MICROFILMED
JUL 13 1994

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
HOL-39-17.14
VILLAGE OF MILLERSBURG
HOLMES COUNTY

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	BHF-39(43)	

1
20

HOLMES COUNTY
HOL-39-17.14

BHF-39(43)

DESIGN DESIGNATION

CURRENT ADT (1990)	=	7580
DESIGN YEAR ADT (2010)	=	12,628
DHV	=	1263
D	=	60%
T	=	5.3%
DESIGN SPEED	=	50 MPH
LEGAL SPEED	=	50 MPH
FUNCTIONAL CLASSIFICATION	=	MINOR ARTERIAL (RURAL)
DESIGN EXCEPTION, BRIDGE WIDTH APPROVED		AUGUST 11, 1988

1989 SPECIFICATIONS

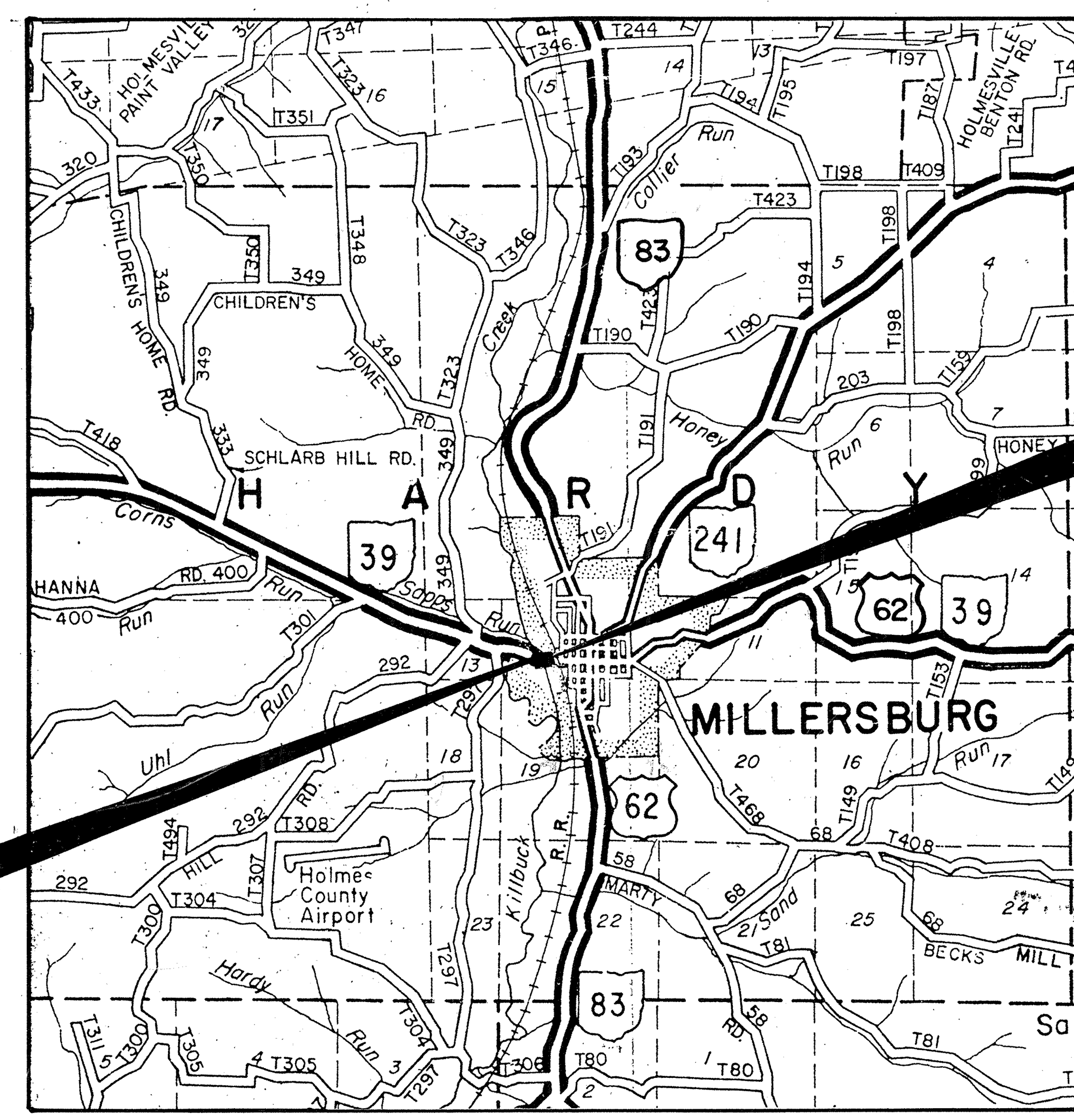
THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL, SHALL GOVERN THIS IMPROVEMENT.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

CONVENTIONAL SIGNS

COUNTY LINE
TOWNSHIP LINE
SECTION LINE
CORPORATION LINE — OR
FENCE LINE (EXISTING) (PROPOSED)
CENTER LINE
TREES STUMPS (TO BE REMOVED)
UTILITY POLES TELEPHONE, POWER, LIGHT

LIMITED ACCESS (ONLY) LA LA
RIGHT OF WAY (ONLY) RW
LIMITED ACCESS & RIGHT OF WAY LA & RW
EXISTING RIGHT OF WAY
PROPERTY LINE (IN EXISTING FENCE)
RAILROAD OR
GUARDRAIL (EXISTING) (PROPOSED)



END PROJECT
STA. 5+95.25

BEGIN PROJECT
STA. 4+04.75

LOCATION MAP
SCALE IN MILES
0 1 2 3

US. ROUTE
STATE ROUTE
OTHER ROADS
PORTION TO BE IMPROVED

INDEX OF SHEETS

APPROVED William P. McKenna
DATE 9/7/90 DISTRICT DEPUTY DIRECTOR OF TRANSPORTATION

APPROVED B. D. Hanhilammi /WTL
DATE 10/18/90 ENGINEER, BUREAU OF BRIDGES AND STRUCTURAL DESIGN

APPROVED Theodore J. Stitt
DATE 11/21/90 DEPUTY DIRECTOR, PLANNING AND DESIGN

APPROVED Bernard B. Hurst
DATE 11/21/90 DIRECTOR, DEPARTMENT OF TRANSPORTATION

LINE DATA

BEGIN PROJECT	STA. 4+04.75
END PROJECT	STA. 5+95.25
LENGTH OF PROJECT	190.50 LIN. FT. = 0.036 MI.
BEGIN WORK	STA. 3+09.37
END WORK	STA. 6+95.25
LENGTH OF WORK	385.88 LIN. FT. = 0.073 MI.

SCALES

PLAN 0 10' 20' 40'
PROFILE HORIZONTAL 0 10' 20' 40' VERTICAL 0 10' 20'
CROSS SECTIONS HORIZONTAL 0 10' 20' VERTICAL 0 10' 20'

UNDERGROUND UTILITIES
TWO WORKING DAYS
BEFORE YOU DIG
CALL 800-362-2764 (TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

PROJECT HOL-39-17.14
DATE OF LETTING ________ CONTRACT NO. ________

PLANS PREPARED BY
UNITED CONSULTANTS & ASSOCIATES
ENGINEERS, ARCHITECTS & LAND SURVEYORS
1187 E. BROAD STREET
COLUMBUS, OHIO 43205

STANDARD CONSTRUCTION DRAWINGS

BP-5	10-1-87	BR-2-82	11-01-82	MT-96.11	9-9-88		
BP-7	10-1-87	DBR-2-73	4-10-73	MT-96.20	9-9-88		
		SD-1-69	6-12-69	MT-96.25	9-9-88		
GR-1	1-11-85	AS-1-81	11-27-81				
GR-2B	2-5-82						
GR-3	10-25-90	MT-99.10	11-14-86				
GR-4	2-5-82						
GR-4A	1-30-84						
		EXJ-2-81	4-2-84				
MC-9A	1-11-85	PSBD-1-81	6-20-89				
MC-11	8-1-78						

SUPPLEMENTAL SPECIFICATIONS

NUMBER	DATE	NUMBER	DATE
847	10-17-83		
947	10-17-83		
802	4-13-90	852	6-10-87
		952	12-14-88
836	11-12-85		
849	12-24-85		
949	9-26-86		

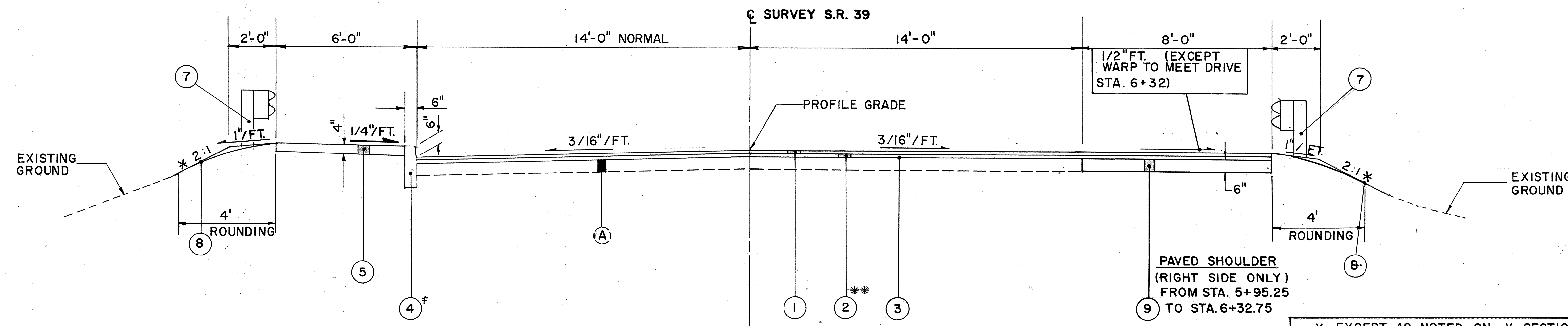
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED

DIVISION ADMINISTRATOR DATE

TYPICAL SECTIONS

TYPE 404

HOL - 39-17.14

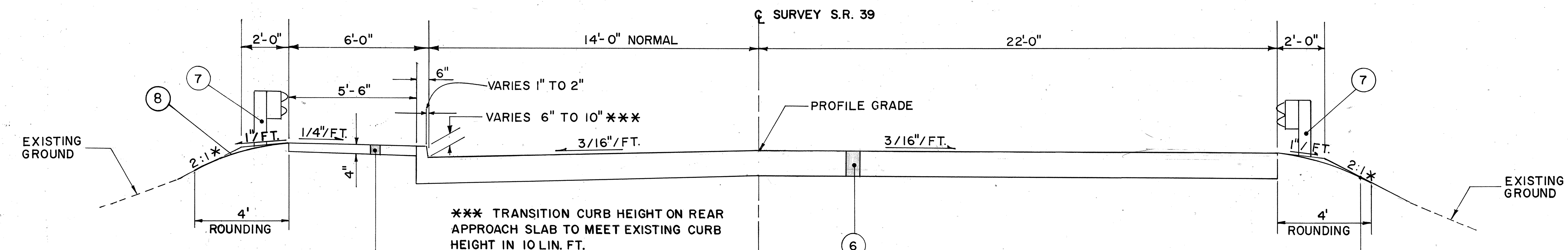


‡TRANSITION CURB TO MEET EXISTING IN LAST 10 FEET. (FORWARD APPROACH)

* EXCEPT AS NOTED ON X-SECTIONS
** NOTE: OMIT ITEM 402 ON REAR APPROACH

NORMAL SECTION

REAR APPROACH:	STA. 3+79.75 TO STA. 4+04.75	=	25.00 LIN. FT.
FORWARD APPROACH:	STA. 5+95.25 TO STA. 6+95.25	=	100.00 LIN. FT.
	TOTAL	=	125.00 LIN. FT.



*** TRANSITION CURB HEIGHT ON REAR APPROACH SLAB TO MEET EXISTING CURB HEIGHT IN 10 LIN. FT.

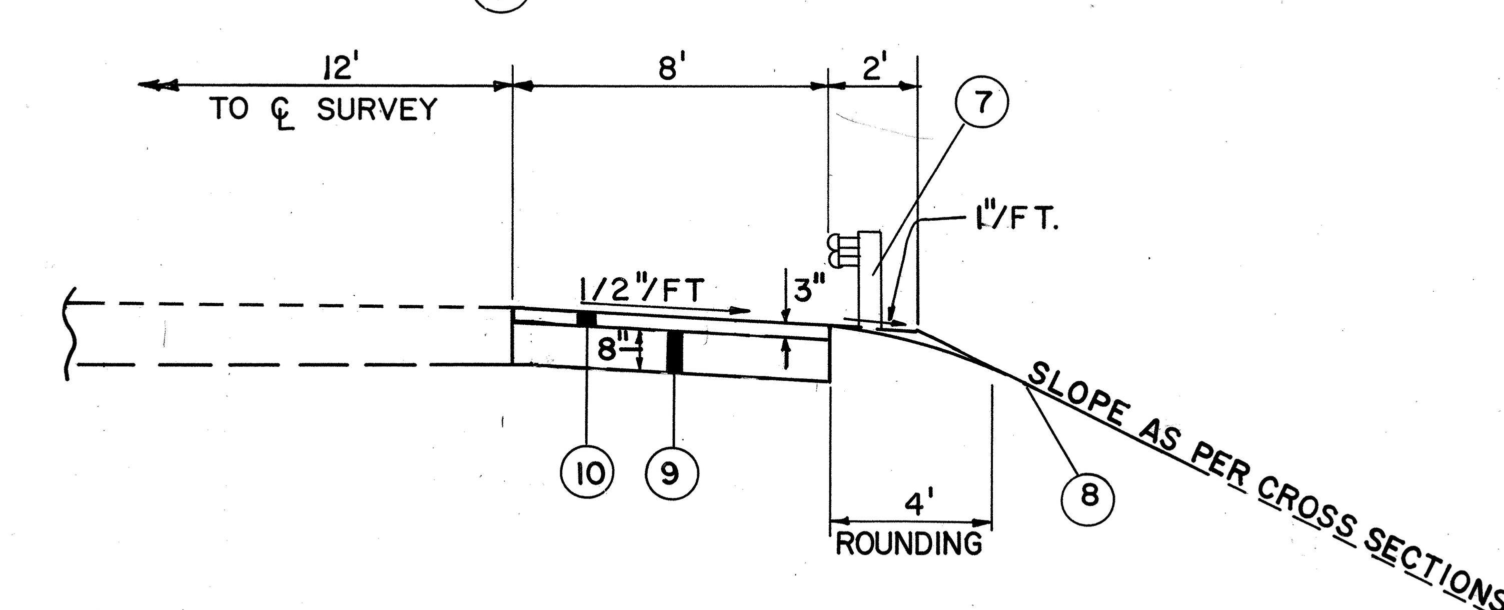
APPROACH SLAB SECTION

STA. 4+04.75 TO STA. 4+19.75	=	15.00 LIN. FT.
STA. 5+80.25 TO STA. 5+95.25	=	15.00 LIN. FT.
TOTAL	=	30.00 LIN. FT.

LEGEND

1. ITEM 404 - 1 1/4" ASPHALT CONCRETE, AC-20
2. ITEM 402 - 1 1/4" MINIMUM ASPHALT CONCRETE, AC-20 (VARIABLE THICKNESS)
3. ITEM 407 - TACK COAT
4. ITEM 609 - CURB, TYPE 6
5. ITEM 608 - CONCRETE WALK, 4"
6. ITEM 611 - REINFORCED CONCRETE APPROACH SLAB (T=12")
7. ITEM 606 - GUARDRAIL TYPE 5
8. ITEM 659 - SEEDING AND MULCHING
9. ITEM 301 - BITUMINOUS AGGREGATE BASE, AC-20
10. ITEM 404 - 3" ASPHALT CONCRETE, AC-20

(A) EXISTING FLEXIBLE PAVEMENT



RIGHT SHOULDER DETAIL

STA. 3+09.37 TO STA. 3+79.75

CALC. NAC
DATE 11/30/88
CHK'D JAF
DATE 12/7/88

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO	BHF-39(43)	

HOL-39-17.14

GENERAL NOTES

FIELD OFFICE

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

ROUNDING OF CORNERS

THE ROUNDED CORNERS SHOWN ON THE TYPICAL SECTION, APPLY TO ALL CROSS SECTIONS EVEN THOUGH OTHERWISE SHOWN ON THESE PLANS.

UTILITY OWNERSHIP

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

UNITED TELEPHONE COMPANY	OHIO POWER COMPANY
224 EAST LIBERTY STREET	301 CLEVELAND AVENUE, S.W.
WOOSTER, OHIO 44691	CANTON, OHIO 44701
	(216) 438 7726

UNDERGROUND UTILITIES - THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS OF THE UTILITIES AS REQUIRED BY SECTION 153.64 O.R.C.

USGS DATUM

ALL ELEVATIONS ARE BASED ON USGS DATUM.

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 AUHTORIZED 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.

SEEDING

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

WATERING PERMANENT SEEDING AREAS

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

659	WATER	1 M. GAL.

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL

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

207	STRAW OR HAY BALES	50 EACH

CLEARING AND GRUBBING

ALTHOUGH THERE ARE NO TREES AND/OR STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE LIMITS OF THIS PROJECT, A LUMP SUM QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR ITEM 201, CLEARING AND GRUBBING. ALL PROVISIONS AS SET FORTH IN THE SPECIFICATIONS UNDER THIS ITEM SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

614 BARRIER REFLECTORS: THESE REFLECTORS AND THEIR MOUNTING SHALL CONFORM TO SUPPLEMENTAL SPECIFICATIONS 802 EXCEPT THAT SPACING SHALL BE AS PER STD. DRAWING MT 96.11

LOCATION OF GUARDRAIL

THE LOCATION OF GUARDRAIL RUNS, AS SHOWN IN THESE PLANS, ARE SUBJECT TO ADJUSTMENT PRIOR TO FINAL ACCEPTANCE. THE ENGINEER SHALL BE SATISFIED THAT ALL INSTALLATIONS WILL AFFORD MAXIMUM PROTECTION FOR TRAFFIC.

CONNECTIONS BETWEEN EXISTING AND PROPOSED GUARDRAIL

WHEN IT IS NECESSARY TO SPLICE PROPOSED GUARDRAIL TO EXISTING GUARDRAIL, ONLY THE EXISTING GUARDRAIL SHALL BE CUT, DRILLED, OR PUNCHED. THE CONNECTION SHALL BE MADE USING A "BEAM RAIL SPLICE" AS SHOWN ON STANDARD DRAWING GR-1. PAYMENT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE RESPECTIVE GUARDRAIL RUNS.

DUST CONTROL

ITEM 616 WATER FOR DUST CONTROL	- 10 M. GAL.
ITEM 616 CALCIUM CHLORIDE	2 TON

MAINTENANCE OF TRAFFIC

THE CONTRACTOR SHALL MAINTAIN TRAFFIC AT ALL TIMES IN ACCORDANCE WITH THE REQUIREMENTS OF SPEC. 614 AND THE CONSTRUCTION SEQUENCE SHOWN ON SHEET NO. 4 BY CONSTRUCTING THE NEW BRIDGE IN TWO PHASES AS SHOWN ON SHEET NO. 4 . TRAFFIC SHALL BE MAINTAINED AT ALL TIMES BY USE OF THE EXISTING PAVEMENT, PORTIONS OF THE EXISTING AND NEW BRIDGES AND NEW PAVED SHOULDERS.

THE LIMITS AND DURATION OF USE OF TEMPORARY ROADWAYS SHALL BE HELD TO AN ABSOLUTE MINIMUM AND SHALL IN ALL CASES BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

ALTERNATING ONE-WAY TRAFFIC SHALL BE MAINTAINED BY USE OF TEMPORARY SIGNALS AS SHOWN ON SHEET NO 4 . TRAFFIC SHALL BE SEPARATED FROM THE WORK AREA BY MEANS OF ITEM 622 TEMPORARY PRECAST CONCRETE BARRIER.

PAYMENT FOR ALL OF THE ABOVE EXCEPT ITEM 622 SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC.

ITEM 622 - TEMPORARY CONCRETE BARRIER

THIS ITEM SHALL INCLUDE FURNISHING, PLACING, MAINTAINING, AND SUBSEQUENTLY REMOVING TEMPORARY CONCRETE BARRIER IN ACCORDANCE WITH STANDARD DRAWING MC-9A AND CONSTRUCTION SEQUENCE DETAILS SHOWN ON SHEET NOS. 4 AND 12.

MOVEMENT OF THE BARRIER BETWEEN PHASES SHALL BE ACCOMPLISHED IN ONE (1) WORKING DAY. FLAGMEN SHALL BE UTILIZED FOR THE PROTECTION OF VEHICULAR TRAFFIC UNTIL MOVEMENT OF THE TEMPORARY BARRIER AND OTHER TRAFFIC CONTROL DEVISES IS COMPLETED AND TRAFFIC IS MAINTAINED AS PER PHASE 2.

PAYMENT FOR ALL OF THE ABOVE SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 622 - TEMPORARY PRECAST CONCRETE BARRIER AND TEMPORARY PRECAST CONCRETE BARRIER, BRIDGE MOUNTED. THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY.

ITEM 622-TEMPORARY	CONCRETE BARRIER, :230L.F.
ITEM 622-TEMPORARY	CONCRETE BARRIER, BRIDGE MOUNTED :360 L.F.

FILL RESTRICTION

THE CONTRACTOR IS PROHIBITED FROM PLACING FILL MATERIAL BELOW ELEVATION 815.00.

WIDENING EXISTING BERMS: PORTIONS OF THE EXISTING BERM ON THIS PROJECT SHALL BE BUILT UP AND GRADED TO THE WIDTH AND SLOPES INDICATED ON THE TYPICAL SECTIONS. THE EXISTING BERM SHALL BE PREPARED AS REQUIRED IN SPEC. 201.04. ALL EMBANKMENT SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH SPEC. 203.09 EXCEPT THAT THE REQUIREMENTS FOR MOISTURE, DENSITY CONTROL, AND BENCHING ARE HEREBY WAIVED FOR WIDENED BERMS WHICH DO NOT SUPPORT ANY PORTION OF NEW PAVEMENT OR SHOULDER. ALL OF THE ABOVE PROVISIONS SHALL BE CONSIDERED INCIDENTAL TO THE NORMAL EARTHWORK ITEMS AND SHALL NOT BE PAID FOR SEPARATELY.

U.S.C.& G.S. BM "U258-1959"

THE CONTRACTOR WILL BE REQUIRED TO NOTIFY DISTRICT 11 OFFICE, OF ODOT, 5 (FIVE) WORKING DAYS PRIOR TO ANY ACTIVITY THAT WOULD DISTURB THE LOCATION OR ELEVATION OF THE BENCHMARK MONUMENT.
THE DISTRICT OFFICE WILL FURNISH THE CONTRACTOR WITH A REPLACEMENT DISC MONUMENT, WHICH THE CONTRACTOR WILL PLACE IN AN ACCESSIBLE AND PREFERABLY HORIZONTAL LOCATION ON THE STRUCTURE, AS DIRECTED BY THE ENGINEER, AT THE TIME OF CONSTRUCTION.
THE EXISTING DISC MONUMENT SHALL BE SALVAGED AND RETURNED TO DISTRICT 11 OFFICE.
PAYMENT FOR THE ABOVE SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 623 CONSTRUCTION LAYOUT STAKES.

ITEM 407 TACK COAT

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

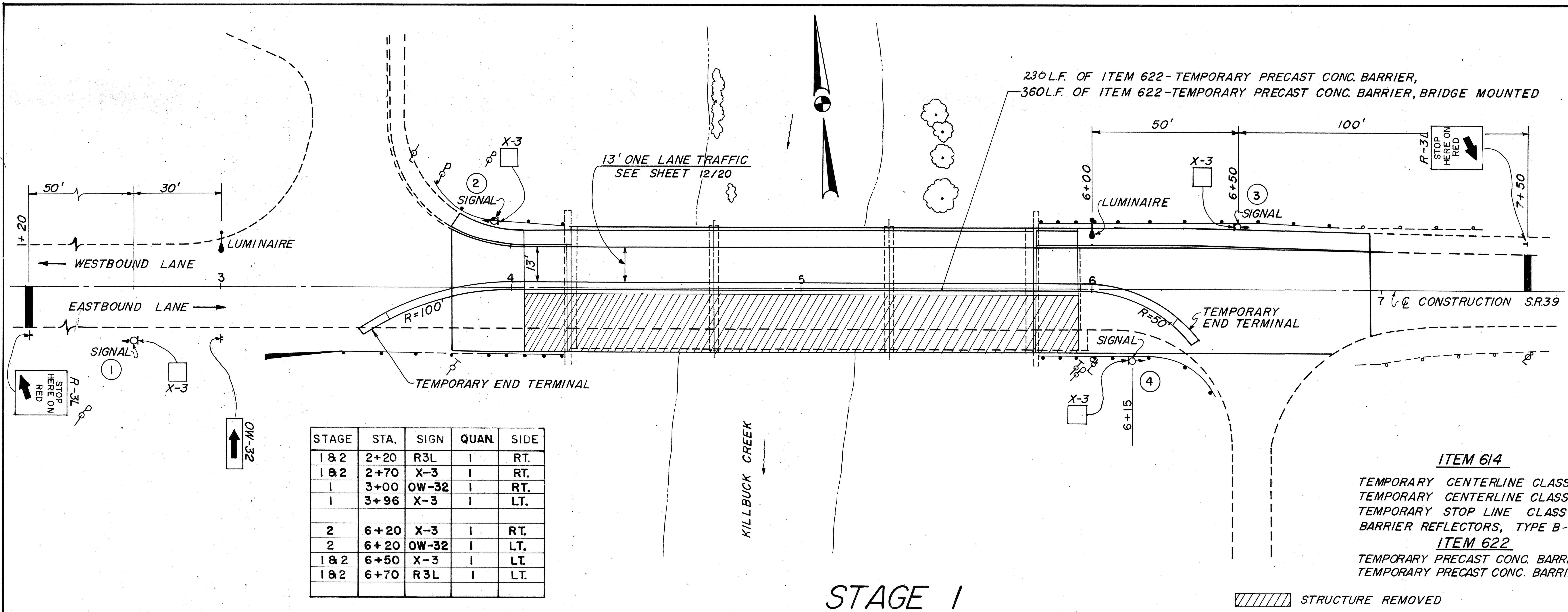
622 TEMPORARY CONCRETE BARRIER (TCB)

SUPPLEMENTING 622.08. THE METHOD OF MEASUREMENT FOR TCB SHALL INCLUDE THE TOTAL OF EACH INDIVIDUAL PLACEMENT OF TCB REQUIRED BY THE PLANS WITHOUT REGARD TO WHETHER THE SAME SPECIFIC SECTION OF TCB COULD BE RE-USED AGAIN ON THE PROJECT.

CALC.	NAC
DATE	11/30/88
CHK'D	JAF
DATE	12/7/88

F.H.W.A REGION	STATE	PROJECT	
5	OHIO	BHF-39 (43)	

HOL-39-17.14



STAGE	STA.	SIGN	QUAN.	SIDE
1 & 2	2+20	R3L	1	RT.
1 & 2	2+70	X-3	1	RT.
1	3+00	OW-32	1	RT.
1	3+96	X-3	1	LT.
2	6+20	X-3	1	RT.
2	6+20	OW-32	1	LT.
1 & 2	6+50	X-3	1	LT.
1 & 2	6+70	R3L	1	LT.

SIGNAL TIMING

SIGNAL NO.	Q1 R/W	Q1 CLEAR'NCE		Q2 R/W	Q2 CLEARANCE	
1	G	Y	R	R	R	R
2	G	Y	R	R	R	R
3	R	R	R	G	Y	R
4	R	R	R	G	Y	R
SEC.	20	3	12	20	3	12

ITEM 614

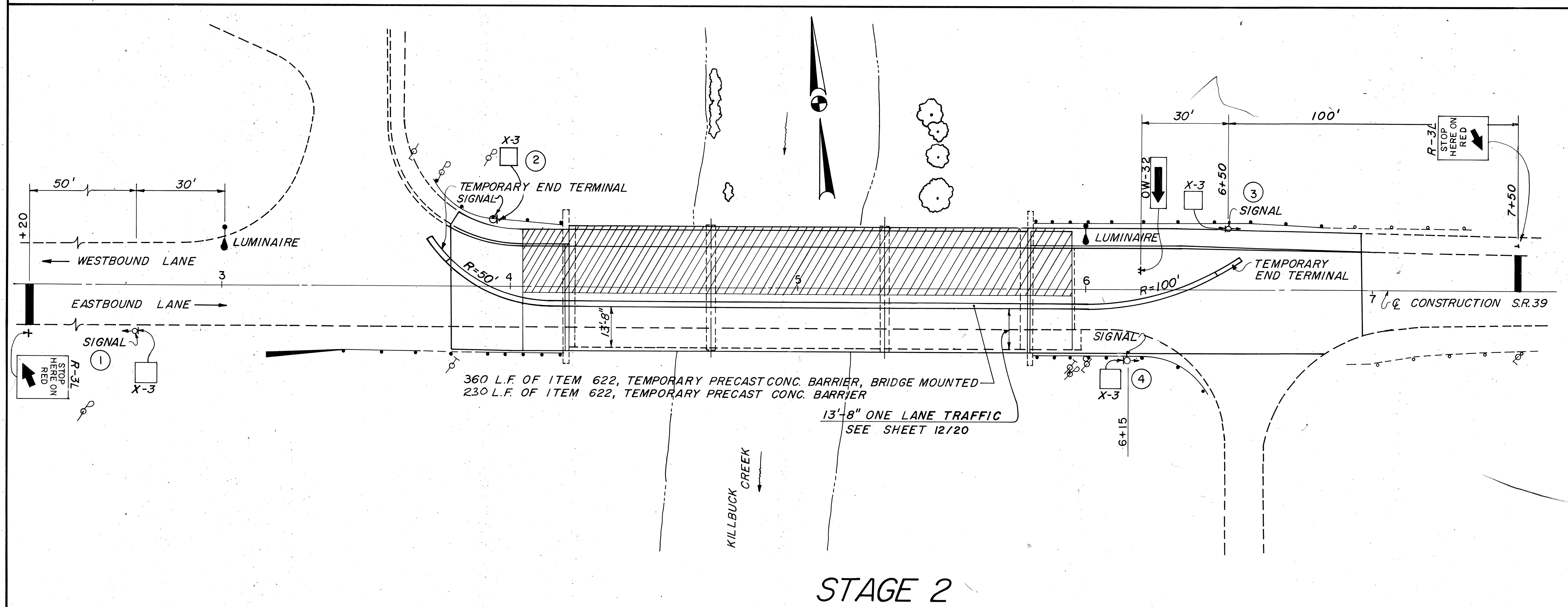
TEMPORARY CENTERLINE CLASS I 0.06 MI.
TEMPORARY CENTERLINE CLASS II, 621 / 0.06 MI.
TEMPORARY STOP LINE CLASS I, 947.03 TYPE C 26 L.F.
BARRIER REFLECTORS, TYPE B-2 12 EA.

ITEM 622

TEMPORARY PRECAST CONC. BARRIER 230 L.F.
TEMPORARY PRECAST CONC. BARRIER, BRIDGE MOUNTED 360 L.F.

STRUCTURE REMOVED

STAGE 1



STAGE 2

CONSTRUCTION SEQUENCE

STAGE 1:

BEFORE STARTING ANY BRIDGE RECONSTRUCTION WHICH REQUIRES CLOSING EXISTING PAVEMENT TO TRAFFIC, ALL TEMPORARY CONCRETE BARRIERS, SIGNALS, SIGNS, LIGHTS AND TEMPORARY PAVEMENT MARKING SHOWN FOR STAGE 1 SHALL BE FURNISHED AND ERECTED BY THE CONTRACTOR. FLAGMEN SHALL BE UTILIZED FOR PROTECTION OF VEHICULAR TRAFFIC UNTIL ERECTION OF THE TEMPORARY CONCRETE BARRIERS, SIGNALS, SIGNS, LIGHTS AND TEMPORARY PAVEMENT MARKING IS COMPLETED.

WHEN THE ABOVE REQUIREMENTS HAVE BEEN SATISFIED, THE WESTBOUND LANE OF THE EXISTING BRIDGE SHALL BE OPENED FOR TRAFFIC AND CONSTRUCTION OF THE EASTBOUND PORTION OF THE BRIDGE AND APPROACH SLABS SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE SHOWN ON SHEET NO. 12

STAGE 2:

RELOCATE THE TEMPORARY CONCRETE BARRIERS, SIGNALS, SIGNS, LIGHTS AND TEMPORARY MARKINGS AS SHOWN FOR STAGE 2. MOVEMENT OF TEMPORARY CONCRETE BARRIERS, SIGNALS, SIGNS, LIGHTS AND TEMPORARY PAVEMENT MARKINGS BETWEEN STAGES SHALL BE ACCOMPLISHED IN ONE (1) WORKING DAY. FLAGMEN SHALL BE UTILIZED FOR THE PROTECTION OF VEHICULAR TRAFFIC UNTIL RELOCATION OF THE TEMPORARY CONCRETE BARRIERS, SIGNALS, SIGNS, LIGHTS AND TEMPORARY PAVEMENT MARKINGS IS COMPLETE.

THE COMPLETED PORTION OF THE NEW BRIDGE AND APPROACH SLABS SHALL BE OPENED TO TRAFFIC AND CONSTRUCTION OF THE REMAINING PORTION OF THE BRIDGE AND APPROACH SLABS SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE SHOWN ON SHEET 12.

COMPLETE ALL REMAINING CONSTRUCTION

MAINTAINING TRAFFIC PLAN

CALC BY	DATE
CHKD BY	DATE

OHIO | FHWA REGION 5 | 4A/20

GENERAL

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING, INSTALLING, MAINTAINING, AND SUBSEQUENTLY REMOVING TEMPORARY RAISED PAVEMRNT MARKERS (TRPM'S). THE MARKERS SHALL BE YELLOW OR WHITE, AS DESCRIBED IN THE PLAN.

MATERIAL

ALL MARKERS SHALL BE OF SUFFICIENT STRENGTH AND PROPERLY SHAPED SO AS NOT TO BE DISLODGED OR BROKEN, OR THE REFLECTOR DISLODGED OR BROKEN, OR THE REFLECTOR DISLODGED OR DAMAGED BY IMPACTS FROM VEHICLES TIRES, INCLUDING THOSE OF HIGH PRESSURE TRUCK TIRES LOADED TO 4500 POUNDS.

RETROREFLECTORS SHALL BE PROVIDED IN ONE OR TWO DIRECTIONS ON EACH MARKER AS REQUIRED BY THE USAGE AND SHALL RETURN WHITE OR YELLOW LIGHT AS IS APPROPRIATE FOR THE APPLICATION.

THE REFLECTOR SHALL HAVE AN EFFECTIVE AREA OF 0.35 SQUARE INCHES FOR TYPE A OR 3.0 SQUARE INCHES FOR TYPE B. ITS BRIGHTNESS OR SPECIFIC INTENSITY (WHEN TESTED AT 0.2 DEGREE ANGLE OF OBSERVATION AND THE FOLLOWING ANGLES OF INCIDENCE) SHALL MEET OR EXCEED THE FOLLOWING:

SPECIFIC INTENSITY

TYPE A

INCIDENCE ANGLE (DEGREES)	WHITE	YELLOW
0	1.0	0.6
20	0.4	0.24
45	—	—

TYPE B

	WHITE	YELLOW
0	3.0	1.8
20	1.2	0.72
45	0.3	0.2

ANGLE OF INCIDENCE FORMED BY A RAY FROM LIGHT SOURCE TO THE MARKER AND THE NORMAL TO THE LEADING EDGE OF THE MARKER FACE (ALSO HORIZONTAL ENTRANCE ANGLE).

ANGLE OF OBSERVATION FORMED BY A RAY FROM LIGHT SOURCE TO THE MARKER AND THE RETURNED RAY FROM THE MARKER TO THE MEASURING RECEPTOR.

SPECIFIC INTENSITY IS THE MEAN CANDLEPOWER OF THE REFLECTED LIGHT (AT GIVEN INCIDENCE AND DIVERGENCE ANGLES) FOR EACH FOOT-CANDLE AT THE REFLECTOR (ON A PLANE PERPENDICULAR TO THE INCIDENT LIGHT).

TYPE A MARKERS ARE INTENDED TO PROVIDE HIGH VISIBILITY BOTH DAY AND NIGHT. THEIR DAY TIME VISIVILITY SHALL BE ASSURED BY SIZE, SHAPE AND COLOR AS FOLLOWS:

1) THE MARKERS SHALL BE A HIGH VISIBILITY YELLOW OR WHITE COLOR WHICH WILL NOT DEGRADE SUBSTANTIALLY DUE TO TRAFFIC WEAR AND WHICH WILL MATCH THE COLOR OF THE REFLECTOR.

2) WHEN VIEWED FROM ABOVE, THE MARKERS SHALL HAVE A VISIBLE AREA OF NOT LESS THAN 14 SQUARE INCHES.

3) WHEN VIEWED FROM THE FRONT, PARALLEL TO THE PAVEMENT, AS FROM APPROACHING TRAFFIC, THE MARKER SHALL HAVE A WIDTH OF APPROXIMATELY 4 INCHES AND A VISIBLE AREA OF NOT LESS THAN 1.5 SQUARE INCHES.

TYPE B MARKERS ARE INTENDED TO PROVIDE HIGH VISIBILITY AT NIGHT BY RETROREFLECTING AUTOMOTIVE HEADLIGHT BACK TO DRIVER.

INSTALLATION

TEMPORARY RAISED PAVEMENT MARKERS SHALL BE ATTACHED TO CLEAN, DRY PAVEMENT BY A BUTYL ADHESIVE PAD, ABITUMINOUS ADHESIVE OR OTHER CONSTRUCTION GRADE ADHESIVES (SUCH AS FRANKLIN PANEL AND METAL ADHESIVE) SUITABLE TO ANCHOR THE MARKER UNDER THE ABOVE CONDITIONS. WHEN IT IS NEDESSARY TO ATTACH MARKERS TO NEW CONCRETE PAVEMENT WITH CURING COMPOUND REMAINING, THE CURING COMPOUND MEMBRANE SHALL BE REMOVED BY SANDBLASTING OR OTHER MECHANICAL CLEANING METHOD. MARKERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

THE CONTRACTOR SHALL IMMEDIATELY REPLACE, AT HIS EXPENSE, ANY MARKERS WHICH FAIL (BROKEN HOUSING, HOUSING WORN TO THE EXTENT THAT DAYTIME VISIBILITY IS SIGNIFICANTLY DIMINISHED OR OF AN UNACCEPTABLE COLOR, DETACHED OR BROKEN REFLECTOR, HOUSING DETACHED FROM ADHESIVE).

MARKERS ARE LIKELY TO BE REMOVED BY SNOW PLOWING OPERATIONS, THUS THEY ARE NOT CONSIDERED SUITABLE FOR USE DURING THE PERIOD FROM OCTOBER 15 UNTIL APRIL 30. THE CONTRACTOR IS ADVISED TO SCHEDULE HIS WORK AND/OR THE USE OF THESE DEVICES TO AVOID THIS PERIOD. SHOULD THE CONTRACTOR CHOOSE TO USE TRPM'S DURING THIS PERIOD AND THEY ARE SUBSEQUENTLY REMOVED OR DESTROYED BY SNOW AND ICE CONTROL ACTIVITIES, THE CONTRACTOR SHALL IMMEDIATELY, AT HIS EXPENSE, PROVIDE A SUBSTITUTE TRAFFIC GUIDANCE SYSTEM EFFECTIVE DURING DAY AND NIGHT AND WHICH IS ACCEPTABLE TO THE ENGINEER.

THE MARKERS SHALL BE PLACED ACCURATELY TO DEPICT STRAIGHT OR UNIFORMLY CURVING INES. WHEN USED TO SUPPLEMENT TEMPORARY PAVEMENT MARKINGS, THEY SHALL BE PLACED ON OR IMMEDIATELY ADJACENT TO THE PAVEMENT MARKING. LOCATIONS SHALL BE ADJUSTED UP TO ONE FOOT LONGITUDINALLY OR SIX INCHES LATERALLY TO AVOID PLACEMENT ON JOINTS, OR ON CRACKED OR DETERIORATED PAVEMENT. MARKERS SHALL NOT BE PLACED DIRECTLY ON PAVEMENT MARKINGS IF THIS DESTRACTS FROM THEIR ABILITY TO REMAIN ATTACHED TO THE PAVEMENT.

APPLICATION

1) WHEN REQUIRED TO SUPPLEMENT PAVEMENT MARKING, TEMPORARY RAISED PAVEMENT MARKERS SHALL BE PLACED AS FOLLOWS:

LINE	TYPE	SPACING
EDGE LINE	A OR B	20'C/C
LANE LINE	A OR B	40'C/C•
CENTER LINE (SINGLE/BROKEN)	A OR B	40'C/C•
CENTER LINE (DOUBLE/SOLID)	A OR B	2 UNITS SIDE BY SIDE 4 INCHES APART 20'C/C
CHANNELIZING LINE (INCLUDES EXIT GORE NOSE)	A OR B	10'C/C

• CENTERED IN GAP

2) WHEN USED TO SIMULATE (REPLACE) PAVEMENT MARKING, TEMPORARY RAISED PAVEMENT MARKERS SHALL BE PLACED AS FOLLOWS:

LINE	TYPE	SPACING
EDGE LINE	A	5' C/C
LANE LINE	A	403.33'C/C 30'GAP (40'CYCLE)
CENTER LINE (DOUBLE/SOLID)	A	2 UNITS SIDE BY SIDE 5' C/C
CENTER LINE (SINGLE/BROKEN)	A	403.33'C/C 30'GAP (40'CYCLE)
CHANNELIZING LINE (INCLUDES EXIT GORE NOSE)	A	5' C/C
EDGE LINE (TWO COLOR) (WHITE/YELLOW)	A	BACK TO BACK 5' C/C

YELLOW MARKERS USED TO SEPARATE OPPOSITE FLOWS OF TRAFFIC (CENTER LINES) SHALL INCLUDE REFLECTIONS FOR BOTH DIRECTIONS. ALL OTHER YELLOW AND WHITE MARKERS SHALL PROVIDE RETROREFLECTIVITY FOR ONE DIRECTION ONLY.

REMOVAL

REMOVAL SHALL BE ACCOMPLISHED IN A MANNER THAT LITTLE OR NONE OF THE ADHESIVE REMAINS ON THE PAVEMENT. PERMANENT PAVEMENT SURFACES SHALL NOT BE SCARRED, BROKEN OR ROUGHENED SIGNIFICANTLY.

PAVEMENT

BASIS OF PAYMENT SHALL BE AT THE CONTRACT UNIT PRICE PER EACH MARKER AND SHALL INCLUDE ALL LABOR, EQUIPMENT, HARDWARE AND INCIDENTALS REQUIRED TO PERFORM THE WORK. IT SHALL ALSO INCLUDE REPLACEMENT AT NO ADDITIONAL COST OF ALL TEMPORARY RAISED PAVEMENT MARKERS WHICH, IN THE JUDGEMENT OF THE ENGINEER, FAIL FOR ANY REASON, EXECPT DUE TO FAILURE OF THE PAVEMENT TO WHICH THEY ARE ATTACHED.

ITEM	UNIT	DESCRIPTION
614	EACH	TEMPORARY RAISED PAVEMENT MARKERS.

STATIONING			SPACING	TYPE A				TYPE B OR A				REMARKS	
FROM	TO	SIDE	(FT)	W	Y	Y/Y		W	Y	Y/Y		(LINE TYPE)	
4+00	7+00	LT	5'	61	61							STAGE 1	TWO COLOR EDGE LINE
4+00	6+00	℄	5'	41	41							STAGE 1	TWO COLOR EDGE LINE
4+00	6+00	℄	5'	41	41							STAGE 2	TWO COLOR EDGE LINE
3+50	7+00	RT	5'	71	71							STAGE 2	TWO COLOR EDGE LINE
TOTALS				214	214								
				428									

PRELIMINARY
PREPARED BY
TECHNICAL SUPPORT SECTION
ALF H. HANSEN P.E.
WALTER C. CHADWICK D.S.

REVISED BY:	DATE:

210120	DATE
614 TEMPORARY RAISED PAVEMENT MARKERS	03/30/88 03/23/90 03/28/90 07/03/90
PLAN INSERT SHEET	

WCC

CALCULATIONS

ITEM 202 WEARING COURSE REMOVED
STA.3+79.75 TO STA.4+04.75 = 731 S.F. ÷ 9 = 81 S.Y.
STA.6+64.00 TO STA.6+95.25 = 1010 S.F. ÷ 9 = 112 S.Y.
(AREA BY PLANIMETER) TOTAL = 193 S.Y.

ITEM 202 PAVEMENT REMOVAL (APPROACH SLABS)
STA.4+04.75 TO STA.4+19.75
STA.5+80.25 TO STA.5+95.25
TOTAL (2(15'x18')/9) = 94 S.Y.

ITEM 202 CURB REMOVED
STA.4+04.75 TO STA.4+19.75 (LEFT) = 15 L.F.
STA.5+80.25 TO STA.6+95.25 (LEFT) = 115 L.F.
STA.4+04.75 TO STA.4+19.75 (RIGHT) = 15 L.F.
STA.5+80.25 TO STA.5+98.00 (RIGHT) = 17.75 L.F.
TOTAL = 163 L.F.

ITEM 202 SIDEWALK REMOVED
STA.3+79.75 TO STA.4+19.75 (LEFT) 40'x5.5' = 220.0 S.F.
STA.5+80.25 TO STA.6+95.25 (LEFT) 115'x5.5' = 632.5 S.F.
STA.4+04.75 TO STA.4+19.75 (RIGHT) 15'x5.5' = 82.5 S.F.
STA.5+80.25 TO STA.5+98.00 (RIGHT) 17.75'x5.5' = 97.6 S.F.
TOTAL = 1032.6 S.F.

ITEM 203 SUBGRADE COMPACTION
APPROACH SLABS { STA.4+04.75 TO STA. 4+19.75 (R/A) (36'x15')/9 = 60 S.Y.
STA.5+80.25 TO STA. 5+95.25 (F/A) 36'x15')/9 = 60 S.Y.
TOTAL = 120 S.Y.

PAVED SHOULDER { STA. 3+09.37 TO STA. 3+79.75 RT. (70.38 X 8)/9 = 62.6 SY
STA. 5+95.25 TO STA. 6+32.00 RT. (206 S.F.)/9 = 22.9 SY
85.5 S.Y.
TOTAL 205.5 S.Y.

ITEM 301 BITUMINOUS AGGREGATE BASE
STA.3+09.37 TO STA. 4+04.75 (95.38'x8'x8"/12)/27 = 18.8 C.Y.
* STA 5+95.25 TO STA. 6+32.00 [206 S.F. (PLANIM.) X 6"/12]/27 = 3.8 C.Y.
TOTAL = 22.6 C.Y.

ITEM 402 ASPHALT CONCRETE - FORWARD APPROACH
STA. 5+95.25 TO STA.6+32.75 : 37.5' x 36' x 2" AVG./12 ÷ 27 = 8.3 C.Y.

ITEM 404 ASPHALT CONCRETE
REAR APPROACH - STA.3+79.75 TO STA.4+04.75
(731 S.F. (PLAN.) x 1 1/4"/12) 27 = 2.8 C.Y.
STA. 3+09.37 TO STA. 3+79.75
(8' x 70.38' x 3"/12)/27 = 5.2 C.Y.
STA. 3+79.75 TO STA. 4+04.75
(8' x 25' x 1.25"/12)/27 = 0.8 C.Y.

FORWARD APPROACH - STA. 5+95.25 TO STA. 6+95.25
[(100' X 36' x 1.25"/12) + (31.25' X 36 X 1.25"/12)] X 1/27 = 18.2 C.Y.
TOTAL = 27.0 C.Y.

ITEM 407 TACK COAT
STA.3+79.75 TO STA.4+04.75 (BY PLANIMETER) = 731 S.F.
STA.5+95.25 TO STA.6+95.25 (BY PLANIMETER) = 3420 S.F.
TOTAL = 4151 ÷ 9 x 0.075 = 35 GAL.

ITEM 608 CONCRETE WALK (LEFT SIDE ONLY)
STA. 3+79.75 TO STA.4+19.75 - 40'x5.5' = 220 S.F.
STA. 5+80.25 TO STA.6+95.25 - 115'x5.5' = 632.5 S.F.
TOTAL = 852.5 S.F.

ITEM 609 CURB, TYPE 6
STA. 5+95.25 TO STA. 6+95.25 = 100 L.F.

ITEM 611 REINFORCED CONCRETE APPROACH SLAB
(15'+15')36'/9 = 120 S.Y.

ITEM 621 CENTERLINES
STA.3+79.75 TO STA. 6+95.25 - 315.5'/5280' = 0.06 MI.

ITEM 621 EDGE LINES (RIGHT SIDE ONLY)
0.06 = 0.06 MI.

ITEM 659 COMMERCIAL FERTILIZER
358 S.Y. x 9 x 20 LBS/1000 x 1 TON/2000 = 0.05 TON

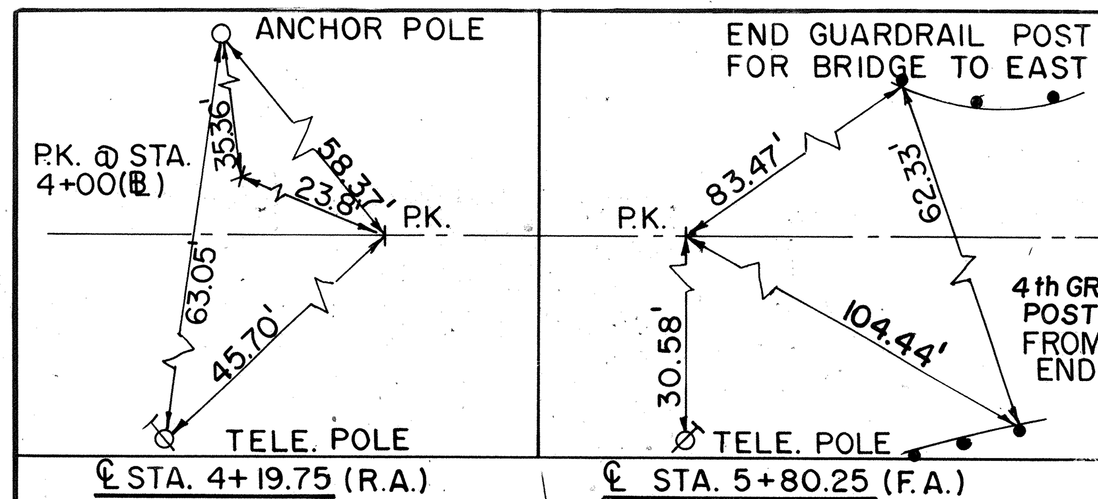
ITEM 659 AGRICULTURAL LIMING
358 S.Y. x 9 x 100 LBS/1000 S.F. x 1 TON/2000 = 0.26 TON

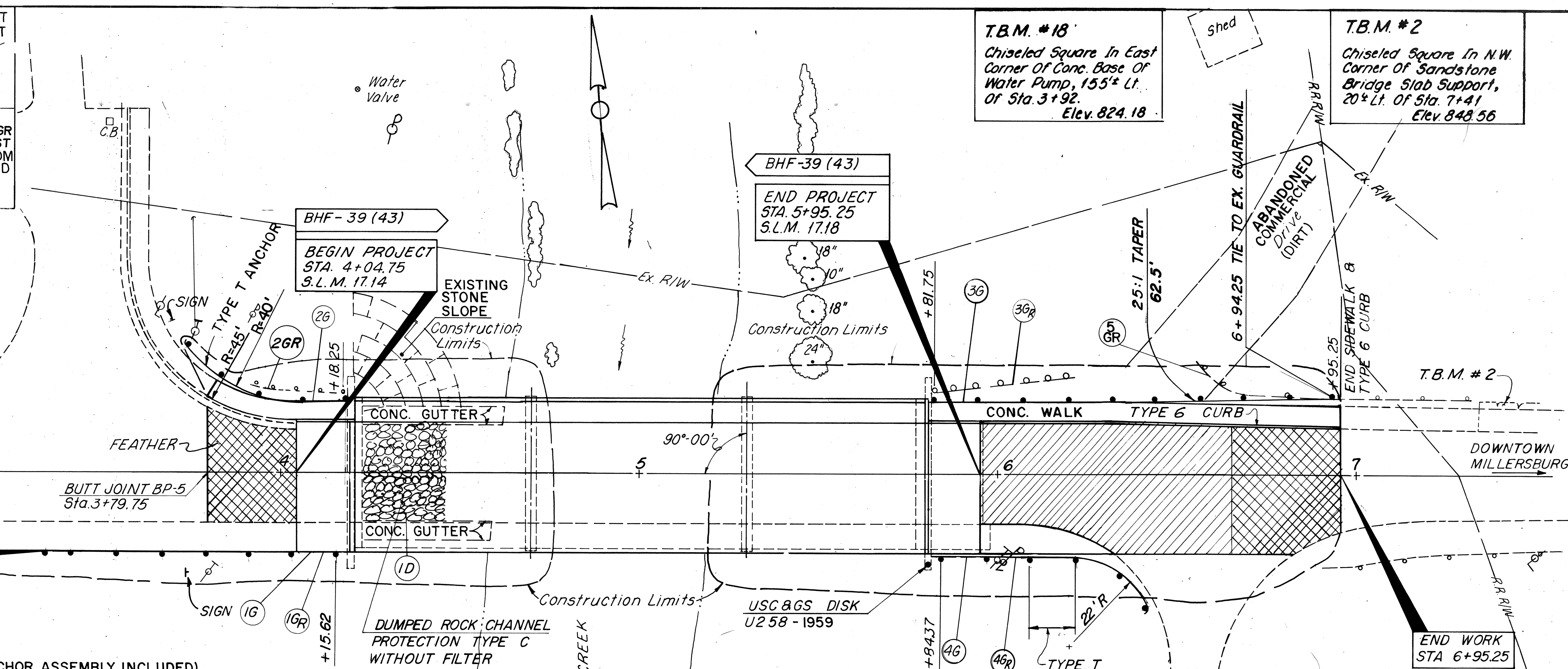
* PAVED SHOULDERS - FORWARD APPROACH
STA.5+95.25 TO STA.6+32.00 PLANIMETERED AREA = 206 S.F.

GENERAL SUMMARY

SHEET NUMBERS 3	4	5	6	7	8	4A		ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION
												ROADWAY
LUMP								201	11000	LUMP		CLEARING & GRUBBING
		193						202	23500	193	SQ. YD.	WEARING COURSE REMOVED
		94						202	23000	94	SQ. YD.	PAVEMENT REMOVED
		163						202	32000	163	LIN. FT.	CURB REMOVED
		1033						202	30000	1033	SQ. FT.	WALK REMOVED
			202.50					202	38000	202.50	LIN. FT.	GUARDRAIL REMOVED
				30	15			203	12000	45	CU. YD.	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION
				16	12			203	20000	28	CU. YD.	EMBANKMENT
		206						203	50000	206	SQ. YD.	SUBGRADE COMPACTION
			281.25					606	13000	281.25	LIN. FT.	GUARDRAIL, TYPE 5
			1					606	25000	1	EACH	ANCHOR ASSEMBLY TYPE A
			2					606	26500	2	EACH	ANCHOR ASSEMBLY TYPE T
			2					606	35100	2	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE AT
			2					606	30500	2	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE B
		853						608	10000	853	SQ. FT.	4" CONCRETE WALK
10								616	10000	10	M. GAL.	WATER
2								616	20000	2	TON	CALCIUM CHLORIDE
												EROSION CONTROL
50								207	70000	50	EACH	STRAW OR HAY BALES
				224	134			659	10000	358	SQ. YD.	SEEDING AND MULCHING
		0.03						659	20000	0.03	TON	COMMERCIAL FERTILIZER
		0.17						659	30000	0.17	TON	AGRICULTURAL LIMING
1								659	35000	1	M. GAL.	WATER
			55					601	34200	55	CU. YD.	ROCK CHANNEL PROTECTION, TYPE C W/O FILTER
												PAVEMENT
		23						301	10002	23	CU. YD.	BITUMINOUS AGGREGATE BASE, AC-20
		8						402	20000	8	CU. YD.	ASPHALT CONCRETE, AC-20
		27						404	20000	27	CU. YD.	ASPHALT CONCRETE, AC-20
		35						407	10000	35	GAL.	TACK COAT,
		120						611	10000	120	SQ. Y.D.	REINFORCED CONCRETE APPROACH SLAB (T=12")
		100						609	26000	100	LIN. FT.	CURB, TYPE 6
												TRAFFIC CONTROL
	12							614	13302	12	EACH	BARRIER REFLECTOR, TYPE B-2
	26							614	26600	26	LIN. FT.	TEMPORARY STOP LINES, CLASS I, 947.03 TYPE C
	0.06							614	21000	0.06	MILES	TEMPORARY CENTERLINES, CLASS I
	0.06							614	21500	0.06	MILES	TEMPORARY CENTERLINES, CLASS II, 621 PAINT
		0.06						621	20100	0.06	MILES	CENTERLINES
		0.06						621	00100	0.06	MILES	EDGE LINES
						428		614	12800	428	EACH	TEMPORARY RAISED PAVEMENT MARKERS
	230							622	40000	230	LIN. FT.	TEMPORARY CONCRETE BARRIER
	360							622	40002	360	LIN. FT.	TEMPORARY CONCRETE BARRIER, BRIDGE MOUNTED
			6					802	00100	6	EACH	BARRIER REFLECTOR TYPE A
			2					802	00200	2	EACH	BARRIER REFLECTOR TYPE B
												STRUCTURES OVER 20-FOOT SPAN
												FOR BRIDGE QUANTITIES, SEE SHEET 11
								624	10000	LUMP		MOBILIZATION
LUMP								619	1000	LUMP		FIELD OFFICE
								623	10000	LUMP		CONSTRUCTION LAYOUT STAKES
LUMP								614	11000	LUMP		MAINTAINING TRAFFIC

HOL - 39 - 17.14

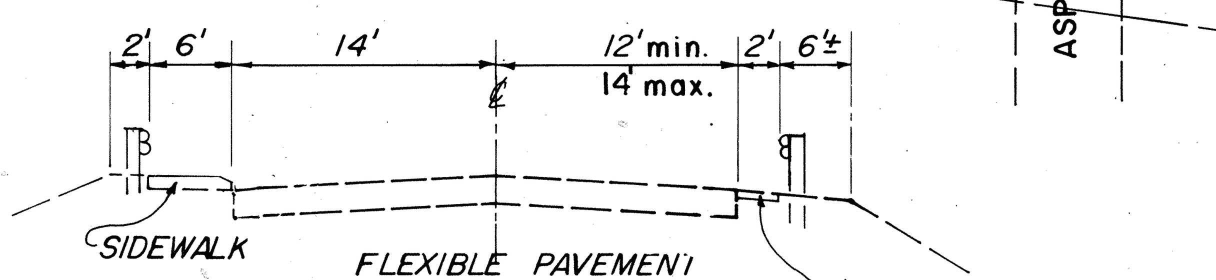




** RUN 4G INCLUDES 25' GUARDRAIL ON A 22' RAD.
* RUN 2G INCLUDES 37.5' GUARDRAIL ON A 40' RAD. (TYPE T ANCHOR ASSEMBLY INCLUDED)

REF. NO.	SIDE	STATION FROM	STATION TO	202 GUARDRAIL REMOVED LIN. FT.	606 GUARDRAIL TYPE 5 LIN. FT.	606 ANCHOR ASSEMBLY TYPE A EACH	606 BRIDGE TERMINAL ASSEMBLY TYPE AT EACH	606 BRIDGE TERMINAL ASSEMBLY TYPE B EACH	802 BARRIER REFLECTOR TYPE A EACH	802 BARRIER REFLECTOR TYPE B EACH	606 ANCHOR ASSEMBLY TYPE T EACH	601 R.C.P. TYPE C W/O FILTER CU. YD.	
1GR	Rt.	3+69	4+19	50									
2GR	Lt.	3+94	4+19	25									
3GR	Lt.	5+80	6+20	40									
4GR	Rt.	5+80	6+30	50									
1D	Rt.&Lt.	4+25	4+50									55	
1G	Rt.	3+09.37	4+15.62		81.25	1		1	2				
2G	Lt.	3+75.25	4+18.25		* 37.50		1		1	1	* 1		
3G	Lt.	5+81.75	6+94.25		112.50		1		1	1			
4G	Rt.	5+84.37	6+94		** 50.0			1	2		1		
5 GR	Lt.	6+57.50	6+70	37.5									
		TOTAL		202.5	281.25	1	2	2	6	2	2	55	

(1D) - STA. 4+25 TO 4+50
(35'x28'x1.5)/27 = 55 CU.YDS.



TYPICAL SECTION
ADJOINING PAVEMENT

PROPOSED STRUCTURE

TYPE: Continuous Steel Beam With Reinforced Concrete Deck And Substructure

SPANS: 48'-60'-48' c/c Bearings (Nominal)

ROADWAY: 14' To Face Of 6'-0" Sidewalk And 1'-0" Parapet (Left), 22'-0" To Face Of Guardrail With Handrail (Right)

LOADING: HS20-44 And The Alternate Military Loading (On New Superstructure)

SKEW: 0°

WEARING SURFACE: Monolithic Concrete

APPROACH SLABS: AS-1-81 (15' Long)

ALIGNMENT: Tangent

AVERAGE DAILY TRAFFIC:
P = 10,734 C = 1894
Total = 12,628 (2008)

CROWN: 3/16"/FT.

EXISTING STRUCTURE

TYPE: Continuous Steel Beam With Reinforced Concrete Deck And Substructure

SPANS: 48'-60'-48' c/c Bearings (Nominal)

ROADWAY: 28'-0" F/F Two 6'-0" Sidewalks (42% Deck)

LOADING: S15-46

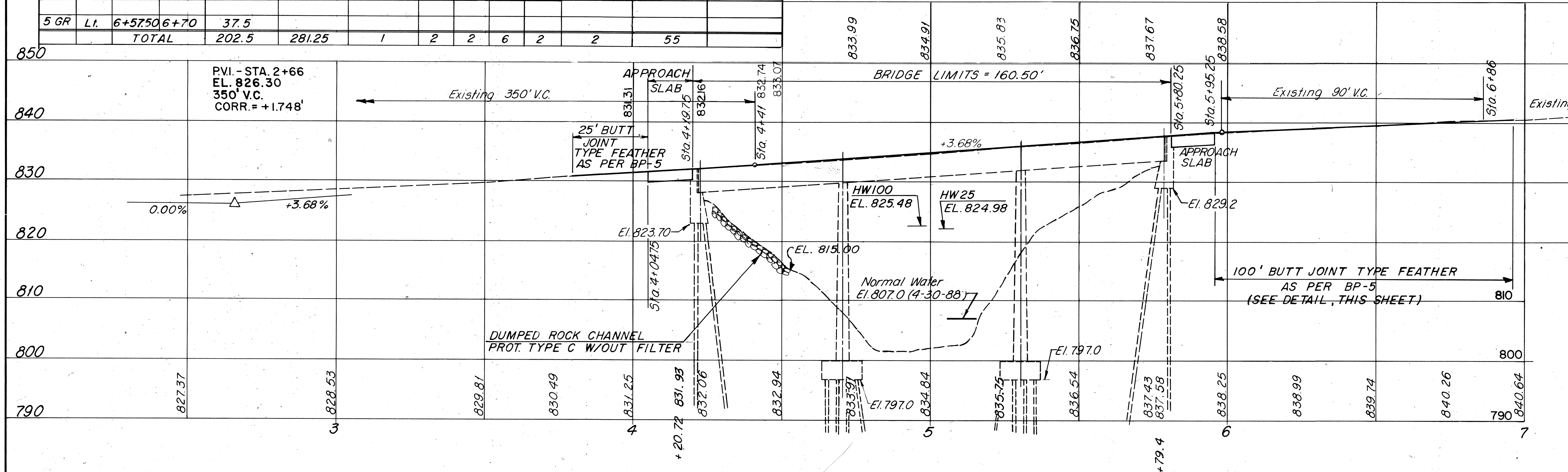
SKEW: 0°

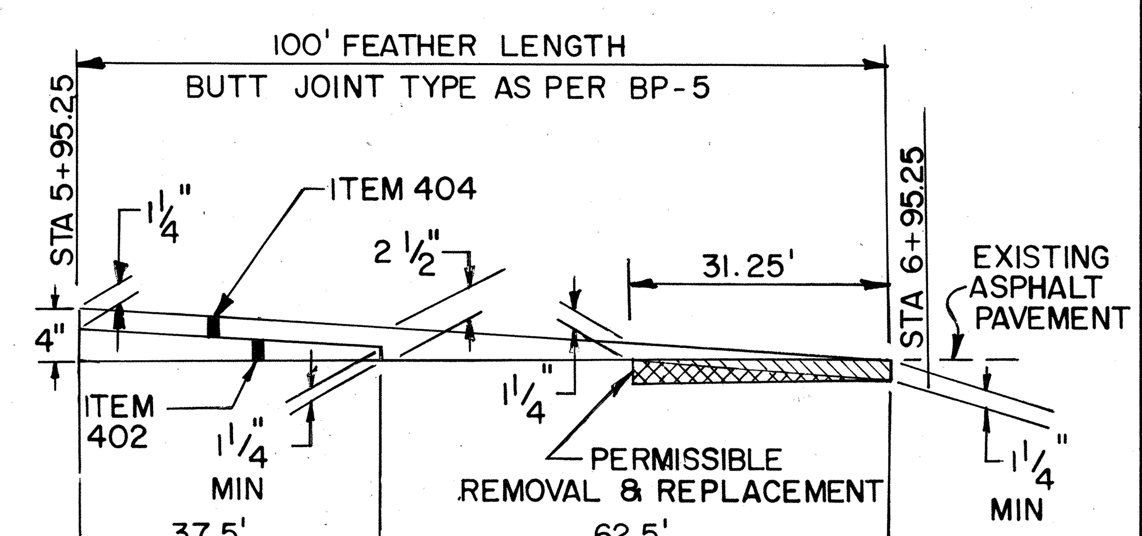
WEARING SURFACE: Asphalt Concrete

APPROACH SLABS: 15' Long x 28' Wide (AS-4-47)

ALIGNMENT: Tangent

S.F.N. 3800512





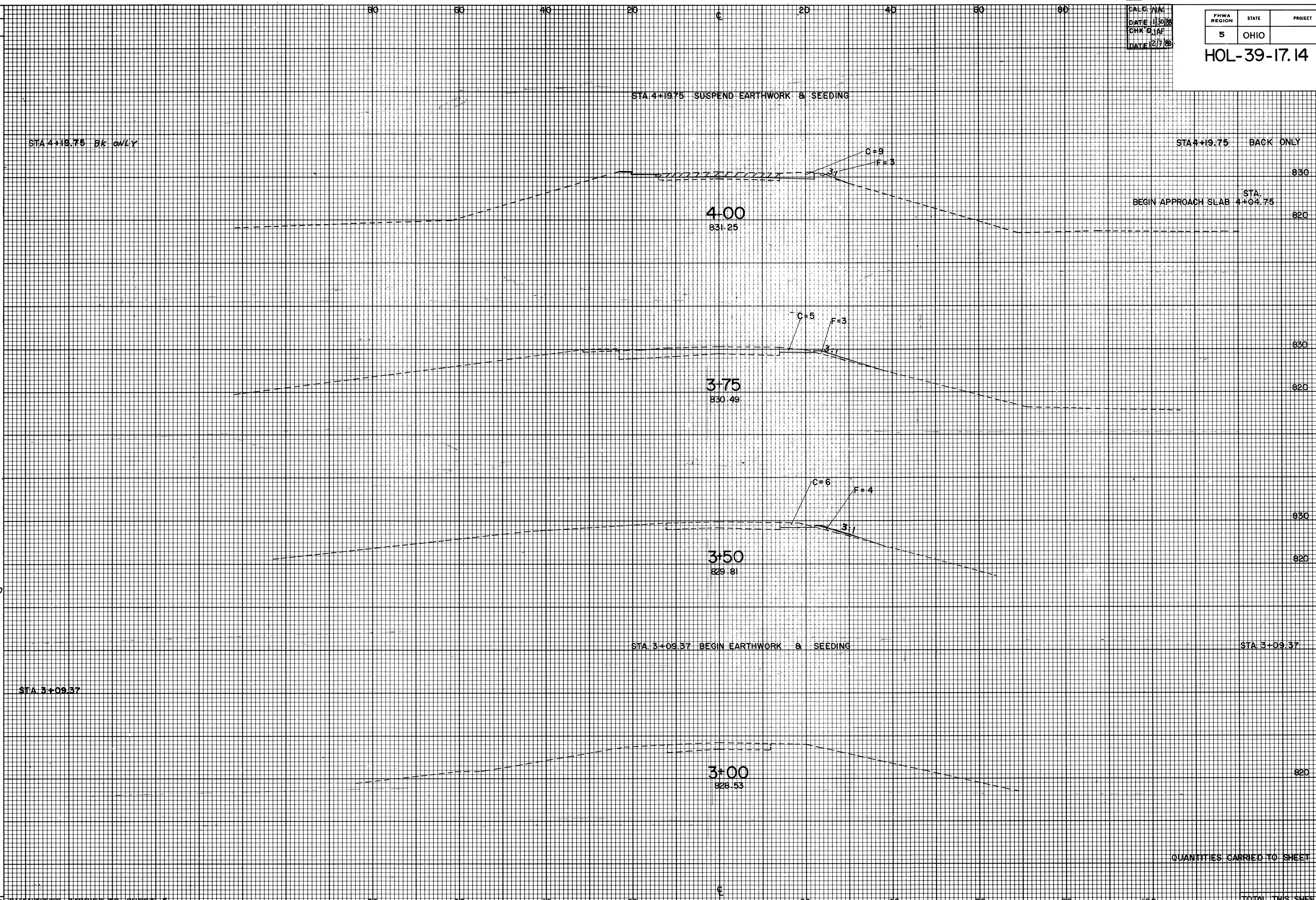
FEATHER DETAIL - FORWARD APPROACH

FHWA REGION	STATE	PROJECT	
5	OHIO		

7 / 20

HOL-39-17.14

CALC. NAC DATE 11/30/88
CHK'D JAF DATE 2/7/89



SEEDING END WIDTH	SEEDING SQ. YDS.
14	
	31
14	
	47
20	
	56
20	
	90
20	
	224

QUANTITIES CARRIED TO SHEET 5

END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
9	6		
		7	3
9	3		
		6	3
6	3		
5	3		
		5	3
6	4		
		12	7
10	5		
TOTAL THIS SHEET		30	16

SR 39 X-SECTION STA 3+00 TO STA 4+00

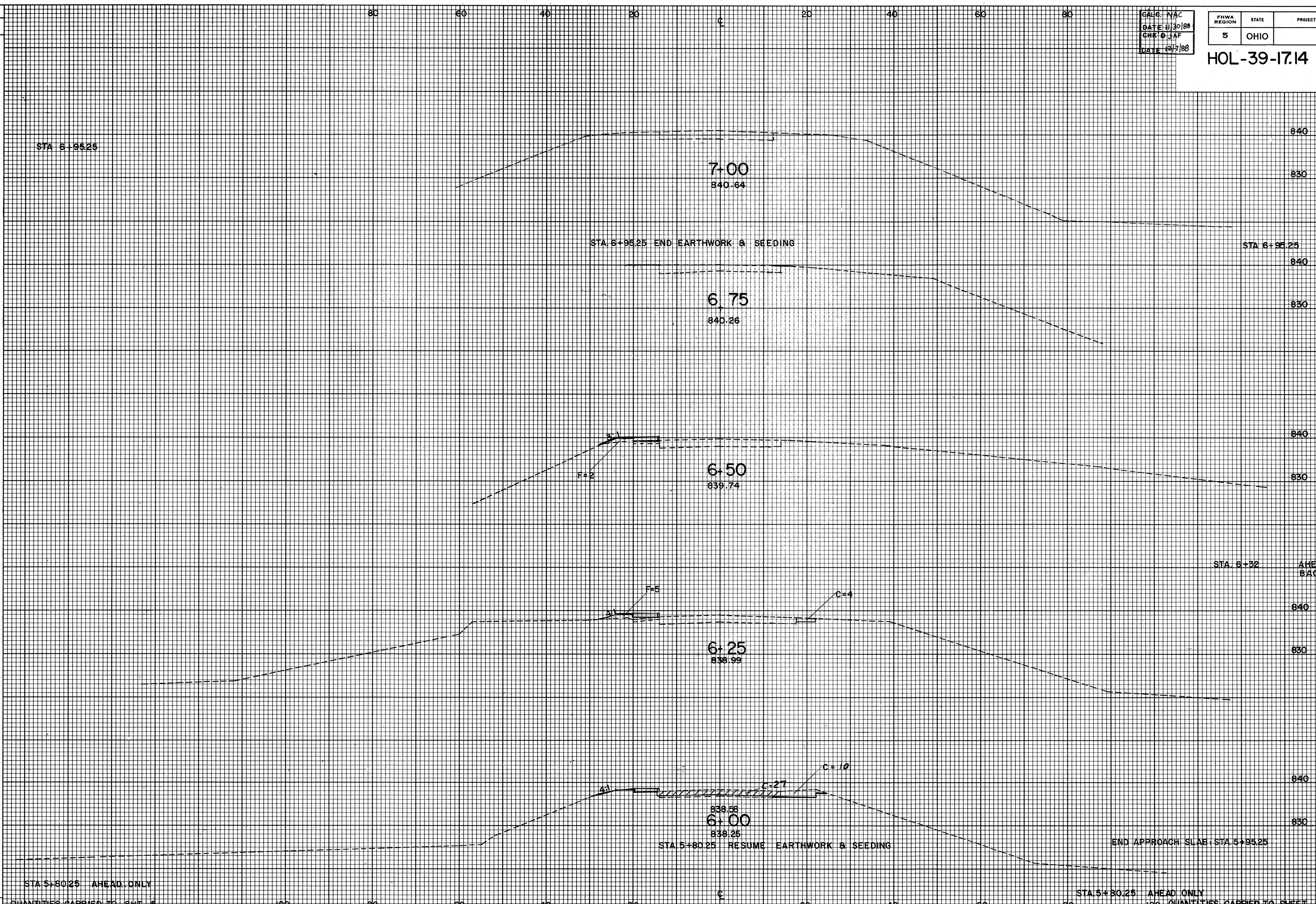
CALC. NAC
DATE 11/30/88
CHK'D JAF
DATE 12/7/88

FHWA REGION	STATE	PROJECT	
5	OHIO		

8 / 20

HOL-39-17.14

SEEDING END WIDTH	SEEDING SQ. YDS.
5	
	11
5	
	21
10	
	31
12	
	38
15	
	33
15	
	134



	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
	0	0		
			0	0
	0	0		
			0	2
	0	3		
			0	3
AHEAD	0	5		
BACK	4	5		
			1	2
	4	5		
			7	3
	10	0		
			7	2
	10	6		
			15	12

CALC BY NAC
DATE 11-30-88
CHK'D JAF
DATE 12-7-88

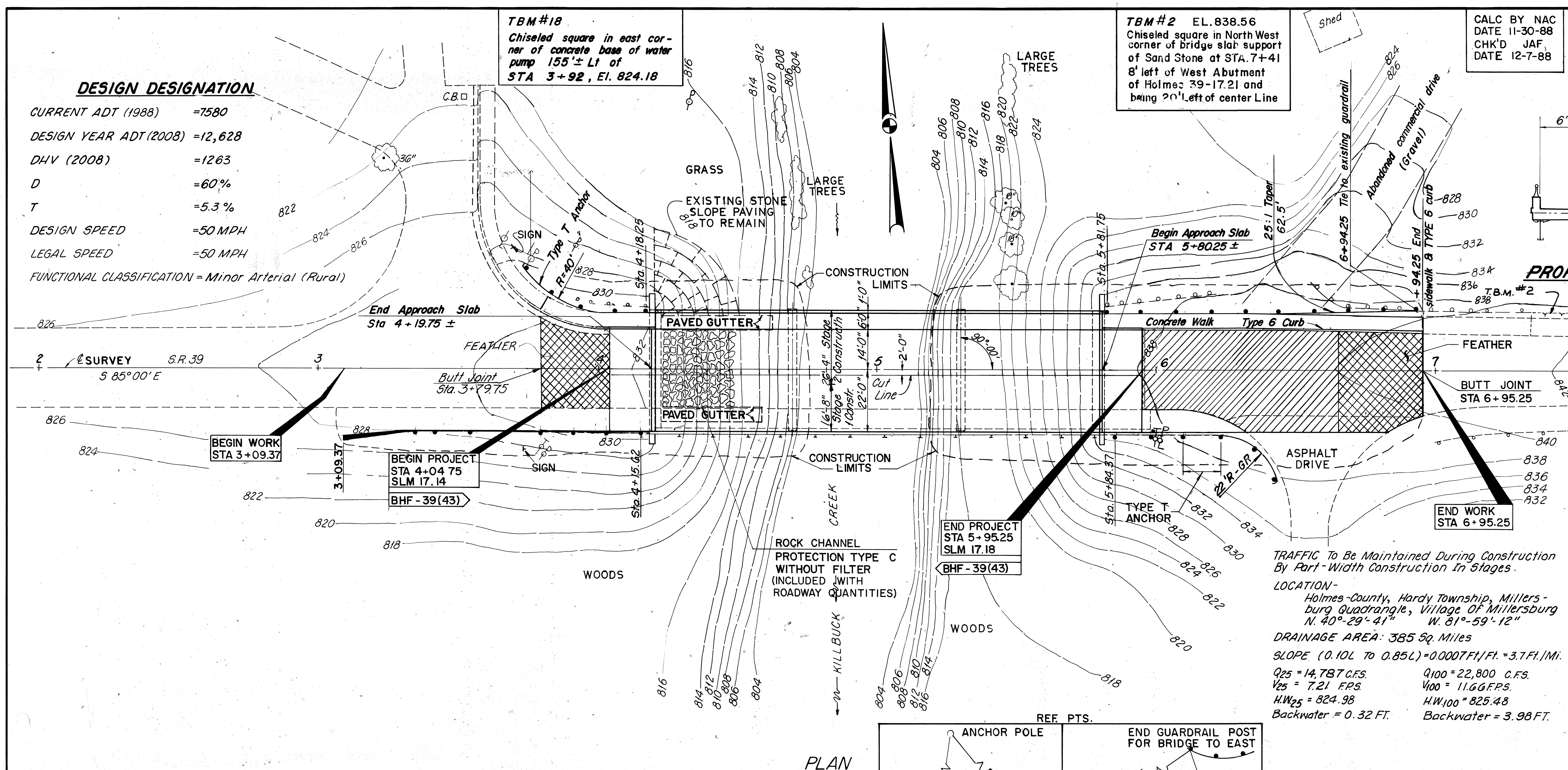
DESIGN DESIGNATION

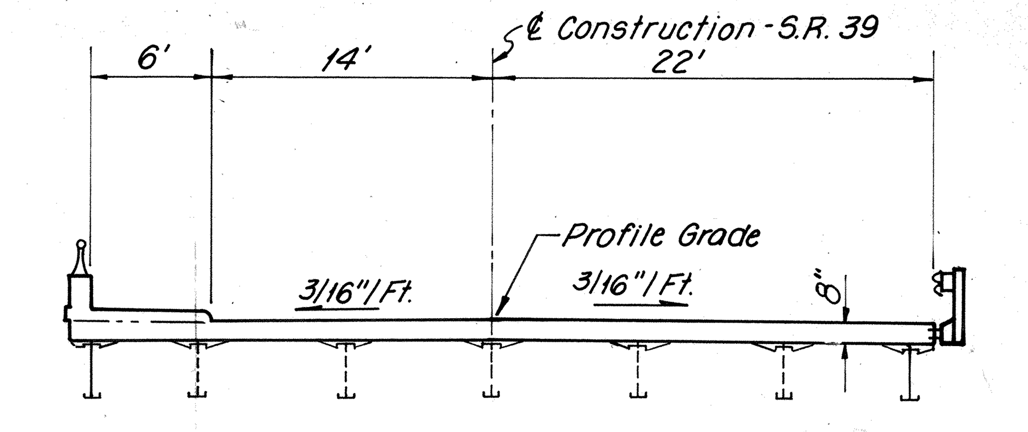
CURRENT ADT (1988)	=7580
DESIGN YEAR ADT (2008)	=12,628
DHV (2008)	=1263
D	=60%
T	=5.3%
DESIGN SPEED	=50 MPH
LEGAL SPEED	=50 MPH

FUNCTIONAL CLASSIFICATION = Minor Arterial (Rural)

TBM #18
Chiseled square in east corner of concrete base of water pump 155'± Lt of STA 3+92, El. 824.18

TBM #2 EL. 838.56
Chiseled square in North West corner of bridge slab support of Sand Stone at STA. 7+41 8' left of West Abutment of Holmes 39-17.21 and being 20' Left of center Line





PROPOSED BRIDGE TYPICAL SECTION

TRAFFIC To Be Maintained During Construction By Part-Width Construction In Stages.

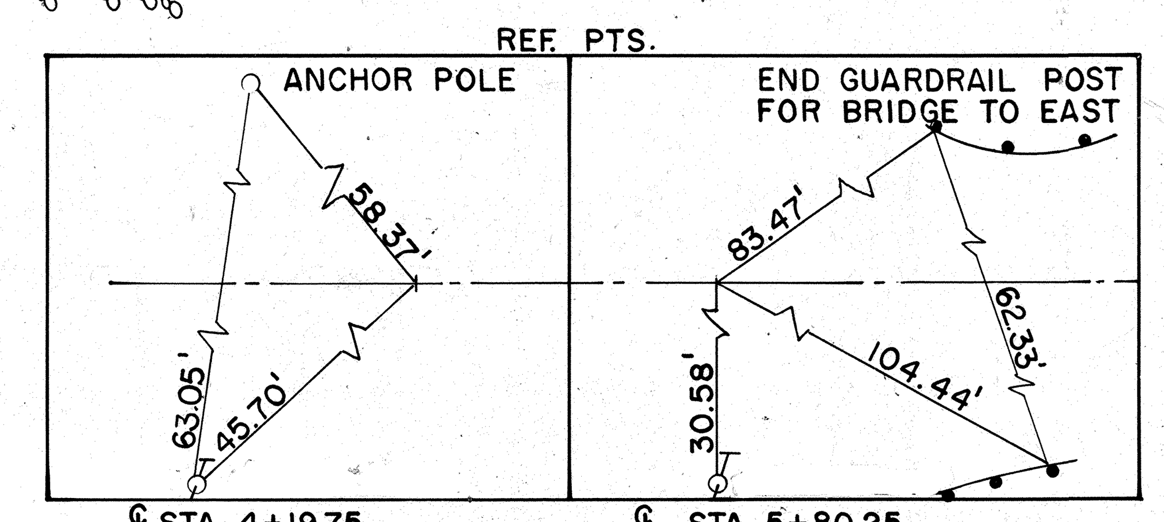
LOCATION - Holmes County, Hardy Township, Millersburg Quadrangle, Village Of Millersburg N. 40°-29'-41" W. 81°-59'-12"

DRAINAGE AREA: 385 Sq. Miles

SLOPE (0.10L TO 0.85L) = 0.0007 Ft./Ft. = 3.7 Ft./Mi.

Q_{25} = 14,787 C.F.S.	Q_{100} = 22,800 C.F.S.
V_{25} = 7.21 F.P.S.	V_{100} = 11.66 F.P.S.
$H.W._{25}$ = 824.98	$H.W._{100}$ = 825.48
Backwater = 0.32 FT.	Backwater = 3.98 FT.

REF. PTS.



REVIEWED BY BURGESS & NIPLE, LTD.
JCS 8-1-90

PROPOSED WORK

REMOVE: Deck, Concrete, Approach Slabs, Railing, Fascia Beams, Crossframes (Outside Bays), End Dams, Fascia Bearings, and Misc. Concrete

CONSTRUCT: New Bridge Seat Reinf. Concrete At Fascia Beams, Abutment Backwalls, New Beams, Bearings, Crossframes, Stud Shear Connectors, Concrete Deck, Elastomeric End Dams, Approach Slabs, Pavement, Parapet, Guardrail, Curbs, Sidewalks, and Repaint Structural Steel.

EXISTING STRUCTURE

TYPE: Continuous Steel Beam With Reinforced Concrete Deck And Substructure

SPANS: 48'-60'-48' C/C Bearings (Nominal)

ROADWAY: 28'-0" F/F Two 6'-0" Sidewalks (42% Deck)

LOADING: 315-46

SKEW: 0°

WEARING SURFACE: Asphalt Concrete

APPROACH SLABS: 15' Long x 28' Wide (AS-4-47)

ALIGNMENT: Tangent

AVERAGE DAILY TRAFFIC: 6240 (1988)

S.F.N. 3800512

PROPOSED STRUCTURE

TYPE: Continuous Steel Beam With Reinforced Concrete Deck And Substructure.

SPANS: 48'-60'-48' C/C Bearings (Nominal)

ROADWAY: 14' To Face Of 6'-0" Sidewalk And 1'-0" Parapet (Left), 22'-0" To Face Of Guardrail

LOADING: HS20-44 And The Alternate Military Loading (On New Superstructure)

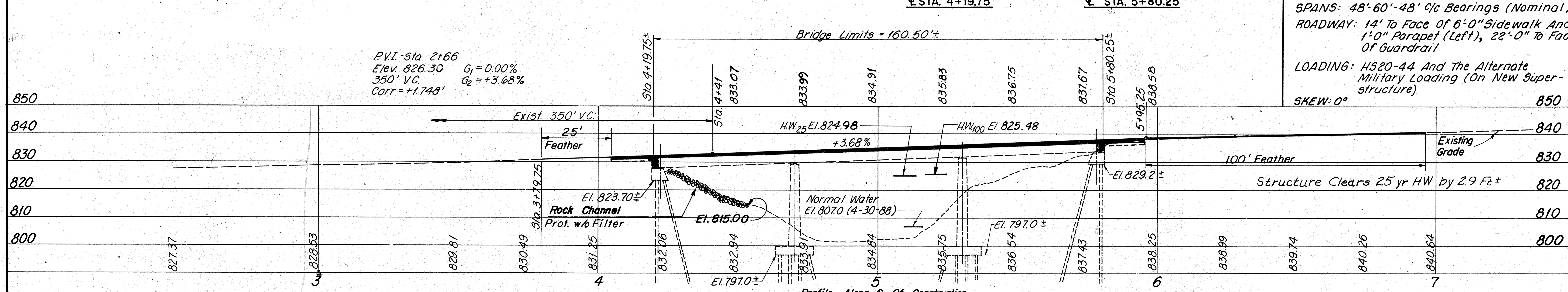
SKEW: 0°

WEARING SURFACE: Monolithic Concrete

APPROACH SLABS: AS-1-81 (15' Long)

ALIGNMENT: Tangent

CROWN = 3/16" FT.



UNITED CONSULTANTS & ASSOCIATES
ENGINEERS/ARCHITECTS/SURVEYORS
1187 E. BROAD ST. COLUMBUS, OH 43205

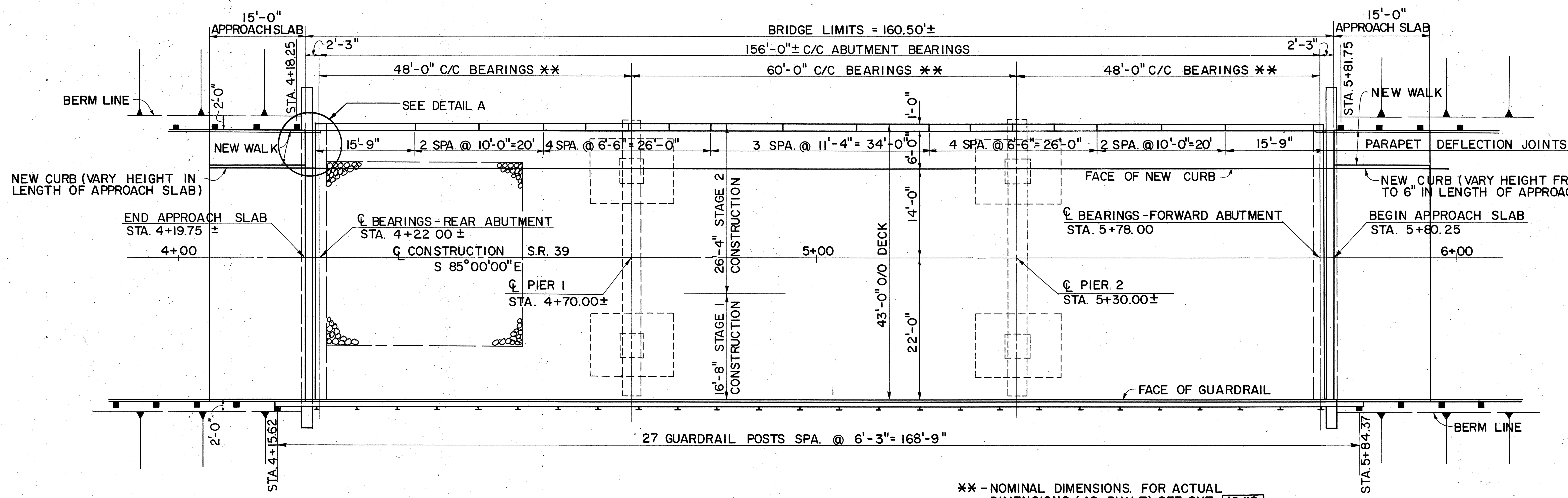
1 / 12

SITE PLAN
BRIDGE NO. HOL-39-1714
OVER KILLBUCK CREEK

HOLMES COUNTY STA. 4+19.75 TO STA. 5+80.25

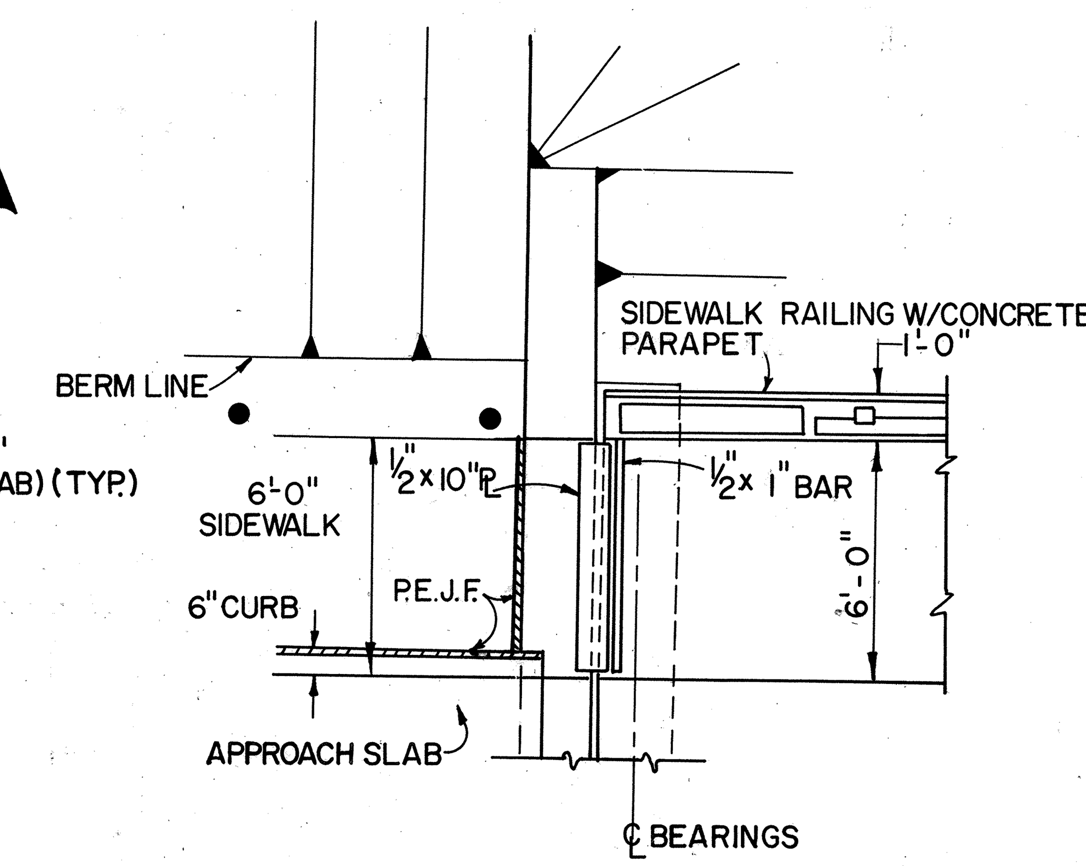
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
RAK	RAK	PDJ	HWL	BL	9/12/88	1/11/89

HOLMES COUNTY
HOL-39-17.14



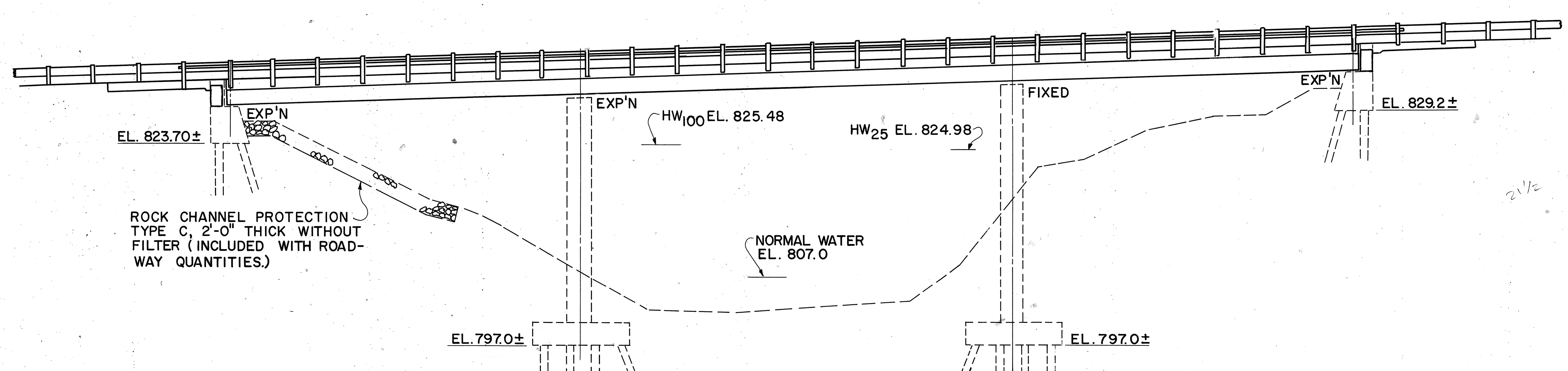
✱✱ - NOMINAL DIMENSIONS. FOR ACTUAL DIMENSIONS (AS BUILT) SEE SHT. 10/12

GENERAL PLAN

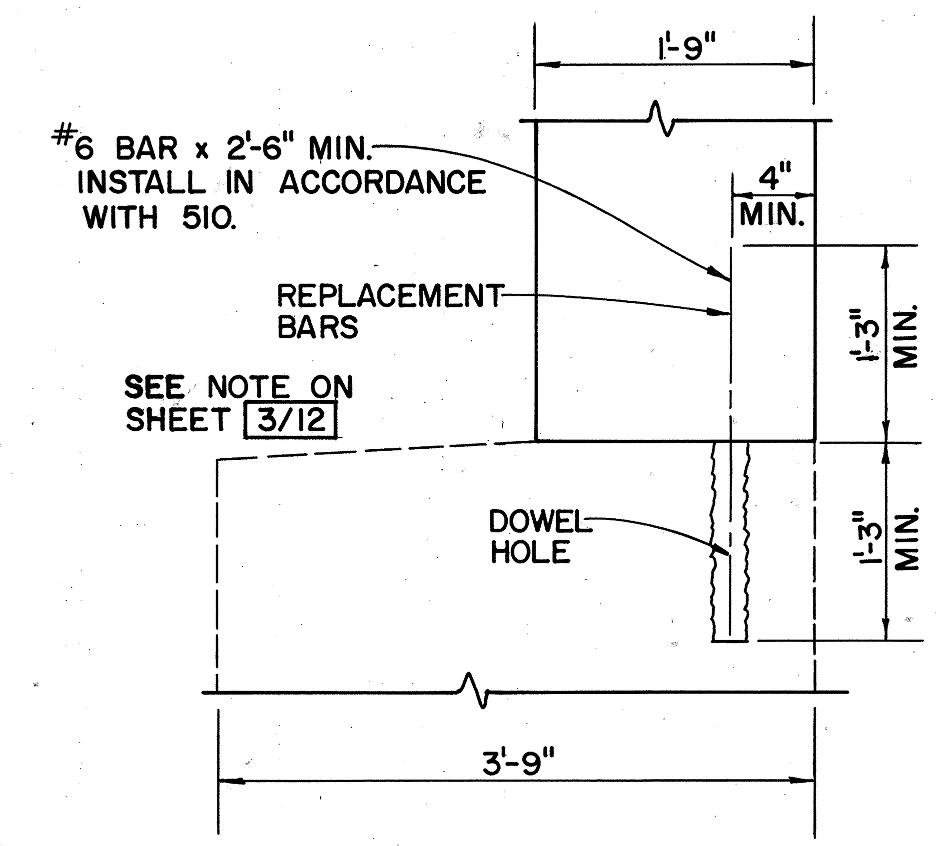


FOR ADDITIONAL DETAILS NOT SHOWN, SEE STD. DWG BR-2-82 AND EXJ-2-81

DETAIL A



ELEVATION



REPLACEMENT BAR DETAIL

UNITED CONSULTANTS & ASSOCIATES
ENGINEERS ARCHITECTS SURVEYORS
1187 E. BROAD ST COLUMBUS, OH. 43205

2/12

GENERAL PLAN AND ELEVATION

BRIDGE NO. HOL-39-17.14 OVER KILLBUCK CREEK

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JS	JAF	JAF	EA	BL	9-12-88	

FHWA REGION	STATE	PROJECT	
5	OHIO		

11 / 20

HOLMES COUNTY
HOL.-39-17.14

GENERAL NOTES

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS

AS-1-81	(DATED	11-27-81)
DBR-2-73	(DATED	04-10-73)
EXJ-2-81	(REVISED	04-02-84)
SD-1-69	(DATED	06-12-69)
BR-2-82	(DATED	11-01-82)

AND TO SUPPLEMENTAL SPECIFICATIONS

836	(DATED	11-12-85)
849	(DATED	12-24-85)
949	(DATED	09-26-86)

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

DESIGN DATA
DESIGN LOADING - HS20-44, CASE II AND THE ALTERNATE MILITARY LOADING.

CONCRETE CLASS S - COMPRESSIVE STRENGTH 4,500 PSI (SUPERSTRUCTURE.)

CONCRETE CLASS C - COMPRESSIVE STRENGTH 4,000 PSI (SUBSTRUCTURE.)

REINFORCING STEEL - ASTM A615, A616 OR A617 - GRADE 60 - MINIMUM YIELD STRENGTH 60,000 PSI.

STRUCTURAL STEEL - ASTM A36 - YIELD STRENGTH 36,000 PSI

DECK PROTECTION
EPOXY COATED REINFORCING STEEL (TOP AND BOTTOM MATS) AND SEALING OF CONCRETE SURFACES

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

PAINTING OF STRUCTURAL EXPANSION JOINTS
STRUCTURAL EXPANSION JOINTS SHALL BE PAINTED AS SPECIFIED FOR THE MAIN STRUCTURAL STEEL. PAINTING SHALL BE DONE IN THE FIELD EXCEPT THAT A WASH COAT OF PRIMER SHALL BE APPLIED IN THE SHOP TO ALL SURFACES, INCLUDING THOSE TO BE EMBEDDED IN CONCRETE, TO PREVENT RUSTING AND RUST RUN-OFF. THE WASH COAT SHALL BE REMOVED FROM ALL SURFACES BY SANDBLASTING DURING SURFACE PREPARATION FOR THE FIELD PAINTING. THE FIELD PAINT SHALL CONSIST OF ONE PRIME COAT, ONE INTERMEDIATE COAT AND ONE FINISH COAT. AREAS TO RECEIVE THE ADHESIVE LUBRICANT SHALL BE MASKED OFF DURING THE PAINTING. STEEL PORTIONS OF THE JOINTS THAT ARE TO BE ENCASED IN CONCRETE OR SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE MAY REMAIN UNPAINTED. COST SHALL BE INCLUDED WITH "FIELD PAINTING OF NEW STRUCTURAL STEEL, SYSTEM OZEU."

UTILITY LINES
ALL EXPENSES INVOLVED IN RELOCATING THE EFFECTED UTILITY LINES SHALL BE BORNE BY THE OWNERS. THE CONTRACTOR AND OWNERS ARE REQUIRED TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

SEALING OF CONCRETE SURFACES
A CONCRETE SEALER SHALL BE APPLIED TO THE CONCRETE SURFACES SHOWN ON SHEETS $\boxed{6/12}$, $\boxed{7/12}$ $\boxed{8/12}$ AND $\boxed{9/12}$. SEE THE PROPOSAL FOR SURFACE PREPARATION REQUIREMENTS, APPLICATION RATES, MATERIALS REQUIREMENTS AND APPLICATION PROCEDURES.

POROUS BACKFILL
POROUS BACKFILL SHALL BE ENCASED WITH FILTER FABRIC TO THE LIMITS SHOWN ON SHEETS $\boxed{6/12}$ AND $\boxed{7/12}$.

REPLACEMENT OF EXISTING REINFORCING STEEL
ANY EXISTING REINFORCING BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND WHICH ARE MADE UNUSABLE BY THE CONTRACTOR'S CONCRETE REMOVAL OPERATIONS SHALL BE REPLACED WITH NEW STEEL AT HIS COST. ANY EXISTING REINFORCING BARS DEEMED BY THE ENGINEER TO BE UNUSABLE BECAUSE OF CORROSION SHALL BE REPLACED WITH NEW STEEL. AN ALLOWANCE OF 100 POUNDS IS INCLUDED IN ITEM 509 FOR THIS PURPOSE.

STRUCTURAL STEEL
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 INCLUDED IN THE UNIT PRICE BID FOR THE SPECIAL ITEM "FIELD PAINTING OF NEW STRUCTURAL STEEL, SYSTEM OZEU."

FIELD PAINTING OF NEW STRUCTURAL STEEL
NEW STEEL SHALL BE PROVIDED BARE FOR PREPARATION AND PAINTING IN THE FIELD. FOR PURPOSES OF FIELD PAINTING, NEWLY ERECTED STEEL SHALL BE CONSIDERED EXISTING STEEL AND SHALL BE PREPARED AND PAINTED WITH A PRIME, INTERMEDIATE AND FINISH COAT OF PAINT IN CONFORMANCE WITH THE PROPOSAL NOTE "FIELD PAINTING OF EXISTING STEEL, SYSTEM OZEU." COST OF CLEANING AND PAINTING OF NEW STEEL WITH THE OZEU PAINT SYSTEM SHALL BE INCLUDED IN A SINGLE SPECIAL ITEM "FIELD PAINTING OF NEW STRUCTURAL STEEL, SYSTEM OZEU." AT THE CONTRACTOR'S OPTION NEW STEEL MAY BE GIVEN A PRELIMINARY CLEANING IN THE SHOP.

ITEM 202, PORTIONS OF STRUCTURES REMOVED
PORTIONS OF STRUCTURES REMOVED INCLUDES REMOVAL OF EXISTING DECK CONCRETE, APPROACH SLABS, BRIDGE RAILING, BOTH FASCIA BEAMS AND BEARINGS, INTERMEDIATE CROSSFRAMES (OUTSIDE BAYS,) END CROSSFRAMES (ALL BAYS,) BRIDGE SEATS (FASCIA BEAMS,) ABUTMENT BACKWALLS, SCUPPERS, 2 RUSTED INTEREMDIATE CROSSFRAME ANGLES, AND TRIMMING ENDS OF BEAMS AT EACH ABUTMENT, AND REMOVAL OF ALL ABUTMENT BEARINGS.

EXISTING STRUCTURE VERIFICATION
DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND/OR FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05, 105.02, AND 513.02.

CONTRACT BID PRICE 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.

CONSTRUCTION JOINT PREPARATION
SAW-CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1 INCH DEEP. REMOVE CONCRETE TO A ROUGH SURFACE. PRIOR TO CONCRETE PLACEMENT, ABRASIVELY CLEAN JOINT SURFACE AND EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THEN, THE JOINT SURFACE AND EXPOSED REINFORCEMENT SHALL BE CLEANED OF ALL DIRT, DUST AND FOREIGN MATERIALS BY THE USE OF WATER, AIR UNDER PRESSURE OR OTHER METHOD THAT PRODUCES RESULTS SATISFACTORY TO THE ENGINEER. THE CONCRETE BONDING SURFACE SHALL BE WET WITHOUT FREE WATER AS CONCRETE IS PLACED.

FOR NOTES AND DETAILS ON PROPOSED STAGE CONSTRUCTION SEE SHEETS $\boxed{4/12}$ AND $\boxed{5/12}$.

CONSTRUCTION PROCEDURE

1. PLACE TEMPORARY PRECAST CONCRETE BARRIER AS SHOWN ON SHEET $\boxed{4/12}$ AND MAINTAIN TRAFFIC IN BOTH DIRECTIONS ON THE EXISTING STRUCTURE WEST BOUND LANE.
2. CARRYOUT STAGE 1 REMOVAL TO THE SOUTH OF THE CUTTING LINE BY REMOVING DECK CONCRETE INCLUDING SIDEWALK, APPROACH SLABS, RAILING, FASCIA BEAM AND BEARINGS, INTERMEDIATE AND END CROSSFRAMES AS NOTED, SCUPPERS, AND ABUTMENT AND PIER CONCRETE AS SHOWN IN THE PLANS.
3. COMPLETE PART-WIDTH CONSTRUCTION OF ABUTMENTS, SUPERSTRUCTURE AND APPROACH SLABS IN STAGE 1 CONSTRUCTION.
4. REMOVE TEMPORARY PRECAST BARRIER FROM THE EXISTING STRUCTURE AND PLACE IT ON THE NEW DECK AS SHOWN ON SHEET $\boxed{4/12}$. MAINTAIN TWO WAY TRAFFIC ON THE COMPLETED PORTION OF THE NEW DECK.
5. CARRYOUT STAGE 2 REMOVAL OF THE REMAINING OF THE EXISTING STRUCTURE BY REMOVING DECK CONCRETE INCLUDING SIDEWALK, APPROACH SLABS, RAILING, FASCIA BEAM AND BEARINGS, INTERMEDIATE AND END CROSSFRAMES AS NOTED, SCUPPERS, AND ABUTMENT AND PIER CONCRETE AS SHOWN ON THE PLANS.
6. COMPLETE STAGE 2 CONSTRUCTION OF THE ABUTMENTS AND APPROACH SLAB AND STAGE 3 CONSTRUCTION OF THE DECK SLAB AND ESTABLISH TWO WAY TRAFFIC.

REMOVALS OVER WATER

REASONABLE CARE SHALL BE USED BY THE CONTRACTOR TO PREVENT REMOVED MATERIALS FROM FALLING INTO THE WATER. ANY DROPPED MATERIALS SHALL BE IMMEDIATELY RECOVERED AND DISPOSED OF AWAY FROM THE SITE EXCEPT FOR APPROVED MASONARY MATERIAL WHICH MAY BE USED AS BANK PROTECTION AS DIRECTED BY THE ENGINEER.

TEMPORARY SUPPORTS When raising or lowering the superstructure at a support (pier or abutment), differential movement between beams and differential movement of the superstructure at one support relative to other adjacent supports shall be limited to an amount that will not overstress the beams or crossframes or otherwise damage the structure.

Plans for temporary structure supports, a jacking procedure and a summary of the induced stresses shall be submitted to the Director for approval at least 2 weeks prior to any jacking operations.

ESTIMATED QUANTITIES

CALC'D: JS 1/8/90
CHK D: NAC 1-11-90

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	SUPER	ABUTS	GEN'L
202	11200	LUMP		PORTIONS OF STRUCTURES REMOVED			LUMP
503	11100	LUMP		COFFERDAMS, CRIBS AND SHEETING			LUMP
509	11400	600	LB	REINFORCING STEEL GRADE 60		600	
509	15800	54,293	LB	EPOXY COATED REINFORCING			
				STEEL GRADE 60	52,485	1,708	100
511	45700	26	CU. YD.	CLASS C CONCRETE ABUTMENTS		26	
511	34400	227	CU. YD.	CLASS S CONCRETE SUPERSTRUCTURE	227		
512	44400	2	SQ. YD.	TYPE B WATERPROOFING		2	
513	16590	46,700	LB	STRUCTURAL STEEL, ASTM A36			
				(AISC CATEGORY I), AS PER PLAN *	46,700		
513	20000	2,562	EACH	WELDED STUD SHEER CONNECTORS	2,562		
516	10500	86	LIN. FT.	STRUCTURAL EXPANSION JOINTS INCLUDING			
				ELASTOMERIC COMPRESSION SEALS	86		
516	46900	4	EACH	BEARING DEVICES	4		
516	44000	7	EACH	LAMINATED ELASTOMERIC BEARINGS (7"x11"x1 1/8"			
				ELASTOMERIC PAD WITH 8"x12 1/2"x1" STEEL			
				LOAD PLATE)	7		
516	44100	7	EACH	LAMINATED ELASTOMERIC BEARINGS (7"x11"x			
				2 1/8" ELASTOMERIC PAD WITH 8"x12 1/2"x1"			
				STEEL LOAD PLATE)	7		
516	47001	LUMP		JACKING AND TEMPORARY SUPPORT OF			
				SUPERSTRUCTURE, AS PER PLAN	LUMP		
517	71500	157.50	LIN. FT.	RAILING (CONCRETE PARAPET WITH DOUBLE			
				PIPE RAILS)	157.50		
517	72300	168.75	LIN. FT.	RAILING (DEEP BEAM RAIL WITH STEEL			
				TUBULAR BACKUP AND TYPE 2 STEEL			
				POSTS AND BOLTS) *	168.75		
518	21101	26	CU. YD.	POROUS BACKFILL, AS PER PLAN		26	
SPECIAL	51400402	LUMP		FIELD PAINTING OF NEW STRUCTURAL			
				STEEL, SYSTEM OZEU *	LUMP		
~~SPECIAL~~	~~51400100~~	~~LUMP~~		~~FIELD PAINTING OF EXISTING STEEL,~~			
				~~SURFACE PREPARATION, SYSTEM OZEU *~~	~~LUMP~~		
~~SPECIAL~~	~~51400200~~	~~LUMP~~		~~FIELD PAINTING OF EXISTING STEEL,~~			
				~~PRIME COAT, SYSTEM OZEU *~~	~~LUMP~~		
~~SPECIAL~~	~~51400300~~	~~LUMP~~		~~FIELD PAINTING OF EXISTING STEEL,~~			
				~~INTERMEDIATE COAT, SYSTEM OZEU *~~	~~LUMP~~		
~~SPECIAL~~	~~51400400~~	~~LUMP~~		~~FIELD PAINTING OF EXISTING STEEL,~~			
				~~FINISH COAT, SYSTEM OZEU *~~	~~LUMP~~		
SPECIAL	51267500	305	SQ.YD.	SEALING OF CONCRETE SURFACES *	305		
SPECIAL	51267502	47	SQ.YD.	SEALING OF CONCRETE SURFACES (EPOXY) *		47	
~~SPECIAL~~	~~51400500~~	~~66~~	~~LIN. FT.~~	~~CAULKING, SYSTEM OZEU *~~	~~66~~		
~~SPECIAL~~	~~51426000~~	~~LUMP~~		~~CONTAIN, COLLECT, STORE, AND EVALUATE~~			
				~~ABRASIVES AND PAINT CHIPS *~~			
~~SPECIAL~~	~~51426010~~	~~LUMP~~		~~SHIPMENT AND DISPOSAL OF NON HAZARDOUS~~			
				~~WASTE *~~			
~~SPECIAL~~	~~51426020~~	~~LUMP~~		~~SHIPMENT AND DISPOSAL OF HAZARDOUS WASTE *~~			

* SEE PROPOSAL NOTE

REVISED 1-28-91

STRUCTURAL STEEL FIELD INSPECTION

TOP FLANGE WELDED CONNECTIONS WILL BE VISUALLY INSPECTED BY THE ENGINEER AFTER DECK REMOVAL AND PRIOR TO DECK FORM PLACEMENT. SUFFICIENT TIME, SUITABLE ACCESS, AND SAFE AND SECURE PLATFORMS, SCAFFOLDING AND/OR LADDERS SHALL BE PROVIDED BY THE CONTRACTOR FOR THIS INSPECTION.

THE COST OF PROVIDING SAFE ACCESS, TRAFFIC CONTROL WHERE NECESSARY, AND FOR ALL OTHER COSTS ASSOCIATED WITH THIS INSPECTION SHALL BE INCLUDED WITH STRCUTURAL STEEL FOR PAYMENT.

UNITED CONSULTANTS & ASSOCIATES
ENGINEERS / ARCHITECTS / SURVEYORS
1187 E. BROAD ST. COLUMBUS, OH.

3 / 12

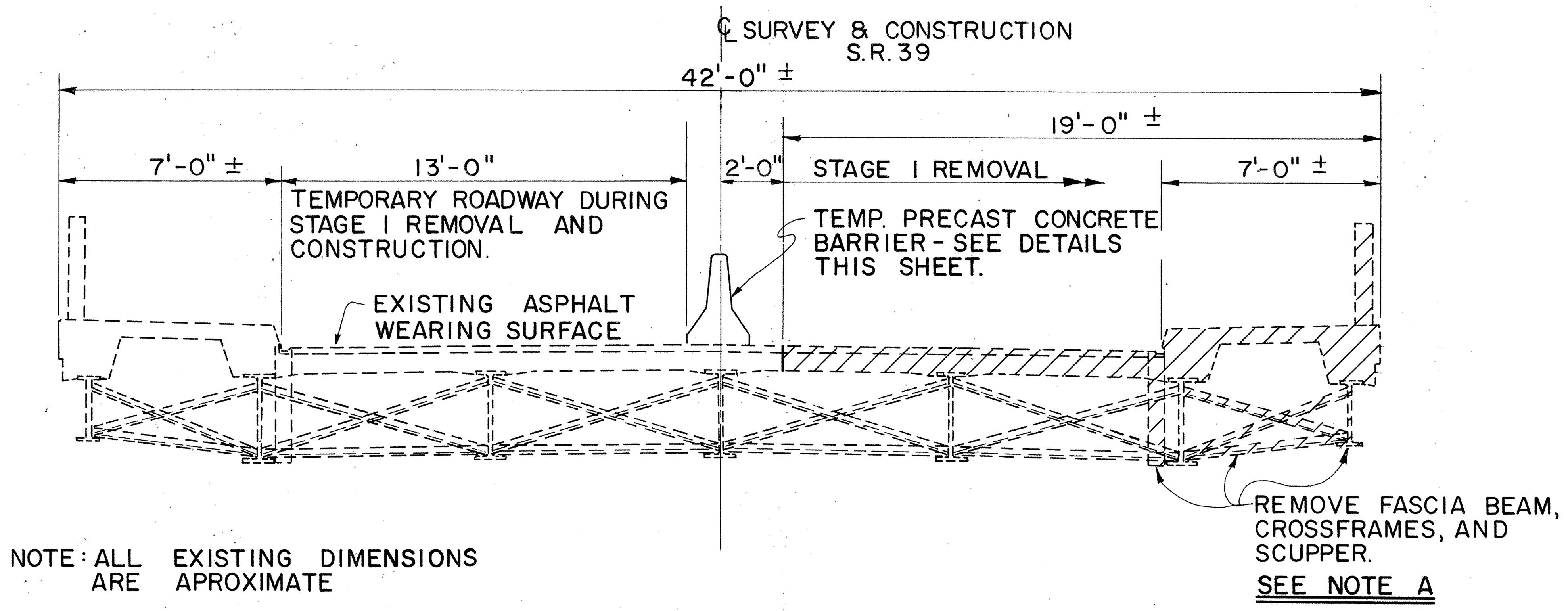
GENERAL NOTES AND ESTIMATED QUANTITIES
BRIDGE NO HOL-39-1714
OVER KILLBUCK CREEK

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JS	JG	-	MR	NAC	1/11/90	

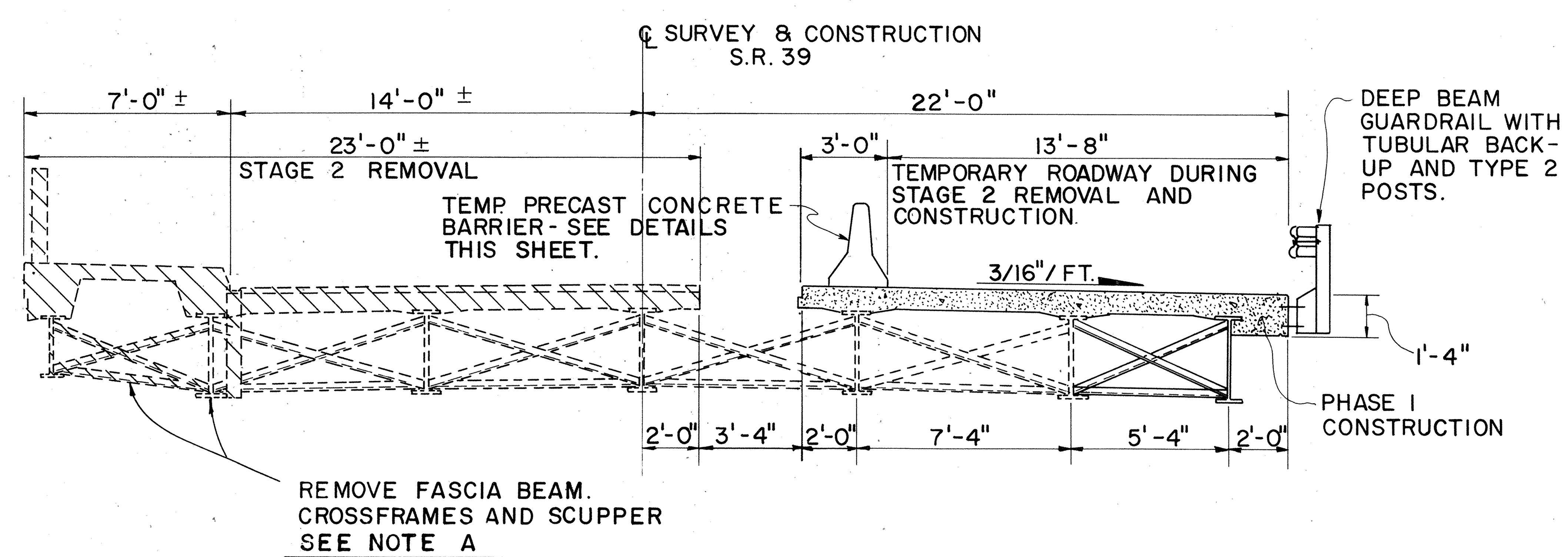
FHWA REGION	STATE	PROJECT	
5	OHIO		

12/20

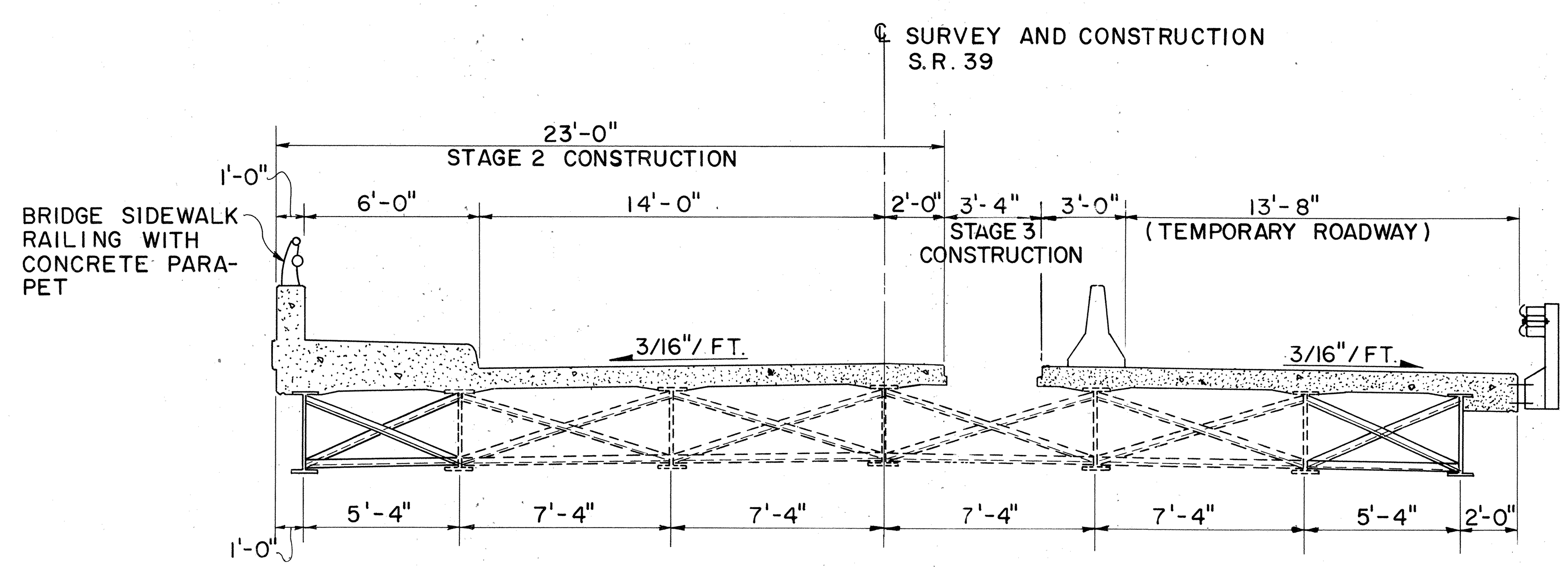
HOLMES COUNTY
HOL-39-17.14



STAGE I REMOVAL



STAGE 2 REMOVAL

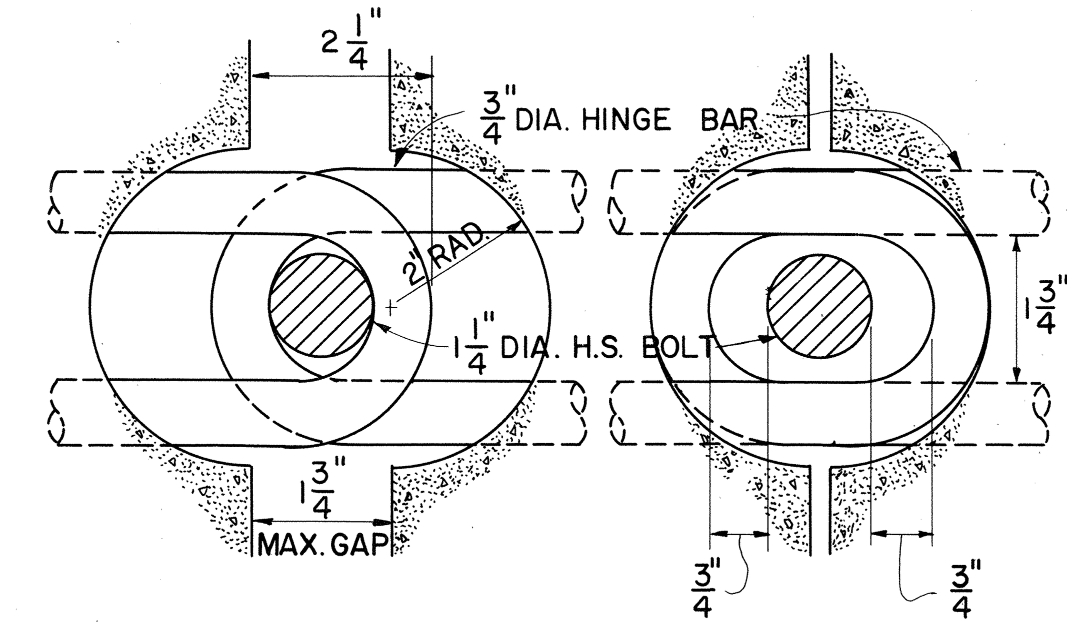


STAGE 3

LEGEND

PROPOSED SUPERSTRUCTURE

SUPERSTRUCTURE TO BE REMOVED

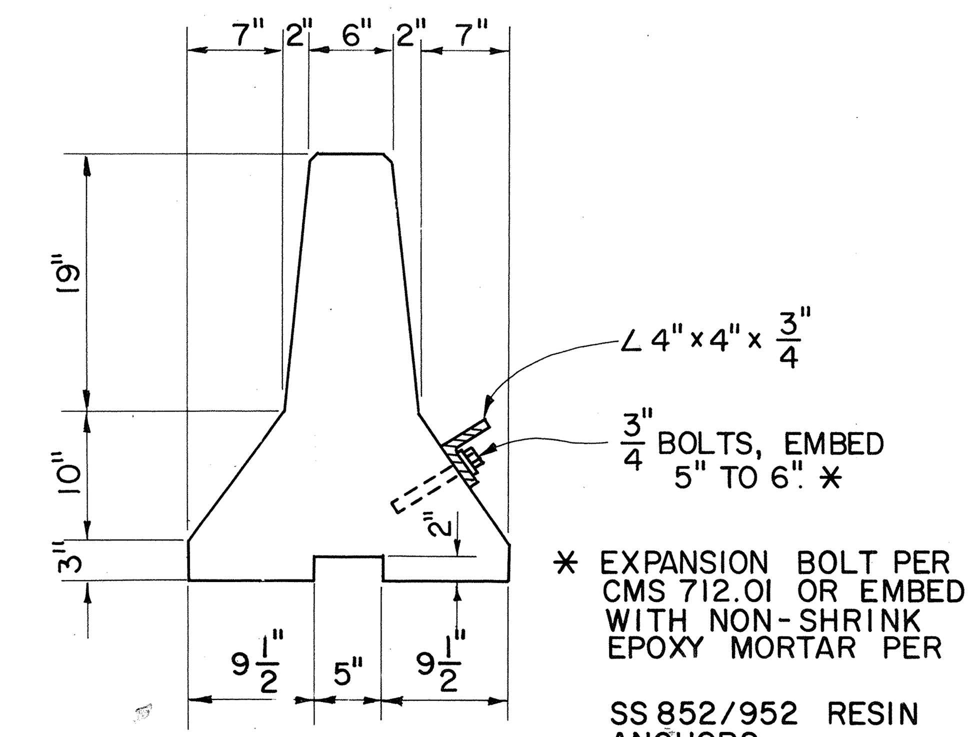


OPEN JOINT ① CLOSED JOINT ②

① BARRIER JOINTS MUST BE FULLY OPEN BEFORE NUT IS TIGHTENED ONTO BOLT AND OPENING IS EITHER GROUTED OR SHIMMED.

② BARRIERS SHOULD INITIALLY BE PLACED CLOSER TOGETHER SO THAT BOLTS CAN BE EASILY INSERTED THROUGH HINGE BAR LOOPS.

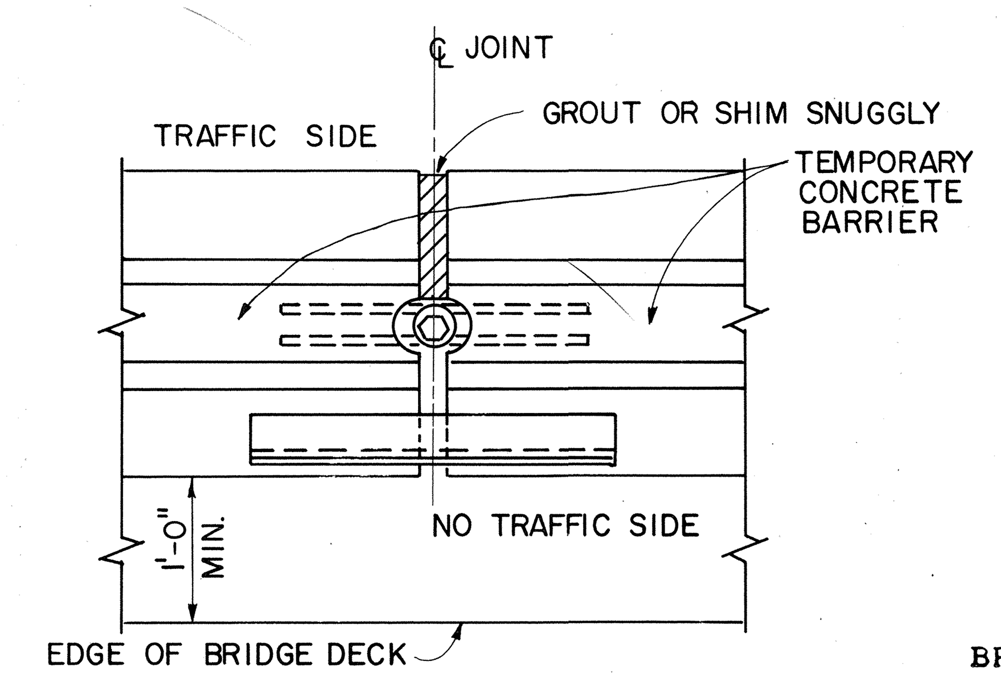
JOINT CONNECTION DETAILS



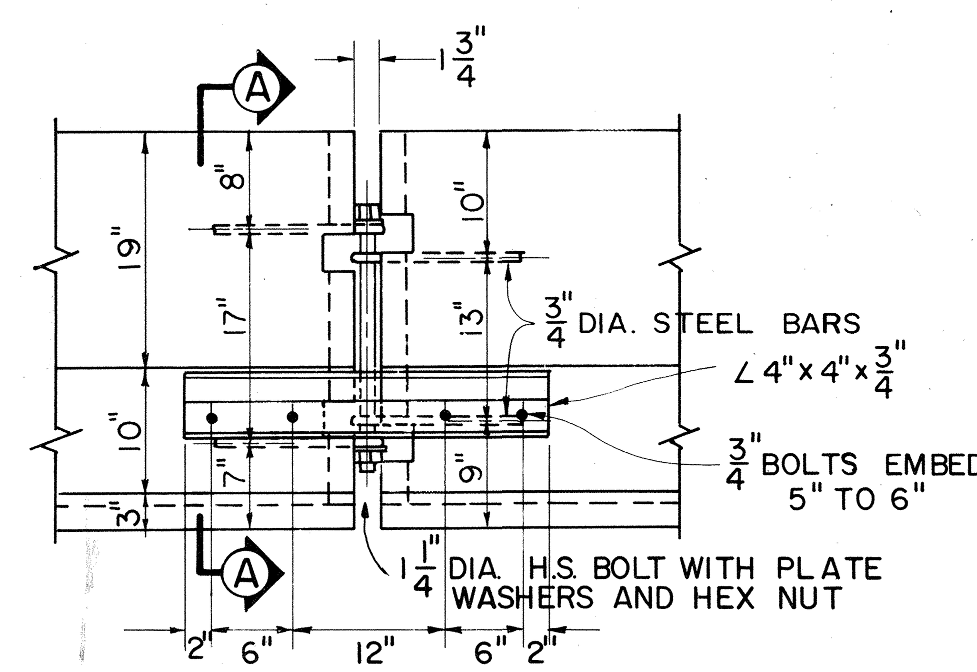
* EXPANSION BOLT PER CMS 712.01 OR EMBED WITH NON-SHRINK EPOXY MORTAR PER

SS 852/952 RESIN ANCHORS.

SECTION A-A



PLAN AT JOINT



ELEVATION AT JOINT

NOTE A:

EXISTING INTERMEDIATE AND END CROSSFRAMES IN OUTSIDE BAYS TO BE REMOVED. PLACE NEW CROSSFRAMES AT SAME LOCATIONS AS EXISTING. EXISTING CROSSFRAMES SHALL BE CAREFULLY REMOVED. CARE SHALL BE TAKEN TO COMPLETELY REMOVE THE CROSSFRAME WITHOUT UNDERCUTTING, GOUGING OR OTHERWISE DAMAGING THE EXISTING BEAM FLANGES OR WEBS. THE SURFACE OF BEAM WEB SHALL BE GROUND TO ACHEIVE A SMOOTH SURFACE PRIOR TO ATTACHMENT OF THE NEW CROSSFRAMES. ALL GRINDING SHALL BE DONE IN A DIRECTION PARALLEL WITH THE BEAM SPAN DIRECTION. COST OF ALL WORK SHALL BE INCLUDED WITH ITEM 202 FOR PAYMENT.

ITEM 622, TEMPORARY CONCRETE BARRIER, BRIDGE MOUNTED, IS CARRIED IN THE ROADWAY QUANTITIES.

FOR ADDITIONAL DETAILS OF TEMPORARY CONCRETE BARRIER, BRIDGE MOUNTED, ,SEE STANDARD CONSTRUCTION DRAWING MC-9A.

BRIDGE DECK SURFACE PREPARATION:

THE PROCEDURES WHICH MUST BE FOLLOWED, WHEN INSTALLING ALL TEMPORARY PRECAST CONCRETE BARRIERS ON OHIO BRIDGE DECKS, ARE GIVEN BELOW.

A. THE BRIDGE DECK SURFACE AREA ON WHICH THE PRECAST CONCRETE BARRIERS WILL REST, SHALL BE CLEARED OF ALL LOOSE SAND, GRAVEL, DIRT AND DEBRIS.

B. ANY IRREGULARITIES IN THE BRIDGE DECK AREA, UNLESS JUDGED BY THE ENGINEER TO BE INCONSEQUENTIAL, SHALL BE LEVELED WITH GROUT AND\OR ASPHALT.

C. ASPHALT ROLL ROOFING SHALL BE PLACED ON THOSE BRIDGE DECK AREAS, AS JUDGED BY THE ENGINEER, TO HAVE A SURFACE ROUGHNESS WHICH WOULD INHIBIT FRICTION CONTACT BETWEEN BARRIER SEGMENTS AND DECK.

UNITED CONSULTANTS & ASSOCIATES
ENGINEERS • ARCHITECTS • SURVEYORS
1187 E. BROAD ST. COLUMBUS, OH. 43205

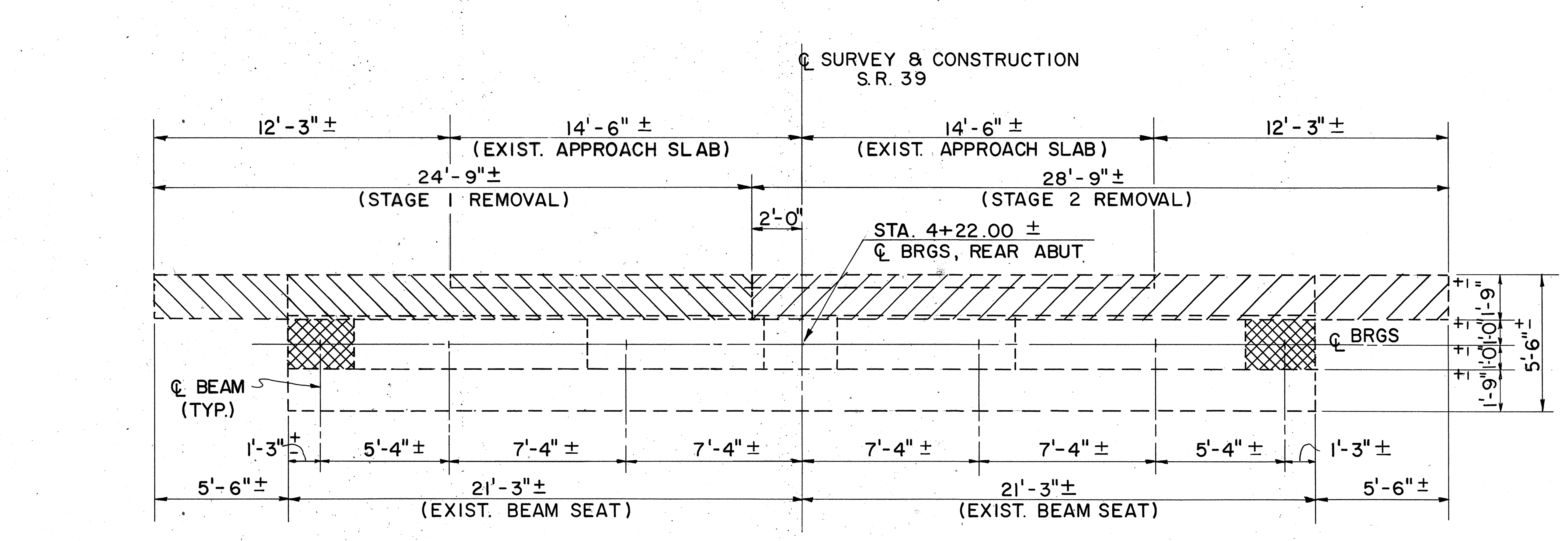
4/12

STAGE CONSTRUCTION DETAILS

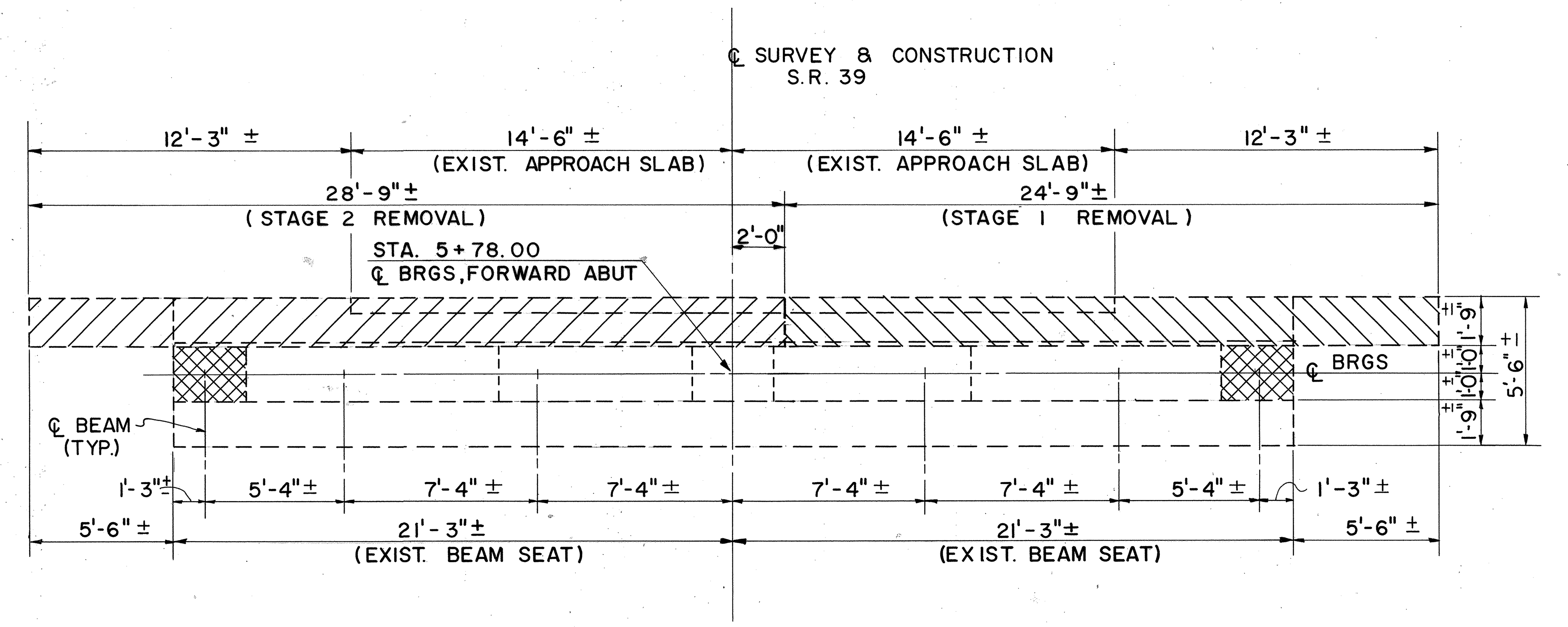
BRIDGE NO. HOL-39-17.14
OVER KILLBUCK CREEK

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JS	JAF	JAF	MR	NAC	1/11/90	

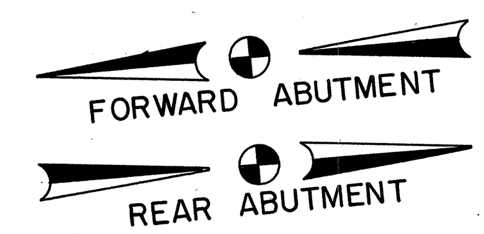
HOLMES COUNTY
HOL-39-17.14

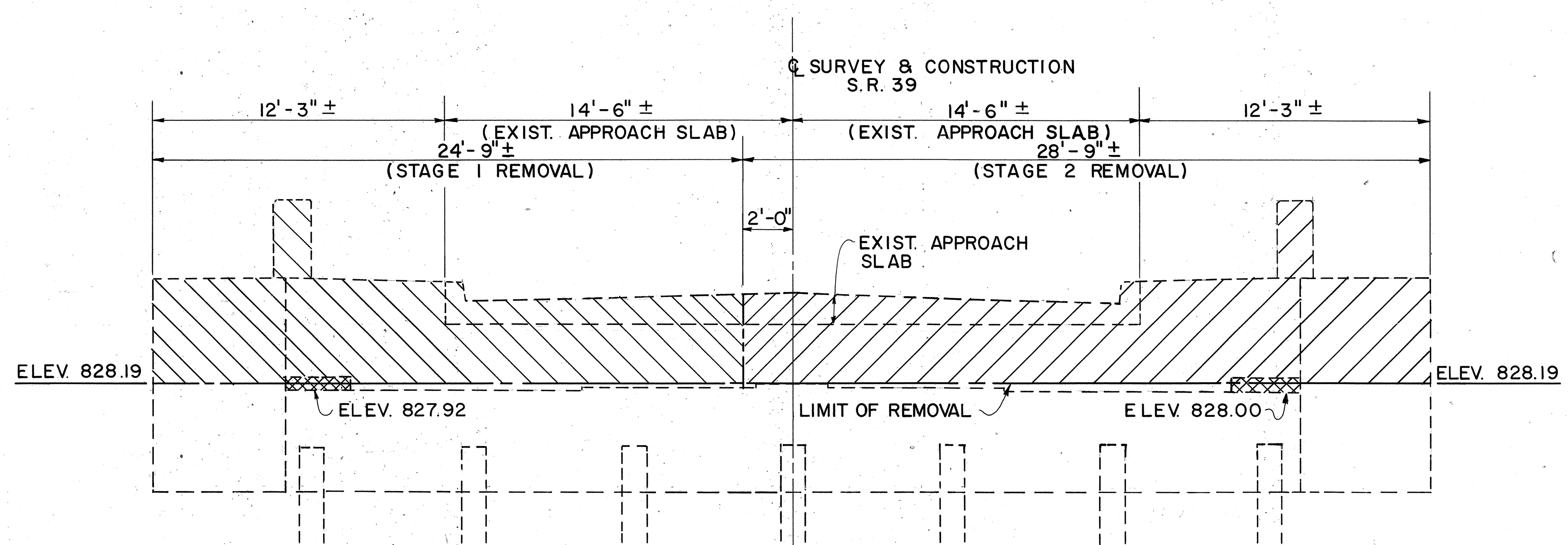


EXISTING REAR ABUTMENT PLAN

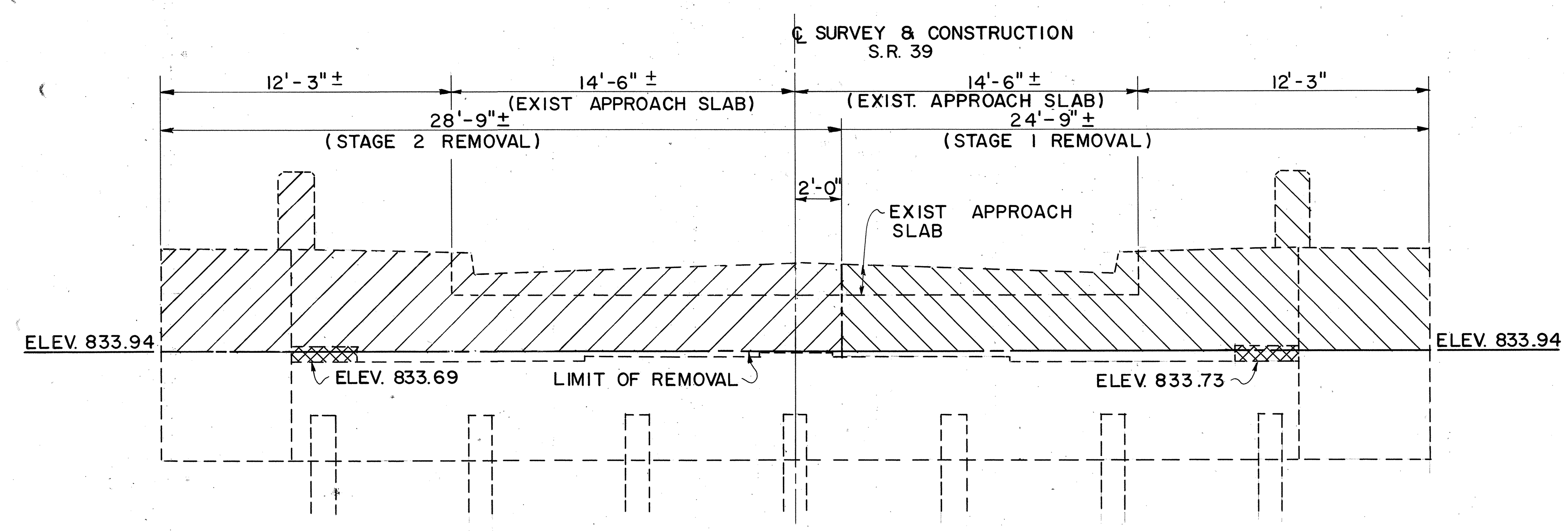


EXISTING FORWARD ABUTMENT PLAN





EXISTING REAR ABUTMENT ELEVATION



EXISTING FORWARD ABUTMENT ELEVATION

STAGE 1 REMOVAL. CONCRETE SHALL BE CAREFULLY REMOVED AND VERTICAL STEEL PRESERVED AND CLEANED.

STAGE 2 REMOVAL. CONCRETE SHALL BE CAREFULLY REMOVED AND VERTICAL STEEL PRESERVED AND CLEANED.

REMOVE BEAM SEAT ONLY. (SEE NOTE A)

NOTE A:

1. CAREFULLY REMOVE EXISTING CONCRETE TO WITHIN APPROXIMATELY 1/2" OF FINAL ELEVATION.
2. BUSH HAMMER OR GRIND THE SURFACE TO OBTAIN A PLANE AND SMOOTH SURFACE AT THE ELEVATION SHOWN.
3. SMOOTH WITH A THIN FILM OF PORTLAND CEMENT MORTAR OR PASTE TO FILL THE PITTED SURFACE.
4. ABOVE WORK INCLUDED WITH ITEM 202 FOR PAYMENT

UNITED CONSULTANTS & ASSOCIATES
ENGINEERS • ARCHITECTS • SURVEYORS
1187 E. BROAD ST. COLUMBUS, OH. 43205

5/12

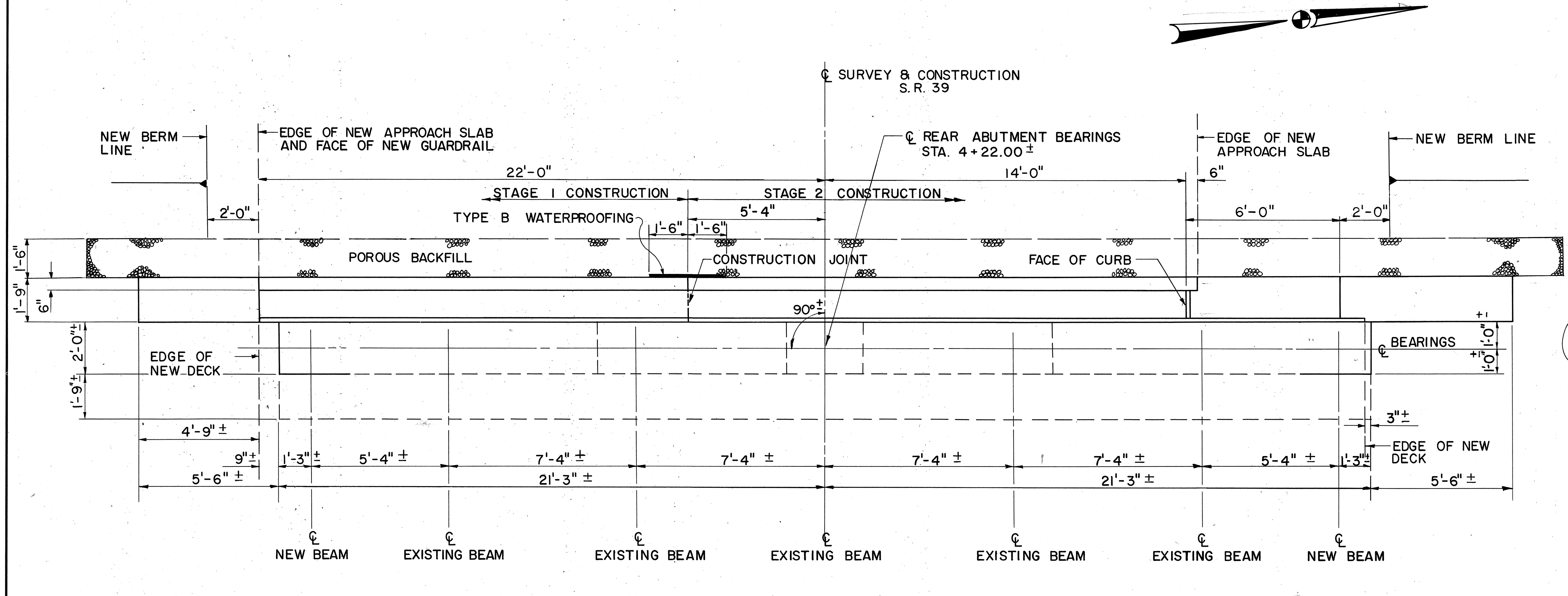
ABUTMENT DEMOLITION PLAN

BRIDGE NO. HOL-39-17.14
OVER KILLBUCK CREEK

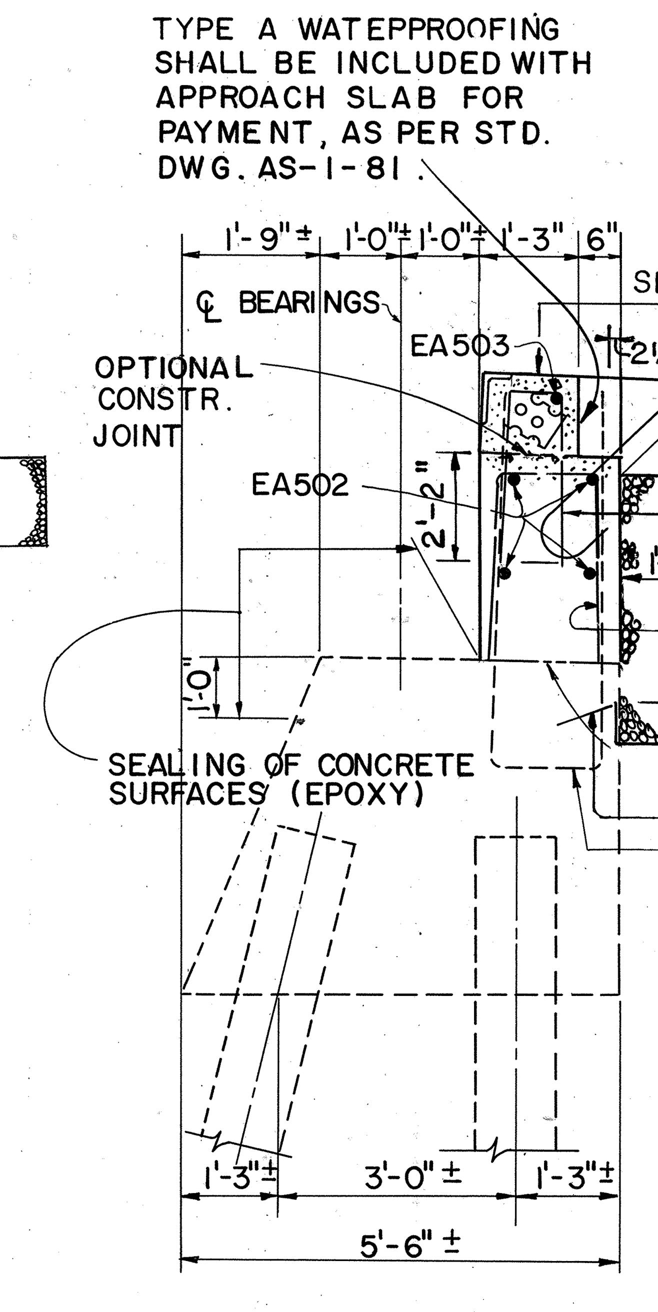
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JS	JAF	JAF	MR	NAC	1/11/90	

FHWA REGION	STATE	PROJECT	
5	OHIO		

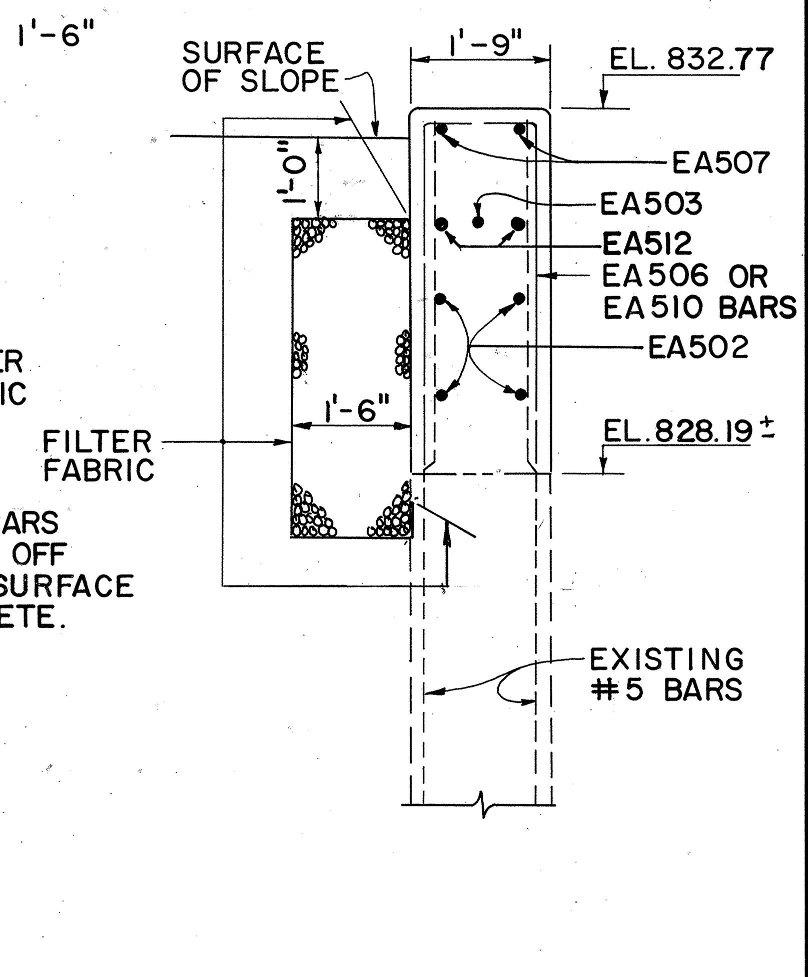
HOLMES COUNTY
HOL-39-17.14



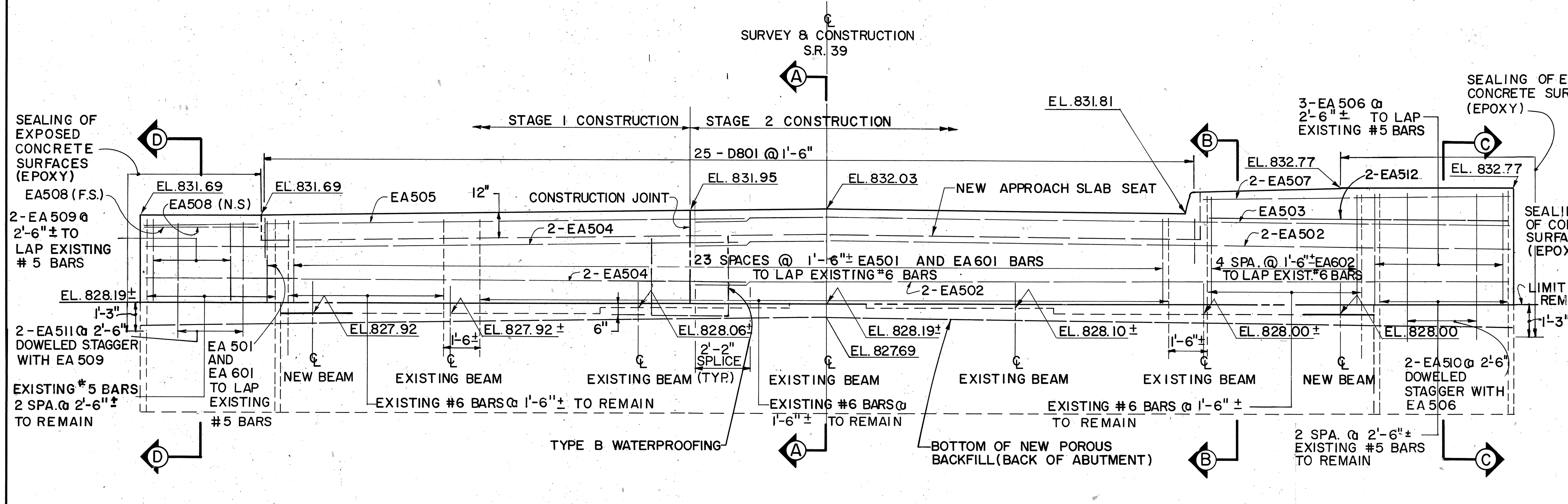
ABUTMENT PLAN



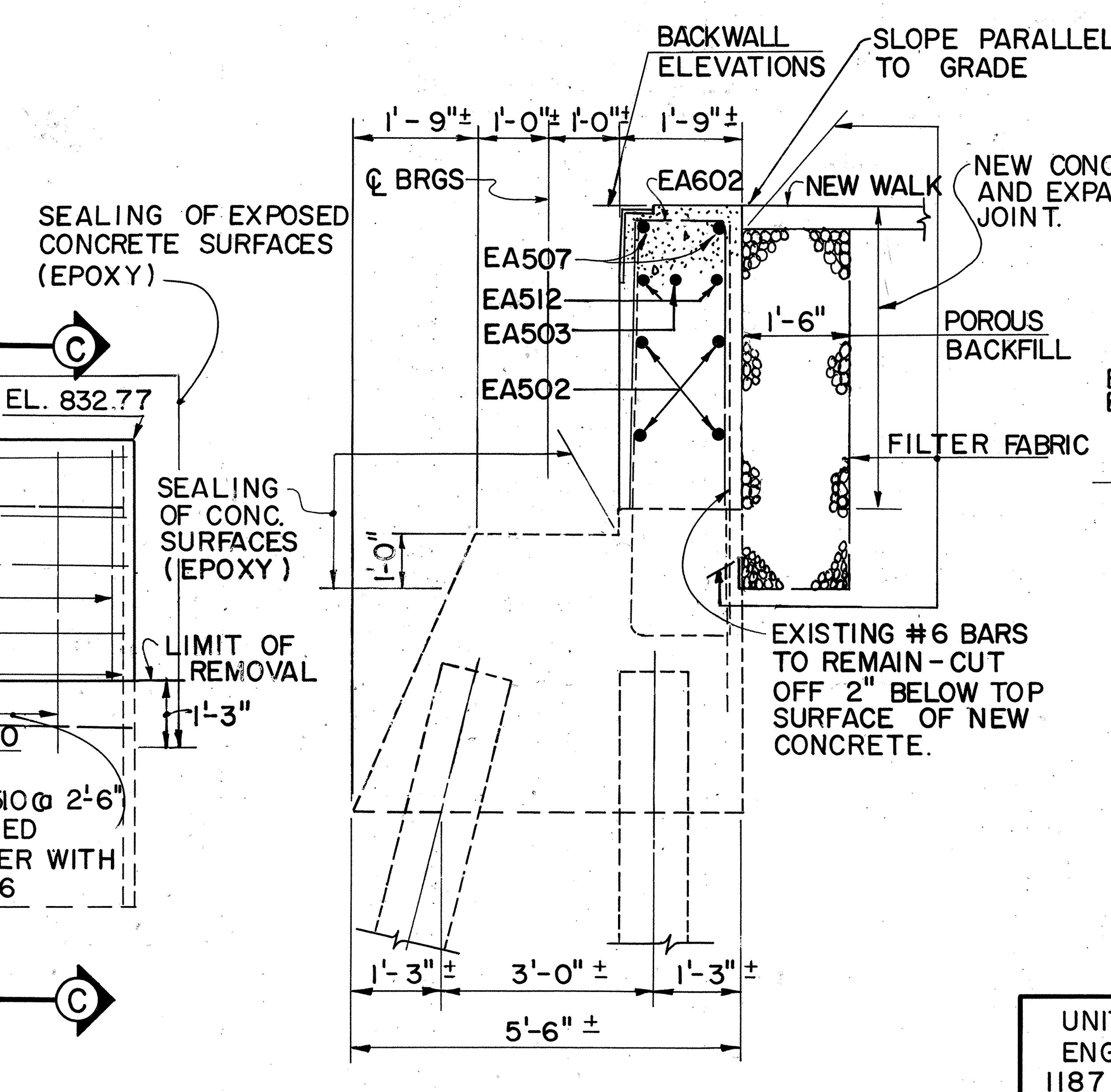
SECTION A-A



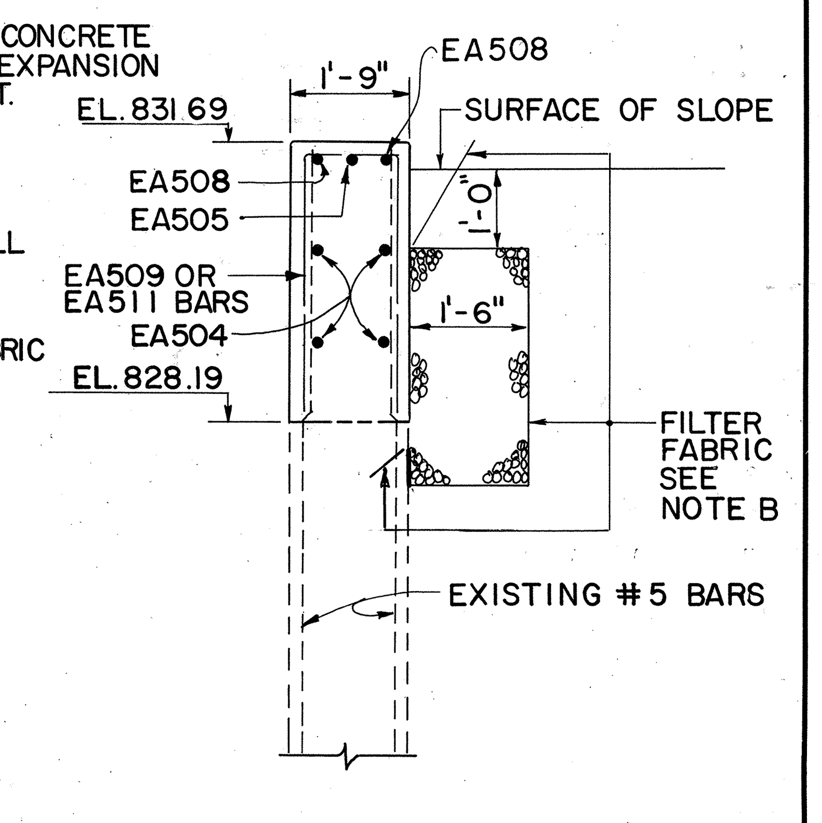
SECTION C-C



ABUTMENT ELEVATION



SECTION B-B



SECTION D-D

NOTE:

A. POROUS BACKFILL, 1'-6" THICK, SHALL EXTEND UPWARD TO THE PLANE OF THE SUBGRADE, AND SHOULD BE SLOPED 1/4" PER FOOT LATERALLY TO THE SURFACE OF THE EMBANKMENT SLOPE.

B. FILTER FABRIC, TYPE A, SHALL CONFORM TO 712.09 AND BE INCLUDED WITH POROUS BACKFILL ITEM 518 FOR PAYMENT.

UNITED CONSULTANTS & ASSOCIATES
ENGINEERS ARCHITECTS SURVEYORS
1187 E. BROAD ST. COLUMBUS, OH. 43205

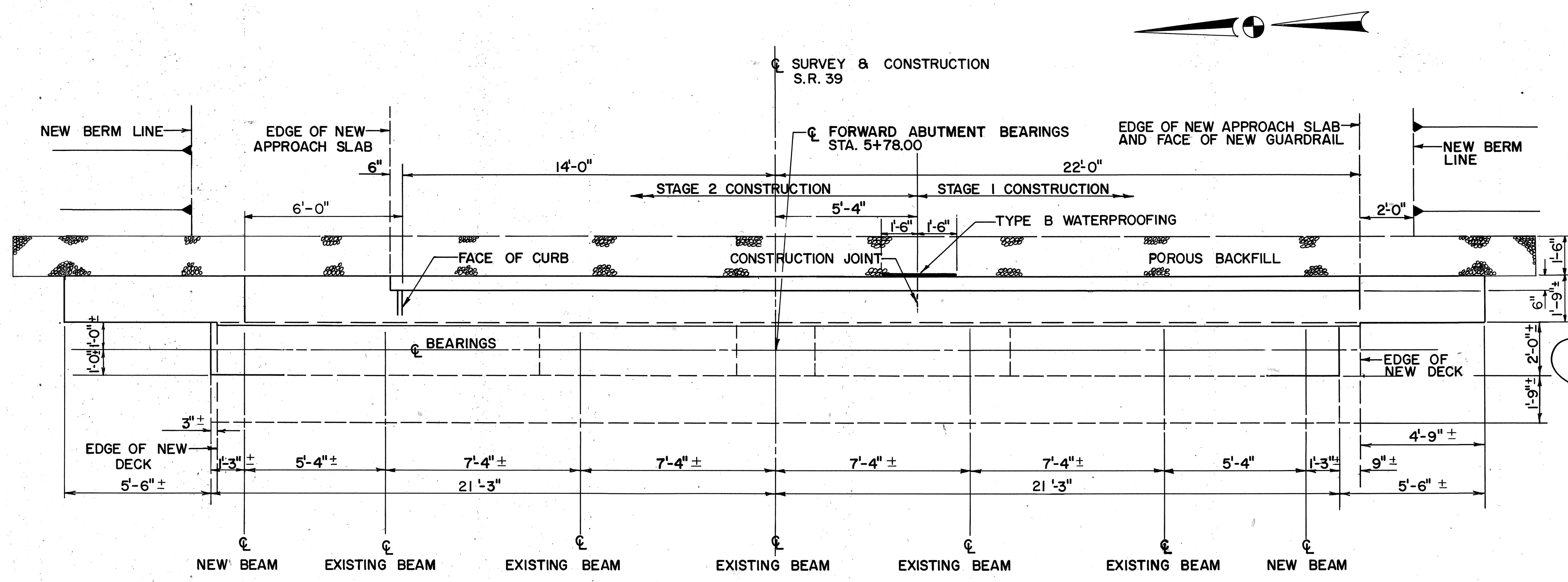
6/12

REAR ABUTMENT DETAILS

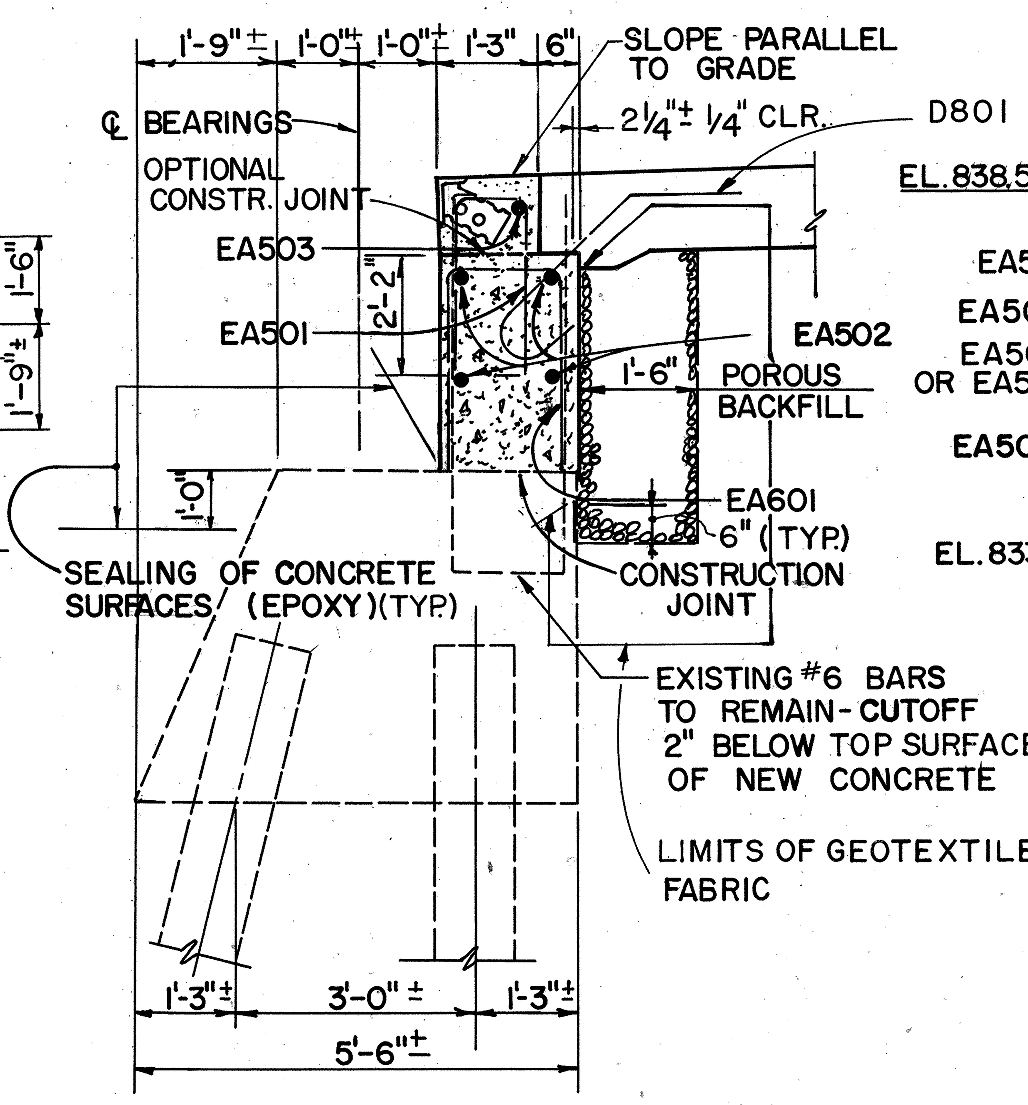
BRIDGE NO. HOL-39-17.14
OVER KILLBUCK CREEK

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JS	JS	JAF	MR	NAC	1/11/90	

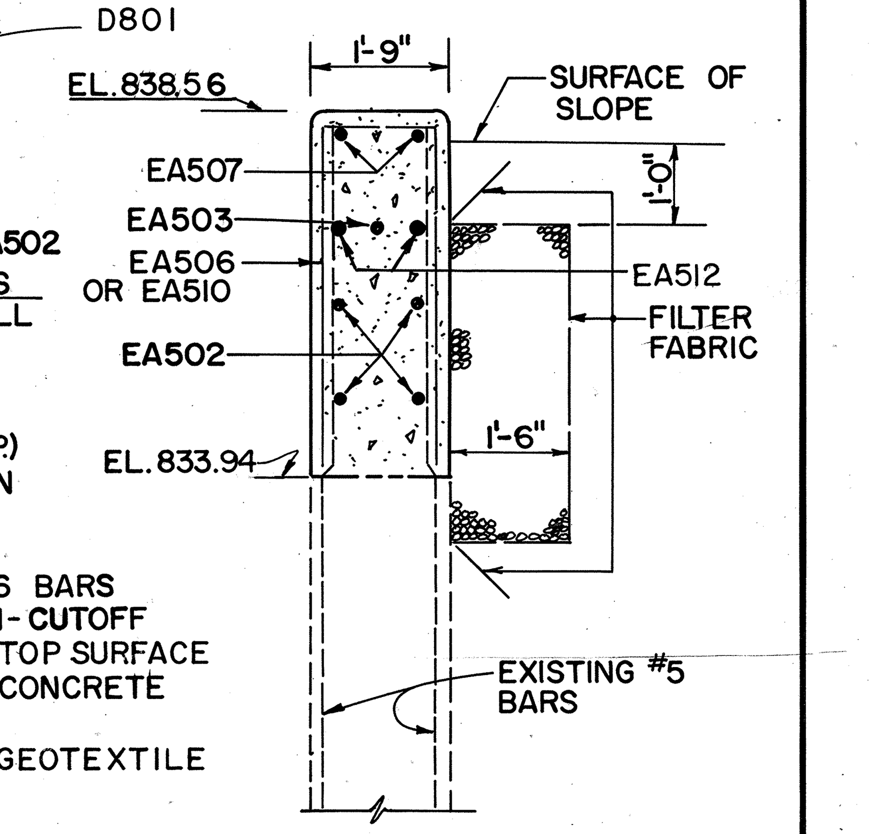
HOLMES COUNTY
HOL. 39-17.14



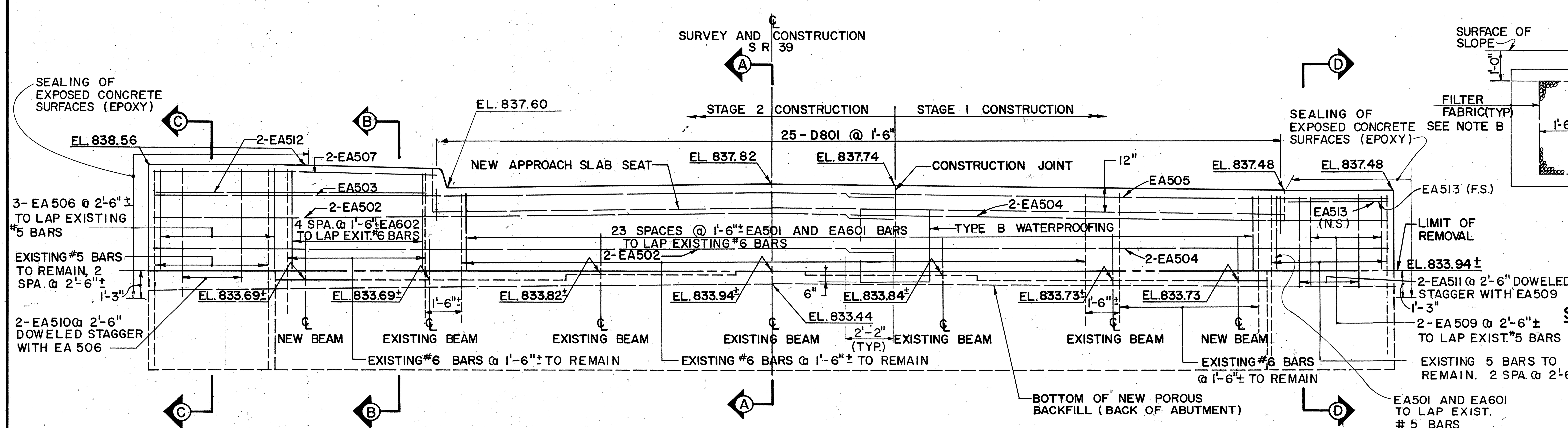
ABUTMENT PLAN



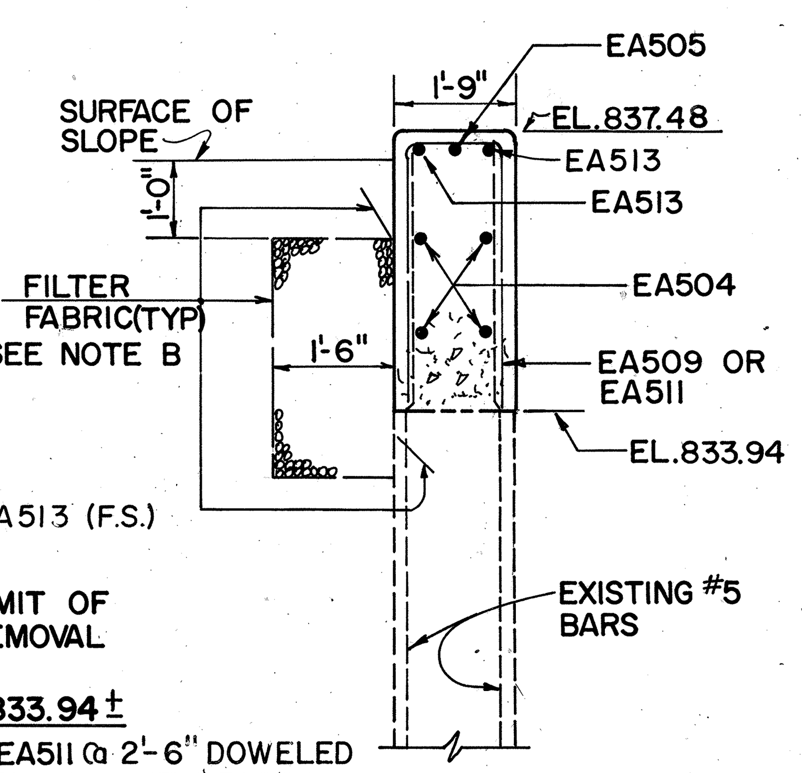
SECTION A-A



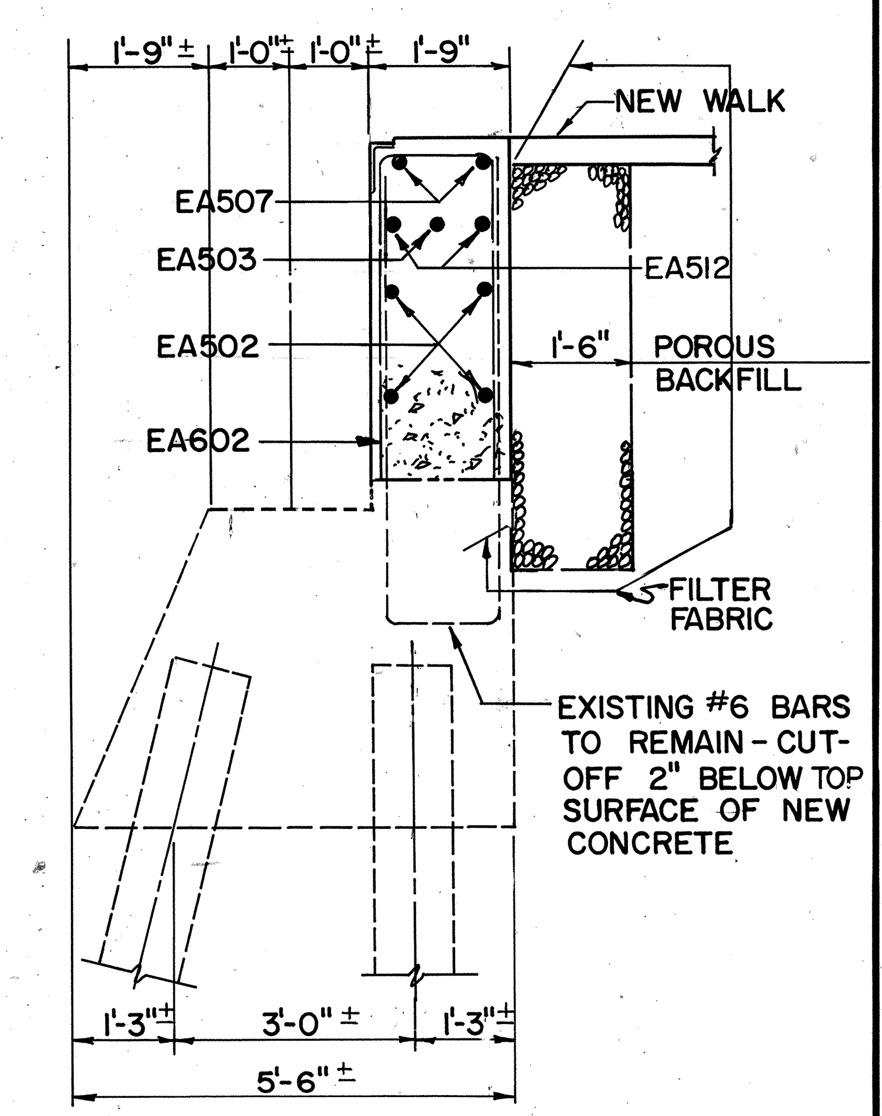
SECTION C-C



ABUTMENT ELEVATION



SECTION D-D



SECTION B-B

NOTE A: POROUS BACKFILL, 1'-6" THICK, SHALL EXTEND UPWARD TO THE PLANE OF THE SUBGRADE, AND SHOULD BE SLOPED 1/4" PER FOOT LATERALLY TO THE SURFACE OF THE EMBANKMENT SLOPE.

NOTE B: FILTER FABRIC, TYPE A, SHALL CONFORM TO 712.09 AND BE INCLUDED WITH POROUS BACKFILL ITEM 518 FOR PAYMENT.

UNITED CONSULTANTS & ASSOCIATES
ENGINEERS / ARCHITECTS / SURVEYORS
1187 E. BROAD ST. COLUMBUS, OH. 43205

7 / 12

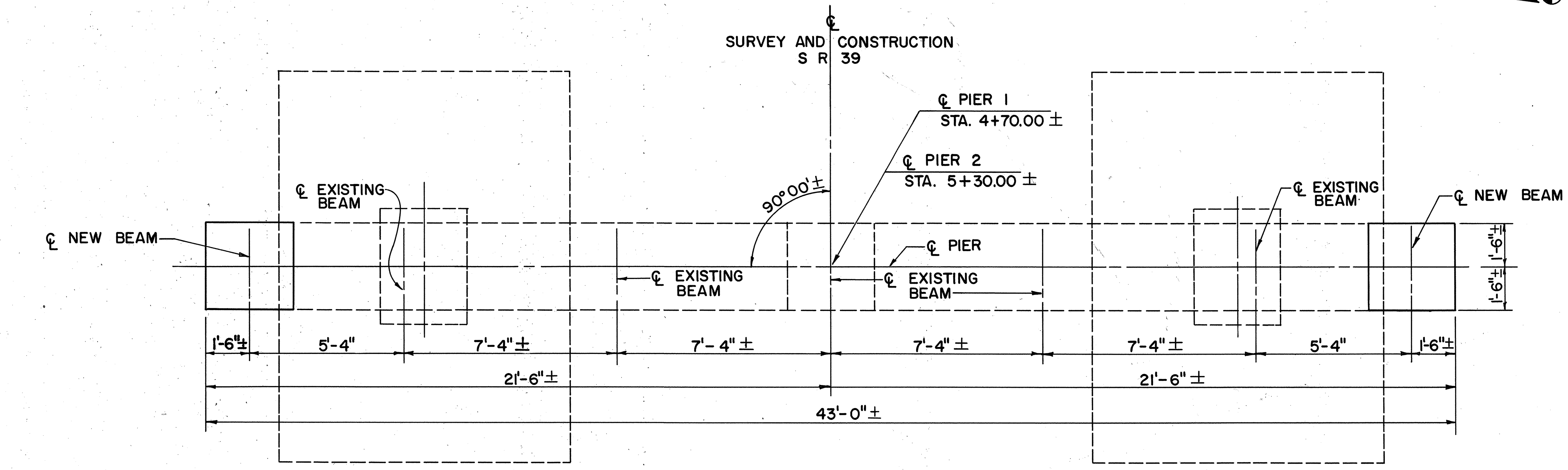
FORWARD ABUTMENT DETAILS
BRIDGE NO. 39-1714
OVER KILLBUCK CREEK

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JS	JS	JG	MR	NAC	1/11/90	

FHWA REGION	STATE	PROJECT	
5	OHIO		

16/20

HOLMES COUNTY
HOL.-39-17.14

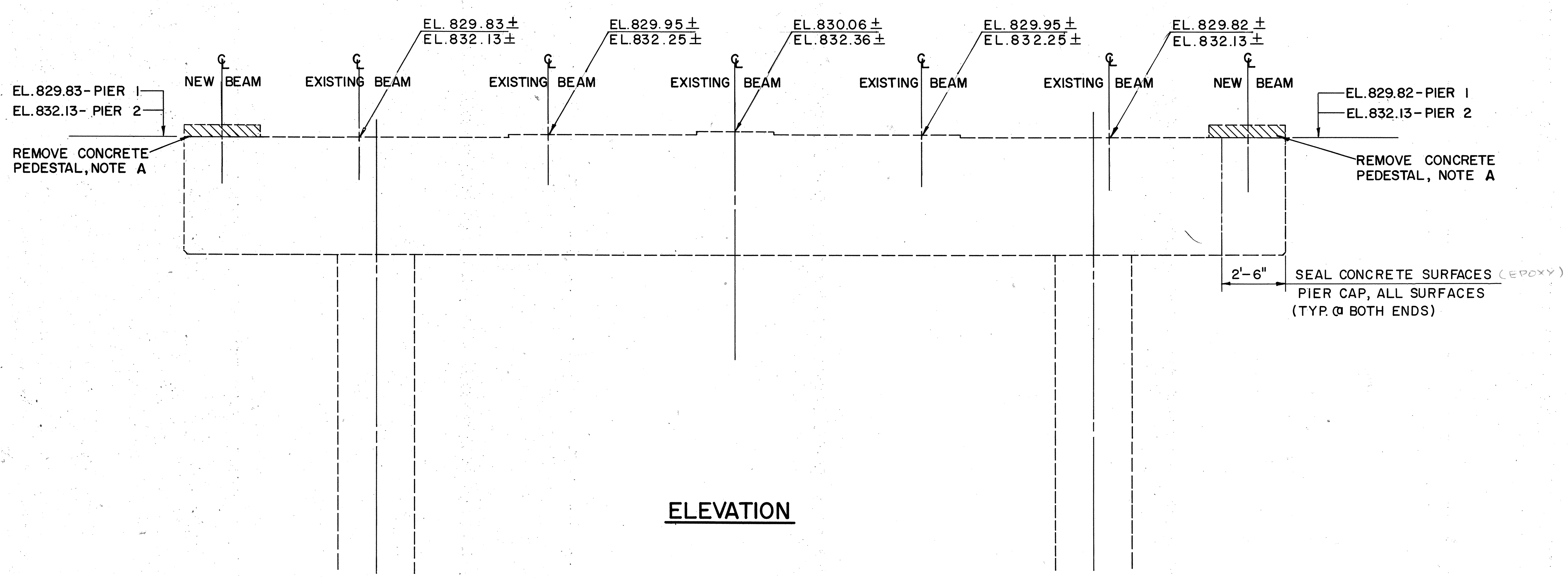


PLAN

NOTE A

REMOVE CONCRETE TO FINAL SEAT ELEVATIONS AS FOLLOWS:

1. CAREFULLY REMOVE EXISTING CONCRETE TO WITHIN APPROXIMATELY 1/2" OF FINAL ELEVATION.
2. BUSH HAMMER OR GRIND THE SURFACE TO OBTAIN A PLANE AND SMOOTH SURFACE AT THE ELEVATION SHOWN.
3. SMOOTH WITH A THIN FILM OF PORTLAND CEMENT MORTAR OR PASTE TO FILL THE PITTED SURFACE.
4. ABOVE WORK INCLUDED WITH ITEM 202 FOR PAYMENT.



ELEVATION

UNITED CONSULTANTS & ASSOCIATES
ENGINEERS / ARCHITECTS / SURVEYORS
1187 E. BROAD ST. COLUMBUS, OH. 43205

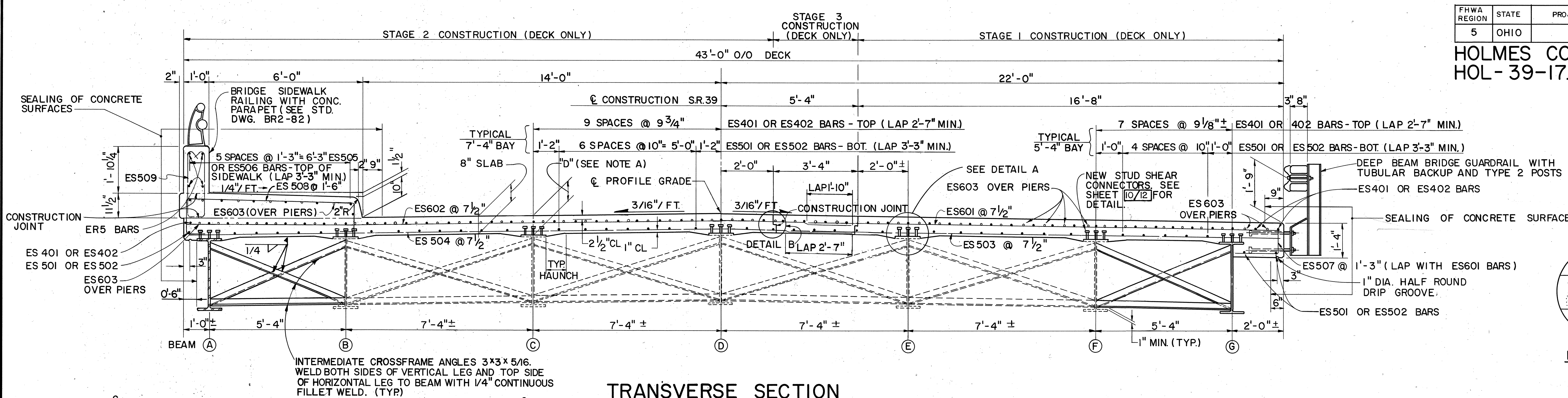
8/12

PIERS
BRIDGE NO. HOL.-39-1714
OVER KILLBUCK CREEK

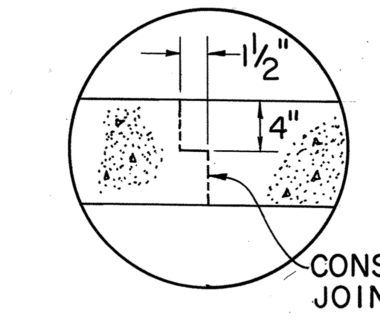
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JS	JS	JHG	MR	NAC	1/11/90	

FHWA REGION	STATE	PROJECT	
5	OHIO		

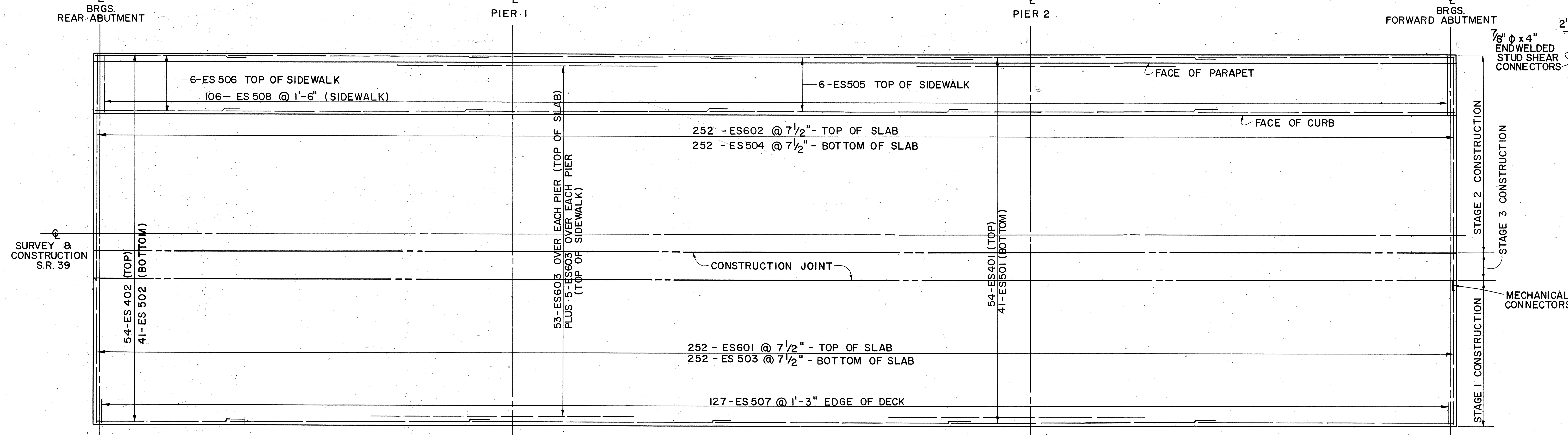
HOLMES COUNTY
HOL-39-17.14



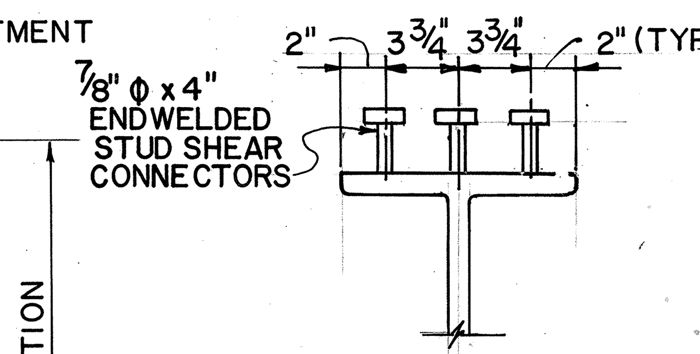
TRANSVERSE SECTION



DETAIL B



SLAB PLAN



DETAIL A

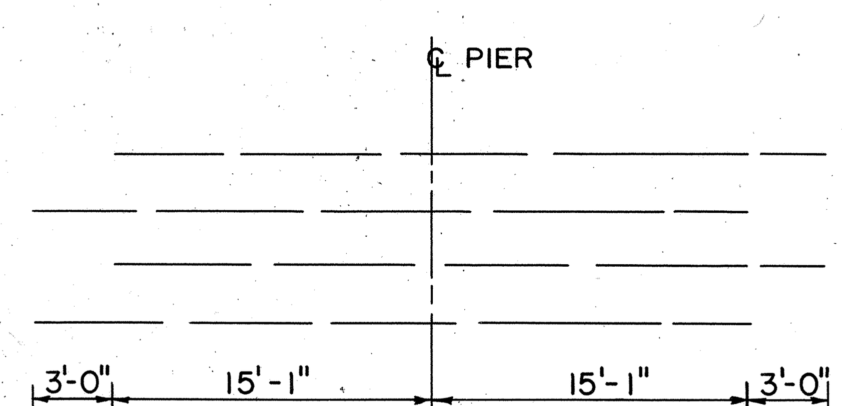


DIAGRAM SHOWING STAGGER OF ES603 BARS OVER PIERS

NOTE A:

THE NOMINAL DECK SLAB DEPTH OVER BEAMS IS "D" THE ACTUAL SLAB MAY BE MORE; IT SHOULD NOT BE LESS. AFTER COMPLETE REMOVAL OF THE EXISTING DECK SLAB, THE CONTRACTOR SHALL DETERMINE ACTUAL TOP OF BEAM ELEVATIONS IN THE FIELD AND DEDUCT THEM FROM PROPOSED SCREED ELEVATIONS TO OBTAIN ACTUAL SLAB DEPTHS. FOR DEPTHS LESS THAN "D", THE PROPOSED GRADE LINE AND DECK SURFACE MAY HAVE TO BE RAISED TO PROVIDE THE NOMINAL DEPTH, AS DIRECTED BY THE ENGINEER.

THE QUANTITY OF CONCRETE TO BE PAID FOR SHALL BE BASED ON THE NOMINAL DECK DEPTH AS GIVEN IN TABLE I, THIS SHEET.

A HAUNCH WIDTH OF 9" SHALL BE USED FOR COMPUTING QUANTITY OF CONCRETE HOWEVER, HAUNCH WIDTH MAY VARY BETWEEN 6 TO 12 INCHES (PROVIDED THAT) THE SLOPE SHALL NOT BE MORE THAN 1:4 FOR A HAUNCH LESS THAN 9" WIDTH.

TABLE I

BEAM	NOMINAL DECK DEPTH "D"			
	STA. 4+22.00	STA. 4+70.00	STA. 5+30.00	STA. 5+78.00
A	8 3/4"	8 1/2"	8 3/8"	10 1/8"
B	9 3/4"	8 3/4"	8 5/8"	11 1/8"
C	9 7/8"	8 5/8	8 1/2"	11"
D	10 1/4"	8 3/4	8 5/8	10 7/8"
E	10 3/8"	8 5/8	8 1/2	10 3/4"
F	10 3/4"	8 7/8	8 5/8	10 5/8"
G	9 3/4"	8 5/8"	8 3/8"	9 5/8"

UNITED CONSULTANTS & ASSOCIATES
ENGINEERS • ARCHITECTS • SURVEYORS
1187 E. BROAD ST. COLUMBUS, OH. 43205

9/12

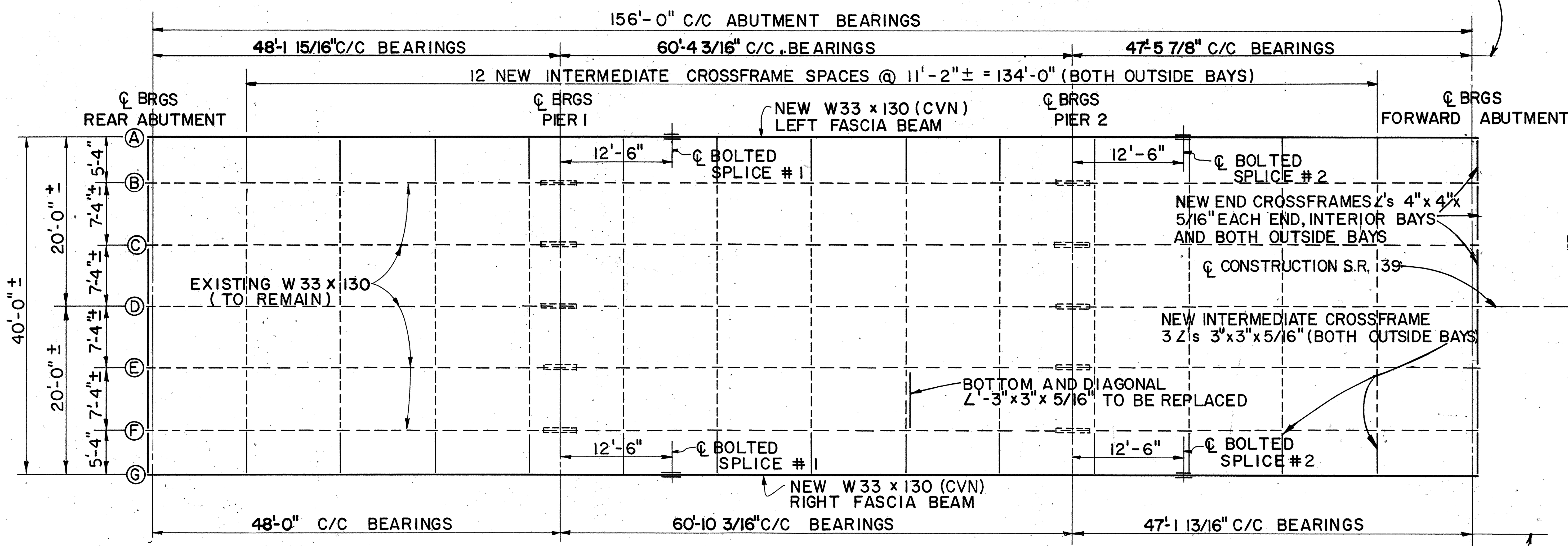
SUPERSTRUCTURE DETAILS

BRIGDE NO. HOL-39-1714
OVER KILLBUCK CREEK

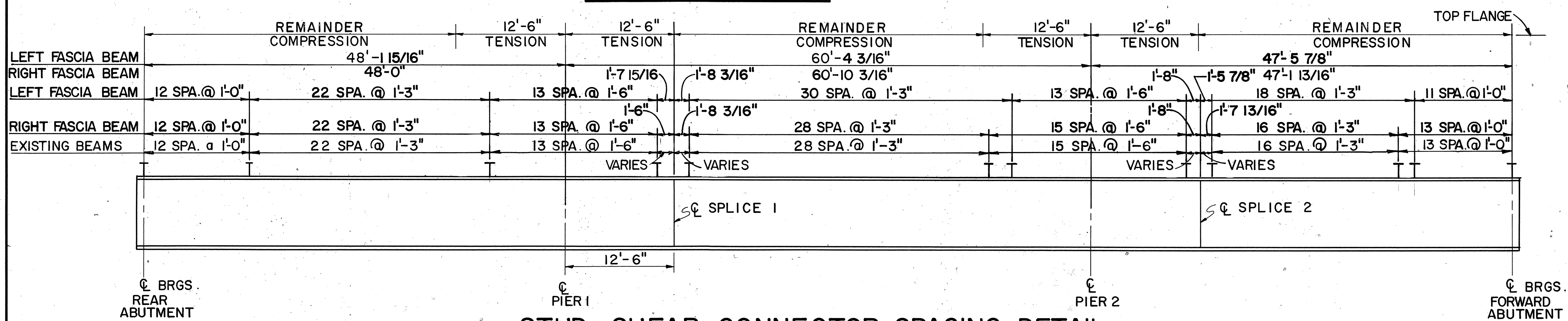
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JS	JS	JAF	MR	NAC	1/11/90	

F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

HOLMES COUNTY
HOL-39-17.14

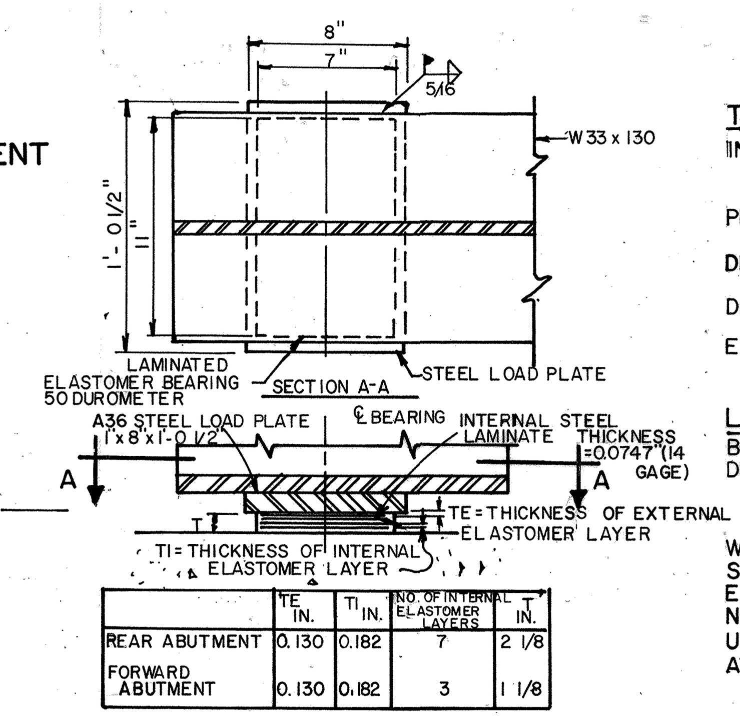


FRAMING PLAN



STUD SHEAR CONNECTOR SPACING DETAIL

(NEW BEAM SHOWN)



	TE IN.	TI IN.	NO. OF INTERNAL ELASTOMER LAYERS	T IN.
REAR ABUTMENT	0.130	0.182	7	2 1/8
FORWARD ABUTMENT	0.130	0.182	3	1 1/8

ABUTMENT LAMINATED ELASTOMERIC EXPANSION BEARING

TOLERENCES :

INDIVIDUAL ELASTOMER LAYER THICKNESS:	20% OF DESIGN VALUE (NOT TO EXCEED ± 1/8")
PLAN DIMENSIONS	-0. + 1/4"
DESIGN THICKNESS ≤ 1 1/4"	-0. + 1/8"
DESIGN THICKNESS > 1 1/4"	-0. + 1/4"
EDGE COVER OF EMBEDDED LAMINATES	-0. + 1/8"

LOAD PLATE. THE STEEL LOAD PLATE SHALL BE BONDED BY VULCANIZATION TO THE ELASTOMER DURING THE MOLDING PROCESS.

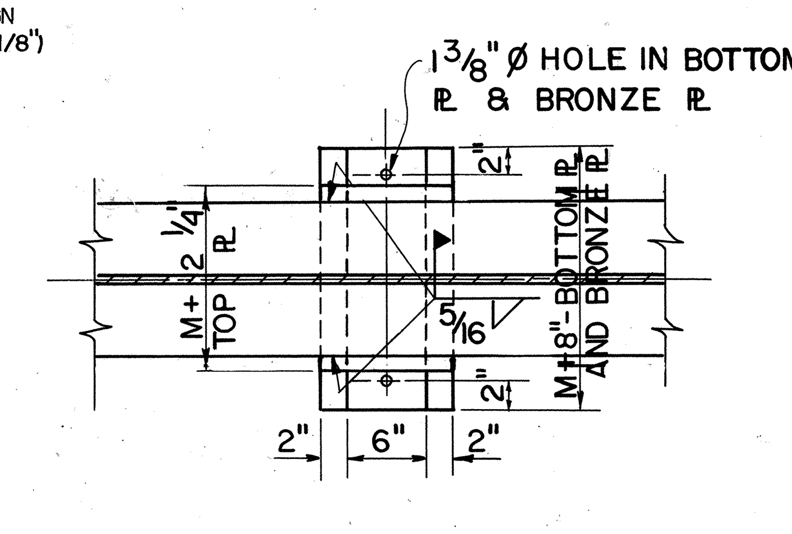
WELDING OF THE LOAD PLATE TO THE SUPERSTRUCTURE SHALL BE CONTROLLED SO THAT THE PLATE TEMPERATURE AT THE ELASTOMER BONDED SURFACE SHALL NOT EXCEED 400°F AS DETERMINED BY THE USE OF PYROMETRIC STICKS OR OTHER TEMPERATURE MONITORING DEVICES.

BEARING REPOSITIONING. IF DECK CONCRETE IS PLACED AT AN AMBIENT TEMPERATURE HIGHER THAN 80°F OR LOWER THAN 40°F. AND THE BEARING SHEAR DEFLECTION EXCEEDS ONE-SIXTH OF THE BEARING HEIGHT AT 60°F ± 10°F. THE BEAMS OR GIRDERS SHALL BE RAISED TO ALLOW THE BEARINGS TO RETURN TO THEIR UNDEFORMED SHAPE AT 60°F ± 10°F.

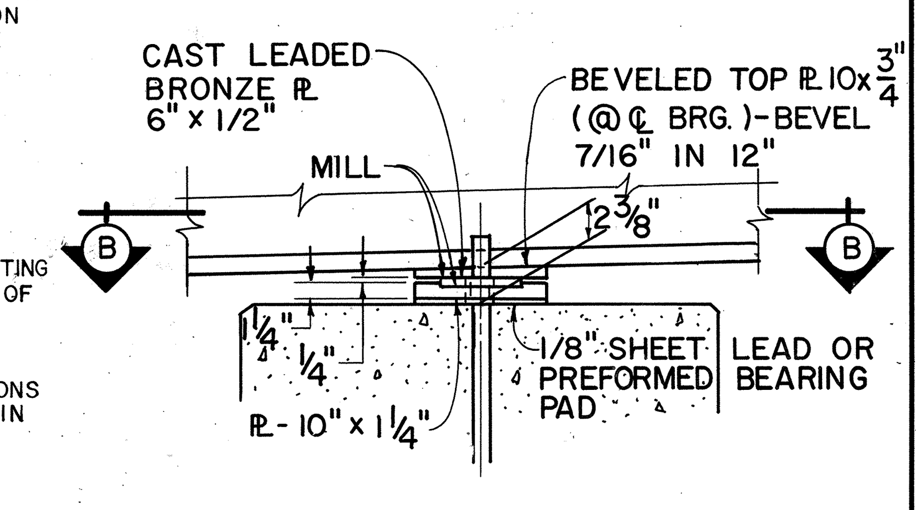
ELASTOMERIC TEST PAD: THE ELASTOMERIC BEARING MANUFACTURER SHALL SUPPLY A PLAIN ELASTOMERIC PAD FOR TESTING PURPOSES. THE PAD SHALL BE FURNISHED FROM THE SAME BATCH OF NEOPRENE THAT IS USED IN THE FABRICATION OF THE LAMINATED ELASTOMERIC BEARINGS AND THE FABRICATOR SHALL CERTIFY THE IDENTITY OF THE ELASTOMER. THE PAD SHALL HAVE A 1/2" INCH THICKNESS, AND SHALL HAVE MINIMUM LENGTH AND WIDTH DIMENSIONS OF 6 INCHES. PAYMENT FOR THE TEST PAD WILL BE INCLUDED IN THE PRICE BID FOR THE BEARINGS.

BEARING DESIGN LOADS:

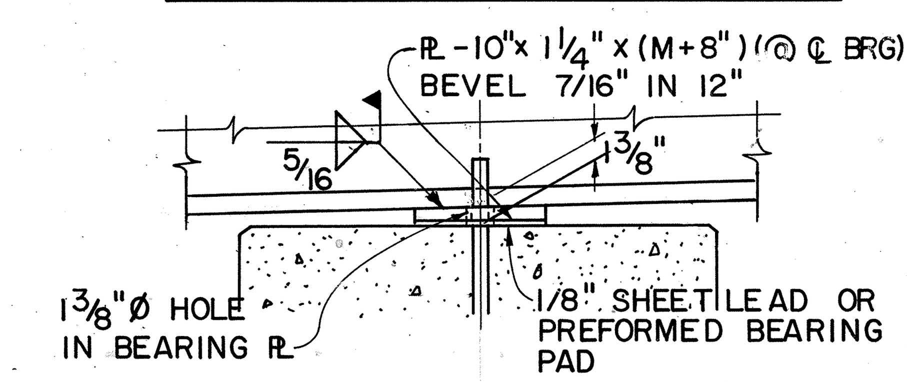
DEAD LOAD REACTION	=	22,900 LB
LIVE LOAD REACTION	=	37,400 LB
MAXIMUM DESIGN LOAD	=	60,300 LB



SECTION B-B

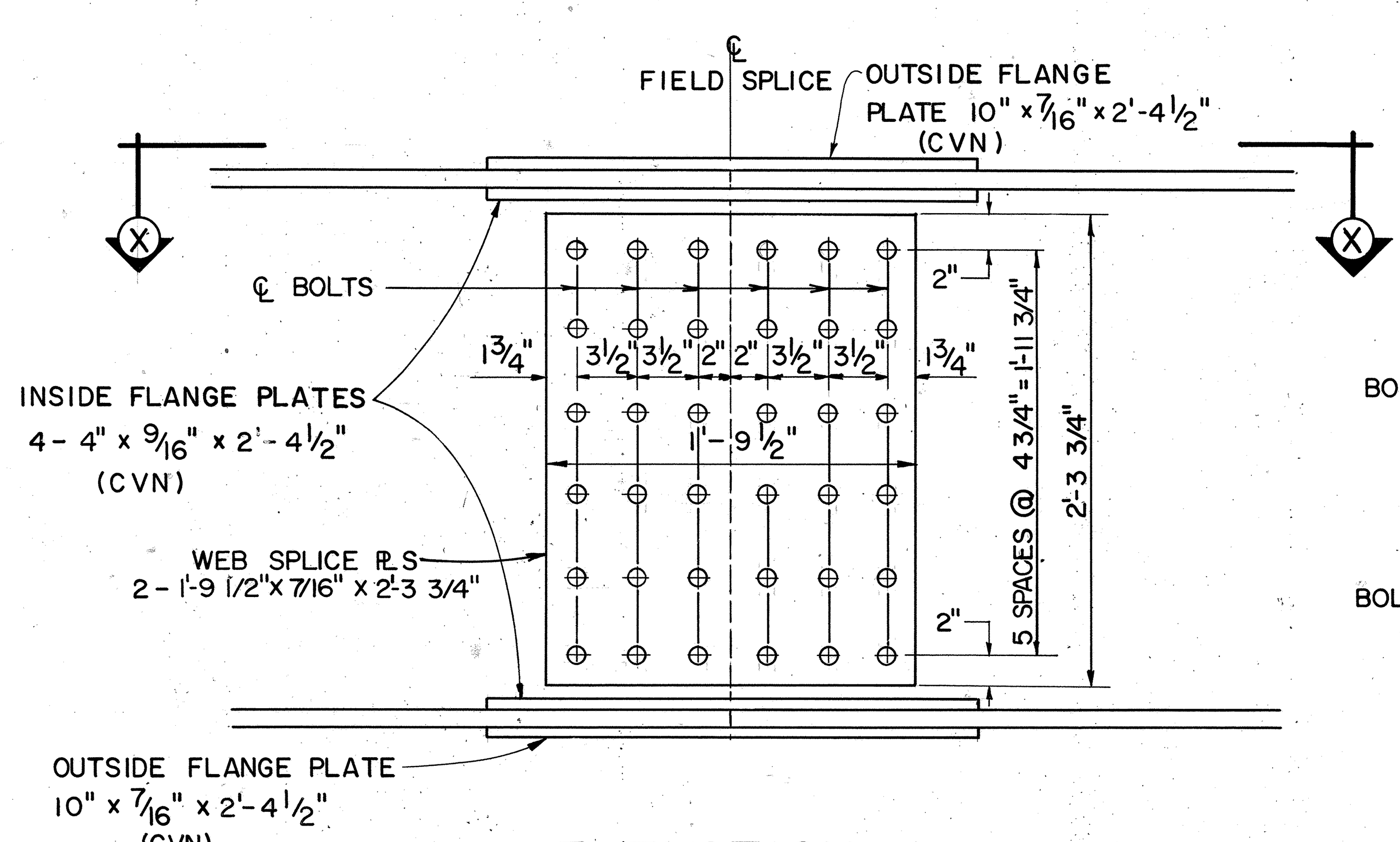


ELEVATION - EXPANSION (PIER 1)

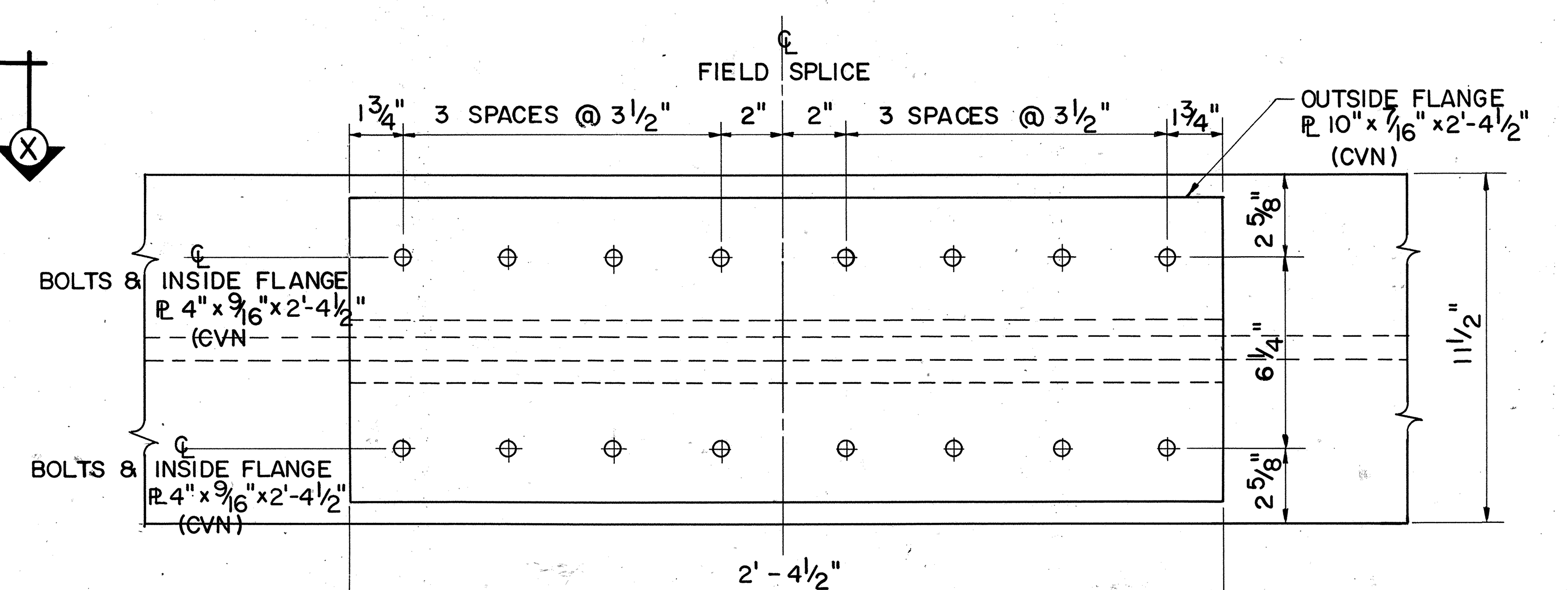


ELEVATION - FIXED (PIER 2)

PIER BEARING PLATES



ELEVATION



VIEW X-X

HIGH STRENGTH BOLTS SHALL BE 1" DIAMETER ASTM A325

FIELD SPLICE DETAILS

END CROSSFRAMES, AND BOLTED BEAM SPLICE DETAILS
SEE STANDARD DWG. SD-1-69, SHEETS 1-4. BOLTED BEAM SPLICE PLATES SHALL BE (CVN.)

COMPRESSION SEAL EXPANSION JOINT AT ABUTMENTS FOR STEEL STRINGER STRUCTURE: SEE STANDARD DWG. EXJ-2-81, SHEETS 1 AND 2.

WELDED ATTACHMENTS 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 NOT BE CLOSER THAN 1" FROM EDGE OF FLANGE, BE NOT MORE THAN 2" LONG, AND BE NOT SMALLER THAN THE MINIMUM SIZE REQUIRED BY AASHTO.

ENDS OF BEAMS B, C, D, E, AND F AS SHOWN ON THIS SHEET ARE TO BE TRIMMED IN ACCORDANCE WITH 513.07 SO AS TO BE VERTICAL AND PROVIDE AT LEAST 4 1/4" CLEARANCE FROM BACKWALLS FOR NEW EXPANSION JOINTS. COST OF WORK SHALL BE INCLUDED IN ITEM 202 FOR PAYMENT.

CVN: WHERE A SHAPE OR PLATE IS DESIGNATED (CVN) THE MATERIAL SHALL MEET SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS AS SPECIFIED IN 711.01 OF CMS.

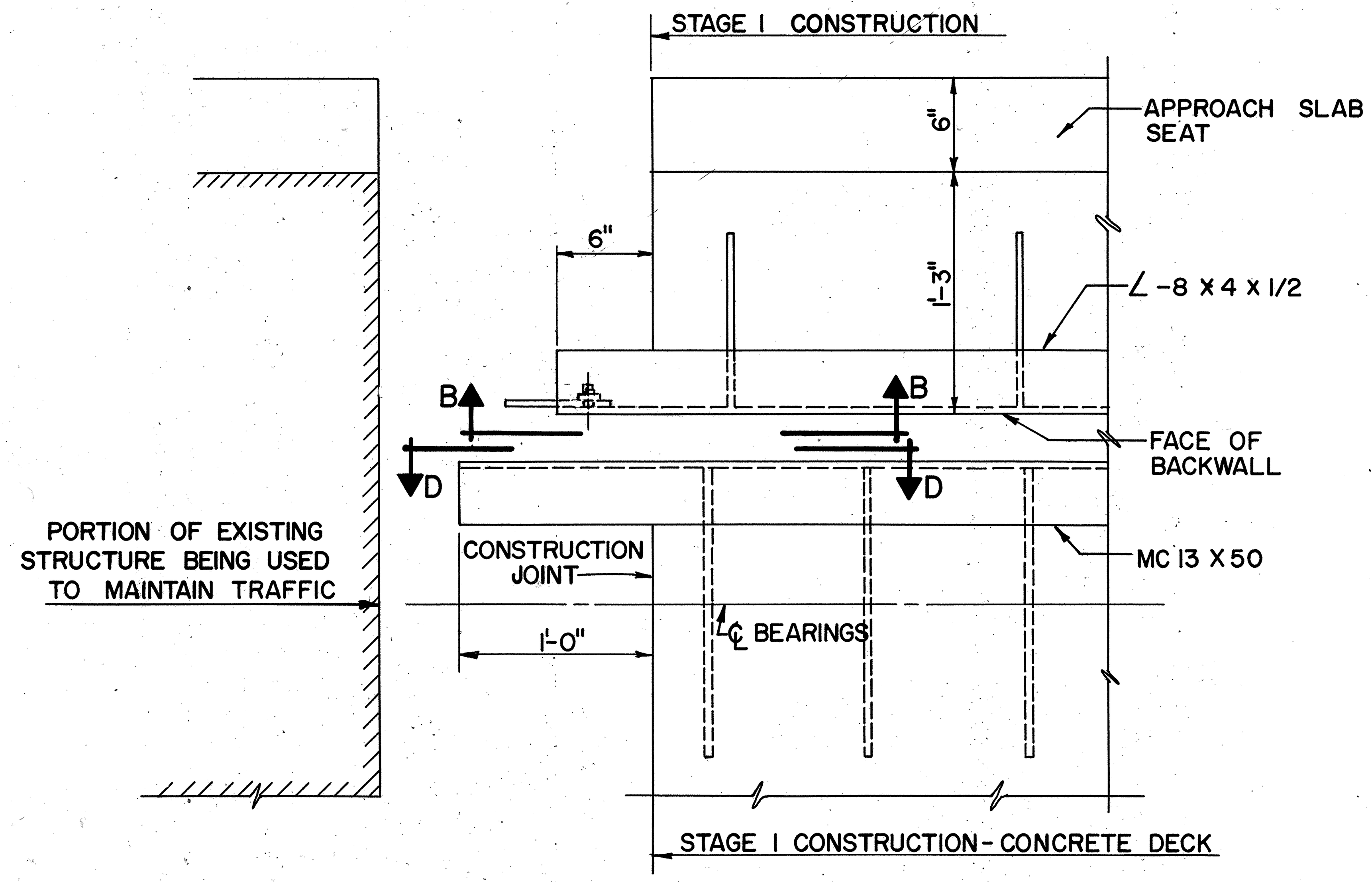
UNITED CONSULTANTS & ASSOCIATES
ENGINEERS • ARCHITECTS • SURVEYORS
1187 E. BROAD ST. COLUMBUS, OHIO 43205
10/12

SUPERSTRUCTURE DETAILS

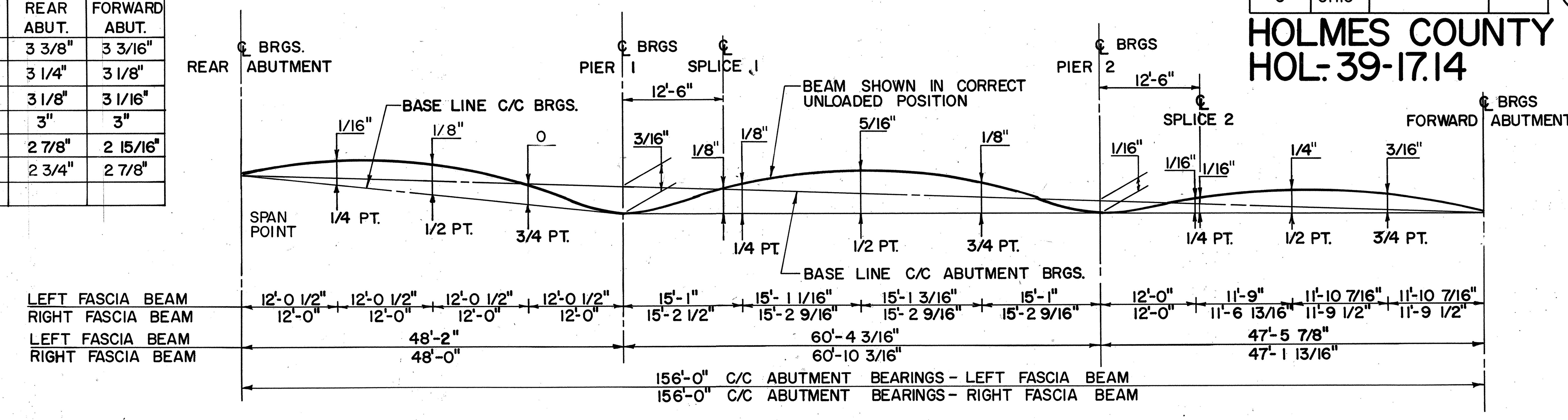
BRIDGE NO. HOL-39-17.14
OVER KILLBUCK CREEK

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JS	JS	JAF	MR	NAC	1/11/90	

HOLMES COUNTY
HOL-39-17.14



PART PLAN AT ABUTMENT
(FIELD SPLICE AT END DAM)

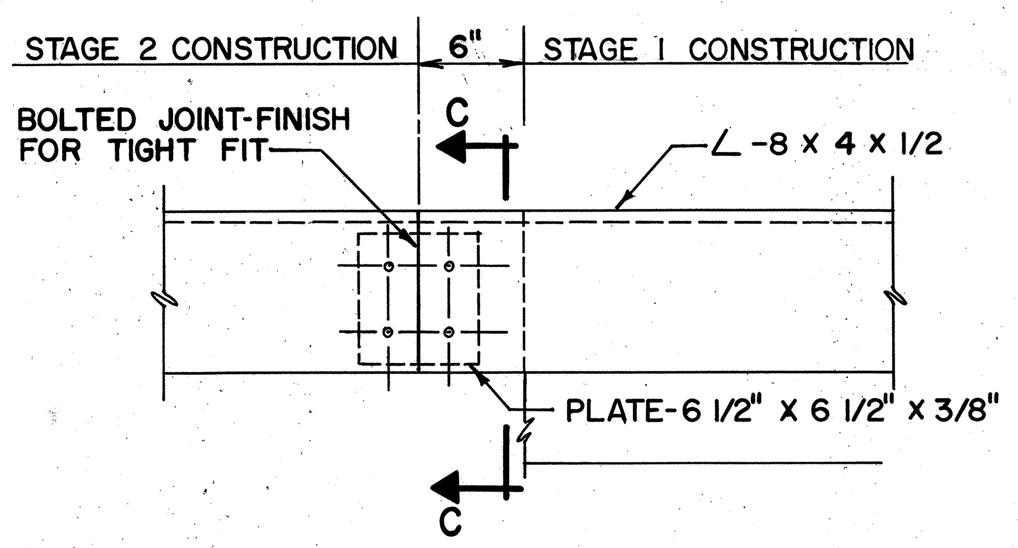


CAMBER DIAGRAM FOR NEW BEAMS

TABLE FOR DIMENSION A		
TEMP °F	REAR ABUT.	FORWARD ABUT.
15	3 3/8"	3 3/16"
30	3 1/4"	3 1/8"
45	3 1/8"	3 1/16"
60	3"	3"
75	2 7/8"	2 15/16"
90	2 3/4"	2 7/8"

DEFLECTION AND CAMBER - NEW BEAMS

	SPAN 1			PIER	SPAN 2				PIER	SPAN 3			
SPAN POINT	1/4	1/2	3/4	1	SPL.	1/4	1/2	3/4	2	SPL.	1/4	1/2	3/4
DEFLECTION DUE TO WEIGHT OF STEEL	0	1/16	0	0	0	0	1/16	0	0	0	0	1/16	0
DEFLECTION DUE TO REMAINING DEAD LOAD	3/16	3/16	1/16	0	1/8	1/8	1/4	1/8	0	1/16	1/16	3/16	3/16
ADJUSTMENT REQUIRED FOR VERTICAL CURVE	1/8	1/8	1/16	0	0	0	0	0	0	0	0	0	0
REQUIRED SHOP CAMBER	1/16	1/8	0	0	1/8	1/8	5/16	1/8	0	1/16	1/16	1/4	3/16

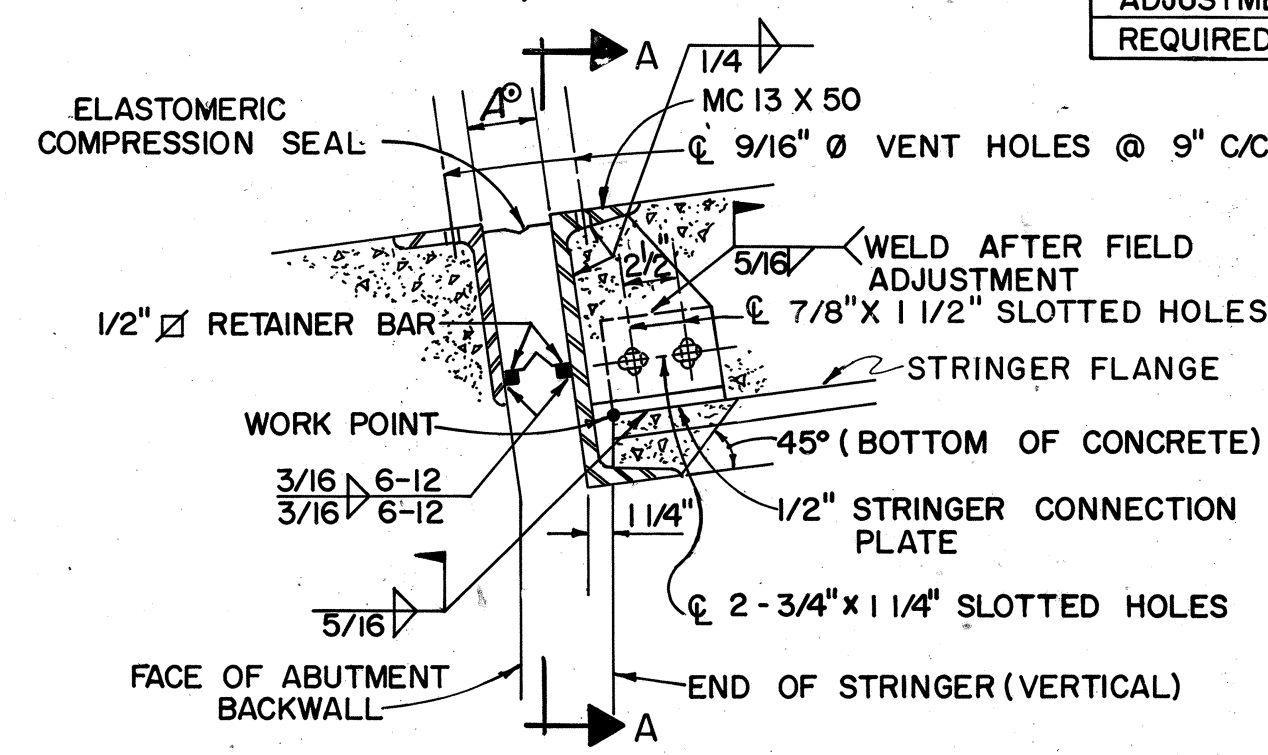


SECTION B-B

NOTE: TRANSVERSE JOINT IN THE SUPERSTRUCTURE ARMOR MC 13X50 SHALL BE A FULL PENETRATION BUTT WELD. BUTT WELD METAL IN CONTACT WITH COMPRESSION SEAL AND RETAINER BAR SHALL BE GROUND FLUSH.

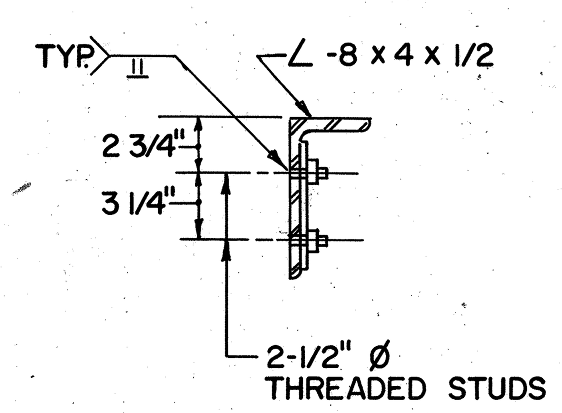
NOTE: JOINT SEAL SHALL BE INSTALLED IN ONE CONTINUOUS PIECE AFTER COMPLETION OF END DAM INSTALLATION.

⊙ FOR DIMENSION A, SEE TABLE ON THIS SHEET.

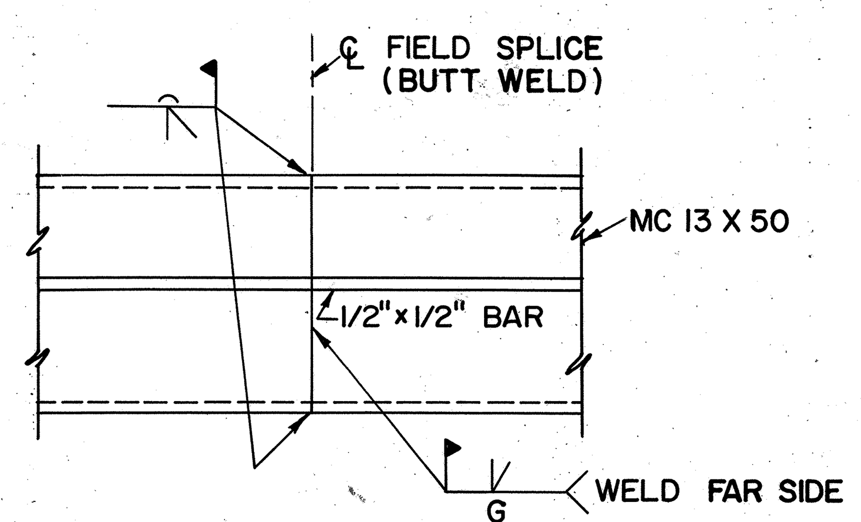


TYPICAL END DAM SUPPORT DETAIL

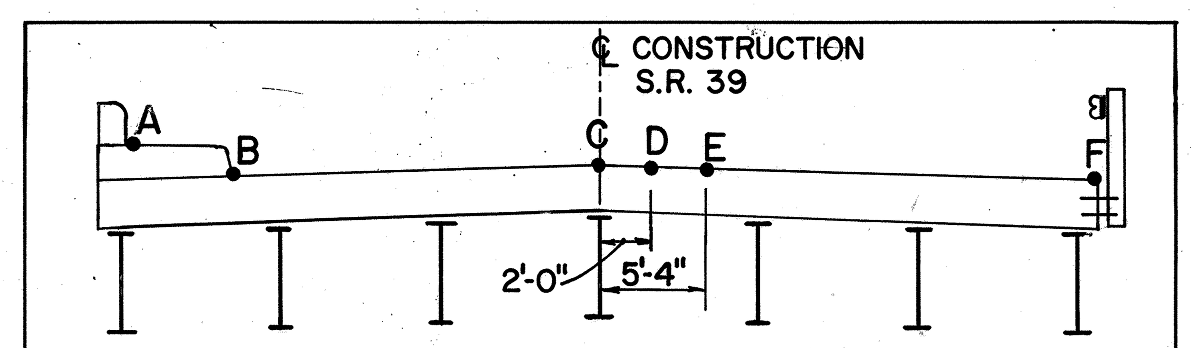
NOTE: FOR DETAILS NOT SHOWN REFER TO STANDARD DRAWINGS EXJ-2-81.



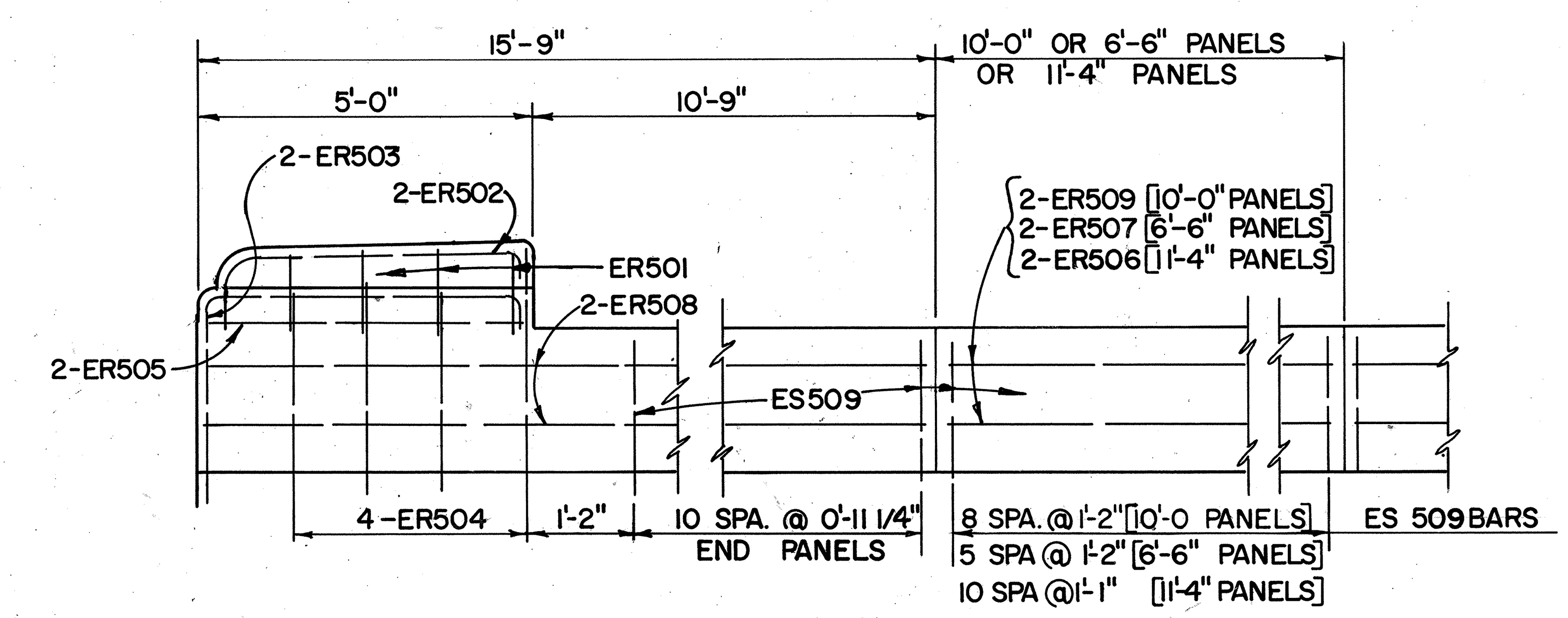
SECTION C-C



SECTION D-D

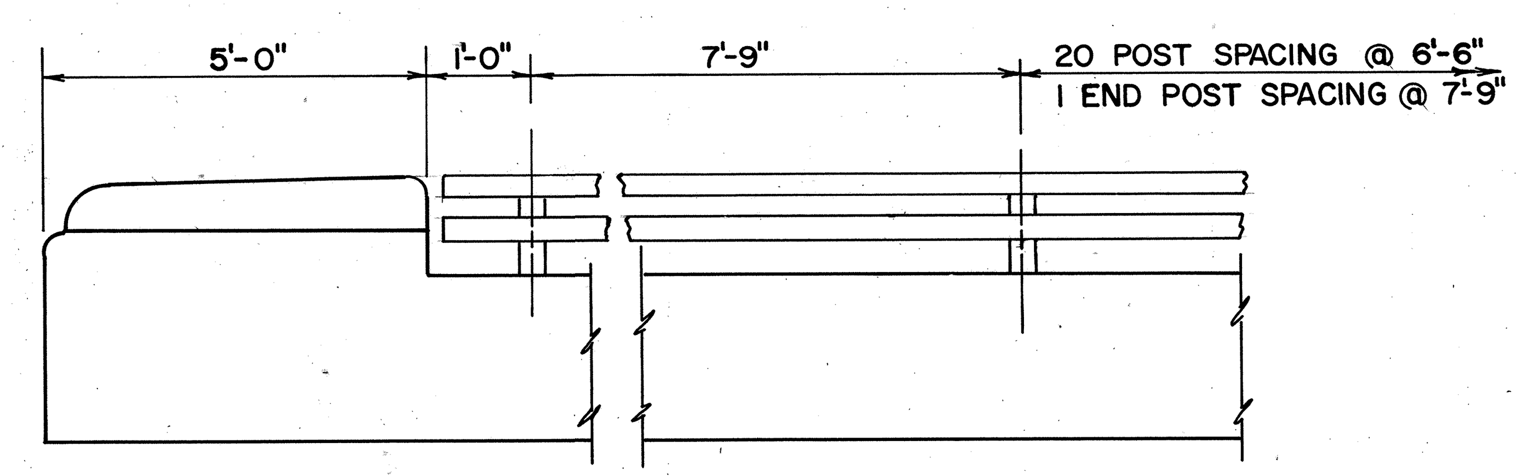


SCREED ELEVATIONS						
STATION	A	B	C	D	E	F
4+22.00	832.80	831.84	832.06	832.03	831.98	831.72
4+34.00	833.24	832.28	832.50	832.47	832.42	832.15
4+46.00	833.68	832.72	832.94	832.91	832.86	832.59
4+58.00	834.11	833.15	833.37	833.34	833.29	833.03
4+70.00	834.55	833.59	833.81	833.78	833.72	833.46
4+85.00	835.11	834.15	834.37	834.34	834.29	834.03
5+00.00	835.67	834.71	834.93	834.90	834.85	834.59
5+15.00	836.22	835.26	835.48	835.44	835.39	835.13
5+30.00	836.76	835.80	836.01	835.98	835.93	835.67
5+42.00	837.21	836.25	836.46	836.43	836.38	836.12
5+54.00	837.66	836.70	836.92	836.88	836.83	836.57
5+66.00	838.10	837.14	837.36	837.32	837.27	837.01
5+78.00	838.52	837.56	837.78	837.75	837.70	837.44



PART PARAPET ELEVATION

NOTE: FOR DETAILS NOT SHOWN HERE REFER TO STANDARD DRAWING BR-2-82



PARAPET POST SPACING DETAIL

UNITED CONSULTANTS & ASSOCIATES
ENGINEERS / ARCHITECTS / SURVEYORS
1187 E. BROAD ST COLUMBUS, OH. 43205

11/12

SUPERSTRUCTURE DETAILS
BRIDGE NO. HOL. 39-1714
OVER KILLBUCK CREEK

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JS	JG	JG	MR	NAC	1/11/90	

FHWA REGION	STATE	PROJECT		
5	OHIO			20/20

HOLMES COUNTY
HOL.-39-17.14

SUPERSTRUCTURE

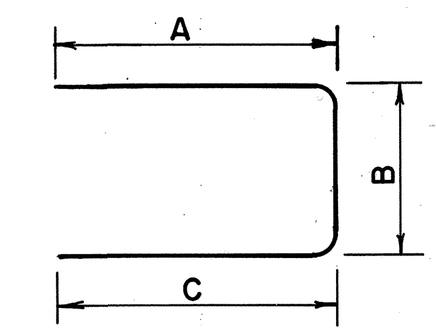
MARK	NO.	LENGTH	WGT.	TYPE	A	B	C	D	E	NOTE
ES501	205	30'-0"	6415	STR.						
ES502	41	24'-3"	1037	STR.						
ES503	252	19'-3½"	5071	STR.						
ES504	252	25'-11½"	6823	STR.						
ES505	30	30'-0"	939	STR.						
ES506	6	24'-3"	152	STR.						
ES507	127	5'-9"	762	1	3'-3"	1'-0"	1'-9"			
ES508	106	10'-5"	1152	2						
ES509	139	6'-6"	942	3	0'-8"	2'-7"				
ES401	270	30'-0"	5411	STR.						
ES402	54	24'-3"	875	STR.						
ES601	252	19'-3½"	7302	STR.						
ES602	252	25'-11½"	9825	STR.						
ES603	116	33'-2"	5779	STR.						
TOTAL WEIGHT OF EPOXY COATED REINFORCING STEEL GRADE 60 = 52,485 LBS.										
ER501	8	3'-3"	*	5						
ER502	4	6'-7"	*	6						
ER503	4	8'-11"	*	4						
ER504	8	8'-3"	*	3	0'-8"	3'-6"				
ER505	4	4'-8"	*	STR.						
ER506	12	11'-0"	*	STR						
ER507	32	6'-2"	*	STR.						
ER508	8	15'-5"	*	STR.						
ER509	16	9'-8"	*	STR.						

* INCLUDED WITH ITEM 517 RAILING (CONCRETE PARAPET WITH DOUBLE PIPE RAILS) FOR PAYMENT

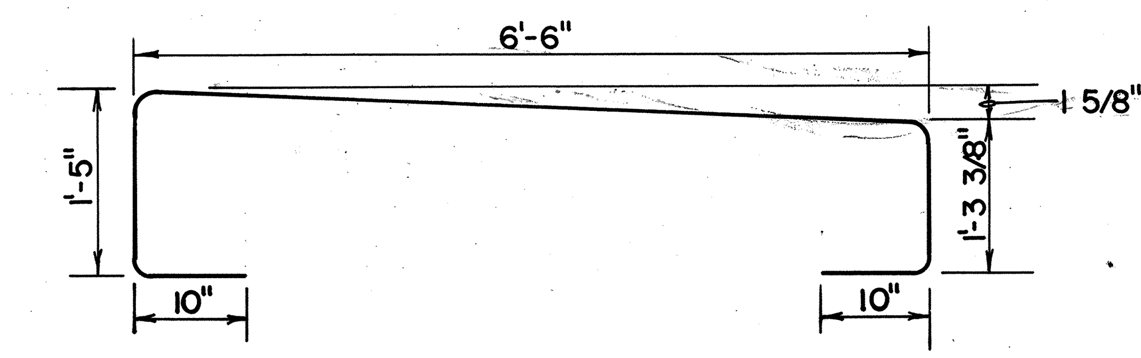
ABUTMENTS

MARK	NO.	LENGTH	WGT.	TYPE	A	B	C	D	E	NOTE
EA501	50	4'-10"	252	1	2'-2"	0'-9"	2'-2"			
EA502	8	31'-10"	266	STR.						
EA503	2	31'-10"	66	STR.						
EA504	8	29'-0"	242	STR						
EA505	2	29'-0"	60	STR.						
EA506	6	9'-4"	58	1	4'-2"	1'-3"	4'-2"			
EA507	4	11'-11"	50	STR.						
EA508	4	4'-5"	18	STR.						
EA509	4	7'-4"	31	1	3'-2"	1'-3"	3'-2"			
EA510	4	12'-0"	51	1	5'-7"	1'-1"	5'-7"			
EA511	4	9'-10"	41	1	4'-6"	1'-1"	4'-6"			
EA512	4	11'-11"	50	STR.						
EA601	50	5'-2"	388	1	2'-1"	1'-3"	2'-1"			
EA602	10	9'-0"	135	1	4'-0"	1'-3"	4'-0"			
D801	50	4'-6"	600	7						
TOTAL WEIGHT OF EPOXY COATED REINFORCING STEEL GRADE 60 = 1708 LBS										
TOTAL WEIGHT OF REINFORCING STEEL GRADE 60 =						600	LBS.			

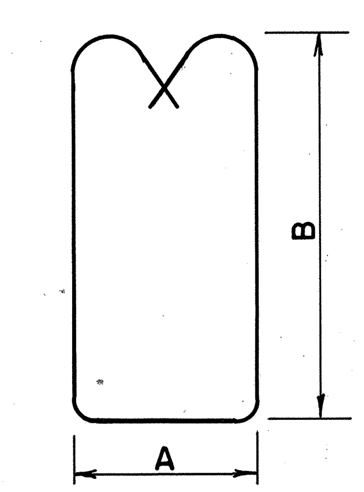
BENDING DIAGRAMS



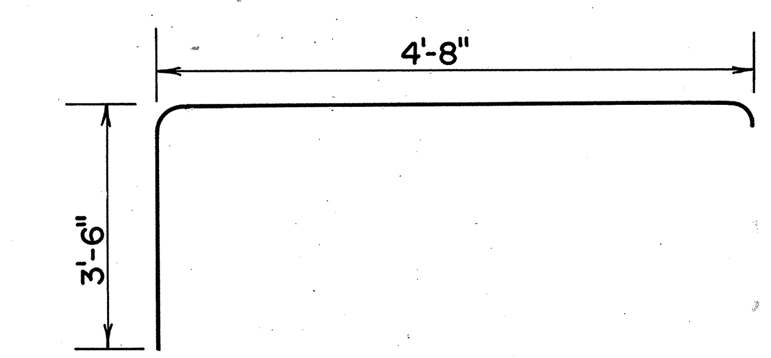
TYPE 1



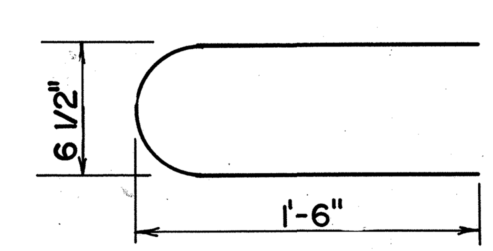
TYPE 2



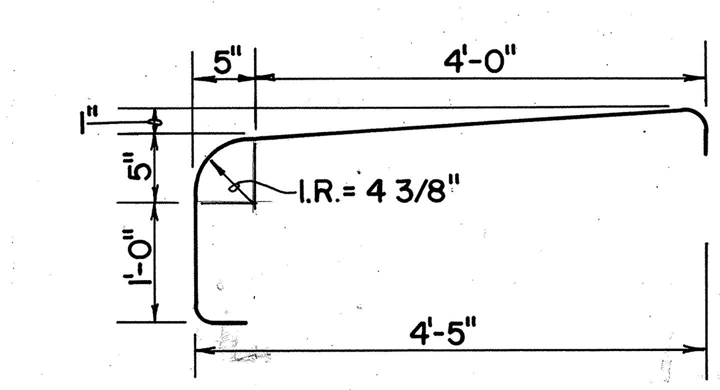
TYPE 3



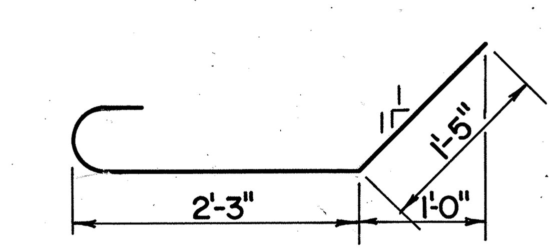
TYPE 4



TYPE 5



TYPE 6



TYPE 7

BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATE THE BAR SIZE NUMBER. FOR EXAMPLE, A700 IS NO.7 AND A1014 IS A NO. 10 SIZE. BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE INDICATED. R INDICATES INSIDE RADIUS, UNLESS OTHERWISE NOTED. "STD." WRITTEN IN PLACE OF A DIMENSION INDICATES A STANDARD BEND AT THE END OF THE BAR.

REINFORCING STEEL SAMPLES - REFER TO C.M.S. SECTIONS 106.03, 700, 709.01 THROUGH 709.08. SUFFICIENT ADDITIONAL REINFORCING STEEL SHALL BE PROVIDED FOR SAMPLING. RANDOM SAMPLES SHALL BE REPLACED IN THE STRUCTURES BY THE ADDITIONAL STEEL, SPLICED IN ACCORDANCE WITH 509.08

"E" IN PREFIX DESIGNATES EPOXY COATED.

UNITED CONSULTANTS & ASSOCIATES
ENGINEERS / ARCHITECTS / SURVEYORS
1187 E. BROAD ST. COLUMBUS, OH. 43205

12/12

REINFORCING STEEL LIST

BRIDGE NO. HOL-39-1714 OVER KILLBUCK CREEK

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JS	JG	–	MR	NAC	1/11/90	