

## DEPARTMENT OF THE ARMY PERMIT

**Permittee** Caldwell County Commission

**Permit No.** NWK 2009-00526

**Issuing Office** U.S. Army Engineer District, Kansas City

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below, and with the plans and drawings attached hereto which are incorporated in and made a part of this permit.

**Project Description:** You are authorized to fill a total of 1,745 linear feet of Little Otter Creek and 232 linear feet of an unnamed tributary of Little Otter Creek for the construction of an earthen dam (approximately 2400 feet long, 72 feet tall and 600 feet wide) on Little Otter Creek for the creation of a 344-acre multipurpose reservoir to provide water supply, recreation and flood damage reduction. A total of 36,243 linear feet of streams and 4.1 acres of wetlands (including 1.7 acres of palustrine emergent wetlands and 2.4 acres of palustrine emergent and palustrine scrub shrub wetlands) may be permanently impacted by the construction of the reservoir, of which a total of 34,266 linear feet of streams may be impounded by the reservoir. The impoundment must be constructed as indicated on the enclosed drawings. Waters of the United States above the normal pool elevation (855.1) may not be impacted by any other construction activities (clearing, borrow, spoil disposal, etc.).

You are authorized to place fill material in waters of the United States in association with the implementation of five Aquatic Organism Passage (AOP) permittee-responsible compensatory mitigation projects. AOP fills may consist of removal of existing crossings/stream barriers and the construction of their corresponding grade control structures. AOP and riparian planting compensatory mitigation projects must be constructed in accordance with the attached plans and your August 21, 2020 Compensatory Mitigation Plan.

**Permit Drawing(s):** Location maps, plan views, cross sections, sheets 1 of 26 through 26 of 26 dated 10 September 2020.

**Project Location:** In Little Otter Creek, wetlands adjacent to Little Otter Creek, eighteen (18) unnamed tributaries of Little Otter Creek, and wetlands adjacent to two unnamed tributaries of Little Otter Creek, in Sections 20, 21, 28, 29, 32 and 33, Township 57 north, Range 27 west, in Caldwell County, Missouri.

(Latitude: 39.702788° N, Longitude: -93.946155° W)

**Permit Conditions:**

### General Conditions:

1. The time limit for completing the work authorized ends on 31 December 2026. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.
2. You must maintain the activity authorized by this permit in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease

to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

**Special Conditions:**

See continuation sheets, pages 4-7, of this document.

**Further Information:**

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

( ) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorization required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.



d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

C.R. Bud Melsinger  
(PERMITTEE)

October 16, 2020  
(DATE)

C.R. Bud Melsinger, Presiding Commissioner Caldwell County  
(PRINTED NAME AND TITLE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

MD Frazier

(DISTRICT ENGINEER)  
MARK D. FRAZIER  
CHIEF, REGULATORY BRANCH  
OPERATIONS DIVISION

19 October 2020  
(DATE)

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

_____	_____
(TRANSFEREE)	(DATE)



### Special Conditions:

a. You must sign and return a "Compliance Certification" after you complete the authorized work and any required mitigation. Your signature will certify that you completed the work in accordance with this permit, including general and specific conditions, and that any required mitigation was completed in accordance with the permit conditions.

b. Appurtenant features associated with the recreational usage and water distribution of the Little Otter Creek Reservoir have not been authorized by this permit. Features planned to be constructed in the footprint of the lake must be completed prior to filling the impoundment, or a separate authorization will be required by the Corps. Water distribution system components outside the lake footprint, yet resulting in the discharge of dredged or fill material into a waters of the United States, also require separate authorization(s) from the Corps, but are not tied to reservoir fill stage.

c. You must design and implement your project in accordance with the Supplemental Flow Plan for the reservoir as identified in Appendix D of the Final Supplemental Environmental Impact Statement.

d. Within 60 days of completion of the authorized work you shall submit as-built drawings of the authorized work to the Corps. This includes authorized work associated with your permittee responsible Aquatic Organism Passage (AOP) projects. The drawings shall be signed and sealed by a registered professional engineer and shall include plan view drawings of the locations of the authorized work footprint (as shown on the permit drawings) with an overlay of the work as constructed in the same scale as the attached permit drawings (8.5-inch by 11-inch). Any deviations between the work authorized by this permit and the work as constructed will need to be identified on the as-built drawings. Please note that the depiction and/or description of any deviations on the as-built drawings does not constitute an approval of any deviations by the U.S. Army Corps of Engineers.

e. You must provide compensatory mitigation for the unavoidable impacts to a total of 36,243 linear feet of streams and 4.1 acres of wetlands in accordance with your compensatory mitigation plan dated August 21, 2020. As you have elected to purchase stream and wetland credits from the North Grand River Wetland and Stream Mitigation Bank and to purchase advanced stream credits from both the Missouri Conservation Heritage Foundation, Stream Stewardship Trust Fund and the Land Learning Foundation ILF programs, we must receive verification of funds payment from the mitigation providers specifying the type and amounts of credits purchased prior to the implementation of any work activities within waters of the United States for the project.

1. You must purchase 51,000 stream and 4.1 wetland credits from the North Grand River Wetland and Stream Mitigation Bank.

2. You must purchase 11,521 stream credits from the Missouri Conservation Heritage Foundation or the Land Learning Foundation ILF providers in the same service area as your project.

3. The permittee-responsible compensatory mitigation must generate at least 120,855 stream credits and be implemented in advance or concurrently with work in waters of the United States.

4. You must provide annual monitoring reports for the permittee-responsible compensatory mitigation for a minimum of 5 years beginning at the end of the first full growing season in accordance with your compensatory mitigation plan. If the permittee-responsible mitigation is not meeting the success criteria by the end of the 5-year monitoring period, you will be required to provide an adaptive management plan for our review and approval. Yearly monitoring reports must be submitted to the Missouri State Regulatory Office by December 31, starting the year following initiation of mitigation activities. Monitoring reports must include georeferenced datasets compatible with the latest version of ArcGIS software. The datasets must accurately depict mitigation activities undertaken and planned, as well as site and easement boundaries.



### Special Conditions (cont.):

f. You must provide finalized easement documents, that have previously been approved by the Corps, for each of the permittee responsible compensatory mitigation projects prior to the initiation of any work activities within any waters of the United States. The Corps approved site protection instruments for the riparian planting sites must contain a third-party grantee or transfer title to a conservancy. The third-party grantee shall have the right to enforce site protections and must be provided with the resources necessary to monitor these site protections. The AOP project sites must be protected be in accordance with Missouri State Law in the form of an intergovernmental agreement, or similar binding instrument. Deviations from the above statements may affect the credit projections in your compensatory mitigation project plans and may result in a lack of sufficient mitigation for your overall project. Such deficiencies could lead to being in non-compliance with the terms and conditions of your permit.

g. Permittee-responsible riparian planting sites will consist of herbaceous and tree plantings as indicated in the 21 August 2020 version of the compensatory mitigation plan. Success criteria is 90% coverage of desirable plants in the herbaceous areas. Success criteria in treed areas is the fully stocked rate of trees and 80% survivorship of planted trees. Coverage and fully stocked criteria may include naturally regenerated desirable plant species.

h. The Corps has not authorized the bridge construction plans within the boundary of your AOP project area, as depicted in your August 21, 2020 Compensatory Mitigation Plan. Prior to engaging in any stream crossing construction activities within AOP project area boundaries, you must first obtain concurrence from the Corps that the proposed work will not adversely affect objectives of the mitigation activities. The request for concurrence must contain drawings that clearly depict all activities occurring in waters of the United States or demonstrate there will be no permanent, or temporary, fills discharged below the ordinary high water mark of waters of the United States. The request for concurrence must be presented to the Corps at least 120 days prior to the anticipated construction date of the crossing.

i. Any modification or replacement of the grade control structures associated with your AOP mitigation projects must be coordinated with and approved by the Corps prior to engaging in construction activities. In the event an AOP grade control structure becomes derelict, compromised, or experiences catastrophic failure, Caldwell County must notify the Corps within 72 hours of discovery. Caldwell County will replace or repair the structure in an expedient and technically sound manner, and will engage the Corps to determine the proper design and construction timing.

j. Please be aware that the endangered Gray bat (*Myotis grisescens*), endangered Indiana bat (*Myotis sodalis*) and threatened Northern long-eared bat (*Myotis septentrionalis*) may be present within or adjacent to your project area. In order to remain in compliance with the Endangered Species Act, you must not conduct any tree cutting and clearing within the project area during the bats' active season of April 1st through October 31st. Tree cutting and clearing may only occur from November 1st through March 31st.

k. If any part of the authorized work is performed by a contractor, before starting work you must discuss the terms and conditions of this permit with the contractor; and, you must give a copy of this entire permit to the contractor.

l. You must use clean, uncontaminated materials for fill in order to minimize excessive turbidity by leaching of fines, as well as to preclude the entrance of deleterious and/or toxic materials into the waters of the United States by natural runoff or by leaching.

m. You must dispose of excess concrete and wash water from concrete trucks and other concrete mixing equipment in a non-wetland area above the ordinary high water mark and at a location where the concrete and wash water cannot enter the water body or an adjacent wetland area.

**Special Conditions (cont.):**

- n. You must excavate, dredge and/or fill in the watercourse during periods of low or average flows, and in a manner that will minimize increases in suspended solids and turbidity which may degrade water quality and damage aquatic life outside the immediate area of operation.
- o. You must immediately remove and properly dispose of all debris during every phase of the project in order to prevent the accumulation of unsightly, deleterious and/or toxic materials in or near the water body.
- p. You must not dispose of any construction debris or waste materials below the ordinary high water mark of any water body, in a wetland area, or at any location where the materials could be introduced into the water body or an adjacent wetland as a result of runoff, flooding, wind, or other natural forces.
- q. You must store all construction materials, equipment, and/or petroleum products, when not in use, above anticipated high water levels.
- r. You must restrict the clearing of timber and other vegetation to the absolute minimum required to accomplish the work. Clearing, grading and replanting should be planned and timed so that only the smallest area necessary is in a disturbed, unstable or unvegetated condition.





**Missouri Department of** dnr.mo.gov  
**NATURAL RESOURCES**  
Michael L. Parson, Governor Carol S. Comer, Director

September 1, 2020

The Honorable C.R. Bud Motsinger  
Presiding Commissioner  
Caldwell County Commission  
49 East Main Street  
Kingston, MO 64650

RE: 2009-00526/CEK007331 in Caldwell County

Dear Commissioner Motsinger:

The Missouri Department of Natural Resources' Water Protection Program has reviewed your request for Clean Water Act (CWA) Section 401 Water Quality Certification (WQC) to accompany the U.S. Army Corps of Engineers' (USACE) Permit for 2009-00526 in which you are proposing to construct an earthen dam approximately 2,400 ft long, 72 ft tall, and 600 ft wide on Little Otter Creek for the creation of a 344-acre, multipurpose reservoir to increase water supply, reduce flood damages, and provide water-based recreational opportunities. The project is proposed under the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS), Watershed Protection and Flood Prevention Act, Public Law 83-566 Program and is proposed to be constructed under agreement between the Caldwell County Commission, Caldwell County Soil and Water Conservation District, and NRCS.

For the proposed reservoir, a total of 36,243 linear ft (LF) of streams would be impacted by the proposed work activities, including 20,220 LF of perennial streams, 14,569 LF of intermittent streams, and 1,454 LF of ephemeral streams. A total of 4.1 acres of wetlands would be impacted by the proposed work activities. The impacted wetlands include 1.7 acres of palustrine emergent wetlands identified along 2 of the unnamed tributaries and 2.4 acres of palustrine emergent and palustrine scrub-shrub wetlands identified along Little Otter Creek.

The project is located in Little Otter Creek, wetlands adjacent to Little Otter Creek, 18 unnamed tributaries of Little Otter Creek, and wetlands adjacent to 2 unnamed tributaries of Little Otter Creek in Sections 20, 21, 28, 29, 32, and 33, Township 57 North, Range 27 West, southeast of

Hamilton in Caldwell County, Missouri. Approximate geographic coordinates for the upstream extent of stream impacts and proposed wetland impacts are as follows:

Stream	Latitude (°N)	Longitude (°W)	Impact	Size (LF)	Type
Little Otter Creek A	39.727964	93.956340	Impoundment	12,911	Perennial
Little Otter Creek B	39.703607	93.947286	Fill	2,143	Perennial
Tributary 1	39.728128	93.952138	Impoundment	1,006	Intermittent
Tributary 2	39.732374	93.940402	Impoundment	5,166	Perennial
Tributary 4	39.727246	93.940051	Impoundment	326	Intermittent
Tributary 6	39.723980	93.942469	Impoundment	512	Ephemeral
Tributary 7	39.720587	93.944367	Impoundment	280	Ephemeral
Tributary 8	39.719685	93.948571	Impoundment	1,324	Intermittent
Tributary 9	39.718304	93.941200	Impoundment	1,563	Intermittent
Tributary 10	39.715996	93.943125	Impoundment	868	Intermittent
Tributary 11	39.714639	93.949907	Impoundment	1,455	Intermittent
Tributary 13	39.708138	93.950773	Impoundment	1,307	Intermittent
Tributary 14	39.705384	93.951016	Impoundment	900	Intermittent
Tributary 15	39.703619	93.952509	Impoundment	1,438	Intermittent
Tributary 16	39.703241	93.945626	Fill	232	Ephemeral
Tributary 17	39.705696	93.942613	Impoundment	1,050	Intermittent
Tributary 18	39.707976	93.940824	Impoundment	430	Ephemeral
Tributary 19	39.709091	93.940417	Impoundment	256	Intermittent
Tributary 20	39.710710	93.939838	Impoundment	2,442	Intermittent
Tributary 21	39.723910	93.954205	Impoundment	634	Intermittent
Stream	Latitude (°N)	Longitude (°W)	Impact	Size (acre)	Type
Wetland	39.709546	93.946352	Impoundment	2.4	Scrub-Shrub
Wetland	39.711244	93.946792	Impoundment		Emergent
Wetland 7	39.720704	93.943897	Impoundment	0.5	Emergent
Wetland 15	39.703229	93.951312	Impoundment	1.2	Emergent

This WQC is being issued under Section 401 of Public Law 95-217, the CWA of 1977 and subsequent revisions. This office certifies the proposed project will not cause the general or numeric criteria to be exceeded nor impair beneficial uses established in the Water Quality Standards, 10 CSR 20-7.031, provided the following conditions are met:

1. For project impacts to 36,243 LF of stream and 4.1 acres of wetland, compensatory mitigation shall be satisfied through the purchase of 51,000 stream mitigation credits and



4.1 wetland acres as mitigation credit from the Swallow Tail, LLC, North Grand River Wetland and Stream Mitigation Bank, the purchase of 11,521 advanced in-lieu fee stream mitigation credits, and the implementation and completion of the proposed Permittee Responsible Mitigation Plan (PRMP) prepared by Allstate Consultants on behalf of the Caldwell County Commission dated August 21, 2020, and submitted to the Department on August 26, 2020. A required total of 183,376 compensatory stream mitigation credits for the proposed project was calculated using the 2017 Missouri Stream Mitigation Method. If any compensatory stream mitigation credit shortfall is determined in the PRMP after issuance of this WQC, such shortfalls may be offset through the purchase of additional advanced in-lieu fee credits within the same mitigation service area. This will ensure compliance with the Missouri antidegradation requirement for maintenance and protection of designated uses [10 CSR 20-7.031(3)] under Missouri Clean Water Law, which provides the Department authority to adopt remedial measures to prevent, control, or abate pollution [Chapter 644.026.1(9), RSMo] and approval authority for compensatory mitigation associated with WQCs [Chapter 644.026.1(26), RSMo]. If any modifications to the proposed PRMP are required, the Department shall receive a copy of the modified PRMP for review and determine whether the WQC remains valid or needs to be modified, amended, or revoked.

2. Only clean, nonpolluting fill shall be used for constructed components of this project. This condition ensures compliance with general criteria of Missouri's Water Quality Standards [10 CSR 20-7.031(4)(A)-(H)].
3. Any waste concrete or concrete rinsate shall be disposed of in a manner that does not result in any discharge to the jurisdictional water ways. This will ensure compliance with the Missouri Water Quality Standards general criteria requiring waters be free from unsightly bottom deposits [10 CSR 20-7.031(4)(A)]; substances resulting in toxicity [10 CSR 20-7.031(4)(D)]; and physical, chemical, or hydrologic changes that would impair the natural biological community [10 CSR 20-7.031(4)(G)].
4. The proposed project shall not result in a detrimental change in grade or bank erosion in areas where impacts are not already offset by compensatory mitigation. This condition will ensure compliance with the Missouri Water Quality Standards general criterion requiring waters to be free from physical, chemical, or hydrologic changes that would impair the natural biological community [10 CSR 20-7.031(4)(G)].
5. Missouri Water Quality Standards antidegradation requirements dictate all appropriate and reasonable Best Management Practices (BMPs) related to erosion and sediment control, project stabilization, and prevention of water quality degradation are applied and maintained [10 CSR 20-7.031(3)(B)]; for example, preserving vegetation, streambank stability, and basic drainage. BMPs shall be properly installed prior to conducting



authorized activities and maintained, repaired, and/or replaced as needed during all phases of the project to limit the amount of discharge of water contaminants to waters of the state. The project shall not involve more than normal stormwater or incidental loading of sediment caused by project activities so as to comply with Missouri's general water quality criteria [10 CSR 20-7.031(4)].

6. Care shall be taken to keep machinery out of the water way as much as possible. If work in the water way is unavoidable, it shall be performed in a way that minimizes the duration and amount of any disturbance to banks, substrate, and vegetation to prevent increases in turbidity. Project activity shall be conducted at low flows and water levels to limit the amount of sediment disturbance caused by the heavy equipment. This will ensure compliance with the Missouri antidegradation requirement for BMPs [10 CSR 20-7.031(3)(B)]; the Missouri Water Quality Standards general criterion requiring waters be free from substances preventing beneficial uses 10 CSR 20-7.031(3)(A); the Missouri Water Quality Standards general criterion requiring waters be free from substances causing unsightly color or turbidity [10 CSR 20-7.031(4)(C)]; and the Missouri Water Quality Standards general criterion requiring waters be free from physical, chemical, or hydrologic changes that would impair the natural biological community [10 CSR 20-7.031(4)(G)].
7. Fuel, oil and other petroleum products, equipment, construction materials, and any solid waste shall not be stored below the ordinary high water mark at any time or in the adjacent flood-prone areas beyond normal working hours. All precautions shall be taken to avoid the release of wastes or fuel to streams and other adjacent waters as a result of this operation. This will ensure compliance with Missouri Water Quality Standards general criteria requiring waters be free from substances that prevent maintenance of beneficial uses; cause unsightly color, turbidity, or toxicity; and/or impair the natural biological community [10 CSR 20-7.031(4)(B)-(G)].
8. Petroleum products spilled into any water or on the banks where the material may enter waters of the state shall be cleaned up immediately and disposed of properly. Any such spills of petroleum shall be reported as soon as possible, but no later than 24 hours after discovery to the Department's Environmental Emergency Response phone line at 573-634-2436 or website at <http://dnr.mo.gov/env/esp/esp-eeer.htm>. This will ensure compliance with Missouri Environmental Improvement Authority [Chapter 260.015, RSMo] to provide for the conservation of state air, land, and water resources by the prevention of pollution and proper methods of disposal and Missouri Water Quality Standards general criteria requiring waters be free from substances that prevent maintenance of beneficial uses; cause unsightly color, turbidity, or toxicity; and/or impair the natural biological community [10 CSR 20-7.031(4)(B)-(G)].

9. Disturbed areas and the dam's face shall be restored and/or established to a stable condition to protect water quality as soon as possible. Seeding, mulching, and needed fertilization should be within three days of final contouring. To ensure erosion and deposition of soil in waters of the state are not occurring from this project, onsite inspections of these areas should be conducted as necessary to ensure successful revegetation and stabilization. This will ensure compliance with Missouri antidegradation requirements regarding BMPs [10 CSR 20-7.031(3)(B)].
10. Acquisition of a WQC shall not be construed or interpreted to imply the requirements for other permits are replaced or superseded, including CWA Section 402 National Pollutant Discharge Elimination System Permits required under Missouri Clean Water Law [Chapter 644.026.1, RSMo]. Permits or any other requirements shall remain in effect. Questions regarding permit requirements may be directed to the Department's Northeast Regional Office by phone at 660-385-8000.
11. Land disturbance activities disturbing one or more acres of total area for the entire project or less than one acre for sites that are part of a common promotional plan of development may require a stormwater permit. Instructions on how to apply for and receive the online land disturbance permit are located at [www.dnr.mo.gov/env/wpp/epermit/help.htm](http://www.dnr.mo.gov/env/wpp/epermit/help.htm). This will ensure compliance with CWA Section 402 National Pollutant Discharge Elimination System Permit requirements under Missouri Clean Water Law [Chapter 644.026.1, RSMo]. Questions regarding permit requirements may be directed to the Department's Land Disturbance phone line at 573-526-2082 or toll free at 855-789-3889.

Pursuant to Chapter 644, RSMo, commonly referred to as the Missouri Clean Water Law, and fee regulations under 10 CSR 20-6.011(2)(H)2., this WQC shall be valid only upon payment of a fee of \$1,500. The enclosed invoice contains the necessary information on how to submit your fee. Payment must be received within 15 business days of receipt of this WQC. Upon receipt of the fee, the applicable office of the USACE will be informed the WQC is now in effect and final.

If you were adversely affected by this decision, you may be entitled to an appeal before the Administrative Hearing Commission (AHC) pursuant to Section 621.250, RSMo. To appeal, you must file a petition with the AHC within 30 days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed; if it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC. Contact information for the AHC is: Administrative Hearing Commission, United States Post Office Building, Third Floor, 131 West High Street, P.O. Box 1557, Jefferson City, MO 65102; phone: 573-751-2422; fax: 573-751-5018; and website: [www.oa.mo.gov/ahc](http://www.oa.mo.gov/ahc).

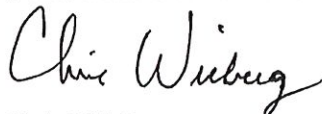
The Honorable C.R. Bud Motsinger  
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This WQC is part of the USACE's permit. Water Quality Standards must be met during any operations authorized. If you have any questions, please contact Mike Irwin by mail at

Department of Natural Resources, Water Protection Program, P.O. Box 176, Jefferson City, MO 65102-0176; by phone at 573-522-1131; and by email at [mike.irwin@dnr.mo.gov](mailto:mike.irwin@dnr.mo.gov). Thank you for working with the Department to protect our aquatic resources.

Sincerely,

WATER PROTECTION PROGRAM



Chris Wieberg  
Director

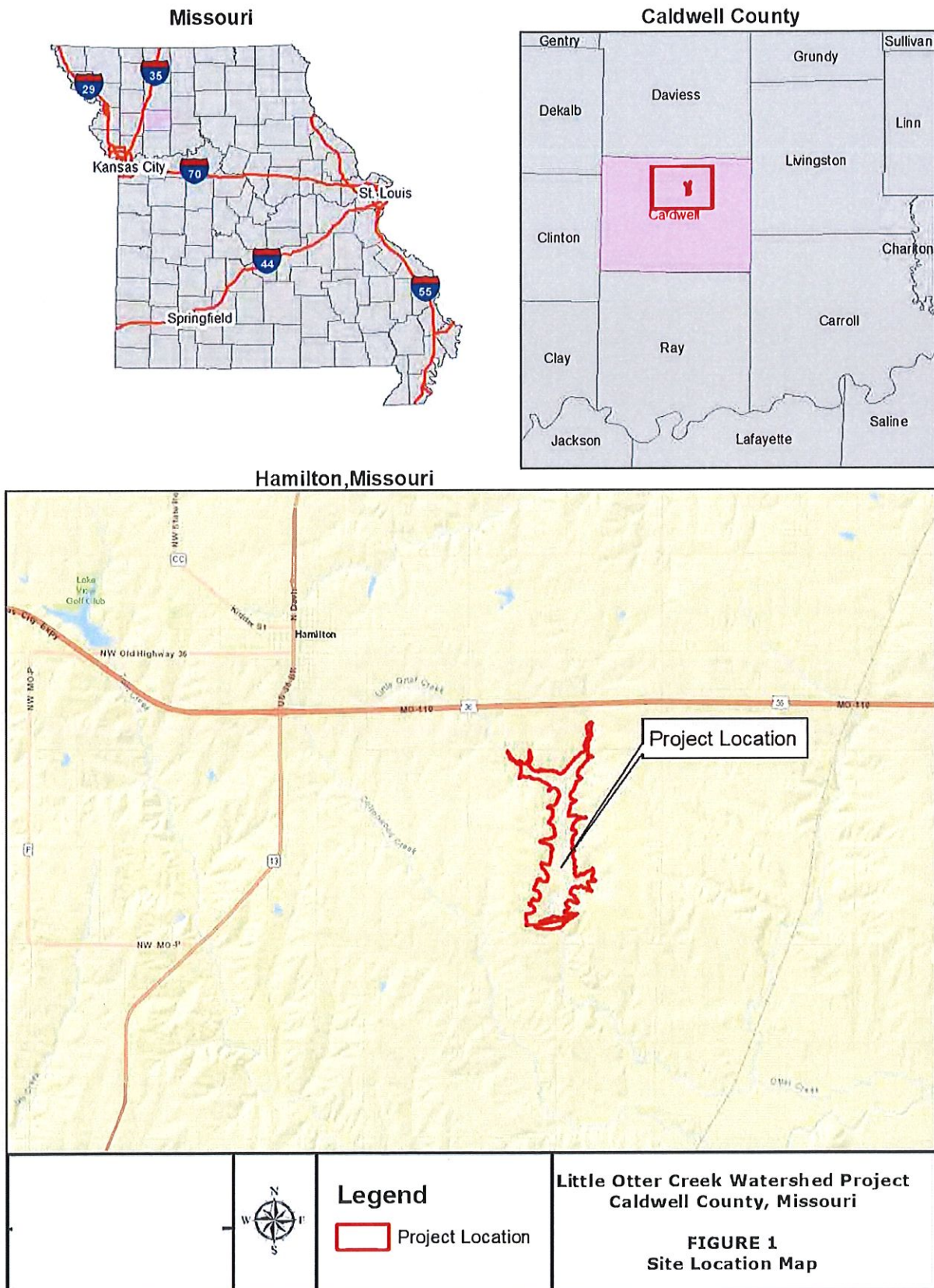
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Enclosure

c: Sherry Bell, Fiscal Management Section, Budget and Fees Unit  
Joe Bowdish, Northeast Regional Office  
Ed Galbraith, Missouri Department of Natural Resources  
Jennifer Hoggatt, Water Resources Center  
Greg Pitchford, Allstate Consultants  
Kenny Pointer, U.S. Army Corps of Engineers, Kansas City District  
Matt Sailor, U.S. Army Corps of Engineers, Kansas City District  
Chad Sayre, Allstate Consultants



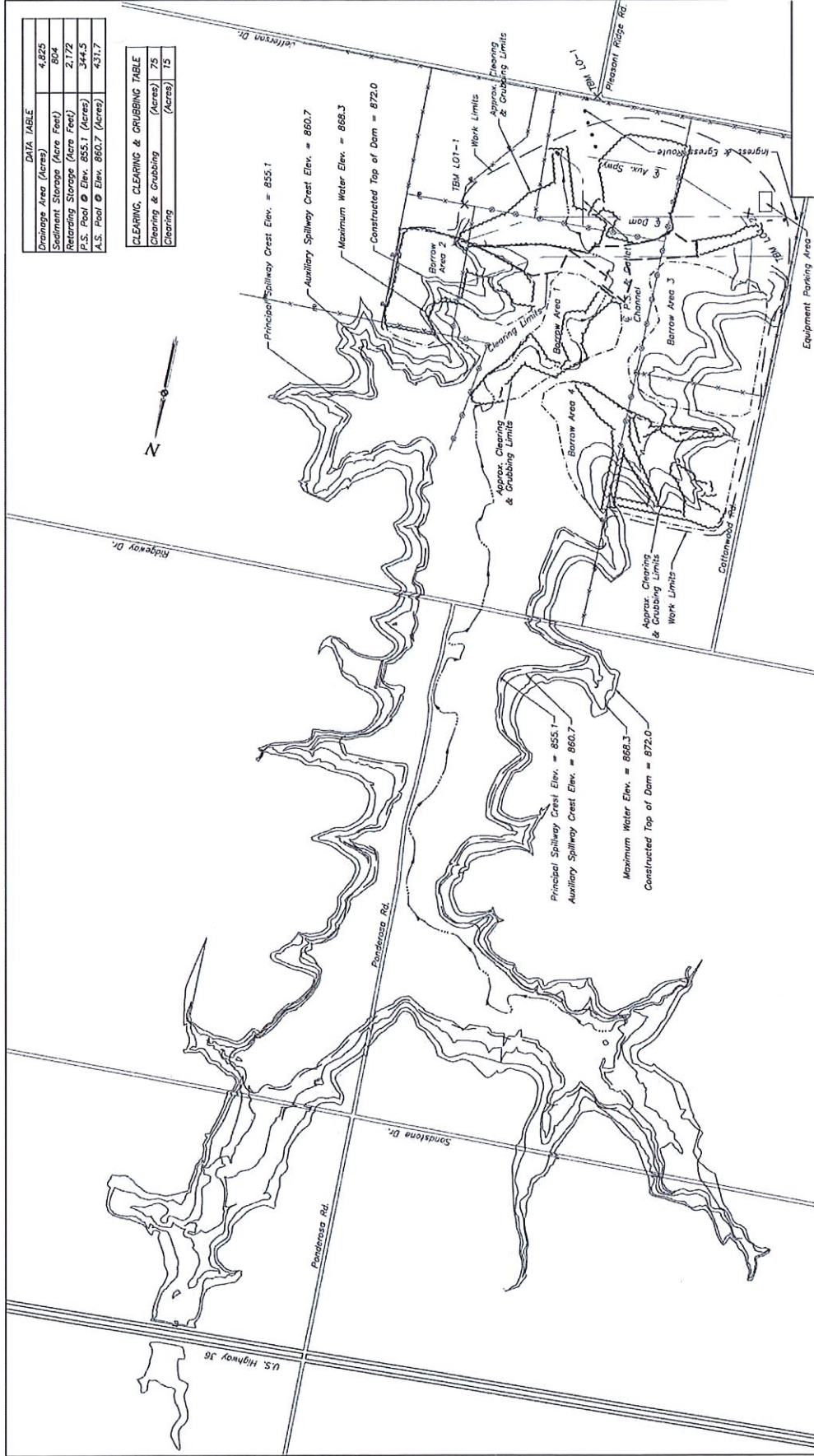
# Proposed Project Location Map



General Plan of Reservoir  
Structure LO-1  
Little Otter Creek Watershed  
PL-566 Caldwell County, Missouri

DATA TABLE	
Drainage Area (Acres)	4,825
Sediment Storage (Acres Feet)	804
Retarding Storage (Acres Feet)	2,172
P.S. Pool @ Elev. 855.1 (Acres)	344.5
A.S. Pool @ Elev. 860.7 (Acres)	431.7

CLEARING, CLEANING & GRUBBING TABLE	
Clearing & Grubbing (Acres)	75
Clearing (Acres)	15



Structure LO-1 is located approximately 4 miles southeast of Hamilton, MO, in the SE 1/4 of Sec. 32 and the SW 1/4 of Sec. 33, T34N, R27W, Caldwell County, Missouri.

TBM LO-1-1 ELEV. 802.240  
Top of Brass Cap 34 feet South of  
Jefferson Dr. 10 feet West of first  
Powerpole.

TBM LO-1-2 ELEV. 871.251  
1/2" Iron Pin, Sta. 7+79.87, 127.22' Lt.

TBM LO-1-2 ELEV. 868.838  
1/2" Iron Pin, Sta. 36+48.13, 31.49' Lt.

GENERAL PLAN OF RESERVOIR



Benchmark - Coordinate Data Table			
Horz. Datum	North	East	Elevation
TBM	1286835.160	2944485.400	807.240
LO-1	1286878.773	2945583.694	871.251
LO-2	1287680.177	2942737.322	868.838

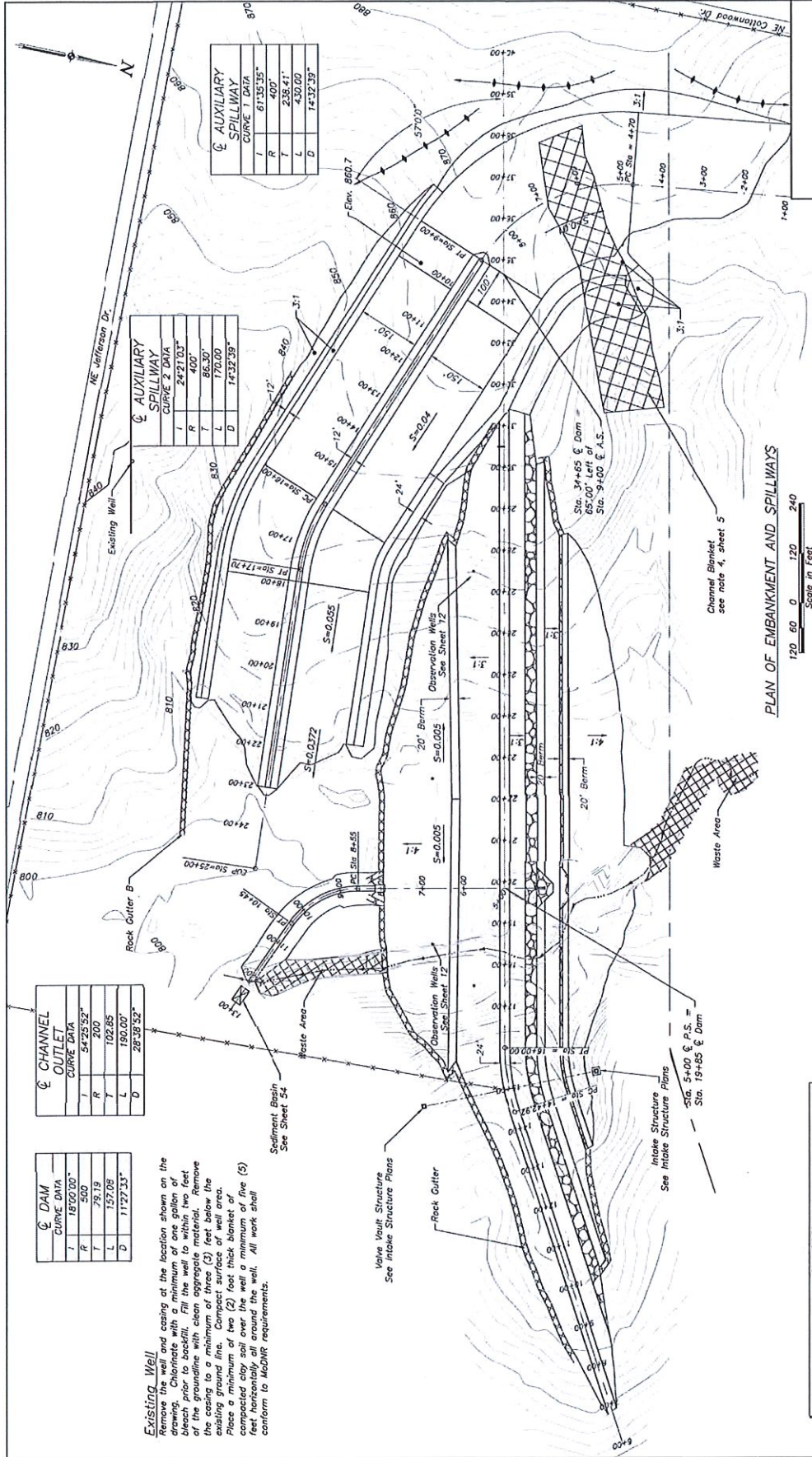
- NOTES:
1. Material removed from foundation of Dam, Auxiliary Spillway, Borrow Area, Ingress-Egress road and parking areas shall be conserved.
  2. Topsoil may be removed down to a depth of 3 feet from borrow area and shall be conserved.
  3. Topsoil shall be placed to a depth of six (6) inches over the dam.
  4. For details of silt fence and pollution control features see Sheets 53 and 54.
  5. For details of Borrow Area see Sheets 35 thru 52.

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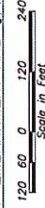


### Plan of Embankment

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## PLAN OF EMBANKMENT AND SPILLWAYS



## Topsoil

**Topsoil**  
A minimum of 6 inches of topsoil shall be placed on all compacted earthfill (dam, auxiliary spillway, borrow area, waste areas, and parking area). A minimum of 1ft of topsoil shall be placed between Sta. 4+70 thru 23+00 in the Aux. Spwy. bottom.

## Earthfil

**For earthfill material sources, placement requirements and laboratory test information, see Sheet 5.**

### Auxiliary Spillway

auxiliary spillway  
All of the side slopes in the auxiliary spillway shall be placed at a 3:1. See sheet 30 and 31 for additional information.

CHANNEL OUTLET	
CURVE DATA	
I	54°25'52"
R	200
Y	102.85
L	190.00'
O	28°38'52"

Q DAM	
CURVE DATA	
I	18°00'00"
R	500
T	79.19
L	157.08
D	11°27'35"

**Existing Well**  
Remove the well and casing at the location shown on the drawing. Chlorinate with a minimum of one gallon of bleach prior to backfill. Fill the well to within two feet of the groundwater with clean aggregate material. Remove the casing to a minimum of three (3) feet below the existing ground line. Compact surface of well area. Place a minimum of two (2) foot thick blanket of compacted clay soil over the well a minimum of five (5) feet horizontally all around the well. All work shall conform to MSDMR requirements.

**NOTES:**

Protective Dike  
Dike dimensions: 12' effective height; 4:1 side slopes; 4' top width. Approx. length = 850 feet.

**Waste Area**  
Required excavated soil material not suitable for use as Class A or C1 earthfill shall be placed in the existing channel downstream of the dam or in other areas approved by the Engineer. Areas shall be left in reasonably uniform condition as approved by the Engineer.

QUANTITIES	
Excavation Common (EC) - Core Trench, Outlet Channel, Structure and Foundation	173,403 Cu. Yds.
Excavation Unclassified (UE) - Core Trench, Foundation and Auxiliary Spillway	27,330 Cu. Yds.
Earthfill (Class A)	1,097,129 Cu. Yds.
Earthfill (Class C)	1,080 Cu. Yds.
Gravel**	424,945 Sq. Yds.
Rock Riprap - Rock Cutters, Drawdown Structure, and Outlet Channel**	15,790 Cu. Yds.
Seedling and Mulch**	115 Acres

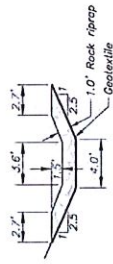
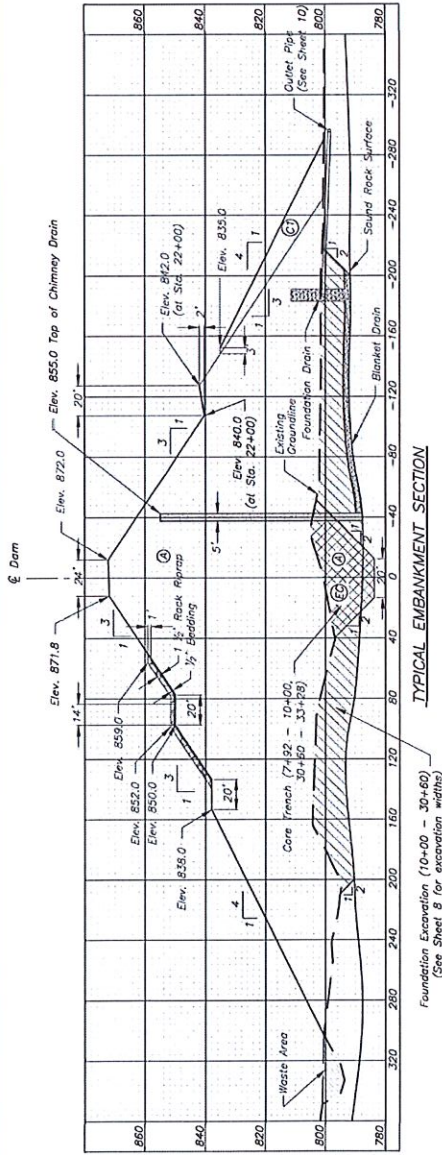
\* 424,945 sq. yds. of topsoil at a depth of 6 inches is equivalent to 70,824 cu. yds.

\*\* Rock riprap in outlet channel & impact basin contains approx. 170 cu. yds. of bedding. Rock riprap at the front berm contains approx. 2,900 cu. yds. of bedding.

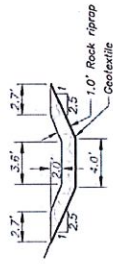


NOTES:

- The higher plastic soils (CH, CL) shall be placed in the core trench, center and upstream portion of the dam. CH material shall not be placed within 10' of the downstream toe of the dam.
- The medium plastic soils (GC, CL, ML, SC) shall be placed in the downstream section of the dam.
- Low plastic soils (SC, SM, SP) with plastic index less than 8 from required upstream to downstream shall be placed in the downstream section of the dam.
- Dispersive soils from required excavations with crumb test of 4 shall be blanket as directed by the Engineer.
- Gradation table for rock riprap applies to all locations that require rock riprap.
- The outlet channel shall be extended to the existing channel at approximate station 12+10. The typical section from 10+45 to 12+10 shall match the upstream section.
- A smooth transition from the end of the outlet channel to the existing stream channel shall be constructed.
- The outlet channel shall be constructed to the existing stream channel at the beginning of the existing stream channel. The profile of the outlet channel shall be adjusted, if necessary, to ensure these elevations match in the field. The gully fill containing boulders and cobbles. Builders shall not be placed in Class A Earthfill. See Construction Specification 23.
- All rock surface areas that require grouting shall be identified in the field by the Engineer. These areas shall be located in the core trench and other areas as directed by the Engineer.
- 6.5 Treatment of Rock Surfaces for additional information.
- Symbol (A) represents Class "A" earthfill, symbol (B) represents Common Excavation symbol (B) represents unclassified earthfill. Symbol (C) represents Class "C" earthfill. Refer to the specifications for additional information.
- The auxiliary spillway earthen material is classified as borrow and shall be utilized as earthfill if determined by the Engineer to be suitable material. The borrow material shall be placed at a location approved by the Engineer.

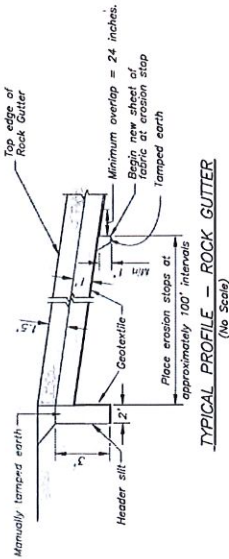


DETAIL - ROCK GUTTER



DETAIL - ROCK GUTTER B

\*There are 0.54 and 0.64 cubic yards of riprap per linear foot of gutter within the next lines for the 1.5 foot deep and the 2.0 foot deep gutters respectively. (Rock Gutter B) shall be installed on the south side of the auxiliary spillway. The riprap shall be installed in the gutter from the riprap used in Rock Gutters A & B. A layer of geotextile shall be installed beneath rock riprap. Geotextile shall be anchored into ground as shown beginning at the toe of the slope and on intervals not exceeding 100' down the slope.



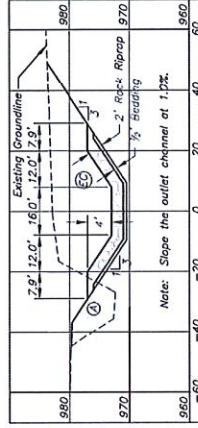
TYPICAL PROFILE - ROCK GUTTER  
(No Scale)

BORROW MATERIAL DESCRIPTIONS		EMBANKMENT MATERIAL SOURCES AND PLACEMENT REQUIREMENTS					
Sample Number	Unified Soil Classification	D11.1	F37.1	F37.2	G35.1	D27.1	D35.1
		CL	CL	CL	CH	CH	CH
Reference Test Method	Meth A	Meth A	Meth A	Meth A	Meth A	Meth A	Meth A
Maximum Dry Density (pcf)	111.0	107.0	104.5	106.5	99.5	106.5	99.5
Optimum moisture (%)	16.0	18.0	18.0	23.0	17.5	24.5	31.0

EMBANKMENT PLACEMENT		EMBANKMENT MATERIAL SOURCES AND PLACEMENT REQUIREMENTS					
Core Trench, Center & Upstream Section of Embankment, Auxiliary Spillway Dikes		Material from Required Excavations, Borrow Area					
Upstream Section of Embankment, Center Auxiliary Spillway Dike		Insitu Wet Material from Required Excavations					
Ingress-Egress Road, Downstream Section of Dam		Insitu Wet Material from Required Excavations					
		UNIFIED SOIL CLASSIF.	DEPTH OF LIFT	MAX SIZE ROCK FRAGMENTS	ALLOWABLE MOISTURE CONTENT	COMPACTION CLASS	REFER TEST METHOD
		CH, CL	9"	6"	-1 to +3% of Optimum	A	ASTM D-698
		GC, CL, ML	9"	6"	-1 to +3% of Optimum	A	ASTM D-698
		GC, CL, SM, SC	9"	6"	-1 to +3% of Optimum	A	ASTM D-698

GRADATION OF ROCK RIPRAP

PERCENT PASSING BY SIZE	SIZE (INCHES)
100	2.0 D <sub>50</sub> = 16"
50-80	1.4 D <sub>50</sub> = 11.2"
25-50	D <sub>50</sub> = 8"
10-30	0.5 D <sub>50</sub> = 4"
0-5	0.2 D <sub>50</sub> = 1.6"



TYPICAL SECTION OUTLET CHANNEL STATION 8+22 to 10+45



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NOTES:  
 1. Ephemeral and Intermittent AJD Streams shown to a depth of 5 feet from the stream bed. Perennial AJD Streams shown to a depth of 10 feet from the stream bed. The stream bed is shown to a depth of 10 feet from the stream bed. The stream bed is shown to a depth of 10 feet from the stream bed.  
 2. The stream bed is shown to a depth of 10 feet from the stream bed. The stream bed is shown to a depth of 10 feet from the stream bed. The stream bed is shown to a depth of 10 feet from the stream bed.

Sunset Rd

Sandstone Dr

Pondosa Rd

3

4

2

GENERAL PLAN OF RESERVOIR  
 Scale in Feet  
 0 250 500 1000

Ridgeway Dr

Maximum Water Elev. = 805.1  
 Proposed Crest Elev. = 802.7  
 Auxiliary Spillway Crest Elev. = 804.3  
 Restricted Top of Dam = 872.0

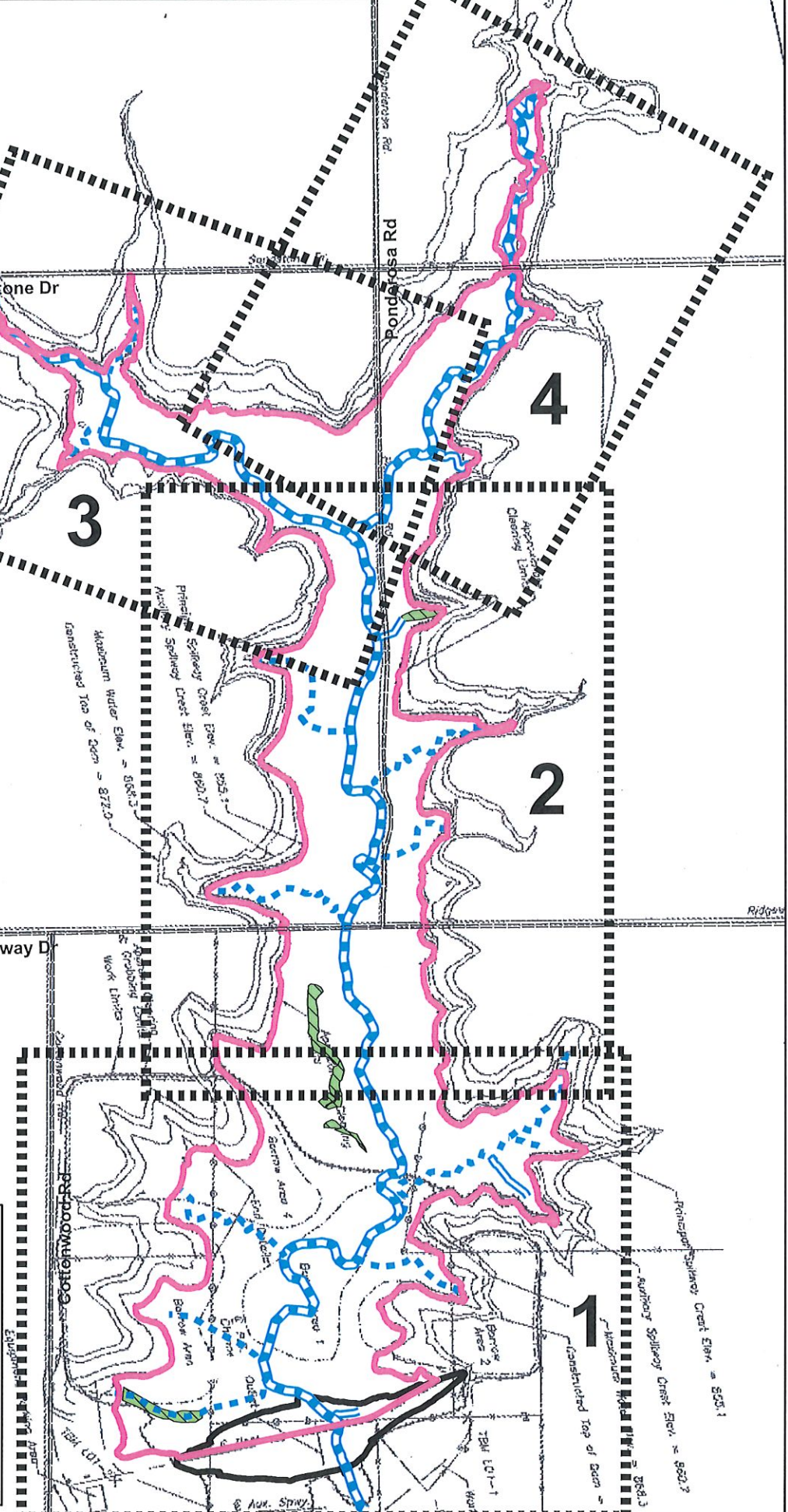
Cottonwood Rd

Legend

- Ephemeral AJD Streams
- - - Intermittent AJD Streams
- ▬ Perennial AJD Streams
- ▨ AJD Wetlands
- ▭ Normal Pool
- ▭ Dam Layout
- ▭ Panel Locations



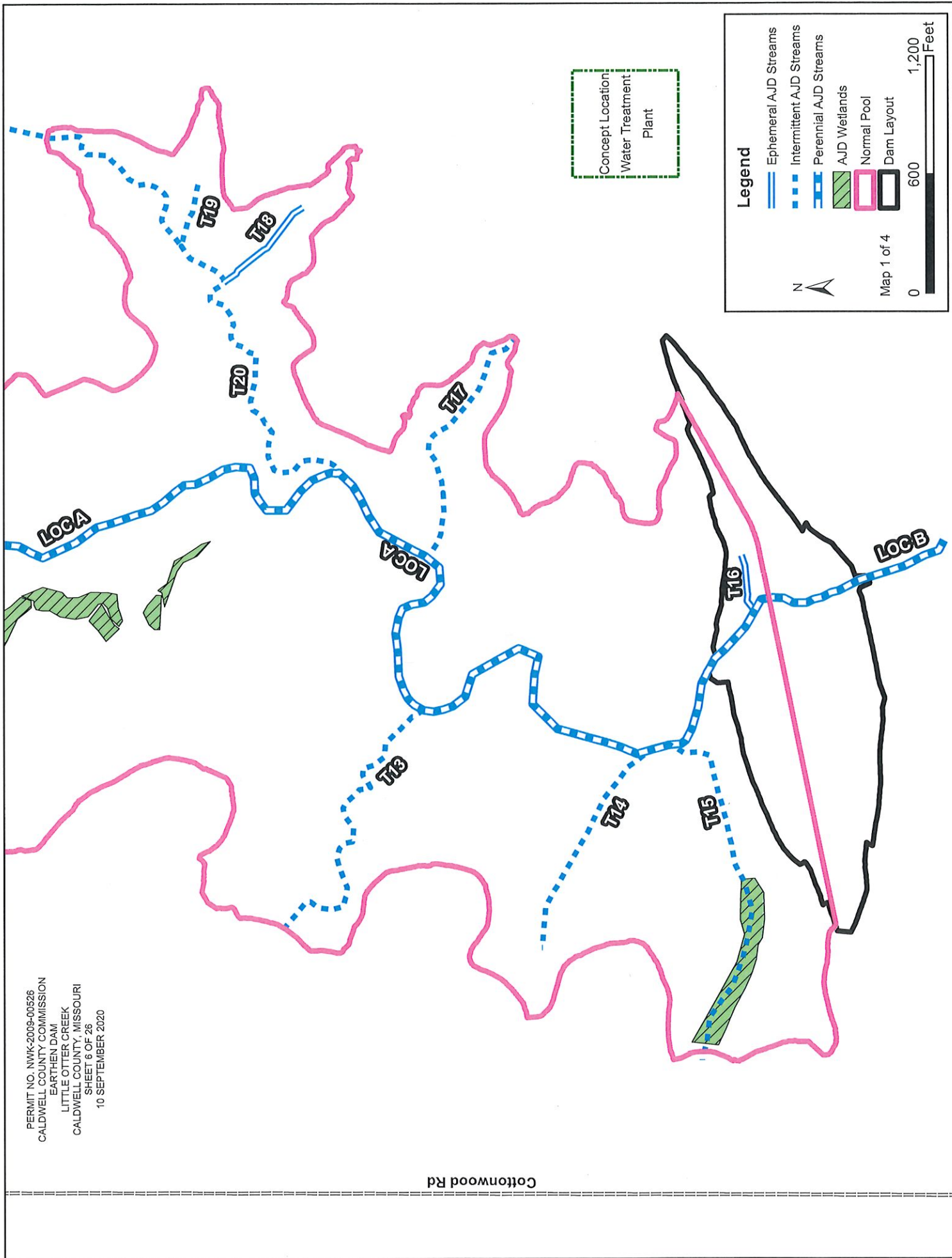
0 1,500 3,000 Feet





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Cottonwood Rd



Concept Location  
Water Treatment  
Plant

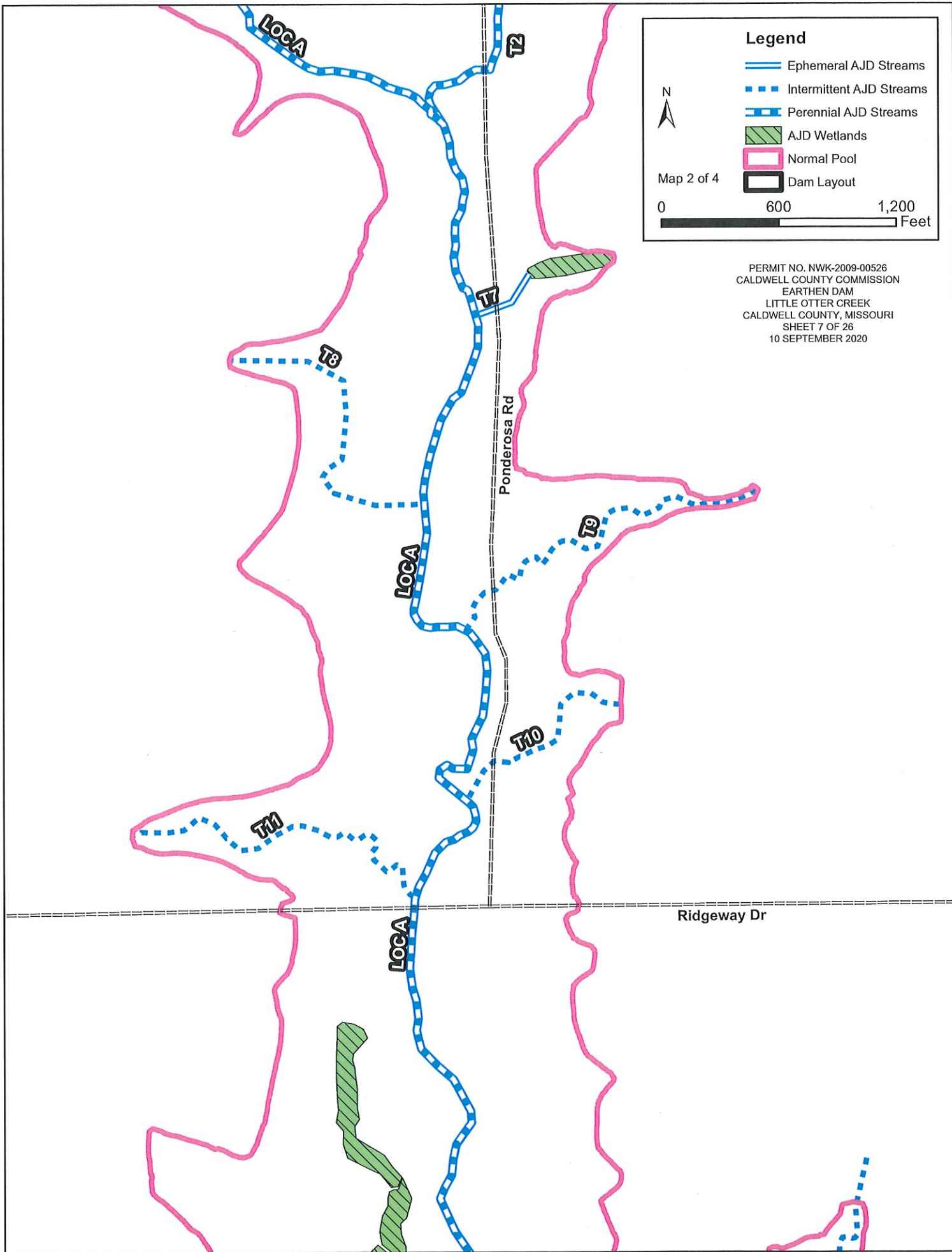
### Legend

- Ephemeral AJD Streams
- Intermittent AJD Streams
- Perennial AJD Streams
- AJD Wetlands
- Normal Pool
- Dam Layout








Map 1 of 4

0 600 1,200 Feet





### Legend

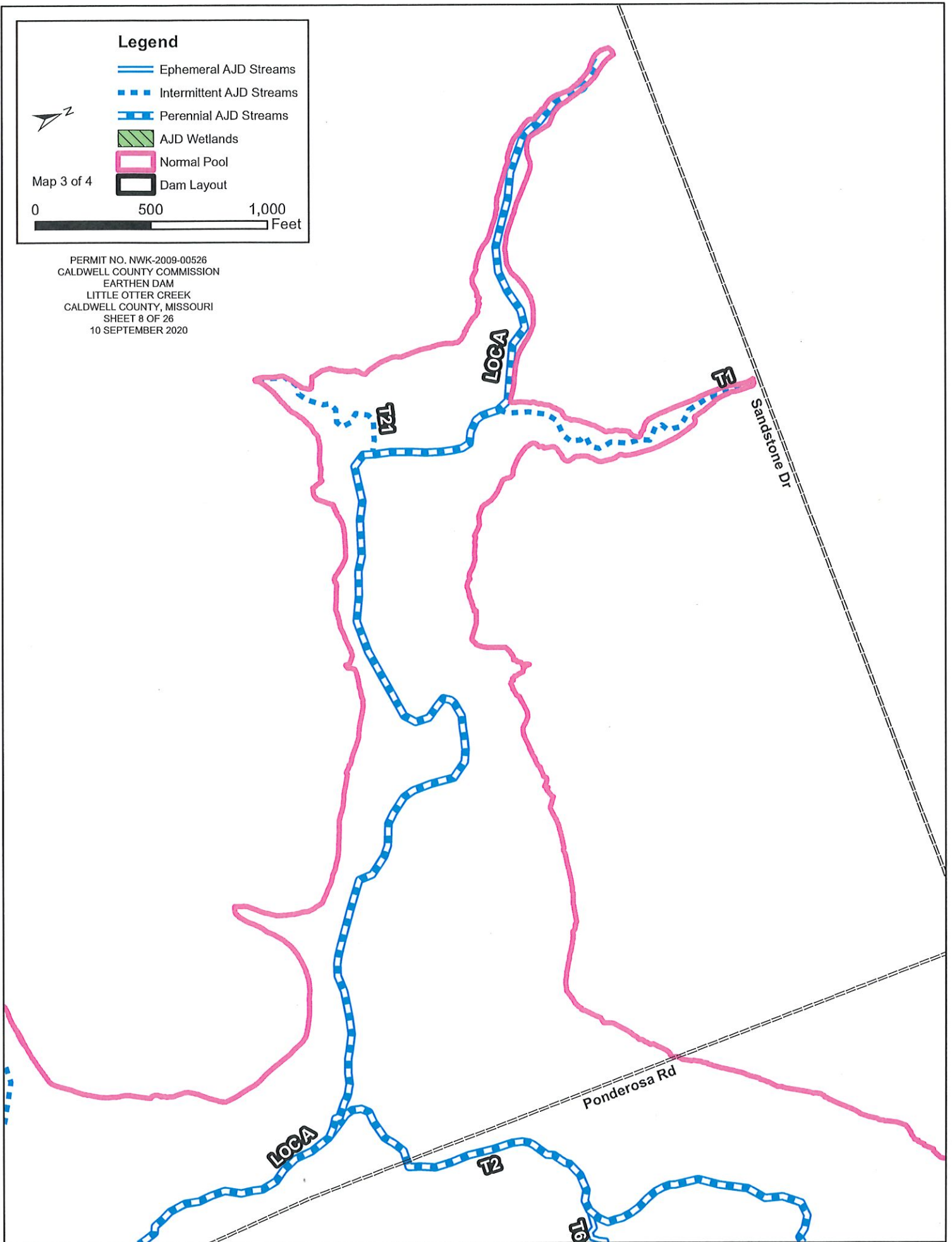
-  Ephemeral AJD Streams
-  Intermittent AJD Streams
-  Perennial AJD Streams
-  AJD Wetlands
-  Normal Pool
-  Dam Layout



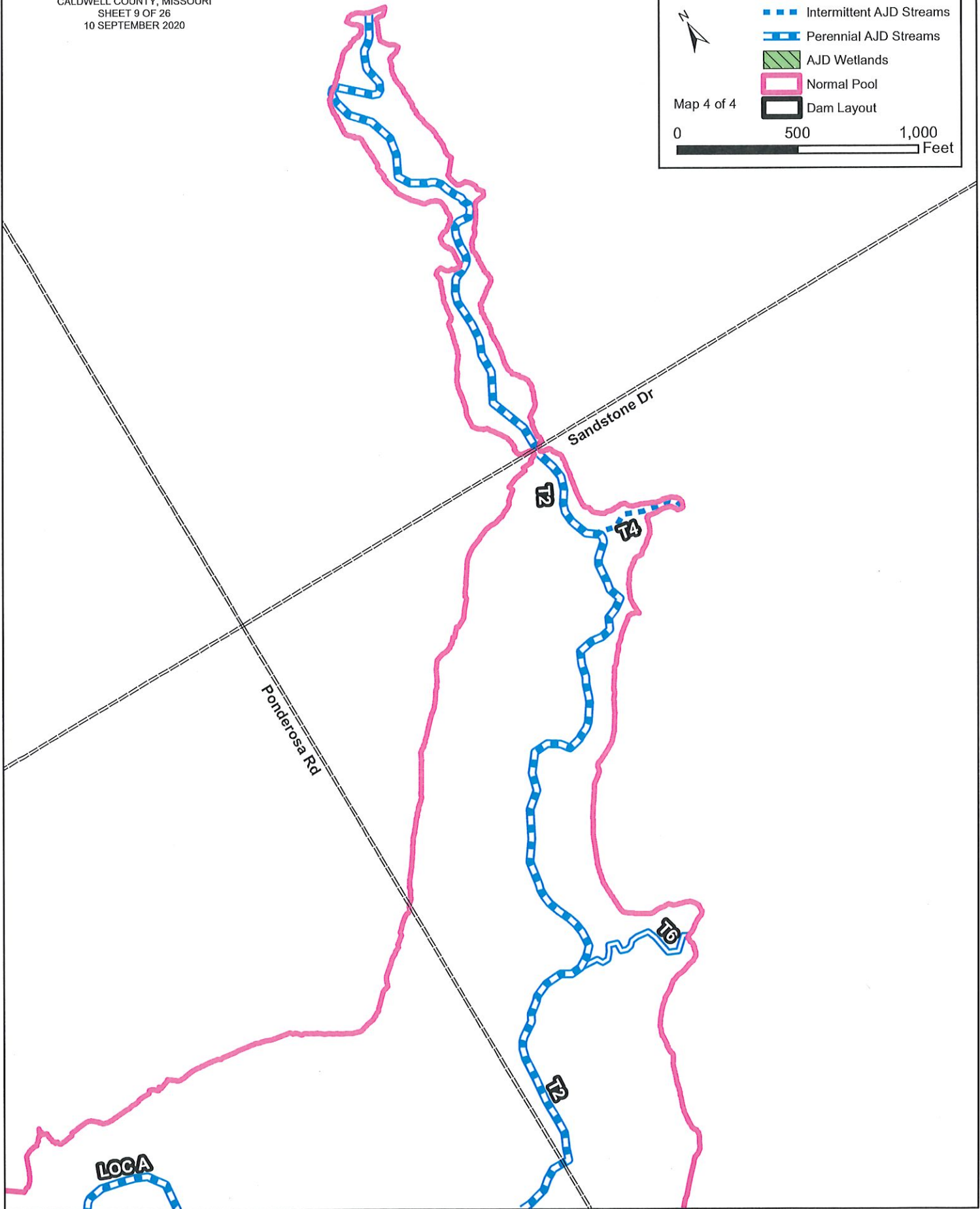
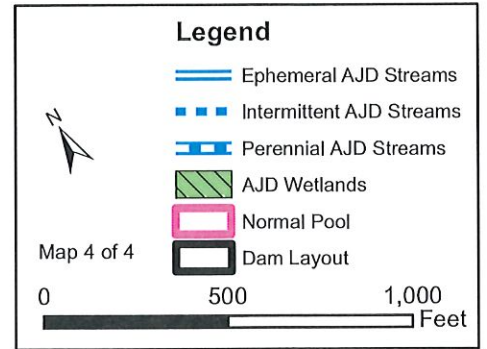
Map 3 of 4

0 500 1,000 Feet

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**Table 1. Aquatic Resource Impacts.**

<b>Tributary</b>	<b>Status</b>	<b>Jurisdictional Streams</b>	<b>Stream Flow</b>	<b>Jurisdictional Wetlands</b>	<b>Impact Type</b>
LOC A	RPW	12,911	Perennial	2.4	Inundation
LOC B	RPW	2,143	Perennial	0	Earthen Fill
T1	RPW	1,006	Intermittent	0	Inundation
T2	RPW	5,166	Perennial	0	Inundation
T4	non-RPW	326	Intermittent	0	Inundation
T6	non-RPW	512	Ephemeral	0	Inundation
T7	non-RPW	280	Ephemeral	0.5	Inundation
T8	non-RPW	1,324	Intermittent	0	Inundation
T9	non-RPW	1,563	Intermittent	0	Inundation
T10	non-RPW	868	Intermittent	0	Inundation
T11	non-RPW	1,455	Intermittent	0	Inundation
T13	non-RPW	1,307	Intermittent	0	Inundation
T14	non-RPW	900	Intermittent	0	Inundation
T15	non-RPW	1,438	Intermittent	1.2	Inundation
T16	non-RPW	232	Ephemeral	0	Earthen Fill
T17	non-RPW	1,050	Intermittent	0	Inundation
T18	non-RPW	430	Ephemeral	0	Inundation
T19	non-RPW	256	Intermittent	0	Inundation
T20	non-RPW	2,442	Intermittent	0	Inundation
T21	non-RPW	634	Intermittent	0	Inundation
<b>Total</b>		<b>36,243</b>		<b>4.1</b>	

Description of crossing and upstream distance effect measurements:

The existing length of the crossing is approximately 100 ft with a deck width of 20 ft.

Elevation of crossing deck was 726.6 ft. The distance for upstream effect on mainstem was 2,724 ft.

Elevations for deck and upstream effect surveyed by Tom Kelly PLS, Allstate Consultants LLC.

Upstream effect distance computed with GIS analysis by Fantz Consulting LLC.

Upstream elevation on Panther Creek in Decimal Degrees:

Latitude 39.706305

Longitude -93.782752

Upstream effect distance 2,724 ft.

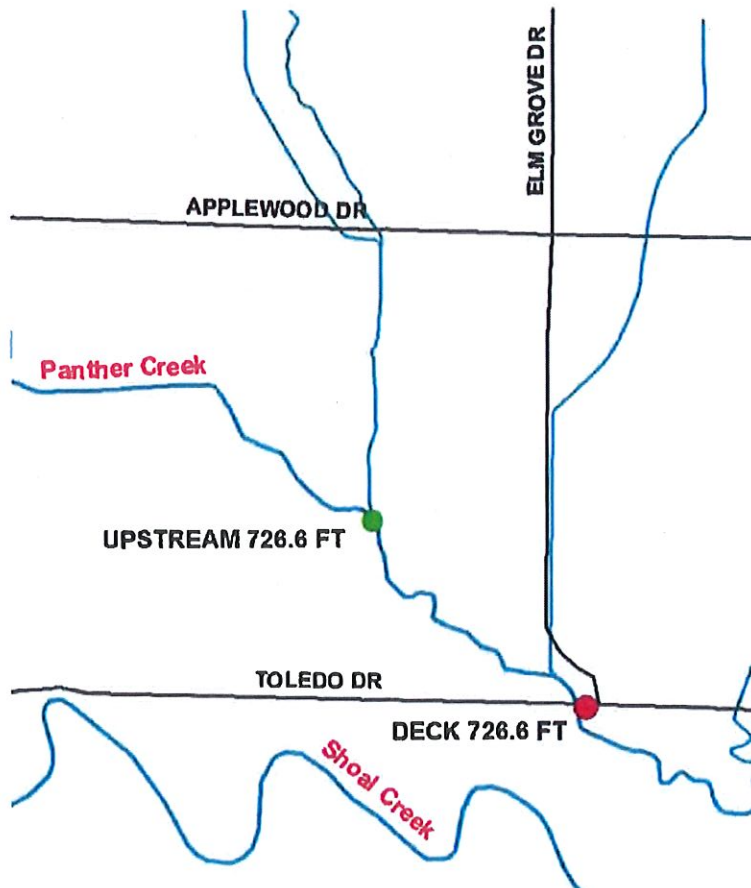
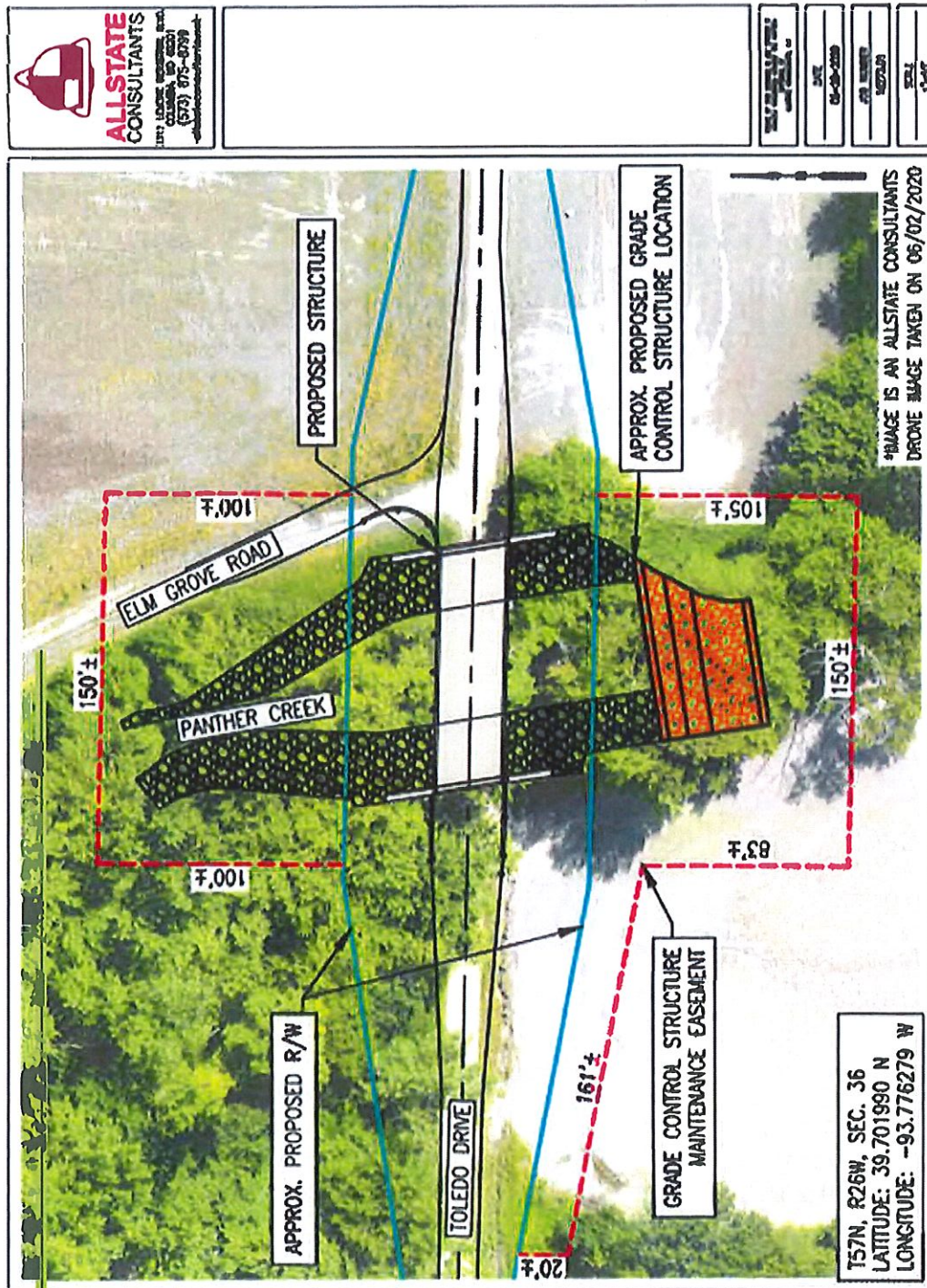


FIGURE 10 – Close up view of Toledo Drive crossing over Panther Creek, Caldwell County, MO, along with upstream effect elevation.





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Figure 12 – Map of crossing of Toledo Drive over Panther Creek, Caldwell County, MO with site protection easement boundaries.

Description of crossing and upstream distance effect measurements:

The existing length of the crossing is approximately 60 ft with a deck width of 20 ft.  
Elevation of crossing deck was 744.1 ft. The distance for upstream effect on mainstem was 2,189 ft.  
Elevations for deck and upstream effect surveyed by Tom Kelly PLS, Allstate Consultants LLC.  
Upstream effect distance computed with GIS analysis by Fantz Consulting LLC.

Upstream elevation on Channelized section of Flat Creek in Decimal Degrees:

Latitude 39.67391868

Longitude -93.84527778

Upstream effect distance 2,189 ft.

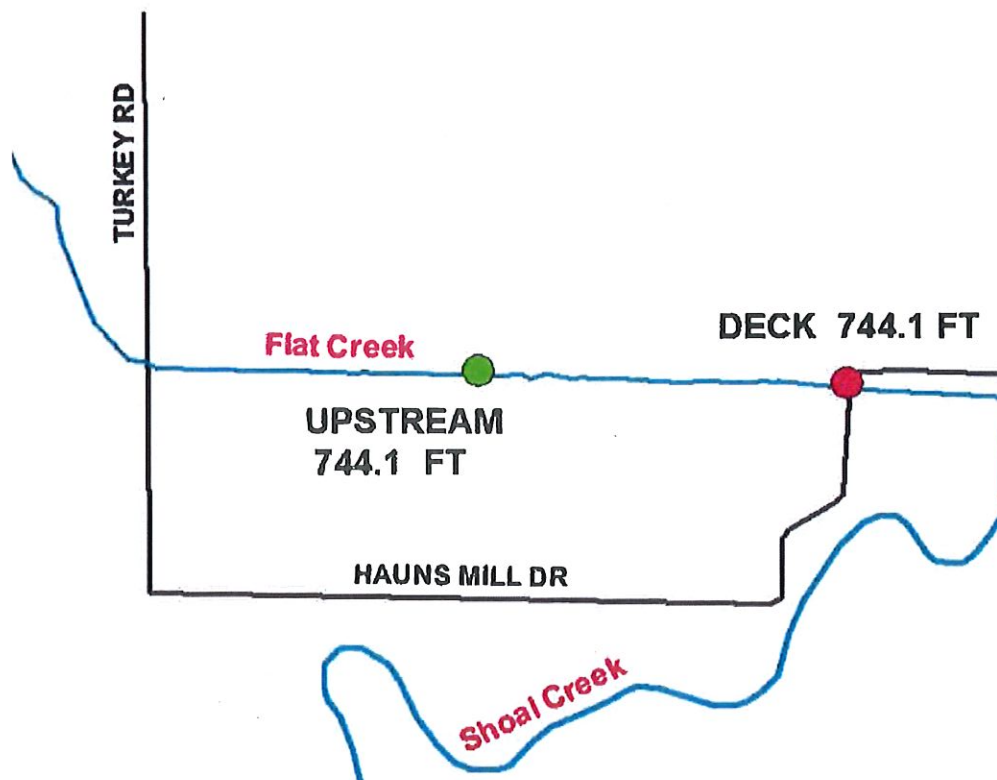
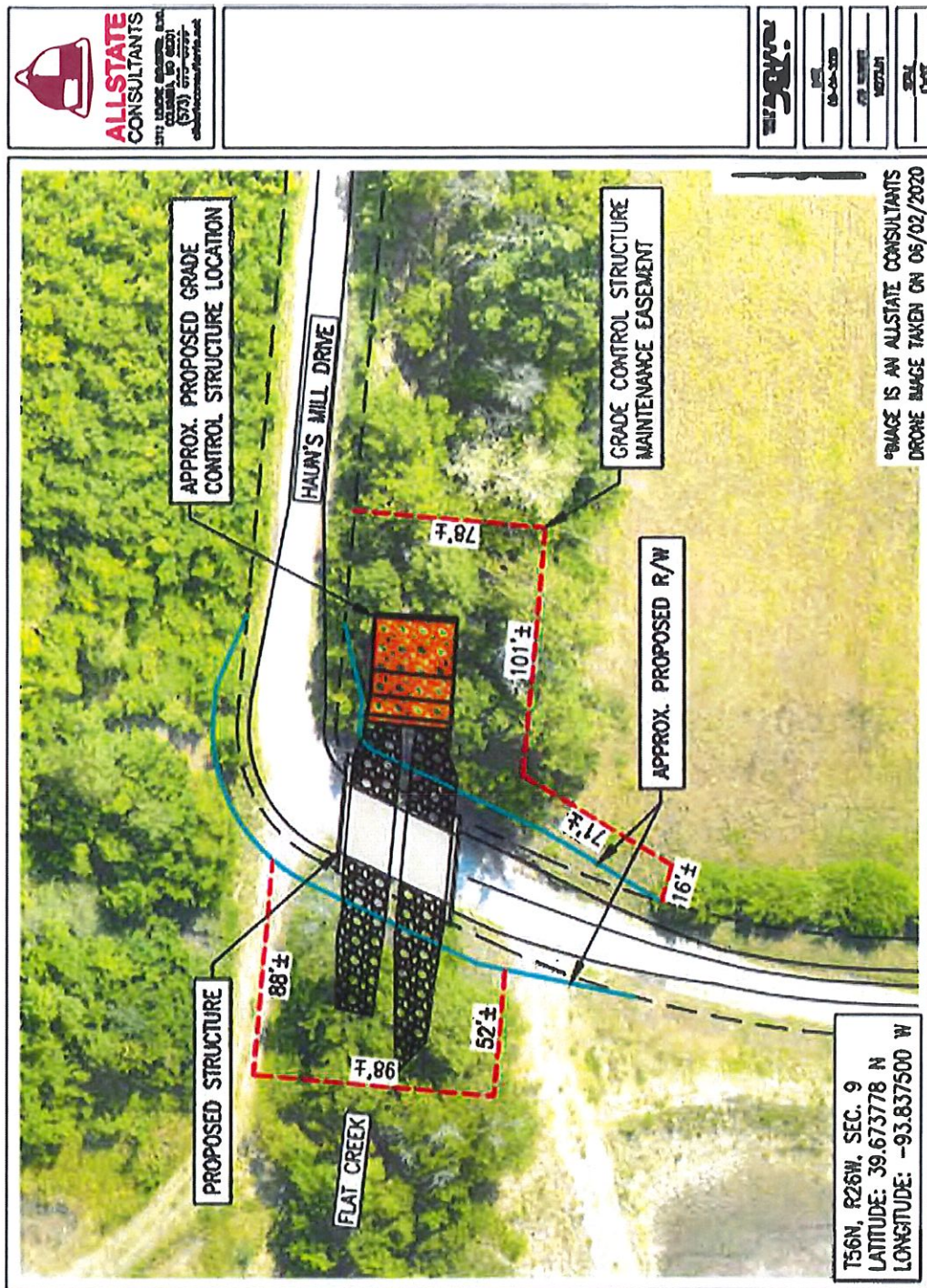


FIGURE 14 – Close up view of Haun's Mill Drive crossing over Flat Creek, Caldwell County, MO, along with upstream effect elevation.





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Figure 16 – Map of crossing of Haun's Mill Drive crossing over Flat Creek, Caldwell County, MO, with site protection easement boundaries.

Description of crossing and upstream distance effect measurements:

The existing length of the crossing is approximately 80 ft with a deck width of 20 ft.

Elevation of crossing deck was 755.1 ft. The distance for upstream effect on mainstem was 1,512 ft.

Elevations for deck and upstream effect surveyed by Tom Kelly PLS, Allstate Consultants LLC.

Upstream effect distance computed with GIS analysis by Fantz Consulting LLC.

Upstream elevation on Flat Creek in Decimal Degrees:

Latitude 39.67742615

Longitude -93.85500000

Upstream effect distance 1,512 FT.

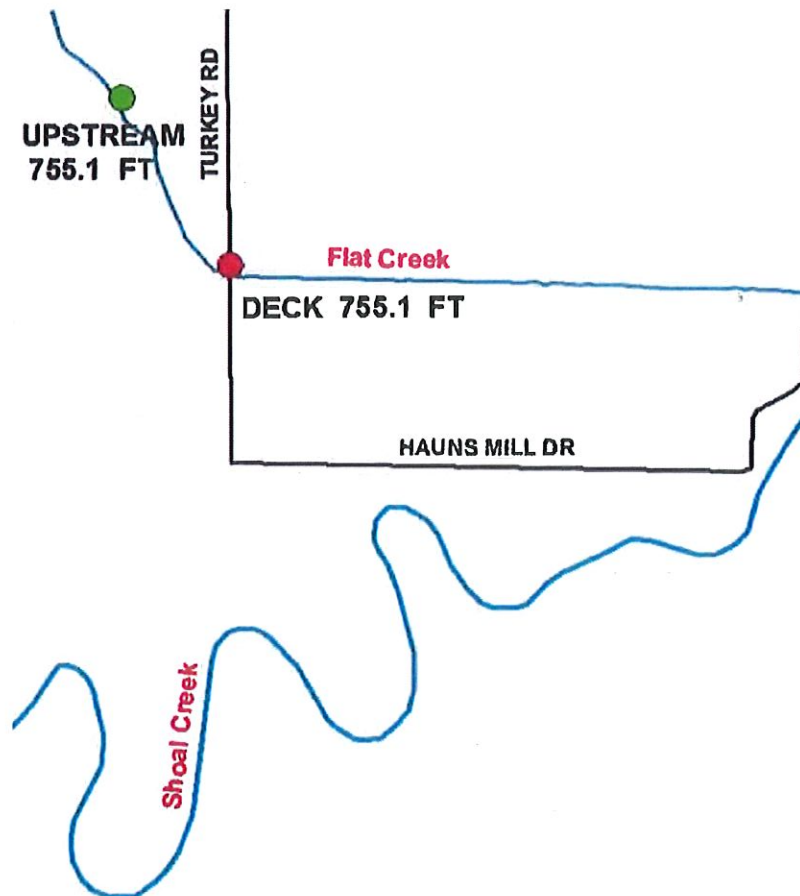


FIGURE 18 – Close up view of roads and Turkey Road crossing over Flat Creek, Caldwell County, MO, along with upstream effect elevation.



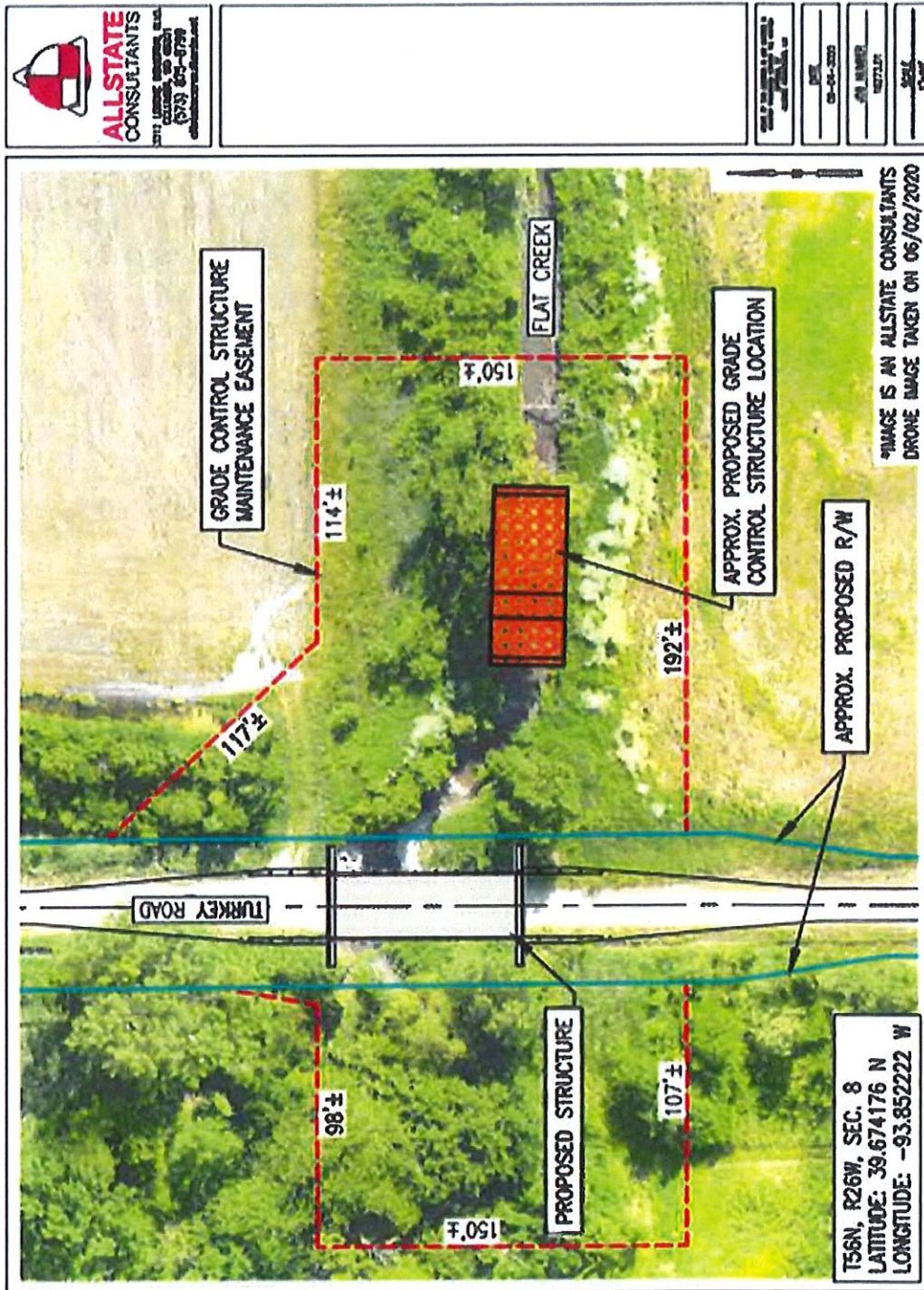


Figure 20 – Map of crossing of Turkey Road crossing over Flat Creek, Caldwell County, MO, with site protection easement boundaries.

Description of crossing and upstream distance effect measurements:

The existing length of the crossing is approximately 75 ft with a deck width of 20 ft.  
Elevation of crossing deck was 701.8 ft. The distance for upstream effect on mainstem was 14,906 ft.  
Elevations for deck and upstream effect were surveyed by Tom Kelly PLS, Allstate Consultants LLC.  
Upstream effect distance was computed with GIS analysis by Fantz Consulting LLC.

Upstream elevation on Old Grand River Channel in Decimal Degrees:

Latitude 39.826445053

Longitude -93.80527778

Upstream effect distance 14,906 ft.

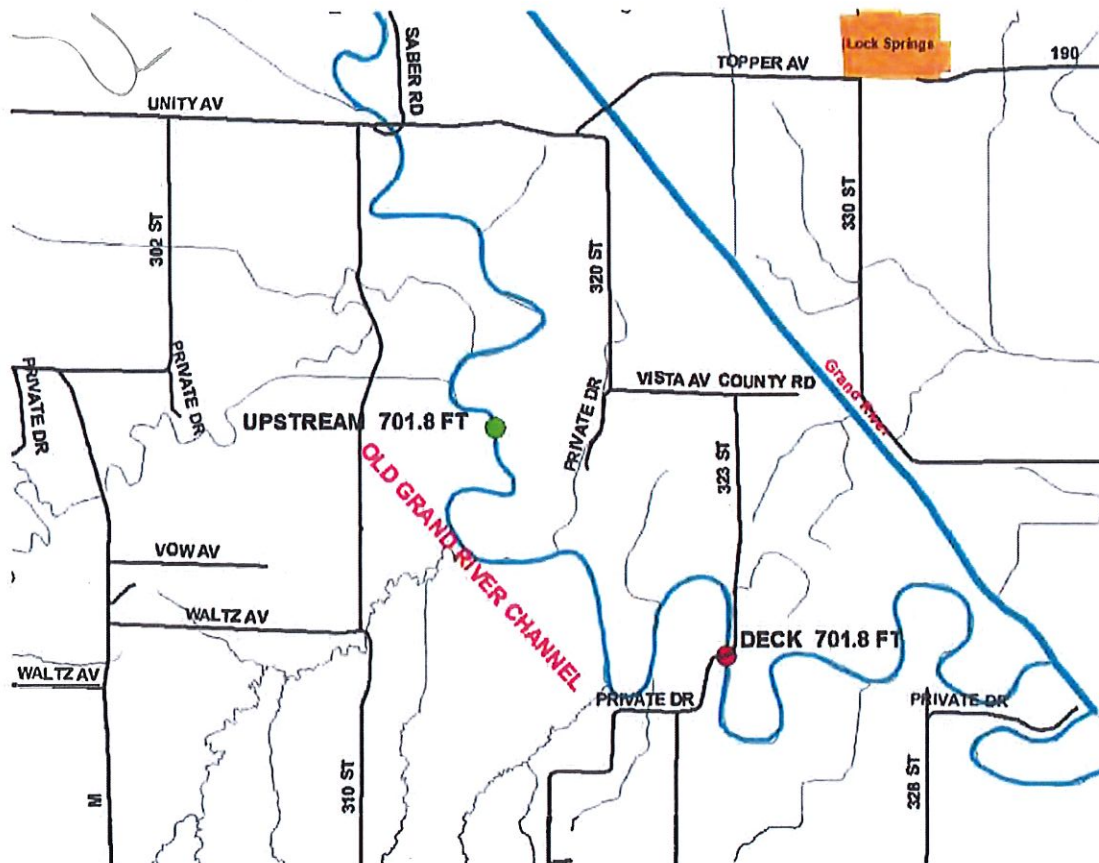


FIGURE 22 – Close up view of roads and 323 Street crossing over the Old Grand River channel, Daviess County, MO, along with upstream effect elevation.



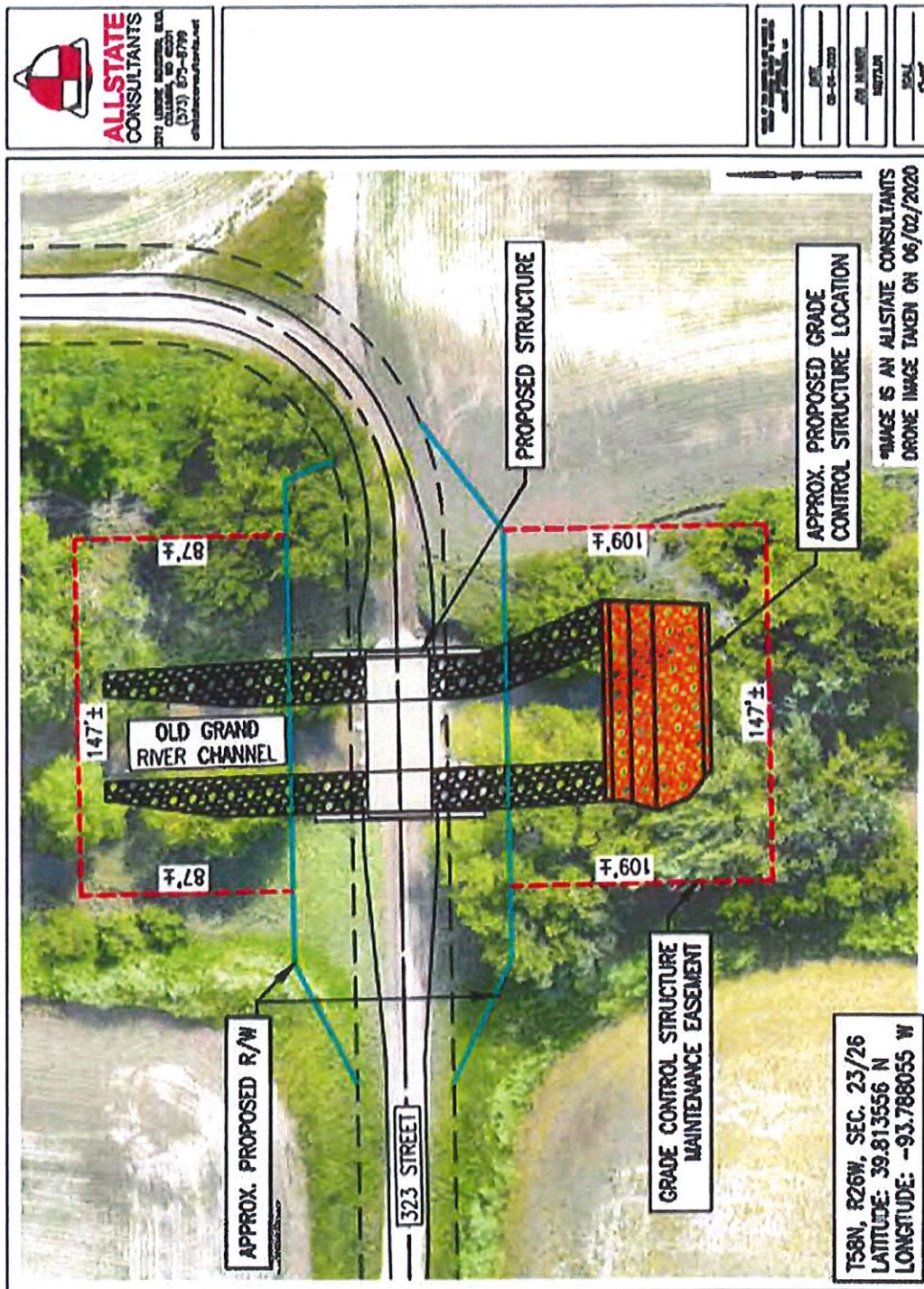


Figure 24 – Map of crossing of 323 Street over the Old Grand River Channel, Daviess County, MO, with site protection easement boundaries.

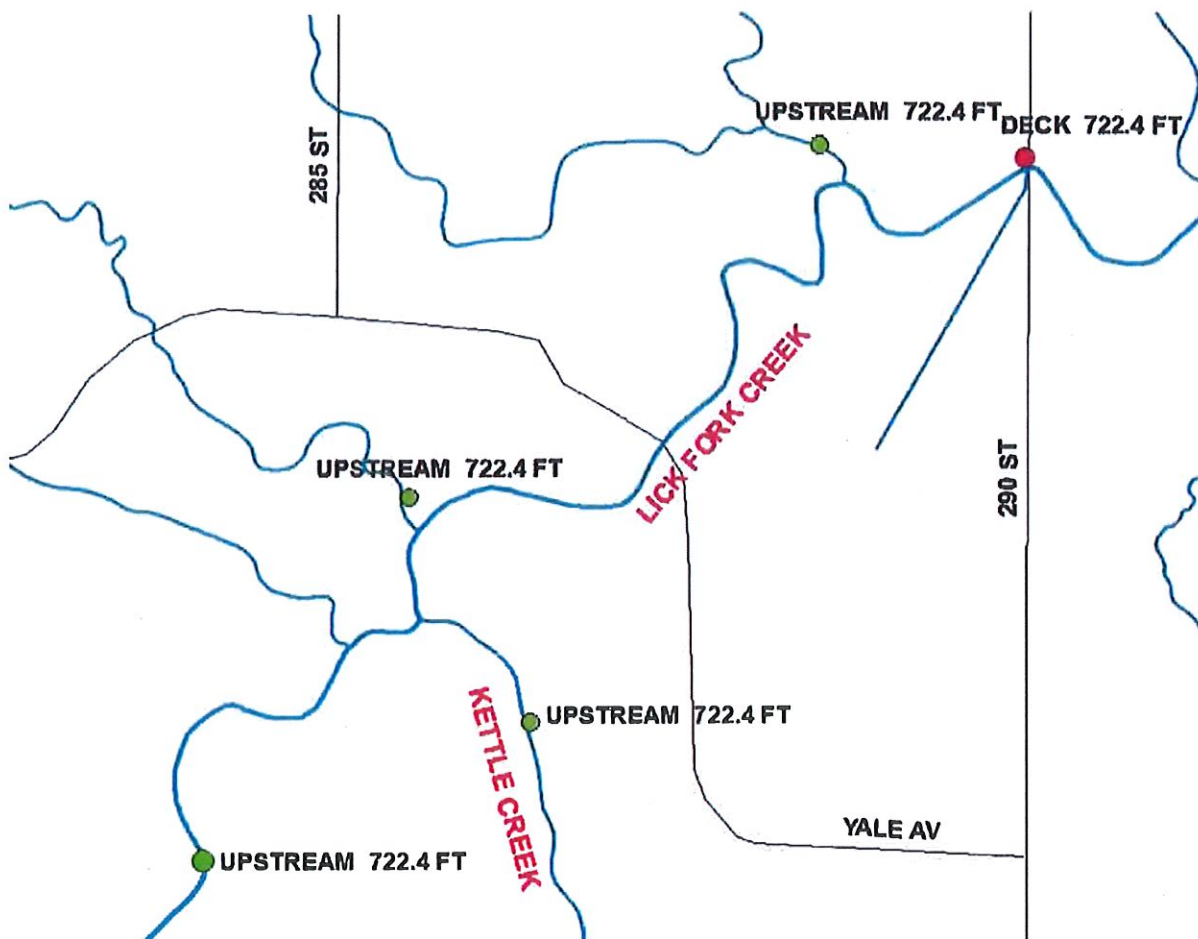


FIGURE 26 – Close up view of roads and 290 Street crossing over Lick Fork Creek, Daviess County, MO, along with upstream effect elevation on mainstem and tributaries.



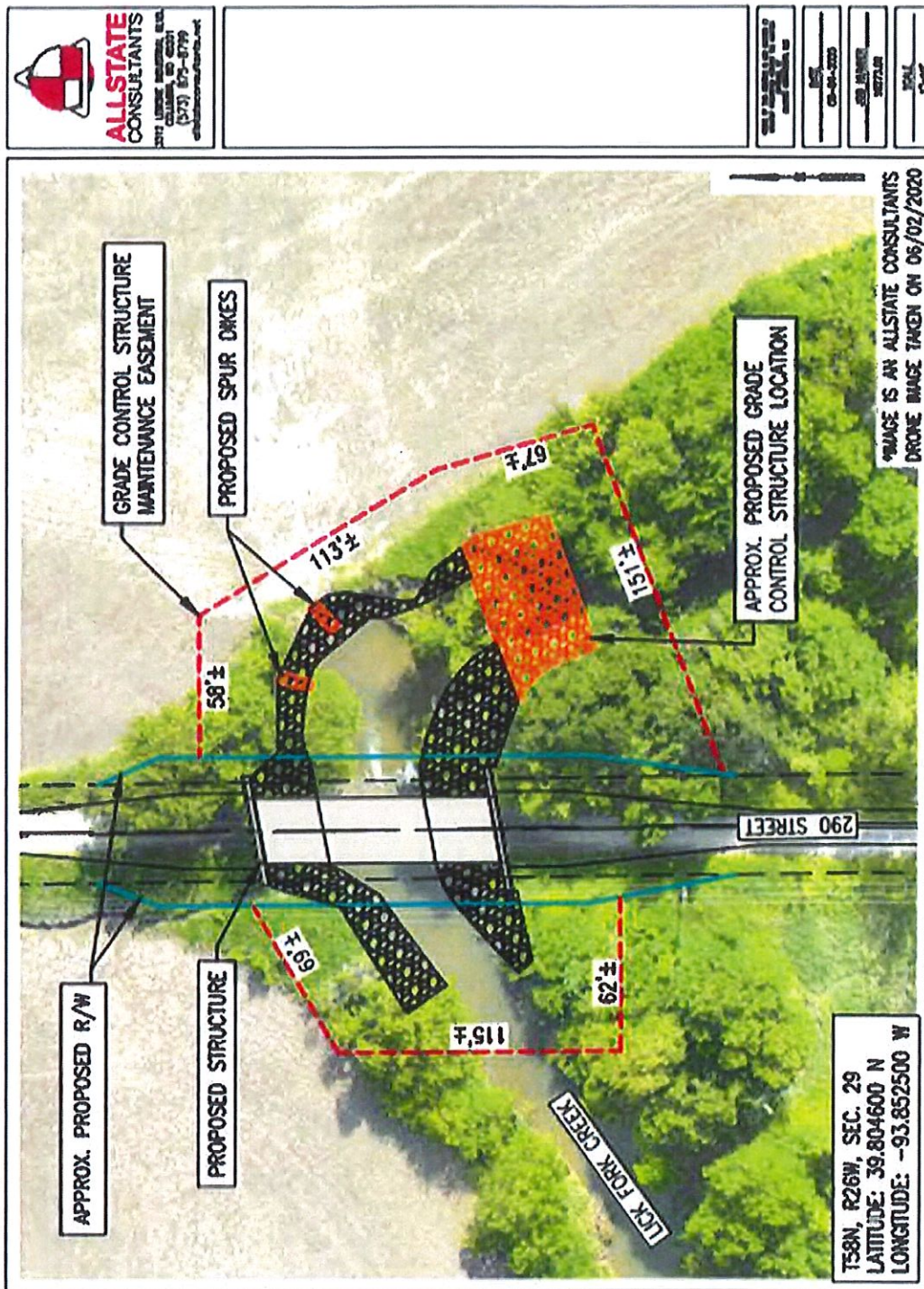


Figure 28 – Map of crossing of 290 Street over Lick Fork Creek, Daviess County, MO, with site protection easement boundaries. Bank protection measures will be installed on the left descending bank to protect the integrity of the grade control structure.



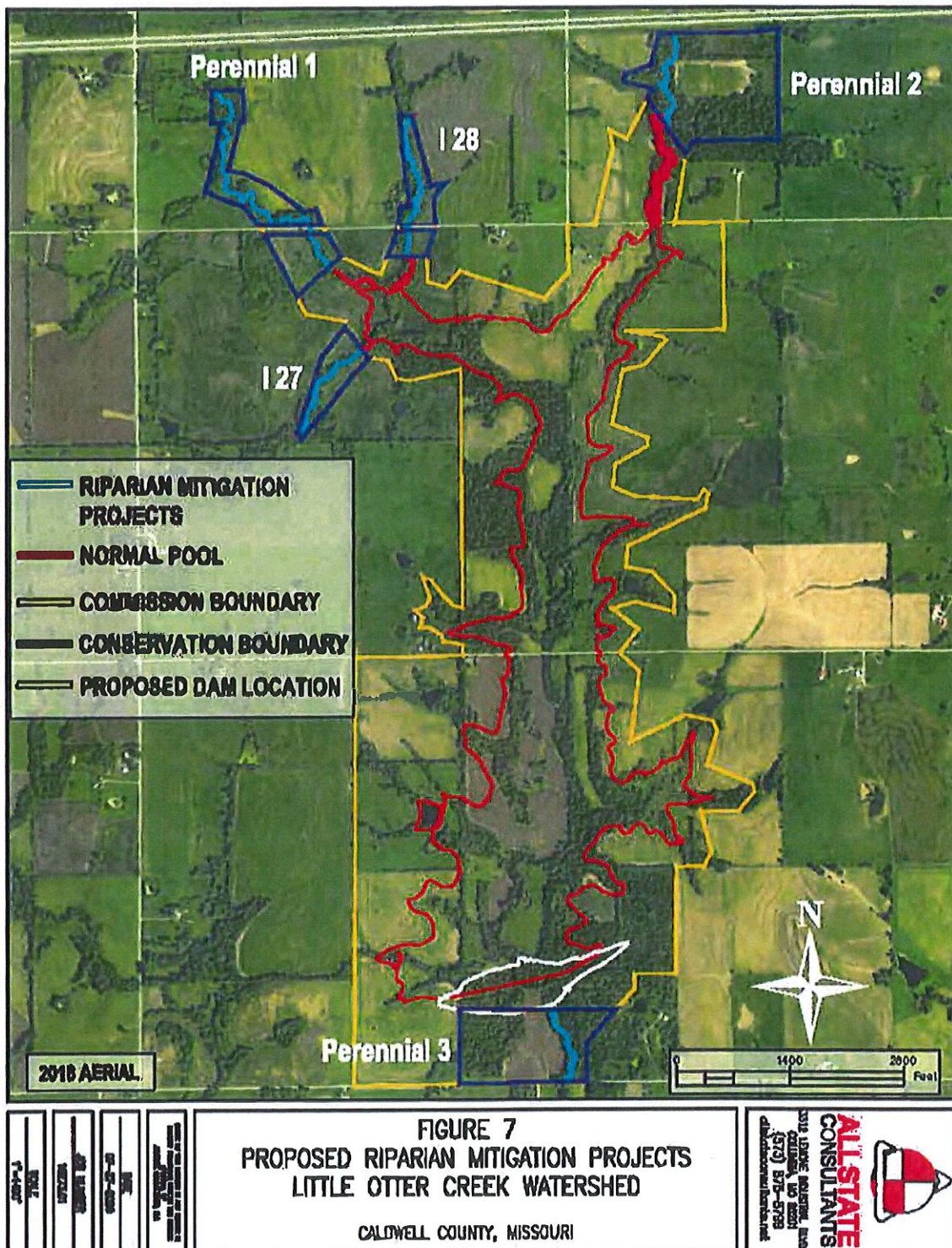
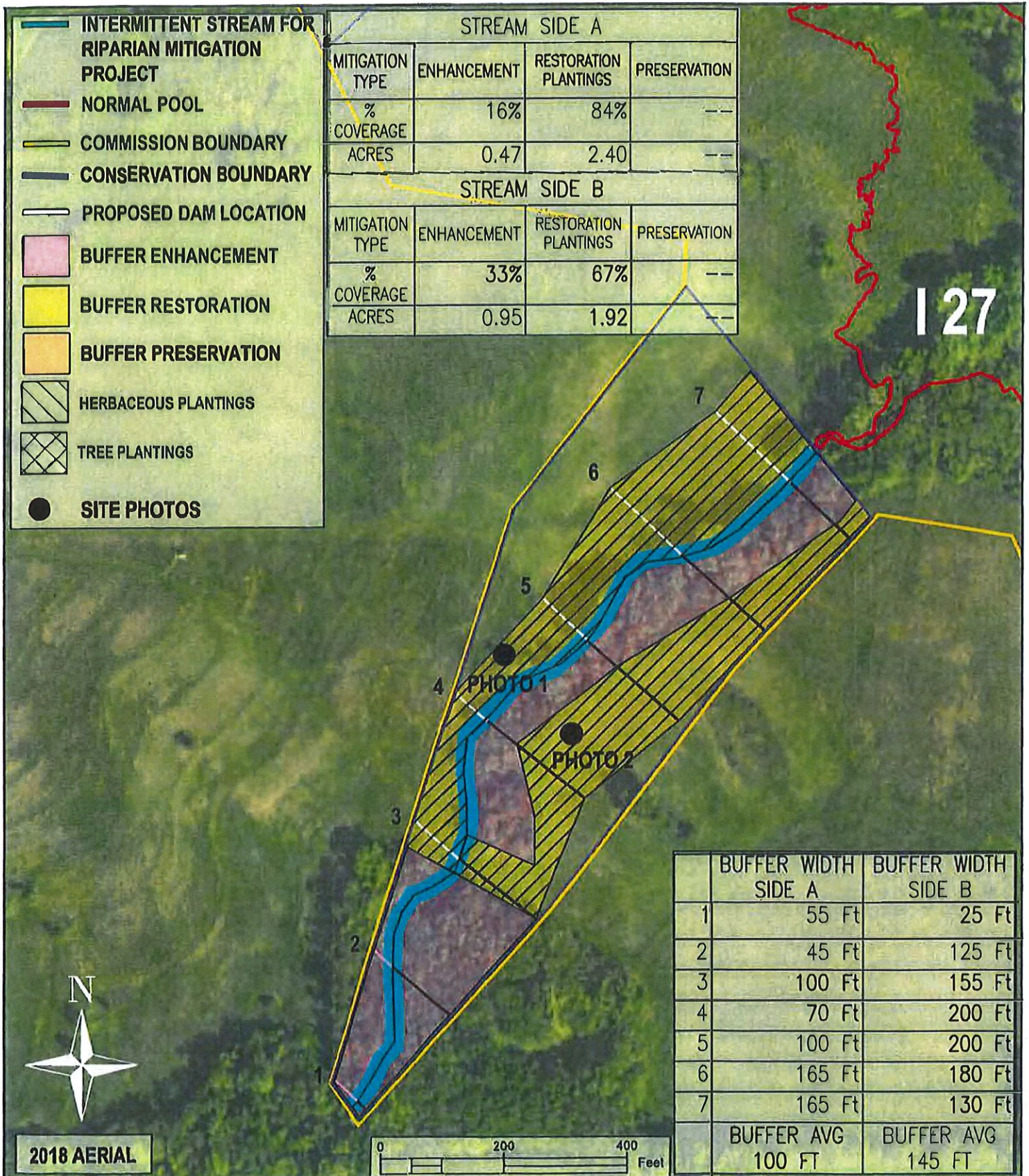


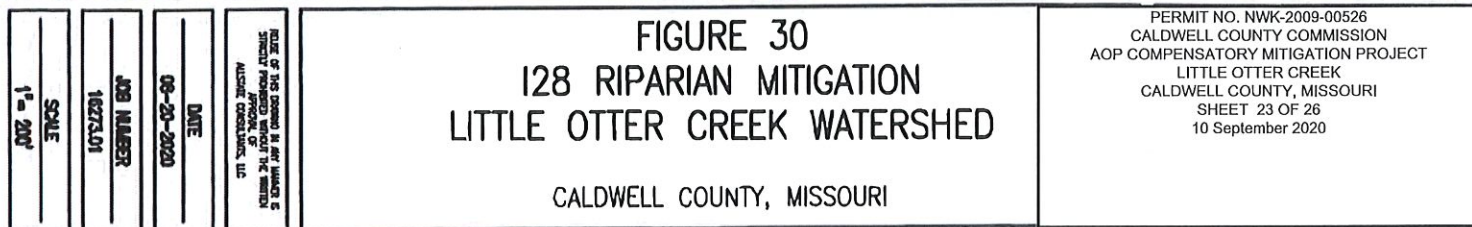
FIGURE 7 – Locations of proposed riparian mitigation projects within the Little Otter Creek watershed, Caldwell County, MO. Location numbers (in white) correspond to “Stream Number” in Table 7 and the riparian buffer worksheet in Appendix D. All locations are on property owned by the CCC.





DATE	08-20-2020
JOB NUMBER	18273.01
SCALE	1" = 200'
<small>NOTE: IF THE OWNER IS A CITY, COUNTY, OR STATE, THE PROJECT IS NOT TO BE USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN APPROVAL OF AUSTIN CONSULTING, LLC</small>	







# PERENNIAL 1

	BUFFER WIDTH SIDE A	BUFFER WIDTH SIDE B
1	100 Ft	85 Ft
2	100 Ft	85 Ft
3	100 Ft	75 Ft
4	100 Ft	80 Ft
5	90 Ft	130 Ft
6	100 Ft	230 Ft
7	100 Ft	120 Ft
8	100 Ft	200 Ft
9	110 Ft	165 Ft
10	100 Ft	25 Ft
11	100 Ft	90 Ft
12	100 Ft	300 Ft
13	100 Ft	300 Ft
	BUFFER AVG 100 FT	BUFFER AVG 145 FT

	INTERMITTENT STREAM FOR RIPARIAN MITIGATION PROJECT
	NORMAL POOL
	COMMISSION BOUNDARY
	CONSERVATION BOUNDARY
	PROPOSED DAM LOCATION
	BUFFER ENHANCEMENT
	BUFFER RESTORATION
	BUFFER PRESERVATION
	HERBACEOUS PLANTINGS
	TREE PLANTINGS
	SITE PHOTOS

STREAM SIDE A			
MITIGATION TYPE	ENHANCEMENT	ENHANCEMENT PLANTINGS	RESTORATION PLANTINGS
% COVERAGE	61%	39%	---
ACRES	4.30	2.71	---
STREAM SIDE B			
MITIGATION TYPE	ENHANCEMENT	ENHANCEMENT PLANTINGS	RESTORATION PLANTINGS
% COVERAGE	34%	---	66%
ACRES	3.38	---	6.45

2018 AERIAL

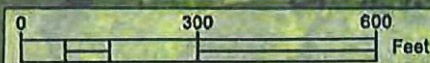


FIGURE 31  
PERENNIAL 1 RIPARIAN MITIGATION  
LITTLE OTTER CREEK WATERSHED

CALDWELL COUNTY, MISSOURI

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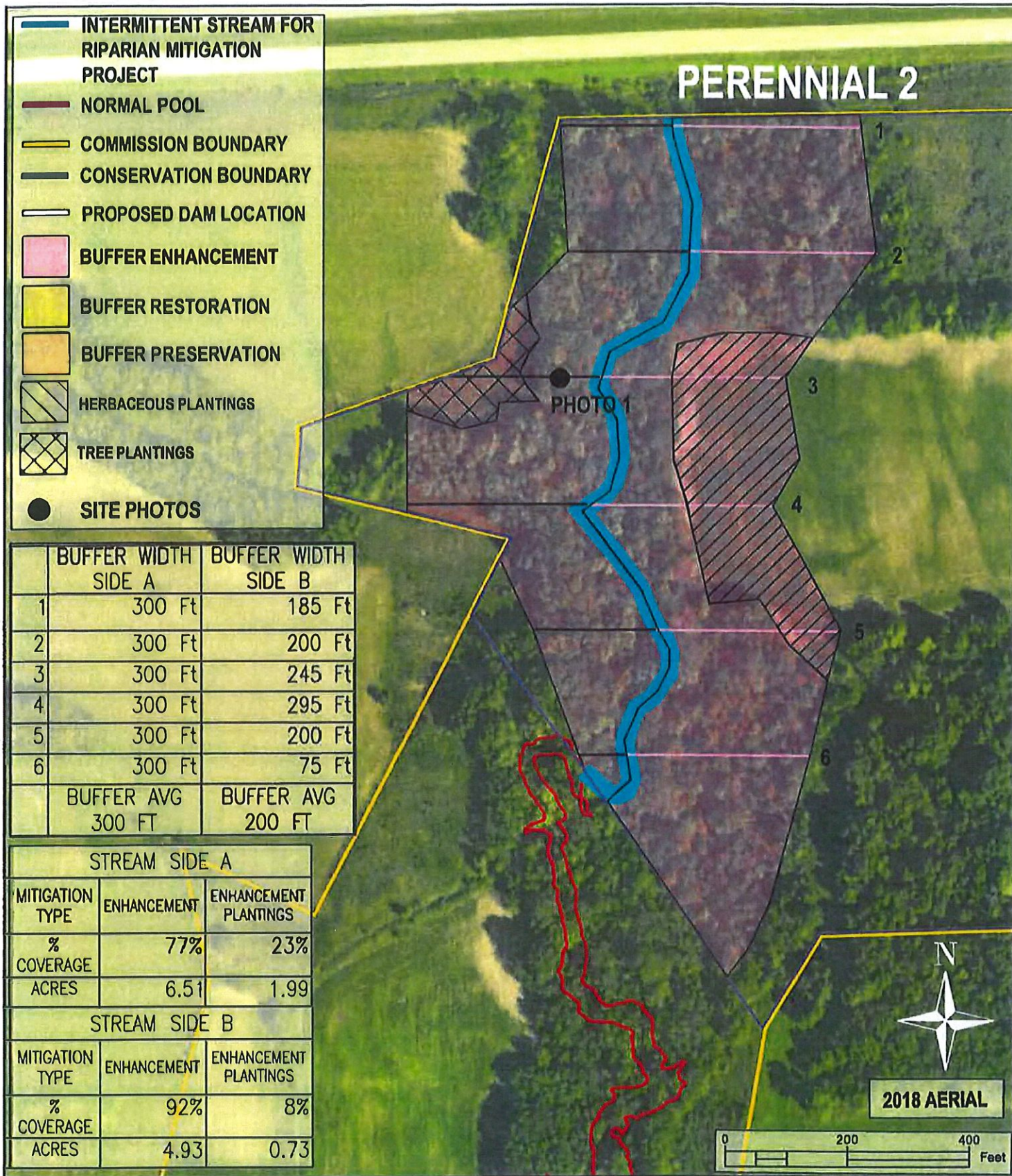
SCALE  
1"=300'

JOB NUMBER  
10273.01

DATE  
08-20-2020

NOTE: IF THIS DRAWING IS ANY MANNER IS  
SHOWN, IT IS THE RESPONSIBILITY OF THE  
CLIENT TO VERIFY THE INFORMATION  
AND CONDITIONS, ETC.





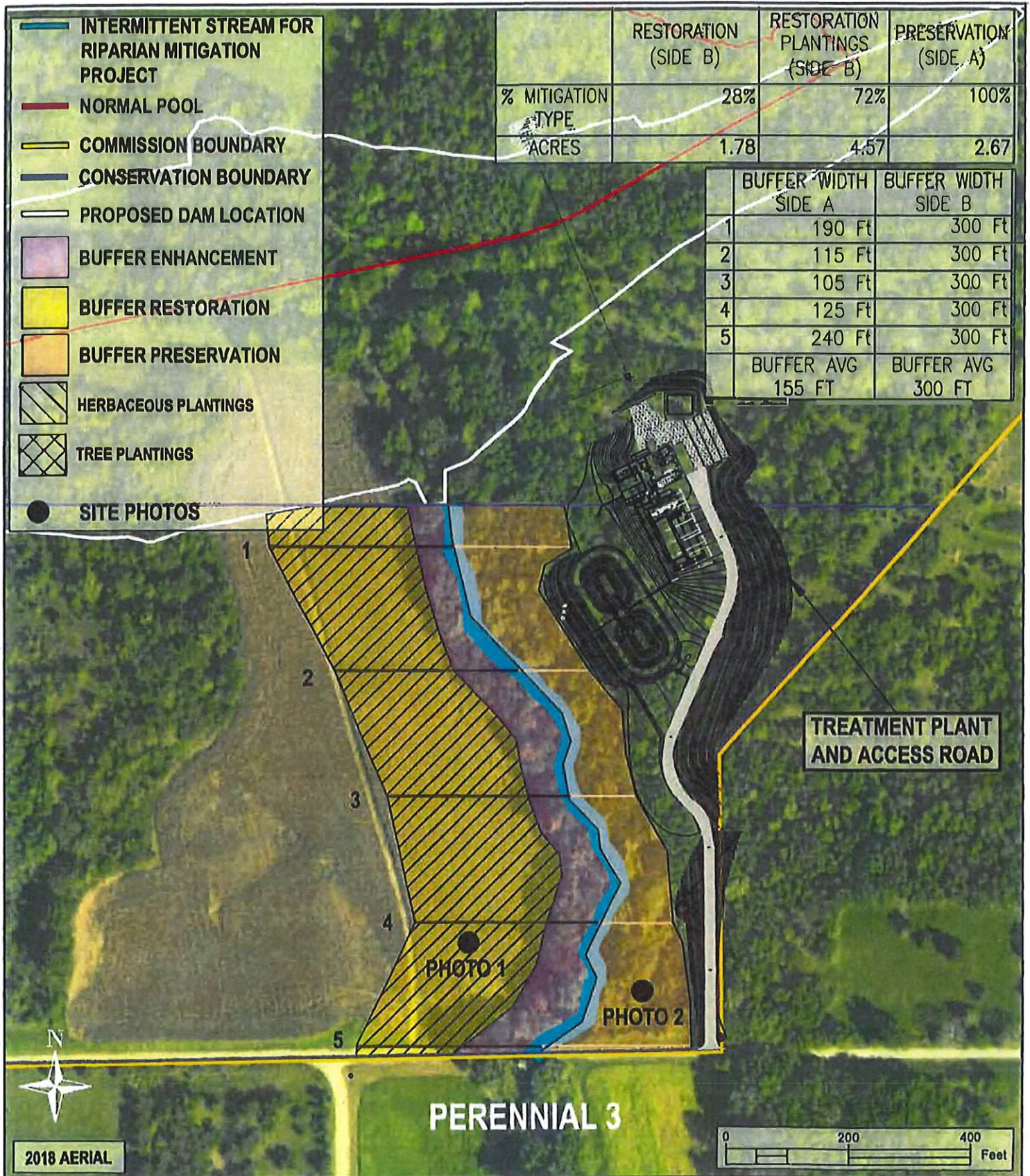
**FIGURE 32**  
**PERENNIAL 2 RIPARIAN MITIGATION**  
**LITTLE OTTER CREEK WATERSHED**

CALDWELL COUNTY, MISSOURI

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DATE	09-20-2020
JOB NUMBER	1627301
SCALE	1" = 200'
<small>THIS DRAWING IS NOT A CONTRACT. IT IS A REPRESENTATION OF THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION PROVIDED. THE DESIGNER SHALL BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION PROVIDED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION PROVIDED.</small>	





**FIGURE 33**  
**PERENNIAL 3 RIPARIAN MITIGATION**  
**LITTLE OTTER CREEK WATERSHED**

CALDWELL COUNTY, MISSOURI

PERMIT NO. NWK-2009-00526  
 CALDWELL COUNTY COMMISSION  
 AOP COMPENSATORY MITIGATION PROJECT  
 LITTLE OTTER CREEK  
 CALDWELL COUNTY, MISSOURI  
 SHEET 26 OF 26  
 10 September 2020