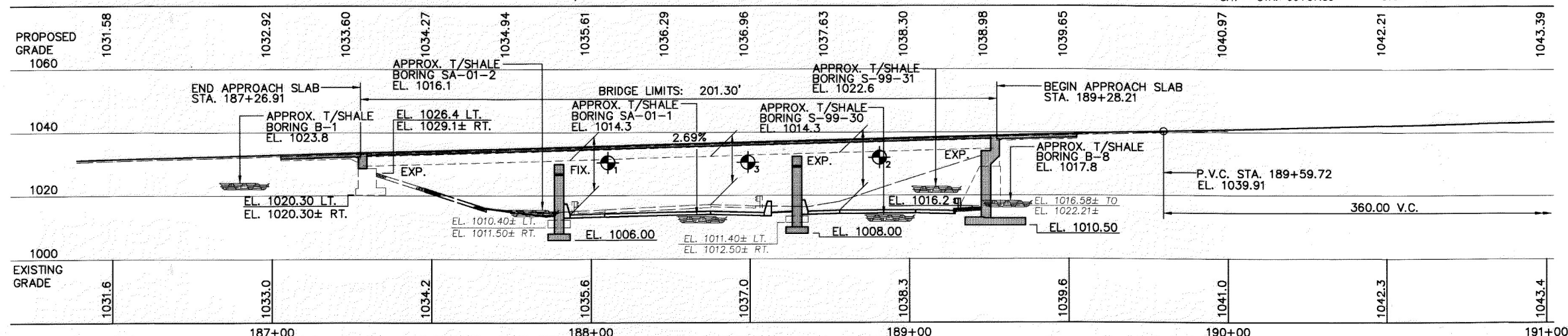
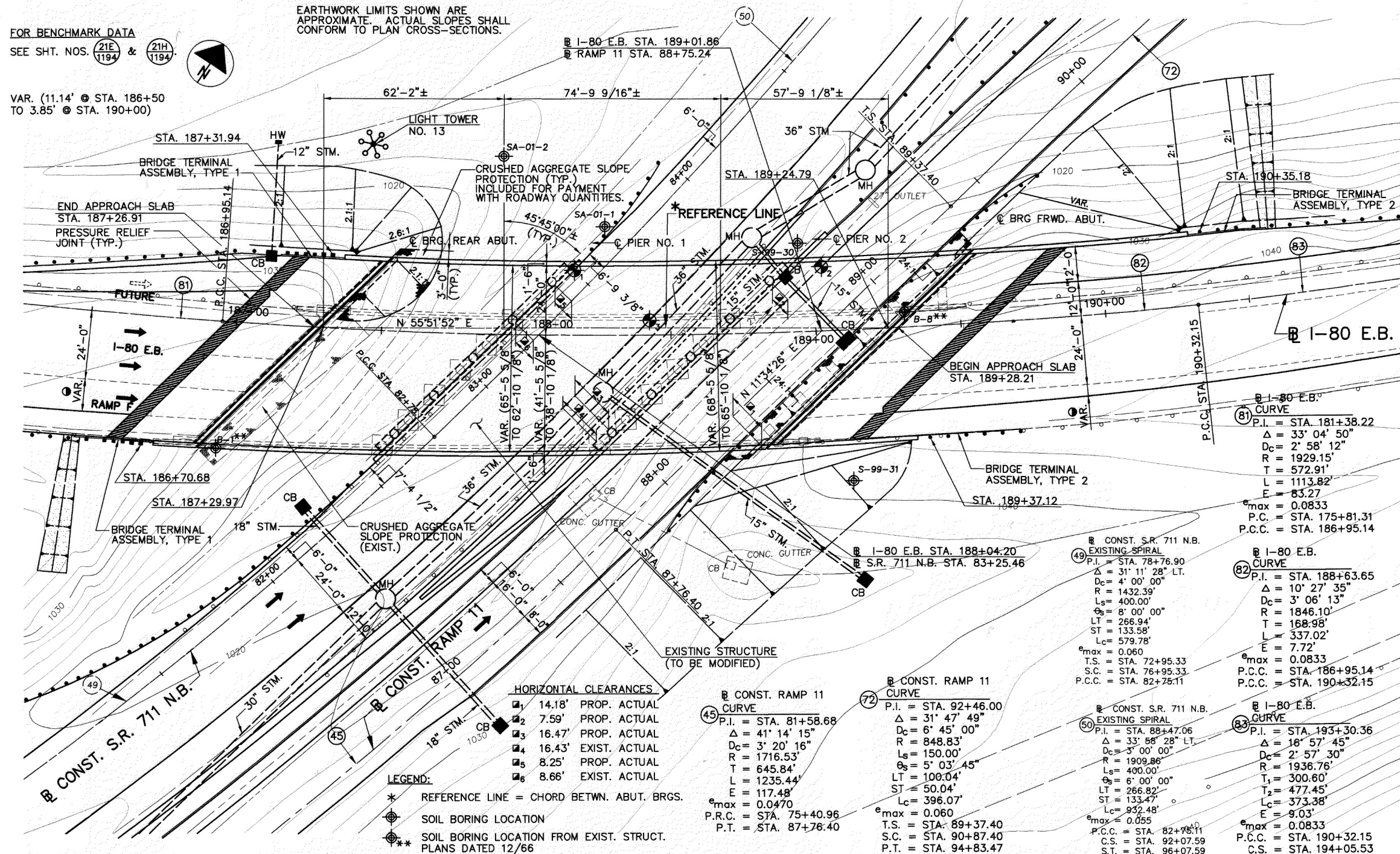


SEE SHT. NOS. (21E/1194) & (21H/1194)

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

~~B I-80 E.B. STA. 189+01.80~~
~~B RAMP 11 STA. 88+75.24~~

① VAR. (11.14' @ STA. 186+50
TO 3.85' @ STA. 190+00)



PROFILE ALONG B I-80 E.B.

VERTICAL CLEARANCES

	16.91' PROP. ACTUAL	16.50' REQUIRED
	17.07' PROP. ACTUAL	16.50' REQUIRED
	15.10' EXIST. ACTUAL	
	17.34' PROP. ACTUAL	

EXISTING STRUCTURE

TYPE:	CONTINUOUS STEEL BEAMS WITH REINFORCED CONCRETE DECK SLAB AND SUBSTRUCTURE
SPANS:	60'-0"±, 75'-0"±, 60'-0"± C/C BRGS. (MEASURED ALONG LOCAL CHORDS)
ROADWAY:	VARIES (45'-5 1/2"± TO 42'-2"± FACE/FACE 1'-0" SAFETY CURBS)
LOADING:	CF 2000 (57)
SKEW:	45° 45' 00"± LF (TO REF. LINE)
ALIGNMENT:	3° CURVE LT.
SUPERELEVATION:	0.083± FT./FT.
WEARING COURSE:	ASPHALT CONCRETE
APPROACH SLABS:	25'-0" (AS-1-67)
DATE BUILT:	1972
STRUCTURE FILE NO.:	7803729

PROPOSED STRUCTURE

PROPOSED WORK: REMOVE EXIST. DECK, SUPPORT EXIST. BEAMS ON TEMP. BENTS, REMOVE EXIST. PIERS AND FRWD. ABUT. CONSTRUCT NEW SUBSTR. UNITS INCLUDING WIDENED PORTIONS. SET NEW BEARINGS. TRANSFER BEAMS TO NEW UNITS. ERECT NEW STEEL FRAMING IN WIDENED PORTION. INSTALL SHEAR CONNECTORS, REPLACE DECK SLAB, MODIFY BACKWALLS/WINGWALLS (REAR ABUT.), INSTALL NEW EXPANSION JOINTS, AND PAINT EXIST. AND NEW STEEL.

TYPE: CONTINUOUS COMPOSITE STEEL
BEAMS WITH REINFORCED
CONCRETE DECK SLAB AND
SUBSTRUCTURE. (EXIST. BEAMS &
REAR ABUT. SALVAGED). (ASTM
A36 STEEL)

SPANS: 62'-2"±, 74'-9 9/16"±, 57'-9 1/8"±
C/C BRGS. (MEASURED ALONG
REFERENCE LINE)

ROADWAY: VARIES (65'-5 5/8" TO 62'-10 1/8"
TOE/TOE PARAPETS)

LOADING: HS20-44 (CASE I) AND
ALTERNATE MILITARY LOADING
F.W.S. = 60 PSF

SKEW: 45° 45' 00"± LF

ALIGNMENT: 3' CURVE LT.

SUPERELEVATION: 0.083 FT./FT.

WEARING SURFACE: MONOLITHIC CONCRETE

APPROACH SLABS: 25'-0" (AS-1-81)

TRAFFIC DATA: ADT(2005) = 21,340
ADTT(2005) = 5,970
ADT(2025) = 23,710
ADTT(2025) = 6,640

STRUCTURE COORDINATES: LAT. N 41° 08' 54"
LONG. W 80° 40' 25"

CPD ASSOCIATES
520 South Main Street, Suite 2531 Akron, Ohio 44311
330-572-2100, Fax 330-572-2101

FILED	DATE
10/19/00	
FIRE FILE NUMBER	
7803729	

DESIGNED	R.P.
B.J.M.	REVIS
CHECKED	
P.J.W.	

TRUMBULL COUNTY
STA. 187+26.91
STA. 189+28.21

SITE PLAN
BRIDGE NO. TRU - 80 - 0353R
1-80 E.B. OVER S.R. 711 N.B. & RAMP 11

MAH/TRU-711-1.70/0.00

1 / 23

974
1194

DESIGN SPECIFICATIONS

THE PROPOSED REHABILITATION AND WIDENING WORK FOR THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1996, INCLUDING THE 1997, 1998, 1999 INTERIM SPECIFICATIONS AND THE ODOT BRIDGE DESIGN MANUAL.

DESIGN DATA

DESIGN LOADING:	HS 20-44 (CASE I) AND THE ALTERNATE MILITARY LOADING FUTURE WEARING SURFACE (FWS) OF 60 PSF
HIGH PERFORMANCE CONCRETE HPC SS844:	COMPRESSIVE STRENGTH 4500 PSI (SUPERSTRUCTURE)
CONCRETE CLASS C:	COMPRESSIVE STRENGTH 4000 PSI (SUBSTRUCTURE)
REINFORCING STEEL:	ASTM A615, A616 OR A617 GRADE 60, MINIMUM YIELD STRENGTH, 60,000 PSI SPIRAL REINFORCEMENT MAY BE PLAIN BARS, ASTM A82 OR A615
* STRUCTURAL STEEL:	ASTM A36/A709 YIELD STRENGTH 36,000 PSI
DECK PROTECTION METHOD:	EPOXY COATED REINFORCING STEEL, 2 1/2" CONCRETE COVER, HIGH PERFORMANCE CONCRETE,
MONOLITHIC WEARING SURFACE:	MONOLITHIC WEARING SURFACE IS ASSUMED, FOR DESIGN PURPOSES, TO BE 1" THICK
* A36 STEEL WAS ASSUMED FOR USE IN DESIGN CALCULATIONS. THE CONTRACTOR MAY SUBSTITUTE A572-50 STEEL FOR A36 STEEL.	

REFERENCES

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:
AS-1-81 REVISED 04-20-01
BS-1-93 DATED 12-19-94
EXJ-4-87 REVISED 04-20-01
GSD-1-96 REVISED 04-20-01
SBR-1-99 REVISED 01-12-99

AND TO SUPPLEMENTAL SPECIFICATIONS:
NO. 815 DATED 02-22-00
NO. 816 DATED 04-21-97
NO. 842 DATED 01-06-99
NO. 844 DATED 01-06-99
NO. 863 DATED 10-12-99
NO. 864 DATED 07-11-00
NO. 899 DATED 10-21-98
NO. 905 DATED 04-01-98
NO. 907 DATED 10-21-98
NO. 910 DATED 07-11-00
NO. 911 DATED 07-10-97
NO. 954 DATED 09-09-97

EXISTING STRUCTURE PLANS

THE EXISTING STRUCTURE PLANS ARE ON FILE AND MAY BE REVIEWED IN THE OFFICE OF THE ODOT DISTRICT 4 DEPUTY DIRECTOR, 705 OAKWOOD ST., RAVENNA, OHIO 44266

CONTINGENCY QUANTITIES

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

UNDERGROUND UTILITIES

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS HAVE BEEN OBTAINED BY DILIGENT FIELD CHECKS AND AVAILABLE RECORDS. IT IS BELIEVED THAT THEY ARE ESSENTIALLY CORRECT, BUT THE STATE OF OHIO DOES NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS.

PROPOSED WORK

1. REMOVE ENTIRE EXISTING DECK, INCLUDING EXPANSION JOINTS, SCUPPERS AND LIGHTING POLES.
2. REMOVE EXISTING APPROACH SLABS.
3. ERECT TEMPORARY STEEL BENTS ADJACENT TO THE EXISTING PIER NOS. 1 AND 2 AND THE FORWARD ABUTMENT. TEMPORARY BENTS SHALL BE PROTECTED FROM TRAFFIC.
4. RAISE EXISTING BEAMS, REMOVE BEARINGS, SET TEMPORARY BEARINGS ON THE BENTS, AND SUPPORT BEAMS THEREON.
5. REMOVE EXISTING PIER NOS. 1 AND 2 AND THE FORWARD ABUTMENT INCLUDING WINGWALLS.
6. CONSTRUCT NEW PIER NOS. 1 AND 2, FULL HEIGHT FORWARD ABUTMENT AND WINGWALLS INCLUDING PIER AND ABUTMENT EXTENSIONS IN THE WIDENED PORTION, AND SET NEW LAMINATED ELASTOMERIC BEARINGS.
7. REMOVE EXISTING REAR ABUTMENT BACKWALL AND PORTIONS OF WINGWALLS
8. CONSTRUCT ABUTMENT EXTENSION AT REAR ABUTMENT AND SET NEW BEARINGS IN ORIGINAL AND WIDENED PORTIONS.
9. TRANSFER EXISTING BEAMS FROM BEARINGS ON BENTS TO BEARINGS ON NEW PIERS AND FORWARD ABUTMENT.
10. ERECT NEW STEEL BEAMS AND CROSS FRAMES IN THE WIDENED PORTION.
11. EXIST. INTERMEDIATE CROSS-FRAMES: REPLACE EXISTING ANGLE TO BEAM WEB WELDED CONNECTIONS WITH BOLTED ANGLE CONNECTIONS.
12. RETROFIT EXISTING MOMENT PLATE END DETAIL BY INSTALLING BOLTED SPLICE PLATE.
13. WELD SHEAR CONNECTORS TO NEW AND EXISTING BEAMS.
14. CONSTRUCT DECK AS PER PLAN.
15. RECONSTRUCT REAR ABUTMENT BACKWALL AND PORTION OF RIGHT WINGWALL AS PER PLAN.
16. INSTALL NEW ELASTOMERIC STRIP SEAL EXPANSION JOINTS.
17. PATCH PORTIONS OF REAR ABUTMENT BREAST WALL AND BEARING SEAT AS REQUIRED.
18. SEAL CONCRETE SURFACES AS PER PLAN.
19. CONSTRUCT APPROACH SLABS AS PER PLAN.
20. INSTALL CRUSHED AGGREGATE SLOPE PROTECTION AT THE FRWD. ABUT. AND IN THE WIDENED PORTION OF THE REAR ABUT.

PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

DESCRIPTION: THIS WORK SHALL CONSIST OF THE REMOVAL OF CONCRETE DECK INCLUDING CURBS, PARAPETS, RAILINGS, LIGHT POLES, DECK JOINTS, SCUPPERS AND OTHER APPURTENANCES FROM STEEL SUPPORTING SYSTEMS (GIRDERS, CROSS FRAMES, ETC.), PIERS AND PORTIONS OF THE ABUTMENTS AND WINGWALLS TO THE LIMITS INDICATED IN THE PLANS. CARE SHALL BE TAKEN DURING DECK REMOVALS TO PROTECT PORTIONS OF SUCH SYSTEMS THAT ARE TO BE SALVAGED AND INCORPORATED INTO THE PROPOSED STRUCTURE. IN THIS RESPECT, THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE-RAM TYPE OF EQUIPMENT IS PROHIBITED.

PROTECTION OF TRAFFIC: PRIOR TO DEMOLITION OF ANY PORTIONS OF THE EXISTING SUPERSTRUCTURE, THE CONTRACTOR SHALL SUBMIT PLANS FOR THE PROTECTION OF TRAFFIC ADJACENT TO AND/OR UNDER THE STRUCTURE TO THE DIRECTOR FOR APPROVAL. THESE PLANS SHALL INCLUDE PROVISIONS FOR ANY DEVICES AND STRUCTURES THAT MAY BE NECESSARY TO ENSURE SUCH PROTECTION. TEMPORARY VERTICAL CLEARANCES SPECIFIED ON THE PLANS OR IN THE PROPOSAL SHALL BE MAINTAINED AT ALL TIMES EXCEPT AS OTHERWISE APPROVED BY THE DIRECTOR.

PROTECTION OF STEEL SUPPORT SYSTEMS: BEFORE DECK SLAB CUTTING IS PERMITTED, THE OUTLINE OF PRIMARY STEEL MEMBERS IN CONTACT WITH THE BOTTOM OF THE DECK SHALL BE DRAWN ON THE SURFACE OF THE DECK. SMALL DIAMETER PILOT HOLES SHALL BE DRILLED 2 INCHES OUTSIDE THESE LINES TO CONFIRM THE LOCATION OF FLANGE EDGES. DECK CUTS OVER OR WITHIN 2 INCHES OF FLANGE EDGES SHALL NOT EXTEND LOWER THAN THE BOTTOM LAYER OF DECK SLAB REINFORCING STEEL. CUTS MADE OUTSIDE 2 INCHES OF FLANGE EDGES MAY EXTEND THE FULL DEPTH OF THE DECK. DURING CUTTING OF THE DECK SLAB, CARE SHALL BE TAKEN NOT TO DAMAGE STEEL MEMBERS THAT ARE TO BE INCORPORATED INTO THE PROPOSED STRUCTURE.

REMOVAL METHODS: CONCRETE MAY BE REMOVED BY CUTTING AND BY MEANS OF HAND OPERATED PNEUMATIC HAMMERS EMPLOYING POINTED OR BLUNTED CHISEL TYPE TOOLS. FOR REMOVALS OVER STEEL GIRDERS, A HAMMER HEAVIER THAN 35 POUNDS BUT NOT TO EXCEED 90 POUNDS MAY BE USED AT THE APPROVAL OF THE ENGINEER. REMOVAL METHODS OVER BRIDGE MEMBERS SHALL ENSURE ADEQUATE DEPTH CONTROL AND PREVENT NICKING OR GOUGING OF THE PRIMARY STEEL MEMBERS.

DECK REMOVALS: DUE TO THE POSSIBLE PRESENCE OF WELDED ATTACHMENTS TO EXISTING STRUCTURAL STEEL (FINISHING MACHINE, SCUPPER AND FORM SUPPORTS, ETC.) CARE SHALL BE TAKEN DURING DECK REMOVAL TO AVOID DAMAGING STRINGERS WHICH ARE TO REMAIN. STRINGERS INCLUDING THE PAINT THEREON DAMAGED BY THE CONTRACTOR'S REMOVAL OPERATIONS SHALL, AT NO COST TO THE PROJECT, BE REPLACED OR REPAIRED. PROPOSED REPAIRS, DEVELOPED BY AN OHIO REGISTERED PROFESSIONAL ENGINEER, SHALL BE SUBMITTED IN WRITING FOR REVIEW AND APPROVAL BY THE DIRECTOR.

SUBSTRUCTURE CONCRETE REMOVAL: SHALL BE BY MEANS OF APPROVED PNEUMATIC HAMMERS EMPLOYING POINTED AND BLUNT CHISEL TOOLS. HYDRAULIC HOE-RAM TYPE HAMMERS WILL NOT BE PERMITTED. THE WEIGHT OF THE HAMMER SHALL NOT BE MORE THAN 35 POUNDS FOR REMOVAL WITHIN 18 INCHES OF PORTIONS TO BE PRESERVED. OUTSIDE THE 18 INCH LIMIT, HAMMERS NOT EXCEEDING 90 POUNDS , MAY BE USED UPON THE APPROVAL OF THE ENGINEER. PNEUMATIC HAMMERS SHALL NOT BE PLACED IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE.

CUT LINE CONSTRUCTION JOINT PREPARATION: SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1 INCH DEEP. REMOVE CONCRETE TO A ROUGH SURFACE. ALL EXISTING REINFORCING STEEL, IN THE REMOVAL AREAS SHALL BE REMOVED. PRIOR TO CONCRETE PLACEMENT ABRASIVELY CLEAN JOINT SURFACES AND EXISTING EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THE JOINT SURFACE AND EXPOSED REINFORCEMENT SHALL BE THOROUGHLY CLEANED OF ALL DIRT, DUST, RUST OR OTHER FOREIGN MATERIAL BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHODS THAT PRODUCE SATISFACTORY RESULTS. EXISTING CONCRETE SURFACES WHICH NEW CONCRETE WILL BE PLACED AGAINST SHALL BE WET, BUT WITHOUT FREE WATER, AT THE TIME OF CONCRETE PLACEMENT.

EXTRANEEOUS MEMBERS: EXISTING EXTRANEEOUS MEMBERS (I.E., FINISHING MACHINE AND FORM SUPPORTS AND THE SUPPORT FOR SCUPPERS AND BULB ANGLES WHICH ARE TO BE REMOVED) ATTACHED BY WELDED CONNECTIONS TO PORTIONS OF THE TOP FLANGES DESIGNATED "TENSION" SHALL BE REMOVED AND THE FLANGE SURFACES GROUND SMOOTH. GRINDING SHALL BE CAREFULLY DONE AND PARALLEL TO THE FLANGES.

LOADING LIMITATIONS: NO PART OF THE STRUCTURE SHALL BE SUBJECTED TO UNIT STRESSES THAT EXCEED 136.5% OF THE ALLOWABLE UNIT STRESSES GIVEN IN THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES DUE EITHER TO DEMOLITION, ERECTION OR CONSTRUCTION METHODS, OR TO THE USE OR MOVEMENT OF DEMOLITION OR ERECTION EQUIPMENT ON OR ACROSS THE STRUCTURE. STRUCTURAL ANALYSIS COMPUTATIONS, BY AN OHIO REGISTERED PROFESSIONAL ENGINEER, SHOWING THE ALLOWABLE STRESSES AND THE MAXIMUM STRESSES PRODUCED BY THE CONTRACTOR'S METHODS OR EQUIPMENT SHALL BE SUBMITTED TO THE DIRECTOR FOR REVIEW AND APPROVAL AT LEAST TWO WEEKS PRIOR TO THE START OF THE WORK.

PAYMENT: THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE BID, WHICH PRICE AND PAYMENT SHALL BE FULL COMPENSATION FOR ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO COMPLETE THE WORK IN CONFORMANCE WITH THESE REQUIREMENTS, WITH PERTINENT PROVISIONS OF 202, AND TO THE SATISFACTION OF THE ENGINEER.

EXISTING STRUCTURE VERIFICATION

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05, 105.02 AND 863.07.

CONTRACT BID PRICES SHALL BE BASED UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE BY THE CONTRACTOR. HOWEVER, ALL PROJECT WORK SHALL BE BASED UPON ACTUAL DETAILS AND DIMENSIONS WHICH HAVE BEEN VERIFIED BY THE CONTRACTOR IN THE FIELD.

FOUNDATION BEARING PRESSURE

ABUTMENT FOOTINGS, AS DESIGNED, PRODUCE A MAXIMUM BEARING PRESSURE OF 3.8 TONS PER SQUARE FOOT. PIER FOOTINGS, AS DESIGNED, PRODUCE A MAXIMUM BEARING PRESSURE OF 3.8 TONS PER SQUARE FOOT. THE ALLOWABLE BEARING PRESSURE IS 4.0 TONS PER SQUARE FOOT.

ITEM 844. HIGH PERFORMANCE CONCRETE TRIAL MIX
ITEM 844. HIGH PERFORMANCE CONCRETE TESTING

THESE ITEMS ARE INCLUDED WITH THE QUANTITIES OF BRIDGE NO. MAH-711-0208 FOR PAYMENT.

ITEM 815. PAINTING OF EXISTING STEEL SYSTEM OZEU
ITEM 816. PAINTING OF NEW STEEL SYSTEM IZEU

COLOR OF THE FINISH COAT OF PAINT SHALL BE "GREY" MEETING FEDERAL COLOR STANDARD NO. 16440.

DETOUR PLANS

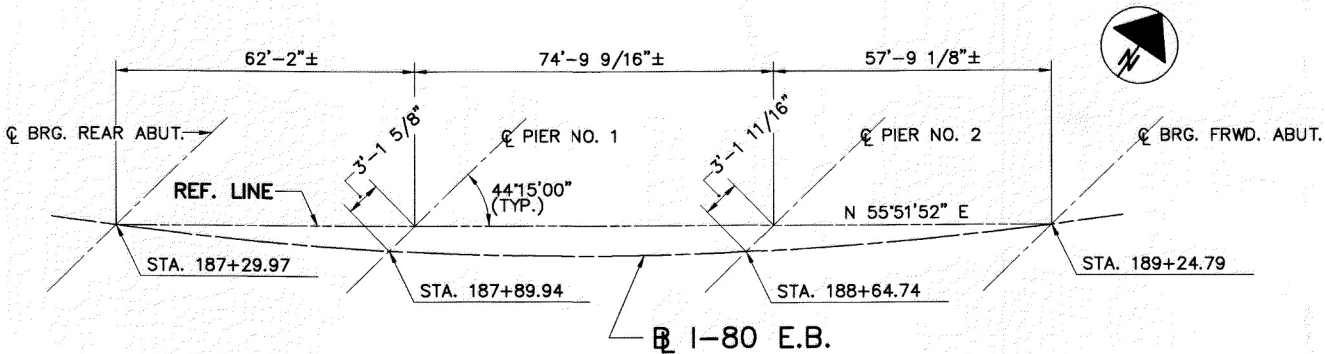
FOR DETOUR PLANS, SEE SHEET NO. 137 1194

CONSTRUCTION CONSTRAINTS

ALL EMBANKMENT MATERIAL FOR FILLING THE VOID CREATED BY EXCAVATING FOR THE ABUTMENT FOOTINGS SHALL BE 203 EMBANKMENT MATERIAL. AFTER THE FOOTING AND THE BREASTWALL HAVE BEEN CONSTRUCTED, THE VOID BEHIND EACH ABUTMENT SHALL BE FILLED UP TO THE BEAM SEAT ELEVATION AND FROM THE BEAM SEAT UP ON A 1:1 SLOPE TO THE SUBGRADE ELEVATION PRIOR TO CONSTRUCTING THE BACKWALL AND SETTING THE BEAMS ON THE ABUTMENT.

FOOTINGS

FOOTINGS SHALL EXTEND A MINIMUM OF 3 INCHES INTO BEDROCK OR TO THE ELEVATION SHOWN, WHICHEVER IS LOWER.



ITEM 509 REINFORCING STEEL REPLACEMENT OF EXISTING REINFORCING STEEL AS PER PLAN:

ANY EXISTING REINFORCING BARS DEEMED BY THE ENGINEER TO BE UNUSABLE BECAUSE OF CORROSION SHALL BE REPLACED WITH NEW REINFORCING STEEL. ANY EXISTING REINFORCING STEEL BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND ARE MADE UNUSABLE BY CONCRETE REMOVAL OPERATIONS SHALL BE REPLACED WITH NEW EPOXY COATED REINFORCING STEEL OF THE SAME SIZE AT THE CONTRACTOR'S COST. ALL WORK SHALL BE TO THE SATISFACTION OF THE ENGINEER.

THE NUMBER OF POUNDS OF REINFORCING STEEL PAID FOR AT CONTRACT PRICES SHALL BE THE ACTUAL POUNDS OF REPLACEMENT REINFORCING STEEL SPECIFIED BY THE ENGINEER DUE TO CORROSION AND SHALL INCLUDE PLACEMENT, DOWELING, BENDING, SUPPORTING, TIE WIRES AND TYING OF THAT SPECIFIED REINFORCING STEEL.

REQUIRED MINIMUM BAR LAP LENGTHS*

BAR SIZE	OTHER	TOP
#4	1'-11"	2'-9"
#5	2'-5"	3'-5"
#6	2'-11"	4'-1"
#7	3'-8"	5'-2"
#8	4'-11"	6'-10"
#9	6'-2"	8'-8"
#10	7'-10"	11'-0"
#11	9'-8"	13'-6"

* UNLESS NOTED OTHERWISE IN PLANS.

INSPECTION OF EXISTING STRUCTURAL STEEL

THE ENGINEER WILL VISUALLY INSPECT ALL EXISTING TOP FLANGE COVER PLATE FILLET WELDS TO ENSURE THE WELDS AND PLATES ARE FREE OF DEFECTS AND CRACKS. IF THE DECK SLAB HAUNCH FORMS IMMEDIATELY ADJACENT TO SUCH WELDS INTERFERE WITH THE ENGINEER'S INSPECTION THEY SHALL BE REMOVED OR NOT BE ERECTED UNTIL AFTER INSPECTION. THE INSPECTION SHALL NOT TAKE PLACE UNTIL AFTER THE TOP FLANGES ARE CLEANED AS SPECIFIED IN SS 842.08, BUT IT SHALL BE DONE BEFORE THE DECK SLAB REINFORCEMENT IS INSTALLED. THE COST ASSOCIATED WITH THIS INSPECTION SHALL BE INCLUDED WITH ITEM 844, HIGH PERFORMANCE CONCRETE, SUPERSTRUCTURE DECK FOR PAYMENT. ANY CRACKS FOUND SHOULD BE REPORTED TO THE OFFICE OF STRUCTURAL ENGINEERING, BRIDGE CONSTRUCTION SPECIALIST, ALONG WITH SPECIFIC INFORMATION ON LOCATION OF THE CRACKS, LENGTH, AND DEPTH SO AN EVALUATION AND REPAIR OR REPLACEMENT RECOMMENDATION CAN BE MADE.

ITEM 863 STRUCTURAL STEEL MEMBERS, MISCELLANEOUS LEVEL FABRICATION, AS PER PLAN

ALL SECTIONS OF SS 863 APPLY EXCEPT AS REVISED HEREIN. THE ENGINEER IS RESPONSIBLE FOR ENSURING ANY SHOP OR FIELD FABRICATED STEEL SUPPLIED UNDER THIS BID ITEM IS ACCEPTABLE. THE REQUIREMENTS FOR SUBMITTAL OF SHOP DRAWINGS TO THE OFFICE OF STRUCTURAL ENGINEERING IS WAIVED. AT THE ENGINEER'S OPTION, THE CONTRACTOR SHALL EITHER SUPPLY THE ENGINEER WITH SHOP DRAWINGS, REQUIRED IN SECTION 863.08, PRIOR TO ANY INCORPORATION OF SHOP FABRICATED STEEL AT THE PROJECT, OR SUPPLY THE ENGINEER WITH "AS FABRICATED" DRAWINGS, MEETING 863.08, AFTER COMPLETION OF FIELD FABRICATION. THE ENGINEER SHALL ASSURE THE SUBMITTED DRAWINGS MATCH THE FINAL AS BUILT STEEL INCORPORATED INTO THE WORK. IF THE ENGINEER IS SATISFIED WITH THE DRAWINGS AND THE DELIVERED MATERIALS, THE CONTRACTOR SHALL SUPPLY A COPY SET, STAMPED AND DATED AS PER 863.08, TO THE OFFICE OF STRUCTURAL ENGINEERING FOR RECORD PURPOSES. SUBMITTAL REQUIREMENTS UNDER 863.09, MATERIALS, SHALL BE MADE TO THE ENGINEER. THE CONTRACTOR SHALL FURNISH A COPY OF THE WRITTEN LETTER OF ACCEPTANCE, MADE TO THE ENGINEER. THE CONTRACTOR SHALL FURNISH A COPY OF THE WRITTEN LETTER OF ACCEPTANCE, 863.09, TO THE OFFICE OF STRUCTURAL ENGINEERING.

THE ENGINEER, AT OR BEFORE THE PRE-CONSTRUCTION MEETING, MAY CHOOSE TO REQUEST ASSISTANCE, AS REQUIRED, FROM THE OFFICE OF STRUCTURAL ENGINEERING.

NEW STEEL SHALL BE CLEANED AND IT SHALL BE PRIME PAINTED IN THE FIELD. AT THE CONTRACTOR'S OPTION NEW STEEL MAY BE GIVEN A PRELIMINARY CLEANING IN THE SHOP. THE COST OF CLEANING AND PRIME PAINTING SHALL BE IN THE SHOP. THE COST OF CLEANING AND PRIME PAINTING SHALL BE INCLUDED IN THE SEVERAL OZEU ITEMS.

STEEL MEMBERS INCLUDED IN THIS ITEM INCLUDE RETROFIT EXISTING INT. X-FRAMES BETWEEN BEAMS 1 & 2, 2 & 3, 3 & 4, 4 & 5, AND 5&6 AND RETROFIT OF EXIST. MOMENT PLATES AT BEAMS 1 THRU 6.

ABBREVIATIONS

B.S.	BOTH SIDES	U.N.	UNLESS NOTED
N.S.	NEAR SIDE	SPL.	SPLICE
F.S.	FAR SIDE	CLR.	CLEAR
SER.	SERIES	EA.	EACH
TYP.	TYPICAL	MIN.	MINIMUM
EQ.	EQUAL	EXIST.	EXISTING
DIM.	DIMENSION	BM.	BEAM
SPA.	SPACES		

DOWEL HOLES WITH NON-SHRINK, NON-METALLIC GROUT:

ALL DOWEL HOLES SHALL BE CORE DRILLED AND GROUTED WITH AN EPOXY GROUT MEETING THE REQUIREMENTS OF CMS 510 AND 705.20. PAYMENT FOR ALL OF THE ABOVE SHALL BE INCLUDED IN ITEM 842-CLASS C CONCRETE, ABUTMENT NOT INCLUDING FOOTING, AS PER PLAN.

ITEM 516 JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN

THIS ITEM SHALL CONSIST OF FURNISHING ALL NECESSARY LABOR, MATERIALS, AND EQUIPMENT TO RAISE OR REPOSITION ANY EXISTING STRUCTURES TO THE DIMENSIONS AND REQUIREMENTS DEFINED IN THE PROJECT PLANS AND TO CONSTRUCT, PROTECT AND REMOVE TEMPORARY BENTS INCLUDING FOOTINGS AT PIER NOS. 1 AND 2 AND THE FORWARD ABUTMENT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, INSTALLATION AND OPERATION OF AN ADEQUATE JACKING SYSTEM AND TEMPORARY BENTS AT PIER NOS. 1 AND 2 AND FORWARD ABUTMENT, INCLUDING ANY TEMPORARY OR PERMANENT SUPPORTS NECESSARY TO PERFORM THE WORK DESCRIBED IN THE PROJECT PLANS. THREE (3) SETS OF JACKING PLANS, WHICH INCLUDE THE INFORMATION DESCRIBED IN THIS NOTE, SHALL BE SUBMITTED TO THE DIRECTOR FOR APPROVAL AT LEAST THIRTY (30) DAYS BEFORE ACTUAL WORK IS TO BEGIN. THE PLANS SHALL BE PREPARED AND STAMPED BY A REGISTERED PROFESSIONAL ENGINEER.

JACKING SUBMITTALS SHALL INCLUDE AT LEAST THE FOLLOWING:

1. THE SIGNATURE AND NUMBER, OR PROFESSIONAL SEAL OF THE REGISTERED PROFESSIONAL ENGINEER WHO PREPARED THE SUBMITTAL.
2. CALCULATIONS AND ANALYSES OF THE STRUCTURE TO DETERMINE AND DEFINE THE ACTUAL LOADING APPLIED AT THE CONTRACTOR'S SELECTED JACKING POINTS.
3. A DRAWING SHOWING THE PHYSICAL AND DIMENSIONAL POSITION OF THE JACKS WITH RESPECT TO THE STRUCTURE INCLUDING CLEARANCES AND CENTER OF LIFT.
4. A SCHEMATIC LAYOUT OF JACKS, CHECK VALVES , PUMPS WITH 3 WAY RETRACTOR VALVE, PRESSURE GAGES, FLOW CONTROL VALVES, ETC. IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. ALL JACKS FOR EACH ABUTMENT OR PIER SHALL BE CONNECTED TOGETHER. ALL JACKS AT EACH ABUTMENT OR PIER SHALL BE THE SAME SIZE.
5. ANALYSIS AND CALCULATIONS OF THE STRESSES INDUCED OR CREATED IN THE STRUCTURE AND ANY TEMPORARY OR PERMANENT SUPPORTS. DESIGN CALCULATIONS FOR TEMPORARY BENTS AND THER FOOTINGS AND ANY TEMPORARY OR PERMANENT SUPPORTS.
6. PHYSICAL DIMENSIONS, MATERIALS, FABRICATION DETAILS OF TEMPORARY BENTS AND FOOTINGS AND TEMPORARY OR PERMANENT SUPPORTS. HORIZONTAL AND VERTICAL MOVEMENT RESTRAINT SHALL BE PROVIDED.
7. A STEP BY STEP PROCEDURE DETAILING ALL STEPS IN THE JACKING OPERATION.
8. METHOD OF ATTACHMENT TO STRUCTURAL MEMBERS. WELDING TO TENSION AREAS WILL NOT BE PERMITTED.

THE ENTIRE SYSTEM INCLUDING JACKS SHALL HAVE 20% MORE CAPACITY THAN REQUIRED BASED ON CALCULATED LOADS.

FOR LIFTS GREATER THAN 1", JACKS SHALL HAVE LOCKING NUTS TO POSITIVELY LOCK AND SUPPORT THE STRUCTURE DURING THE LIFT.

JACKS SHALL HAVE A SWIVEL LOAD CAP, A DOMED PISTON HEAD OR SOME OTHER DEVICE TO PROTECT AGAINST THE EFFECTS OF SIDE LOAD ON THE JACK.

JACKS ALONE SHALL NOT BE USED TO SUPPORT LOADS EXCEPT DURING THE ACTUAL JACKING OPERATION. TEMPORARY SUPPORTS, BLOCKING OR OTHER METHODS APPROVED BY THE DIRECTOR SHALL BE USED.

SINGLE ACTING RAMS WITH NO OVER-TRAVEL PROTECTION SYSTEM SHALL NOT BE USED.

SPARE EQUIPMENT SHALL BE AVAILABLE ON SITE FOR THE REQUIRED STRUCTURE RAISING TO PROCEED IN THE EVENT OF BREAKDOWN. A LIST OF SPARE EQUIPMENT SHALL BE PROVIDED TO THE ENGINEER.

ESTIMATED QUANTITIES

CALCULATED: M.D.P. DATE: 3/29/01
CHECKED: P.J.W. DATE: 4/18/01

ITEM	EXT	TOTAL	UNITS	DESCRIPTION	ABUT	PIER	SUPER	GENERAL	AS PER PLAN SHT. NO.
202	11203	LUMP		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN				LUMP	2, 4
503	11100	LUMP		COFFERDAMS, CRIBS AND SHEETING				LUMP	
503	21101	1,000	CU YD	UNCLASSIFIED EXCAVATION, AS PER PLAN	1,000				3
503	31120	916	CU YD	SHALE EXCAVATION	580	336			
509	20001	1,000	POUND	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN				1,000	3
512	33000	25	SQ YD	TYPE 2 WATERPROOFING	25				
516	11210	195	LIN FT	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL (SEE PROPOSAL NOTE)			195		
516	44101	16	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (12"x8 1/2"x2.62"), AS PER PLAN			16		15
516	44101	8	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (19"x11"x2.01"), AS PER PLAN			8		15
516	44101	8	EACH	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE) (18"x11 1/2"x2.58"), AS PER PLAN			8		15
516	47001	LUMP		JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN				LUMP	3
518	21230	LUMP		POROUS BACKFILL WITH FILTER FABRIC	LUMP				
518	40000	225	LIN FT	6" PERFORATED CORRUGATED PLASTIC PIPE	225				
518	40011	25	LIN FT	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN	25				3
519	11100	225	SQ FT	PATCHING CONCRETE STRUCTURE	225				
815	00100	LUMP		SURFACE PREPARATION OF EXISTING STEEL, SYSTEM OZEU				LUMP	
815	00200	LUMP		FIELD PAINTING OF EXISTING STEEL, PRIME COAT, SYSTEM OZEU				LUMP	
815	00300	LUMP		FIELD PAINTING OF EXISTING STEEL, INTERMEDIATE COAT, SYSTEM OZEU				LUMP	
815	00400	LUMP		FIELD PAINTING OF EXISTING STEEL, FINISH COAT, SYSTEM OZEU				LUMP	
815	00504	20	MAN HR	GRINDING FINIS, TEARS, SLIVERS			20		
816	00610	92,300	POUND	FIELD PAINTING OF NEW STEEL, INTERMEDIATE AND FINISH COAT, SYSTEM IZEU			92,300		
842	41000	127	CU YD	CLASS C CONCRETE, PIER ABOVE FOOTINGS		127			
842	44101	461	CU YD	CLASS C CONCRETE, ABUTMENT NOT INCLUDING FOOTING, AS PER PLAN	461				3
842	46500	442	CU YD	CLASS C CONCRETE, FOOTING	303	139			
844	48000	388	CU YD	HIGH PERFORMANCE CONCRETE SUPERSTRUCTURE (DECK)			388		
844	48020	87	CU YD	HIGH PERFORMANCE CONCRETE SUPERSTRUCTURE (PARAPET)	23		64		
863	10260	78,900	POUND	STRUCTURAL STEEL MEMBERS, LEVEL THREE (3) FABRICATION			78,900		
863	10201	13,400	POUND	STRUCTURAL STEEL MEMBERS, MISCELLANEOUS LEVEL FABRICATION, AS PER PLAN			13,400		3
863	20000	4,368	EACH	WELDED STUD SHEAR CONNECTOR			4,368		
864	10100	1,507	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	689	368	450		

ITEM 519 AN ALLOWANCE OF 75 SQ. FT. HAS BEEN INCLUDED FOR FUTURE DETERIORATION.

AT A MINIMUM, A JACKING OPERATION SHALL LIFT ALL BEAMS AT ANY ONE ABUTMENT OR PIER SIMULTANEOUSLY. THE ONLY EXCEPTION IS THE SITUATION WHERE THE WORK INVOLVES REPLACING OR REHABILITATING EXISTING BEARINGS, NO PERMANENT SHIMMING IS REQUIRED AND THE HEIGHT OF THE LIFT DOES NOT EXCEED 1/4 INCH.

MAXIMUM DIFFERENTIAL JACKING HEIGHT BETWEEN ANY ADJACENT ABUTMENTS OR PIERS SHALL BE 1" OR LESS.

THE CONTRACTOR SHALL DEMONSTRATE TO THE ENGINEER THAT THE BRIDGE BEARINGS ARE FULLY SEATED BETWEEN ALL CONTACT AREAS. IF FULL SEATING IS NOT ATTAINED, SUITABLE MEANS OR REPAIR, SUBJECT TO THE APPROVAL OF THE ENGINEER, WILL BE REQUIRED AT THE CONTRACTOR'S EXPENSE.

THE JACKING OPERATION SHALL BE DIRECTED BY A PROFESSIONAL ENGINEER EMPLOYED BY THE CONTRACTOR. FAILURE TO HAVE A PROFESSIONAL ENGINEER PRESENT SHALL BE CAUSE FOR CEASING JACKING OPERATIONS.

PAYMENT SHALL BE MADE AT THE LUMP SUM PRICE BID FOR ITEM 516, JACKING AND TEMPORARY SUPPORT OF SUPERSTRUCTURE, AS PER PLAN AND SHALL INCLUDE ALL NECESSARY TOOLS, LABOR, EQUIPMENT AND MATERIALS TO COMPLETE THIS ITEM OF WORK.

ITEM 518-6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN

ANIMAL GUARDS CONFORMING TO THE DETAILS AND SPECIFICATIONS OF STANDARD CONSTRUCTION DRAWING DM-1.1 SHALL BE PROVIDED AT THE OUTLET ENDS OF ALL ABUTMENT DRAINAGE PIPES. PAYMENT FOR THE ANIMAL GUARDS SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT UNIT PRICE BID FOR ITEM 518-6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS, AS PER PLAN.

BONDING GROUT

THE BONDING GROUT TO BE USED BETWEEN OLD AND NEW CONCRETE SHALL BE "SIKA ARMATEC 110" AS MANUFACTURED BY SIKA CORPORATION, 201 POLITO AVENUE, LYNDHURST, NEW JERSEY 07071; "EUCCO NO. 452 EPOXY SYSTEM" AS MANUFACTURED BY THE EUCLID CHEMICAL CO., 19218 REDWOOD ROAD, CLEVELAND, OHIO 44110; "CONCRESEIVE STANDARD LIQUID" AS MANUFACTURED BY MASTER BUILDERS, INC., 23700 CHAGRIN BOULEVARD, CLEVELAND, OHIO 44122; OR AN APPROVED ALTERNATE. SURFACE PREPARATION MIXING AND PLACING OF GROUT SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTION. BONDING GROUT SHALL BE INCLUDED WITH ITEM 842 - CLASS CONCRETE, ABUTMENT NOT INCLUDING FOOTING, AS PER PLAN FOR PAYMENT.

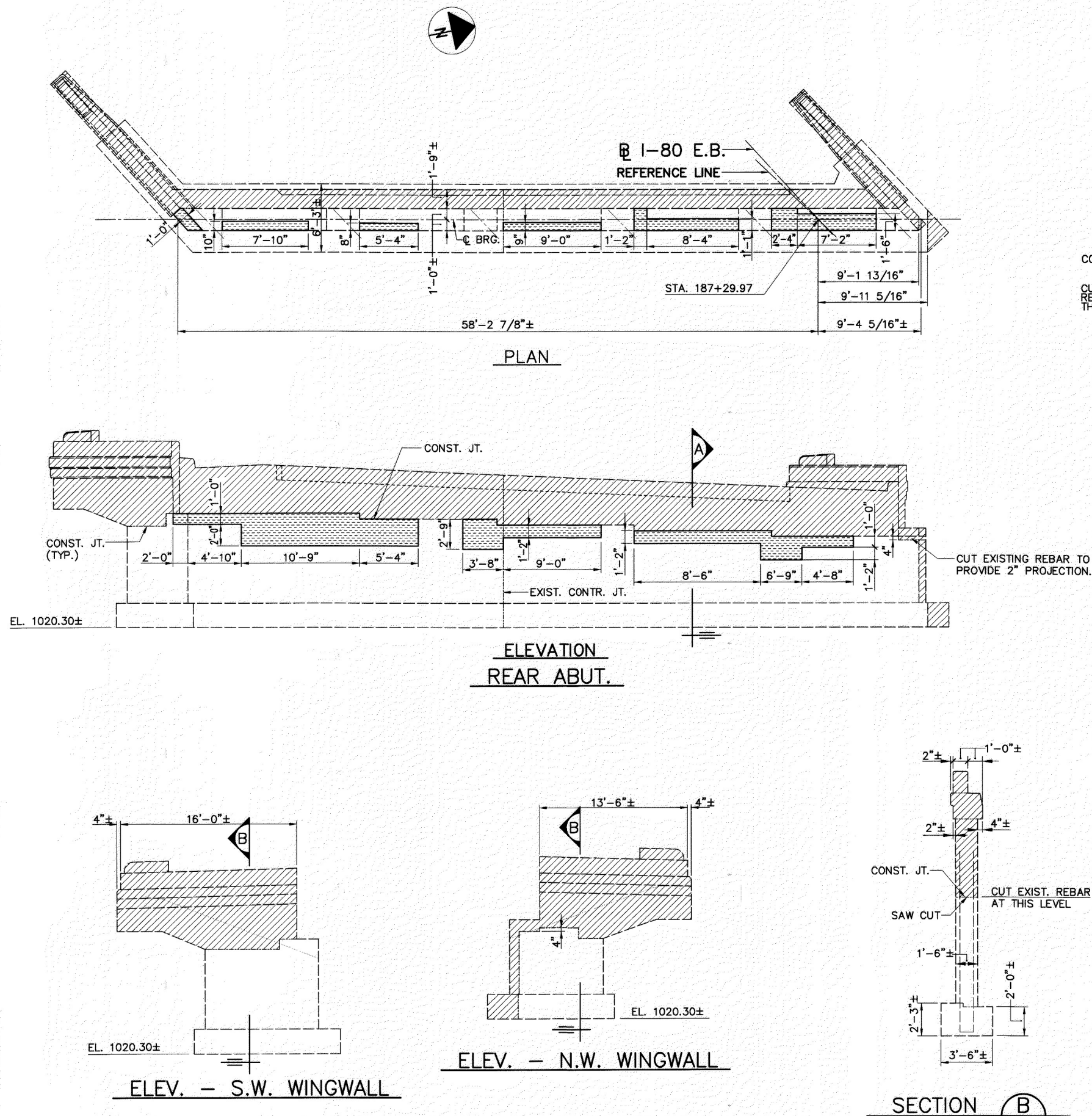
SEALING OF CONCRETE SURFACES

EPOXY-URETHANE SHALL BE THE "BUFF" COLOR MEETING FEDERAL COLOR STANDARD NO. 37722 AS PER THE DETAILS IN THE PLANS.

ITEM 503. UNCLASSIFIED EXCAVATION, AS PER PLAN

UNCLASSIFIED EXCAVATION SHALL BE IN ACCORDANCE WITH 503 EXCEPT THAT THE BACKFILL MATERIAL BEHIND THE ABUTMENTS SHALL BE 203 MATERIAL PLACED IN 6 INCH LIFTS.

STRUCTURE EXCAVATION IN ADDITION TO THAT NECESSARY TO REMOVE PORTIONS OF THE EXISTING STRUCTURE, AND ALL NECESSARY BACKFILL, IS INCLUDED IN THE UNIT PRICE BID FOR ITEM 503, "UNCLASSIFIED EXCAVATION," FOR PAYMENT.



ASBESTOS NOTIFICATION:

AN ASBESTOS SURVEY OF THE I-80 E.B. BRIDGE OVER S.R. 711 N.B. & RAMP 11 SCHEDULED FOR REHABILITATION WAS CONDUCTED BY A CERTIFIED ASBESTOS HAZARD EVALUATION SPECIALIST. THE SURVEY DETERMINED THAT NO ASBESTOS IS PRESENT ON THE BRIDGE.

A COPY OF THE OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA) NOTIFICATION OF THE DEMOLITION AND RENOVATION FORM, PARTIALLY COMPLETED AND SIGNED BY THE BRIDGE OWNER WILL BE PROVIDED TO THE SUCCESSFUL BIDDER. THE CONTRACTOR SHALL COMPLETE THE FORM AND SUBMIT IT TO:

YOUNGSTOWN
 MAHONING-TRUMBULL AIR
 POLLUTION CONTROL
 9 WEST FRONT ST. ROOM 107
 YOUNGSTOWN, OHIO 44503
 ROBERT RAMHOFF, DIRECTOR
 (330)744-1928
 FAX (330)744-1928

AT LEAST TEN (10) WORKING DAYS PRIOR TO START OF THE BRIDGE DEMOLITION WORK, THE CONTRACTOR SHALL PROVIDE A COPY OF THE COMPLETED FORM TO THE ENGINEER.

INFORMATION REQUIRED ON THE FORM WILL INCLUDE: THE CONTRACTOR'S NAME AND ADDRESS, THE SCHEDULED DATES FOR THE START AND COMPLETION OF THE BRIDGE REMOVAL OR RENOVATION AND A DESCRIPTION OF THE PLANNED DEMOLITION OR RENOVATION WORK AND THE METHOD(S) TO BE USED. A COPY OF THE OEPA FORM IS AVAILABLE FOR INSPECTION AT THE ODOT DISTRICT 4 OFFICE, 705 OAKWOOD STREET, RAVENNA, OHIO 44266.

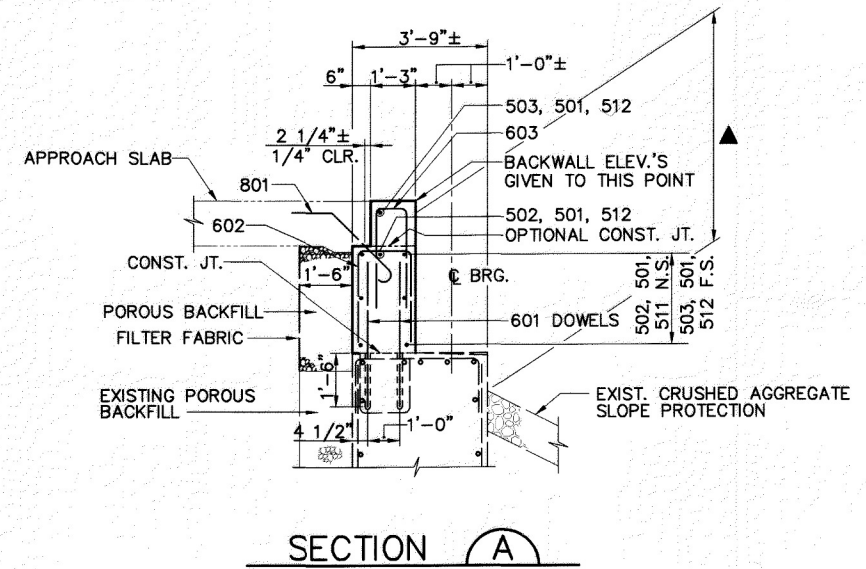
BASIS FOR PAYMENT: THE CONTRACTOR SHALL FURNISH ALL FEES, LABOR, AND MATERIAL NECESSARY TO COMPLETE AND SUBMIT THE OEPA NOTIFICATION FORM. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN ITEM 202 - PORTIONS OF STRUCTURE REMOVED, OVER 20' SPAN, AS PER PLAN.

NOTE:

ALL SURFACES TO BE PATCHED AND THE EXPOSED REINFORCING STEEL WITHIN SHALL BE THOROUGHLY CLEANED BY ABRASIVE BLASTING PRIOR TO THE CLEANING SPECIFIED BY 519.04. CLEANING SHALL PRECEDE APPLICATION OF THE PATCHING MATERIAL OR ERECTION OF THE FORMS BY NOT MORE THAN 24 HOURS.

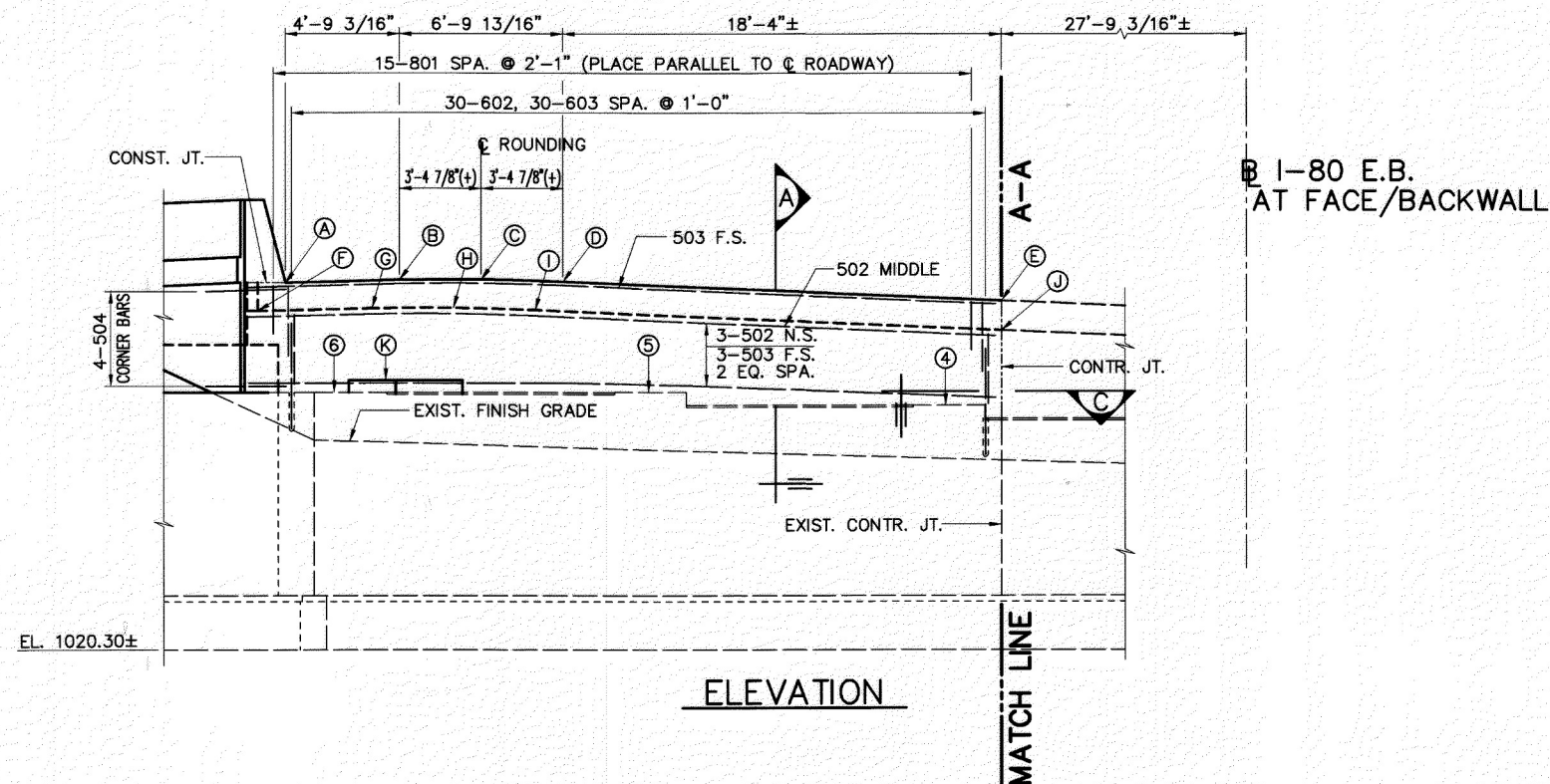
LEGEND:

- INDICATES REMOVAL LIMITS, ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FT. SPAN, AS PER PLAN
- INDICATES AREA TO BE PATCHED PER ITEM 519, PATCHING CONCRETE STRUCTURE



ELEVATIONS					
(A)	(B)	(C)	(D)	(E)	(F)
1035.48	1035.70	1035.79	1035.71	1034.92	1034.19
(G)	(H)	(I)	(J)	(K)	
1034.41	1034.49	1034.42	1033.66	1031.60	
(6)	(5)	(4)			
1031.10	1031.11	1030.56			

PLAN

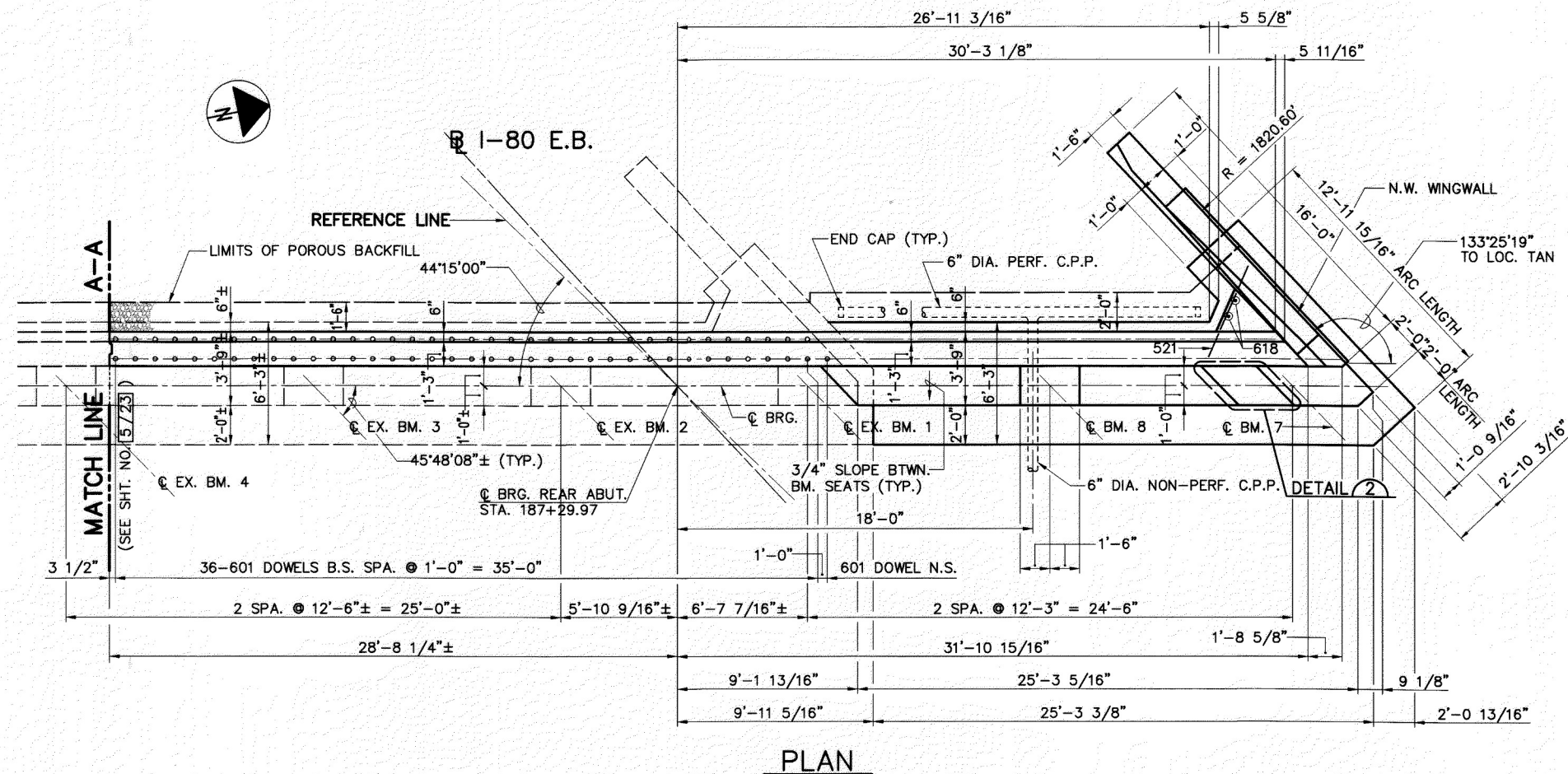
SECTION A

NOTES:

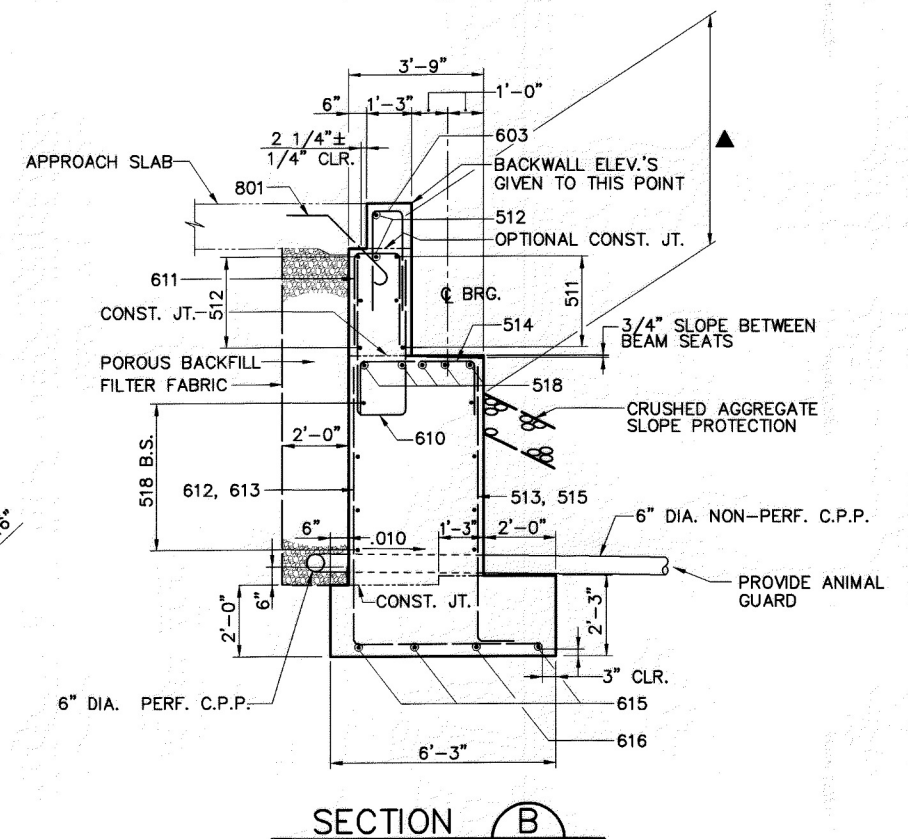
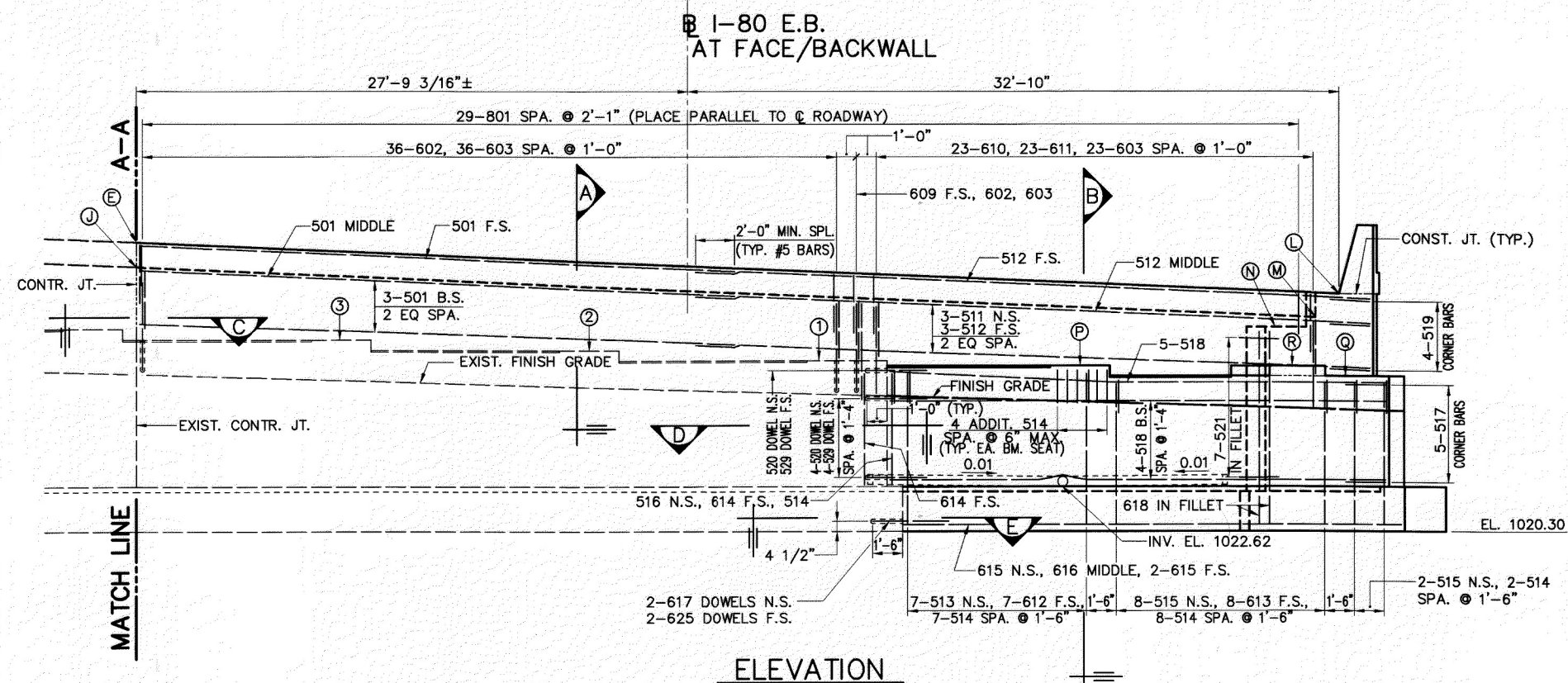
1. PREFIX "A" WILL BE ADDED TO ALL REBAR MARKS SHOWN FOR THE ABUTMENTS. SEE REINFORCING SCHEDULE.
2. MINIMUM CLEARANCE TO REBARS SHALL BE 2" UNLESS NOTED OTHERWISE.
3. ALL REINFORCING SHALL BE EPOXY COATED.
4. DEFLECTOR PARAPET CONCRETE AND REINFORCING STEEL ARE INCLUDED WITH ITEM 844, HIGH PERFORMANCE CONCRETE, SUPERSTRUCTURE (PARAPET) FOR PAYMENT.
5. PRIOR TO THE PLACEMENT OF NEW CONCRETE, THE EXISTING CONCRETE SURFACE SHALL BE THOROUGHLY CLEANED BY SAND-BLASTING AND/OR OTHER APPROVED METHODS SO THAT IT IS FREE OF LOOSE OR DISINTEGRATED CONCRETE, DUST, LAITANCE, GREASE, RUST AND OTHER FOREIGN MATTER. ALL EXISTING REBARS SHALL BE CLEANED BY WIRE BRUSH OR SANDBLASTED TO REMOVE ANY RUST. A BONDING GROUT SHALL BE USED BETWEEN OLD CONCRETE AND NEW CONCRETE. BONDING GROUT IS INCLUDED WITH ITEM 842, CLASS C CONCRETE, ABUTMENT NOT INCLUDING FOOTING, AS PER PLAN FOR PAYMENT.
6. FOR BONDING GROUT NOTE, SEE SHT. NO. 3/23.
7. BACKWALL CONCRETE: IN ADDITION TO THE PROVISIONS OF 842.08, BACKWALL CONCRETE ABOVE THE OPTIONAL CONSTRUCTION JOINT AT THE APPROACH SLAB SEAT SHALL NOT BE PLACED UNTIL AFTER THE DECK CONCRETE IN THE SPAN ADJACENT TO THE ABUTMENT HAS BEEN PLACED.
8. NEW REINFORCING MAY REQUIRE FIELD CUTTING OR BENDING FOR PROPER FIT. INCLUDED WITH ITEM 842 FOR PAYMENT.
9. FOR SOUTHWEST WINGWALL DETAILS, SEE SHT. NO. 7/23.
10. FOR SECTION C, SEE SHT. NO. 7/23.
11. FOR DETAIL 1, SEE SHT. NO. 7/23.

LEGEND

▲ LIMITS OF ITEM 864, SEALING OF
CONCRETE SURFACES (EPOXY-URETHANE).



ELEVATIONS					
(E)	(L)	(J)	(M)	(N)	(P)
1034.92	1032.30	1033.66	1031.00	1030.50	1028.6
(Q)	(R)	(3)	(2)	(1)	
1028.16	1028.66	1030.02	1029.48	1028.75	

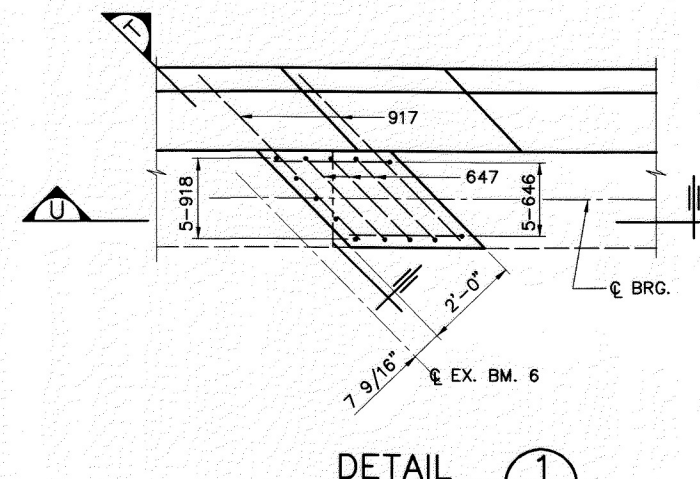
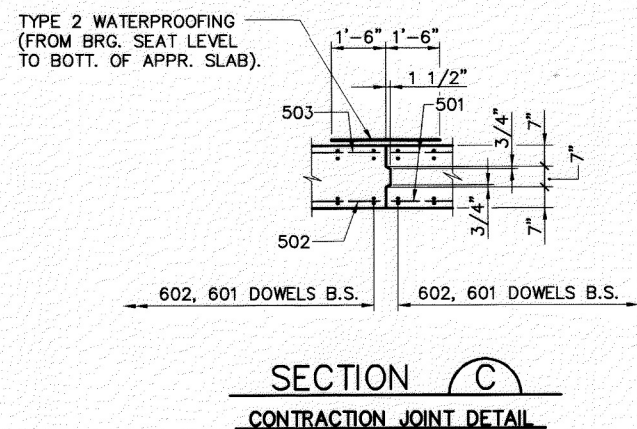
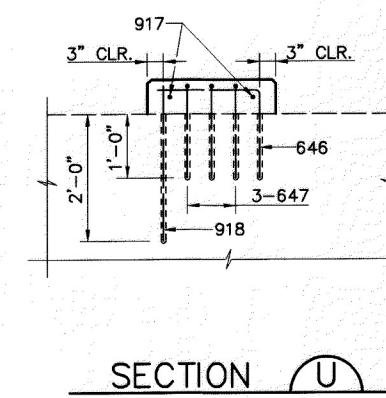
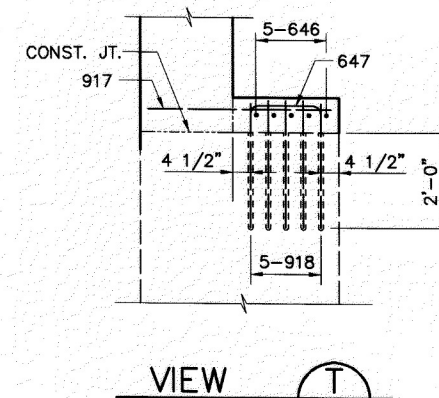
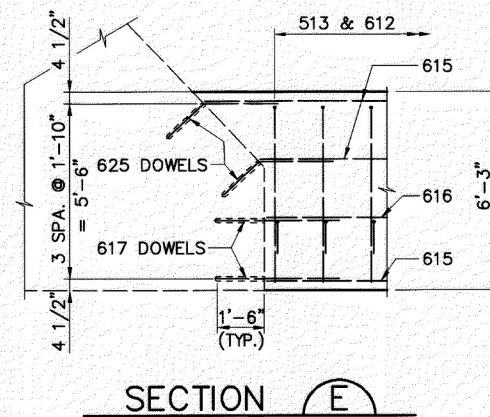
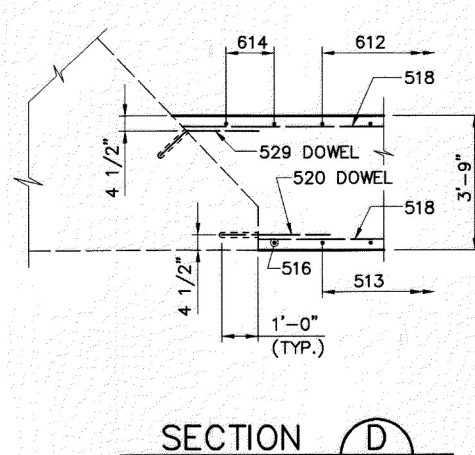
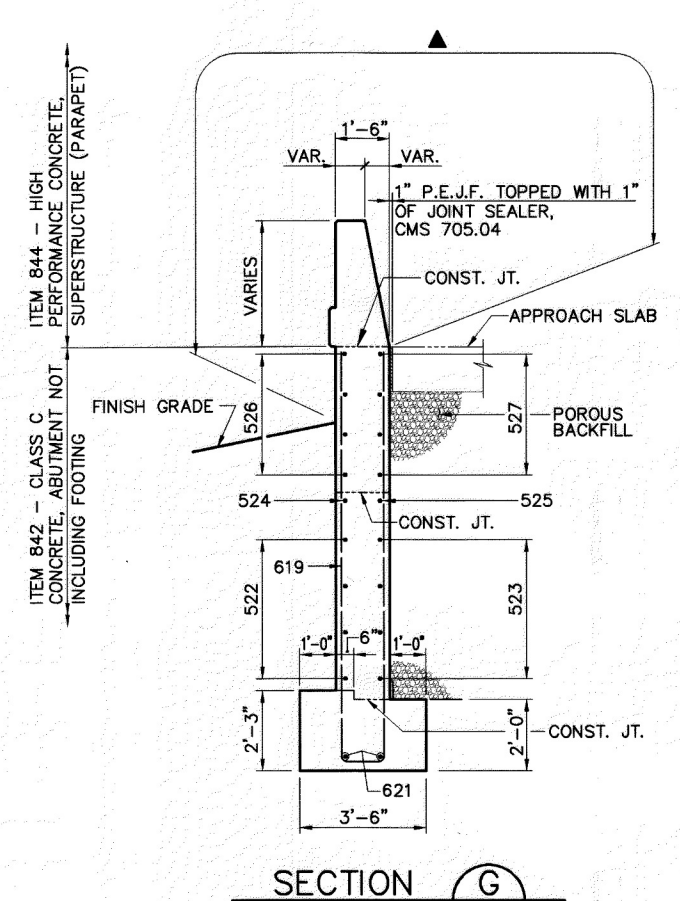
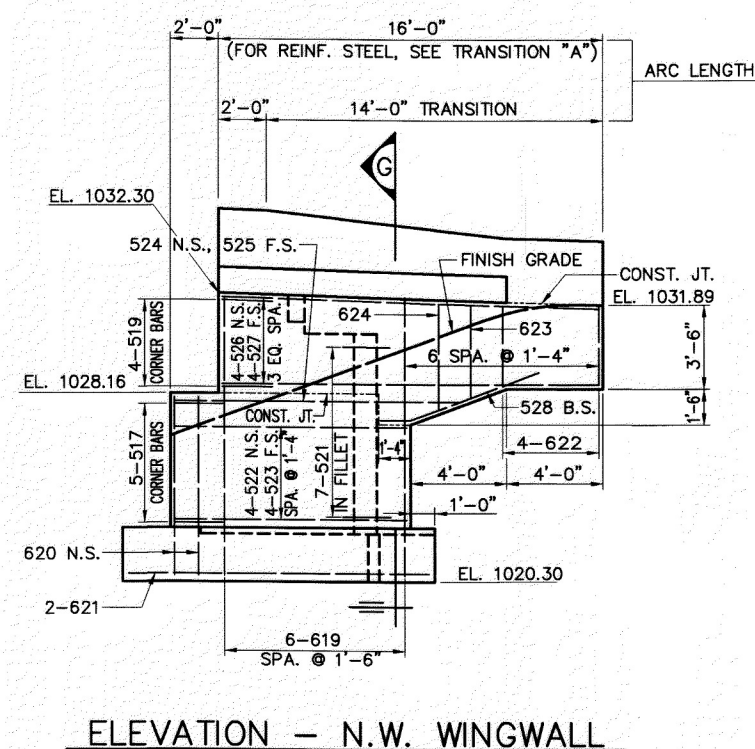
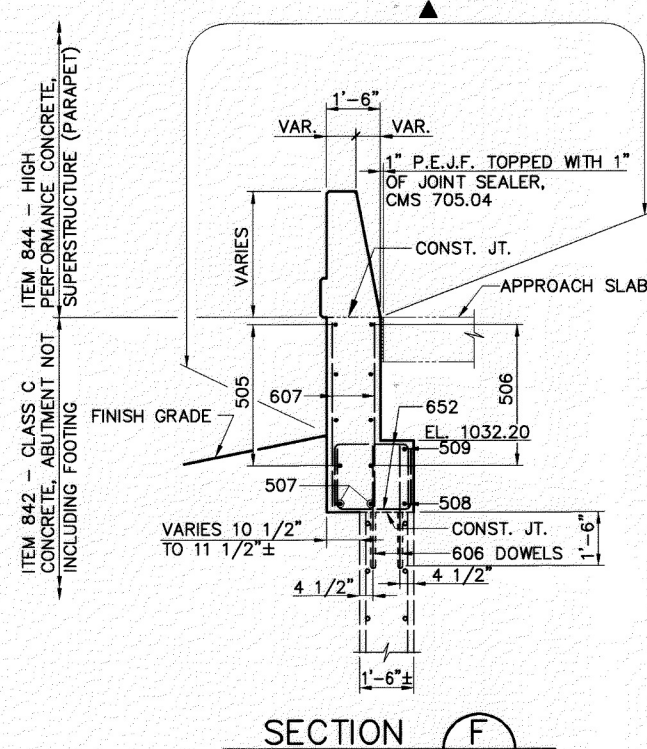
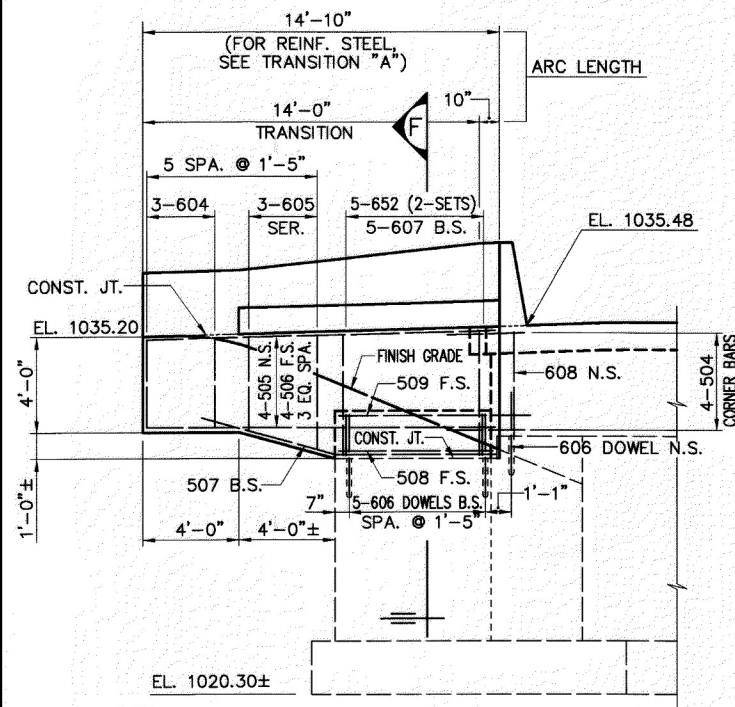


- NOTES:

1. PREFIX "A" WILL BE ADDED TO ALL REBAR MARKS SHOWN FOR THE ABUTMENTS. SEE REINFORCING SCHEDULE.
2. ALL REINFORCING SHALL BE EPOXY COATED.
3. FOR NORTHWEST WINGWALL DETAILS, SEE SHT. NO. 7/23.
4. FOR SECTION A, SEE SHT. NO. 5/23.
5. FOR SECTIONS C, D & E, SEE SHT. NO. 7/23.
6. FOR DETAIL 2, SEE SHT. NO. 12/23.
7. FOR ADDITIONAL NOTES, SEE SHT. NO. 5/23.

LEGEND

- ▲ LIMITS OF ITEM 864, SEALING OF
CONCRETE SURFACES (EPOXY-URETHANE).



- NOTES:

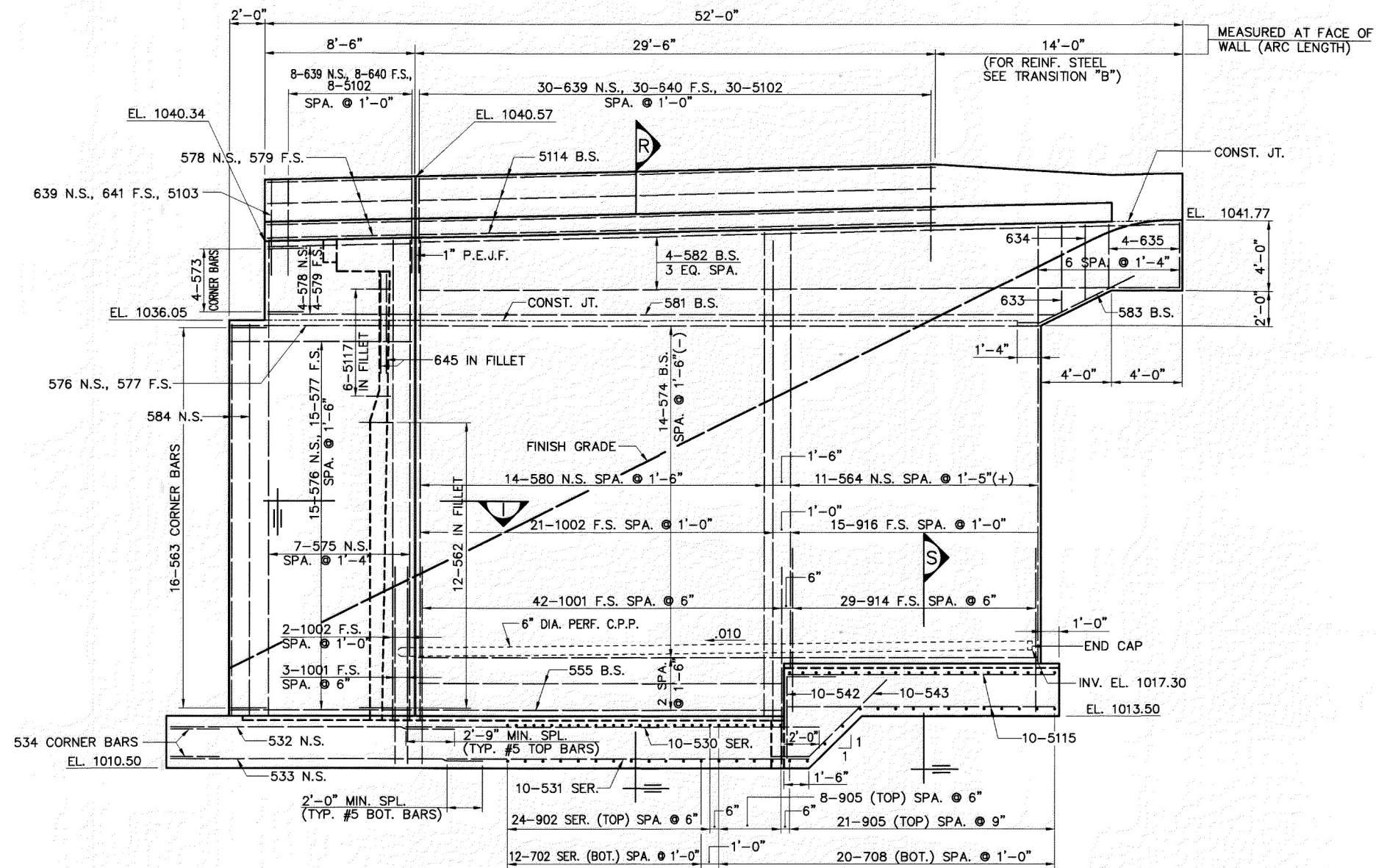
1. PREFIX "A" WILL BE ADDED TO ALL REBAR MARKINGS FOR THE ABUTMENTS. SEE REIN. SCHEDULE.
2. ALL REINFORCING STEEL SHALL BE EPOXY COATED.
3. FOR LOCATION OF SECTION C, SEE SHT. NOS. 5/23 & 6/23.
4. FOR LOCATION OF SECTIONS D & E, SEE SHT. NO. 6/23.
5. FOR LOCATION OF DETAIL 1, SEE SHT. NO. 5/23.
6. FOR TRANSITION "A", SEE SHT. NO. 12/23.
7. FOR ADDITIONAL NOTES, SEE SHT. NO. 5/23.

LEGEND

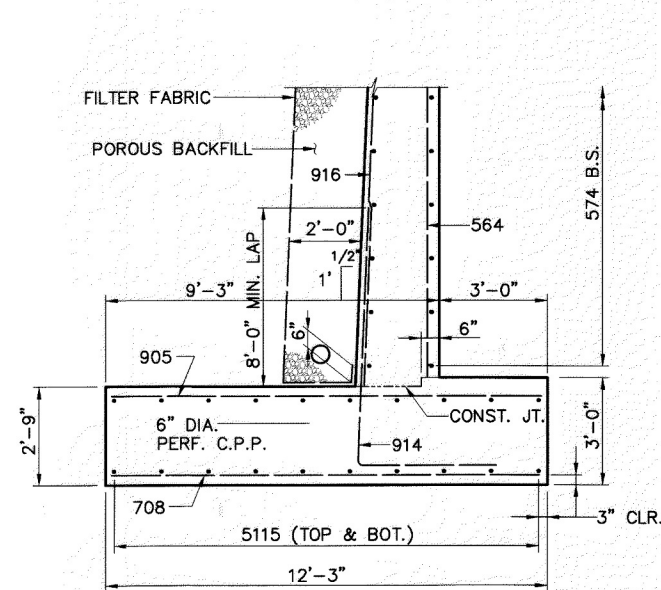
▲ LIMITS OF ITEM 864, SEALING OF
CONCRETE SURFACES (EPOXY-URETHANE).

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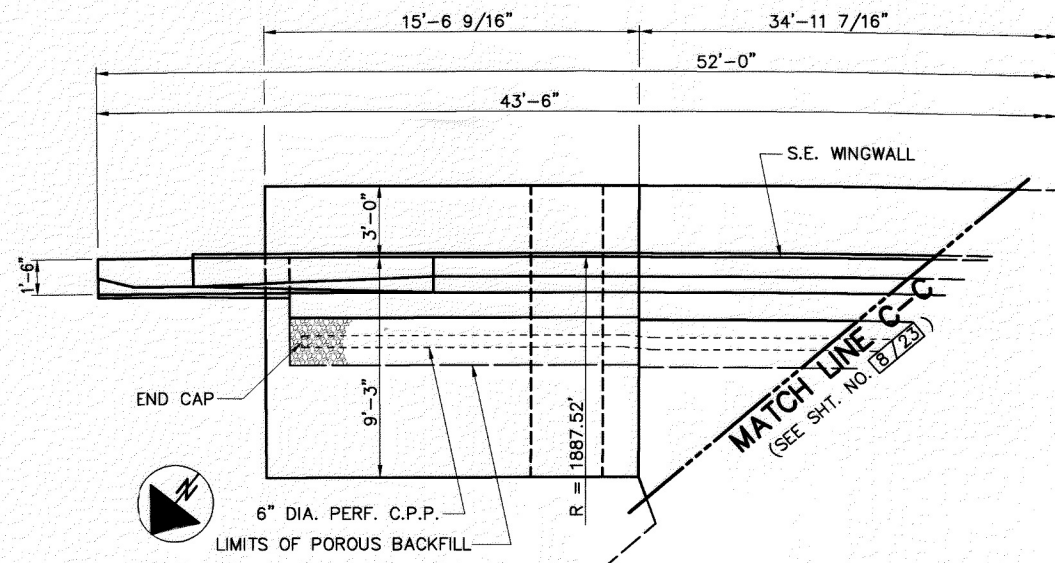
Technician: TBURGOYNE



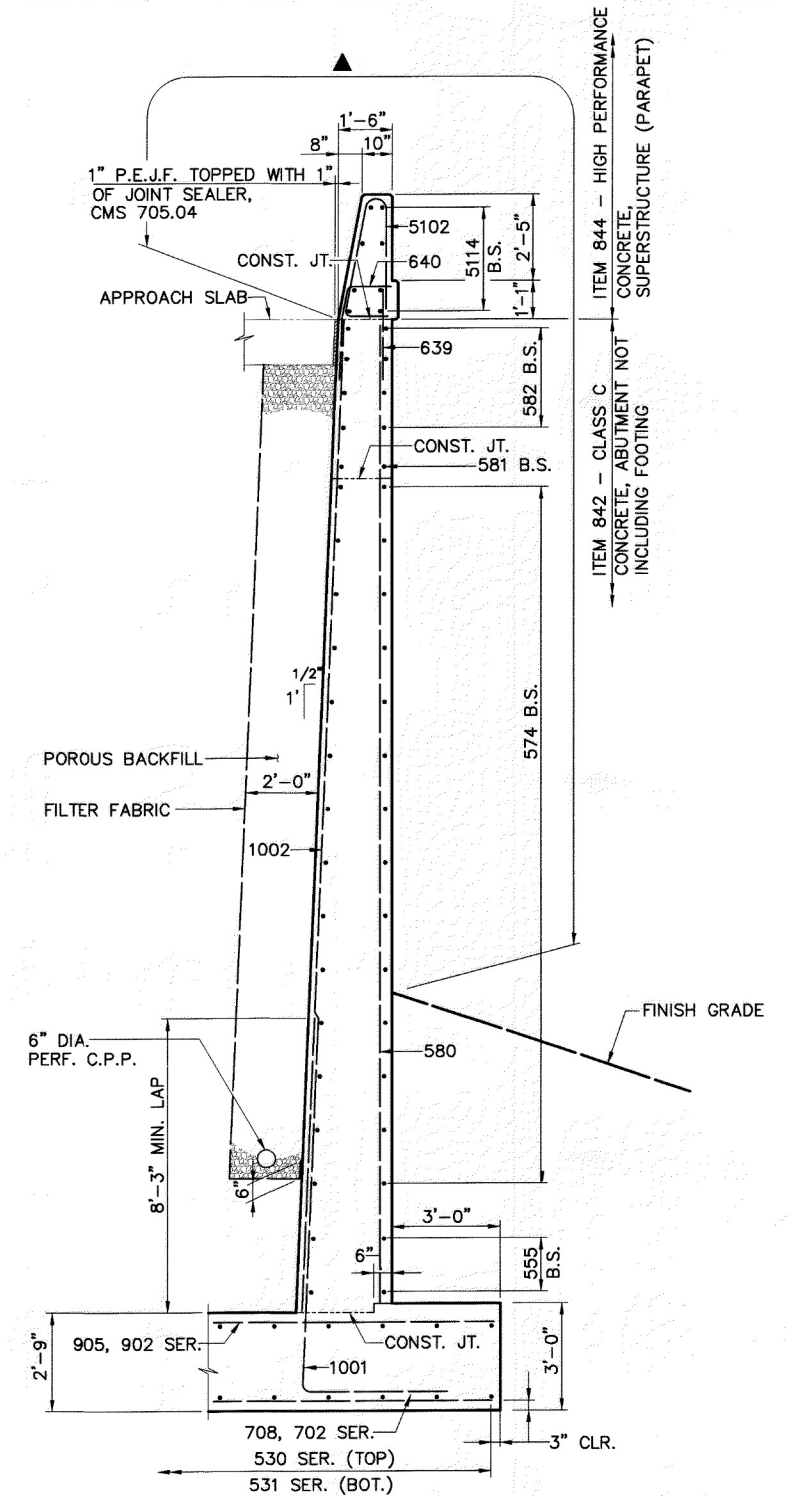
ELEVATION - S.E. WINGWALL



SECTION S



PART PLAN
S.E. WINGWALL



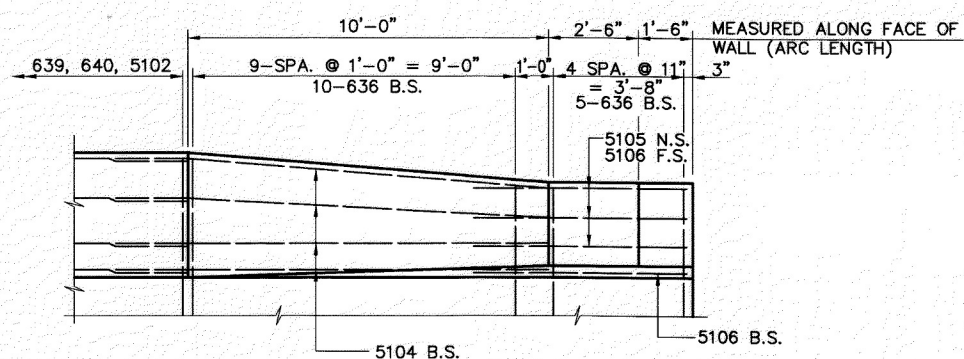
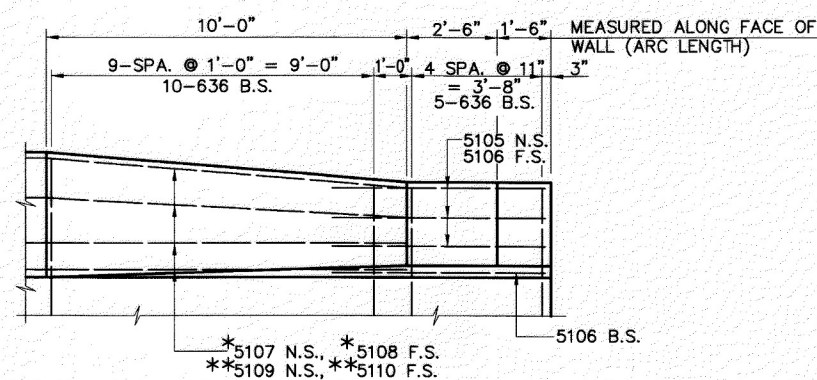
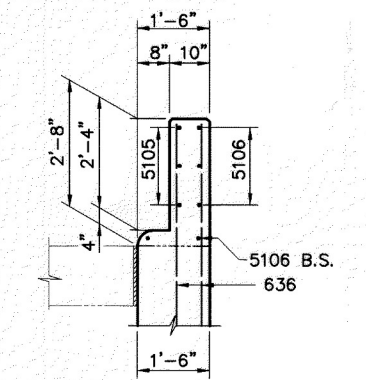
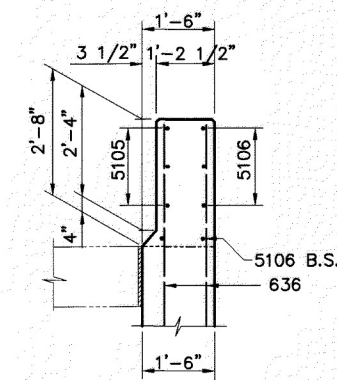
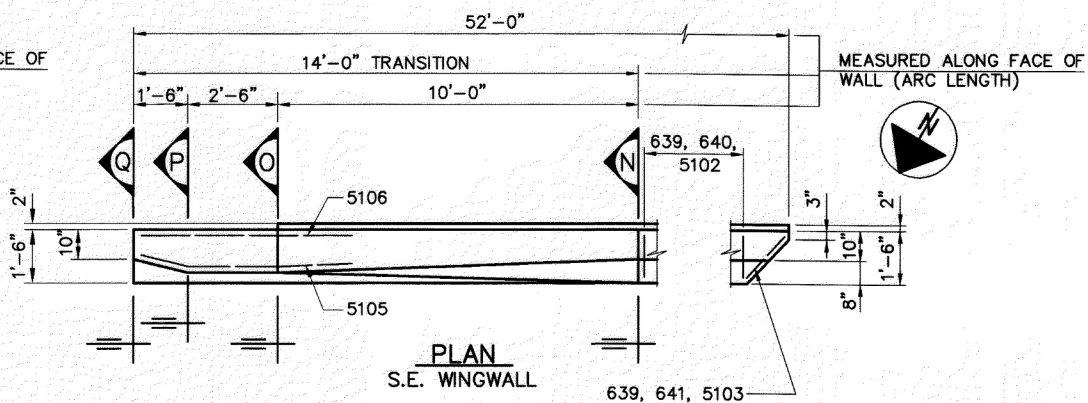
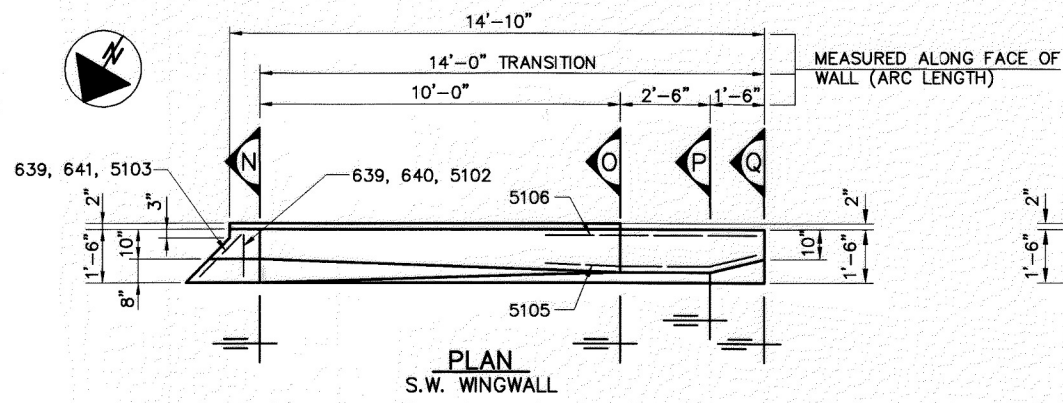
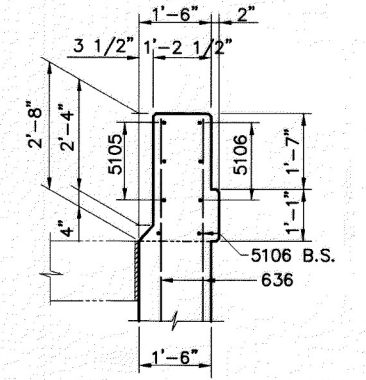
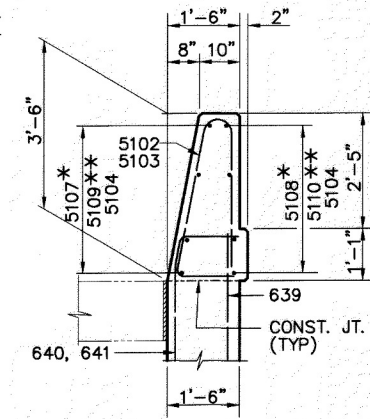
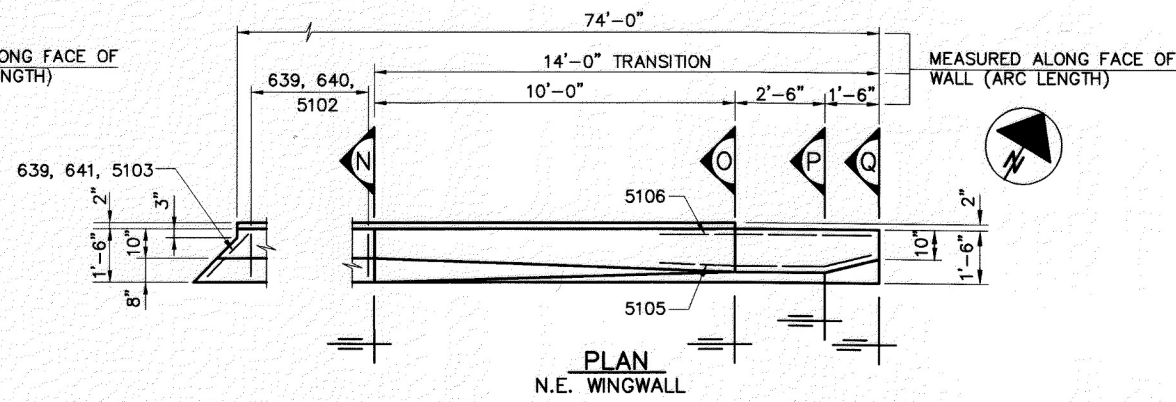
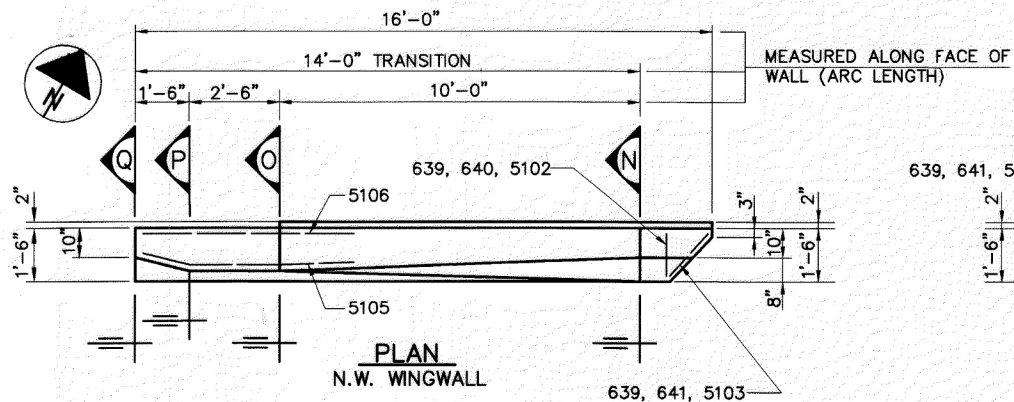
SECTION R

NOTES:

1. PREFIX "A" WILL BE ADDED TO ALL REBAR MARKS SHOWN FOR THE ABUTMENTS. SEE REINFORCING SCHEDULE.
2. ALL REINFORCING SHALL BE EPOXY COATED.
3. FOR SECTION I, SEE SHT. NO. [11/23].
4. FOR TRANSITION "B" SEE SHT. NO. [12/23].
5. FOR ADDITIONAL NOTES, SEE SHT. NO. [5/23].

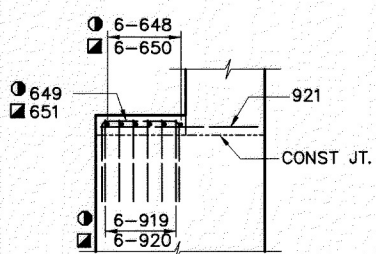
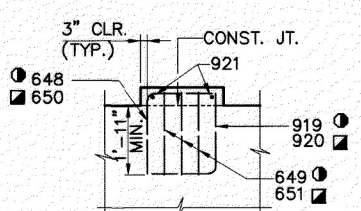
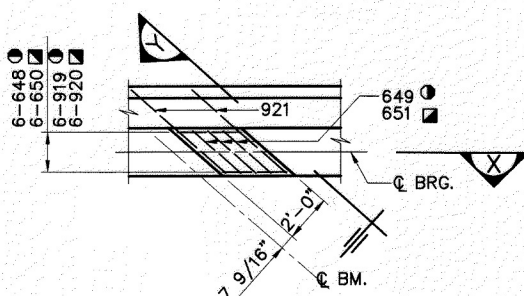
LEGEND

- ▲ LIMITS OF ITEM 864, SEALING OF CONCRETE SURFACES (EPOXY-URETHANE).

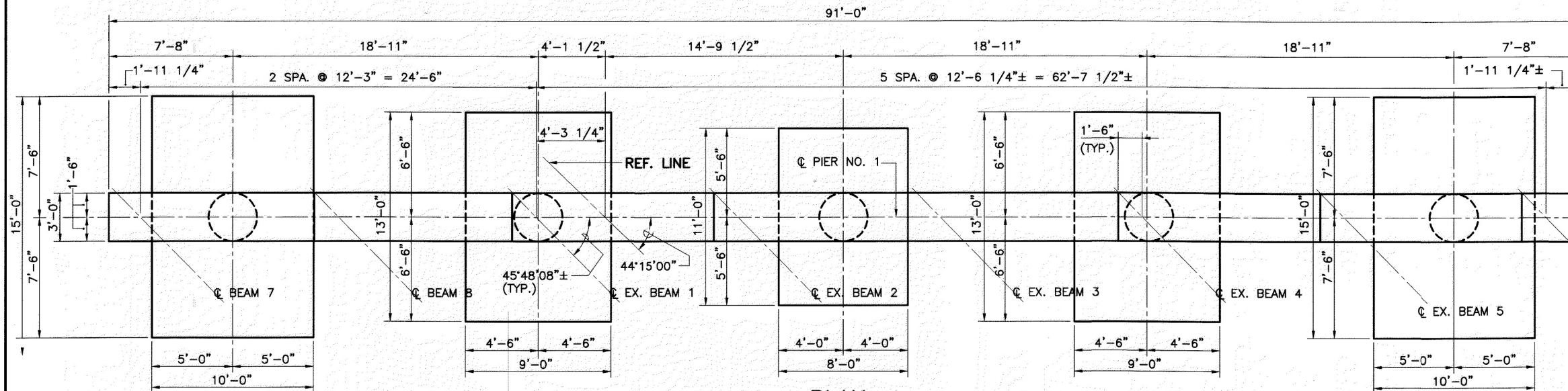


* N.W. WINGWALL
** S.W. WINGWALL

* N.W. WINGWALL
** S.W. WINGWALL

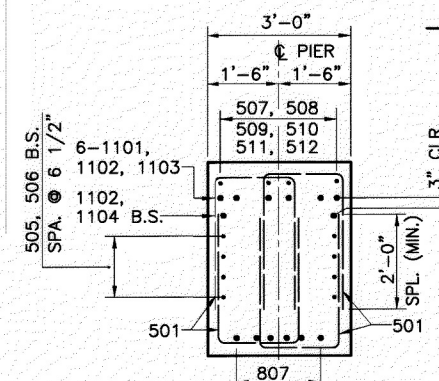


- NOTES:
1. PREFIX "A" WILL BE ADDED TO ALL REBAR MARKS SHOWN FOR THE ABUTMENTS. SEE REINF. SCHEDULE.
 2. ALL REINFORCING SHALL BE EPOXY COATED.
 3. FOR LOCATION OF DETAIL 2, SEE SHT. NOS. [6/23] & [8/23].
 4. FOR LOCATION OF DETAIL 3, SEE SHT. NO. [8/23].
 5. FOR ADDITIONAL NOTES, SEE SHT. NO. [5/23].

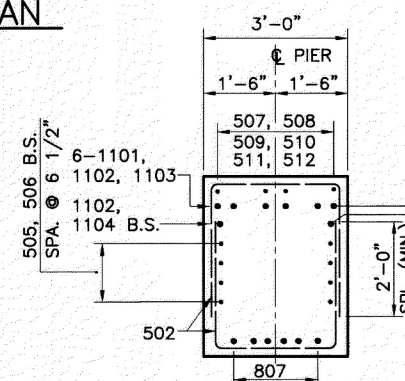


PLAN

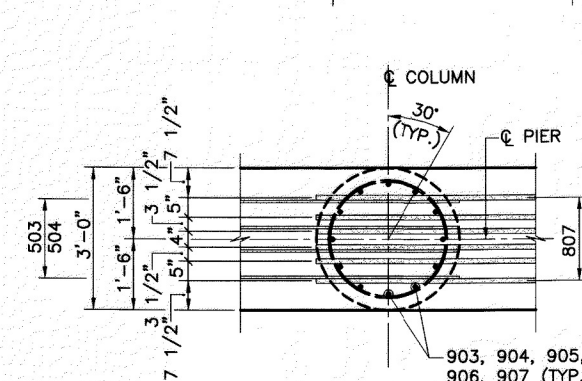
ELEVATIONS							
A	B	C	D	E	F	G	H
1029.82	1030.30	1030.52	1031.01	1031.51	1032.02	1032.53	1032.52
I	J	K	L	M			
1026.12	1026.69	1027.26	1027.83	1028.40			



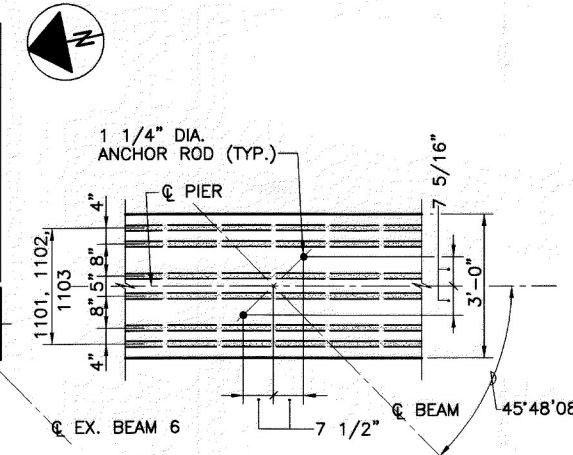
SECTION A



SECTION B



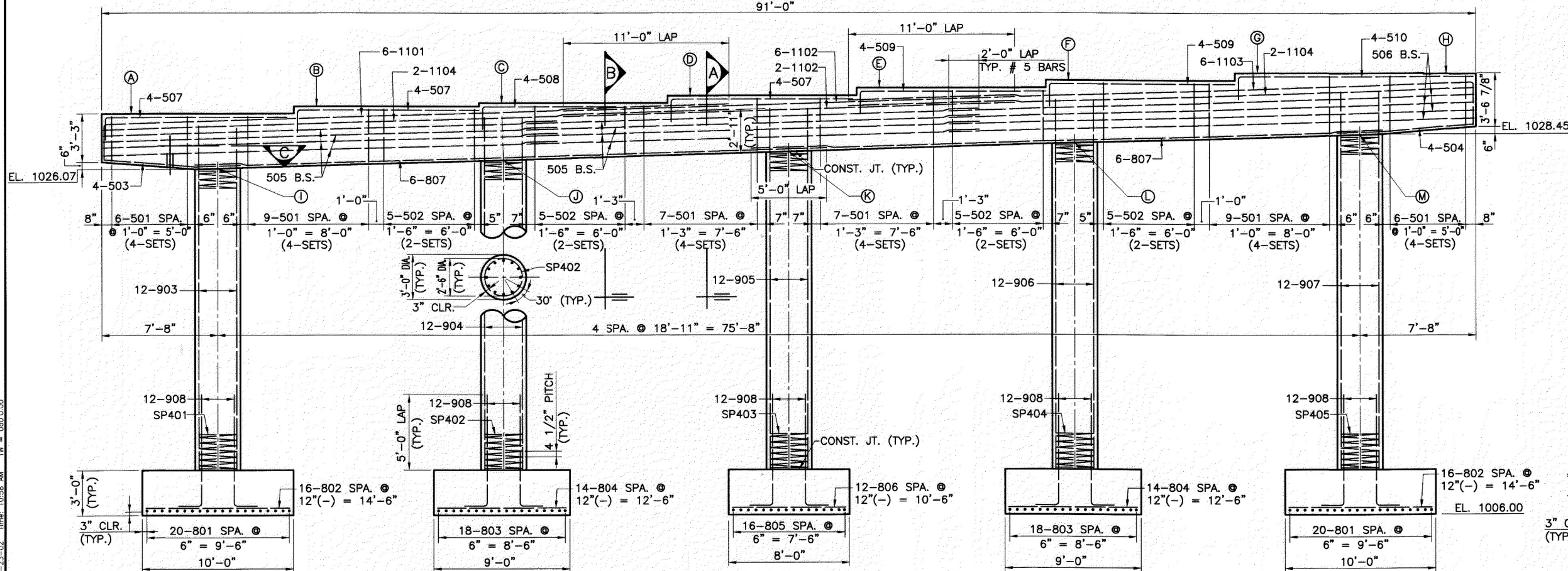
SECTION C



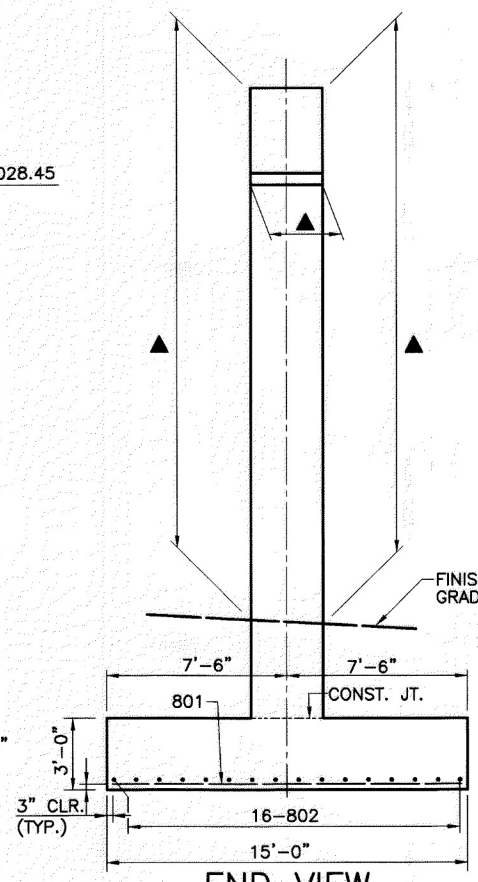
ANCHOR ROD LAYOUT

- NOTES:
1. PREFIX "P" WILL BE ADDED TO ALL REBAR MARKS EXCEPT THOSE INDICATING SPIRALS, FOR THE PIERS. SPIRALS ARE PREFIXED "SP". SEE REINFORCING SCHEDULE.
 2. ALL REINFORCING STEEL SHALL BE EPOXY COATED.
 3. MINIMUM CLEARANCE TO REBARS SHALL BE 2" UNLESS NOTED OTHERWISE.
 4. BRIDGE SEAT REINFORCING, SETTING ANCHORS: REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF BEARING ANCHOR HOLES OR THE PRE-SETTING OF BEARING ANCHORS.
 5. FOR BEARING DETAILS, SEE SHT. NO. 15/23.

LEGEND:
▲ LIMITS OF "ITEM 864 - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)."



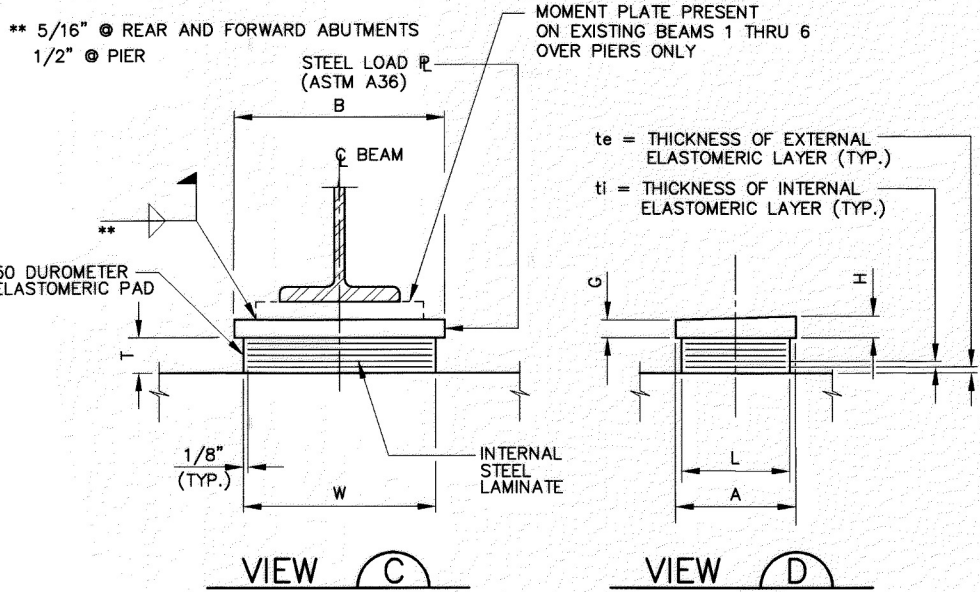
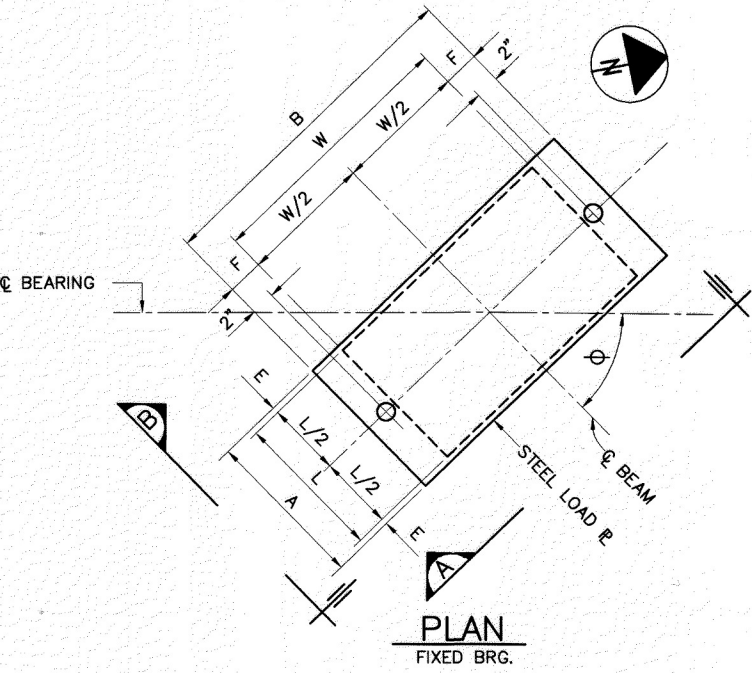
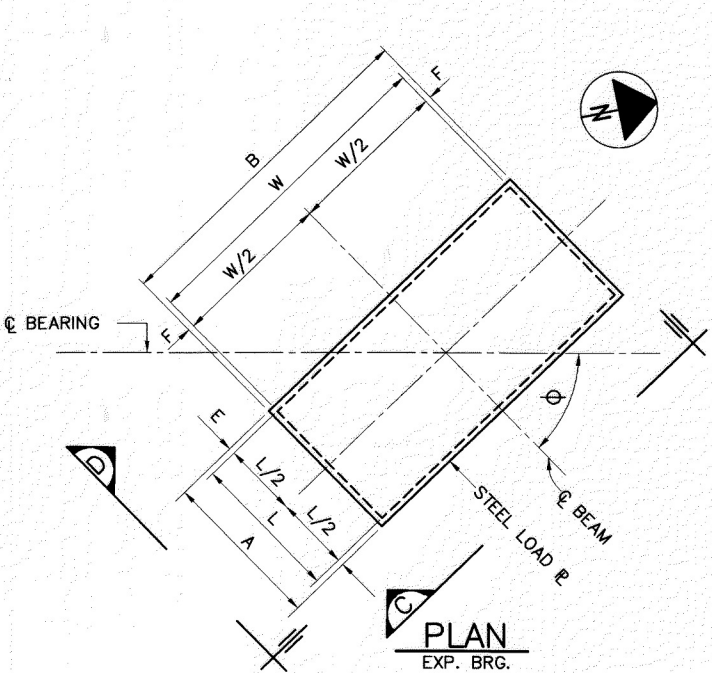
ELEVATION



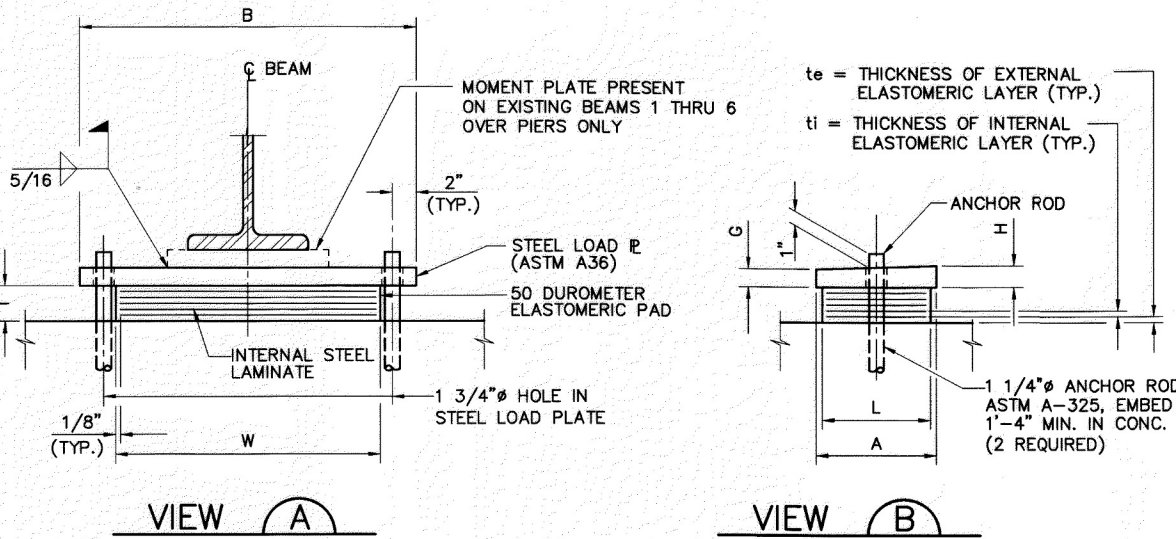
END VIEW
(PIER COLUMN & CAP REINF. NOT SHOWN)

BEARING ORIENTATION TABLE	
LOCATION	⊕
REAR ABUT. & PIER NO. 1, BMS. 1 THRU 8	45°48'08"±
PIER NO. 2 & FRWD. ABUT., BMS. 1 THRU 6	42°25'49"±
PIER NO. 2 & FRWD. ABUT., BM. 7	41°26'21"±
PIER NO. 2 & FRWD. ABUT., BM. 8	41°56'17"±

BEARING SCHEDULE																			
SUB- STRUCTURE	STEEL LOAD PLATE						ELASTOMERIC PAD						STEEL LAMINATES		TYPE	MIN. DEAD LOAD (K)	MAX. DEAD LOAD (K)	LIVE * LOAD (K)	TOTAL LOAD (K)
	A	B	E	F	G	H	L	W	T	NO. OF INTER. LAYERS	ti	te	NO.	THICK.					
REAR ABUT.	9 1/2"	13 1/8"	1/2"	1/2"	1 3/4"	2"	8 1/2"	12"	2.62"	7	0.24"	0.17"	8	0.0747"	EXP.	28	43	52	95
PIER NO. 1	12"	25"	1/2"	3"	2 5/8"	2 15/16"	11"	19"	2.01"	5	0.30"	0.22"	6	0.0747"	FIX.	97	143	62	205
PIER NO. 2	12 1/2"	19"	1/2"	1/2"	2 3/8"	2 11/16"	11 1/2"	18"	2.58"	5	0.33"	0.24"	6	0.0747"	EXP.	100	138	59	197
FRWD. ABUT.	9 1/2"	13 1/8"	1/2"	1/2"	1 1/2"	1 3/4"	8 1/2"	12"	2.62"	7	0.24"	0.17"	8	0.0747"	EXP.	30	42	51	93



EXPANSION BEARING DETAIL
REAR ABUT., PIER NO. 2 & FRWD. ABUT.



FIXED BEARING DETAIL
PIER NO. 1

- NOTES:
- ELASTOMERIC BEARINGS SHALL COMPLY WITH ITEM 516 AND AASHTO STANDARD SPECIFICATION FOR HIGHWAY BRIDGES SECTION 18, BEARING DEVICES, DIVISION II, CONSTRUCTION, ARTICLES 18.4.5.1 AND 18.5.6.2. BEARINGS SHALL BE GRADE 3, 50 DUROMETER ELASTOMER, AND SHALL BE SUBJECTED TO THE LOAD TESTING REQUIREMENTS DEFINED IN ARTICLE 18.7.4.5 OF THE AASHTO DOCUMENT LISTED ABOVE. BEARINGS WERE DESIGNED UNDER SECTION 14.6.6 OF SECTION 14, BEARINGS, DIVISION I, DESIGN. TESTING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE BEARINGS, EACH.
 - WELDING SHALL BE CONTROLLED SO THAT THE PLATE TEMPERATURE AT THE ELASTOMER BONDED SURFACE DOES NOT EXCEED 300° F AS DETERMINED BY USE OF PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES.
 - BEARING REPOSITIONING: IF THE STEEL IS ERECTED AT AN AMBIENT TEMPERATURE HIGHER THAN 80° F OR LOWER THAN 40° F AND THE BEARING SHEAR DEFLECTION EXCEEDS 1/6 OF THE BEARING HEIGHT AT 60° (±) 10° F. THE BEAMS SHALL BE RAISED TO ALLOW THE BEARINGS TO RETURN TO THEIR UNDEFORMED SHAPE AT 60° F (±) 10° F.
 - THE STEEL LOAD PLATE SHALL BE ASTM A36 STEEL, PAINTED.
 - THE STEEL LOAD PLATE SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS.
 - ANCHOR RODS SHALL BE GALVANIZED AS PER CMS 711.02. ANCHOR RODS SHALL EXTEND 1 INCH ABOVE THE LOAD PLATE (PIER NO. 1 BEARINGS).

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Date: 04-20-02 Time: 13:55 AM
Technician: RCUMMINS

DESIGN AGENCY
GPD ASSOCIATES
330 South Main Street, Suite 210, Ames, Ohio 44011
330-572-2100, Fax 330-572-2101

DESIGNED
L.P.C.
CHECKED
P.J.W.

DRAWN
F.V.
REVISED

REVIEWED
K.S.J.
STRUCTURE FILE NUMBER
7803729

DATE
4-27-01

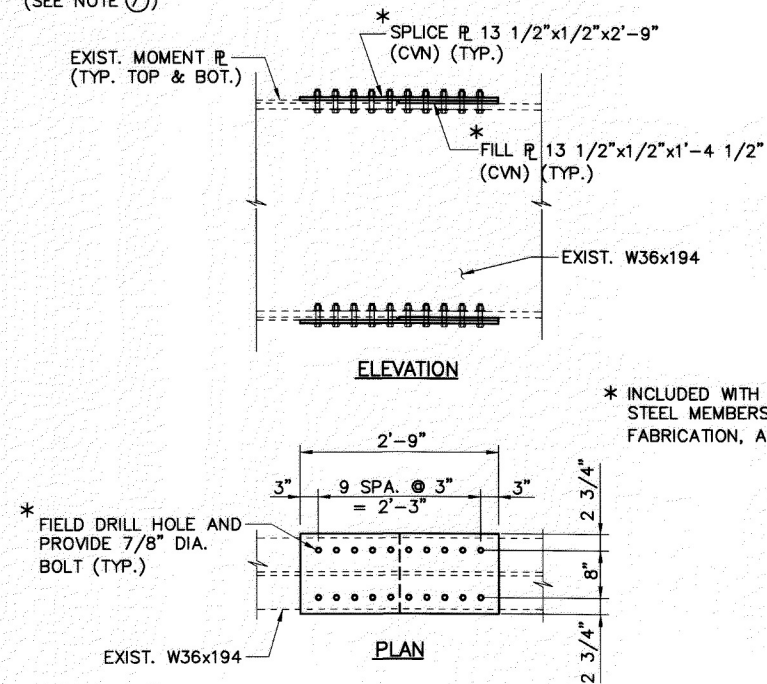
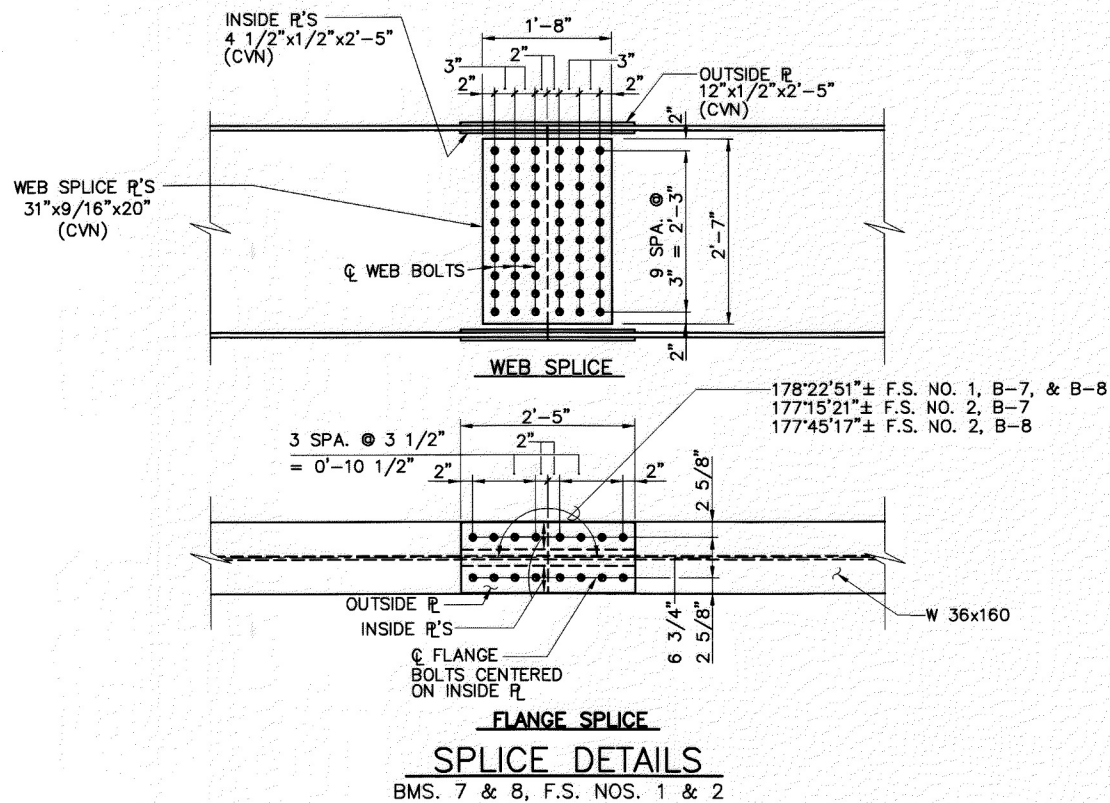
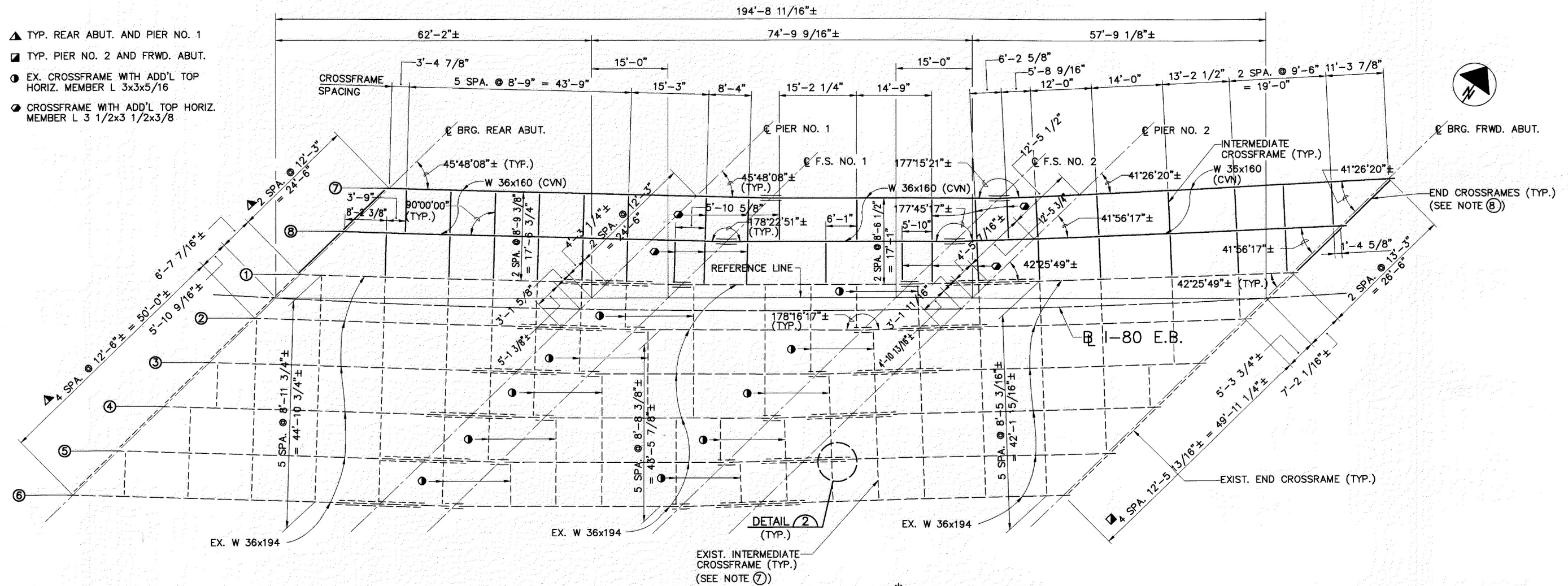
MAH/TRU-711-1.70/0.00

15/23

988
1194

LAMINATED ELASTOMERIC BEARINGS
BRIDGE NO. TRU - 80 - 0353R
I-80 E.B. OVER S.R. 711 N.B. & RAMP 11

- ① EX. CROSSFRAME WITH ADD'L TOP HORIZ. MEMBER L 3x3x5/16
- ② CROSSFRAME WITH ADD'L TOP HORIZ. MEMBER L 3 1/2x3 1/2x3/8



NOTES:

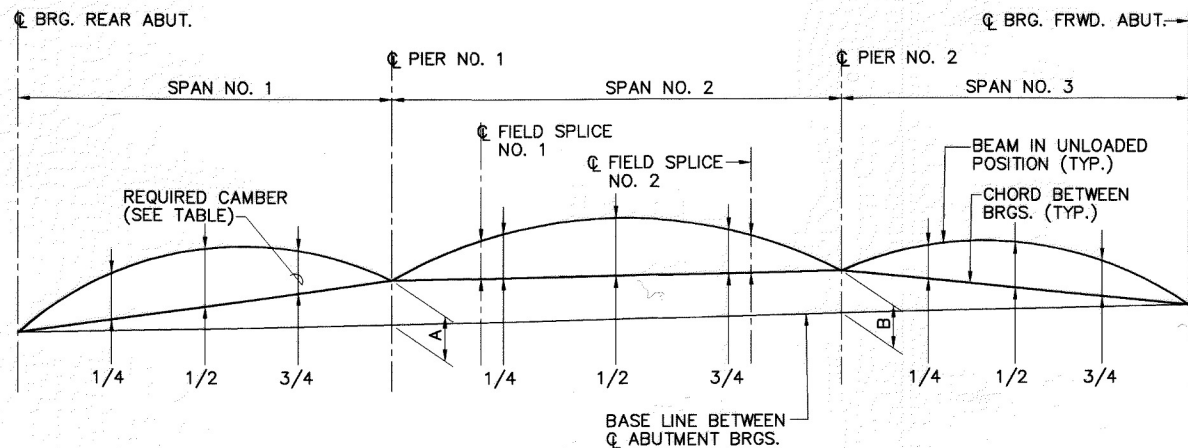
1. ALL STRUCTURAL STEEL SHALL BE ASTM A36, UNLESS OTHERWISE NOTED.
2. WHERE A SHAPE OR PLATE IS DESIGNATED (CVN) THE MATERIAL SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01 OF CMS.
3. FOR BEAM ELEVATIONS, DIMENSION TABLE AND DEFLECTION AND CAMBER, SEE SHT. NO. 177/23
4. HIGH STRENGTH BOLTS SHALL BE 1" DIAMETER, ASTM A325 TYPE 1, GALVANIZED, UNLESS NOTED OTHERWISE.
5. FOR EXP. JT. DETAILS, SEE SHT. NO. 20/23
6. FOR BEARING DETAILS, SEE SHT. NO. 15/23.
7. ALL EXISTING INTERMEDIATE CROSSFRAMES ANGLE TO BEAM WELDED CONNECTIONS AT BOTH ENDS SHALL BE REPLACED WITH BOLTED CONNECTION AS SHOWN IN SHT. NO. 19/23, DETAIL 4.
8. END CROSSFRAMES IN WIDENED PORTION SHALL BE PER STD. DWG. NOS. GSD-1-96 AND EXJ-4-87 EXCEPT THAT ANGLE SIZES SHALL BE $4 \times 4 \times 3/8$ ".
9. SEE STANDARD CONSTRUCTION DRAWING BS-1-93 FOR ADDITIONAL NOTES AND DETAILS.

MOMENT PLATE RETROFIT DETAIL
EX. BMS. 1 THRU 6
DETAIL 2

BM. B-7	SPAN NO. 1			SPAN NO. 2					SPAN NO. 3		
LOCATION OF POINTS	1/4	1/2	3/4	F.S. NO. 1	1/4	1/2	3/4	F.S. NO. 2	1/4	1/2	3/4
DEFLECTION DUE TO WEIGHT OF STEEL	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"
DEFLECTION DUE TO REMAINING DEAD LOAD	3/8"	7/16"	3/16"	1/4"	3/8"	5/8"	3/8"	1/4"	1/4"	1/2"	7/16"
ADJUSTMENT REQUIRED FOR HORIZONTAL CURVE	-3/16"	-1/4"	-3/16"	1/4"	3/16"	3/16"	3/8"	7/16"	-3/16"	-1/4"	-3/16"
REQUIRED SHOP CAMBER	1/4"	1/4"	1/16"	9/16"	5/8"	7/8"	13/16"	3/4"	1/8"	5/16"	5/16"

BM. B-8	SPAN NO. 1			SPAN NO. 2					SPAN NO. 3		
LOCATION OF POINTS	1/4	1/2	3/4	F.S. NO. 1	1/4	1/2	3/4	F.S. NO. 2	1/4	1/2	3/4
DEFLECTION DUE TO WEIGHT OF STEEL	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"	1/16"
DEFLECTION DUE TO REMAINING DEAD LOAD	7/16"	1/2"	1/4"	1/4"	5/16"	5/8"	5/16"	1/4"	3/16"	1/2"	3/8"
ADJUSTMENT REQUIRED FOR HORIZONTAL CURVE	-3/16"	-1/4"	-3/16"	3/16"	3/16"	1/8"	1/4"	5/16"	-3/16"	-1/4"	-3/16"
REQUIRED SHOP CAMBER	5/16"	5/16"	1/8"	1/2"	9/16"	13/16"	5/8"	5/8"	1/16"	5/16"	1/4"

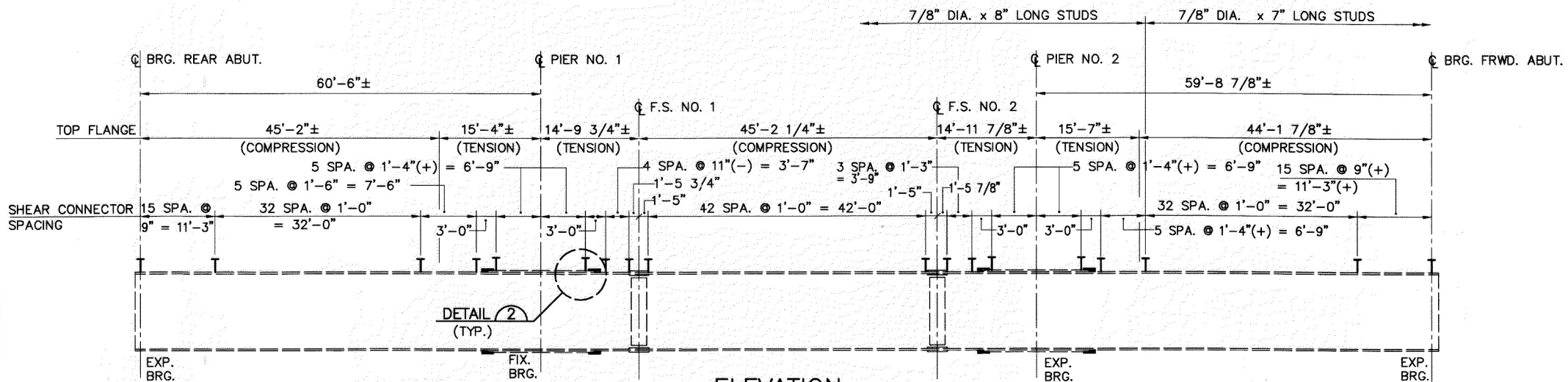
DEFLECTION AND CAMBER TABLE



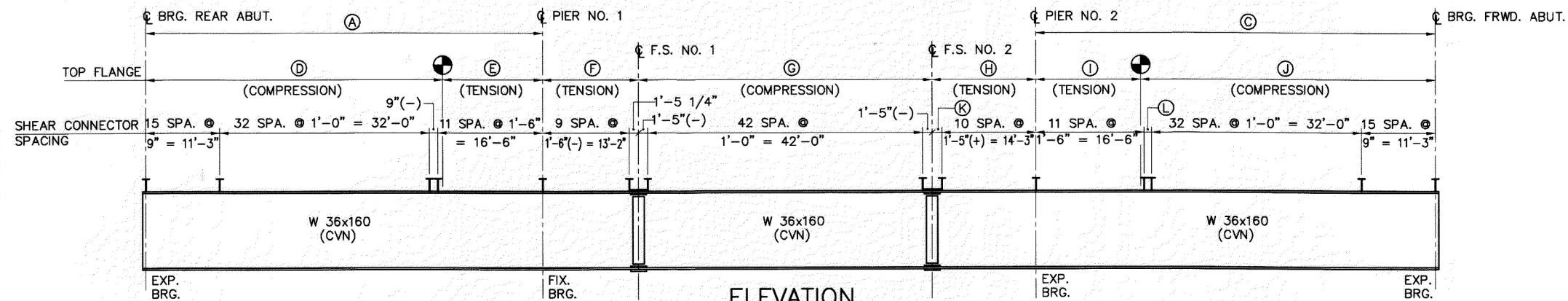
CAMBER DIAGRAM

LOCATION	"A"	"B"
B-7	-1/16"	3/16"
B-8	-1/4"	-1/8"

VERTICAL OFFSET TABLE



ELEVATION
EX. BMS. 1 THRU 6



ELEVATION
BMS. 7 & 8

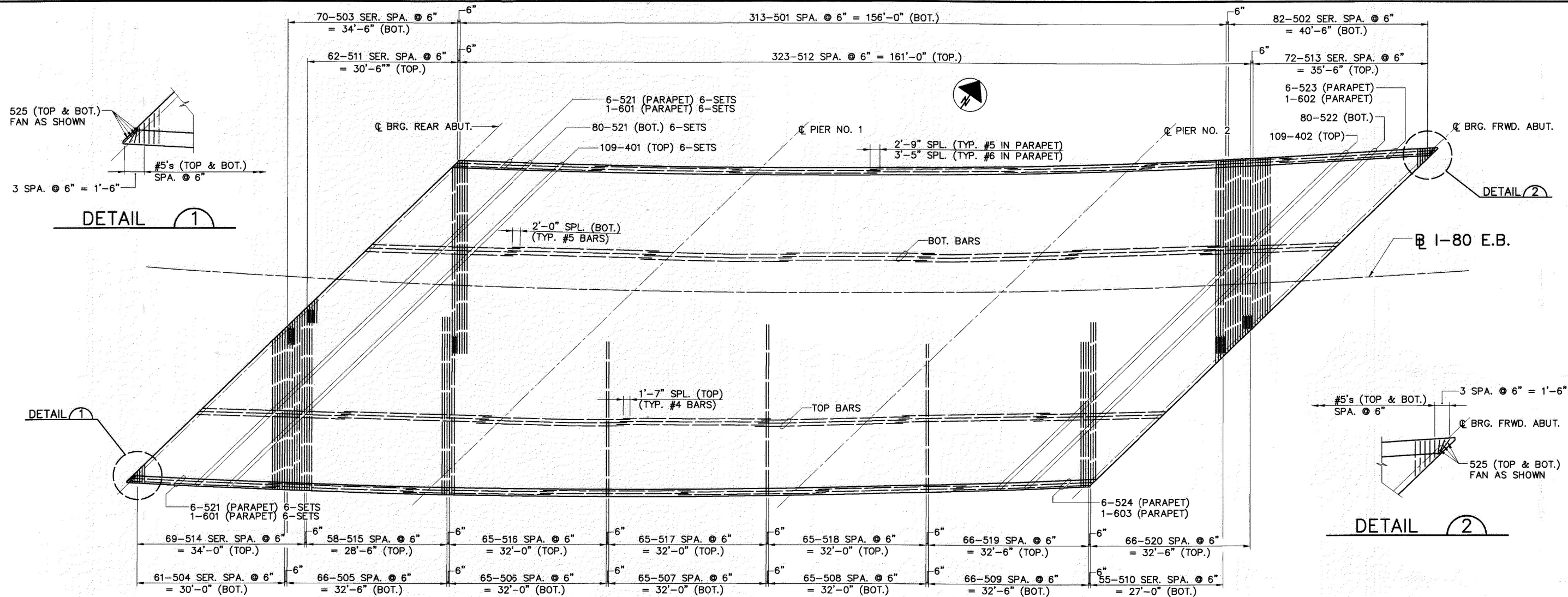
OPTIONAL FIELD SPLICE LOCATION, SEE NOTE 3.

BEAM DIMENSION TABLE

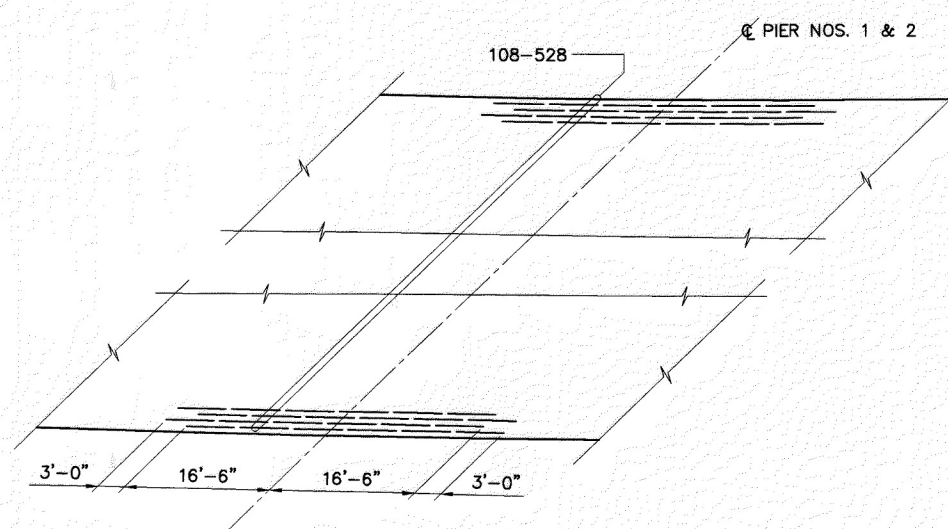
	A	C	D	E	F	G	H	I	J	K	L
BM. 7	60'-6 1/16"	60'-10 7/8"	44'-6 1/16"	16'-0"	14'-7 3/16"	44'-10 3/16"	15'-9 13/16"	16'-0"	44'-10 7/8"	1'-6 7/8"(-)	1'-1 7/8"
BM. 8	60'-6 1/16"	60'-3 3/4"	45'-3 1/16"	15'-3"	14'-7 3/16"	44'-10 3/16"	15'-7 15/16"	15'-3"	45'-0 3/4"	1'-5"(-)	6 3/4"

NOTES:

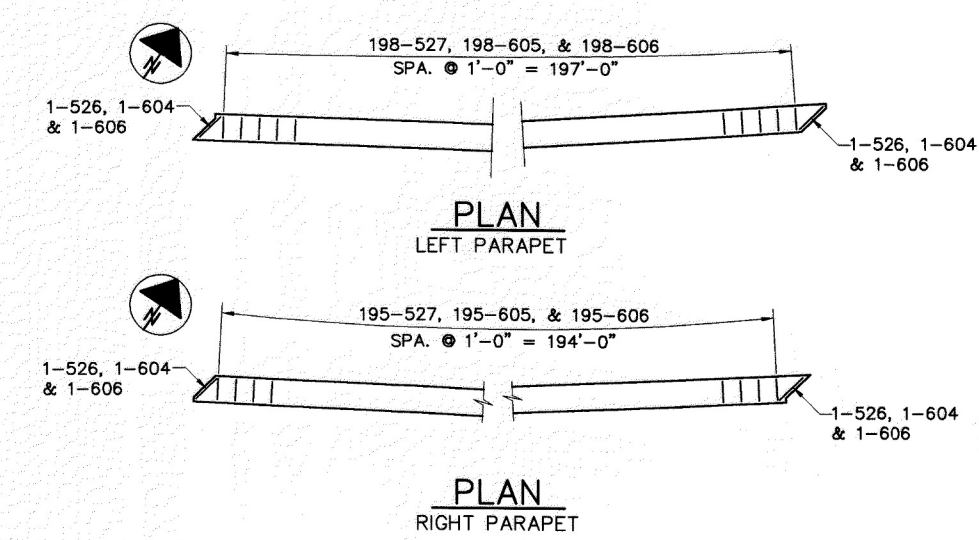
1. WELDED ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE MAY BE MADE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". ATTACHMENTS SHALL NOT BE MADE TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE NOT CLOSER THAN 1" FROM EDGE OF FLANGE, BE NOT MORE THAN 2" LONG, AND BE NOT SMALLER THAN 1/4" FOR THICKNESSES UP TO 3/4" AND 5/16" FOR GREATER THAN 3/4" THICK.
2. FOR DETAIL 2, SEE SHT. NO. 16/23
3. THE CONTRACTOR MAY ELECT TO UTILIZE ADDITIONAL BOLTED FIELD SPLICES AT THE LOCATIONS SHOWN AT NO ADDITIONAL COST TO THE PROJECT. SHEAR STUD SPACING MUST BE ADJUSTED IF THIS OPTION IS EXERCISED.
4. FOR ADDITIONAL NOTES, SEE SHT. NO. 16/23.



SLAB PLAN



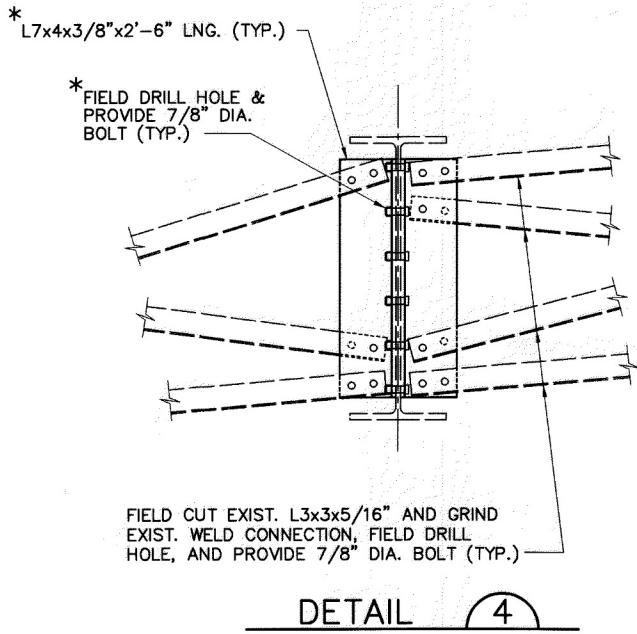
ADDITIONAL LONGITUDINAL REINFORCING OVER PIERS



- NOTES:
1. PREFIX "S" WILL BE ADDED TO ALL REBAR MARKS SHOWN FOR DECK SLAB. SEE REINFORCING SCHEDULE.
 2. ALL REINFORCING STEEL FOR DECK SLAB AND RAILINGS SHALL BE EPOXY COATED.
 3. FOR SLAB TRANSVERSE SECTION SEE SHT. NO. 19/23
 4. FOR DECK SCREED ELEVATIONS SEE SHT. NO. 20/23
 5. FOR LOCATION OF DECK SLAB DEPTH, Y, SEE SHT. NO. 19/23.

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Date: 02-23-02 Time: 11:47 AM TW = 0010.00
Technician: RCUMMINS

DESIGN AGENCY CLAUDE SCHWAB ENGINEERING & DESIGN, INC. CPD ASSOCIATES 200 N. Main Street, Suite 200 380522100, Fax 380522101	
DATE 4-27-01	REVIEWED K.S.J.
DRAWN R.P.R.	CHECKED P.J.W.
STRUCTURE FILE NUMBER 7803729	
SLAB PLAN BRIDGE NO. TRU - 80 - 0353R I-80 E.B. OVER S.R. 711 N.B. & RAMP 11	
MAH/TRU-711-1.70/0.00	
18/23	
991 1194	

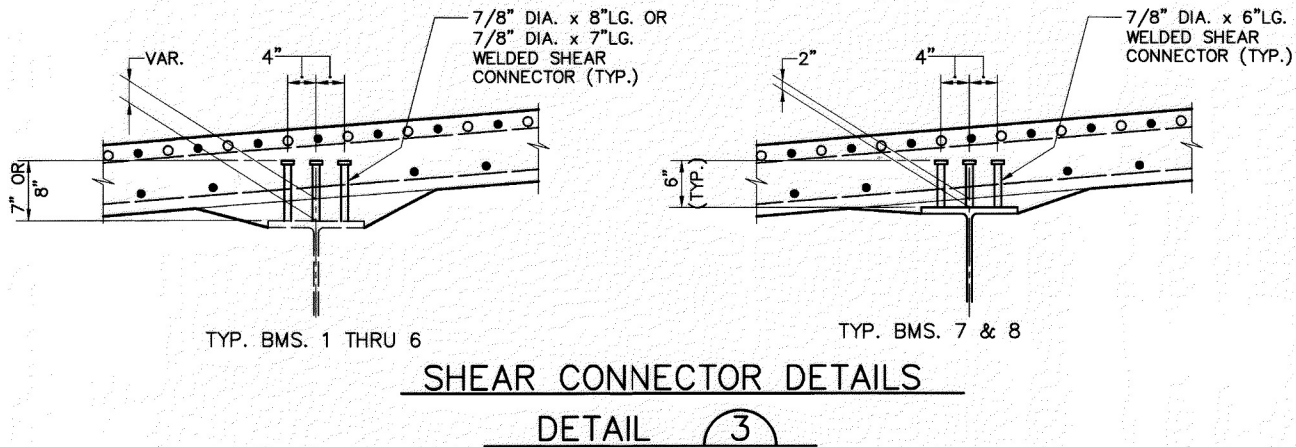


DEPTH OF SLAB OVER BEAM, Y				
LOCATION	REAR ABUT.	PIER NO. 1	PIER NO. 2	FRWD. ABUT.
BM. 1	1'-1"	1'-0 1/2"	1'-0 1/8"	11 9/16"
BM. 2	1'-1"	1'-0 3/4"	1'-0 1/4"	11 9/16"
BM. 3	1'-1 1/8"	1'-0 7/8"	1'-0 1/4"	11 5/16"
BM. 4	1'-1 1/8"	1'-1"	1'-0 1/2"	11 7/16"
BM. 5	1'-1 1/4"	1'-1 1/8"	1'-0 1/2"	1'-0 1/2"
BM. 6	1'-0 7/8"	1'-1 5/16"	1'-0 7/8"	11 9/16"
BMS. 7&8	10 1/2"	10 1/2"	10 1/2"	10 1/2"

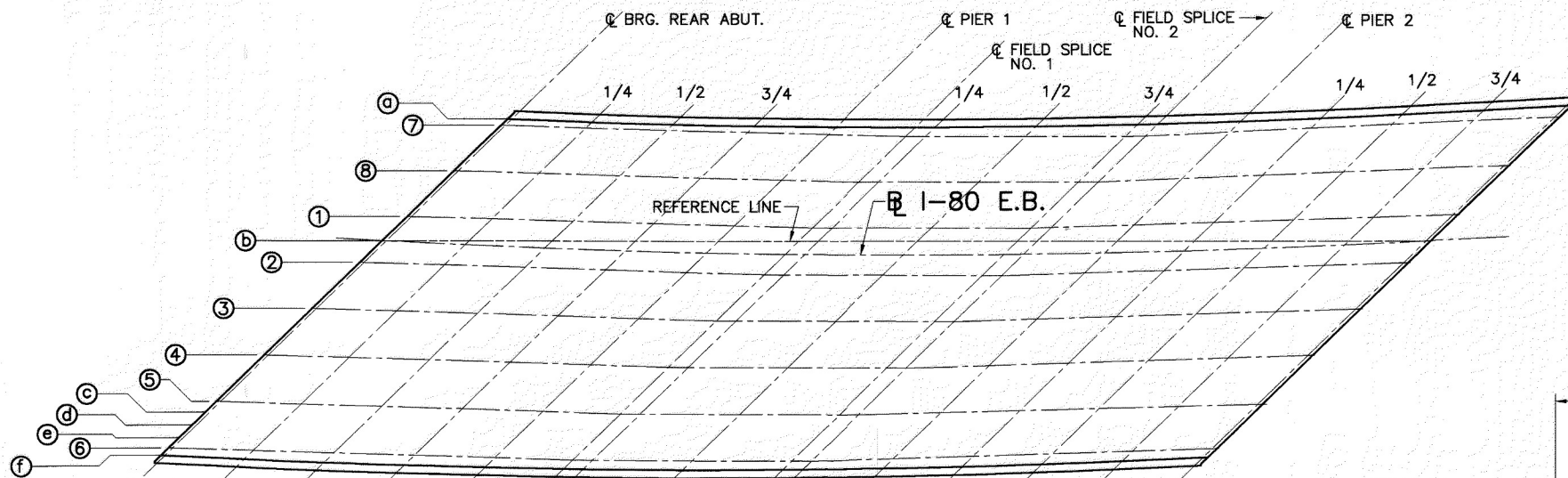
NOTES:

1. PREFIX "S" WILL BE ADDED TO ALL REBAR MARKS SHOWN FOR DECK SLAB. SEE REINFORCING SCHEDULE.
2. ALL REINFORCING STEEL FOR DECK SLAB AND RAILINGS SHALL BE EPOXY COATED.
3. A HAUNCH WIDTH OF 9 INCHES SHALL BE USED. HOWEVER, THE HAUNCH WIDTH MAY VARY BETWEEN 6" AND 12".
4. DECK SLAB DEPTH FOR CONCRETE QUANTITY (Y): THE DIMENSION SHOWN FROM THE TOP OF THE CONCRETE DECK TO THE TOP OF THE TOP FLANGE, MINUS THE DESIGN HAUNCH THICKNESS OF 2 INCHES FOR BMS. 7 & 8 AND DESIGN HAUNCH THICKNESS OF 4" FOR BMS. 1 THRU 6 HAS BEEN USED FOR COMPUTING THE DECK CONCRETE QUANTITIES. CONCRETE REQUIRED TO FILL THE HAUNCHES, INCLUDING ADDITIONAL OR LESS MATERIAL REQUIRED DUE TO HAUNCH CONSTRUCTION TOLERANCES, SHALL BE CONSIDERED AS INCIDENTAL AND WILL NOT BE INCLUDED IN THE QUANTITY CALCULATIONS FOR PAYMENT. FOR TABULATION OF "Y", SEE SHT. NO. 18/23.
5. FOR DECK SCREED ELEVATIONS SEE SHT. NO. 20/23.
6. QUANTITIES OF CONCRETE AND REINFORCING STEEL FOR PARAPETS ARE INCLUDED WITH ITEM 844—HIGH PERFORMANCE CONCRETE, SUPERSTRUCTURE (PARAPET), FOR PAYMENT.
7. FOR ADDITIONAL CROSSFRAME DETAILS, SEE STD. DWG. NO. GSD—1—96, TYPE 2, INTERMEDIATE BOLTED CROSSFRAME DETAILS.

DECK OVERHANG TABLE																
LOCATION	SPAN No. 1					SPAN No. 2							SPAN No. 3			
	REAR ABUT.	1/4	1/2	3/4	PIER NO. 1	F.S. NO. 1	1/4	1/2	3/4	F.S. NO. 2	PIER NO. 2	1/4	1/2	3/4	FRWD. ABUT.	
DIM. 'P'	2'-9 1/8"	2'-7 3/8"	2'-7 1/8"	2'-8 1/4"	2'-10 7/8"	3'-3"	3'-3"	3'-4 1/2"	3'-8"	3'-9"	3'-5 1/8"	3'-3"	3'-2 3/8"	3'-3 3/8"	3'-5 3/4"	
DIM. 'Q'	2'-9 1/2"	3'-1 1/2"	3'-4"	3'-4 7/8"	3'-4 1/2"	3'-1 3/4"	3'-3 1/4"	3'-5 1/4"	3'-5"	3'-3 7/8"	3'-7 3/4"	4'-3 1/8"	4'-1 1/4"	3'-9 7/8"	3'-5 1/4"	

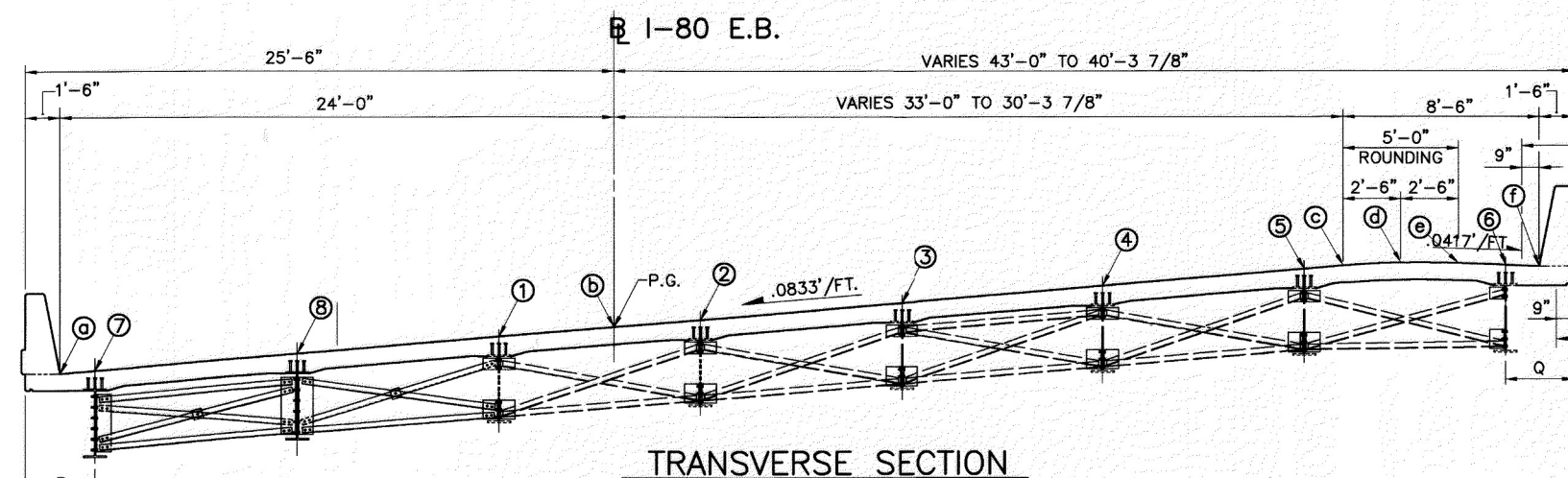


* INCLUDED WITH ITEM 863-STRUCTURAL STEEL MEMBERS MISCELLANEOUS LEVEL FABRICATION, AS PER PLAN, FOR PAYMENT.

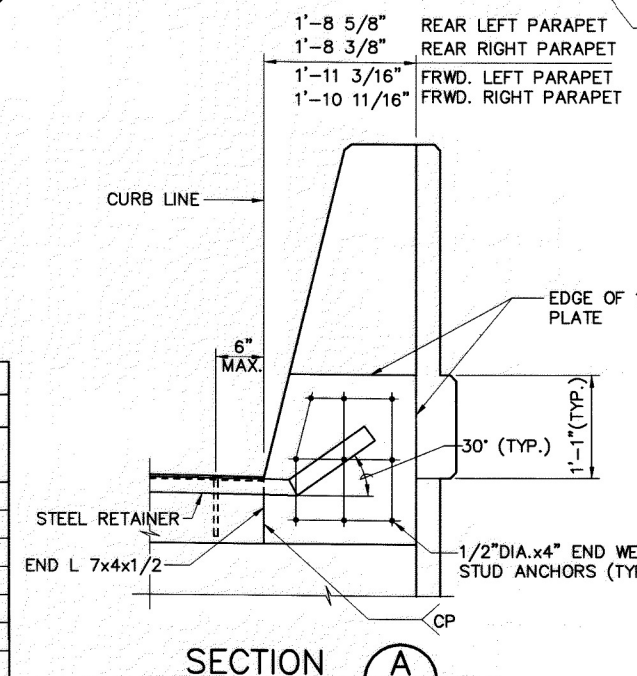


PLAN
SCREED ELEVATIONS

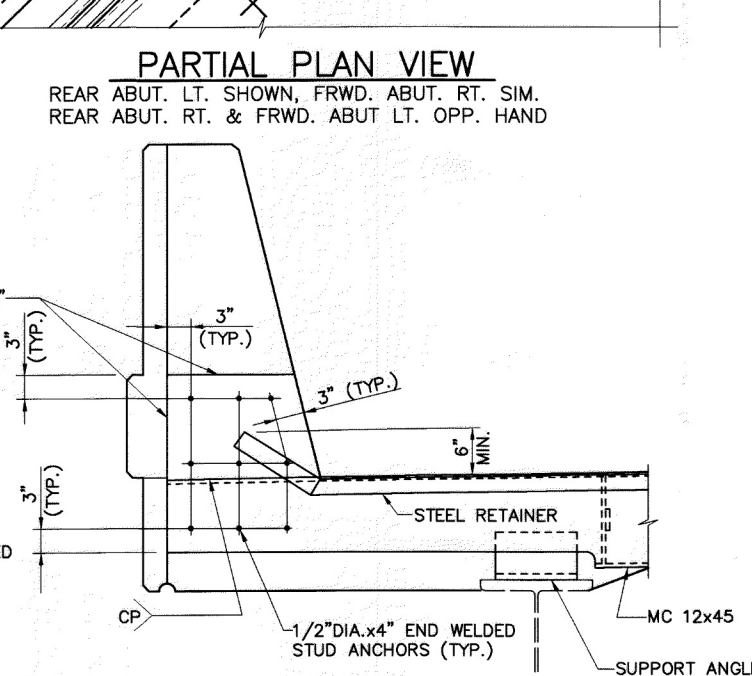
DECK SCREED ELEVATION TABLE															
LOCATION	SPAN NO. 1				SPAN NO. 2						SPAN NO. 3				
	REAR ABUT.	1/4	1/2	3/4	PIER NO. 1	F.S. NO. 1	1/4	1/2	3/4	F.S. NO. 2	PIER NO. 2	1/4	1/2	3/4	FRWD. ABUT.
①	1032.34	1032.79	1033.20	1033.60	1033.99	—	1034.55	1035.08	1035.58	—	1036.06	1036.49	1036.94	1037.35	1037.72
⑦	1032.41	1032.83	1033.25	1033.64	1034.07	1034.54	1034.65	1035.20	1035.72	1036.27	1036.16	1036.58	1037.01	1037.43	1037.82
⑧	1032.92	1033.35	1033.75	1034.15	1034.55	1035.01	1035.13	1035.66	1036.17	1035.81	1036.61	1037.03	1037.46	1037.87	1038.27
①	1033.45	1033.85	1034.25	1034.63	1035.04	1035.50	1035.60	1036.11	1036.61	1036.72	1037.07	1037.47	1037.90	1038.32	1038.72
⑥	1033.73	1034.16	1034.57	1034.96	1035.34	—	1035.87	1036.40	1036.88	—	1037.35	1037.78	1038.20	1038.61	1038.97
②	1033.98	1034.38	1034.77	1035.15	1035.55	1036.00	1036.09	1036.60	1037.09	1037.20	1037.54	1037.93	1038.35	1038.76	1039.15
③	1034.53	1034.92	1035.30	1035.68	1036.06	1036.50	1036.60	1037.09	1037.57	1037.68	1038.01	1038.37	1038.79	1039.20	1039.59
④	1035.07	1035.46	1035.83	1036.20	1036.58	1037.01	1037.10	1037.59	1038.06	1038.16	1038.49	1038.84	1039.25	1039.65	1040.04
⑤	1035.63	1036.01	1036.37	1036.73	1037.10	1037.53	1037.62	1038.09	1038.55	1038.65	1038.97	1039.31	1039.72	1040.11	1040.49
③	1035.75	1036.15	1036.53	1036.88	1037.23	—	1037.73	1038.21	1038.65	—	1039.09	1039.48	1039.87	1040.24	1040.58
④	1035.82	1036.22	1036.60	1036.95	1037.30	—	1037.80	1038.28	1038.72	—	1039.15	1039.54	1039.94	1040.30	1040.64
⑥	1035.74	1036.14	1036.52	1036.87	1037.22	—	1037.71	1038.19	1038.63	—	1039.06	1039.45	1039.84	1040.20	1040.54
⑥	1035.59	1036.02	1036.41	1036.76	1037.11	1037.47	1037.58	1038.08	1038.51	1038.60	1038.97	1039.41	1039.79	1040.13	1040.43
⑦	1035.51	1035.91	1036.29	1036.64	1036.99	—	1037.48	1037.96	1038.40	—	1038.83	1039.21	1039.60	1039.96	1040.30



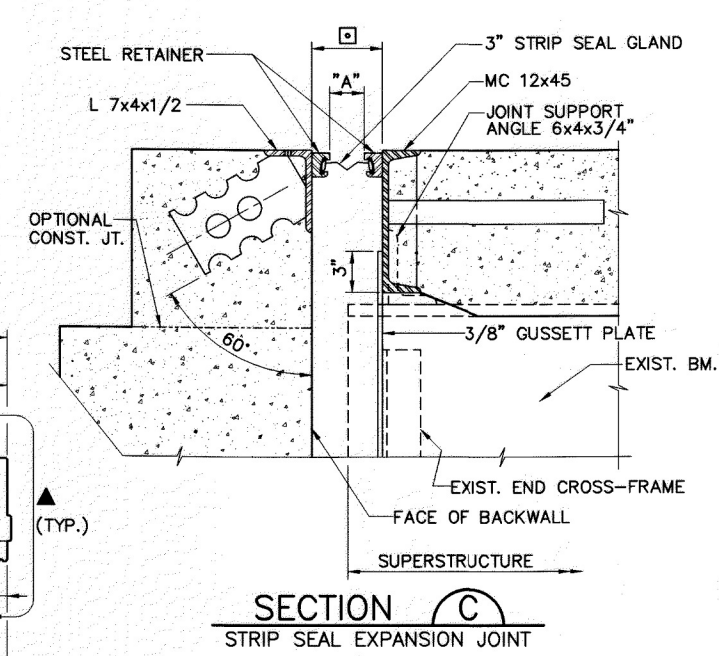
TRANSVERSE SECTION



SECTION A



SECTION B



SECTION C
STRIP SEAL EXPANSION JOINT

AMBIENT TEMPERATURE AT JOINT INSTALLATION (°F)	DIMENSION "A" (IN.)	
	REAR ABUT.	FRWD. ABUT.
90	1 5/8"	1 1/2"
80	1 11/16"	1 5/8"
70	1 11/16"	1 11/16"
60	1 3/4"	1 3/4"
50	1 13/16"	1 13/16"
40	1 13/16"	1 7/8"
30	1 7/8"	2"

- NOTES:
- SCREED ELEVATIONS SHOWN ARE FOR THE DECK SLAB SURFACE PRIOR TO CONCRETE PLACEMENT. ALLOWANCE HAS BEEN MADE FOR ANTICIPATED CALCULATED DEAD LOAD DEFLECTIONS.
 - FOR DIMENSIONS P & Q, SEE SHT. NO. 19/23.
 - FOR ADDITIONAL EXP. JT. DETAILS AND NOTES, REFER TO STD. DWG NO. EXJ-4-87.
 - INSTALLATION OF SEAL: DURING INSTALLATION OF THE SUPPORT/ARMOR FOR THE SUPERSTRUCTURE SIDE OF THE EXPANSION JOINT SEAL, THE SEATING OF BEAMS ON BEARINGS SHALL BE CAREFULLY OBSERVED TO ASSURE THAT POSITIVE BEARING IS MAINTAINED. PROPER ELEVATION OF THE SUPPORT/ARMOR SHALL BE ACHIEVED BY ADJUSTING THE CONNECTION ANGLES AND BOLTS BETWEEN BEAM AND EXPANSION JOINT.

LEGEND

▲ LIMITS OF ITEM 864-SEALING OF CONCRETE SURFACES (EPOXY URETHANE)

Code: HA-57028-9 (A) 900 (DWG) 67028-91 800SCREED.DWG
Date: 02-23-02 Time: 11:20 AM
Technician: RCUMMINS

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Date: 02-23-02 Time: 1:53 AM User: GPD

Technician: RCUMMINS

ABUTMENT										
MARK	NUMBER			LENGTH	WEIGHT (LB)	TYPE	DIMENSIONS			SERIES INC.
	REAR	FRWD	TOTAL				A	B	C	
A501	8	123	131	30' 0"	4,099	ST				
A502	4		4	31' 7"	132	ST				
A503	4		4	32' 10"	137	ST				
A504	4		4	5' 6"	23	105	2' 9"	2' 9"	2' 0"	
A505	4		4	14' 6"	60	ST				
A506	4		4	15' 5"	64	ST				
A507	2		2	12' 6"	26	105	6' 8"	5' 10"	1' 6"	
A508	1		1	6' 4"	7	ST				
A509	1		1	7' 11"	8	ST				
A511	3		3	35' 0"	110	ST				
A512	5		5	32' 11"	172	ST				
A513	7		7	8' 3"	60	102	7' 7"	0' 10"		
A514	26		26	6' 6"	176	103	3' 5"	1' 8"		
A515	10		10	7' 10"	82	102	7' 2"	0' 10"		
A516	1		1	5' 8"	6	ST				
A517	5		5	6' 0"	31	123	2' 9"	0' 8"	2' 6"	
A518	13		13	25' 2"	341	ST				
A519	4		4	5' 4"	22	122	2' 9"	2' 9"	2' 0"	
A520	5		5	3' 9"	20	ST				
A521	7		7	5' 0"	37	ST				
A522	4		4	9' 8"	40	ST				
A523	4		4	9' 4"	39	ST				
A524	1		1	11' 10"	12	ST				
A525	1		1	11' 6"	12	ST				
A526	4		4	15' 8"	65	ST				
A527	4		4	14' 5"	60	ST				
A528	2		2	6' 11"	14	105	1' 2"	5' 9"	2' 0"	
A529	5		5	3' 9"	20	105	2' 9"	1' 0"	0' 8"	
A530S		1 SER OF 10	1 SER OF 10	9' 10" TO 23' 5"	173	ST				1' 6 1/8"
A531S		1 SER OF 10	1 SER OF 10	5' 4" TO 19' 0"	127	ST				1' 6 1/4"
A532		1	1	16' 1"	17	ST				
A533		1	1	17' 8"	18	ST				
A534		2	2	10' 8"	22	123	2' 9"	5' 4"	5' 10"	
A535		2	2	5' 6"	11	105	2' 9"	2' 9"	1' 9"	
A536		1	1	17' 11"	19	ST				
A537S		1 SER OF 8	1 SER OF 8	12' 8" TO 18' 9"	131	ST				0' 10 3/8"
A538		1	1	10' 4"	11	ST				
A539		1	1	18' 8"	19	ST				
A540S		1 SER OF 8	1 SER OF 8	13' 7" TO 19' 7"	138	ST				0' 10 1/4"
A541		1	1	10' 4"	11	ST				
A542		27	27	7' 3"	204	102	4' 8"	2' 9"		
A543		27	27	8' 5"	237	105	2' 0"	6' 5"	4' 6"	
A544		8	8	10' 0"	83	ST				
A545		2	2	8' 6"	18	ST				
A546		8	8	11' 0"	92	ST				
A547		8	8	45' 9"	382	ST				
A548		8	8	45' 6"	380	ST				
A549S		1 SER OF 3	1 SER OF 3	16' 0" TO 17' 10"	53	ST				0' 11"
A550S		1 SER OF 9	1 SER OF 9	3' 8" TO 13' 5"	80	ST				1' 2 5/8"
A551S		1 SER OF 3	1 SER OF 3	18' 3" TO 20' 1"	60	ST				0' 11"

ABUTMENT										
MARK	NUMBER			LENGTH	WEIGHT (LB)	TYPE	DIMENSIONS			SERIES INC.
	REAR	FRWD	TOTAL				A	B	C	
A552S		1 SER OF 9	1 SER OF 9	5' 11" TO 20' 9"	125	ST				1' 10 1/4"
A553		11	11	19' 9"	227	ST				
A554		9	9	20' 3"	190	ST				
A555		12	12	20' 8"	259	ST				
A556		8	8	21' 2"	177	ST				
A557		9	9	21' 6"	202	ST				
A558		8	8	22' 0"	184	ST				
A559		13	13	22' 4"	303	ST				
A560		106	106	5' 8"	626	104	3' 5"	1' 6"	1' 0"	
A561		2	2	7' 5"	15	ST				
A562		12	12	4' 5"	55	ST				
A563		16	16	5' 9"	96	123	2' 9"	0' 5"	3' 2"	
A564		39	39	24' 10"	1,010	ST				
A565		18	18	20' 8"	388	ST				
A566		5	5	15' 3"	80	ST				
A567		15	15	14' 6"	227	ST				
A568		5	5	20' 5"	106	ST				
A569		1	1	18' 3"	19	ST				
A570S		1 SER OF 4	1 SER OF 4	15' 9" TO 18' 8"	72	ST				0' 11 5/8"
A571		14	14	5' 6"	80	105	2' 9"	2' 9"	1' 9"	
A572		16	16	37' 3"	622	ST				
A573		4	4	5' 4"	22	122	2' 9"	2' 9"	1' 10"	
A574		28	28	35' 1"	1,025	ST				
A575		7	7	26' 11"	197	ST				
A576		16	16	10' 2"	170	ST				
A577		16	16	3' 8"	61	ST				
A578		8	8	8' 2"	68	ST				
A579		8	8	6' 10"	57	ST				
A580		14	14	27' 6"	402	ST				
A581		2	2	36' 1"	75	ST				
A582		8	8	43' 1"	359	ST				
A583		2	2	7' 2"	15	105	1' 2"	6' 0"	2' 8"	
A584		2	2	22' 3"	46	ST				
A585		4	4	9' 4"	39	ST				
A586		4	4	18' 4"	76	ST				
A587		20	20	31' 2"	650	ST				
A588		14	14	5' 0"	73	ST				
A589		14	14	3' 3"	47	ST				
A590		4	4	4' 9"	20	105	2' 9"	2' 0"	1' 3"	
A591		8	8	3' 3"	27	ST				
A592		36	36	31' 7"	1,186	ST				
A593		2	2	29' 11"	62	ST				
A594		2	2	33' 11"	71	ST				
A595		6	6	39' 2"	245	ST				
A596		2	2	19' 9"	41	ST				
A597		3	3	24' 3"	76	ST				
A598		7	7	24' 5"	178	ST				
A599		6	6	21' 8"	136	ST				
A5100		15	15	19' 3"	301	ST				
A5101		15	15	19' 10"	310	ST				
A5102	2	100	102	7' 5"	793	133	0' 2 3/4"	5.25	1' 1"	
A5103	2	2	4	7' 4"	31	133	0' 3 7/8"	7.35	1' 6"	
A5104		16	16	12' 9"	213	ST				
A5105	6	6	12	5' 6"	69	135				
A5106	10	10	20	5' 6"	115	ST				
A5107	4		4	10' 8"	45	ST				
A5108	4		4	11' 8"	49	ST				
A5109	4		4	11' 11"	50	ST				
A5110	4		4	10' 8"	45	ST				
A5111		8	8	25' 5"	212	ST				
A5112		4	4	2' 1"	9	ST				

NOTE:

1. FOR REINF. NOTES AND STANDARD BAR DIAGRAMS,
SEE SHT. NO. 23/23.

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Technician: RCUMMINS

ABUTMENT (CON'T)										
MARK	NUMBER			LENGTH	WEIGHT (LB)	TYPE	DIMENSIONS			SERIES INC.
	REAR	FRWD	TOTAL				A	B	C	
A5113		2	2	10' 10"	23	136	2' 10"	3' 10"		
A5114		8	8	29' 4"	245	ST				
A5115		20	20	15' 0"	313	ST				
A5116		12	12	8' 2"	102	ST				
A5117		6	6	1' 8"	10	ST				
A5118		15	15	25' 6"	399	ST				
A5119		13	13	20' 8"	280	ST				
A601	133		133	4' 5"	882	ST				
A602	67		67	6' 9"	679	103	1' 5"	2' 9"		
A603	90		90	6' 5"	867	103	0' 11"	2' 11"		
A604	3		3	8' 2"	37	103	1' 2"	3' 8"		
A605S	1 SER OF 3		1 SER OF 3	8' 2" TO 9' 8"	40	103	1' 2"	TO 4' 5"	4 1/4"	
A606	11		11	3' 4"	55	ST				
A607	10		10	5' 0"	75	ST				
A608	1		1	4' 4"	7	ST				
A609	1		1	5' 0"	8	ST				
A610	23		23	9' 11"	343	103	1' 5"	4' 5"		
A611	23		23	6' 6"	225	103	1' 5"	2' 8"		
A612	7		7	12' 9"	134	102	7' 7"	5' 4"		
A613	8		8	12' 4"	148	102	7' 2"	5' 4"		
A614	2		2	5' 8"	17	ST				
A615	3		3	25' 1"	113	ST				
A616	1		1	26' 8"	40	ST				
A617	2		2	3' 10"	12	ST				
A618	2		2	10' 6"	32	102	9' 7"	1' 0"		
A619	6		6	24' 0"	216	103	1' 2"	11' 7"		
A620	2		2	8' 3"	25	102	7' 5"	1' 0"		
A621	2		2	12' 6"	38	ST				
A622	4		4	7' 4"	44	103	1' 2"	3' 3"		
A623	1		1	8' 6"	13	103	1' 2"	3' 10"		
A624	1		1	9' 8"	15	103	1' 2"	4' 5"		
A625	2		2	3' 10"	12	105	2' 4"	1' 6"	1' 0"	
A626S		1 SER OF 4	1 SER OF 4	0' 10" TO 5' 10"	20	ST			1' 8"	
A627S		1 SER OF 12	1 SER OF 12	7' 4" TO 15' 4"	204	ST			0' 8 3/4"	
A628		105	105	15' 6"	2,445	ST				
A629S		1 SER OF 3	1 SER OF 3	2' 6" TO 11' 3"	31	ST			4' 4 1/2"	
A630		95	95	10' 0"	1,427	104	0' 11"	6' 8"	2' 9"	
A631S		1 SER OF 83	1 SER OF 83	9' 8" TO 12' 6"	1,382	132	4' 2" TO 6' 11"		0' 0 3/8"	
A632		12	12	12' 6"	225	132	7' 0"			
A633		1	1	10' 6"	16	103	1' 2"	4' 10"		
A634		1	1	9' 4"	14	103	1' 2"	4' 3"		
A635		4	4	8' 0"	48	103	1' 2"	3' 7"		
A636	60	60	120	5' 4"	960	ST				
A639	4	102	106	3' 3"	517	ST				
A640	2	100	102	5' 0"	766	134	1' 1"	5.25	3' 5"	
A641	2	2	4	5' 8"	34	134	1' 6"	7.35	3' 5"	
A642		1	1	9' 10"	15	103	1' 2"	4' 6"		
A643		1	1	9' 0"	14	103	1' 2"	4' 1"		

ABUTMENT (CON'T)										
MARK	NUMBER			LENGTH	WEIGHT (LB)	TYPE	DIMENSIONS			SERIES INC.
	REAR	FRWD	TOTAL				A	B	C	
A644		4	4	8' 0"	48	103	1' 2"	3' 7"		
A645		2	2	5' 8"	17	ST				
A646	5		5	3' 4"	25	102	2' 2"	1' 4"		
A647	3		3	4' 4"	20	103	2' 0"	1' 11"		
A648	6		6	4' 2"	38	102	2' 1"	2' 3"		
A649	3		3	6' 4"	29	103	2' 2"	2' 3"		
A650		12	12	4' 4"	78	102	2' 3"	2' 3"		
A651		6	6	6' 6"	59	103	2' 4"	2' 3"		
A652	10		10	5' 0"	75	103	2' 0"	1' 8"		
A701		210	210	15' 6"	6,653	ST				
A702S		1 SER OF 12	1 SER OF 12	1' 6" TO 10' 11"	152	ST			0' 10 1/4"	
A703S		1 SER OF 8	1 SER OF 8	0' 10" TO 6' 9"	62	ST			0' 10 1/8"	
A704S		1 SER OF 23	1 SER OF 23	7' 4" TO 15' 4"	533	ST			0' 4 3/8"	
A705S		1 SER OF 6	1 SER OF 6	2' 6" TO 13' 5"	98	ST			2' 2 1/4"	
A706		9	9	13' 6"	248	ST				
A707S		1 SER OF 7	1 SER OF 7	1' 8" TO 11' 11"	97	ST			1' 8 1/2"	
A708		29	29	11' 9"	696	ST				
A709		47	47	10' 9"	1,033	ST				
A710		93	93	10' 0"	1,900	102	9' 0"	1' 2"		
A711		24	24	19' 3"	944	ST				
A712		23	23	20' 0"	940	ST				
A801	44	46	90	5' 11"	1,422	116	3' 8"	1' 0"		
A802		47	47	10' 9"	1,349	ST				
A803		18	18	10' 1"	484	102	9' 0"	1' 4"		
A804		9	9	21' 9"	523	ST				
A902S		1 SER OF 24	1 SER OF 24	1' 6" TO 11' 4"	524	ST			0' 5 1/8"	
A903S		1 SER OF 9	1 SER OF 9	1' 8" TO 11' 11"	208	ST			1' 3 3/8"	
A904		12	12	13' 6"	551	ST				
A905		38	38	11' 9"	1,518	ST				
A906		221	221	14' 0"	10,520	102	10' 6"	3' 10"		
A907		22	22	20' 2"	1,508	ST				
A908		16	16	20' 7"	1,120	ST				
A909		15	15	20' 11"	1,067	ST				
A910		15	15	21' 5"	1,092	ST				
A911		15	15	21' 9"	1,109	ST				
A912		15	15	22' 3"	1,135	ST				
A913		13	13	22' 7"	998	ST				
A914		51	51	14' 0"	2,428	102	10' 6"	3' 10"		
A915		12	12	24' 5"	996	ST				
A916		15	15	24' 10"	1,267	ST				
A917	2		2	4' 9"	32	ST				
A918	5		5	2' 4"	40	ST				
A919	6		6	4' 1"	83	102	2' 1"	2' 3"		
A920		12	12	4' 3"	173	102	2' 3"	2' 3"		
A921	2	4	6	4' 7"	94	ST				
A1001		45	45	14' 11"	2,888	102	11' 3"	4' 0"		
A1002		23	23	27' 3"	2,697	ST				

NOTE:

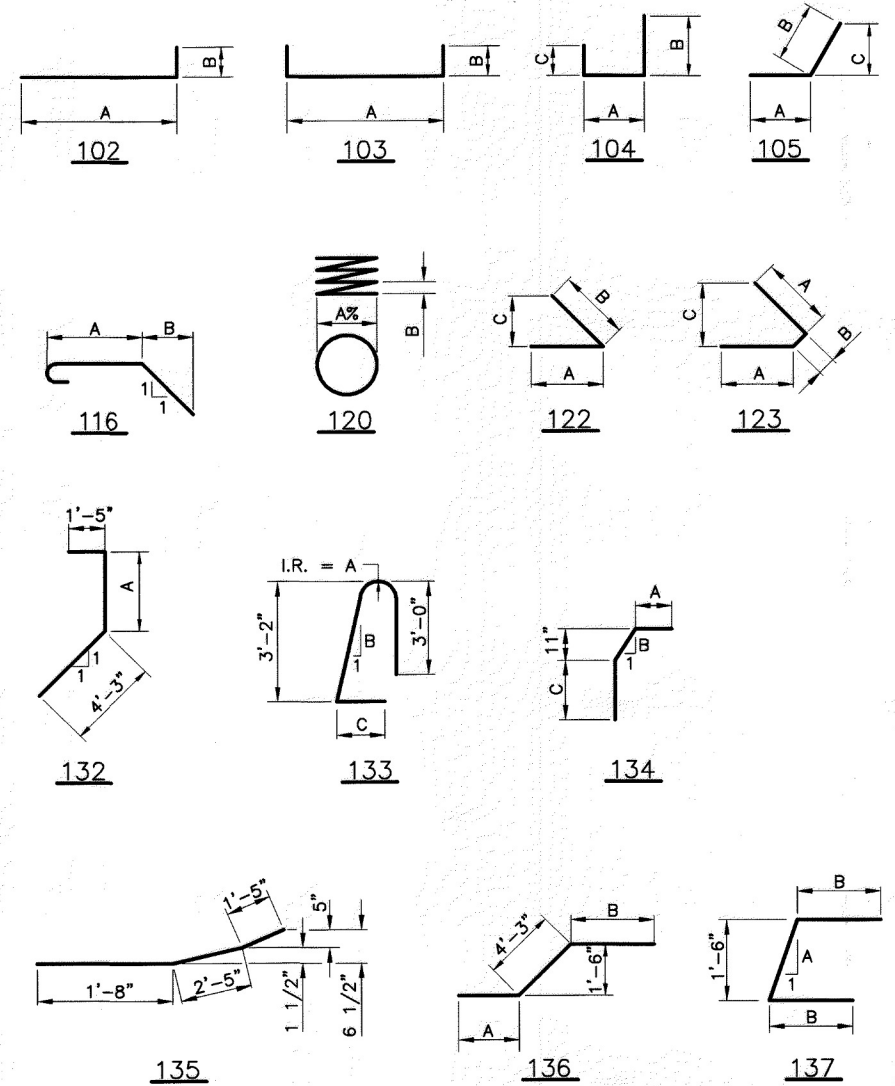
1. FOR REINF. NOTES AND STANDARD BAR DIAGRAMS,
SEE SHT. NO. 23/23.

SLAB								
MARK	NO.	LENGTH	WEIGHT (LB)	TYPE	DIMENSIONS			SERIES INC.
					A	B	C	
S401	654	30' 0"	13,106	ST				
S402	109	28' 9"	2,093	ST				
S501	313	39' 5"	12,868	ST				
S502S	1 SER OF 82	1' 8" TO 38' 11"	1,735	ST				0' 5 1/2"
S503S	1 SER OF 70	3' 7" TO 38' 10"	1,548	ST				0' 6 1/8"
S504S	1 SER OF 61	2' 0" TO 32' 7"	1,100	ST				0' 6 1/8"
S505	66	32' 11"	2,266	ST				
S506	65	32' 2"	2,181	ST				
S507	65	31' 6"	2,136	ST				
S508	65	30' 10"	2,090	ST				
S509	66	30' 2"	2,077	ST				
S510S	1 SER OF 55	3' 9" TO 29' 1"	942	ST				0' 5 5/8"
S511S	1 SER OF 62	2' 11" TO 34' 1"	1,196	ST				0' 6 1/8"
S512	323	34' 7"	11,651	ST				
S513S	1 SER OF 72	1' 8" TO 34' 3"	1,349	ST				0' 5 1/2"
S514S	1 SER OF 69	2' 0" TO 36' 8"	1,391	ST				0' 6 1/8"
S515	58	36' 9"	2,223	ST				
S516	65	36' 2"	2,452	ST				
S517	65	35' 6"	2,407	ST				
S518	65	34' 10"	2,362	ST				
S519	66	34' 2"	2,352	ST				
S520S	1 SER OF 66	2' 8" TO 33' 1"	1,230	ST				0' 5 5/8"
S521	552	30' 0"	17,272	ST				
S522	80	31' 8"	2,642	ST				
S523	6	35' 9"	224	ST				
S524	6	32' 6"	203	ST				
S525	16	1' 6"	25	ST				
S526	4	7' 9"	32	133	0' 3 1/2"	3.75	1' 4 1/2"	
S527	393	7' 5"	3,041	133	0' 2 3/4"	5.25	1' 1"	
S528	216	36' 0"	8,110	ST				
S601	12	30' 0"	541	ST				
S602	1	39' 9"	60	ST				
S603	1	36' 6"	55	ST				
S604	4	4' 4"	26	137	3.75	1' 6"		
S605	393	3' 4"	1,966	137	5.25	1' 1"		
S606	397	2' 5"	1,443	102	1' 1"	1' 6"		

PIERS										
MARK	NUMBER			LENGTH	WEIGHT (LB)	TYPE	DIMENSIONS			SERIES INC.
	NO. 1	NO. 2	TOTAL				A	B	C	
SP401	1	1	2	17' 2"	251	120	2' 6"	0' 4 1/2"		
SP402	1	1	2	17' 9"	260	120	2' 6"	0' 4 1/2"		
SP403	1	1	2	18' 4"	268	120	2' 6"	0' 4 1/2"		
SP404	1	1	2	18' 11"	276	120	2' 6"	0' 4 1/2"		
SP405	1	1	2	19' 6"	284	120	2' 6"	0' 4 1/2"		
P501	176	176	352	6' 9"	2,478	103	1' 8"	2' 8"		
P502	40	40	80	7' 9"	647	103	2' 8"	2' 8"		
P503	4	4	8	9' 0"	75	105	3' 0"	6' 0"	0' 8"	
P504	4	4	8	8' 11"	74	105	2' 11 1/2"	6' 0"	0' 3 1/2"	
P505	16	16	32	30' 0"	1,001	ST				
P506	8	8	16	34' 10"	581	ST				
P507	12		12	13' 4"	167	102	12' 0"	1' 6"		
P508	4		4	10' 2"	42	102	8' 10"	1' 6"		
P509	8	16	24	13' 6"	338	102	12' 2"	1' 6"		
P510	4	4	8	16' 9"	140	102	15' 5"	1' 6"		
P511		4	4	11' 11"	50	102	10' 7"	1' 6"		
P512		4	4	13' 3"	55	102	11' 11"	1' 6"		
P601		12	12	4' 8"	84	102	2' 4"	2' 6"		
P602		6	6	8' 10"	80	103	4' 2"	2' 6"		
P801	40	40	80	14' 6"	3,097	ST				
P802	32	32	64	9' 6"	1,623	ST				
P803	36	36	72	12' 6"	2,403	ST				
P804	28	28	56	8' 6"	1,271	ST				
P805	16	16	32	10' 6"	897	ST				
P806	12	12	24	7' 6"	481	ST				
P807	12	12	24	41' 10"	2,681	ST				
P901		4	4	4' 2"	57	ST				
P902		12	12	4' 7"	187	102	2' 4"	2' 6"		
P903	12	12	24	20' 1"	1,639	ST				
P904	12	12	24	20' 8"	1,686	ST				
P905	12	12	24	21' 3"	1,734	ST				
P906	12	12	24	21' 10"	1,782	ST				
P907	12	12	24	22' 5"	1,829	ST				
P908	60	60	120	9' 0"	3,672	102	7' 7 1/2"	1' 7"		
P1101	6	6	12	43' 5"	2,768	102	41' 4 1/2"	2' 5"		
P1102	8	8	16	30' 0"	2,550	ST				
P1103	6	6	12	43' 10"	2,795	102	41' 4 1/2"	2' 10"		
P1104	4	4	8	41' 4"	1,757	ST				

SUMMARY AND GRAND TOTAL OF BAR WEIGHTS	
ABUTMENTS	84,028
SLAB	108,395
PIER	42,060
GRAND TOTAL	234,483

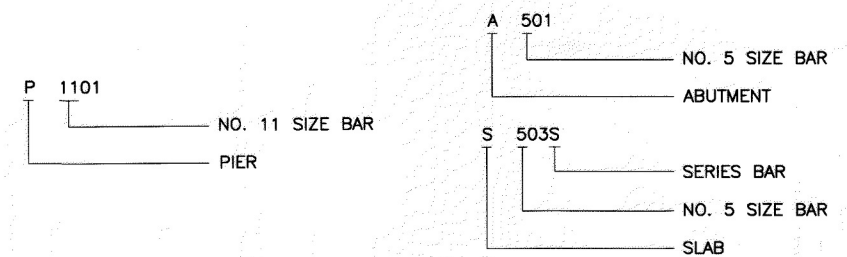
STANDARD BAR TYPES



REINFORCING STEEL NOTES:

- BAR DIMENSIONS ARE OUT TO OUT UNLESS NOTED OTHERWISE.
- ALL BARS ARE EPOXY COATED.
- I.R. DENOTES INSIDE RADIUS
- BAR SIZE AND LOCATION ARE INDICATED IN THE BAR MARK. THE FIRST ALPHABETICAL LETTER INDICATES LOCATION. THE NEXT DIGIT OF THE THREE DIGIT SERIES AND THE NEXT TWO DIGITS OF THE FOUR DIGIT SERIES INDICATE BAR SIZE NUMBER.

EXAMPLES:



5. SPIRAL REINFORCING BARS

CONCRETE SPACERS OR OTHER APPROVED NONCORROSIVE SPACING DEVICES SHALL BE USED AT SUFFICIENT INTERVALS (NEAR THE BOTTOM AND AT INTERVALS NOT EXCEEDING 10 FEET) TO INSURE CONCENTRIC SPACING FOR THE ENTIRE CAGE LENGTH. SPACERS SHALL BE CONSTRUCTED OF APPROVED MATERIAL EQUAL IN QUALITY AND DURABILITY TO THE CONCRETE SPECIFIED FOR THE COLUMN. THE SPACERS SHALL HAVE ADEQUATE DIMENSIONS TO ENSURE A MINIMUM 3 INCH CLEAR SPACE BETWEEN THE OUTSIDE OF THE REINFORCING CAGE AND THE DESIGN DIMENSION OF THE COLUMN.