STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

CUY-480-25.76
CITY OF BEDFORD HEIGHTS
VILLAGE OF OAKWOOD
CUYAHOGA COUNTY

CUY-480-25.76	OHIO
	FHWA REGION 5
IM - 480 - 4(78)	FEDERAL PROJECT

1 / 111

CUYAHOGA COUNTY
PID 10468

DESIGN DESIGNATION

		CUY-480-25.77/25.85	CUY-480-29.89
CURRENT ADT (1999)	=	44,510	36,900
DESIGN YEAR ADT (2019)	=	57,860	47,970
DHV	=	5,786	4,797
D	=	60%	60%
T24	=	15%	12%
TD	=	9%	7%
DESIGN SPEED	=	60 Mph	60 Mph
LEGAL SPEED	=	60 Mph	60 Mph
FUNCTIONAL CLASSIFICATION	=	Interstate	Interstate
DESIGN EXCEPTIONS	=	NONE	NONE

PROJECT DESCRIPTION: Deck replacement of bridges CUY-480-2577 L&R and deck replacement and widening of bridges CUY-480-2585L and CUY-480-2989R, including approach reconstruction.

CONVENTIONAL SIGNS

County Line
Township Line
Section Line
Corporation Line
Fence Line (existing) (proposed)
Center Line
Trees, Stumps, (to be removed)
Utility Poles: Telephone, Power, Light.
Water Line (existing) (proposed)
Fire Hydrant (existing) (proposed)
Gas Line (existing) (proposed)
Conduits: Electrical
Storm Sewer (existing) (proposed)
Sanitary Sewer (existing) (proposed)
Catch Basin or inlet: Existing Adjusted To Grade Proposed
Manhole: Existing Adjust To Grade Proposed Storm Sanitary
Utility Valve
Signs: Existing Proposed

Limited Access (only)
Right of Way (only)
Limited Access & Right of Way
Existing Right of Way
Property Line (in existing fence)
Railroad
Guardrail (existing) (proposed)
Telephone

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LINE DATA

I-480 EASTBOUND (LANE S-95)

PROJECT LIMITS = STA. 103+00.00 TO STA. 106+50.00 = 350.00 L.F. = 0.066 Mi
WORK LIMITS = STA. 95+42.00 TO STA. 113+10.00 = 1768.00 L.F. = 0.335 Mi

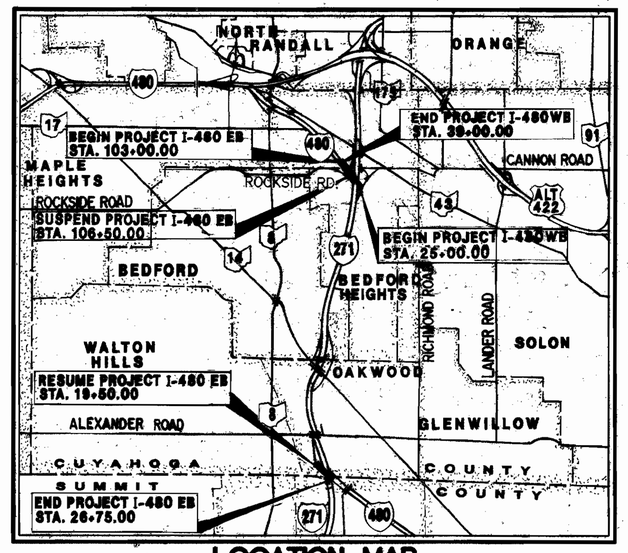
I-480 EASTBOUND (LANE N-14)

PROJECT LIMITS = STA. 19+50.00 TO STA. 26+75.00 = 725.00 L.F. = 0.137 Mi.
WORK LIMITS = STA. 19+25.00 TO STA. 30+10.00 = 1085.00 L.F. = 0.206 Mi.

I-480 WESTBOUND (LANE S-96)

PROJECT LIMITS = STA. 26+00.00 TO STA. 34+25.00 = 825.00 L.F.
STA. 35+35.00 TO STA. 39+00.00 = 365.00 L.F.
1190.00 L.F. = 0.225 Mi.
WORK LIMITS = STA. 22+65.00 TO STA. 46+58.00 = 2393.00 L.F. = 0.453 Mi.

TOTAL PROJECT LENGTH = 2265.00 L.F. = 0.429 Mi
TOTAL WORK LENGTH = 5246.00 L.F. = 0.994 Mi



LOCATION MAP

SCALE IN MILES
0 1 2 3 4

Portion to be improved
State & Federal Routes
Other roads

LATITUDE: N 41° 24' 30" N 41° 24' 25" N 41° 21' 0"
LONGITUDE: W 81° 30' 24" W 81° 30' 20" W 81° 30' 40"

LIMITED ACCESS

This improvement is especially designed for through traffic and has been declared a Limited Access Highway or Freeway by action of the Director in accordance with the provisions of Section 5511.02 of the Revised Code of Ohio.

1997 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.

UNDER AUTHORITY OF SECTION 4511.21, DIVISION (1) OF THE REVISED CODE OF OHIO, THE REVISED PRIMA FACIE SPEED LIMITS AS INDICATED HEREIN ARE DETERMINED TO BE REASONABLE AND SAFE, AND ARE HEREBY ESTABLISHED FOR THE DURATION OF THIS PROJECT. THE PRIMA FACIE SPEED LIMIT OR LIMITS HEREBY ESTABLISHED SHALL BECOME EFFECTIVE WHEN APPROPRIATE SIGNS GIVING NOTICE THEREOF ARE ERECTED.

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

SCALES

Plan 0 20' 40'
Profile: Horizontal 0 20' 40', Vertical 0 5' 10'
Cross Section: Horizontal 0 5' 10', Vertical 0 5' 10'

SUPPLEMENTAL SPECIFICATIONS			
NUMBER	DATE	NUMBER	DATE
806	9-9-97		
828	7-28-98		
830	10-21-98		
842	1-6-99		
843	5-5-98		
844	1-6-99		
846	9-9-97		
899	10-21-98		

Approved [signature]
Date 9/28/99 District Deputy Director Of Transportation

Approved Gordon Proctor [signature]
Date 2-18-99 Director, Department of Transportation

STATE OF OHIO EVA D. VARGAS E-51032 REGISTERED PROFESSIONAL ENGINEER

Plans Prepared By:
POLYTECH INC.
1744 PAYNE AVENUE
CLEVELAND, OHIO 44114
ENGINEERS • ARCHITECTS

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS									
DRWG.	DATE	DRWG.	DATE	DRWG.	DATE	DRWG.	DATE	DRWG.	DATE
BP-1.1	2/21/92	GR-1.1M	10/21/97			TC-41.10	8/29/84	MT-95.40	10/01/92
BP-2.1M	10/21/97	GR-1.2M	1/3/96	MC-7	10/15/76	TC-41.20	6/21/94	MT-95.30	10/10/88
BP-2.2M	10/21/97	GR-1.3	2/21/92	MC-10	5/1/76	TC-52.10	4/3/79		
BP-2.3M	10/28/94	GR-2.1M	4/14/98			TC-52.20	4/3/79	MT-99.20	04/29/88
BP-2.5M	4/8/97	GR-3.1M	10/21/97			TC-21.20	9/1/92		
BP-3.1	2/21/92	GR-3.2M	10/21/97			TC-81.20	1/20/84		
BP-5.1	10/28/94	GR-4.2M	10/21/97	AS-1-81	9/15/94	TC 84.20	1/20/84	MT-101.60	07/01/92
BP-81.M	4/8/97			EXJ-4-87	2/14/97	TC-85.20	1/20/84		
CB-2.2M	7/12/95	HW-2.1M	7/12/95	PCB-91	4/24/92	HL-10.13	5/1/87	MT-105.10	07/01/92
				RB-1-55	2/2/59	HL-20.14	5/1/87	MT-105.11	07/01/92
DM-1.1M	10/21/97	RM-4.2M	6/30/95	BS-1-93	12/19/94	HL-30.11	5/1/87	MT-102.10	08/25/89
DM-1.2M	6/30/95	RM-4.3M	10/21/97	TC-35.10	8/29/84	HL-30.31	5/1/87		

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ADMINISTRATOR DATE

Project: CUY-480-25.76, PID 10468
Date of Letting _____ 19__ Contract No. _____

CUY-480-25.76
990281
DIST. 12
05-12-99
PID# 10468

SCHEMATIC PLAN

FHWA REGION	STATE	PROJECT	
5	OHIO		

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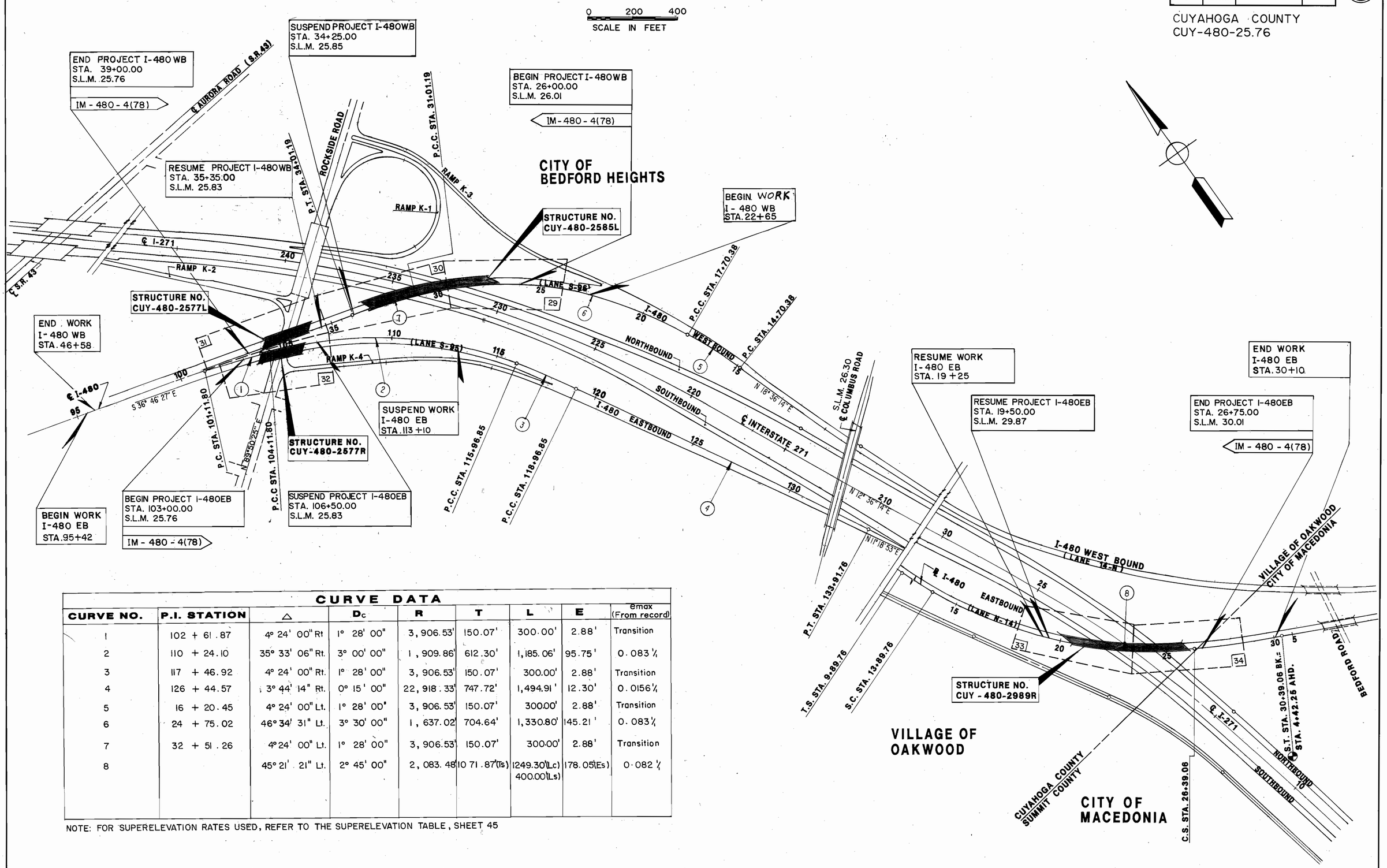
CUYAHOGA COUNTY
CUY-480-25.76

0 200 400
SCALE IN FEET



CURVE DATA

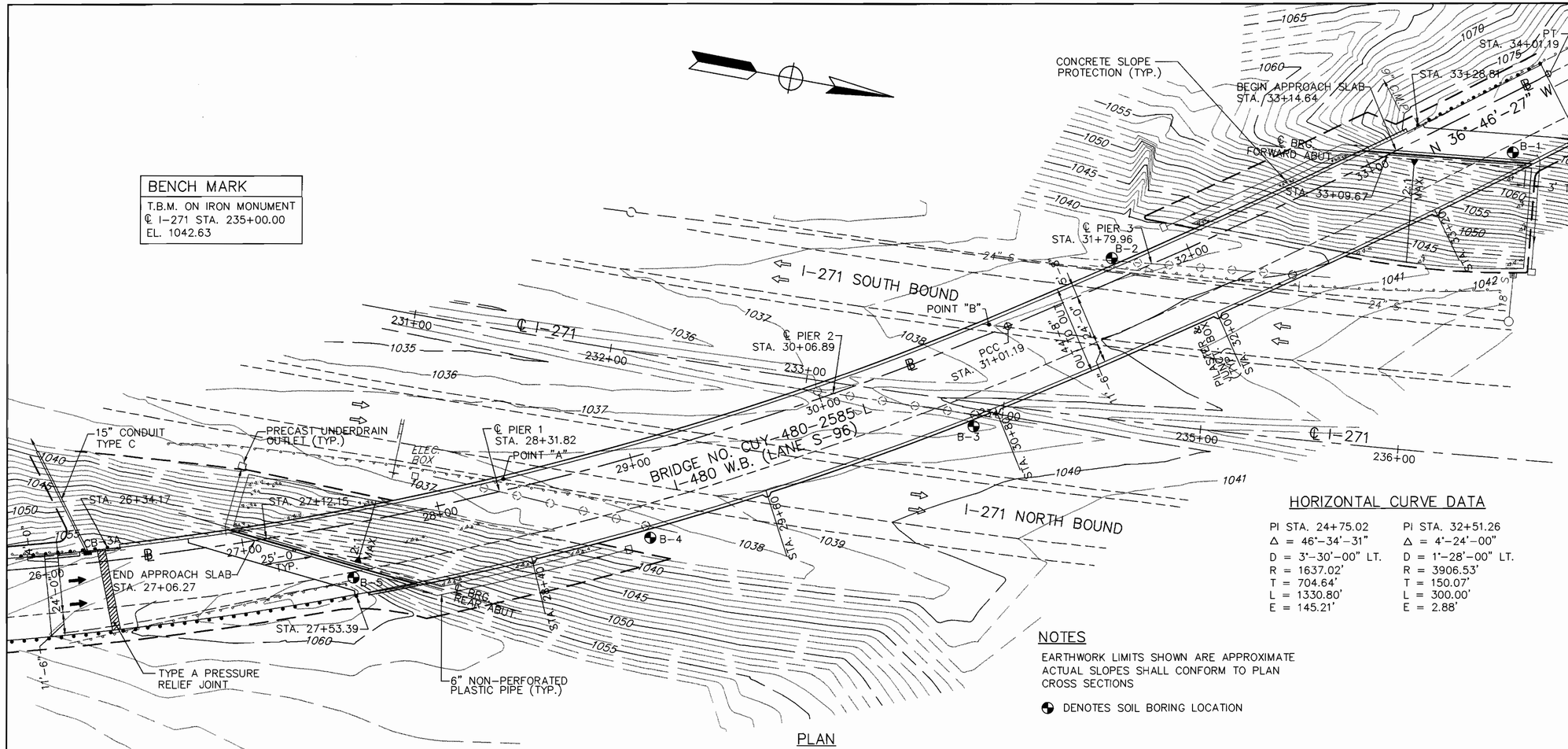
CURVE NO.	P.I. STATION	Δ	Dc	R	T	L	E	emax (From record)
1	102 + 61.87	4° 24' 00" Rt	1° 28' 00"	3,906.53'	150.07'	300.00'	2.88'	Transition
2	110 + 24.10	35° 33' 06" Rt.	3° 00' 00"	1,909.86'	612.30'	1,185.06'	95.75'	0.083 ft/ft
3	117 + 46.92	4° 24' 00" Rt.	1° 28' 00"	3,906.53'	150.07'	300.00'	2.88'	Transition
4	126 + 44.57	3° 44' 14" Rt.	0° 15' 00"	22,918.33'	747.72'	1,494.91'	12.30'	0.0156 ft/ft
5	16 + 20.45	4° 24' 00" Lt.	1° 28' 00"	3,906.53'	150.07'	300.00'	2.88'	Transition
6	24 + 75.02	46° 34' 31" Lt.	3° 30' 00"	1,637.02'	704.64'	1,330.80'	145.21'	0.083 ft/ft
7	32 + 51.26	4° 24' 00" Lt.	1° 28' 00"	3,906.53'	150.07'	300.00'	2.88'	Transition
8		45° 21' 21" Lt.	2° 45' 00"	2,083.48'	1071.87' (Ts)	1249.30' (Lc) 400.00' (Ls)	178.05' (Es)	0.082 ft/ft

NOTE: FOR SUPERELEVATION RATES USED, REFER TO THE SUPERELEVATION TABLE, SHEET 45

FHWA REGION	STATE	PROJECT	
5	OHIO		

CUYAHOGA COUNTY
CUY-480-25.76

BENCH MARK
T.B.M. ON IRON MONUMENT ℄ I-271 STA. 235+00.00 EL. 1042.63



PLAN

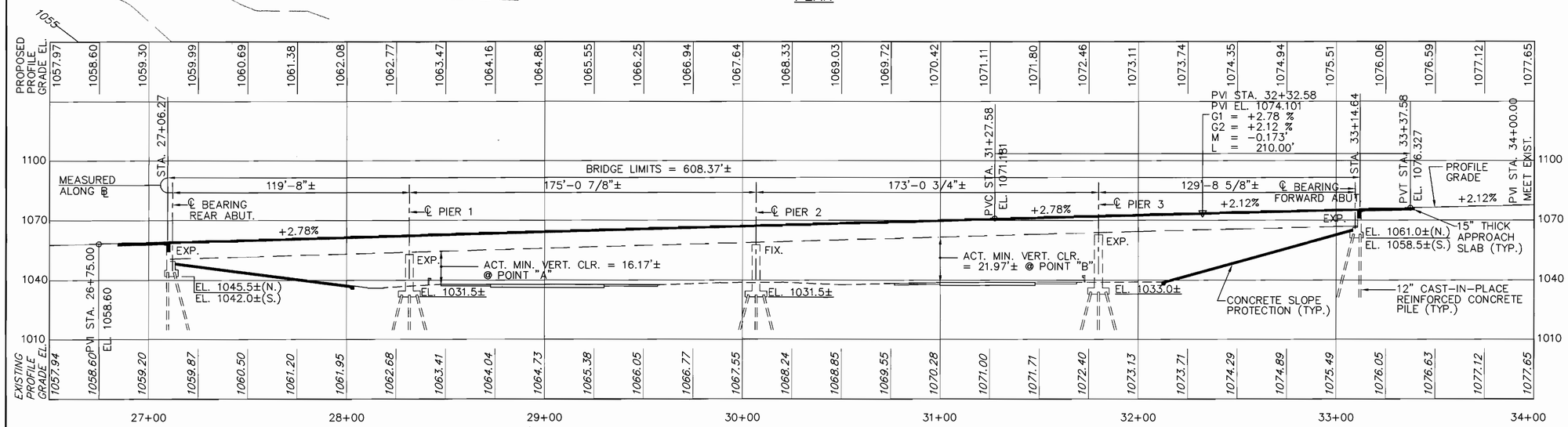
HORIZONTAL CURVE DATA

PI STA. 24+75.02	PI STA. 32+51.26
Δ = 46°-34'-31"	Δ = 4°-24'-00"
D = 3°-30'-00" LT.	D = 1°-28'-00" LT.
R = 1637.02'	R = 3906.53'
T = 704.64'	T = 150.07'
L = 1330.80'	L = 300.00'
E = 145.21'	E = 2.88'

NOTES

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

DENOTES SOIL BORING LOCATION



PROFILE ON ℄ I-480 WEST BOUND, LANE S-96

EXISTING STRUCTURE

TYPE:	CONTINUOUS STEEL GIRDER W/REINFORCED CONC. DECK AND SUBSTRUCTURE
SPANS:	119'-8"±, 175'-0 7/8"±, 173'-0 3/4"±, 129'-8 5/8"±
ROADWAY WIDTH:	30'-0" CURB TO CURB WITH TWO 2'-3" SAFETY CURBS
LOAD FREQUENCY:	CF 2000(57)
SKEW:	VARIES
ALIGNMENT:	3°-30'-00" LEFT AND 1°-28'-00" LEFT
WEARING SURFACE:	1" MONOLITHIC CONCRETE
APPROACH SLABS:	AS-1-54 (25'-0" LONG)
YEAR BUILT:	1963
STRUCTURE FILE NO.:	1810839

PROPOSED STRUCTURE

PROPOSED WORK:	REPLACE EXISTING DECK SLAB AND APPROACH SLAB, WIDEN THE PIERS AND ABUTMENTS ON THE NORTH SIDE, PROVIDE ONE PLATE GIRDER AND NECESSARY CROSS FRAMES AND BEARINGS ON THE NORTH SIDE, PROVIDE SHEAR STUDS FOR ALL GIRDERS, REPLACE PORTION OF EXIST. ABUTMENT BACKWALLS AND REFURBISH AND RESET THE EXISTING BEARINGS.
TYPE:	CONTINUOUS COMPOSITE STEEL GIRDER W/REINFORCED CONC. DECK AND SUBSTRUCTURE
SPAN:	119'-8"±, 175'-0 7/8"±, 173'-0 3/4"±, 129'-8 5/8"± C/C BRGS. ALONG THE BASE LINE
ROADWAY WIDTH:	41'-2" TOE/TOE PARAPETS
DESIGN LOADING:	HS20-44 CASE I AND ALTERNATE MILITARY LOADING
SKEW:	VARIES
ALIGNMENT:	3°-30'-00" LEFT AND 1°-28'-00" LEFT
APPROACH SLABS:	AS-1-81 (25'-0" LONG)
SUPERELEVATION:	TRANSITION
LATITUDE:	41°-24'-25" N
LONGITUDE:	81°-30'-20" W

TRAFFIC DATA

CURRENT ADT (1996)	= 44,510
DESIGN YEAR ADT (2016)	= 57,860
DESIGN YEAR ADTT (2016)	= 8,679

POLYTECH, INC.
1744 PAYNE AVENUE CLEVELAND, OHIO 44114

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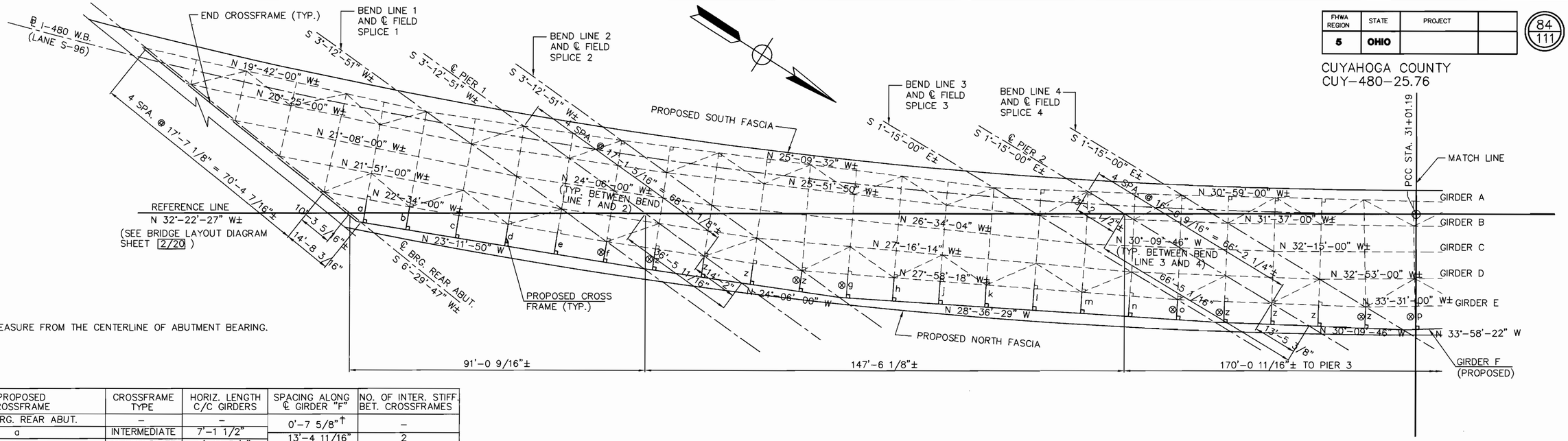
SITE PLAN
BRIDGE NO. CUY-480-2585 L
I-480 WEST BOUND OVER I-271
STA. 27+06.27
TO STA. 33+14.64

CUYAHOGA COUNTY OHIO

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
VKB	VKB	–	YSS	BRS	7/97	

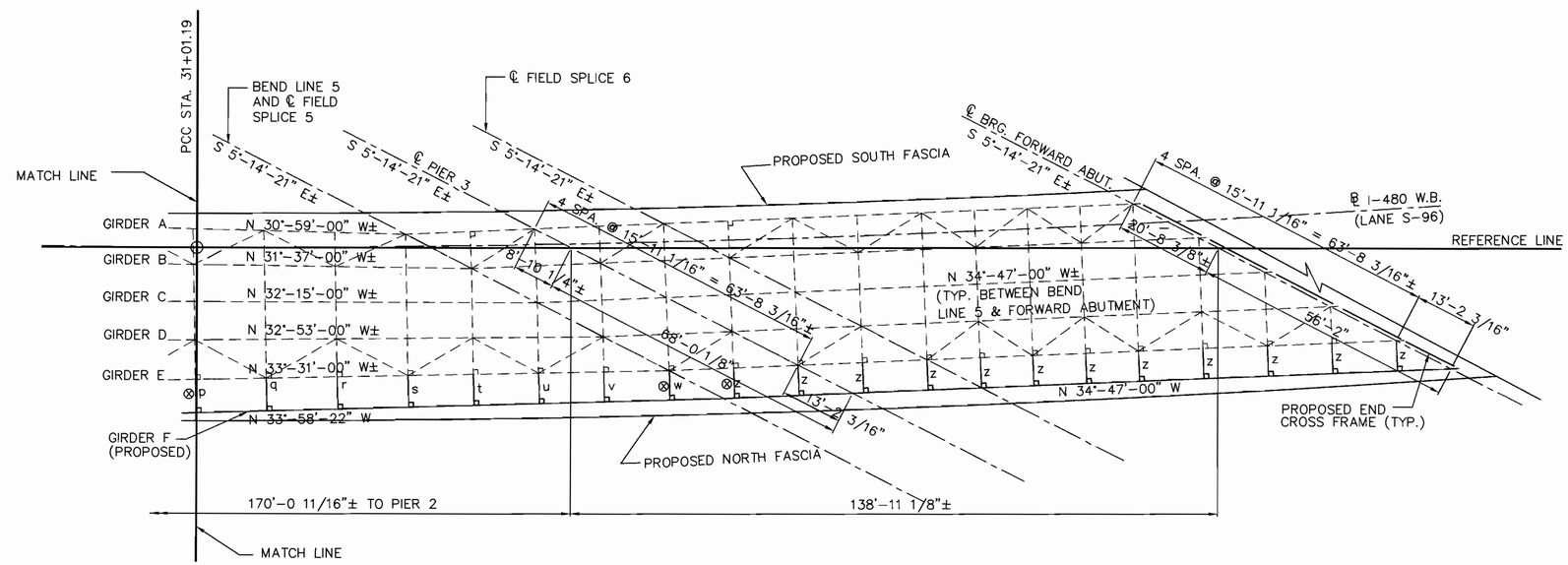
DRAWING = S-SITE1 DATE = JUNE 25, 1997



† MEASURE FROM THE CENTERLINE OF ABUTMENT BEARING.

	PROPOSED CROSSFRAME	CROSSFRAME TYPE	HORIZ. LENGTH C/C GIRDERS	SPACING ALONG ℄ GIRDER "F"	NO. OF INTER. STIFF. BET. CROSSFRAMES
SPAN 1	℄ BRG. REAR ABUT.	–	–	0'-7 5/8"†	–
	a	INTERMEDIATE	7'-1 1/2"	13'-4 11/16"	2
	b	INTERMEDIATE	6'-11 3/4"	15'-4 7/8"	2
	c	INTERMEDIATE	6'-9 11/16"	15'-4 7/8"	2
	d	INTERMEDIATE	6'-7 11/16"	15'-4 7/8"	2
	e	INTERMEDIATE	6'-5 5/8"	15'-4 7/8"	2
	f	"X"	6'-3 5/8"	12'-8 1/4"	2
	BEND LINE 1	–	–	2'-7 3/8"	–
	z	"X"	6'-6"	15'-2 3/8"	2
	z	INTERMEDIATE	6'-6"	12'-7"	2
SPAN 2	℄ PIER 1	–	–	2'-7 3/8"	–
	z	INTERMEDIATE	6'-6"	15'-2 3/8"	2
	z	"X"	6'-6"	12'-7"	2
	BEND LINE 2	–	–	2'-2 5/16"	–
	g	"X"	7'-3 3/4"	14'-2 3/4"	2
	h	INTERMEDIATE	7'-1 13/16"	14'-2 3/4"	2
	j	INTERMEDIATE	6'-11 15/16"	14'-2 3/4"	2
	k	INTERMEDIATE	6'-10 1/16"	14'-9 3/8"	2
	l	INTERMEDIATE	6'-8 1/16"	14'-9 5/16"	2
	m	INTERMEDIATE	6'-6 1/8"	14'-9 5/16"	2
	n	INTERMEDIATE	6'-4 1/8"	14'-9 3/8"	2
	o	"X"	6'-2 1/8"	11'-11 1/4"	2
	BEND LINE 3	–	–	2'-8 9/16"	–
	z	"X"	6'-6"	14'-5 13/16"	2
	z	INTERMEDIATE	6'-6"	11'-9 1/4"	2
SPAN 3	℄ PIER 2	–	–	2'-8 9/16"	–
	z	INTERMEDIATE	6'-6"	14'-5 13/16"	2
	z	"X"	6'-6"	11'-9 1/4"	2
	BEND LINE 4	–	–	3'-10 3/4"	–
	p	"X"	7'-1 3/4"	15'-2 7/16"	2
	q	INTERMEDIATE	7'-0 5/16"	15'-2 7/16"	2
	r	INTERMEDIATE	6'-10 7/8"	15'-2 7/16"	2
	s	INTERMEDIATE	6'-9 3/8"	14'-0 1/4"	2
	t	INTERMEDIATE	6'-8 1/16"	14'-0 1/4"	2
	u	INTERMEDIATE	6'-6 3/4"	14'-0 1/4"	2
	v	INTERMEDIATE	6'-5 3/8"	14'-0 1/4"	2
	w	"X"	6'-4 1/16"	11'-6 11/16"	2
	BEND LINE 5	–	–	2'-4 9/16"	–
	z	"X"	6'-6"	13'-10 1/4"	2
	z	INTERMEDIATE	6'-6"	11'-5 5/8"	2
SPAN 4	℄ PIER 3	–	–	2'-4 9/16"	–
	z	INTERMEDIATE	6'-6"	13'-10 3/16"	2
	z	INTERMEDIATE	6'-6"	11'-4 3/16"	2
	z	INTERMEDIATE	6'-6"	11'-4 3/16"	2
	z	INTERMEDIATE	6'-6"	11'-4 3/16"	2
	z	INTERMEDIATE	6'-6"	11'-4 3/16"	2
	z	INTERMEDIATE	6'-6"	13'-10 3/16"	2
	z	INTERMEDIATE	6'-6"	13'-10 3/16"	2
	z	INTERMEDIATE	6'-6"	13'-10 3/16"	2
	z	INTERMEDIATE	6'-6"	13'-10 3/16"	2
	z	INTERMEDIATE	6'-6"	11'-5 5/8"†	2
	℄ BRG. FORWARD ABUT.	–	–		

PROPOSED CROSSFRAMES



FRAMING PLAN

NOTE:
1. FOR CROSSFRAME TYPE DETAILS SEE SHEET 15/20 .
2. EXISTING BEAM INFORMATION IS TAKEN FROM THE EXISTING PLANS.
3. FOLLOWING LEGEND IS USED ON THIS SHEET,

   ' ⊗ ' DENOTES TYPE 'X' CROSSFRAME.

   ' □ ' DENOTES 90°.

4. ALL INTERMEDIATE STIFFENERS WILL BE ON THE INTERIOR FACE OF THE PROPOSED GIRDER "F" ONLY.

POLYTECH, INC.
1744 PAYNE AVENUE CLEVELAND, OHIO 44114

13/20

FRAMING PLAN

BRIDGE NO. CUY-480-2585 L
I-480 WEST BOUND OVER I-271

CUYAHOGA COUNTY OHIO

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
PSS	PSS	–	VKB	BRS	7/97	

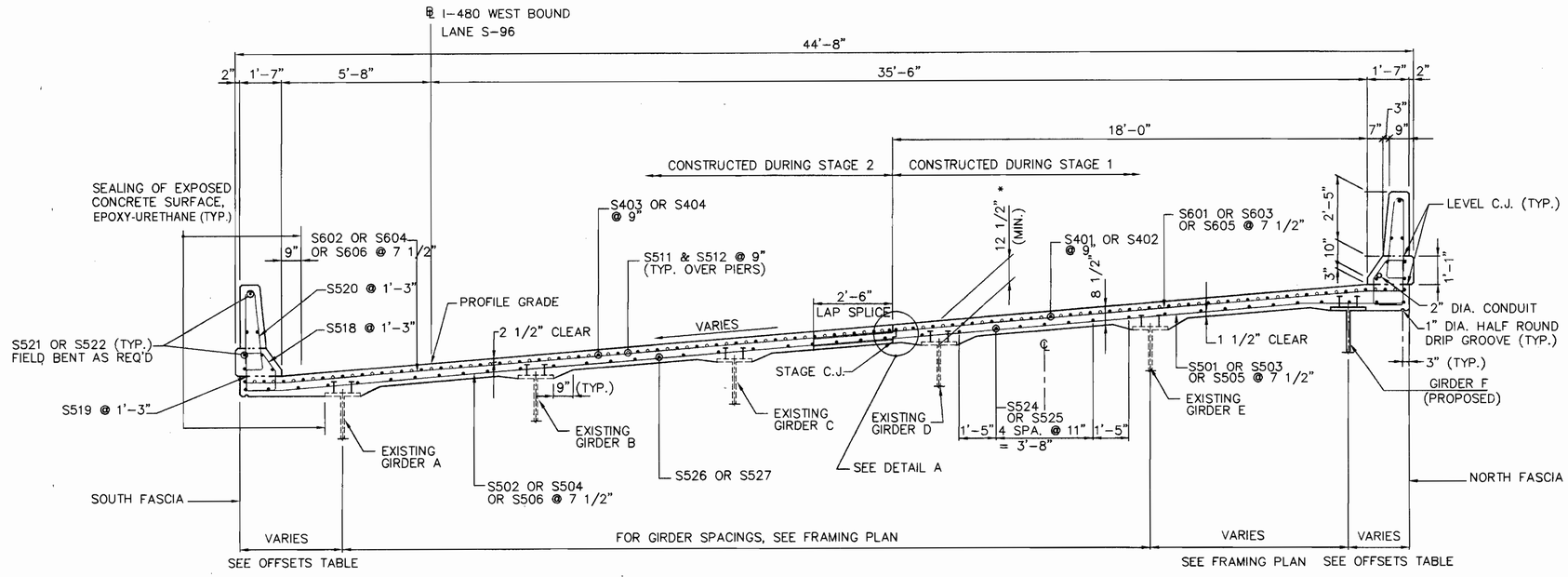
DRAWING = S-FRAME DATE = JUNE 26, 1997

CUYAHOGA COUNTY
CUY-480-25.76

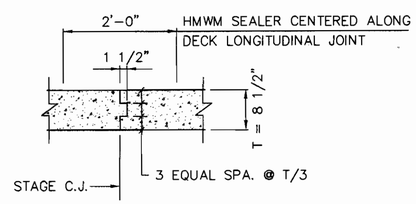
FASCIA OFFSETS

	LOCATION	℄ GIRDER "A" TO SOUTH FASCIA	℄ GIRDER "F" TO NORTH FASCIA
SPAN 1	℄ BRG. REAR ABUTMENT	4'-1 5/8"	–
	1/8 POINT	3'-10 13/16"	2'-10 7/8"
	1/4 POINT	3'-9 9/16"	3'-2 13/16"
	3/8 POINT	3'-10"	3'-5 1/8"
	1/2 POINT	4'-0"	3'-5 15/16"
	5/8 POINT	4'-3 5/8"	3'-5 1/8"
	BEND LINE 1	4'-8 5/8"	3'-2 7/8"
	3/4 POINT	4'-8 1/4"	3'-2 7/8"
	7/8 POINT	4'-1 7/16"	3'-1 11/16"
SPAN 2	℄ PIER 1	3'-8 1/4"	2'-10 15/16"
	1/8 POINT	3'-3 1/2"	2'-4"
	BEND LINE 2	3'-2 5/8"	2'-0 3/8"
	1/4 POINT	2'-11 3/8"	2'-6 1/4"
	3/8 POINT	2'-8 7/8"	3'-1 1/8"
	1/2 POINT	2'-9 7/8"	3'-4 9/16"
	5/8 POINT	3'-2 3/8"	3'-4 1/2"
	3/4 POINT	3'-10 7/16"	3'-1"
	BEND LINE 3	4'-5 7/8"	2'-8 11/16"
	7/8 POINT	4'-2 1/2"	2'-8 3/8"
SPAN 3	℄ PIER 2	3'-6 5/8"	2'-5 1/8"
	1/8 POINT	3'-2 1/4"	1'-10 1/2"
	BEND LINE 4	3'-1 5/8"	1'-7 9/16"
	1/4 POINT	2'-10 15/16"	2'-0 1/4"
	3/8 POINT	2'-9 3/4"	2'-6 1/8"
	1/2 POINT	3'-0 1/16"	2'-10 9/16"
	5/8 POINT	3'-5 3/4"	3'-1 1/2"
	3/4 POINT	4'-1 5/16"	3'-3 1/16"
	BEND LINE 5	4'-7 5/8"	3'-3 5/16"
	7/8 POINT	4'-5 1/2"	3'-4 3/16"
SPAN 4	℄ PIER 3	3'-10 5/8"	3'-6 9/16"
	1/8 POINT	3'-6 1/2"	3'-7 3/8"
	BEND LINE 6	3'-4"	3'-7 1/2"
	1/4 POINT	3'-3 3/16"	3'-7 7/16"
	3/8 POINT	3'-0 5/8"	3'-6 5/8"
	1/2 POINT	2'-10 7/8"	3'-5 1/8"
	5/8 POINT	2'-9 15/16"	3'-2 13/16"
	3/4 POINT	2'-9 3/4"	2'-11 11/16"
	7/8 POINT	2'-10 3/8"	2'-7 13/16"
	℄ BRG. FORWARD ABUTMENT	–	2'-3 1/8"

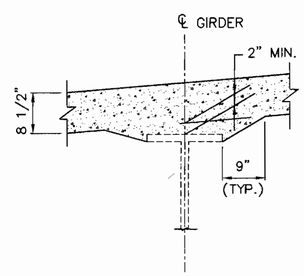
NOTE: FASCIA OFFSETS ARE GIVEN AT EACH 1/8 GIRDER SPAN POINTS AND BEND LINE POINTS. THEY ARE MEASURED PERPENDICULAR TO ℄ OF GIRDER. SPAN LENGTHS ARE MEASURED ALONG ℄ OF GIRDERS.



TYPICAL CROSS SECTION



DETAIL A



TYPICAL CONCRETE DECK HAUNCH DETAIL

NOTES:

1. A 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.
2. * DECK SLAB DEPTH: THE DISTANCE SHOWN FROM TOP OF THE DECK SLAB TO THE BOTTOM OF THE TOP FLANGE IS THE THEORETICAL DESIGN DIMENSION INCLUDING THE DESIGN HAUNCH THICKNESS OF 2 INCHES. THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED UPON THIS DIMENSION, MINUS THE DESIGN HAUNCH THICKNESS, EVEN THOUGH DEVIATION FROM IT MAY BE NECESSARY BECAUSE THE TOP FLANGE OF THE GIRDER MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISH GRADE. DEDUCTION SHALL BE MADE FOR VOLUME OF ENCASED STEEL PLATES AS PER 511.18.
3. MINIMUM CONCRETE CLEAR COVER FOR REINFORCING STEEL SHALL BE 2 INCHES UNLESS NOTED OTHERWISE.
4. DRIP GROOVE SHALL TERMINATE 2'-0" AWAY FROM ABUTMENT BRIDGE SEAT.
5. THE LIGHTING CONDUIT SHALL BE TRANSITIONED UPWARD NEAR THE ABUTMENTS TO AVOID INTERFERENCE WITH THE END DAMS. FOR DETAILS, SEE SHEET 4/5.
6. FOR SUPERELEVATION TRANSITION DIAGRAM, SEE SHEET 2/20.