MPMS#31706

ROCKY MOUNTAIN BRIDGE REPLACEMENT



Bridge Replacement
T-655 (Rocky Mountain Road) over Little Sewickley Creek

Hempfield Township
Westmoreland County

Gibson-Thomas ENGINEERING

U.S. Department of Transportation
Federal Highway Administration

Pennsylvania
Department of Transportation

PROJECT TEAM

Project Owner

Aaron Siko – Township Manager
Hempfield Township Supervisors
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Design Team

Cristin Covert, PE – Local Project Manager
PennDOT – Engineering District 12-0
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Nathan Luczki, PE – Project Manager
Gibson-Thomas Engineering Co., Inc.
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pennsylvania DEPARTMENT OF TRANSPORTATION

PROJECT PURPOSE AND DESCRIPTION

Project Purpose:

The purpose of the project is to address the structural deficiencies of the existing bridge and provide a safe and efficient crossing of Little Sewickley Creek along Rocky Mountain Road. The existing bridge, constructed in 1920, carries approximately 556 vehicles per day, including 5% truck traffic, and is currently in poor condition and in need of replacement. The structure is currently posted with a weight restriction of 4 tons. The proposed project will replace the existing structure and address the associated safety and operational deficiencies. Additionally, the existing one-lane bridge will be replaced with a two-lane bridge.

Anticipated Schedule:

The project is currently in preliminary engineering. Construction letting is anticipated in January 2028 with construction during the summer and fall of 2028. There will be minor roadway work, and the structure will have a slightly larger footprint with slightly wider traffic lanes and bridge length.

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PROJECT LOCATION



EXISTING CONDITIONS



Near Approach Looking at Bridge



Far Approach Looking at Bridge

EXISTING CONDITIONS



Near Approach Looking Back From Bridge



Far Approach Looking Back From Bridge

EXISTING CONDITIONS



Looking Upstream From Bridge



Looking Downstream From Bridge

EXISTING CONDITIONS



Typical Bridge Deck Pavement



Typical Bridge Barrier

EXISTING CONDITIONS



Upstream Elevation



Downstream Elevation

EXISTING CONDITIONS



Cracking Through Out the Far Abutment



Spalled Area of the Far Right Wingwall

PROPOSED PROJECT IMPROVEMENTS

Existing Structure:

Single-span steel I-beam structure on mixed abutments (stone masonry abutment with reinforced concrete extension and integral wingwalls on the near and concrete gravity abutment with reinforced concrete extension and integral wingwalls on the far).

Proposed Improvements:

- Replace the current structure with integral abutment bridge and maintain the same tangent horizontal geometry of the existing structure
- Provide a safer bridge barrier, bridge barrier transitions, and guide rail that meet current standards
- Minor approach roadway improvements such as new asphalt pavement and pavement markings
- Increase the bridge width to accommodate a two-lane bridge over the existing one-lane configuration

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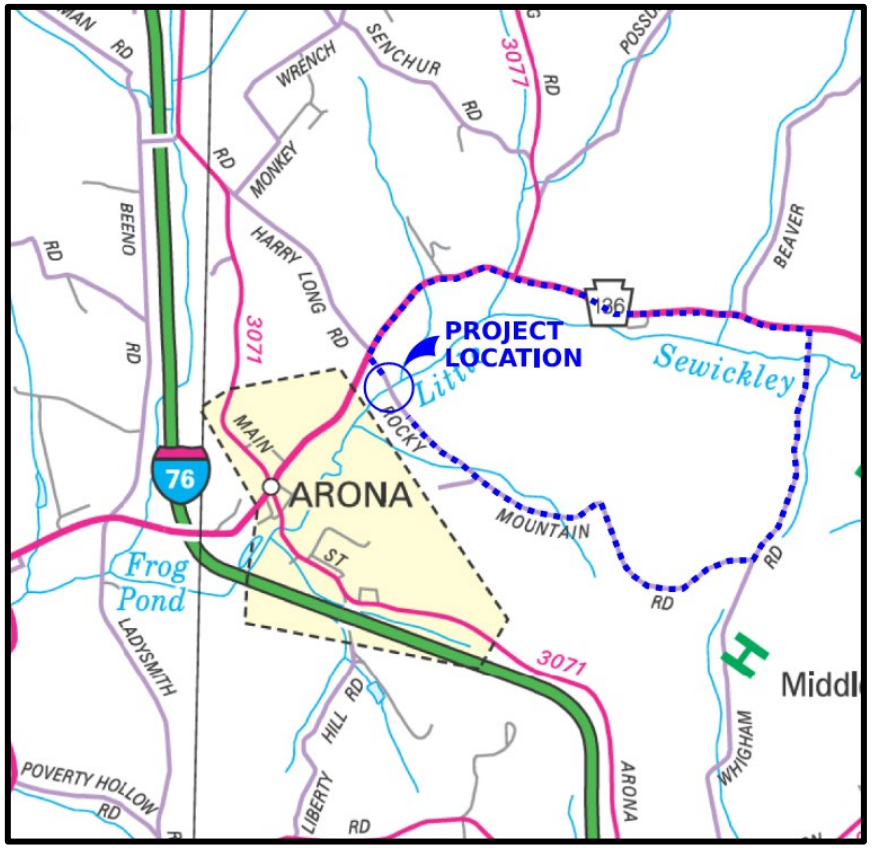
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PROPOSED DETOUR

Traffic will be detoured via Whigham Road and State Route 136.

The 4.0-mile detour will be in place for six months.

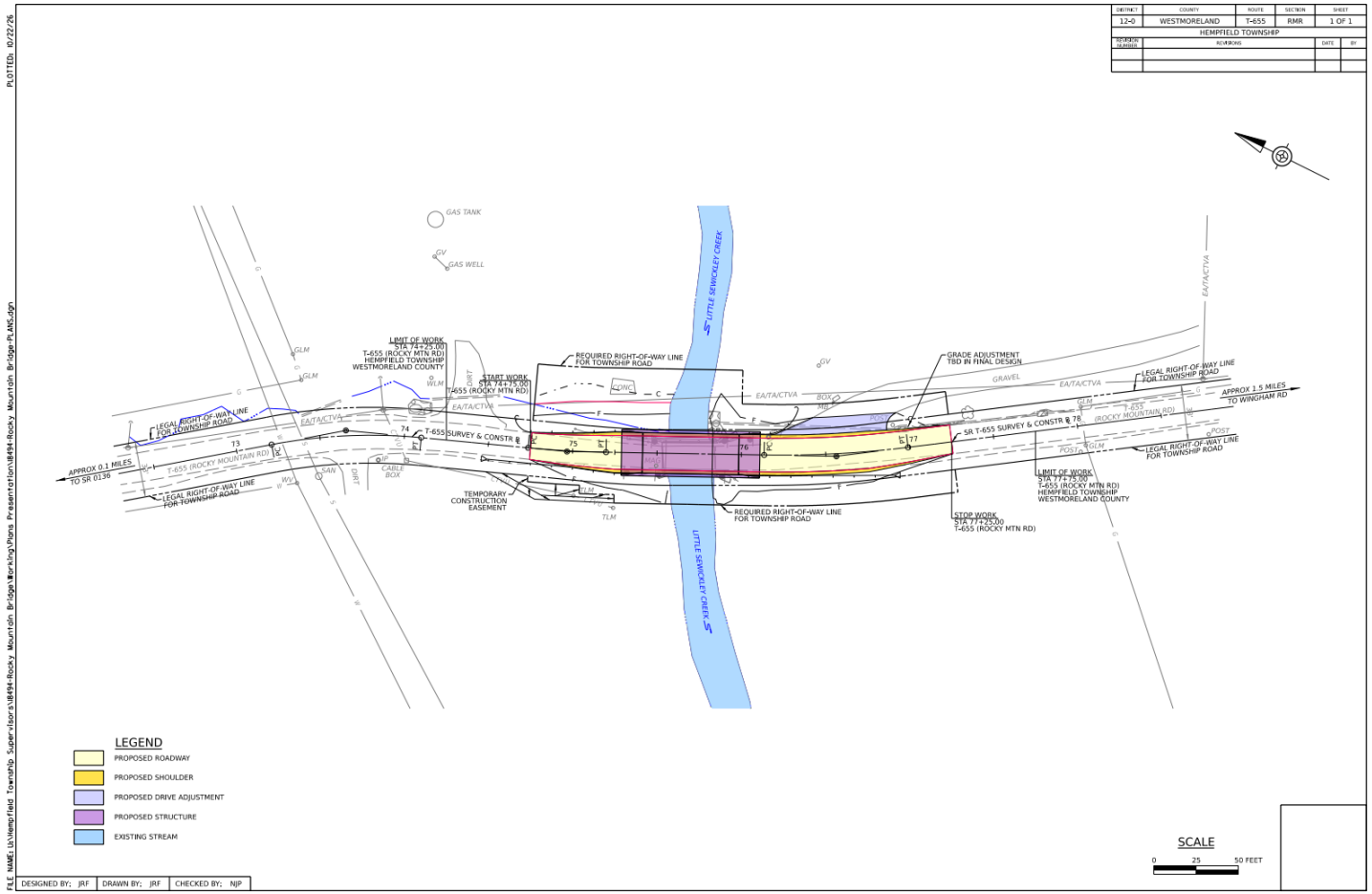


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ROADWAY PLAN

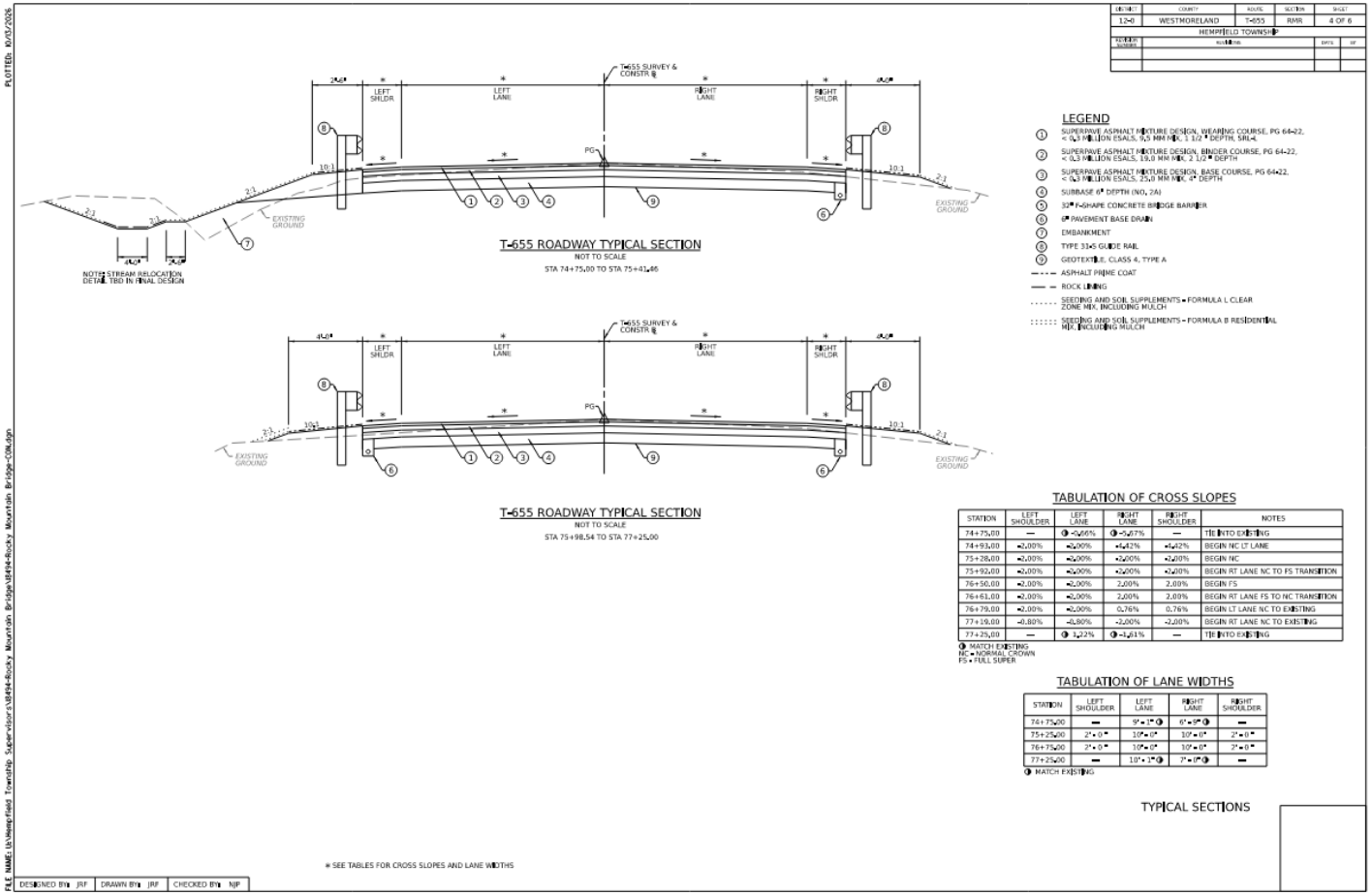


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ROADWAY TYPICALS

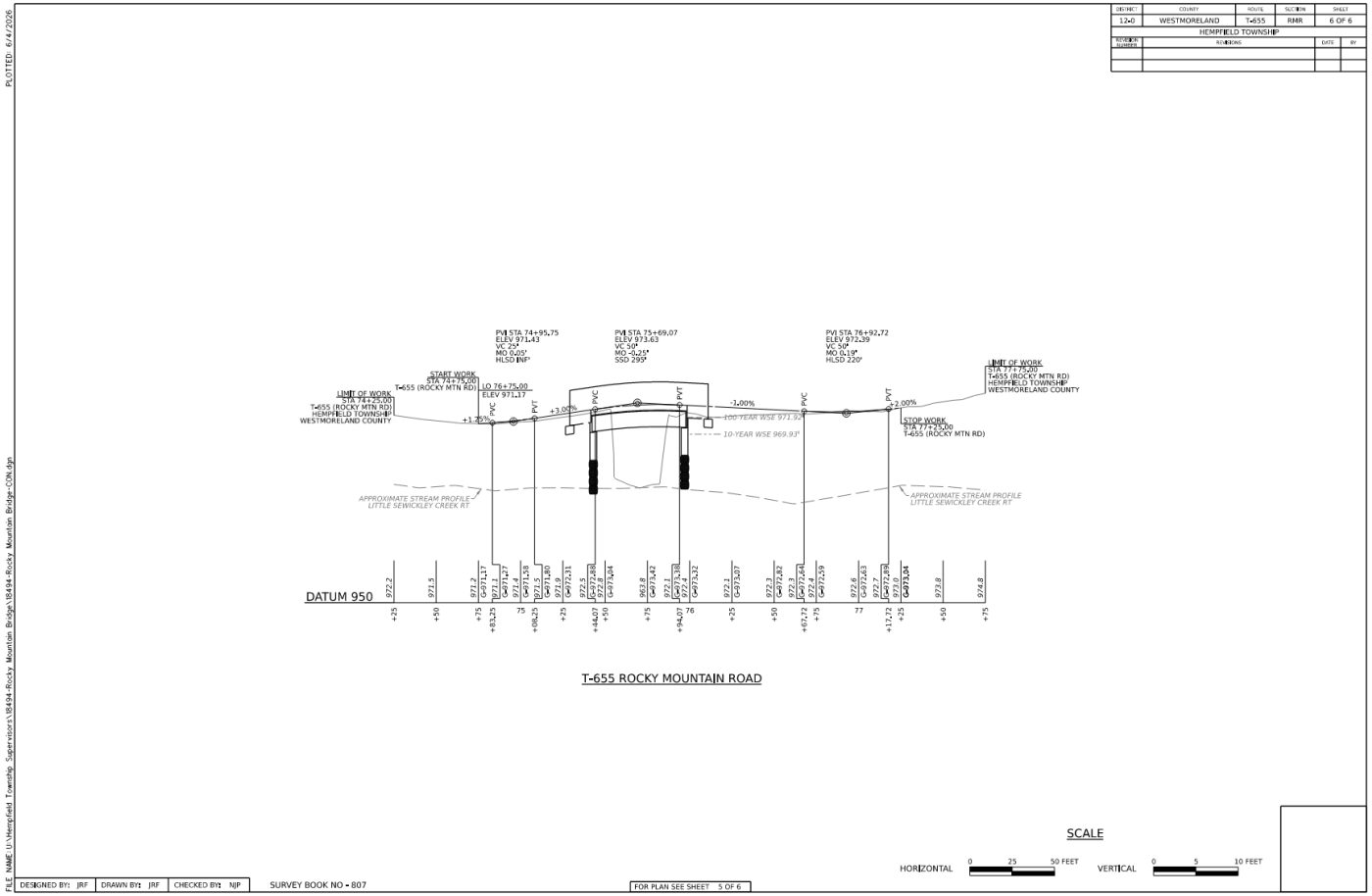


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ROADWAY PROFILE

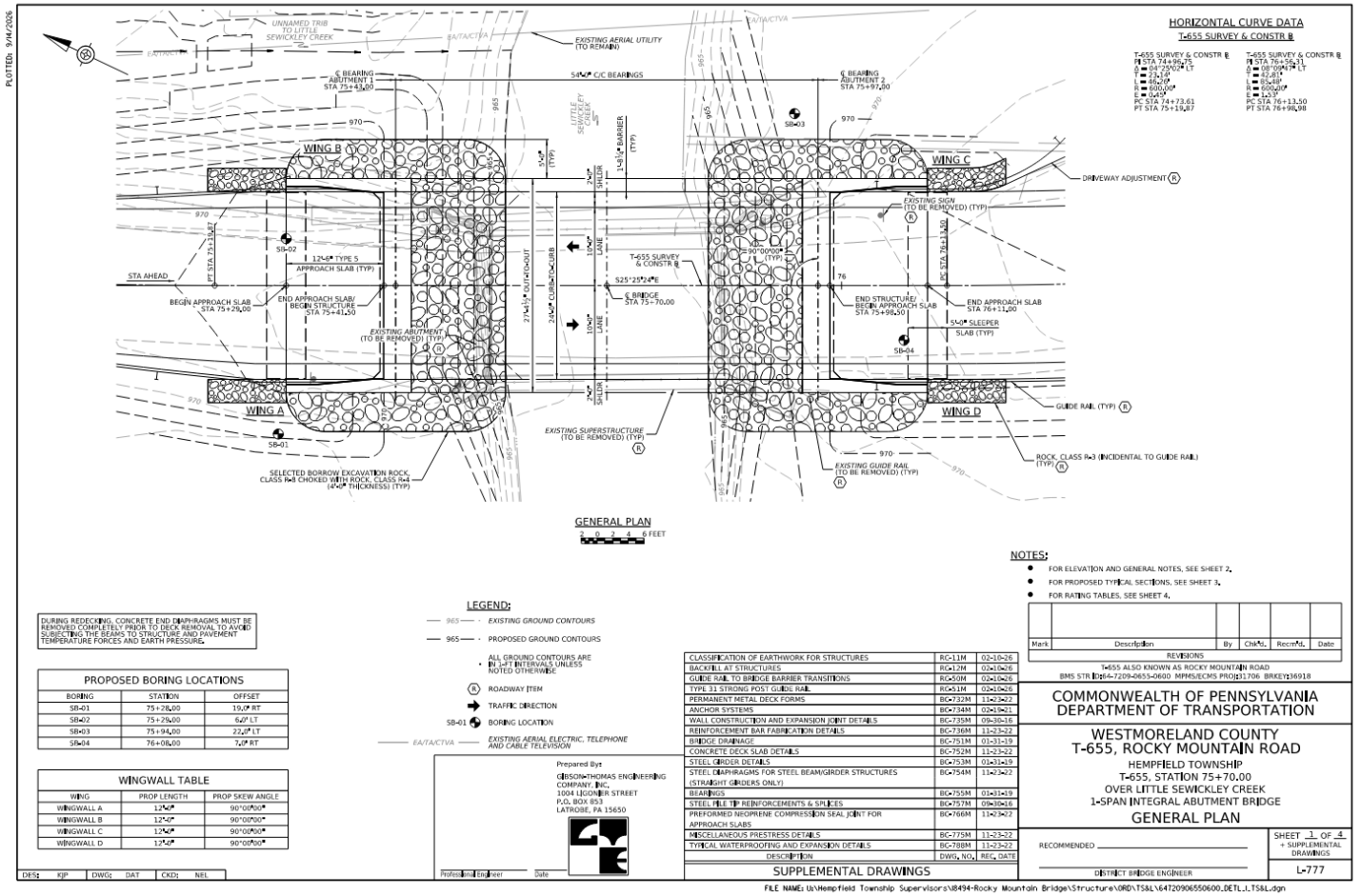


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STRUCTURE PLAN

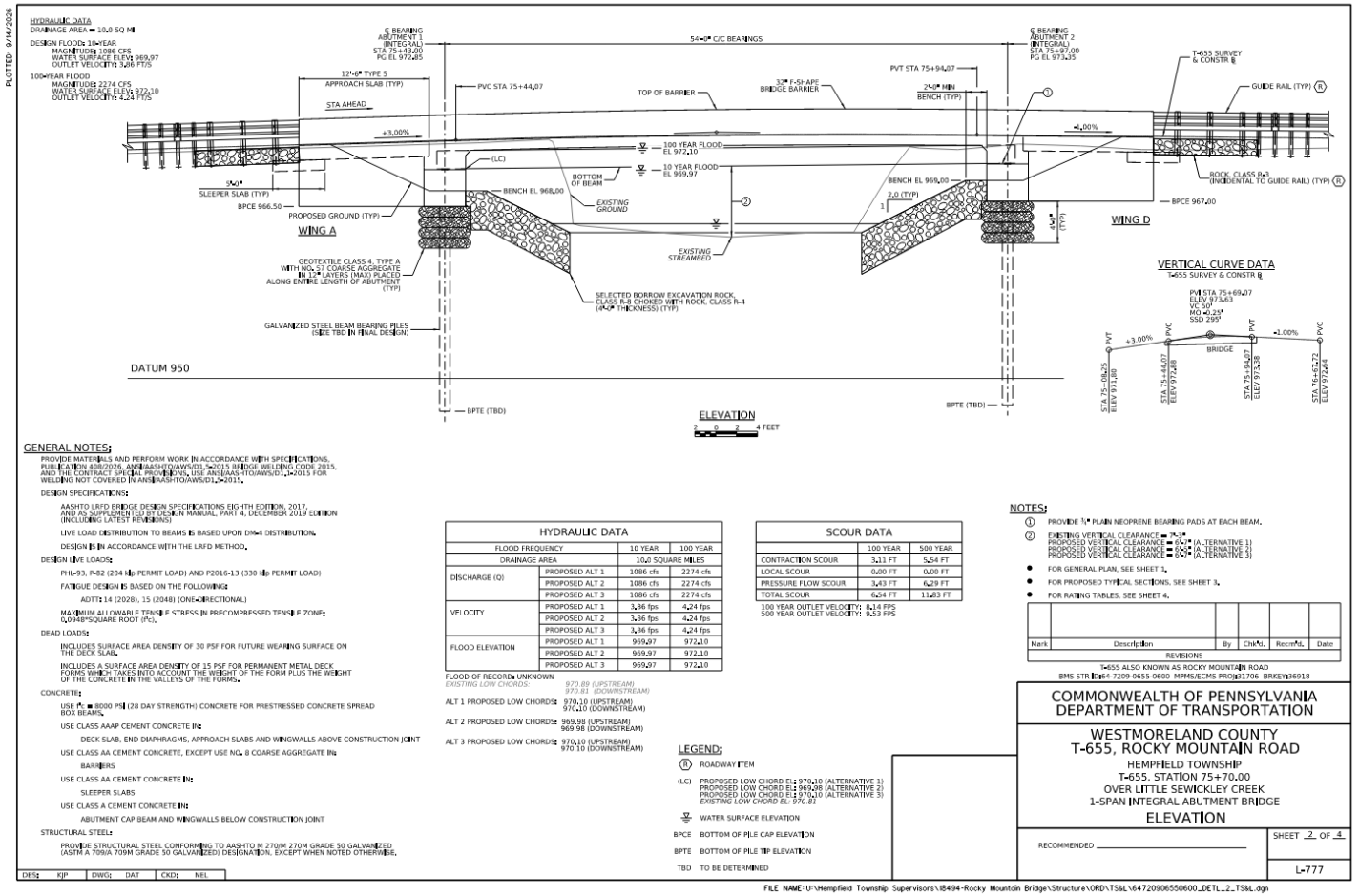


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BRIDGE ELEVATION



GENERAL NOTES:

PROVIDE MATERIALS AND PERFORM WORK IN ACCORDANCE WITH SPECIFICATIONS, PUBLICATION 408/2026, ANSI/AASHTO/AWS/D1.5-2015 BRIDGE WELDING CODE 2015, AND THE CONTRACT SPECIAL PROVISIONS. USE ANSI/AASHTO/AWS/D1.1-2015 FOR WELDING NOT COVERED IN ANSI/AASHTO/AWS/D1.5-2015.

DESIGN SPECIFICATIONS:

AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS EIGHTH EDITION, 2017, AND AS SUPPLEMENTED BY DESIGN MANUAL, PART 4, DECEMBER 2019 EDITION (INCLUDING LATEST REVISIONS)

LIVE LOAD DISTRIBUTION TO BEAMS IS BASED UPON DM-4 DISTRIBUTION.

DESIGN IS IN ACCORDANCE WITH THE LRFD METHOD.

DESIGN LIVE LOADS:

PHL-93, P-82 (204 kip PERMIT LOAD) AND P2016-13 (330 kip PERMIT LOAD)

FATIGUE DESIGN IS BASED ON THE FOLLOWING:

ADTT: 14 (2028), 15 (2048) (ONE-DIRECTIONAL)

MAXIMUM ALLOWABLE TENSILE STRESS IN PRECOMPRESSED TENSILE ZONE: 0.0948*SQUARE ROOT (f'c).

DEAD LOADS:

INCLUDES SURFACE AREA DENSITY OF 30 PSF FOR FUTURE WEARING SURFACE ON THE DECK SLAB.

INCLUDES A SURFACE AREA DENSITY OF 15 PSF FOR PERMANENT METAL DECK FORMS WHICH TAKES INTO ACCOUNT THE WEIGHT OF THE FORM PLUS THE WEIGHT OF THE CONCRETE IN THE VALLEYS OF THE FORMS.

CONCRETE:

USE f'c = 8000 PSI (28 DAY STRENGTH) CONCRETE FOR PRESTRESSED CONCRETE SPREAD BOX BEAMS.

USE CLASS AAAP CEMENT CONCRETE IN:

DECK SLAB, END DIAPHRAGMS, APPROACH SLABS AND WINGWALLS ABOVE CONSTRUCTION JOINT

USE CLASS AA CEMENT CONCRETE, EXCEPT USE NO. 8 COARSE AGGREGATE IN:

BARRIERS

USE CLASS AA CEMENT CONCRETE IN:

SLEEPER SLABS

USE CLASS A CEMENT CONCRETE IN:

ABUTMENT CAP BEAM AND WINGWALLS BELOW CONSTRUCTION JOINT

STRUCTURAL STEEL:

PROVIDE STRUCTURAL STEEL CONFORMING TO AASHTO M 270/M 270M GRADE 50 GALVANIZED (ASTM A 709/A 709M GRADE 50 GALVANIZED) DESIGNATION, EXCEPT WHEN NOTED OTHERWISE.

DES: KJP | DWG: DAT | CKD: NEL

HYDRAULIC DATA

FLOOD FREQUENCY		10 YEAR	100 YEAR
DRAINAGE AREA		10.0 SQUARE MILES	
DISCHARGE (Q)	PROPOSED ALT 1	1086 cfs	2274 cfs
	PROPOSED ALT 2	1086 cfs	2274 cfs
	PROPOSED ALT 3	1086 cfs	2274 cfs
VELOCITY	PROPOSED ALT 1	3.86 fps	4.24 fps
	PROPOSED ALT 2	3.86 fps	4.24 fps
	PROPOSED ALT 3	3.86 fps	4.24 fps
FLOOD ELEVATION	PROPOSED ALT 1	969.97	972.10
	PROPOSED ALT 2	969.97	972.10
	PROPOSED ALT 3	969.97	972.10

FLOOD OF RECORD: UNKNOWN
EXISTING LOW CHORDS: 970.89 (UPSTREAM), 970.81 (DOWNSTREAM)

ALT 1 PROPOSED LOW CHORDS: 970.10 (UPSTREAM), 970.10 (DOWNSTREAM)

ALT 2 PROPOSED LOW CHORDS: 969.98 (UPSTREAM), 969.98 (DOWNSTREAM)

ALT 3 PROPOSED LOW CHORDS: 970.10 (UPSTREAM), 970.10 (DOWNSTREAM)

SCOUR DATA

	100 YEAR	500 YEAR
CONTRACTION SCOUR	3.13 FT	5.54 FT
LOCAL SCOUR	0.00 FT	0.00 FT
PRESSURE FLOW SCOUR	3.43 FT	6.29 FT
TOTAL SCOUR	6.54 FT	11.83 FT

100 YEAR OUTLET VELOCITY: 8.14 FPS
500 YEAR OUTLET VELOCITY: 9.53 FPS

LEGEND:

(R) ROADWAY ITEM

(LC) PROPOSED LOW CHORD EL: 970.10 (ALTERNATIVE 1)
PROPOSED LOW CHORD EL: 969.98 (ALTERNATIVE 2)
PROPOSED LOW CHORD EL: 970.10 (ALTERNATIVE 3)
EXISTING LOW CHORD EL: 970.81

WATER SURFACE ELEVATION

BPCE BOTTOM OF PILE CAP ELEVATION

BPTE BOTTOM OF PILE TIP ELEVATION

TBD TO BE DETERMINED

NOTES:

1. PROVIDE ¾" PLAIN NEOPRENE BEARING PADS AT EACH BEAM.
2. EXISTING VERTICAL CLEARANCE = 15'-3"
PROPOSED VERTICAL CLEARANCE = 15'-3" (ALTERNATIVE 1)
PROPOSED VERTICAL CLEARANCE = 15'-5" (ALTERNATIVE 2)
PROPOSED VERTICAL CLEARANCE = 15'-3" (ALTERNATIVE 3)

- FOR GENERAL PLAN, SEE SHEET 1.
- FOR PROPOSED TYPICAL SECTIONS, SEE SHEET 3.
- FOR RATING TABLES, SEE SHEET 4.

Mark	Description	By	Chkd.	Recmd.	Date
REVISIONS					

T-655 ALSO KNOWN AS ROCKY MOUNTAIN ROAD
BMS STR ID: 64-7209-0655-0600 MPMS/ECMS PROJ: 91706 BRKEY: 36918

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION

WESTMORELAND COUNTY
T-655, ROCKY MOUNTAIN ROAD
HEMPFIELD TOWNSHIP
T-655, STATION 75+70.00
OVER LITTLE SEWICKLEY CREEK
1-SPAN INTEGRAL ABUTMENT BRIDGE
ELEVATION

RECOMMENDED _____

SHEET 2 OF 4

L-777

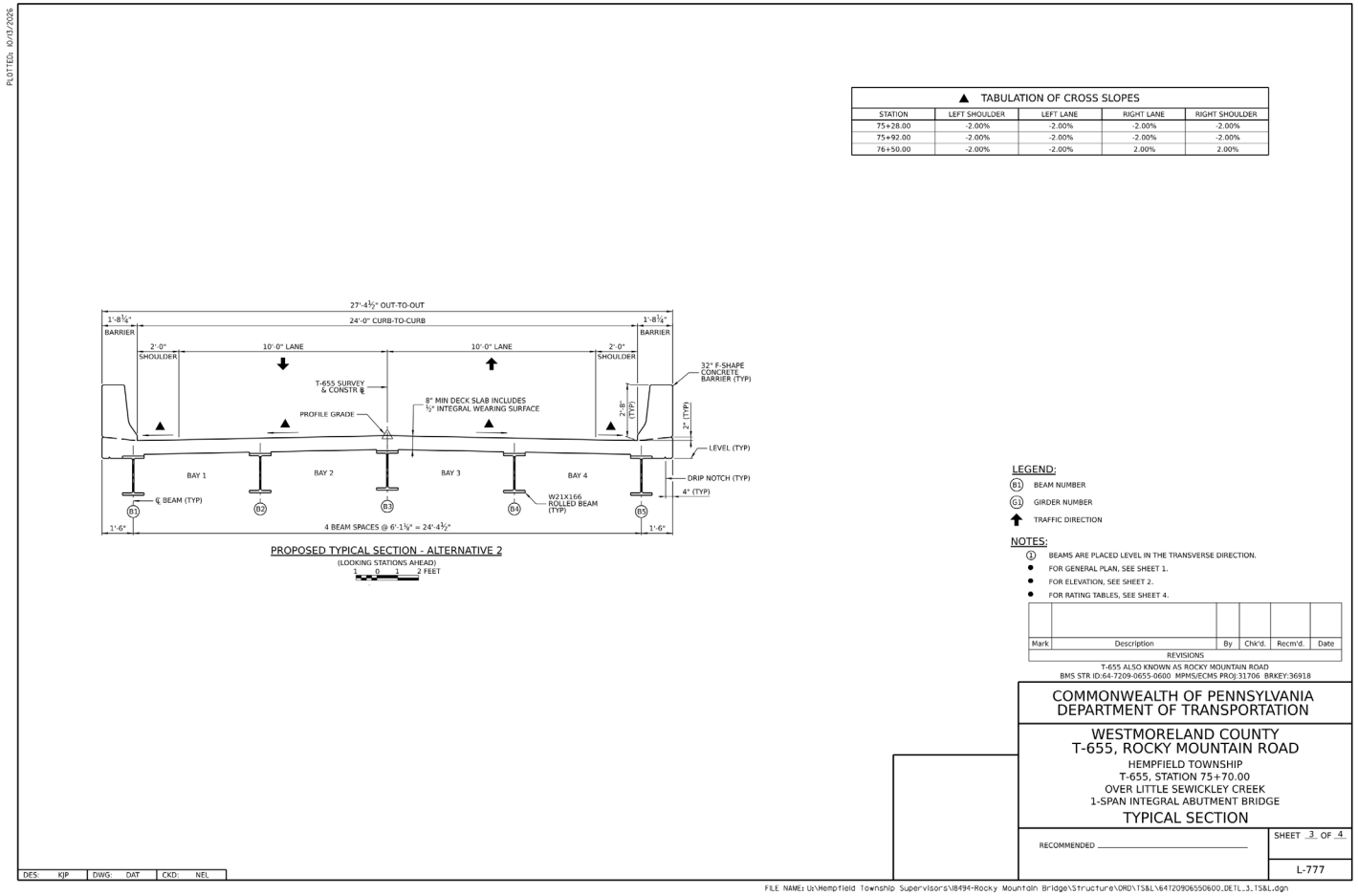
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BRIDGE TYPICAL SECTION



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