# INSTRUCTIONS FOR COMPLETING THIS FORMAL INSPECTION CHECKLIST

1. **Complete all items that are applicable; if not applicable, write in "N/A".**

2. Use the next page to determine ratings of each dam component.

3. Please either type or write legibly and concisely.

4. The inspection personnel shall review the "Guidelines for Inspection of Dams" available on the MDEQ website prior to conducting the inspection. Failure to comply with the requirements of this guideline may result in the inspection being rejected by MDEQ.

5. If the ratings of the components of the dam have changed since the last inspection, please explain the change in condition under the appropriate section. If a rating has improved, dam repairs, improvements, analyses, or maintenance must have been performed and documented.

6. The inspection report including this form shall be submitted to MDEQ including pictures in an appendix section.

7. Please sign and date this page in the space below to verify that you have read and understand these instructions.

Inspector's Signature: Billy Eaton Date: 7/19/2019

# Formal Inspection Checklist

## (For Engineers)

**DAM NAME: MULTIP MANOR LAKE DAM**

**DAM INVENTORY NO: MS02896**

**OWNER:**

Land Owners Name (Per Deed): Wilson Family Trust
Sidney Mark Wilson and Susan Wilson

Address: 2403 Wells Road
Raymond, MS 39

Phone #: ( 601) 573-4535

Email: bcrockernot.@gmail.com

Primary Contact Person (if different from above):

Address:

Phone #:

Email:

**OPERATOR (if different from Owner):**

Name:

Address:

Phone #:

Email:

**DATE(S) OF INSPECTION:**

**June 27, 2019**

## INSPECTION PERSONNEL (include contact information)

**Mississippi Licensed Professional Engineer(s):**

| Name | Affiliation | Area of Expertise |
|---|---|---|
| **B**illy E. Colson | Aqua Engineering Services, Ltd. | H & H |

MULTIDISCIPINARY: I am experienced in the technical disciplines or I am working with other professionals experienced in the technical disciplines to properly inspect this dam and appurtenant works. Technical disciplines, in additional to the general civil engineering, may include geotechnical, geological, hydrologic, structural, and mechanical.

X☐ Yes ☐ No Comment:

**Other technical expert(s) and advisors(s):**

| Name | Affiliation | Area of Expertise |
|---|---|---|

**State Representative(s):**

| Name | Affiliation |
|---|---|

**Dam Owner Representative(s):**

| Name | Affiliation |
|---|---|

**Others:**

| Name | Affiliation |
|---|---|

## GENERAL INFORMATION

Weather Conditions (including rainfall within previous 14 days):
Hot, humid, 1 inch in previous 14 days

County:

Stream Name: Unnamed

Tributary of: Smith Creek

Latitude (N): 32.27838

Longitude (W): 90.35430

Purpose of Dam: Recreation

Hazard Classification: High

Drainage Area (sq. mi.): 0.11 (70 ac.)

Height of Dam (ft): 7

Length (ft): 480

Normal Surface (ac): 10.2

Normal Capacity (ac-ft): 20.4

Maximum Surface (ac): 15

Maximum Capacity (ac-ft): 58

Normal Reservoir Elevation (ft): 271.8

Reservoir Elevation at time of inspection (ft): 271+

**SPILLWAY SYSTEM**

Type of spillway (riser and conduit, concrete chute, vegetated earthen, etc.)

Principal: 24-inch diameter HDPE pipe through left abutment

Auxiliary (Emergency): Gravel drive way in left abutment

Principal Spillway Capacity (inches/24 hours & storm distribution): 9.4 in/24 hrs Type 3

Auxiliary (Emergency) Spillway Capacity (inches/24 hours & storm distribution): 10.7 in/24 hrs PMP

**Note:** If you do not understand what is meant by the above questions please engage the services of a professional who can assist you. These questions are not meant to capture the spillway capacity in cfs, as this data is irrelevant in determining the dams overall ability to pass the extreme precipitation event (% of the PMP) as required by the Regulations. If there are more than two spillways, please add an additional item. **A formal inspection will not be approved by the Dam Safety Division unless this section is completed.**

Are the spillway(s) adequate for this classification of dam (see the dam safety regulations 11 Miss. Admin. Code Pt. 7, Ch. 3 for definition of Probable Maximum Precipitation – PMP – and what amount of PMP must be handled by the different spillways)?

| | | | | |
|---|---|---|---|---|
| Principal: | Yes | X☐ | No | ☐ |
| Auxiliary(Emergency): | Yes | ☐ | No | X☐ |

If not, what percent of the total PMP will the combined spillways pass (%)? 24 %

Or, note date and author of hydrologic and hydraulic report evaluating spillway capacity:

Major changes to the dam or watershed since preparation of last report that may affect spillway adequacy? (Yes / No, if yes then describe changes): n.a. (Initial inspection)

## HISTORY

Date Constructed: Circa 1961+

Date(s) Reconstructed: 5-7 years ago

Designer: Unknown

Constructed by: Unknown

**PREVIOUS INSPECTIONS** (date of)

Last Owner's Inspection: Unknown

Last Formal Inspection: None

**EMERGENCY ACTION PLAN**

Date of Last Approved Plan (when the plan was last distributed to the EAP holders): None

Date of Last Revision: n.a.

Is the notification flowchart complete and current? n.a.

Is the emergency materials and equipment information current? n.a.

When was the plan last tested? Was this test a table top exercise or a full scale exercise? n.a.

## DOWNSTREAM HAZARD CLASSIFICATIONS

Present Hazard Classification: High

Changes in Downstream Land Use and Habitation since last inspection: n.a.

Is present Classification appropriate? To be determined

## OPERATION AND MAINTENANCE

Date of Operation and Maintenance Plan: None

Are instructions adequate? N.a.

Do operating personnel follow instructions? N.a.

What are operating personnel capabilities? N.a.

## PROJECT RECORD REVIEW

Date of file review: None

Description of previous deficiencies noted and corrective actions taken (if so, when?):

# EXAMINATION OF EMBANKMENT DAMS

## DESCRIPTION OF STRUCTURE

Embankment Material: Earthen dam with abandoned asphalt driveway on top

Cutoff Type (If Known): unknown

Impervious Core (If Known): unknown

Internal Drainage System (Yes / No?) If yes, describe: no

Any Signs of Movement (Horizontal and Vertical Alignment)?: no

Miscellaneous:

## CREST

Width of Crest: 12 feet

Problems:
☐ None ☐ Ruts or Puddles ☒ Erosion ☒ Cracks with Displacement ☒ Sinkholes ☐ Not Wide Enough ☐ Low Area ☐ Misalignment ☐ Inadequate Surface Drainage ☒ Trees, Brush, Briars ☐ Other:

If Trees, Brush, Briars is checked above please describe the nature and extent of vegetation on the dam? Trees and brush growing along upstream and downstream face of dam.

Comments:

The asphalt surface is broken in numerous locations with sink holes and cracks along the top of dam.

Overall Condition:
☐ Satisfactory
☐ Fair
☒ Poor
☐ Unsatisfactory

## UPSTREAM SLOPE

Slope (H:V): 2:1

Problems:

☐ None ☒ Riprap - Missing, Sparse, Displaced, Weathered ☒ Wave Erosion-with Scarps

☐ Cracks-with Displacement ☐ Sinkhole ☐ Appears Too Steep ☐ Depressions or Bulges

☐ Slides ☐ Animal Burrows ☒ Trees, Brush, Briars

☐ Other:

If Trees, Brush, Briars is checked above please describe the nature and extent of vegetation on the dam?

Trees and brush growing along upstream face of dam.

Comments:

Wave erosion and brush along face of dam,

Overall Condition:
☐ Satisfactory
☐ Fair
☒ Poor
☐ Unsatisfactory

## DOWNSTREAM SLOPE (including groins and toe area)

Slope (H:V): 4:1

Problems:

☐ None ☐ Livestock Damage ☐ Erosion or Gullies ☐ Cracks with Displacement

☐ Sinkholes ☐ Appears too Steep ☐ Depression or Bulges ☐ Slide(s) ☐ Soft Areas

☒ Trees, Brush, Briars on dam or within 50 feet of toe ☐ Animal Burrows

☐ Other:

If Trees, Brush, Briars is checked above please describe the nature and extent of vegetation on the dam?

Trees and brush along most of back slope. No signs of seepage.

Comments:

Overall Condition:
☐ Satisfactory
☐ Fair
☐ Poor
☒ Unsatisfactory

## UTILITIES

Utilities Installed in Embankment or Toe?

☐ Phone/Cable ☐ Water ☐ Electrical ☐ Sewer ☐ Gas

None

Does the location of all utilities appear on the as-built plans for the dam? .n.a.

## SEEPAGE

Problems:
☒ None ☐ Saturated Embankment Area ☐ Seepage Exits on Embankment ☐ Seepage Exits at Point Source ☐ Seepage Area at Toe ☐ Flow Adjacent to Outlet
☐ Other:

Comments:

Overall Condition:
☒ Satisfactory (None)
☐ Fair
☐ Poor
☐ Unsatisfactory

Does the location of all drainage systems/filters appear on the as-built plans for the dam? n.a.

## SEEPAGE AND TOE DRAIN/RELIEF WELL FLOW

| Location | Estimated Flow | Color (Turbidity) |
|---|---|---|

## EXAMINATION OF SPILLWAYS AND OUTLET WORKS

# PRIMARY SPILLWAY

**(Fill out those sections that apply)**

## ENTRANCE CHANNEL

Description: n.a.

Vegetation (Trees, Bushes):

Debris:

Channel Side-Slope Stability:

Slope Protection/Erosion:
Grass

Unusual Conditions:

Overall Condition:
☐ Satisfactory
☐ Fair
☐ Poor
☐ Unsatisfactory

## SPILLWAY CREST

Description: Controled by Invert (271.8ft) of 24-inch diameter HDPE pipe

Condition of Material: Good

Signs of Movement: none

Joints: none

Unusual Conditions:

Overall Condition

X☐ Satisfactory
☐ Fair
☐ Poor
☐ Unsatisfactory

## CHUTES

Description: N.A.

Condition of Material: N.A.

Signs of Movement: N.A.

Joints: N.A.

Unusual Conditions: N.A.

Overall Condition:
☐ Satisfactory
☐ Fair
☐ Poor
☐ Unsatisfactory

## SPILLWAY WING WALLS

Description: N.A

Condition of Material:

Signs of Movement:

Joints:

Drains:

Unusual Conditions:

Overall Condition:
☐ Satisfactory
☐ Fair
☐ Poor
☐ Unsatisfactory

## DOWNSTREAM APRON

Description: N.A.

Condition of Material: N.A.

Signs of Movement: N.A.

Unusual Conditions: N.A.

Overall Condition:
☐ Satisfactory
☐ Fair
☐ Poor
☐ Unsatisfactory

## INLET RISER

Description and Material Type (i.e. HDPE, Concrete, Steel, CMP, etc.): N.A.

Condition of Material: N.A.

Signs of Movement: N.A.

Joints: N.A.

Floor: N.A.

Unusual Conditions:

Overall Condition:
☐ Satisfactory
☐ Fair
☐ Poor
☐ Unsatisfactory

## CONDUIT(S)

Description and Material Type (i.e. HDPE, Concrete, Steel, CMP, etc.):

24-inch diameter HDPE pipe through left abutment that serves as PSW

When was the last video inspection of the conduit? None

Condition of Material: Good

Signs of Movement: none

Joints: None

Seepage into conduit(s): None

| Location | Estimated Flow | Turbidity |
|---|---|---|

Unusual Conditions:

Overall Condition:
☒ Satisfactory
☐ Fair
☐ Poor
☐ Unsatisfactory

## TRASH RACKS

Description: None

Condition of Material: n.a.

Unusual Conditions:

Overall Condition:
☐ Satisfactory
☐ Fair
☐ Poor
☐ Unsatisfactory

## GATES

Description/Type:  None

Condition: n.a.

Protective Coating: n.a.

Leakage when gate is closed (Yes / No?): n.a.

Exercising Frequency: n.a.

Gates operated at time of Inspection? n.a.

Condition of seals: n.a.

Condition of gate controls and hoists: n.a.

Overall Condition:
☐ Satisfactory
☐ Fair
☐ Poor
☐ Unsatisfactory

## STILLING BASIN

Description: Open channel downstream of PSW

Condition of Material: Stable

Signs of Movement: none

Erosion: none

Unusual Conditions:

Overall Condition:
☒ Satisfactory
☐ Fair
☐ Poor
☐ Unsatisfactory

## OUTLET CHANNEL

Vegetation (Trees, Bushes): Channel clear with trees and brush along each bank.

Debris: none

Channel Side-Slope Stability: Stable

Erosion: none

Unusual Conditions:

Overall Condition:
☒ Satisfactory
☐ Fair
☐ Poor
☐ Unsatisfactory

## LOW LEVEL OUTLET

Description: n.a.

Condition: n.a.

Trash Rack: n.a.

Leakage: n.a.

Location Estimated Flow

Unusual Conditions: n.a.

Was the low-level outlet operated during the inspection? n.a.

Were there difficulties operating the low-level outlet? n.a.

When was the low-level outlet last operated and did this conform with the Operation and Maintenance Procedures?

Overall Condition: n.a.
☐ Satisfactory
☐ Fair
☐ Poor
☐ Unsatisfactory

## VALVES

Description: None

General Condition: n.a.

Protective Coating: n.a.

Evidence of Cavitation or Abrasion: n.a.

Leakage (Yes / No?): n.a.

Frequency of Use: n.a.

Valve operated during inspection (Yes / No?): n.a.

Overall Condition:
☐ Satisfactory
☐ Fair
☐ Poor
☐ Unsatisfactory

# AUXILIARY (EMERGENCY) SPILLWAY

Note: For Earthen Spillways Only. If the auxiliary (emergency) spillway is not earthen please duplicate the above sections for the primary spillway here as needed. If there are more than one earthen and/or other spillway besides the primary please duplicate the appropriate sections in this report.

Description: Gravel driveway in left abutment

Vegetation (Trees, Bushes):
Trees and brush along downstream side of gravel driveway

Debris: None noted.

Channel Side-Slope Stability: Stable

Slope Protection/Erosion: Gravel

Unusual Conditions:

Overall Condition:
☐ Satisfactory
X☐ Fair
☐ Poor
☐ Unsatisfactory

## EXAMINATION OF OTHER FEATURES

**INSTRUMENTATION**

List all instrumentation (i.e. weirs, piezometers, flow gauges):

n.a.

(A separate report including instrument location, instrument readings, instrument condition, normal readings, observations, and conclusions based upon the collected data shall be attached.)

## RESERVOIR

Slopes: Stable

Sedimentation: None noted

Unusual Conditions Which May Affect Dam: None

Any Other Unusual Conditions: None

**APPURTENANT STRUCTURES** (Power House, Gatehouse, Penstocks, Water Supply, Other)

Description and Condition of each: None

**FOUNDATION AND GEOLOGY**

Unusual Conditions Which May Affect Dam:
None noted

Cracks, Joints, Bedding Planes Which May Affect Dam Or Provide Seepage Paths: none noted

## CONCLUSIONS

I certify that the above dam was personally inspected by me and the conditions described herein are correct to the best of my knowledge and belief.

The following maintenance concerns should be addressed (in order of importance):

The trees and brush along the back slope and face of dam should be removed and a good grass cover established. The front slope should be repaired to provide a slope of three horizontal to one vertical (3H:1V) and protected by rip rap along the water line. The sink holes and cracks along the top of dam should be repaired with suitable fill material to help control seepage of water into the top of dam.

I recommend the following changes in maintenance:

The vegetation and debris at the inlet to the Principal Spill Way should be routinely cleared. Trees and woody vegetation should be controlled along the dam.

I recommend the following repairs be made within one year (in order of importance):
The trees and woody vegetation should be removed and the front slope of the dam repaired.

The following long-term improvements should also be undertaken (in order of importance):
Control of vegetation and protection of the slopes along the face of the dam should be considered a long term improvement.

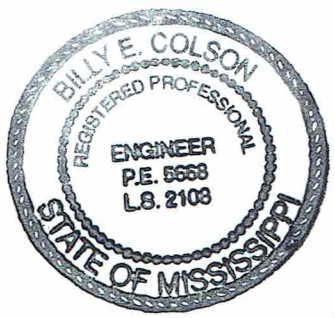
The following studies should also be undertaken (in order of importance):
None

Have the recommendations above included those from previous Inspections? N.A.

Does the Emergency Action Plan or the Operation and Maintenance Procedures require revision? To be determined.

Mississippi Licensed Professional Engineer representing the dam owner in responsible charge of the inspection:

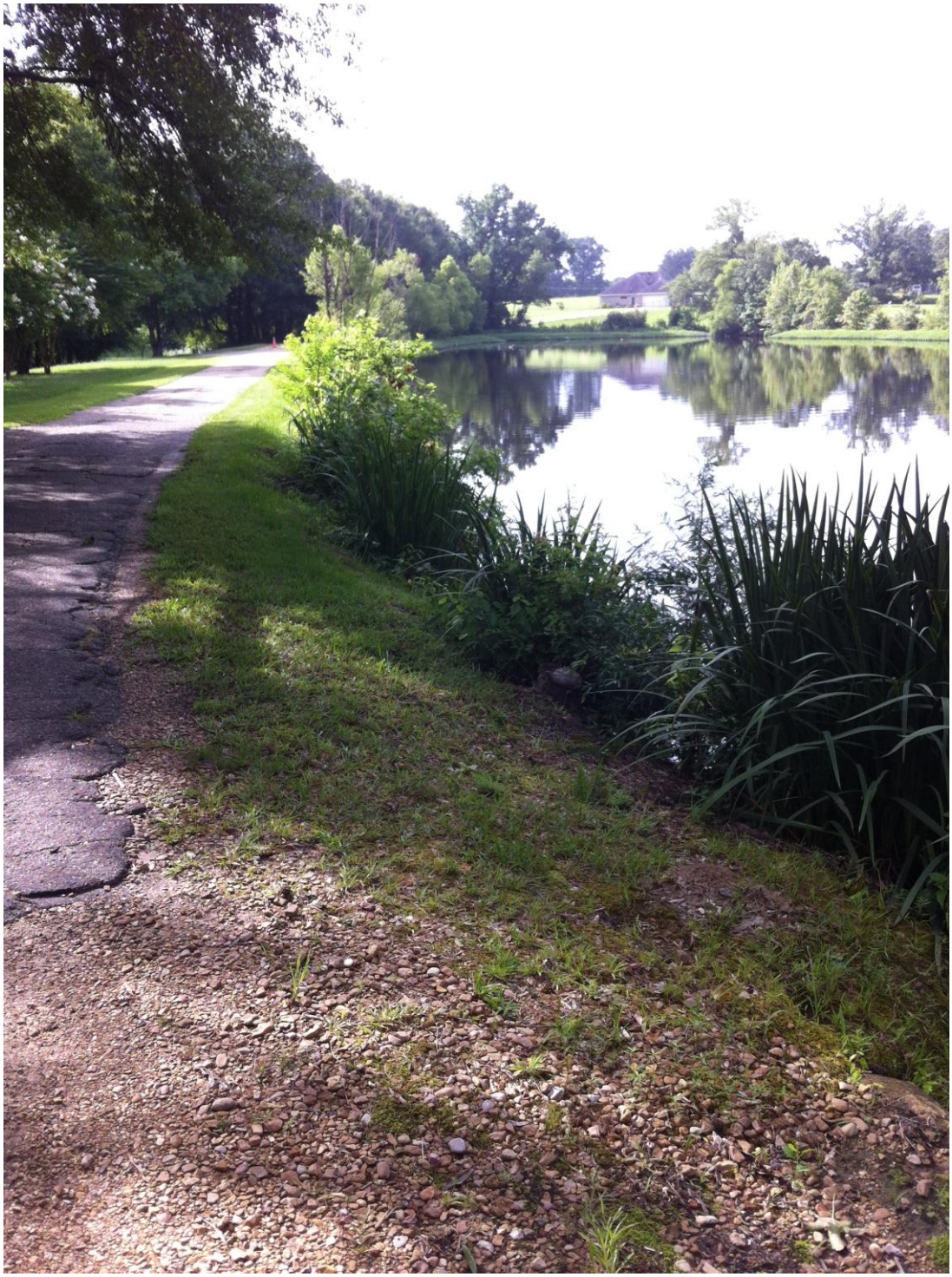
Signature Billy E Colson Date 7/19/2019



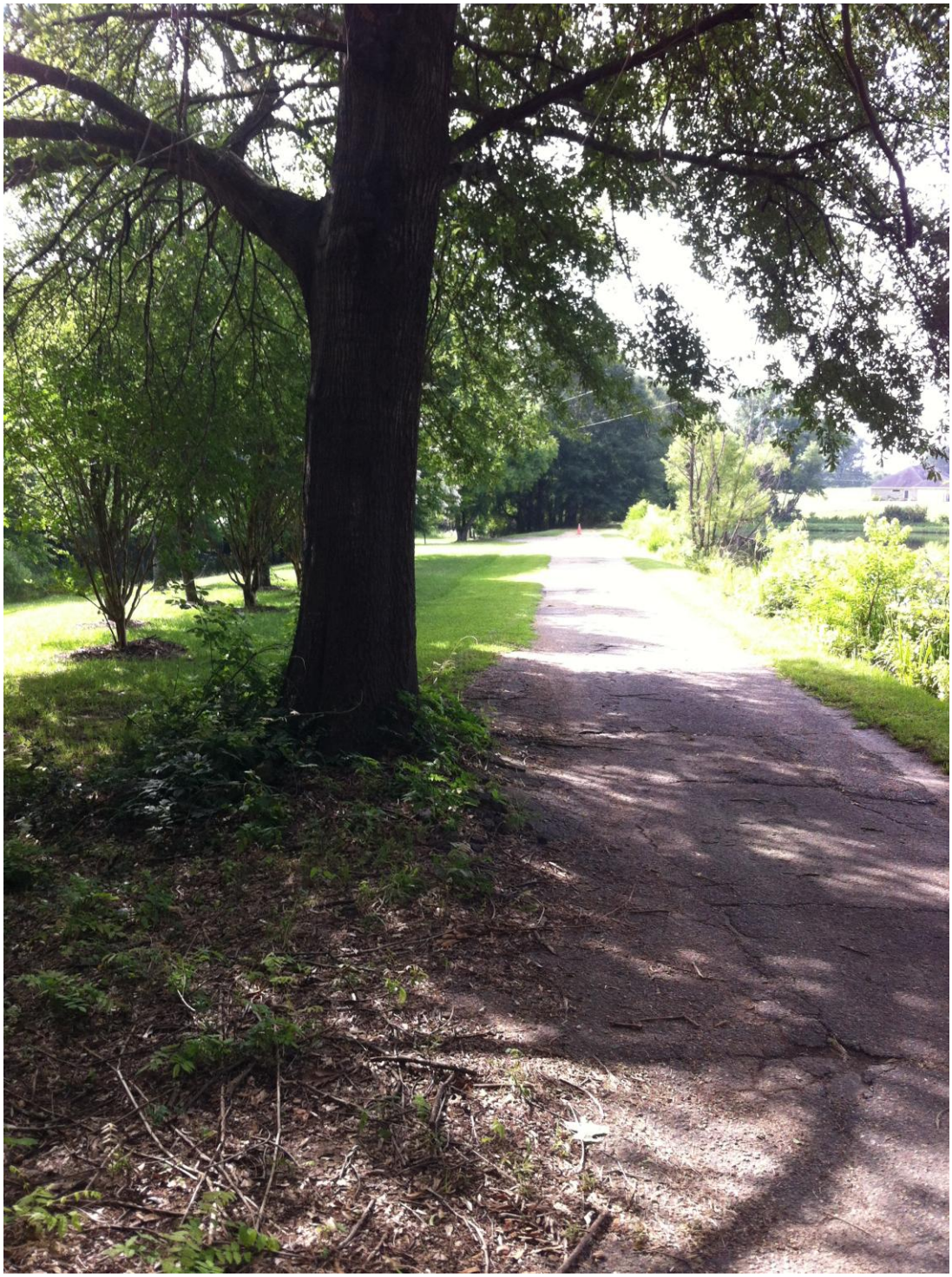

**P.E. SEAL**

APPENDIX A

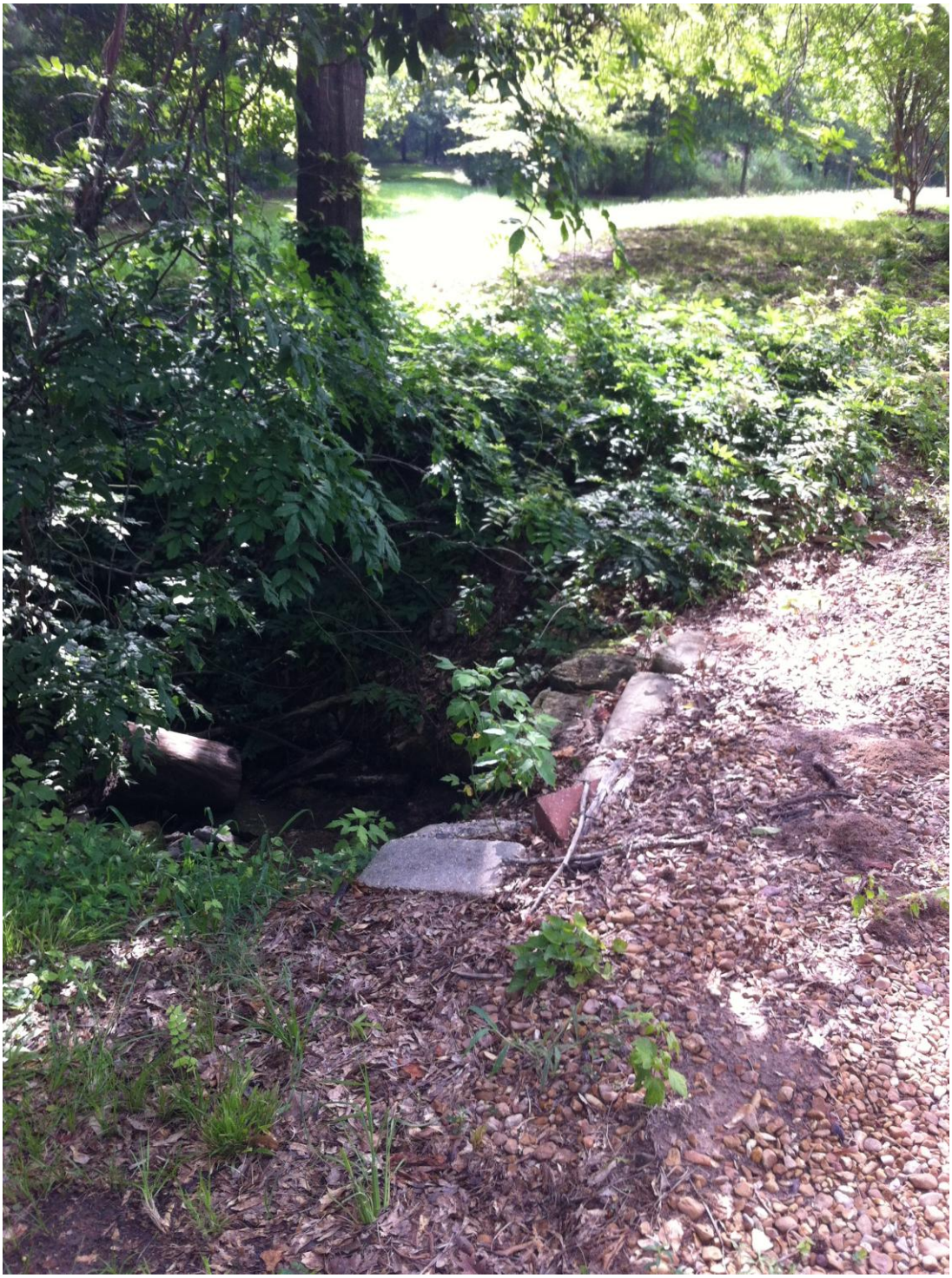
All photographs were made on June 27, 2019



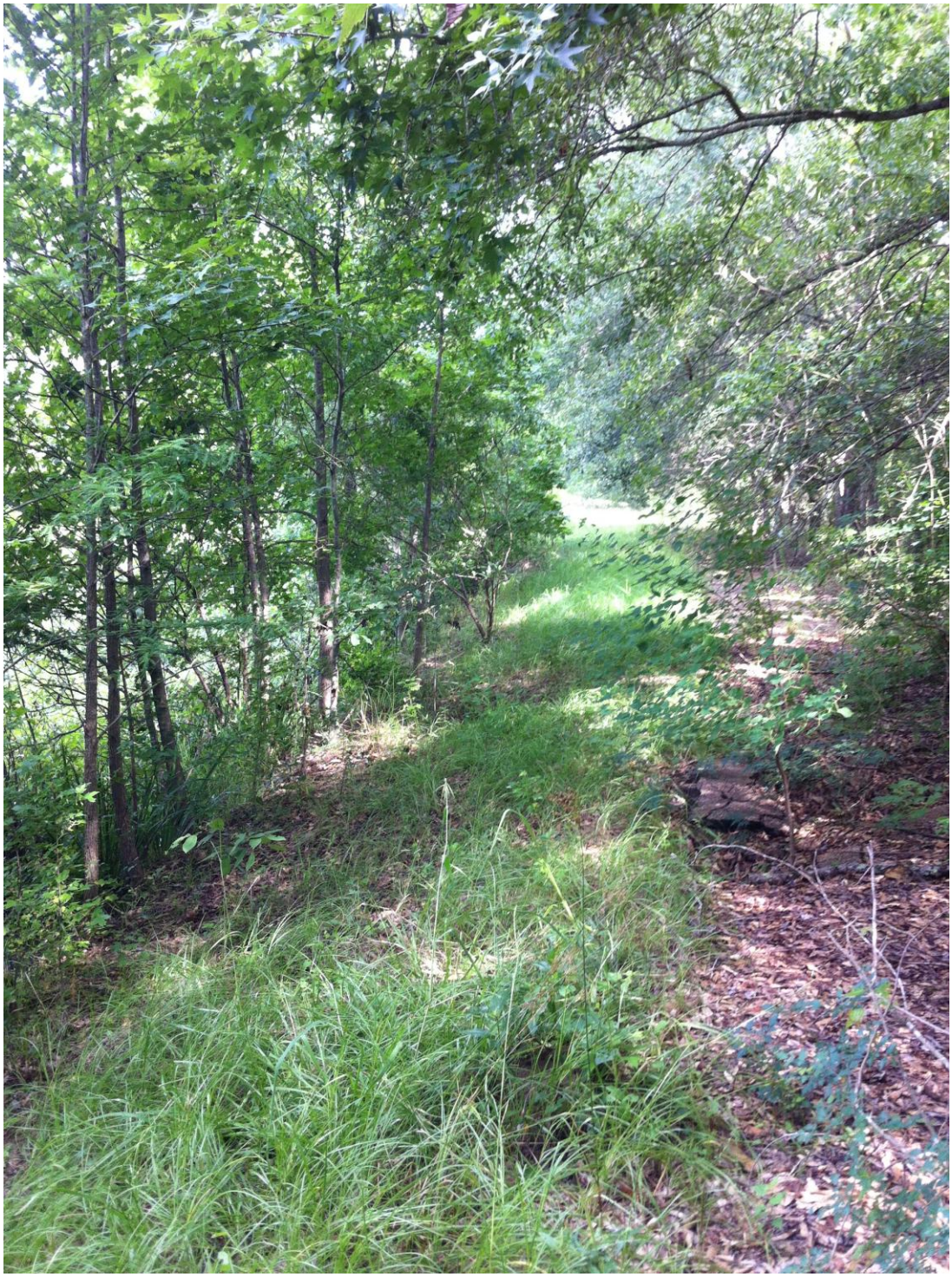
Photograph 1. Looking west across upstream face and top of dam from the Principal Spillway.



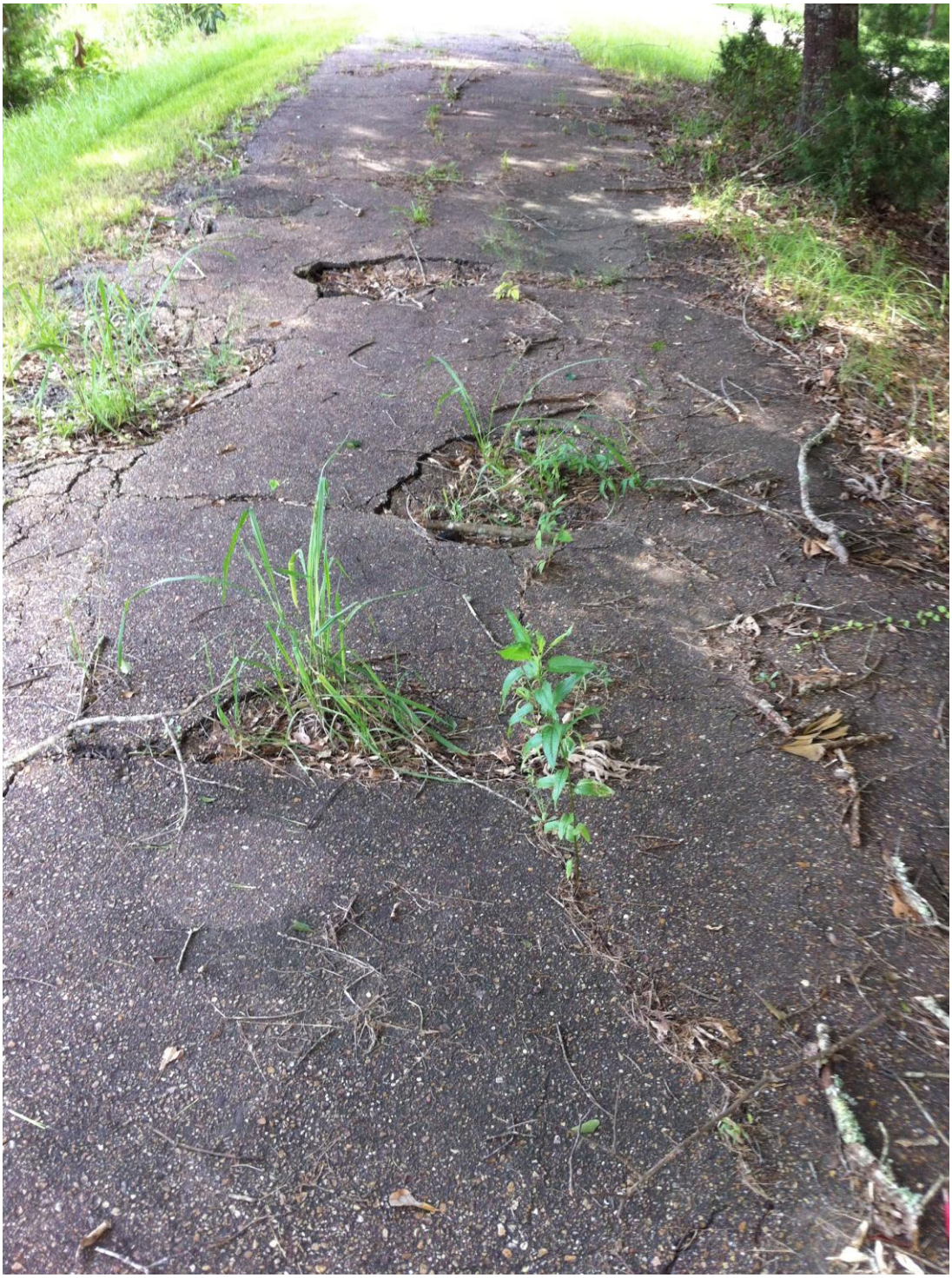
Photograph 2. Looking west along top of dam and back slope from Principal Spill Way.



Photograph 3.  Looking at downstream end of Principal Spill Way pipe in left (east) abutment.

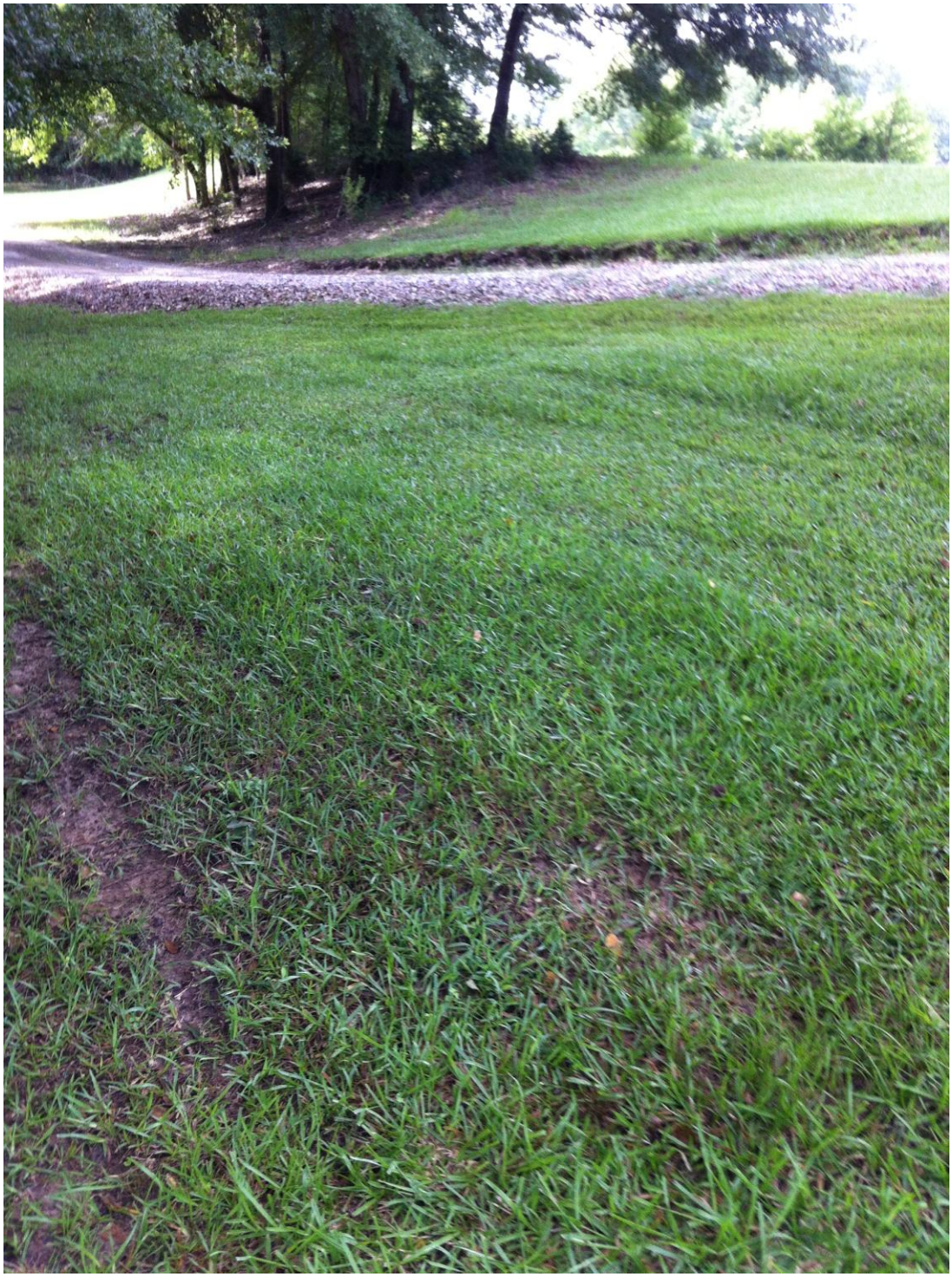


Photograph 4.  Looking east across top of dam and front slope from near right (west) end of dam.



Photograph 5. Close up of broken asphalt and pot holes on top of dam.

Photograph 6. Looking at trees on back slope of dam near the right (west) abutment.



Photograph 7. Looking west where gravel driveway crosses the back slope of dam.