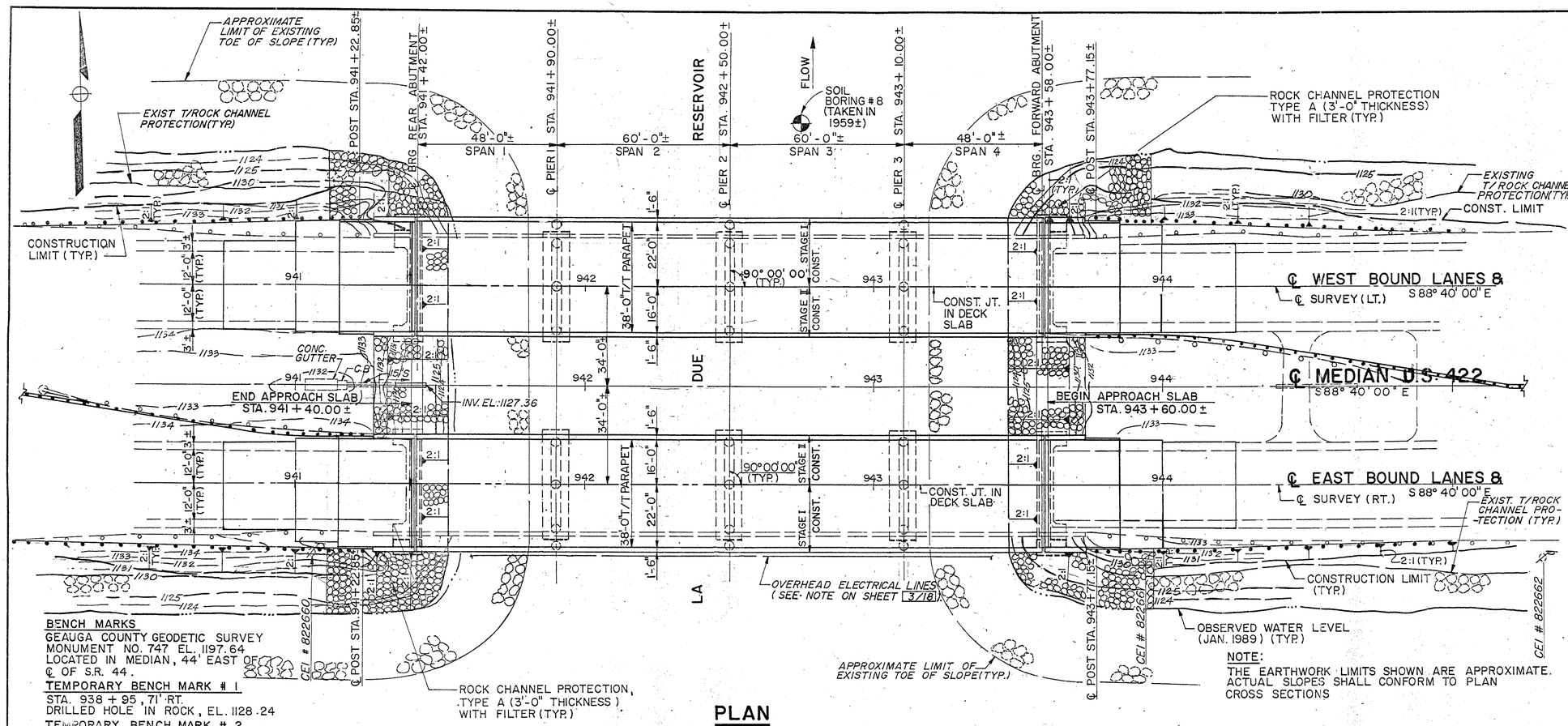
FHWA REGION	STATE	PROJECT	
5	OHIO		

14/31

GEAUGA COUNTY
GEA-422 - 9.82



PLAN

BENCH MARKS

GEAUGA COUNTY GEODETIC SURVEY MONUMENT NO. 747 EL. 1197.64 LOCATED IN MEDIAN, 44' EAST OF ℄ OF S.R. 44.

TEMPORARY BENCH MARK # 1

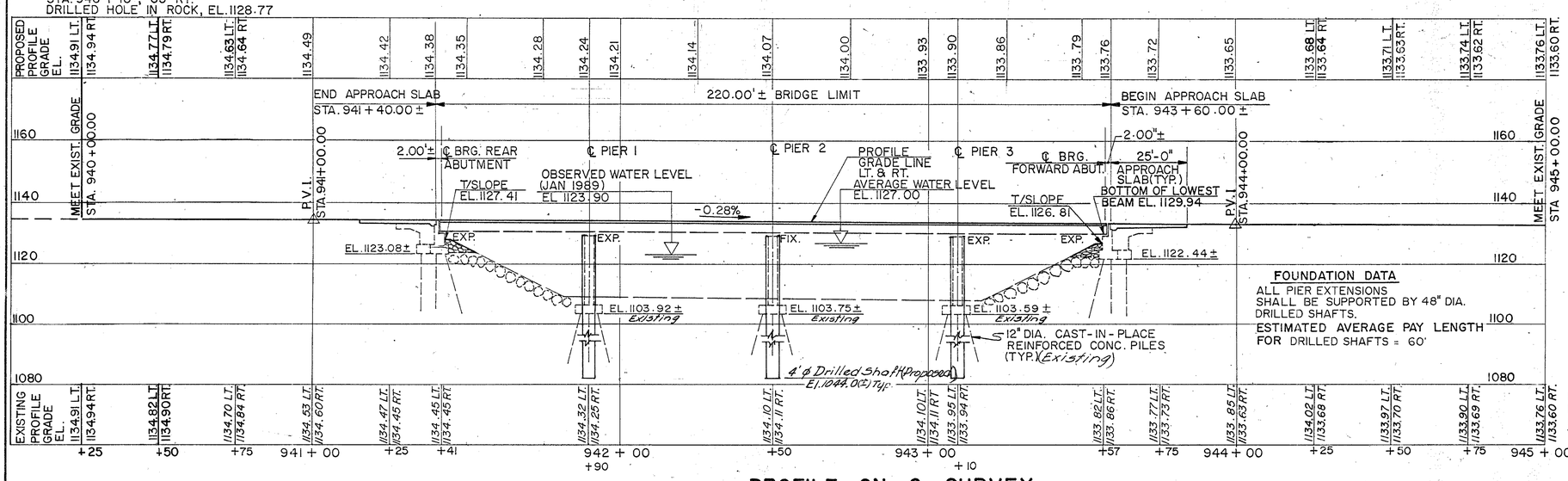
STA. 938 + 95, 71' RT.
DRILLED HOLE IN ROCK, EL. 1128.24

TEMPORARY BENCH MARK # 2

STA. 946 + 10, 65' RT.
DRILLED HOLE IN ROCK, EL. 1128.77

NOTE:

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



PROFILE ON ℄ SURVEY

HYDRAULIC DATA

LA DUE RESEVOIR

AVERAGE WATER EL.	:	1127.00
LOWEST WATER EL. (9-2-88)	:	1119.45
OBSERVED WATER EL. (JAN 89)	:	1123.90

TRAFFIC DATA

CURRENT ADT (1993)	=	2230 L.& R.
DESIGN YEAR ADT (2013)	=	3380 L.& R.
ADTT (2013)	=	237 L & R.

EXISTING STRUCTURE

TYPE	:	FOUR (4) SPAN CONTINUOUS STEEL BEAMS WITH REINFORCED CONCRETE DECK AND SUBSTRUCTURES.
SPANS	:	48', 60', 60' AND 48'
ROADWAY WIDTH	:	30'-0" FACE TO FACE OF SAFETY CURBS 34'-6" FACE TO FACE OF PARAPETS
SKEW	:	NONE
LOAD CAPACITY	:	CF = 2000
DECK	:	8 3/4" REINFORCED CONCRETE
WEARING SURFACE	:	LATEX MODIFIED CONCRETE
APPROACH SLABS	:	AS-1-54 (25'-0" LONG)
ALIGNMENT	:	ON TANGENT
DATE BUILT	:	1960±
STRUCTURE FILE NO.	:	2801655 LEFT BRIDGE, 2801744 RIGHT BRIDGE

PROPOSED STRUCTURE

TYPE	:	FOUR (4) SPAN CONTINUOUS COMPOSITE STEEL BEAMS WITH REINFORCED CONC. DECK AND SUBSTRUCTURE
SPANS	:	48', 60', 60' & 48'
ROADWAY WIDTH	:	38'-0" FACE TO FACE OF CURBS OF STANDARD BRIDGE RAILING BR-1
DESIGN LOADING	:	HS20-44 CASE II AND THE ALTERNATE MILITARY LOADING
SKEW	:	NONE
WEARING SURFACE	:	MONOLITHIC CONCRETE
APPROACH SLABS	:	AS-1-81 (25'-0" LONG)
ALIGNMENT	:	ON TANGENT
SUPER ELEVATION	:	NONE

FOUNDATION DATA

ALL PIER EXTENSIONS SHALL BE SUPPORTED BY 48" DIA. DRILLED SHAFTS.
ESTIMATED AVERAGE PAY LENGTH FOR DRILLED SHAFTS = 60'

REVIEWED BY BURGESS & NIPLE, LTD.
MPB 1-4-91

POLYTECH, INC. 1/18
CONSULTING ENGINEERS CLEVELAND, OHIO

SITE PLAN

BRIDGE NO. GEA-422-0982L/R
OVER LA DUE RESERVOIR
GEAUGA COUNTY
STA. 941 + 40.00 ± TO STA. 943 + 60.00 ±

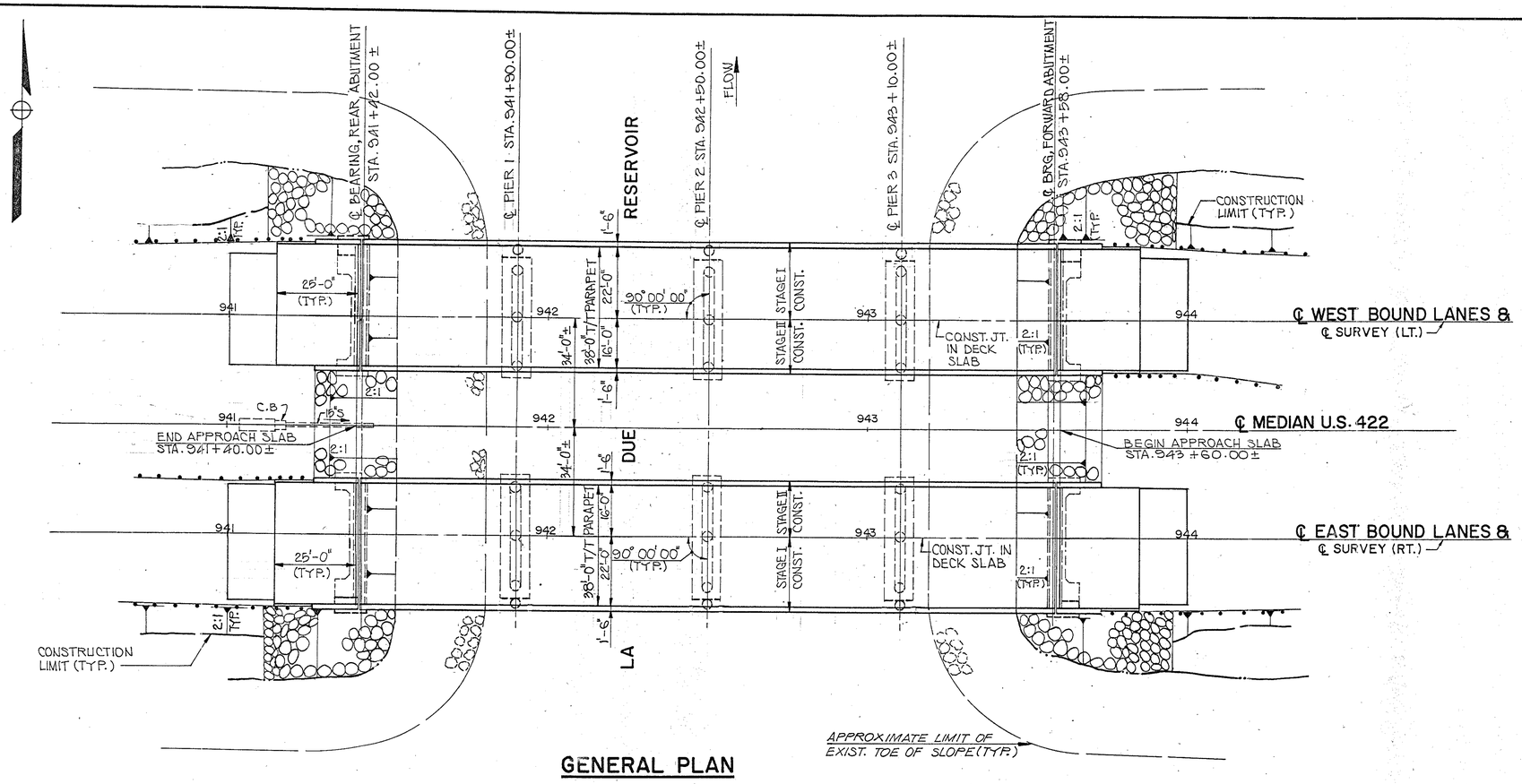
0 10 20

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JO	GS	GS.	CT	GA	12/90	

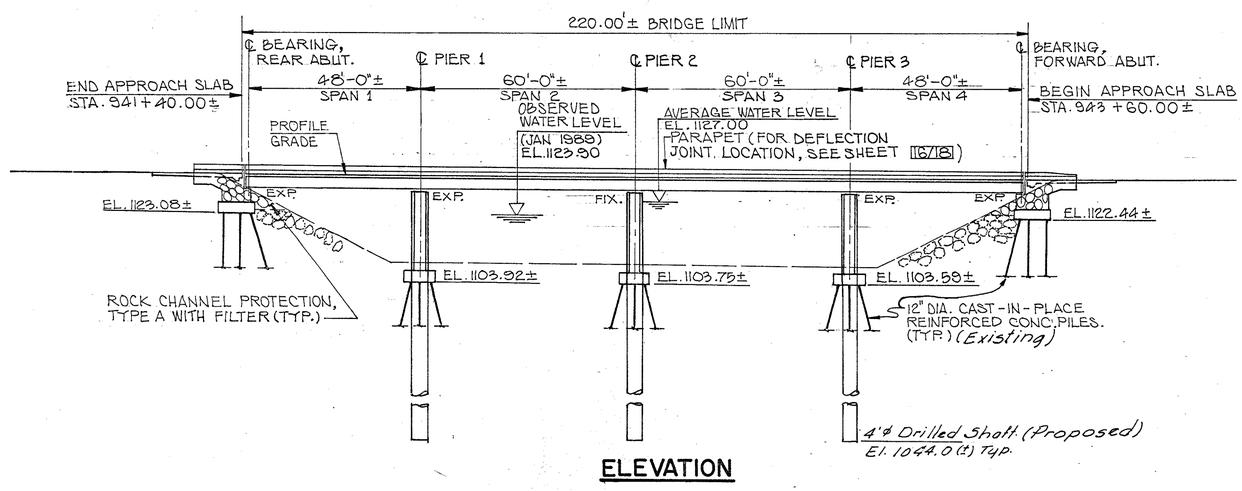
FHWA REGION	STATE	PROJECT	
5	OHIO		

15/31

GEAUGA COUNTY
GEA-422 — 9.82



GENERAL PLAN



ELEVATION

POLYTECH, INC.
CONSULTING ENGINEERS — CLEVELAND, OHIO

2/18

GENERAL PLAN & ELEVATION

BRIDGE NO. GEA. 422-0982 L/R
OVER LA DUE RESERVOIR
GEAUGA COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JO	GS	GS	CT	GA	12/90	

FHWA REGION	STATE	PROJECT	
5	OHIO		

GEAUGA COUNTY
GEA – 422 – 9.82

ESTIMATED QUANTITIES

QUANTITY CALCULATIONS	BY	DATE
CALC.	JO	12/90
CHKD.	CT	12/90

ITEM	ITEM EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUTMENTS	PIERS	SUPER STRUCTURE		GENERAL
202	11202	LUMP		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN					LUMP SUM
503	11100	LUMP		COFFERDAMS, CRIBS AND SHEETING					LUMP SUM
503	21300	LUMP		UNCLASSIFIED EXCAVATION	LUMP				
Special	50794900	360	Lin. Ft.	Drilled Shafts, 48" Diameter		360			
509	13400	500	POUND	REINFORCING STEEL, GRADE 60					500
509	15800	209,648	POUND	EPOXY COATED REINFORCING STEEL, GRADE 60	9,910	48,833	150,905		
510	11100	72	EACH	DOWEL HOLE	72				
SPECIAL	511 48000	463	CU. YD.	HIGH PERFORMANCE CONCRETE SUPERSTRUCTURE (DECK) *			463		
SPECIAL	511 48020	93	CU. YD.	HIGH PERFORMANCE CONCRETE SUPERSTRUCTURE (PARAPET) *			93		
SPECIAL	511 49500	70	CU. YD.	HIGH PERFORMANCE CONCRETE SUBSTRUCTURE (PIER COLUMNS) *		70			
SPECIAL	511 49500	82	CU. YD.	HIGH PERFORMANCE CONCRETE SUBSTRUCTURE (ABUTMENT) *	82				
512	33300	94	SQ. YD.	TYPE A WATERPROOFING	94				
512	44400	57	SQ. YD.	TYPE B WATERPROOFING	57				
SPECIAL	51267504	1168	SQ. YD.	SEALING OF CONCRETE SURFACES (NON-EPOXY) *	330		838		
513	11100	71,800	POUND	STRUCTURE STEEL, AISC CATEGORY I			71,800		
513	18700	20	EACH	BEARING DEVICE RESET ONLY	20				
513	20000	4,664	EACH	WELDED STUD SHEAR CONNECTOR			4,664		
514	00310	71,800	lbs FIELD	PAINTING OF NEW STEEL, SYSTEM IZEU*			71,800		
SPECIAL	51427704	LUMP		FIELD PAINTING, MISC. : EXISTING STEEL, SPOT CLEAN, SPOT PRIME, SPOT INTERMEDIATE AND SPOT FINISH COAT, SYSTEM OZEU *			LUMP SUM		
516	10500	164	LIN. FT.	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC COMPRESSION SEAL *			164		
518	21200	48	CU. YD.	POROUS BACKFILL with Filter Fabric	48				
519	11101	436	SQ. FT.	PATCHING CONCRETE STRUCTURE, AS PER PLAN (See Sht. 18)	436				

ITEM 202, PORTIONS OF STRUCTURE REMOVED SHALL INCLUDE THE ELEMENTS INDICATED IN THE PLANS AND GENERAL NOTES AND ARE NOT SEPARATELY LISTED FOR PAYMENT. THE FOLLOWING MAJOR ITEMS ARE INCLUDED:

ITEM

STRUCTURAL STEEL
SUPERSTRUCTURE CONCRETE
SUBSTRUCTURE CONCRETE
BRIDGE RAILING

* SEE PROPOSAL NOTE

GENERAL NOTES

DESIGN SPECIFICATIONS

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

SUPPLEMENTAL SPECIFICATIONS

REFERENCE SHALL BE MADE TO SUPPLEMENTAL SPECIFICATION 852 DATED 7/30/93 AND 849 DATED 12/24/85 AND 949 DATED 9/26/86.

REFERENCE DRAWINGS

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS AS-1-81 DATED 11/27/81, BR-1 DATED 5/29/79, EXJ-2-81 DATED 4/2/84, RB-1-55 DATED 2/2/59, AND SD-1-69 DATED 6/12/69 PCB-91 DATED 4/24/91

DESIGN DATA

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

HIGH PERFORMANCE CONCRETE – COMPRESSIVE STRENGTH Fc = 4,500 PSI FOR SUPERSTRUCTURE

HIGH PERFORMANCE CONCRETE – UNIT STRESS Fc = 1,333 PSI FOR SUBSTRUCTURE

REINFORCING STEEL – ASTM A615, A616, A617 – GRADE 60 – MINIMUM YIELD STRENGTH Fy = 60,000 PSI. FOR SUPERSTRUCTURE; UNIT STRESS 24,000 PSI FOR SUBSTRUCTURE.

STRUCTURAL STEEL – ASTM A36 – YIELD STRENGTH 36000 PSI.

DECK PROTECTION METHOD – EPOXY COATED REINFORCING STEEL, BOTH MATS, AND SEALING OF CONCRETE SURFACES.

WEARING SURFACE

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

EXISTING STRUCTURE VERIFICATION

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

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

PORTIONS OF STRUCTURE REMOVED

THE REMOVAL OF TEMPORARY RETAINING WALLS PLACED DURING ODOT PROJECT 854-91 SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 202 PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, WHICH SHALL CONSTITUTE FULL COMPENSATION FOR REMOVAL OF MATERIALS, FOR ALL LABOR, EQUIPMENT AND INCIDENTALS.

UTILITIES

THE FOLLOWING UTILITY FACILITIES ARE OBSERVED TO BE IN THE VICINITY OF THE EXISTING BRIDGE AS SHOWN ON THE SITE PLAN:.

A. CLEVELAND ELECTRIC ILLUMINATING COMPANY'S 33KV AND 4.8KV OVERHEAD POWER LINES

THE CONTRACTOR SHALL MAINTAIN THE REQUIRED MINIMUM SAFE DISTANCE FROM CEI'S HIGH VOLTAGE OVERHEAD LINES AND SHALL USE EXTREME CAUTION WHEN PERFORMING THE WORK TO AVOID DAMAGING THE UTILITY LINES AND THEIR FACILITIES. HE SHALL BE RESPONSIBLE FOR ALL EXPENSES ASSOCIATED WITH ANY SUCH DAMAGE CAUSED BY HIS OPERATIONS.

THE CONTRACTOR AND UTILITY OWNERS ARE REQUESTED TO COOPERATE BY SCHEDULING THEIR OPERATIONS IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO ALLOW UTILITY OWNER'S ACCESS TO THEIR FACILITY AT ALL TIMES IN CASE AN EMERGENCY SHOULD ARISE.

REMOVAL OF EXISTING STRUCTURE

A. THE CONTRACTOR SHALL REMOVE THE EXISTING STRUCTURE IN STAGES AS SHOWN ON THE PLANS AND TO THE LIMITS DIRECTED BY THE ENGINEER. PARTS DESIGNATED BY THE PLANS FOR REMOVAL MAY BE REMOVED BY METHODS OF THE CONTRACTOR'S SELECTION. REASONABLE CARE SHALL BE USED TO PREVENT REMOVED MATERIALS FROM FALLING IN THE RIVER WATER. MATERIAL FALLEN IN WATER SHALL BE REMOVED AT CONTRACTOR'S OWN EXPENSE.

THE CONTRACTOR SHALL EXERCISE EXTREME CARE WHEN SAW CUTTING THE EXISTING DECK SLAB TO AVOID CUTTING OR DAMAGING THE EXISTING STRUCTURAL STEEL DURING DECK SLAB REMOVAL. ANY DAMAGE TO THE EXISTING COVER PLATES AND/OR FLANGES AS A RESULT OF THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE DIRECTOR, ALL AT THE CONTRACTOR'S SOLE COST AND EXPENSE.

PLANS FOR TEMPORARY FALSEWORK AND PROTECTIVE STRUCTURE TO ENSURE THE PROTECTION TO BOAT TRAFFIC SHALL BE SUBMITTED FOR APPROVAL PRIOR TO THE START OF THE WORK. SEE SHEET 4/18 FOR THE REQUIREMENTS OF TEMPORARY FALSEWORK AND PROTECTIVE STRUCTURES.

THE PLANS OF THE EXISTING BRIDGE ARE AVAILABLE FOR PERUSAL AT THE OHIO DEPATMENT OF TRANSPORTATION'S DISTRICT 12 OFFICE.

B. THE REMOVAL SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

Revised 2-14-94

POLYTECH, INC.
CONSULTING ENGINEERS CLEVELAND, OHIO

3/18

ESTIMATED QUANTITIES AND GENERAL NOTES

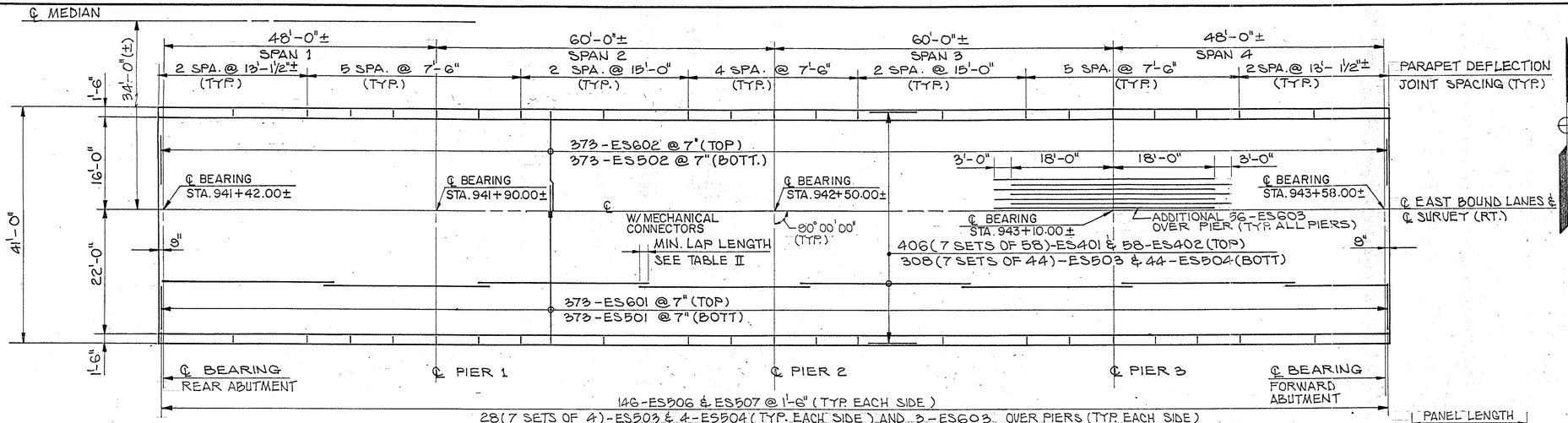
BRIDGE NO. GEA-422-0982 L/R
OVER LA DUE RESERVOIR
GEAUGA COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JO	MAC	–	CT	GA	12/90	1-18-91 ODOT

FHWA REGION	STATE	PROJECT	
5	OHIO		

29/31

GEAUGA COUNTY
GEA-422-9.82



DECK SLAB PLAN

TABLE I

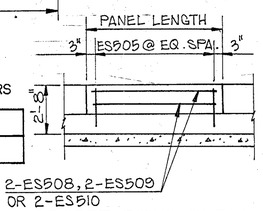
NUMBER OF PARAPET PANELS	LENGTH OF PANELS	LONGITUDINAL BAR DESIGNATION	ES505 BARS: NUMBER OF ES505 PER PANEL	ES505 BARS: SPACING
28	7'-6"	ES508	6	5@1'-4¾"
8	13'-1½"	ES509	10	9@1'-4¾"
8	15'-0"	ES510	11	10@1'-5⅜"

NOTES:

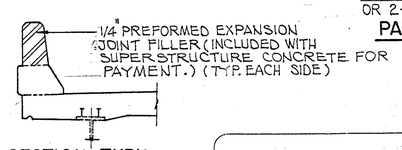
1. SLAB DEPTH: THE NOMINAL DECK SLAB DEPTH OVER BEAMS IS 8¾ INCHES. THE ACTUAL DECK SLAB DEPTH MAY BE MORE. IT SHOULD NOT BE LESS. AFTER COMPLETE REMOVAL OF THE EXISTING DECK SLAB, THE CONTRACTOR SHALL DETERMINE, AT VARIOUS LOCATIONS ALONG THE SPANS, ACTUAL TOP OF BEAM ELEVATIONS. THESE SHOULD BE DEDUCTED FROM THE SCREED ELEVATIONS FOR THE SAME LOCATIONS (OR PROPOSED SCREED ELEVATIONS AS DETERMINED FROM ADJACENT SCREED ELEVATIONS) TO OBTAINED ACTUAL SLAB DEPTHS. FOR DEPTHS LESS THAN 8¾ INCHES, THE DIRECTOR SHALL BE NOTIFIED TO DETERMINE THE SUITABILITY OF THE PROPOSED WORK PRIOR TO DECK FORMING AND CONCRETE PLACEMENT. THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED ON THE NOMINAL DECK SLAB DEPTH GIVEN ABOVE.
2. A TYPICAL HAUNCH WIDTH OF 9 INCHES SHALL BE USED FOR COMPUTING QUANTITY OF CONCRETE. HOWEVER, THE HAUNCH WIDTH MAY VARY BETWEEN 6 INCHES AND 12 INCHES, PROVIDED THAT THE SLOPE IS NOT MORE THAN 1:4 FOR A HAUNCH LESS THAN 9 INCHES IN WIDTH.
3. ALL BARS IN DECK SHALL BE EPOXY COATED. THESE BARS ARE PRE-FIXED E.
4. DRIP GROOVES SHALL TERMINATE 2'-0" FROM THE FACES OF ABUTMENTS.
5. TOP OF FINAL PAVEMENT ELEVATIONS ARE GIVEN ALONG CENTERLINE OF BEAMS.
6. DECK SCREED ELEVATIONS SHOWN ARE GIVEN AT TOP OF CONCRETE DECK AND ARE REQUIRED BEFORE THE CONCRETE IS PLACED. PROPER ALLOWANCE HAS BEEN MADE FOR DEAD LOAD DEFLECTIONS DUE TO CONCRETE.
7. FOR STAGE CONSTRUCTION DETAILS SEE SHEET 17/18 AND ROADWAY PLANS.
8. DECK SLAB PLAN, TYPICAL CROSS SECTION AND ELEVATIONS SHOWN ARE FOR EASTBOUND LANE. THE WESTBOUND LANE DECK SLAB SHALL BE OPPOSITE HAND.

TABLE II
MINIMUM LAP LENGTHS FOR EPOXY COATED BARS

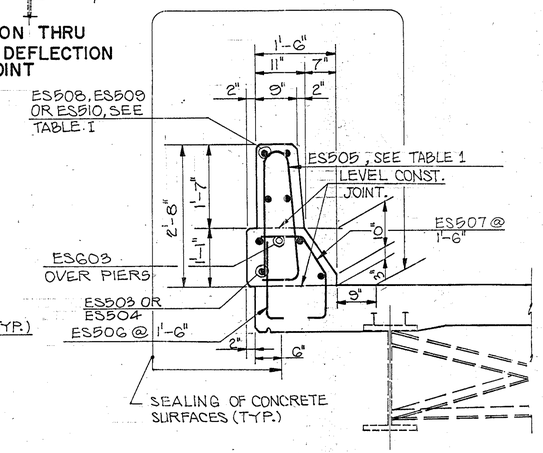
#4 BAR	1'-9"
#5 BAR	2'-0"



PARAPET PANEL DETAIL



SECTION THRU PARAPET DEFLECTION JOINT



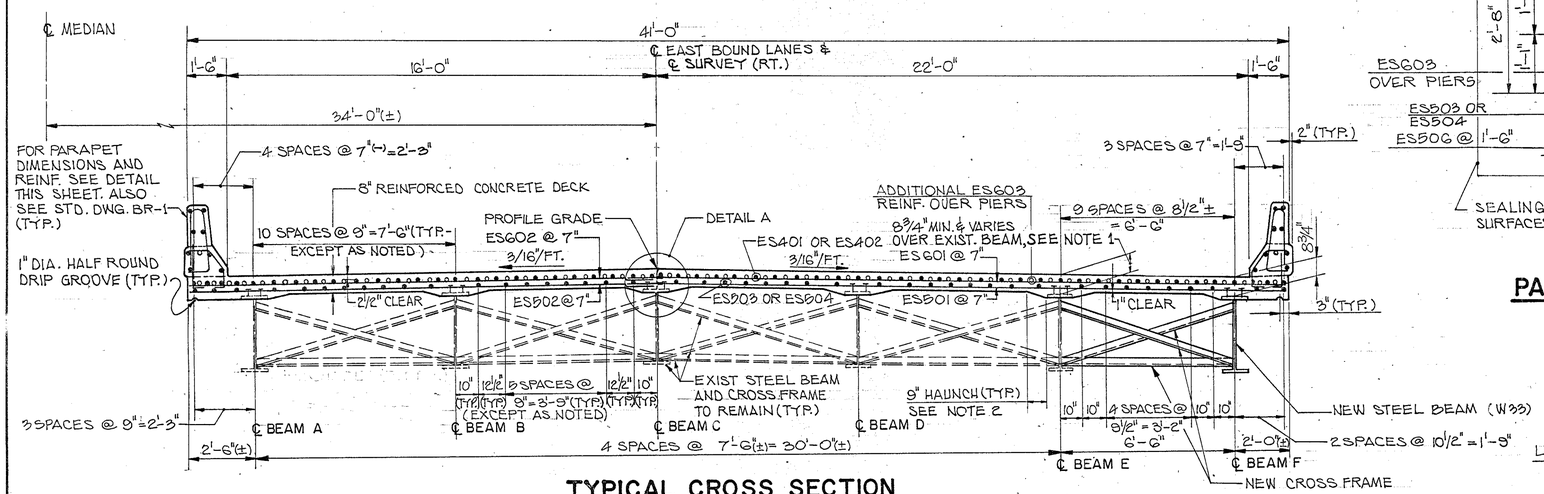
PARAPET DETAIL

TOP OF FINAL PAVEMENT ELEVATIONS (TOP OF PORTLAND CEMENT CONCRETE)

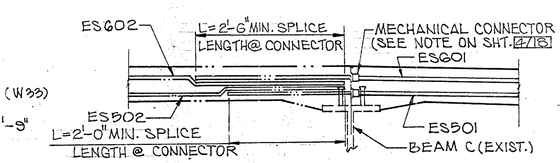
AT BEAM	SPAN 1: ℄ BRG, REAR ABUTMENT	1/4 SPAN	1/2 SPAN	℄ FIELD SPLICE 1	3/4 SPAN	SPAN 2: PIER 1	1/4 SPAN	1/2 SPAN	3/4 SPAN	℄ FIELD SPLICE 2	℄ PIER 2	SPAN 3: 1/4 SPAN	1/2 SPAN	3/4 SPAN	℄ FIELD SPLICE 3	℄ PIER 3	SPAN 4: 1/4 SPAN	1/2 SPAN	3/4 SPAN	℄ BRG, FORWARD ABUTMENT
A	1134.13	1134.10	1134.07	1134.03	1134.03	1134.00	1133.86	1133.91	1133.87	1133.87	1133.83	1133.79	1133.75	1133.70	1133.70	1133.66	1133.63	1133.60	1133.56	1133.53
B	1134.26	1134.22	1134.19	1134.16	1134.15	1134.12	1134.08	1134.03	1133.99	1133.98	1133.95	1133.91	1133.87	1133.82	1133.82	1133.78	1133.75	1133.72	1133.68	1133.65
C	1134.37	1134.34	1134.31	1134.27	1134.27	1134.24	1134.20	1134.15	1134.11	1134.11	1134.07	1134.03	1133.99	1133.94	1133.94	1133.90	1133.87	1133.84	1133.80	1133.77
D	1134.29	1134.22	1134.19	1134.16	1134.15	1134.12	1134.08	1134.03	1133.99	1133.99	1133.96	1133.91	1133.87	1133.82	1133.82	1133.78	1133.75	1133.72	1133.68	1133.65
E	1134.13	1134.10	1134.07	1134.03	1134.03	1134.00	1133.96	1133.91	1133.87	1133.87	1133.83	1133.79	1133.75	1133.70	1133.70	1133.66	1133.63	1133.60	1133.56	1133.53
F	1134.04	1134.01	1133.98	1133.94	1133.94	1133.91	1133.87	1133.82	1133.78	1133.78	1133.74	1133.70	1133.66	1133.61	1133.61	1133.57	1133.54	1133.51	1133.47	1133.44

DECK SCREED ELEVATIONS (TOP OF PORTLAND CEMENT CONCRETE) (SEE NOTE 7)

	SPAN 1: ℄ BRG, REAR ABUTMENT	1/4 SPAN	1/2 SPAN	℄ FIELD SPLICE 1	3/4 SPAN	SPAN 2: PIER 1	1/4 SPAN	1/2 SPAN	3/4 SPAN	℄ FIELD SPLICE 2	℄ PIER 2	SPAN 3: 1/4 SPAN	1/2 SPAN	3/4 SPAN	℄ FIELD SPLICE 3	℄ PIER 3	SPAN 4: 1/4 SPAN	1/2 SPAN	3/4 SPAN	℄ BRG, FORWARD ABUTMENT
LEFT GUTTER	1134.12	1134.10	1134.07	1134.03	1134.03	1133.99	1133.96	1133.92	1133.87	1133.86	1133.82	1133.79	1133.75	1133.70	1133.69	1133.65	1133.62	1133.60	1133.56	1133.52
℄ SURVEY	1134.37	1134.35	1134.32	1134.28	1134.28	1134.24	1134.21	1134.17	1134.12	1134.11	1134.07	1134.04	1134.00	1133.95	1133.94	1133.90	1133.87	1133.85	1133.81	1133.77
RIGHT GUTTER	1134.03	1134.01	1133.97	1133.93	1133.93	1133.89	1133.86	1133.83	1133.78	1133.77	1133.73	1133.69	1133.66	1133.61	1133.60	1133.56	1133.53	1133.50	1133.47	1133.42



TYPICAL CROSS SECTION



DETAIL A

POLYTECH, INC. 16/18
CONSULTING ENGINEERS CLEVELAND, OHIO

DECK SLAB PLAN & TYPICAL CROSS SECTION

BRIDGE NO. GEA-422-0982 L/R
OVER LA DUE RESERVOIR
GEAUGA COUNTY

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JO	GS	GS	CT	GA	12/90	