



TO ACCOMMODATE THE WATERMAIN SHOWN ON THE PROFILE BETWEEN DRILLED SHAFTS 16 AND 17 PLEASE NOTE THE FOLLOWING:

- 1) THE CONTRACTOR SHALL FIELD VERIFY THE EXACT LOCATION OF THE WATERMAIN BEFORE THE CASTING OF THE CONCRETE LAGGING PANELS.
- 2) THE WATERMAIN IS TO REMAIN IN PLACE WITH NO MODIFICATIONS.
- 3) FOR THE CONCRETE LAGGING PANEL IN CONFLICT WITH THE WATERMAIN, NOTCH THE PRECAST PANEL SO IT CAN BE SLID IN PLACE FROM ABOVE THE WATERMAIN. IF THE NOTCH WOULD EXTEND MORE THAN HALFWAY THROUGH THE PANEL, THE PANEL HEIGHT MAY NEED TO BE ADJUSTED TO PROVIDE SUFFICIENT STRENGTH.
- 4) IF NECESSARY, A DRILLED SHAFT THAT IS IN CONFLICT WITH THE WATERMAIN WILL BE SHIFTED, WITH THE GUIDANCE OF THE ENGINEER IN THE FIELD, TO PROVIDE A MINIMUM OF 18" OF CLEARANCE TO THE NEAR EDGE OF THE WATERMAIN. THE LENGTHS OF THE CONCRETE LAGGING PANELS WILL NEED TO BE ADJUSTED FOR THE PANELS ON EITHER SIDE OF AN ADJUSTED DRILLED SHAFT.
- 5) WALL ADJUSTMENTS SHALL BE COORDINATED WITH THE ASSISTANCE OF THE ENGINEER.

WORK ASSOCIATED WITH LOCATING THE WATERLINE AND ANY ADJUSTMENTS TO THE PANELS OR WALL AS NOTED ABOVE ARE CONSIDERED INCIDENTAL AND TO BE INCLUDED IN THE COST OF THE WALL.

WALL PROFILE  
STA. 45+38.24 TO STA. 47+41.74

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**EDA 08-04-25**

PROJECT ID  
**114496**

SHEET TOTAL  
**P.95 | 104**

ITEM 530, STRUCTURE MISC.: PREFABRICATED BRIDGE

1.0 GENERAL

1.1 SCOPE

THESE SPECIFICATIONS ARE FOR FULLY ENGINEERED HALF THROUGH TRUSS (NO OVERHEAD BRACING) BRIDGE OF STEEL CONSTRUCTION AND SHALL BE REGARDED AS MINIMUM STANDARDS FOR DESIGN AND FABRICATION. THE WORK INCLUDED UNDER THIS ITEM SHALL CONSIST OF DESIGN, FABRICATING, FINISHING AND TRANSPORTING THE STEEL TRUSS BRIDGE SUPERSTRUCTURE INCLUDING BEARINGS.

1.2 QUALIFIED BRIDGE MANUFACTURER

THE AWARDED CONTRACTOR IS REQUIRED TO IDENTIFY THEIR INTENDED SUPPLIER AS PART OF THE BID SUBMITTAL. QUALIFIED BRIDGE MANUFACTURERS MUST HAVE AT LEAST 5 YEARS OF EXPERIENCE FABRICATING THESE TYPES OF STRUCTURES. THE PREFABRICATED TRUSS SUPERSTRUCTURE SHALL BE SUPPLIED BY A MANUFACTURER ON ODOT'S PREQUALIFICATION LIST AS FOUND AT THE FOLLOWING WEBSITE:

[HTTPS://WWW.DOT.STATE.OH.US/DIVISIONS/CONSTRUCTIONMGT/MATERIALS/MISCELLANEOUSLIST/STRUCTURALSTEELFABRICATORS.PDF](https://www.dot.state.oh.us/divisions/constructionmgt/materials/miscellaneouslist/structuralsteel/fabricators.pdf)

ALL SUPPLIERS SHALL FABRICATE THEIR PRODUCT UTILIZING A MODERN FABRICATION FACILITY OWNED AND OPERATED BY THE BRIDGE MANUFACTURER THAT INCLUDES THE USE OF CNC BEAM DRILLING MACHINES, NO BROKERS ARE ALLOWED.

1.3 BRIDGE MANUFACTURER'S DESIGN PROFESSIONAL AND SUBMITTALS

THE BRIDGE MANUFACTURER SHALL HAVE AS A DIRECT EMPLOYEE, AN ENGINEER WHO IS EXPERIENCED IN BRIDGE DESIGN TO BE IN RESPONSIBLE CHARGE OF ALL ENGINEERING RELATED TASKS AND DESIGN. THE ENGINEER SHALL HAVE A MINIMUM OF 10 YEARS OF EXPERIENCE IN BRIDGE DESIGN AND BE A CURRENTLY LICENSED CIVIL OR STRUCTURAL PROFESSIONAL ENGINEER IN THE STATE OF OHIO AND SHALL BE THE ENGINEER WHO WILL SEAL AND SIGN THE PLANS.

ENGINEERING DRAWINGS, 11X17 FORMAT, SHALL BE PREPARED AND SUBMITTED TO THE CONTRACTOR OR OWNER FOR THEIR REVIEW AFTER RECEIPT OF THE ORDER. SUBMITTAL DRAWINGS SHALL BE UNIQUE DRAWINGS, PREPARED TO ILLUSTRATE THE SPECIFIC PORTION OF THE BRIDGE BEING FABRICATED. ALL RELATIVE

DESIGN INFORMATION SUCH AS MEMBER SIZE, ASTM/AASHTO MATERIAL SPECIFICATION, DIMENSIONS NECESSARY TO FABRICATE AND REQUIRED WELDING SHALL BE CLEARLY SHOWN ON THE DRAWINGS. DRAWINGS SHALL HAVE REFERENCED DETAILS AND SHEET NUMBERS. ALL DRAWINGS SHALL BE STAMPED, SIGNED AND DATED BY THE BRIDGE MANUFACTURER'S DESIGN PROFESSIONAL.

STRUCTURAL CALCULATIONS FOR THE DESIGN OF THE BRIDGE SUPERSTRUCTURE SHALL BE PREPARED BY THE BRIDGE MANUFACTURER AND SUBMITTED FOR REVIEW AFTER RECEIPT OF THE ORDER. CALCULATIONS SHALL INCLUDE COMPLETE DESIGN, ANALYSIS AND CODE CHECKS FOR THE CONTROLLING MEMBERS, CONNECTIVITY AND SUPPORT CONDITIONS, TRUSS STABILITY CHECKS, DECK DESIGN, DEFLECTION CHECKS, BEARINGS AND ALL SPLICES.

2.0 APPLICABLE CODES AND STANDARDS

2.1 GOVERNING SPECIFICATIONS

BRIDGE SHALL BE DESIGNED IN COMPLIANCE WITH THE AASHTO LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES, 2009 (AASHTO PED) AND THE OHIO BRIDGE DESIGN MANUAL. CALCULATIONS SHALL BE IN ACCORDANCE WITH THIS DOCUMENT, AND FORMULAS SHALL REFERENCE THE APPROPRIATE SECTIONS.

2.2 OTHER REFERENCE CODES, SPECIFICATIONS AND STANDARDS

- AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION, 2020 (AASHTO LRFD)
- AASHTO LRFD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, FIRST EDITION, 2015 (AASHTO SIGNS)
- AISC STEEL CONSTRUCTION MANUAL, 16TH EDITION, 2023 (AISC)
- ANSI/AISC 360-22 SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, 2022 (AISC 360)
- AMERICAN WELDING SOCIETY, STRUCTURAL WELDING CODE, D1.1, 2020 (AWS D1.1)
- SETRA TECHNICAL GUIDE FOR FOOTBRIDGES, 2006 (SETRA)

THE AASHTO LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES SHALL CONTROL IF ANY CONFLICTING REQUIREMENTS OCCUR WITH THE OTHER REFERENCE DOCUMENTS AND/OR OTHER LOCAL CODES.

3.0 BRIDGE SYSTEM TYPE

3.1 TRUSS STYLE

THE TRUSS STYLE SHALL BE THE THE MOST ECONOMICAL STYLE FOR THE GIVEN SPAN LENGTHS. THE VERTICAL TRUSSES SHALL BE DESIGNED SUCH THAT THE TOP AND BOTTOM CHORD MEMBERS ARE PARALLEL FOR THE ENTIRE LENGTH OF BRIDGE. THE INTERIOR VERTICALS OF THE TRUSSES SHALL BE PERPENDICULAR TO THE TOP FACE OF THE BOTTOM CHORD AND THE END VERTICALS OF THE TRUSSES SHALL BE PLUMB. TRUSSES SHALL BE LAID OUT SUCH THAT DIAGONALS SHALL BE AT AN ANGLE OF 30-DEGREES OR MORE WITH RESPECT TO THE BOTTOM CHORD.

3.2 DIAGONAL STYLE

THE VERTICAL TRUSS SHALL USE A SINGLE-DIAGONAL, PRATT CONFIGURATION, WHERE ALL THE DIAGONALS ARE IN TENSION FOR GRAVITY LOADS.

3.3 FLOOR BEAM LOCATION

THE BRIDGE SHALL UTILIZE AN H-SECTION CONFIGURATION WHERE THE ENDS OF THE FLOOR BEAMS ARE WELDED ONLY TO THE INTERIOR FACE OF THE VERTICALS. THE DISTANCE FROM THE TOP OF DECK TO THE BOTTOM OF THE BOTTOM CHORD SHALL BE DETERMINED BY THE BRIDGE MANUFACTURER DURING FINAL DESIGN.

4.0 BRIDGE GEOMETRY

4.1 SPAN LENGTH

THE BRIDGES WILL CONSIST OF SIMPLE SPAN TRUSSES. THE TOTAL DISTANCE OF THE BRIDGE FROM CENTER TO CENTER OF BEARING AT THE ABUTMENTS WILL BE AS SHOWN IN THE PLANS.

4.2 WIDTH

THE BRIDGE WIDTH SHALL PROVIDE A MINIMUM CLEARANCE OF 18'-0" BETWEEN ALL INTERIOR RAILING ELEMENTS.

4.3 TOP OF TRUSS HEIGHT ABOVE DECK

THE TOP OF THE TOP CHORD SHALL NOT BE LESS THAN 48" ABOVE THE DECK (MEASURED FROM THE HIGH POINT OF THE DECK). NOTE THAT THIS DIMENSION MAY BE EXCEEDED DUE TO TRUSS HEIGHT REQUIREMENTS FOR STRUCTURAL, DEFLECTION AND VIBRATION REQUIREMENTS. THE SAME HEIGHT SHALL BE USED FOR BOTH SPANS.

4.4 LOWER STEEL CLEARANCE

THE BRIDGE MANUFACTURER SHALL DETERMINE THE DISTANCE FROM THE TOP OF THE DECK (MEASURED FROM THE HIGHEST POINT OF THE DECK) TO THE BOTTOM OF ANY STEEL MEMBER.

4.5 TRUSS BAY SPACING

THE NUMBER OF BAYS AND THE DIMENSION OF THE PANEL POINTS SHALL BE DETERMINED BY THE BRIDGE MANUFACTURER.

4.6 CAMBER

EACH SINGLE SIMPLE-SPAN BRIDGE SHALL HAVE A VERTICAL CAMBER DIMENSION AT THE MID-SPAN EQUAL TO 100% OF THE ANTICIPATED FULL DEAD LOAD DEFLECTION.

4.7 ELEVATION DIFFERENCE

THE TOP OF THE DECKS AT EACH END OF THE BRIDGE SHALL BE CONSTRUCTED WITH A VERTICAL ELEVATION DIFFERENCE AS SHOWN ON THE PLANS.

5.0 STRUCTURAL DESIGN LOADS

5.1 DEAD LOAD

THE BRIDGE STRUCTURE SHALL BE DESIGNED FOR THE TOTAL BRIDGE WEIGHT INCLUDING THE FINAL DECK SYSTEM.

5.2 PEDESTRIAN LOADING (PL)

THE BRIDGE STRUCTURE SHALL BE DESIGNED FOR A UNIFORM PEDESTRIAN LOADING OF 90 PSF OR AN H15 TRUCK. THIS LOADING SHALL BE PATTERNED TO PRODUCE THE MAXIMUM LOAD EFFECTS. CONSIDERATION OF DYNAMIC LOAD ALLOWANCE IS NOT REQUIRED WITH THIS LOADING.

5.3 VEHICLE LOAD (VL)

THE SUPERSTRUCTURE AND DECK SYSTEM SHALL BE DESIGNED FOR EACH OF THE FOLLOWING CONCENTRATED/VEHICULAR LOADS:

- A CONCENTRATED LOAD OF 1,000 POUNDS PLACED ON ANY AREA 2.5' BY 2.5' SQUARE.
- A SINGLE TRUCK SHALL BE PLACED TO PRODUCE THE MAXIMUM LOAD EFFECTS AND SHALL NOT BE PLACED IN COMBINATION WITH THE PEDESTRIAN LOAD. THE DYNAMIC LOAD ALLOWANCE NEED NOT BE CONSIDERED FOR THIS LOADING. THE TRUCK SHALL BE AN H15 VEHICLE.

5.4 WIND LOAD (WS)

PEDESTRIAN BRIDGES SHALL BE DESIGNED FOR WIND LOADS AS SPECIFIED IN AASHTO SIGNS, ARTICLES 3.8 AND 3.9. THE LOADING SHALL BE APPLIED OVER THE EXPOSED AREA IN FRONT ELEVATIONS OF BOTH TRUSSES INCLUDING ALL ENCLOSURES.

IN ADDITION TO THE WIND LOAD SPECIFIED ABOVE, A VERTICAL UPLIFT LINE LOAD AS SPECIFIED IN AASHTO LRFD ARTICLE 3.8.2 AND DETERMINED AS THE FORCE CAUSED BY A PRESSURE OF 20 PSF OVER THE FULL DECK WIDTH, SHALL BE APPLIED CONCURRENTLY. THIS LOADING SHALL BE APPLIED AT THE WINDWARD QUARTER POINT OF THE DECK WIDTH.

5.5 SEISMIC (EQ)

THE BRIDGE STRUCTURE SHALL BE DESIGNED FOR SEISMIC LOADING AS SPECIFIED IN SECTION 3.10 OF AASHTO LRFD. THE TRANSVERSE LOADS SHALL BE CALCULATED CONSIDERING THE TRANSVERSE PERIOD OF THE BRIDGE AND LONGITUDINAL LOADS SHALL BE CALCULATED USING A PERIOD OF ZERO. A RESPONSE MODIFICATION FACTOR OF 0.8 SHALL BE USED FOR THE CALCULATION OF FORCES APPLIED TO THE BRIDGE ANCHORAGE. A RESPONSE MODIFICATION FACTOR OF 1.0 SHALL BE USED FOR THE CALCULATION OF BEARING REACTIONS. THE TRANSVERSE SEISMIC LOAD SHALL BE APPLIED TO ALL THE BEARINGS AND THE LONGITUDINAL SEISMIC LOAD SHALL BE APPLIED TO THE FIXED BEARINGS ONLY. THE VERTICAL BEARING REACTIONS SHALL BE CALCULATED USING AN OVERTURNING FORCE ON THE BRIDGE BASED ON THE CENTER OF GRAVITY OF THE BRIDGE TIMES THE TRANSVERSE SEISMIC LOAD.

5.6 FATIGUE LOAD (FL)

THE FATIGUE LOADING SHALL BE AS SPECIFIED IN SECTION 11 OF AASHTO SIGNS. THE NATURAL WIND GUST SPECIFIED IN ARTICLE 11.7.1.2 AND THE TRUCK-INDUCED GUST SPECIFIED IN ARTICLE 11.7.1.3 OF AASHTO SIGNS ONLY NEED ONLY BE CONSIDERED, AS APPROPRIATE.

5.7 COMBINATION OF LOADS

THE LOAD COMBINATIONS AND LOAD FACTORS TO BE USED SHALL BE AS SPECIFIED IN AASHTO LRFD TABLE 3.4.1-1, WITH THE FOLLOWING EXCEPTIONS:

- LOAD COMBINATIONS STRENGTH II, STRENGTH IV, AND STRENGTH V NEED NOT BE CONSIDERED.
- THE LOAD FACTOR FOR FATIGUE I LOAD COMBINATION SHALL BE TAKEN AS 1.0, AND FATIGUE II LOAD COMBINATION NEED NOT BE CONSIDERED.

6.0 STRUCTURAL DESIGN CRITERIA

STRUCTURAL DESIGN OF THE BRIDGE STRUCTURE SHALL BE PERFORMED BY OR UNDER THE DIRECT SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF OHIO, WHO IS EXPERIENCED IN TRUSS BRIDGE DESIGN, AND DONE IN ACCORDANCE WITH RECOGNIZED ENGINEERING PRATICES AND PRINCIPLES.

6.1 MODELING

THE BRIDGE SHALL BE MODELED AND ANALYZED UTILIZING A THREE-DIMENSIONAL COMPUTER SOFTWARE WHICH SHALL ACCOUNT FOR MOMENTS INDUCED IN MEMBERS DUE TO JOINT FIXITY WHERE APPLICABLE. MOMENTS DUE TO BOTH TRUSS DEFLECTION AND JOINT ECCENTRICITY MUST BE CONSIDERED. ALL LOADS LISTED IN SECTION 5 OF THESE SPECIFICATIONS SHALL BE APPLIED TO THE MODEL AND ANALYZED APPROPRIATELY.

6.2 LATERAL FRAME AND MEMBER DESIGN

THE BRIDGE SHALL BE DESIGNED AND PROPORTIONED SUCH THAT APPROPRIATE LATERAL STIFFNESS IS PROVIDED LOCALLY AND GLOBALLY, TO ENSURE THAT THE STRUCTURE IS STABLE.

SFN	
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BSM 08-04-25	
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SUBSET	TOTAL
3	7
SHEET	TOTAL
P.100	104