

Appendix B
WSSC T. Howard Duckett (Rocky Gorge) Reservoir
Horse Trail Reconnaissance Report

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Background

On June 4, 2012, staff from EA Engineering, Science and Technology, Inc. (EA), along with Chesapeake Environmental Management, Inc. (CEM), conducted a one-day reconnaissance level survey of the designated equestrian trails along the southern shore (Montgomery and Prince George's Counties) of the T. Howard Duckett (Rocky Gorge) Reservoir. Currently WSSC allows equestrian use of a portion of the WSSC access road that runs along the southern perimeter of the WSSC-owned buffer of the Rocky Gorge reservoir. The designated equestrian trail extends from Tucker Lane (approximately 3.9 miles downstream of Brighton Dam) to the Supplee Lane Access Area (approximately 0.9 miles upstream of Duckett Dam). The entire length of WSSC access road that is currently designated for equestrian use is approximately 10.1 miles long. Prior to enacting new Watershed Regulations in May 2011, WSSC allowed equestrian use of several different trails closer to the shoreline. Except as noted below, these previous equestrian trails were not surveyed on June 4, 2012; however, they were mapped by EA and CEM during the related work for evaluating other "interior trails" and their conditions.

The survey was conducted by vehicle and on foot. The survey area extended from the Tucker Lane access point eastward to the Supplee Lane Recreational Area located off Supplee Lane. The survey was conducted by 4-wheel drive vehicle in a few areas, but most areas were inaccessible by vehicle, and those areas were surveyed on foot, by hiking the trails. The reconnaissance-level survey utilized observation and personal experience to make a determination of the suitability of the designated equestrian trail for horseback riding. The survey was conducted in support of a broader effort being undertaken by WSSC to inventory existing trails and recreational use around both reservoirs, and to evaluate the potential for reducing water quality impacts to the reservoirs associated with trail use.

Methods

The reconnaissance level assessment of designated equestrian trail was conducted on June 4, 2012. The survey was conducted by a professional environmental scientist with over 40 years of horse riding experience. The survey was conducted by vehicle (where access allowed) and by foot. All trail sections surveyed were evaluated for their suitability for horseback riding, with consideration given to slope, footing, trail clearance, stream crossings, and other potential obstacles or hazards. Observations of trail condition were also made, and areas of extreme erosion or other notable trail conditions were photo-documented.

The survey used a rating scale of 0-5 to generally describe the condition of each trail section. The rating scale was developed by EA specifically for the purpose of assessing WSSC trail suitability for horse riding.

Rating	Description of Prevailing Conditions
5	Excellent horseback riding trail. Terrain flat or moderately rolling. Footing conditions firm and free from loose rocks, deep footing or other impediments. Stream crossings easy with gentle slopes, good footing and no obstacles.
4	Very good horseback riding trail. Terrain moderately rolling with some steeper areas. Footing mostly good, with some areas of loose rock or “deep” footing. Stream crossings moderately easy, with steeper banks, or some obstacles such as rocks, roots or ledges to navigate.
3	Moderate horseback riding trail. Terrain hilly, with several steeper areas to be negotiated. Footing variable, with a mix of good footing interspersed with areas of moderate to poor footing due to rocks, ledges, roots, or bogs. Moderate to difficult stream crossings with steep ascents, and rocky or deep footing. Some obstacles such as rocks, roots, ledges.
2	Poor horseback riding trial. Significant stretches of steep terrain. Footing poor with an abundance of loose rock, steps, downed trees or logs. Stream crossing difficult with very steep ascents, ledges or drops and rocky or deep footing. Serious obstacles at crossing such as large rocks/boulders, trees or logs, deep gullies or areas of erosion, concrete railroad ties.
1	Unsuitable or potentially unsafe riding trail. Significant stretches of very steep terrain. Very poor footing with significant amounts of loose rock, erosion, gullies, loose soil, deep bogs, downed trees. Stream crossings washed out or impassable.
0	Impassable riding trail. Potentially dangerous conditions over which a horse could not safely travel. Impassable conditions could be caused by extremely steep terrain, extremely poor footing, or impassable stream crossings or obstacles. Risk of injury to horse or rider is high.

The trail was assessment was conducted by vehicle in some areas, and in other areas by foot. Two sections of the trail were not evaluated during the initial reconnaissance due to limits on time and access. The designated equestrian trail was evaluated in sections corresponding to the existing designated equestrian access points as shown below.

Trail Section	Description	Approximate Length (miles)
Section 1	Tucker Lane Access to Ednor Road Access	1.2
Section 2	Ednor Road Access to Brogden Road Access	2.0
Section 3	Brogden Road Access to Batson Road Access	0.3
Section 4	Batson Road Access to Kruhm Road Access	1.3
Section 5	Kruhm Road Access to Burtons Lane Access	3.7
Section 6	Burtons Lane Access to Supplee Lane Recreation Area	1.6
Total		10.1

The reconnaissance-level survey also considered the suitability of the equestrian designated access points, including an assessment of parking for typical horse trailer rigs. For purposes of this assessment a standard trailer rig was considered to be a full-size pickup truck or SUV and standard, bumper-pull, 2-horse trailer.

Observations

Section 1 – Tucker Lane Access to Ednor Road Access (approximately 1.2 miles)

Section 1 of the trail can be accessed via either Tucker Lane or Ednor Road (Map 1). Designated recreational access parking along Tucker Lane is unmarked roadside parking along a curve in a narrow road with a guardrail on one side (Photo 1). This roadside parking area is not suitable for horse trailers due to the narrowness of the road, and would be unsafe for loading and unloading horses. Designated recreational access parking along Ednor Road is a marked gravel parking area (Photo 2). The area is large enough to accommodate two (2) trailer rigs. The parking lot is level and graveled which provide safe loading and unloading conditions for horses. The parking area is large enough to turn a trailer rig around to safely re-enter Ednor Road.

Section 1 was given an overall trail rating of 1. This trail section is characterized by steep terrain, with several significant stretches of very steep terrain where the access road goes straight up and down the hillsides, and stormwater runoff has created substantial areas of serious erosion, gullies and washouts. The footing in these areas is primarily loose boulder to cobble-size rock, interspersed with areas of crumbling subsoil and bedrock. One particularly steep section of the trail was given a rating of 0 and deemed impassable on horseback in its current condition, due to the extremely steep terrain (maximum slope >45 degrees), and rocky, eroding footing (Photo 3).

There are two stream crossings along this trail section, one of the stream crossings was rated 2, and was deemed passable, but difficult due to stream erosion, steep banks and rocky footing. The other stream crossing was rated 1 and was observed to be difficult to cross on horseback due to stream bank erosion, a partial wash-out of concrete railroad ties, steep banks, and several large boulders (Photo 4).

There appeared to be private equestrian access to this section of the trail from one or two side trails leading in from an area of private residences off Patuxent Drive. However, private access points along this section were not confirmed, and there was no direct evidence of horse use along these private access trails. There was no direct evidence of horse use observed anywhere along Section 1.

Section 2 - Ednor Road Access to Brogden Road Access (approximately 2.0 miles)

Section 2 of the trail can be accessed by either Ednor Road or Brogden Road (Map 1). Parking for this section is available at the Ednor Road access point and the Brogden Road access point. Parking along Ednor Road is as described above, on the west side of Ednor Road. Thus, equestrians wishing to access Section 2 from Ednor Road would be required to cross the road to gain access to the trail. Ednor Road is a moderately used road, and the road crossing at this location is suitable for horses. However, there are no road signs indicating an equestrian crossing at this location. Parking on the east side of Ednor Road is also available, but is not suitable for horse trailers, due to the small size of the parking area. Parking at the Brogden Road access point is available in the form of a small, circular, gravel parking lot in a residential area at the end of Brogden Road (Photo 5). The parking area is large enough to accommodate 2 trailer rigs. The parking lot is level and graveled which provides safe loading/unloading conditions. The parking area is large enough to turn a trailer rig around to safely re-enter Brogden Road.

Section 2 was given an overall trail rating of 2. This rating was based on limited access to this stretch of trail from both the Ednor Road and Brogden Road access points. From the Ednor Road side, the trail quickly climbs a very steep hill, where steep terrain, combined with erosion and poor footing conditions make the trail very difficult to travel on horseback (Photo 6). From the Brogden Road access, the trail section is characterized by moderately steep terrain, with several significant stretches of very steep terrain where runoff has created significant areas of erosion, gullies and washouts. The footing in these areas is primarily loose cobble-size rock, interspersed with areas of crumbling subsoil and bedrock (Photo 7). No stream crossings were encountered in the stretch of Section 2 that was assessed on June 4, 2012.

There appeared to be evidence of private equestrian access to the Ednor Road end of this section of the trail from a farm located off Link Road. This same farm has an active horse barn on private property immediately adjacent to the WSSC buffer along this section of the trail (Photo 8). There was no direct evidence of horse use observed along Section 2.

Section 3 - Brogden Road Access to Batson Road Access (approximately 0.3 miles)

Section 3 of the trail can be accessed via either Brogden Road or Batson Road (Map 1). Parking for this section is available at either the Brogden Road access point or at Batson Road. Parking

along Brogden Road is as described above. Parking at the Batson Road access point is available in a residential area at the end of Batson Road, and is not suitable for horse trailers (Photo 9). There is no designated parking lot at this location, and it would be difficult to get a trailer rig turned around. Also, there is no suitable area for loading or unloading horses and a large amount of litter was observed (Photo 9).

Section 3 was given an overall trail rating of 3. The terrain along this short section of the trail is moderate, with a few areas of moderately steep terrain, with reasonable footing (Photo 10). There were a few areas of rocky footing, but nothing that would be an impediment to horses. No serious obstacles or stream crossings were encountered along this trail section.

There was no evidence of private equestrian access to this section of the trail. There was no direct evidence of horse use along Section 3 observed on June 4, 2012.

Section 4 - Batson Road Access to Kruhm Road Access (approximately 1.3 miles)

Access to this section is available at both the Batson Road and Kruhm Road access points (Map 1). As described above, there is no suitable parking for horse trailers at the Batson Road access, but there is suitable parking at the nearby Brogden Road access. Parking at the Kruhm Road access is roadside parking along Kruhm Road, just outside a gated private property at the terminal end of Kruhm Road (Photo 11). Roadside parking in this area is flat and safe from a traffic perspective, but there is no place to turn around a trailer rig, and therefore is not suitable for horse trailers.

Section 4 was given an overall trail rating of 3. The terrain along this section of the trail is moderate, with a few areas of moderately steep terrain, with reasonable footing. There was one steep section encountered where access road erosion has created some gullies, making footing on relatively steep terrain difficult (Photo 12). This section was rated 2. There was also a stream crossing comprised of concrete railroad ties. The ties had algae growing on them creating slippery conditions for horses, and one of the ties was damaged and had exposed iron rebar that could catch a horse's shoe causing loss of shoe or possible hoof damage or leg injury (Photo 13). This stream crossing was rated 2. No other serious obstacles or stream crossings were encountered along this trail section. Evidence of recent horse use was observed along this section.

There was no evidence of private equestrian access to this section of the trail from side trails, however not all side trails could be investigated during the one-day survey. There was evidence of access to this trail section by horses from the designated Kruhm Road access area that is located in an area of horse farms adjoining Kruhm Road. There was also considerable evidence of recent equestrian use of this section of the designated trail, as well as along one unauthorized side trail that was investigated for a short distance.

Section 5 – Kruhm Road Access to Burtons Lane Access (approximately 3.7 miles)

Access for this section is available at both the Kruhm Road and Burton Lane Access points (Map 1). Parking along Kruhm Road is as described above and is not suitable for horse trailers. There

is no designated parking area at the Burton Lane access. Burtons Lane ends at a private residence, and roadside parking is very limited due to the narrow residential road. In addition, property on both sides of the road is marked “no trespassing” (Photo 14). Even if roadside parking was available at this location, the location is not suitable for horse trailers as there is nowhere to turn around a trailer rig.

Section 5 was not surveyed in its entirety due to limitations of access and time. A portion of the trail was walked from both the Kruhm Road access and the Burtons Lane access. Based on limited observation, this trail section was given an overall rating of 3. The terrain along this section of the trail appears to be mostly moderate, with a few areas of moderately steep terrain, with reasonable footing. There were a few areas of rocky footing encountered, but nothing that would be an impediment to horses. No serious obstacles or stream crossings were encountered along the portion of this trail section that was observed on June 4, 2012.

There was no evidence of equestrian accessing this trail section from the Burtons Lane access area. However, as noted above, there is evidence of significant horse use of the Kruhm Road access area.

Section 6 – Burtons Lane Access to Supplee Lane Access (approximately 1.6 miles)

Access for this section is available at both the Burtons Lane access and Supplee Lane access points (Map 1). As noted above, there is no designated parking along Burtons Lane, and the roadside parking that is available is not suitable for horse trailers. There is a large recreational parking lot at the Supplee Lane access area (Photo 15). The parking lot is paved and is designed to accommodate cars. No area of the parking lot is designated for horse trailer rigs or equestrian use, but the parking lot is large enough to accommodate an estimated 4-6 trailer rigs. Paved parking is not the most suitable for loading and unloading horses, as pavement can be slippery. However, the Supplee Lane parking area is relatively flat and could be used for horse trailers.

Section 6 was surveyed in its entirety by foot and was given an overall rating of 3. The terrain along this section of the trail is mostly moderate, with a few areas of moderately steep terrain, but with reasonable footing. There were a few areas of rocky footing encountered, but with one exception, nothing that would be an impediment to horses. One particularly steep section of the trail was given a rating of 1 and deemed unsuitable for horseback riding in its current condition due to the steep terrain, rocky and unstable footing, serious erosion and deep gullies (Photo 16). There are no stream crossings on this section of the access road, as all streams are directed through culverts under the access road.

There are several horse farms that abut this section of the WSSC buffer and access road, and there appeared to be private equestrian access to this section of the trail at several locations. There was also considerable evidence of recent equestrian use of this section of the designated trail that can be accessed directly near the Supplee Lane Recreation Area, or indirectly via a number of unauthorized side trails that connect to an old horse trail called “Terry Ledley’s Equestrian Trail”. There was no direct evidence of horse use along these side trails observed on June 4, 2012.

One active horse barn on private property immediately adjacent to the WSSC buffer was observed along this section of the trail with a substantial manure pile almost directly adjoining the WSSC property boundary (Photo 17).

Supplemental: Section of Terry Ledley Equestrian Trail between Supplee Lane and Burtons Lane (*approximately 3.5 miles*)

Although not included in the scope of work from WSSC, a section of the old interior horse trail that local equestrians call the Terry Ledley Equestrian Trail, located between the Supplee Lane and Burtons Lane (Map 1) access area, was also evaluated. This trail is no longer authorized by WSSC for public use, including horseback riding.

Access to the Terry Ledley Equestrian Trail is provided at the Supplee Lane Recreation Area. The suitability for horse trailer parking available at this area is described above. This trail is also accessible from the designated access road equestrian trail, which could also be accessed from the Burtons Lane access point. The trail begins off of the designated access road equestrian trail on the west side of the transmission line crossing near the Supplee Lane access point. The trailhead is marked with a sign designating it as “Terry Ledley’s Equestrian Trail” (Photo 18).

A significant portion of the marked (orange blaze marks) trail was walked on foot on June 4, 2012, and this trail section was given an overall rating of 5. The trail was found to be in excellent condition for use by horses. The terrain was mostly flat to gently undulating. The footing was firm and generally free from rocks, loose footing or deep footing. Two stream crossings were encountered. Both stream crossings were gradual bank descents into a shallow stream (Photo 19). The footing was good at both crossing, comprised primarily of sand, gravel and some cobble. There was little evidence of erosion at either of the stream crossings. The trail travels generally westward between the designated access road equestrian trail and the reservoir. The reservoir was visible in some locations, and in three locations the trail approached to within 100 feet of the reservoir (Photo 20). Side trails off the orange blaze marked trail led to the reservoir shoreline in several locations, but no evidence of equestrian use of the side trails was observed. There was little or no erosion observed along any portion of the trail. Considerable evidence of recent equestrian use of the trail was observed on June 4, 2012.

The Terry Ledley Equestrian Trail is accessed by the designated equestrian trail directly, or via unauthorized side trails that connect to the designated equestrian trail in several locations shown in Map 1.

Maps

Map 1 – Designated and unauthorized equestrian trails located within the WSSC-owned Rocky Gorge Reservoir that were surveyed on 4 June 2012.

Photos

Photo 1 – Tucker Lane roadside parking.

Photo 2 – Ednor Road west side parking.

Photo 3 – Section 1 extremely steep hill (maximum slope >45 degrees) that is impassable on horseback

Photo 4 – Section 1 stream crossing with washed out railroad ties

Photo 5 – Brogden Road parking

Photo 6 – Section 2 steep hill near Ednor Road

Photo 7 - Section 2 typical steep hill with erosion and rock footing

Photo 8 – Section 2 horse farm – near Ednor Road

Photo 9 – Batson Road parking

Photo 10 – Section 3 moderate hill trail with some erosion

Photo 11 – Kruhm Road parking

Photo 12 – Section 4 steep hill with some erosion and gullies

Photo 13 – Section 4 stream crossing with railroad ties/rebar

Photo 14 – Burtons Lane parking

Photo 15 – Supplee Lane Recreation Area parking

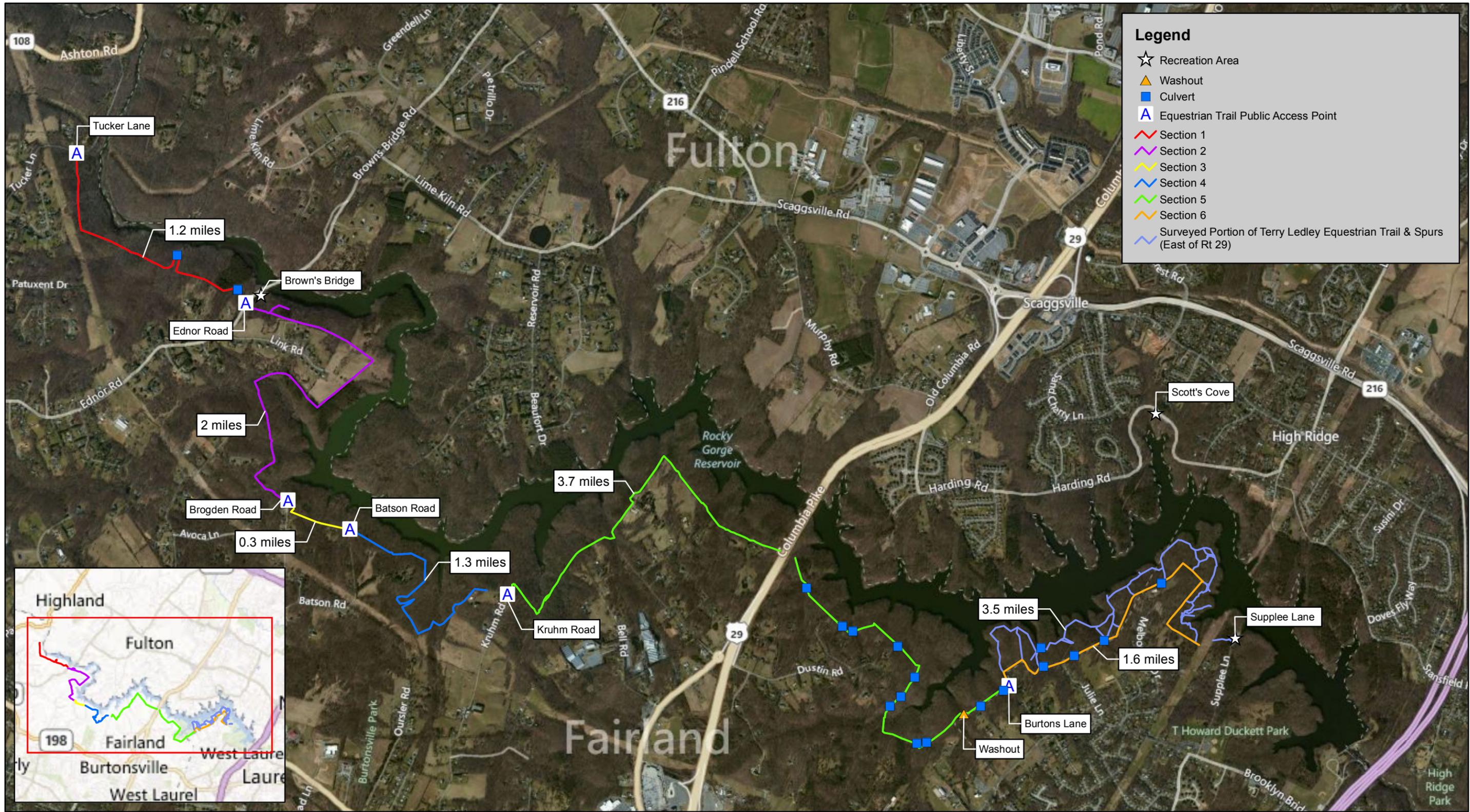
Photo 16 – Section 6 steep hill with deep erosion/gully

Photo 17 – Section 6 horse farm with manure pile

Photo 18 – Terry Ledley Equestrian Trail sign

Photo 19 – Terry Ledley Equestrian Trail stream crossing

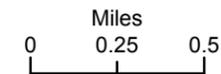
Photo 20 – Terry Ledley Equestrian Trail reservoir from closest trail point



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Map 1. Designated and unauthorized equestrian trails located within the WSSC-owned Rocky Gorge Reservoir that were surveyed on 4 June 2012



Data Sources:
WSSC
Aerial Imagery (c) 2010 Microsoft Corporation

Horse Trail Reconnaissance Report Photographs



Photo 1: Tucker Lane roadside parking.

Horse Trail Reconnaissance Report Photographs

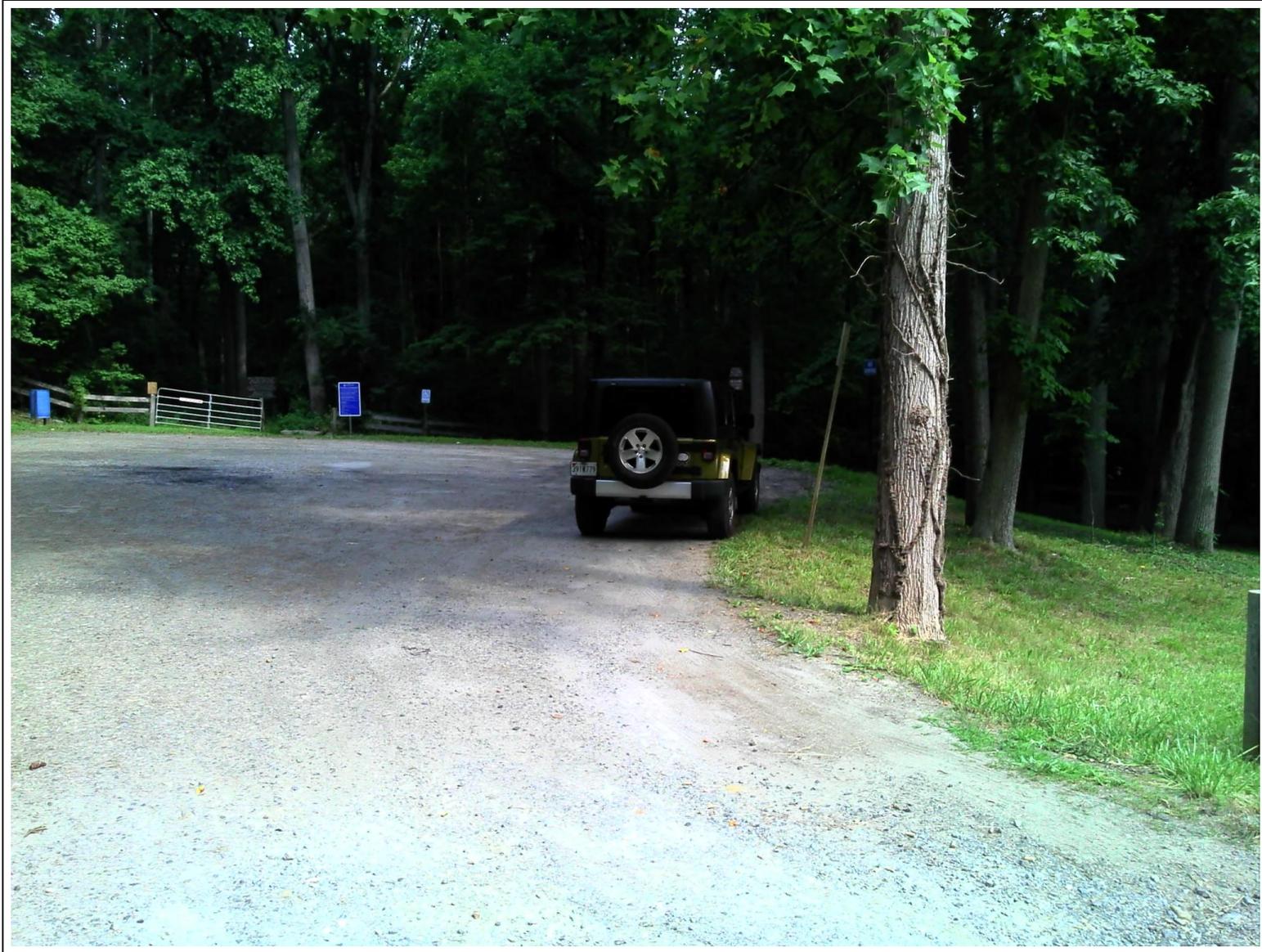


Photo 2: Ednor Road west side parking.

Horse Trail Reconnaissance Report Photographs



Photo 3: Section 1 extremely steep hill (maximum slope >45 degrees) that is impassable on horseback

Horse Trail Reconnaissance Report Photographs



Photo 4: Section 1 stream crossing with washed out railroad ties

Horse Trail Reconnaissance Report Photographs

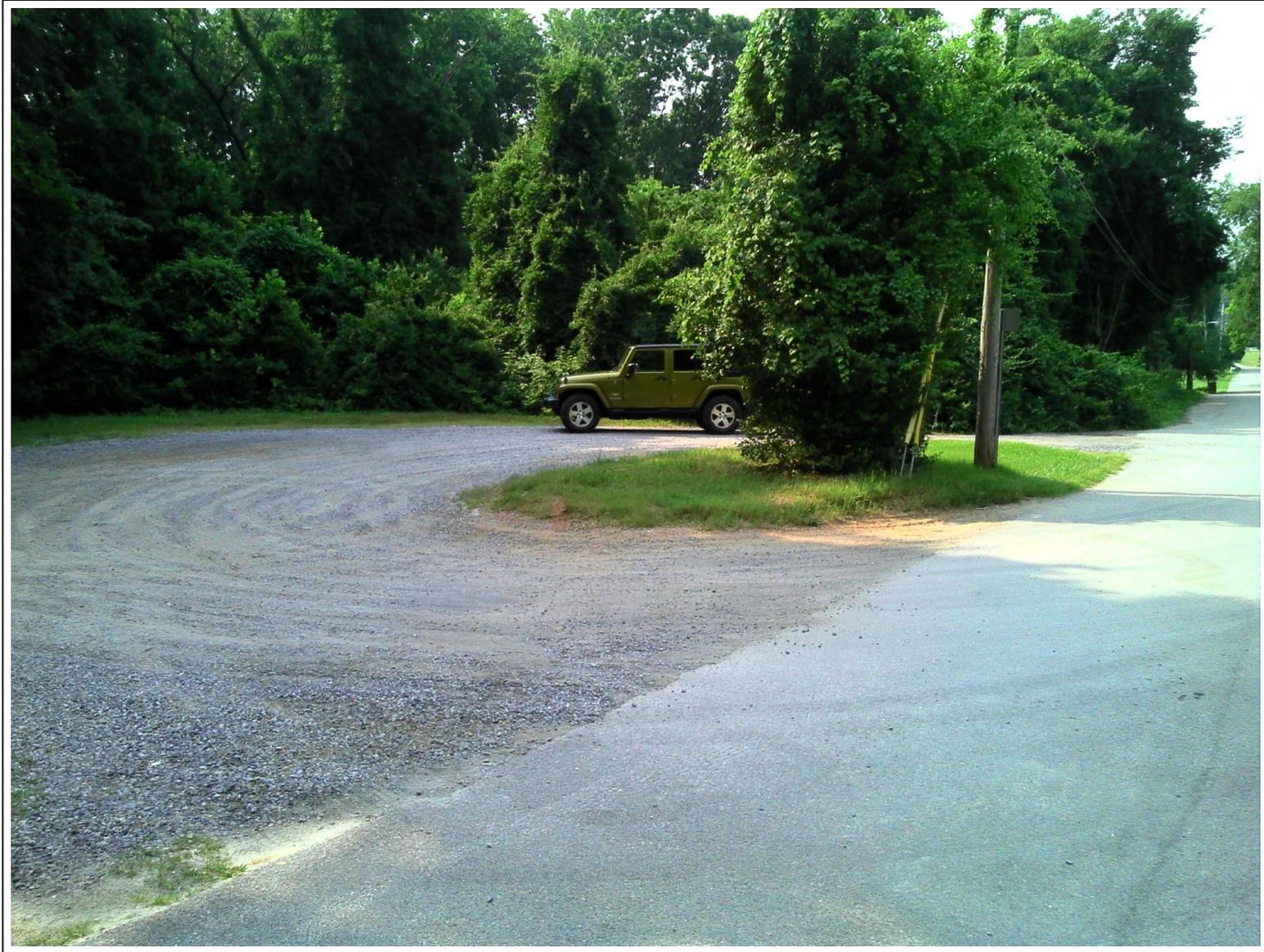


Photo 5: Brogden Road parking.

Horse Trail Reconnaissance Report Photographs



Photo 6: Section 2 steep hill near Ednor Road.

Horse Trail Reconnaissance Report Photographs



Photo 7: Section 2 typical steep hill with erosion and rock footing.

Horse Trail Reconnaissance Report Photographs



Photo 8: Section 2 horse farm – near Ednor Road.

Horse Trail Reconnaissance Report Photographs



Photo 9: Batson Road parking.

Horse Trail Reconnaissance Report Photographs



Photo 10: Section 3 moderate hill trail with some erosion.

Horse Trail Reconnaissance Report Photographs



Photo 11: Kruhm Road parking.

Horse Trail Reconnaissance Report Photographs



Photo 12: Section 4 steep hill with some erosion and gullies.

Horse Trail Reconnaissance Report Photographs



Photo 13: Section 4 stream crossing with railroad ties/rebar.

Horse Trail Reconnaissance Report Photographs



Photo 14: Burtons Lane parking.

Horse Trail Reconnaissance Report Photographs

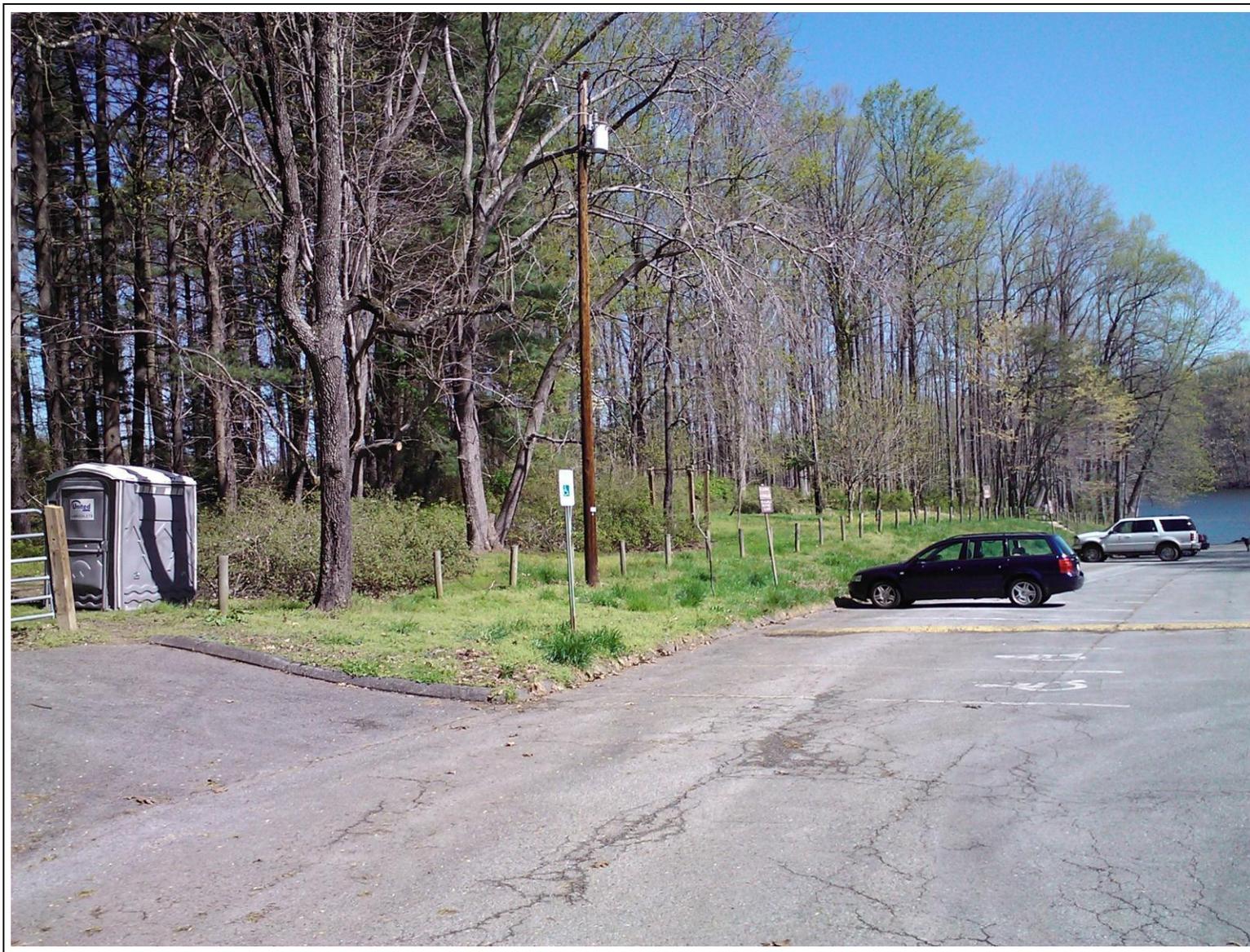


Photo 15: Supplee Lane Recreation Area parking.

Horse Trail Reconnaissance Report Photographs



Photo 16: Section 6 steep hill with deep erosion/gully.

Horse Trail Reconnaissance Report Photographs



Photo 17: Section 6 horse farm with manure pile.

Horse Trail Reconnaissance Report Photographs



Photo 18: Terry Ledley Equestrian Trail sign.

Horse Trail Reconnaissance Report Photographs



Photo 19: Terry Ledley Equestrian Trail stream crossing.

Horse Trail Reconnaissance Report Photographs



Photo 20: Terry Ledley Equestrian Trail reservoir from closest trail point.