

**DESIGN DESIGNATION**

Current Year ADT (1993) = 22,930  
 Design Year ADT (2013) = 32,110  
 D H V = 3211  
 D = 55%  
 T = 18%  
 V = 70 m.p.h.  
 Legal Speed = 65 m.p.h.  
 Functional Classification = Interstate

MICROFILMED  
 MAR 13 1996

**PID 08301**  
**C No. 940428**

STATE OF OHIO  
 DEPARTMENT OF TRANSPORTATION

**MED-76-0.61**

VILLAGE OF SEVILLE  
 WESTFIELD, GUILFORD, WADSWORTH TOWNSHIP  
 MEDINA COUNTY

**MED-76-0.61** OHIO  
 FHWA REGION 5  
 IM-76-1(29) FEDERAL PROJECT

1  
 299

LIMITED ACCESS

This improvement is especially designed for through traffic and has been declared a limited access highway or freeway by action of the Director in accordance with the provisions of Section 5511.02 of the Revised Code of Ohio.

1993 SPECIFICATIONS

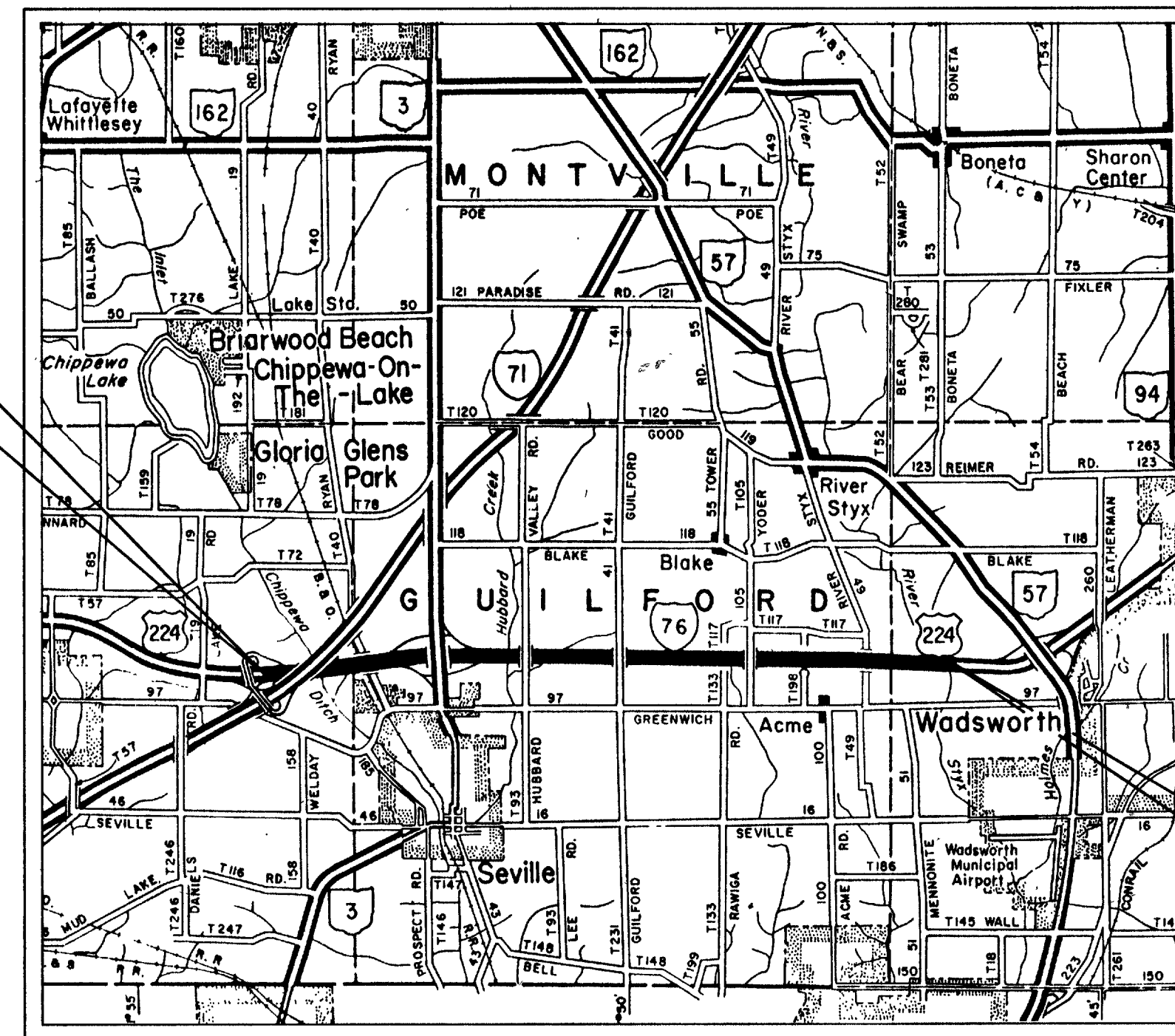
The standard specifications of the State of Ohio, Department of Transportation, including changes and supplemental specifications listed in the proposal shall govern this improvement.

I hereby approve these plans and declare that the making of this improvement will not require the closing to traffic of the highway, except as noted on sheets 15-18 and that provisions for the maintenance and safety of traffic will be as set forth on the plans and estimates.

Under authority of Section 4511.21, Division (1) of the Revised Code of Ohio. The revised prima facie speed limits as indicated herein are determined to be reasonable and safe, and are hereby established for the duration of this project. The prima facie speed limit or limits hereby established shall become effective when appropriate signs giving notice thereof are erected.

Design Exceptions: Approval Date June 11, 1992

Design Element	Criteria	Proposed
Graded Shoulder Width	Mainline 15' Rt.	Mainline 12' Rt.
Vertical Alignment and Stopping Sight Distance	Mainline V=70mph-SSD=625'	PVI Sta.-SSD-Vact. 904+60-540'-63mph Same as Existing
	Crossroads V=55mph-SSD=450'	Same as Existing
Horizontal Clearance	Mainline-4'Lt.&10'Rt.	8'-6"Lt. & 8'-6"Rt.
	Chippewa Ditch 0112 L/R	5'-0"Lt. & 9'-0"Rt.
	Hubbard Creek 0299L	8'-6"Lt. & 8'-6"Rt.
	Hubbard Creek 0299R	8'-6"Lt. & 8'-6"Rt.
	C.H. 49 0622 L/R	9'-8"Lt. & 9'-8"Rt.
	River Styx 0690 L/R	8'-6"Lt. & 8'-6"Rt.
Crossroads 3'Lt.& Rt.		



BEGIN PROJECT  
 STA. 854+29.39

END PROJECT  
 STA. 1190+00

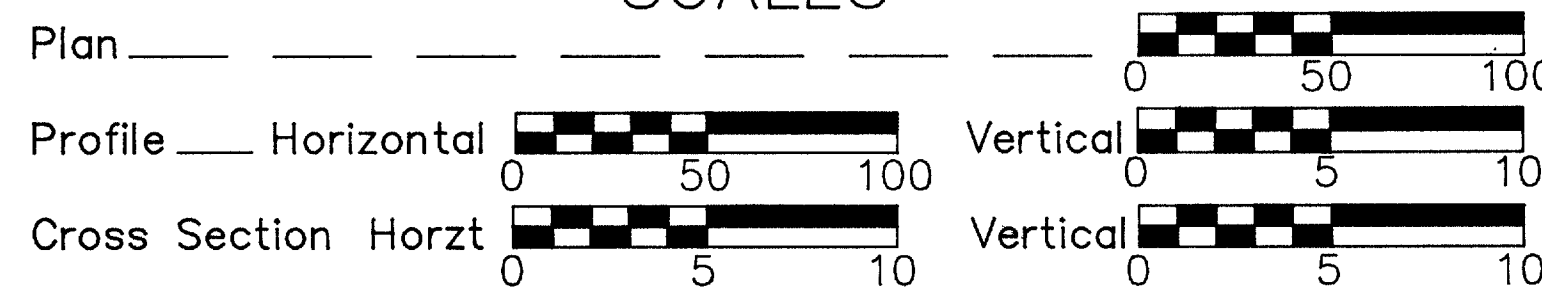
LOCATION MAP

SCALE IN MILES



Portion to be Improved \_\_\_\_\_  
 State & Federal Routes \_\_\_\_\_  
 Other Roads \_\_\_\_\_

SCALES



SUPPLEMENTAL SPECIFICATIONS

802	4-13-90	942	3-18-92
820	3-18-92	944	3-18-92
849	12-24-85	949	9-26-86
852	7-30-93	962	1-23-90
862	12-16-88	933	2-10-87
902	8-31-79		
921	12-04-72		
923	1-10-69		
931	3-18-92		

CONVENTIONAL SIGNS

County Line _____	Limited Access (only) _____	LA _____
Township Line _____	Right of Way (only) _____	RW _____
Section Line _____	Limited Access & Right of Way _____	LA&RW _____
Corporation Line _____	Existing Right of Way _____	EX RW _____
Fence Line (existing) _____	Property Line _____	(in existing fence) _____
Center Line _____	Railroad _____	or _____
Trees (to be removed) _____	Guardrail (existing) _____	or _____ (proposed)
Utility Poles: Telephone _____, Power _____, Light _____		

INDEX OF SHEETS

TITLE SHEET.....1	MAINLINE PLAN.....88-111
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* - 116A, 118A-B, 129A-D, 130A-G	C.H. 49 CROSS-SECTION.....141A

LINE DATA

BEGIN PROJECT	STA. 854+29.39
END PROJECT	STA. 1190+00
LENGTH OF PROJECT	33,570.61 L.F. = 6.358 MI.
ADD FOR WORK:	
I-76 STA. 845+20 TO STA. 854+29.39	909.39 L.F.
I-76 STA. 1190+00 TO STA. 1198+23	823.00 L.F.
S.R. 3 STA. 4+00 TO STA. 18+50	1,450.00 L.F.
T.H. 93 STA. 10+95 TO STA. 22+43	1,148.00 L.F.
C.H. 41 STA. 11+11 TO STA. 19+55	844.00 L.F.
C.H. 105 STA. 20+45 TO STA. 28+44	799.00 L.F.
TOTAL LENGTH OF WORK	39,544.00 L.F. = 7.489 MI.

UNDERGROUND UTILITIES  
 TWO WORKING DAYS  
**BEFORE YOU DIG**  
 Call 800-362-2764 (Toll Free)  
 OHIO UTILITIES PROTECTION SERVICE  
 NON-MEMBERS  
 MUST BE CALLED DIRECTLY

Plan Prepared By:  
**THOMAS FOX & ASSOCIATES, LTD.**  
 3898 MAHONING AVE.  
 YOUNGSTOWN, OHIO 44515  
 216-799-1501

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS

CR-2-2A & B ✓ 5-1-79	GR-1.2 ✓ 10-30-92	MC-4 ✓ 7-26-76	TC-51.11 ✓ 1-20-84	MT-99.10 ✓ 11-14-86
A-1-69 ✓ 6-12-69	GR-1.3 ✓ 2-21-92	MC-9A ✓ 1-11-85	TC-52.10 ✓ 4-03-79	MT-99.20 ✓ 4-29-88
BP-2.2 ✓ 2-21-92	GR-2.1 ✓ 5-06-91	MC-9.1 ✓ 10-30-92	TC-52.20 ✓ 4-03-79	MT-100.00 ✓ 2-23-90
BP-2.4 ✓ 2-21-92	GR-3.1 ✓ 5-06-91	MC-9.2 ✓ 5-06-91	MH-3 ✓ 12-18-84	MT-101.60 ✓ 7-01-92
BP-2.5 ✓ 2-21-92	GR-3.2 ✓ 5-06-91	MC-9.3 ✓ 10-30-92	MT-95.30 ✓ 10-10-88	MT-105.10 ✓ 7-01-92
BP-3.1 ✓ 2-21-92	GR-4.1 ✓ 5-06-91	MC-11 ✓ 8-01-78	MT-95.40 ✓ 10-01-92	MT-105.11 ✓ 7-01-92
BP-5.1 ✓ 2-21-92	GR-4.2 ✓ 5-06-91	MH-1 ✓ 12-18-84	MT-95.70 ✓ 2-23-90	BP-2.1 ✓ 2-21-92
CB-458A ✓ 5-1-79	GR-5.1 ✓ 10-30-92	TC-22.20 ✓ 9-01-92	MT-96.11 ✓ 9-09-88	BP-11 ✓ 2-21-92
CB-3A ✓ 5-01-79	GR-5.2 ✓ 10-30-92	TC-25.10 ✓ 8-29-84	MT-96.20 ✓ 9-09-88	AS-1-81 ✓ 11-27-81
CB-5 ✓ 11-10-83	MC-9.4 ✓ 10-30-92	TC-41.10 ✓ 8-29-84	MT-96.25 ✓ 9-09-88	BR-1 ✓ 5-29-79
CB-8 ✓ 11-10-83	GR-6 ✓ 2-05-82	TC-41.20 ✓ 3-26-79	MT-97.10 ✓ 4-29-88	EXJ-2-81 ✓ 4-02-84
F-2 ✓ 5-1-76	GR-7.1 ✓ 10-30-92	TC-41.50 ✓ 3-26-79	MT-98.12 ✓ 8-25-89	SD-1-69 ✓ 6-12-69
F-3 ✓ 5-1-76	GR-8 ✓ 10-25-90	TC-42.10 ✓ 8-19-77	MT-98.13 ✓ 8-25-89	PCB-91 ✓ 4-24-92
F-5 ✓ 5-1-76	MH-5 ✓ 6-12-75	TC-42.20 ✓ 3-26-79	MT-98.14 ✓ 8-25-89	EXJ-4-87 ✓ 1-5-89
F-6 ✓ 5-1-76	HW-4B ✓ 4-01-80	TC-51.10 ✓ 1-20-84	MT-98.15 ✓ 8-25-89	ICD-1-82 ✓ 8-1-84

Approved Phillip A. Harwood  
 Date 11-3-93 District Deputy Director  
 of Transportation

Approved B.D. Hallemis  
 Date 1/25/94 Engineer, Bureau of Bridges and  
 Structural Design

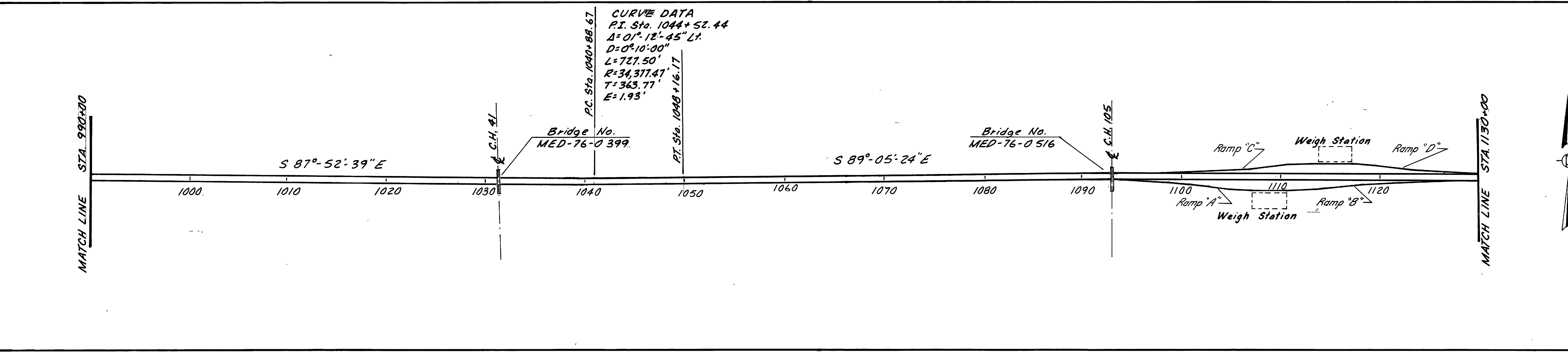
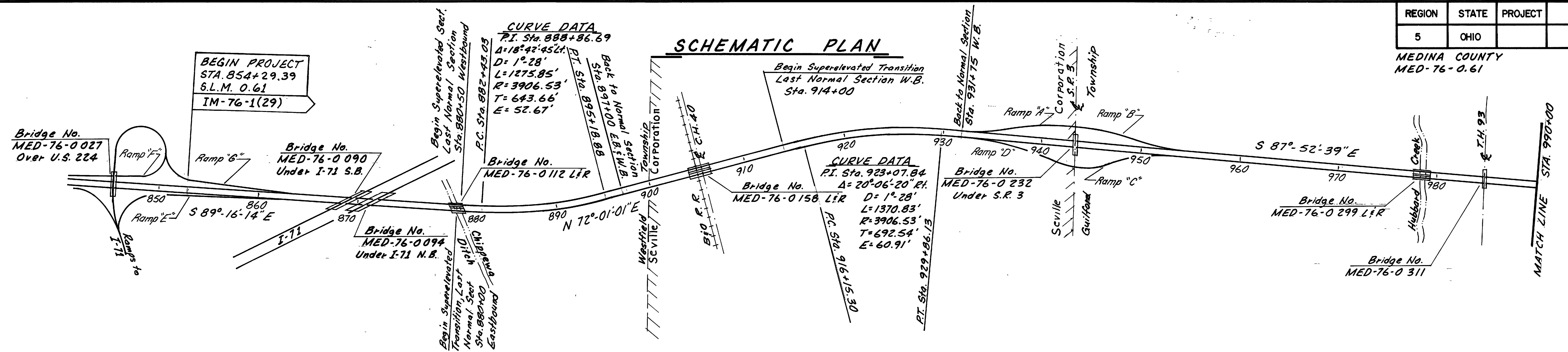
Approved Christopher L. Remyan  
 Date 2-15-94 Deputy Director, Design

Approved Jerry Wray  
 Date 2-15-94 Director, Department of Transportation

DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 APPROVED  
 DIVISION ADMINISTRATOR DATE

Project MED-76-0.61 MEDINA COUNTY  
 Date of Letting \_\_\_\_\_ 19 \_\_\_\_\_ Contract No. \_\_\_\_\_

### SCHMATIC PLAN

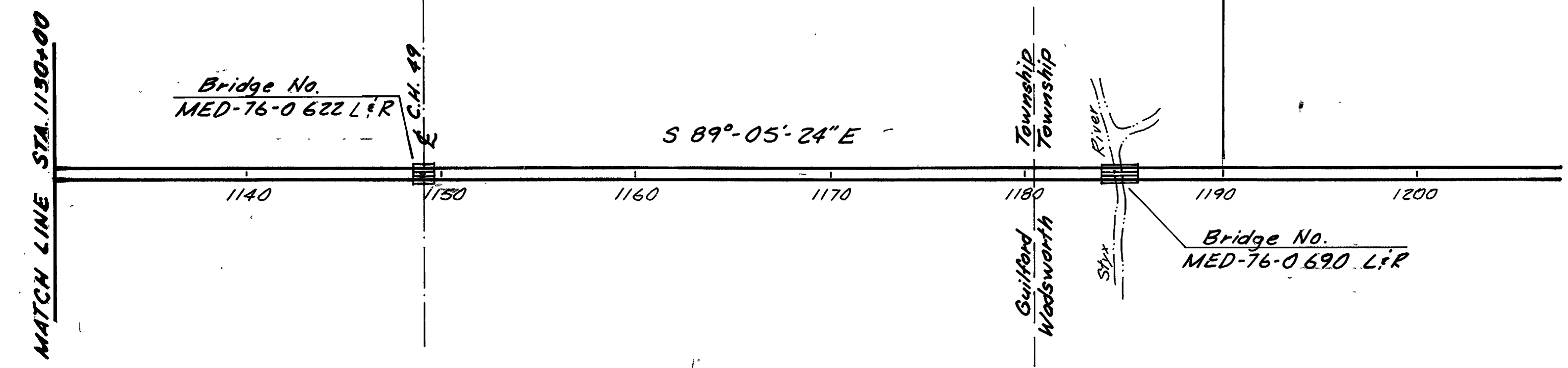


**END PROJECT**  
STA. 1190+00.00  
S.L.M. 7.00  
IM-76-1(29)

*Design Values for Highways Over Medina 76*

HIGHWAY	ADT(1993)	ADT(2013)	DHV	D	T	V Design	Legal Sp.	Feat Cl.
S.R. 3	11,200	15,680	1568	55%	*	*	45 mph	Rural-Art.
T.R. 93	410	570	57	55%	2%	55 mph	55 mph	Rural-Local
C.R. 41	540	760	76	55%	2%	55 mph	55 mph	Rural-Local
C.R. 105	500	700	70	55%	2%	55 mph	55 mph	Rural-Local

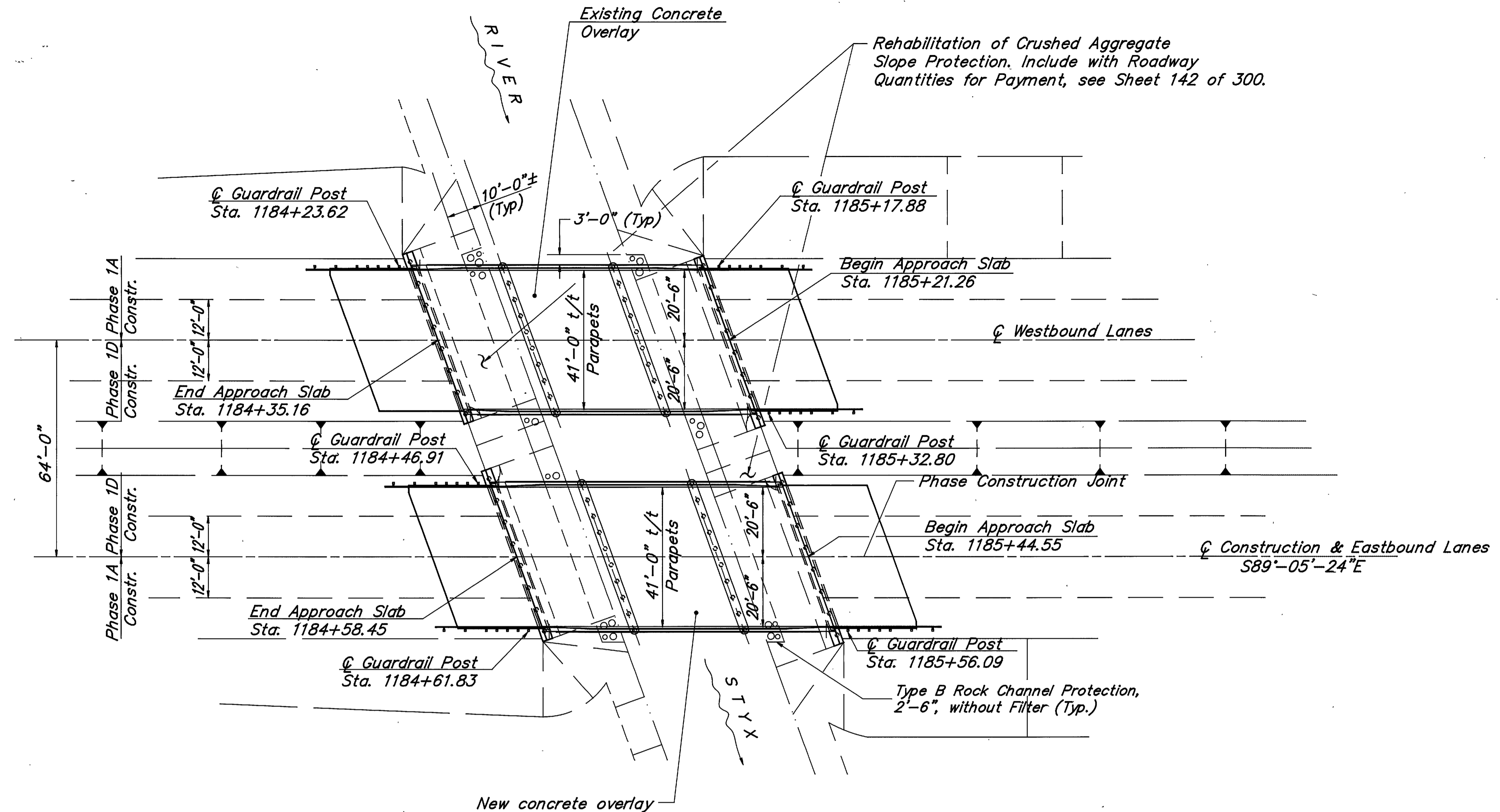
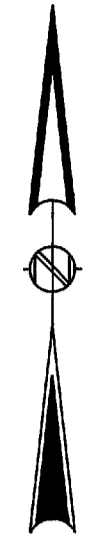
\* 45 m.p.h. Northbound  
55 m.p.h. Southbound



REGION	STATE	PROJECT	
5	OHIO		

281  
299

MEDINA COUNTY  
MED-76-0.61



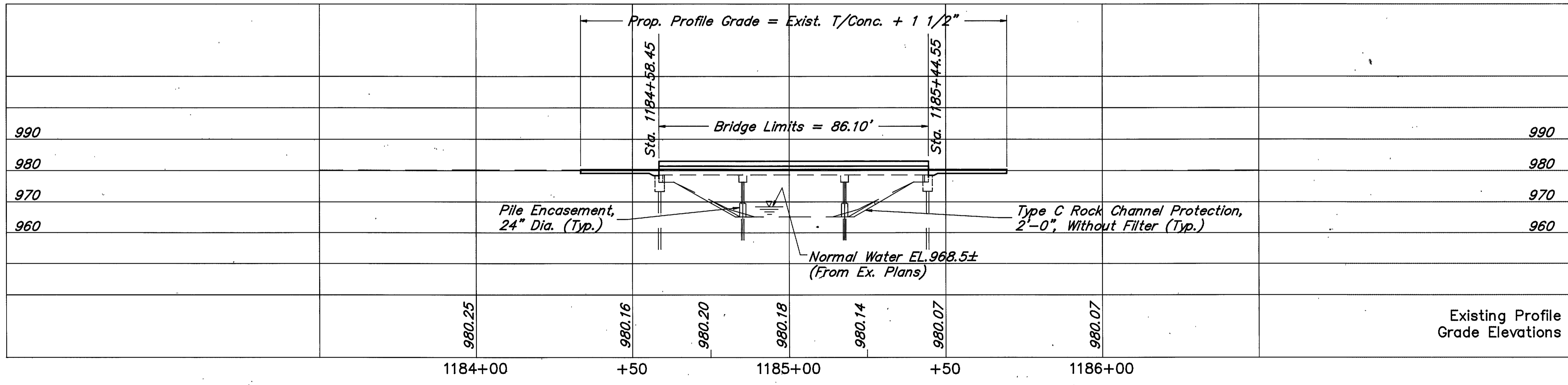
For description of Proposed Work see sheet 5/12

**EXISTING STRUCTURES**

TYPE : Continuous reinforced concrete slab on capped pile substructure.  
 SPANS : 26'± - 32.5'± - 26'± c/c Brgs.  
 ROADWAY: 44'-0"±f/f Guardrail(Typ)  
 SKEW : 20'± R.F.  
 ALIGNMENT : Tangent  
 WEARING SURFACE: 1 3/4" Concrete (L) 3 1/4" Asphalt (R)  
 YEAR BUILT : 1958(L), 1958(R)  
 STRUCTURE FILE NO : 5204801 (L) 5204836 (R)

**PROPOSED STRUCTURES**

**PROPOSED WORK:**  
 New deck edges & safety parapets (L/R). New concrete overlay (Rt. only). New App. Slabs (L & R). Modify & Repair substructures accordingly.  
 TYPE : Continuous reinforced concrete slab on capped pile substructure.  
 ROADWAY : 41'-0" t/t parapet (Typ)  
 DESIGN LOADING : (Existing) CF = 2000 (51)  
 APPROACH SLAB : AS-1-81 (25' long, L/R)  
 WEARING SURFACE : 1 3/4" Microsilica Overlay (R)  
 AVG. DAILY TRAFFIC :  
 1993 ADT = 22930  
 2013 ADT = 32110  
 2013 ADT = 5780



PROFILE AT C OF CONSTRUCTION & EASTBOUND LANES  
(PROFILE AT C OF WESTBOUND LANES UNCHANGED)

**THOMAS FOK & ASSOCIATES, LTD.**  
 CONSULTING ENGINEERS, SURVEYORS & PLANNERS  
 3896 MAHONING AVE. YOUNGSTOWN, OHIO

**GENERAL PLAN**  
 BRIDGE NO. MED-76-0690 L/R  
 OVER RIVER STYX

MEDINA COUNTY OHIO

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
		F. D. F.	J. D. F.	J. D. F.	J. D. F.
		10/92	11/92	12/92	2/93

# GENERAL NOTES

REGION	STATE	PROJECT	
5	OHIO		

282  
299

MEDINA COUNTY  
MED-76-0.61

## FOR RIGHT STRUCTURE:

### REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

AS-1-81 Dated 11/27/81

### AND TO SUPPLEMENTAL SPECIFICATIONS:

852 Dated 7 30 93  
933 Dated 6/10/87

**DESIGN SPECIFICATION** This structure conforms to "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway and Transportation Officials, 1992 and the Ohio "Supplement" to these specifications. Reference is also made to the department Of Transportation's "Construction and Material Specifications", 1993 edition.

### DESIGN DATA:

#### DESIGN STRESSES:

Concrete, Class S - Compressive Strength 4500 p.s.i.  
Concrete, Class C - Compressive Strength 4000 p.s.i.  
Reinforcing Steel - ASTM A615, A616, or A617, Grade 60, minimum yield strength 60,000 p.s.i.

### EXISTING STRUCTURE VERIFICATION:

Details and dimensions shown on these plans pertaining to the existing structures have been obtained from plans of the existing structures and from field observations and measurements. Consequently, they are indicative of the existing structure and the proposed work, but they shall be considered tentative and approximate. The Contractor is referred to C.M.S. sections 102.05, 105.02, and 513.02. The original construction plans of the existing bridges are available upon request at the District 3 Office of the OHIO DEPARTMENT OF TRANSPORTATION, ASHLAND OHIO. Contract bid prices shall be based upon a recognition of the uncertainties described above and upon a pre-bid examination of the existing structure by the Contractor. However, all project work shall be based upon actual details and dimensions which have been verified by the Contractor in the field.

**WORK LIMITATIONS:** No concrete deck overlays shall be placed before April 15. The Contractor shall schedule the work so that all deck overlays are placed before October 15. If for some unforeseen circumstances, the deck overlays or portions of deck overlay are not placed by October 15, regardless of the work remaining, the full depth repairs shall be completed as per 511 and the unfinished deck shall be resurfaced with Item 448 Asphalt Concrete and opened to traffic. The Contractor shall place and maintain at his expense the asphalt wearing surface until removed at his expense the following spring when the deck overlay can be placed after April 15.

### ITEM SPECIAL - SEALING OF CONCRETE SURFACES (EPOXY):

A concrete sealer shall be applied to the following concrete surfaces:

- Exposed faces of the parapet and the gutter line

See proposal note for surface preparation requirements, application rates, material requirements and application procedures.

**TRAFFIC MAINTENANCE:** The traffic maintenance for Phase 1C and 1F can be found on project plan sheets 34 and 38.

**REPLACEMENT OF EXISTING REINFORCING STEEL:** Any existing reinforcing bars which are to be incorporated into the new work and which are made unusable by the Contractor's concrete removal operations shall be replaced with new steel at his cost. Any existing reinforcing bars deemed by the Engineer to be unusable because of corrosion shall be replaced with new steel. An allowance of 200 pounds for each bridge is included in Item 509 for this purpose. (See Item 510 - DOWEL HOLE AS PER PLAN.)

**ITEM 510 - DOWEL HOLE AS PER PLAN:** This item shall be performed as indicated on the plans or as directed by the Engineer and shall be used to replace the deteriorated bars which were to remain, or to place new dowel bars where a new concrete section is being attached to the remaining portions of existing concrete. The grout shall be epoxy and conform to Supplemental Specification 952 and the installation shall conform to Supplemental Specification 852. The dowel bars are to be paid for under "ITEM 509 - EPOXY COATED REINFORCING STEEL, GRADE 60" and the dowel holes are to be paid for under Item 510 - DOWEL HOLE, AS PER PLAN."

### ITEM 202 - PORTIONS OF STRUCTURES REMOVED, AS PER PLAN:

This item of work shall be used to remove all items as shown on the detail sheets except for removal of existing wearing surface & bridge railing. Care shall be taken not to crack the deck. If the deck is cracked, it shall be repaired as directed by the District Construction Engineer at the Contractor's expense. The deck concrete shall be removed by a hydraulic splitting method. A line of holes shall be drilled along the removal line and a hydraulic splitter used as per the manufacturer's recommendations. Thirty-five (35) and fifteen (15) pound jack hammers shall be used for the final finish work. A hoe ram or concrete crusher will not be permitted to do any of the work. Concrete shall be removed in a manner that prevents cutting, elongating, or damaging of the existing reinforcing steel to be salvaged. If existing reinforcing steel designated for salvage is damaged during removal operations, it shall be replaced at the Contractor's expense as noted above.

Temporary support for deck ends shall be included with this item for payment.

### ITEM 202 - WEARING COURSE REMOVED, AS PER PLAN:

Work shall consist of removing the existing 3 1/4"± thick asphalt wearing surface by grinding. Payment for all of the above shall be at the unit price bid per sq. yd. for Item 202, WEARING COURSE REMOVED, AS PER PLAN which shall include all labor, equipment, materials, and incidentals necessary to complete the above work.

### ITEM SPECIAL - MICRO-SILICA MODIFIED CONCRETE OVERLAY 1 3/4 INCHES THICK: (SEE PROPOSAL NOTE)

Course aggregate shall be limestone or slag. Payment for this item shall be at the unit price bid per square yard for ITEM SPECIAL, MICRO-SILICA MODIFIED CONCRETE OVERLAY (1 3/4 INCHES THICK), which shall include all labor, equipment, materials, and incidentals necessary to complete this item in place.

### ITEM SPECIAL - KEYWAY DRAIN:

Plastic tubes shall be drilled 2" into the abutment keyway as shown on sht. no. 8/12. The tubes shall be spaced on four (4) foot centers or as directed by the Engineer. Payment for all of the above shall be at the unit price bid per each for ITEM SPECIAL, KEYWAY DRAIN which shall include all labor, equipment, materials, and incidentals necessary to complete the above work.

### ITEM 511 - CLASS S CONCRETE, SUPERSTRUCTURE, AS PER PLAN:

This item shall be used as per details in the Plan.

Not more than 24 hours prior to placing the concrete, all existing surfaces to which the concrete is to bond, including exposed reinforcing and structural steel shall be cleaned by abrasive blasting. These surfaces shall be made free of spalls, laitance, and other contaminants detrimental to achieving an adequate bond. Immediately before the concrete is placed all adjacent concrete surfaces shall be covered with a thin layer of bonding grout. The bonding grout shall consist of equal parts by volume of Portland Cement and sand, mixed with enough water to form a slurry of paint like consistency which shall be such as to allow it to be applied with a stiff brush or broom to existing concrete surfaces in a thin even coating that will not run or puddle. The grout shall be applied for a short distance in advance of the placement of the concrete and shall not be dry. In lieu of the proportioning specified in 499.03 and 511.02, the following table shall be used to establish the quantities per cubic yard for concrete, the coarse aggregate shall be limestone.

#### QUANTITIES PER CUBIC YARD (USING NO. 8 LIMESTONE)

FINE (LB)	AGGREGATE		CEMENT CONTENT (LB)	WATER/CEMENT RATIO
	COURSE (LB)	TOTAL (LB)		
1591	1127	2718	715	0.40

AIR CONTENT - 8% PLUS OR MINUS 2%

High range water reducer (superplasticizer) may be used at the option of the Contractor. The dosage rate will be determined by the Contractor based on the Manufacturer's recommendation to achieve the desired workability level. High range water reducer shall conform to 705.12, ASTM-C494 type F and shall not contain calcium chloride. Type A or D chemical admixture conforming to 705.12, ASTM-C494 and not containing chloride shall be added to the concrete at the plant. All additives, including air entrainment, shall be manufactured by the same company and certified as compatible by the Manufacturing Co. The cement content shall be maintained and a maximum water-cement ratio of 0.40 shall not be exceeded. The slump of the superplasticized concrete delivered to the job site shall be 1 1/2" plus or minus 1/2". The superplasticized admixture shall be added at the job site and mixed a minimum of five (5) minutes. After the superplasticizer has been added the slump shall be 6 1/2" plus or minus 1/2". The Contractor shall furnish a volumetric dispenser for the superplasticizer.

Concrete mixtures containing a high range water reducer shall meet the same requirements for entrained air content, maximum strength, and maximum water-cement ratio as required for the respective grade of concrete without a high range water reducer. Sampling and testing for entrained air content and minimum strength should be taken from the concrete that has been treated with a high range water reducer. Curing shall be in accordance with 511.14 type A water curing.

Payment for all of the above shall be at the unit price bid per cubic yard for ITEM 511, CLASS S CONCRETE, AS PER PLAN which shall include all labor, equipment, materials, and incidentals necessary to complete the above work.

### ITEM 511 - CLASS C CONCRETE, ABUTMENT, AS PER PLAN:

Course aggregate in this item shall be limestone. ITEM 520, Pneumatically Placed Mortar shall be included with this item for Payment.

### ITEM SPECIAL - URETHANE TOP COAT SEALER FOR CONCRETE SURFACES:

This item shall consist of the application of a urethane top coat sealer over concrete areas coated with epoxy sealer or solvent-free epoxy resin. The color shall be federal color standard no. 595A-16187.

The urethane topcoat shall be applied according to the Manufacturer's recommendations at the minimum application rate of 150 sq. ft. per gallon after the epoxy sealer has become dry tacky and 1 1/2 to 6 hours have elapsed since the epoxy was applied. The surface shall be clean when the urethane is applied. Application shall be airless spray, brush or roller as directed by the Engineer.

The urethane top coat shall be one of the following products:

- 1) AMERON AMERCOAT 450 H.S.
- 2) POLY-CARB MARK 73
- 3) TNEMEC SERIES 70 ENDURA SHIELD
- 4) DURAL AQUATHANE

The cost of all labor, equipment and materials necessary to accomplish this item of work shall be included in the unit price bid per Sq. Yd. for ITEM SPECIAL, URETHANE TOP COAT SEALER FOR CONCRETE SURFACES.

### ITEM 511 - CLASS S CONCRETE, MISCELLANEOUS, PILING ENCASEMENT, AS PER PLAN:

This item shall be used as per details in the plan.

Surface Preparation: All loose material shall be removed with hand tools.

Any excavation is included in this item.

In lieu of the proportioning specified in 499.03 and 511.02, the following table shall be used to establish the quantities per cubic yard for concrete. The coarse aggregate shall be NO. 8 limestone. Cement used shall be expansive hydraulic cement conforming to ASSHTO C845, Type K as per 701.08.

QUANTITIES PER CUBIC YARD				
FINE (LB)	AGGREGATE		CEMENT CONTENT (LB)	WATER/CEMENT RATIO
	COARSE (LB)	TOTAL (LB)		
1300	1275	2575	715	0.50

AIR CONTENT - 8% PLUS OR MINUS 2%

Type D chemical admixture shall be used. The slump at the time of concrete placement shall be between 5 and 7 inches. Curing shall be in accordance with 511.14 Type A water curing. A cement company representative shall be on hand during the mixing and placing operation during the first pour, if the redi-mix product has not had previous experience with Type K cement. Redi-mix producers who have had previous experience shall have on hand a person who has been factory trained in the use of Type K cement. All other provisions of Item 511 shall remain in effect.

Payment for all of the above shall be at the unit price bid per Cubic Yard for ITEM 511, Class S Concrete, Miscellaneous, Piling Encasement, as per plan which shall include all excavation, labor and equipment.

21 12

**THOMAS FOK & ASSOCIATES, LTD.**  
CONSULTING ENGINEERS, SURVEYORS & PLANNERS  
3896 MAHONING AVE. YOUNGSTOWN, OHIO

**GENERAL NOTES**  
BRIDGE NO. MED-76-0690 R  
OVER RIVER STYX

MEDINA COUNTY OHIO

DESIGNED D.L.C.	DRAWN K.R.M.	TRACED	CHECKED F.D.V.	REVIEWED J.F.	REVISED
9/92	9/92		9/92	12/92	

# GENERAL NOTES

				283 299

MEDINA COUNTY  
MED-76-0.61

## FOR LEFT STRUCTURE:

### REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

AS-1-81 Dated 11/27/81

### AND TO SUPPLEMENTAL SPECIFICATIONS:

852 Dated 6/10/87  
933 Dated 2/10/87

**DESIGN SPECIFICATION** This structure conforms to "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway and Transportation Officials, 1992 and the Ohio "Supplement" to these specifications. Reference is also made to the department Of Transportation's "Construction and Material Specifications", 1993 edition.

### DESIGN DATA:

#### DESIGN STRESSES:

Concrete, Class S - Compressive Strength 4500 p.s.i.  
Concrete, Class C - Compressive Strength 4000 p.s.i.  
Reinforcing Steel - ASTM A615, A616, or A617, Grade 60, minimum yield strength 60,000 p.s.i.

#### EXISTING STRUCTURE VERIFICATION:

Details and dimensions shown on these plans pertaining to the existing structures have been obtained from plans of the existing structures and from field observations and measurements. Consequently, they are indicative of the existing structure and the proposed work, but they shall be considered tentative and approximate. The Contractor is referred to C.M.S. sections 102.05, 105.02, and 513.02. The original construction plans of the existing bridges are available upon request at the District 3 Office of the OHIO DEPARTMENT OF TRANSPORTATION, ASHLAND OHIO. Contract bid prices shall be based upon a recognition of the uncertainties described above and upon a pre-bid examination of the existing structure by the Contractor. However, all project work shall be based upon actual details and dimensions which have been verified by the Contractor in the field.

#### ITEM SPECIAL - SEALING OF CONCRETE SURFACES (EPOXY):

A concrete sealer shall be applied to the following concrete surfaces:

- Exposed faces of the parapet and the gutter line

See proposal note for surface preparation requirements, application rates, material requirements and application procedures.

**TRAFFIC MAINTENANCE:** Traffic maintenance for Phase 1C and 1F can be found on project plan sheets 34 and 38.

**REPLACEMENT OF EXISTING REINFORCING STEEL:** Any existing reinforcing bars which are to be incorporated into the new work and which are made unusable by the Contractor's concrete removal operations shall be replaced with new steel at his cost. Any existing reinforcing bars deemed by the Engineer to be unusable because of corrosion shall be replaced with new steel. An allowance of 200 pounds for each bridge is included in Item 509 for this purpose. (See ITEM 510 - DOWEL HOLE AS PER PLAN.)

**ITEM 510 - DOWEL HOLE AS PER PLAN:** This item shall be performed as indicated on the plans or as directed by the Engineer and shall be used to replace the deteriorated bars which were to remain, or to place new dowel bars where a new concrete section is being attached to the remaining portions of existing concrete. The grout shall conform to Supplemental Specification 952 and the installation shall conform to Supplemental Specification 852. The dowel bars are to be paid for under "ITEM 509 - EPOXY COATED REINFORCING STEEL, GRADE 60" and the dowel holes are to be paid for under ITEM 510 - DOWEL HOLE, AS PER PLAN."

#### ITEM 202 - PORTIONS OF STRUCTURES REMOVED, AS PER PLAN:

This item of work shall be used to remove all items as shown on the detail sheets except for removal of existing wearing surface & bridge railing. Care shall be taken not to crack the deck. If the deck is cracked, it shall be repaired as directed by the District Construction Engineer at the Contractor's expense. The deck concrete shall be removed by a hydraulic splitting method. A line of holes shall be drilled along the removal line and a hydraulic splitter used as per the manufacturer's recommendations. Thirty-five (35) and fifteen (15) pound jack hammers shall be used for the final finish work. A hoe ram or concrete crusher will not be permitted to do any of the work. Concrete shall be removed in a manner that prevents cutting, elongating, or damaging of the existing reinforcing steel to be salvaged. If existing reinforcing steel designated for salvage is damaged during removal operations, it shall be replaced at the Contractor's expense as noted above.

**ITEM 202 - WEARING COURSE REMOVED, AS PER PLAN:** Work shall consist of removing a portion of the existing 1 3/4" ± thick concrete overlay by grinding. Payment for all of the above shall be at the unit price bid per sq. yd. for ITEM 202, WEARING COURSE REMOVED, AS PER PLAN which shall include all labor, equipment, materials, and incidentals necessary to complete the above work.

**ITEM SPECIAL - MICRO-SILICA MODIFIED CONCRETE OVERLAY 2 ± INCHES THICK):** (SEE PROPOSAL NOTE) Course aggregate shall be limestone or slag. Payment for this item shall be at the unit price bid per square yard for ITEM SPECIAL, MICRO-SILICA MODIFIED CONCRETE OVERLAY (2 1/4 ± INCHES THICK), which shall include all labor, equipment, materials, and incidentals necessary to complete this item in place.

**ITEM SPECIAL - KEYWAY DRAIN:** Plastic tubes shall be drilled 2" into the abutment keyway as shown on sht. no. 8/12. The tubes shall be spaced on four (4) foot centers or as directed by the Engineer. Payment for all of the above shall be at the unit price bid per each for ITEM SPECIAL, KEYWAY DRAIN which shall include all labor, equipment, materials, and incidentals necessary to complete the above work.

#### ITEM 511 - CLASS S CONCRETE, SUPERSTRUCTURE, AS PER PLAN:

This item shall be used as per details in the Plan.

Not more than 24 hours prior to placing the concrete, all existing surfaces to which the concrete is to bond, including exposed reinforcing and structural steel shall be cleaned by abrasive blasting. These surfaces shall be made free of spalls, laitance, and other contaminants detrimental to achieving an adequate bond. Immediately before the concrete is placed all adjacent concrete surfaces shall be covered with a thin layer of bonding grout. The bonding grout shall consist of equal parts by volume of Portland Cement and sand, mixed with enough water to form a slurry of paint like consistency which shall be such as to allow it to be applied with a stiff brush or broom to existing concrete surfaces in a thin even coating that will not run or puddle. The grout shall be applied for a short distance in advance of the placement of the concrete and shall not be dry. In lieu of the proportioning specified in 499.03 and 511.02, the following table shall be used to establish the quantities per cubic yard for concrete, the coarse aggregate shall be limestone.

QUANTITIES PER CUBIC YARD  
(USING NO. 8 LIMESTONE)

AGGREGATE		CEMENT		WATER/CEMENT RATIO
FINE (LB)	COURSE (LB)	TOTAL (LB)	CONTENT (LB)	
1591	1127	2718	715	0.40

AIR CONTENT - 8% PLUS OR MINUS 2%

High range water reducer (superplasticizer) may be used at the option of the Contractor. The dosage rate will be determined by the Contractor based on the Manufacturer's recommendation to achieve the desired workability level. High range water reducer shall conform to 705.12, ASTM-C494 type F and shall not contain calcium chloride, Type A or D chemical admixture conforming to 705.12, ASTM-C494 and not containing chloride shall be added to the concrete at the plant. All additives, including air entrainment, shall be manufactured by the same company and certified as compatible by the Manufacturing Co. The cement content shall be maintained and a maximum water-cement ratio of 0.40 shall not be exceeded. The slump of the superplasticized concrete delivered to the job site shall be 1 1/2" plus or minus 1/2". The superplasticized admixture shall be added at the job site and mixed a minimum of five (5) minutes. After the superplasticizer has been added the slump shall be 6 1/2" plus or minus 1/2". The Contractor shall furnish a volumetric dispenser for the superplasticizer.

Concrete mixtures containing a high range water reducer shall meet the same requirements for entrained air content, maximum strength, and maximum water-cement ratio as required for the respective grade of concrete without a high range water reducer. Sampling and testing for entrained air content and minimum strength should be taken from the concrete that has been treated with a high range water reducer. Curing shall be in accordance with 511.14 type A water curing.

Payment for all of the above shall be at the unit price bid per cubic yard for ITEM 511, CLASS S CONCRETE, AS PER PLAN which shall include all labor, equipment, materials, and incidentals necessary to complete the above work.

#### ITEM 511 - CLASS C CONCRETE, ABUTMENT, AS PER PLAN:

Course aggregate in this item shall be limestone. ITEM 520, Pneumatically placed mortar shall be included with this item for payment.

**ITEM SPECIAL - URETHANE TOP COAT SEALER FOR CONCRETE SURFACES:** This item shall consist of the application of a urethane top coat sealer over concrete areas coated with epoxy sealer or solvent-free epoxy resin. The color shall be federal color standard no. 595A-16187.

The urethane topcoat shall be applied according to the Manufacturer's recommendations at the minimum application rate of 150 sq. ft. per gallon after the epoxy sealer has become dry tacky and 1 1/2 to 6 hours have elapsed since the epoxy was applied. The surface shall be clean when the urethane is applied. Application shall be airless spray, brush or roller as directed by the Engineer.

The urethane top coat shall be one of the following products:

- 1) AMERON AMERCOAT 450 H.S.
- 2) POLY-CARB MARK 73
- 3) TNEMEC SERIES 70 ENDURA SHIELD
- 4) DURAL AQUATHANE

The cost of all labor, equipment and materials necessary to accomplish this item of work shall be included in the unit price bid per Sq. Yd. for ITEM SPECIAL, URETHANE TOP COAT SEALER FOR CONCRETE SURFACES.

#### ITEM 511 - CLASS S CONCRETE, MISCELLANEOUS, PILING ENCASEMENT, AS PER PLAN:

This item shall be used as per details in the plan.

Surface Preparation: All loose material shall be removed with hand tools.

Any excavation is included in this item.

In lieu of the proportioning specified in 499.03 and 511.02, the following table shall be used to establish the quantities per cubic yard for concrete. The coarse aggregate shall be NO. 8 limestone. Cement used shall be expansive hydraulic cement conforming to ASSHTO C845, Type K as per 701.08.

QUANTITIES PER CUBIC YARD

AGGREGATE		CEMENT		WATER/CEMENT RATIO
FINE (LB)	COARSE (LB)	TOTAL (LB)	CONTENT (LB)	
1300	1275	2575	715	0.50

AIR CONTENT - 8% PLUS OR MINUS 2%

Type D chemical admixture shall be used. The slump at the time of concrete placement shall be between 5 and 7 inches. Curing shall be in accordance with 511.14 Type A water curing. A cement company representative shall be on hand during the mixing and placing operation during the first pour, if the redi-mix product has not had previous experience with Type K cement. Redi-mix producers who have had previous experience shall have on hand a person who has been factory trained in the use of Type K cement. All other provisions of Item 511 shall remain in effect.

Payment for all of the above shall be at the unit price bid per Cubic Yard for ITEM 511, Class S Concrete, Miscellaneous, Piling Encasement, as per plan which shall include all excavation, labor and equipment.

THOMAS FOK & ASSOCIATES, LTD.  
CONSULTING ENGINEERS, SURVEYORS & PLANNERS  
3896 MAHONING AVE. YOUNGSTOWN, OHIO

### GENERAL NOTES

BRIDGE NO. MED-76-0690 L  
OVER RIVER STYX

MEDINA COUNTY OHIO

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISION
D.L.C.	K.R.M.		J.D.V.	J.F.	
9/92	9/92		9/92	11/92	

# GENERAL NOTES

REGION	STATE	PROJECT	
5	OHIO		

284  
299

MEDINA COUNTY  
MED-76-0.61

## ITEM SPECIAL PATCHING CONCRETE BRIDGE DECK WITH QUICK SETTING CONCRETE

### ITEM SPECIAL - PATCHING BRIDGE DECKS WITH QSC:

#### A. DESCRIPTION:

This Item shall consist of furnishing the necessary labor, materials and equipment to repair concrete bridge decks, including the removal of loose and unsound concrete, bituminous patches, concrete patches, surface preparation, saw cutting, bonding coat and the strength testing of all the patches and sealing patch edges as directed by the Engineer.

#### B. REMOVAL OF UNSOUND CONCRETE

The Engineer shall visually inspect the entire deck and outline the areas to be removed.

##### 1. Removal with saw cutting

The perimeter of the removal areas shall be sawed to a depth of 1/2" to produce a vertical or slightly undercut face. At each corner of the patch the saw cuts shall come together without any overcutting with the saw. The corners shall be chipped down to the saw marks. Additional saw cuts may be required to facilitate removal without any overcutting. Cooling water from wet sawing and dust from sawing shall be immediately removed from the exposed patch holes before any drying can occur.

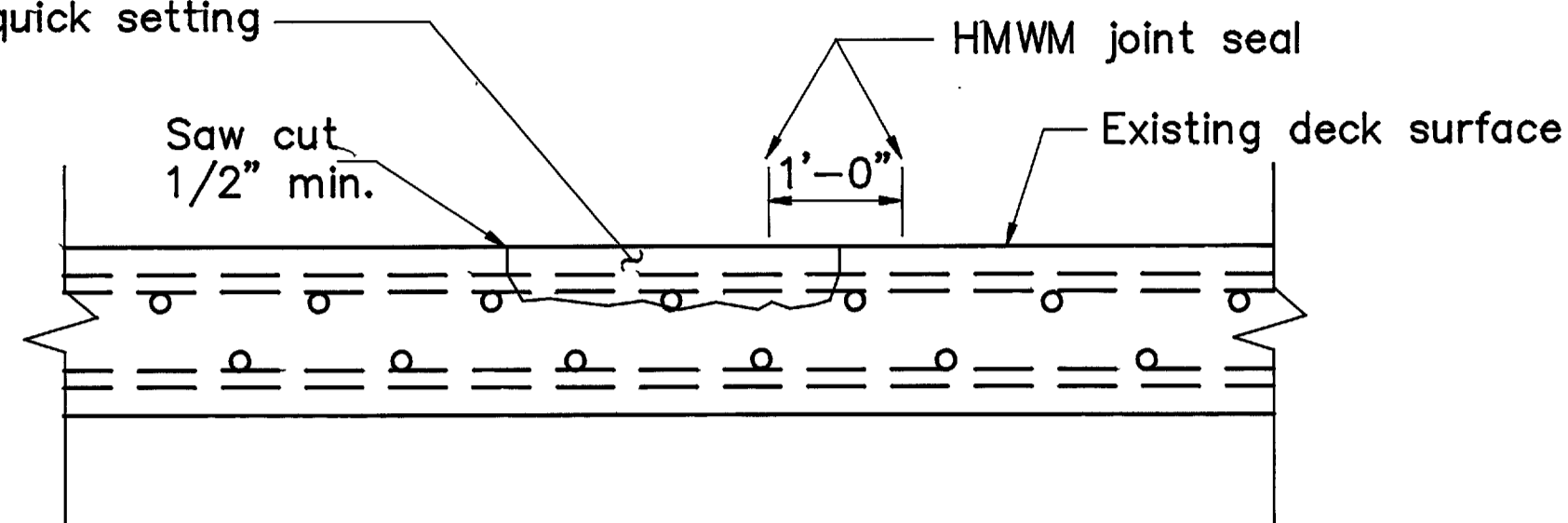
Unsound concrete including all patches over the sound Portland Cement Concrete, and all obviously loose and disintegrated concrete shall be removed. The unsound concrete may be removed by chipping or hand dressing. Chipping hammers shall not be heavier than the normal 35 pound class and shall be operated at an angle of less than 45 degrees measured from the surface of the deck. Concrete shall be removed in a manner that prevents cutting, elongating or damaging reinforcing steel. Where the bond between the concrete and the reinforcing bar has been destroyed, or where more than one half of the periphery of such a bar has been exposed, the adjacent concrete shall be removed to a depth that will provide a minimum 3/4" clearance around the bar except where other reinforcing bars make this impracticable. Reinforcement which has become loose shall be adequately supported and tied back into place. All removed asphalt and concrete shall be disposed of properly outside the right of way.

#### C. SURFACE PREPARATION

Cleaning shall closely precede application of the bonding grout or the patching material. The surface to be patched and the exposed reinforcing steel shall be thoroughly cleaned within 24 hours prior to patching by abrasive blasting followed by an air blast. It may be necessary to use hand tools to remove scale from the reinforcing steel.

Contamination of the area to be patched by construction equipment or from any other source shall be prevented by placement of a clean 4-Mil polyethylene sheet (or any other covering as approved by the Engineer) on the surface of the deck following the air blast cleaning.

Patching concrete bridge decks with quick setting concrete



TYPICAL PARTIAL SECTION

#### NOTE:

Patching shall be placed to the elevation of the existing bridge deck surface.

Where reinforcing steel is exposed, the Contractor shall provide adequate supports for the concrete mixer so that reinforcing steel and its bond with the concrete will not be damaged by the weight and movement of the mixer, or shall provide means to convey concrete from the mixer to the patch locations.

For patches that do not use water as the activator, the prepared surface shall be surface dry. For patches which require water as the activator the prepared surface shall be left in the condition as recommended by the manufacturer. Any additional surface preparation shall be in accordance with the Manufacturer's recommendations for the patching material which is used. No coating of the reinforcing steel is required.

#### D. MATERIALS, PLACING AND CURING

Overlays shall be patched with quick set concrete (QSC) which shall conform to the following requirements:

Coarse aggregate (NO 8)	-	703.02
Quick setting concrete mortar, Type 2	-	SS 933
Water	-	499.02

QSC patches shall be bonded according to the Manufacturer's recommendations. Proportioning and placing of QSC patches shall be according to the Manufacturer's recommendations. The concrete shall be mixed and placed as per Manufacturer's recommendations with the ambient temperature above 45 degrees F. Coarse aggregate, which has been cleaned, dried and bagged, shall be added at a rate of 30 pounds of aggregate per 50 pounds of dry QSC mortar. The maximum temperature of any water used in the mortar mix shall be 70 degrees F.

QSC patches shall be cured according to the Manufacturer's recommendations. The Contractor will supply a properly calibrated impact rebound hammer to verify that the patches have reached 3000 P.S.I. compressive strength prior to opening to traffic. The impact hammer shall be the model C-7311 H-Meter and the field calibrator shall be the model C-7312 test anvil as Manufactured by JAMES INSTRUMENTS, INC. 4048 Rockwell Street, Chicago, Illinois 60618; Phone: (312) 463-6500.

#### E. PLACING

The Contractor shall submit a plan which provides adequate lighting for the work area. The plan shall be submitted at least 15 calendar days in advance and be approved by the Engineer before concrete is placed. The lights shall be so directed that they do not affect or distract approaching traffic.

The patching material shall be placed, consolidated and finished to the existing grade and elevation. Patches greater than 50 Sq. Ft. in area shall have temporary bulkheads installed to facilitate placement and finishing. The temporary bulkheads shall go as deep as the patch and be pulled prior to the concrete setting. Patches exceeding 50 Sq. Ft. shall be struck off with a screed. Smaller patches shall be leveled with a ten foot straight edge. Patches that are less than 10 feet in length shall be screed longitudinally. For patches over 10 feet in length, the screed shall be placed perpendicular to the bridge center line.

The Contractor shall test the surface of the plastic concrete for trueness and for being flush with the edges of the adjacent surfaces by use of a ten foot straightedge. For patches ten feet or less in length, the straightedging shall be done by placing the straightedge parallel to the bridge centerline with the ends resting on the existing wearing surface and drawing the straightedge across the patch. Any high or low areas exceeding 1/8 inch in 10 feet shall be corrected. If any corrections are made, the surface shall be rechecked.

#### F. FINISHING

After the patches have been consolidated and finished, they shall be textured in accordance to section 451.09 of the C.M.S.

#### G. INSPECTION, SOUNDING AND REPAIR OF CONCRETE PATCHES

After curing and before final acceptance, all patched areas shall be inspected and sounded. All delaminated areas shall be removed and repatched according to this note.

All cracks in bonded patches shall be sealed with an approved high molecular weight methacrylate sealer according to the Manufacturer's recommendations and the HMW proposal note.

All replacement of rejected areas and sealing of cracks in new bonded patches will be the responsibility of the Contractor and included in the unit price bid for this Item.

#### H. SEALING PATCH EDGES

Surface Preparation shall be as per Manufacturer's recommendations.

#### MATERIALS, PLACING AND CURING

The patch seal shall be furnished by one of the following:

MANUFACTURER	PATCH SEAL DESIGNATION
POLY-CARB 33095 BAINBRIDGE RD. SOLON, OH 44139 (216) 248-1223	MARK-135 SAFE-T-SEAL
SIKA CORPORATION 1300 GRANGER RD. BROOKLYN HEIGHTS, OH 44131 (216) 749-7225	SIKADUR 35 HI-MOD LV
FOSROC INC. 2 SUMMIT PARK DRIVE SUITE 300 INDEPENDENCE, OH 44131 (216) 642-9342	NITOBOND ULV

The patch shall be mixed to the Manufacturer's recommendations. The patch seal shall be poured onto the properly prepared patch edges with a narrow nozzle container. The patch edges shall be sealed and any cracks along the patch edges shall be filled. Front and back movement with a squeegee shall be used over any cracks to enhance the penetration of the patch seal material. The cracks shall be rechecked and refilled making sure that the patch sealer is even over the surface of the deck. All sealing material shall be placed within a 4 inch wide area, 2 inches on each side of the patch edge. Any material outside of the area shall be removed to the Engineer's satisfaction at no cost to the State. Sand shall be broadcasted over the sealed area between 45 and 75 minutes after the seal has been applied. The sand shall saturate the seal at a rate of one pound of sand to 3 square feet of surface area. The seal shall cure for 6 hours prior to opening to any traffic.

#### LIMITATIONS

New patches shall cure for a minimum of 24 hours prior to sealing edges and by the Manufacturer's recommendations.

#### METHOD OF MEASUREMENT

The quantity shall be the actual area in Sq. Yds. of the exposed surface of all patches, irrespective of the depth of the patch, complete, in place and accepted.

#### BASIS OF PAYMENT

Payment shall be made at the contract price bid for:

ITEM	UNIT	DESCRIPTION
SPECIAL	SQ. YD.	PATCHING BRIDGE DECKS WITH QSC.

THOMAS FOK & ASSOCIATES, LTD.  
CONSULTING ENGINEERS, SURVEYORS & PLANNERS  
3696 MAHONING AVE. YOUNGSTOWN, OHIO

### GENERAL NOTES

BRIDGE NO. MED-76-0690 L  
OVER RIVER STYX

DESIGNED D.L.E.	DRAWN K.R.M.	TRACED	CHECKED J.D.V.	REVIEWED J.F.	REVISED
9/92	9/92		9/92	12/92	

41 12

REGION	STATE	PROJECT	
5	OHIO		

285  
299

MEDINA COUNTY  
MED-76-0.61

CALC. BY D.L.C.

CHK'D BY J.D.V.

ESTIMATED QUANTITIES				LEFT BRIDGE				RIGHT BRIDGE				
ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUT.	PIER	GEN'L	SUPER.	ABUT.	PIER	GEN'L
<b>STRUCTURE</b>												
202	11301	62	Cu.Yd.	Portions of Structures Removed, as per plan	26	5			26	5		
202	23501	494	Sq. Yd.	Wearing Course Removed, as per plan	74				420			
202	38500	375	Lin.Ft.	Bridge Railing Removed	187.5				187.5			
503	11100	Lump	Lump	Cofferdams, Cribbs and Sheeting				Lump				Lump
509	15824	27,730	Lb	Epoxy Coated Reinforcing Steel, Grade 60	11,535	2130			11,535	2130		200
510	11101	380	Each	Dowel Hole, as per plan		132				132		58
511	34001	92	Cu.Yd.	Class S Concrete, Superstructure, as per plan	46				46			
511**	33404	92	Cu.Yd.	Class S Concrete, Superstructure, (Using Shrinkage Compensating Cement) (See Proposal Note)	46				46			
511**	33410	Lump	Lump	Class S Concrete, Using Shrinkage Compensating Cement, for Preplacement Testing (See Proposal Note)	Lump				Lump			
511	34450	24	Cu.Yd.	Class S Concrete, Misc.: Piling Encasement, as per plan			12				12	
511	45701	10	Cu.Yd.	Class C Concrete, Abutment, as per plan		5				5		
Spec.	51267502	374	Sq.Yd.	Sealing of Concrete Surfaces (Epoxy)(See Proposal Note)	187				187			
Spec.	51271500	374	Sq.Yd.	Urethane Top Coat Sealer For Concrete Surfaces	187				187			
516	10000	188	Lin.Ft.	Preformed Elastomeric Compression Joint Seal (705.11)				94				94
Spec.	51861400	44	Each	Keyway Drain		22				22		
Spec.	51911550	4	Sq.Yd.	Patching Concrete Bridge Deck With QSC	4							
Spec.	51922006	392	Sq.Yd.	Micro-Silica Modified Concrete Overlay (1.75") (See Proposal Note)					392			
Spec.	51922006	17	Sq.Yd.	Micro-Silica Modified Concrete Overlay (2.00") (See Proposal Note)	17							
Spec.	51922100	14	Cu.Yd.	Micro-Silica Modified Concrete Overlay (Variable Thickness) (See Proposal Note)	6				8			
Spec.	51922300	Lump	Lump	Test Slab				Lump				Lump
Spec.	85050070	784	Sq.Yd.	Bridge Deck Grooving (See Proposal Note)	392				392			

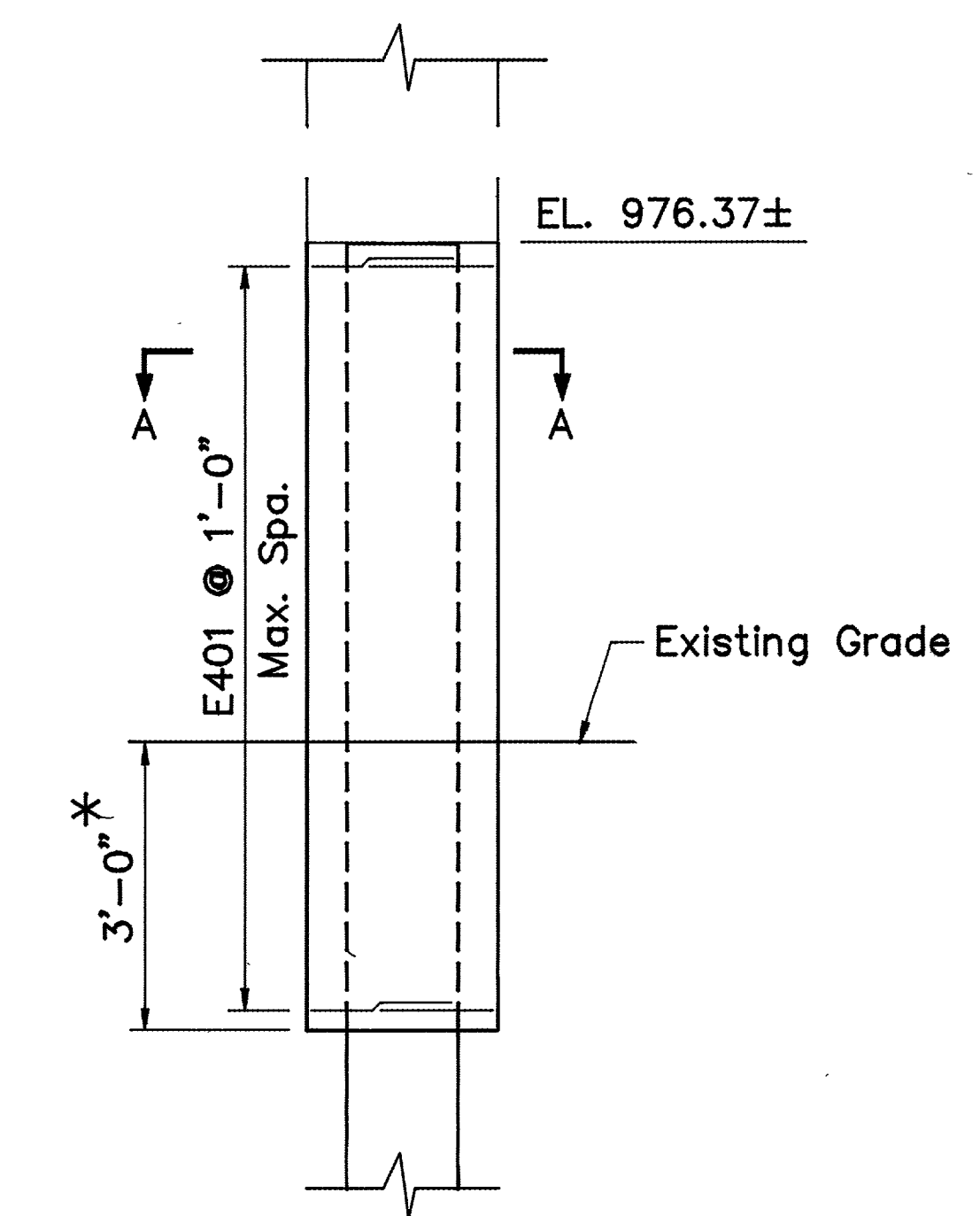
\*\* Alternate Bid Item: These Two Items Shall Constitute One Alternate Bid to Class S Concrete, Superstructure, As Per Plan.

**PROPOSED WORK-0690L(WESTBOUND)**

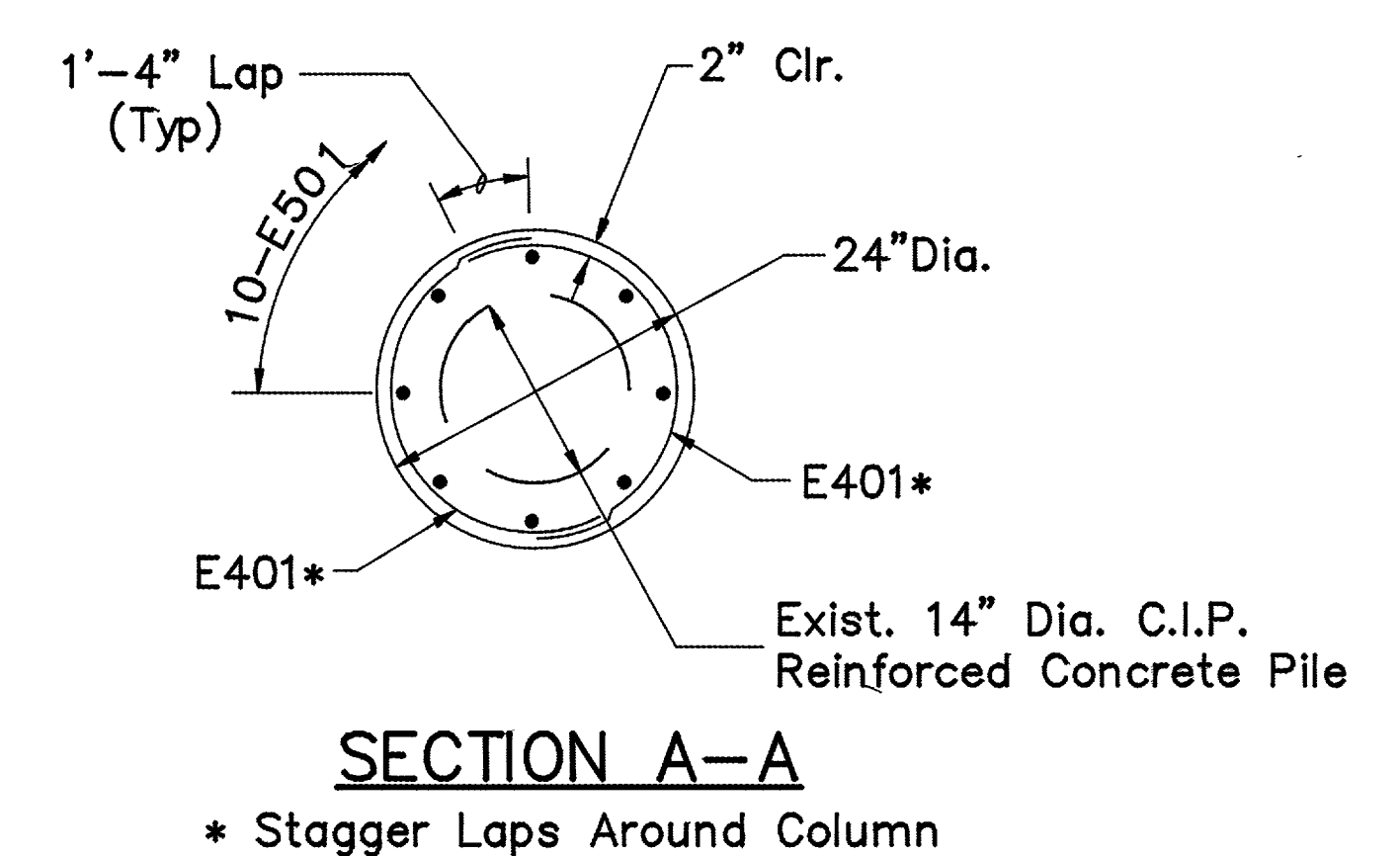
- Place traffic control barriers for Phase 1C as shown on sheet 34, and complete Phase 1C work, outside lanes, as described below.
- Remove existing guardrail and deck edges as per plan.
- Provide temporary support for ends of deck and remove portions of existing abutments, as per plan.
- Place keyway drains, reface existing abutments and remove temporary supports after refacing concrete is cured.
- Repair existing deck surfaces as noted and place new deck edges with parapets.
- Place new approach slabs.
- Seal joint between approach slab and deck with compression seal.
- Seal concrete surfaces as per plan.
- Place transverse grooves in existing bridge deck surface.
- Encase pier piling at waterline as per plan.
- Place rock channel protection from behind piers to edge of river.
- After Phase 1C work is complete and can be opened to traffic, place traffic control barriers for Phase 1F as shown on sheet 38. Then complete Phase 1F work, the remaining portion of structure, as described above.
- After the remaining portion of the structure is complete and can be reopened to traffic, remove traffic control barriers.

**PROPOSED WORK-0690R(EASTBOUND)**

- Place traffic control barriers for Phase 1C as shown on sheet 34, and complete Phase 1C work, outside lanes, as described below.
- Remove existing asphalt wearing surface.
- Remove existing guardrail and deck edges as per plan.
- Provide temporary support for ends of deck and remove portions of existing abutments, as per plan.
- Place keyway drains, reface existing abutments and remove temporary supports after refacing concrete is cured.
- Repair existing deck surfaces as noted and place new deck edges with parapets.
- Prepare existing deck surface and place new 1-3/4" micro-silica modified concrete overlay as per plan.
- Place new approach slabs.
- Seal joint between approach slab and deck with compression seal.
- Seal concrete surfaces as per plan.
- Place transverse grooves in existing new bridge deck surface.
- Encase pier piling at waterline as per plan.
- Place rock channel protection from behind piers to edge of river.
- After Phase 1C work is complete and can be opened to traffic, place traffic control barriers for Phase 1F as shown on sheet 38. Then complete Phase 1F work, the remaining portion of structure, as described above.
- After the remaining portion of the structure is complete and can be reopened to traffic, remove traffic control barriers.



**TYPICAL PILING ENCASEMENT**  
(16 REQUIRED PER STRUCTURE)



Include Reinforcing Bars with Item 511 Class S Concrete, Misc.: Piling Encasement, as per plan for payment.

5/12

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3896 MAHONING AVE. YOUNGSTOWN, OHIO

**PROPOSED WORK & ESTIMATED QUANTITIES**  
BRIDGE NO. MED-76-0690 L/R  
OVER RIVER STYX

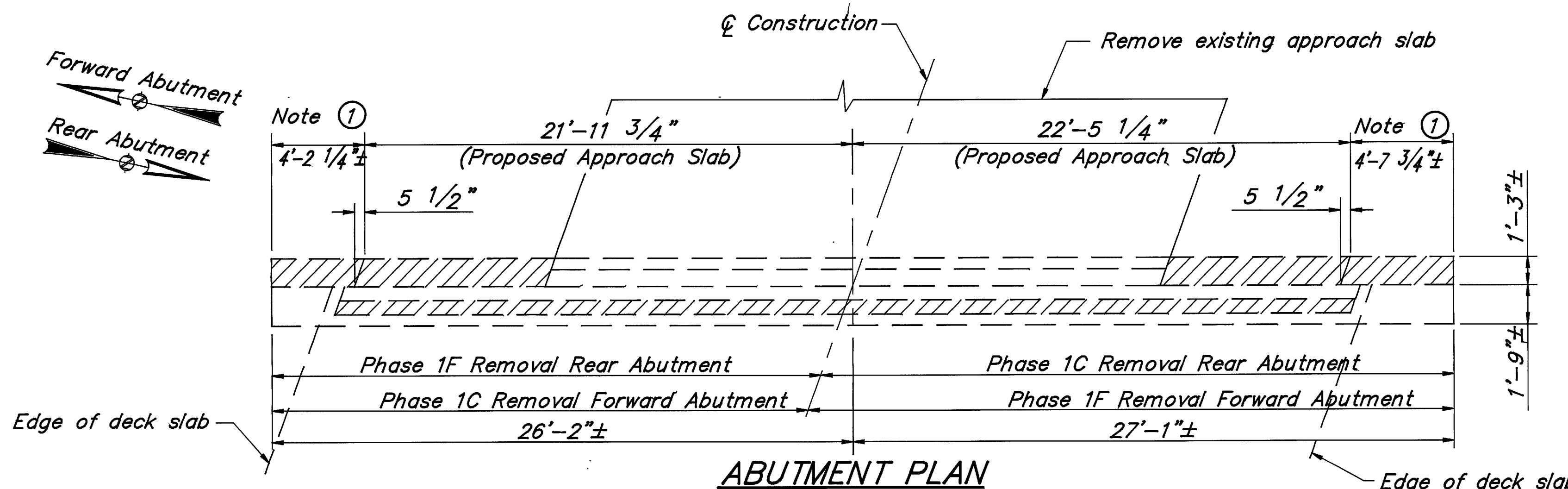
MEDINA COUNTY OHIO

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED
D.L.C.	D.L.C.		J.D.V.	J.F.	
10/92	10/92		11/92	12/92	

REGION	STATE	PROJECT	
5	OHIO		

286  
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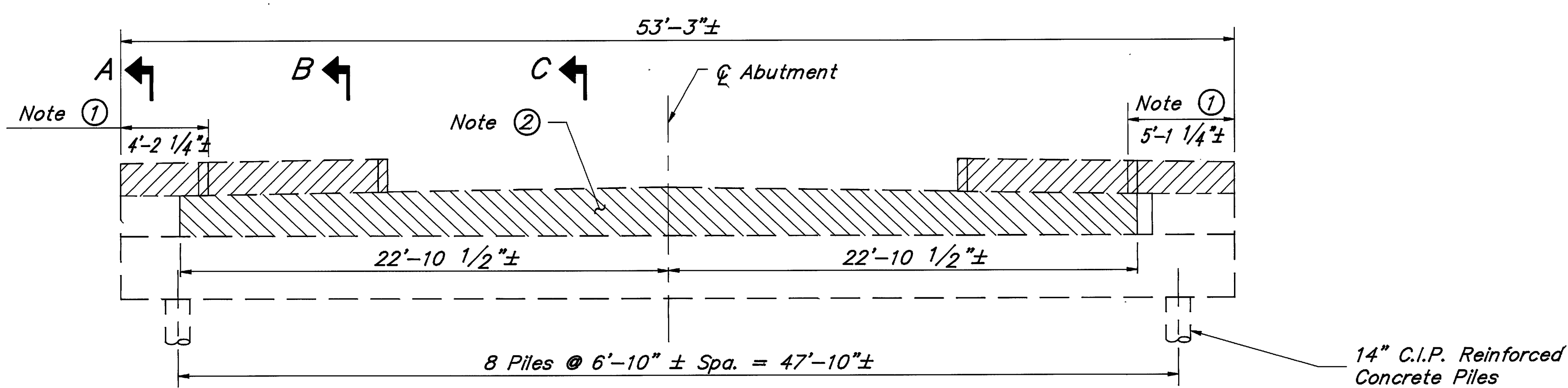
MEDINA COUNTY  
MED-76-0.61



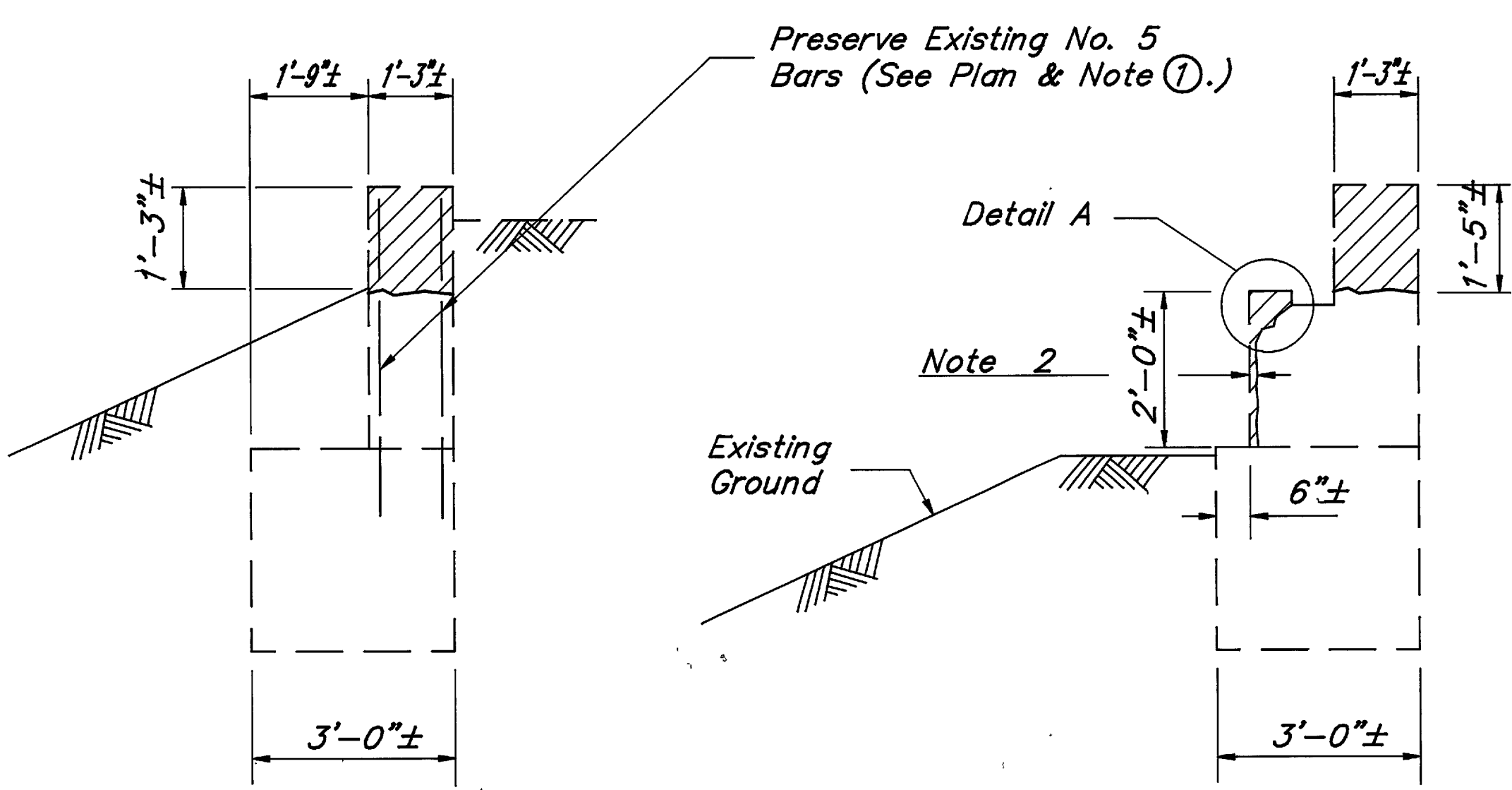
Indicates limits of existing structure to be removed, as per Item 202.

**NOTE ①** - The existing reinforcing bars are to be preserved outside the limits of the new approach as shown in the Plan View.

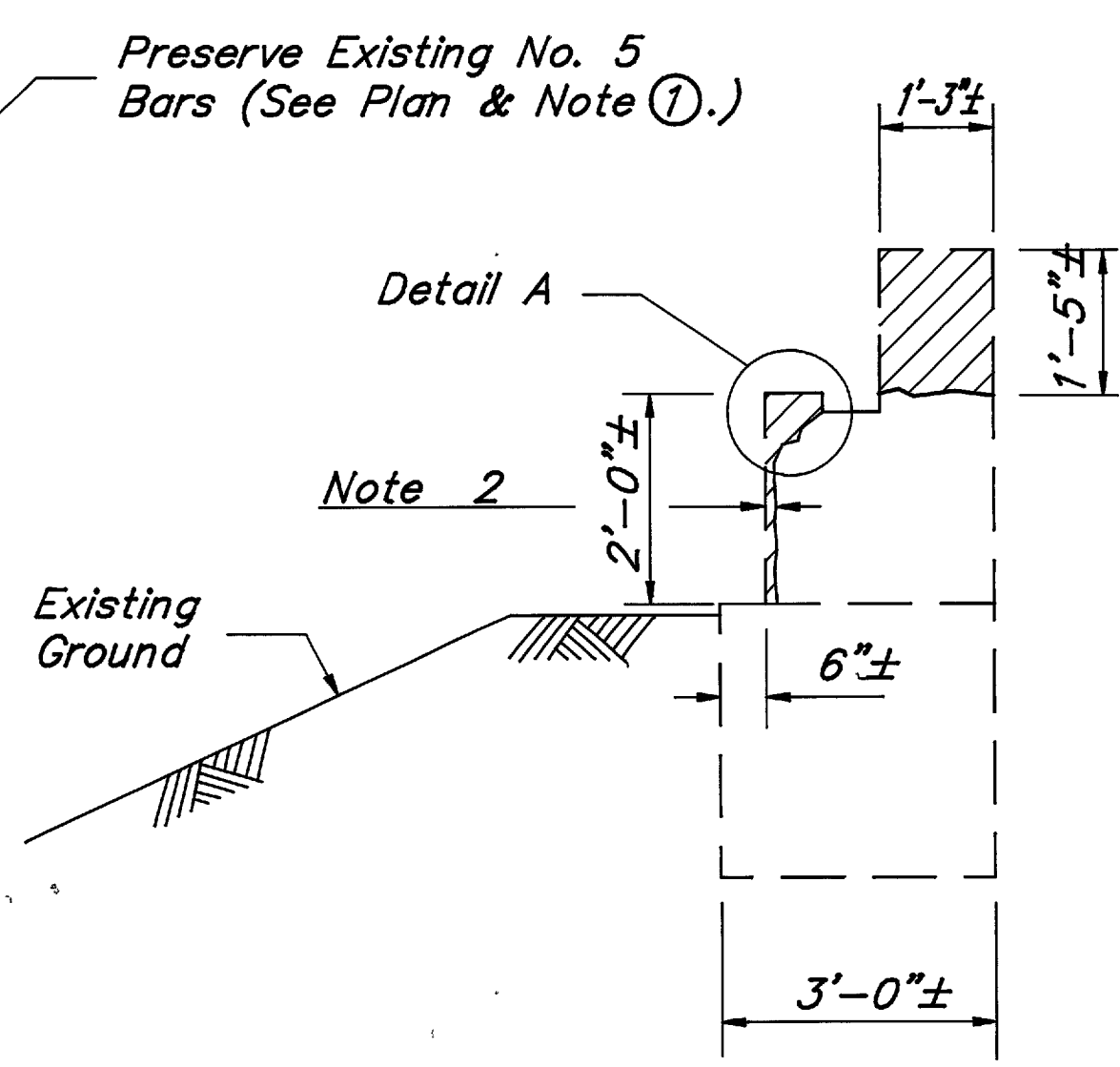
**NOTE ②** - A minimum of 1/4" to a maximum of 1" of existing concrete shall be removed from the entire face of the bridge seat prior to placing the new concrete facing as shown on sheet 8/12. Any areas of loose and disintegrated concrete that are encountered shall be removed to sound concrete prior to the above removal.



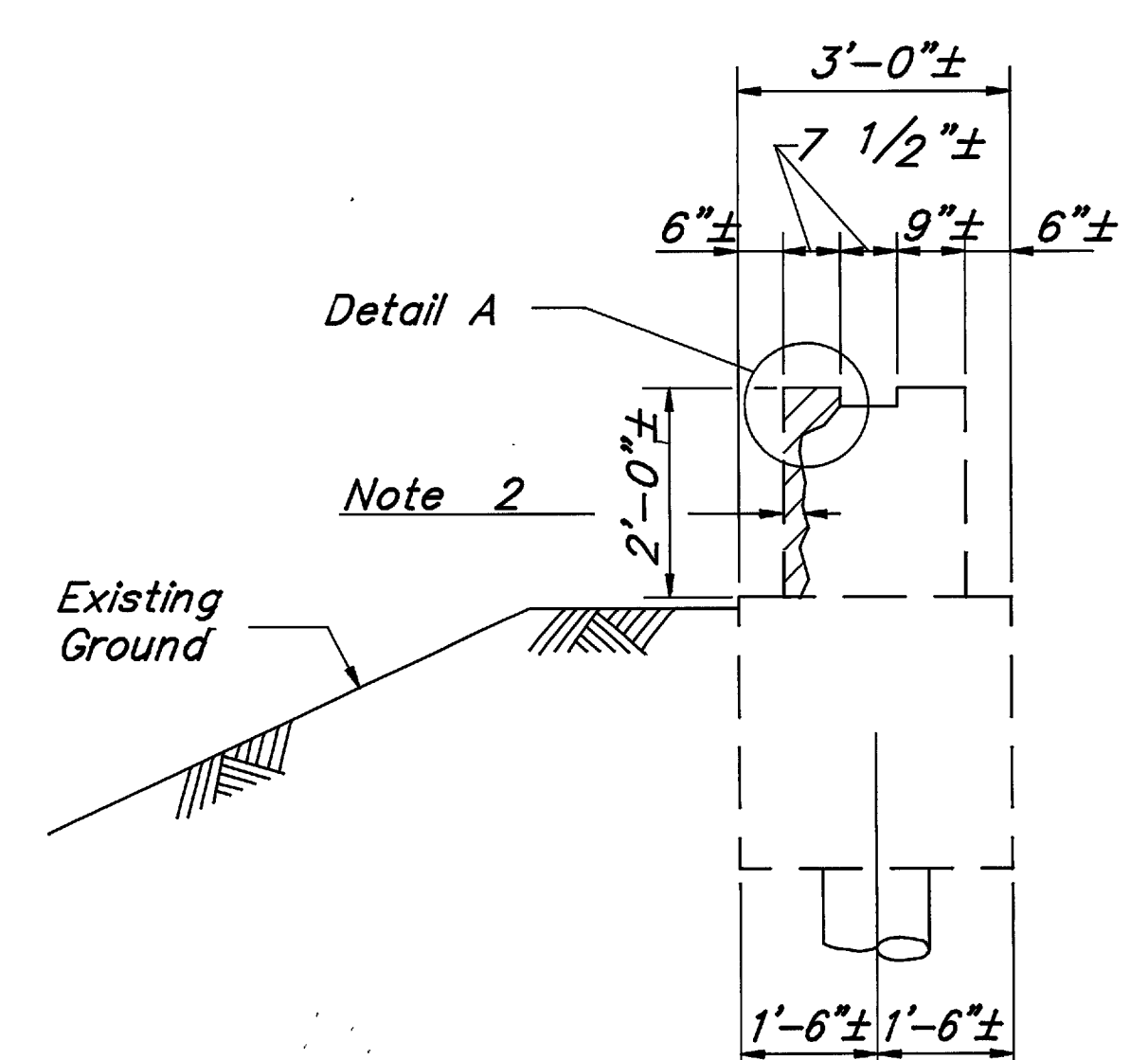
**ABUTMENT ELEVATION**  
(TYP. EASTBOUND & WESTBOUND LANES)



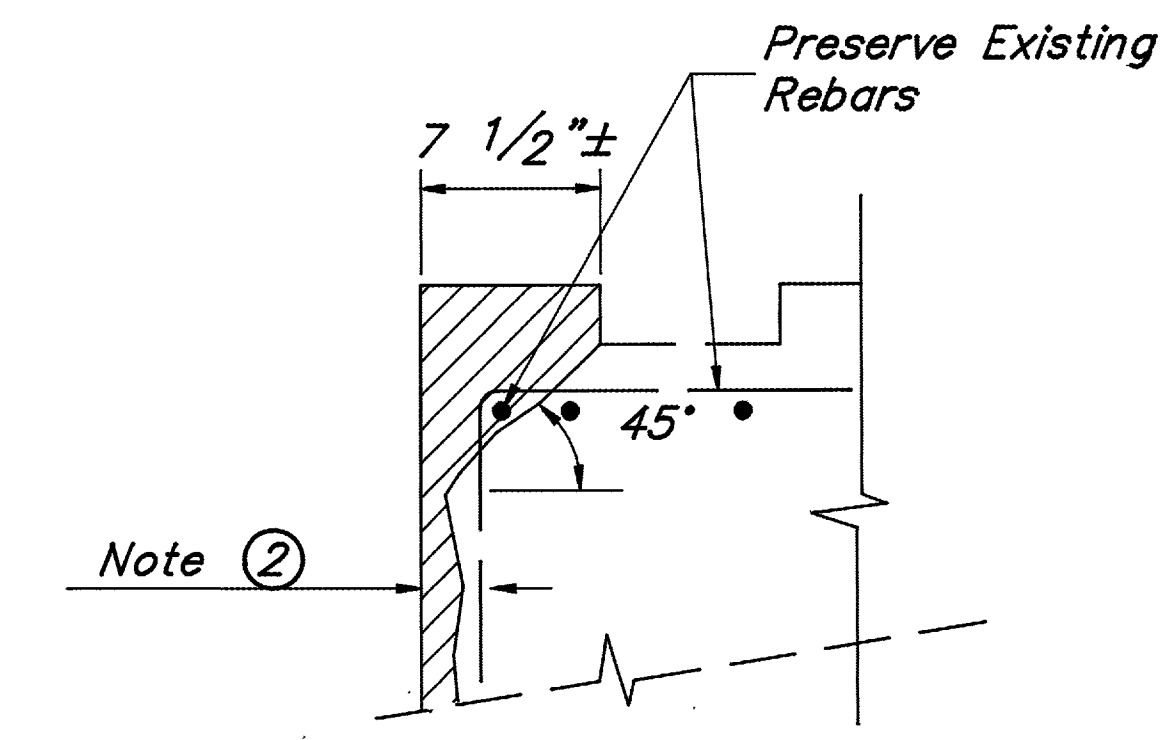
**SECTION A-A**



**SECTION B-B**



**SECTION C-C**



**Detail A**

6/12

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CONSULTING ENGINEERS, SURVEYORS & PLANNERS  
3896 MAHONING AVE., YOUNGSTOWN, OHIO

**EXISTING ABUTMENT  
REMOVAL DETAILS**  
BRIDGE NO. MED-76-0690 L/R  
OVER RIVER STYX

MEDINA COUNTY OHIO

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED
D.L.C.	D.L.C.		F.D.V.	J.F.	
10/92	10/92		11/92	12/92	

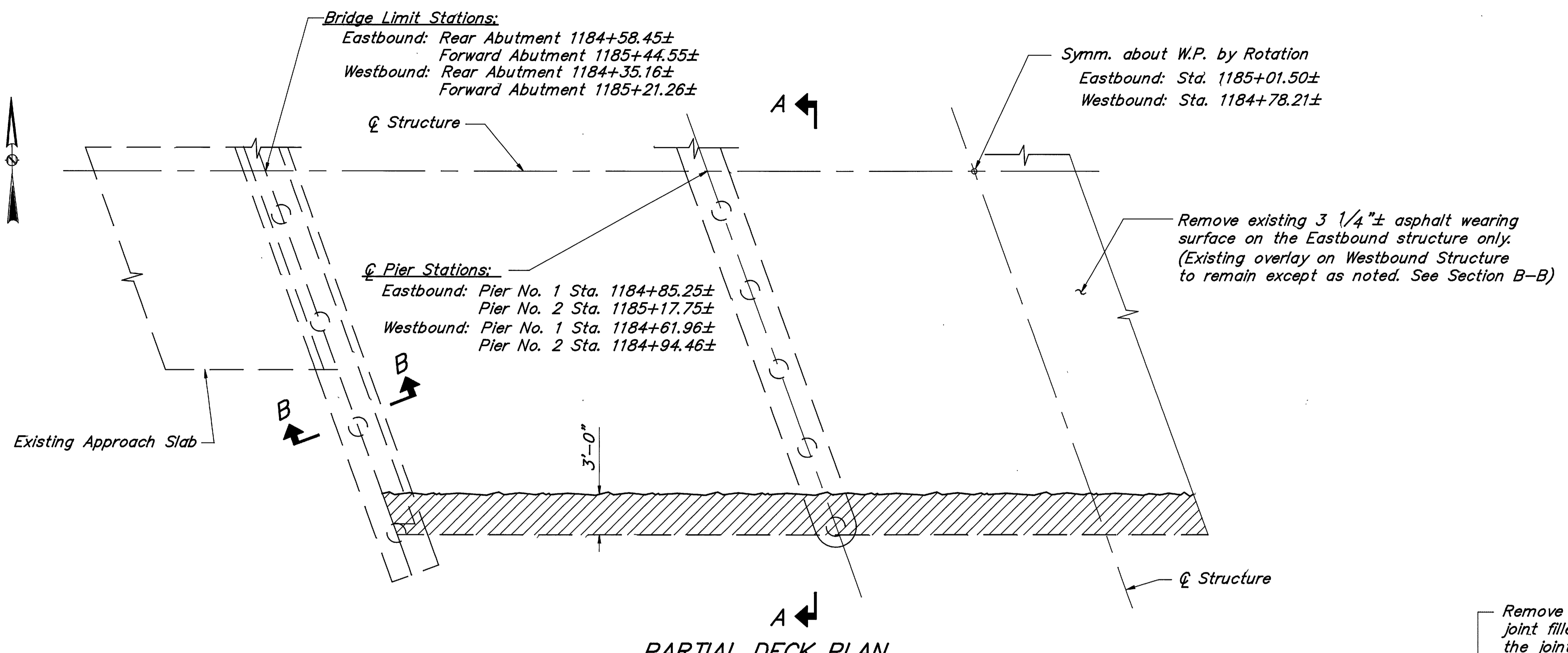
DETAIL 1-48 3-30-92



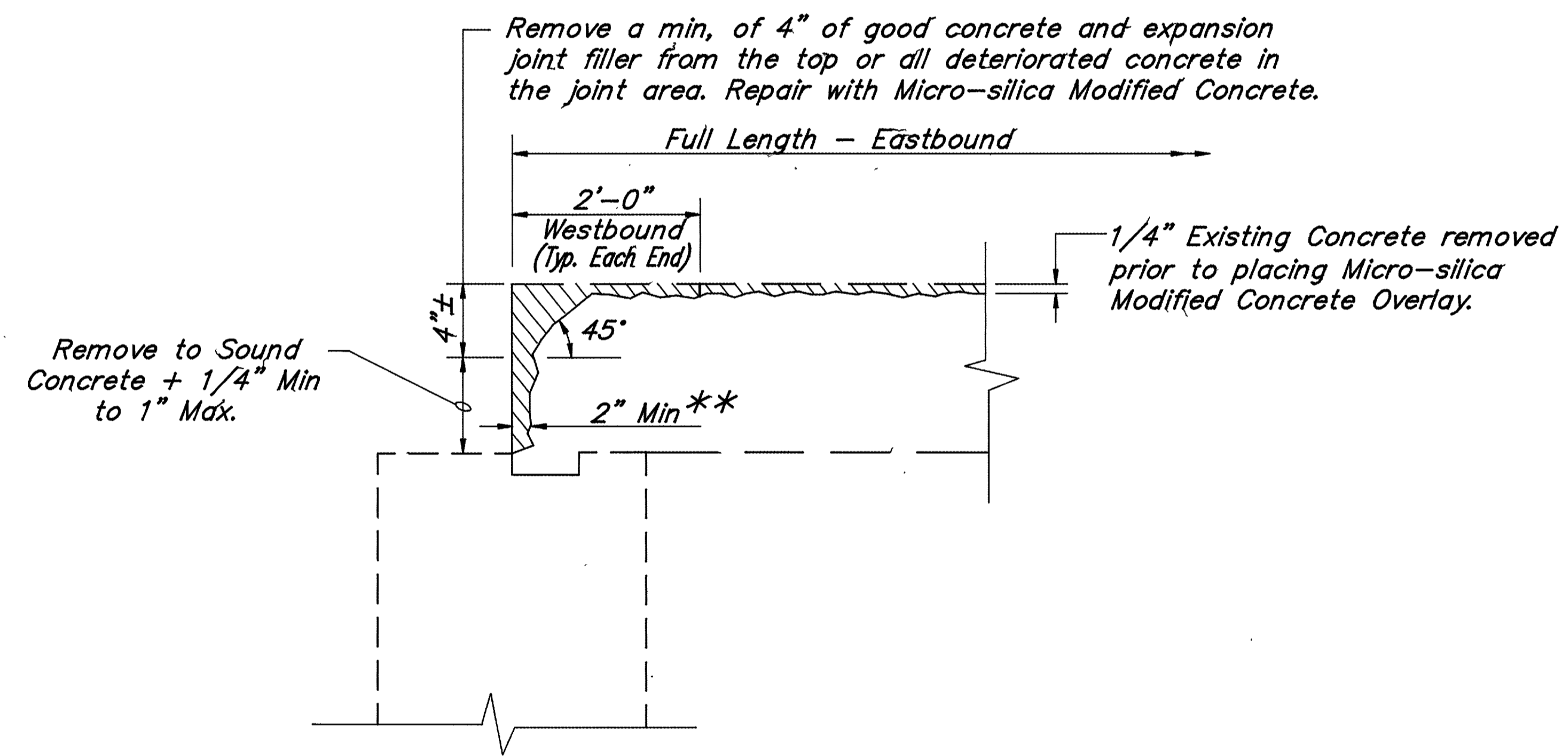
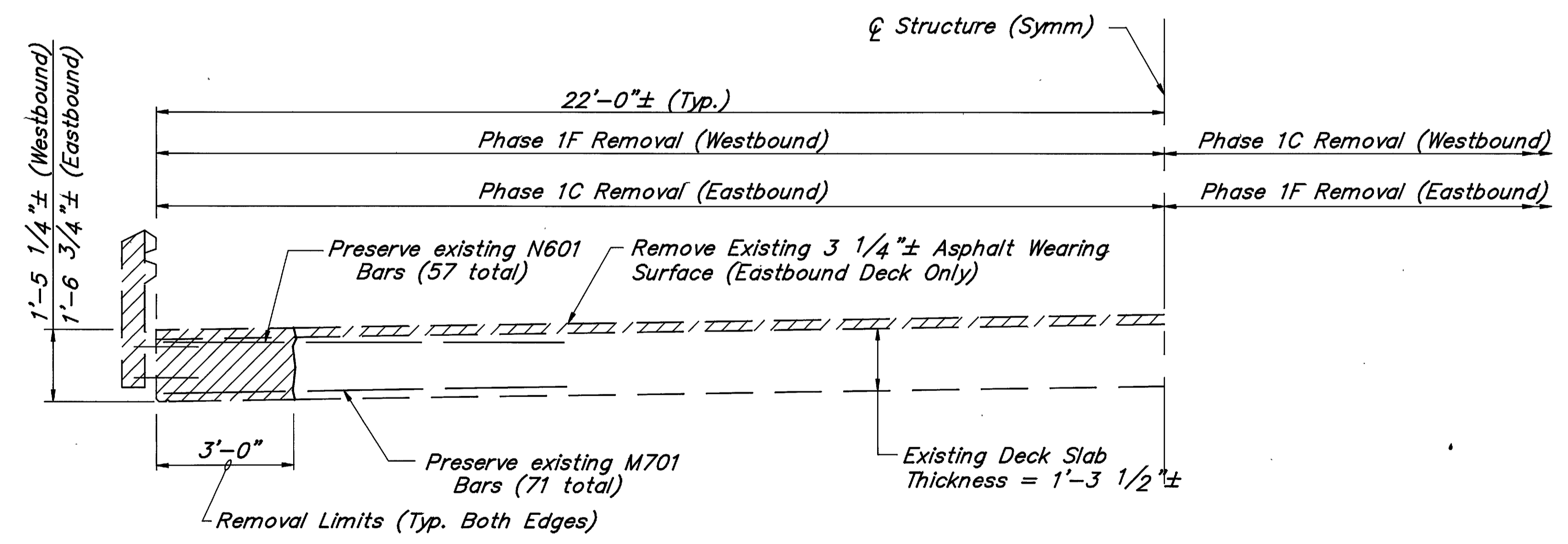
REGION	STATE	PROJECT	
5	OHIO		

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299

MEDINA COUNTY  
MED-76-0.61



Indicates limits of existing structure to be removed, as per Item 202.



\*\* Remove to 2" Min. or to Sound Concrete + 1/4" Min. to 1" Max.

**SECTION A-A**  
EASTBOUND & WESTBOUND STRUCTURES SIMILIAR

71 12

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 3896 MAHONING AVE. YOUNGSTOWN, OHIO

**EXISTING SUPERSTRUCTURE  
REMOVAL DETAILS**  
 BRIDGE NO. MED-76-0690 L/R  
 OVER RIVER STYX

MEDINA COUNTY OHIO

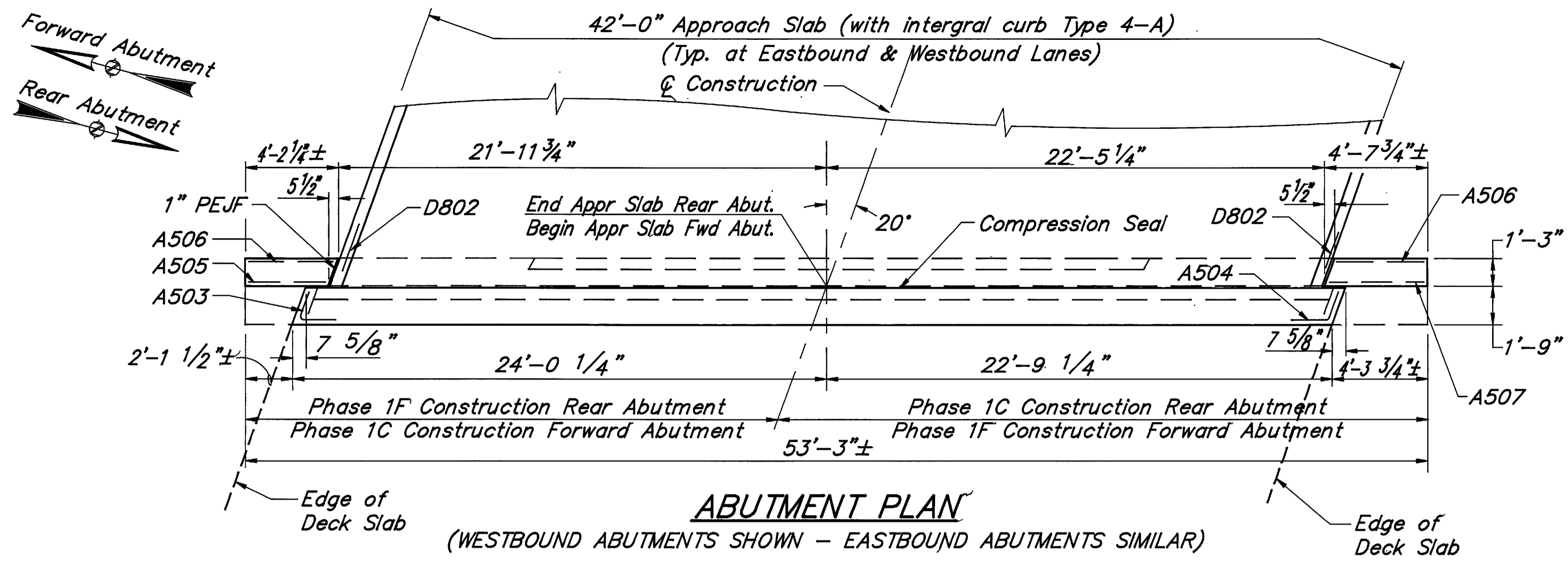
DESIGNED D.L.G.	DRAWN D.L.G.	TRACED	CHECKED J.D.V.	REVIEWED J.F.	REVISED
12/91	12/91		11/92	12/92	

SERIAL 1448 3-30-93

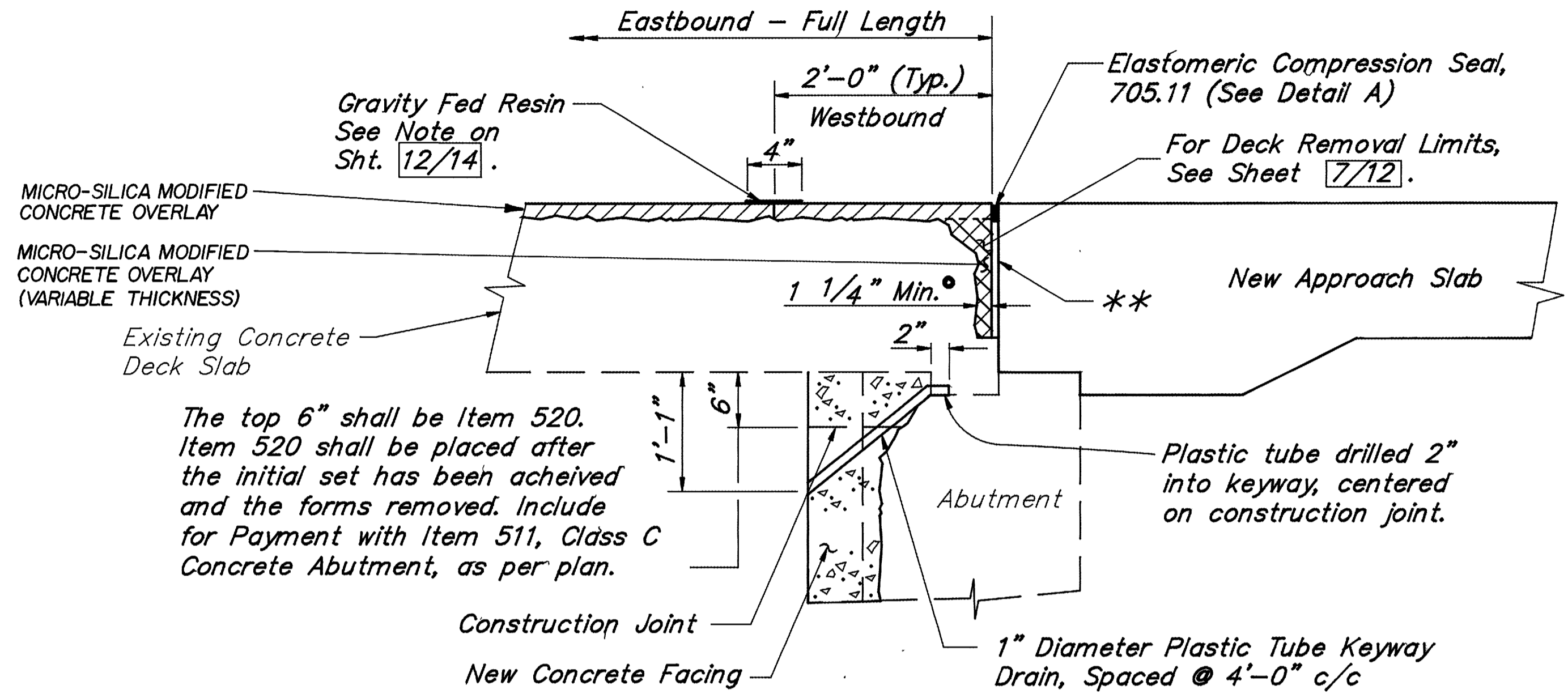
REGION	STATE	PROJECT
5	OHIO	

288  
299

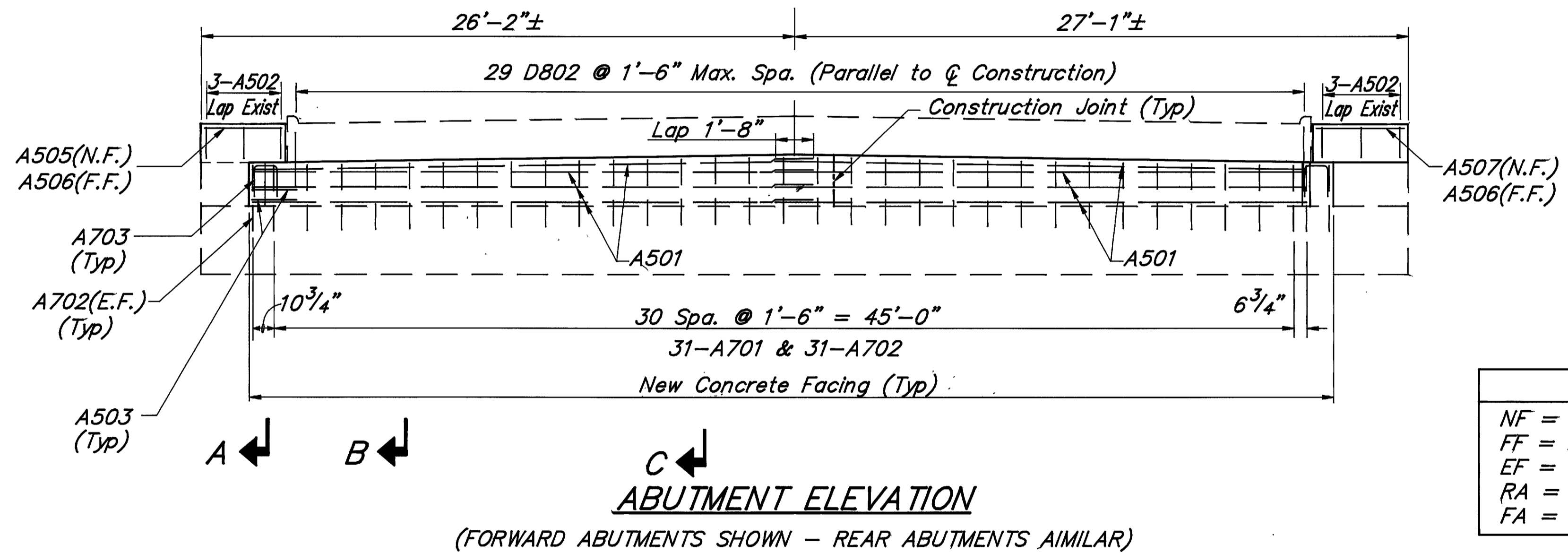
MEDINA COUNTY  
MED-76-0.61



• 1 1/4" Min. or to removal limits shown on sheet 7/12 Minus 3/4"

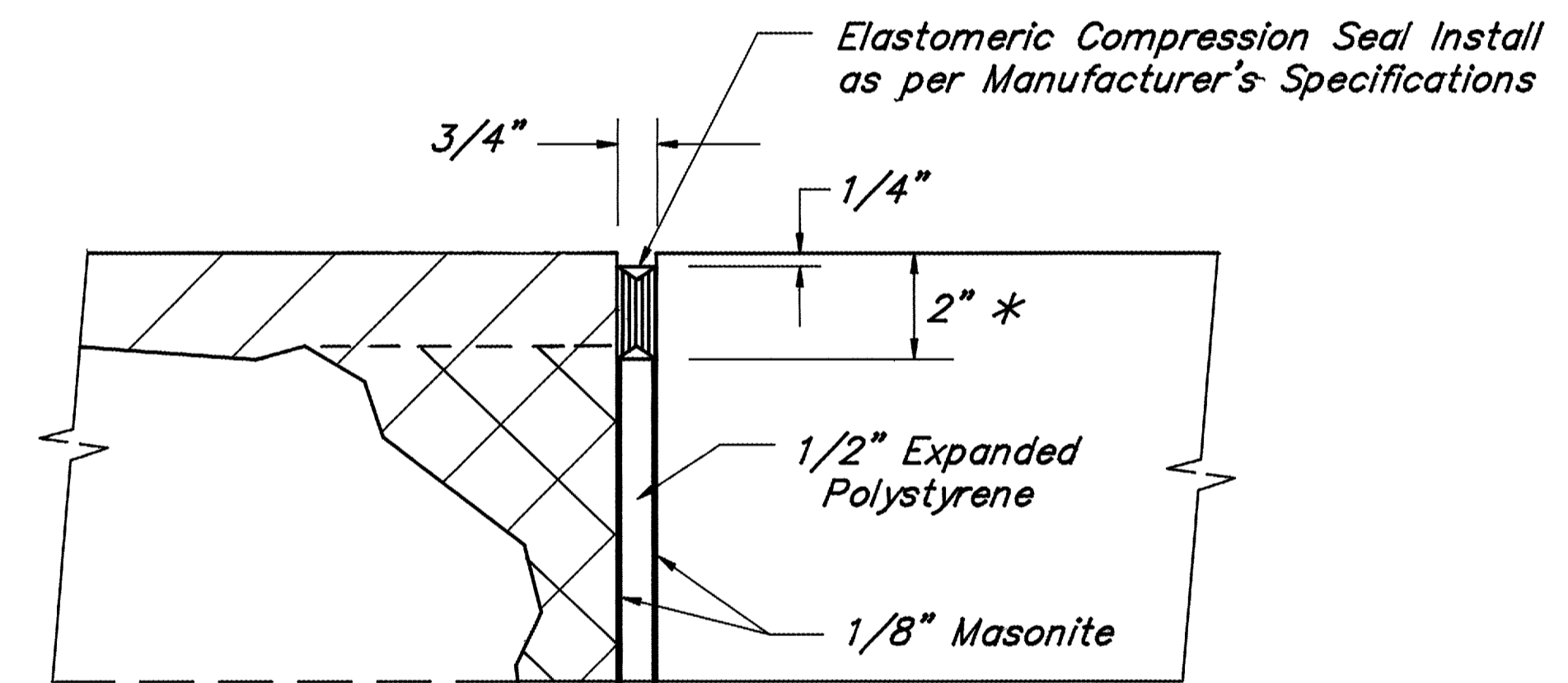


**JOINT REPAIR DETAIL**



**LEGEND**

NF	=	Near Face
FF	=	Far Face
EF	=	Each Face
RA	=	Rear Abutment
FA	=	Forward Abutment



**DETAIL A**

(Typ. at Eastbound & Westbound Structure Abutments)

NOTE: The compression seal shall be one continuous piece and shall seal the joint the full width of the slab deck.

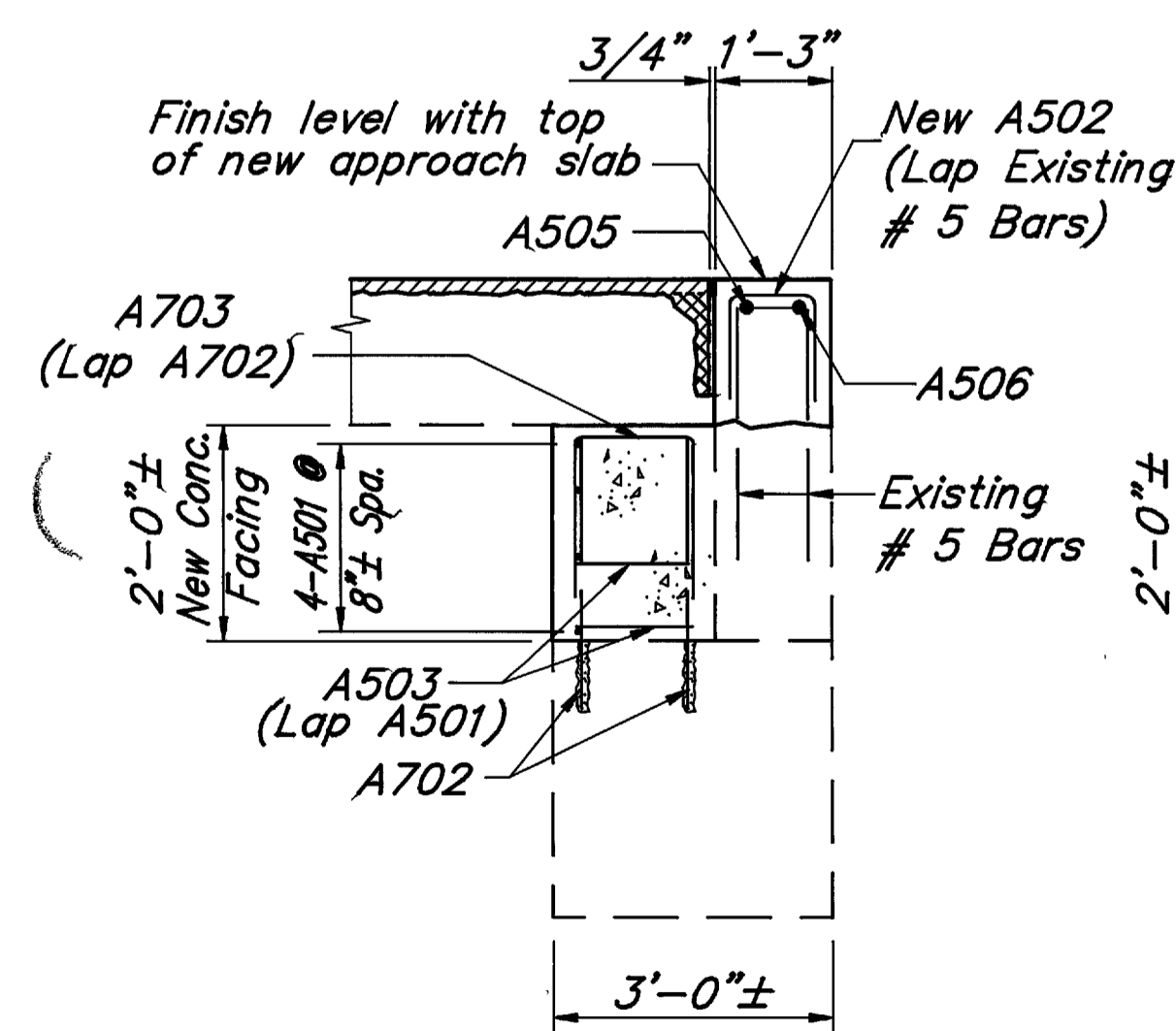
\* Dimensions shown are for Watson Bowman Acme Inc. WA-125, Structural Accessories SA1250 or D.S. Brown H-1250. Use any of the above or approved equal as per 705.11.

\*\* Glue 1/2" expanded polystyrene between two pieces of 1/8" masonite. Install total depth of repaired area. The masonite and polystyrene shall be in place before any concrete is placed, and shall be below the final roadway grade to facilitate finishing of the concrete on both sides of the joint.

If the concrete on both sides of the joint is not finished to the same height, the joint surface shall be ground smooth as directed by the Engineer.

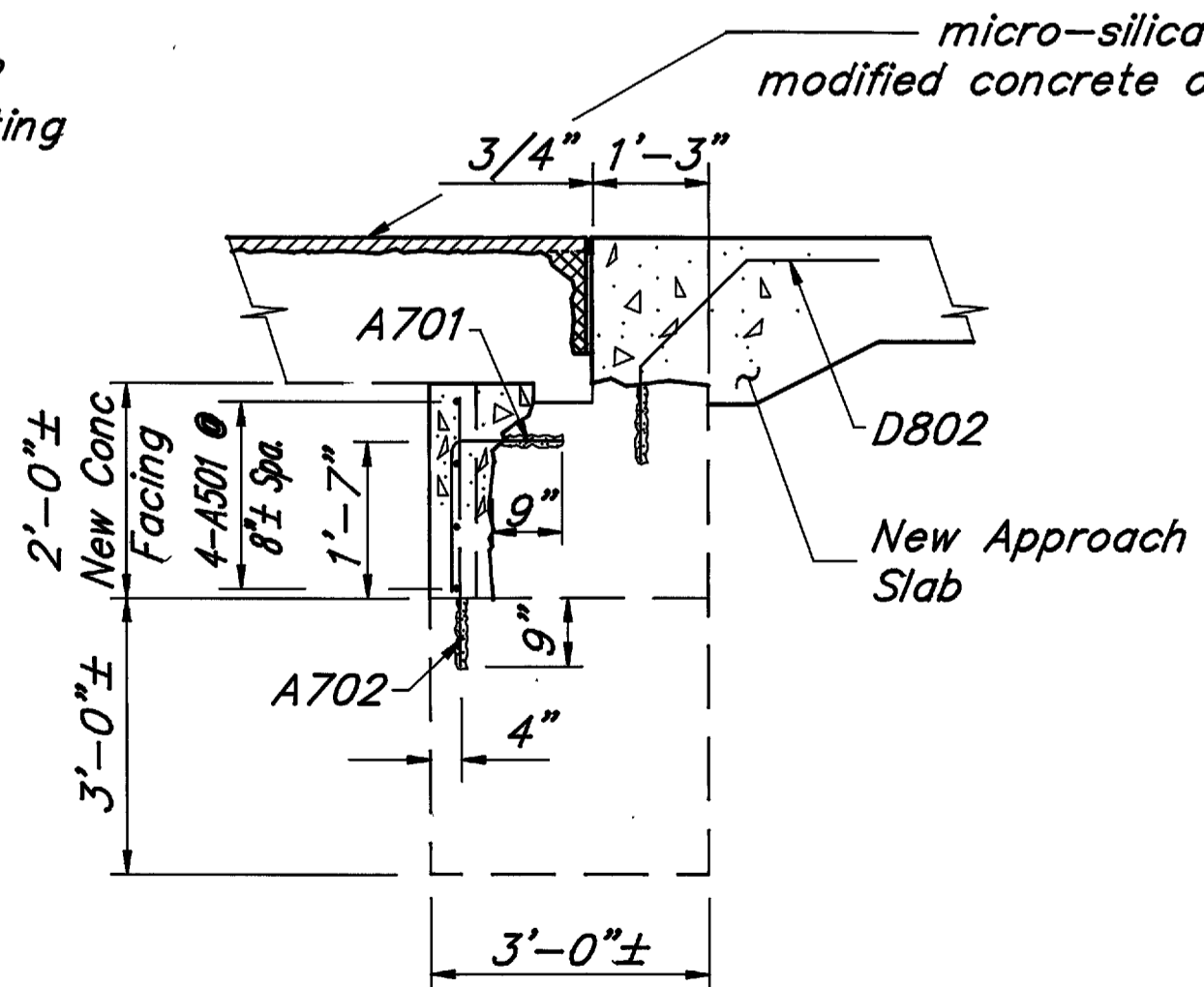
Saw out enough masonite and polystyrene to install the compression seal after the joint has been repaired.

Payment for all materials, except the concrete, and labor to repair the joint as per details on this sheet shall be included in the unit price bid per linear foot of Item 516, Preformed Elastomeric Compression Joint Seal (705.11).



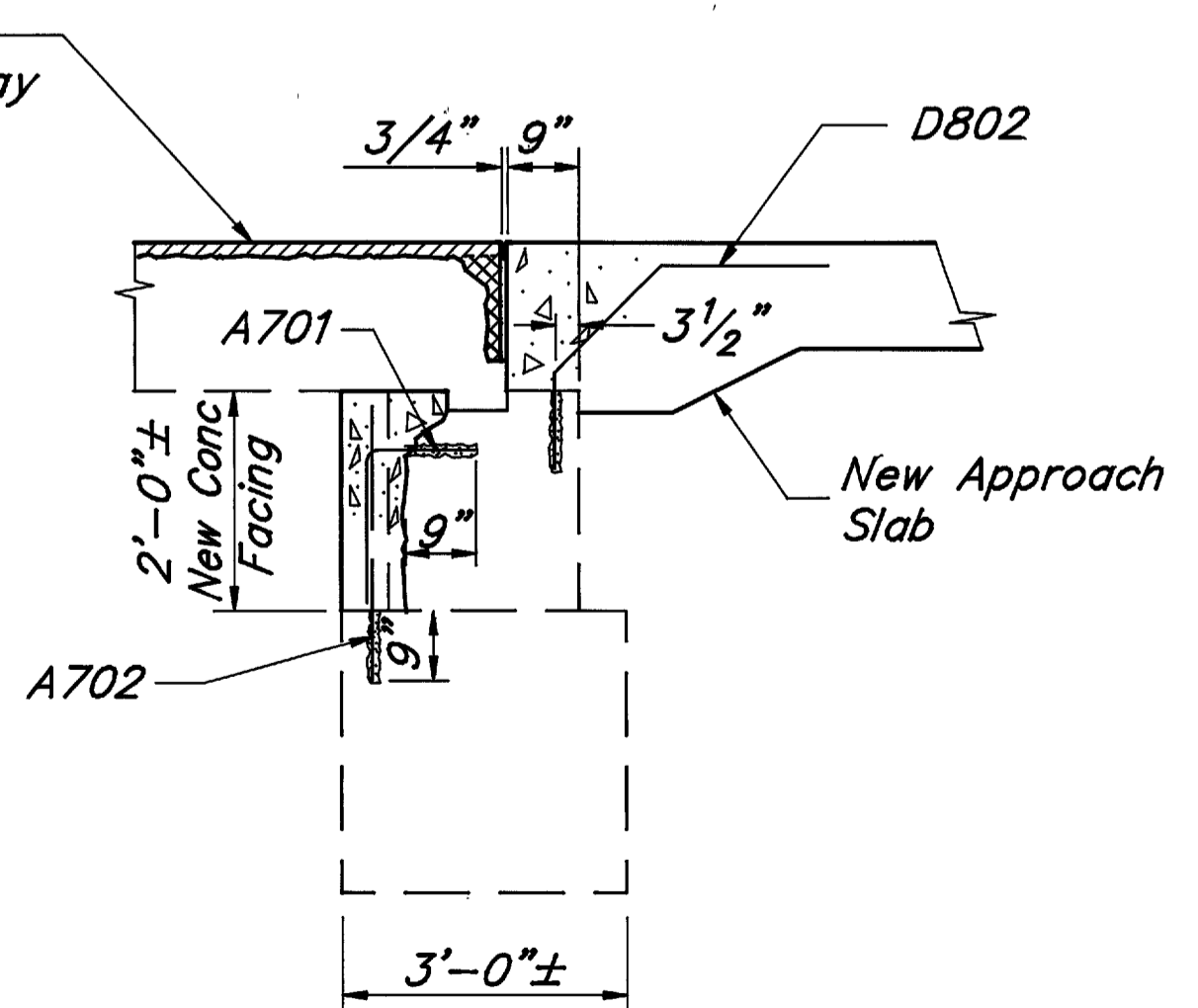
**SECTION A-A**

(Typ at Eastbound & Westbound Abutments)



**SECTION B-B**

(Typ at Eastbound & Westbound Abutments)



**SECTION C-C**

(Typ at Eastbound & Westbound Abutments)

THOMAS FOK & ASSOCIATES, LTD.  
CONSULTING ENGINEERS, SURVEYORS & PLANNERS  
3896 MAHONING AVE. YOUNGSTOWN, OHIO

**ABUTMENT DETAILS**  
BRIDGE NO. MED-76-0690 L/R  
OVER RIVER STYX

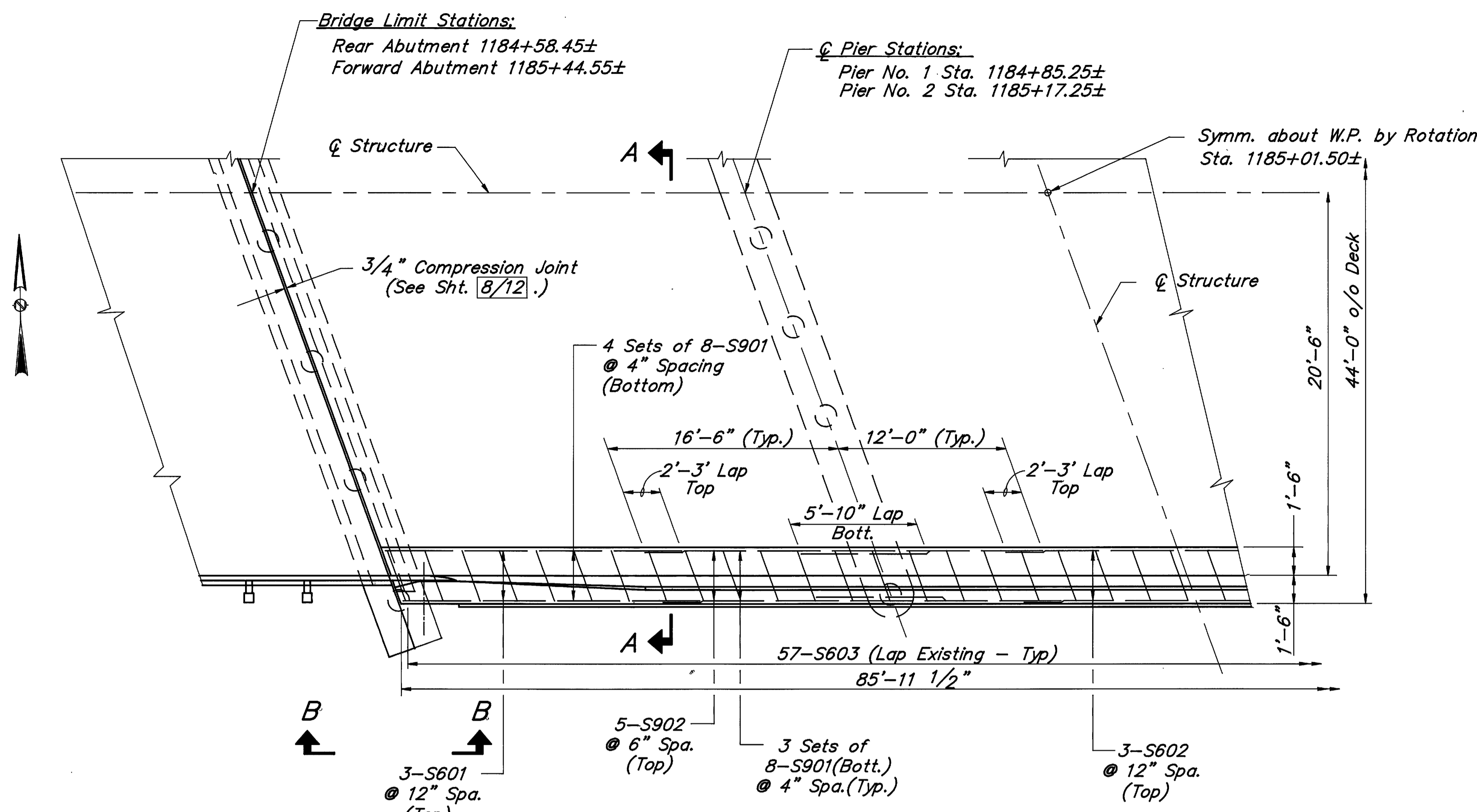
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISION
D.L.G.	D.L.G.		J.D.V.	J.F.	
10/92	10/92		11/92	12/92	

DETAIL 1-48 3-31-93

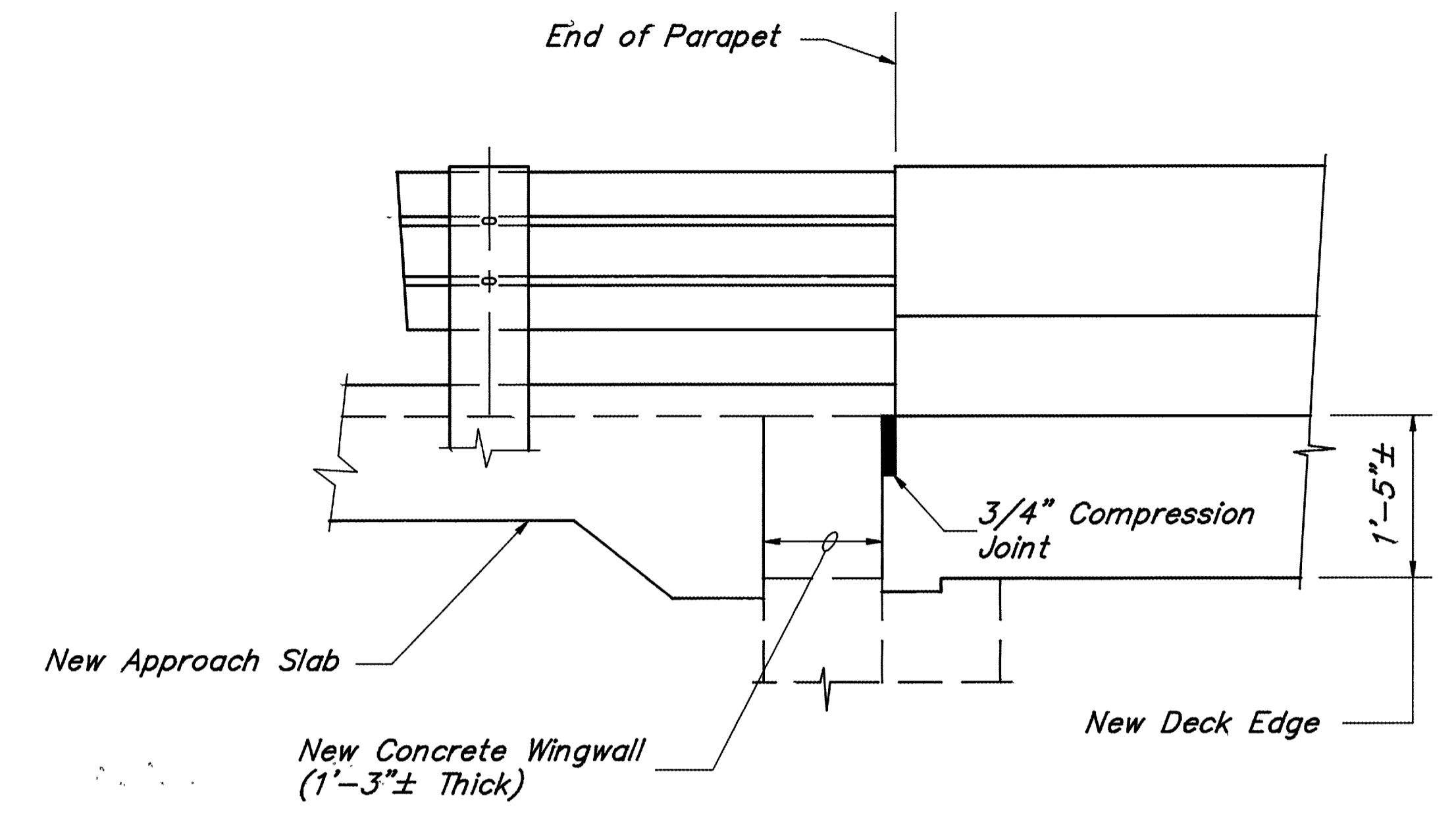
REGION	STATE	PROJECT	
5	OHIO		

289  
299

MEDINA COUNTY  
MED-76-0.61



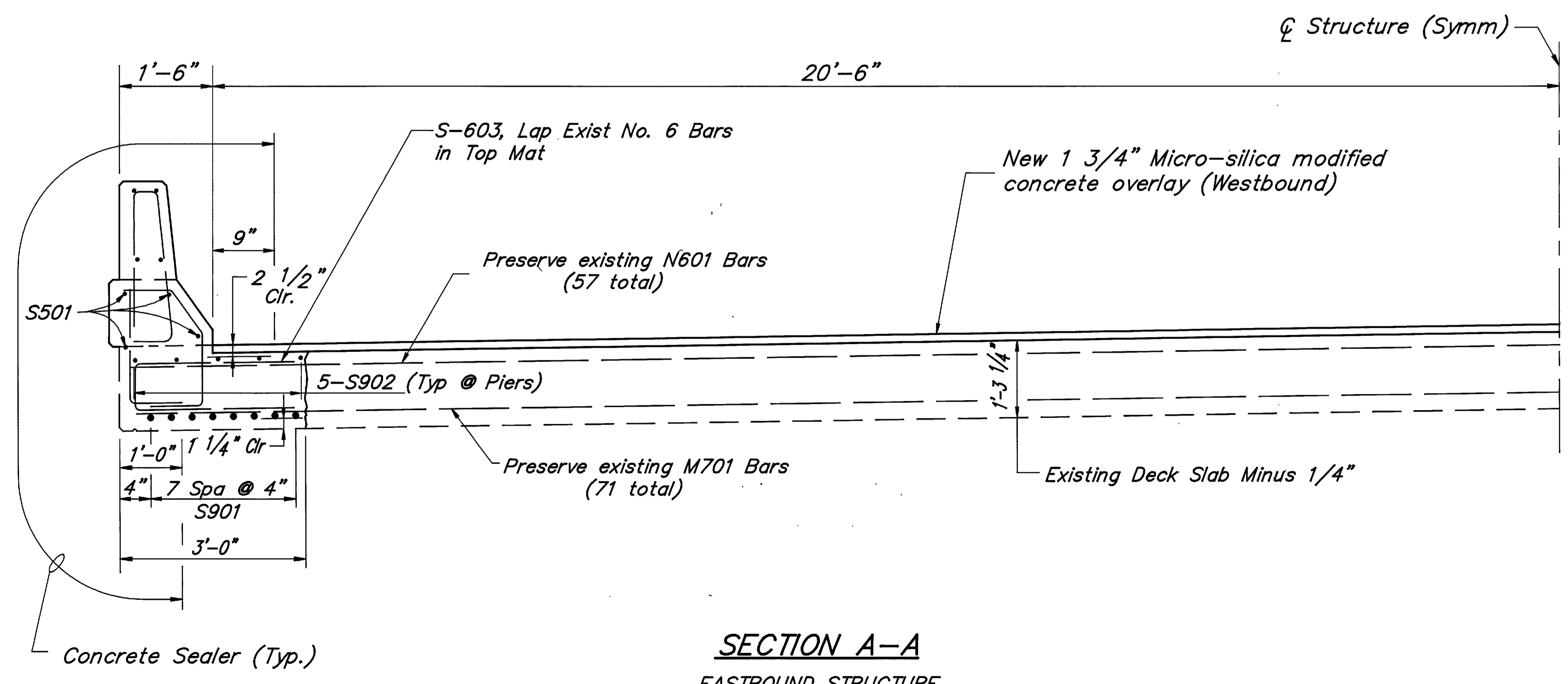
**PARTIAL SUPERSTRUCTURE PLAN**



**VIEW B-B**

**NOTES:**

1. For new Micro-silica Modified Concrete Overlay, refer to Proposal Note and General Note, Item Special - Micro-silica Modified Concrete Overlay (1 3/4 inches thick).
2. For Deck Repair & Removal Details, see sheet 7/12.
3. For Parapet Details, see sheet 11/12.



**SECTION A-A**  
EASTBOUND STRUCTURE

9/12

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3896 MAHONING AVE. YOUNGSTOWN, OHIO

**SUPERSTRUCTURE DETAILS**  
CONCRETE OVERLAY  
BRIDGE NO. MED-76-0690 (R)  
OVER RIVER STYX

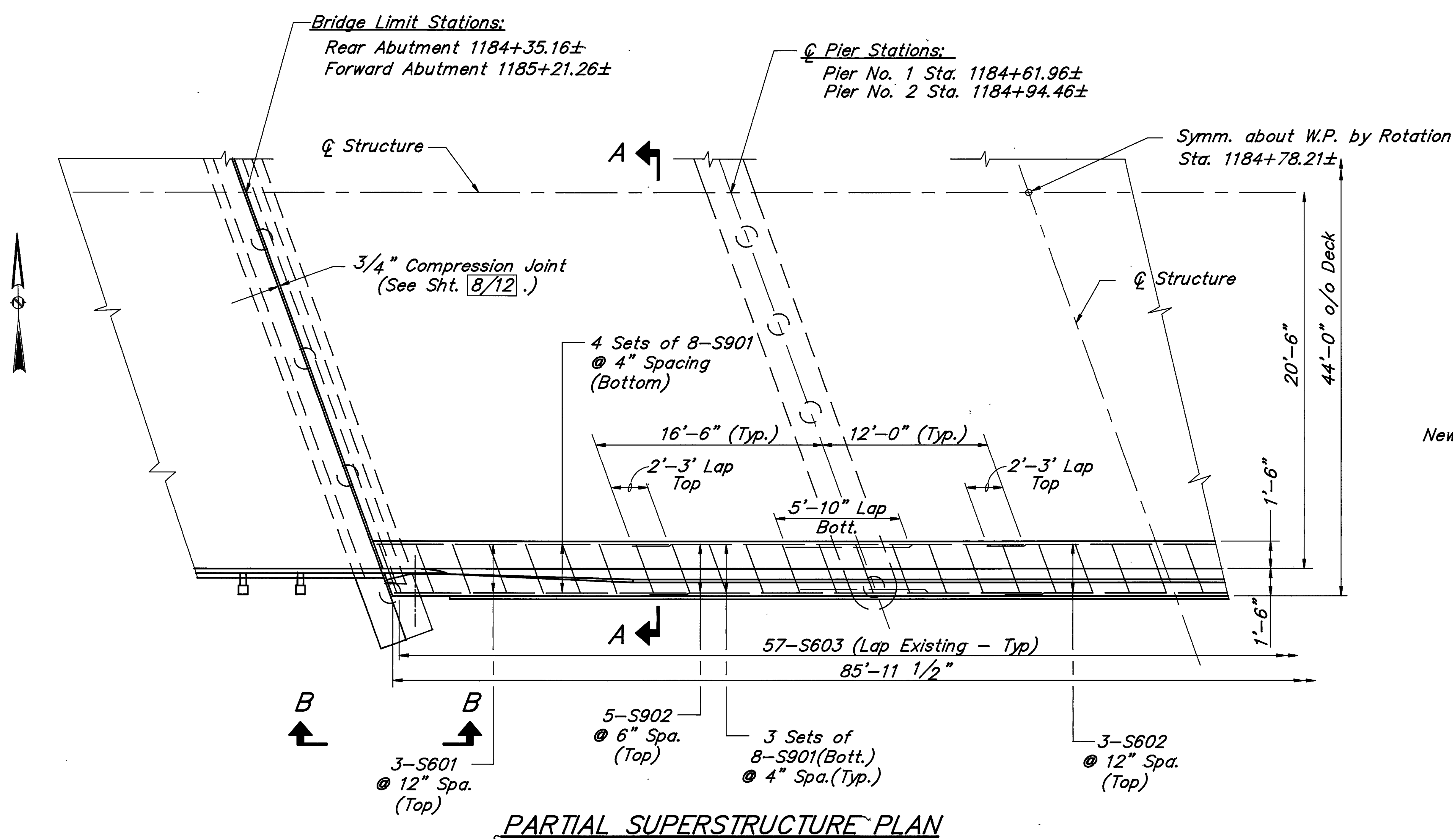
MEDINA COUNTY OHIO

DESIGNED D.L.C.	DRAWN D.L.C.	TRACED	CHECKED J.D.V.	REVIEWED J.F.	REVISED
10/92	10/92		11/92	12/92	

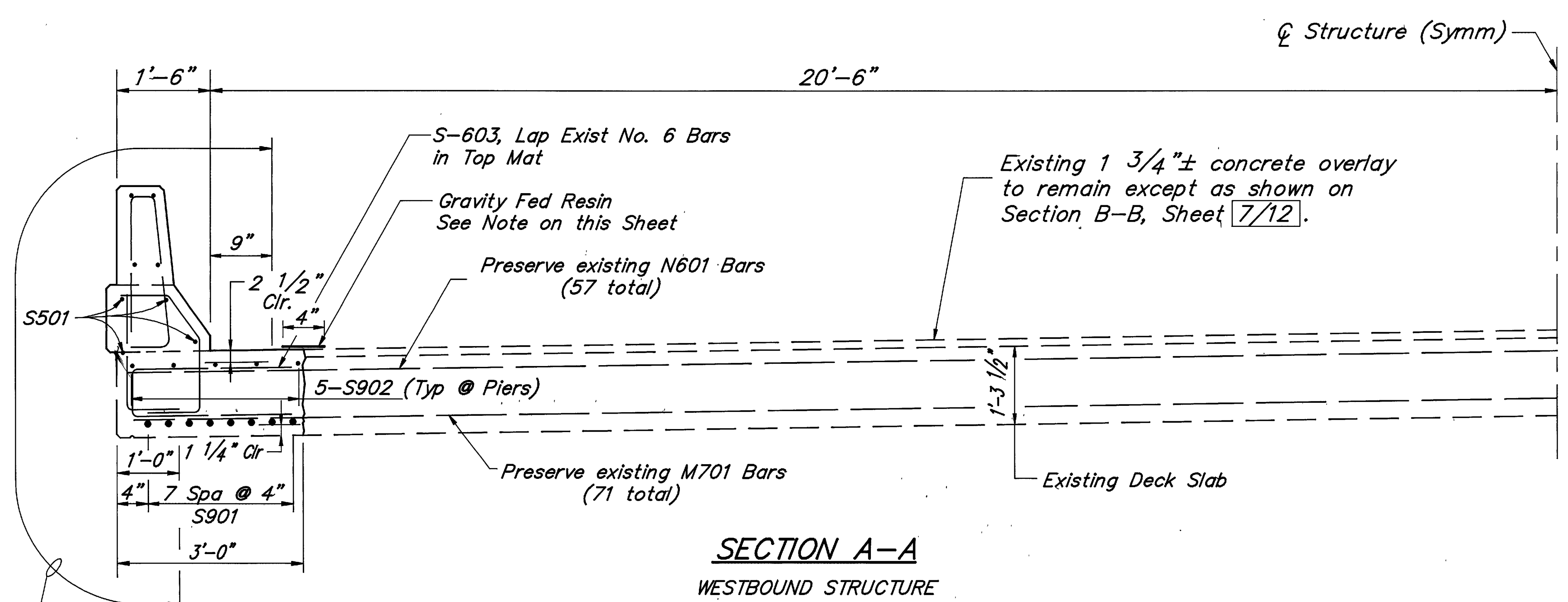
REGION	STATE	PROJECT
5	OHIO	

290  
299

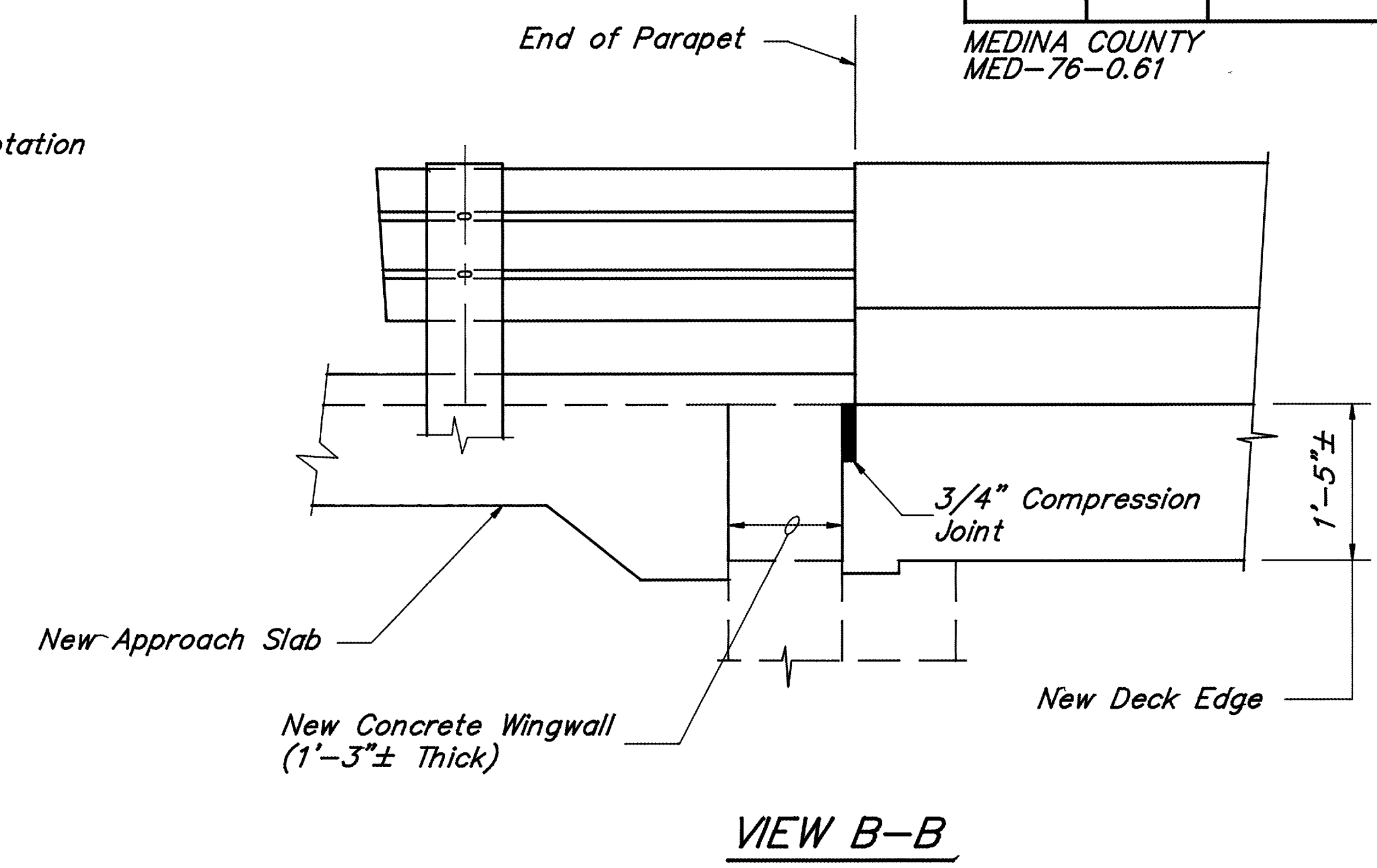
MEDINA COUNTY  
MED-76-0.61



**PARTIAL SUPERSTRUCTURE PLAN**



- NOTES:**
- For repairs to existing concrete overlay, refer to General Note, Item Special - Patching Bridge Decks with QSC.
  - For Deck Removal Details, see sheet 7/12.
  - For Parapet Details, see sheet 11/12.



**GRAVITY FED RESIN:**

**SURFACE PREPARATION**

Surface preparation shall be as per Manufacturer's recommendations.

**MATERIALS, PLACING AND CURING.**

The seal shall be mixed according to the Manufacturer's recommendations. The seal shall be poured onto the properly prepared edges with a narrow nozzle container. The edges shall be sealed and any cracks along the joint edges shall be filled. Front and back movement with a squeegee shall be used over any cracks to enhance the penetration of the joint seal material. The cracks shall be rechecked and refilled making sure that the sealer is even with the surface of the deck. All sealing material shall be placed within a 4" wide area, 2" on each side of the joint. Any material outside this area shall be removed to the Engineer's satisfaction at no cost to the State. Sand shall be broadcasted over the sealed area between 45 and 75 minutes after the seal has been applied. The sand shall saturate the seal at a rate of one pound of sand to 3 square feet of surface area. The seal shall cure for 6 hours prior to opening to any traffic.

The joint seal shall be furnished by one of the following:

MANUFACTURER	JOINT SEAL DESIGNATION
POLY-CARB 33095 BAINBRIDGE RD SOLON, OH 44139 (216) 248-1223	MARK-135 SAFE-T-SEAL
SIKA CORPORATION 1300 GRANGER RD BROOKLYN HEIGHTS, OH 44131 (216) 749-7225	SIKADUR 35 HI-MOD LV
FOSROC INC. 2 SUMMIT PARK DRIVE SUITE 300 INDEPENDENCE, OH 44131 (216) 642-9342	NITOBOND ULV

**LIMITATIONS.**

New concrete shall cure for a minimum of 24 hours prior to sealing edges and by the Manufacturer's recommendations.

**PAYMENT.**

Payment for all of the above shall be included in the unit price bid for ITEM 511, CLASS S CONCRETE, SUPERSTRUCTURE, AS PER PLAN.

10112

**THOMAS FOK & ASSOCIATES, LTD.**  
CONSULTING ENGINEERS, SURVEYORS & PLANNERS  
3896 MAHONING AVE. YOUNGSTOWN, OHIO

**SUPERSTRUCTURE DETAILS**

BRIDGE NO. MED-76-0690 (L)  
OVER RIVER STYX

MEDINA COUNTY OHIO

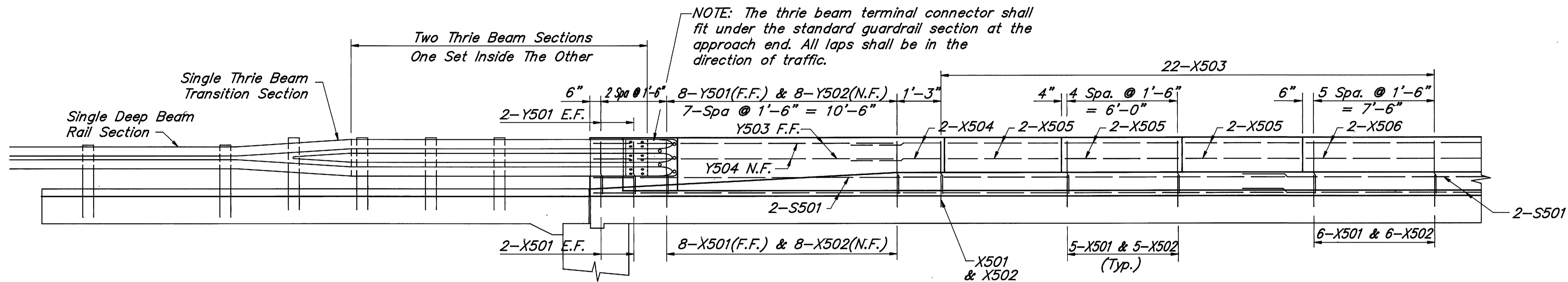
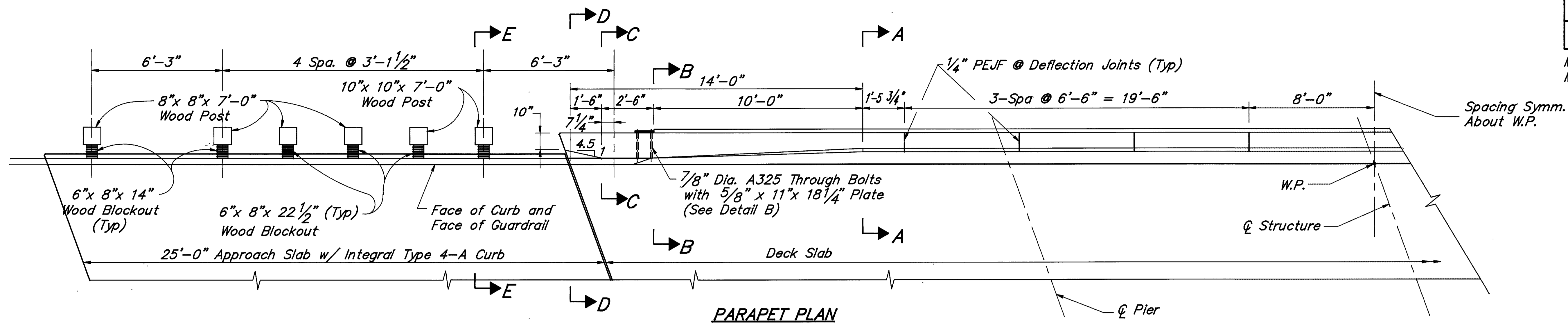
DESIGNED D.L.C.	DRAWN D.L.C.	TRACED	CHECKED J.D.V.	REVIEWED J.F.	REVISED
10/92	10/92		11/92	12/92	

DETAIL 1-48 3-31-92

REGION	STATE	PROJECT	
5	OHIO		

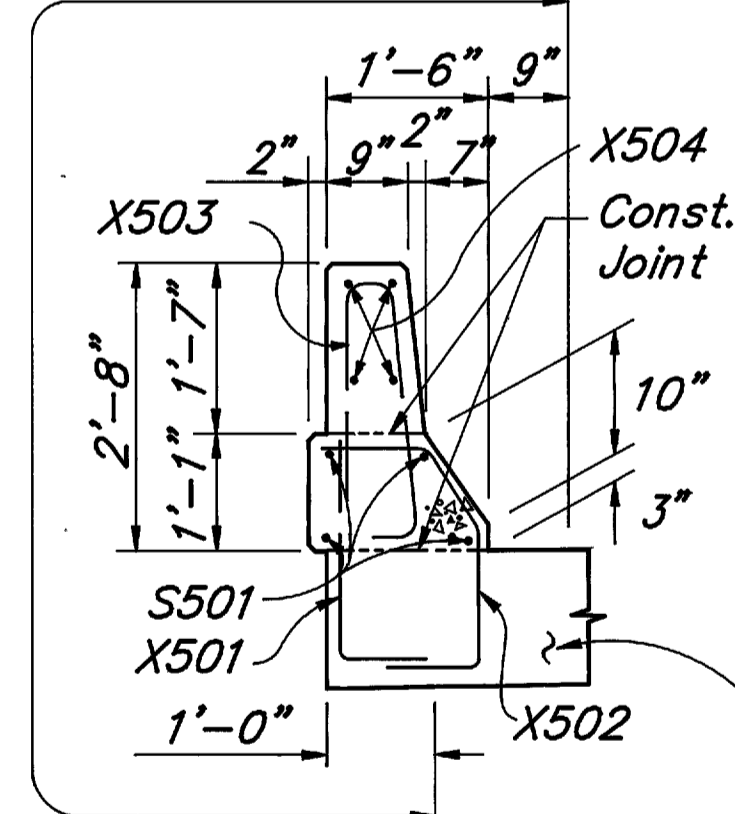
291  
299

MEDINA COUNTY  
MED-76-0.61

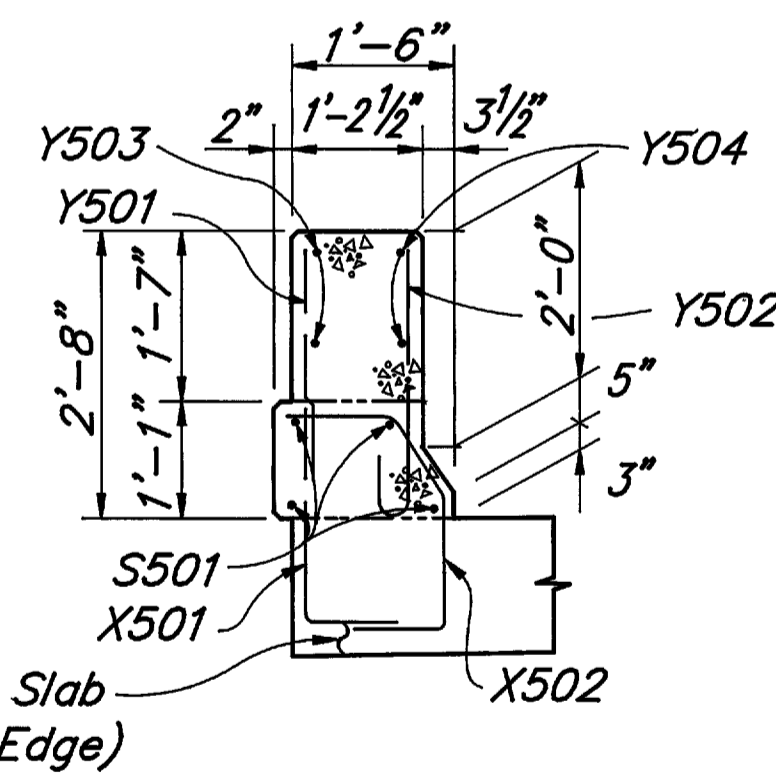


**PARAPET ELEVATION**  
NORTH PARAPET SHOWN, SOUTH PARAPET SIMILAR

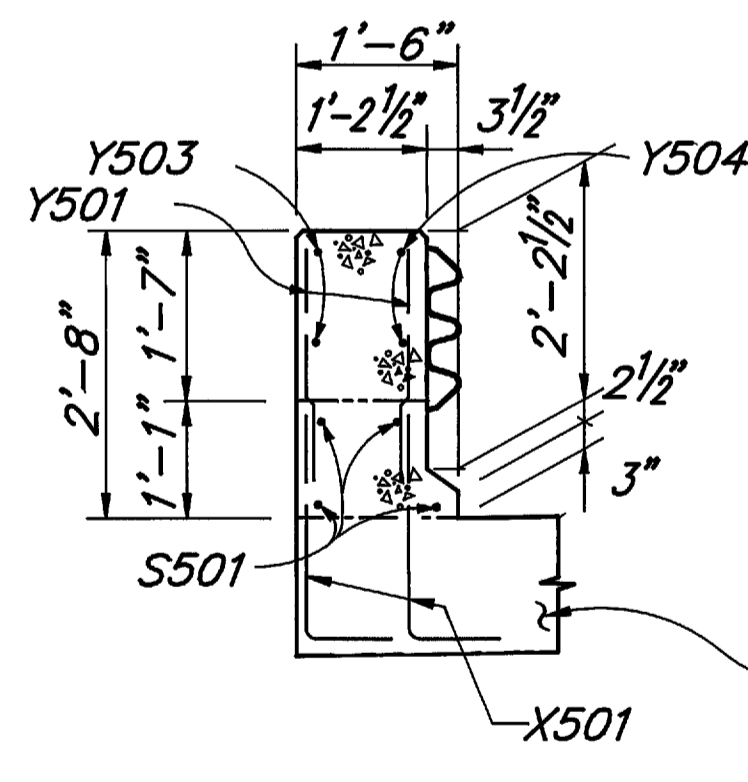
Concrete Sealer (Typ.)



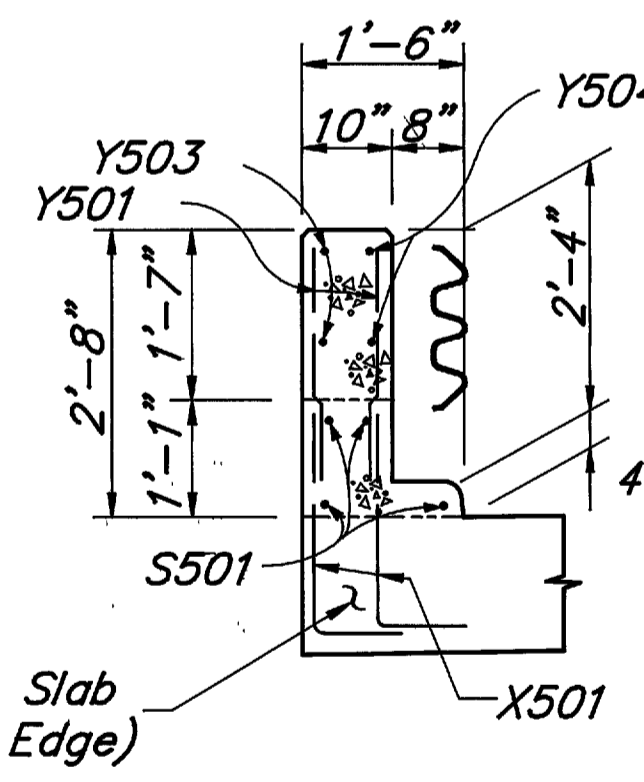
**SECTION A-A**



**SECTION B-B**



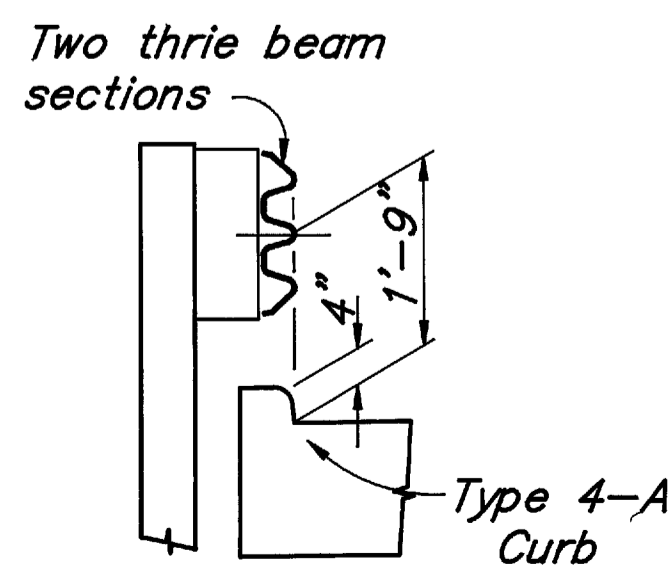
**SECTION C-C**



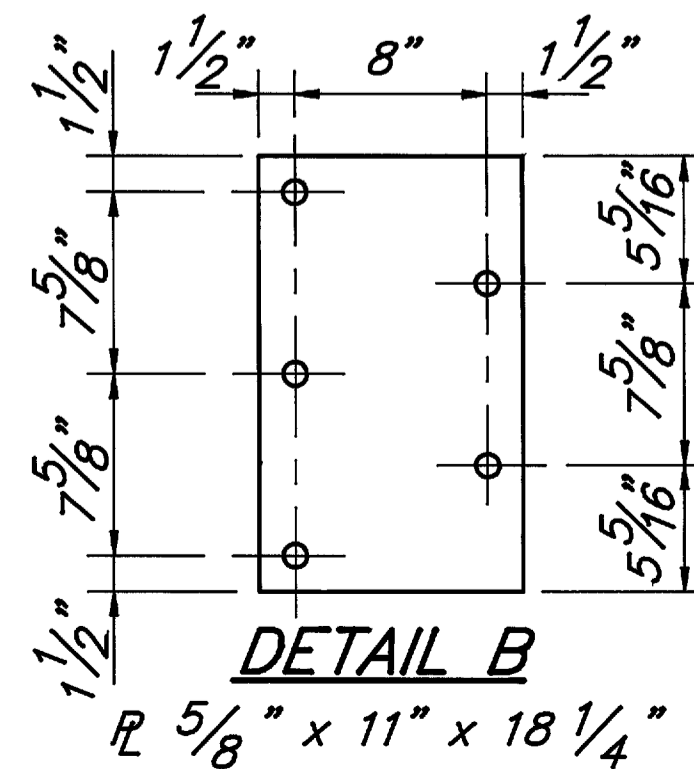
**SECTION D-D**

1/4" Preformed Expansion Joint Filler. (Included with Superstructure Concrete for Payment)

**SECTION F-F**  
Through Deflector Joint



**SECTION E-E**



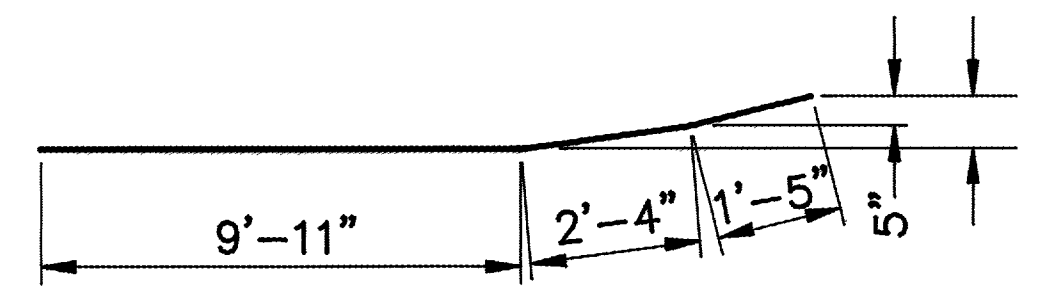
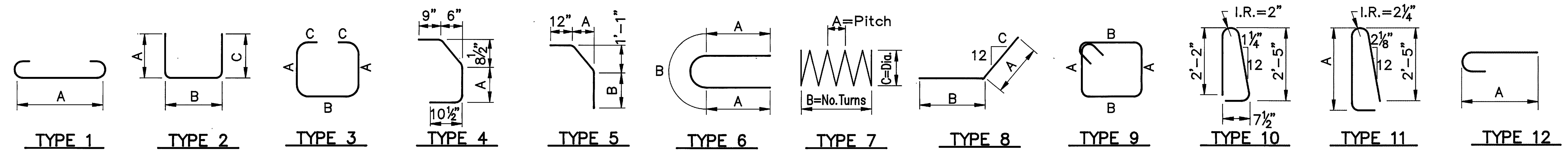
**NOTES**

- Concrete shall be Class C,  $f'_c = 4500$  P.S.I.,  $f_c = 1800$  P.S.I. Reinforcing steel ASTM A615, A616, or A617, Grade 60, Epoxy Coated.
- Payment: Additional guardrail cost in excess of normal guardrail cost, such as: Terminal connector, steel plate, bolts, nuts, plate washers and other hardware shall be included with bridge terminal assembly for payment. Quantities of concrete and reinforcing steel for parapet are included with superstructure for payment.

- PREFORMED EXPANSION JOINT FILLER in the parapet deflection joints may be either 1/4 inch gray sponge rubber or 1/4 inch gray cellular polyvinyl chloride (PVC) sponge. If rubber is used it shall meet the requirements of AASHTO M-153, Type 1. Density of PVC sponge shall not be less than 20 pounds per cubic foot.
- CONCRETE PARAPETS above the upper construction joint shall be placed in alternate sections by use of bulkheads. Closing sections shall be placed after removal of bulkheads and after placement of expansion joint filler. Exposed edges of the filler shall be flush with the surface of the concrete and shall be free of mortar.
- QUANTITIES of concrete and reinforcing steel for the parapet are included with the superstructure for payment.

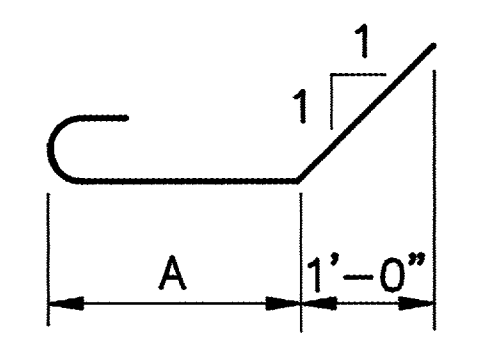
11/12				
<b>THOMAS FOK &amp; ASSOCIATES, LTD.</b> CONSULTING ENGINEERS, SURVEYORS & PLANNERS 3896 MAHONING AVE. YOUNGSTOWN, OHIO				
<b>PARAPET DETAILS</b> BRIDGE NO. MED-76-0690 L/R OVER RIVER STYX				
MEDINA COUNTY		OHIO		
DESIGNED D.L.C.	DRAWN D.L.C.	TRACED	CHECKED J.D.V.	REVIEWED J.F.
12/92	12/92		12/92	12/92

MEDINA COUNTY  
MED-76-0.61

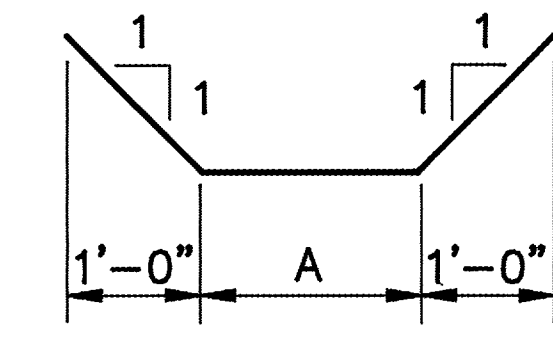


REINFORCING STEEL - WESTBOUND (LEFT)											
MARK	LENGTH	TYPE	A	B	C	D	INCR.	REAR ABT. NO.	FWD. ABT. NO.	SUPERSTRUCTURE NO.	WEIGHT LBS.
<b>ABUTMENT</b>											
A501	24'-1"	Str.						8	8		402
A502	3'-0"	2	1'-2"	11"	1'-2"			6	6		38
A503	3'-1"	17	1'-6"	1'-8"	4.4			2	2		13
A504	3'-1"	8	1'-6"	1'-8"	4.4			2	2		13
A505	3'-2"	Str.						1	1		7
A506	3'-8"	Str.						2	2		15
A507	4'-6"	Str.						1	1		9
A701	3'-3"	2	2'-6"	11"	0			31	31		412
A702	2'-7"	Str.						35	35		370
A703	4'-7"	2	1'-10"	1'-3"	1'-10"			2	2		38
D802	5'-3"	16	2'-5"					29	29		813
										<i>Sub-Total</i>	2130
<b>SUPERSTRUCTURE</b>											
S501	29'-9"	Str.								24	745
S601	12'-3"	Str.								12	221
S602	13'-0"	Str.								6	117
S603	5'-9"	2	2'-8"	9"	2'-8"					114	985
S901	32'-6"	Str.								48	5304
S902	28'-6"	Str.								20	1938
<b>PARAPETS</b>											
X501	2'-9"	2	2'-0"	10"	0					134	384
X502	3'-6"	4	1'-3"							118	431
X503	5'-3"	10								86	471
X504	3'-0"	Str.								16	50
X505	6'-2"	Str.								48	309
X506	15'-8"	Str.								8	131
Y501	2'-5"	Str.								48	121
Y502	3'-0"	12	2'-5"							32	100
Y503	13'-8"	Str.								8	114
Y504	13'-8"	14								8	114
										<i>Sub-Total</i>	11,535
										<b>Total</b>	13,665

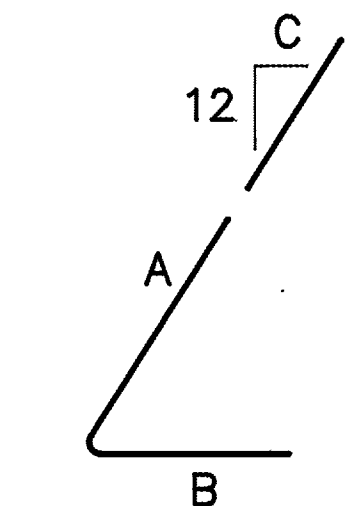
REINFORCING STEEL - EASTBOUND (RIGHT)											
MARK	LENGTH	TYPE	A	B	C	D	INCR.	REAR ABT. NO.	FWD. ABT. NO.	SUPERSTRUCTURE NO.	WEIGHT LBS.
<b>ABUTMENT</b>											
A501	24'-1"	Str.						8	8		402
A502	3'-0"	2	1'-2"	11"	1'-2"			6	6		38
A503	3'-1"	17	1'-6"	1'-8"	4.4			2	2		13
A504	3'-1"	8	1'-6"	1'-8"	4.4			2	2		13
A505	3'-2"	Str.						1	1		7
A506	3'-8"	Str.						2	2		15
A507	4'-6"	Str.						1	1		9
A701	3'-3"	2	2'-6"	11"	0			31	31		412
A702	2'-7"	Str.						35	35		370
A703	4'-7"	2	1'-10"	1'-3"	1'-10"			2	2		38
D802	5'-3"	16	2'-5"					29	29		813
										<i>Sub-Total</i>	2130
<b>SUPERSTRUCTURE</b>											
S501	29'-9"	Str.								24	745
S601	12'-3"	Str.								12	221
S602	13'-0"	Str.								6	117
S603	5'-9"	2	2'-8"	9"	2'-8"					114	985
S901	32'-6"	Str.								48	5304
S902	28'-6"	Str.								20	1938
<b>PARAPETS</b>											
X501	2'-9"	2	2'-0"	10"	0					134	384
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X503	5'-3"	10								86	471
X504	3'-0"	Str.								16	50
X505	6'-2"	Str.								48	309
X506	15'-8"	Str.								8	131
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Y502	3'-0"	12	2'-5"							32	100
Y503	13'-8"	Str.								8	114
Y504	13'-8"	14								8	114
										<i>Sub-Total</i>	11,535
										<b>Total</b>	13,665



TYPE 15



TYPE 16



TYPE 17

NOTES :

BAR SIZE : The bar size is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example: A506 is No. 5 size bar and P1101 is a No. 11 size bar.

All Bars are Epoxy Coated.  
Str. = Straight

12 12

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CONSULTING ENGINEERS, SURVEYORS & PLANNERS  
3896 MAHONING AVE. YOUNGSTOWN, OHIO

**REINFORCING STEEL LIST**  
BRIDGE NO. MED-76-0690 L/R  
OVER CRIVER STYX

MEDINA COUNTY OHIO

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED
D.L.B.	D.L.B.		J.D.V.	J.F.	
10/92	10/92		10/92	12/92	