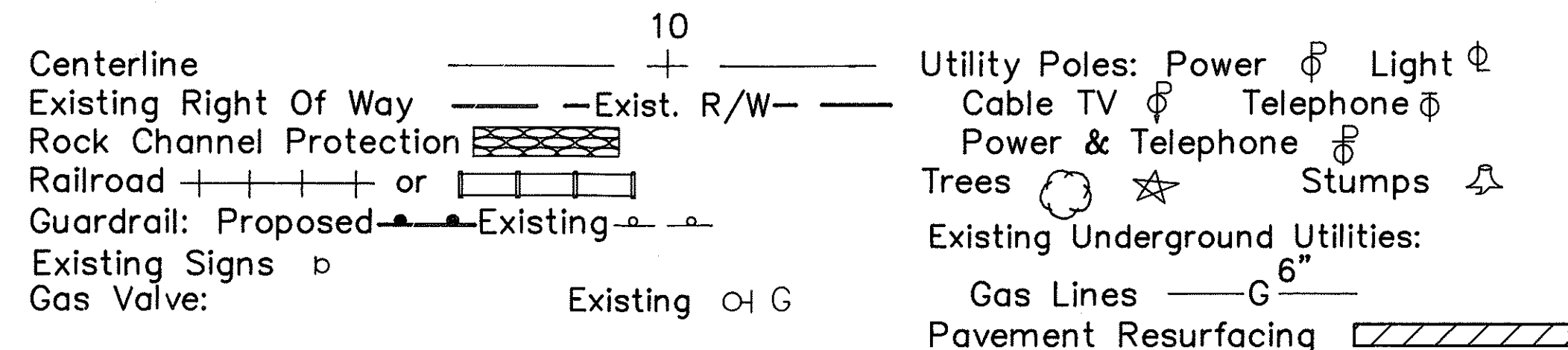


CONVENTIONAL SIGNS

STATE OF OHIO
U.S. ARMY CORPS OF ENGINEERS

WALNUT ROAD

BR. NO. PE-17-24
STARK COUNTYWALNUT ROAD
BR. NO. PE-17-24

OHIO

1
30

INDEX OF SHEETS

TITLE SHEET	1
TYPICAL SECTIONS	2-3
GENERAL NOTES	4
SUB-SUMMARY	5
GENERAL SUMMARY	6
MISCELLANEOUS DETAILS	7
PLAN AND PROFILE	8
ESTIMATED QUANTITIES	9
CROSS SECTIONS	10-11
DRAINAGE DETAILS	12
STRUCTURES OVER 20' SPAN	13-30

LINE DATA

WALNUT ROAD

BEGIN PROJECT ——— STA. 11+54.70

END PROJECT ——— STA. 14+11.11

TOTAL LENGTH OF PROJECT ——— 256.41 LIN. FT.
OR 0.049 MILE

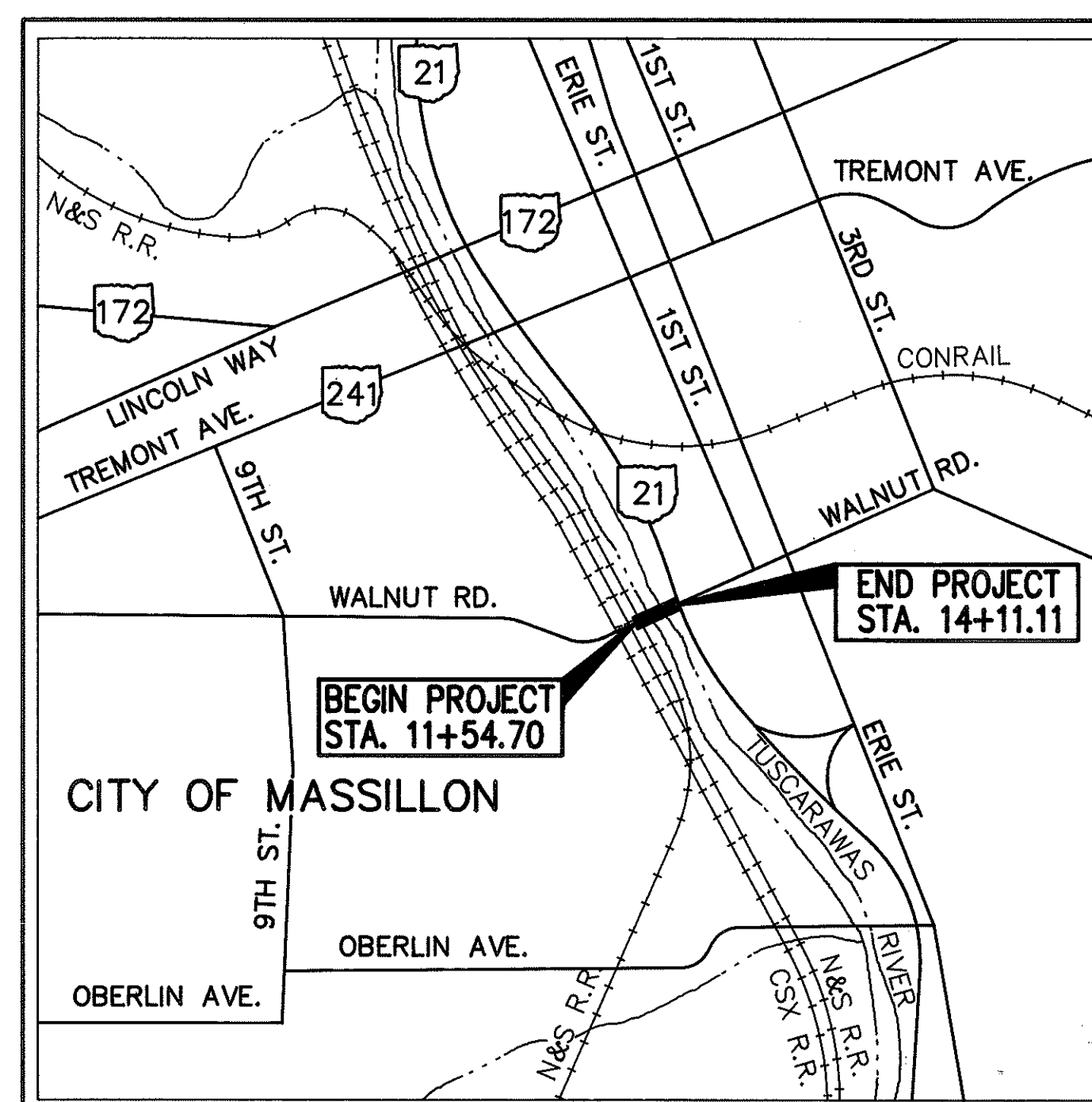
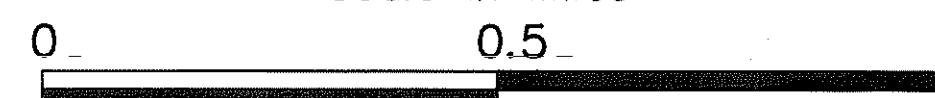
ADD FOR APPROACHES

STA. 10+18 TO STA. 11+54.70 ——— 136.70 LIN. FT.

STA. 14+11.11 TO STA. 14+66.5 ——— 55.39 LIN. FT.

TOTAL LENGTH OF WORK ——— 448.50 LIN. FT.
OR 0.085 MILE

Plan Prepared By:
W. E. QUICKSALL AND ASSOCIATES INC.
CONSULTING ENGINEERS
New Philadelphia, Ohio

LOCATION MAP
Scale in Miles

Portion To Be Improved ———

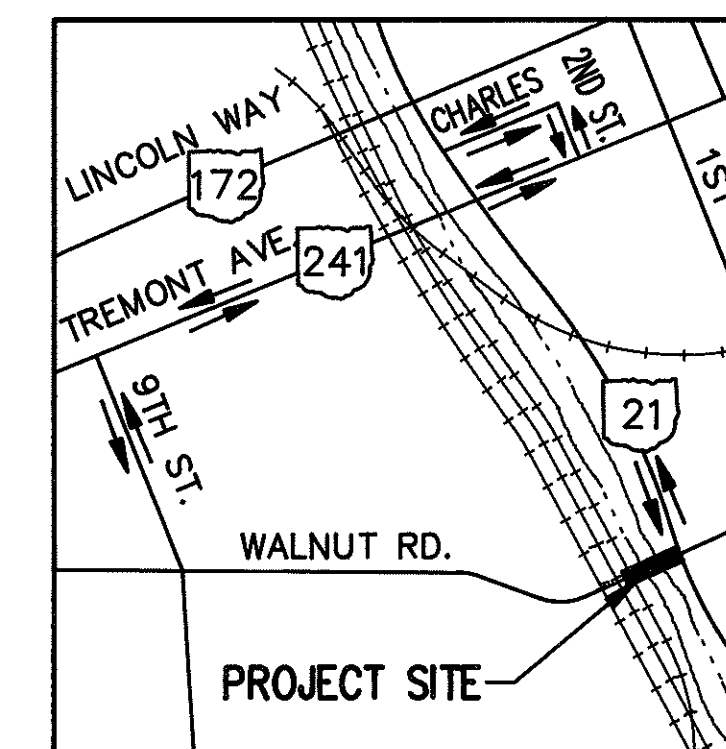
State Routes ———

Scale

Plan ——— 0 20 40

Profile: Horizontal ——— 0 20 40 Vertical ——— 0 5 10

Cross Section: Horizontal ——— 0 5 10 Vertical ——— 0 5 10



DETOUR MAP

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

SUPPLEMENTAL SPECIFICATION	
802	5-4-88
836	11-12-85
847	10-17-83
852	6-10-87
947	10-17-83
952	12-14-88

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS

BP-5	10-1-87	HW-4A	4-1-80	AS-1-81	11-27-81
BP-7	10-1-87	HW-4B	4-1-80	BR-2-82	11-1-82
		CB-3A	5-1-79	FB-1-82	5-10-82
				RB-1-55	2-2-59
GR-1	1-11-85	MC-4	7-26-76	SD-1-69	6-12-69
GR-2B	2-5-82	MC-11	8-1-78	EXJ-4-87	1-5-89
GR-3	1-21-85				
GR-4A	1-30-84				

1991 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 require the closing to traffic of the road and that provisions for the detour and safety of traffic will be as set forth in the plans and estimates.

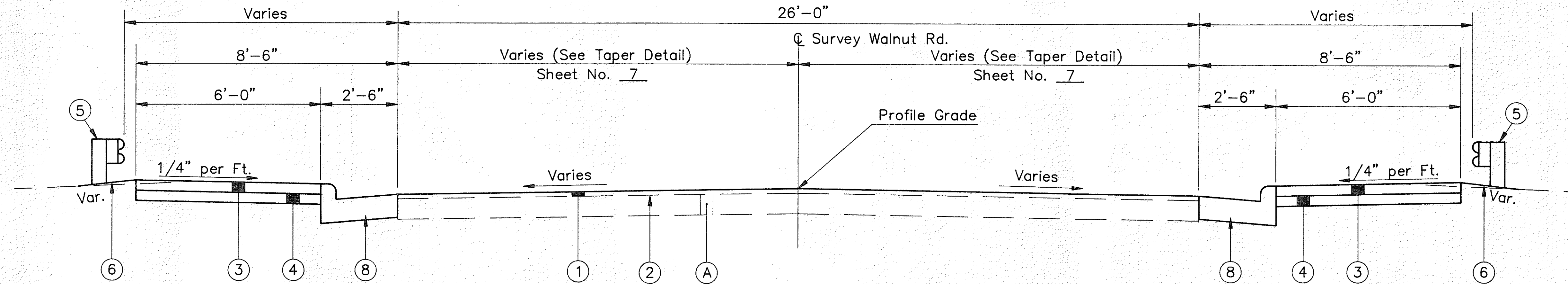
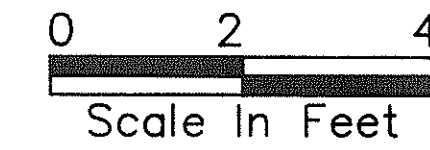
Approved
Date ~~4-20-92~~ Stark County Engineer

NOTE: CONSTRUCTION ON THIS PROJECT CAN NOT BEGIN UNTIL THE S.R. 172 (LINCOLN WAY AVE.) PROJECT IS COMPLETED AND OPEN TO TRAFFIC. APPROXIMATE COMPLETION DATE IS AUGUST 19, 1992.

Project: WALNUT ROAD MASSILLON OHIO
Date of Letting _____ 19____ Contract No. _____

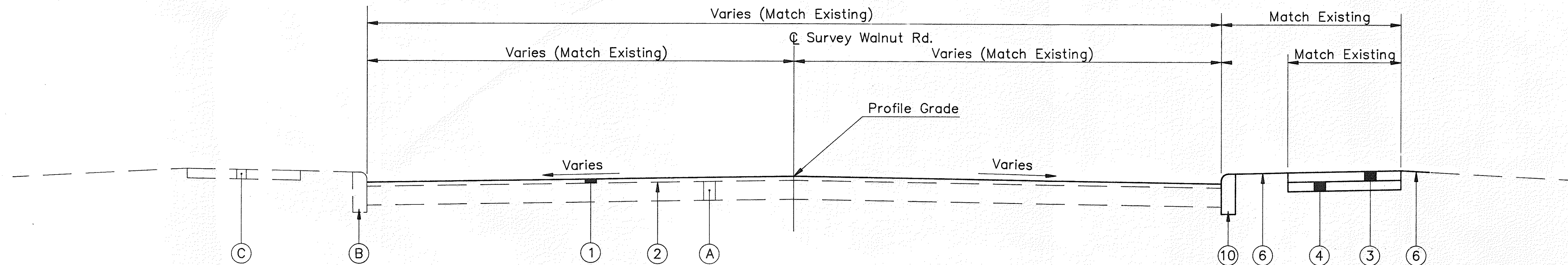
TYPICAL SECTIONS

TYPE 404



NORMAL SECTION

STA. 10+20.00 TO STA 11+54.70 = 134.70 LIN. FT.
TOTAL = 134.70 LIN. FT.



NORMAL SECTION

STA. 14+11.11 TO STA. 14+33.00 = 21.89 LIN. FT.
TOTAL = 21.89 LIN. FT.

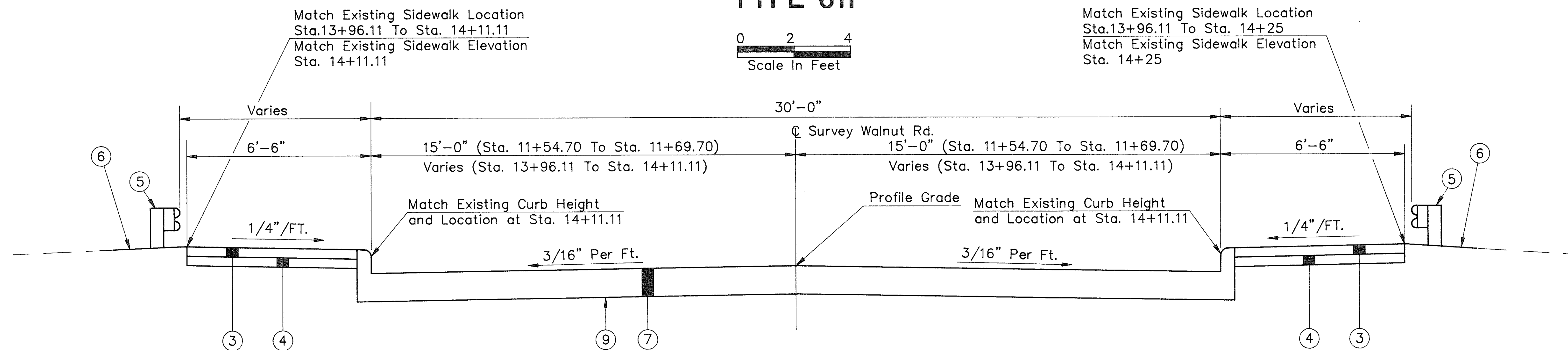
LEGEND

- ① ITEM 404 1 1/4" ASPHALT CONCRETE AC-20 (Min.)
- ② ITEM 407 TACK COAT
- ③ ITEM 608 4" CONCRETE WALK
- ④ ITEM 310 4" SUBBASE, TYPE II
- ⑤ ITEM 606 GUARDRAIL, TYPE 5
- ⑥ ITEM 659 SEEDING AND MULCHING (SEE GENERAL NOTE SHEET NO. 4.)

- ⑦ ITEM 611 REINFORCED CONCRETE APPROACH SLAB (T=13") (WITH INTEGRAL CURBS)
- ⑧ ITEM 609 COMBINATION CURB AND GUTTER, TYPE 2
- ⑨ ITEM 203 SUBGRADE COMPACTION
- ⑩ ITEM 609 CURB, TYPE 6
- A Existing Asphalt Pavement
- B Existing Concrete Curb
- C Existing Sidewalk

TYPICAL SECTION

TYPE 611



APPROACH SLAB SECTION

STA. 11+54.70 TO STA. 11+69.70	=	15.00 LIN. FT.
STA. 13+96.11 TO STA. 14+11.11	=	15.00 LIN. FT.
TOTAL	=	30.00 LIN. FT.

For Legend See Sheet No. 2.

GENERAL NOTES

CALC. BY: FDH DATE 7/9/90
CHKD. BY: WCR DATE 8/23/90

WALNUT ROAD
BR. NO. PE-17-24

OHIO

4
30

MAINTENANCE OF TRAFFIC

TRAFFIC WILL BE DETOURED AS SHOWN ON SHEET NO. 1. THE CONTRACTOR SHALL FURNISH, ERECT, MAINTAIN AND SUBSEQUENTLY REMOVE APPROVED TRAFFIC CONTROL DEVICES AS PER ITEM 614, MAINTAINING TRAFFIC, INCLUDING BARRICADES AND SIGNS IN ACCORDANCE WITH PLATE C-7 OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION, LATEST REVISION.

DETOUR SIGNS AND SUPPORTS LOCATED OUTSIDE THE WORK LIMITS WILL BE ERECTED AND MAINTAINED BY THE COUNTY. THE CONTRACTOR SHALL PROVIDE AT LEAST TWO WEEKS NOTICE TO THE COUNTY ENGINEER PRIOR TO CLOSURE.

PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC.

CONTINGENCY QUANTITIES

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK LISTED IN THE GENERAL SUMMARY FOR ITEMS DESIGNATED BY PLAN NOTE TO BE USED "AS DIRECTED BY THE ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER. THE ACTUAL WORK LOCATIONS AND QUANTITIES USED AT THE ENGINEER'S DISCRETION SHALL BE MADE A MATTER OF RECORD BY INCORPORATION INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT.

FIELD OFFICE

THE CONTRACTOR SHALL PROVIDE A SUITABLE FIELD OFFICE HAVING A MINIMUM OF 300 SQ. FT. OF FLOOR SPACE. PAYMENT SHALL BE AT THE LUMP SUM PRICE BID FOR ITEM 619, FIELD OFFICE.

UNDERGROUND UTILITIES

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS OF THE UTILITY AS REQUIRED BY SECTION 153.64 ORC.

UTILITY OWNERSHIP

THE FOLLOWING UTILITIES AND OWNERS ARE LOCATED WITHIN THE WORK LIMITS OF THIS PROJECT:

OHIO EDISON COMPANY 633 ERIE STREET SOUTH MASSILLON, OHIO 44646 (216) 830-7052	EAST OHIO GAS COMPANY 4725 SOUTHWAY ST. S.W. CANTON, OHIO 44706-1936 (216) 478-3141
---	--

EXISTING 6" GAS LINE

EXTREME CARE SHALL BE USED WHEN WORK IS BEING PERFORMED AROUND THE EXISTING 6" GAS LINE LOCATED ON THE EXISTING BRIDGE, AND BETWEEN STATIONS 10+18 TO STA. 14+33 LT. THIS LINE WILL REMAIN IN PLACE, UNDISTURBED, THROUGHOUT THE COMPLETE CONSTRUCTION OF THE PROJECT.

CLEARING AND GRUBBING

A LUMP SUM QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR ITEM 201 CLEARING AND GRUBBING. ALL PROVISIONS AS SET FORTH IN THE SPECIFICATIONS UNDER THIS ITEM SHALL BE FOLLOWED. ALL COSTS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 201 CLEARING AND GRUBBING.

SEEDING

QUANTITIES FOR SEEDING ARE CALCULATED FOR THE SOIL AREAS BETWEEN THE WORK LIMITS AS SHOWN ON THE CROSS SECTIONS.

ITEM 621 PAVEMENT MARKING

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR THE PURPOSE OF ADDING PAVEMENT MARKING TO WALNUT RD. FROM STA. 10+18 TO STA. 14+48:

PROJECT FUNDS	
ITEM 621 - 4" CENTERLINE, SOLID DOUBLE, YELLOW----	0.05 MILE
ITEM 621 - 24" STOP LINE -----	31 LIN. FT.
ITEM 621 - LANE ARROWS -----	2 EACH
ITEM 621 - 4" CHANNELIZING LINE -----	125 LIN. FT.

CITY FUNDS	
ITEM 621 - 4" CENTERLINE, SOLID DOUBLE, YELLOW----	0.03 MILE

EXISTING SIGNS

THE FOLLOWING SIGNS SHALL BE CAREFULLY REMOVED AND RE-ERECTED BY THE CONTRACTOR AT THE DIRECTION OF THE ENGINEER.

PROJECT FUNDS	
ITEM 630 - REMOVAL OF GROUND MOUNTED SIGN AND STORAGE -----	1 EACH
STA. 11+69 LT.	

ITEM 630 - REMOVAL OF GROUND MOUNTED POST AND STORAGE ----- 1 EACH

ITEM SPECIAL - GROUND MOUNTED SIGN RE-ERECTED ----- 1 EACH

CITY FUNDS	
ITEM 630 - REMOVAL OF GROUND MOUNTED SIGN AND STORAGE -----	1 EACH
STA. 11+49 LT.	

ITEM 630 - REMOVAL OF GROUND MOUNTED POST AND STORAGE ----- 1 EACH

ITEM SPECIAL - GROUND MOUNTED SIGN RE-ERECTED ----- 1 EACH

PROFILE AND ALIGNMENT

THE PROPOSED PAVEMENT RESURFACING COURSE SHALL FOLLOW THE ALIGNMENT AND PROFILE OF THE EXISTING PAVEMENT. THE PROPOSED ASPHALT CONCRETE OVERLAY SHALL HAVE A UNIFORM THICKNESS OF APPROXIMATELY 1 1/4 INCHES.

DATUM ELEVATIONS

ALL ELEVATIONS ARE BASED ON U.S.G.S. DATUM.

ITEM 407 TACK COAT, AS PER PLAN

THE RATE OF APPLICATION OF 407 TACK COAT SHALL BE SUBJECT TO ADJUSTMENT, AS DIRECTED BY THE ENGINEER. PLAN QUANTITIES INDICATE AVERAGE APPLICATION RATES OF 0.075 GALLONS PER SQUARE YARD OF TACK COAT FOR ESTIMATING PURPOSES ONLY.

CONNECTIONS TO EXISTING GUARDRAIL

THE PROPOSED GUARDRAIL LOCATED ON THE EAST END OF THE PROJECT SHALL BE INSTALLED WITH THE FACE OF THE RAIL AT THE BACK OF THE WALK (EXISTING & PROPOSED). THE PROPOSED GUARDRAIL SHALL BE ATTACHED TO THE EXISTING GUARDRAIL ON S.R. 21.

WATERING PERMANENT SEEDED AREAS

THE FOLLOWING ESTIMATED QUANTITY IS TO BE USED AS DIRECTED BY THE ENGINEER TO PROMOTE GROWTH AND TO CARE FOR THE PERMANENT SEEDED AREAS, AS PER 659.09:

PROJECT FUNDS	
659 WATER	0.5 M GAL.

CITY FUNDS	
659 WATER	0.5 M GAL.

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL

THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER, FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES:

PROJECT FUNDS	
ITEM 207 STRAW OR HAY BALES	25 EACH

CITY FUNDS	
ITEM 207 STRAW OR HAY BALES	25 EACH

CONNECTION TO EXISTING PIPE

WHERE THE PLANS PROVIDE FOR PROPOSED CONDUIT TO BE CONNECTED TO, OR TO CROSS EITHER OVER OR UNDER AN EXISTING SEWER, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE EXISTING PIPE AS TO LINE AND GRADE BEFORE HE STARTS TO LAY THE THE PROPOSED CONDUIT.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE IN THE UNIT PRICE BID FOR PERTINENT 603 CONDUIT ITEMS.

CONDUIT END TREATMENT

IMMEDIATELY AFTER PLACEMENT OF ANY CONDUITS, THE CONTRACTOR SHALL CONSTRUCT THE END TREATMENTS REQUIRED BY THE PLANS AT BOTH THE OUTLET AND INLET ENDS. THIS SHALL INCLUDE HEADWALLS, CONCRETE RIPRAP, ROCK CHANNEL PROTECTION, SODDING, ETC.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS DATED JANUARY 1, 1991, INCLUDING THE LATEST REVISIONS AND SUPPLEMENTAL SPECIFICATIONS SHALL GOVERN THE WORK UNDER THIS CONTRACT UNLESS OTHERWISE SPECIFIED.

ALL REFERENCE IN THESE SPECIFICATIONS TO THE DIRECTOR, OWNER OR ENGINEER SHALL MEAN THE STARK COUNTY ENGINEER, OR HIS REPRESENTATIVE.

BARRIER REFLECTORS

THIS ITEM SHALL CONSIST OF INSTALLING BARRIER REFLECTORS AS PER OHIO DEPARTMENT OF TRANSPORTATION SUPPLEMENTAL SPECIFICATION 802 AND DIRECTED BY THE ENGINEER.

STATIONING (FROM-TO)	SPACING	TYPE A		TYPE B		REMARKS
		W	2	W	2	
11+18.53 TO 14+47	LT.	90	2		3	
11+18.53 TO 14+65	RT.	90	2		3	
TOTAL			4		6	

PAVEMENT CALCULATIONS

PROJECT FUNDS

ITEM 203 - SUBGRADE COMPACTION

STA. 11+54.70 TO STA. 11+69.70:
 $15 \times 34 \div 9 = 56.67 \text{ SQ. YD.}$
STA. 13+96.11 TO STA. 14+11.11:
 $15 \times \frac{34.0 + 34.18}{2} \div 9 = 56.81 \text{ SQ. YD.}$
TOTAL = 113.48 SQ. YD.

ITEM 404 - ASPHALT CONCRETE, AC-20

STA. 14+11.11 TO STA. 14+33:
 $21.89 \times \frac{31.18' + 41.2}{2} \times 1.25/12 \div 27 = 3.06 \text{ CU. YD.}$

ITEM 407 - TACK COAT

STA. 14+11.11 TO STA. 14+33:
 $21.89 \times \frac{31.18' + 41.2}{2} \div 9 \times 0.075 = 6.60 \text{ GAL.}$

EARTHWORK AND SEEDING			
STATION TO STATION	203		659
	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	EMBANKMENT	SEEDING AND MULCHING
	CU.YD.	CU.YD.	SQ.YD.
11+54.70 TO 14+33	15	3	82
2-D DRAINAGE STRUCTURE	12	0	48
TOTALS	27	3	130

ITEM 659 AGRICULTURAL LIMING
$\frac{130 \text{ SQ.YD.} \times 9 \times 100}{1000 \times 2000} = 0.06 \text{ TONS}$

ITEM 659 COMMERCIAL FERTILIZER
$\frac{130 \text{ SQ.YD.} \times 9 \times 20}{1000 \times 2000} = 0.01 \text{ TON}$

CITY FUNDS

ITEM 404 - ASPHALT CONCRETE, AC-20

STA. 10+20 TO STA. 11+00:
 $80 \times \frac{25.22 + 26}{2} \times 1.25/12 \div 27 = 7.91 \text{ CU. YD.}$
STA. 11+00 TO STA. 11+54.70:
 $54.70 \times 26 \times 1.25/12 \div 27 = 5.49 \text{ CU. YD.}$
TOTAL = 13.40 CU. YD.

ITEM 203 - SUBGRADE COMPACTION

STA. 10+20 TO STA. 11+54.70:
 $(134.7 \times 4) \times (2) \div 9 = 119.73 \text{ SQ. YD.}$

ITEM 407 - TACK COAT

STA. 10+20 TO STA. 11+00:
 $80 \times \frac{25.22 + 26}{2} \div 9 \times 0.075 = 17.07 \text{ GAL.}$
STA. 11+00 TO STA. 11+54.70:
 $54.70 \times 26 \div 9 \times 0.075 = 11.85 \text{ GAL.}$
TOTAL = 28.92 GAL.

EARTHWORK AND SEEDING			
STATION TO STATION	203		659
	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	EMBANKMENT	SEEDING AND MULCHING
	CU.YD.	CU.YD.	SQ.YD.
10+18 TO 11+54.70	32	7	155
TOTALS	32	7	155

ITEM 659 AGRICULTURAL LIMING
$\frac{155 \text{ SQ.YD.} \times 9 \times 100}{1000 \times 2000} = 0.07 \text{ TONS}$

ITEM 659 COMMERCIAL FERTILIZER
$\frac{155 \text{ SQ.YD.} \times 9 \times 20}{1000 \times 2000} = 0.01 \text{ TON}$

GENERAL SUMMARY

* - City Funds

CALC. BY: FDH 7-18-90
CHKD. BY: WCR 8-22-90

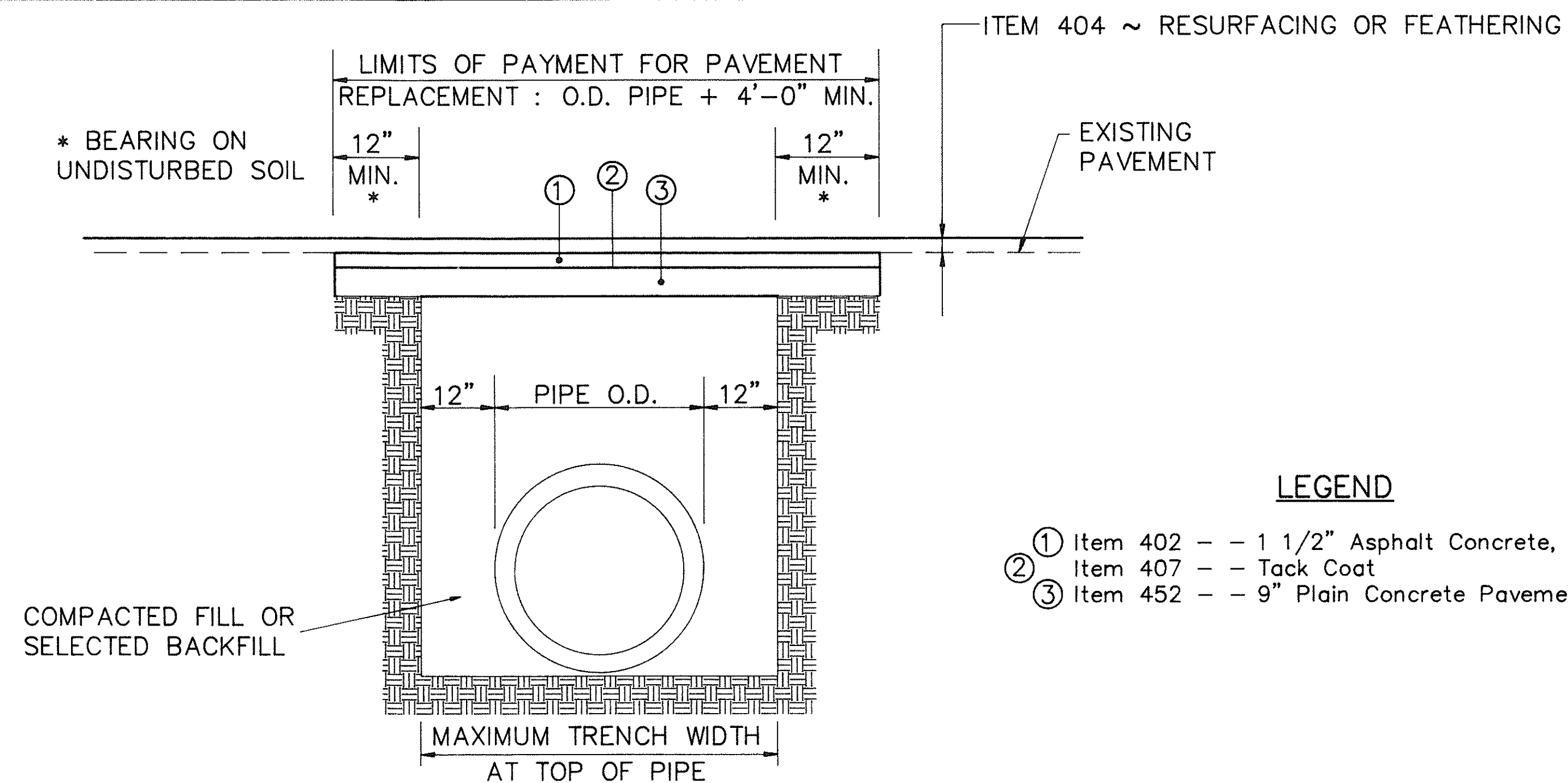
WALNUT RD.
BR. NO. PE-17-24

OHIO

FROM SHEET NO.												PROJECT FUNDS	CITY FUNDS	ITEM		GRAND TOTAL	UNIT	DESCRIPTION
							4	4*	5	5*	9							
																		ROADWAY
							Lump								Lump			Clearing And Grubbing
											200	1262	200	1262	202	1462	Sq.Ft.	Walk Removed
											48	20	48	20	202	68	Lin. Ft.	Curb Removed
											100		100		202	100	Lin. Ft.	Guardrail Removed
											76	65	76	65	202	141	Sq.Yd.	Pavement Removed
									27	32			27	32	203	59	Cu.Yd.	Excavation Not Including Embankment Construction
									3	7			3	7	203	10	Cu.Yd.	Embankment
									113	120			113	120	203	233	Sq.Yd.	Subgrade Compaction
											275.00		275.00		606	275.00	Lin. Ft.	Guardrail, Type 5
											2		2		606	2	Each	Bridge Terminal Assembly, Type A
											2		2		606	2	Each	Anchor Assembly, Type T
											259	1790	259	1790	608	2049	Sq.Ft.	4" Concrete Walk
																		EROSION CONTROL
							25	25					25	25	207	50	Each	Straw Or Hay Bales
							0.5	0.5					0.5	0.5	659	1	M Gal.	Water
									130	155			130	155	659	285	Sq. Yd.	Seeding and Mulching
									0.01	0.01			0.01	0.01	659	0.02	Ton	Commercial Fertilizer
									0.06	0.07			0.06	0.07	659	0.13	Ton	Agricultural Liming
																		DRAINAGE
											1		1		601	1	Cu.Yd.	Rock Channel Protection, Type C With Filter
											0.21		0.21		602	0.21	Cu.Yd.	Concrete Masonry
											38	8	38	8	603	46	Lin. Ft.	12" Conduit, Type B
											50		50		603	50	Lin. Ft.	12" Conduit, Type C
											2	1	2	1	604	3	Each	Catch Basin, No. 3A With V Grate
												1		1	604	1	Each	Manhole Adjusted To Grade
																		PAVEMENT
											3	22	3	22	310	25	Cu. Yd.	Subbase, Type II
											1	1	1	1	402	2	Cu.Yd.	Asphalt Concrete, AC-20
									3	13			3	13	404	16	Cu.Yd.	Asphalt Concrete, AC-20
									7	29	2	1	9	30	407	39	Gal.	Tack Coat
											21	4	21	4	452	25	Sq. Yd.	9" Plain Concrete Pavement
											19		19		609	19	Lin. Ft.	Curb, Type 6
												269	269	609	269	Lin. Ft.	Combination Curb And Gutter, Type 2	
											104		104		611	104	Sq. Yd.	Reinforced Concrete Approach Slab (T=13")
																		TRAFFIC CONTROL
							0.05	0.03					0.05	0.03	621	0.08	Mile	Centerline
							31						31		621	31	Lin. Ft.	Stop Line
							2						2		621	2	Each	Lane Arrow
							125						125		621	125	Lin. Ft.	Channelizing Line
							1	1					1	1	630	2	Each	Removal Of Ground Mounted Sign And Storage
							1	1					1	1	630	2	Each	Removal Of Ground Mounted Post Support And Storage
							1	1					1	1	Special	2	Each	Ground Mounted Sign Re-erected
							4						4		802	4	Each	Barrier Reflectors, Type A2
							6						6		802	6	Each	Barrier Reflectors, Type B2
																		FOR STRUCTURE OVER 20' SPAN, SEE SHEET NO. 15.
							Lump						Lump		614	Lump		Maintaining Traffic
							Lump						Lump		619	Lump		Field Office
															623	Lump		Construction Layout Stakes
															624	Lump		Mobilization

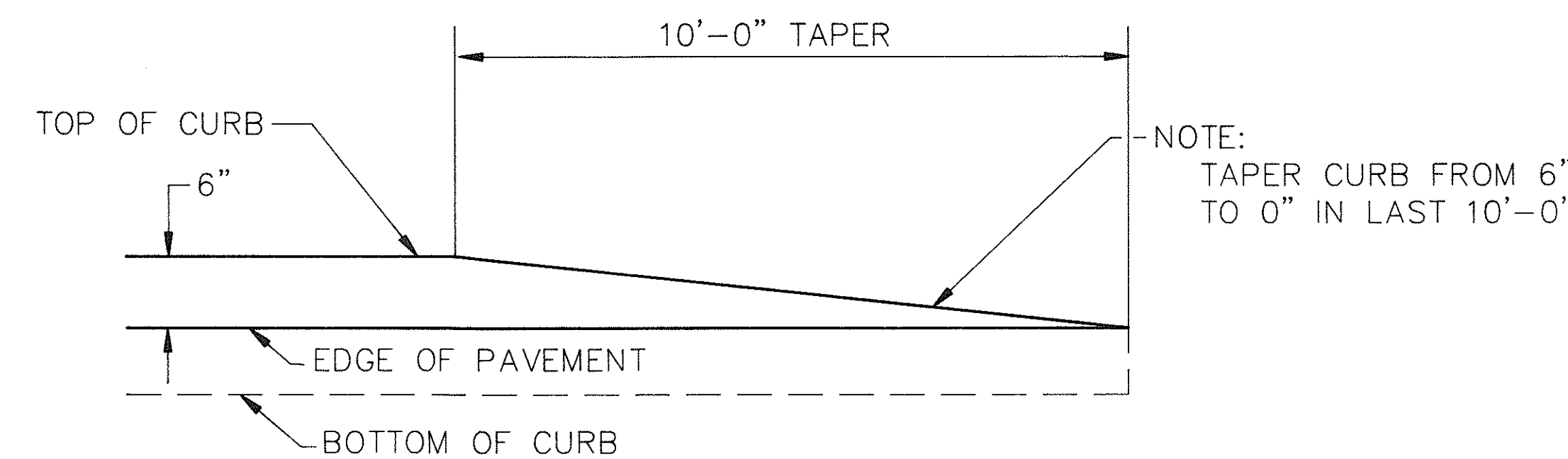
CALC. BY FDH 6-21-90
CHKD. BY WCR 6-21-90WALNUT ROAD
BR. NO. PE-17-24

OHIO

7
30

LEGEND

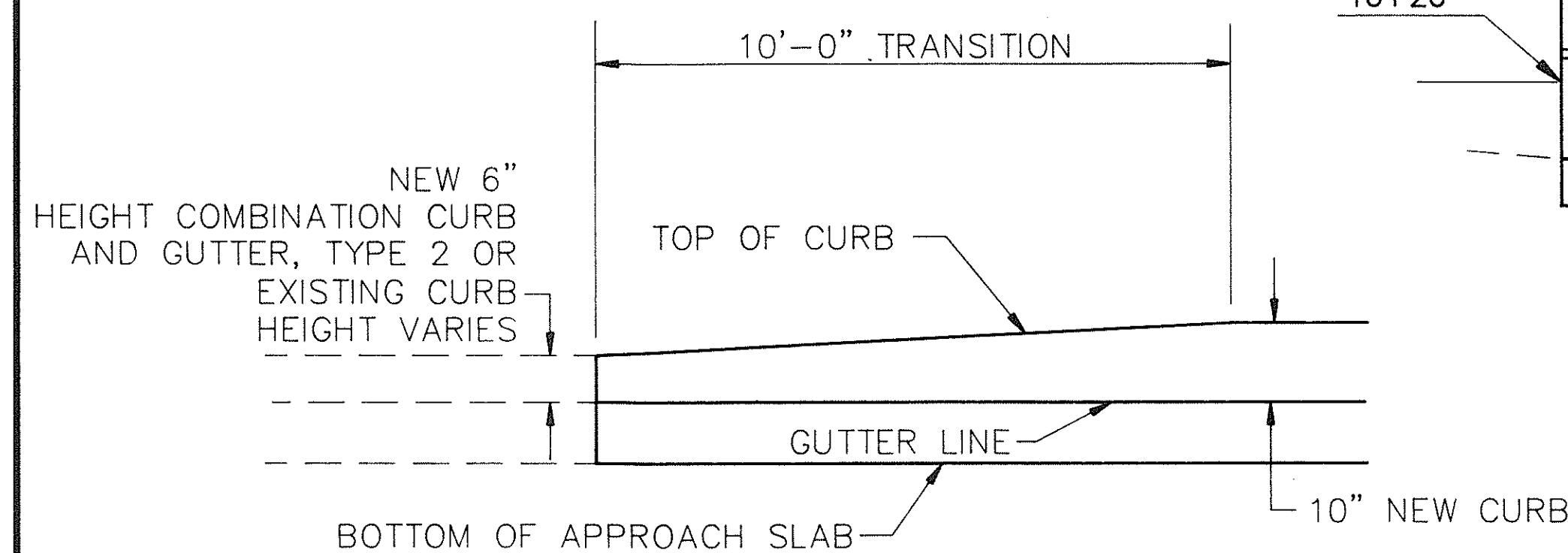
- ① Item 402 - - 1 1/2" Asphalt Concrete, AC-20
② Item 407 - - Tack Coat
③ Item 452 - - 9" Plain Concrete Pavement

PAVEMENT REPLACEMENT DETAIL
NO SCALE

CURB TAPER DETAIL

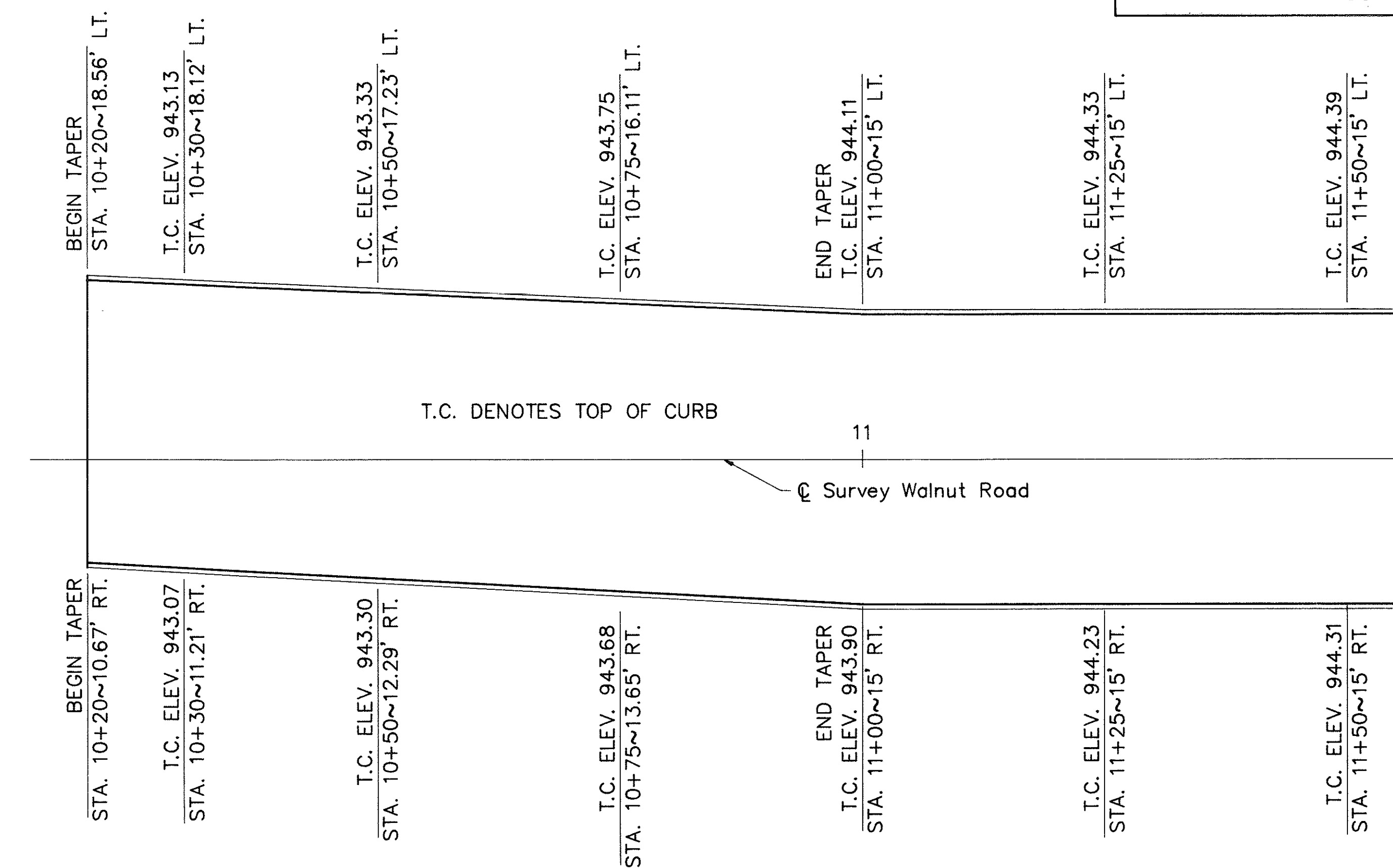
NO SCALE

STA. 10+20 TO STA. 10+30 ~ LT. & RT.

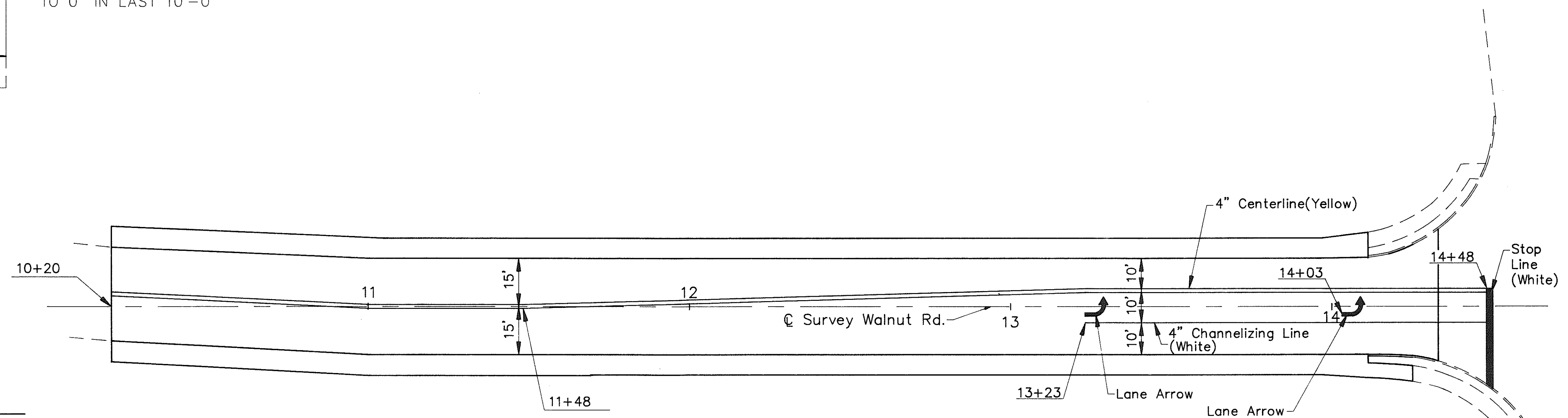


CURB TRANSITION DETAIL

NO SCALE

STA. 11+54.70 TO STA. 11+64.70 ~ LT. & RT.
STA. 14+01.11 TO STA. 14+11.11 ~ LT. & RT.

TAPER DETAIL



PAVEMENT MARKING PLAN

For Quantities, See Sheet No. 4.

B.M. ELEV. 944.66
Chs. Sq. @ S.W. Corner
of top step S.E. Wing-
wall of Walnut St. Bridge

NOTE:
Existing Power Poles
are to remain.

P.O.T. STA. 10+00.00

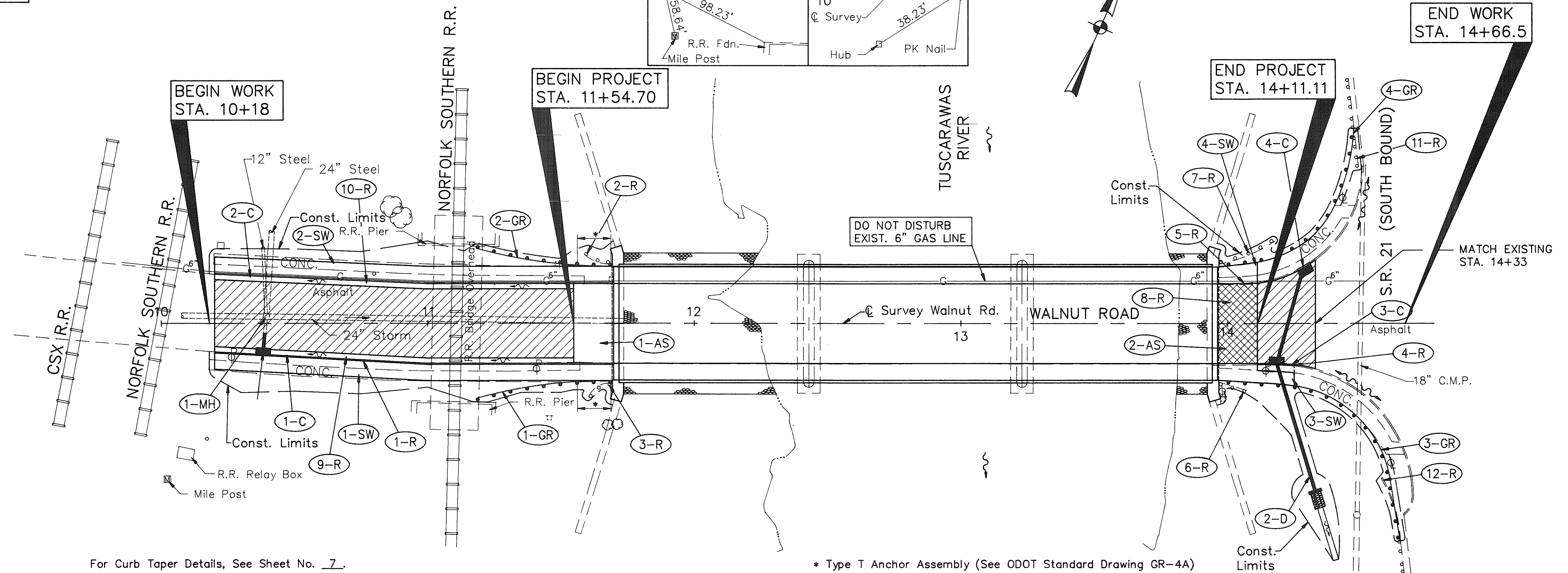
P.O.T. STA. 11+71.40

CALC. BY FDH DATE 7-17-90
CHKD. BY WCR DATE 7-30-90

WALNUT ROAD
BR. NO. PE-17-24

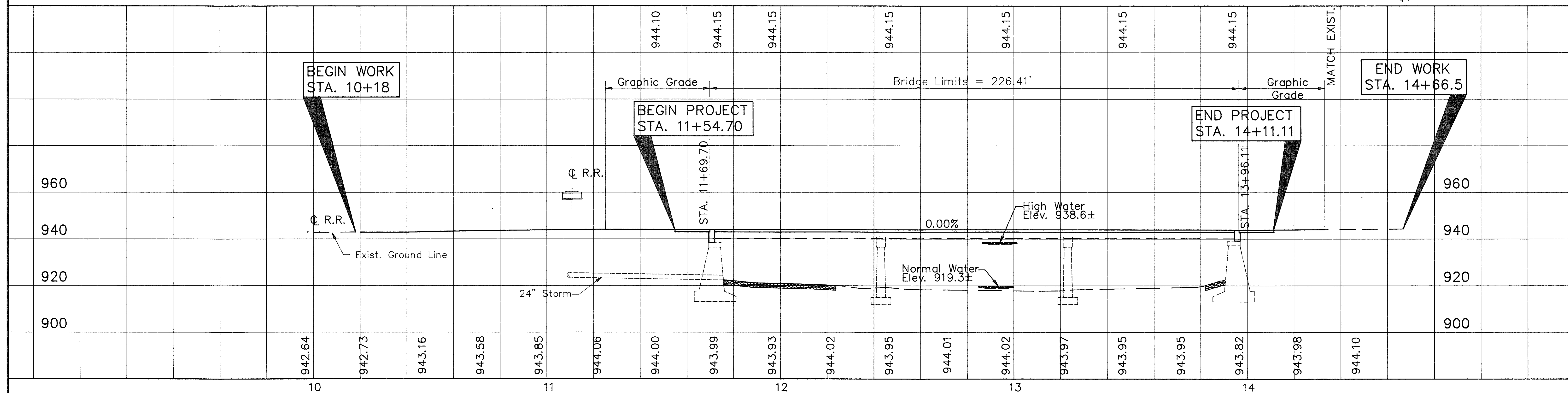
OHIO

8
30



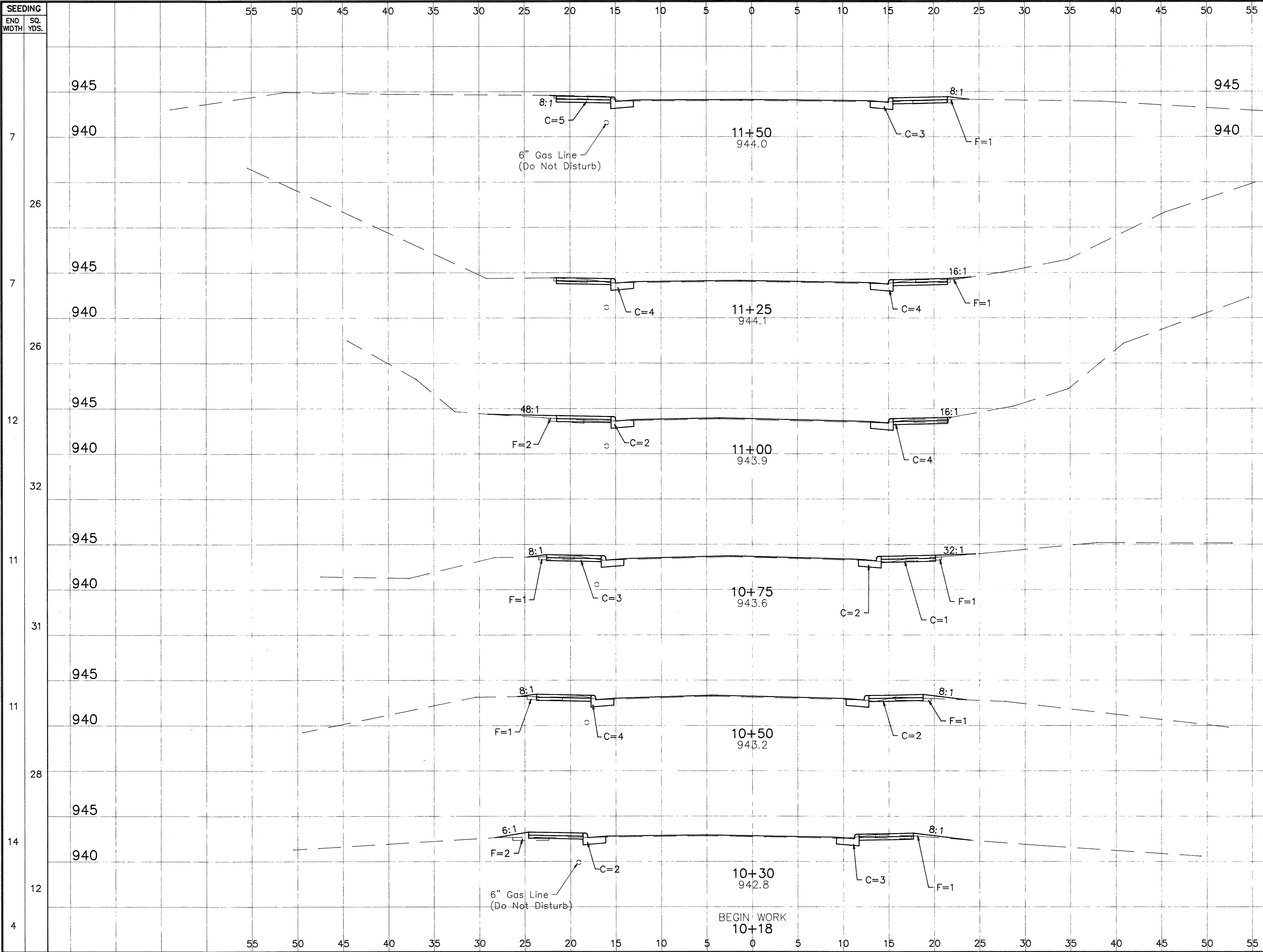
For Curb Taper Details, See Sheet No. 7.

* Type T Anchor Assembly (See ODOT Standard Drawing GR-4A)



* - CITY FUNDS

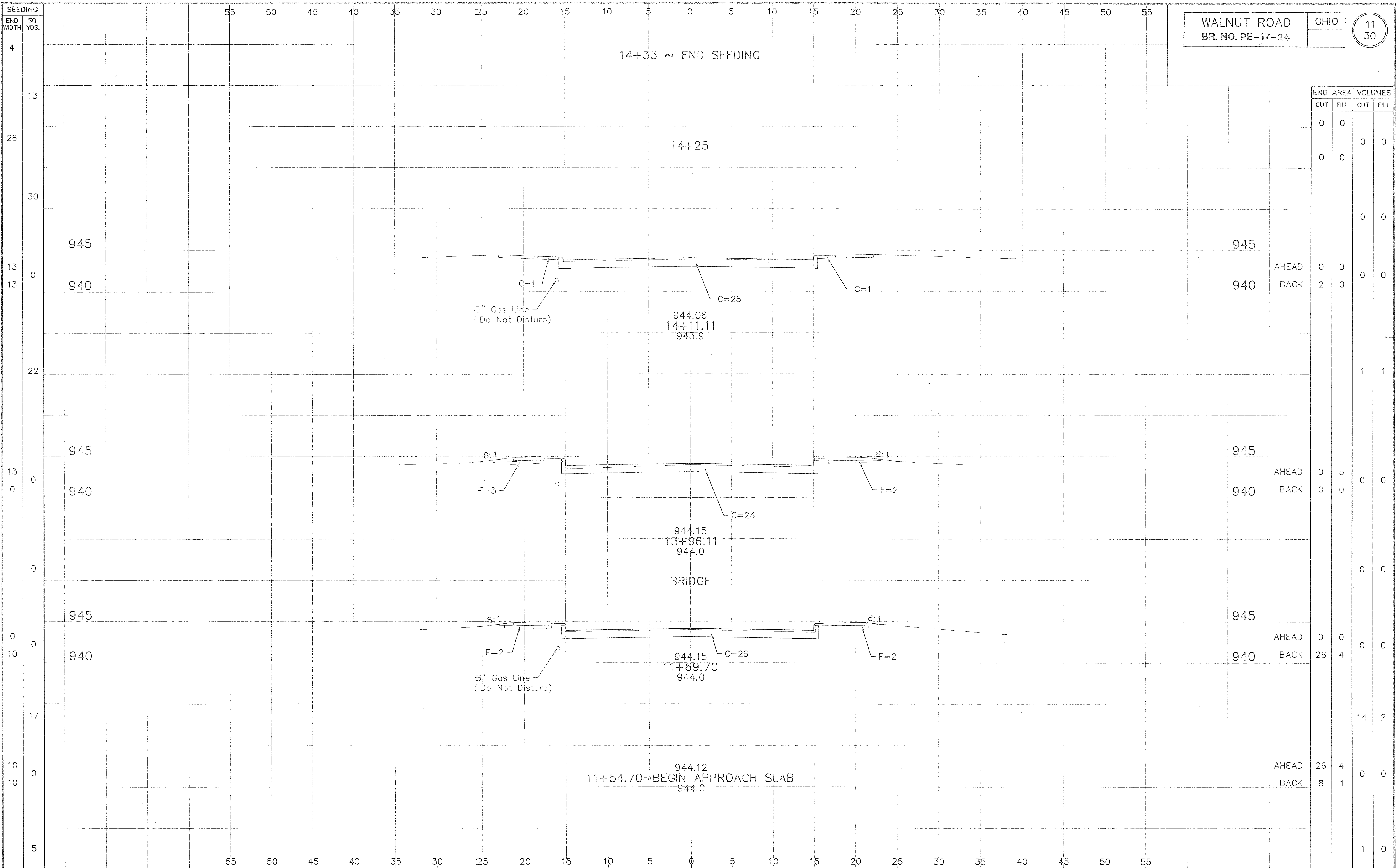
STA. 10+18 TO STA. 14+66.5



WALNUT ROAD
BR. NO. PE-17-24

OHIO
10
30

END AREA		VOLUMES	
CUT	FILL	CUT	FILL
8	1		
		7	1
8	1		
		6	1
6	2		
		6	2
6	2		
		6	2
6	2		
		4	1
5	2		
		2	0
6	0		

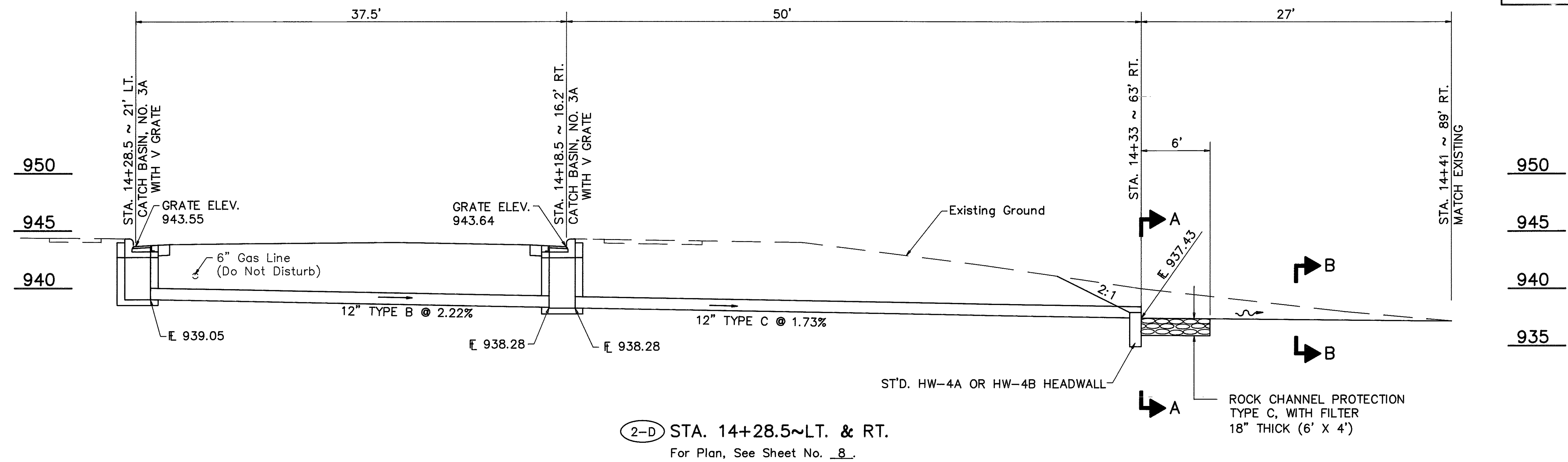


SEEDING		END AREA		VOLUMES	
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL
4		0	0	0	0
13		0	0	0	0
26					
30					
13					
13		0	0	0	0
22				1	1
13		0	5	0	0
0		0	0	0	0
0				0	0
0		0	0	0	0
10		26	4	0	0
17				14	2
10		26	4	0	0
10		8	1	0	0
5				1	0

WALNUT ROAD
BR. NO. PE-17-24

OHIO

11
30



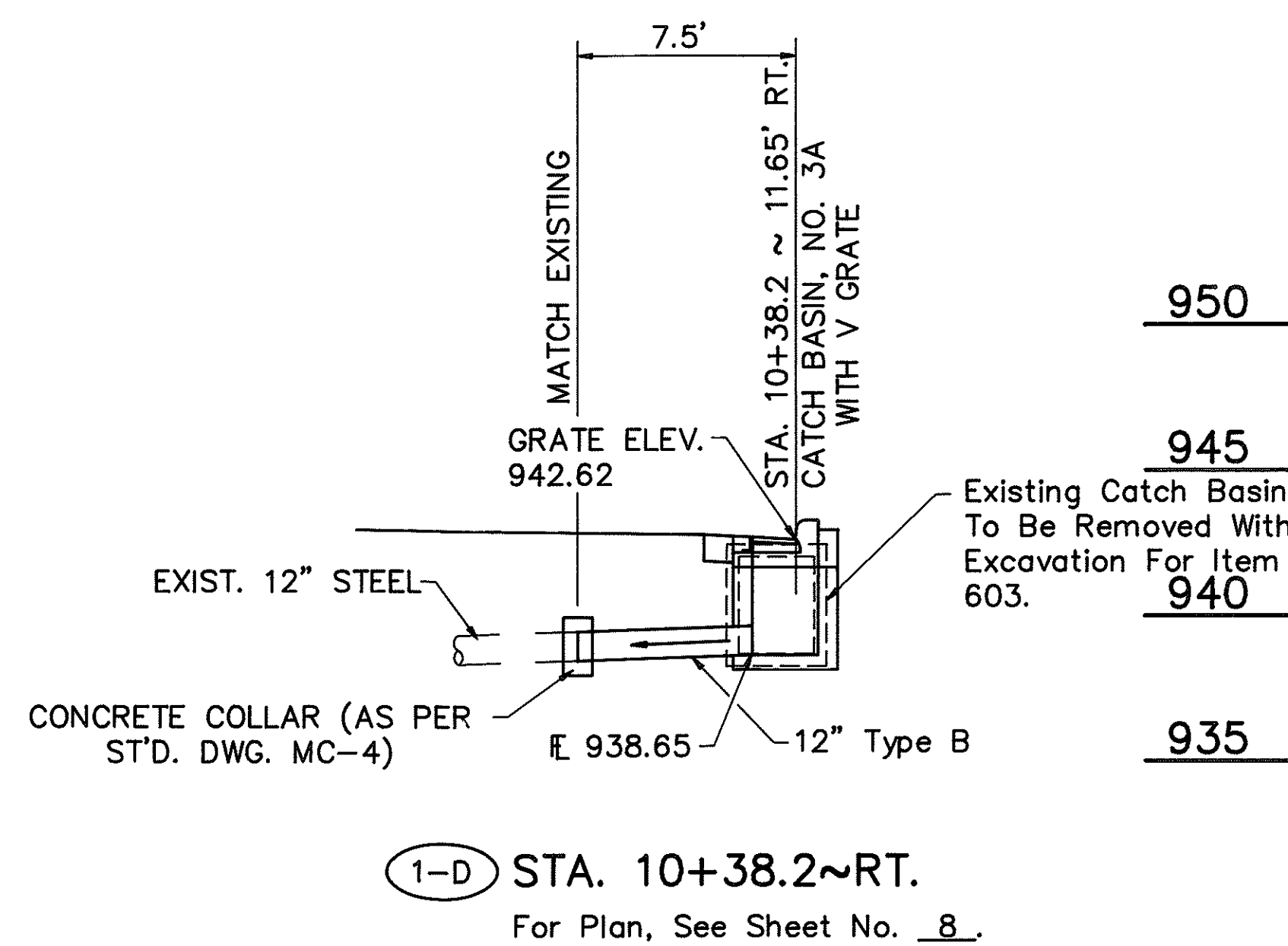
ESTIMATED QUANTITIES

Item 202	Pavement Removed	24.1 Sq. Yd.
Item 402	Asphalt Concrete, AC-20	0.9 Cu. Yd.
Item 407	Tack Coat	1.5 Gal.
Item 452	9" Plain Concrete Pavement	20.6 Sq. Yd.
Item 601	Rock Channel Protection, Type C With Filter	1.3 Cu. Yd.
Item 602	Concrete Masonry	0.21 Cu. Yd.
Item 603	12" Conduit, Type B	38 Lin. Ft.
Item 603	12" Conduit, Type C	50 Lin. Ft.
Item 604	Catch Basin, No. 3A With V Grate	2 Each

Quantities Carried To Sheet No. 8.

Item 203	Excavation Not Including Embankment Construction	12 Cu. Yd.
Item 659	Seeding And Mulching	48 Sq. Yd.

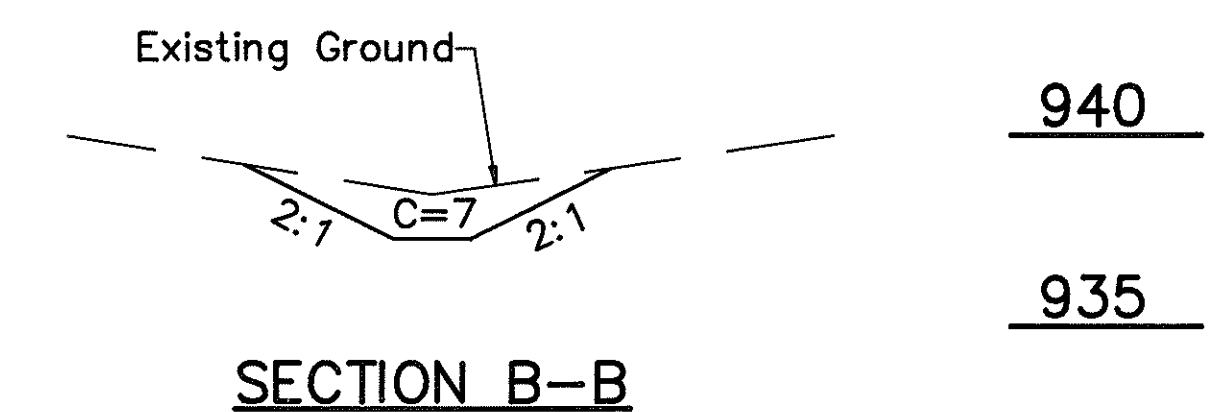
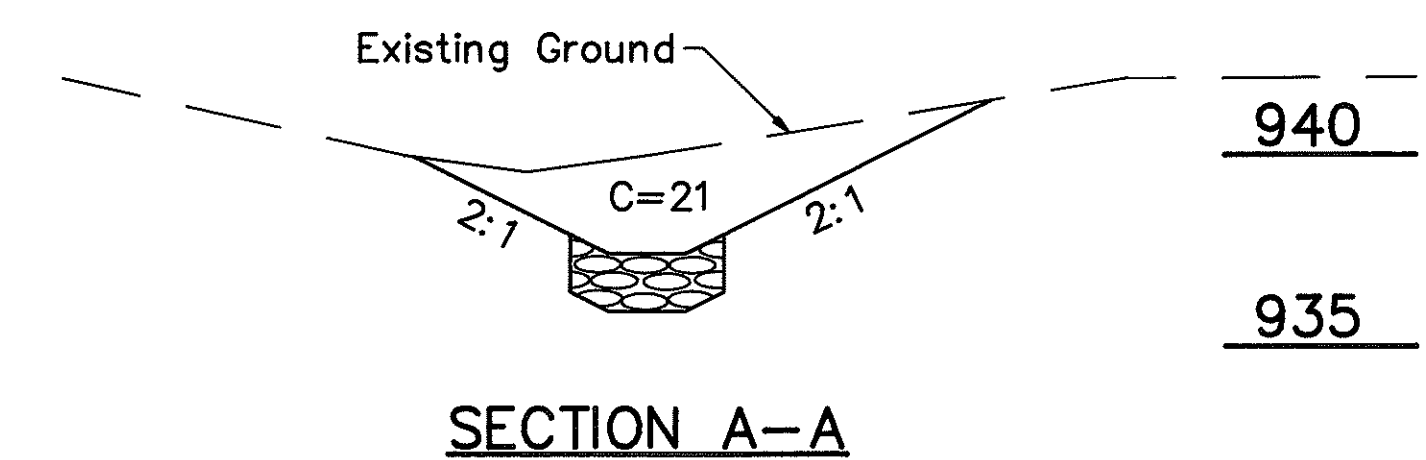
Quantities Carried To Sheet No. 5.



ESTIMATED QUANTITIES

Item 202	Pavement Removed	5.6 Sq. Yd.
Item 402	Asphalt Concrete, AC-20	0.2 Cu. Yd.
Item 407	Tack Coat	0.3 Gal.
Item 452	9" Plain Concrete Pavement	3.6 Sq. Yd.
Item 603	12" Conduit, Type B	8 Lin. Ft.
Item 604	Catch Basin, No. 3A With V Grate	1 Each

Quantities Carried To Sheet No. 8.



B.M. ELEV. 944.66
Chs. Sq. @ S.W. Corner
of top step S.E. Wing-
wall of Walnut Rd. Bridge

DESIGN DESIGNATION

1990 ADT	6600
2010 ADT	8890
2010 ADTT	148

EARTHWORK LIMITS SHOWN ARE
APPROXIMATE. ACTUAL SLOPES SHALL
CONFORM TO PLAN CROSS-SECTIONS.

EXISTING STRUCTURE DATA

SFN 7632096 (PARTIAL REMOVAL) DATE BUILT 1944

TYPE: STEEL BEAM WITH CONCRETE
FILLED I-BEAM LOK DECK &
SUBSTRUCTURE UNITS.
SPANS: 70'-80'-70' C/C BEARINGS
ROADWAY: 30'-0 F/F CURBS WITH 6'-6
SIDEWALKS
LOADING: H20-33
SKEW: NONE
WEARING SURFACE: ASPHALT CONCRETE
APPROACH SLABS: NONE
ALIGNMENT: TANGENT
SUPERELEVATION: NONE

PROPOSED STRUCTURE

TYPE: THREE SPAN REINFORCED CONCRETE
DECK ON EXISTING COMPOSITE STEEL BEAMS
AND MODIFIED ABUTMENTS.
SPAN: 70'-80'-70' C/C BEARINGS MEASURED
ALONG C SURVEY
ROADWAY: 30'-0 TOE/TOE CURBS W/6'-3 1/2
SIDEWALKS
SKEW: NONE
WEARING SURFACE: MONOLITHIC CONCRETE
LIVE LOAD: HS20-44 CASE I AND THE
ALTERNATE MILITARY LOADING
APPROACH SLAB: AS-1-81, 15' LONG
ALIGNMENT: TANGENT
SUPERELEVATION: NONE

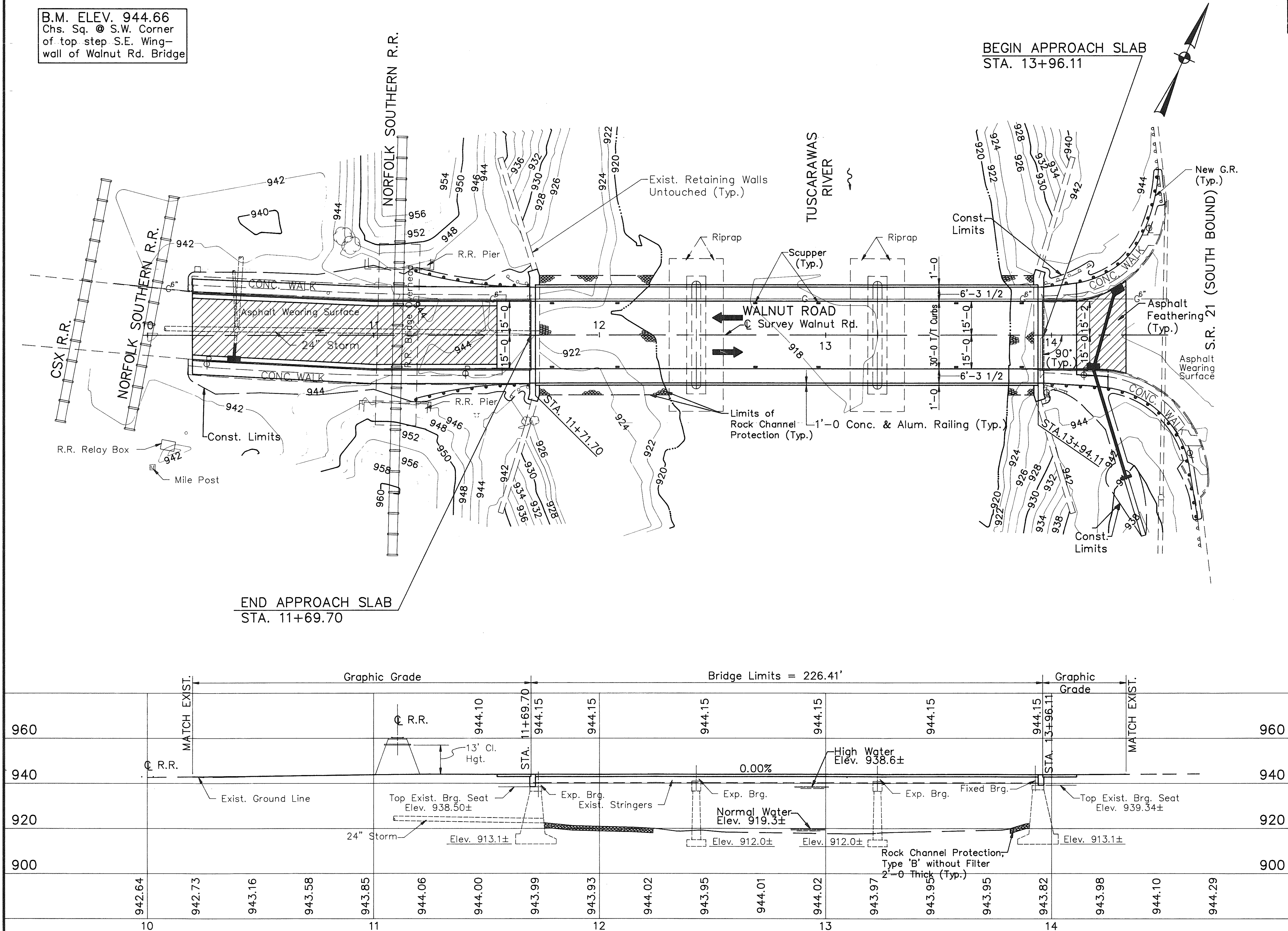
SHEET 1 / 18

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SFN 7632096

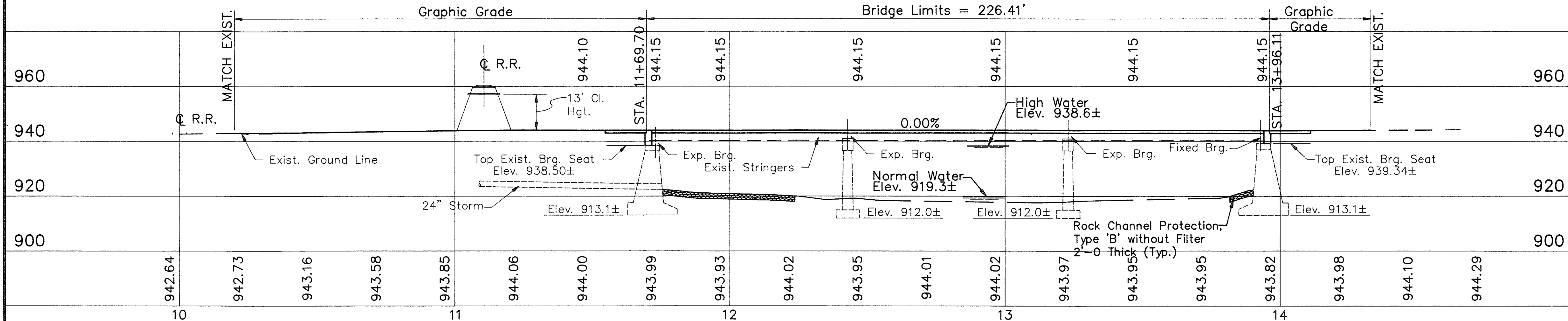
BRIDGE NO. PE-17-24
WALNUT RD. OVER TUSCARAWAS RIVER
STARK COUNTY
STA. 11+69.70
STA. 13+96.11

EXIST. TOPO		PROPOSED			
SURVEY	DRAWN	DESIGN	DRAWN	CHECKED	REVIEWED
WEQ	FDH	FDH	FDH	JMG	wdc 4/90



END APPROACH SLAB
STA. 11+69.70

BEGIN APPROACH SLAB
STA. 13+96.11



GENERAL NOTES

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1989 AND THE OHIO "SUPPLEMENT TO THESE SPECIFICATIONS".

DESIGN DATA:

DESIGN LOADING: HS20-44 CASE I AND THE ALTERNATE MILITARY LOADING
CONCRETE CLASS 'S': COMPRESSIVE STRENGTH 4500 P.S.I. (SUPERSTRUCTURE)
CONCRETE CLASS 'C': COMPRESSIVE STRENGTH 4000 P.S.I. (SUBSTRUCTURE)
REINFORCING STEEL: ASTM A615, A616, A617 - GRADE 60 MINIMUM YIELD STRENGTH 60,000 P.S.I.
STRUCTURAL STEEL: ASTM A572 - YIELD STRENGTH 50,000 P.S.I.
ASTM A36 - YIELD STRENGTH 36,000 P.S.I.

DECK PROTECTION METHOD:

EPOXY COATED REINFORCING STEEL, TOP AND BOTTOM MAT, SEALING OF CONCRETE SURFACES TO LIMITS SHOWN IN THESE PLANS.

MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1" THICK.

REFERENCES SHALL BE MADE TO:

STANDARD DRAWINGS		SUPPLEMENTAL SPECIFICATIONS
AS-1-81	DATED 11-27-81	836 DATED 11-12-85
BR-2-82	DATED 11-1 -82	852 DATED 6-10-87
SD-1-69	DATED 6-12-69	952 DATED 12-14-88
EXJ-4-87	DATED 1-5-89	
FB-5-82	DATED 5-10-82	
RB-1-55	DATED 2-2-55	

REINFORCING STEEL SPLICES:

ALL REINFORCING STEEL SPLICES SHALL BE IN ACCORDANCE WITH ITEM 509.08. UNLESS SHOWN OTHERWISE, ALL SPLICES SHALL BE MADE BY OVERLAPPING THE ENDS OF THE BARS NOT LESS THAN SHOWN IN THE FOLLOWING TABLE:

BAR SIZE	LAP LENGTH
#4	1'-4
#5	1'-8
#6	2'-0
#8	3'-3

EXPANSION JOINTS:

THE DECK AND SIDEWALK JOINTS SHALL BE SEALED WITH ELASTOMERIC STRIP SEALS, AS SHOWN ON SHEETS [14/18] THRU [17/18] .

JOINT ARMOR:

STEEL MEMBERS SHALL BE FURNISHED TO THE LIMITS SHOWN IN THESE PLANS. FOR LIMITS OF JOINT ARMOR, SEE SHEET [14/18]. JOINT ARMOR TO RECEIVE A WASH COAT OF SHOP PRIMER IN ACCORDANCE WITH STRIP SEAL EXPANSION JOINT NOTES ON SHEET [17/18]. PAYMENT FOR SHOP PAINTING SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 516, STRUCTURAL EXPANSION JOINTS INCLUDING ELASTOMERIC STRIP SEALS.

NEW CONCRETE:

NEW CONCRETE WHICH IS FORMED FOR ABUTMENT BACKWALLS AND PIER BRIDGE SEATS SHALL BE INCLUDED WITH ITEM 511 "CLASS C CONCRETE". ABUTMENTS AND ITEM 511 "CLASS C CONCRETE", PIERS.

EXISTING STRUCTURE VERIFICATION:

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND/OR 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 CMS SECTIONS 102.05, 105.02 AND 513.02.

CONTRACT BID PRICES SHALL BE BASED UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID 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.

EXISTING PLANS:

PLANS OF THE EXISTING STRUCTURE ARE AVAILABLE FOR INSPECTION AT THE COUNTY ENGINEERS OFFICE, \ , 5165 SOUTHWAY STREET, CANTON OHIO 44706

CONCRETE REMOVAL:

SHALL BE BY MEANS OF APPROVED PNEUMATIC HAMMERS EMPLOYING POINTED AND BLUNT CHISEL TOOLS. HYDRAULIC HOE-RAM TYPE HAMMERS WILL NOT BE PERMITTED. THE WEIGHT OF THE HAMMER SHALL NOT BE MORE THAN 15 POUNDS FOR REMOVAL WITHIN 18-INCHES OF PORTIONS TO BE PRESERVED. OUTSIDE THE 18-INCH LIMIT, A HAMMER HEAVIER THAN 15 POUNDS, BUT NOT TO EXCEED 35 POUNDS, MAY BE USED AT THE APPROVAL OF THE ENGINEER. PNEUMATIC HAMMERS SHALL NOT BE PLACED IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE.

PORTIONS OF EXISTING STRUCTURE TO BE REMOVED:

THE FOLLOWING PORTIONS OF THE EXISTING STRUCTURE SHALL BE REMOVED TO THE LIMITS SHOWN ON THE PLANS.

1. COMPLETE REINFORCED CONCRETE DECK, SIDEWALK'S, CURB'S AND RAILING'S.
2. PORTIONS OF REAR AND FORWARD ABUTMENT BACKWALLS, CURBS AND SIDEWALKS TO LIMITS SHOWN IN THESE PLANS.
3. PORTIONS OF REAR AND FORWARD PIER BRIDGE SEATS TO LIMITS SHOWN IN THESE PLANS.

SPECIAL CARE:

SPECIAL CARE AND APPROPRIATE MEASURES SHALL BE TAKEN TO PREVENT REMOVAL DEBRIS FROM FALLING INTO THE RIVER.

ALL MATERIAL REMOVED IN THE EXECUTION OF THIS PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED BY HIM FROM THE SITE. STORAGE OF MATERIAL REMOVED FOR DISPOSAL OR REUSE SHALL BE WHERE AND AS DIRECTED BY THE COUNTY ENGINEER.

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR PROVIDING FALSEWORK AND TEMPORARY BRACING AND SUPPORTS AS MAY BE REQUIRED TO MAINTAIN A COMPLETELY SAFE AND STABLE STRUCTURE AT ALL TIMES. IF IN THE OPINION OF THE ENGINEER, ADDITIONAL SUPPORTS ARE REQUIRED, THEY SHALL BE PROVIDED BY THE CONTRACTOR ENTIRELY AT HIS EXPENSE. THE CONTRACTOR SHALL SUBMIT PLANS FOR FALSEWORK AND TEMPORARY BRACING AND SUPPORTS TOGETHER WITH HIS PROPOSED METHOD AND SEQUENCE OF REMOVAL TO THE COUNTY ENGINEER FOR APPROVAL.

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. REPLACEMENT REINFORCING STEEL DEEMED UNUSABLE SHALL BE PAID FOR AT THE BASE BID UNIT PRICE FOR ITEM 509.

FIELD BENDING AND CUTTING OF ANY NEW OR EXISTING REINFORCING STEEL SHALL BE IN ACCORDANCE WITH SECTION 509 AND SHALL BE INCLUDED IN THE BASE BID UNIT PRICE FOR ITEM 509, REINFORCING STEEL.

FIELD PAINTING NEW AND EXISTING STEEL:

ALL STRUCTURAL STEEL, BEARING PLATES,ETC., SHALL BE BLAST CLEANED AND PAINTED ACCORDING TO THE STARK COUNTY ENGINEER'S BRIDGE PAINTING SPECIFICATIONS. PAINTING SHALL CONSIST OF A TWO COAT (PRIME AND FINISH COAT) SYSTEM, APPLIED BY SPRAYING. PROPER CARE MUST BE TAKEN TO PREVENT OVER SPRAY FROM TOUCHING AND DISCOLORING THE SUBSTRUCTURE UNITS. THE CONTRACTOR SHALL NOTIFY THE STARK COUNTY BRIDGE ENGINEER WHEN HE HAS CLEANED THE STEEL AND IS READY TO APPLY THE FIRST COAT OF PAINT. NO PAINT SHALL BE APPLIED UNTIL APPROVAL OF THE CLEANING HAS BEEN GIVEN BY THE BRIDGE ENGINEER. PAINT SPECIFICATIONS ARE INCLUDED IN THE BID PACKAGE.

SEALING OF CONCRETE SURFACES:

A CONCRETE SEALER SHALL BE APPLIED TO THE DECK TO THE LIMITS SHOWN ON THE TRANSVERSE SECTION ON SHEET [7/18] . SEE THE PROPOSAL NOTE FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIAL REQUIREMENTS AND APPLICATION PROCEDURES. THE SEALER SHALL PRODUCE A UNIFORM COLORATION OF NEW AND EXISTING CONCRETE.

CONSTRUCTION JOINT PREPARATION:

SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1 INCH DEEP, REMOVE CONCRETE TO A ROUGH SURFACE. EXISTING REINFORCING STEEL SHALL BE LEFT IN PLACE AS SHOWN IN THESE PLANS. INSTALL DOWEL BARS AS SPECIFIED. PRIOR TO CONCRETE PLACEMENT, ABRASIVELY CLEAN JOINT SURFACE AND EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THEN, THE JOINT SURFACE AND EXPOSED REINFORCEMENT SHALL BE THOROUGHLY CLEANED OF ALL DIRT, DUST, OR OTHER FOREIGN MATERIALS BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHOD THAT PRODUCES RESULTS SATISFACTORY TO THE ENGINEER. THE CONCRETE BONDING SURFACE SHALL BE WET WITHOUT FREE WATER AS CONCRETE IS PLACED.

STRUCTURAL STEEL INSPECTION:

CONTRACTOR IS TO PROVIDE THE CONSTRUCTION TIME AND GIVE ACCESS FOR A CLOSE INSPECTION OF EXISTING STEEL AND WELDS TO BE VISUALLY INSPECTED BY THE ENGINEER. THIS WOULD INCLUDE AN INSPECTION AFTER THE DECK IS REMOVED, PRIOR TO ANY NECESSARY REHABILITATION AND ANOTHER INSPECTION OF EXISTING STEEL AFTER IT HAS BEEN RECONDITIONED AND PAINTED. THESE INSPECTIONS AND ACCESS FOR INSPECTION SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 513, STRUCTURAL STEEL INSPECTION. STEEL DAMAGED DUE TO DECK REMOVAL OR DURING STEEL RECONDITIONING WHICH REQUIRES REPLACEMENT AND/OR REHABILITATION SHALL BE REPLACED OR REPAIRED BY THE CONTRACTOR AT NO COST TO THE PROJECT. SUFFICIENT TIME, SUITABLE ACCESS, SAFE AND SECURE PLATFORMS, SCAFFOLDING AND/OR LADDERS SHALL BE PROVIDED BY THE CONTRACTOR FOR THIS INSPECTION.

CONCRETE REPAIR:

UNLESS OTHERWISE INDICATED, ALL CONCRETE REPAIR SHALL BE PERFORMED IN ACCORDANCE WITH THE PROVISIONS OF ITEM 519.

PAYMENT FOR CONCRETE REPAIR SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 519 - PATCHING CONCRETE STRUCTURES, AS PER PLAN.

UTILITY LINES:

ALL EXPENSE INVOLVED IN RELOCATING OR ADJUSTING THE AFFECTED UTILITY LINES SHALL BE BORNE BY THE OWNER. THE CONTRACTOR AND OWNER ARE REQUESTED TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

DOWEL HOLES:

DRILLING OF DOWEL HOLES INTO CONCRETE FOR DOWELS OR ANCHOR RODS, THE FURNISHING AND PLACING OF GROUT INTO THE HOLES SHALL BE IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATIONS 852 AND 952, EXCEPT FOR THE BASIS OF PAYMENT. DRILLING OF DOWEL HOLES AND ANCHOR RODS, FURNISHING AND PLACING A NON-SHRINKING GROUT AND SETTING STRUCTURAL ELEMENT WILL BE MEASURED AS A UNIT AND PAID FOR AT THE UNIT PRICE BID FOR ITEM 510 - DOWEL HOLES AND ANCHOR RODS AS PER PLAN.

SHEET 2/18

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

GENERAL NOTES
BRIDGE NO. PE-17-24
WALNUT RD. OVER TUSCARAWAS RIVER

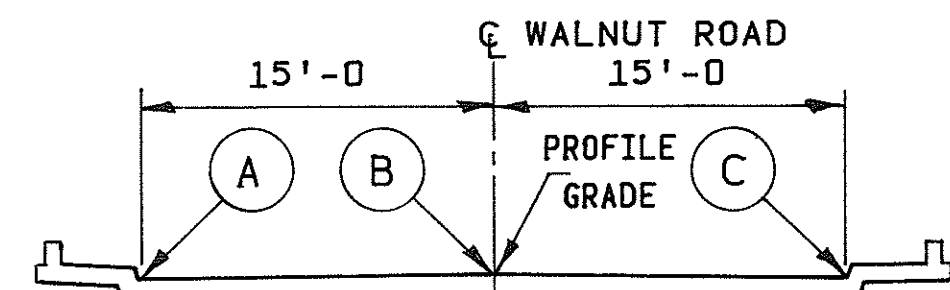
STARK COUNTY
STA. 11+69.70
STA. 13+96.11

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
CFD	CFD		JMG	uc/s	7/90	

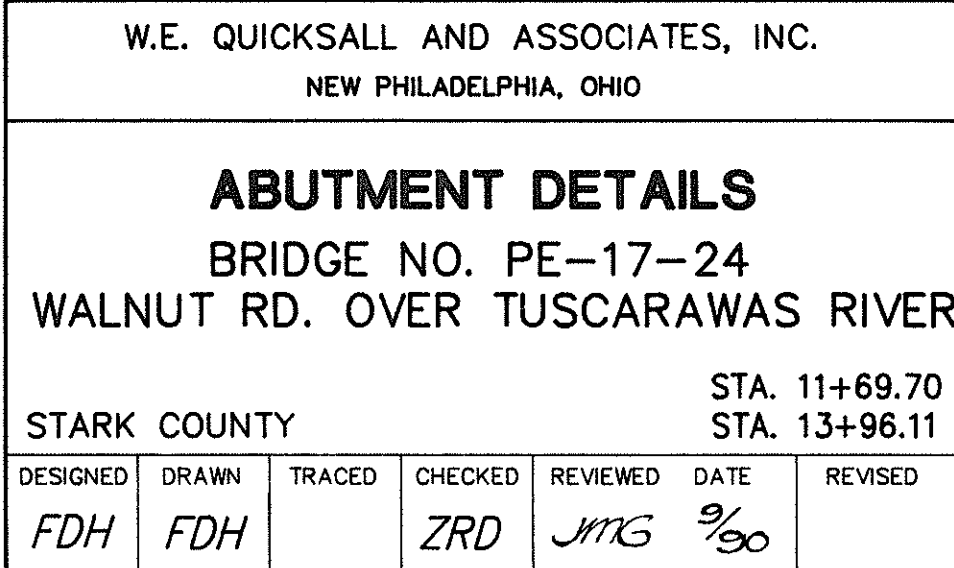
ITEM	ITEM EXT.	ESTIMATED QUANTITIES				CALC. BY: <i>CFD</i> DATE: 8-14-90				CHKD. BY: <i>FDH</i> DATE: 9-6-90			
		TOTAL	UNIT	DESCRIPTION	ABUTS	PIERS	SUPER	GEN'L.					
202		LUMP	SUM	PORTIONS OF STRUCTURES REMOVED				<i>Lump</i>					
503		<i>17</i>	CU.YD.	UNCLASSIFIED EXCAVATION	<i>17</i>								
509		<i>82,529</i>	LBS.	EPOXY COATED REINFORCING STEEL, GRADE 60	<i>6168</i>	<i>148</i>	<i>76213</i>						
510		<i>152</i>	EACH	DOWEL HOLES	<i>136</i>	<i>16</i>							
511		<i>281</i>	CU.YD.	CLASS S CONCRETE, SUPERSTRUCTURE			<i>281</i>						
511		<i>58</i>	CU.YD.	CLASS C CONCRETE, ABUTMENTS	<i>58</i>								
511		<i>2</i>	CU.YD.	CLASS C CONCRETE, PIERS		<i>2</i>							
513		LUMP	SUM	STRUCTURAL STEEL INSPECTION *				<i>Lump</i>					
513		<i>77,100</i>	LBS.	STRUCTURAL STEEL, A572 (AISC CATEGORY I)			<i>77,100</i>						
513		<i>2772</i>	EACH	WELDED STUD SHEAR CONNECTORS			<i>2772</i>						
SPECIAL		LUMP	SUM	FIELD PAINTING OF NEW AND EXISTING STEEL * *				<i>Lump</i>					
				(APPROX. 12,200 SQ.FT.)									
516		<i>89</i>	LIN.FT.	STRUCTURAL EXPANSION JOINTS, INCLUDING	<i>89</i>								
				ELASTOMERIC STRIP SEALS									
517		<i>443</i>	LIN.FT.	RAILING (CONCRETE PARAPET W/DOUBLE ALUMINUM			<i>443</i>						
				PIPE RAIL).									
518		<i>38</i>	CU.YD.	POROUS BACKFILL	<i>38</i>								
518		<i>12</i>	EACH	SCUPPERS INCLUDING SUPPORTS			<i>12</i>						
519		<i>131</i>	SQ.FT.	PATCHING CONCRETE STRUCTURES, AS PER PLAN	<i>131</i>								
SPECIAL		<i>660</i>	SQ.YD.	SEALING OF CONCRETE SURFACES (NON EPOXY) *			<i>660</i>						
SPECIAL		<i>38</i>	SQ.YD.	SEALING OF CONCRETE SURFACES (EPOXY)		<i>38</i>							
601		<i>235</i>	CU.YD.	ROCK CHANNEL PROTECTION, TYPE B WITHOUT FILTER	<i>235</i>								

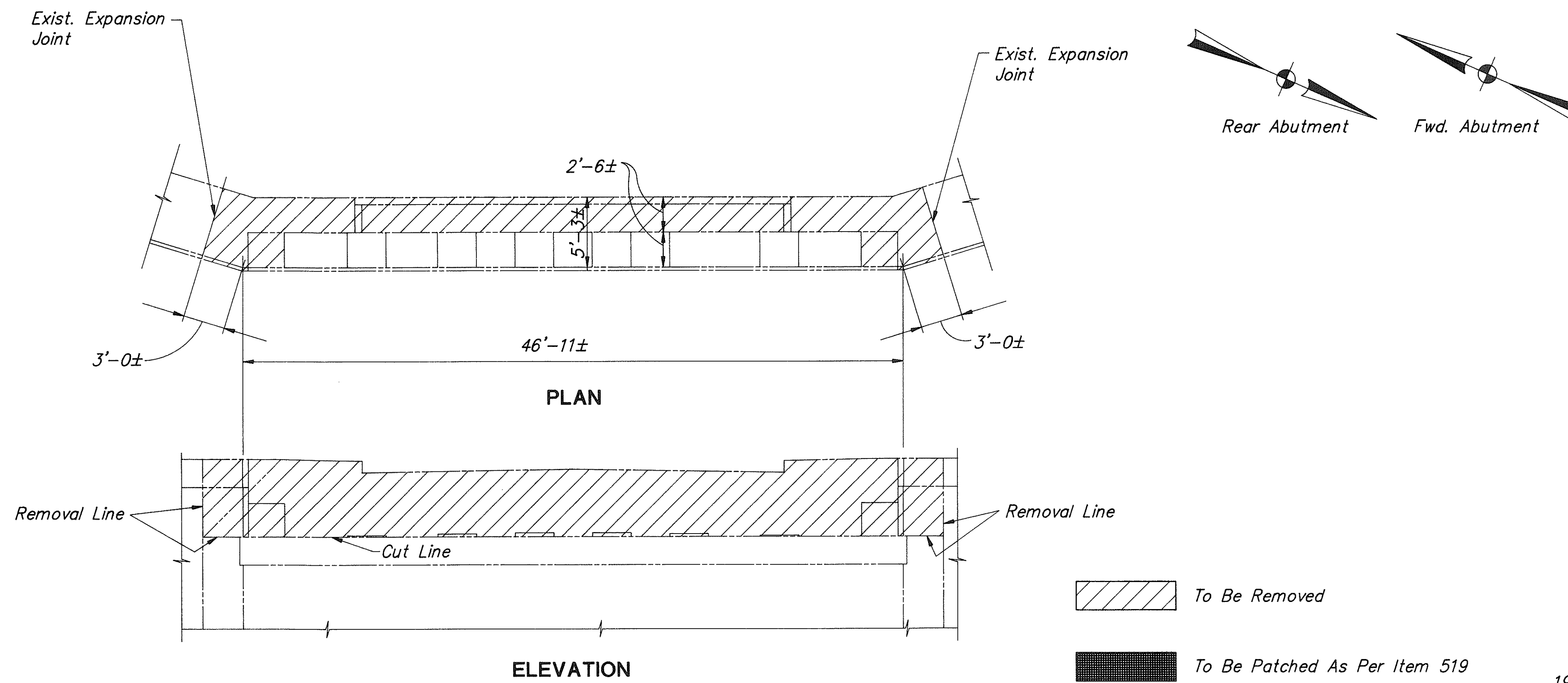
* SEE PROPOSAL NOTE
* * SEE STARK COUNTY ENGINEER FOR
STARK COUNTY BRIDGE PAINTING
SPECIFICATIONS.

TOP OF SLAB ELEVATIONS (SCREED ELEVATIONS)							
SPAN	PT.	A		B		C	
		STATION	ELEV.	STATION	ELEV.	STATION	ELEV.
1	BRG.	11+72.91	943.92	11+72.91	944.15	11+72.91	943.92
	1/5	11+86.91	943.95	11+86.91	944.18	11+86.91	943.95
	2/5	12+00.91	943.96	12+00.91	944.20	12+00.91	943.96
	3/5	12+14.91	943.96	12+14.91	944.19	12+14.91	943.96
	4/5	12+28.91	943.93	12+28.91	944.17	12+28.91	943.93
2	BRG.	12+42.91	943.92	12+42.91	944.15	12+42.91	943.92
	1/5	12+58.91	943.93	12+58.91	944.16	12+58.91	943.93
	2/5	12+74.91	943.94	12+74.91	944.18	12+74.91	943.94
	3/5	12+90.90	943.94	12+90.90	944.18	12+90.90	943.94
	4/5	13+06.90	943.93	13+06.90	944.16	13+06.90	943.93
3	BRG.	13+22.90	943.92	13+22.90	944.15	13+22.90	943.92
	1/5	13+36.90	943.93	13+36.90	944.17	13+36.90	943.93
	2/5	13+50.90	943.96	13+50.90	944.19	13+50.90	943.96
	3/5	13+64.90	943.96	13+64.90	944.20	13+64.90	943.96
	4/5	13+78.90	943.95	13+78.90	944.18	13+78.90	943.95
	BRG.	13+92.90	943.92	13+92.90	944.15	13+92.90	943.92

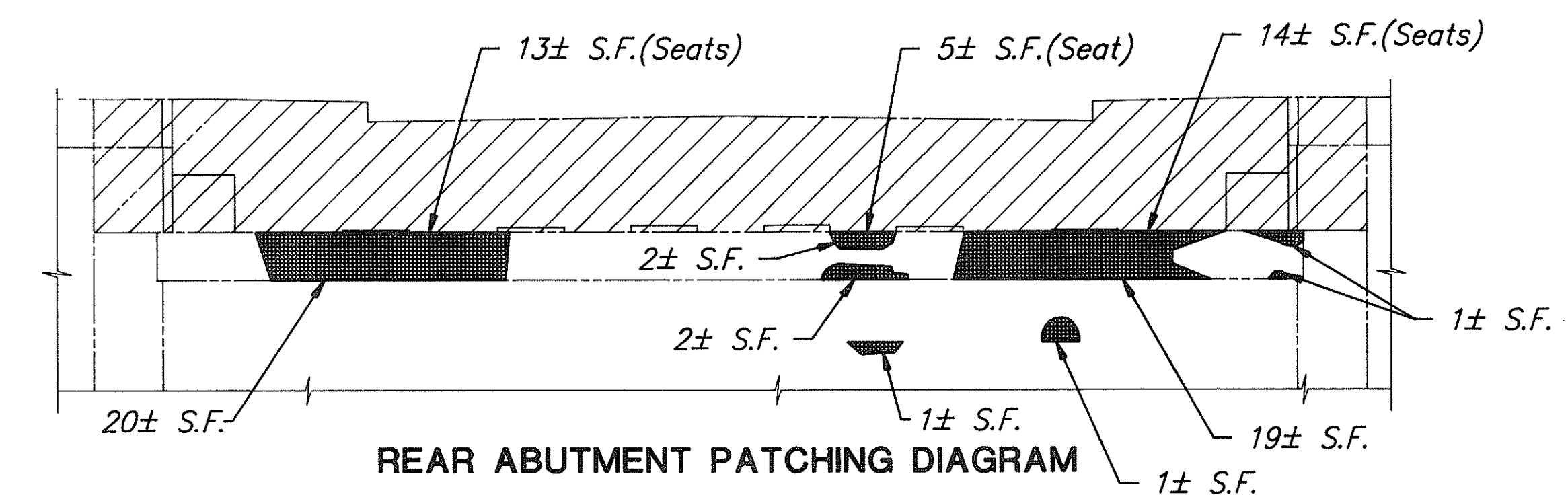
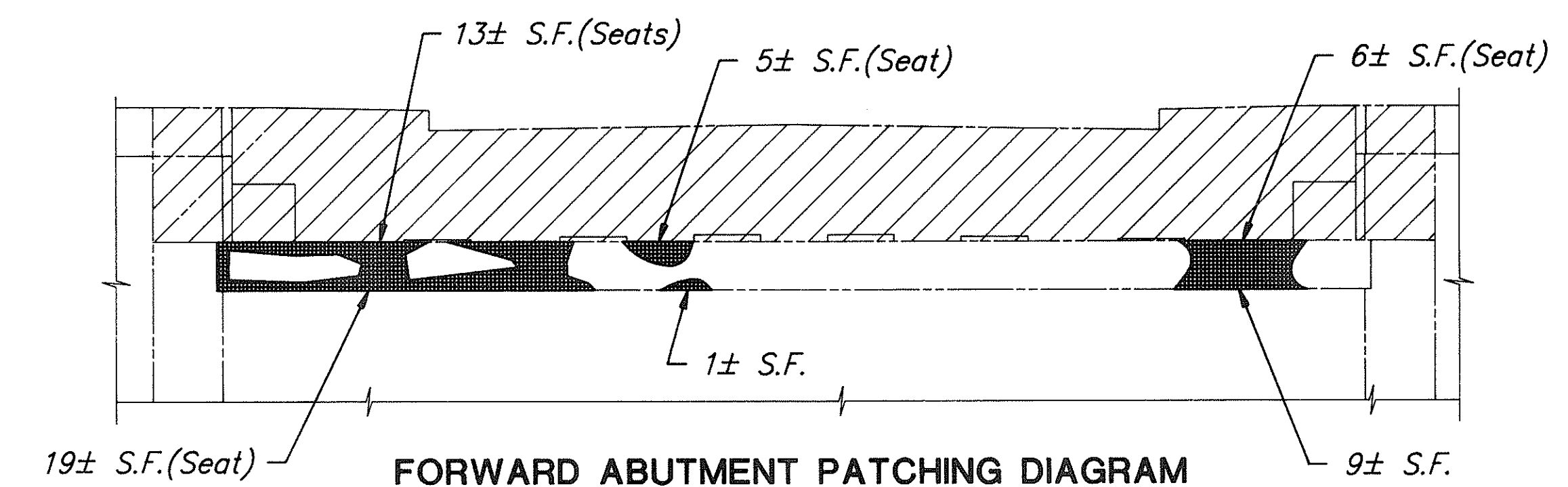


NOTE: ELEVATIONS AT THE TOP OF CONCRETE
SLAB ARE THOSE REQUIRED BEFORE
DECK CONCRETE IS PLACED, ALLOWANCE
HAS BEEN MADE FOR DEAD LOAD DEFLECTION
CAUSED BY THE WEIGHT OF THE CONCRETE.





EXISTING ABUTMENT REMOVAL DIAGRAMS



For Rear & Forward Abutment
Details, See Sheet 4 / 18

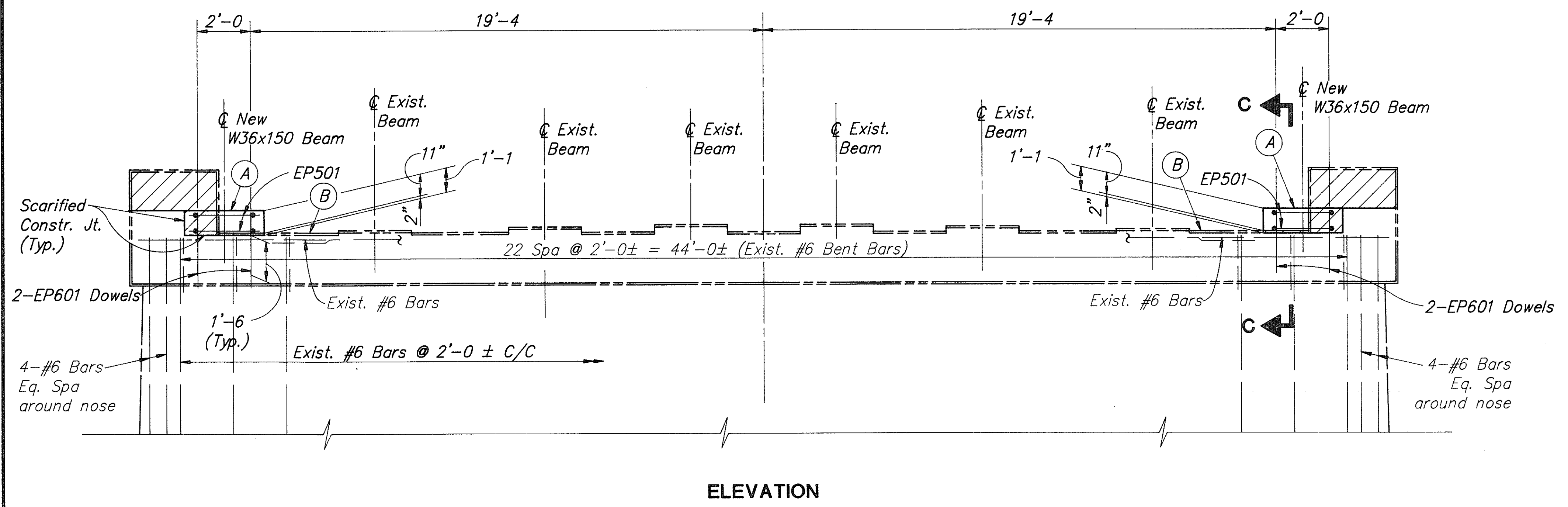
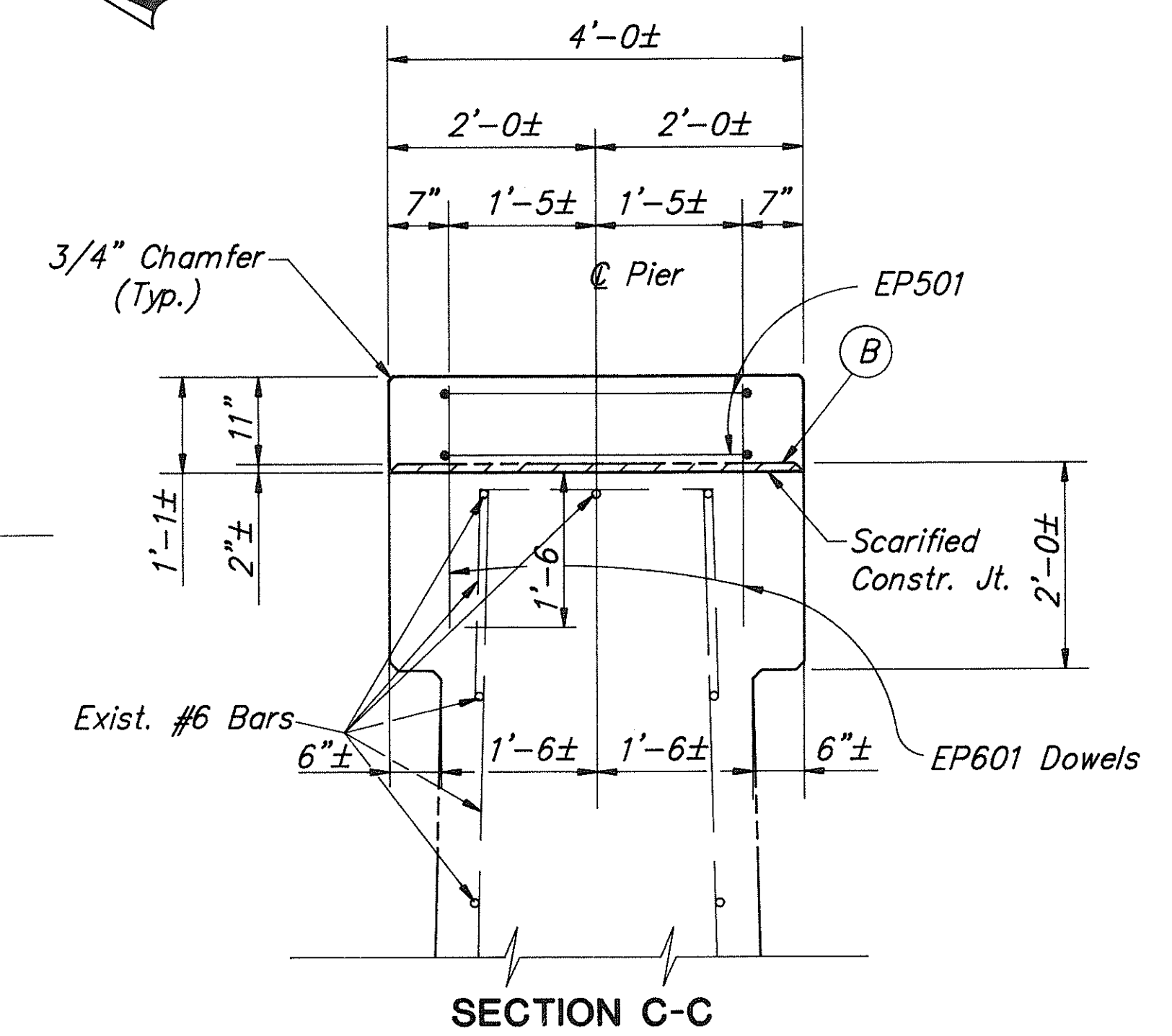
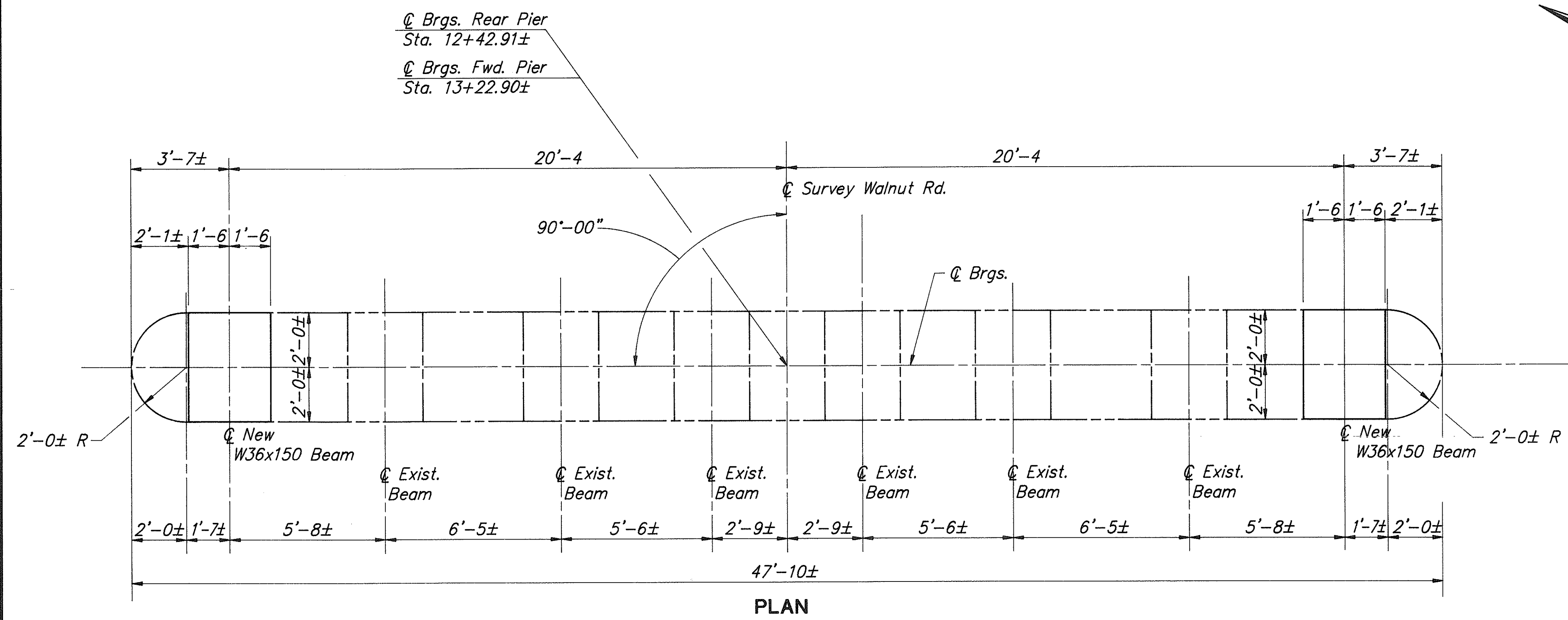
SHEET 5 / 18

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

ABUTMENT DETAILS
BRIDGE NO. PE-17-24
WALNUT RD. OVER TUSCARAWAS RIVER

STARK COUNTY
STA. 11+69.70
STA. 13+96.11

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		ZRD	JMC	9/90	



ELEVATIONS		
LOCATION	A	B
REAR PIER	939.49	938.57±
FWD. PIER	939.49	938.57±

To Be Removed

SHEET
6 / 18

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

PIER DETAILS
BRIDGE NO. PE-17-24
WALNUT RD. OVER TUSCARAWAS RIVER

STARK COUNTY

DESIGNED
FDH

DRAWN
FDH

TRACED

CHECKED
ZRD

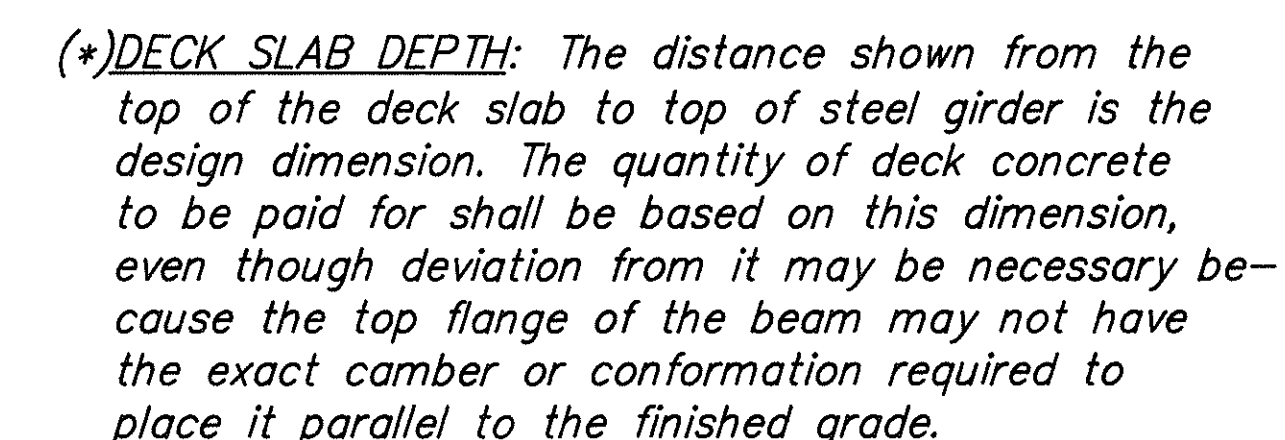
REVIEWED
JmG

DATE
9/90

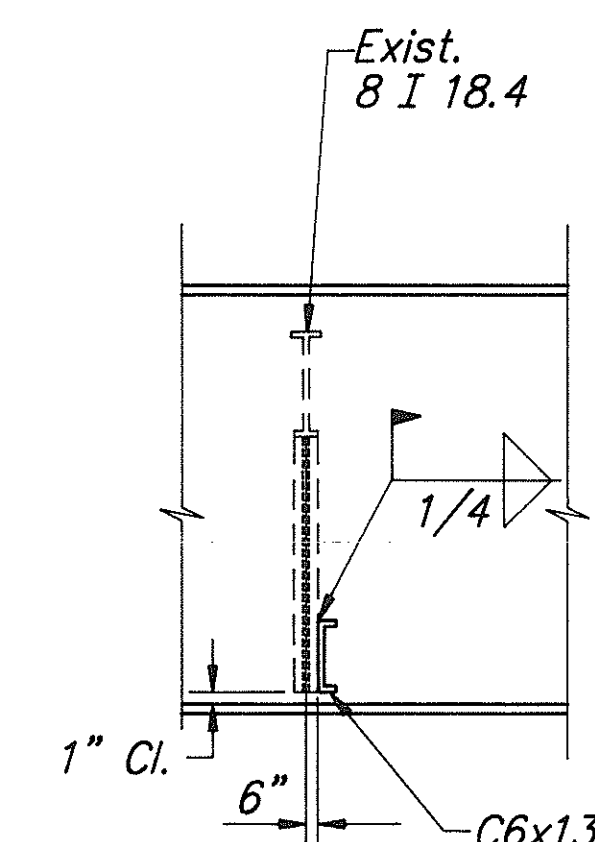
REVISED

STA. 11+69.70
STA. 13+96.11

W. E. QUICKSALL AND ASSOCIATES INC. CONSULTING ENGINEERS



A haunch width of 9" shall be used for—
computing quantity of concrete. However,
the haunch width may vary between 6"
and 12"(provided that the slope shall not
be more than 1:4 for a haunch less than
9" in width.) (Typ.)

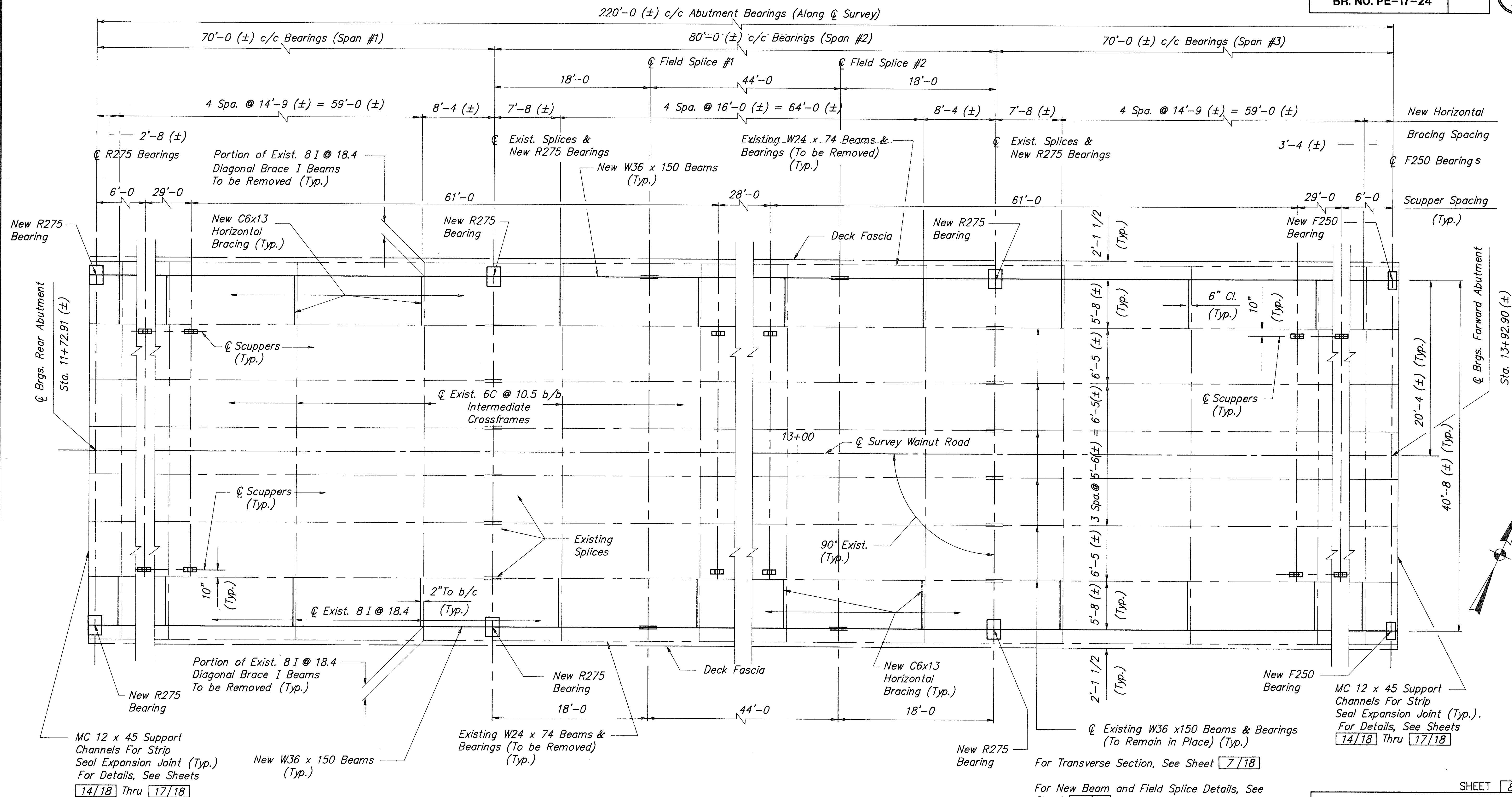


SECTION D-D

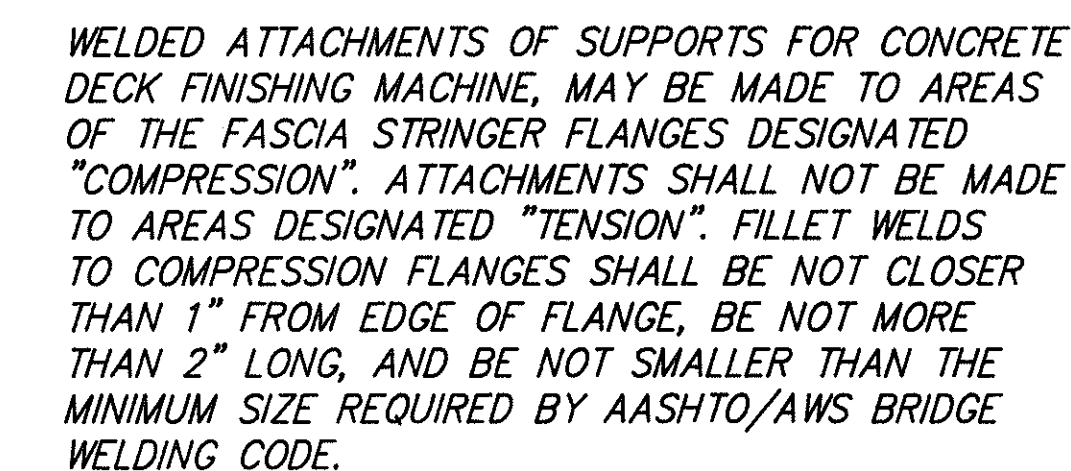
Note A: Optional Welded Clip
L 3"x3"x3/8"x0'-5

STARK COUNTY	STA. 11+69.70
	STA. 13+96.11

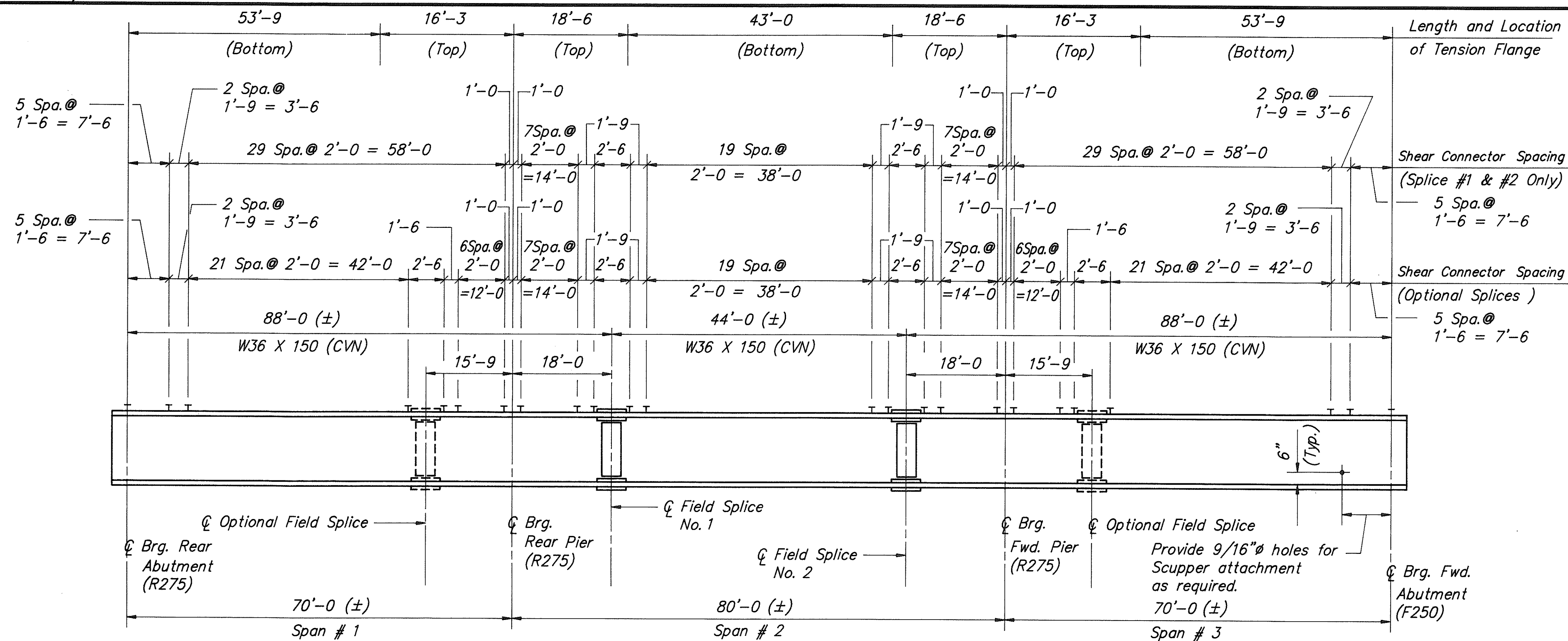
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		ZRD	JMG	9/00	



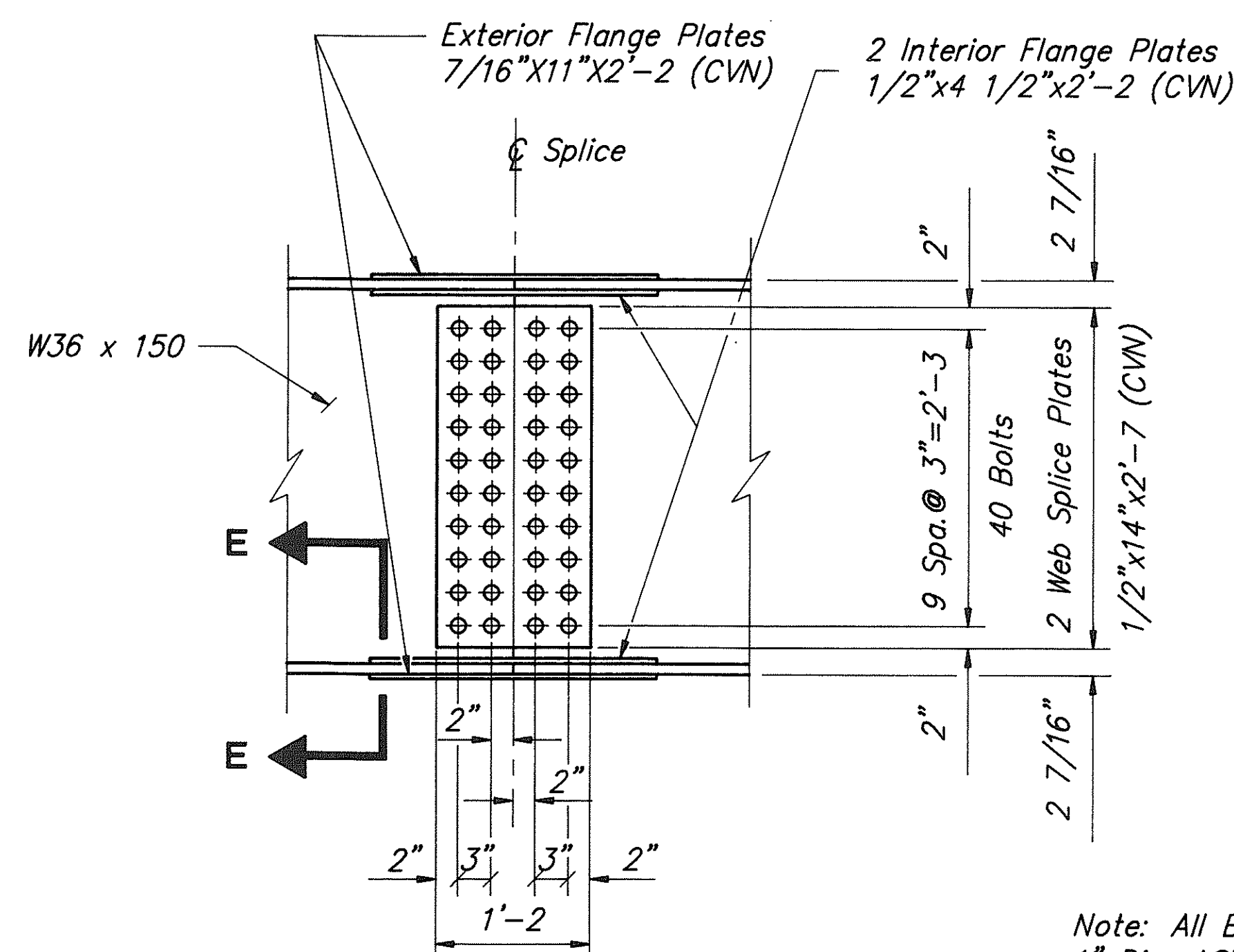
STEEL FRAMING PLAN



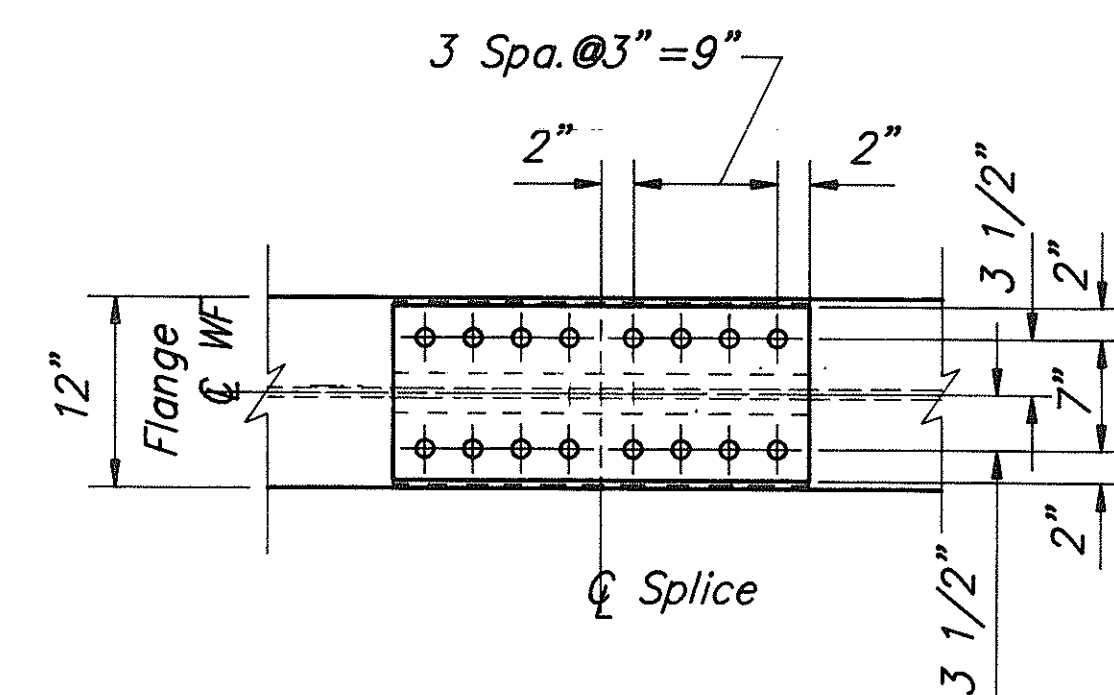
For Steel Framing Plan and Scupper
Spacing, See Sheet 8 / 18



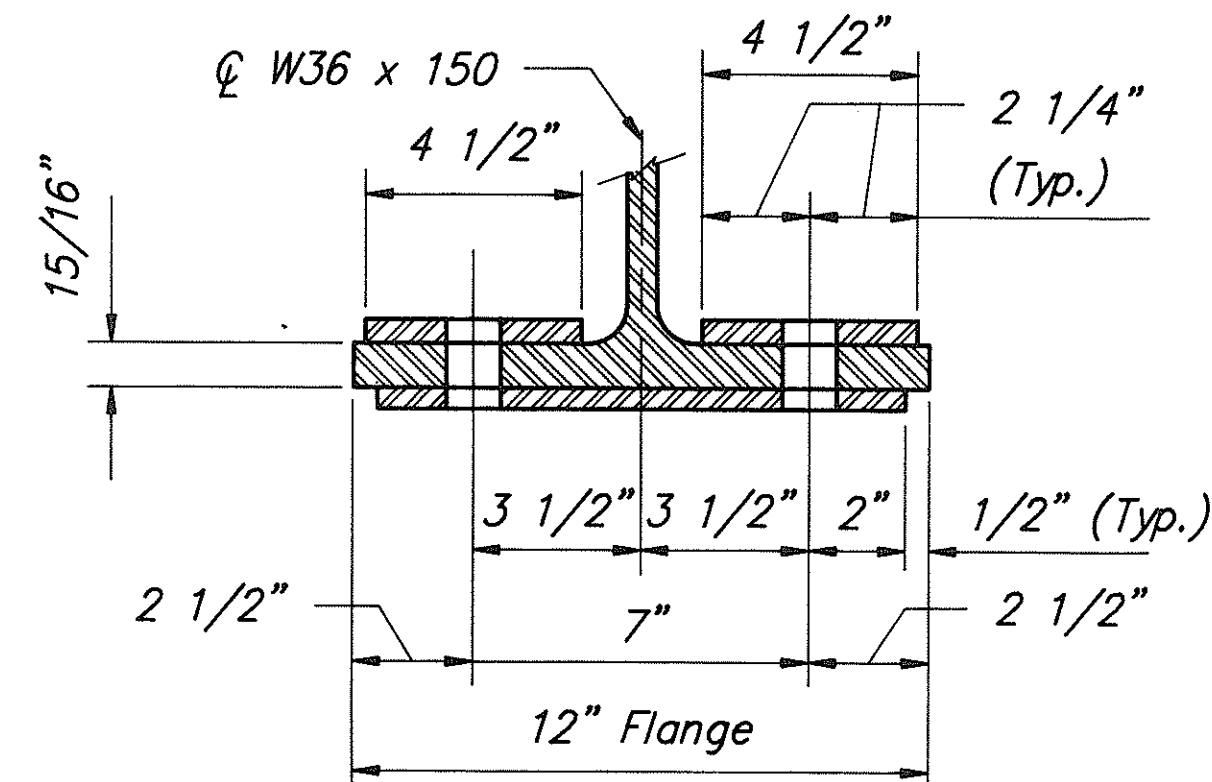
TYPICAL NEW EXTERIOR BEAM ELEVATION



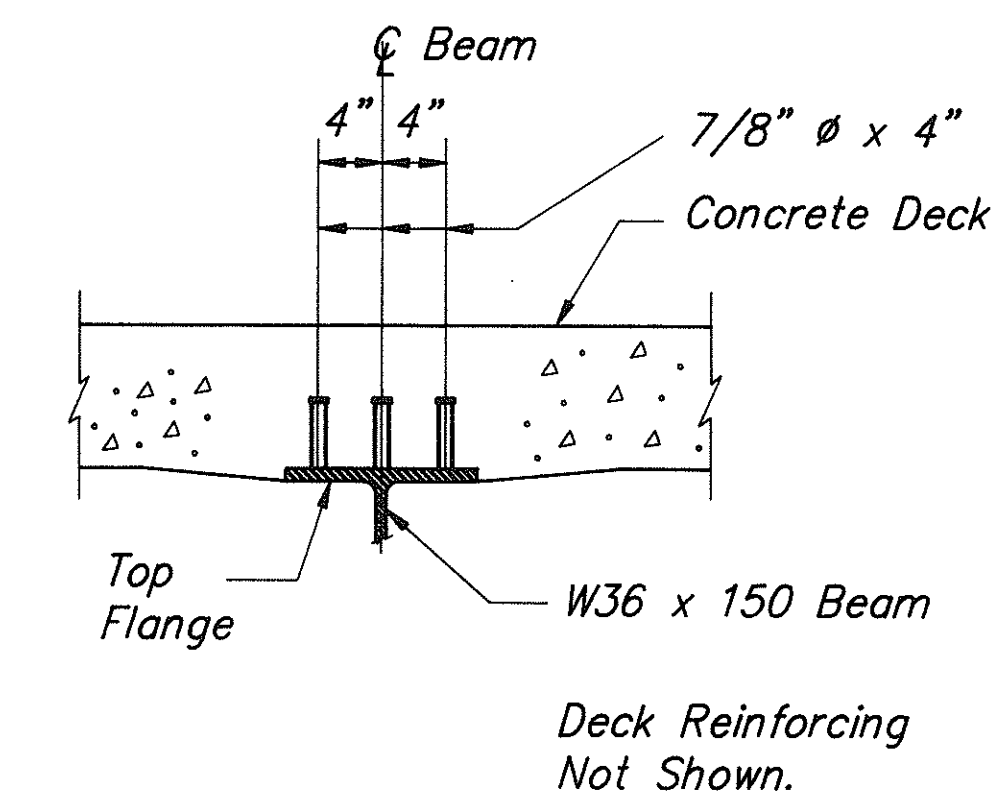
ELEVATION - FIELD SPLICE NO. 1 & NO. 2
(Optional Splices - Same)



TYPICAL TOP AND BOTTOM FLANGE SPLICE DETAIL



SECTION E-E
(Typical Top & Bottom)

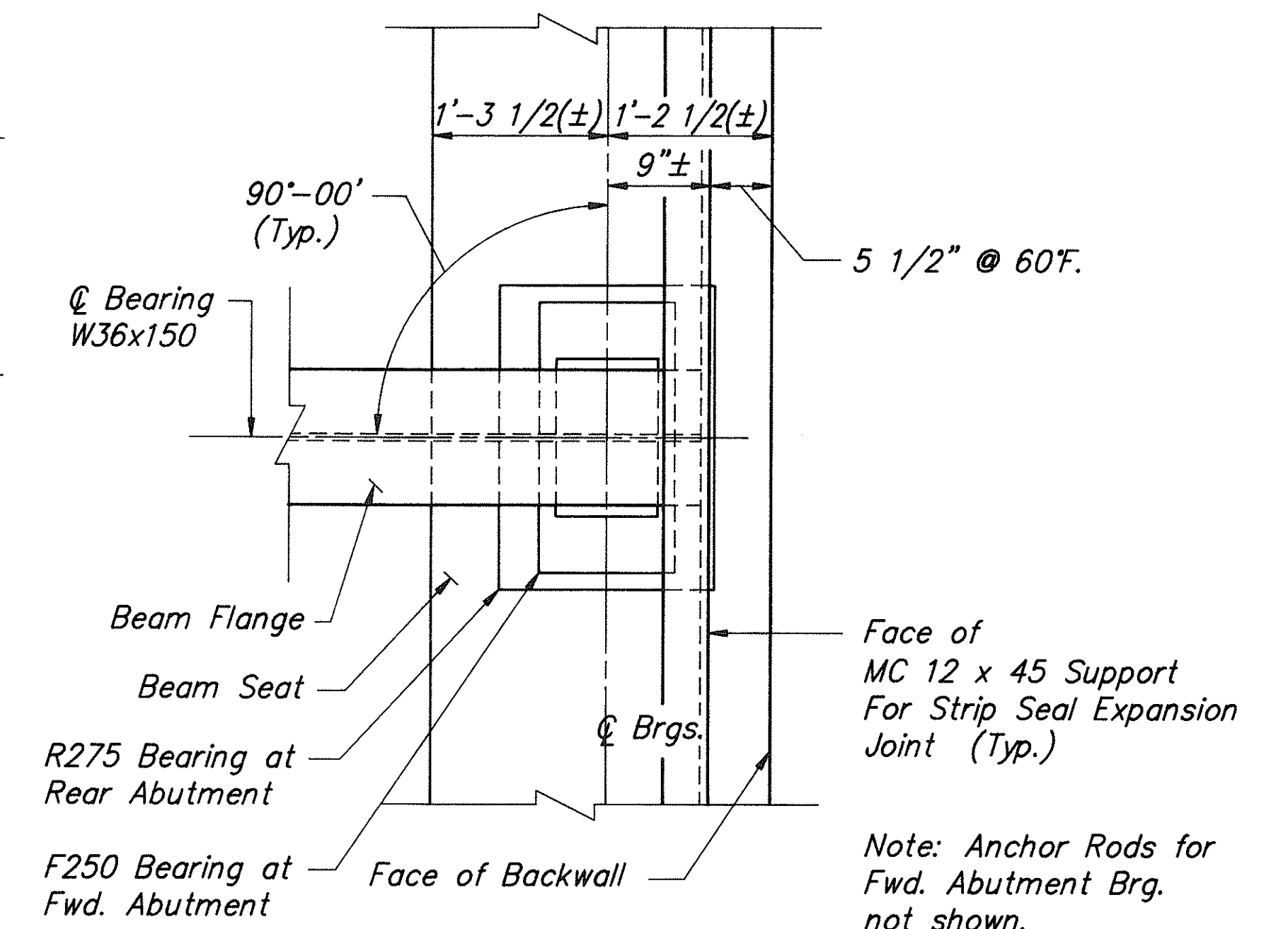


TYPICAL SECTION SHEAR CONNECTOR DETAIL

For Existing Beam Shear Connector Spacing,
See Existing Beam Elevation on Sheet 9/18

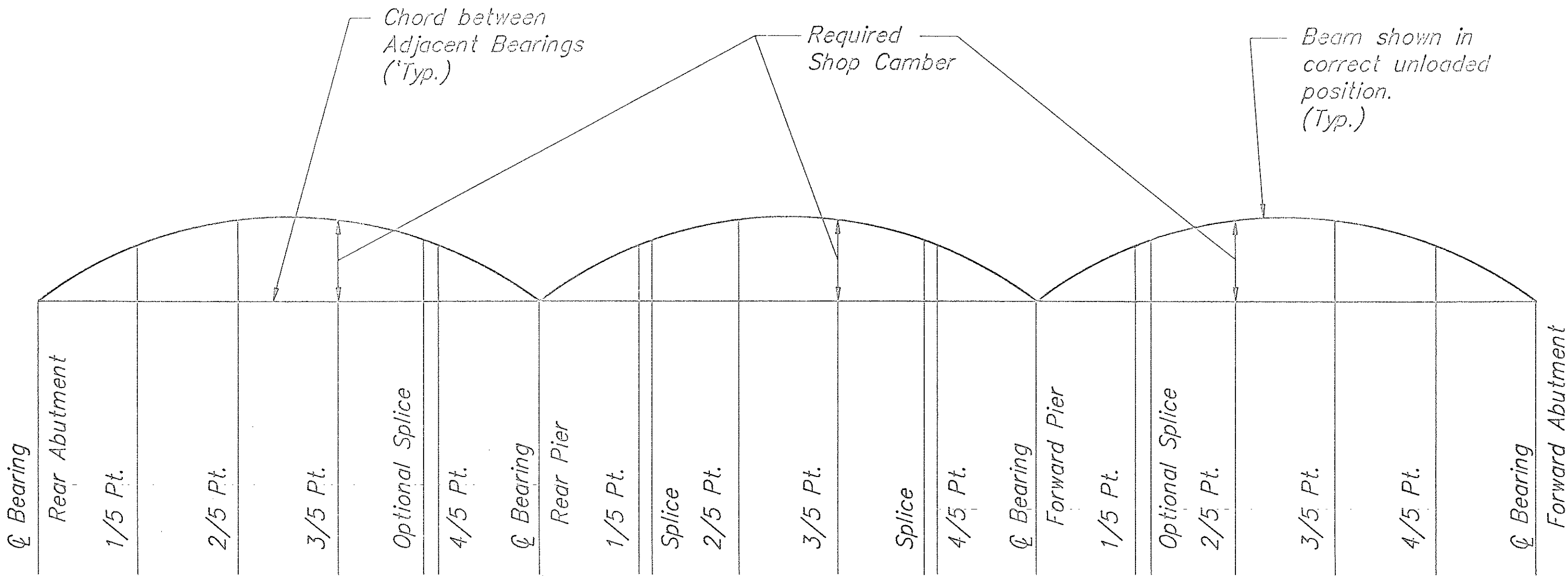
For Steel Notes See Sheet 9 / 18

For Steel Framing Plan and Scupper
Spacing, See Sheet 8/18



TYPICAL BEAM ENDING DETAIL

CAMBER																					
LOCATION	BEAM LINE	SPAN 1						SPAN 2						SPAN 3							
		℄ Brg.	1/5Pt.	2/5Pt.	3/5Pt.	Opt. Spl.	4/5Pt.	℄ Brg.	1/5Pt.	Spl.	2/5Pt.	3/5Pt.	Spl.	4/5Pt.	℄ Brg.	1/5Pt.	Opt. Spl.	2/5Pt.	3/5Pt.	4/5Pt.	℄ Brg.
Camber	1 AND 8	0	5/8"	15/16"	13/16"	3/8"	3/8"	0	3/16"	1/4"	1/2"	1/2"	1/4"	3/16"	0	3/8"	3/8"	13/16"	15/16"	5/8"	0



CAMBER DIAGRAM

SHEET 11/18

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS
BRIDGE NO. PE-17-24
WALNUT RD. OVER TUSCARAWAS RIVER

STARK COUNTY

DESIGNED
C.D.

DRAWN
C.D.

TRACED

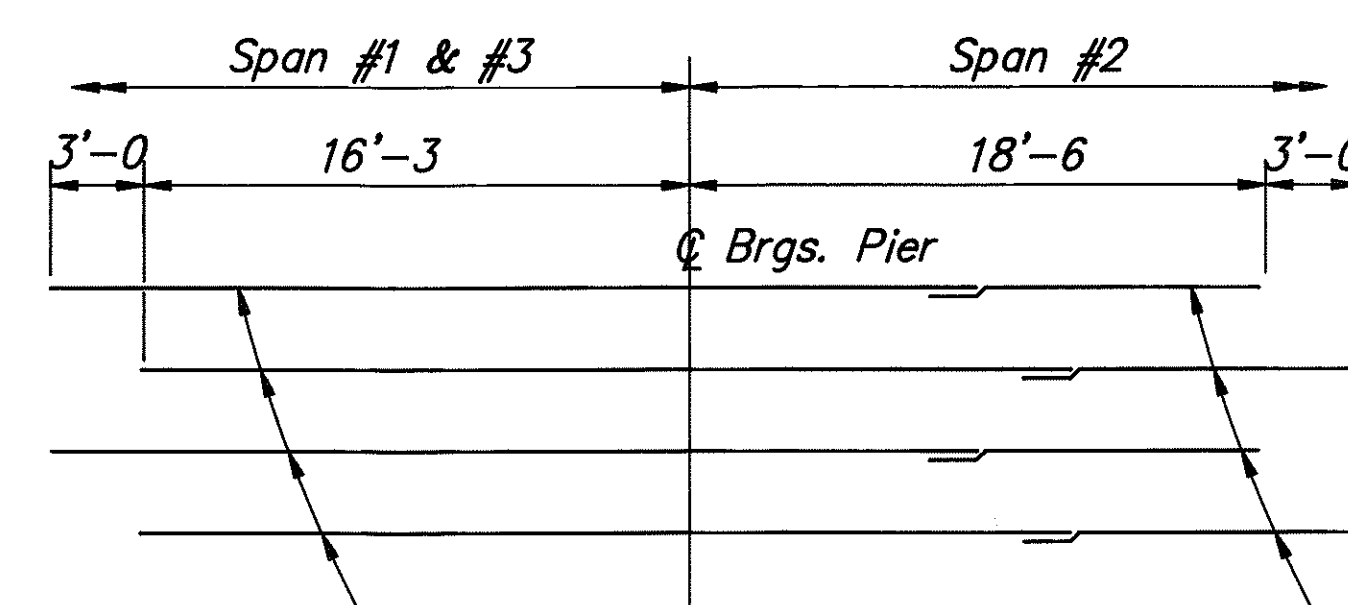
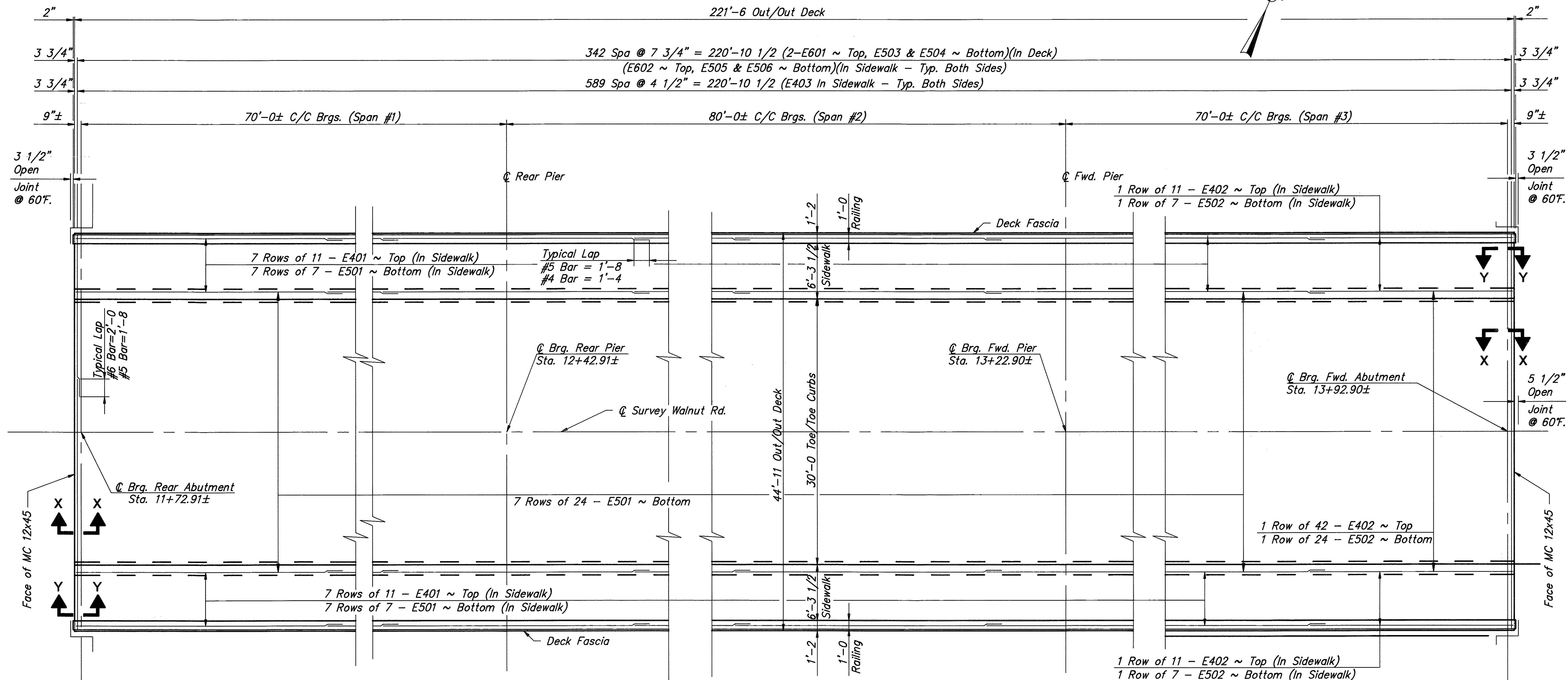
CHECKED
ZRD

REVIEWED
JMG

DATE
9/90

REVISED

STA. 11+69.70
STA. 13+96.11



STAGGER SYSTEM OF
E501 & E508 BARS OVER PIERS

DECK PLAN

For Section X-X, See Sheet 17/18

For Section Y-Y, See Sheet 16/18

For Transverse Section, See Sheet 7/18

For Railing Details, See Sheet 13/18

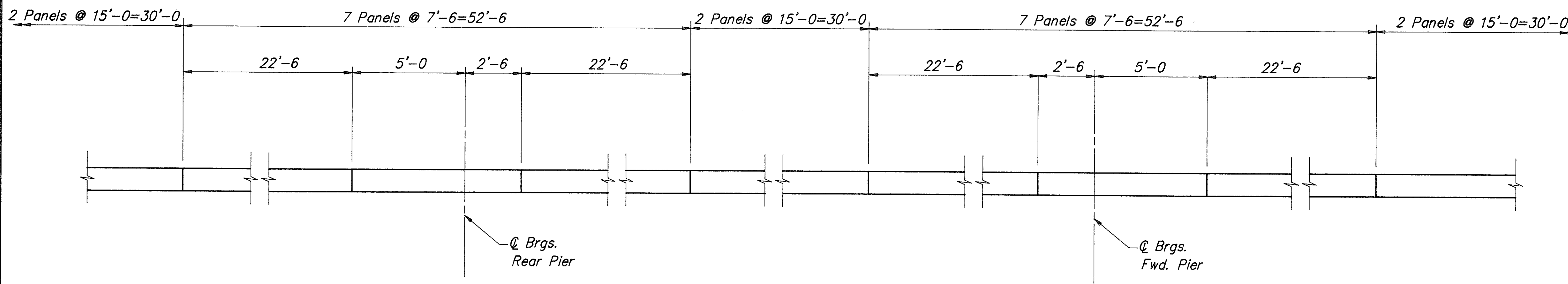
SHEET 12/18

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

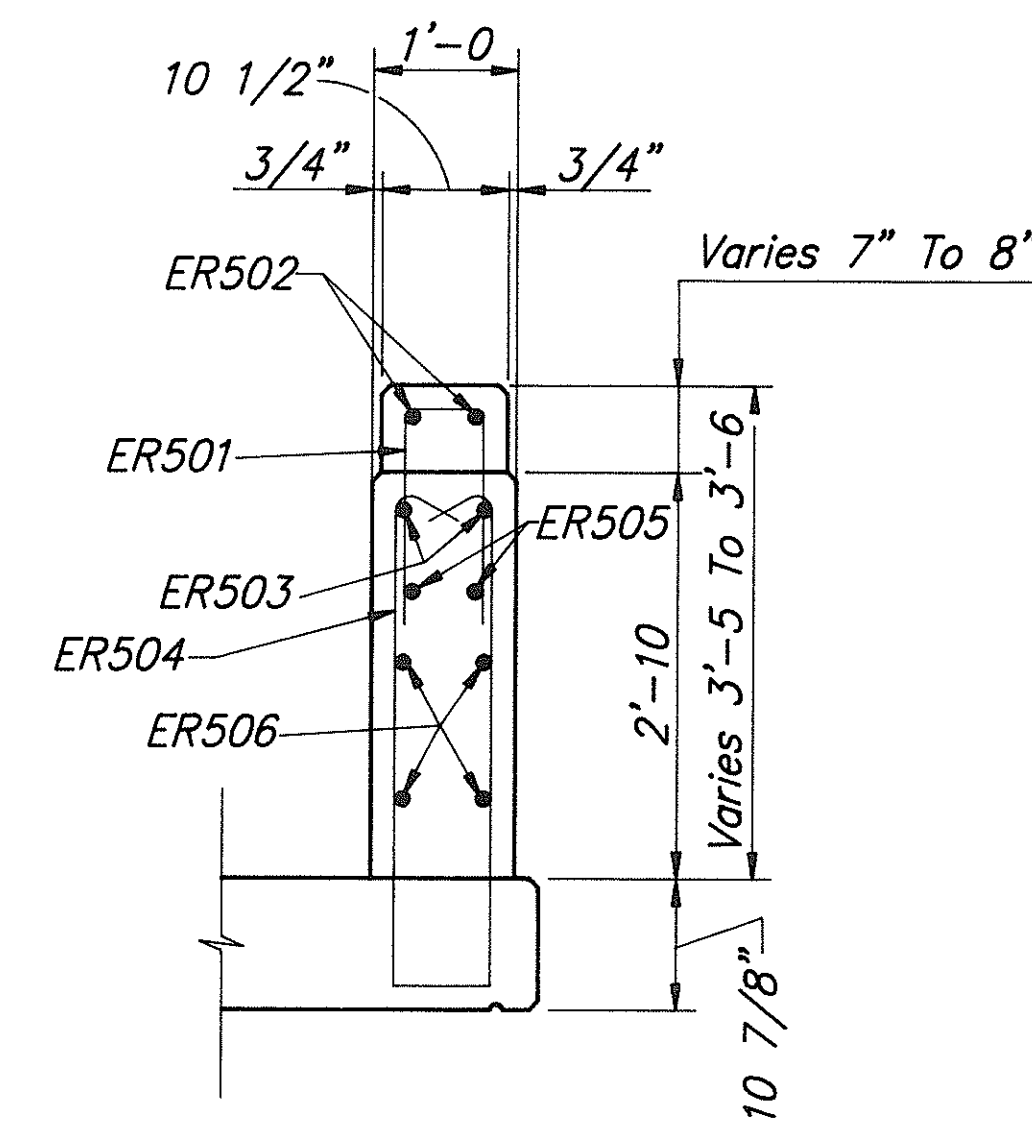
SUPERSTRUCTURE DETAILS
BRIDGE NO. PE-17-24
WALNUT RD. OVER TUSCARAWAS RIVER

STARK COUNTY STA. 11+69.70
STA. 13+96.11

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		ZRD	JMS	9/90	

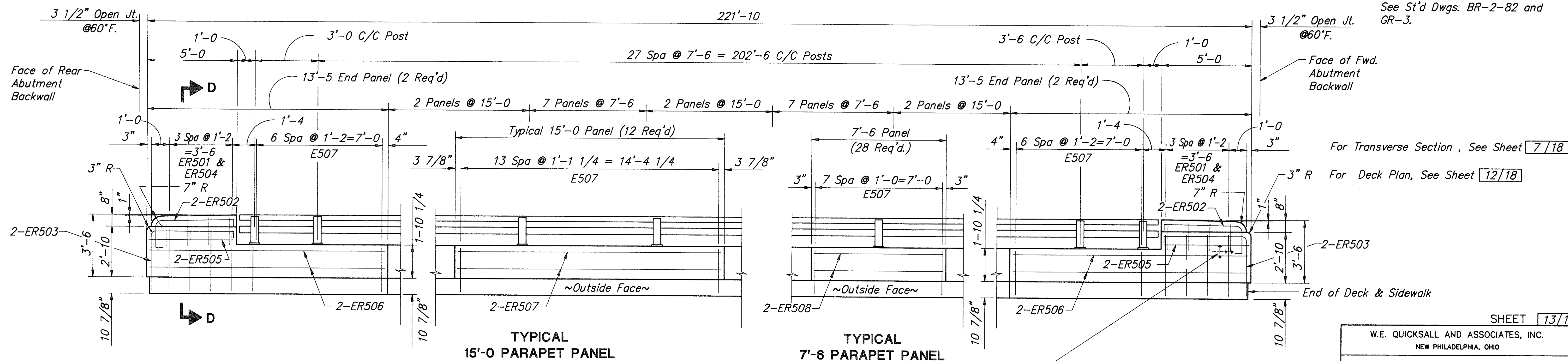


PLAN OF LEFT AND RIGHT RAILING PARAPET PANEL
DEFLECTION JOINTS AT PIERS



SECTION D-D

Note: For Additional Railing Details & Guardrail Attachment Location, See St'd Dwgs. BR-2-82 and GR-3.



For Transverse Section, See Sheet 7/18

For Deck Plan, See Sheet 12/18

SHEET 13/18

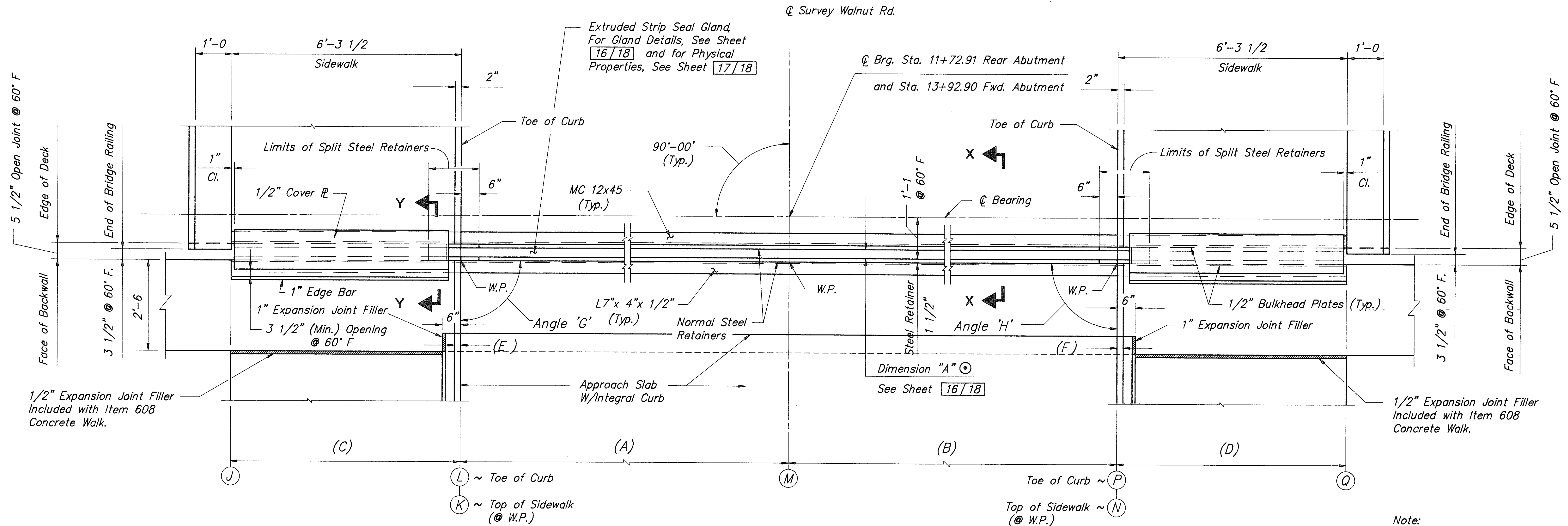
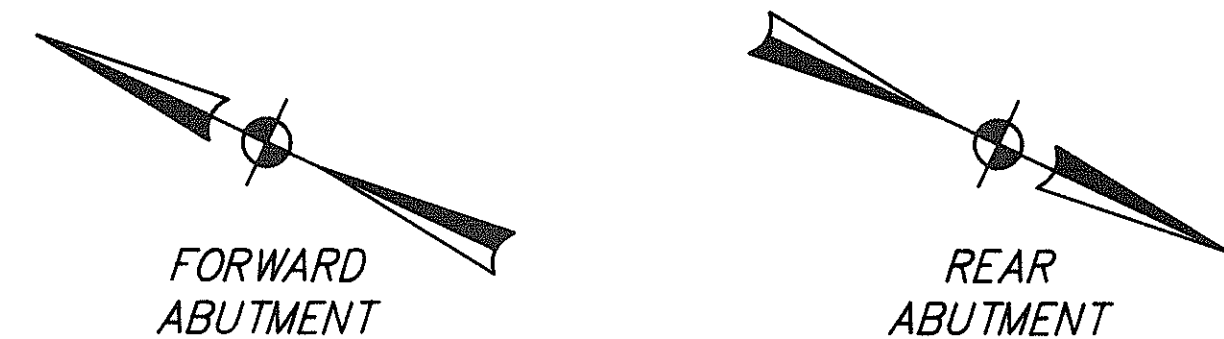
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

SUPERSTRUCTURE DETAILS

BRIDGE NO. PE-17-24
WALNUT RD. OVER TUSCARAWAS RIVER
STARK COUNTY
STA. 11+69.70
STA. 13+96.11

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
FDH	FDH		ZRD	JMG	9/90	

Provide guardrail attachment (East End Only), left & right parapets on inside face. For inserts and terminal assembly see St'd dwgs. GR-1 & GR-3. Terminal Assembly shall be slotted and bolts tightened as specified for expansion joints per CMS 606.05 to allow for bridge movement.



PLAN
 Rear Abutment (As Shown & Noted)
 Fwd. Abutment (As Shown & Noted)

Note:
 W.P. - Denotes Work Point

Note: Dimensions and elevations given are at the top edge and face of the backwall steel.

POINT	DIMENSION						ANGLE		ELEVATION						
	(A)	(B)	(C)	(D)	(E)	(F)	'G'	'H'	(J)	(K)	(L)	(M)	(N)	(P)	(Q)
REAR ABUTMENT	15'-0	15'-0	6'-3 1/2	6'-3 1/2	2"	2"	90°-00'-00"	90°-00'-00"	944.88	944.75	943.92	944.15	944.75	943.92	944.88
FWD. ABUTMENT	15'-0	15'-0	6'-3 1/2	6'-3 1/2	2"	2"	90°-00'-00"	90°-00'-00"	944.88	944.75	943.92	944.15	944.75	943.92	944.88

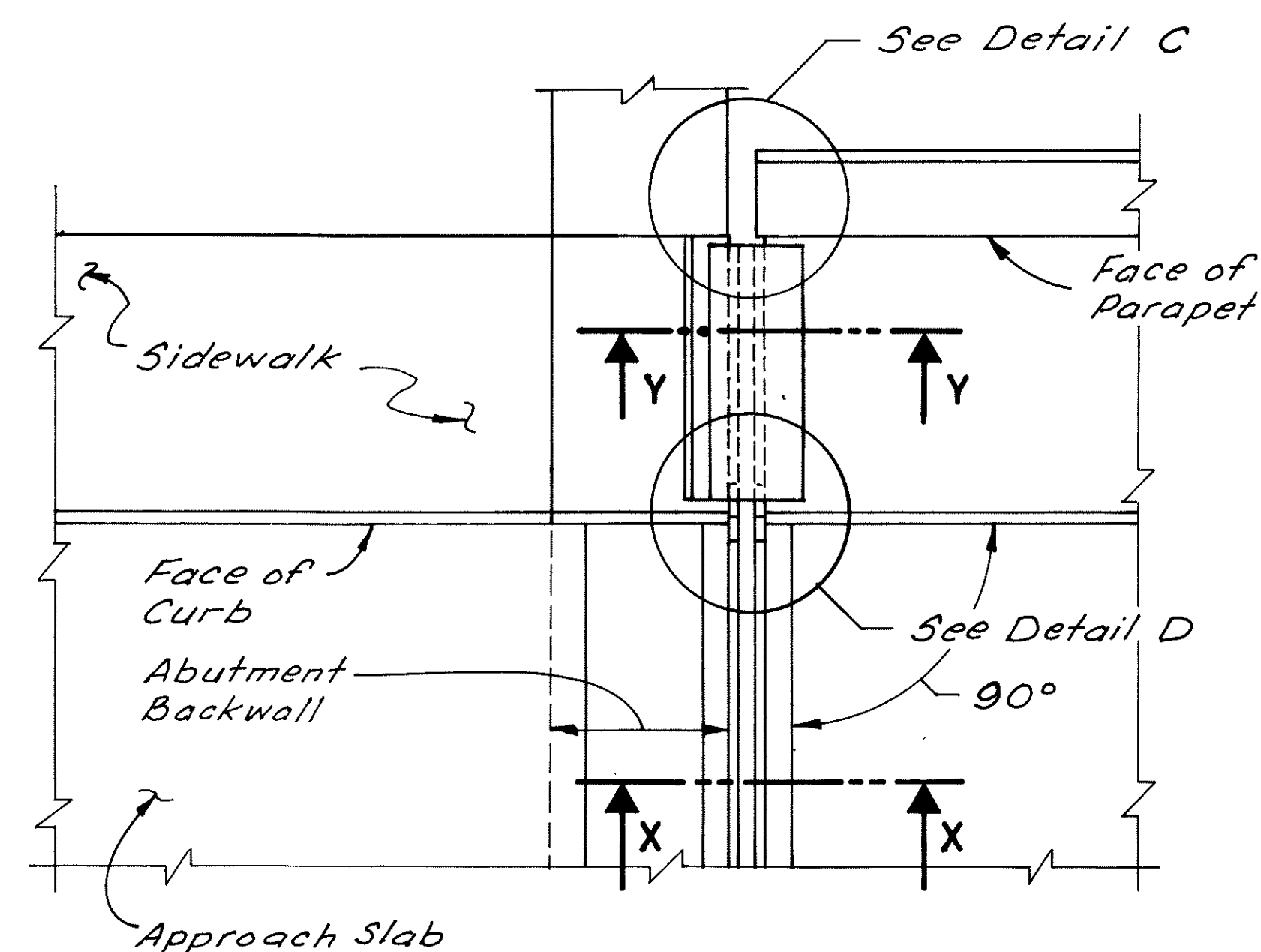
For Section X-X , See Sheet 17/18

For Section Y-Y , See Sheet 16/18

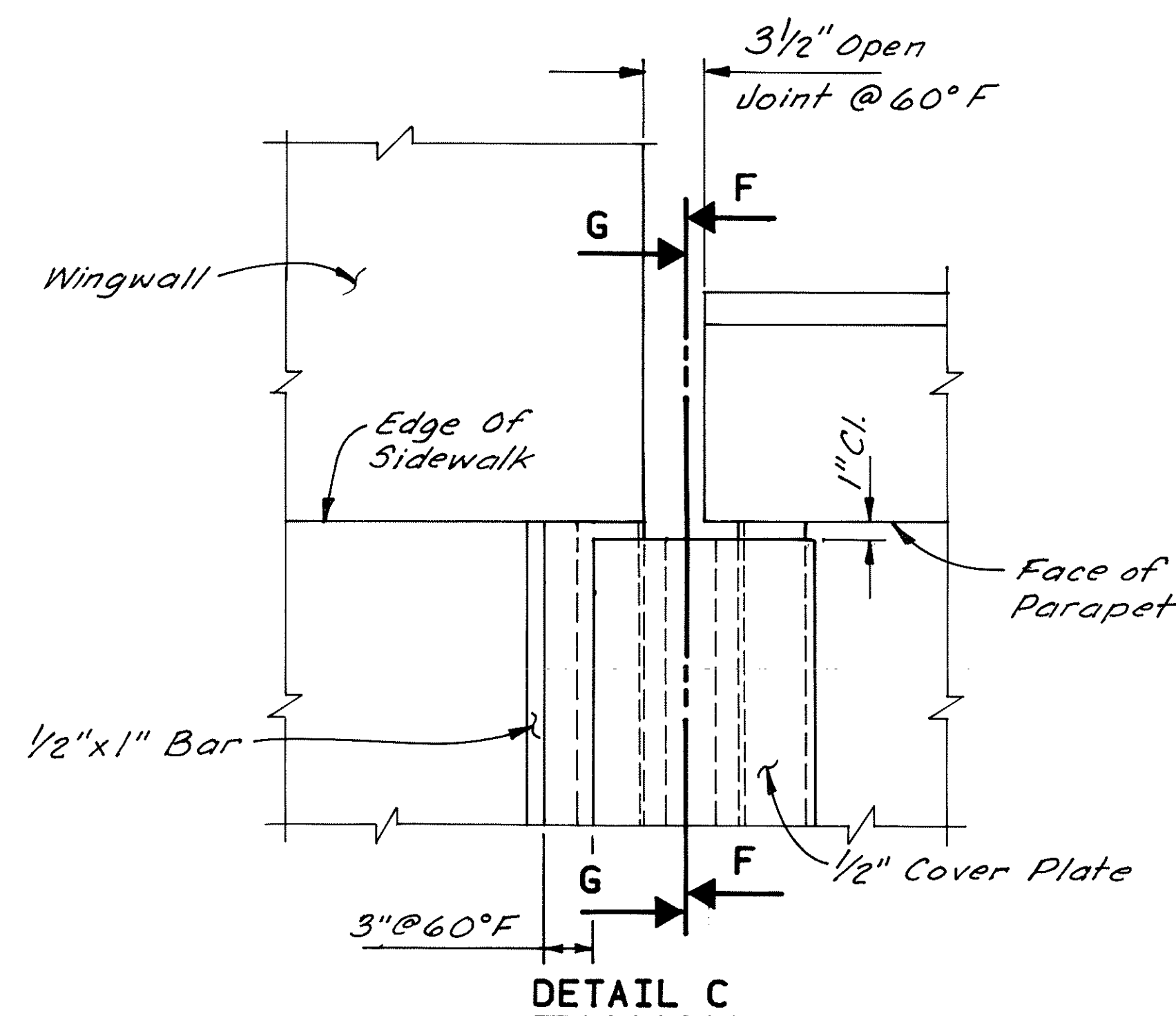
For Split Steel Retainer Detail
 See Sheet 16/18

For Strip Seal Expansion Joint Notes
 and Construction Procedures, See
 Sheet 17/18

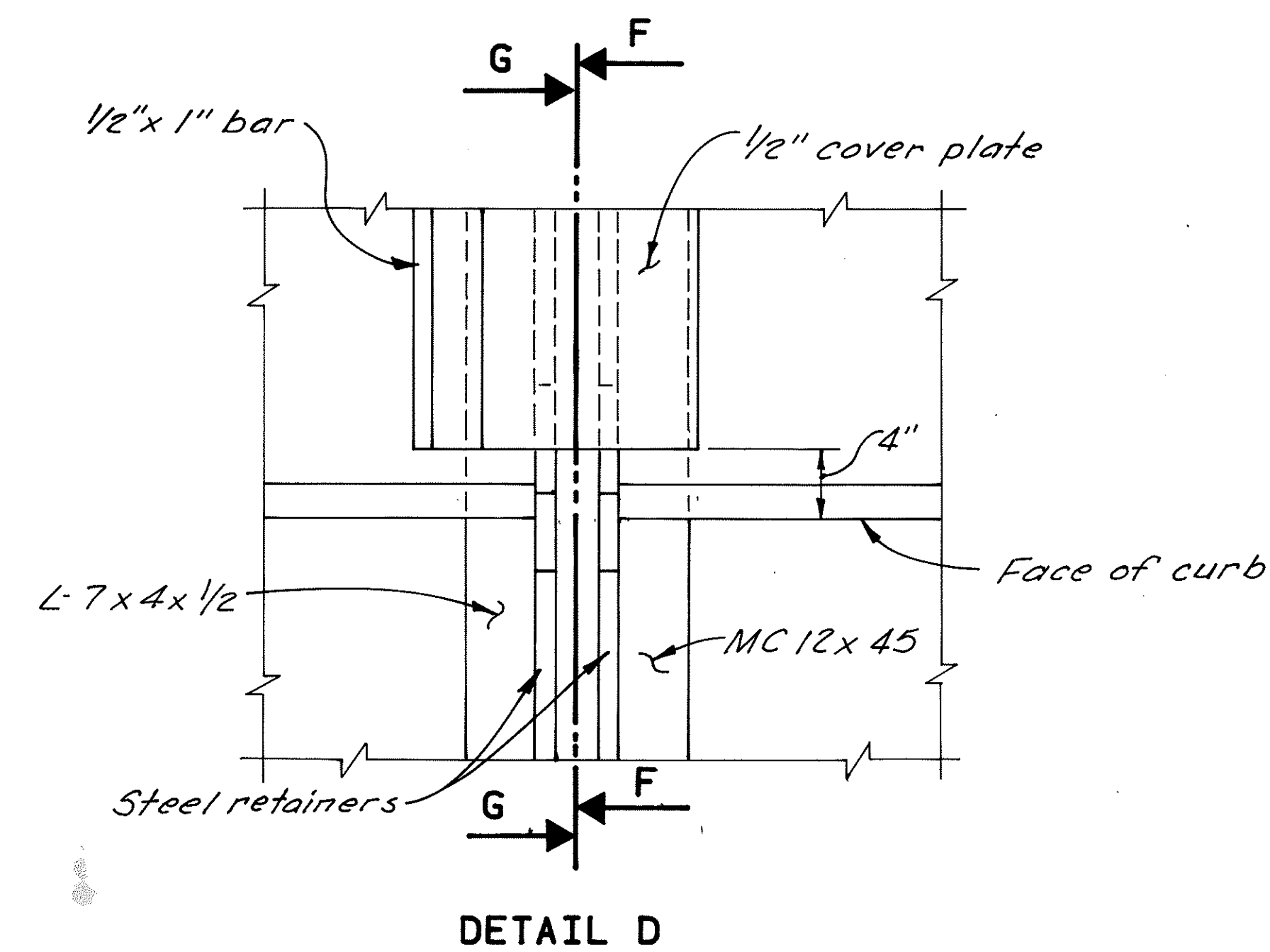
SHEET 14/18									
W.E. QUICKSALL AND ASSOCIATES, INC. NEW PHILADELPHIA, OHIO									
(STRIP SEAL)									
EXPANSION JOINT DETAILS									
BRIDGE NO. PE-17-24									
WALNUT RD. OVER TUSCARAWAS RIVER									
STARK COUNTY									
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED			
C.D.	C.D.		ZRD	JMS	9/90				



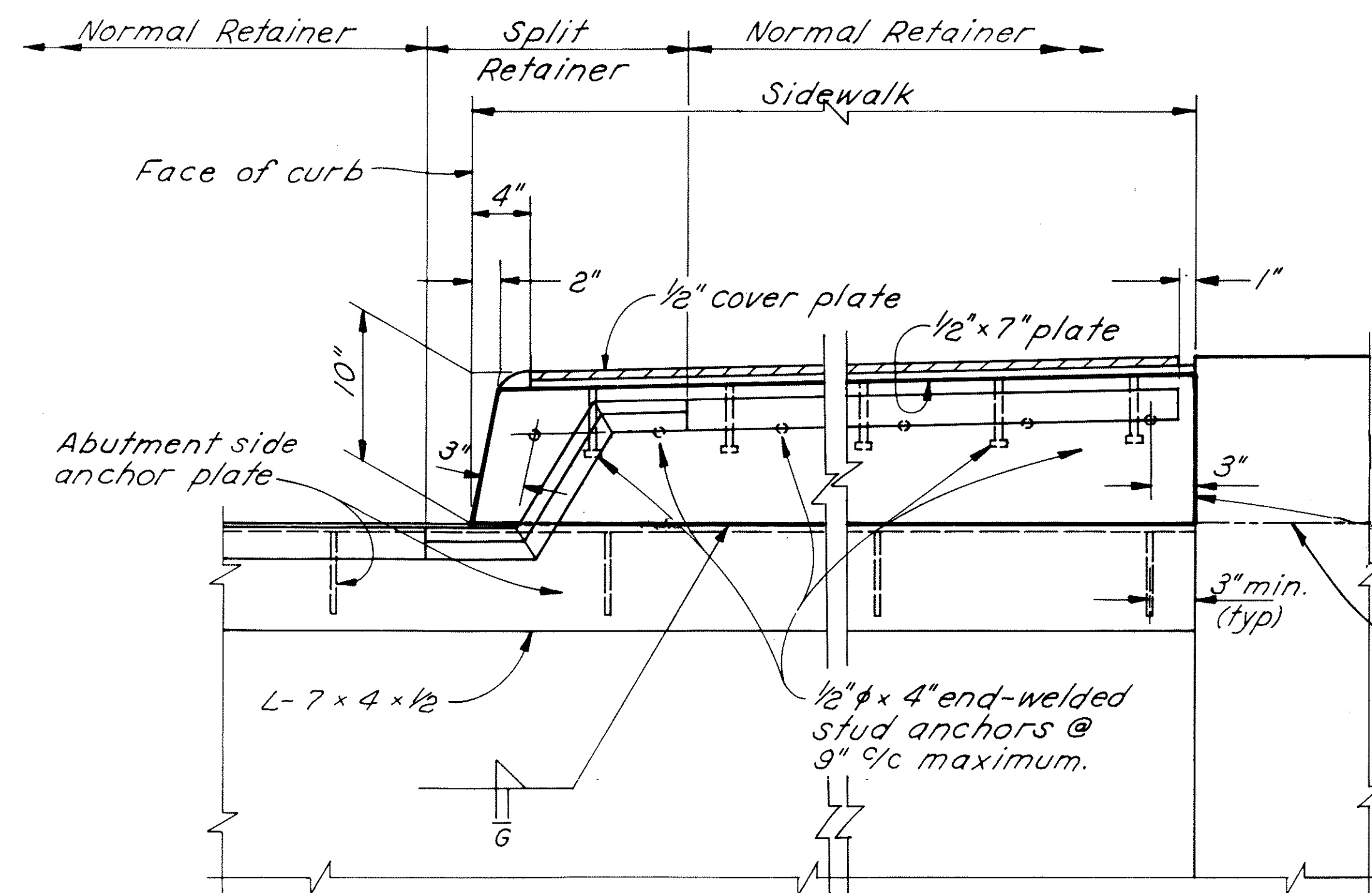
PART PLAN AT ABUTMENTS
FOR BRIDGE WITH SIDEWALK
PARAPET RAILING



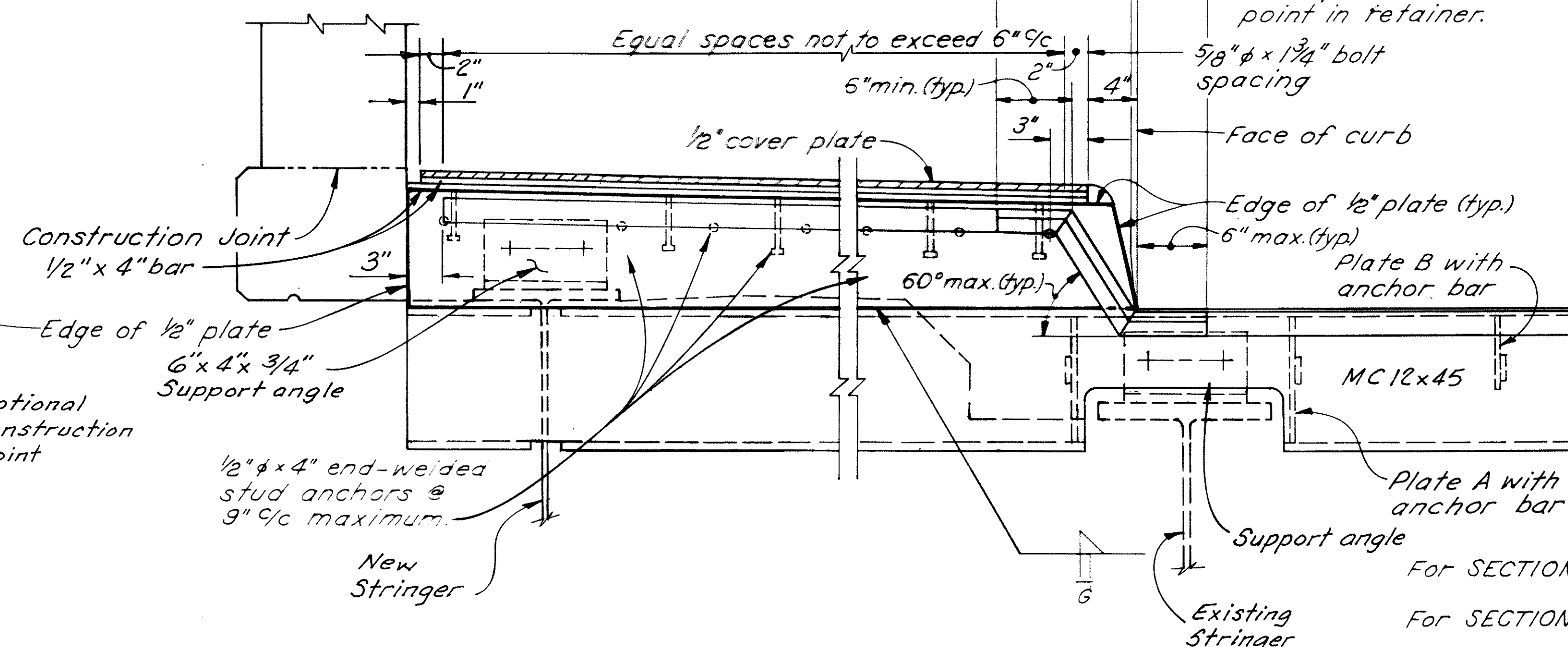
DETAIL C



DETAIL D



SECTION F-F



SECTION G-G

For SECTION X-X see sheet 17/18.
For SECTION Y-Y see sheet 16/18.

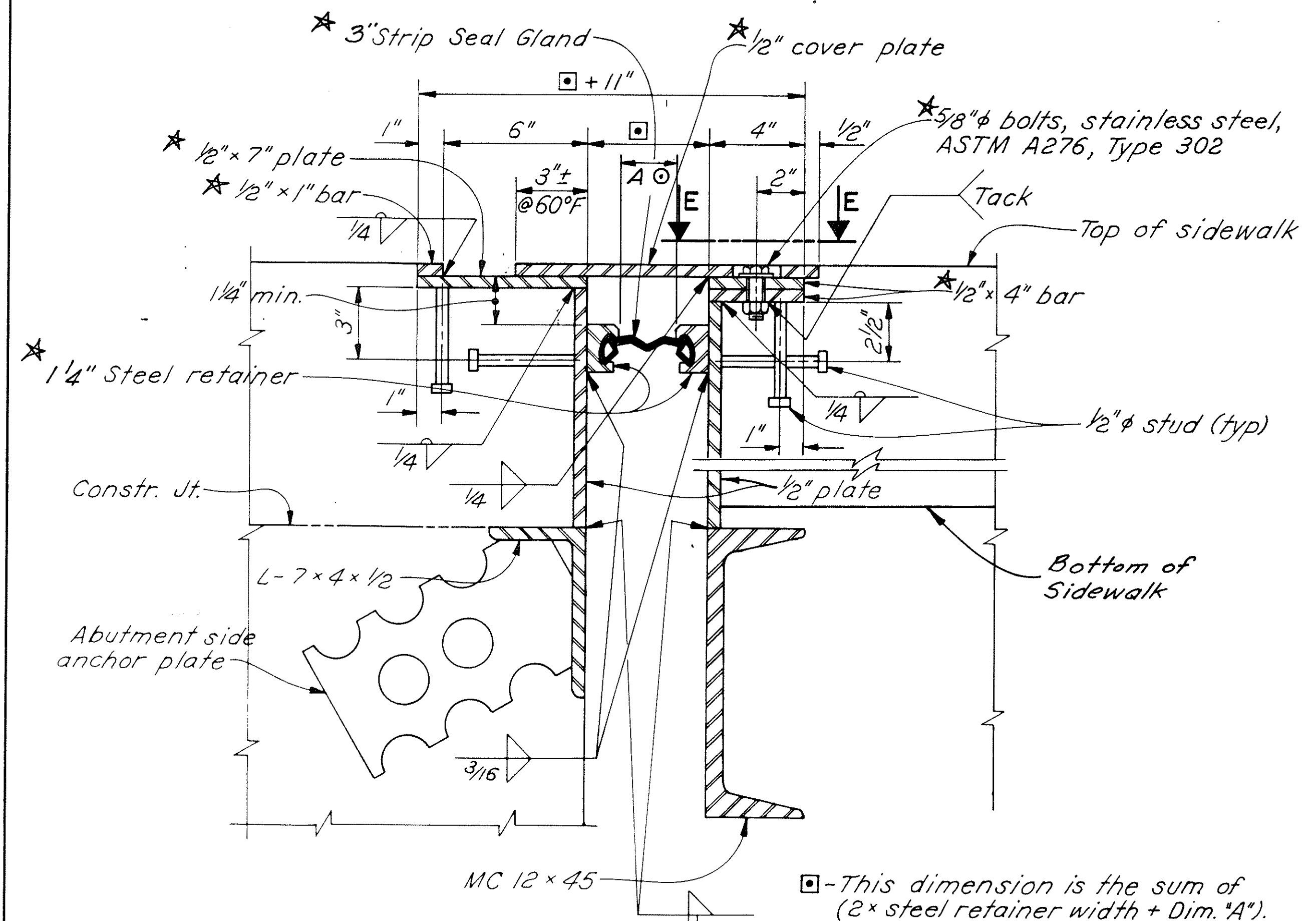
Sheet 15/18

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

(STRIP SEAL).
EXPANSION JOINT DETAILS
BRIDGE NO. PE-17-24
WALNUT RD. OVER TUSCARAWAS RIVER

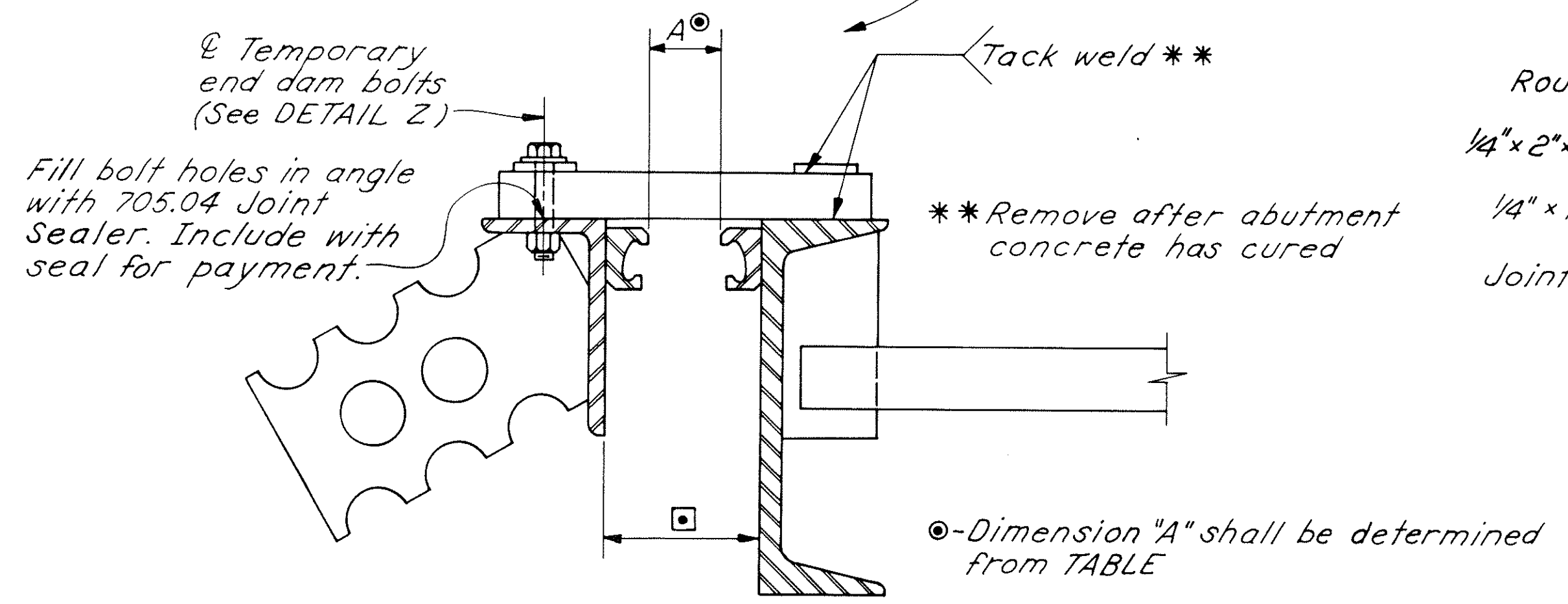
STA. 11+69.70
STA. 13+96.11

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WED	WED		ZRD	JMS	9/90	

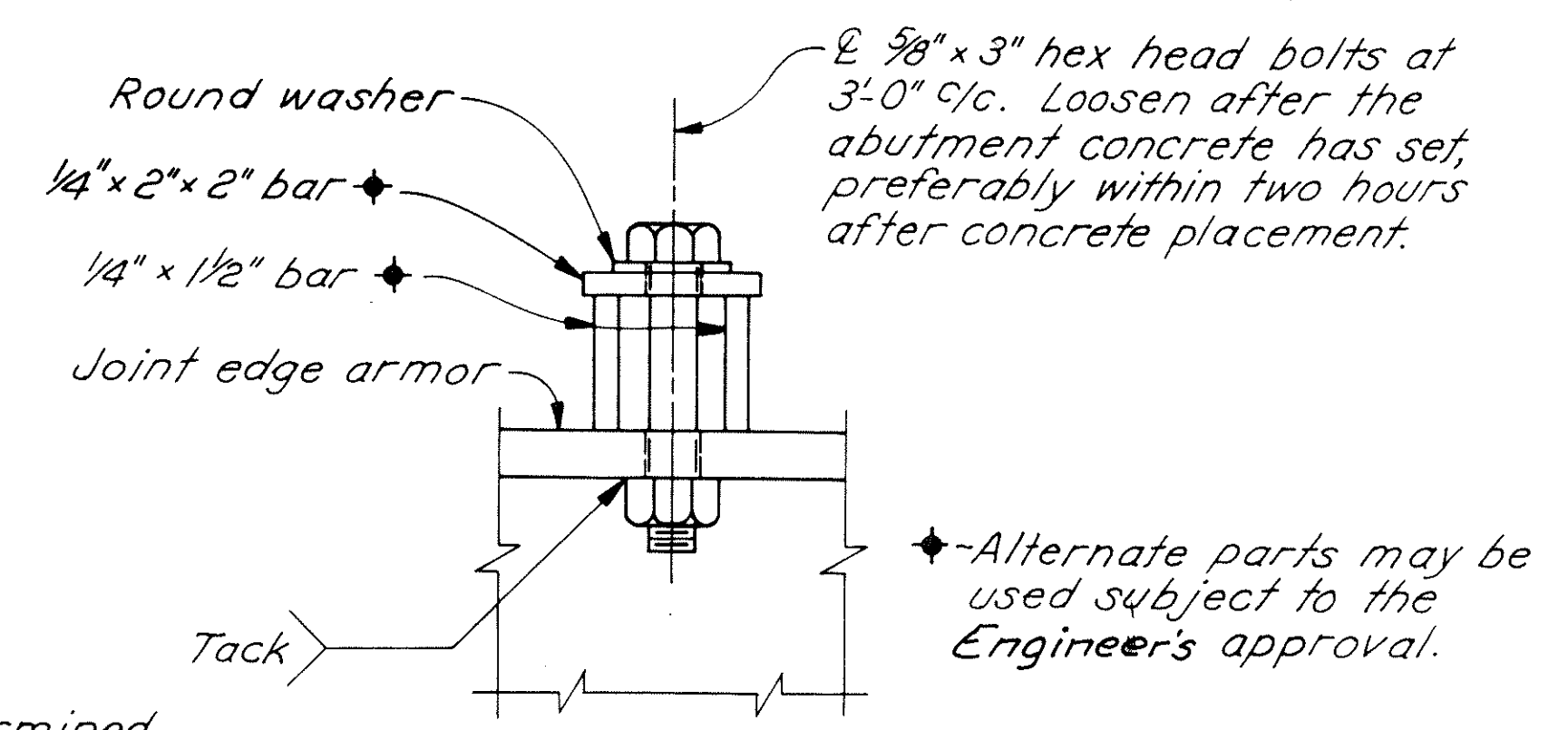


SECTION Y-Y
See SIDEWALK AND PARAPET JOINT ARMOR ANCHORS note on sheet

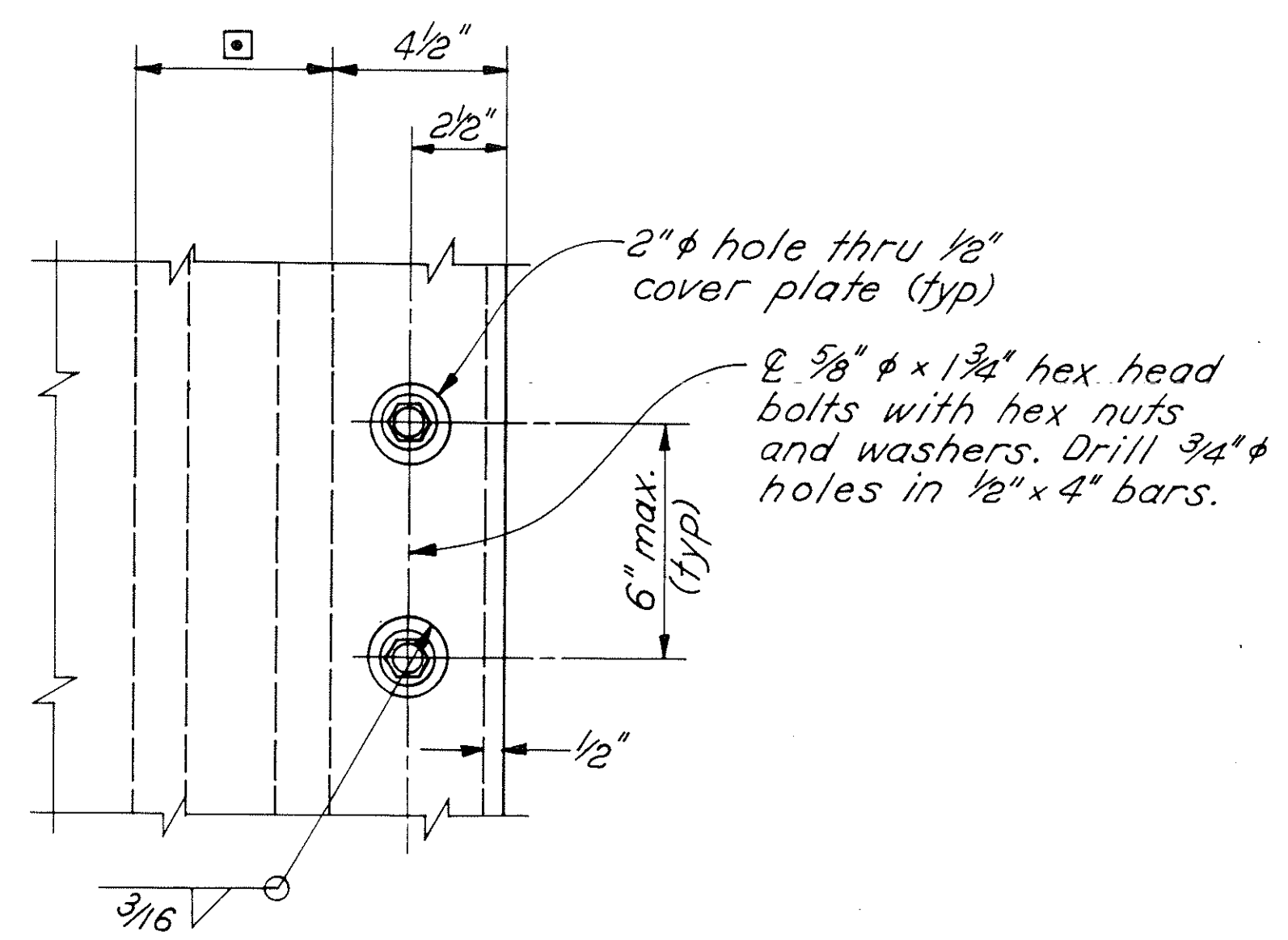
Support bars for roadway armor shown. Bars for sidewalk armor similar.



JOINT ARMOR ADJUSTMENT DETAIL

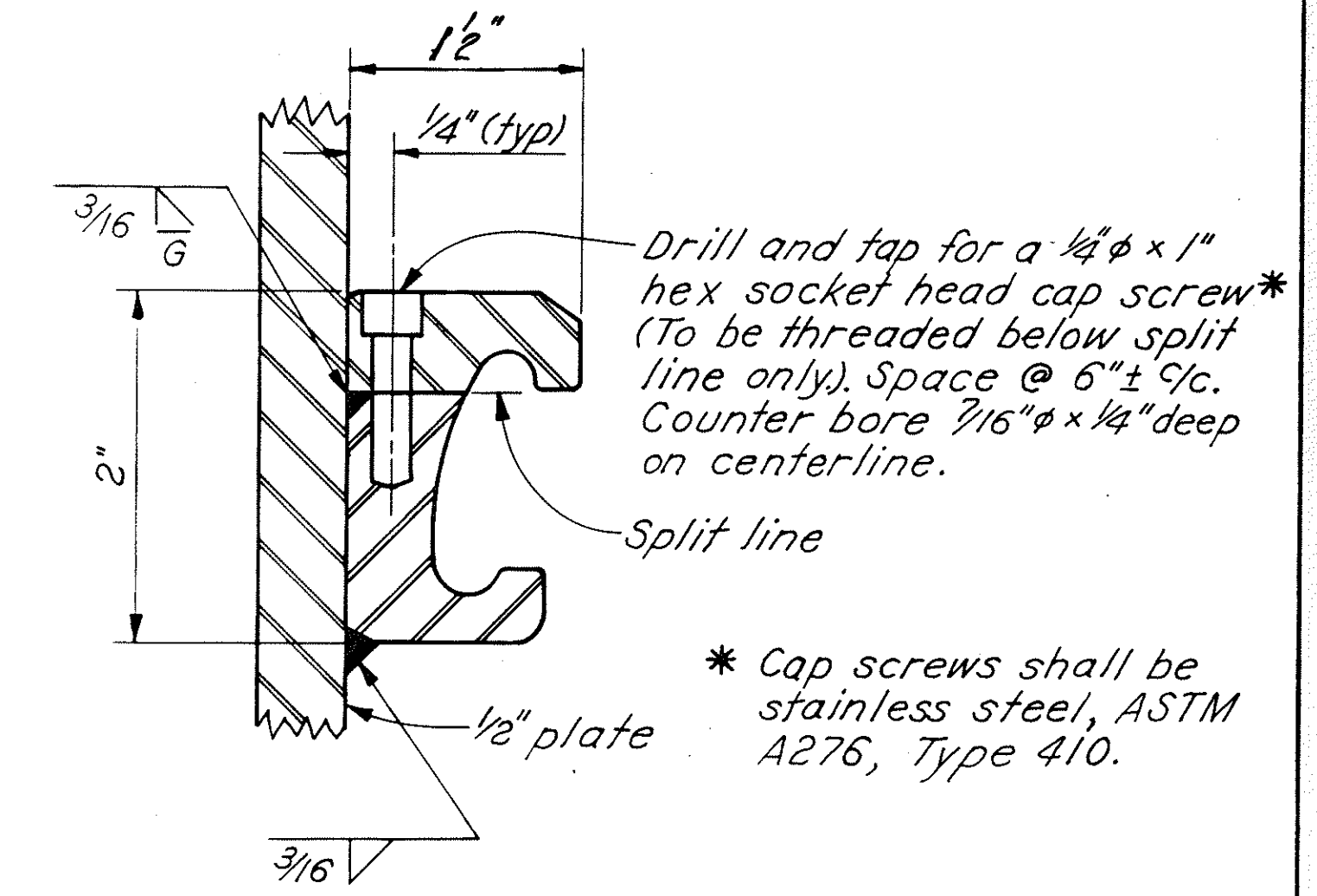


DETAIL Z
TEMPORARY SUPPORT BARS



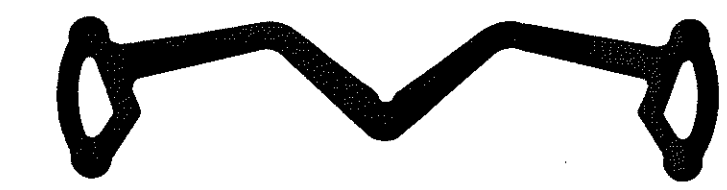
VIEW E-E

TEMP. F°	DIMENSION 'A' @	
	REAR ABUTMENT	FWD. ABUTMENT
30°	3 1/16" ±	2 1/2" ±
40°	2 7/8" ±	2 1/2" ±
50°	2 1/2" ±	2 1/2" ±
60°	2 1/2" ±	2 1/2" ±
70°	2 5/16" ±	2 1/2" ±
80°	2 3/8" ±	2 1/2" ±
90°	1 15/16" ±	2 1/2" ±



SPLIT RETAINER DETAIL
NORMAL RETAINER SIMILAR

The split retainer shown above is a normal retainer which has been modified as indicated. At joint upturns, especially on skewed bridge decks, the use of split retainers may be necessary to insure good seal gland installation. On shop drawings, where the split retainer is not used, the seal gland Manufacturer or his agent warrants to the Engineer that the furnished configuration will provide for ready installation and replacement of the gland.



STRIP SEAL GLAND TABLE			
SEAL MOVEMENT RATING	MANUFACTURER & DESIGNATION ‡		
	D. S. BROWN	STRUCTURAL ACCESSORIES	WATSON BOWMAN & ACME
3"	SS300	—	S-300
4"	SS400	40SEQ	S-400
5"	SS500	50SEQ	S-500

‡ OR AN APPROVED ALTERNATE

For location of SECTION X-X see sheet 17/18.

Sheet 16/18

W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

(STRIP SEAL).
EXPANSION JOINT DETAILS
BRIDGE NO. PE-17-24
WALNUT RD. OVER TUSCARAWAS RIVER

DESIGNED

DRAWN

TRACED

CHECKED

REVIEWED

DATE

REVISED

2/11/90

2/11/90

2/11/90

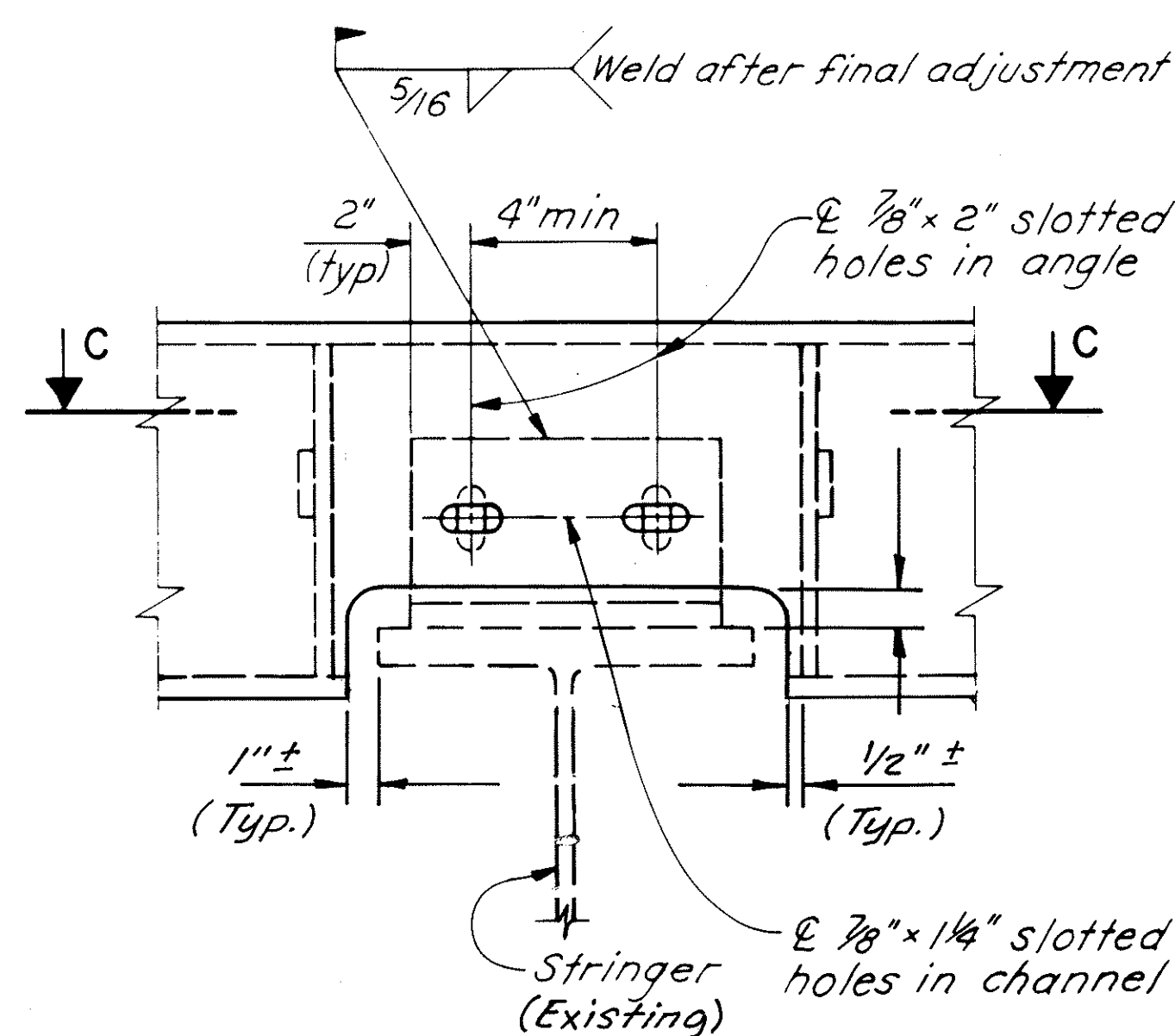
2/11/90

2/11/90

2/11/90

STA. 11+69.70
STA. 13+96.11

STARK COUNTY



EXPANSION JOINT NOTES

MATERIALS: A588 OR A36 WITH PAINT AS SPECIFIED FOR THE MAIN STRUCTURAL STEEL, EXCEPT THAT SYSTEM OZEU SHALL BE USED WHEN THE MAIN STRUCTURAL STEEL IS TO REMAIN UNPAINTED. PAINTING SHALL BE DONE IN THE FIELD EXCEPT THAT A WASH COAT OF PRIMER SHALL BE APPLIED IN THE SHOP TO ALL SURFACES, INCLUDING THOSE TO BE EMBEDDED IN CONCRETE, TO PREVENT RUSTING AND RUST RUN-OFF. THE WASH COAT SHALL BE REMOVED FROM ALL SURFACES BY SANDBLASTING DURING SURFACE PREPARATION FOR THE FIELD PAINTING. THE FIELD PAINT SHALL CONSIST OF ONE PRIME COAT FOR SYSTEM A & OZEU OR TWO PRIME COATS FOR SYSTEM B, ONE INTERMEDIATE COAT FOR SYSTEM OZEU, AND ONE FINISH COAT FOR THE SYSTEM USED. A CLOSED CELL BACKER ROD OR SIMILAR MATERIAL SHALL BE INSERTED INTO THE RETAINER GROOVES TO MASK THEM OFF DURING THE PAINTING. STEEL PORTIONS OF THE JOINTS THAT ARE TO BE ENCASED IN CONCRETE OR SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE MAY REMAIN UNPAINTED.

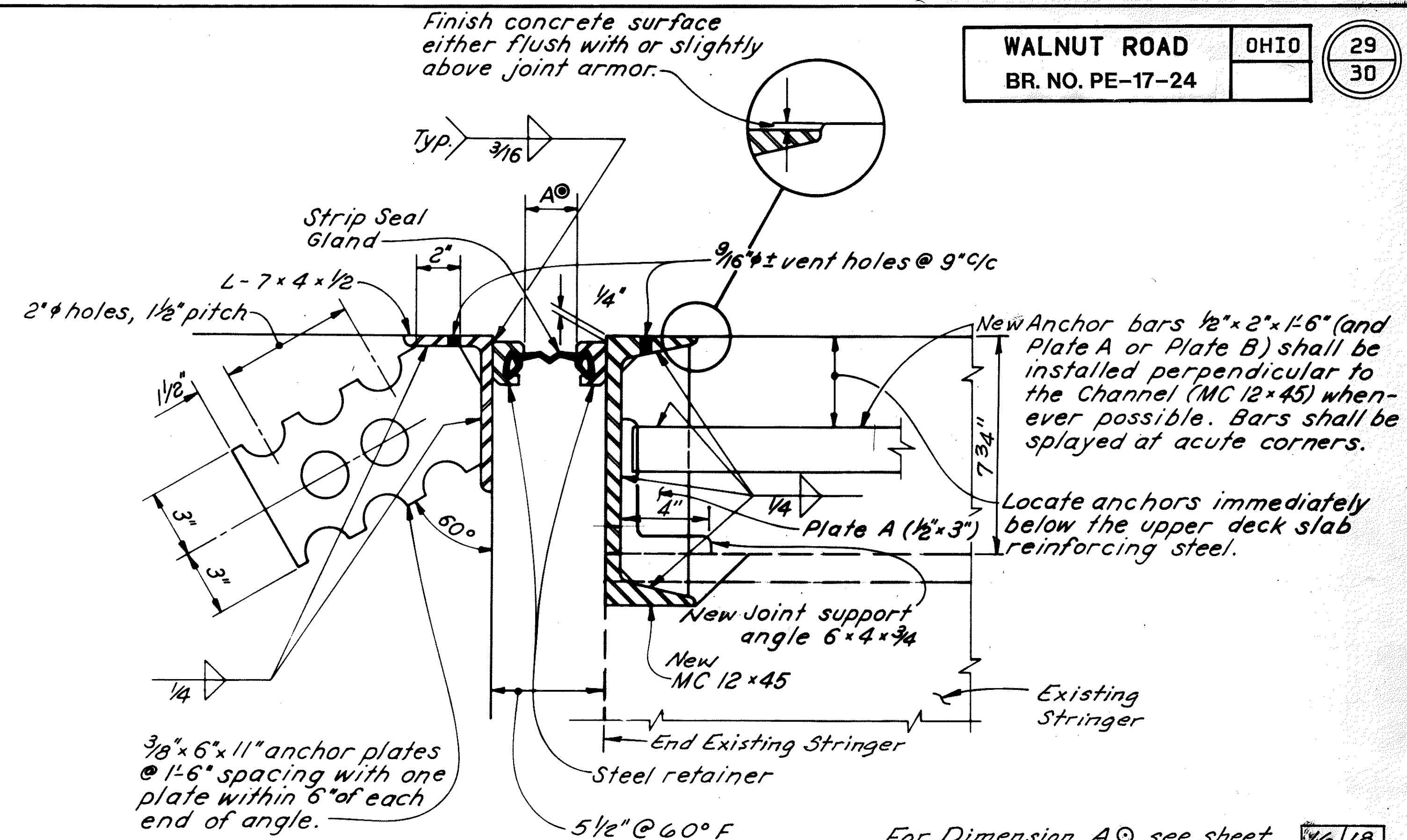
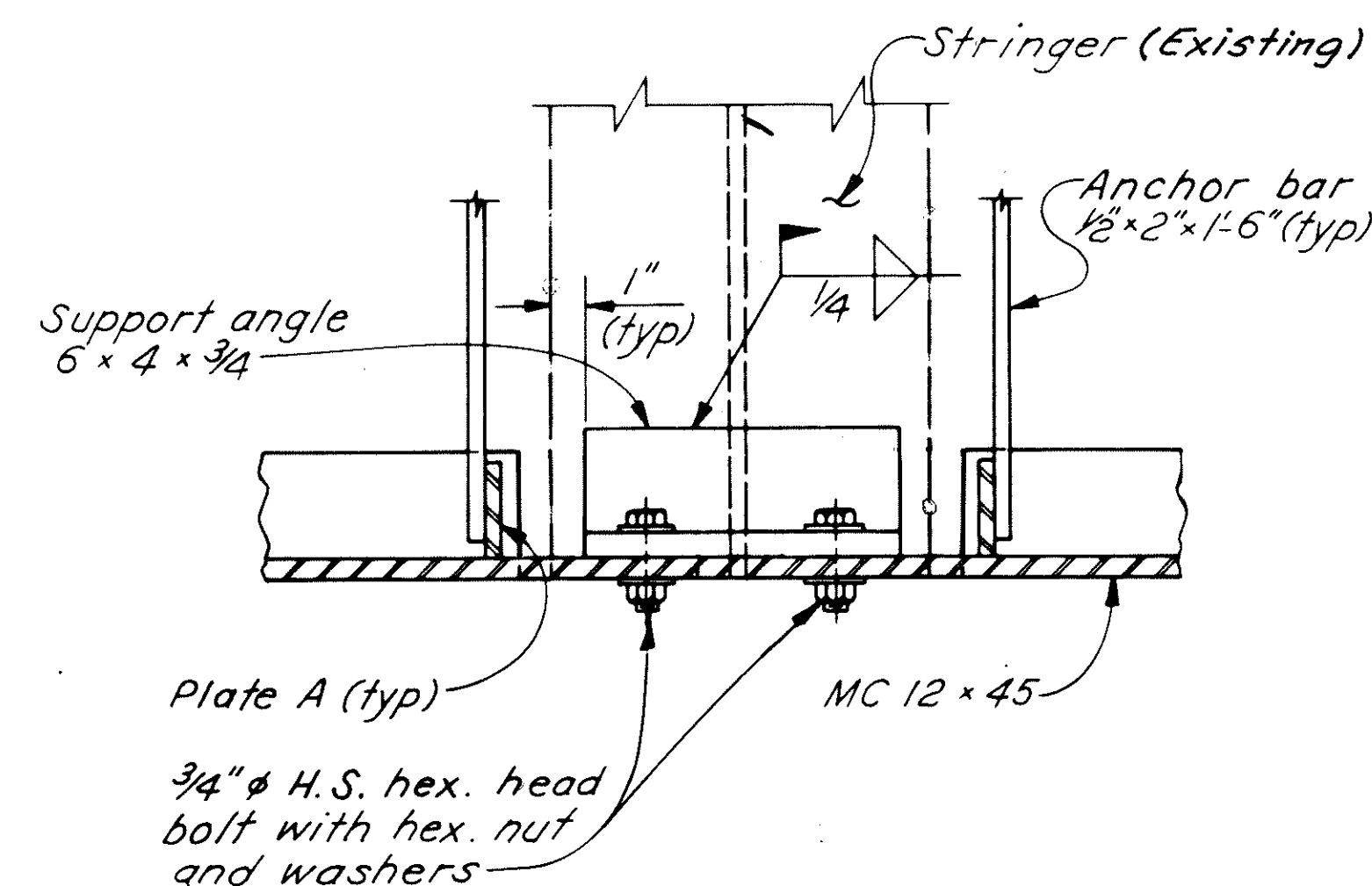
THE PREFORMED STRIP SEAL GLAND SHALL BE EXTRUDED POLYCHLOROPRENE MATERIAL MEETING THE REQUIREMENTS OF ASTM D2628. DUE TO THE CONFIGURATIONS OF THE STRIP SEAL, THE RECOVERY TESTS ARE NOT APPLICABLE. PHYSICAL PROPERTIES SHALL MEET THE REQUIREMENTS SPECIFIED IN TABLE 'E' THIS SHEET.

EACH LOT OF STRIP SEAL GLANDS SHALL BE TESTED BY THE MANUFACTURER OR AN ACCREDITED LABORATORY TO INSURE COMPLIANCE WITH THESE PROVISIONS. TWO CERTIFIED COPIES OF THE QUALIFICATION TEST DATA INDICATING THAT THE TESTED MATERIALS COMPLY WITH THESE PROVISIONS SHALL BE SUBMITTED TO THE TESTING LABORATORY.

EACH STRIP SEAL GLAND DESIGN, SHAPE, WIDTH, DEPTH AND THICKNESS SHALL BE APPROVED BY THE DIRECTOR. MATERIAL ACCEPTANCE WILL BE BASED UPON LABORATORY EVALUATION OF CERTIFIED TEST DATA AND THE TE-30 FIELD INSPECTION REPORT.

LUBRICANT - ADHESIVE USED TO INSTALL THE PREFORMED STRIP SEALS SHALL BE A POLYURETHANE AND HYDROCARBON SOLVENT MIXTURE AS SPECIFIED BY THE SEAL MANUFACTURER. IT SHALL HAVE SUITABLE CONSISTENCY AT THE TEMPERATURE AT WHICH THE SEALS ARE INSTALLED AND SHALL BE COMPATIBLE WITH THE SEALS AND THE STEEL RETAINERS.

PROPERTY	REQUIREMENT	ASTM METHOD
TENSILE STRENGTH, MIN. P. S. I.	2000	D412
ELONGATION AT BREAK, MIN. PERCENT	250	D412
HARDNESS, TYPE A DUROMETER	50 MIN. 65 MAX.	D2240 (MODIFIED)
OVEN AGING, 70 HR. AT 212° F TENSILE STRENGTH, LOSS, MAX. ELONGATION, LOSS, MAX. HARDNESS, TYPE A DUROMETER (POINTS CHANGE)	20 PERCENT 20 PERCENT 0 TO +10	5573
OZONE RESISTANCE 20 PERCENT STRAIN, 300 PPHM, IN AIR AT 104° F (WIPED WITH TOLUENE TO REMOVE SURFACE CONTAMINATION)	NO CRACKS	D1149



SECTION X-X

CONCRETE SURFACE ADJACENT TO DECK JOINTS SHALL BE FINISHED FLUSH WITH OR SLIGHTLY ABOVE THE STEEL JOINT SURFACE.

JOINTS: A WELDED BUTT JOINT MAY BE FURNISHED NEAR THE CENTERLINE OF THE ABUTMENT BACKWALL AND DECK ON THOSE PORTIONS OF THE STEEL RETAINER THAT ARE ATTACHED TO THE ABUTMENT BACKWALL AND SUPERSTRUCTURE.

WELDED CONNECTIONS SHALL BE PARTIAL PENETRATION FULL STRENGTH WELDS AND SHALL CONFORM TO STANDARD AWS AND AASHTO SPECIFICATIONS FOR HIGHWAY BRIDGES.

SHOP DRAWINGS FOR THE STRIP SEAL SHALL BE PREPARED BY THE SEAL FABRICATOR, THESE DRAWINGS, AFTER BEING COORDINATED WITH THE DRAWINGS OF THE STRUCTURAL STEEL FABRICATOR, SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE THE START OF FABRICATION.

CONSTRUCTION PROCEDURE

1. ABUTMENT BACKWALL CONCRETE SHALL NOT BE PLACED UNTIL AFTER SUPERSTRUCTURE CONCRETE IN THE SPAN ADJACENT TO THE ABUTMENT HAS BEEN PLACED.
2. PLACE BACKWALL CONCRETE DURING STABLE OR RISING AMBIENT TEMPERATURES AND CONCLUDE PLACEMENT AT OR IMMEDIATELY BEFORE THE DAY'S PEAK AMBIENT TEMPERATURE.
3. NOT MORE THAN FOUR HOURS PRIOR TO THE DAY'S PEAK AMBIENT TEMPERATURE, SET ABUTMENT EXPANSION JOINT WIDTH TO DIMENSION "A". (SEE DIMENSION "A" TABLE ON SHEET 16/18)
4. LOOSEN TEMPORARY JOINT ARMOR BOLTS AFTER INITIAL SET OF CONCRETE, PREFERABLY NOT LATER THAN TWO HOURS AFTER CONCLUSION OF CONCRETE PLACEMENT.

Sheet 17/18

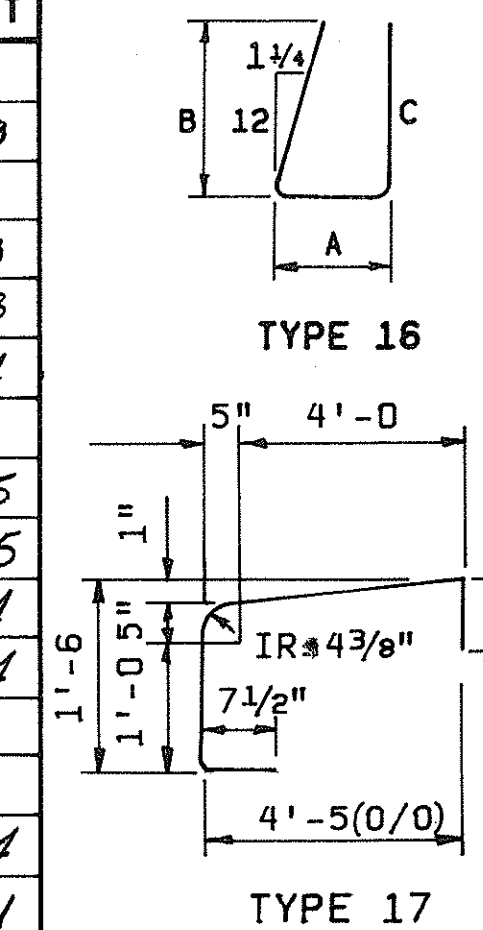
W.E. QUICKSALL AND ASSOCIATES, INC.
NEW PHILADELPHIA, OHIO

(STRIP SEAL)

EXPANSION JOINT DETAILS
BRIDGE NO. PE-17-24
WALNUT RD. OVER TUSCARAWAS RIVER

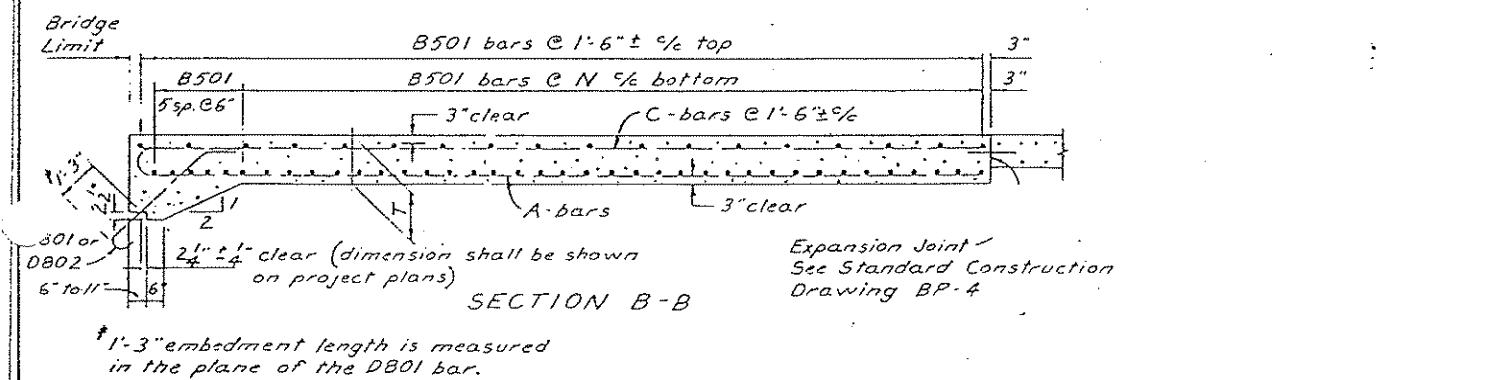
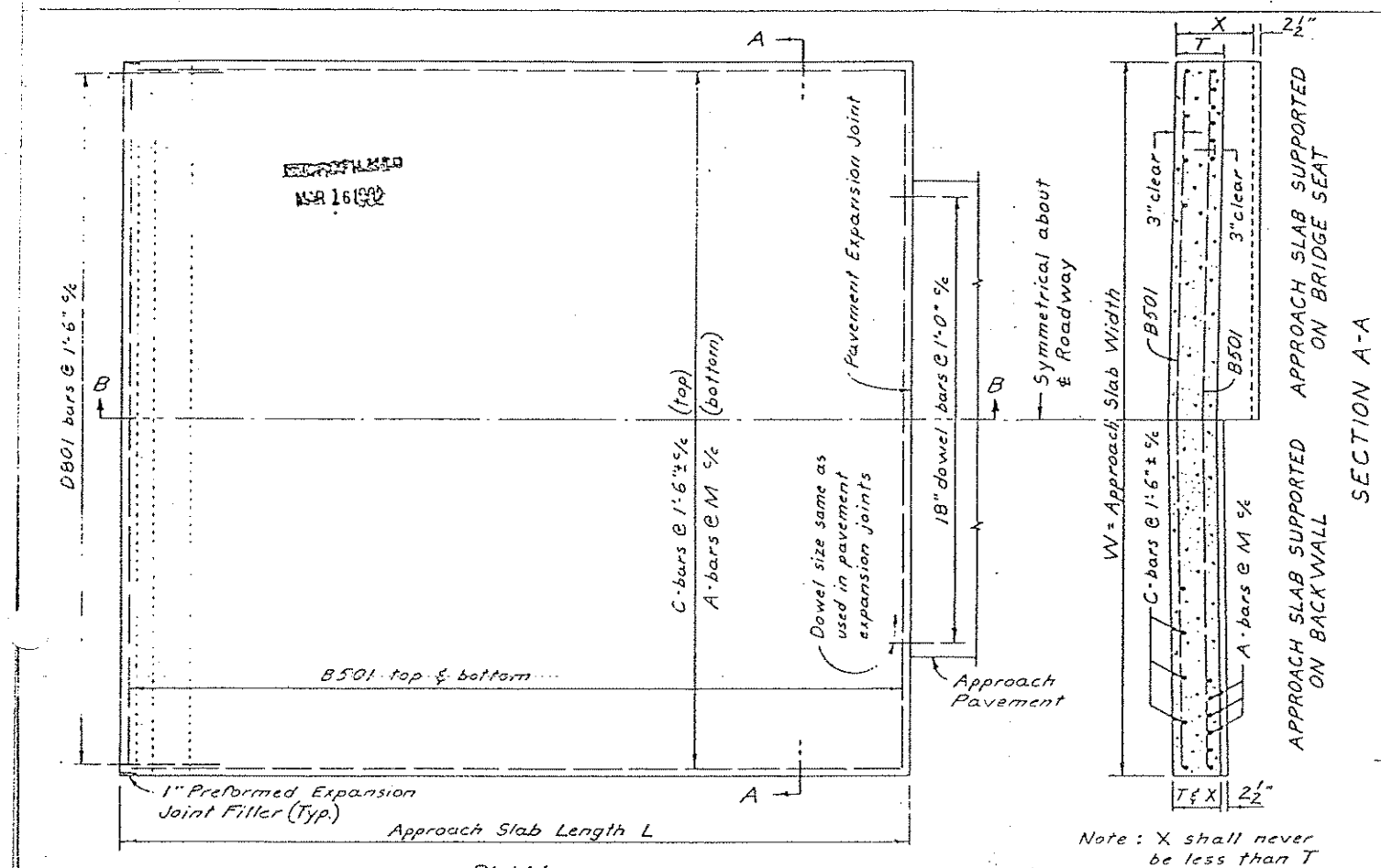
STA. 11+69.70
STA. 13+96.11

DESIGNED	DRAWN	TRACED	CHECKED	REVISED	DATE	REVIEWED
<i>[Signature]</i>	<i>[Signature]</i>		ZRD	JMS	9/90	

[illegible]

Total 82,529#

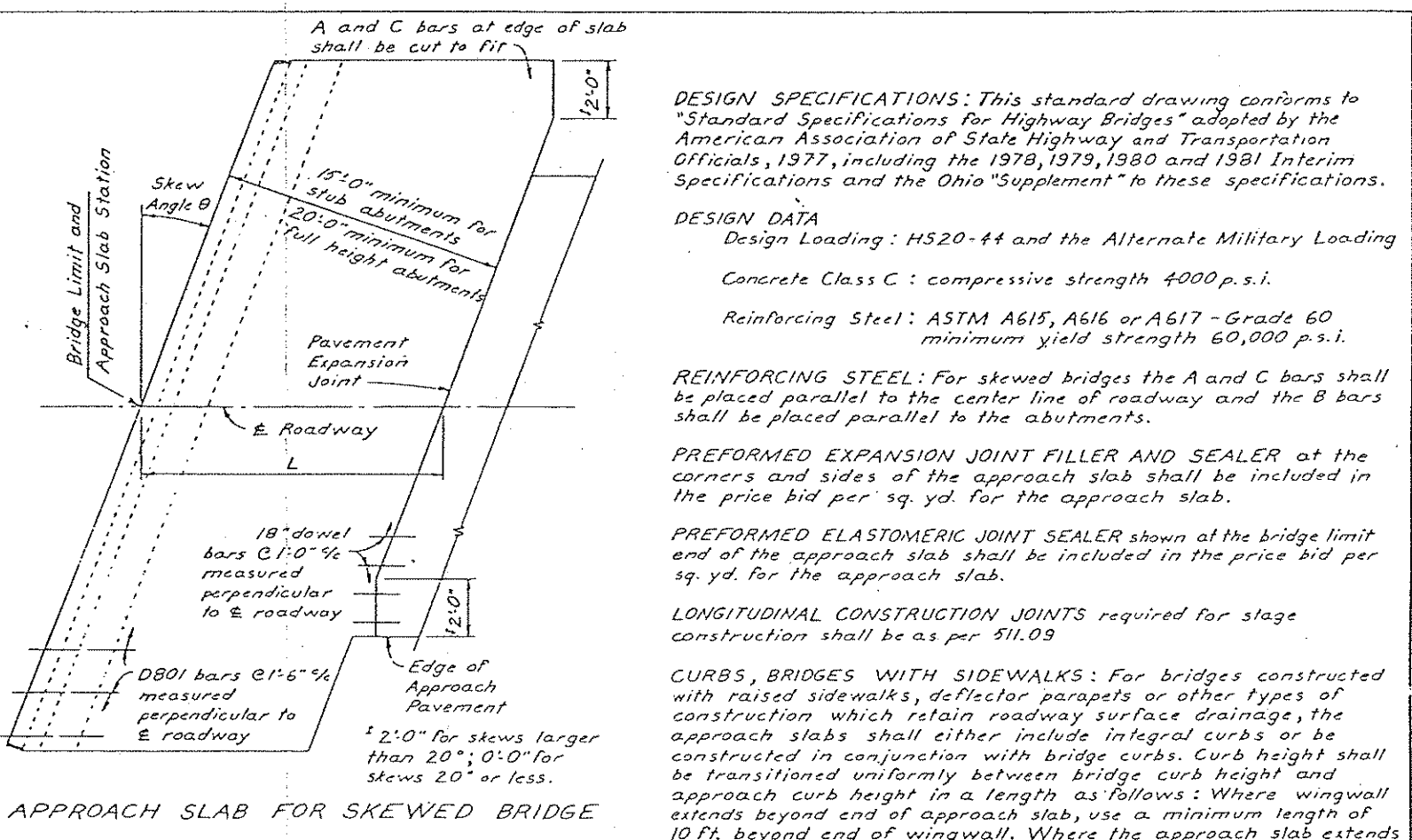
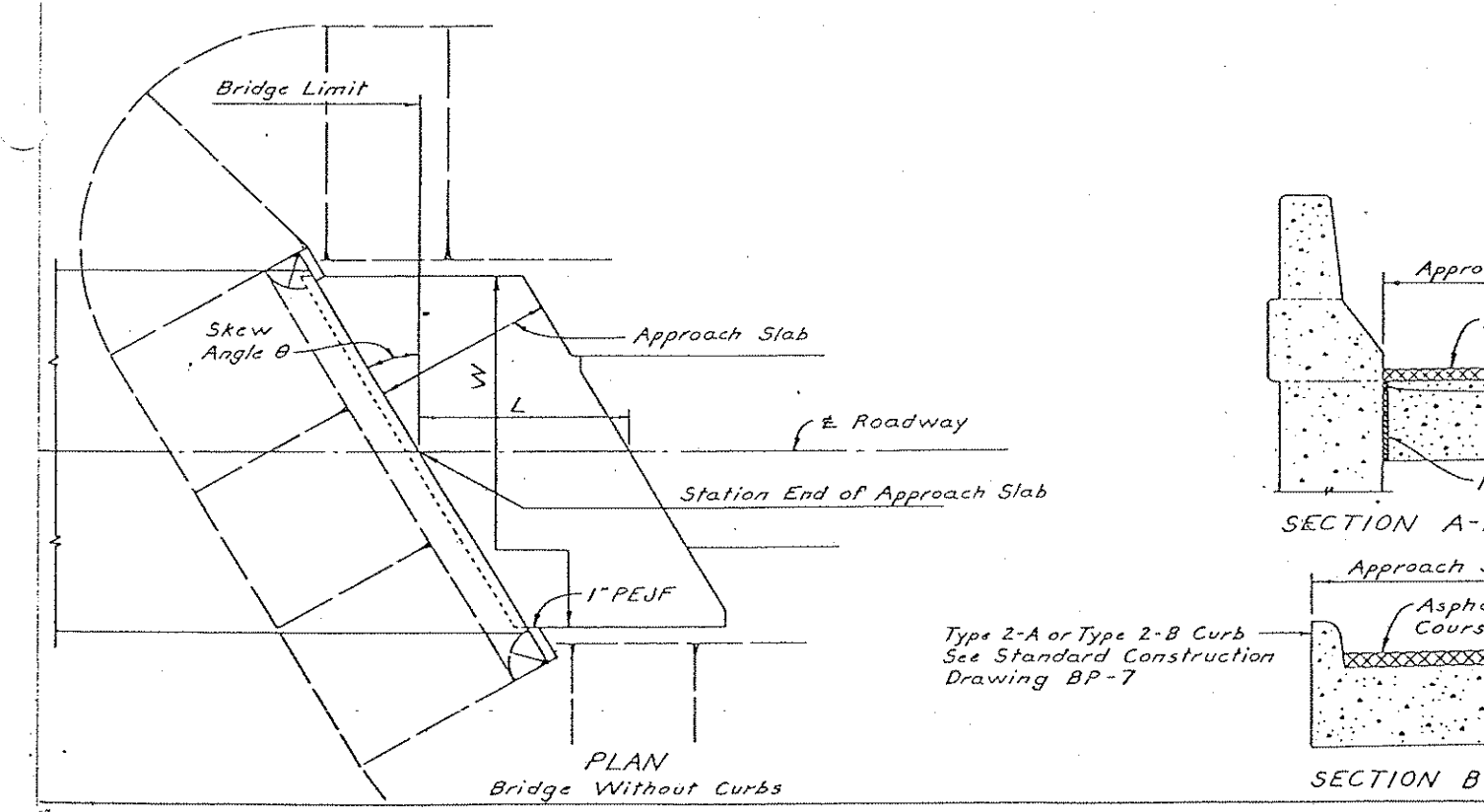
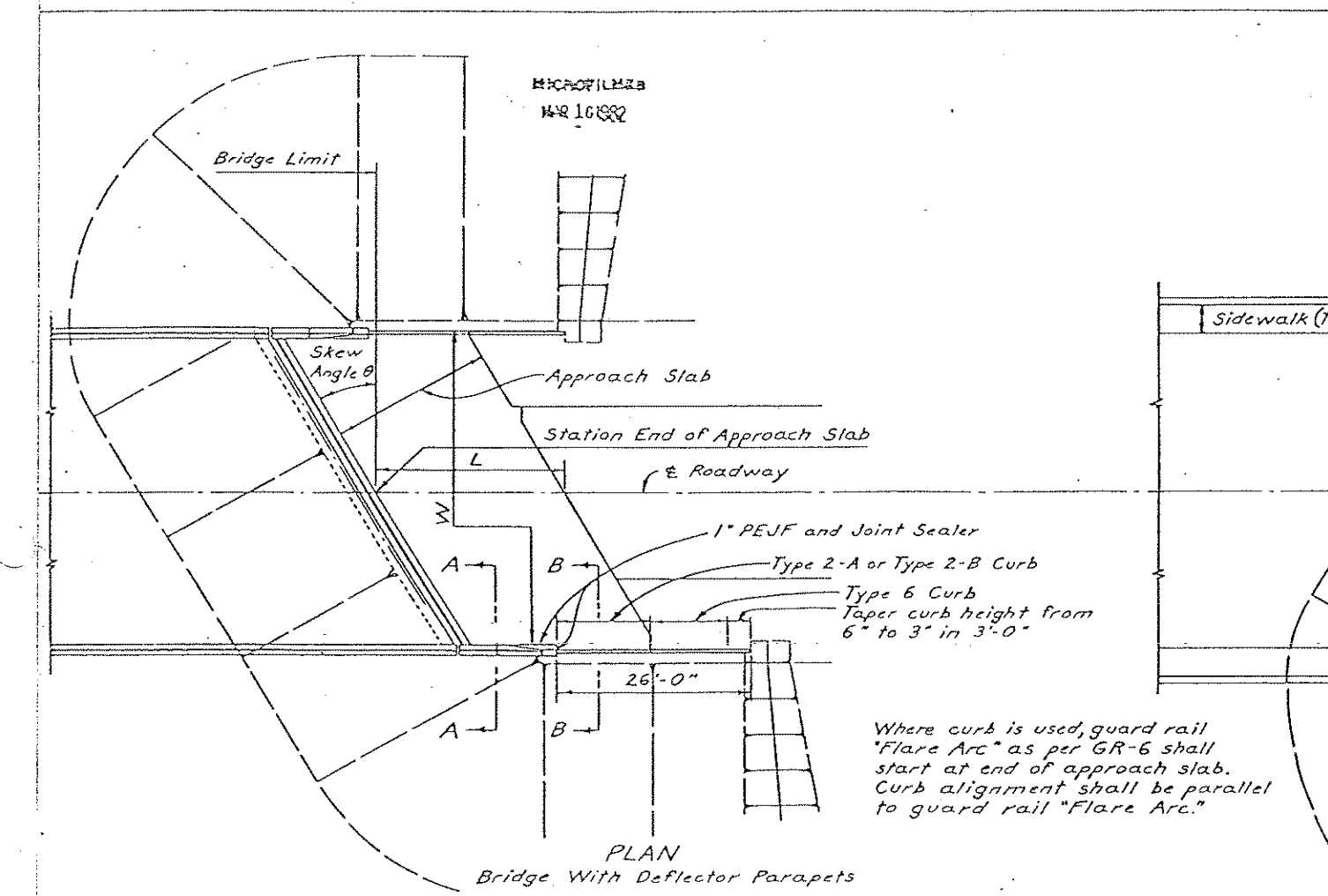
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
<i>CP</i>	<i>CP</i>		<i>FDH</i>	<i>JMG</i>	<i>9/90</i>	



REINFORCING STEEL
(For one approach slab)

Length	Thick.	A-BARS	BARS (bottom)	BARS (top)	C-BARS	D-BARS
ft.	in.	Mark	Length	Mark	Length	Mark
15'-0"	12"	A1001	15'-11"	14'-6"	9'-2"	CS01
20'-0"	13"	A1002	20'-11"	19'-6"	14'-0"	CS02
25'-0"	15"	A1003	25'-11"	24'-6"	18'-0"	CS03
30'-0"	17"	A1004	30'-11"	29'-6"	22'-0"	CS04

W = Approach Slab Width, out-to-out, in feet
 θ = Angle of Skew
 M = A-bar spacing in inches
 N = B-bar spacing in inches
 X = Approach Slab Thickness at abutment end in feet



GENERAL: This drawing provides design and general construction details. The project plans will show length, skew, curbs (if any), estimated quantity (sq. yds.), and special notes and details where necessary for conditions other than those indicated herein. The approach slab shall be designed to fit the ends of the bridge and the approach pavement.

ANCHOR BARS: DB01 or DB02 shall be detailed for the specific bridge and shall be included with Item 503 under abutments, or superstructure for payment. DB01 bars cannot be used as shown where approach slabs are supported on backwalls less than 14 inches thick. DB02 bars shall be used on prestressed concrete box beam bridges where the approach slab is supported on an 11 inch thick backwall.

APPROACH SLAB WIDTH (W): Generally approach slabs shall be the same width as the bridge roadway.

LENGTH of approach slabs: shall be shown on project plans.

CROWN: shall conform to that of the approach pavement and bridge deck. If the rate of crown of the bridge deck differs from that of the approach pavement, a smooth transition shall be provided within the limits of the approach slab.

WEARING SURFACE: Generally approach slabs shall have an asphalt concrete wearing surface only when both the approach pavement surface and the bridge wearing surface are asphalt concrete.

EXPANSION JOINT: details at the approach pavement end of the approach slab are used only in conjunction with concrete pavement or concrete base course. Payment for the expansion joint, including dowel bars, preformed expansion joint filler and joint sealer, is included in the price bid per sq. yd. for the approach slab.

REVISIONS

NO.	DATE	BY	CHKD.	DESCRIPTION
1	1/14/82	WJJ	WJJ	AS-BUILT
2	1/14/82	WJJ	WJJ	AS-BUILT

DESIGN SPECIFICATIONS: This standard drawing conforms to Standard Specifications for Highway Bridges adopted by the American Association of State Highway and Transportation Officials, 1977, including the 1978, 1979, 1980 and 1981 Interim Specifications and the Ohio Supplement to these specifications.

DESIGN DATA
 Design Loading: HS20-44 and the Alternate Military Loading
 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.

REINFORCING STEEL: For skewed bridges the A and C bars shall be placed parallel to the center line of roadway and the B bars shall be placed parallel to the abutments.

PREFORMED EXPANSION JOINT FILLER AND SEALER: at the corners and sides of the approach slab shall be included in the price bid per sq. yd. for the approach slab.

PREFORMED ELASTOMERIC JOINT SEALER: shown at the bridge limit end of the approach slab shall be included in the price bid per sq. yd. for the approach slab.

LONGITUDINAL CONSTRUCTION JOINTS: required for stage construction shall be as per 511.05.

CURBS, BRIDGES WITH SIDEWALKS: For bridges constructed with raised sidewalks, deflector parapets or other types of construction which retain roadway surface drainage, the approach slabs shall either include integral curbs or be constructed in conjunction with bridge curbs. Curb height shall be transitioned uniformly between bridge curb height and approach curb height in a length as follows: Where wingwall extends beyond end of approach slab, use a minimum length of 10 ft. beyond end of wingwall. Where the approach slab extends beyond the end of wingwall, transition in this length. However, the transition length shall not be less than 10 ft. and the transition shall extend beyond the end of approach slab if necessary.

APPROACH SLAB WIDTH (W): Generally approach slabs shall be the same width as the bridge roadway.

LENGTH of approach slabs: shall be shown on project plans.

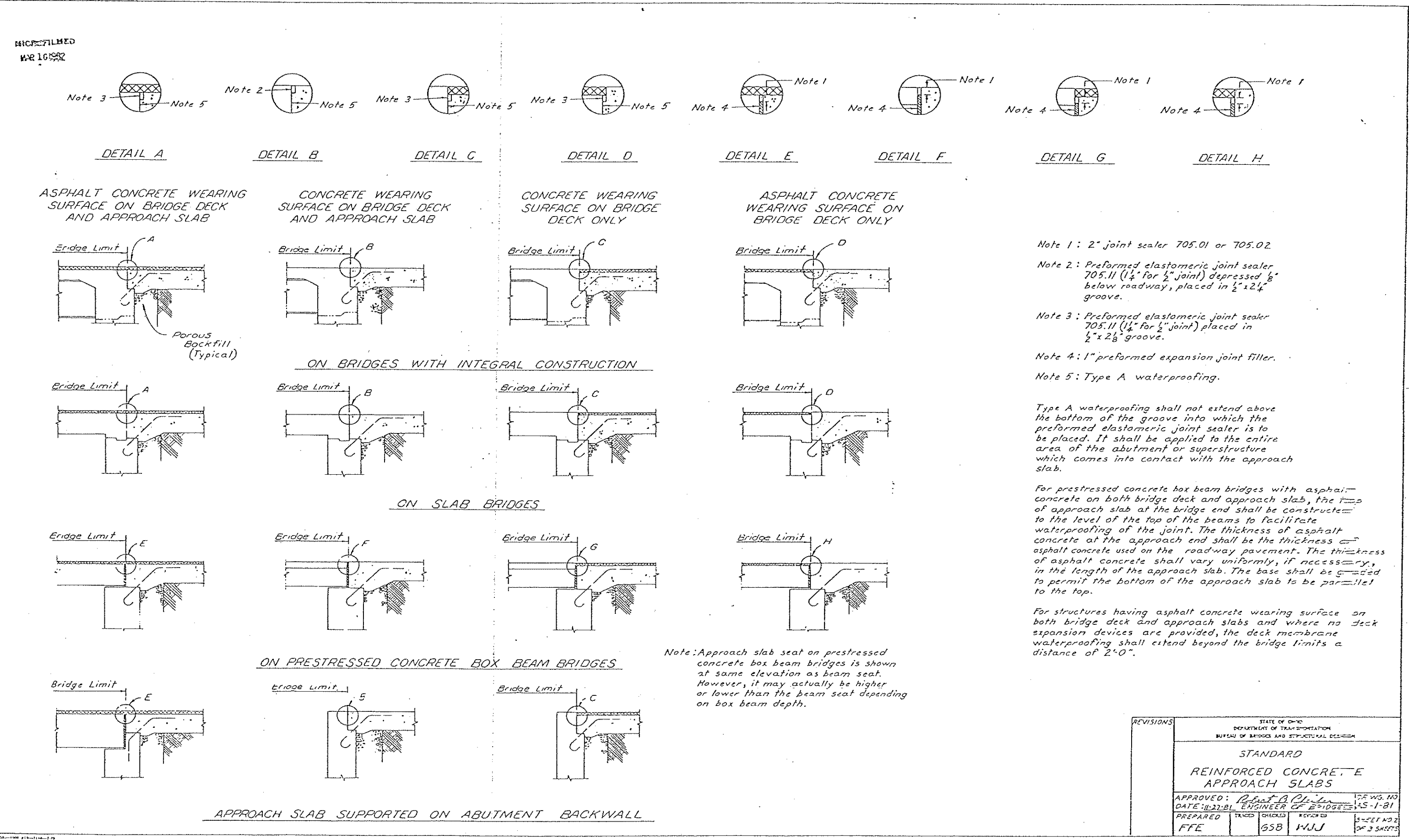
CROWN: shall conform to that of the approach pavement and bridge deck. If the rate of crown of the bridge deck differs from that of the approach pavement, a smooth transition shall be provided within the limits of the approach slab.

WEARING SURFACE: Generally approach slabs shall have an asphalt concrete wearing surface only when both the approach pavement surface and the bridge wearing surface are asphalt concrete.

EXPANSION JOINT: details at the approach pavement end of the approach slab are used only in conjunction with concrete pavement or concrete base course. Payment for the expansion joint, including dowel bars, preformed expansion joint filler and joint sealer, is included in the price bid per sq. yd. for the approach slab.

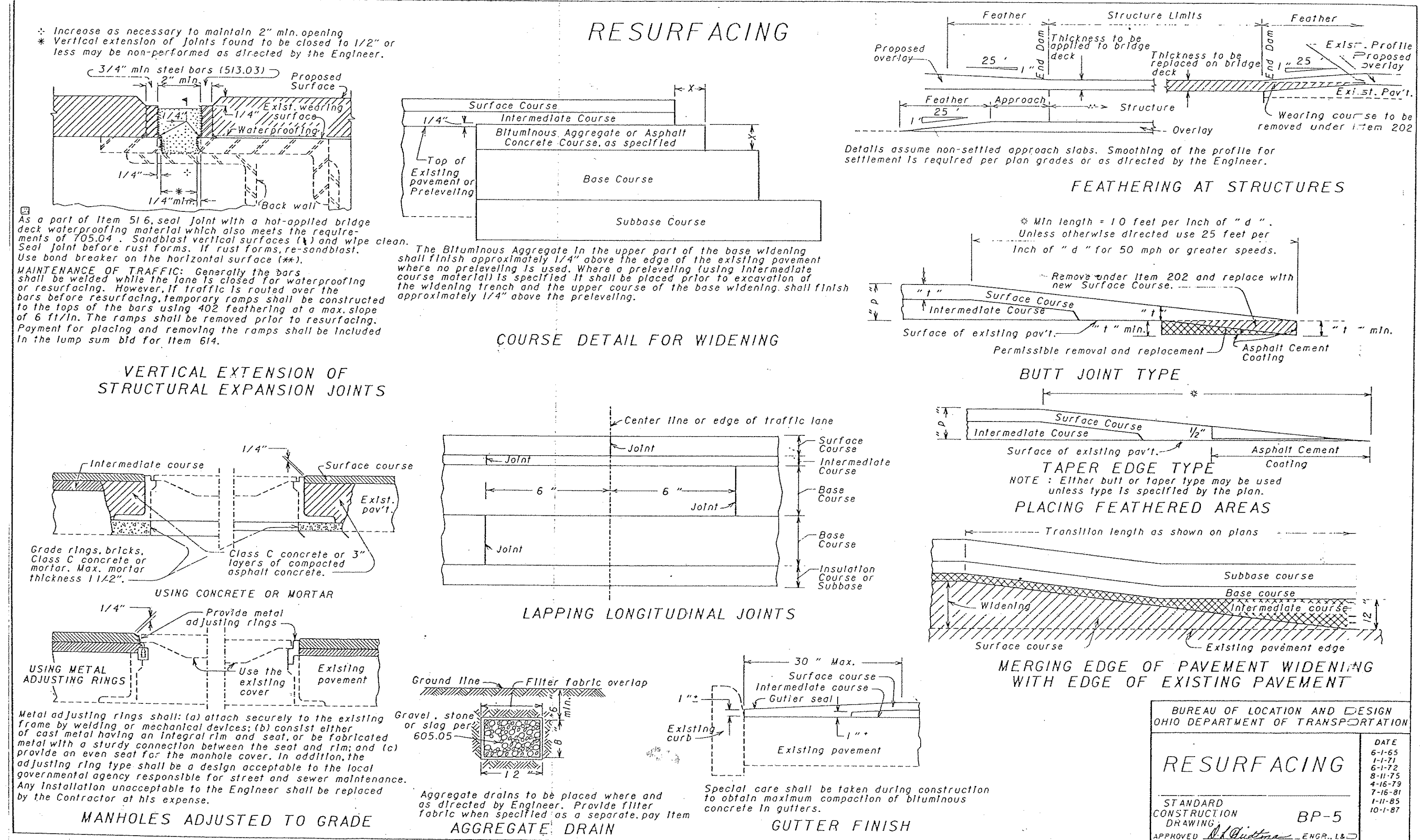
REVISIONS

NO.	DATE	BY	CHKD.	DESCRIPTION
1	1/14/82	WJJ	WJJ	AS-BUILT
2	1/14/82	WJJ	WJJ	AS-BUILT



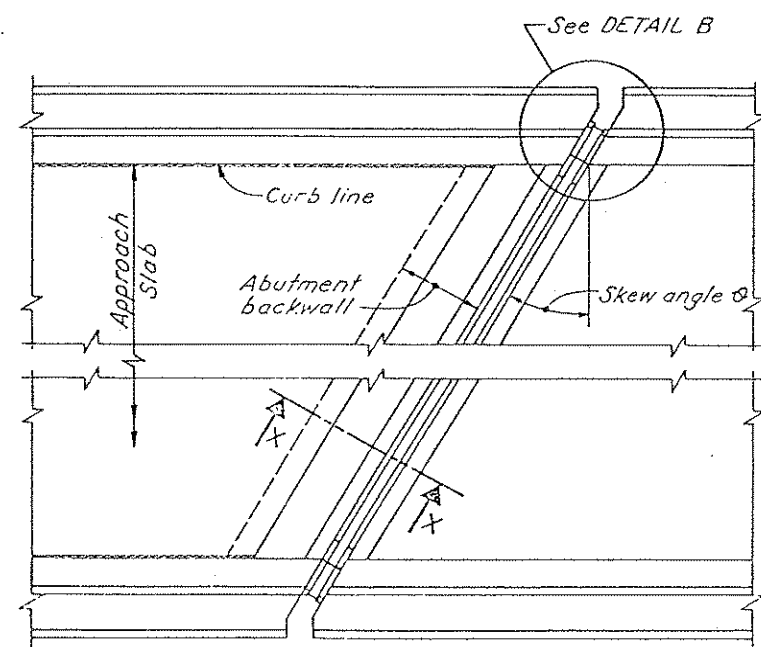
REVISIONS

NO.	DATE	BY	CHKD.	DESCRIPTION
1	1/14/82	WJJ	WJJ	AS-BUILT
2	1/14/82	WJJ	WJJ	AS-BUILT

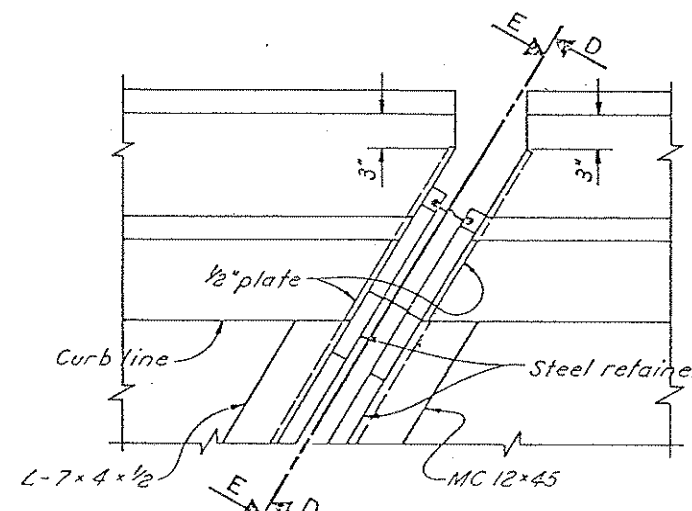


REVISIONS

NO.	DATE	BY	CHKD.	DESCRIPTION
1	1/14/82	WJJ	WJJ	AS-BUILT
2	1/14/82	WJJ	WJJ	AS-BUILT



PLAN AT ABUTMENT
FOR SKEWED (OVER 15°) BRIDGES WITH
DEFLECTOR PARAPET RAILING



DETAIL B

NOTES:

JOINTS IN END DAM ARMOR: Transverse joints in armor shall have complete penetration butt welds. Welds which will be in contact with steel retainers shall be ground flush.

JOINTS IN RETAINERS shall have watertight, partial penetration butt welds completely around the outer periphery of the abutting surfaces. Welds which will be in contact with the seal gland and/or joint armor shall be ground smooth.

PROJECT PLANS shall list Dimension "A" for temperatures between 30°F and 90°F in 10 degree increments.

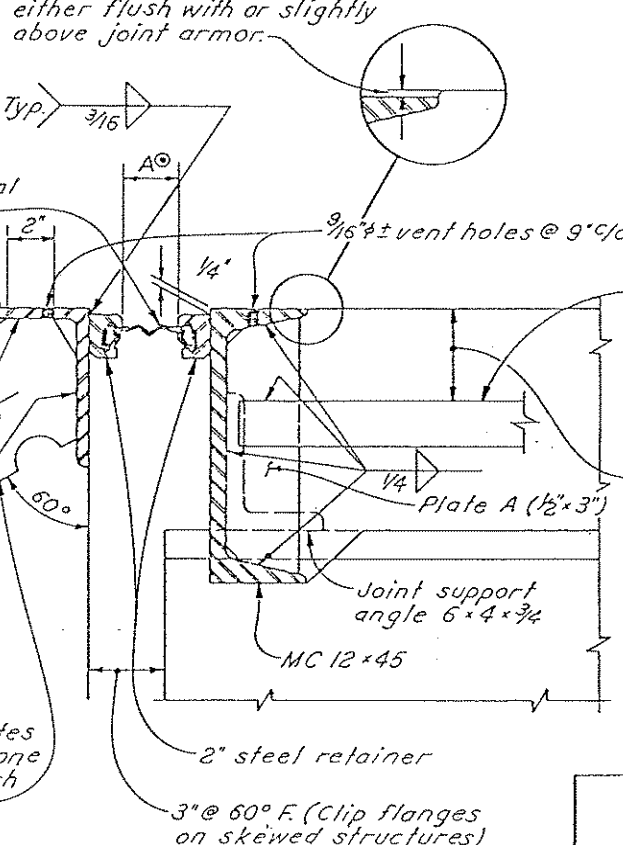
JOINT SEAL GLANDS at fixed bearings shall be the same size as at the expansion bearings with a Dimension "A" of 2" at any ambient temperature.

NOTE TO DESIGNER: Generally skew angle θ shall not be greater than 45°.

THE MINIMUM LENGTH OF RETAINER shall be 6'0" between joints unless otherwise shown.

CONCRETE UNDER JOINT ARMOR shall be hand packed, if necessary, to achieve solid filling.

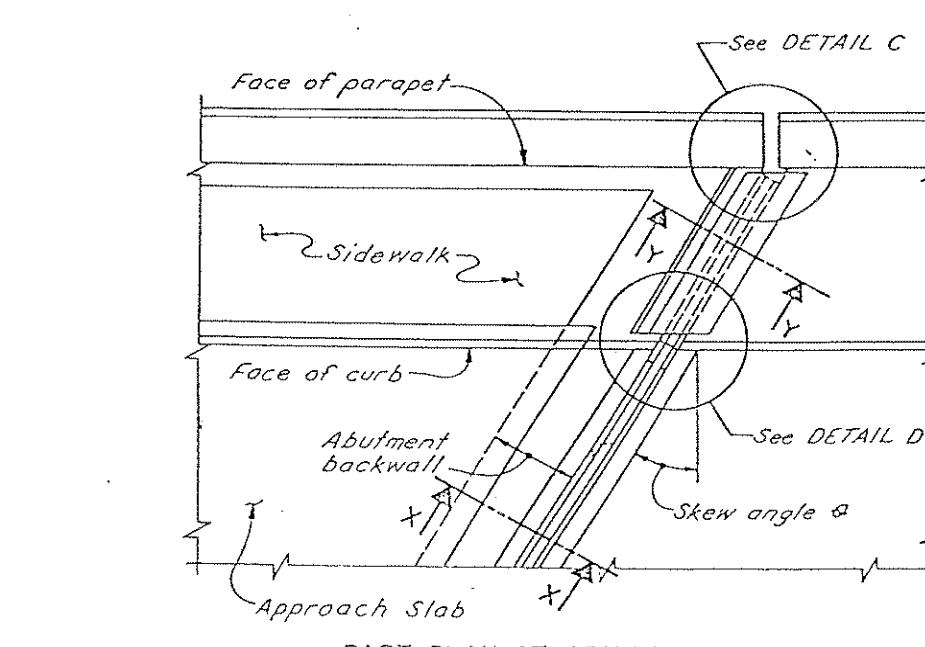
Finish concrete surface either flush with or slightly above joint armor.



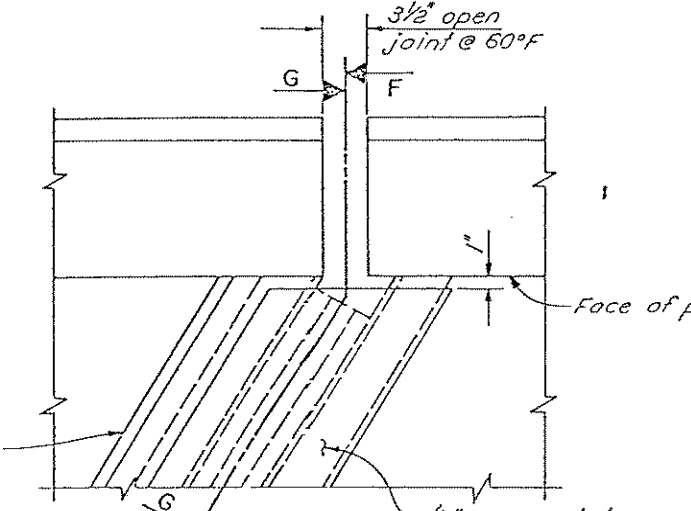
SECTION X-X

Dimension "A" shall be determined from TABLE B, TABLE C, or TABLE D on sheet [3/5].

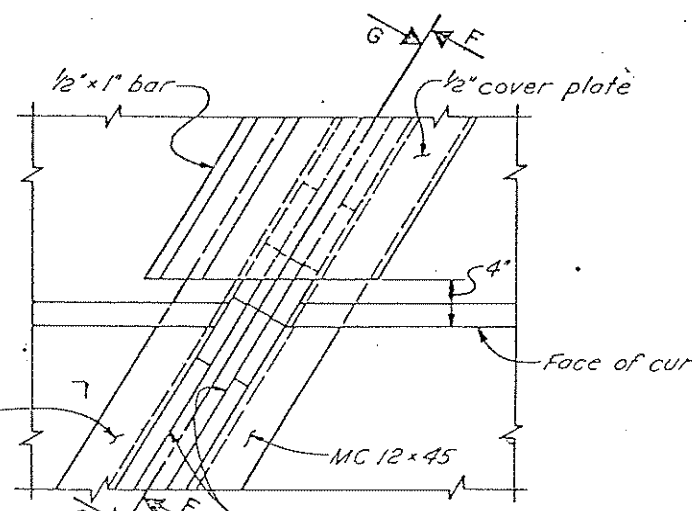
STATE OF OHIO DEPARTMENT OF TRANSPORTATION BUREAU OF BRIDGES AND STRUCTURAL DESIGN	
STANDARD STRIP SEAL EXPANSION JOINTS AT ABUTMENTS FOR STEEL STRINGER STRUCTURES	
APPROVED: [Signature]	DRAWING NO. EXJ-4-87
DESIGNED BY: [Signature]	TRACED BY: [Signature]
CHECKED BY: [Signature]	REVIEWED BY: [Signature]
DATE: [Date]	DATE: [Date]



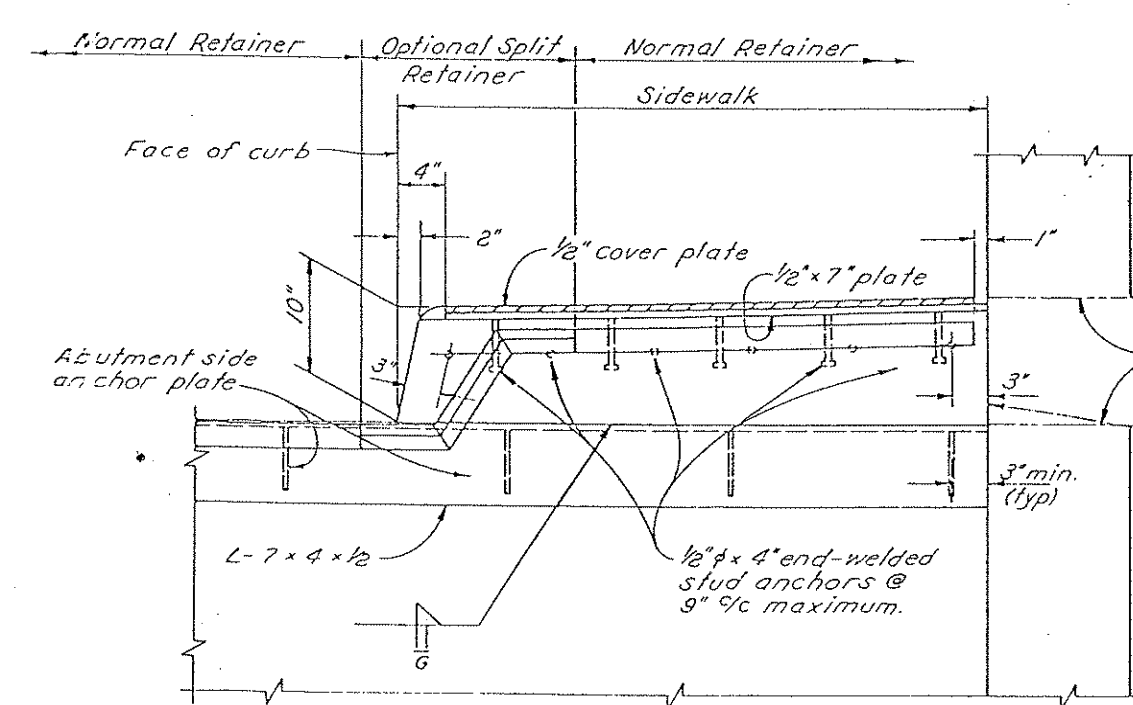
PART PLAN AT ABUTMENT
FOR BRIDGES WITH SIDEWALK
PARAPET RAILING



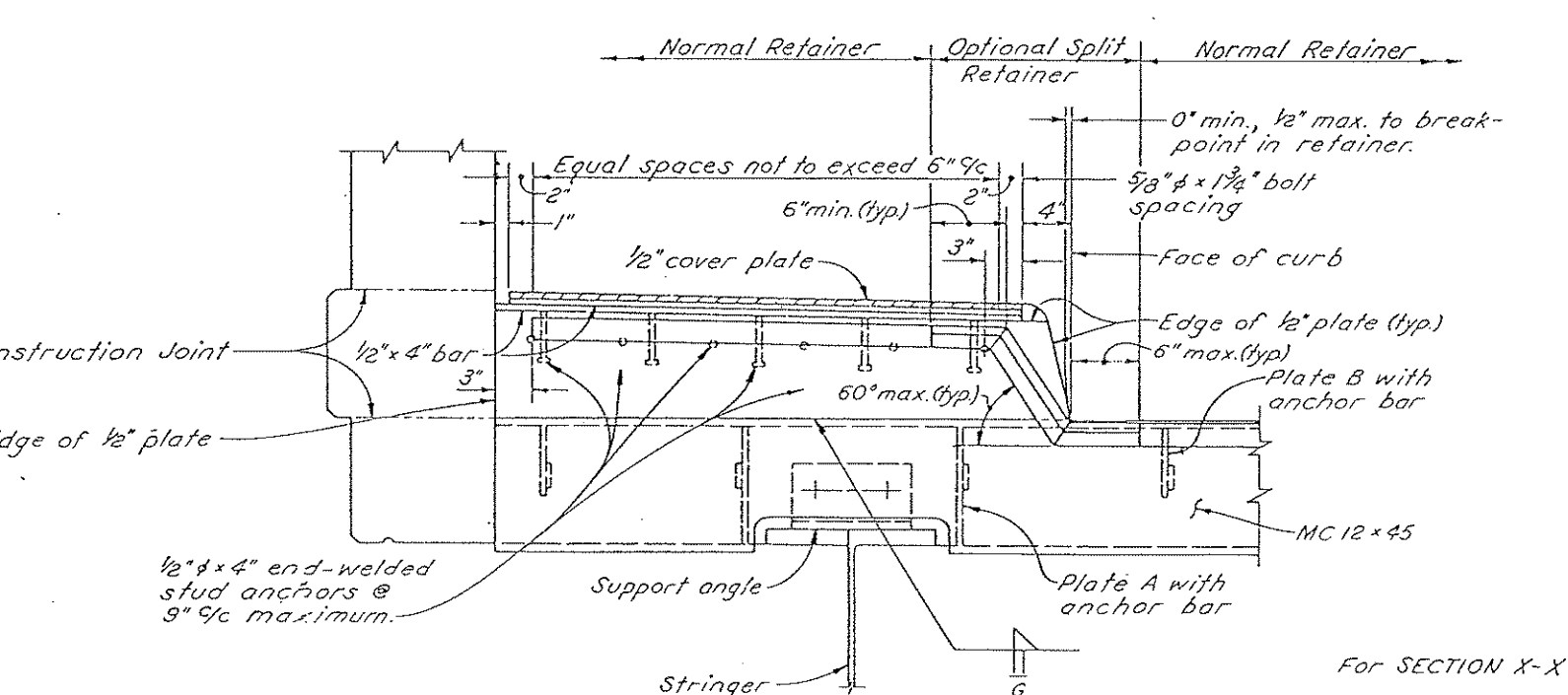
DETAIL C



DETAIL D



SECTION F-F

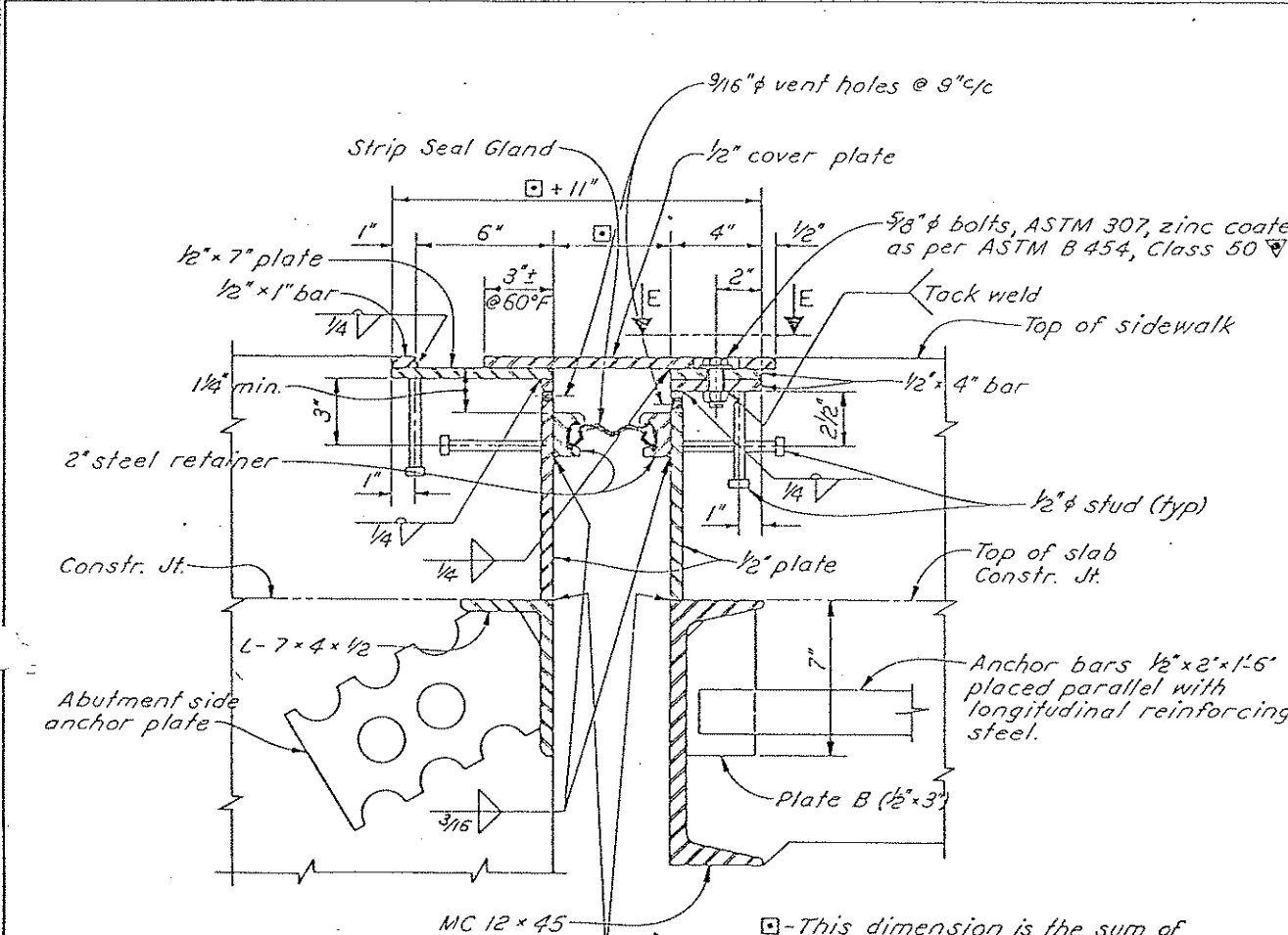


SECTION G-G

Δ-SIDEWALK AND PARAPET JOINT ARMOR ANCHORS: In lieu of the 1/2" end-welded studs shown alternate methods of anchoring the 1/2" plates may be used, subject to approval by the Director.

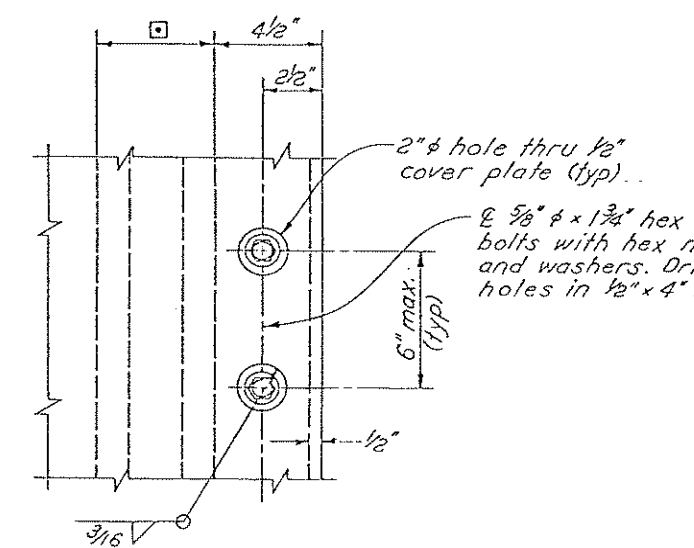
For SECTION X-X see sheet [2/5].
For SECTION Y-Y see sheet [4/5].

STATE OF OHIO DEPARTMENT OF TRANSPORTATION BUREAU OF BRIDGES AND STRUCTURAL DESIGN	
STANDARD STRIP SEAL EXPANSION JOINTS AT ABUTMENTS FOR STEEL STRINGER STRUCTURES	
APPROVED: [Signature]	DRAWING NO. EXJ-4-87
DESIGNED BY: [Signature]	TRACED BY: [Signature]
CHECKED BY: [Signature]	REVIEWED BY: [Signature]
DATE: [Date]	DATE: [Date]



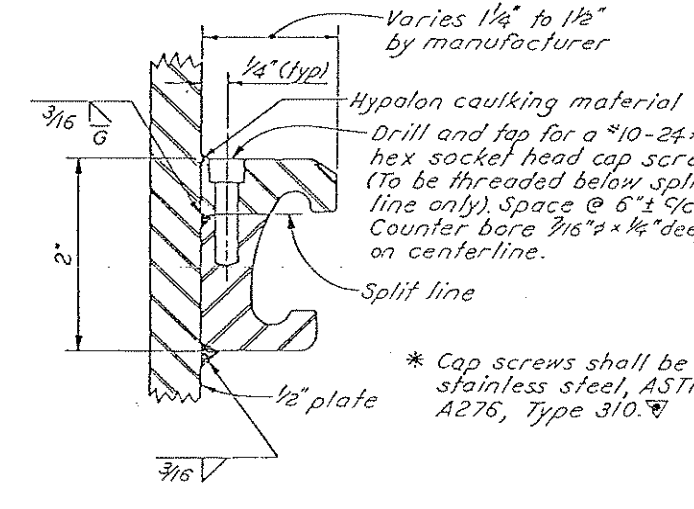
SECTION Y-Y

See SIDEWALK AND PARAPET JOINT ARMOR ANCHORS note on sheet [3/5].



VIEW E-E

For source determination of steel, a letter of compliance in lieu of complete traceability will suffice.



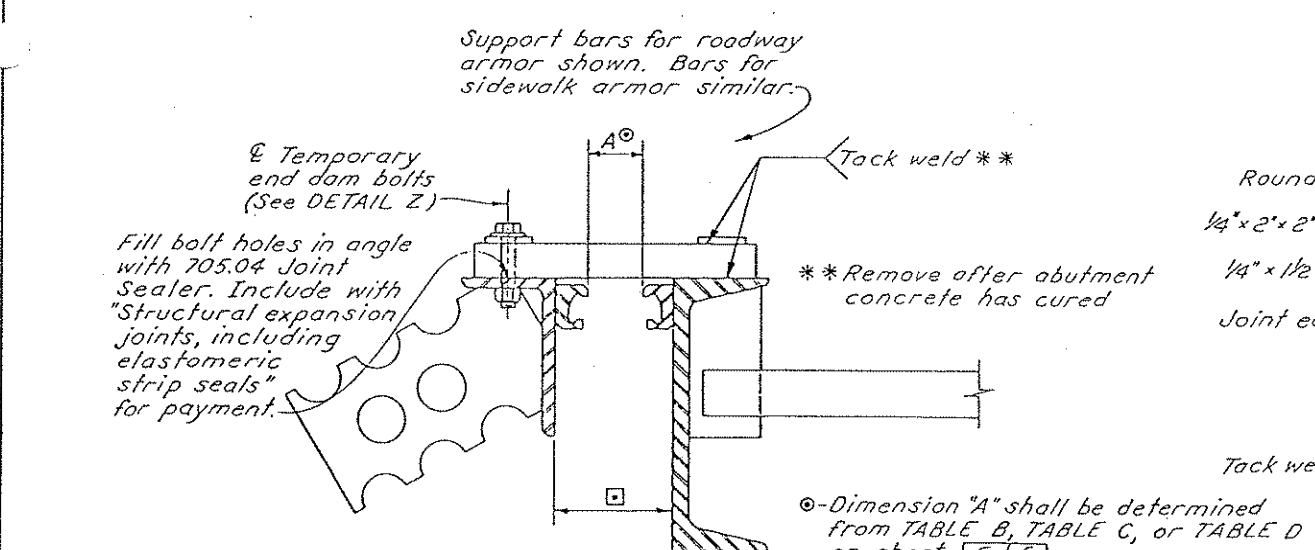
SPLIT RETAINER DETAIL
NORMAL RETAINER SIMILAR

The split retainer shown above is a normal retainer which has been modified as indicated. At joint turnups, especially on skewed bridge decks, the use of split retainers may be necessary to ensure good seal gland installation. On shop drawings, where the split retainer is not used, the seal gland manufacturer or his agent warrants to the Director that the furnished configuration will provide for ready installation and replacement of the gland.



STRIP SEAL GLAND TABLE	
SEAL MOVEMENT RATING	MANUFACTURER & DESIGNATION
1"	WATSON & ACME CO. 1000
2"	WATSON & ACME CO. 2000
3"	WATSON & ACME CO. 3000
4"	WATSON & ACME CO. 4000
5"	WATSON & ACME CO. 5000

For location of SECTION Y-Y see sheet [3/5].



JOINT ARMOR ADJUSTMENT DETAIL
An alternate detail may be used subject to the Director's approval.

DETAIL Z
TEMPORARY SUPPORT BARS

STATE OF OHIO DEPARTMENT OF TRANSPORTATION BUREAU OF BRIDGES AND STRUCTURAL DESIGN	
STANDARD STRIP SEAL EXPANSION JOINTS AT ABUTMENTS FOR STEEL STRINGER STRUCTURES	
APPROVED: [Signature]	DRAWING NO. EXJ-4-87
DESIGNED BY: [Signature]	TRACED BY: [Signature]
CHECKED BY: [Signature]	REVIEWED BY: [Signature]
DATE: [Date]	DATE: [Date]

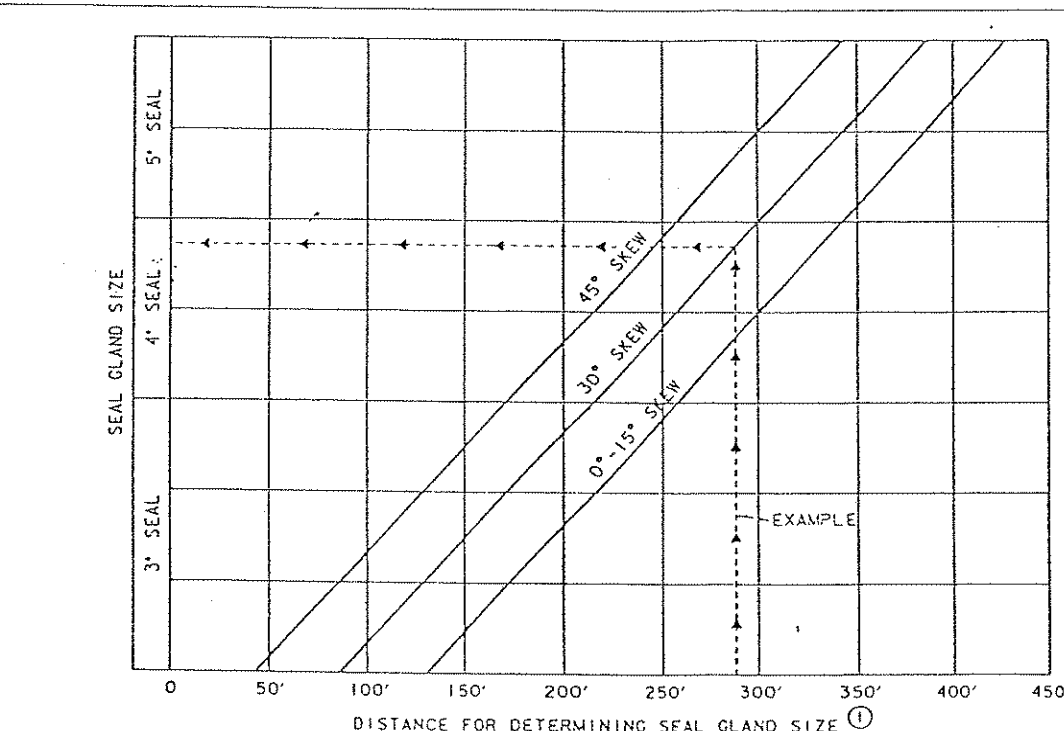


TABLE A

GENERAL NOTES

MATERIALS: ASSE OR A36 WITH PAINT AS SPECIFIED FOR THE MAIN STRUCTURAL STEEL, EXCEPT THAT SYSTEM STEEL SHALL BE USED WHEN THE MAIN STRUCTURAL STEEL IS TO REMAIN UNPAINTED. PAINTING SHALL BE DONE IN THE FIELD EXCEPT THAT A WASH COAT OF PRIMER SHALL BE APPLIED IN THE SHOP TO ALL SURFACES, INCLUDING THOSE TO BE EMBEDDED IN CONCRETE. TO PREVENT RUSTING AND RUST RUN-OFF, THE WASH COAT SHALL BE REMOVED FROM ALL SURFACES BY SANDBLASTING PRIOR TO THE EMBEDDING. THE FIELD PAINTING, THE FIELD PAINT SHALL CONSIST OF ONE PRIME COAT FOR SYSTEM A, A DRY OR TWO PRIME COATS FOR SYSTEM B, ONE INTERMEDIATE COAT FOR SYSTEM C, AND ONE FINISH COAT FOR THE SYSTEM USED. A USED CELL BACKER ROD OR SIMILAR MATERIAL SHALL BE INSERTED INTO THE RETAINER GROOVES TO WASH THEM OFF DURING THE PAINTING. STEEL PORTIONS OF THE JOINTS THAT ARE TO BE EMBEDDED IN CONCRETE OR SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE MUST REMAIN UNPAINTED.

THE PREFORMED STRIP SEAL GLAND SHALL BE EXTENDED POLYBUTYLENE OR POLYURETHANE MEETING THE REQUIREMENTS OF ASTM D2000. DUE TO THE CONFIGURATION OF THE STRIP SEAL, THE RECOVERY TEST IS NOT APPLICABLE. PHYSICAL PROPERTIES SHALL MEET THE REQUIREMENTS SPECIFIED IN TABLE "D" OF THIS SHEET.

EACH LOT OF STRIP SEAL GLANDS SHALL BE TESTED BY THE MANUFACTURER OR AN ACCREDITED LABORATORY TO ENSURE COMPLIANCE WITH THESE PROVISIONS. TWO CERTIFIED COPIES OF THE QUALIFICATION TEST DATA INDICATING THAT THE TESTED MATERIALS COMPLY WITH THESE PROVISIONS SHALL BE SUBMITTED TO THE TESTING LABORATORY.

SEAL GLANDS SHALL BE INSTALLED WITH EQUIPMENT DESIGNED OR SPECIFICALLY ADAPTED FOR THE INSTALLATION OF ELASTOMERIC JOINT SEAL GLANDS. THIS EQUIPMENT SHALL NOT EXCEED THE SEAL GLAND OR CAUSE STRUCTURAL DAMAGE TO THE COMPLETED INSTALLATION.

TABLE E (PHYSICAL PROPERTIES OF SEAL ELEMENT)	
PROPERTY	REQUIREMENT
TENSILE STRENGTH, MIN. P.S.I.	2000
ELONGATION AT BREAK, MIN. PERCENT	250
HARDNESS, TYPE A DURENOMETER	30 MIN. 85 MAX. (MODIFIED)
OVEN AGING, TO HR. AT 212°F	20 PERCENT
TENSILE STRENGTH, LOSS, MAX.	20 PERCENT
ELONGATION, LOSS, MAX.	0 TO +10
HARDNESS, TYPE A DURENOMETER (POINTS CHANGE)	NO CRACKS
ODOR RESISTANCE	NO CRACKS
20 PERCENT STRAIN, 300 PPMM, IN AIR AT 104°F EXPOSED WITH TOLUENE TO REMOVE SURFACE CONTAMINATION	DI 149

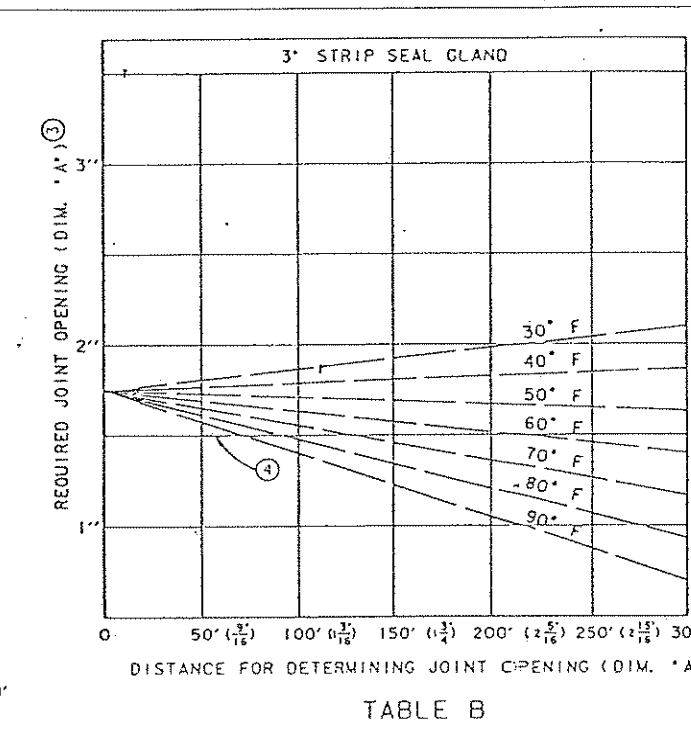


TABLE B

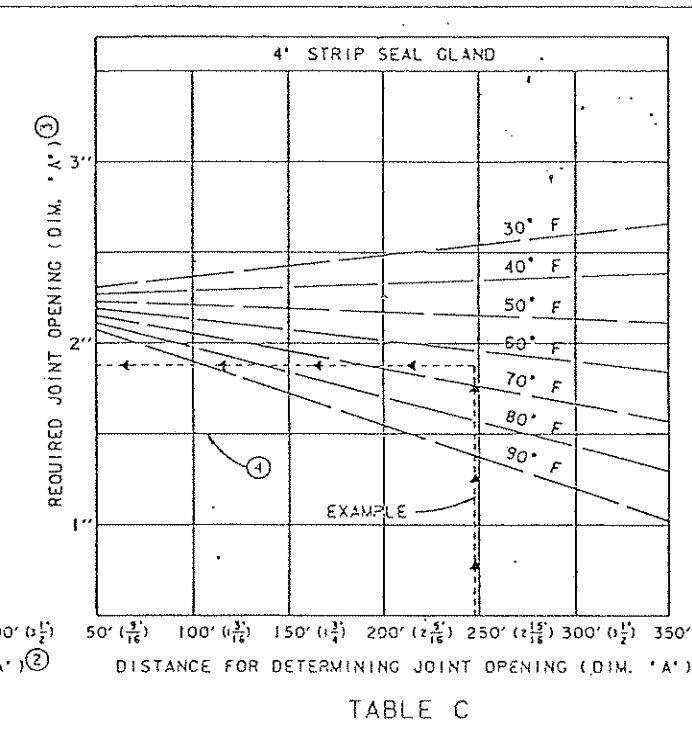


TABLE C

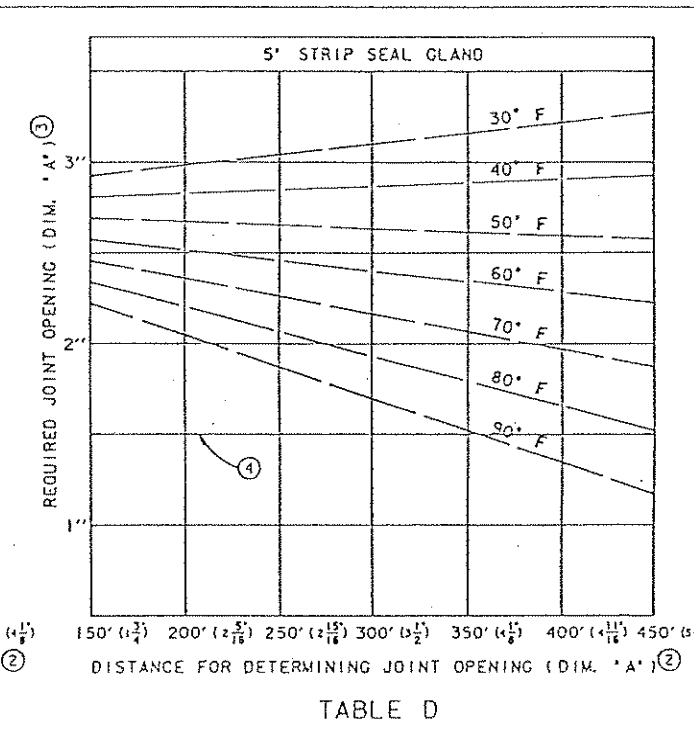


TABLE D

LEGEND

- THIS IS THE ACTUAL DISTANCE FROM THE CENTERLINE OF JOINT TO THE THERMAL NEUTRAL POINT OF THE SUPERSTRUCTURE MEASURED ALONG THE CENTERLINE OF ROADWAY. THIS DISTANCE SHALL BE A MAXIMUM OF 342' FOR 45 DEGREE SKEWS, 385' FOR 30 DEGREE SKEWS AND 427' FOR 0 DEGREE - 15 DEGREE SKEWS.
- THIS DISTANCE FOR EXPANSION JOINTS HAVING SKEW ANGLES OF 15 DEGREES OR LESS IS THE ACTUAL DISTANCE TO THE THERMAL NEUTRAL POINT OF SUPERSTRUCTURE ALONG CENTERLINE OF ROADWAY. THIS DISTANCE FOR EXPANSION JOINTS HAVING SKEW ANGLES OVER 15 DEGREES BUT NOT GREATER THAN 45 DEGREES IS ARRIVED AT BY MULTIPLYING THE ABOVE DEFINED DISTANCE ALONG CENTERLINE OF ROADWAY BY THE COSINE OF THE EXPANSION JOINT SKEW ANGLE. DIMENSIONS SHOWN IN PARENTHESES REPRESENT THE TOTAL JOINT MOVEMENT NORMAL TO THE CENTERLINE OF BEARINGS.
- THIS IS THE JOINT OPENING (DIMENSION "A") REQUIRED, AT THE TIME OF ABUTMENT BACKFILL CONCRETE PLACEMENT, BASED ON THE DAY'S ANTICIPATED PEAK AMBIENT TEMPERATURE.
- MINIMUM JOINT OPENING (DIMENSION "A") AT TIME OF SEAL GLAND INSTALLATION SHALL NOT BE LESS THAN 1 1/2". IF THE JOINT OPENING IS LESS, THE INSTALLATION SHALL BE POSTPONED UNTIL THE TEMPERATURE DROPS A SUFFICIENT AMOUNT TO ALLOW THE MINIMUM 1 1/2" OPENING.
- THE NEUTRAL POINT OF THE SUPERSTRUCTURE IS THAT POINT WHICH HAS ZERO HORIZONTAL MOVEMENT DURING TEMPERATURE CHANGES.

CONSTRUCTION PROCEDURE

- ABUTMENT BACKFILL CONCRETE SHALL NOT BE PLACED UNTIL AFTER THE SUPERSTRUCTURE CONCRETE IN THE SPAN ADJACENT TO THE ABUTMENT HAS BEEN PLACED.
- PLACE BACKFILL CONCRETE DURING STABLE OR RISING AMBIENT TEMPERATURES AND CONCLUDE PLACEMENT AT OR IMMEDIATELY BEFORE THE DAY'S PEAK AMBIENT TEMPERATURE.
- NOT MORE THAN FOUR HOURS PRIOR TO THE DAY'S PEAK AMBIENT TEMPERATURE, SET ABUTMENT EXPANSION JOINT WITH DIMENSION "A", SEE DIMENSION "A" TABLE ON PROJECT PLANS.
- LOOSEN TEMPORARY JOINT ARMOR BOLTS AFTER INITIAL SET OF CONCRETE, PREFERABLY NOT LATER THAN TWO HOURS AFTER COMPLETION OF CONCRETE PLACEMENT.

EXAMPLE

GIVEN: DISTANCE TO THERMAL NEUTRAL POINT OF SUPERSTRUCTURE ALONG CENTERLINE OF ROADWAY IS 287.5 FT. SKEW ANGLE OF EXPANSION JOINT IS 30 DEGREES. ANTICIPATED AMBIENT TEMPERATURE AT TIME OF JOINT INSTALLATION IS 65 DEGREES F.

FIND: REQUIRED STRIP SEAL GLAND SIZE AND JOINT OPENING DIMENSION (A) AT TIME OF JOINT ARMOR INSTALLATION.

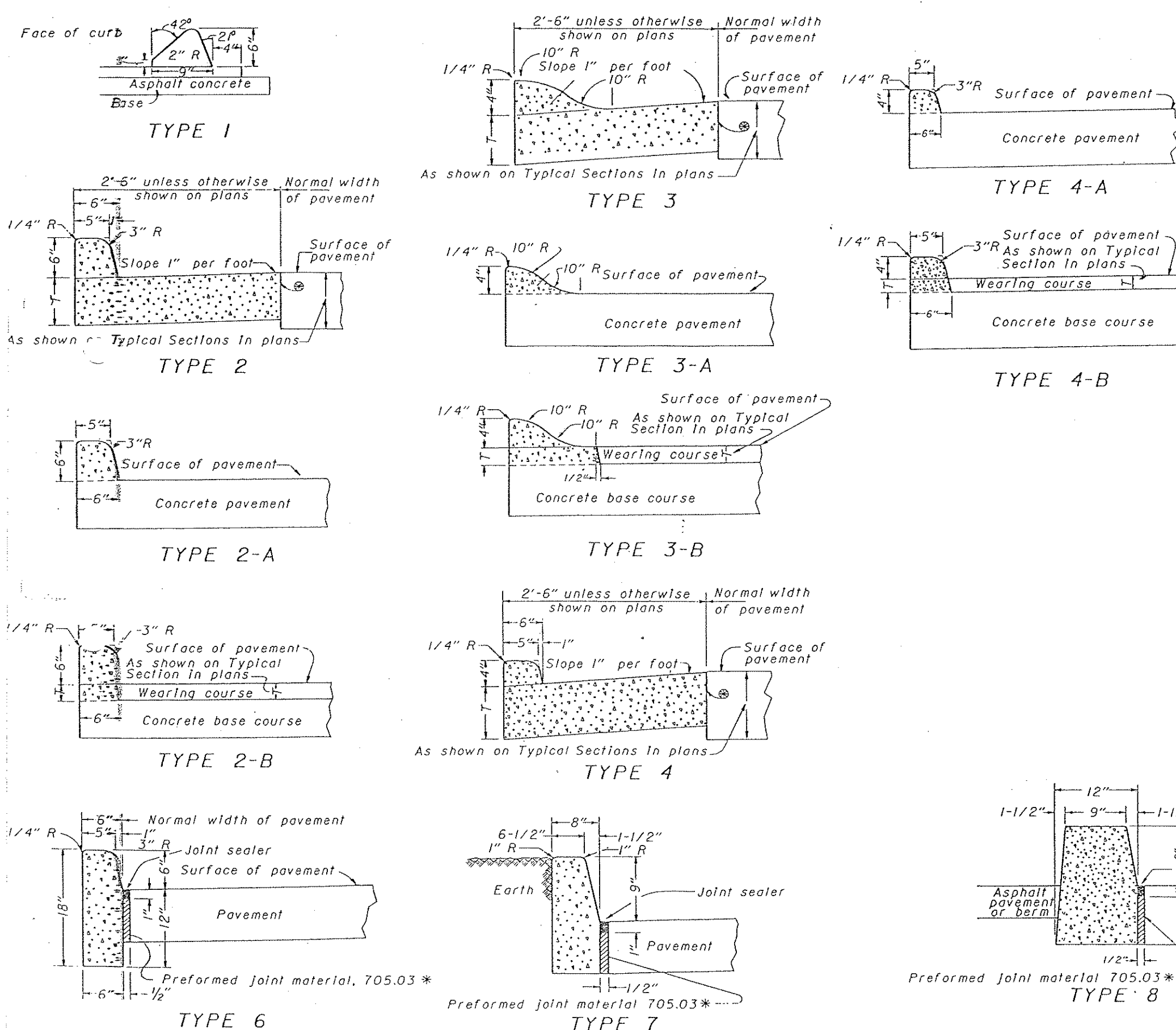
SOLUTION: 1. ENTER TABLE A AT (1) WITH 287.5 FT. AND FIND THAT THE REQUIRED STRIP SEAL GLAND SIZE IS 4 INCHES.

2. ENTER TABLE C AT (2) WITH 287.5 COSINE OF 30 DEGREES = 248.98 FEET AND FIND REQUIRED JOINT OPENING AT 65 DEGREES F IS 1.85 INCHES.

NOTE: STEP (2) REQUIRED ONLY AT TIME OF CONSTRUCTION.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION BUREAU OF BRIDGES AND STRUCTURAL DESIGN	
STANDARD STRIP SEAL EXPANSION JOINTS AT ABUTMENTS FOR STEEL STRINGER STRUCTURES	
APPROVED: [Signature]	DRAWING NO. EXJ-4-87
DESIGNED BY: [Signature]	TRACED BY: [Signature]
CHECKED BY: [Signature]	REVIEWED BY: [Signature]
DATE: [Date]	DATE: [Date]

STANDARD CONCRETE CURBS AND COMBINED CURB AND GUTTER



NOTES

GENERAL: This drawing shows alternate types of curb that may be used on various types of pavement. Typical section of project shows the type to be used, also the thickness of the edge of the pavement or the edge of the curb and gutter section.

JOINTS: One inch expansion joints shall extend up to the top of the curb and shall be constructed in the curb and gutter section in such a manner that the joint seal will extend the full width of the gutter and into the curb face a sufficient distance to seal the joint to an elevation of at least two (2) inches above the flow line of the gutter. Dowel bars shall be used in the curb and gutter section at expansion joints which are identical with the joints in the pavement.

All joints shall be constructed perpendicular to the edge of the curb and to the surface of the pavement.

Transverse expansion joint material shall meet the requirements of 705.03.

* Expansion joint material and joint sealer is not required when curb is adjacent to flexible type pavement.

Butt joints shall be provided between combined curb-and-gutter and new rigid pavements, with the bars or hook bolts provided at five foot intervals. Combined curb-and-gutter shall be tied to existing rigid pavements with expansion hook bolts spaced at five foot intervals. If the combined curb-and-gutter, adjoining a new rigid base or an exterior rigid base or pavement that is to be surfaced with bituminous material, a butt joint shall be provided and tie bars, hook bolts or expansion hook bolts shall be omitted.

Thickness of gutter plate "T" shall be 9 inches unless otherwise shown on the plans.

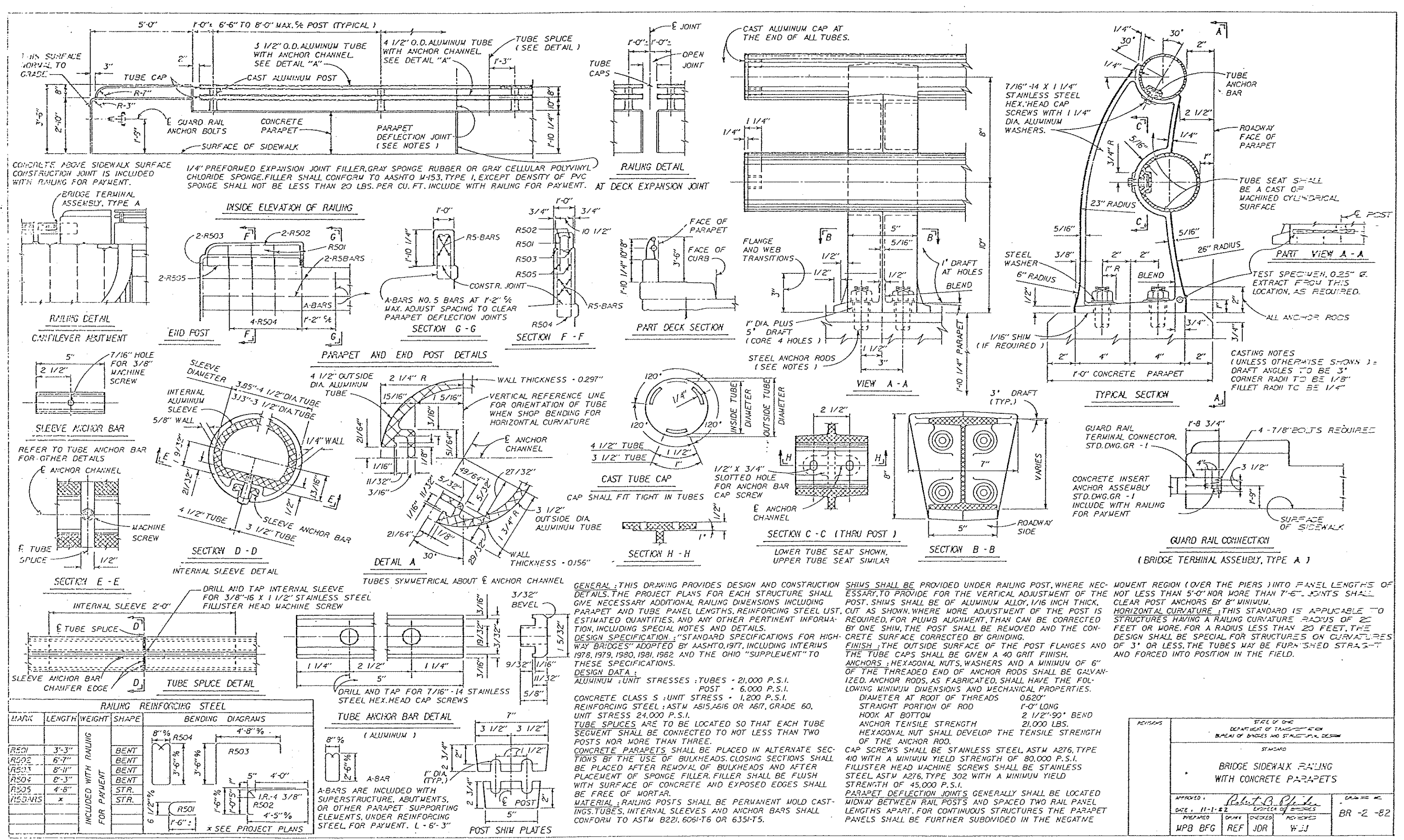
BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF TRANSPORTATION

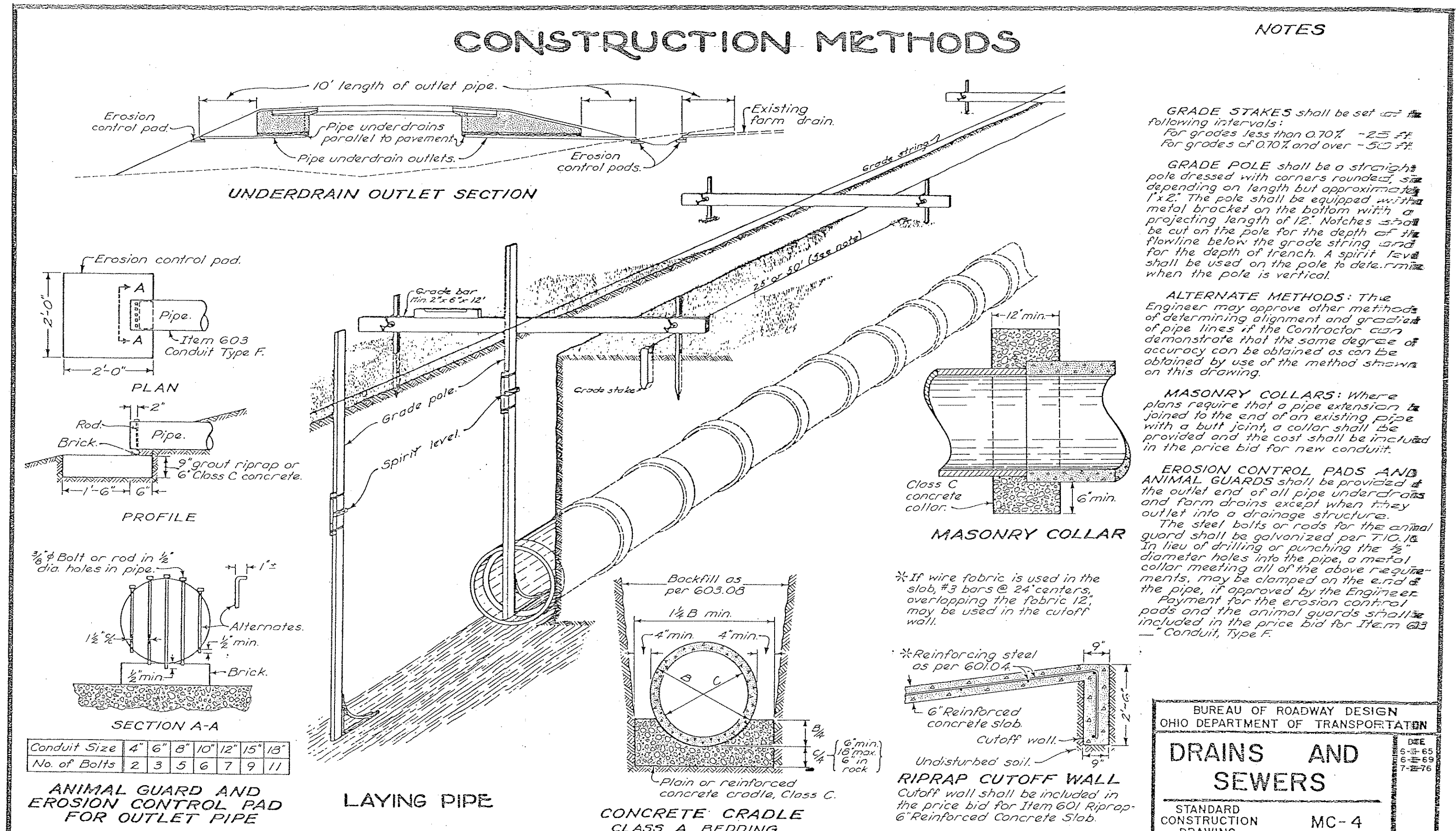
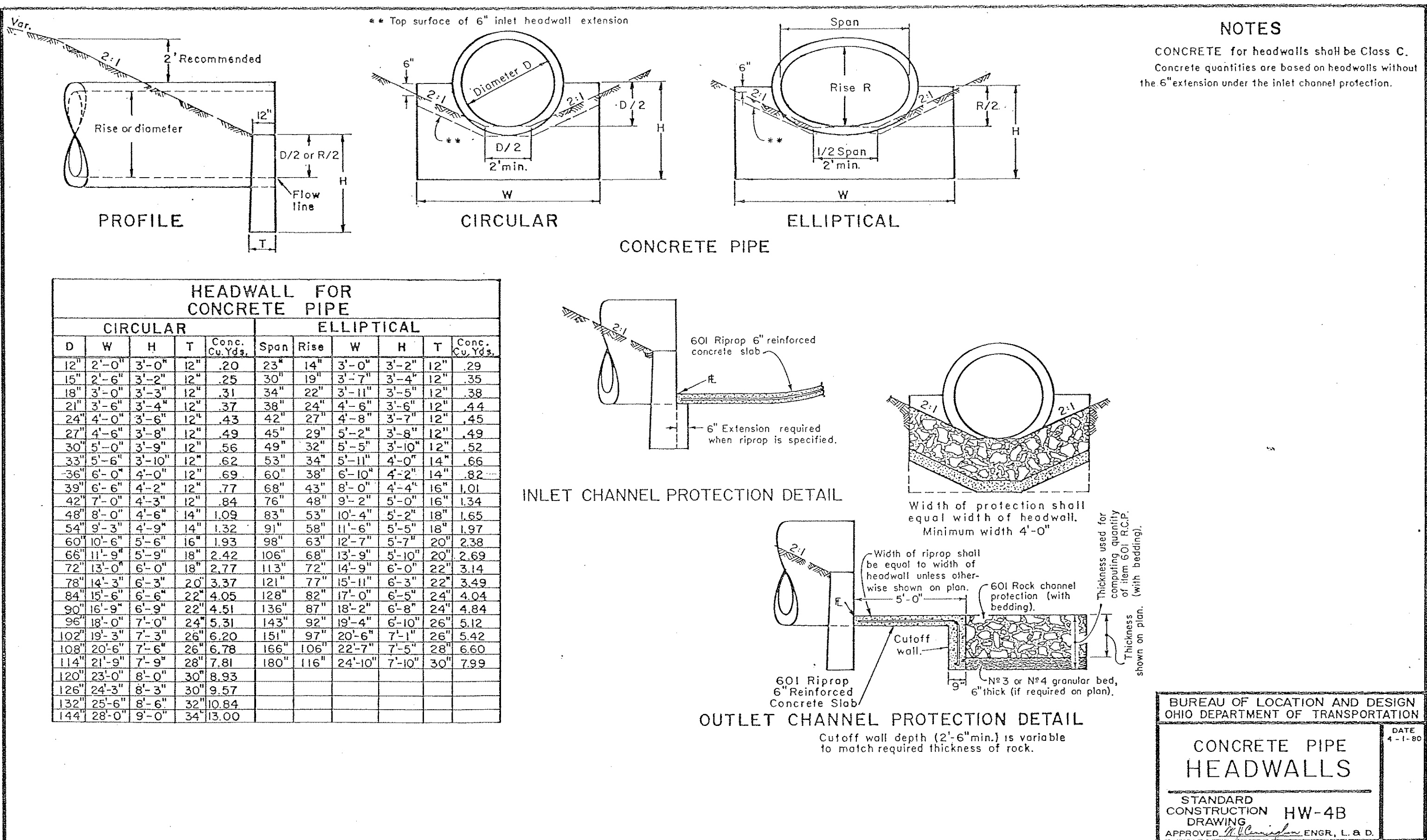
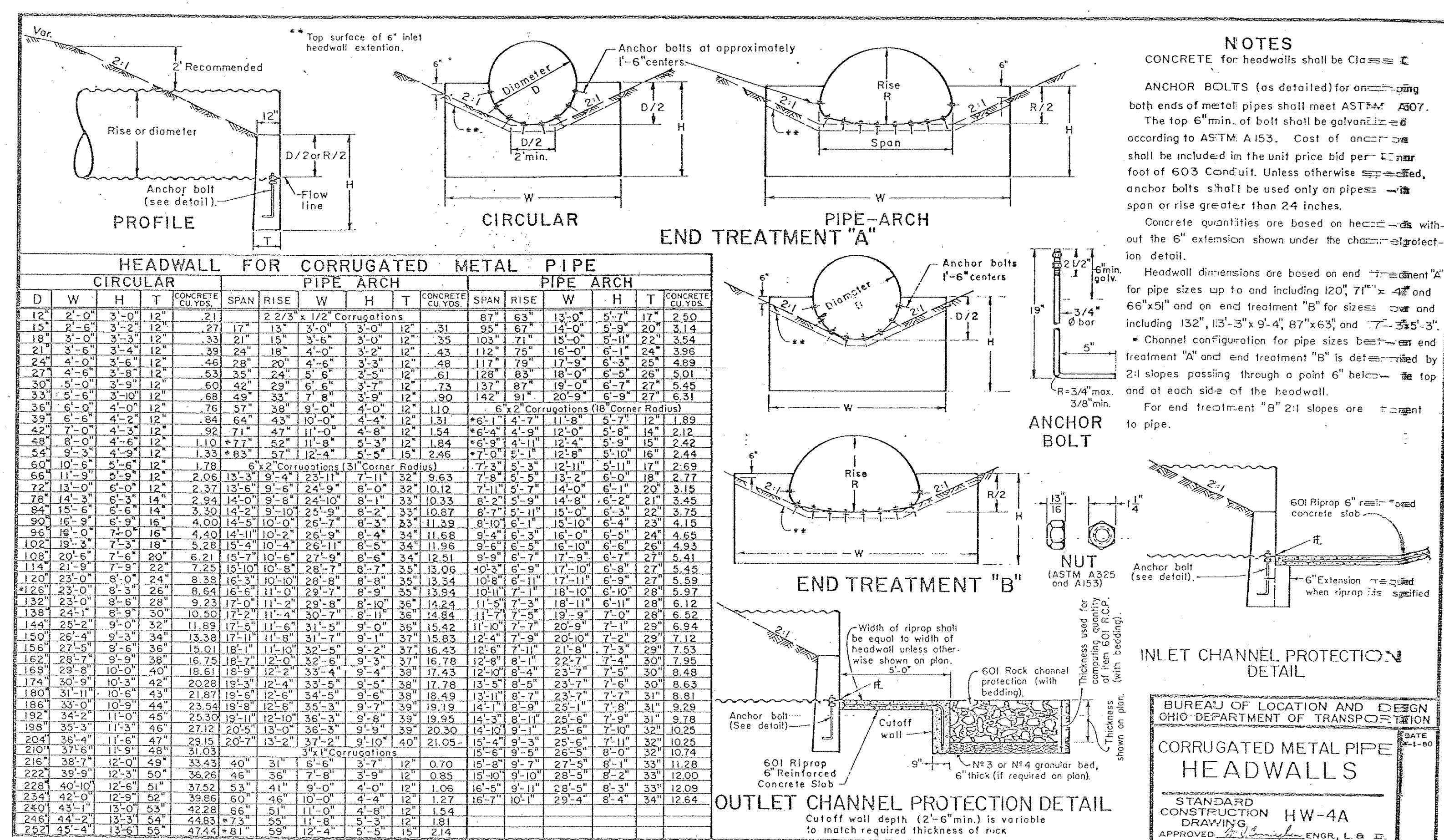
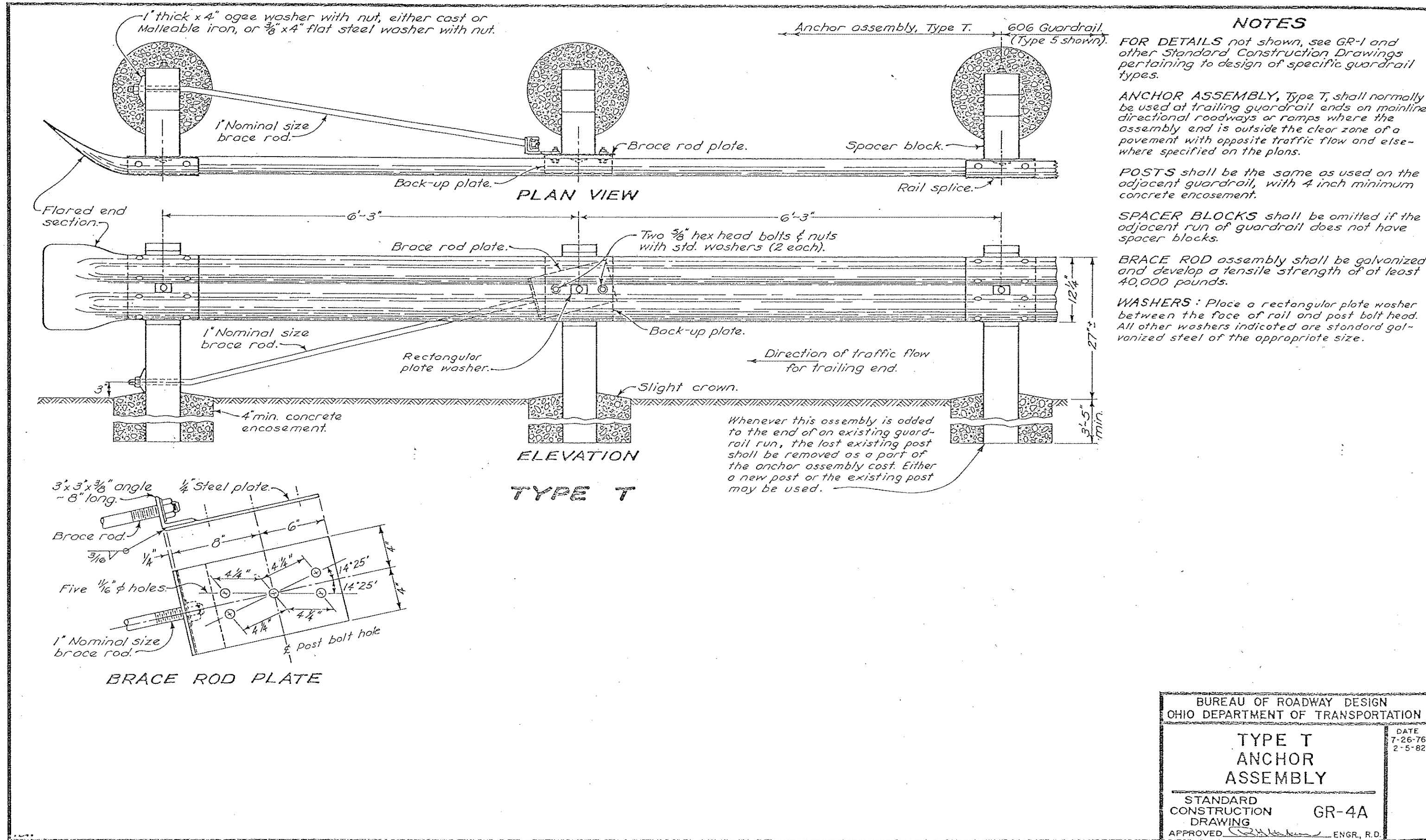
CONCRETE CURBS AND COMBINED CURB AND GUTTER

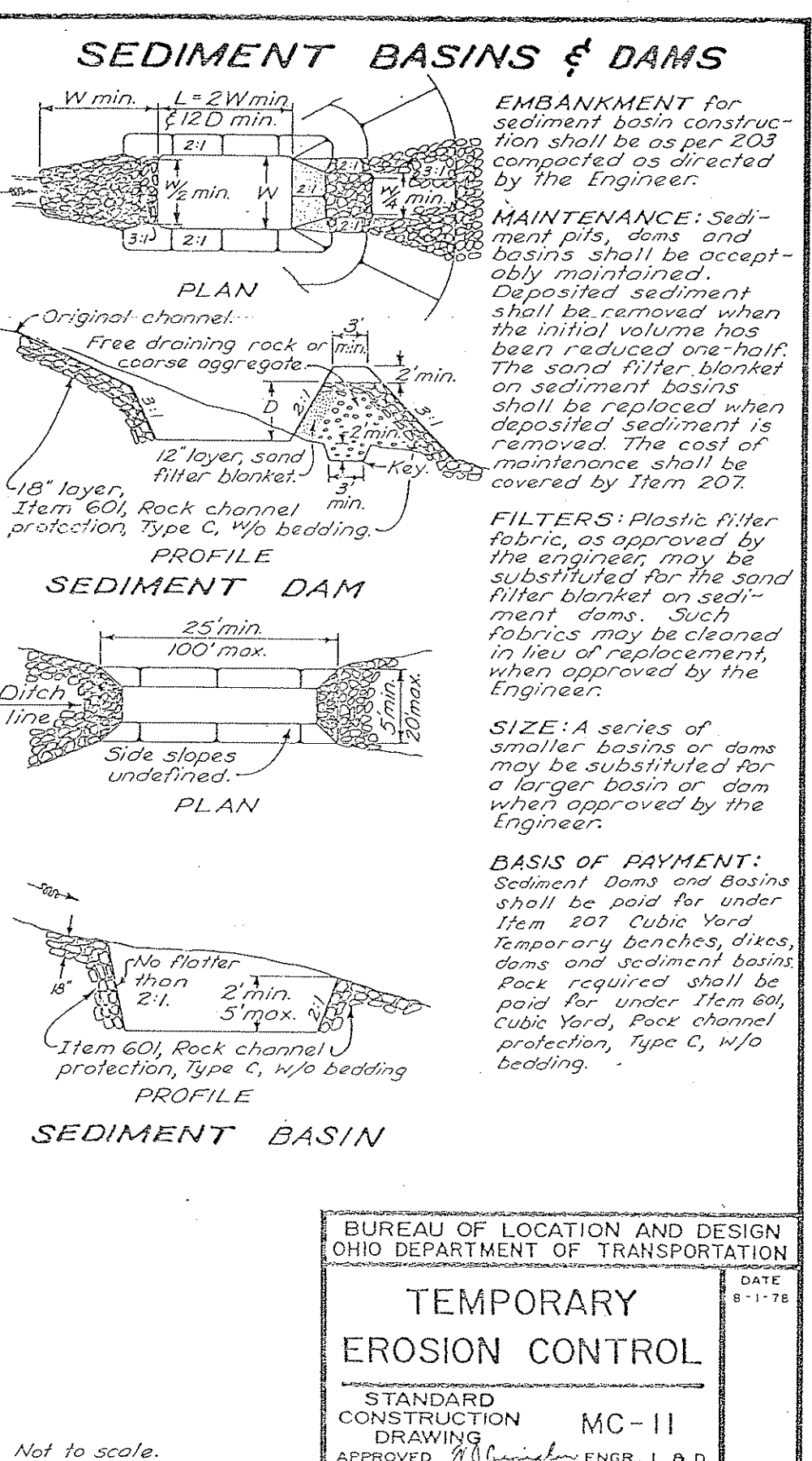
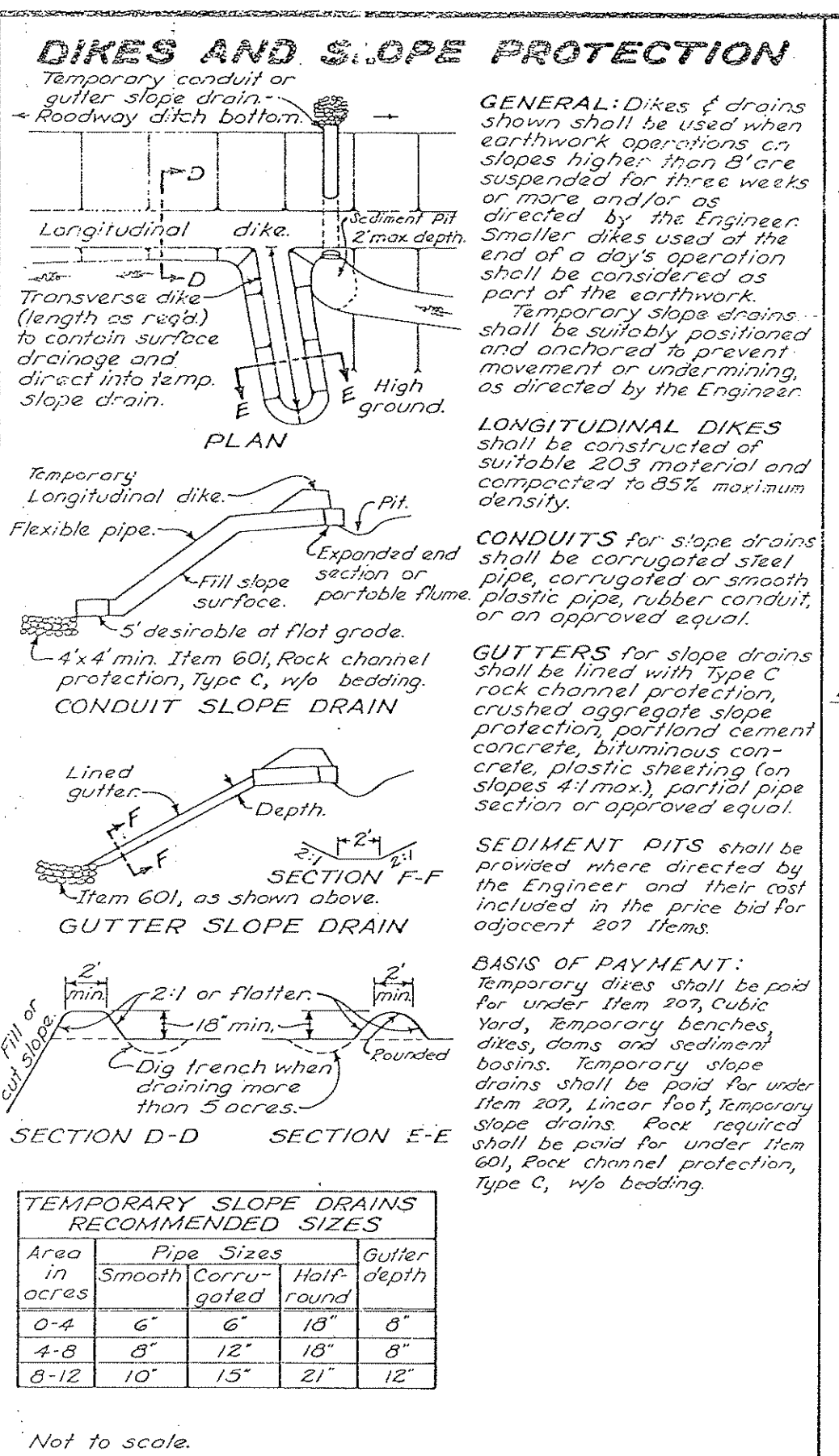
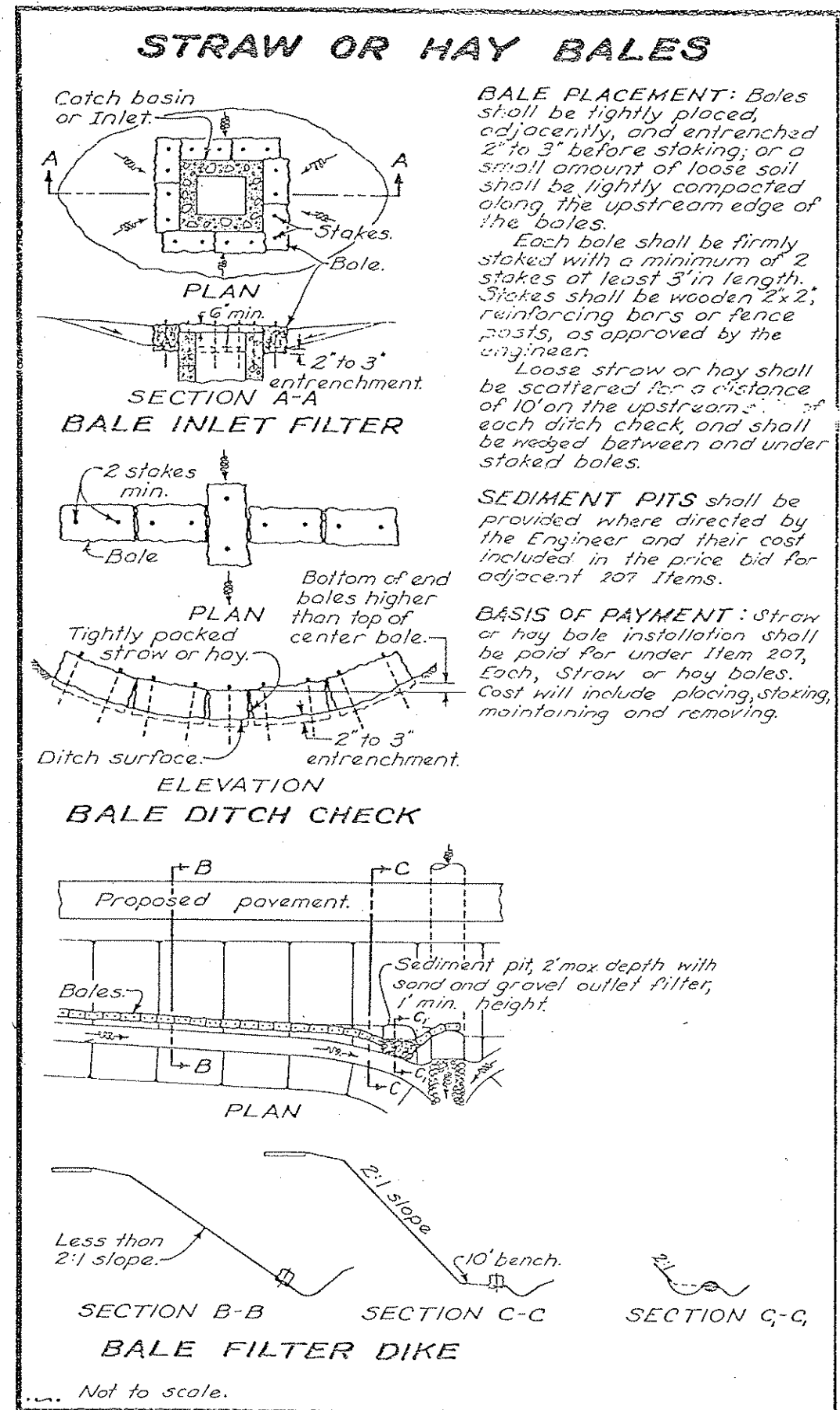
DATE: 6-1-65
1-1-66
12-6-76
10-1-87

STANDARD CONSTRUCTION DRAWING BP-7

APPROVED: [Signature] ENGR. L.D.







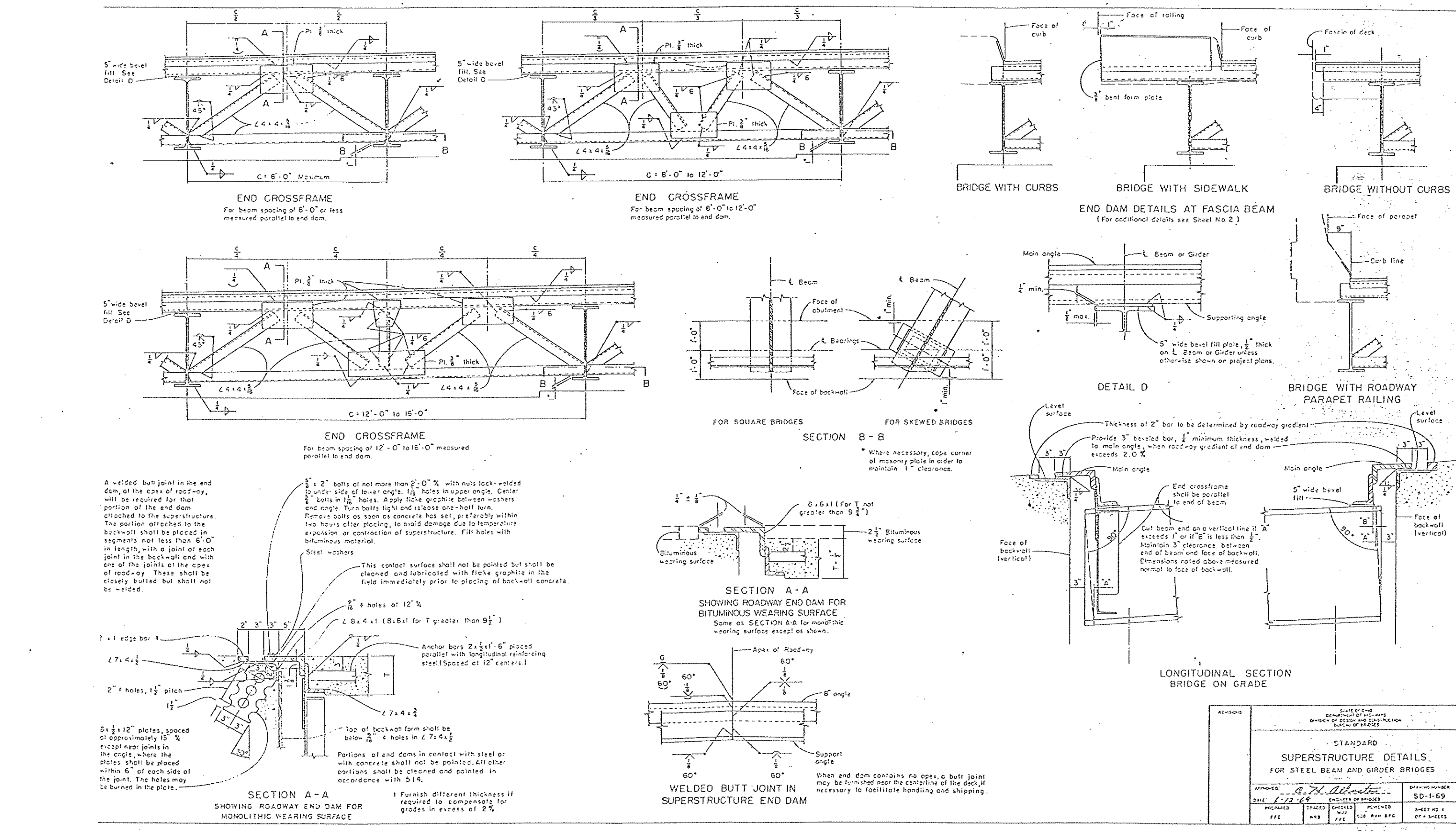
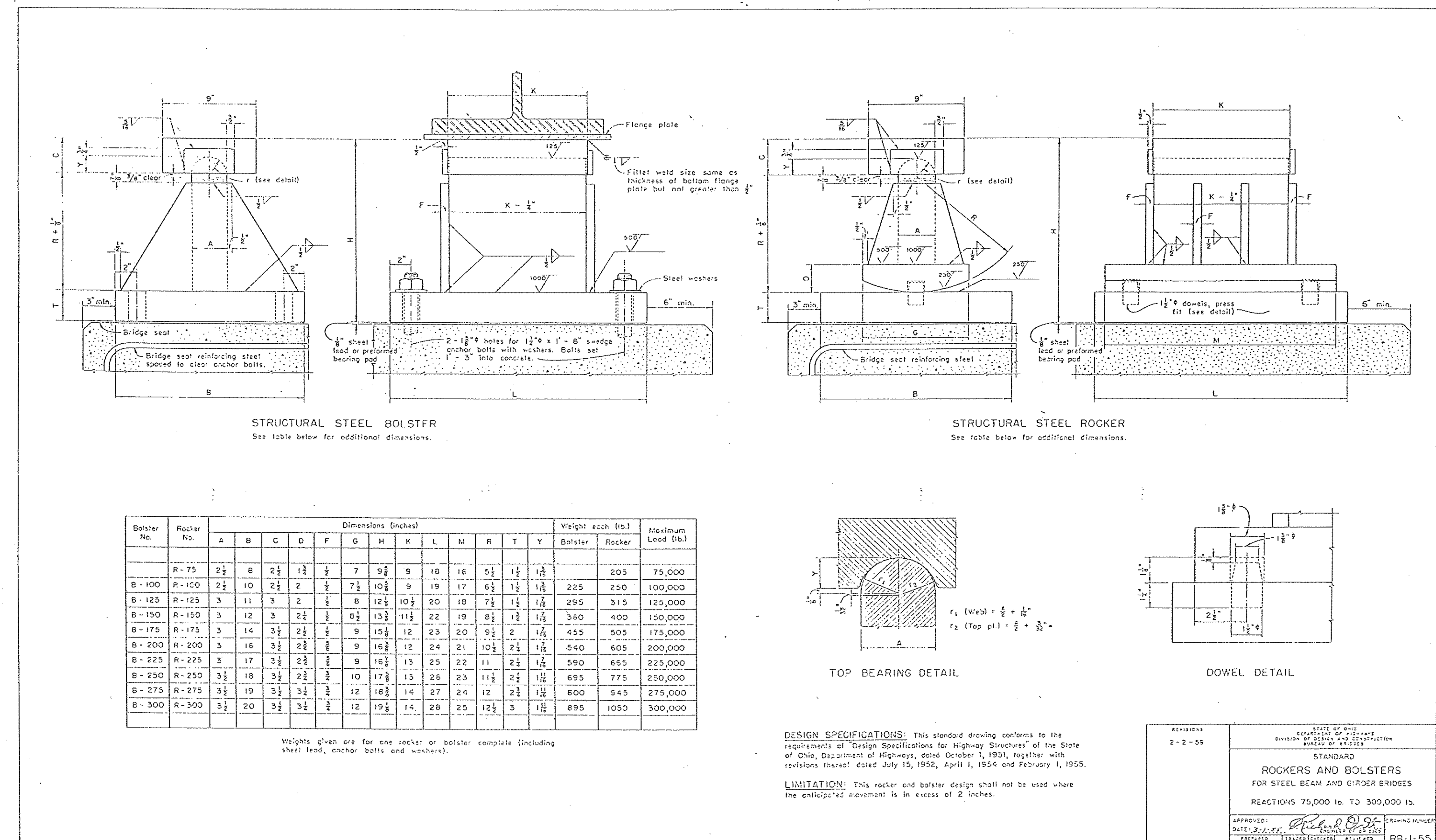
BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF TRANSPORTATION

TEMPORARY EROSION CONTROL

STANDARD CONSTRUCTION DRAWING
APPROVED: [Signature] ENGR. L & D

DATE: 8-1-78

MC-11



GENERAL: This drawing provides design and construction details. The Project plans shall show the location of splices and a reference to this drawing for pertinent details and notes. For splicing beams of different sizes or where splices are required at beam end points, the project plans shall include sufficient details supplementing this drawing to completely describe the splice.

DESIGN SPECIFICATIONS: This drawing conforms to "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway Officials, 1965, including the One Supplement to these specifications.

BASIC UNIT STRESSES:
Structural Steel ASTM A-36 20,000 psi bending
12,000 psi shear
High Strength Bolts ASTM A-325 15,000 psi shear

FATIGUE UNIT STRESSES: Where the ratio of the minimum to the maximum moment R is <0.5, the splice design shall be based on the allowable fatigue unit stresses as required by Section 1.7.3 instead of on the basic unit stresses noted above. The effect of this change in the allowable unit stresses may be conveniently implemented in the design by increasing the calculated maximum stresses (moment and shear) by the ratio of the basic unit stress to the fatigue unit stress. These modified maximum stresses may then be used as specified in the DESIGN note to verify the adequacy of the splice design shown hereon, or to establish modified strength requirements for special designs using basic unit stresses.

DESIGN: For each structure the designer shall choose a splice location and determine the maximum total stresses (moment and shear) at that point. The splice shall be designed for not less than (1) the average of the calculated maximum stress and the static strength of the beam, (2) the modified maximum stress specified in the FATIGUE UNIT STRESSES note, or (3) 75 % of the static strength of the beam. The splice design shown hereon are designed for (3). If stresses (1) or (2) are more critical, this design shall not be used and such splices should be designed to meet the established requirements. The static beam strength at the splice is based on the net section for bending and the gross section for shear using the basic unit stresses. When splicing beams of different sizes, the splice design shall be based on the lighter weight beam.

FASTENERS: 1" diameter High Strength Bolts.

SPLICE MATERIAL WEIGHT: plus the weight of fillets, where required, shall be included with the structural steel quantity for payment.

FABRICATION AND ASSEMBLY: Beam ends at splices shall be cut and fit as per plan. The opening between beam ends after assembly shall not exceed $\frac{1}{4}$ ".

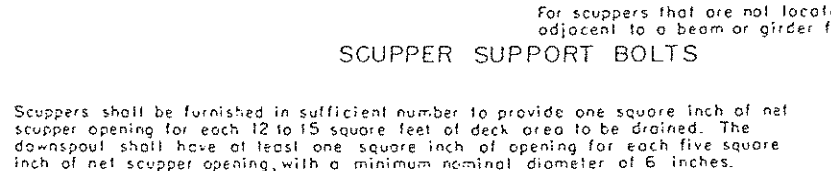
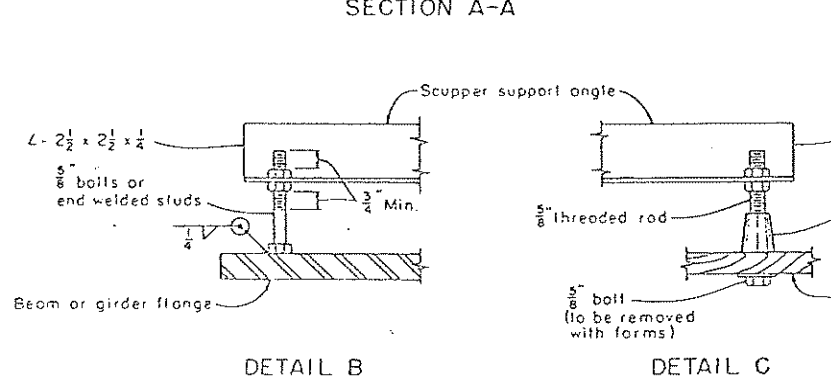
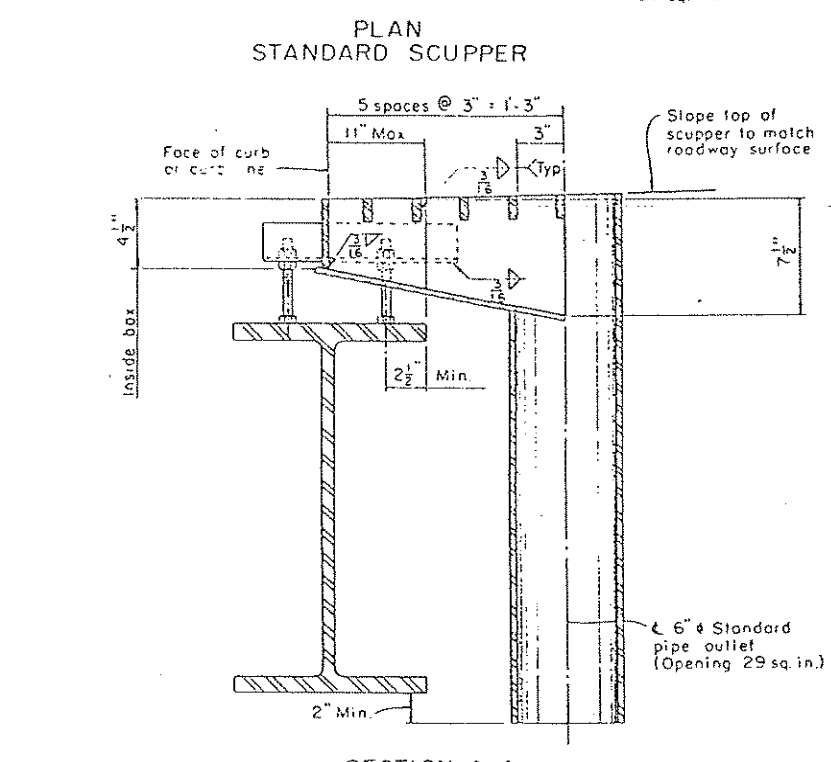
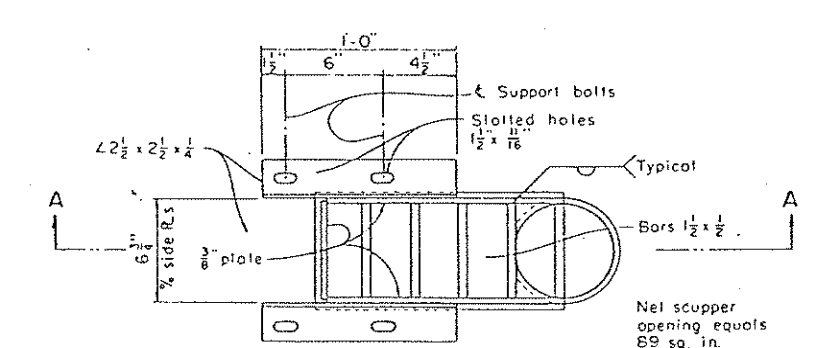
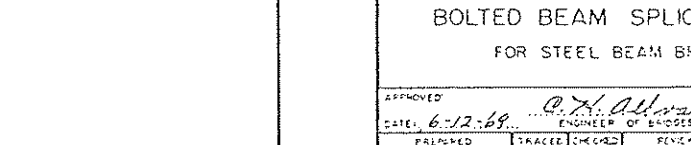
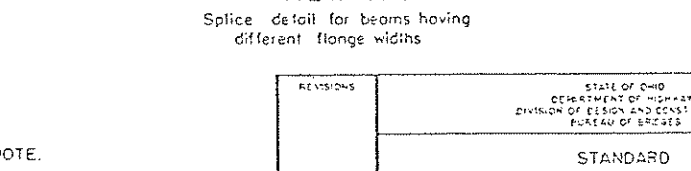
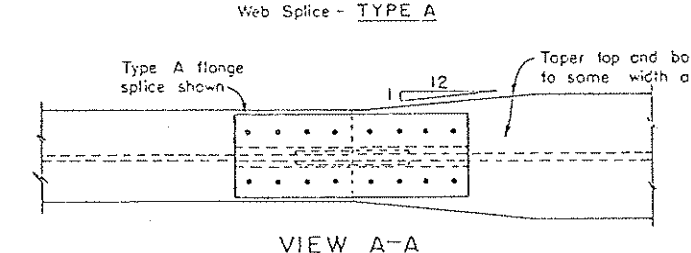
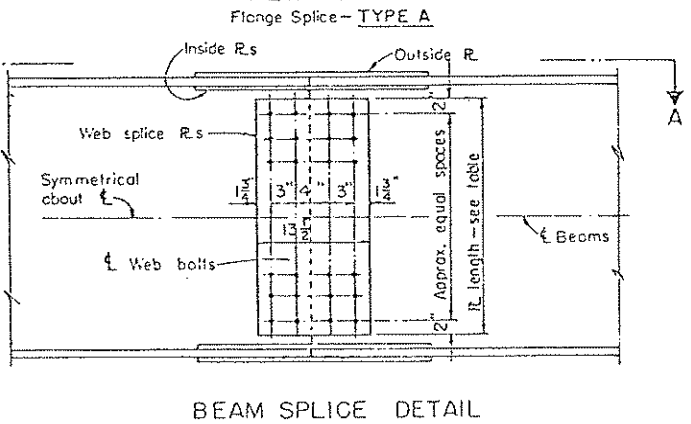
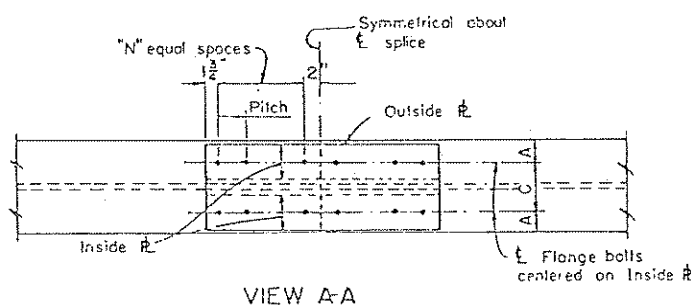
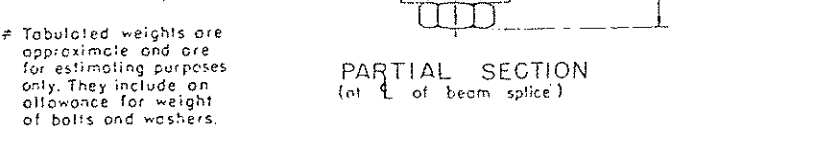
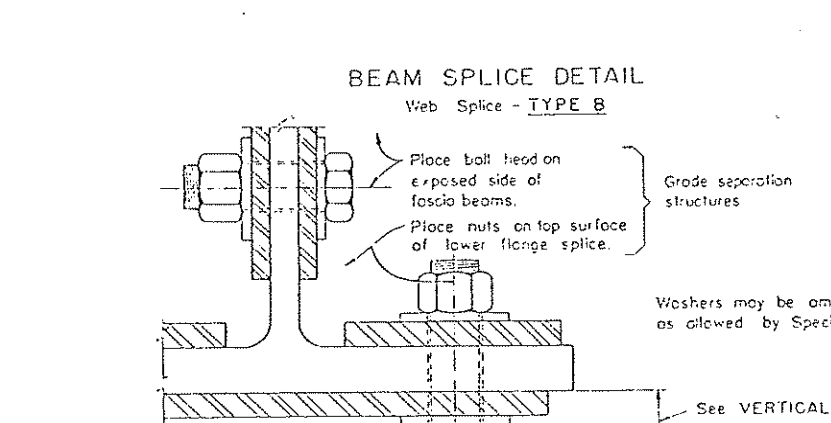
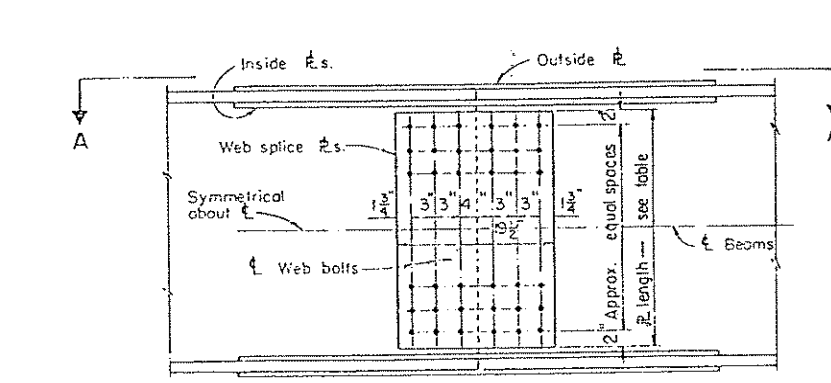
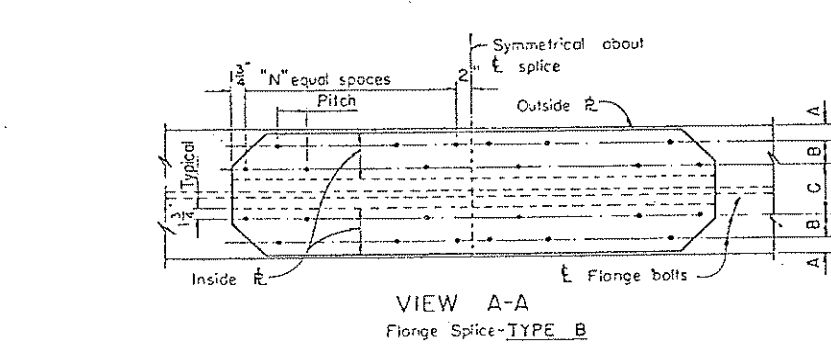
FILLS shown on the project plans and shop drawings shall be dimensioned to the nearest $\frac{1}{8}$ " in thickness, but not less than $\frac{1}{8}$ " inch thick based on the dimensions for detailing and intended relative position of the abutting flanges and webs to be spliced. However, in the final shop assembly, fills shall be furnished with thicknesses sufficient to compensate for any misalignment of abutting flanges and webs due to standard rolling mill tolerances. The actual fills used in the splice shall be such as to compensate for differences in total thickness or relative positions of $\frac{1}{8}$ " inch or more.

VERTICAL CLEARANCE: For grade separation structures an allowance of $\frac{3}{4}$ " inches plus the thickness of the splice design shall be based on the lighter weight beam.

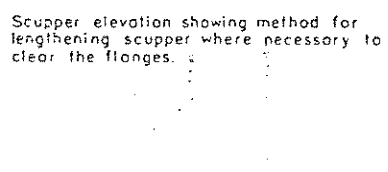
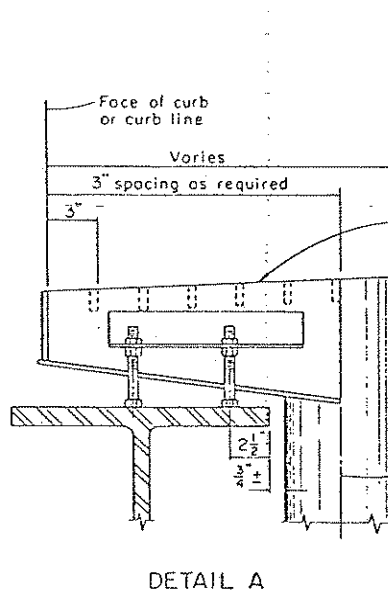
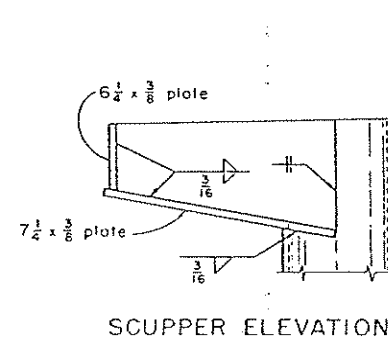
VERTICAL CLEARANCE: For grade separation structures an allowance of $\frac{3}{4}$ " inches plus the thickness of the splice design shall be based on the lighter weight beam.

BEAM SPLICE DATA														
DETAILS										DESIGN				
Beam	Type	Flange Splice				Web Splice				Weight of splice material lbs.	Beam Strength		Moment H-Aps	Shear lbs.
		Outside	Inside	N/A	N/A	Web Plates	Web Bolts	Web Plates	Web Bolts					
280	B	10 1/2 x 6 3/4	6 1/2 x 6 3/4	80	9	3 1/2	2 1/2	3	6 1/2	1210	1455	354		
260	B	10 1/2 x 6 3/4	6 1/2 x 6 3/4	64	7	3 1/2	2 1/2	3	6 1/2	950	1338	338		
240	B	10 1/2 x 6 3/4	6 1/2 x 6 3/4	64	7	3 1/2	2 1/2	3	6 1/2	880	1261	321		
230	B	10 1/2 x 6 3/4	6 1/2 x 6 3/4	64	7	3 1/2	2 1/2	3	6 1/2	840	1180	306		
194	A	11 1/2 x 2 1/2	4 1/2 x 2 1/2	40	4	3 1/2	2 1/2	7	8	540	891	314		
182	A	11 1/2 x 2 1/2	4 1/2 x 2 1/2	40	4	3 1/2	2 1/2	7	8	490	838	295		
170	A	11 1/2 x 2 1/2	4 1/2 x 2 1/2	40	4	3 1/2	2 1/2	7	8	460	782	277		
160	A	11 1/2 x 2 1/2	4 1/2 x 2 1/2	32	3	3 1/2	2 1/2	7	8	400	729	266		
150	A	11 1/2 x 2 1/2	4 1/2 x 2 1/2	32	3	3 1/2	2 1/2	7	8	340	670	255		
135	A	11 1/2 x 2 1/2	4 1/2 x 2 1/2	32	3	3 1/2	2 1/2	7	8	300	585	244		
240	B	10 1/2 x 6 3/4	6 1/2 x 6 3/4	64	7	3 1/2	2 1/2	6 1/2	8	870	1140	306		
220	B	10 1/2 x 6 3/4	6 1/2 x 6 3/4	64	7	3 1/2	2 1/2	6 1/2	8	790	1040	286		
200	B	10 1/2 x 6 3/4	6 1/2 x 6 3/4	64	7	3 1/2	2 1/2	6 1/2	8	580	943	264		
152	A	10 1/2 x 2 1/2	4 1/2 x 2 1/2	32	3	3 1/2	2 1/2	6 1/2	8	360	655	239		
141	A	10 1/2 x 2 1/2	4 1/2 x 2 1/2	32	3	3 1/2	2 1/2	6 1/2	8	320	595	228		
130	A	10 1/2 x 2 1/2	4 1/2 x 2 1/2	32	3	3 1/2	2 1/2	6 1/2	8	310	539	218		
118	A	10 1/2 x 2 1/2	4 1/2 x 2 1/2	24	2	3 1/2	2 1/2	6 1/2	8	250	476	208		
132	A	10 1/2 x 2 1/2	4 1/2 x 2 1/2	32	3	3 1/2	2 1/2	6	8	350	501	209		
124	A	10 1/2 x 2 1/2	4 1/2 x 2 1/2	32	3	3 1/2	2 1/2	6	8	330	464	199		
116	A	10 1/2 x 2 1/2	4 1/2 x 2 1/2	24	2	3 1/2	2 1/2	6	8	240	430	192		
106	A	10 1/2 x 2 1/2	4 1/2 x 2 1/2	24	2	3 1/2	2 1/2	6	8	230	382	186		
99	A	10 1/2 x 2 1/2	4 1/2 x 2 1/2	24	2	3 1/2	2 1/2	6	8	220	353	177		
114	A	10 1/2 x 2 1/2	4 1/2 x 2 1/2	24	2	3 1/2	2 1/2	6	8	270	390	174		
102	A	10 1/2 x 2 1/2	4 1/2 x 2 1/2	24	2	3 1/2	2 1/2	6	8	220	345	158		
94	A	10 1/2 x 2 1/2	4 1/2 x 2 1/2	24	2	3 1/2	2 1/2	6	8	220	315	150		
84	A	10 1/2 x 2 1/2	4 1/2 x 2 1/2	24	2	3 1/2	2 1/2	6	8	210	273	141		
110	A	10 1/2 x 2 1/2	4 1/2 x 2 1/2	32	3	3 1/2	2 1/2	6 1/2	8	300	373	158		
100	A	10 1/2 x 2 1/2	4 1/2 x 2 1/2	32	3	3 1/2	2 1/2	6 1/2	8	300	338	156		
94	A	10 1/2 x 2 1/2	4 1/2 x 2 1/2	24	2	3 1/2	2 1/2	6	8	250	282	140		
84	A	10 1/2 x 2 1/2	4 1/2 x 2 1/2	24	2	3 1/2	2 1/2	6	8	230	250	127		
76	A	10 1/2 x 2 1/2	4 1/2 x 2 1/2	24	2	3 1/2	2 1/2	6	8	230	223	119		
68	A	10 1/2 x 2 1/2	4 1/2 x 2 1/2	24	2	3 1/2	2 1/2	6	8	200	195	112		
68	A	10 1/2 x 2 1/2	4 1/2 x 2 1/2	24	2	3 1/2	2 1/2	6	8	190	175	102		

* Tim plates as required to fill beam fillets.



Scuppers shall be furnished in sufficient number to provide one square inch of net scupper opening for each 12 to 15 square feet of deck area to be drained. The deck opening shall have at least one square inch of opening for each five square inch of net scupper opening, with a minimum nominal diameter of 8 inches. Scupper should clear crossframes by at least 6" and abutments by 2'-6". They shall be no nearer to E or pier bearings than O.D. of span length. The support angles and support bolts are included with scupper for payment. Scuppers, including support angles, shall be galvanized in accordance with 711.



MOMENT PLATES
* See Standard Drawings or project plans for dimension 'A'. Dimension 'A' equals $\frac{1}{2}$ plate length unless otherwise shown, in which case the plans shall indicate the span to which dimension 'A' applies.

REVISIONS	STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES				
	STANDARD SUPERSTRUCTURE DETAILS FOR STEEL BEAM AND GIRDER BRIDGES				
APPROVED:	<i>C. H. Adams</i>				DRAWING NUMBER
DATE: 6-13-69	CHIEF OF DIVISION				SD-1-69
PREPARED	TRACED	CHECKED	IN CHARGE	SHEET NO. 3	
W.B.	A.B.	W.J.	COO. BRIDGE	OF 4 SHEETS	