DESIGN DATA				
Traffic	Average Daily			Est.Max.Hr.
Current 1998	Pass: 5420	Trucks 730	Total 6150	750
Forecast 2018	Pass: 11920	Trucks 1460	Total 13380	1650
Minimum Sight Dist. for:		Design Speed 75 MPH		
Stopping 675'		Bridges		
Full Control of Access				
No Point of Access Other Than at Interchange Ramps				

JOB# 10

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	1

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

FEDERAL AID PROJECT
IM-8-029(044)061

S BOUND I-29 OVER 40TH AVENUE SW
AND 40TH AVENUE, UNDER I-29 SOUTHBOUND
GRADING, SURFACING, STRUCTURE, GUARD RAIL, STORM SEWER,
PAVEMENT MARKING AND INCIDENTALS

In
Cass County

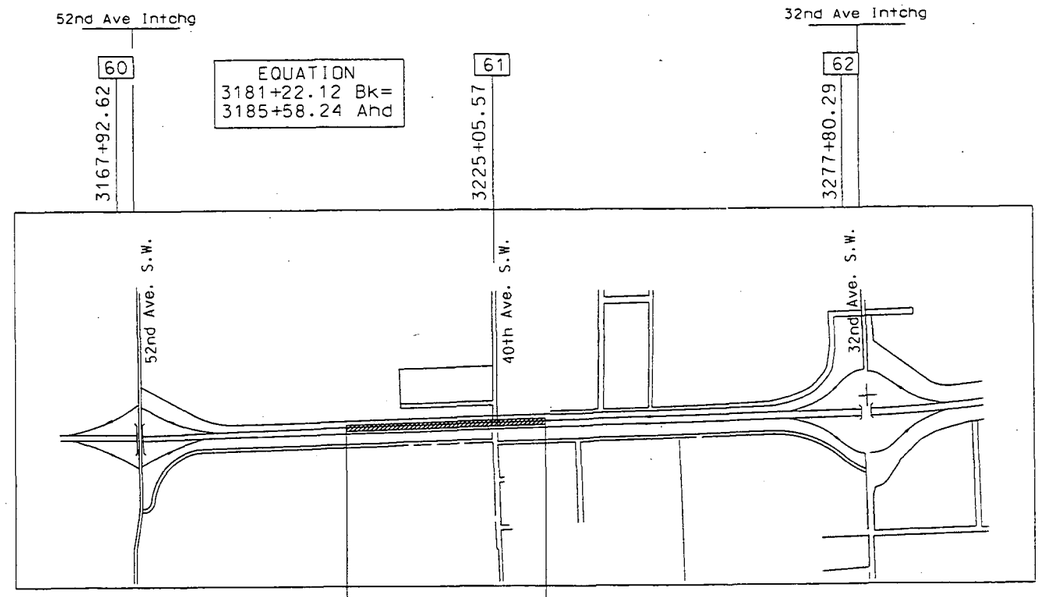
GOVERNING SPECIFICATIONS:

Standard Specifications adopted by the North Dakota Department of Transportation October 1997; Standard Drawings currently in effect; and other Contract Provisions submitted herein.

LENGTH OF PROJECT

Miles Gross	Miles Net
0.562	0.522

0.040 Mi Deducted for Structures



Beg Proj 3227+81
Sec 35, Twp 139 N, Rge 49 W

End Proj 3257+50
Sec 26, Twp 139 N, Rge 49 W

ULTEIG Engineers

P.S&E CHANGES MADE
12-15-99

APPROVAL OF CITY ENGINEER

I MARK BITTNER, P.E., CITY ENGINEER FOR THE CITY OF FARGO, ND, HEREBY APPROVE THESE PLANS FOR S BOUND I-29 OVER 40TH AVENUE SW, FARGO, NORTH DAKOTA AS SHOWN ON THE ACCOMPANYING PLANS.

Mark Bittner

MARK BITTNER, P.E.
CITY ENGINEER
FARGO, NORTH DAKOTA

DATE 12/17/99 REG. NO. 1958

MARK H. BITTNER REGISTERED PROFESSIONAL 1958 ENGINEER NORTH DAKOTA

I HEREBY CERTIFY THAT THE ATTACHED PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NORTH DAKOTA.

Eugene L. Rower

DATE 12-15-99 REG. NO. 3591

EUGENE L. ROWER REGISTERED P.E. 3591 ENGINEER NORTH DAKOTA

DESIGNER ~~Steven A. Hrabik~~, PE-3478
DESIGNER Steven M. Schiller, PE-4305
DESIGNER _____
RECOMMEND APPROVAL _____, 19__
DESIGN ENGINEER Dean F. Miller PE-4036

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

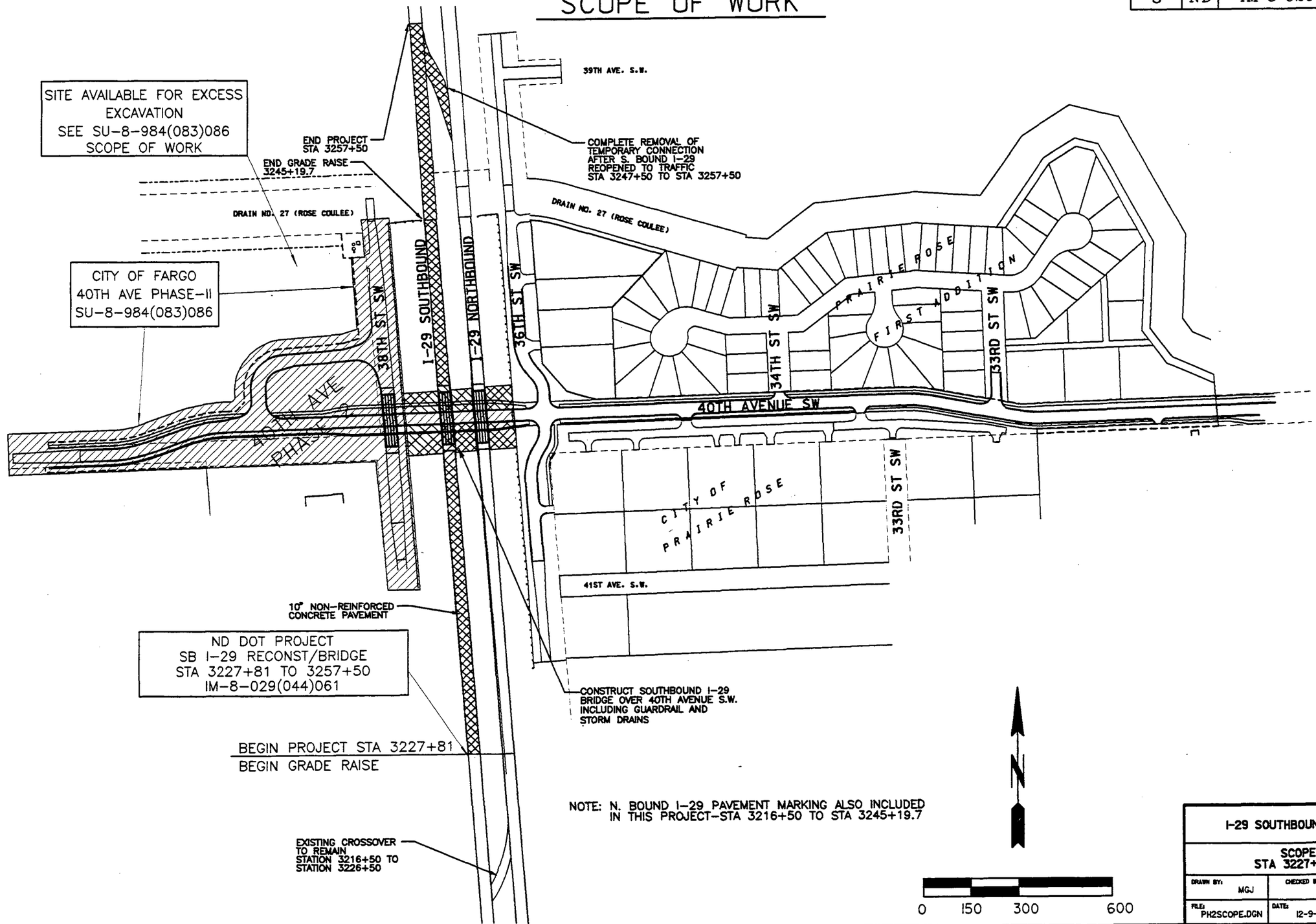
APPROVED

DIVISION ADMINISTRATOR DATE

FILE: TITLE_PH2 DATE: 12/6/99 DRAWN BY: MGJ

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	3

SCOPE OF WORK



NOTE: N. BOUND I-29 PAVEMENT MARKING ALSO INCLUDED IN THIS PROJECT-STA 3216+50 TO STA 3245+19.7

ULTEIG ENGINEERS

I-29 SOUTHBOUND RECONSTRUCTION		
SCOPE OF WORK STA 3227+81 TO 3257+50		
DRAWN BY: MGJ	CHECKED BY: SG	APPROVED BY: SG
FILE: PH2SCOPE.DGN	DATE: 12-9-99	SCALE: 1" = 300'

GENERAL NOTES

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	4

100-130 TREES, SHRUBS, AND GRASSES: THE CONTRACTOR SHALL EXERCISE CARE IN HIS CONSTRUCTION OPERATIONS TO ENSURE THAT TREES, SHRUBS, AND NATIVE GRASSES WITHIN THE RIGHT OF WAY AND OUTSIDE THE CONSTRUCTION AREA ARE NOT DISTURBED UNLESS OTHERWISE NOTED ON PLANS.

100-160 UTILITY POLES: EQUIPMENT SHALL WORK AROUND UTILITY POLES WITHIN THE CONSTRUCTION AREA THAT ARE NOT TO BE DISTURBED.

100-P01 WEEKLY PLANNING/REPORTING MEETING:
THE PROJECTS TIED TO THIS PROJECT SHALL BE INCLUDED IN THE WEEKLY PLANNING/REPORTING MEETING.

A. PURPOSE OF WEEKLY MEETING.

1. THE CONTRACTOR SHALL ORGANIZE THE WEEKLY MEETING TO COORDINATE THE EFFORTS BETWEEN SUBCONTRACTORS, UTILITIES, LOCAL AUTHORITIES, AND OTHERS

B. CONTRACTOR'S PROJECT MANAGER/SUPERINDENDENT: PLANNING AND REPORTING.

1. THE CONTRACTOR WILL BE RESPONSIBLE FOR SENDING A KNOWLEDGEABLE REPRESENTATIVE TO CONDUCT A WEEKLY REPORTING/ PLANNING MEETING. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO PREPARE MINUTES FOR EACH MEETING AND TO MAKE THE APPROPRIATE DISTRIBUTION OF THE MINUTES.

2. THE CONTRACTOR WILL BE REQUIRED TO PROVIDE A WRITTEN SCHEDULE OF THE NEXT WEEK'S WORK AND A TENTATIVE SCHEDULE OF THE FOLLOWING WEEK.

3. REPORTING/PLANNING MEETING WILL INCLUDE DISCUSSION OF PROBLEMS ENCOUNTERED DURING THE CURRENT WEEK; INFORMATION OF INTEREST TO LOCAL AUTHORITIES, SUBCONTRACTORS, UTILITIES, AND NEXT WEEK'S PROSPECTIVE SCHEDULE.

4. THE CONTRACTOR SHALL ORGANIZE THE WEEKLY MEETING CONTACTING INTERESTED AGENCIES. THESE AGENCIES MAY INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

a. NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
b. CITY ENGINEER'S REPRESENTATIVE
c. POLICE DEPARTMENT
d. FIRE DEPARTMENT
e. AMBULANCE SERVICE
f. TELEPHONE COMPANY
g. POWER COMPANY
h. CABLE T.V.
i. GAS COMPANY
j. RAILROAD COMPANY
k. SUBCONTRACTORS
l. CHAMBER OF COMMERCE

100-P02 THE CONTRACTOR WILL BE RESPONSIBLE FOR COORDINATING THE LOCATION OF ALL EXISTING UTILITIES AND CONTACTING THE APPROPRIATE UTILITY COMPANY FOR ANY NOTICES OF RELOCATION. THE CONTRACTOR WILL NOT BE RESPONSIBLE FOR THE COST OF RELOCATED UTILITIES. THE CONTRACTOR WILL BE LIABLE FOR ANY COSTS OR DELAYS RESULTING FROM DAMAGE TO THE UTILITIES DURING CONSTRUCTION.

THE UTILITIES THAT THE ENGINEER HAS BEEN MADE AWARE OF ARE SHOWN ON THE PLANS.

CONTACTS FOR THE FOLLOWING UTILITIES MAY BE MADE AT:

U.S. WEST COMMUNICATIONS
(800) 424-5555

CABLE ONE INC.
(701) 280-1358

CASS COUNTY ELECTRIC
KINDRED, ND (701) 271-4400

NORTHERN STATES POWER(GAS)
(701) 241-8685

NORTH DAKOTA ONE CALL
(800) 795-0555

HAUL ROADS

THE CONTRACTOR'S ATTENTION IS DIRECTED TO SECTION 107.05 B OF THE STANDARD SPECIFICATIONS WITH REGARD TO THE USE OF PUBLIC ROADS FOR HAULING MATERIALS TO THE PROJECT. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO INVESTIGATE THE SUITABILITY WITH THE AGENCY HAVING CONTROL OF THE ROAD PRIOR TO SUBMITTING A BID.

100-P03 MEDIAN DRAINAGE: THE CONTRACTOR SHALL MAINTAIN AND RESTORE THE EXISTING MEDIAN DRAINAGE THROUGHOUT THE PROJECT. SHOULD ANY POOLING OCCUR, THE CONTRACTOR SHALL PROVIDE SUFFICIENT TEMPORARY PUMPING OR DRAINAGE TO KEEP THE MEDIAN DRAINED. THE COST FOR MAINTAINING THE MEDIAN DRAINAGE SHALL BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS.

100-P04 DISPOSAL: NO MATERIAL EXCEPT COMMON EXCAVATION SHALL BE DISPOSED OF ON THE RIGHT OF WAY. COMMON EXCAVATION INCLUDES EARTH MATERIAL REMOVED IN THE ROADWAY RESHAPING PROCESS AND MATERIAL FROM THE UNDERPASS EXCAVATION.

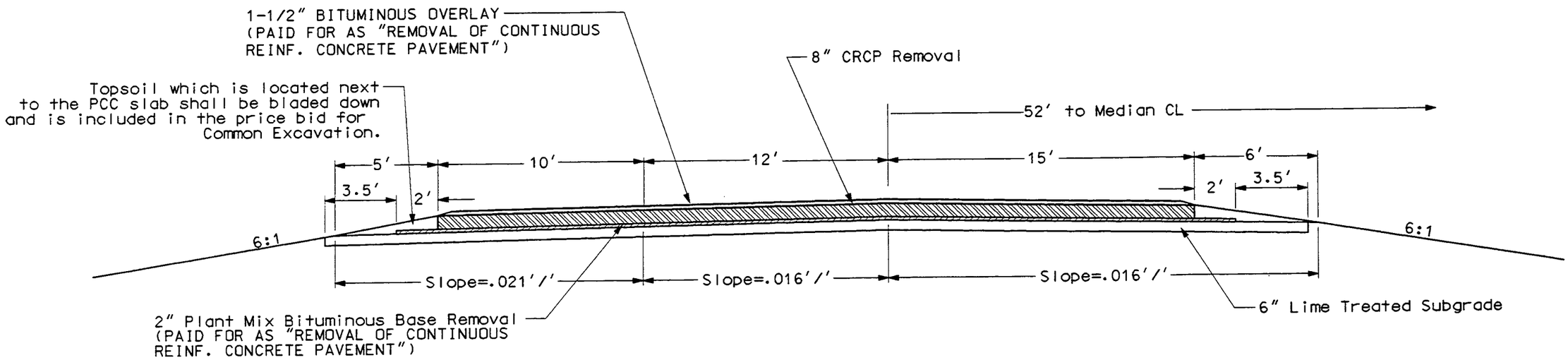
202-P01 SAW BITUMINOUS OR PCC PAVEMENT-FULL DEPTH: WHERE EXISTING BITUMINOUS OR EXISTING CONCRETE ABUTS NEW PCC PAVEMENT, A FULL DEPTH SAWCUT SHALL BE USED TO PROVIDE A CLEAN, STRAIGHT JOINT. ALL COSTS FOR LABOR, MATERIAL, AND EQUIPMENT NECESSARY TO PERFORM THE FULL DEPTH SAW CUT SHALL BE INCLUDED IN THE PRICE BID FOR "SAW CONCRETE."

203-P01 COMPACTION AND DENSITY CONTROL: COMPACTION AND DENSITY CONTROL SHALL BE IN ACCORDANCE WITH SECTION 203.02 G OF THE STANDARD SPECIFICATIONS USING AASHTO T-99. THIS REQUIREMENT ONLY APPLIES TO THE RESHAPING ROADWAY AREAS WHERE GRADE RAISE ON MAINLINE MATCHES EXISTING ROADWAY.

SECTION 203.05 G REQUIREMENT CHANGES: WHEN THE MAXIMUM DRY DENSITY IS DETERMINED USING AASHTO T-99. THE MOISTURE CONTENT OF THE SOIL AT THE TIME OF COMPACTION SHALL BE BETWEEN 2 AND 5 PERCENTAGE POINTS ABOVE THE OPTIMUM MOISTURE CONTENT.

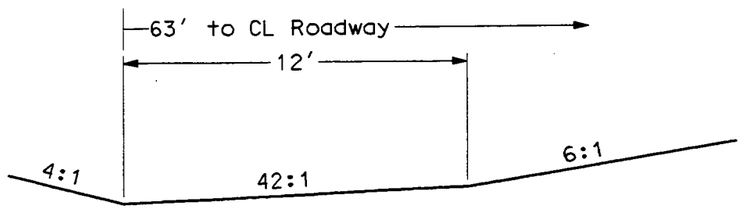
DRN BY: MGJ DATE: 12-6-99 FILE: dot_nts2.dgn

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	11

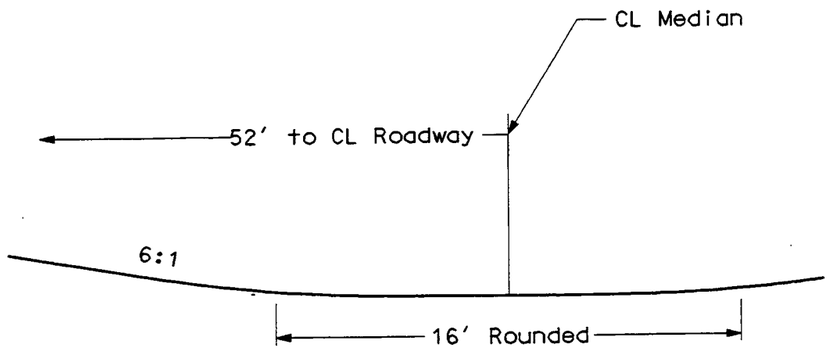


Southbound Roadway

Station 3227+81.0 to Station 3245+19.7



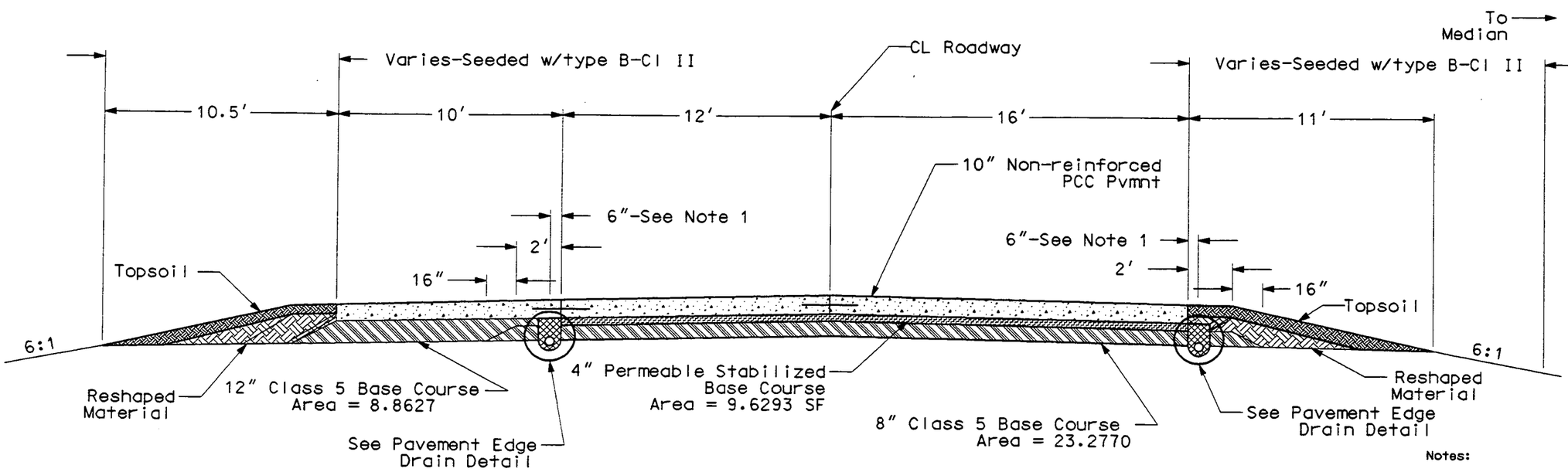
Ditch Detail



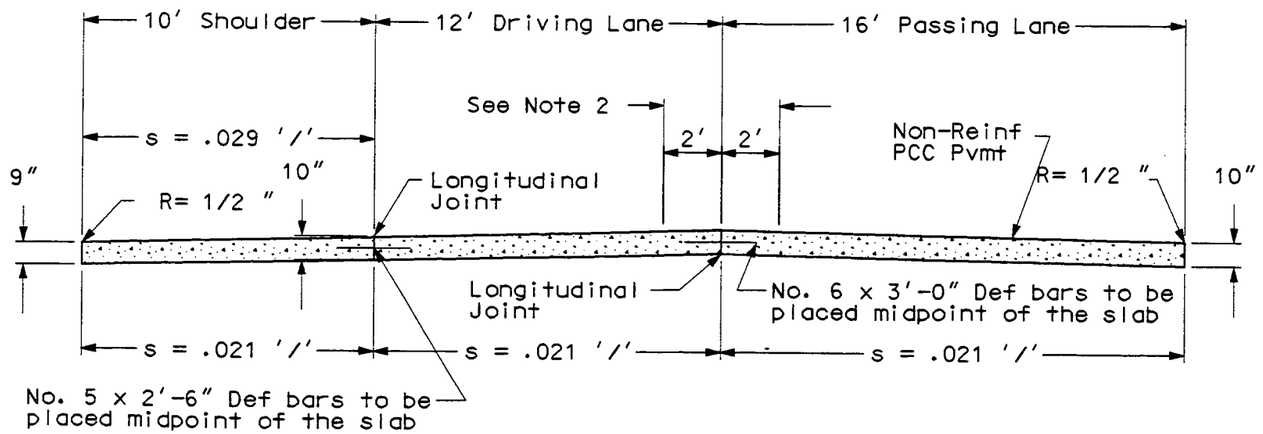
Median Detail

I-29 SOUTHBOUND RECONSTRUCTION		
EXISTING TYPICAL SECTION MAINLINE		
DRAWN BY: MGJ	CHECKED BY: DLM	APPROVED BY: SG
FILE: TE3228.DGN	DATE: 12/17/99	SCALE: 1" = 5'

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	12



Surfacing Detail



Non-reinforced PCC Pavement Detail

Notes:

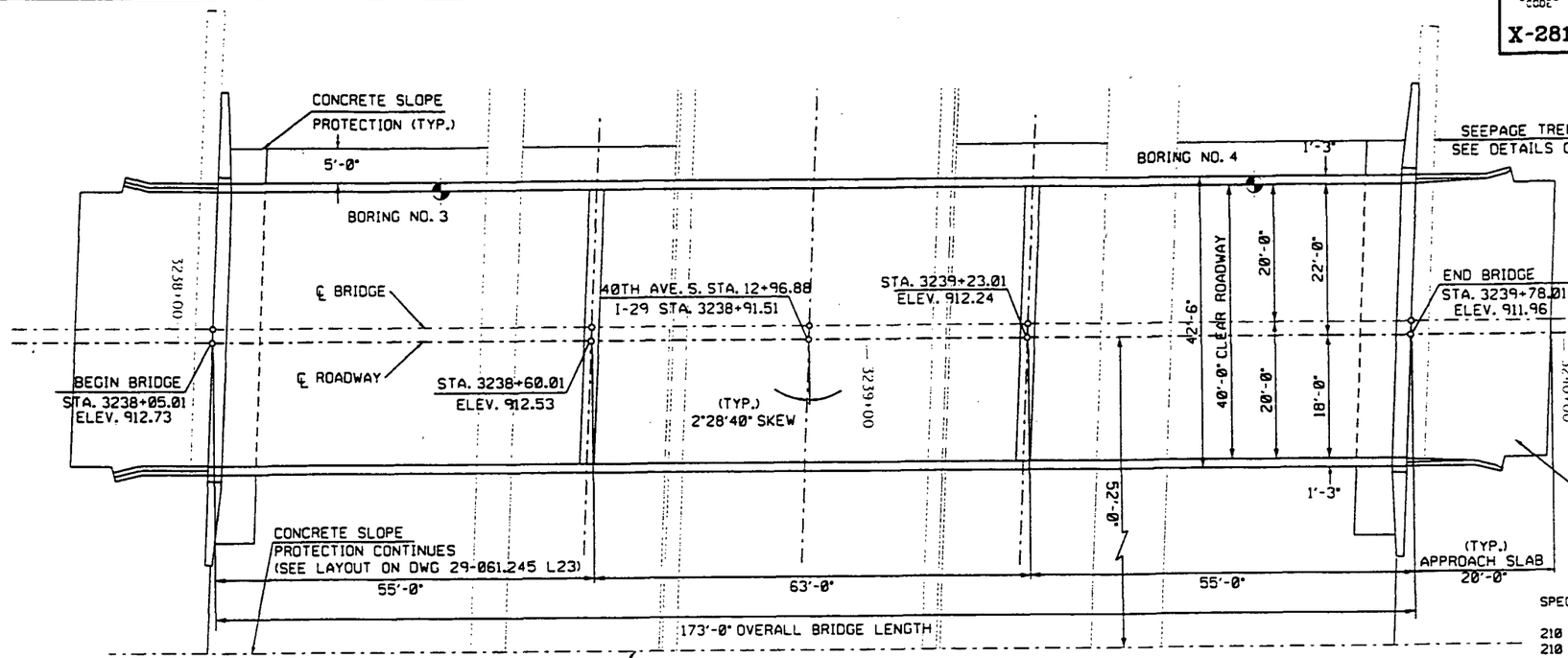
1. Permeable Stabilized Base Course must be placed 6" beyond driving lane and removed during placement of Pavement Edge drain.
2. Uniform rounding as required in the field.
3. See "PCC PAVEMENT DETAILS-JOINTS AND DOWEL BARS" and "PCC PAVEMENT DETAILS-DOWEL BAR PLACEMENT" sheet for further details.

I-29 SOUTHBOUND RECONSTRUCTION

TYPICAL MAINLINE SURFACING SECTION

DRAWN BY:	CHECKED BY:	APPROVED BY:
MGJ	SG	SG
FILE: MNLINSUR.DGN	DATE: 12/6/99	SCALE: 1" = 5'

BRIDGE CODE	FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
X-281	8	ND	IM-8-029(044)061	24



DESIGN STRENGTHS

f'c = 3,000 PSI ~ CLASS AE-3 CONCRETE
f'c = 4,000 PSI ~ CLASS AAE-3 CONCRETE
f'c = 5,000 PSI ~ PRESTRESSED CONCRETE GIRDER
fy = 60,000 PSI ~ REINFORCING STEEL

LOAD FACTOR DESIGN

SPEC CODE	ITEM DESCRIPTION	UNIT	QUANTITY
210 0101	CLASS 1 EXCAVATION	L. SUM	.5
210 0201	FOUNDATION PREPARATION	EA.	1
550 0215	CONCRETE BRIDGE APPROACH SLAB	SQ. YD.	187
602 0130	CLASS AAE-3 CONCRETE	CU. YD.	250.0
602 1130	CLASS AE-3 CONCRETE	CU. YD.	143.4
602 1250	PENETRATING WATER REPELLENT TREATMENT	SQ. YD.	769
604 9620	PRESTRESSED BOX BEAM-33"	L. FT.	840
612 0115	REINFORCING STEEL-GRADE 60	LBS.	23,123
612 0116	REINFORCING STEEL-GRADE 60-EPOXY COATED	LBS.	50,726
622 0040	STEEL PILING HP 12 x 53	L. FT.	960
622 0060	STEEL PILING HP 14 x 73	L. FT.	840
708 1100	SLOPE PROTECTION CONCRETE	SQ. YD.	1658
930 8642	NOSING CONCRETE	CU. FT.	7.8
930 8644	SILICONE SEALANT	L. FT.	85

BENCH MARK: 1) CHISLED "□" NW WINGWALL OF 36TH ST. SW. BRIDGE OVER ROSE COULEE (DRAIN #27) ELEVATION=908.95

2) SE FLANGE BOLT OF FIREHYDRANT @ NE. CORNER OF 42ND AVE. SW. AND 36TH. SW. ELEVATION=910.11

NOTE: ELEVATIONS ARE CITY OF FARGO DATUM.

STANDARD DRAWINGS

D-604-3, D-622-1, D-708-1,

F.W.S. 15 PSF

HS 25 DESIGN LOADING

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of North Dakota.

Eugene L. Rowen
Reg# 3591 12-15-99

EUGENE L. ROWEN REGISTERED PROFESSIONAL P.E. 3591 ENGINEER NORTH DAKOTA

ULTEIG ENGINEERS, INC.
PHASE II
SOUTHBOUND I-29
40th AVE. S. OVERPASS
BRIDGE LAYOUT
PROJECT: IM-9-029(044)061
STATION 3238+91.51
CASS COUNTY

APPROVED 1-10-00 DATE:
Terrence R. Udland
BRIDGE ENGINEER

29-061.245 L

FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	25

100 SCOPE OF WORK: This project consists of building a new bridge for the South Bound lanes of I-29 over 40th Ave. SW in Fargo, ND

100 GENERAL: The cost of furnishing and placing preformed expansion joint filler, concrete inserts, tie wire, bar spacers, bar supports, and other miscellaneous items shall be included in the price bid for Class AE-3 and AAE-3 concrete.

210 EXCAVATION: The excavation at the abutments and the excavation required to build the piers shall be included in the lump sum bid item, "Class 1 Excavation." (Approx. 360 CY).

210 SELECT BACKFILL: Select backfill shall meet the requirements of Section 816.03, Class 3. The backfill shall be placed in layers of not more than 6 inches, moistened or dried as required, and thoroughly compacted with mechanical tamping equipment. It is estimated that 230 cy. of select backfill will be required and shall be included in the price bid for concrete bridge approach slab.

550 BRIDGE APPROACH SLABS: Mechanical finishing of the approach slabs shall be required. A mechanical or hand-held transverse metal tine finish shall be applied. Tining shall start 6" from the beginning and end of the approach slabs. A surface tolerance of $\frac{3}{16}$" in 10 feet is also required.

550 BRIDGE APPROACH SLAB: Included in the approach slab bid item is the select backfill, coarse aggreate, geotextile fabric, polystyrene insulation board, drainage pipes, concrete headwall, concrete and reinforcing steel to build the approach slab.

602 DIAPHRAGMS: If the diaphragm concrete is placed before the deck concrete, the concrete shall cure for at least 72 hours before deck placement.

602 SURFACE FINISH "D": Surface Finish "D" shall be required for all surfaces of the barrier, edge of the deck, the fascia girder and all exposed areas of the substructures. The color shall be white as approved by the engineer.

602 DECK CONCRETE: Beams and girders have slight variations in the anticipated camber. To build the deck to the designated thickness will require slight adjustments in deck elevation and/or riser dimensions. These adjustments result in minor concrete quantity discrepancies. The contractor shall consider this quantity discrepancy when he bids the unit price for Class AAE-3 Concrete. The Contractor will be paid plan quantity of Class AAE-3 Concrete.

602 Deflection of the deck shoring shall be computed using the total dead load plus the weight of the finishing machine. The forming shall be adjusted properly to accommodate the deflection and thereby maintain the total slab thickness specified in the plans.

602 PENETRATING WATER REPELLENT TREATMENT: Penetrating water repellent shall be applied to the driving surface of the concrete deck.

602 BARRIERS: Barriers shall be constructed according to the provisions of Section 602.03 B.4 except that there shall be no expansion or deflection joints. Make $\frac{3}{4}$" V-grooves in all faces of the barriers at each pier and at equal spaces between substructures at approximately 10-foot spacing.

612 DECK TINING: Tining shall begin 6 inches from the beginning and the end of the deck.

622 PILING: Piling shall be driven with a steam, air, or diesel hammer with a rated energy and ram weight not less than 55,155 foot-pound-tons, as computed by the formula W(E-13444)+.821E, where W is the weight of the ram in tons an E is the rated hammer energy. In no case shall the ram weight be less than 2700 pounds.

SHOP DRAWINGS: CAD-generated shop drawings may be submitted on 11-inch by 17-inch detail sheets. The contractor shall submit the following shop drawings to the Engineer for approval:

1. Prestressed box girders.

DESIGN STRENGTH:	F'C	3000 PSI C1. AE-3 Concrete.
	F'C	4000 PSI C1. AAE-3 Concrete
	FY	60,000 PSI GR. 60 Reinforced Steel
	F'C	5,000 PSI Prestressed Girder Concrete

ELEVATION CHECK POINTS: 8 bolts need to be placed on top of barrier to serve as elevation check points. The cost for this item shall be included in the unit price for Class AAE-3 concrete.

PHASE II
SOUTHBOUND I-29
40th AVE. S. OVERPASS
NOTES

ULTEIG ENGINEERS, INC.

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	26

MIDWEST TESTING LABORATORY

JOB NO. 9022 LOG OR TEST BORING NO. 3 VERTICAL SCALE NO SCALE

PROJECT: Proposed I-29 Underpass at 40th Avenue South, I.D. 4913, Fargo, North Dakota
LOCATION: SB I-29 CL Sta. 3238+19 22' LT

DEPTH IN FEET	SOIL DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	N	LABORATORY TESTS MOISTURE	DENSITY	LL/PL	q_u
	SURFACE ELEVATION 909.7							
	8" CONCRETE OVER FILL–FAT CLAY, grayish brown, dark grayish brown and black, with a trace of sand and gravel	1	FA					
		2	SS	8				
8		3	SS	6				
(901.7)	FAT CLAY – grayish brown to grayish brown mottled, rather stiff to medium, with lenses and laminations of silt below 9 feet (CH)	4	SS	10				
		5	SS	7				
		6	SS	6				
14		7	SS	6				
(895.7)	FAT CLAY – grayish brown, medium to soft (CH)							
21								
(888.7)	FAT CLAY – dark grayish brown, soft (CH)	8	SS	3				
		9	SS	3				
		10	SS	3				
		11	SS	3				
		12	SS	2				
		13	SS	2				
76		14	SS	4				
(883.7)	SANDY LEAN CLAY – gray, very stiff, with a trace of gravel, and with lenses and seams of sand below 106 feet. Boulder encountered at 107 feet (CL)	15	SS	42				
		16	SS	87	15	116.5		
		17	SS	80	17	112		9000
		18	SS	80	17.5			
		19	SS	60	19.5	107.5		12,500
		20	SS	90	19.3			
111		21	SS	100/.6				
(789.7)	END OF BORING							

MIDWEST TESTING LABORATORY

JOB NO. 9022 LOG OR TEST BORING NO. 4 VERTICAL SCALE NO SCALE

PROJECT: Proposed I-29 Underpass at 40th Avenue South, I.D. 4913, Fargo, North Dakota
LOCATION: SB I-29 CL Sta. 3239+55 22' LT

DEPTH IN FEET	SOIL DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	N	LABORATORY TESTS MOISTURE	DENSITY	LL/PL	q_u
	SURFACE ELEVATION 910.0							
	6" CONCRETE OVER FILL–FAT CLAY, grayish brown, dark grayish brown and black, with a trace of sand and gravel	1	FA					
		2	SS	12				
8		3	SS	12				
(902.0)	FAT CLAY – grayish brown mottled, medium, with lenses and laminations of silt (CH)	4	SS	12				
		5	SS	7	36.5	84		
		6	SS	5	34	83.5		2350
14		7	SS	7				
(896.0)	FAT CLAY – grayish brown, medium (CH)							
19								
(891.0)	FAT CLAY – dark grayish brown, soft (CH)	8	SS	4	54.7			2850
		9	SS	3				
		10	SS	2	60.2			1300
		11	SS	3				
		12	SS	2	57.8			1150
		13	SS	2				
78		14	SS	45				
(832.0)	SANDY LEAN CLAY – gray, very stiff, with a trace of gravel, and with seams and layers of silt and sand (CL)	15	SS	100/.5				
		16	SS	100/.7	20.7			
		17	SS	100/.3	17.4			9000
		18	SS	100/.4	18.1			
101								
(809.0)	END OF BORING							

NOTE:
THE BORINGS WERE ADVANCED WITH 3 1/4" HOLLOW STEM AUGER AND WITH TRI-CONE BIT AND DRILLING FLUID. SPLIT BARREL SAMPLES WERE OBTAINED IN ACCORDANCE WITH ASTM D1586-84. USING THIS PROCEDURE, A TWO-INCH O.D. SPLIT BARREL SAMPLER IS DRIVEN BY A 140-POUND WEIGHT FALLING 30 INCHES. THE NUMBER OF BLOWS REQUIRED TO DRIVE THE SAMPLER TWELVE INCHES AFTER A SIX INCH INITIAL SET IS THE STANDARD PENETRATION RESISTANCE AND WAS REFERRED TO AS N VALUE.

BENCH MARKS NGVD-29

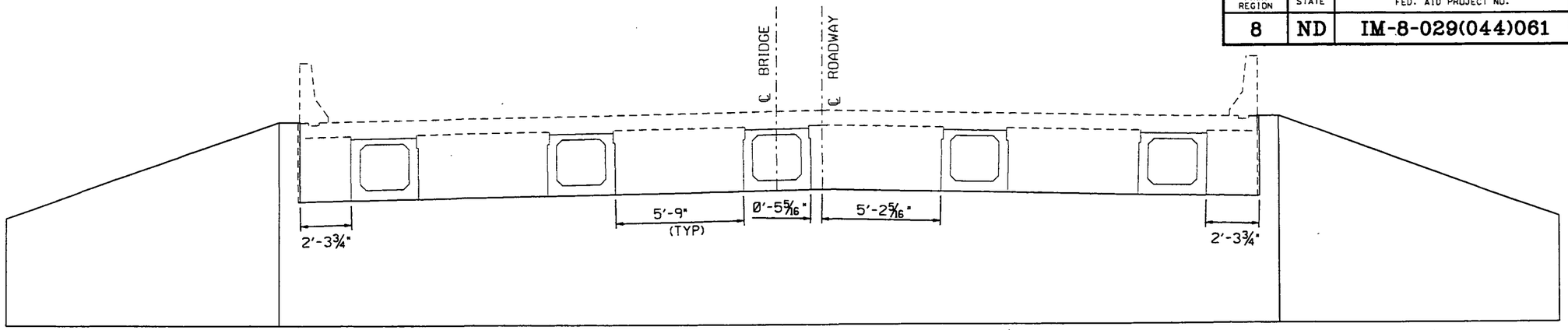
NO.	DESCRIPTION	LOCATION	ELEV.
-	-	-	-
-	-	-	-

MIDWEST TESTING RESULTS
I-29 UNDERPASS SOIL BORINGS

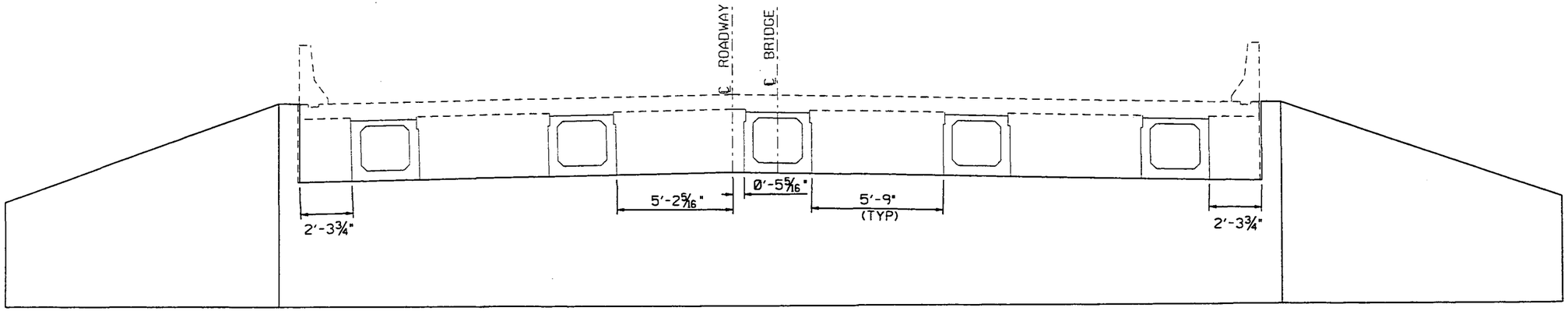
FILE:	
MIDWEST.DWG	BORINGS #3 & #4

MGJ 12-16-99 MIDWEST.DGN

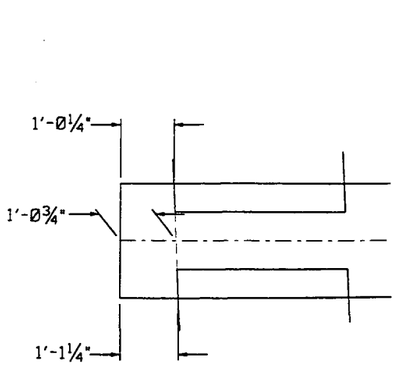
FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	27



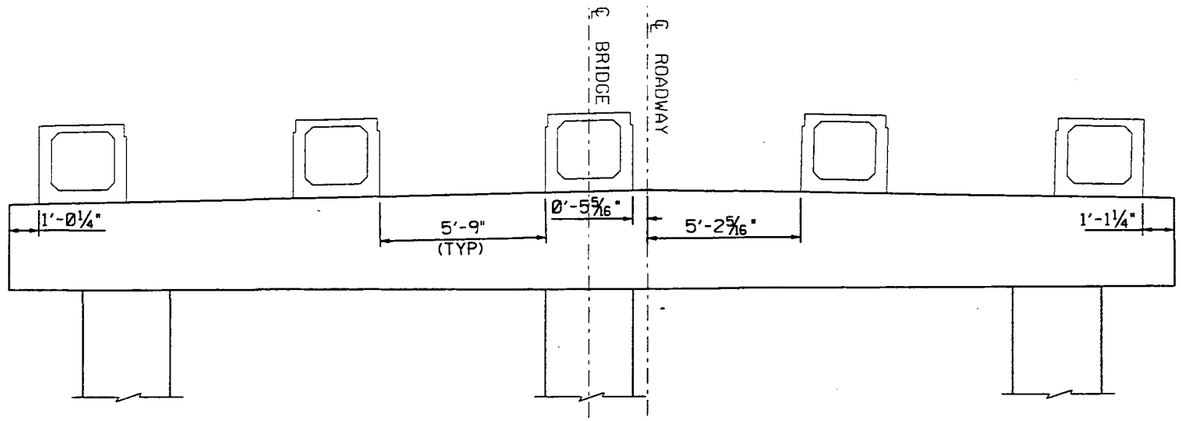
ABUTMENT 4



ABUTMENT 1



PARTIAL PIER CAP
PLAN VIEW



PIERS 2 & 3

NOTE:

ALL DIMENSIONS ARE FRONT FACE OF STRUCTURE.

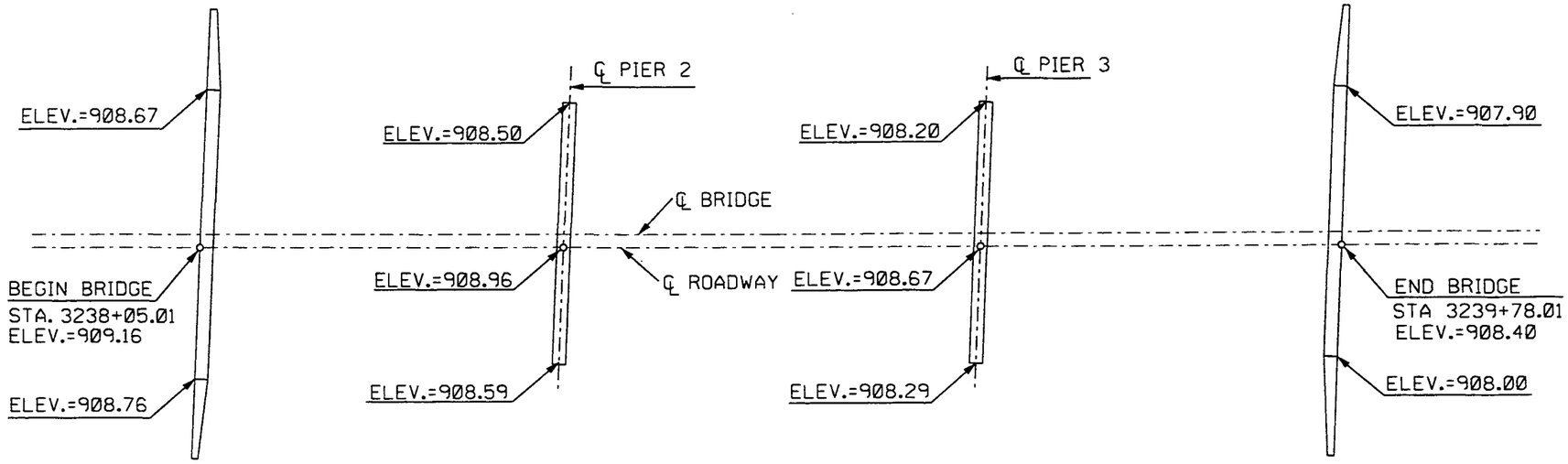
PHASE II
SOUTHBOUND I-29
40th AVE. S. OVERPASS

BEAM PLACEMENTS

ULTEIG ENGINEERS, INC.

29-061.245 L-3

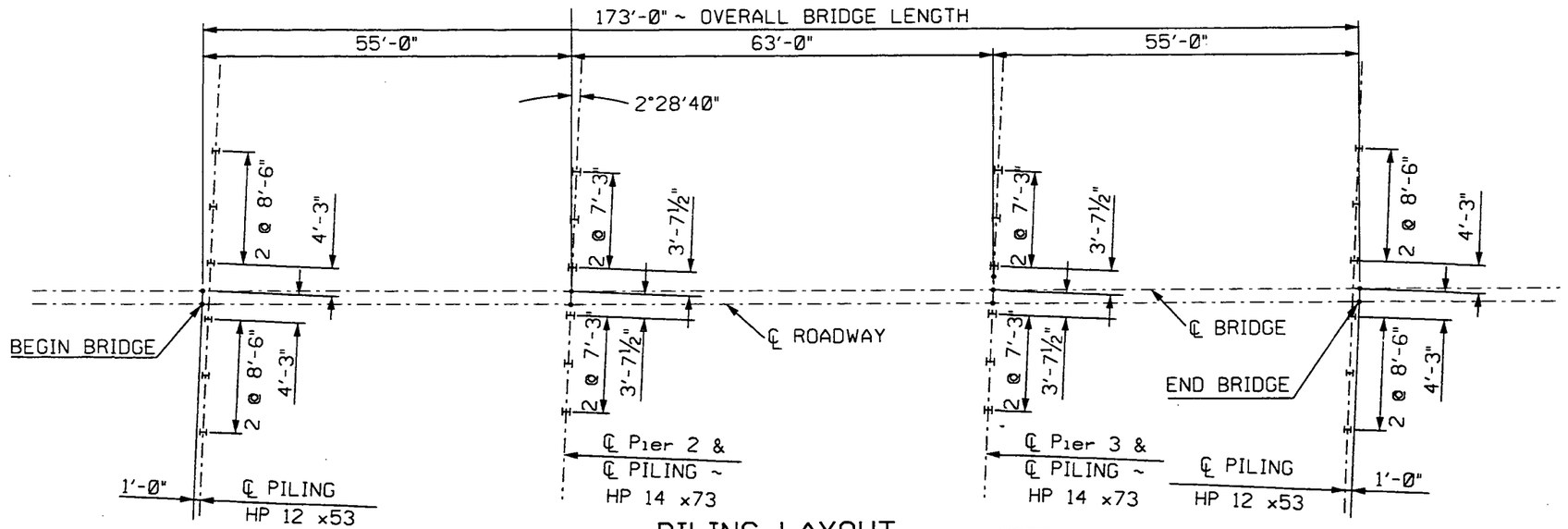
FEDERAL REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	28



BEARING ELEVATIONS

(ELEVATIONS SHOWN ARE TO TOP OF FINISHED CONCRETE)

NOTE: ELEVATION ARE CITY OF FARGO DATUM



PILING LAYOUT

NOTE:
HP 12 x 53 PILE SHALL BE DRIVEN TO 70 T.
HP 14 x 73 PILE SHALL BE DRIVEN TO 97 T.

PHASE II
SOUTHBOUND I-29
40th AVE. S. OVERPASS

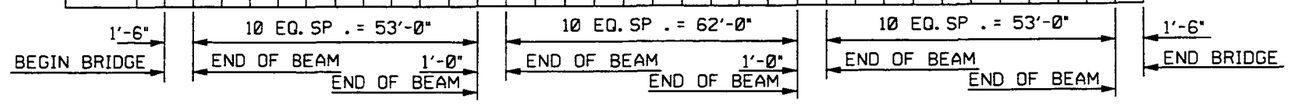
BEARING ELEVATIONS & PILING LAYOUT

ULTEIG ENGINEERS, INC.

29-061.245 L-4

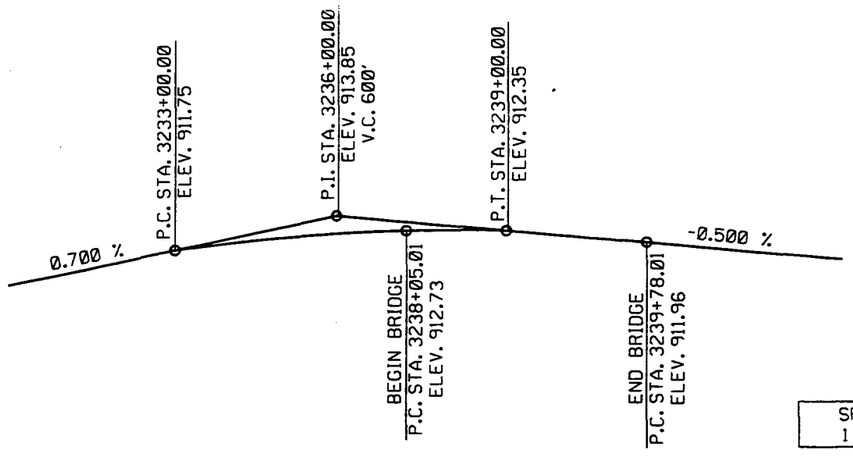
FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	29

℄ GIRDER 1	℄ GIRDER 2	℄ GIRDER 3	℄ GIRDER 4	℄ GIRDER 5
912.33	912.51	912.69	912.60	912.41
912.32	912.50	912.69	912.59	912.41
912.32	912.50	912.68	912.59	912.41
912.31	912.50	912.68	912.58	912.40
912.30	912.49	912.67	912.57	912.39
912.29	912.48	912.66	912.56	912.38
912.27	912.46	912.64	912.54	912.36
912.25	912.44	912.62	912.52	912.34
912.23	912.41	912.59	912.50	912.32
912.20	912.38	912.56	912.47	912.28
912.16	912.35	912.53	912.43	912.25
912.13	912.31	912.49	912.40	912.22
912.12	912.31	912.49	912.39	912.21
912.12	912.31	912.49	912.39	912.21
912.12	912.30	912.48	912.39	912.21
912.11	912.29	912.47	912.38	912.20
912.09	912.27	912.46	912.36	912.18
912.06	912.25	912.43	912.33	912.15
912.03	912.21	912.40	912.30	912.12
911.99	912.17	912.35	912.26	912.08
911.94	912.12	912.31	912.21	912.03
911.88	912.07	912.25	912.15	911.97
911.83	912.01	912.20	912.10	911.92
911.82	912.01	912.19	912.09	911.91
911.81	911.99	912.18	912.08	911.90
911.79	911.98	912.16	912.07	911.89
911.78	911.96	912.15	912.05	911.87
911.76	911.94	912.13	912.03	911.85
911.73	911.92	912.10	912.00	911.82
911.70	911.89	912.07	911.98	911.80
911.67	911.86	912.04	911.94	911.76
911.64	911.82	912.00	911.91	911.73
911.60	911.78	911.97	911.87	911.69
911.56	911.74	911.93	911.83	911.65
911.55	911.73	911.92	911.82	911.64

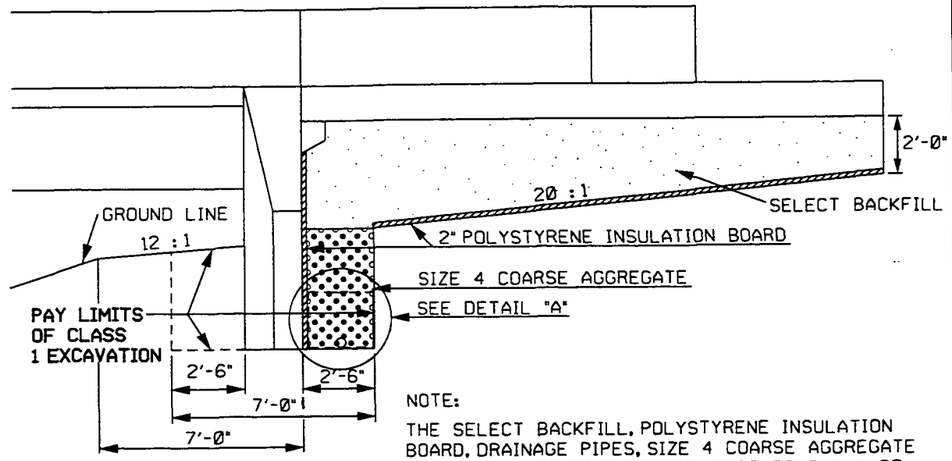


SCREED ELEVATIONS

GIRDER NO. 1 IS THE WEST GIRDER



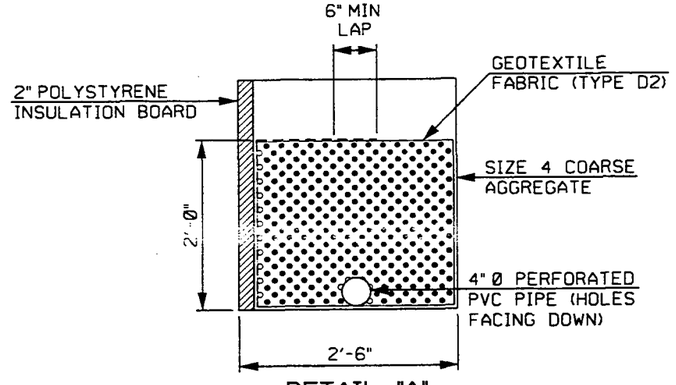
VERTICAL CURVE DATA



NOTE:

THE SELECT BACKFILL, POLYSTYRENE INSULATION BOARD, DRAINAGE PIPES, SIZE 4 COARSE AGGREGATE AND THE GEOTEXTILE FABRIC (TYPE D2) SHALL BE INCIDENTAL TO THE PRICE BID FOR CONCRETE BRIDGE APPROACH SLAB.

DETAIL AT ABUTMENT



DETAIL "A"

NOTE: ELEVATIONS ARE CITY OF FARGO DATUM.

PRESTRESSING DATA

	C.G.	FINAL FORCE	DETENSION STRENGTH	ACCEPTANCE STRENGTH	WEIGHT (TON)	GIRDER LENGTH
SPAN 1 &3	2.50 2.75 3.00	467.0 K 472.6 K 478.3 K	4000 PSI	5000 PSI	16.6	53.0'
	C.G.	FINAL FORCE	DETENSION STRENGTH	ACCEPTANCE STRENGTH	WEIGHT (TON)	GIRDER LENGTH
SPAN 2	2.75 3.00 3.25	639.1 K 646.8 K 654.7 K	4150 PSI	5000 PSI	19.3	62.0'

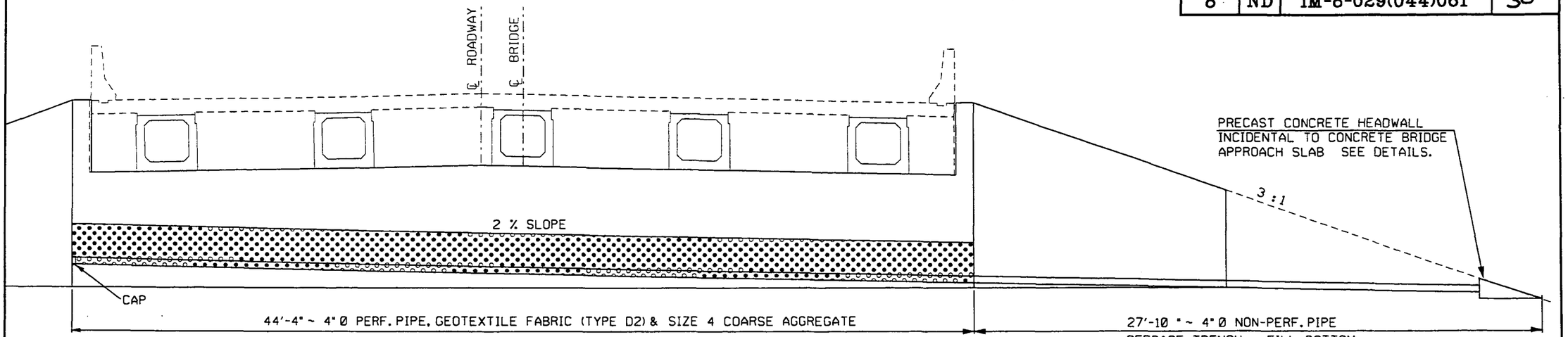
PHASE II
SOUTHBOUND I-29
40th AVE. S. OVERPASS

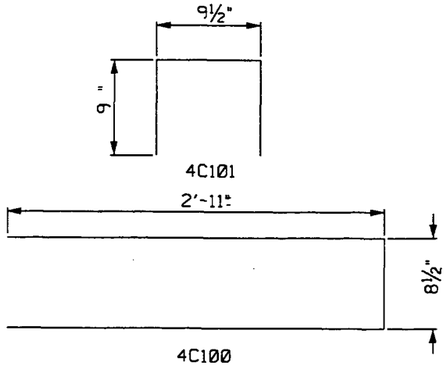
VERTICAL CURVE DATA, DETAIL AT ABUTMENT, SCREED ELEVATIONS & PRESTRESSING DATA

ULTEIG ENGINEERS, INC.

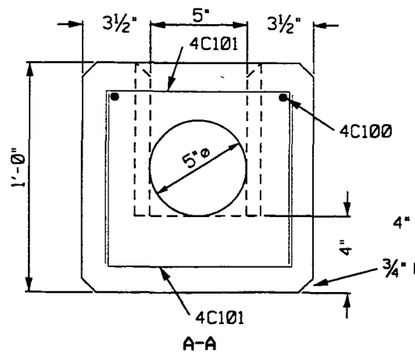
29-061.245 L-5

FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	30



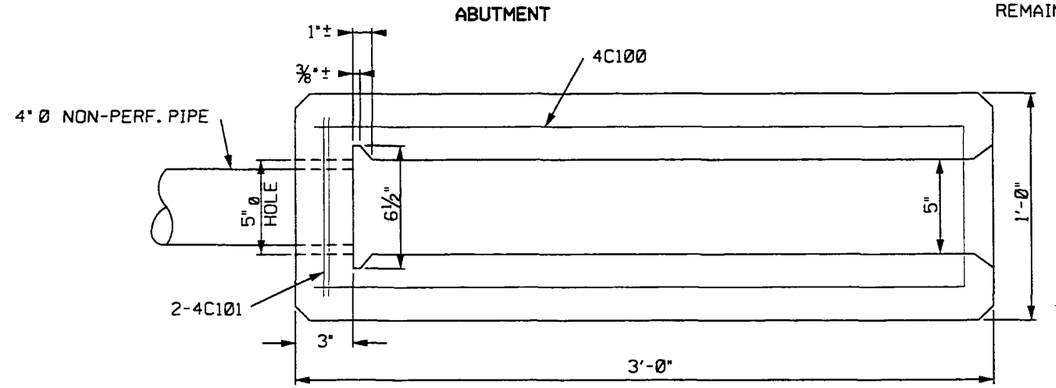


BENT BAR DETAILS

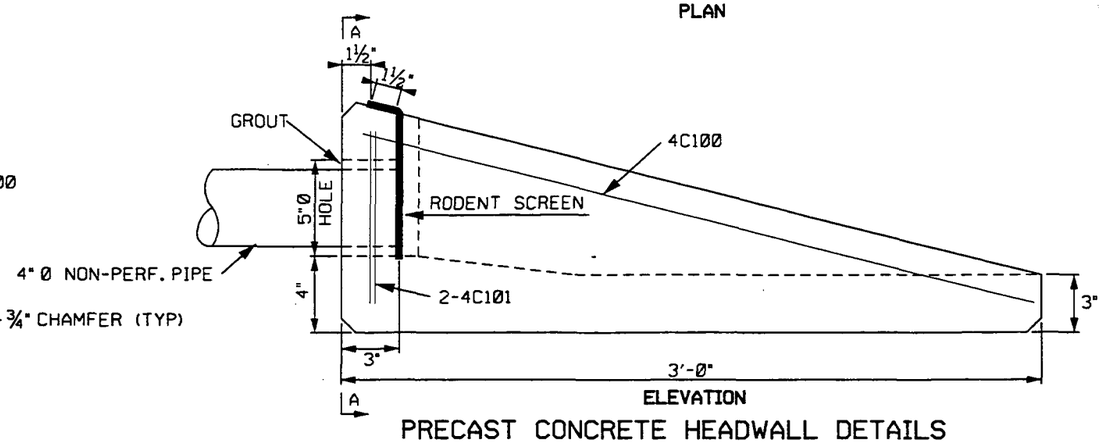


A-A

ABUTMENT

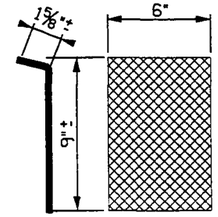


PLAN



ELEVATION

PRECAST CONCRETE HEADWALL DETAILS



SIDE VIEW FRONT VIEW

RODENT SCREEN DETAILS

NOTE:

THE DIMENSIONS FOR THE RODENT SCREEN ARE APPROXIMATE TO ALLOW FOR BENDING AND A SNUG FIT INTO THE SLOT IN THE HEADWALL.

THE RODENT SCREEN SHALL BE FABRICATED FROM FLATTENED, EXPANDED METAL WITH SCREEN OPENINGS OF APPROXIMATELY 0.25 SQUARE INCHES. THE SCREEN SHALL BE 16 GA. METAL AND BE HOT DIP GALVANIZED AFTER FABRICATION.

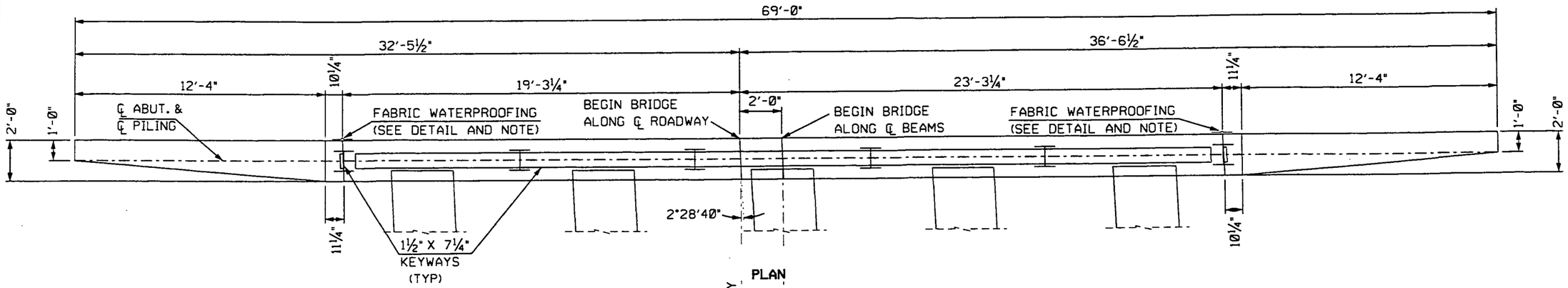
PHASE II
SOUTHBOUND I-29
40th AVE. S. OVERPASS

ABUTMENT UNDERDRAIN DETAILS

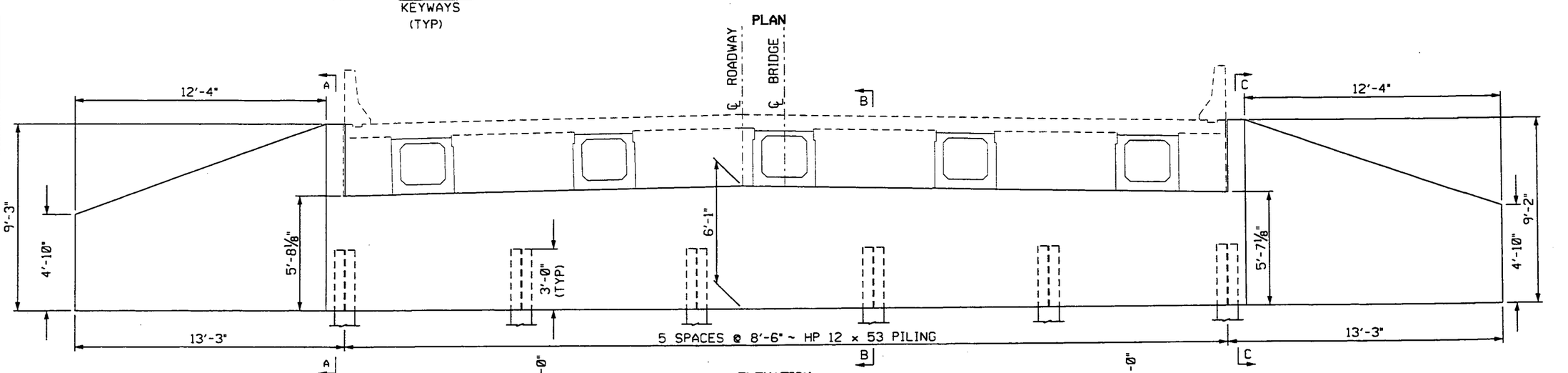
ULTEIG ENGINEERS, INC.

29-061.245 L-6

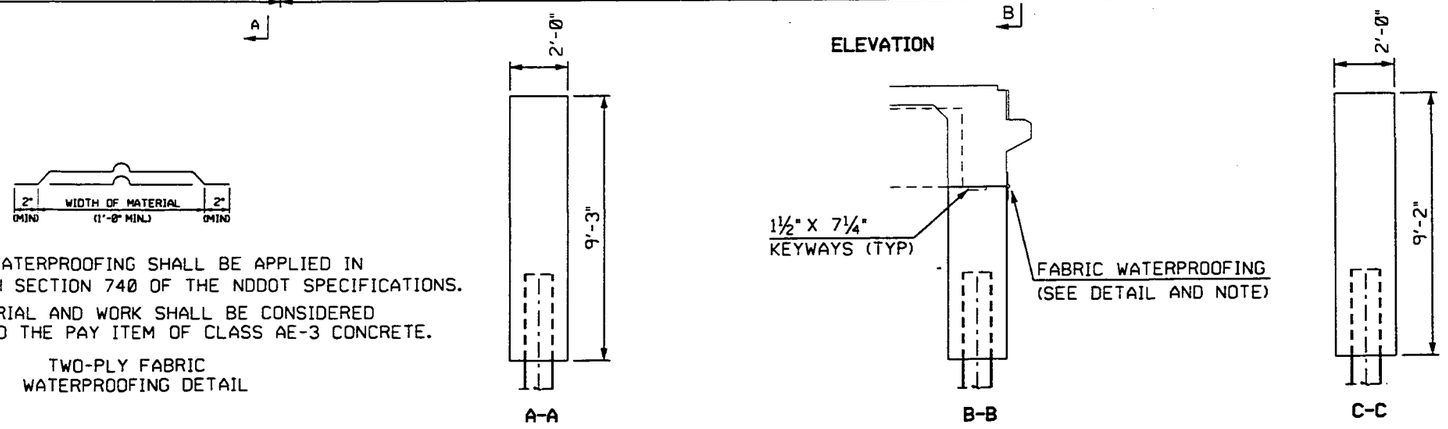
FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	31



PLAN



ELEVATION



QUANTITIES

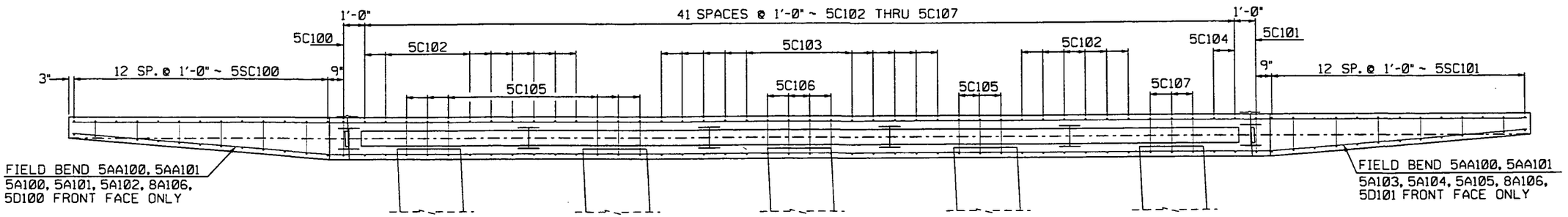
SEE DRAWING: 29-061.245 L-8

PHASE II
SOUTHBOUND I-29
40th AVE. S. OVERPASS
ABUTMENT 1 DETAIL
(SHOWING DIMENSIONS)

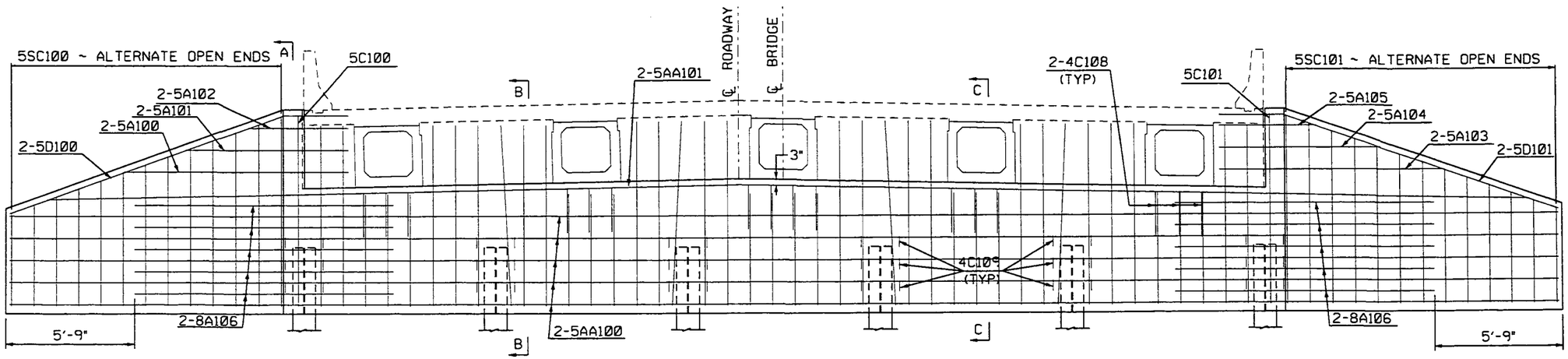
ULTEIG ENGINEERS, INC.

29-061.245 L-7

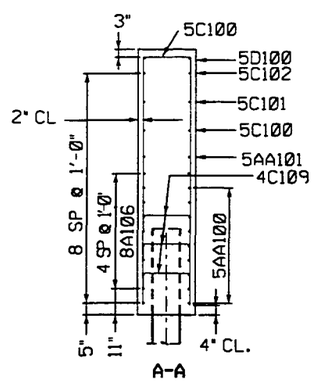
FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	32



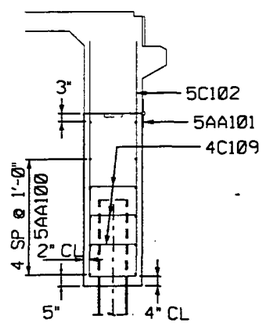
PLAN



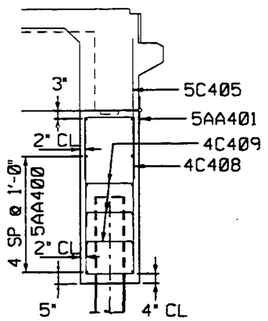
ELEVATION



A-A



B-B



C-C

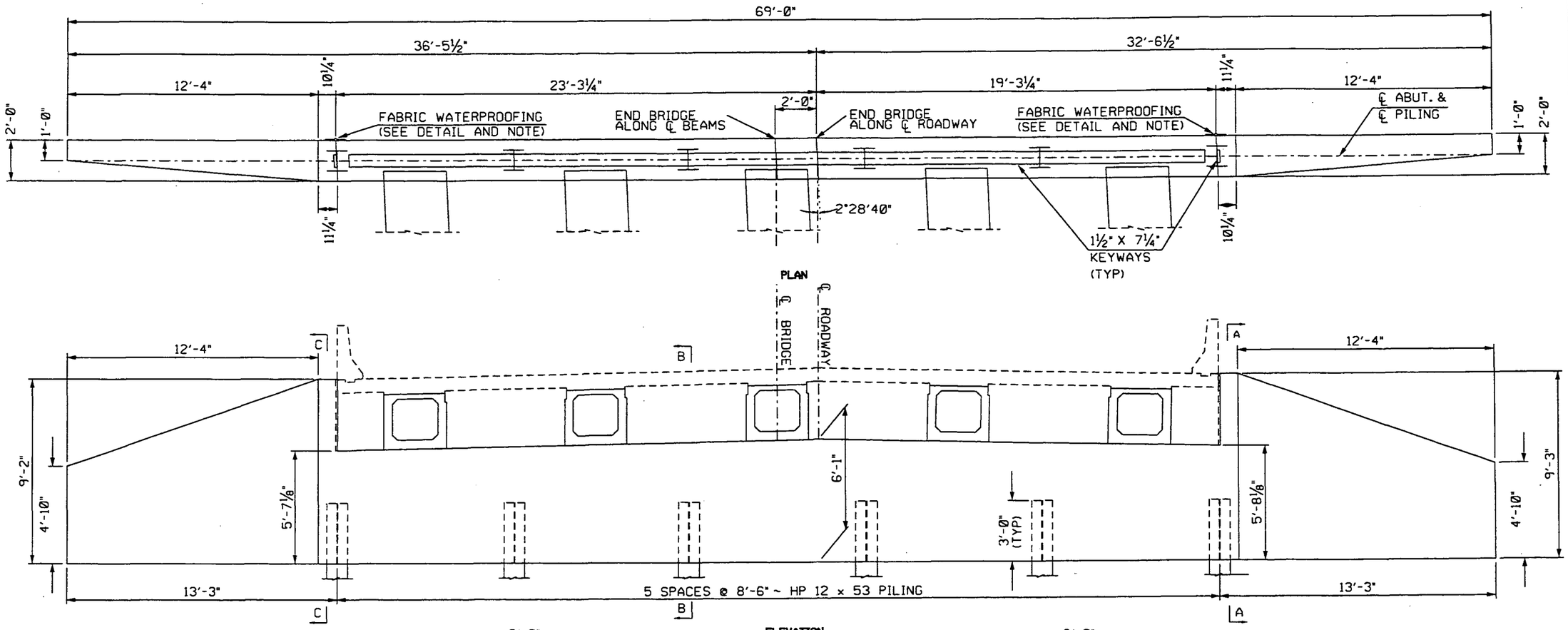
QUANTITIES	
CLASS AE-3 CONCRETE	29.6 C.Y.
REINFORCING STEEL	2943 LBS.

PHASE II
SOUTHBOUND I-29
40th AVE. S. OVERPASS
ABUTMENT 1 DETAIL
(REINFORCING)

ULTEIG ENGINEERS, INC.

29-061.245 L-8

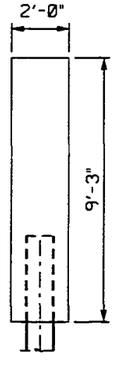
FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	33



FABRIC WATERPROOFING SHALL BE APPLIED IN ACCORDANCE WITH SECTION 740 OF THE NDDOT SPECIFICATIONS.

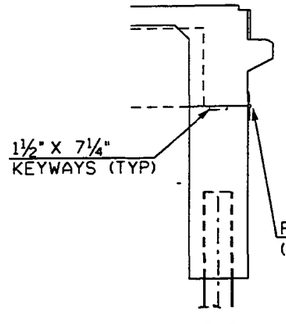
ALL MATERIAL AND WORK SHALL BE CONSIDERED INCIDENTAL TO THE PAY ITEM OF CLASS AE-3 CONCRETE.

TWO-PLY FABRIC WATERPROOFING DETAIL

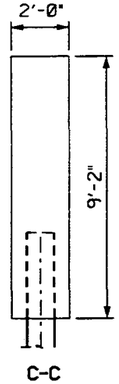


A-A

ELEVATION



B-B



C-C

QUANTITIES

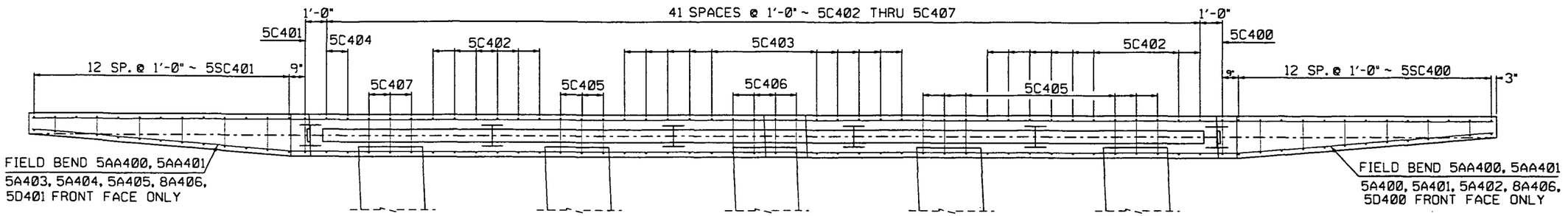
SEE DRAWING: 29-061.245 L-10

PHASE II
SOUTHBOUND I-29
40th AVE. S. OVERPASS
ABUTMENT 4 DETAIL
(SHOWING DIMENSIONS)

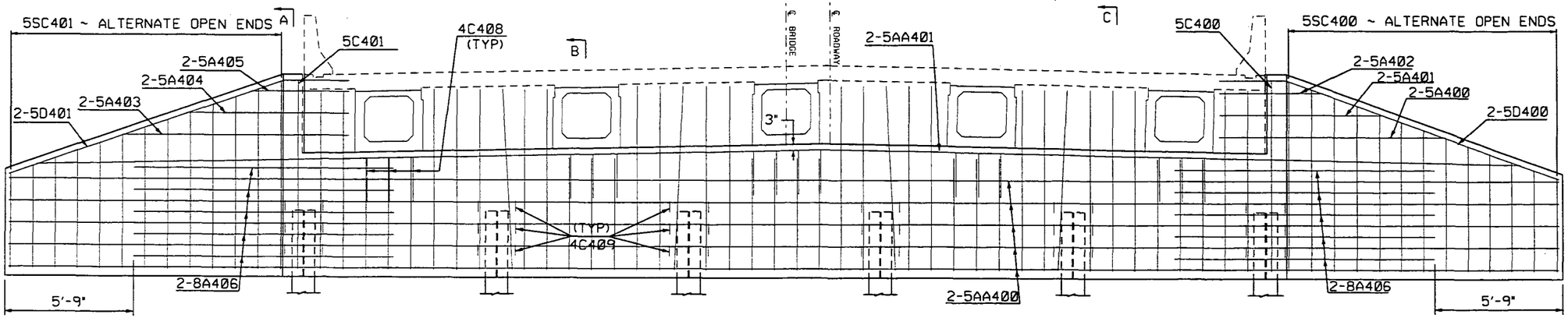
ULTEIG ENGINEERS, INC.

29-061.245 L-9

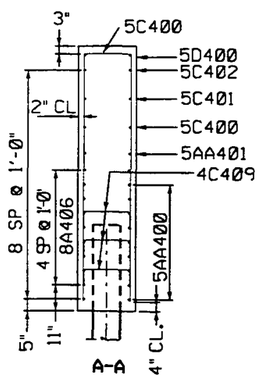
FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	34

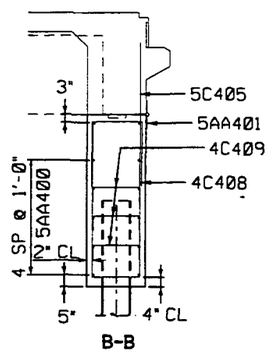


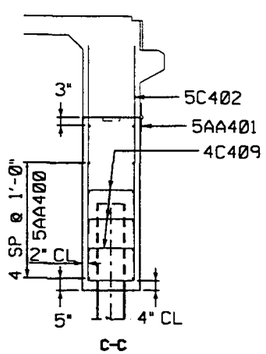
PLAN



ELEVATION







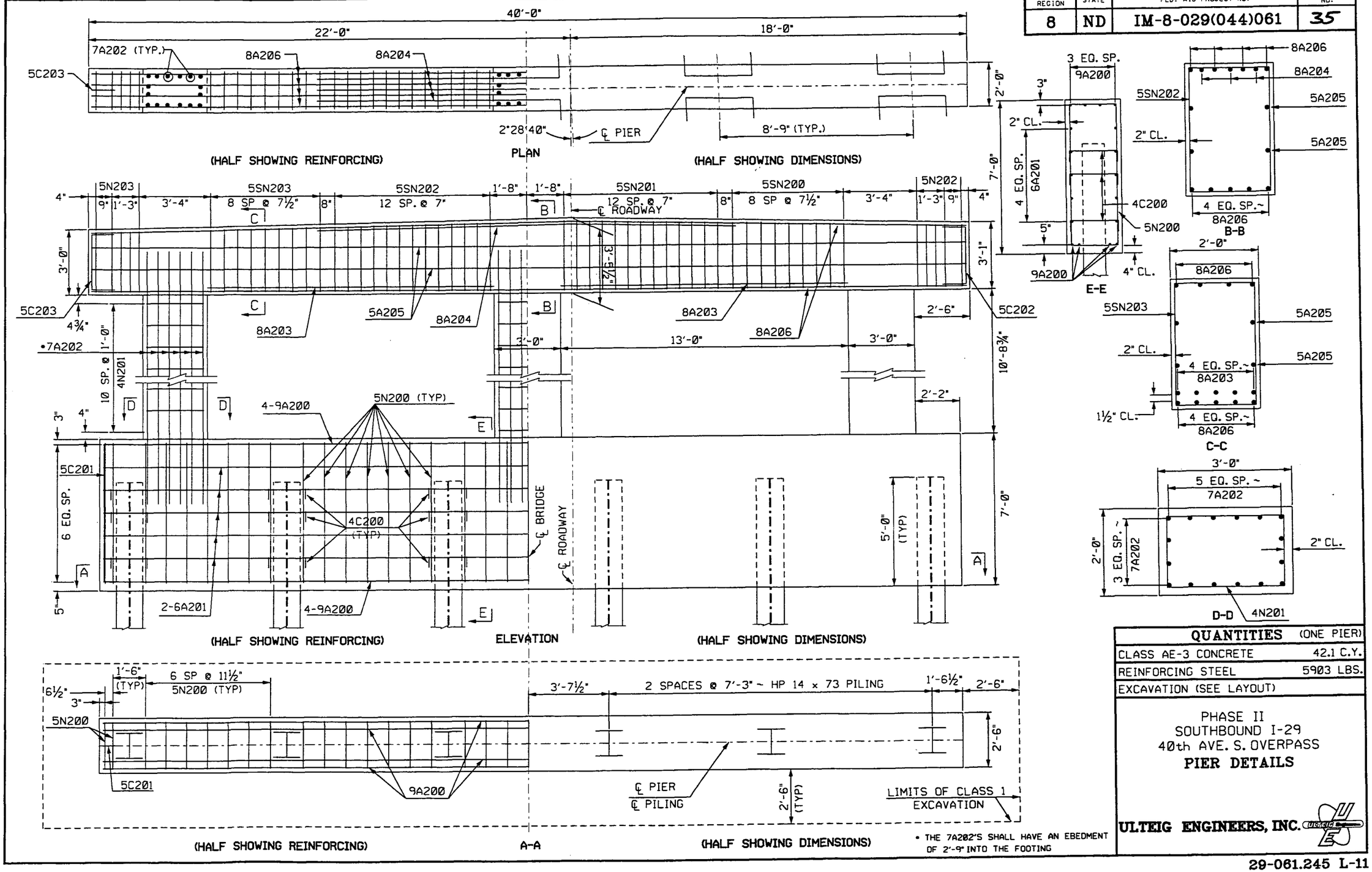
QUANTITIES	
CLASS AE-3 CONCRETE	29.6 C.Y.
REINFORCING STEEL	2943 LBS.

PHASE II
SOUTHBOUND I-29
40th AVE. S. OVERPASS
ABUTMENT 4 DETAIL
(REINFORCING)

ULTEIG ENGINEERS, INC.

29-061.245 L-10

FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	35



• THE 7A202'S SHALL HAVE AN EBEDMENT OF 2'-9" INTO THE FOOTING

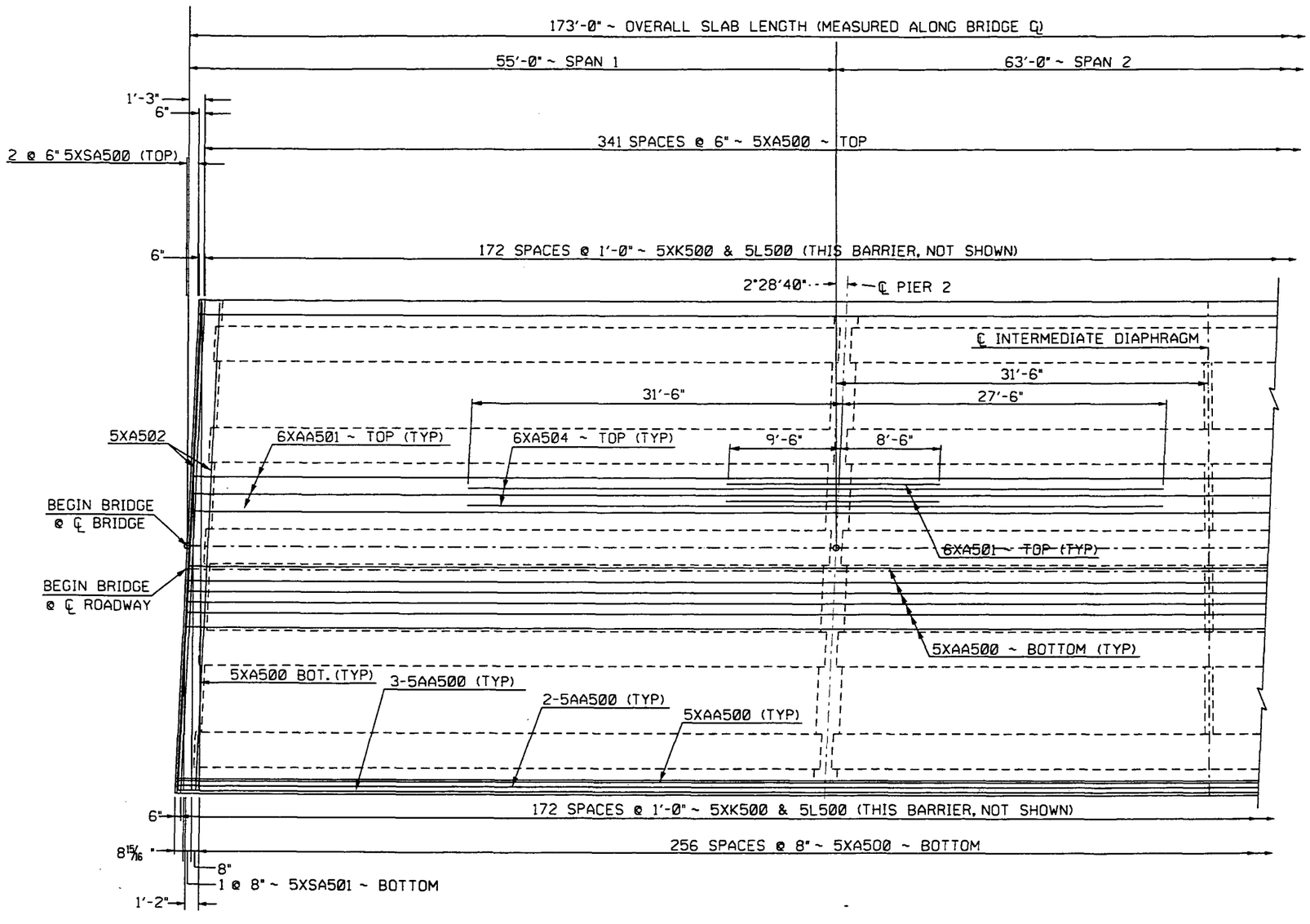
QUANTITIES (ONE PIER)	
CLASS AE-3 CONCRETE	42.1 C.Y.
REINFORCING STEEL	5903 LBS.
EXCAVATION (SEE LAYOUT)	

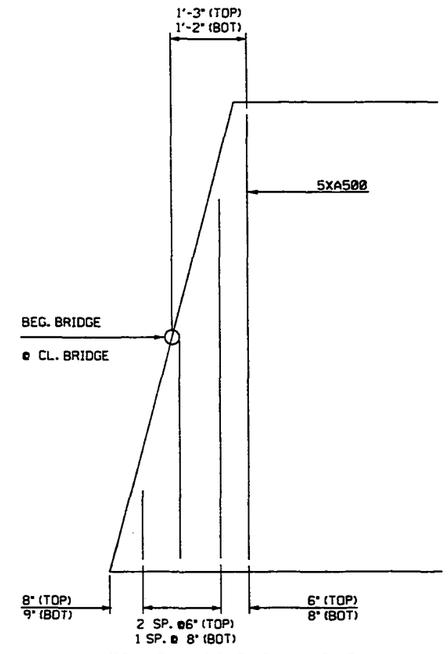
PHASE II
SOUTHBOUND I-29
40th AVE. S. OVERPASS
PIER DETAILS

ULTEIG ENGINEERS, INC.

29-061.245 L-11

FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	36





TRANSVERSE BAR LAYOUT
@ BRIDGE ENDS

QUANTITIES

SEE DWG. 29-061.245 L-17

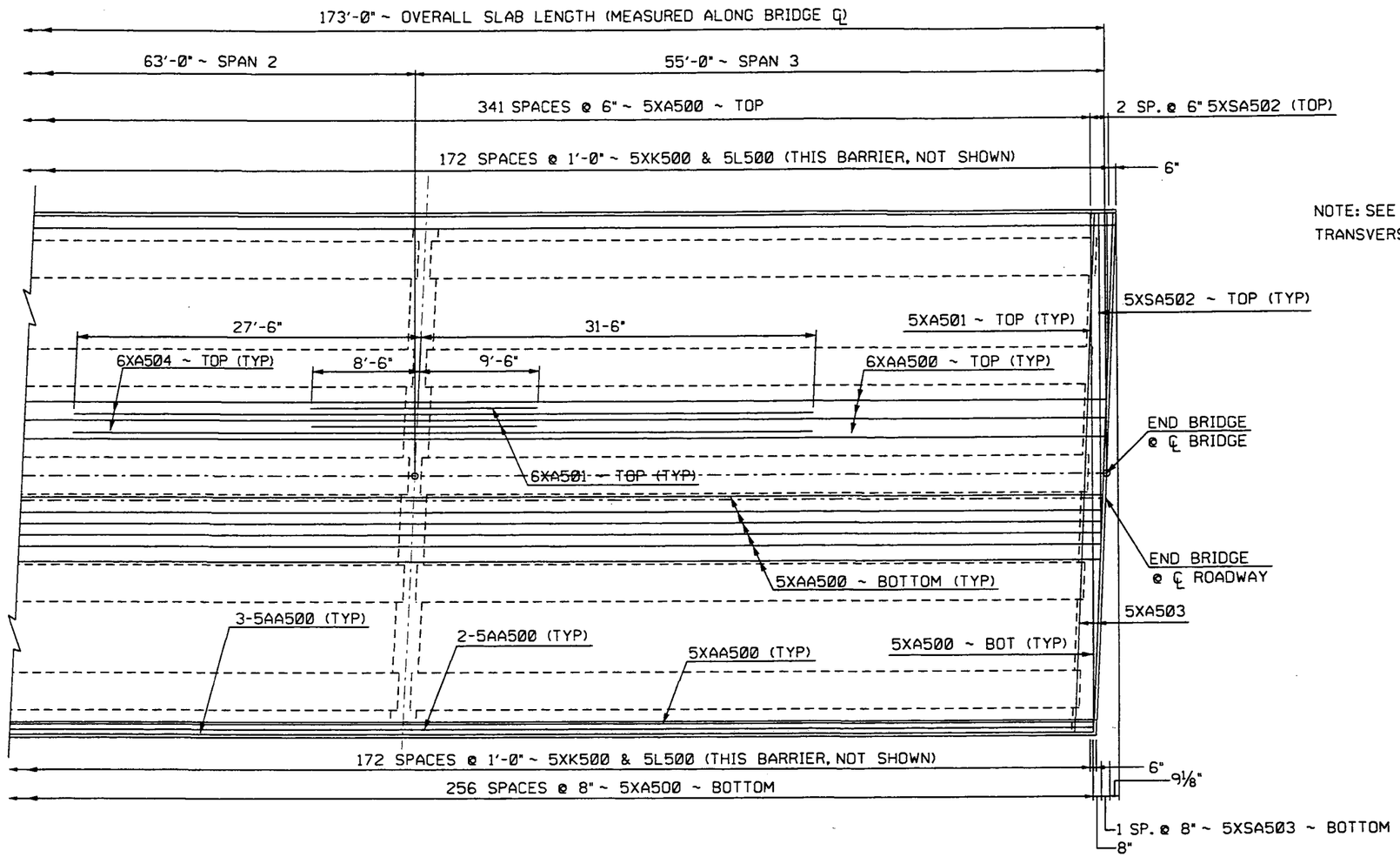
PHASE II
SOUTHBOUND I-29
40th AVE. S. OVERPASS

HALF SLAB LAYOUT

ULTEIG ENGINEERS, INC.

29-061.245 L-12

FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	37



NOTE: SEE DWG. 29-061.245 L-12 FØR TRANSVERSE BAR LAYOUT @ BRIDGE ENDS

QUANTITIES

SEE DWG. 29-061.245 L-17

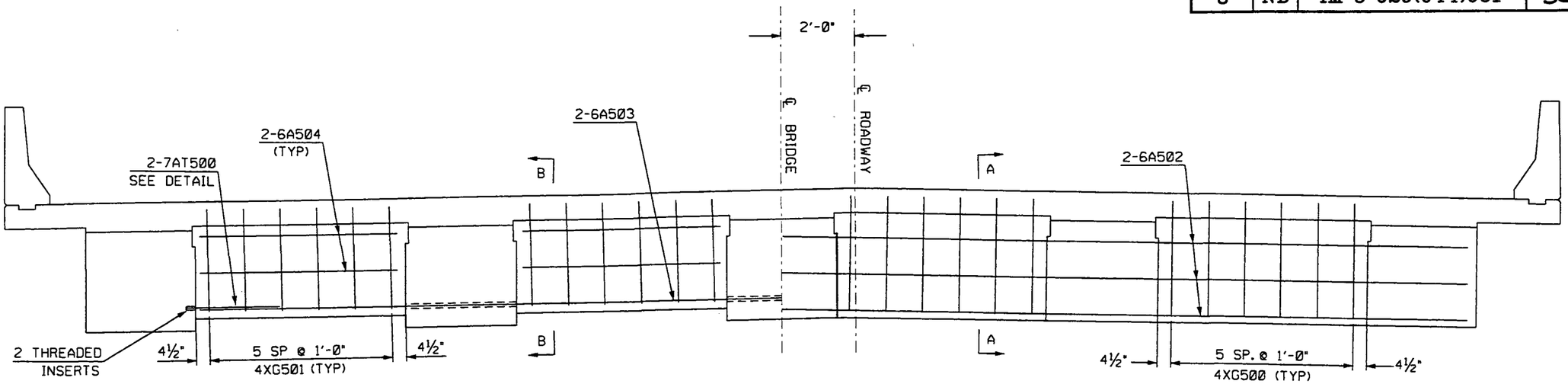
PHASE II
SOUTHBOUND I-29
40th AVE. S. OVERPASS

HALF SLAB LAYOUT

ULTEIG ENGINEERS, INC.

29-061.245 L-13

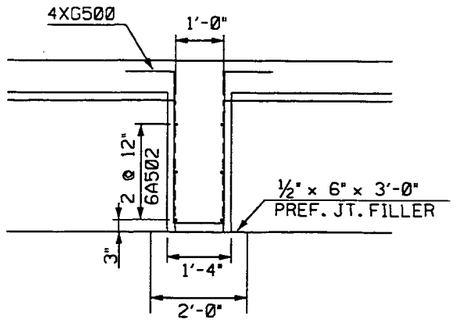
FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	38



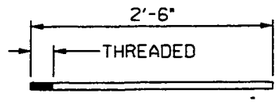
(HALF SHOWING INTERMEDIATE DIAPHRAGM)

SLAB SECTION

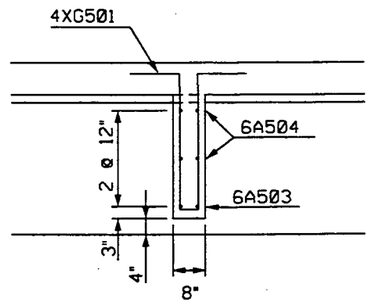
(HALF SHOWING PIER DIAPHRAGM)



A-A



7AT500 DETAIL



B-B

QUANTITIES

SEE DWG. 29-061.245 L-17

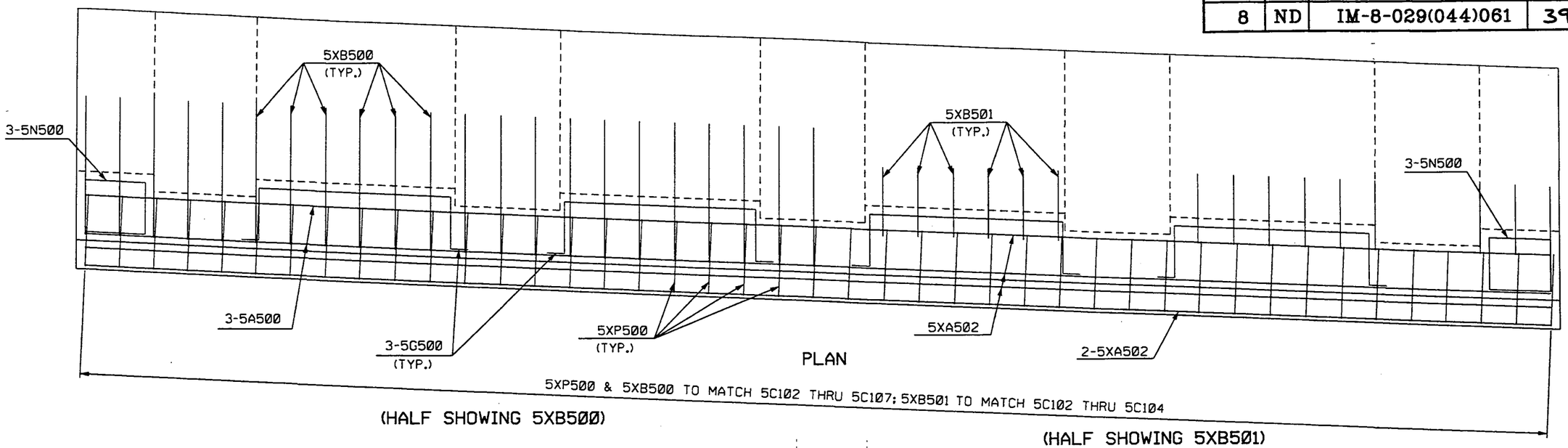
PHASE II
SOUTHBOUND I-29
40th AVE. S. OVERPASS

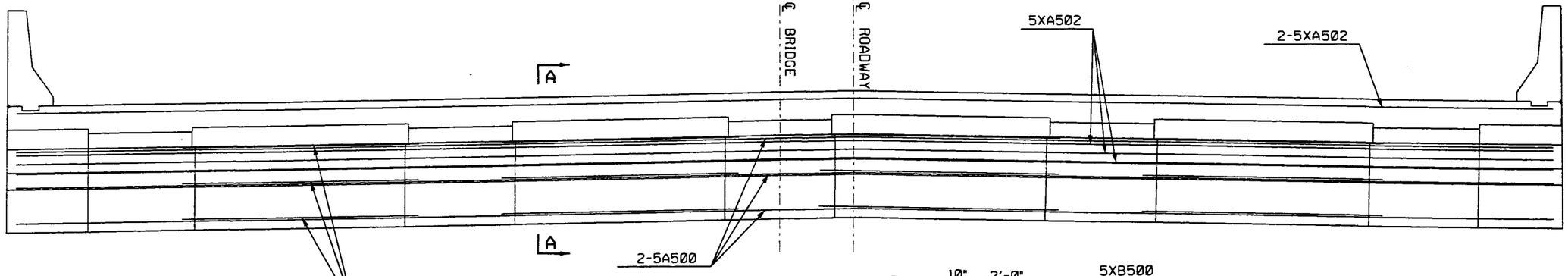
INTERMEDIATE & PIER DIAPHRAGM DETAILS

ULTEIG ENGINEERS, INC.

29-061.245 L-14

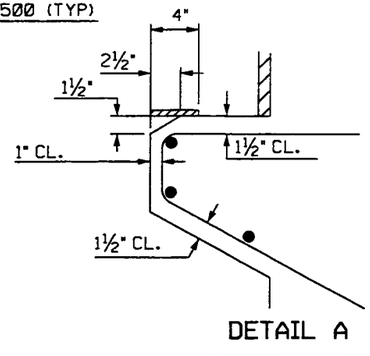
FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	39



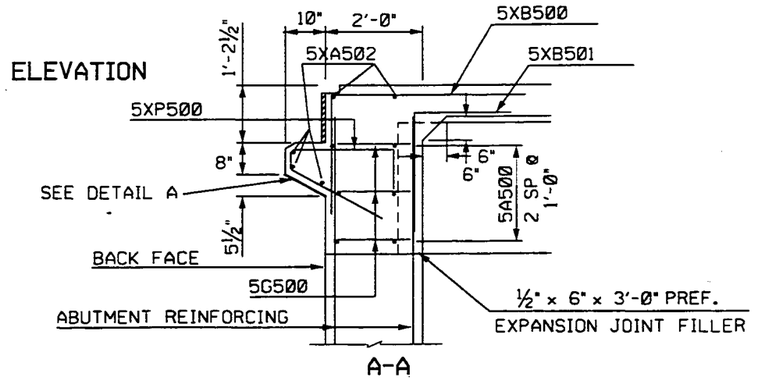


NOTE:

SEE DWG. 29-061.245 L-22 FOR ENDWALL FORMING AND JOINT FILLER DETAILS.



DETAIL A



A-A

QUANTITIES

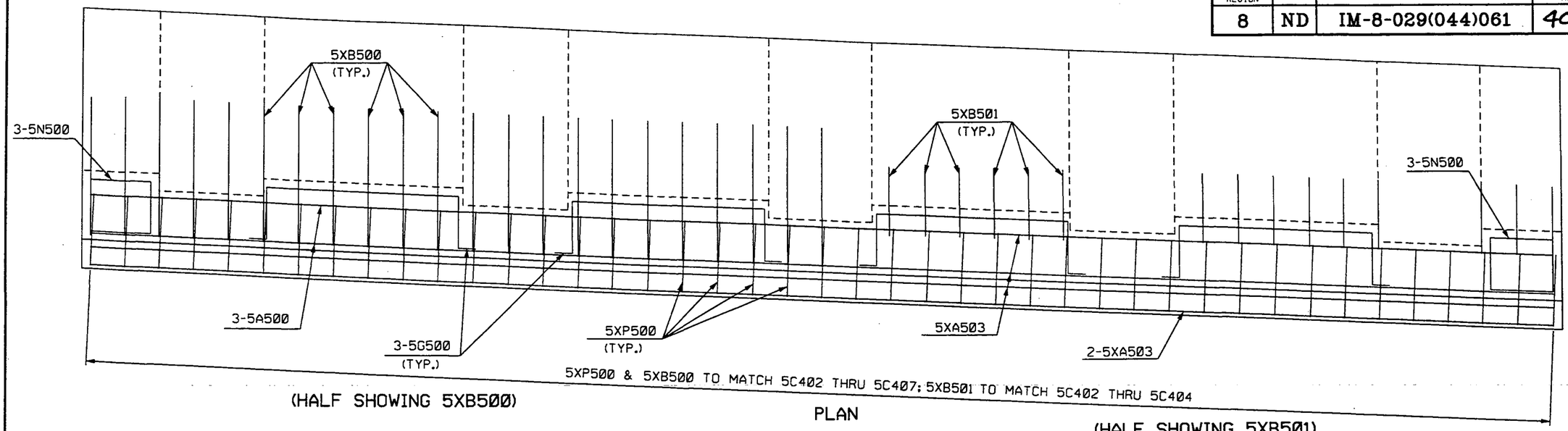
SEE DWG. 29-061.245 L-17

PHASE II
SOUTHBOUND I-29
40th AVE. S. OVERPASS

BEGIN BRIDGE
END BEAM

ULTEIG ENGINEERS, INC.

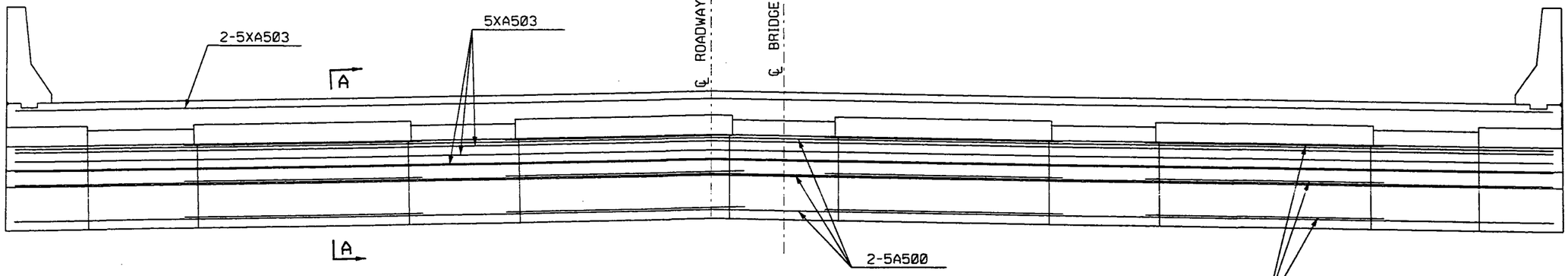
FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	40



(HALF SHOWING 5XB500)

PLAN

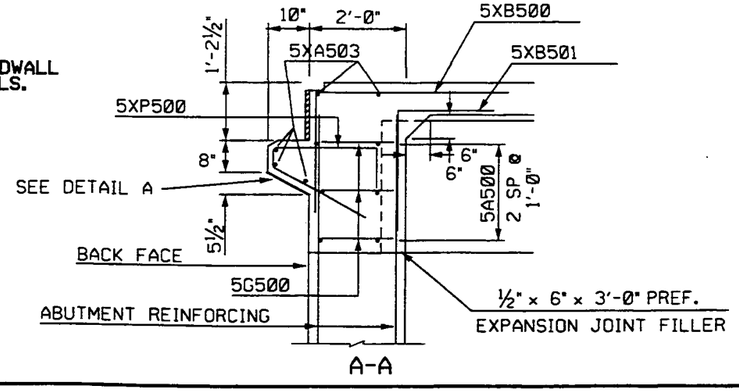
(HALF SHOWING 5XB501)



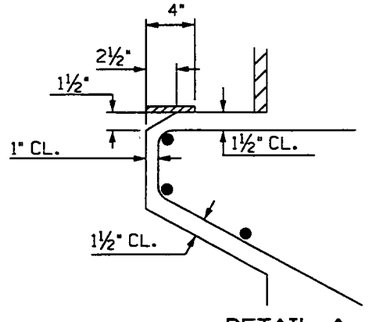
ELEVATION

NOTE:

SEE DWG. 29-061.245 L-22 FOR ENDWALL FORMING AND JOINT FILLER DETAILS.



A-A



DETAIL A

QUANTITIES

SEE DWG. 29-061.245 L-17

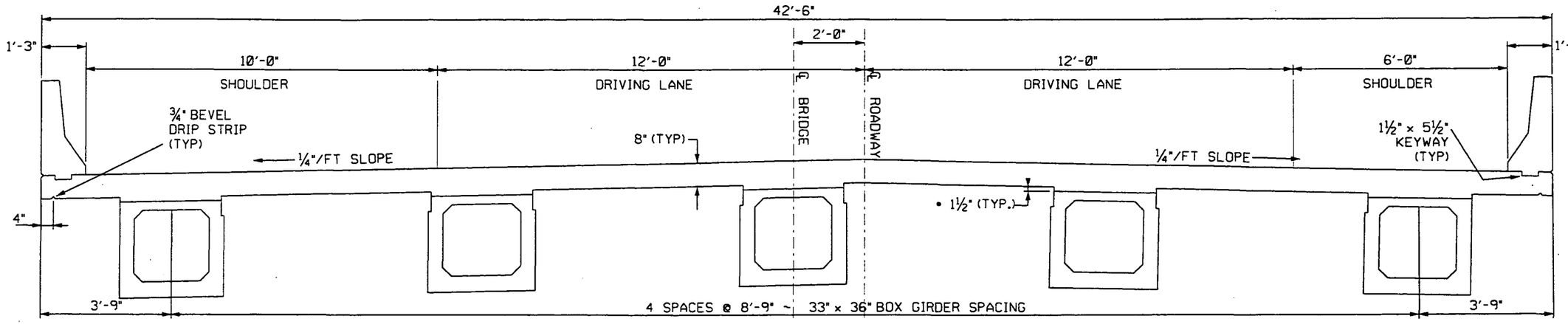
PHASE II
SOUTHBOUND I-29
40th AVE. S. OVERPASS

END BRIDGE
END BEAM

ULTEIG ENGINEERS, INC.

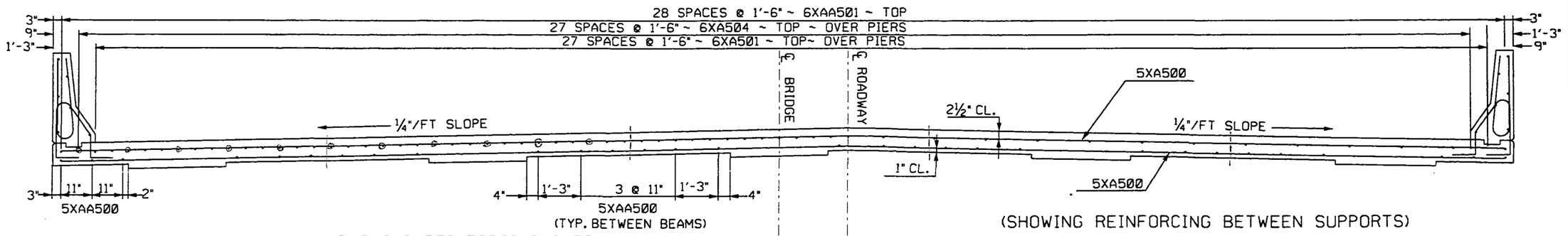
29-061.245 L-16

FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	41



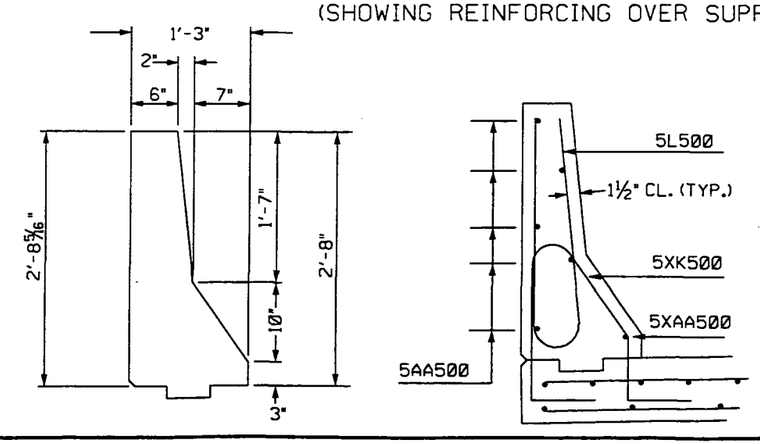
(SHOWING DIMENSIONS)

SLAB SECTION



(SHOWING REINFORCING OVER SUPPORTS)

(SHOWING REINFORCING BETWEEN SUPPORTS)



SLAB SECTION

• = RISER DIMENSION SHOWN IS AT SUPPORTS
THE RISER SHALL BE ADJUSTED TO MAINTAIN
THE DESIGNED SLAB THICKNESS

QUANTITIES	
CLASS AAE-3 CONCRETE	250.0 C.Y.
REINFORCING STEEL	5431 LBS.
REINFORCING STEEL-EC	50,726 LBS.

PHASE II
SOUTHBOUND I-29
40th AVE. S. OVERPASS

SLAB SECTION

ULTEIG ENGINEERS, INC.

29-061.245 L-17

BILL OF REINFORCING STEEL, GRADE 60

LETTER PREFIX OF BAR MARK DENOTES SHAPE ~ SEE BAR DETAILS

FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	42

ABUTMENT 1

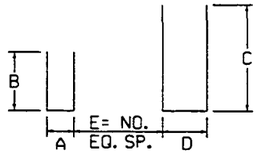
SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DEMENSIONS A	B	C	D	E	F	G	H	K
5	A100	2	10'-2"		10'-2"							
5	A101	2	7'-4"		7'-4"							
5	A102	2	4'-7"		4'-7"							
5	A103	2	10'-2"		10'-2"							
5	A104	2	7'-4"		7'-4"							
5	A105	2	4'-7"		4'-7"							
8	A106	20	11'-6"		11'-6"							
5	C100	1	19'-2"		8'-9"	1'-8"	8'-9"					
5	C101	1	19'-0"		8'-8"	1'-8"	8'-8"					
5	C102	14	18'-2"		8'-3"	1'-8"	8'-3"					
5	C103	10	18'-6"		8'-5"	1'-8"	8'-5"					
5	C104	2	18'-0"		8'-2"	1'-8"	8'-2"					
5	C105	9	15'-1"		5'-2"	1'-8"	8'-3"					
5	C106	4	15'-5"		5'-4"	1'-8"	8'-5"					
5	C107	3	14'-9"		5'-1"	1'-8"	8'-2"					
4	C108	16	5'-8"		2'-0"	1'-8"	2'-0"					
4	C109	36	2'-8"		0'-6"	1'-8"	0'-6"					
5	D100	2	15'-11"		3'-0"	12'-11"					12	4.3
5	D101	2	15'-11"		3'-0"	12'-11"					12	4.3
5	AA100	10	70'-5"		40'-0"	1'-9"	30'-5"	1		68'-8"		
5	AA101	2	67'-6"		40'-0"	1'-9"	27'-6"	1		65'-9"		
5	SC100	1	185'-3"	8"	4'-5"	8'-8"	1'-8"	12				
5	SC101	1	184'-2"	8"	4'-5"	8'-7"	1'-8"	12				

ABUTMENT 4

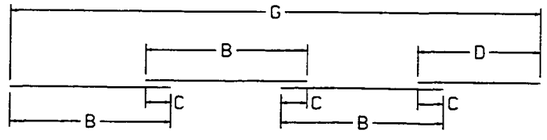
SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DEMENSIONS A	B	C	D	E	F	G	H	K
5	A400	2	10'-2"		10'-2"							
5	A401	2	7'-4"		7'-4"							
5	A402	2	4'-7"		4'-7"							
5	A403	2	10'-2"		10'-2"							
5	A404	2	7'-4"		7'-4"							
5	A405	2	4'-7"		4'-7"							
8	A406	20	11'-6"		11'-6"							
5	C400	1	19'-2"		8'-9"	1'-8"	8'-9"					
5	C401	1	19'-0"		8'-8"	1'-8"	8'-8"					
5	C402	14	18'-2"		8'-3"	1'-8"	8'-3"					
5	C403	10	18'-6"		8'-5"	1'-8"	8'-5"					
5	C404	2	18'-0"		8'-2"	1'-8"	8'-2"					
5	C405	9	15'-1"		5'-2"	1'-8"	8'-3"					
5	C406	4	15'-5"		5'-4"	1'-8"	8'-5"					
5	C407	3	14'-9"		5'-1"	1'-8"	8'-2"					
4	C408	16	5'-8"		2'-0"	1'-8"	2'-0"					
4	C409	36	2'-8"		0'-6"	1'-8"	0'-6"					
5	D400	2	15'-11"		3'-0"	12'-11"					12	4.3
5	D401	2	15'-11"		3'-0"	12'-11"					12	4.3
5	AA400	10	70'-5"		40'-0"	1'-9"	30'-5"	1		68'-8"		
5	AA401	2	67'-6"		40'-0"	1'-9"	27'-6"	1		65'-9"		
5	SC400	1	185'-3"	8"	4'-5"	8'-8"	1'-8"	12				
5	SC401	1	184'-2"	8"	4'-5"	8'-7"	1'-8"	12				

NOTES:

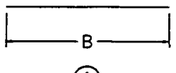
1. FABRICATION AND TOLERANCES SHALL BE IN ACCORDANCE WITH THE CRSI MANUAL OF STANDARD PRACTICE.
2. ALL DIMENSIONS ARE OUT TO OUT OF BARS.
3. NOMINAL LENGTH OF EACH BENT BAR OR CUT BAR IS THE SUM TOTAL OF THE DETAILING DIMENSIONS FOR THAT BAR, UNLESS OTHERWISE NOTED.



(SC)



C= LAP SPLICE (TYP.)
E= NO. OF B LENGTH PIECES IN A SET
TOTAL LENGTH PER SET = E x B + D
(AA)



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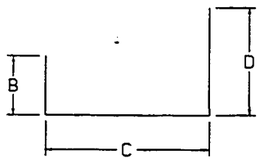
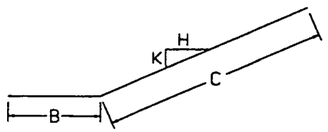


(C)



(D)

PHASE II
SOUTHBOUND I-29
40th AVE. S. OVERPASS
ABUTMENTS 1 & 4
REINFORCING BAR LIST & DETAILS

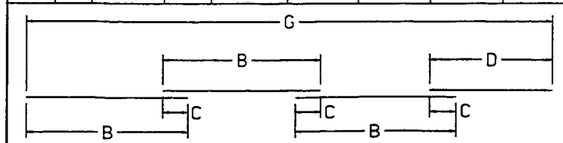
ULTEIG ENGINEERS, INC.

29-061.245 L-18

BILL OF REINFORCING STEEL, GRADE 60

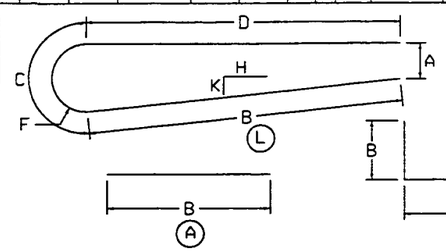
LETTER PREFIX OF BAR MARK DENOTES SHAPE ~ SEE BAR DETAILS

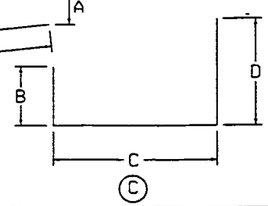
LOCATION	SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DEMENSIONS A	B	C	D	E	F	G	H	K
PIERS (BOTH PIERS)	9	A200	16	39'-0"		39'-0"							
	6	A201	20	39'-0"		39'-0"							
	7	A202	96	15'-9"		15'-9"							
	8	A203	20	13'-0"		13'-0"							
	8	A204	6	18'-0"		18'-0"							
	5	A205	8	39'-8"		39'-8"							
	8	A206	10	39'-8"		39'-8"							
	4	C200	72	3'-2"		0'-6"	2'-2"	0'-6"					
	5	C201	4	8'-4"		0'-8"	6'-4"	1'-4"					
	5	C202	2	5'-1"		1'-3"	2'-7"	1'-3"					
	5	C203	2	5'-0"		1'-3"	2'-6"	1'-3"					
	5	N200	78	18'-4"	2'-2"	6'-6"	6"					0	12
	4	N201	66	9'-8"	2'-8"	1'-8"	6"					0	12
	5	N202	10	9'-10"	1'-8"	2'-9"	6"					0	12
	5	N203	10	9'-8"	1'-8"	2'-8"	6"					0	12
	5	SN200	2	90'-9"	1'-8"	2'-10"	6"	2'-11"	8				
	5	SN201	2	134'-4"	1'-8"	2'-11"	6"	3'-1"	12				
	5	SN202	2	132'-2"	1'-8"	2'-10"	6"	3'-0"	12				
	5	SN203	2	89'-3"	1'-8"	2'-9"	6"	2'-10"	8				
SUPERSTRUCTURE REGULAR	5	A500	12	42'-2"		42'-2"							
	6	A502	12	37'-8"		37'-8"							
	6	A503	2	31'-8"		31'-8"							
	6	A504	16	5'-5"		5'-5"							
	5	G500	24	9'-5"	1'-6"	5'-5"	1'-6"	0'-6"				12	.5
	5	L500	346	5'-0"	3"	2'-2"	8"	2'-2"		2.5"		12	1.25
	5	N500	12	7'-8"	1'-10"	1'-6"	0'-6"					12	.5
	7	AT500	4	2'-6"		2'-6"							
	5	AA500	10	175'-8"		60'-0"	1'-6"	55'-8"	2		172'-8"		
	5	XA500	599	42'-2"		42'-2"							
	6	XA501	56	18'-0"		18'-0"							
	5	XA502	5	42'-2"		42'-2"							
	5	XA503	5	42'-2"		42'-2"							
	6	XA504	56	59'-0"		59'-0"							
	5	XB500	84	6'-6"		4'-0"	2'-6"						
	5	XB501	52	4'-6"		2'-0"	2'-6"						
EPOXY COATED	4	XG500	48	9'-1"	3'-0"	1'-1"	3'-0"	1'-0"				12	0
	4	XG501	24	7'-9"	2'-8"	0'-5"	2'-8"	1'-0"				12	0
	5	XK500	346	4'-11"	1'-4"	8"	11"	8"	1'-0"	2.5"	8"	8.5	12
	5	XP500	84	5'-6"	0'-5"	2'-1"	2'-2"			1.25"	0'-10"	12	6.5
	5	XAA500	32	176'-8"		60'-0"	2'-0"	56'-8"	2		172'-8"		
	6	XAA501	29	177'-2"		60'-0"	2'-3"	57'-2"	2		172'-8"		
	5	XSA500	1	68'-9"	11'-4"	34'-5"			2				
	8	XSA501	1	42'-0"	13'-4"	28'-8"			1				
	5	XSA502	1	68'-8"	11'-4"	34'-5"			2				
	8	XSA503	1	42'-0"	13'-4"	28'-8"			1				



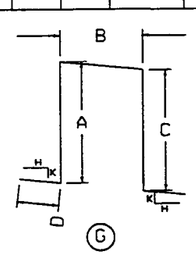
C= LAP SPLICE (TYP.)
E= NO. OF B LENGTH PIECES IN A SET
TOTAL LENGTH PER SET = E x B + D

(AA)

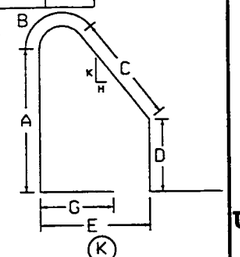




(B)



(G)

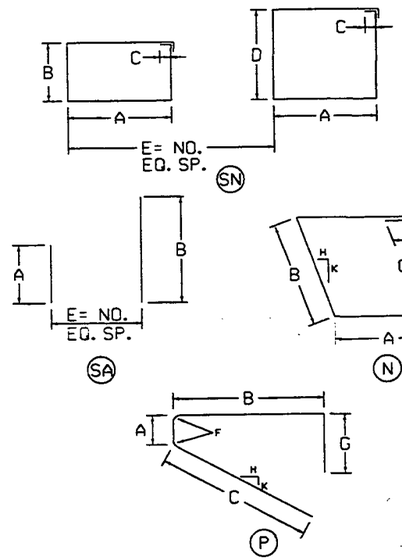


(K)

FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	43

NOTES:

1. FABRICATION AND TOLERANCES SHALL BE IN ACCORDANCE WITH THE CRSI MANUAL OF STANDARD PRACTICE.
2. ALL DIMENSIONS ARE OUT TO OUT OF BARS.
3. NOMINAL LENGTH OF EACH BENT BAR OR CUT BAR IS THE SUM TOTAL OF THE DETAILING DIMENSIONS FOR THAT BAR, UNLESS OTHERWISE NOTED.
4. ADJACENT AA BARS SHALL BE TURNED END FOR END SO THAT THE SPLICE LOCATIONS ARE STAGGERED.
5. THE "f" DIMENSION INDICATES THE RADIUS.
6. AN "X" PRECEDING A BAR DESIGNATION INDICATES AN EPOXY COATED BAR.

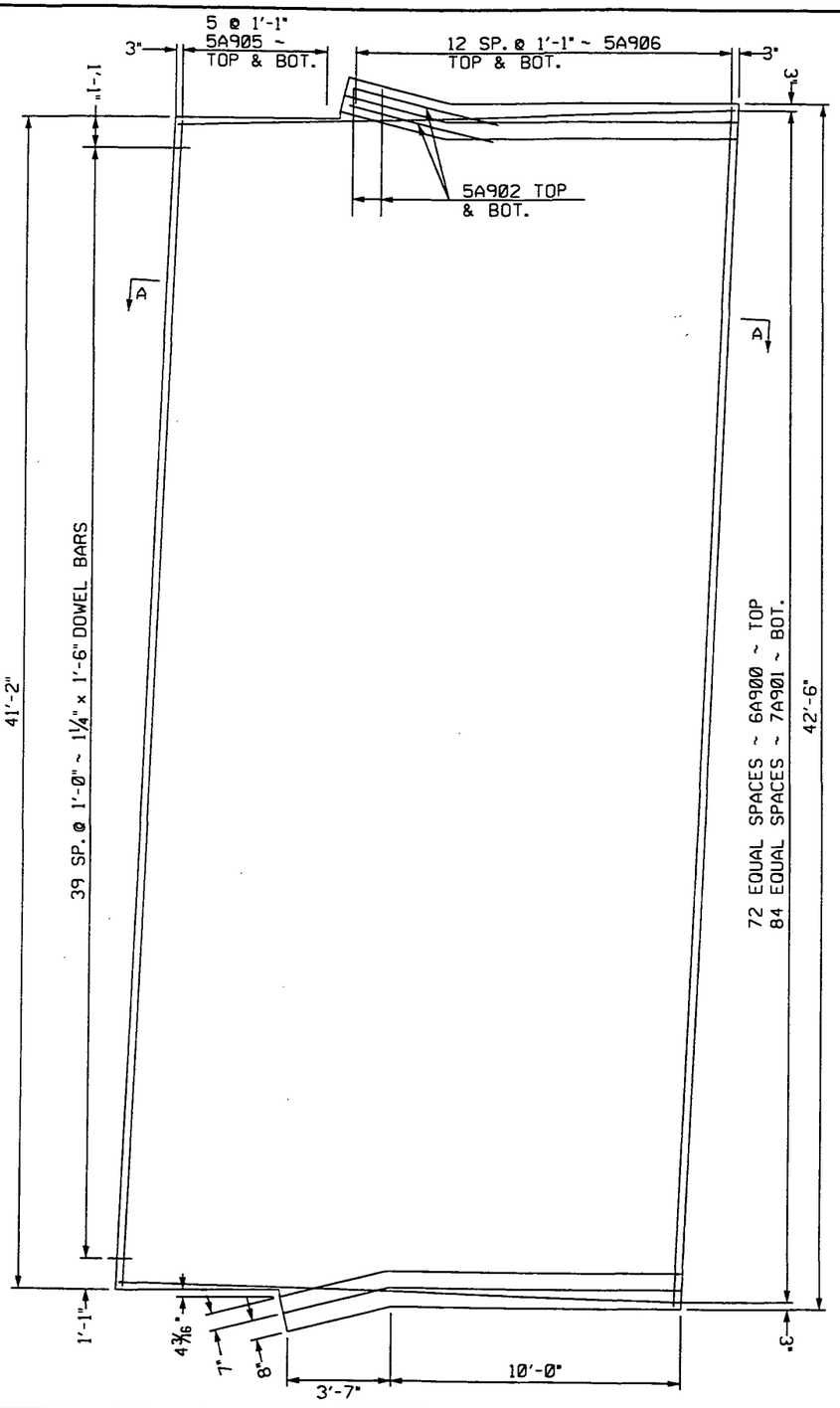


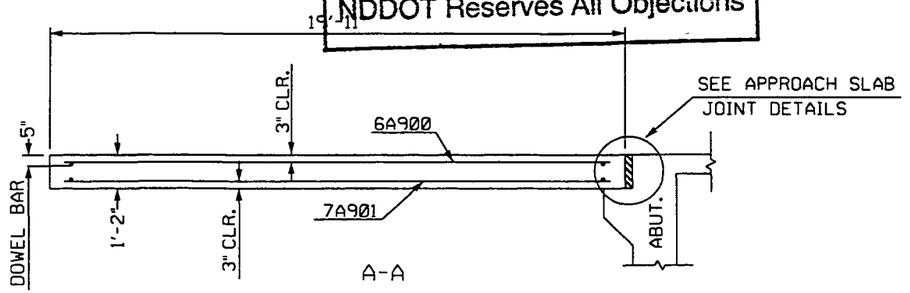
PHASE II
SOUTHBOUND I-29
40th AVE. S. OVERPASS
PIER & SUPERSTRUCTURE REINFORCING BAR LIST & DETAILS

ULTEIG ENGINEERS, INC.

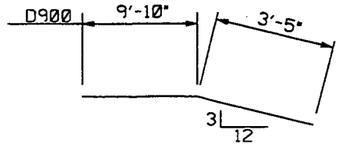
29-061.245 L-19

FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	44

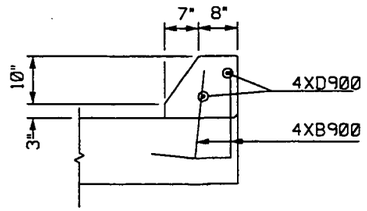




A-A

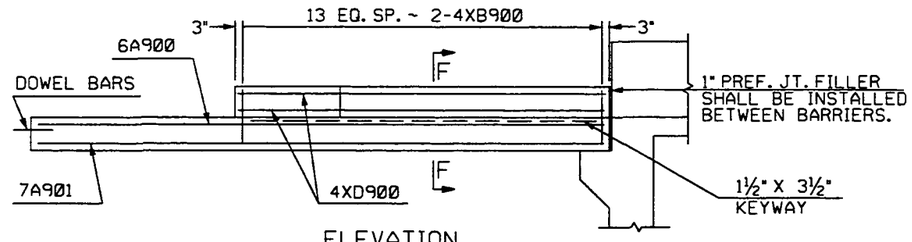


D900

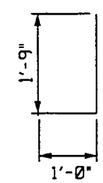


F-F

SKEW ANGLE = 2°28'40"			
BAR LIST - ONE SLAB			
SIZE	MARK	NO.	LENGTH
6	A900	73	19'-7"
7	A901	85	19'-7"
5	A902	16	6'-0"
5	A905	12	40'-10"
5	A906	26	42'-2"
4	XB900	56	2'-9"
4	XD900	4	13'-3"
ESTIMATED MATERIAL QUANTITIES			
REINFORCING STEEL (LBS)		CONCRETE (C.Y.)	
7441		37.5	



ELEVATION



XB900

QUANTITIES	(ONE SLAB)
APPROACH SLAB	93.5 S.Y.

NOTE:
THE ABOVE ESTIMATED MATERIAL QUANTITIES ARE FOR INFORMATIONAL PURPOSES ONLY. ALL MATERIALS INCLUDING CONCRETE ,SAW CUTTING, POLYETHYLENE MEMBRANE, REINFORCING BARS, PREFORMED JOINT FILLER AND LABOR REQUIRED TO BUILD THE APPROACH SLABS AND APPROACH SLAB BARRIERS SHALL BEINCIDENTAL TO THE PAY ITEM, "CONCRETE BRIDGE APPROACH SLAB".

THE CONCRETE SHALL BE CLASS AE-3 AND THE REINFORCING STEEL SHALL BE GRADE 60. THE POLYETHYLENE MEMBRANE SHALL MEET REQUIREMENTS OF AASHTO M171.

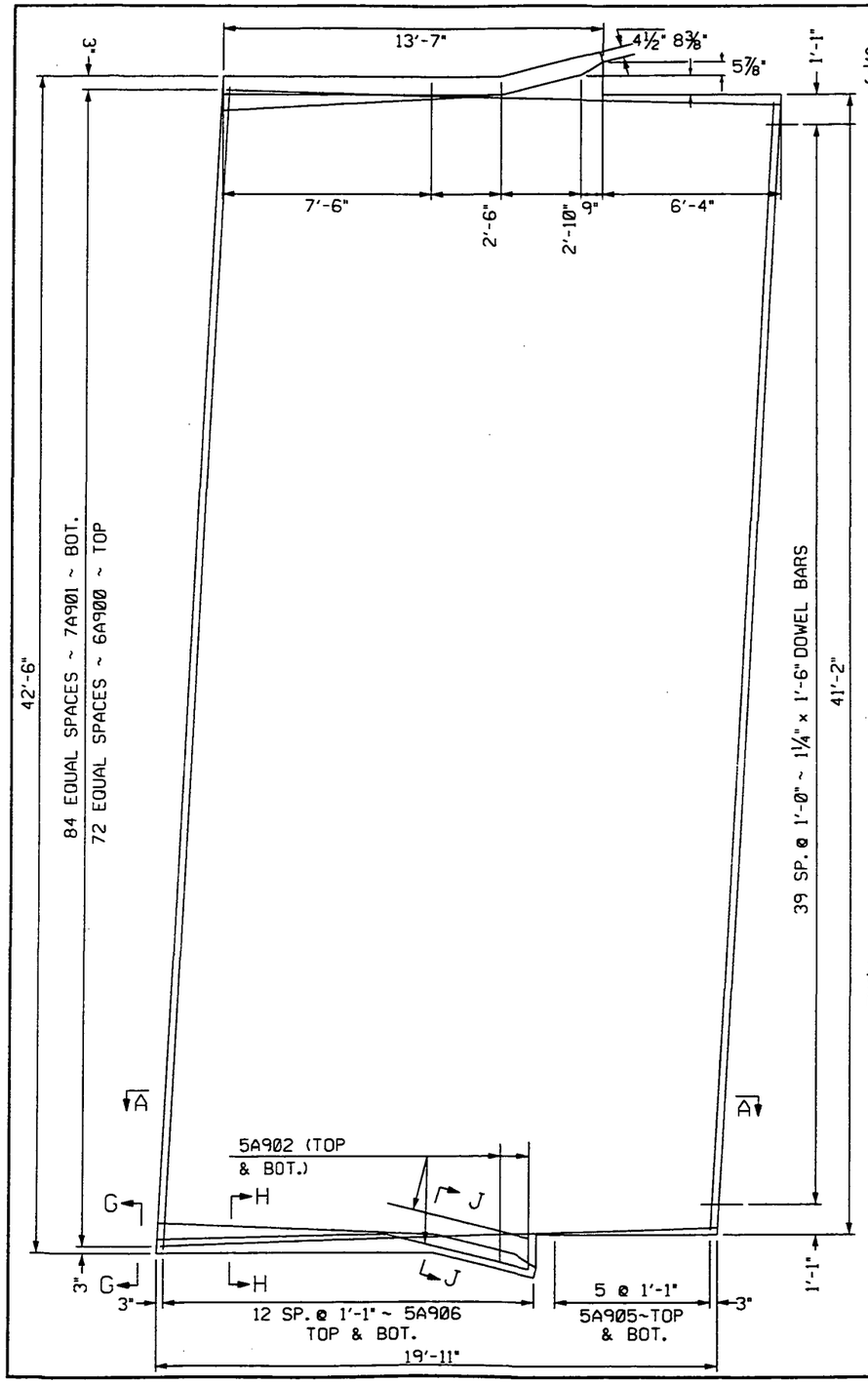
THE BAR MARKS BEGINNING WITH AN "X", INDICATE AN EPOXY COATED BAR.

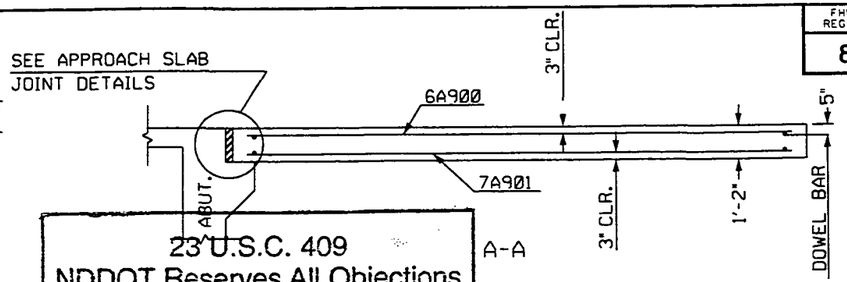
SURFACE FINISH "D" SHALL BE REQUIRED FOR ALL SURFACES OF THE CURB TRANSITIONS.

PHASE II
SOUTHBOUND I-29
40th AVE. S. OVERPASS
APPROACH SLAB
EXIT END

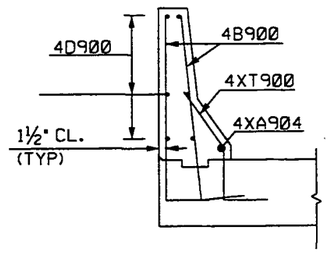
ULTEIG ENGINEERS, INC.

FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	45

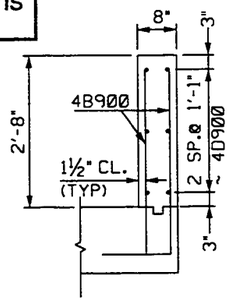




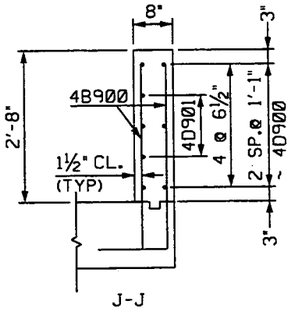
23 U.S.C. 409
NDDOT Reserves All Objections



G-G

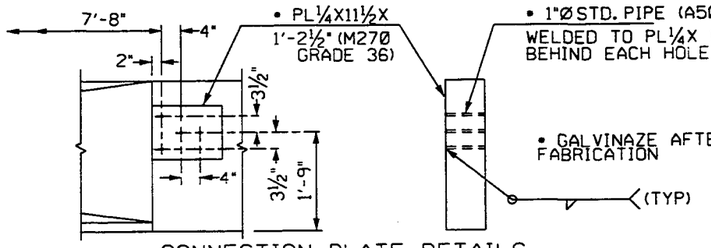


H-H

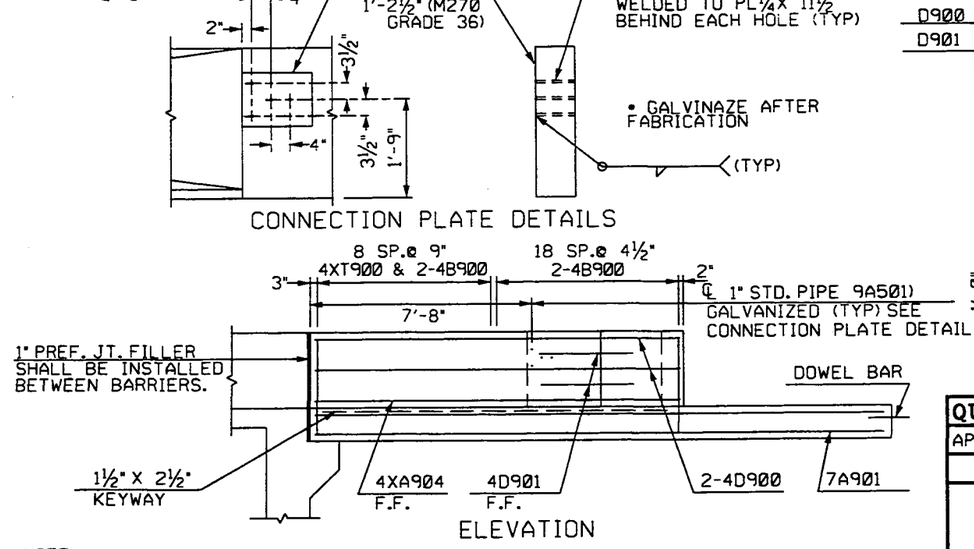


J-J

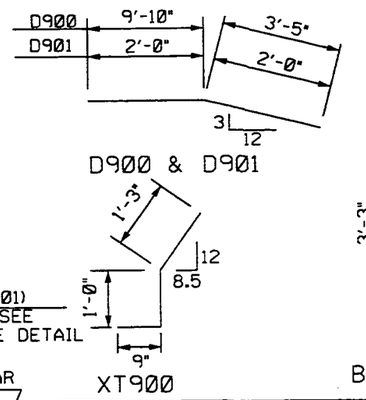
SKEW ANGLE = 2°28'40"			
BAR LIST - ONE SLAB			
SIZE	MARK	NO.	LENGTH
6	A900	73	19'-7"
7	A901	85	19'-7"
5	A902	16	6'-0"
4	XA904	2	7'-6"
5	A905	12	40'-10"
5	A906	26	42'-2"
4	B900	112	4'-0"
4	D900	12	13'-3"
4	D901	4	4'-0"
4	XT900	18	3'-0"
ESTIMATED MATERIAL QUANTITIES			
REINFORCING STEEL (LBS)		CONCRETE (C.Y.)	
7766		38.2	



CONNECTION PLATE DETAILS



ELEVATION



QUANTITIES	(ONE SLAB)
APPROACH SLAB	93.5 S.Y.

NOTE:
THE ABOVE ESTIMATED MATERIAL QUANTITIES ARE FOR INFORMATIONAL PURPOSES ONLY. ALL MATERIALS INCLUDING CONCRETE ,SAW CUTTING, POLYETHYLENE MEMBRANE, REINFORCING BARS, PREFORMED JOINT FILLER AND LABOR REQUIRED TO BUILD THE APPROACH SLABS AND APPROACH SLAB BARRIERS SHALL BE INCIDENTAL TO THE PAY ITEM "CONCRETE BRIDGE APPROACH SLAB".

THE CONCRETE SHALL BE CLASS AE-3 AND THE REINFORCING STEEL SHALL BE GRADE 60. THE POLYETHYLENE MEMBRANE SHALL MEET REQUIREMENTS OF AASHTO M171.

THE BAR MARKS BEGINNING WITH AN "X", INDICATE AN EPOXY COATED BAR.

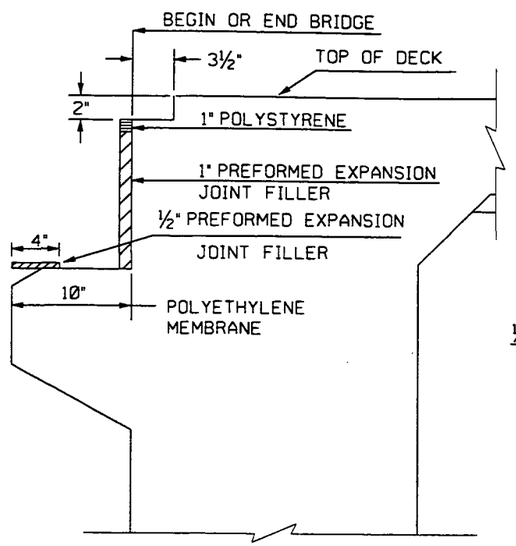
SURFACE FINISH "D" SHALL BE REQUIRED FOR ALL SURFACES OF THE CURB TRANSITIONS.

PHASE II
SOUTHBOUND I-29
40th AVE. S. OVERPASS
APPROACH SLAB
ENTRANCE END

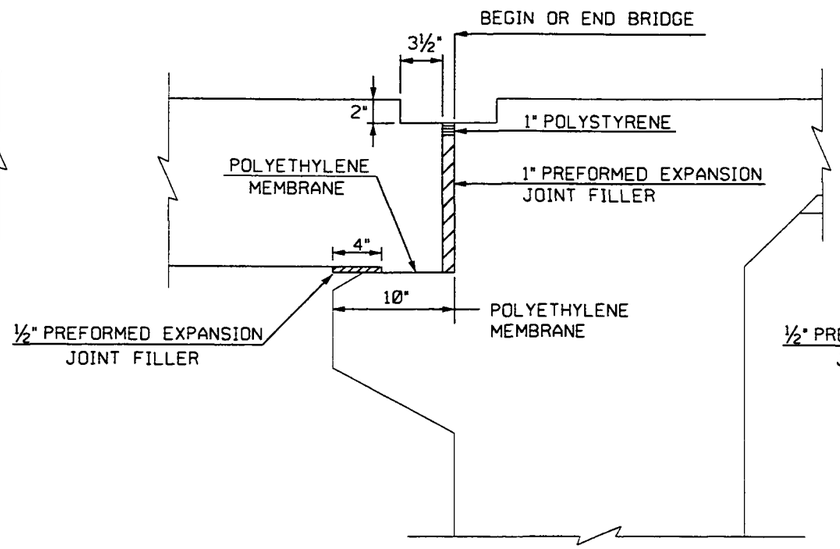
ULTEIG ENGINEERS, INC.

29-061.245 L-21

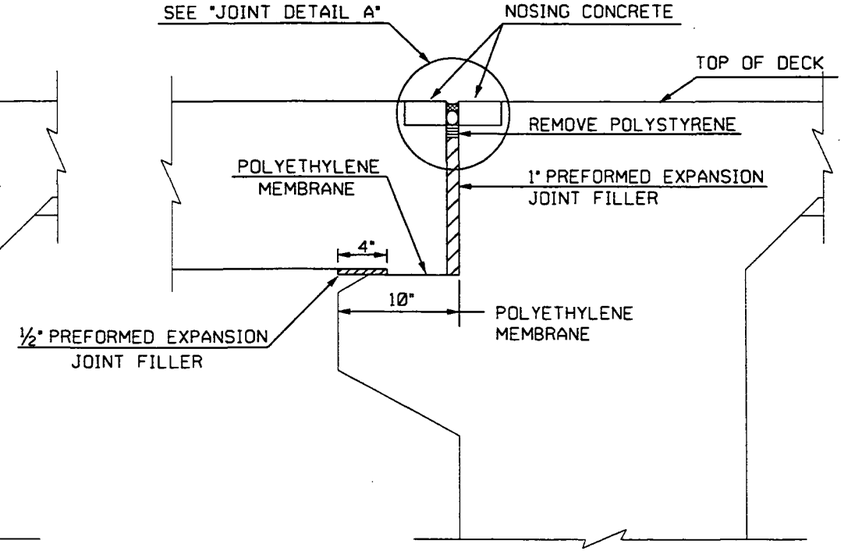
FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	46



STAGE 1



STAGE 2



STAGE 3

STAGE 1: 1. A 2" x 3½" BLOCKOUT SHALL BE FORMED BETWEEN THE CURBS IN THE ABUTMENT AS SHOWN.

2. PLACE A 1" THICK PREFORMED EXPANSION JOINT FILLER. THE ½" x 4" PREFORMED EXPANSION JOINT FILLER AND THE POLYETHYLENE MEMBRANE.

STAGE 2: 3. PLACE THE NEW APPROACH SLAB CONCRETE. A 2" x 3½" BLOCKOUT SHALL BE FORMED BETWEEN THE CURBS IN THE APPROACH SLAB AS SHOWN.

STAGE 3: 4. REMOVE THE 1" POLYSTYRENE.

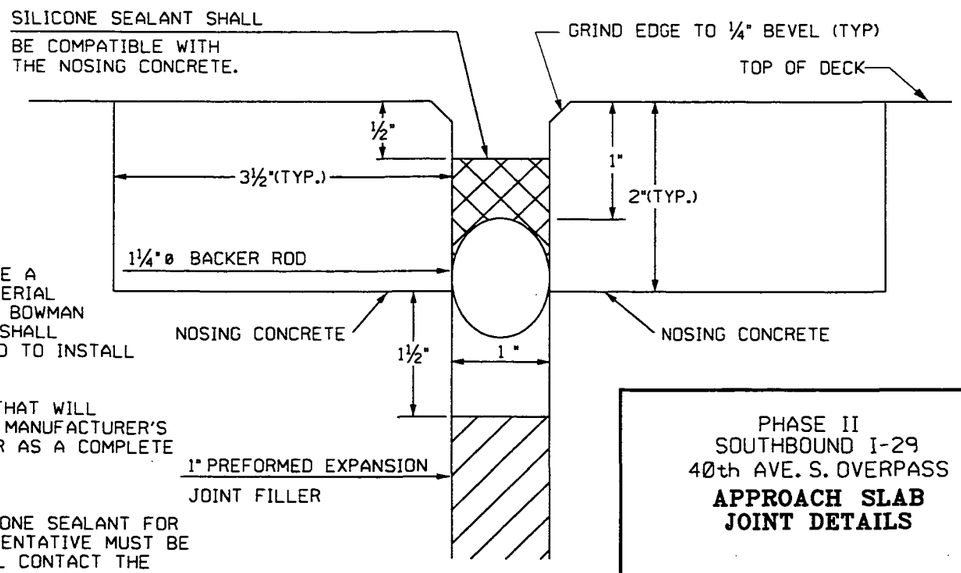
5. NOSING CONCRETE SHALL BE PLACED IN THE BLOCKOUT AREAS, BOTH IN THE DECK AND IN THE APPROACH SLAB.

6. AFTER THE NOSING CONCRETE HAS CURED, CLEAN AND PREPARE THE JOINT, APPLY ANY NECESSARY BONDING MATERIAL, INSTALL THE BACKER ROD AND INSTALL THE SILICONE SEALANT.

GENERAL:
THE NOSING CONCRETE MATERIAL SHALL BE AN ELASTOMERIC CONCRETE OR A POLYMERIC CONCRETE THAT WILL PROVIDE A DURABLE EDGE THAT CAN WITHSTAND LIVE-LOAD TRAFFIC WITHOUT CHIPPING OR SPALLING. THE NOSING CONCRETE MATERIAL SHALL BE SILSPEC 900 PNS, MANUFACTURED BY SILICONE SPECIALTIES, INC.; WABOCRETE II, MANUFACTURED BY WATSON BOWMAN ACME; ELASTOMERIC CONCRETE, MANUFACTURED BY D.S. BROWN COMPANY, OR AN APPROVED EQUAL. THE NOSING CONCRETE SHALL BE MIXED AND INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. ALL LABOR AND MATERIALS REQUIRED TO INSTALL THE NOSING CONCRETE SHALL BE INCLUDED IN THE BID ITEM "NOSING CONCRETE".

THE SILICONE SEALANT SHALL BE A RAPID CURE, SELF LEVELLING, COLD APPLIED, TWO COMPONENT SILICONE SEALANT THAT WILL BOND TO AND BE COMPATIBLE TO THE NOSING CONCRETE USED. THE SEALANT SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. THE SILICONE SEALANT AND THE NOSING CONCRETE MUST BE SUPPLIED BY THE SAME MANUFACTURER AS A COMPLETE SYSTEM. THE BACKER ROD AND ANY NECESSARY BONDING MATERIAL SHALL BE INCLUDED IN THE BID ITEM "SILICONE SEALANT".

THE CONTRACTOR SHALL AQUIRE TECHNICAL ASSITANCE FROM THE MANUFACTURER OF THE NOSING CONCRETE AND SILICONE SEALANT FOR THE SURFACE PREPARATION AND INSTALLATION OF THE NOSING CONCRETE AND SILICONE SEALANT. A TECHNICAL REPRESENTATIVE MUST BE PRESENT FOR THE START OF SURFACE PREPERATION AND INSTALLATION FOR A LEAST ONE DAY. THE CONTRACTOR SHALL CONTACT THE MANUFACTURER AT LEAST TWO WEEKS PRIOR TO THE INSTALLATION. THE TECHNICAL ASSISTANCE SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE DEPARTMENT.



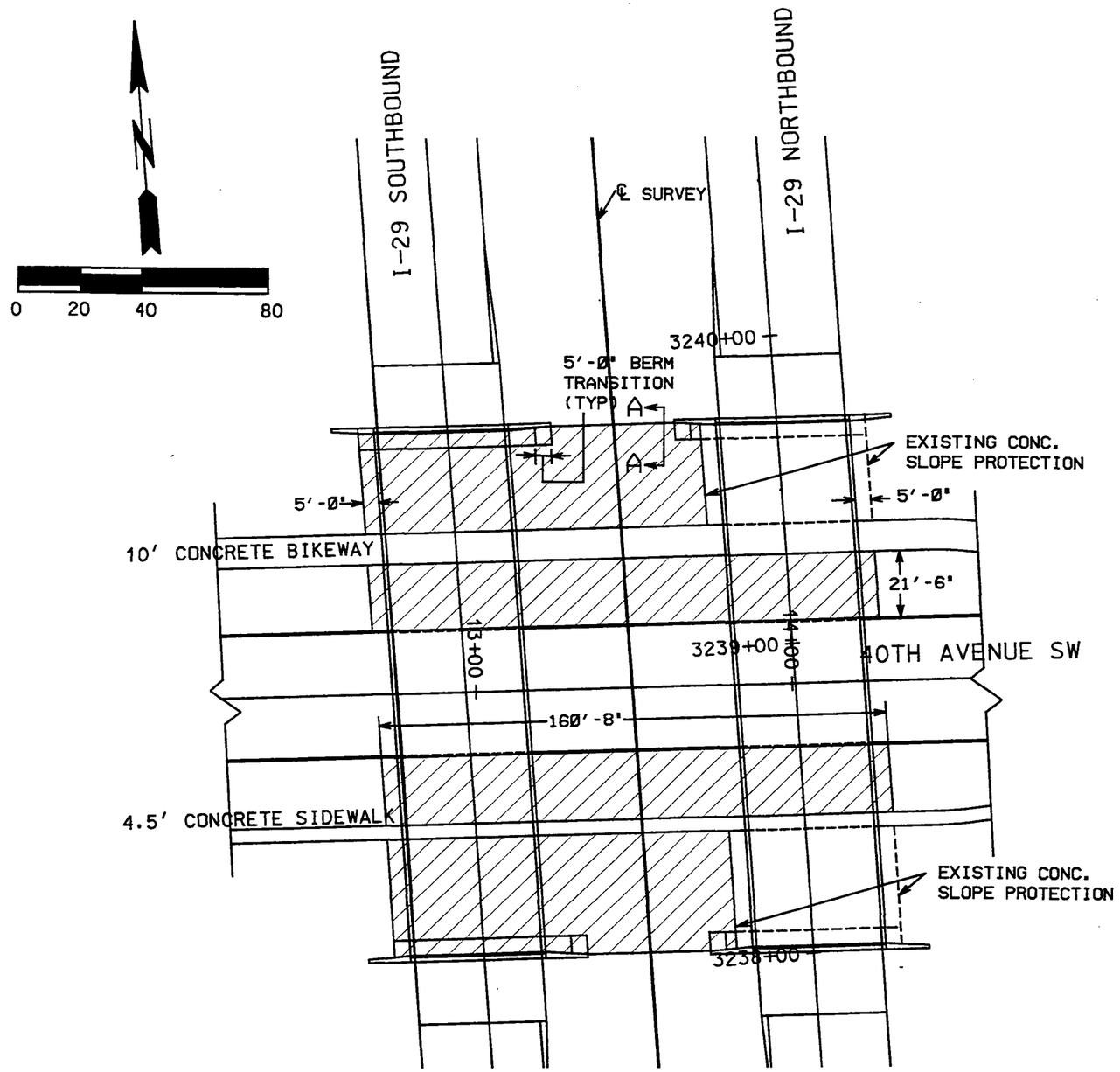
JOINT DETAIL A

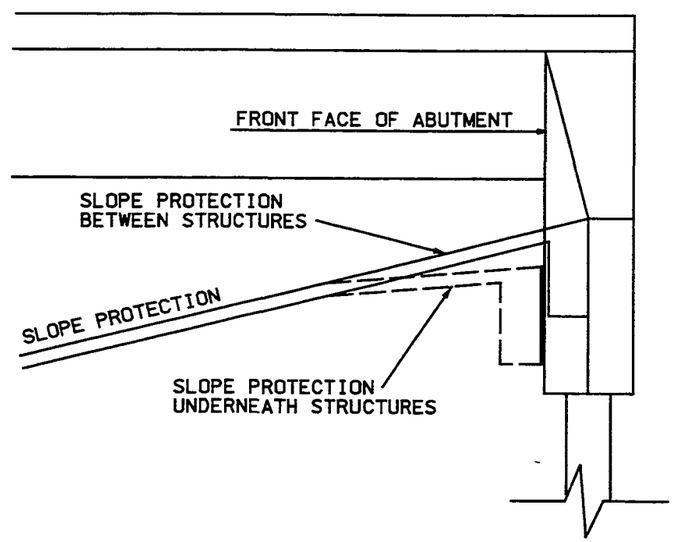
PHASE II
SOUTHBOUND I-29
40th AVE. S. OVERPASS
APPROACH SLAB JOINT DETAILS

ULTEIG ENGINEERS, INC.

29-061.245 L-22

FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	47





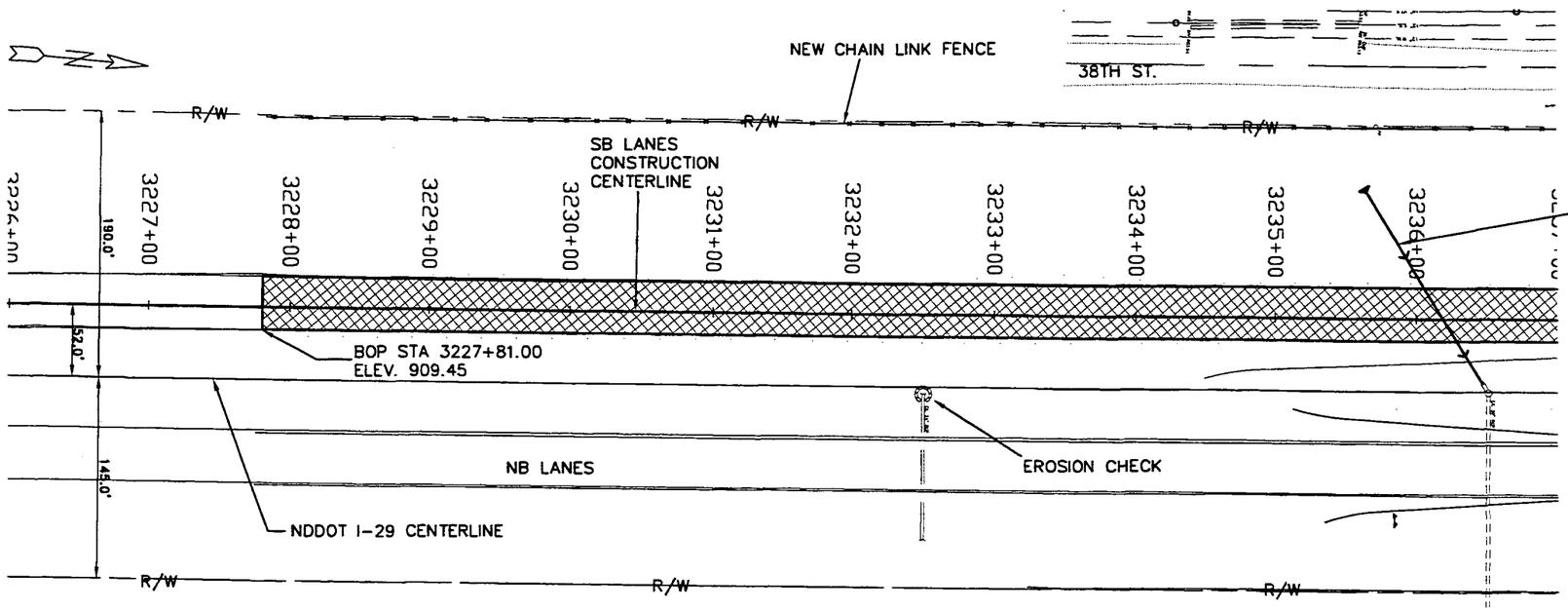
SECTION A-A
SEE STANDARD NO D-708-1 FOR DETAILS

PHASE II
SOUTHBOUND I-29
40th AVE. S. OVERPASS
SLOPE PROTECTION LAYOUT AND DETAILS

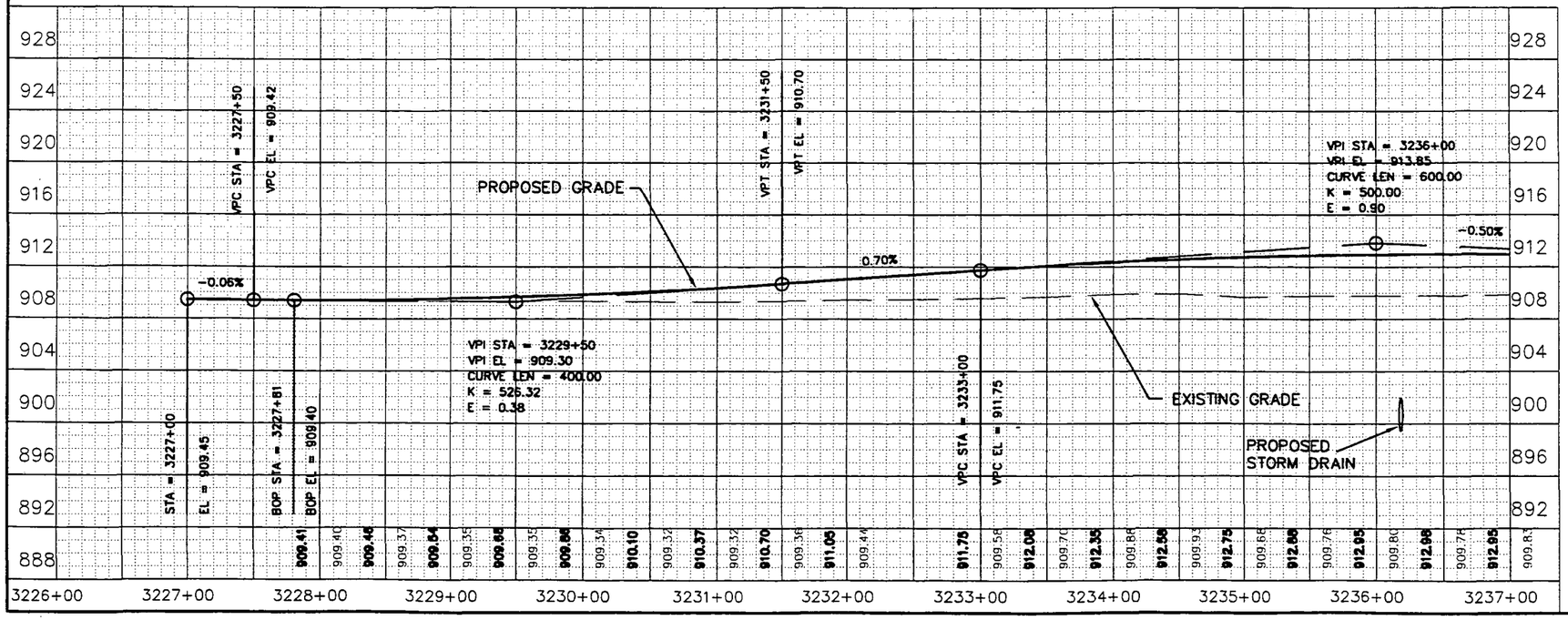
ULTEIG ENGINEERS, INC.

29-061.245 L-23

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	48



SCALES:
1" =100' HOR
1" =10' VER



NEW CHAIN LINK FENCE

NEW PCC PAVEMENT

Elevations are City of Fargo Datum

STANDARD DETAILS

BENCH MARKS

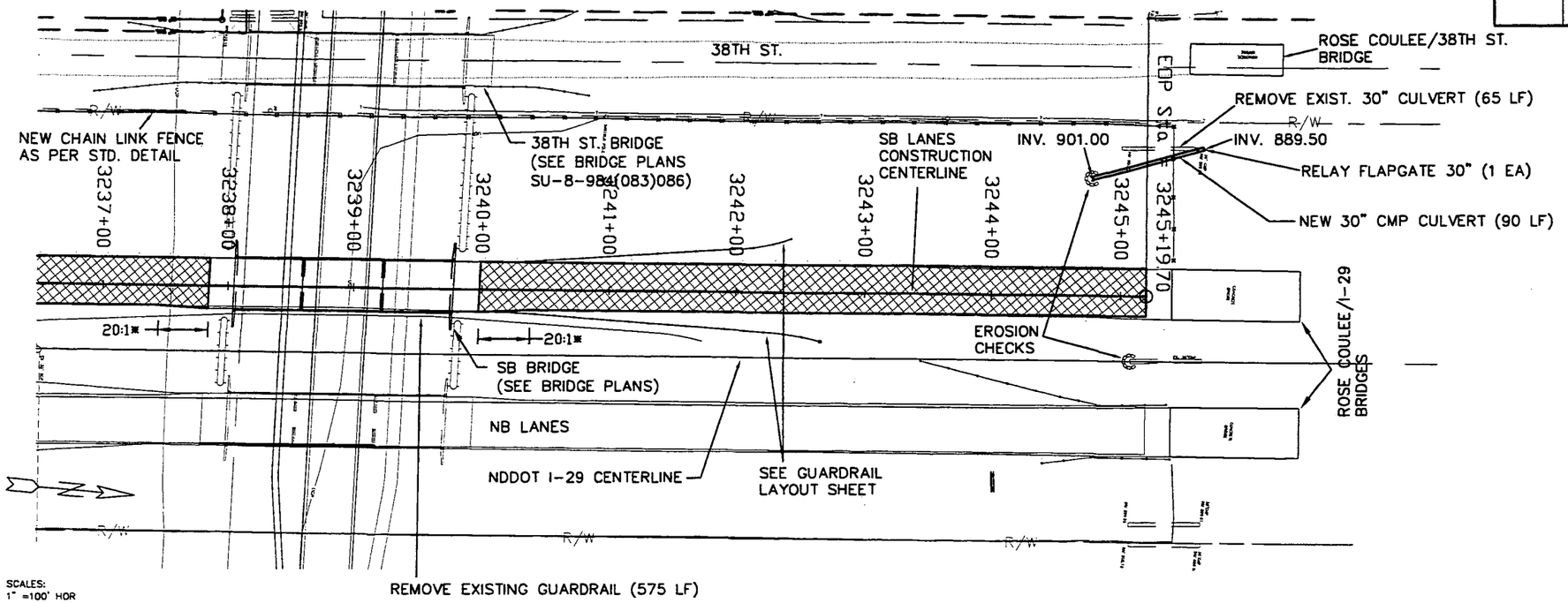
NO.	DESCRIPTION	LOCATION	ELEV.
-	-	-	-
-	-	-	-

PROJECT LOCATION
STA. 3226+00 TO 3237+00

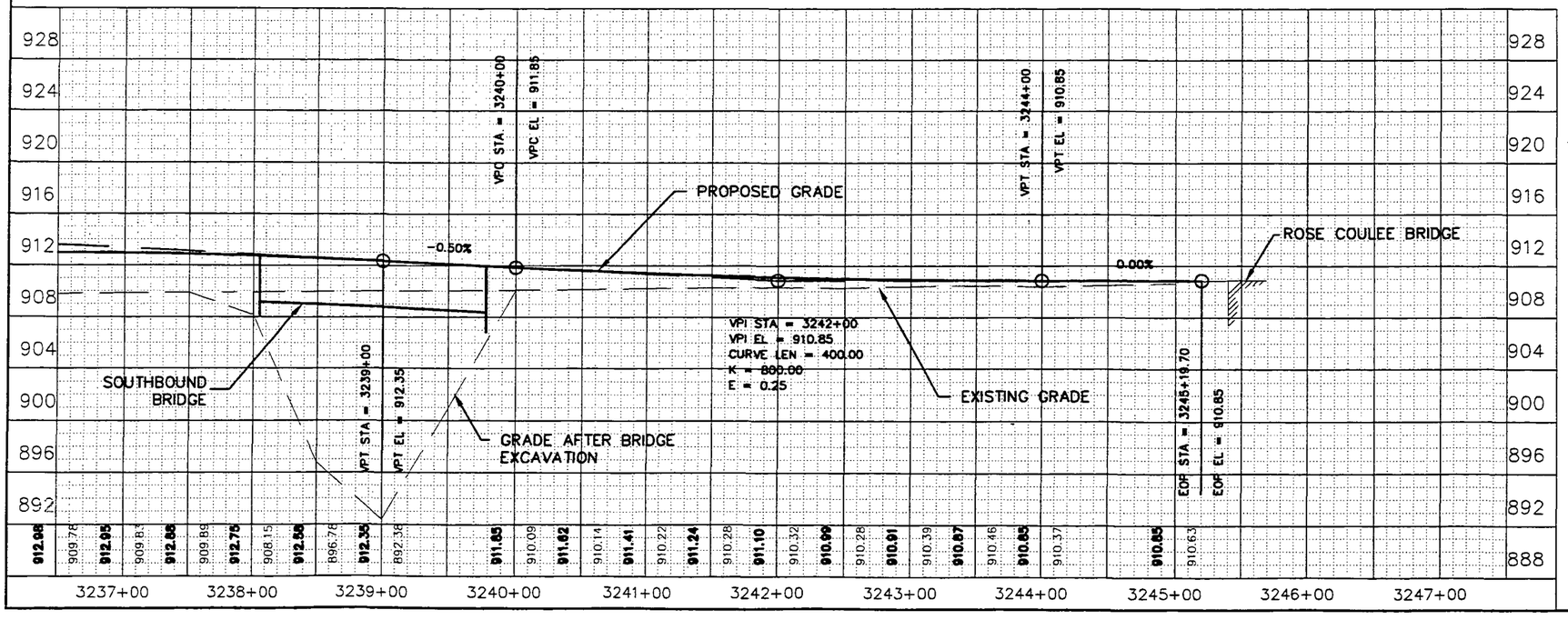
FILE: SB-PP1.DWG

0 50 100 150
SCALE IN FEET

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
	ND	IM-8-029(044)061	49



SCALES:
1" =100' HOR
1" =10' VER



* PROVIDE 20:1 PCC PAVEMENT TRANSITION FROM STA 3237+45.60 TO STA 3237+85.60 AND STA 3239+98.80 TO STA 3240+38.80.

NEW CHAIN LINK FENCE

NEW PCC PAVEMENT

Elevations are City of Fargo Datum

STANDARD DRAWINGS

BENCH MARKS

NO.	DESCRIPTION	LOCATION	ELEV.
-	-	-	-
-	-	-	-

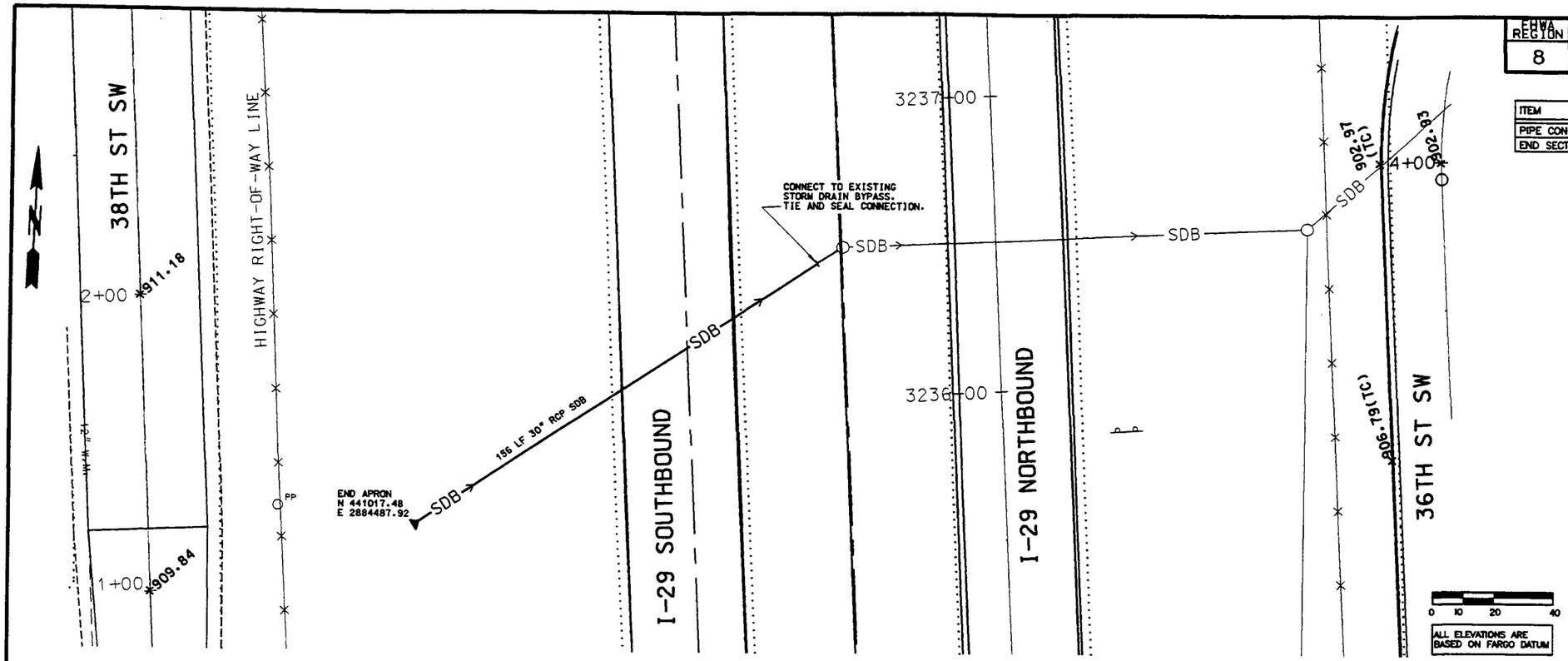
PROJECT LOCATION
STA. 3237+00 TO 3245+39.70

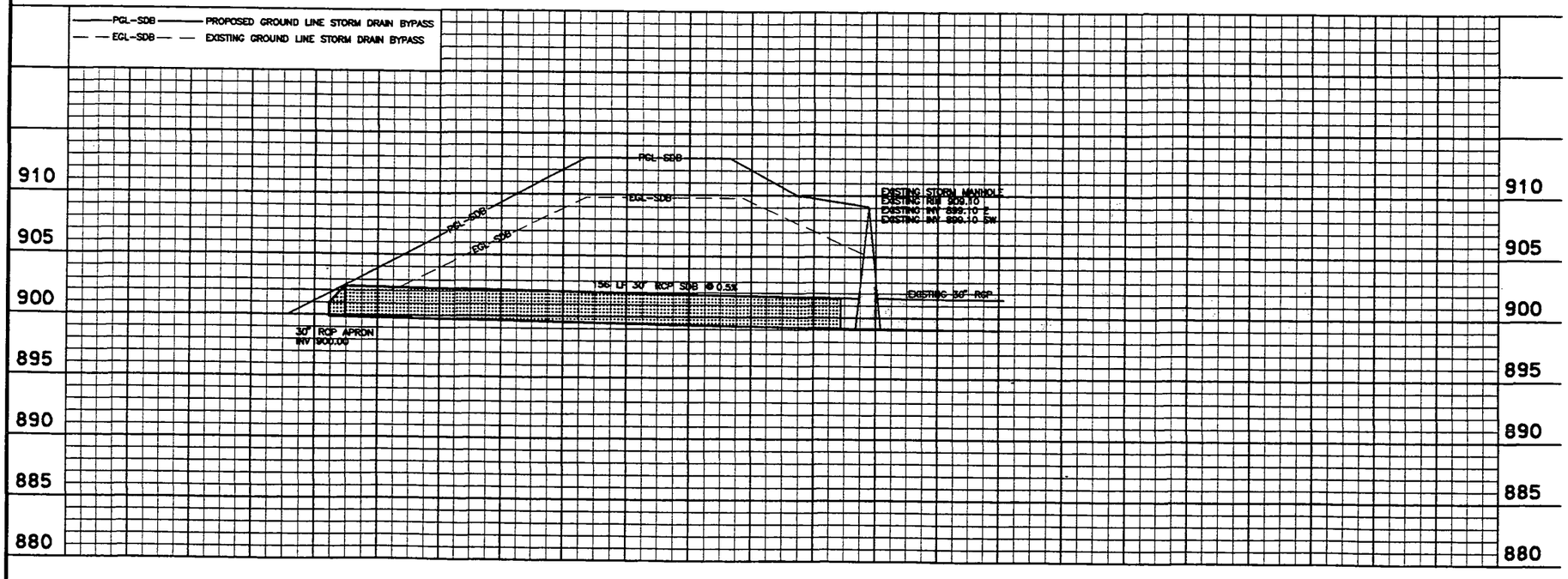
FILE: SB-PP2.DWG

SCALE IN FEET

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	IM-8-029(044)061	50

ITEM	QUANTITY
PIPE CONC REINF 30 IN CL III – STORM DRAIN	156 LF
END SECTION – PIPE CONC REINF 30 IN	1 EA





I-29 SOUTHBOUND RECONSTRUCTION

STORM DRAIN PLAN & PROFILE

DRAWN BY:	CHECKED BY:	APPROVED BY:
MGJ	SMS	
FILE: PH2_6.DGN	DATE: 8-17-99	SCALE: 1" = 40'

UEI #1

Bi. No. 29-061.245 L
40TH Ave SW SEP-Fargo
2 South of I-94 Int

1

NORTH DAKOTA CONCRETE PRODUCTS COMPANY

PRECAST BRIDGE BEAM SHOP DRAWINGS

COUNTY – CASS
PROJECT NO. – IM-8-029(044)061
ENGINEER – ULTEIG ENGINEERS
CONTRACTOR – WANZEK CONSTRUCTION

☒ NO EXCEPTIONS NOTED
☐ EXCEPTIONS NOTED
☐ RETURNED FOR CORRECTION
☐ NOT APPLICABLE
☐ NOT ACCEPTABLE
BY MJH
DATE 3-29-00
REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS.
ULTEIG ENGINEERS, INC.
MJH 1-15, 5A

INDEX OF SHEETS

DESIGN DATA

CONCRETE DESIGN	-	5,000 P.S.I. (53'-0" BEAMS)
	-	6,900 P.S.I. (62'-0" BEAMS)
DETENSION	-	4,000 P.S.I. (53'-0" BEAMS)
	-	4,400 P.S.I. (62'-0" BEAMS)
STRAND	-	270 K.S.I. LOW-LAX
REINFORCING STEEL (Except as noted)	-	GR. 60
PRESTRESS LOSSES	-	34,124 P.S.I. (53'-0" BEAMS)
	-	43,173 P.S.I. (62'-0" BEAMS)
LOADING	-	HS25
WEIGHT	-	34,750# (53'-0" BEAMS)
	-	40,225# (62'-0" BEAMS)

DRAWN BY:
ROB GROSZ

R/S #459208A	SPAN	
SKEW NONE	1 & 3	2
NO. OF BEAMS	10	5
HEIGHT	33"	33"
LENGTH	53'-0"	62'-0"

DATE: 3-21-00

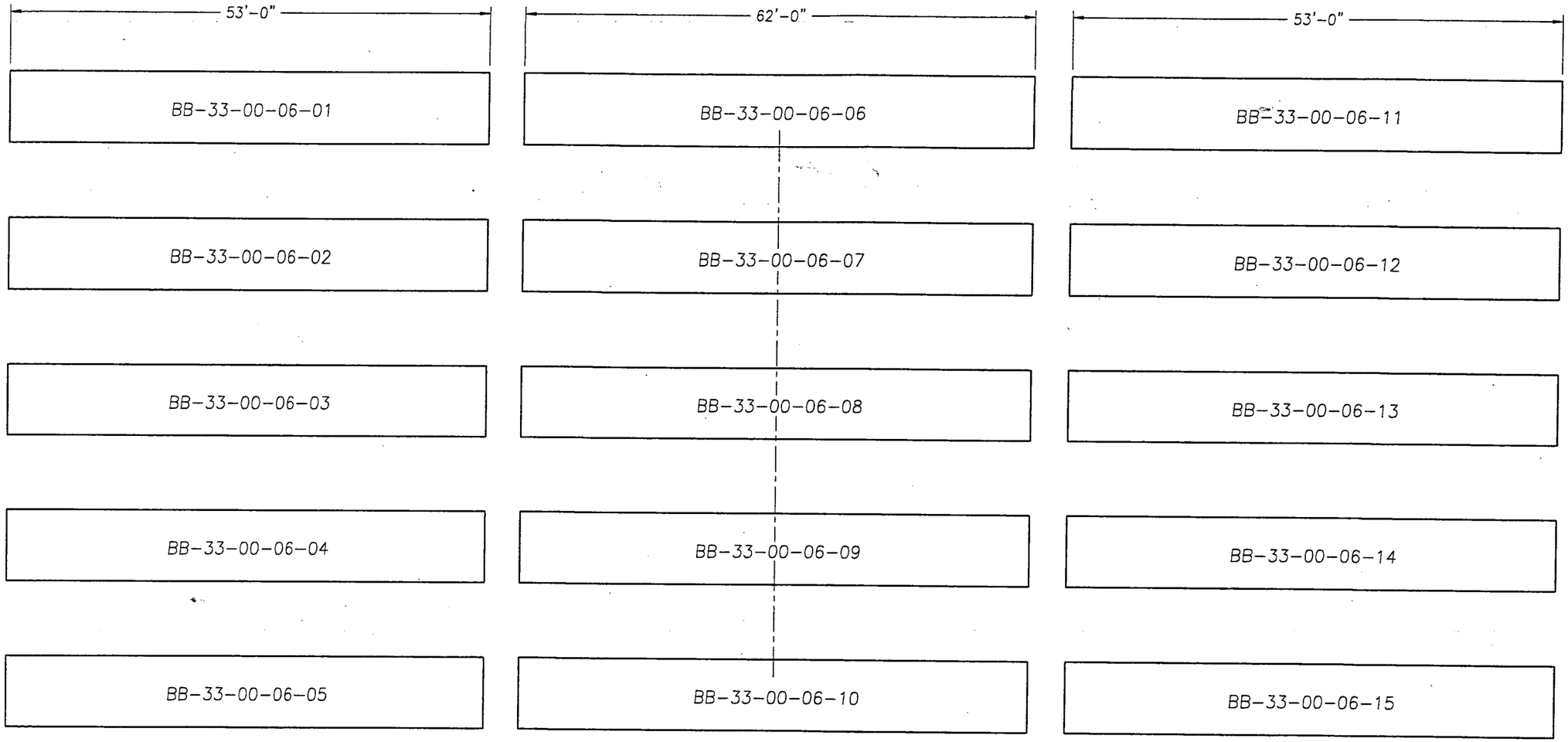
TITLE SHEET

33" SPREAD BOX BEAMS

BB-33-00-06

06TITLE

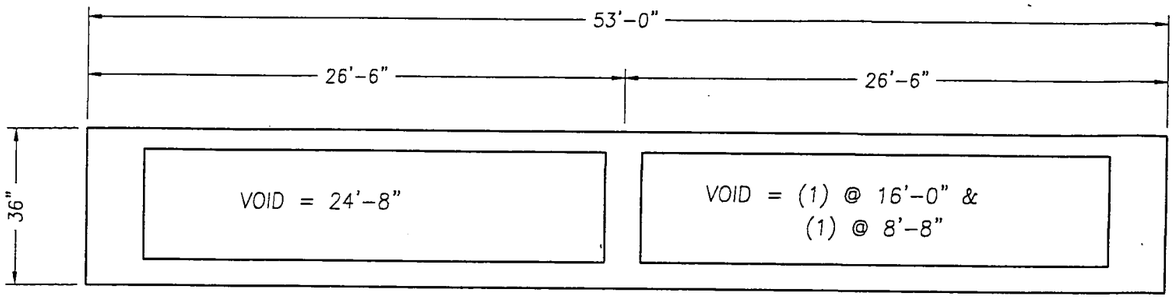
N



LAYOUT

LAYOUT
TRIPLE SPAN
BB-33-00-06

06LAYOUT



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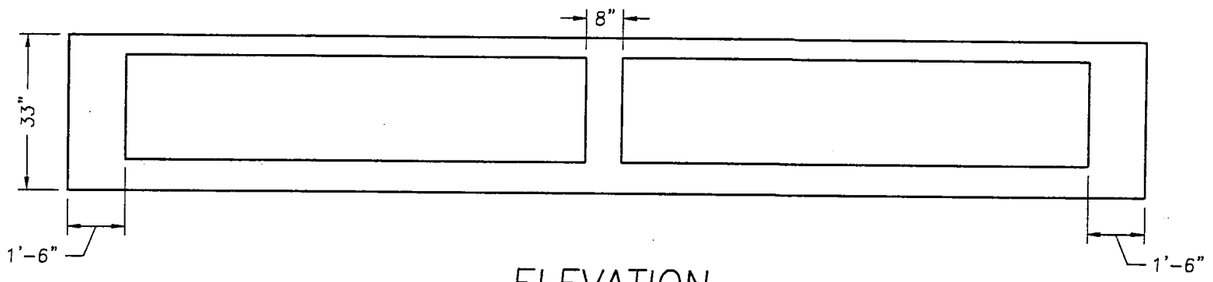

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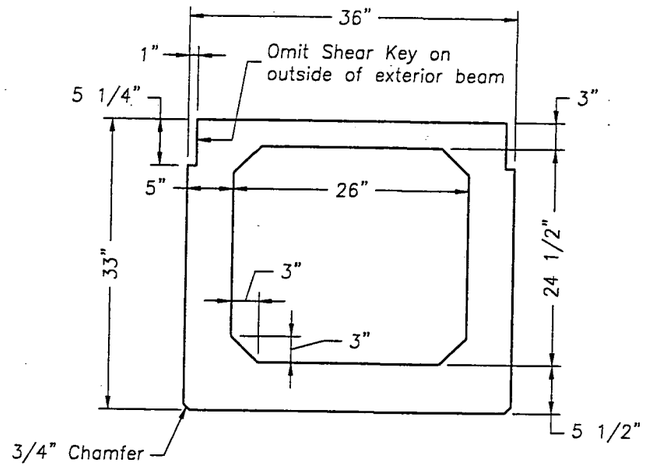

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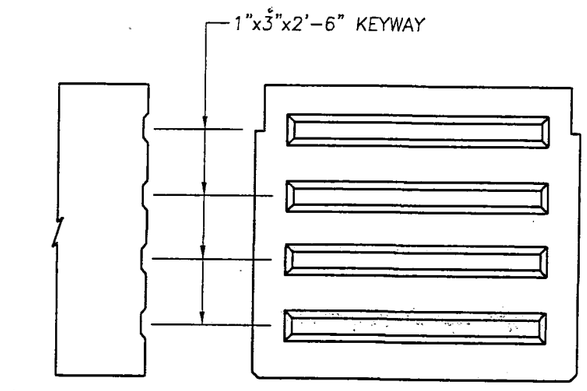
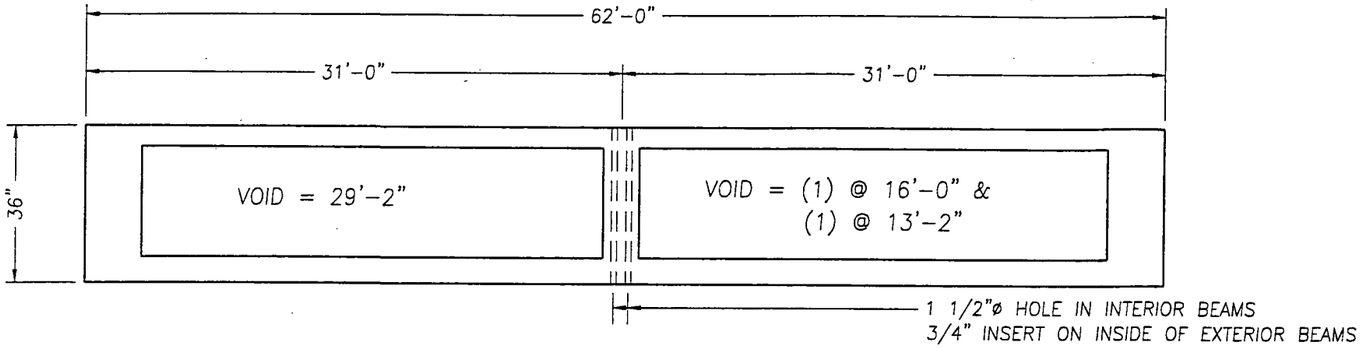


PART ELEVATION
SHOWING KEYWAYS

SECTION
SHOWING KEYWAYS

DIMENSIONS
SPANS 1 & 3
BB-33-00-06



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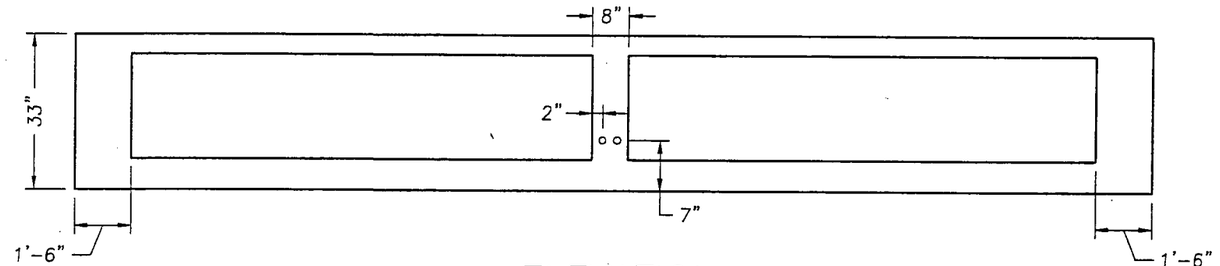

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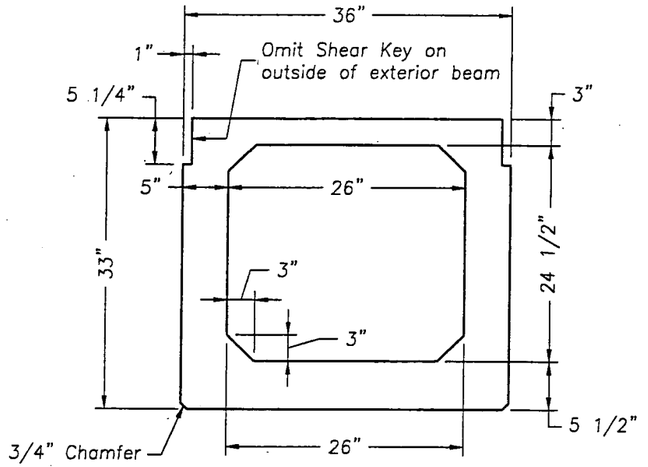

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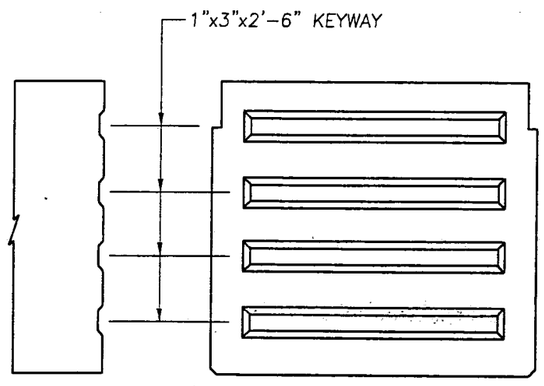
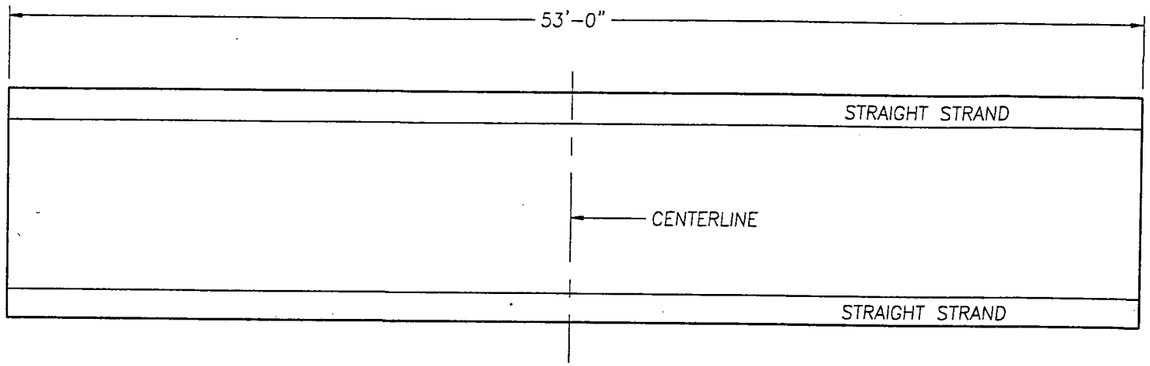


PART ELEVATION
SHOWING KEYWAYS

SECTION
SHOWING KEYWAYS

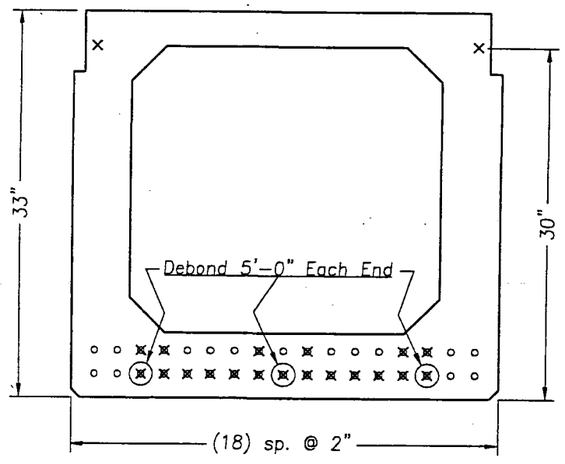
DIMENSIONS
SPAN 2
BB-33-00-06

06DIM2

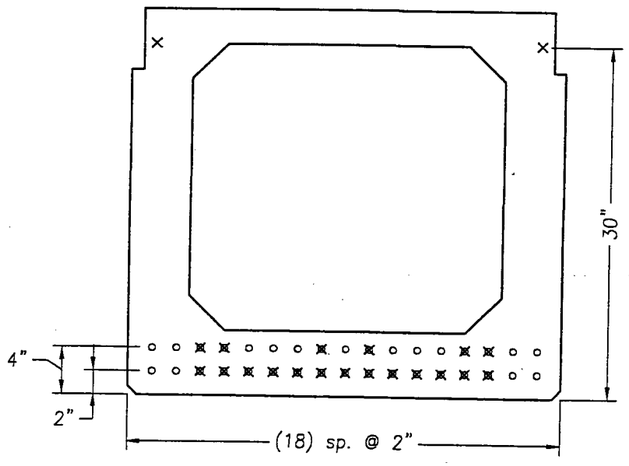


ELEVATION

NO. OF DRAPED STRAND	= 0
NO. OF STRAIGHT STRAND	= 21
TOTAL NO. 1/2" ø STRAND	= 21
CENTER OF GRAVITY AT CNTRLN	= 5.24"
INITIAL FORCE	= 650.6 K
FINAL FORCE	= 541.3 K



SECTION
AT END



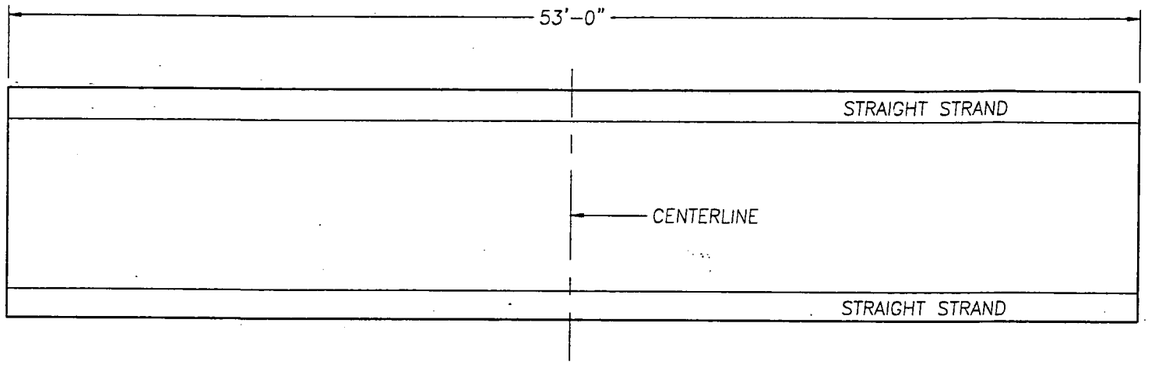
SECTION AT
CENTERLINE

STRAND

SPANS 1 & 3

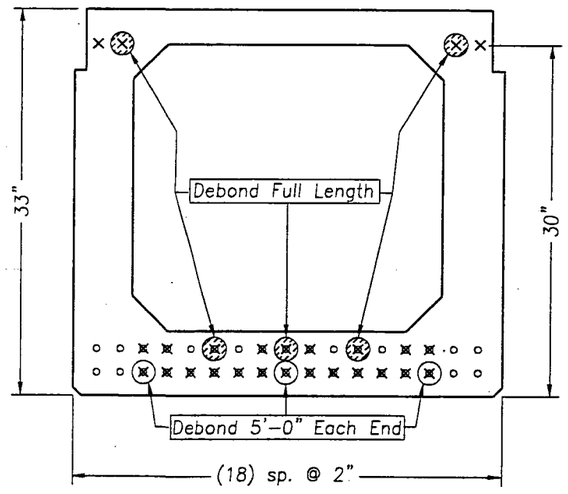
BB-33-00-06

06STRAND1

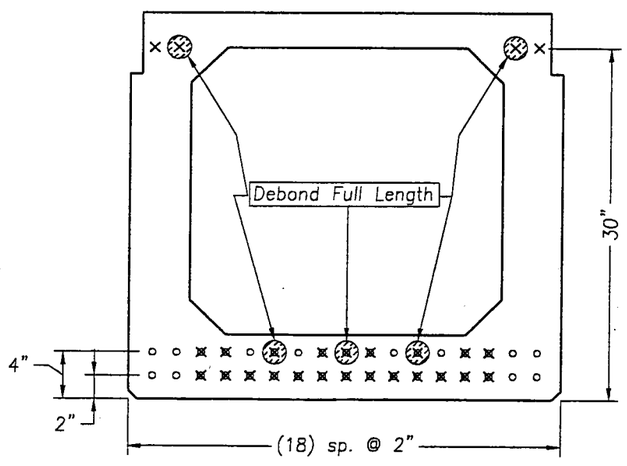


ELEVATION

NO. OF DRAPED STRAND	= 0
NO. OF STRAIGHT STRAND	= 26 (5-FULL DEBOND)
TOTAL NO. 1/2" ø STRAND	= 26 (5-FULL DEBOND)
CENTER OF GRAVITY AT CNTRLN	= 5.24"
INITIAL FORCE	= 650.6 K
FINAL FORCE	= 541.3 K



SECTION
AT END

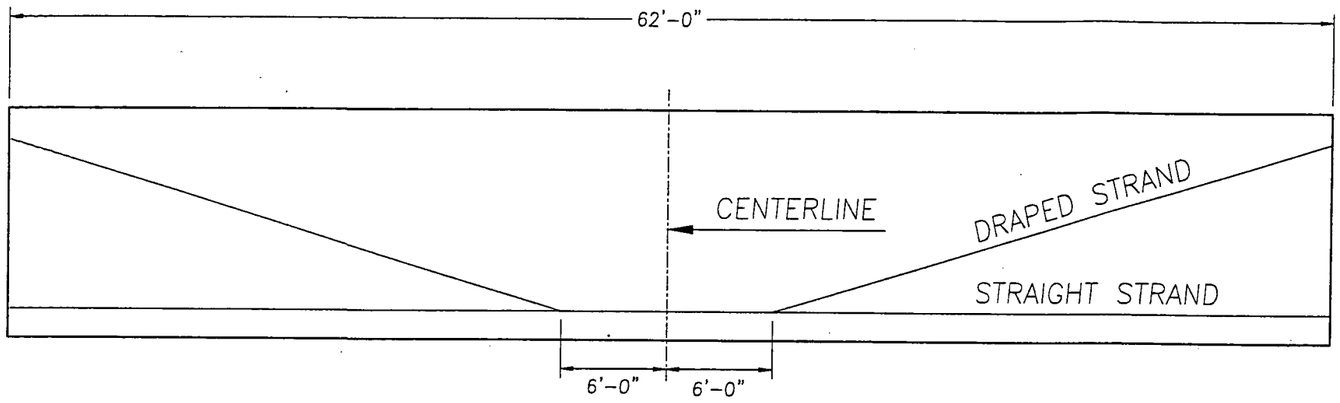


SECTION AT
CENTERLINE

**THIS STRAND PATTERN IS FOR THE (2) 53'-0" BEAMS POURED WITH THE (1) 62'-0" BEAM.

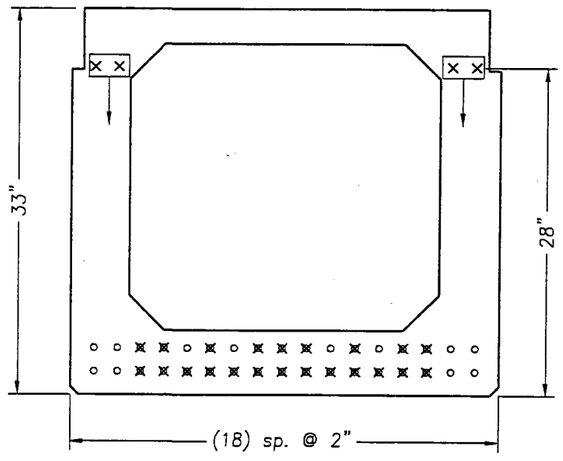
STRAND
SINGLE BEAM
BB-33-00-06

06STRAND1A

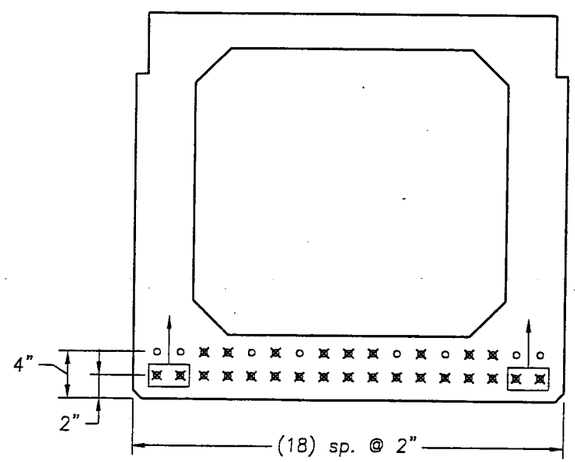


ELEVATION

NO. OF DRAPED STRAND	= 4
NO. OF STRAIGHT STRAND	= 22
TOTAL NO. 1/2" ø STRAND	= 26
CENTER OF GRAVITY AT CNTRLN	= 2.69"
INITIAL FORCE	= 805.5 K
FINAL FORCE	= 633.1 K



SECTION
AT END



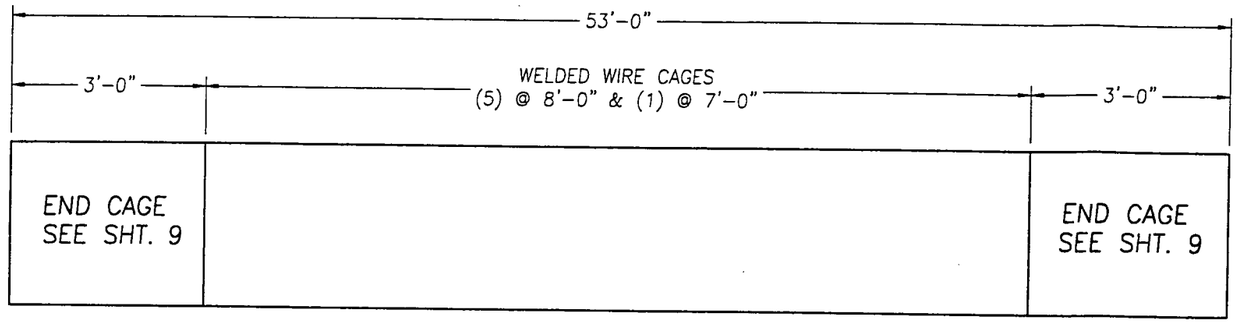
SECTION AT
CENTERLINE

STRAND

SPAN 2

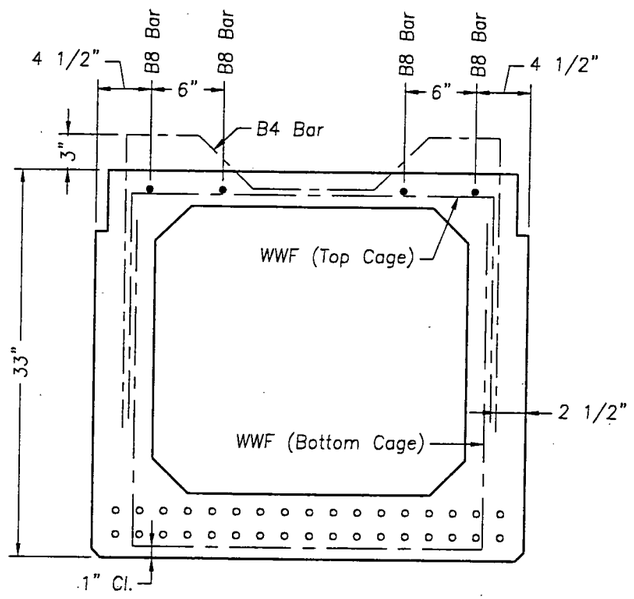
BB-33-00-06

06STRAND2



ELEVATION

NO SCALE



SECTION

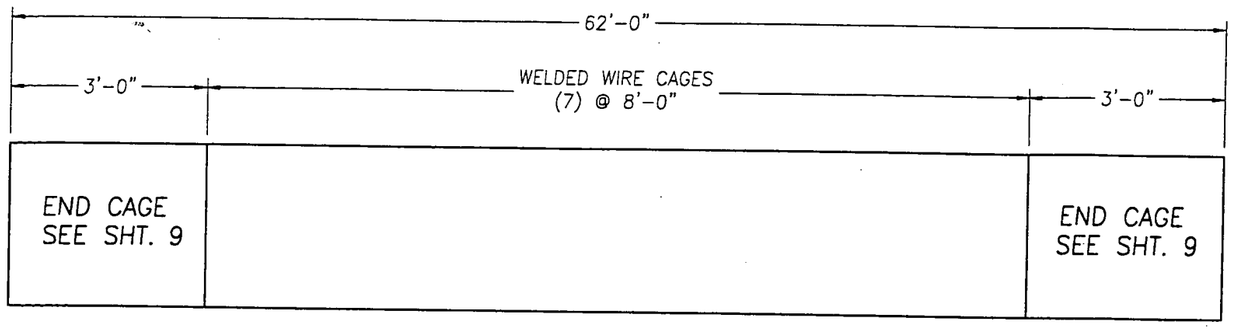
NOTES:

3x6 W4.0/W2.0 WELDED WIRE FABRIC EQUAL TO A STEEL AREA OF 0.16 SQUARE INCHES PER FOOT WILL BE USED TOP AND BOTTOM IN THE CIRCUMFERENTIAL DIRECTION. TOP AND BOTTOM CAGE LEGS TO OVERLAP A MINIMUM OF 12 INCHES.

B4 BAR IS TO BE SPACED A MAXIMUM OF 1'-4" ACROSS BEAM AND HAVE A MINIMUM OF 15" LEG EMBEDMENT INTO BEAM

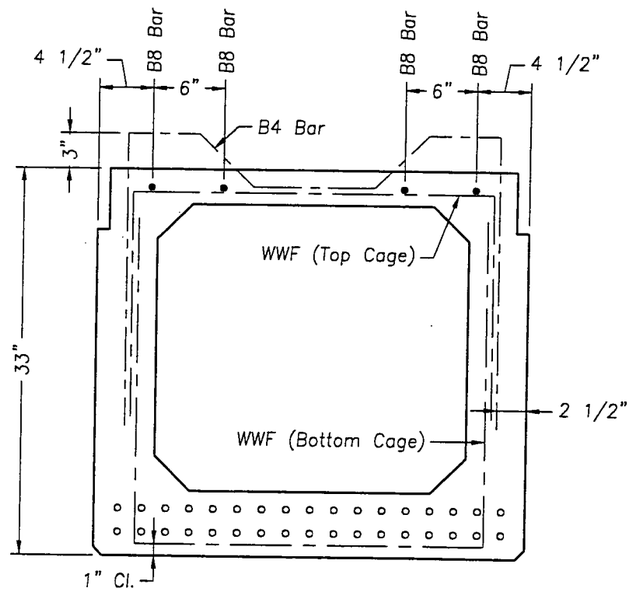
REINFORCING
SPANS 1 & 3
BB-33-00-06

06REINF1



ELEVATION

NO SCALE



SECTION

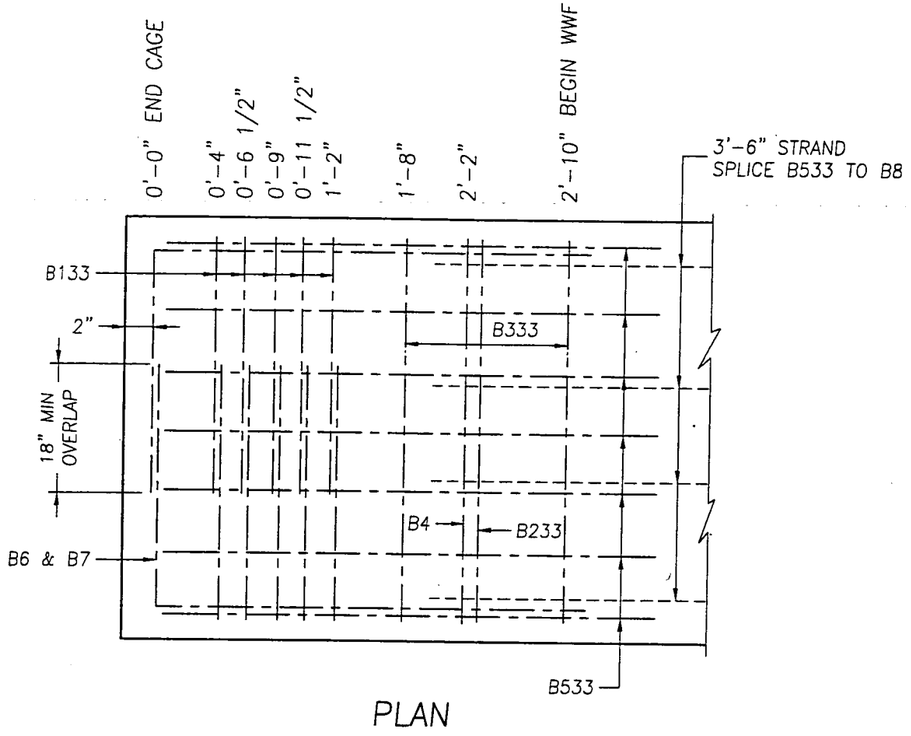
NOTES:

3x6 W4.0/W2.0 WELDED WIRE FABRIC EQUAL TO A STEEL AREA OF 0.16 SQUARE INCHES PER FOOT WILL BE USED TOP AND BOTTOM IN THE CIRCUMFERENTIAL DIRECTION. TOP AND BOTTOM CAGE LEGS TO OVERLAP A MINIMUM OF 12 INCHES.

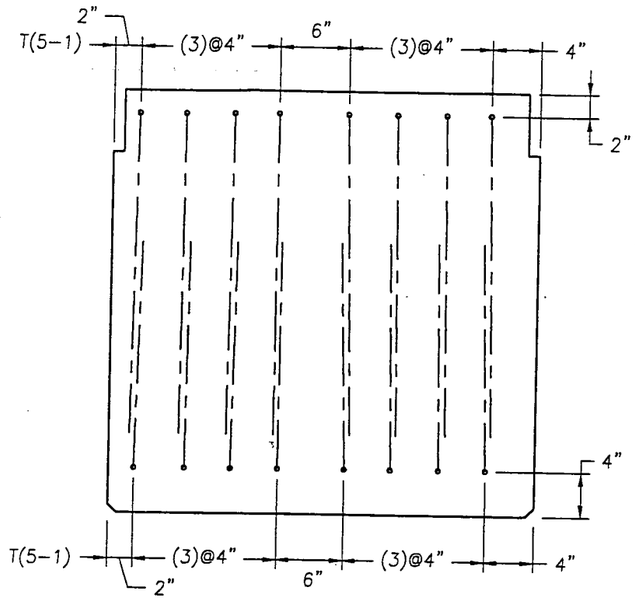
B4 BAR IS TO BE SPACED A MAXIMUM OF 1'-4" ACROSS BEAM AND HAVE A MINIMUM OF 15" LEG EMBEDMENT INTO BEAM

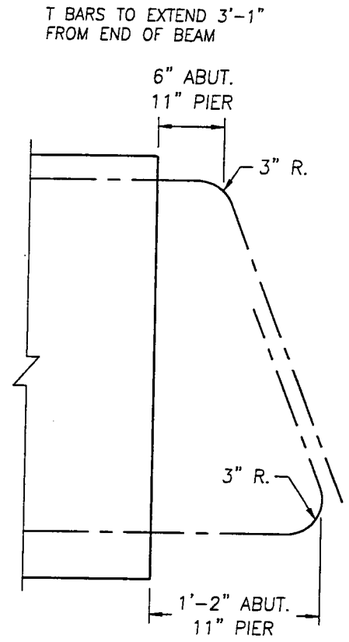
REINFORCING
SPAN 2
BB-33-00-06

06REINF2

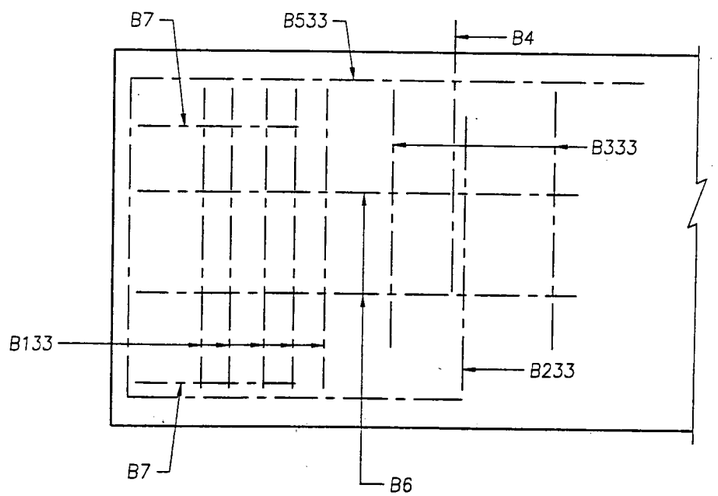


PLAN

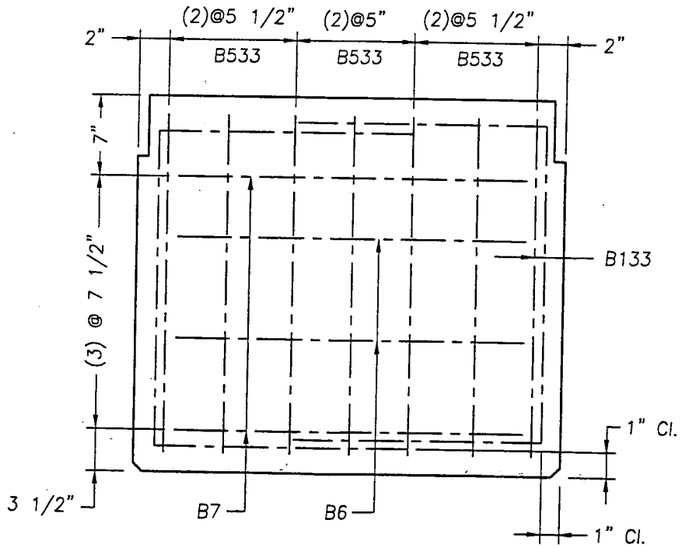




ELEVATION
SHOWING T BARS



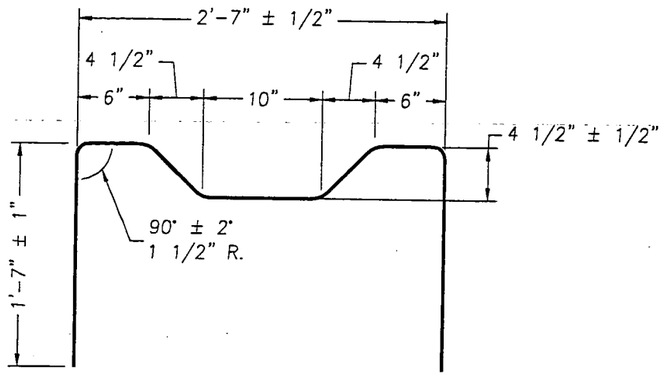
ELEVATION



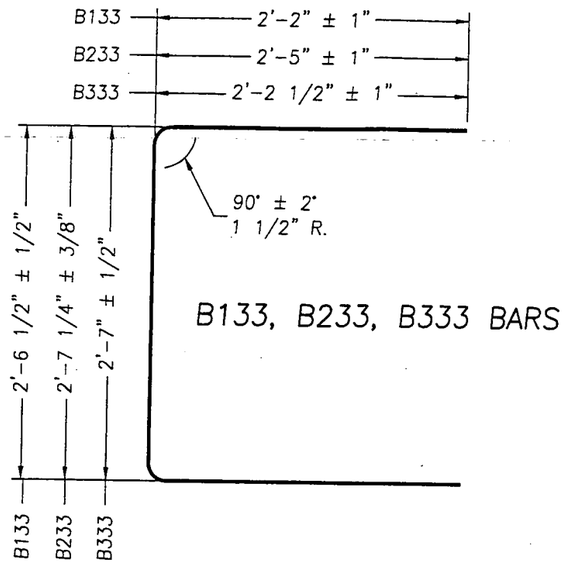
SECTION

END STEEL
TRIPLE SPAN
BB-33-00-06

06ENDST



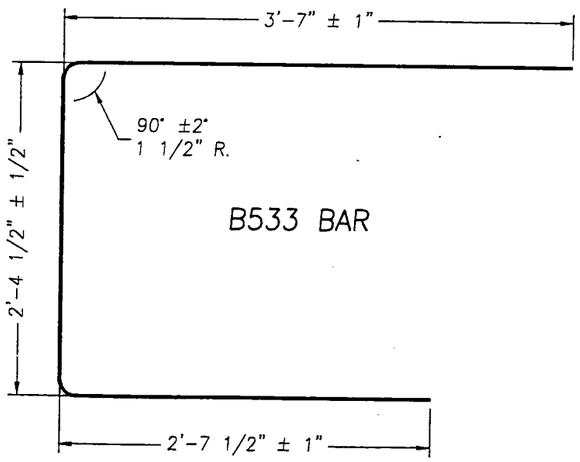
B4 BAR



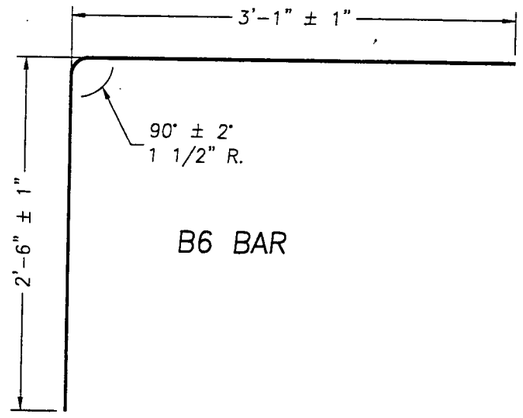
B133, B233, B333 BARS

REINFORCING STEEL SCHEDULE					
MARK	TYPE	SIZE	LENGTH	QTY/BEAM	TOTAL
B133	BENT	4	6'-11"	20	200
B233	BENT	4	7'-6"	2	20
B333	BENT	4	7'-0"	4	40
B4	BENT	4	6'-0"	44	440
B533	BENT	4	8'-7"	14	140
B6	BENT	4	5'-7"	8	80
B7	BENT	4	3'-7"	8	80
B8	STR	4	9'-6'	24	240
T(5-1)	STR	4	5'-1"	32	320

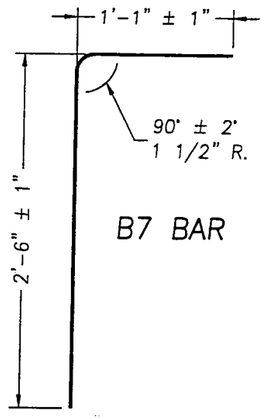
ALL DIMENSIONS ARE OUT TO OUT.
ALL REBAR TO BE GRADE 60, EXCEPT T-BARS TO BE GRADE 40.



B533 BAR



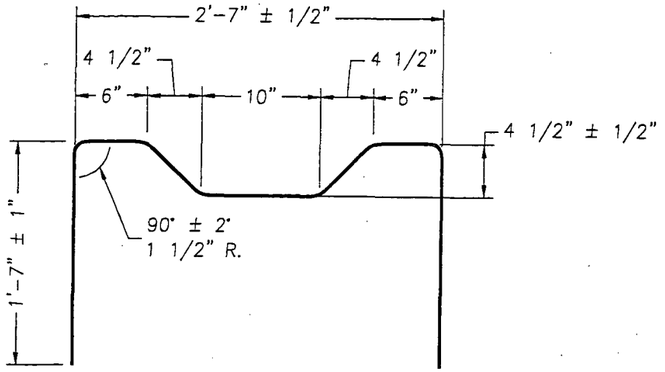
B6 BAR



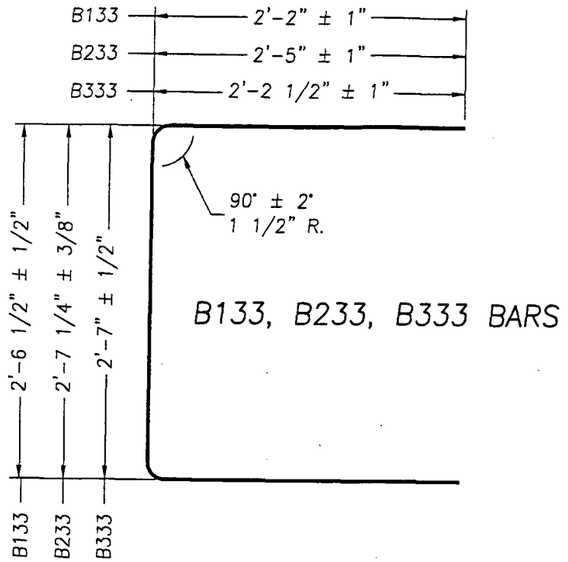
B7 BAR

REBAR
SPANS 1 & 3
BB-33-00-06

06REBAR1

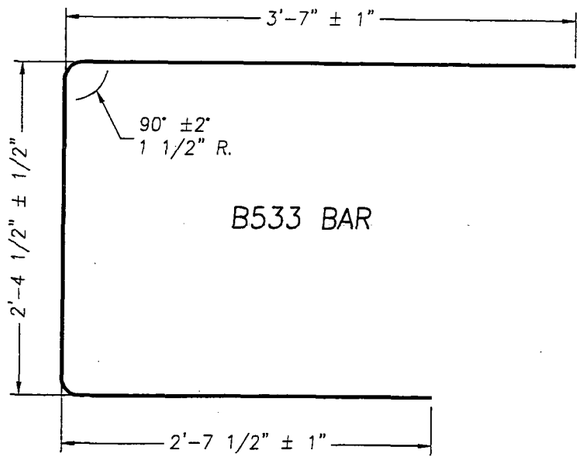


B4 BAR

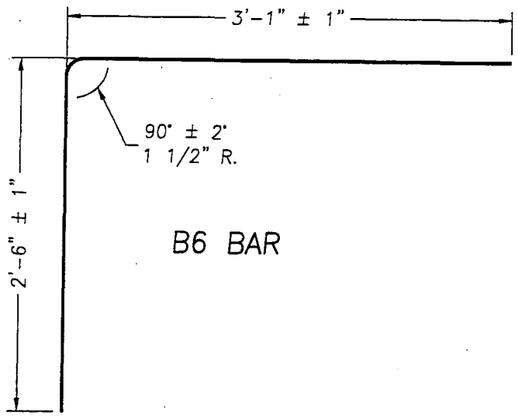


B133, B233, B333 BARS

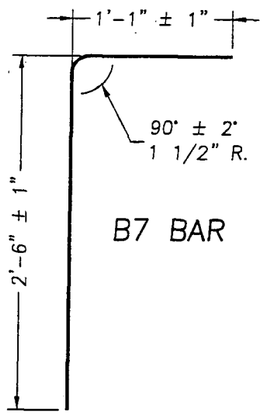
REINFORCING STEEL SCHEDULE					
MARK	TYPE	SIZE	LENGTH	QTY/BEAM	TOTAL
B133	BENT	4	6'-11"	20	100
B233	BENT	4	7'-6"	2	10
B333	BENT	4	7'-0"	4	20
B4	BENT	4	6'-0"	52	260
B533	BENT	4	8'-7"	14	70
B6	BENT	4	5'-7"	8	40
B7	BENT	4	3'-7"	8	40
B8	STR	4	9'-6'	28	140
T(5-1)	STR	4	5'-1"	32	160



B533 BAR



B6 BAR

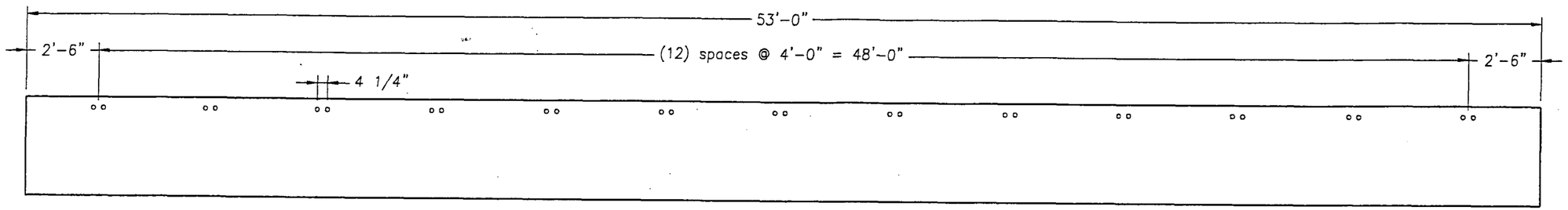


B7 BAR

ALL DIMENSIONS ARE OUT TO OUT.
ALL REBAR TO BE GRADE 60, EXCEPT T-BARS TO BE GRADE 40.

REBAR
SPAN 2
BB-33-00-06

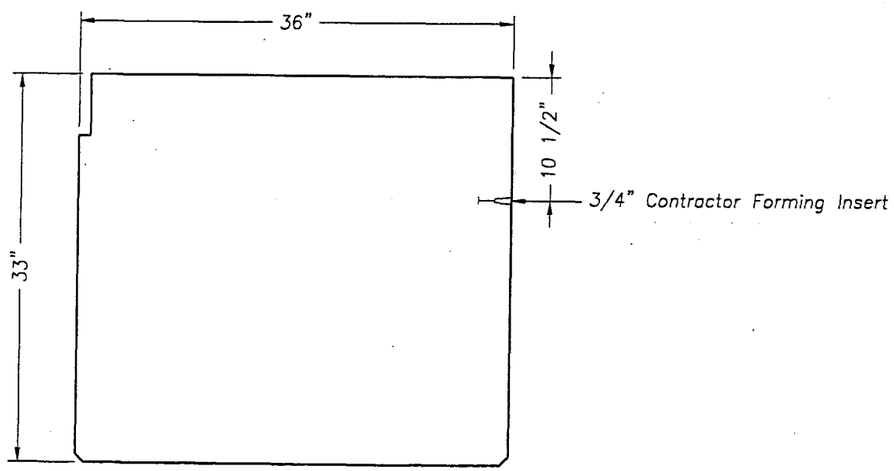
06REBAR2



BEAMS: BB-33-00-06-01 & BB-33-00-06-15
BB-33-00-06-05 & BB-33-00-06-11

Spacing of Contractor Forming Inserts

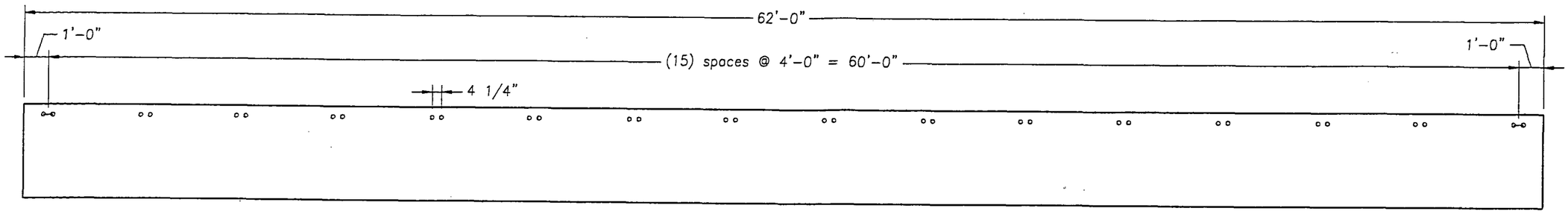
(Inserts supplied by contractor)



EXTERIOR BEAMS

EXTERIOR
SPANS 1 & 3
BB-33-00-06

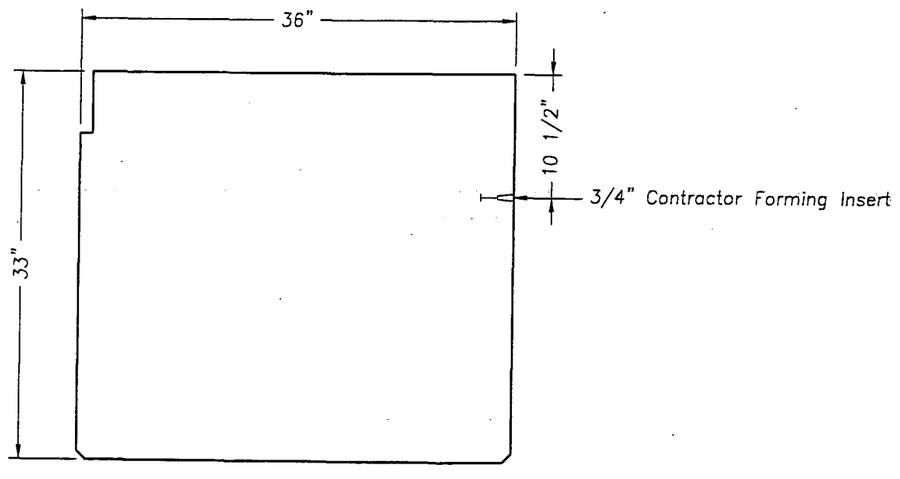
06FDRM1



BEAMS: BB-33-00-06-06 & BB-33-00-06-10

Spacing of Contractor Forming Inserts

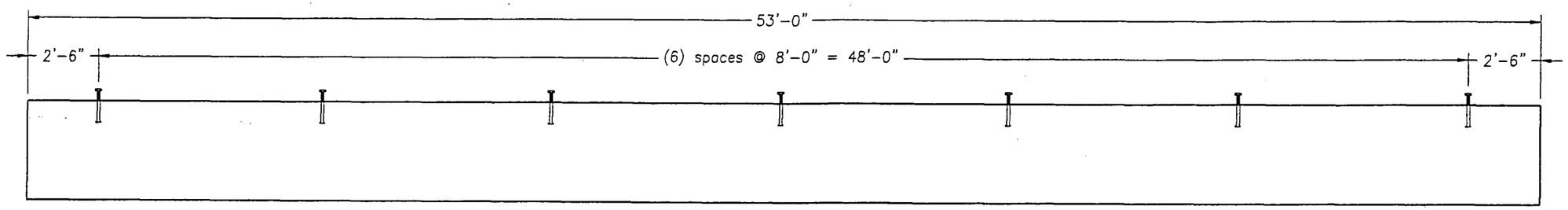
(Inserts supplied by contractor)



EXTERIOR BEAMS

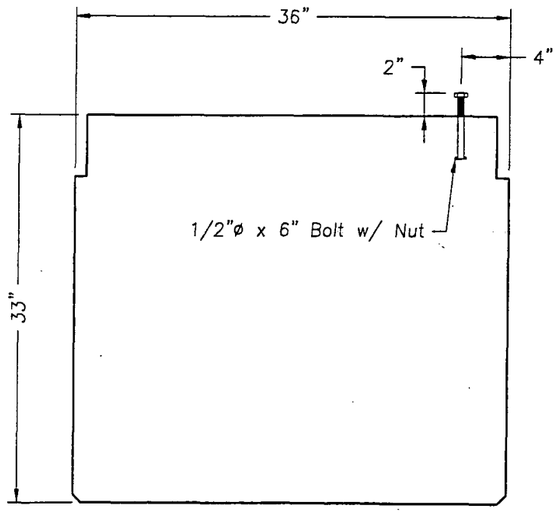
EXTERIOR
SPAN 2
BB-33-00-06

06FORM2

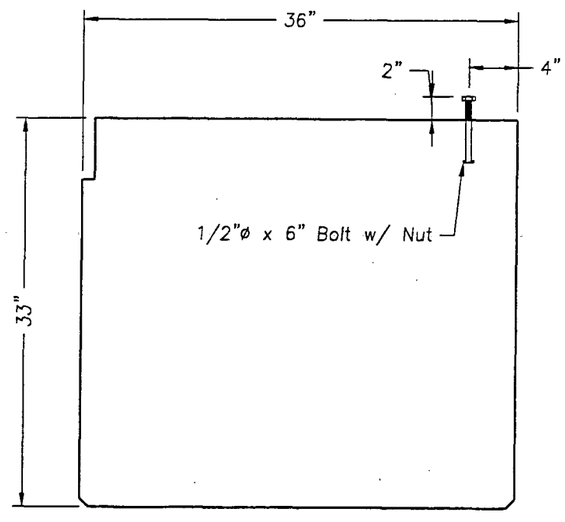


Spacing of Contractor Safety Bolts

(Bolts supplied by contractor)



INTERIOR BEAMS



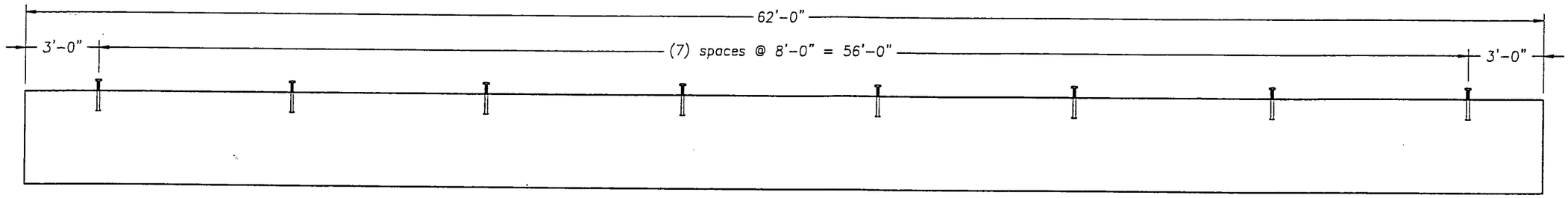
EXTERIOR BEAMS

SAFETY RAIL

SPANS 1 & 3

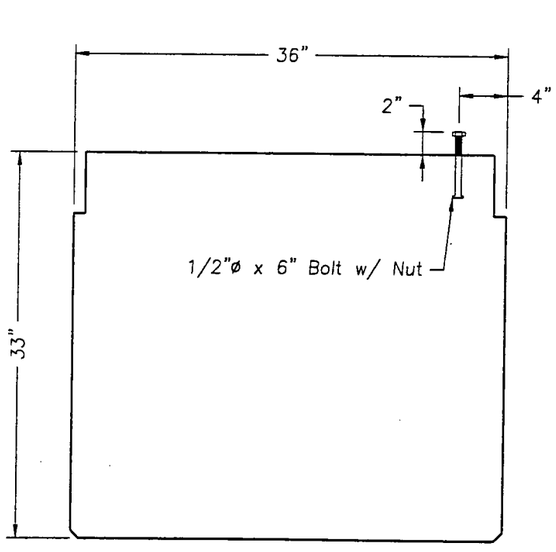
BB-33-00-06

06RAIL1

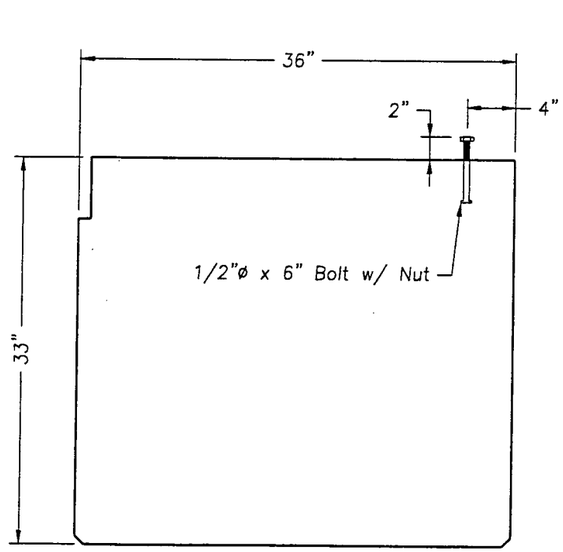


Spacing of Contractor Safety Bolts

(Bolts supplied by contractor)



INTERIOR BEAMS



EXTERIOR BEAMS

SAFETY RAIL
SPAN 2
BB-33-00-06

06RAIL2

DESIGN DATA				
Traffic	Average Daily			Est.Max.Hr.
Current 1998	Pass: 5420	Trucks 730	Total 6150	750
Forecast 2018	Pass: 11920	Trucks 1460	Total 13380	1650
Minimum Sight Dist. for:		Design Speed 75 MPH		
Stopping 675'		Bridges		
Full Control of Access				
No Point of Access Other Than at Interchange Ramps				

JOB# 11

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	1

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

FEDERAL AID PROJECT
CPU-8-984(007)
IM-8-029(026)053

N BOUND I-29 OVER 40TH AVENUE SW
GRADING, SURFACING, BRIDGE STRUCTURE, GUARD RAIL, STORM SEWER, PAVEMENT MARKING AND INCIDENTALS

In
Cass County

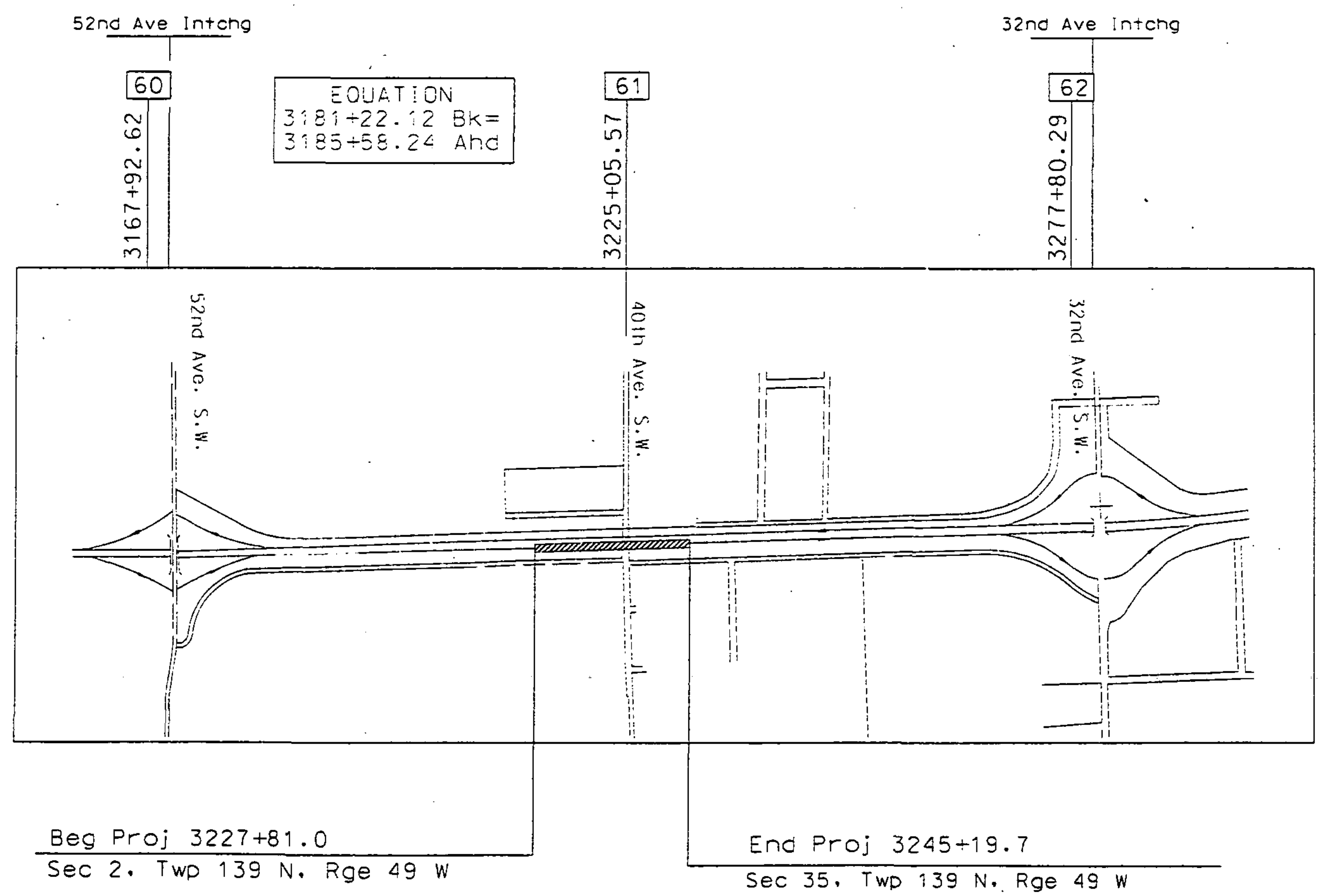
GOVERNING SPECIFICATIONS:

Standard Specifications adopted by the North Dakota Department of Transportation October 1997; Standard Drawings currently in effect; and other Contract Provisions submitted herein.

LENGTH OF PROJECT

Miles Gross	Miles Net
0.329	0.289

0.040 Mi Deducted for Structures



P.S&E CHANGES MADE
12-21-98

APPROVAL OF CITY ENGINEER

I MARK BITTNER, P.E., CITY ENGINEER FOR THE CITY OF FARGO, ND, HEREBY APPROVE THESE PLANS FOR N BOUND I-29 OVER 40TH AVENUE SW, FARGO, NORTH DAKOTA AS SHOWN ON THE ACCOMPANYING PLANS.

Mark Bittner

MARK BITTNER, P.E.
CITY ENGINEER
FARGO, NORTH DAKOTA

DATE 12/21/98 REG. NO. ND 1958

I HEREBY CERTIFY THAT THE ATTACHED PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF NORTH DAKOTA.

Eugene L. Rowen

DATE 12/18/98 REG. NO. 3591

EUGENE L. ROWEN REGISTERED PROFESSIONAL P.E. 3591 ENGINEER NORTH DAKOTA

DESIGNER ____________

DESIGNER ____________

DESIGNER ____________

RECOMMEND APPROVAL ____________ , 19 ___

DESIGN ENGINEER ____________

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED

DIVISION ADMINISTRATOR DATE

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	3

REMOVE EXISTING CROSSOVER
CONSTRUCT NEW CROSSOVER
STA 3247+50 TO STA 3257+51

CITY OF FARGO & ND DOT PROJECT
CASS COUNTY DRAIN NO.27 IMPROVEMENTS
H-8-029(016)061

END PROJECT
STA 3245+19.7
NOTE: N. CROSSOVER INCLUDED
IN THIS PROJECT

CONSTRUCT NORTH BOUND I-29
BRIDGE OVER 40TH AVENUE S.W.
INCLUDING GUARD RAIL AND STORM DRAINS

CITY OF FARGO & ND DOT PROJECT
NB I-29 RECONST/BRIDGE
STA 3227+81 TO DRAIN NO.27
AND N. CROSSOVER
CPU-8-984-(007)

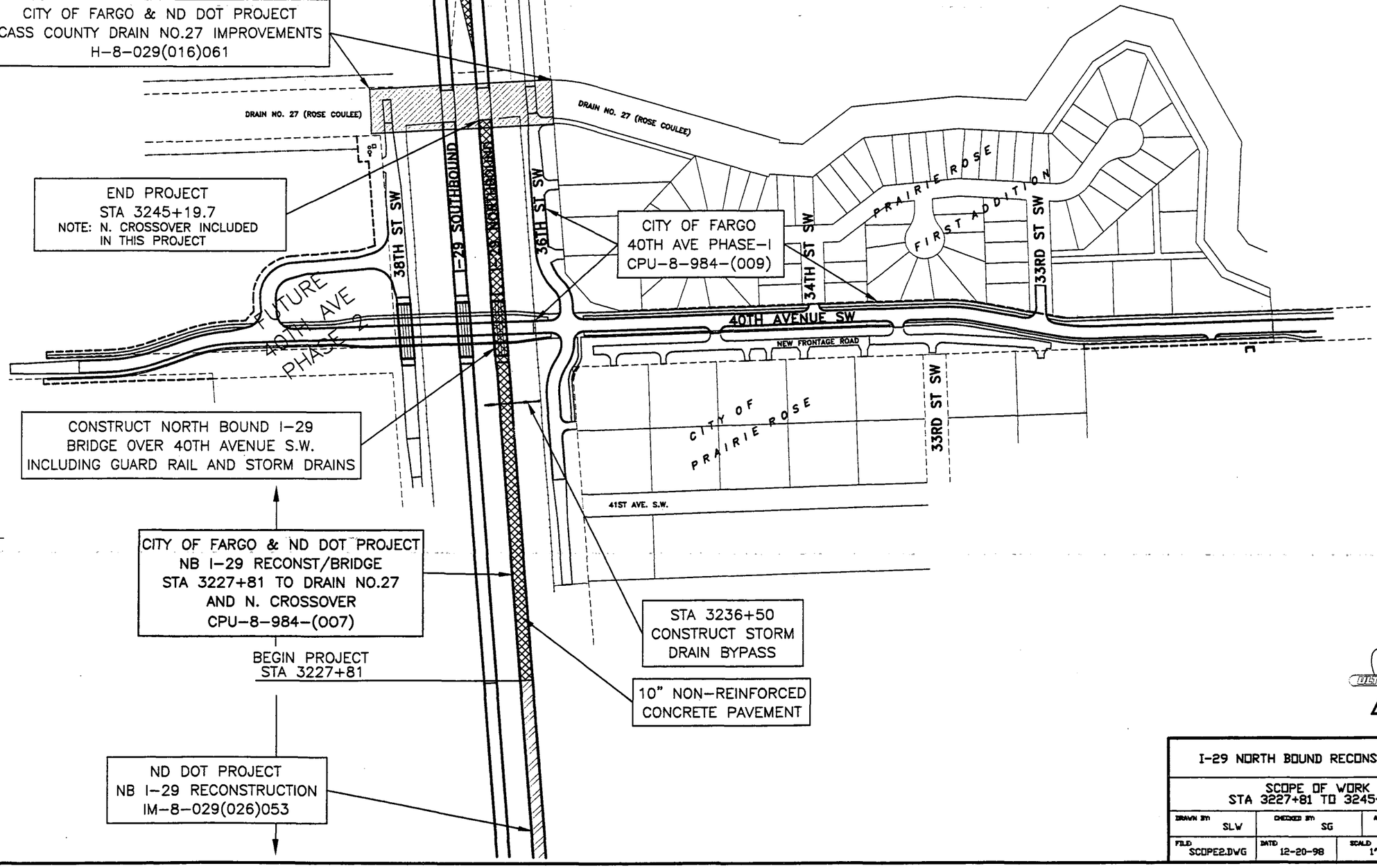
BEGIN PROJECT
STA 3227+81

ND DOT PROJECT
NB I-29 RECONSTRUCTION
IM-8-029(026)053

CITY OF FARGO
40TH AVE PHASE-I
CPU-8-984-(009)

STA 3236+50
CONSTRUCT STORM
DRAIN BYPASS

10" NON-REINFORCED
CONCRETE PAVEMENT



I-29 NORTH BOUND RECONSTRUCTION

SCOPE OF WORK
STA 3227+81 TO 3245+19.7

DRAWN BY	CHECKED BY	APPROVED BY
SLW	SG	SG

FILE	DATE	SCALE
SCOPE2.DWG	12-20-98	1" = 300'

GENERAL NOTES

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	4

100-014 FULL-SIZE CROSS SECTIONS FOR THIS PROJECT ARE AVAILABLE FOR INSPECTION AT THE NDDOT DISTRICT OFFICE.

100-130 TREES, SHRUBS, AND GRASSES: THE CONTRACTOR SHALL EXERCISE CARE IN HIS CONSTRUCTION OPERATIONS TO ENSURE THAT TREES, SHRUBS, AND NATIVE GRASSES WITHIN THE RIGHT OF WAY AND OUTSIDE THE CONSTRUCTION AREA ARE NOT DISTURBED UNLESS OTHERWISE NOTED ON PLANS.

100-160 UTILITY POLES: EQUIPMENT SHALL WORK AROUND UTILITY POLES WITHIN THE CONSTRUCTION AREA THAT ARE NOT TO BE DISTURBED.

THE CONTRACTOR WILL BE RESPONSIBLE FOR COORDINATING THE LOCATION OF ALL EXISTING UTILITIES AND CONTACTING THE APPROPRIATE UTILITY COMPANY FOR ANY NOTICES OF RELOCATION. THE CONTRACTOR WILL NOT BE RESPONSIBLE FOR THE COST OF RELOCATED UTILITIES. THE CONTRACTOR WILL BE LIABLE FOR ANY COSTS OR DELAYS RESULTING FROM DAMAGE TO THE UTILITIES DURING CONSTRUCTION.

THE UTILITIES THAT THE ENGINEER HAS BEEN MADE AWARE OF ARE SHOWN ON THE PLANS.

CONTACTS FOR THE FOLLOWING UTILITIES MAY BE MADE AT:

U.S. WEST COMMUNICATIONS
(800) 424-5555

CABLE ONE INC.
(701) 280-1358

CASS COUNTY ELECTRIC
KINDRED, ND (701) 428-3292

NORTHERN STATES POWER (GAS)
(800) 622-3674

NORTH DAKOTA ONE CALL
(800) 795-0555

HAUL ROADS

THE CONTRACTOR'S ATTENTION IS DIRECTED TO SECTION 107.05 B OF THE STANDARD SPECIFICATIONS WITH REGARD TO THE USE OF PUBLIC ROADS FOR HAULING MATERIALS TO THE PROJECT. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO INVESTIGATE THE SUITABILITY WITH THE AGENCY HAVING CONTROL OF THE ROAD PRIOR TO SUBMITTING A BID.

100-P01 MEDIAN DRAINAGE: THE CONTRACTOR SHALL MAINTAIN AND RESTORE THE EXISTING MEDIAN DRAINAGE THROUGHOUT THE PROJECT. SHOULD ANY POOLING OCCUR, THE CONTRACTOR SHALL PROVIDE SUFFICIENT TEMPORARY PUMPING OR DRAINAGE TO KEEP THE MEDIAN DRAINED. THE COST FOR MAINTAINING THE MEDIAN DRAINAGE SHALL BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS.

100-P02 DISPOSAL: NO MATERIAL EXCEPT COMMON EXCAVATION SHALL BE DISPOSED OF ON THE RIGHT OF WAY. COMMON EXCAVATION INCLUDES EARTH MATERIAL REMOVED IN THE ROADWAY RESHAPING PROCESS AND MATERIAL FROM THE UNDERPASS EXCAVATION. THE CONTRACTOR WILL NOT BE REQUIRED TO HAUL COMMON EXCAVATION MATERIAL MORE THAN 2600 FEET.

202-P01 REMOVE AND SALVAGE BASE COURSE: REMOVE AND SALVAGE THE BITUMINOUS BASE FROM THE MAINLINE BY MILLING OR WITH TRACKED EXCAVATORS. HAUL, WEIGH, AND STOCKPILE THE MATERIAL AT THE PLANT SITE. INCLUDE ALL COSTS FOR THIS WORK IN THE UNIT PRICE BID FOR "REMOVE AND SALVAGE BASE COURSE."

202-P02 SAW CONCRETE: THIS ITEM INCLUDES, BUT IS NOT LIMITED TO, SAWING THE PAVEMENT AT THE BEGINNING OF THE PROJECT. THIS ITEM SHALL BE INCIDENTAL TO OTHER ITEMS.

203-P01 SUBCUT AREAS: SUBCUT AND SCARIFICATION OF THE SUBGRADE.

SPECIAL SUBCUT SECTIONS: IN AREAS THAT ARE TOO WET OR UNSTABLE FOR SCARIFICATION AND COMPACTION, THE SUBGRADE SHALL BE SUBCUT TO A DEPTH OF 12" BELOW FINISHED EARTH GRADE AND THE EXCAVATED MATERIAL WASTED OUTSIDE OF THE ROADBED AS APPROVED BY THE ENGINEER. PLACE SEPARATION FABRIC (S2) AT THE BOTTOM OF THE SUBCUT AND BACKFILL WITH AN AGGREGATE FOR SUBGRADE REINFORCEMENT TO ALLOW FOR THE DESIGNED BASE AND PAVEMENT. A TRANSITION OF 20:1 IS REQUIRED WHEN CHANGING CUT ELEVATIONS TO REDUCE DIFFERENTIAL HEAVE.

IT IS ESTIMATED THAT LESS THAN 10 PERCENT OF THE PROJECT MAY REQUIRE SUBCUT AND FABRIC. EXCAVATION IS PAID FOR AS "COMMON EXCAVATION-SUBCUT."

203-P02 COMPACTION AND DENSITY CONTROL: COMPACTION AND DENSITY CONTROL SHALL BE IN ACCORDANCE WITH SECTION 203.02 G OF THE STANDARD SPECIFICATIONS USING AASHTO T-99. THIS REQUIREMENT ONLY APPLIES TO THE RESHAPING ROADWAY AREAS.

SECTION 203.05 G REQUIREMENT CHANGES: WHEN THE MAXIMUM DRY DENSITY IS DETERMINED USING AASHTO T-99, THE MOISTURE CONTENT OF THE SOIL AT THE TIME OF COMPACTION SHALL NOT BE LESS THAN 2 PERCENTAGE POINTS ABOVE THE OPTIMUM MOISTURE CONTENT.

203-P03 MEDIAN CROSSOVER CONSTRUCTION: ALL AVAILABLE TOPSOIL IN THE CROSSOVER CONSTRUCTION AREA SHALL BE SALVAGED AND STOCKPILED AS APPROVED BY THE ENGINEER. ALL COSTS FOR SALVAGING AND STOCKPILING THE TOPSOIL WILL NOT BE PAID SEPARATELY, BUT INCLUDED IN THE COST OF "RESHAPING CONNECTION".

203-P04 DITCH CLEANING: THE EAST DITCH SHALL BE CLEANED TO CORRECT DRAINAGE AS SHOWN IN THE PLANS. MATERIAL SHALL BE WASTED ON THE INSLOPES AT A SLOPE RATE APPROVED BY THE ENGINEER. DISTURBED AREAS WILL BE SEEDED AND PAID FOR AT THE CONTRACT UNIT PRICE FOR SEEDING. INCLUDE ALL OTHER COSTS FOR THIS WORK IN THE UNIT PRICE BID FOR "COMMON EXCAVATION - TYPE A."

203-P05 APPROXIMATE EARTHWORK QUANTITIES FOR THIS PROJECT HAVE BEEN CALCULATED AS FOLLOWS:

LOCATION	EXC.	EMB.	TOPSOIL
ENTIRE PROJECT	6700 CY	10,680 CY	4500 CY

PAYMENT FOR NDDOT COMMON EXCAVATION TYPE A SHALL BE IN ACCORDANCE WITH SECTION 203.03B - CONTRACT PLAN QUANTITY, UNLESS FIELD GRADE CHANGES ARE MADE. THE EXISTING TOPSOIL ON THIS PROJECT SHALL BE REMOVED TO ITS FULL DEPTH, BUT NOT TO EXCEED SIX INCHES, AND STOCKPILED. UPON COMPLETION OF THE GRADING OPERATIONS, THE TOPSOIL SHALL BE SPREAD EVENLY OVER THE AREAS TO BE SEEDED OR SODDED. THE REMOVAL, STOCKPILING, AND SPREADING OF THE EXISTING TOPSOIL SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE MEASURED AND PAID FOR AS "COMMON EXCAVATION TYPE A." ALL EXCESS EXCAVATION AND TOPSOIL SHALL BE DISPOSED OF AT THE LOCATION(S) SHOWN ON THE PLANS. ALL DISPOSAL COSTS ARE INCIDENTAL. THE QUANTITY FOR "COMMON EXCAVATION TYPE A" IS THE TOTAL OF EXCAVATION AND TOPSOIL, LISTED ABOVE. AN EXCAVATION SUMMATION TABLE IS PROVIDED WITHIN THE PLANS.

GENERAL NOTES

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	5

203-P06 STORM WATER DISCHARGE AND EROSION CONTROL REQUIREMENTS: BEFORE WORK CAN BEGIN ON THIS CONTRACT, THE CONTRACTOR MUST COMPLY WITH THE U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) REQUIREMENTS AND THE ND POLLUTANT DISCHARGE ELIMINATION SYSTEM (NDPDES) AS FOLLOWS:

THE CONTRACTOR MUST FILE A "NOTICE OF INTENT TO OBTAIN COVERAGE UNDER NDPDES GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY" (NOI). THIS FORM MUST BE FILED WITH THE ND DEPARTMENT OF HEALTH AT LEAST FIVE DAYS BEFORE CONSTRUCTION BEGINS.

203-P08 AFTER DIRT QUANTITIES ARE REMOVED FROM THE UNDERPASS EXCAVATION, THE EXCAVATION SHALL BE LEFT IN A SMOOTH, FINISHED CONDITION AT THE GRADES INDICATED IN THE PLANS AND APPROVED BY THE ENGINEER.

203-P07 THE CONTRACTOR WILL BE REQUIRED TO SEPARATE OUT EXCAVATED MATERIAL FROM THE UNDERPASS EXCAVATION THAT IS UNSUITABLE FOR USE AS I-29 ROADBED MATERIAL. IT IS ANTICIPATED THAT EXCAVATED MATERIAL BELOW ELEVATION 897.0 WILL BE USABLE ONLY FOR EMBANKMENT OF THE INTERSTATE INSLOPES. THIS EXCESS MATERIAL FROM THE UNDERPASS EXCAVATION MAY ALSO BE DEPOSITED ALONG THE WEST SIDE OF 36TH STREET OR WITHIN THE PROJECT VICINITY AS DIRECTED BY THE ENGINEER.

SOME OF THE EMBANKMENT MATERIAL NEEDED FOR THIS PROJECT SHALL BE TAKEN FROM THE EXCAVATION OF 36TH STREET AND 40TH AVENUE SW (PROJECT CPU-8-984-(009)). THE CONTRACTOR WILL BE RESPONSIBLE TO CONDUCT EXCAVATION AND EMBANKMENT OPERATIONS AS NEEDED TO MAINTAIN PROGRESS ON THE TWO PROJECTS.

230-P01 RESHAPING CONNECTION: THE MEDIAN CROSSOVER SHALL BE RESHAPED AS APPROVED BY THE ENGINEER. THE MATERIAL THAT BECOMES THE PROPERTY OF THE CONTRACTOR WILL BE DISPOSED OF OFF THE R/W. DISPOSAL IN WETLAND AREAS WILL NOT BE APPROVED.

RESHAPING LOCATION IS: NORTH MEDIAN CROSSOVER. RESHAPING THE CROSSOVER IS FURTHER EXPLAINED ON THE LAYOUT. EXISTING MEDIAN CROSSOVER DRAIN PIPES SHALL NOT BE DISTURBED.

RESHAPING WORK INCLUDES REMOVING PCC PAVEMENT, AND RELOCATING AND RESHAPING THE AGGR BASE/EMBANKMENT AS EMBANKMENT FOR THE NEW CROSSOVER. REMOVED PAVEMENT WILL BE PROCESSED INTO SALVAGED BASE COURSE AND PERMEABLE STABILIZED BASE COURSE SALVAGED. ALL AVAILABLE TOPSOIL IN THE RESHAPING AREAS SHALL BE SALVAGED AND STOCKPILED AS APPROVED BY THE ENGINEER.

SEEDING, AGGR BASE, AND PCC PAVEMENT WILL BE PAID FOR AT CONTRACT UNIT PRICES. THE CONTRACT UNIT PRICE BID FOR "RESHAPE CONNECTION" WILL BE CONSIDERED FULL COMPENSATION FOR ADDITIONAL EMBANKMENT TO RECONSTRUCT THE DISTURBED CROSSOVER AREA IF NEEDED, AND ALL OTHER WORK PERFORMED AND COSTS INCURRED. WORK SHALL BE DONE ACCORDING TO SECTION 230 OF THE STANDARD SPECIFICATIONS.

230-P02 RESHAPING ROADWAY: THE MAINLINE SHALL BE INCLUDED IN THIS ITEM. ALL COSTS INCURRED WITH RELOCATING EMBANKMENT MATERIAL ARE INCLUDED IN THE PRICE BID FOR "RESHAPING ROADWAY."

302-P01 TRIMMING SALVAGED BASE COURSE: IN ADDITION TO TRIMMING THE SUBGRADE SURFACE, THE SALVAGED BASE COURSE SHALL BE TRIMMED TO THE REQUIRED GRADE AND CROSS SECTION USING SURFACE TOLERANCE TYPE B. EXCESS MATERIAL REMOVED FROM HIGH POINTS OF THE SALVAGED BASE COURSE BY THE TRIMMING OPERATION SHALL BE REINCORPORATED INTO THE SALVAGED BASE COURSE.

THE COST FOR PROVIDING THE REQUIRED GRADE AND CROSS SECTION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "SALVAGED BASE COURSE" AND "AGGREGATE BASE COURSE CL 5".

302-P02 SALVAGED BASE COURSE: THE SALVAGED BASE COURSE SHALL CONSIST OF A BLEND OF SALVAGED PCC FINES AND SALVAGED BITUMINOUS MATERIAL. THIS WORK SHALL INCLUDE THE CRUSHING, SCREENING, UNIFORM BLENDING, LOADING, HAULING, PLACEMENT, AND COMPACTION OF THE SALVAGED BASE MATERIALS.

302-P03 TRIMMING AND PRIME: THE TRIMMING OF THE SALVAGED BASE COURSE SHALL BE WITHIN ONE MILE OF THE COMPLETED LAYDOWN OF THIS COURSE. THE APPLICATION OF THE PRIME COAT SHALL BE WITHIN ONE MILE OF THE TRIMMED, ACCEPTED DENSE BASE COURSE.

302-P04 SALVAGED BASE COURSE: AFTER THE SALVAGED BASE COURSE IS ALL USED, AGGREGATE BASE COURSE CLASS 5 SHALL BE SUBSTITUTED. RETAIN ADEQUATE SALVAGED BASE COURSE MATERIAL FOR THE TEMPORARY BYPASSES AND ANY ADDITIONAL QUANTITY SPECIFIED BY THE ENGINEER.

BLENDING OF THE TWO MATERIALS WILL NOT BE REQUIRED. ALL PLACEMENT REQUIREMENTS OF THE SALVAGED BASE COURSE SHALL APPLY TO THE AGGREGATE BASE COURSE CLASS 5.

EACH OF THESE MATERIALS SHALL BE MEASURED AND PAID FOR SEPARATELY AS "SALVAGED BASE COURSE" OR "AGGREGATE BASE COURSE - CLASS 5."

304-P01 PERMEABLE STABILIZED BASE COURSE - SALVAGED: THE AGGREGATE FOR THE BID ITEM "PERMEABLE STABILIZED BASE COURSE (SALVAGED)" SHALL BE PRODUCED FROM THE SALVAGE CONCRETE PAVEMENT. THE ONLY BITUMINOUS MATERIAL ALLOWED IN THE PERMEABLE STABILIZED BASE COURSE-SALVAGED IS FROM BLOWUP REPAIRS, SEALING MATERIAL, AND POTHOLE PATCHING.

304-P02 PERMEABLE STABILIZED BASE: PORTLAND CEMENT SHALL BE USED AS THE STABILIZING AGENT.

THE AGGREGATE FOR THE BID ITEM "PERMEABLE STABILIZED BASE COURSE - SALVAGED" SHALL BE PRODUCED FROM THE SALVAGED CONCRETE PAVEMENT.

405-P01 REMOVE AND SALVAGE BITUMINOUS SURFACING: REMOVE AND SALVAGE THE BITUMINOUS FROM THE MAINLINE BY MILLING OR WITH TRACKED EXCAVATORS. HAUL, WEIGH, AND STOCKPILE THE MATERIAL AT THE PLANT SITE. INCLUDE ALL COSTS FOR THIS WORK IN THE UNIT PRICE BID FOR "REMOVE AND SALVAGE BITUMINOUS SURFACING."

408-P01 MAINTENANCE OF TRAVELED ROADWAY: THE CONTRACTOR WILL BE FULLY RESPONSIBLE FOR MONITORING AND MAINTAINING THE TRAVELED ROADWAY AND SHOULDERS SEVEN DAYS A WEEK, INCLUDING INTERCHANGES, RAMPS, AND CROSSROADS WITHIN THE LIMITS OF THE PROJECT.

IN AREAS WHERE EXCAVATION IS REQUIRED, ONLY THE TOP 6" WILL BE REPLACED WITH HOT BITUMINOUS PAVEMENT. THE REMAINING DEPTH WILL BE REPLACED WITH SALVAGED BASE COURSE AS REQUESTED OR APPROVED BY THE ENGINEER.

PAYMENT FOR SALVAGED BASE COURSE WILL BE AT THE UNIT PRICE BID. HOT BITUMINOUS PAVEMENT PATCHING SHALL INCLUDE FULL COMPENSATION FOR ALL OTHER LABOR, EQUIPMENT, AND MATERIALS (INCLUDING ASPHALT CEMENT) TO COMPLETE THIS WORK.

GENERAL NOTES

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	6

550-P01 TIE BARS: TIE BARS SHALL BE HELD IN PLACE BY THE METAL SUPPORT DEVICE SECURELY STAKED TO THE ROADBED. THE DEVICE SHALL HOLD THE TIE BARS AT THE CORRECT SPACING, ALIGNMENT, AND ELEVATION WITH A 1/8-INCH/FOOT VERTICAL AND HORIZONTAL TOLERANCE.

550-P02 SURFACE FINISH: THE CARPET DRAG MACHINE SHALL BE RUN OFF A STRINGLINE.

550-P03 DOWEL BAR ASSEMBLY: DOWEL BAR ASSEMBLIES WILL BE INCLUDED IN THE COST FOR "10 IN NON-REINFORCED CONCRETE PAVEMENT CLASS AE."

550-P04 DOWEL BAR ASSEMBLY: AFTER THE DOWEL BAR ASSEMBLY IS STAKED TO THE ROADBED AND THE DOWEL BARS ARE HELD FIRMLY IN PLACE, THE ASSEMBLY TIES RUNNING PARALLEL TO THE DOWEL BARS SHALL BE REMOVED TO ALLOW FOR FREE MOVEMENT OF THE DOWEL BARS.

550-P05 TRANSVERSE JOINTS SAWING AND SEALING: THE CONTRACTOR SHALL BE ALLOWED TO SKIP SAW THE TEN-FOOT PCC SHOULDER WHEN IT IS PAVED SEPARATELY. NO OTHER SKIP SAWING SHALL BE ALLOWED.

550-P06 REINFORCING OVER PIPES: ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED AND PLACED AT THE LOCATIONS SHOWN ON THE "PAVEMENT REINFORCEMENT DETAIL." ALL COSTS TO PROVIDE, PLACE, AND SUPPORT THE REINFORCING STEEL AS SHOWN SHALL BE INCLUDED IN THE PRICE BID FOR "10-INCH NON-REINFORCED PCC PAVEMENT CL AE."

550-P07 REMOVAL OF CONTINUOUS REINFORCED CONCRETE PAVEMENT: THIS PAY ITEM SHALL CONSIST OF THE MAINLINE CONTINUOUS CONCRETE PAVEMENT, EXISTING BITUMINOUS BLOWUP REPAIRS, SEALING MATERIAL, AND POTHOLE PATCHING REMOVAL IS INCLUDED IN THE COST OF "REMOVAL OF CONTINUOS REINFORCED CONCRETE PAVEMENT".

550-P08 ADDITIONAL PAVEMENT IMPRINTING: AFTER TEXTURING, THE MILEPOINT NUMBERS SHALL BE IMPRINTED INTO THE CONCRETE SURFACE BY THE CONTRACTOR ABOUT ONE FOOT FROM THE EDGE OF THE OUTSIDE SHOULDER, SO THE NUMBERS CAN BE READ IN THE DIRECTION OF THE TRAFFIC. AN "0" SHALL ALSO BE PLACED IN THE SAME MANNER ABOUT 6" FROM THE EDGE OF THE OUTSIDE SHOULDER AT EDGE DRAIN OUTLET PIPE LOCATIONS.

THE CONTRACTOR SHALL FURNISH DEVICES FOR IMPRINTING THE PAVEMENT. THE NUMERALS SHALL BE 3 TO 4 INCHES IN HEIGHT AND AT LEAST 1/4 INCH IN DEPTH.

550-P09 WATER-REDUCING ADMIXTURE: EXCEPT FOR THE 10' SHOULDER, TYPE A WATER-REDUCING CONCRETE ADMIXTURE SHALL BE USED IN THE MAINLINE CONCRETE MIX ON THIS PROJECT. THE ADMIXTURE SHALL BE ADDED PER THE MANUFACTURER'S RECOMMENDATION.

704-P01 TRAFFIC CONTROL REMOVAL: PRIOR TO RETURNING TRAFFIC TO NORMAL FLOW, THE CONTRACTOR SHALL REMOVE COVERS FROM THOSE SIGNS COVERED DURING CONSTRUCTION AND RESET THOSE SIGNS THAT WERE REMOVED DURING CONSTRUCTION. THE CONTRACTOR SHALL ALSO REMOVE ALL TRAFFIC CONTROL DEVICES INSTALLED ON THIS PROJECT AND RESTORE THE HIGHWAY SIGNS TO A CONDITION SIMILAR TO OR BETTER THAN EXISTED PRIOR TO CONSTRUCTION. THE COST INCURRED FOR THIS WORK SHALL NOT BE BID SEPARATELY, BUT SHALL BE INCIDENTAL TO OTHER ITEMS.

704-P02 CONSTRUCTION TRAFFIC MEDIAN CROSSOVERS: THE CONTRACTOR WILL BE ALLOWED TO CONSTRUCT MEDIAN CROSSOVERS FOR THE PURPOSE OF HAULING MATERIAL OVER THE ROADWAY BEING USED BY THE PUBLIC. THE CONTRACTOR SHALL NOT BE ALLOWED TO HAUL SALVAGED CONCRETE OR SALVAGED SHOULDER MATERIAL ON THE ROADWAY USED BY THE PUBLIC WITHOUT WRITTEN PERMISSION FROM THE ENGINEER. ONLY RIGHT-HAND ON AND OFF MOVEMENTS WILL BE ALLOWED. NO CROSSING OF OPPOSING LANES OF TRAFFIC WILL BE ALLOWED.

CONSTRUCTION TRAFFIC MEDIAN CROSSOVERS USED FOR ENTERING THE ROADWAY USED BY THE PUBLIC SHALL BE SURFACED WITH A MINIMUM OF 4 INCHES OF GRANULAR MATERIAL TO PREVENT DUST OR MUD PROBLEMS ON THE PUBLIC ROADWAY. ALL OF THE CONTRACTOR'S VEHICLES USING THIS CROSSOVER MUST COME TO A COMPLETE STOP BEFORE ENTERING THE PUBLIC ROADWAY. THE CONTRACTOR'S TRAFFIC SHALL ALWAYS YIELD THE RIGHT OF WAY TO THE PUBLIC TRAFFIC AND A FLAG PERSON AND STOP SIGN SHALL ALWAYS BE PROVIDED.

THE MINIMUM DISTANCE BETWEEN CONSTRUCTION TRAFFIC MEDIAN CROSSOVERS SHALL BE 2,000 FEET. NO MORE THAN TWO MEDIAN CROSSOVERS SHALL BE IN USE AT ANY TIME AND ANY NOT IN USE SHALL BE BARRICADED. CONSTRUCTION MEDIAN CROSSOVERS SHALL BE BARRICADED AT NIGHT AND USED ONLY DURING DAYLIGHT HOURS.

ALL VEHICLES USING THE CONSTRUCTION TRAFFIC MEDIAN CROSSOVERS SHALL BE LICENSED AND SHALL BE EQUIPPED WITH TOP MOUNTED FLASHING BEACONS VISIBLE FROM FRONT AND REAR OF THE VEHICLE.

THE COST FOR PROVIDING, HAULING, PLACING, AND REMOVING ALL MATERIALS NECESSARY FOR CONSTRUCTING THE MEDIAN CROSSOVERS AND FOR FLAGGING, SIGNS, AND BARRICADES NEEDED IN THESE AREAS SHALL BE AT THE CONTRACTOR'S EXPENSE.

704-P03 TRAFFIC CONTROL: ALL TRAFFIC CONTROL FOR THIS PROJECT IS ADDRESSED AND PAID FOR UNDER PROJECT NUMBERS CPU-8-984(009) AND IM-8-029(026)053. THE CONTRACTOR SHALL NOT BEGIN CONSTRUCTION ACTIVITIES UNTIL NECESSARY TRAFFIC CONTROL AS INDICATED BY THOSE RELATED PROJECTS IS IN PLACE.

⚠1 708-P01 TEMPORARY EROSION CONTROL: TEMPORARY EROSION CONTROL HAS BEEN PROVIDED FOR PLACEMENT PRIOR TO DISTURBING THE TOPSOIL. LOCATIONS OF EROSION AND SILTATION CHECKS ARE DESCRIBED ON THE BASIS OF ESTIMATE SHEET (TO BE USED IN CONJUNCTION WITH SECTION 110 OF THE STANDARD SPECIFICATIONS).

708-P02 APPLICATION OF CLASS VI SEED SHALL BE APPLIED IN A 6-FOOT WIDTH BOTH SIDES OF THE NEWLY CONSTRUCTED PAVEMENT REGARDLESS OF THE SOIL MOISTURE CONTENT. THIS IS IN ADDITION TO THE NORMAL COVER CROP WITH SEEDING, TYPE B, CLASS II. FERTILIZER SHALL BE APPLIED WITH THIS APPLICATION IN ACCORDANCE WITH SECTION 708.02 B.1.E.(1). ALL COSTS FOR SEED, FERTILIZER, AND APPLICATION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "SEEDING, TYPE B CLASS VI."

709-P01 GEOTEXTILE FABRIC: THE GEOTEXTILE FABRIC FOR EDGE DRAINS AND SEPARATION FABRIC SHALL BE DELIVERED TO THE PROJECT FOR TESTING (APPROXIMATELY 15 WORKING DAYS) PRIOR TO BEING INSTALLED ON THE PROJECT. THE FABRIC WILL BE SAMPLED BY THE DEPARTMENT ACCORDING TO THE DEPARTMENT'S PROCEDURES. THE SAMPLE WILL BE SUBMITTED TO AN INDEPENDENT LAB SELECTED BY THE DEPARTMENT. THE CONTRACTOR WILL NOT BE PERMITTED TO INSTALL THE FABRIC UNTIL THE TEST RESULTS ARE KNOWN.

714-182 CONCRETE PIPE TIES (TIE BOLTS): UNLESS OTHERWISE SHOWN ON THE PLANS, THE FLARED END SECTION AND THE END SECTIONS OF PIPE ON ALL CONCRETE PIPE INSTALLATIONS SHALL BE TIED AS SHOWN ON STANDARD D-714-22. ON CULVERTS WITHOUT FLARED END SECTIONS, THE END THREE PIPE SECTIONS SHALL BE TIED TOGETHER.

714-P01 PIPE CONC REINF CL III - STORM DRAIN: THE STORM DRAIN BYPASS SYSTEM SHALL BE DESIGNATED IN THE PLANS AS "SDB." ALL CONCRETE PIPE SECTIONS OF THIS SYSTEM SHALL BE TIED TOGETHER AS PER ND DOT STANDARD D-714-22.

PIPE TIES TO BE SEALED INSIDE THE PIPE OF THE STORM DRAIN BYPASS (SDB) SYSTEM WITH SILICONE SEALANT.

⚠1 REVISED 18 JANUARY 1999

GENERAL NOTES

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	7

714-P02 HEADWALLS-PRECAST CONCRETE 4 IN: WHERE HEADWALLS NEED TO BE LOCATED IN NON-TYPICAL LOCATIONS, THE OUTLET PIPE WILL NEED TO BE EXTENDED. WORK AND MATERIALS TO EXTEND THE PIPE WILL BE INCLUDED IN THE UNIT PRICE BID FOR "HEADWALLS-PRECAST CONCRETE 4 IN."

722-P01 MANHOLE SPECIAL: THE BID PRICE FOR EACH "MANHOLE SPECIAL" ITEM SHALL INCLUDE FURNISHING AND INSTALLING THE COMPLETE STRUCTURE AS SHOWN ON THE DETAIL IN THE PLANS.

752-P01 FENCE: THIS WORK INCLUDES INSTALLING CHAIN LINK FENCE, AND REMOVING THE EXISTING WOVEN AND CABLE FENCE SYSTEMS.

EXISTING CABLE AND WOVEN WIRE SYSTEMS WILL BE REMOVED WHERE THE CHAIN LINK FENCE WILL BE INSTALLED. THE WOVEN WIRE FENCE SYSTEM SHALL BECOME THE PROPERTY OF THE CONTRACTOR; THE CABLE FENCE SYSTEM INSTALLED IN 1998 WILL BE RETAINED BY THE NDDOT.

POSTS, CABLE, AND HARDWARE RETAINED BY THE NDDOT SHALL BE LOADED, HAULED, AND NEATLY PILED AT THE CASSELTON MAINTENANCE YARD OF THE NDDOT FARGO DISTRICT.

THE CHAIN LINK FENCE SHALL BE INSTALLED AT THE FINISHED ELEVATIONS AS SURVEYED IN THE FIELD.

ALL COSTS FOR FENCE TERMINALS IN EXISTING FENCING SHALL NOT BE BID SEPARATELY, BUT SHALL BE INCLUDED IN THE PRICE BID FOR "FENCE CHAIN LINK."

762-P01 PAVEMENT MARKING PAINTED LINE: WHITE EDGE LINES SHALL BE PLACED ON THE MEDIAN SIDE OF THE ROADWAY CARRYING TWO-WAY TRAFFIC. FOLLOWING COMPLETION OF THE PROJECT, YELLOW EDGE LINES SHALL BE PLACED ON THE MEDIAN EDGE OF THE ROADWAY.

762-P02 PAVEMENT MARKING: COVERING THE PAVEMENT MARKING IN LIEU OF OBLITERATION, DISCUSSED IN NOTE 762-310, WILL NOT BE ALLOWED.

764-P01 W-BEAM GUARDRAIL AND TERMINALS FOR TWO-WAY TRAFFIC: A TOTAL OF FOUR W-BEAM GUARDRAIL END TERMINALS ARE NEEDED FOR BRIDGE-END PROTECTION AT BRIDGE ENDS THAT HAVE NO GUARDRAIL IN PLACE DURING DIVIDED ROADWAY OPERATION AND ARE NEEDED FOR TWO-WAY OPERATION.

THE SOUTH END OF THE SOUTHBOUND WILD RICE RIVER BRIDGE AND THE SOUTH END OF THE SOUTHBOUND ROSE COULEE BRIDGE SHALL HAVE BRIDGE-END PROTECTION AT EACH CORNER, CONSISTING OF ONE 12'-6" DOUBLE-THICKNESS W-BEAM RAIL SECTION, A TERMINAL CONNECTOR, AND A W-BEAM GUARDRAIL END TERMINAL, AS SHOWN IN THE PLANS.

THE W-BEAM GUARDRAIL END TERMINALS AND ADDITIONAL GUARDRAIL MATERIALS REQUIRED FOR TWO-WAY TRAFFIC SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED WHEN NO LONGER NEEDED FOR TWO-WAY TRAFFIC.

THE W-BEAM GUARDRAIL END TERMINALS REQUIRED FOR TWO-WAY TRAFFIC SHALL BE MEASURED BY THE NUMBER REQUIRED AND ACCEPTED BY THE ENGINEER AND SHALL INCLUDE ALL MATERIALS, INCLUDING THE DOUBLE 12'-6" W-BEAM RAIL SECTIONS AND POSTS, W-BEAM TERMINAL CONNECTORS, AND ALL NECESSARY HARDWARE, EQUIPMENT, AND LABOR REQUIRED FOR INSTALLATION AND REMOVAL.

764-P03 EMBANKMENT FOR GUARDRAIL INSTALLATION: THE EMBANKMENT MATERIAL REQUIRED FOR GUARDRAIL INSTALLATION IS NOT AVAILABLE WITHIN THE HIGHWAY RIGHT OF WAY. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN EMBANKMENT MATERIAL. THE EXISTING TOPSOIL SHALL BE REMOVED FROM THE AREA TO BE DISTURBED, STOCKPILED, AND REPLACED WHEN EMBANKMENT IS COMPLETED. THE DISTURBED AREA SHALL BE SEEDED WITH TYPE B, CLASS 2 SEED MIXTURE. FERTILIZERS SHALL BE APPLIED AT A RATE OF 20 POUNDS PHOSPHOROUS AND 20 POUNDS NITROGEN PER ACRE. COMPACTION OF THE EMBANKMENT SHALL BE IN ACCORDANCE WITH SECTION 203.02 I OF THE STANDARD SPECIFICATIONS. THE INSLOPES IN AREAS THAT ARE TO BE WIDENED SHALL BE BENCHED IN ACCORDANCE WITH SECTION 203.02 F OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE DIRECTED BY THE ENGINEER. ALL EXISTING DRAINAGE PATTERNS SHALL BE MAINTAINED. THIS MAY INVOLVE SOME EXCAVATION AND DITCH WIDENING. THE EMBANKMENT WILL BE MEASURED BY THE NUMBER OF SITES COMPLETE AND IN PLACE. A SITE IS DEFINED AS THE AREA OF EMBANKMENT NEEDED TO PLACE A COMPLETED GUARDRAIL ON AS SHOWN IN THE PLANS.

THE COST FOR ANY EXCAVATION TO MAINTAIN THE DRAINAGE PATTERNS AND FOR BENCHING, SEEDING, SALVAGING, STOCKPILING, AND SPREADING OF THE TOPSOIL SHALL BE INCLUDED IN THE PRICE BID FOR "GUARDRAIL EMBANKMENT, TYPE C."

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	8

SPEC	CODE	ITEM DESCRIPTION	UNIT	IM-8-029(026)053 *	CPU-8-984(007)	TOTAL
103	0100	CONTRACT BOND	L SUM		0.05	0.05
202	0138	REMOVE & SALVAGE BASE COURSE	TON	825.0		825.0
203	0101	COMMON EXCAVATION - TYPE A	CY		6760.0	6760.0
203	0103	COMMON EXCAVATION - TYPE C	CY		368.0	368.0
203	0138	COMMON EXCAVATION - SUBCUT	CY	371.0		371.0
203	0208	GUARDRAIL EMBANKMENT-TYPE C	EA		3.0	3.0
210	0101	CLASS I EXCAVATION	L SUM		1.0	1.0
210	0201	FOUNDATION PREPARATION	EA		1.0	1.0
216	0100	WATER	M GAL	161.0	107.0	268.0
230	0104	RESHAPING CONNECTION	EA		1.0	1.0
230	0106	RESHAPING ROADWAY	MILE	0.1		0.1
230	0190	SUBGRADE PREPARATION-TYPE C-12IN	MILE	0.3		0.3
302	0100	SALVAGED BASE COURSE	TON	3424.0		3424.0
302	0107	AGGREGATE FOR SUBGRADE REINFORCEMENT	TON	695.0		695.0
302	0120	AGGREGATE BASE COURSE CL 5	TON	1204.0		1204.0
304	5000	PERMEABLE STABILIZED BASE COURSE-SALVAGED	SY	5603.0		5603.0
401	0100	MC70 OR 250 LIQUID ASPHALT	GAL	1229.0		1229.0
405	0110	REMOVE & SALVAGE BITUMINOUS SURFACING	TON	464.0		464.0
408	0198	HOT BITUMINOUS PAVEMENT PATCHING	TON	100.0		100.0
550	0112	8IN NON-REINF CONCRETE PAVEMENT CL AE	SY		1575.0	1575.0
550	0118	10IN NON-REINF CONCRETE PAVEMENT CL AE	SY	6443.0		6443.0
550	0215	CONCRETE BRIDGE APPROACH SLAB	SY		187.0	187.0
550	0809	PREFORMED ELASTOMERIC COMPRESS JT SEAL 9/16IN	LF	3914.0		3914.0
560	1580	PREPARE STOCKPILE SITE	L SUM		0.05	0.05
560	1591	REMOVAL OF CONTINUOUS REINF CONCRETE PVMT	SY	7148.0		7148.0
602	0130	CLASS AAE-3 CONCRETE	CY		250.0	250.0
602	1130	CLASS AE-3 CONCRETE	CY		143.4	143.4
602	1250	PENETRATING WATER REPELLENT TREATMENT	SY		769.0	769.0
604	9620	PRESTRESSED BOX BEAM-33IN	LF		840.0	840.0
612	0115	REINFORCING STEEL-GRADE 60	LBS		23123.0	23123.0
612	0116	REINFORCING STEEL-GRADE 60-EPOXY COATED	LBS		50726.0	50726.0
622	0040	STEEL PILING HP 12 x 53	LF		960.0	960.0
622	0060	STEEL PILING HP 14 x 73	LF		840.0	840.0
702	0100	MOBILIZATION	L SUM		0.05	0.05
708	1310	EROSION CHECKS	LF		100.00	100.00
708	2240	SEEDING-TYPE B-CL II	ACRE		3.8	3.8
708	2290	SEEDING-TYPE B-CL VI	ACRE	0.4		0.4
709	0402	GEOTEXTILE FABRIC TYPE S2	SY	1112.0		1112.0
714	0825	PIPE CONC REINF 30IN CL III - STORM DRAIN	LF		274.0	274.0
714	3150	HEADWALL-PRECAST CONCRETE 4IN	EA	10.0		10.0
714	9659	REMOVE & RELAY PIPE-ALL TYPES & SIZES	LF		155.0	155.0
714	9660	REMOVE & RELAY END SECTION-ALL TYPE & SIZES	EA		4.0	4.0
714	9695	EDGEDRAIN PERMEABLE BASE	LF	3052.0		3052.0
722	0110	MANHOLE 60IN	EA		1.0	1.0
722	1110	MANHOLE RISER 60IN	LF		10.0	10.0
722	2500	MANHOLE SPECIAL	EA		1.0	1.0
752	0600	FENCE CHAIN LINK	LF	1735.0		1735.0
752	3100	CORNER ASSEMBLY CHAIN LINK	EA	3.0		3.0
752	4160	DOUBLE BRACE ASSEMBLY CHAIN LINK	EA	4.0		4.0
762	1104	PVMT MK PAINTED 4IN LINE	LF	3918.0		3918.0
764	0131	W-BEAM GUARDRAIL	LF		766.0	766.0
764	0145	W-BEAM GUARDRAIL END TERMINAL	EA		4.0	4.0
930	0100	CRITICAL PATH METHOD SCHEDULE	L SUM		0.05	0.05
930	2510	CONSTRUCTION SURVEYING	L SUM		0.06	0.06
930	3000	BRIDGE BENCH MARKS	SET		1.0	1.0

* Project IM-8-029(026)053 quantities are in addition to those from Station 2822+27 to Station 3227+81.

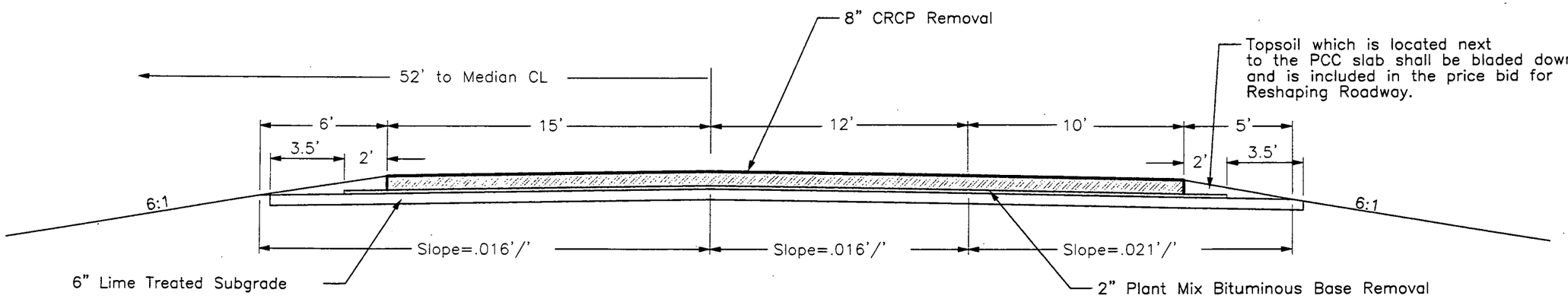
REVISED: 18 JANUARY 1999

NORTHBOUND I-29 -
40TH AVE. SW OVERPASS

QUANTITIES

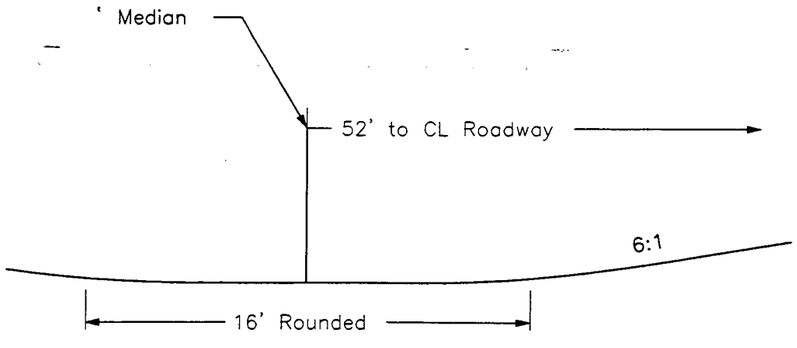
DRAWN BY	CHECKED BY	APPROVED BY
SLW	SG	SG
FILE: OVERQTY1.DWG	DATE: 12-21-98	SCALE: NO SCALE

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	11

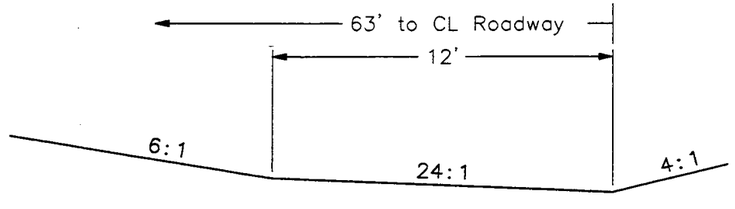


Northbound Roadway

Station 3227+81.0 to Station 3245+19.7



Median Detail



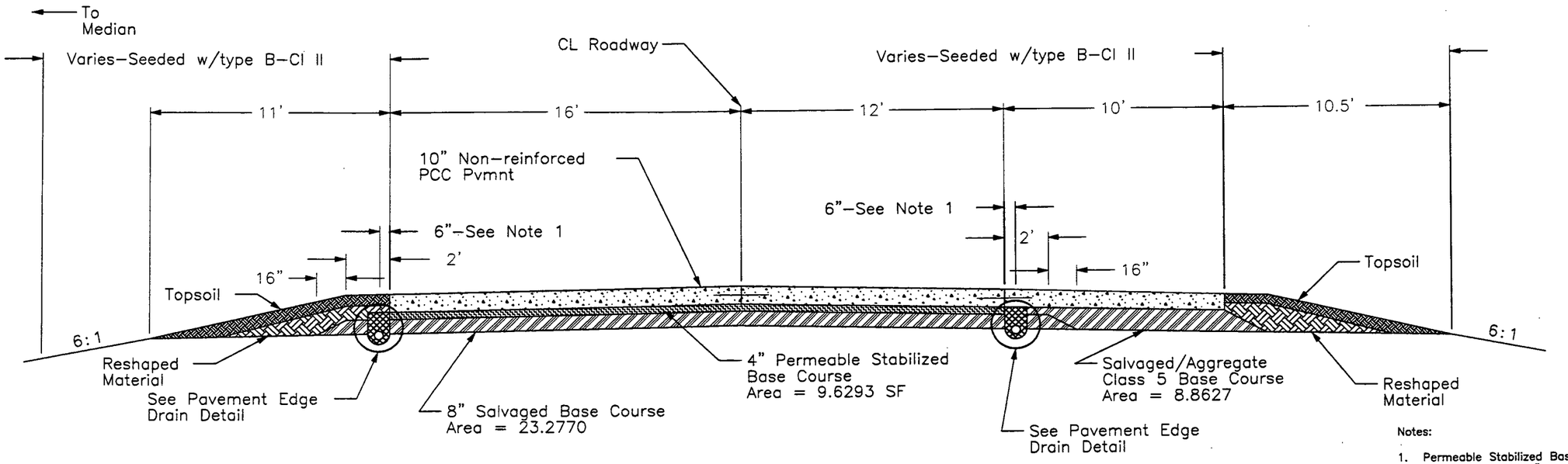
Ditch Detail

I-29 NORTHBOUND RECONSTRUCTION

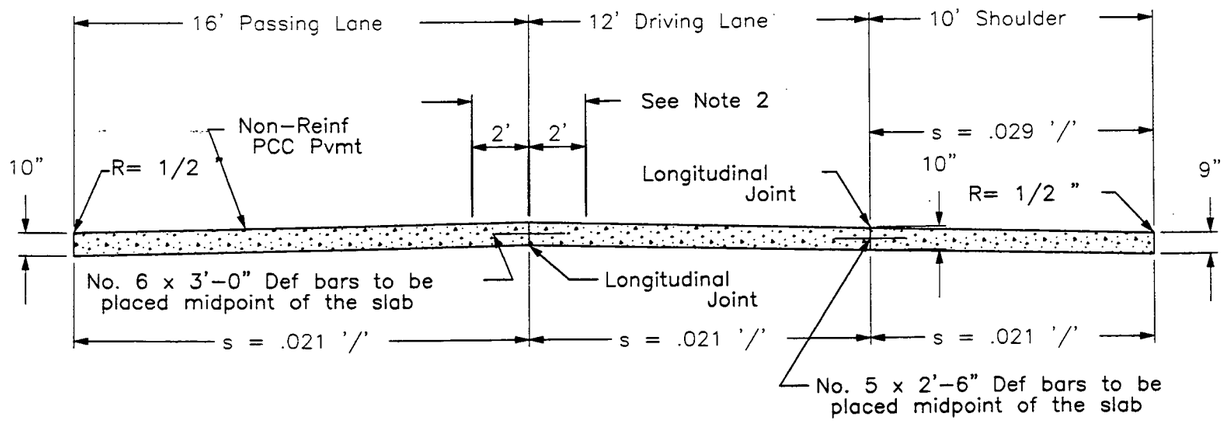
EXISTING TYPICAL SECTION MAINLINE

DRAWN BY	CHECKED BY	APPROVED BY
SLW	DLM	SG
FILE: TE3228.DWG	DATE: 12-20-98	SCALE: 1" = 5'

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	12



Surfacing Detail



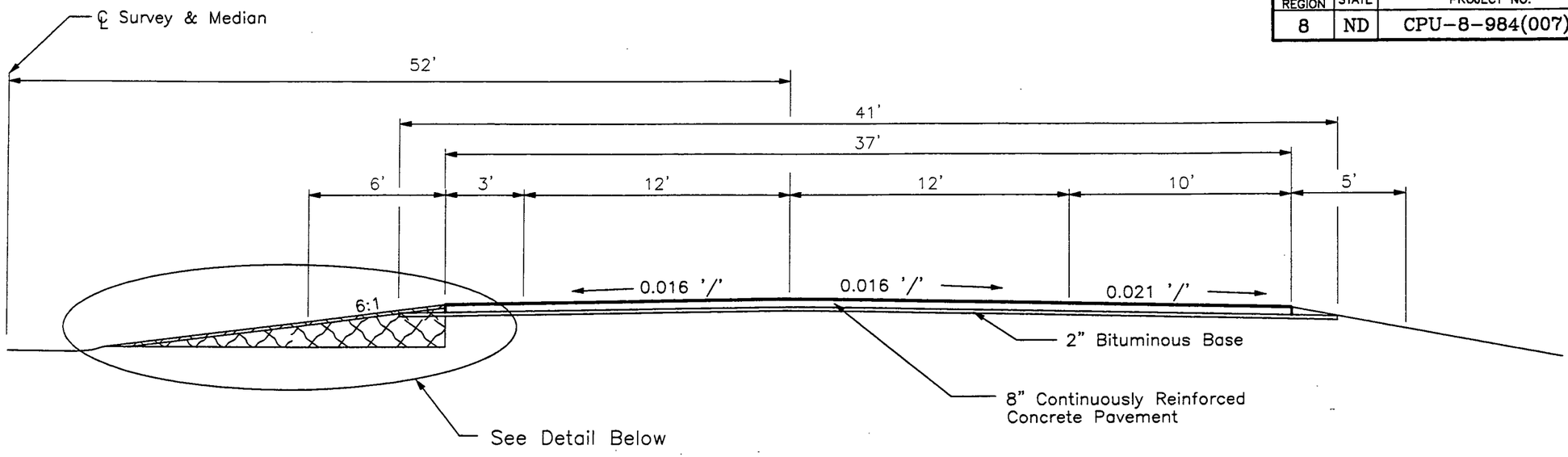
Non–reinforced PCC Pavement Detail

Notes:

1. Permeable Stabilized Base Course must be placed 6" beyond driving lane and removed during placement of Pavement Edge drain.
2. Uniform rounding as required in the field.
3. See "PCC PAVEMENT DETAILS–JOINTS AND DOWEL BARS" and "PCC PAVEMENT DETAILS–DOWEL BAR PLACEMENT" sheet for further details.

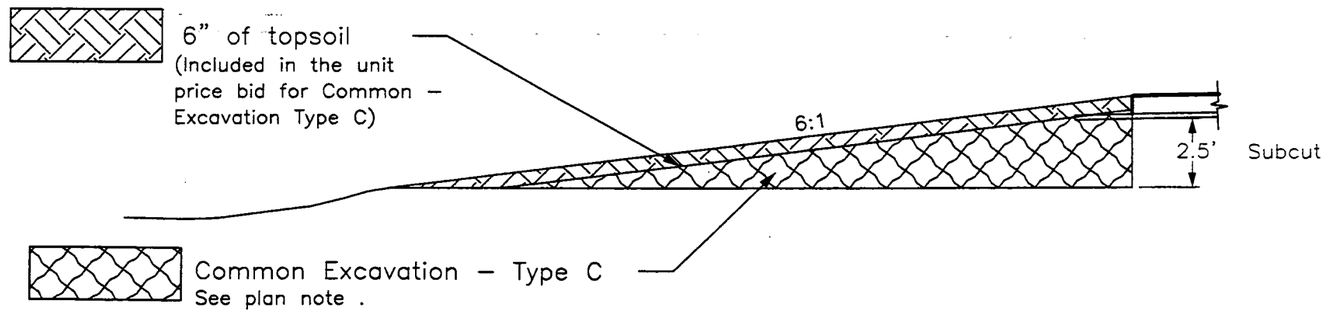
I-29 NORTHBOUND RECONSTRUCTION		
TYPICAL MAINLINE SURFACING SECTION		
DRAWN BY: SLW	CHECKED BY: SG	APPROVED BY: SG
FILE: MNLINSUR.DWG	DATE: 12-20-98	SCALE: 1" = 5'

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	Z3



EXISTING TYPICAL SECTION I29 MAINLINE

Common Excavation – Type C: The contractor shall remove any unstable subgrade material from the shoulders, and dispose of the material within the right of way as directed by the engineer.



INSIDE SHOULDER REMOVAL DETAIL

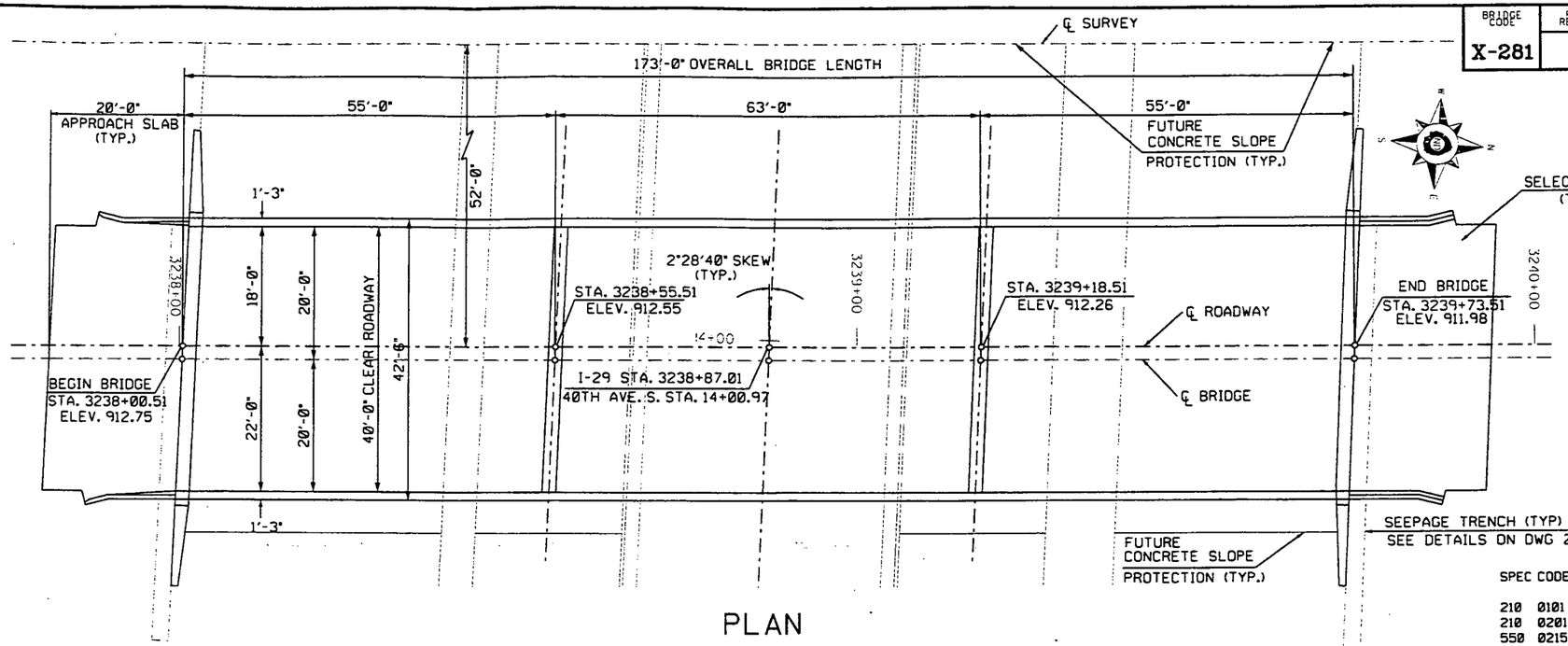
I-29 NORTHBOUND RECONSTRUCTION

INSIDE SHOULDER REMOVAL DETAIL
MEDIAN CROSSOVER

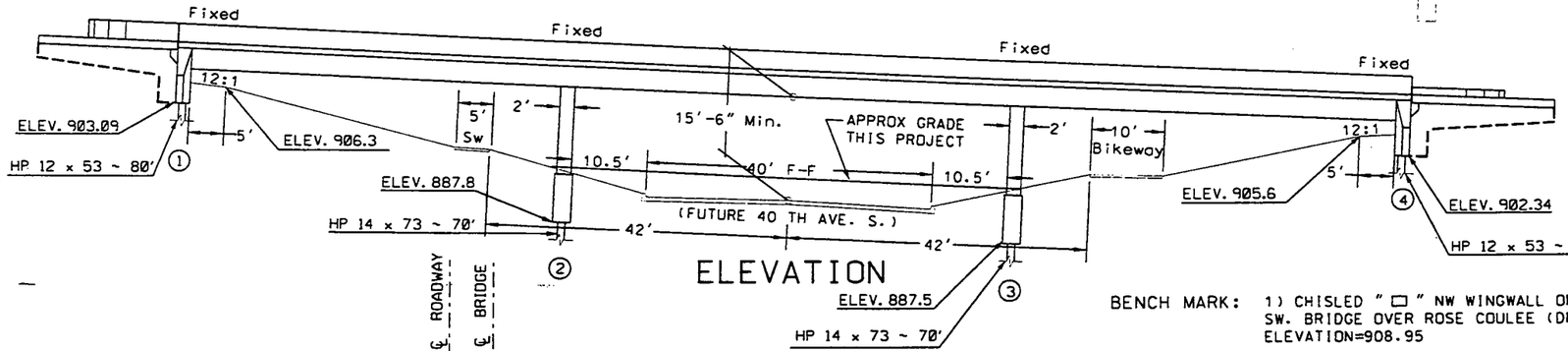
DRAWN BY	CHECKED BY	APPROVED BY
SLW	SG	SG

FILE	DATE	SCALE
DSUBCUT.DWG	12-20-98	1" = 5'

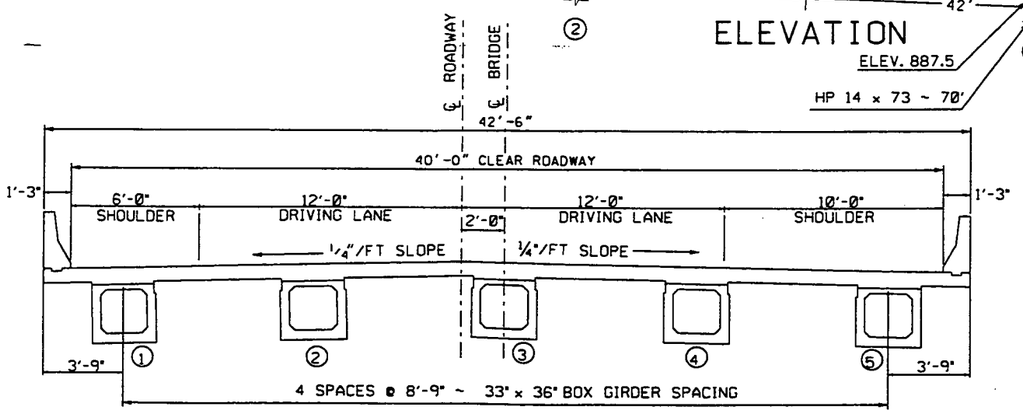
BRIDGE CODE	FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
X-281	8	ND	CPU-8-984(007)	24



PLAN



ELEVATION



TYPICAL DECK SECTION

DESIGN STRENGTHS

f'c = 3,000 PSI ~ CLASS AE-3 CONCRETE
f'c = 4,000 PSI ~ CLASS AAE-3 CONCRETE
f'c = 5,000 PSI ~ PRESTRESSED CONCRETE GIRDER
f'c = 60,000 PSI ~ REINFORCING STEEL

LOAD FACTOR DESIGN

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
210	0101	CLASS 1 EXCAVATION	L. SUM	1
210	0201	FOUNDATION PREPARATION	EA.	1
550	0215	CONCRETE BRIDGE APPROACH SLAB	SQ. YD.	187
602	0130	CLASS AAE-3 CONCRETE	CU. YD.	250.0
602	1130	CLASS AE-3 CONCRETE	CU. YD.	143.4
602	1250	PENETRATING WATER REPELLENT TREATMENT	SQ. YD.	769
604	9620	PRESTRESSED BOX BEAM-33"	L. FT.	840
612	0115	REINFORCING STEEL-GRADE 60	LBS.	23,123
612	0116	REINFORCING STEEL-GRADE 60-EPOXY COATED	LBS.	50,726
622	0040	STEEL PILING HP 12 x 53	L. FT.	960
622	0060	STEEL PILING HP 14 x 73	L. FT.	840
930	3000	BRIDGE BENCH MARKS	SET	1

BENCH MARK: 1) CHISLED " □ " NW WINGWALL OF 36TH ST. SW. BRIDGE OVER ROSE COULEE (DRAIN #27) ELEVATION=908.95

2) SE FLANGE BOLT OF FIREHYDRANT @ NE. CORNER OF 42ND AVE. SW. AND 36TH. SW. ELEVATION=910.11

NOTE: ELEVATIONS ARE CITY OF FARGO DATUM.

STANDARD DRAWINGS

D-604-3, D-622-1, D-900-1

F.W.S. 15 PSF

HS 25 DESIGN LOADING

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of North Dakota.

Eugene L. Rowen
12/19/98 Reg.# 3591

EUGENE L. ROWEN REGISTERED PROFESSIONAL P.E. 3591 ENGINEER NORTH DAKOTA

ULTEIG ENGINEERS, INC.

NORTHBOUND I-29
40th AVE. S. OVERPASS
BRIDGE LAYOUT
PROJECT: CPU-8-984(007)
STATION 3238+87.01
CASS COUNTY

APPROVED 1-4-99 DATE: Tom Horner BRIDGE ENGINEER

29-061.245 R

FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	25

100 SCOPE OF WORK: This project consists of building a new bridge for the North Bound lanes of I-29 over 40th Ave. SW in Fargo, ND

100 GENERAL: The cost of furnishing and placing preformed expansion joint filler, concrete inserts, tie wire, bar spacers, bar supports, and other miscellaneous items shall be included in the price bid for Class AE-3 and AAE-3 concrete.

210 EXCAVATION: The excavation at the abutments and the excavation required to build the piers shall be included in the lump sum bid item, "Class 1 Excavation." (Approx. 360 CY). Shoring may be required to excavate the West end of the piers. If shoring is required, it shall be incidental to the price bid for "Class 1 Excavation."

210 SELECT BACKFILL: Select backfill shall meet the requirements of Section 816.03, Class 3. The backfill shall be placed in layers of not more than 6 inches, moistened or dried as required, and thoroughly compacted with mechanical tamping equipment. It is estimated that 230 cy. of select backfill will be required and shall be included in the price bid for concrete bridge approach slab.

550 BRIDGE APPROACH SLABS: Mechanical finishing of the approach slabs shall be required. A mechanical or hand-held transverse metal tine finish shall be applied. Tining shall start 6" from the beginning and end of the approach slabs. A surface tolerance of 3/16" in 10 feet is also required.

550 BRIDGE APPROACH SLAB: Included in the approach slab bid item is the select backfill, coarse aggreate, geotextile fabric, polystyrene insulation board, drainage pipes, concrete headwall, concrete and reinforcing steel to build the approach slab.

602 DIAPHRAGMS: If the diaphragm concrete is placed before the deck concrete, the concrete shall cure for at least 72 hours before deck placement.

602 SURFACE FINISH "D": Surface Finish "D" shall be required for all surfaces of the barrier, edge of the deck, the fascia girder and all exposed areas of the substructures. The color shall be white as approved by the engineer.

602 DECK CONCRETE: Beams and girders have slight variations in the anticipated camber. To build the deck to the designated thickness will require slight adjustments in deck elevation and/or riser dimensions. These adjustments result in minor concrete quantity discrepancies. The contractor shall consider this quantity discrepancy when he bids the unit price for Class AAE-3 Concrete. The Contractor will be paid plan quantity of Class AAE-3 Concrete.

602 Deflection of the deck shoring shall be computed using the total dead load plus the weight of the finishing machine. The forming shall be adjusted properly to accommodate the deflection and thereby maintain the total slab thickness specified in the plans.

602 PENETRATING WATER REPELLENT TREATMENT: Penetrating water repellent shall be applied to the driving surface of the concrete deck.

602 BARRIERS: Barriers shall be constructed according to the provisions of Section 602.03 B.4 except that there shall be no expansion or deflection joints. Make 3/4" V-grooves in all faces of the barriers at each pier and at equal spaces between substructures at approximately 10-foot spacing.

612 DECK TINING: Tining shall begin 6 inches from the beginning and the end of the deck.

622 PILING: Piling shall be driven with a steam, air, or diesel hammer with a rated energy and ram weight not less than 55,155 foot-pound-tons, as computed by the formula W(E-13444)+.821E, where W is the weight of the ram in tons an E is the rated hammer energy. In no case shall the ram weight be less than 2700 pounds.

SHOP DRAWINGS: CAD-generated shop drawings may be submitted on 11-inch by 17-inch detail sheets. The contractor shall submit the following shop drawings to the Construction office for approval:

1. Prestressed box girders.

DESIGN STRENGTH:	F'C	3000 PSI Cl. AE-3 Concrete.
	F'C	4000 PSI Cl. AAE-3 Concrete
	FY	60,000 PSI GR. 60 Reinforced Steel
	F'C	5,000 PSI Prestressed Girder Concrete

NORTHBOUND I-29
40th AVE. S. OVERPASS
NOTES

ULTEIG ENGINEERS, INC.

29-061.245 R-1

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	26

MIDWEST TESTING LABORATORY

JOB NO. 9022 LOG OR TEST BORING NO. 1 VERTICAL SCALE NO SCALE

PROJECT: Proposed I-29 Underpass at 40th Avenue South, I.D. 4913, Fargo, North Dakota
LOCATION: NB I-29 CL Sta. 3239+55 22' RT

DEPTH IN FEET	SOIL DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	N	LABORATORY TESTS MOISTURE	DENSITY	LL/PL	Q_u
	SURFACE ELEVATION 910.1							
	6" CONCRETE OVER FILL—FAT CLAY, grayish brown, dark grayish brown and black, with a trace of sand and gravel	1	FA					
		2	SS	12				
		3	SS	12				
7 (902.1)	FAT CLAY – grayish brown to grayish brown mottled, rather stiff, with lenses and laminations of silt below 9 feet (CH)	4	SS	13				
		5	SS	11				
		6	SS	7				
12 (898.1)	FAT CLAY – grayish brown, medium to rather stiff (CH)	7	SS	10				
18 (892.1)	FAT CLAY – dark brown, medium to soft (CH)	8	SS	6				
		9	SS	4				
		10	SS	2				
		11	SS	4				
		12	SS	3				
		13	SS	4				
77 (833.1)	SANDY LEAN CLAY – gray, very stiff, with a trace of gravel (CL)	14	SS	43				
	—	15	SS	100/.5				
89 (821.1)	SANDY SILT – gray and light gray, very dense (ML)	16	SS	100/.5				
92 (818.1)	SANDY LEAN CLAY – gray, very stiff, with a trace to a little gravel, and with lenses and seams of sand above 97 feet (CL)	17	SS	100/.5				
		18	SS	100/.5				
101 (809.1)	END OF BORING							

MIDWEST TESTING LABORATORY

JOB NO. 9022 LOG OR TEST BORING NO. 2 VERTICAL SCALE NO SCALE

PROJECT: Proposed I-29 Underpass at 40th Avenue South, I.D. 4913, Fargo, North Dakota
LOCATION: NB I-29 CL Sta. 3238+19 22' RT

DEPTH IN FEET	SOIL DESCRIPTION	SAMPLE NO.	SAMPLE TYPE	N	LABORATORY TESTS MOISTURE	DENSITY	LL/PL	Q_u
	SURFACE ELEVATION 909.7							
	8-1/2" CONCRETE OVER FILL—FAT CLAY, grayish brown, dark grayish brown and black, with a trace of sand and gravel	1	FA					
		2	SS	12				
		3	SS	13				
7 (902.7)	FAT CLAY – grayish brown mottled, rather stiff to medium, with lenses and laminations of silt (CH)	4	SS	11	29.5	90	78/28	
		5	SS	8	42.5	77		2800
		6	SS	7	43.5	77	99/36	
12 (897.7)	FAT CLAY – grayish brown, medium (CH)	7	SS	5	44.6			3450
18 (891.7)	FAT CLAY – dark grayish brown, soft (CH)	8	SS	2	63.4		110/32	1500
		9	SS	2				
		10	SS	2	64.5			1500
		11	SS	2	59.1			1750
		12	SS	2	48.5			1650
		13	SS	2				
75 (834.7)	SANDY LEAN CLAY – gray, rather stiff to very stiff, with a trace of gravel, and with seams of sand and/or gravel below 81 feet (CL)	14	SS	12				
		15	SS	40				
		16	SS	100/.6				
89 (820.7)	SANDY SILT – gray and light gray, very dense (ML)	17	SS	96				
		18	SS	100/.7				
96 (813.7)	SANDY LEAN CLAY – gray, very stiff, with a trace of gravel (CL)	19	SS	100	16	113		18,000
101 (808.1)	END OF BORING							

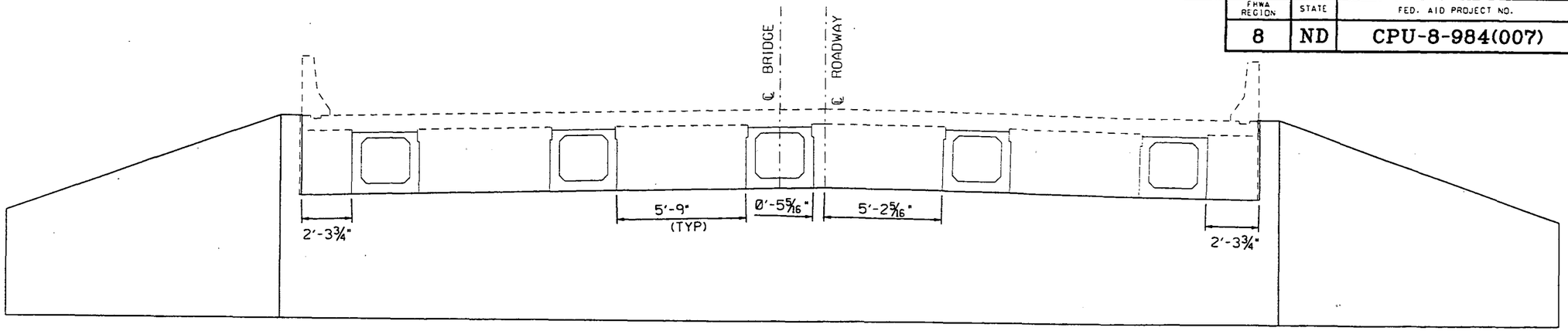
BENCH MARKS NGVD-29

NO.	DESCRIPTION	LOCATION	ELEV.
-	-	-	-
-	-	-	-

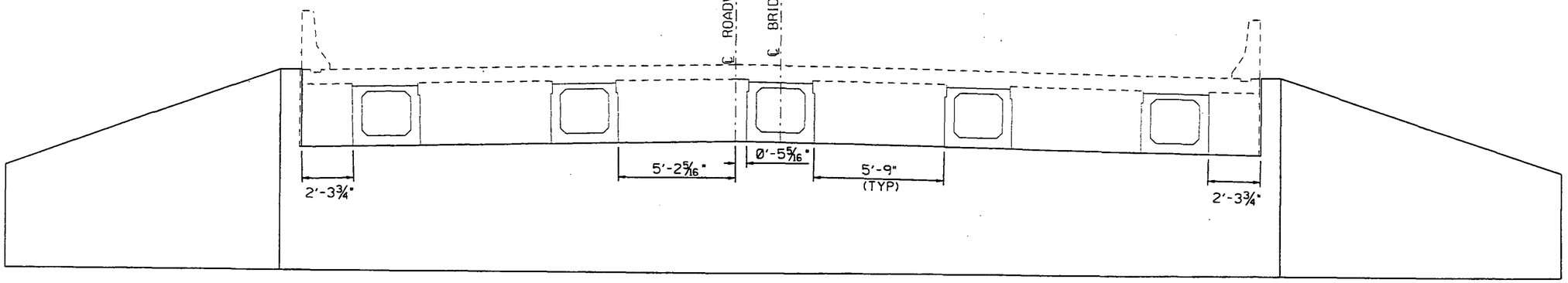
MIDWEST TESTING RESULTS
I-29 UNDERPASS SOIL BORINGS

FILE: MIDWEST.DWG BORINGS #1 & #2

FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	27



ABUTMENT 1



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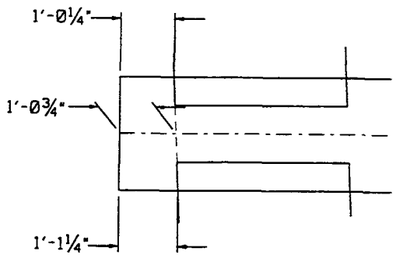
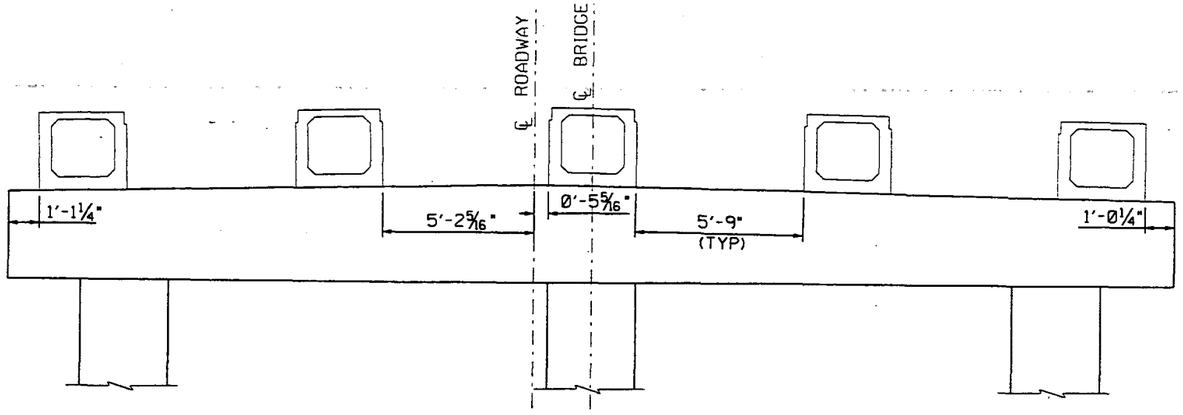


PARTIAL PIER CAP
PLAN VIEW



PIERS 2 & 3

NOTE:

ALL DIMENSIONS ARE FRONT FACE OF STRUCTURE.

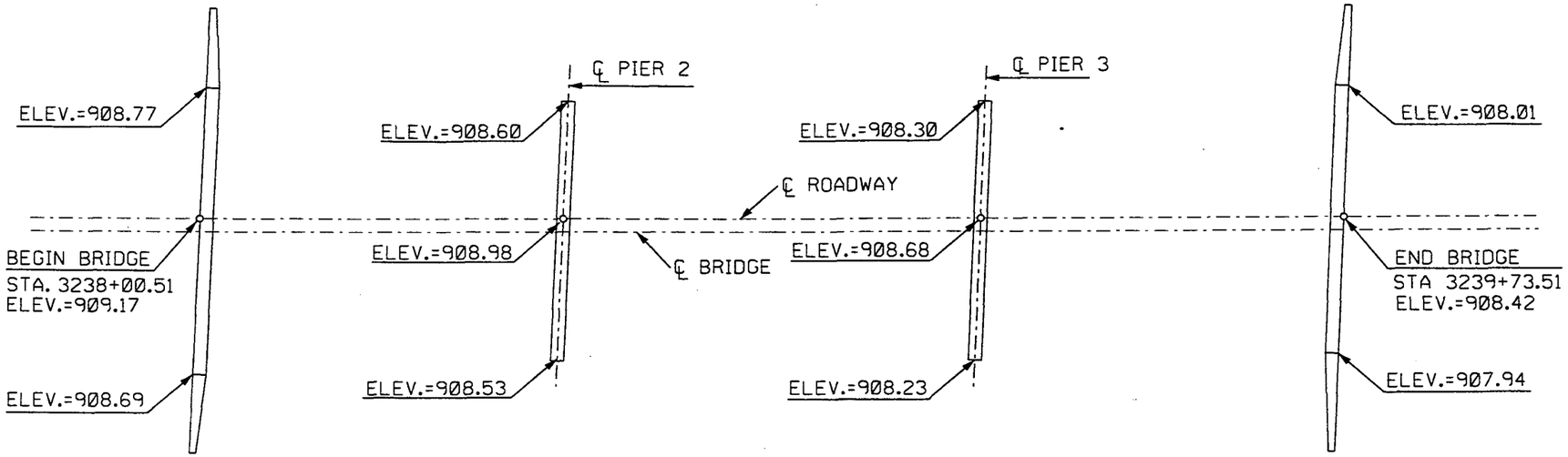
NORTHBOUND I-29
40th AVE. S. OVERPASS

BEAM PLACEMENTS

ULTEIG ENGINEERS, INC.

29-061.245 R-3

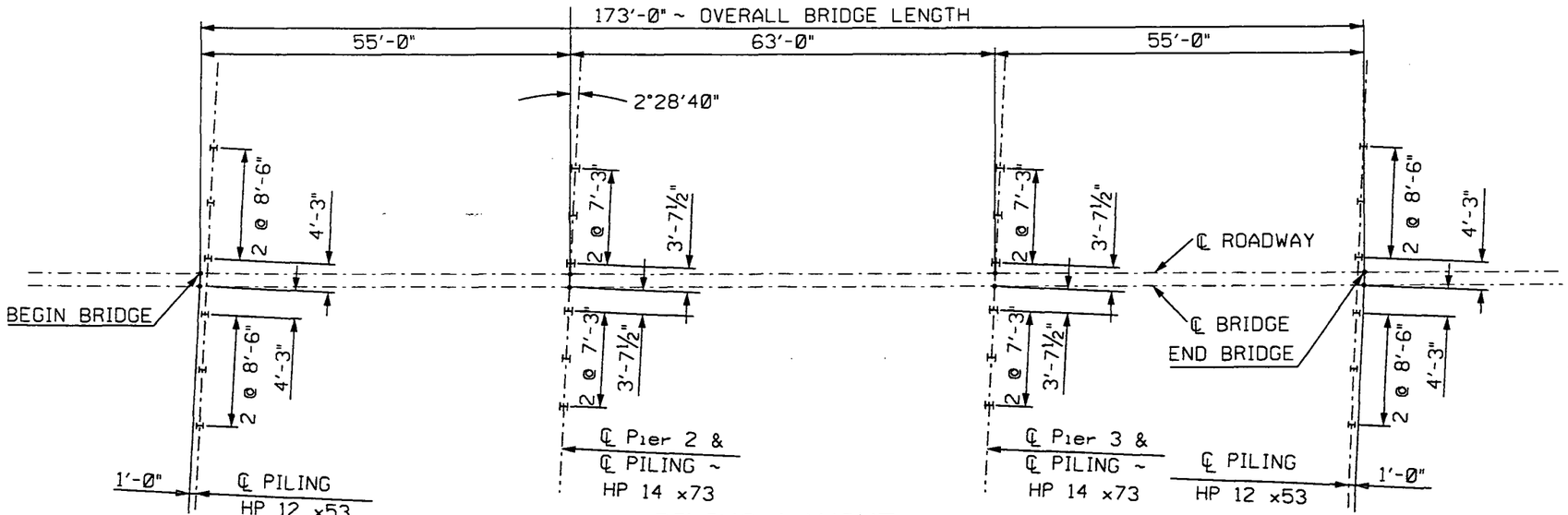
FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	28



BEARING ELEVATIONS

(ELEVATIONS SHOWN ARE TO TOP OF FINISHED CONCRETE)

NOTE: ELEVATION ARE CITY OF FARGO DATUM



PILING LAYOUT

NOTE:
HP 12 x 53 PILE SHALL BE DRIVEN TO 70 T.
HP 14 x 73 PILE SHALL BE DRIVEN TO 97 T.

NORTHBOUND I-29
40th AVE. S. OVERPASS

BEARING ELEVATIONS & PILING LAYOUT

ULTEIG ENGINEERS, INC.

29-061.245 R-4

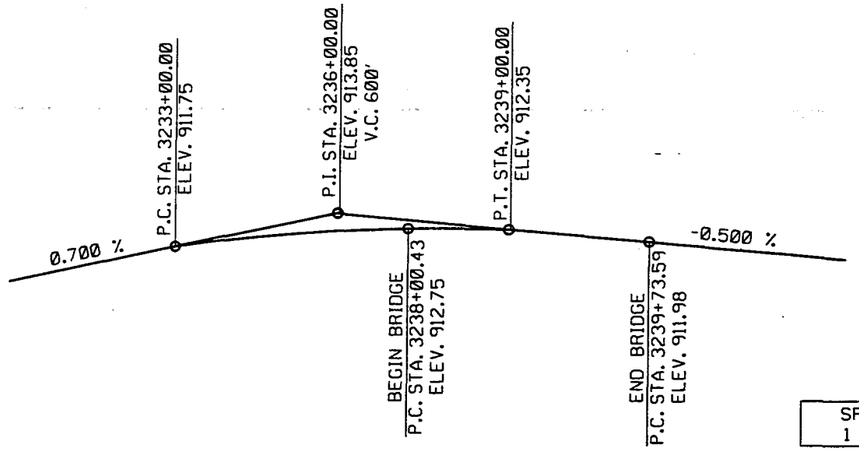
FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	29

℄ GIRDER 1	℄ GIRDER 2	℄ GIRDER 3	℄ GIRDER 4	℄ GIRDER 5
912.42	912.61	912.71	912.53	912.35
912.42	912.60	912.70	912.52	912.34
912.42	912.60	912.70	912.52	912.34
912.41	912.59	912.70	912.51	912.33
912.40	912.59	912.69	912.51	912.33
912.39	912.57	912.68	912.49	912.31
912.37	912.56	912.66	912.48	912.30
912.35	912.54	912.64	912.46	912.28
912.33	912.51	912.61	912.43	912.25
912.30	912.48	912.58	912.40	912.22
912.26	912.45	912.55	912.37	912.19
912.23	912.41	912.51	912.33	912.15
912.22	912.41	912.51	912.33	912.15
912.22	912.41	912.51	912.33	912.15
912.22	912.40	912.51	912.32	912.14
912.21	912.39	912.50	912.31	912.13
912.19	912.38	912.48	912.30	912.12
912.17	912.35	912.45	912.27	912.09
912.14	912.32	912.42	912.24	912.06
912.09	912.28	912.38	912.20	912.02
912.04	912.23	912.33	912.15	911.97
911.99	912.17	912.28	912.09	911.91
911.93	912.12	912.22	912.04	911.86
911.93	912.11	912.21	912.03	911.85
911.92	912.10	912.20	912.02	911.84
911.90	912.09	912.19	912.01	911.83
911.88	912.07	912.17	911.99	911.81
911.86	912.05	912.15	911.97	911.79
911.84	912.02	912.12	911.94	911.76
911.81	912.00	912.10	911.92	911.74
911.78	911.96	912.06	911.88	911.70
911.74	911.93	912.03	911.85	911.67
911.70	911.89	911.99	911.81	911.63
911.66	911.85	911.95	911.77	911.59
911.66	911.84	911.94	911.76	911.58

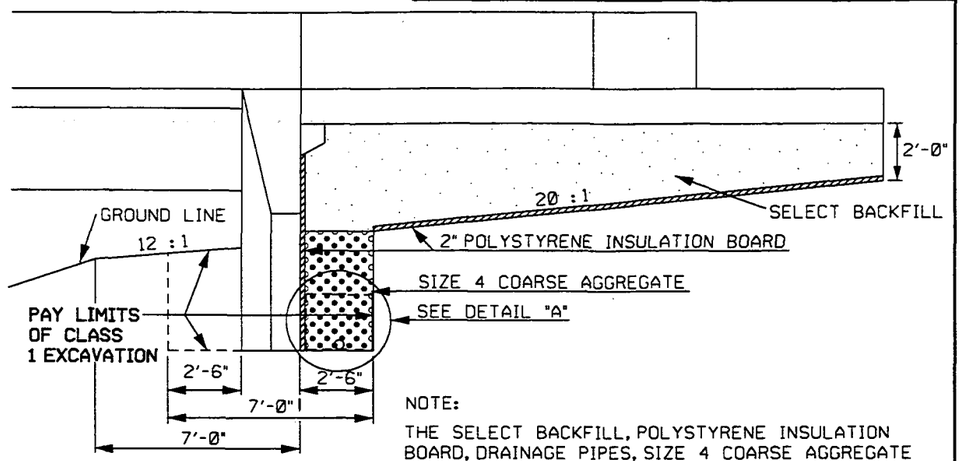
1'-6" BEGIN BRIDGE
10 EQ. SP . = 53'-0" END OF BEAM
1'-0" END OF BEAM
10 EQ. SP . = 62'-0" END OF BEAM
1'-0" END OF BEAM
10 EQ. SP . = 53'-0" END OF BEAM
END OF BEAM
1'-6" END BRIDGE

SCREED ELEVATIONS

GIRDER NO. 1 IS THE WEST GIRDER



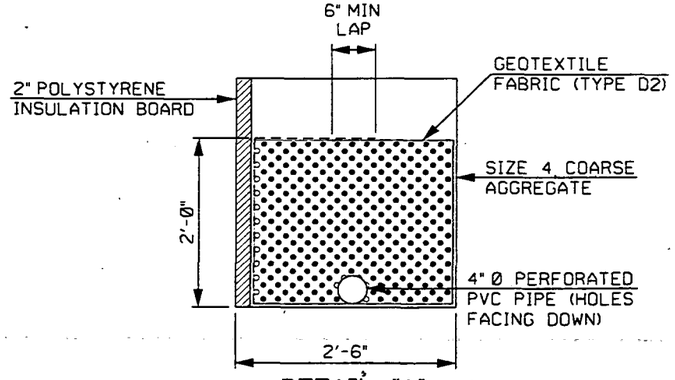
VERTICAL CURVE DATA



NOTE:

THE SELECT BACKFILL, POLYSTYRENE INSULATION BOARD, DRAINAGE PIPES, SIZE 4 COARSE AGGREGATE AND THE GEOTEXTILE FABRIC (TYPE D2) SHALL BE INCIDENTAL TO THE PRICE BID FOR CONCRETE BRIDGE APPROACH SLAB.

DETAIL AT ABUTMENT



DETAIL "A"

NOTE: ELEVATIONS ARE CITY OF FARGO DATUM.

PRESTRESSING DATA

	C.G.	FINAL FORCE	DETENSION STRENGTH	ACCEPTANCE STRENGTH	WEIGHT (TON)	GIRDER LENGTH
SPAN 1 &3	2.50 2.75 3.00	467.0 K 472.6 K 478.3 K	4000 PSI	5000 PSI	16.6	53.0'
	C.G.	FINAL FORCE	DETENSION STRENGTH	ACCEPTANCE STRENGTH	WEIGHT (TON)	GIRDER LENGTH
SPAN 2	2.75 3.00 3.25	639.1 K 646.8 K 654.7 K	4150 PSI	5000 PSI	19.3	62.0'

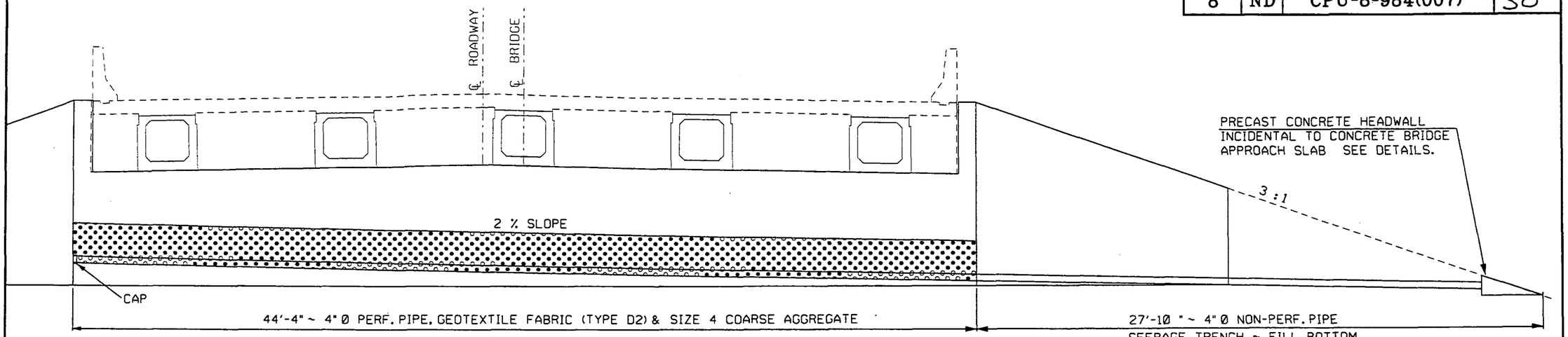
NORTHBOUND I-29
40th AVE. S. OVERPASS

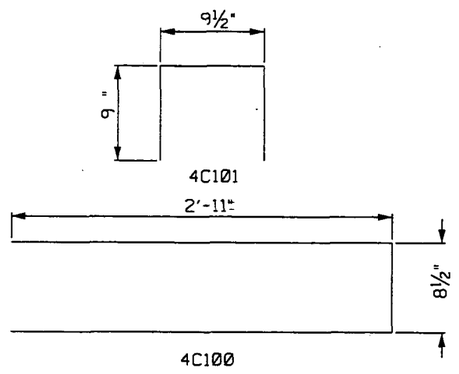
VERTICAL CURVE DATA, DETAIL AT ABUTMENT, SCREED ELEVATIONS & PRESTRESSING DATA

ULTEIG ENGINEERS, INC.

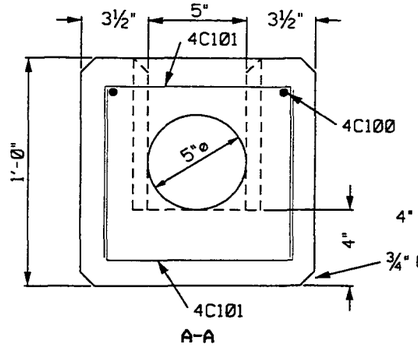
29-061.245 R-5

FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	30



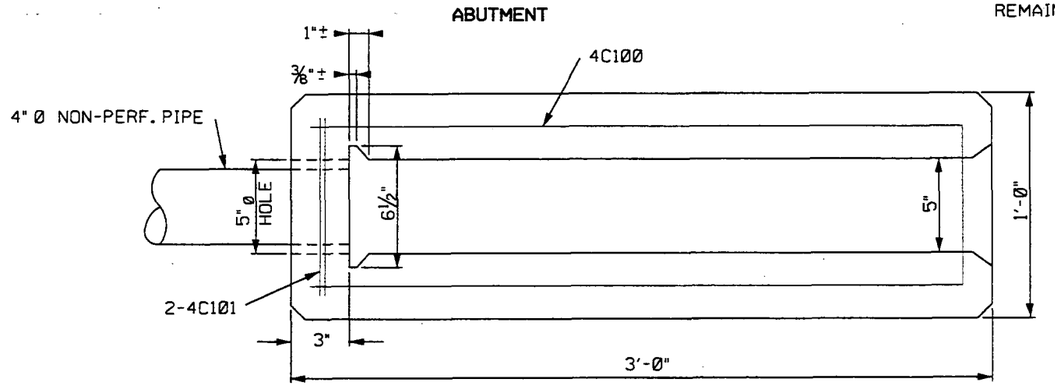


BENT BAR DETAILS

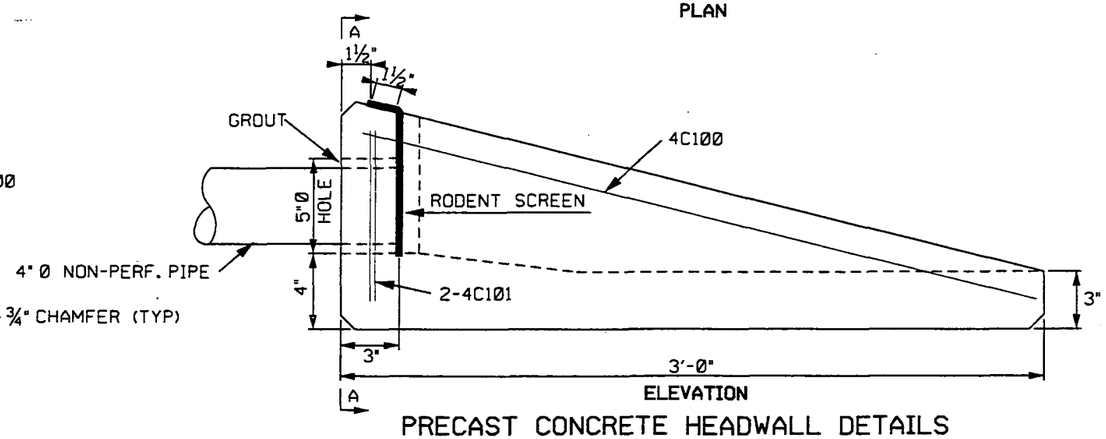


A-A

ABUTMENT

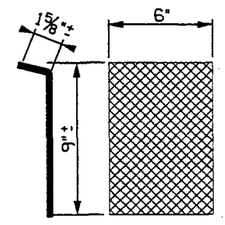


PLAN



ELEVATION

PRECAST CONCRETE HEADWALL DETAILS



SIDE VIEW FRONT VIEW

RODENT SCREEN DETAILS

NOTE:

THE DIMENSIONS FOR THE RODENT SCREEN ARE APPROXIMATE TO ALLOW FOR BENDING AND A SNUG FIT INTO THE SLOT IN THE HEADWALL.

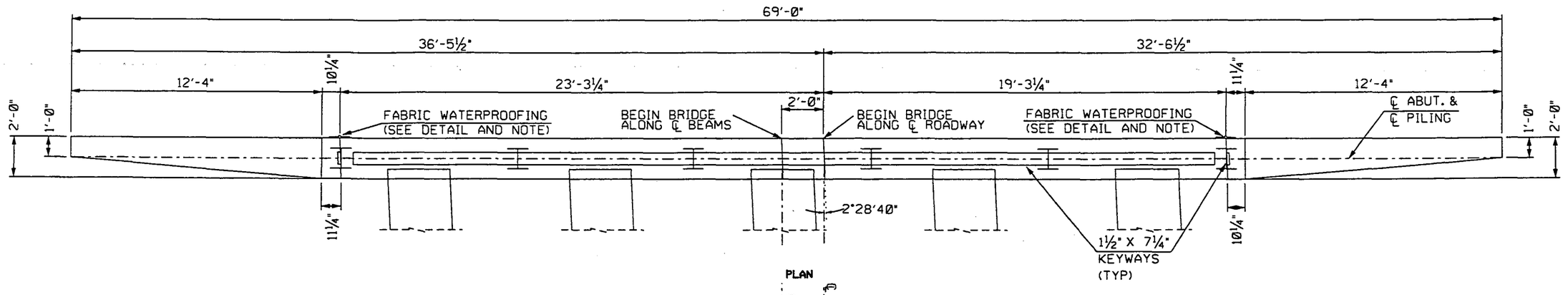
THE RODENT SCREEN SHALL BE FABRICATED FROM FLATTENED, EXPANDED METAL WITH SCREEN OPENINGS OF APPROXIMATELY 0.25 SQUARE INCHES. THE SCREEN SHALL BE 16 GA. METAL AND BE HOT DIP GALVANIZED AFTER FABRICATION.

NORTHBOUND I-29
40th AVE. S. OVERPASS
ABUTMENT UNDERDRAIN DETAILS

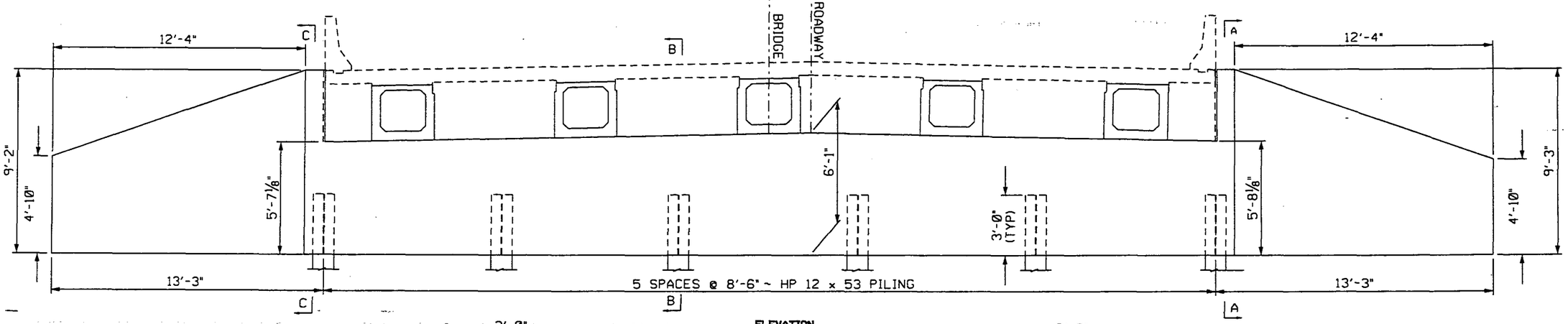
ULTEIG ENGINEERS, INC.

29-061.245 R-6

FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	31



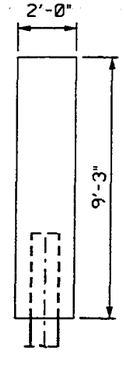
PLAN



FABRIC WATERPROOFING SHALL BE APPLIED IN ACCORDANCE WITH SECTION 740 OF THE NDDOT SPECIFICATIONS.

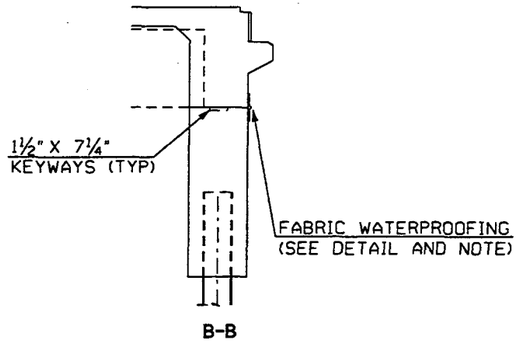
ALL MATERIAL AND WORK SHALL BE CONSIDERED INCIDENTAL TO THE PAY ITEM OF CLASS AE-3 CONCRETE.

TWO-PLY FABRIC WATERPROOFING DETAIL

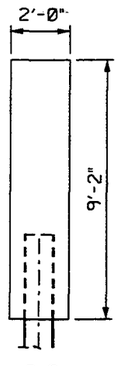


A-A

ELEVATION



B-B



C-C

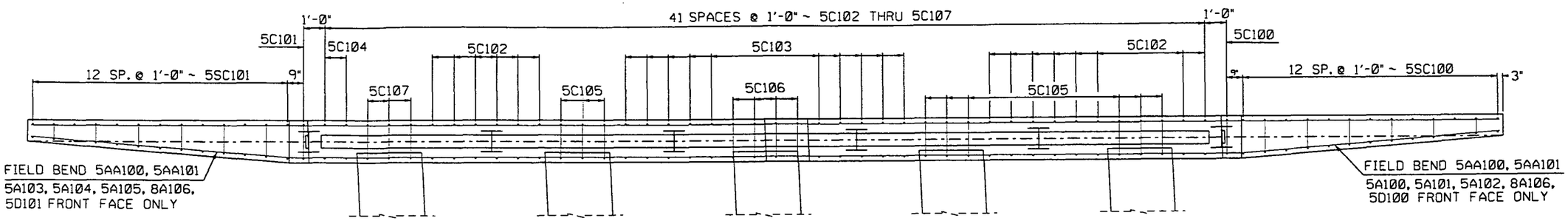
QUANTITIES
SEE DRAWING: 29-061.245 R-8

NORTHBOUND I-29
40th AVE. S. OVERPASS
ABUTMENT 1 DETAIL
(SHOWING DIMENSIONS)

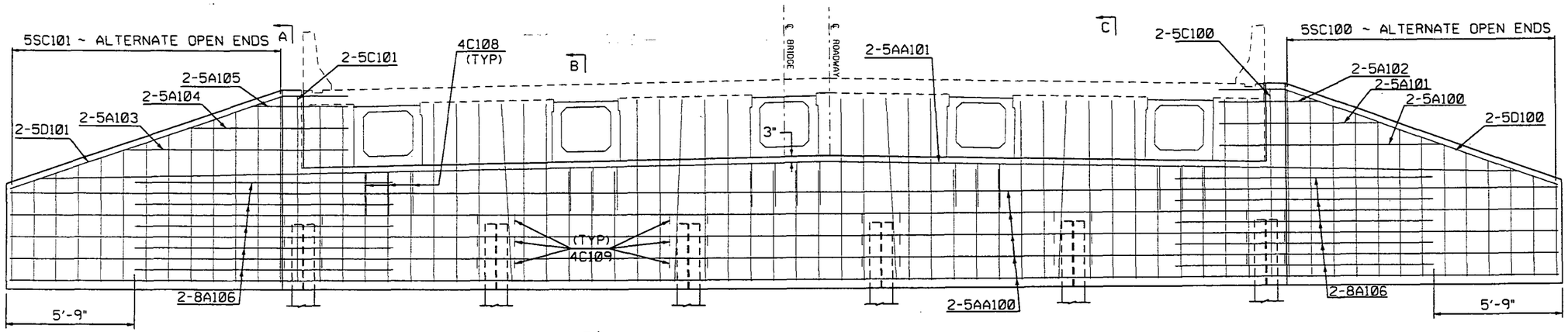
ULTEIG ENGINEERS, INC.

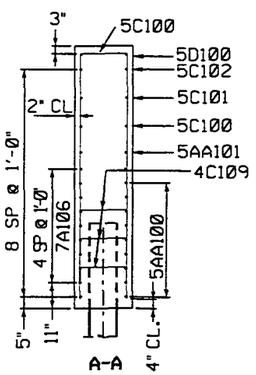
29-061.245 R-7

FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	32

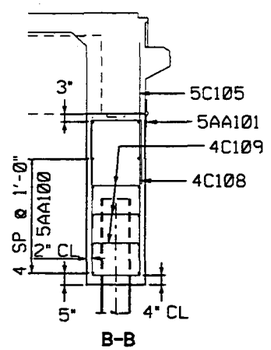


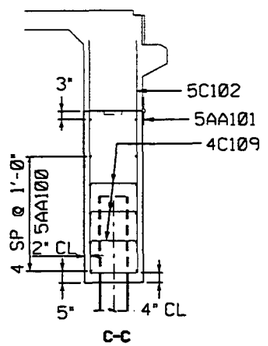
PLAN





ELEVATION





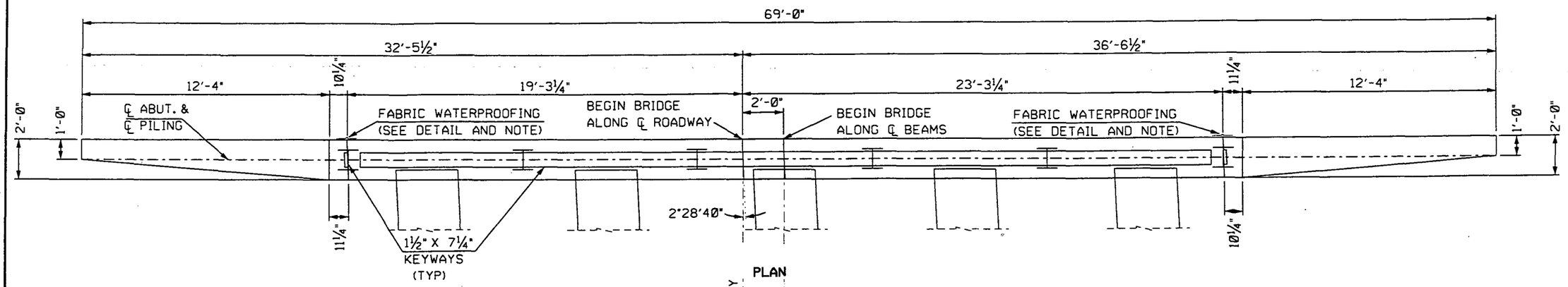
QUANTITIES	
CLASS AE-3 CONCRETE	29.6 C.Y.
REINFORCING STEEL	2943 LBS.

NORTHBOUND I-29
40th AVE. S. OVERPASS
ABUTMENT 1 DETAIL
(REINFORCING)

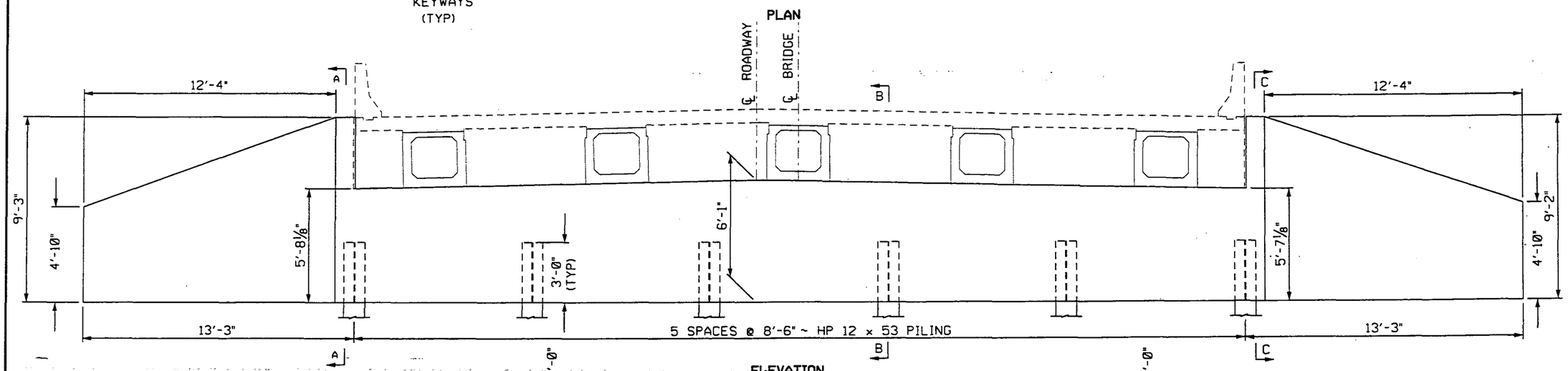
ULTEIG ENGINEERS, INC.

29-061.245 R-8

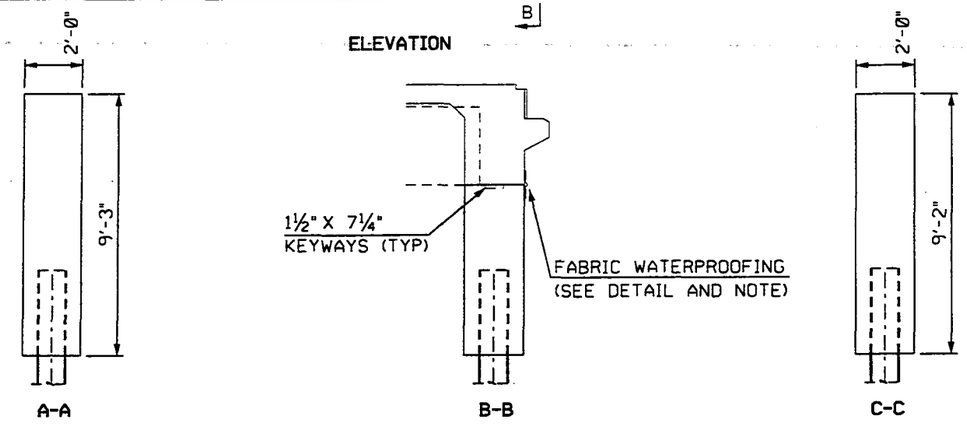
FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	33

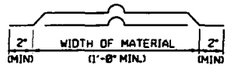


PLAN



ELEVATION





FABRIC WATERPROOFING SHALL BE APPLIED IN ACCORDANCE WITH SECTION 740 OF THE NDDOT SPECIFICATIONS.

ALL MATERIAL AND WORK SHALL BE CONSIDERED INCIDENTAL TO THE PAY ITEM OF CLASS AE-3 CONCRETE.

TWO-PLY FABRIC WATERPROOFING DETAIL

QUANTITIES

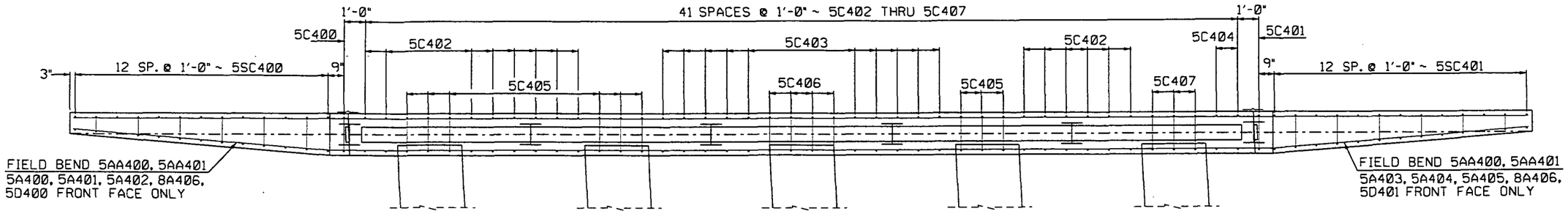
SEE DRAWING: 29-061.245 R-10

NORTHBOUND I-29
40th AVE. S. OVERPASS
ABUTMENT 4 DETAIL
(SHOWING DIMENSIONS)

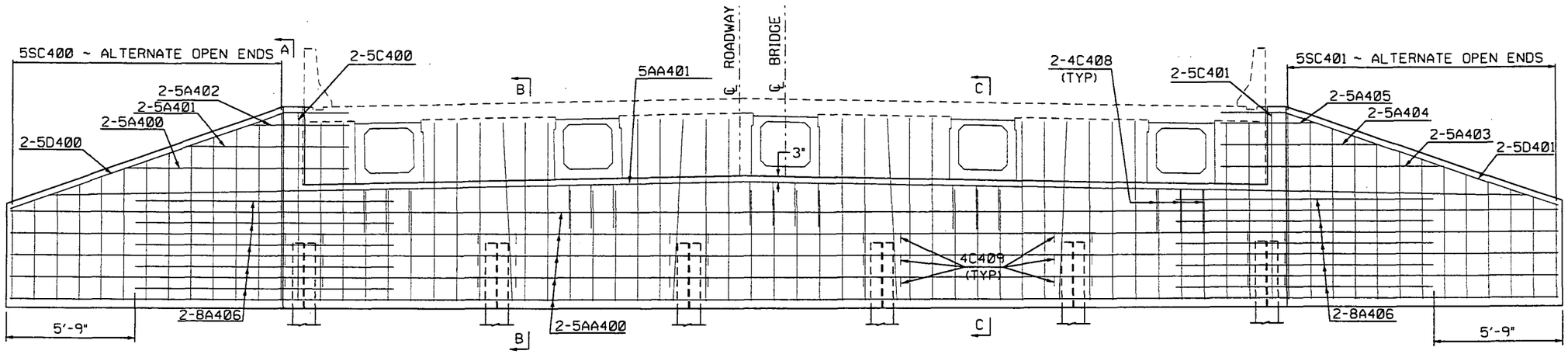
ULTEIG ENGINEERS, INC.

29-061.245 R-9

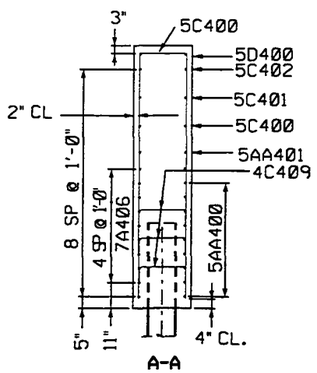
FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	34



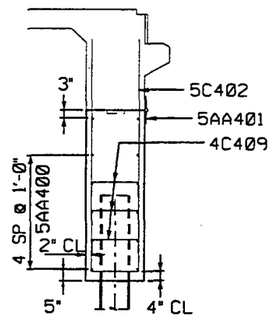
PLAN



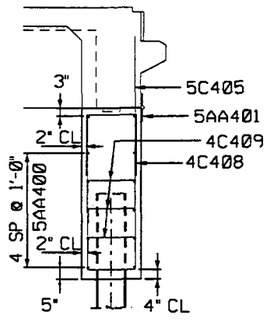
ELEVATION



A-A



B-B



C-C

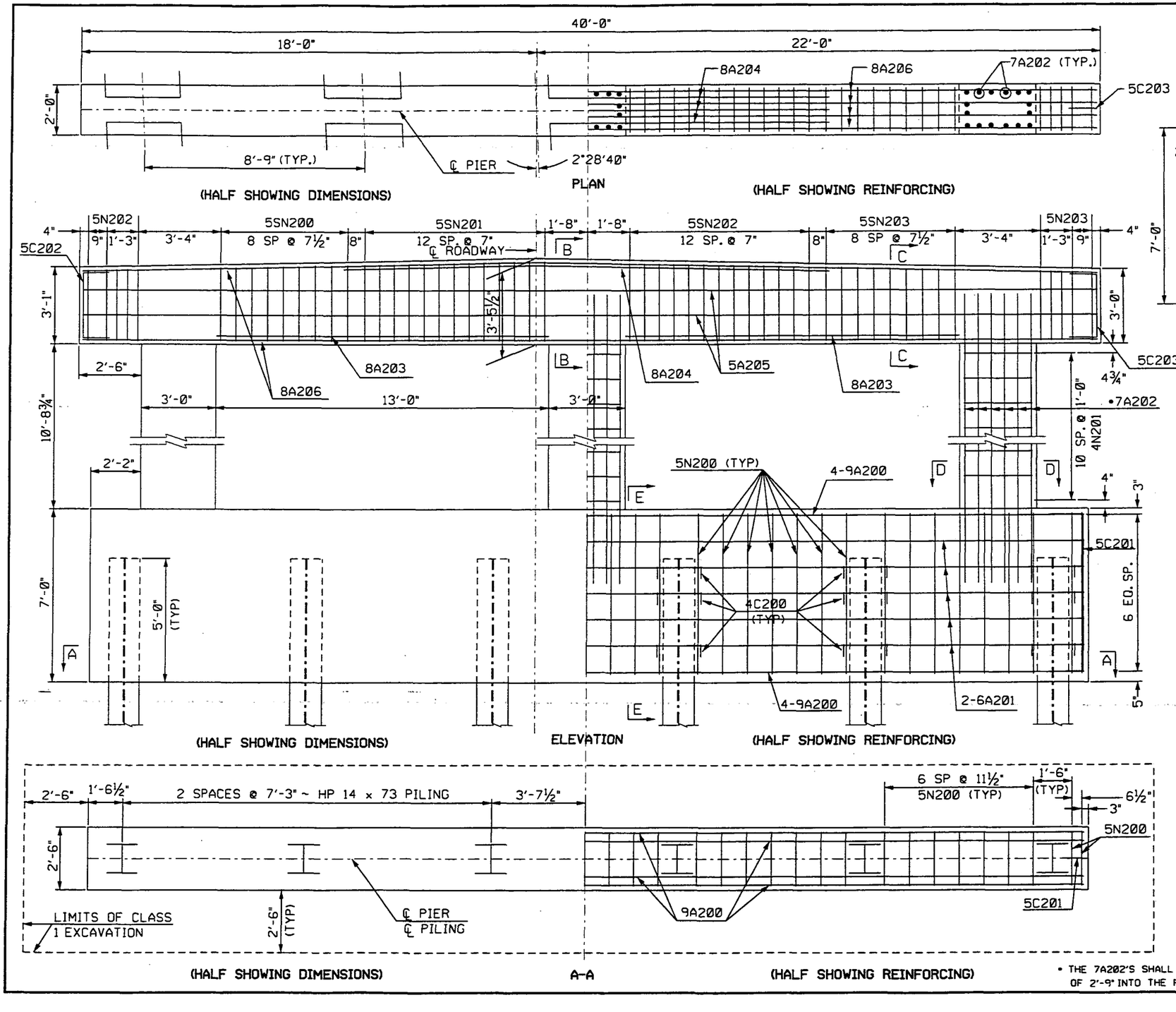
QUANTITIES	
CLASS AE-3 CONCRETE	29.6 C.Y.
REINFORCING STEEL	2943 LBS.

NORTHBOUND I-29
40th AVE. S. OVERPASS
ABUTMENT 4 DETAIL
(REINFORCING)

ULTEIG ENGINEERS, INC.

29-061.245 R-10

FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	35



* THE 7A202'S SHALL HAVE AN EBEDMENT OF 2'-9" INTO THE FOOTING

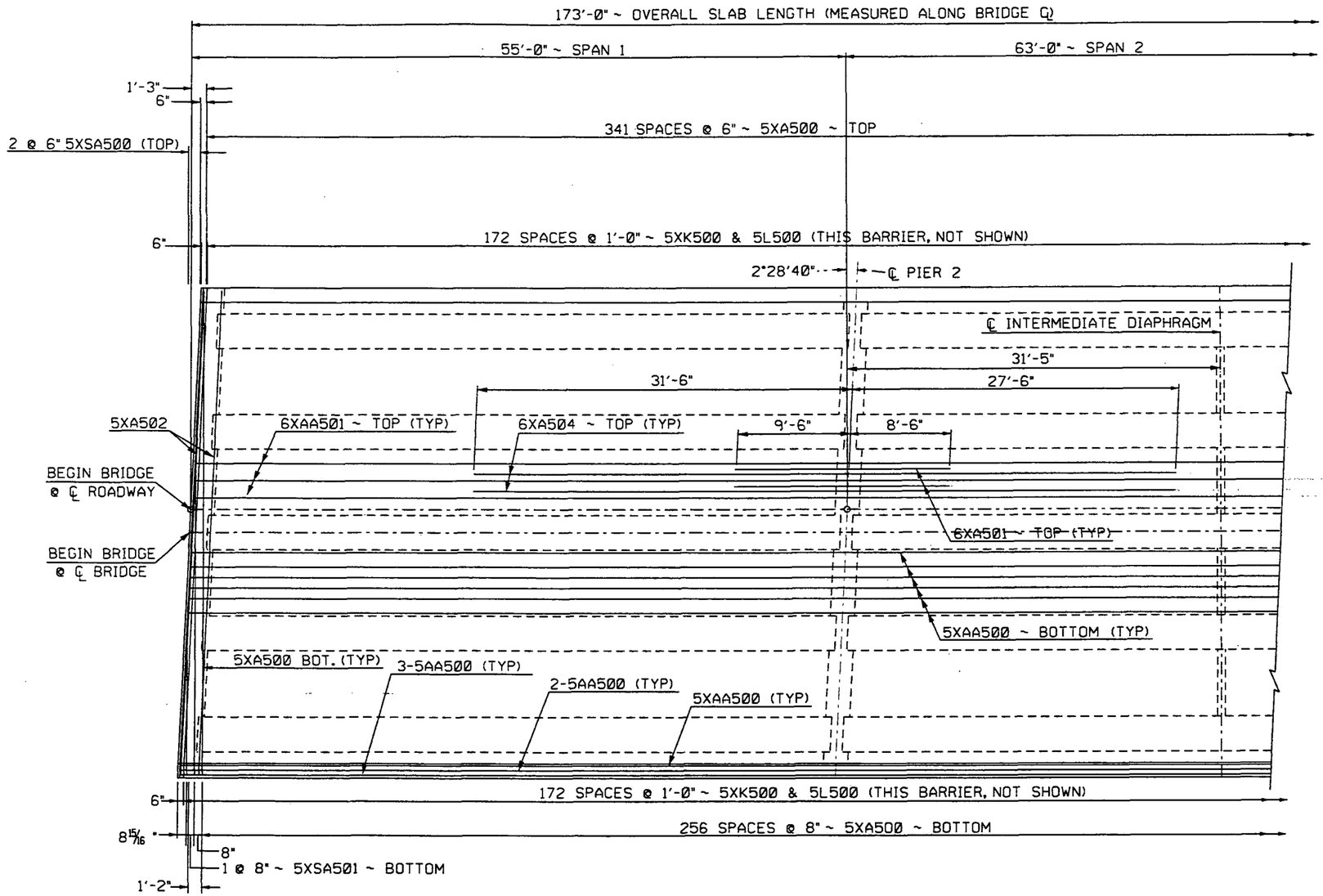
QUANTITIES	(ONE PIER)
CLASS AE-3 CONCRETE	42.1 C.Y.
REINFORCING STEEL	5903 LBS.
EXCAVATION (SEE LAYOUT)	

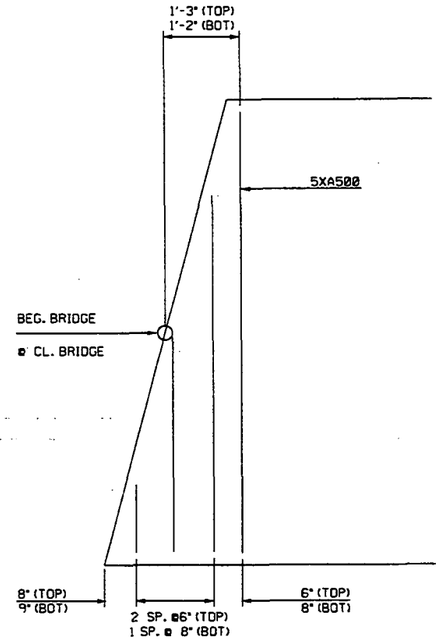
NORTHBOUND I-29
40th AVE. S. OVERPASS
PIER DETAILS

ULTEIG ENGINEERS, INC.

29-061.245 R-11

FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	36





TRANSVERSE BAR LAYOUT
@ BRIDGE ENDS

QUANTITIES

SEE DWG. 29-061.245 R-17

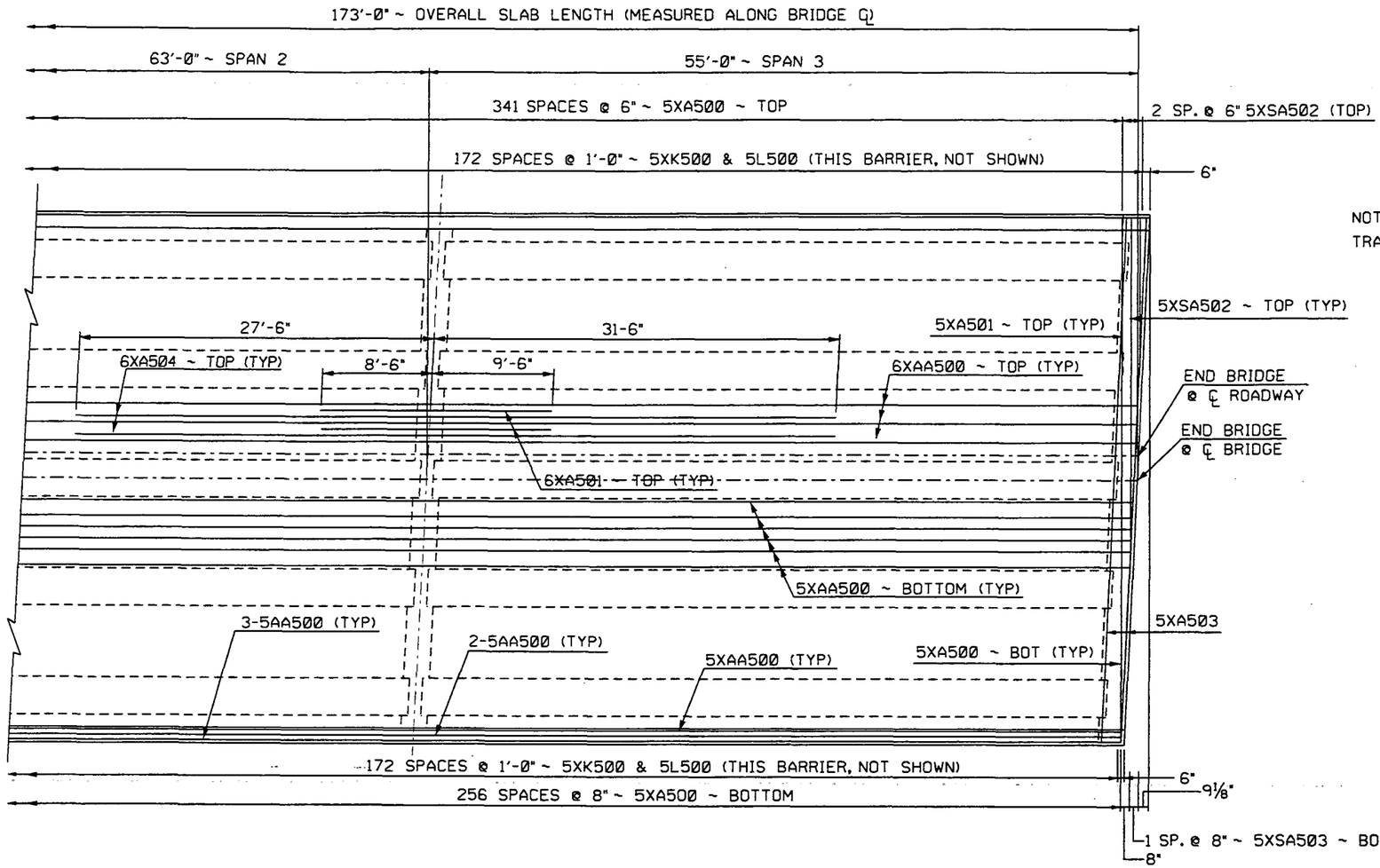
NORTHBOUND I-29
40th AVE. S. OVERPASS

HALF SLAB LAYOUT

ULTEIG ENGINEERS, INC.

29-061.245 R-12

FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	37



NOTE: SEE DWG. 29-061.245 R-12 FØR TRANSVERSE BAR LAYOUT @ BRIDGE ENDS

QUANTITIES

SEE DWG. 29-061.245 R-17

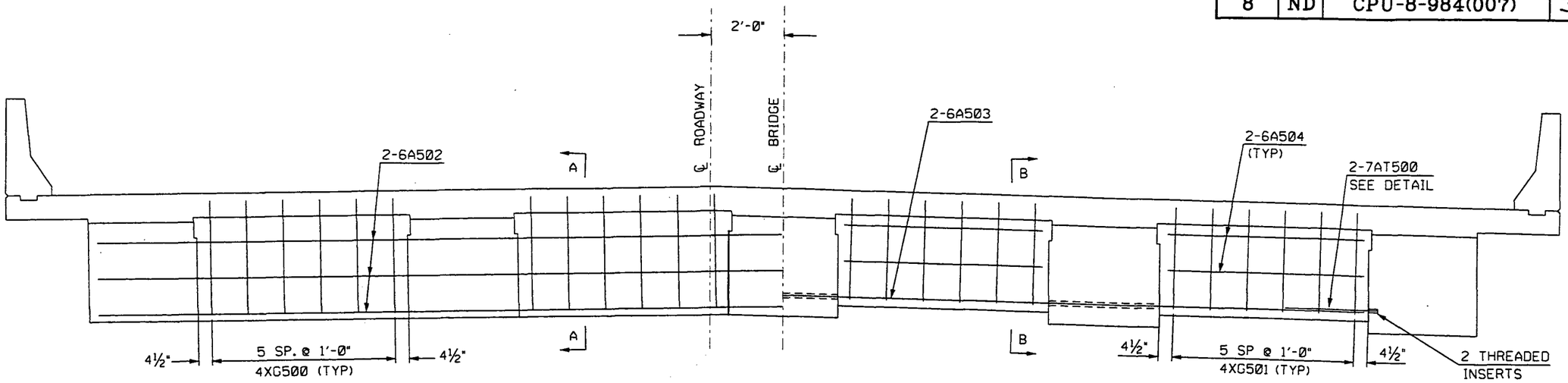
NORTHBOUND I-29
40th AVE. S. OVERPASS

HALF SLAB LAYOUT

ULTEIG ENGINEERS, INC.

29-061.245 R-13

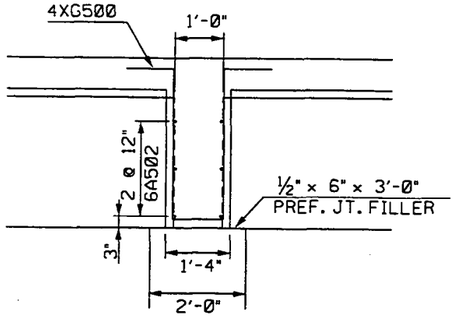
FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	38



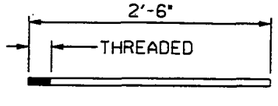
(HALF SHOWING PIER DIAPHRAGM)

SLAB SECTION

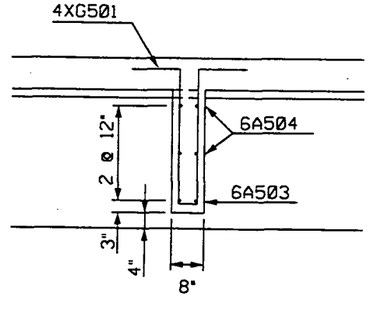
(HALF SHOWING INTERMEDIATE DIAPHRAGM)



A-A



7AT500 DETAIL



B-B

QUANTITIES

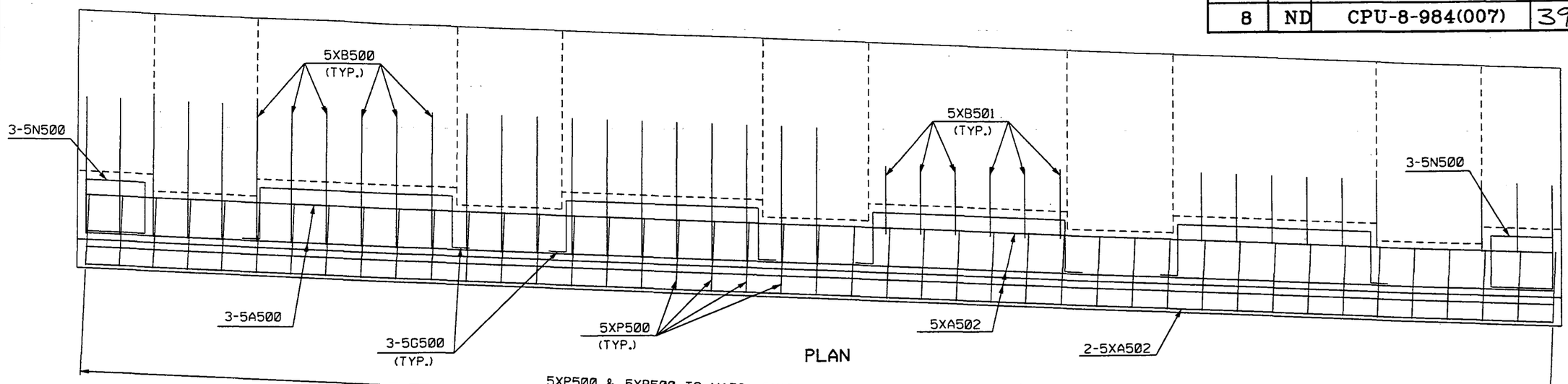
SEE DWG. 29-061.245 R-17

NORTHBOUND I-29
40th AVE. S. OVERPASS
INTERMEDIATE & PIER DIAPHRAGM DETAILS

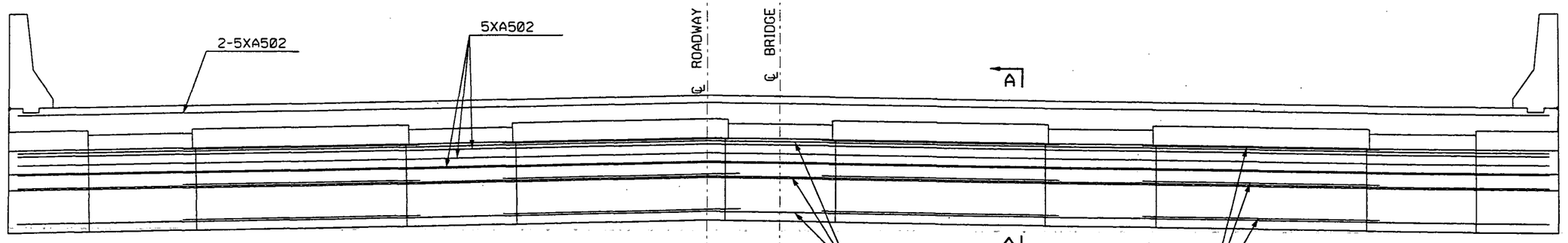
ULTEIG ENGINEERS, INC.

29-061.245 R-14

FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	39



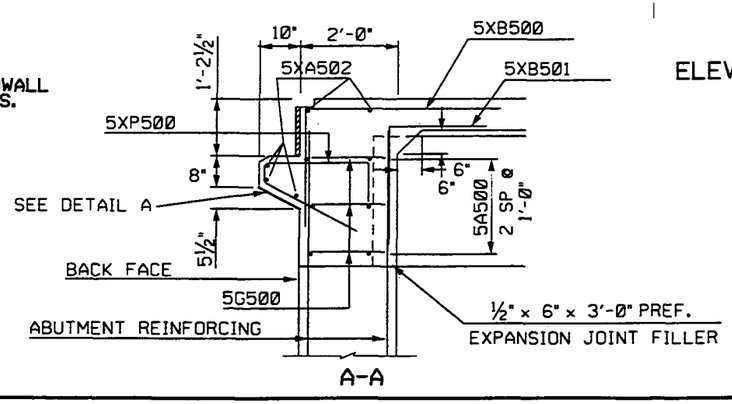
PLAN



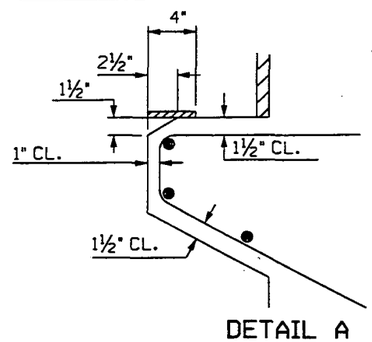
ELEVATION

NOTE:

SEE DWG. 29-061.245 R-22 FOR ENDWALL FORMING AND JOINT FILLER DETAILS.



A-A



DETAIL A

QUANTITIES

SEE DWG. 29-061.245 R-17

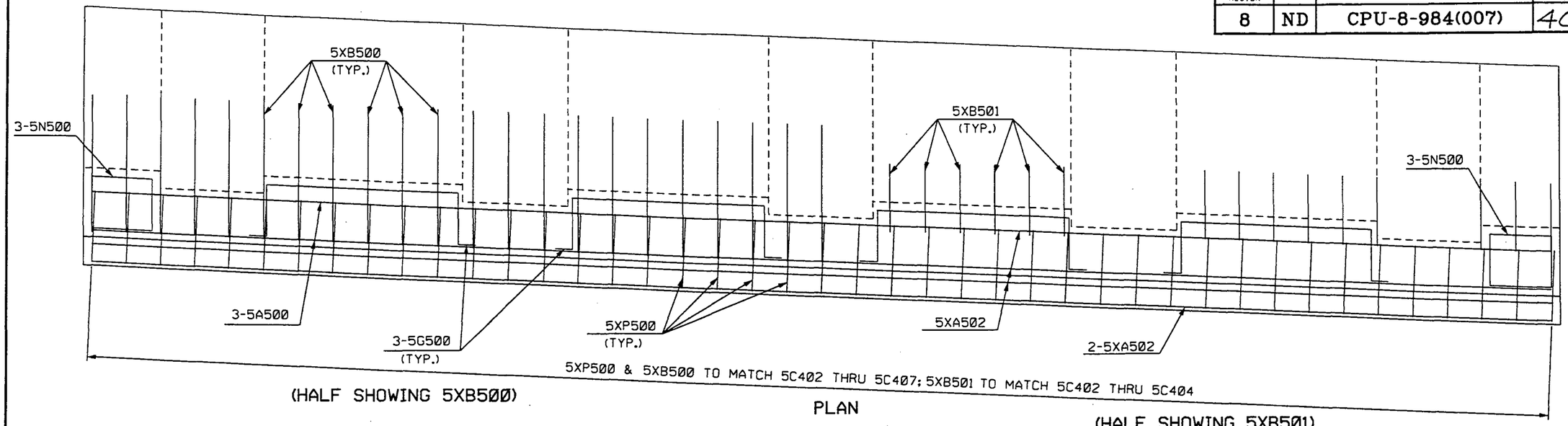
NORTHBOUND I-29
40th AVE. S. OVERPASS

BEGIN BRIDGE
END BEAM

ULTEIG ENGINEERS, INC.

29-061.245 R-15

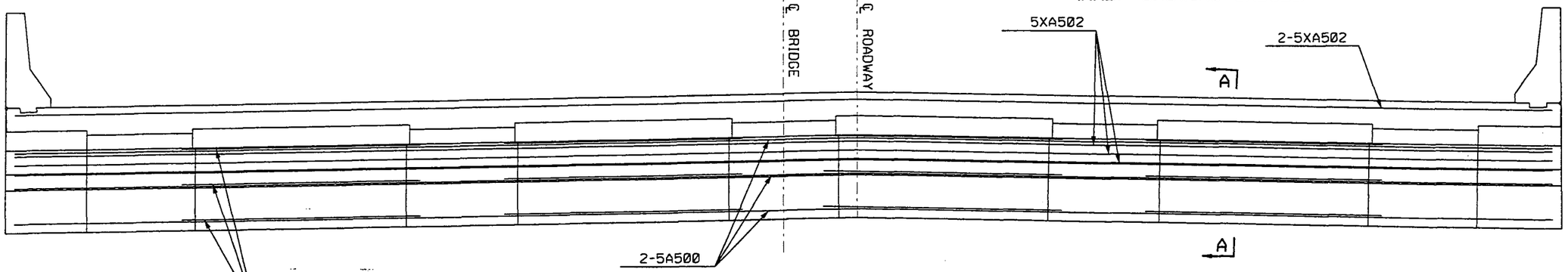
FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	40



(HALF SHOWING 5XB500)

PLAN

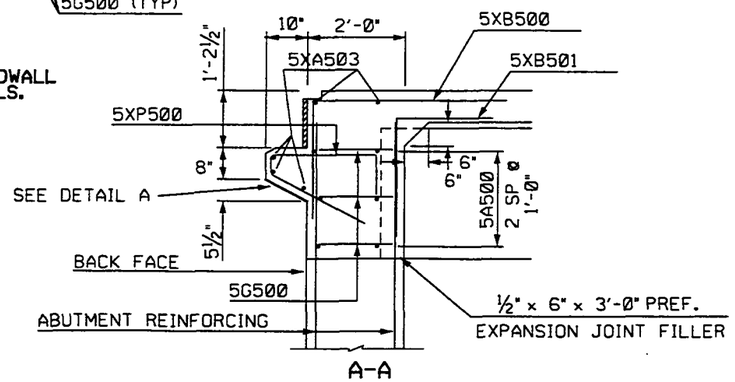
(HALF SHOWING 5XB501)



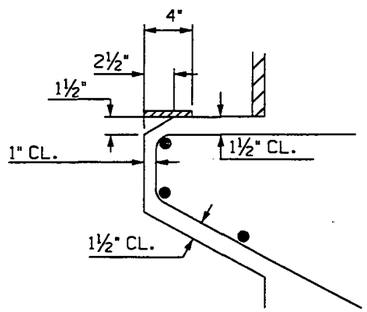
ELEVATION

NOTE:

SEE DWG. 29-061.245 R-22 FOR ENDWALL FORMING AND JOINT FILLER DETAILS.



A-A



DETAIL A

QUANTITIES

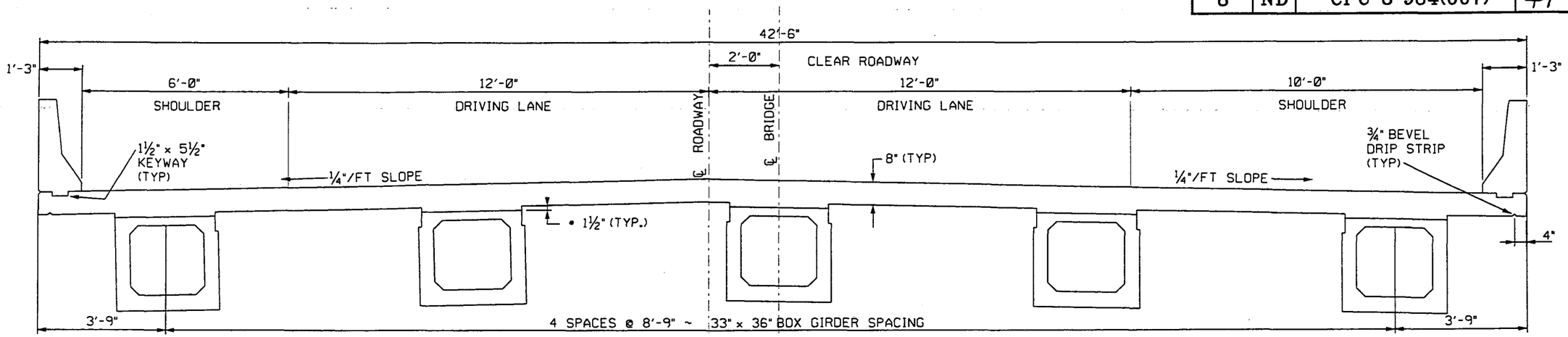
SEE DWG. 29-061.245 R-17

NORTHBOUND I-29
40th AVE. S. OVERPASS
END BRIDGE
END BEAM

ULTEIG ENGINEERS, INC.

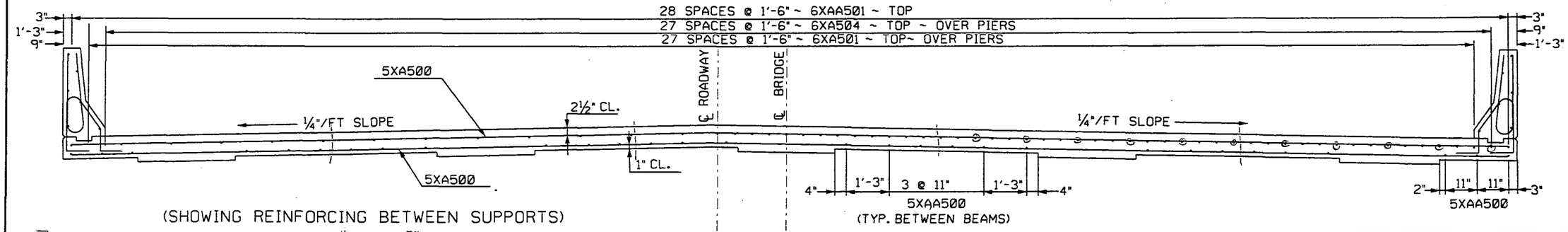
29-061.245 R-16

FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	41



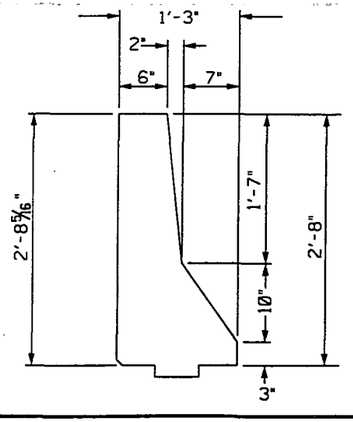
(SHOWING DIMENSIONS)

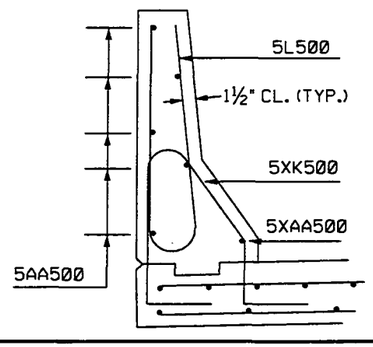
SLAB SECTION



(SHOWING REINFORCING BETWEEN SUPPORTS)

(SHOWING REINFORCING OVER SUPPORTS)





SLAB SECTION

• = RISER DIMENSION SHOWN IS AT SUPPORTS
THE RISER SHALL BE ADJUSTED TO MAINTAIN
THE DESIGNED SLAB THICKNESS

QUANTITIES	
CLASS AAE-3 CONCRETE	250.0 C.Y.
REINFORCING STEEL	5431 LBS.
REINFORCING STEEL-EC	50,726 LBS.

NORTHBOUND I-29
40th AVE. S. OVERPASS
SLAB SECTION

ULTEIG ENGINEERS, INC.

29-061.245 R-17

BILL OF REINFORCING STEEL, GRADE 60

LETTER PREFIX OF BAR MARK DENOTES SHAPE ~ SEE BAR DETAILS

FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	42

ABUTMENT 1

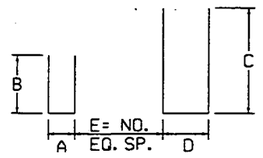
SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DEMENSIONS A	B	C	D	E	F	G	H	K
5	A100	2	10'-2"		10'-2"							
5	A101	2	7'-4"		7'-4"							
5	A102	2	4'-7"		4'-7"							
5	A103	2	10'-2"		10'-2"							
5	A104	2	7'-4"		7'-4"							
5	A105	2	4'-7"		4'-7"							
8	A106	20	11'-6"		11'-6"							
5	C100	1	19'-2"		8'-9"	1'-8"	8'-9"					
5	C101	1	19'-0"		8'-8"	1'-8"	8'-8"					
5	C102	14	18'-2"		8'-3"	1'-8"	8'-3"					
5	C103	10	18'-6"		8'-5"	1'-8"	8'-5"					
5	C104	2	18'-0"		8'-2"	1'-8"	8'-2"					
5	C105	9	15'-1"		5'-2"	1'-8"	8'-3"					
5	C106	4	15'-5"		5'-4"	1'-8"	8'-5"					
5	C107	3	14'-9"		5'-1"	1'-8"	8'-2"					
4	C108	16	5'-8"		2'-0"	1'-8"	2'-0"					
4	C109	36	2'-8"		0'-6"	1'-8"	0'-6"					
5	D100	2	15'-11"		3'-0"	12'-11"					12	4.3
5	D101	2	15'-11"		3'-0"	12'-11"					12	4.3
5	AA100	10	70'-5"		40'-0"	1'-9"	30'-5"	1		68'-8"		
5	AA101	2	67'-6"		40'-0"	1'-9"	27'-6"	1		65'-9"		
5	SC100	1	185'-3"	8"	4'-5"	8'-8"	1'-8"	12				
5	SC101	1	184'-2"	8"	4'-5"	8'-7"	1'-8"	12				

ABUTMENT 4

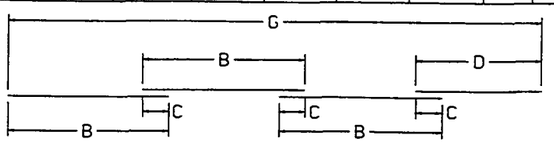
SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DEMENSIONS A	B	C	D	E	F	G	H	K
5	A400	2	10'-2"		10'-2"							
5	A401	2	7'-4"		7'-4"							
5	A402	2	4'-7"		4'-7"							
5	A403	2	10'-2"		10'-2"							
5	A404	2	7'-4"		7'-4"							
5	A405	2	4'-7"		4'-7"							
8	A406	20	11'-6"		11'-6"							
5	C400	1	19'-2"		8'-9"	1'-8"	8'-9"					
5	C401	1	19'-0"		8'-8"	1'-8"	8'-8"					
5	C402	14	18'-2"		8'-3"	1'-8"	8'-3"					
5	C403	10	18'-6"		8'-5"	1'-8"	8'-5"					
5	C404	2	18'-0"		8'-2"	1'-8"	8'-2"					
5	C405	9	15'-1"		5'-2"	1'-8"	8'-3"					
5	C406	4	15'-5"		5'-4"	1'-8"	8'-5"					
5	C407	3	14'-9"		5'-1"	1'-8"	8'-2"					
4	C408	16	5'-8"		2'-0"	1'-8"	2'-0"					
4	C409	36	2'-8"		0'-6"	1'-8"	0'-6"					
5	D400	2	15'-11"		3'-0"	12'-11"					12	4.3
5	D401	2	15'-11"		3'-0"	12'-11"					12	4.3
5	AA400	10	70'-5"		40'-0"	1'-9"	30'-5"	1		68'-8"		
5	AA401	2	67'-6"		40'-0"	1'-9"	27'-6"	1		65'-9"		
5	SC400	1	185'-3"	8"	4'-5"	8'-8"	1'-8"	12				
5	SC401	1	184'-2"	8"	4'-5"	8'-7"	1'-8"	12				

NOTES:

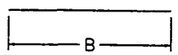
1. FABRICATION AND TOLERANCES SHALL BE IN ACCORDANCE WITH THE CRSI MANUAL OF STANDARD PRACTICE.
2. ALL DIMENSIONS ARE OUT TO OUT OF BARS.
3. NOMINAL LENGTH OF EACH BENT BAR OR CUT BAR IS THE SUM TOTAL OF THE DETAILING DIMENSIONS FOR THAT BAR, UNLESS OTHERWISE NOTED.



(SC)



C= LAP SPLICE (TYP.)
E= NO. OF B LENGTH PIECES IN A SET
TOTAL LENGTH PER SET = E x B + D
(AA)



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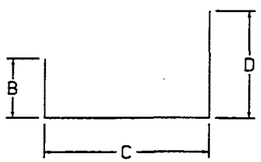

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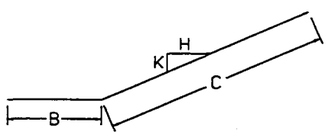

(D)

NORTHBOUND I-29
40th AVE. S. OVERPASS
ABUTMENTS 1 & 4
REINFORCING BAR LIST & DETAILS

ULTEIG ENGINEERS, INC.

29-061.245 R-18

BILL OF REINFORCING STEEL, GRADE 60

FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	43

LETTER PREFIX OF BAR MARK DENOTES SHAPE ~ SEE BAR DETAILS

LOCATION	SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DEMENSIONS A	B	C	D	E	F	G	H	K
PIERS (BOTH PIERS)	9	A200	16	39'-0"		39'-0"							
	6	A201	20	39'-0"		39'-0"							
	7	A202	96	15'-9"		15'-9"							
	8	A203	20	13'-0"		13'-0"							
	8	A204	6	18'-0"		18'-0"							
	5	A205	8	39'-8"		39'-8"							
	8	A206	8	39'-8"		39'-8"							
	4	C200	72	3'-2"		0'-6"	2'-2"	0'-6"					
	5	C201	4	8'-4"		0'-8"	6'-4"	1'-4"					
	5	C202	2	5'-1"		1'-3"	2'-7"	1'-3"					
	5	C203	2	5'-0"		1'-3"	2'-6"	1'-3"					
	5	N200	78	18'-4"	2'-2"	6'-6"	6"					0	12
	4	N201	66	9'-8"	2'-8"	1'-8"	6"					0	12
	5	N202	10	9'-10"	1'-8"	2'-9"	6"					0	12
	5	N203	10	9'-8"	1'-8"	2'-8"	6"					0	12
	5	SN200	2	90'-9"	1'-8"	2'-10"	6"	2'-11"	8				
	5	SN201	2	134'-4"	1'-8"	2'-11"	6"	3'-1"	12				
	5	SN202	2	132'-2"	1'-8"	2'-10"	6"	3'-0"	12				
	5	SN203	2	89'-3"	1'-8"	2'-9"	6"	2'-10"	8				
SUPERSTRUCTURE REGULAR	5	A500	12	42'-2"		42'-2"							
	6	A502	12	37'-8"		37'-8"							
	6	A503	2	31'-8"		31'-8"							
	6	A504	16	5'-5"		5'-5"							
	5	G500	24	9'-5"	1'-6"	5'-5"	1'-6"	0'-6"				12	.5
	5	L500	346	5'-0"	3"	2'-2"	8"	2'-2"		2.5"		12	1.25
	5	N500	12	7'-8"	1'-10"	1'-6"	0'-6"					12	.5
	7	AT500	6	2'-6"		2'-6"							
	5	AA500	10	175'-8"		60'-0"	1'-6"	55'-8"	2		172'-8"		
	5	XA500	599	42'-2"		42'-2"							
	6	XA501	56	18'-0"		18'-0"							
	5	XA502	5	42'-2"		42'-2"							
	5	XA503	5	42'-2"		42'-2"							
	6	XA504	56	59'-0"		59'-0"							
	5	XB500	84	6'-6"		4'-0"	2'-6"						
	5	XB501	52	4'-6"		2'-0"	2'-6"						
EPOXY COATED	4	XG500	48	9'-1"	3'-0"	1'-1"	3'-0"	1'-0"				12	0
	4	XG501	24	7'-9"	2'-8"	0'-5"	2'-8"	1'-0"				12	0
	5	XK500	346	4'-11"	1'-4"	8"	11"	8"	1'-0"	2.5"	8"	8.5	12
	5	XP500	84	5'-6"	0'-5"	2'-1"	2'-2"			1.25"	0'-10"	12	6.5
	5	XAA500	32	176'-8"		60'-0"	2'-0"	56'-8"	2		172'-8"		
	6	XAA501	29	177'-2"		60'-0"	2'-3"	57'-2"	2		172'-8"		
	5	XSA500	1	68'-9"	11'-4"	34'-5"			2				
	8	XSA501	1	42'-0"	13'-4"	28'-8"			1				
	5	XSA502	1	68'-8"	11'-4"	34'-5"			2				
	8	XSA503	1	42'-0"	13'-4"	28'-8"			1				

NOTES:

1. FABRICATION AND TOLERANCES SHALL BE IN ACCORDANCE WITH THE CRSI MANUAL OF STANDARD PRACTICE.
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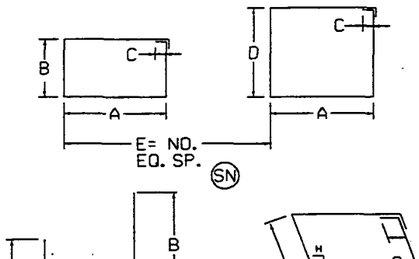
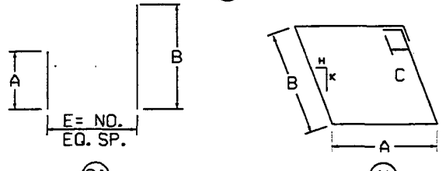
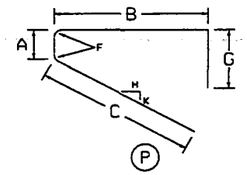
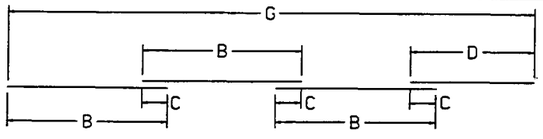
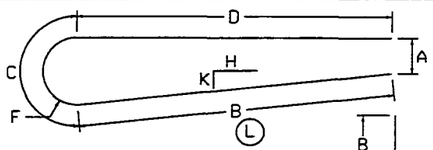
3. NOMINAL LENGTH OF EACH BENT BAR OR CUT BAR IS THE SUM TOTAL OF THE DETAILING DIMENSIONS FOR THAT BAR, UNLESS OTHERWISE NOTED.
4. ADJACENT AA BARS SHALL BE TURNED END FOR END SO THAT THE SPLICE LOCATIONS ARE STAGGERED.
5. THE "f" DIMENSION INDICATES THE RADIUS.
6. AN "X" PRECEDING A BAR DESIGNATION INDICATES AN EPOXY COATED BAR.

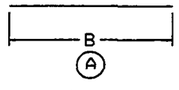


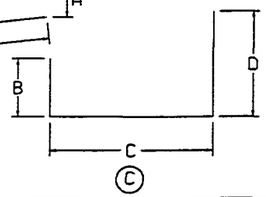


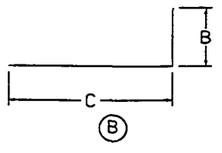


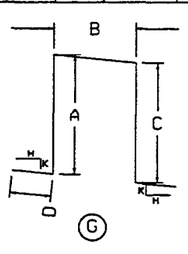


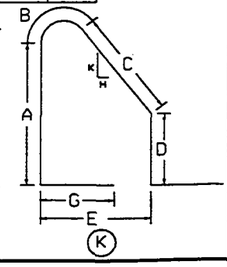










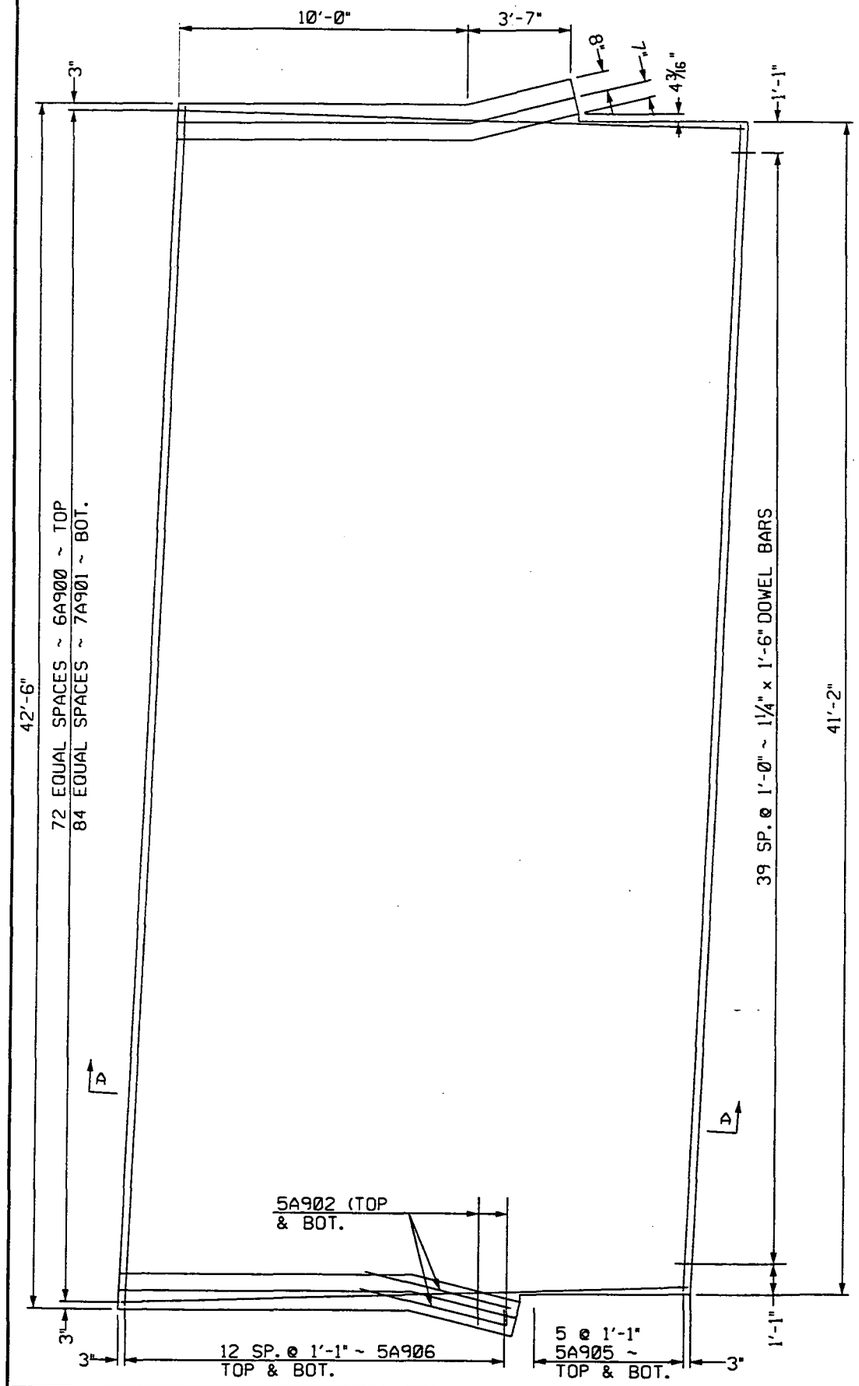


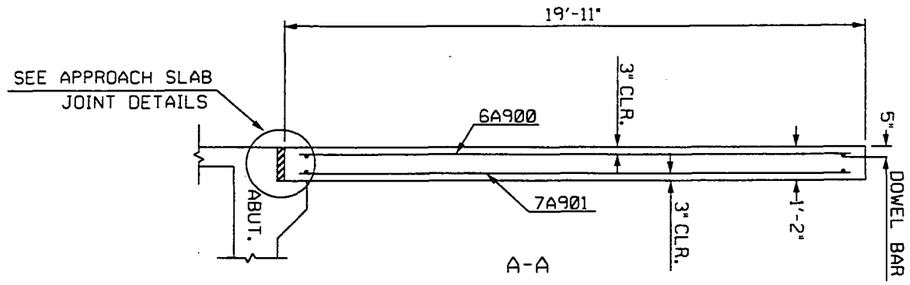
NORTHBOUND I-29
40th AVE. S. OVERPASS
PIER & SUPERSTRUCTURE REINFORCING BAR LIST & DETAILS

ULTEIG ENGINEERS, INC.

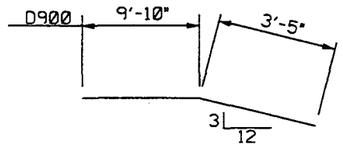
29-061.245 R-19

FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	44

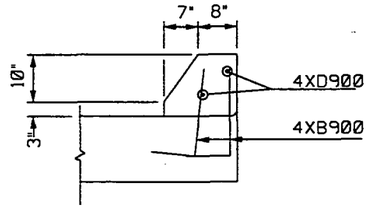




A-A

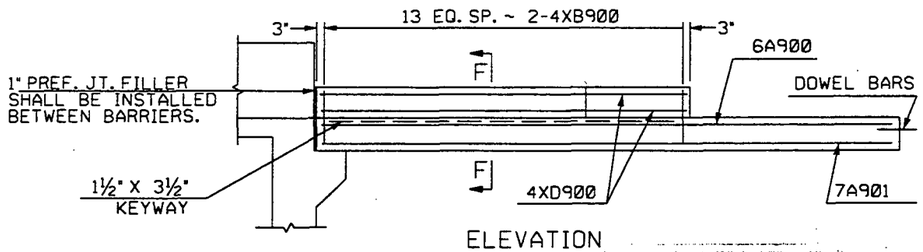


D900

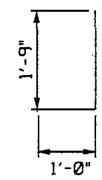


F-F

SKEW ANGLE = 2°28'40"			
BAR LIST - ONE SLAB			
SIZE	MARK	NO.	LENGTH
6	A900	73	19'-7"
7	A901	85	19'-7"
5	A902	16	6'-0"
5	A905	12	40'-10"
5	A906	26	42'-2"
4	XB900	56	2'-9"
4	XD900	4	13'-3"
ESTIMATED MATERIAL QUANTITIES			
REINFORCING STEEL (LBS)		CONCRETE (C.Y.)	
7441		37.5	



ELEVATION



XB900

QUANTITIES	(ONE SLAB)
APPROACH SLAB	93.5 S.Y.

23 USC §409 Documents
NDDOT Reserves All Objections

NOTE:
THE ABOVE ESTIMATED MATERIAL QUANTITIES ARE FOR INFORMATIONAL PURPOSES ONLY. ALL MATERIALS INCLUDING CONCRETE ,SAW CUTTING, POLYETHYLENE MEMBRANE, REINFORCING BARS, BACKER RODS, SILICON SEALANT,PREFORMED JOINT FILLER AND LABOR REQUIRED TO BUILD THE APPROACH SLABS AND APPROACH SLAB BARRIERS SHALL BE INCIDENTAL TO THE PAY ITEM. "CONCRETE BRIDGE APPROACH SLAB".

THE CONCRETE SHALL BE CLASS AE-3 AND THE REINFORCING STEEL SHALL BE GRADE 60. THE POLYETHYLENE MEMBRANE SHALL MEET REQUIREMENTS OF AASHTO M171.

THE BAR MARKS BEGINNING WITH AN "X", INDICATE AN EPOXY COATED BAR.

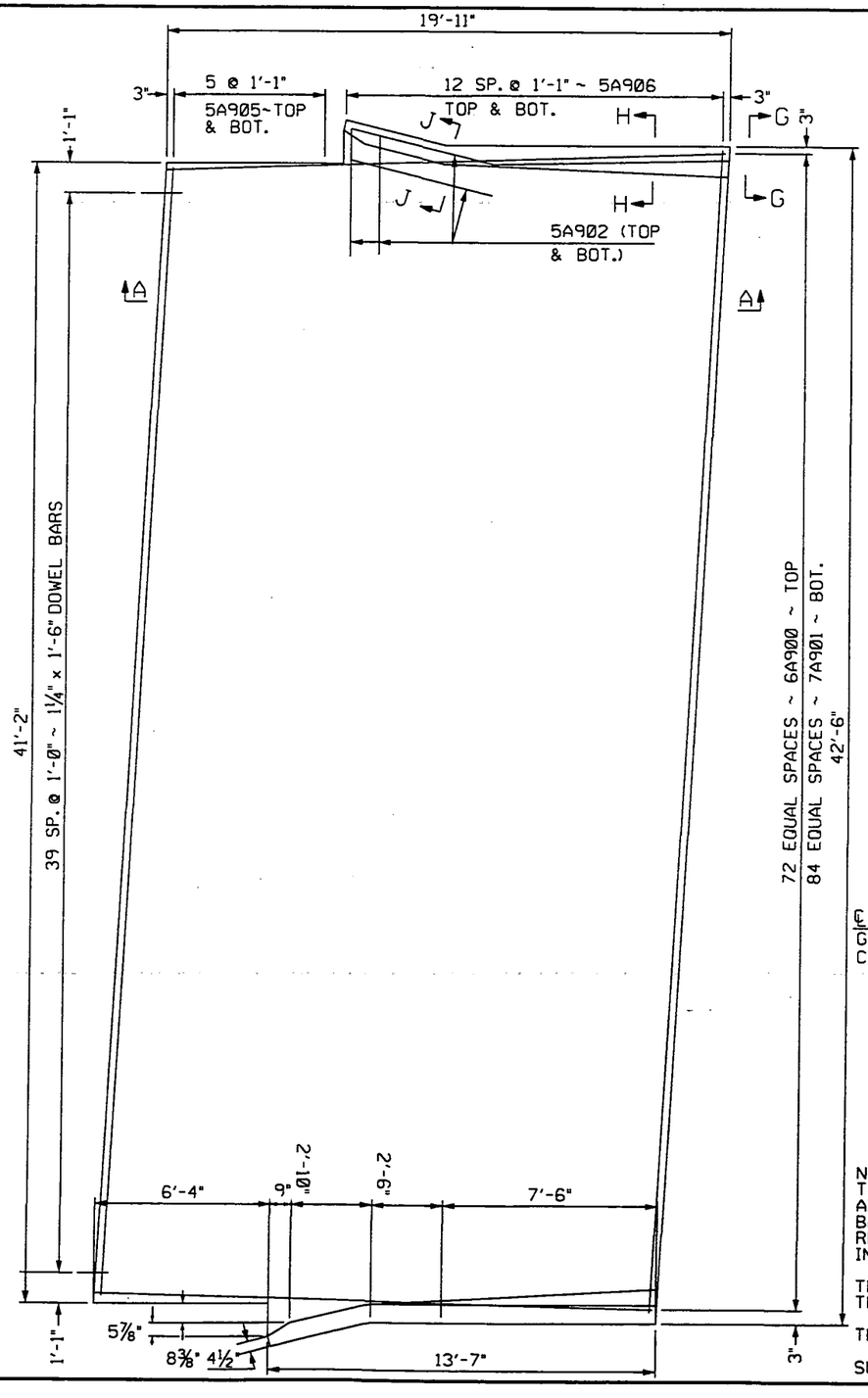
SURFACE FINISH "D" SHALL BE REQUIRED FOR ALL SURFACES OF THE CURB TRANSITIONS.

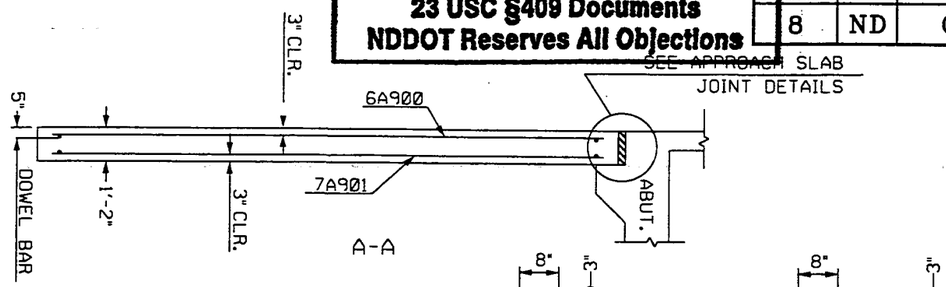
NORTHBOUND I-29
40th AVE. S. OVERPASS
APPROACH SLAB
EXIT END

ULTEIG ENGINEERS, INC.

29-061.245 R-20

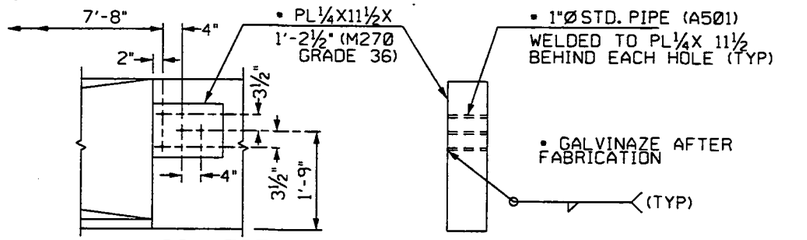
FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	45



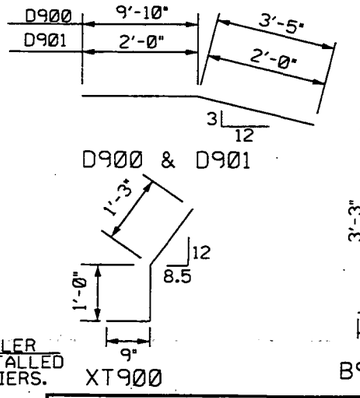


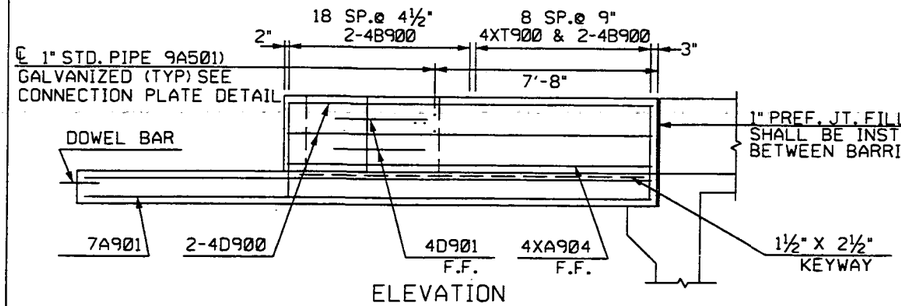
SKEW ANGLE = 2°28'40"			
BAR LIST - ONE SLAB			
SIZE	MARK	NO.	LENGTH
6	A900	73	19'-7"
7	A901	85	19'-7"
5	A902	16	6'-0"
4	XA904	2	7'-6"
5	A905	12	40'-10"
5	A906	26	42'-2"
4	B900	112	4'-0"
4	D900	12	13'-3"
4	D901	4	4'-0"
4	XT900	18	3'-0"

ESTIMATED MATERIAL QUANTITIES	
REINFORCING STEEL (LBS)	CONCRETE (C.Y.)
7766	38.2



CONNECTION PLATE DETAILS





ELEVATION

QUANTITIES	(ONE SLAB)
APPROACH SLAB	93.5 S.Y.

NOTE:
THE ABOVE ESTIMATED MATERIAL QUANTITIES ARE FOR INFORMATIONAL PURPOSES ONLY. ALL MATERIALS INCLUDING CONCRETE, SAW CUTTING, POLYETHYLENE MEMBRANE, REINFORCING BARS, BACKER RODS, SILICON SEALANT, PREFORMED JOINT FILLER AND LABOR REQUIRED TO BUILD THE APPROACH SLABS AND APPROACH SLAB BARRIERS SHALL BE INCIDENTAL TO THE PAY ITEM. "CONCRETE BRIDGE APPROACH SLAB".

THE CONCRETE SHALL BE CLASS AE-3 AND THE REINFORCING STEEL SHALL BE GRADE 60. THE POLYETHYLENE MEMBRANE SHALL MEET REQUIREMENTS OF AASHTO M171.

THE BAR MARKS BEGINNING WITH AN "X", INDICATE AN EPOXY COATED BAR.

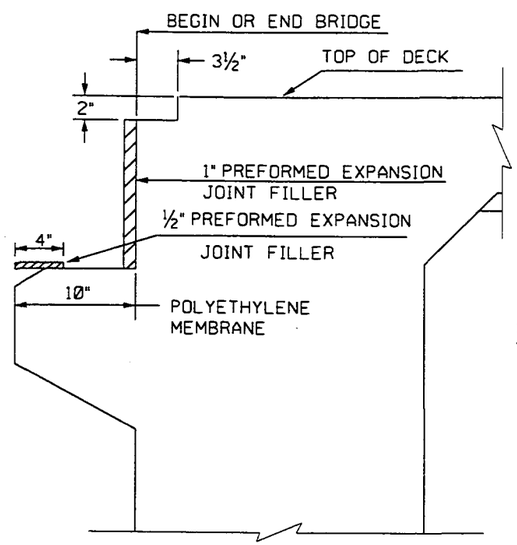
SURFACE FINISH "D" SHALL BE REQUIRED FOR ALL SURFACES OF THE CURB TRANSITIONS.

NORTHBOUND I-29
40th AVE. S. OVERPASS
APPROACH SLAB
ENTRANCE END

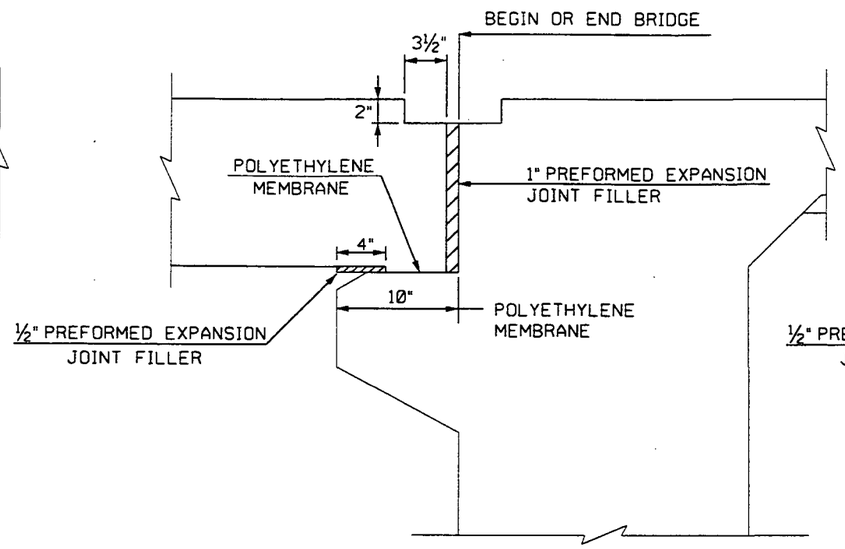
ULTEIG ENGINEERS, INC.

29-061.245 R-21

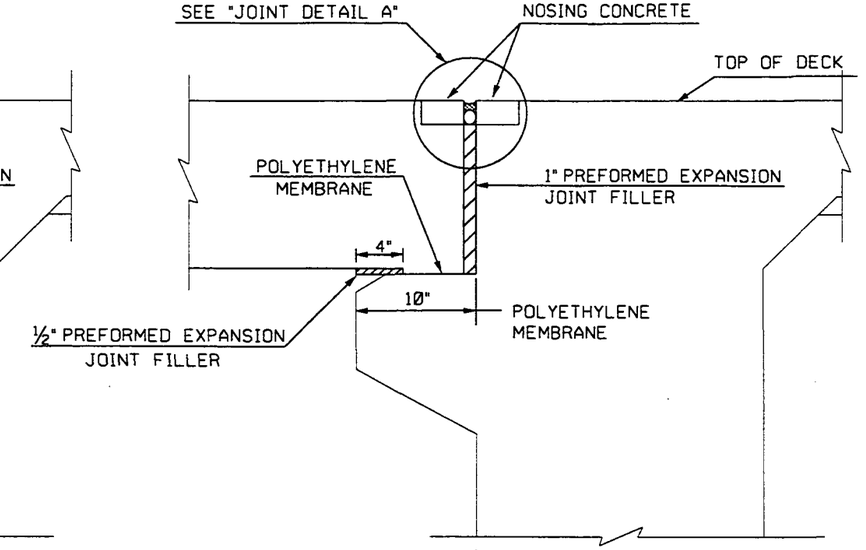
FHWA REGION	STATE	FED. AID PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	46



STAGE 1



STAGE 2



STAGE 3

STAGE 1: 1. A 2" x 3½" BLOCKOUT SHALL BE FORMED BETWEEN THE CURBS IN THE ABUTMENT AS SHOWN.

2. PLACE A 1" THICK PREFORMED EXPANSION JOINT FILLER. THE ½" x 4" PREFORMED EXPANSION JOINT FILLER AND THE POLYETHYLENE MEMBRANE.

STAGE 2: 3. PLACE THE NEW APPROACH SLAB CONCRETE. A 2" x 3½" BLOCKOUT SHALL BE FORMED BETWEEN THE CURBS IN THE APPROACH SLAB AS SHOWN.

STAGE 3: 4. NOSING CONCRETE SHALL BE PLACED IN THE BLOCKOUT AREAS, BOTH IN THE DECK AND IN THE APPROACH SLAB.

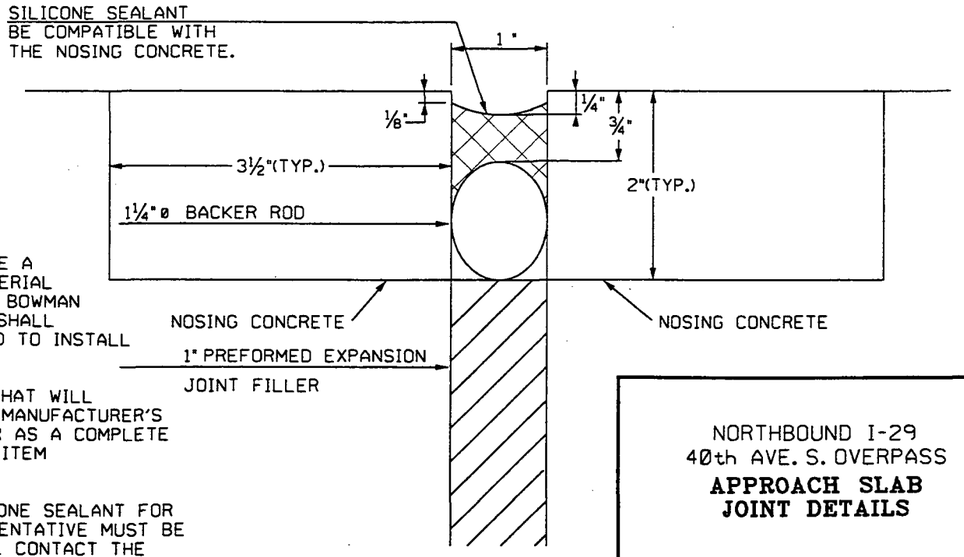
5. AFTER THE NOSING CONCRETE HAS CURED, CLEAN AND PREPARE THE JOINT, APPLY ANY NECESSARY BONDING MATERIAL, INSTALL THE BACKER ROD AND INSTALL THE SILICONE SEALANT.

GENERAL:
THE NOSING CONCRETE MATERIAL SHALL BE AN ELASTOMERIC CONCRETE OR A POLYMERIC CONCRETE THAT WILL PROVIDE A DURABLE EDGE THAT CAN WITHSTAND LIVE-LOAD TRAFFIC WITHOUT CHIPPING OR SPALLING. THE NOSING CONCRETE MATERIAL SHALL BE SILSPEC 900 PNS, MANUFACTURED BY SILICONE SPECIALTIES, INC.; WABOCRETE II, MANUFACTURED BY WATSON BOWMAN ACME; ELASTOMERIC CONCRETE, MANUFACTURED BY D.S. BROWN COMPANY, OR AN APPROVED EQUAL. THE NOSING CONCRETE SHALL BE MIXED AND INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. ALL LABOR AND MATERIALS REQUIRED TO INSTALL THE NOSING CONCRETE SHALL BE INCLUDED IN THE BID ITEM "CONCRETE BRIDGE APPROACH SLAB".

THE SILICONE SEALANT SHALL BE A RAPID CURE, SELF LEVELLING, COLD APPLIED, TWO COMPONENT SILICONE SEALANT THAT WILL BOND TO AND BE COMPATIBLE TO THE NOSING CONCRETE USED. THE SEALANT SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. THE SILICONE SEALANT AND THE NOSING CONCRETE MUST BE SUPPLIED BY THE SAME MANUFACTURER AS A COMPLETE SYSTEM. THE SILICONE SEALANT BACKER ROD AND ANY NECESSARY BONDING MATERIAL SHALL BE INCLUDED IN THE BID ITEM "CONCRETE BRIDGE APPROACH SLAB".

THE CONTRACTOR SHALL AQUIRE TECHNICAL ASSITANCE FROM THE MANUFACTURER OF THE NOSING CONCRETE AND SILICONE SEALANT FOR THE SURFACE PREPARATION AND INSTALLATION OF THE NOSING CONCRETE AND SILICONE SEALANT. A TECHNICAL REPRESENTATIVE MUST BE PRESENT FOR THE START OF SURFACE PREPERATION AND INSTALLATION FOR A LEAST ONE DAY. THE CONTRACTOR SHALL CONTACT THE MANUFACTURER AT LEAST TWO WEEKS PRIOR TO THE INSTALLATION. THE TECHNICAL ASSISTANCE SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE DEPARTMENT.

ALL COST FOR EQUIPMENT, MATERIALS, AND LABOR REQUIRED TO COMPLETE THE APPROACH SLAB DECK JOINT AT THE ENTRANCE AND EXIT ENDS OF BRIDGE SHALL BE INCLUDED IN THE PRICE BID FOR "CONCRETE BRIDGE APPROACH SLAB".



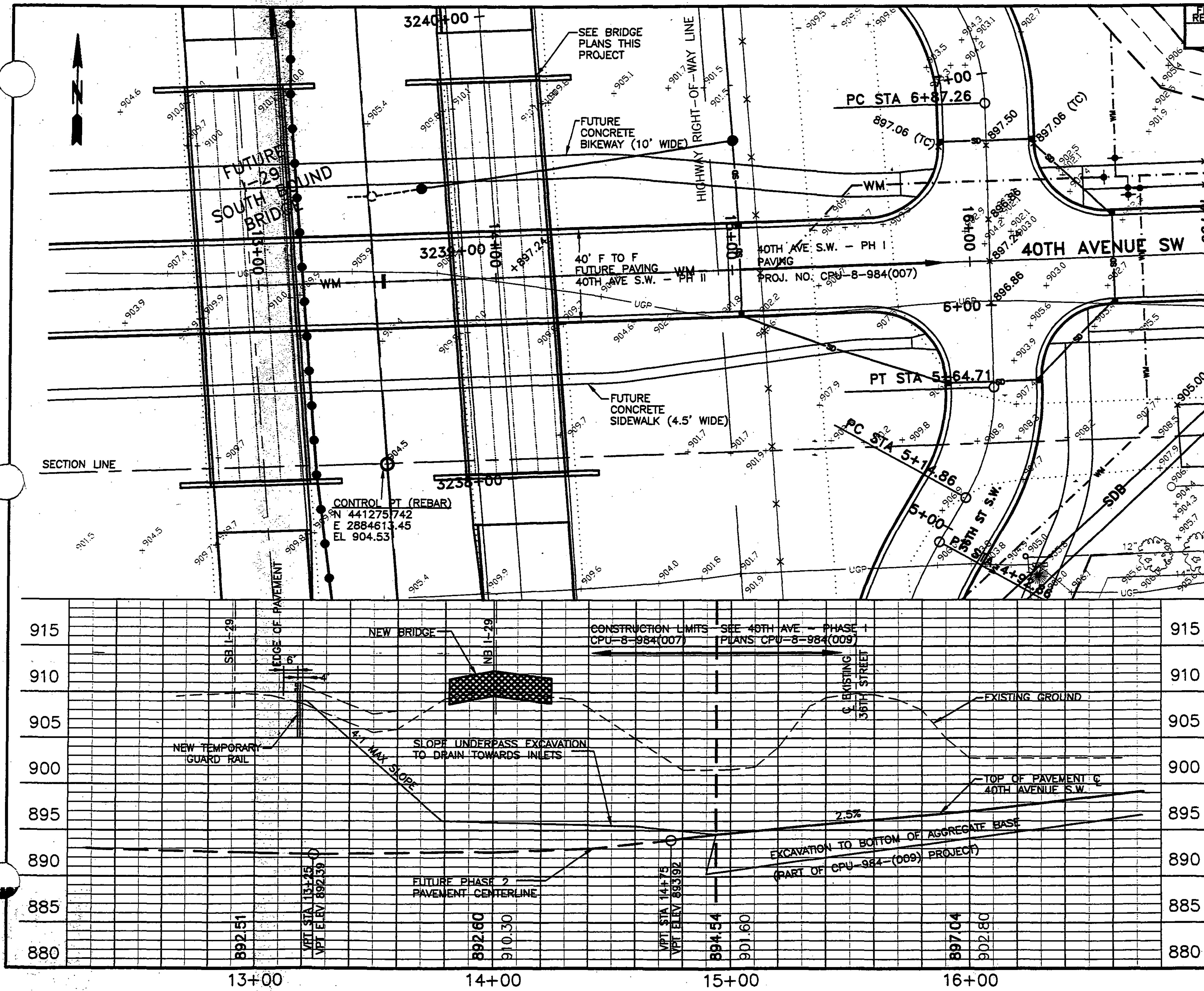
JOINT DETAIL A

NORTHBOUND I-29
40th AVE. S. OVERPASS
APPROACH SLAB JOINT DETAILS

ULTEIG ENGINEERS, INC.

29-061.245 R-22

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	49



3240+00
SEE BRIDGE PLANS THIS PROJECT
HIGHWAY RIGHT-OF-WAY LINE
FUTURE CONCRETE BIKEWAY (10' WIDE)
FUTURE I-29 SOUTH BOUND BRIDGE
PC STA 6+87.26
897.06 (TC)
897.50
897.06 (TC)
WM
900.06
40TH AVENUE SW
3239+00
40' F TO F FUTURE PAVING 40TH AVE S.W. - PH II
40TH AVE S.W. - PH I PAVING PROJ. NO. CPU-8-984(007)
896.86
6+00
899.54
899.58 (TC)
PT STA 5+64.71
FUTURE CONCRETE SIDEWALK (4.5' WIDE)
905.00
SD
SDB
PC STA 5+14.86
5+00
36TH ST S.W.
SECTION LINE
3238+00
CONTROL PT (REBAR) N 441275.742 E 2884613.45 EL 904.53
INV 903.64
SS
UGP
915
910
905
900
895
890
885
880
SB I-29
EDGE OF PAVEMENT
6'
4'
NEW BRIDGE
NB I-29
CONSTRUCTION LIMITS CPU-8-984(007)
SEE 40TH AVE. - PHASE I PLANS CPU-8-984(009)
℄ EXISTING 36TH STREET
EXISTING GROUND
NEW TEMPORARY GUARD RAIL
4:1 MAX SLOPE
SLOPE UNDERPASS EXCAVATION TO DRAIN TOWARDS INLETS
TOP OF PAVEMENT ℄ 40TH AVENUE S.W.
2.5%
EXCAVATION TO BOTTOM OF AGGREGATE BASE (PART OF CPU-984-(009) PROJECT)
FUTURE PHASE 2 PAVEMENT CENTERLINE
VPT STA 13+25 VPT ELEV 892.39
VPT STA 14+75 VPT ELEV 893.92
892.51
892.60
910.30
894.54
901.60
897.04
902.80
13+00
14+00
15+00
16+00

NOTES:

HIGHWAY RIGHT-OF-WAY LINE IS APPROXIMATE LIMITS OF CONSTRUCTION FOR CPU-8-984-(007) PROJECT (@STA 15+00).

FARGO DATUM NOTE:

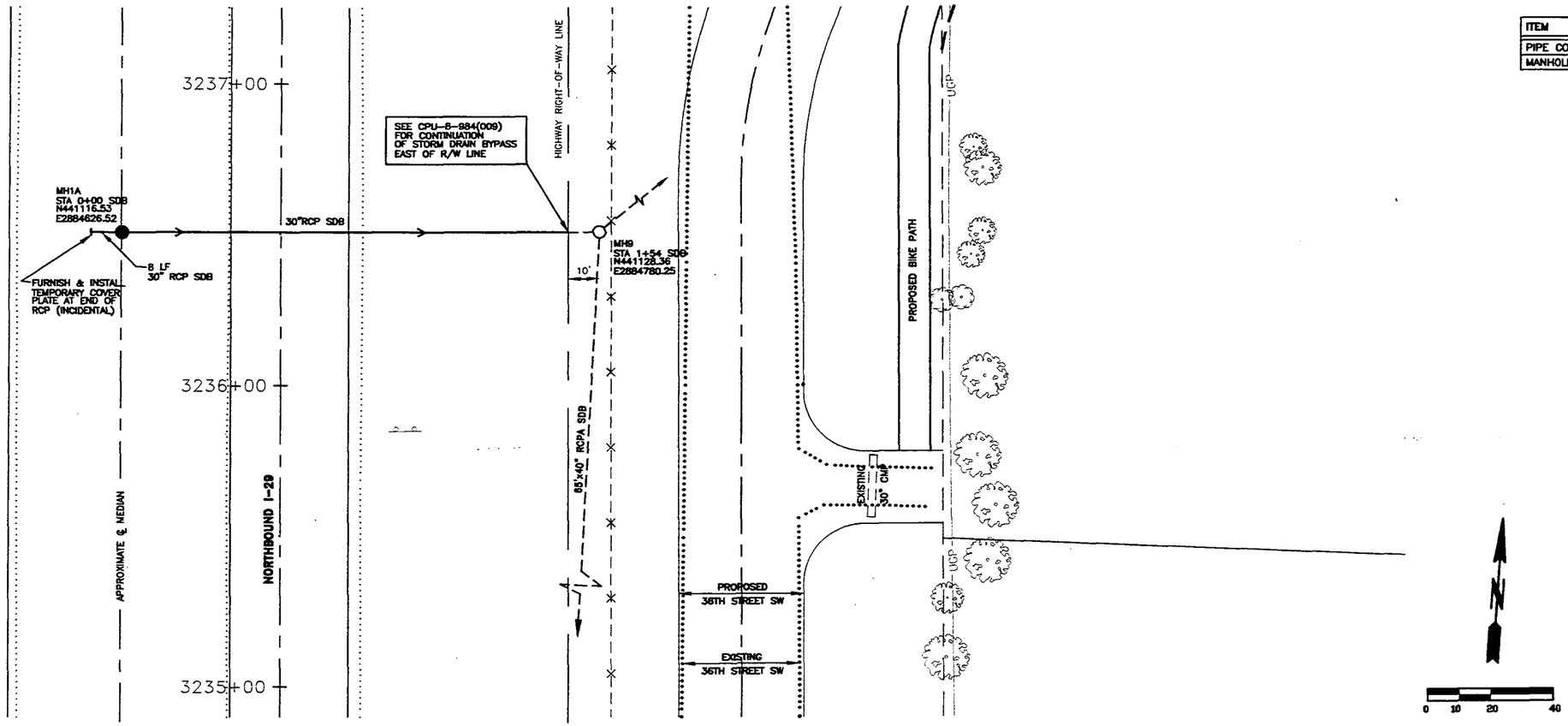
ELEVATIONS AS PER CITY OF FARGO DATUM

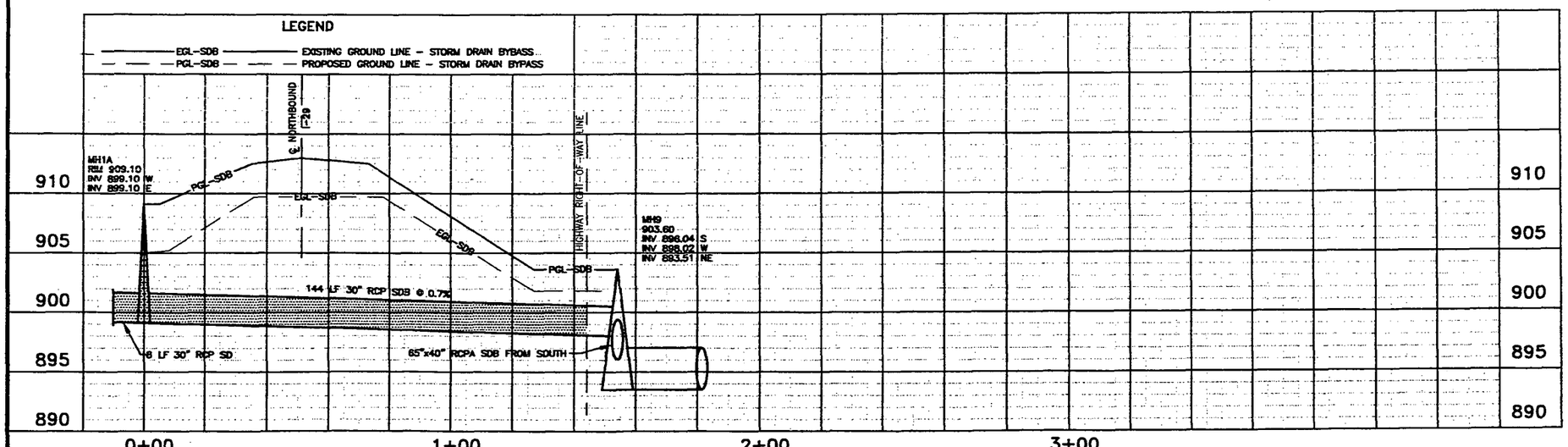
ULTEIG Engineers

40TH AVENUE S.W. - UNDER I-29 NB		
STA 13+00 TO 15+00		
DRAWN BY: SLW	CHECKED BY: DLM	APPROVED BY: SG
FILE: UPASS.DWG	DATE: 12-21-98	SCALE: 1" = 40'

FHWA REGION	STATE	PROJECT NO.	SHEET NO.
8	ND	CPU-8-984(007)	50

ITEM	QUANTITY
PIPE CONC REINF 30 IN CL III – STORM DRAIN	152 LF
MANHOLE SPECIAL	1 EA





I-29 NORTHBOUND RECONSTRUCTION

STORM DRAIN BYPASS PLAN & PROFILE

DRAWN BY	CHECKED BY	APPROVED BY
JJK	SG	SG
FILE: S2-DWGLDWG	DATE: 12-22-98	SCALE: 1" = 40'

Bi. No. 29-065.245 R
407th Ave SW SEP-Fargo
2 South of I-94 Int

1

NORTH DAKOTA CONCRETE PRODUCTS COMPANY

PRECAST BRIDGE BEAM SHOP DRAWINGS

COUNTY – CASS
PROJECT NO. – CPU-8-984(007)
ENGINEER – ULTEIG ENGINEERS
CONTRACTOR – WANZEK CONSTRUCTION

DESIGN DATA

CONCRETE DESIGN	-	5,000 P. S. I. (ALL BEAMS)
DETENSION	-	4,000 P. S. I. (ALL BEAMS)
STRAND	-	270 K. S. I. LOW-LAX
REINFORCING STEEL (Except as noted)	-	GR. 60
PRESTRESS LOSSES	-	34,064 P. S. I. (53'-0" BEAMS)
	-	43,309 P. S. I. (62'-0" BEAMS)
LOADING	-	HS25
WEIGHT	-	34,750# (53'-0" BEAMS)
	-	40,225# (62'-0" BEAMS)

DRAWN BY:
ROB GROSZ

INDEX OF SHEETS

☐ NO EXCEPTIONS NOTED
☑ EXCEPTIONS NOTED
☐ RETURNED FOR CORRECTION
☐ NOT APPLICABLE
☐ NOT ACCEPTABLE
BY _____
DATE 3-19, 1999
REVIEW DOES NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DEVIATIONS FROM CONTRACT REQUIREMENTS.
ULTEIG ENGINEERS, INC.
Shts 1-15, 5A

R/S #458274	SPAN	
SKEW NONE	1 & 3	2
NO. OF BEAMS	10	5
HEIGHT	33"	33"
LENGTH	53'-0"	62'-0"

DATE: 3-10-99

TITLE SHEET

33" SPREAD BOX BEAMS

BB-33-99-03

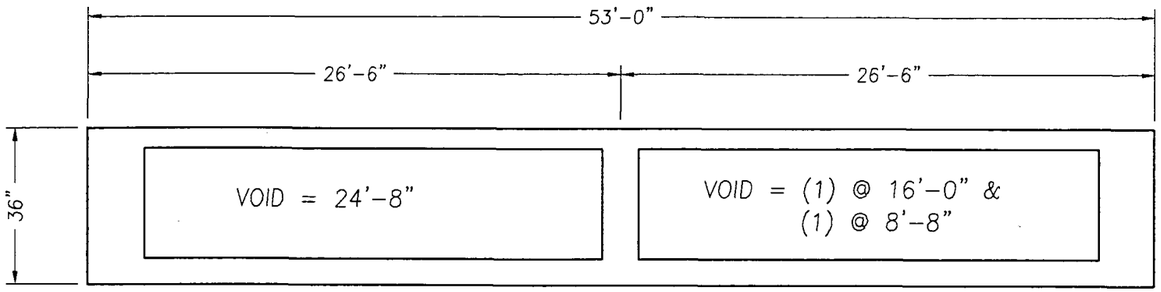
03TITLE

N

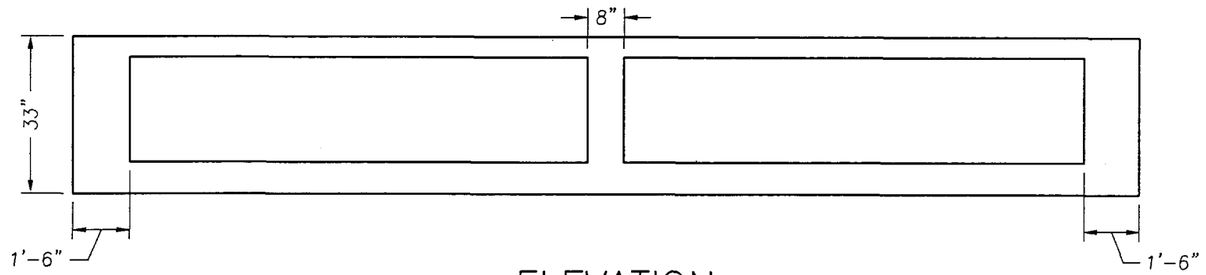
53'-0"	62'-0"	53'-0"
BB-33-99-03-01	BB-33-99-03-06	BB-33-99-03-11
BB-33-99-03-02	BB-33-99-03-07	BB-33-99-03-12
BB-33-99-03-03	BB-33-99-03-08	BB-33-99-03-13
BB-33-99-03-04	BB-33-99-03-09	BB-33-99-03-14
BB-33-99-03-05	BB-33-99-03-10	BB-33-99-03-15
SPAN 1	SPAN 2	SPAN 3

LAYOUT

LAYOUT
TRIPLE SPAN
BB-33-99-03



PLAN
NO SCALE



ELEVATION
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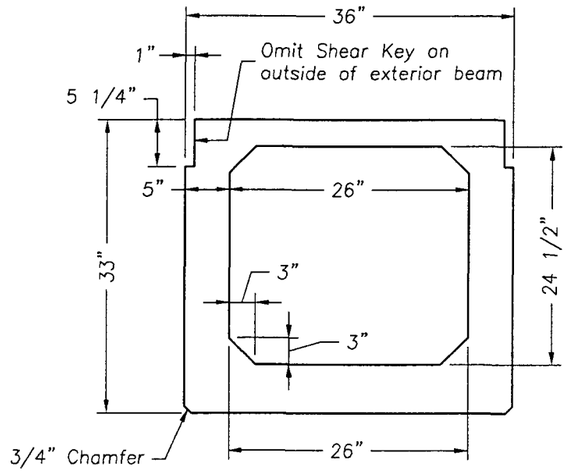
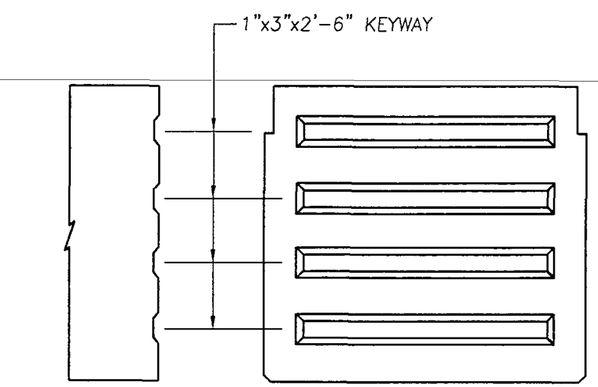


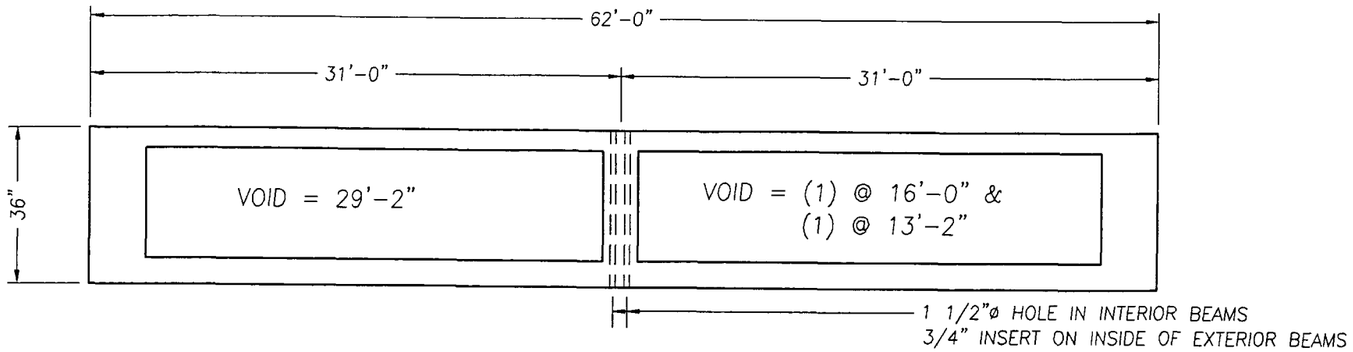
SECTION



PART ELEVATION
SHOWING KEYWAYS

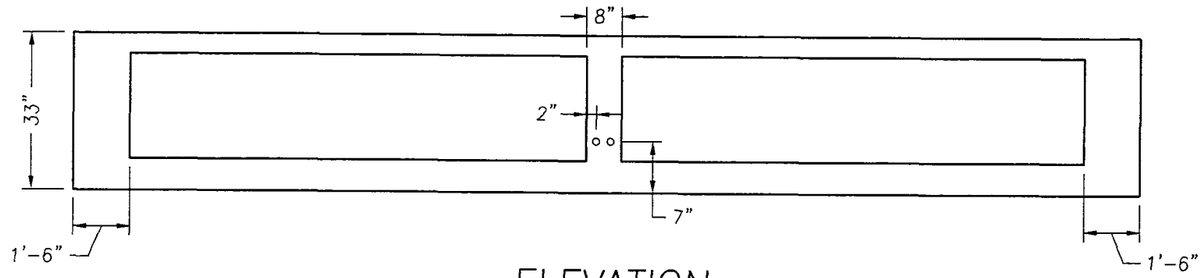
SECTION
SHOWING KEYWAYS

DIMENSIONS
SPANS 1 & 3
BB-33-99-03



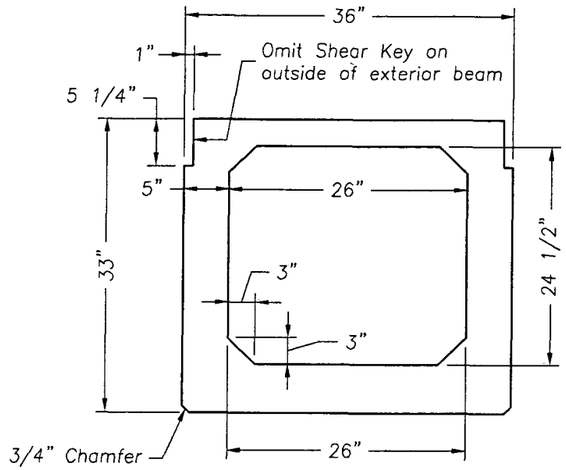
PLAN

NO SCALE

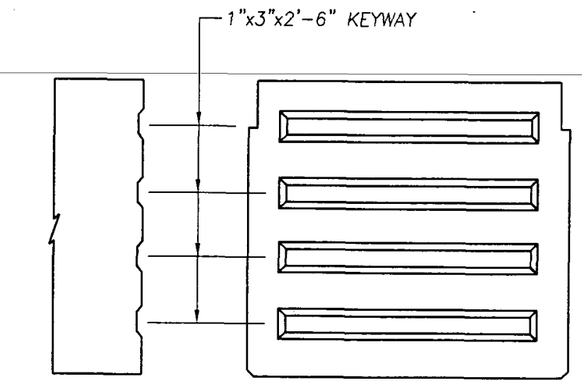


ELEVATION

NO SCALE



SECTION



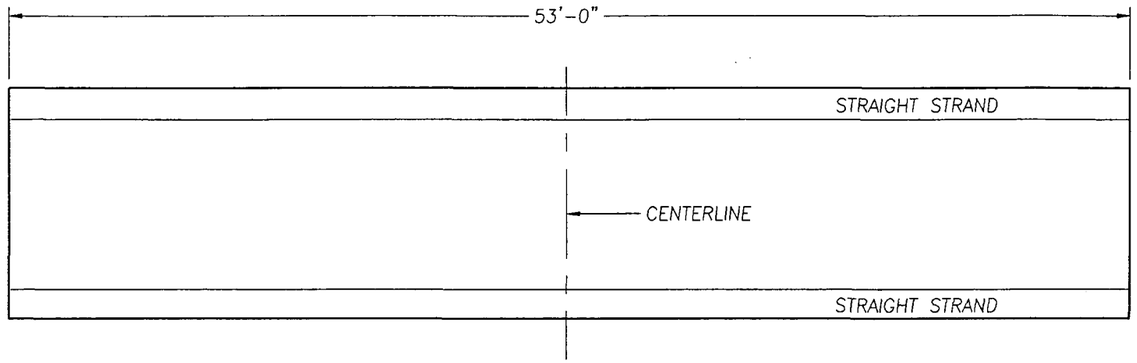
PART ELEVATION
SHOWING KEYWAYS

SECTION
SHOWING KEYWAYS

DIMENSIONS

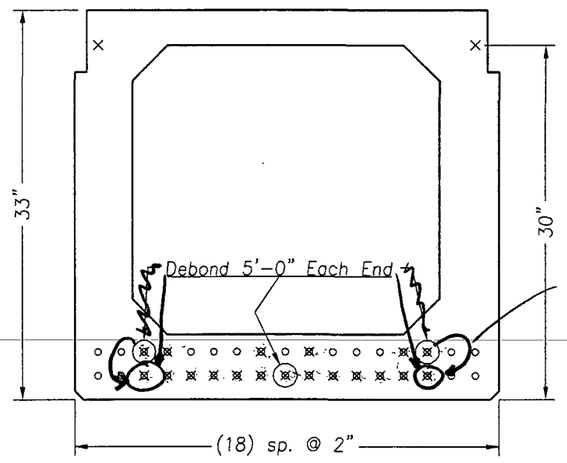
SPAN 2

BB-33-99-03

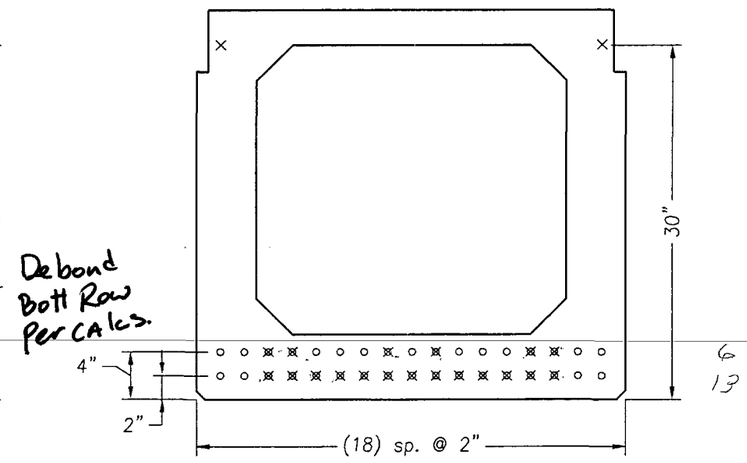


ELEVATION

NO. OF DRAPED STRAND	= 0
NO. OF STRAIGHT STRAND	= 21
TOTAL NO. 1/2" ø STRAND	= 21
CENTER OF GRAVITY AT END	= 5.24" – 5.78"
CENTER OF GRAVITY AT CNTRLN	= 5.24"
INITIAL FORCE	= 650.6 K
FINAL FORCE	= 541.3 K



SECTION AT END

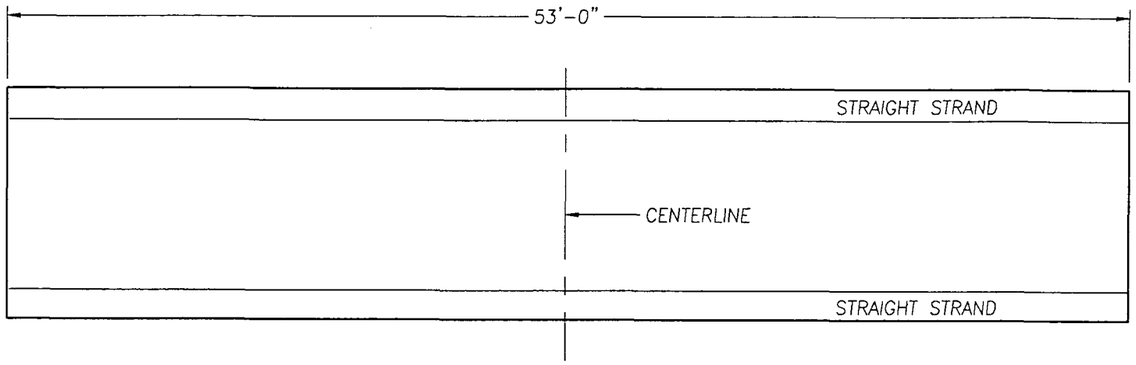


6
13

SECTION AT CENTERLINE

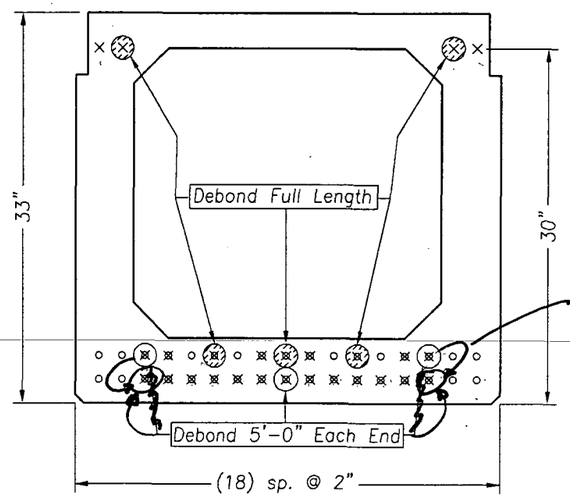
STRAND
SPANS 1 & 3
BB-33-99-03

03STRAND1

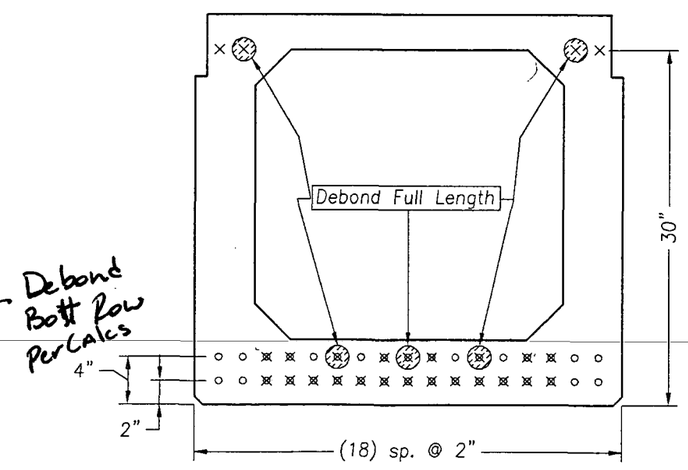


ELEVATION

NO. OF DRAPED STRAND	= 0
NO. OF STRAIGHT STRAND	= 26 (5–FULL DEBOND)
TOTAL NO. 1/2" ø STRAND	= 26 (5–FULL DEBOND)
CENTER OF GRAVITY AT END	= 5.24" 5.78
CENTER OF GRAVITY AT CNTRLN	= 5.24"
INITIAL FORCE	= 650.6 K
FINAL FORCE	= 541.3 K



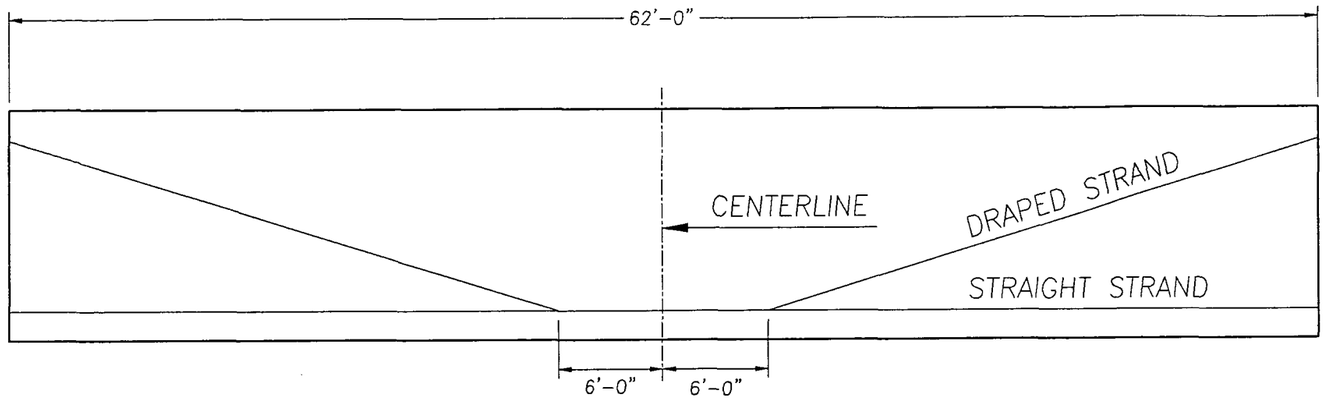
SECTION AT END



SECTION AT CENTERLINE

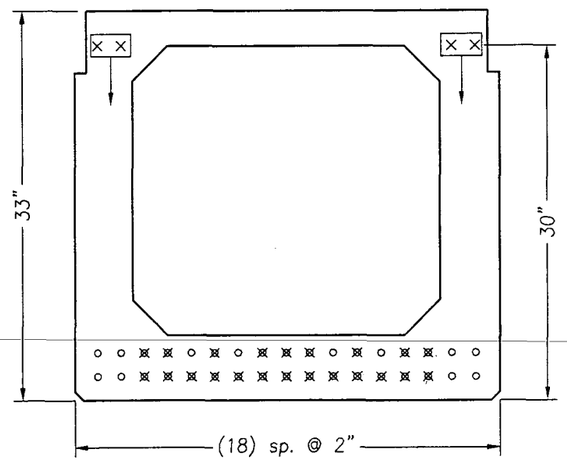
**THIS STRAND PATTERN IS FOR THE (1) 53'-0" BEAM POURED WITH THE (2) 62'-0" BEAMS.

STRAND
SINGLE BEAM
BB-33-99-03

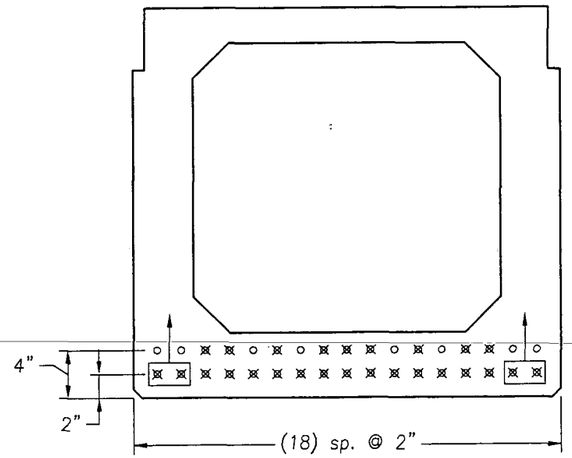


ELEVATION

NO. OF DRAPED STRAND	= 4
NO. OF STRAIGHT STRAND	= 22
TOTAL NO. 1/2" ø STRAND	= 26
CENTER OF GRAVITY AT END	= 7.00"
CENTER OF GRAVITY AT CNTRLN	= 2.69"
INITIAL FORCE	= 805.5 K
FINAL FORCE	= 633.1 K



SECTION
AT END



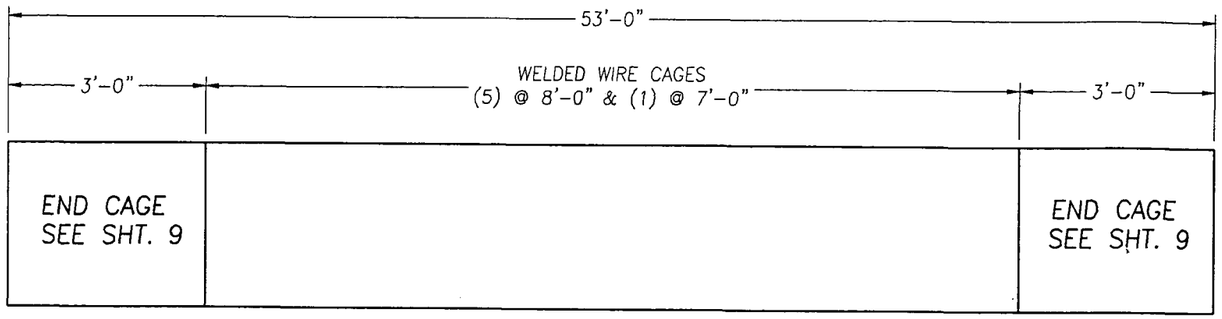
SECTION AT
CENTERLINE

STRAND

SPAN 2

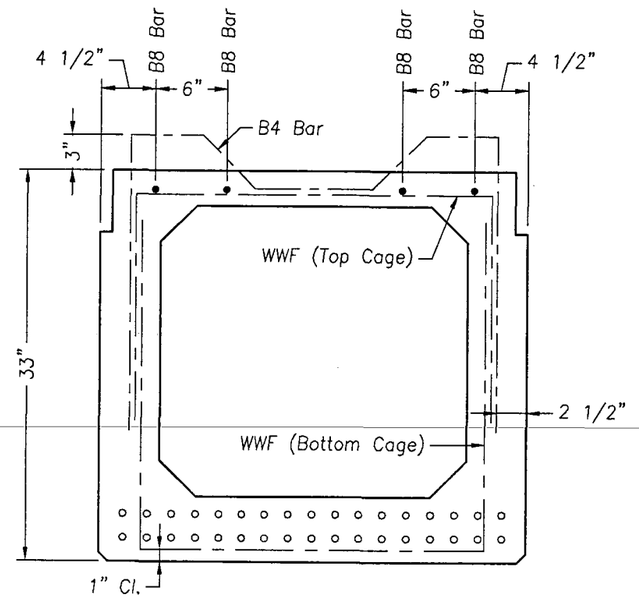
BB-33-99-03

03STRAND2



ELEVATION

NO SCALE

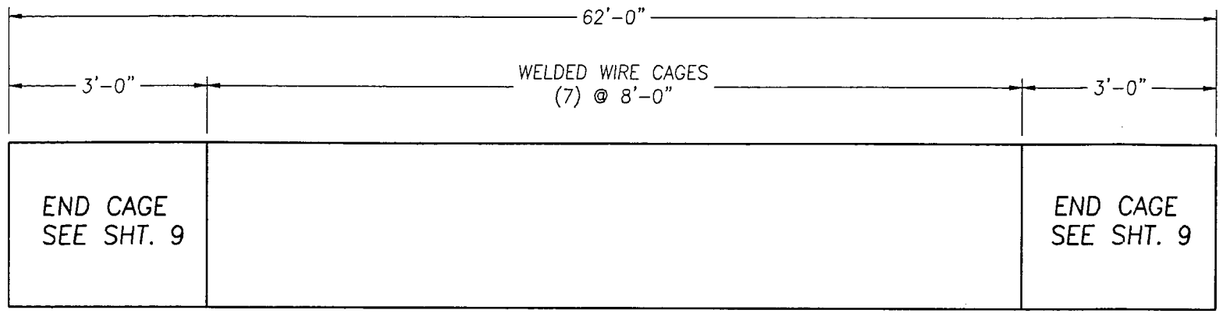


SECTION

NOTES:

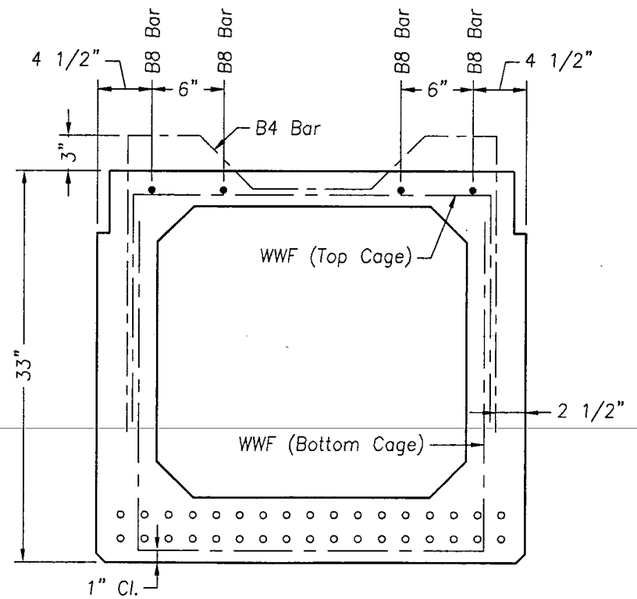
3x6 W4.0/W2.0 WELDED WIRE FABRIC EQUAL TO A STEEL AREA OF 0.16 SQUARE INCHES PER FOOT WILL BE USED TOP AND BOTTOM IN THE CIRCUMFERENTIAL DIRECTION. TOP AND BOTTOM CAGE LEGS TO OVERLAP A MINIMUM OF 12 INCHES.

REINFORCING
SPANS 1 & 3
BB-33-99-03



ELEVATION

NO SCALE

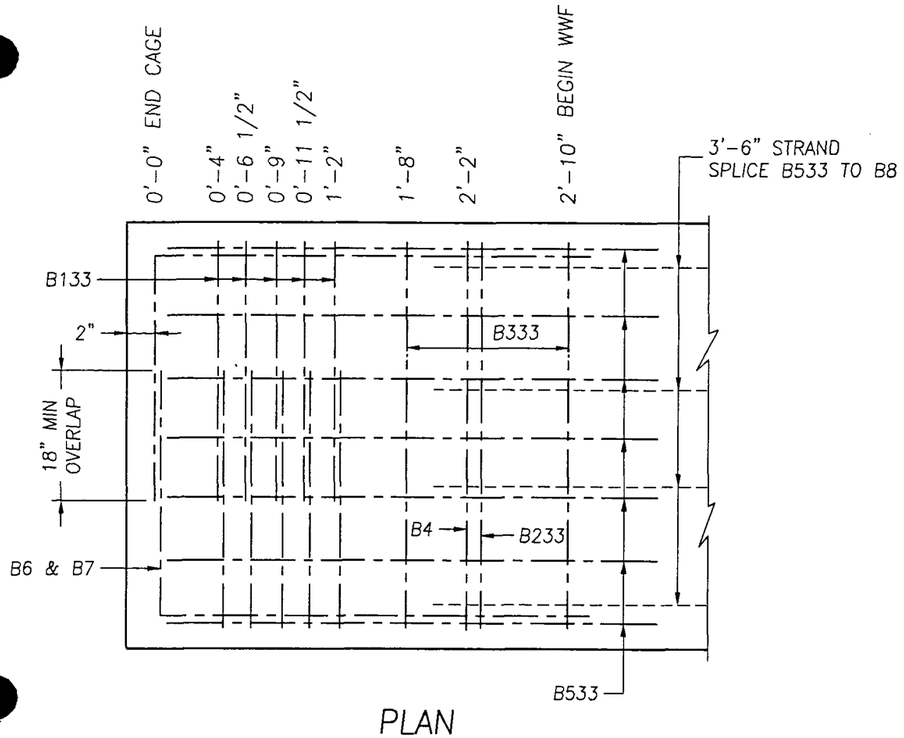


SECTION

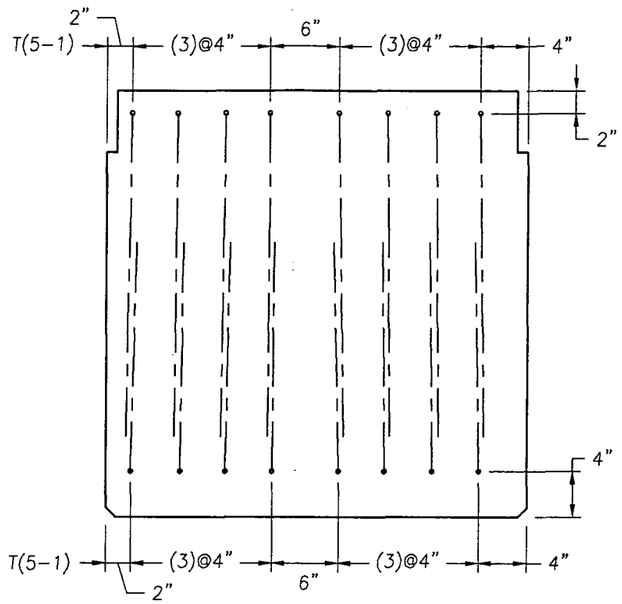
NOTES:

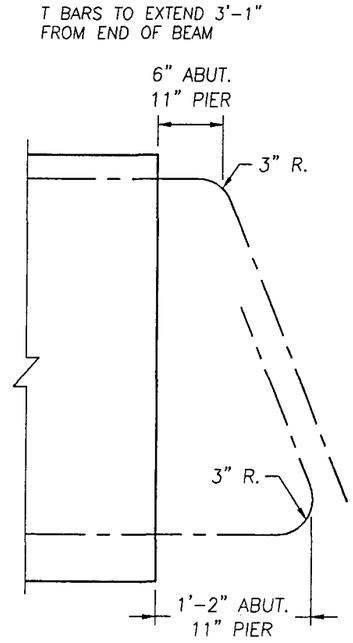
3x6 W4.0/W2.0 WELDED WIRE FABRIC EQUAL TO A STEEL AREA OF 0.16 SQUARE INCHES PER FOOT WILL BE USED TOP AND BOTTOM IN THE CIRCUMFERENTIAL DIRECTION. TOP AND BOTTOM CAGE LEGS TO OVERLAP A MINIMUM OF 12 INCHES.

REINFORCING
SPAN 2
BB-33-99-03

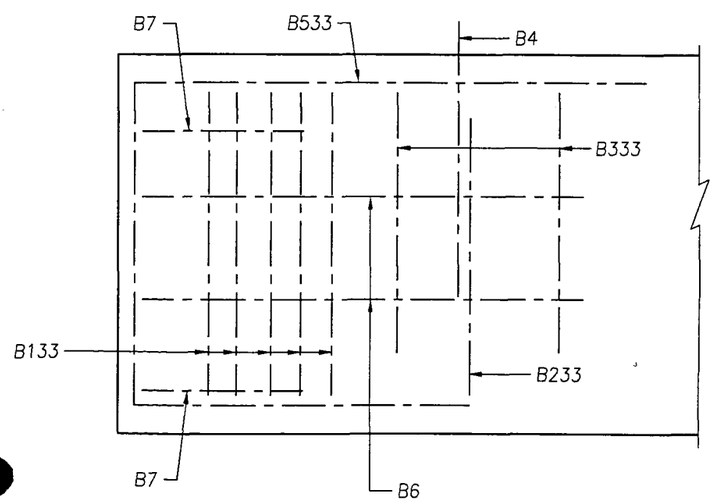


PLAN

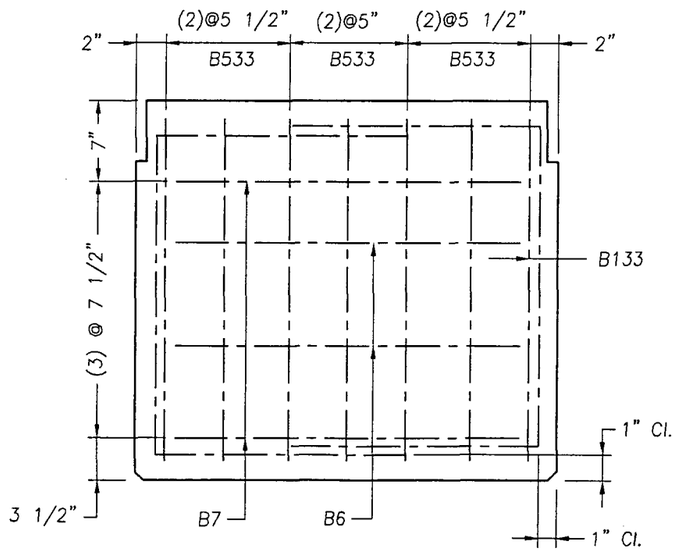




ELEVATION
SHOWING T BARS



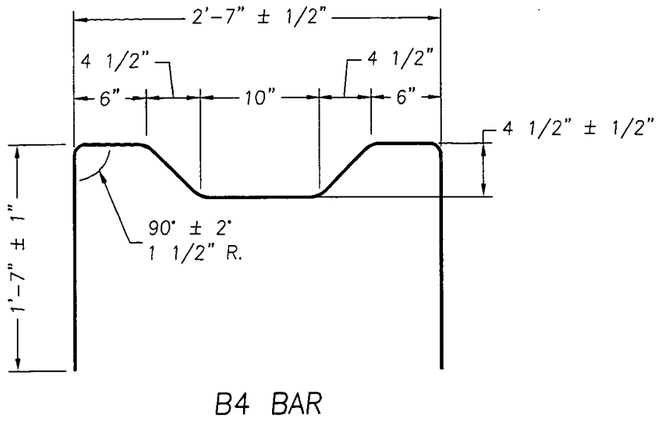
ELEVATION



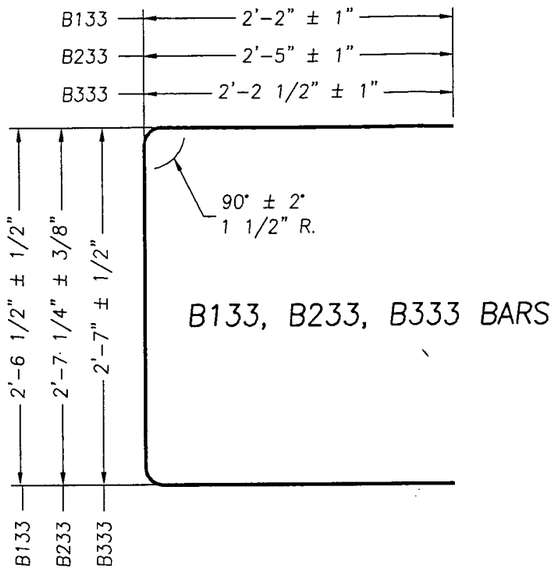
SECTION

END STEEL
TRIPLE SPAN
BB-33-99-03

33ENDST



B4 BAR

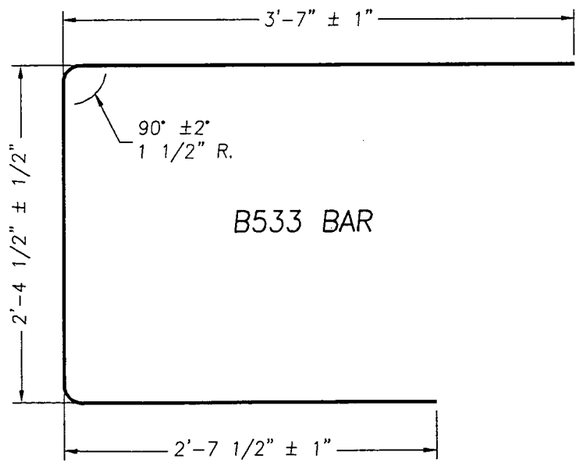


B133, B233, B333 BARS

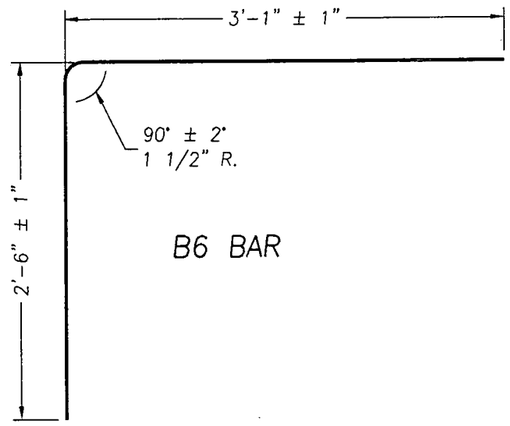
REINFORCING STEEL SCHEDULE					
MARK	TYPE	SIZE	LENGTH	QTY/BEAM	TOTAL
B133	BENT	4	6'-11"	20	200
B233	BENT	4	7'-6"	2	20
B333	BENT	4	7'-0"	4	40
B4	BENT	4	6'-0"	44	440
B533	BENT	4	8'-7"	14	140
B6	BENT	4	5'-7"	8	80
B7	BENT	4	3'-7"	8	80
B8	STR	4	9'-6'	24	240
T(5-1)	STR	4	5'-1"	32	320

ALL DIMENSIONS ARE OUT TO OUT.

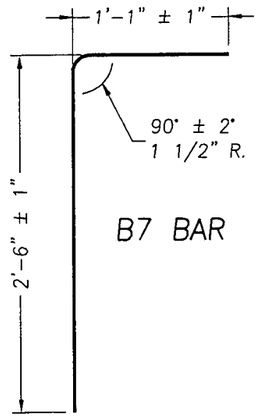
ALL REBAR TO BE GRADE 60, EXCEPT T-BARS TO BE GRADE 40.



B533 BAR

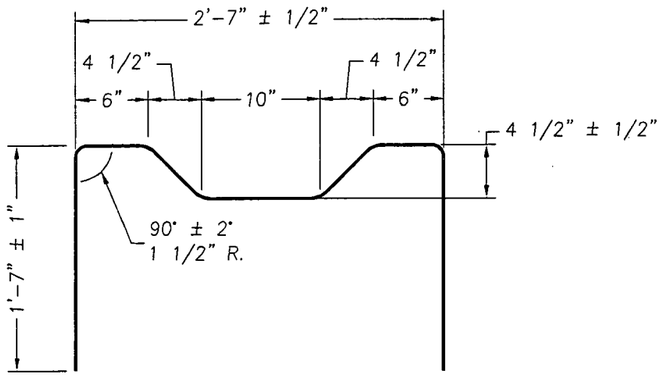


B6 BAR

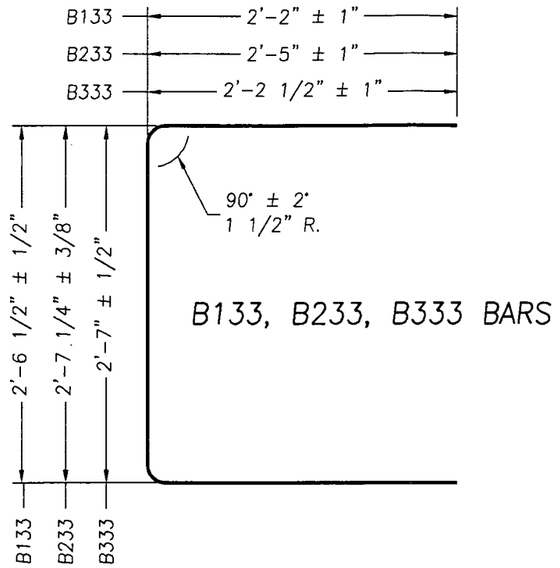


B7 BAR

REBAR
SPANS 1 & 3
BB-33-99-03



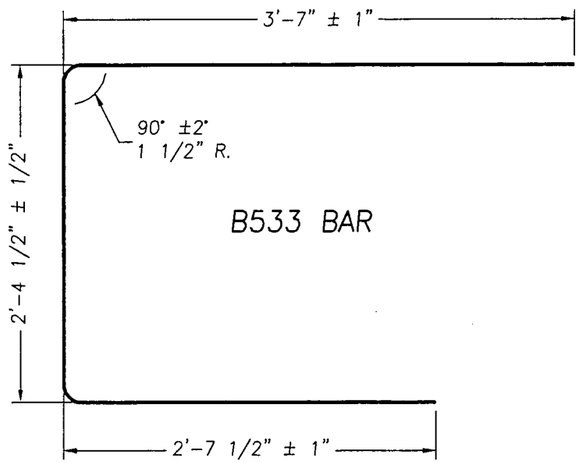
B4 BAR



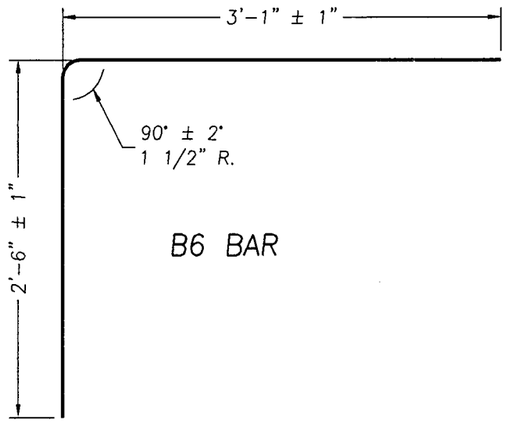
B133, B233, B333 BARS

REINFORCING STEEL SCHEDULE					
MARK	TYPE	SIZE	LENGTH	QTY/BEAM	TOTAL
B133	BENT	4	6'-11"	20	100
B233	BENT	4	7'-6"	2	10
B333	BENT	4	7'-0"	4	20
B4	BENT	4	6'-0"	52	260
B533	BENT	4	8'-7"	14	70
B6	BENT	4	5'-7"	8	40
B7	BENT	4	3'-7"	8	40
B8	STR	4	9'-6'	28	140
T(5-1)	STR	4	5'-1"	32	160

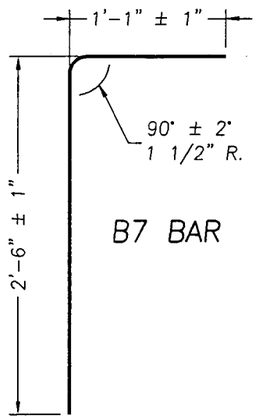
ALL DIMENSIONS ARE OUT TO OUT.
ALL REBAR TO BE GRADE 60, EXCEPT T-BARS TO BE GRADE 40.



B533 BAR

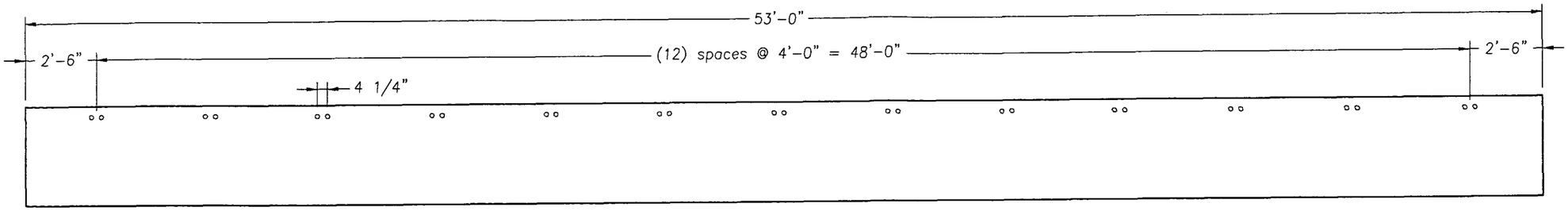


B6 BAR



B7 BAR

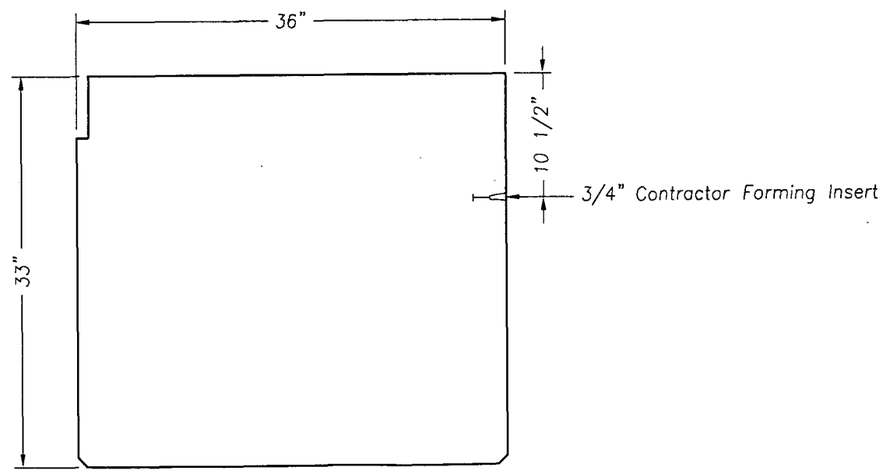
REBAR
SPAN 2
BB-33-99-03



BEAMS: BB-33-99-03-01 & BB-33-99-03-15
BB-33-99-03-05 & BB-33-99-03-11

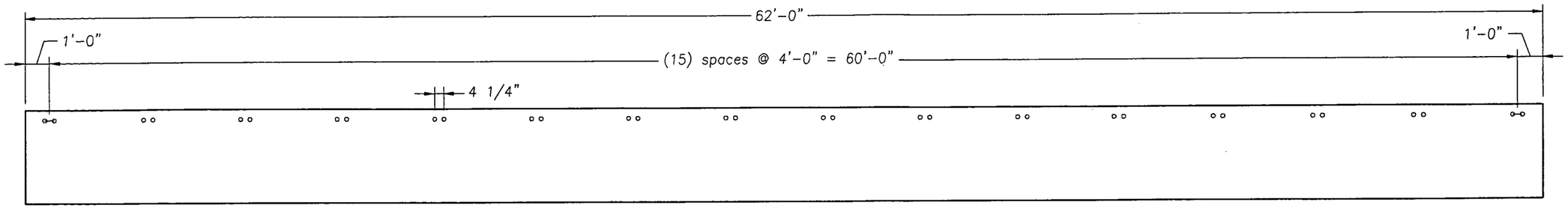
Spacing of Contractor Forming Inserts

(Inserts supplied by contractor)



EXTERIOR BEAMS

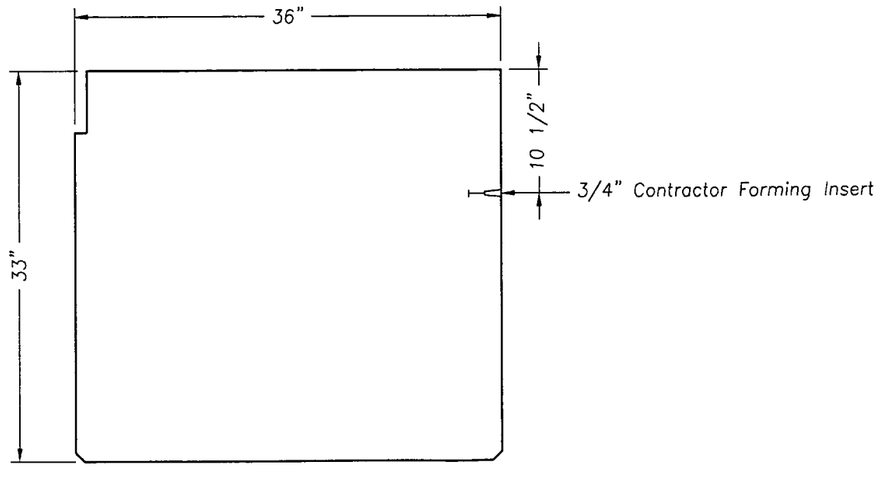
EXTERIOR
SPANS 1 & 3
BB-33-99-03



BEAMS: BB-33-99-03-06 & BB-33-99-03-10

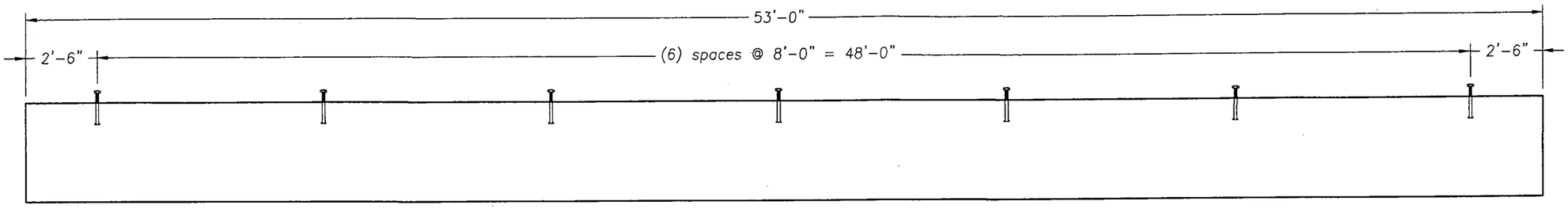
Spacing of Contractor Forming Inserts

(Inserts supplied by contractor)



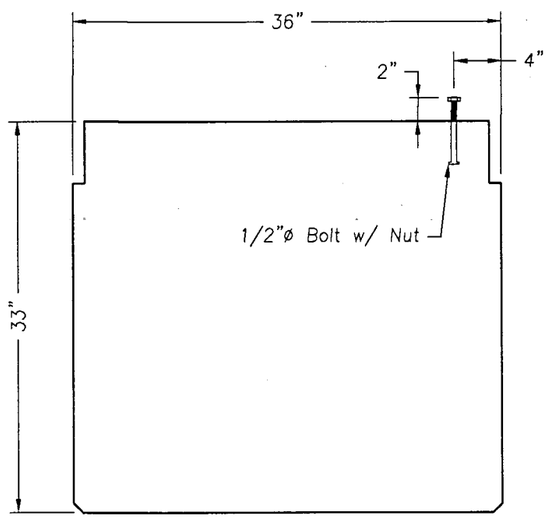
EXTERIOR BEAMS

EXTERIOR
SPAN 2
BB-33-99-03

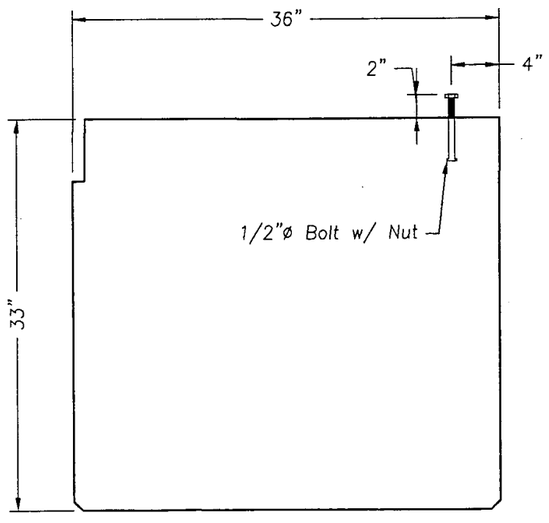


Spacing of Contractor Safety Bolts

(Bolts supplied by contractor)



INTERIOR BEAMS



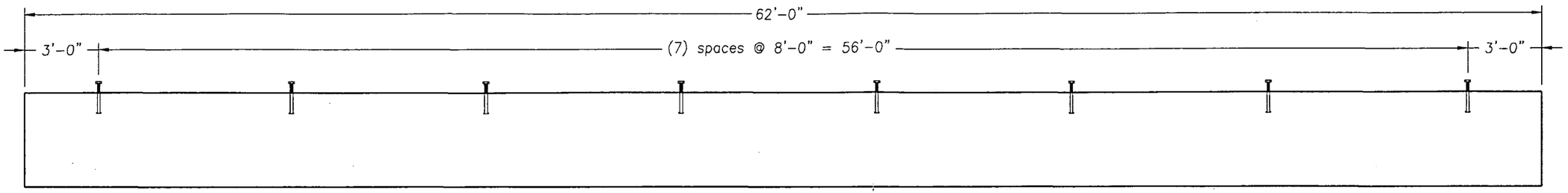
EXTERIOR BEAMS

SAFETY RAIL

SPANS 1 & 3

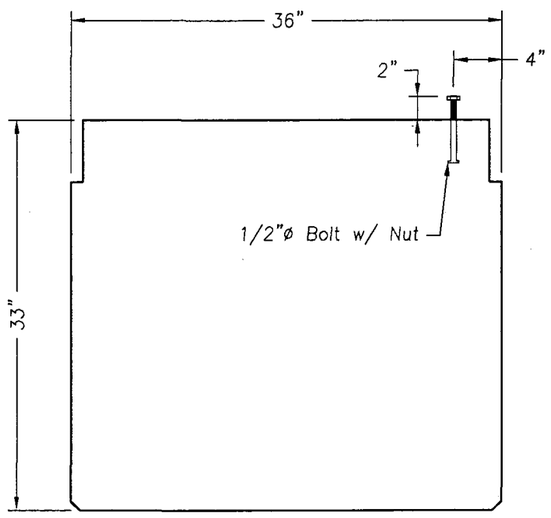
BB-33-99-03

04rail1

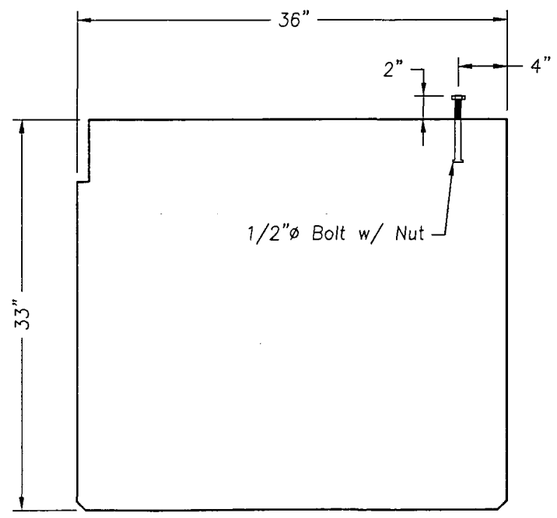


Spacing of Contractor Safety Bolts

(Bolts supplied by contractor)



INTERIOR BEAMS



EXTERIOR BEAMS

SAFETY RAIL
SPAN 2
BB-33-99-03

04rail2