expected damage or alterations to culturally significant objects outside or within the project area.

VII. Compliance with Environmental Statutes

The table below summarizes the compliance with environmental statutes.

Table 15: Regulatory Compliance				
Applicable Statues	**Compliance Status**			
	In Compliance	**Partial Compliance**	**Non-Complaint**	**Not Applicable**
Archeological and Historic Preservation Act		✓(1)		
Archeological Resources Protection Act		✓(1)		
Clean Water Act – Section 319	✓			
Clean Water Act – Section 401		✓(2)		
Clean Water Act – Section 402		✓(5)		
Clean Water Act – Section 404		✓(2)		
Comprehensive, Environmental Response, Compensation, and Liability Act (CERCLA)				✓
Endangered Species Act		✓(3)		
Farmland Protection Policy Act		✓(4)		
Fish and Wildlife Coordination Act	✓			
National Environmental Policy Act	✓			

Table 15: Regulatory Compliance

Applicable Statues	Compliance Status			
	In Compliance	**Partial Compliance**	**Non-Complaint**	**Not Applicable**
National Historic Preservation Act	✓			
Quiet Communities Act	✓			
RCRA	✓			
Toxic Substances Control Act (TSCA)				✓
Wild and Scenic Rivers Act	✓			
EO 11988: Floodplain Management	✓			
EO 11990: Protection of Wetlands		✓(2)		
EO 12898: EJ	✓			

NOTES: (1): A PA will be developed in coordination with the WVSHPO and the USACE prior to construction.
(2): Further coordination and permitting with USACE and WVDEP based upon final design and potential aquatic resource impacts.
(3): Further coordination with USFWS will be required prior to construction.
(4): Further coordination between USACE and NRCS will be required prior to construction.
(5): Further coordination and permitting with WVDEP based upon final LOD.

VIII. Public Coordination

Federal and state agency correspondence letters are included in **Appendix B**.

Preparation of this EA was coordinated with the following federal and state agencies:

1. U.S. Department of Interior, Fish and Wildlife Service (USFWS) – awaiting comments on updated project review request

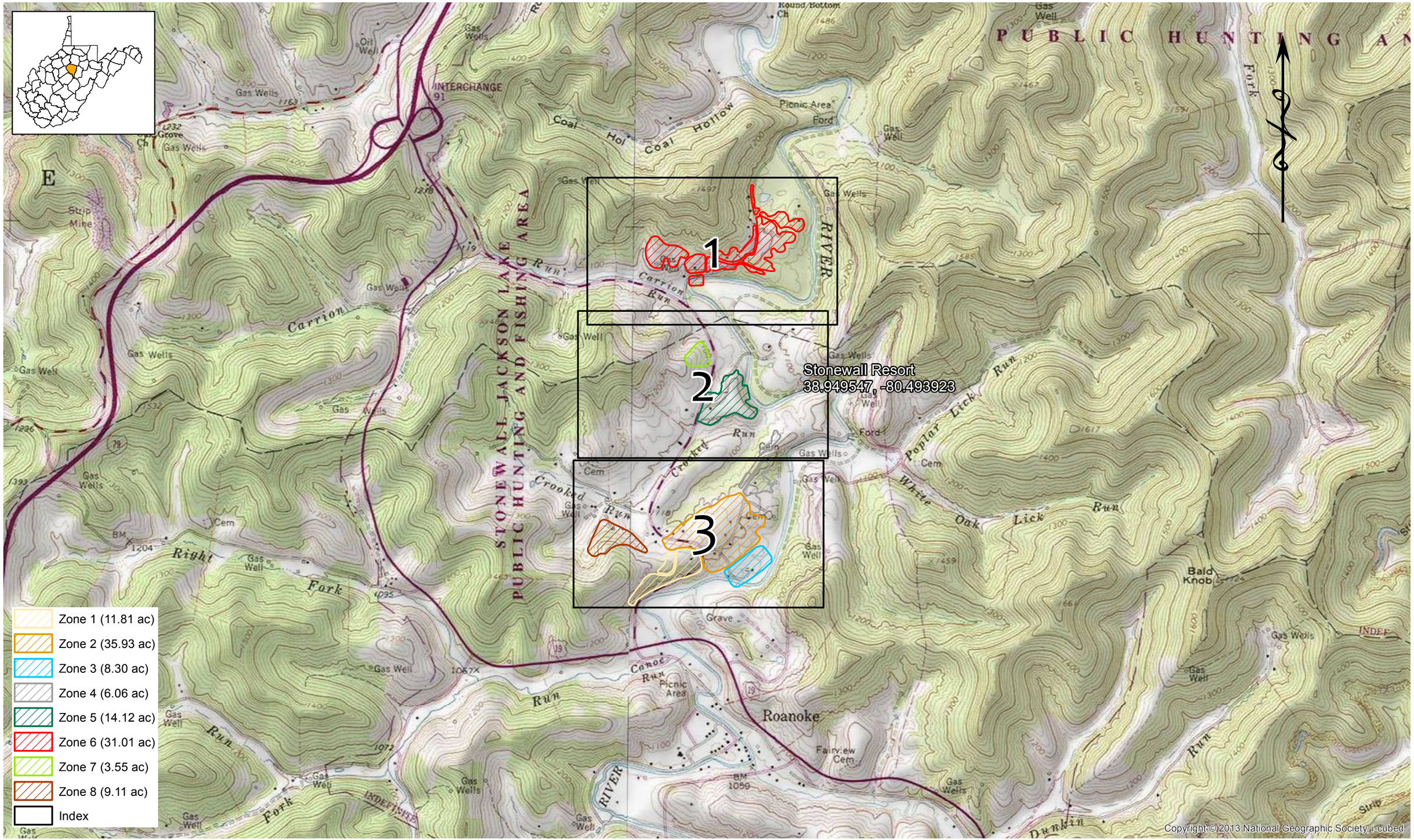
2. West Virginia State Historic Preservation Office (WVSHPO)

3. West Virginia Division of Natural Resources Wildlife Resources Section (WVDNR WRS)

A finalized version of the report will be made available at a public location within Lewis County allowing the public to comment on the document and proposed development.

The EA and draft FONSI will be available on the District website and distributed to stakeholders. See Distribution Mailing List, **Appendix M**. Refer to **Appendix G** for the resumes of the preparers and **Appendix N** for the Works Cited.

FIGURES



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No.	By	Date	Description

STONEWALL RESORT

Scale: 1 inch = 1,667 feet
Quads: Peterson, Roanoke

Drawn By: MWilliams Date: 6/20/2016
Surveyed By: JT/JW/MW Date:Sept. 2014
Field Book No.:

THRASHER

Phase No.
Contract No.
Project No. 101-070-0309

Figure 1: Site Location

Stonewall Resort 10-Year Development Plan
Lewis County - West Virginia

Sheet No.

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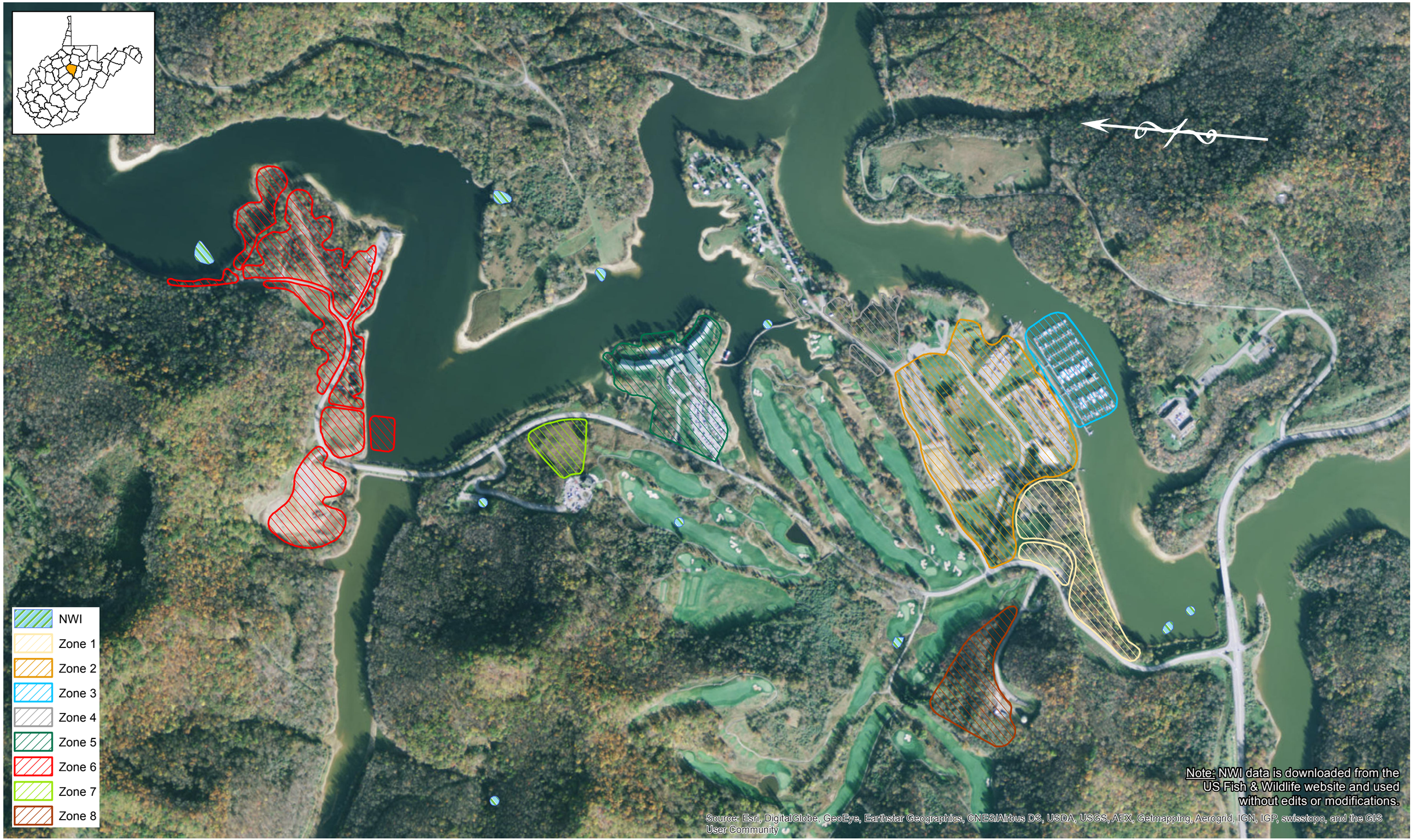

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No.	By	Date	Description

STONEWALL RESORT

Scale: 1 inch = 700 feet
Quads: Peterson, Roanoke

Drawn By: MWilliams Date: 6/20/2016
Surveyed By: JT/JW/MW Date:Sept. 2014
Field Book No.:

THRASHER

Phase No.
Contract No.
Project No. 101-070-0309

Figure 2: NWI Mapper

Stonewall Resort 10-Year Development Plan
Lewis County - West Virginia

Sheet No.

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Drawn By: MWilliams Date: 6/20/2016
Surveyed By: JT/JW/MW Date:Sept. 2014
Field Book No.:

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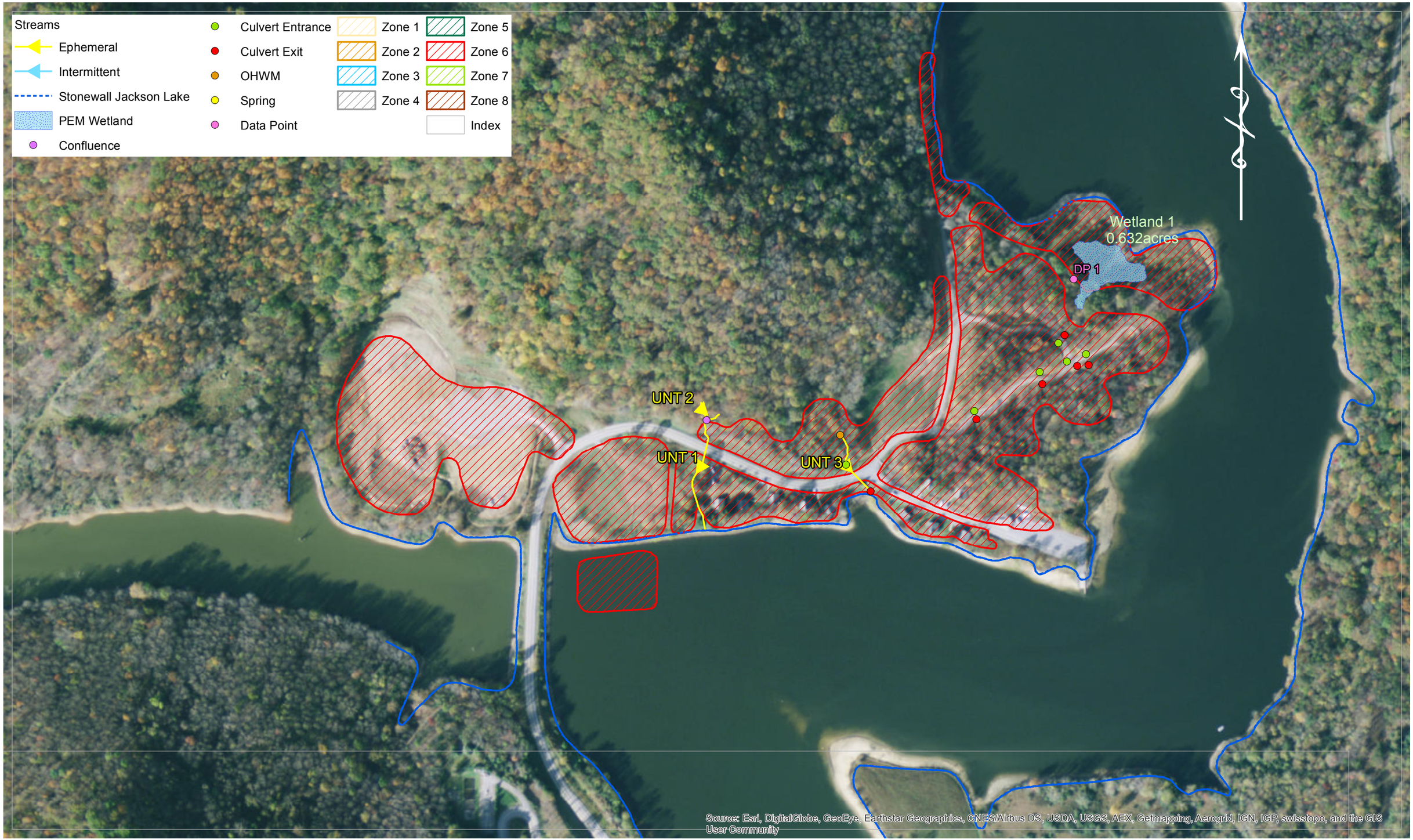
Phase No.
Contract No.
Project No.
101-070-0309

Figure 3: Soil Types

Stonewall Resort 10-Year Development Plan
Lewis County - West Virginia

Sheet No.



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STONEWALL RESORT

Scale: 1 inch = 300 feet
Quads: Peterson, Roanoke

Drawn By: MWilliams Date: 6/20/2016
Surveyed By: JT/JW/MW Date:Sept. 2014
Field Book No.:

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Phase No.
Contract No.
Project No.
101-070-0309

Figure 4: Delineation

Stonewall Resort 10-Year Development Plan
Lewis County - West Virginia

Sheet No.
1

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No.	By	Date	Description

STONEWALL RESORT

Scale: 1 inch = 300 feet
Quads: Peterson, Roanoke

Drawn By: MWilliams Date: 6/20/2016
Surveyed By: JT/JW/MW Date:Sept. 2014
Field Book No.:

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Phase No.
Contract No.
Project No. 101-070-0309

Figure 4: Delineation

Stonewall Resort 10-Year Development Plan
Lewis County - West Virginia

Sheet No. 2

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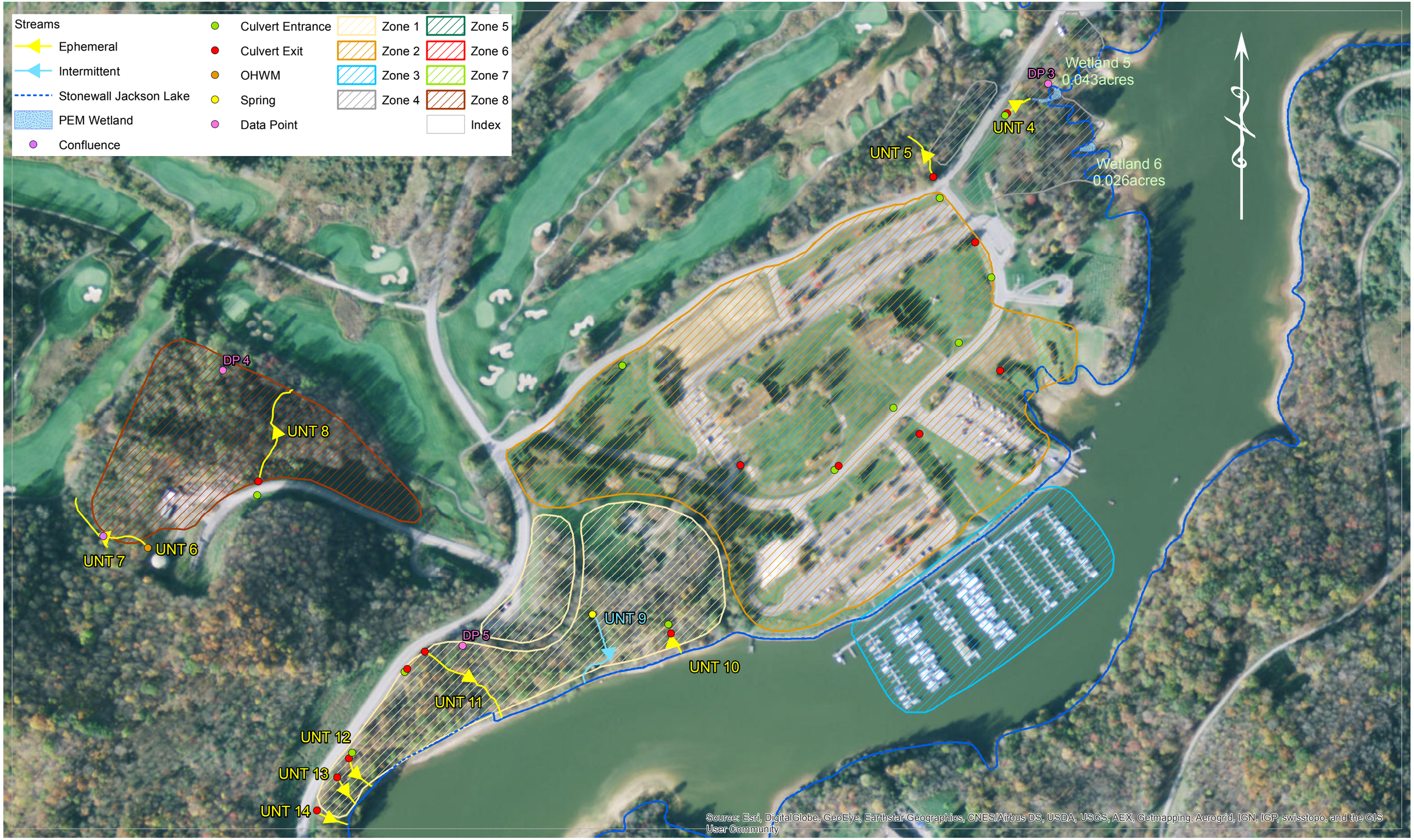

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STONEWALL RESORT

Scale: 1 inch = 300 feet
Quads: Peterson, Roanoke

Drawn By: MWilliams Date: 6/20/2016
Surveyed By: JT/JW/MW Date:Sept. 2014
Field Book No.:

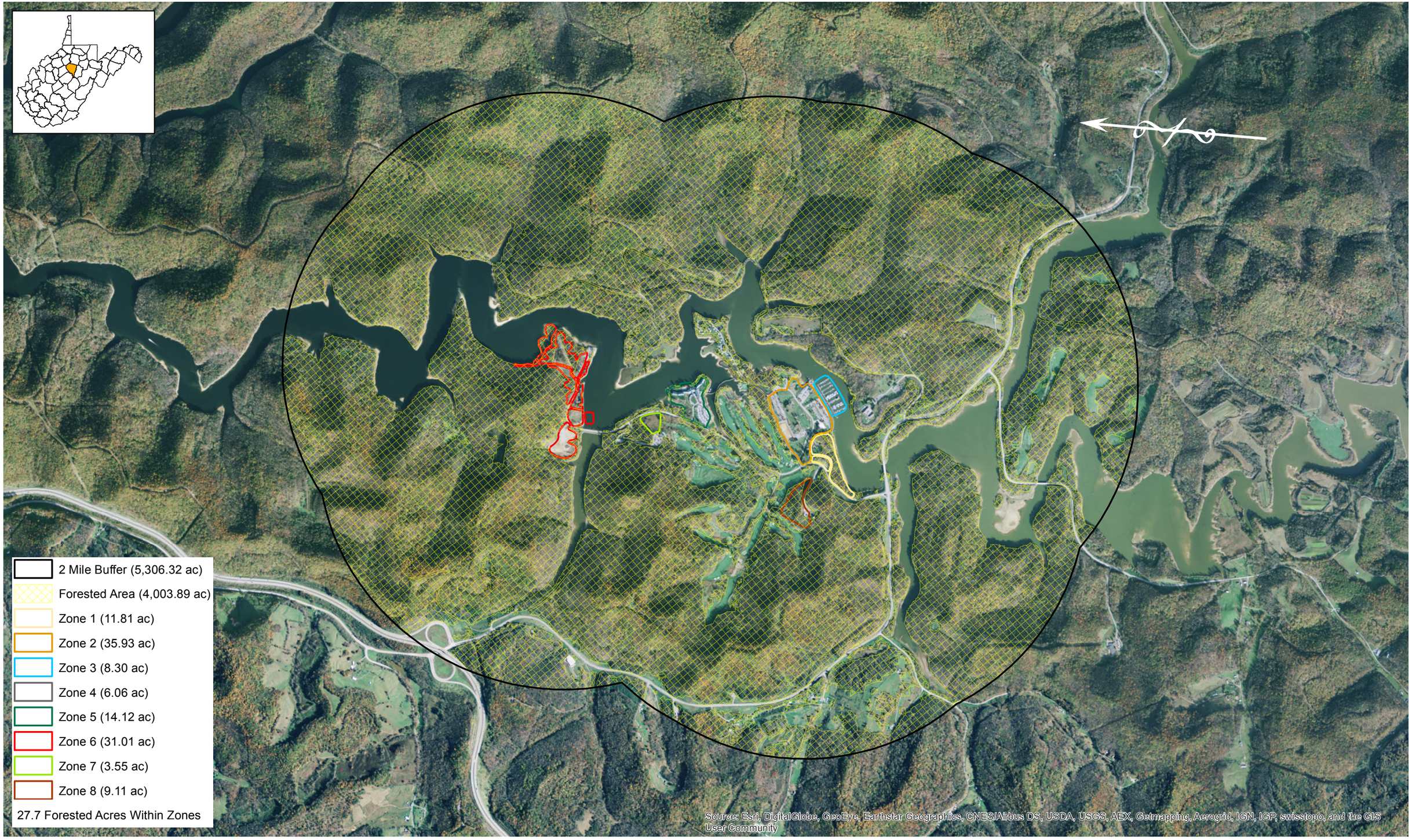
THRASHER

Phase No.
Contract No.
Project No. 101-070-0309

Figure 4: Delineation

Stonewall Resort 10-Year Development Plan
Lewis County - West Virginia

Sheet No. 3



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No.	By	Date	Description

STONEWALL RESORT

Scale: 1 inch = 2,000 feet
Quads: Peterson, Roanoke

Drawn By: MWilliams Date: 6/20/2016
Surveyed By: JT/JW/MW Date:Sept. 2014
Field Book No.:

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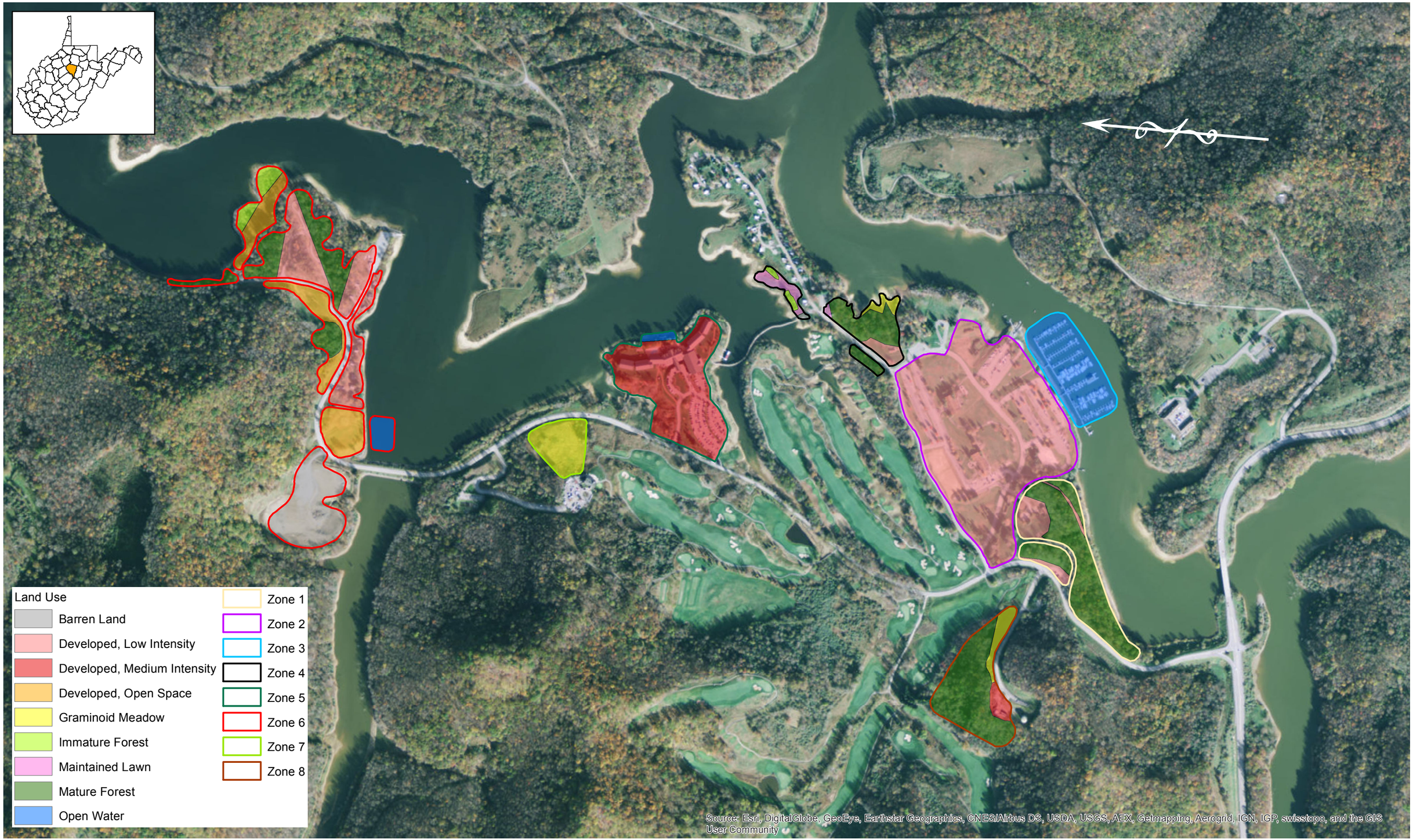
Phase No.
Contract No.
Project No. 101-070-0309

Figure 5: Forested Area

Stonewall Resort 10-Year Development Plan
Lewis County - West Virginia

Sheet No.



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STONEWALL RESORT

Scale: 1 inch = 700 feet
Quads: Peterson, Roanoke

Drawn By: MWilliams Date: 6/20/2016
Surveyed By: JT/JW/MW Date: Sept. 2014
Field Book No.:

THRASHER

Phase No.
Contract No.
Project No. 101-070-0309

Figure 6: NLCD 2011

Stonewall Resort 10-Year Development Plan
Lewis County - West Virginia

Sheet No.

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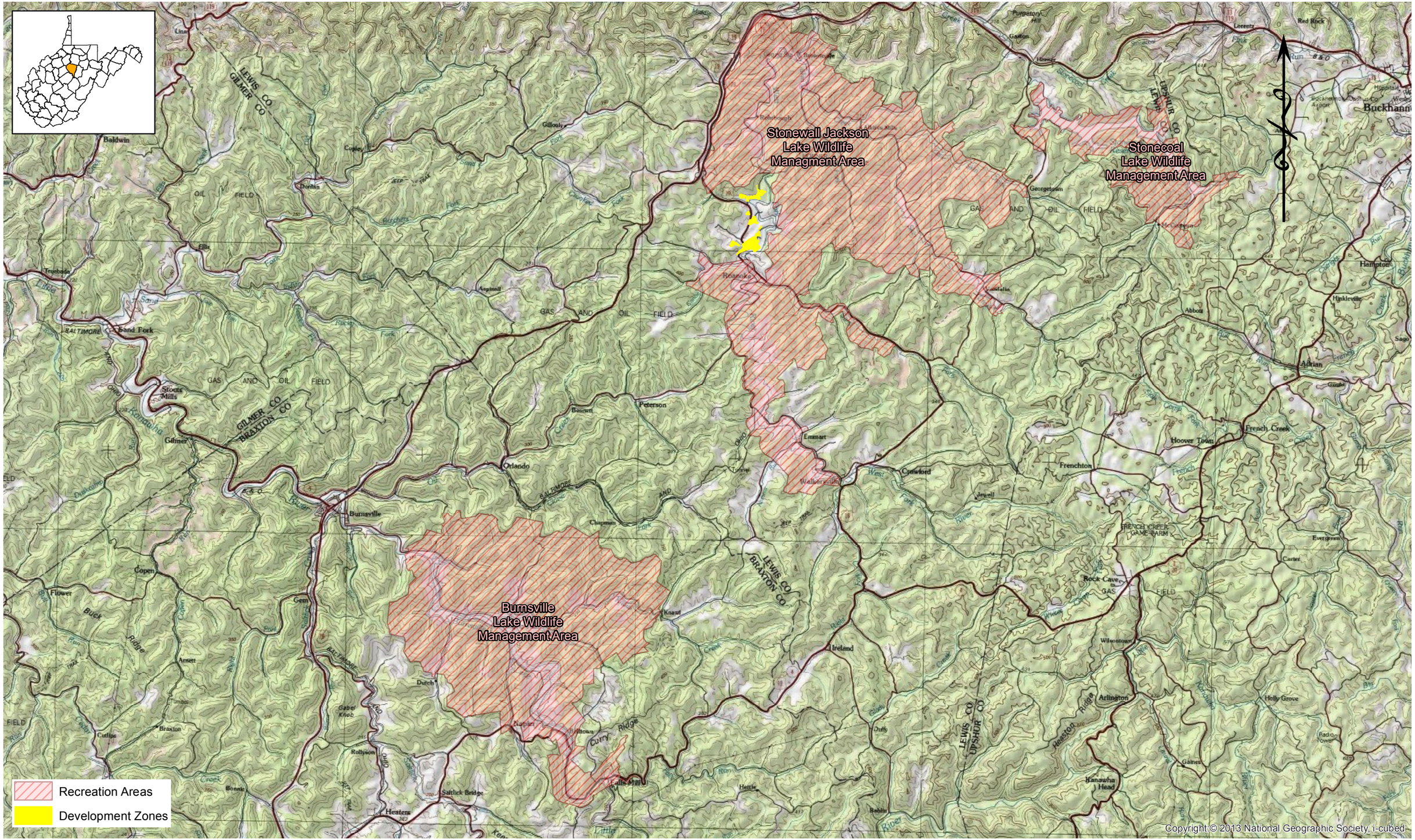

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STONEWALL RESORT

Scale: 1 inch = 10,000 feet
Quads: Peterson, Roanoke

Drawn By: MWilliams Date: 6/20/2016
Surveyed By: JT/JW/MW Date:Sept. 2014
Field Book No.:

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Phase No.
Contract No.
Project No.
101-070-0309

Figure 7: Recreation Areas Near Stonewall Resort

Stonewall Resort 10-Year Development Plan
Lewis County - West Virginia

Sheet No.

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TABLES

Table 1. Partial Checklist of Common or Occasional Vascular Plant Species Known or Expected to Occur at Stonewall By Cover Type.

Table 1		
Graminoid Meadow		
meadow fescue	*Festuca elatior*	exotic
sweet vernal grass	*Anthoxanthum odoratum*	exotic
velvet grass	*Holcus lanatus*	exotic
orchard grass	*Dactylis glomerata*	exotic
broomsedge	*Andropogon virginicus*	native
Kentucky blue grass	*Poa pratensis*	exotic
yellow hop clover	*Trifolium agrarium*	exotic
red clover	*Trifolium pratense*	exotic
wild vetch	*Vicia caroliniana*	native
tall thistle	*Cirsium altissum*	native
white milkweed	*Asclepias variegata*	native
cinquefoil	*Potentilla simplex*	native
small flowered agrimony	*Agrimonia parvijlora*	native
small yellow wood sorrel	*Oxalis europaea*	native
path rush	*Juncus tenuis*	native
false nettle	*Boehmeria cylindrica*	native
golden ragwort	*Senecio aureus*	native
yarrow	*Achillea millefolium*	exotic
virginia creeper	*Parthenocissus quinquefolia*	native
curly dock	*Rumex crispus*	exotic
sheep sorrel	*Rumex acetosella*	exotic
ox -eye daisy	*Chrysanthemum leucanthemum*	exotic
horse nettle	*Solanum carolinense*	native
yellow ironweed	*Verbesina alternifolia*	native
spiderwort	*Tradescantia virginiana*	native
white oak	*Quercus alba*	native
black locust	*Robinia pseudoacacia*	native
red maple	*Acerrubrum*	native
butternut	*Juglans cinerea*	native
black walnut	*Juglans nigra*	native
apple	*Pyrus malus*	exotic
sycamore	*Platanus occidentalis*	native
white pine	*Pinus palustris*	native
Norway spruce	*Picea abies*	introduced
red spruce	*Picea rubens*	Native

Shrub/Scrub		
multiflora rose	*Rosa multiflora*	exotic
black locust	*Robinia pseudoacacia*	native
winged sumac	*Rhus copallina*	native
smooth sumac	*Rhus glabra*	native
black cherry	*Primus serotina*	native
white ash	*Fraxinus americana*	native
crabapple	*Pyrus coronaria*	native
autumn olive	*Elaeagnus umbellata*	exotic
scrub pine	*Pinus virginiana*	native
red maple	*Acer rubrum*	native
yellow poplar	*Liriodendron tulipifera*	native
muscle wood	*Carpinus caroliniana*	native
butternut	*Juglans cinerea*	native
Morrow's honeysuckle	*Lonicera morrowii*	exotic
Japanese honeysuckle	*Lonicera japonica*	exotic
greenbriar	*Smilax rotundifolia*	native
wild grape	*Vitis sp.*	native
common barberry	*Berberis vulgaris*	exotic
boneset	*Eupatoriumperfoliatum*	native
white snakeroot	*Eupatorium rugosum*	native
sweet vernal grass	*Anthoxanthum odoratum*	exotic
velvet grass	*Holcus lanatus*	exotic
orchard grass	*Dactylis glomerata*	exotic
broomsedge	*Andropogon virginicus*	native
yellow hop clover	*Trifolium agrarium*	exotic
Immature Hardwood Forest		
mocketnut hickory	*Carya tomentosa*	native
pignut hickory	*Carya glabra*	native
shagbark hickory	*Carya ovata*	native
black locust	*Robinia pseudoacacia*	native
red maple	*Acer rubrum*	native
yellow poplar	*Liriodendron tulipifera*	native
winged sumac	*Rhus copallina*	native
smooth sumac	*Rhus glabra*	native
black cherry	*Prunus serotina*	native
white ash	*Fraxinus americana*	native
dogwood	*Cornus florida*	native

muscle tree	*Carpinus caroliniana*	native
sassafras	*Sassafras albidum*	native
black gun	*Nyssa sylvatica*	native
crabapple	*Pyrus coronaria*	native
redbud	*Cercis canadensis*	native
greenbriar	*Smilax rotundifolia*	native
boxelder	*Acer negundo*	native
autumn olive	*Elaegnus umbellata*	exotic
multiflora rose	*Rosa multiflora*	exotic
American beech	*Fagus grandifolia*	native
sugar maple	*Acer saccharum*	native
slippery elm	*Ulmus rubra*	native
persimmon	*Diospyros virginiana*	native
posion ivy	*Rhus radicans*	native
ground ivy	*Glechoma hederacea*	exotic
Morrow's honeysuckle	*Lonicera morrowii*	exotic
Japanese honeysuckle	*Lonicera japonica*	exotic
solomon's seal	*Polygonatum biflorum*	native
false solomon's seal	*Smilacina racemosa*	native
Mature Hardwood Forest		
yellow poplar	*Liriodendron tulipifera*	native
black cherry	*Prunus serotina*	native
white ash	*Fraxinus americana*	native
scarlet oak	*Quercus coccinea*	native
American beech	*Fagus americana*	native
red oak	*Quercus rubra*	native
chestnut oak	*Quercus prinus*	native
red maple	*Acer rubrum*	native
black oak	*Quercus velutina*	native
sugar maple	*Acer saccharum*	native
dogwood	*Camus florida*	native
muscle tree	*Carpinus caroliniana*	native
spice bush	*Lindera benzoin*	native
witch hazel	*Hamamelis virginiana*	native
greenbriar	*Smilax rotundifolia*	native
Virginia creeper	*Parthenocissus quinquefolia*	native
poison ivy	*Rhus radicans*	native
white snakeroot	*Eupatorium rugosum*	native

yellow ragwort	*Senecio aureus*	native
rattlesnake plantain	*Hiercium venosum*	native
mayapple	*Podophyllum peltatum*	native
geranium	*Geranium maculatum*	native
spring beauty	*Claytonia virginica*	native
solomon' s seal	*Polygonatum biflorum*	native
false solomon' s seal	*Smilacina racemosa*	native
yellow wood sorrel	*Oxalis grandis*	native
hairy sweet cicely	*Osmorhiza claytoni*	native
plantain sedge	*Carex plantaginea*	native
Christmas fern	*Polystichum acrostichoides*	native
maidenhair fern	*Adiantum pedatum*	native
southern lady fern	*Athyrium felix-femina*	native
New York fern	*Thelypteris noveboracensis*	native
ebony spleenwort	*Asplenium platyneuron*	native
cinnamon fern	*Osmunda cinnamomea*	native
beech fern	*Phegopteris sp.*	native
wild comfrey	*Cynoglossum virginianum*	native

Table 2. Partial Checklist of Vascular Plant Species Observed in Wetlands at Stonewall [1].

Table 2		
Common Name	**Scientific Name**	**Wetland Indicator Status**
Beaked Spikerush	Eleocharis rostellata	OBL
Shallow Sedge	Carex lurida	OBL
Woolgrass	Scirpus cyperinus	FACW
Spearmint	Mentha spicata	FACW
Moneywort	Lysimachia nummularia	FACW
Arrowleaf tearthumb	Persicaria sagittata	OBL
Fox sedge	Carex vulpinoidea	OBL
Fowl mannagrass	Glyceria striata	OBL
Yellow Nutsedge	Cyperus esculentus	FACW
Lizard's tail	Saururus cernuus	FACW
Black willow	Salix nigra	OBL
Common rush	Juncus effusus	FACW
Broadleaf cattail	Typha latifolia	OBL
Narrowleaf cattail	Typha angustifolia	OBL

[1]Plants are designated facultative upland (FACU), facultative (FAC), facultative wet (FACW), or obligate wetland (OBL)

Table 3. Species of Birds Known to Occur or Expected to Occur in Stonewall Throughout the Year

Table 3		
Common Name	Species Name	*Preferred Habitat (Lake/Upland/Both)*
Herring gull	*Larus argentatus*	*Lake*
Ring-billed gull	*Larus delawarensis*	*Lake*
American coot	*Fulica americana*	*Lake*
Northern bobwhite	*Colinus virginianus*	*Upland*
Great blue heron	*Ardea herodias*	*Lake*
Green-backed heron	*Butorides virescens*	*Lake*
Canada goose	*Branta canadensis*	*Both*
Mallard	*Anas platyrhynchos*	*Lake*
Wood duck	*Aix sponsa*	*Lake*
Turkey vulture	*Cathartes aura*	*Upland*
Sharp-shinned hawk	*Accipiter striatus*	*Upland*
Cooper's hawk	*Accipiter cooperi*	*Upland*
Red-tailed hawk	*Buteo jamaicensis*	*Upland*
Red-shouldered hawk	*Buteo lineatus*	*Upland*
Broad-winged hawk	*Buteo platypterus*	*Upland*
American kestrel	*Falco sparverius*	*Upland*
Ruffed grouse	*Bonasa umbellus*	*Upland*
Wild turkey	*Meleagris gallopavo*	*Upland*
Virginia rail	*Rallus limicola*	*Lake*
Sora	*Porzana carolina*	*Lake*
Semipalmated plover	*Charadrius semipalmatus*	*Lake*
Killdeer	*Charadrius vociferus*	*Lake*
American woodcock	*Philohela minor*	*Upland*
Common snipe	*Capella gallinago*	*Both*
Spotted sandpiper	*Actitis macularia*	*Lake*
Greater yellowlegs	*Totanus_melanoleucus*	*Lake*
Lesser yellowlegs	*Totanus Flavipes*	*Lake*
Mourning dove	*Zenaida macroura*	*Upland*
Yellow-billed cuckoo	*Coccyzus americanus*	*Upland*
Black-billed cuckoo	*Coccyzus erythrophthalmus*	*Upland*
Screech owl	*Otus asio*	*Upland*
Great horned owl	*Bubo virginianus*	*Upland*
Northern Mockingbird	*Mimus polyglottos*	*Upland*

Table 3		
Common Name	Species Name	*Preferred Habitat (Lake/Upland/Both)*
Barred owl	*Strix varia*	*Upland*
Common nighthawk	*Chordeiles minor*	*Upland*
Chimney swift	*Chaetura pelagica*	*Both*
Ruby-throated hummingbird	*Archilochus colubris*	*Upland*
Belted kingfisher	*Megoceryle a/con*	*Both*
Northern flicker	*Colaptes auratus*	*Upland*
Pileated woodpecker	*Dryocopus pileatus*	*Upland*
Red-headed woodpecker	*Melanerpes erythrocephalus*	*Upland*
Red-bellied woodpecker	*Centurus carolinus*	*Upland*
Red-bellied sapsucker	*Melanerpes carolinus*	*Upland*
Yellow-bellied sapsucker	*Sphyapicus varius*	*Upland*
Loggerhead Shrike	*Lanius ludovicianus*	*Upland*
Hairy woodpecker	*Dendrocopos villosus*	*Upland*
Northern Cardinal	*Cardinalis cardinalis*	*Upland*
Downy woodpecker	*Dendrocopos pubescens*	*Upland*
Eastern kingbird	*Tyrannus tyrannus*	*Upland*
Eastern phoebe	*Sayornis phoebe*	*Upland*
Great crested flycatcher	*Myiarchus crinitus*	*Upland*
Purple martin	*Progne subis*	*Both*
Eastern wood pewee	*Contopus virens*	*Upland*
Horned lark	*Eremophila alpestris*	*Upland*
Tree swallow	*Iridoprocne bicolor*	*Both*
Barn swallow	*Hirundo rustica*	*Both*
Rough-winged swallow	*Stelgidopteryx serripennis*	*Both*
Cliff swallow	*Petrochelidon pyrrhonota*	*Both*
Blue jay	*Cyanocitta cristata*	*Upland*
Common raven	*Corvus corax:*	*Upland*
Common crow	*Corvus brachyrhynchos*	*Upland*
Black-capped chickadee	*Poecile atricapillus*	*Upland*
Carolina chickadee	*Parus carolinensis*	*Upland*
Tufted titmouse	*Parus bicolor*	*Upland*
White-breasted nuthatch	*Sitta carolinensis*	*Upland*
Red-breasted nuthatch	*Sitta canadensis*	*Upland*
Brown creeper	*Certhiafamiliaris*	*Upland*
Carolina Wren	*Thryothorus ludovicianus*	*Upland*
House wren	*Troglodytes aedon*	*Upland*

Table 3		
Common Name	Species Name	*Preferred Habitat (Lake/Upland/Both)*
Gray catbird	*Dumetella carolinensis*	*Upland*
Brown thrasher	*Toxostoma rujum*	*Upland*
American robin	*Turdus migratorius*	*Upland*
Wood thrush	*Hylocichla mustelina*	*Upland*
Hermit thrush	*Catharus guttata*	*Upland*
Gray-cheeked thrush	*Catharus minima*	*Upland*
Veery	*Catharusfuscescens*	*Upland*
Eastern bluebird	*Sialia sialis*	*Upland*
Blue-grey gnatcatcher	*Polioptila caerulea*	*Upland*
Golden-crowned kinglet	*Regulus satrapa*	*Upland*
Ruby-crowned kinglet	*Regulus calendula*	*Upland*
Cedar waxwing	*Bombycilla cedrorum*	*Upland*
European starling	*Sturnus vulgaris*	*Upland*
White-eyed vireo	*Vireo griseus*	*Upland*
Red-eyed vireo	*Vireo olivaceus*	*Upland*
Black and white warbler	*Mniotilta varia*	*Upland*
Blue-winged warbler	*Vermivora pinus*	*Upland*
Golden-winged warbler	*Vermivora chrysoptera*	*Upland*
Tennessee warbler	*Vermivora peregrina*	*Upland*
Yellow-breasted chat	*Licteria virens*	*Upland*
Northern parula	*Paruta americana*	*Upland*
Yellow warbler	*Dendroica petechia*	*Upland*
Magnolia warbler	*Dendroica magnolia*	*Upland*
Kentucky warbler	*Oporornis formosus*	*Upland*
Black-throated blue warbler	*Dendroica caerulescens*	*Upland*
Yellow-rumped warbler	*Dendroica coronata*	*Upland*
Black-throated green warbler	*Dendroica virens*	*Upland*
Chestnut-sided warbler	*Dendroica pensylvanica*	*Upland*
Blackburnian warbler	*Dendroica fusca*	*Upland*
Bay-breasted warbler	*Dendroica castanea*	*Upland*
Yellow-rumped warbler	*Dendroica coronata*	*Upland*
Prairie warbler	*Dendroica discolor ·*	*Upland*
Ovenbird	*Seiurus aurocapillus*	*Upland*
Louisiana waterthrush	*Seiurus motacilla*	*Both*
Northern waterthrush	*Selurus noveboracensis*	*Both*
Common yellowthroat	*Geothlypis trichas*	*Upland*

Table 3		
Common Name	Species Name	*Preferred Habitat (Lake/Upland/Both)*
Canada warbler	*Wilsonia canadensis*	*Upland*
Hooded warbler	*Wilsonia citrini*	*Upland*
American redstart	*Setophaga ruticilla*	*Upland*
Eastern meadowlark	*Stumella magna*	*Upland*
Red-winged blackbird	*Agelaius phoeniceus*	*Both*
Northern oriole	*Icterus galbula*	*Upland*
Common grackle	*Quiscalus quiscula*	*Upland*
Brown-headed cowbird	*Molothrus ater*	*Upland*
Scarlet tanager	*Piranga olivacea*	*Upland*
Rose-breasted grosbeak	*Pheucticus ludovicianus*	*Upland*
Evening grosbeak	*Coccothraustes vespertina*	*Upland*
Indigo bunting	*Passerina cyanea*	*Upland*
Common redpoll	*Carduelis flammea*	*Upland*
House Finch	*Carpodacus mexicanus*	*Upland*
Purple finch	*Carpodacus purpureus*	*Upland*
American goldfinch	*Spinus tristis*	*Upland*
Rufous-sided towhee	*Pipilo erythrophthalmus*	*Upland*
Dark-eyed junco	*Junco hyemalis*	*Upland*
Grasshopper sparrow	*Ammodramus savannarum*	*Upland*
Chipping sparrow	*Spizella passerina*	*Upland*
Field sparrow	*Spizella pusilla*	*Upland*
White-crowned sparrow	*Zonotrichia leucophrys*	*Upland*
White-throated sparrow	*Zonotrichia albicollis*	*Upland*
American tree sparrow	*Melospiza arborea*	*Upland*
Song sparrow	*Melospiza melodia*	*Upland*
House sparrow	*Passer domesticus*	*Upland*
Common Loon	*Gavia immer*	*Lake*
Snow and blue goose	*Chen caerulescens*	*Lake*
Brant	*Branta bernicla*	*Lake*
Gallinule	*Gallinula galeata*	*Lake*
Pied-billed grebe	*Podilymbus podiceps*	*Lake*
American bittern	*Botaurus lentiginosus*	*Lake*
Little blue heron	*Egretta caerulea*	*Lake*
Black-crowned night heron	*Nycticorax nycticorax*	*Lake*
Tundra swan	*Cygnus columbianus*	*Lake*
American black duck	*Anas rubripes*	*Lake*
Blue-winged teal	*Anas discors*	*Lake*

Table 3		
Common Name	Species Name	*Preferred Habitat (Lake/Upland/Both)*
Redhead	*Aythya americana*	*Lake*
Ring-necked duck	*Aytha collaris*	*Lake*
Lesser scaup	*Aythya affinis*	*Lake*
Common goldeneye	*Bucephala clangula*	*Lake*
Bufflehead	*Bucephala albeola*	*Lake*
Hooded merganser	*Lophodytes cucullatus*	*Lake*
Common merganser	*Mergus merganser*	*Lake*
Red-breasted merganser	*Margus serrator*	*Lake*
Ruddy duck	*Oxyura jamaicensis*	*Lake*
Green-winged teal	*Anas carolinensis*	*Lake*
Canvasback	*Aythya valisineria*	*Lake*
Gadwall	*Anas strepera*	*Lake*
Northern pintail	*Anas acuta*	*Lake*
Long-Tailed duck	*Clangula hyemalis*	*Lake*
White-winged scoter	*Melanitta deglandi*	*Lake*
Black scoter	*Melanitta americana*	*Lake*
American wigeon	*Anas americana*	*Lake*
Osprey	*Pandion haliaetus*	*Lake*

Table 4. Species and Preferred Habitat of Mammals Known to Occur or Expected to Occur in Stonewall.

Table 4		
Common Name	Scientific Name	Preferred Habitat (Forest/Edge/Field/Wetland)
Opossum	*Didelphis virginiana*	Forest/Edge/Field
Masked shrew	*Sorex cinereus*	*Forest/Edge/Field*
Southeastern shrew	*Sorex longirostris*	*Forest/Edge/Field*
Smoky shrew	*Sorex fumeus*	*Forest/Edge/Field*
Rock shrew	*Sorex dispar*	*Forest/Edge/Field*
Pygmy shrew	*Sorex hoyi*	*Forest/Edge/Field*
Short-tailed shrew	*Blarina brevicauda*	*Forest/Edge/Field*
Least shrew	*Cryptotis parva*	*Forest/Edge/Field*
Hairy-tailed mole	*Parascalops breweri*	*Edge/Field*
Eastern mole	*Sealopus aquaticus*	*Field*
Star-nosed mole	*Condylura cristata*	*Field/Wetland*
Little brown bat	*Myotis lucijugus*	*Edge/Field/Wetland*
Indiana bat	*Myotis sodalis*	*Forest*
Northern long-eared bat	*Myotis septentrionalis*	*Forest*
Eastern small-footed bat	*Myotis leibii*	*Edge/Field/Wetland*
Silver-haired bat	*Lasionycteris noctivagans*	*Forest*
Eastern pipistrelle	*Pipistrellus subjlavus*	*Edge/Field/Wetland*
Big brown bat	*Eptesicus fuscus*	*Edge/Field/Wetland*
Red bat	*Lasiurus borealis*	*Forest*
Hoary bat	*Lasiurus cinereus*	*Forest*
Twilight bat	*Nycticeius humeralis*	*Edge/Field/Wetland*
Eastern cottontail	*Sylvilagus floridanus*	*Edge/Field*
Woodchuck	*Marmota monax*	*Edge/Field*
Chipmunk	*Tamias striatus*	*Forest/Edge*
Eastern gray squirrel	*Sciurus carolinensis*	*Forest/Edge*
Fox squirrel	*Sciurus niger*	*Forest/Edge*
Red squirrel	*Tamiasciurus hudsonicus*	*Forest/Edge*
Southern flying squirrel	*Glaucomys volans*	*Forest*
Beaver	*Castor canadensis*	*Wetland*
Eastern harvest mouse	*Reithrodontomys humulis*	*Field/Wetland*
Deer mouse	*Peromyscus maniculatus*	*Forest/Edge*
White-footed mouse	*Peromyscus leucopus*	*Forest/Edge/Field*

Table 4		
Common Name	Scientific Name	Preferred Habitat (Forest/Edge/Field/Wetland)
Golden mouse	*Peromyscus nuttalli*	*Forest/Edge*
Southern red-backed vole	*Clethrionomys gapperi*	*Forest/Edge*
Meadow vole	*Microtus pennsylvanicus*	*Field*
Rock vole	*Microtus chrotorrhinus*	*Field*
Prairie vole	*Microtus ochrogaster*	*Field*
Woodland vole	*Microtus pinetorum*	*Forest/Edge*
Southern bog lemming	*Synaptomys cooperi*	*Wetland*
Muskrat	*Ondatra zibethica*	*Wetland*
Meadow jumping mouse	*Zapus hudsonius*	*Edge/Field*
Woodland jumping mouse	*Napaeozapus insignis*	*Forest*
Red fox	*Vulpes fulva*	*Edge/Field*
Gray fox	*Urocyon cinereoargenteus*	*Forest/Edge*
Coyote	*Canis latrans*	*Edge/Field*
Black bear	*Ursus americanus*	*Forest/Edge*
Raccoon	*Procyon lotor*	*Forest/Edge/Field/Wetland*
Least weasel	*Mustela nivalis*	*Forest/Edge/Field*
Long-tailed weasel	*Mustela frenata*	*Forest/Edge/Field*
Mink	*Mustela vison*	*Wetland*
Eastern spotted skunk	*Spilogale putorius*	*Forest/Edge/Field*
Striped skunk	*Mephitis mephitis*	*Forest/Edge/Field*
River otter	*Lutra canadensis*	*Wetland*
Bobcat	*Felis rufus*	*Forest/Edge*
White-tailed deer	*Odocoileus virginianus*	*Forest/Edge/Field*

Table 5. Game and Fur Bearers Known to Occur or Expected to Occur in Stonewall.

Table 5	
Upland Game Birds	
Ruffed grouse	*Bonasa umbellus*
Wild Turkey	*Meleagris gallopavo*
American Crow	*Corvus brachyrhynchos*
Mourning Dove	*Zenaida macroura*
Waterfowl	
Canada goose	*Branta canadensis*
Snow and Blue Goose	*Chen caerulescens*
Brant	*Branta bernicla*
Mallard	*Anas playtryhnchos*
Wood duck	*Aix sponsa*
Northern Pintail	*Anas acuta*
Long-Tailed Ducks	*Clangula hyemalis*
Lesser Scaup	*Aythya affinis*
American Black Duck	*Anas rubripes*
Redhead	*Aythya americana*
White-winged Scoter	*Melanitta deglandi*
Black Scoter	*Melanitta americana*
Canvasback	*Aythya valisineria*
Hooded Merganser	*Lophodytes cucullatus*
Marsh and Shore Birds	
Virginia rail	*Rallus limicola*
Gallinule	*Gallinula galeata*
Sora	*Porzana carolina*
American woodcock	*Philohela minor*
Common Snipe	*Gallinago gallinago*
Upland Game Mammals	
Eastern cottontail	*Sylvilagus floridanus*
Black Bear	*Ursus americanus*
Fox squirrel	*Sciurus niger*
Gray squirrel	*Sciurus carolinensis*
Woodchuck	*Marmota monax*
Gray fox	*Urocyon cinereoargenteus*
Red fox	*Vulpes vulpes*
Bobcat	*Felis canadensis*
White-tailed deer	*Odocoileus virginianus*

Table 5	
Wetland Game Mammals	
Beaver	*Castor canadensis*
Muskrat	*Ondatra zibethica*
Mink	*Mustela vison*
Raccoon	*Procyon lotor*
Skunk	*Mephitis mephitica*
River Otter	*Lontra canadensis*

Table 6. Animal Species on U.S. Fish and Wildlife Service Threatened and Endangered List That May Occur in Stonewall.

Table 6	
U.S. Fish and Wildlife Service	
Threatened:	Northern Long-eared Bat
Endangered:	Clubshell
	Snuffbox mussel
	Indiana bat

Table 7. Species and Preferred and Breeding Habitats of Amphibians Known to Occur or Expected to Occur at Stonewall.

Table 7			
Common Name	Scientific Name	Breeding Habitat (Wetland-Stream/Upland)	Preferred Habitat (Wetland-Stream/Upland)
Eastern hellbender	*Cryptobranchus a. alleganiensis*	*Wetland-Stream*	*Wetland-Stream*
Green salamander	*Aneides aeneus*	*Wetland-Stream*	*Both*
Common mudpuppy	*Necturus m. maculosus*	*Wetland-Stream*	*Wetland-Stream*
Northern dusky salamander	*Desmognathus fuscus*	*Wetland-Stream*	*Wetland-Stream*
Spotted salamander	*Ambystoma maculatum*	*Wetland-Stream*	*Both*
Marbled salamander	*Ambystoma opacum*	*Wetland-Stream*	*Both*
Northern spring salamander	*Gyrinophilus porphyriticus*	*Wetland-Stream*	*Wetland-Stream*
Seal salamander	*Desmognathus monticola*	*Wetland-Stream*	*Wetland-Stream*
Southern two-lined salamander	*Eurycea bislineata*	*Wetland-Stream*	*Wetland-Stream*
Long-tailed salamander	*Eurycea longicauda*	*Wetland-Stream*	*Both*
Jefferson salamander	*Ambystoma Jejfersonianum*	*Wetland-Stream*	*Both*
Red spotted newt	*Notophthalmus v. virdescens*	*Wetland-Stream*	*Wetland-Stream*
Four toed salamander	Hemidactylium scutalum	*Wetland-Stream*	*Wetland-Stream*
Valley and ridge salamander	*Plethodon hoffmani*	*Wetland-Stream*	*Both*
Northern slimy salamander	*Plethodon glutinosus*	*Wetland-Stream*	*Both*
Southern ravine salamander	*Plethodon richmondi*	*Wetland-Stream*	*Both*
Wehrle's salamander	*Plethodon* wehrlei	*Wetland-Stream*	*Both*
Northern red salamander	*Pseudotriton r. ruber*	*Wetland-Stream*	*Wetland-Stream*
Midland mud salamander	*Plethodon montanus diastictus*	*Wetland-Stream*	*Wetland-Stream*
Eastern American toad	*Bufo a. americanus*	*Wetland-Stream*	*Wetland-Stream*
Gray tree frog	Hyla chrysoscelis	*Wetland-Stream*	*Wetland-Stream*
Northern spring peeper	*Pseudoacris. c. crucifer*	*Wetland-Stream*	*Wetland-Stream*
Mountain chorus frog	*Pseudoacris.* brachyphona	*Wetland-Stream*	*Wetland-Stream*
American bull frog	*Rana catesbieana*	*Wetland-Stream*	*Wetland-Stream*
Northern green frog	*Rana clamitans melanota*	*Wetland-Stream*	*Wetland-Stream*
Fowler's toad	*Bufo fowleri*	*Wetland-Stream*	*Wetland-Stream*
Pickerel frog	*Rana palustris*	*Wetland-Stream*	*Wetland-Stream*
Wood frog	*Rana sylvatica*	*Wetland-Stream*	*Wetland-Stream*

Table 8. Preferred Habitat and Species of Reptiles Known to Occur or Expected to Occur in Stonewall.

Table 8			
Common Name	Scientific Name	Breeding Habitat (Wetland*/Upland*)	Preferred Habitat (Wetland*/Upland*)
Map turtle	*Graptemys geographica*	Wetland	Wetland
Eastern spiny softshell	*Apalone spinifera spinifera*	Wetland	Wetland
Eastern River Cooter	*Pseudemys concinna*	Wetland	Wetland
Stinkpot	*Sternotherus odoratus*	Wetland	Wetland
Eastern box turtle	*Terrepene c. carolina*	Both	Both
Snapping turtle	*Chelydra serpentina*	Wetland	Wetland
Midland painted turtle	*Chrysemyspicta marginata*	Wetland	Wetland
Eastern painted turtle	*Chrysemys picta*	Wetland	Wetland
Common five-lined skink	*Eumeces fasciatus*	Upland	Upland
Northern coal skink	*Eumeces plestiodon anthracinus*	Upland	Wetland
Broadhead skink	*Eumeces laticeps*	Upland	Upland
Northern fence lizard	*Sceloporus undulatus*	Upland	Upland
Northern copperhead	*Agkistrodon contortrix mokasen*	Upland	Both
Timber rattlesnake	*Crotalus horridus*	Upland	Upland
Northern black racer	*Coluber c. constrictor*	Upland	Upland
Eastern worm snake	*Carphorphis a. amoenus*	Upland	Upland
Northern ringneck snake	*Diadophis punctatus edwardsii*	Both	Wetland
Black rat snake	*Elaphe obsoleta obsoleta*	Upland	Both
Eastern hog-nosed snake	*Heterodon platirhinos*	Upland	Both
Eastern milk snake	*Lampropeltyis triangulum*	Upland	Upland
Northern brown snake	*Storeria dekayi*	Upland	Both
Northern redbelly	*Storeria occipitomaculata*	Upland	Both
Eastern garter snake	*Thamnophis s. sirtalis*	Upland	Both
Eastern ribbon snake	*Thamnophis sauritus*	Upland	Wetland
Queen Snake	*Regina septemvittata*	Upland	Wetland
Northern water snake	*Nerodia sipedon*	Upland	Wetland
Northern rough green snake	*Opheodrys aestivus aestivus*	Upland	Upland
Smooth green snake	*Opheodrys vernalis*	Upland	Upland

*Upland Includes Both Forested Upland and Grassy Upland

*Wetland Includes Both Stream and Wetland Habitats

Table 9. Species of Fish Known or Expected to Occur within Stonewall Jackson Lake (West Fork River)

Common Name	Species Name
Largemouth bass	*Micropterus salmoides*
Yellow Perch	*Perca flavescens*
Saugeye	*Sander canadensis*
Muskellunge	*Esox masquinongy*
Channel catfish	*Ictalurus punctatus*
Crappie	*Pomoxis spp.*
Bluegill	*Lepomis macrochirus*

Table 10
Stonewall Resort - 10 Year Development Plan Environmental Assessment
Wildlife Habitat Analysis and Potential Disturbance

	Graminoid Meadow/Maintained Lawn (Acres)	Immature Forest (Acres)	Mature Forest (Acres)	Wetland/Stream (Acres)	Lake (Acres)	Developed/Barren Land (Acres)
Zone 1						
Pre-Action	0	0	9.32	0.04	0	2.48
Total Land Area	11.81	11.81	11.81	11.81	11.81	11.81
% of Total Land Area Occupied By Habitat	0.00%	0.00%	78.92%	0.34%	0.00%	21.00%
Zone 2						
Pre-Action	0	0	0	0	0	35.92
Total Land Area	35.92	35.92	35.92	35.92	35.92	35.92
% of Total Land Area Occupied By Habitat	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%
Zone 3						
Pre-Action	0	0	0	0	8.3	0
Total Land Area	8.3	8.3	8.3	8.3	8.3	8.3
% of Total Land Area Occupied By Habitat	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%
Zone 4						
Pre-Action	1.49	0.26	3.36	0.33	0	0.908
Total Land Area	6.02	6.02	6.02	6.02	6.02	6.02
% of Total Land Area Occupied By Habitat	24.75%	4.32%	55.81%	5.48%	0.00%	15.08%
Zone 5						
Pre-Action	0	0	0	0.031	0.38	13.74
Total Land Area	14.12	14.12	14.12	14.12	14.12	14.12
% of Total Land Area Occupied By Habitat	0.00%	0.00%	0.00%	0.22%	2.69%	97.31%
Zone 6						
Pre-Action	7.29	1.19	6.29	0.67	1.16	15.08
Total Land Area	31.01	31.01	31.01	31.01	31.01	31.01
% of Total Land Area Occupied By Habitat	23.51%	3.84%	20.28%	2.16%	3.74%	48.63%
Zone 7						
Pre-Action	3.55	0	0	0	0	0
Total Land Area	3.55	3.55	3.55	3.55	3.55	3.55
% of Total Land Area Occupied By Habitat	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Zone 8						
Pre-Action	1.07	0	7.23	0.03	0	0.82
Total Land Area	9.12	9.12	9.12	9.12	9.12	9.12
% of Total Land Area Occupied By Habitat	11.73%	0.00%	79.28%	0.33%	0.00%	8.99%

Table 11 - Potentially Jurisdictional Waters Identified within the AOI

Stonewall Resort

10-Year Development Plan

Waters_Name	Cowardin_Code	HGM_Code	Measurement_Type	Amount	Units	Waters_Type	Latitude	Longitude	Local_Waterway
UNT 1	R6	RIVERINE	Linear	451.66	Foot	NRPW	38.956747	-80.494601	West Fork River
UNT 2	R6	RIVERINE	Linear	68.88	Foot	NRPW	38.957273	-80.494570	West Fork River
UNT 3	R6	RIVERINE	Linear	248.70	Foot	NRPW	38.956747	-80.492813	West Fork River
UNT 4	R6	RIVERINE	Linear	97.31	Foot	NRPW	38.945459	-80.491551	West Fork River
UNT 5	R6	RIVERINE	Linear	172.25	Foot	NRPW	38.944981	-80.492665	West Fork River
UNT 6	R6	RIVERINE	Linear	340.99	Foot	NRPW	38.941303	-80.502442	West Fork River
UNT 7	R6	RIVERINE	Linear	43.66	Foot	NRPW	38.941247	-80.502454	West Fork River
UNT 8	R6	RIVERINE	Linear	374.50	Foot	NRPW	38.942321	-80.500409	West Fork River
UNT 9	R4SB3	RIVERINE	Linear	305.26	Foot	RPW	38.940233	-80.496373	West Fork River
UNT 10	R6	RIVERINE	Linear	85.64	Foot	NRPW	38.940362	-80.495602	West Fork River
UNT 11	R6	RIVERINE	Linear	368.36	Foot	NRPW	38.940022	-80.498059	West Fork River
UNT 12	R6	RIVERINE	Linear	132.54	Foot	NRPW	38.939091	-80.499377	West Fork River
UNT 13	R6	RIVERINE	Linear	114.51	Foot	NRPW	38.938937	-80.499518	West Fork River
UNT 14	R6	RIVERINE	Linear	117.79	Foot	NRPW	38.938680	-80.499684	West Fork River
Wetland 1	PEM	RIVERINE	Area	0.63	Acre	RPWWN	38.958657	-80.489776	West Fork River
Wetland 2	PEM	RIVERINE	Area	0.17	Acre	RPWWD	38.949618	-80.494317	West Fork River
Wetland 3	PEM	RIVERINE	Area	0.03	Acre	RPWWD	38.949533	-80.494048	West Fork River
Wetland 4	PEM	DEPRESS	Area	0.03	Acre	ISOLATE	38.948129	-80.495006	West Fork River
Wetland 5	PEM	RIVERINE	Area	0.04	Acre	RPWWN	38.945528	-80.491157	West Fork River
Wetland 6	PEM	RIVERINE	Area	0.03	Acre	RPWWN	38.945048	-80.490700	West Fork River
Wetland 7	PEM	RIVERINE	Area	0.04	Acre	RPWWN	38.946886	-80.491139	West Fork River
Wetland 8	PEM	RIVERINE	Area	0.01	Acre	RPWWN	38.947157	-80.490715	West Fork River
Wetland 9	PEM	RIVERINE	Area	0.22	Acre	RPWWN	38.947683	-80.489995	West Fork River

APPENDIX A – Photo Log

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 1

1) Power panel/water
2) Entrance building
3) Hollow lid
4) Trash dump – mostly glass
5) UNT 9 – facing upstream
6) UNT 9 – facing downstream
7) Paved road
8) Electric building #1 – electrical boxes
9) Electrical building #1
10) Building #1 – pipes into lake
11) Building #1 – pipes
12) UNT 10 (EPH) – facing upstream
13) UNT 10 (EPH) – facing downstream
14) Manhole
15) Wood and sod dump piles
16) UNT 11 – facing upstream
17) UNT 11 – facing downstream
18) UNT 12 – facing upstream
19) UNT 12 – facing downstream
20) UNT 13 – facing upstream
21) UNT 13 – facing downstream
22) RSD 1
23) RSD 2
24) RSD 3
25) Upland Point 3 – test pit and soil profile
26) Upland Point 3 – facing north
27) Garage and tractor
28) Open lawn
29) Open Lawn
30) Cellar
31) Gutter outlet pipe

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 1

1) Power panel/water

2) Entrance building

3) Hollow lid

4) Trash dump – mostly glass

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 1

5) UNT 9 – facing upstream

6) UNT 9 – facing downstream

7) Paved road

8) Electric building #1 – electrical boxes

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 1

9) Electrical building #1

10) Building #1 – pipes into lake

11) Building #1 – pipes

12) UNT 10 (EPH) – facing upstream

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 1

13) UNT 10 (EPH) – facing downstream

14) Manhole

15) Wood and sod dump piles

16) UNT 11 – facing upstream

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 1

17) UNT 11 – facing downstream

18) UNT 12 – facing upstream

19) UNT 12 – facing downstream

20) UNT 13 – facing upstream

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 1

21) UNT 13 – facing downstream

22) RSD 1

23) RSD 2

24) RSD 3

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 1

25) Upland Point 3 – test pit and soil profile

26) Upland Point 3 – facing north

27) Garage and tractor

28) Open lawn

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 1

29) Open Lawn

30) Cellar

31) Gutter outlet pipe

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 2

1) Lawn space
2) Tennis court construction
3) Basketball court
4) Roanoke Building
5) Disc Golf/Volleyball fields
6) Rear boat launching area
7) Boat launch
8) RSD 7
9) RSD 8
10) RSD 9
11) RSD 11

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 2

1) Lawn space

2) Tennis court construction

3) Basketball court

4) Roanoke Building

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 2

5) Disc Golf/Volleyball fields

6) Rear boat launching area

7) Boat launch

8) RSD 7

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 2

9) RSD 8

10) RSD 9

11) RSD 11

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 3

1) Marina from zone 2
2) Marina facing southeast
3) Fuel dispenser #1
4) Fuel dispenser #2
5) Sewage pump off sign
6) Sewage pump out station
7) Marina building

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 3

1) Marina from zone 2

2) Marina facing southeast

3) Fuel dispenser #1

4) Fuel dispenser #2

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 3

5) Sewage pump off sign

6) Sewage pump out station

7) Marina building

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 4

1) Water and electric utilities for campsites
2) Campsite with fire pit and trash box
3) Electric utility meter
4) Recreation deck
5) Beach area/cove facing south
6) UNT 4 – facing upstream
7) UNT 4 – facing downstream
8) Wetland 1 – test pit and soil profile
9) Wetland 1 – from the lake
10) Wetland 1 – typical vegetation
11) Picnic area with frisbee golf and maintained lawn
12) Boat dock
13) Wetland 2 – test pit and soil profile
14) Wetland 2 – facing south
15) Beachfront maintained area with benches
16) Picnic area with maintained lawn and stand pipe
17) UNT 5 – facing downstream
18) UNT 5 – facing upstream
19) Port-a-John
20) Gravel path for golf course
21) Upland Point 1 – test pit and soil profile
22) Upland Point 1 – typical habitat
23) Causeway bridge
24) Wetland 3 – test pit and soil profile
25) Wetland 3 – facing south
26) Wetland 4 – test pit and soil profile
27) Wetland 4 – facing south
28) Maintained lawn facing lake
29) Wetland 5 – test pit and soil profile
30) Wetland 5 – facing south

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 4

1) Water and electric utilities for campsites

2) Campsite with fire pit and trash box

3) Electric utility meter

4) Recreation deck

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 4

5) Beach area/cove facing south

6) UNT 4 – facing upstream

7) UNT 4 – facing downstream

8) Wetland 1 – test pit and soil profile

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 4

9) Wetland 1 – from the lake

10) Wetland 1 – typical vegetation

11) Picnic area with frisbee golf and maintained lawn

12) Boat dock

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 4

13) Wetland 2 – test pit and soil profile

14) Wetland 2 – facing south

15) Beachfront maintained area with benches

16) Picnic area with maintained lawn and stand pipe

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 4

17) UNT 5 – facing downstream

18) UNT 5 – facing upstream

19) Port-a-John

20) Gravel path for golf course

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 4

21) Upland Point 1 – test pit and soil profile

22) Upland Point 1 – typical habitat

23) Causeway bridge

24) Wetland 3 – test pit and soil profile

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 4

25) Wetland 3 – facing south

26) Wetland 4 – test pit and soil profile

27) Wetland 4 – facing south

28) Maintained lawn facing lake

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 4

29) Wetland 5 – test pit and soil profile

30) Wetland 5 – facing south

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 5

1) Main parking lot
2) Shoreline/Resort
3) Loading facility
4) Rear of lodge
5) Pool/Lounge area
6) Pool/Lounge area 2
7) Front recreation lawn
8) Wetland 2 – area
9) Wetland 2 – test pit and soil profile
10) Wetland 3 – area
11) Wetland 3 – test pit and soil profile
12) Wetland 3 – area
13) Wetland 3 – test pit and soil profile

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 5

1) Main parking lot

2) Shoreline/Resort

3) Loading facility

4) Rear of lodge

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 5

5) Pool/Lounge area

6) Pool/Lounge area 2

7) Front recreation lawn

8) Wetland 2 – area

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 5

9) Wetland 2 – test pit and soil profile

10) Wetland 3 – area

11) Wetland 3 – test pit and soil profile

12) Wetland 3 – area

13) Wetland 3 – test pit and soil profile

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 6

1) End of paved main drive – facing existing cabins
2) Sewer line construction staging area
3) Existing boat slip and shoreline
4) Boat dock facing shoreline
5) Typical immature forest area
6) Crushed stone access roads for new cabin
7) Cleared area near beginning of new access road
8) Existing cabins
9) Electric utility
10) Gas utility
11) Maintained open land area
12) Cleared area with previous earth work near bridge
13) UNT 1 – facing upstream
14) UNT 1 – facing downstream
15) Proposed boat dock area
16) UNT 2 – facing upstream
17) UNT 2 – facing downstream
18) Sewer lift station
19) UNT 3 – facing upstream
20) UNT 3 – facing downstream
21) RSD 1
22) Ditch 1
23) RSD 2
24) RSD 3
25) RSD 4
26) Wetland 1 – area 1
27) Wetland 1 – area 2
28) Wetland 1 – test pit and soil profile
29) Upland 1 – area
30) Upland 1 – test pit and soil profile
31) RSD 5
32) RSD 6

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 6

1) End of paved main drive – facing existing cabins

2) Sewer line construction staging area

3) Existing boat slip and shoreline

4) Boat dock facing shoreline

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 6

5) Typical immature forest area

6) Crushed stone access roads for new cabin

7) Cleared area near beginning of new access road

8) Existing cabins

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 6

9) Electric utility

10) Gas utility

11) Maintained open land area

12) Cleared area with previous earth work near bridge

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 6

13) UNT 1 – facing upstream

14) UNT 1 – facing downstream

15) Proposed boat dock area

16) UNT 2 – facing upstream

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 6

17) UNT 2 – facing downstream

18) Sewer lift station

19) UNT 3 – facing upstream

20) UNT 3 – facing downstream

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 6

21) RSD 1

22) Ditch 1

23) RSD 2

24) RSD 3

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 6

25) RSD 4

26) Wetland 1 – area 1

27) Wetland 1 – area 2

28) Wetland 1 – test pit and soil profile

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 6

29) Upland 1 – area

30) Upland 1 – test pit and soil profile

31) RSD 5

32) RSD 6

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 7

1) Facing clubhouse from road
2) Swale 1 - from the lake
3) Swale 1 - towards the lake
4) Swale 2 – facing upgrade
5) Swale 2 – facing downgrade
6) Upland Point 1 – facing upslope
7) Upland Point 1 – test pit and soil profile
8) Lift Station

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 7

1) Facing clubhouse from road

2) Swale 1 - from the lake

3) Swale 1 - towards the lake

4) Swale 2 – facing upgrade

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 7

5) Swale 2 – facing downgrade

6) Upland Point 1 – facing upslope

7) Upland Point 1 – test pit and soil profile

8) Lift Station

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 8

1) Brush pile and crushed stone
2) Scrap lumber
3) Scrap lumber
4) Diesel tank
5) Electric box and stone pile
6) Mulch pile
7) Corrugated pipe and trash
8) Gas and equipment storage area
9) Packaged fire wood
10) Cut grass dump area
11) Water tank
12) UNT 6 – facing downstream
13) UNT 6 – facing upstream
14) Upland Point 2 – Soil profile and test pit
15) Upland Point 2 – Facing east
16) UNT 8 – Facing upstream
17) UNT 8 – Facing downstream

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 8

1) Brush pile and crushed stone

2) Scrap lumber

3) Scrap lumber

4) Diesel tank

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 8

5) Electric box and stone pile

6) Mulch pile

7) Corrugated pipe and trash

8) Gas and equipment storage area

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 8

9) Packaged fire wood

10) Cut grass dump area

11) Water tank

12) UNT 6 – facing downstream

Stonewall Resort – 10-Year Development Plan
Delineation Photo Log
Zone 8

13) UNT 6 – facing upstream

14) Upland Point 2 – Soil Profile and Test Pit

15) Upland Point 2 – Facing East

16) UNT 8 (EPH) – Facing Upstream

17) UNT 8 (EPH) Facing Downstream

APPENDIX B – Agency Correspondence

DIVISION OF NATURAL RESOURCES
Wildlife Resources Section
Operations Center
P.O. Box 67
Elkins, West Virginia 26241-3235
Telephone (304) 637-0245
Fax (304) 637-0250

Earl Ray Tomblin
Governor

Frank Jezioro
Director

November 6, 2014

Mr. Jordan Wilcox
The Thrasher Group, Inc.
PO Box 940
Bridgeport, WV 26330

Dear Mr. Wilcox:

We have reviewed our files for information on rare, threatened and endangered (RTE) species and sensitive habitats for the proposed development zones for Stonewall Resort's 10-year Development Plan (Project #101-070-0309).

We have no known records of any RTE species or sensitive habitats within the project area. The Wildlife Resources Section knows of no surveys that have been conducted in the area for rare species or rare species habitat. Consequently, this response is based on information currently available and should not be considered a comprehensive survey of the area under review.

The information provided above is the product of a database search and retrieval. This information does not satisfy other consultation or permitting requirements for disturbances to the natural resources of the state, and further consultation may be required. Additionally, any concurrence requirements for federally listed species must come from the US Fish and Wildlife Service.

Thank you for your inquiry, and should you have any questions please feel free to contact me at the above number, or barbara.d.sargent@wv.gov. Enclosed please find an invoice.

Sincerely,

Barbara Sargent
Environmental Resources Specialist
Wildlife Diversity Unit

enclosure

S:\Monthly\Barb\Invoices\Thrasher2.doc

THRASHER

October 27, 2014

Ms. Susan Pierce, Deputy State Historic Preservation Officer
The Cultural Center
1900 Kanawha Blvd., E.
Charleston, WV 25305-0300

RE: WVSHPO Section 106 Review
Stonewall Resort
10-Year Development Plan
Lewis County, West Virginia
Thrasher Project #101-070-0309

Dear Ms. Pierce:

On behalf of Stonewall Resort (Stonewall), The Thrasher Group, Inc. (Thrasher), is submitting to your office a project review request for a ten year development plan in the USGS Peterson and Roanoke 7.5 minute quadrangle of Lewis County, WV. Thrasher is currently preparing an Environmental Assessment with the intention of obtaining a Findings of No Significant Impact (FONSI) for the above referenced project.

The proposed area of interest (AOI) for the Stonewall 10-Year Development Plan contains approximately 165.50 acres and consists of nine (9) zones of future proposed development within the Stonewall Jackson Resort. The project will involve additions and improvements to existing infrastructure such as housing units, campground areas, and utilities as well as the development of new attractions, day-use facilities, and lodging and camping areas.

The majority of the AOI consists of mid-successional to immature hardwood forests with various species of ash, hickory, oak, maple, poplar, and walnut comprising the canopy layer. Species of fern, grasses, nettle, and multi-flora rose comprised the herbaceous layer.

Interspersed among the forested areas are several open meadows of fescue, clover, wingstem, and multi-flora rose along with other various exotic or invasive plant species. Wetland habitats, which included typical hydrophytic vegetation such as cattails, rushes and sedges, were identified within several of the zones.

600 White Oaks Boulevard • PO Box 940 • Bridgeport, WV 26330 • 304 624 4108 phone • 304 624 7831 fax • www.thrasherengi.com

THRASHER

Existing facilities within the nine (9) zones include maintained open lawns, day-use recreational areas, lodging and camping sites, maintenance areas, and resort buildings and offices.

The USGS topographical map and aerial imagery map contained herein depict the nine (9) zones of the 10-Year Development Plan. The included photo log displays all aquatic resources identified as well as typical habitat within the intended AOI. The attached delineation mapping depicts all findings associated with the proposed Stonewall Resort 10-Year Development Plan.

The attached slope map depicts that the majority of the project is located on terrain which consists of slopes less than 20 percent. During field investigations, a cemetery with seven (7) headstones was identified within an already developed area of Zone 9. The cemetery is enclosed within a chain link fence. No other historical buildings or archeological resources were identified within the project area and a review of the National Register of Historic Places database identified the closest listing as "St. Bernard Church and Cemetery" over 6.00 air miles northwest of the project area. The proposed development in the 10-year plan will occur within the limits of the resort property and no impacts to view sheds of architectural resources are anticipated.

A cultural resources survey of 420 acres within the project vicinity was conducted by Big Blue Archaeological Research, Inc. in September of 1998 which found no significant prehistoric or historic archeological resources within the survey area. SHPO approved and concurred with the results of the survey in correspondence dated November 13, 1998.

It is important to note that the nine (9) zones were established to differentiate and identify areas of proposed development. The acreage of each zone represents the total area proposed development may occur within; however; it does not represent a specific amount or exact location of development or disturbance. As the project evolves beyond the conceptual stage, concrete amounts and specific locations of proposed development will be confirmed. We ask that during your review process, you comment and respond both from an overall and zone specific project standpoint. In the event there are areas of concern with the nine (9) zones, proper avoidance and minimization measures could then be implemented during design.

THRASHER

If any further consultation with your agency is required for this project, or if any questions or concerns should arise, please feel free to contact me at your earliest convenience at (304) 624-4108 or jwilcox@thrashereng.com.

Sincerely,

THE THRASHER GROUP, INC.

JORDAN P. WILCOX
Environmental Scientist

WEST VIRGINIA
Division of Culture and History

The Culture Center
1900 Kanawha Blvd., E.
Charleston, WV 25305-0300
Randall Reid-Smith, Commissioner
Phone 304.558.0220 • www.wvculture.org
Fax 304.558.2779 • TDD 304.558.3562
EEO/AA Employer

December 3, 2014

Mr. Jordan P. Wilcox
Environmental Scientist
Thrasher Engineering
600 White Oaks Blvd.
P.O. Box 940
Bridgeport, WV 26330

RE: Stonewall Resort 10-Year Development Plan
Thrasher Project #101-070-0309
FR#: 15-101-LE

Dear Mr. Wilcox:

We have reviewed the above referenced project to determine potential effects to cultural resources. As required by Section 106 of the National Historic Preservation Act, as amended, and its implementing regulations, 36 CFR 800: "Protection of Historic Properties," we submit our comments.

According to submitted information, the Stonewall Resort 10-Year Development Plan consists of nine zones of future proposed development that will occur on 165.50 acres within the Stonewall Jackson Resort located in Lewis County. The work will include additions and improvements to existing infrastructure such as housing units, campground areas, and utilities as well as the development of new attractions, day-use facilities, and lodging and camping areas.

Architectural Resources:
We have reviewed the submitted information, and determined that there are no architectural properties eligible for inclusion in the National Register of Historic Places that will be affected by this project. No further consultation is necessary regarding architectural resources; however, we ask that you contact our office if your project should change.

Archaeological Resources:
Our records indicate that portions of the proposed project area underwent a Phase I archaeological survey under FR#: 98-251-LE. That survey identified one archeological resource, 46LE36, within the current Zone 5 project area and one archaeological resource, 46LE38, adjacent to the current Zone 8 project area. Both of these resources are early 20th century domestic sites that have been determined by our office to be *not eligible* for inclusion in the National Register of Historic Places. Our records also note that site 46LE5, a prehistoric camp site, is adjacent to the current Zone 1 project area. There are also rock cairns of unknown temporal origin and historic-period rock walls within several hundred feet of some of the proposed project areas.

The prior Phase I archaeological survey did not cover all of the areas proposed for development in the current 10-Year Development Plan. In order to better comment on potential impacts to archaeological resources, we will require more concise information on proposed ground disturbing activities within each of the project areas. The location of all proposed ground disturbing activities should be clearly delineated on a USGS quad map. We will provide further comment upon receipt of this information; however, we reserve the right to request the completion of a Phase I archaeological survey on areas not previously surveyed upon review of the requested information.

Cemetery Resources:
Project information states that there is a cemetery with seven headstones located within Zone 9. The cemetery is enclosed within a chain link fence. We have no information on this resource and ask that a West Virginia Cemetery Survey form be completed for this resource. The cemetery will need to undergo assessment for inclusion in the National Register of Historic Places under all criteria including D, and criteria considerations C and D. We will provide further comment upon receipt of the requested information.

We appreciate the opportunity to be of service. *If you have questions regarding our comments or the Section 106 process, please contact Jennifer L. Brennan, Structural Historian, or Carolyn Kender, Archaeologist, at (304) 558-0240.*

Sincerely,

Susan M. Pierce
Deputy State Historic Preservation Officer

SMP/CMK/JLB

United States Department of the Interior

FISH AND WILDLIFE SERVICE

West Virginia Field Office
694 Beverly Pike
Elkins, West Virginia 26241

Contact Name: Jordan Wilcox

Email Address or Fax Number: 304-624-7831

Project Name & Location: Stonewall Resort, 10-Year Development Plan, Lewis County

Date of Letter Request: October 27, 2014

This is in response to your letter requesting threatened and endangered species information in regard to the proposed project listed above. These comments are provided pursuant to the Endangered Species Act (ESA, 87 Stat. 884, as amended; 16 U. S. C. 1531 *et seq.*).

Indiana Bat

The proposed project may provide summer foraging and roosting habitats, as well as winter habitat, for the federally endangered Indiana bat. The Indiana bat (*Myotis sodalis*) may use the proposed site for foraging and roosting between April 1 and November 14. Indiana bats use caves or mine portals for winter hibernation between November 15 and March 31. Indiana bat foraging habitat is generally defined as riparian, bottomland, or upland forest, as well as old fields or pastures with scattered trees. Roosting and maternity habitats consist primarily of live or dead hardwood trees which have exfoliating bark that provides space for bats to roost between the bark and the bole of the tree. Tree cavities, crevices, splits, or hollow portions of tree boles and limbs also provide roost sites. In West Virginia, the Service considers all forest habitats containing trees greater than or equal to 5 inches in diameter at breast height (DBH) to be potentially suitable as summer roosting and foraging habitat for the Indiana bat.

To avoid liability under section 9 of the ESA, no timber removal should occur in the proposed site consultation with the Service is complete. The project proponent should determine the amount of suitable Indiana bat summer roosting habitat that will be removed from the proposed site. The Service has evaluated the availability of suitable foraging and roosting habitats on the West Virginia landscape relative to the best estimate of the statewide population of Indiana bats. On that basis, we have determined that projects affecting 17 acres or less of suitable forest habitat and that occur more than 10 miles from a known priority 1 or 2 Indiana bat hibernaculum, more than 5 miles from a known priority 3 or 4 Indiana bat hibernaculum, or more than 2.5 miles from any known maternity roost, or more than 5 miles from summer capture sites where no roosts were identified are very unlikely to result in direct or indirect impacts to the species. The effects of such projects are considered discountable and the projects, therefore, are not likely to adversely affect the species[1]. Tree removal associated with such projects can occur at any time of year.

[1] Different recommendations and analyses are applied to wind projects due to the differences in types of effects that may occur.

impacts to bats. Information on how to develop this plan is available in our Guidance on Developing and Implementing an Indiana Bat Conservation Plan and its associated appendices. This plan should be developed by someone who has experience with Indiana bat habitat requirements such as those listed in the List of Surveyors Qualified to Conduct Indiana Bat Surveys in West Virginia.

The results of the habitat evaluations and the proposed conservation plan should be submitted for our review prior to commencement of the project. If we determine that the extent of disturbance is not significant enough to adversely affect the Indiana bat, the project may proceed with seasonal restrictions on timber harvest and commitments made for avoidance and minimization of project impacts on suitable bat habitat. Seasonal restriction on timber harvest will apply for the life of the project.

If we determine that the extent of disturbance may affect, and is likely to adversely affect the Indiana bat, a survey may be necessary to determine if Indiana bats are present, or additional conservation measures may be required. For further information, please see Option 2.

Option 2:
Surveys are conducted to determine if the summer foraging and roosting habitats within the proposed site are occupied by the Indiana bat. The enclosed 2014 Revised Range-wide Indiana Bat Summer Survey Guidelines should be followed. To avoid insufficient or inadequate surveys, a survey plan for the proposed site should be submitted to us for concurrence prior to conducting the survey. Acoustic surveys may be conducted between May 15 and August 15, and mist-net surveys may be conducted between June 1 and August 15. The surveys should be conducted by a qualified bat biologist with experience in identifying Indiana bats and who holds a current, valid collection permit from the West Virginia Division of Natural Resources (WVDNR). The WVDNR may be contacted at the Elkins Operation Center, P.O. Box 67, Ward Road, Elkins, West Virginia, 26241; phone (304) 637-0245. A List of Surveyors Qualified to Conduct Indiana Bat Surveys in West Virginia is also enclosed.

The survey results should be provided to the Service's West Virginia Field Office for review and concurrence. If no endangered bats are detected and we agree with the survey findings, timber harvest can proceed at any time of year. If endangered bats are detected, the West Virginia Field Office and the West Virginia Division of Natural Resources should be notified the next business day. We will then work with the project proponent to minimize the possibility of impacts to Indiana bats. The Guidance on Developing and Implementing an Indiana Bat Conservation Plan may be used to help develop measures to minimize impacts when Indiana bats are captured.

Surveys are considered current for five years consisting of the summer they are done and the following four summer seasons. Surveys should be repeated for any timber removal occurring after this 5-year period.

Indiana and Virginia Big-eared Bats

Caves and Mine Portals
Regardless of which option is chosen from above, the presence of caves and mine portals, and their use by bats, must also be addressed. Indiana bats hibernate in caves and mines during the winter and all individuals are assumed to be in the hibernacula during the period November 15 and March 31. Although some bats will remain in hibernation longer, other bats may become active and leave the hibernacula in early April. Indiana bats also use the hibernacula and the areas around them for fall-swarming and spring-staging activity (August 15 to November 14 and April 1 to May 14, respectively). Some males have been known to stay close to the hibernacula during the summer and may use the hibernacula as a summer roosts. The federally endangered Virginia big-eared bat (*Corynorhinus townsendii virginianus*) may also use caves or mine portals during any time of the year. Therefore, the following step-wise

long eared bat and conference procedures can be found at the following address:
http://www.fws.gov/midwest/endangered/mammals/nlba/pdf/NLEBinterimGuidance6Jan2014.pdf

If you have any questions regarding these comments, please contact the biologist listed below at (304) 636-6586 or at the letterhead address.

Damara S. Lewis Date: Mar 30, 2015
Biologist

John S. Schmidt Date: 4/2/15
John Schmidt, Field Supervisor

Enclosures (4)

THRASHER

June 24, 2016

U.S. Fish and Wildlife Service
West Virginia Field Office
694 Beverly Pike
Elkins, WV 26241

RE: USFWS Section 7 Project Review Request
Stonewall Resort
10-Year Development Plan
Lewis County, West Virginia
Thrasher Project #101-070-0309

To whom it may concern:

This project review is being submitted as a supplement to an initial project review request submitted on October 27, 2014. A response from your office, dated May 30, 2015; was received and provided general background information on endangered species that could be present within the project area. No specific project reference number was provided with this response, however a copy of the response is provided as Attachment 1.

Currently, The Thrasher Group, Inc. (Thrasher) remains in the process of preparing an Environmental Assessment (EA) for the United States Army Corps of Engineers (USACE) Pittsburgh District on behalf of Stonewall Resort (Stonewall), in an effort to receive a Finding of No Significant Impact (FONSI) for a 10 Year Development Plan (plan) in the USGS Peterson and Roanoke 7.5 minute quadrangles of Lewis County, WV. Thrasher is requesting an additional project review request due to the recent listing of the threatened Northern Long-Eared Bat and changes within the project planning scope.

Stonewall has created this plan, to coincide with its initial 1982 Master Plan, which anticipated the development of facilities that will be self-sustaining and able to generate revenue in sufficient quantity to offset operating costs. The plan consists of eight (8) zones of future proposed development located entirely within Stonewall Resort and encompasses an area of interest (AOI) of approximately 120 acres. The proposed project will involve additions and/or improvements to existing infrastructure such as housing and lodging units, campground areas, public utilities, day-use facilities, recreational amenities, and educational areas. Please see **Figure 1: Site Location**, enclosed.

THRASHER

Stream and wetland delineations of the AOI were conducted in September and October of 2014. Fourteen (14) streams and nine (9) wetlands were identified by Thrasher staff and are displayed on **Figure 4: Delineation** and the stream and wetland delineation photo log, enclosed.

Of the approximate 120 acres within the AOI, approximately 27.70 acres are forested. Timbering activities would most likely occur within Zone 1, Zone 6, and Zone 8; however, the exact amounts of timbering are unknown at this time. Please see **Figure 5: Forested Area**, enclosed.

It is important to note that the eight (8) zones were established to differentiate and identify areas of proposed development. The acreage of each zone represents the total area that proposed development may occur within; however; it does not represent a specific amount or exact location of development and/or disturbance. As the project evolves beyond the conceptual stage, concrete amounts and specific locations of proposed development will be confirmed. We ask that during your review process, you comment and respond both from an overall and zone specific project standpoint. In the event there are areas of concern with the eight (8) zones, proper avoidance and minimization measures could then be implemented during design.

If any further documentation or permitting is requested for this project, or if any questions or concerns should arise, please feel free to contact me at your earliest convenience at (304) 624-4108 or jwilcox@thrashereng.com.

Sincerely,

THE THRASHER GROUP, INC.

JORDAN P. WILCOX
Environmental Scientist

Enclosures:
Attachment 1 – Previous U.S. Fish and Wildlife Service Correspondence
Attachment 2 – Figure 1: Site Location
Attachment 3 – Figure 4: Delineation
Attachment 4 – Figure 5: Forested Area
Attachment 5 – Stream and Wetland Delineation Photo Log
Attachment 6 – CD containing shapefiles of the AOI

THRASHER

June 24, 2016

Ms. Barbara Sargent, Environmental Resources Specialist
Wildlife Diversity Unit
WV Division of Natural Resources, Wildlife Resources Division
P.O. Box 67
Elkins, WV 26241

RE: Rare, Threatened and Endangered Species Review
Stonewall Resort
10-Year Development Plan
Lewis County, West Virginia
Thrasher Project #101-070-0309

Dear Ms. Sargent:

This project review is being submitted as a supplement to an initial project review request submitted on November 6, 2014. A response from your office, dated November 6, 2014; was received and stated that the West Virginia Division of Natural Resources – Wildlife Resources Division has no known records of any rare, threatened, or endangered species or sensitive habitats within the project area. No specific project reference number was provided with this response, however a copy of the response is provided as Attachment 1.

Currently, The Thrasher Group, Inc. (Thrasher) remains in the process of preparing an Environmental Assessment (EA) for the United States Army Corps of Engineers (USACE) Pittsburgh District on behalf of Stonewall Resort (Stonewall), in an effort to receive a Finding of No Significant Impact (FONSI) for a 10 Year Development Plan ("plan") in the USGS Peterson and Roanoke 7.5 minute quadrangles of Lewis County, WV. Thrasher is requesting an additional project review request due to the recent listing of the threatened Northern Long-Eared Bat and changes within the project planning scope.

Stonewall has created this plan, to coincide with its initial 1982 Master Plan, which anticipated the development of facilities that will be self-sustaining and able to generate revenue in sufficient quantity to offset operating costs. The plan consists of eight (8) zones of future proposed development located entirely within Stonewall Resort and encompasses an area of interest (AOI) of approximately 120 acres. The proposed project will involve additions and/or improvements to existing infrastructure such as housing and lodging units, campground areas, public utilities, day-use facilities, recreational amenities, and educational areas. Please see **Figure 1: Site Location,** enclosed.

THRASHER

Stream and wetland delineations of the AOI were conducted in September and October of 2014. Fourteen (14) streams and nine (9) wetlands were identified by Thrasher staff and are displayed on **Figure 4: Delineation** and the stream and wetland delineation photo log, enclosed.

Of the approximate 120 acres within the AOI, approximately 27.70 acres are forested. Timbering activities would most likely occur within Zone 1, Zone 6, and Zone 8; however, the exact amounts of timbering are unknown at this time. Please see **Figure 5: Forested Area**, enclosed.

It is important to note that the eight (8) zones were established to differentiate and identify areas of proposed development. The acreage of each zone represents the total area that proposed development may occur within; however; it does not represent a specific amount or exact location of development and/or disturbance. As the project evolves beyond the conceptual stage, concrete amounts and specific locations of proposed development will be confirmed. We ask that during your review process, you comment and respond both from an overall and zone specific project standpoint. In the event there are areas of concern with the eight (8) zones, proper avoidance and minimization measures could then be implemented during design.

If any further documentation or permitting is requested for this project, or if any questions or concerns should arise, please feel free to contact me at your earliest convenience at (304) 624-4108 or jwilcox@thrashereng.com.

Sincerely,

THE THRASHER GROUP, INC.

JORDAN P. WILCOX
Environmental Scientist

Enclosures:
Attachment 1 – Previous U.S. Fish and Wildlife Service Correspondence
Attachment 2 – Figure 1: Site Location
Attachment 3 – Figure 4: Delineation
Attachment 4 – Figure 5: Forested Area
Attachment 3 – Stream and Wetland Delineation Photo Log

DIVISION OF NATURAL RESOURCES
Wildlife Resources Section
Operations Center
P.O. Box 67
Elkins, West Virginia 26241-3235
Telephone (304) 637-0245
Fax (304) 637-0250

Earl Ray Tomblin
Governor

Robert A. Fala
Director

July 20, 2016

Mr. Jordan P. Wilcox
The Thrasher Group, Inc.
PO Box 940
Bridgeport, WV 26330

Dear Mr. Wilcox:

We have reviewed our files for information on rare, threatened and endangered (RTE) species and sensitive habitats for use in Stonewall Resort's 10-year Development Plan.

We have no known records of any RTE species of sensitive habitats within the project area. This area falls within the Central Reservoirs Conservation Focus Area, as described in the WV State Wildlife Action Plan (SWAP). Because no surveys have been conducted in this area, we recommend surveys in all areas that have not been previously disturbed for species listed as Species of Greatest Conservation Need in the SWAP. The SWAP and species lists may be found on the WVDNR website: http://www.wvdnr.gov/Wildlife/Action_Plan.shtm.

This response is based on information currently available and should not be considered a comprehensive survey of the area under review. The information provided above is the product of a database search and retrieval. This information does not satisfy other consultation or permitting requirements for disturbances to the natural resources of the state, and further consultation may be required. Additionally, any concurrence requirements for federally listed species must come from the US Fish and Wildlife Service.

Thank you for your inquiry, and should you have any questions please feel free to contact me at the above number, or barbara.d.sargent@wv.gov. Enclosed please find an invoice.

Sincerely,

Barbara Sargent
Environmental Resources Specialist
Natural Heritage Program
Wildlife Diversity Unit

enclosure

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APPENDIX C – Interviews

THRASHER
300 Association Drive. Charleston, WV 25311
TEL: 304.343.7601 FAX:304.343.7604 EMAIL: thrasher@thrashereng.com

PHASE I ENVIRONMENTAL ASSESSMENT - TRANSACTION SCREEN QUESTIONNAIRE

Facility: Stonewall Resort - 10 Year Development Plan (Zone 9)

Address: Roanoke, West Virginia

Question	Owner/Occupant			Observed during site visit			Comments
	Yes	No	Unk[1]	Yes	No	Unk[1]	
1a. Is the *property* used for industrial use?		X		X			Maintenance facility of the resort.
1b. Is any *adjoining property* used for an industrial use?			X			X	
2a. Did you observe evidence or do you have any prior knowledge that the *property* has been used for an industrial use in the past?	X					X	The existing building was used as a maintenance facility for the Stonewall Jackson WMA/State Park
2b. Did you observe evidence or do you have any prior knowledge that any *adjoining property* has been used for an industrial use in the past?			X			X	
3a. Is the *property* used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility (if applicable, identify which)?	X			X			Building is used as repair and maintenance shop for resort vehicles (golf carts, trucks, gators). Area is also re-fueling station for vehicles with diesel and gasoline AST's.
3b. Is any *adjoining property* used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility (if applicable, identify which)?			X			X	
4a. Did you observe evidence or do you have any prior knowledge that the *property* has been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility (if applicable, identify which)?	X					X	Building has been used as re-fueling and repair center for Stonewall Jackson MWA/State Park vehicles in the past.
4b. Did you observe evidence or do you have			X			X	

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PHASE I ENVIRONMENTAL ASSESSMENT - TRANSACTION SCREEN QUESTIONNAIRE

Question	Owner/Occupant			Observed during site visit			Comments
	Yes	No	Unk[1]	Yes	No	Unk[1]	
any prior knowledge that any *adjoining property* has been used as a gasoline station, motor repair facility, commercial printing facility, dry cleaners, photo developing laboratory, junkyard or landfill, or as a waste treatment, storage, disposal, processing, or recycling facility (if applicable, identify which)?			X			X	
5a. Are there currently any damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals in individual containers of >5 gallons (19 L) in volume or 50 gallons (190 L) in the aggregate, stored on or used at the *property* or at the facility?	X			X			Pesticides and fertilizers in these quantities are housed within the maintenance building in a drain-free room elevated off of original ground. The pesticides and fertilizers are used on the golf course in a different area of the resort. The pesticide/fertilizer sprayers are washed outside of the maintenance building and used, empty containers are housed in large steel containers in paved area.
5b. Did you observe evidence or do you have any prior knowledge that there have been previously any damaged or discarded automotive or industrial batteries, or pesticides, paints, or other chemicals in individual containers of >5 gallons (19 L) in volume or 50 gallons (190 L) in the aggregate, stored on or used at the *property* or at the facility?	X					X	The golf course in some fashion has been around since 1999 and the fertilizers/pesticides have been used since then.
6a. Are there currently any *industrial drums* [typically 55 gallons (208 Liters)] or sacks of chemicals located on the *property* or at the facility?	X			X			There are 55 gallon drums of used oil, lubricants, fertilizers and pesticides/fungicides present at the facility as well as sacks of fertilizers and other chemicals.
6a. Did you observe evidence or do you have any prior knowledge that there have been previously any *industrial drums* [typically 55 gallons (208 Liters)] or sacks of chemicals located on the *property* or at the facility?	X					X	The golf course in some fashion has been around since 1999 and the fertilizers, pesticides, and other chemicals have been used since then and have been present.
7a. Did you observe evidence or do you have any prior knowledge that *fill dirt* has been brought onto the *property* that originated from a contaminated site?			X			X	

THRASHER
300 Association Drive. Charleston, WV 25311
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PHASE I ENVIRONMENTAL ASSESSMENT - TRANSACTION SCREEN QUESTIONNAIRE

Question	Owner/Occupant			Observed during site visit			Comments
	Yes	No	Unk[1]	Yes	No	Unk[1]	
7b. Did you observe evidence or do you have any prior knowledge that *fill dirt* has been brought onto the *property* that is of an unknown origin?			X		X		
8a. Are there currently any *pits, ponds, or lagoons* located on the *property* in connection with waste treatment or waste disposal?			X		X		
8b. Did you observe evidence or do you have any prior knowledge that there have been previously, any *pits, ponds, or lagoons* located on the *property* in connection with waste treatment or waste disposal?			X			X	
9a. Is there currently any stained soil on the *property*?			X		X		
9b. Did you observe evidence or do you have any prior knowledge that there has been previously any stained soil on the *property*?			X			X	
10a. Are there currently any registered or unregistered storage tanks (above or underground) located on the *property*?	X			X			There is one AST that houses both diesel and unleaded gasoline outside of the facility.
10b. Did you observe evidence or do you have any prior knowledge that there has been previously any registered or unregistered storage tanks (above or underground) located on the *property*?	X					X	The facility has been used as a re-fueling area for park vehicles before the resort was established.
11a. Are there currently any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the *property* or adjacent to any structure located on the property?			X		X		
11b. Did you observe evidence or do you have any prior knowledge that there has been previously any vent pipes, fill pipes, or access ways indicating a fill pipe protruding from the ground on the *property* or adjacent to any structure located on the			X			X	

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PHASE I ENVIRONMENTAL ASSESSMENT - TRANSACTION SCREEN QUESTIONNAIRE

Question	Owner/Occupant			Observed during site visit			Comments
	Yes	No	Unk[1]	Yes	No	Unk[1]	
property?			X			X	
12a. Is there currently evidence of leaks, spills or staining by substances, other than water, or foul odors, associated with any flooring, drains, walls, ceilings, or exposed grounds on the *property*?			X	X			Petroleum type stains were observed in several areas in the workshop of the facility. Fertilizer/pesticide stains were observed in the wash bay for the chemical sprayers. Petroleum type stains were observed on the pavement below the fuel dispensers.
12b. Did you observe evidence or do you have any prior knowledge that there has been previously any leaks, spills or staining by substances, other than water, or foul odors, associated with any flooring, drains, walls, ceilings, or exposed grounds on the *property*?			X			X	
13a. If the *property* is served by a private well or non-public water system, is there evidence or do you have prior knowledge that contaminants have been identified in the well or system that exceed guidelines applicable to the water system?			X			X	
13b. If the *property* is served by a private well or non-public water system, is there evidence or do you have prior knowledge that the well has been designated as contaminated by any government environmental/health agency?			X			X	
14. Does the owner or occupant of the *property* have any knowledge of *environmental liens* or governmental notification relating to past or recurrent violations of environmental laws with respect to the *property* or any facility located on the *property*?			X			X	
15a. Has the *owner or occupant* of the *property* been informed of the past existence of *hazardous substances* or *petroleum products* with respect to the *property* or any facility located on the *property*?			X			X	
15b. Has the *owner or occupant* of the *property*							

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PHASE I ENVIRONMENTAL ASSESSMENT - TRANSACTION SCREEN QUESTIONNAIRE

Question	Owner/Occupant			Observed during site visit			Comments
	Yes	No	Unk[1]	Yes	No	Unk[1]	
been informed of the current existence of *hazardous substances* or *petroleum products* with respect to the *property* or any facility located on the *property*?	X			X			The maintenance lead is in charge of shipments of fuels and wastes and is knowledgeable about current inventories of hazardous substances and petroleum products.
15c. Has the *owner or occupant* of the *property* been informed of the past existence of environmental violations with respect to the *property* or any facility located on the *property*?			X			X	
15d. Has the *owner or occupant* of the *property* been informed of the current existence of environmental violations with respect to the *property* or any facility located on the *property*?			X			X	
16. Does the *owner or occupant* of the *property* have any knowledge of any *environmental site assessment* of the *property* or facility that indicated the presence of *hazardous substances* or *petroleum products* on, or contamination of, the *property* or recommended further assessment of the *property*?			X			X	
17. Does the *owner or occupant* of the *property* know of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any hazardous substance or petroleum products involving the *property* by any *owner or occupant* of the *property*?			X			X	
18a. Does the *property* discharge *waste water* (not including sanitary waste or storm water) onto or adjacent to the *property* and//or into a storm water system?	X			X			The chemical sprayers are washed and their spray systems are flushed twice in the wash bay area which is situated adjacent to a drainage ditch leading down a hill slope.
18b. Does the *property* discharge *waste water* (not including sanitary waste or storm water) onto or adjacent to the *property* and//or into a sanitary sewer system?			X			X	

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PHASE I ENVIRONMENTAL ASSESSMENT - TRANSACTION SCREEN QUESTIONNAIRE

Question	Owner/Occupant			Observed during site visit			Comments
	Yes	No	Unk[1]	Yes	No	Unk[1]	
19. Did you observe evidence or do you have any prior knowledge any *hazardous substances* or *petroleum products*, unidentified waste materials, tires, automotive or industrial batteries or any other waste materials been dumped above grade, buried and/or burned on the property?	X			X			A pile of used tires is located outside of the facility.
20. Is there a transformer, capacitor, or any hydraulic equipment for which there are any records indicating the presence of Polychlorinated Biphenyls (PCBs)?			X			X	

Unk[1] = Unknown

[Questionnaire obtained from ASTM E-1528-06]

THRASHER
300 Association Drive. Charleston, WV 25311
TEL: 304.343.7601 FAX:304.343.7604 EMAIL: thrasher@thrashereng.com

GOVERNMENT RECORDS/HISTORICAL SOURCES INQUIRY

(See guide, Section 10 ASTM E-1528-06)

21. Do any of the following federal, state, or tribal government record systems list the *property* or any *property* within the search distance noted below (where available):

	Approximate Minimum Search Distance, miles (kilometers)	
Federal NPL site list	1.0 (1.6)	G Yes ☒ No
Federal Delisted NPL site list	0.5 (0.8)	G Yes ☒ No
Federal CERCLIS list	0.5 (0.8)	G Yes ☒ No
Federal CERCLIS NFRAP sitelist	0.5 (0.8)	G Yes ☒ No
Federal RCRA CORRACTS facilities list	1.0 (1.6)	G Yes ☒ No
Federal RCRA non-CORRACTS TSD Facilities list	0.5 (0.8)	G Yes ☒ No
Federal RCRA generators list	property and adjoining properties	G Yes ☒ No
Federal institutional control/engineering control registries	property only	G Yes ☒ No
Federal ERNS list	property only	G Yes ☒ No
State and tribal lists of hazardous waste sites identified for investigation or remediation:		
State and tribal-equivalent NPL	1.0 (1.6)	G Yes ☒ No
State and tribal-equivalent CERCLIS	0.5 (0.8)	G Yes ☒ No
State and tribal landfill and/or solid waste disposal site lists	0.5 (0.8)	G Yes ☒ No
State and tribal leaking storage tank lists	0.5 (0.8)	G Yes ☒ No
State and tribal registered storage tank lists	property and adjoining properties	☒ Yes G No
State and tribal institutional control engineering control registries	property only	G Yes ☒ No
State and tribal voluntary cleanup sites	0.5 (0.8)	G Yes ☒ No
State and tribal Brownfield sites	0.5 (0.8)	G Yes ☒ No

23. Based upon a review of *fire insurance maps* (10.2.3) or local street directories (10.2.3), all as specified in the guide, are any buildings or other improvements on the property or on an adjoining property identified as having been used for an industrial use or uses likely to lead to contamination of the property?

G Yes G No ☒ Unavailable

Result: _____

THRASHER
300 Association Drive. Charleston, WV 25311
TEL: 304.343.7601 FAX:304.343.7604 EMAIL: thrasher@thrashereng.com

PHASE I ENVIRONMENTAL ASSESSMENT - TRANSACTION SCREEN QUESTIONNAIRE

The *Owner/Occupant* questionnaire was completed by:

Name: _____

Title: _____

Firm: _____

Address: _____

_____

Phone No.: _____

Date: _____

Role(s) at the site: _____

Number of years at the site: _____

Relationship to the user (for example, principal, employee, agent, consultant):

_____

The *Site Visit* questionnaire was completed by:

Name: Jordan Wilcox

Title: Environmental Scientist

Firm: The Thrasher Group Inc.

Address: 600 White Oaks Blvd

Bridgeport, WV 26330

Phone No.: 304-624-4108

Date: 9/19/2014

Role(s) at the site: Environmental Assessment

Number of years at the site: 0

Relationship to the user (for example, principal, employee, agent, consultant):

Consultant

THRASHER
300 Association Drive. Charleston, WV 25311
TEL: 304.343.7601 FAX:304.343.7604 EMAIL: thrasher@thrashereng.com

PHASE I ENVIRONMENTAL ASSESSMENT - TRANSACTION SCREEN QUESTIONNAIRE

The Government Records and Historical Sources Inquiry questionnaire was completed by:

Name: Jordan Wilcox

Title: Environmental Scientist

Firm: The Thrasher Group Inc.

Address: 600 White Oaks Blvd

Bridgeport, WV 26330

Phone No.: 304-624-4108

Date: 9/19/2014

Role(s) at the site: Environmental Assessment

Number of years at the site: 0

Relationship to the user (for example, principal, employee, agent, consultant):
Consultant

If the preparer(s) is different from the user, complete the following:

Name of User: Stonewall Resort

User's Address: 940 Resort Drive

Walkersville, WV 26447

User's Phone No.: _____

Date: 9/19/2014

Copies of the completed questionnaires have been filed at: Thrasher Project: 101-070-0309

Copies of the completed questionnaires have been mailed or delivered to: NA

Preparer represents that to the best of the preparer's knowledge the above statements and facts are true and correct and to the best of the preparer's actual knowledge no material facts have been suppressed or misstated.

Jordan Wilcox — 9/19/14
Signature — Date

_____ — _____
Signature — Date

_____ — _____
Signature — Date

It is the user's responsibility to draw conclusions regarding affirmative or unknown answers.

APPENDIX D – EDR Report

Stonewall Resort
940 Resort Dr
Walkersville, WV 26447

Inquiry Number: 4109882.2s
October 20, 2014

The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Detail Map	3
Map Findings Summary	4
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GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
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Physical Setting SSURGO Soil Map	A-5
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Physical Setting Source Records Searched	PSGR-1

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

940 RESORT DR
WALKERSVILLE, WV 26447

COORDINATES

Latitude (North):	38.9493000 - 38˚ 56' 57.48''
Longitude (West):	80.4933000 - 80˚ 29' 35.88''
Universal Tranverse Mercator:	Zone 17
UTM X (Meters):	543908.6
UTM Y (Meters):	4311064.5
Elevation:	1105 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	38080-H4 ROANOKE, WV
Most Recent Revision:	1989
West Map:	38080-H5 PETERSON, WV
Most Recent Revision:	1989

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20110714, 20110710
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL---------- National Priority List

EXECUTIVE SUMMARY

Proposed NPL ..... Proposed National Priority List Sites
NPL LIENS ..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ..... National Priority List Deletions

Federal CERCLIS list

CERCLIS ..... Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY ..... Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP ..... CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS ..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ..... RCRA - Large Quantity Generators
RCRA-SQG ..... RCRA - Small Quantity Generators
RCRA-CESQG ..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROL ..... Sites with Institutional Controls
LUCIS ..... Land Use Control Information System

Federal ERNS list

ERNS ..... Emergency Response Notification System

State- and tribal - equivalent CERCLIS

SHWS ..... This state does not maintain a SHWS list. See the Federal CERCLIS list and Federal NPL list.

State and tribal landfill and/or solid waste disposal site lists

SWF/LF ..... List of M.S.W. Landfills/Transfer Station Listing
LCP ..... Landfill Closure Program

State and tribal leaking storage tank lists

LUST ..... Leaking Underground Storage Tanks
INDIAN LUST ..... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

INDIAN UST ..... Underground Storage Tanks on Indian Land

EXECUTIVE SUMMARY

FEMA UST ..... Underground Storage Tank Listing

State and tribal institutional control / engineering control registries

INST CONTROL ..... Sites with Institutional Controls

State and tribal voluntary cleanup sites

INDIAN VCP ..... Voluntary Cleanup Priority Listing
VCP ..... Voluntary Remediation Sites

State and tribal Brownfields sites

BROWNFIELDS ..... Brownfields Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

ODI ..... Open Dump Inventory
DEBRIS REGION 9 ..... Torres Martinez Reservation Illegal Dump Site Locations
INDIAN ODI ..... Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL ..... Clandestine Drug Labs
CDL ..... Drug Lab Site Locations
US HIST CDL ..... National Clandestine Laboratory Register

Local Land Records

LIENS 2 ..... CERCLA Lien Information

Records of Emergency Release Reports

HMIRS ..... Hazardous Materials Information Reporting System
SPILLS ..... Spills Listing

Other Ascertainable Records

RCRA NonGen / NLR ..... RCRA - Non Generators / No Longer Regulated
DOT OPS ..... Incident and Accident Data
FUDS ..... Formerly Used Defense Sites
CONSENT ..... Superfund (CERCLA) Consent Decrees
ROD ..... Records Of Decision
UMTRA ..... Uranium Mill Tailings Sites
US MINES ..... Mines Master Index File
TRIS ..... Toxic Chemical Release Inventory System
TSCA ..... Toxic Substances Control Act
FTTS ..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

EXECUTIVE SUMMARY

HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
SSTS	Section 7 Tracking Systems
ICIS	Integrated Compliance Information System
PADS	PCB Activity Database System
MLTS	Material Licensing Tracking System
RADINFO	Radiation Information Database
FINDS	Facility Index System/Facility Registry System
RAATS	RCRA Administrative Action Tracking System
RMP	Risk Management Plans
UIC	Underground Injection Wells
DRYCLEANERS	Listing of Drycleaner Locations
NPDES	Wastewater Discharge Permits Listing
AIRS	Permitted Facility and Emissions Listing
INDIAN RESERV	Indian Reservations
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
Financial Assurance	Financial Assurance Informtion Listing
PCB TRANSFORMER	PCB Transformer Registration Database
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
LEAD SMELTERS	Lead Smelter Sites
COAL ASH DOE	Steam-Electric Plant Operation Data
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
COAL ASH	Coal Ash Landills
US FIN ASSUR	Financial Assurance Information
PRP	Potentially Responsible Parties
US AIRS	Aerometric Information Retrieval System Facility Subsystem

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants
EDR US Hist Auto Stat	EDR Exclusive Historic Gas Stations
EDR US Hist Cleaners	EDR Exclusive Historic Dry Cleaners

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LUST	Recovered Government Archive Leaking Underground Storage Tank
RGA LF	Recovered Government Archive Solid Waste Facilities List

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

STANDARD ENVIRONMENTAL RECORDS

State and tribal registered storage tank lists

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Commerce, Labor & Environmental Resources.

A review of the UST list, as provided by EDR, and dated 06/04/2014 has revealed that there are 2 UST sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
STONEWALL JACKSON STATE PARK M	149 STATE PARK TRAIL	0 - 1/8 (0.000 mi.)	A1	7
STONEWALL JACKSON LAKE STATE P	149 STATE PARK TRAIL	0 - 1/8 (0.000 mi.)	A2	7

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

DOD: Consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

A review of the DOD list, as provided by EDR, and dated 12/31/2005 has revealed that there is 1 DOD site within approximately 1 mile of the target property.

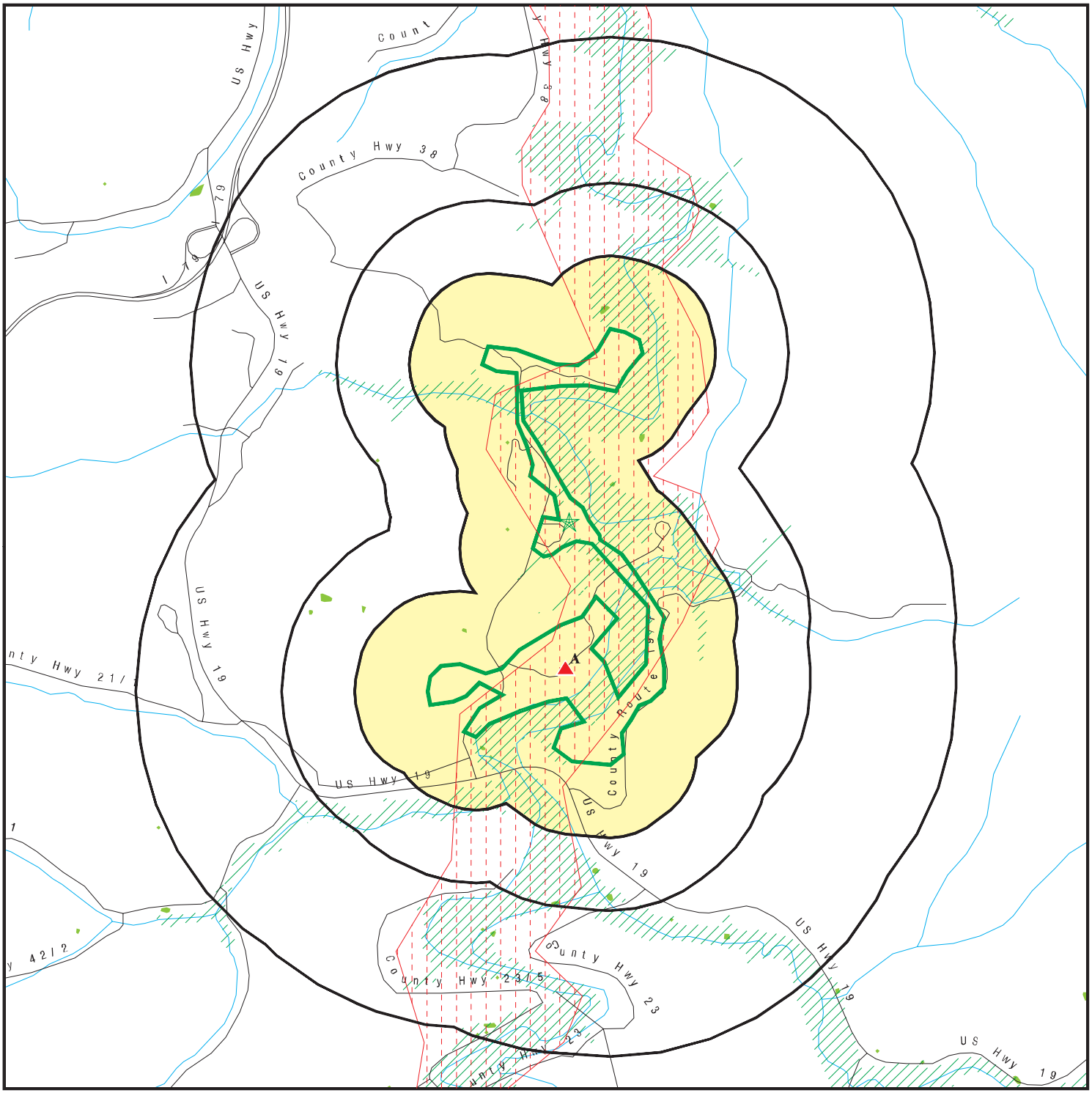
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
STONEWALL JACKSON LAKE		0 - 1/8 (0.000 mi.)	0	7

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 20 records.

Site Name	Database(s)
BALLARD'S CHEVROLET OLDS PONTIAC B	RCRA NonGen / NLR, UST, MANIFEST
DEBRULAR WELL SERVICES INC	RCRA-SQG
PRICETOWN-UNIVERSAL WELL SVCS ACCI	RCRA NonGen / NLR
HITTS BODY SHOP	RCRA NonGen / NLR
HEFNER ENVIRONMENTAL	RCRA NonGen / NLR
STONEWALL JACKSON DAM	RCRA NonGen / NLR
POSEYS LAWN GARDEN INC	RCRA NonGen / NLR
C & K REPAIR	RCRA NonGen / NLR
S R MACHINE	RCRA NonGen / NLR
RICH OIL #3948	RCRA NonGen / NLR
WESTON TRANSFER	RCRA NonGen / NLR
TERRYS BODY SHOP	RCRA NonGen / NLR, FINDS
WVU-EHS JACKSONS MILL STATE	RCRA-CESQG
BURTONS SVC STATION	RCRA-CESQG
LITTLE GENERAL STORE #5320	RCRA-CESQG
DOMINION TRANSMISSION INC - SOUTHE	RCRA-CESQG
WVDOH WESTON SIGN SHOP	RCRA-CESQG
STONEWALL JACKSON DAM	FINDS
WEST VIRGINIA ARMORY	MANIFEST
EQUITABLE PRODUCTION CO	MANIFEST

OVERVIEW MAP - 4109882.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Oil & Gas pipelines from USGS

100-year flood zone

500-year flood zone

National Wetland Inventory

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Stonewall Resort	CLIENT: Thrasher Engineering, Inc.
ADDRESS: 940 Resort Dr Walkersville WV 26447	CONTACT: Jeffrey Todd
LAT/LONG: 38.9493 / 80.4933	INQUIRY #: 4109882.2s
	DATE: October 20, 2014 12:42 pm

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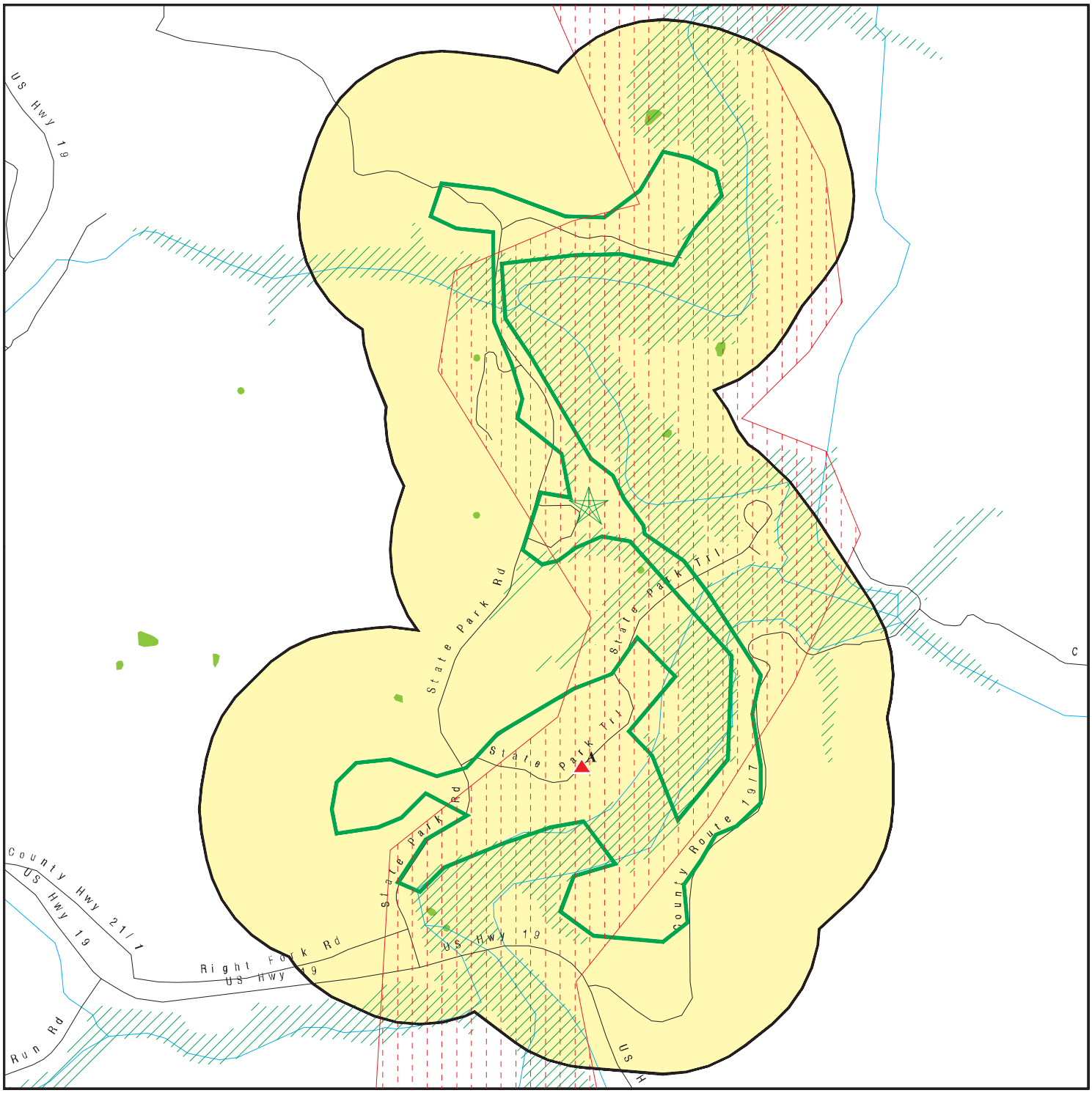
DETAIL MAP - 4109882.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

Sensitive Receptors

National Priority List Sites

Dept. Defense Sites

Indian Reservations BIA

Oil & Gas pipelines from USGS

100-year flood zone

500-year flood zone

National Wetland Inventory

0 1/4 1/2 1 Miles

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Stonewall Resort	CLIENT: Thrasher Engineering, Inc.
ADDRESS: 940 Resort Dr Walkersville WV 26447	CONTACT: Jeffrey Todd
LAT/LONG: 38.9493 / 80.4933	INQUIRY #: 4109882.2s
	DATE: October 20, 2014 12:43 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS	0.500		0	0	0	NR	NR	0
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
LUCIS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
State- and tribal - equivalent CERCLIS								
SHWS	N/A		N/A	N/A	N/A	N/A	N/A	N/A
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
LCP	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
UST	0.250		2	0	NR	NR	NR	2

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN UST	0.250		0	0	NR	NR	NR	0
FEMA UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
INST CONTROL	0.500		0	0	0	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	TP		NR	NR	NR	NR	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
US HIST CDL	TP		NR	NR	NR	NR	NR	0
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
SPILLS	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
DOD	1.000		1	0	0	0	NR	1
FUDS	1.000		0	0	0	0	NR	0
CONSENT	1.000		0	0	0	0	NR	0
ROD	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
HIST FTTS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
AIRS	TP		NR	NR	NR	NR	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
COAL ASH	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR US Hist Auto Stat	0.250		0	0	NR	NR	NR	0
EDR US Hist Cleaners	0.250		0	0	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LUST	TP		NR	NR	NR	NR	NR	0
RGA LF	TP		NR	NR	NR	NR	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

N/A = This State does not maintain a SHWS list. See the Federal CERCLIS list.

DOD **STONEWALL JACKSON LAKE** **DOD** **CUSA133630**
Region **N/A**
STONEWALL JACKSON LAKE (County), WV
< 1/8
1 ft.

DOD:

Feature 1:	Army Corps of Engineers DOD
Feature 2:	Not reported
Feature 3:	Not reported
URL:	Not reported
Name 1:	Stonewall Jackson Lake
Name 2:	Not reported
Name 3:	Not reported
State:	WV
DOD Site:	Yes
Tile name:	WVLEWIS

A1 **STONEWALL JACKSON STATE PARK MARINA** **UST** **U004217919**
149 STATE PARK TRAIL **N/A**
< 1/8 **ROANOKE, WV 26447**
1 ft.
Site 1 of 2 in cluster A

Relative:
Higher

Actual:
1116 ft.

UST:

Facility ID:	2109988
Owner:	WV DNR STONEWALL JACKSON STATE PARK
Owner Address:	149 STATE PARK TRAIL
Owner Address 2:	Not reported
Owner City,St,Zip:	ROANOKE, WV 26447
Owner Telephone:	(304) 269-0523
Tank ID:	1
Tank Status:	**Currently in Use**
Tank Substance:	Gasoline
Tank Capacity:	12000
Date Last Used:	Not reported
Date Closed:	Not reported
Closure Status:	Not listed
Tank Material:	Fiberglass Reinforced Plastic
Piping Material:	Fiberglass Reinforced Plastic
Overfill Installed:	Yes
Installed Spill Protection:	Yes
Cathodic Protection Method:	Yes

A2 **STONEWALL JACKSON LAKE STATE PARK** **UST** **U003948745**
149 STATE PARK TRAIL **N/A**
< 1/8 **ROANOKE, WV 26647**
1 ft.
Site 2 of 2 in cluster A

Relative:
Higher

Actual:
1116 ft.

UST:

Facility ID:	2109990
Owner:	UNCERTAIN/UNKNOWN
Owner Address:	UNKNOWN
Owner Address 2:	Not reported
Owner City,St,Zip:	UNKNOWN, UK 00000 NA

STONEWALL JACKSON LAKE STATE PARK (Continued) **U003948745**

Tank ID:	D1
Tank Status:	**Permanently Out of Service**
Tank Substance:	Gasoline
Tank Capacity:	1000
Date Last Used:	08/20/2001
Date Closed:	08/20/2001
Closure Status:	Tank removed from ground
Tank Material:	Cathodically Protected Steel
Piping Material:	Flexible Plastic - Single Walled
Overfill Installed:	Not reported
Installed Spill Protection:	Not reported
Cathodic Protection Method:	Yes

Tank ID:	D2
Tank Status:	**Permanently Out of Service**
Tank Substance:	Gasoline
Tank Capacity:	1000
Date Last Used:	08/20/2001
Date Closed:	08/20/2001
Closure Status:	Tank removed from ground
Tank Material:	Cathodically Protected Steel
Piping Material:	Flexible Plastic - Single Walled
Overfill Installed:	Not reported
Installed Spill Protection:	Not reported
Cathodic Protection Method:	Yes

Tank ID:	D3
Tank Status:	**Permanently Out of Service**
Tank Substance:	Gasoline
Tank Capacity:	1000
Date Last Used:	08/20/2001
Date Closed:	08/20/2001
Closure Status:	Tank removed from ground
Tank Material:	Cathodically Protected Steel
Piping Material:	Flexible Plastic - Single Walled
Overfill Installed:	Not reported
Installed Spill Protection:	Not reported
Cathodic Protection Method:	Yes

Count: 20 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
PRICETOWN	1012189890	PRICETOWN-UNIVERSAL WELL SVCS ACCI	ROUTE 33	26452	RCRA NonGen / NLR
WESTON	S108232388	WEST VIRGINIA ARMORY	ROUTE 19 SOUTH	26452	MANIFEST
WESTON	1004802313	HITTS BODY SHOP	RTE 19 NORTH	26452	RCRA NonGen / NLR
WESTON	1000585315	WVU-EHS JACKSONS MILL STATE	RT 19 NW OF WESTON	26452	RCRA-CESQG
WESTON	1000103582	BALLARD'S CHEVROLET OLDS PONTIAC B	RT 19 N AT DEANVILLE	26452	RCRA NonGen / NLR, UST, MANIFES
WESTON	1016213448	STONEWALL JACKSON DAM	RTE 3 BOX 370 BROWNSVILLE	26452	FINDS
WESTON	1014473671	HEFNER ENVIRONMENTAL	ROUTE 3 BOX 141T	26452	RCRA NonGen / NLR
WESTON	1004802270	STONEWALL JACKSON DAM	RTE 3 BOX 370 BROWNSVILLE	26452	RCRA NonGen / NLR
WESTON	1000584614	POSEYS LAWN GARDEN INC	RT 3 BOX 89 - X- 3	26452	RCRA NonGen / NLR
WESTON	1004803740	C & K REPAIR	RTE 33 EAST,3.5 MI FROM WESTON	26452	RCRA NonGen / NLR
WESTON	1000585000	DEBRULAR WELL SERVICES INC	RT 33 W ON RT 119 SOUTH	26452	RCRA-SQG
WESTON	1000584119	S R MACHINE	RT 33 W	26452	RCRA NonGen / NLR
WESTON	1000583910	BURTONS SVC STATION	RTE 33	26452	RCRA-CESQG
WESTON	1014473703	LITTLE GENERAL STORE #5320	595 US HIGHWAY 33E	26452	RCRA-CESQG
WESTON	1004802959	DOMINION TRANSMISSION INC - SOUTHE	335 US HIGHWAY 33	26452	RCRA-CESQG
WESTON	1009248081	EQUITABLE PRODUCTION CO	539 US HWY 33E	26452	MANIFEST
WESTON	1004803756	RICH OIL #3948	1052 US HWY 33F	26452	RCRA NonGen / NLR
WESTON	1004802303	WESTON TRANSFER	OFF RTE 33 E	26452	RCRA NonGen / NLR
WESTON	1000332594	WVDOH WESTON SIGN SHOP	US ROUTE 33	26452	RCRA-CESQG
WESTON	1004801845	TERRYS BODY SHOP	6 MI S WESTON ON RTE 19	26452	RCRA NonGen / NLR, FINDS

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 01/28/2014
Number of Days to Update: 78

Source: EPA
Telephone: N/A
Last EDR Contact: 10/08/2014
Next Scheduled EDR Contact: 01/19/2015
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 01/28/2014
Number of Days to Update: 78

Source: EPA
Telephone: N/A
Last EDR Contact: 10/08/2014
Next Scheduled EDR Contact: 01/19/2015
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 11/11/2013	Telephone: N/A
Date Made Active in Reports: 01/28/2014	Last EDR Contact: 10/08/2014
Number of Days to Update: 78	Next Scheduled EDR Contact: 01/19/2015
	Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 11/11/2013	Telephone: 703-412-9810
Date Made Active in Reports: 02/13/2014	Last EDR Contact: 08/28/2014
Number of Days to Update: 94	Next Scheduled EDR Contact: 12/08/2014
	Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 04/01/2014	Source: Environmental Protection Agency
Date Data Arrived at EDR: 07/08/2014	Telephone: 703-603-8704
Date Made Active in Reports: 08/22/2014	Last EDR Contact: 10/07/2014
Number of Days to Update: 45	Next Scheduled EDR Contact: 01/19/2015
	Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 11/11/2013	Telephone: 703-412-9810
Date Made Active in Reports: 02/13/2014	Last EDR Contact: 08/28/2014
Number of Days to Update: 94	Next Scheduled EDR Contact: 12/08/2014
	Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 06/10/2014
Date Data Arrived at EDR: 07/02/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 78

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 10/01/2014
Next Scheduled EDR Contact: 01/12/2015
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/10/2014
Date Data Arrived at EDR: 07/02/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 78

Source: Environmental Protection Agency
Telephone: 800-438-2474
Last EDR Contact: 10/01/2014
Next Scheduled EDR Contact: 01/12/2015
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/10/2014
Date Data Arrived at EDR: 07/02/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 78

Source: Environmental Protection Agency
Telephone: 800-438-2474
Last EDR Contact: 10/01/2014
Next Scheduled EDR Contact: 01/12/2015
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 06/10/2014
Date Data Arrived at EDR: 07/02/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 78

Source: Environmental Protection Agency
Telephone: 800-438-2474
Last EDR Contact: 10/01/2014
Next Scheduled EDR Contact: 01/12/2015
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 06/10/2014
Date Data Arrived at EDR: 07/02/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 78

Source: Environmental Protection Agency
Telephone: 800-438-2474
Last EDR Contact: 10/01/2014
Next Scheduled EDR Contact: 01/12/2015
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 06/23/2014
Date Data Arrived at EDR: 07/15/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 65

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 09/08/2014
Next Scheduled EDR Contact: 12/22/2014
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 06/23/2014
Date Data Arrived at EDR: 07/15/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 65

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 09/08/2014
Next Scheduled EDR Contact: 12/22/2014
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/28/2014
Date Data Arrived at EDR: 05/30/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 18

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 08/14/2014
Next Scheduled EDR Contact: 12/01/2014
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/30/2013
Date Data Arrived at EDR: 10/01/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 66

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 09/30/2014
Next Scheduled EDR Contact: 01/12/2015
Data Release Frequency: Annually

State- and tribal - equivalent CERCLIS

SHWS: This state does not maintain a SHWS list. See the Federal CERCLIS list and Federal NPL list.

State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: Department of Environmental Protection
Telephone: 304-926-0455
Last EDR Contact: 09/22/2014
Next Scheduled EDR Contact: 12/08/2014
Data Release Frequency: N/A

State and tribal landfill and/or solid waste disposal site lists

SWF/LF: List of M.S.W. Landfills/Transfer Station Listing
Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 01/16/2014
Date Data Arrived at EDR: 07/10/2014
Date Made Active in Reports: 09/08/2014
Number of Days to Update: 60

Source: Division of Environmental Protection
Telephone: 304-926-0499
Last EDR Contact: 09/29/2014
Next Scheduled EDR Contact: 01/12/2015
Data Release Frequency: Varies

LCP: Landfill Closure Program
The WV DEP's LCAP aids the owners/permittees of landfills that were required to cease operations because of certain statutory closure deadlines for non-composite lined facilities

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 04/08/2014
Number of Days to Update: 18

Source: Department of Environmental Protection
Telephone: 304-926-0499
Last EDR Contact: 09/08/2014
Next Scheduled EDR Contact: 12/22/2014
Data Release Frequency: Annually

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tanks
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 05/07/2014
Date Data Arrived at EDR: 06/05/2014
Date Made Active in Reports: 06/09/2014
Number of Days to Update: 4

Source: Division of Environmental Protection
Telephone: 304-926-0455
Last EDR Contact: 09/04/2014
Next Scheduled EDR Contact: 12/15/2014
Data Release Frequency: Semi-Annually

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 03/01/2013
Date Data Arrived at EDR: 03/01/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 07/22/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Quarterly

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/13/2014
Date Data Arrived at EDR: 08/15/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 7

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 07/22/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 05/22/2014
Date Data Arrived at EDR: 08/22/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 27

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 08/04/2014
Date Data Arrived at EDR: 08/05/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 17

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 05/14/2014
Date Data Arrived at EDR: 05/15/2014
Date Made Active in Reports: 07/15/2014
Number of Days to Update: 61

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 07/22/2014
Next Scheduled EDR Contact: 11/20/2014
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 05/20/2014
Date Data Arrived at EDR: 06/10/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 73

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Quarterly

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 07/30/2014
Date Data Arrived at EDR: 08/12/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 10

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 04/22/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 184

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/01/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Varies

State and tribal registered storage tank lists

UST: Underground Storage Tank Database
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 06/04/2014
Date Data Arrived at EDR: 06/05/2014
Date Made Active in Reports: 06/09/2014
Number of Days to Update: 4

Source: Division of Environmental Protection
Telephone: 304-926-0495
Last EDR Contact: 09/02/2014
Next Scheduled EDR Contact: 12/15/2014
Data Release Frequency: Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 01/27/2014
Number of Days to Update: 271

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/01/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 07/30/2014
Date Data Arrived at EDR: 08/12/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 10

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 04/22/2014
Next Scheduled EDR Contact: 08/11/2014
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 08/04/2014
Date Data Arrived at EDR: 08/05/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 17

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 07/25/2014
Date Data Arrived at EDR: 07/28/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 25

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 07/22/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Semi-Annually

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 08/20/2014
Date Data Arrived at EDR: 08/22/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 27

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/28/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 08/13/2014
Date Data Arrived at EDR: 08/15/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 7

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 07/22/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 05/20/2014
Date Data Arrived at EDR: 06/10/2014
Date Made Active in Reports: 08/15/2014
Number of Days to Update: 66

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/22/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 08/14/2014
Date Data Arrived at EDR: 08/15/2014
Date Made Active in Reports: 08/22/2014
Number of Days to Update: 7

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 07/22/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Quarterly

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 10/10/2014
Next Scheduled EDR Contact: 01/26/2015
Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

INST CONTROL: Sites with Institutional Controls

Sites that have institutional controls in place.

Date of Government Version: 05/01/2014
Date Data Arrived at EDR: 05/28/2014
Date Made Active in Reports: 06/09/2014
Number of Days to Update: 12

Source: Department of Environmental Protection
Telephone: 304-558-2508
Last EDR Contact: 08/20/2014
Next Scheduled EDR Contact: 12/08/2014
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

VCP: Voluntary Remediation Sites

Sites involved in the Voluntary Remediation Program.

Date of Government Version: 05/01/2014
Date Data Arrived at EDR: 05/28/2014
Date Made Active in Reports: 06/09/2014
Number of Days to Update: 12

Source: Department of Environmental Protection
Telephone: 304-558-2745
Last EDR Contact: 08/20/2014
Next Scheduled EDR Contact: 12/08/2014
Data Release Frequency: Semi-Annually

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 05/30/2014
Date Data Arrived at EDR: 07/01/2014
Date Made Active in Reports: 08/15/2014
Number of Days to Update: 45

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 10/01/2014
Next Scheduled EDR Contact: 01/12/2015
Data Release Frequency: Varies

State and tribal Brownfields sites

BROWNFIELDS: Brownfields Sites Listing

Brownfields are abandoned, idle or underused commercial or industrial properties, where the expansion or redevelopment is hindered by real or perceived contamination. Brownfields vary in size, location, age, and past use -- they can be anything from a five-hundred acre automobile assembly plant to a small, abandoned corner gas station.

Date of Government Version: 05/14/2013
Date Data Arrived at EDR: 07/05/2013
Date Made Active in Reports: 08/15/2013
Number of Days to Update: 41

Source: Department of Environmental Protection
Telephone: 304-926-0455
Last EDR Contact: 10/03/2014
Next Scheduled EDR Contact: 01/12/2015
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 07/03/2014
Date Made Active in Reports: 07/28/2014
Number of Days to Update: 25

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/23/2014
Next Scheduled EDR Contact: 01/05/2015
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 07/25/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 08/01/2014
Next Scheduled EDR Contact: 11/17/2014
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 05/28/2014
Date Data Arrived at EDR: 06/20/2014
Date Made Active in Reports: 07/15/2014
Number of Days to Update: 25

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 09/03/2014
Next Scheduled EDR Contact: 12/15/2014
Data Release Frequency: Quarterly

CDL: Drug Lab Site Locations
A listing of clandestine drug lab site locations.

Date of Government Version: 11/26/2012
Date Data Arrived at EDR: 11/29/2012
Date Made Active in Reports: 12/18/2012
Number of Days to Update: 19

Source: Department of Environmental Protection
Telephone: 304-926-0499
Last EDR Contact: 09/17/2014
Next Scheduled EDR Contact: 12/01/2014
Data Release Frequency: Varies

US HIST CDL: National Clandestine Laboratory Register
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 05/28/2014
Date Data Arrived at EDR: 06/20/2014
Date Made Active in Reports: 07/15/2014
Number of Days to Update: 25

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 09/03/2014
Next Scheduled EDR Contact: 12/15/2014
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/18/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 07/22/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Varies

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 06/30/2014
Date Data Arrived at EDR: 07/01/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 79

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 10/01/2014
Next Scheduled EDR Contact: 01/12/2015
Data Release Frequency: Annually

SPILLS: Spills Listing
A listing of spills and releases reported to the Office of Emergency Services, they do not include any TRI information.

Date of Government Version: 07/28/2014
Date Data Arrived at EDR: 07/28/2014
Date Made Active in Reports: 09/17/2014
Number of Days to Update: 51

Source: Office of Emergency Services
Telephone: 304-558-5380
Last EDR Contact: 08/04/2014
Next Scheduled EDR Contact: 12/15/2014
Data Release Frequency: Varies

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 06/10/2014
Date Data Arrived at EDR: 07/02/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 78

Source: Environmental Protection Agency
Telephone: 800-438-2474
Last EDR Contact: 10/01/2014
Next Scheduled EDR Contact: 01/12/2015
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 08/06/2014
Next Scheduled EDR Contact: 11/17/2014
Data Release Frequency: Varies

DOD: Department of Defense Sites
This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 10/15/2014
Next Scheduled EDR Contact: 01/26/2015
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites
The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 06/06/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 8

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 09/10/2014
Next Scheduled EDR Contact: 12/22/2014
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/24/2014
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 31

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 09/30/2014
Next Scheduled EDR Contact: 01/12/2015
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 74

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 09/09/2014
Next Scheduled EDR Contact: 12/22/2014
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 08/20/2014
Next Scheduled EDR Contact: 12/08/2014
Data Release Frequency: Varies

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 01/30/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 07/15/2014
Number of Days to Update: 132

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 09/04/2014
Next Scheduled EDR Contact: 12/15/2014
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/31/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 44

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 08/29/2014
Next Scheduled EDR Contact: 12/08/2014
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 09/26/2014
Next Scheduled EDR Contact: 01/05/2015
Data Release Frequency: Every 4 Years

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/19/2014
Next Scheduled EDR Contact: 12/08/2014
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/19/2014
Next Scheduled EDR Contact: 12/08/2014
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/22/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 05/06/2014
Date Data Arrived at EDR: 05/16/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 10/10/2014
Next Scheduled EDR Contact: 01/26/2015
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 06/01/2013
Date Data Arrived at EDR: 07/17/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 107

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 10/15/2014
Next Scheduled EDR Contact: 01/26/2015
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/22/2013
Date Data Arrived at EDR: 08/02/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 91

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 09/08/2014
Next Scheduled EDR Contact: 12/22/2014
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/07/2014
Date Data Arrived at EDR: 07/10/2014
Date Made Active in Reports: 07/28/2014
Number of Days to Update: 18

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 10/08/2014
Next Scheduled EDR Contact: 01/19/2015
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 11/18/2013
Date Data Arrived at EDR: 02/27/2014
Date Made Active in Reports: 03/12/2014
Number of Days to Update: 13

Source: EPA
Telephone: (215) 814-5000
Last EDR Contact: 09/10/2014
Next Scheduled EDR Contact: 12/22/2014
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 05/23/2014
Date Made Active in Reports: 07/28/2014
Number of Days to Update: 66

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 07/22/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 04/19/2013
Number of Days to Update: 52

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 08/29/2014
Next Scheduled EDR Contact: 12/08/2014
Data Release Frequency: Biennially

UIC: Underground Injection Wells

A listing of underground injection well locations.

Date of Government Version: 07/15/2014
Date Data Arrived at EDR: 07/16/2014
Date Made Active in Reports: 09/08/2014
Number of Days to Update: 54

Source: Department of Environmental Protection
Telephone: 304-926-0499
Last EDR Contact: 10/16/2014
Next Scheduled EDR Contact: 01/26/2015
Data Release Frequency: Varies

DRYCLEANERS: Listing of Drycleaner Locations

A listing of drycleaners which use perchloroethylene.

Date of Government Version: 05/19/2014
Date Data Arrived at EDR: 05/20/2014
Date Made Active in Reports: 06/09/2014
Number of Days to Update: 20

Source: Department of Environmental Protection
Telephone: 304-926-0475
Last EDR Contact: 08/15/2014
Next Scheduled EDR Contact: 12/01/2014
Data Release Frequency: Varies

NPDES: Wastewater Discharge Permits Listing

A listing of wastewater discharge permits.

Date of Government Version: 01/19/2010
Date Data Arrived at EDR: 01/21/2010
Date Made Active in Reports: 02/25/2010
Number of Days to Update: 35

Source: Department of Environmental Protection
Telephone: 304-926-0495
Last EDR Contact: 07/21/2014
Next Scheduled EDR Contact: 11/03/2014
Data Release Frequency: Varies

AIRS: Permitted Facility and Emissions Listing
Permitted facility and emissions information listing.

Date of Government Version: 01/29/2014
Date Data Arrived at EDR: 01/29/2014
Date Made Active in Reports: 04/08/2014
Number of Days to Update: 69

Source: Department of Environmental Protection
Telephone: 304-926-0499
Last EDR Contact: 07/28/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 10/15/2014
Next Scheduled EDR Contact: 01/26/2015
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing
The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 07/25/2014
Next Scheduled EDR Contact: 11/03/2014
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands
Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 10/15/2014
Next Scheduled EDR Contact: 01/26/2015
Data Release Frequency: N/A

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)
The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/23/2013
Date Data Arrived at EDR: 11/06/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 30

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/29/2014
Next Scheduled EDR Contact: 01/12/2015
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

Date of Government Version: 10/23/2013
Date Data Arrived at EDR: 11/06/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 30

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/29/2014
Next Scheduled EDR Contact: 01/12/2015
Data Release Frequency: Annually

COAL ASH: Coal Ash Landills

A listing of coal ash landfill site locations.

Date of Government Version: 04/07/2011
Date Data Arrived at EDR: 04/27/2011
Date Made Active in Reports: 06/02/2011
Number of Days to Update: 36

Source: Department of Environmental Protection
Telephone: 304-926-0499
Last EDR Contact: 10/14/2014
Next Scheduled EDR Contact: 01/26/2015
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 06/19/2014
Date Data Arrived at EDR: 06/20/2014
Date Made Active in Reports: 07/28/2014
Number of Days to Update: 38

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 08/14/2014
Next Scheduled EDR Contact: 12/01/2014
Data Release Frequency: Quarterly

Financial Assurance: Financial Assurance Informtion Listing

A listing of financial assurance information for underground storage tank facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 03/05/2013
Date Data Arrived at EDR: 03/07/2013
Date Made Active in Reports: 04/05/2013
Number of Days to Update: 29

Source: Department of Environmental Protection
Telephone: 304-926-0499
Last EDR Contact: 09/02/2014
Next Scheduled EDR Contact: 12/15/2014
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 08/01/2014
Next Scheduled EDR Contact: 11/10/2014
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 03/14/2014
Date Data Arrived at EDR: 06/11/2014
Date Made Active in Reports: 07/28/2014
Number of Days to Update: 47

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 09/10/2014
Next Scheduled EDR Contact: 12/22/2014
Data Release Frequency: Varies

COAL ASH DOE: Sleam-Electric Plan Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 10/17/2014
Next Scheduled EDR Contact: 01/26/2015
Data Release Frequency: Varies

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 08/15/2014
Next Scheduled EDR Contact: 11/24/2014
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 11/11/2011
Date Data Arrived at EDR: 05/18/2012
Date Made Active in Reports: 05/25/2012
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 08/15/2014
Next Scheduled EDR Contact: 11/24/2014
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 06/04/2014
Date Data Arrived at EDR: 06/12/2014
Date Made Active in Reports: 07/28/2014
Number of Days to Update: 46

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 10/06/2014
Next Scheduled EDR Contact: 01/19/2015
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 04/15/2013
Date Data Arrived at EDR: 07/03/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 72

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 09/30/2014
Next Scheduled EDR Contact: 01/12/2015
Data Release Frequency: Quarterly

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Division of Environmental Protection in West Virgina.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/20/2014
Number of Days to Update: 203

Source: Division of Environmental Protection
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank
The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Division of Environmental Protection in West Virgina.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: Division of Environmental Protection
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/19/2012
Date Made Active in Reports: 08/28/2012
Number of Days to Update: 40

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 10/10/2014
Next Scheduled EDR Contact: 01/26/2015
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 08/01/2014
Date Data Arrived at EDR: 08/07/2014
Date Made Active in Reports: 10/17/2014
Number of Days to Update: 71

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 08/07/2014
Next Scheduled EDR Contact: 11/17/2014
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 07/21/2014
Date Made Active in Reports: 08/25/2014
Number of Days to Update: 35

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 07/18/2014
Next Scheduled EDR Contact: 11/03/2014
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 07/15/2014
Date Made Active in Reports: 08/13/2014
Number of Days to Update: 29

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 08/26/2014
Next Scheduled EDR Contact: 12/08/2014
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 06/20/2014
Date Made Active in Reports: 08/07/2014
Number of Days to Update: 48

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 09/15/2014
Next Scheduled EDR Contact: 12/29/2014
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Day Care Center List
Source: Office of Social Services
Telephone: 304-558-7980

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

STONEWALL RESORT
940 RESORT DR
WALKERSVILLE, WV 26447

TARGET PROPERTY COORDINATES

Latitude (North):	38.9493 - 38˚ 56’ 57.48’’
Longitude (West):	80.4933 - 80˚ 29’ 35.88’’
Universal Tranverse Mercator:	Zone 17
UTM X (Meters):	543908.6
UTM Y (Meters):	4311064.5
Elevation:	1105 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	38080-H4 ROANOKE, WV
Most Recent Revision:	1989
West Map:	38080-H5 PETERSON, WV
Most Recent Revision:	1989

EDR’s GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

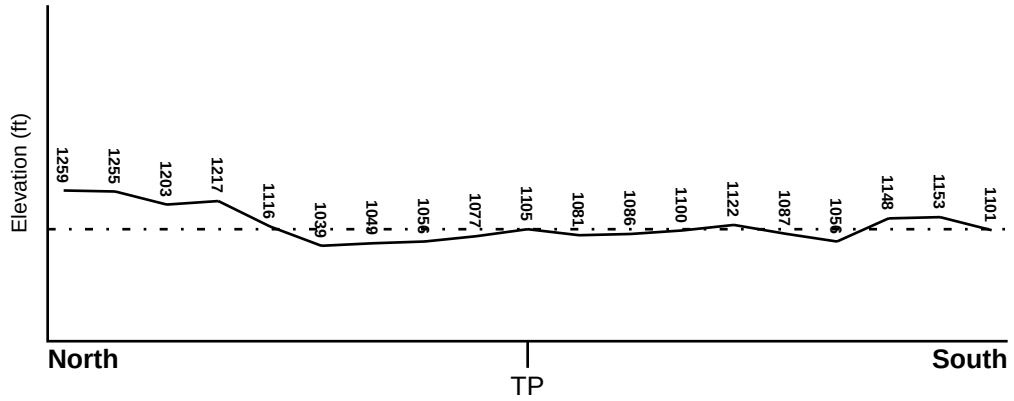
TOPOGRAPHIC INFORMATION

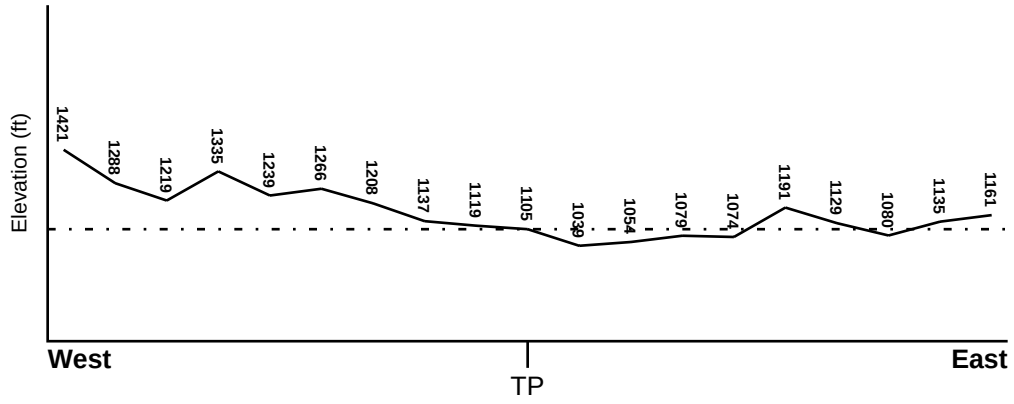
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General ENE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





Target Property Elevation: 1105 ft.

0 1/2 1 Miles

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
LEWIS, WV	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 54041C - FEMA DFIRM Flood data

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
ROANOKE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

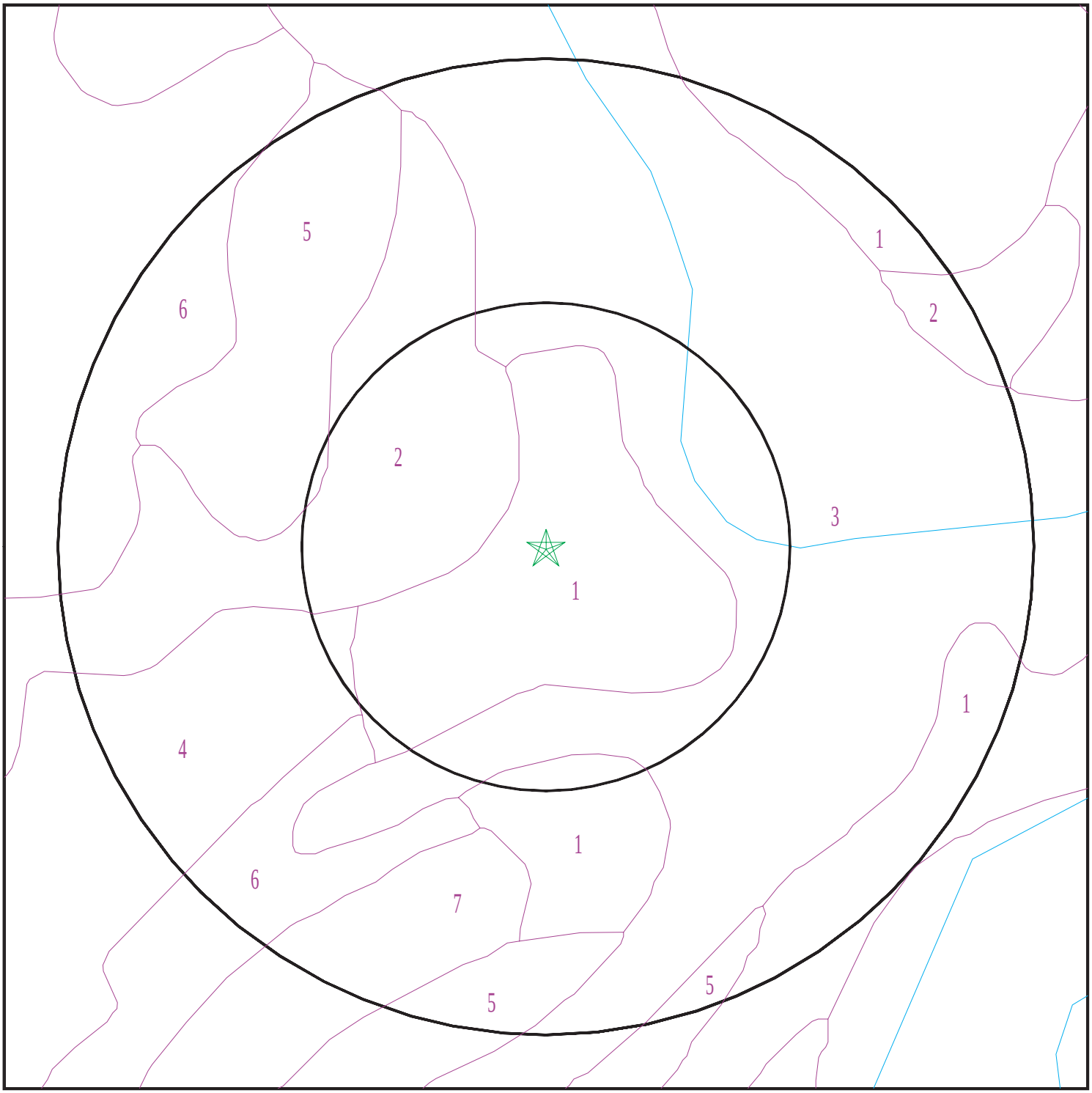
Era:	Paleozoic
System:	Pennsylvanian
Series:	Virgilian Series
Code:	PP4 *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 4109882.2s



Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

N

SITE NAME: Stonewall Resort ADDRESS: 940 Resort Dr Walkersville WV 26447 LAT/LONG: 38.9493 / 80.4933	CLIENT: Thrasher Engineering, Inc. CONTACT: Jeffrey Todd INQUIRY #: 4109882.2s DATE: October 20, 2014 12:44 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Monongahela

Soil Surface Texture: silt loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Moderately well drained

Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 69 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	silt loam	Not reported	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 4.5
2	9 inches	29 inches	silt loam	Not reported	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 4.5
3	29 inches	55 inches	silt loam	Not reported	Not reported	Max: 4 Min: 0.42	Max: 5.5 Min: 4.5
4	55 inches	64 inches	silt loam	Not reported	Not reported	Max: 4 Min: 1.4	Max: 5.5 Min: 4.5

Soil Map ID: 2

Soil Component Name: Vandalia

Soil Surface Texture: silt loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 96 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	silt loam	Not reported	Not reported	Max: 14 Min: 1.4	Max: 6 Min: 4.5
2	9 inches	40 inches	silty clay	Not reported	Not reported	Max: 4 Min: 0.42	Max: 6 Min: 4.5
3	40 inches	64 inches	channery silty clay loam	Not reported	Not reported	Max: 4 Min: 0.42	Max: 7.3 Min: 5.1

Soil Map ID: 3

Soil Component Name: Water

Soil Surface Texture: silt loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class:
Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

No Layer Information available.

Soil Map ID: 4

Soil Component Name: Vandalia

Soil Surface Texture: silt loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Unknown

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 96 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	silt loam	Not reported	Not reported	Max: 14 Min: 1.4	Max: 6 Min: 4.5
2	9 inches	40 inches	silty clay	Not reported	Not reported	Max: 4 Min: 0.42	Max: 6 Min: 4.5
3	40 inches	64 inches	channery silty clay loam	Not reported	Not reported	Max: 4 Min: 0.42	Max: 7.3 Min: 5.1

Soil Map ID: 5

Soil Component Name: Gilpin

Soil Surface Texture: silt loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	silt loam	Not reported	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 3.6
2	7 inches	26 inches	silt loam	Not reported	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 3.6

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
3	26 inches	29 inches	channery silt loam	Not reported	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 3.6
4	29 inches	33 inches		Not reported	Not reported	Max: 4 Min: 1.4	Max: Min:

Soil Map ID: 6

Soil Component Name: Gilpin

Soil Surface Texture: silt loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	silt loam	Not reported	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 3.6
2	7 inches	26 inches	silt loam	Not reported	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 3.6
3	26 inches	29 inches	channery silt loam	Not reported	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 3.6
4	29 inches	33 inches		Not reported	Not reported	Max: 4 Min: 1.4	Max: Min:

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 7

Soil Component Name: Gilpin

Soil Surface Texture: silt loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Low

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	silt loam	Not reported	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 3.6
2	7 inches	26 inches	silt loam	Not reported	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 3.6
3	26 inches	29 inches	channery silt loam	Not reported	Not reported	Max: 14 Min: 4	Max: 5.5 Min: 3.6
4	29 inches	33 inches		Not reported	Not reported	Max: 4 Min: 1.4	Max: Min:

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	USGS40001301038	1/2 - 1 Mile SSW
A2	USGS40001301037	1/2 - 1 Mile SSW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

OTHER STATE DATABASE INFORMATION

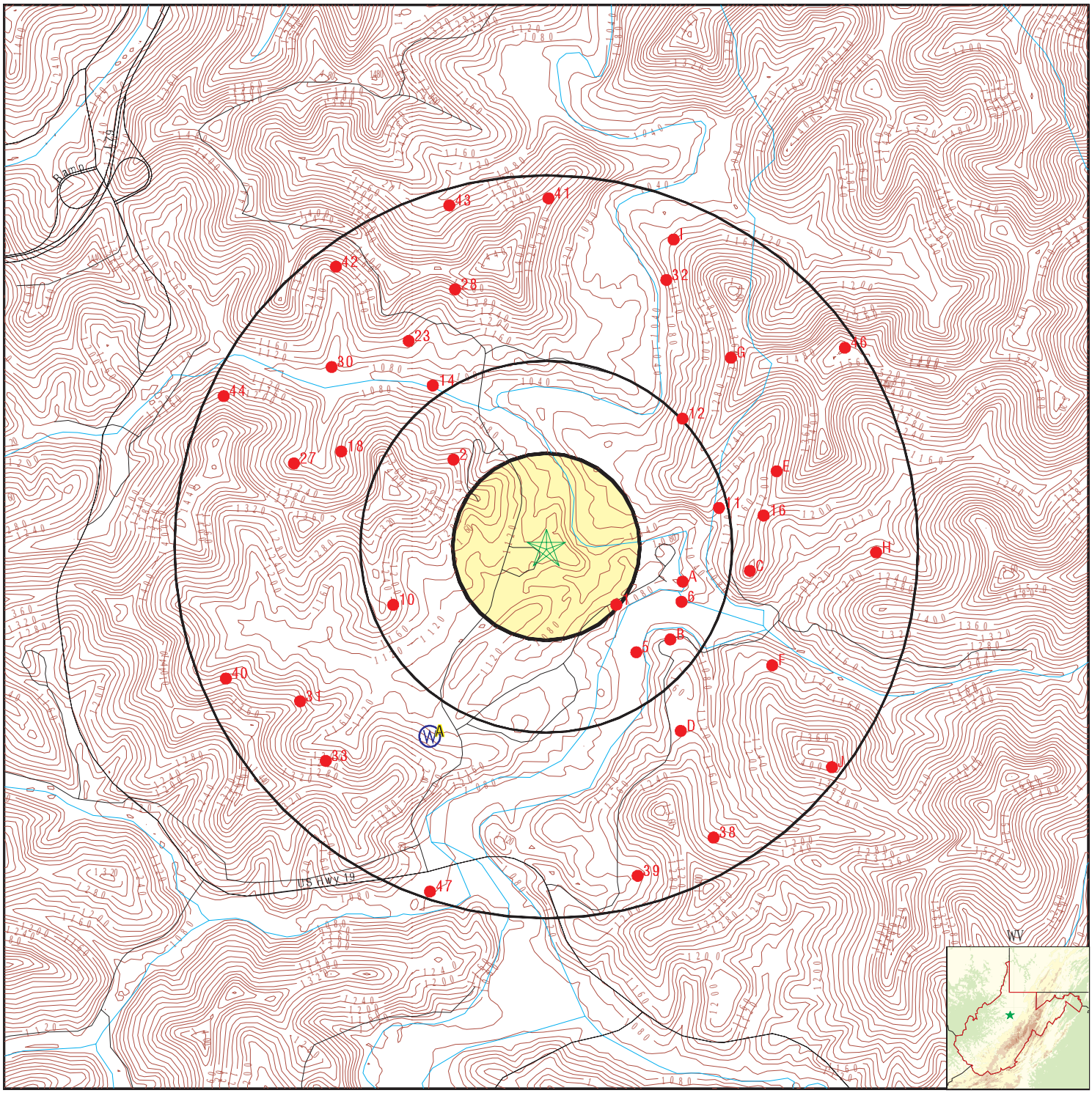
STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	WVOG80000102113	1/8 - 1/4 Mile SE
2	WVOG80000109227	1/4 - 1/2 Mile NW
A3	WVOG80000072434	1/4 - 1/2 Mile East
A4	WVOG80000043761	1/4 - 1/2 Mile ESE
5	WVOG80000043762	1/4 - 1/2 Mile SE
6	WVOG80000082885	1/4 - 1/2 Mile ESE
B7	WVOG80000070136	1/4 - 1/2 Mile SE
A8	WVOG80000034342	1/4 - 1/2 Mile ESE
B9	WVOG80000082886	1/4 - 1/2 Mile SE
10	WVOG80000109228	1/4 - 1/2 Mile WSW
11	WVOG80000019268	1/4 - 1/2 Mile ENE
12	WVOG80000110081	1/2 - 1 Mile NE
C13	WVOG80000019271	1/2 - 1 Mile East
14	WVOG80000035536	1/2 - 1 Mile NW
C15	WVOG80000022063	1/2 - 1 Mile East
16	WVOG80000019270	1/2 - 1 Mile East
D17	WVOG80000102114	1/2 - 1 Mile SE
18	WVOG80000003853	1/2 - 1 Mile WNW
E19	WVOG80000019267	1/2 - 1 Mile ENE
D20	WVOG80000105019	1/2 - 1 Mile SE
E21	WVOG80000097057	1/2 - 1 Mile ENE
F22	WVOG80000043326	1/2 - 1 Mile ESE
23	WVOG80000080572	1/2 - 1 Mile NW
E24	WVOG80000094652	1/2 - 1 Mile ENE
G25	WVOG80000045532	1/2 - 1 Mile NE
F26	WVOG80000087542	1/2 - 1 Mile ESE
27	WVOG80000054902	1/2 - 1 Mile WNW
28	WVOG80000109231	1/2 - 1 Mile NNW
G29	WVOG80000097059	1/2 - 1 Mile NE

STATE OIL/GAS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
30	WVOG80000105602	1/2 - 1 Mile NW
31	WVOG80000028524	1/2 - 1 Mile WSW
32	WVOG80000051481	1/2 - 1 Mile NNE
33	WVOG80000063090	1/2 - 1 Mile SW
H34	WVOG80000097060	1/2 - 1 Mile East
H35	WVOG80000094647	1/2 - 1 Mile East
I36	WVOG80000051482	1/2 - 1 Mile NNE
I37	WVOG80000097053	1/2 - 1 Mile NNE
38	WVOG80000102112	1/2 - 1 Mile SSE
39	WVOG80000109230	1/2 - 1 Mile SSE
40	WVOG80000046954	1/2 - 1 Mile WSW
41	WVOG80000109232	1/2 - 1 Mile North
42	WVOG80000075627	1/2 - 1 Mile NW
43	WVOG80000105604	1/2 - 1 Mile NNW
44	WVOG80000046302	1/2 - 1 Mile WNW
J45	WVOG80000102118	1/2 - 1 Mile SE
46	WVOG80000094653	1/2 - 1 Mile ENE
47	WVOG80000075529	1/2 - 1 Mile SSW
J48	WVOG80000022060	1/2 - 1 Mile SE

PHYSICAL SETTING SOURCE MAP - 4109882.2s



County Boundary
Major Roads
Contour Lines
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

0 1/4 1/2 1 Miles

Groundwater Flow Direction
Indeterminate Groundwater Flow at Location
Groundwater Flow Varies at Location
Oil, gas or related wells

SITE NAME: Stonewall Resort ADDRESS: 940 Resort Dr Walkersville WV 26447 LAT/LONG: 38.9493 / 80.4933	CLIENT: Thrasher Engineering, Inc. CONTACT: Jeffrey Todd INQUIRY #: 4109882.2s DATE: October 20, 2014 12:44 pm

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Map ID Direction Distance Elevation	Database	EDR ID Number
A1 **SSW** **1/2 - 1 Mile** **Higher**	**FED USGS**	**USGS40001301038**

Org. Identifier:	USGS-WV		
Formal name:	USGS West Virginia Water Science Center		
Monloc Identifier:	USGS-385631080295601		
Monloc name:	Lew-0048		
Monloc type:	Well		
Monloc desc:	Original station name was 1605003		
Huc code:	05020002	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	38.9420404
Longitude:	-80.4987015	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1090.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Pennsylvanian aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19470101	Welldepth:	150
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1963-05-01	40.00	

A2 **SSW** **1/2 - 1 Mile** **Higher**	**FED USGS**	**USGS40001301037**

Org. Identifier:	USGS-WV		
Formal name:	USGS West Virginia Water Science Center		
Monloc Identifier:	USGS-385630080295901		
Monloc name:	Lew-0047		
Monloc type:	Well		
Monloc desc:	Orig staname 1605002 STONEKINGS RESTAURANT		
Huc code:	05020002	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	38.9417626
Longitude:	-80.4995348	Sourcemap scale:	Not Reported
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	1090.00
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Pennsylvanian aquifers		
Formation type:	Monongahela Formation		

Aquifer type:	Not Reported		
Construction date:	19470101	Welldepth:	87
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1963-05-01	20.00	

Map ID Direction Distance		Database	EDR ID Number
1 **SE** **1/8 - 1/4 Mile**		**OIL_GAS**	**WVOG80000102113**

Well x:	544212.2		
Well y:	4311022.9		
Geosource:	ERIS-LL	Status:	Never Drilled
Type:	Not Available	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	U. S. ARMY CORP OF ENG.		
Well numbr:	GWS 31		
Resp party:	EQT PRODUCTION COMPANY		
Api:	041-03821		
County:	41		
Permit:	3821		
Recvd date:	19870522	Issue date:	Unknown
Permitid:	4103821	Permit id:	Not Reported
Site id:	WVOG80000102113		

2 **NW** **1/4 - 1/2 Mile**		**OIL_GAS**	**WVOG80000109227**

Well x:	543503.5		
Well y:	4311647.7		
Geosource:	ERIS-LL	Status:	Never Drilled
Type:	Not Available	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	USA		
Well numbr:	GWS 9		
Resp party:	EQT PRODUCTION COMPANY		
Api:	041-03768		
County:	41		
Permit:	3768		
Recvd date:	19861016	Issue date:	Unknown
Permitid:	4103768	Permit id:	Not Reported
Site id:	WVOG80000109227		

A3 **East** **1/4 - 1/2 Mile**		**OIL_GAS**	**WVOG80000072434**

Well x:	544478.9		
Well y:	4311169.2		
Geosource:	ERIS-LL	Status:	Active Well
Type:	Storage Well	Use:	Storage
Depth:	Not Available	Rig type:	NA
Farm name:	USA		
Well numbr:	8172-R		
Resp party:	EQUITRANS, L P		
Api:	041-03221		
County:	41		
Permit:	3221		
Recvd date:	Unknown	Issue date:	19820722

Permitid:	4103221	Permit id:	Not Reported
Site id:	WVOG80000072434		

A4
ESE **OIL_GAS** **WVOG80000043761**
1/4 - 1/2 Mile

Well x:	544477.1		
Well y:	4311091.2		
Geosource:	ERIS-LL	Status:	Active Well
Type:	Storage Well	Use:	Storage
Depth:	Not Available	Rig type:	NA
Farm name:	CLARK, ENOS		
Well numbr:	8175		
Resp party:	EQUITRANS, L P		
Api:	041-00284		
County:	41		
Permit:	284		
Recvd date:	Unknown	Issue date:	19570801
Permitid:	4100284	Permit id:	Not Reported
Site id:	WVOG80000043761		

5
SE **OIL_GAS** **WVOG80000043762**
1/4 - 1/2 Mile

Well x:	544300.1		
Well y:	4310817.5		
Geosource:	ERIS-LL	Status:	Plugged
Type:	Not Available	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	U. S. A.		
Well numbr:	8173		
Resp party:	EQUITRANS, L P		
Api:	041-00285		
County:	41		
Permit:	285		
Recvd date:	Unknown	Issue date:	19841002
Permitid:	4100285	Permit id:	Not Reported
Site id:	WVOG80000043762		

6
ESE **OIL_GAS** **WVOG80000082885**
1/4 - 1/2 Mile

Well x:	544494.1		
Well y:	4311037.5		
Geosource:	ERIS-LL	Status:	Active Well
Type:	Storage Well	Use:	Storage
Depth:	Not Available	Rig type:	NA
Farm name:	USA		
Well numbr:	8174-R		
Resp party:	EQUITRANS, L P		
Api:	041-03223		
County:	41		
Permit:	3223		
Recvd date:	Unknown	Issue date:	19820814

Permitid:	4103223	Permit id:	Not Reported
Site id:	WVOG80000082885		

B7
SE **OIL_GAS** **WVOG80000070136**
1/4 - 1/2 Mile

Well x:	544445.1		
Well y:	4310914.1		
Geosource:	ERIS-LL	Status:	Plugged
Type:	Not Available	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	U.S.A.		
Well numbr:	8174		
Resp party:	EQUITRANS, L P		
Api:	041-00286		
County:	41		
Permit:	286		
Recvd date:	Unknown	Issue date:	19841003
Permitid:	4100286	Permit id:	Not Reported
Site id:	WVOG80000070136		

A8
ESE **OIL_GAS** **WVOG80000034342**
1/4 - 1/2 Mile

Well x:	544539.9		
Well y:	4311114.3		
Geosource:	ERIS-LL	Status:	Plugged
Type:	Not Available	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	U.S.A.		
Well numbr:	8172		
Resp party:	PETROLEUM RESOURCES, INC.		
Api:	041-03495		
County:	41		
Permit:	3495		
Recvd date:	Unknown	Issue date:	19840925
Permitid:	4103495	Permit id:	Not Reported
Site id:	WVOG80000034342		

B9
SE **OIL_GAS** **WVOG80000082886**
1/4 - 1/2 Mile

Well x:	544448.4		
Well y:	4310833.9		
Geosource:	ERIS-LL	Status:	Active Well
Type:	Storage Well	Use:	Storage
Depth:	Not Available	Rig type:	NA
Farm name:	USA		
Well numbr:	8173-R		
Resp party:	EQUITRANS, L P		
Api:	041-03222		
County:	41		
Permit:	3222		
Recvd date:	Unknown	Issue date:	19830729

Permitid:	4103222	Permit id:	Not Reported
Site id:	WVOG80000082886		

10
WSW **OIL_GAS** **WVOG80000109228**
1/4 - 1/2 Mile

Well x:	543246.1		
Well y:	4311017.4		
Geosource:	ERIS-LL	Status:	Never Drilled
Type:	Not Available	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	USA		
Well numbr:	GWS 8		
Resp party:	EQT PRODUCTION COMPANY		
Api:	041-03769		
County:	41		
Permit:	3769		
Recvd date:	19861016	Issue date:	Unknown
Permitid:	4103769	Permit id:	Not Reported
Site id:	WVOG80000109228		

11
ENE **OIL_GAS** **WVOG80000019268**
1/4 - 1/2 Mile

Well x:	544654.2		
Well y:	4311445		
Geosource:	ERIS-LL	Status:	Active Well
Type:	Storage Well	Use:	Storage
Depth:	Not Available	Rig type:	NA
Farm name:	DOMENICI, G.		
Well numbr:	8164		
Resp party:	EQUITRANS, L P		
Api:	041-00276		
County:	41		
Permit:	276		
Recvd date:	Unknown	Issue date:	19611101
Permitid:	4100276	Permit id:	Not Reported
Site id:	WVOG80000019268		

12
NE **OIL_GAS** **WVOG80000110081**
1/2 - 1 Mile

Well x:	544494.1		
Well y:	4311830.6		
Geosource:	ERIS-LL	Status:	Active Well
Type:	Storage Well	Use:	Storage
Depth:	Not Available	Rig type:	NA
Farm name:	U.S.A.		
Well numbr:	8170		
Resp party:	EQUITRANS, L P		
Api:	041-04199		
County:	41		
Permit:	4199		
Recvd date:	19930316	Issue date:	Unknown

Permitid:	4104199	Permit id:	Not Reported
Site id:	WVOG80000110081		

C13
East
1/2 - 1 Mile

OIL_GAS **WVOG80000019271**

Well x:	544734.7		
Well y:	4311171.6		
Geosource:	ERIS-LL	Status:	Active Well
Type:	Storage Well	Use:	Storage
Depth:	Not Available	Rig type:	NA
Farm name:	CLARK, ENOS		
Well numbr:	8162		
Resp party:	EQUITRANS, L P		
Api:	041-00273		
County:	41		
Permit:	273		
Recvd date:	Unknown	Issue date:	19570401
Permitid:	4100273	Permit id:	Not Reported
Site id:	WVOG80000019271		

14
NW
1/2 - 1 Mile

OIL_GAS **WVOG80000035536**

Well x:	543412.1		
Well y:	4311967.8		
Geosource:	ERIS-LL	Status:	Plugged
Type:	Not Available	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	U. S. ARMY CORP. OF ENG.		
Well numbr:	D. K. FISHER 1		
Resp party:	ENERGY CORPORATION OF AMERICA		
Api:	041-01451		
County:	41		
Permit:	1451		
Recvd date:	Unknown	Issue date:	19871024
Permitid:	4101451	Permit id:	Not Reported
Site id:	WVOG80000035536		

C15
East
1/2 - 1 Mile

OIL_GAS **WVOG80000022063**

Well x:	544844.7		
Well y:	4311175.3		
Geosource:	ERIS-LL	Status:	Never Drilled
Type:	Not Available	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	U. S. ARMY CORP OF ENG.		
Well numbr:	GWS 22		
Resp party:	CHESTERFIELD ENERGY CORP		
Api:	041-04151		
County:	41		
Permit:	4151		
Recvd date:	19921021	Issue date:	Unknown

Permitid:	4104151	Permit id:	Not Reported
Site id:	WVOG80000022063		

16
East **OIL_GAS** **WVOG80000019270**
1/2 - 1 Mile

Well x:	544847.5		
Well y:	4311413		
Geosource:	ERIS-LL	Status:	Active Well
Type:	Storage Well	Use:	Storage
Depth:	Not Available	Rig type:	NA
Farm name:	CLARK, ENOS		
Well numbr:	8163		
Resp party:	EQUITRANS, L P		
Api:	041-00274		
County:	41		
Permit:	274		
Recvd date:	Unknown	Issue date:	Unknown
Permitid:	4100274	Permit id:	Not Reported
Site id:	WVOG80000019270		

D17
SE **OIL_GAS** **WVOG80000102114**
1/2 - 1 Mile

Well x:	544509.4		
Well y:	4310512.3		
Geosource:	ERIS-LL	Status:	Never Drilled
Type:	Not Available	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	U.S. ARMY CORP. OF ENG.		
Well numbr:	GWS 29		
Resp party:	EQT PRODUCTION COMPANY		
Api:	041-03820		
County:	41		
Permit:	3820		
Recvd date:	19870522	Issue date:	Unknown
Permitid:	4103820	Permit id:	Not Reported
Site id:	WVOG80000102114		

18
WNW **OIL_GAS** **WVOG80000003853**
1/2 - 1 Mile

Well x:	543017.5		
Well y:	4311680.4		
Geosource:	ERIS-LL	Status:	Active Well
Type:	Gas Well	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	US ARMY CORP. ENGINEERS		
Well numbr:	8221		
Resp party:	EQUITRANS, L P		
Api:	041-03692		
County:	41		
Permit:	3692		
Recvd date:	Unknown	Issue date:	19860416

Permitid:	4103692	Permit id:	Not Reported
Site id:	WVOG80000003853		

E19
ENE **OIL_GAS** **WVOG80000019267**
1/2 - 1 Mile

Well x:	544863.3		
Well y:	4311557.8		
Geosource:	ERIS-LL	Status:	Active Well
Type:	Storage Well	Use:	Storage
Depth:	Not Available	Rig type:	NA
Farm name:	MORRIS, WILL E., ETAL		
Well numbr:	8165		
Resp party:	EQUITRANS, L P		
Api:	041-00277		
County:	41		
Permit:	277		
Recvd date:	Unknown	Issue date:	Unknown
Permitid:	4100277	Permit id:	Not Reported
Site id:	WVOG80000019267		

D20
SE **OIL_GAS** **WVOG80000105019**
1/2 - 1 Mile

Well x:	544478.9		
Well y:	4310443.8		
Geosource:	ERIS-LL	Status:	Active Well
Type:	Storage Well	Use:	Storage
Depth:	Not Available	Rig type:	NA
Farm name:	U.S.A.		
Well numbr:	8168		
Resp party:	EQUITRANS, L P		
Api:	041-04198		
County:	41		
Permit:	4198		
Recvd date:	19930316	Issue date:	Unknown
Permitid:	4104198	Permit id:	Not Reported
Site id:	WVOG80000105019		

E21
ENE **OIL_GAS** **WVOG80000097057**
1/2 - 1 Mile

Well x:	544913.2		
Well y:	4311624.9		
Geosource:	ERIS-LL	Status:	Never Drilled
Type:	Not Available	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	U. S. ARMY CORP OF ENG.		
Well numbr:	GWS-19		
Resp party:	EQT PRODUCTION COMPANY		
Api:	041-03897		
County:	41		
Permit:	3897		
Recvd date:	19870515	Issue date:	Unknown

Permitid:	4103897	Permit id:	Not Reported
Site id:	WVOG80000097057		

F22
ESE **OIL_GAS** **WVOG80000043326**
1/2 - 1 Mile

Well x:	544867.5		
Well y:	4310801.9		
Geosource:	ERIS-LL	Status:	Never Drilled
Type:	Not Available	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	U.S. ARMY CORP. OF ENG.		
Well numbr:	GWS 26		
Resp party:	EQT PRODUCTION COMPANY		
Api:	041-03819		
County:	41		
Permit:	3819		
Recvd date:	19870522	Issue date:	Unknown
Permitid:	4103819	Permit id:	Not Reported
Site id:	WVOG80000043326		

23
NW **OIL_GAS** **WVOG80000080572**
1/2 - 1 Mile

Well x:	543307.1		
Well y:	4312160.4		
Geosource:	ERIS-LL	Status:	Active Well
Type:	Gas Well	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	FISHER		
Well numbr:	8258		
Resp party:	CONSOL GAS COMPANY		
Api:	041-03974		
County:	41		
Permit:	3974		
Recvd date:	Unknown	Issue date:	19900404
Permitid:	4103974	Permit id:	Not Reported
Site id:	WVOG80000080572		

E24
ENE **OIL_GAS** **WVOG80000094652**
1/2 - 1 Mile

Well x:	544933		
Well y:	4311632.5		
Geosource:	ERIS-LL	Status:	Active Well
Type:	Gas Well	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	U.S. ARMY CORP. OF ENG.		
Well numbr:	USA/ GWS 19		
Resp party:	CONSOL GAS COMPANY		
Api:	041-04073		
County:	41		
Permit:	4073		
Recvd date:	Unknown	Issue date:	19911219

Permitid:	4104073	Permit id:	Not Reported
Site id:	WVOG80000094652		

G25
NE **OIL_GAS** **WVOG80000045532**
1/2 - 1 Mile

Well x:	544674		
Well y:	4312056.2		
Geosource:	ERIS-LL	Status:	Active Well
Type:	Gas Well	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	U.S. ARMY CORP. OF ENG.		
Well numbr:	USA 16		
Resp party:	CONSOL GAS COMPANY		
Api:	041-04029		
County:	41		
Permit:	4029		
Recvd date:	Unknown	Issue date:	19901113
Permitid:	4104029	Permit id:	Not Reported
Site id:	WVOG80000045532		

F26
ESE **OIL_GAS** **WVOG80000087542**
1/2 - 1 Mile

Well x:	544908.7		
Well y:	4310727.2		
Geosource:	ERIS-LL	Status:	Active Well
Type:	Gas Well	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	US. ARMY CORP OF ENGINEER		
Well numbr:	GWS-26		
Resp party:	CONSOL GAS COMPANY		
Api:	041-04138		
County:	41		
Permit:	4138		
Recvd date:	19920825	Issue date:	19921002
Permitid:	4104138	Permit id:	Not Reported
Site id:	WVOG80000087542		

27
WNW **OIL_GAS** **WVOG80000054902**
1/2 - 1 Mile

Well x:	542813.1		
Well y:	4311627.5		
Geosource:	ERIS-LL	Status:	Abandoned Well
Type:	Not Available	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	FISHER, D. K.		
Well numbr:	2		
Resp party:	OPERATOR UNKNOWN		
Api:	041-00881		
County:	41		
Permit:	881		
Recvd date:	Unknown	Issue date:	19611101

Permitid:	4100881	Permit id:	Not Reported
Site id:	WVOG80000054902		

28
NNW **OIL_GAS** **WVOG80000109231**
1/2 - 1 Mile

Well x:	543506.5		
Well y:	4312385.2		
Geosource:	ERIS-LL	Status:	Never Drilled
Type:	Not Available	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	USA		
Well numbr:	GWS 10		
Resp party:	EQT PRODUCTION COMPANY		
Api:	041-03766		
County:	41		
Permit:	3766		
Recvd date:	19861016	Issue date:	Unknown
Permitid:	4103766	Permit id:	Not Reported
Site id:	WVOG80000109231		

G29
NE **OIL_GAS** **WVOG80000097059**
1/2 - 1 Mile

Well x:	544730.4		
Well y:	4312135.4		
Geosource:	ERIS-LL	Status:	Never Drilled
Type:	Not Available	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	U. S. ARMY CORP OF ENG.		
Well numbr:	GWS-16		
Resp party:	EQT PRODUCTION COMPANY		
Api:	041-03895		
County:	41		
Permit:	3895		
Recvd date:	19870515	Issue date:	Unknown
Permitid:	4103895	Permit id:	Not Reported
Site id:	WVOG80000097059		

30
NW **OIL_GAS** **WVOG80000105602**
1/2 - 1 Mile

Well x:	542974.1		
Well y:	4312045.7		
Geosource:	ERIS-LL	Status:	Active Well
Type:	Gas Well	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	FISHER, DARRELL, ETAL		
Well numbr:	2-288		
Resp party:	ROSS & WHARTON GAS CO INC		
Api:	041-01477		
County:	41		
Permit:	1477		
Recvd date:	Unknown	Issue date:	19660701

Permitid:	4101477	Permit id:	Not Reported
Site id:	WVOG80000105602		

31
WSW **OIL_GAS** **WVOG80000028524**
1/2 - 1 Mile

Well x:	542845.4		
Well y:	4310597.3		
Geosource:	ERIS-LL	Status:	Plugged
Type:	Not Available	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	JONES, PAUL R.		
Well numbr:	1		
Resp party:	BIG SAND DRILLING CO		
Api:	041-00929		
County:	41		
Permit:	929		
Recvd date:	20010627	Issue date:	20010627
Permitid:	4100929	Permit id:	Not Reported
Site id:	WVOG80000028524		

32
NNE **OIL_GAS** **WVOG80000051481**
1/2 - 1 Mile

Well x:	544420.9		
Well y:	4312431		
Geosource:	ERIS-LL	Status:	Active Well
Type:	Storage Well	Use:	Storage
Depth:	Not Available	Rig type:	NA
Farm name:	U.S.A.		
Well numbr:	8171		
Resp party:	EQUITRANS, L P		
Api:	041-04200		
County:	41		
Permit:	4200		
Recvd date:	19930316	Issue date:	Unknown
Permitid:	4104200	Permit id:	Not Reported
Site id:	WVOG80000051481		

33
SW **OIL_GAS** **WVOG80000063090**
1/2 - 1 Mile

Well x:	542957.9		
Well y:	4310340		
Geosource:	ERIS-LL	Status:	Plugged
Type:	Not Available	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	HEVENER, WILLARD		
Well numbr:	1		
Resp party:	OPERATOR UNKNOWN		
Api:	041-01283		
County:	41		
Permit:	1283		
Recvd date:	Unknown	Issue date:	19640413

Permitid:	4101283	Permit id:	Not Reported
Site id:	WVOG80000063090		

H34
East
1/2 - 1 Mile

OIL_GAS **WVOG80000097060**

Well x:	545332.3		
Well y:	4311297.2		
Geosource:	ERIS-LL	Status:	Never Drilled
Type:	Not Available	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	U. S. ARMY CORP OF ENG.		
Well numbr:	GWS-23		
Resp party:	EQT PRODUCTION COMPANY		
Api:	041-03898		
County:	41		
Permit:	3898		
Recvd date:	19870515	Issue date:	Unknown
Permitid:	4103898	Permit id:	Not Reported
Site id:	WVOG80000097060		

H35
East
1/2 - 1 Mile

OIL_GAS **WVOG80000094647**

Well x:	545338.4		
Well y:	4311214.9		
Geosource:	ERIS-LL	Status:	Abandoned Well
Type:	Gas Well	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	USA GWS 23		
Well numbr:	8254		
Resp party:	CONSOL GAS COMPANY		
Api:	041-04074		
County:	41		
Permit:	4074		
Recvd date:	Unknown	Issue date:	19910925
Permitid:	4104074	Permit id:	Not Reported
Site id:	WVOG80000094647		

I36
NNE
1/2 - 1 Mile

OIL_GAS **WVOG80000051482**

Well x:	544497.1		
Well y:	4312583.4		
Geosource:	ERIS-LL	Status:	Active Well
Type:	Storage Well	Use:	Storage
Depth:	Not Available	Rig type:	NA
Farm name:	U.S.A.		
Well numbr:	8177		
Resp party:	EQUITRANS, L P		
Api:	041-04201		
County:	41		
Permit:	4201		
Recvd date:	19930316	Issue date:	Unknown

Permitid:	4104201	Permit id:	Not Reported
Site id:	WVOG80000051482		

I37
NNE **OIL_GAS** **WVOG80000097053**
1/2 - 1 Mile

Well x:	544405.6		
Well y:	4312629.1		
Geosource:	ERIS-LL	Status:	Never Drilled
Type:	Not Available	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	U. S. ARMY CORP OF ENG.		
Well numbr:	GWS-14		
Resp party:	EQT PRODUCTION COMPANY		
Api:	041-03893		
County:	41		
Permit:	3893		
Recvd date:	19870515	Issue date:	Unknown
Permitid:	4103893	Permit id:	Not Reported
Site id:	WVOG80000097053		

38
SSE **OIL_GAS** **WVOG80000102112**
1/2 - 1 Mile

Well x:	544638.9		
Well y:	4310017		
Geosource:	ERIS-LL	Status:	Never Drilled
Type:	Not Available	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	U.S. ARMY CORP OF ENG.		
Well numbr:	GWS 32		
Resp party:	EQT PRODUCTION COMPANY		
Api:	041-03822		
County:	41		
Permit:	3822		
Recvd date:	19870522	Issue date:	Unknown
Permitid:	4103822	Permit id:	Not Reported
Site id:	WVOG80000102112		

39
SSE **OIL_GAS** **WVOG80000109230**
1/2 - 1 Mile

Well x:	544311.3		
Well y:	4309849.4		
Geosource:	ERIS-LL	Status:	Never Drilled
Type:	Not Available	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	USA		
Well numbr:	GWS 7		
Resp party:	EQT PRODUCTION COMPANY		
Api:	041-03765		
County:	41		
Permit:	3765		
Recvd date:	19861016	Issue date:	Unknown

Permitid:	4103765	Permit id:	Not Reported
Site id:	WVOG80000109230		

40
WSW **OIL_GAS** **WVOG80000046954**
1/2 - 1 Mile

Well x:	542523.6		
Well y:	4310693.9		
Geosource:	ERIS-LL	Status:	Plugged
Type:	Not Available	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	POST, KARL		
Well numbr:	1		
Resp party:	OPERATOR UNKNOWN		
Api:	041-01316		
County:	41		
Permit:	1316		
Recvd date:	Unknown	Issue date:	19640609
Permitid:	4101316	Permit id:	Not Reported
Site id:	WVOG80000046954		

41
North **OIL_GAS** **WVOG80000109232**
1/2 - 1 Mile

Well x:	543908.8		
Well y:	4312781.5		
Geosource:	ERIS-LL	Status:	Never Drilled
Type:	Not Available	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	USA		
Well numbr:	GWS 11		
Resp party:	EQT PRODUCTION COMPANY		
Api:	041-03767		
County:	41		
Permit:	3767		
Recvd date:	19861016	Issue date:	Unknown
Permitid:	4103767	Permit id:	Not Reported
Site id:	WVOG80000109232		

42
NW **OIL_GAS** **WVOG80000075627**
1/2 - 1 Mile

Well x:	542990.2		
Well y:	4312480.3		
Geosource:	ERIS-LL	Status:	Active Well
Type:	Gas Well	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	WILSON, WILLIAM J.		
Well numbr:	1-1068		
Resp party:	ROSS & WHARTON GAS CO INC		
Api:	041-01438		
County:	41		
Permit:	1438		
Recvd date:	Unknown	Issue date:	19651201

Permitid:	4101438	Permit id:	Not Reported
Site id:	WVOG80000075627		

43
NNW **OIL_GAS** **WVOG80000105604**
1/2 - 1 Mile

Well x:	543479.5		
Well y:	4312748.7		
Geosource:	ERIS-LL	Status:	Active Well
Type:	Gas Well	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	LAWSON, MARY W.		
Well numbr:	2-547		
Resp party:	ROSS & WHARTON GAS CO INC		
Api:	041-01475		
County:	41		
Permit:	1475		
Recvd date:	Unknown	Issue date:	19660801
Permitid:	4101475	Permit id:	Not Reported
Site id:	WVOG80000105604		

44
WNW **OIL_GAS** **WVOG80000046302**
1/2 - 1 Mile

Well x:	542507.4		
Well y:	4311917.1		
Geosource:	ERIS-LL	Status:	Active Well
Type:	Gas Well	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	FISHER, C. C.		
Well numbr:	3-286		
Resp party:	ROSS & WHARTON GAS CO INC		
Api:	041-01508		
County:	41		
Permit:	1508		
Recvd date:	Unknown	Issue date:	19661001
Permitid:	4101508	Permit id:	Not Reported
Site id:	WVOG80000046302		

J45
SE **OIL_GAS** **WVOG80000102118**
1/2 - 1 Mile

Well x:	545103.7		
Well y:	4310291.4		
Geosource:	ERIS-LL	Status:	Never Drilled
Type:	Not Available	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	U.S. ARMY CORP. OF ENG.		
Well numbr:	GWS 34		
Resp party:	EQT PRODUCTION COMPANY		
Api:	041-03824		
County:	41		
Permit:	3824		
Recvd date:	19870522	Issue date:	Unknown

Permitid:	4103824	Permit id:	Not Reported
Site id:	WVOG80000102118		

46
ENE **OIL_GAS** **WVOG80000094653**
1/2 - 1 Mile

Well x:	545195.2		
Well y:	4312141.5		
Geosource:	ERIS-LL	Status:	Active Well
Type:	Gas Well	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	U.S. ARMY CORP. OF ENG.		
Well numbr:	GWS 17		
Resp party:	CONSOL GAS COMPANY		
Api:	041-04072		
County:	41		
Permit:	4072		
Recvd date:	19910703	Issue date:	19921010
Permitid:	4104072	Permit id:	Not Reported
Site id:	WVOG80000094653		

47
SSW **OIL_GAS** **WVOG80000075529**
1/2 - 1 Mile

Well x:	543412.1		
Well y:	4309776.3		
Geosource:	ERIS-LL	Status:	Plugged
Type:	Not Available	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	U. S. ARMY CORP OF ENG.		
Well numbr:	2		
Resp party:	U.S. ARMY CORPS OF ENGINEERS		
Api:	041-03862		
County:	41		
Permit:	3862		
Recvd date:	Unknown	Issue date:	19880509
Permitid:	4103862	Permit id:	Not Reported
Site id:	WVOG80000075529		

J48
SE **OIL_GAS** **WVOG80000022060**
1/2 - 1 Mile

Well x:	545195.2		
Well y:	4310358.4		
Geosource:	ERIS-LL	Status:	Active Well
Type:	Gas Well	Use:	NA
Depth:	Not Available	Rig type:	NA
Farm name:	U. S. ARMY CORP OF ENG.		
Well numbr:	GWS 34		
Resp party:	PDC MOUNTAINEER LLC		
Api:	041-04152		
County:	41		
Permit:	4152		
Recvd date:	19921021	Issue date:	19940222

Permitid:	4104152	Permit id:	Not Reported
Site id:	WVOG80000022060		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

EPA Region 3 Statistical Summary Readings for Zip Code: 26447

Number of sites tested: 4.

Maximum Radon Level: 2.5 pCi/L.
Minimum Radon Level: 0.2 pCi/L.

pCi/L <4	pCi/L 4-10	pCi/L 10-20	pCi/L 20-50	pCi/L 50-100	pCi/L >100
4 (100.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW[R] Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

West Virginia Water Well Information
Source: Bureau of Public Health
Telephone: 304-558-6765

OTHER STATE DATABASE INFORMATION

West Virginia Oil and Gas Well Database
Source: Department of Environmental Protection
Telephone: 304-926-0450
Oil and Gas well locations in the state.

RADON

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

EPA Region 3 Statistical Summary Readings
Source: Region 3 EPA
Telephone: 215-814-2082
Radon readings for Delaware, D.C., Maryland, Pennsylvania, Virginia and West Virginia.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United State Geological Survey

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

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Stonewall Resort
940 Resort Dr
Walkersville, WV 26447

Inquiry Number: 4109882.9
October 20, 2014

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

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Date EDR Searched Historical Sources:

Aerial Photography October 20, 2014

Target Property:

940 Resort Dr

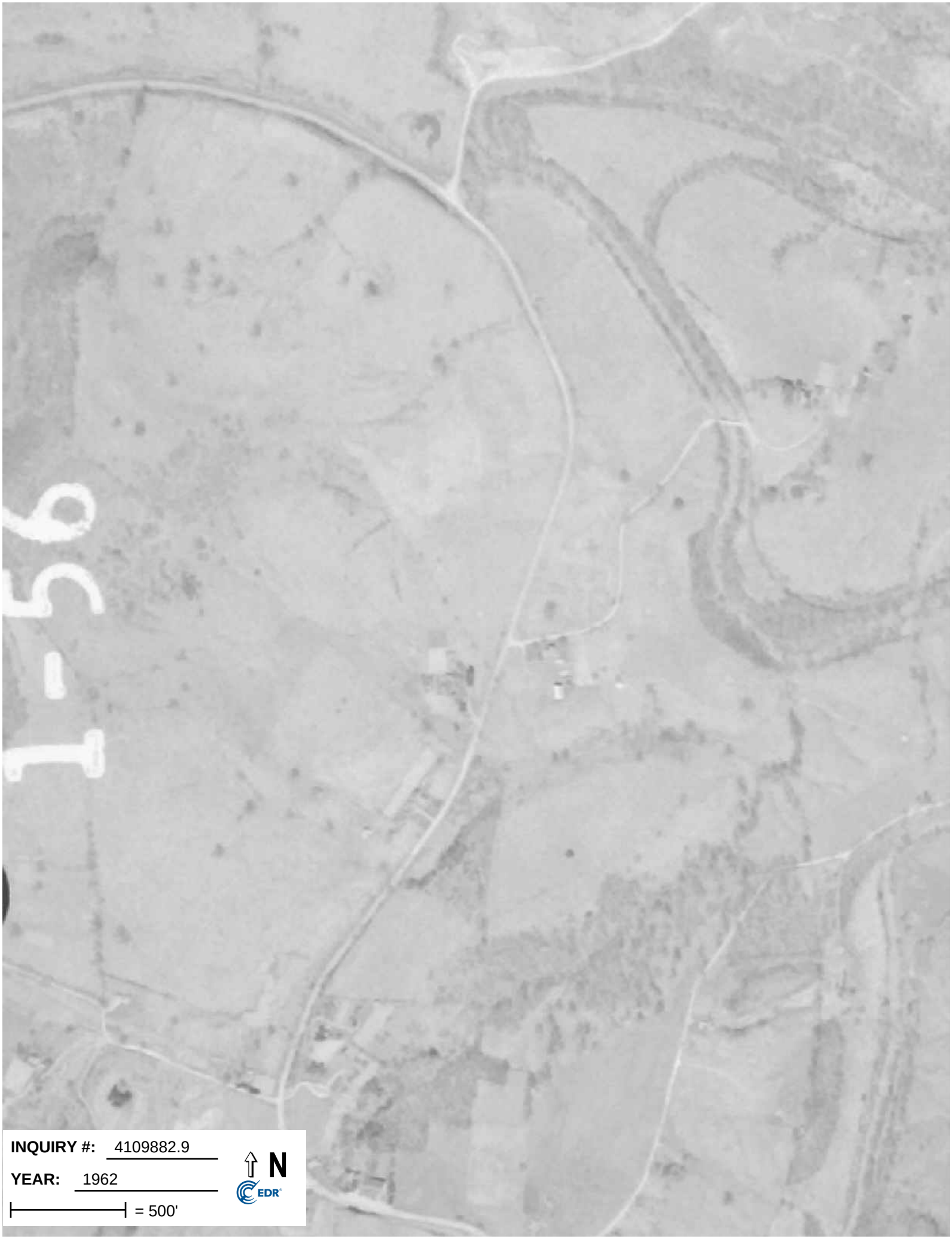
Walkersville, WV 26447

Year	***Scale***	***Details***	***Source***
1957	Aerial Photograph. Scale: 1"=750'	Flight Date: February 21, 1957	EDR
1957	Aerial Photograph. Scale: 1"=750'	Flight Date: February 21, 1957	EDR
1962	Aerial Photograph. Scale: 1"=500'	Flight Date: April 12, 1962	EDR
1962	Aerial Photograph. Scale: 1"=500'	Flight Date: April 12, 1962	EDR
1982	Aerial Photograph. Scale: 1"=1000'	Flight Date: April 29, 1982	EDR
1985	Aerial Photograph. Scale: 1"=1000'	Flight Date: March 10, 1985	EDR
1990	Aerial Photograph. Scale: 1"=750'	Flight Date: October 30, 1990	EDR
1999	Aerial Photograph. Scale: 1"=500'	DOQQ - acquisition dates: April 25, 1999	USGS/DOQQ
1999	Aerial Photograph. Scale: 1"=500'	DOQQ - acquisition dates: April 25, 1999	USGS/DOQQ
1999	Aerial Photograph. Scale: 1"=500'	DOQQ - acquisition dates: April 25, 1999	USGS/DOQQ
1999	Aerial Photograph. Scale: 1"=500'	DOQQ - acquisition dates: April 25, 1999	USGS/DOQQ
2007	Aerial Photograph. Scale: 1"=500'	Flight Year: 2007	USDA/NAIP
2007	Aerial Photograph. Scale: 1"=500'	Flight Year: 2007	USDA/NAIP
2007	Aerial Photograph. Scale: 1"=500'	Flight Year: 2007	USDA/NAIP
2007	Aerial Photograph. Scale: 1"=500'	Flight Year: 2007	USDA/NAIP
2009	Aerial Photograph. Scale: 1"=500'	Flight Year: 2009	USDA/NAIP
2009	Aerial Photograph. Scale: 1"=500'	Flight Year: 2009	USDA/NAIP
2009	Aerial Photograph. Scale: 1"=500'	Flight Year: 2009	USDA/NAIP
2009	Aerial Photograph. Scale: 1"=500'	Flight Year: 2009	USDA/NAIP

Year	*Scale*	*Details*	*Source*
2011	Aerial Photograph. Scale: 1"=500'	Flight Year: 2011	USDA/NAIP
2011	Aerial Photograph. Scale: 1"=500'	Flight Year: 2011	USDA/NAIP
2011	Aerial Photograph. Scale: 1"=500'	Flight Year: 2011	USDA/NAIP
2011	Aerial Photograph. Scale: 1"=500'	Flight Year: 2011	USDA/NAIP

INQUIRY #: 4109882.9
YEAR: 1957
= 750'
N
EDR

INQUIRY #: 4109882.9
YEAR: 1957
= 750'
N
EDR


T-56
INQUIRY #: 4109882.9
YEAR: 1962
= 500'
N
EDR

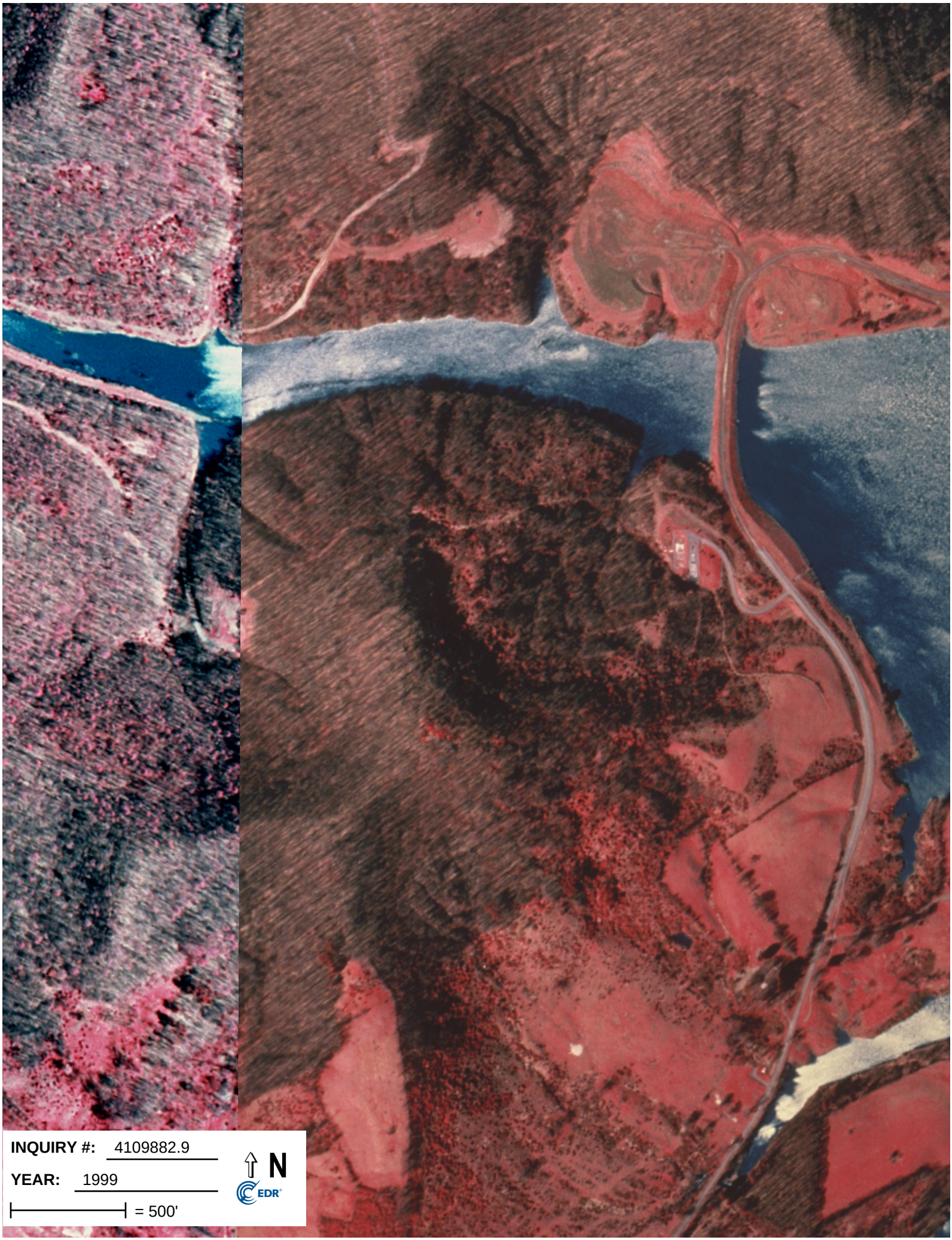
INQUIRY #: 4109882.9
YEAR: 1962
= 500'
N
EDR

INQUIRY #: 4109882.9
YEAR: 1982
= 1000'
N
EDR

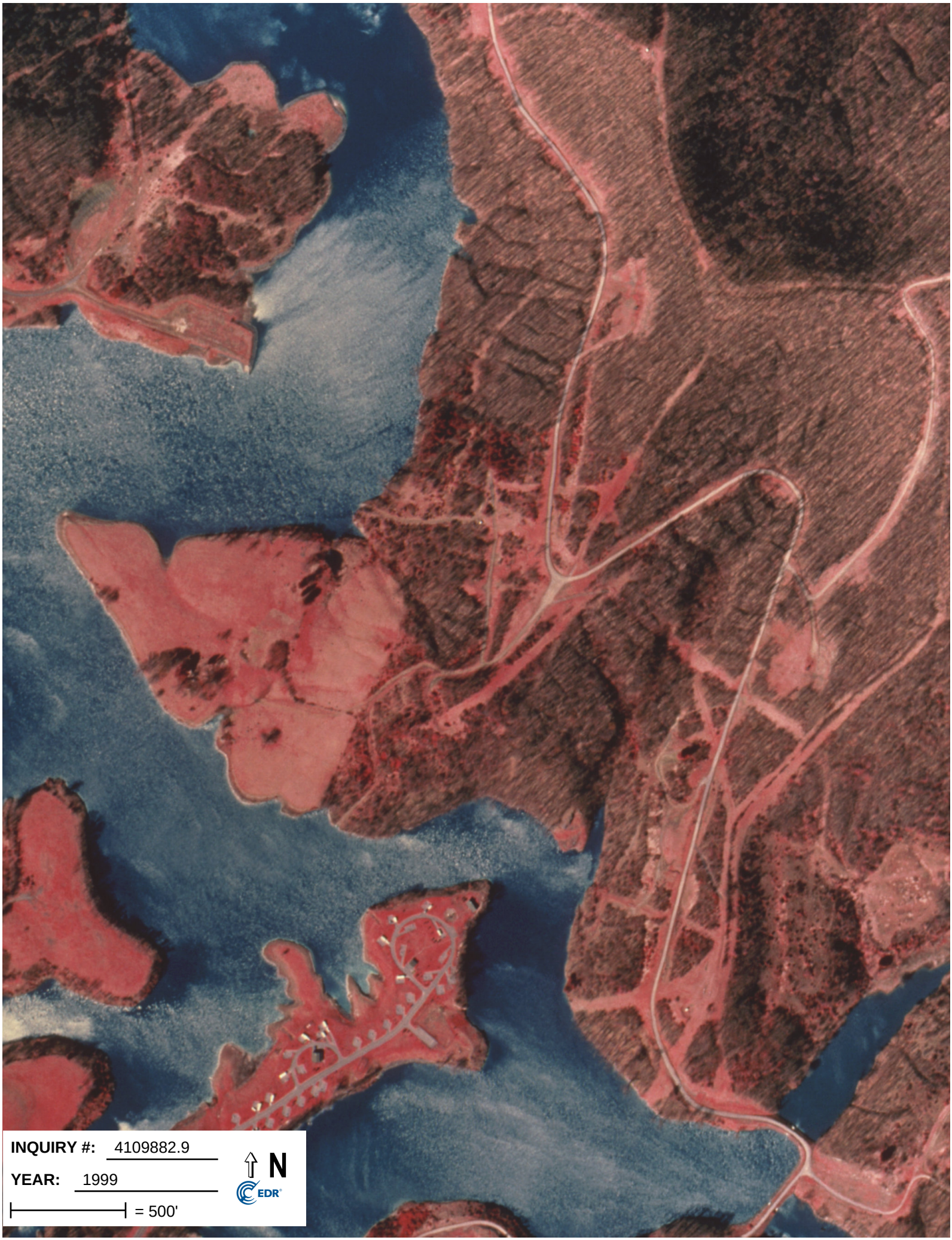
INQUIRY #: 4109882.9
YEAR: 1985
= 1000'
N
EDR

INQUIRY #: 4109882.9
YEAR: 1990
= 750'
N
EDR

INQUIRY #: 4109882.9
YEAR: 1999
= 500'
N
EDR


INQUIRY #: 4109882.9
YEAR: 1999
= 500'
N
EDR

INQUIRY #: 4109882.9
YEAR: 1999
= 500'
N
EDR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YEAR: 2009
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INQUIRY #: 4109882.9
YEAR: 2011
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INQUIRY #: 4109882.9
YEAR: 2011
= 500'
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EDR

INQUIRY #: 4109882.9
YEAR: 2011
= 500'
N
EDR

Stonewall Resort
940 Resort Dr
Walkersville, WV 26447

Inquiry Number: 4109882.4
October 20, 2014

EDR Historical Topographic Map Report

6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topographic Map Report

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Historical Topographic Map

N	TARGET QUAD NAME: BUCKHANNON MAP YEAR: 1896 SERIES: 30 SCALE: 1:125000	SITE NAME: Stonewall Resort ADDRESS: 940 Resort Dr Walkersville, WV 26447 LAT/LONG: 38.9493 / -80.4933	CLIENT: Thrasher Engineering, Inc. CONTACT: Jeffrey Todd INQUIRY#: 4109882.4 RESEARCH DATE: 10/20/2014

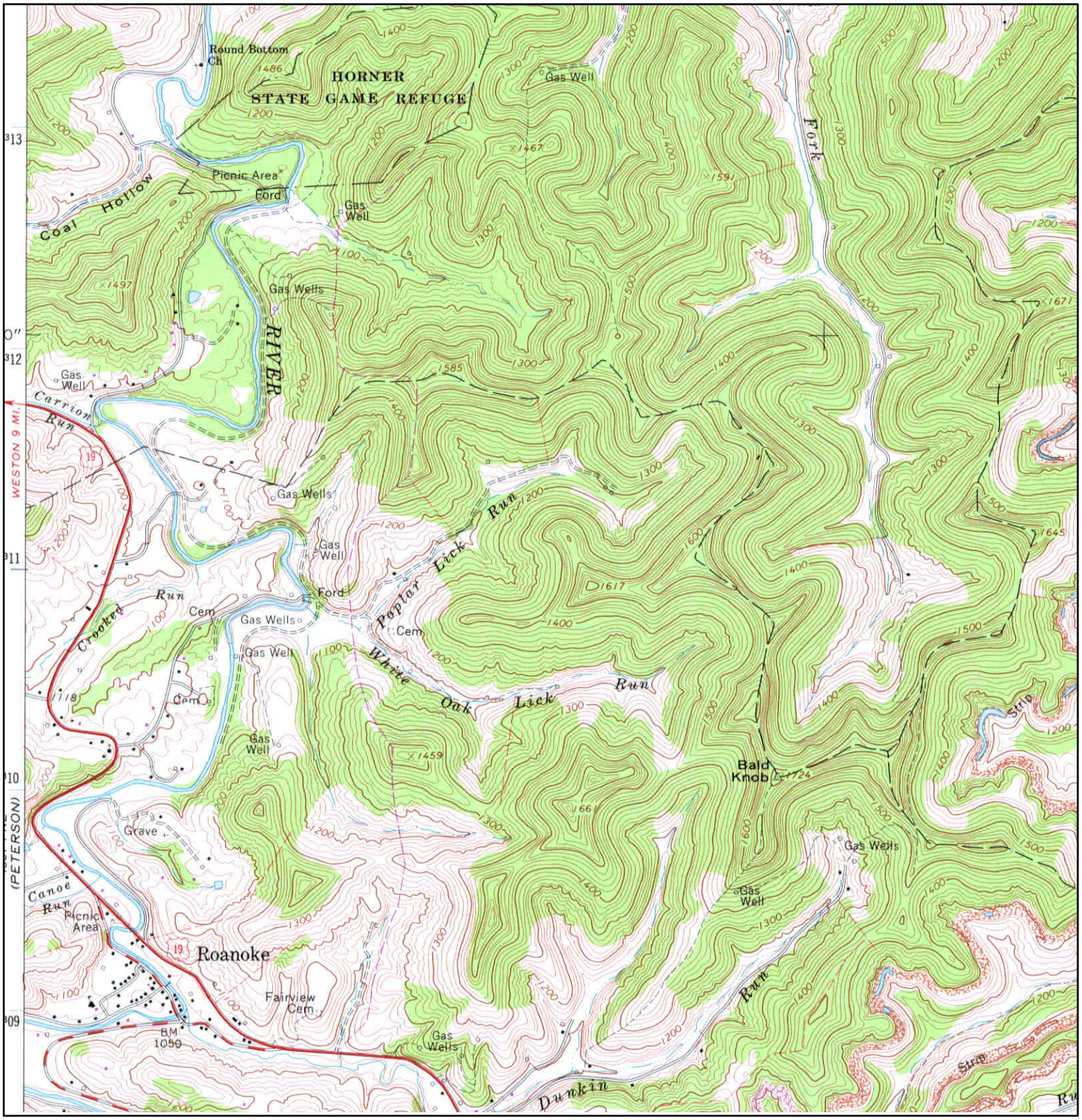
Historical Topographic Map

N	TARGET QUAD NAME: CRAWFORD MAP YEAR: 1912 SERIES: 15 SCALE: 1:62500	SITE NAME: Stonewall Resort ADDRESS: 940 Resort Dr Walkersville, WV 26447 LAT/LONG: 38.9493 / -80.4933	CLIENT: Thrasher Engineering, Inc. CONTACT: Jeffrey Todd INQUIRY#: 4109882.4 RESEARCH DATE: 10/20/2014

Historical Topographic Map

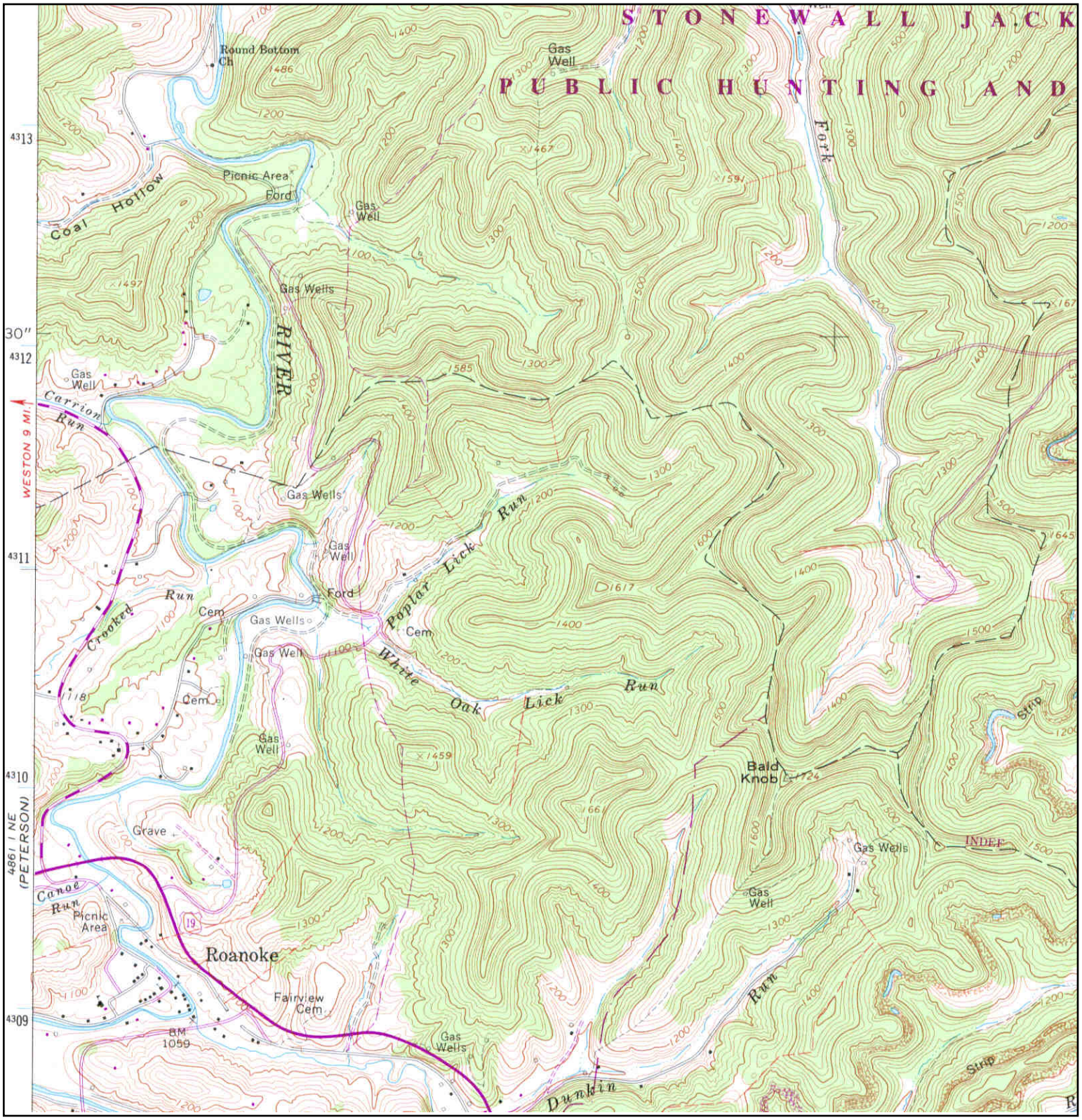
N	TARGET QUAD NAME: ROANOKE MAP YEAR: 1966 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Stonewall Resort ADDRESS: 940 Resort Dr Walkersville, WV 26447 LAT/LONG: 38.9493 / -80.4933	CLIENT: Thrasher Engineering, Inc. CONTACT: Jeffrey Todd INQUIRY#: 4109882.4 RESEARCH DATE: 10/20/2014

Historical Topographic Map



N	TARGET QUAD NAME: ROANOKE MAP YEAR: 1979 PHOTOREVISED FROM :1966 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Stonewall Resort ADDRESS: 940 Resort Dr Walkersville, WV 26447 LAT/LONG: 38.9493 / -80.4933	CLIENT: Thrasher Engineering, Inc. CONTACT: Jeffrey Todd INQUIRY#: 4109882.4 RESEARCH DATE: 10/20/2014

Historical Topographic Map



N	TARGET QUAD NAME: ROANOKE MAP YEAR: 1989 PHOTOREVISED FROM :1966 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Stonewall Resort ADDRESS: 940 Resort Dr Walkersville, WV 26447 LAT/LONG: 38.9493 / -80.4933	CLIENT: Thrasher Engineering, Inc. CONTACT: Jeffrey Todd INQUIRY#: 4109882.4 RESEARCH DATE: 10/20/2014

Historical Topographic Map

N	ADJOINING QUAD NAME: BURNSVILLE MAP YEAR: 1906 SERIES: 15 SCALE: 1:62500	SITE NAME: Stonewall Resort ADDRESS: 940 Resort Dr Walkersville, WV 26447 LAT/LONG: 38.9493 / -80.4933	CLIENT: Thrasher Engineering, Inc. CONTACT: Jeffrey Todd INQUIRY#: 4109882.4 RESEARCH DATE: 10/20/2014

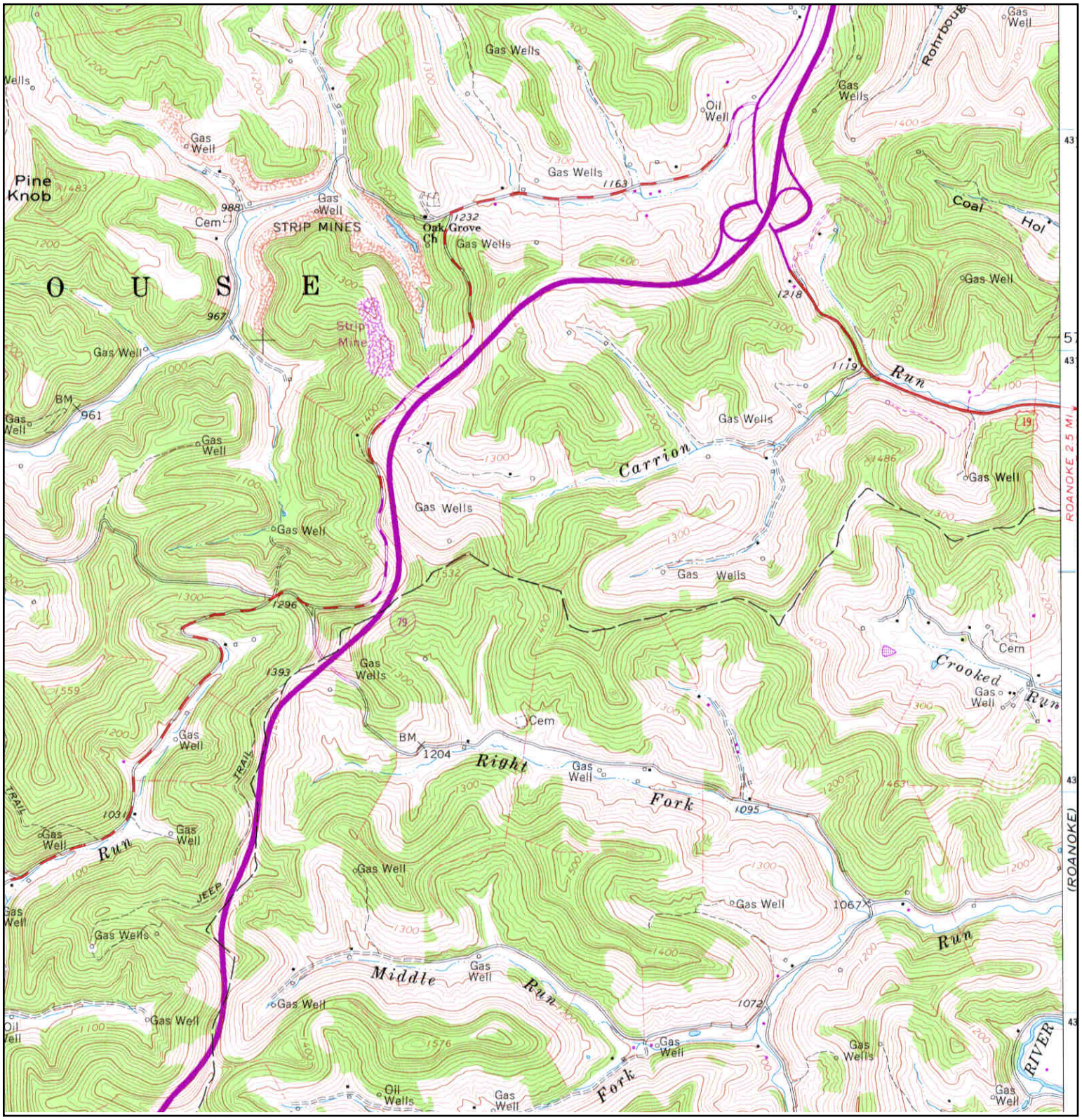
Historical Topographic Map

N	ADJOINING QUAD NAME: BURNSVILLE MAP YEAR: 1927 SERIES: 15 SCALE: 1:62500	SITE NAME: Stonewall Resort ADDRESS: 940 Resort Dr Walkersville, WV 26447 LAT/LONG: 38.9493 / -80.4933	CLIENT: Thrasher Engineering, Inc. CONTACT: Jeffrey Todd INQUIRY#: 4109882.4 RESEARCH DATE: 10/20/2014

Historical Topographic Map

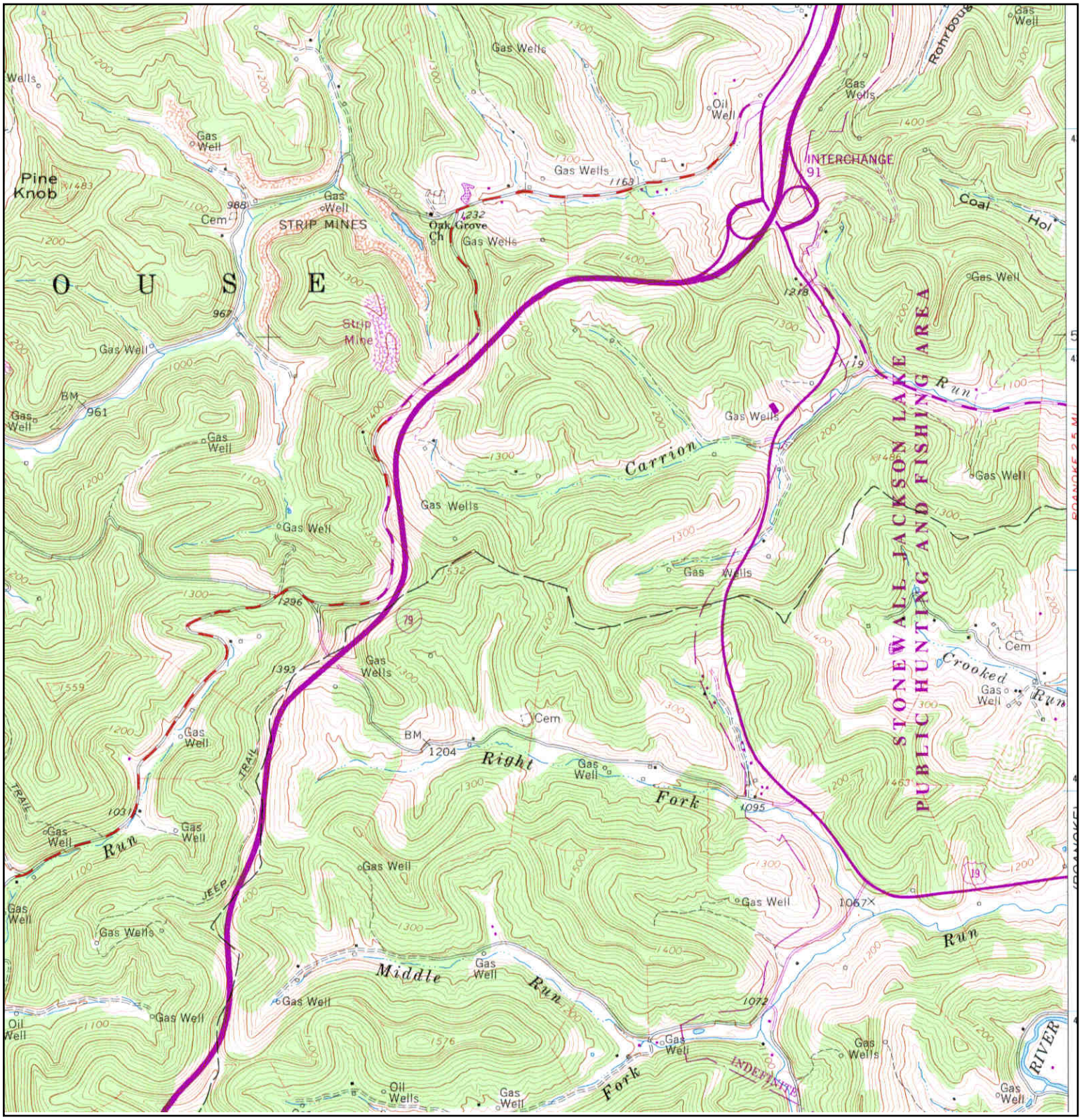
N	ADJOINING QUAD NAME: PETERSON MAP YEAR: 1966 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Stonewall Resort ADDRESS: 940 Resort Dr Walkersville, WV 26447 LAT/LONG: 38.9493 / -80.4933	CLIENT: Thrasher Engineering, Inc. CONTACT: Jeffrey Todd INQUIRY#: 4109882.4 RESEARCH DATE: 10/20/2014

Historical Topographic Map



N	ADJOINING QUAD NAME: PETERSON MAP YEAR: 1976 PHOTOREVISED FROM :1966 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Stonewall Resort ADDRESS: 940 Resort Dr Walkersville, WV 26447 LAT/LONG: 38.9493 / -80.4933	CLIENT: Thrasher Engineering, Inc. CONTACT: Jeffrey Todd INQUIRY#: 4109882.4 RESEARCH DATE: 10/20/2014

Historical Topographic Map



N	ADJOINING QUAD NAME: PETERSON MAP YEAR: 1989 PHOTOREVISED FROM :1966 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Stonewall Resort ADDRESS: 940 Resort Dr Walkersville, WV 26447 LAT/LONG: 38.9493 / -80.4933	CLIENT: Thrasher Engineering, Inc. CONTACT: Jeffrey Todd INQUIRY#: 4109882.4 RESEARCH DATE: 10/20/2014

Stonewall Resort
940 Resort Dr
Walkersville, WV 26447

Inquiry Number: 4109882.5
October 22, 2014

The EDR-City Directory Image Report

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

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City Directory Images

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	Target Street	Cross Street	Source
2013	☑	☐	Cole Information Services
2008	☐	☑	Cole Information Services
2003	☐	☐	Cole Information Services
1999	☐	☐	Cole Information Services
1995	☐	☐	Cole Information Services
1992	☐	☐	Cole Information Services

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FINDINGS

TARGET PROPERTY STREET

940 Resort Dr
Walkersville, WV 26447

Year	*CD Image*	*Source*	

RESORT DR

2013	pg A1	Cole Information Services	
2008	-	Cole Information Services	Target and Adjoining not listed in Source
2003	-	Cole Information Services	Target and Adjoining not listed in Source
1999	-	Cole Information Services	Target and Adjoining not listed in Source
1995	-	Cole Information Services	Target and Adjoining not listed in Source
1992	-	Cole Information Services	Target and Adjoining not listed in Source

FINDINGS

CROSS STREETS

Year	*CD Image*	*Source*	

STATE PARK TRL

2013	-	Cole Information Services	Target and Adjoining not listed in Source
2008	pg. A2	Cole Information Services	
2003	-	Cole Information Services	Target and Adjoining not listed in Source
1999	-	Cole Information Services	Target and Adjoining not listed in Source
1995	-	Cole Information Services	Target and Adjoining not listed in Source
1992	-	Cole Information Services	Target and Adjoining not listed in Source

City Directory Images

Target Street	Cross Street	Source
✓	-	Cole Information Services

RESORT DR 2013

940 LODGENET
STONEWALL RESORT GOLF COURSE

Target Street	Cross Street	Source
-	✓	Cole Information Services

STATE PARK TRL 2008

149 ASSOCIATION FOR CONSERVATION INFO
NATURAL RESOURCES WEST VA DIVISION
STONEWALL RESORT

Stonewall Resort
940 Resort Dr
Walkersville, WV 26447

Inquiry Number: 4109882.3
October 20, 2014

Certified Sanborn® Map Report

6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

10/20/14

Site Name:
Stonewall Resort
940 Resort Dr
Walkersville, WV 26447

Client Name:
Thrasher Engineering, Inc.
300 Association Drive
Charleston, WV 25311

EDR Inquiry # 4109882.3

Contact: Jeffrey Todd

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Thrasher Engineering, Inc. were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Site Name: Stonewall Resort
Address: 940 Resort Dr
City, State, Zip: Walkersville, WV 26447
Cross Street:
P.O. # 101-70-0309
Project: Stonewall Resort EA
Certification # 267D-4076-9E97

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results
Certification # 267D-4076-9E97

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✔ Library of Congress
- ✔ University Publications of America
- ✔ EDR Private Collection

The Sanborn Library LLC Since 1866™

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APPENDIX E – Wetland and Upland Data Forms

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Stonewall Resort 10 Year Development Plan **City/County:** Lewis **Sampling Date:** 19-Sep-14

Applicant/Owner: Stonewall Resort **State:** WV **Sampling Point:** **UPL 1**

Investigator(s): JW, MW **Section, Township, Range:** **S** **T** **R**

Landform (hillslope, terrace, etc.): Shoulder slope **Local relief (concave, convex, none):** none **Slope:** 20.0% / 11.3 °

Subregion (LRR or MLRA): LRR N **Lat.:** 38.940321 **Long.:** -80.498142 **Datum:** NAD 83

Soil Map Unit Name: Gilpin-Upshur silt loams, 35 to 70 percent slopes, severely eroded **NWI classification:** N/I

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○ No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○ No ◉	
Wetland Hydrology Present?	Yes ○ No ◉	

Remarks:

UPL 1 is located in Zone 1 in a mixed hardwood forest on a backslope.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: UPL 1

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Acer saccharinum	60	☑	66.7%	FACW
2. Carpinus caroliniana	10	☐	11.1%	FAC
3. Fagus grandifolia	20	☑	22.2%	FACU
4. Carya laciniosa	0	☐	0.0%	FAC
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	90	= Total Cover		

Sapling-Sapling/Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	0	= Total Cover		

Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		

Herb Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	0	= Total Cover		

Woody Vine Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	60	x 2 =	120	
FAC species	10	x 3 =	30	
FACU species	20	x 4 =	80	
UPL species	0	x 5 =	0	
Column Totals:	90	(A)	230	(B)

Prevalence Index = B/A = 2.556

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☐ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: UPL 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type [1]	Loc[2]	Texture	Remarks
0-12	7.5YR	5/6	100%							

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Stonewall Resort 10 Year Development Plan **City/County:** Lewis **Sampling Date:** 19-Sep-14

Applicant/Owner: Stonewall Resort **State:** WV **Sampling Point:** **UPL 2**

Investigator(s): JW, MW **Section, Township, Range:** **S** **T** **R**

Landform (hillslope, terrace, etc.): Swale **Local relief (concave, convex, none):** concave **Slope:** 20.0% / 11.3 °

Subregion (LRR or MLRA): LRR N **Lat.:** 38.945648 **Long.:** -80.491194 **Datum:** NAD 83

Soil Map Unit Name: Monongahela silt loam, 3 to 8 percent slope **NWI classification:** N/I

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○ No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○ No ◉	
Wetland Hydrology Present?	Yes ○ No ◉	

Remarks:

UPL 2 is located in Zone 4 in a mixed hardwood forest on a beachside swale.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: UPL 2

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Fraxinus pennsylvanica	3	☐	6.0%	FACW
2. Fagus grandifolia	40	☑	80.0%	FACU
3. Acer saccharinum	4	☐	8.0%	FACW
4. Cornus florida	3	☐	6.0%	FACU
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	50	= Total Cover		

Sapling-Sapling/Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	0	= Total Cover		

Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		

Herb Stratum (Plot size: 5 Feet)				
1. Solidago gigantea	1	☐	11.1%	FACW
2. Podophyllum peltatum	1	☐	11.1%	FACU
3. Fagus grandifolia	2	☑	22.2%	FACU
4. Ilex opaca	2	☑	22.2%	FACU
5. Epilobium ciliatum	3	☑	33.3%	FAC
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	9	= Total Cover		

Woody Vine Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	25.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	8	x 2 =	16	
FAC species	3	x 3 =	9	
FACU species	48	x 4 =	192	
UPL species	0	x 5 =	0	
Column Totals:	59	(A)	217	(B)

Prevalence Index = B/A = 3.678

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☐ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: UPL 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc[2]	Texture	Remarks
0-0.5	2.5Y 5/2	100%					Silt	
0.5-6	2.5Y 7/4	100%					Silt Loam	
6-12	2.5Y 7/8	100%					Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Stonewall Resort 10 Year Development Plan **City/County:** Lewis **Sampling Date:** 17-Sep-14

Applicant/Owner: Stonewall Resort **State:** **Sampling Point:** UPL 3

Investigator(s): JW, JT **Section, Township, Range:** S T R

Landform (hillslope, terrace, etc.): Shoulder slope **Local relief (concave, convex, none):** none **Slope:** 1.0% / 0.6 °

Subregion (LRR or MLRA): LRR N **Lat.:** 38.958548 **Long.:** -80.490148 **Datum:** NAD 83

Soil Map Unit Name: Monongahela silt loam, 3 to 8 percent slope **NWI classification:** N/I

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○ No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○ No ◉	
Wetland Hydrology Present?	Yes ○ No ◉	

Remarks:

UPL 3 is located in Zone 6 in a mixed hardwood forest on a backslope.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: UPL 3

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Quercus rubra	30	☑	33.0%	FACU
2. Quercus alba	31	☑	34.1%	FACU
3. Acer rubrum	20	☑	22.0%	FAC
4. Carya laciniosa	10	☐	11.0%	FAC
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	91	= Total Cover		

Sapling-Sapling/Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	0	= Total Cover		

Shrub Stratum (Plot size: 15 Feet)				
1. Elaeagnus umbellata	2	☑	40.0%	UPL
2. Ilex opaca	3	☑	60.0%	FACU
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	5	= Total Cover		

Herb Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	0	= Total Cover		

Woody Vine Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 20.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	30	x 3 =	90
FACU species	64	x 4 =	256
UPL species	2	x 5 =	10
Column Totals:	96 (A)		356 (B)

Prevalence Index = B/A = 3.708

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☐ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: UPL 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc[2]	Texture	Remarks
0-1	10YR 3/2	100%					Silty Clay Loam	
1-4	10YR 4/3	100%					Silty Clay Loam	
4-14	10YR 5/4	100%					Silty Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Stonewall Resort 10 Year Development Plan **City/County:** Lewis **Sampling Date:** 17-Sep-14

Applicant/Owner: Stonewall Resort **State:** WV **Sampling Point:** **UPL 4**

Investigator(s): JW, JT **Section, Township, Range:** **S** **T** **R**

Landform (hillslope, terrace, etc.): Shoulder slope **Local relief (concave, convex, none):** none **Slope:** 8.0% / 4.6 °

Subregion (LRR or MLRA): LRR N **Lat.:** 38.950690 **Long.:** -80.494933 **Datum:** NAD 83

Soil Map Unit Name: Vandalia silt loam, 15 to 25 percent slope **NWI classification:** N/I

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○ No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○ No ◉	
Wetland Hydrology Present?	Yes ○ No ◉	

Remarks:

UPL 4 is located adjacent to Zone 7 in a reclaimed, previously disturbed open meadow.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: UPL 4

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0	= Total Cover		

Sapling-Sapling/Shrub Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	0	= Total Cover		

Shrub Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		

Herb Stratum (Plot size: 5 Feet)				
1. Festuca rubra	80	☑	80.0%	FACU
2. Erythronium albidum	10	☐	10.0%	FACU
3. Asclepias syriaca	5	☐	5.0%	FACU
4. Trifolium pratense	3	☐	3.0%	FACU
5. Solanum carolinense	2	☐	2.0%	FACU
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	100	= Total Cover		

Woody Vine Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	100 (A)		400 (B)

Prevalence Index = B/A = 4.000

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☐ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: UPL 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type [1]	Loc[2]	Texture	Remarks
0-8	10YR	4/4	100%							

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Stonewall Resort 10 Year Development Plan **City/County:** Lewis **Sampling Date:** 19-Sep-14

Applicant/Owner: Stonewall Resort **State:** WV **Sampling Point:** **UPL 5**

Investigator(s): JW, MW **Section, Township, Range:** **S** **T** **R**

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** none **Slope:** 8.0% / 4.6 °

Subregion (LRR or MLRA): LRR N **Lat.:** 38.942869 **Long.:** -80.501048 **Datum:** NAD 83

Soil Map Unit Name: Vandalia silt loam, 15 to 25 percent slope **NWI classification:** N/I

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○ No ◉	
Wetland Hydrology Present?	Yes ○ No ◉	

Remarks:

UPL 5 is located in Zone 8 in a mixed hardwood forest on a backslope.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: UPL 5

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Aesculus hippocastanum	25	☑	50.0%	UPL
2. Acer rubrum	10	☑	20.0%	FAC
3. Populus alba	10	☑	20.0%	UPL
4. Quercus velutina	5	☐	10.0%	UPL
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	50	= Total Cover		

Sapling-Sapling/Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	0	= Total Cover		

Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		

Herb Stratum (Plot size: 5 Feet)				
1. Persicaria pensylvanica	35	☑	35.0%	FACW
2. Dichanthelium clandestinum	10	☐	10.0%	FAC
3. Rosa multiflora	5	☐	5.0%	FACU
4. Microstegium vimineum	15	☐	15.0%	FAC
5. Elaeagnus umbellata	5	☐	5.0%	UPL
6. Boehmeria cylindrica	30	☑	30.0%	FACW
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	100	= Total Cover		

Woody Vine Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 60.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	65	x 2 =	130	
FAC species	35	x 3 =	105	
FACU species	5	x 4 =	20	
UPL species	45	x 5 =	225	
Column Totals:	150	(A)	480	(B)

Prevalence Index = B/A = 3.200

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: UPL 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type [1]	Loc[2]	Texture	Remarks
0-1	10YR	4/4	100%						Silt Loam	
1-12	10YR	5/6	100%						Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Stonewall Resort 10 Year Development Plan **City/County:** Lewis **Sampling Date:** 24-Sep-14

Applicant/Owner: Stonewall Resort **State:** WV **Sampling Point:** **UPL 6**

Investigator(s): JW, MW **Section, Township, Range:** **S** **T** **R**

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** none **Slope:** 15.0% / 8.5 °

Subregion (LRR or MLRA): LRR N **Lat.:** 38.941304 **Long.:** -80.487889 **Datum:** NAD 83

Soil Map Unit Name: Gilpin-Upshur silt loams, 35 to 70 percent slopes, severely eroded **NWI classification:** N/I

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○ No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○ No ◉	
Wetland Hydrology Present?	Yes ○ No ◉	

Remarks:

UPL 6 is located in Zone 9 in a mixed hardwood forest on a backslope.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: UPL 6

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Platanus occidentalis	5	☐	5.3%	FACW
2. Liriodendron tulipifera	60	☑	63.2%	FACU
3. Acer rubrum	25	☑	26.3%	FAC
4. Fagus grandifolia	5	☐	5.3%	FACU
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	95	= Total Cover		

Sapling-Sapling/Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	0	= Total Cover		

Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		

Herb Stratum (Plot size: 5 Feet)				
1. Urtica dioica	15	☑	25.0%	FACU
2. Smilax rotundifolia	5	☐	8.3%	FAC
3. Microstegium vimineum	40	☑	66.7%	FAC
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	60	= Total Cover		

Woody Vine Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	5	x 2 =	10	
FAC species	70	x 3 =	210	
FACU species	80	x 4 =	320	
UPL species	0	x 5 =	0	
Column Totals:	155	(A)	540	(B)

Prevalence Index = B/A = 3.484

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☐ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: UPL 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc[2]	Texture	Remarks
0-15	7.5YR 4/4	100%					Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Stonewall Resort 10 Year Development Plan **City/County:** Lewis **Sampling Date:** 24-Sep-14

Applicant/Owner: Stonewall Resort **State:** WV **Sampling Point:** **UPL 7**

Investigator(s): JW, MW **Section, Township, Range:** **S** **T** **R**

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** concave **Slope:** 15.0% / 8.5 °

Subregion (LRR or MLRA): LRR N **Lat.:** 38.939225 **Long.:** -80.490113 **Datum:** NAD 83

Soil Map Unit Name: Gilpin-Upshur silt loams, 35 to 70 percent slopes, severely eroded **NWI classification:** N/I

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○ No ◉	
Wetland Hydrology Present?	Yes ○ No ◉	

Remarks:

UPL 7 is located in Zone 9 in a mixed hardwood forest on a backslope.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: UPL 7

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Platanus occidentalis	5	☐	6.6%	FACW
2. Acer rubrum	10	☐	13.2%	FAC
3. Fraxinus americana	1	☐	1.3%	FACU
4. Liriodendron tulipifera	60	☑	78.9%	FACU
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	76	= Total Cover		

Sapling-Sapling/Shrub Stratum (Plot size: 15 Feet)				
1. Cornus florida	4	☐	100.0%	FACU
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	4	= Total Cover		

Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		

Herb Stratum (Plot size: 5 Feet)				
1. Microstegium vimineum	30	☑	38.5%	FAC
2. Dichanthelium clandestinum	20	☑	25.6%	FAC
3. Rosa multiflora	2	☐	2.6%	FACU
4. Polystichum acrostichoides	8	☐	10.3%	FACU
5. Lepidium virginicum	5	☐	6.4%	FACU
6. Persicaria pensylvanica	10	☐	12.8%	FACW
7. Acer negundo	3	☐	3.8%	FAC
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	78	= Total Cover		

Woody Vine Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	0	x 1 =	0	
FACW species	15	x 2 =	30	
FAC species	63	x 3 =	189	
FACU species	80	x 4 =	320	
UPL species	0	x 5 =	0	
Column Totals:	158	(A)	539	(B)

Prevalence Index = B/A = 3.411

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: UPL 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type [1]	Loc[2]	Texture	Remarks
0-15	5YR	4/4	100%						Silty Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Stonewall Resort 10 Year Development Plan **City/County:** Lewis **Sampling Date:** 24-Sep-14

Applicant/Owner: Stonewall Resort **State:** WV **Sampling Point:** **UPL 8**

Investigator(s): JW, MW **Section, Township, Range:** **S** **T** **R**

Landform (hillslope, terrace, etc.): Bench **Local relief (concave, convex, none):** concave **Slope:** 5.0% / 2.9 °

Subregion (LRR or MLRA): LRR N **Lat.:** 38.936224 **Long.:** -80.490493 **Datum:** NAD 83

Soil Map Unit Name: Gilpin-Upshur silt loams, 8 to 15 percent slopes **NWI classification:** N/I

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ○ No ◉	
Hydric Soil Present?	Yes ○ No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Wetland Hydrology Present?	Yes ○ No ◉	

Remarks:

UPL 8 is located in Zone 9 in a previously disturbed open meadow below a culvert draining a storm pond.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: UPL 8

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0	= Total Cover		
Sapling-Sapling/Shrub Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	0	= Total Cover		
Shrub Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratum (Plot size: 5 Feet)				
1. Mentha spicata	10	☐	11.1%	FACW
2. Poa pratensis	40	☑	44.4%	FACU
3. Asclepias syriaca	5	☐	5.6%	FACU
4. Boehmeria cylindrica	3	☐	3.3%	FACW
5. Carex lurida	2	☐	2.2%	OBL
6. Festuca arundinacea	30	☑	33.3%	FACU
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	90	= Total Cover		
Woody Vine Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	0.0%	(A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2	
FACW species	13	x 2 =	26	
FAC species	0	x 3 =	0	
FACU species	75	x 4 =	300	
UPL species	0	x 5 =	0	
Column Totals:	90	(A)	328	(B)

Prevalence Index = B/A = 3.644

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☐ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: UPL 8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type [1]	Loc[2]	Texture	Remarks
0-5	10YR	4/3	100%						Silt Loam	
5-15	10YR	4/4	100%						Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Stonewall Resort 10 Year Development Plan **City/County:** Lewis **Sampling Date:** 17-Sep-14

Applicant/Owner: Stonewall Resort **State:** WV **Sampling Point:** **WL 1**

Investigator(s): JW, JT **Section, Township, Range:** **S** **T** **R**

Landform (hillslope, terrace, etc.): Lowland **Local relief (concave, convex, none):** concave **Slope:** 0.0% / 0.0 °

Subregion (LRR or MLRA): LRR N **Lat.:** 38.958657 **Long.:** -80.489776 **Datum:** NAD 83

Soil Map Unit Name: Monongahela silt loam, 3 to 8 percent slope **NWI classification:** N/I

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	
Hydric Soil Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:

WL 1 is a PEM wetland located in Zone 6 in an open lowland area and is fed by a drain originating from a culvert.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☑ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○ No ◉	Depth (inches):	
Water Table Present?	Yes ◉ No ○	Depth (inches):	-2
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: WL 1

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Acer pseudoplatanus	5	☑	100.0%	UPL
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	5	= Total Cover		
Sapling-Sapling/Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	0	= Total Cover		
Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratum (Plot size: 5 Feet)				
1. Typha latifolia	40	☑	45.5%	OBL
2. Juncus effusus	5	☐	5.7%	FACW
3. Carex lurida	5	☐	5.7%	OBL
4. Acer pseudoplatanus	2	☐	2.3%	UPL
5. Lysimachia nummularia	5	☐	5.7%	FACW
6. Leersia oryzoides	15	☑	17.0%	OBL
7. Persicaria sagittata	5	☐	5.7%	OBL
8. Scirpus cyperinus	2	☐	2.3%	FACW
9. Dichanthelium clandestinum	2	☐	2.3%	FAC
10. Galium aparine	2	☐	2.3%	FACU
11. Eleocharis palustris	5	☐	5.7%	OBL
12.	0	☐	0.0%	
	88	= Total Cover		
Woody Vine Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	70	x 1 =	70	
FACW species	12	x 2 =	24	
FAC species	2	x 3 =	6	
FACU species	2	x 4 =	8	
UPL species	7	x 5 =	35	
Column Totals:	93	(A)	143	(B)

Prevalence Index = B/A = 1.538

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WL 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc[2]	Texture	Remarks
0-2	10YR 3/2	100%					Muck	
2-14	10YR 5/2	100%					Silty Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☑ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Stonewall Resort 10 Year Development Plan **City/County:** Lewis **Sampling Date:** 17-Sep-14

Applicant/Owner: Stonewall Resort **State:** WV **Sampling Point:** **WL 2**

Investigator(s): JW, JT **Section, Township, Range:** **S** **T** **R**

Landform (hillslope, terrace, etc.): Lowland **Local relief (concave, convex, none):** concave **Slope:** 3.0% / 1.7 °

Subregion (LRR or MLRA): LRR N **Lat.:** 38.949618 **Long.:** -80.494317 **Datum:** NAD 83

Soil Map Unit Name: Vandalia silt loam, 15 to 25 percent slope **NWI classification:** N/I

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	
Hydric Soil Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:

WL 2 is a PEM wetland located in Zone 5 in an open lowland area.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☑ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☑ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉ No ○	Depth (inches):	3
Water Table Present?	Yes ◉ No ○	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: WL 2

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0		= Total Cover	

Sapling-Sapling/Shrub Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	0		= Total Cover	

Shrub Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0		= Total Cover	

Herb Stratum (Plot size: 5 Feet)				
1. Typha latifolia	60	☑	59.4%	OBL
2. Persicaria sagittata	10	☐	9.9%	OBL
3. Leersia oryzoides	11	☐	10.9%	OBL
4. Eupatorium perfoliatum	5	☐	5.0%	FACW
5. Eleocharis rostellata	10	☐	9.9%	OBL
6. Juncus effusus	5	☐	5.0%	FACW
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	101		= Total Cover	

Woody Vine Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	91	x 1 =	91	
FACW species	10	x 2 =	20	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column Totals:	101	(A)	111	(B)

Prevalence Index = B/A = 1.099

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WL 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc[2]	Texture	Remarks
0-14	10YR 5/1	100%					Silt Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Stonewall Resort 10 Year Development Plan **City/County:** Lewis **Sampling Date:** 17-Sep-14

Applicant/Owner: Stonewall Resort **State:** WV **Sampling Point:** **WL 3**

Investigator(s): JW, JT **Section, Township, Range:** **S** **T** **R**

Landform (hillslope, terrace, etc.): Lowland **Local relief (concave, convex, none):** concave **Slope:** 5.0% / 2.9 °

Subregion (LRR or MLRA): LRR N **Lat.:** 38.949533 **Long.:** -80.494048 **Datum:** NAD 83

Soil Map Unit Name: Vandalia silt loam, 15 to 25 percent slope **NWI classification:** N/I

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	
Hydric Soil Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:

WL 3 is a PEM wetland located in Zone 5 in an open lowland area.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○ No ◉	Depth (inches):	
Water Table Present?	Yes ◉ No ○	Depth (inches): 0	**Wetland Hydrology Present?** Yes ◉ No ○
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches): 0	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: WL 3

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0		= Total Cover	

Sapling-Sapling/Shrub Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	0		= Total Cover	

Shrub Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0		= Total Cover	

Herb Stratum (Plot size: 5 Feet)				
1. Typha latifolia	30	☑	33.3%	OBL
2. Carex alopecoidea	20	☑	22.2%	FACW
3. Juncus effusus	20	☑	22.2%	FACW
4. Persicaria sagittata	10	☐	11.1%	OBL
5. Leersia oryzoides	10	☐	11.1%	OBL
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	90		= Total Cover	

Woody Vine Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	50	x 1 =	50	
FACW species	40	x 2 =	80	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column Totals:	90	(A)	130	(B)

Prevalence Index = B/A = 1.444

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WL 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type [1]	Loc[2]	Texture	Remarks
0-4	10YR	3/1							Silty Clay Loam	
4-14	10YR	4/2	75%	7.5YR	5/6	25%	C	PL	Silty Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☑ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Stonewall Resort 10 Year Development Plan **City/County:** Lewis **Sampling Date:** 17-Sep-14

Applicant/Owner: Stonewall Resort **State:** WV **Sampling Point:** **WL 4**

Investigator(s): JW, JT **Section, Township, Range:** **S** **T** **R**

Landform (hillslope, terrace, etc.): Lowland **Local relief (concave, convex, none):** concave **Slope:** 4.0% / 2.3 °

Subregion (LRR or MLRA): LRR N **Lat.:** 38.948129 **Long.:** -80.495006 **Datum:** NAD 83

Soil Map Unit Name: Monongahela silt loam, 3 to 8 percent slope **NWI classification:** N/I

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:

WL 4 is a PEM wetland located adjacent to Zone 5 in an open lowland area.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○ No ◉	Depth (inches):	
Water Table Present?	Yes ○ No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches): 0	**Wetland Hydrology Present?** Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: WL 4

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0		= Total Cover	

Sapling-Sapling/Shrub Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	0		= Total Cover	

Shrub Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0		= Total Cover	

Herb Stratum (Plot size: 5 Feet)				
1. Typha latifolia	60	☑	60.0%	OBL
2. Carex lurida	10	☐	10.0%	OBL
3. Juncus effusus	11	☐	11.0%	FACW
4. Boehmeria cylindrica	9	☐	9.0%	FACW
5. Agrimonia parviflora	10	☐	10.0%	FACW
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	100		= Total Cover	

Woody Vine Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	70	x 1 =	70	
FACW species	30	x 2 =	60	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column Totals:	100	(A)	130	(B)

Prevalence Index = B/A = 1.300

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WL 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type [1]	Loc[2]	Texture	Remarks
0-4	10YR	3/2	100%						Silty Clay Loam	
4-14	10YR	4/2	80%	7.5YR	4/6	20%	C	PL	Silty Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Stonewall Resort 10 Year Development Plan **City/County:** Lewis **Sampling Date:** 19-Sep-14

Applicant/Owner: Stonewall Resort **State:** WV **Sampling Point:** **WL 5**

Investigator(s): JW, MW **Section, Township, Range:** **S** **T** **R**

Landform (hillslope, terrace, etc.): Swale **Local relief (concave, convex, none):** concave **Slope:** 5.0% / 2.9 °

Subregion (LRR or MLRA): LRR N **Lat.:** 38.945528 **Long.:** -80.491157 **Datum:** NAD 83

Soil Map Unit Name: Monongahela silt loam, 3 to 8 percent slope **NWI classification:** N/I

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:

WL 5 is a PEM wetland located in Zone 4 in a swale adjacent to the lake.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☑ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○ No ◉	Depth (inches):	
Water Table Present?	Yes ◉ No ○	Depth (inches):	-3
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: WL 5

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0		= Total Cover	

Sapling-Sapling/Shrub Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	0		= Total Cover	

Shrub Stratum (Plot size: 15 Feet)				
1. Ilex opaca	3	☐	100.0%	FACU
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	3		= Total Cover	

Herb Stratum (Plot size: 5 Feet)				
1. Boehmeria cylindrica	3	☐	8.8%	FACW
2. Bidens trichosperma	15	☑	44.1%	OBL
3. Ludwigia palustris	2	☐	5.9%	OBL
4. Glyceria striata	10	☑	29.4%	OBL
5. Salix nigra	1	☐	2.9%	OBL
6. Epilobium lactiflorum	1	☐	2.9%	FACW
7. Cyperus esculentus	1	☐	2.9%	FACW
8. Saururus cernuus	1	☐	2.9%	OBL
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	34		= Total Cover	

Woody Vine Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	29	x 1 =	29	
FACW species	5	x 2 =	10	
FAC species	0	x 3 =	0	
FACU species	3	x 4 =	12	
UPL species	0	x 5 =	0	
Column Totals:	37	(A)	51	(B)

Prevalence Index = B/A = 1.378

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WL 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type [1]	Loc[2]	Texture	Remarks
0-1.5	2.5Y	3/1	100%						Sandy Loam	
1.5-10	2.5Y	5/1	98%	7.5YR	4/6	2%	C	PL	Sandy Loam	
10-12	2.5Y	4/1	99%	7.5YR	4/6	1%	C	PL	Sandy Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Stonewall Resort EA **City/County:** Jackson **Sampling Date:** 17-Sep-14

Applicant/Owner: Stonewall Resort **State:** WV **Sampling Point:** **Wetland 10**

Investigator(s): Jordan Wilcox, Maggie Williams **Section, Township, Range:** **S** **T** **R**

Landform (hillslope, terrace, etc.): Swale **Local relief (concave, convex, none):** concave **Slope:** 5.0% / 2.9 °

Subregion (LRR or MLRA): LRR N **Lat.:** 38.937253 **Long.:** -80.491454 **Datum:** NAD 83

Soil Map Unit Name: GuC - Gilpin-Upshur silt loams, 8 to 15 percent slopes **NWI classification:** N/I

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:

Sampling point collected within a PEM wetland situated in a small swale and is fed by a culvert carrying water from a road side ditch.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○ No ◉	Depth (inches):	
Water Table Present?	Yes ○ No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches): 0	**Wetland Hydrology Present?** Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: Wetland 10

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0	= Total Cover		
Sapling-Sapling/Shrub Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	0	= Total Cover		
Shrub Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		
Herb Stratum (Plot size: 5 Feet)				
1. Eleocharis rostellata	40	☑	38.1%	OBL
2. Carex lurida	15	☑	14.3%	OBL
3. Scirpus cyperinus	10	☐	9.5%	FACW
4. Mentha spicata	10	☐	9.5%	FACW
5. Lysimachia nummularia	10	☐	9.5%	FACW
6. Persicaria sagittata	10	☐	9.5%	OBL
7. Carex vulpinoidea	10	☐	9.5%	OBL
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	105	= Total Cover		
Woody Vine Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	75	x 1 =	75	
FACW species	30	x 2 =	60	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column Totals:	105	(A)	135	(B)

Prevalence Index = B/A = 1.286

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: Wetland 10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type [1]	Loc[2]	Texture	Remarks
0-6	10YR	4/2	95%	10YR	5/6	5%	C	PL	Silt Loam	
6-15	10YR	4/3	100%						Silt Loam	Coal Fragments

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Stonewall Resort EA **City/County:** Jackson **Sampling Date:** 17-Sep-14

Applicant/Owner: Stonewall Resort **State:** WV **Sampling Point:** **Wetland 6**

Investigator(s): Jordan Wilcox, Maggie Williams **Section, Township, Range:** **S** **T** **R**

Landform (hillslope, terrace, etc.): Shoreline **Local relief (concave, convex, none):** concave **Slope:** 5.0% / 2.9 °

Subregion (LRR or MLRA): LRR N **Lat.:** 38.945048 **Long.:** -80.490700 **Datum:** NAD 83

Soil Map Unit Name: GuD - Gilpin-Upshur silt loams, 15 to 25 percent slopes **NWI classification:** N/I

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:

Sampling point collected within a PEM wetland situated in an inlet of Stonewall Jackson Lake.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○ No ◉	Depth (inches):	
Water Table Present?	Yes ◉ No ○	Depth (inches):	-18
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: Wetland 6

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0		= Total Cover	

Sapling-Sapling/Shrub Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	0		= Total Cover	

Shrub Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0		= Total Cover	

Herb Stratum (Plot size: 5 Feet)				
1. Eleocharis rostellata	30	☑	49.2%	OBL
2. Glyceria striata	15	☑	24.6%	OBL
3. Cyperus esculentus	7	☐	11.5%	FACW
4. Carex lurida	4	☐	6.6%	OBL
5. Saururus cernuus	2	☐	3.3%	OBL
6. Salix nigra	3	☐	4.9%	OBL
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	61		= Total Cover	

Woody Vine Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	54	x 1 =	54	
FACW species	7	x 2 =	14	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column Totals:	61	(A)	68	(B)

Prevalence Index = B/A = 1.115

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: Wetland 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type [1]	Loc[2]	Texture	Remarks
0-3	2.5Y	6/2	90%	7.5YR	4/6	10%	C	PL	Sandy Loam	
3-14	2.5Y	4/1	100%						Sandy Loam	
14-20	N	4/	100%						Clay	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Stonewall Resort EA **City/County:** Jackson **Sampling Date:** 17-Sep-14

Applicant/Owner: Stonewall Resort **State:** WV **Sampling Point:** **Wetland 7**

Investigator(s): Jordan Wilcox, Maggie Williams **Section, Township, Range:** **S** **T** **R**

Landform (hillslope, terrace, etc.): Shoreline **Local relief (concave, convex, none):** none **Slope:** 5.0% / 2.9 °

Subregion (LRR or MLRA): LRR N **Lat.:** 38.946886 **Long.:** -80.491139 **Datum:** NAD 83

Soil Map Unit Name: MoB - Monongahela silt loam, 3 to 8 percent slopes **NWI classification:** N/I

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	
Hydric Soil Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:

Sampling point collected within a PEM wetland situated on the shoreline of Stonewall Jackson Lake.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○ No ◉	Depth (inches):	
Water Table Present?	Yes ○ No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches): -8	**Wetland Hydrology Present?** Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: Wetland 7

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0		= Total Cover	

Sapling-Sapling/Shrub Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	0		= Total Cover	

Shrub Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0		= Total Cover	

Herb Stratum (Plot size: 5 Feet)				
1. Cyperus esculentus	30	☑	31.6%	FACW
2. Carex lurida	15	☑	15.8%	OBL
3. Eleocharis rostellata	15	☑	15.8%	OBL
4. Scirpus cyperinus	10	☐	10.5%	FACW
5. Juncus effusus	10	☐	10.5%	FACW
6. Glyceria striata	5	☐	5.3%	OBL
7. Typha latifolia	10	☐	10.5%	OBL
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	95		= Total Cover	

Woody Vine Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	45	x 1 =	45	
FACW species	50	x 2 =	100	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column Totals:	95	(A)	145	(B)

Prevalence Index = B/A = 1.526

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: Wetland 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type [1]	Loc[2]	Texture	Remarks
0-4	10YR	5/1	90%	7.5YR	6/8	10%	C	PL	Sandy Loam	
4-12	2.5Y	5/3	98%	7.5YR	6/8	2%	C	PL	Sandy Loam	
12-18	10YR	5/6	100%						Silty Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Stonewall Resort EA **City/County:** Jackson **Sampling Date:** 17-Sep-14

Applicant/Owner: Stonewall Resort **State:** WV **Sampling Point:** **Wetland 8**

Investigator(s): Jordan Wilcox, Maggie Williams **Section, Township, Range:** **S** **T** **R**

Landform (hillslope, terrace, etc.): Shoreline **Local relief (concave, convex, none):** none **Slope:** 0.0% / 0.0 °

Subregion (LRR or MLRA): LRR N **Lat.:** 38.947157 **Long.:** -80.490715 **Datum:** NAD 83

Soil Map Unit Name: MoB - Monongahela silt loam, 3 to 8 percent slopes **NWI classification:** N/I

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	
Hydric Soil Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:

Sampling point collected within a PEM wetland situated in a small inlet on the shoreline of Stonewall Jackson Lake.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○ No ◉	Depth (inches):	
Water Table Present?	Yes ○ No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches): 0	**Wetland Hydrology Present?** Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: Wetland 8

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	0		= Total Cover	

Sapling-Sapling/Shrub Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	0		= Total Cover	

Shrub Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0		= Total Cover	

Herb Stratum (Plot size: 5 Feet)				
1. Juncus effusus	40	☑	40.0%	FACW
2. Scirpus cyperinus	30	☑	30.0%	FACW
3. Carex lurida	10	☐	10.0%	OBL
4. Cyperus esculentus	10	☐	10.0%	FACW
5. Justicia americana	5	☐	5.0%	OBL
6. Saururus cernuus	5	☐	5.0%	OBL
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	100		= Total Cover	

Woody Vine Stratum (Plot size: _____)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0		= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20	
FACW species	80	x 2 =	160	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column Totals:	100	(A)	180	(B)

Prevalence Index = B/A = 1.800

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: Wetland 8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type [1]	Loc[2]	Texture	Remarks
0-6	10YR	4/1	95%	7.5YR	6/8	5%	C	PL	Silty Loam	
6-10	10YR	4/1	99%	7.5YR	6/8	1%	C	PL	Silty Loam	
10-20	2.5Y	6/4	100%						Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

WETLAND DETERMINATION DATA FORM - Eastern Mountains and Piedmont Region

Project/Site: Stonewall Resort EA **City/County:** Jackson **Sampling Date:** 17-Sep-14

Applicant/Owner: Stonewall Resort **State:** WV **Sampling Point:** **Wetland 9**

Investigator(s): Jordan Wilcox, Maggie Williams **Section, Township, Range:** S ____ T ____ R ____

Landform (hillslope, terrace, etc.): Shoreline **Local relief (concave, convex, none):** none **Slope:** 0.0% / 0.0 °

Subregion (LRR or MLRA): LRR N **Lat.:** 38.947683 **Long.:** -80.489995 **Datum:** NAD 83

Soil Map Unit Name: MoB - Monongahela silt loam, 3 to 8 percent slopes **NWI classification:** N/I

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks:
Sampling point collected within a PEM wetland situated on a flat, wide shoreline of Stonewall Jackson Lake.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ True Aquatic Plants (B14)
- ☐ Hydrogen Sulfide Odor (C1)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○ No ◉	Depth (inches):	
Water Table Present?	Yes ◉ No ○	Depth (inches):	-5
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five/Four Strata)- Use scientific names of plants.

Sampling Point: Wetland 9

Tree Stratum (Plot size: 30 Feet)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Salix nigra	5	☑	100.0%	OBL
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
	5	= Total Cover		

Sapling-Sapling/Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	0	= Total Cover		

Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	0	= Total Cover		

Herb Stratum (Plot size: 5 Feet)				
1. Typha angustifolia	30	☑	30.0%	OBL
2. Juncus effusus	25	☑	25.0%	FACW
3. Justicia americana	20	☑	20.0%	OBL
4. Scirpus cyperinus	10	☐	10.0%	FACW
5. Glyceria striata	10	☐	10.0%	OBL
6. Cyperus esculentus	5	☐	5.0%	FACW
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	100	= Total Cover		

Woody Vine Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	65	x 1 =	65	
FACW species	40	x 2 =	80	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column Totals:	105	(A)	145	(B)

Prevalence Index = B/A = 1.381

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☑ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definition of Vegetation Strata:

Four Vegetation Strata:

Tree stratum – Consists of woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub stratum – Consists of woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb stratum – Consists of all herbaceous (non-woody) plants, regardless of size, and all other plants less than 3.28 ft tall.

Woody vines – Consists of all woody vines greater than 3.28 ft in height.

Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling stratum – Consists of woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub stratum – Consists of woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb stratum – Consists of all herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody species, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vines – Consists of all woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: Wetland 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type [1]	Loc[2]	Texture	Remarks
0-3	10YR	4/2	90%	7.5YR	5/6	10%	C	PL	Sandy Loam	
3-10	10YR	3/2	95%	10YR	5/6	5%	C	PL	Sandy Clay Loam	
10-20	10YR	3/2	100%						Sandy Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ 2 cm Muck (A10) (LRR N)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1) (LRR N, MLRA 147, 148)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7)
- ☐ Polyvalue Below Surface (S8) (MLRA 147,148)
- ☐ Thin Dark Surface (S9) (MLRA 147, 148)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- ☐ Umbric Surface (F13) (MLRA 136, 122)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 148)
- ☐ Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10) (MLRA 147)
- ☐ Coast Prairie Redox (A16) (MLRA 147,148)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

APPENDIX F – NRCS Soil Report of AOI

United States Department of Agriculture

NRCS

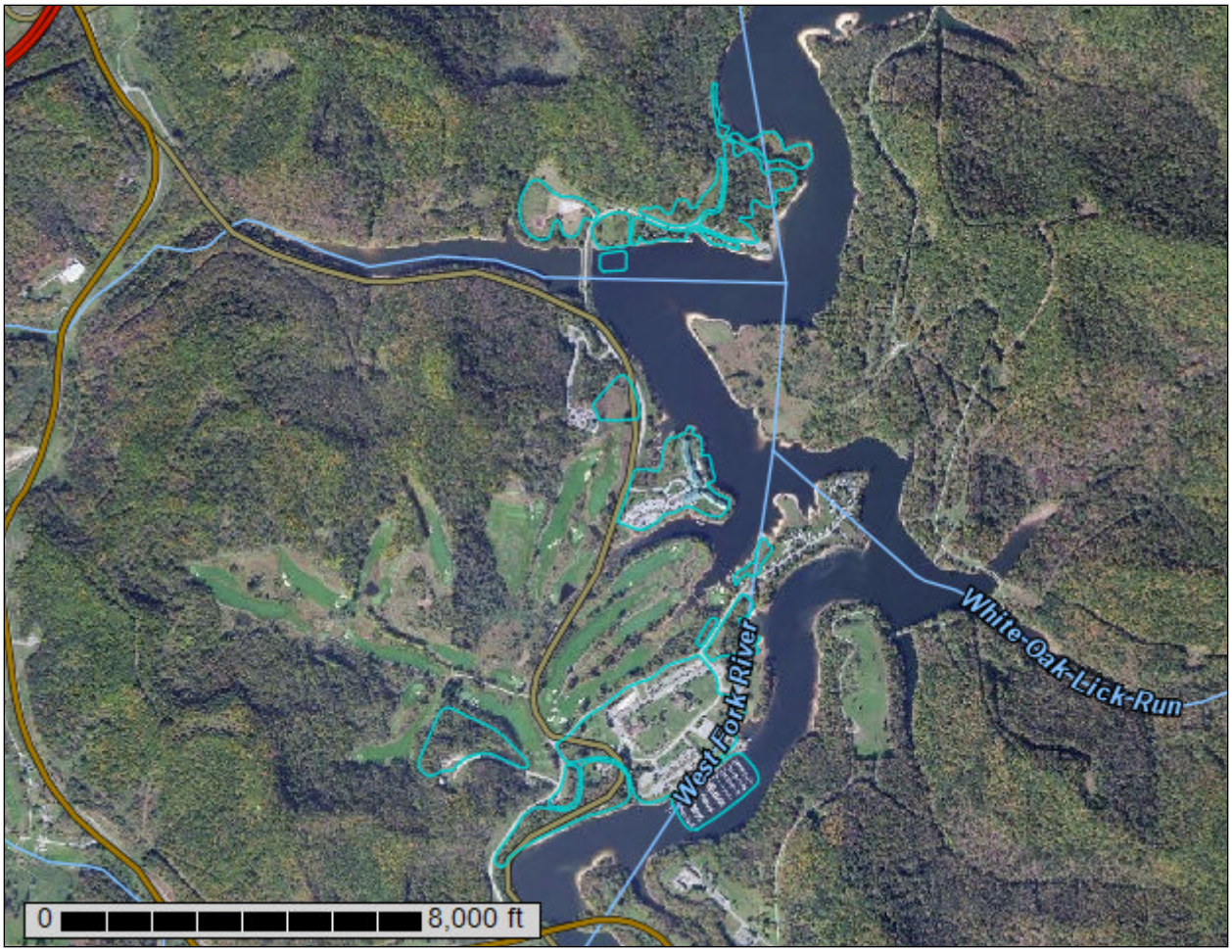
Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

Lewis County, West Virginia

Stonewall Resort - 10 Year Development Plan



November 10, 2016

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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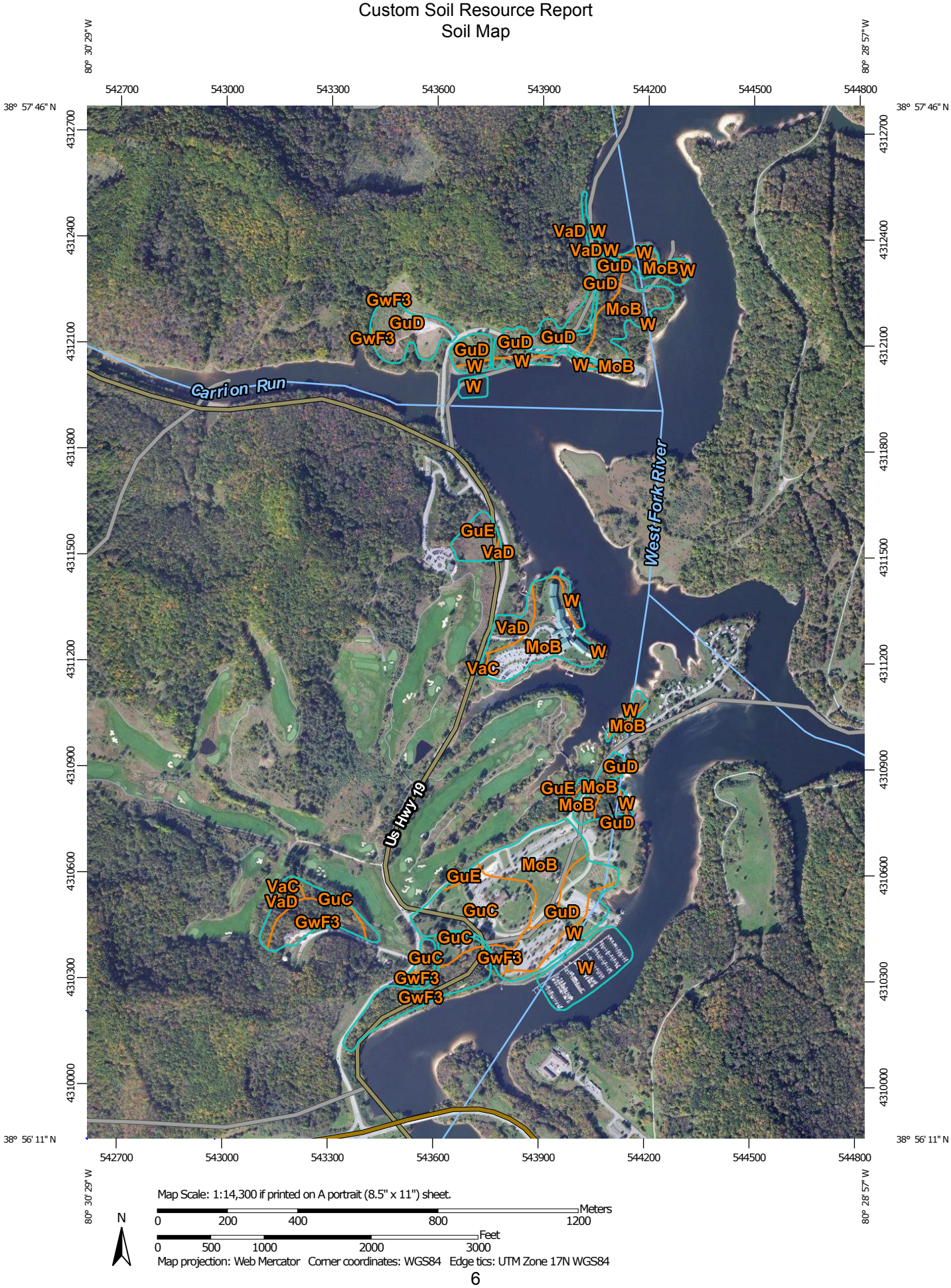
Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Lewis County, West Virginia
Survey Area Data: Version 7, Sep 24, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 7, 2011—Oct 8, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Lewis County, West Virginia (WV041)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
GuC	Gilpin-Upshur silt loams, 8 to 15 percent slopes	16.6	13.9%
GuD	Gilpin-Upshur silt loams, 15 to 25 percent slopes	26.4	22.0%
GuE	Gilpin-Upshur silt loams, 25 to 35 percent slopes	4.1	3.4%
GwF3	Gilpin-Upshur silt loams, 35 to 70 percent slopes, severely eroded	15.6	13.0%
MoB	Monongahela silt loam, 3 to 8 percent slopes	33.5	28.0%
VaC	Vandalia silt loam, 8 to 15 percent slopes	0.4	0.4%
VaD	Vandalia silt loam, 15 to 25 percent slopes	5.6	4.6%
W	Water	17.7	14.8%
Totals for Area of Interest		**119.8**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified

by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Lewis County, West Virginia

GuC—Gilpin-Upshur silt loams, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: k8pr
Mean annual precipitation: 43 to 57 inches
Mean annual air temperature: 39 to 64 degrees F
Frost-free period: 150 to 176 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Gilpin and similar soils: 55 percent
Upshur and similar soils: 35 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gilpin

Setting

Landform: Hillslopes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Fine-loamy residuum weathered from shale and siltstone

Typical profile

Ap - 0 to 7 inches: silt loam
Bt - 7 to 27 inches: silt loam
BC - 27 to 30 inches: channery silt loam
Cr - 30 to 34 inches: unweathered bedrock

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Other vegetative classification: Acid Loams (AL3)
Hydric soil rating: No

Description of Upshur

Setting

Landform: Hillslopes
Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Crest, nose slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Clayey residuum weathered from interbedded sedimentary rock

Typical profile

Ap - 0 to 5 inches: silt loam
Bt+BC - 5 to 39 inches: silty clay
C - 39 to 65 inches: silty clay loam
Cr - 65 to 75 inches:

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 40 to 69 inches to paralithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 10 percent
Hydric soil rating: No

GuD—Gilpin-Upshur silt loams, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: k8ps
Mean annual precipitation: 43 to 57 inches
Mean annual air temperature: 39 to 64 degrees F
Frost-free period: 150 to 176 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Gilpin and similar soils: 55 percent
Upshur and similar soils: 30 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gilpin

Setting

Landform: Hillslopes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Fine-loamy residuum weathered from shale and siltstone

Typical profile

Ap - 0 to 7 inches: silt loam
Bt - 7 to 27 inches: silt loam
BC - 27 to 30 inches: channery silt loam
Cr - 30 to 34 inches: unweathered bedrock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Other vegetative classification: Acid Loams (AL3)
Hydric soil rating: No

Description of Upshur

Setting

Landform: Hillslopes
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest, nose slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Clayey residuum weathered from interbedded sedimentary rock

Typical profile

Ap - 0 to 5 inches: silt loam
Bt+BC - 5 to 39 inches: silty clay
C - 39 to 65 inches: silty clay loam
Cr - 65 to 75 inches: bedrock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 40 to 69 inches to paralithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches

Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 6.9 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Other soils
Percent of map unit: 15 percent
Hydric soil rating: No

GuE—Gilpin-Upshur silt loams, 25 to 35 percent slopes

Map Unit Setting
National map unit symbol: k8pt
Mean annual precipitation: 43 to 57 inches
Mean annual air temperature: 39 to 64 degrees F
Frost-free period: 150 to 176 days
Farmland classification: Not prime farmland

Map Unit Composition
Gilpin and similar soils: 55 percent
Upshur and similar soils: 30 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gilpin

Setting
Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Nose slope, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Fine-loamy residuum weathered from shale and siltstone

Typical profile
Ap - 0 to 7 inches: silt loam
Bt - 7 to 27 inches: silt loam
BC - 27 to 30 inches: channery silt loam
Cr - 30 to 34 inches: unweathered bedrock

Properties and qualities
Slope: 25 to 35 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock

Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Other vegetative classification: Acid Hills (AH3)
Hydric soil rating: No

Description of Upshur

Setting

Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Clayey residuum weathered from interbedded sedimentary rock

Typical profile

Ap - 0 to 5 inches: silt loam
Bt+BC - 5 to 39 inches: silty clay
C - 39 to 65 inches: silty clay loam
Cr - 65 to 75 inches: bedrock

Properties and qualities

Slope: 25 to 35 percent
Depth to restrictive feature: 40 to 69 inches to paralithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Other soils

Percent of map unit: 15 percent
Hydric soil rating: No

GwF3—Gilpin-Upshur silt loams, 35 to 70 percent slopes, severely eroded

Map Unit Setting

National map unit symbol: 2vyy9
Elevation: 730 to 1,870 feet
Mean annual precipitation: 46 to 52 inches
Mean annual air temperature: 51 to 53 degrees F
Frost-free period: 150 to 176 days
Farmland classification: Not prime farmland

Map Unit Composition

Gilpin and similar soils: 50 percent
Upshur and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Gilpin

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Side slope, nose slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Residuum weathered from sandstone and siltstone

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 3 inches: silt loam
BA - 3 to 4 inches: silt loam
Bt - 4 to 28 inches: channery silty clay loam
Cr - 28 to 38 inches: bedrock

Properties and qualities

Slope: 35 to 70 percent
Depth to restrictive feature: 25 to 30 inches to paralithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Hydric soil rating: No

Description of Upshur

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope, nose slope, head slope
Down-slope shape: Linear, concave
Across-slope shape: Linear
Parent material: Residuum weathered from clayey shale

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 3 inches: silt loam
Bt1 - 3 to 8 inches: silty clay loam
Bt2 - 8 to 37 inches: silty clay
Bt3 - 37 to 45 inches: parachannery silty clay
Cr - 45 to 55 inches: bedrock

Properties and qualities

Slope: 35 to 70 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.01 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 2 percent
Available water storage in profile: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Peabody

Percent of map unit: 3 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Weikert

Percent of map unit: 3 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope, shoulder
Landform position (three-dimensional): Side slope, nose slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Hydric soil rating: No

Rock outcrop

Percent of map unit: 3 percent

Sensabaugh

Percent of map unit: 3 percent
Landform: Drainageways
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Other vegetative classification: Moist Loams (ML3)
Hydric soil rating: No

Janelew

Percent of map unit: 3 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope, backslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Other vegetative classification: Limy Hills (LH3)
Hydric soil rating: No

MoB—Monongahela silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2rfbg
Elevation: 580 to 1,300 feet
Mean annual precipitation: 36 to 54 inches
Mean annual air temperature: 41 to 62 degrees F
Frost-free period: 120 to 200 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Monongahela and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Monongahela

Setting

Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Fine-loamy alluvium derived from sandstone and siltstone

Typical profile

Ap - 0 to 8 inches: silt loam
BA - 8 to 12 inches: silt loam
Bt - 12 to 22 inches: silt loam
Btx - 22 to 51 inches: clay loam
BC - 51 to 65 inches: gravelly clay loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 18 to 30 inches to fragipan
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: D
Other vegetative classification: Acid Loams (AL3)
Hydric soil rating: No

Minor Components

Allegheny

Percent of map unit: 10 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Purdy

Percent of map unit: 5 percent
Landform: Terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

VaC—Vandalia silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2t31d
Elevation: 540 to 1,630 feet
Mean annual precipitation: 40 to 52 inches
Mean annual air temperature: 50 to 55 degrees F

Frost-free period: 164 to 211 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Vandalia and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Vandalia

Setting

Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Colluvium derived from sandstone and siltstone

Typical profile

Ap - 0 to 6 inches: silt loam
BA - 6 to 13 inches: silt loam
Bt1 - 13 to 31 inches: silty clay loam
Bt2 - 31 to 46 inches: parachannery silty clay
Bt3 - 46 to 54 inches: parachannery silty clay
C - 54 to 65 inches: very parachannery silty clay loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Other vegetative classification: Fertile Loams (FL3)
Hydric soil rating: No

Minor Components

Upshur

Percent of map unit: 8 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Sensabaugh

Percent of map unit: 7 percent

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Moist Loams (ML3)
Hydric soil rating: No

Gilpin

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex, linear
Hydric soil rating: No

VaD—Vandalia silt loam, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: 2t317
Elevation: 520 to 1,730 feet
Mean annual precipitation: 41 to 52 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 163 to 219 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Vandalia and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Vandalia

Setting

Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, convex
Across-slope shape: Linear, convex
Parent material: Colluvium derived from sandstone and siltstone

Typical profile

Ap - 0 to 6 inches: silt loam
BA - 6 to 13 inches: silt loam
Bt1 - 13 to 31 inches: silty clay loam
Bt2 - 31 to 46 inches: parachannery silty clay
Bt3 - 46 to 54 inches: parachannery silty clay
C - 54 to 65 inches: very parachannery silty clay loam

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Other vegetative classification: Fertile Loams (FL3)
Hydric soil rating: No

Minor Components

Upshur

Percent of map unit: 8 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Sensabaugh

Percent of map unit: 7 percent
Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Moist Loams (ML3)
Hydric soil rating: No

Gilpin

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Convex, linear
Hydric soil rating: No

W—Water

Map Unit Setting

National map unit symbol: k8q9
Mean annual precipitation: 43 to 57 inches
Mean annual air temperature: 39 to 64 degrees F
Frost-free period: 150 to 176 days
Farmland classification: Not prime farmland

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

APPENDIX G – Preparer Resumes

Jeffrey Todd

Environmental Scientist

Jeffrey C. Todd joined Thrasher in 2011 and serves as Environmental Scientist for the firm. Mr. Todd has 8 years of experience in wetland delineation as well as:

- Groundwater sampling
- The abandonment and installation of monitoring wells
- Soil drilling and sampling
- Aquatic resource assessments and permitting
- Asbestos inspections
- ESA Phase I.

Mr. Todd is very well versed in requirements and regulations on both the national and state levels. Jeff's knowledge of regulatory agencies makes him a critical member of the Thrasher Environmental Department.

Education:

- 33 Continuous Hours of Graduate School, Environmental Science - Marshall University
- Bachelor of Science, Wildlife and Fisheries Resources - West Virginia University (2003)

Registrations/Training:

- Asbestos Inspector - State of West Virginia (#AI007006)
- 40 Hours Hazardous Waste Operations and Emergency Response
- 38 Hour Army Corps of Engineers Wetland Delineation Training Program (2013)

Related Experience:

- **Groundwater & Monitoring Well Sampling**: conducted groundwater sampling at various location using several different techniques to determine containments of concern and their amounts in relation to clean-up levels.
- **Little Laurel Run Water Supply Dam:** completed a delineation of the project area for aquatic resources and determined their classification and impact amounts on the area. He was also responsible for informing the USACE regarding the project and jurisdiction determination for the agency on the resources and their impacts.
- **Roessing Well Pads 1 through 3:** performed stream and wetland delineations for these well pad projects. He also coordinated with the engineers and clients on his findings and collected data for mapping and permitting strategy assistance.
- **Kosher Waste Area**—performed stream and wetland delineations for this project. He also coordinated with the engineers and clients on his findings and collected data for mapping and permitting strategy assistance.

Jordan Wilcox
Environmental Scientist

Jordan Wilcox joined Thrasher in April 2014 and serves as an Environmental Scientist for the firm. Mr. Wilcox has over three and a half years of experience in environmental consulting which includes:

- Groundwater sampling
- Monitoring well installation
- Soil drilling and sampling
- Stream and wetland delineations
- Report writing and environmental permiting
- Erosion and sediment inspections
- ESA Phase II

Education:
Bachelor of Science, Environmental Science , Alderson Broaddus College (2010)

Registrations:
- 40 Hours Hazardous Waste Operations and Emergency Response
- 8 Hours OSHA Supervisor Training
- 38 Hour Army Corps of Engineers Wetland Delineation Training Certification

Related Experience:
- **Stonewall Resort 10 year Development**- Roanoke, West Virginia
  Completed delineation, GIS mapping, environmental correspondence, wrote environmental assessment

- **City of Ripley - Sanitary Sewer System Improvements**- Jackson County, West Virginia
  Completed delineation, permitting, GIS mapping, and report writing for this project.

- **Tracy Lake Waterline:** - Richie County, West Virginia
  Completed delineation, permitting, GIS mapping, and report writing for this project.

Julie Barry – Senior Environmental Scientist

The Thrasher Group, 600 White Oaks Boulevard, Bridgeport, WV 26330

Resume and Statement of Qualifications

Julie Barry is a Senior Environmental Scientist with The Thrasher Group, Inc. (Thrasher). She has over thirteen years of experience in the consulting field as an environmental geologist and project manager. She has experience in a multitude of environmental projects, such as the National Pollution Discharge Elimination System (NPDES) permitting and discharge monitoring reporting, environmental site assessments (ESAs) associated with American Society of Testing and Materials (ASTM) Phase I and Phase II ESAs, National Environmental Policy Act (NEPA), the United States Environmental Protection Agency (EPA) Superfund Program, West Virginia (WV) Voluntary Remediation Program (VRP), the WV Uniform Environmental Covenant Act (UECA) Program, the Brownfield Program, the WV Leaking Underground Storage Tank (LUST) Program, and the Pennsylvania Act 2 Program. Her specialties also include Site-Specific Sampling and Analysis Plans (SAP) including Field Sampling Plans, Health and Safety Plans (HASP), and Quality Assurance Project Plans (QAPP), site characterizations, remedial investigations, and underground storage tank removal. Ms. Barry also has experience with the requirements of historical resources via consultations with State Historic Preservation Office (SHPO), Section 106 Culture Resources Review, consultations with Tribal Historic Preservation Office (THPO), review of wetlands and floodplains, visual inspection of sites, review of endangered and threatened species, review of wilderness areas, wildlife refuges, wild and scenic river corridors, review of state and federal parks, and assessments of impacts of high intensity white lights and RF exposure. In addition, Ms. Barry also provides assistance to clients with the preparation of spill prevention and response plans, site-specific health and safety plans, and emergency response plans.

Education

Bachelor of Science, Geology, West Virginia University

Certifications and Training

OSHA 40 HAZWOPER Training and subsequent 8-hour refreshers
OSHA 8-hour Site Supervisor Training
MSHA 24 hour Training
Wetland Delineation & Regional Supplement (38 hour)
UST Regulations
Air Quality Permitting & Compliance
AHA Heart Saver First Aid CPR / AED
West Virginia Department of Environmental Protection Licensed Remediation Specialist
Currently pursuing the Professional Geologist (PG) Certification

Professional Affiliations

Air & Waste Management Association National Groundwater Association
Women's Energy Network
WV Chamber of Commerce
American Institute of Professional Geologists
Pennsylvania Council of Professional Geologists

APPENDIX H – Phase I Cultural Resources Survey

PHASE I CULTURAL RESOURCES SURVEY FOR PROPOSED RECREATIONAL DEVELOPMENT IN STONEWALL JACKSON LAKE STATE PARK IN LEWIS COUNTY WEST VIRGINIA

Prepared For:

Division of Natural Resources
Parks & Recreation
Randolph Center, Suite 222
Elkins, West Virginia 26241
(304) 637-0300

Big Blue Archaeological Research, Inc.

P.O. Box 1187
Morgantown, WV 26507

September 1998

Exhibit 8

West Virginia Division of Culture and History
FR: 98 - 251 - LE

PHASE I CULTURAL RESOURCES SURVEY FOR PROPOSED RECREATIONAL DEVELOPMENT IN STONEWALL JACKSON LAKE STATE PARK IN LEWIS COUNTY WEST VIRGINIA

Submitted To:

Division of Natural Resources
Parks & Recreation
Randolph Center, Suite 222
Elkins, West Virginia 26241

Submitted By:
Big Blue Archaeological Research, Inc.
P.O. Box 1187
Morgantown, WV 26507

Written By:
Steven A. Stathakis

Graphics By:
J. Brian Harrison

Steven A. Stathakis, Principal Investigator

PHASE I CULTURAL RESOURCES SURVEY
FOR PROPOSED
RECREATIONAL DEVELOPMENT
IN
STONEWALL JACKSON LAKE STATE PARK
IN
LEWIS COUNTY WEST VIRGINIA

Prepared For:

Division of Natural Resources
Parks & Recreation
Randolph Center, Suite 222
Elkins, West Virginia 26241

Prepared By:
Steven A. Stathakis
and
J. Brian Harrison

Steven A. Stathakis, Principal Investigator

ABSTRACT

This Phase I archaeological investigation was designed to locate and record any cultural resources which may be located in and, or, near portions of Stonewall Jackson Lake State Park and assess what impact planned land use might have on any such sites.

The survey was conducted by Big Blue Archaeological Research, Incorporated, and consisted of background research, visual inspection, and subsurface testing. Background research consisted of a review of records maintained by the State of West Virginia in Charleston and resources in various West Virginia University libraries. Historic artifacts, associated with previously recorded and no longer extant structures were recovered during this survey. Prehistoric artifacts, representing two sites interpreted as ephemeral lithic scatters, were also recovered. No significant prehistoric or historic archaeological resources were identified.

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1. INTRODUCTION

This Phase I survey was conducted by Big Blue Archaeological Research, Incorporated on behalf of West Virginia Division of Natural Resources. The work for this project was completed following federal and state guidelines designed to protect significant cultural resources, including historic and archaeological sites. Federal mandates for cultural resources protection include: the Federal Highway Act of 1966, as amended in 1968; the National Environmental Policy Act of 1969; the National Historic Preservation Act of 1966; Executive Order 11593; and the Archaeological and Historic Preservation Act of 1966. All work was performed in accordance with guidelines required to identify properties eligible for the National Register of Historic Places as described in section 106 of the National Historic Preservation Act of 1966 as amended and sections 2(a) and 2(b) of Executive Order 11593. Survey methods and report content and format conform with *Guidelines for Phase I Surveys, Phase II Testing, Phase III Mitigation and Cultural Resource Reports* (October 1991) promulgated by the Historic Preservation Unit of the West Virginia Division of Culture and History. Field notes and materials relating to this project will be maintained by Big Blue Archaeological Research, Incorporated until being accepted by the West Virginia State Museum for curation.

The survey was designed to determine if any significant cultural resources might be impacted by construction of recreational facilities and supporting structures within the Stonewall Jackson Lake State Park (the Park) project area or the area of potential effect. The Park is situated south of the town of Weston in Lewis County in north-central West Virginia (Figure 1). The topography of this mountainous area is characterized by narrow ridges, upland valleys, elevated basins, and steep, rugged hillsides. The proposed recreational facilities project area includes approximately 420 acres (170 hectares) and consists of relatively narrow and level ridge tops, ridge spurs, steeply sloping hillsides, and narrow valley bottoms. The area of potential effect (as defined in 36 CFR § 800.2[c]) includes the project area and structures with a line of sight to the project area.

The project was started April 28, 1998 with the background research conducted by Steven Stathakis. Background research consisted of a review of resources available at various West Virginia University libraries and records maintained by the State of West Virginia in Charleston, including the National Register of Historic Places.

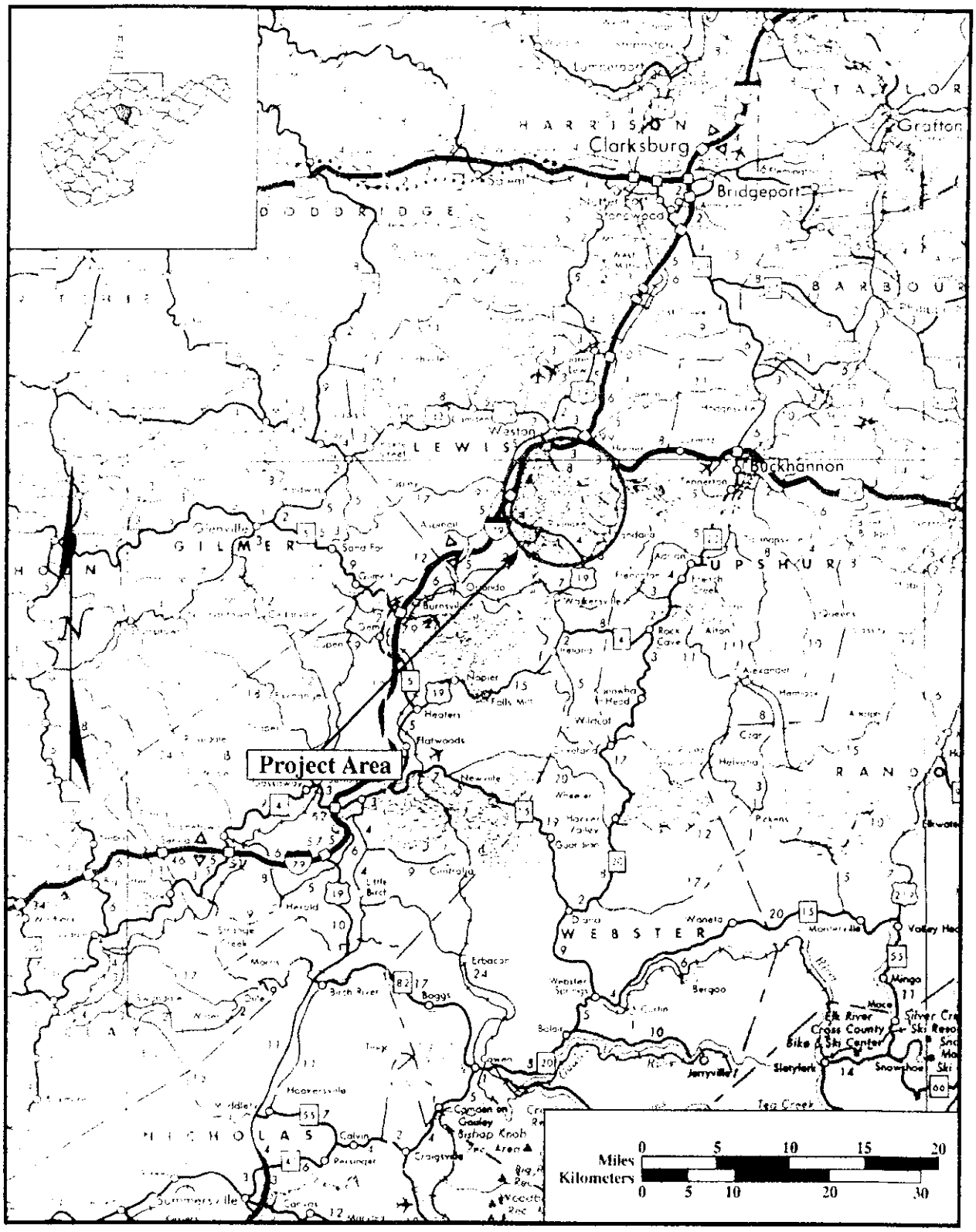

Figure 1. Maps showing the location of the project area in West Virginia and Lewis County.

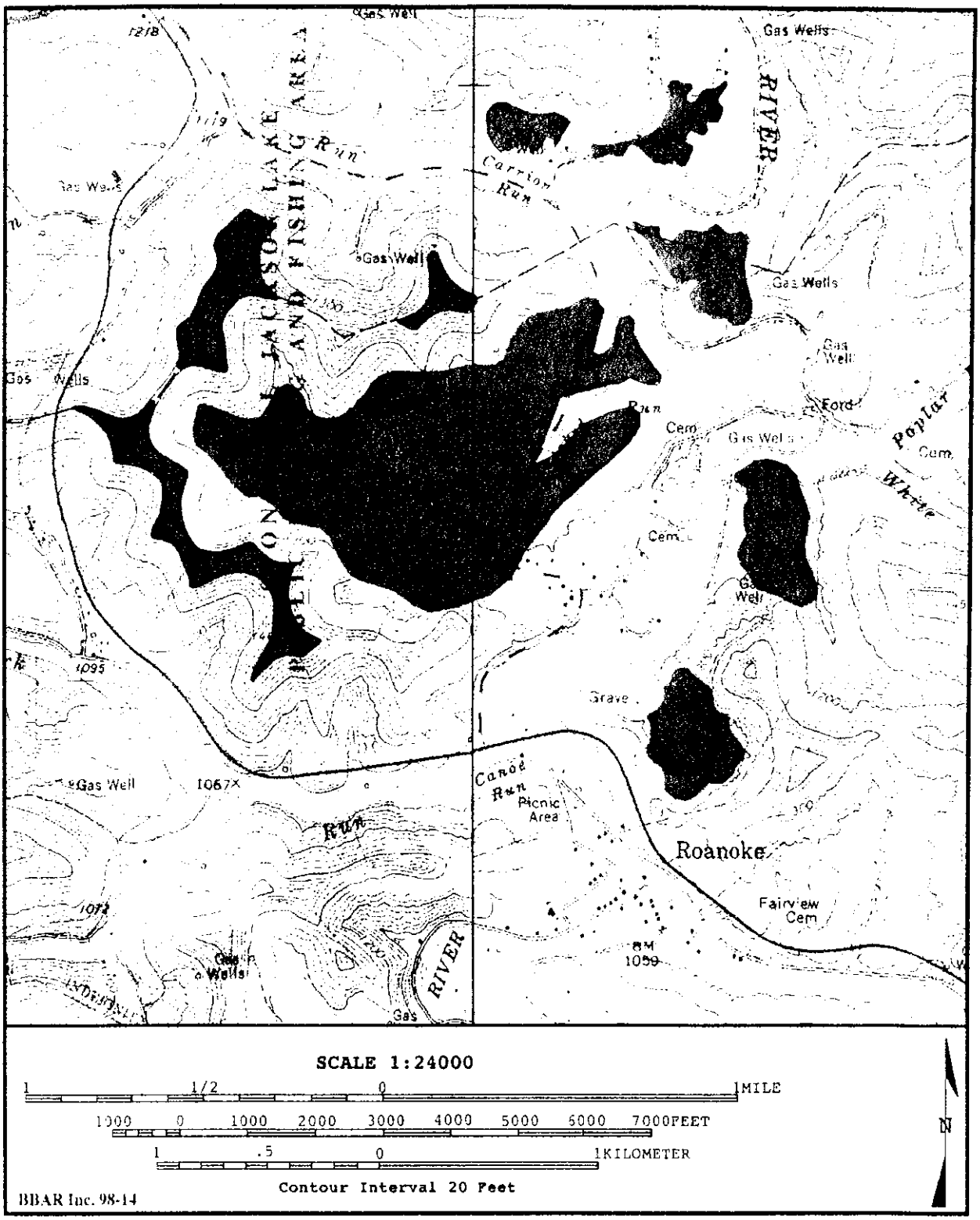

Figure 2. Portions of the USGS Peterson and Roanoke topographic maps showing the project area.

The field work portion of the project was begun on June 9, 1998 and completed on July 31, 1998. Field work, conducted by Field Director Brian Harrison and Field Technicians David Kirkpatrick and Wayne Rollins, involved a combination of visual inspection and subsurface testing. Eight hundred sixty-eight shovel test probes (STPs) were excavated and the entire project area was visually inspected. No significant cultural resources were identified in the project area and no historic properties (i.e., National Register and National Register eligible properties) which would be visually impacted by proposed recreational facilities and supporting structures were identified within the area of potential effect.

2. ENVIRONMENTAL SETTING

Reconstruction of past environments, or paleo-ecology, is vital to understanding the relationship between prehistoric people, their environment, subsistence systems, and technology. Paleo-ecology is an interdisciplinary effort involving archaeologists, botanists, paleontologists, geologists, and biologists. Three interrelated aspects of environments - climate, flora, and fauna - are considered when attempts are made to understand paleo-environments. Modern ecosystems are used as models to suggest what past environments may have been like. Studies and comparisons of the composition of modern and "fossil" plant and animal communities are made to construct models of prehistoric environments. Observations of other aspects of an area, such as resource availability (e.g., clay for pottery, stone for tools, fresh water, and arable soils) are also made when considering prehistoric people's interaction with ancient environments.

The project area is located in the maturely dissected, unglaciated Allegheny Plateau section of the Appalachian Plateau Physiographic Province (Fenneman 1938: 337). This region (Figure 3) is characterized by narrow ridges, steep hillsides, and many small streams which flow in narrow V-shaped valleys. Most of the ridgetops are uniform in elevation with frequently occurring saddles and high knobs (Beverage and Yoakum 1980: 77). The majority of exposed rock in the region is mainly horizontal Pennsylvanian sedimentary strata composed of sandstone, shale, coal, clay, and limestone. Drainage occurs through a well developed dendritic system of streams. The north flowing West Fork collects most of the drainage in the north half of Lewis County before connecting with the Tygart Valley River in Fairmont, West Virginia to form the Monongahela River. Soils in the project area are composed primarily of well drained silt loam (Table 1).

The Pleistocene-Holocene environment in the region in which the project area is located is characterized as a mixed mesophytic forest region (Watts 1983: 298) with a mixture of pines, oaks, and hickory predominating. The animal community would have been comprised of a diminishing number of megafauna such as reindeer, musk ox, long-horned bison, and woolly mammoth (Jennings 1978: 6). These animals were soon replaced in the changing environment of the Holocene with deer, wapiti (elk), bison (buffalo), and a large variety of smaller mammals and rodents.

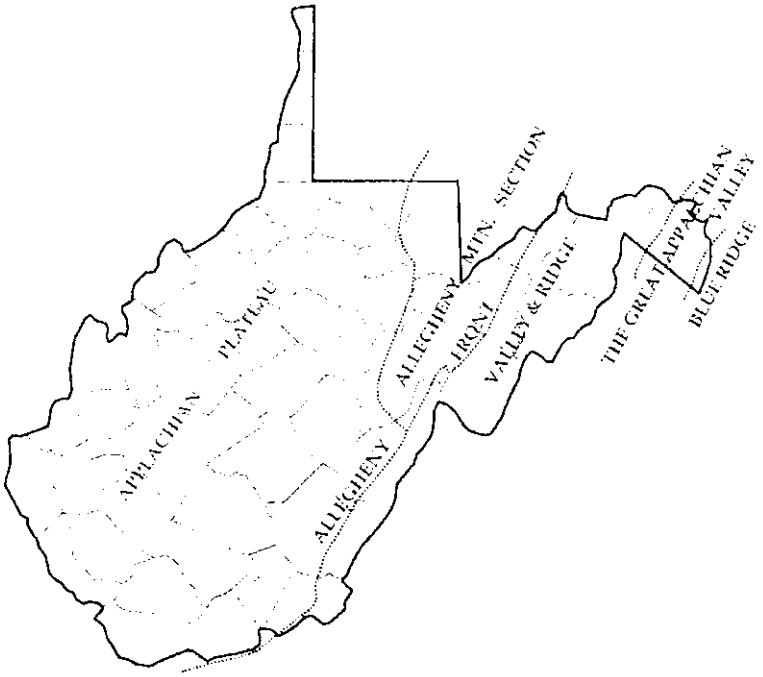

Figure 3. Map showing physiographic provinces in West Virginia.

The first European settlers in the region encountered an environment which had become established *circa* 6000 BC, and remained essentially unchanged until their arrival. The predominant trees were oak, poplar, chestnut, spruce, maple, and hemlock; but less dominant species such as ash, blackgum, black walnut, sycamore, elm, beech, cherry, and butternut were also found. Shrubs included sumac, elder, pawpaw, dogwood, haw, sassafras, hazel, crab apple, redbud, laurel, and rhododendron. There were wild fruits such as blackberries, strawberries, service berries, cherries, haws, mulberries, raspberries, grapes, plums, crab apples, elderberries, huckleberries, and teaberries (Miller 1969: 14). Fauna encountered by these first settlers included buffalo (bison), bear, deer, elk, panthers, wolves, wildcats, foxes, raccoons, beavers, opossums, skunks, otters, minks, muskrats, squirrels, rabbits, and woodchucks (Miller 1969: 15). Most early settlers used the land primarily to grow the crops necessary to sustain themselves and their families.

The climate in north-central West Virginia varies widely, dependent on the changing topography. In general, the region experiences cold winters and mild summers, with extremes of cold in the higher elevations and of high temperatures in the valleys. The average winter temperature is about 32 degrees F., and the average daily minimum temperature is about 22 degrees F. In the summer, the average temperature is about 71

degrees F. and the average daily maximum temperature is about 84 degrees F. Annual precipitation averages about 50 inches, with a little more than half of the annual amount of precipitation falling as rain during the period April through September. April through September is the frost-free period which marks the optimal growing season. Seasonal snowfall averages about 55 inches, with higher elevations receiving considerably more snow.

Table 1. Soils Within the Project Area.

SOIL TYPE / ABBREVIATION	SETTING	DESCRIPTION	% SLOPE	AGRICULTURAL POTENTIAL
Gilpin - Upshur / GuC	Benches, ridgetops	Silt loam, well drained	8 to 15	Good
Gilpin - Upshur / GuD	Benches, ridgetops	Silt loam, well drained	15 to 25	Poor to Fair
Gilpin - Upshur / GuE	Hillsides, benches, ridgetops	Silt loam, well drained	25 to 35	Poor to Fair
Gilpin - Upshur / GwF3	Hillsides, ridgetops	Silt loam, well drained	35 to 75	Poor
Monongahela / MoB	Terraces	Silt loam, moderately well drained	3 to 8	Good
Vandalia / VaC	Foot slopes, heads of drainageways	Silt loam, well drained	8 to 15	Fair
Vandalia / VaD	Foot slopes, heads of drainageways	Silt loam, well drained	15 to 25	Fair
Vandalia / VaE	Foot slopes, heads of drainageways	Silt loam, well drained	25 to 35	Poor

These environmental data suggest that the region in which the project area is located probably contained sufficient resources to support the lifeways of prehistoric peoples from any of the commonly recognized culture periods.

3. ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

The following discussion synthesizes information gathered from various sources concerned with the prehistory and history of the project area and surrounding region. The dates used in this report are based on standardized time frames and conform to conventions established by archaeological researchers. Standardized time frames are based on significant distinctions between artifact assemblages, and facilitate communication among researchers. The dates used in this report represent the end of one cultural period and the beginning of another. It should be noted, however, that such dates are approximations and are subject to regional variations. It should also be noted that, although all the major cultural periods are discussed here, it is unlikely that continuous human activity occurred within the project area in all culture periods described.

Regionally, prehistoric West Virginia is associated with the Northeastern United States by some researchers (i.e. Griffin 1978: 221), and with the Southeastern United States by others (i.e. Kehoe 1981: 152). It may be best to characterize prehistoric West Virginia as a borderlands region, influenced by Northeastern, Southeastern, and Midwestern culture groups.

Prehistoric Background

Paleoindian Period (14000 - 7000 BC). The earliest culture identified in North America is known as Paleoindian. Migrations of game animals and humans from Asia, moving over the Bering Straits via a land bridge which was created when sea levels were lowered during glacial periods, is the most widely accepted theory for the origins of these earliest North Americans. The limited number of types of artifacts from this period are widely distributed and relatively sparse and so provide only a restricted view of what life may have been like for Paleoindian people.

The Paleoindian period is "best identified by fluted projectile points and knives" (Griffin 1978: 221), commonly known as Clovis type projectile points. Although a number of Clovis points have been found in West Virginia, few are from well documented, undisturbed contexts (Barber and Barfield 1989: 60). Radiocarbon assays from well-documented Paleoindian sites in northeast North America have produced mean dates which

"fall within a range of 9,300 to 11,400 B.P. [before present] with a midpoint of 10,350 B.P." (Tankersly et al. 1997: 40). The Paleoindian tool kit recovered from well-documented Paleoindian sites includes fluted bifaces, end scrapers, side scrapers, gravers, and drills (Tankersly et al. 1997: 33). Some research (i.e., Jones 1997) suggests that an "emphasis on unifacial tools is typical of most Paleoindian assemblages." The men and women who made and used these tools probably lived in small groups. They seem to have been nomadic hunters of migratory game and opportunistic gatherers of the fruits, nuts, and seeds of available plants. Site types which have yielded material from this time period are interpreted as large camps, hunting stations, and "workshop locations" (Griffin 1978: 225).

Archaic Period (8000 BC to 1200 BC). The major difference between Archaic and Paleoindian cultures is an apparent change in subsistence strategies. During the Early Archaic Period the flora and fauna of the area became very similar to that encountered by the first European explorers. Large migratory game began to be replaced by smaller herd animals and other small game. Plant communities were more stable and could be relied upon for food resources on a seasonal basis. Archaic populations adapted to this environment, gradually becoming specialized in particular subsistence strategies. Early Archaic peoples successfully adapted to the changing environment by modifying or developing the tools needed to exploit newly available resources. Group size seems to have remained small and people appear to have continued to follow a nomadic lifestyle. Movement was seasonal, from one part of a "home range" to another, depending on the availability of fruits, nuts, fish, and game (Muller 1978:286).

Site types associated with the Archaic period are interpreted as reflecting a pattern of seasonal movement associated with the procurement of seasonally available food resources. There were relatively small, specialized resource extraction sites and small and large base camps. Other Archaic site types include hunting camps and seasonally utilized exploitive camps (Boyce-Ballweber 1987: 52). Group size was probably larger, relative to group size during the Paleo-Indian Period, however, population density was still low.

The Archaic Period is divided into three sub-periods based primarily on variations in the tools used over the course of this period. An expanding tool kit reflects a change in subsistence strategies and increasing technological complexity. New tools, such as adzes, axes, wedges, and gouges for working wood, metates, mortars, manos, and pestles for

milling seeds and grains, stone vessels, atlatl weights, stone tubes, and plummets, made their appearance.

Woodland Period (1000 BC to AD 1700). Pottery first appears in the archaeological record around 1000 BC and is widely considered the hallmark trait which separates the Woodland from the Archaic Period. Social and religious aspects of life became more complex during this period (Griffin 1978: 240) as group size grew and intergroup contact became more frequent and more intense. There was an increase in production specialization and status differentiation and a more varied and elaborate material culture developed. The evidence for many of these changes comes from observations of, and artifacts recovered from, mortuary contexts. Burial ceremonialism reached a fluorescence with the construction of elaborate earthworks and large burial mounds. The use of pottery suggests an increased reliance on plant resources.

There are indications of the beginning of horticultural practices and an increasingly sedentary lifestyle during the Woodland. By the end of this period many Woodland peoples were cultivating several varieties of corn and squash. Site types during this period still included small camps and resource extraction sites, but the general trend through the period was toward large, permanent habitation sites "located on high banks directly overlooking major rivers" (Maslowski 1985: 30). Such river terraces are generally associated with fertile, well drained soils conducive to raising crops.

The three sub-periods which make up the Woodland Period are differentiated by variations in the expanding material culture. Each sub-period is associated with particular forms of pottery, and, as in the Archaic Period, different forms of projectile points and other tools.

Late Prehistoric (AD 1100 to Early Contact circa 1700). This last period of time before contact with European cultures is characterized by "the intense cultivation of corn, beans and squash" (McMichael 1968: 35-36), stockaded villages, and relatively dense populations. The inclusion of beans to the list of plant foods cultivated in the region is significant in that beans represent an alternative to meat as a source of dietary protein. The addition of this important food is credited for allowing an increase in the number and size of villages during this period (Dragoo 1975: 21). Two cultural manifestations are generally recognized in West Virginia during the Late Prehistoric. These are known as Fort Ancient

and Monongahela, and, although distinct, were probably overlapping in time and perhaps space.

The Fort Ancient culture, probably originating in the lower Ohio River Valley, is evident in western and southern West Virginia (Graybill 1980: 56). Fort Ancient sites, located almost exclusively in river valley flood plains, are characterized by circular house plans in the early phases of this culture and rectangular house plans late in the period (Griffin 1978: 269). Houses were sometimes located around a central courtyard which may have contained a small mound (Griffin 1978: 269). Later sites were palisaded and included some relatively large houses. Populations in larger villages were as much as "a few hundred at a time" (Griffin 1978: 269).

The upper Ohio River region is associated with a separate, essentially Woodland type culture, the Monongahela (McMichael 1968, Griffin 1978: 269, Boyce 1990, George et al. 1990). Monongahela sites, in contrast to Fort Ancient sites, were most often located in upland regions. House patterns were circular, they were situated around a courtyard, and often surrounded by a stockade. Population density was considerably less than that at Fort Ancient sites, with villages made up of 100 to 150 people (Griffin 1978: 271).

Although there is evidence scattered throughout West Virginia of prehistoric activities representative of all the described culture periods, the earliest European settlers did not find any large or permanent Indian settlements (McMichael 1968: 54). Indian groups living in West Virginia prior to the early 1700s were probably forced out by a combination of factors, most of which can be associated with European colonization of North America. Diseases introduced by Europeans settling in the Americas devastated native American populations. Competition between traditionally antagonistic native American culture groups for a decreasing amount of available natural resources intensified as pressure from European settlers forced these groups into more frequent contact. The competition for furs to trade became paramount as European trade goods, which were at first merely coveted by Indians, became perceived as necessary items. Iroquois peoples from New York and Pennsylvania pushed out groups of Shawnee, Delaware, and Mingo who inhabited West Virginia in the late 1600s. Western Virginia seems to have been a territory in which only small, scattered groups of native Americans lived and hunted when the earliest European settlers arrived.

Regional History

The land which would become Lewis County was claimed by various groups in the mid-eighteenth century. Shawnee, Mingo, and Delaware Indians lived and hunted along the Ohio and Allegheny Rivers and their tributaries. France laid claim to the area by virtue of explorations by de Saint Luggon in 1671 and Joliet and Marquette in 1673. The London Company was issued a patent for the land in 1609 by King James I and, in 1681, King Charles II granted a charter to William Penn, giving Pennsylvania title to the land. The capture of the French Fort DuQuesne by British troops in 1758 settled the issue in favor of Pennsylvania. The demarcation of the Mason-Dixon Line in 1764 established the region as part of Virginia, and in 1863 the state of West Virginia was formed.

Although traders and trappers had been frequenting the Monongahela and Ohio river valleys as early as 1692 (Core 1974: 128), there are no records of permanent settlers in what is now Lewis County until about 1770 (Smith 1920: 34). John Hacker built a cabin about a mile south of the present town of Berlin in 1769 or 1770 (Smith 1920: 34). Many followed Hacker into the area despite the ever present danger of attacks by Indians. Delaware, Mingo, and Shawnee Indians hunted in the land between the Allegheny Mountains and the Ohio River, and continued to fight European settlers over rights to the land until the end of the French and Indian War in 1763. In that year, a proclamation from the King of England forbade settling west of the Alleghenies. A peace treaty with the Indians was signed in 1764 and incursions against the European settlers ceased for a time. Despite the ban against moving into the area, cessation of Indian hostilities made western Virginia more attractive to large numbers of colonists. Settlers from Pennsylvania, Maryland, Virginia, and newly arrived European immigrants began moving into the frontier lands. In 1774, the approaching war with England brought renewed attacks against European settlements by Indians incited by loyalist Tories. The end of the war with England did not bring peace between European settlers and Indians until the Wayne Treaty of 1795 was signed (Morton 1914: 65). Peace brought new settlers and, as the frontier pushed westward, settlements became towns and western Virginia began to acquire a sense of permanence of community.

Lewis County was formed in 1816 and named for Colonel Charles Lewis, a "famous soldier and leader among the Virginia pioneers" (North 1985: 44). The original boundaries of the county included all or parts of eight present counties. Most of the 4,347 people living in the county in 1820 were in settlements "confined mainly to the West Fork

and Buckhannon river valleys with a few on the Elk river and on the tributaries of the Little Kanawha" (Smith 1920: 175). A site for the county seat was selected in 1817 and a courthouse was established in 1821 in what eventually became the town of Weston (Smith 1920: 169-174). The West Fork provided a north-south route and an "old Indian trail through the Polk creek and Stone Coal valleys was the natural route" to points east and west of the new county seat (Smith 1920: 181).

Weston soon became the center for commerce in the county. Local goods such as whiskey, ginseng, hides, butter, maple sugar, honey, beeswax, and "other products of forest and farm" (Smith 1920: 182) were traded for goods obtained in the east. The county's agricultural products also included cattle, horses, pigs, and sheep. The improvement of existing roads and the creation of new roads throughout the county facilitated the movement of the county's produce. Early roads were mere trails through the woods maintained primarily by the flow of traffic over them (Smith 1920: 216). Improvements to land routes were slow in coming because of the belief held by many of the early businessmen that the county's waterways would serve as the principal means of transportation to larger markets. These early entrepreneurs hoped that the West Fork river could be made more navigable and provide access for "rafts, flatboats and lumber" (Smith 1920: 217) to the Monongahela River, thereby moving produce from all points in the county to markets in Pittsburgh and eastward. Although plans to make the West Fork a major water route failed rivers served as routes for goods into and out of the county. Road improvements and bridge building was a major concern of Lewis Countians throughout the county in the early to mid 1800s. The Staunton and Parkersburg turnpike (now U.S. Route 33), completed in 1845, "brought immigration, stimulated business prosperity and established a home market" (Smith 1920: 247).

The Baltimore and Ohio railroad, established in West Virginia in 1853 (Morton 1914: 201), did not arrive in Lewis County until 1879 (Smith 1920: 358). The railroad changed the character of commerce in the region. Timber began to be cut in great quantities, milled locally, then shipped by rail to markets, rather than floated down creeks and rivers as whole logs to distant mills as had been done previous to the arrival of the railroad. The low cost of transporting agricultural products by rail meant that consumers could purchase wheat, oats, buckwheat, and flour at prices lower than farmers in Lewis County could sell their produce (Smith 1920: 358). The raising of cattle and sheep became the primary concern of farmers who could no longer turn a profit selling surplus produce. The discovery of oil and gas brought more changes to the economic picture as many farmers

turned to speculating in oil and gas production, neglecting less lucrative pursuits. Jane Lew became "an important shipping point for gas and oil well supplies" (North 1985: 44). A glass making industry fueled by the local availability of gas, oil, and sand was established soon after the railroad. The production of coal began in 1907 (North 1985: 44) and has increased in volume and economic importance at a steady pace ever since.

Stonewall Jackson Lake State Park. Stonewall Jackson Lake State Park began in as the Stonewall Jackson Lake Project, authorized by Congress in 1966 as part of the Flood Control Act. It is a result of planning designed to provide flood control for low-lying land downriver of the West Fork River and its major tributaries such as Skin Creek. The State of West Virginia and the Army Corps of Engineers cooperated in planning and development of a park which was to be operated by West Virginia State Parks. The agreement between the State of West Virginia and the Army Corps of Engineers provided for the creation of recreational facilities as part of the mitigation of the flooding resulting from the establishment of Stonewall Jackson Lake. A Master Plan for the Park which called for facilities oriented to outdoor recreation such as camping, hiking, swimming, and boating was completed in 1976. A portion of the Master Plan was implemented in 1987 and currently the Park offers camping, hiking, and support buildings.

Thomas J. "Stonewall" Jackson. The Park was established near the boyhood home of Thomas J. "Stonewall" Jackson. Jackson, considered my some historians as the "most striking figure of the Civil War on the Southern side," (Cook 1924: 9) spent most of his first 18 years of life, until his appointment to West Point, in and around the town of Weston. Jackson's great-grandfather John came to America from Ireland in 1748 and soon settled with his bride Elizabeth in what is now Buckhannon in present Upshur County. John and Elizabeth Jackson moved to Clarksburg when John was elderly and he died there in 1804. John and Elizabeth Jackson had eight children, including Edward, grandfather of Stonewall Jackson. Edward Jackson moved from Buckhannon to settle a homestead south of Weston about 1801. He was a civil engineer and surveyor and "laid out the site of the town of Weston (Cook 1924: 22). He built a water-powered grain mill, a saw mill, and home south of Weston in what became known as Jacksons Mills. A successful farmer and millwright, Edward married twice and had six children by his first wife and nine children, including Jonathon Jackson, father of Stonewall by his second wife. Jonathon Jackson studied law and established a practice in Clarksburg. He married Julia Neale and they had four children, the third being Thomas J. Jackson.

Thomas J. Jackson's early life was not without tragedy. His father and his oldest sister died when he was three and his mother died four years later, after remarrying and moving from Weston to Fayetteville. Young Thomas Jackson left Fayetteville with his sister to live with his grandfather's second wife at Jacksons Mills. He grew up there, working on the family farm, cutting and overseeing cutting of trees for the saw mill, and working in the grist mill (Cook 1924: 40-41). Schooling was sporadic and meager; however, Jackson took advantage of all that became available and was a willing, if not brilliant student. He learned to read and write and was capable of taking direction and successfully carrying out any and all tasks entrusted to him. He worked on the e Staunton-Parkersburg turnpike in 1837, the first year of its construction, raced horses on a local track, and in 1841 at the age of 17 was appointed constable for Lewis County (Cook 1924: 55). A little over one year later Thomas J. Jackson left Lewis County for a military education as an appointee to West Point. It is likely that Jackson spent summers at his boyhood home before graduating from West Point in 1846.

Thomas J. "Stonewall" Jackson left the academy and Lewis County to rise to the rank of Lieutenant General in the Army of the Confederacy, an extraordinary leader during perhaps the most tumultuous period in the history of the United States of America. He died May 10, 1863 at the battle at Chancellorsville, mortally wounded by a volley fired by his own troops.

Architectural Resources

No structures are located within the project area.

Archaeological Context

The project area is located in the Upper and Mid-upper Ohio Valley Woodland Study Unit (Figure 4). The major watersheds in West Virginia included in this study unit are the: upper and mid-upper Ohio, upper Monongahela, Cheat, Tygart Valley, West Fork, Buckhannon, and Shavers Fork Rivers. Part or all of the 22 counties which comprise this study unit are drained by these watersheds.

The archaeology of the Ohio and Kanawha River Valleys may be the best understood in West Virginia as a result of its long history of study. The prehistory of the region has been studied by archaeologists since at least 1848 (Squire and Davis 1848,

Haven 1856). Large, conspicuous burial mounds in the Ohio River Valley, such as Grave Creek mound in Marshall County, attracted curious investigators and speculators as early as the late 1700s (Anonymous 1794, Imlay 1797). Petroglyphs also intrigued nineteenth century antiquarians and were described from sites in Harrison (Holmes 1890), Monongalia, and Lewis Counties (Mallery 1893). Investigations of mounds in the region resulted in published works beginning in the late nineteenth century and continuing through the early 1960s (DeHass 1881, Thomas 1891, Cresswell 1924, Norona 1953, Solecki 1953, Sutton 1958, Dragoo 1963). Industrial development which threatened mounds stimulated salvage work by the Carnegie Museum and West Virginia Archaeological Society in the mid-1940s through early 1960s (Fuerst 1988: 26). Syntheses of the Archaic (Dragoo 1959), Early Woodland (Ritchie and Dragoo 1960), and the prehistory of the region (Mayer-Oakes 1955, McMichael 1968, Broyles 1974) have provided bases from which to grow a greater understanding of the region's archaeology.

The passage of laws in the late 1960s and 1970s designed to protect and manage our prehistoric and historic cultural resources resulted in a shift in emphasis of archaeological research. The majority of archaeological work in the Upper and Mid-upper Ohio Valley since the mid-1970s has been survey type investigations implemented as a result of these laws. Extensive surveys have been conducted in Brooke (Dunnell 1971), Taylor and Barbour (Baker 1976), Hancock (Lantz and Herbstritt 1977), Lewis (Solecki 1949, Beckes 1975), Marion (Wilkins 1974), Ohio (Fuller 1972), Pleasants and Tyler (Fowler 1974), and Preston Counties (Jenson 1970). Other archaeological research resulting in an increased data base for the region include analyses of lithic materials and tools (Rafferty 1971), pottery (Rafferty n.d.), Woodland settlement patterns (Fuller 1977), petroglyphs (Swauger 1974), and subsistence (Hemmings 1977). Although extensive archaeological work has been done in the region, most investigations and subsequently much of our knowledge of the region's prehistory, centers on information gleaned from mortuary contexts (Fuerst 1988: 26). No archaeological sites are recorded within one mile of the project area.

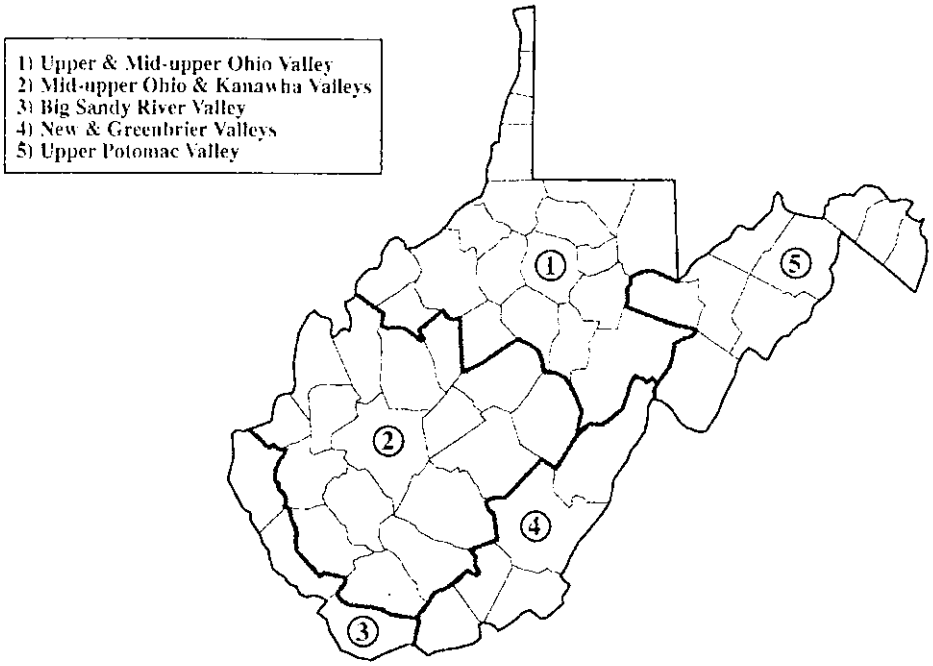

Figure 4. Map of West Virginia showing the location of the Upper and Mid-upper Ohio Valley Woodland Study Unit (after Fuerst 1988).

4. RESEARCH DESIGN

Although the primary goal of this Phase I survey was to locate and record any cultural resources which might be effected by proposed land use, such surveys can also contribute to broader cultural resource management applications. This chapter includes a brief discussion of research objectives, the expected archaeological potential for the area, survey testing methods and techniques, and investigation limitations. In order to place the results of this investigation into a broader cultural resource management perspective, the relation of the investigation to state and regional archaeological studies is discussed.

Information published about the prehistory and history of the region in which the project area is located establishes a regional cultural profile with settlement and land use patterns described for each culture period. These patterns suggest certain research questions about prehistoric and historic land use which can be addressed in the course of Phase I archaeological investigations. The specific research questions addressed during the course of this survey include: 1) does evidence of prehistoric and, or historic activity exist within the project area; 2) if artifacts are recovered, what cultural or temporal period(s) do they represent; 3) what type(s) of activities do recovered artifacts represent; 4) what is the density of distribution of artifacts in the project area; and 5) does the distribution of artifacts represent low, moderate, or intensive use of land and, or resources in the project area and surrounding region.

The project area was considered to have a moderate probability of containing prehistoric archaeological sites. Published and unpublished data suggest that environments similar to that in which the project area is located may have been utilized by prehistoric people from one or more of the culture periods described in Chapter Three. The project area is situated in an environmental setting which would have supported food resources, but is considered marginally suited to have supported activities associated with settlement patterns described for prehistoric people in this region.

A review of the history of the region indicates a moderate level of historic period activity in and near the project area. Recent and historic maps and local history indicate that the project area is situated in a portion of Lewis County with a long history of settlement and agricultural land use. An evaluation of historic resources situated within the Park

(Kern: 1980) documented many structures in and in the vicinity of the Park. The majority of the structures evaluated in the Kern (1980) report were associated with farming. Based on available data, portions of the project area was considered to have a high probability of containing historic archaeological resources.

In order to increase the likelihood of discovering any previously unknown archaeological sites and to ensure thorough documentation of known resources, a plan for systematic reconnaissance was devised and implemented. In order to complete an adequate survey, STPs approximately 16 inches (40 centimeters) in diameter were excavated in all portions of the project area with less than 20 percent surface slope. Excavated soils were passed through one-quarter inch (five millimeter) mesh hardware cloth screens and material which remained in the screens was examined for artifacts. The project area was also visually inspected. Visual inspection was designed to identify artifacts and, or features associated with prehistoric and, or historic activities which may be visible on the surface.

In order to determine whether or not proposed land use would adversely impact cultural resources which might be located near the project area, i.e., structures greater than 50 years old which might be eligible for consideration for inclusion on the National Register of Historic Places, properties with a line of sight to the project area were examined.

There were no restraints which in any way affected the thoroughness of this survey. All portions of the project area were visually inspected and all areas requiring subsurface testing were adequately surveyed. This Phase I cultural resources survey is considered a reliable test of prehistoric and historic land use models in a portion of north-central West Virginia.

5. FIELD INVESTIGATIONS

A review of detailed maps and on-site inspection of the project area prior to commencing field work allowed the formulation of a thorough survey strategy. In order to establish provenience controls, the project area was divided into sections which were further subdivided into fields. Sections were delineated based on project area boundaries and topographic or man-made features. Fields are defined as portions of sections which required subsurface testing. Subsurface testing was conducted within each field on one or more transects. Surface conditions and extant vegetation were recorded for each section. Soil descriptions, soil profiles, and locations of transects and individual STPs were recorded in field notes and on a topographic map using measurements from prominent landmarks and project area boundaries. Field notes supported by photographs provide thorough documentation of the project area.

A combination of subsurface testing and visual inspection was needed to thoroughly survey the project area. The project area was divided into 12 sections (Figure 5) and 61 fields were delineated (Figures 6, 7, and 8). A description of each section and field which includes a summary of survey methods used, topographic features, and extant vegetation follows.

Section A

Section A, located east of old U.S. Route 19 and west of the West Fork River (Figure 5), consists of a relatively wide, level terrace and moderately steep hillsides. This section encompasses approximately 16.1 acres (6.5 hectares). It is bounded on all sides by the project area limits except where it abuts Section B to the west. The boundary between Sections A and B is old U.S. Route 19. Elevations average about 1,100 feet (335 meters) above mean sea level. Section A is a maximum of about 850 feet (259 meters) east to west and a maximum of about 1,190 feet (363 meters) north to south. Surface slope ranges from zero to 30 percent. Extant vegetation consists of a various pasture grasses. The portion of Section A which lies adjacent to old U.S. Route 19 is disturbed by activities associated with road construction. A narrow strip of steep hillsides in this section were visually inspected. Two fields were delineated in this section (Figure 6) and a historic-period archaeological site was identified.

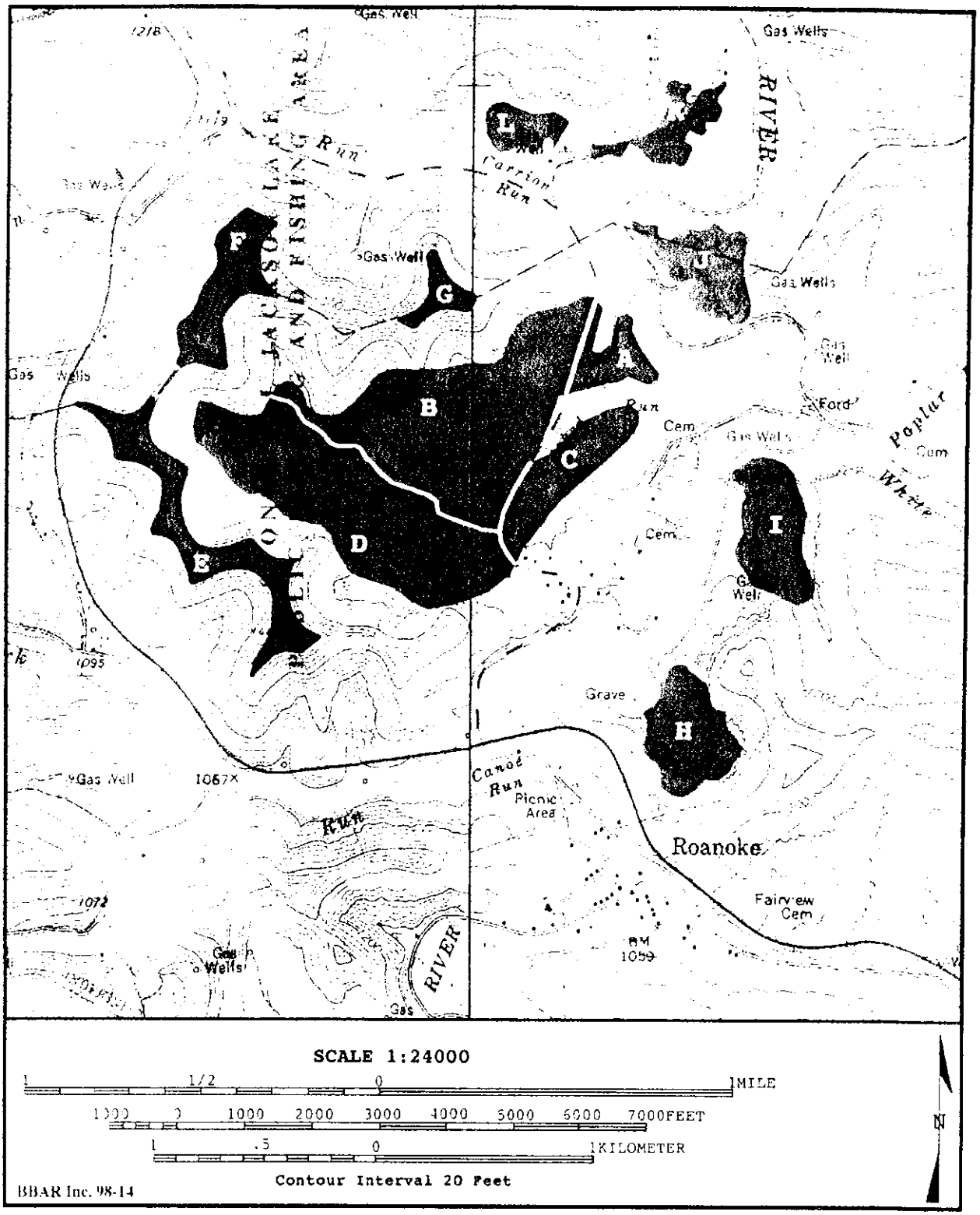

Figure 5. Portions of the USGS Peterson and Roanoke topographic maps showing the project area divided into sections.

Section A, Field One. Field One in Section A is located on what was originally a terrace above the West Fork River which at present overlooks Stonewall Jackson Lake, at the northeast end of Section A (Figure 6). It is about 175 feet (53 meters) northeast to southwest and about 800 feet (244 meters) northwest to southeast. Fifty-seven STPs were excavated at 50 foot (15 meter) intervals to an average depth of 10 inches (25 centimeters) on seven parallel transects placed 50 feet (15 meters) apart. An earthen road cuts through the field and all STPs contained a layer of gravel overlaying a compacted, buried A horizon. No cultural resources were identified in this field.

Section A, Field Two. Field Two in Section A is located southwest of Field One (Figure 6), encompassing an area about 575 feet (175 meters) northeast to southwest and 175 feet (53 meters) northwest to southeast. It is situated on what was originally a terrace above Crooked Run which is now part of Stonewall Jackson Lake. Forty-one STPs were excavated at 50 foot (15 meter) intervals to an average depth of 11.7 inches (30 centimeters) on eight parallel transects placed 50 feet (15 meters) apart. Three historic-period artifacts were recovered from two STPs. No additional STPs were excavated due to disturbance noted in all other STPs.

Section B

Section B is located west of old U.S. Route 19 and north of an unmarked, paved road (Figure 5). It consists of steep hillsides, narrow hillside benches, a relatively narrow, level ridgetop, and narrow valley bottoms. This section encompasses approximately 130.6 acres (52.9 hectares). It is bounded on all sides by the project area limits except where it abuts Section A to the east, Section C to the southeast, and Section D to the southwest. The boundary between Sections B and A is old U.S. Route 19. Elevations range from about 1,300 to 1,100 feet (396 to 335 meters) above mean sea level. Section B is a maximum of about 3,800 feet (1,158 meters) northeast to southwest and a maximum of about 2,975 feet (907 meters) northwest to southeast. Surface slope ranges from zero to 40 percent. Extant vegetation consists of a various pasture grasses and small- to medium-sized coniferous and deciduous trees. The portion of Section B which lies adjacent to old U.S. Route 19 is disturbed by activities associated with road construction and portions of this section adjacent to Crooked Run are wetlands. Steep hillsides in this section (Figure 7) were visually inspected. Fifteen fields were delineated in this section (Figure 6) and a cemetery (Figure 8), shown on the USGS Peterson topographic map, was noted. A West Virginia

Cemetery Survey Form for this resource has been submitted to the West Virginia State Historic Preservation Office.

Section B, Field One. Field One in Section B is located on a hillside bench in the northeast end of the section (Figure 6). It is about 175 feet (53 meters) north to south and about 150 feet (45 meters) east to west. Ten STPs were excavated at 50 foot (15 meter) intervals to an average depth of 13 inches (31 centimeters) on three parallel transects placed 50 feet (15 meters) apart. No cultural resources were identified in this field.

Section B, Field Two. Field Two in Section B is located on a hillside bench south of Field One (Figure 6). It is about 200 feet (60 meters) north to south and 150 feet (45 meters) east to west. Thirteen STPs were excavated at 50 foot (15 meter) intervals to an average depth of 11.3 inches (29 centimeters) on three parallel transects placed 50 feet (15 meters) apart. No cultural resources were identified in this field.

Section B, Field Three. Field Three in Section B is located on a hillside bench west of Field Two (Figure 6) and measures about 150 by 150 feet (45 meters). Nine STPs were excavated at 50 foot (15 meter) intervals to an average depth of 11 inches (28 centimeters) on three parallel transects placed 50 feet (15 meters) apart. No cultural resources were identified in this field.

Section B, Field Four. Field Four in Section B is located on a hillside bench southeast of Field Three (Figure 6). It is about 125 feet (38 meters) northeast to southwest and 75 feet (23 meters) northwest to southeast. Six STPs were excavated at 50 foot (15 meter) intervals to an average depth of 13 inches (31 centimeters) on two parallel transects placed 50 feet (15 meters) apart. No cultural resources were identified in this field.

Section B, Field Five. Field Five in Section B is located on a narrow hillside bench southwest of Field Four (Figure 6). It is about 250 feet (53 meters) northwest to southeast and about 50 feet (45 meters) northeast to southwest. Five STPs were excavated at 50 foot (15 meter) intervals to an average depth of 13.2 inches (34 centimeters) on one transect. No cultural resources were identified in this field.

Section B, Field Six. Field Six in Section B is located on a hillside bench northwest of Field Five (Figure 6). It is about 450 feet (137 meters) northwest to southeast and 200 feet (61 meters) northeast to southwest. Twenty-four STPs were excavated at 50 foot (15

meter) intervals to an average depth of 11.7 inches (30 centimeters) on four parallel transects placed 50 feet (15 meters) apart. No cultural resources were identified in this field.

Section B, Field Seven. Field Seven in Section B is located on a hillside bench south of Field Six (Figure 6). It measures about 250 feet (76 meters) northwest to southeast and 100 feet (30 meters) northeast to southwest. Ten STPs were excavated at 50 foot (15 meter) intervals to an average depth of 11.3 inches (29 centimeters) on two parallel transects placed 50 feet (15 meters) apart. No cultural resources were identified in this field.

Section B, Field Eight. Field Eight in Section B is located on a ridge top west of Field Six (Figure 6). It is about 600 feet (183 meters) north to south and 200 feet (61 meters) east to west. Thirty-five STPs were excavated at 50 foot (15 meter) intervals to an average depth of 11.7 inches (30 centimeters) on five parallel transects placed 50 feet (15 meters) apart. No cultural resources were identified in this field.

Section B, Field Nine. Field Nine in Section B is located in a narrow valley bottom southwest of Field Eight (Figure 6). It is about 250 feet (76 meters) north to south and about 75 feet (23 meters) east to west. Seven STPs were excavated at 50 foot (15 meter) intervals to an average depth of 13.2 inches (33 centimeters) on one transect. Five of seven STPs exhibit either a hydric or disturbed soil profile. No cultural resources were identified in this field.

Section B, Field Ten. Field Ten in Section B is located in a narrow valley bottom south of Crooked Run in the southernmost end of the section (Figure 6). It is about 200 feet (60 meters) northeast to southwest and 175 feet (53 meters) northwest to southeast. Eleven STPs were excavated at 50 foot (15 meter) intervals to an average depth of 11 inches (28 centimeters) on three parallel transects placed 50 feet (15 meters) apart. No cultural resources were identified in this field.

Section B, Field Eleven. Field Eleven in Section B is located on a narrow hillside bench south of Field Seven (Figure 6). It is about 175 feet (53 meters) northeast to southwest and 75 feet (23 meters) northwest to southeast. Four STPs were excavated at 50 foot (15 meter) intervals to an average depth of 13.4 inches (34.5 centimeters) on one transect. No cultural resources were identified in this field.

Figure 7. View of steep hillsides typical in portions of Section B.

Figure 8. View of cemetery situated in Section B.

Section B, Field Twelve. Field Twelve in Section B is located on a narrow hillside bench about 50 feet southwest of Field Eleven (Figure 6). It is about 200 feet (61 meters) northeast to southwest and 75 feet (23 meters) northwest to southeast. Five STPs were excavated at 50 foot (15 meter) intervals to an average depth of 12.6 inches (32.4 centimeters) on one transect. No cultural resources were identified in this field.

Section B, Field Thirteen. Field Thirteen in Section B is located on a narrow hillside bench southwest of Field Twelve (Figure 6). It is about 175 feet (53 meters) northeast to southwest and 75 feet (23 meters) northwest to southeast. Four STPs were excavated at 50 foot (15 meter) intervals to an average depth of 12 inches (31 centimeters) on one transect. No cultural resources were identified in this field.

Section B, Field Fourteen. Field Fourteen in Section B is located on a narrow hillside bench southwest of Field Thirteen (Figure 6). It measures about 100 by 100 feet (30 by 30 meters). Four STPs were excavated at 50 foot (15 meter) intervals to an average depth of 12.3 inches (31.5 centimeters) on two parallel transects placed 50 feet (15 meters) apart. No cultural resources were identified in this field.

Section B, Field Fifteen. Field Fifteen in Section B is located on a narrow hillside bench southwest of Field Fourteen (Figure 6). It measures about 125 by 125 feet (38 by 38 meters). Seven STPs were excavated at 50 foot (15 meter) intervals to an average depth of 7.8 inches (20 centimeters) on three parallel transects placed 50 feet (15 meters) apart. Six of the seven excavated STPs exhibit a disturbed soil profile. No cultural resources were identified in this field.

Section C

Section C is located south of Crooked Run and east of old U.S. Route 19 (Figure 5). It consists of steep hillsides, narrow hillside benches, an upland saddle, and a narrow, relatively level ridgetop. This section encompasses approximately 35.8 acres (14.5 hectares). It is bounded on all sides by the project area limits except where it abuts Section B to the west and Section D to the southwest. The boundary between Sections C and B and Sections C and D is old U.S. Route 19. Elevations range from about 1,100 to 1,140 feet (335 to 347 meters) above mean sea level. Section C is a maximum of about 2,760 feet (841 meters) northeast to southwest and a maximum of about 630 feet (192 meters) northwest to southeast. Surface slope ranges from zero to 30 percent. Extant vegetation

consists of a various pasture grasses and small- to medium-sized deciduous trees. The portion of Section C which lies adjacent to old U.S. Route 19 is disturbed by activities associated with road construction. Steep hillsides in this section (Figure 9) were visually inspected. Nine fields were delineated in this section (Figure 6) and no cultural resources were identified.

Section C, Field One. Field One in Section C is located on a relatively level portion of the northeast end of the ridge top which comprises the majority of this section (Figure 6). It is about 200 feet (63 meters) north to south and about 200 feet (63 meters) east to west. Twenty-two STPs were excavated at 50 foot (15 meter) intervals to an average depth of 14.2 inches (36.4 centimeters) on five parallel transects placed 50 feet (15 meters) apart. No cultural resources were identified in this field.

Section C, Field Two. Field Two in Section C is located on the ridge top southwest of Field One (Figure 6). It is about 550 feet (168 meters) northeast to southwest and 250 feet (76 meters) northwest to southeast. Forty-seven STPs were excavated at 50 foot (15 meter) intervals to an average depth of 11.7 inches (30 centimeters) on six parallel transects placed 50 feet (15 meters) apart. Portions of this field appeared to have been disturbed by grading and topsoil removal. No cultural resources were identified in this field.

Section C, Field Three. Field Three in Section C is located on the ridge top southwest of Field Two (Figure 6). It is about 1,100 feet (335 meters) northeast to southwest and 100 feet (30 meters) northwest to southeast. Forty-one STPs were excavated at 50 foot (15 meter) intervals to an average depth of 9.8 inches (25 centimeters) on two parallel transects placed 50 feet (15 meters) apart. No cultural resources were identified in this field.

Section C, Field Four. Field Four in Section C is located on a small, narrow, northwest to southeast trending hillside bench on the southeast side of the section, southeast of Field Two (Figure 6). It is about 100 feet (30 meters) northwest to southeast and 50 feet (15 meters) northeast to southwest. Two STPs were excavated at 50 foot (15 meter) intervals to an average depth of 5.8 inches (15 centimeters) on one transect. This portion of Section C appeared to have been graded as no topsoil was noted in excavated STPs. No cultural resources were identified in this field.

Section C, Field Five. Field Five in Section C is located on a small, narrow, northwest to southeast trending hillside bench on the southeast side of the section, south of Field Two (Figure 6). It is about 100 feet (30 meters) northwest to southeast and 50 feet (15 meters) northeast to southwest. Two STPs were excavated at 50 foot (15 meter) intervals to an average depth of 5.8 inches (15 centimeters) on one transect. This portion of Section C appeared to have been graded as no topsoil was noted in excavated STPs. No cultural resources were identified in this field.

Section C, Field Six. Field Six in Section C is located on a small, narrow, northwest to southeast trending hillside bench on the southeast side of the section, southeast of Field Three (Figure 6). It is about 100 feet (30 meters) northwest to southeast and 50 feet (15 meters) northeast to southwest. Two STPs were excavated at 50 foot (15 meter) intervals to an average depth of 5.8 inches (15 centimeters) on one transect. This portion of Section C appeared to have been graded as no topsoil was noted in excavated STPs. No cultural resources were identified in this field.

Section C, Field Seven. Field Seven in Section C is located on a small, narrow, northwest to southeast trending hillside bench on the southeast side of the section, southeast of Field Three (Figure 6). It is about 100 feet (30 meters) northwest to southeast and 50 feet (15 meters) northeast to southwest. Two STPs were excavated at 50 foot (15 meter) intervals to an average depth of 5.8 inches (15 centimeters) on one transect. This portion of Section C appeared to have been graded as no topsoil was noted in excavated STPs. No cultural resources were identified in this field.

Section C, Field Eight. Field Eight in Section C is located on a small, narrow, northwest to southeast trending hillside bench on the southeast side of the section, south of Field Three (Figure 6). It is about 150 feet (45 meters) northwest to southeast and 50 feet (15 meters) northeast to southwest. Four STPs were excavated at 50 foot (15 meter) intervals to an average depth of 9.3 inches (24 centimeters) on one transect. This portion of Section C appeared to have been graded as little or no topsoil was noted in excavated STPs. No cultural resources were identified in this field.

Section C, Field Nine. Field Nine in Section C is located in a narrow upland saddle southwest of Field Three (Figure 6). It is about 200 feet (61 meters) north to south and about 100 feet (30 meters) east to west. Eleven STPs were excavated at 50 foot (15 meter) intervals to an average depth of 13.2 inches (33 centimeters) on two parallel transects

placed 50 feet (15 meters) apart. Three of eleven STPs exhibit either a disturbed soil profile. No cultural resources were identified in this field.

Section D

Section D is located west of old U.S. Route 19 and south of an unmarked, paved road (Figure 5). It consists of steep hillsides, narrow hillside benches, and narrow valley bottoms. This section encompasses approximately 69.8 acres (28.3 hectares). It is bounded on all sides by the project area limits except where it abuts Section B to the north and northeast, Section C to the northeast. The boundary between Sections D and B is an unmarked, paved road. The boundary between Sections D and C is old U.S. Route 19. Elevations range from about 1,300 to 1,120 feet (396 to 341 meters) above mean sea level. Section D is a maximum of about 4,000 feet (1,219 meters) northwest to southeast and a maximum of about 1,100 feet (335 meters) northeast to southwest. Surface slope ranges from zero to 40 percent. Extant vegetation consists of a various pasture grasses and small- to medium-sized coniferous and deciduous trees. The portions of Section D which lies adjacent to old U.S. Route 19 and the unmarked paved road are disturbed by activities associated with road construction. Portions of this section adjacent to Crooked Run contain hydric soils and wetlands (Figure 10). Steep hillsides in this section were visually inspected. Thirteen fields were delineated in this section (Figure 6) and two historic-period archaeological sites were identified.

Section D, Field One. Field One in Section D is located on a low hillside bench in the northeast end of the section (Figure 6). It is about 250 feet (76 meters) northeast to southwest and about 150 feet (45 meters) northwest to southeast. Fifteen STPs were excavated at 50 foot (15 meter) intervals to an average depth of 11.3 inches (29 centimeters) on three parallel transects placed 50 feet (15 meters) apart. No cultural resources were identified in this field.

Section D, Field Two. Field Two in Section D is located in a portion of the narrow valley bottom through which Crooked Run flows, about 700 feet (213 meters) south of the headwaters of that creek, east of Field One (Figure 6). It is about 500 feet (152 meters) north to south and 75 feet (23 meters) east to west. Thirteen STPs were excavated at 50 foot (15 meter) intervals to an average depth of 14 inches (36 centimeters) on one transect. No cultural resources were identified in this field.

Figure 9. View of steep hillsides typical in portions of Section C.

Figure 10. View of wetlands vegetation near Crooked Run in Section D.

Section D, Field Two-A. Field Two-A in Section D is located on a hillside bench east of Field Two (Figure 6). It is about 175 feet (53 meters) northwest to southeast and 75 feet (23 meters) northeast to southwest. Three STPs were excavated at 50 foot (15 meter) intervals to an average depth of 11.7 inches (30 centimeters) on one transect in the undisturbed portion of this field. The majority of this field has been disturbed by grading and topsoil removal (Figure 11). No cultural resources were identified in this field.

Section D, Field Two-B. Field Two-B in Section D is located on a hillside bench east of Field Two-A (Figure 6). It is about 150 feet (45 meters) north to south and 75 feet (23 meters) east to west. Nine STPs were excavated at 50 foot (15 meter) intervals to an average depth of 7.8 inches (20 centimeters) on two parallel transects placed 50 feet (15 meters) apart. All excavated STPs exhibit a disturbed soil profile with little or no topsoil indicating the entire field has been disturbed by grading. Historic-period artifacts were recovered from a disturbed context in one STP.

Section D, Field Three. Field Three in Section D is located in a portion of the narrow valley bottom through which Crooked Run flows, south of Fields One and Two (Figure 6). It is about 750 feet (228 meters) northwest to southeast and about 175 feet (53 meters) northeast to southwest. Thirty-four STPs were excavated at 50 foot (15 meter) intervals to an average depth of 12.4 inches (32 centimeters) on three parallel transects. Two transects placed 50 feet (15 meters) apart are situated north of Crooked Run and one transect is situated south of Crooked Run. Three STPs exhibit a hydric soils profile and 11 STPs exhibit a disturbed soil profile. No cultural resources were identified in this field.

Section D, Field Three-A. Field Three-A in Section D is located on a hillside bench west of Field Three (Figure 6). It is about 75 feet (23 meters) northwest to southeast and 50 feet (15 meters) northeast to southwest. One STP was excavated to 11.7 inches (30 centimeters). No cultural resources were identified in this field.

Section D, Field Three-B. Field Three-B in Section D is located on a hillside bench southeast of Field Three-A (Figure 6). It measures about 125 feet (38 meters) north to south and 75 feet (23 meters) east to west. Four STPs were excavated at 50 foot (15 meter) intervals to an average depth of 11.7 inches (30 centimeters) on two parallel transects placed 50 feet (15 meters) apart. No cultural resources were identified in this field.

Section D, Field Four. Field Four in Section D is located in a portion of the narrow valley bottom through which Crooked Run flows, southeast of Fields Two and Three (Figure 6). It is about 400 feet (122 meters) northwest to southeast and 125 feet (38 meters) northeast to southwest. Seventeen STPs were excavated at 50 foot (15 meter) intervals to an average depth of 12 inches (31 centimeters) on three parallel transects placed 50 feet (15 meters) apart. No cultural resources were identified in this field.

Section D, Field Four-A. Field Four-A in Section D is located on a hillside bench southwest of Field Four (Figure 6). It is about 100 feet (30 meters) north to south and about 50 feet (15 meters) east to west. Two STPs were excavated 50 feet (15 meters) apart to an average depth of 14.4 inches (37 centimeters). No cultural resources were identified in this field.

Section D, Field Four-B. Field Four-B in Section D is located on a hillside bench east of Field Four-A (Figure 6). It is about 100 feet (30 meters) north to south and 50 feet (15 meters) east to west. Two STPs were excavated 50 feet (15 meters) apart to an average depth of 11.5 inches 29.5 centimeters). No cultural resources were identified in this field.

Section D, Field Five. Field Eleven in Section D is located in a portion of the narrow valley bottom through which Crooked Run flows, southeast of Field Four (Figure 6). It is about 400 feet (122 meters) northwest to southeast and 200 feet (61 meters) northeast to southwest. Twenty-four STPs were excavated at 50 foot (15 meter) intervals to an average depth of 13.6 inches (35 centimeters) on five parallel transects placed 50 feet (15 meters) apart. No cultural resources were identified in this field.

Section D, Field Six. Field Six in Section D is located in a portion of the narrow valley bottom through which Crooked Run flows, southeast of Field Five (Figure 6). It is about 500 feet (152 meters) northwest to southeast and 125 feet (38 meters) northeast to southwest. Twenty-four STPs were excavated at 50 foot (15 meter) intervals to an average depth of 12.6 inches (32.4 centimeters) on three parallel transects placed 50 feet (15 meters) apart. Two STPs exhibit a hydric soils profile and six STPs exhibit a disturbed soil profile. No cultural resources were identified in this field.

Section D, Field Seven. Field Seven in Section D is located on a hillside bench southeast of Field Six (Figure 6). It is about 250 feet (76 meters) north to south and 75 feet (23 meters) east to west. Eleven STPs were excavated at 50 foot (15 meter) intervals to an

average depth of seven inches (20 centimeters) on parallel transects placed 50 feet (15 meters) apart. A historic-period artifact was recovered from a disturbed context in one STP.

Section E

Section E is located east of U.S. Route 19 and west of Section D (Figure 5). It consists of steep hillsides, narrow, relatively level ridgetops, and small upland saddle. This section encompasses approximately 61.6 acres (24.9 hectares). It is bounded on all sides by the project area limits. Elevations range from about 1,400 to 1,460 feet (427 to 445 meters) above mean sea level. Section E is a maximum of about 3,800 feet (1,158 meters) northwest to southeast and an average of about 850 feet (259 meters) northeast to southwest. Surface slope ranges from five to 40 percent. Extant vegetation consists of small- to medium-sized coniferous and deciduous trees and a few patches of various pasture grasses. Steep hillsides in this section (Figure 12) were visually inspected. Ten fields were delineated in this section (Figure 6) and no cultural resources were identified.

Section E, Field One. Field One in Section E is located in the southeast end of the section, on a portion of the relatively level, narrow ridge top (Figure 6). It is about 150 feet (45 meters) northwest to southeast and about 75 feet (23 meters) northeast to southwest. Four STPs were excavated at 50 foot (15 meter) intervals to an average depth of 7.8 inches (20 centimeters) on one transect. All STPs exhibit a disturbed soil profile with no topsoil present.

Section E, Field Two. Field Two in Section E is located in the southeast end of the section, on a portion of the relatively level, narrow ridge top southwest of Field One (Figure 6). It is about 550 feet (167 meters) northeast to southwest and about 50 feet (15 meters) northwest to southeast. Twelve STPs were excavated at 50 foot (15 meter) intervals to an average depth of 8.6 inches (22 centimeters) on one transect. Bedrock was encountered in all STPs.

Section E, Field Three. Field Three in Section E is located on an upland saddle on the ridge top north of Field One (Figure 6). It is about 125 feet (38 meters) north to south and about 75 feet (23 meters) east to west. Three STPs were excavated at 50 foot (15 meter) intervals to an average depth of 10.4 inches (26.6 centimeters) on one transect. An earthen road bisects this field.

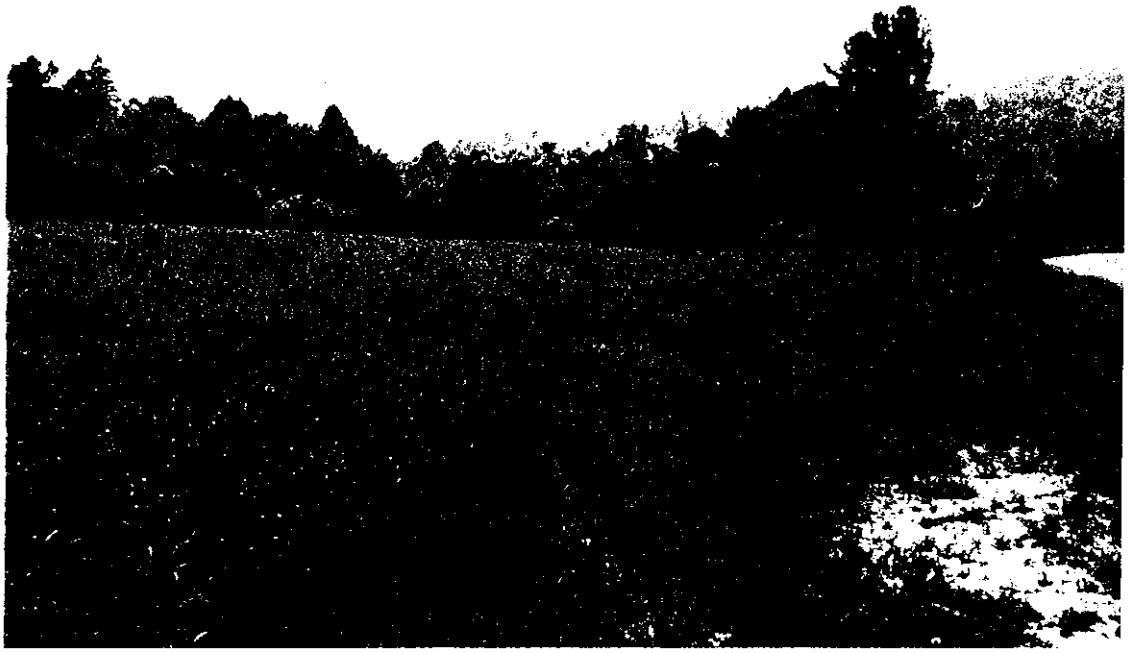

Figure 11. View of a portion of Section D disturbed by grading.

Figure 12. View of steep hillsides typical in portions of Section E.

Section E, Field Four. Field Four in Section E is located on the ridge top north of Field Three (Figure 6). It is about 250 feet (76 meters) east to west and about 75 feet (23 meters) north to south. Seven STPs were excavated at 50 foot (15 meter) intervals to an average depth of 10.4 inches (26.7 centimeters) on two parallel transects placed 50 feet (15 meters) apart. An earthen road bisects this field and all STPs exhibit a disturbed soil profile.

Section E, Field Five. Field Five in Section E is located on the ridge top west of Field Four (Figure 6). It is about 550 feet (167 meters) east to west and about 75 feet (23 meters) north to south. Fourteen STPs were excavated at 50 foot (15 meter) intervals to an average depth of 9.7 inches (25 centimeters) on two parallel transects placed 50 feet (15 meters) apart.

Section E, Field Six. Field Six in Section E is located on the ridge top northwest of Field Five (Figure 6). It is about 1,250 feet (381 meters) northwest to southeast and an average of about 80 feet (24 meters) northeast to southwest. Twenty-eight STPs were excavated at 50 foot (15 meter) intervals to an average depth of 11.3 inches (29 centimeters) on two parallel transects placed 50 feet (15 meters) apart.

Section E, Field Seven. Field Seven in Section E is located on a small hillside bench west of Field Six (Figure 6). It measures about 150 feet (45 meters) north to south and 75 feet (23 meters) east to west. Four STPs were excavated at 50 foot (15 meter) intervals to an average depth of 8.2 inches (21 centimeters) on one transect.

Section E, Field Eight. Field Eight in Section E is located on a small knob on the ridge top northwest of Field Six (Figure 6) and measures about 75 by 75 feet (23 by 23 meters). One STP was excavated to 9.8 inches (25 centimeters).

Section E, Field Nine. Field Nine in Section E is located on a ridge spur on the ridge top northwest of Field Eight (Figure 6). It measures about 200 feet (61 meters) northwest to southeast and 50 feet (15 meters) northeast to southwest. Five STPs were excavated at 50 foot (15 meter) intervals to an average depth of 10.5 inches (27 centimeters) on one transect. All STPs exhibit a disturbed soil profile with no topsoil present.

Section E, Field Ten. Field Ten in Section E is located on the ridge top northeast of Field Eight (Figure 6). It is about 75 feet (381 meters) northeast to southwest and 50 feet (15 meters) northwest to southeast. One STP was excavated to 10.9 inches (28 centimeters).

Section F

Section F is located east of U.S. Route 19 and northeast of Section E (Figure 5). It consists of steep hillsides and a relatively narrow ridgetop. This section encompasses approximately 22.9 acres (9.3 hectares). It is bounded on all sides by the project area limits. Elevations range from about 1,400 to 1,480 feet (426 to 451 meters) above mean sea level. Section F is a maximum of about 2,100 feet (640 meters) north to south and an average of about 530 feet (162 meters) east to west. Surface slope ranges from zero to 30 percent. Extant vegetation consists of a various pasture grasses, low brush, and small- to medium-sized coniferous and deciduous trees. Portions of Section F are disturbed by a subsurface pipeline. Steep hillsides in this section were visually inspected. Four fields were delineated in this section (Figure 6) and no cultural resources were identified.

Section F, Field One. Field One in Section F is located on a hillside bench in the southwest end of the section (Figure 6). It is about 100 feet (30 meters) northeast to southwest and about 50 feet (15 meters) southwest to northeast. Two STPs were excavated 50 feet (15 meters) apart to an average depth of eight inches (20.5 centimeters).

Section F, Field Two. Field Two in Section F is located on a relatively wide ridge top knob northeast of Field One (Figure 6). It is about 425 feet (129 meters) northwest to southeast and 200 feet (61 meters) east to west. Twenty-two STPs were excavated at 50 foot (15 meter) intervals to an average depth of 10.7 inches (27.3 centimeters) on five parallel transects placed 50 feet (15 meters) apart.

Section F, Field Three. Field Three in Section F is located on a narrow, relatively level portion of the ridge top northeast of Field Two (Figure 6). It is about 400 feet (122 meters) northeast to southwest and an average of about 80 feet (24 meters) northwest to southeast. Thirteen STPs were excavated at 50 foot (15 meter) intervals to an average depth of 10 inches (26 centimeters) on two parallel transects placed 50 feet (15 meters) apart.

Section F, Field Four. Field Four in Section F is located on a narrow, relatively level portion of the ridge top northeast of Field Three (Figure 6). It is about 450 feet (137 meters) north to south and 50 feet (15 meters) east to west. Four STPs were excavated at 50 foot (15 meter) intervals to an average depth of 8.5 inches (21.7 centimeters) on one transect.

Section G

Section G is located south of old U.S. Route 19 and north of Section B (Figure 5). It consists of steep hillsides and portions of a narrow, relatively level ridgetop. This section encompasses approximately 6.2 acres (2.5 hectares). It is bounded on all sides by the project area limits. Elevations range from about 1,400 to 1,430 feet (426 to 436 meters) above mean sea level. Section G is a maximum of about 850 by 850 feet (259 by 259 meters). Surface slope ranges from zero to 25 percent. Extant vegetation consists of low brush and small- to medium-sized deciduous trees. Steep hillsides in this section (Figure 13) were visually inspected. Three fields were delineated in this section (Figure 6) and no cultural resources were identified.

Section G, Field One. Field One in Section G is located on a small ridge top knob in the center of this section (Figure 6). It is about 75 feet (23 meters) north to south and about 50 feet (15 meters) east to west. Two STPs were excavated 50 feet (15 meters) apart to a depth of four and 7.8 inches (10 and 20 centimeters). Bedrock was encountered in one STP.

Section G, Field Two. Field Two in Section G is located on a portion of the ridge top southwest of Field One (Figure 6). It is about 500 feet (152 meters) northeast to southwest and 75 feet (23 meters) northwest to southeast. Ten STPs were excavated at 50 foot (15 meter) intervals to an average depth of 8.3 inches (21.2 centimeters) on one transect.

Section G, Field Three. Field Three in Section G is located on a ridge spur north of Field Two (Figure 6). It is about 200 feet (61 meters) north to south and 75 feet (23 meters) east to west. Five STPs were excavated at 50 foot (15 meter) intervals to an average depth of 8.3 inches (21.2 centimeters) on one transect.

Section H

Section H, the southernmost section, is located east of U.S. Route 19 and southeast of Section D (Figures 5 and 15). It consists of steep hillsides (Figure 13) and a relatively level ridgetop which has been significantly disturbed by road and parking area construction (Figure 14). This section encompasses approximately 28.5 acres (11.5 hectares). It is bounded on all sides by the project area limits. Elevations range from about 1,140 to 1,200 feet (347 to 366 meters) above mean sea level. Section H is a maximum of about 1,050 feet (320 meters) northeast to southwest and a maximum of about 1,480 feet (451 meters) northwest to southeast. Surface slope ranges from zero to 30 percent. Extant vegetation consists of a various grasses, low brush, and small- to medium-sized deciduous trees. This entire field was visually inspected and no cultural resources were noted.

Section I

Section I is located east of Stonewall Jackson Lake and north of Section H (Figure 5). It consists of steep hillsides, a narrow hillside bench, and portions a relatively narrow ridgetop. This section encompasses approximately 24.1 acres (9.8 hectares). It is bounded on all sides by the project area limits. Elevations range from about 1,200 to 1,280 feet (366 to 390 meters) above mean sea level. Section I is a maximum of about 1,700 feet (518 meters) north to south and a maximum of about 850 feet (259 meters) east to west. Surface slope ranges from zero to 40 percent. Extant vegetation consists of a various pasture grasses. Portions of Section I are disturbed by activities associated with construction of a parking area (Figure 16) and a subsurface pipeline. Hillsides in this section with surface slope greater than 20 percent were visually inspected. Three fields were delineated (Figure 15) and no cultural resources were identified.

Section I, Field One. Field One in Section I is located on a relatively wide and level portion of the ridge top in the south end of the section (Figure 15). It is about 550 feet (168 meters) north to south and about 175 feet (53 meters) east to west. Thirty STPs were excavated at 50 foot (15 meter) intervals to an average depth of 13 inches (31 centimeters) on three parallel transects placed 50 feet (15 meters) apart.

Section I, Field Two. Field Two in Section I is located on a small knob north of Field One (Figure 15) and measures about 50 by 50 feet (15 by 15 meters). One STP was excavated to 11.7 inches (30 centimeters).

Figure 13. View of a portion of Section H disturbed by grading.

Figure 14. View of steep hillsides typical in portions of Section H.

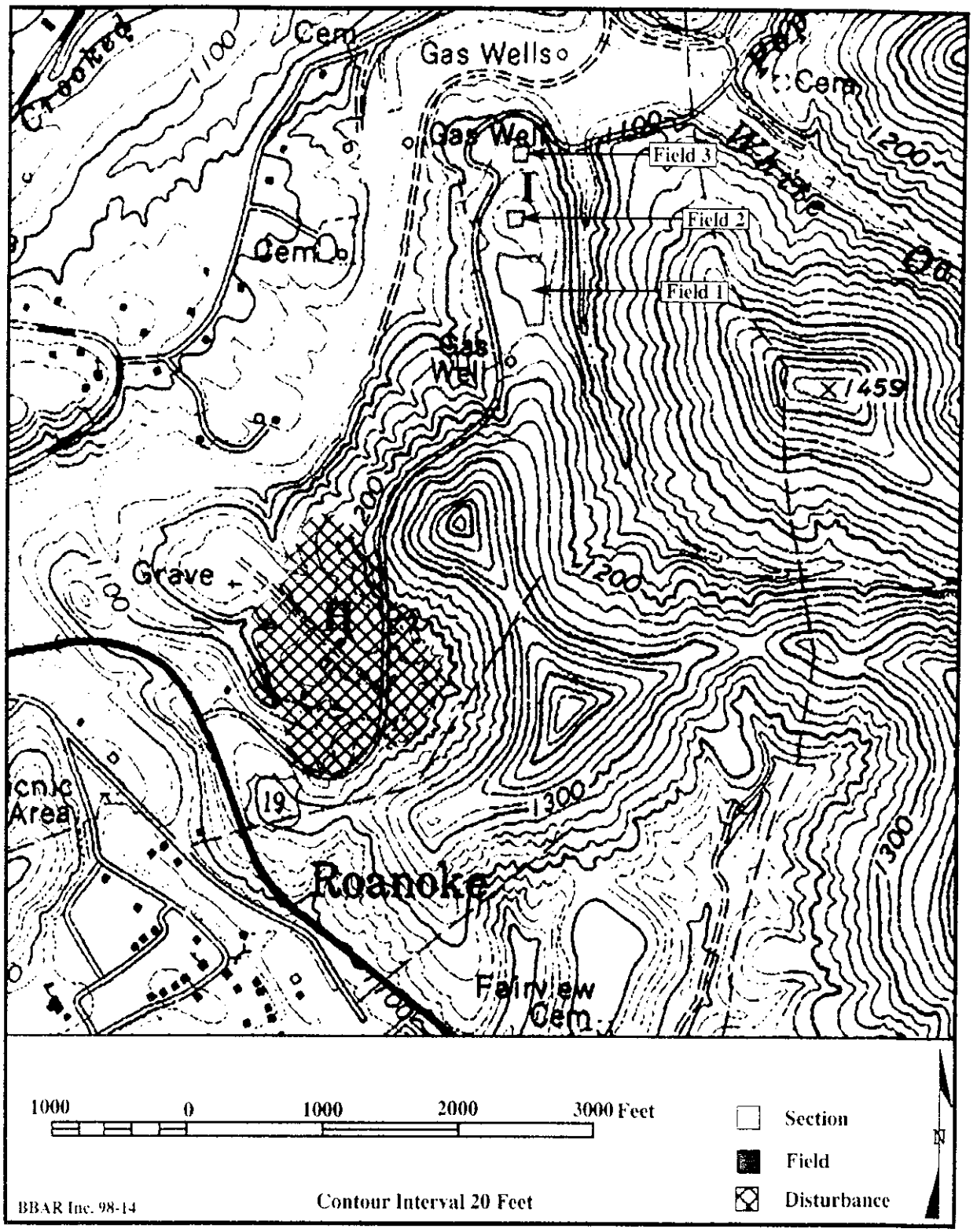

Figure 15. Topographic map showing Sections H and I and the locations of fields.

Figure 16. View of a portion of Section I disturbed by grading.

Section I, Field Three. Field Three in Section I is located on a hillside bench north of Field Two (Figure 15) and measures about 50 by 50 feet (15 by 15 meters). One STP was excavated to 7.8 inches (20 centimeters).

Section J

Section J is located east of Section A, separated from that section by a portion of Stonewall Jackson Lake (Figure 5). It consists of steep hillsides, a narrow hillside bench, and a relatively wide, level ridgetop. This section encompasses approximately 15.1 acres (6.1 hectares). It is bounded on all sides by the project area limits. Elevations range from about 1,220 to 1,280 feet (372 to 390 meters) above mean sea level. Section J is a maximum of about 1,700 feet (518 meters) northwest to southeast and a maximum of about 1,050 feet (907 meters) northeast to southwest. Surface slope ranges from zero to 30 percent. Extant vegetation consists of a various pasture grasses and small- to medium-sized deciduous trees. Portions of Section J are disturbed by activities associated with road

construction. Hillsides in this section with surface slope greater than 20 percent were visually inspected. Two fields were delineated in this section (Figure 17) and two prehistoric archaeological sites were identified.

Section J, Field One. Field One in Section J is located on the wide level ridge top in the north end of the section (Figure 17). It is about 850 feet (259 meters) northeast to southwest and about 650 feet (198 meters) northwest to southeast. One hundred twenty-nine STPs were excavated at 50 foot (15 meter) intervals to an average depth of 12.8 inches (32.7 centimeters) on 15 parallel transects placed 50 feet (15 meters) apart. Artifacts were recovered from four STPs and two sites were delineated. Fifteen additional STPs were excavated at 25 foot (7.5 meter) intervals around artifact-bearing STPs to delineate site boundaries; however, no additional artifacts were recovered. Artifacts were recovered from a disturbed context.

Section J, Field Two. Field Two in Section J is located on a hillside bench south of Field One (Figure 17). It is about 250 feet (76 meters) north to south and 200 feet (61 meters) east to west. Eleven STPs were excavated at 50 foot (15 meter) intervals to an average depth of 13.1 inches (3.6 centimeters) on four parallel transects placed 50 feet (15 meters) apart. No cultural resources were identified in this field.

Section K

Section K is located north of Section J, separated from that section by a portion of Stonewall Jackson Lake (Figure 5). It consists of steep hillsides and hillside benches which have been significantly disturbed by grading and contouring of hillsides (Figure 18). This section encompasses approximately 9.7 acres (3.9 hectares). It is bounded on all sides by the project area limits. Elevations range from about 1,100 to 1,120 feet (335 to 341 meters) above mean sea level. Section K is a maximum of about 1,700 feet (518 meters) northeast to southwest and a maximum of about 630 feet (192 meters) northwest to southeast. Surface slope ranges from zero to 30 percent. Extant vegetation consists of a various pasture grasses and small- to medium-sized deciduous trees. This entire field was visually inspected and no cultural resources were noted.

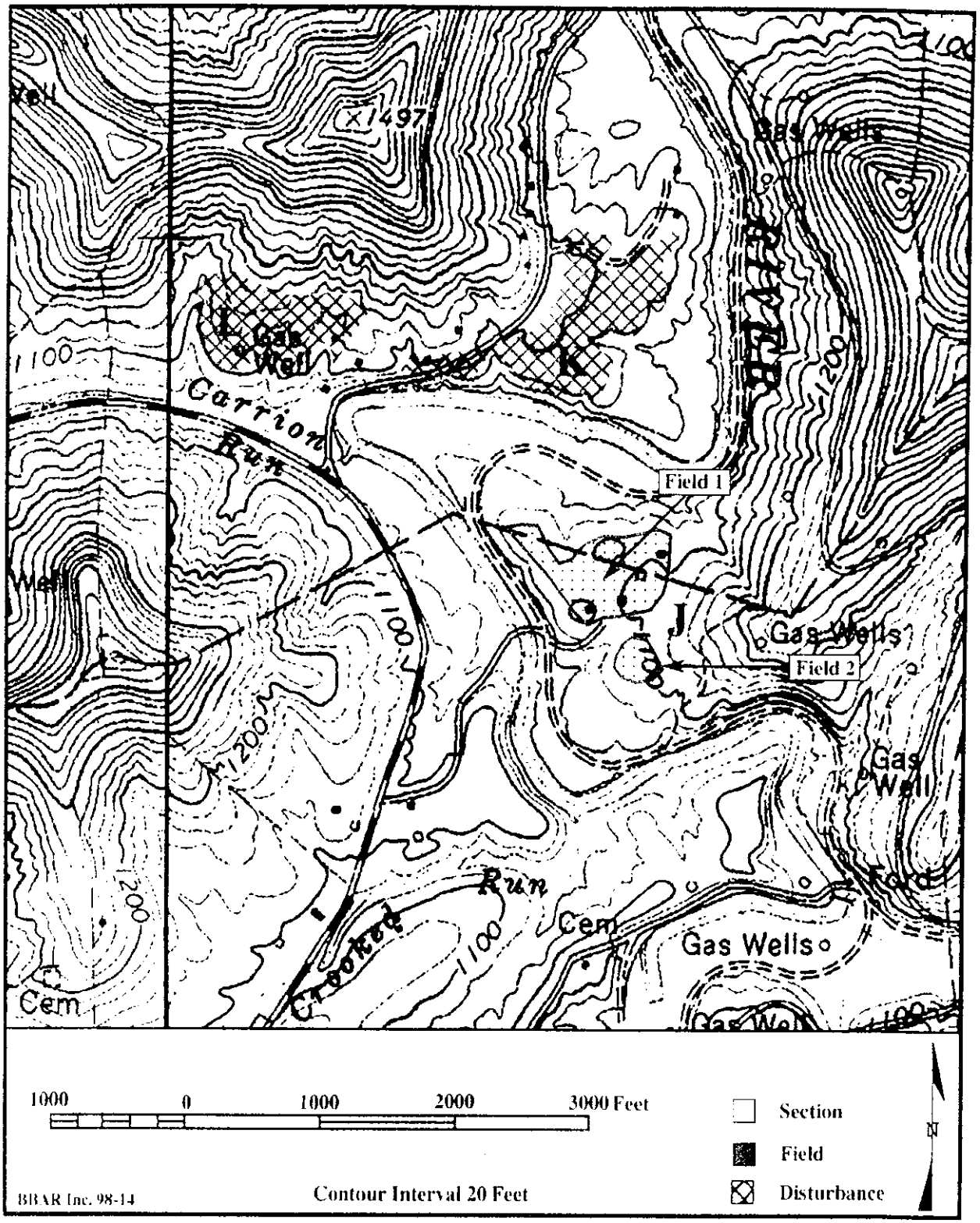

Figure 17. Topographic map showing Sections J, K, and L, and the locations of fields.

Section L

Section L is located west of Section K (Figure 5). It consists of hillsides and hillside benches which have been significantly disturbed by grading and contouring of hillsides (Figure 19). This section encompasses approximately 11 acres (4.5 hectares). It is bounded on all sides by the project area limits. Elevations range from about 1,100 to 1,160 feet (335 to 353 meters) above mean sea level. Section L is a maximum of about 1,050 feet (320 meters) east to west and a maximum of about 530 feet (161 meters) north to south. Surface slope ranges from zero to 20 percent. Extant vegetation consists of a various pasture grasses and small- to medium-sized deciduous trees. This entire field was visually inspected and no cultural resources were noted.

Soils

Undisturbed soil profiles observed in STPs excavated during this survey varied in thickness of the A horizon, with variation dependent on topographic setting. The A horizon is defined as the "mineral horizon, formed or forming at or near the surface, in which an accumulation of humified organic matter is mixed with the mineral material" (Wright et al. 1982). The typical soil profiles observed in valley bottoms exhibit a thicker A horizon, with an average of about 10 inches (26 centimeters). The A horizon on hillside benches and ridge tops was significantly shallower, with an average of about 5.8 inches (15 centimeters). The typical soil profile (Figure 20) consists of an A horizon composed of brown (10YR 4/3) silt loam. Shovel test probes were excavated to a minimum of four inches (10 centimeters) into subsoils, or B horizon. The B horizon observed in the project area, defined as a mineral horizon below the A horizon (Wright et al. 1982), consists of yellowish brown (10YR 5/8) silt clay. Soil profiles from which artifacts were recovered were all disturbed and consisted of the silt clay subsoils mottled with some topsoil.

A reconnaissance of properties within a potential line of sight to the proposed construction area was made to determine if there are any historic resources which would be impacted by proposed land use. Two structures greater than 50 years old which would be impacted by the proposed surface mine were identified.

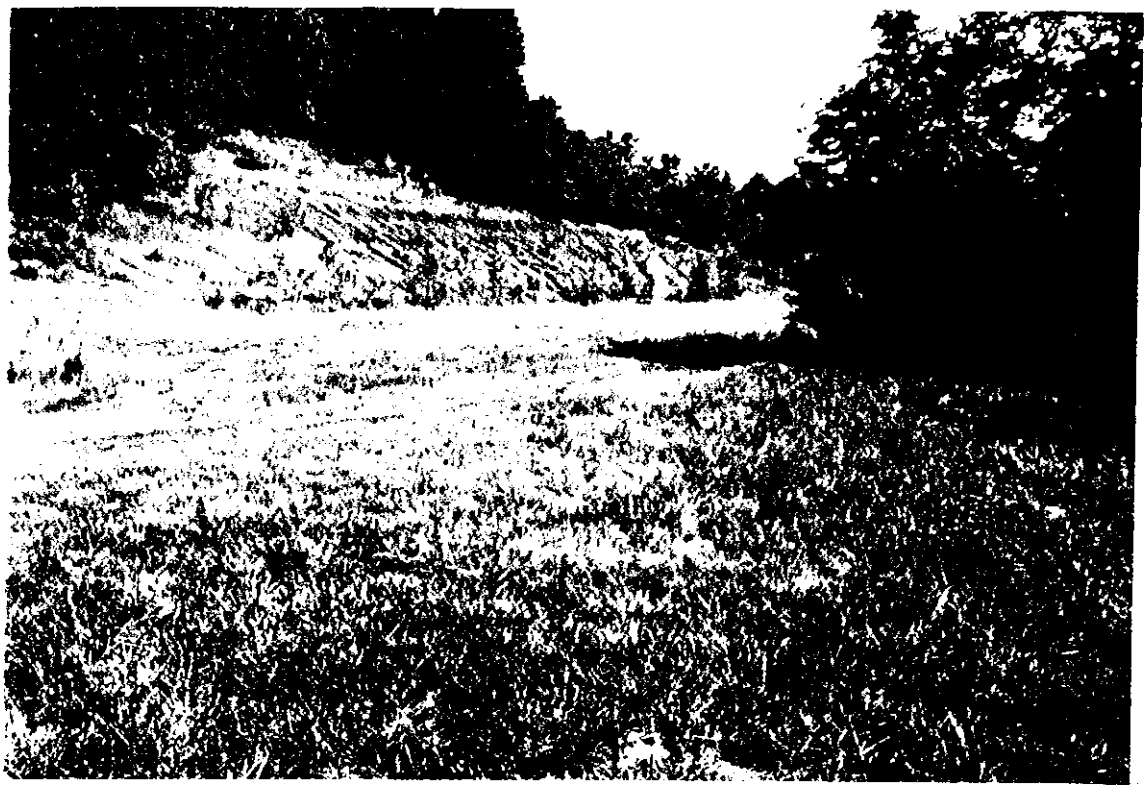

Figure 18. Disturbance typical in Section K.

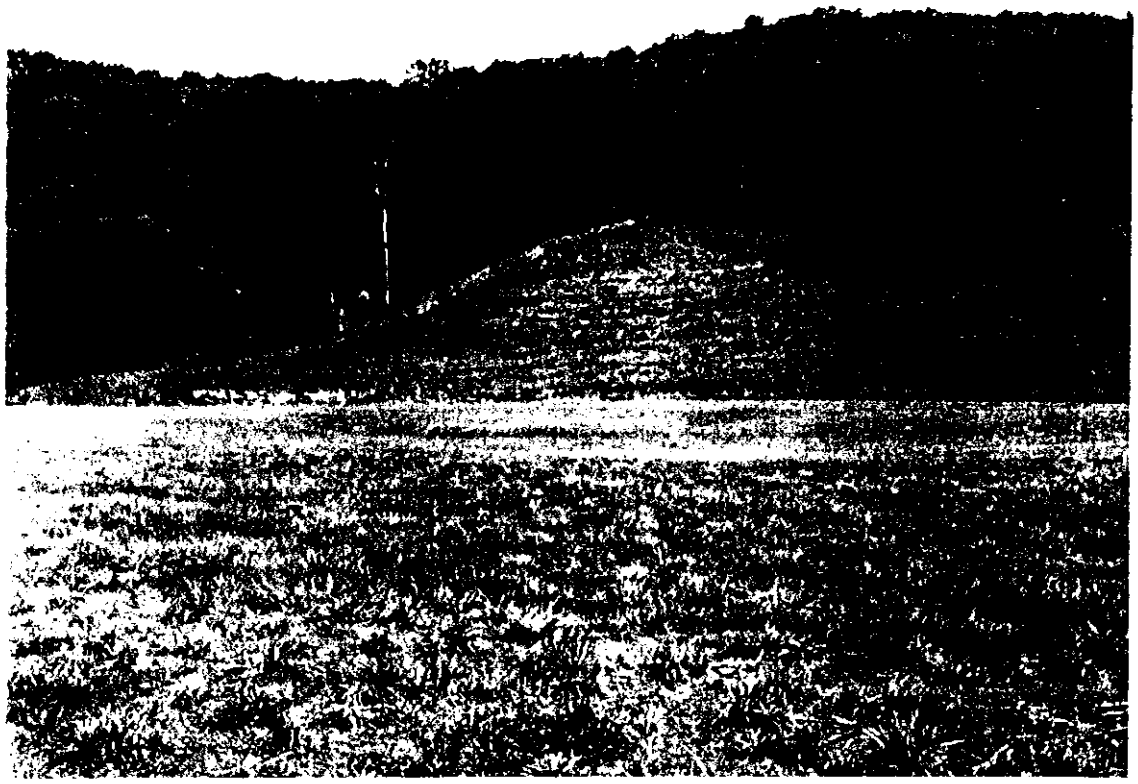

Figure 19. Disturbance typical in Section L.

6. LABORATORY ANALYSIS AND ARTIFACT CURATION

All cultural materials recovered during this survey were cleaned, quantified, analyzed, and described on forms with associated provenience information to facilitate inclusion in this report. Analyses were made in order to determine site size, function, and cultural affiliation. All records and cultural materials associated with this survey will be maintained by Big Blue Archaeological Research, Incorporated until being accepted for curation by the West Virginia State Museum at the Cultural Center in Charleston, West Virginia.

The Phase I cultural resources survey of portions of the Stonewall Jackson Lake State Park has resulted in the identification of two previously unrecorded prehistoric archaeological sites and three historic-period archaeological sites. These sites - Double Yew #1 (46 Le 39), Double Yew #2 (46 Le 40), Square Nail (46 Le 36), Blue Plate (46 Le 37), and Deer Stomp (46 Le 38) - were identified by the presence of lithic debitage and other artifacts (Table 3) recovered from STPs.

Debitage was analyzed and classified to provide data which has been applied to making interpretations about site function. Analyses of the distribution of recovered artifacts has been applied to making a determination of site size and intensity of activity at each site.

Two pieces of chert debitage were recovered from each of two prehistoric sites. Debitage is defined as a byproduct of stone tool maintenance and production activities (Ahler 1989: 85). Analysis of the debitage was conducted in order to classify it as either initial reduction, primary, or secondary flakes. Initial reduction, primary, and secondary refer to stages of reduction in the process of stone tool manufacturing. Debitage was classified following Boisvert (1979):

> Initial reduction flakes tend to be larger than other types... They are somewhat amorphous in outline, although some flakes removed from river pebbles are apt to have rounded rather than angular sides. Initial reduction flakes are normally thick and plano-convex in cross-section. The exteriors exhibit a large percentage of cortical surface (usually greater than 50%) and are often entirely cortical. Previous flake scars on the exterior, if present, are few in number. Striking platforms are either cortical or are straight and single faceted (Boisvert 1979: 125).

> Primary flakes are usually intermediate in size between the initial reduction and secondary flaking chips, but will occur as both large and small flakes in some cases... In outline, they tend to be angular along the sides with rounded or angular terminations. Hinge fracturing, which renders a smooth edge, is quite common (although certainly not limited to this stage) and often results in the production of a short and stubby flake. In cross section, these flakes tend to be wider than initial reduction flakes. The cross sections are quite variable but most often occur as angular or somewhat flattened forms. Flake exteriors do not usually exhibit any cortical surfaces, although they may be present, and normally two or more flake scars are present (Boisvert 1979: 125).
>
> Secondary flaking chips are almost always small and rarely overlap with the normal primary flaking chips. In outline, they tend to be longer and narrower than primary flakes. Flake terminations are more frequently sharp at this stage and hinge fracturing is less common. The cross section is generally thin and lenticular with few angular or plano-convex flake scars, even on the very small specimens, and cortical areas are virtually absent (Boisvert 1979: 126).

Recovered historic artifacts were classified by material type and assigned dates of most common usage based on comparison to a dated type collection and reference to Kern (1980).

Table 2. Artifact Inventory.

Material Type	Description	Quantity	Cultural Affiliation
Chert	Debitage, primary reduction	3	Unknown prehistoric
Chert	Debitage, secondary reduction	1	Unknown prehistoric
Iron	Nail fragment	2	*ca* 1900 - 1930
Iron	Nail, square	1	*ca* 1900 - 1930
Glass	Vessel fragment	4	*ca* 1900 - 1930
Ceramic	Yellowware	1	*ca* 1900 - 1930
Ceramic	White ware	3	*ca* 1900 - 1930

7. INVENTORY OF RESOURCES

This chapter provides information for the cultural resources identified as a result of this survey. This information includes: site number, site size and boundaries, site location (UTM coordinates and Figure 21) and setting, inventory of all recovered artifacts with appropriate provenience data, site function and formation processes including alterations to the landscape that have affected site integrity, overall estimates of site integrity, and potential impacts on the site.

Square Nail Site

The Square Nail Site (46 Le 36) is a historic site located on a low terrace above the confluence of Crooked Run and the West Fork River at an elevation of about 1,120 feet (335 m) above mean sea level (Figure 21). UTM coordinates for the site are: Zone number 17, East 541840, and North 4311025. The site consists of a square, cut nail and two unidentified type of nail fragments (Table 3). This site, interpreted as a secondary deposit of structural elements associated with a no longer extant structure, is about 75 feet (23 meters) north to south and 125 feet (37 meters) east to west. Site boundaries were delineated by an absence of artifacts in STPs excavated at 25 foot (7.5 meter) intervals in a cruciform pattern around artifact-bearing STPs. Artifacts were recovered from three STPs which exhibit a disturbed soil profile suggesting a significantly disturbed context. Proposed land use would compromise this site.

Table 3. Proveniences and Descriptive Summaries of Artifacts from the Square Nail Site.

Provenience	Description	Quantity
Section A, Field Two, STP B 8	Iron, nail fragment, unidentified type	1
Section A, Field Two, STP B 9	Iron, square, cut nail	1
Section A, Field Two, STP B 8	Iron, nail fragment, unidentified type	1

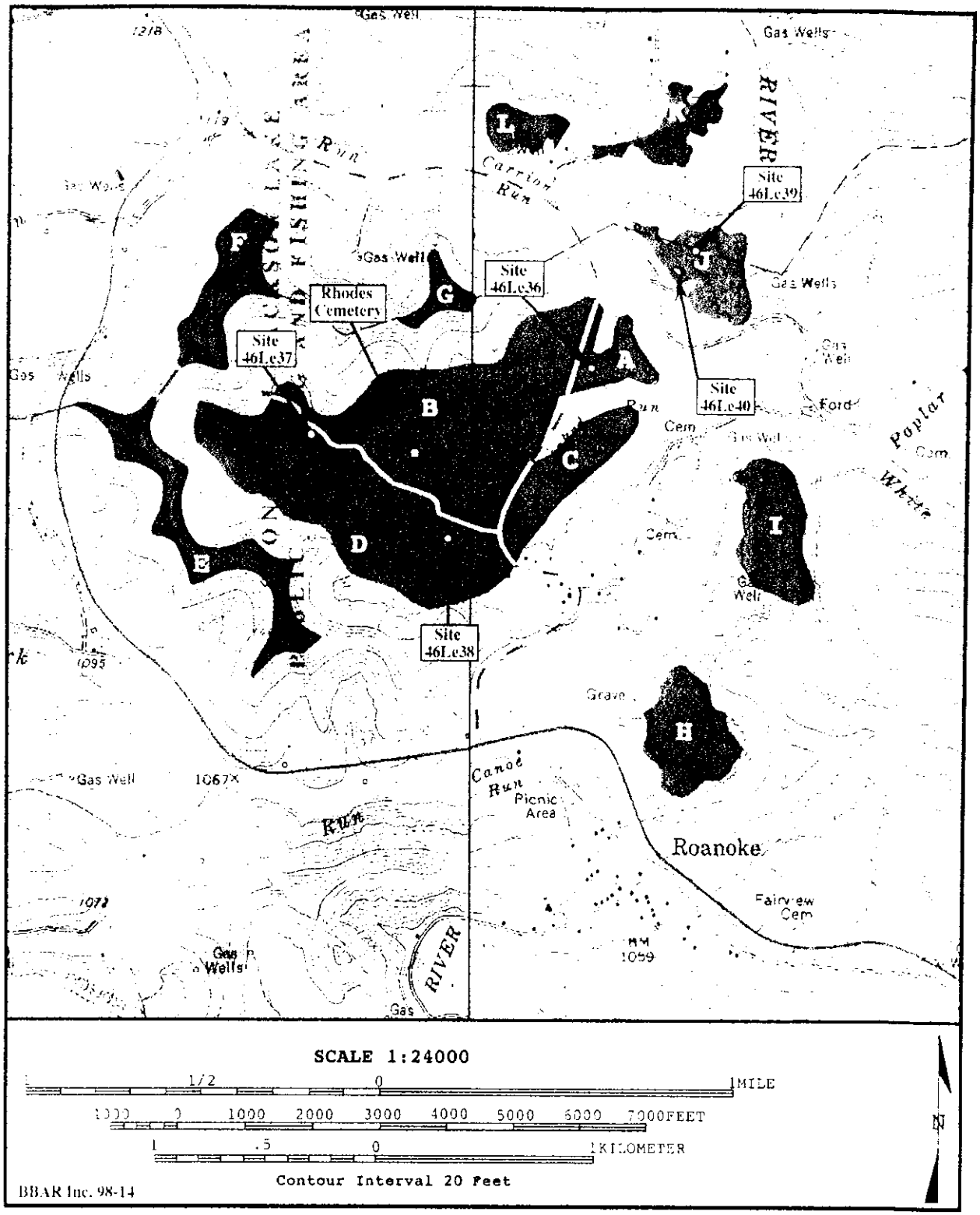

Figure 21. Portions of the USGS Peterson and Roanoke topographic maps showing the locations of identified resources.

Blue Plate Site

The Blue Plate Site (46 Le 37) is a historic site located on a low terrace north of Crooked Run at an elevation of about 1,090 feet (326 m) above mean sea level (Figure 21). UTM coordinates for the site are: Zone number 17, East 541960, and North 4310690. The site consists of glass vessel fragments and ceramic sherds recovered from a single STP (Table 4). This site, interpreted as a secondary deposit of domestic refuse associated with a no longer extant structure, is about 50 feet (15 meters) north to south and 50 feet (15 meters) east to west. Site boundaries were delineated by an absence of artifacts in STPs excavated at 25 foot (7.5 meter) intervals in a cruciform pattern around artifact-bearing STPs. Artifacts were recovered from a soil profile interpreted as representing disturbance associated with demolition of the structure which once stood in the vicinity of this site. Proposed land use would compromise this site.

Table 4. Proveniences and Descriptive Summaries of Artifacts from the Blue Plate Site.

Provenience	Description	Quantity
Section D, Field Two-B, STP B 3	Glass vessel fragment, opalescent white	2
	Glass bottle neck fragment, uncolored	1
	Glass vessel fragment, light blue	1
	Ceramic yellowware fragment	1
	Ceramic whiteware fragment	1
	Ceramic whiteware with blue transfer print fragment	1

Deer Stomp Site

The Deer Stomp Site (46 Le 38) is a historic site located on a wide hillside bench south of Crooked Run at an elevation of about 1,140 feet (341 m) above mean sea level (Figure 21). UTM coordinates for the site are: Zone number 17, East 541240, and North 4310305. The site consists of a single ceramic sherd recovered from one STP (Table 5). This site, interpreted as a secondary deposit of domestic refuse associated with a no longer extant structure, is about 50 feet (15 meters) north to south and 50 feet (15 meters) east to west. Site boundaries were delineated by an absence of artifacts in STPs excavated at 25 foot (7.5 meter) intervals in a cruciform pattern around the artifact-bearing STP. The

artifact was recovered from an STP which exhibits a disturbed soil profile suggesting a disturbed context. Proposed land use would compromise this site.

Table 5. Proveniences and Descriptive Summaries of Artifacts from the Deer Stomp Site.

Provenience	Description	Quantity
Section D, Field Seven, STP A 4	Ceramic sherd, whiteware with light blue glaze	1

The three historic archaeological sites identified during this survey are interpreted as representing secondary deposits associated with structures previously recorded (Kern 1980) and no longer extant. Artifacts were recovered from disturbed contexts suggesting the archaeological contexts from which the artifacts were recovered are not intact. Disturbance may have occurred during demolition of the structures *circa* 1987.

Double Yew # 1 Site

The Double Yew #1 Site (46 Le 39) is a prehistoric site located on a hilltop overlooking the West Fork River at an elevation of about 1,120 feet (335 m) above mean sea level (Figure 21). UTM coordinates for the site are: Zone number 17, East 544170, and North 4311470. The site consists of two pieces of chert debitage (Table 6). This site, interpreted as an ephemeral lithic scatter, is about 75 by 75 feet (23 by 23 meters). Site boundaries were delineated by an absence of artifacts in STPs excavated at 25 foot (7.5 meter) intervals in a cruciform pattern around artifact-bearing STPs. Artifacts were recovered from two STPs which exhibit a disturbed soil profile suggesting an old plow zone. Proposed land use would compromise this site.

Table 6. Proveniences and Descriptive Summaries of Artifacts from the Double Yew #1 Site.

Provenience	Description	Quantity
Section J, Field One, STP G 10	Chert debitage	1
Section J, Field One, STP H 9	Chert debitage	1

Double Yew # 2 Site

The Double Yew #2 Site (46 Le 40) is a prehistoric site located on a hill top overlooking the West Fork River at an elevation of about 1,120 feet (335 m) above mean sea level, about 100 feet (30 m) southwest of the Double Yew #1 Site (Figure 21). UTM coordinates for the site are: Zone number 17, East 544100, and North 4311390. The site consists of two pieces of chert debitage (Table 7). This site, interpreted as an ephemeral lithic scatter, is about 75 by 75 feet (23 by 23 meters). Site boundaries were delineated by an absence of artifacts in STPs excavated at 25 foot (7.5 meter) intervals in a cruciform pattern around artifact-bearing STPs. Artifacts were recovered from two STPs which exhibit a disturbed soil profile suggesting an old plow zone. Proposed land use would compromise this site.

Table 7. Proveniences and Descriptive Summaries of Artifacts from the Double Yew #2.

Provenience	Description	Quantity
Section J, Field One, STP B 10	Chert debitage	1
Section J, Field One, STP B 13	Chert debitage	1

8. EVALUATION OF RESEARCH

This chapter provides an evaluation of the survey and includes a discussion of the relation of results of the survey to stated goals. A synthesis of results is made and discussed in terms of regional and local prehistory and history.

This investigation has provided answers to the project's research questions, and the survey's findings conform to expected results. Published data suggest that environments similar to that in which the project area is located may have been utilized by prehistoric people from one or more of the culture periods previously described, and two small prehistoric archaeological sites were identified. These small prehistoric sites are interpreted as representing a low level of prehistoric land use in the project area. Based on available data, the project area was considered to have a high probability of containing historic archaeological resources and three historic-period archaeological sites were identified. Historic-period sites are interpreted as representing a moderate level of land use, primarily for agriculture, in the project area.

The Phase I cultural resources survey of portions of the Stonewall Jackson Lake State Park resulted in a thorough investigation. There were no restraints which in any way affected the thoroughness of this survey. All portions of the project area were visually inspected and all areas requiring subsurface testing were adequately surveyed. This Phase I cultural resources survey is considered a reliable test of prehistoric and historic land use models in a portion of north-central West Virginia.

9. RECOMMENDATIONS

The Department of the Interior provides guidelines for applying National Register criteria for evaluating the significance of cultural resources. There are four criteria for evaluating properties: A) association with a significant event, or, B) association with a significant person; C) embodiment of architecture characteristic of a type, period, method of construction, work of a master architect, or high artistic value; and, D) a likelihood of yielding information important in prehistory or history (Shrimpton 1991).

Archaeological sites are typically evaluated according to Criterion D. The two prehistoric archaeological sites identified within the project area during this survey, Double Yew #1 (46 Le 39) and Double Yew #2 (46 Le 40), were evaluated using this criterion and consideration of local, regional, and statewide research interests. The potential for further investigation of these sites to contribute to our understanding of prehistory was the primary consideration in making decisions regarding their significance. Both of these sites are comprised of a low density of chert debitage, interpreted as ephemeral lithic scatters representing very low levels of activity. Neither site yielded artifacts which could be attributed to a specific period of prehistory. Although data regarding site composition, location, and setting contribute to our understanding of prehistory, the probability of obtaining additional information important to prehistory from these sites is considered very low. Neither site appears to represent archaeological deposits which would provide additional information important to the prehistory of the area.

The significance of the historic-period sites, Square Nail (46 Le 36), Blue Plate (46 Le 37), and Deer Stomp (46 Le 38), were evaluated based on Criterion D and consideration of local, regional, and statewide research interests. All of these sites yielded a low density of artifacts recovered from disturbed contexts interpreted as representing remnants of no longer extant, *circa* 1900 to 1930 structures. The probability of obtaining additional information important to the history of the region from these sites is considered very low.

Cemeteries comprise a special category of cultural resources and are not usually eligible for consideration for inclusion on the National Register of Historic Places. As unique records of certain aspects of local and regional history they play a role as cultural resources in the historic landscape. In order to preserve this type of record, it is the

recommendation of Big Blue Archaeological Research, Incorporated that the Rhodes Cemetery be preserved as part of the cultural landscape in the Park and that a "buffer zone" of at least 100 feet (30 meters) be maintained between the cemetery and any planned construction.

It is the opinion of Big Blue Archaeological Research, Incorporated that none of the prehistoric and historic resources - Double Yew #1 (46 Le 39), Double Yew #2 (46 Le 40), Square Nail (46 Le 36), Blue Plate (46 Le 37), and Deer Stomp (46 Le 38) - represent significant cultural resources and that none are eligible for consideration for inclusion on the National Register of Historic Places. It is the recommendation of Big Blue Archaeological Research, Incorporated that, since no significant cultural resources would be adversely effected by planned land use, no additional cultural resources investigations are necessary and planned land use be permitted.

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Appendix: Cultural Resources Files and Library User Registration and Research Form

West Virginia
State Historic Preservation Office

Cultural Resources Files and Library
User Registration and Research Record Form

Instructions: Part I must be completed before you will be permitted access to the SHPO Cultural Resource Files and Library. Part II is a record of the site files, cultural resources reports, USGS topographic maps and other materials you utilize during your visit. Part III will be completed and signed by a SHPO staff member only when you have completed your research and have returned the materials to which you have been given access.

I. Identification Date: 4-28-98

Names(s): STEVE STATHAKIS, _____, _____

Organization (or Company) BBAR, Inc.

Address: PO Box 1187 MORGANTOWN WV
Phone: 304 292 7501

FR Number (if known): _____

II. Materials Utilized

USGS Quads: PRINCETON, BECKLEY, ATHALIA, ROANOKE, PETERSON

Archaeological Site Files/Forms: _____

CRM Reports/Pubs: _____

Structural Site Files/Forms: _____

(Continued on Reverse)

II. Continuation

County History Files:

National Register Files: MERCER, CABEL, LEWIS, + RALEIGH Cos.

Coal Heritage Survey:

Other Materials:

III. Materials Returned in Good Order

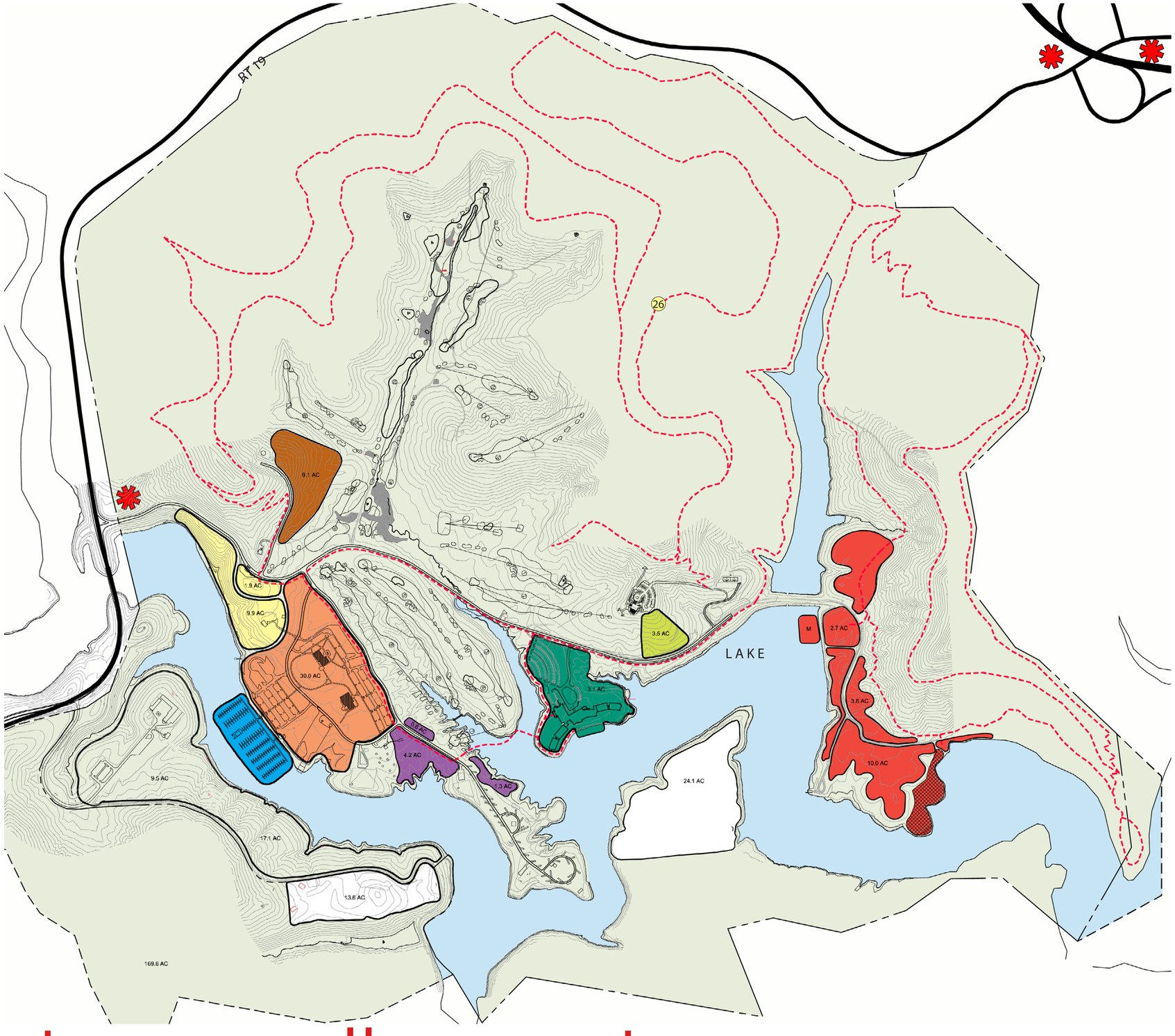
Photocopying Fees Paid: Ø Date: 4/28/98

User Signature:

SHPO Staff Signature:

Principal Investigator Signature

APPENDIX I – 10-Year Development Plan Map



LEGEND

ZONE 1
- -Welcome Center/General Store/Local History Museum
- -Observation Tower
- -10-14 Housing Units
- -Possible Sledding/Tubing Run

ZONE 2
- -Amphitheater
- -Game Courts (Tennis, Basketball, etc.)
- -Water Feature (Pool, Splash Park, etc.)
- -Heritage Farm
- -Arts and Crafts, Hunting, Fishing & Water Sports Related Retail
- -Wedding Pavilion
- -Adventure Golf
- -Food and Beverage
- -Enivronmental Education Center

ZONE 3
- -Electrical Upgrades
- -Possible Upgrades to Anchoring System and Reconfiguration to Large Slips

ZONE 4
- -Campground/RV Expansion
- -Additional Bathhouse

ZONE 5
- -Arboretum
- -Wedding Pavilion
- -Spa Expansion
- -Food & Beverage Expansion
- -Possible Kay Dam to Facilitate Bank Fishing
- -Possible Increase in Dock
- -Expand Outdoor Pool & Deck Area

ZONE 6
- -Expand Lodging (approximately 40-50 units)
- -Passive Park
- -Community Amenity (pool, community building, F&B outlet, etc.)
- -Wedding Pavilion
- -30-50 Slips

ZONE 7
- -Possible 4-12 Housing Units

ZONE 8
- -Maintenance/Laundry Facility or
- -8-14 Housing Units

1" = 500'-0"

0 500 1000 2000 4000 feet

05.17.2016

EDSA

stonewall resort roanoke, west virginia

10-YEAR DEVELOPMENT PLAN

APPENDIX J – EJScreen Report

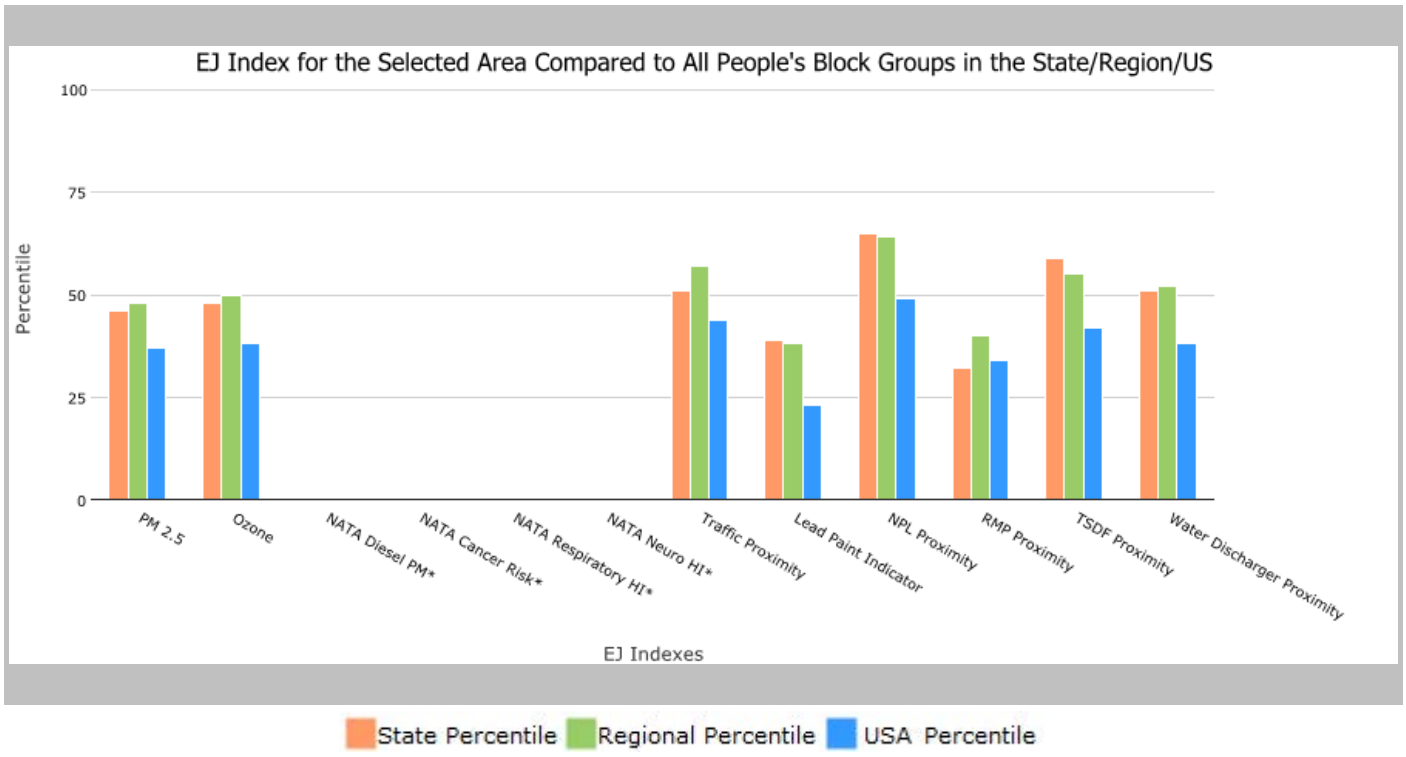
EJSCREEN Report

for 5 mile Ring around the Area, WEST VIRGINIA, EPA Region 3

Approximate Population: 2101

Stonewall Resort

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	46	48	37
EJ Index for Ozone	48	50	38
EJ Index for NATA Diesel PM*	N/A	N/A	N/A
EJ Index for NATA Air Toxics Cancer Risk*	N/A	N/A	N/A
EJ Index for NATA Respiratory Hazard Index*	N/A	N/A	N/A
EJ Index for NATA Neurological Hazard Index*	N/A	N/A	N/A
EJ Index for Traffic Proximity and Volume	51	57	44
EJ Index for Lead Paint Indicator	39	38	23
EJ Index for Proximity to NPL sites	65	64	49
EJ Index for Proximity to RMP sites	32	40	34
EJ Index for Proximity to TSDFs	59	55	42
EJ Index for Proximity to Major Direct Dischargers	51	52	38



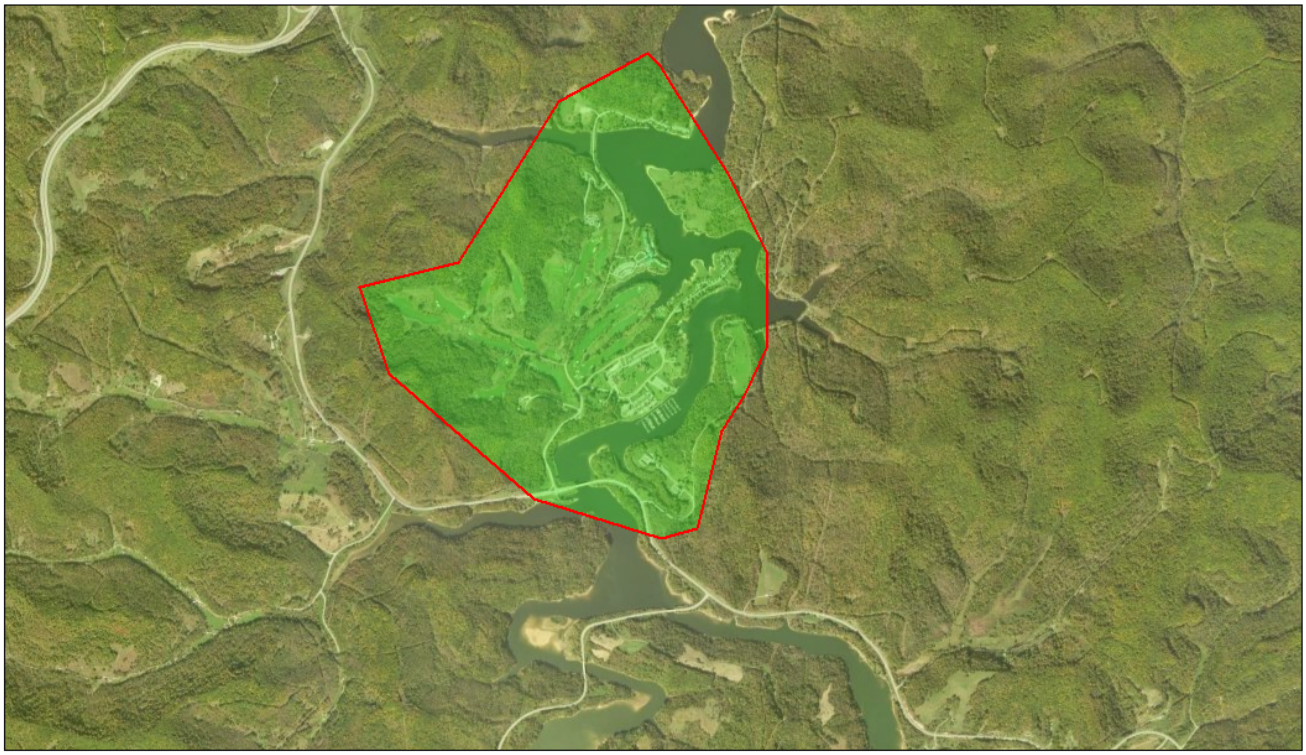
This report shows environmental, demographic, and EJ indicator values. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

EJSCREEN Report

for 5 mile Ring around the Area, WEST VIRGINIA, EPA Region 3

Approximate Population: 2101

Stonewall Resort



May 11, 2016

Digitized Polygon

Buffer Area

1:36,112

0 0.3 0.6 1.2 mi

0 0.5 1 2 km

Image courtesy of USGS Earthstar Geographics SIO © 2016 Microsoft Corporation

EJSCREEN Report

for 5 mile Ring around the Area, WEST VIRGINIA, EPA Region 3

Approximate Population: 2101

Stonewall Resort

Selected Variables	Raw Data	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m^3)	9.61	10.1	30	10.1	32	9.78	41
Ozone (ppb)	43.3	46.8	1	48.2	4	46.1	31
NATA Diesel PM (µg/m^3)*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NATA Cancer Risk (lifetime risk per million)*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NATA Respiratory Hazard Index*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NATA Neurological Hazard Index*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Traffic Proximity and Volume (daily traffic count/distance to road)	9.4	41	40	110	19	110	21
Lead Paint Indicator (% Pre-1960 Housing)	0.33	0.37	52	0.38	53	0.3	62
NPL Proximity (site count/km distance)	0.012	0.059	19	0.11	2	0.096	11
RMP Proximity (facility count/km distance)	0.14	0.2	68	0.25	56	0.31	48
TSDF Proximity (facility count/km distance)	0.0093	0.031	27	0.037	22	0.054	26
Water Discharger Proximity (facility count/km distance)	0.12	0.29	46	0.28	41	0.25	47
Demographic Indicators							
Demographic Index	22%	23%	50	29%	48	35%	36
Minority Population	1%	7%	31	30%	9	36%	4
Low Income Population	42%	39%	59	28%	77	34%	68
Linguistically Isolated Population	0%	0%	88	2%	56	5%	45
Population With Less Than High School Education	19%	17%	64	12%	78	14%	72
Population Under 5 years of age	4%	6%	38	6%	35	7%	31
Population over 64 years of age	19%	16%	71	14%	78	13%	81

* The National-scale Air Toxics Assessment (NATA) environmental indicators and EJ indexes, which include cancer risk, respiratory hazard, neurodevelopment hazard, and diesel particulate matter will be added into EJSCREEN during the first full public update after the soon-to-be-released 2011 dataset is made available. The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: http://www.epa.gov/ttn/atw/natamain/index.html.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

APPENDIX K – FOIA Documentation

2-109990

File

DIVISION OF NATURAL RESOURCES
STONEWALL JACKSON LAKE STATE PARK
149 State Park Trail
Roanoke, West Virginia 26447
Telephone (304) 269-0523
Fax (304) 269-0526

Bob Wise
Governor

Ed Hamrick
Director

July 20, 2001

Dear Prospective Bidder,

Recently you received bid package number SJSP02-01 from us for the removal of three underground storage tanks at the Stonewall Jackson Lake State Park Maintenance Area. The following corrections should be added to your bid document.

1. Specification number 1.13 lists that their will be a mandatory pre-bid meeting on site. **Their will not be a pre-bid meeting, however, bidders are encouraged to visit the site prior to making a bid.** Please contact the park to make an appointment to visit the site.

2. The phone number for the park is 304-269-0523 and the contact is Sam England, Park Superintendent.

3. No bond payment is necessary.

4. The contractor or subcontractor shall pay the higher of the U.S. Department of Labor Minimum Wage Rates as established for Lewis County, pursuant to West Virginia Code 21-5-1, et, seq.

If you have any questions, please feel free to contact me.

Sincerely,

Samuel A. England, Park Superintendent

DIVISION OF NATURAL RESOURCES
STONEWALL JACKSON LAKE STATE PARK
149 State Park Trail
Roanoke, West Virginia 26447
Telephone (304) 269-0523
Fax (304) 269-0526

Bob Wise
Governor

Ed Hamrick
Director

July 18, 2001

Arthur Loder, Environmental Inspector
Division of Environmental Protection
Underground Storage Tank Section
2031 Pleasant Valley Rd.
Fairmont WV 26554

Bill Wilson, USACE
Department of Army
Pittsburgh District Corps of Engineers
William S. Moorehead Federal Building
1000 Liberty Ave.
Pittsburgh PA 15222-4186

Steve DeBarr, Assistant Chief
Planning Engineer and Maintenance
WV Division of Natural Resources
1900 Kanawha Blvd. East
Building 3 Room 719
Charleston WV 25305-0662

Gentlemen,

Attached for your information is a copy of the bid information and mailing list of bidders for the removal of our three underground storage tanks. We hope to have the bids evaluated and a notice to proceed issued very soon to bring this issue to completion. If you have any questions please feel free to contact me. Once the bids are evaluated, I will contact you with an expected work schedule.

Sincerely,

Samuel A. England, Park Superintendent
Stonewall Jackson Lake State Park

cc: Blair Taylor, District Administrator
Joe Beckner, Inspector, WVDNR
file

WV-43

REQUEST FOR QUOTATIONS

THIS IS NOT AN ORDER

Return By 4:pm On 8-1-01

Req. No. SJSP02-01

Date: 7-18-01

Acct. No.

Return To:

STONEWALL JACKSON LAKE STATE PARK
149 STATE PARK TRAIL
ROANOKE, WV 26447

To Be Delivered To:

Vendor
Barnett Builders 1-800-262-4615
HC 64 Box 430
Hillsboro, WV 24946

Vendor
Bosley Construction
P O Box 67
Mineral Wells, WV 26150
1-304-422-0025

Vendor
Ryan Environmental
Chris Marks
Rt 2 Box 553
Bridgeport, WV 26330

SUMMARY OF QUOTATIONS

Delivery Requirements	FEIN:	Terms	Delivery Date	F.O.B.
	DO NOT USE	DO NOT USE	DO NOT USE	DO NOT USE

Item No.	Quantity	Description	Unit Price	Amount
		Removal and disposal of 3 underground fuel storage tanks at Stonewall Jackson Lake State Park Maintence Area. Work must be performed according to all State and Federal rules and regulations.		
		Specifications Attached:		

WV-43

REQUEST FOR QUOTATIONS

THIS IS NOT AN ORDER

Return By 4:00pm On 8-1-01

Req. No. SJSP02-01

Date:

Acct. No.

Return To:

STONEWALL JACKSON LAKE STATE PARK
149 STATE PARK TRAIL
ROANOKE, WV 26447

To Be Delivered To:

Vendor
Superior Services
P O Box 982
Hendersonville, NC 28793
ATTN: Don Lister

Vendor
August Environmental Inc.
P O Box 781
Morgantown, WV 26507
ATTN: Nick Pirillo

Vendor

SUMMARY OF QUOTATIONS

Delivery Requirements	FEIN:	Terms	Delivery Date	F.O.B.
	DO NOT USE	DO NOT USE	DO NOT USE	DO NOT USE

Item No.	Quantity	Description	Unit Price	Amount
		Removal and disposal of 3 underground fuel storage tanks at Stonewall Jackson Lake State Park Maintence Area. Work must be performed according to all State and Federal rules and regulations.		
		Specifications Attached:		

TECHNICAL SPECIFICATIONS
SECTION 1- GENERAL INFORMATION

1.1 The Contractor shall furnish all materials, labor, and equipment necessary to safely and properly excavate, vapor-free, remove, transport, make free of hazardous material, clean and dispose the following underground storage tank and piping systems in accordance with all Federal and State laws and regulations:

1) One (1) 1,000 gallon gasoline underground storage tank

2) One (1) 1,000 gallon diesel underground storage tank

3) One (1) 550 gallon kerosene underground storage tank

1.2 The Contractor shall:

1) Be a registered West Virginia vendor.

2) Possess a current Contractor's license issued by State of West Virginia.

3) Possess a Class B certificate from the West Virginia Underground Storage Tank section of the WV Division of Environmental Protection. (A Class B certificate holder must be on-site during all phases of the contract.)

1.3 The Contractor shall abide by the Technical Specifications provided herein.

1.4 In addition to work as specified herein, the Contractor shall also be responsible for:

1) Obtaining all permits and licenses

2) Making all notifications.

3) Paying all fees.

4) Disposal charges of the tank, tank liquids, tank residue, piping, tank cleaning residue and petroleum contaminated soil excavated from the site.

5) Service charges.

6) Testing fees for analysis of tank liquids, tank residues, soil and ground water.

1.5 The Contractor shall provide a minimum of one week advance notice to the local WVDEP UST/LUST field inspector before beginning the removal.

1.6 The Contractor shall complete work within 60 days after receiving written notice to proceed.

1.7 The Contractor shall abide by all Local, State, and Federal Codes during the removal and disposal process. All work shall be performed in strict compliance with standards and recommended practices published by the American Petroleum Institute (API) and all OSHA regulations.

1.8 Any failure by the Contractor to become familiar with available information will not relieve the Contractor from the responsibility for estimating properly the difficulty or cost of accomplishing the work.

1.9 Should a Contractor find discrepancies in the scope of work and/or specifications or should the Contractor be in doubt as to the meaning or intent of any part thereof, the Contractor shall, no later than 5 days prior to the bid opening, request clarification. This includes any perceived conflict between this contract and any Federal, State or Local law or regulation. Failure to resolve such discrepanices on the part of the Contractor waives any claim the Contractor may have for additional espenses made necessary by reason of later interpretation of the contract documents.

1.11 By submitting a bid, the Contractor acknowledges satisfaction as to the conditions affecting the tank removal,including but not limited to site history and background. The Contractor has taken into consideration and included the cost in the bid related to the physical conditions of the siye which may bear upon site access and egress, and any impediments to the removal of the tanks and lines, and operational limitations due to required access and/or use by personnel at the facilities.

1.12 The Division of Natural Resources reserves the right to reject any bid which does not contain proper proff of insurance, bid returns with insurance policies from companies outside the United States of America or that are not regulated in one or more states of the Union. The DNR additionally reserves the right to reject bids for any reasons that serves the best interests of the State of West Virginia. The DNR also reseves the right to waive any technically or irregularity in a bid. Failure to submit requested information/documentation or the submission of incorrect information/documentation will result in automatic disqualification of the bid.

1.13 A mandatory pre-bid site visit is rquired. Bids will not be considered from Contractor's not attending the pre-bid meeting.

1.14 Work not in compliance with specifications shall be rejected. Contractor's employees, and employees of Subcontractors responsible for tank removal, transport, hazardous waste removal, cleaning or disposal shall be required to posses the required level of EPA, DOT, OSHA and WVDEP training/certification for their respective job description.

1.15 The Contractor shall submit prior to commencing work and supply with their bid return either:

1) Proof of such training/licensing/certificates for all employees and employees of Subcontractors.

2) A statement, signed by a company officer stating that all employees of Subcontractors to be used on this job have all the training and certification required by law.

1.16 Flammable or combustible vapors are likely to be present in the work area. Therefore,precautions shall be taken to :

1) Eliminate all potential sources of ignition from the area (for example, smoking materials, non-explosion proof electrical and internal combustion equipment).

2) Prevent the discharge of static electricity during venting of flammable vapors.

3) Prevent the accumulation of vapors at ground level. Refer to API Publication 2015 and API Recommended Practice 2003 for general precautionary measures to follow during the vapor-freeing procedures.

All open flame and spark-producing equipment with the vapor hazard area shall be shut down. Electric equipment (for example, pumps and portable hand tools) used in the area shall be explosion proof in accordance with NFPA 70B Class I, Division 1, Group D or otherwise approved for use in potentially explosive atmospheres.

A combustible gas indicator (CGI) shall be provided by the Contractor and utilized during the vapor-freeing procedured of the contract.

Such CGI, shall be properly calibrated according to manufacturer's specifications before use.

Before each use of the CGI, the Contractor shall check its detection ability by exposing the sampling tip to gasoline vapors of different strengths to check equipment responsiveness.

1.17 Payment will be payment in full upon completion of the job.

SECTION 2- MOBILIZATION/DEMOBILIZATION

2.1 The Contractor shall provide all materials, labor, and equipment necessary to complete the

specified work.

2.2 Upon arrival at the site, the Contractor shall isolate the work area from the rest of the complex. Such isolation area shall consist of barriers, signs, and warning cones to mark out the no entry area. At all times, removal equipment and vehicles shall be parked in a manner to provide access to the complex.

2.3 The Contractor shall immediatley notify the designated WVDEP UST/LUT representative if any vechiles are blocking the Contractor's access to the site.

2.4 The Contractor shall have certified electrician to disconnect and/or lockout the electric service serving the pump island and any electrical service connected to the tank. The disconnection of power shall be verified by the Contractor.

2.5 Upon completion of work at an individual site, the Contractor shall remove and dispose of all construction debris.

SECTION 3- EXCAVATION AND BACKFILL

3.1 Contractor shall excavate as necessary to remove existing underground storage tank, all contaminated soil, haul contaminated soil to stockpile site, stockpile contaminated soil, and backfill excavated area.

3.2 Contaminated soil shall be defined as soil containing petroleum based hydrocarbons as determined by soil sampling and testing. Contractor shall be responsible for soil sampling and testing.

3.3 Contractor will coordinate with DEP and Owner as to location of contaminated soil stockpile on park. Contaminated soil shall be stockpiled in accordance with DEP regulations for stockpiling contaminated soil.

3.4 Contractor shall backfill with suitable backfill material. Contractor shall thoroughly compact each lift making not less than three passes with compaction equipment suitable to compact the backfill to 95% of maximum dry density. Compaction testing will not be required.

3.5 Unsuitable backfill material shall be defined as contaminated soil, organic material, construction debris, vegetation, trash,, topsoil, or saturated soil and shall not be incorporated into

the backfill.

3.6 The Contractor shall not be paid for any unauthorized excavation. Unauthorized excavation shall be defined as excavation of soil not contaminated or not required to be excavated by DEP regulations.

SECTION 4- REMOVAL/DISPOSAL OF RESIDUAL PRODUCT/WATER

4.1 Contractor shall remove, haul, transport, and dispose of all residual product/water in UST, piping, or in bottom of excavation.

4.2 The Contractor shall assume that all wastes generated under this Section is hazardous. Contractor shall obtain an EPA Identification Number. A temporary one-time number can be obtained by calling the Office of Waste Management. Hazardous waste Compliance, Monitoring and Enforcement Section at (304) 558-5989. The Contractor should have the following information ready before calling:

a. Party responsible for generating material.
b. Location of tanks.
c. Amount of waste.
d. Waste-type.
e. Contractor's name and phone number.
f. Hazardous waste transporter's name.
g. Transporter's EPA Identification Number.
h. Name of disposal facility.
I. Disposal facility's EPA Identification Number.

4.3 Once the top of the tank is exposed, the Contractor shall use a vacuum truck or other appropriate and approved methods to removal all fuel residues and liquids from the tank and piping. Contractor shall disconnect piping and drain product into tank for removal.

SECTION 5- TANK AND PIPING REMOVAL, PURGING, CLEANING, AND DISPOSAL

5.1 Contractor shall remove the piping, remove the fill pipe, gauge pipe, vapor recovery apparatus connection, and other tank fixtures. The Contractor shall remove the drop tube, except when it is planned to vapor-free the tank by using an eductor. Cap or remove all non-product lines such as vapor recovery lines except the vent line. The vent line should remain connected until the tank is purged. Plug all other tank openings so that all vapors will exit through the vent line during the vapor-freeing process. Contractor shall purge tank of

flammable vapors. Contractor shall clean and dispose of tank. Removal, cleaning, purging, and disposal shall be in accordance with all applicable Federal and State regulations.

5.2 Flammable vapors shall be removed by one of the methods described below. These methods provide for a temporary vapor-freeing of the tank atmosphere. It is important to recognize that the tank may continue to be a source of flammable vapors even after following vapor-freeing procedures. Before initiating work in the tank or on the tank, a combustible gas indicator shall be used to measure vapor concentrations in the tank and work area.

5.3 Vent all vapors from the tank at a minimum height of 12 feet above grade and 3 feet above any adjacent roof lines until the tank is purged of flammable vapors. The work area shall be free from sources of ignition.

5.4 Flammable vapors may be exhausted from the tank by one of the methods of tank ventilation listed below:

1) Ventilation, using an eductor-type air mover usually driven by compressed air. The eductor-type air mover must be properly bonded to prevent the generation and discharge of static electricity. When using this method, the fill drop tube should remain in place to ensure ventilation at the bottom of the tank. Tanks equipped with fill drop tubes that are not removable should be purged by this method. An eductor extension shall be used to discharge vapors a minimum of 12 feet above grade.

2) Ventilation, using a diffused air blower. When using this purging method, it is imperative that the air-diffusing pipe is properly bonded to prevent the discharge of a spark. Fill drop tubes must be removed to allow proper diffusion of the air in the tank. Air supply should be from a compressor that has been checked to ensure a clean air supply and is free from volatile vapors. Air pressure in the tank must not exceed 5 pounds per square inch gauge.

3) Vapors in the tank may be displayed by adding solid carbon dioxide (dry ice) in the amount of at least 2.0 pounds per 100 gallons of tank capacity. The dry ice should be crushed and distributed evenly over the greatest possible area in the tank to promote rapid evaporation. As the dry ice vaporizes, flammable vapors will flow out of the tank and may surround the area. Therefore, where practical, plug all tank openings, except the vent fitting, after introducing the solid CO2 and continue to observe all normal safety precautions when using dry ice and also regarding flammable or combustible vapors. Make sure that all of the dry ice has evaporated before proceeding.

4) Flammable and combustible vapors may be purged with air or inert gases such as carbon dioxide (CO2) or nitrigen (N2) at the rate of 4 pounds per 100 gallons of tank capacity. The air inert gas should be introduced through a single tank opening at a point near the bottom of the tank at the end of the tank opposite the vent. When inert gases are used,

they should be introduced under low pressure to avoid the generation of static electricity. When using air or inert gases, pressure in the tank should not exceed 5 pounds per square inch (gauge).

CAUTION: THE PROCESS OF INTRODUCING COMPRESSED GAS INTO THE TANK MAY CREATE A POTENTIAL IGNITION HAZARD AS THE RESULT OF THE DEVELOPMENT OF STATIC ELECTRICAL CHARGES. THE DISCHARGING DEVISE MUST, THEREFORE, BE GROUNDED. CO2 EXTINGUISHERS WILL NOT BE USED FOR INERTING FLAMMABLE ATMOSPHERES.

5.5 The tank atmosphere and the excavation area shall be regularly tested for flammable or combustible vapor concentrations until the tank is removed from both the excavation and the site. Such tests shall be made with a combustible gas indicator which is properly calibrated according to the manufacturer's instructions and is thoroughly checked and maintained in accordance with the manufacturer'sinstructions. Personnel responsible for testing shall be completely familiar with the use of the instrument and the interpretation of the instructions.

The tank vapor space is to be tested by placing the combustible gas indicator probe into the fill opening with the drop tube removed. Readings shall be taken at the bottom, middle, and upper portion of the tank, and the instrument should be cleared after each reading. If the tank is equipped with a non-removable fill tube, readings are to be taken through another opening. Liquid products must not enter the probe. Readings of 10 percent or less of the lower flammable limit or 7%02 levels must be obtained before the tank is considered safe for removal from the ground.

Combustible gas indicator readings may be misleading where the tank atmosphere contains less than 5 percent by volume oxygen, as in a tank that has been vapor-freed with an inert gas. In general, readings in oxygen deficient atmospheres will be on the high or safe side. An oxygen indicator to assess the oxygen concentration will be used where inert gases are used for purging.

5.6 Tank atmosphere shall be tested immediately prior to cutting any openings in the tank for cleaning operations.

After the tank has been freed of vapors and before it is removed from the excavation, plug or cap all accessible holes. One plug will have a 1/8 inch vent hole to prevent the tank from being subjected to excessive differential pressure caused by temperature changes. The plug shall always be positioned on top during subsequent transport and storage.

Contractor shall excavate around the tank to uncover it for removal.

The Contractor shall check the atmosphere of the tank with a CGI prior to removal from the excavation. In the event that readings of greater than 10 percent of the lower flammable limit or 7%02 levels are obtained the tank shall be inerted again before the tank is removed from the ground.

The equipment used to remove the tank from the ground shall be adequate size, power, and rated

lifting capacity to safety extract the tank.

Upon completion of the extraction, the Contractor shall lift the tank from the excavation and clean it with non-sparking cleaning materials in a manner that all materials dislodged from the outer surface of the tank falls into the excavation.

The tank shall then be pleased on a level surface, covered with plastic to prevent the spread of contamination in the event of leakage. The use of wood blocks to prevent the tank from rolling shall be used. Use screwed boiler plugs to plug any corrosion holes in the tank prior to transporting. Absorbent spill control materilas (absorbent booms, pads, and pillows) are to be present to contain/control any spilled liquids from the tank.

5.7 Contractor shall clean tank prior to disposal. At the Contractor's option, the tank may be cleaned on -site or transported off-site to be cleaned.

If the Contractor chooses to clean the tank on-site, he shall:

1) Test tank atmosphere immediately prior to cutting any openings in the tank for cleaning operations.
2) Cut at least 2' x2' opening on each end of the UST for cleaning access.
3) Clean by methods, such as flushing with high-pressure water streams, self-priming pumps, steam or water eductors, vacuum truck and/or manually by scrapping and sweeping. All tank cleaning residue will be placed in a 55-gallon open top container, DOT approved. Contractor shall include cost of drum(s) in this Bid Item.
4) Properly dispose of cleaning residue. Cleaning residue shall be treated as hazardous waste.

If the Contractor chooses to transport the tank to a commercial disposal facility for cleaning , sludge removal and testing and disposal of the waste. The Contractor shall provide the following information:

a. The name, address, and phone number of this facility.
b. A signed statement from this facility stating that the tank was:
   b.1 Properly vapor-freed.
   b.2 All sludge was removed, tested, and properly disposed of in accordance with all applicable laws, rules, and regulations.
   b.3 The tank was cleaned and all water/solvents used were properly disposed of.

5.8 Tank shall be labeled by the Contractor after removal from the ground, and prior to the removal from the site. Regardless of the condition of the tank, the label shall contain a warning against reuse. The former contents and present vapor state of each tank,including vapor-free

treatment and date shall also be indicated. The label should be similar to the following in legible letters at least (six inches) high

TANK HAS CONTAINED UNLEAED, LEADED GASOLINE OR DIESEL FUEL NOT VAPOR-FREE NOT SUITABLE FOR STORAGE OF FOOD OR LIQUIDS INTENDED FOR HUMAN OR ANIMAL COMSUMPTION

DATE OF REMOVAL:_____

SITE:_____

Labeling of the tank will not be required by the Contractor if the tank will be scrapped on-site.

5.9 At the Contractor's option, the tank may be transported off-site for disposal or be scrapped on-site.

If hte Contractor chooses to transport the tank off-site, the Contractor shall:

1) Before the tank is removed from the site, the tank atmosphere shall be checked with a combustible gas indicator to insure that it does nor exceed 10 percent of the lower flammable limit or 7%02 levels.

2) The tank shall be secured to a truck or trailer of adequate size weight capacity for transportation to an approved disposal site. It shall be the Contractor's responsibility to transport and dispose of the tank in accordance with all applicable Local, State, and Federal laws and regulations. The Contractor shall provide a sworn statement, receipt, or manifest of disposal from the disposal facility to the DEP as a requirement for the final acceptance of the work.

3) Prepare shipping papers to read:

Combustible liquid (n.o.s.) UN 1785 (empty), last contained_____ gallons).

4) Placard in four positions (UN 1785).

5) All openings in the tank shall be sealed, if tank has not been cleaned prior to transport, except for 1/8" vent plug.

If the Contractor chooses to scrap tank on-site, the Contractor shall:

1) Properly vapor-free, test atmosphere and clean the tank commencing on-site scrapping operation.

2) Be responsible for cleanup of any debris and incidentals relating to the scrapping operation.

3) Be responsible for transporting and disposal of the scrapped tank off-site.

4) Furnish copies of all transporation and disposal receipts.

5) Secure scrapped tank parts to a truck or trailer of adequate size and weight capacity for transportation to an approved disposal site. It shall be the Contractor's responsibility to transport and dispose of the tank in accordance with all applicable Local, State, and Federal laws and regulations. The Contractor shall provide a sworn statement, receipt, or manifest of disposal from the disposal to the DEP as a requirement for the final acceptance of the work.

SECTION 6- SOIL SAMPLES AND TESTING

6.1 Contractor shall sample and test soil in the following locations: one(1) composite soil sample from the UST excavation trench floor, one (1) composite sample combined from each of the four (4) pit walls, one (1) composite sample from the product piping run, ad one (1) composite sample from the excavated stockpiled soil. Additional samples, if any, will be in consultation with the WVDEP representative.

6.2 Samples shall be tested for BTEX (EPA 8020) and TPH (EPA 8015 using GC FID) wide window with solvent extraction for hydrocarbons and purge and trap to quantify determined on-site. The Contractor should collect sufficient material in case this analysis is required.

SECTION 7

Contractor shall properly backfill and grade site. Excavated area shall be resurfaced with asphalt or concrete to standards for vehicle traffic, parking and storage.

AFFIDAVIT

West Virginia Code §5A-3-10a states:

> *No contract or renewal of any contract may be awarded under this article to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor as defined in this section and the debt owed is an amount greater than five thousand dollars in the aggregate.*

Definitions:

> "Debt" means any assessment, penalty, fine, tax or other amount of money owed to the state because of a judgement, fine, permit violation, license assessment, penalty or other assessment presently due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon;
>
> "Debtor" means any individual, corporation, partnership, association, limited ability company or any other form or business association owing a debt to the state or any of its political subdivisions;
>
> "Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor, so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

Exception:

> The prohibition does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the West Virginia Code, worker's compensation premium, permit fee or environmental fee or assessment, and the matter has not become final, or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

Under penalty of law for false swearing (West Virginia Code §61-5-3), it is hereby certified that the bidder and all related parties do not owe any debts or, if a debt is owed, that the provisions of the exception clause (above) apply.

Vendor's Name: _____

Authorized Signature: _____ Date: _____

DIVISION OF NATURAL RESOURCES
STONEWALL JACKSON LAKE STATE PARK
149 State Park Trail
Roanoke, West Virginia 26447
Telephone (304) 269-0523
Fax (304) 269-0526

Bob Wise
Governor

Ed Hamrick
Director

August Environmental Inc.
PO Box 781
Morgantown WV 26507
Attn.: Nick Pirrillo

Mr. Pirrillo,

Attached is Purchase Order #SJSP02-01 for the removal of three underground storage tanks at Stonewall Jackson Lake State Park Maintenance Area. Two changes were made to the original bid document and were communicated to each of the bidders. The two changes which are part of the purchase order are:

1. The necessity to pay the higher of the U.S. Department of Labor Minimum Wage Rates as established for Lewis County, pursuant to West Virginia code 21-5-1, et, seq.
2. Section 7 should change to read, "Contractor shall properly backfill and compact stone to grade."

You may proceed with the project. Please inform me when you confirm your schedule to begin. Please feel free to contact me if you have any questions or concerns.

Sincerely,

Samuel England, Park Superintendent

cc: Art Loder, Environmental Inspector
Bill Wilson, USACE
Steve DeBarr, Assistant Chief, Planning Engineer and Maintenance
Joe Beckner, Engineer Technician
file

August Environmental Inc.
Post Office Box 781
Morgantown, W.Va. 26507
Telephone: (304)291-6164
Fax: (304)292-5848

Memo

To: Inspector Art Loder

From: Mr. Jerry T. Miller, Certified Installer #AB083

CC: Mr. Nick Pirillo

Date: 8/3/01

Re: UST Removal Notification for Stonewall Jackson Lake State Park

---

1). We are planning on removing the following UST's at Stonewall Jackson Lake State Park on August 20, 2001:

(A). Two 1,000 gallon

(B). One 550 gallon

2). All work will be complete in strict accordance with local, state and federal regulations.

3). Questions concerning this project can be directed to me at 1-304-291-6164 extension 157 or Mr. Nick Pirillo at 1-304-291-9433 extension 139.

CONFIDENTIAL

John Ajmperian

rcvd 6.21.01

DIVISION OF NATURAL RESOURCES
STONEWALL JACKSON LAKE STATE PARK
149 State Park Trail
Roanoke, West Virginia 26447
Telephone (304) 269-0523
Fax (304) 269-0526

Bob Wise
Governor

Ed Hamrick
Director

June 16, 2001

Arthur Loder, Environmental Inspector
Division of Environmental Protection
Underground Storage Tank Section
2031 Pleasant Valley Rd.
Fairmont WV 26554

Bill Wilson, USACE
Department of Army
Pittsburgh District Corps of Engineers
William S. Moorehead Federal Building
1000 Liberty Ave.
Pittsburgh PA 15222-4186

2109990

Steve DeBarr, Assistant Chief
Planning Engineer and Maintenance
WV Division of Natural Resources
1900 Kanawha Blvd. East
Building 3 Room 719
Charleston WV 25305-0662

Gentlemen,

In the very near future we intend to remove three underground fuel storage tanks from the maintenance area at Stonewall Jackson Lake State Park. The tanks include 2 - 1,000 gallon USTs (gasoline and diesel) and 1 - 550 gallon kerosene UST. These tanks are out of compliance with Federal and State Underground Fuel Storage Tanks regulations. It is cost prohibitive to repair, upgrade and maintain the existing tanks. Attached are guidelines we intend to distribute to potential contractors for the retirement, removal and disposal of the tanks. It is believed that the tanks are not leaking.

Your comments on the attached specifications for the tank removals would be appreciated. Thank you for your assistance. Please contact me if you have any questions or concerns.

Sincerely,

Samuel A. England, Park Superintendent
Stonewall Jackson Lake State Park

cc: Blair Taylor, District Administrator
Joe Beckner, Inspector, WVDNR
file

Rcvd
May 22

DIVISION OF NATURAL RESOURCES
STONEWALL JACKSON LAKE STATE PARK
149 State Park Trail
Roanoke, West Virginia 26447
Telephone (304) 269-0523
Fax (304) 269-0526

Bob Wise
Governor

Ed Hamrick
Director

April 21, 2001

Arthur Loder, Environmental Inspector
Division of Environmental Protection
Underground Storage Tank Section
2031 Pleasant Valley Rd.
Fairmont WV 26554

Mr. Loder,

Attached are results from the tightness testing and line leak detector for the underground fuel storage tank and distribution lines for the marina at Stonewall Jackson Lake State Park. It is my understanding that this will complete the necessary compliance and registration requirements for the marina site.

I have recently forwarded to you a proposal for work to bring our maintenance area tanks into compliance. We hope that the timely completion of this work will complete our underground storage tank upgrades to comply with all the necessary requirements.

I appreciate your assistance with this project. Please contact me if you have any questions or concerns.

Sincerely,

Samuel A. England, Park Superintendent

cc: Blair Taylor, District Administrator
Steve DeBarr, Assistant Chief, Planning Engineer and Maintenance
Joe Beckner, Inspector, Park and Recreation

Spoke w/ Super on phone 5-29-01. Will probably remove tanks. Have to get bids out for upgrade and closure to compare prices. Will contact me w/results

Superior Services
Serving the Petroleum Industry
P.O. Box 982 Hendersonville, NC 28793
Phone: (828) 698-6286 • Fax: (828) 698-6294

Mechanical Line Leak Detector Test

Customer:	Stonewall Jackson State Park	Location:	Marina

Technician:	David Brickley AC270	Date:	4/3/01

Product	Plus				
Leak Detector Manufacturer	Red Jacket				
Model/Type	DLD				
Serial #	205916101				
Resiliency	900 ml				
Opening Time	8.5 sec				
Functional Element Holding PSI	33				
Metering PSI	9				
Test Leak Rate ML/MN	189				
Pass/Fail	Pass				

Comments:

NOTE: ALL LINE LEAK DETECTORS MUST BE TESTED ANNUALLY

Superior Services
Serving the Petroleum Industry
P.O. Box 982 Hendersonville, NC 28793
Phone: (828) 698-6286 • Fax: (828) 698-6294

Precision Line Tightness Test

FACILITY:

Customer:	Stonewall Jackson State Park	Location:	Marina
	Rt. 1, Box 0		Rt.19
	Roanoke, WV 26423		Roanoke, WV

Technician:	David Brickley AC270	Date:	4/3/01

Product	Plus				
Line Construction	Fiberglass, Steel				
Approximate Length	700'				
Pump Manufacturer	Red Jacket				
Isolation Mechanism (Pump)	Ball Valve				
Isolation Mechanism (Dispenser)	Shear Valves				
Test Pressure (1.5 Times Working Pressure)	60				
Last Product Dispensed	0830				
Time Started	1430				
Time Completed	1500				
Total Test Time (30 Minute Minimum)	30				
Initial Cylinder Level (ICL)	.0740				
Final Cylinder Level (FCL)	.0780				
Leak Volume = ICL-FCL	.0040				
Conclusion (Pass or Fail)	Pass				

Comments: Product line tested from UST to dispensers on dock.

Test Equipment
Hasstech Acurite Pipeline Tester
Threshold +-.005 GPH 30 Minutes
P/D 0.10 Leak 100% PFA 0%

Note: Pressurized Lines Must be Tested Annually

****CERTIFICATION****

This is to certify that

DAVID BRICKLEY

(SUPERIOR SERVICES)

CERTIFICATION NUMBER: 442.LT

has completed a course

in fundamentals of line testing methods

incorporating use of the

Hasstech ACURITE™ Pipeline Tester

according to NFPA 329-87.

Date: 5/17/2000

EXPIRATION DATE:
5/17/2002

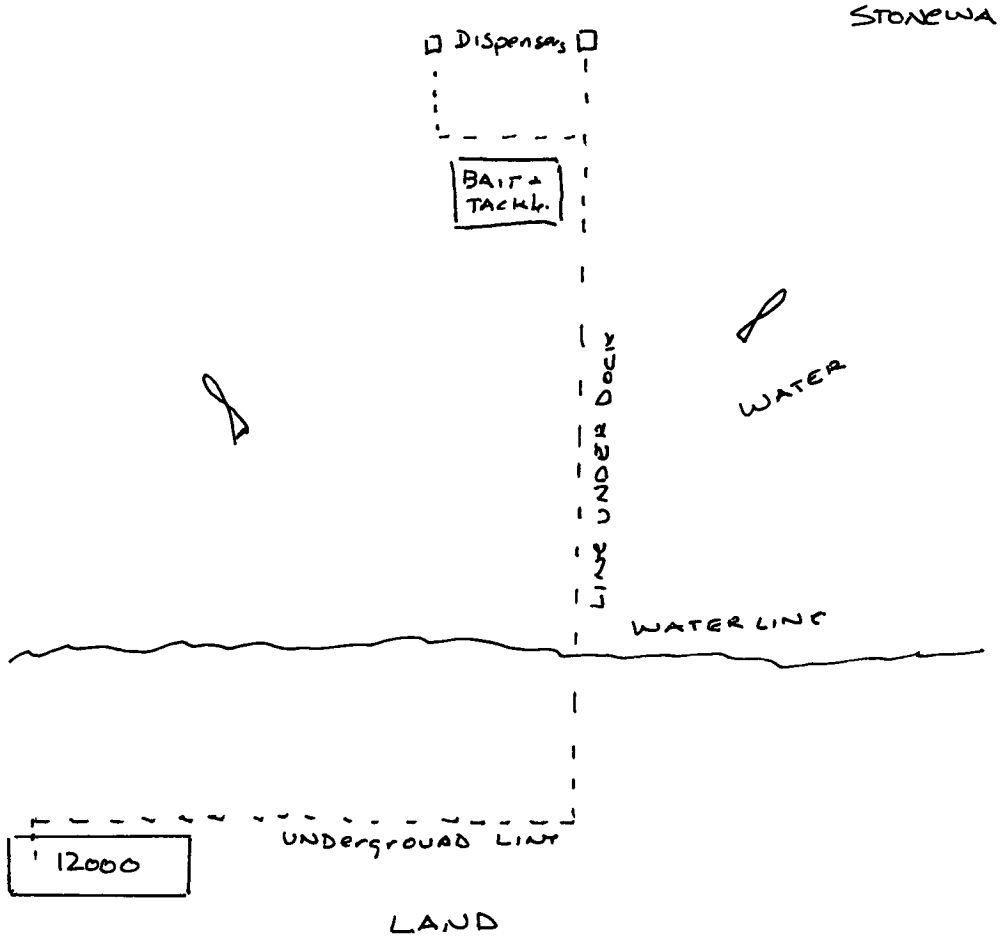
BY: Mike Treat

Mike Treat
TRAINING MANAGER

PRINTED IN USA

Superior Services
Serving the Petroleum Industry
P.O. Box 982 Hendersonville, NC 28793
Phone: (828) 698-6286 • Fax: (828) 698-6294

STONEWALL JACKSON State Park
MARINA



NOT TO SCALE.

Superior Services
Serving the Petroleum Industry
P.O. Box 982 Hendersonville, NC 28793
Phone: (828) 698-6286 • Fax: (828) 698-6294

Dear Superior Services Customer:

We appreciate the opportunity to have tested your underground storage tank system. Enclosed you will find the results of tests conducted at your site, along with the independent third party evaluations for the test method used.

The following equipment used (as checked) meets and exceeds federal and state E.P.A. requirements.

- ☐ USTest 2000/P PD 0.10 gph leak 99.9% PFA 0.1%
- ☐ USTest 2000/LL PD 0.10 gph leak 99.3% PFA 0.7%
- ☐ USTest 2001/P PD 0.10 gph leak 95.2% PFA 4.8%
- ☐ USTest 2000/U PD 0.10 gph leak 100% PFA 0.0%
- X Hasstech Acurite Pipeline Tester PD 0.10 gph leak 100% PFA 0.0%

All mechanical line leak detectors are tested to manufacturer and state requirements.

The integrity of each test rests upon the technician to perform all tests according to the manufacture's protocol. With this letter the technician David Brickley, hereby certifies that all tests conducted at your site, were performed according to manufacture's protocol.

David G. Brickley	4/3/01	Stonewall Jackson State Park - Marina
	Date	Site

USTest Technician Certification SS-0195PT
Hasstech Acurite Pipeline Tester Certification 333.LT
West Virginia Certification AC270

Thanks for your business!!
Superior Services can perform all of your tank, line, leak detector, helium leak location and cathodic protection testing. We also distribute USTest automatic tank gauges. Call today (828)698-6286.

Results of the Performance Evaluation
Conducted According to EPA Test Procedures

Pipeline Leak Detection System
Used as a
Line Tightness Test

This form summarizes the results of an evaluation to determine whether the pipeline leak detection system named below and described in Attachment 1 complies with federal regulations for conducting a line tightness test. The evaluation was conducted according to the United States Environmental Protection Agency's (EPA's) evaluation procedure, specified in *Standard Test Procedures for Evaluating Leak Detection Methods: Pipeline Leak Detection Systems*. The full evaluation report includes seven attachments.

Tank system owners who use this pipeline leak detection system should keep this form on file to show compliance with the federal regulations. Tank system owners should check with state and local agencies to make sure this form satisfies the requirements of these agencies.

System Evaluated

System Name: AcuRite™ PIPELINE TESTER Expanded Operation Range
Version of System: Single & Multiple Line Tester*
Manufacturer Name: HASSTECH, INC.
5360 - F Eastgate Mall
(street address)
San Diego, CA 92121
(city, state, zip code)
619/457-5880
(telephone number)
AcuRite™ is a Trademark of Hasstech, Inc.

Evaluation Results

1. The performance of this system
   (X) meets or exceeds
   ( ) does not meet
   the federal standards established by the EPA regulation for line tightness tests.

   The EPA regulation for a line tightness test requires that the system be capable of detecting a leak as small as 0.1 gal/h with a probability of detection (P_D) of 95% and a probability of false alarm (P_{FA}) of 5%.

2. The estimated P_{FA} in this evaluation is 0 % and the estimated P_D against a leak rate of 0.1 gal/h defined at a pipeline pressure of 20 psi in this evaluation is 100 %.
   *The Multiple Line Tester uses the same basic hardware and constant test pressure, but contains multiple cylinders. It is manfactured by:
   Hutchinson Hayes International, Inc.
   P.O. Box 2965
   Houston, TX. 77252
   Tel: 713/452-0222

Criterion for Declaring a Leak

3. This system
   ( ) uses a precise method
   (x) measures and reports the output quantity and compares it to a predetermined threshold
   to determine whether the pipeline is leaking

4. This system
   (x) uses a single test
   ( ) uses a multiple test sequence consisting of _____ tests (specify number of tests required) separated by ___ hours (specify the time interval between tests)
   to determine whether the pipeline is leaking

5. This system declares a leak if the output of the measurement system exceeds a threshold of __0.01__ (specify flow rate in gal/h) in ___1___ out of ___1___ tests (specify, for example, 1 out of 2, 2 out of 3). Please give additional details, if necessary, in the space provided.

Evaluation Approach

6. There are five options for collecting the data used in evaluating the performance of this system. This system was evaluated
   ( ) at a special test facility (Option 1)
   ( ) at one or more instrumented operational storage tank facilities (Option 2)
   ( ) at five or more operational storage tank facilities verified to be tight (Option 3)
   (x) at 10 or more operational storage tank facilities (Option 4)
   ( ) with an experimentally validated computer simulation (Option 5)

7. A total of ___22___ tests were conducted on nonleaking tank(s) between __9/14/89__ (date) and __10/13/91__ (date). A description of the pipeline configuration used in the evaluation is given in Attachment 1.

Answer questions 8 and 9 if Option 1, 2, or 5 was used.

8. The pipeline used in the evaluation was _____ in. in diameter, _____ ft long and constructed of _____ (fiberglass, steel, or other).

9. A mechanical line leak detector
   ( ) was
   ( ) was not
   present in the pipeline system.

Answer questions 10 and 11 if Option 3 or 4 was used.

10. The evaluation was conducted on ___106___ (how many) pipeline systems ranging in diameter from ___2___ in. to ___4___ in., ranging in length from ___3.5___ ft to ___300___ ft, and constructed of steel and fiberglass (specify materials).

11. A mechanical line leak detector
    ( ) was
    (x) was not
    present in the majority of the pipeline systems used in the evaluation.

12. Please specify how much time elapsed between the delivery of product and the start of the data collection
    (x) 0 to 6 h
    (x) 6 to 12 h
    (x) 12 to 24 h
    (x) 24 h or more

Temperature Conditions

This system was evaluated under the range of temperature conditions specified in Table 1. The difference between the temperature of the product circulated through the pipeline for 1 h or more and the average temperature of the backfill and soil between 2 and 12 in. from the pipeline is summarized in Table 1. If Option 1, 2 or 5 was used a more detailed summary of the product temperature conditions generated for the evaluation is presented in Attachment 4. If Option 3 or 4 was used, no artificial temperature conditions were generated.

Table 1. Summary of Temperature Conditions Used in the Evaluation

Minimum Number of Conditions Required	Number of Conditions Used*	Range of ΔT (°F)**
1		ΔT < -25
4		-25 ≤ ΔT < -15
3		-15 ≤ ΔT < -5
3		-5 ≤ ΔT < +5
4		+5 ≤ ΔT < +15
4		+15 ≤ ΔT < +25
1		ΔT > 25

*This column should be filled out only if Option 1, 2, or 5 was used.

**ΔT is the difference between the temperature of the product dispensed through the pipeline for over an hour prior to the conduct of a test and the average temperature of the backfill and soil surrounding the pipe.

Data Used to Make Performance Estimates

13. The induced leak rate and the test results used to estimate the performance of this system are summarized in Attachment 5. Were any test runs removed from the data set?
    (x) no
    ( ) yes

    If yes, please specify the reason and include with Attachment 5. (If more than one test was removed, specify each reason separately.)

Sensitivity to Trapped Vapor

14. ( ) According to the vendor, this system can be used even if trapped vapor is present in the pipeline during a test.
    (x) According to the vendor, this system *should not be used* if trapped vapor is present in the pipeline.

15. The sensitivity of this system to trapped vapor is indicated by the test results summarized in Table 2. These tests were conducted at _____ psi with _____ ml of vapor trapped in the line at a pressure of 0 psi. The data and test conditions are reported in Attachment 6.

Table 2. Summary of the Results of Trapped Vapor Tests

Test No.	ΔT (°F)	Induced Leak Rate (gal/h)	Measured Leak Rate (gal/h)
1			
2			
3			

Performance Characteristics of the Instrumentation

16. State below the performance characteristics of the primary measurement system(s) used to collect the data. (Please specify the units, for example, gallons, inches.)

    Quantity Measured: Gallons (Range 0 to 0.1)
    Resolution: 0.0005 gal.
    Precision: 0.0005 gal.
    Accuracy: 0.001 gal.
    Minimum Detectable Quantity: 0.001 gal.
    Response Time: 30 Minutes
    Threshold is exceeded when the flow rate due to a leak exceeds 0.01 gal/h.

Application of the System

17. This leak detection system is intended to test pipeline systems that are associated with underground storage tank facilities, that contain petroleum or other chemical products, that are typically constructed of fiberglass or steel, and that typically measure 2 in. in diameter and 200 ft or less in length. The performance estimates are valid when:

    - the system that was evaluated has not been substantially changed by subsequent modifications
    - the manufacturer's instructions for using the system are followed
    - a mechanical line leak detector
      ( ) is present in
      (x) has been removed from
      the pipeline (check both if appropriate)

- the waiting time between the last delivery of product to the underground storage tank and the start of data collection for the test is 12 h
- the waiting time between the last dispensing of product through the pipeline system and the start of data collection for the test is 0.5 h
- the total data collection time for the test is 0.5 h
- the volume of the product in the pipeline system is less than twice the volume of the product in the pipeline system used in the evaluation, unless a separate written justification for testing larger pipeline systems is presented by the manufacturer, concurred with by the evaluator, and attached to this evaluation as Attachment 8
- please give any other limitations specified by the vendor or determined during the evaluation: _____

Disclaimer: This test procedure only addresses the issue of the system's ability to detect leaks in pipelines. It does not test the equipment for safety hazards or assess the operational functionality, reliability or maintainability of the equipment.

Attachments

Attachment 1 - Description of the System Evaluated

Attachment 2 - Summary of the Performance of the System Evaluated

Attachment 3 - Summary of the Configuration of the Pipeline System(s) Used in the Evaluation

Attachment 4 - Data Sheet Summarizing Product Temperature Conditions Used in the Evaluation

Attachment 5 - Data Sheet Summarizing the Test Results and the Leak Rates Used in the Evaluation

Attachment 6 - Data Sheet Summarizing the Test Results and the Trapped Vapor Tests

Attachment 7 -- Data Sheet Summarizing the Test Results Used to Check the Relationship Supplied by the Manufacturer for Combining the Signal and Noise

Certification of Results

I certify that the pipeline leak detection system was operated according to the vendor's instructions. I also certify that the evaluation was performed according to the procedure specified by the EPA and that the results presented above are those obtained during the evaluation.

Richard E. Walker, Ph.D.
(name of person performing evaluation)

Richard E. Walker
(signature)

November 7, 1991
(date)

409/880-8788
(telephone number)

Lamar University
(organization performing evaluation)

4400 Martin Luther King Parkway
(street address)

Beaumont, TX 77710
(city, state, zip)

WVDEP-OWM-CAER
2031 Pleasant Valley Road, Suite #1
Fairmont, WV 26554-9295
304-368-3950
304-368-3953

West Virginia Department of Environmental Protection

Bob Wise
Governor

Michael O. Callaghan
Secretary

May 1, 2001

Samuel A. England
Park Superintendent
Stonewall Jackson Lake State Park
149 State Park Trail
Roanoke, WV 26447

Dear Mr. England,

In reply to your letter requesting feedback on Superior's proposal to bring the underground storage tanks at the maintenance garage into compliance I have these comments. If Steel Tank Institute Recommended Practice for the Installation of Supplemental Anodes for Sti-P3 UST's--R-972-00 is followed, the tanks should be protected. Specifically, soil resistivity must be tested to determine the proper size annodes. Additionally, tests for electrical isolation must be performed. If the tanks are not isolated the CP will not work.

My records indicate that none of the tanks passed the corrosion test I performed. Superior's letter says one tank passed. Did they send someone out to test the tanks? If not, then all three tanks will need supplemental anodes. Superior proposes a CP test after repairs are completed. This test should be performed after six months has passed. I disagree with Superior's conclusion regarding the lines. Corrosion protection is required on the lines.

Superior's proposal depends on park personnel to perform some duties. Park personnel can perform any duties that do not involve connecting or disconnecting anything to or from the tanks. If park personnel excavate down to the tanks you should be prepared to encounter contaminated soils and follow applicable health and safety rules. If contaminated soils are encountered you must report such to the Office of Environmental Remediation within 24 hours. Their phone number in French Creek is 304-924-6211. I suggest you contact them before excavating so as to have a soil plan in place if contamination is encountered.

Regarding leak detection, these tanks are being upgraded for spill and overfill protection. They are being *repaired* for corrosion protection. Allowable methods of leak detection depend on the date the tanks were first corrosion protected. Since these tanks were installed in 1988 and were corrosion protected at that time then periodic tank tightness testing and inventory reconciliation as a leak detection method has expired. Therefore, a method of monthly monitoring is required. The only method available that does not require additional hardware is Statistical Inventory Reconciliation (SIR). I am including a list of SIR providers from among to choose.

Whoever performs the upgrade work on your tanks must have WV class A certification. Whoever tests your tanks after the proposed work is completed must have WV class C certification.

I agree with Superior that the tanks and lines should be tightness tested after the upgrades and repairs are completed.

I am enclosing a list of SIR providers, contractors and consultants for your bidding process.

There are some DEP administrative matters that must be resolved before I will allow these tanks to be upgraded and repaired. A registration form must be submitted identifying the owner of these tanks. I am enclosing one for you to complete. Return it to me and I will issue a permit to perform the work. Additionally, I require notification of when all work is to be performed so that I may observe.

If you have any questions please do not hesitate to call.

Sincerely,

Art Loder
Environmental Inspector

DIVISION OF NATURAL RESOURCES
STONEWALL JACKSON LAKE STATE PARK
149 State Park Trail
Roanoke, West Virginia 26447
Telephone (304) 269-0523
Fax (304) 269-0526

Bob Wise
Governor

Ed Hamrick
Director

April 14, 2001

Arthur Loder, Environmental Inspector
Division of Environmental Protection
Underground Storage Tank Section
2031 Pleasant Valley Rd.
Fairmont WV 26554

Mr. Loder,

Attached is a proposal from Superior Services for upgrading of the three underground storage tanks located in our maintenance area. Before I proceed with the bid process, I want to make sure that this proposal will bring us into compliance with current requirements. As I understand, this will cover our "hardware" needs and we will still need to do tightness testing and inventory control as a form of leak detection. Mr. Lister provided us copies of two EPA publications as guides "*Don't Wait until 1998; Spill, Overfill, and Corrosion Protection for Underground Storage Tanks*," and "*Doing Inventory Right; For Underground Storage Tanks.*" I would appreciate your comments on any recommendations, oversights or misinformation that you may observe in the proposal. Our desire is to bring our tanks into compliance in a timely and cost-effective manner.

Additionally, our 12,000 gallon underground storage tank and distribution lines at the marina have passed the required testing and additional necessary equipment installed by Superior Services. I will forward to you a report of the testing when I receive this from Superior.

Thank you for your assistance with bringing our tanks into compliance. Any recommendations from you on contractors to perform the necessary work would be appreciated. Please contact me if you have any questions or concerns.

Sincerely,

Samuel A. England, Park Superintendent

cc: Blair Taylor, District Administrator
Steve DeBarr, Assistant Chief, Planning Engineer and Maintenance
Joe Beckner, Inspector, Park and Recreation

Superior Services
Serving the Petroleum Industry
P.O. Box 982 Hendersonville, NC 28793
Phone: (828) 698-6286 • Fax: (828) 698-6294

April 10, 2001

Samuel England
Stonewall Jackson State Park
Route 1 Box 0
Roanoke, West Virginia 26423

Existing

(2) 1,000 gal. STI-P3 tanks - diesel and gasoline
(1) 550 gal STI-P3 tank - kerosene
Kerosene and diesel did not pass most recent 3 year cp test
Tanks do not have spill containment basins nor overfill prevention valves

Supply lines are Truecoat plastic coated steel - welded joints - joints coated with factory coating - no cp required.
Supply lines are suction - location of check valves must be determined

Scope of Work

State park personnel to do all saw-cutting - excavation - back-filling - and re-paving. Also any electrical (if required) in disconnecting and reconnecting pumps. magnesium?

Mark area to be excavated for installation of (1) 32 lb sacrificial anode on each of the kerosene and diesel tanks - this includes both the area where the anode is to be buried and the area over the lifting lug on the tank for attaching the anode.

Mark area to be excavated for installation of spill containment basin. Access to a 4" opening in the tank is required. X

After excavation by Park personnel is complete, install anodes for the two tanks and drill and attach anode wire to lifting lug. Install 4" riser pipe in each tank for new fills. Install spill containment basins and overfill prevention valves with drop tubes. Also provide and install 4" fill adaptors and caps. After backfill is complete, install cp test station above each tank.

Remove pump from suction stub going into tank - determine if product drains back to tank or if check valve is at tank. If at tank, install tee directly below pump to permit testing of line. After 6 months

At completion of work, conduct a certified cathodic protection test on the three tanks. Also conduct a precision tightness test on the three tanks and supply lines.

Provide necessary paperwork and certifications for work for submission to W. Va. DEP.

$ 6,139.00

Customer will be responsible for any state sales tax due.

This proposal also assumes that the tanks do have an unused 4" opening that can be utilized for the fill riser in each tank.

1. Follow STI R-972-00
2. 6 month follow-up test

DL

Don Lister

test port burying a ref all

Superior Services
Serving the Petroleum Industry
P.O. Box 982 Hendersonville, NC 28793
Phone: (828) 698-6286 • Fax: (828) 698-6294

April 11, 2001

Samuel England
Stonewall Jackson State park
Route 1 Box 0
Roanoke, West Virginia 26423

Enclosed is the original copy of the proposal we faxed to you today for upgrading the (3) small tanks used in grounds maintenance. This proposal addresses the "hardware' requirements for getting into compliance with the W. Va. DEP underground tank regulations. In addition, some form of release detection on the tanks is required - tightness testing (on a 5 year cycle) and inventory control is probably the most simplistic. I have enclosed a couple of booklets that may be of help. One addresses the "hardware" requirements; the other discusses "Doing Inventory Control Right". They may give you some insight into what is required. After reviewing these if you want to discuss, give us a call.

Don Lister

Fix system

1. Corrosion test by qualified corrosion
2. Not Pass ~~test~~
   Anodes added to tanks
   Assess tank for suitability
3. Add spill buckets
4. Add fill shut off flapper in drop tube
5. Method of leak detection

Register Tanks

SJ Lake No Active 2108014
2 removed 98 Army corps
Installed 1991 or 1992 ?
Marina
1- 12K tank
DW FRP
Pressure system -
DW Lines to bridge
Black iron pipe to Disp
No crash valve on dispenser
2 mw outside tank
spill bucket + flapper

Mainframe 3 Tanks

Gas 1K 1988 Anodes
-.825 suction
no flapper
No spill bucket
test wire
DL 1K 1988 Anodes
-.660 no over
no spill
test wire
-.534 Kero 500 gal 1988 Anodes
no fill
No overfill
test wire

UST-23

WV Division of Environmental Protection
Office of Waste Management
Underground Storage Tank Section
1356 Hansford Street
Charleston, WV 25301-1401
(304) 558-6371

RECEIVED
COMPLIANCE ASSURANCE AND
EMERGENCY RESPONSE SECTION
FEB 25 2004
DEP OFFICE OF WASTE MANAGEMENT

WV ID: 2109990

Closure ID: C-6599-01

REVIEW OF CLOSURE

FACILITY INFORMATION	
Owner: DNR or Army Corps Engineers	Operator: SJ State Park
Address:	Address:
City: State: Zip:	City: State: Zip:
Phone: ( )	Phone: ( )
LOCATION OF TANKS:	
Facility Name: Stonewall Jackson SP	Address: No longer operated by DNR
City: Roanoke County: Lewis	Phone:

TO THE TANK OWNER AND OPERATOR:

This office has received and reviewed the closure documentation and analytical data for the above noted facility. Based on the information provided, the UST closure is complete and no further actions are necessary. This acknowledgement pertains only to the closure and does not apply to any investigations or remedial activities required by the Office of Environmental Remediation as the result of the issuance of a Confirmed Release. Additionally, should any contamination be discovered in the vicinity of the subject property in the future, WVDEP expressly reserves the right to require responsible parties to conduct further investigation and/or remedial actions.

Inspector Signature: [signature] File Date: 2-9-04

Copies for distribution. White - Owner; Green - Operator; Canary - Charleston Office; Pink - Inspector

UST-21 (05/01)

White-Owner
Canary-Charleston Office
Pink-Field Office

WV Department of Environmental Protection
Office of Waste Management
Underground Storage Tank Unit

1356 Hansford Street
Charleston, WV 25301-1409
304-558-6371

NOTICE OF CLOSURE

To: Underground Storage Tank Owners and/or Operators

From: Underground Storage Tank Unit
West Virginia Department of Environmental Protection

DATE OF NOTICE: 6·21·01 EXPIRATION DATE: 9·21·01

This office has received your notice of tank removal and/or closure in accordance with 280.71(a). Your site has been assigned closure number C-6599 - 2001. Please refer to this number on any further correspondence concerning this closure. The tank closure is not to begin until the date has been scheduled with the undersigned inspector. All forms must be submitted to the UST Inspector within 30 days after the closure is completed.

If you should have any questions, please call Art Loder
at (304) 368-3950

Owner/Operator Mailing Address: WVID# 2109990
Owner Uncertain
Neither Army Corps or DNR claim
DNR will remove

Location of tanks:
Stonewall Jackson State Park Maintenance Facility
Stonewall Jackson State Park
149 State Park Trail
Roanoke WV 26447

Waiver of 30 days ☐ Yes ☒ No Date: 6·26·01

Signed: Art Loder

To be completed by inspector after closure:
number of USTs registered 3
number of USTs removed 3 number of USTs closed in ground 0
number of USTs installed 0
Closure package is complete: ✓ yes ____ no
notification form ✓ yes ____ no
tank closure form ✓ yes ____ no
lab analysis ✓ yes ____ no
OER Notified? ✓ yes ____ no

C-6599-01

OMB NO. 2050-0068, Approval Expires 1/31/95

Notification for Underground Storage Tanks

State Agency Name and Address: WV Div. of Environmental Protection, Office of Waste Mgmt., UST Section
1356 Hanford Street, Charleston, WV 25301

STATE USE ONLY

ID NUMBER 2109990

F.E.I.N.: No.

A. Date Entered Into Computer 2-26-04
B. Data Entry Clerk Initials
C. Owner Was Contacted to Clarify Responses. Comments

TYPE OF NOTIFICATION

☐ A. NEW FACILITY ☐ B. AMENDED ☒ C. CLOSURE

____ No. of tanks at facility ____ No. of continuation sheets attached

INSTRUCTIONS

Please type or print in ink all items except "signature" in section VIII. This form must be completed for each location containing underground storage tanks. If more than five (5) tanks are owned at this location, photocopy the following sheets, and staple continuation sheets to the form.

GENERAL INFORMATION

Notification is required by Federal law for all underground tanks that have been used to store regulated substances , that are in the ground as of May 8, 1986, or that are brought into use after May 8, 1986. The information requested is required by Section 9002 of the Resource Conservation and Recovery Act, (RCRA), as amended.

The primary purpose of this notification program is to locate and evaluate underground tanks that store or have stored petroleum or hazardous substances. It is expected that the information you provide will be based on reasonably available records, or in the absence of such records, your knowledge, belief, or recollection.

Who Must Notify? Section 9002 of RCRA, as amended, requires that, unless exempted, owners of underground tanks that store regulated substances must notify designated State or local agencies of the existence of their tanks. Owner means—

a) in the case of an underground storage tank in use on November 8, 1984, or brought into use after that date, any person who owns an underground storage tank used for the storage, use, or dispensing of regulated substances, and

b) in the case of any underground storage tank in use before November 8, 1984, but no longer is use on that date, any person who owned such tank immediately before the discontinuation of its use.

c) if the State agency so requires, any facility that has undergone any changes to facility information or tank system status (only amended tank information needs to be included).

What Tanks Are Included? Underground storage tank is defined as any one or combination of tanks that (1) is used to contain an accumulation of "regulated substances," and (2) whose volume (including connected underground piping) is 10% or more beneath the ground. Some examples are underground tanks storing: 1. Gasoline, used oil, or diesel fuel, and 2. industrial solvents, pesticides, herbicides or fumigants.

What Tanks Are Excluded? Tanks removed from the ground are not subject to notification. Other tanks excluded from notification are:

1. farm or residential tanks of 1,100 gallons or less capacity used for storing motor fuel for noncommercial purposes;
2. tanks used for storing heating oil for consumptive use on the premises where stored;
3. septic tanks;
4. pipeline facilities (including gathering lines) regulated under the Natural Gas Pipeline Safety Act of 1968, or the Hazardous Liquid Pipeline Safety Act of 1979, or which is an intrastate pipeline facility regulated under State laws;
5. surface impoundments, pits, ponds, or lagoons;
6. storm water or waste water collection systems;
7. flow-through process tanks;
8. liquid traps or associated gathering lines directly related to oil or gas production and gathering operations;
9. storage tanks situated in an underground area (such as a basement, cellar, mineworking, drift, shaft, or tunnel) if the storage tank is situate upon or above the surface of the floor.

What Substances Are Covered? The notification requirements apply to under ground storage tanks that contain regulated substances. This includes any substance defined as hazardous in section 101 (14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), with the exception of those substances regulated as hazardous waste under Subtitle C of RCRA. It also includes petroleum, e.g., crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute).

Where To Notify? Send completed forms to:

WV Division of Environmental Protection
Office of Waste Management
UST Section
1356 Hanford Street
Charleston, WV 25301

When To Notify? 1. Owners of underground storage tanks in use or that have been taken out of operation , but still in the ground, must notify by May 8, 1986. 2. Owners who bring underground storage tanks into use after May 8, 1986, must notify within 30 days of bringing the tanks into use. 3. If the State requires notification of any amendments to facility send information to State agency immediately.

Penalties: Any owner who knowingly fails to notify or submits false information shall be subject to a civil penalty not to exceed $10,000 for each tank for which notification is not given or for which false information is submitted.

I. OWNERSHIP OF TANK(S)

Owner Name (Corporation, Individual, Public Agency, or Other Entity): UNCERTAIN. EITHER US ARMY CORP OF ENG OR WV DIV OF NAT'L RES.

Street Address: STONEWALL JACKSON LAKE STATE PARK
149 STATE PARK TRAIL

City: ROANOKE State: WV ZIP Code: 26647

County: LEWIS

Phone Number (Include Area Code): 304 269 0523

II. LOCATION OF TANK(S)

If required by State, give the geographic location of tanks by degrees, minutes, and seconds. Examples Lat. 42, 36, 12 N Long. 85, 24, 17W

Latitude _____ Longitude _____

(If same as Section I, mark box here ☐)

Facility Name or Company Site Identifier, as applicable: STONEWALL JACKSON LAKE STATE PARK

Street Address (P.O. Box not acceptable): 149 STATE PARK TRAIL

City: ROANOKE State: WV Zip code: 26647

County: LEWIS Municipality:

EPA form 7530-1 (Revised 2-92)

III. TYPE OF OWNER	IV. INDIAN LANDS	
☐ Federal Government ☐ Commercial ☑ State Government ☐ Private ☐ Local Government	Tanks are located on land within an Indian Reservation or on other trust lands. ☐ Tanks are owned by native American nation, tribe, or individual. ☐	Tribe or Nation: _____

V. TYPE OF FACILITY

Select the Appropriate Facility Description

____ Gas Station	____ Railroad	____ Trucking/Transport
____ Petroleum Distributor	____ Federal - Non-Military	____ Utilities
____ Air Taxi (Airline)	____ Federal - Military	____ Residential
____ Aircraft Owner	____ Industrial	____ Farm
____ Auto Dealership	____ Contractor	✓ Other (Explain) GOVERNMENTAL

VI. CONTACT PERSON IN CHARGE OF TANKS

Name	Job Title	Address	Phone Number (Include Area Code)
SAMUEL ENGLAND	PARK SUPERINTENDENT	STONEWALL JACKSON LAKE STATE PARK 149 STATE PARK TRAIL ROANOKE WV 26447	304 269 0523

VII. FINANCIAL RESPONSIBILITY

I have met the financial responsibility requirements in accordance with 40 CFR Subpart H ✓

Check All that Apply

☐ Self Insurance	☐ Guarantee	☒ State Funds
☐ Commercial Insurance	☐ Surety Bond	☐ Trust Fund
☐ Risk Retention Group	☐ Letter of Credit	☐ Other Method Allowed Specify _____

VIII. CERTIFICATION (Read and sign after completing all sections)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete.

Name and official title of owner or owner's authorized representative (Print)	Signature	Date Signed
SAMUEL ENGLAND	[signature]	9/17/01

EPA estimates public reporting burden for this form to average 30 minutes per response including time for reviewing instructions, gathering and maintaining the data needed and completing and reviewing the form. Send comments regarding this burden estimate to Chief, Information Policy Branch PM-223, U.S. Environmental Protection Agency, 401 M Street, Washington D.C. 20460, marked "Attention Desk Officer for EPA." This form amends the previous notification form as printed in 40 CFR Part 280, Appendix I. Previous editions of this notification form may be used while supplies last.

IX. DESCRIPTION OF UNDERGROUND STORAGE TANKS (Complete for each tank at this location.)

Tank Identification Number	Tank No. 1	Tank No. 2	Tank No. 3	Tank No. ____	Tank No. ____
1. Status of Tank (mark only one)					
Currently in Use					
Temporarily Out of Use (Remember to fill out section X.)					
Permanently Out of Use (Remember to fill out section X.)	✓	✓	✓		
Amendment of Information					
2. Date of Installation (mo./year)					
3. Estimated Total Capacity (gallons)	1000	1000	550		
4. Material of Construction (Mark all that apply)					
Asphalt Coated or Bare Steel					
Cathodically Protected Steel	✓	✓	✓		
Epoxy Coated Steel					
Composite (Steel with Fiberglass)					
Fiberglass Reinforced Plastic					
Lined Interior					
Double Walled					
Polyethylene Tank Jacket					
Concrete					
Excavation Liner					
Unknown					
Other, Please specify					
Has tank been repaired?	NO	NO	NO		
5. Piping (Material) (Mark all that apply)					
Bare Steel					
Galvanized Steel					
Fiberglass Reinforced Plastic					
Copper					
Cathodically Protected					
Double Walled					
Secondary Containment					
Unknown					
Other, Please specify	PLASTIC/RUBBER COATED STEEL	PLASTIC/RUBBER COATED STEEL	PLASTIC/RUBBER COATED STEEL		
6. Piping (Type) (Mark all that apply)					
Suction: no valve at tank	✓	✓	✓		
Suction: valve at tank					
Pressure					
Gravity Feed					
Has piping been repaired?	NO	NO	NO		

Tank Identification Number	Tank No. 1	Tank No. 2	Tank No. 3	Tank No. ___	Tank No. ___
7. Substance Currently or Last Stored In Greatest Quantity by Volume					
Gasoline	✓				
Diesel		✓			
Gasohol					
Kerosene			✓		
Heating Oil					
Used Oil					
Other, Please specify					
Hazardous Substance CERCLA name and/or, CAS number					
Mixture of Substances Please specify					
X. TANKS OUT OF USE, OR CHANGE IN SERVICE					
1. Closing of Tank					
A. Estimated date last used (mo./day/year)	8/20/01	8/20/01	8/20/01		
B. Estimate date tank closed (mo./day/year)	8/20/01	8/20/01	8/20/01		
C. Tank was removed from ground	✓	✓	✓		
D. Tank was closed in ground					
E. Tank filled with inert material					
Describe					
F. Change in service					
2. Site Assessment Completed	YES	YES	YES		
Evidence of a leak detected	NO	NO	NO		

XI. CERTIFICATION OF COMPLIANCE (COMPLETE FOR ALL NEW AND UPGRADED TANKS AT THIS LOCATION)

Tank Identification Number	Tank No. 1	Tank No. 2	Tank No. 3	Tank No. ___	Tank No. ___
1. Installation					
A. Installer certified by tank and piping manufacturers	☐	☐	☐	☐	☐
B. Installer certified or licensed by the implementing agency	☐	☐	☐	☐	☐
C. Installation inspected by a registered engineer	☐	☐	☐	☐	☐
D. Installation inspected and approved by implementing agency	☐	☐	☐	☐	☐
E. Manufacturer's installation checklists have been completed	☐	☐	☐	☐	☐
F. Another method allowed by State agency. Please specify.	☐	☐	☐	☐	☐

2. Release Detection (Mark all that apply)	TANK	PIPING	TANK	PIPING	TANK	PIPING	TANK	PIPING	TANK	PIPING
A. Manual tank gauging	☐		☐		☐		☐		☐	
B. Tank tightness testing	☐		☐		☐		☐		☐	
C. Inventory controls	☐		☐		☐		☐		☐	
D. Automatic tank gauging	☐		☐		☐		☐		☐	
E. Vapor monitoring	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
F. Groundwater monitoring	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
G. Interstitial monitoring double walled tank/piping	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
H. Interstitial monitoring/secondary containment	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
I. Automatic line leak detectors	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
J. Line tightness testing		☐		☐		☐		☐		☐
K. Other method allowed by Implementing Agency. Please specify.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	_____		_____		_____		_____		_____	

3. Spill and Overfill Protection					
A. Overfill device installed	☐	☐	☐	☐	☐
B. Spill device installed	☐	☐	☐	☐	☐

OATH: I certify the information concerning installation that is provided in section XI is true to the best of my belief and knowledge.

Installer: JOHN B HINKLE (Name) — John B Hinkle (Signature) — 8/22/01 (Date)

CERTIFIED TANK INSTALLER/REMOVER (Position) — AVGUST ENVIRONMENTAL INC (Company)

WV Certification Number AB065

UST-22

TANK CLOSURE REPORT

(REV 12/00)

Complete one for each product

WV ID Number: 2109990 Closure Number: 6-6599-2001 EPA ID No. (HW): _____

Owner/Generator's Name: STONEWALL JACKSON LAKE STATE PARK Owner Phone No.: 304 269 0523

Owner/Generator's Address: 149 STATE PARK TRAIL ROANOKE WV 26447

Contractors Name: AUGUST ENVIRONMENTAL INC WV Certification No.: AB065

Contractors Phone No.: 304 291-6164

Tank Number/s (from notification form): 1

I. Tank Closure: Date: 8/20/01

A.

TANK: 1 GASOLINE

Vapor purging methods: DAY ICE LEL: _____ O2: _____
Tank cleaning methods: OFF SITE
Tanks Destination Name: MAMMULAS SCRAP YARD
Site Address: RT 150 CADIZ OH
Tank Cleaned at destination: Yes ✓ No ____: If no where: _____
Future use of the tank: SCRAP
Transporter Name: ALLSTAR CONTRACTING ID: WV022634

B.

Liquid removed from tank: Type: GASOLINE Amount in gallons: N/A

Reused ____ How reused: _____
Recycled ____ Recycling Facility: _____
Recycling Facility Address: _____

*provide receipt from facility. TANK EMPTIED BY OWNER/OPERATOR

Hazardous Waste (HW): _____ Non-Hazardous: _____ Waste Number (HW): _____
Disposal Method: _____
Designated Facility Name: _____
Designated Facility Address: _____
Transporter Name: _____ Transporter ID (HW): _____

C.

Solids & Tank Bottoms: Type: _____ Amount: N/A

Hazardous Waste (HW): _____ Non-Hazardous: _____
Waste Number (HW): _____ Disposal Method: _____
Designated Facility Name: _____
Designated Facility Address: _____
Transporter Name: _____ ID (HW): _____

II.

Piping Closure: Date: 8/20/01

A. Length of piping between tank & product dispenser: 5'
B. Piping closure method: REMOVAL

III.

Tank Closure in Place: Date: N/A

A. Type of inert material used to fill tank: _____

IV.

Site Assessment: Date: 8/20/01

A. Free product present: Yes _____ No ✓

B. Sampling: Date: 8/20/01

Sampline method used: GRAB

Type of Sampling Device: Soils _____ Water _____

Type of Sampling Container: Soils _____ Water _____

C. Analysis:

Lab Name: REIC

Attach a copy of the laboratory's current West Virginia certification.

Date Analyzed: 8/28 - 9/2 '01 *Lab QA Plan should be available upon request

A copy of the orginial sample report as received from the lab is requested in accordance with 280.34. (*provide a current copy of the laboratory's)

D. Provide a diagram of the sample location and depths below.

SAMPLES TAKEN (1) UNDER TANK APPROX 7½'

(2) NEAR PIPING RUN APPROX 3'

(3) WALL COMPOSITE APPROX 7'

REIC LAB ORDER NO 0108774

ALL NON DETECT

V.

Certification:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment.

Signature of Contractor: [signature] Certification No.: AB065 Date: 8/22/01

Signature of UST Owner: [signature] Date: 9/17/01

Return this form to the UST Inspector at the DEP District Office for the county where the tanks are located.

UST-22

TANK CLOSURE REPORT

(REV 12/00)

Complete one for each product

WV ID Number: 2109990 Closure Number: C-6599-2001 EPA ID No. (HW): _____

Owner/Generator's Name: STONEWALL JACKSON LAKE STATE PARK Owner Phone No.: 304 269 0523

Owner/Generator's Address: 149 STATE PARK TRAIL ROANOKE WV 26447

Contractors Name: AUGUST ENVIRONMENTAL INC WV Certification No.: A8065

Contractors Phone No.: 304 291 6164

Tank Number/s (from notification form): 2

I. Tank Closure: Date: 8/20/01

A.

TANK: 2 DIESEL FUEL

Vapor purging methods: N/A LEL: _____ O2: _____

Tank cleaning methods: [redacted] N/A

Tanks Destination Name: MAMMULAS SCRAP YARD

Site Address: RT 250 CADIZ OH

Tank Cleaned at destination: Yes ✓ No _____: If no where: _____

Future use of the tank: SCRAP

Transporter Name: ALL STAR CONTRACTING ID: WV022634

B.

Liquid removed from tank: Type: DIESEL FUEL Amount in gallons: _____

Reused _____ How reused: _____

Recycled _____ Recycling Facility: _____

Recycling Facility Address: _____

*provide receipt from facility. TANK EMPTIED BY OWNER / OPERATOR

Hazardous Waste (HW): _____ Non-Hazardous: _____ Waste Number (HW): _____

Disposal Method: _____

Designated Facility Name: _____

Designated Facility Address: _____

Transporter Name: _____ Transporter ID (HW): _____

C.

Solids & Tank Bottoms: Type: _____ Amount: N/A

Hazardous Waste (HW): _____ Non-Hazardous: _____

Waste Number (HW): _____ Disposal Method: _____

Designated Facility Name: _____

Designated Facility Address: _____

Transporter Name: _____ ID (HW): _____

II.

Piping Closure: Date: 8/20/01

A. Length of piping between tank & product dispenser: 51

B. Piping closure method: REMOVAL

III.

Tank Closure in Place: Date: N/A

A. Type of inert material used to fill tank: _____

IV.

Site Assessment: Date: 8/20/01

A. Free product present: Yes _____ No ✓

B. Sampling: Date: 8/20/01

Sampline method used: GRAB

Type of Sampling Device: Soils _____ Water _____

Type of Sampling Container: Soils _____ Water _____

C. Analysis:

Lab Name: REIC

Attach a copy of the laboratory's current West Virginia certification.

Date Analyzed: 8/28 - 9/2 '01 *Lab QA Plan should be available upon request

A copy of the orginial sample report as received from the lab is requested in accordance with 280.34. (*provide a current copy of the laboratory's)

D. Provide a diagram of the sample location and depths below.

SAMPLES TAKEN (1) UNDER TANK APPROX 7 1/2'

(2) NEAR PIPING RUN APPROX 3'

(3) WALL COMPOSITE APPROX 7'

REIC LAB ORDER NO 0108774

ALL NON DETECT

V.

Certification:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment.

Signature of Contractor: _____ Certification No.: AB065 Date: 8/22/01

Signature of UST Owner: _____ Date: 9/17/01

Return this form to the UST Inspector at the DEP District Office for the county where the tanks are located.

III.

Tank Closure in Place: Date: N/A

A. Type of inert material used to fill tank: _____

IV.

Site Assessment: Date: 8/20/01

A. Free product present: Yes _____ No ✓

B. Sampling: Date: 8/20/01

Sampline method used: GRAB

Type of Sampling Device: Soils _____ Water _____

Type of Sampling Container: Soils _____ Water _____

C. Analysis:

Lab Name: REIC

Attach a copy of the laboratory's current West Virginia certification.

Date Analyzed: 8/28 - 9/2 '01 *Lab QA Plan should be available upon request

A copy of the orginial sample report as received from the lab is requested in accordance with 280.34. (*provide a current copy of the laboratory's)

D. Provide a diagram of the sample location and depths below.

SAMPLES TAKEN: ① UNDER TANK APPROX 7½'
② NEAR PIPING RUN APPROX 3'
③ WALL COMPOSITE APPROX 7'

REIC LAB ORDER NO 0108774
ALL NON DETECT

V.

Certification:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment.

Signature of Contractor: [signature] Certification No.: AB065 Date: 8/22/01

Signature of UST Owner: [signature] Date: 9/12/01

Return this form to the UST Inspector at the DEP District Office for the county where the tanks are located.

UST-22

TANK CLOSURE REPORT

(REV 12/00)

Complete one for each product

WV ID Number: 2109990 Closure Number: C6599 2001 EPA ID No. (HW): _____

Owner/Generator's Name: STONEWALL JACKSON LAKE STATE PARK Owner Phone No.: 304 269 0523

Owner/Generator's Address: 149 STATE PARK TRAIL ROANOKE WV 26447

Contractors Name: AVGVST ENVIRONMENTAL INC WV Certification No.: AB065

Contractors Phone No.: 304 291 6164

Tank Number/s (from notification form): 3

I. Tank Closure: Date: 8/20/01

A.

TANK: 3 KEROSENE

Vapor purging methods: N/A LEL: _____ O2: _____
Tank cleaning methods: N/A
Tanks Destination Name: MAMMVLAS SCRAP YARD
Site Address: RT 250 CADIZ OH
Tank Cleaned at destination: Yes ✓ No ____: If no where: _____
Future use of the tank: SCRAP
Transporter Name: ALLSTAR CONTRACTING ID: WV022634

B.

Liquid removed from tank: Type: KEROSENE Amount in gallons: 165

Reused ✓ How reused: DRUMMED FOR ONSITE USE
Recycled ____ Recycling Facility: _____
Recycling Facility Address: _____

*provide receipt from facility.

Hazardous Waste (HW): _____ Non-Hazardous: _____ Waste Number (HW): _____
Disposal Method: _____
Designated Facility Name: _____
Designated Facility Address: _____
Transporter Name: _____ Transporter ID (HW): _____

C.

Solids & Tank Bottoms: Type: _____ Amount: N/A

Hazardous Waste (HW): _____ Non-Hazardous: _____
Waste Number (HW): _____ Disposal Method: _____
Designated Facility Name: _____
Designated Facility Address: _____
Transporter Name: _____ ID (HW): _____

II.

Piping Closure: Date: 8/20/01

A. Length of piping between tank & product dispenser: 5'
B. Piping closure method: REMOVAL

August Environmental, Inc.
P.O. Box 781
Morgantown, WV 26507
FAX No.: (304) 292-5848

Facsimile Cover Page

PLEASE DELIVER THE FOLLOWING PAGE(S) TO:

NAME:	Mr. Arthur Loder
COMPANY:	WVDEP - UST Section
FAX NUMBER:	(304) 368-3953
FROM:	**Marc Glass**
DATE:	2/6/04

TOTAL NUMBER OF PAGES: six plus this cover page

IF THERE ARE ANY PROBLEMS WITH THIS FAX TRANSMISSION, PLEASE CALL AS SOON AS POSSIBLE: **(304) 291-6164 x.145**

Art,

Attached are the analytical results you had requested for the Stonewall Jackson Maintenance Facility. Please let me know if I can be of further help.

Sincere Thanks,

Marc Glass
August Environmental, Inc.

REIC

RESEARCH ENVIRONMENTAL & INDUSTRIAL CONSULTANTS, INC.

Post Office Box 286 • Beaver, WV 25813 • 800.999.0105
304.255.2500 • 304.255.2572(fax)
website: www.reiclabs.com

Improving the environment, one client at a time...

Member:

American Chemical Society

Association of Official Analytical Chemists

Petroleum Marketers Association

Rural Water Association

Mining & Reclamation Association

American Water Works Association

The Solid Waste Association of North America

West Virginia Manufacturers Association

Association of West Virginia Solid Waste Authorities

West Virginia Oil Marketers & Grocers Association

September 04, 2001

168.1

Mr. C. J. Cira
AUGUST ENVIRONMENTAL
327 BEECHURST AVE
MORGANTOWN, WV 26505
TEL: (304) 291-6164
FAX (304) 292-5848

RE: STONEWALL JACKSON MAINTENANC Order No.: 0108774

Dear Mr. C. J. Cira,

REI Consultants Inc. received 3 samples on 8/24/2001 for the analyses presented in the following report.

If you have any questions regarding these results, please do not hesitate to call.

Sincerely,

Vice President

CC:

REI Consultants Inc.

Date: 04-Sep-01

Client: AUGUST ENVIRONMENTAL
Client Sample ID: WALL
Project: STONEWALL JACKSON MAINTENANCE
Site ID: STONEWALL JACKSON

Lab Order: 0108774
Lab ID: 0108774-01A
Collection Date: 8/20/01
Matrix: SOIL

Analyses	Result	Units	MDL	PQL	Qual	Date Analyzed	Analyst
PERCENT MOISTURE		**SM2540 B**					
Percent Moisture	1.0	wt%	NA	0.5		08/28/01	CJH
DIESEL RANGE ORGANICS		**SW8015B**					
TPH (Diesel)	ND	mg/Kg	NA	4.0		08/31/01	GM
Surr: o-Terphenyl	94	%REC	NA	30-130		08/31/01	GM
GASOLINE RANGE ORGANICS		**SW8015B**					
TPH (Gasoline)	ND	mg/Kg	NA	5.0		09/02/01	TC
Surr: 1,1,1-Trifluorotoluene	102	%REC	NA	42-138		09/02/01	TC
VOLATILE ORGANIC COMPOUNDS		**SW8021B**					
Benzene	ND	µg/Kg	NA	5		09/02/01	TC
Toluene	ND	µg/Kg	NA	5		09/02/01	TC
Ethylbenzene	ND	µg/Kg	NA	5		09/02/01	TC
m,p-Xylene	ND	µg/Kg	NA	10		09/02/01	TC
o-Xylene	ND	µg/Kg	NA	5		09/02/01	TC
Methyl tert-butyl ether	ND	µg/Kg	NA	10		09/02/01	TC
Surr: 1,1,1-Trifluorotoluene	99	%REC	NA	42-138		09/02/01	TC

Abbreviations:
ND - Not Detected at the PQL or MDL
PQL - Practical Quantitation Limit
MDL - Minimum Detection Limit
NA - Not Applicable

Qualifiers:
J - Analyte detected below PQL
S - Spike Recovery outside accepted recovery limits
E - Value above quantitation range
* - Value exceeds Maximum Contaminant Level

REI Consultants Inc.

Date: 04-Sep-01

Client: AUGUST ENVIRONMENTAL
Client Sample ID: LINE COMPOSITE
Project: STONEWALL JACKSON MAINTENANCE
Site ID: STONEWALL JACKSON

Lab Order: 0108774
Lab ID: 0108774-02A
Collection Date: 8/20/01
Matrix: SOIL

Analyses	Result	Units	MDL	PQL	Qual	Date Analyzed	Analyst
PERCENT MOISTURE		**SM2540 B**					
Percent Moisture	2.0	wt%	NA	0.5		08/28/01	CJH
DIESEL RANGE ORGANICS		**SW8015B**					
TPH (Diesel)	ND	mg/Kg	NA	4.0		08/31/01	GM
Surr: o-Terphenyl	88	%REC	NA	30-130		08/31/01	GM
GASOLINE RANGE ORGANICS		**SW8015B**					
TPH (Gasoline)	ND	mg/Kg	NA	5.0		09/02/01	TC
Surr: 1,1,1-Trifluorotoluene	104	%REC	NA	42-138		09/02/01	TC
VOLATILE ORGANIC COMPOUNDS		**SW8021B**					
Benzene	ND	µg/Kg	NA	5		09/02/01	TC
Toluene	ND	µg/Kg	NA	5		09/02/01	TC
Ethylbenzene	ND	µg/Kg	NA	5		09/02/01	TC
m,p-Xylene	ND	µg/Kg	NA	10		09/02/01	TC
o-Xylene	ND	µg/Kg	NA	5		09/02/01	TC
Methyl tert-butyl ether	ND	µg/Kg	NA	10		09/02/01	TC
Surr: 1,1,1-Trifluorotoluene	98	%REC	NA	42-138		09/02/01	TC

Abbreviations:
ND - Not Detected at the PQL or MDL
PQL - Practical Quantitation Limit
MDL - Minimum Detection Limit
NA - Not Applicable

Qualifiers:
J - Analyte detected below PQL
S - Spike Recovery outside accepted recovery limits
E - Value above quantitation range
* - Value exceeds Maximum Contaminant Level

REI Consultants Inc.

Date: 04-Sep-01

Client: AUGUST ENVIRONMENTAL
Client Sample ID: BOTTOM
Project: STONEWALL JACKSON MAINTENANCE
Site ID: STONEWALL JACKSON

Lab Order: 0108774
Lab ID: 0108774-03A
Collection Date: 8/20/01
Matrix: SOIL

Analyses	Result	Units	MDL	PQL	Qual	Date Analyzed	Analyst
PERCENT MOISTURE		**SM2540 B**					
Percent Moisture	3.0	wt%	NA	0.5		08/28/01	CJH
DIESEL RANGE ORGANICS		**SW8015B**					
TPH (Diesel)	ND	mg/Kg	NA	4.0		08/31/01	GM
Surr: o-Terphenyl	96	%REC	NA	30-130		08/31/01	GM
GASOLINE RANGE ORGANICS		**SW8015B**					
TPH (Gasoline)	ND	mg/Kg	NA	5.0		09/02/01	TC
Surr: 1,1,1-Trifluorotoluene	101	%REC	NA	42-138		09/02/01	TC
VOLATILE ORGANIC COMPOUNDS		**SW8021B**					
Benzene	ND	µg/Kg	NA	5		09/02/01	TC
Toluene	ND	µg/Kg	NA	5		09/02/01	TC
Ethylbenzene	ND	µg/Kg	NA	5		09/02/01	TC
m,p-Xylene	ND	µg/Kg	NA	10		09/02/01	TC
o-Xylene	ND	µg/Kg	NA	5		09/02/01	TC
Methyl tert-butyl ether	ND	µg/Kg	NA	10		09/02/01	TC
Surr: 1,1,1-Trifluorotoluene	98	%REC	NA	42-138		09/02/01	TC

Abbreviations:
ND - Not Detected at the PQL or MDL
PQL - Practical Quantitation Limit
MDL - Minimum Detection Limit
NA - Not Applicable

Qualifiers:
J - Analyte detected below PQL
S - Spike Recovery outside accepted recovery limits
E - Value above quantitation range
* - Value exceeds Maximum Contaminant Level

REI Consultants Inc. **Date:** 04-Sep-01

CLIENT: AUGUST ENVIRONMENTAL **Lab Order:** 0108774
Project: STONEWALL JACKSON MAINTENANCE
Site ID: STONEWALL JACKSON

Data Review

Approved: _____ 9-4-01
Organic Department Manager Date

Abbreviations:
ND - Not Detected at the PQL or MDL
PQL - Practical Quantitation Limit
MDL - Minimum Detection Limit
NA - Not Applicable

Qualifiers:
J - Analyte detected below PQL
S - Spike Recovery outside accepted recovery limits
E - Value above quantitation range
* - Value exceeds Maximum Contaminant Level

REIC

REI Consultants, Inc.
225 Industrial Park Rd.
P.O. Box 286, Beaver, WV 25813
Phone: 304-255-2500 or 800-999-0105
FAX: 304-255-2572

CHAIN OF CUSTODY RECORD NO. 96259

CLIENT: AUGUST ENVIRONMENTAL
ADDRESS: 327 Beechurst Ave.
CITY/STATE/ZIP: MORGANTOWN WV 26505
BILL TO: SAA
CITY/STATE/ZIP:

CONTACT PERSON: Dee Dippel
TELEPHONE/FAX: (304) 291-6164 / (304) 292-5848
SITE ID & STATE: Stonewall Jackson
PROJECT ID: Stonewall Jackson Maintenance
SAMPLER: DON KILLMEYER

SAMPLE LOG AND ANALYSIS REQUEST

TURNAROUND TIME REQUIREMENTS
REGULAR: X
*RUSH: ___ 5-Day ___ 3-Day ___ 2-Day ___ 1-Day
*Rush work needs prior Laboratory approval and will include surcharges

PRESERVATIVES
0 No Preservative
1 Hydrochloric Acid
2 Nitric Acid
3 Sulfuric Acid
4 Sodium Thiosulfate
5 Sodium Hydroxide
6 Zinc Acetate
7 EDTA

PRESERVATIVE CODES — NOTE PRESERVATIVES → 0 0 0

ANALYSIS REQUESTED & METHOD: BTEX, MTBE, TPH GRO/DRO

168.1

SAMPLE ID	NO. & TYPE OF CONTAINERS	SAMPLING DATE / TIME	MATRIX	SAMPLE COMP / GRAB	BTEX	MTBE	TPH GRO/DRO	COMMENTS
WALL	1 ~~Bag~~ JAR	8/20	SOIL	GRAB	X	X	X	
LINE COMPOSITE	1 ~~Bag~~ JAR	↓	↓	↓	X	X	X	
BOTTOM	1 ~~Bag~~ JAR	↓	↓	↓	X	X	X	

FILE COPY

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
Dee Dippel	8/21/01	[signature]	8/24/01	[signature]	8/24/01	Allen McBride	8-24-01 1500

Special Requests:
Sample Condition: Good? Y N 300
Temperature Upon Arrival 2.7°C

Shipment: Hand-Del: Courier: UPS: FedEx: Shipment Date: FAX Results: Y N

west virginia department of environmental protection

Environmental Enforcement
Hazardous Waste/Underground Storage Tanks
601 57th Street SE
Charleston, WV 25304
Telephone: 304-926-0470; Fax: 304-926-0457

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

9/18/2015

WV Dept of Natural Resources
Attn: Brennon O'Sullivan
149 State Park Trail
Roanoke, WV 26447

CERTIFIED RETURN RECEIPT REQUESTED

91 7199 9991 7035 6694 0604

Dear Mr. O'Sullivan:

Enclosed is the report for the Compliance Monitoring Inspection (CMI) conducted at Stonewall Jackson Resort , (WV ID# 2-109988) on 9/15/2015

No deficiencies were noted during the inspection of your facility. You and your staff are to be commended for your commitment to proper operation and maintenance of your facility.

If you have any questions, please contact UST inspector,Michel Boyer at 304-281-4395.

Sincerely,

Ruth M. Porter

Ruth M. Porter
UST Program Manager

cc: Charleston File
Michel Boyer, UST Inspector at michel.l.boyer@wv.gov

west virginia department of environmental protection

Environmental Enforcement
Hazardous Waste/Underground Storage Tanks
601 57th Street SE
Charleston, WV 25304
Telephone: 304-926-0470; Fax: 304-926-0457

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

9/18/2015

Benchmark Conference Centers of WV
Attn: Matthew Helmick
940 Resort Drive
Roanoke, WV 26447

CERTIFIED RETURN RECEIPT REQUESTED
91 7199 9991 7035 6694 0598

Dear Mr. Helmick:

Enclosed is the report for the Compliance Monitoring Inspection (CMI) conducted at Stonewall Jackson Resort , (WV ID# 2-109988) on 9/15/2015

No deficiencies were noted during the inspection of your facility. You and your staff are to be commended for your commitment to proper operation and maintenance of your facility.

If you have any questions, please contact UST inspector,Michel Boyer at 304-281-4395.

Sincerely,

Ruth M. Porter

Ruth M. Porter
UST Program Manager

cc: Charleston File
Michel Boyer, UST Inspector at michel.l.boyer@wv.gov

Rev 05/10/2012

UST INSPECTION CHECKLIST

LD ☐ NIC 98 ☐ NIC
☑ SIC ☑ SIC

Approved by: EWM 9/17/15

UST Facility ID: 2-109988
Facility Name: Stonewall Resort State Park

WV Department of Environmental Protection
Division of Water and Waste Management
Environmental Enforcement/ UST Unit

www.dep.wv.gov/WWE/ee/ust

601 57th Street, SE
Charleston, WV 25304
(304)926-0470

Facility Information: Physical Location: 149 State Park Trail City: Roanoke

Owner: WV Dept of Natural Resources Phone: 304-269-0524
Address: 149 State Park Trail, Roanoke, WV Zip: 26447
E-Mail(s): Brennon.e.o'sullivan@wv.gov

Operator: Benchmark Conf Centers of WV Phone: 304-269-0521
Address: 940 Resort Drive, Roanoke, WV Zip: 26447
E-Mail(s): mhelmick@benchmarkmanagement.com (Matt Helmick)

GPS: N38°56'29.4" W80°29'31.2"" Carrier: BFS

Trained Operator Class: ☐ holds approved training certificate before 8/8/12 or within 30 days of hire ☐ onsite after 8/7/12 with certificate
A: Matt Helmick B: Matt Helmick C: Sarah Reed

Registration and Records

Financial Responsibility Company: N/A State Facility
Policy #: Exp Date:
☐ Declarations page included ☐ Policy coverage appears accurate
☐ Site schedule included ☐ Registration Information Correct
☐ Status has changed ☐ Fees Current ↓Comments↓

Inspection Information

Date: 9/15/2015 Time in: 1000 Time Out:
Purpose: Initial Compliance: ☑ Follow-up:
Other:
Inspector: michel.l.boyer@wv.gov, 2031 Pleasant Valley Rd, Fairmont 26554; phone 304-368-3960, ext. 3713; fax 304-368-3953

Number of dispensers: 1
Tank/Piping/Dispenser repair date:

CPS– cathodically protected steel (G-Galvanic/ I-Impressed Current) DW-Double wall INV/TT– inventory control/tightness test
LLD- Line leak detector (M– mechanical/ E– electronic) PTT – piping tightness test SIR-statistical inventory reconciliation UPS – unprotected steel

O In compliance X Compliance √ See comments

Underground Storage Tank (UST) Information:

ID	Product	Size	Install Date	Status	Construction		Leak Detection		Spill Prevention		Overfill Prevention	
1	Mid UL	12k	1991	in use	fiberglass/DW	O	auto tank gauge	O	Spill Bucket	O	fill shut off	O

Piping Information:

ID	Date	Sump Tightness Test Info		30-day Sump Monitoring		Construction		Pump Type	Leak Detection	
1	1991	Not Req.<7/1/08	O	Not Req.	O	fiberglass/DW	O	Pressure	LLD/TT	O

Inspector Comments:
**Fill cap slightly loose.
**All records in good order.

Photographs taken ☐
Site Sketch attached ☐
Copy of Regulations left on site ☐
Suspected Release Issued ☐
Violations Issued ☐

Inspector's Signature: Michael Boyer Date: 9/15/2015
Contact Person's Signature: Date:
☑ No Further Action at this Time ☐ **Follow-up Required.** Corrective actions must be completed by:

To report a release, call: **Emergency Spill Hotline 1-800-642-3074** **Office of Environmental Remediation 304-238-1220 ext 3506**

TG 9/18/2015

UST INSPECTION CHECKLIST

UST FACILITY ID: 2-109988

Mark items that are in compliance. If not in compliance, explain in comments box.

Tank Records

Leak Detection: ☐ Tanks _____ are empty to 1" or less, monitoring not required OR
☑ 12 months 30-day leak detection results via one or more of A-F

A. ☐ Interstitial Monitoring (required if installed after 6/30/2008): Sensor Normal printouts & annual function test _____
B. ☑ ATG appears to be functioning properly _____
C. ☐ SIR: Facility measuring to nearest 1/8" & sticking tanks every day of operation;
☐ Gauge Stick in good repair: button intact, 1/8" increments, not bowed/worn
D. ☐ GWM: Site assessment on file, all wells checked, properly marked, secured, and sealed around casing. No slots above seal. Cap in place. Water within 20' of surface
E. ☐ VM: Site assessment on file, all wells checked & readings not affected by water, well properly marked & secured; 3rd party approved equipment
F. ☐ OTHER: _____

☑ **Alarms, Fails, & Inconclusives properly investigated/reported**

Corrosion Protection:
☑ Tank is FRP, COMP, or Jacketed. Testing not required OR
☐ CPS-DW system properly performing interstitial monitoring OR
☐ Interior lined system inspection date (first 10-year & 5-years after): _____
☐ CPS system, last 2 CP reports on record & system protected AND _____
☐ Impressed Current systems have 60-day rectifier readings on record

Enter test date(s)

☐ System is TOS or all deliveries <25gal--- Spill/Overfill prevention not required OR

Spill Prevention: ☑ Spill bucket free of cracks/holes, rings/gaskets snug, appears liquid-tight
☑ Spill bucket sufficient capacity _____

Overfill Prevention: ☐ Delivery method is compatible with overfill protection method

Ball float: ☐ inspected & functioning _____
☐ Tank top fittings appear vapor-tight _____
☐ Appears to activate at 90% of tank capacity

Fill Shut Off: ☐ Appears to be functioning
☑ Appears to activate at 95% of tank capacity

Alarm: ☐ Properly located and labeled
☐ Appears to alarm at 90% of tank capacity

COMMENTS →

Piping Records

Leak Detection:
☑ Annual line leak detector test done: *8/11/2015* AND
☑ Annual tightness test OR 12 months 30-day test records from A-F below

A. ☐ Electronic line leak detector .1 or .2 test records
B. ☐ Interstitial Monitoring: Sump Sensor Normal printouts, annual function test
C. ☐ SIR: Facility measuring to nearest 1/8" & sticks tanks each day of operation
☐ Stick in good repair: button intact, 1/8" increments, not bowed/worn)
D. ☐ GWM: See requirements in tank records section above
E. ☐ VM: See requirements in tank records section above
F. ☐ OTHER: _____

☐ System is an unsafe suction system with 3yr piping tightness test or monthly method
☐ System is safe suction with one check valve at the dispenser, monitoring not required
☐ **Alarms, Fails, & Inconclusives properly investigated/reported**

Corrosion Protection:
☐ Pipe is FRP, FLEX, or no soil contact-Testing not required OR
☐ CPS-DW system properly performing interstitial monitoring OR
☐ System is CPS and last 2 CP test reports are on record AND
☐ Impressed Current has 60-day rectifier readings on record

If installed after 6/30/2008 (except safe suction):
☐ Sumps tested every 3 years _____
☐ Sumps free of liquid accumulation _____
☐ Sumps appear liquid-tight _____
☐ Sumps monitored every 30 days (sensor normal prints or inspection log)
☐ Sump sensors, if used, properly positioned and annual function test

COMMENTS → **Annual Tightness Test 8/11/2015

Dispensers

☑ Dispensers free of leaks _____

Dispensers installed after 6/30/2008:
☐ Under Dispenser Containment (UDC) tested every 3 years _____
☐ UDC free of liquid accumulation _____
☐ UDC appears liquid-tight _____
☐ UDC monitored every 30 days (sensor normal prints or inspection log)
☐ Sump sensors, if used, properly positioned and annual function test

COMMENTS →

☐ *See Attachment(s)*

(REV 01/03/12)

INFORMATION REQUEST

UST Facility ID: 2109988

Facility Name: Stonewall Resort State Park
601 57th Street, SE
Charleston, WV 25304
(304)926-0470

WV Department of Environmental Protection
Division of Water and Waste Management
Environmental Enforcement/ UST Unit

www.dep.wv.gov/WWE/ee/ust

Facility Information:					
Physical Location:				0 City:	Roanoke
Owner:	WV Dept. of Natural Resources	Phone:		Operator:	Phone:
Address:	149 State Park Trail, Roanoke WV	Zip:	26447	Address:	Zip:
E-Mail:				E-Mail:	

TO THE TANK OWNER AND OPERATOR:

In accordance with **West Virginia Code Chapter 22, Article 17**, additional information is required to determine compliance with CODE , , .

Please submit the following information to the issuer listed below:

1 Provide a copy of your annual piping tightness and annual line leak detector test for 2013. Records indicate your last tests were
2 performed on 12/12/12 and are due again on or before 12/12/13.
3
4
5
6 Line & Line Leak detector
7
8 New test date
9
10 4/3/14
11
12
13
14
15

Therefore, on or before the 12 day of January, 2014, **you shall submit the required information to:**

ruth.m.porter@wv.gov, 601 57th Street, Charleston, WV 25304; phone 926-0499 ext. 1007; fax 304-926-0457

FAILURE TO COMPLY WITHIN THE TIME SPECIFIED MAY RESULT IN THE ISSUANCE OF A NOTICE OF VIOLATION, AND/OR FURTHER ENFORCEMENT ACTIONS.

Already sent copy printed 4/25/14

Service Accepted and Acknowledged:

Issuer's Signature: Ruth M. Porter Date: 12/9/2013

Contact Person's Signature: Date:

To report a release call: Emergency Spill Hotline 1-800-642-3074 Office of Environmental Remediation 304-238-1220 ext. 3506

Miller Environmental Inc.
7 Pixler Hill Road
Morgantown, WV 26508
Phone 304-292-8655 Fax 304-292-8654

TSC 1000 Leak Detector Tester

Data Collection and Report Form

Date: 4/3/2014

Location: Stonewall Resort
940 Resort Road
Marina
Roanoke, WV 26447

Michael A. Miller - Certified Tester

Hasstech Acurite Cert#2684.LTN
WVDEP Cert # AC798, B430
MDIC 2012-2074 Class T

Product	Midgrade				
Pump Manufacturer	FE Petro				
Leak Detector Model	FX1V				
Line PSI	32				
Seating PSI	32				
Bleed back with pump turned off (mL)	2500				
Leak Detector Resets from GPH Test Port	No				
Slow Flow PSI	12				
Flow Rate at 10 PSI	1				
Step Through Time to Full Flow (seconds)	2				
Piston seal pressure relief tight (yes or no)	Yes				
Conclusion (Pass of Fail)	Pass				

Tester Signature: _____

Comments: _____

Miller Environmental Inc.
7 Pixler Hill Road
Morgantown, WV 26508
Phone 304-292-8655 Fax 304-292-8654

Hasstech Acurite

Single Line Test Data Sheet

Date: 4/3/2014

Michael A. Miller- Certified Tester

Location: Stonewall Resort
940 Resort Road
Marina
Roanoke, WV 26447

Hasstech Acurite Cert#2684.LTN
WVDEP Cert # AC798, B430
MDIC 2012-2074 Class T

Product	Midgrade				
Pump Manufacturer	FE Petro				
Isolation Method (Ball Valve or Test Probe)	Ball Valve				
Test Pressure (1 1/2 times working pressure)	50				
Initial Cylinder Level (ICL)	0.01500				
Final Cylinder Level (FCL)	0.01500				
Leak Volume=ICL-FCL	0.00000				
Time Started	1105				
Time Completed	1135				
Total Test Time (30-min Minimum)	30				
Conclusion (pass of Fail)	Pass				

Tester Signature:

Comments:

west virginia department of environmental protection

Environmental Enforcement
Hazardous Waste/Underground Storage Tanks
601 57th Street SE
Charleston, WV 25304
Telephone: 304-926-0470; Fax: 304-926-0457

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

November 25, 2013

Samuel England, Superintendent
Stonewall Resort State Park
149 State Park Trail
Roanoke WV 26447

CERTIFIED RETURN RECEIPT REQUESTED

Dear Mr. England:

Enclosed is the report for the Compliance Monitoring Inspection (CMI) conducted at Stonewall Resort State Park (WV ID# 2109988) on November 12, 2013.

No deficiencies were noted during the inspection of your facility. You and your staff are to be commended for your commitment to proper operation and maintenance of your facility.

If you have any questions, please contact the UST Inspector, Rindy Clayton, at (304) 368-2000, x3713 or via email at merinda.m.clayton@wv.gov.

Sincerely,

Ruth M. Porter

Ruth M. Porter
UST Program Manager

cc: Charleston File
Rindy Clayton, UST Inspector (via email)

west virginia department of environmental protection

Environmental Enforcement
Hazardous Waste/Underground Storage Tanks
601 57th Street SE
Charleston, WV 25304
Telephone: 304-926-0470; Fax: 304-926-0457

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

November 25, 2013

Matt Helmick, Grounds & Landscape Mgr.
Benchmark Conference Centers of WV
Stonewall Resort State Park
940 Resort Dr.
Roanoke WV 26447

CERTIFIED RETURN RECEIPT REQUESTED

Dear Mr. Helmick:

Enclosed is the report for the Compliance Monitoring Inspection (CMI) conducted at Stonewall Resort State Park (WV ID# 2109988) on November 12, 2013.

No deficiencies were noted during the inspection of your facility. You and your staff are to be commended for your commitment to proper operation and maintenance of your facility.

If you have any questions, please contact the UST Inspector, Rindy Clayton, at (304) 368-2000, x3713 or via email at merinda.m.clayton@wv.gov.

Sincerely,

Ruth M. Porter

Ruth M. Porter
UST Program Manager

cc: Charleston File
Rindy Clayton, UST Inspector (via email)

Gibson, Jeff S

From: Porter, Ruth M
Sent: Monday, November 25, 2013 9:49 AM
To: DEP UST
Cc: Clayton, Merinda M
Subject: approved cmi with letter 2109988
Attachments: 2109988-111213-CMI-RC.pdf - Adobe Acrobat Pro.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Email to both O/o:

Samuel.A.England@wv.gov

mhelmick@benchmarkmanagement.com

Gibson, Jeff S

From: Gibson, Jeff S
Sent: Tuesday, November 26, 2013 9:59 AM
To: England, Samuel A
Cc: 'mhelmick@benchmarkmanagement.com'
Subject: ATTACHED UST INSPECTION REPORT - 2-109988 STONEWALL RESORT STATE PARK
Attachments: 2109988-111213-CMI-RC.pdf - Adobe Acrobat Pro.pdf

Tracking:

Recipient	Delivery
England, Samuel A	Delivered: 11/26/2013 9:59 AM
'mhelmick@benchmarkmanagement.com'	

Please refer to the attached UST inspection report.

Jeffrey S. Gibson
Inspection Coordinator – SEE Program
West Virginia Department of Environmental Protection
Environmental Enforcement – UST Unit
601 57th Street S. E.
Charleston, WV 25304
304-926-0499 Ext 1764
Jeff.s.gibson@wv.gov

Please Note: West Virginia has a very broad public records law. Most written communications to or from state employees regarding state business are public records available to the public and media upon request. Your e-mail communications, therefore, may be subject to public disclosure. **However**, if this e-mail concerns anticipated or current litigation or adversarial administrative proceedings to which the West Virginia Department of Environmental Protection is or would be a party, this e-mail is an attorney-client communication and is, therefore, exempt from the provisions of West Virginia's Freedom of Information Act. See, W.Va. code § 29B-1-4.

Gibson, Jeff S

From: Microsoft Outlook
Sent: Tuesday, November 26, 2013 9:59 AM
To: Gibson, Jeff S
Subject: Relayed: ATTACHED UST INSPECTION REPORT - 2-109988 STONEWALL RESORT STATE PARK
Attachments: ATT1882266.txt; ATT1882267.txt

Delivery to these recipients or distribution lists is complete, but delivery notification was not sent by the destination:

mhelmick@benchmarkmanagement.com

Subject: ATTACHED UST INSPECTION REPORT - 2-109988 STONEWALL RESORT STATE PARK

Sent by Microsoft Exchange Server 2007

Gibson, Jeff S

From: System Administrator
To: England, Samuel A
Sent: Tuesday, November 26, 2013 9:59 AM
Subject: Delivered: ATTACHED UST INSPECTION REPORT - 2-109988 STONEWALL RESORT STATE PARK

Your message

To: England, Samuel A
Cc: mhelmick@benchmarkmanagement.com
Subject: ATTACHED UST INSPECTION REPORT - 2-109988 STONEWALL RESORT STATE PARK
Sent: 11/26/2013 9:59 AM

was delivered to the following recipient(s):

England, Samuel A on 11/26/2013 9:59 AM

UST INSPECTION CHECKLIST

LD ☐ NIC ☑ SIC 98 ☐ NIC ☑ SIC

Approved by: RP 11-25-13

UST Facility ID: 2109988

Facility Name: Stonewall Resort State Park

WV Department of Environmental Protection
Division of Water and Waste Management
Environmental Enforcement/ UST Unit

www.dep.wv.gov/WWE/ee/ust

601 57th Street, SE
Charleston, WV 25304
(304)926-0470

Facility Information: Physical Location: 149 State Park Trail (I-79, exit 91,Rt.19S for 3 mi; L into pk, to marina) City: Roanoke

Owner: WV Dept. of Natural Resources Phone: 304-269-0524
Address: 149 State Park Trail; Roanoke WV Zip: 26447
E-Mail(s): Samuel.A.England@wv.gov (Samuel England, Superintendent)

Operator: Benchmark Conference Centers of WV Phone: 304-269-0521
Address: 940 Resort Dr.; Roanoke WV Zip: 26447
E-Mail(s): mhelmick@benchmarkmanagement.com (Matt Helm

GPS: 38° 56' 29.4"/ 80 29 31.2
Carrier: BFS

Trained Operator Class: ☐ holds approved training certificate before 8/8/12 or within 30 days of hire ☐ onsite after 8/7/12 with certificate
A: S.England, M.Helmick B: S.England, M.Helmick C: S.England, M.Helmick

Registration and Records

Financial Responsibility Company: NA/state facility
Policy #: Exp Date:
☐ Declarations page included ☐ Policy coverage appears accurate
☐ Site schedule included ☐ Registration Information Correct
☐ Status has changed ☐ Fees Current ↓Comments↓
Number of dispensers:
Tank/Piping/Dispenser repair date:

Inspection Information

Date: 11/12/2013 Time in: 2P Time Out:
Purpose: Initial Compliance: ☑ Follow-up:
Other:
Inspector: "Rindy" merinda.m.clayton@wv.gov, 2031 Pleasant Valley Rd., #1, Fairmont, WV 26554; p:304-368-2000, x3713; f:304-368-3953

CPS– cathodically protected steel (**G**-Galvanic/ **I**-Impressed Current) **DW**-Double wall **INV/TT**– inventory control/tightness test
LLD- Line leak detector (**M**– mechanical/ **E**– electronic) **PTT** – piping tightness test **SIR**-statistical inventory reconciliation **UPS** – unprotected steel

Underground Storage Tank (UST) Information:

O In compliance X Compliance √ See comments

ID	Product	Size	Install Date	Status	Construction		Leak Detection		Spill Prevention		Overfill Prevention	
1	Mid UL	12K	1991	in use	fiberglass/DW	O	auto tank gauge	O	Spill Bucket	O	fill shut off	O

Piping Information:

ID	Date	Sump Tightness Test Info		30-day Sump Monitoring		Construction		Pump Type	Leak Detection	
1	1991	Not Req.<7/1/08	O	Not Req.	O	fiberglass/DW	O	Pressure	LLD/TT	O

Inspector Comments:
Marina shut down for the season. Tank still contains product and continues to be monitored monthly.
Piping connected to floating ramp to dock; may be submerged at times, most likely at summer pool during high precip events.

Photographs taken ☐
Site Sketch attached ☐
Copy of Regulations left on site ☑
Suspected Release Issued ☐
Violations Issued ☐

Inspector's Signature: Rindy Clayton Date: 11/21/2013
Contact Person's Signature: Date:
☑ No Further Action at this Time ☐ **Follow-up Required.** Corrective actions must be completed by:

To report a release, call: **Emergency Spill Hotline 1-800-642-3074** **Office of Environmental Remediation 304-238-1220 ext 3506**

JG 11/26/2013

UST INSPECTION CHECKLIST

UST FACILITY ID: 2109988

Mark items that are in compliance. If not in compliance, explain in comments box.

Tank Records

Leak Detection: ☐ Tanks _____ are empty to 1" or less, monitoring not required OR
☑ 12 months 30-day leak detection results via one or more of A-F

A. ☐ Interstitial Monitoring (required if installed after 6/30/2008): Sensor Normal printouts & annual function test _____
B. ☐ ATG appears to be functioning properly _____
C. ☐ SIR: Facility measuring to nearest 1/8" & sticking tanks every day of operation;
☐ Gauge Stick in good repair: button intact, 1/8" increments, not bowed/worn
D. ☐ GWM: Site assessment on file, all wells checked, properly marked, secured, and sealed around casing. No slots above seal. Cap in place. Water within 20' of surface
E. ☐ VM: Site assessment on file, all wells checked & readings not affected by water, well properly marked & secured, 3rd party approved equipment
F. ☐ OTHER: _____

☐ **Alarms, Fails, & Inconclusives properly investigated/reported**

Corrosion Protection:
☐ Tank is FRP, COMP, or Jacketed. Testing not required OR
☐ CPS-DW system properly performing interstitial monitoring OR
☐ Interior lined system inspection date (first 10-year & 5-years after): _____
☐ CPS system, last 2 CP reports on record & system protected AND _____
☐ Impressed Current systems have 60-day rectifier readings on record _____

Enter test date(s)

☐ System is TOS or all deliveries <25gal--- Spill/Overfill prevention not required OR

Spill Prevention: ☐ Spill bucket free of cracks/holes, rings/gaskets snug, appears liquid-tight
☐ Spill bucket sufficient capacity _____

Overfill Prevention: ☐ Delivery method is compatible with overfill protection method
Ball float: ☐ inspected & functioning _____
☐ Tank top fittings appear vapor-tight _____
☐ Appears to activate at 90% of tank capacity
Fill Shut Off: ☐ Appears to be functioning
☐ Appears to activate at 95% of tank capacity
Alarm: ☐ Properly located and labeled
☐ Appears to alarm at 90% of tank capacity

COMMENTS →
Checked last 12 months' printouts for Veeder-Root TLS-300C.

Piping Records

Leak Detection: ☑ Annual line leak detector test done: *12/12/2012* AND
☑ Annual tightness test OR 12 months 30-day test records from A-F below

A. ☐ Electronic line leak detector .1 or .2 test records
B. ☐ Interstitial Monitoring: Sump Sensor Normal printouts, annual function test
C. ☐ SIR: Facility measuring to nearest 1/8" & sticks tanks each day of operation
☐ Stick in good repair: button intact, 1/8" increments, not bowed/worn)
D. ☐ GWM: See requirements in tank records section above
E. ☐ VM: See requirements in tank records section above
F. ☐ OTHER: _____

☐ System is an unsafe suction system with 3yr piping tightness test or monthly method
☐ System is safe suction with one check valve at the dispenser, monitoring not required
☐ **Alarms, Fails, & Inconclusives properly investigated/reported**

Corrosion Protection: ☐ Pipe is FRP, FLEX, or no soil contact-Testing not required OR
☐ CPS-DW system properly performing interstitial monitoring OR
☐ System is CPS and last 2 CP test reports are on record AND
☐ Impressed Current has 60-day rectifier readings on record

If installed after 6/30/2008 (except safe suction):
☐ Sumps tested every 3 years _____
☐ Sumps free of liquid accumulation _____
☐ Sumps appear liquid-tight _____
☐ Sumps monitored every 30 days (sensor normal prints or inspection log)
☐ Sump sensors, if used, properly positioned and annual function test

COMMENTS →

Dispensers

☐ Dispensers free of leaks _____
Dispensers installed after 6/30/2008:
☐ Under Dispenser Containment (UDC) tested every 3 years
☐ UDC free of liquid accumulation _____
☐ UDC appears liquid-tight _____
☐ UDC monitored every 30 days (sensor normal prints or inspection log)
☐ Sump sensors, if used, properly positioned and annual function test

COMMENTS →

☐ *See Attachment(s)*

2109988

Peters, Deborah J

From: Helmick, Brenda J
Sent: Tuesday, April 02, 2013 2:02 PM
To: Peters, Deborah J
Subject: Change of Address for WV DNR Stonewall Jackson Lake

Please change the mailing address for our invoices. (Invoice # 00300266)

Old address	New Address
WVDNR Stonewall Jackson Lake	WV DNR Stonewall Jackson Lake
Rt 1 Box 0	149 State Park Trail
Roanoke WV 26447	Roanoke WV 26447

Thanks.
Brenda Helmick
Stonewall Resort State Park
149 State Park Trail
Roanoke WV 26447

RP 4/7/13

D 4/2/13

2-109988

STORAGE TANK CERTIFICATE OF INSURANCE TO DEMONSTRATE FINANCIAL RESPONSIBILITY STATE OF WEST VIRGINIA

Facility Name and Address:
Stonewall Resort
940 Resort Drive
Roanoke, WV 26447

Insurer Name and Address:
Illinois Union Insurance Company
c/o ACE Environmental Risk, 436 Walnut Street, Philadelphia, PA 19106

Policy Number: G24690507 001

Policy Period:
From 12:01am 10/12/2010 to 12:01am 10/12/2011

Insured Name and Address:
McCabe-Henley Ltd Partnership dba Stonewall Resort-
940 Resort Drive
Roanoke, WV 26447

I. The Insurer, as identified above, hereby certifies that it has issued liability insurance covering the following Underground Storage Tanks:

Facility	Identification No.	Number of Tanks
Stonewall Reso	2-109988	1

for taking corrective action and/or compensating third parties for bodily injury and property damage caused by either sudden accidental releases or non-sudden accidental releases or accidental releases in accordance with and subject to the limits of liability, exclusions, conditions, and other terms of the Policy arising from operating the underground storage tanks identified above.

The Limits of Liability are:

a. $1,000,000 Each Occurrence

b. $4,000,000 Annual Aggregate

exclusive of legal defense costs, which are subject to a separate limit under the policy. This coverage is provided under policy number G24690507 001 .The effective date of said policy is 10/12/2010.

II. The Insurer further certifies the following with respect to the insurance described in Paragraph I:

A. Bankruptcy or insolvency of the insured shall not relieve the Insurer of its obligations under the Policy to which this certificate applies.

ACE USA, Copyright 2003

16

B. The Insurer is liable for the payment of amounts within any deductible applicable to the Policy to the provider of corrective action or a damaged third-party, with a right of reimbursement by the insured for any such payment made by the Insurer. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated under another mechanism or combination of mechanisms as specified in 40 CFR 280.95-280.102.

C. Whenever requested by a Director of an implementing agency, the Insurer agrees to furnish to the Director a signed duplicate original of the Policy and all endorsements.

D. Cancellation or any other termination of the insurance by the Insurer, except for non-payment of premium or misrepresentation by the insured, will be effective only upon written notice and only after the expiration of 60 days after a copy of such written notice is received by the insured.

E. The insurance covers claims otherwise covered by the Policy that are reported to the Insurer within six months of the effective date of cancellation or non-renewal of the Policy except where the new or renewed Policy has the same Retroactive Date or a Retroactive Date earlier than that of the prior policy, and which arise out of any covered occurrence that commenced after the Policy Retroactive Date, if applicable, and prior to such renewal or termination date. Claims reported during such extended reporting period are subject to the terms, conditions, limits, including limits of liability, and exclusions of the Policy.

I hereby certify that the wording of this instrument is identical to the wording in 40 CFR 280.97 (b) (2) and that the Insurer is eligible to provide insurance as an excess or surplus lines insurer in one or more states.

William P. Hazelton

Authorized Agent

William P. Hazelton

Name

Sr. Vice President - ACE Environmental Risk

Title

436 Walnut Street, Philadelphia, PA 19106

Address

ACE USA, Copyright 2003

SCHEDULE OF COVERED STORAGE TANKS ENDORSEMENT

Named Insured			Endorsement Number
McCabe-Heniey Ltd Partnership dba Stonewall Resort-			1
Policy Symbol	Policy Number	Policy Period	Effective Date of Endorsement
TSP	G24690507 001	10/12/2010 to 10/12/2011	10/12/2010
Issued By (Name of Insurance Company)			
Illinois Union Insurance Company			

Insert the policy number. The remainder of the information is to be completed only when this endorsement is issued subsequent to the preparation of the policy.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

The "insured" and the Insurer, agree that the following storage tank(s) have been added to the policy as listed "covered underground storage tanks" and/or "covered aboveground storage tanks":

Insured Facility Name and Address	Tank ID No.	Tank Size (gal.)	Tank Type (UST or AST)	Retroactive Date
Stonewall Resort 940 Resort Drive Roanoke West Virginia 26447	01	12000	UST	10/13/2008
Stonewall Resort 940 Resort Drive Roanoke West Virginia 26447	02	1500	AST	10/13/2008
Stonewall Resort 940 Resort Drive Roanoke West Virginia 26447	03	500	AST	10/13/2008
Stonewall Resort 940 Resort Drive Roanoke West Virginia 26447	04	500	AST	10/13/2008
Stonewall Resort 940 Resort Drive	05	12000	AST	10/13/2008

ACE USA Copyright, 2003

west virginia department of environmental protection

Environmental Enforcement
Hazardous Waste/Underground Storage Tanks
601 57th Street SE
Charleston, WV 25304
Telephone: 304-926-0470; Fax: 304-926-0457

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

August 22, 2011

WVDNR, Stonewall Jackson
149 State Park Trail
Roanoke, WV 26447

CERTIFIED RETURN RECEIPT REQUESTED

91 7108 2133 3939 2096 8219

Dear WVDNR:

Enclosed is the report for the Compliance Monitoring Inspection (CMI) conducted at Stonewall Jackson Marina(WV ID# 2-109988) on 8/17/2011 .

No deficiencies were noted during the inspection of your facility. You and your staff are to be commended for your commitment to proper operation and maintenance of your facility.

If you have any questions, please contact the UST Inspector,Patty Perrine, at (304) 368-2000 ext. 3725 .

Sincerely,

Ruth M. Porter

Ruth M. Porter
UST Program Manager

cc: Charleston File
Patty Perrine, UST Inspector (via email)

west virginia department of environmental protection

Environmental Enforcement
Hazardous Waste/Underground Storage Tanks
601 57th Street SE
Charleston, WV 25304
Telephone: 304-926-0470; Fax: 304-926-0457

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

August 22, 2011

Benchmark Conference Centers of WV
940 Resort Drive
Roanoke, WV 26447

CERTIFIED RETURN RECEIPT REQUESTED

91 7108 2133 3939 2096 8202

Dear Benchmark Conference Centers of WV :

Enclosed is the report for the Compliance Monitoring Inspection (CMI) conducted at Stonewall Jackson Marina(WV ID# 2-109988) on 8/17/2011 .

No deficiencies were noted during the inspection of your facility. You and your staff are to be commended for your commitment to proper operation and maintenance of your facility.

If you have any questions, please contact the UST Inspector,Patty Perrine, at (304) 368-2000 ext. 3725 .

Sincerely,

Ruth M. Porter

Ruth M. Porter
UST Program Manager

cc: Charleston File
Patty Perrine, UST Inspector (via email)

Rev 6/1/2011

UST INSPECTION CHECKLIST

LD ☐ NIC 98 ☐ NIC
☐ SIC ☐ SIC
Approved by: RP 8-21-11

UST Facility ID: 2-109988
Facility Name: Stonewall Jackson State Park Marina

WV Department of Environmental Protection
Division of Water and Waste Management
Environmental Enforcement/ UST Unit

www.dep.wv.gov/WWE/ee/ust

601 57th Street, SE
Charleston, WV 25304
(304)926-0470

Facility Information: Physical Location: exit 91, Stonewall Jackson Marina (269-8895) City: Roanoke

Owner: WVDNR Stonewall Jackson Phone: 269-0524
Address: 149 State Park Trail, Roanoke Zip: 26447
E-Mail(s):

Operator: Benchmark Conference Centers of WV Phone: WV 269-7014
Address: 940 Resort Drive, Roanoke, WV Zip: 26447
E-Mail(s):

GPS: 38°56'29.4"80d29'31.4
Carrier:

Trained Operator Class: ☐ holds approved training certificate before 8/8/12 or within 30 days of hire ☐ onsite after 8/7/12 with certificate
A: B: C:

Registration and Records

Financial Responsibility Company: ACE
Policy #: G24690507-001 Exp Date: 10/12/2011
☐ Declarations page included ☐ Policy coverage appears accurate
☐ Site schedule included
☐ Status has changed ☐ Fees Current ↓Comments↓
☐ Registration Information Correct
Tank/Piping/Dispenser repair date:

Inspection Information

Date: 8/17/2011 Time in: 4:30pm Time Out: 5:00pm
Purpose: Initial Compliance: ☐ Follow-up: from 11/10/2010
Other: Training follow-up inspection with Patty Perrine
Inspector: jason.t.liddle@wv.gov, 601 57th Street, Charleston, WV 25304; phone 926-0499 ext 1128; fax 304-926-0457

CPS- cathodically protected steel (G-Galvanic/ I-Impressed Current) DW-Double wall INV/TT- inventory control/tightness test
LLD- Line leak detector (M- mechanical/ E- electronic) PTT – piping tightness test SIR-statistical inventory reconciliation UPS – unprotected steel

Tank Information:

ID	Product	Size	Install Date	Status	Construction	√	Leak Detection		Spill Prevention		Overfill Prevention	
1	Mid UL	12K	1-1-91	in use	fiberglass	O	auto tank gauge		Spill Bucket		fill shut off	

Piping Information:

ID	Date	Sump Tightness Test Info		30-day Sump Monitoring		Construction		Pump Type	Leak Detection	
1	1991	Not Req.<7/1/08	O	Not Req.	O	fiberglass/UPS	O	Pressure	LLD/TT	
									tested 11/14/2010	

Inspector Comments:
1. Line leak detector and piping tightness test done 11/14/2010 next test due on 11/14/2011.
2. New boot was installed on piping from pump.

Photographs taken: ☐
Site Sketch attached: ☐
Copy of Regulations left on site ☐
Suspected Release Issued ☐
Violations Issued ☐

Inspector's Signature: Jason Liddle Date: 8/17/2011
Contact Person's Signature: Date:
☑ No Further Action at this Time ☐ **Follow-up Required.** Corrective actions must be completed by:

~~To report a release, call: Emergency Spill Hotline 1-800-642-3074 Office of Environmental Remediation 304-924-6211~~

JG 8/22/11

UST INSPECTION CHECKLIST

UST FACILITY ID: 2-109988

Mark items that are in compliance. If not in compliance, explain in comments box

Tank Records

Leak Detection: ☐ Tanks _____ are empty to 1" or less, monitoring not required OR
☐ 12 months 30-day leak detection results via one or more of A-F

A. ☐ Interstitial Monitoring (required if installed after 6/30/2008): Sensor Normal printouts & annual function test _____
B. ☐ ATG appears to be functioning properly _____
C. ☐ SIR: Facility measuring to nearest 1/8" & sticking tanks every day of operation;
☐ Gauge Stick in good repair: button intact, 1/8" increments, not bowed/worn
D. ☐ GWM: Site assessment on file, all wells checked, properly marked, secured, and sealed around casing. No slots above seal. Cap in place. Water within 20'of surface
E. ☐ VM: Site assessment on file, all wells checked & readings not affected by water, well properly marked & secured; 3rd party approved equipment
F. ☐ OTHER: _____

☐ **Alarms, Fails, & Inconclusives properly investigated/reported**

Corrosion Protection:
☐ Tank is FRP, COMP, or Jacketed. Testing not required OR
☐ System is CPS-DW and is properly performing interstitial monitoring OR
☐ System is CPS and last 2 CP test reports are on record & system protected AND
☐ Impressed Current systems have 60-day rectifier readings on record

☐ System is TOS or all deliveries <25gal--- Spill/Overfill prevention not required OR

Spill Prevention:
☐ Spill bucket free of cracks/holes, rings/gaskets snug, appears liquid-tight
☐ Spill bucket sufficient capacity _____

Overfill Prevention:
☐ Delivery method is compatible with overfill protection method

Ball float:
☐ inspected & functioning _____
☐ Tank top fittings appear vapor-tight _____
☐ Appears to activate at 90% of tank capacity

Fill Shut Off:
☐ Appears to be functioning
☐ Appears to activate at 95% of tank capacity

Alarm:
☐ Properly located and labeled
☐ Appears to alarm at 90% of tank capacity

→ COMMENTS →

Piping Records

Leak Detection:
☐ Annual line leak detector test AND
☐ Annual tightness test OR 12 months 30-day test records from A-F below

A. ☐ Electronic line leak detector .1 or .2 test records
B. ☐ Interstitial Monitoring: Sump Sensor Normal printouts; annual function test
C. ☐ SIR: Facility measuring to nearest 1/8" & sticks tanks each day of operation
☐ Stick in good repair: button intact, 1/8" increments, not bowed/worn)
D. ☐ GWM: See requirements in tank records section above
E. ☐ VM: See requirements in tank records section above
F. ☐ OTHER: _____

☐ System is an unsafe suction system with 3yr piping tightness test or monthly method
☐ System is safe suction with one check valve at the dispenser, monitoring not required
☐ **Alarms, Fails, & Inconclusives properly investigated/reported**

Corrosion Protection:
☐ Pipe is FRP, FLEX, or no soil contact-Testing not required OR
☐ CPS-DW system properly performing interstitial monitoring OR
☐ System is CPS and last 2 CP test reports are on record AND
☐ Impressed Current has 60-day rectifier readings on record

If installed after 6/30/2008 (except safe suction):
☐ Sumps tested every 3 years _____
☐ Sumps free of liquid accumulation _____
☐ Sumps appear liquid-tight _____
☐ Sumps monitored every 30 days (sensor normal prints or inspection log)
☐ Sump sensors, if used, properly positioned and annual function test

→ COMMENTS →

Dispensers

☐ Dispensers free of leaks Total # Dispensers: _____
Dispensers installed after 6/30/2008: _____
☐ Under Dispenser Containment (UDC) tested every 3 years
☐ UDC free of liquid accumulation _____
☐ UDC appears liquid-tight _____
☐ UDC monitored every 30 days (sensor normal prints or inspection log)
☐ Sump sensors, if used, properly positioned and annual function test

→ COMMENTS →

☐ *Additional Comments on Attachment Page*

west virginia department of environmental protection

Environmental Enforcement
Hazardous Waste/Underground Storage Tanks
601 57th Street SE
Charleston, WV 25304
Telephone: 304-926-0470; Fax: 304-926-0457

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

6/3/2011

Stonewall Jackson State Park Marina
149 State Park Trail
Roanoke, WV 26447

CERTIFIED RETURN RECEIPT REQUESTED
91 7108 2133 3938 5414 9326

Dear Mr. Helmick:

Enclosed is the report for the Compliance Monitoring Inspection (CMI) conducted at Stonewall Jackson State Park Marina (WV ID# 2-109988) on 6/1/2011.

The overall operation and maintenance of your facility is in compliance; however, some minor deficiencies were noted during this inspection. Timely correction of all deficiencies is expected.

If you have any questions, please contact the UST Inspector, Patty Perrine, at (304) 549-2371.

Sincerely,

Ruth M. Porter

Ruth M. Porter
UST Program Manager

cc: Charleston File
Patty Perrine, UST Inspector (via email)

Rev 4/27/2011

UST INSPECTION CHECKLIST

LD ☐ NIC 98 ☐ NIC
☐ SIC ☐ SIC

Approved by: RP 6-3-11

UST Facility ID: 2-109988

Facility Name: Stonewall Jackson State Park Marina

WV Department of Environmental Protection
Division of Water and Waste Management
Environmental Enforcement/ UST Unit

www.dep.wv.gov/WWE/ee/ust

601 57th Street, SE
Charleston, WV 25304
(304)926-0470

Facility Information: Physical Location: exit 91, Stonewall Jackson Marina (269-8895) City: Roanoke

Owner: WVDNR Stonewall Jackson Phone: 269-0524
Address: 149 State Park Trail, Roanoke, WV Zip: 26447
E-Mail(s):

Operator: Benchmark Conference Centers of WV Phone: WV 269-7014
Address: 940 Resort Drive, Roanoke, WV Zip: 26447
E-Mail(s):

GPS: 38° 56'29.4, 80d 29'31.4"
Carrier:

Trained Operator Class: ☐ holds approved training certificate before 8/8/12 or within 30 days of hire ☐ onsite after 8/7/12 with certificate
A: B: C:

Registration and Records

Financial Responsibility Company: ACE
Policy #: G24690507-001 Exp Date: 10/12/2011
☐ Declarations page included ☐ Policy coverage appears accurate
☐ Site schedule included
☐ Status has changed ☐ Fees Current ↓Comments↓
☐ Registration Information Correct
Tank/Piping/Dispenser repair date:

Inspection Information

Date: 6/1/2011 Time in: 1:47pm Time Out:
Purpose: Initial Compliance: ☐ Follow-up: from 11/10/2010
Other:
Inspector: patty.s.perrine@wv.gov, 2031 Pleasant Valley Rd, Fairmont, WV 26554, ph: 304-368-2000 ext. 3725, fx: 304-368-3953

CPS- cathodically protected steel (G-Galvanic/ I-Impressed Current) DW-Double wall INV/TT- inventory control/tightness test
LLD- Line leak detector (M- mechanical/ E- electronic) PTT – piping tightness test SIR-statistical inventory reconciliation UPS – unprotected steel

O In compliance X Not in Compliance √ See comments

Tank Information:

ID	Product	Size	Install Date	Status	Construction		Leak Detection		Spill Prevention		Overfill Prevention	
1	Mid UL	12K	1-1-91	in use	fiberglass	O	auto tank gauge		Spill Bucket		fill shut off	

Piping Information:

ID	Date	Sump Tightness Test Info		30-day Sump Monitoring		Construction		Pump Type	Leak Detection	
1	1991	Not Req.<7/1/08	O	Not Req.	O	fiberglass/UPS	X√	Pressure	LLD/TT	
						boot torn			tested 11/14/2010	

Inspector Comments:
Line leak detector and piping tightness test done 11/14/2010.
Site visit on 2/1/11 revealed that the boot on the piping end was still split open.

Photographs taken: ☐
Site Sketch attached: ☐
Copy of Regulations left on site: ☐
Suspected Release Issued: ☐
Violations Issued: ☐

Inspector's Signature: Patty Perrine Date: 6/1/2011
Contact Person's Signature: sent certified Date:
☐ No Further Action at this Time ☑ **Follow-up Required.** Corrective actions must be completed by: **7/15/2011**

Repair boot on metal piping end or have an anode added and send CP test results to this inspector.

To report a release, call: **Emergency Spill Hotline 1-800-642-3074** **Office of Environmental Remediation 304-924-6211**

JG 6/3/2011

UST INSPECTION CHECKLIST

UST FACILITY ID: 2-109988

Mark items that are in compliance. If not in compliance, explain in comments box.

Tank Records

Leak Detection: ☐ Tanks _____ are empty to 1" or less, monitoring not required OR
☐ 12 months 30-day leak detection results via one or more of A-F

A. ☐ Interstitial Monitoring (required if installed after 6/30/2008): Sensor Normal printouts & annual function test _____
B. ☐ ATG appears to be functioning properly _____
C. ☐ SIR: Facility measuring to nearest 1/8" & sticking tanks every day of operation;
☐ Gauge Stick in good repair: button intact, 1/8" increments, not bowed/worn
D. ☐ GWM: Site assessment on file, all wells checked, properly marked, secured, and sealed around casing. No slots above seal. Cap in place. Water within 20' of surface
E. ☐ VM: Site assessment on file, all wells checked & readings not affected by water, well properly marked & secured; 3rd party approved equipment
F. ☐ OTHER: _____

☐ **Alarms, Fails, & Inconclusives properly investigated/reported**

Corrosion Protection:
☐ Tank is FRP, COMP, or Jacketed. Testing not required OR
☐ System is CPS-DW and is properly performing interstitial monitoring OR
☐ System is CPS and last 2 CP test reports are on record & system protected AND
☐ Impressed Current systems have 60-day rectifier readings on record

☐ System is TOS or all deliveries <25gal--- Spill/Overfill prevention not required OR

Spill Prevention:
☐ Spill bucket free of cracks/holes, rings/gaskets snug, appears liquid-tight
☐ Spill bucket sufficient capacity _____

Overfill Prevention:
☐ Delivery method is compatible with overfill protection method
Ball float:
☐ inspected & functioning _____
☐ Tank top fittings appear vapor-tight _____
☐ Appears to activate at 90% of tank capacity
Fill Shut Off:
☐ Appears to be functioning
☐ Appears to activate at 95% of tank capacity
Alarm:
☐ Properly located and labeled
☐ Appears to alarm at 90% of tank capacity

→ COMMENTS →

Piping Records

Leak Detection:
☐ Annual line leak detector test AND
☐ Annual tightness test OR 12 months 30-day test records from A-F below

A. ☐ Electronic line leak detector .1 or .2 test records
B. ☐ Interstitial Monitoring: Sump Sensor Normal printouts, annual function test
C. ☐ SIR: Facility measuring to nearest 1/8" & sticks tanks each day of operation
☐ Stick in good repair: button intact, 1/8" increments, not bowed/worn)
D. ☐ GWM: See requirements in tank records section above
E. ☐ VM: See requirements in tank records section above
F. ☐ OTHER: _____

☐ System is an unsafe suction system with 3yr piping tightness test or monthly method
☐ System is safe suction with one check valve at the dispenser, monitoring not required
☐ **Alarms, Fails, & Inconclusives properly investigated/reported**

Corrosion Protection:
☐ Pipe is FRP, FLEX, or no soil contact-Testing not required OR
☐ CPS-DW system properly performing interstitial monitoring OR
☐ System is CPS and last 2 CP test reports are on record AND
☐ Impressed Current has 60-day rectifier readings on record

If installed after 6/30/2008 (except safe suction):
☐ Sumps tested every 3 years _____
☐ Sumps free of liquid accumulation _____
☐ Sumps appear liquid-tight _____
☐ Sumps monitored every 30 days (sensor normal prints or inspection log)
☐ Sump sensors, if used, properly positioned and annual function test

→ COMMENTS →

Dispensers

☐ Dispensers free of leaks Total # Dispensers: _____

Dispensers installed after 6/30/2008:
☐ Under Dispenser Containment (UDC) tested every 3 years
☐ UDC free of liquid accumulation _____
☐ UDC appears liquid-tight _____
☐ UDC monitored every 30 days (sensor normal prints or inspection log)
☐ Sump sensors, if used, properly positioned and annual function test

→ COMMENTS →

☐ *Additional Comments on Attachment Page*

To report a release, call: **Emergency Spill Hotline 1-800-642-3074** **Office of Environmental Remediation 304-924-6211**

IOV (REV 04/18/11)

INSPECTION OF VIOLATION

NOV#: 10-11-1220, 10-11-1221

Approved by: RP 6-3-11

WV Department of Environmental Protection
Division of Water and Waste Management
Environmental Enforcement/ UST Unit

www.dep.wv.gov/WWE/ee/ust

UST Facility ID: 2-109988

Facility Name: Stonewall Jackson State Park Marina

601 57th Street, SE
Charleston, WV 25304
(304)926-0470

Facility Information					
Physical Location:	exit 91, Stonewall Jackson Marina (269-8895)			City:	Roanoke
Owner:	WVDNR Stonewall Jackson	Phone: 269-0524	Operator:	Benchmark Conference Centers ofWV	Phone: WV 269-7014
Address:	149 State Park Trail, Roanoke, WV	Zip: 26447	Address:	940 Resort Drive, Roanoke, WV	Zip: 26447
E-Mail:			E-Mail:		

To the tank owner and operator:

An inspection has been made of the above facility to determine compliance with the Notice of Violation issued on the **10 day of November, 2010,** and the remedial measure requirements stated therein.

This inspection was made:

- [x] Upon expiration of the time period specified therein
- [ ] Upon expiration of the time period as extended by Inspection of Violation dated
- [ ] Upon request of the owner/operator

Upon inspection, it was found that the violation(s) stated therein has been:

- [x] **Totally abated**
- [ ] **Partially abated**
- [ ] **Not abated**
- [ ] **Other:**

Action taken to abate:

Piping tightness and line leak detector tests conducted and submitted. Be sure to have this test done every year.

Therefore, said Notice of Violation is hereby:

- [x] **Terminated**
- [ ] **Referred to Enforcement**
- [ ] **Shall remain in force as issued**
- [ ] **Extended to**

NOTICE

The issuance of this Notice may result in further enforcement action(s) in accordance with West Virginia Code §22-17.

Service Accepted and Acknowledged:

Inspector's Signature:	Patty Perrine	Date:	6/1/2011	Time:	2pm
Contact Person's Signature:	sent certified	Date:		Time:	

To report a release call: Emergency Spill Hotline 1-800-642-3074 Office of Environmental Remediation 1-304-924-6211

JG 6/3/2011

JP

UST-1 (rev 7/20/2010)

UST Operation/Compliance Monitoring Checklist

RECEIVED
NOV 19 2010
UNDERGROUND STORAGE TANK UNIT

LD ☒ NIC ☐ SIC 98 ☒ NIC ☐ SIC

White-Owner
Canary -Operator
Pink -Charleston
Goldenrod- Inspector

WV Department of Environmental Protection
Division of Water and Waste Management
Environmental Enforcement/ UST Unit

601 57th Street, S.E.
Charleston, WV 25304
(304) 926-0470

Facility Information

Facility Name: Stonewall Jackson State Park Marina **Facility ID #** 2-109988

Facility Location: exit 91, Stonewall Jackson Marina

Owner: WVDNR Stonewall Jackson **Phone** 269-0523 **Operator:** Benchmark Conference Centers of.. **Phone** WV 269-0521

Carrier: BFS | Trained Operator: Class A: req'd by 8/2012 | B: req'd by 8/2012 | C: req'd by 8/2012

Registration and Records

GPS: 38d 56'29.4, 80d 29'31.4"

Financial Responsibility Company: ACE

Exp Date: 10/12/2011 Policy #: G24690507-001

Registration information: Verified _____ Modified _____

Modifications:

Inspection Information

Date: 11/10/2010 Time in: 13:00 Time Out:

Inspector: Patty Perrine patty.s.rodgers@wv.gov

Contact Info: cell 549-2371, home 226-5454, fax 226-5029

Purpose: Initial Compliance: x Follow Up: _____

Other:

ATG – automatic tank gauge
CIU- Currently in Use
COMP – properly coated steel
CPS – cathodically protected steel
DW- Double Wall
ELLD – electronic line leak detector
FILLSO – fill shut off valve
FLEX – flexible plastic
FRP – fiberglass reinforced plastic
G- Galvanic
GWM – groundwater monitoring
I (IC)- Impressed Current
I NTLN – interior lining
INV/TT – inventory control & tightness test
JACK – steel in plastic jacket
MLLD – mechanical line leak detector
MTG – manual tank gauging
PTT – piping tightness test
SIR- statistical inventory reconciliation
TOS-Temporarily out of Service
UPS – unprotected steel

Tank Information:

O In compliance | X Not in Compliance | √ See comments

Tank	Product	Size	Install Date	Status	Construction (Corrosion Protection)		Leak Detection		Spill Prevention		Overfill Prevention	
1	Mid UL	12K	1-1-91	~~TOS~~ CIU	FRP	O	ATG 12 mos records	O	Spill Bucket drain	O√	FILLSO	O

Piping Information:

ID	Install Date	Sump tightness test info		30-day monitoring		Construction (CP)		Pump Type	Leak Detection	
1	1-1-91	Not req <7/1/08	O	Not req'd	O	FRP &steel in cond	X√	Pressure	LLD/TT no test	X√
						boot torn				

Tank repairs: ☐ Date:
Piping repairs: ☐ Date:
Dispenser repairs: ☐ Date:

Comments:

Inspector Comments: **1. Facility is not doing leak detection on piping. Jeff Clagett is supposed to do test within the week. Line leak detector and piping tightness testing is required every year. This test has not been done since the last UST inspection.**
2. Bad filter leak under dispenser # 1/2. Crash valve is stuck and had to be turned by hand to get it to close. Filter was still spraying. Report leak to OER at 924-6211 within 24 hours. The crash/impact valves must be repaired to prevent a major release in the event of a dispenser crash. I recommend that further actions be taken to protect the lake from dispenser leaks (sump installation, fuel absorbant padding, etc.)
3. Spliced ATG wires do not appear to be properly protected.
4. Boot on Steel piping at STP is torn open and not protecting the pipe.
5. Spill bucket has a drain. I recommend the drain be plugged by a class A UST worker to eliminate a source of water in the tank.
6. Monitoring well was dry. Wells are not properly constructed. They are just a pvc pipe sticking out of the grass with a cap. Wells should be be sealed, secured, and properly marked as monitoring wells. This must be done by the next regular inspection or the well properly closed..

Photographs Taken ☒
Site Sketch attached: ☐
Additional Comment Page ☐
Copy of Regulations left on site ☐
Violations Issued ☒

Inspector's Signature: Patty Perrine Date: 11/10/2010

Contact Person's Signature: X Date: 11/10/2010

☐ No Further Action at this Time ☒ **Follow up Required. Corrective actions must be completed by 24 hours, report leak to OER. By 12/15/2010, submit piping leak test results and have boot on piping repaired.**

May 28 2010

16

UST-7 (Rev. 10/2/08)

WV ID: 2-109988
NOV # 10-11-1220 & 10-11-1221

RECEIVED
NOV 19 2010

White – Owner
Canary - Operator
Pink – Charleston
Goldenrod – Inspector

NOTICE OF VIOLATION

WV Department of Environmental Protection
Environmental Enforcement
Hazardous Waste/Underground Storage Tanks

UNDERGROUND STORAGE TANK UNIT
601 57th Street, S.E.
Charleston, WV 25304
(304) 926-0470

FACILITY INFORMATION

Owner: WVDNR Stonewall Jackson
Address: 149 State Park Trail
City: Roanoke State: WV
Zip: 26447 Phone: 269-~~0525~~ 0524

Operator: Benchmark Conference Centers of WV
Address: 940 Resort Drive
City: Roanoke State: WV
Zip: 26447 Phone: 269-7014

LOCATION OF UNDERGROUND STORAGE TANK SYSTEM:

Facility Name: Stonewall Jackson State Park Marina Address: 940 Resort Dr.
City: Roanoke County: Lewis Phone: 269-8895

Information received from an inspection conducted on or about the 10th day of November, 2010, on the above facility has revealed that you are the owner and/or operator of the underground storage tank system(s) and you are in violation of the provisions of Chapter 22, Article 17, Section 6 of the Code of West Virginia and/or Section(s) 40CFR280.41(b)(1)(i)&(ii) of the Rules and Regulations in that you failed to have an annual line tightness test or have monthly monitoring of piping and failed to have the automatic line leak detector tested annually.

Therefore, pursuant to the authority contained in Chapter 22, Article 17, of the Code of West Virginia, you are hereby notified that you are in VIOLATION of the provisions of the Code of West Virginia as described above.

☐ This violation will be referred for enforcement ☒ On or before the 15th day of December, 2010, you should: have the automatic line leak detector and the piping tightness tested and send the results to this inspector (fax 226-5029 or mail PO Box 72, Erbacon WV 26203)

NOTICE

The Director may initiate delivery prohibition in accordance with Title 33 Series 30-6 of the Legislative Rules; and/or may issue an Administrative Order and/or may commence a Civil Action in the Circuit Court, including a temporary or permanent injunction in accordance with West Virginia Code, Chapter 22-17-15 and you may be liable for a civil penalty in accordance with Chapter 22-17-16.

Service Accepted and Acknowledged:

Inspector's Signature: Patty Perkins Date: 11/10/2010 Time: 2:37pm
Contact Person's Signature: X- Date: 11/10/10 Time: 303 pm

JG

DP

UST-1 (rev 9/25/2007)

UST Operation/Compliance Monitoring Checklist

LD ☐ NIC ☒ SIC ☐ UNK
98 ☐ NIC ☒ SIC ☐ UNK

White-Owner
Green-Operator
Canary-Charleston
Pink- Inspector

WV Department of Environmental Protection
Division of Water and Waste Management
Environmental Enforcement/ UST Unit

601 57th Street, S.E.
Charleston, WV 25304
(304) 926-0470

Facility Information

Facility Name: Stonewall Jackson State Park Marina Facility ID # 2-109988

Facility Location: exit 91, Stonewall Jackson Marina

Owner: WVDNR Stonewall Jackson Phone 269-0523 Operator: Matt Helmick Phone 269-0521

Registration and Records

Financial Responsibility: Company State
Exp Date: Policy #:

Registration information: Verified _____ Modified _____

Modifications _____

Inspection Information

Date: 10-15-2007 Time in: 9am Time Out: 10am

Inspector: Patty Rodgers

Purpose of Inspection

Initial Compliance Inspection: _____ Follow Up: from 9/4/07

Other: _____

(Construction)
UPS – unprotected steel
CPS – cathodically protected steel
FRP – fiberglass plastic
COMP – steel clad in fiberglass
JACK – steel in plastic jacket
INTLN – interior lining

(Leak Detection)
INV/TT – inventory control and tightness tested
MTG – manual tank gauging
ATG – automatic tank gauge
GWM – groundwater monitoring
VAPMON – vapor monitoring
SECCON – double wall tank monitoring
SIR- statistical inventory reconciliation

(Spill and Overfill)
SPBAS – spill basin
FILLSO – fill shut off valve
VENTVAL – vent valve
ALARM – overfill alarm

(Pipe leak detection)
PTT – piping tightness test
LLD – line leak detector
CHECKVAL – check valve

Tank Information:

O In compliance | X Not in Compliance | √ See additional page

Tank	Product	Size	Install Date	Tank Status	Construction (Corrosion Protection)		Leak Detection		Spill Prevention		Overfill Prevention	
1	PUL	12K	1-1-91	CIU	FRP	O	ATG	O	SPBAS	O	FILLSO	O

Piping Information:

Tank	Product	Install Date	Construction		Pump Type – Pressure/Suction	Leak Detection	
1a	PUL	1-1-91	FRP with steel in conduit and steel periodically under water	O	Pressure	LLD/TT	O

Inspector Comments: Spill bucket cleaned, extra riser secured, presented leak detector test for 9/24/07, Annual line test for 9/9/07, and current periodic test. Piping is FRP until about 10 feet from bridge, then is steel in conduit. Steel Flex connectors periodically under water in lake. Explained that corrosion protection is not required by law; however, piping under water is subject to corrosion and should be protected. Discussed installing anodes and the need to have the corrosion protection tested every 3 years if installed.

All violations from 9/4/2007 abated.

Check if:
Photographs Taken ☐
Site Sketch attached: ☐
Additional Comment Page ☐
Copy of Regulations left on site ☐

Inspector's Signature: Patty Rodgers Date: 10/15/07

Contact Person's Signature: _____ Date: _____

☒ No Further Action at this Time ☐ **Follow up Required. Corrective actions must be completed by** _____
*Additional time may be requested if circumstances prevent completion by the date above.

JG

GWS

UST1 (rev 1/07)

LD [X] NIC 98 [X] NIC
[ ] SIC [X] SIC

White-Owner
Green-Operator
Canary-Charleston
Pink- Inspector

UST Operation/Compliance Monitoring Checklist

WV Department of Environmental Protection
Division of Water and Waste Management
Environmental Enforcement/ UST Unit

601 57th Street
Charleston, WV 25304
(304) 926 0470

Facility Information

Facility Name: Stonewall Jackson State Park Marina Facility ID # 2-109988

Facility Location: I-79 exit 91 Stonewall Jackson Marina

Owner: WV DNR Stonewall Jackson Phone: _____ Operator: Josh Spomaugle Phone 269-0523 8896

Registration and Records

Financial Responsibility: Company Self
Exp Date: _____ Policy #: _____

Registration information: Verified _____ Modified X

Modifications 38° 56.483 new operator
80° 29.542

Inspection Information

Date: 9-4-2007 Time in: 9:20 AM Time Out: _____

Inspector Patty Rodgers 549-2371

Purpose of Inspection

Initial Compliance Inspection: 2031 Pleasant Valley Rd Fairmont, WV 26554

Follow Up: _____

Other: _____

Abbreviations

(Construction)
UPS – unprotected steel
CPS – cathodically protected steel
FRP – fiberglass plastic
COMP – steel clad in fiberglass
JACK – steel in plastic jacket
INTLN – interior lining

(Leak Detection)
INV/TT – inventory control and tightness tested
MTG – manual tank gauging
ATG – automatic tank gauge
GWM – groundwater monitoring
VAPMON – vapor monitoring
SECCON – double wall tank monitoring

(Spill and Overfill)
SPBAS – spill basin
FILLSO – fill shut off valve
VENTVAL – vent valve
ALARM – overfill alarm

(Pipe leak detection)
PTT – piping tightness test
LLD – line leak detector
CHECKVAL – check valve

Please use one the following notations when filling boxes below:
Passing 2 tests August 07 & Sept 07

O	In compliance	X	Not in Complia	√	See additional

Tank Information

Tank	Product	Size	Install date	Tank Status	Construction (Corrosion Protection)	Leak Detection	Spill Prevention	Overfill Prevention
1	PI UL	12K	1-1-91	CIU	FRP O	Veeder-Root Site Sentinel ATG inactive operational X provide leak results for 10 of 12 months	SPBAS X extra riser must be secured (has to pump house) spill bucket has lots of dirt in it. Needs cleaned	FILLSO O

Piping Information

Tank	Product	Install date	Construction (Corrosion Protection)	Pump Type – Pressure/Suction	Leak Detection
1	PI UL	1-1-91	FRP - piping under water - needs to be protected from corrosion. Note: piping appears to be steel in conduit, not FRP O	Pressure O * Pressure piping must have an annual line tightness test And some form of monthly leak detection. Provide results or begin line leak detection by the dates below	None X

Photographs Taken	Y/N
Site Sketch:	Y/N
Additional Comment Page	Y/N
Copy of Regulations left on site	Y/N

Inspector's Signature: Patty Rodgers Date: 9-4-07

Contact Person's Signature: X Brenda Perrine Date: 9-4-07

Follow up Required: X by 10-9-07 No Further Action at this Time: _____

have spill bucket cleaned, ensure monthly tank and line leak detection and annual line tightness test. Send results to this inspector. Also secure extra riser to prevent accidental release during delivery.

JL

RWS

2109988

ALARM HISTORY REPORT

----- SYSTEM ALARM -----
BATTERY IS OFF
JAN 16, 2006 8:00 AM

* * * * * END * * * * *

STONEWALL RESORT
940 RESORT DRIVE
ROANOKE,WV 26447
304-269-8895

SEP 4, 2007 9:41 AM

TANK LEAK TEST HISTORY

T 1:PLUS UNLEADED

LAST GROSS TEST PASSED:
SEP 2, 2007 11:00 PM
STARTING VOLUME= 5787
PERCENT VOLUME = 48.8
TEST TYPE = STANDARD

LAST ANNUAL TEST PASSED:
SEP 2, 2007 11:00 PM
TEST LENGTH 6 HOURS
STARTING VOLUME= 5787
PERCENT VOLUME = 48.8
TEST TYPE = STANDARD

FULLEST ANNUAL TEST PASS
AUG 19, 2007 11:00 PM
TEST LENGTH 6 HOURS
STARTING VOLUME= 8444
PERCENT VOLUME = 71.3
TEST TYPE = STANDARD

LAST PERIODIC TEST PASS:
SEP 2, 2007 11:00 PM
TEST LENGTH 6 HOURS
STARTING VOLUME= 5787
PERCENT VOLUME = 48.8
TEST TYPE = STANDARD

FULLEST PERIODIC TEST
PASSED EACH MONTH:

AUG 19, 2007 11:00 PM
TEST LENGTH 6 HOURS
STARTING VOLUME= 8444
PERCENT VOLUME = 71.3
TEST TYPE = STANDARD

SEP 2, 2007 11:00 PM
TEST LENGTH 6 HOURS
STARTING VOLUME= 5787
PERCENT VOLUME = 48.8
TEST TYPE = STANDARD

* * * * * END * * * * *

UST-1 (10/93)

Existing UST Facility Checklist

White-Owner
Green-Operator
Canary-Charleston Office
Pink-Field Office

WV Division of Environmental Protection
Office of Waste Management
Underground Storage Tank Section

1356 Hansford Street
Charleston, WV 25301-1409
304-558-6371

1. Facility Information

Facility Name: Stonewall Jackson State Park Marina Facility Location: Lewis Co
Registration Number: 2109988 Permit/Registration Date: 3.1.01
Owner: DNR Phone: Operator: DNR Phone:

2. Registration and Records

Registration Information: Verified Modified
Financial Responsibility: state Agency
Certification of Proper Installation
Repair Records
Closure Assessments

3. 3.1.01 Inspection Information

Date: ~~2.23.01~~ Time In: Time Out:
Inspector: Art Loder

4. Purpose of Inspection

Initial Compliance Inspection:
Follow Up:
Other: Call from Superintendent

5. Potential Contamination Receptor(s)

Groundwater:
Private well distance
Public well distance
Significant aquifer distance
Utilities

Surface Water Body:
Specify SJ Lake
Distance adjacent
Other

Please use one of the following notations when filling in boxes 6 & 7:
(based on visual observation)

O	In Compliance	X	Not in Compliance	✓	See Additional Page

6. Tank Information

Tank No.	Product	Size	Date Installed	Tank Status	Construction (corrosion protection)	Leak Detection	Spill Prevention	Overfill Prevention
1	G	12K	1991	Active	Double Wall FRP	Interstitial Monitor w/Alarm	fill shut off	spill basin

7. Piping Information

Tank No.	Product	Date Installed	Construction (corrosion protection)	Pump Type - Pressure/Suction	Leak Detection
1	G	1991	Double Wall FRP and exposed piping at docks	Pressure	DW monitor Annual tightness test, line leak detectors before each season

Photographs Taken: Y/N
Site Sketch: Y/N
Additional Comment Page: Y/N
Copy of Regulations Left On Site: Y/N

Inspector's Signature: Art Loder Date: ~~2.23.01~~ 3.1.01
Contact Person's Signature: [illegible] Date: 3/1/01
Follow Up Required: X No Further Action at this Time:

Onsite 2.7.01

Leak ID: _____

WV ID: ~~2219988~~ 2109988

NON NO: 01-[redacted]-1200
03

WV Division of Environmental Protection
Office of Waste Management
Underground Storage Tank Section

UST 7 (Rev. 10/97)

White - Owner/Operator
Green - Inspector
Canary - Charleston

NOTICE OF NON-COMPLIANCE

1356 Hansford Street
Charleston, WV 25301-1409
304-558-6371

Facility Information

Owner: WVDNR Stonewall Jackson SP
Address: Rt 1 Box O
City: Roanoke State: WV Zip: 26447
Phone:( )

Operator: Same
Address:
City: State: ZIP:
Phone:( )

LOCATION OF TANKS:
Facility Name: Stonewall Jackson SP Marina City: Roanoke
Street Address: Rt 1 County: Lewis Phone: ( )

Information received from an inspection conducted on or about the 7th day of Feb 2001, on the above facility has revealed that you are the owner and/or operator of the tanks and you are in violation of the provisions of Chapter 22, Article 17, Section 6+13 of the Code of West Virginia and/or Section (s) 33-30-4 of the Rules and Regulations in that you failed to Notify WVDEP of the existance of a 12,000 gallon Underground Storage Tank at the Marina

Therefore, pursuant to the authority contained in Chapter 22, Article 17, of the Code of West Virginia, you are hereby notified that you are in NON-COMPLIANCE of the provisions of the Code of West Virginia as described above.

You shall accomplish the following remedial measures on or before the _____ day of _____ 19____:
Register the Underground Storage Tank at the Marina

WARNING

If you fail to accomplish the above-described measures within the time specified, the Director may issue an Administrative Order and/or may commence a Civil Action in the Circuit Court, including a temporary or permanent injunction in accordance with West Virginia Code, Chapter 22-17-15 and you may be liable for a civil penalty in accordance with Chapter 22-17-16.

Service Accepted and Acknowledged:

Inspector's Signature: [signature] Date: 3-1-01 Time:
Contact Person's Signature: [signature] Date: 3-1-01 Time:

4/17/01

Leak ID: _____

WV ID: ~~221998~~ 2109988

NON No: 01-03-1200

UST-8 (Rev. 10/97)

White - Owner
Green - Operator
Canary - Charleston Office
Pink - Field Office
Goldenrod - Enforcement Section

WV Division of Environmental Protection
Office of Waste Management
Underground Storage Tank Section

INSPECTION OF NON-COMPLIANCE

1356 Hansford Street
Charleston, WV 25301-1409
304-558-6371

1. FACILITY INFORMATION

Owner: WV DNR Stonewall Jackson SP
Address: Rt 1 Box
City: Roanoke State: WV Zip: 26447
Phone: ( )

Operator: Sant
Address:
City: State: Zip:
Phone: ( )

LOCATION OF TANKS:
Facility Name: Stonewall Jackson SP Marina
Street Address: Rt 1 County: Lewis
City: Roanoke
Phone: ( )

To the tank owner and operator:

An inspection has been made of the above facility to determine compliance with the Notice of Non-Compliance issued on the _____ day of _____, 19____ and the remedial measure requirements stated therein.

This inspection was made:

_____ Upon Expiration of the time period specified therein.

_____ Upon Expiration of the time period as extended by Inspection of Non-Compliance dated

_____ Upon Request of the owner/operator.

Upon inspection, it was found that the violation(s) stated therein has:

X Been totally abated _____ Not been abated

_____ Been partially abated _____ Other,

Action taken to abate: Notification form submitted to Inspector Loder

Therefore, said notice of violation is hereby:

X Terminated _____ Extended to _____ 19____

_____ Shall remain in force as issued _____ Referred for Enforcement

WARNING

If you are the owner and/or operator and you fail to accomplish the above-described measures within the time specified, the Director may issue an Administrative Order and/or may commence a Civil Action in the Circuit Court, including a temporary or permanent injunction in accordance with West Virginia Code, Chapter 22-17-15 and you may be liable for a civil penalty in accordance with Chapter 22-17-16.

Service Accepted and Acknowledged:

Inspector's Signature: Curt Loder Date: 3.1.01 Time:

Contact Person's Signature: Sam A Date: 3/1/01 Time:

4/17/01
Rob

Leak ID: 2-109988
WV ID: 2219988
NON NO: 01-03-1201

UST 7 (Rev. 10/97)

White - Owner/Operator
Green - Inspector
Canary - Charleston

WV Division of Environmental Protection
Office of Waste Management
Underground Storage Tank Section

NOTICE OF NON-COMPLIANCE

1356 Hansford Street
Charleston, WV 25301-1409
304-558-6371

Facility Information

Owner: Stonewall Jackson State Park
Address: Rt 1 Box O
City: Roanoke State: WV Zip: 26447
Phone:( )

Operator: Same
Address:
City: State: ZIP:
Phone:( )

LOCATION OF TANKS:
Facility Name: Stonewall Jackson SP Marina City: Roanoke
Street Address: Rt 1 County: Lewis Phone: ( )

Information received from an inspection conducted on or about the 7th day of Feb, 2001, on the above facility has revealed that you are the owner and/or operator of the tanks and you are in violation of the provisions of Chapter 22, Article 17, Section 6-13 of the Code of West Virginia and/or Section (s) CSR 33-31-1 13F of the Rules and Regulations in that you failed to pay Underground Storage Tank Fee's to the WV Division of Environmental Protection

Therefore, pursuant to the authority contained in Chapter 22, Article 17, of the Code of West Virginia, you are hereby notified that you are in NON-COMPLIANCE of the provisions of the Code of West Virginia as described above.

You shall accomplish the following remedial measures on or before the 1st day of April 2001:
Pay subject fee's

WARNING

If you fail to accomplish the above-described measures within the time specified, the Director may issue an Administrative Order and/or may commence a Civil Action in the Circuit Court, including a temporary or permanent injunction in accordance with West Virginia Code, Chapter 22-17-15 and you may be liable for a civil penalty in accordance with Chapter 22-17-16.

Service Accepted and Acknowledged:

Inspector's Signature: Date: 3-1-01 Time:
Contact Person's Signature: Date: 3/1/01 Time:

4/1/01

Guttman, Oil

OMB NO. 2050-0068; Approval Expires 1/31/95

Notification for Underground Storage Tanks

State Agency Name and Address: WV Div. of Environmental Protection, Office of Waste Mgmt., UST Section, 1356 Hanford Street, Charleston, WV 25301

STATE USE ONLY

ID NUMBER 2109988

F.E.I.N.: No.

A. Date Entered Into Computer 3-12-01

B. Data Entry Clerk Initials CWS

C. Owner Was Contacted to Clarify Responses. Comments

UST info completed by AWL 2-22-01
Marina UST

TYPE OF NOTIFICATION

[X] A. NEW FACILITY [ ] B. AMENDED [ ] C. CLOSURE

____ No. of tanks at facility ____ No. of continuation sheets attached

INSTRUCTIONS

Please type or print in ink all items except "signature" in section VIII. This form must be completed for each location containing underground storage tanks. If more than five (5) tanks are owned at this location, photocopy the following sheets, and staple continuation sheets to the form.

GENERAL INFORMATION

Notification is required by Federal law for all underground tanks that have been used to store regulated substances , that are in the ground as of May 8, 1986, or that are brought into use after May 8, 1986. The information requested is required by Section 9002 of the Resource Conservation and Recovery Act, (RCRA), as amended.

The primary purpose of this notification program is to locate and evaluate underground tanks that store or have stored petroleum or hazardous substances. It is expected that the information you provide will be based on reasonably available records, or in the absence of such records, your knowledge, belief, or recollection.

Who Must Notify? Section 9002 of RCRA, as amended, requires that, unless exempted, owners of underground tanks that store regulated substances must notify designated State or local agencies of the existence of their tanks. Owner means—

a) in the case of an underground storage tank in use on November 8, 1984, or brought into use after that date, any person who owns an underground storage tank used for the storage, use, or dispensing of regulated substances, and

b) in the case of any underground storage tank in use before November 8, 1984, but no longer is use on that date, any person who owned such tank immediately before the discontinuation of its use.

c) if the State agency so requires, any facility that has undergone any changes to facility information or tank system status (only amended tank information needs to be included).

What Tanks Are Included? Underground storage tank is defined as any one or combination of tanks that (1) is used to contain an accumulation of "regulated substances," and (2) whose volume (including connected underground piping) is 10% or more beneath the ground. Some examples are underground tanks storing: 1. Gasoline, used oil, or diesel fuel, and 2. industrial solvents, pesticides, herbicides or fumigants.

What Tanks Are Excluded? Tanks removed from the ground are not subject to notification. Other tanks excluded from notification are:

1. farm or residential tanks of 1,100 gallons or less capacity used for storing motor fuel for noncommercial purposes;
2. tanks used for storing heating oil for consumptive use on the premises where stored;
3. septic tanks;
4. pipeline facilities (including gathering lines) regulated under the Natural Gas Pipeline Safety Act of 1968, or the Hazardous Liquid Pipeline Safety Act of 1979, or which is an intrastate pipeline facility regulated under State laws;
5. surface impoundments, pits, ponds, or lagoons;
6. storm water or waste water collection systems;
7. flow-through process tanks;
8. liquid traps or associated gathering lines directly related to oil or gas production and gathering operations;
9. storage tanks situated in an underground area (such as a basement, cellar, mineworking, drift, shaft, or tunnel) if the storage tank is situate upon or above the surface of the floor.

What Substances Are Covered? The notification requirements apply to underground storage tanks that contain regulated substances. This includes any substance defined as hazardous in section 101 (14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), with the exception of those substances regulated as hazardous waste under Subtitle C of RCRA. It also includes petroleum, e.g., crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute).

Where To Notify? Send completed forms to:

WV Division of Environmental Protection
Office of Waste Management
UST Section
1356 Hanford Street
Charleston, WV 25301

When To Notify? 1. Owners of underground storage tanks in use or that have been taken out of operation , but still in the ground, must notify by May 8, 1986. 2. Owners who bring underground storage tanks into use after May 8, 1986, must notify within 30 days of bringing the tanks into use. 3. If the State requires notification of any amendments to facility send information to State agency immediately.

Penalties: Any owner who knowingly fails to notify or submits false information shall be subject to a civil penalty not to exceed $10,000 for each tank for which notification is not given or for which false information is submitted.

I. OWNERSHIP OF TANK(S)

Owner Name (Corporation, Individual, Public Agency, or Other Entity): WVDNR Stonewall Jackson Lake S.P.

Street Address: Rt 1 Box O

City: Roanoke State: WV ZIP Code: 26447

County: LEWIS

Phone Number (Include Area Code): 304-269-0523

II. LOCATION OF TANK(S)

If required by State, give the geographic location of tanks by degrees, minutes, and seconds. Examples Lat. 42, 36, 12 N Long. 85, 24, 17W

Latitude _____ Longitude _____

(If same as Section I, mark box here [X])

Facility Name or Company Site Identifier, as applicable: Stonewall Jackson State Park Marina

Street Address (P.O. Box not acceptable)

City State Zip code

County Municipality

EPA form 7530-1 (Revised 2-92)

III. TYPE OF OWNER	IV. INDIAN LANDS	
☐ Federal Government ☐ Commercial ☒ State Government ☐ Private ☐ Local Government	Tanks are located on land within an Indian Reservation or on other trust lands. ☐ Tanks are owned by native American nation, tribe, or individual. ☐	Tribe or Nation:

V. TYPE OF FACILITY

Select the Appropriate Facility Description

___ Gas Station	___ Railroad	___ Trucking/Transport
___ Petroleum Distributor	___ Federal - Non-Military	___ Utilities
___ Air Taxi (Airline)	___ Federal - Military	___ Residential
___ Aircraft Owner	___ Industrial	___ Farm
___ Auto Dealership	___ Contractor	X Other (Explain) Marina

VI. CONTACT PERSON IN CHARGE OF TANKS

Name	Job Title	Address	Phone Number (Include Area Code)
SAMUEL ENGLAND	PARK SUPERINTENDENT	WV DNR STONEWALL JACKSON S.P. Rt1 Box 0 ROANOKE WV 26447	304-269-0523

VII. FINANCIAL RESPONSIBILITY

I have met the financial responsibility requirements in accordance with 40 CFR Subpart H ☒

Check All that Apply

☐ Self Insurance	☐ Guarantee	☒ State Funds
☐ Commercial Insurance	☐ Surety Bond	☐ Trust Fund
☐ Risk Retention Group	☐ Letter of Credit	☐ Other Method Allowed Specify

VIII. CERTIFICATION (Read and sign after completing all sections)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete.

Name and official title of owner or owner's authorized representative (Print)	Signature	Date Signed
SAMUEL ENGLAND, PARK SUPERINTENDENT	Samuel A England	3/1/01

EPA estimates public reporting burden for this form to average 30 minutes per response including time for reviewing instructions, gathering and maintaining the data needed and completing and reviewing the form. Send comments regarding this burden estimate to Chief, Information Policy Branch PM-223, U.S. Environmental Protection Agency, 401 M Street, Washington D.C. 20460, marked "Attention Desk Officer for EPA." This form amends the previous notification form as printed in 40 CFR Part 280, Appendix I. Previous editions of this notification form may be used while supplies last.

IX. DESCRIPTION OF UNDERGROUND STORAGE TANKS (Complete for each tank at this location.)

Tank Identification Number	Tank No. 1	Tank No.	Tank No.	Tank No.	Tank No.
1. Status of Tank (mark only one)					
Currently in Use	X				
Temporarily Out of Use (Remember to fill out section X.)					
Permanently Out of Use (Remember to fill out section X.)					
Amendment of Information					
2. Date of Installation (mo./year)	1991				
3. Estimated Total Capacity (gallons)	12,000				
4. Material of Construction (Mark all that apply)					
Asphalt Coated or Bare Steel					
Cathodically Protected Steel					
Epoxy Coated Steel					
Composite (Steel with Fiberglass)					
Fiberglass Reinforced Plastic	X				
Lined Interior					
Double Walled	X				
Polyethylene Tank Jacket					
Concrete					
Excavation Liner					
Unknown					
Other, Please specify					
Has tank been repaired?					
5. Piping (Material) (Mark all that apply)					
Bare Steel					
Galvanized Steel					
Fiberglass Reinforced Plastic	X				
Copper					
Cathodically Protected					
Double Walled	X				
Secondary Containment					
Unknown					
Other, Please specify					
6. Piping (Type) (Mark all that apply)					
Suction: no valve at tank					
Suction: valve at tank					
Pressure	X				
Gravity Feed					
Has piping been repaired?					

Tank Identification Number	Tank No. 1	Tank No. ____	Tank No. ____	Tank No. ____	Tank No. ____
7. Substance Currently or Last Stored In Greatest Quantity by Volume					
Gasoline	X				
Diesel					
Gasohol					
Kerosene					
Heating Oil					
Used Oil					
Other, Please specify					
Hazardous Substance CERCLA name and/or, CAS number					
Mixture of Substances Please specify					
X. TANKS OUT OF USE, OR CHANGE IN SERVICE					
1. Closing of Tank					
A. Estimated date last used (mo./day/year)					
B. Estimate date tank closed (mo./day/year)					
C. Tank was removed from ground					
D. Tank was closed in ground					
E. Tank filled with inert material					
Describe					
F. Change in service					
2. Site Assessment Completed					
Evidence of a leak detected					

XI. CERTIFICATION OF COMPLIANCE (COMPLETE FOR ALL NEW AND UPGRADED TANKS AT THIS LOCATION)

Tank Identification Number	Tank No. 1	Tank No. ___	Tank No. ___	Tank No. ___	Tank No. ___
1. Installation					
A. Installer certified by tank and piping manufacturers					
B. Installer certified or licensed by the implementing agency					
C. Installation inspected by a registered engineer					
D. Installation inspected and approved by implementing agency					
E. Manufacturer's installation checklists have been completed					
F. Another method allowed by State agency. Please specify.					

2. Release Detection (Mark all that apply)	TANK	PIPING	TANK	PIPING	TANK	PIPING	TANK	PIPING	TANK	PIPING
A. Manual tank gauging										
B. Tank tightness testing										
C. Inventory controls										
D. Automatic tank gauging										
E. Vapor monitoring										
F. Groundwater monitoring										
G. Interstitial monitoring double walled tank/piping	X	X								
H. Interstitial monitoring/secondary containment		X								
I. Automatic line leak detectors		X								
J. Line tightness testing		X								
K. Other method allowed by Implementing Agency. Please specify.										

3. Spill and Overfill Protection					
A. Overfill device installed	yes				
B. Spill device installed	yes				

Above info field verified by AWL on 2.7.01

OATH: I certify the information concerning installation that is provided in section XI is true to the best of my belief and knowledge.

Installer: _____ Name _____ Signature _____ Date

_____ Position _____ Company

WV Certification Number _____

APPENDIX L – Emergency Spill Plan

Facility Address

Stonewall Resort
940 Resort Drive
Roanoke, WV 26447
Phone: 304-269-7400

Spill Prevention

The following are general requirements for any hazardous substances stored or used at this facility.

General Requirements

- Ensure all hazardous substances are properly labeled.
- Store, dispense, and/or use hazardous substances in a way that prevents releases.
- Provide secondary containment when storing hazardous substances in bulk quantities (>55 g).
- Maintain good housekeeping practices for all chemical materials at the facility.
- Routine/Daily checks in storage areas to be performed by department managers.

Monthly inspections of the hazardous substance storage area, secondary containment, and annular space (interior cavity of double wall tank) on any Above-ground Storage Tanks (AST) will be logged per this plan (see Appendix A - Inspection Log).

Spill Containment

The general spill response procedure at this facility is to stop the source of the spill, contain any spilled material and clean up the spill in a timely manner to prevent accidental injury or other damage.

Small spills will be contained by site personnel if they are able to do so without risking injury. Spill kits are located at the following locations (see attached site map).

Emergency Procedures

- Immediately call 911 in the event of injury, fire or potential fire, or spill of a hazardous substance that gives rise to an emergency situation.
- If a spill has occurred, contact the following persons immediately:

Name	Home Number	Mobile Number
Mike Hager, General Manager		304-880-6051
John Lappie, Dir. Of Property Ops/IT	304-269-0123	304-871-0442
Charlie Skinner, Asst. Dir. Of Facilities		304-439-5250

Emergency Procedures (cont.)

In the event of a large spill, a properly trained employee should:

- Assess the area for any immediate dangers to health or safety. If any dangers are present, move away from the area, call 911.
- Notify the primary and/or secondary contact from the list above and then continue your spill response. The primary contact will determine if there are additional notification requirements.
- Retrieve the spill kit from the closest location.
- Assess the size of the leak and any immediate threat of the spill reaching the floor/storm drains or permeable surfaces in the area. If there is an immediate threat and there are no safety concerns, then attempt to block the spill from coming in contact with the floor/storm drain or permeable surface. If no drain covers are available, then try to use absorbent (cat litter) and/or sock booms or rags to stop the spill from getting into the drains or to any permeable surfaces.
- If the spill can be contained with absorbent booms, deploy them around the spill. Use the booms to direct the spill away from any immediate hazards.
- If there is no immediate threat to the floor/storm drains or permeable surfaces, or after controlling the spill, try to plug or stop the leak, if possible. If applicable, put on protective gear (gloves, goggles, protective clothing, etc.) and plug the leak.

Plan Management

The primary contact or designee shall administer this plan and will be responsible for updating and including any required documentation.

Training

All personnel who may respond to any spill, need to be trained on the contents and procedures in this plan. Trained personnel will add their names and dates of training to the Training Log (see Appendix D). Only persons trained on this plan shall respond to a spill. If you are not trained and witness a spill, call or notify the primary and secondary contacts listed on Page 2 of this plan.

Spill Tracking

Any spills must be entered into the Spill Log (see Appendix C). If a large spill occurs, attach additional pages to describe the event. Include known or possible causes, areas affected, and effectiveness of the cleanup. Include a review of the cleanup contractor and their procedures. For small spills, it is sufficient to fill out the Spill Log, and to take measures to prevent a repeat occurrence.

Routine Inspections

Inspections will be conducted daily during regular business hours. Daily inspections will include, at a minimum, a visual inspection of the hazardous substances containers and the area immediately adjacent to it for signs of a spill or leak. These inspections do not need to be logged unless a spill or leak is detected. Ideally, these inspections will be conducted by a manager or by regular employees.

Full Site Inspections

Full site inspections will be conducted monthly by the primary contact or designee and, at a minimum, will include those items on the inspection form in Appendix B. If any item on the inspection form is found unacceptable, the inspection form will be attached to this plan. If all items are deemed acceptable; it is sufficient for the inspector to log only the inspection and the results in the Inspection Log (see Appendix A).

Spill Control Supply Locations

- **Engineering Office**
  15 – 16” square oil soak pads
  15 – 4’ long absorbent socks
  2 – 24 quart bags premium oil absorbent

- **Golf Maintenance Building**
  2 – 24 quart bags premium oil absorbent

Appendix A – Inspection Log

A = Acceptable U = Unacceptable If any items are unacceptable, fill out Inspection Form with details.

Date	Inspector Name	Area Inspected	Storm Drains	Evidence of Spills	Spill Kit Complete	Items Fixed

Appendix B – Inspection Form

Acceptable	Unacceptable	Item Inspected
☐	☐	Evidence of Spills? Is there any indication that a spill might have occurred? If so, was the spill properly cleaned up? Was there any spill kit materials used? Was the Spill Log filled out for that incident? Any housekeeping issues?
☐	☐	Spill Kit Complete? Have any items been used from the spill kit? If items are missing, is there an associated entry in the Spill Log? Are there any items missing that are currently on order? Is the spill kit stored where it is supposed to be stored? Is there a sufficient supply of daily cleanup materials?
☐	☐	Storm Drains? Is there a buildup of sediment in the drain traps? Is there any evidence of drain clogging?
☐	☐	Items Fixed? Have all deficiencies previously noted been fixed or made acceptable?
Note any issues, deficiencies or failures in detail:		

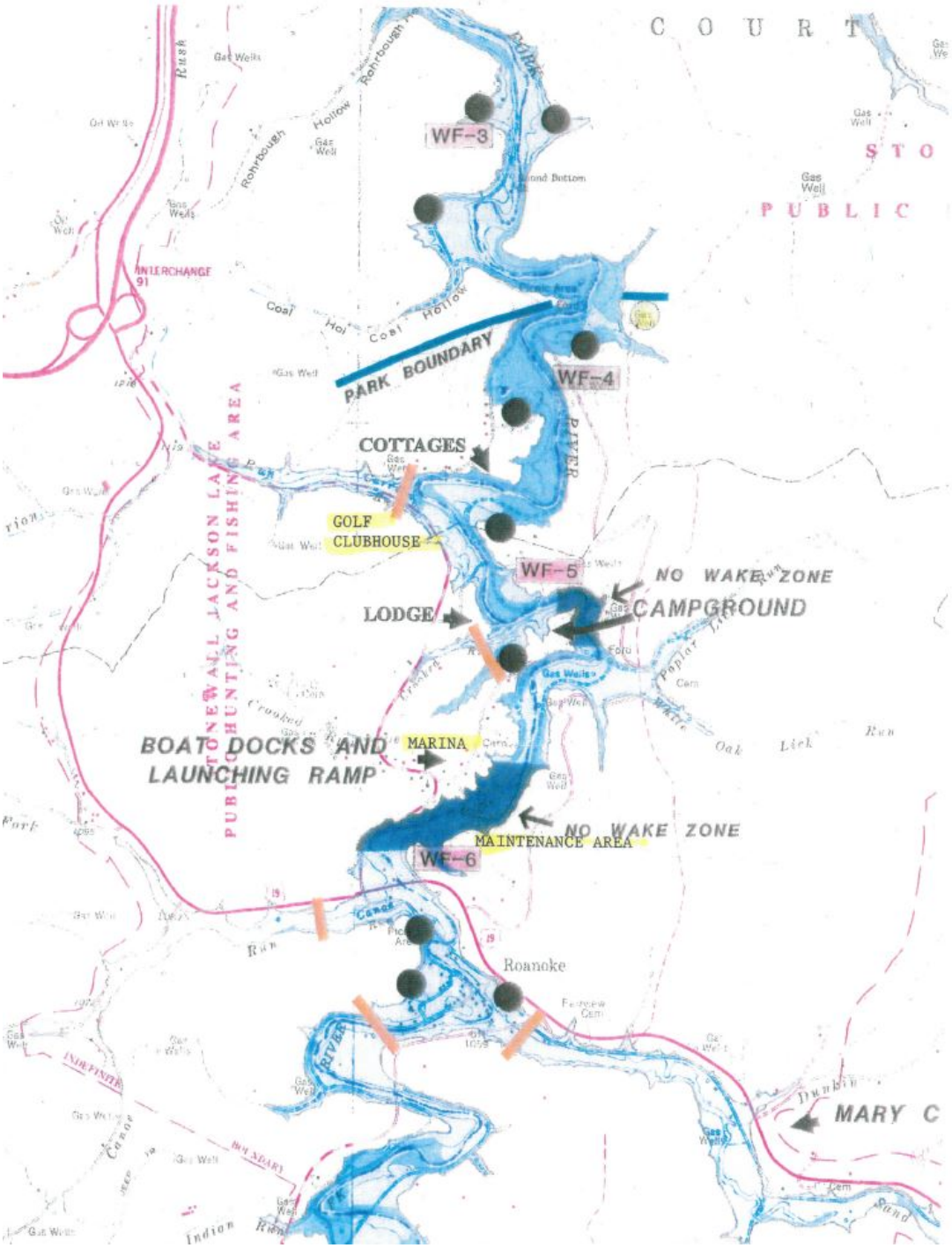
Appendix C – Spill Log

Date	Location	Approximate Size (gallons)	Material Leaked	Spill Kit Used?	Comments

Appendix D – Training Log

Date	Employee Name	Signature

Site Map
(storage tanks highlighted in yellow)



APPENDIX M – Distribution Mailing List

Distribution Mailing List

U.S. Fish and Wildlife Service
West Virginia Ecological Services Field Office
ATTN: Mr. Robert Fala
Director, Division of Natural Resources
694 Beverly Pike
Elkins, WV 26241-9475

Director
West Virginia Division of Environmental Protection
10 McJunkin Road
Nitro, WV 25143-2506

Frank Jezioro, Director
West Virginia Division of Natural Resources
P.O. Box 67
Elkins, WV 26241-0067

Susan M. Pierce
Deputy State Historic Preservation Officer
West Virginia Division of Culture & History
The Culture Center, Capitol Complex
1900 Kanawha Blvd E.
Charleston, WV 25305-0300

Julia Spelsberg
City of Weston, Mayor's Office
102 West Second St
Weston, WV 26452

Lewis County Commission
110 Center Ave, 2nd Floor
Weston, WV 26452

Station Commander
WV State Police, Troop 3, District 2
86 Glady Fork Rd
Weston, WV 26452

Robbie Clem, Chief
Weston Police Department
102 W 2nd St
Weston, WV 26452

Kenny James, Chief
Weston Fire Department
321 Center Avenue
Weston, WV 26452

Adam M. Gissy
Lewis County Sheriff
117 Court Ave
Weston, WV 26452

Lewis County Emergency Services Office
201 Orchard St
Weston, WV 26452

Director, Mountaineer Audubon Society
PO Box 422
Morgantown, WV 26507-0422

Absentee Shawnee Tribe of Oklahoma
Leonard Longhorn, THPO
2025 S Gordon Cooper
Shawnee, OK 74801

Eastern Shawnee Tribe of Oklahoma
Ms. Robin Dushane, THPO
12705 E. 705 Road
Wyandotte, OK 74370

Oneida Nation of Wisconsin
Corina Williams, THPO
PO Box 365
Oneida, WI 54155

Seneca Nation of Indians
Scott Abrams, THPO
90 Ohi:yo' Way
Salamanca, NY 14779

Seneca Cayuga Tribe of Oklahoma
Micco Emarthia, THPO
PO Box 45322
Grove, OK 74345-3022

Seneca-Cayuga Tribe of Oklahoma
Attn: Chief William Fisher
23701 South 655 Rd
Grove, OK 74344

Delaware Nation
Vice-President C.J. Watkins
P.O. Box 825
Anadarko, OK 73005

Shawnee Tribe
Chairperson Ron Sparkman
P.O. Box 189
Miami, OK 74355

Tuscarora Nation
Chiefs Council
1983 Upper Mountain Rd
Sanborn, NY 14132

Mr. Roger Hill, Chief
Tonawanda Seneca Nation
7027 Meadville Road
Basom, NY 14013

APPENDIX N – Works Cited

Works Cited

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