



Cloverlick Creek Lowhead Dam and Pumphouse Removal Criteria Document

Bethel, Ohio

Submitted to:

Clermont Soil and Water Conservation District
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1. Project Background and Description

1.1. Project Description

Clermont Soil and Water Conservation District is seeking a qualified design-build contractor or partnership (the “Contractor”) to provide professional design, construction, and monitoring services for the Cloverlick Creek Low-Head Dam Removal project (the “Project”). The proposed site of the Project is a segment of Cloverlick Creek situated in Clermont County, approximately 2 miles northeast of the Village of Bethel, Ohio.



The primary purpose of this project is to remove the Dam, pumphouse, and remaining water supply infrastructure, and to restore the stream section affected by the impoundment created by the low head dam (LHD). Removal of the Dam will re-connect approximately 10.6 stream miles of Cloverlick Creek and the 28.9 square mile drainage area (StreamStats, 2025) affected by the impoundment, with the East Fork Little Miami River. Additionally, the project aims to restore aquatic habitat in this segment of Cloverlick Creek and to improve public safety by eliminating the reverse currents (“roller”) and fall hazards generated by the existing dam and pumphouse. By restoring the aquatic ecosystem of Cloverlick Creek,

and by making it safe and suitable for human use, this project also aims to realize the full scenic, recreational, and educational value of this segment of the creek, which is situated in an ideal location near the Bethel Concord Trail and East Fork State Park.

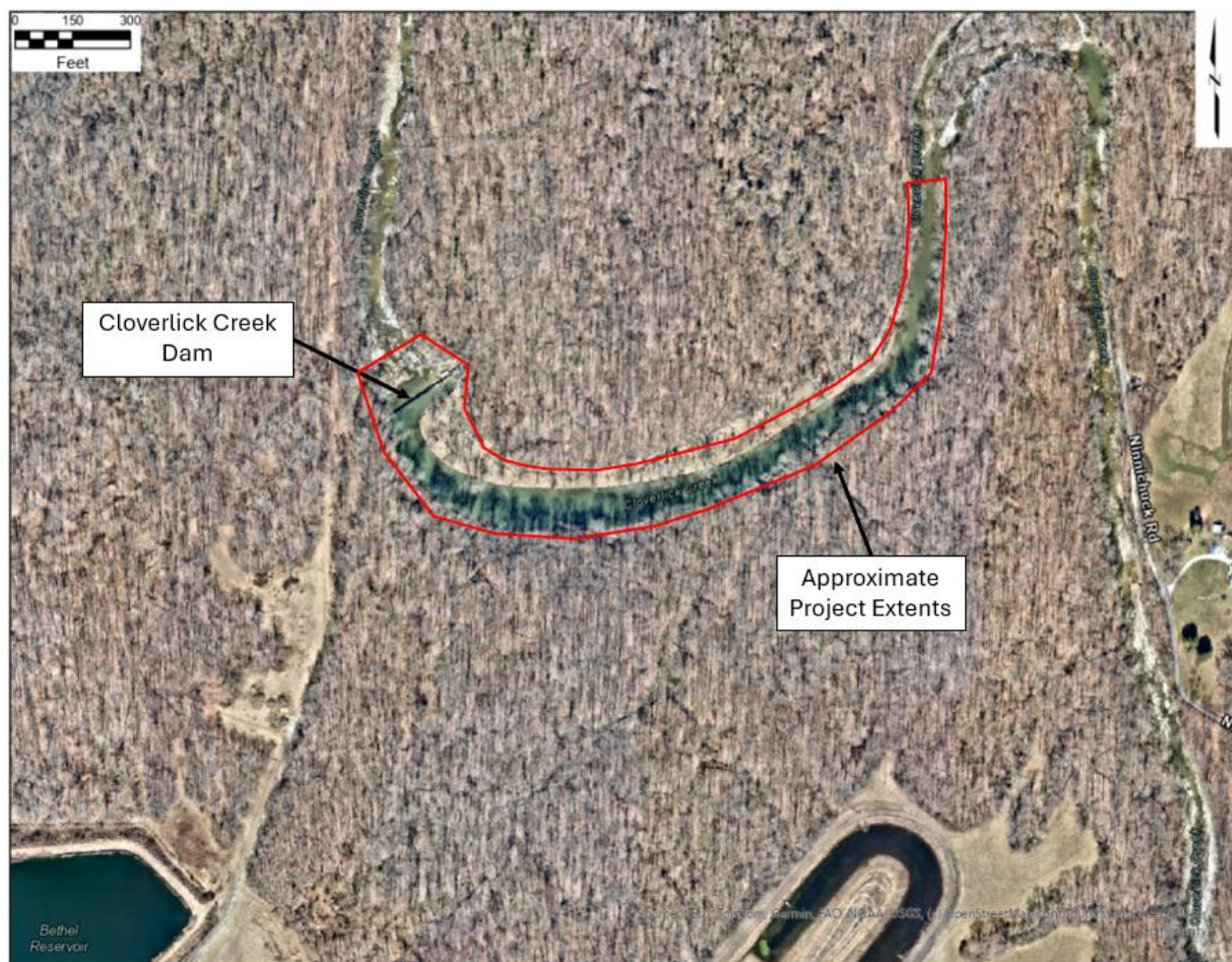
This project has four primary goals, each with its own objective and measures of success, as listed below.

1. Improve public safety by eliminating hazards associated with low head dams (recirculating hydraulics, fall hazards, etc.).
2. Restore aquatic connectivity and natural fish passage of approximately 10.6 river miles of Cloverlick Creek.
3. Establish approximately 1,500 LF of improved habitat to support conditions conducive to “Good” to “Excellent” habitat quality scores in the SITE segment of Cloverlick Creek and support improved ICI scores consistent with expectations for warmwater habitat (WWH) as per OAC § 3745-1-7(C).
4. Restore an area that can be a benefit to recreation for residents and visitors of Clermont County, by establishing safe conditions for human use.

1.2. Site Description

Cloverlick Creek is a perennial stream and tributary of the East Fork Little Miami River. The headwaters of the river originate in Cloverlick Creek in western Brown County. At its terminus, Cloverlick Creek enters the southeast side of William H. Harsha Lake. In 1941, a low-head dam (LHD) was constructed on Cloverlick Creek at approximately river mile 3.9, or 1.1-miles upstream of the current confluence with William H Harsha Lake, in Clermont County (**Figure 1-1**). The Cloverlick Creek Dam (the Dam) is currently owned, operated, and maintained by the Village of Bethel. The Dam creates an impoundment that was once used for water supply, with a pumphouse and associated water supply infrastructure on the south bank at the dam, all of which is no longer in use and has been rendered inoperable. Placement of the Dam has resulted in notable alterations to the stream, including sediment accumulation and the hinderance of fish passage.

Figure 1-1. Site Location and Overview



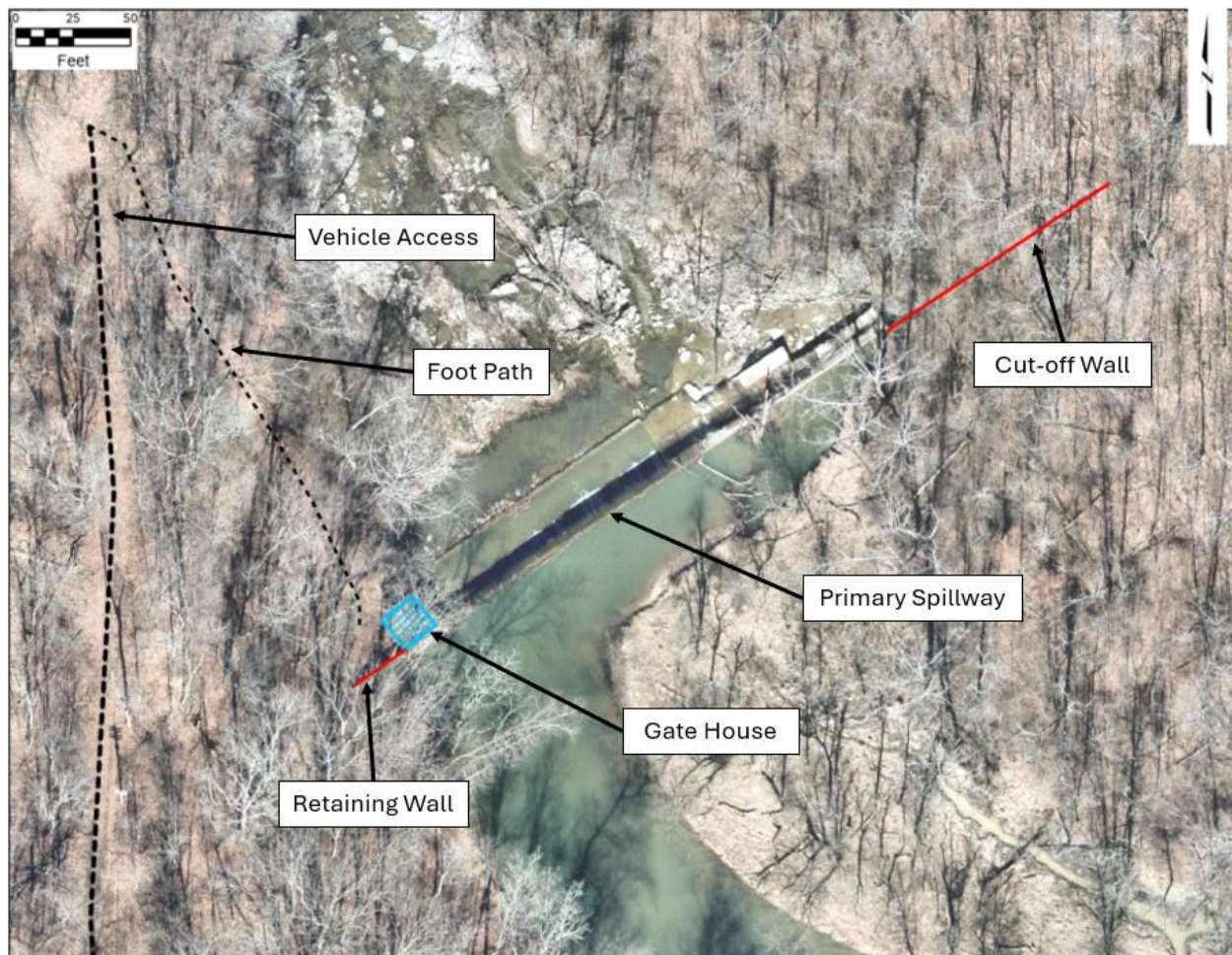
Cloverlick Creek is currently has a warmwater habitat aquatic life use designation, as well as a public water supply at RM 3.23, an agricultural water supply, industrial water supply, and primary contact recreation. The area has considerable potential as a scenic, recreational, and educational resource, but due to the safety hazards created by the low-head dam, visitors and residents cannot traverse the creek here.

2. Existing Conditions and Field Investigations

2.1. Cloverlick Creek Dam

The Dam sits in a naturally confined valley with primary access from the left (looking downstream) embankment. The Dam structure is comprised of a 235-ft long ogee spillway with crest elevation of 790.45 (ft NAVD88). At its tallest point on the left side of the spillway the dam is approximately 14-ft tall. The right side of the ogee spillway is built on a stepped footing with the shortest section approximately 8.75-ft below the crest. A 115-ft cutoff wall extends northeast into the right embankment. The left embankment is comprised largely of a retaining wall ending just before the steep natural valley wall. The retaining wall may have originally extended into the valley wall and over time became exposed due to erosion. An approximately 16-ft by 16-ft gate house, or pumphouse, sits on the left embankment in line with the upstream face of the dam (**Figure 2-1**).

Figure 2-1. Plan view of Cloverlick Creek Dam



A 30-in drain is located approximately 12-ft below the crest on the left side of the spillway. This drain used to contain a sluice gate that could be operated from the gate house but is no longer connected to

the operating mechanism (**Figure 2-2**). The drain does not allow water to pass through, possibly due to being blocked on the upstream side of the sluice gate still present in the pipe.

Figure 2-2. Cloverlick Creek Dam looking upstream



The downstream concrete apron and stilling basin are largely degraded, with seepage observed between the right cutoff wall and the ogee spillway. Cracking and spalling are significant on the downstream spillway face and apron, with larger portions of concrete having broken off completely and fallen into the creek channel. Large woody debris was observed to be perched on the crest and submerged behind the dam.

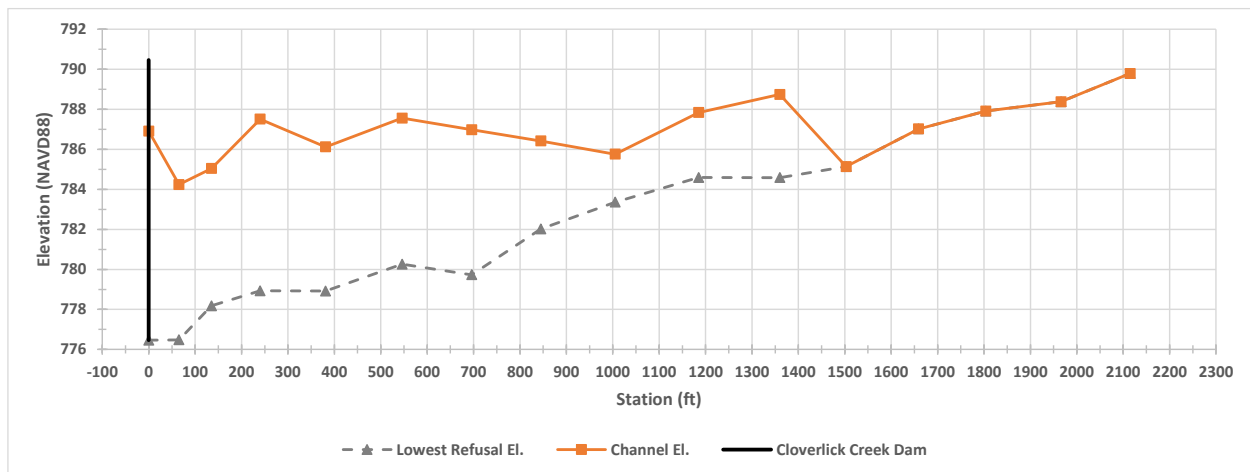
2.2. Topographic and Bathymetric Survey

GEI staff collected a preliminary topographic and bathymetric survey of the site and potential access route from the left embankment. Cross sections through the channel and overbank areas were collected starting approximately 2,500-ft upstream of the dam to approximately 550-ft downstream of the dam. Where safe to access, components of the dam structure including the crest, 30-in drain, downstream stilling basing, and downstream apron were also surveyed. At the time of survey in late September 2025, little to no water was flowing over the crest due to the dry weather conditions.

The impounded sediment was observed to be largely sand and fines. The material estimated at refusal was predominantly bedrock with some instances of gravel and large cobbles. This material is consistent with the channel substrate observed upstream and downstream of the dam and impoundment.

Typically, as water flows into an impoundment, it decelerates, causing sediment suspended in the water to settle out due to the reduced water velocity. The settled sediment gradually accumulates, typically forming a wedge-shaped configuration with the deepest sediment at the dam and the shallowest accumulated sediment at the upstream end of the impoundment. The impounded sediment behind Cloverlick Creek Dam follows this typical sediment wedge pattern, with approximately 8.5-ft of sediment accumulated in the channel behind the dam and decreasing sediment thickness until approximately 1,500-ft upstream of the dam where accumulated sediment is largely absent (**Figure 2-4**).

Figure 2-4. Top of Sediment and Refusal Elevation Profile



Accumulated sediment was observed to be thicker on the right side of the channel leading into the right bank, which is comprised of a near-continuous inner bend. This is consistent with typical sediment deposition patterns on river bends where the deepest part of the channel, or thalweg, follows the outside of the bend and depositional point bars form on the inside of the bend. However, the deepest refusal elevations were also found to be located on the right side of the channel near the right bank, indicating that the pre-dam channel may have originally located slightly north from its current alignment.

Figure 2-5. Existing Channel and Refusal Thalweg Locations



3. Engineering Analysis

3.1. Sediment Evaluation

Based on the depth of refusal survey the total volume of sediment within the impoundment was estimated to be approximately 14,000 cubic yards. These estimates were developed by calculating the volume between three-dimensional surfaces of the DOR points and bathymetry points created in AutoCAD Civil3D. These estimates are limited to the existing channel and do not include sediment that may have accumulated in the right overbank and floodplain.

Sediment sampling was performed in 2022 by Ohio Environmental Protection Agency (OEPA). Three sediment samples were collected approximately 10-ft upstream of the dam and analyzed for particle size distribution. Analysis results showed the particle sizes of the sediment samples from the impoundment were significantly less than 30 percent fines (equal or less than 60 microns). Sediment composed of more than 30 percent fines are more physically, chemically and biologically reactive as they hold more interstitial water creating an unbalanced electrical charge that can attract nutrients and contaminants. Ohio EPA concluded the sediments behind the dam do not appear to represent a significant source of stored nutrients that could potentially wash downstream.

3.2. Hydraulic Model

A hydraulic model was used to analyze the impacts of the removal of Cloverlick Creek Dam during various flow events. This analysis was performed for existing and proposed condition following dam removal. The sections below outline a more detailed summary of the existing and proposed hydraulics.

3.2.1. Existing Conditions

GEI developed an existing conditions 1D model using the United States Army Corps of Engineers (USACE) Hydrologic Engineering Center's River Analysis System (HEC-RAS). The existing conditions model geometry was built using an existing conditions surface developed in AutoCAD Civil 3D using collected topography and bathymetry and was supplemented with LiDAR in the upper impoundment. The channel and immediate overbank geometry at each cross section was taken directly from the survey point data collected by GEI staff. The dam is modeled as an inline structure, based on surveyed conditions.

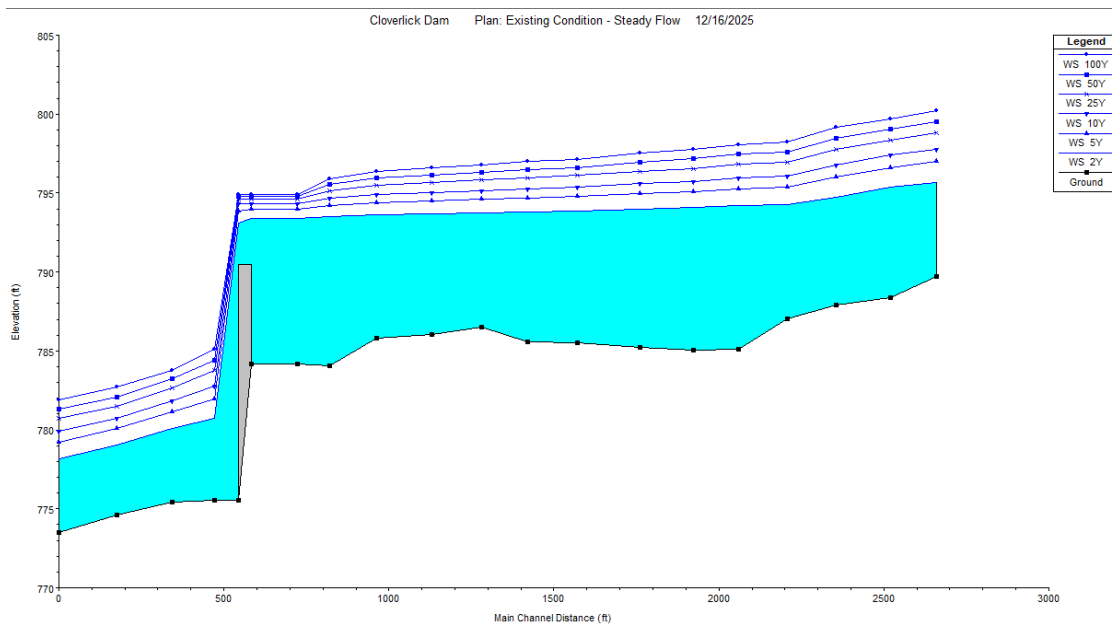
The existing conditions model uses a downstream boundary condition of normal depth, assuming a bed slope of 0.005 ft/ft based on channel bottom elevations from the survey. Manning's n values (roughness) in the channel were set to 0.055 to represent a bedrock channel with little to no sediment accumulation in areas outside of the influence of the dam. Channel Manning's n values within the impoundment were set to 0.04 to represent the finer sands and gravels present in the impounded sediment. Manning's n values in the overbank forest area were set to 0.15 (Chow, 1959). The upstream boundary condition is flow values obtained from StreamStats, as outlined in Table 3-1.

Table 3-1. Estimated flows at the site based on the USEPA Stream Stats tool

Statistic	Value	Unit
50-percent AEP flood	2010	ft ³ /s
20-percent AEP flood	3110	ft ³ /s
10-percent AEP flood	3930	ft ³ /s
4-percent AEP flood	5070	ft ³ /s
2-percent AEP flood	5970	ft ³ /s
1-percent AEP flood	6930	ft ³ /s
0.2-percent AEP flood	9380	ft ³ /s

To evaluate existing conditions, a steady-state simulation with the flows from Table 3-1 was performed. The modeled water-surface elevation profiles generated from these runs are presented in Figure 7.

Figure 6. Model-Estimated Water Surface profiles for existing conditions



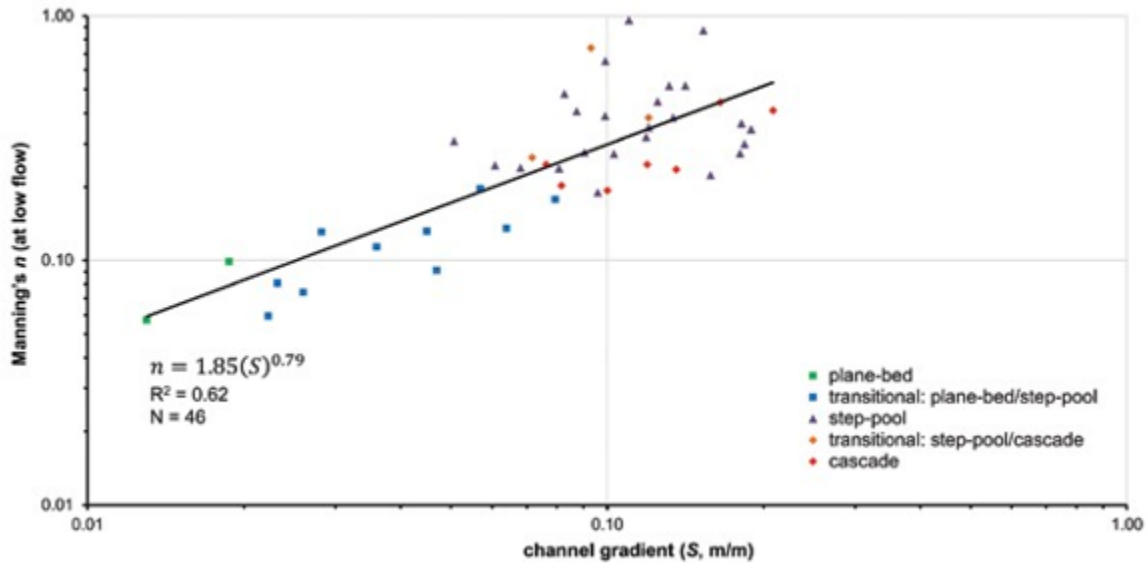
The existing conditions model was not validated against observed water surface elevations as there was no flow observed going over the dam at the time of survey. Measured flow data and observed water surface elevations may be necessary to confirm the model parameters are a reasonable representation of existing conditions.

3.2.2. Proposed Conditions

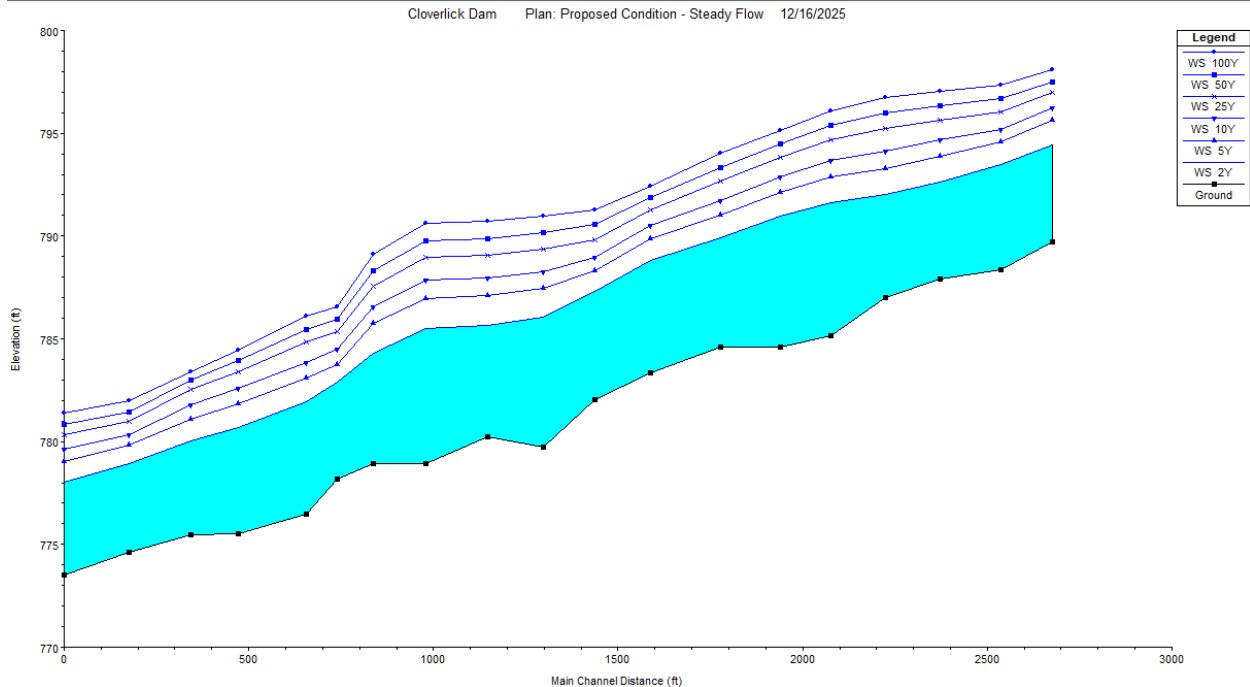
The proposed conditions geometry was developed using the existing conditions geometry as a base. The inline structure was removed, and the channel in each cross section in the impoundment was updated to reflect the refusal elevations collected during the depth of refusal survey. This change represents conditions as if the impounded sediment was removed from the project reach, either by mechanical

means or by allowing it to mobilize downstream. The upper cross sections and downstream cross sections where no accumulated sediment was observed remained the same as in existing conditions.

The Manning's n for proposed conditions was determined based on channel characteristics and slope, following the methodology outlined in *Photographic Guidance for Selecting Flow Resistance Coefficients in High-Gradient Channels* (USDA, 2014). Using the reference graph, the appropriate Manning's n value for the channel was identified as 0.055, consistent with the upstream and downstream reaches outside the influence of Cloverlick Creek Dam.



To evaluate the proposed conditions, a steady-state simulation was performed. The modeled water-surface elevation profiles generated from these runs are presented in the figure below. With the dam removed all the water surface profiles are lower, while the velocities are higher, as expected. While the velocities are higher than existing conditions they are not higher than expected for a free flowing Cloverlick Creek in this reach.



3.2.3. Discussion and Design Considerations

Modeled channel geometry under the proposed 2-year flow conditions produced an average top width of 104 feet, an average maximum depth of 5.3 feet, and an average cross-sectional area of 355 square feet. These values were compared with the regional bankfull curve estimates presented in *Bankfull Characteristics of Ohio Streams and Their Relation to Peak Streamflows*, which indicate expected bankfull dimensions of approximately 99 feet for top width, 6 feet for maximum depth, and 400 square feet for cross-sectional area.

The modeled geometry closely corresponds with the regional bankfull relationships, with deviations within an acceptable range for natural channel variability. Accordingly, the proposed design components are consistent with bankfull hydraulic conditions identified in the report and are expected to support stable channel form, sediment transport continuity, and long-term maintenance of natural channel morphology in Ohio streams.

Tabular results of existing and proposed model conditions are presented in Appendix A. In the proposed conditions model, channel velocities and shear stresses are significantly higher than in existing conditions at all flows modeled. In the 2-year flow, channel velocities in the proposed conditions reach 8 fps or greater in some locations, with velocities generally increasing in all locations as flows increase. Channel shear stress at the 2-year flow range from 0.4 lb/ft² to 2.6 lb/ft², at which gravel and cobbles would be mobile (USGS, 2013).

The increases in velocity and shear stresses can be attributed to changes in bed slope and bank heights for the proposed condition. In the existing condition, the creek has access to floodplain area in the right overbank at the 2-year flow. However, with the dam and impounded sediment removed, that floodplain access is limited and is not accessed until the 5-year flow or higher. Additionally, the proposed conditions create a much steeper channel bed slope through the project reach.

The increases in velocity and shear stresses increase the risk for bank erosion through the project reach. Potential streambank stabilization needs should be taken during the final design phases. Where the banks uncovered during drawdown or sediment removal are bedrock as they are in upstream reaches, additional stabilization may not be necessary. However, increased floodplain access or stabilization measures should be evaluated and implemented as necessary to prevent unwanted bank erosion. The selected Design-Build team shall deliver a final design that controls flow velocities, shear stresses, and overbank flow potential and incorporates features that create and enhance aquatic habitat.

Additionally, Willam H. Harsha Lake, located downstream of the project area, has a “flood elevation” of 795 NGVD29 (USACE, 2025), which indicates that the project area may be backwatered at high flow events. This condition will likely reduce overall velocities and shear stresses experienced by the restored channel following removal of Cloverlick Creek Dam. However, this reach of Cloverlick Creek has been observed to be flashy and may experience a significant rush of floodwaters before backwater effects start to develop. Further hydrologic analysis during the design phase may be required to understand the flood routing that occurs through the project reach.

3.3. Conceptual Design Plans

The Conceptual Design Plan has been developed and can be found in Appendix B. The Conceptual Design Plans will be the basis of the final design, to be developed by the Contractor. The plans show the surveyed area surrounding the dam, estimated sediment surface, estimated streambed, stream profile and sections, the existing LHD and pumphouse site plan and sections, limits of demolition/removal, designated sediment removal disposal areas, and estimated limits of restoration.

Conceptual Design Plan files in AutoCAD Civil 3D will be available to the selected Contractor for their use and information.

4. Project Requirements and Criteria

4.1. Field Assessments

The Contractor shall conduct any additional field assessments necessary to characterize existing conditions within the project area, develop final design and to obtain information necessary to develop the 401/404 permitting submittals. The Contractor shall utilize existing data and information provided, combined with the supplemental Contractor field assessments of the floodplain and channel bed to determine appropriate geomorphic controls for the bed and banks. Contractor should demonstrate in the proposal that they are able to perform assessments or are teamed with a partner who is qualified to perform such assessments. The Contractor shall also coordinate with the Ohio State Historic Preservation Office (SHPO) to determine if an archaeological survey must be completed. If required, the Contractor shall include an archaeological survey in the cost estimates. The Contractor shall also coordinate with the Ohio Department of Natural Resources and the U.S. Fish and Wildlife Service to determine requirements for threatened and endangered species surveys, including mussel survey and relocations, which should also be incorporated into the cost estimates.

4.2. Design Plans

The Contractor shall use the conceptual drawings, available site conditions data, along with any additional information, calculations, or modeling determined to be necessary, to fully design and implement the Project. The Contractor shall develop final design plans for the project, which at a minimum shall include the following:

- Existing Conditions Plan, showing existing dam, pumphouse, ingress/egress to the site, access to the Creek, existing topography, existing known infrastructure, existing wetlands and bat trees that may be impacted by the work and other information within the project limits.
 - Site Plan showing access, staging, and site improvements required to allow for contractor access to the LHD, pumphouse, and Cloverlick Creek.
 - Control of Water Plan, showing the Contractor's method(s) to safely maintain flow through Cloverlick Creek during the demolition of the dam and pumphouse. Drawdown rate of the impoundment must adhere to State guidelines and best practices to maintain slope, structural stability and any sediment released downstream.
 - Demolition Plan, showing dam, pumphouse, and infrastructure removal. The Demolition Plan shall include phasing as necessary, with enough detail to demonstrate safe removal sequence.
 - Sediment Management and Dredging Plan – This plan will have to be developed in coordination with the local and state agencies. Some passive release of sediment downstream may be allowed, but it will be incumbent on the Contractor to understand what will be allowable before finalizing design and securing permits.
 - Channel and Site Restoration Plan, which shows the limits of restoration for the channel and all areas disturbed by construction activities, grading (including placement of fill and/or re-used sediment), restoration methods, details, plantings, permanent sediment/erosion control features, and sediment placement and stabilization techniques (if necessary).
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- Profile and cross sections of the stream, extending through the project limits.
- All required details for the project.
- Erosion and Sediment Control Plan and details.
- Stormwater Pollution Prevention Plan (SWPPPP), details, and notes.
- Final Conditions Site Plan, showing the expected final implemented design:
 - Due diligence for asbestos, etc.
 - Construction Sequence
 - Slopes for fish passage – follow recommended range from Fish and Wildlife.

The conceptual plans shall be used as the baseline for design. It is expected that the final plans will incorporate full demolition and removal of the LHD and pumphouse, and restoration of the stream and any other areas impacted by the work, including accessways. Bidders may provide discussion and comment in their proposals on alternative approaches to achieve restoration objectives and may propose alternatives and/or complementary tasks to complete the project more economically or efficiently. Any substantial deviations from the criteria engineering concepts shall be justified by supporting information, calculations, or other documentation commensurate with the requested degree of departure from the criteria engineering concepts.

4.3. Permitting

The design-builder shall be responsible for obtaining all regulatory permits using the data acquired during site assessments. Contractor shall pay all fees associated with obtaining the permits.

The design-builder shall develop all data and reports necessary to obtain regulatory permits including, but not limited to, a Section 404 permit from the U.S. Army Corps of Engineers (USACE), a Section 401 Water Quality Certification (WQC) from the Ohio Environmental Protection Agency (OEPA), and any other required State or Local permits. The County Erosion and Sediment Control permit is summarized in the section below. Permits shall include those necessary for sediment dredging and disposal. The design-builder shall be responsible for all field investigations and reporting related to said permits, which may include, but would not be limited to, a wetland delineation, a stream characterization, threatened and endangered species assessment, and a mussel survey, plus associated reports. Permit applications shall be submitted in a timely manner, at the appropriate level of design completeness, to mitigate potential schedule delays.

The design-builder shall complete all permit application forms, prepare supporting documentation, and submit complete permit applications to the regulatory agencies (USACE, OEPA, Clermont County, and any other permits identified during design). The design-builder shall be responsible for permit acquisition prior to the target start date of construction. Contractor shall comply with all conditions of Federal, State, and Local permits throughout construction.

4.4. Erosion and Sediment Control

Contractor shall develop an Erosion and Sediment Control Plan, and submit to SWCD for review and approval. The plan must include any plan views, details, sections, and specifications required to control erosion migration of sediment during all construction activities. Contractor shall implement and maintain

temporary construction erosion and sediment control measures throughout the duration of the construction phase of the project. Controls must remain in place and maintained until disturbed areas are seeded and stabilized, and vegetation is established. Contractor shall be responsible for the removal and proper disposal of E&S controls after completion, and after approval by SWCD.

The Contractor shall adhere to all State of Ohio rules and regulations that apply to water quality during construction.

4.5. Stormwater Pollution Prevention Plan

The Contractor shall develop and submit a Stormwater Pollution Prevention Plan (SWPPP), in accordance with the Ohio EPA requirements. A Notice of Intent (NOI) will be required. The SWPPP will be subject to review and approval by the SWCD, and shall include any plans, calculations, figures, and specifications necessary to comply with the Ohio EPA NPDES Construction General Permit.

4.6. Construction Access and Staging

The Contractor shall determine how to access the dam, impoundment and pumphouse. There is an existing path that may be negotiated by vehicles and construction equipment down to the dam, shown in the Conceptual Design. The path may need to be cleared and graded, and aggregate base placed to the extent necessary to allow for construction traffic. An access road will need to be designed and installed and must be wide enough to allow for equipment determined to be necessary by the Contractor for access to and from the site. Additionally, the Contractor will need to design an access to the dam and impoundment, as well as a staging area for equipment and debris as demolition progresses.

Upon completion of the project, the stream access and any ramps or staging areas, and access road shall be removed and restored with native vegetation appropriate to the soils, hydrology and sun exposure.

4.7. Control of Water

The Contractor shall prepare a water management plan for use during construction. The plan may include pumps, siphons, phased or staged removal methods that maintain continuous flow in Cloverlick Creek, or other appropriate measures. The system shall be designed to safely and continuously convey flows at least up to the 2-year storm event and allow larger storm flows to pass without obstruction. The Contractor should also include a plan to protect staged equipment, materials, or debris from large storm events, should they occur, as a part of the Control of Water Plan.

4.8. Sediment Removal and Management

The Contractor shall develop a Sediment Management Plan, indicating sediment removal limits, estimated quantities, dredging methods, dewatering methods, sequence, sediment disposal areas, sediment grading, and sediment stabilization. If amendments to the sediment are necessary, they must be included in the plan and approved by SWCD. It may be allowable to pass some sediment downstream but this will have to be determined during permitting and in discussions with the US Army Corps of

Engineers (USACE). USACE owns the Harsha Reservoir downstream and this would be the ultimate resting place of any sediment released downstream.

It may be possible to incorporate excavated/dredged sediment into the stream bank stabilization. If proposed, the Contractor will be required to demonstrate how sediment is to be used, and where it will be used. A fill placement and grading plan for the sediment will need to be developed, and the Contractor must demonstrate that sediment used for stream bank restoration will be stable in its final, vegetated or otherwise protected condition.

The Contractor shall sample and test impoundment sediment, to determine if it will be appropriate for use in the restoration and grading; to determine what stabilization measures may be appropriate, and to determine if the sediment poses any environmental risk on site or if released downstream. Contractor shall develop and submit a sediment sampling and testing plan, indicating sample locations, collection and handling methods, test laboratory, and testing parameters. Sediment sampling plan shall be approved by the SWCD and the Criteria Engineer. Previous testing conducted by the Ohio EPA will be available to the Contractor.

Any disposal areas used for sediment disposal shall be prepared by the Contractor, which may include clearing, grading, compaction, and stormwater control. Removed sediment may be transported to the disposal area(s) to be dewatered if necessary, and shall be placed, graded, compacted, and stabilized with native grass/vegetation. Sediment disposal occurring on village-owned property must be approved by the Village Administrator.

4.9. Dam and Pumphouse Demolition and Removal

The Contractor shall demolish and remove the LHD and Pumphouse, in general conformance with the conceptual plans. The removal shall include all concrete and structural elements of the LHD and pumphouse, and all associated infrastructure that is currently in place at the vicinity of the LHD. The LHD, endwalls, retaining walls, and pumphouse shall be demolished completely. Buried portions of the endwalls or cutoff walls may be left in place and abandoned within the embankment as long as 1-ft of natural cover is maintained over the remnants. All exposed rebar, if present, shall be removed. Debris from the demolition will be removed from the channel and disturbed areas and disposed of at a licensed facility or other suitable location, as approved by the owner and applicable agencies. No debris from the demolished LHD shall be placed in any "Waters of the U.S.," "Waters of the State," or other regulated features. Clean debris may be disposed in designated areas on village-owned property with the approval of the Village Administrator. Additionally, prior to demolition of the pumphouse, the Contractor shall perform all required due diligence related to asbestos-containing materials, if present, and shall obtain and comply with all applicable federal, state, and local permits and regulatory requirements necessary for demolition.

4.10. Restoration

The Contractor shall implement the Restoration Plan in accordance with the approved final design, and during the appropriate time of year and construction sequence.

The restored finished grades should not deviate significantly from the final design plan unless field conditions dictate that it is necessary. The Contractor, with SWCD and Criteria Engineer approval, may determine that elevations or stream bank features need to be adjusted to ensure proper stream function and/or fit with surrounding field conditions.

The Contractor or subcontractor shall apply the approved native seed mix(es) to all disturbed areas, in accordance with the restoration plan. The Contractor or subcontractor shall also install completely biodegradable erosion control matting per approved specifications on all disturbed streambanks immediately following construction. No plastic netting or stakes shall be allowed. Soil compaction best management practices will be followed and all disturbed areas (including stockpile and staging areas) shall be restored and stabilized prior to demobilization.

The Contractor shall perform all planting activities in accordance with the final design plans. The Contractor is responsible for procuring the species and quantities specified in the approved planting plan and installing all materials using accepted landscaping and ecological restoration practices. Plant materials shall consist of native species typical of the region and suitable for local riparian conditions, sourced from within the same or an adjacent USDA Plant Hardiness Zone or NRCS Land Resource Region. Any proposed substitutions must be submitted for review and approved by Clermont SWCD.

All plant materials shall be properly handled, stored, and installed in accordance with best management practices. The Contractor is responsible for inspecting and culling damaged or substandard stock prior to installation. Any first-year plant mortality resulting from poor workmanship—including improper planting, inadequate soil preparation, or mishandling—shall be replaced at the Contractor's expense.

Buffer vegetation and live stakes shall be installed during the dormant season. If suitable planting stock is unavailable or alternative species may be more appropriate, the Contractor shall coordinate recommendations with SWCD. Any deviation from the final design plans must be reviewed and approved by SWCD prior to implementation.

4.11. Post-Construction Report

The Contractor shall complete an as-built survey (red-line mark-ups are acceptable) and shall prepare a post-construction report that includes the survey, photographs organized in a photographic log, approved material submittals, and the "red line mark-up" version of the plans indicating any deviations from the proposed design. The post-construction report shall document all materials used to construct the Project. The post-construction report shall also include a longitudinal profile of the Project segment of Cloverlick Creek in its post-construction condition, documenting the placement of all materials installed. The post-construction report shall be submitted to SWCD no later than two months following substantial completion of construction activities.

4.12. Monitoring

Stream Monitoring

The Contractor shall perform stream monitoring for a period of one (1) year following completion of construction. Monitoring shall include periodic inspections of the stream and all associated constructed elements to evaluate stability, performance, and overall condition.

Inspections shall include, but not be limited to, the following:

- Geomorphologic integrity of the stream segment of Cloverlick Creek; the stream structure, including the streambed, banks, slopes, and floodplain areas;
- Structural integrity of the constructed Project and all installed materials of all constructed features implemented during construction, including newly established embankments, slopes, and rock or natural streambank protection measures; and
- Vegetation installed as part of the project.

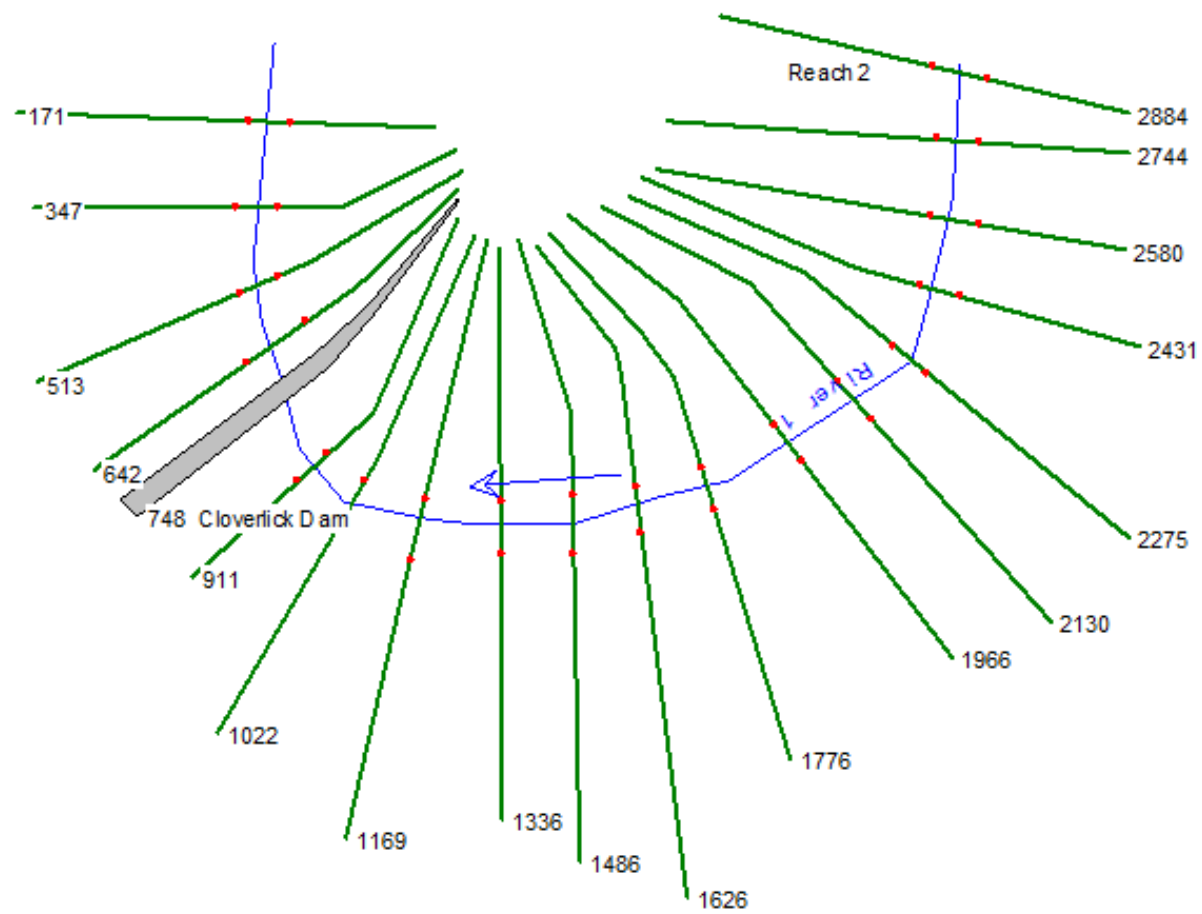
The Contractor shall verify that vegetation has been established in accordance with the design intent and is healthy, stable, and thriving. Any deficiencies, failures, or areas of concern identified during monitoring shall be documented and reported in the inspection report and shall be remedied by the contractor at no additional cost to SWCD.

Appendix A H&H results A

A.1.Existing Condition Results

A.2. Proposed Condition Results

EXISTING CONDITIONS

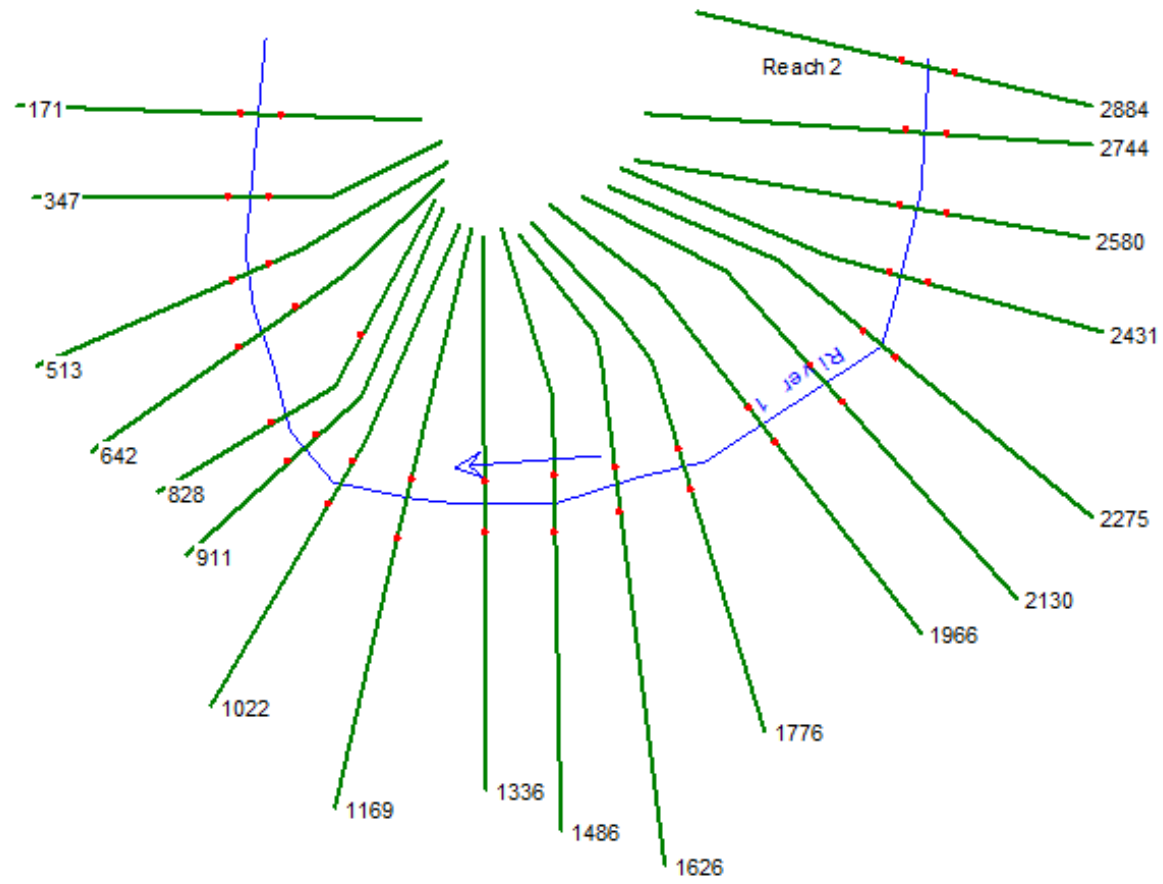


Cloverlick Creek, River Station 2275												
2275	2-Year	2010	785.14	791.62		792.01	0.002645	5.02	419.14	120.74	0.43	6.48
2275	5-Year	3110	785.14	792.87		793.42	0.002636	5.95	598.89	173.48	0.44	7.74
2275	10-Year	3930	785.14	793.69		794.32	0.002596	6.46	763.64	228.43	0.45	8.55
2275	25-Year	5070	785.14	794.69		795.42	0.002541	7.04	1005.99	248.69	0.46	9.55
2275	50-Year	5970	785.14	795.38		796.18	0.002513	7.44	1181.49	254.44	0.46	10.25
2275	100-Year	6930	785.14	796.07		796.94	0.002495	7.82	1357.38	259.98	0.47	10.93
Cloverlick Creek, River Station 2130												
2130	2-Year	2010	784.59	790.98		791.53	0.004346	5.97	336.49	85.59	0.53	6.39
2130	5-Year	3110	784.59	792.14		792.92	0.00458	7.1	442.35	96.65	0.56	7.55
2130	10-Year	3930	784.59	792.9		793.82	0.004642	7.74	539.85	148.51	0.58	8.31
2130	25-Year	5070	784.59	793.84		794.92	0.00464	8.42	691.56	175.1	0.59	9.25
2130	50-Year	5970	784.59	794.5		795.69	0.004634	8.87	812.31	189.16	0.6	9.92
2130	100-Year	6930	784.59	795.15		796.45	0.004628	9.29	941.92	207.6	0.61	10.57
Cloverlick Creek, River Station 1966												
1966	2-Year	2010	784.59	789.92		790.65	0.006694	6.84	293.74	84.93	0.65	5.33
1966	5-Year	3110	784.59	791.03		792.03	0.006489	8.01	390.82	90.73	0.67	6.44
1966	10-Year	3930	784.59	791.73		792.92	0.006471	8.74	458.47	123.16	0.68	7.14
1966	25-Year	5070	784.59	792.65	791.28	794.03	0.006243	9.48	602.7	175.02	0.68	8.06
1966	50-Year	5970	784.59	793.34	791.91	794.83	0.005981	9.9	726.52	186.93	0.68	8.75
1966	100-Year	6930	784.59	794.02	792.59	795.6	0.005734	10.27	858.79	197.09	0.67	9.43
Cloverlick Creek, River Station 1776												
1776	2-Year	2010	783.36	788.82		789.48	0.005464	6.53	307.63	81.69	0.59	5.46
1776	5-Year	3110	783.36	789.88		790.84	0.005857	7.86	396.25	85.12	0.64	6.52
1776	10-Year	3930	783.36	790.53		791.71	0.006201	8.74	451.79	87.21	0.67	7.16
1776	25-Year	5070	783.36	791.28		792.79	0.006749	9.86	523.5	118.71	0.71	7.92
1776	50-Year	5970	783.36	791.86	790.57	793.59	0.006927	10.55	597.14	133.7	0.73	8.5
1776	100-Year	6930	783.36	792.4	791.17	794.36	0.007202	11.27	675.18	155.26	0.75	9.04
Cloverlick Creek, River Station 1626												
1626	2-Year	2010	782.02	787.29		788.31	0.011331	8.12	247.59	83.03	0.83	5.27
1626	5-Year	3110	782.02	788.29		789.63	0.011076	9.28	335.09	90.17	0.85	6.28
1626	10-Year	3930	782.02	788.95		790.48	0.010703	9.94	395.46	94.33	0.85	6.93

Cloverlick Creek, River Station 911												
911	2-Year	2010	778.18	782.89	782.58	784.22	0.012576	9.25	217.26	64.41	0.89	4.71
911	5-Year	3110	778.18	783.76	783.76	785.73	0.015242	11.29	275.56	69.98	1	5.58
911	10-Year	3930	778.18	784.48	784.48	786.72	0.014523	12	328.03	74.63	1	6.31
911	25-Year	5070	778.18	785.33	785.33	787.95	0.013905	12.98	393.13	78.14	1	7.16
911	50-Year	5970	778.18	785.97	785.97	788.84	0.013356	13.61	443.56	80.38	1	7.79
911	100-Year	6930	778.18	786.57	786.57	789.74	0.013165	14.31	492.27	82.5	1	8.39
Cloverlick Creek, River Station 828												
828	2-Year	2010	776.48	781.92		782.18	0.04003	4.08	492.55	165.46	0.42	5.45
828	5-Year	3110	776.48	783.09	781.08	783.4	0.034099	4.48	693.61	179.27	0.4	6.61
828	10-Year	3930	776.48	783.86	781.51	784.21	0.030964	4.71	835.05	186.34	0.39	7.39
828	25-Year	5070	776.48	784.83	782.03	785.21	0.028199	4.98	1018.81	194.39	0.38	8.35
828	50-Year	5970	776.48	785.47	782.41	785.89	0.027521	5.21	1145.14	199.74	0.38	8.99
828	100-Year	6930	776.48	786.1	782.79	786.56	0.027069	5.45	1272.48	204.99	0.39	9.62
Cloverlick Creek, River Station 642												
642	2-Year	2010	775.53	780.7		780.98	0.002514	4.3	466.96	127.35	0.4	5.17
642	5-Year	3110	775.53	781.85		782.25	0.00249	5.05	615.54	130.18	0.41	6.32
642	10-Year	3930	775.53	782.57		783.05	0.002562	5.54	709.78	132.76	0.42	7.04
642	25-Year	5070	775.53	783.4		783.99	0.002787	6.16	822.96	138.64	0.44	7.88
642	50-Year	5970	775.53	783.94		784.63	0.002931	6.66	898.25	143.08	0.46	8.41
642	100-Year	6930	775.53	784.44		785.24	0.003096	7.16	971.84	147.3	0.48	8.92
Cloverlick Creek, River Station 513												
513	2-Year	2010	775.45	780.04		780.56	0.004016	5.79	358.04	115.3	0.51	4.6
513	5-Year	3110	775.45	781.11		781.82	0.004085	6.85	497.98	141.43	0.54	5.66
513	10-Year	3930	775.45	781.8		782.61	0.004041	7.43	598.29	149.9	0.55	6.35
513	25-Year	5070	775.45	782.56		783.53	0.004167	8.2	715.69	156.35	0.57	7.12
513	50-Year	5970	775.45	783.01		784.13	0.004473	8.89	786.76	160.03	0.6	7.57
513	100-Year	6930	775.45	783.4		784.71	0.004911	9.65	848.98	164.31	0.63	7.95
Cloverlick Creek, River Station 347												
347	2-Year	2010	774.63	778.91		779.66	0.007231	6.95	292.41	99.07	0.67	4.29
347	5-Year	3110	774.63	779.84		780.9	0.007449	8.3	391.51	114.05	0.71	5.22
347	10-Year	3930	774.63	780.34	779.67	781.66	0.0081	9.31	459.08	154.94	0.75	5.71

347	25-Year	5070	774.63	780.97	780.53	782.55	0.008452	10.33	565.33	185.17	0.79	6.34
347	50-Year	5970	774.63	781.46	781.29	783.15	0.008227	10.81	661.14	196.19	0.79	6.84
347	100-Year	6930	774.63	781.97	781.75	783.72	0.007859	11.16	761.13	198.55	0.78	7.34
Cloverlick Creek, River Station 171												
171	2-Year	2010	773.49	778.03	776.9	778.57	0.005001	6.12	364.1	122.96	0.57	4.54
171	5-Year	3110	773.49	779.04	777.81	779.77	0.005002	7.2	511.32	161.43	0.59	5.55
171	10-Year	3930	773.49	779.62	778.35	780.46	0.005	7.79	606.45	165.72	0.6	6.13
171	25-Year	5070	773.49	780.34	779.23	781.31	0.005001	8.5	727.42	171.05	0.62	6.85
171	50-Year	5970	773.49	780.86	779.67	781.93	0.005003	8.99	817.58	176.21	0.63	7.37
171	100-Year	6930	773.49	781.37	780.09	782.54	0.005002	9.46	909.58	181.25	0.63	7.88

PROPOSED CONDITIONS



Cloverlick Creek, River Station 2275												
2275	2-Year	2010	785.14	791.62		792.01	0.002645	5.02	419.14	120.74	0.43	6.48
2275	5-Year	3110	785.14	792.87		793.42	0.002636	5.95	598.89	173.48	0.44	7.74
2275	10-Year	3930	785.14	793.69		794.32	0.002596	6.46	763.64	228.43	0.45	8.55
2275	25-Year	5070	785.14	794.69		795.42	0.002541	7.04	1005.99	248.69	0.46	9.55
2275	50-Year	5970	785.14	795.38		796.18	0.002513	7.44	1181.49	254.44	0.46	10.25
2275	100-Year	6930	785.14	796.07		796.94	0.002495	7.82	1357.38	259.98	0.47	10.93
Cloverlick Creek, River Station 2130												
2130	2-Year	2010	784.59	790.98		791.53	0.004346	5.97	336.49	85.59	0.53	6.39
2130	5-Year	3110	784.59	792.14		792.92	0.00458	7.1	442.35	96.65	0.56	7.55
2130	10-Year	3930	784.59	792.9		793.82	0.004642	7.74	539.85	148.51	0.58	8.31
2130	25-Year	5070	784.59	793.84		794.92	0.00464	8.42	691.56	175.1	0.59	9.25
2130	50-Year	5970	784.59	794.5		795.69	0.004634	8.87	812.31	189.16	0.6	9.92
2130	100-Year	6930	784.59	795.15		796.45	0.004628	9.29	941.92	207.6	0.61	10.57
Cloverlick Creek, River Station 1966												
1966	2-Year	2010	784.59	789.92		790.65	0.006694	6.84	293.74	84.93	0.65	5.33
1966	5-Year	3110	784.59	791.03		792.03	0.006489	8.01	390.82	90.73	0.67	6.44
1966	10-Year	3930	784.59	791.73		792.92	0.006471	8.74	458.47	123.16	0.68	7.14
1966	25-Year	5070	784.59	792.65	791.28	794.03	0.006243	9.48	602.7	175.02	0.68	8.06
1966	50-Year	5970	784.59	793.34	791.91	794.83	0.005981	9.9	726.52	186.93	0.68	8.75
1966	100-Year	6930	784.59	794.02	792.59	795.6	0.005734	10.27	858.79	197.09	0.67	9.43
Cloverlick Creek, River Station 1776												
1776	2-Year	2010	783.36	788.82		789.48	0.005464	6.53	307.63	81.69	0.59	5.46
1776	5-Year	3110	783.36	789.88		790.84	0.005857	7.86	396.25	85.12	0.64	6.52
1776	10-Year	3930	783.36	790.53		791.71	0.006201	8.74	451.79	87.21	0.67	7.16
1776	25-Year	5070	783.36	791.28		792.79	0.006749	9.86	523.5	118.71	0.71	7.92
1776	50-Year	5970	783.36	791.86	790.57	793.59	0.006927	10.55	597.14	133.7	0.73	8.5
1776	100-Year	6930	783.36	792.4	791.17	794.36	0.007202	11.27	675.18	155.26	0.75	9.04
Cloverlick Creek, River Station 1626												
1626	2-Year	2010	782.02	787.29		788.31	0.011331	8.12	247.59	83.03	0.83	5.27
1626	5-Year	3110	782.02	788.29		789.63	0.011076	9.28	335.09	90.17	0.85	6.28
1626	10-Year	3930	782.02	788.95		790.48	0.010703	9.94	395.46	94.33	0.85	6.93

Cloverlick Creek, River Station 911												
911	2-Year	2010	778.18	782.89	782.58	784.22	0.012576	9.25	217.26	64.41	0.89	4.71
911	5-Year	3110	778.18	783.76	783.76	785.73	0.015242	11.29	275.56	69.98	1	5.58
911	10-Year	3930	778.18	784.48	784.48	786.72	0.014523	12	328.03	74.63	1	6.31
911	25-Year	5070	778.18	785.33	785.33	787.95	0.013905	12.98	393.13	78.14	1	7.16
911	50-Year	5970	778.18	785.97	785.97	788.84	0.013356	13.61	443.56	80.38	1	7.79
911	100-Year	6930	778.18	786.57	786.57	789.74	0.013165	14.31	492.27	82.5	1	8.39
Cloverlick Creek, River Station 828												
828	2-Year	2010	776.48	781.92		782.18	0.04003	4.08	492.55	165.46	0.42	5.45
828	5-Year	3110	776.48	783.09	781.08	783.4	0.034099	4.48	693.61	179.27	0.4	6.61
828	10-Year	3930	776.48	783.86	781.51	784.21	0.030964	4.71	835.05	186.34	0.39	7.39
828	25-Year	5070	776.48	784.83	782.03	785.21	0.028199	4.98	1018.81	194.39	0.38	8.35
828	50-Year	5970	776.48	785.47	782.41	785.89	0.027521	5.21	1145.14	199.74	0.38	8.99
828	100-Year	6930	776.48	786.1	782.79	786.56	0.027069	5.45	1272.48	204.99	0.39	9.62
Cloverlick Creek, River Station 642												
642	2-Year	2010	775.53	780.7		780.98	0.002514	4.3	466.96	127.35	0.4	5.17
642	5-Year	3110	775.53	781.85		782.25	0.00249	5.05	615.54	130.18	0.41	6.32
642	10-Year	3930	775.53	782.57		783.05	0.002562	5.54	709.78	132.76	0.42	7.04
642	25-Year	5070	775.53	783.4		783.99	0.002787	6.16	822.96	138.64	0.44	7.88
642	50-Year	5970	775.53	783.94		784.63	0.002931	6.66	898.25	143.08	0.46	8.41
642	100-Year	6930	775.53	784.44		785.24	0.003096	7.16	971.84	147.3	0.48	8.92
Cloverlick Creek, River Station 513												
513	2-Year	2010	775.45	780.04		780.56	0.004016	5.79	358.04	115.3	0.51	4.6
513	5-Year	3110	775.45	781.11		781.82	0.004085	6.85	497.98	141.43	0.54	5.66
513	10-Year	3930	775.45	781.8		782.61	0.004041	7.43	598.29	149.9	0.55	6.35
513	25-Year	5070	775.45	782.56		783.53	0.004167	8.2	715.69	156.35	0.57	7.12
513	50-Year	5970	775.45	783.01		784.13	0.004473	8.89	786.76	160.03	0.6	7.57
513	100-Year	6930	775.45	783.4		784.71	0.004911	9.65	848.98	164.31	0.63	7.95
Cloverlick Creek, River Station 347												
347	2-Year	2010	774.63	778.91		779.66	0.007231	6.95	292.41	99.07	0.67	4.29
347	5-Year	3110	774.63	779.84		780.9	0.007449	8.3	391.51	114.05	0.71	5.22
347	10-Year	3930	774.63	780.34	779.67	781.66	0.0081	9.31	459.08	154.94	0.75	5.71

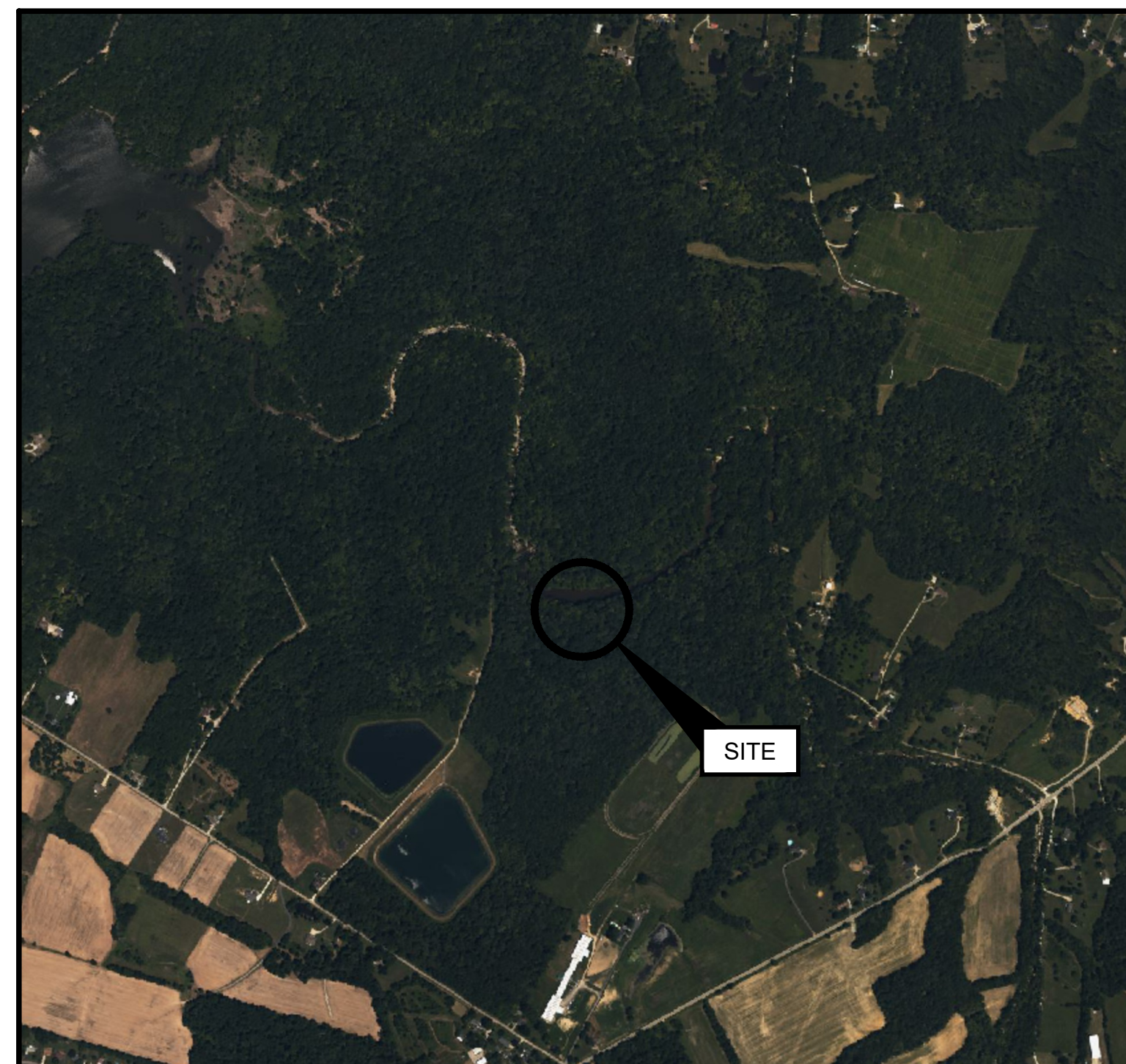
Appendix B Conceptual Design Plans

CLOVERLICK CREEK DAM REMOVAL

CONCEPTUAL PLAN BETHEL, OHIO



STATE MAP
(NOT TO SCALE)



SOURCE:
MICROSOFT BING AERIAL

SITE LOCATION MAP
1" = 1000'

SHEET INDEX

SHEET NO.	DRAWING NO.	TITLE
1	G-01	COVER SHEET
2	G-02	GENERAL NOTES
3	G-03	ABBREVIATIONS AND LEGEND
4	EC-01	EXISTING SITE CONDITIONS
5	EC-02	CLOVERLICK CREEK DAM EXISTING CONDITIONS
6	C-01	SITE ACCESS AND EROSION AND SEDIMENT CONTROL
7	C-02	POWERHOUSE PLAN
8	C-03	DAM PLAN AND ELEVATION
9	C-04	DAM SECTIONS
10	C-05	DAM BREACHING PLAN
11	C-06	RESTORATION PLAN AND PROFILE
12	C-07	CLOVERLICK CREEK SECTIONS
13	C-08	SEDIMENT SPOILS GRADING PLAN

PREPARED FOR:

CLERMONT COUNTY SOIL AND WATER
CONSERVATION DISTRICT
1000 LOCUST ST.
OWENSVILLE, OH 45160
513.732.7075



PREPARED BY:

GEI CONSULTANTS OF MICHIGAN, P.C.
401 S. WASHINGTON SQUARE
SUITE 103
LANSING, MI 48933
517.803.4600



GEI PROJECT NO. 2504820

				DRAFT	SHEET NO. G-01
					REV NO. 0
1	1/16/2025	30% DRAFT SUBMISSION	SCW		
NO.	DATE	ISSUE/REVISION	APP		

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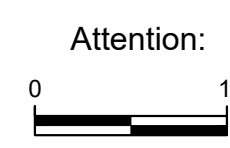
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COOPER, AMBER, B:\working\CLERMONT SWCD\2504820 Cloverlick Creek Dam Removal\03_CADD\Design\Sheets\EC-01 - EXISTING CONDITIONS.dwg - 1/13/2025

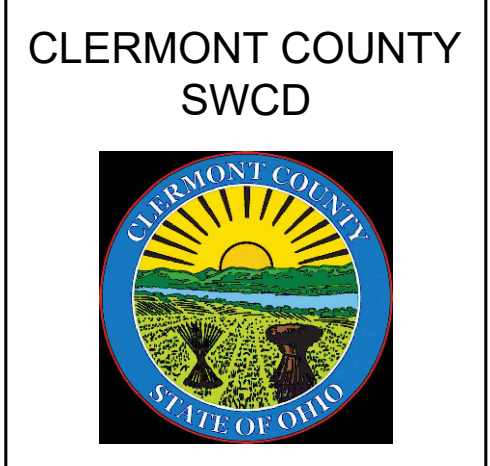
LEGEND

- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- EDGE OF VEGETATION
- APPROX. EXISTING ACCESS ROAD
- APPROX. PROPERTY LINES



If this scale bar does not measure 1" then drawing is not original scale.

Designed:	AC
Drawn:	OJW
Checked:	SCW
Approved:	SCW
P.E. No.:	###
GEI Project	2504820



CLOVERLICK CREEK DAM REMOVAL

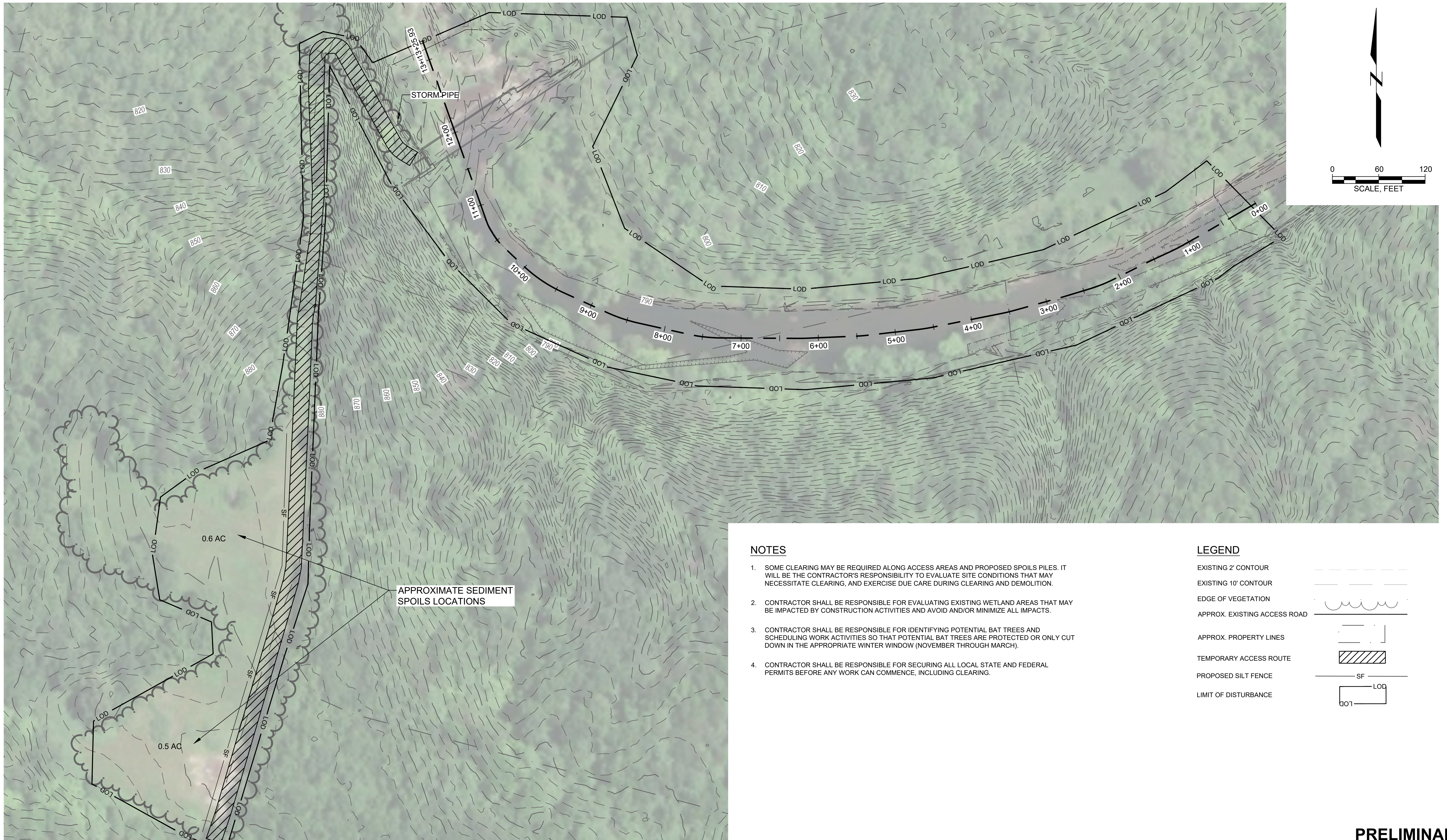
CLERMONT COUNTY, OHIO

NO	DATE	ISSUE/REVISION	APP
0			

SHEET NAME	SHEET NO.
EXISTING SITE CONDITIONS	EC-01

PRELIMINARY

COOPER, AMBER, B:\Working\CLERMONT SWCD\2504820 Cloverlick Creek Dam Removal\00_CADD\Design\Sheets\C-01 - SITE ACCESS & ESC.dwg - 11/13/2028



NOTES

- SOME CLEARING MAY BE REQUIRED ALONG ACCESS AREAS AND PROPOSED SPOILS PILES. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO EVALUATE SITE CONDITIONS THAT MAY NECESSITATE CLEARING, AND EXERCISE DUE CARE DURING CLEARING AND DEMOLITION.
- CONTRACTOR SHALL BE RESPONSIBLE FOR EVALUATING EXISTING WETLAND AREAS THAT MAY BE IMPACTED BY CONSTRUCTION ACTIVITIES AND AVOID AND/OR MINIMIZE ALL IMPACTS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING POTENTIAL BAT TREES AND SCHEDULING WORK ACTIVITIES SO THAT POTENTIAL BAT TREES ARE PROTECTED OR ONLY CUT DOWN IN THE APPROPRIATE WINTER WINDOW (NOVEMBER THROUGH MARCH).
- CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL LOCAL STATE AND FEDERAL PERMITS BEFORE ANY WORK CAN COMMENCE, INCLUDING CLEARING.

LEGEND

- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- EDGE OF VEGETATION
- APPROX. EXISTING ACCESS ROAD
- APPROX. PROPERTY LINES
- TEMPORARY ACCESS ROUTE
- PROPOSED SILT FENCE
- LIMIT OF DISTURBANCE

PRELIMINARY

Attention: If this scale bar does not measure 1" then drawing is not original scale.	Designed: AC
	Drawn: OJW
	Checked: SCW
	Approved: SCW
	P.E. No: ###
GEI Project 2504820	

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 517.863.4600

CLERMONT COUNTY
 SWCD

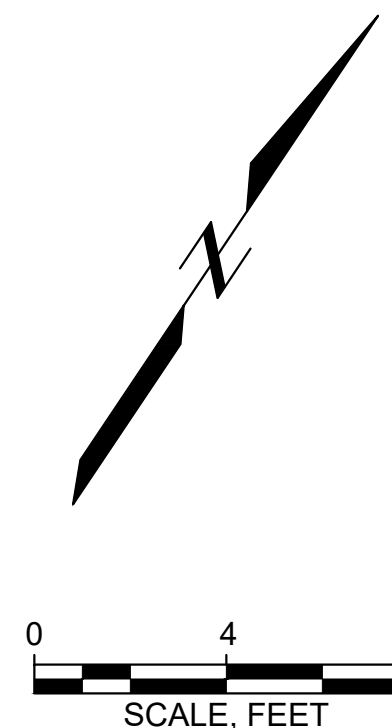
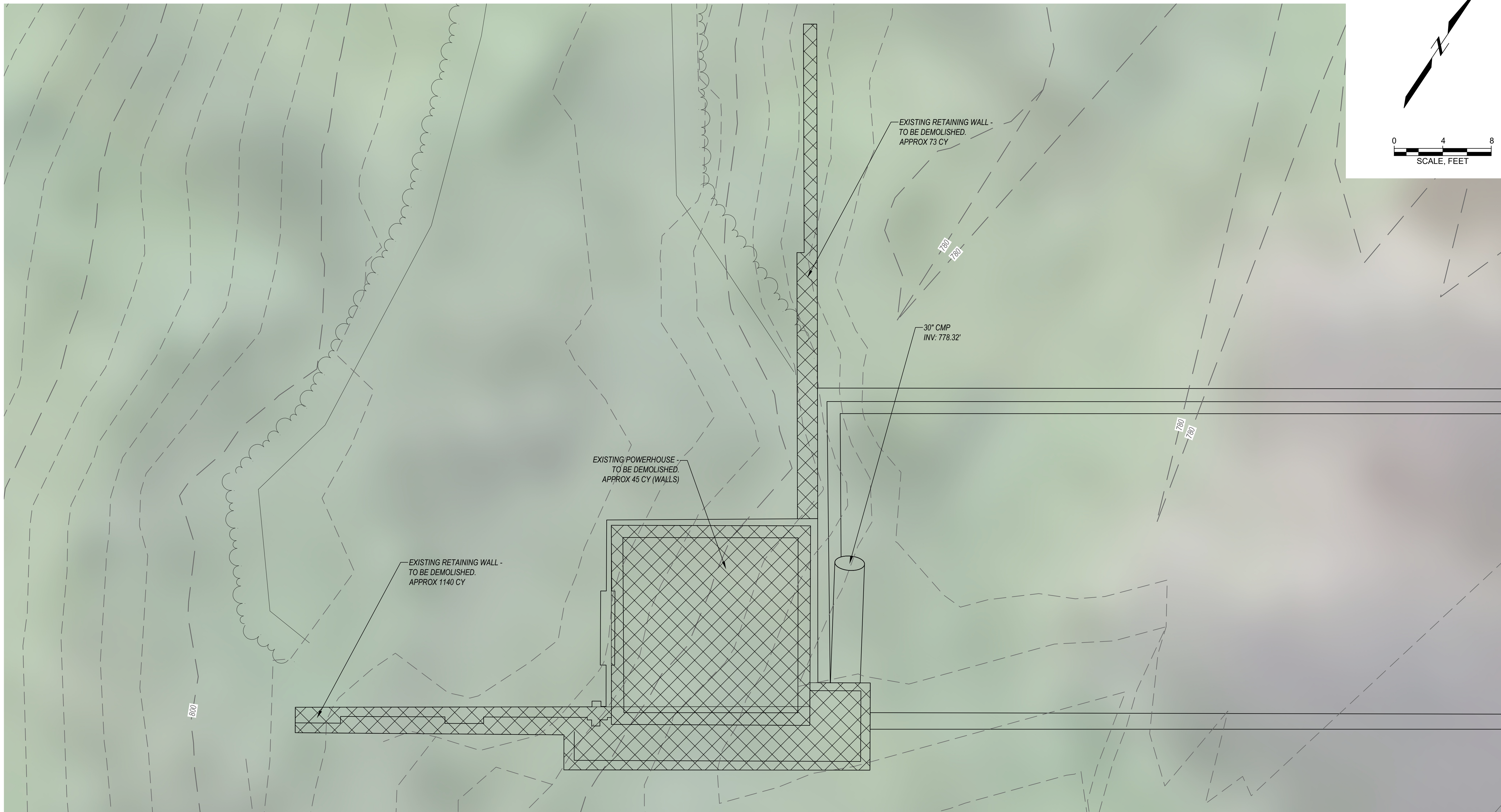
**CLOVERLICK CREEK
 DAM REMOVAL**

 CLERMONT COUNTY, OHIO

NO	DATE	ISSUE/REVISION	APP

SHEET NAME	SHEET NO.
SITE ACCESS AND EROSION AND SEDIMENT CONTROL	C-01

COOPER, AMBER, B:\working\CLERMONT SWCD\2504820 Cloverlick Creek Dam Removal\03_CAD\Design\Sheets\C-02 - POWERHOUSE PLAN.dwg - 1/13/2026



PRELIMINARY

LEGEND

- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- EDGE OF VEGETATION
- APPROX. EXISTING ACCESS ROAD
- APPROX. PROPERTY LINES

<p>Attention:</p> <p>If this scale bar does not measure 1" then drawing is not original scale.</p>	Designed: AC
	Drawn: OJW
	Checked: SCW
	Approved: SCW
	P.E. No: ###
GEI Project 2504820	

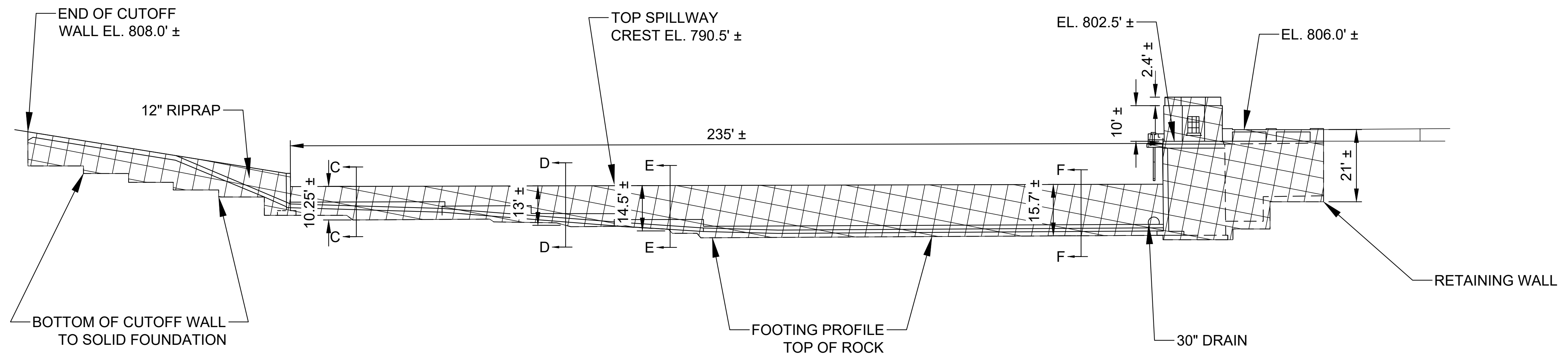


**CLOVERLICK CREEK
DAM REMOVAL**

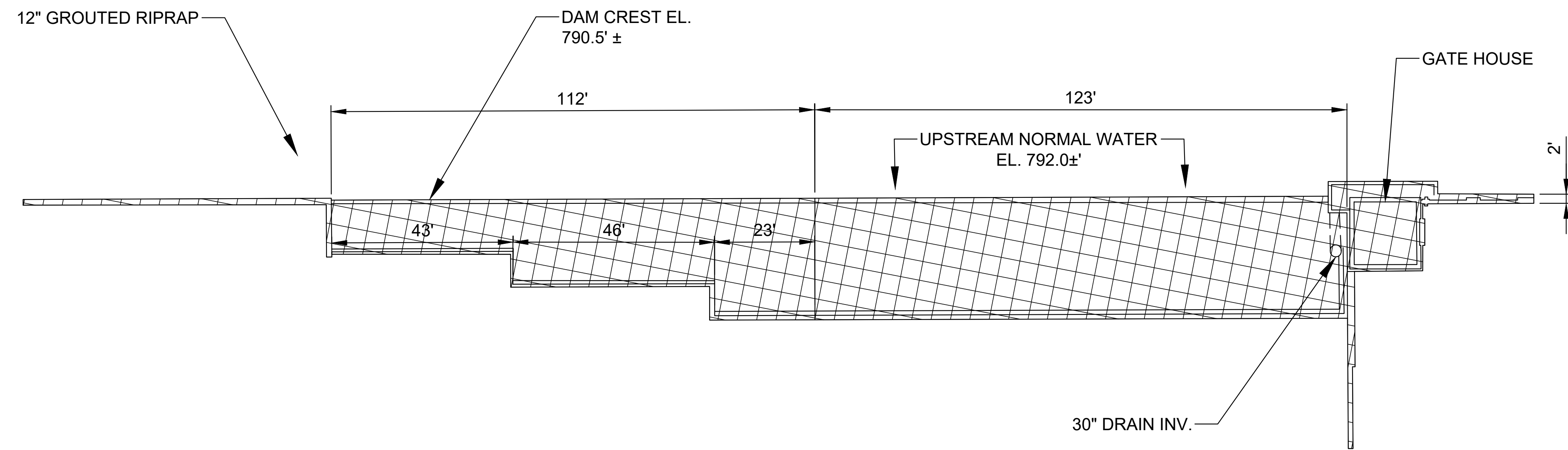
CLERMONT COUNTY, OHIO

NO	DATE	ISSUE/REVISION	APP
0			

SHEET NAME	SHEET NO.
POWERHOUSE PLAN	C-02



1 DOWNSTREAM ELEVATION
DETAIL NO SCALE



2 PLAN VIEW
DETAIL NO SCALE

LEGEND

EXISTING 2' CONTOUR	----
EXISTING 10' CONTOUR	-----
EDGE OF VEGETATION	=====
APPROX. EXISTING ACCESS ROAD	=====
APPROX. PROPERTY LINES	-----
LIMITS OF DAM REMOVAL	XXXXXX

Attention: If this scale bar does not measure 1" then drawing is not original scale.	Designed: AC
	Drawn: OJW
	Checked: SCW
	Approved: SCW
	P.E. No: ###
	GEI Project 2504820



CLOVERLICK CREEK DAM REMOVAL

CLERMONT COUNTY, OHIO

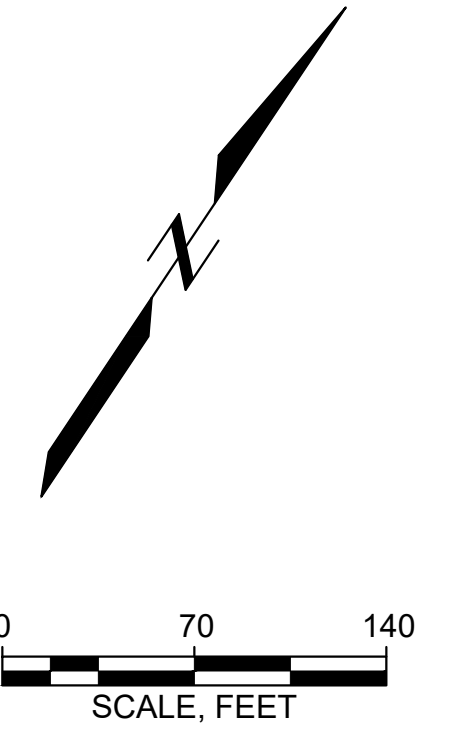
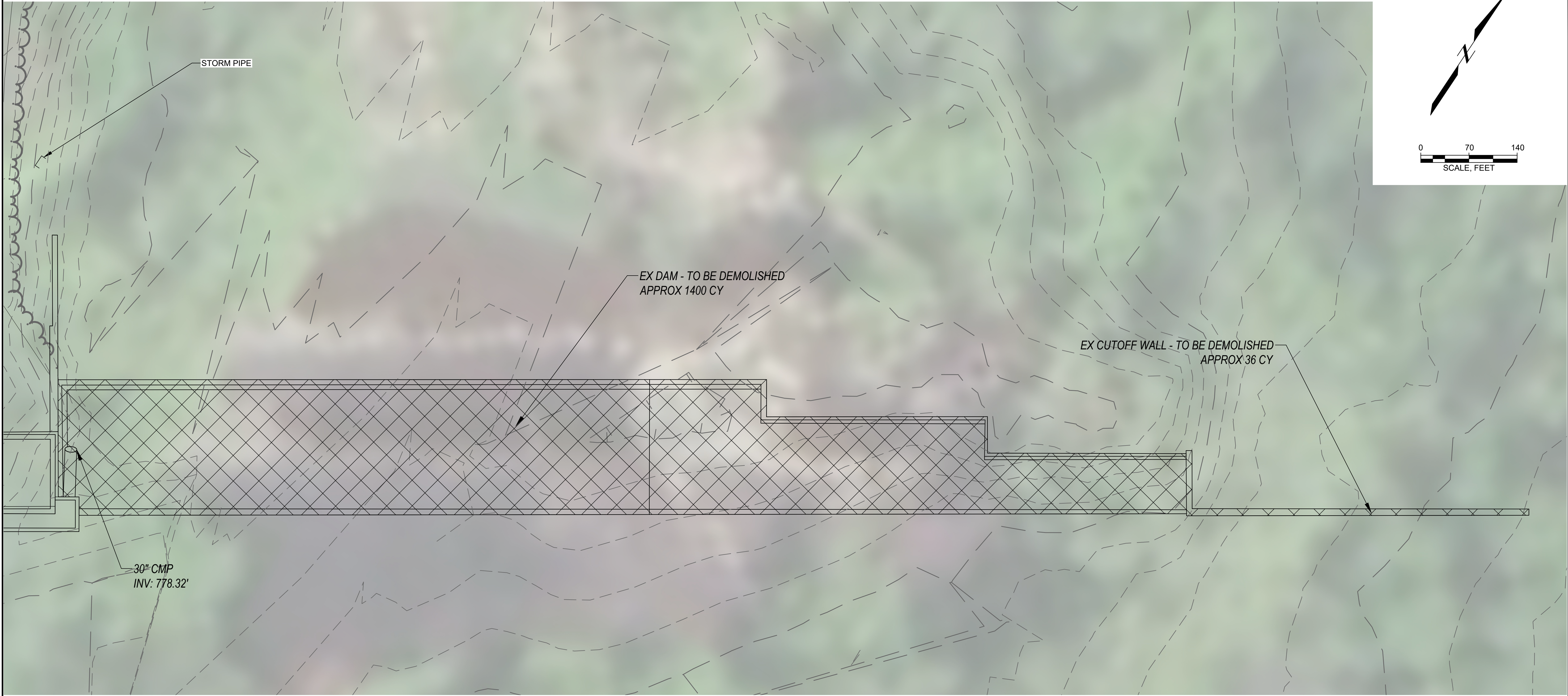
NO	DATE	ISSUE/REVISION	APP

SHEET NAME
DAM PLAN AND ELEVATION

SHEET NO.
C-03

PRELIMINARY

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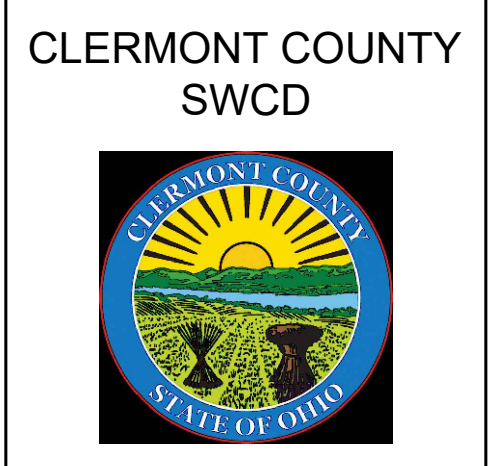


LEGEND

EXISTING 2' CONTOUR	
EXISTING 10' CONTOUR	
EDGE OF VEGETATION	
APPROX. EXISTING ACCESS ROAD	
APPROX. PROPERTY LINES	
LIMITS OF DAM REMOVAL	

PRELIMINARY

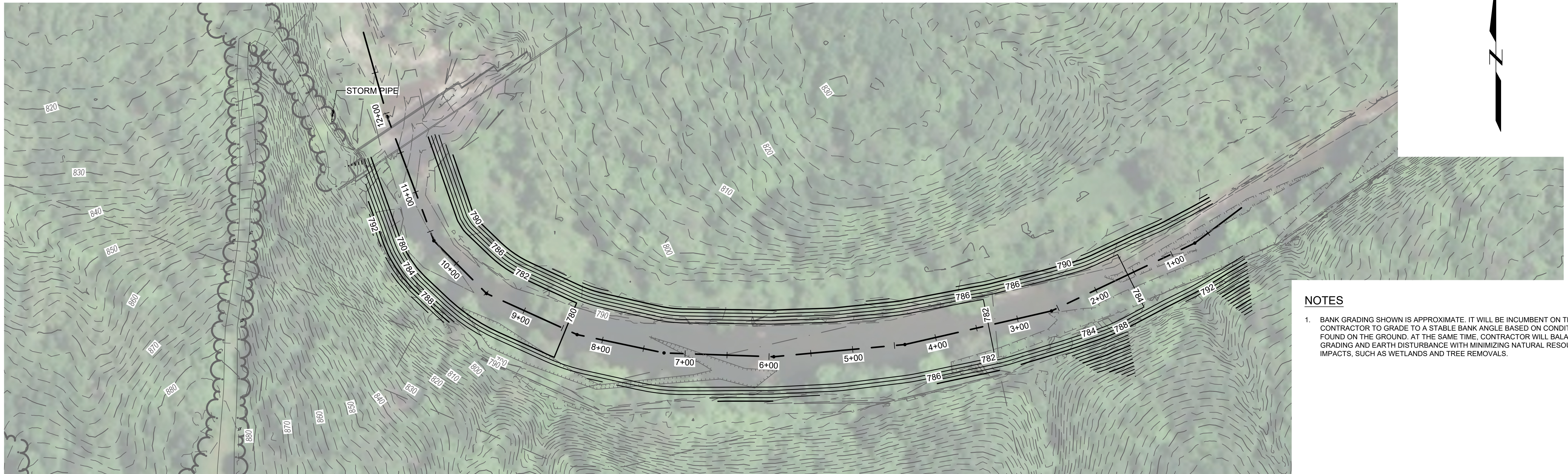
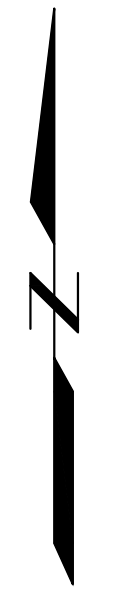
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GEI Project 2504820	



CLOVERLICK CREEK DAM REMOVAL
 CLERMONT COUNTY, OHIO

NO	DATE	ISSUE/REVISION	APP
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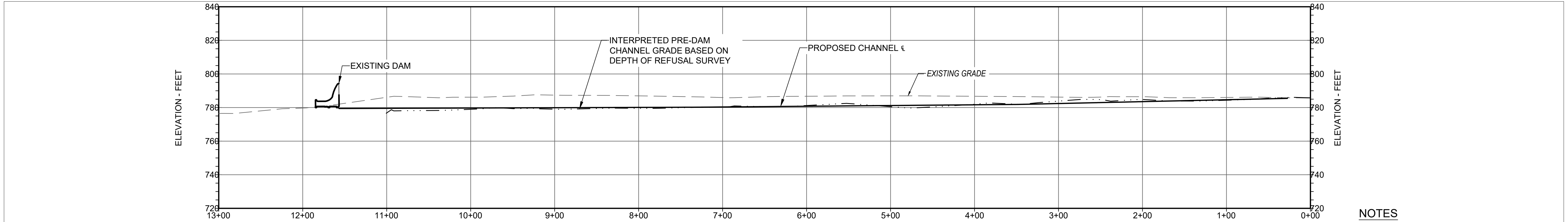
SHEET NAME	SHEET NO.
DAM BREACHING PLAN	C-05



NOTES

1. BANK GRADING SHOWN IS APPROXIMATE. IT WILL BE INCUMBENT ON THE CONTRACTOR TO GRADE TO A STABLE BANK ANGLE BASED ON CONDITIONS FOUND ON THE GROUND. AT THE SAME TIME, CONTRACTOR WILL BALANCE GRADING AND EARTH DISTURBANCE WITH MINIMIZING NATURAL RESOURCE IMPACTS, SUCH AS WETLANDS AND TREE REMOVALS.

PLAN VIEW
RESTORATION PLAN SCALE: 1" = 60'



NOTES

1. PROPOSED CHANNEL GRADE IS APPROXIMATE AND WILL DEPEND ON FIELD CONDITIONS. THIS DESIGN DOES NOT PROPOSE ANY GRADE CONTROLS. FOLLOWING SPOILS REMOVAL FROM BEHIND THE DAM AND BANK STABILIZATION, THE CHANNEL SHOULD BE ALLOWED TO FIND ITS FINAL GRADE WITHOUT CONTRACTOR INTERVENTION. IF THE BED PROFILE VARIES IN THE FIELD, THE CONTRACTOR MAY NEED TO RE-EVALUATE NOT USING GRADE CONTROL OR OTHER METHODS OF PREVENTING BANK OR BED EROSION.

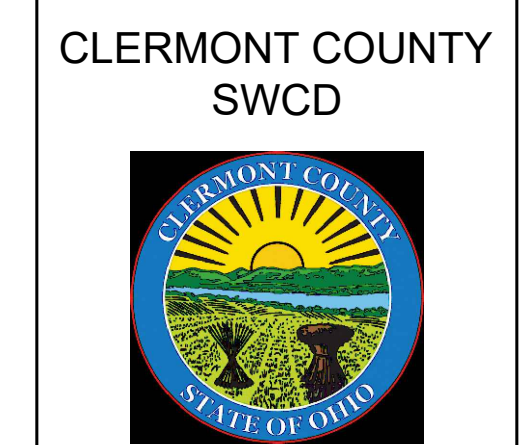
Station	Proposed Grade (Typ)	Refusal Grade (Typ)
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12+00	786.8	
11+00	779.54	776.8
10+00	779.72	
9+00	779.90	
8+00	779.6	780.08
7+00	780.4	780.34
6+00	781.2	780.77
5+00	780.5	781.21
4+00	782.0	781.64
3+00	783.8	782.40
2+00	784.8	783.52
1+00	784.4	784.65
0+00	786.8	

PROFILE VIEW
RESTORATION PLAN SCALE: 1" = 60' 2X VERTICAL

LEGEND

EXISTING 2' CONTOUR	
EXISTING 10' CONTOUR	
EDGE OF VEGETATION	
APPROX. EXISTING ACCESS ROAD	
APPROX. PROPERTY LINES	

Attention:	Designed: AC
	Drawn: OJW
	Checked: SCW
	Approved: SCW
	P.E. No: ###
	GEI Project: 2504820



CLOVERLICK CREEK DAM REMOVAL
CLERMONT COUNTY, OHIO

NO	DATE	ISSUE/REVISION	APP
0			

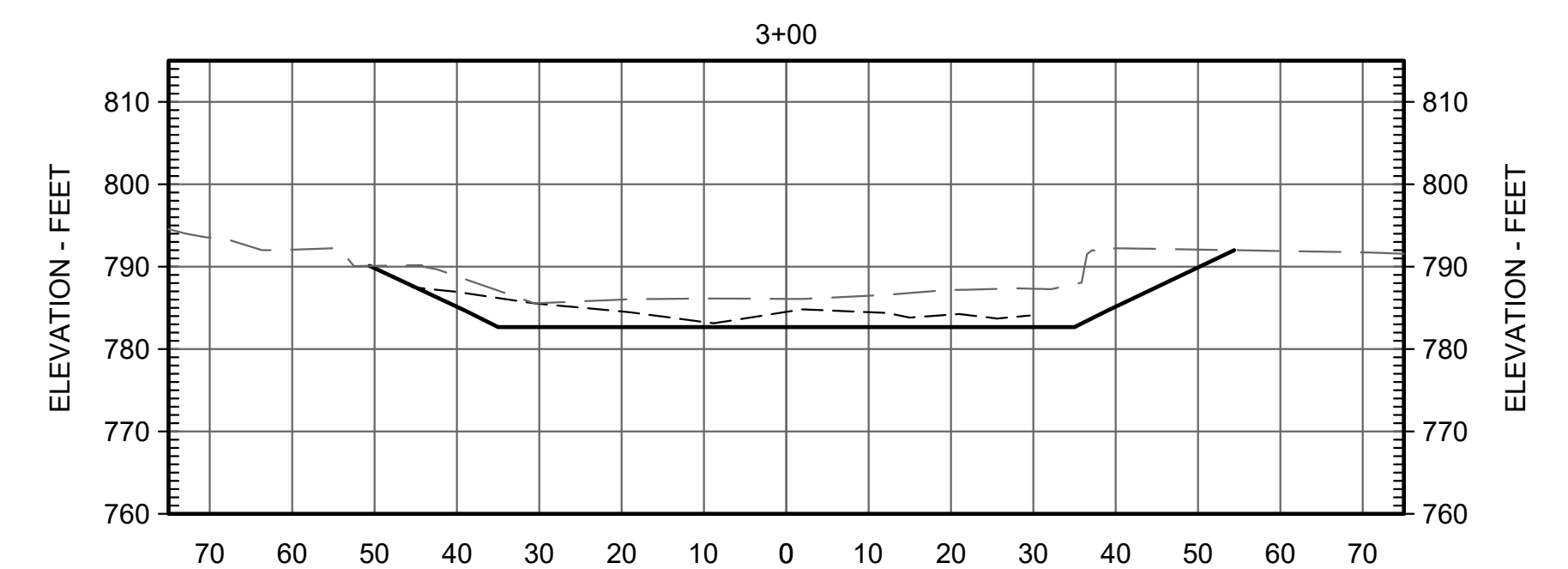
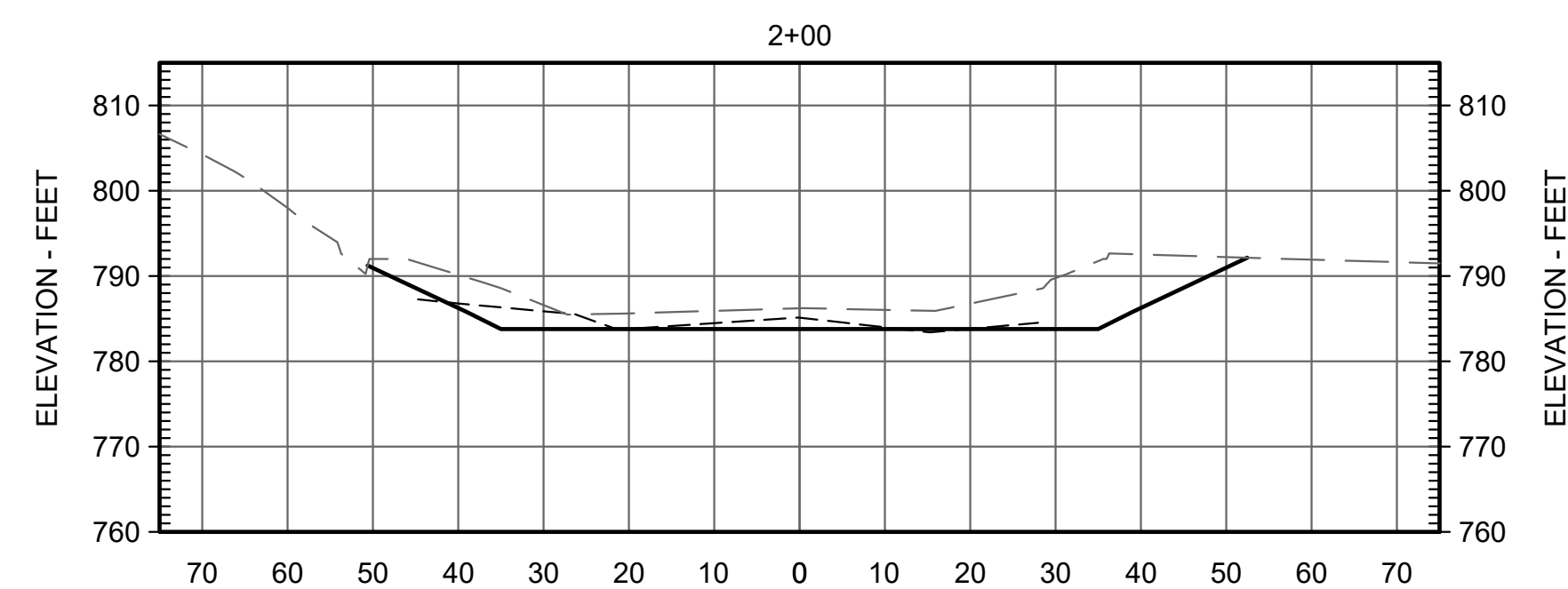
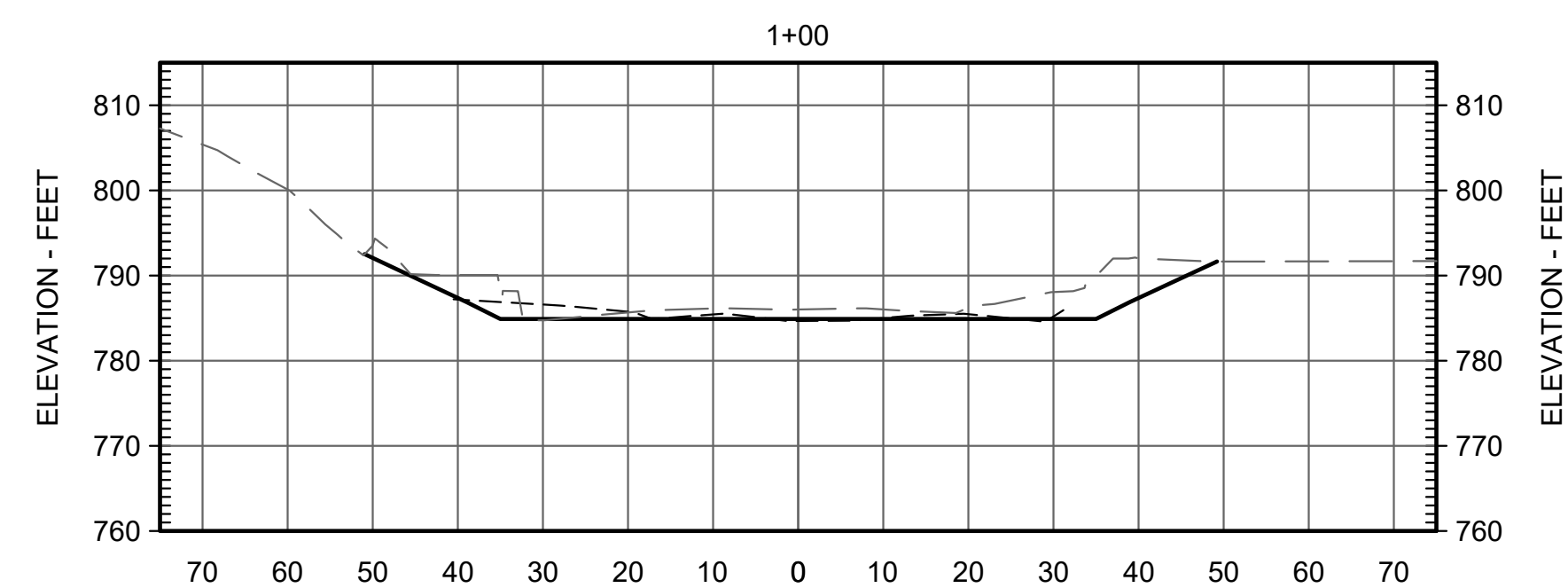
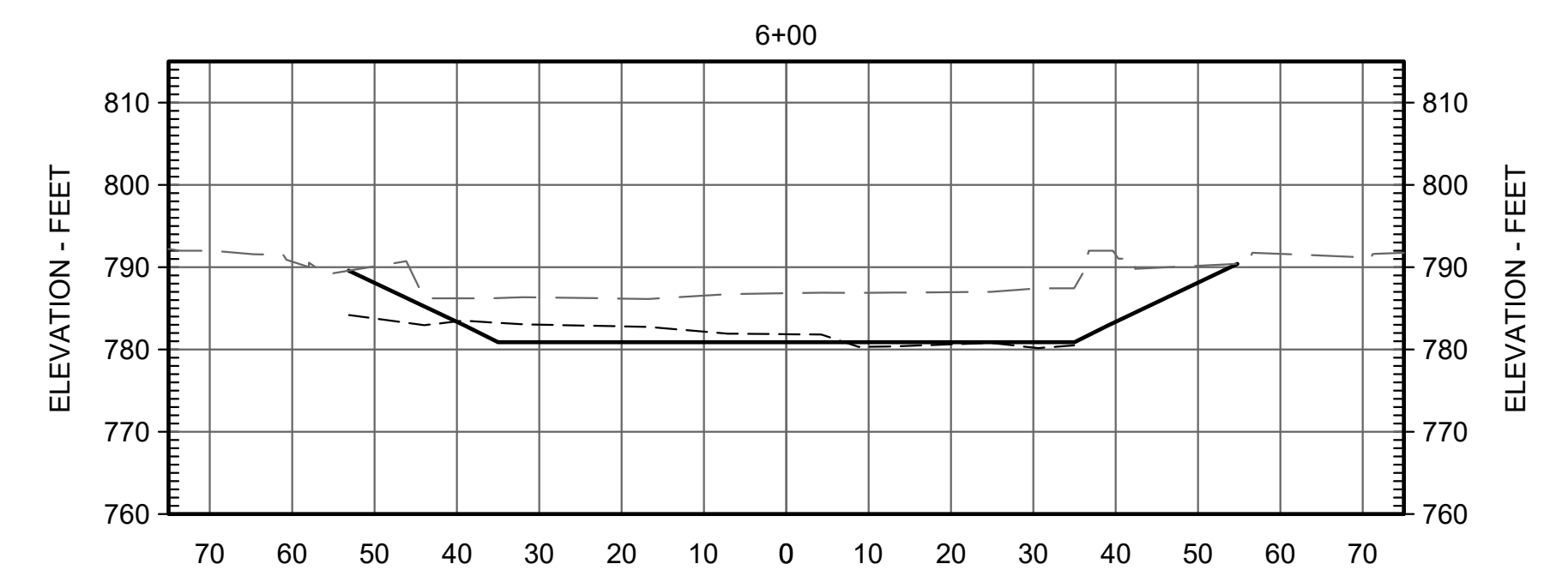
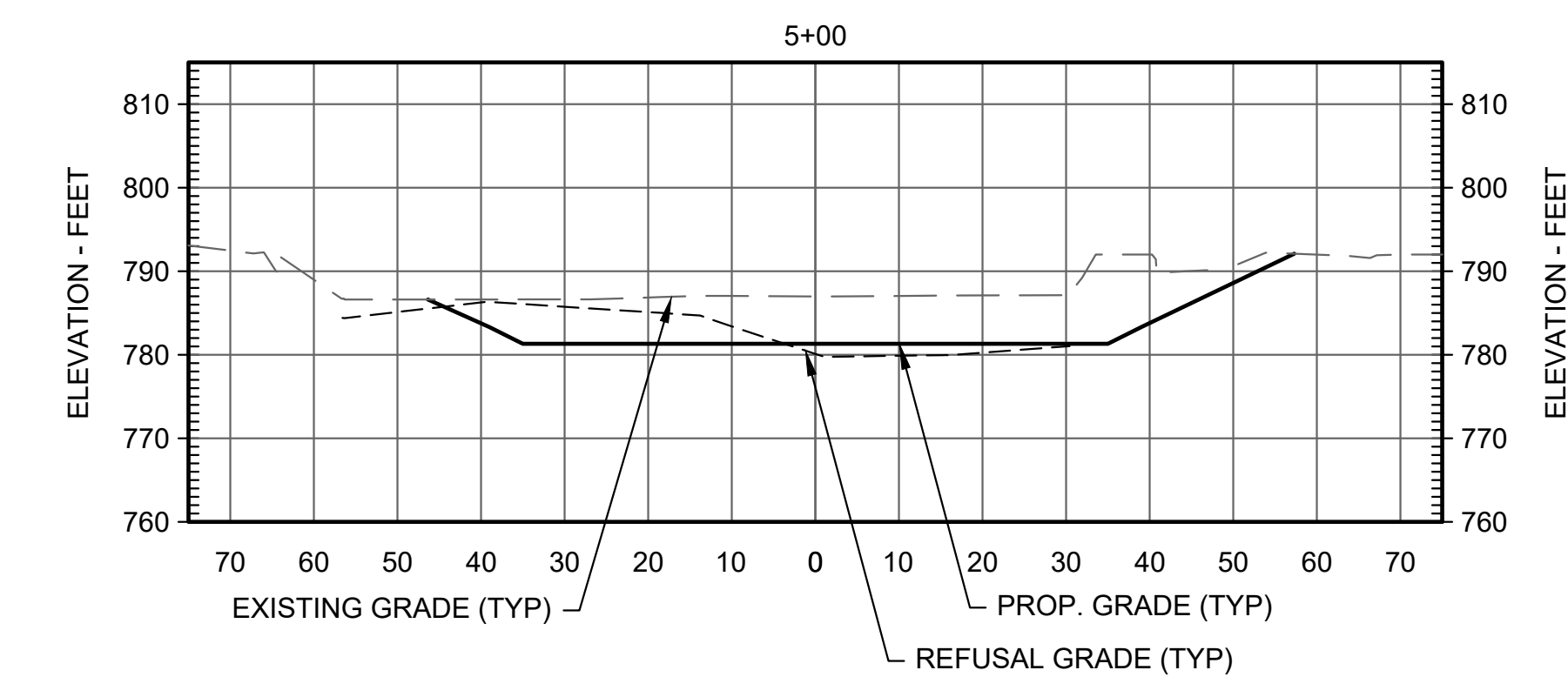
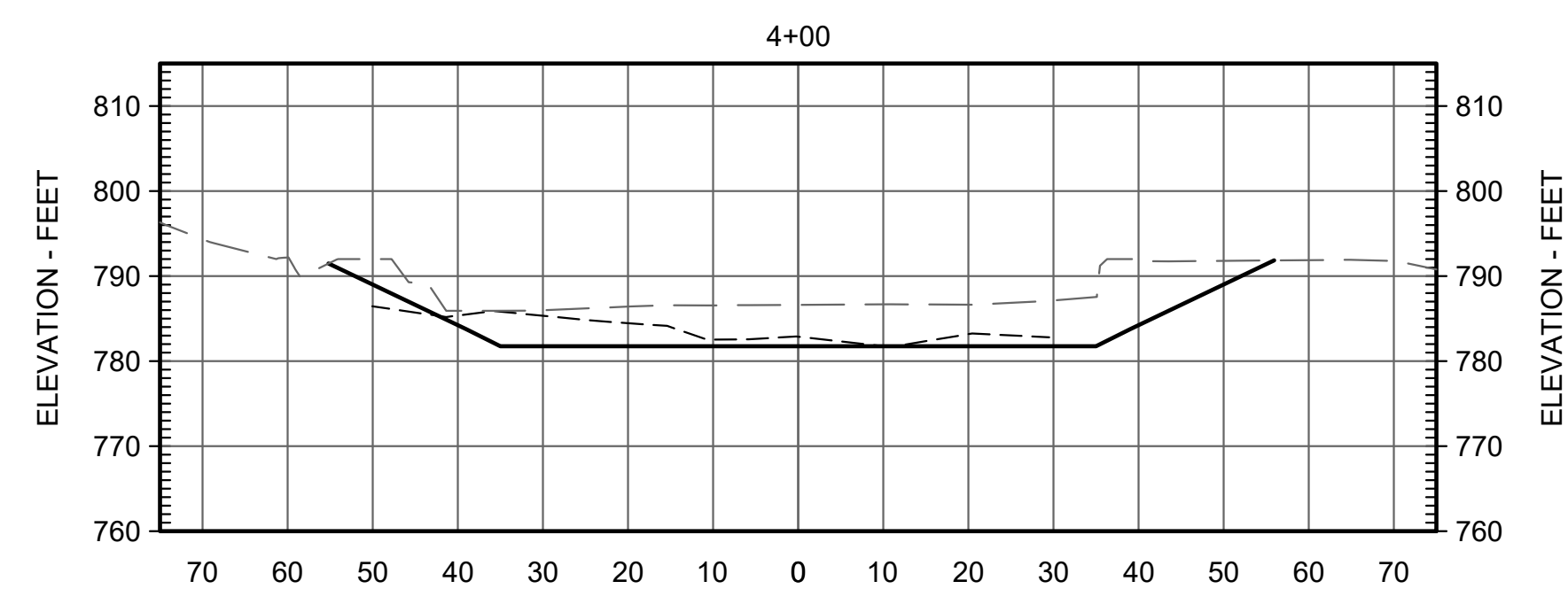
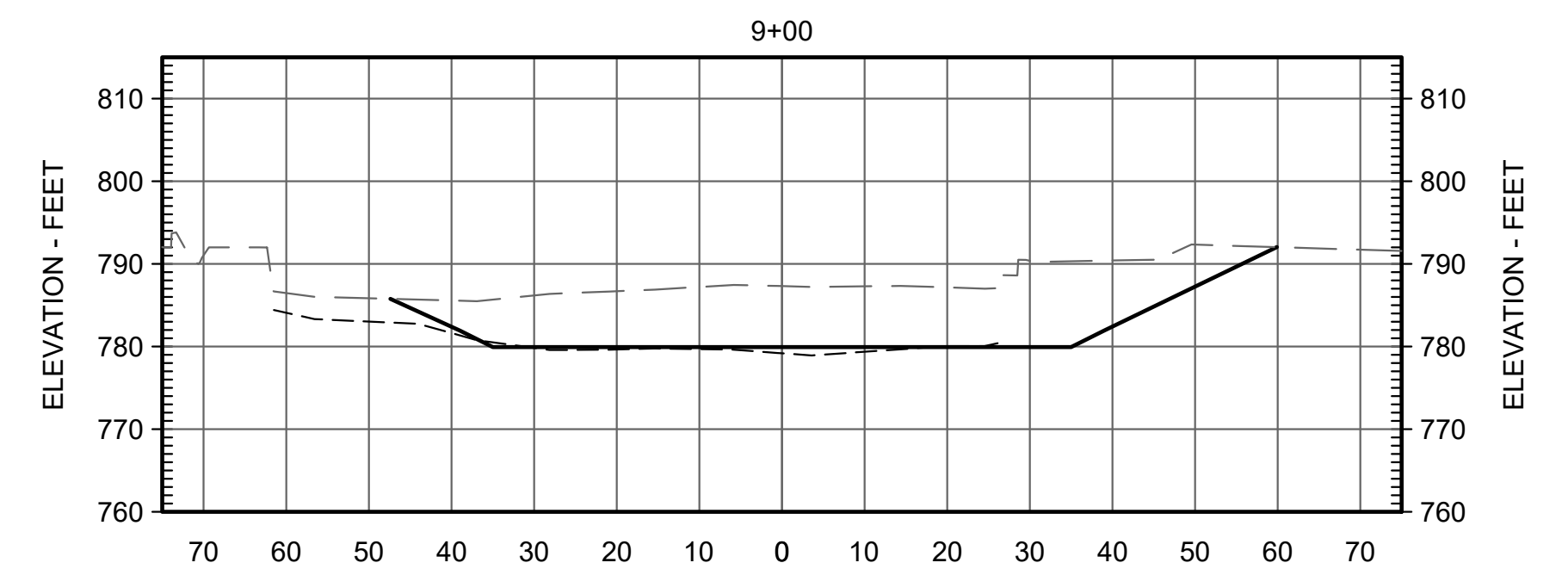
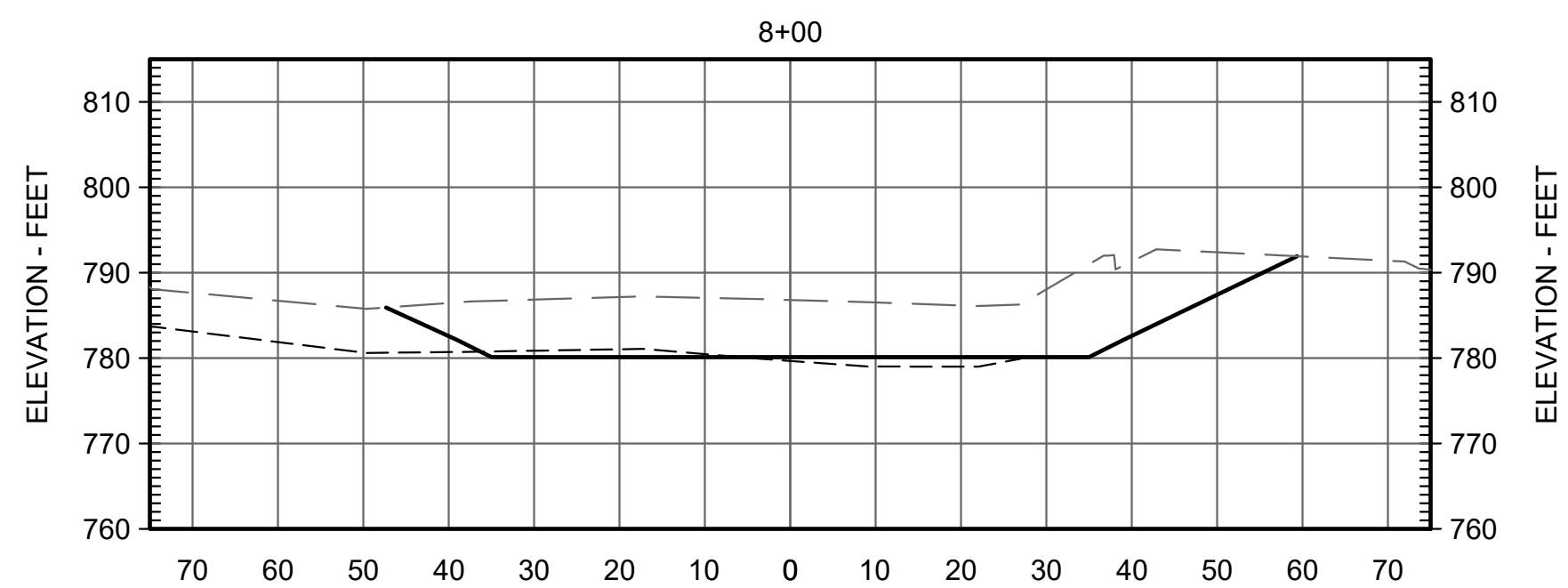
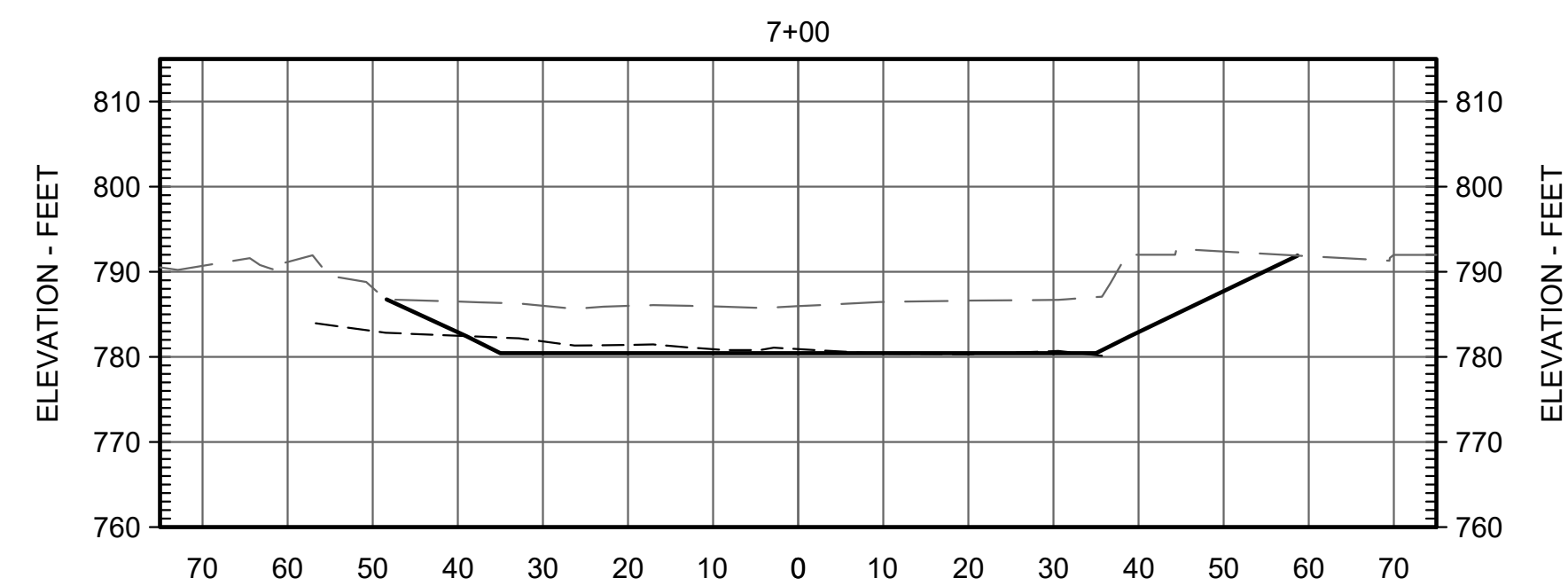
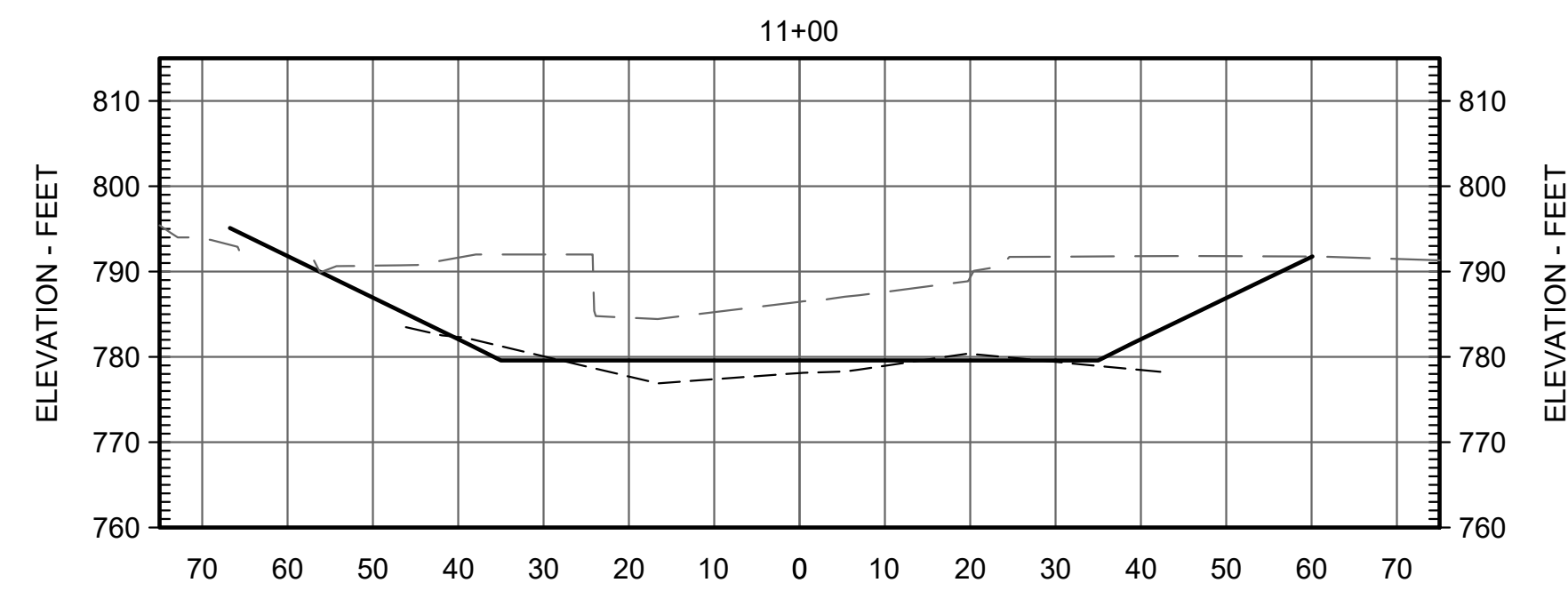
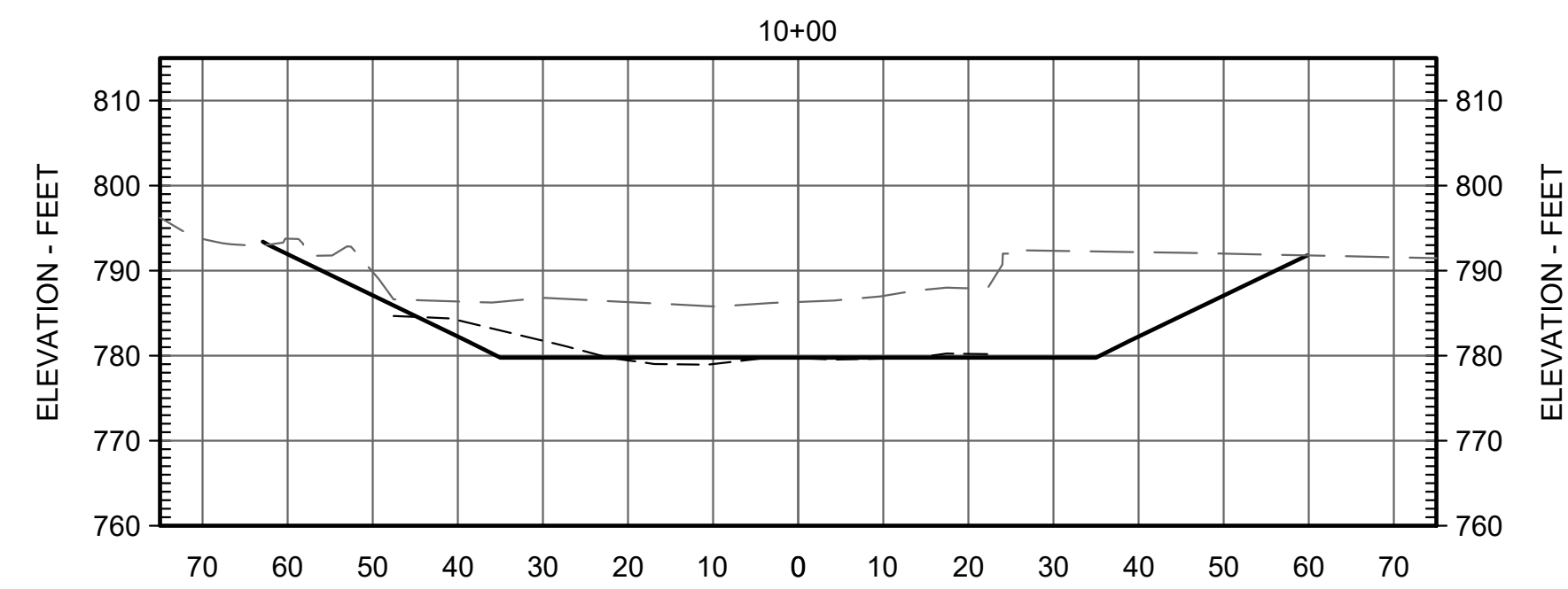
RESTORATION PLAN AND PROFILE

PRELIMINARY

SHEET NAME: RESTORATION PLAN AND PROFILE
SHEET NO.: C-06

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SECTIONS
CLOVERLICK CREEK SCALE: 1" = 20'

Attention: If this scale bar does not measure 1" then drawing is not original scale.	Designed: AC
	Drawn: OJW
	Checked: SCW
	Approved: SCW
	P.E. No: ###
	GEI Project 2504820



**CLOVERLICK CREEK
DAM REMOVAL**

CLERMONT COUNTY, OHIO

NO	DATE	ISSUE/REVISION	APP
0			

SHEET NAME

SHEET NO.

SECTIONS

C-07

PRELIMINARY

