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April 30, 2021

Mr. Thomas Woosley, P.E.
Safe Dams Program Manager
Safe Dams Program
Georgia Department of Natural Resources
Environmental Protection Division
2 Martin Luther King Jr. Drive, Suite 1152 East
Atlanta, Georgia 30334

Subject: **Owner Quarterly Inspection Reports 2020/2021 (Quarters 2, 3, and 4 of 2020 and Quarter 1 of 2021)**
Lake Petit Dam (ID Number (No.) 112-009-00462), Pickens County

Dear Mr. Woosley:

On behalf of the Big Canoe Property Owner's Association (POA), Geosyntec is submitting, under cover of this letter, the quarterly owner inspection forms for inspections conducted at Lake Petit Dam for the 2020/2021 reporting year. Quarterly inspections were conducted at Lake Petit Dam [National Inventory of Dams (NID) No. GA00685] by representatives from Geosyntec on behalf of the owner on the following dates:

- 2020 Quarter 2 (Q2) inspection dated 12 May 2020;
- 2020 Quarter 3 (Q3) inspection dated 21 July 2020;
- 2020 Quarter 4 (Q4) inspection dated 19 November 2020; and
- 2021 Quarter 1 (Q1) inspection dated 10 March 2021.

Please contact the undersigned if you have any questions regarding this matter.

Sincerely,

Wesley MacDonald, P.E. (GA, AL, TN, and WA)
Senior Engineer

Jamey Dotson, P.E. (GA, AL, NC, and TN)
Senior Principal Engineer

Attachment A 2020/2021 Reporting Year Quarterly Inspections

Copies to: Mr. Jason Brownell, Big Canoe POA

TN7237/Cover Letter

ATTACHMENT A

2020/2021 Reporting Year Quarterly Inspections

Embankment (Earth) Dam Inspection Form

Name of Dam: Lake Petit Dam Date: 12 May 2020

Location of Dam (County): Pickens County Weather: Clear, Cloudy, 62 degrees F

Inspected by (Print Name): Max Cange, P.G.(TN) Edisson O. Avila, E.I.(TN)

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 X Overgrown _____ Good Cover X Sparse _____

Other/Corrective Action (describe): The crest of the dam is an asphalt paved road. Vegetation on either side of the road was observed to be well-maintained.

☐ 2. Are there any trees or other inappropriate or excessive vegetation on the crest? Yes _____ No X

If yes, describe (type of vegetation, size, location, etc.)/Corrective Action: N/A

☐ 3. Is there a paved road or driveway on the crest? Yes X No _____

If yes, describe the condition (for example, good condition, numerous cracks, newly paved)/Corrective Action: Good condition. Paved in 2012.

☐ 4. Are there any depressions, ruts or holes on the crest? Yes _____ No X

If yes, describe (size, location, etc)/Corrective Action: N/A

☒ 5. Are there any cracks on the crest? Yes X No _____

If yes, describe (length and width, location, direction of cracking, etc.)/Corrective Action: Yes, a hairline transverse crack across the asphalt road was observed near the left abutment and towards the center of the embankment. This appears to be routine pavement stress; however, this should continue to be monitored.

☒ 6. Other observations on the crest/Corrective Action: Some erosion at the left and right groins from foot traffic and surface runoff was observed. These areas should be re-established and seeded.

B. Upstream Slope (refer to Glossary for description)

1. What is the reservoir level today? At Normal Pool X 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 X Overgrown _____ Good Cover _____ Sparse _____

Other/Corrective Action (describe): This area is well-seeded and maintained short grass. A bare spot observed mid-way up the slope in 2013 was observed to have increased vegetation. Slight erosion along the water's edge was observed.

☐ 3. Are there any trees or other inappropriate or excessive vegetation on the slope? Yes _____ No X

If yes, describe (type of vegetation, size, location, etc.)/Corrective Action: N/A

☒ 4. Are there any depressions, bulges, ruts or holes (such as animal burrows) on the slope? Yes _____ No X

If yes, describe (size, location, etc.)/Corrective Action: Good condition, previously reported soft areas were not observed. No evidence of new animal burrows. Continue to monitor the area for new animal burrows.

☒ 5. Are there any eroded areas on the slope (such as wave erosion along the shoreline)? Yes X No _____

If yes, describe (size of area, location, severity, etc.)/Corrective Action: Slight "beaching" observed/reported in 2008 continued to be observed. Conditions do not appear to have worsened. Some erosion on the L and R groins due to suspected pedestrian use.

B. Upstream Slope (continued)

☐ 6. Are there any cracks, sloughs or slides (vertical cliffs) on the slope? Yes_____ No__X____
If yes, describe (length, width, height, location, etc.)/Corrective Action: N/A

☒ 7. Is there any type of slope protection along the shoreline (such as riprap)? Yes__X___ No_____
If yes, describe what type and its condition (for example, riprap - adequate, inadequate, sparse)/Corrective Action:
Adequate rip rap exists on the shoreline, but filter layer behind rip rap appears to have been eroded, and should be replaced to prevent further erosion.

☐ 8. Other observations on the upstream slope/Corrective Action: No other observations.

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___X___ Overgrown_____ Good Cover_____ Sparse_____
Other/Corrective Action (describe): Some minor sparse vegetated patches, as noted on previous inspections and reports.

☒ 2. Are there any trees or other inappropriate or excessive vegetation on the slope? Yes__X___ No_____
If yes, describe (type of vegetation, size, location, etc.)/Corrective Action: Small sprouting trees were observed on the downstream face of the dam along the right abutments. Vegetation was observed to be blocking the left groin drain at Bench 4. Debris should be removed to allow mowing to control these before they grow larger.

☒ 3. Are there any depressions, bulges, ruts or holes (such as animal burrows) on the slope? Yes___X___ No_____
If yes, describe (size, location, etc.)/Corrective Action: Several animal burrows and depressions were observed throughout the downstream face. These should be backfilled.

☒ 4. Are there any eroded areas on the slope (such as along abutment contacts)? Yes___X___ No_____
If yes, describe (size of area, location, severity, etc.)/Corrective Action: Minor surface erosion was observed generally at the right and left abutments at each bench, and scattered throughout the downstream slope. Corrective measures were previously installed but need reseeding.

☐ 5. Are there any cracks, sloughs or slides (vertical cliffs) on the slope? Yes_____ No_X_____
If yes, describe (length, width, height, location, etc.)/Corrective Action: N/A

☒ 6. Are there any wet areas or areas of hydrophilic (lush, water-loving) vegetation? Yes___X___ No_____
If yes, describe (size of area, location, etc.)/Corrective Action: Two wet areas were observed above Bench 1, generally starting from the concrete channel and moving approximately halfway upslope towards Bench 2. One wet area was observed from approximately Station (STA) 0+15 to -1+00. The other wet area was observed near the left abutment, from approximately STA 1+95 to 2+05. Additionally, a small wet area was observed along the toe of the downstream slope measuring less than 2-feet wide and approximately 50 ft long between STA 1+50 and 2+00.

☐ 7. Do any wet areas indicate seepage through the dam (such as rust-colored, stained water)? Yes_____ No__X__ N/A____
If yes, describe (for example, new area of seepage, no change from past observations, size of area, location) /Corrective Action: N/A

C. Downstream Slope (continued)

☐ 8. Are there any leaks (flowing water) from the slope or beyond the toe of the dam? Yes_____ No__X___
If yes, describe (location, rate of flow, turbidity of flow)/Corrective Action: N/A

☒ 9. Other observations on the downstream slope/Corrective Action: A concrete channel on the left abutment had the soil beneath it eroded. Recommend replacing and re-establishing this area. Additionally, the weirs on the left and right abutments were located. The left weir was observed to be clogged with evidence of substantial sediment/debris buildup. Inspectors unclogged the left weir, but the concrete channel around the weir should be cleaned out and monitored to prevent future clogs to the weirs.

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__X___
If yes, describe what type and its condition (for example, riprap - adequate, inadequate, obstructed by vegetation) /Corrective Action: There is no plunge pool, but downstream from the impact-type stilling basin there does not appear to be riprap, however based on current operations it does not appear to be needed.

☐ 2. Is there any erosion and or seeps around or going into the plunge pool? Yes_____ No__X___
If yes, describe (size of area, location, severity, etc.) /Corrective Action: A drainpipe right of the stilling basin observed to be discharging clear water. Previous signs of potential seepage have diminished, but this area should continue to be monitored.

☐ 3. Other observations around the plunge pool/Corrective Action: No other observations.

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 Gunnite, Stepped Spillway Emergency Spillway None, other than low-level draw-off pipe.
Other/Corrective Action:

☐ 2. Has the emergency spillway activated (had flow) since the last inspection? Yes_____ No__X___
If yes describe (date(s) of flow, reason for activation, depth of flow) /Corrective Action: N/A

☐ 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: The intake for the low-level draw-off is not visible from the surface and could not be inspected.

☐ 4. For pipe spillways, what is the condition of any trash racks (for example, adequate, inadequate, damaged)? /Corrective Action: The intake for the low-level draw-off is not visible from the surface and could not be inspected. A plan should be put in place to inspect this underwater feature.

☐ 5. For pipe spillways, are there any visible cracks, separations or holes in the pipe(s) (intake or outlet)? Yes_____ No_X__
If yes, describe (location, width of crack or separation, etc.)/Corrective Action: N/A

E. Principal and Emergency Spillways (continued)

☒ 6. For pipe spillways, are there any apparent leaks in the pipe(s)? Yes_____ No_X___

If yes, describe (location, rate of flow from leak, etc.)/Corrective Action: The full pipe was unable to be inspected, however, a plan should be put in place to inspect the length of the pipe.

7. For pipe spillways, how would you describe the overall condition of the pipe(s)? (Check all that apply)

Functioning Normally__X__ Not Functional___ Deteriorated____ Damaged____ Adequate____ Inadequate____

☐ 8. For concrete or earth channel spillways, is the entrance or channel obstructed in any way? Yes_____ No_X____

If yes, describe (type of obstruction, location, etc.)/Corrective Action: N/A

☐ 9. For earth channel spillways, how would you describe the vegetation in the spillway? (Check all that apply)

Recently Mowed_____ Overgrown_____ Good Cover_____ Sparse_____

Other (describe)/Corrective Action: N/A

☐ 10. For earth channel spillways, are there any trees or other inappropriate vegetation in the spillway? Yes____ No__X___

If yes, describe (type of vegetation, size, location, etc.)/Corrective Action: Dead trees (trunks and other limbs) were observed bridging over the channel spillway and over the sides of the channel. Foreign debris should be removed.

☐ 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: N/A

☒ 12. For concrete channel spillways, are there any cracks or holes in the spillway? Yes_X_____ No_____

If yes, describe (width of crack or hole, location, etc.)/Corrective Action: Small cracks were observed on the sides and in steps in portions of the spillway, which do not appear to affect performance or water flow. Continue to monitor for changes.

☐ 13. For concrete channel spillways, are there any leaks or evidence of undermining (flow under the concrete)? Yes_____ No__X_

If yes, describe (location, rate of flow from leak, indicators of undermining, etc.)/Corrective Action: Generally, no evidence of leaks or undermining were observed. It is recommended that an inspection be conducted when water is not flowing through the spillway.

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

Functioning Normally_X__ Not Functional____ Deteriorated____ Damaged____ Adequate____ Inadequate____

☐ 15. Other observations on the spillways/Corrective Action: No other observations.

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 X No

If yes, describe the condition (for example, clogged, free flowing, deteriorated, good condition) /Corrective Action: The drain at the toe of the dam did not have flow in it. The surface concrete ditch on Bench No. 1 was observed to have low flow. 13 interceptor drains were located, and all had either clear minimal flow or no flow at all. Several interceptor drains appeared to be deteriorated such that replacement may be warranted. The underdrain system of the dam outlets in the impact stilling basin, and the two drainpipes appeared to be flowing however they did have an accumulation of growth at their outlet, and this should be removed.

☐ 2. For drains, is an animal guard installed at the outlet of each drain? Yes No X

If no, which drains lack animal guards? /Corrective Action: Animal guards were not observed on drain pipes, however, they do not appear necessary on the interceptor surface drains or underdrain outlet pipes, as these appear to continuously flow.

☐ 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.)
Interceptor Drains on Bench 1	Very low	<1 GPM	clear

☒ 4. Are there any piezometers on the dam? Yes X No

If yes, describe the condition (for example, good condition, damaged, etc.)/Corrective Action: The piezometers are generally in good condition but require the lid seals to be replaced to keep surface water out of monuments. Individual piezometers have caps to prevent water from intruding.

☒ 5. For piezometers, does each piezometer have a cap with a lock? Yes No X

If no, which piezometers need caps (to prevent rain water intrusion) and/or locks (to prevent tampering)? /Corrective Action: Piezometers have caps, but no locks. They generally have monument covers with bolted lids to prevent tampering, however, some of the covers are missing a bolt.

☐ 6. For piezometers, are you able to take a measurement (depth to water) in each piezometer? Yes X 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 X

If yes, describe what type and the condition (for example, monitoring wells - good condition, damaged) /Corrective Action:

☐ 8. Other observations on instrumentation/Corrective Action: Dead trees (trunks and other limbs) where observed bridging over the channel spillway and over the sides of the channel. Foreign debris should be removed.

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 Photographs attached.

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

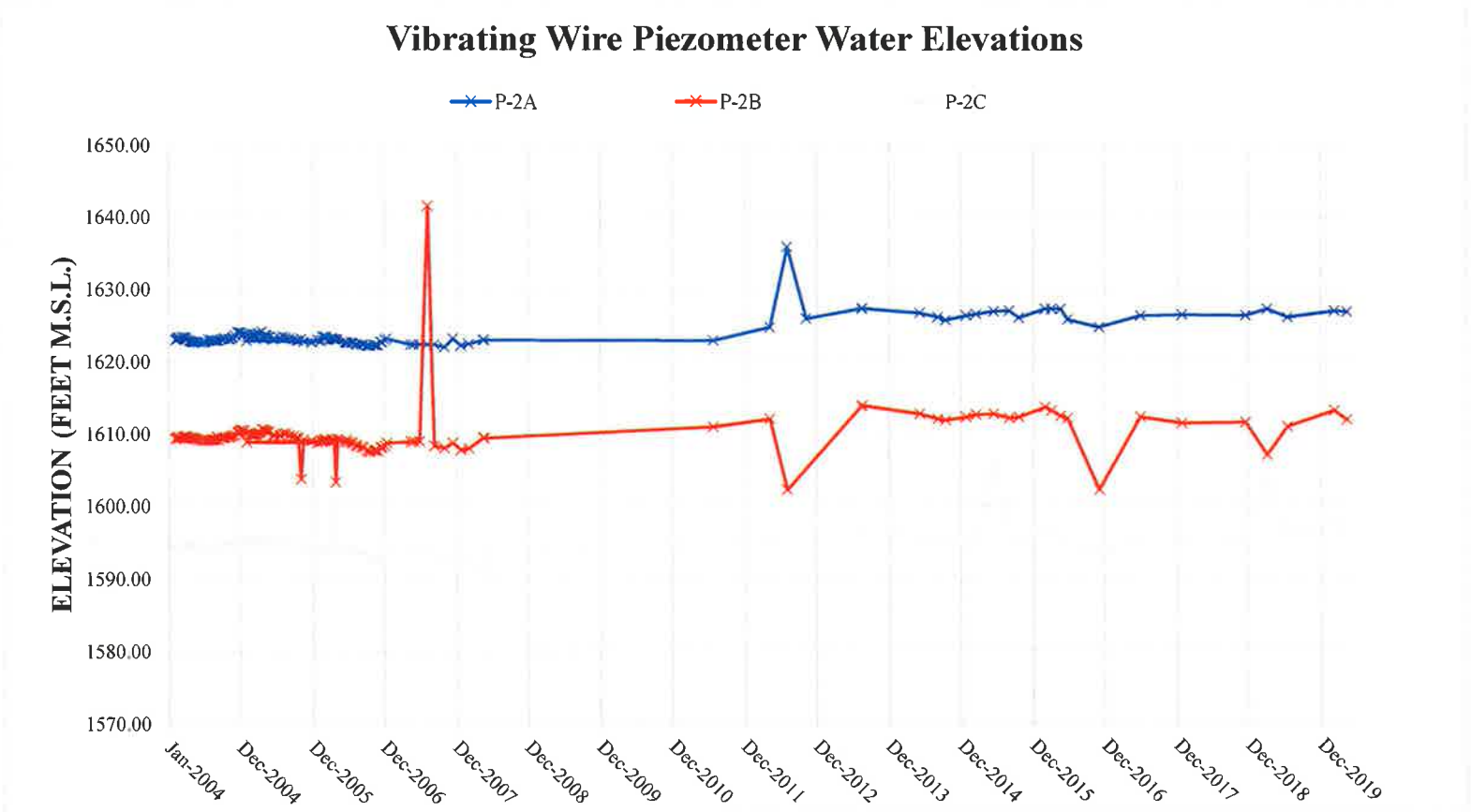
Geosyntec consultants

PHOTOGRAPH LOG

PROJECT NAME: May 2020 Lake Petit Dam Visual Assessment	PROJECT NO.: TN7237
CLIENT: Big Canoe Property Owners Association	FILE NAME: May 2020 Dam Insp

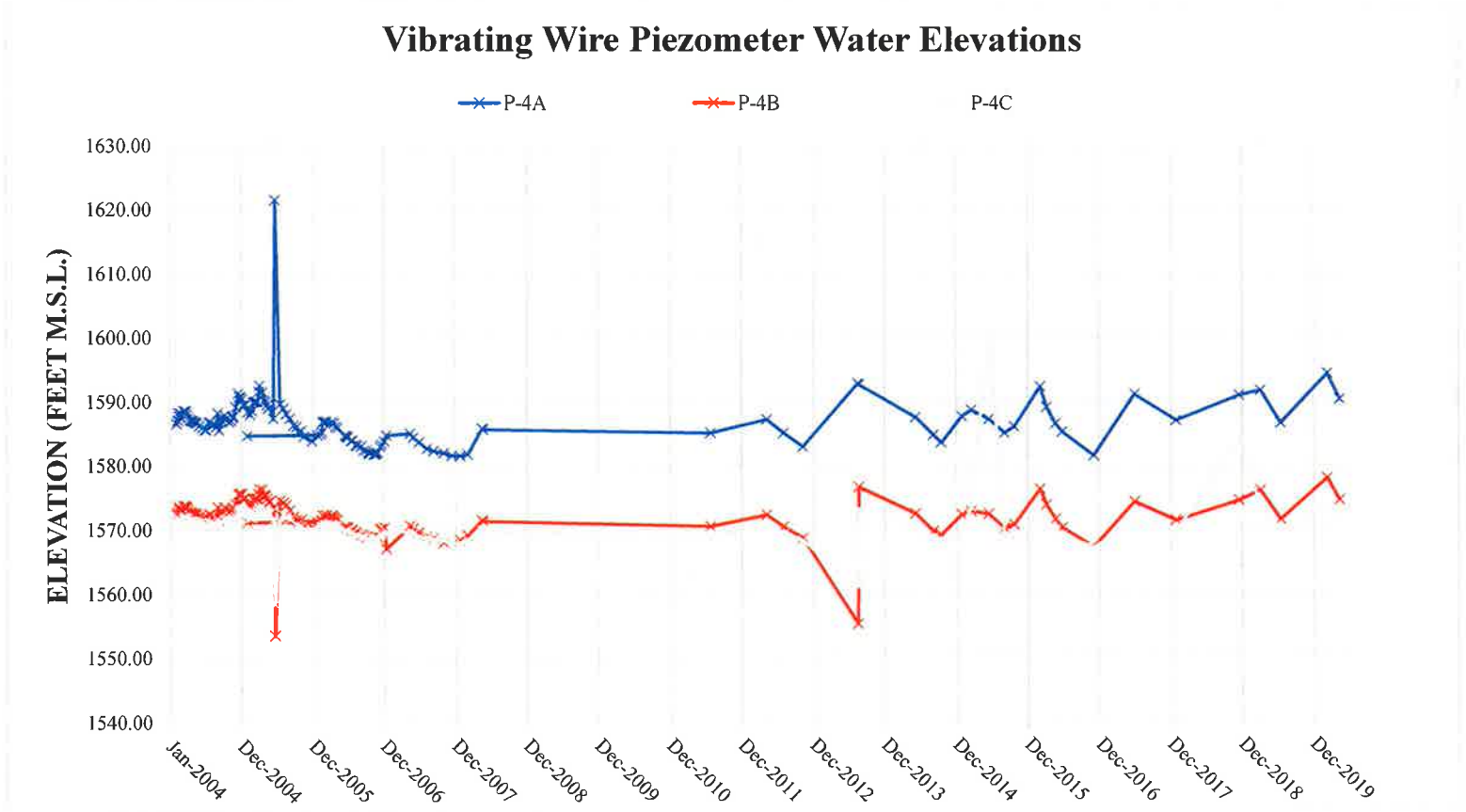
Photograph 1: Upstream Face, May 2020 – localized areas of erosion and beaching along shoreline.

Photograph 2: Downstream Face, May 2020 – overview of downstream face in good condition



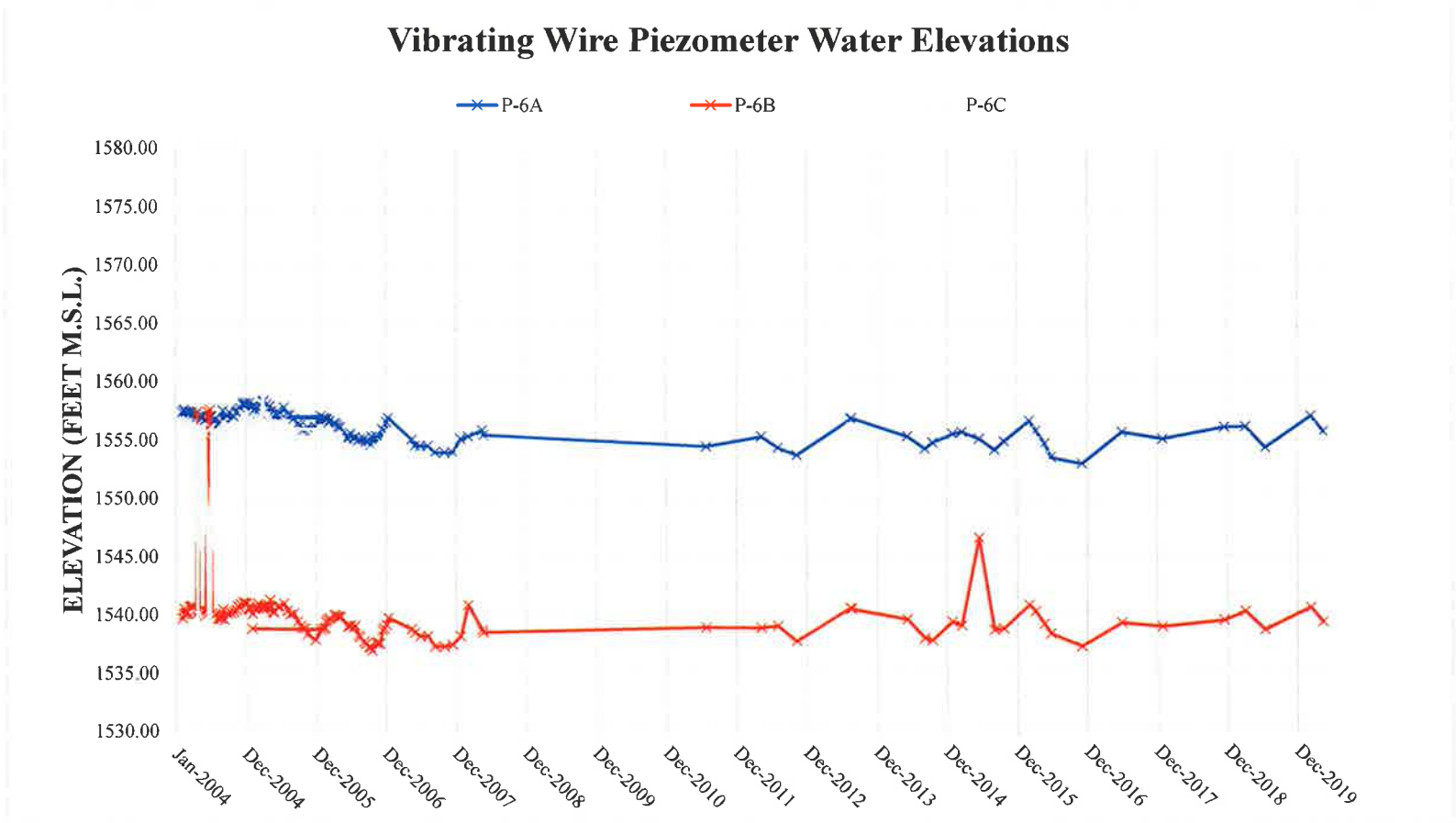
Note: Historical data anomalies generally appear to be the result of transcription errors.

Figure 2-2. Summary of Vibrating Wire Piezometer Data, P-2A, B, C (Feb 2004 through May 2020) - Lake Petit Dam, Big Canoe, GA



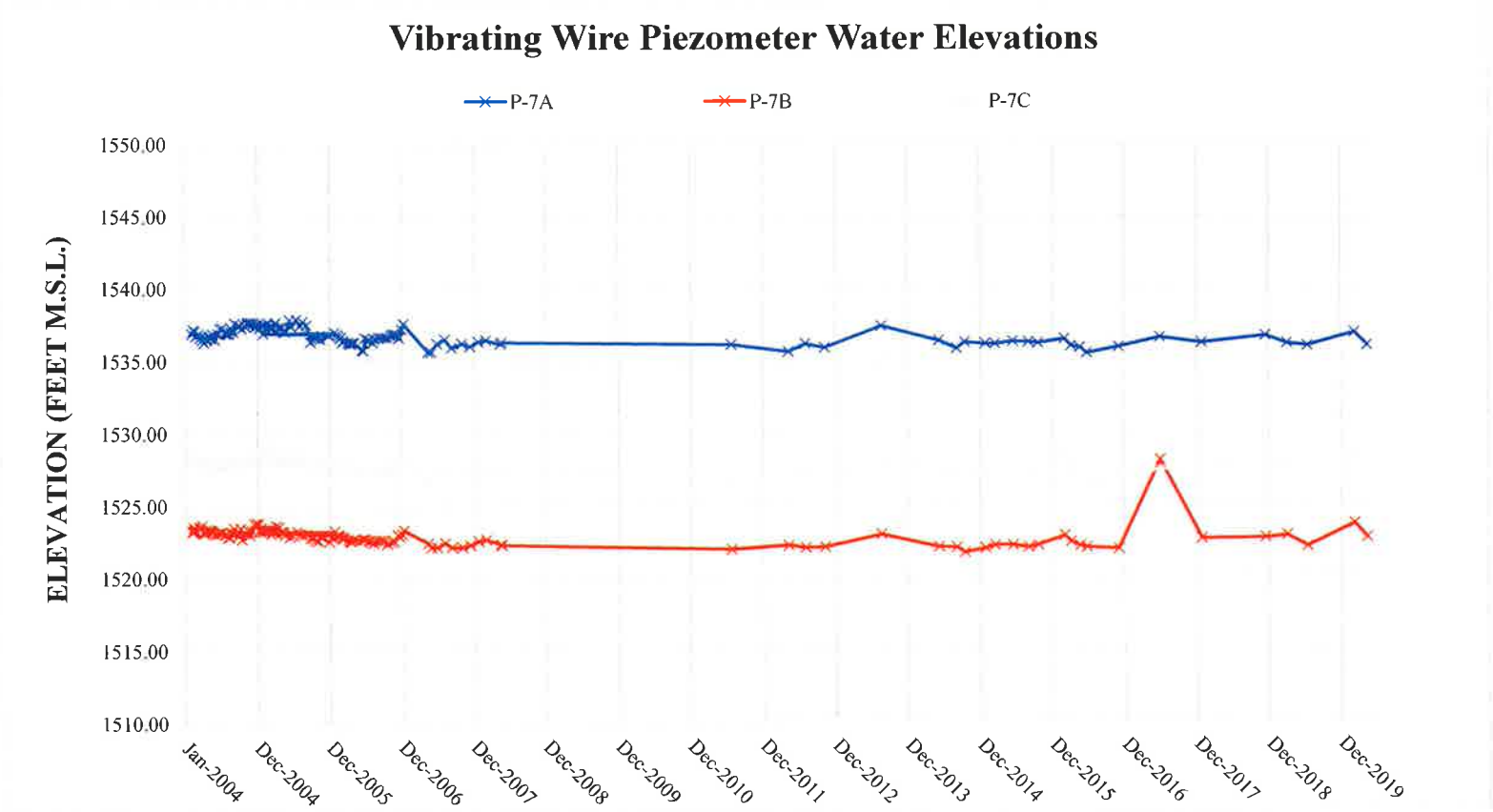
Note: Historical data anomalies generally appear to be the result of transcription errors.

Figure 2-3. Summary of Vibrating Wire Piezometer Data, P-4A, B, C (Feb 2004 through May 2020) - Lake Petit Dam, Big Canoe, GA



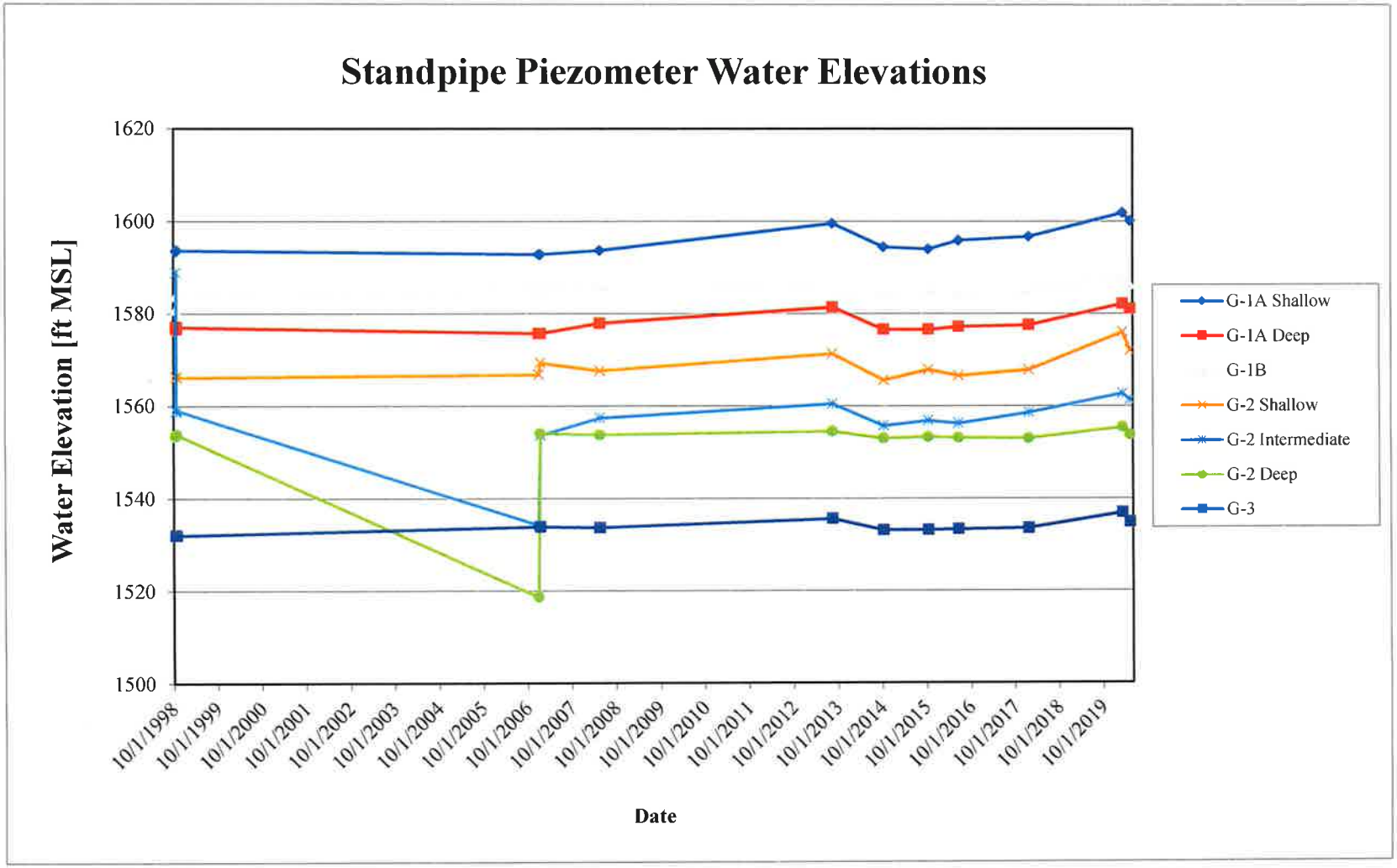
Note: Historical data anomalies generally appear to be the result of transcription errors.

Figure 2-4. Summary of Vibrating Wire Piezometer Data, P-6A, B, C (Feb 2004 through May 2020) - Lake Petit Dam, Big Canoe, GA



Note: Historical data anomalies generally appear to be the result of transcription errors.

Figure 2-5. Summary of Vibrating Wire Piezometer Data, P-7A, B, C (Feb 2004 through May 2020) - Lake Petit Dam, Big Canoe, GA



Note: G-2 Shallow water levels noted as anomolous on 3 Jan 2007. Re-measured 19 Jan 2007, and levels more consistent with previous readings.

Figure 2-6. Summary of Standpipe Piezometer Data (Oct 1998 through May 2020) - Lake Petit Dam, Big Canoe, GA.

Embankment (Earth) Dam Inspection Form

Name of Dam: Lake Petit Dam Date: 21 July 2020

Location of Dam (County): Pickens County Weather: Partly Cloudy, 95 degrees F

Inspected by (Print Name): Max Cange, P.G.(TN) Edisson O. Avila, E.I.(TN)

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 X Overgrown _____ Good Cover X Sparse _____

Other/Corrective Action (describe): The crest of the dam is an asphalt paved road. Vegetation on either side of the road was observed to be well-maintained.

☐ 2. Are there any trees or other inappropriate or excessive vegetation on the crest? Yes _____ No X

If yes, describe (type of vegetation, size, location, etc.)/Corrective Action: N/A

☐ 3. Is there a paved road or driveway on the crest? Yes X No _____

If yes, describe the condition (for example, good condition, numerous cracks, newly paved)/Corrective Action: Good condition. Paved in 2012.

☐ 4. Are there any depressions, ruts or holes on the crest? Yes _____ No X

If yes, describe (size, location, etc)/Corrective Action: N/A

☒ 5. Are there any cracks on the crest? Yes X No _____

If yes, describe (length and width, location, direction of cracking, etc.)/Corrective Action: Yes, a hairline transverse crack across the asphalt road was observed near the left abutment and towards the center of the embankment. This appears to be routine pavement stress; No change since previous inspection, continue to monitor.

☒ 6. Other observations on the crest/Corrective Action: Some erosion at the left and right groins from foot traffic and surface runoff was observed. No change since previous inspection. These areas should be re-established and seeded to prevent further erosion.

B. Upstream Slope (refer to Glossary for description)

1. What is the reservoir level today? At Normal Pool X 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 X Overgrown _____ Good Cover _____ Sparse _____

Other/Corrective Action (describe): This area is well-seeded and maintained short grass. A bare spot observed mid-way up the slope in 2013 was observed to have increased vegetation.

☐ 3. Are there any trees or other inappropriate or excessive vegetation on the slope? Yes _____ No X

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 X

If yes, describe (size, location, etc.)/Corrective Action: Good condition, previously reported soft areas were not observed. No evidence of new animal burrows.

☒ 5. Are there any eroded areas on the slope (such as wave erosion along the shoreline)? Yes X No _____

If yes, describe (size of area, location, severity, etc.)/Corrective Action: Slight "beaching" observed/reported in 2008 continued to be observed. Conditions do not appear to have worsened. Some erosion on the left and right groins due to suspected pedestrian use – no change since previous inspection. Surficial erosion should be re-established and seeded to prevent further erosion as part of on-going maintenance.

B. Upstream Slope (continued)

☐ 6. Are there any cracks, sloughs or slides (vertical cliffs) on the slope? Yes_____ No__X___

If yes, describe (length, width, height, location, etc.)/Corrective Action:_____

☒ 7. Is there any type of slope protection along the shoreline (such as riprap)? Yes__X____ No_____

If yes, describe what type and its condition (for example, riprap - adequate, inadequate, sparse)/Corrective Action: Rip rap exists on the shoreline, but the filter layer behind rip rap appears to have been eroded and should be replaced to prevent further erosion. No changes since previous inspection.

☐ 8. Other observations on the upstream slope/Corrective Action: No other observations.

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___X___ Good Cover_____ Sparse_____

Other/Corrective Action (describe): Grass observed overgrown throughout the downstream face of the dam (with the exceptions observed at the eroded areas along the left and right abutment). It is recommended that the overgrown vegetation be mowed at an increased frequency to prevent the establishment of unwanted vegetation and animal burrows.

☒ 2. Are there any trees or other inappropriate or excessive vegetation on the slope? Yes__X____ No_____

If yes, describe (type of vegetation, size, location, etc.)/Corrective Action: Trees from previous inspection appeared to be removed, however other small sprouting trees were observed on the downstream face of the dam along both abutments. Small sprouts of potentially deep-rooted vegetation observed in the left groin at Bench No. 3 and should be mowed to prevent unwanted vegetation.

☒ 3. Are there any depressions, bulges, ruts or holes (such as animal burrows) on the slope? Yes___X____ No_____

If yes, describe (size, location, etc.)/Corrective Action: Previously identified burrows appear to have been mitigated, however several additional animal burrows and ant hills were observed throughout the downstream face. A minor depression was observed at Bench No. 2 (upstream of an observed wet spot located on the slope between Bench No.1 and 2, on the left abutment). The observed items should be backfilled accordingly.

☒ 4. Are there any eroded areas on the slope (such as along abutment contacts)? Yes___X___ No_____

If yes, describe (size of area, location, severity, etc.)/Corrective Action: Minor surface erosion was observed generally at the right and left abutments at each bench, and scattered throughout the downstream slope. Surficial erosion should be re-established and seeded to prevent further erosion.

☐ 5. Are there any cracks, sloughs or slides (vertical cliffs) on the slope? Yes_____ No___X___

If yes, describe (length, width, height, location, etc.)/Corrective Action: N/A

☒ 6. Are there any wet areas or areas of hydrophilic (lush, water-loving) vegetation? Yes___X___ No_____

If yes, describe (size of area, location, etc.)/Corrective Action: Two wet areas were observed above Bench No. 1: one wet area was observed near the left abutment, from approximately Station (STA) 1+95 to 2+05; and the second wet area was observed from approximately STA -0+25 to -0+40. Both areas have been documented

C. Downstream Slope (continued)

in previous quarterly inspections completed in 2020, however, the areas have been observed to decrease in size and amount of moisture. Continue to monitor the wet areas for changes.

☐ 7. Do any wet areas indicate seepage through the dam (such as rust-colored, stained water)? Yes____ No_X_ N/A____

If yes, describe (for example, new area of seepage, no change from past observations, size of area, location) /Corrective Action: N/A

☐ 8. Are there any leaks (flowing water) from the slope or beyond the toe of the dam? Yes____ No_X_

If yes, describe (location, rate of flow, turbidity of flow)/Corrective Action: N/A

☒ 9. Other observations on the downstream slope/Corrective Action: The weirs on the left and right abutments were located. The weirs were observed to be clogged with sediment (silty sand) and vegetation/debris. Inspectors unclogged both weirs, but the concrete channel around the weir should be cleaned out and monitored to prevent future clogs to the weirs.

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_X_

If yes, describe what type and its condition (for example, riprap - adequate, inadequate, obstructed by vegetation) /Corrective Action: There is no plunge pool, but downstream from the impact-type stilling basin there does not appear to be riprap, however, based on current operations it does not appear to be needed.

☐ 2. Is there any erosion and or seeps around or going into the plunge pool? Yes____ No_X_

If yes, describe (size of area, location, severity, etc.) /Corrective Action: A drainpipe right of the stilling basin observed to be discharging clear water. Previous signs of potential seepage have diminished, but this area should continue to be monitored.

☒ 3. Other observations around the plunge pool/Corrective Action: Vegetation observed to be overgrown around, above, and downstream of the stilling basin. It is recommended that the overgrown vegetation be removed to allow ease of dam visual inspections.

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 Gunnite, Stepped Spillway Emergency Spillway None, other than a low-level draw-off pipe.

Other/Corrective Action:

☐ 2. Has the emergency spillway activated (had flow) since the last inspection? Yes____ No_X_

If yes describe (date(s) of flow, reason for activation, depth of flow) /Corrective Action: N/A

☒ 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: The intake for the low-level draw-off is not visible from the surface and could not be inspected. An inspection of this feature should be conducted

E. Principal and Emergency Spillways (continued

☐ 4. For pipe spillways, what is the condition of any trash racks (for example, adequate, inadequate, damaged)? /Corrective Action: The intake for the low-level draw-off is not visible from the surface and could not be inspected. A plan should be put in place to inspect this underwater feature.

☐ 5. For pipe spillways, are there any visible cracks, separations or holes in the pipe(s) (intake or outlet)? Yes_____ No_X_

If yes, describe (location, width of crack or separation, etc.)/Corrective Action: N/A

☒ 6. For pipe spillways, are there any apparent leaks in the pipe(s)? Yes_____ No_X_

If yes, describe (location, rate of flow from leak, etc.)/Corrective Action: The full pipe was unable to be inspected, however, a plan should be put in place to inspect the length of the pipe.

7. For pipe spillways, how would you describe the overall condition of the pipe(s)? (Check all that apply)

Functioning Normally_X_ Not Functional___ Deteriorated____ Damaged____ Adequate____ Inadequate____

☐ 8. For concrete or earth channel spillways, is the entrance or channel obstructed in any way? Yes_____ No_X____

If yes, describe (type of obstruction, location, etc.)/Corrective Action: N/A

☐ 9. For earth channel spillways, how would you describe the vegetation in the spillway? (Check all that apply)

Recently Mowed_____ Overgrown_____ Good Cover_____ Sparse_____

Other (describe)/Corrective Action: N/A

☐ 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: N/A

☐ 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: N/A

☒ 12. For concrete channel spillways, are there any cracks or holes in the spillway? Yes_X_____ No_____

If yes, describe (width of crack or hole, location, etc.)/Corrective Action: Small cracks were observed on the sides and in steps in portions of the spillway, but none were observed at or below the water line. Recommend continue to monitor.

☒ 13. For concrete channel spillways, are there any leaks or evidence of undermining (flow under the concrete)? Yes_X_ No___

If yes, describe (location, rate of flow from leak, indicators of undermining, etc.)/Corrective Action: On the left side of the concrete channel spillway, under the bridge located downstream of the left abutment, clear flowing water was observed behind the concrete lining and daylighting on the soil surface outside of the channel. The source of the flow of water is unknown. No apparent cracks or defects in the concrete lined channel were observed in the vicinity (i.e., upstream or downstream) of the flowing water. A conservative measurement of the flowing water velocity was determined to be at about 1 foot per second. The backfill material behind the sidewall of the concrete-lined channel has indications of erosion. The area should continue to be routinely monitored for any progression in the rate of flow or erosion of the backfill material, and the source of this flow be determined and mitigated. Post-inspection note: subsequent testing by Big Canoe of water flowing from this area indicated the water was likely not coming from the water treatment facility pipes nearby.

E. 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_X__ Not Functional____ Deteriorated____ Damaged____ Adequate____ Inadequate____

☒ 15. Other observations on the spillways/Corrective Action: Dead trees (trunks and other limbs) were observed bridging over the channel spillway and over the sides of the channel. Foreign debris should be removed and consideration given to cutting back some larger vegetation along the sides of the spillway channel to prevent falling debris from further damaging 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_X____ No_____

If yes, describe the condition (for example, clogged, free flowing, deteriorated, good condition) /Corrective Action: The drain at the toe of the dam did not have flow in it. The surface concrete ditch on Bench No. 1 observed to have low flow. The interceptor drains along Bench No. 1 were cleaned out and labeled No.1 through 13. Interceptor drain No. 1 was observed to be clogged and dry. Interceptor drain No. 11 was located, however, the corrugated pipe for the drainage needs to be extended to reach the concrete channel to prevent erosion of the surrounding areas. Interceptor drain No. 12 had low clear flow; however, it is believed to be collapsed and it is recommended to be replaced. All interceptor drains, with the exception of the dry drain No. 1, were observed to have minimal clear flow. The underdrain system of the dam outlets in the impact stilling basin, and the two drainpipes appeared to be flowing however they did have an accumulation of growth at their outlet, and this should be removed.

☐ 2. For drains, is an animal guard installed at the outlet of each drain? Yes_____ No__X___

If no, which drains lack animal guards? /Corrective Action: Animal guards were not observed on interceptor drain pipes, however, they do not appear necessary on the interceptor surface drains or underdrain outlet pipes, as these appear to continuously flow.

☐ 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.)
Interceptor Drains on Bench No. 1	Very low	<1 GPM	clear

☒ 4. Are there any piezometers on the dam? Yes__X___ No_____

If yes, describe the condition (for example, good condition, damaged, etc.)/Corrective Action: The piezometers are generally in good condition. Individual piezometers have caps to prevent water from intruding.

☒ 5. For piezometers, does each piezometer have a cap with a lock? Yes_____ No___X___

If no, which piezometers need caps (to prevent rain water intrusion) and/or locks (to prevent tampering)? /Corrective Action: Piezometers have caps, but no locks. They generally have monument covers with a bolted lid to prevent tampering, however, some of the covers are missing a bolt. Lid bolts and seals should be replaced at next inspection.

F. Instrumentation (continued)

☐ 6. For piezometers, are you able to take a measurement (depth to water) in each piezometer? Yes__X___ 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___X___

If yes, describe what type and the condition (for example, monitoring wells - good condition, damaged) /Corrective Action:

_____

☐ 8. Other observations on instrumentation/Corrective Action: No other observations.

_____

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 photographs attached.

_____

_____

_____

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

Geosyntec consultants

PHOTOGRAPH LOG

PROJECT NAME: July 2020 Lake Petit Dam Visual Assessment	PROJECT NO.: TN7237
CLIENT: Big Canoe Property Owners Association	FILE NAME: July 2020 Dam Insp

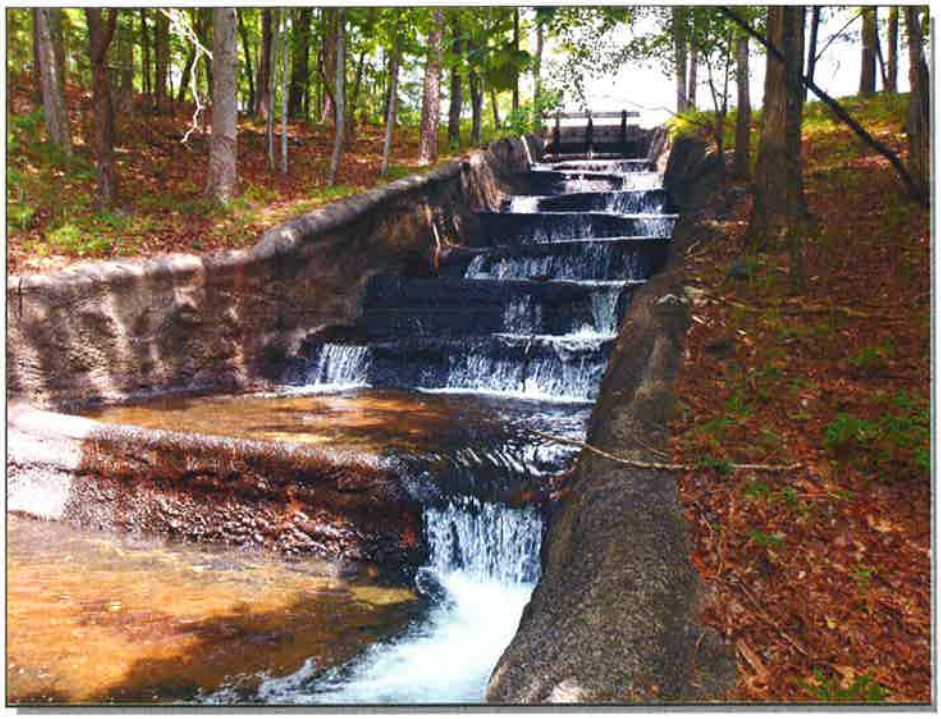
Photograph 1: Upstream Face, July 2020 – localized areas of erosion and beaching along shoreline.

Photograph 2: Downstream Face, June 2020 – overview of downstream face in good condition

Geosyntec consultants

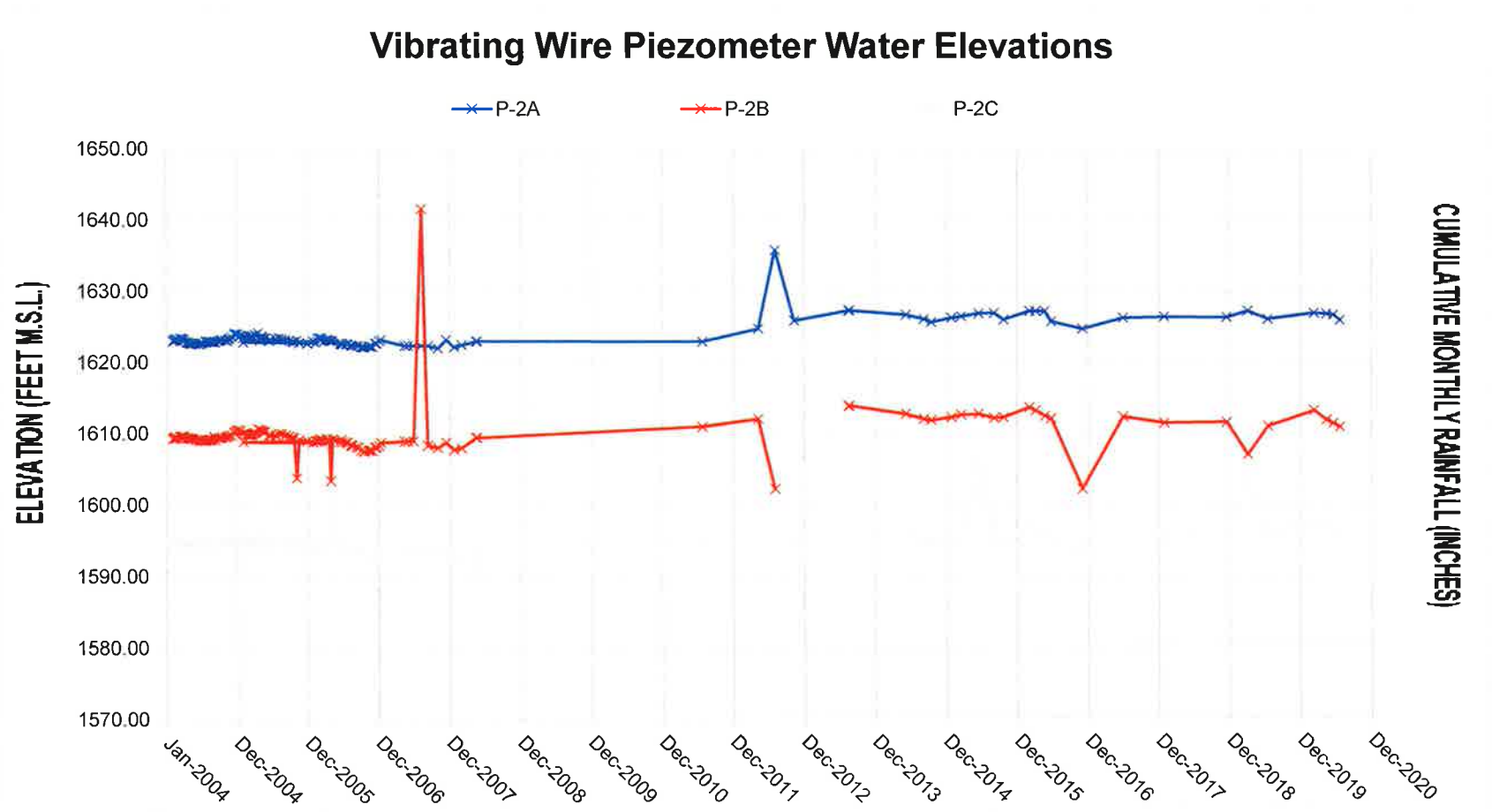
PHOTOGRAPH LOG

PROJECT NAME: July 2020 Lake Petit Dam Visual Assessment	PROJECT NO.: TN7237
CLIENT: Big Canoe Property Owners Association	FILE NAME: July 2020 Dam Insp



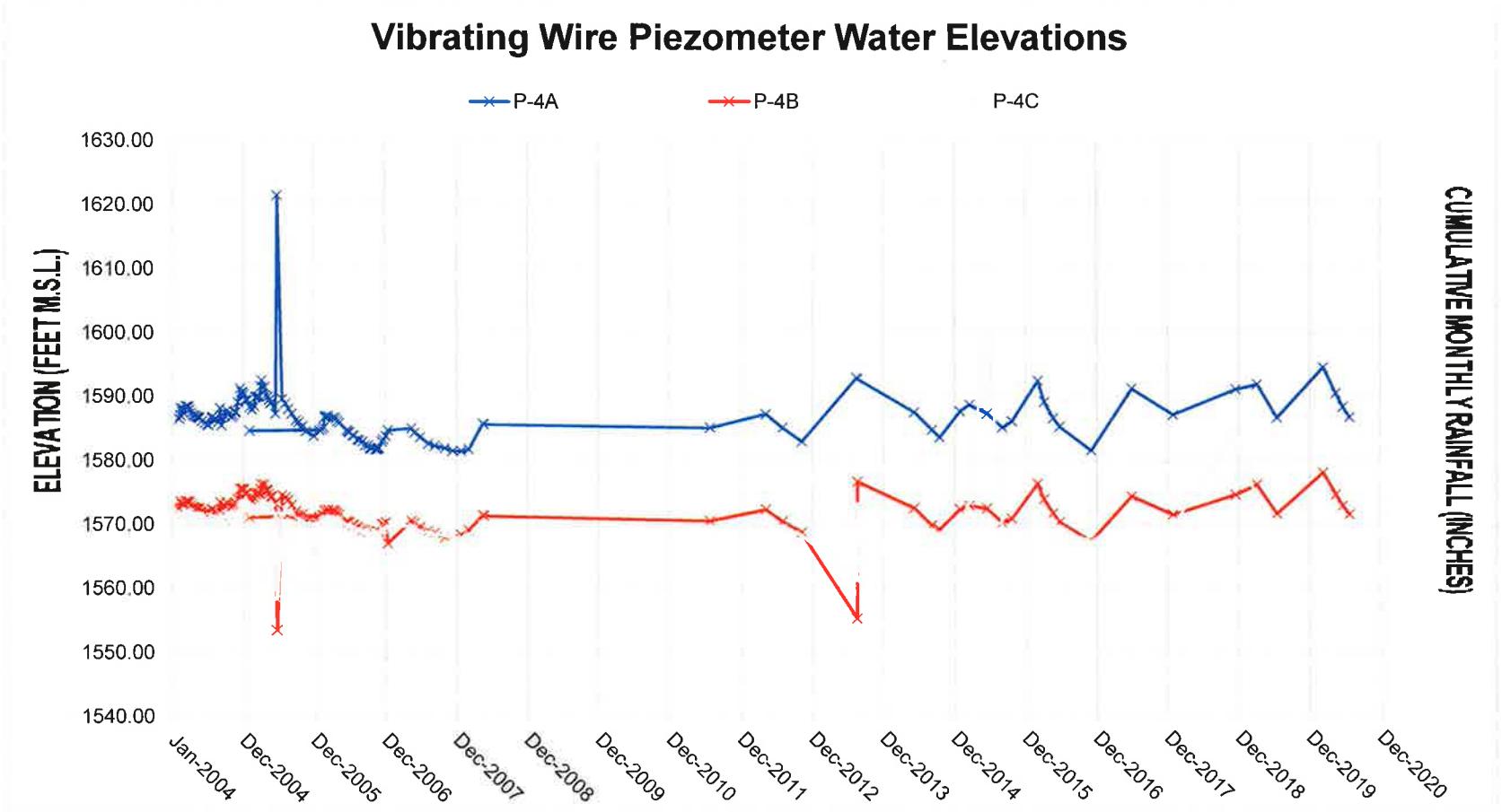
Photograph 3: Spillway, July 2020 – general view of stepped spillway with moderate flow, and tree limbs and debris noted during inspection.

Photograph 4: Spillway, July 2020 – water flow observed behind the concrete lined channel.



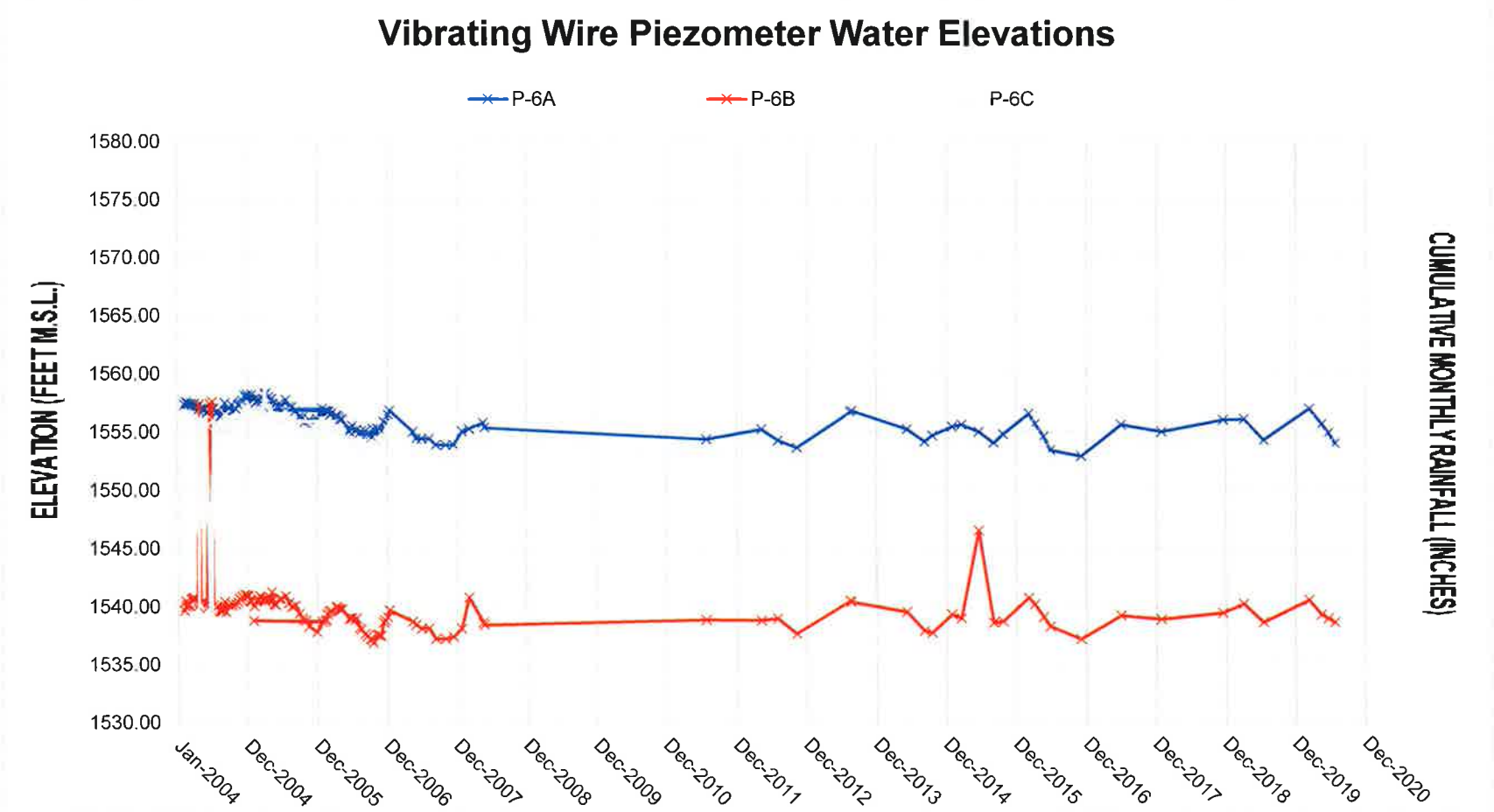
Note: Historical data anomalies generally appear to be the result of transcription errors.

Figure 2-2. Summary of Vibrating Wire Piezometer Data, P-2A, B, C (Feb 2004 through July 2020) - Lake Petit Dam, Big Canoe, GA



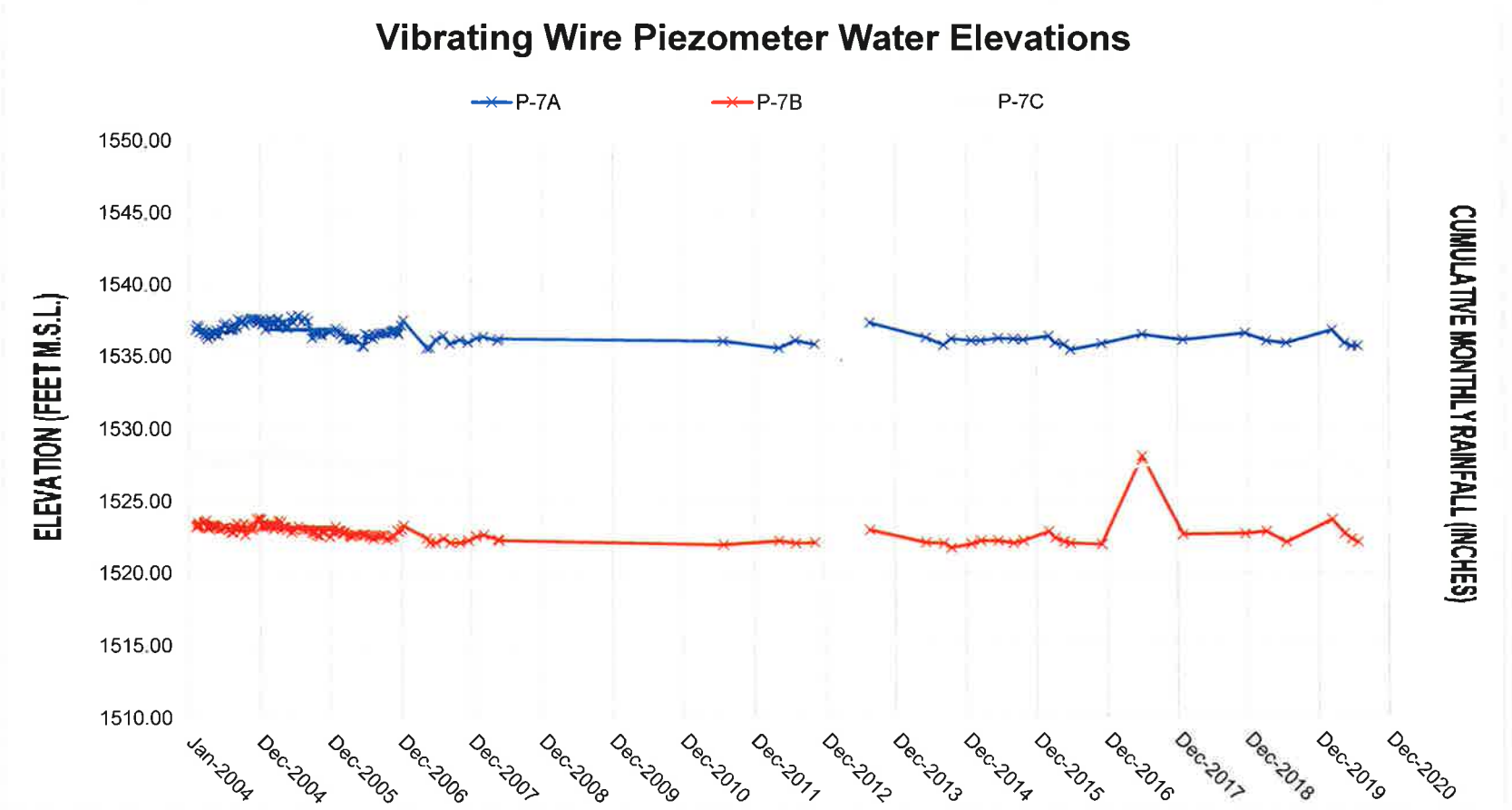
Note: Historical data anomalies generally appear to be the result of transcription errors.

Figure 2-3. Summary of Vibrating Wire Piezometer Data, P-4A, B, C (Feb 2004 through July 2020) - Lake Petit Dam, Big Canoe, GA



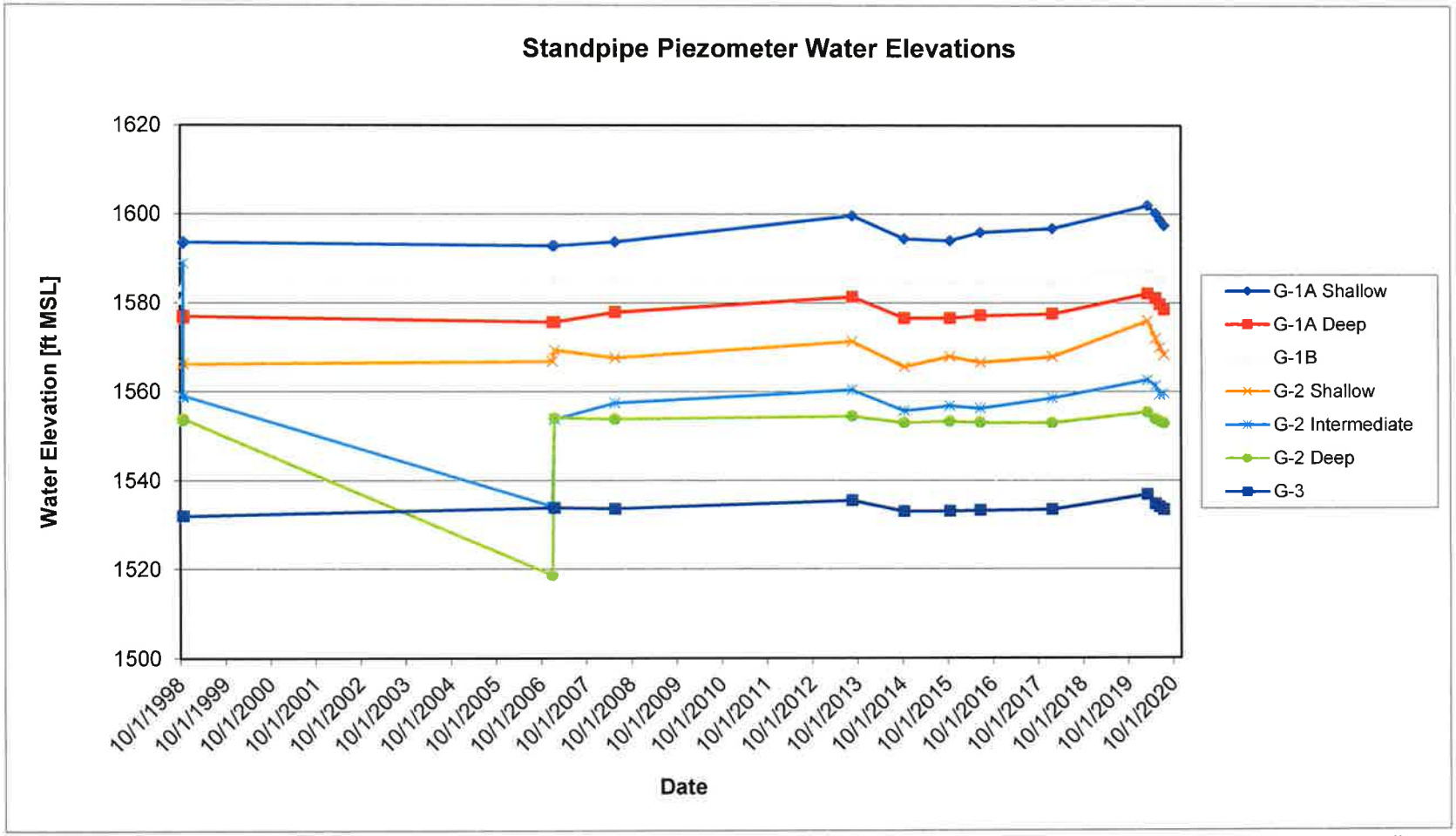
Note: Historical data anomalies generally appear to be the result of transcription errors.

Figure 2-4. Summary of Vibrating Wire Piezometer Data, P-6A, B, C (Feb 2004 through July 2020) - Lake Petit Dam, Big Canoe, GA



Note: Historical data anomalies generally appear to be the result of transcription errors.

Figure 2-5. Summary of Vibrating Wire Piezometer Data, P-7A, B, C (Feb 2004 through July 2020) - Lake Petit Dam, Big Canoe, GA



Note: G-2 Shallow water levels noted as anomolous on 3 Jan 2007. Re-measured 19 Jan 2007, and levels more consistent with previous readings.

Figure 2-6. Summary of Standpipe Piezometer Data (Oct 1998 through July 2020) - Lake Petit Dam, Big Canoe, GA.

Embankment (Earth) Dam Inspection Form

Name of Dam: Lake Petit Dam Date: 19 November 2020

Location of Dam (County): Pickens County Weather: Sunny, 58 degrees F

Inspected by (Print Name): Max Cange, P.G.(TN)

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 X Overgrown ____ Good Cover X Sparse ____

Other/Corrective Action (describe): The crest of the dam is an asphalt paved road. Vegetation on either side of the road was observed to be well-maintained.

☐ 2. Are there any trees or other inappropriate or excessive vegetation on the crest? Yes ____ No X

If yes, describe (type of vegetation, size, location, etc.)/Corrective Action: N/A

☐ 3. Is there a paved road or driveway on the crest? Yes X No ____

If yes, describe the condition (for example, good condition, numerous cracks, newly paved)/Corrective Action: Good condition. Paved in 2012.

☐ 4. Are there any depressions, ruts or holes on the crest? Yes ____ No X

If yes, describe (size, location, etc)/Corrective Action: N/A

☒ 5. Are there any cracks on the crest? Yes X No ____

If yes, describe (length and width, location, direction of cracking, etc.)/Corrective Action: Yes, a hairline transverse crack across the asphalt road was observed near the left abutment and towards the center of the embankment. This appears to be routine pavement stress; however, this should continue to be monitored. No change observed.

☒ 6. Other observations on the crest/Corrective Action: Some erosion at the left and right groins from foot traffic and surface runoff was observed. No change since previous inspection. These areas should be re-established and seeded to prevent further erosion.

B. Upstream Slope (refer to Glossary for description)

1. What is the reservoir level today? At Normal Pool X 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 X Overgrown ____ Good Cover X Sparse ____

Other/Corrective Action (describe): This area is well-seeded and maintained short grass. A bare spot observed mid-way up the slope in 2013 was observed to have increased vegetation.

☐ 3. Are there any trees or other inappropriate or excessive vegetation on the slope? Yes ____ No X

If yes, describe (type of vegetation, size, location, etc.)/Corrective Action: N/A

☐ 4. Are there any depressions, bulges, ruts or holes (such as animal burrows) on the slope? Yes ____ No X

If yes, describe (size, location, etc.)/Corrective Action: Good condition, No evidence of new animal burrows.

☒ 5. Are there any eroded areas on the slope (such as wave erosion along the shoreline)? Yes X No ____

If yes, describe (size of area, location, severity, etc.)/Corrective Action: Slight "beaching" observed/reported in 2008 continued to be observed. Conditions do not appear to have worsened. Some erosion on the left and right groins due to suspected pedestrian use – no change since previous inspection. Surficial erosion should be re-established and seeded to prevent further erosion.

B. Upstream Slope (continued)

☐ 6. Are there any cracks, sloughs or slides (vertical cliffs) on the slope? Yes_____ No__X____

If yes, describe (length, width, height, location, etc.)/Corrective Action: N/A

☒ 7. Is there any type of slope protection along the shoreline (such as riprap)? Yes__X____ No_____

If yes, describe what type and its condition (for example, riprap - adequate, inadequate, sparse)/Corrective Action: Rip rap exists on the shoreline, but the filter layer behind rip rap appears to have been eroded and should be replaced to prevent further erosion. No changes since previous inspection.

☐ 8. Other observations on the upstream slope/Corrective Action: No other observations.

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 X _____ Overgrown_____ Good Cover__X___ Sparse_____

Other/Corrective Action (describe): Grass observed to have been mowed and provide generally good cover. Minor patches of overgrown grass present throughout the downstream face of the dam. It is recommended that the overgrown vegetation be mowed at an increased frequency to prevent the establishment of unwanted vegetation and animal burrows.

☒ 2. Are there any trees or other inappropriate or excessive vegetation on the slope? Yes__X____ No_____

If yes, describe (type of vegetation, size, location, etc.)/Corrective Action: Small sprouting trees were observed on the downstream face of the dam along the right and left abutments. Small sprouts of potentially deep-rooted vegetation in the left groin at Bench No. 3, which were identified during the previous inspection, were observed to have been removed.

☒ 3. Are there any depressions, bulges, ruts or holes (such as animal burrows) on the slope? Yes___X____ No_____

If yes, describe (size, location, etc.)/Corrective Action: Previously identified burrows appear to have been mitigated, as part of ongoing maintenance, however several other animal burrows and ant hills were observed throughout the downstream face. A minor depression was observed at Bench No. 2 (upstream of an observed wet spot located on the slope between Bench No.1 and 2, on the left abutment). The depression appears unchanged from the previous inspection and should be backfilled accordingly.

☒ 4. Are there any eroded areas on the slope (such as along abutment contacts)? Yes__X____ No_____

If yes, describe (size of area, location, severity, etc.)/Corrective Action: Minor surface erosion was observed generally at the right and left abutments at each bench, and scattered throughout the downstream slope. There is some improvement since the previous inspection, particularly along the right abutment where new vegetation is starting to grow. Surficial erosion should continue to be monitored, re-established and seeded to prevent further erosion.

☐ 5. Are there any cracks, sloughs or slides (vertical cliffs) on the slope? Yes_____ No___X___

If yes, describe (length, width, height, location, etc.)/Corrective Action: N/A

☒ 6. Are there any wet areas or areas of hydrophilic (lush, water-loving) vegetation? Yes___X___ No_____

If yes, describe (size of area, location, etc.)/Corrective Action: Two previously documented wet areas were observed above Bench No. 1, no changes observed.

C. Downstream Slope (continued)

The areas appear generally unchanged from the previous inspection. Continue to monitor the wet areas for changes.

☐ 7. Do any wet areas indicate seepage through the dam (such as rust-colored, stained water)? Yes____ No__X__ N/A____

If yes, describe (for example, new area of seepage, no change from past observations, size of area, location) /Corrective Action: N/A

☐ 8. Are there any leaks (flowing water) from the slope or beyond the toe of the dam? Yes____ No__X__

If yes, describe (location, rate of flow, turbidity of flow)/Corrective Action: N/A

☒ 9. Other observations on the downstream slope/Corrective Action: The weirs on the left and right abutments were located. The left weir was observed to be clogged with vegetation/debris (sediment). Inspectors unclogged the weir, but the concrete channel around the weir should be cleaned out and monitored to prevent future clogs.

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__X__

If yes, describe what type and its condition (for example, riprap - adequate, inadequate, obstructed by vegetation) /Corrective Action: There is no plunge pool, but downstream from the impact-type stilling basin there does not appear to be riprap, however, based on current operations it does not appear to be needed.

☐ 2. Is there any erosion and or seeps around or going into the plunge pool? Yes____ No__X__

If yes, describe (size of area, location, severity, etc.) /Corrective Action: A drainpipe right of the stilling basin observed to be discharging clear water.

☒ 3. Other observations around the plunge pool/Corrective Action: Vegetation observed to be overgrown around, above, and downstream of the stilling basin. It is recommended that the overgrown vegetation be removed/mowed to allow ease of dam visual inspections.

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 Gunnite, Stepped Spillway Emergency Spillway None, other than a low-level outlet pipe.

Other/Corrective Action: N/A

☐ 2. Has the emergency spillway activated (had flow) since the last inspection? Yes____ No__X__

If yes describe (date(s) of flow, reason for activation, depth of flow) /Corrective Action: N/A

☐ 3. For pipe spillways, is the intake obstructed in any way (such as with excessive debris)? Yes____ No__X__

If yes, describe (type of debris, reason for obstruction, etc.) /Corrective Action: The intake for the low-level outlet is not visible from the surface, but was inspected by a dive team in September 2020. The sluice gate structure was observed to be in generally good condition and had a small amount of sediment atop it that was cleaned off by divers.

☐ 4. For pipe spillways, what is the condition of any trash racks (for example, adequate, inadequate, damaged)? /Corrective Action: The intake for the low-level outlet is not visible from the surface but was inspected by a dive team in September 2020. The sluice gate structure was noted to have an intact trash rack by the divers

E. Principal and Emergency Spillways (continued

☐ 5. For pipe spillways, are there any visible cracks, separations or holes in the pipe(s) (intake or outlet)? Yes____ No_X__

If yes, describe (location, width of crack or separation, etc.)/Corrective Action: N/A

☐ 6. For pipe spillways, are there any apparent leaks in the pipe(s)? Yes____ No_X__

If yes, describe (location, rate of flow from leak, etc.)/Corrective Action: A camera inspection of the low-level outlet pipe was begun on 12 November 2020, however the full length of the pipe was unable to be inspected on that date. The inspection identified a few pipe joints with calcite formations, indicating minor seepage, but otherwise did not identify any apparent leaks or issues with the pipe's overall condition.

7. For pipe spillways, how would you describe the overall condition of the pipe(s)? (Check all that apply)

Functioning Normally_X_ Not Functional___ Deteriorated____ Damaged____ Adequate____ Inadequate____

☐ 8. For concrete or earth channel spillways, is the entrance or channel obstructed in any way? Yes____ No_X____

If yes, describe (type of obstruction, location, etc.)/Corrective Action: Some accumulation of leaves and pine needles were observed along the spillway crest, but these did not appear to impact the function of the spillway as it was observed to be functioning normally.

☐ 9. For earth channel spillways, how would you describe the vegetation in the spillway? (Check all that apply)

Recently Mowed_____ Overgrown_____ Good Cover_____ Sparse_____

Other (describe)/Corrective Action: N/A

☐ 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: N/A

☐ 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: N/A

☒ 12. For concrete channel spillways, are there any cracks or holes in the spillway? Yes_X___ No_____

If yes, describe (width of crack or hole, location, etc.)/Corrective Action: Small cracks were observed on the sides and in steps in portions of the spillway, but none were observed at or below the water line. Recommend continue to monitor.

☒ 13. For concrete channel spillways, are there any leaks or evidence of undermining (flow under the concrete)? Yes_X___ No___

If yes, describe (location, rate of flow from leak, indicators of undermining, etc.)/Corrective Action: On the left side of the concrete channel spillway, under the bridge located downstream of the left abutment, clear flowing water was observed behind the concrete lining. The previous inspection identified this same condition, but water was observed to daylight on the soil surface outside of the channel. The source of the flow of water is unknown, but was determined to not be sourced from water treatment pipes in the vicinity. No apparent cracks or defects in the concrete lined channel were observed in the vicinity (i.e., upstream or downstream) of the flowing water. The backfill material behind the sidewall of the concrete-lined channel has indications of erosion as noted previously, but no observable changes. The area should continue to be routinely monitored for any progression in the rate of flow or erosion of the backfill material, and the source of this flow be determined and mitigated. Big Canoe attempted minor repairs since the previous inspection. A plan to remove water from the spillway should be implemented so that inspection and repair of the spillway can be conducted.

Embankment (Earth) Dam Inspection Form (continued)

Name of Dam: Lake Petit Dam Date: 19 November 2020

E. 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 _X_ Not Functional____ Deteriorated __X__ Damaged____ Adequate____ Inadequate____

☒ 15. Other observations on the spillways/Corrective Action: Some dead trees (trunks and other limbs) from previous inspections appear to have been removed, however others were observed leaning over the sides of the channel. Foreign debris should be removed, and consideration given to cutting back some larger vegetation along the sides of the spillway channel to prevent falling debris from further damaging 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_X____ No_____

If yes, describe the condition (for example, clogged, free flowing, deteriorated, good condition) /Corrective Action: The drain at the toe of the dam did not have flow in it. The surface concrete ditch on Bench No. 1 had low flow in it. The interceptor drains along Bench No. 1 were identified. Interceptor drain No. 1 was observed to be clogged and dry. Interceptor drain No. 11 was located, however, the corrugated pipe for the drainage needs to be extended to reach the concrete channel to prevent erosion of the surrounding areas. Interceptor drain No. 12 had low clear flow; however, it is believed to be collapsed and it is recommended to be replaced. All interceptor drains, with the exception of the dry drain No. 1, were observed to have minimal clear flow. The underdrain system of the dam outlets in the impact stilling basin, and the two drainpipes appeared to be flowig however they did have an accumulation of growth at their outlet, and this should be removed.

☐ 2. For drains, is an animal guard installed at the outlet of each drain? Yes_____ No__X___

If no, which drains lack animal guards? /Corrective Action: Animal guards were not observed on interceptor drainpipes, however, they do not appear necessary on the interceptor surface drains or underdrain outlet pipes, as these appear to continuously flow.

☐ 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.)
Interceptor Drains on Bench No. 1	Very low	<1 GPM	clear

☐ 4. Are there any piezometers on the dam? Yes__X___ No_____

If yes, describe the condition (for example, good condition, damaged, etc.)/Corrective Action: The piezometers are generally in good condition. Individual piezometers have caps to prevent water from intruding.

☒ 5. For piezometers, does each piezometer have a cap with a lock? Yes_____ No___X___

If no, which piezometers need caps (to prevent rain water intrusion) and/or locks (to prevent tampering)? /Corrective Action: Piezometers have caps, but no locks. They generally have monument covers with a bolted lid to prevent tampering, however, some of the covers are missing a bolt. Lid bolts and seals should be replaced at next inspection.

☐ 6. For piezometers, are you able to take a measurement (depth to water) in each piezometer? Yes__X___ No_____

If yes, record depth to water (in feet) in each piezometer, record on a separate page, and attach to this form.

↑ Check if corrective action is noted/required.

F. Instrumentation (continued)

☐ 7. Are there any other monitoring devices on the dam? Yes_____ No___X___

If yes, describe what type and the condition (for example, monitoring wells - good condition, damaged) /Corrective Action:

N/A

☐ 8. Other observations on instrumentation/Corrective Action: No other observations.

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): Photographs have been attached to this inspection report.

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

Geosyntec consultants

PHOTOGRAPH LOG

PROJECT NAME: November 2020 Lake Petit Dam Visual Assessment	PROJECT NO.: TN7237
CLIENT: Big Canoe Property Owners Association	FILE NAME: Nov. 2020 Dam Insp

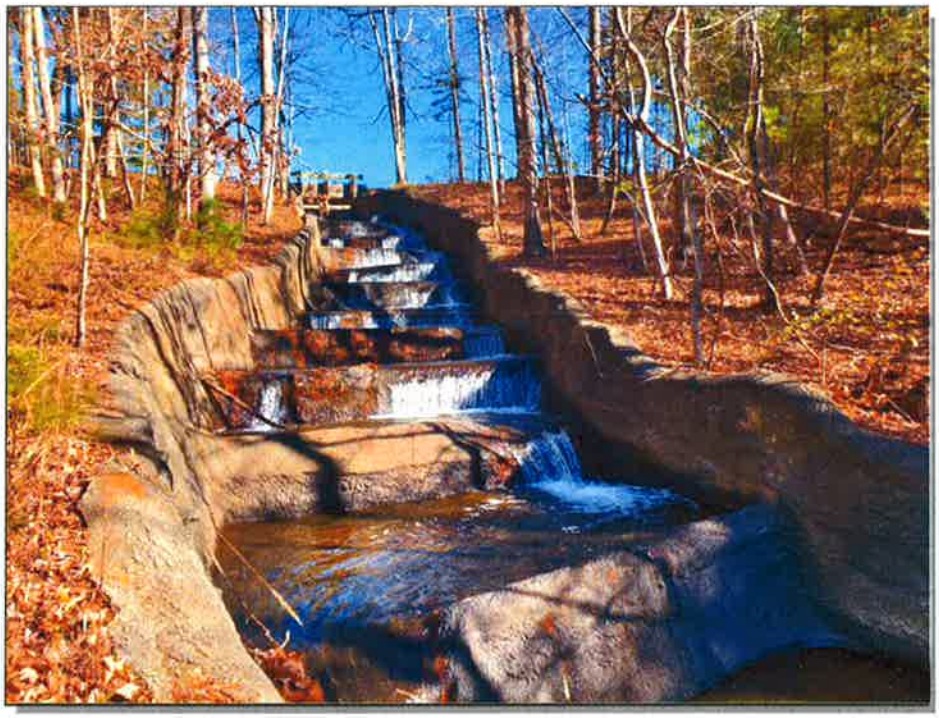
Photograph 1: Upstream Face, Nov. 2020 – localized areas of erosion and beaching along shoreline.

Photograph 2: Downstream Face, Nov. 2020 – overview of downstream face in good condition

Geosyntec consultants

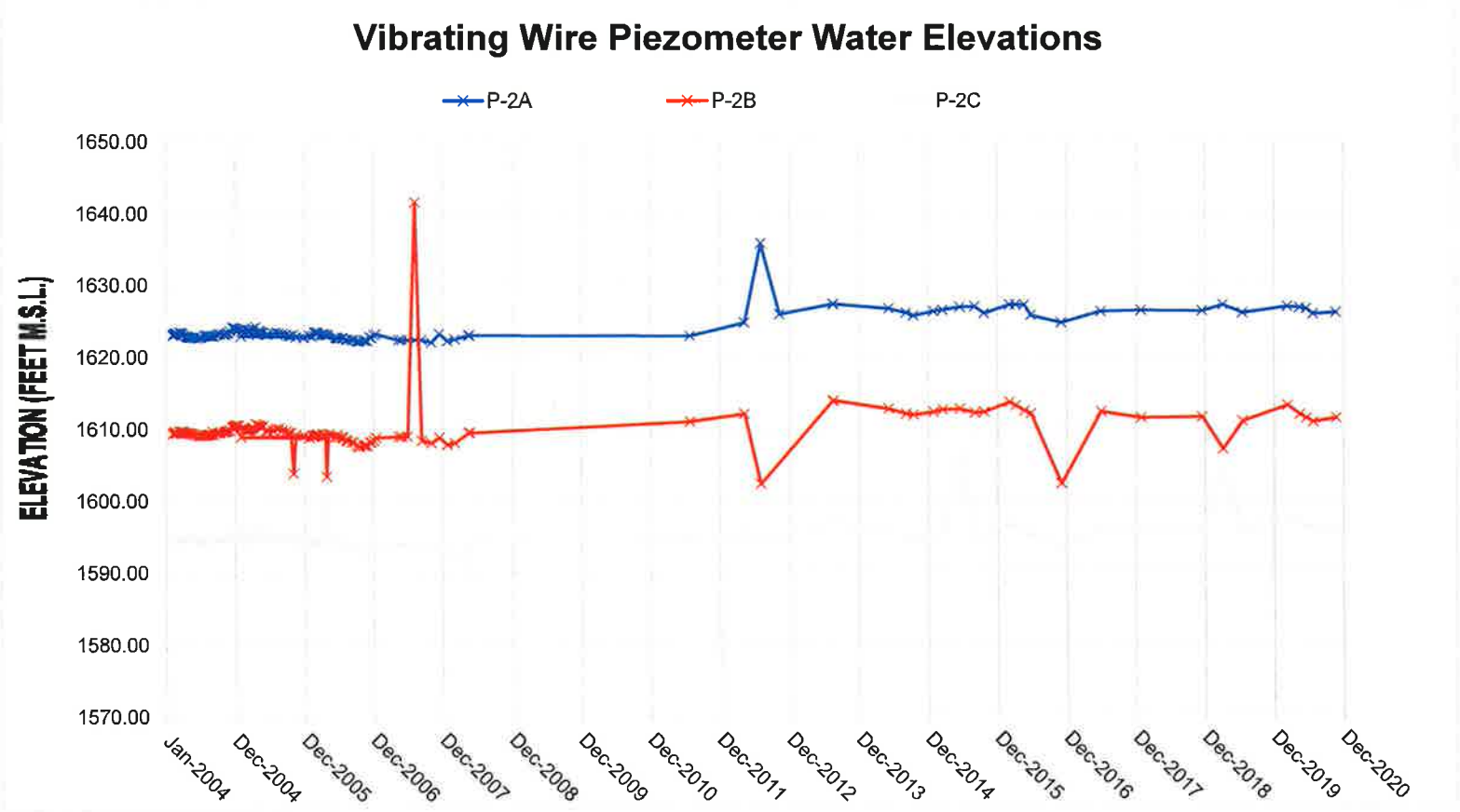
PHOTOGRAPH LOG

PROJECT NAME: November 2020 Lake Petit Dam Visual Assessment	PROJECT NO.: TN7237
CLIENT: Big Canoe Property Owners Association	FILE NAME: Nov. 2020 Dam Insp



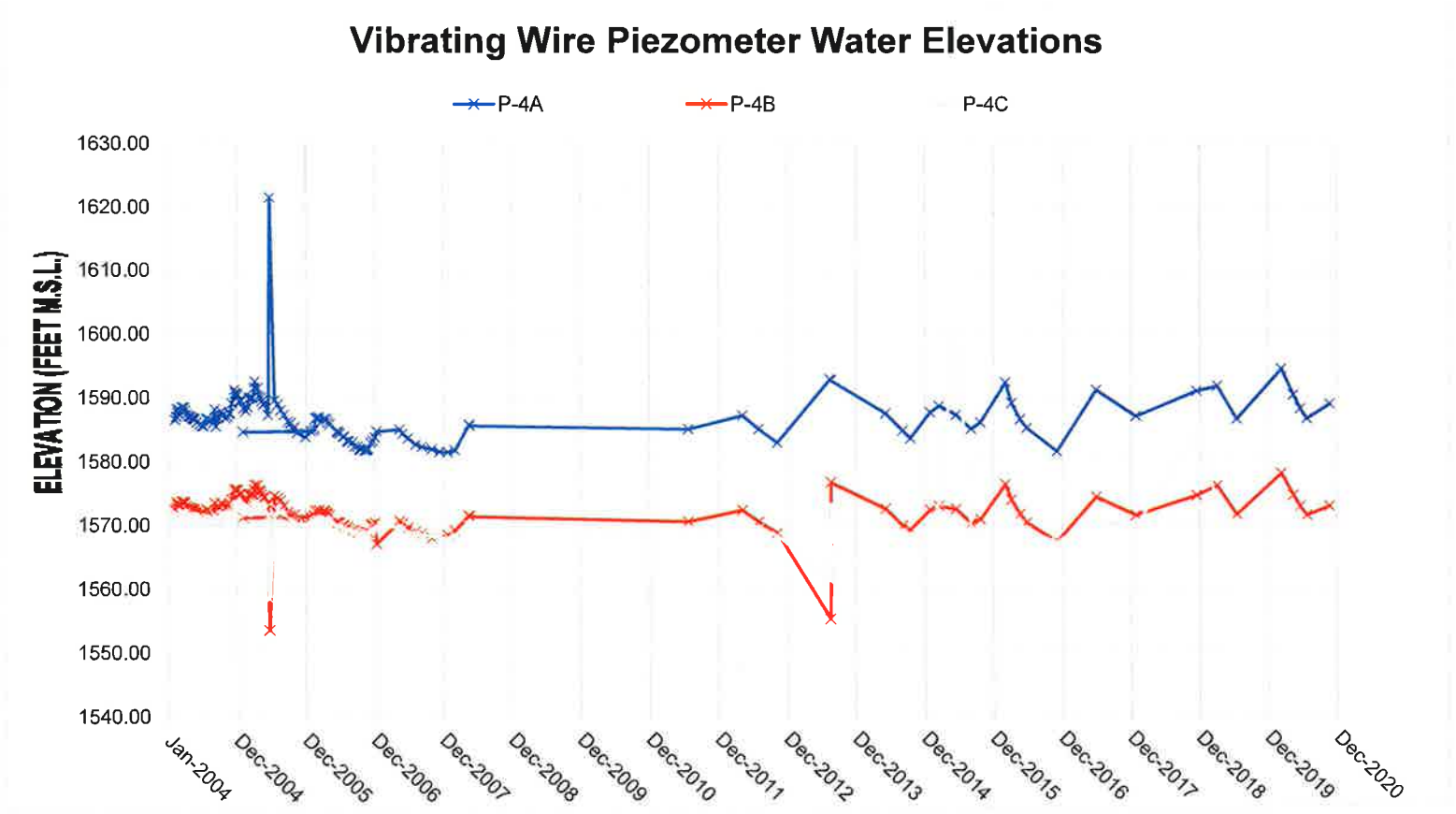
Photograph 3: Spillway, Nov. 2020 – general view of stepped spillway with moderate flow, and tree limbs and debris noted during inspection.

Photograph 4: Spillway, Nov. 2020 – Area of previously identified water flow behind concrete lined channel. Water flow was observed to continue but did not daylight at surface in depicted location.



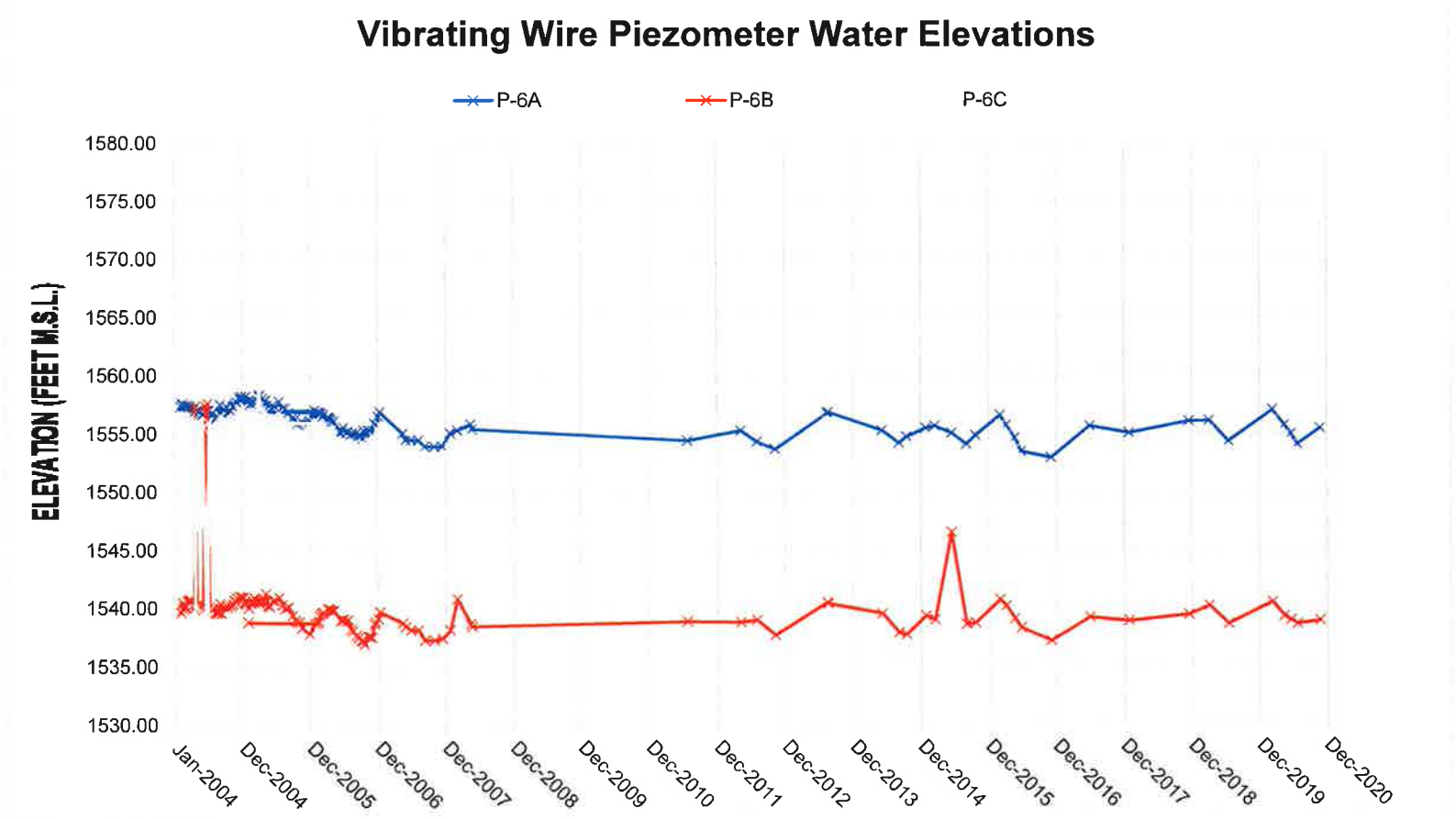
Note: Historical data anomalies generally appear to be the result of transcription errors.

Figure 2-2. Summary of Vibrating Wire Piezometer Data, P-2A, B, C (Feb 2004 through Nov 2020) - Lake Petit Dam, Big Canoe, GA



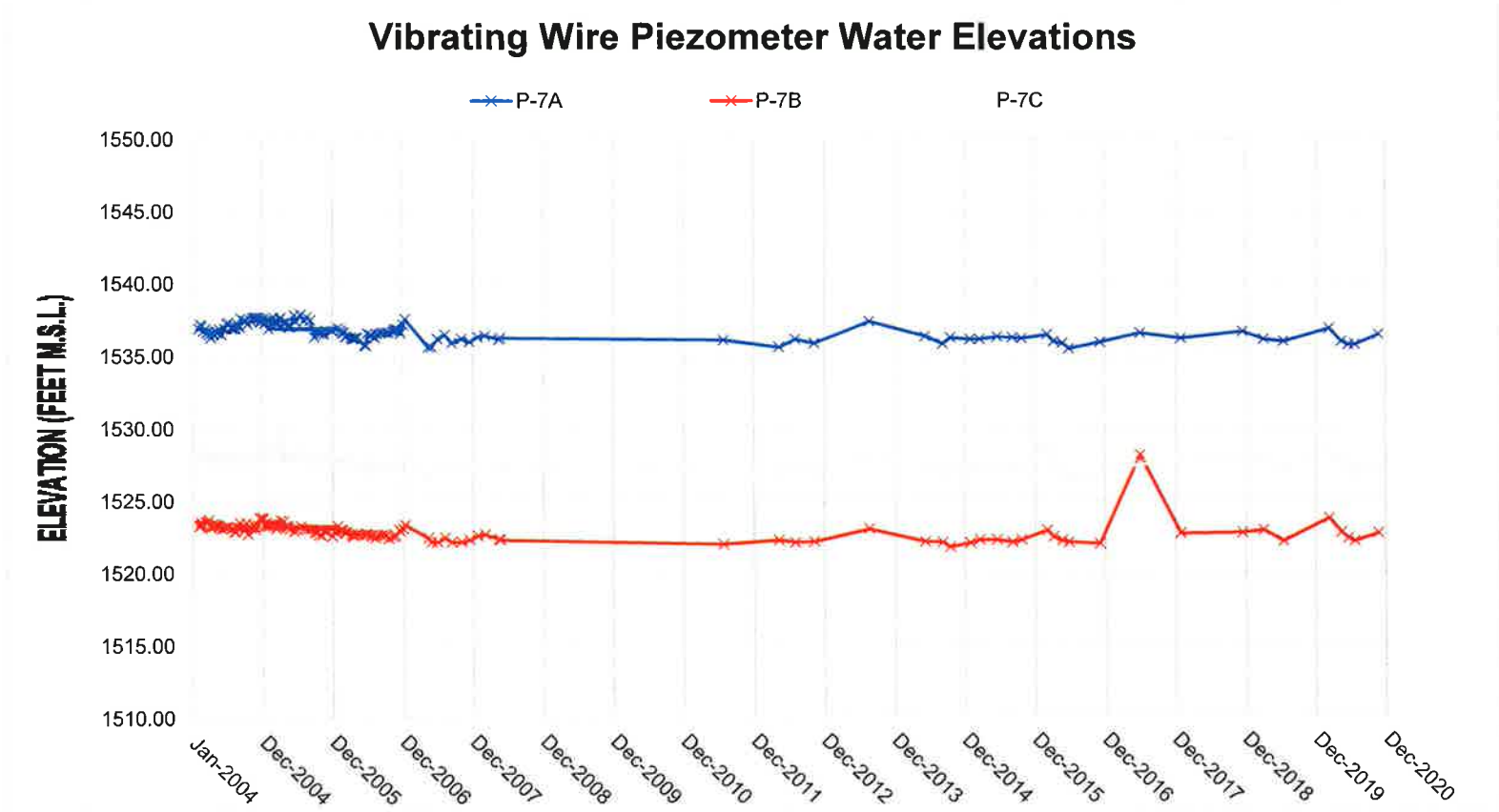
Note: Historical data anomalies generally appear to be the result of transcription errors.

Figure 2-3. Summary of Vibrating Wire Piezometer Data, P-4A, B, C (Feb 2004 through Nov 2020) - Lake Petit Dam, Big Canoe, GA



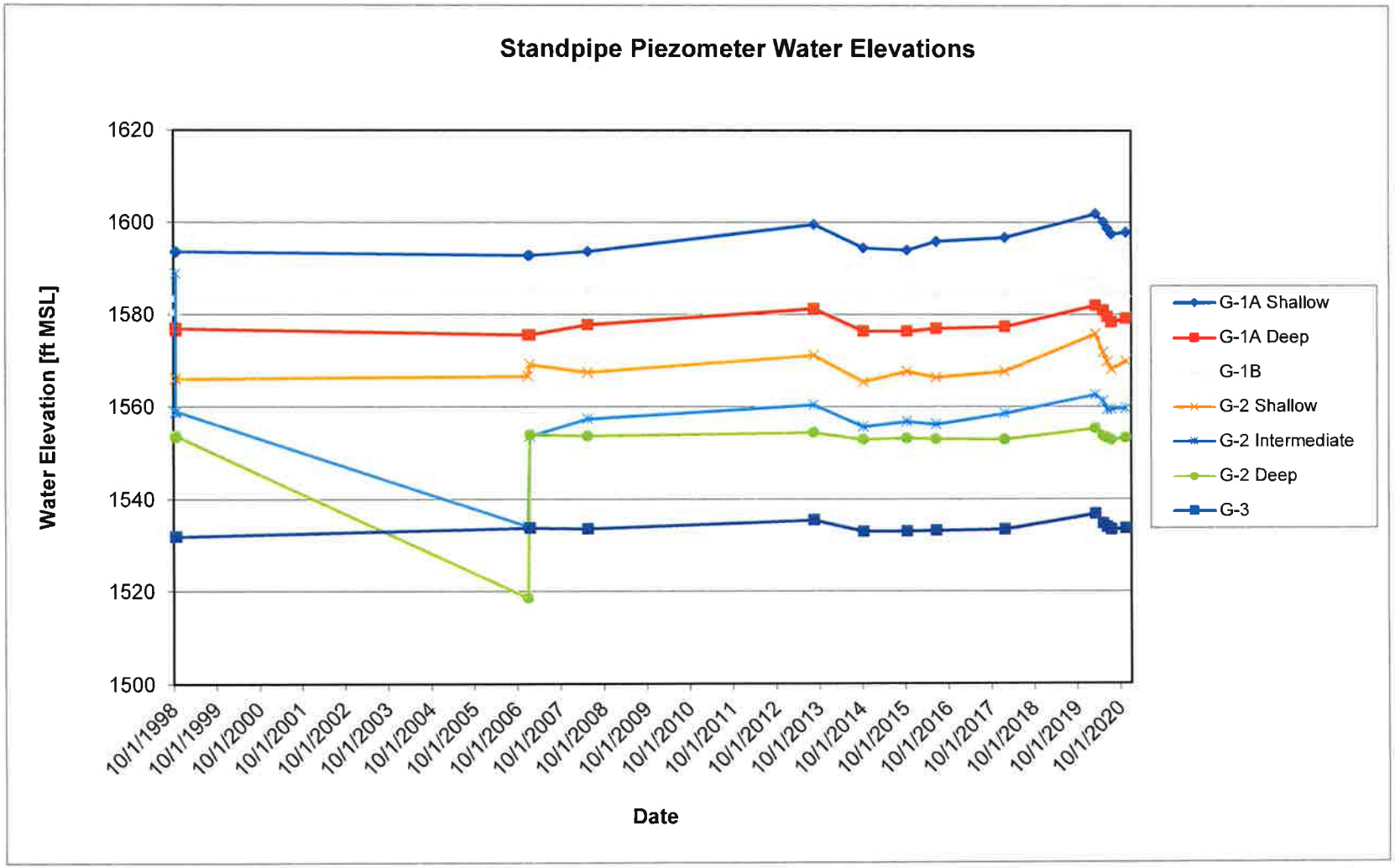
Note: Historical data anomalies generally appear to be the result of transcription errors.

Figure 2-4. Summary of Vibrating Wire Piezometer Data, P-6A, B, C (Feb 2004 through Nov 2020) - Lake Petit Dam, Big Canoe, GA



Note: Historical data anomalies generally appear to be the result of transcription errors.

Figure 2-5. Summary of Vibrating Wire Piezometer Data, P-7A, B, C (Feb 2004 through Nov 2020) - Lake Petit Dam, Big Canoe, GA



Note: G-2 Shallow water levels noted as anomolous on 3 Jan 2007. Re-measured 19 Jan 2007, and levels more consistent with previous readings.

Figure 2-6. Summary of Standpipe Piezometer Data (Oct 1998 through Nov 2020) - Lake Petit Dam, Big Canoe, GA.

Embankment (Earth) Dam Inspection Form

Name of Dam: Lake Petit Dam Date: 10 March 2021

Location of Dam (County): Pickens County Weather: Sunny, 70 degrees F

Inspected by (Print Name): Max Cange, P.G.(TN) Edisson O. Avila, E.I.(TN)

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 __X__ Overgrown_____ Good Cover __X__ Sparse_____

Other/Corrective Action (describe): The crest of the dam is an asphalt paved road. Vegetation on either side of the road was observed to be well-maintained.

☐ 2. Are there any trees or other inappropriate or excessive vegetation on the crest? Yes_____ No__X__

If yes, describe (type of vegetation, size, location, etc.)/Corrective Action: N/A

☐ 3. Is there a paved road or driveway on the crest? Yes__X__ No_____

If yes, describe the condition (for example, good condition, numerous cracks, newly paved)/Corrective Action: Good condition. Paved in 2012.

☐ 4. Are there any depressions, ruts or holes on the crest? Yes_____ No__X__

If yes, describe (size, location, etc)/Corrective Action: N/A

☒ 5. Are there any cracks on the crest? Yes__X__ No_____

If yes, describe (length and width, location, direction of cracking, etc.)/Corrective Action: Yes, a hairline transverse crack across the asphalt road was observed near the left abutment and towards the center of the embankment, and is believed to be caused by routine stress. This crack was observed in previous inspections; however, no changes were observed with respect to previous inspections.

☒ 6. Other observations on the crest/Corrective Action: Some erosion at the left and right groins from foot traffic and surface runoff was observed. No change since previous inspection. A maintenance plan is being prepared that will address these areas and re-establish/seed to mitigate further erosion.

B. Upstream Slope (refer to Glossary for description)

1. What is the reservoir level today? At Normal Pool __X__ 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__X____ Overgrown_____ Good Cover__X____ Sparse_____

Other/Corrective Action (describe): This area is well-seeded and maintained short grass.

☐ 3. Are there any trees or other inappropriate or excessive vegetation on the slope? Yes_____ No__X____

If yes, describe (type of vegetation, size, location, etc.)/Corrective Action: N/A

☐ 4. Are there any depressions, bulges, ruts or holes (such as animal burrows) on the slope? Yes_____ No__X____

If yes, describe (size, location, etc.)/Corrective Action: N/A

☒ 5. Are there any eroded areas on the slope (such as wave erosion along the shoreline)? Yes__X____ No_____

If yes, describe (size of area, location, severity, etc.)/Corrective Action: Slight "beaching" observed/reported in 2008 continued to be observed. Conditions do not appear to have worsened. Some erosion on the left and right groins due to suspected pedestrian use – no change since previous inspection. A maintenance and repair plan is being prepared that will address these areas, re-establish the shoreline protection, and re-establish/seed to mitigate further erosion.

B. Upstream Slope (continued)

☐ 6. Are there any cracks, sloughs or slides (vertical cliffs) on the slope? Yes_____ No__X____
If yes, describe (length, width, height, location, etc.)/Corrective Action: N/A

☒ 7. Is there any type of slope protection along the shoreline (such as riprap)? Yes__X____ No_____
If yes, describe what type and its condition (for example, riprap - adequate, inadequate, sparse)/Corrective Action: Rip rap exists on the shoreline, but the filter layer behind rip rap appears to have been eroded. No changes since previous inspection. A maintenance and repair plan is being prepared that will address and re-establish the shoreline protection to mitigate further erosion.

☐ 8. Other observations on the upstream slope/Corrective Action: No other observations.

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__X____ Overgrown_____ Good Cover___X___ Sparse_____
Other/Corrective Action (describe): Grass observed to provide generally good cover. Minor patches of overgrown grass present throughout the downstream face of the dam. Continue to mow at an increased frequency to prevent the establishment of unwanted vegetation and animal burrows.

☒ 2. Are there any trees or other inappropriate or excessive vegetation on the slope? Yes__X____ No_____
If yes, describe (type of vegetation, size, location, etc.)/Corrective Action: Small sprouting trees were observed on the downstream face of the dam along the right and left abutments. Small sprouts of potentially deep-rooted vegetation in the left groin at Bench Nos. 4 and 5, which were identified during the previous inspection, were observed to have been removed. A large dead tree was observed on Bench No.4, right groin, which may fall onto the downstream slope. This should be monitored and removed if necessary.

☒ 3. Are there any depressions, bulges, ruts or holes (such as animal burrows) on the slope? Yes___X____ No_____
If yes, describe (size, location, etc.)/Corrective Action: Several animal burrows and ant hills were observed throughout the downstream face. A minor depression was observed at Bench No. 2 (upstream of an observed wet spot located on the slope between Bench No.1 and 2, on the left abutment). The depression appears to have increased in depth but not size with respect to the previous inspection and should be backfilled with compacted soil and vegetated. A maintenance plan is being prepared that will provide guidance to address this area and re-establish/seed.

☒ 4. Are there any eroded areas on the slope (such as along abutment contacts)? Yes___X___ No_____
If yes, describe (size of area, location, severity, etc.)/Corrective Action: Minor surface erosion was observed in the right abutment was observed to have been covered with hay for erosion control. At the left abutments of each bench and scattered throughout the downstream slope (Bench No. 3 and 4) there were spots of surficial erosion observed. A maintenance plan is being prepared that will provide guidance to address these areas and re-establish/seed to mitigate erosion.

☐ 5. Are there any cracks, sloughs or slides (vertical cliffs) on the slope? Yes_____ No___X___
If yes, describe (length, width, height, location, etc.)/Corrective Action: N/A

C. Downstream Slope (continued)

☒ 6. Are there any wet areas or areas of hydrophilic (lush, water-loving) vegetation? Yes__X__ No_____

If yes, describe (size of area, location, etc.)/Corrective Action: Two wet areas were observed above Bench No. 1, and these had been noted in previous inspection forms from 2020.. The first wet area (near the left abutment) was not observed to have increased in size since the previous inspection; however, a small amount of water was observed to be slowly flowing downslope into the Bench No. 1 concrete channel. The second wet area (near the middle of the dam) was not observed to have increased in size since the previous inspection; however, the amount of moisture of this wet area was observed to have increased (i.e., soft ground surface when walking across the wet area). The small amount of water seeping slowly from the second wet area was observed to be draining downslope into the Bench No. 1 concrete channel. A third wet area was observed at the toe of the dam, near the left abutment. This area was observed and noted in the May 2020 inspection form, however the size observed on the date of this report was much smaller than observed previously. Wet areas should continue to be monitored for changes.

☐ 7. Do any wet areas indicate seepage through the dam (such as rust-colored, stained water)? Yes_____ No_X__ N/A_____

If yes, describe (for example, new area of seepage, no change from past observations, size of area, location) /Corrective Action: N/A

☒ 8. Are there any leaks (flowing water) from the slope or beyond the toe of the dam? Yes__X__ No_____

If yes, describe (location, rate of flow, turbidity of flow)/Corrective Action: While not a concentrated flow, small amount of water flow from the two wet areas discussed in Section C.6 was observed to flow into the concrete channel located on Bench No. 1. The flow was observed to be very small and could not be measured. Continue to monitor the wet areas and weirs for changes in flow amount and turbidity.

☒ 9. Other observations on the downstream slope/Corrective Action: The weirs on the left and right abutments were located. The left weir was observed to be clogged with vegetation/debris (sediment). Inspectors unclogged the weir, but the concrete channel around the weir should be cleaned out and monitored to prevent future clogs. A plan is being created to either modify or replace the current weirs. Minimize the amount of grass clippings directed toward the concrete channel that feeds the weirs to the extent possible.

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__X__

If yes, describe what type and its condition (for example, riprap - adequate, inadequate, obstructed by vegetation) /Corrective Action: There is no plunge pool, but downstream from the impact-type stilling basin there does not appear to be riprap, however, based on current operations it does not appear to be needed.

☐ 2. Is there any erosion and or seeps around or going into the plunge pool? Yes_____ No__X__

If yes, describe (size of area, location, severity, etc.) /Corrective Action: A drainpipe right of the stilling basin observed to be discharging clear water.

☒ 3. Other observations around the plunge pool/Corrective Action: Vegetation observed to be overgrown around, above, and downstream of the stilling basin. It is recommended that the overgrown vegetation be mowed/removed to allow ease of dam visual inspections. A maintenance plan is being prepared that will provide guidance to provide guidance for mowing/vegetation maintenance operations on and near the dam.

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 Gunnite, Stepped Spillway Emergency Spillway None, other than a low-level outlet pipe.
Other/Corrective Action: N/A

☐ 2. Has the emergency spillway activated (had flow) since the last inspection? Yes_____ No__X__
If yes describe (date(s) of flow, reason for activation, depth of flow) /Corrective Action: A dive inspection of the sluice gate structure which serves as the intake for the low-level outlet pipe was completed in September 2020. A camera inspection of the low-level outlet pipe was completed on December 2020. Both inspections indicated that the inlet structure and pipe are in generally fair to good condition.

☐ 3. For pipe spillways, is the intake obstructed in any way (such as with excessive debris)? Yes_____ No__X__
If yes, describe (type of debris, reason for obstruction, etc.) /Corrective Action: The intake for the low-level outlet is not visible from the surface, but was inspected by a dive team in September 2020. The sluice gate structure was noted to not have been obstructed by sediment or debris following cleaning by divers during that inspection.

☐ 4. For pipe spillways, what is the condition of any trash racks (for example, adequate, inadequate, damaged)? /Corrective Action:
The intake for the low-level outlet is not visible from the surface but was inspected by a dive team in September 2020. The sluice gate structure was noted to have an intact trash rack by the divers.

☐ 5. For pipe spillways, are there any visible cracks, separations or holes in the pipe(s) (intake or outlet)? Yes_____ No_X__
If yes, describe (location, width of crack or separation, etc.)/Corrective Action: Recent dive inspections of the pipe's inlet did not identify any cracks, separations, or holes. The recent camera inspection rated the pipe in fair to good condition.

☐ 6. For pipe spillways, are there any apparent leaks in the pipe(s)? Yes_____ No_X__
If yes, describe (location, rate of flow from leak, etc.)/Corrective Action: A camera inspection of the low-level outlet pipe was completed in December 2020. The inspection identified a few pipe joints with calcite formations, indicating minor seepage, but otherwise did not identify any apparent leaks or issues with the pipe's overall condition.

7. For pipe spillways, how would you describe the overall condition of the pipe(s)? (Check all that apply)
Functioning Normally__X__ Not Functional___ Deteriorated____ Damaged____ Adequate____ Inadequate____

☐ 8. For concrete or earth channel spillways, is the entrance or channel obstructed in any way? Yes_____ No_X____
If yes, describe (type of obstruction, location, etc.)/Corrective Action: Some accumulation of leaves and pine needles were observed along the spillway crest, but these did not appear to impact the function of the spillway as it was observed to be functioning normally.

☐ 9. For earth channel spillways, how would you describe the vegetation in the spillway? (Check all that apply)
Recently Mowed_____ Overgrown_____ Good Cover_____ Sparse_____
Other (describe)/Corrective Action: N/A

☐ 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: N/A

E. Principal and Emergency Spillways (continued)

☐ 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: N/A

☒ 12. For concrete channel spillways, are there any cracks or holes in the spillway? Yes_X_____ No_____
If yes, describe (width of crack or hole, location, etc.)/Corrective Action: Small cracks were observed on the sides and in steps in portions of the spillway, but none were observed at or below the water line. Recommend continue to monitor.

☒ 13. For concrete channel spillways, are there any leaks or evidence of undermining (flow under the concrete)? Yes_X_ No___
If yes, describe (location, rate of flow from leak, indicators of undermining, etc.)/Corrective Action: On the left side of the concrete channel spillway, under the bridge located downstream of the left abutment, clear flowing water was observed behind the concrete lining. The previous inspection identified this same condition, but no water was observed to daylight on the soil surface outside of the channel. The source of the flow of water is unknown, but was determined to not be sourced from water treatment pipes in the vicinity. No apparent cracks or defects in the concrete lined channel were observed in the vicinity (i.e., upstream or downstream) of the flowing water. The backfill material behind the sidewall of the concrete-lined channel has indications of erosion as noted previously, but no observable changes. The area should continue to be routinely monitored for any progression in the rate of flow or erosion of the backfill material, and the source of this flow be determined and mitigated. Big Canoe attempted minor repairs since the previous inspection. A plan to remove water from the spillway is being prepared so that inspection and repair of the spillway can be conducted.

14. For earth or concrete channel spillways, how would you describe the overall condition of the spillway? (Check all that apply)
Functioning Normally_X_ Not Functional____ Deteriorated_X___ Damaged____ Adequate____ Inadequate____

☒ 15. Other observations on the spillways/Corrective Action: Continue removal of foreign debris (trees, logs, vegetation , etc.) that falls into spillway, and consideration given to cutting back some larger vegetation along the sides of the spillway channel to prevent falling debris from further damaging spillway. Vegetation removal from the spillway will be included in the maintenance plan that is being prepared to provide guidance for maintaining this portion of the dam.

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_X_____ No_____
If yes, describe the condition (for example, clogged, free flowing, deteriorated, good condition) /Corrective Action: The drain at the toe of the dam did not have flow in it. The interceptor drains along Bench No. 1 were identified. Interceptor drain No. 1 was observed to be clogged and dry. Interceptor drain No. 11 was located, however, the corrugated pipe for the drainage needs to be extended to reach the concrete channel to prevent erosion of the surrounding areas. Interceptor drain No. 12 had low clear flow; however, it is believed to be collapsed and it is recommended to be replaced. All interceptor drains, with the exception of the dry drain No. 1, were observed to have minimal clear flow. The underdrain system of the dam outlets in the impact stilling basin, and the two drainpipes appeared to be flowing. These had been cleaned out since the last inspection.

☐ 2. For drains, is an animal guard installed at the outlet of each drain? Yes_____ No_X___
If no, which drains lack animal guards? /Corrective Action: Animal guards were not observed on interceptor drainpipes, however, they do not appear necessary on the interceptor surface drains or underdrain outlet pipes, as these appear to continuously flow.

F. Instrumentation (Continued)

☐ 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.)
Interceptor Drains on Bench No. 1	Very low	<1 GPM	clear
Underdrain Outlets	½" height of flow over the weir of the impact-style outlet structure	--	--

☐ 4. Are there any piezometers on the dam? Yes X No

If yes, describe the condition (for example, good condition, damaged, etc.)/Corrective Action: The piezometers are generally in good condition. Individual piezometers have caps to prevent water from intruding.

☒ 5. For piezometers, does each piezometer have a cap with a lock? Yes No X

If no, which piezometers need caps (to prevent rain water intrusion) and/or locks (to prevent tampering)? /Corrective Action: Piezometers have caps, but no locks. They generally have monument covers with a bolted lid to prevent tampering, however, some of the covers are missing a bolt. Lid bolts and seals should be replaced at next inspection. The maintenance of instrumentation will be included in the maintenance plan that is being prepared.

☐ 6. For piezometers, are you able to take a measurement (depth to water) in each piezometer? Yes X 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 X

If yes, describe what type and the condition (for example, monitoring wells - good condition, damaged) /Corrective Action: N/A

☐ 8. Other observations on instrumentation/Corrective Action: No other observations.

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): Photographs have been attached to this inspection report.

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

Geosyntec consultants

PHOTOGRAPH LOG

PROJECT NAME: March 2021 Lake Petit Dam Visual Assessment	PROJECT NO.: TN7833
CLIENT: Big Canoe Property Owners Association	FILE NAME: Q1 2021 Inspection

Photograph 1: Upstream Face, Mar. 2021 – localized areas of erosion and beaching along shoreline.

Photograph 2: Downstream Face, Mar. 2021 – overview of downstream face in good condition

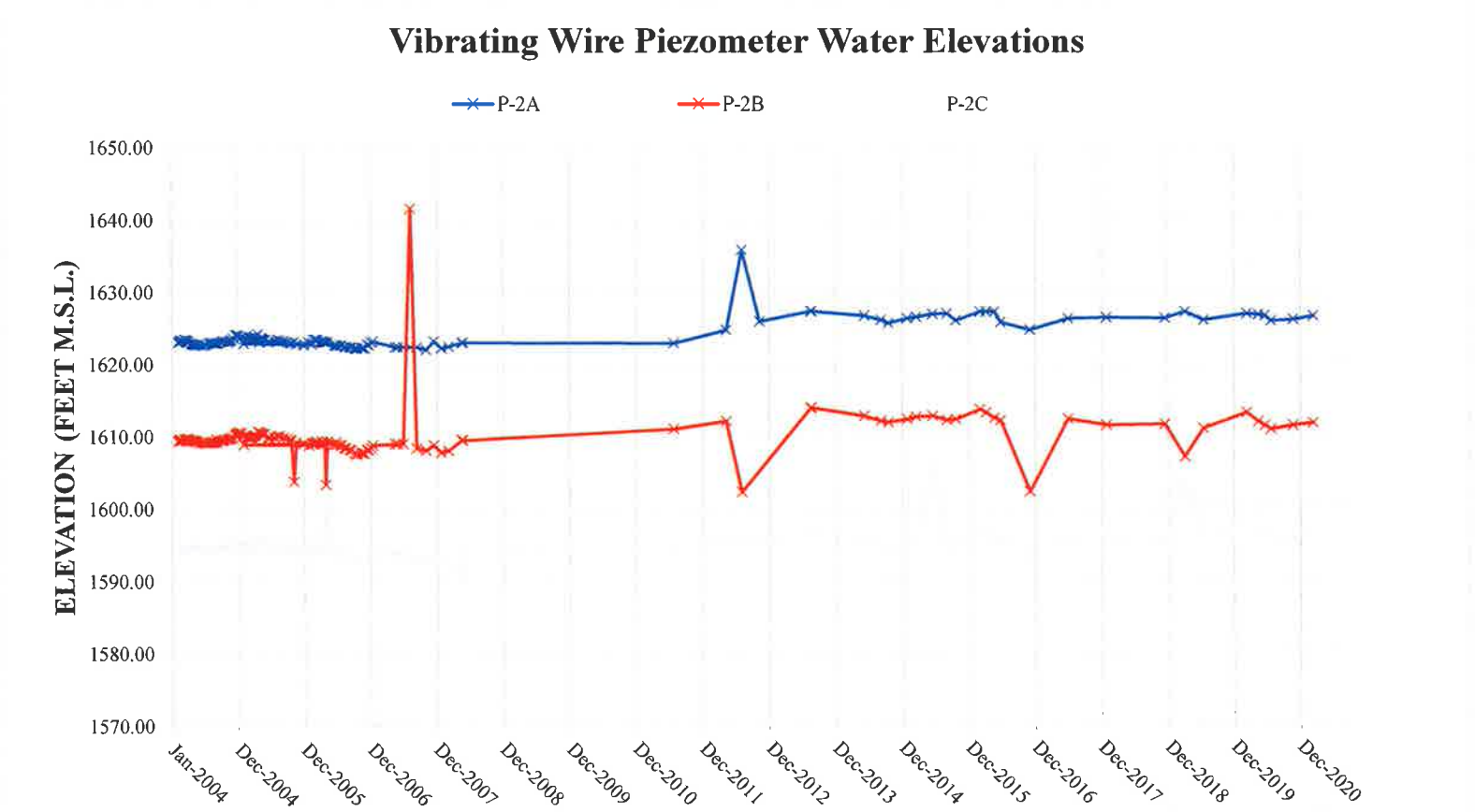
Geosyntec consultants

PHOTOGRAPH LOG

PROJECT NAME: March 2021 Lake Petit Dam Visual Assessment	PROJECT NO.: TN7833
CLIENT: Big Canoe Property Owners Association	FILE NAME: Q1 2021 Inspection

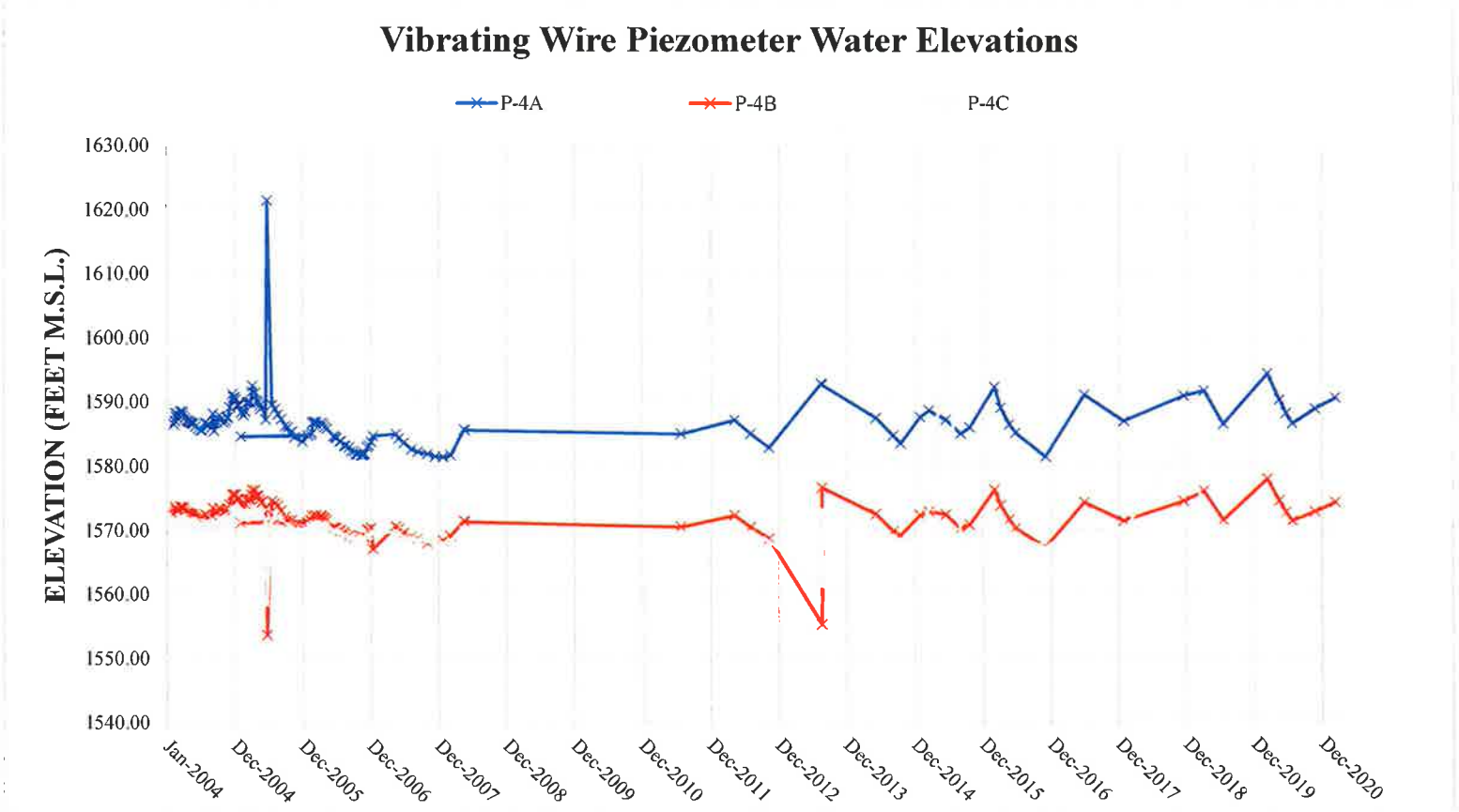
Photograph 3: Spillway, Mar. 2021 – general view of stepped spillway with moderate flow, and tree limbs and debris noted during inspection.

Photograph 4: Spillway, Mar. 2021 – area of previously identified water flow behind concrete lined channel. Water flow was observed to continue but did not daylight at surface in depicted location.



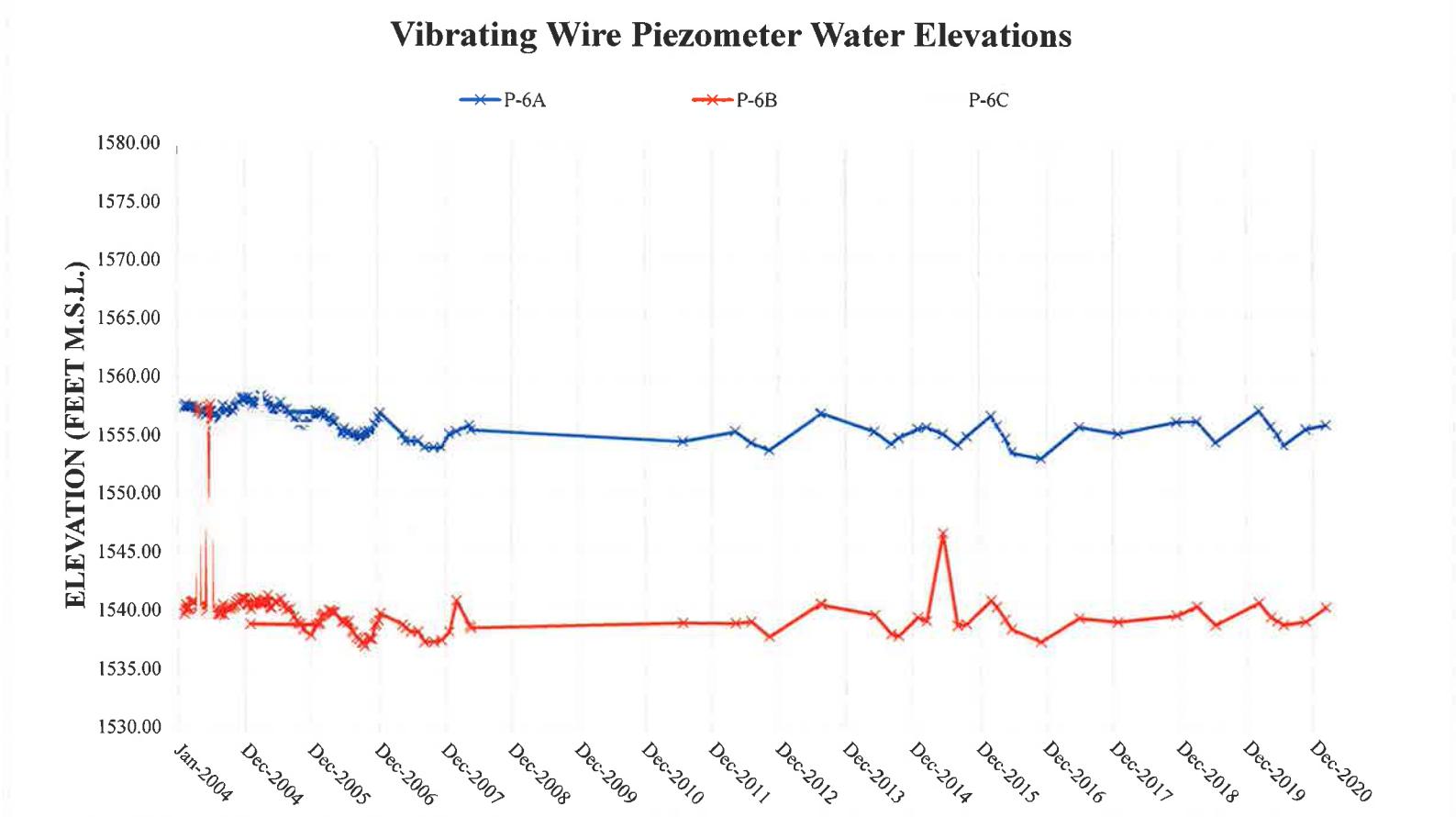
Note: Historical data anomalies generally appear to be the result of transcription errors.

Figure 2-2. Summary of Vibrating Wire Piezometer Data, P-2A, B, C (Feb 2004 through Mar 2021) - Lake Petit Dam, Big Canoe, GA



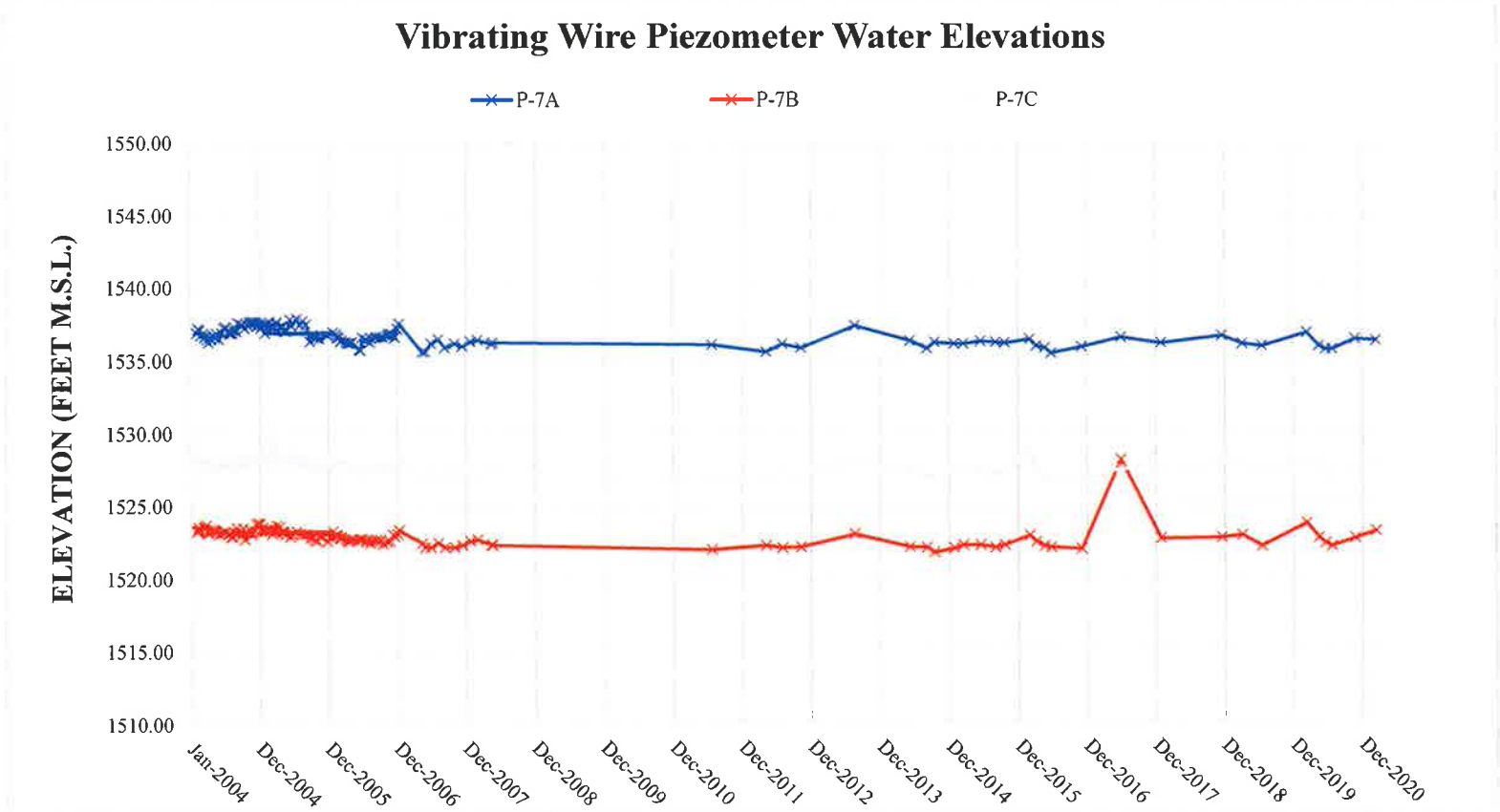
Note: Historical data anomalies generally appear to be the result of transcription errors.

Figure 2-3. Summary of Vibrating Wire Piezometer Data, P-4A, B, C (Feb 2004 through Mar 2021) - Lake Petit Dam, Big Canoe, GA



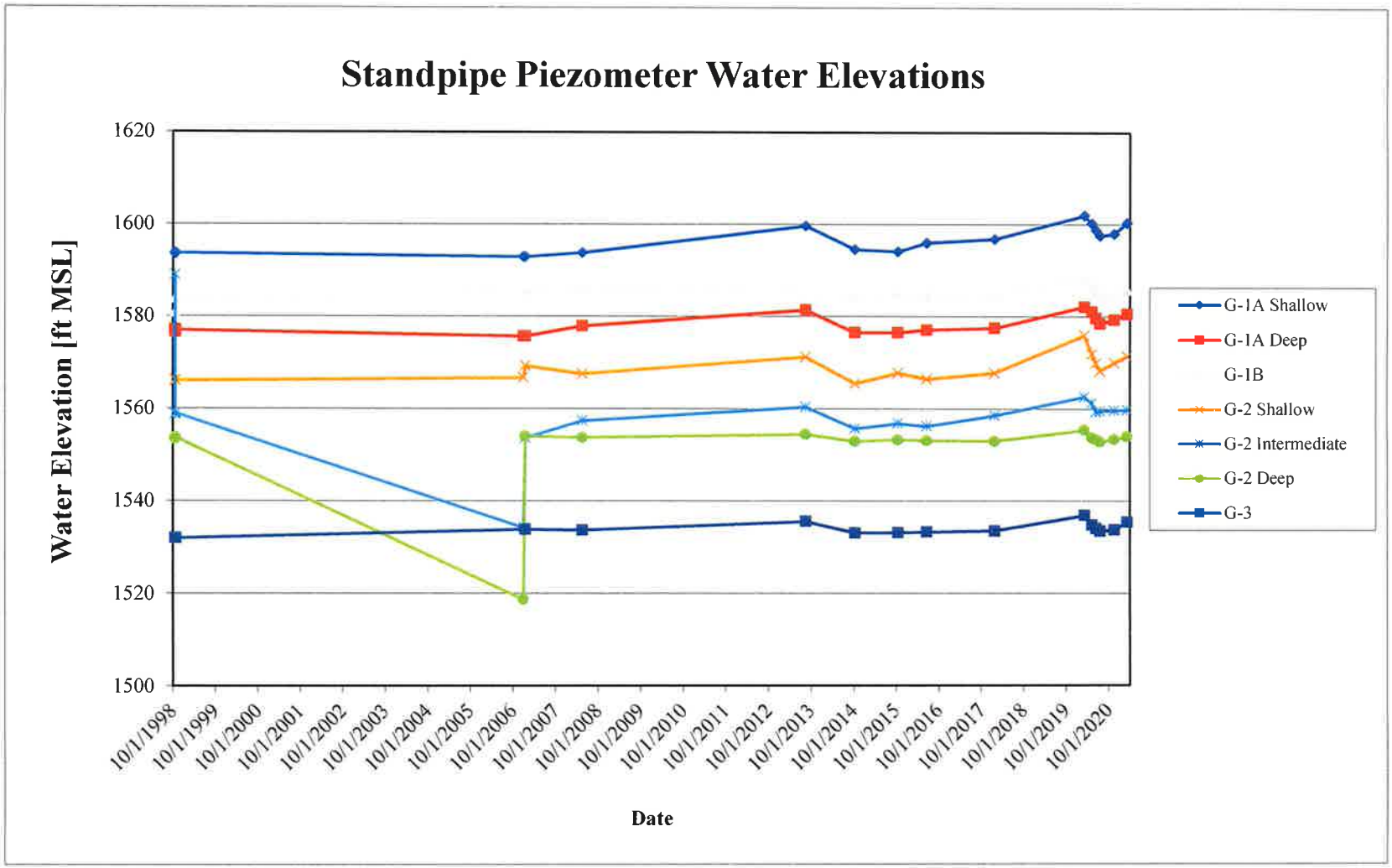
Note: Historical data anomalies generally appear to be the result of transcription errors.

Figure 2-4. Summary of Vibrating Wire Piezometer Data, P-6A, B, C (Feb 2004 through Mar 2021) - Lake Petit Dam, Big Canoe, GA



Note: Historical data anomalies generally appear to be the result of transcription errors.

Figure 2-5. Summary of Vibrating Wire Piezometer Data, P-7A, B, C (Feb 2004 through Mar 2021) - Lake Petit Dam, Big Canoe, GA



Note: G-2 Shallow water levels noted as anomolous on 3 Jan 2007. Re-measured 19 Jan 2007, and levels more consistent with previous readings.

Figure 2-6. Summary of Standpipe Piezometer Data (Oct 1998 through March 2021) - Lake Petit Dam, Big Canoe, GA.