City of Dublin
Request for Services
Dublin Link Bridge Inspection

January 20, 2023

The City of Dublin respectfully requests that a quote for the professional services described below. All quotes must be received by **February 10, 2023**.

A. Project Identification

The City of Dublin is seeking a professional hands-on inspection of the Dublin Link pedestrian bridge over the Scioto River in Dublin, Ohio. A general set of plans is attached at the end of this document for reference.

B. Scope of Work

The field inspection shall entail the activities described above using adapted rock climbing and technical rope access techniques. Mechanical access may also be utilized though the use of a snooper (UBIV), however any equipment exceeding 15 tons is prohibited. A UAV/drone may be utilized to enhance the inspection of the cables and tower. Work shall be performed in accordance with the standards referenced below.

Areas of significant deterioration and/or section loss will be documented and photographed. Steel deficiencies, such as corrosion, impacted rust, pitting, cracking, deformation, separation of elements, and missing connectors will be noted. On concrete elements, areas of significant cracking, spalling, and/or delamination will be documented. In addition to areas of significant deterioration, typical conditions will also be noted. Non-destructive testing will be utilized to confirm cracks in steel elements, if necessary.

No traffic control above or below is required. Signs shall be posted at both ends of the bridge notifying the public of the presence of bridge inspectors and cones will be utilized to demark local work zones as required.

All inspectors shall be trained and certified in the use of adapted climbing and industrial rope access techniques.

The inspections will be performed in accordance with the latest versions of the following documents:

- *National Bridge Inspection Standards,* Federal Highway Administration
- *Bridge Inspector's Reference Manual,* Federal Highway Administration
- *Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges,* Federal Highway Administration
- *The Manual for Bridge Evaluation*, AASHTO
- *Guide Manual for Bridge Element Inspection,* AASHTO

The inspection team will also be responsible for:

- Coordination with the Bridge Owner for access to the site.
- Inspection of any utility or conduit attached to the bridge.

The inspection team will not be responsible for:

- Conditions not obvious through usual and customary visual inspection.
- Conditions that occur after inspection, providing the conditions were not evident during usual and customary visual inspection.
- Identifying and evaluating portions of the structure which are comprised of poor-quality materials and/or inadequate structural design, unless obviously visible.

C. Deliverables

The deliverables shall include a narrative summary report and/or sketches. The team will provide the City with the following:

1. A narrative report including:

a. Descriptions of typical conditions and significant deficiencies, including specific locations and description of the deterioration
b. Dedicated sections describing the primary bridge components of the deck, superstructure, substructure, channel, and approaches.
c. Captioned photographs of found conditions
d. Repair and proactive maintenance recommendations (not including estimated costs)

2. Digital photos
3. Photo logs
4. Inspection records will be updated in ODOT's AssetWise software

D. Project Completion Time

The completion time for this project shall be **August 30, 2023**. All deliverables will be sent to the city within 30 working days of completion of the field work. A more specific schedule will be established upon receiving Notice-to-Proceed

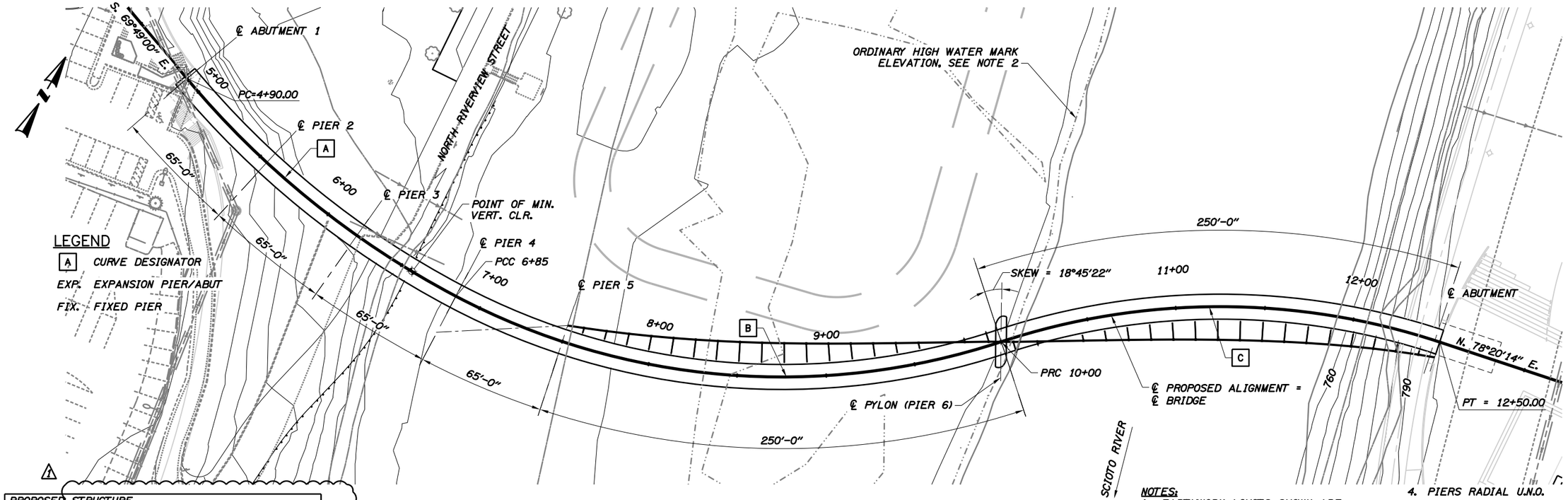
E. Project Contact

Robert Taylor, P.E., Director – Asset Management & Quality Assurance
rjtaylor@dublin.oh.us
614.410.4775

Sincerely,

Robert J Taylor

Robert Taylor, P.E.
Director, Asset Management & Quality Assurance



PLAN

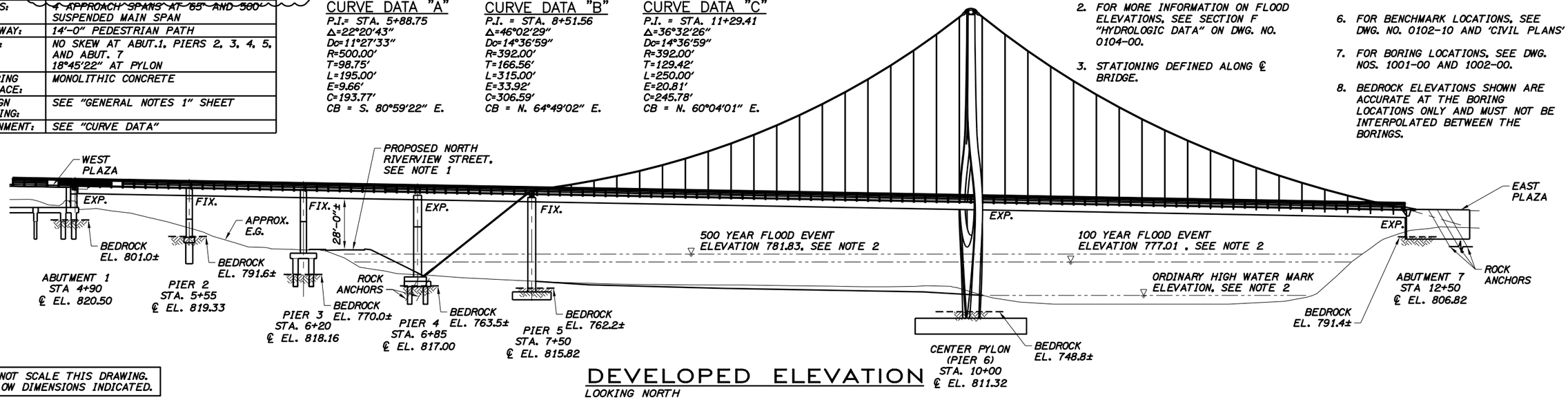
PROPOSED STRUCTURE	
TYPE:	6 SPAN COMPOSITE STEEL BOX WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURE
SPANS:	4 APPROACH SPANS AT 65' AND 360' SUSPENDED MAIN SPAN
ROADWAY:	14'-0" PEDESTRIAN PATH
SKEW:	NO SKEW AT ABUT.1. PIERS 2. 3. 4. 5. AND ABUT. 7 18°45'22" AT PYLON
WEARING SURFACE:	MONOLITHIC CONCRETE
DESIGN LOADING:	SEE "GENERAL NOTES 1" SHEET
ALIGNMENT:	SEE "CURVE DATA"

CURVE DATA "A"
P.I.= STA. 5+88.75
Δ=22°20'43"
Dc=11°27'33"
R=500.00'
T=98.75'
L=195.00'
E=9.66'
C=193.77'
CB = S. 80°59'22" E.

CURVE DATA "B"
P.I. = STA. 8+51.56
Δ=46°02'29"
Dc=14°36'59"
R=392.00'
T=166.56'
L=315.00'
E=33.92'
C=306.59'
CB = N. 64°49'02" E.

CURVE DATA "C"
P.I. = STA. 11+29.41
Δ=36°32'26"
Dc=14°36'59"
R=392.00'
T=129.42'
L=250.00'
E=20.81'
C=245.78'
CB = N. 60°04'01" E.

NOTES:
1. EARTHWORK LIMITS SHOWN ARE APPROXIMATE. FOR FINAL GRADING, SEE "CIVIL PLANS".
2. FOR MORE INFORMATION ON FLOOD ELEVATIONS, SEE SECTION F "HYDROLOGIC DATA" ON DWG. NO. 0104-00.
3. STATIONING DEFINED ALONG ℄ BRIDGE.
4. PIERS RADIAL U.N.O.
5. FOR PROFILE GRADE LINE AND SUPERELEVATION DETAILS, SEE DWG. NO. 0104-00.
6. FOR BENCHMARK LOCATIONS, SEE DWG. NO. 0102-10 AND 'CIVIL PLANS'
7. FOR BORING LOCATIONS, SEE DWG. NOS. 1001-00 AND 1002-00.
8. BEDROCK ELEVATIONS SHOWN ARE ACCURATE AT THE BORING LOCATIONS ONLY AND MUST NOT BE INTERPOLATED BETWEEN THE BORINGS.



DEVELOPED ELEVATION
LOOKING NORTH

DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS INDICATED.

△	DATE	REVISION	BY
1	3/31/17	REVISE SPAN NUMBER	OC

DRAFTER: R. Elwood
DESIGNER: K. Ghosh
CHECKER: M. Nader
REVIEWER: K. Ghosh

DESIGNER
STATE OF OHIO — MARWAN M. NADER E-79418 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES: 12/31/2017

T·Y·LIN INTERNATIONAL
engineers | planners | scientists

STRUCTURE FILE NO. 2567000
DATE 2017/03/24
CALC. BOOK

SCIOTO RIVER PEDESTRIAN BRIDGE DUBLIN, OHIO

SITE PLAN

SHEET NO. 2 / 185
DRAWING NO. 0100-00

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A — DESIGN SPECIFICATIONS

THE DESIGN CONFORMS TO THE FOLLOWING DOCUMENTS IN ORDER OF PRECEDENCE:

- PROJECT SPECIFIC STRUCTURAL DESIGN CRITERIA FOR ICONIC SCIOTO RIVER PEDESTRIAN BRIDGE.
- AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, CUSTOMARY U.S. UNITS, 6TH EDITION WITH 2012 INTERIMS.
- AASHTO LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES, 2ND EDITION DATED 2009, CUSTOMARY U.S. UNITS.
- POST TENSIONING INSTITUTE: RECOMMENDATIONS FOR STAY CABLE DESIGN, TESTING AND INSTALLATION, 6TH EDITION
- POST TENSIONING INSTITUTE: RECOMMENDATIONS FOR PRESTRESSED ROCK AND SOIL ANCHORS, 4TH EDITION
- OHIO DEPARTMENT OF TRANSPORTATION BRIDGE DESIGN MANUAL, DATED JULY 2007 WITH REVISIONS DATED JULY 2015.

B — REFERENCE SPECIFICATIONS

THE DESIGN REFERENCES THE FOLLOWING DOCUMENTS AS SUPPLEMENTAL RESOURCES:

- CEB-FIP MODEL CODE FOR CONCRETE STRUCTURES, 1990
- AWS D1.5 BRIDGE WELDING CODE, 2015
- AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS AND HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS, 5TH EDITION 2009 (AASHTO SIGNS)
- SETRA, CABLE STAYS: RECOMMENDATIONS OF FRENCH INTERMINISTERIAL COMMISSION ON PRESTRESSING, DATED 2002 (SETRA CABLES)
- ACI 318-08: BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI)
- HUMAN-INDUCED VIBRATION OF STEEL STRUCTURES, HIVOSS, 2010 (HIVOSS)
- SETRA, 2008 FOOTBRIDGES, ASSESSMENT OF VIBRATIONAL BEHAVIOR OF FOOTBRIDGES UNDER PEDESTRIAN LOADING (SETRA PEDESTRIANS)
- ASCE 19-10, STRUCTURAL APPLICATION OF STEEL CABLES FOR BUILDINGS, 2011 (ASCE STEEL CABLES)
- STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS, 2016 EDITION, AND ALL SUPPLEMENTS THERETO

C — DESIGN LOADING

STRUCTURAL DEAD LOADS:

REINFORCED CONCRETE	=	150 PCF
FUTURE WEARING SURFACE	=	12.5 PSF
STRUCTURAL STEEL	=	490 PCF

LIVE LOADS:

UNIFORM PEDESTRIAN LOAD	=	90 PSF
VEHICULAR LOAD	=	H15-44 TRUCK (NO IMPACT)
PEDESTRIAN VIBRATION / FATIGUE LOADING	=	0.074 PEDESTRIAN/PSF

SEISMIC LOAD:

SEISMIC PERFORMANCE ZONE (SPZ 1)	=	1
PEAK GROUND ACCELERATION COEFFICIENT (PGA)	=	0.05
LONG TERM RESPONSE COEFFICIENT (S1)	=	0.04
SHORT-TERM RESPONSE COEFFICIENT (SS)	=	0.10
SOIL PROFILE SITE CLASS	=	D

LOAD MODIFIERS:

SEISMIC LIVE LOAD MODIFIER (γ_{EQ})	=	0.0
REDUNDANCY LOAD MODIFIER (μ_R)	=	1.05 (STRENGTH ONLY - NON-REDUNDANT)
REDUNDANCY LOAD MODIFIER (μ_R)	=	1.00 (ALL LIMIT STATES - REDUNDANT)

VESSEL COLLISION NOT CONSIDERED

ICE LOADING:

ICE CRUSHING STRENGTH IS 200 psi, WITH AN ICE FLOW THICKNESS OF 9.0 IN. THE ANGLE OF INCLINATION OF THE SKEW OF THE RIVER TO THE PIER 6 PYLON IS LESS THAN 15°

WIND LOADING:

SUPERSTRUCTURE AND SUBSTRUCTURE PER SITE AND STRUCTURE SPECIFIC WIND LOAD STUDY (RWDI, 2016)

THERMAL FORCES:

- CONCRETE

COEFFICIENT OF THERMAL EXPANSION	=	6.0 X 10^{-6}
TEMPERATURE RANGE	=	15 °F TO 95 °F
ASSUMED BASE CONSTRUCTION TEMPERATURE	=	60 °F

- STEEL

COEFICIENT OF THERMAL EXPANSION	=	6.5 x 10^{-6}
TEMPERATURE RANGE	=	-30 °F TO 120 °F
ASSUMED BASE CONSTRUCTION TEMPERATURE	=	60 °F

CONCRETE CREEP AND SHRINKAGE:

STRAINS ARE CALCULATED IN ACCORDANCE WITH THE CEB-FIP MODEL CODE 1990, RELATIVE HUMIDITY OF 70%

HANGER CABLE REPLACEMENT CASE:

THE DESIGN OF SUSPENSION STRUCTURE MUST PROVIDE FOR THE REPLACEMENT OF ANY INDIVIDUAL HANGER WITH NO LIVE LOAD IN THE AREA OF THE CABLE UNDER EXCHANGE. THE ALLOWABLE STRESSES ARE 125% OF THE DESIGN VALUES.

HANGER CABLE LOSS CASE:

THE DESIGN OF SUSPENSION STRUCTURE PERMITS THE LOSS OF ANY ONE HANGER WITHOUT THE OCCURENCE OF STRUCTURAL INSTABILITY. THE IMPACT DYNAMIC FORCE RESULTING FROM THE SUDDEN FRACTURE OF A HANGER IS OF A MAGNITUDE TWICE THAT OF THE STATIC FORCE IN THE CABLE AND ACTS AT BOTH THE TOP AND BOTTOM ANCHORAGE.

ROCK ANCHORS

TYPICAL STRENGTHS FOR LIMESTONE, AND ENGINEERING JUDGEMENT, S&ME RECOMMENDS AN ULTIMATE BOND STRESS OF 150 psi BETWEEN THE ANCHOR GROUT AND INTACT/COMPETENT LIMESTONE BEDROCK. THIS ULTIMATE BOND STRESS RECOMMENDATION IS FOR GRAVITY GROUTED STRAIGHT-SHAFT ANCHORS INSTALLED IN SMALL DIAMETER HOLES. ANCHORS GROUTED THIS WAY SHOULD BE INSTALLED A MINIMUM OF 10 DEGREES FROM HORIZONTAL AND HAVE A MINIMUM OVERBURDEN DEPTH OF 15 FEET. THE MINIMUM RECOMMENDED ANCHOR LENGTH IS 10 FEET AND THE MAXIMUM RECOMMENDED ANCHOR LENGTH IN ROCK IS 35 FEET. HORIZONTAL (CENTER-TO-CENTER) SPACING BETWEEN ANCHORS SHOULD BE THREE TIMES THE DIAMETER OF THE DRILL SOCKET OR 5 FEET, WHICHEVER IS GREATER.

D — MATERIALS

CONCRETE STRENGTH AT 28 DAYS:

SUPERSTRUCTURE DECK (CLASS QC2), f'c	=	4.5 ksi
SUBSTRUCTURE (CLASS QC1), f'c	=	4.0 ksi
PYLON (CLASS QC3), f'c	=	6.0 ksi
FOUNDATIONS (CLASS QC2 OR CLASS QC4), f'c	=	4.0 ksi
FOUNDATIONS PIER 4 AND ABUTMENT 7, f'c	=	5.0 ksi

REINFORCING STEEL:

ALL REINFORCING BARS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A706 GR. 60

ALL REINFORCING BARS SHALL BE EPOXY COATED PER ASTM M284 (A775)

END HOOKS FOR REINFORCING BARS TO BE STANDARD HOOKS UNLESS OTHERWISE NOTED.

MECHANICAL COUPLERS MAY BE USED IN LIEU OF LAP SPLICES AS DETERMINED BY THE CONTRACTOR CLEAR COVER FOR REINFORCING STEEL. UNLESS OTHERWISE NOTED. FOR BAR MARK ANNOTATIONS NOT SHOWN SEE DWG. NO. 0104-00:

FOUNDATIONS	=	3.0 IN. MIN
SUBSTRUCTURES	=	3.0 IN. MIN
SUPERSTRUCTURE	=	1.5 IN. MIN. TOP SURFACES
	=	1.0 IN. MIN BOTTOM SURFACES
PYLON	=	3.0 IN. NOMINAL
	=	2.0 IN. MIN
	=	6.0 IN. MAX

TENSION SPLICE (IN.) (3)				
BAR	EPOXY			
LOCATION	TOP (2)		OTHER	
SIZE/CLR.	(1)		(1)	
#4	35	33	31	23
#5	43	41	38	29
#6	52	49	46	35
#7	66	62	58	44
#8	87	82	76	59
#9	110	104	97	74
#10	139	132	123	94
#11	171	162	151	116

NOTES:

1. FOR EPOXY BARS WITH COVER LESS THAN *3d_b OR CLEAR SPACING BETWEEN BARS LESS THAN *6d_b (LRFD 5.11.2.1.2).
2. TOP BARS REFERS TO HORIZONTAL BARS WITH 12.0 IN. OF FRESH CONCRETE CAST BELOW THE REINFORCEMENT.
3. FOR BARS SPACED LATERALLY AT LEAST 6.0 IN. ON CENTER WITH AT LEAST 3.0 IN. CLEAR COVER MEASURED IN THE DIRECTION OF THE SPACING, REDUCE VALUE BY 20% (x0.80) (LRFD 5.11.2.1.3), BUT NOT LESS THAN 12.0 IN. PER LRFD 5.11.5.3.1).
4. VALUES SHOWN ARE FOR CLASS "C" LAP WITH f'c = 4,000 psi AND Fy=60,000 psi (LRFD 5.11.5.3.1)

* BAR DIAMETER

STRUCTURAL STEEL:

ALL SUPERSTRUCTURE STRUCTURAL STEEL UP TO 4" THICK SHALL BE A709, GRADE 50.

ALL STRUCTURAL STEEL OVER 4" TO 6" IN THICKNESS SHALL BE A572 OR A588 HSLA STEEL.

ALL CAST STEEL SHALL CONFORM TO ASTM A27 GRADE 70-36.

HIGH STRENGTH BOLTS ARE DESIGNED AS SLIP-CRITICAL CONNECTIONS UNLESS OTHERWISE NOTED.

UNLESS OTHERWISE NOTED, STEEL SURFACES SHALL BE PAINTED INSIDE AND OUTSIDE WITH INORGANIC ZINC EPOXY URETHANE IN ACCORDANCE WITH ODOT CMS SPEC 514, INTERMEDIATE COAT SHALL BE WHITE. FINISH COAT SHALL BE FEDERAL COLOR NUMBER 17178 (ALUMINUM/SILVER.

ALL STRUCTURAL STEEL MEMBERS DENOTED WITH "ZT" SHALL CONFORM TO ASTM A770.

UNLESS OTHERWISE NOTED, STRUCTURAL STEEL SURFACES SHALL SATISFY CLASS B SURFACE CONDITION.

MINIMUM BOLT EDGE DISTANCE IS BASED OFF GAS CUT EDGES.

MAIN CABLE AND HANGERS:

MAIN CABLE: FULL LOCKED COIL STRANDS OF MAIN CABLE TO HAVE A MINIMUM MODULUS OF ELASTICITY OF 24,000 ksi AND CONFORM TO ASTM A603 CLASS C. CABLE SHALL BE GALFAN COATED AND CONFORM TO ASTM B750.

HANGERS: FULL LOCKED COIL STRANDS OF HANGER CABLES TO HAVE A MINIMUM MODULUS OF ELASTICITY OF 24,000 ksi AND CONFORM TO ASTM A603 CLASS A. CABLES SHALL BE GALFAN COATED AND CONFORM TO ASTM B750.

SPLICING OF STRANDS IS NOT PERMITTED.

ALL STRAND AND ROPE ELEMENTS WILL BE GALVANIZED AND BE GR. 1 WITH CLASS A COATING ON THE INNER WIRES AND CLASS C COATING ON OUTER WIRES.

HARDWARE ASSOCIATED WITH STRAND AND ROPE SUPPORT SYSTEMS WILL BE GALVANIZED ACCORDING TO ASTM A123/A153 STANDARDS.

CASTING OF SUSPENSION CABLE ANCHORAGES MUST CONFORM TO ASTM A148.

STRUCTURAL STEEL OF SUSPENSION CABLE SADDLES AND ANCHORAGES MUST CONFORM TO ASTM A790.

DO NOT SCALE THIS DRAWING.
FOLLOW DIMENSIONS INDICATED.

△	DATE	REVISION	BY

DRAFTER: O. Colcol
DESIGNER: A. Monsefan
CHECKER: M. Nader
REVIEWER: A. Monsefan

DESIGNER
STATE OF OHIO — MARWAN M. NADER E-79418 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES: 12/31/2017

T·Y·LIN INTERNATIONAL
engineers | planners | scientists

STRUCTURE FILE NO. 2567000
DATE 2017/03/24
CALC. BOOK

SCIOTO RIVER
PEDESTRIAN BRIDGE
DUBLIN, OHIO

GENERAL NOTES 1

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DRAWING NO. 0103-00

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E — DESIGN METHODS

REINFORCED CONCRETE: STRENGTH DESIGN METHOD IN ACCORDANCE WITH AASHTO LRFD.

STRUCTURAL STEEL: STRENGTH DESIGN METHOD IN ACCORDANCE WITH AASHTO LRFD.

MAIN CABLES AND HANGERS: THE MAIN SUSPENSION CABLE AND HANGERS MUST HAVE A FACTOR OF SAFETY OF 2.5 UNDER AASHTO LRFD SERVICE I LOAD COMBINATION.

CABLE SADDLES AND TRANSITION DETAILS ARE DESIGNED TO PRECLUDE SLIP AND FRETTING OF THE CABLE AT 125% OF THE MAXIMUM LOAD DIFFERENTIAL FOR ALL SERVICEABILITY AND STRENGTH LIMIT STATES.

F — HYDROLOGIC DATA

Q10 DISCHARGE VELOCITY	=	7.40 FT./s
Q50 DISCHARGE VELOCITY	=	8.55 FT./s
Q100 DISCHARGE VELOCITY	=	9.02 FT./s
Q500 DISCHARGE VELOCITY	=	10.59 FT./s
ORDINARY WATER HIGH MARK	=	758.00 FT.
Q10 FLOOD ELEVATION	=	770.29 FT.
Q50 FLOOD ELEVATION	=	774.89 FT.
Q100 FLOOD ELEVATION	=	777.01 FT.
Q500 FLOOD ELEVATION	=	781.83 FT.
Q10 FLOW RATE	=	29,600 CFS
Q50 FLOW RATE	=	48,500 CFS
Q100 FLOW RATE	=	58,300 CFS
Q500 FLOW RATE	=	85,500 CFS

G — MISCELLANEOUS

ELEVATIONS SHOWN ON THE PLANS ARE FINAL LOCATIONS BASED ON THE OHIO STATE PLANE COORDINATE SYSTEM. SEE DWG. NO. 0100-00 FOR DESCRIPTION.

FORMED CONCRETE CORNERS AND EDGES MUST HAVE A CHAMFER OF ¾" UNLESS NOTED OTHERWISE.

THE BACK FACE OF ABUTMENTS MUST BE WATERPROOFED ACCORDING TO THE PLANS AND SPECIAL PROVISIONS.

ALL PENETRATIONS IN BRIDGE DECK TO BE WATERTIGHT SEALED AT THE END OF CONSTRUCTION.

DEWATERING AND ALL COSTS ASSOCIATED WITH DEWATERING ARE THE CONTRACTOR'S RESPONSIBILITY.

⚠1 FIELD WELDING WILL NOT BE PERMITTED UNLESS APPROVED BY THE ENGINEER OR UNLESS OTHERWISE NOTED.

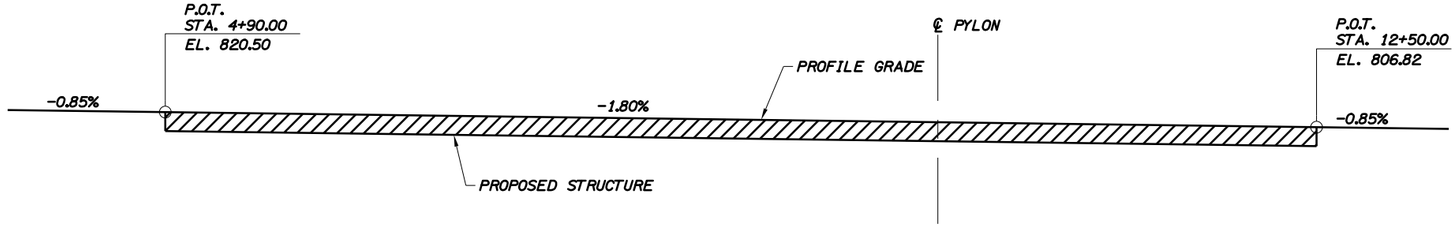
THE CONTRACTOR MUST MAKE ALLOWANCE FOR THE DEFLECTION OF FORMS, SHRINKAGE, AND SETTLEMENT OF FALSEWORK, IN ADDITION TO ALLOWANCE FOR DEAD LOAD DEFLECTIONS.

STRANDS AND BARS MUST BE PACKAGED AND SHIPPED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF ASTM A700-99E1, "STANDARD PRACTICES FOR PACKAGING, MARKING, AND LOADING METHODS FOR STEEL PRODUCTS FOR DOMESTIC SHIPMENT" FOR THE PROTECTION OF STEEL AGAINST PHYSICAL DAMAGE AND CORROSION.

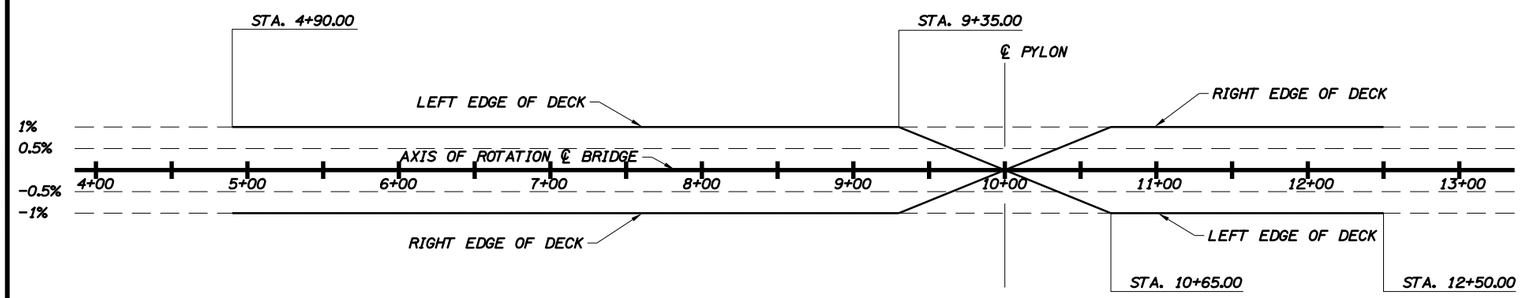
ALL ITEMS DESIGNATED FCM, INCLUDING ALL WELDED ATTACHMENTS LONGER THAN 4" IN THE DIRECTION OF PRIMARY STRESS, ARE FRACTURE CRITICAL MEMBERS AND COMPONENTS AND SHALL BE FURNISHED AND FABRICATED ACCORDING TO THE REQUIREMENT'S OF SECTION 12 OF THE AASHTO/AWS BRIDGE WELDING CODE D1.5. SEE DWG. NO. 4004-00 FOR DESIGNATION OF FRACTURE CRITICAL MEMBERS.

H — ABBREVIATIONS

AASHTO	=	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ABUT.	=	ABUTMENT
ACI	=	AMERICAN CONCRETE INSTITUTE
ADDL.	=	ADDITIONAL
APPROX.	=	APPROXIMATELY
ASTM	=	AMERICAN SOCIETY OF THE INTERNATIONAL ASSOCIATION FOR TESTING AND MATERIALS
AWS	=	AMERICAN WELDING SOCIETY
B.O.F.	=	BOTTOM OF FOOTING
BB	=	BEGIN BRIDGE
BRG.	=	BEARING
BK.	=	BACK
BOT.	=	BOTTOM
CIP	=	CAST-IN-PLACE
C.J.	=	CONSTRUCTION JOINT
CJP	=	COMPLETE JOINT PENETRATION
℄	=	CENTERLINE
CLR.	=	CLEAR
CONC.	=	CONCRETE
CU.	=	CUBIC
CVN	=	NOTCHED BAR IMPACT TESTING OF METALLIC MATERIALS
DEG. °	=	DEGREE
DIA.	=	DIAMETER
DWG.	=	DRAWING
DWGS.	=	DRAWINGS
EA.	=	EACH
EB	=	END BRIDGE
E.F.	=	EACH FACE
E.J.	=	EXPANSION JOINT
EL.	=	ELEVATION
EQ.	=	EQUAL
EXP.	=	EXPANSION
F	=	FAHRENHEIT
F.F.	=	FRONT FACE
FCM	=	FRACTURE CRITICAL MEMBER
FIX.	=	FIXED
FLG.	=	FLANGE
F.G	=	FINISHED GROUND
F.A.	=	FACTOR OF SAFETY
FT.	=	FEET
FTG.	=	FOOTING
FY	=	YIELD STRESS
GALV.	=	GALVANIZED
GR.	=	GRADE
H.S.	=	HIGH STRENGTH
HORIZ.	=	HORIZONTALLY
I.D.	=	INSIDE DIAMETER
IN.	=	INCH
K	=	KIPS
ksi	=	KIPS PER SQUARE FOOT
LBS	=	POUNDS
LIN.	=	LINEAR
LONG.	=	LONGITUDINAL
LT.	=	LEFT
LRFD	=	LOAD AND RESISTANCE FACTOR DESIGN
MAX.	=	MAXIMUM
MIN.	=	MINIMUM
M.R.	=	MOVEMENT RATING
N.F.	=	NEAR FACE
NO. . #	=	NUMBER
NOS.	=	NUMBERS
O.D.	=	OUTSIDE DIAMETER
ODOT	=	OHIO DEPARTMENT OF TRANSPORTATION
O.G.	=	ORIGINAL GROUND
O.H.W.M.	=	ORDINARY HIGH WATER MARK
℄	=	PLATE
PC	=	POINT OF CURVE
PCC	=	POINT OF COMPOUND CURVE
PCF	=	POUNDS PER CUBIC FOOT
P.G.L.	=	PROFILE GRADE LINE
P.I.	=	POINT OF INTERSECTION
P.O.C.	=	POINT ON CURVE
P.O.T.	=	POINT ON TANGENT
P.R.C.	=	POINT OF REVERSING CURVE
PSF	=	POUNDS PER SQUARE FOOT
psi	=	POUNDS PER SQUARE INCH
PT	=	POINT
P-T	=	POST TENSIONING
P.V.T.	=	POINT OF VERTICAL TANGENT
R.	=	RADIUS
REINF.	=	REINFORCING
RT.	=	RIGHT
REQ'D	=	REQUIRED
R.F.	=	REAR FACE
SHLDR.	=	SHOULDER
SIM.	=	SIMILAR
SL.	=	SLOPE
SPA.	=	SPACES
STA.	=	STATION
STD.	=	STANDARD
STIFF.	=	STIFFENER
SHT.	=	SHEET
S.S.	=	STAINLESS STEEL
SQ.	=	SQUARE
SYMM.	=	SYMMETRIC
TB	=	TRANSVERSE BEAM
tbf	=	STEEL PLATE THICKNESS, BOTTOM FLANGE
TMD	=	TUNED MASS DAMPER
TOT.	=	TOTAL
TRANS.	=	TRANSVERSE
tff	=	STEEL PLATE THICKNESS, TOP FLANGE
TYP.	=	TYPICAL
tw	=	STEEL PLATE THICKNESS, WEB
U.N.O.	=	UNLESS NOTED OTHERWISE
VERT.	=	VERTICAL
W/	=	WITH
W.P.	=	WORK POINT
YD.	=	YARD



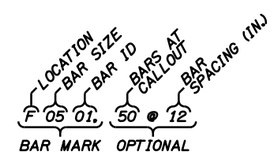
PROFILE GRADELINE DIAGRAM



SUPERELEVATION DIAGRAM

BAR MARK ANNOTATION:

LOCATION KEY:
- EA - EAST ABUTMENT
- P - PYLON
- C - COLUMNS/PIERS
- D - BRIDGE DECK
- F - FOUNDATIONS



DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS INDICATED.

⚠	DATE	REVISION	BY
1	3/31/17	UPDATED FIELD WELD NOTE	RS

DRAFTER: O. Colcol
DESIGNER: A. Monsefan
CHECKER: M. Nader
REVIEWER: A. Monsefan

DESIGNER
STATE OF OHIO — MARWAN M. NADER E-79418 — REGISTERED PROFESSIONAL ENGINEER
EXPIRES: 12/31/2017

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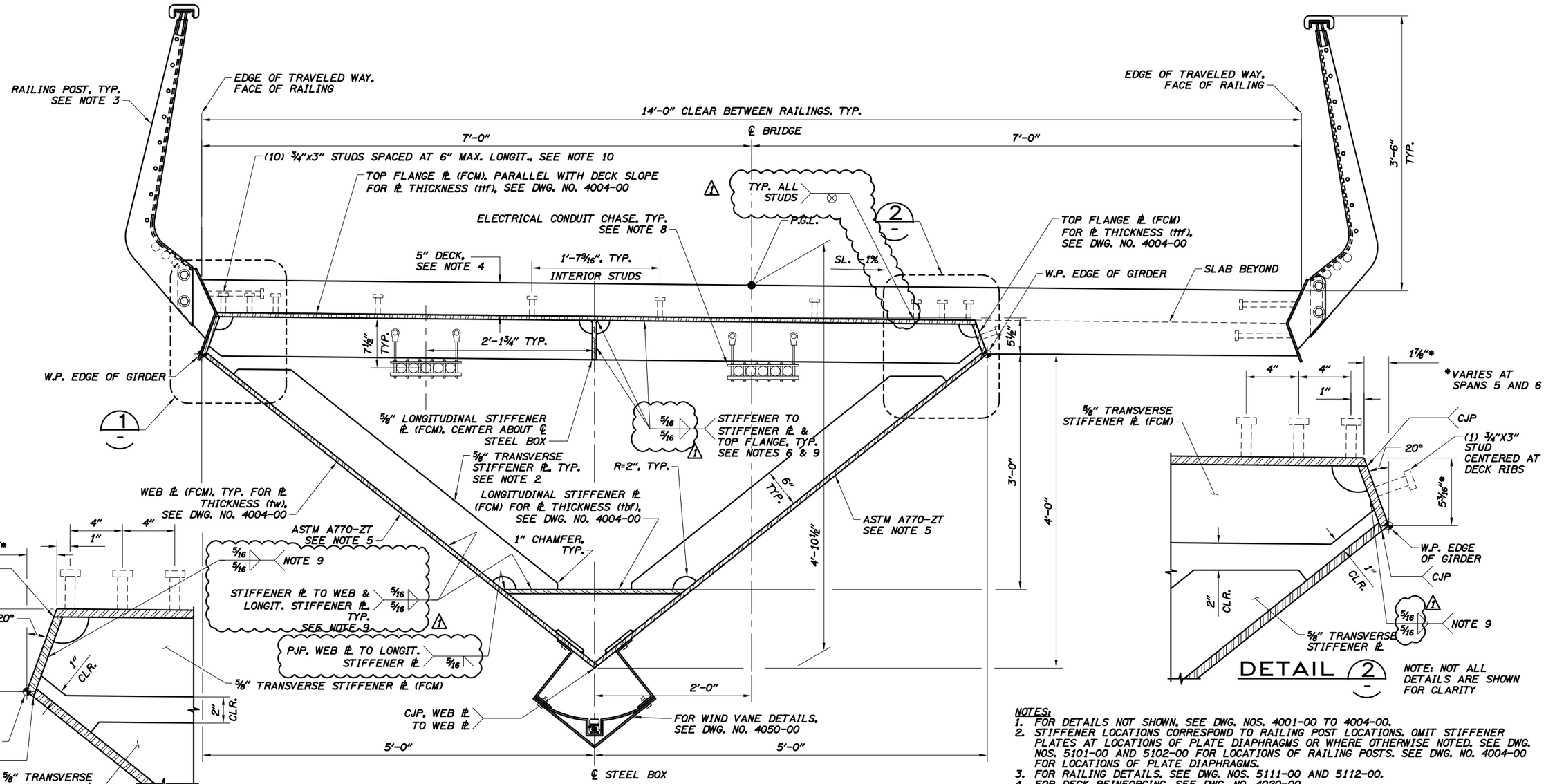
STRUCTURE FILE NO. 2567000
DATE 2017/03/24
CALC. BOOK

SCIOTO RIVER PEDESTRIAN BRIDGE DUBLIN, OHIO

GENERAL NOTES 2

SHEET NO. 6 / 185
DRAWING NO. 0104-00

3/31/2017 9:52:02 PM
DUB_0104-00_TYLI_GENERAL NOTES 2.dwg



*VARIES AT SPANS 5 AND 6

DETAIL 1

NOTE: NOT ALL DETAILS ARE SHOWN FOR CLARITY

TYPICAL SECTION AT APPROACH SPAN

DETAIL 2

NOTE: NOT ALL DETAILS ARE SHOWN FOR CLARITY

NOTES:

1. FOR DETAILS NOT SHOWN, SEE DWG. NOS. 4001-00 TO 4004-00.
2. STIFFENER LOCATIONS CORRESPOND TO RAILING POST LOCATIONS. OMIT STIFFENER PLATES AT LOCATIONS OF PLATE DIAPHRAGMS OR WHERE OTHERWISE NOTED. SEE DWG. NOS. 5101-00 AND 5102-00 FOR LOCATIONS OF RAILING POSTS. SEE DWG. NO. 4004-00 FOR LOCATIONS OF PLATE DIAPHRAGMS.
3. FOR RAILING DETAILS, SEE DWG. NOS. 5111-00 AND 5112-00.
4. FOR DECK REINFORCING, SEE DWG. NO. 4020-00.
5. PLATES GREATER THAN 1" THICKNESS AND DESIGNATED WITH "ZT" SHALL HAVE THROUGH THICKNESS QUALITY.
6. FOR WELDING DETAILS AT THE LONGITUDINAL STIFFENER, SEE "WELD CONNECTION DETAIL" ON DWG. NO. 0150-00.
7. MEMBERS DESIGNATED WITH FCM ARE FRACTURE CRITICAL MEMBERS. THE WELD INSPECTION REQUIREMENTS APPLY PER THE APPLICABLE SPECIFICATIONS. ALL WELDED ATTACHMENTS TO A FCM THAT ARE LONGER THAN 4" IN THE DIRECTION OF PRIMARY STRESS SHALL BE TREATED AS PART OF THE FCM MEMBER.
8. CONDUIT HANGER SUPPORTS SPACED AT 13'-0" MAXIMUM. ADJUST CONDUITS AND THEIR SUPPORTS AS NEEDED TO AVOID CONFLICTS.
9. TERMINATE WELDS ½" FROM END OF MEMBER.
10. ADJUST SPACING OF DECK STUDS TO AVOID CONFLICT WITH ANCHOR STUDS AT RAILING POSTS.

DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS INDICATED.

△	DATE	REVISION	BY
1	3/31/17	ADDED WELD, REVISED WELD SIZE	SP

DRAFTER: R. Stone
DESIGNER: S. Piras
CHECKER: M. Nader
REVIEWER: S. Piras

DESIGNER
MARWAN M. NADER E-79418 REGISTERED PROFESSIONAL ENGINEER
STATE OF OHIO
EXPIRES: 12/31/2017

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DATE 2017/03/24
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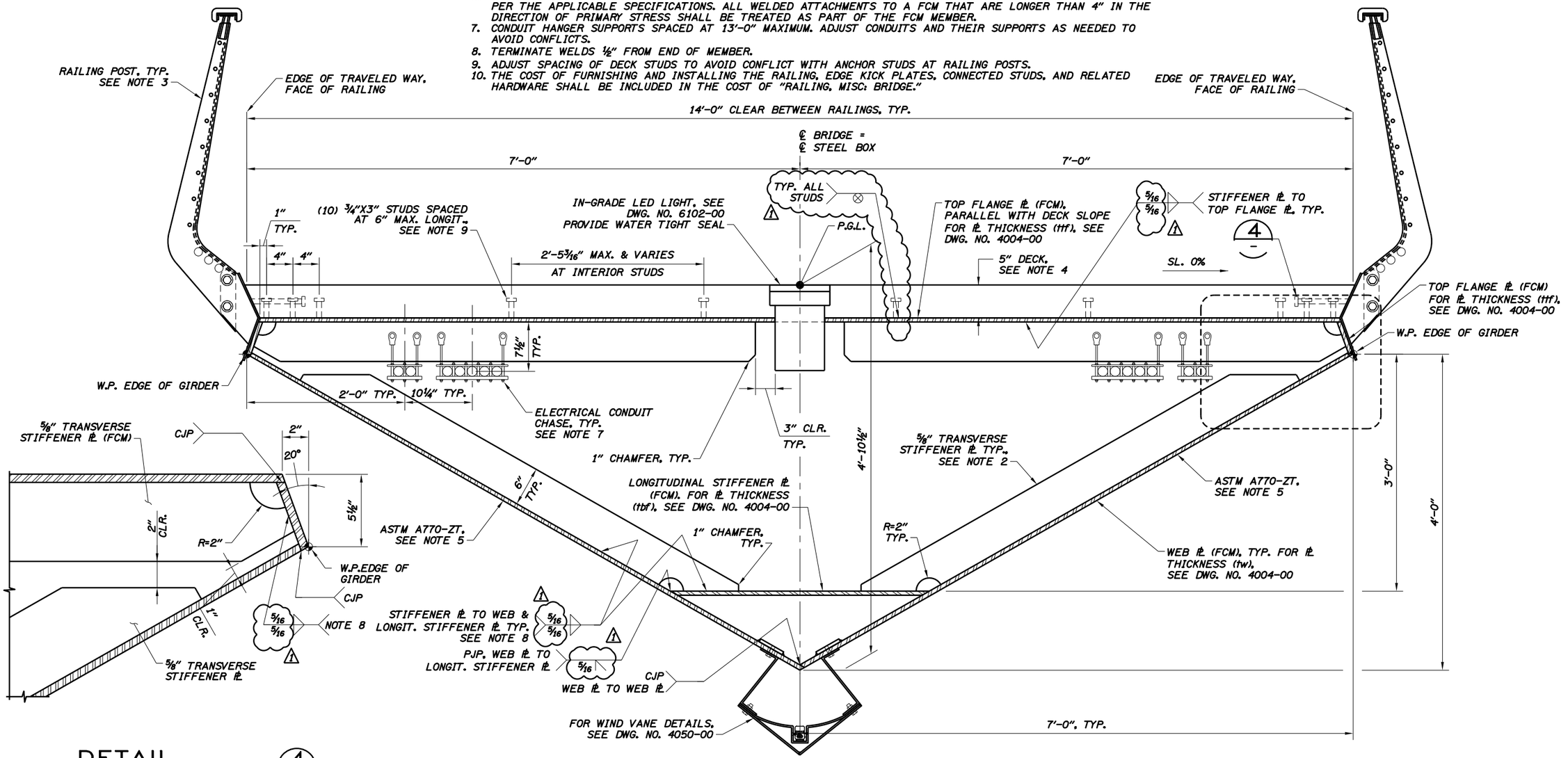
SCIOTO RIVER PEDESTRIAN BRIDGE DUBLIN, OHIO

APPROACH SPAN CROSS SECTION

SHEET NO. 27 / 185
DRAWING NO. 0149-00

DUB_0149-00_TYLI_APPROACH_SPAN_CROSS_SECTION.dwg 3/31/2017 9:53:46 PM

NOTES:
1. FOR TYPICAL SECTION DETAILS NOT SHOWN, SEE DWG. NO. 0149-00.
2. STIFFENER LOCATIONS CORRESPOND TO RAILING POST LOCATIONS. OMIT STIFFENER PLATES AT LOCATIONS OF PLATE DIAPHRAGMS OR WHERE OTHERWISE NOTED. SEE DWG. NOS. 5101-00 & 5102-00 FOR LOCATIONS OF RAILING POSTS. SEE DWG. NO. 4004-00 FOR LOCATIONS OF PLATE DIAPHRAGMS.
3. FOR RAILING DETAILS, SEE DWG. NOS. 5111-00 & 5112-00.
4. FOR DECK REINFORCING, SEE DWG. NO. 4020-00.
5. PLATES GREATER THAN 1" THICKNESS AND DESIGNATED WITH "ZT" SHALL HAVE THROUGH THICKNESS QUALITY.
6. MEMBERS DESIGNATED WITH FCM ARE FRACTURE CRITICAL MEMBERS. THE WELD INSPECTION REQUIREMENTS APPLY PER THE APPLICABLE SPECIFICATIONS. ALL WELDED ATTACHMENTS TO A FCM THAT ARE LONGER THAN 4" IN THE DIRECTION OF PRIMARY STRESS SHALL BE TREATED AS PART OF THE FCM MEMBER.
7. CONDUIT HANGER SUPPORTS SPACED AT 13'-0" MAXIMUM. ADJUST CONDUITS AND THEIR SUPPORTS AS NEEDED TO AVOID CONFLICTS.
8. TERMINATE WELDS ½" FROM END OF MEMBER.
9. ADJUST SPACING OF DECK STUDS TO AVOID CONFLICT WITH ANCHOR STUDS AT RAILING POSTS.
10. THE COST OF FURNISHING AND INSTALLING THE RAILING, EDGE KICK PLATES, CONNECTED STUDS, AND RELATED HARDWARE SHALL BE INCLUDED IN THE COST OF "RAILING, MISC: BRIDGE."



DETAIL 4
RIGHT SHOWN, LEFT SIMILAR

TYPICAL SECTION AT STA. 10+00

DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS INDICATED.

NOTE: NOT ALL DETAILS ARE SHOWN FOR CLARITY

△	DATE	REVISION	BY
1	3/31/17	ADDED WELD, REVISED WELD SIZE	SP

DRAFTER: O. Colcol
DESIGNER: S. Piras
CHECKER: M. Nader
REVIEWER: S. Piras

DESIGNER
STATE OF OHIO MARWAN M. NADER E-79418 REGISTERED PROFESSIONAL ENGINEER
EXPIRES: 12/31/2017

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DATE 2017/03/24
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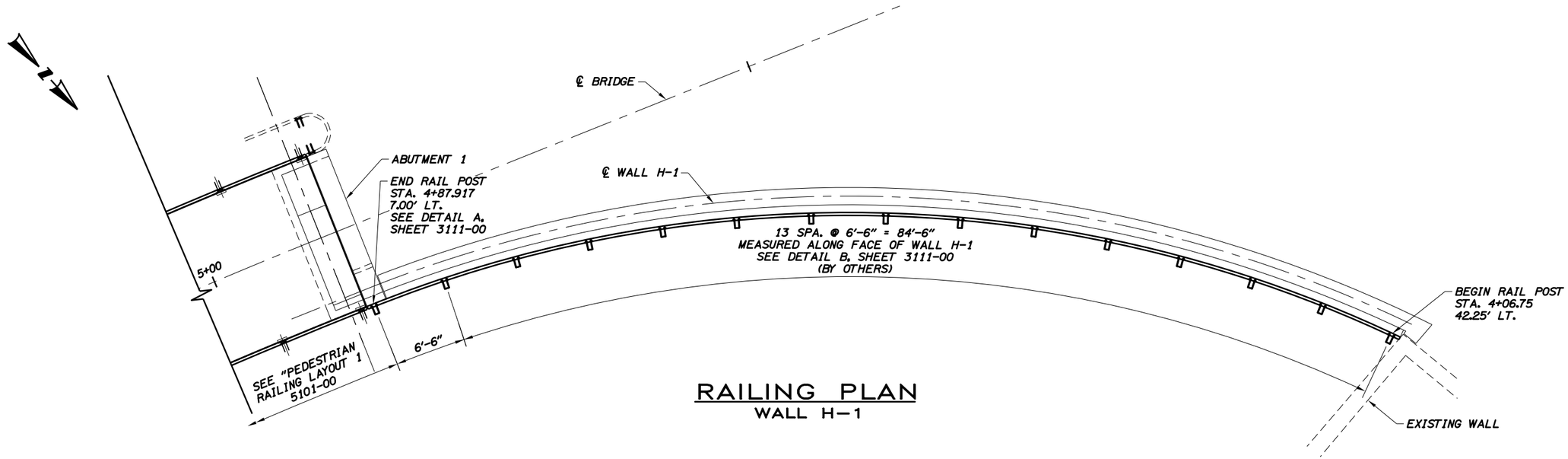
SCIOTO RIVER PEDESTRIAN BRIDGE DUBLIN, OHIO

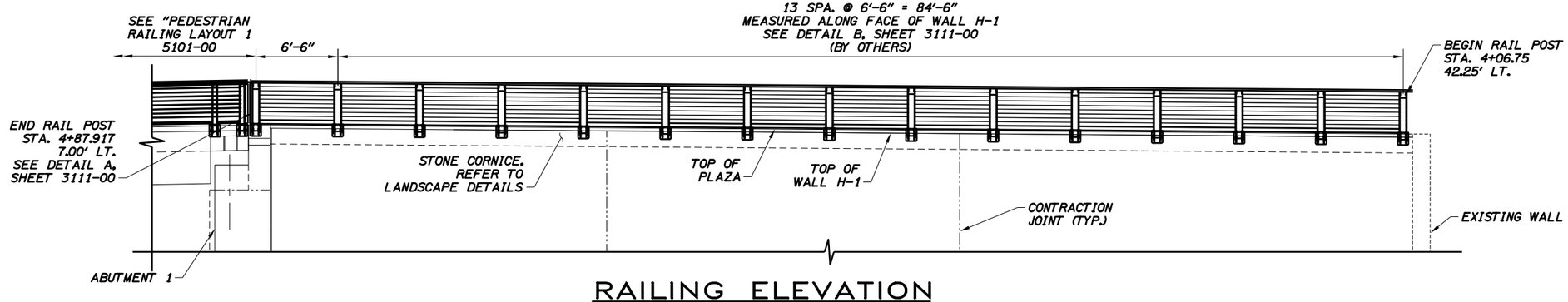
CROSS SECTION AT PYLON

SHEET NO. 29 / 185
DRAWING NO. 0151-00

3/31/2017 9:54:37 PM
DUB_0151-00_TYLI_PYLON BRIDGE CROSS SECTION.dwg



RAILING PLAN
WALL H-1



RAILING ELEVATION
ALONG FACE OF WALL H-1

PROPOSED HANDRAIL ON SHEETS 3110-00 AND 3111-00 ARE BY OTHERS.

DO NOT SCALE THIS DRAWING.
FOLLOW DIMENSIONS INDICATED.

△	DATE	REVISION	BY

DRAFTER: D. Sells
DESIGNER: J. Miller
CHECKER: N. Khedekar
REVIEWER: J. Mellman

DESIGNER
STATE OF OHIO
NIKHIL C. KHEDEKAR
E-64638
REGISTERED PROFESSIONAL ENGINEER
EXPIRES: 12/31/2017

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RESOURCE INTERNATIONAL INC.
6350 PRESIDENTIAL GATEWAY
COLUMBUS, OHIO 43231
(614) 823-4949

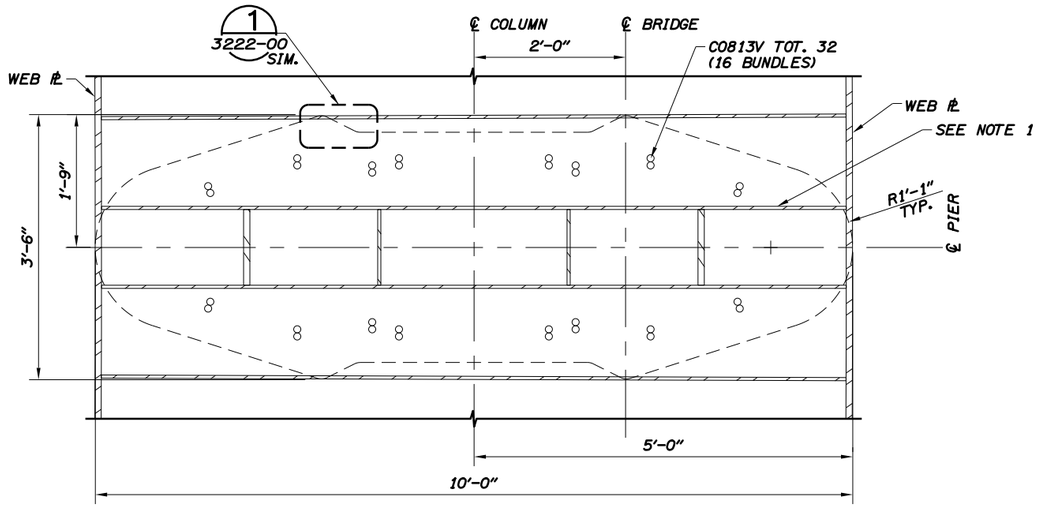
STRUCTURE FILE NO. 2567000
DATE 2017/03/24
CALC. BOOK

SCIOTO RIVER PEDESTRIAN BRIDGE DUBLIN, OHIO

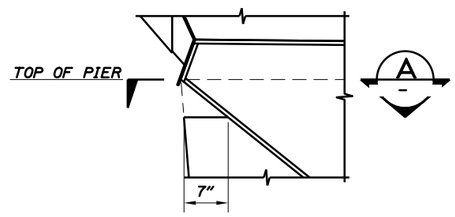
WEST ABUTMENT AND WALL H-1 RAILING DETAILS 1

SHEET NO. 53 / 185
DRAWING NO. 3110-00

3/24/2017 6:32:51 PM
DUB_3110-00_RI_RAILING DETAILS 1.dwg

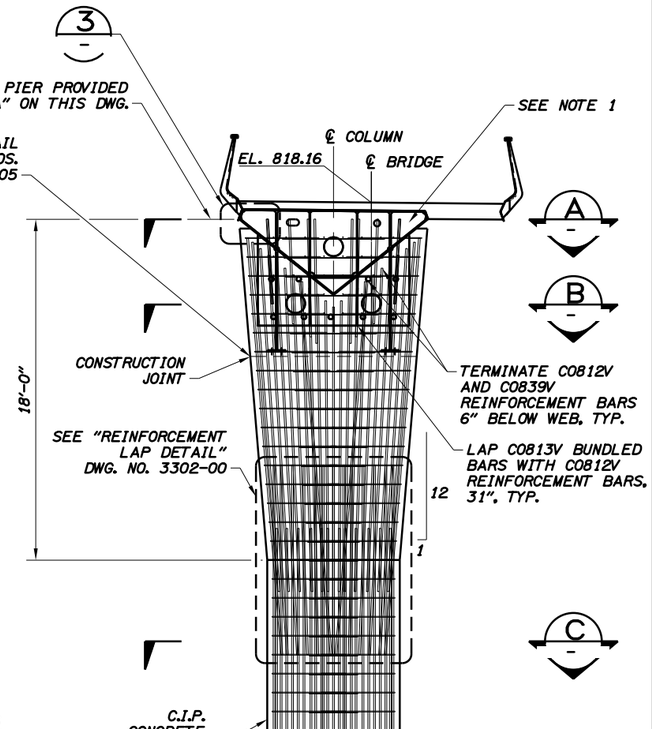


SECTION A
EL. 817.29

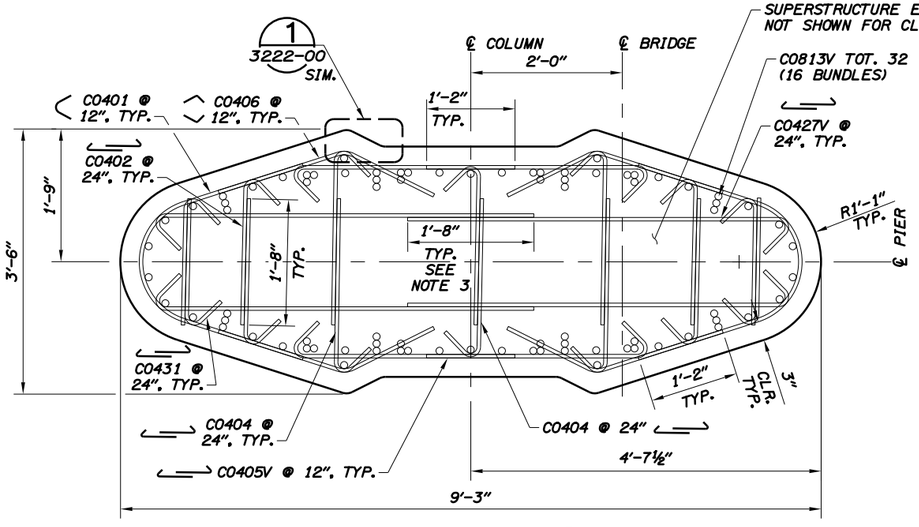


DETAIL 3
PIER CHAMFER

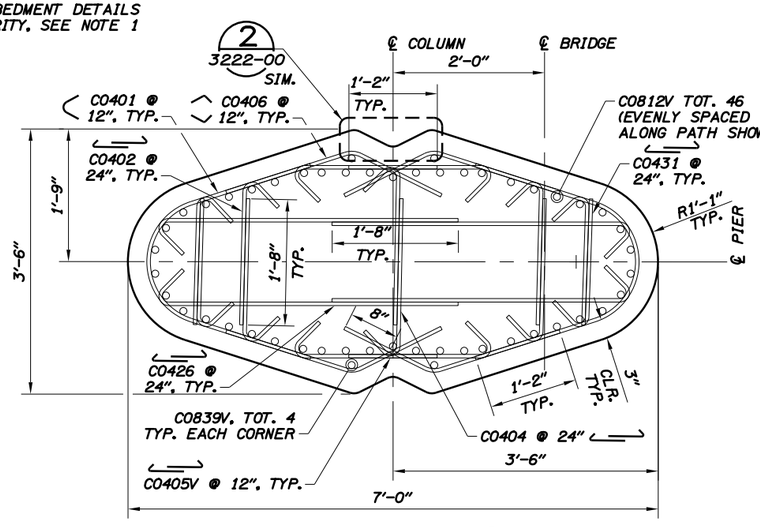
NOTE:
REINFORCEMENT OMITTED FOR CLARITY.
LEFT SIDE SHOWN. RIGHT SIDE SIMILAR.



FRONT ELEVATION
(LOOKING UPSTATION)



SECTION B
EL. 812.79



SECTION C
EL. 795.00

NOTES:
1. DIAPHRAGM SHOWN FOR REFERENCE ONLY. FOR DIAPHRAGM DETAILS, SEE DWG. NOS. 4005-00 TO 4006-05. CONTRACTOR MAY ADJUST REINFORCEMENT IN FIELD AS NECESSARY TO ADDRESS CONFLICTS WITH DIAPHRAGM.
2. FOR FOUNDATION REINFORCEMENT, SEE DWG. NO. 1131-00.
3. TERMINATE C0427V REINFORCEMENT BARS 1" FROM FACE OF WEB ℄, WHERE INTERSECTING.
4. THE COST OF FURNISHING AND INSTALLING WEB PLATES, DIAPHRAGM PLATES, AND STIFFENERS SHALL BE INCLUDED IN THE COST OF "STRUCTURAL STEEL MEMBERS, LEVEL 6, AS PER PLAN".

DO NOT SCALE THIS DRAWING.
FOLLOW DIMENSIONS INDICATED.

△	DATE	REVISION	BY

DRAFTER: R. Stone
DESIGNER: A. Monsefan
CHECKER: M. Nader
REVIEWER: A. Monsefan

DESIGNER
STATE OF OHIO
MARWAN M. NADER
E-79418
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES: 12/31/2017

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STRUCTURE FILE NO. 2567000
DATE 2017/03/24
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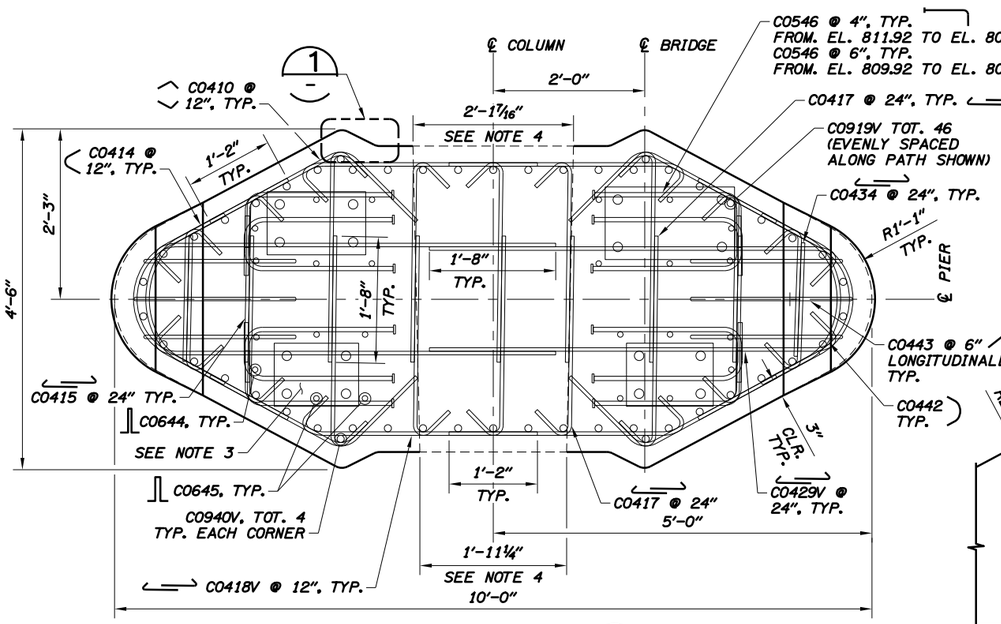
SCIOTO RIVER PEDESTRIAN BRIDGE DUBLIN, OHIO

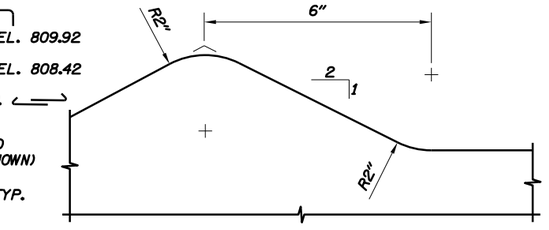
PIER 3 LAYOUT

SHEET NO. 69 / 185
DRAWING NO. 3232-00

3/24/2017 6:45:01 PM
DUB_3232-00_TYLI_PIER 3 LAYOUT.dwg

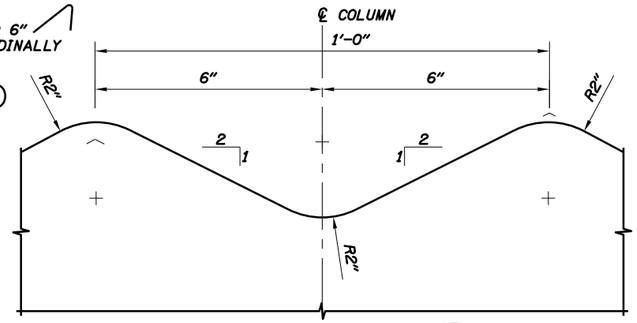


SECTION A
EL. 811.923



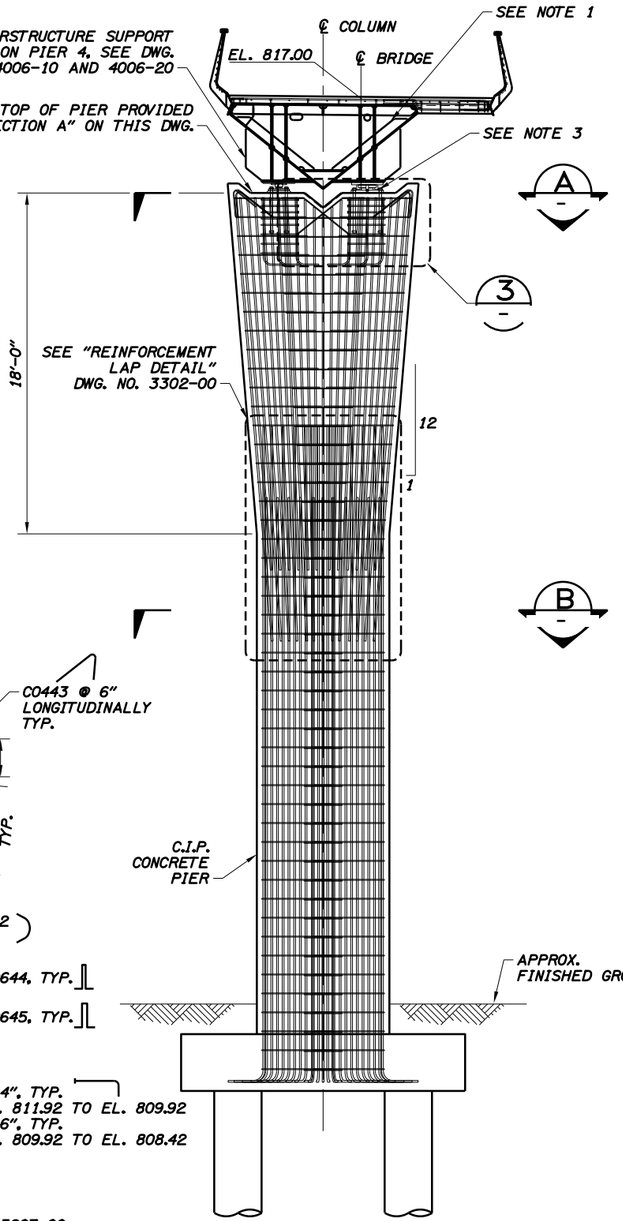
DETAIL 1
PIER CHAMFER

NOTE:
REINFORCEMENT OMITTED FOR CLARITY.

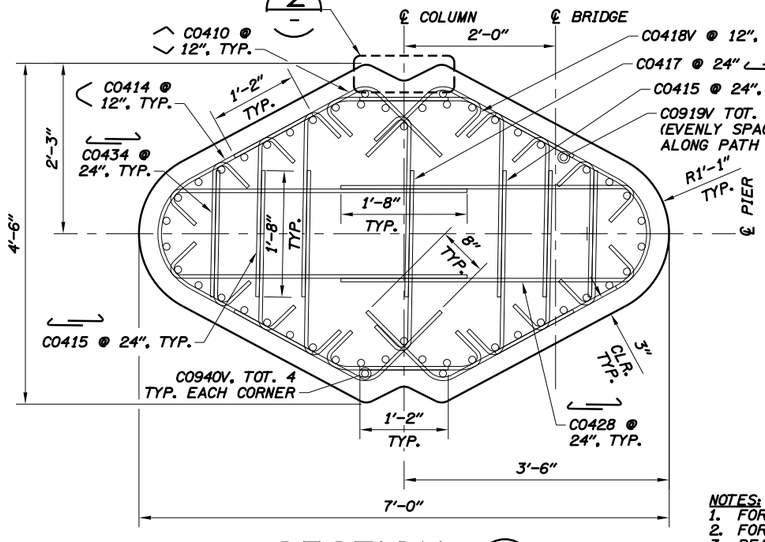


DETAIL 2
PIER CHAMFER

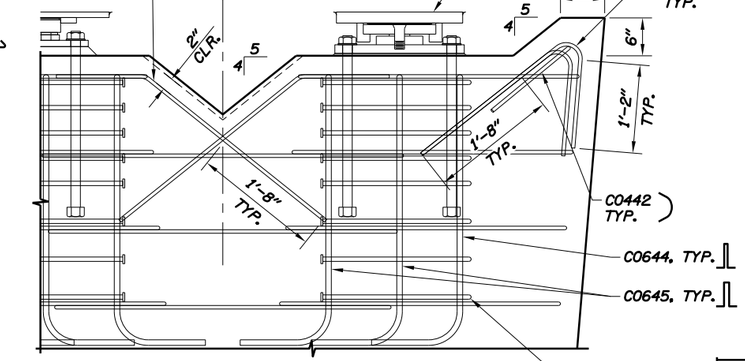
NOTE:
REINFORCEMENT OMITTED FOR CLARITY.



FRONT ELEVATION
(LOOKING UPSTATION)



SECTION B
EL. 790.00



DETAIL 3
TOP OF PIER

NOTE:
SUPERSTRUCTURE AND VERTICAL REINFORCEMENT OMITTED FOR CLARITY.

NOTES:
1. FOR DIAPHRAGM DETAILS, SEE DWG. NOS. 4006-10 TO 4006-20.
2. FOR FOUNDATION REINFORCING, SEE DWG. NOS. 1141-00 TO 1145-00.
3. BEARINGS SHOWN FOR REFERENCE ONLY. FOR BEARING DETAILS, SEE DWG. NOS. 5205-00 TO 5207-00.
4. CHANNEL IN TOP OF PIER TO LINE UP WITH WIND VANE GEOMETRY. SEE DWG. NO. 4050-00 FOR WIND VANE DETAILS.
5. THE COST OF FURNISHING AND INSTALLING BEARINGS, PLATES, AND RELATED HARDWARE SHALL BE INCLUDED IN THE COST OF "STRUCTURAL STEEL MEMBERS, SPECIALIZED MULTI ROTATIONAL BEARING (SMR), LEVEL UF".

DO NOT SCALE THIS DRAWING.
FOLLOW DIMENSIONS INDICATED.

△	DATE	REVISION	BY

DRAFTER: R. Stone
DESIGNER: A. Monsefan
CHECKER: M. Nader
REVIEWER: A. Monsefan

DESIGNER
STATE OF OHIO
MARWAN M. NADER
E-79418
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES: 12/31/2017

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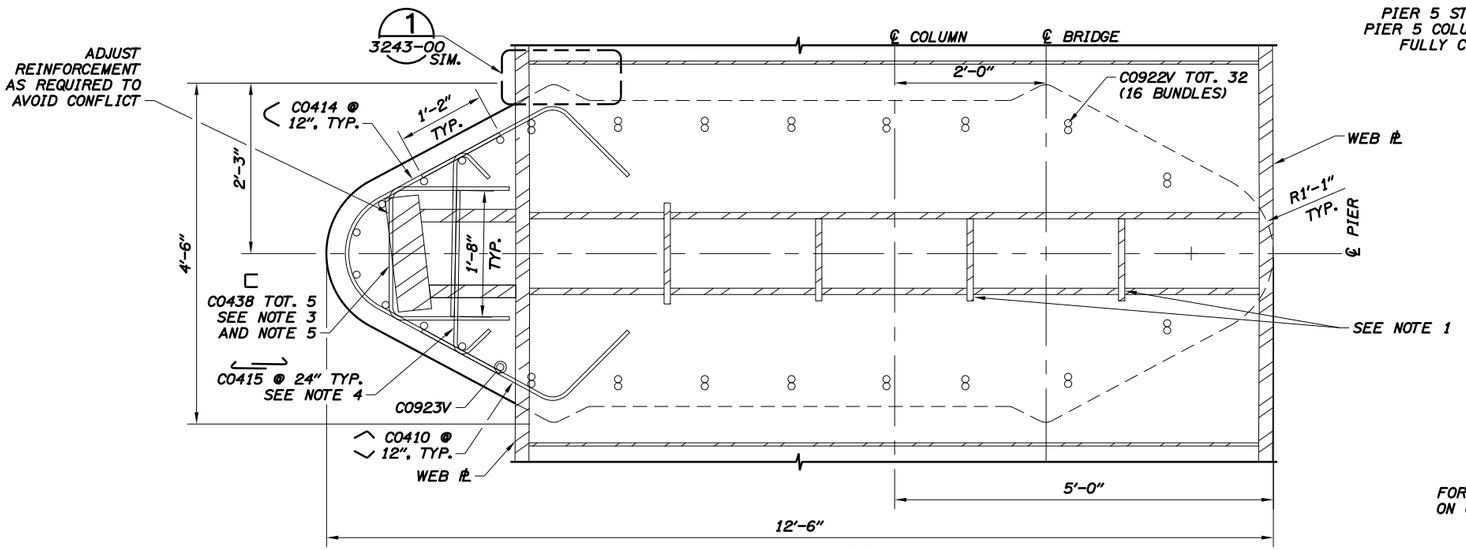
STRUCTURE FILE NO. 2567000
DATE 2017/03/24
CALC. BOOK

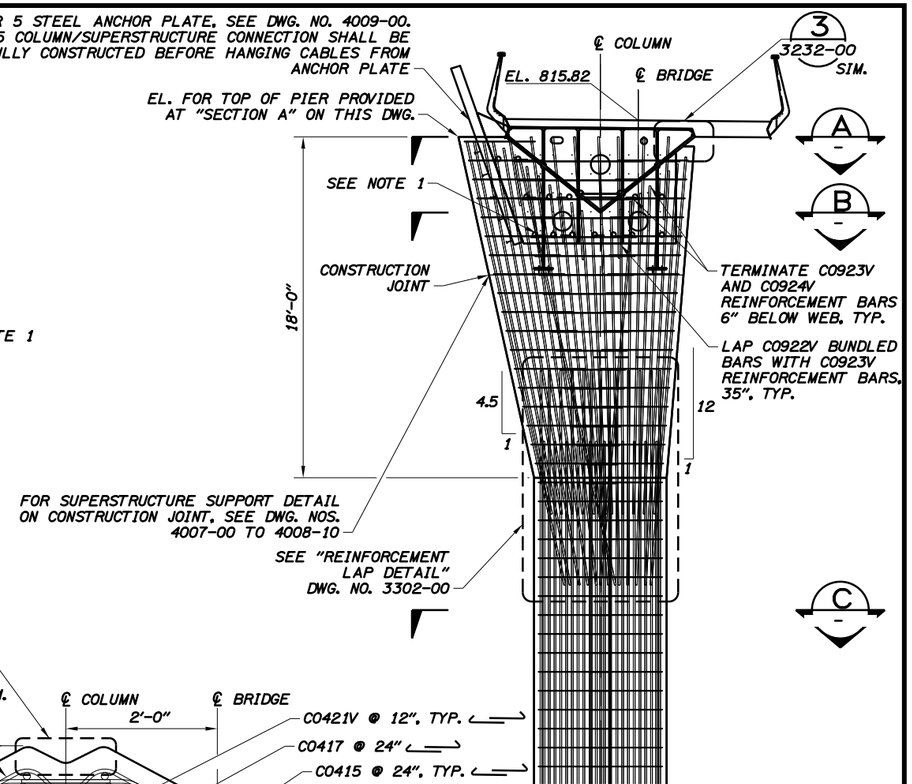
SCIOTO RIVER PEDESTRIAN BRIDGE DUBLIN, OHIO

PIER 4 LAYOUT

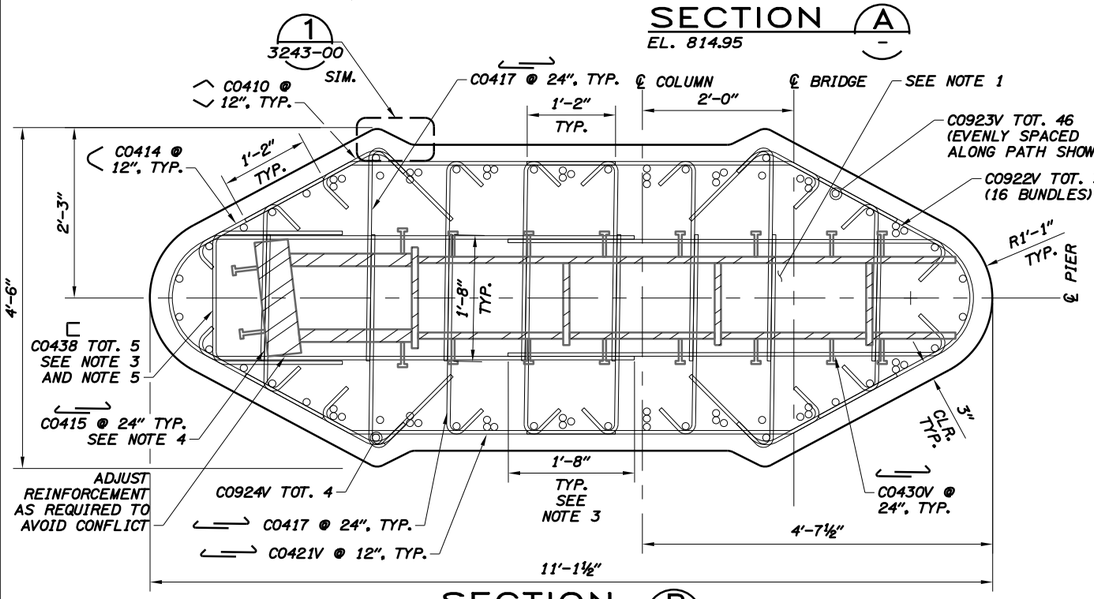
SHEET NO. 70 / 185
DRAWING NO. 3243-00

3/24/2017 6:36:20 PM
D:\B_3243-00_TYLI_PIER 4 LAYOUT.dwg

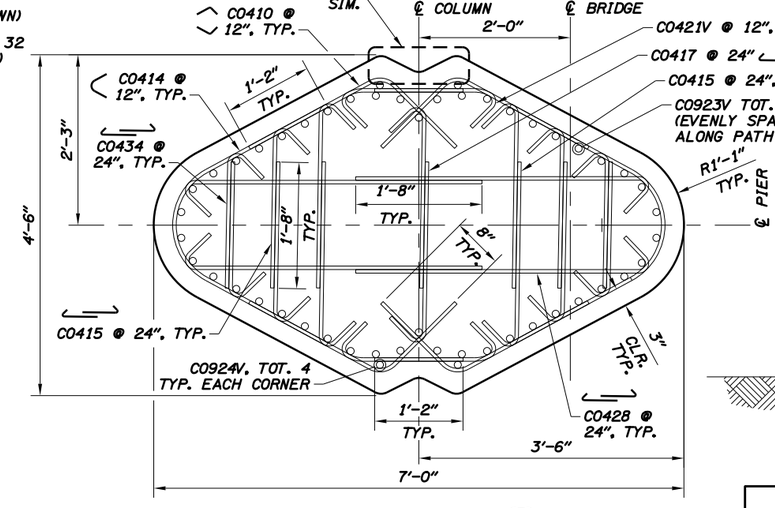




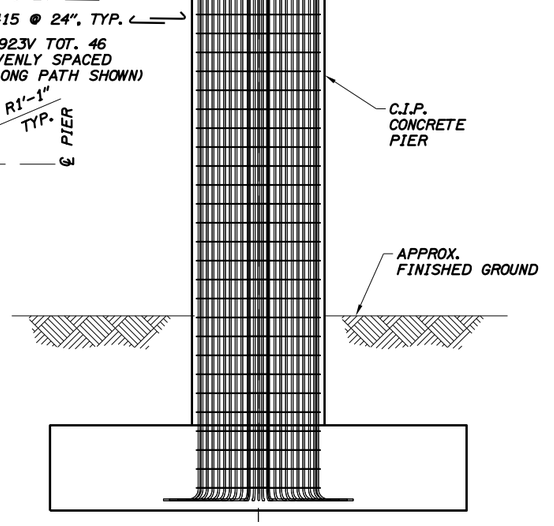
SECTION A
EL. 814.95



SECTION B
EL. 810.45



SECTION C
EL. 790.00



FRONT ELEVATION
(LOOKING UPSTATION)

NOTES:
1. DIAPHRAGM SHOWN FOR REFERENCE ONLY. FOR DIAPHRAGM DETAILS, SEE DWG. NOS. 4007-00 TO 4008-20. CONTRACTOR MAY ADJUST REINFORCEMENT IN FIELD AS NECESSARY TO ADDRESS CONFLICTS WITH DIAPHRAGM.
2. FOR FOUNDATION REINFORCING, SEE DWG. NO. 1151-00.
3. TERMINATE C0430V, C0438 REINFORCEMENT BARS 1" FROM FACE OF WEB ℄, WHERE INTERSECTING.
4. ADJUST C0437V REINFORCEMENT BARS, AS NECESSARY, WITHIN LIMITS OF PIER 5 STEEL ANCHOR PLATE. SEE DWG. NO. 4009-00 FOR ADDITIONAL INFORMATION NOT SHOWN.
5. PLACE C0438 REINFORCEMENT BARS NEAR PIER 5 STEEL ANCHOR PLATE ANCHOR STUDS. SEE DWG. NO. 4009-00 FOR ADDITIONAL INFORMATION NOT SHOWN.
6. THE COST OF FURNISHING AND INSTALLING WEB PLATES AND DIAPHRAGM PLATES SHALL BE INCLUDED IN THE COST OF "STRUCTURAL STEEL MEMBERS, LEVEL 6, AS PER PLAN".

DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS INDICATED.

△	DATE	REVISION	BY

DRAFTER: R. Elwood
DESIGNER: A. Monsefan
CHECKER: M. Nader
REVIEWER: J. LaHaye

DESIGNER
STATE OF OHIO MARWAN M. NADER E-79418 REGISTERED PROFESSIONAL ENGINEER
EXPIRES: 12/31/2017

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STRUCTURE FILE NO. 2567000
DATE 2017/03/24
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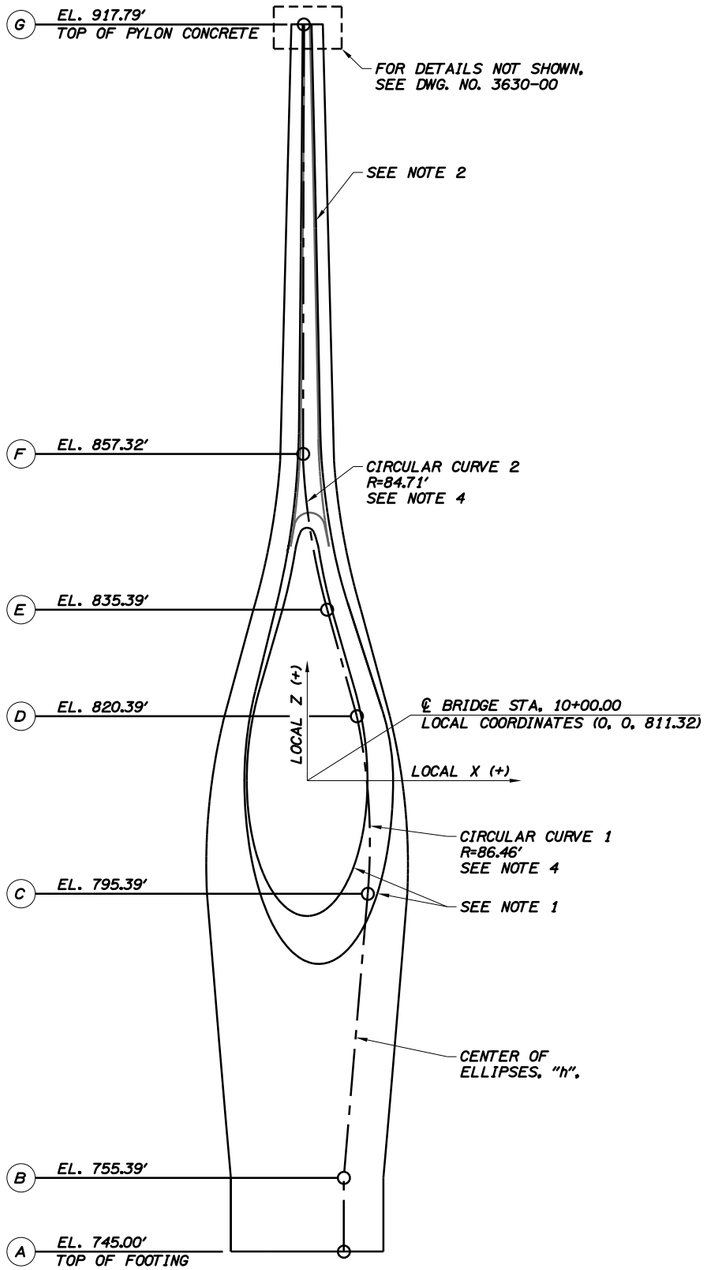
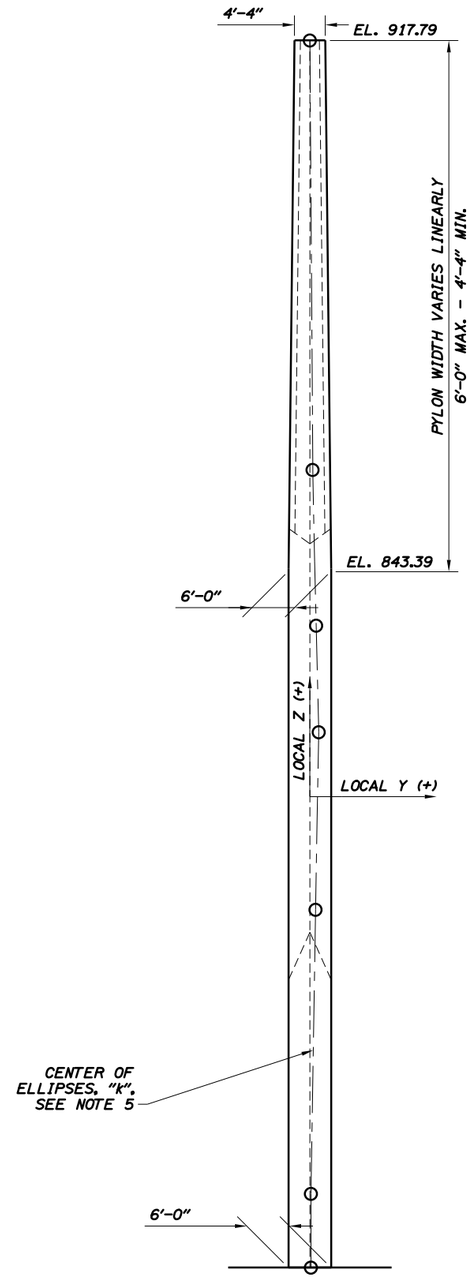
SCIOTO RIVER PEDESTRIAN BRIDGE DUBLIN, OHIO

PIER 5 LAYOUT

SHEET NO. 71 / 185
DRAWING NO. 3253-00

3/24/2017 6:35:19 PM
DUB_3253-00_TYLI_PIER 5 LAYOUT.dwg





NOTES:

1. FOR EYE GEOMETRY, SEE DWG. NO. 3603-00.
2. FOR CHANNEL GEOMETRY, SEE DWG. NOS. 3603-00 & 3604-00.
3. FOR ADDITIONAL GEOMETRY, SEE DWG. NO. 3602-00.
4. CIRCULAR CURVES NO. 1 & NO. 2 ARE EACH TANGENT TO THE LINE BELOW THE RESPECTIVE CURVE. THE RADIUS SHOWN IS PROJECTED IN THE X-Z PLANE.
5. POSITIVE X SIDE SHOWN ONLY. ℄ IS ROTATIONALLY SYMMETRIC ABOUT LOCAL (0, 0).

DO NOT SCALE THIS DRAWING. FOLLOW DIMENSIONS INDICATED.

FRONT ELEVATION
LOOKING UPSTATION

SIDE ELEVATION
LOOKING NORTH

△	DATE	REVISION	BY

DRAFTER: D. Wiley
DESIGNER: R. Sokolowski
CHECKER: M. Nader
REVIEWER: R. Sokolowski

DESIGNER
STATE OF OHIO
MARWAN M. NADER
E-79418
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES: 12/31/2017

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DATE 2017/03/24
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SCIOTO RIVER PEDESTRIAN BRIDGE DUBLIN, OHIO

PYLON GEOMETRY 1

SHEET NO. 73 / 185
DRAWING NO. 3601-00

3/24/2017 6:41:09 PM
DUB_3601-00_TYLI_PYLON GEOMETRY 1.dwg