

SPECIAL PROVISIONS

WATERWAY PERMITS CONDITIONS

C-R-S: SUM-77/277/224/Various

PID: 106002

Date: April 22, 2021

1. Waterway Permits Time Restrictions:

Section 404 Regional General Permit A - Linear Transportation (RGP A) is authorized for SUM-77/277/224/Various, PID 106002. A copy of the RGP A and United States Army Corps of Engineers (USACE) authorization letter (USACE ID #LRH-2020-00204-TUS) shall be kept at the work site at all times and made available to all contractors and subcontractors. The permit is effective starting: April 22, 2021. The permit expires: October 24, 2024.

Section 404 Nationwide Permit 23 - Approved Categorical Exclusions (NWP 23) is authorized for SUM-77/277/224/Various, PID 106002. A copy of the NWP 23 and United States Army Corps of Engineers (USACE) authorization letter (USACE ID #LRH-2020-00204-TUS) shall be kept at the work site at all times and made available to all contractors and subcontractors. The permit is effective starting: April 22, 2021. The permit expires: March 18, 2022.

For authorized work in aquatic resources (including streams, wetlands, jurisdictional ditches, captured streams, lakes, ponds), the Department will consider the Contractor's submission of a reauthorization to the waterway permit expiration date based on project constraints. If more than one permit is authorized for the project, then all permits become invalid once the first permit expires. In order for the request to be considered, the Contractor must submit a justification to the Engineer at least 90 days prior to the waterway permit expiration date. The Engineer will submit the request for a time extension to the Ohio Department of Transportation, Office of Environmental Services, Waterway Permits Unit (ODOT-OES-WPU) for consideration and coordination with the U.S. Army Corps of Engineers (USACE), Ohio Environmental Protection Agency (OEPA), U.S. Coast Guard (USCG), U.S. Fish and Wildlife Service (USFWS), and Ohio Department of Natural Resources (ODNR) as appropriate.

2. Deviations From Permitted Construction Activities:

No deviation from the requirements for work in aquatic resources depicted in the plans, Special Provisions, and/or Working Drawings may be made unless a modification has been submitted to ODOT-OES-WPU and approved by the appropriate agencies (i.e., USACE, OEPA, USCG, ODNR, and USFWS).

NOTE: Plan sheets approved by the USACE with the Pre-Construction Notification are included in these Special Provisions.

For emergency situations resulting in unanticipated impacts to aquatic resources, provide notification (verbal or written) to the Engineer as soon as possible following discovery of the situation. Written notification to the Engineer and notification to the ODOT-OES-WPU (614-466-2159) must be made within 24 hours.

For non-emergency situations, notify the Engineer in writing for submission to the ODOT-OES-WPU (614-466-2159) for consideration and coordination with the appropriate agencies. Notification must be made at least 90 days prior to planned, non-permitted activities. Consideration of the requested deviation is at the discretion of the Director and must be coordinated with the appropriate regulatory agencies.

3. In-Stream Work Restrictions:

Work in the following aquatic resources is further restricted as follows:

Stream Name /Description	Location (Station)	Work restriction dates (No in-stream work permitted)
Tuscarawas River	430+50	April 15 - June 30
Stream 2	443+36.5	None
Stream 3	207+00, 102+19, and 87+50	None
Stream 4	206+00	None

*Restriction dates do not apply if the stream has been dewatered prior to April 15.

In-stream work has been defined as the placement and/or removal of fill materials (temporary or permanent) below ordinary high water of a stream. Examples of “fill” include, but are not limited to: bridge piers, abutments, culverts, rock channel protection, scour protection, and temporary access fills.

Fills placed within a stream identified in the above table (outside of the work restriction dates) can continue to be worked from during the work restriction dates, but cannot be expanded, removed, or otherwise modified (below ordinary high water) until once again outside of the work restriction dates.

4. Materials:

Materials utilized in or adjacent to aquatic resources for temporary or permanent fill or bank protection shall consist of suitable material free from toxic contaminants in other than trace quantities. Asphalt products are specifically excluded for use as fill. Chromated Copper Arsenate (CCA), creosote, and other pressure treated lumber shall not be used in structures that are placed in aquatic resources.

5. Cultural Resources:

Per CMS 107.10, if archeological sites, historical sites, or human remains are discovered, cease all work in the immediate area and notify the Engineer who will immediately contact the ODOT-District Environmental Coordinator and ODOT-OES-Cultural Resource Section at 614-466-2159. In the event of human remains are identified by OES-Cultural Resources Section, the Engineer shall also contact the Summit County Sheriff’s Office at (330) 643-2122.

6. Aquatic Resource Demarcation:

Attached Tables A and B include detailed fill quantities authorized within the aquatic resources. Aquatic resources and proposed impacts included in these Special Provisions shall be demarcated in the field as per SS 832 prior to site disturbance. The fence shall remain in place and be maintained throughout the construction process. Following the completion of the project, the fence and posts shall be removed.

7. Spill containment:

Provide and Maintain an Oil Spill Kit with a minimum capacity of 65 gallons. The Spill Kit shall contain:

- 6 - 3 in. X 8 ft. Oil only socks
- 4 - 18 in. X18 in. Oil only pillows
- 2 - 5 in. X 10ft. Booms
- 50 - 16in. X 20 in. Oil only pads
- 10- Disposable Bags
- 1 - 65 Gallon drum with lid
- 25 pounds of Granular Oil Absorbent

The Oil Spill Kit shall be located within 150 feet of any equipment working in a stream or wetland. The oil Spill Kit shall be maintained for the life of the contract. Any materials utilized during the project will be replaced within 48 hours. All costs associated with furnishing and maintaining the above referenced spill containment kit is incidental to work.

8. Blasting:

State law requires notification to the Ohio Department of Natural Resources should blasting be required within or near stream channels (See ORC 1533.58 & CMS 107.09). Notify the Engineer, in writing, a minimum of 30 days in advance of blasting, for submission to ODOT-OES-WPU (614-466-2159) for coordination with ODNR.

9. Project Inspection:

Inspection of Work may include inspection by representatives of other government agencies or railroad corporations that pay a portion of the cost of the Work or regulate the Work through State and Federal law. Comments from the representatives of these agencies shall be directed to the Engineer who will immediately contact the ODOT-District Environmental Coordinator and ODOT-OES-WPU at 614-466-2159.

10. Temporary Access Fills:**Special Provisions Notes:****Definitions:****Hydraulic Opening**

The cross-sectional area allowing an unimpeded discharge equal to twice the highest monthly flow without producing a rise in the backwater above the Ordinary High Water Mark (OHWM).

Standard Temporary Discharge

Discharge equal to twice the *highest monthly flow* without producing a rise in the backwater above the OHWM. The U.S. Geologic Service publication "Techniques for estimating Selected Streamflow Characteristics of Rural Unregulated Streams in Ohio" provides equations that estimate monthly flow for Ohio Waterways These flows are also available in a web application by USGS StreamStats, (<https://water.usgs.gov/osw/streamstats/ohio.html>). The highest monthly flow is the highest monthly mean discharge occurring in a 12-month period from January to December.

Average Monthly Flow

The average monthly flow represents the estimated "normal" flow.

Temporary Access Fills (TAFs)

Include, but are not limited to, dewatering fills, causeways, cofferdams, access pads, temporary bridges, etc. below the OHWM.

Requirements

21 calendar days prior to the initiation of any in-stream work, provide the Engineer with Working Drawings that include:

- Plan view drawing (50 scale or less) showing the location of all TAFs proposed for use on the project
- Scaled cross section and profile drawing showing the OHWM and the proposed hydraulic opening.
- Identify the minimum diameter size, placement location and thickness of non-erodible Dumped Rock Fill material on the plan and profile.
- Calculations analyzing the hydraulic impacts of the TAF on the waterway. Include in the calculations an analysis of the hydraulic opening sized adequately to pass the Standard Temporary Discharge without producing a rise in backwater above the OHWM. Include, in the analysis, calculated channel velocities adjacent to the TAF, culvert exit velocities, calculated headwater and tailwater elevations, and any additional appropriate calculations to assess potential impacts to the waterway during normal and anticipated high flow (twice the highest monthly flow) events.
- A description of all temporary material to be placed below the OHWM elevation.
- A description of the installation and staging of all temporary fill over the life of the contract.
- Identify the protection methods and/or structural Best Management Practices for minimizing impacts to the waterway.
- Volume of temporary fill below the OHWM elevation.
- A description of the diversion ditches, equipment, conduits or means for maintaining normal flows in the waterway.
- A description of the removal of all temporary fill and restoration of the channel and all areas impacted by the TAFs.
- A schedule outlining the timing of the placement and removal of all temporary fill.
- Have competent individuals prepare and check the Working Drawings and hydraulic calculations. Provide a cover sheet containing the preparer(s) and checker(s): First Name, Last Name and Initials. The preparer(s) and checker(s) shall not be the same individual. Have an Ohio Registered Engineer review, approve, sign, seal and date the Working Drawings and hydraulic calculations according to ORC 4733 and OAC 4733-35. Include the following statement on the Working Drawings: "These Working Drawings were prepared in compliance with the terms of these Special Provisions and all contract documents."

Do not begin in-stream work until the Engineer has accepted the Working Drawings and hydraulic calculations.

The design and construction of the Contractor's TAF must minimize impacts to water bodies, stream banks, stream beds, and riparian zones to the maximum extent practicable.

Fording of waterways and other aquatic resources is prohibited.

Construct TAFs in such a manner that will maintain flows, minimize upstream flooding, and avoid overtopping the TAF on a regular basis. ***TAFs shall be designed and constructed so that the hydraulic opening provides capacity for a discharge equal to twice the highest monthly flow without producing a rise in the backwater above the (OHWM).***

If the Contractor proposes a TAF which does not meet all the requirements of these Special Provisions, the Contractor must submit a request in writing for a modified TAF to the Engineer. The request must include all Working Drawings and hydraulic calculations required by these Special Provisions. The

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Department makes no guarantee to grant the request. The Contractor's proposed TAF request will be coordinated by OES with the USACE and the OEPA, as appropriate. The time frame allowed for the coordination of the contractor's proposed TAF will be a minimum of 60 days.

Installation of any temporary fill without appropriate authorization is strictly prohibited. All direct coordination with the USACE and/or OEPA will be performed through OES.

TAFs Construction and Payment

Begin planning and installing causeways and access fills as early in construction as possible to avoid conflicts with these Special Provisions or other environmental commitments that have been included in the construction plans.

TAFs in Streams and Rivers may include, but are not limited to, causeways, cofferdams, access pads, sheet piling, temporary bridges, etc. The Contractor must make every attempt to minimize disturbance to waterbodies, stream banks, stream beds and riparian zones during the construction, maintenance, and removal of the TAF. Construct the TAFs as narrow as practical. Install in-stream conduits parallel to the stream banks. Make the TAFs in shallow areas rather than deep pools where possible. Minimize clearing, grubbing, and excavation of stream banks, and approach sections. Construct the TAFs as to not cause erosion or allow sediment deposits in the waterway.

Prior to the initiation of any in-stream work, establish a monument upstream of the proposed TAF to visually monitor the water elevation in the waterway where the fill is permitted. Maintain the monument throughout the project. Provide a visual mark on the monument that identifies the elevation 1 foot above the OHWM. Ensure that the monument can be read from the bank of the waterway. Have this elevation set and certified by an Ohio Registered Surveyor. All costs associated with furnishing and maintaining the above referenced monument is incidental to the work.

Should the surface water elevation exceed the elevation 1 foot above OHWM, the Department will compensate the Contractor for repair of any resulting damage to the TAF up to the elevation of 1 foot above the OHWM, except as noted. The Department will recognize this event as an excusable, non-compensable delay in accordance with Section 108.06 B. of the Construction & Materials Specifications.

Follow the requirements in Item 502 for Structures for Maintaining Traffic and in Item 503 for Cofferdams and Excavation Bracing and any modifications to these items as shown in the plans. The Department will not pay for repair and maintenance of TAFs associated with Items 502 and 503 as a result of surface water elevation exceeding 1 foot above the OHWM. Compensation for damages associated with waterway flows will be provided as described in Items 502 and 503.

Construct the TAFs, not including Items 502 and 503, to a water elevation at least 1 foot (0.3 m) above the OHWM. If more than one-third the width of the stream is filled, then use culvert pipes to allow the movement of aquatic life. Ensure that any ponding of water behind the TAF will not damage property, flood roadways, or threaten human health and safety.

The following minimum requirements apply to TAFs where culverts are used.

- A. Furnish culverts on the existing stream bottom.
- B. Avoid a drop in water elevation at the downstream end of the culvert that would result in an adverse impact to the waterway.
- C. Furnish a sufficient number of culverts in addition to stream openings to provide a discharge equal to twice the highest monthly flow without producing a rise in the backwater above the OHWM.
- D. Furnish culverts with a minimum diameter of 18 inches (0.5 m).

All TAFs must be constructed of suitable materials. Causeways and access fills must be encapsulated with clean, non-erodible, nontoxic Dumped Rock Fill, Type A, B, C, or D, meeting the requirements of C&MS 703.19.B. Utilize appropriately sized Dumped Rock Fill determined by the Contractor's engineer for encapsulating the sides of the TAF. Encapsulate all sides of the TAF with the non-erodible material.

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For causeways, contractors may use clean aggregate meeting C&MS 703.01 Size Number 1 and 2 for creating a working surface above the OHWM. Extend the non-erodible encapsulating material to at least the elevation of the top of the working surface. Extend clean aggregate up the slope from the original stream bank for 50 feet (10 m) to remove erodible material and prevent tracking from equipment onto the TAF.

When the work requiring TAF is complete, all portions of the TAF (including all rock and culverts) will be removed in its entirety. Do not dispose of TAF material in other aquatic resources or where erosion into another aquatic resource is possible. The stream bottom affected by the TAFs will be restored to its pre-construction elevations. The TAFs will not be paid as a separate item but will be included by the Contractor as part of the total project cost.

Unless specific TAF compensation is included in the plans, all environmental protection and control associated with the authorized activities, are incidental to the work within the boundaries of the aquatic resources.

11. Excavation Activities:

Excavated material will be placed at an upland site and disposed of in such a manner that sediment and runoff to streams and other aquatic resources is controlled and minimized. Additionally, no more than incidental fallback into jurisdictional waters of the U.S. is permitted during the excavation process. If any changes to the proposed work are deemed necessary, notify the Engineer who will immediately contact the ODOT-District Environmental Coordinator and ODOT-OES-WPU at 614-466-2159

12. Temporary Fill Activities:

Temporary fill into Wetlands C, D, E, F, G, J, and K is not authorized for this project. Temporary fill includes, but is not limited to, causeways, work pads, cofferdams, sheet piling, temporary bridges, and construction equipment. Any unauthorized temporary impacts that occur will be in violation of Section 404 and 401 of the Clean Water Act.

13. Construction Completion Certification:

Upon completion of the work, notify the Engineer. The USACE Construction Completion Certification must be completed and signed by the Engineer then provided via US mail or email to:

Waterway Permits Program Manager
 ODOT - Office of Environmental Services
 1980 West Broad Street, Mail Stop 4170
 Columbus, Ohio 43223
 Adrienne.Earley@dot.ohio.gov

A copy of the certification form is attached to these Special Provisions.

14. Demolition Debris:

The intentional discharge of demolition debris from any structure (including but not limited to bridges, culverts, abutments, wing walls, piers) is not authorized for this project. If any demolition debris inadvertently falls into aquatic resources, it must be removed immediately. Notify the Engineer immediately in writing of any inadvertent fill discharged into aquatic resources. The Engineer will immediately contact ODOT-OES-WPU at 614-466-2159 if any unintentional discharge occurs.

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15. Wetland A Restoration:

Restoration of temporary impacts to Wetland A is required per the Section 404 permit. Restoration specifications are outlined in the environmental plan note Temporary Wetland Impacts.

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Table A. Detailed Fill and Discharge Quantities into Streams

STREAMS				Permanent Fill Within/Below OHWM									Total Temporary Fill Within OHWM			TOTAL IMPACT (Upstream to Downstream)
Aquatic Resource ID	Station	Description of Impacts/Activities Within OHWM	Total Length Within Project Area	Proposed Concrete (Includes Culvert, Piers, Walls, Abutments, etc.)			Proposed RCP			Total Permanent Fill Within OHWM			Length (LF)	Area (AC)	Volume (CY)	Length (LF)
				Length (LF)	Area (AC)	Volume (CY)	Length (LF)	Area (AC)	Volume (CY)	Length (LF)	Area (AC)	Volume (CY)				
Tuscarawas River	430+50	Concrete Pier Widening /Sheet Pile Cofferdam & TAF	367	52	0.024	77.0	0.0	0.000	0.0	52	0.024	77.0	92	0.063	204.4	92
Stream 2	443+36.5	Culvert extension/Concrete Pipe & RCP / Clean, Non-Erodible Materials (Sheeting, Rock/Fabric, Sandbags)	482	18	0.003	2.3	22.0	0.004	2.9	40	0.006	5.2	10	0.000	0.0	40
Stream 3	207+00	Culvert extension/Concrete Pipe & RCP / Clean, Non-Erodible Materials (Sheeting, Rock/Fabric, Sandbags)	2613	20	0.002	3.0	24.0	0.002	3.6	44	0.004	6.5	10	0.000	0.0	44
	102+19	Culvert extension/Concrete Pipe & RCP / Clean, Non-Erodible Materials (Sheeting, Rock/Fabric, Sandbags)		26	0.002	3.9	8.0	0.001	1.2	34	0.003	5.0	10	0.001	1.5	44
	87+50	Culvert extension Bank stabilization, & Stream Relocation /Concrete Pipe & RCP / Clean, Non-Erodible Materials (Sheeting, Rock/Fabric, Sandbags)		16	0.001	2.4	453.0	0.042	67.1	469	0.043	69.5	7	0.001	1.0	476
Stream 4	206+00	Bank stabilization, & Stream Relocation/RCP / Clean, Non Erodible Materials (Sheeting, Rock/Fabric, Sandbags)	1060	0	0.000	0.0	434.0	0.149	60.3	434	0.149	60.3	10	0.003	1.4	444
SUM:				132	0.032	88.6	941.0	0.198	135.0	1,073	0.229	223.5	139	0.068	208.3	1,140

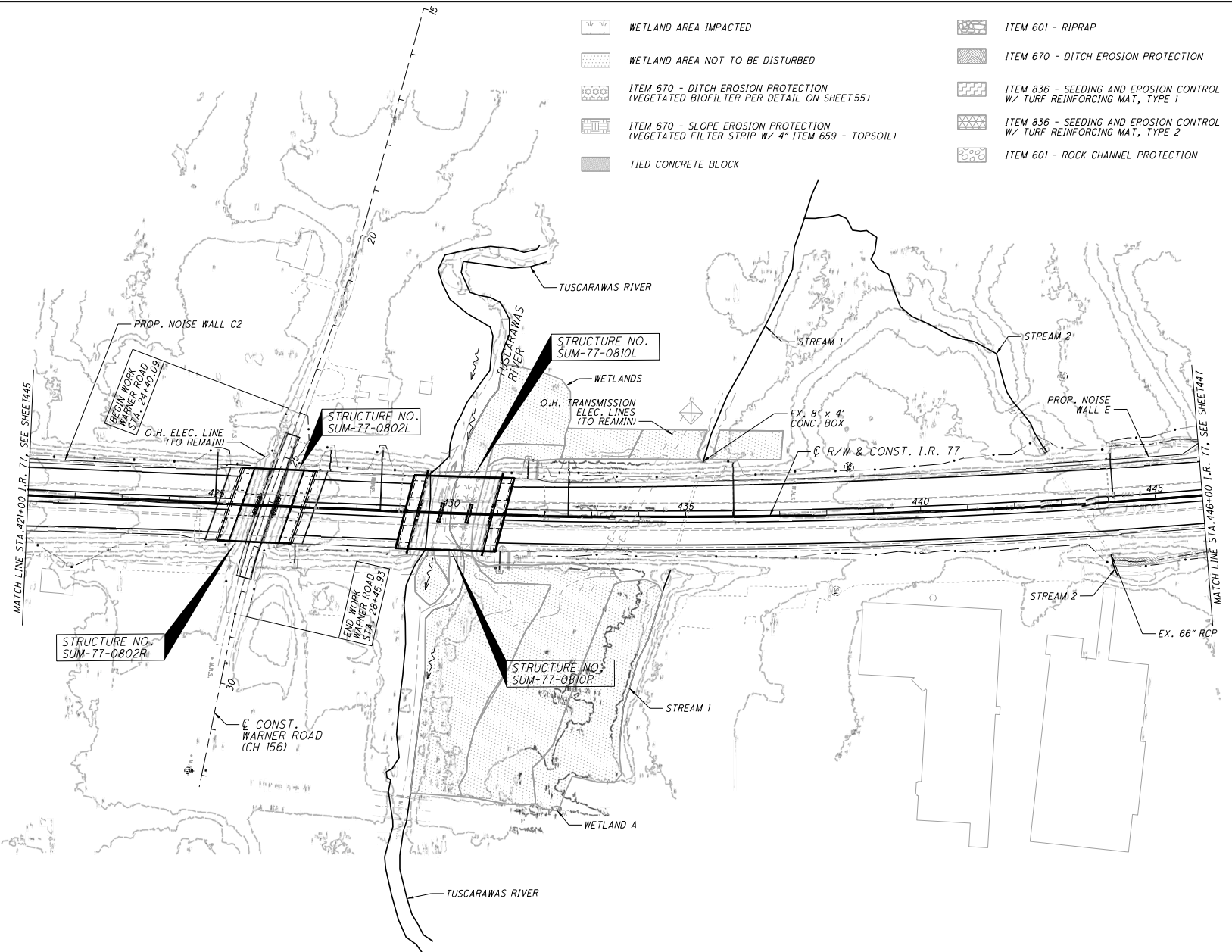
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Table B. Detailed Fill and Discharge Quantities into Wetlands

WETLANDS, JURISDICTIONAL DITCHES, PONDS				Permanent Fill Within Wetland Boundary									Total Permanent Fill Within Wetland Boundary			Total Temporary Fill Within Wetland Boundary			TOTAL IMPACT
Aquatic Resource ID	Station	Description of Impacts/Activities within Wetland Boundary	Total Acreage Within Project Area	Proposed Concrete (Includes Culvert, Piers, Walls, Abutments, etc.)			Proposed RCP			Proposed Earthen, Granular, or Embankment Fill			Length (LF)	Area (AC)	Volume (CY)	Length (LF)	Area (AC)	Volume (CY)	Area (AC)
				Length (LF)	Area (AC)	Volume (CY)	Length (LF)	Area (AC)	Volume (CY)	Length (LF)	Area (AC)	Volume (CY)							
Wetland A	430+50	Concrete Pier Widening/Access Fill Granular	6.68	45	0.007	11.3	0	0.000	0.0	7	0.048	77.4	52	0.055	88.7	160	0.210	338.8	0.055
	431+25	Culvert installation /Pipe, RCP, Earthen Fill		15	0.001	1.6	10	0.001	0.0	10	0.009	14.5	35	0.011	16.1	0	0.000	0.0	0.011
	431+50	Culvert installation /RCP & Earthen Fill		0	0.000	0.0	5	0.001	0.0	10	0.001	1.6	15	0.002	1.6	0	0.000	0.0	0.002
	432+50	Culvert installation /Earthen Fill		0	0.000	0.0	0	0.000	0.0	10	0.001	1.6	10	0.001	1.6	0	0.000	0.0	0.001
	436+00	Culvert installation /Earthen Fill		0	0.000	0.0	0	0.000	0.0	10	0.001	1.6	10	0.001	1.6	0	0.000	0.0	0.001
Wetland C	504+00	Grading (ramp reconfiguration, embankment slope)/Earthen Fill	0.11	0	0.000	0.0	0	0.000	0.0	30	0.110	177.5	30	0.110	177.5	0	0.000	0.0	0.110
Wetland D	502+50	Culvert extension /Earthen Fill	0.03	0	0.000	0.0	0	0.000	0.0	10	0.004	6.5	10	0.004	6.5	0	0.000	0.0	0.004
Wetland E	894+00	Overhead sign power connection/ Earthen Fill	0.11	0	0.000	0.0	0	0.000	0.0	15	0.007	11.3	15	0.007	11.3	0	0.000	0.0	0.007
Wetland F	500+00	Grading (ramp reconfiguration, embankment slope)/Earthen Fill	0.12	0	0.000	0.0	0	0.000	0.0	10	0.021	33.9	10	0.021	33.9	0	0.000	0.0	0.021
Wetland G	783+00	Grading (ramp reconfiguration, embankment slope)/Earthen Fill	0.11	0	0.000	0.0	0	0.000	0.0	10	0.019	30.7	10	0.019	30.7	0	0.000	0.0	0.019
Wetland J	274+00	Noise Wall/Fill - Earthen	0.03	0	0.000	0.0	0	0.000	0.0	12	0.030	48.4	12	0.030	48.4	0	0.000	0.0	0.030
Wetland K	593+00	Culvert extension /RCP & Earthen Fill	0.03	0	0.000	0.0	10	0.001	1.613	27	0.002	3.2	37	0.003	4.8	0	0.000	0.0	0.003
SUM:				60	0.008	12.9	25	0.003	1.6	161	0.253	408.2	246	0.264	422.7	160	0.210	338.8	0.264

LF = linear feet; AC = acres; CY = cubic yards; RCP = rock channel protection or the like (specify if different, ie. concrete block matting); NA = Not Applicable

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- WETLAND AREA IMPACTED
- WETLAND AREA NOT TO BE DISTURBED
- ITEM 670 - DITCH EROSION PROTECTION (VEGETATED BIOFILTER PER DETAIL ON SHEET 55)
- ITEM 670 - SLOPE EROSION PROTECTION (VEGETATED FILTER STRIP W/ 4" ITEM 659 - TOPSOIL)
- TIED CONCRETE BLOCK
- ITEM 601 - RIPRAP
- ITEM 670 - DITCH EROSION PROTECTION
- ITEM 836 - SEEDING AND EROSION CONTROL W/ TURF REINFORCING MAT, TYPE 1
- ITEM 836 - SEEDING AND EROSION CONTROL W/ TURF REINFORCING MAT, TYPE 2
- ITEM 601 - ROCK CHANNEL PROTECTION

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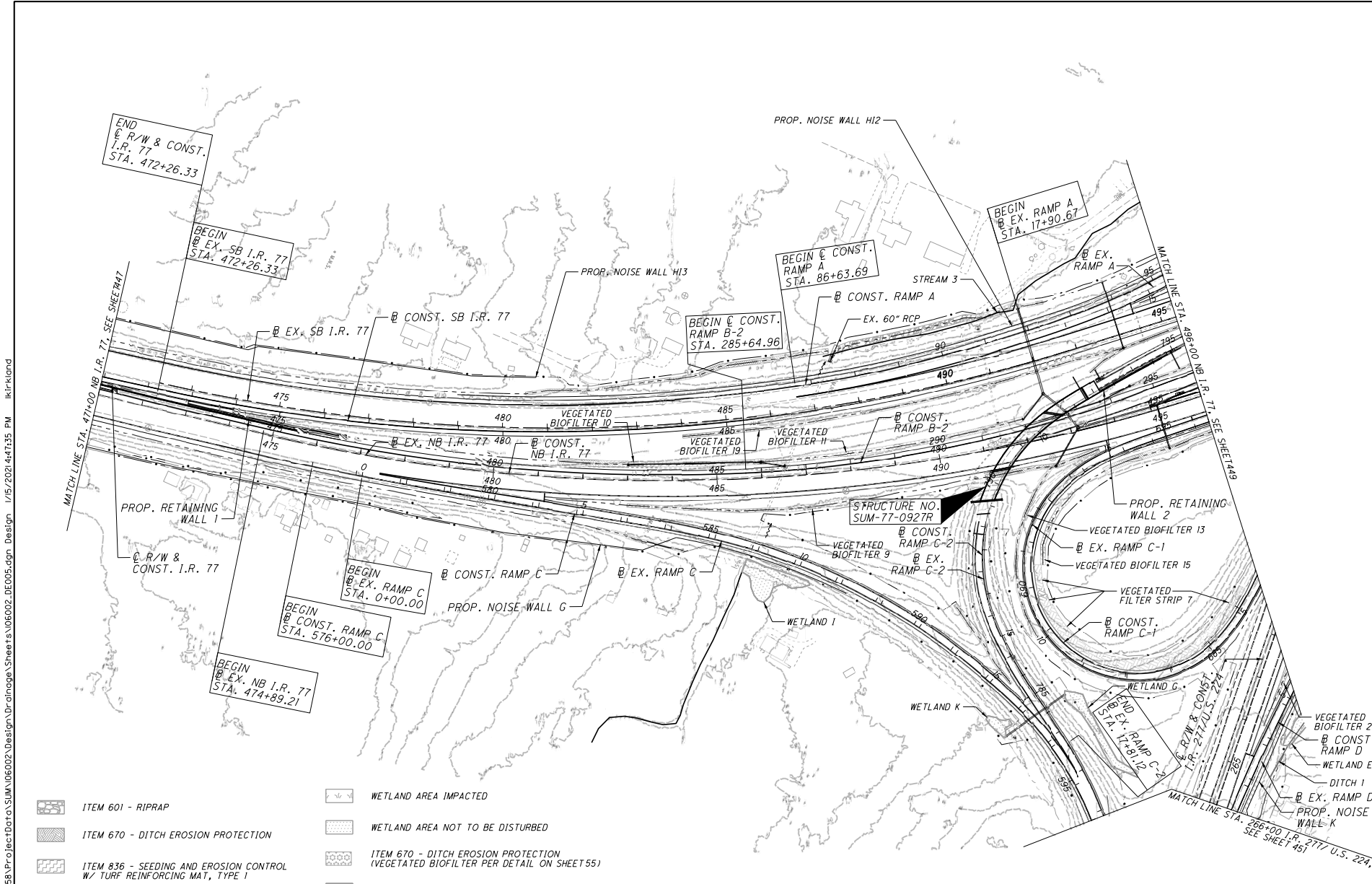
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PROJECT SITE PLAN
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SUM-77/277/224
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FOR GEOMETRIC PLAN, SEE SHEETS 13 -22
FOR CURVE DATA, SEE SHEETS 23 -26



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| | ITEM 601 - RIPRAP | | WETLAND AREA IMPACTED |
| | ITEM 670 - DITCH EROSION PROTECTION | | WETLAND AREA NOT TO BE DISTURBED |
| | ITEM 836 - SEEDING AND EROSION CONTROL W/ TURF REINFORCING MAT, TYPE 1 | | ITEM 670 - DITCH EROSION PROTECTION (VEGETATED BIOFILTER PER DETAIL ON SHEET 55) |
| | ITEM 836 - SEEDING AND EROSION CONTROL W/ TURF REINFORCING MAT, TYPE 2 | | ITEM 670 - SLOPE EROSION PROTECTION (VEGETATED FILTER STRIP W/ 4" ITEM 659 - TOPSOIL) |
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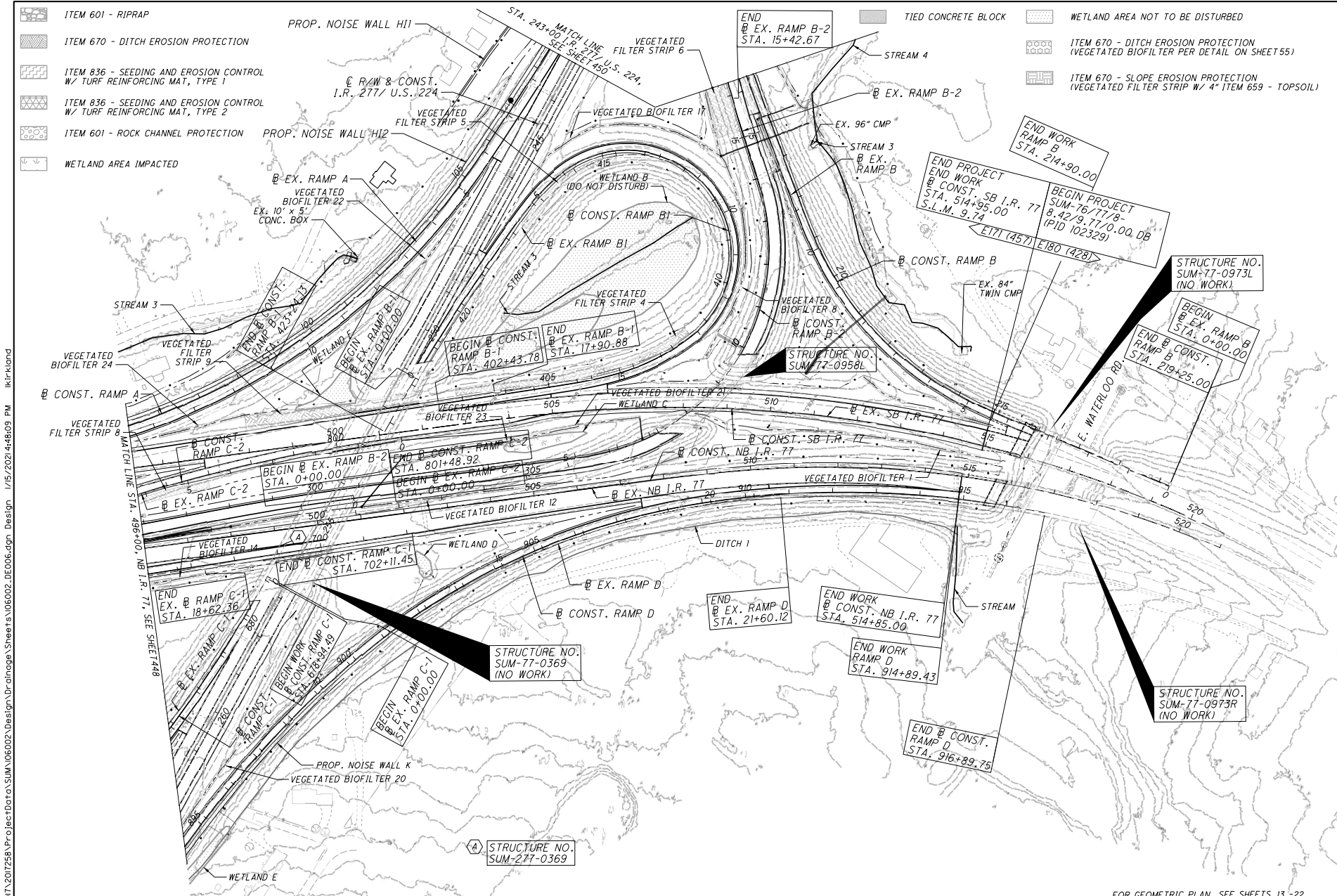
FOR GEOMETRIC PLAN, SEE SHEETS 13 -22
FOR CURVE DATA, SEE SHEETS 23 -26









PROJECT SITE PLAN
STA. 471+00 TO STA. 496+00





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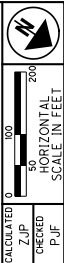
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-  ITEM 601 - RIPRAP
-  ITEM 670 - DITCH EROSION PROTECTION
-  ITEM 836 - SEEDING AND EROSION CONTROL W/ TURF REINFORCING MAT, TYPE 1
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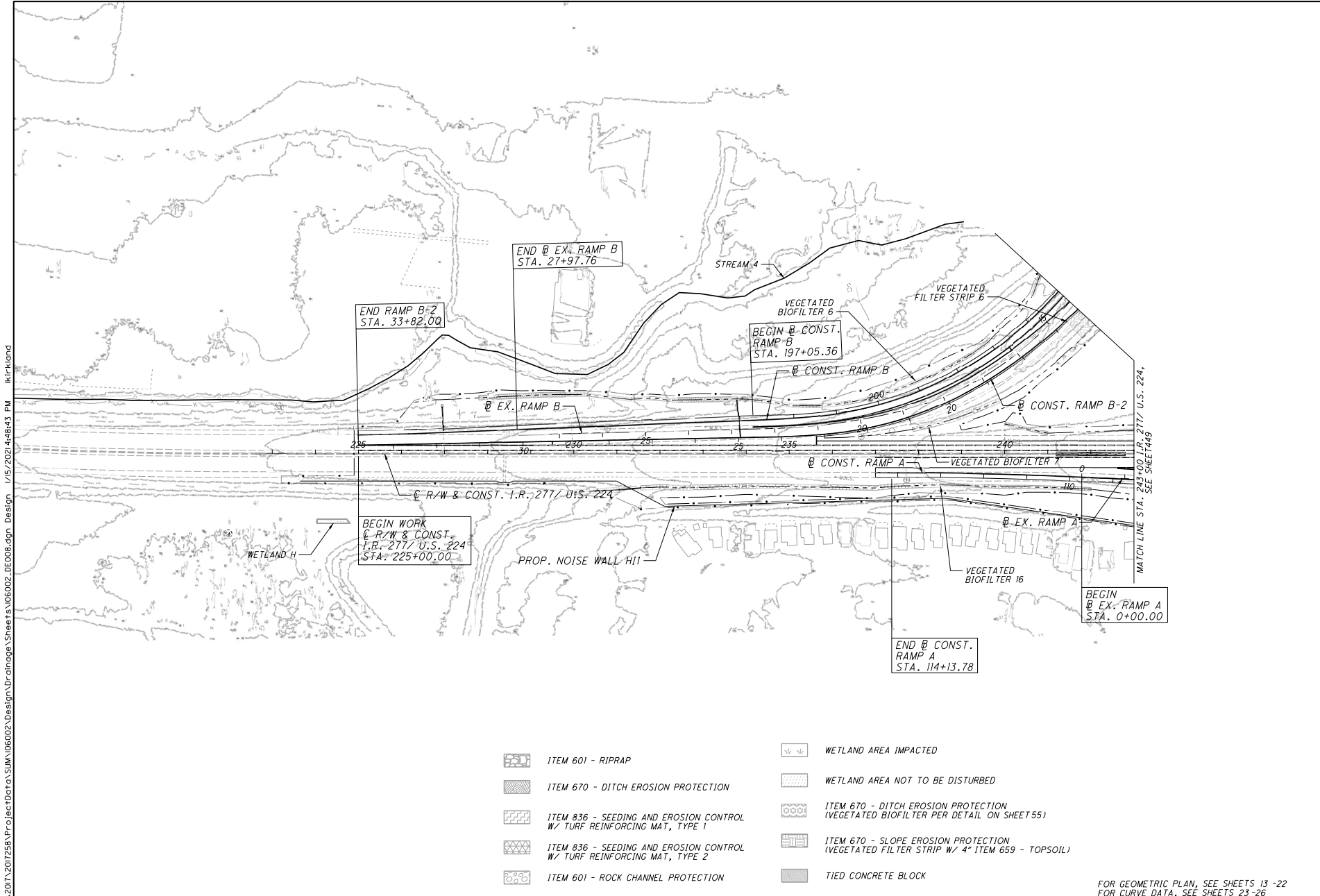


PROJECT SITE PLAN
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FOR GEOMETRIC PLAN, SEE SHEETS 13-22
 FOR CURVE DATA, SEE SHEETS 23-26



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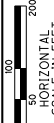
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|  | ITEM 601 - RIPRAP |  | WETLAND AREA IMPACTED |
|  | ITEM 670 - DITCH EROSION PROTECTION |  | WETLAND AREA NOT TO BE DISTURBED |
|  | ITEM 836 - SEEDING AND EROSION CONTROL W/ TURF REINFORCING MAT, TYPE 1 |  | ITEM 670 - DITCH EROSION PROTECTION (VEGETATED BIOFILTER PER DETAIL ON SHEET 55) |
|  | ITEM 836 - SEEDING AND EROSION CONTROL W/ TURF REINFORCING MAT, TYPE 2 |  | ITEM 670 - SLOPE EROSION PROTECTION (VEGETATED FILTER STRIP W/ 4" ITEM 659 - TOPSOIL) |
|  | ITEM 601 - ROCK CHANNEL PROTECTION |  | TIED CONCRETE BLOCK |

FOR GEOMETRIC PLAN, SEE SHEETS 13 -22
FOR CURVE DATA, SEE SHEETS 23 -26



CALCULATED
ZUP

CHECKED
P.U.F.



HORIZONTAL
SCALE IN FEET

SUM-77 / 277 / 224

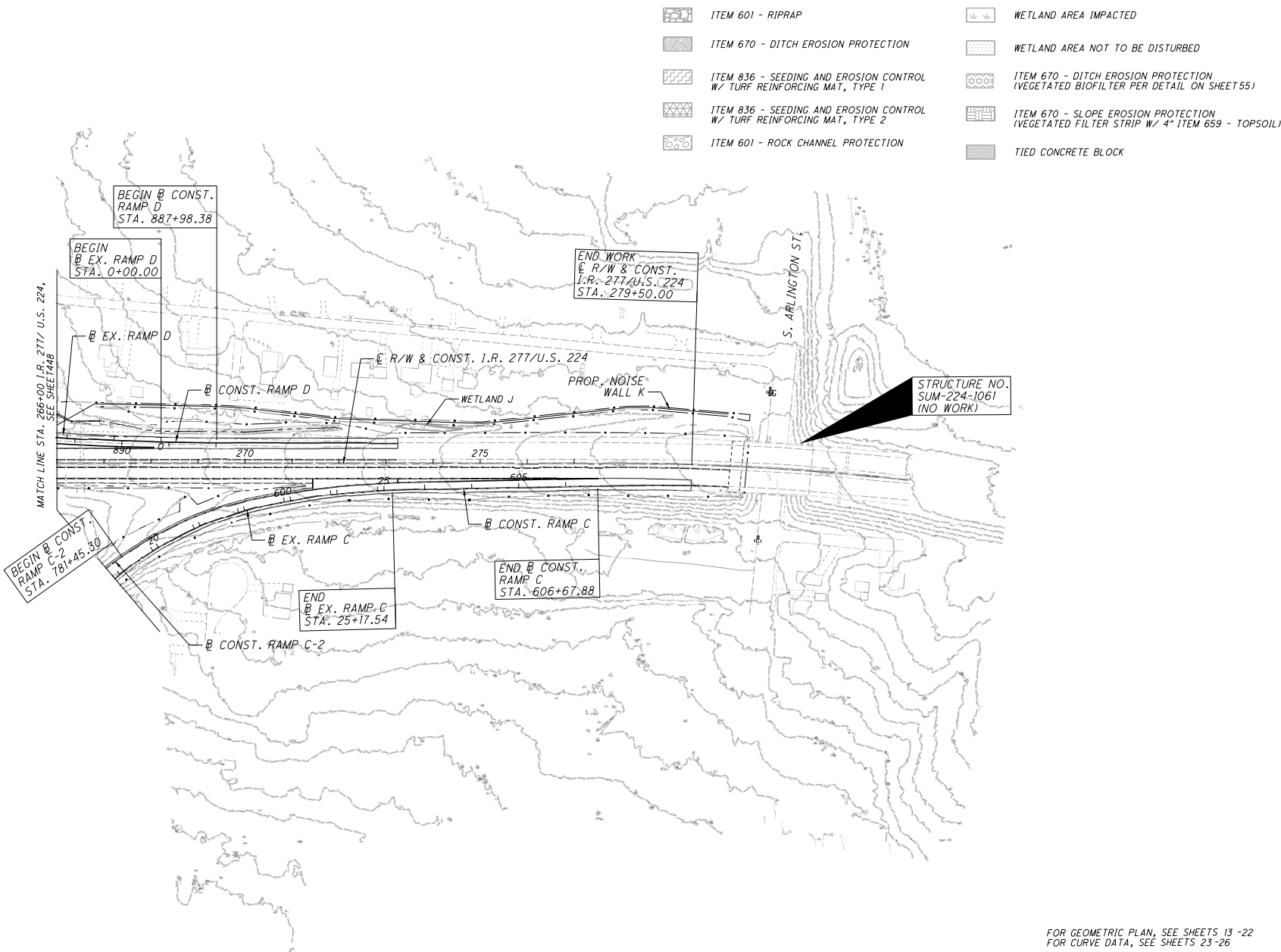
VARIOUS

450
1288

PROJECT SITE PLAN

BEGIN TO STA. 243+00 I.R. 277 / U.S. 224

G:\2017\201725A\Project\Drawings\SUM\06002\Design\Drainage\Sheets\06002_DE009.dgn Design 1/15/2021 4:46:55 PM ikr:klad



CALCULATED 0
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 CHECKED P.U.F.

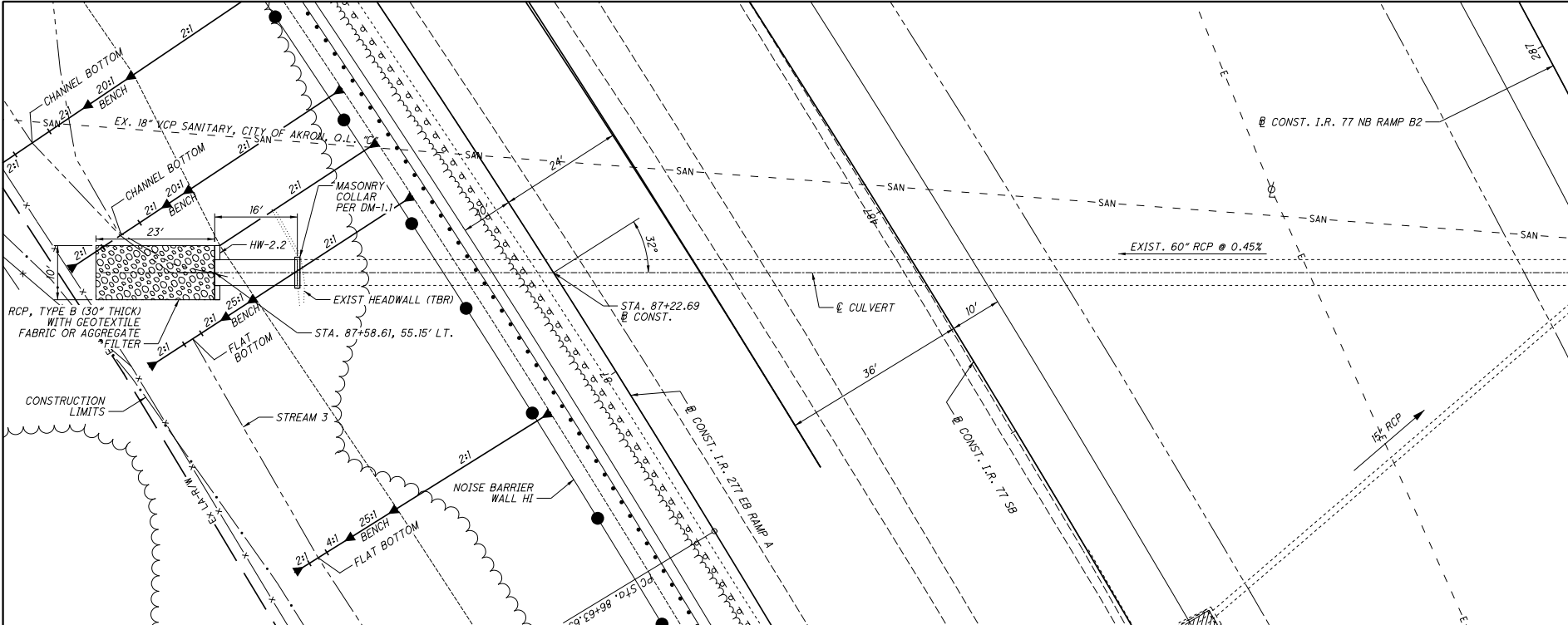
0 100 200
 HORIZONTAL SCALE IN FEET

PROJECT SITE PLAN
STA. 266+000 TO END

SUM-77/277/224
VARIOUS

451
 1288

FOR GEOMETRIC PLAN, SEE SHEETS 13 -22
 FOR CURVE DATA, SEE SHEETS 23 -26



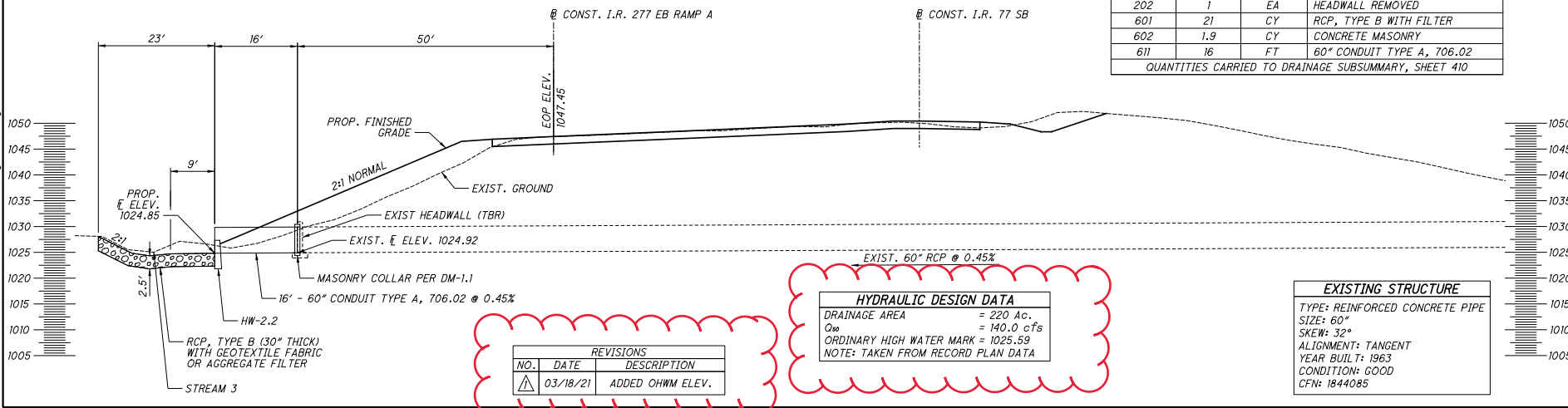
CULVERT DETAIL
RAMP A STA. 87+23

SUM-77/277/224
VARIOUS

909
1288

NOTES:
1. NO WORK IS PROPOSED FOR THE INLET SIDE OF THE EXISTING CULVERT.

ESTIMATED QUANTITIES			
ITEM	QUAN	UNIT	DESCRIPTION
202	1	EA	HEADWALL REMOVED
601	21	CY	RCP, TYPE B WITH FILTER
602	1.9	CY	CONCRETE MASONRY
611	16	FT	60" CONDUIT TYPE A, 706.02
QUANTITIES CARRIED TO DRAINAGE SUBSUMMARY, SHEET 410			



HYDRAULIC DESIGN DATA

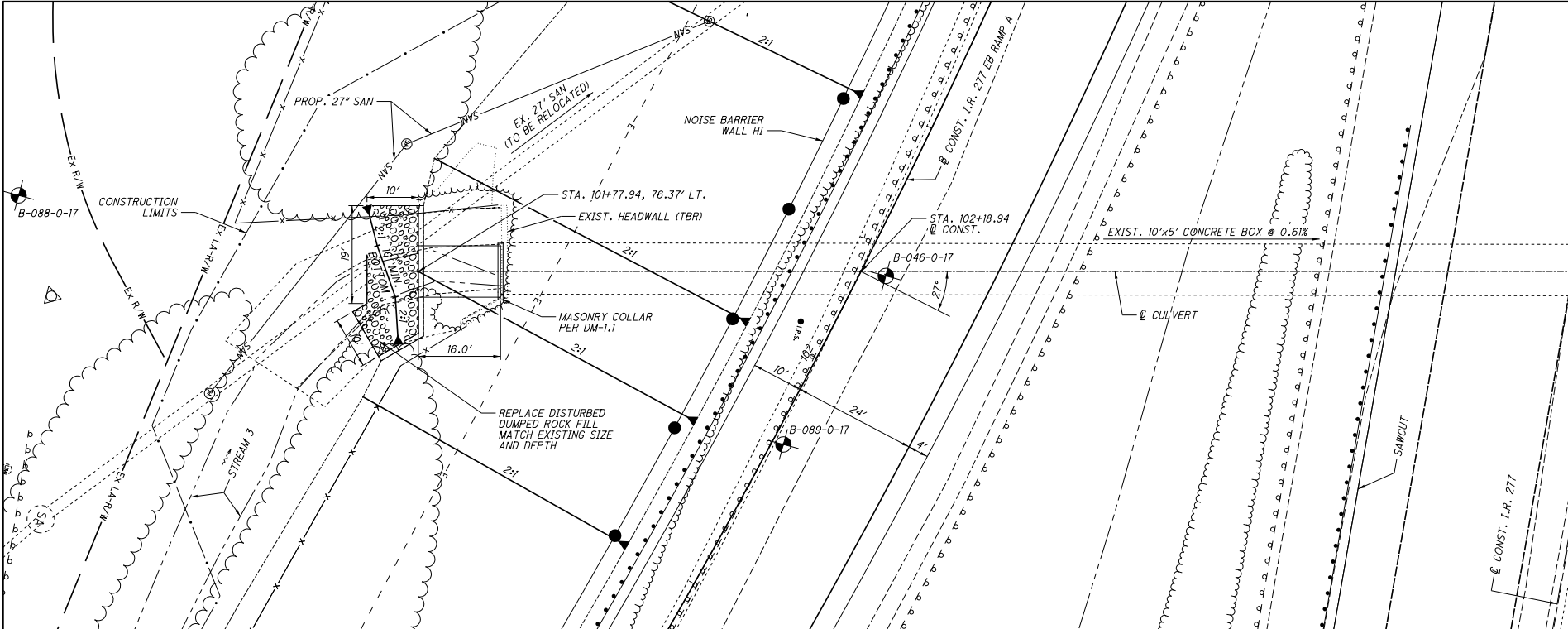
DRAINAGE AREA = 220 Ac.
 Q_{10} = 140.0 cfs
 ORDINARY HIGH WATER MARK = 1025.59
 NOTE: TAKEN FROM RECORD PLAN DATA

EXISTING STRUCTURE

TYPE: REINFORCED CONCRETE PIPE
 SIZE: 60"
 SKEW: 32°
 ALIGNMENT: TANGENT
 YEAR BUILT: 1963
 CONDITION: GOOD
 CFN: 1844085

REVISIONS		
NO.	DATE	DESCRIPTION
1	03/18/21	ADDED OHWM ELEV.

N:\03\GD\06744-08\06002-SUM-76-10.95\Design\Drawings\Sheets\06002_DCO02.dgn Sheet 3/24/2021 10:49 PM sr1ffie

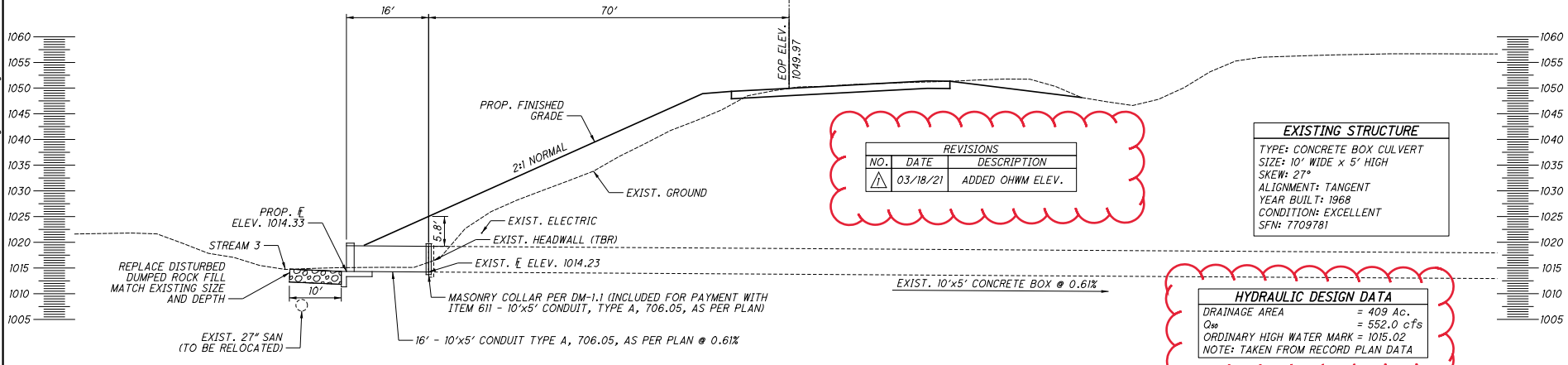


CALCULATED
SSR
CHECKED
DLT

CULVERT DETAIL
RAMP A STA. 102+19

- NOTES:
- NO WORK IS PROPOSED FOR THE OUTLET SIDE OF THE EXISTING CULVERT.
 - THIS WORK SHALL BE CONSTRUCTED IN CONFORMANCE WITH ITEM 611 EXCEPT THAT THE NEW CULVERT SHALL BE CAST-IN-PLACE. PAYMENT WILL BE MADE AT THE UNIT BID PRICE FOR ITEM 611 - 10'x5' CONDUIT TYPE A, 706.05, AS PER PLAN.

SEE SHEET 911 FOR ESTIMATED QUANTITIES
SEE SHEETS 911 - 915 FOR HEADWALL DETAILS



REVISIONS		
NO.	DATE	DESCRIPTION
1	03/18/21	ADDED OHWM ELEV.

EXISTING STRUCTURE

TYPE: CONCRETE BOX CULVERT
 SIZE: 10' WIDE x 5' HIGH
 SKEW: 27°
 ALIGNMENT: TANGENT
 YEAR BUILT: 1968
 CONDITION: EXCELLENT
 SFN: 7709781

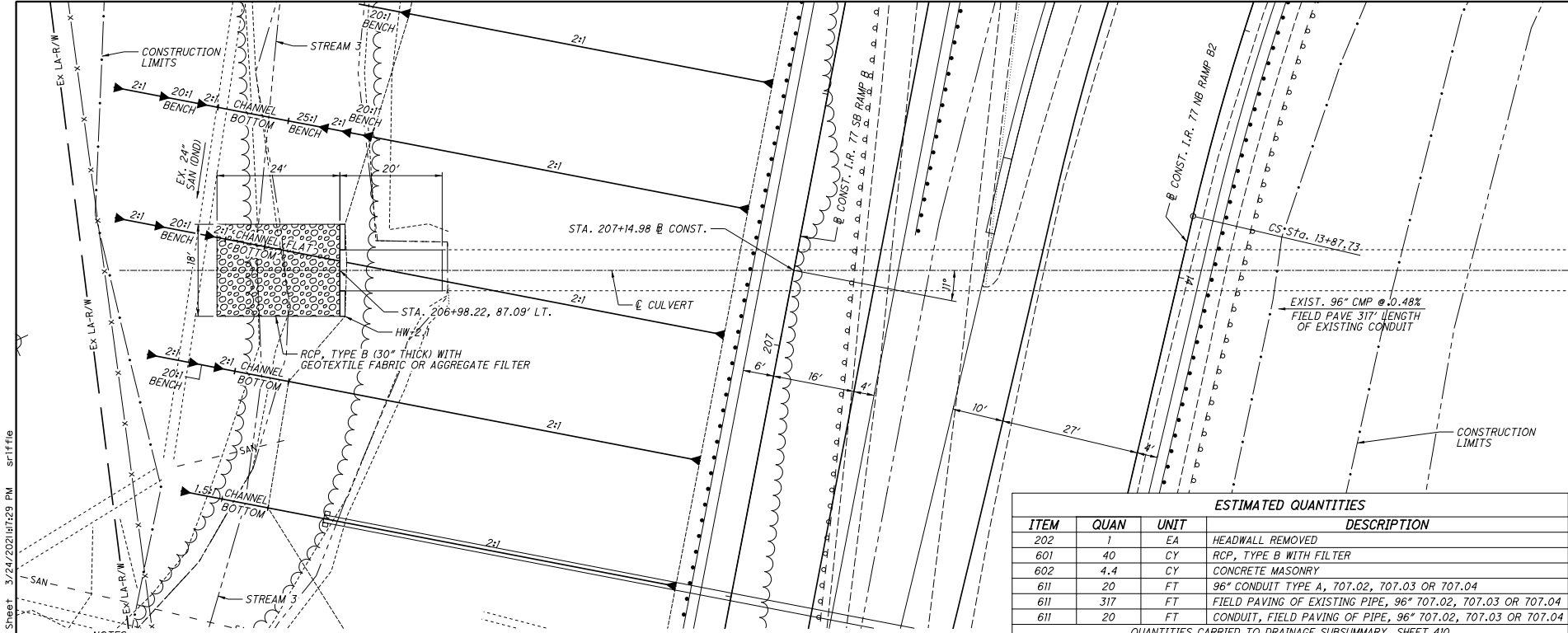
HYDRAULIC DESIGN DATA

DRAINAGE AREA = 409 Ac.
 Q_{50} = 552.0 cfs
 ORDINARY HIGH WATER MARK = 1015.02
 NOTE: TAKEN FROM RECORD PLAN DATA

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SUM-77/277/224
VARIOUS

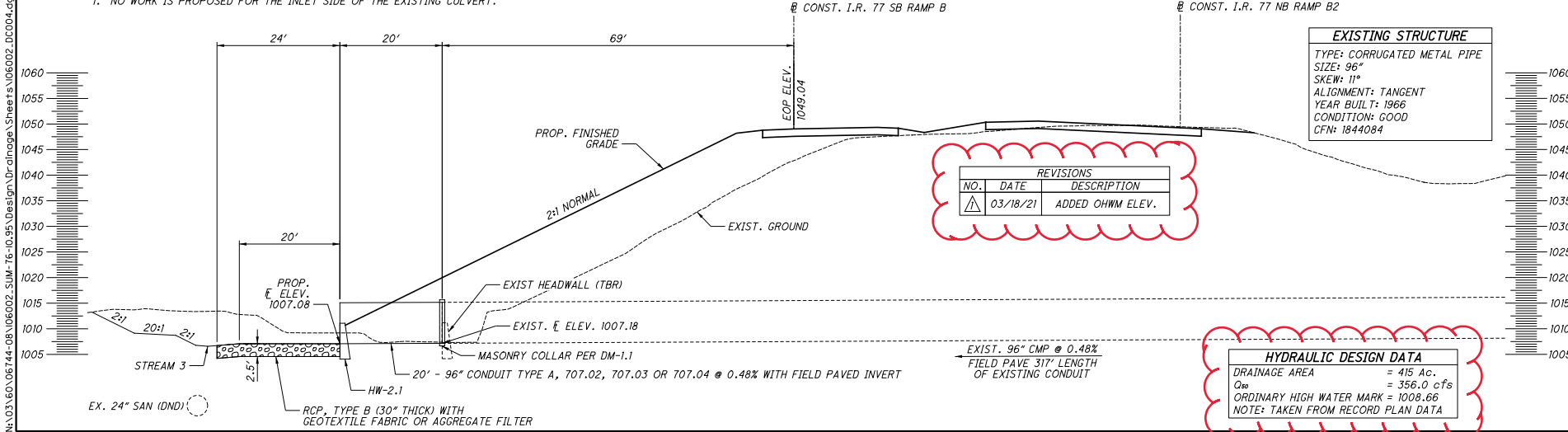
910
1288



NOTES:
1. NO WORK IS PROPOSED FOR THE INLET SIDE OF THE EXISTING CULVERT.

ESTIMATED QUANTITIES			
ITEM	QUAN	UNIT	DESCRIPTION
202	1	EA	HEADWALL REMOVED
601	40	CY	RCP, TYPE B WITH FILTER
602	4.4	CY	CONCRETE MASONRY
611	20	FT	96" CONDUIT TYPE A, 707.02, 707.03 OR 707.04
611	317	FT	FIELD PAVING OF EXISTING PIPE, 96" 707.02, 707.03 OR 707.04
611	20	FT	CONDUIT, FIELD PAVING OF PIPE, 96" 707.02, 707.03 OR 707.04

QUANTITIES CARRIED TO DRAINAGE SUBSUMMARY, SHEET 410



EXISTING STRUCTURE
 TYPE: CORRUGATED METAL PIPE
 SIZE: 96"
 SKEW: 11°
 ALIGNMENT: TANGENT
 YEAR BUILT: 1966
 CONDITION: GOOD
 CFN: 1844084

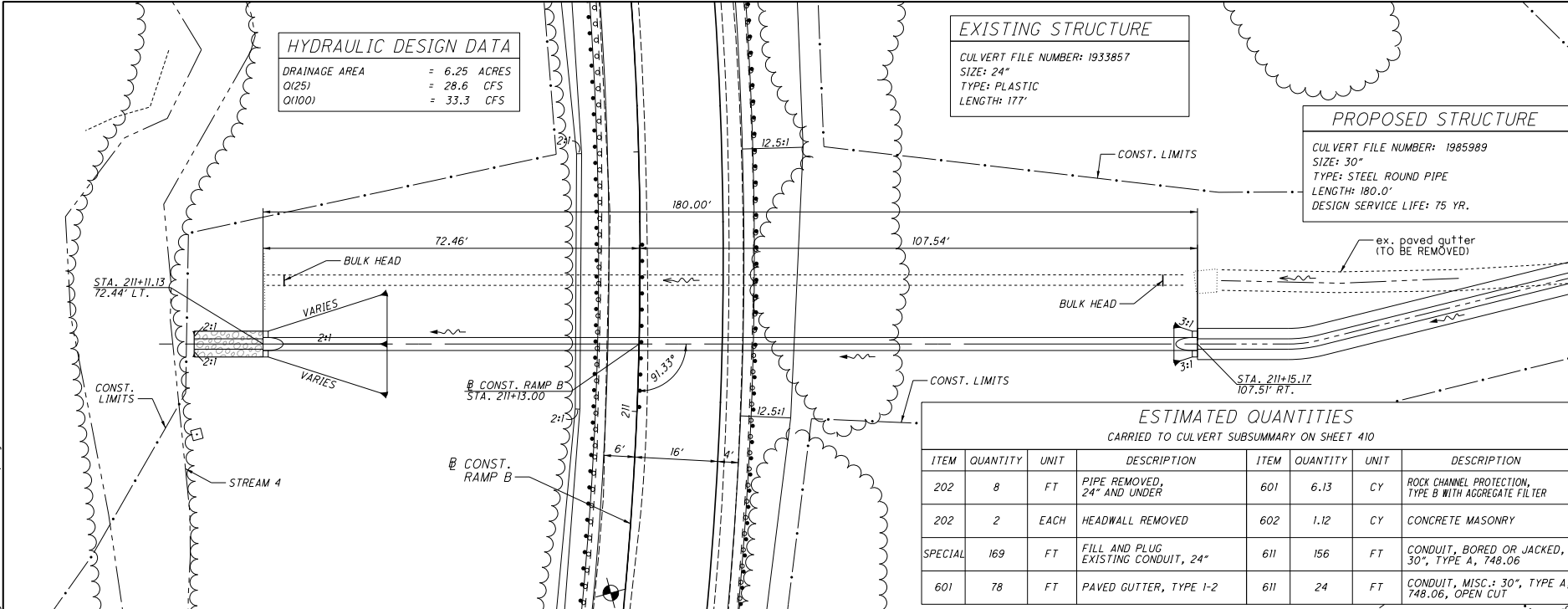
REVISIONS		
NO.	DATE	DESCRIPTION
1	03/18/21	ADDED OHWM ELEV.

HYDRAULIC DESIGN DATA
 DRAINAGE AREA = 415 Ac.
 Q_{50} = 356.0 cfs
 ORDINARY HIGH WATER MARK = 1008.66
 NOTE: TAKEN FROM RECORD PLAN DATA

N:\03\60\06744-08\066002-SUM-76-10.95\Design\Drainage\Sheets\066002_DCO04.dgn Sheet 3/24/2021 12:29 PM sr1ffie

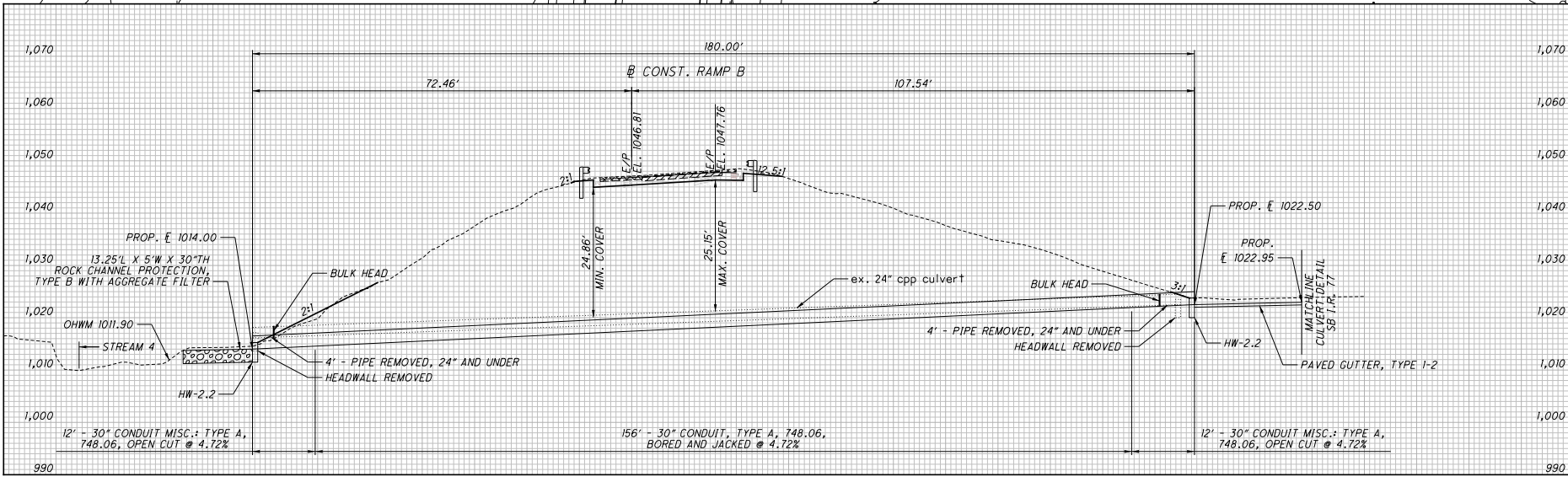
CALCULATED: SSR CHECKED: DLT
 HORIZONTAL SCALE: IN FEET
 0 20
 CULVERT DETAIL
 RAMP B STA. 207+15
 SUM-77/277/224
 VARIOUS
 916
 1288

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ESTIMATED QUANTITIES
 CARRIED TO CULVERT SUBSUMMARY ON SHEET 410

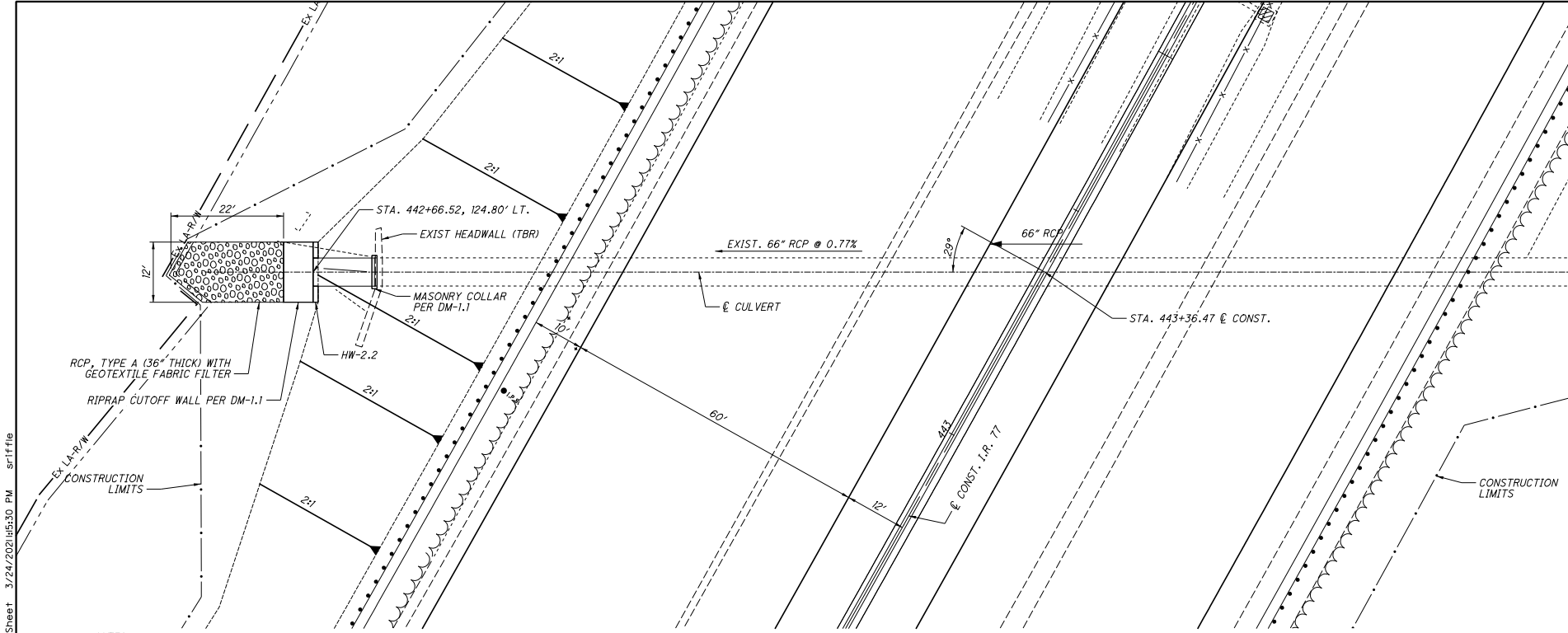
ITEM	QUANTITY	UNIT	DESCRIPTION	ITEM	QUANTITY	UNIT	DESCRIPTION
202	8	FT	PIPE REMOVED, 24" AND UNDER	601	6.13	CY	ROCK CHANNEL PROTECTION, TYPE B WITH AGGREGATE FILTER
202	2	EACH	HEADWALL REMOVED	602	1.12	CY	CONCRETE MASONRY
SPECIAL	169	FT	FILL AND PLUG EXISTING CONDUIT, 24"	611	156	FT	CONDUIT, BORED OR JACKED, 30", TYPE A, 748.06
601	78	FT	PAVED GUTTER, TYPE 1-2	611	24	FT	CONDUIT, MISC.: 30", TYPE A, 748.06, OPEN CUT



CULVERT DETAIL
 RAMP B STA. 211+13.00

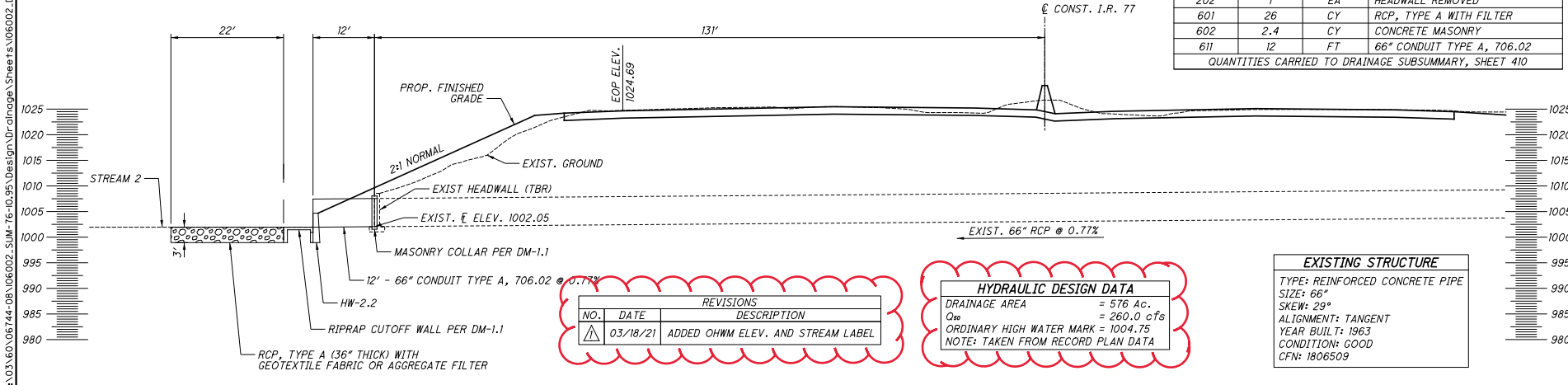
SUM-77 / 277 / 224
 VARIOUS

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 1288



NOTES:
 1. NO WORK IS PROPOSED FOR THE INLET SIDE OF THE EXISTING CULVERT.

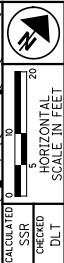
ESTIMATED QUANTITIES			
ITEM	QUAN	UNIT	DESCRIPTION
202	1	EA	HEADWALL REMOVED
601	26	CY	RCP, TYPE A WITH FILTER
602	2.4	CY	CONCRETE MASONRY
611	12	FT	66" CONDUIT TYPE A, 706.02
QUANTITIES CARRIED TO DRAINAGE SUBSUMMARY, SHEET 410			



REVISIONS		
NO.	DATE	DESCRIPTION
1	03/18/21	ADDED OHWM ELEV. AND STREAM LABEL

HYDRAULIC DESIGN DATA	
DRAINAGE AREA	= 576 AC.
C_{100}	= 260.0 cfs
ORDINARY HIGH WATER MARK	= 1004.75
NOTE: TAKEN FROM RECORD PLAN DATA	

EXISTING STRUCTURE	
TYPE:	REINFORCED CONCRETE PIPE
SIZE:	66"
SKEW:	29°
ALIGNMENT:	TANGENT
YEAR BUILT:	1963
CONDITION:	GOOD
CFN:	1806509

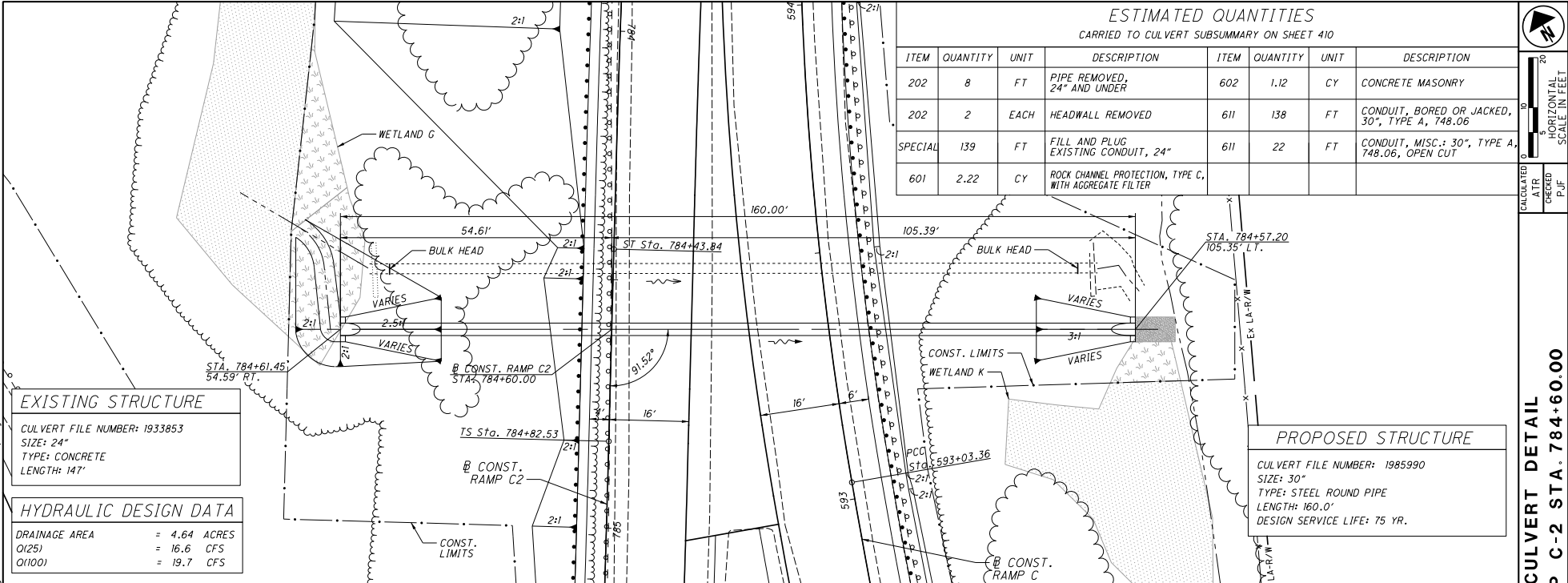


CULVERT DETAIL
 177 STA. 443+36

SUM-77 / 277 / 224
 VARIOUS

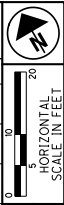
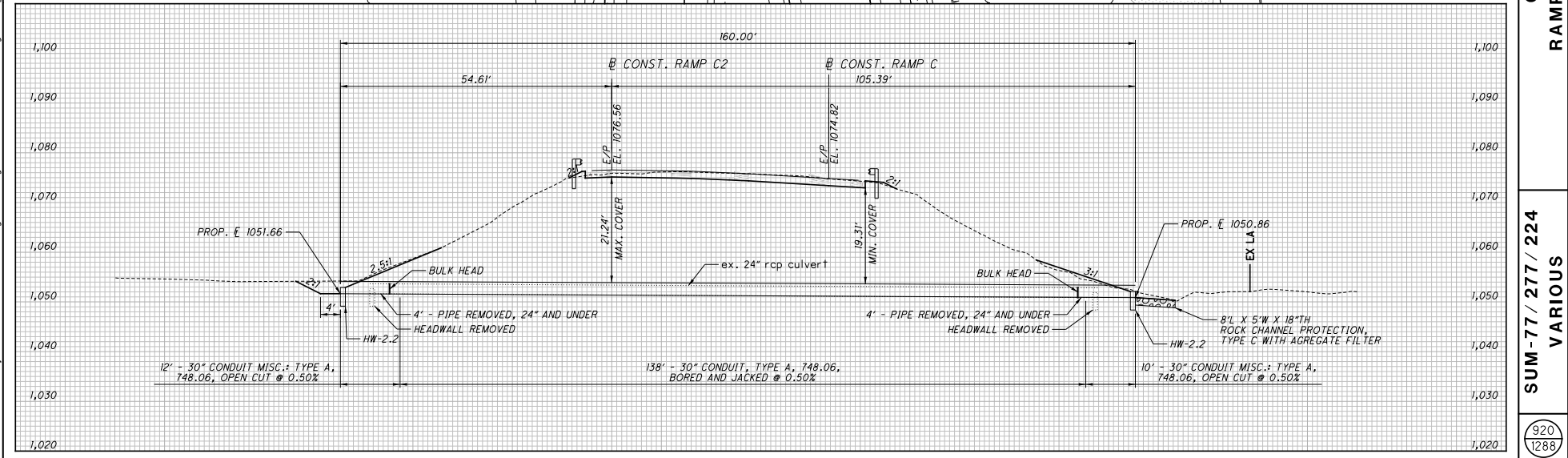
908
 1288

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ESTIMATED QUANTITIES
 CARRIED TO CULVERT SUBSUMMARY ON SHEET 410

ITEM	QUANTITY	UNIT	DESCRIPTION	ITEM	QUANTITY	UNIT	DESCRIPTION
202	8	FT	PIPE REMOVED, 24" AND UNDER	602	1.12	CY	CONCRETE MASONRY
202	2	EACH	HEADWALL REMOVED	611	138	FT	CONDUIT, BORED OR JACKED, 30", TYPE A, 748.06
SPECIAL	139	FT	FILL AND PLUG EXISTING CONDUIT, 24"	611	22	FT	CONDUIT, MISC.: 30", TYPE A, 748.06, OPEN CUT
601	2.22	CY	ROCK CHANNEL PROTECTION, TYPE C, WITH AGGREGATE FILTER				



CALCULATED ATR
 CHECKED PUF

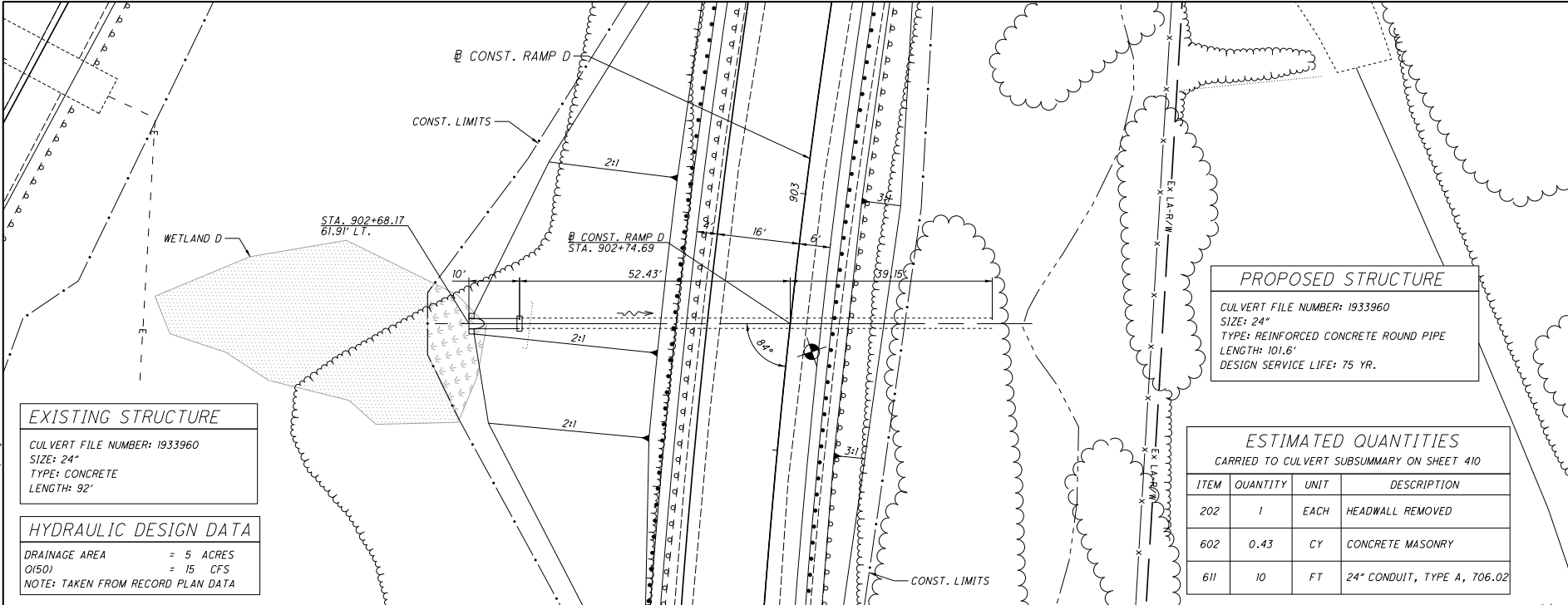
CULVERT DETAIL
 RAMP C-2 STA. 784+60.00

SUM-77/277/224
 VARIOUS

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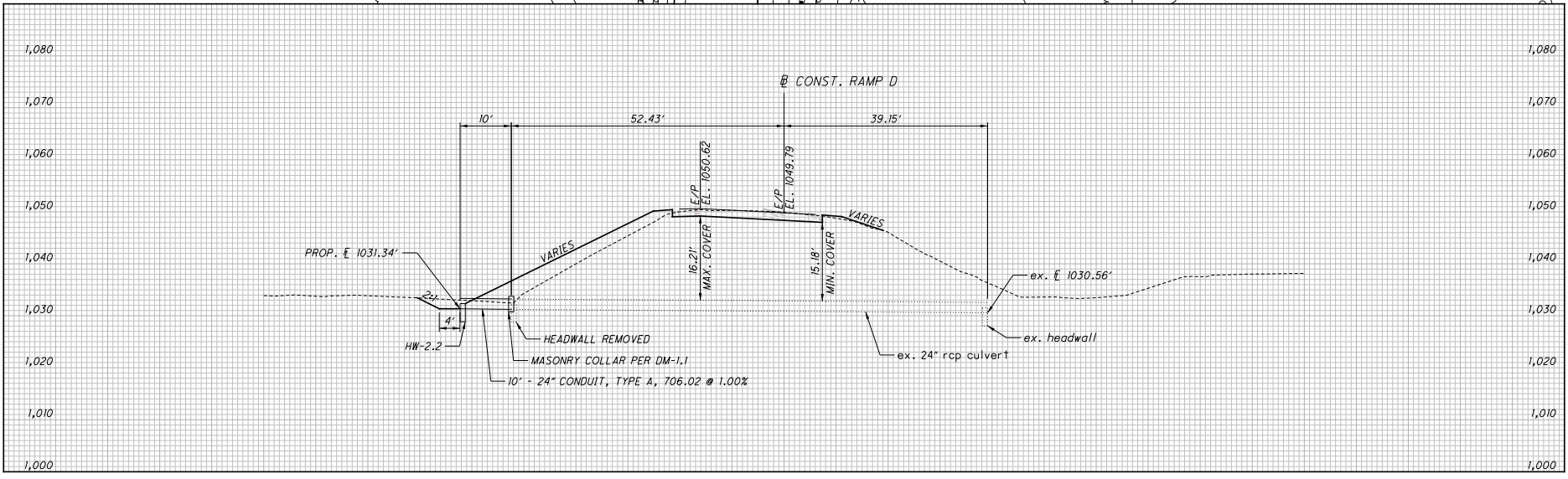
EXISTING STRUCTURE
 CULVERT FILE NUMBER: 1933960
 SIZE: 24"
 TYPE: CONCRETE
 LENGTH: 92'

HYDRAULIC DESIGN DATA
 DRAINAGE AREA = 5 ACRES
 Q(50) = 15 CFS
 NOTE: TAKEN FROM RECORD PLAN DATA

PROPOSED STRUCTURE
 CULVERT FILE NUMBER: 1933960
 SIZE: 24"
 TYPE: REINFORCED CONCRETE ROUND PIPE
 LENGTH: 101.6'
 DESIGN SERVICE LIFE: 75 YR.

ESTIMATED QUANTITIES
 CARRIED TO CULVERT SUBSUMMARY ON SHEET 410

ITEM	QUANTITY	UNIT	DESCRIPTION
202	1	EACH	HEADWALL REMOVED
602	0.43	CY	CONCRETE MASONRY
611	10	FT	24" CONDUIT, TYPE A, 706.02

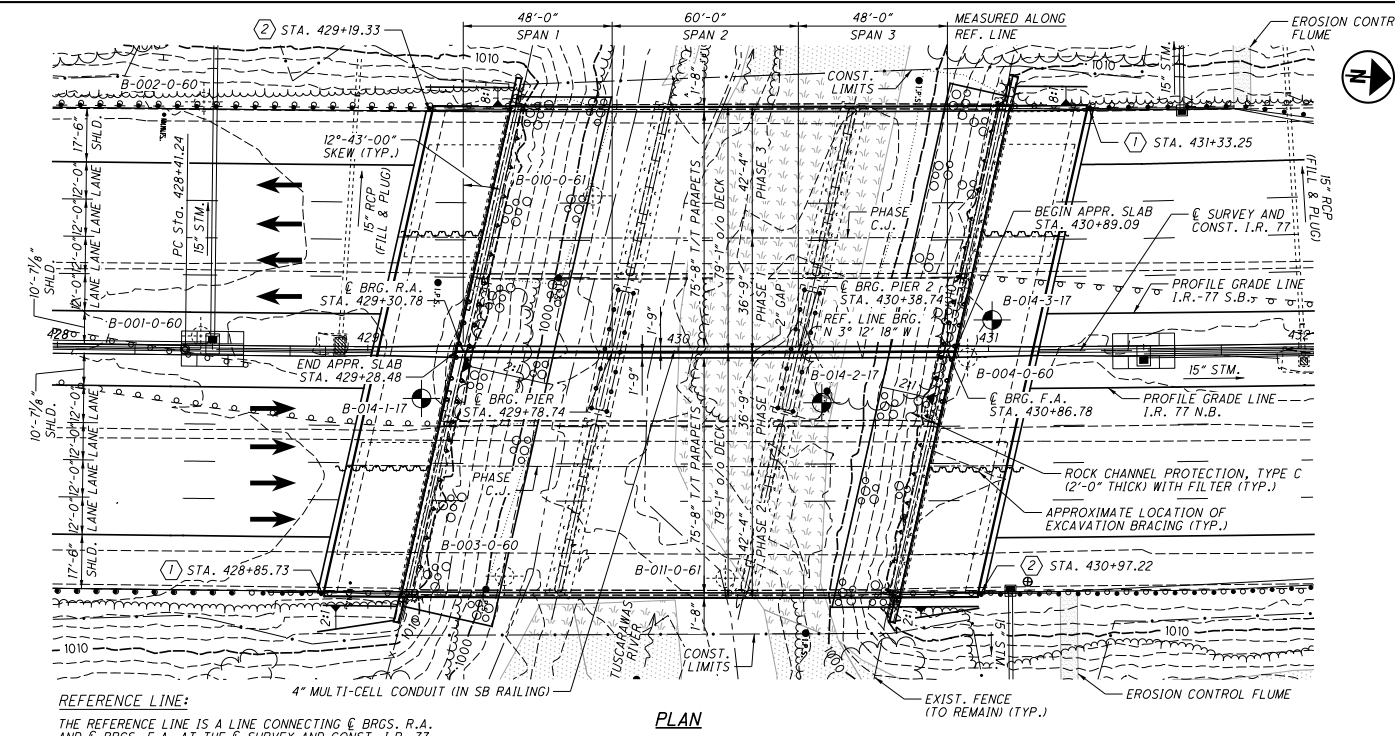


CULVERT DETAIL
 RAMP D STA. 902+74.69

SUM-77 / 277 / 224
 VARIOUS

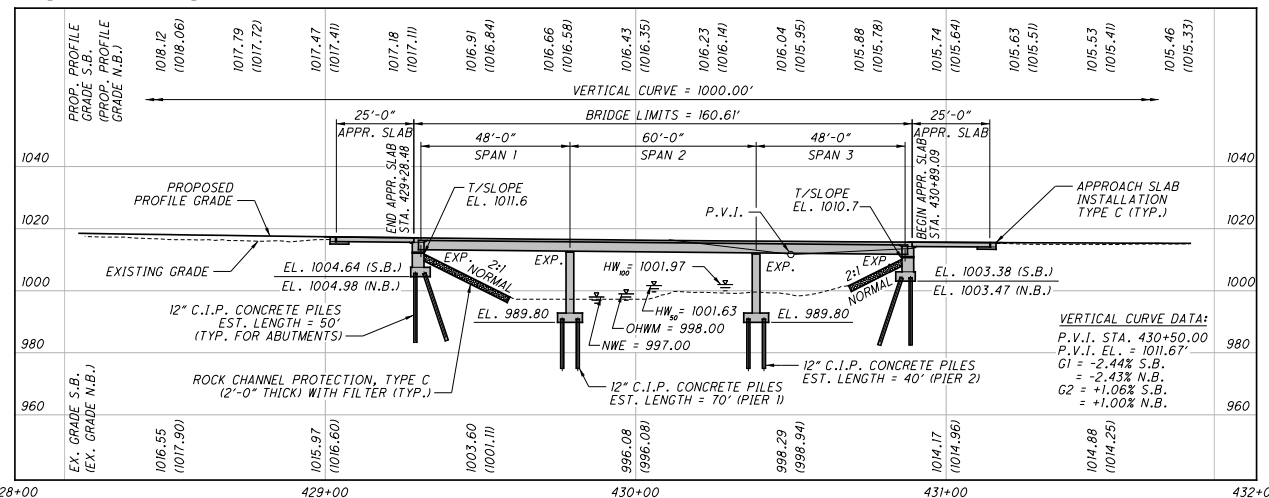
917
1288

01-2017-2017258-Project Data \SUM\06002-Design\Structures\SUM077_0810-Sheets\077_0810C_SPOOL.dgn Sheet 1/17/2021 2:24:10 PM mjurcak



REFERENCE LINE:
 THE REFERENCE LINE IS A LINE CONNECTING @ BRGS. R.A. AND @ BRGS. F.A. AT THE @ SURVEY AND CONST. I.R. 77

PLAN



PROFILE ALONG @ SURVEY AND CONSTRUCTION I.R. 77
 EXISTING GRADE ELEVATIONS ARE GIVEN ALONG THE NEW, PROPOSED PROFILE GRADE LINES

BENCHMARK DATA				
POINT	NORTHING	EASTING	ELEV.	DESCRIPTION
CP03	485566.6495	2246336.2535	1117.76	CONC. MONUMENT
CP04	486357.9587	2246323.9152	1121.63	CONC. MONUMENT
CP05	493895.1420	2245390.8980	1073.53	CONC. MONUMENT
CP06	493906.9643	2244750.3816	1090.46	CONC. MONUMENT

FOR ADDITIONAL BENCHMARK INFORMATION, SEE ROADWAY PLANS.
NOTES
 EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.
 DESIGN TRAFFIC:
 2020 ADT = 118,630 2020 ADTT = 10,680
 2040 ADT = 141,010 2040 ADTT = 12,690
 DIRECTIONAL DISTRIBUTION = 57%

HORIZONTAL CURVE DATA:		LEGEND:	
P.I. STA. 438+34.18	Δ = 7° 59' 02" (LT)	PROJECT BORING LOCATION	
Dc = 0° 24' 10"	R = 4,228.56'	HISTORIC BORING LOCATION	
T = 992.94'	L = 1982.67'	MGS BTA, TYPE 1 FIRST POST LOCATION (SEE STD. DWG. MGS-3.1)	
E = 34.60'	C = 1,981.07'	MGS BTA, TYPE 2 FIRST POST LOCATION (SEE STD. DWG. MGS-3.2)	

HYDRAULIC DATA
 DRAINAGE AREA = 32.90 SQ. MILES
 FIS O (50) = 2,519 CFS V (50) = 7.17 FT/S
 FIS O (100) = 2,914 CFS V (100) = 7.79 FT/S
 STRUCTURE CLEARS THE 50 YEAR DESIGN HW BY 10.9 FEET.

EXISTING STRUCTURE
 TYPE: CONTINUOUS STEEL BEAMS WITH REINFORCED CONCRETE DECK, STUB ABUTMENTS AND WALL TYPE PIERS.
 SPANS: 48'-0", 60'-0", 48'-0" C/C BRGS. ALONG REF. LINE
 ROADWAY: 53'-0" F/F CURBS
 LOADING: CF = 2000 (57)
 SKEW: 12°-43'-00" L.F.
 WEARING SURFACE: 4" ASPHALT
 APPROACH SLABS: AS-1-54 (125'-0" LONG)
 ALIGNMENT: CURVE LEFT
 CROWN: 0.016 FT/FT
 STRUCTURAL FILE NUMBER: 7702558 (LT) & 7702582 (RT)
 DATE BUILT: 1965
 DISPOSITION: TO BE REHABILITATED

PROPOSED STRUCTURE
 PROPOSED 3-SPAN EXIST. CONTINUOUS STEEL BEAM (A7) & NEW WORK: CONTINUOUS STEEL BEAM (A7) OVER GRADE 50, PAINTED) BRIDGE W/ NEW COMPOSITE REINF. CONC. DECK ON WIDENED SEMI-INTEGRAL ABUTS. & WALL TYPE PIERS
 SPANS: 48'-0", 60'-0", 48'-0" C/C BRGS. ALONG REF. LINE
 ROADWAY: 75'-8" TOE/TOE PARAPET (S.B. AND N.B.)
 VEHICULAR LIVE LOAD: (SEE GENERAL NOTES)
 FUTURE WEARING SURFACE: (SEE GENERAL NOTES)
 SKEW: 12°-43'-00" L.F. (TO REFERENCE CHORD)
 WEARING SURFACE: 1" MONOLITHIC CONCRETE
 DECK AREA: 12,702 SQ. FT. (N.B.), 12,702 SQ. FT. (S.B.)
 APPROACH SLABS: 25'-0" LONG (MODIFIED) (AS-1-15) TYPE C INSTALLATION (AS-2-15)
 ALIGNMENT: 0°-24'-10" CURVE LEFT
 CROWN: 0.016 FT/FT
 COORDINATES: LATITUDE 41°-00'-25.56" (SB) 41°-00'-25.42" (NB) LONGITUDE 81°-29'-40.05" (SB) 81°-29'-38.40" (NB)

DESIGN AGENCY: GFD GROUP
 200 SOUTH MAIN STREET, SUITE 100, FAYETTEVILLE, AR 72701-2400
 PHONE: (501) 326-1100
 FAX: (501) 326-1101
 WWW.GFDGROUP.COM

DESIGNED	DRAWN	REVIEWED	DATE
RHC	MOJ	MOJ	1-19-21
MOJ	MOJ	MOJ	1-19-21
MOJ	MOJ	MOJ	1-19-21

SUMMIT COUNTY
 STA. 429+28.46
 STA. 430+89.09

SITE PLAN
 BRIDGE NO. SUM-77-0810 L/R
 I.R. 77 OVER THE TUSCARAWAS RIVER

SUM-77/277/224
 VARIOUS
 PID NO. 106 0002

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 1181
 1288

BMP TYPE	LOCATION	SIDE	DITCH WIDTH	STATION	LATITUDE	LONGITUDE	EDA CREDIT (ACRES)
BIOFILTER 1	SB I.R. 77	RT.	4.0'	510+00	41.027451° N	-81.503705° W	1.57
				514+95	41.028651° N	-81.504493° W	
BIOFILTER 2	ARLINGTON ROAD RAMP D	RT.	4.0'	78+50	40.993156° N	-81.493466° W	1.24
				83+50	40.994528° N	-81.493472° W	
BIOFILTER 3	ARLINGTON ROAD RAMP D	RT.	4.0'	83+50	40.994528° N	-81.493472° W	0.77
				87+00	40.995489° N	-81.493460° W	
BIOFILTER 4	E R/W & CONST. I.R. 77	RT.	4.0'	416+50	41.003581° N	-81.493716° W	0.24
				418+00	41.003988° N	-81.493740° W	
BIOFILTER 6	RAMP B	LT.	4.0'	198+00	41.025269° N	-81.508252° W	1.02
				203+00	41.025781° N	-81.506654° W	
BIOFILTER 7	RAMP B2	LT.	4.0'	19+00	41.025412° N	-81.506536° W	0.54
				21+00	41.025181° N	-81.507233° W	
BIOFILTER 8	RAMP B1	RT.	4.0'	408+50	41.026864° N	-81.503936° W	0.72
				411+00	41.026657° N	-81.504933° W	
BIOFILTER 9	NB I.R. 77	RT.	6.0'	483+00	41.021627° N	-81.497365° W	1.68
				488+50	41.023009° N	-81.498238° W	
				483+00	41.021532° N	-81.497672° W	
BIOFILTER 10	NB I.R. 77	LT.	5.0'	486+00	41.022274° N	-81.498120° W	0.91
				286+00	41.022274° N	-81.498120° W	
BIOFILTER 11	RAMP B2	LT.	4.0'	290+50	41.023318° N	-81.498962° W	1.44
				301+00	41.025579° N	-81.501312° W	
BIOFILTER 12	RAMP B2	RT.	4.0'	305+50	41.026520° N	-81.502368° W	0.68
				689+00	41.024260° N	-81.497721° W	
BIOFILTER 13	RAMP C1	LT.	4.0'	692+00	41.023889° N	-81.498802° W	0.87
				696+50	41.024834° N	-81.499932° W	
BIOFILTER 14	RAMP C1	RT.	4.0'	697+50	41.025035° N	-81.500179° W	0.64
				690+50	41.024110° N	-81.499103° W	
BIOFILTER 15	RAMP C1	RT.	4.0'	692+50	41.024104° N	-81.498907° W	1.04
				232+00	41.024684° N	-81.509312° W	
BIOFILTER 16	E R/W & CONST. I.R. 277	RT.	6.0'	242+00	41.024893° N	-81.505698° W	2.29
				413+00	41.026192° N	-81.505445° W	
BIOFILTER 17	RAMP B1	RT.	4.0'	416+50	41.025331° N	-81.504406° W	0.69
				484+00	41.021772° N	-81.498056° W	
BIOFILTER 19	SB I.R. 77	RT.	4.0'	493+00	41.023810° N	-81.499920° W	0.87
				894+00	41.025743° N	-81.498022° W	
BIOFILTER 20	RAMP D	LT.	4.0'	896+50	41.025754° N	-81.498939° W	0.38
				504+00	41.026137° N	-81.502456° W	
BIOFILTER 21	SB I.R. 77	RT.	5.0'	507+00	41.026728° N	-81.503205° W	1.10
				102+00	41.025046° N	-81.502941° W	
BIOFILTER 22	RAMP A	RT.	4.0'	103+50	41.025067° N	-81.503508° W	0.32
				301+50	41.025549° N	-81.501633° W	
BIOFILTER 23	RAMP B2	LT.	4.0'	304+60	41.026137° N	-81.502456° W	1.03
				496+00	41.024271° N	-81.500877° W	
BIOFILTER 24	SB I.R. 77	LT.	4.0'	498+00	41.024645° N	-81.501413° W	0.46

BMP TYPE	LOCATION	SIDE	DITCH WIDTH	STATION	LATITUDE	LONGITUDE	EDA CREDIT (ACRES)	
FILTER STRIP 2	E R/W & CONST. I.R. 77	LT.	N/A	453+38	41.013575° N	-81.495739° W	0.90	
				458+67	41.015000° N	-81.496089° W		
FILTER STRIP 3	E R/W & CONST. I.R. 77	RT.	N/A	455+28	41.014179° N	-81.495213° W	0.25	
				457+00	41.014645° N	-81.495306° W		
FILTER STRIP 4	RAMP B1	LT.	N/A	402+87	41.025674° N	-81.502539° W	0.56	
				408+50	41.026680° N	-81.504017° W		
FILTER STRIP 5	RAMP B1	LT.	N/A	414+68	41.025706° N	-81.504890° W	0.28	
				417+56	41.025459° N	-81.503995° W		
FILTER STRIP 6	RAMP B2	LT.	N/A	15+16	41.026211° N	-81.505574° W	0.29	
				16+67	41.025900° N	-81.505949° W		
FILTER STRIP 7	RAMP C1	RT.	N/A	683+45	41.025282° N	-81.498754° W	0.72	
				690+50	41.024080° N	-81.498253° W		
FILTER STRIP 8	RAMP C2	RT.	N/A	795+45	41.024421° N	-81.500374° W	0.15	
				796+95	41.024639° N	-81.500774° W		
FILTER STRIP 9	SB I.R. 77	LT.	N/A	498+00	41.024686° N	-81.501350° W	0.40	
				500+44	41.025183° N	-81.501945° W		
							TREATMENT PROVIDED	24.05
							TREATMENT REQUIRED*	24.02

* CALCULATED PER L&D VOL. 2, SEC. 1115.7

CALCULATED
A.T.R.
CHECKED
C.J.C.

BMP TABLE

SUM-77 / 277 / 224
VARIOUS

452
1288

FOR TYPICAL SECTIONS, SEE SHEET 55
FOR PROJECT SITE PLANS, SEE SHEETS 444 - 451

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**US Army Corps of Engineers
Huntington District**

Permit Number: 2020-00204-TUS

Name of Permittee: Ohio Department of Transportation

Date of Issuance: April 8, 2021

Upon completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification and return it to the following address:

U.S. Army Corps of Engineers - Huntington District
Building 10/ Section 10
PO Box 3990
Columbus, OH 43218-3990

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above-referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit conditions.

Signature of Permittee

Date