



WALDEN, ASHWORTH & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 6462 • MARIETTA, GEORGIA 30065 • 770/956-7879

September 07, 2021

Lake Spivey Civic Association
Mr. Bob Nash, President
3301 Bay View Drive
Lake Spivey, Georgia 30236

RE: SPIVEY LAKE DAM INSPECTION (3rd Quarter)
WA&A J.O. 4100700

Dear Mr. Nash:

We have completed our visual inspection for the 3rd quarter of the Spivey Lake Dam in Henry County, Georgia. The attached inspection forms and pictures present the results of our visual inspection. This letter includes a summary of our observations, our preliminary conclusions and recommendations.

The dam was visited on September 03, 2021. Conditions were sunny and hot. Visual observations of the dam and appurtenant structures were made from walking along the top of the dam, portions of both the upstream and downstream slopes, and along the toe of the dam. The primary spillway was observed from the downstream slope and crest of the dam.

The lake was at normal pool at the time of our inspection. Our ability to inspect the upstream slope was limited due to water in the reservoir. The portion of the slope that is visible above the water line is covered with adequate vegetation that appears to be in good condition. The vegetation was somewhat overgrown and needs to be mowed. Large boulders and rip rap were observed along the normal pool shoreline to provide protection to the embankment from wave action when the reservoir is at normal pool.

The upstream slope at the shoreline/boulders is steeper than 3:1. No unusual movement on the slope was observed since the previous inspection. No slides or sloughs were observed and the abutment contacts looked good. The steep upstream slope should continue to be monitored for any movement or erosion. The dam should be mowed to allow easier inspection of the dam crest, slopes, and toe.

The horizontal and vertical alignment of the earth embankment appears to be generally good. The top of the dam is vegetated and appears to be in good condition with no cracking observed. The crest is covered with a good stand of maintained grass that needs to be mowed. No sinkholes or animal burrows were observed. The abutment contacts were good.

The downstream slope of the dam is covered with maintained vegetation that needs to be mowed. The slope appears to be approximately 3 horizontal on 1 vertical (3:1). No signs of sloughing or sinkholes were observed. The wet area which was observed to the right of the low-level drain outlet approximately 20 feet up the slope near the toe of the dam continues to be wet and soft indicating seepage. Monitoring wells have been installed at the crest of the dam and around the seepage area to monitor this area. This area should continue to be monitored closely for any significant changes. See the attached well readings for additional information.

Seepage drains are located at the downstream end of the dam and on the right side of the drawdown outlet. The seepage drains had clear unobstructed flow. Flow measurements were taken from the drains. There are also seepage drains along the primary labyrinth weir spillway on the downstream side of the dam. These drains are to collect any seepage near the primary spillway chute. These drain outlets had no or minimal flow.

The water level of the lake is controlled by the primary spillway which consists of a concrete labyrinth weir spillway, concrete chute, and a stepped stilling basin. There is also a gate located on the labyrinth weir wall of the primary spillway. This gate is a means to lower the lake level for maintenance, storm events, etc. At the time of this inspection this gate was closed and the lake level was at normal pool elevation.

The primary spillway structure appeared to be in good condition. The concrete chute and stepped stilling basin empty into a riprap lined channel. The channel is free from encroaching vegetation and appears to be providing adequate dissipation of the energy from flows discharging through the chute and stilling basin. The primary spillway had flow making it difficult to visually inspect much of the spillway slab closely.

The drawdown outlet works structure is located near the center of the dam. No detailed observations were possible of the drawdown structure because it is below the grade and/or the water surface. No flow was observed from the outlet pipes. The low-level outlet pipes terminate at the downstream toe of the dam and discharge into a rip-rap lined channel. The channel appears to be providing adequate dissipation of the energy from flows discharging through the drain and seepage pipes.

The secondary or emergency spillway consists of a concrete weir and chute channel located in the left abutment. The spillway appears to be generally in good condition with some minor cracking. The approach is unobstructed. Removal of any vegetation should continually be a part of the maintenance of the dam. There continues to be some possible seepage coming through some of the cracks in the spillway. There was no change since the previous inspection. These areas need to continue to be monitored. No evidence of frequent activation of this spillway was observed.

It is important to note that the condition of any dam depends on numerous and constantly changing internal and external conditions and is evolutionary in nature. It cannot be assumed that the present conditions of any dam will continue to represent its condition at some point in the future.

Based on our visual inspection, the dam needs some remedial work. We recommend that the following steps be taken:

1. Mow the crest, embankments, and toe areas of the dam.
2. Continue to monitor the observation wells to look for any noticeable changes in seepage through the dam.
3. Remove any vegetation in the emergency spillway.
4. Continue to monitor seepage coming through the cracks in the concrete chute emergency spillway.

If you have any questions concerning our inspection, please do not hesitate to call me.

Sincerely,



Jason Rapplean, P.E.
Senior Engineer
JR/jcw
Attachments





WALDEN, ASHWORTH & ASSOCIATES, INC.
SPIVEY LAKE DAM VISUAL INSPECTION

PHOTO LOG

Date: 09/03/21
Project: Spivey Lake Dam Visual Inspection
Project No.: 4100700
Project Location: Henry County, Georgia
Report By: Jason Rapplean, P.E., E.O.R.

Description:

Crest of dam looking
towards right
abutment.



Description:

Upstream slope of dam
with boulder shore
protection.





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SPIVEY LAKE DAM VISUAL INSPECTION

PHOTO LOG

Date: 09/03/21
Project: Spivey Lake Dam Visual Inspection
Project No.: 4100700
Project Location: Henry County, Georgia
Report By: Jason Rapplean, P.E., E.O.R.

Description:

Observation well on
crest of dam.



Description:

Observation well on
crest of dam.





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SPIVEY LAKE DAM VISUAL INSPECTION

PHOTO LOG

Date: 09/03/21
Project: Spivey Lake Dam Visual Inspection
Project No.: 4100700
Project Location: Henry County, Georgia
Report By: Jason Rapplean, P.E., E.O.R.

Description:

Drawdown structure.



Description:

Drawdown/Low Level
Pipe outlet and toe
drain J.





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SPIVEY LAKE DAM VISUAL INSPECTION

PHOTO LOG

Date: 09/03/21
Project: Spivey Lake Dam Visual Inspection
Project No.: 4100700
Project Location: Henry County, Georgia
Report By: Jason Rapplean, P.E., E.O.R.

Description:

Toe drain K outlet near
low level drain.



Description:

Toe drain L & M outlet
near low level drain.





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SPIVEY LAKE DAM VISUAL INSPECTION

PHOTO LOG

Date: 09/03/21
Project: Spivey Lake Dam Visual Inspection
Project No.: 4100700
Project Location: Henry County, Georgia
Report By: Jason Rapplean, P.E., E.O.R.

Description:

Seepage area near toe of dam.



Description:

Seepage area near toe of dam. Note observation wells in the area.





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SPIVEY LAKE DAM VISUAL INSPECTION

PHOTO LOG

Date: 09/03/21
Project: Spivey Lake Dam Visual Inspection
Project No.: 4100700
Project Location: Henry County, Georgia
Report By: Jason Rapplean, P.E., E.O.R.

Description:

Principal spillway.
Concrete labyrinth
spillway and chute.



Description:

Principal spillway.
Concrete labyrinth
spillway and chute.





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SPIVEY LAKE DAM VISUAL INSPECTION

PHOTO LOG

Date: 09/03/21
Project: Spivey Lake Dam Visual Inspection
Project No.: 4100700
Project Location: Henry County, Georgia
Report By: Jason Rapplean, P.E., E.O.R.

Description:

Principal spillway.
Concrete labyrinth
spillway and chute.



Description:

Labyrinth weir walls..





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SPIVEY LAKE DAM VISUAL INSPECTION

PHOTO LOG

Date: 09/03/21
Project: Spivey Lake Dam Visual Inspection
Project No.: 4100700
Project Location: Henry County, Georgia
Report By: Jason Rapplean, P.E., E.O.R.

Description:

Downstream exit
channel.



Description:

Concrete emergency
spillway chute,
downstream
embankment on left
side of dam.





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SPIVEY LAKE DAM VISUAL INSPECTION

PHOTO LOG

Date: 09/03/21
Project: Spivey Lake Dam Visual Inspection
Project No.: 4100700
Project Location: Henry County, Georgia
Report By: Jason Rapplean, P.E., E.O.R.

Description:

Concrete emergency spillway chute, downstream embankment on left side of dam.



Description:

Concrete emergency spillway chute weir wall.





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SPIVEY LAKE DAM VISUAL INSPECTION

PHOTO LOG

Date: 09/03/21
Project: Spivey Lake Dam Visual Inspection
Project No.: 4100700
Project Location: Henry County, Georgia
Report By: Jason Rapplean, P.E., E.O.R.

Description:

Concrete emergency
spillway chute outlet.



Description:

Concrete emergency
spillway chute,
downstream
embankment on left
side of dam. Note
seepage at cracks.



OBSERVATION WELL WATER LEVEL DATA

Lake Spipey Dam
Henry County, Georgia

WA&A Job Number:

Well Number: W-1
Datum Elev. (ft): * 1008.5
Well Depth (ft): 24.9

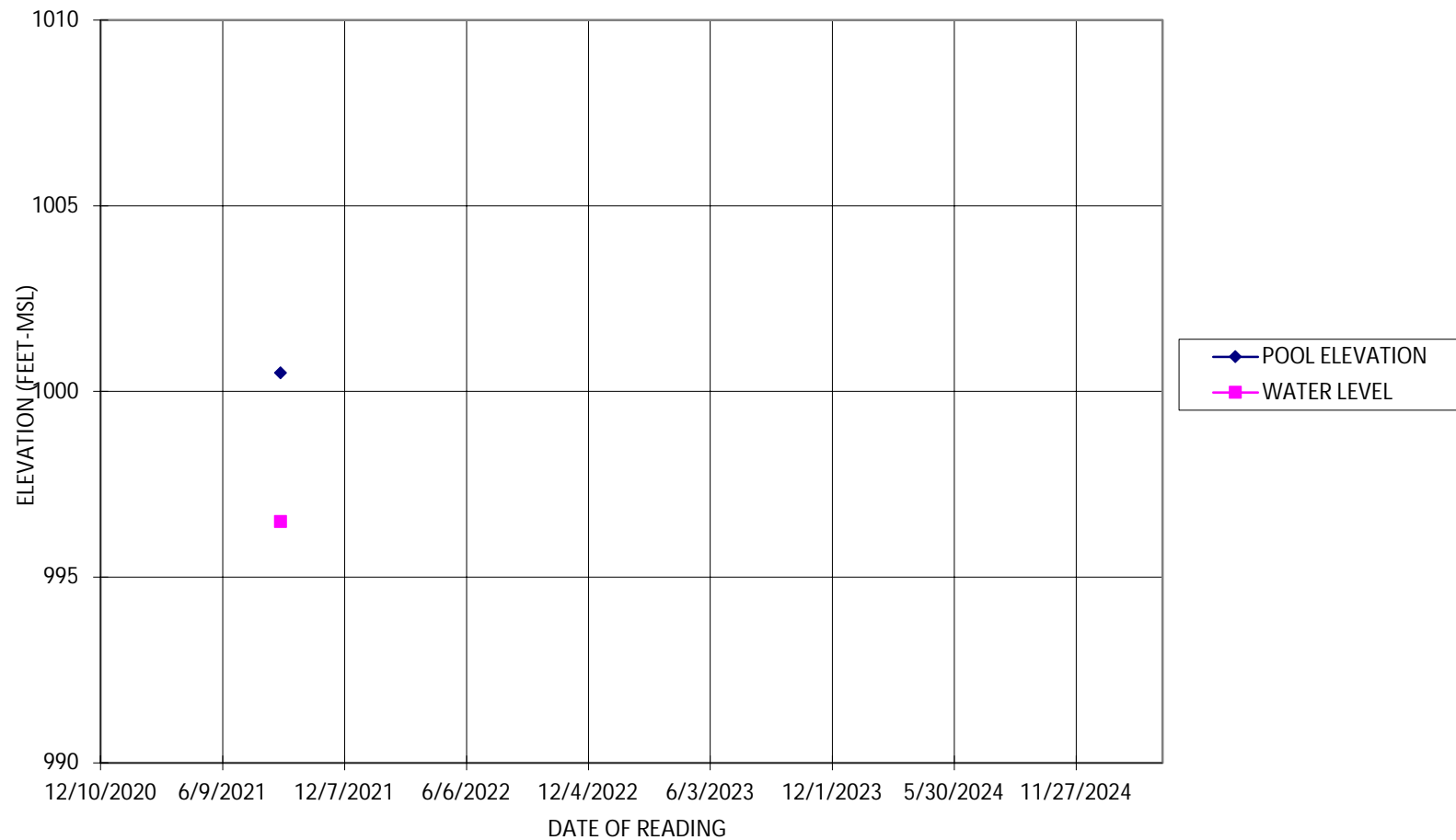
Date of Reading	Read By	Reservoir Pool Elev. (ft)	Depth to Water (ft)	Elevation of Water (ft)	Observations
9/3/2021	JR	1000.5	12	996.5	Initial Reading

* Depth to water measured from top of PVC pipe.
* Datum elevation interpolated from site grading plan.

OBSERVATION WELL WATER LEVEL DATA

LAKE SPIVEY DAM

WELL NUMBER W-1



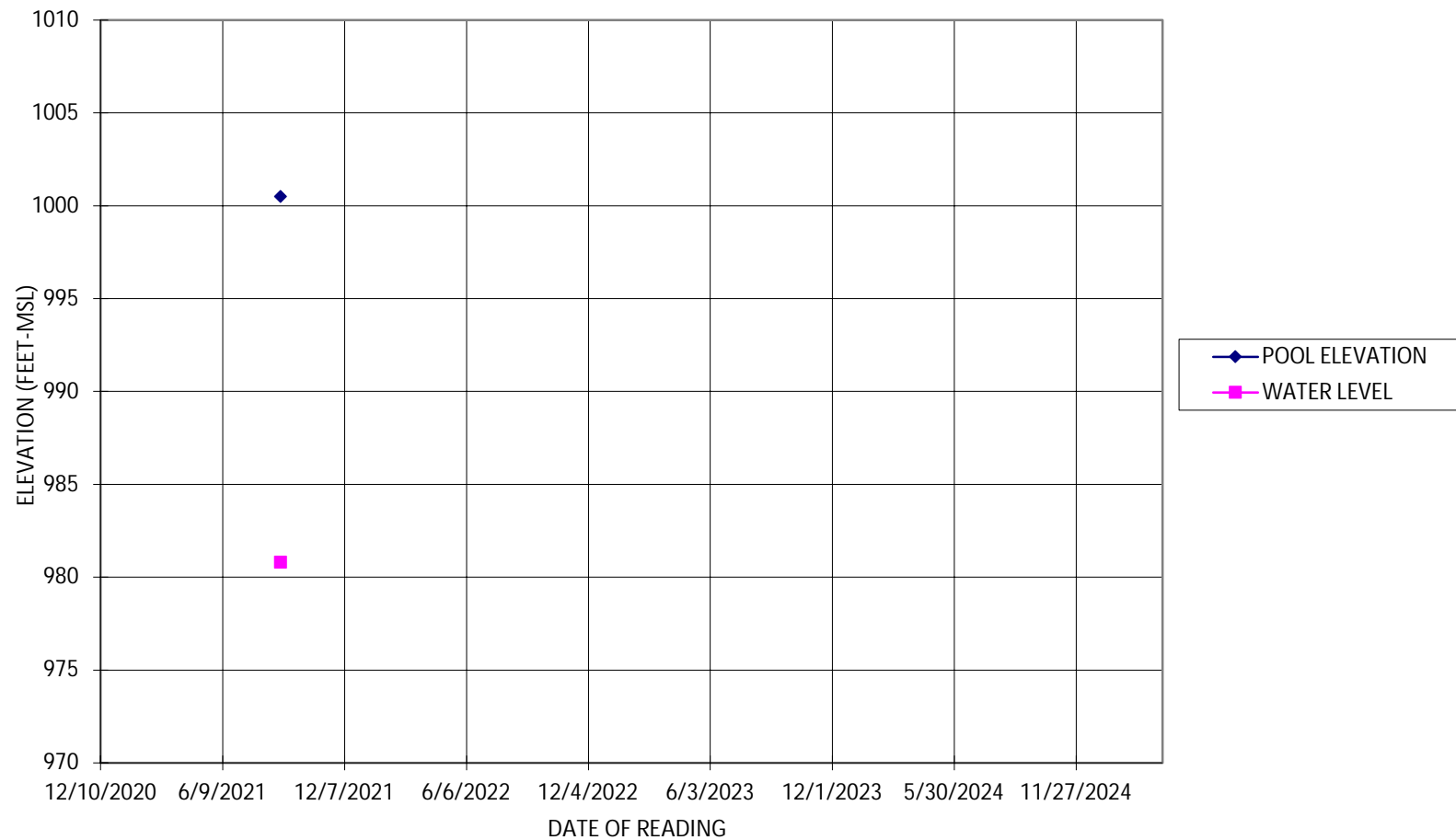
OBSERVATION WELL WATER LEVEL DATA

[illegible]

OBSERVATION WELL WATER LEVEL DATA

LAKE SPIVEY DAM

WELL NUMBER W-1a



OBSERVATION WELL WATER LEVEL DATA

Lake Spivey Dam
Henry County, Georgia

WA&A Job Number:

JOB NUMBER:
4100700

WELL NUMBER:
W-1b

DATUM ELEV. (FT):
980.0*

WELL DEPTH (FT):
5.0

Date of Reading	Read By	Reservoir Pool Elev. (ft)	Depth to Water (ft)	Elevation of Water (ft)	Observations
9/3/2021	JR	1000.5	3.9	976.1	Initial Reading

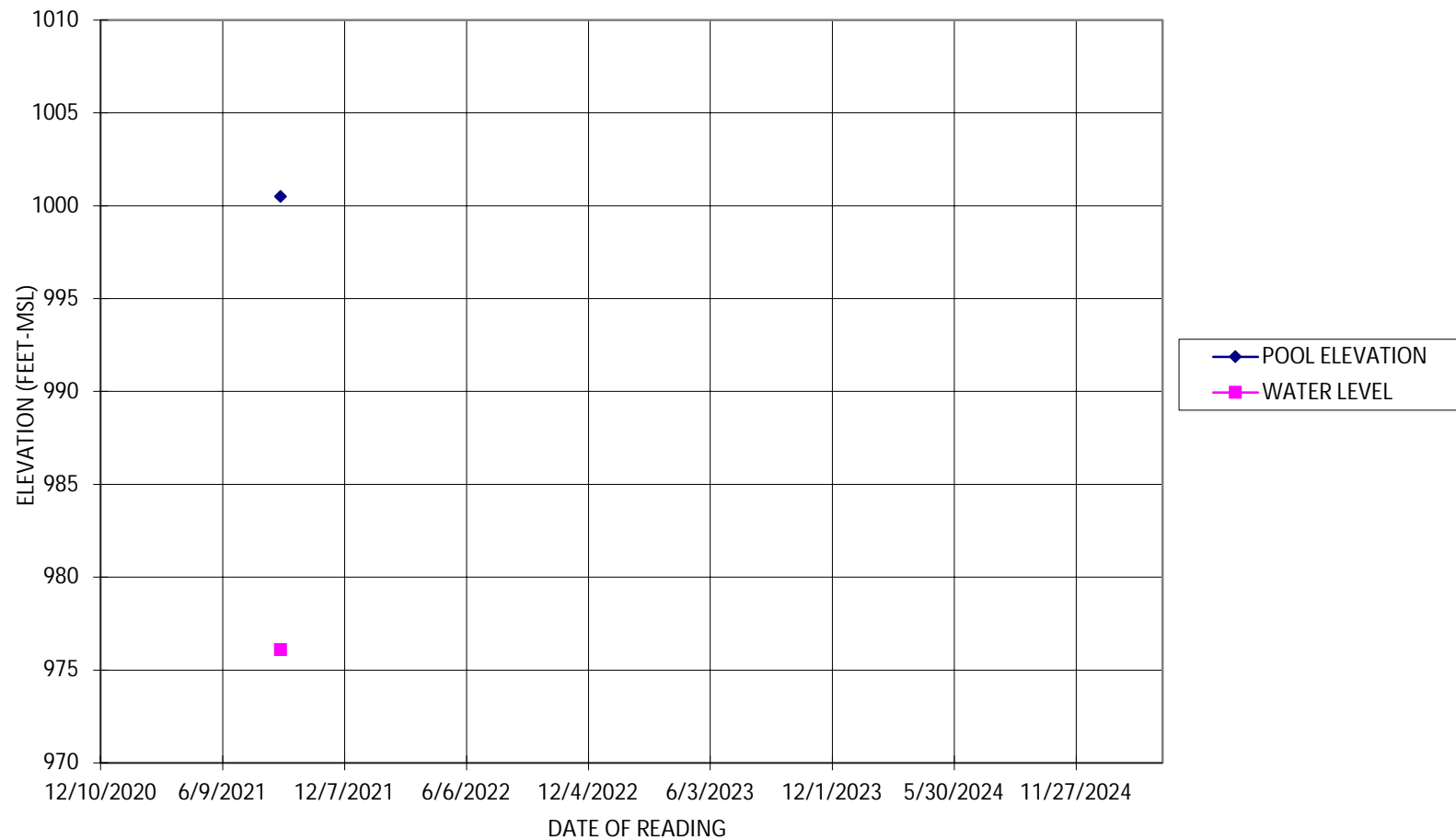
* Depth to water measured from top of PVC pipe.

* Datum elevation interpolated from site grading plan.

OBSERVATION WELL WATER LEVEL DATA

LAKE SPIVEY DAM

WELL NUMBER W-1b



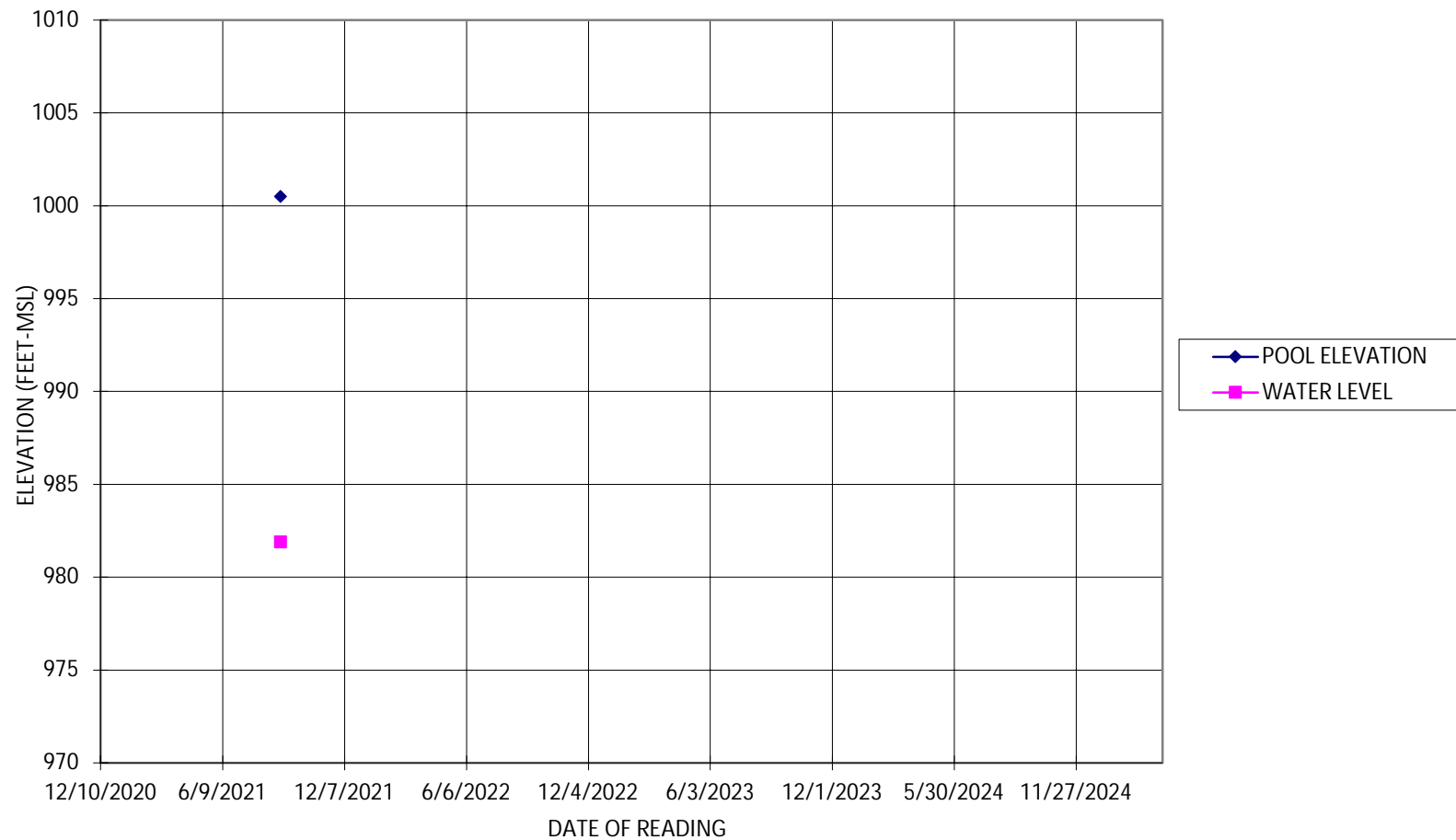
OBSERVATION WELL WATER LEVEL DATA

[illegible]

OBSERVATION WELL WATER LEVEL DATA

LAKE SPIVEY DAM

WELL NUMBER W-1c



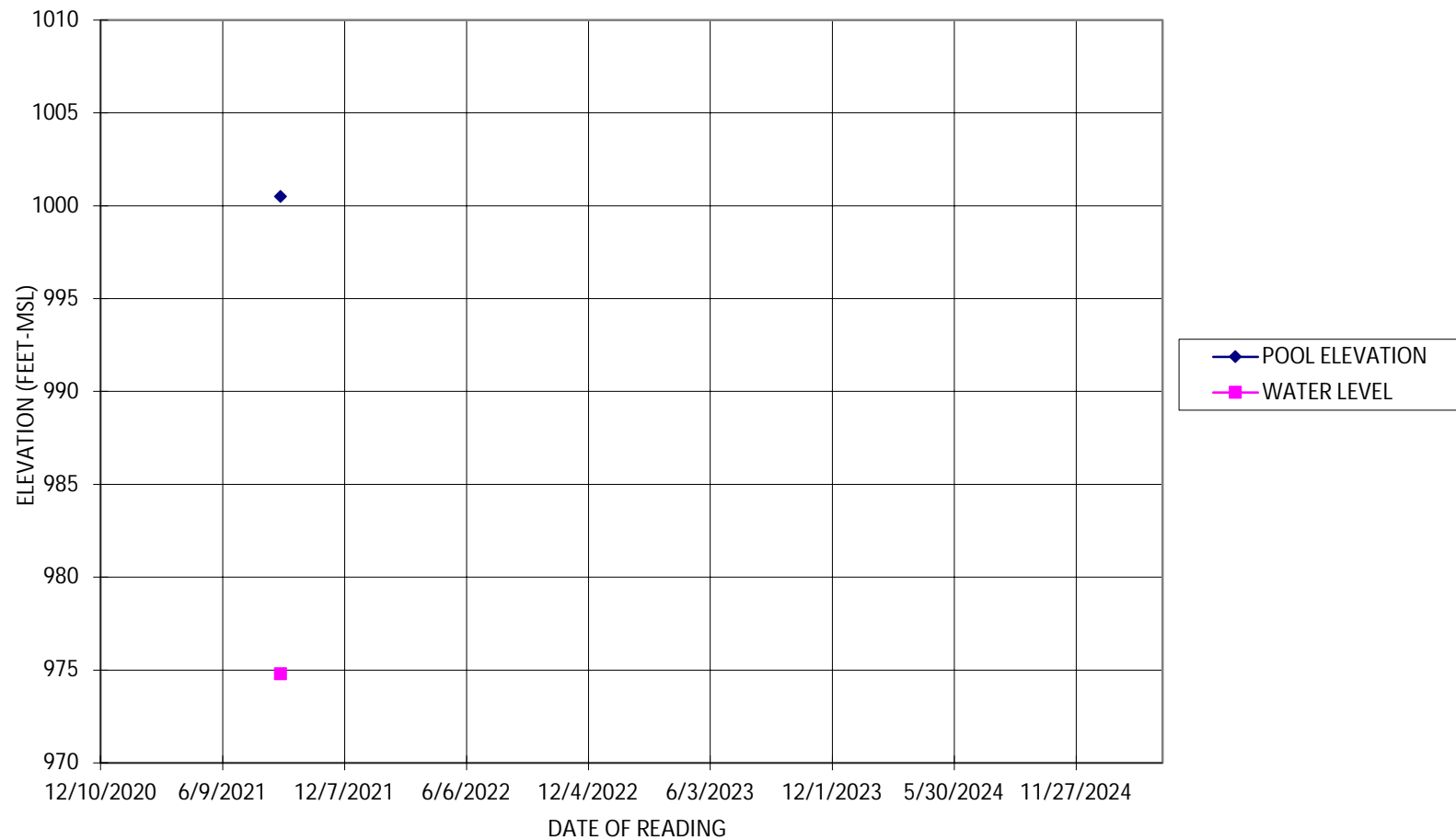
OBSERVATION WELL WATER LEVEL DATA

[illegible]

OBSERVATION WELL WATER LEVEL DATA

LAKE SPIVEY DAM

WELL NUMBER W-1d



OBSERVATION WELL WATER LEVEL DATA

Lake Spivey Dam
Henry County, Georgia

WA&A Job Number:

Well Number:
Datum Elev. (ft):
Well Depth (ft):

W-2
1008.5
26.0

Date of Reading	Read By	Reservoir Pool Elev. (ft)	Depth to Water (ft)	Elevation of Water (ft)	Observations
9/3/2021	JR	1000.5	13.9	994.6	Initial Reading

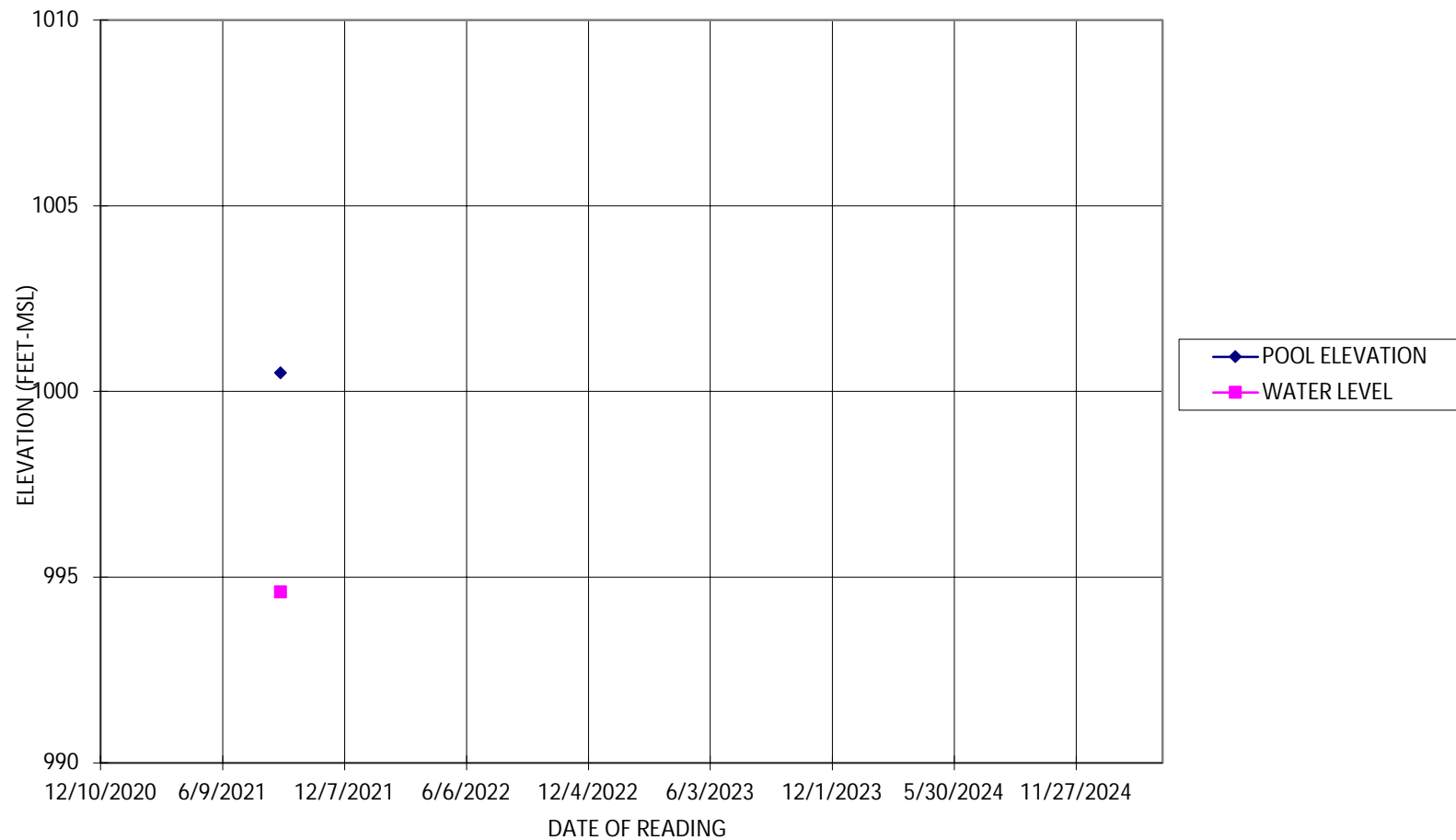
* Depth to water measured from top of PVC pipe.

* Datum elevation interpolated from site grading plan.

OBSERVATION WELL WATER LEVEL DATA

LAKE SPIVEY DAM

WELL NUMBER W-2



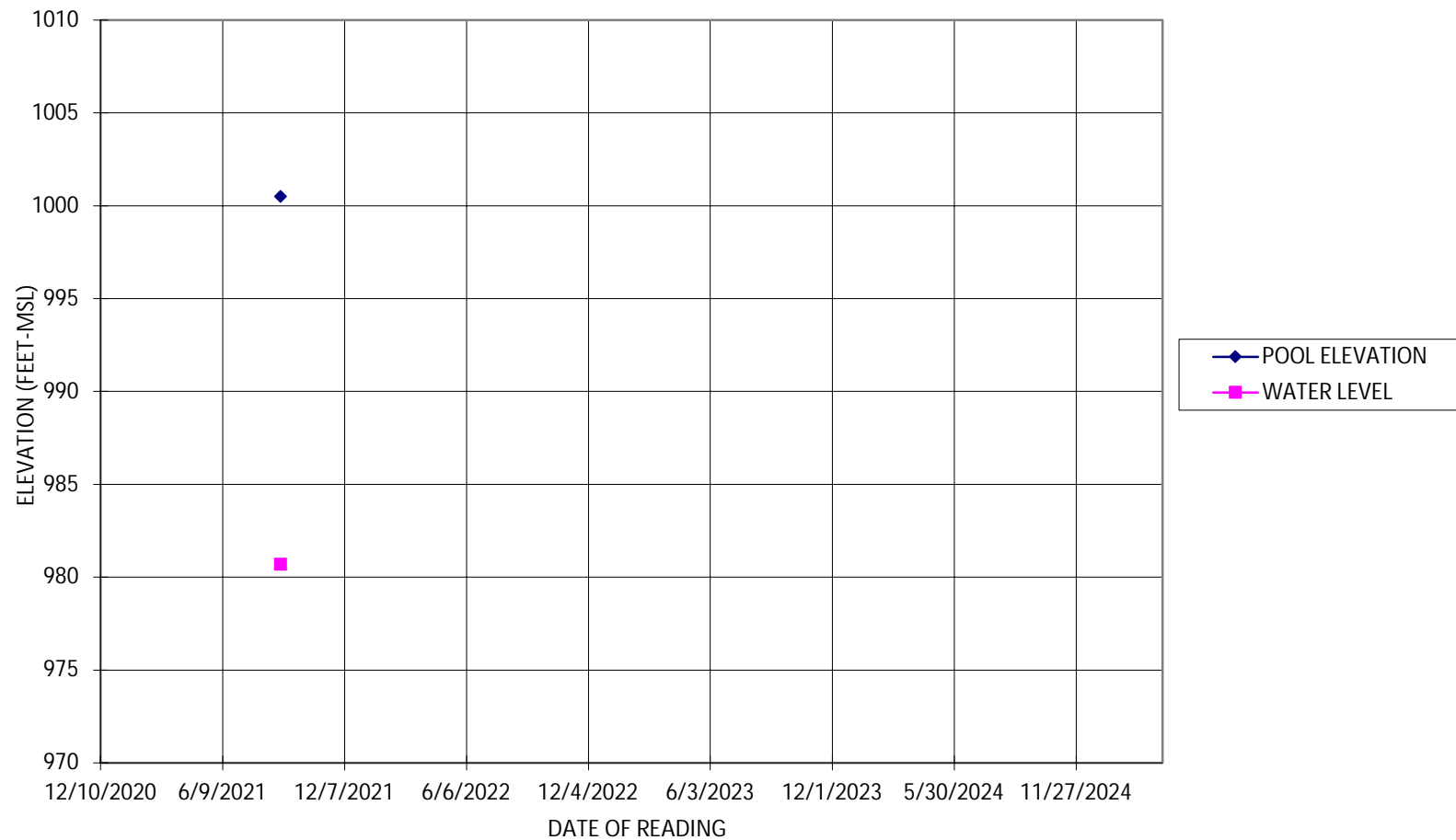
OBSERVATION WELL WATER LEVEL DATA

[illegible]

OBSERVATION WELL WATER LEVEL DATA

LAKE SPIVEY DAM

WELL NUMBER W-2a



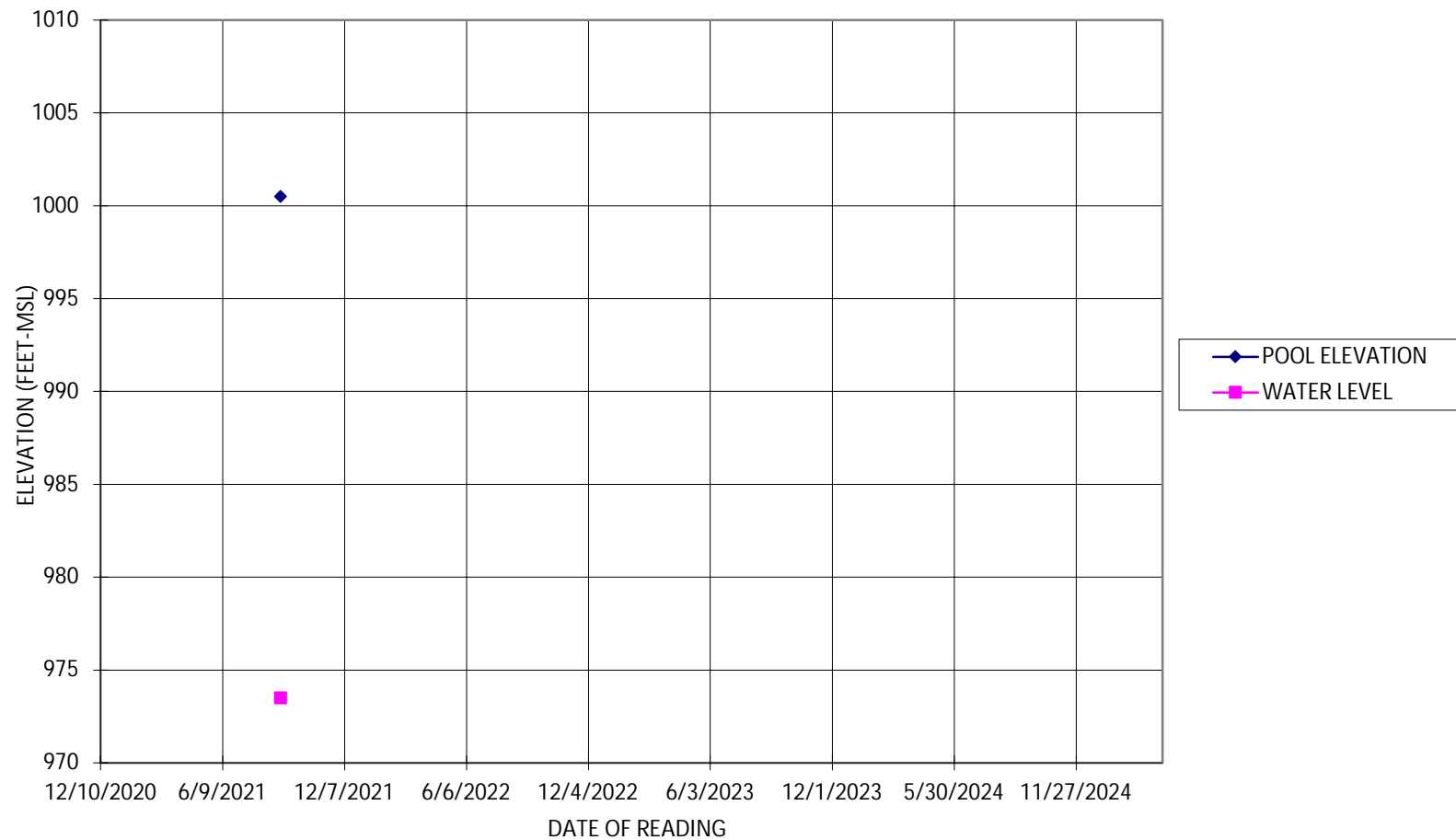
OBSERVATION WELL WATER LEVEL DATA

[illegible]

OBSERVATION WELL WATER LEVEL DATA

LAKE SPIVEY DAM

WELL NUMBER W-2b



Embankment (Earth) Dam Inspection Form

Name of Dam: Spivey Lake Dam Date: 9-3-21
Location of Dam (County): Henry Weather: Sunny, Hot
Inspected by (Print Name): Tyson Rapplean

If an inspection item requires further action on your part, place a check mark to the left of the number of the item

A. Crest (refer to Glossary for description)

- ☐ 1. How would you describe the vegetation on the crest? (Check all that apply)
Recently Mowed _____ Overgrown ☒ Good Cover ☒ Sparse _____
Other/Corrective Action (describe): needs mowed
- ☐ 2. Are there any trees or other inappropriate or excessive vegetation on the crest? Yes _____ No ☒
If yes, describe (type of vegetation, size, location, etc.)/Corrective Action: _____
- ☐ 3. Is there a paved road or driveway on the crest? Yes _____ No ☒
If yes, describe the condition (for example, good condition, numerous cracks, newly paved)/Corrective Action: _____
- ☐ 4. Are there any depressions, ruts or holes on the crest? Yes _____ No ☒
If yes, describe (size, location, etc.)/Corrective Action: _____
- ☐ 5. Are there any cracks on the crest? Yes _____ No ☒
If yes, describe (length and width, location, direction of cracking, etc.)/Corrective Action: _____
- ☐ 6. Other observations on the crest/Corrective Action: _____

B. Upstream Slope (refer to Glossary for description)

1. What is the reservoir level today? At Normal Pool ☒ Above Normal Pool _____ Feet Below Normal Pool _____ Feet
- ☐ 2. How would you describe the vegetation on the upstream slope? (Check all that apply)
Recently Mowed _____ Overgrown ☒ Good Cover ☒ Sparse _____
Other/Corrective Action (describe): needs mowed
- ☐ 3. Are there any trees or other inappropriate or excessive vegetation on the slope? Yes _____ No ☒
If yes, describe (type of vegetation, size, location, etc.)/Corrective Action: _____
- ☐ 4. Are there any depressions, bulges, ruts or holes (such as animal burrows) on the slope? Yes _____ No ☒
If yes, describe (size, location, etc.)/Corrective Action: _____
- ☐ 5. Are there any eroded areas on the slope (such as wave erosion along the shoreline)? Yes _____ No ☒
If yes, describe (size of area, location, severity, etc.)/Corrective Action: _____
- ☐ 6. Are there any cracks, sloughs or slides (vertical cliffs) on the slope? Yes _____ No ☒
If yes, describe (length, width, height, location, etc.)/Corrective Action: _____

Upstream Slope (continued)

- ☐ 7. Is there any type of slope protection along the shoreline (such as riprap)? Yes ☒ No ☐
If yes, describe what type and its condition (for example, riprap - adequate, inadequate, sparse)/Corrective Action: rip rap - adequate
- ☐ 8. Other observations on the upstream slope/Corrective Action: monitor

C. Downstream Slope (refer to Glossary for description)

- ☐ 1. How would you describe the vegetation on the downstream slope? (Check all that apply)
Recently Mowed ☐ Overgrown ☒ Good Cover ☒ Sparse ☐
Other/Corrective Action (describe): needs mowed
- ☐ 2. Are there any trees or other inappropriate or excessive vegetation on the slope? Yes ☐ No ☒
If yes, describe (type of vegetation, size, location, etc.)/Corrective Action: _____
- ☐ 3. Are there any depressions, bulges, ruts or holes (such as animal burrows) on the slope? Yes ☐ No ☒
If yes, describe (size, location, etc.)/Corrective Action: _____
- ☐ 4. Are there any eroded areas on the slope (such as along abutment contacts)? Yes ☐ No ☒
If yes, describe (size of area, location, severity, etc.)/Corrective Action: _____
- ☐ 5. Are there any cracks, sloughs or slides (vertical cliffs) on the slope? Yes ☐ No ☒
If yes, describe (length, width, height, location, etc.)/Corrective Action: _____
- ☐ 6. Are there any wet areas or areas of hydrophilic (lush, water-loving) vegetation? Yes ☒ No ☐
If yes, describe (size of area, location, etc.)/Corrective Action: Same as before
- ☐ 7. Do any wet areas indicate seepage through the dam (such as rust-colored, stained water)? Yes ☒ No ☐ N/A ☐
If yes, describe (for example, new area of seepage, no change from past observations, size of area, location) /Corrective Action: _____
- ☐ 8. Are there any leaks (flowing water) from the slope or beyond the toe of the dam? Yes ☐ No ☒
If yes, describe (location, rate of flow, turbidity of flow)/Corrective Action: _____
- ☐ 9. Other observations on the downstream slope/Corrective Action: _____

D. Plunge Pool (refer to Glossary for description)

- ☐ 1. Is there any type of erosion protection around the plunge pool (such as riprap)? Yes ☒ No ☐
If yes, describe what type and its condition (for example, riprap - adequate, inadequate, obstructed by vegetation) /Corrective Action: rip rap - adequate
- ☐ 2. Is there any erosion and or seeps around or going into the plunge pool? Yes ☐ No ☒
If yes, describe (size of area, location, severity, etc.) /Corrective Action: _____
- ☐ 3. Other observations around the plunge pool/Corrective Action: _____

Embankment (Earth) Dam Inspection Form (continued)

Name of Dam: Spivey Lake Dam Date: 9-3-21

E. Principal and Emergency Spillways (refer to Glossary for description)

- ☐ 1. What types of spillways does the dam have (such as corrugated metal, concrete or siphon pipe; concrete or earth channel)?
Principal Spillway conc. labyrinth Emergency Spillway conc. chute
Other/Corrective Action: _____
- ☐ 2. Has the emergency spillway activated (had flow) since the last inspection? Yes _____ No ✓
If yes describe (date(s) of flow, reason for activation, depth of flow) /Corrective Action: _____
- ☐ 3. For pipe spillways, is the intake obstructed in any way (such as with excessive debris)? Yes _____ No ✓
If yes, describe (type of debris, reason for obstruction, etc.) /Corrective Action: _____
- ☐ 4. For pipe spillways, what is the condition of any trash racks (for example, adequate, inadequate, damaged)? /Corrective Action: adequate
- ☐ 5. For pipe spillways, are there any visible cracks, separations or holes in the pipe(s) (intake or outlet)? Yes _____ No ✓
If yes, describe (location, width of crack or separation, etc.) /Corrective Action: _____
- ☐ 6. For pipe spillways, are there any apparent leaks in the pipe(s)? Yes _____ No ✓
If yes, describe (location, rate of flow from leak, etc.) /Corrective Action: _____
7. For pipe spillways, how would you describe the overall condition of the pipe(s)? (Check all that apply)
Functioning Normally ✓ Not Functional _____ Deteriorated _____ Damaged _____ Adequate _____ Inadequate _____
- ☐ 8. For concrete or earth channel spillways, is the entrance or channel obstructed in any way? Yes _____ No ✓
If yes, describe (type of obstruction, location, etc.) /Corrective Action: _____
- ☐ 9. For earth channel spillways, how would you describe the vegetation in the spillway? (Check all that apply) N/A
Recently Mowed _____ Overgrown _____ Good Cover _____ Sparse _____
Other (describe) /Corrective Action: _____
- ☐ 10. For earth channel spillways, are there any trees or other inappropriate vegetation in the spillway? Yes _____ No ✓
If yes, describe (type of vegetation, size, location, etc.) /Corrective Action: _____
- ☐ 11. For earth channel spillways, are there any eroded areas in the spillway? Yes _____ No ✓
If yes, describe (size of area, location, severity, etc.) /Corrective Action: _____
- ☐ 12. For concrete channel spillways, are there any cracks or holes in the spillway? Yes ✓ No _____
If yes, describe (width of crack or hole, location, etc.) /Corrective Action: monitor
- ☐ 13. For concrete channel spillways, are there any leaks or evidence of undermining (flow under the concrete)? Yes _____ No ✓
If yes, describe (location, rate of flow from leak, indicators of undermining, etc.) /Corrective Action: _____

Principal and Emergency Spillways (continued)

14. For earth or concrete channel spillways, how would you describe the overall condition of the spillway? (Check all that apply)

Functioning Normally ☒ Not Functional ☐ Deteriorated ☐ Damaged ☐ Adequate ☐ Inadequate ☐

☐ 15. Other observations on the spillways/Corrective Action: vegetation in spillway

F. Instrumentation (refer to Glossary for description)

☐ 1. Are there any toe drains at the downstream toe or any other seepage drains on the dam? Yes ☒ No ☐
If yes, describe the condition (for example, clogged, free flowing, deteriorated, good condition) /Corrective Action: Free Flowing - need area cleared

☐ 2. For drains, is an animal guard installed at the outlet of each drain? Yes ☒ No ☐
If no, which drains lack animal guards? /Corrective Action: _____

☐ 3. For drains, measure the rate of flow from each drain and record below (use additional pages if necessary):

Designation/Location of Drain	Flow Rate	Flow Rate in GPM*	Turbidity of Flow (describe - clear, muddy, etc.)
J	60 s 1 gal	1	clear
K	Trickle	Trickle	"
L	10 s 1 gal	6	"
M	Trickle	Trickle	"

☐ 4. Are there any piezometers on the dam? Yes ☒ No ☐
If yes, describe the condition (for example, good condition, damaged, etc.) /Corrective Action: good condition

☐ 5. For piezometers, does each piezometer have a cap with a lock? Yes ☒ No ☐
If no, which piezometers need caps (to prevent rain water intrusion) and/or locks (to prevent tampering)? /Corrective Action: _____

☐ 6. For piezometers, are you able to take a measurement (depth to water) in each piezometer? Yes ☒ No ☐
If yes, record depth to water (in feet) in each piezometer, record on a separate page, and attach to this form.

☐ 7. Are there any other monitoring devices on the dam? Yes ☐ No ☒
If yes, describe what type and the condition (for example, monitoring wells - good condition, damaged) /Corrective Action: _____

☐ 8. Other observations on instrumentation/Corrective Action: See attached well charts

G. Photographs

At a minimum, photographs should be taken of the crest, upstream slope, downstream slope and any other notable features.

List of photographs (be sure to date stamp the photos): See attached

*GPM (gallons per minute): to convert from oz/sec multiply by 0.4688; to convert from ml/sec multiply by 0.01585