CUY-WEST 85th STREET	FHWA REGION 5	1/38
IX-1C25(1)	FEDERAL PROJECT	

IX-1C25(1)

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

CUY-WEST 85TH STREET

RECONSTRUCTION OF EXISTING SEPARATED CROSSING WITH THE NORFOLK AND WESTERN RAILWAY COMPANY AND THE GREATER CLEVELAND REGIONAL TRANSIT AUTHORITY

CITY OF CLEVELAND
CUYAHOGA COUNTY

DESIGN DESIGNATION

CURRENT ADT (1987)	=	5,365
DESIGN YEAR ADT (2007)	=	7,900
DHV	=	790
D	=	50%
T	=	5%
V (DESIGN SPEED)	=	30 mph *
V (POSTED SPEED)		25 mph

* FOR DESIGN EXCEPTION, SEE SHEET NO. 7.

CONVENTIONAL SIGNS

PROPERTY LINE — IN EXISTING FENCE
COMMON OWNERSHIP LINE
ORIGINAL TOWNSHIP LOT LINE
CORPORATION LINE
CENTER LINE
RIGHT OF WAY LINE EXISTING — PROPOSED — TEMPORARY
LIMITED ACCESS LINE (EXISTING)
LIMITED ACCESS AND RIGHT OF WAY LINE (EXISTING)
SEWER EASEMENT LINE
FENCE LINE EXISTING — PROPOSED
GUARD RAIL EXISTING — PROPOSED
RAILROAD EXISTING
TREES, STUMPS, (TO BE REMOVED)
UTILITY POLES LIGHT — TELEPHONE — POWER — COMBINATION
OIL LINE
WATER LINE EXISTING — PROPOSED
GAS LINE
CONDUITS ELECTRICAL — TELEPHONE
FIRE HYDRANT EXISTING — PROPOSED
STORM SEWER EXISTING — PROPOSED
SANITARY SEWER EXISTING — PROPOSED
CATCH BASIN OR INLET EXISTING — ADJUSTED TO GRADE — PROPOSED
MANHOLE EXISTING — ADJUSTED TO GRADE — PROPOSED STORM — SANITARY
UTILITY VALVE
EXISTING SIGNS

INDEX OF SHEETS

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LOCATION MAP

SCALE IN MILES
0 1 2

Portion to be improved
State & Federal Routes
Other Roads

UNDERGROUND UTILITIES

2 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'

LINE DATA

BEGIN PROJECT	STA. 3+70.00
END PROJECT	STA. 5+58.03
NET LENGTH OF PROJECT	=188.03 L.F. = 0.036 Mi.
BEGIN WORK	STA. 3+70.00
END WORK	STA. 6+00.00
NET LENGTH OF WORK	= 230.00 L.F. = 0.044 Mi.

PLAN PREPARED BY:

POLYTECH INC.
1744 PAYNE AVENUE
CLEVELAND, OHIO 44114
ENGINEERS • ARCHITECTS

STATE OF OHIO — REGISTERED PROFESSIONAL ENGINEER

1987 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 require the closing to traffic of the highway and that detours will be provided as indicated on the plans.

Approved [signature]
Date 5/26/87 Director of Public Service, City of Cleveland

Approved [signature]
Date 9/17/87 District Deputy Director of Transportation

Approved [signature]
Date 11-9-87 Engineer, Bureau of Bridges and Structural Design

Approved [signature]
Date 2-1-88 Chief Engineer, Planning and Design

Approved [signature]
Date 2-1-88 Director, Department of Transportation

SUPPLEMENTAL SPECIFICATIONS			
NUMBER	DATE	NUMBER	DATE
824	10-8-82	847	10-17-83
836	11-12-85	947	10-17-83
845	2-25-86		
849	12-24-85		
853	6-26-78		
933	2-10-87		
953	8-21-80		
956	6-26-78		

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS							
DRWG	DATE	DRWG	DATE	DRWG	DATE		
BP-1	6-1-65	GR-1	1-11-85	AS-1-81	11-27-81		
BP-3	12-6-76	GR-2B	2-5-82	SD-1-69	6-12-69		
BP-4	10-1-87	GR-3	1-21-85	EXJ-2-81	4-2-84		
BP-5	10-1-87	GR-4B	2-5-82	RB-1-55	2-2-59		
BP-7	10-1-87	MT-99.10	11-14-86	FB-1-82	5-10-82		
BP-12	10-1-87	TC-17.10	1-20-84				
		TC-41.20	3-26-79				
		TC-41.41	8-2-79				
F-1	11-10-83	TC-42.20	3-26-79				
		TC-52.10	4-3-79				
		TC-52.20	4-3-79				
		TC-81.10	1-20-84				

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ADMINISTRATOR — DATE

Project: CUY-WEST 85th STREET
Date of Letting _____ 19__, Contract No. _____

FHWA REGION	STATE	PROJECT	
5	OHIO	IX-1C25(1)	

CUYAHOGA COUNTY
WEST 85th STREET

PARCEL	COURSE	DISTANCE	BEARING	REFERENCE POINT STATION & OFFSET
1 T	1 - 2	8.00'	N 90° 00'00" W	POINT 1: STA. 3+70.00 20.00' LT.
	2 - 3	19.92'	N 0° 00'00" W	
	3 - 4	8.00'	N 90° 00'00" E	
	4 - 1	19.92'	S 0° 00'00" E	
2 T	4 - 3	8.00'	N 90° 00'00" W	POINT 4: STA. 3+89.92 20.00' LT.
	3 - 5	25.00'	N 0° 00'00" W	
	5 - 6	8.00'	N 90° 00'00" E	
	6 - 4	25.00'	S 0° 00'00" E	

SCHEMATIC PLAN

SCALE 50 0 50 100 feet

SUMMARY OF ADDITIONAL RIGHT OF WAY

PARCEL	OWNER	OWNERS' RECORD BOOK	OWNERS' RECORD PAGE	NET. AREA (S.F.)	REMARKS
1 T	THE JUD REALTY COMPANY	9792	424	160	FOR WINGWALL RECONSTRUCTION
2 T	NORFOLK & WESTERN RAILWAY COMPANY	11345	267	200	FOR WINGWALL RECONSTRUCTION

BENCHMARKS

O.M. 341, EL. 674.037 - SET IN WALK AT NW CORNER OF FRANKLIN AVENUE AND WEST 77TH STREET (N)
27.7' N OF ℄ OF FRANKLIN AVE.
17.2' W OF ℄ OF W 77TH ST.
7.2' E OF E. RANGE LINE OF RESIDENCE # 7702 ON N. SIDE OF FRANKLIN AVE.
13.84' NE OF N&V IN POLE # 13321 AT NW CORNER OF INTERSECTION.
18.78' SW OF DRILL HOLE IN STONE MONUMENT ON ℄ W 77TH ST.
8.55' N OF NE CORNER OF CATCH BASIN AT NW CORNER OF INTERSECTION.
10.4' SE OF SE CORNER OF RESIDENCE # 7702 ON N. SIDE OF FRANKLIN AVE
6.8' W OF E RANGE LINE OF RESIDENCE # 7601 ON S. SIDE OF FRANKLIN AVE.

TBM 85-A, EL. 664.91 - NE CORNER OF CONCRETE RETAINING WALL, N. OF TRACKS, 65'± W OF ℄ W. 85TH ST.

TBM 85-B, EL. 683.94 - SW NUT ON HYDRANT AT NE CORNER OF W 85TH ST. AND FRANKLIN AVE.

NOTES:

1. BEARINGS REFER TO A LOCAL COORDINATE SYSTEM AND ARE FOR PROJECT USE ONLY.
2. ELEVATIONS ARE BASED ON THE U.S. GEOLOGICAL SURVEY DATUM PLANE.
3. GRADE SEPARATION ESTABLISHED BY CITY OF CLEVELAND ORDINANCE NO. 33723 PASSED JULY 13, 1914; APPROVED BY MAYOR JULY 15, 1914; APPROVED BY RAILROAD AUGUST 21, 1914.
4. PERMANENT EASEMENT FOR BRIDGE TURNING LANE ONTO FRANKLIN AVENUE RECORDED IN BOOK 6231, PAGE 241.

FHWA REGION	STATE	PROJECT	
5	OHIO	IX-1C25(1)	

CUYAHOGA COUNTY
WEST 85th STREET

3/38

TYPICAL SECTIONS

TYPE 404 ON TYPE 305

TYPICAL SECTION

STA. 3+70.00 TO STA. 3+87.69

SECTION A - A

(SEE SHT. NO. 7.)

NOTE:
PAYMENT FOR ALL EXCAVATION AND BACKFILL RELATED TO THE CURB PLACEMENT, BACKFILL UNDER CONCRETE WALK, REINFORCEMENT IN CONCRETE CURB, AND PREFORMED EXPANSION JOINTS SHALL BE INCLUDED WITH UNIT PRICE BID FOR ITEM 609-CURB, AS PER PLAN.

SECTION B - B

(SEE SHT. NO. 7.)

SECTION C - C

(SEE SHT. NO. 7.)

NOTE: ADDITIONAL COSTS FOR THICKENED EDGE AND EXPANSION BOLT JOINT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 305-9" CONCRETE BASE.

DETAIL A

DETAIL B

LEGEND

1	ITEM 404	1 1/4" ASPHALT CONCRETE, AC-20
2	ITEM 402	1 3/4" ASPHALT CONCRETE, AC-20
3	ITEM 407	TACK COAT, AS PER PLAN
4	ITEM 305	9" CONCRETE BASE
5	ITEM 310	6" SUBBASE, TYPE I, GRADING A
6	ITEM 203	SUBGRADE COMPACTION
7	ITEM 609	CURB, STANDARD TYPE 6
8	ITEM 609	CURB, AS PER PLAN
9	ITEM 660	SODDING
10	ITEM 608	4" CONCRETE WALK
A	EXISTING PAVEMENT: 2 1/2" ± ASPHALT SURFACING ON 5" BRICK ON 6" ± CONC. BASE	

NOT TO SCALE

FHWA REGION	STATE	PROJECT	
5	OHIO	IX - 1C 25 (1)	

4/38

CUYAHOGA COUNTY
WEST 85th STREET

GENERAL NOTES

GENERAL NOTES

FIELD OFFICE

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

PROJECT DATUM

ALL ELEVATIONS SHOWN ARE BASED ON THE CLEVELAND REGIONAL GEODETIC SURVEY (CRGS) DATUM PLANE.

EXISTING CONDITIONS

THE EXISTING CONDITIONS SHOWN ON THE TYPICAL SECTIONS HAVE BEEN TAKEN FROM RECORDS, AND ARE BELIEVED TO REPRESENT THE EXISTING PAVEMENT, BUT THE STATE OF OHIO DOES NOT GUARANTEE THEIR ACCURACY.

MAINTENANCE OF TRAFFIC

WEST 85TH STREET AT THIS LOCATION HAS ALREADY BEEN CLOSED, AND THE DETOUR SHOWN ON THIS SHEET SHALL BE MAINTAINED BY THE CITY OF CLEVELAND.

ALL REQUIRED CONSTRUCTION TRAFFIC SIGNS WITHIN THE WORK LIMITS AND ALL NECESSARY SAFEGUARDS SUCH AS BARRICADES, BARRIERS, CONES, DRUMS, LIGHTING, TEMPORARY GUARDRAILS, SHALL BE IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS AND SHALL BE PROVIDED, ERECTED, MAINTAINED AND REMOVED BY THE CONTRACTOR, PAYMENT SHALL BE INCLUDED IN THE LUMP SUM BID PRICE FOR ITEM 614 - MAINTAINING TRAFFIC.

CONTINGENCY QUANTITIES

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

PAVEMENT NOTES

CUTTING PAVEMENT

WHENEVER THE REMOVAL OF EXISTING PAVEMENT, BASE OR SIDEWALK REQUIRES CUTTING INTO THE SLAB PRIOR TO REMOVAL, THE CUTTING SHALL BE DONE USING A SUITABLE CONCRETE SAW WHICH WILL PRODUCE A STRAIGHT AND SMOOTH FINISH ALONG THE SAWED EDGE. THE DEPTH OF CUTTING SHALL BE SUCH THAT NO DAMAGE WILL RESULT TO THE REMAINING SLAB AFTER REMOVAL OF THE DESIGNATED PORTION. THE PAYMENT FOR CUTTING PAVEMENT SHALL BE INCLUDED IN ITEM 202 - PAVEMENT REMOVED.

ITEM 407 - TACK COAT, AS PER PLAN

THE TACK COAT OPERATION SHALL BE APPROVED AS PER SECTION 407.05 OF THE SPECIFICATIONS. THE APPLICATION RATE SHALL BE 0.075 GALLONS PER SQUARE YARD. THE APPLICATION OF COVER AGGREGATE (IF REQUIRED, AS DETERMINED BY THE ENGINEER) SHALL BE CONSIDERED AS INCIDENTAL TO THE TACK COAT ITEM AND SHALL BE APPLIED AT 7LBS PER S.Y.

ITEM 611 - REINFORCED CONCRETE APPROACH SLAB, MODIFIED AS PER PLAN, T= 12"

THE APPROACH SLABS SHALL CONFORM WITH STANDARD BRIDGE DRAWING NO. AS-1-81, EXCEPT FOR THE FOLLOWING, AS DETAILED IN THE PLANS:

1. LAYOUT AND REINFORCEMENT AT THE IRREGULAR CORNERS OF THE NORTH APPROACH SLAB.
2. ACCOMMODATION AND EXTRA REINFORCEMENT OVER THE RELOCATED WATERMAIN.

UTILITIES NOTES

UNDERGROUND UTILITIES

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS OF THE UTILITY AS REQUIRED BY THE ORC SECTION 153.64.

UTILITY OWNERSHIP

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

CITY OF CLEVELAND
DIVISION OF WATER AND HEAT
1201 LAKESIDE AVENUE
CLEVELAND, OH 44114
271-4264

THE EAST OHIO GAS COMPANY
EAST NINTH AT SUPERIOR
P.O. BOX 5759
CLEVELAND, OH 44101
432-6803

THE CLEVELAND ELECTRIC ILLUMINATING CO.
55 PUBLIC SQUARE
P.O. BOX 5000
CLEVELAND, OH 44113
662-9800

CITY OF CLEVELAND
DIVISION OF WATER POLLUTION CONTROL
1825 LAKESIDE AVENUE
CLEVELAND, OH 44114
664-2750

GREATER CLEVELAND REGIONAL TRANSIT AUTHORITY
615 SUPERIOR AVENUE, N.W.
CLEVELAND, OH 44113
566-5140

OHIO BELL TELEPHONE COMPANY
1020 BOLIVAR ROAD
CLEVELAND, OH 44115
822-6291

NORFOLK & WESTERN RAILWAY COMPANY
P.O. BOX 349
BLDG. BOX 14
BELLEVUE, OH 44811
419-621-9000

REQUIREMENTS OF N&W AND GCRTA

FOR REQUIREMENTS OF N&W AND GCRTA, SEE STRUCTURAL GENERAL NOTES-SHEET 21A.

TRAFFIC CONTROL

SPAN WIRE SIGN SUPPORT, TYPE TC-17.10, DESIGN 5, SPAN 135 FEET, AS PER PLAN—THE SPAN WIRE SHALL BE ATTACHED TO EXISTING WOODEN POLES AS SHOWN ON SHEET 18, INSTEAD OF NEW STEEL STRAIN POLES AND FOUNDATIONS. ALL OTHER COMPONENTS LISTED IN SECTION 630.063 OF THE SPECIFICATIONS SHALL BE FURNISHED. PAYMENT FOR THE SPAN WIRE SIGN SUPPORT SHALL INCLUDE SPAN WIRE CLAMPS, ANCHOR SHACKLES, MESSENGER WIRE, CLAMPS, THIMBLES AND SIGN HANGER ASSEMBLIES WITH HANGERS, BRACES, LENGTHS OF POST AND MISCELLANEOUS HARDWARE, AND ALL LABOR, MATERIALS AND INCIDENTALS NECESSARY TO PROVIDE THE SPAN WIRE SIGN SUPPORT IN PLACE, COMPLETE AND ACCEPTED.

WEST 85th STREET DETOUR PLAN

ROADWAY NOTES

ITEM 202 - FENCE REMOVED FOR STORAGE

THE CONTRACTOR SHALL REMOVE THE FENCING FROM THE EXISTING BRIDGE, AS CALLED FOR IN THE PLANS, AND STORE IT AS SPECIFIED IN ITEM 202.02 FOR THE OWNER, THE GREATER CLEVELAND REGIONAL TRANSIT AUTHORITY.

PAYMENT SHALL INCLUDE ALL MATERIALS AND LABOR REQUIRED TO COMPLETELY REMOVE THE FENCING, STORE IT AND PROTECT IT UNTIL IT IS RETRIEVED BY GCRTA.

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.

EROSION CONTROL

ITEM 660 - SODDING IS PROVIDED IN THE PLANS FOR EROSION CONTROL. TURF OF A STABLE NATURE WILL NOT BE REMOVED IN ORDER TO PLACE ITEM 660. THE ENGINEER SHALL CHECK AND NON-PERFORM QUANTITIES OR ADJUST LOCATIONS AND QUANTITIES OF THIS ITEM WHERE INDICATED BY FIELD CONDITIONS DURING CONSTRUCTION.

GENERAL SUMMARY

	BY	DATE
CALC.	EDV	11/86
CHECKED	BRS	12/86

FHWA REGION	STATE	PROJECT	
5	OHIO	IX-1C25(1)	

CUYAHOGA COUNTY
WEST 85th STREET

SHEET NUMBER 6	SHEET NUMBER 7	ITEM	TOTAL QUANT.	UNIT	DESCRIPTION
					ROADWAY
	413	202	413	S.Y.	PAVEMENT REMOVED
	3	202	3	S.Y.	WEARING COURSE REMOVED
	815	202	815	S.F.	WALK REMOVED
	141	202	141	L.F.	CURB REMOVED
	340	202	340	L.F.	GUARDRAIL REMOVED
	90	202	90	L.F.	FENCE REMOVED FOR STORAGE
	60	202	60	L.F.	FENCE REMOVED
	1	202	1	EA.	MANHOLE ABANDONED
420		203	420	S.Y.	SUBGRADE COMPACTION
	2	604	2	EA.	MONUMENT BOX ADJUSTED TO GRADE
	12.50	606	12.50	L.F.	GUARDRAIL, TYPE 5
	1	606	1	EA.	ANCHOR ASSEMBLY, STANDARD TYPE B
	1	606	1	EA.	BRIDGE TERMINAL ASSEMBLY, STANDARD TYPE A
	20	607	20	L.F.	FENCE, TYPE CL
	40	607	40	L.F.	FENCE, TYPE CL, AS PER PLAN
	864	608	864	S.F.	4' CONCRETE WALK
	2	608	2	EA.	CURB RAMP, STANDARD TYPE 2
					EROSION CONTROL
50		660	50	S.Y.	SODDING
					PAVEMENT
253		305	253	S.Y.	9" CONCRETE BASE
73		310	73	C.Y.	SUBBASE, TYPE I, GRADING A
12		402	12	C.Y.	ASPHALT CONCRETE, AC-20
10		404	10	C.Y.	ASPHALT CONCRETE, AC-20
20		407	20	GAL.	TACK COAT, AS PER PLAN
	94	609	94	L.F.	CURB, STANDARD TYPE 6
	15	609	15	L.F.	CURB, AS PER PLAN
156		611	156	S.Y.	REINFORCED CONCRETE APPROACH SLABS, MODIFIED AS PER PLAN, T=12"
					WATERWORK
					TYPE CODE Y060, SEE SHEET 8
					TRAFFIC CONTROL
					SEE SHEET 18
					BRIDGE NO. 1:066
					SEE SHEET 19
		614	LUMP		MAINTAINING TRAFFIC
		619	LUMP		FIELD OFFICE
		623	LUMP		CONSTRUCTION LAYOUT STAKES
		624	LUMP		MOBILIZATION

CALCULATIONS

	BY	DATE
CALC.	EDU	11/86
CHECKED	BRS	12/86

FHWA REGION	STATE	PROJECT	
5	OHIO	IX-1C25(1)	

CUYAHOGA COUNTY
WEST 85TH STREET

PAVEMENT AREAS

(1) SOUTH APPROACH:

FROM STA. 3 + 70.00 TO STA. 3 + 87.69 = 17.69' X 24' ÷ 9 = 48 S.Y.

(2) NORTH APPROACH:

FROM STA. 5 + 46.85 TO STA. 5 + 58.03 = 1844 S.F. ÷ 9 = 205 S.Y.

ITEM 203 SUBGRADE COMPACTION:

PAVEMENT AREAS (1) & (2)	48 + 205	= 253 S.Y.
BELOW CURBING	94 L.F. x 1' ÷ 9	= 11 S.Y.
BELOW APPROACH SLABS	42 + 114	= 156 S.Y.
	TOTAL	420 S.Y.

ITEM 305 9" CONCRETE BASE:

PAVEMENT AREAS (1) & (2) = 253 S.Y.

ITEM 310 6" SUBBASE, TYPE I, GRADING A

PAVEMENT AREAS (1) & (2)	(48 + 205) S.Y. X $\frac{6''}{36}$	= 42 C.Y.
BELOW CURBING	94 L.F X $\frac{12''}{12}$ X $\frac{6''}{12}$ ÷ 27	= 5 C.Y.
BELOW APPROACH SLABS	(42 + 114) S.Y. X $\frac{6''}{36}$	= 26 C.Y.
	TOTAL	73 C.Y.

ITEM 402 ASPHALT CONCRETE, AC-20

PAVEMENT AREAS (1) & (2) (48 + 205) S.Y. X $\frac{1.75''}{36}$ = 12 C.Y.

ITEM 404 ASPHALT CONCRETE, AC-20

PAVEMENT AREAS (1) & (2)	(48 + 205) S.Y. X $\frac{1.25''}{36}$	= 9 C.Y.
ALONG WEST EDGE OF SIDEWALK	13 L.F. x 2' x $\frac{1.25''}{12}$ ÷ 27	= 1 C.Y.
	TOTAL	10 C.Y.

ITEM 407 TACK COAT, AS PER PLAN

PAVEMENT AREAS (1) & (2), AND WEARING COURSE REPLACEMENT ALONG WEST EDGE OF SIDEWALK (48 + 205 + 3) S.Y. X .075 GAL/S.Y. = 20 GAL.

ITEM 660 SODDING

ON FRANKLIN AVENUE:

@ WEST OF 85TH STREET	5' X 13' ÷ 9 = 7 S.Y.
@ EAST OF 85TH STREET	
• ALONG RETAINING WALL	4' AVGE. X 26' ÷ 9 = 12 S.Y.
• IN TREE LAWN	10' AVGE. X 28' ÷ 9 = 31 S.Y.
	TOTAL 50 S.Y.

ITEM 611 REINFORCED CONCRETE APPROACH SLABS, MODIFIED AS PER PLAN, T = 12"

FROM	STA. 3 + 87.69	TO	STA. 4 + 02.69	= 15' X 25' ÷ 9 = 42 S.Y.
FROM	STA. 5 + 31.85	TO	STA. 5 + 46.85	= 1,024 S.F. ÷ 9 = 114 S.Y.
				TOTAL 156 S.Y.

CUYAHOGA COUNTY
WEST 85th STREET

CURVE DATA

CURVE NO	1	2
P.I. STA.	5+05.31, 12.00' RT.	5+46.00, 75.70' RT.
Δ	57°26'4.6"	10°14'30.4"
R	90.00'	163.68'
Dc	63°39'43.1"	35°00'17.1"
T	49.31'	26.28'
L	90.22'	52.11'
C	86.49'	51.89'
E	12.62'	2.10'

PLAN

DETAIL A

NOTES:

1. SECTIONS A-A, B-B AND C-C ARE SHOWN ON SHT. 3.
2. FOR WATERWORK, SEE SHTS. 8 TO 17.
3. FOR SIGNING AND PAVEMENT MARKING, SEE SHT. 18.
4. FOR STRUCTURE REMOVAL ITEMS, SEE SHT. 20.
5. FOR DETAILS OF WINGWALL RECONSTRUCTION, SEE SHT. 26.
6. FOR APPROACH SLAB DETAILS, SEE SHT. 35.
7. FOR DESCRIPTIONS OF TEMP. EASEMENTS, SEE SHT. 2.

	BY	DATE
CALC.	EDV.	11/86
CHECKED	BRS	12/86

PROFILE

ESTIMATED QUANTITIES

REFERENCE NO.	STATION FROM	STATION TO	SIDE	202 PAVEMENT REMOVED S.Y.	202 WEARING COURSE REMOVED S.Y.	202 WALK REMOVED S.F.	202 CURB REMOVED L.F.	202 GUARDRAIL REMOVED L.F.	202 FENCE REMOVED FOR STORAGE L.F.	202 FENCE REMOVED L.F.	202 MANHOLE ABANDONED EA.	604 MONUMENT BOX ADJ. TO GRADE EA.	606 ANCHOR ASSLY. STD. TYPE B EA.	606 GUARDRAIL TYPE S L.F.	606 BRIDGE TERM. ASSLY. STD. TYPE A EA.	608 4" CONC. WALK S.F.	608 CURB RAMP STD. TYPE 2 EA.	607 FENCE, TYPE CL L.F.	607 FENCE, TYPE CL AS PER PLAN L.F.	609 CURB, STD. TYPE 6 L.F.	609 CURB, AS PER PLAN L.F.
1RP	3+70	4+01±		83																	
2RP	6+30±	6+58.03		330																	
1RS	3+70±	3+83±	LT.		3																
1RW	3+70.00	4+01±	LT/RT			465															
2RW	5+30±	5+43±	LT.			80															
3RW	5+30±	5+40±	RT.			270															
1RC	3+70.00	4+01±	LT/RT				62														
2RC	6+30±	5+52±	RT.				55														
3RC	5+30±	5+43±	LT.				24														
1RG	5+42±		LT.					12													
2RG	3+82±	5+32±	LT/RT.					328													
1RF	5+40±		LT.							12											
1RS	4+34±	4+79±	LT/RT.						90												
1MA	5+37.0		LT.								1										
1BA	5+58.03		℄									1									
2BA	5+60.66		RT.									1									
1GR	5+42		LT.										1								
2GR	5+42		LT.											12.50							
3GR	5+37		LT.												1						
1SW	3+70.00	4+02.69	LT/RT													490					
2SW	5+32.35	5+42.5±	LT.													38					
3SW	5+30.10	5+40±	RT.													336					
1CR	5+42		LT/RT														2				
1C	3+70.00	3+87.69	LT/RT																	36	
2C	5+34.28	5+52.50	RT.																	48	
3C	5+40.77	5+42.69	LT.																	10	
4C	5+32		RT.																		15
1F	5+29.43		LT.															12			
2F	3+90		LT.															8			
3F	5+29.18		RT.																40		
2RI	3+90		LT.							8											
3RF	5+28.71		RT.							40											
TOTAL				413	3	815	141	340	90	60	1	2	1	12.50	1	864	2	20	40	94	15

PLAN AND PROFILE

FHWA REGION	STATE	PROJECT	
5	OHIO	IX - 1C25(1)	

8/38

CUYAHOGA COUNTY
WEST 85th STREET

DRAWING	REFERENCE
B - 2658	RELOCATED WATERMAIN PLAN AND PROFILE
B - 2658-A	WATERWORK DETAILS
B - 2658-B	WATERWORK DETAILS
B - 2658-C	WATERWORK DETAILS
B - 2658-D	WATERWORK DETAILS

TYPE CODE Y060

ESTIMATED QUANTITIES			
ITEM	DESCRIPTION	QUANT.	UNIT
SPECIAL	12" WATER MAIN DUCTILE IRON PIPE WITH BOLTLESS RESTRAINED JOINTS AND FITTINGS, A.N.S.I. CLASS 56, ALL CEMENT LINED	48	L.F.
SPECIAL	2" AIR RELIEF VALVE WITH VALVE BOX COMPLETE	1	EA.
SPECIAL	PLUG EXISTING WATER MAIN AND BRANCHES	4	EA.
604	VALVE BOX ADJUSTED TO GRADE	2	EA.
SPECIAL	TEMPORARY PLUG WITH RODS AND CLAMPS COMPLETE, INSTALLED AND REMOVED.	2	EA.
SPECIAL	12" WATER MAIN GALVANIZED STEEL PIPE ASTM A53 GRADE B	135	L.F.

NOTES:

1. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF THE EXISTING 8" WATERMAIN.
2. THE CONTRACTOR SHALL PROVIDE FIELD DATA, DETAIL LAYOUT, FABRICATION DETAILS AND LAYING SCHEDULE TO THE DIVISION OF WATER AND HEAT, AND OBTAIN APPROVAL PRIOR TO FABRICATION AND INSTALLATION.

* BOLTLESS RESTRAINED DUCTILE IRON CLASS 56 C/L PUSH-ON JOINT PIPE WITH DUCTILE IRON CLASS 350 C/L BOLTLESS RESTRAINED PUSH-ON JOINT FITTINGS.

** WIT-GARD BY THE PIONEER ASPHALT CORPORATION, GILSULATE 500 BY AMERICAN THERMAL PRODUCTS. INCLUDE IN PRICE BID FOR ITEM SPECIAL-RELOC. WATERMAIN

PROFILE OF 12" RELOCATED WATERMAIN

APPROVED April 21, 1987

DIRECTOR OF PUBLIC UTILITIES

ACTING COMMISSIONER - DIVISION OF WATER AND HEAT

ENGINEER OF WATER DESIGN REVIEW

B-2658

LOW SERVICE DISTRICT

POLYTECH, INC.
CONSULTING ENGINEERS CLEVELAND, OHIO

RELOCATED WATERMAIN
PLAN AND PROFILE
WEST 85th STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. 1:066

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
EDV	EDV	EK	CT	GA	3/87	

FHWA REGION	STATE	PROJECT	
5	OHIO	IX - 1C25(1)	

9/38

CUYAHOGA COUNTY
WEST 85th STREET

SUPPORT CHANNEL LOCATION AND PIPE LAYOUT

SCALE IN FEET

CROSS FRAME F-4

CROSS FRAME F - 10.

DETAIL - 1

SLEEVE PACKING DETAIL

Note:
Insulation @ Water Main Supports is not shown, see sheet B-2658-B for field joint details.

TYPICAL SECTION
(LOOKING NORTH)

Note:
Except for bolts, lockwashers and nuts, which are Cadmium plated, entire assembly, including shims, is to be not dipped galvanized, ASTM A-123. Shims to be installed (or deleted) in field where required.

SECTION A - A

SECTION B - B

1/2" LUBRITE PLATE AND 1/16" STEEL SHIM PLATE

CADMIUM PLATED SHOULDER BOLT

WATERMAIN PIPE ASSEMBLY DETAILS

APPROVED 4-21-87
Arnold L. Tuber
ENGINEER OF WATER DESIGN REVIEW

B-2658-A

LOW SERVICE DISTRICT

POLYTECH, INC.
CONSULTING ENGINEERS CLEVELAND, OHIO

WATERWORK DETAILS

WEST 85th STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. 1:066

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
EDV SM	EDV	DP	CT	GA	3/87	

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FHWA REGION	STATE	PROJECT	
5	OHIO	I X - 1C25(1)	

10/38

CUYAHOGA COUNTY
WEST 85TH STREET

EXPANSION JOINT DETAILS

Note: Body and slip pipe to be min. ½" thick

VICTAULIC GROOVING DETAIL

DOUBLE VALVE BOX ASSEMBLY

OVAL VALVE BOX ASSEMBLY

2" AIR RELIEF VALVE INSTALLATION

PIPE INSULATION DETAIL

* IN LIEU OF A 20"x 22 GA. GALV. STEEL JAKET (CONDUIT) CONTRACTOR MAY FURNISH A FACTORY INSTALLED POLYURETHANE FOAM INSULATED PIPE WITH A FIBERGLASS REINFORCED POLYESTER OUTER JACKET.

FIELD JOINT SEQUENCE

1.) Slide split connector band on to unit. Make joint and test.
2.) Wrap Flexible Polyurethane foam around exposed pipe and coupling and tape into place.
3.) Apply Butyl Rubber Sealer to both sides of joint.
4.) Center split connector band over joint and draw down tight with hose clamps. Secure Split Connector Band to jacket with Sheet metal screws (4 screws per end).

FIELD JOINT DETAILS

NOTE:
FLANGE BOLT HOLES ARE TO STRADDLE THE CENTER-LINES OF PIPE AND WELD-O-LETS.

2" AIR RELIEF ASSEMBLY

WELD-O-LET DETAIL

Note:
Spigot end to be welded to 12" Pipe before galvanizing. Optional retainer weldment or retainer gland and welded lock ring tied joint.

STEEL TO DUCTILE IRON PIPE CONNECTION DETAIL

SPIGOT END DETAIL

WELDING DETAIL

PLUGGING ABANDONED WATERMAIN END

DETAILS NOT TO SCALE

B-2658-B

LOW SERVICE DISTRICT

POLYTECH, INC.
CONSULTING ENGINEERS CLEVELAND, OHIO

WATERWORK DETAILS

WEST 85TH STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. 1:066

APPROVED 4-21-87

ENGINEER OF WATER DESIGN REVIEW

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
EDV	EDV	EDV	CT	GA	3/87	

FHWA REGION	STATE	PROJECT	
5	OHIO	I X - 1C25(1)	

11/38

CUYAHOGA COUNTY
WEST 85TH STREET

AIR RELIEF VALVE BOX NO.5 IS TOP AND COVER.
AIR RELIEF VALVE BOX NO.6 IS TOP BASE 2'-6" LONG AND COVER
FLUSHING BOX NO.7 IS TOP BASE 5'-0" LONG AND COVER.

PLAN

TOP
SECTION G-G

BASE

SECTION J-J

AIR RELIEF VALVE BOX

SECTION F-F

SECTION L-L

COVER

SECTION K-K

SECTION A-A
BASE NO. 1 FOR 2" VALVES
EST. WT. 69 #
SCALE: 3" = 1'-0"

SECTION B-B
BASE NO. 3 FOR 8" VALVES
EST. WT. 71 #
SCALE: 3'-0"

THIS OPENING TO BE IN 5'-0" BASE ONLY

SECTION H-H

SECTION OF TOP WITH
SQUARE HEAD NO. 3

SECTION D-D
DETAIL OF ROUND COVER FOR NO.1 TOP
EST. WT. 20 #
SCALE: 6" = 1'-0"

SECTION E-E
DETAIL OF SQUARE COVER FOR NO.3 TOP
EST. WT. 23 #
SCALE: 6" = 1'-0"

SECTION OF TOP WITH
ROUND HEAD NO. 1

DETAILS NOT TO SCALE

B-2658-C

APPROVED 4-21-87

ENGINEER OF WATER DESIGN REVIEW

LOW SERVICE DISTRICT

POLYTECH, INC.
CONSULTING ENGINEERS CLEVELAND, OHIO

WATERWORK DETAILS

WEST 85TH STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. 1:066

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
—	—	—	EDV	GA	3/87	

FHWA REGION	STATE	PROJECT	
5	OHIO	I X - 1C25(1)	

12/38

CUYAHOGA COUNTY
WEST 85TH STREET

LONG STYLE VALVE BOX-
ROUND TOP AND COVER
NOT TO SCALE

WITH POLYIRON TOP SECTION, CAST IRON FULL FLANGED RING, AND CAST IRON COVER.

NOT TO SCALE

SHORT STYLE VALVE BOX-ROUND TOP AND COVER
NOT TO SCALE

VALVE BOX BOTTOMS AND EXTENSIONS
NOT TO SCALE

VALVE BOX DRAWINGS REPRODUCED FROM CITY OF CLEVELAND WATER DEPARTMENT STANDARD SKETCHES NO. SK-1236-A, SK-1236-B, SK-1236-C, AND SK-1236-D.

DETAILS NOT TO SCALE

B-2658-D

LOW SERVICE DISTRICT

POLYTECH, INC.
CONSULTING ENGINEERS CLEVELAND, OHIO

WATERWORK DETAILS

WEST 85TH STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. 1:066

APPROVED 4-24-87

Dennis L. Tuber
ENGINEER OF WATER DESIGN REVIEW

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
—	—	—	EPY	GA	3/87	

FHWA REGION	STATE	PROJECT	
5	OHIO	IX-1C25(1)	

13/38

CUYAHOGA COUNTY
WEST 85TH STREET

WATERWORK NOTES

GENERAL

SCOPE OF WORK

THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND SUPERVISION NECESSARY TO COMPLETE THE WATERWORK AS SPECIFIED HEREIN, AS SHOWN ON THE PLANS OR AS REQUIRED. THE WORK SHALL INCLUDE THE FURNISHING, INSTALLING, TESTING, CHLORINATION, AND PLACING INTO SERVICE, DUCTILE IRON AND STEEL TEMPORARY AND RELOCATED WATER MAINS WITH ALL APPURTENANCES NECESSARY FOR OR INCIDENTAL TO COMPLETION OF THE WORK.

STANDARDS AND SPECIFICATIONS

(A) ALL STANDARDS AND SPECIFICATIONS REFERENCED HEREIN APPLY TO THE MOST RECENT EDITION, UNLESS NOTED OTHERWISE.

WORK TO BE DONE BY THE CITY OF CLEVELAND

(A) THESE SPECIFICATIONS REQUIRE THE CITY OF CLEVELAND DIVISION OF WATER TO PERFORM CERTAIN DEFINED WORK, UNLESS SPECIFICALLY STATED OTHERWISE. ALL MATERIAL WILL BE FURNISHED BY THE CONTRACTOR, ALTHOUGH THE CITY MAY DO THE ACTUAL WORK OR INSTALLATION. THE CONTRCTOR IS TO INCLUDE THE MATERIAL IN THE APPROPRIATE BID ITEM. THE LABOR, TOOLS, EQUIPMENT, AND INCIDENTALS FURNISHED BY THE CITY WILL BE AT NO EXPENSE TO THE CONTRACTOR.

EXCAVATION

(A) THE CONTRACTOR SHALL REMOVE ALL EXISTING STRUCTURES, ROADWAYS, DRIVEWAYS AND OTHER SIMILAR MATERIALS AND MAKE ALL EXCAVATION NECESSARY FOR THE PROPER CONSTRUCTION OF THE WATER MAIN, PIPE CONNECTIONS AND APPURTENANT STRUCTURES. THE EXCAVATION SHALL INCLUDE THE REMOVAL, HANDLING, REHANDLING AND DISPOSAL OF MATERIALS ENCOUNTERED IN THE WORK AND SHALL INCLUDE ALL PUMPING, BAILING, DRAINING, SHEETING AND BRACING. MOREOVER, THE CONTRACTOR MUST ASSUME ALL RESPONSIBILITY FOR ANY ADDED EXPENSE OR OTHER LIABILITY WHICH MAY ARISE BY MEANS OF QUICKSAND, OBSTACLES OR CONDITIONS FORESEEN OR UNFORESEEN AND ENCOUNTERED IN THE WORK OF THIS CONTRACT.

(B) TRENCHES SHALL IN EVERY CASE BE OF SUFFICIENT WIDTH TO PERMIT SOLID PACKING OF REFILL UNDER AND AROUND PIPES. SATISFACTORY CONSTRUCTION OF ALL APPURTENANCES AND FOR SUCH SHEETING AND SHORING, PUMPING AND DRAINING AS MAY BE NECESSARY.

(C) THE TRENCH SHALL BE DUG TO THE ALIGNMENT AND DEPTH REQUIRED AND ONLY SO FAR IN ADVANCE OF PIPE LAYING AS THE ENGINEER SHALL PERMIT. THE TRENCH SHALL BE SO BRACED AND DRAINED THAT WORKMEN MAY WORK THEREIN SAFELY AND EFFICIENTLY. IT IS ESSENTIAL THAT THE DISCHARGE FROM PUMPS BE LED TO NATURAL DRAINAGE CHANNELS, TO DRAINS, OR TO SEWERS.

(D) THE TRENCH WIDTH MAY VARY WITH AND DEPEND UPON THE DEPTH OF TRENCH AND THE NATURE OF THE EXCAVATED MATERIAL ENCOUNTERED, BUT IN ANY CASE SHALL BE OF AMPLE WIDTH TO PERMIT THE PIPE TO BE LAID AND JOINED PROPERLY AND FOR THE BACKFILL TO BE PLACED AND COMPACTED PROPERLY. THE MINIMUM WIDTH OF UNSHEETED TRENCH SHALL BE EIGHTEEN (18) INCHES. THE MAXIMUM CLEAR WIDTH OF TRENCH SHALL BE NOT MORE THAN TWO (2) FEET GREATER THAN THE OUTSIDE PIPE DIAMETER. WHEN SHEETING AND BRACING IS USED, THE TRENCH WIDTH SHALL BE INCREASED ACCORDINGLY.

(E) THE TRENCH, UNLESS OTHERWISE SPECIFIED, SHALL HAVE A FLAT BOTTOM CONFORMING TO THE GRADE TO WHICH THE PIPE IS TO BE LAID. THE PIPE SHALL BE LAID UPON SOUND SOIL CUT TRUE AND EVEN, SO THAT THE BARREL OF THE PIPE WILL HAVE A BEARING FOR ITS FULL LENGTH.

(F) ANY PART OF THE TRENCH EXCAVATED BELOW GRADE SHALL BE CORRECTED WITH APPROVED MATERIAL, THOROUGHLY COMPACTED.

(G) WHEN THE UNCOVERED TRENCH BOTTOM AT SUBGRADE IS SOFT AND IN THE OPINION OF THE ENGINEER CANNOT SUPPORT THE PIPE, A FURTHER DEPTH AND OR WIDTH SHALL BE EXCAVATED AND REFILLED TO PIPE FOUNDATION GRADE AS REQUIRED OR OTHER APPROVED MEANS SHALL BE ADOPTED TO ASSURE A FIRM FOUNDATION FOR THE PIPE.

(H) LEDGE ROCK, BOULDERS, LARGE STONES, AND SHALE SHALL BE REMOVED TO PROVIDE A CLEARANCE OF AT LEAST SIX (6) INCHES BELOW ALL PARTS OF THE PIPE, VALVES, OR FITTINGS, AND TO A CLEAR WIDTH OF NINE (9) INCHES ON EACH SIDE OF ALL DUCTILE IRON PIPE.

(I) EXCAVATIONS BELOW SUBGRADE IN ROCK, SHALE OR IN BOULDERS SHALL BE REFILLED TO SUBGRADE WITH APPROVED MATERIAL, THOROUGHLY COMPACTED.

(J) BELL HOLES OF AMPLE DIMENSIONS SHALL BE DUG TO EARTH TRENCHES AT EACH JOINT TO PERMIT THE JOINTING TO BE MADE PROPERLY. ADEQUATE CLEARANCE FOR PROPERLY JOINTING PIPE LAID IN ROCK SHALL BE PROVIDED AT BELL HOLES.

(K) THE USE OF EXCAVATING MACHINERY WILL BE PERMITTED EXCEPT IN PLACES WHERE OPERATION OF SAME WILL CAUSE DAMAGE TO TREES, BUILDINGS, OR EXISTING STRUCTURES ABOVE OR BELOW GROUND, IN WHICH CASE HAND METHODS SHALL BE EMPLOYED.

(L) HYDRANTS UNDER PRESSURE, VALVE COVERS, VALVE BOXES, CURB STOP BOXES, FIRE OR POLICE CALL BOXES, OR OTHER UTILITY CONTROLS SHALL BE LEFT UNOBSTRUCTED AND ACCESSIBLE DURING THE CONSTRUCTION PERIODS.

(M) THE CONTRACTOR SHALL MAINTAIN ALL EXCAVATIONS IN GOOD ORDER DURING THE CONSTRUCTION, SO AS NOT TO HINDER OR INJURE THE PIPE LAYING, MASONRY OR OTHER WORK; HE SHALL TAKE ALL REASONABLE PRECAUTIONS TO PREVENT MOVEMENT OF THE SIDES OF SUCH EXCAVATION; AND SHALL REMOVE AT HIS OWN EXPENSE ANY MATERIAL SLIDING INTO THE EXCAVATION.

SHEETING AND BRACING

(A) THE CONTRACTOR SHALL FURNISH AND PUT IN PLACE SUCH SHEETING AND BRACING AS MAY BE REQUIRED TO SUPPORT THE SIDES OF TRENCHES OR OTHER EXCAVATION AND SHALL REMOVE SUCH SHEETING AND BRACING, AS THE TRENCH OR EXCAVATION IS FILLED UP, UNLESS THE ENGINEER SHALL ORDER IT LEFT IN PLACE, IN WHICH CASE, THE CONTRACTOR SHALL CUT THE PLANK OFF AT A HEIGHT AS ORDERED BY THE ENGINEER, OR AS CALLED FOR ON THE CONTRACT DRAWINGS. NO PAYMENT WILL BE MADE FOR WASTED ENDS.

(B) WHENEVER THE EXCAVATIONS FOR THE WORK HEREIN TO BE DONE ARE IMMEDIATELY ADJACENT TO OTHER SUBSURFACE STRUCTURES THE CONTRACTOR SHALL FURNISH AND PLACE SHEETING AND BRACING AND AS MAY BE NECESSARY MINIMIZE THE POSSIBILITY OF DAMAGING THE ADJACENT STRUCTURES.

(C) IF THE ENGINEER IS OF THE OPINION THAT AT ANY POINT SUFFICIENT OR PROPER SUPPORTS, SHEETING, OR BRACING HAVE NOT BEEN PROVIDED, HE MAY ORDER ADDITIONAL SUPPORTS, SHEETING OR BRACING, AT THE EXPENSE OF THE CONTRACTOR, AND THE COMPLIANCE WITH SUCH ORDERS BY THE CONTRCTOR SHALL NOT RELIEVE OR RELEASE HIM FROM HIS RESPONSIBILITY FOR SUFFICIENCY OF SUCH SUPPORTS.

REMOVAL OF EXCAVATED MATERIAL

(A) ALL SURPLUS MATERIAL AND SUCH OTHER MATERIAL AS THE ENGINEER MAY DEEM UNFIT FOR USE AS BACKFILL, SHALL BE DISPOSED OF BY THE CONTRACTOR SO AS TO GIVE A MINIMUM OF INCONVENIENCE TO THE PUBLIC. IN CASE OF SETTLEMENT AFTER BACKFILL, THE CONTRACTOR SHALL SUPPLY SUFFICIENT MATERIAL SATISFACTORY TO THE ENGINEER TO MAKE UP FOR THE DEFICIENCY.

(B) IN THE STORING OF EXCAVATED MATERIAL WHICH IS TO BE USED AS A BACKFILL, THE CONTRACTOR SHALL EXERCISE CARE SO AS TO AVOID INCONVENIENCING THE PUBLIC. IF, IN THE OPINION OF THE ENGINEER, IT IS NECESSARY TO REMOVE THIS EXCAVATED MATERIAL FROM THE STREETS OR LOTS, THE CONTRACTOR SHALL BE REQUIRED TO DO SO.

(C) ANY MATERIAL WHICH MAY SPILL OR DRIP FROM VEHICLES BY HAULING IN THE STREETS, SHALL BE REMOVED AND THE STREETS CLEANED BY THE CONTRACTOR, TO THE SATISFACTION OF THE DIRECTOR OF PUBLIC SERVICE, OF THE CITY OF CLEVELAND.

(D) WHEN SO DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL IMMEDIATELY REMOVE ALL EXCAVATED MATERIALS FROM THE SITE.

CHLORINATION

(A) BEFORE BEING PLACED IN SERVICE, ALL DIRT AND FOREIGN MATTER SHALL BE REMOVED FROM THE TEMPORARY OR RELOCATED WATERMAIN OR EXTENSIONS TO EXISTING MAINS BY PRELIMINARY FLUSHING THROUGH APPROVED MEANS. EACH SECTION OF NEWLY LAID PIPE SHALL BE FLUSHED INDEPENDENTLY. THIS SHALL BE DONE AFTER THE PRESSURE TEST AND MAY BE DONE BEFORE OR AFTER THE TRENCH SHALL HAVE BEEN BACKFILLED.

(B) FOLLOWING PRELIMINARY FLUSHING, THE WATER PIPE SHALL BE CHLORINATED. THE PROCESS OF CHLORINATING, THE METHOD OF PROCEDURE, THE CHLORINATING AGENT, AND THE RATE OF APPLICATION SHALL BE DETERMINED BY THE CITY CHLORINATION AGENT. HOWEVER, THE CONTRACTOR SHALL FURNISH ALL MATERIALS FOR AND INSTALL THE NECESSARY TAPS WHERE REQUIRED IN WATERMAIN SECTIONS TO BE CHLORINATED. THE CONTRACTOR SHALL PERFORM ALL CHLORINATION PROCEDURES UNDER THE DIRECTION OF THE CITY.

(C) FOLLOWING CHLORINATION, ALL TREATED WATER SHALL BE THOROUGHLY FLUSHED FROM THE NEWLY LAID PIPE AT ITS EXTREMITIES UNTIL THE REPLACEMENT WATER THROUGHOUT ITS LENGTH SHALL, UPON TEST, BOTH CHEMICALLY AND BACTERIOLOGICALLY BE PROVEN EQUAL TO THE WATER QUALITY SERVED THE PUBLIC FROM THE EXISTING WATER SUPPLY SYSTEM.

(D) NO SEPARATE PAYMENT SHALL BE MADE FOR CHLORINATION BUT THE COST THEREOF SHALL BE INCLUDED IN THE CONTRACT PRICE BID PER LINEAR FOOT FOR TEMPORARY AND RELOCATED WATERMAINS.

LAYING PIPE

(A) PROPER IMPLEMENTS, TOOLS, AND FACILITIES, SATISFACTORY TO THE ENGINEER SHALL BE PROVIDED AND USED BY THE CONTRACTOR FOR THE SAFE AND CONVENIENT PROSECUTION OF THE WORK. ALL PIPE, FITTINGS, AND VALVES SHALL BE CAREFULLY LOWERED INTO THE TRENCH PIECE BY PIECE BY MEANS OF DERRICK, PROPER SLINGS, AND OTHER SUITABLE TOOLS OR EQUIPMENT, IN SUCH MANNER AS TO PREVENT DAMAGE TO PIPE OR COATING. UNDER NO CIRCUMSTANCES SHALL PIPE OR ACCESSORIES BE DROPPED OR DUMPED INTO THE TRENCH. IF ANY DEFECTIVE PIECE BE DISCOVERED WHILE PIPE IS SUSPENDED OR AFTER BEING LAID, A NEW PIECE SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR AT THE SITE OF THE WORK.

(B) ALL FOREIGN MATTER OR DIRT SHALL BE REMOVED FROM THE INSIDE OF THE PIPE BEFORE IT IS LOWERED INTO ITS POSITION IN THE TRENCH, AND IT SHALL BE KEPT CLEAN BY APPROVED MEANS DURING AND AFTER LAYING.

(C) AT TIMES WHEN PIPE LAYING IS NOT IN PROGRESS, THE OPEN ENDS OF PIPE SHALL BE CLOSED BY APPROVED MEANS, AND NO TRENCH WATER SHALL BE PERMITTED TO ENTER THE PIPE. NO PIPE SHALL BE LAID IN WATER, OR WHEN THE TRENCH CONDITIONS OR THE WEATHER IS UNSUITABLE FOR SUCH WORK.

(D) WHEREVER NECESSARY TO DEFLECT PIPE FROM A STRAIGHT LINE, EITHER IN THE VERTICAL OR HORIZONTAL PLANE TO AVOID OBSTRUCTIONS, TO PLUMB STEMS, OR FOR OTHER REASONS, THE DEGREE OF DEFLECTION SHALL BE APPROVED BY THE ENGINEER.

(E) BEFORE LAYING DUCTILE IRON PIPE, ALL LUMPS, BLISTERS AND EXCESS COAL TAR COATING SHALL BE REMOVED FROM THE BELL AND SPIGOT ENDS OF EACH PIPE. THE PIPE ENDS SHALL THEN BE KEPT CLEAN UNTIL JOINTS ARE MADE.

FLOATING

(A) THE CONTRACTOR SHALL TAKE EVERY PRECAUTION AGAINST THE FLOATING OF THE PIPE DUE TO WATER COMING INTO THE TRENCH, OR THROUGH CAVING IN, FLUSHING OR PUDDLING. IN CASE OF SUCH FLOATING THE CONTRACTOR SHALL REPLACE THE PIPE AT HIS OWN EXPENSE, AND MAKE WHOLLY GOOD ANY INJURY OR DAMAGE WHICH MAY HAVE RESULTED.

TESTING MAINS

(A) ALL PIPES, VALVES, FITTINGS, ETC., SHALL BE LAID IN SUCH A MANNER AS TO LEAVE ALL JOINTS WATERTIGHT. AFTER THE PIPE IS LAID, AND BEFORE BACKFILLING IS PLACED AROUND THE JOINTS, SUCH LENGTHS OF THE WATER MAIN AS THE ENGINEER MAY DETERMINE SHALL BE TESTED UNDER A HYDROSTATIC PRESSURE OF SEVENTY-FIVE (75) POUNDS PER SQUARE INCH ABOVE THE MAXIMUM STATIC PRESSURE PREVAILING AT SITE, BUT NOWHERE LESS THAN 100 PSI.

(B) THE TEST SHALL BE UNDER THE DIRECTION OF THE DIRECTOR OF PUBLIC UTILITIES OR HIS DESIGNATE. THE CONTRACTOR MAY OBTAIN WATER FOR TESTING BY OBSERVING THE RULES AND REGULATIONS ENFORCED IN THE MUNICIPALITIES OR TOWNSHIPS IN WHICH THE WORK IS BEING DONE. THE CITY WILL FURNISH A PRESSURE GAGE FOR MEASURING THE PRESSURE ON THE WATER MAIN, BUT THE CONTRACTOR SHALL FURNISH A SUITABLE PUMP, PIPES, TEST HEADS, AND ALL APPLIANCES, LABOR, FUEL AND OTHER APPURTENANCES NECESSARY TO MAKE THESE TESTS.

(C) THE TEST PRESSURE SHALL BE MAINTAINED FOR A SUFFICIENT LENGTH OF TIME TO ALLOW FOR A THOROUGH EXAMINATION OF JOINTS AND ELIMINATION OF LEAKAGE WHERE NECESSARY. THE PIPE LINES SHALL BE MADE ABSOLUTELY TIGHT UNDER THE TEST PRESSURE.

(D) AFTER A SECTION OF THE WATER MAIN HAS BEEN TESTED, THE CONTRACTOR SHALL DRAIN SAME. IN CASE THE DRAINS ARE CONNECTED TO VALVE OR DRAIN VAULTS, THEN THE CONTRACTOR SHALL, WITHIN A REASONABLE TIME AFTER THE TEST HAS BEEN COMPLETED, PUMP ALL WATER OUT OF THE VAULTS.

(E) IN COLD WEATHER IMMEDIATELY AFTER TESTING A SECTION OF THE WATER MAIN, THE CONTRACTOR IS TO OPEN ALL VALVES, AIR COCKS, BYPASSES AND DRAINS AND PROPERLY DRAIN BONNETS OF ALL VALVES IN THE SECTION OF THE WATER MAIN, AND TAKE ALL OTHER PRECAUTIONS NECESSARY TO PREVENT INJURY TO WATER MAIN AND APPURTENANCES DUE TO FREEZING.

(F) NO SEPARATE PAYMENT SHALL BE MADE FOR TESTING, BUT THE COST THEREOF SHALL BE INCLUDED IN THE CONTRACT PRICE BID PER LINEAL FOOT FOR TEMPORARY AND RELOCATD WATER MAINS.

CLOSING VALVES

A. THE CLOSING OF ALL GATE VALVES ON WATER MAINS FOR MAKING CONNECTIONS, TESTS, OR FOR ANY OTHER CAUSE, SHALL BE DONE BY THE CITY AND SUFFICIENT NOTICE SHALL BE GIVEN TO THE CITY, BY THE CONTRACTOR, SO THAT THE WORK MAY BE DONE WITH A MINIMUM OF INCONVENIENCE TO THE PUBLIC AND DELAY TO THE CONTRACTOR.

B. THE CLOSING OF ALL GATE VALVES ON WATER MAINS FOR MAKING CONNECTIONS, TESTS, OR FOR ANY OTHER CAUSE, SHALL BE DONE BY THE CITY OF CLEVELAND. THE CONTRACTOR SHALL NOTIFY THE CLEVELAND WATER DEPARTMENT THREE (3) WEEKS IN ADVANCE OF THE SHUTDOWN AND THEY WILL SPECIFY THE TIME AND/OR SPECIAL CONDITIONS, HOURS, ETC. SYSTEM DEMANDS MAY CONTROL THE TIME OF DAY, WEEK, MONTH OR YEAR WHEN VALVES MAY BE CLOSED. NO CONSIDERATION FOR DELAYS CAUSED BY SUCH CONTROLLING DEMANDS WILL BE ALLOWED. THE CONTRACTOR SHALL THOROUGHLY INVESTIGATE POSSIBLE CONDITIONS WHERE CLOSING OF VALVES MAY BE RESTRICTED TO A CERTAIN TIME.

BACKFILLING

(A) THIS WORK INCLUDES ALL BACKFILLING, TOGETHER WITH RAMMING, PUDDLING, AND ROLLING, AS REQUIRED; THE REGRADING OF GROUNDS, THE REPLACING OF SURFACE AND SUBSURFACE STRUCTURES; THE PLACING AND MAINTAINING OF TEMPORARY SIDEWALKS; AND DRIVEWAYS; THE FURNISHING OF SUITABLE MATERIAL FOR BACKFILL, RESEEDING LAWNS AND REPLACING TREES AND SHRUBBERY DAMAGED BY THE CONTRACTOR; AND ALL APPURTENANT WORK INCIDENTAL THERETO. PAVEMENTS, CURBS, SIDEWALKS AND DRIVEWAYS WITHIN THE LIMITS OF THE WORK SHALL BE TEMPORARILY SURFACED, MAINTAINED AND FINALLY REPLACED OR REPAVED AS SET FORTH UNDER "ROAD SURFACES, SIDEWALKS, DRIVEWAYS, AND CURBING."

APPROVED 4-21-87

Ronald L. Tuber
ENGINEER OF WATER DESIGN REVIEW

LOW SERVICE DISTRICT

POLYTECH, INC.
CONSULTING ENGINEERS CLEVELAND, OHIO

WATERWORK NOTES

WEST 85TH STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. 1.066

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
–	EDV	–	EDV	GA	3/87	

FHWA REGION	STATE	PROJECT	
5	OHIO	IX-1C 25(1)	

14/38

CUYAHOGA COUNTY
WEST 85TH STREET

WATERWORK NOTES

GENERAL
(CONTINUED)

(B) BACKFILL, UNLESS OTHERWISE SPECIFIED, MAY BE MADE WITH MATERIAL EXCAVATED FROM THE TRENCHES, PROVIDING IT IS SATISFACTORY TO THE ENGINEER. IF, IN THE OPINION OF THE ENGINEER, THE MATERIAL EXCAVATED IS UNSATISFACTORY, THEN THE CONTRACTOR SHALL FURNISH AT HIS OWN EXPENSE OTHER MATERIAL SUITABLE FOR BACKFILL. ALL BACKFILL SHALL BE FREE FROM SLAG, CINDERS, RUBBISH AND OTHER OBJECTIONABLE MATERIAL.

(C) BEFORE LAYING THE PIPE, THE BOTTOM OF THE TRENCH SHALL BE BROUGHT TO THE GRADE OF THE PIPE, EXCEPT AT FIELD JOINTS. WHEREVER THE BOTTOM OF THE TRENCH HAS BEEN EXCAVATED BELOW THE BOTTOM OF THE PIPE, THE CONTRACTOR SHALL PLACE SAND, OR OTHER MATERIAL SATISFACTORY TO THE ENGINEER TO BRING THE BOTTOM OF THE TRENCH TO THE GRADE OF THE BOTTOM OF THE PIPE. THIS BED SHALL BE THOROUGHLY TAMPED BEFORE THE PIPE IS LAID.

(D) UNLESS OTHERWISE SPECIFIED, THE BACKFILL UNDER, AROUND AND TO A DEPTH OF ONE (1) FOOT ABOVE THE TOP OF ALL PIPE, SHALL BE MADE WITH MATERIAL SATISFACTORY TO THE ENGINEER, WHICH MATERIAL SHALL BE FREE FROM STONE AND OTHER OBJECTIONABLE MATERIAL NOTED ABOVE. THE CONTRACTOR MUST USE SPECIAL CARE IN PLACING THIS PORTION OF THE BACKFILL, SO AS TO AVOID INJURING, DISTORTING OR MOVING THE PIPE WHEN COMPACTING SAME. ABOVE THIS LEVEL THE BACKFILL SHALL BE MADE WITH MATERIAL SATISFACTORY TO THE ENGINEER. HOWEVER, WHERE SPECIFIED, SAND SHALL BE USED FOR THE ENTIRE PORTION OF THE BACKFILL. SEE BELOW.

(E) BACKFILLING AS NOTED IN PARAGRAPH D, SHALL BE TAMPED IN THIN LAYERS, SIMULTANEOUSLY ON EACH SIDE OF THE PIPE; AND THOROUGHLY COMPACTED AS TO PROVIDE A SOLID BACKING AGAINST THE EXTERNAL SURFACE OF THE PIPE.

(F) ONLY AFTER THE BACKFILL PREVIOUSLY MENTIONED HAS BEEN SATISFACTORILY COMPACTED, MAY WORK PROCEED IN PLACING THE REMAINING BACKFILL WHICH MUST BE CAREFULLY PLACED AND COMPACTED BY TAMPING, OR ROLLING. ALL PRECAUTIONS MUST BE TAKEN TO ELIMINATE FUTURE SETTLEMENT. THE NUMBER OF MEN TAMPING SHALL BE NOT LESS THAN THE NUMBER BACKFILLING, AND ADDITIONAL MEN SHALL BE KEPT IN THE TRENCH TO SPREAD THE MATERIAL.

(G) BACKFILLING SHALL NOT BE DONE IN FREEZING WEATHER, EXCEPT BY PERMISSION OF THE ENGINEER, AND IT SHALL NOT BE MADE WITH FROZEN MATERIAL, NOR SHALL ANY FILL BE MADE WHERE THE MATERIAL ALREADY IN THE DITCH IS FROZEN.

(H) THE ENTIRE BACKFILL SHALL BE MADE WITH SAND WHERE PERMANENT PAVEMENTS, CURBS, DRIVEWAYS, OR SIDEWALKS, HAVE BEEN OPENED FOR OR UNDERCUT BY THE EXCAVATION, WHERE ORDERED BY THE ENGINEER.

(I) ALL SAND TO BE USED FOR BACKFILL SHALL BE 703.05 OHIO DEPT. OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS.

(J) SPECIAL TREATMENT OF THE TRENCH WILL BE REQUIRED WHERE CINDER OR ACTIVE SULPHUR BEARING SHALE OR CLAYS EXCAVATION EXCEEDING ONE FOOT MEASURED FROM THE TOP SURFACE IS ENCOUNTERED. BEFORE LAYING THE PIPE, THE BOTTOM OF THE TRENCH SHALL BE DUG BELOW GRADE AND THEN BROUGHT TO THE GRADE OF THE PIPE IN THE FOLLOWING MANNER. A FOUR (4) INCH LAYER OF CRUSHED LIME STONE SHALL BE PLACED ON THE ENTIRE WIDTH OF THE BOTTOM OF THE TRENCH, FOLLOWED BY A FILLER OF HYDRATED LIME AND A LAYER OF THREE (3) INCHES OF SAND. THE CRUSHED LIME STONE SHALL BE WELL GRADED FROM FINE TO COARSE, AND FREE FROM SLAG, CINDERS, ASHES, RUBBISH OR OTHER OBJECTIONABLE MATERIAL. ALL LIME STONE MUST BE CAPABLE OF BEING PASSED THROUGH A 3/4 INCH SIEVE. ON TOP OF THIS LAYER OF CRUSHED STONE, HYDRATED LIME SHALL BE SUPPLIED IN THE AMOUNT OF 3/8 OF A POUND PER SQUARE FOOT OF TRENCH. THIS BED OF CRUSHED LIME STONE SHALL BE THOROUGHLY TAMPED BEFORE THE 3 INCH LAYER OF SAND IS PLACED. THE BACKFILL AROUND AND TO THE DEPTH OF 3 INCHES ABOVE THE TOP OF THE PIPE SHALL BE MADE WITH SAND. THE CONTRACTOR MUST USE SPECIAL CARE IN PLACING THIS PORTION OF THE BACKFILL SO AS TO AVOID INJURING OR MOVING THE PIPE WHEN COMPACTING SAME. ON TOP OF THE SAND THE CONTRACTOR SHALL PLACE ANOTHER LAYER OF CRUSHED LIME STONE FIVE (5) INCHES THICK ON THE ENTIRE WIDTH OF THE TRENCH. ON TOP OF THE COMPACTED LAYER OF LIME STONE HYDRATED LIME SHALL BE THEN APPLIED IN THE AMOUNT OF 3/4 OF A POUND PER SQUARE FOOT OF TRENCH. THE REMAINING BACKFILL SHALL BE MADE WITH SAND, CAREFULLY PLACED AND COMPACTED BY TAMPING, PUDDLING, OR ROLLING. ALL PRECAUTIONS SHALL BE TAKEN TO ELIMINATE FUTURE SETTLEMENT. THE TREATMENT OF THE TRENCH BOTTOM, PREVIOUSLY DESCRIBED, MAY BE OMITTED WHERE THE CINDER DEPTH, MEASURED FROM THE TOP SURFACE DOES NOT EXCEED 2'-6".

SODDING

(A) SODDING SHALL BE DONE IN ACCORDANCE WITH THE APPROPRIATE SECTIONS OF THE OHIO DEPT. OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS.

ROAD SURFACES, SIDEWALKS, DRIVEWAYS, AND CURBING

(A) THIS WORK INCLUDES REMOVAL AND REPLACEMENT OF ALL PAVEMENTS, ROAD SURFACES, SIDEWALKS, DRIVEWAYS, OR CURBS WITHIN THE LINES OF EXCAVATION, OR AS REQUIRED FOR ANY OTHER REASON WHICH MAY BE ATTRIBUTED TO WORK WHICH HAS BEEN DONE BY THE CONTRACTOR. UPON INSTALLATION OF THE RELOCATED WATER MAIN, THE CONTRACTOR SHALL COORDINATE PAVEMENT AND ROAD SURFACE REPLACEMENT WITH THE PROPOSED PAVEMENT APPROACH WORK. SEE ROADWAY PLANS, SHEET .

(B) ALL FINAL PAVING OF ROAD SURFACES SHALL BE DONE BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER AND IN CONFORMITY TO THE STATE OF OHIO "CONSTRUCTION MATERIAL SPECIFICATIONS AND STANDARDS". THE CONTRACTOR SHALL BEAR THE ENTIRE COST OF THE WORK. THE BASE OF PAVEMENT OF CONCRETE SHALL BE INSTALLED ON A CAREFULLY PREPARED BED (LEVEL WITH THE BOTTOM OF THE ABUTTING BASE) OVER DISTURBED AREAS AND SHALL BE OF THE THICKNESS SPECIFIED, BUT IN NO CASE LESS THAN 7-IN. THICK. WHERE PAVEMENT OR BASE OF PAVEMENT HAS BEEN DAMAGED BY CAVE-IN, OR BY TRENCH CUT LEAVING A PORTION OR PORTIONS OF PAVEMENT 18-IN, OR LESS IN WIDTH (BETWEEN SUCH CUT OR DAMAGE) TO CURB OR OTHER SUBSTRUCTURE, THAT REMAINING PORTION OF PAVEMENT SHALL BE REMOVED AND RESTORED MONOLOTHIC WITH THE TYPE AND KIND OF PAVEMENT SPECIFIED FOR THE ADJACENT TRENCH AREA. THE WEARING COURSE OVER TRENCH OR OTHER DISTURBED AREAS SHALL BE RESTORED TO MATCH EXISTING PAVEMENT UNLESS OTHERWISE SPECIFIED. ASPHALTIC CONCRETE WEARING COURSE OVER SUCH AREAS SHALL BE NEATLY AND SQUARELY CUT.

(C) ALL DAMAGED OR DISPLACED CURB SHALL BE RENEWED OR RESET TO THE SATISFACTION OF THE ENGINEER. NO FAULTY CURB OR CURB LESS THAN 30-IN. LONG WILL BE PERMITTED FOR REUSE.

(D) THE CONTRACTOR SHALL RESTORE THE SAME TYPE OF PAVEMENT AS ENCOUNTERED.

(E) IF PRIOR TO THE EXPIRATION OF THIS CONTRACT ANY OF THE PAVEMENTS OR ROAD SURFACES WITHIN THE LINES OF EXCAVATION OR ADJACENT THERETO, SHALL HAVE BEEN DAMAGED OR INJURED, DUE TO UNDERMINING, OR FOR ANY OTHER CAUSE WHICH MAY BE ATTRIBUTED TO THE WORK WHICH IS BEING DONE BY THE CONTRACTOR, THEN THE CONTRACTOR SHALL REMOVE SUCH DAMAGED OR INJURED PAVEMENTS OR ROAD SURFACES, FOUNDATIONS OF SAME AND ALL LOOSE EARTH. HE SHALL THEN BACKFILL WITH SAND PROPERLY RAMMED AND REPLACE THE FINAL PAVEMENT OR ROAD SURFACE.

(F) IF ANY SIDEWALKS, DRIVEWAYS OR CURBS, ARE REMOVED OR INJURED BY THE CONTRACTOR IN THE COURSE OF MAKING EXCAVATION OR HANDLING MATERIALS, OR FOR ANY OTHER REASON WHICH MAY BE ATTRIBUTED TO WORK WHICH HAS BEEN DONE BY THE CONTRACTOR, THEN HE SHALL RELAY SAME AFTER ALL WORK, INCLUDING BACKFILLING HAS BEEN COMPLETED. IF ANY STONE SIDEWALKS, DRIVEWAYS, OR CURBS WHICH HAVE BEEN REMOVED OR INJURED, ARE UNFIT TO BE RELAID, THEN THE CONTRACTOR SHALL FURNISH AND RELAY NEW MATERIAL. ALL CONCRETE OR CEMENT SIDEWALKS, DRIVEWAYS OR CURBS, WHICH ARE REMOVED OR INJURED BY THE CONTRACTOR SHALL BE BROKEN UP BY HIM AND HE SHALL FURNISH ALL LABOR AND MATERIALS AND CONSTRUCT NEW SIDEWALKS, DRIVEWAYS OR CURBS, TO REPLACE THOSE REMOVED OR DAMAGED. AT INTERSECTING WALKS, DRIVES, ETC., ADDITIONAL CONCRETE SLABS BEYOND THE EXCAVATION LIMITS SHALL BE REMOVED AND REPLACED WITH NEW MATERIAL, IN ORDER TO AVOID HAVING MORE JOINTS THAN IN THE ORIGINAL WORK. ALL SLABS REPLACED SHALL BE OF FULL WIDTH. THE CONTRACTOR SHALL FURNISH, PLACE AND MAINTAIN, WHEREVER THE SIDEWALK HAS BEEN REMOVED OR DAMAGED BY HIM, A TEMPORARY SIDEWALK SO AS TO PROVIDE A SAFE AND PASSABLE SIDEWALK UNTIL SUCH TIME AS THE FINAL SIDEWALK IS COMPLETED.

UNLESS OTHERWISE CALLED FOR, WALKS SHALL BE FOUR (4) INCHES IN DEPTH. WHERE DRIVEWAY CROSSES SIDEWALK, THIS SECTION SHALL BE SIX (6) INCHES THICK. WHEN DRIVEWAY APRONS FROM THE CURB TO THE SIDEWALK ARE CALLED FOR, THEY SHALL BE SIX (6) INCHES THICK. UNLESS OTHERWISE DIRECTED, THE SURFACE OF THE WALK SHALL HAVE A TRANSVERSE SLOPE EQUAL TO THAT OF THE SIDEWALK WHICH WAS REPLACED.

EXPANSION JOINT FILLER ONE-HALF (1/2) INCH THICK SHALL BE INSTALLED BETWEEN THE WALK AND ANY FIXED STRUCTURE, EXTENDING THE FULL DEPTH OF THE WALK.

(G) ALL PAVEMENTS, ROAD SURFACES, SIDEWALKS, DRIVEWAYS, OR CURBS, WHICH THE CONTRACTOR IS REQUIRED TO REPLACE OR TO HAVE REPLACED, SHALL, BE IN AT LEAST AS GOOD CONDITION AS AT THE TIME OF AWARDING THE CONTRACT.

(H) ALL WORK WHICH THE CONTRACTOR MAY DO IN CONNECTION WITH THE OPENING UP OR REPLACING OF PAVEMENTS, ROAD SURFACES, SIDEWALKS, DRIVEWAYS, OR CURBS, AS WELL AS THE FINAL REPAVING, SHALL BE DONE AT HIS EXPENSE, IN ACCORDANCE WITH THE RULES AND REQUIREMENTS OF THE STREET OR SIDEWALK DEPARTMENTS OF THE CITY OF CLEVELAND AND IN ACCORDANCE WITH THE ADDITIONAL REQUIREMENTS OF THESE SPECIFICATIONS. THE CONTRACTOR SHALL FURNISH EVIDENCE TO THE ENGINEER THAT THE WORK HAS BEEN COMPLETED TO THEIR SATISFACTION.

(I) THE CONTRACTOR SHALL MAKE ALL PAVEMENT CUTS BY CHANNELING MACHINE, HAND-OPERATED PNEUMATIC TOOLS OR BY SUCH OTHER METHODS AS WILL FURNISH A CLEAN CUT IN THE PAVEMENT AND PAVEMENT BASE WITHOUT UNDUE SHATTERING. THE USE OF BALL OR WEIGHT TO BREAK THE PAVEMENT WILL NOT BE PERMITTED.

(J) THE CONTRACTOR SHALL MAINTAIN TWO WAY TRAFFIC AND LOCAL ACCESS AT ALL TIMES, IN ACCORDANCE WITH ITEMS 104.04 AND 107.10 OF THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS. THE CONTRACTOR SHALL MAINTAIN SAFE AND SATISFACTORY ACCESS TO ABUTTING PROPERTIES AND INTERSECTING STREETS AT ALL TIMES DURING CONSTRUCTION, INCLUDING PLACEMENT AND REMOVAL, IF NECESSARY OF TEMPORARY BYPASSES AND DRIVEWAYS.

(K) NO SPECIFIC OR SEPARATE PAYMENT WILL BE MADE FOR ALL OF THIS WORK, BUT THE COST THEREOF SHALL BE INCLUDED IN THE PRICES BID FOR THE VARIOUS ITEMS OF THE WORK TO BE DONE UNDER THIS CONTRACT.

LISTS AND INVOICES

(A) THE CONTRACTOR SHALL FURNISH THE ENGINEER WITH A LIST, IN DUPLICATE, OF PIECES IN EACH SHIPMENT OF PIPE AND SPECIALS, GIVING THE SERIAL NUMBER AND DESIGNATION OF EACH PIPE AND SPECIAL SENT AT THAT TIME.

REMOVED ITEMS

(A) ALL MATERIALS CONSISTING OF PIPE AND FITTINGS, MANHOLE FRAMES, AND COVERS, VALVES, VALVE BOXES, AND COVERS WHICH ARE INDICATED FOR REMOVAL BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND BE REMOVED AND DISPOSED OF BY HIM.

WATERWORK CONSTRUCTION SEQUENCE

AFTER AWARD OF CONTRACT, THE CONTRACTOR THROUGH THE PROJECT ENGINEER, SHALL SUBMIT TO THE CITY OF CLEVELAND WATER DEPARTMENT, INSPECTION AND ENFORCEMENT SECTION, A CONSTRUCTION SCHEDULE RELATING TO WATERWORK.

THE CONTRACTOR SHALL NOTIFY THE CITY OF CLEVELAND, DIVISION OF WATER AND HEAT, INSPECTION AND ENFORCEMENT SECTION, THREE WEEKS PRIOR TO THE START OF WATERWORK (TELEPHONE: 271-4264).

WRITTEN AUTHORIZATION MUST BE OBTAINED FROM THE DIVISION OF WATER AND HEAT FOR THE TIME OF SHUT-DOWN FOR THE EXISTING 8-INCH WATERMAIN.

1. CONTACT THE CITY OF CLEVELAND, DIVISION OF WATER AND HEAT, TO SHUT-DOWN THE EXISTING 8-INCH WATERMAIN BY CLOSING THE EXISTING VALVES.
2. CUT, REMOVE PIPE AS NECESSARY, AND TEMPORARILY PLUG THE EXISTING 8-INCH WATERMAIN. PLUG ALL ABANDONED WATERMAIN ENDS AS SHOWN ON THE DETAIL, SHEET B-2658-B.
3. INSTALL THE NEW 12-INCH WATERMAIN TO TEST POINTS NEAR THE EXISTING 8-INCH VALVES, REMOVING THE EXISTING 8-INCH WATERMAIN AS NECESSARY.
4. TEST AND CHLORINATE THE NEW 12-INCH WATERMAIN.
5. REMOVE ALL TEMPORARY PLUGS AND CONNECT THE NEW 12-INCH WATERMAIN TO THE EXISTING WATERMAIN.
6. OPEN THE EXISTING 8-INCH VALVES AND PLACE THE NEW 12-INCH WATERMAIN IN SERVICE.

WHERE "TIED DISTANCES" ARE INDICATED ON THE PLANS FOR DUCTILE IRON PIPE, THE CONTRACTOR SHALL USE BOLTLESS RESTRAINED PUSH-ON JOINTS WITH COMPRESSED RUBBER RING INSERTS.

PIPE SUPPORT ASSEMBLIES SHALL BE COMPLETE INCLUDING ALL MATERIALS, CADMIUM PLATED SHOULDER AND CLAMP BOLTS, WASHERS AND NUTS. THE SUPPORT ASSEMBLY CLAMP, SEAT PLATE AND SHIMS SHALL ALL BE HOT DIPPED GALVANIZED AFTER FABRICATION PER ASTM A-123 LATEST REVISIONS. NO FIELD WELDING OF GALVANIZED STEEL PIPE WILL BE PERMITTED. THERE SHALL BE A MINIMUM OF TWO (2) PIPE SUPPORTS FOR EACH PIPE LENGTH.

APPROVED 4-21-87

Donald L. Tudor
ENGINEER OF WATER DESIGN REVIEW

LOW SERVICE DISTRICT

POLYTECH, INC.
CONSULTING ENGINEERS CLEVELAND, OHIO

WATERWORK NOTES

WEST 85TH STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. 1066

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
EDV	EDV	—	EDV	GA	3/87	

FHWA REGION	STATE	PROJECT	
5	OHIO	IX - 1C 25(1)	

15/38

CUYAHOGA COUNTY
WEST 85TH STREET

WATERWORK NOTES

ITEM SPECIAL - RELOCATED WATERMAIN

WORK INCLUDED

(A) THE CONTRACTOR SHALL FURNISH ALL THE MATERIALS FOR AND SHALL PROPERLY CONSTRUCT AND CONNECT IN PLACE AT THE LOCATIONS SHOWN ON THE DRAWINGS OR AS DIRECTED, ALL DUCTILE IRON PIPE AND FITTINGS, GALVANIZED STEEL PIPE AND FITTINGS, INCLUDING ALL EXCAVATION WORK, THE CUTTING INTO AND REMOVAL OF EXISTING PIPE, STEEL PIPE FLANGES, COUPLINGS, EXPANSION JOINT

ASSEMBLIES, FASTENINGS, PIPE SUPPORT ASSEMBLIES FOR RELOCATED WATER MAINS, FASTENINGS, APPURTENANCES, PIPING INSULATION AND APPURTENANCES, SLEEVE PACKING THRU ABUTMENT WALLS, BACKFILLING, SAND BACKFILL, AND REPAVING, ALL AS REQUIRED FOR THE PROPER COMPLETION OF THE WORK.

DUCTILE IRON PIPE AND FITTINGS

(A) ALL DUCTILE IRON PIPE SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI A21.50- AND ANSI A21.51-, AWWA CC150- AND C151- RESPECTIVELY. ALL DUCTILE IRON FITTINGS SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI A21.10- OR AWWA C110- DUCTILE IRON SHALL HAVE A MINIMUM OF 60,000 PSI ULTIMATE TENSILE STRENGTH, 40,000 PSI YIELD STRENGTH AND 10% ELONGATION. THE CHEMICAL ANALYSIS SHALL BE AS FOLLOWS: CARBON 3% MINIMUM; PHOSPHOROUS .08% MAXIMUM; AND SILICON 2.75% MAXIMUM. THE THICKNESS OF THE CENTRIFUGALLY CAST DUCTILE IRON PIPE SHALL CONFORM TO THE FOLLOWING:

SIZE	WORKING PRESSURE	STANDARD THICKNESS	CLASS
12"	350 PSI	0.49"	56

(B) ALL FITTINGS, SUCH AS BENDS, TEES, ETC. SHALL HAVE BELL AND BELL OR BELL AND SPIGOT ENDS WITH BOLTLESS RESTRAINED SLIP-ON TYPE JOINT WITH COMPRESSED RUBBER RING INSERTS.

(C) ALL PIPE SHALL HAVE BELL AND SPIGOT ENDS FOR BOLTLESS RESTRAINED SLIP-ON TYPE JOINT WITH COMPRESSED RUBBER RING INSERTS UNLESS OTHERWISE SHOWN. ALL PIPE AND FITTINGS SHALL BE CEMENT LINED.

(D) GASKETS SHALL BE OF RUBBER OR OTHER EQUALLY EFFECTIVE PROTECTION AGAINST UNEVEN DISTORTION OF THE GASKET.

(E) WHERE FITTINGS ARE SHOWN WHICH ARE NOT COVERED BY THE ABOVE SPECIFICATIONS, THEY IN SUCH PARTICULARS AS ARE LACKING THEREON SHALL CONFORM TO THE DIMENSIONS AND OTHERWISE MEET THE SPECIFICATIONS FOR THE RESPECTIVE TYPE WHICH ARE CARRIED IN THE LATEST REVISIONS TO THE CURRENT EDITION OF THE "HANDBOOK OF CAST IRON PIPE" BY THE CAST IRON PIPE RESEARCH ASSOCIATION OR WHICH ARE OTHERWISE SHOWN ON THE CONTRACT DRAWINGS.

(F) PLUGS FOR BELL AND SPIGOT PIPE AND CAPS FOR LUGGED PIPE SHALL BE FURNISHED WITH TWO (2) PLUGGED TWO (2") INCH TAPS FOR DRAIN AND AIR RELIEF CONNECTIONS.

(G) CLOSURE PIECES SHALL BE ACCURATELY MEASURED AND CUT IN THE FIELD AND INSTALLED USING SOLID TYPE PATTERN SLEEVES AS SHOWN OR AS REQUIRED.

(H) TESTS, INSPECTION, REPORTS AND ANALYSES OF TESTS OF SAMPLES FOR ALL MATERIALS SHALL BE FURNISHED AS SET FORTH ELSEWHERE IN THESE SPECIFICATIONS.

(I) BITUMASTIC COATING SHALL BE APPLIED ON THE EXTERIOR OF ALL DUCTILE IRON PIPE AND FITTINGS IN ACCORDANCE WITH AWWA SPECIFICATIONS. ALL DUCTILE WATER MAIN PIPE AND FITTINGS SHALL BE GIVEN, IN ADDITION TO THAT SPECIFIED, A COATING OF FOUR (4) MILS ADDITIONAL THICKNESS.

GALVANIZED STEEL PIPE ON BRIDGE STRUCTURES

(A) GALVANIZED STEEL PIPE SHALL BE 12.75" O.D. X .50" WALL ASTM A-53 GRADE B.

(B) FLANGED JOINTS SHALL BE INSTALLED AS SHOWN ON THE DRAWINGS, FLANGES SHALL BE EITHER CAST STEEL, FORGED OR ROLLED STEEL, OR PROPERLY WELDED AND MACHINE FABRICATED STEEL PLATES, WELDED TO PIPE WITH TWO CONTINUOUS WELDS. THEY SHALL HAVE PLAIN FACES AND SHALL BE FACED TRUE AND SMOOTH AT RIGHT ANGLES TO THE AXIS OF THE PIPE AND SHALL BE SPOT FACED ON THE BACK. DRILLING SHALL CONFORM TO "AMERICAN 1928 STANDARD" DRILLING 150 POUND TEMPLATE. EACH BLIND FLANGE SHALL BE CAST IRON AND HAVE BOSSES TAPPED AT TOP AND BOTTOM FOR TWO (2) INCH STANDARD PIPE AND FURNISHED WITH PLUGS. ALL BOLTS FOR FLANGES AND OTHER TYPES OF BOLTING SHALL CONFORM TO THE "TENTATIVE SPECIFICATIONS FOR STEEL MACHINE BOLTS AND NUTS AND TAP BOLTS, ASTM DESIGNATION A 307-63T" GRADE A, EXCEPT WHERE ONE OR BOTH FLANGES ARE CAST IRON, IN WHICH CASE BOLTS SHALL BE GRADE B.

(C) EXPANSION JOINT ASSEMBLY

THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL OF THE EXPANSION JOINT ASSEMBLY.

THE JOINT ASSEMBLY SHALL BE "DRESSER STYLE 63 TYPE 1" SLIP TYPE WITH MINIMUM 1/2" THICK BODY AND SLIP, WITH AN 8-IN. TRAVERSE OR APPROVED EQUAL. THE JOINT ASSEMBLY SHALL INCLUDE ALL MATERIALS. CADMIUM PLATED BOLTS, NUTS AND WASHERS; WELDED NECK FLANGES A.S.A. 150# AND GASKETS. NO FIELD WELDING OF GALVANIZED STEEL PIPE WILL BE PERMITTED. THE EXPANSION JOINT SHALL BE GALVANIZED EXCEPT SLIP PIPE.

(D) VICTAULIC TYPE COUPLINGS

WHERE SHOWN ON THE DRAWINGS OR WHERE REQUIRED, THE CONTRACTOR SHALL FURNISH AND INSTALL VICTAULIC TYPE COUPLINGS STYLE-77 FOR CONNECTION OF STEEL PIPES. STEEL PIPE SHALL BE FABRICATED AND GROOVED AS INDICATED ON THE DRAWINGS.

COUPLINGS SHALL BE COMPOSED OF MALLEABLE IRON HOUSINGS HELD TOGETHER WITH STEEL BOLTS, HEAT TREATED AND WITH A CONTINUOUS HOLLOW, MOLDED RUBBER SEALING RING, OF SUCH TYPE THAT THE SEAL BECOMES TIGHT AS THE PRESSURE WITHIN THE PIPE INCREASES. THE JOINTS SHALL BE CONSTRUCTED AND INSTALLED AND BE EQUAL IN ALL RESPECTS TO THOSE MANUFACTURED BY THE VICTAULIC COMPANY OF AMERICA. MALLEABLE HOUSING SHALL CONFORM THE THE "STANDARD SPECIFICATIONS FOR MALLEABLE IRON CASTINGS, ASTM DESIGNATION: A 47," BOLTS SHALL BE MANUFACTURED BY THE COUPLING MANUFACTURER AND SHALL BE HEAT TREATED STEEL BOLTS HAVING 100,000 PSI TENSILE STRENGTH. ALL BOLTS AND NUTS SHALL BE ZINC COATED BY THE "HOT-DIP" METHOD ACCORDING TO ASTM A-123.

ALL METAL PARTS OF THE COUPLINGS SHALL BE COATED AT THE SHOP WITH ONE COAT OF BITUMINOUS PRIMER FURNISHED BY THE SAME MANUFACTURER WHO FURNISHED THE COATINGS AS SPECIFIED UNDER "PAINTING".

PIPE SUPPORT ASSEMBLIES

(A) THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL OF THE PIPE SUPPORT ASSEMBLIES.

(B) PIPE SUPPORT ASSEMBLIES SHALL BE COMPLETE INCLUDING ALL MATERIALS, CADMIUM PLATED SHOULDER AND CLAMP BOLTS, WASHERS AND NUTS. THE SUPPORT ASSEMBLY CLAMP, SEAT PLATE AND SHIMS SHALL ALL BE HOT DIPPED GALVANIZED AFTER FABRICATION PER ASTM A-123 LATEST REVISIONS. NO FIELD WELDING OF GALVANIZED STEEL PIPE WILL BE PERMITTED. THERE SHALL BE A MINIMUM OF TWO (2) PIPE SUPPORTS FOR EACH PIPE LENGTH.

INSULATION, APPURTENANCES AND FASTENINGS

(A) THE CONTRACTOR SHALL FURNISH AND INSTALL INSULATION SLEEVE PACKING, APPURTENANCES AND FASTENINGS AS CALLED FOR ON THE WATERWORK DETAIL PLANS.

(B) THE VOID BETWEN THE PIPE SLEEVE AND THE WATERMAIN THROUGH THE BRIDGE ABUTMENTS SHALL BE FILLED WITH JUTE PACKING AND SEALED AT BOTH ENDS WITH THREE (3") INCHES OF HOT POURED LEAD.

CEMENT LINING

(A) ALL DUCTILE IRON PIPE AND FITTINGS, SHALL BE GIVEN A CEMENT MORTAR LINING AT THE POINT OF MANUFACTURE. THE LINING SHALL CONFORM TO THE AMERICAN NATIONAL STANDARD ANSI A21.4 (AWWA C104) AND ALL SUBSEQUENT AMENDMENTS THERETO.

MARKING

(A) ALL PIPE AND FITTINGS SHALL BE SUITABLY MARKED TO DENOTE THE MANUFACTURER, CLASS, DATE, WEIGHT, AND OTHER ELEMENTS OF IDENTIFICATION.

INSTALLING PIPE

(A) PROPER AND SUITABLE TOOLS AND APPLIANCES FOR THE SAFE AND CONVENIENT HANDLING AND INSTALLATION OF THE PIPES AND FITTINGS SHALL BE USED. GREAT CARE SHALL BE TAKEN TO PREVENT THE PIPE COATINGS AND FITTINGS FROM BEING DAMAGED PARTICULARLY ON THE INSIDE OF THE PIPES AND FITTINGS AND ANY SUCH DAMAGE SHALL BE REMEDIED AS DIRECTED. ALL PIPES AND FITTINGS SHALL BE CAREFULLY EXAMINED BY THE CONTRACTOR FOR DEFECTS JUST BEFORE LAYING AND NO PIPE OR FITTING SHALL BE LAID WHICH IS KNOWN TO BE DEFECTIVE.

(B) IF ANY DEFECTIVE PIPE IS DISCOVERED AFTER HAVING BEEN INSTALLED, IT SHALL BE REMOVED AND REPLACED WITH A SOUND PIPE OR FITTING IN A SATISFACTORY MANNER, BY THE CONTRACTOR AT HIS OWN EXPENSE. ALL PIPES AND FITTINGS SHALL BE THOROUGHLY CLEANED BEFORE THEY ARE INSTALLED, SHALL CONFORM TO THE LINES AND GRADES GIVEN BY THE ENGINEER. OPEN ENDS OF PIPES SHALL BE KEPT PLUGGED WITH A BULKHEAD DURING CONSTRUCTION.

(C) PIPE LAID IN TRENCH SHALL BE LAID TO A FIRM AND EVEN BEARING FOR ITS FULL LENGTH. PRECAUTIONS SHALL BE TAKEN AGAINST FLOATING.

(D) IT IS THE INTENTION OF THESE SPECIFICATIONS TO SECURE FIRST CLASS WORKMANSHIP IN THE PLACING OF PIPE AND ACCESSORIES. IN SUCH DETAILS AS ARE NOT SPECIFICALLY MENTIONED HEREIN OR CALLED FOR ON THE DRAWINGS, THE CONTRACTOR WILL BE REQUIRED TO CONFORM WITH THE APPLICABLE SECTIONS OF THE LATEST "STANDARD SPECIFICATIONS FOR LAYING CAST IRON PIPE" AS ADOPTED BY THE AMERICAN WATER WORKS ASSOCIATION.

CUTTING PIPE

(A) WHENEVER THE PIPES REQUIRE CUTTING TO FIT INTO THE LINES, THE WORK SHALL BE DONE IN A SATISFACTORY MANNER SO AS TO LEAVE A SMOOTH END AT RIGHT ANGLES TO THE AXIS OF THE PIPE. IN NO EVENT SHALL FLAME CUTING BE USED. WHEN A PIECE OF PIPE IS CUT TO FIT INTO THE LINE, NO PAYMENT WILL BE MADE FOR THE PORTION CUT OFF AND NOT USED IN THE LINE.

DUCTILE IRON PIPE JOINTS

(A) FOR ANY REQUIRED LEAD JOINTS, THE JOINT SHALL BE MADE WITH SUITABLE YARNING MATERIAL AND SOFT PIG LEAD IN CONFORMITY TO THE REQUIREMENTS OF AWWA C601. THE PACKING SHALL BE TWISTED AND THOROUGHLY DRIVEN INTO THE BELL SO THAT THE LEAD, AFTER HAVING BEEN CAULKED, SHALL HAVE A DEPTH OF 2-1/2-IN.

THE FURNACE AND MELTING POT SHALL BE KEPT NEAR THE JOINT TO BE POURED AND EACH JOINT SHALL BE MADE WITH ONE POURING. DROSS SHALL NOT BE ALLOWED TO ACCUMULATE IN THE MELTING POT. THE JOINTS SHALL BE THOROUGHLY CAULKED BY COMPETENT PIPE JOINERS AND IN SUCH MANNER AS WILL SECURE A TIGHT JOINT WITHOUT OVERSTRAINING THE IRON OF THE BELL.

(B) WHERE "TIED DISTANCES" ARE INDICATED ON THE PLANS FOR DUCTILE IRON PIPE, THE CONTRACTOR SHALL USE BOLTLESS RESTRAINED PUSH-ON JOINTS WITH COMPRESSED RUBBER RING INSERTS.

PAINTING

(A) AFTER INSTALLATION, ALL DAMAGED COATINGS AND ALL BOLTS SHALL BE CLEANED AND PAINTED WITH THREE (3) FIELD COATS OF INERTOL 66 OR BITUMASTIC 50 OR EQUIVALENT. APPLIES TO UNDERGROUND CONSTRUCTION ONLY.

DRAWINGS

(A) THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL FOUR PRINTS OF ALL SHOP DRAWINGS FOR PIPE AND FITTINGS AND MISCELLANEOUS DETAILS WHICH ARE NOT STANDARD CONSTRUCTION, AND ARE NOT MENTIONED IN THE REGULAR CATALOGUE OF THE COMPANY FURNISHING THE PIPE. NO WORK SHALL BE DONE IN THE SHOP UNTIL AFTER THE DRAWINGS HAVE BEEN APPROVED.

(B) THE APPROVAL OF THE DRAWINGS BY THE ENGINEER SHALL NOT RELIEVE THE CONTRACTOR OF ANY OF HIS OBLIGATIONS IN CONNECTION WITH THIS CONTRACT.

(C) TWO PRINTS OF EACH OF THE DRAWINGS SUBMITTED WILL BE RETURNED WITH THE CRITICISMS OR APPROVAL OF THE ENGINEER. IN CASE THE DRAWINGS ARE NOT APPROVED, THE CONTRACTOR SHALL AGAIN SEND FOR APPROVAL, DUPLICATE REVISED PRINTS OF THE DRAWINGS TO TAKE CARE OF THE CRITICISMS NOTE, AND AFTER THE DRAWINGS HAVE BEEN FINALLLY APPROVED, THE CONTRACTOR SHALL FURNISH TO THE ENGINEER THREE (3) MYLAR OR REPRODUCIBLE CLOTH TRACINGS OF EACH DRAWING. NO WORK SHALL BE DONE IN THE SHOP UNTIL AFTER THE DRAWINGS HAVE BEEN FINALLY APPROVED.

EXPERIENCE QUALIFICATIONS

(A) ALL BIDDERS WILL BE REQUIRED TO SHOW TO THE SATISFACTION OF THE ENGINEER THAT THE TYPE AND SIZE OF PIPE AND FITTINGS HE PROPOSES TO FURNISH WILL BE MADE BY A MANUFACTURER WHOSE PIPE HAS BEEN SUCCESSFULLY USED FOR LIKE WORK OUTSIDE OF THE BIDDERS WORKS FOR A PERIOD OF NOT LESS THAN FIVE YEARS.

MEASUREMENT

(A) THE NUMBER OF LINEAR FEET OF PIPE AND CONNECTIONS TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF LINEAR FEET FURNISHED AND PLACED IN ACCORDANCE WITH THESE SPECIFICATIONS AS MEASURED ALONG THE AXIS OF THE PIPING INCLUDING FITTINGS AND VALVES CONNECTED UP IN PLACE. FOR CONNECTIONS BETWEEN NEW AND EXISTING MAINS, MEASUREMENT SHALL BE THE DISTANCE FROM CENTERLINE TO CENTERLINE OF MAINS AND THE ACTUAL LENGTH OF EXISTING MAIN ORDERED TO BE REMOVED TO MAKE THE CONNECTION.

PAYMENT

(A) THE FOOTAGE MEASURED AS PROVIDED ABOVE SHALL BE PAID FOR AT THE CONTRACT PRICE BID PER LINEAL FOOT FOR "ITEM SPECIAL - RELOCATED WATER MAIN" CLASSIFIED AS TO SIZE AND TYPE, FOR WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR EXCAVATION; FOR FURNISHING, HAULING, PLACING, CUTTING INTO AND CONNECTING THE PIPE AND PIPE BENDS FOR FURNISHING AND INSTALLING THRUST BLOCKS, SHEETING AND BRACING, PIPE SUPPORT ASSEMBLIES, SAND BACKFILL AND INCIDENTAL CONCRETE; FOR CHLORINATION AND DISCARDED MATERIAL, SEEDING, AND REPAVING; AND FOR ALL LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM EXCEPT FOR THE ITEMS SPECIFICALLY LISTED AS SEPARATE PAY ITEMS.

APPROVED 4-21-87

Arnold L. Tuber
ENGINEER OF WATER DESIGN REVIEW

LOW SERVICE DISTRICT

POLYTECH, INC.
CONSULTING ENGINEERS CLEVELAND, OHIO

WATERWORK NOTES

WEST 85TH STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO 1266

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
-	EDV	—	EDV	GA	3/87	

FHWA REGION	STATE	PROJECT	
5	OHIO	IX - 1C25(1)	

16/38

CUYAHOGA COUNTY
WEST 85TH STREET

WATERWORK NOTES

MISCELLANEOUS PLASTIC AND METAL

WORK INCLUDED

A. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL MISCELLANEOUS METAL OR PLASTIC WORK WHICH IS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT AND IS NOT SPECIFICALLY INCLUDED UNDER THE OTHER ITEMS OF THESE SPECIFICATIONS.

B. IN GENERAL, THE WORK SHALL INCLUDE THE FURNISHING AND INSTALLING OF MANHOLE FRAMES AND COVERS, MANHOLE STEPS, VALVE BOXES, EXTENSION STEMS AND BRACE, STRUCTURAL MEMBERS, BRONZE BOLTS, AND OTHER SIMILAR ITEMS REQUIRED FOR THE PROPER COMPLETION OF THE WORK.

MATERIALS

ALL CASTINGS SHALL CONFORM TO THE REQUIREMENTS OF ITEM 604 OF THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIALS SPECIFICATIONS, EXCEPT THAT THE CAST IRON SHALL CONFORM TO ASTM DESIGNATION A48, CLASS 30-B FOR MANHOLE FRAME AND COVER. ALL STRUCTURAL STEEL SHALL MEET THE REQUIREMENTS OF THE ASTM SPECIFICATION A36. ALL BRONZE BOLTS AND NUTS SHALL CONFORM TO THE U.S. STANDARD SIZES, AND SHALL BE CLEAN CUT AND HAVE WELL FITTED THREADS. ALL BRONZE BOLTS AND NUTS SHALL BE TOBIN OR MANGANESE BRONZE, OR OF SIMILAR APPROVED MATERIALS.

CAST IRON VALVE BOXES AND COVERS SHALL BE GRAY IRON CASTINGS, IN WHICH APPEARANCE AND DIMENSION TOLERANCES ARE PRIMARY CONSIDERATIONS AND STRENGTH IS NOT A PRIMARY OR MAJOR CONSIDERATION. VALVE BOXES AND COVERS SHALL BE ASTM DESIGNATION A48 WITH NO SPECIFIC REQUIREMENT AS TO CLASS. CHEMICAL COMPOSITION SHALL NOT BE CONSIDERED, BUT THE MATERIAL SHALL BE OF GOOD QUALITY AND OF SUCH CHARACTER AS SHALL MAKE THE METAL OF THE CASTINGS STRONG, TOUGH AND OF EVEN GRAIN. THE METAL SHALL BE MADE WITHOUT ANY ADMIXTURE OF CINDER IRON OR OTHER INFERIOR METAL.

PLASTIC VALVE BOX SHALL BE INJECTION MOLDED AND COMMERCIALLY MANUFACTURED UTILIZING A COMPOUND PER ASTM D-2853-70, CLASS 1212. MATERIAL SHALL BE A RIGID COMBINATION OF POLYOLEFIN WITH FIBROUS INORGANIC COMPONENT REINFORCING, AND U.V. STABILIZER ADDITIVES TO ASSURE RESISTANCE TO MATERIAL DEGRADATION FROM ULTRA-VIOLET LIGHT. THE ENTIRE UPPER SECTION OF THE BOX SHALL BE MADE OF A MAGNETICALLY LOCATEABLE MATERIAL. THE USE OF MAGNETS WILL NOT BE PERMITTED. APPEARANCE AND DIMENSIONAL TOLERANCES ARE PRIMARY CONSIDERATIONS AND STRENGTH A MAJOR CONSIDERATION.

PLASTIC VALVE BOX SHALL HAVE A CAST IRON RING AND A CAST IRON 4-PRONGED TRAFFIC LID, CAST IRON SHALL HAVE A MINIMUM WEIGHT OF 18 LBS, AND MUST CONFORM TO ASTM A-126, CLASS 20 SPECIFICATIONS. BOX TO BE BUFFALO TYPE (SLIP) OR (SCREW) AND HAVE A SHAFT DIAMETER OF 5-1/4 IN. THE BOTTOM PART OF THE BOX SHALL HAVE A BELL MEASURING 7-5/8-IN HIGH BY 10-1/16-IN WIDE AND HAVE A KNOCKOUT AS STANDARD EQUIPMENT. A NO. 6 ROUND BASE AND A 20-IN. EXTENSION SECTION MUST BE AVAILABLE.

PHYSICAL PROPERTIES OF MOLDED PLASTIC

PROPERTIES	TEST METHOD ASTM	MINIMUM TEST VALUES
TENSILE STRENGTH (2.0"/MIN.)	D-638-72	3,400 PSI
FLEXURIAL MODULUS	D-790-71	191,000 PSI
COMPRESSIVE STRENGTH (.05"/MIN.)	D-695-69	3,350 PSI
IMPACT STRENGTH, IZOD	D-256-72	.6 FT LB/IN.
DUROMETER HARDNESS, TYPE D	D-2240-68	60
DEFLECTION TEMPERATURE @66 PSI STRESS	D-648-72	230F
SPECIFIC GRAVITY	D-692-66	1.15

WORKMANSHIP AND FINISH SHALL CONFORM SUBSTANTIALLY TO THE DIMENSIONS ON THE CONTRACT DRAWINGS OR FURNISHED DRAWINGS. THE CASTINGS OR MOLDINGS SHALL BE FREE FROM INJURIOUS DEFECTS, CRACKS, GAS HOLES, FLAWS, AND EXCESSIVE SHRINKAGE. ADDITIONAL INSPECTION MAY BE MADE AT THE PROJECT OR WORK SITE. INSPECTION SHALL BE VISUAL INSPECTION FOR APPEARANCE AND SURFACE SMOOTHNESS IN COMPARISON WITH SAMPLES ACCEPTED AS STANDARD.

SAMPLE CASTINGS OR MOLDINGS FROM EACH PATTERN, WHEN REQUIRED BY THE ENGINEER, SHALL BE SUBMITTED BY THE MANUFACTURER FOR THE PURPOSE OF ESTABLISHING STANDARDS OF APPEARANCE AND DIMENSIONAL TOLERANCES. EACH CERTIFICATION SO FURNISHED SHALL BE SIGNED BY AN AUTHORIZED AGENT OF THE MANUFACTURER.

CLEANING AND TESTING

ALL CASTINGS SHALL BE THOROUGHLY CLEANED AND SUBJECTED TO A CAREFUL HAMMER TEST.

NO CASTINGS SHALL BE COATED UNLESS CLEAN AND FREE FROM RUST, AND APPROVED IN THESE RESPECTS BY THE ENGINEER OR HIS AUTHORIZED INSPECTOR IMMEDIATELY BEFORE BEING DIPPED.

COATING

EACH CASTING SHALL BE SPRAYED OR BRUSHED INSIDE AND OUT WITH ONE COAT OF ASPHALTIC COMPOUND VARNISH. THE VARNISH SHALL BE MADE OF HIGH GRADE ASPHALT FLUXED AND BLENDED WITH PROPERLY TREATED DRYING OILS AND THINNED TO A PROPER CONSISTENCY WITH A VOLATILE SOLVENT. THE VARNISH SHALL BE MADE TO COMPLY WITH FEDERAL SPECIFICATIONS 77-V-SIA OR JOINT ARMY-NAVY SPECIFICATION JAN-P-450. OTHER METHODS OF COATING AND TYPES OF COATING MATERIAL SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER; IN ADDITION TO THE SHOP COAT, THE CASTINGS SHALL RECEIVE TWO (2) COATS OF APPROVED PAINT.

INSPECTION

THE ENGINEER OR HIS AUTHORIZED REPRESENTATIVE SHALL HAVE THE RIGHT TO INSPECT THE MATERIAL AND WORK DONE, AS THE INTERESTS OF THE CITY OR STATE MAY REQUIRE. SUCH INSPECTION SHALL NOT RELIEVE THE CONTRACTOR FROM ANY OBLIGATION TO PERFORM SAID WORK STRICTLY IN ACCORDANCE WITH THE SPECIFICATIONS, AND ANY MODIFICATION THEROF, AS HEREIN PROVIDED, AND WORK NOT SO CONSTRUCTED SHALL BE REMOVED AND MADE GOOD BY THE CONTRACTOR AT HIS OWN EXPENSE. ALL MANHOLE RINGS AND COVERS MUST BE SOUND AND SHALL CONFORM TO THESE SPECIFICATIONS, AND ANY DEFECTIVE CASTINGS WHICH MAY HAVE PASSED THE INSPECTOR AT THE WORKS, OR ELSEWHERE, SHALL BE AT ALL TIMES LIABLE TO REJECTION WHEN DISCOVERED, UNTIL THE DATE OF FINAL PAYMENT UNDER THIS CONTRACT.

STEPS AND LADDERS

DUCTILE IRON STEPS AND LADDERS OF THE SIZE AND SHAPE SHOWN ON THE CONTRACT DRAWINGS SHALL BE INTO THE BRICK AND CONCRETE MASONRY OF THE MANHOLES AS INDICATED ON THE DRAWINGS.

RIMS AND COVERS

A. ALL CAST IRION MANHOLE RIMS AND COVERS OF THE FORMS, DIMENSIONS AND DETAILS SHOWN ON THE CONTRACT DRAWINGS SHALL BE FURNISHED AND INSTALLED AS DIRECTED.

B. THE RIMS SHALL BE PROPERLY SET IN PLACE IN A FULL BED OF MORTAR OR POURED MONOLITHIC IN THE MASONRY, AT SUCH ELEVATION AS TO MAKE THE TOP OF THE RIM CONFORM TO THE FINISHED SURFACES OF THE STRUCTURES OR THE FINISHED GRADE AS ESTABLISHED BY THE ENGINEER.

VALVE BOXES AND COVERS

THE CONTRACTOR SHALL FURNISH AND INSTALL, OVER EACH VERTICALLY SET VALVE AT THE LOCATIONS SHOWN ON THE DRAWINGS, OR AS REQUIRED, VALVE BOXES WITH COVERS OF THE ASSEMBLED TYPES AND SIZES HEREINAFTER SPECIFIED OR INDICATED ON THE CONTRACT PLANS.

A. FOR WATER SERVICE CONNECTIONS AND VALVES TO EIGHT INCH (8") SIZE:
ROUND-COVER WITH BOTTOM/BASE NO. 2 & 3, PLASTIC BOTTOM OR ALTERNATE NO. 1.

B. FOR VALVES OF TEN INCH (10") SIZE:
ROUND OR SQUARE COVER WITH BOTTOM/BASE NO. 4, ALTERNATE BOTTOM NO. 2 WITH NO. 6 BASE, OR PLASTIC BOTTOM WITH PALSTIC NO. 6 BASE.

C. FOR VALVE OF TWELVE INCH (12") SIZE:
ROUND OR SQUARE COVER WITH BOTTOM/BASE NO. 4, ALTERNATE BOTTOM NO. 2 WITH NO. 6 OR 8 BASE, OR PLASTIC BOTTOM WITH PLASTIC NO. 6 BASE.

D. FOR VALVES OF SIXTEEN INCH (16") SIZE:
ROUND OR SQUARE COVER WITH BOTTOM/BASE NO. 4, ALTERNATE BOTTOM NO. 2 WITH NO. 8 OR 160 BASE.

E. FOR AIR RELIEF AND FLUSHING ASSEMBLIES:
OVAL COVER VALVE BOX OR ALTERNATE DOUBLE HOUND COVER, ASSEMBLED TYPE A.

NOTE: VALVE BOXES FOR USE IN FLEXIBLE TYPE PAVEMENTS SHALL HAVE TOPS WITH FLANGE SUPPORT RING NO LESS THAN FIVE AND ONE-QUARTER INCHES (5-1/4") FROM COVER SURFACE. WHERE THE CONTRACTOR FURNISHES AN ALTERNATE SHORT TOP, 6-IN SIZE SDR-21 PLASTIC PIPE CUT TO PROPER LENGTH SHALL BE USED AS EXTENSION PIECE WITH ANY ADJUSTABLE CAST IRON VALVE BOX BOTTOM.

ALL COVERS SHALL BE INTERCHANGEABLE IN TOPS OF THEIR RESPECTIVE BOXES: SLIP TYPE TOPS SHALL BE INTERCHANGEABLE WITH SLIP TYPE BOTTOMS OR EXTENSIONS. THESE ASSEMBLED TYPE VALVE BOXES SHALL EXTEND FROM VALVE BONNET TO FINISHED GRADE OR ELEVATION REQUIRED, BEING CAREFULLY LOCATED OVER THE VALVE OPERATING NUT(S) AND SHALL BE SET PLUMB AND TRUE AS REQUIRED.

VALVE BOXES AND COVER ASSEMBLIES SHALL BE COMPLETED AND THEIR PARTS SHALL COMPLY WITH THOSE PARTS SHOWN ON DRAWINGS WHICH ARE MADE A PART OF THESE SPECIFICATIONS AND ENCLOSED HEREIN AND ALSO ON FILE IN THE WATER ENGINEERING SECTION OF THE DIVISION OF WATER AND HEAT, ROOM 553 PUBLIC UTILITIES BUILDING, 1201 LAKESIDE AVENUE, CLEVELAND, OHIO 44114.

DETAILED DRAWINGS

COMPLETE DETAILED DRAWINGS OR MISCELLANEOUS METAL WORK SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL, PRIOR TO THE MANUFACTURE OF ANY WORK TO BE FURNISHED UNDER THIS ITEM IN ACCORDANCE WITH THESE SPECIFICATIONS.

PAINTING

ALL MISCELLANEOUS METAL WORK NOT GALVANIZED SHALL BE THOROUGHLY CLEANED AND GIVEN THREE (3) COATS OF COAL TAR PITCH, USING INTERTOL 50 OR BITUMASTIC 50, OR APPROVED EQUAL.

PAYMENT

MISCELLANEOUS PLASTIC AND METAL WILL NOT BE PAID FOR SEPARATELY, BUT THE COST SHALL BE INCLUDED FOR PAYMENT IN THE PRICE BID FOR THE ITEM FOR WHICH THEY ARE USED.

APPROVED 4-21-87
Arnold L. Tuber
ENGINEER OF WATER DESIGN REVIEW

LOW SERVICE DISTRICT

POLYTECH, INC.
CONSULTING ENGINEERS CLEVELAND, OHIO

WATERWORK NOTES

WEST 85TH STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. 1066

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
-	EDV	-	EDV	GA	3/87	

FHWA REGION	STATE	PROJECT	
5	OHIO	IX - 1C25 (1)	

17/38

CUYAHOGA COUNTY
WEST 85TH STREET

WATERWORK NOTES

ITEM SPECIAL - VALVES

WORK INCLUDED

THE CONTRACTOR SHALL FURNISH ALL THE MATERIALS FOR, AND SHALL PROPERLY SET IN PLACE AND CONNECT, AT THE LOCATIONS SHOWN ON THE DRAWINGS OR AS DIRECTED, ALL AIR RELIEF VALVES, DRAIN VALVES, GATE VALVES AND VALVE BOXES AND COVERS, OF THE VARIOUS SIZES AND TYPES SPECIFIED OR ORDERED AS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT.

AIR RELIEF VALVES

ALL AIR RELIEF VALVES OR AIR VENT VALVES SHALL BE 2-INCH BRONZE ANGLE METER VALVES WITH A BRONZE WATER METER 2-INCH IRON PIPE THREAD COMPANION FLANGE AND A 2-INCH EXTRA HEAVY BRASS "CLOSE" (2-INCH LONG) NIPPLE. 2-INCH AIR RELIEF VALVES SHALL BE EQUAL IN ALL RESPECTS TO THE 2-INCH ANGLE METER VALVE MANUFACTURED BY J. JONES CO. NO. J-1527-F, FORD METER BOX CO., NO. FV-7, OR MUELLER CO. NO. 14286.

DRAWINGS

(A) PRIOR TO THE MANUFACTURE OF ANY VALVES, THE CONTRACTOR SHALL SUBMIT FOR THE APPROVAL OF THE ENGINEER AND DIRECTOR OF PUBLIC UTILITIES OF THE CITY OF CLEVELAND COMPLETE WORKING, DETAIL, AND DIMENSION DRAWINGS SHOWING THICKNESSES AND KINDS OF MATERIAL, AND SIMILAR INFORMATION.

(B) TWO PRINTS EACH OF THE DRAWINGS SUBMITTED WILL BE RETURNED WITH THE CRITICISMS OR APPROVAL OF THE ENGINEER. IN CASE THE DRAWINGS ARE NOT APPROVED, THE CONTRACTOR SHALL AGAIN SEND FOR APPROVAL DUPLICATE REVISED PRINTS OF THE DRAWINGS TO TAKE CARE OF THE CRITICISMS NOTED, AND AFTER THE DRAWINGS HAVE BEEN FINALLY APPROVED, THE CONTRACTOR SHALL FURNISH TO THE ENGINEER THREE (3) SETS OF MYLAR OR REPRODUCIBLE CLOTH, ONE OF WHICH SHALL BE FURNISHED TO THE DIRECTOR OF PUBLIC UTILITIES OF THE CITY OF CLEVELAND AND ONE (1) SET RETURNED TO THE CONTRACTOR. NO WORK SHALL BE DONE IN THE SHOP UNTIL AFTER THE DRAWINGS HAVE BEEN FINALLY APPROVED.

(C) IF THE VALVE FURNISHED IS ONE PREVIOUSLY APPROVED FOR WHICH DRAWINGS ARE PRESENTLY ON FILE WITH THE DEPARTMENT OF PUBLIC UTILITIES, THE DRAWING REQUIREMENT WILL BE WAIVED.

ITEM SPECIAL - TEMPORARY PLUG WITH RODS AND CLAMPS COMPLETE, INSTALLED AND REMOVED

WORK INCLUDED

WORK UNDER THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING TEMPORARY PLUGS WITH RODS AND CLAMPS COMPLETE, AS SHOWN ON THE WATERWORK PLANS AT THE LOCATIONS SHOWN ON THE DRAWINGS, OR AS ORDERED BY THE ENGINEER, AND REMOVING THEM WHEN INDICATED. WORK SHALL INCLUDE MAKING PIPE CUTS, REMOVING PIPE AND FITTINGS, EXCAVATING, SHEETING AND BRACING, AS MAY BE NECESSARY, SAND BACKFILLING, AS REQUIRED.

PAYMENT

THE WORK INCLUDED IN THIS ITEM SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR EACH "ITEM SPECIAL - TEMPORARY PLUG WITH RODS AND CLAMPS COMPLETE, INSTALLED AND REMOVED", WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR COMPLETION OF THE WORK, AND FURNISHING OF ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT NECESSARY.

ITEM SPECIAL - 2" AIR RELIEF VALVE WITH VALVE BOX(ES), COMPLETE

WORK INCLUDED

THE CONTRACTOR SHALL FURNISH PIPE WITH 2" AIR RELIEF VALVE CONNECTION AND FURNISH AND INSTALL THE 2" AIR RELIEF VALVE AND VALVE BOX AS SHOWN IN THE "WATER WORK DETAILS" AT THE LOCATIONS SHOWN IN THE PLANS.

PAYMENT

(A) THE WORK INCLUDE IN THIS ITEM SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR EACH "ITEM SPECIAL-2" AIR RELIEF VALVE AND VALVE BOX COMPLETE" AT PRICE AND PAYMENT SHALL CONSTITUTE FULL PAYMENT FOR THE FURNISHING AND INSTALLING OF ALL MATERIALS, LABOR, EQUIPMENT, TOOLS AND APPLIANCES NECESSARY TO COMPLETE THIS ITEM OF WORK IN PLACE.

ITEM SPECIAL - PLUG *EXISTING* WATERMAIN *AND* *BRANCHES*

WORK INCLUDED

(A) THE WORK INCLUDED UNDER THIS ITEM SHALL CONSIST OF PLUGGING WATER MAINS AND BRANCHES, AND PLUGGING ABANDONED WATER MAIN ENDS AS SHOWN IN THE WATERWORK DETAILS AT THE LOCATIONS SHOWN ON THE DRAWINGS OR AS ORDERED, INCLUDING CAST IRON PLUGS OR CAPS WITH CLAMPS AND CONCRETE PIERS: ALL EXCAVATING, SHEETING AND BRACING, CONCRETE, SAND BACKFILL, BACKFILL, TEMPORARY REPAVING AND PERMANENT REPAVING, ALL AS REQUIRED FOR THE PROPER COMPLETION OF THE WORK.

(B) WHEN INDICATED ON THE PLANS OR AS ORDERED, THE CONTRACTOR SHALL MAKE PIPE CUTS, REMOVE PIPE AND FITTINGS AND SHALL PLUG OR CAP MAINS, PLUG CONNECTIONS OF MAINS, BRANCHES OR TAPPING VALVES, SHALL DO ALL THE EXCAVATING, BACKFILLING AND REPAVING, ALL AS REQUIRED.

MEASUREMENT

(A) THE WATER MAINS AND BRANCHES PLUGGED WHICH ARE TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF EACH LISTED AND ESTIMATED SEPARATELY, COMPLETED AND ACCEPTED.

PAYMENT

(A) THE UNIT PRICE STIPULATED FOR EACH "ITEM SPECIAL - PLUG EXISTING WATER MAIN *AND BRANCHES* SHALL CONSTITUTE FULL COMPENSATION FOR PERFORMING ALL THE REQUIREMENTS OF THIS ITEM INCLUDING FURNISHING ALL NECESSARY MATERIALS, LABOR, TOOLS, EQUIPMENT AND INCIDENTALS TO MAKE THIS A COMPLETE ITEM OF WORK.

APPROVED 4-21-87

ENGINEER OF WATER DESIGN REVIEW

LOW SERVICE DISTRICT

POLYTECH, INC.
CONSULTING ENGINEERS · CLEVELAND, OHIO

WATERWORK NOTES

WEST 85TH STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. 1.066

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
–	EDV	–	EDV	GA	3/87	

	BY	DATE
CALC.	EDV	4/87
CHECKED	BRS	4/87

FHWA REGION	STATE	PROJECT	
5	OHIO	IX - IC25 (1)	

CUYAHOGA COUNTY
WEST 85th STREET

ELEVATION VIEW OF SPAN WIRE

ALL DETAILS NOT SHOWN SHALL CONFORM TO STD. DWG. TC-17.10

TRAFFIC CONTROL ESTIMATED QUANTITIES

ITEM	QUANTITY	UNIT	DESCRIPTION
621	0.05	Mi.	CENTER LINES
621	60	L.F.	CHANNELIZING LINES
621	62	L.F.	STOP LINES
621	135	L.F.	CROSSWALK LINES
614	0.05	Mi.	TEMPORARY CENTERLINE CLASS II
630	12	L.F.	GROUND-MOUNTED SUPPORTS, NO. 3 POST
630	1	EA.	SPAN WIRE SIGN SUPPORT, TYPE TC-17.10, DESIGN 5, SPAN 135 FEET, AS PER PLAN
630	18	S.F.	SIGNS, FLAT SHEET

NOTES:

1. REFERENCES TO SUPPLEMENTAL SPECIFICATIONS 857, 858, 861, 957, 958 AND 961 ON THE TRAFFIC CONTROL STANDARD CONSTRUCTION DRAWINGS IN THESE PLANS SHALL BE CONSIDERED TO READ AS RESPECTIVE REFERENCES TO ITEMS 630, 631, 633, 730, 731 AND 733.
2. EXISTING PAVEMENT MARKINGS WITHIN THE WORK LIMITS NOT REMOVED BY CONSTRUCTION, SHALL BE REMOVED AS PER SECTION 621.134 OF THE SPECIFICATIONS. THE REMOVAL SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS 621 ITEMS OF THIS PROJECT.

SIGNING AND PAVEMENT MARKING PLAN

FHWA REGION	STATE	PROJECT	
5	OHIO	IX-IC25(1)	

CUYAHOGA COUNTY
WEST 85TH STREET

19/38

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	ABUTMENTS	PIERS	SUPER-STRUCTURE	GENERAL
202	LUMP SUM	LUMP SUM	PORTIONS OF STRUCTURES REMOVED				LUMP SUM
509	28,694	POUND	REINFORCING STEEL, GRADE 60	12,383	15,808		500
510	481	EACH	DOWEL HOLES	317	164		
511	219	CU. YD.	CLASS S CONCRETE, SUPERSTRUCTURE			219	
511**	219	CU. YD.	CLASS S CONCRETE, SUPERSTRUCTURE USING SHRINKAGE COMPENSATING CEMENT, AS PER PLAN			219	
511	45	CU. YD.	CLASS C CONCRETE, PIERS ABOVE FOOTINGS		45		
511	123	CU. YD.	CLASS C CONCRETE, ABUTMENTS & WINGWALLS	123			
512	39	SQ. YD.	TYPE B WATERPROOFING	39			
513 *	105,500	POUND	STRUCTURAL STEEL A588 (AISC CATEGORY I)		1910	103,590	
514	LUMP SUM	LUMP SUM	FIELD PAINTING OF NEW STRUCTURAL STEEL, SYSTEM A, AS PER PLAN			LUMP SUM	
516	123	LIN. FT.	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC COMPRESSION SEAL	123			
516	40	SQ. FT.	PREFORMED EXPANSION JOINT FILLER	40			
517	298	LIN. FT.	RAILING (CONCRETE PARAPET WITH VINYL COATED FENCE), AS PER PLAN	28		270	
518	69	CU. YD.	POROUS BACKFILL	69			
518	137	LIN. FT.	6-IN. PERFORATED, HELICAL CORRUGATED STEEL PIPE, INCLUDING SPECIALS, 707.01	137			
518	6	LIN. FT.	6-IN. NON-PERFORATED, HELICAL CORRUGATED STEEL PIPE, INCLUDING SPECIALS, 707.01	6			
519	700	SQ. FT.	PATCHING CONCRETE STRUCTURES, AS PER PLAN	690	10		
520	300 ‡	SQ. FT.	PNEUMATICALLY PLACED MORTAR, AS PER PLAN	280	20		
824	54,402	POUND	EPOXY COATED REINFORCING STEEL, GRADE 60			54,402	
845	418	SQ. YD.	LATEX MODIFIED CONCRETE OVERLAY (1¼" THICK) (SEE PROPOSAL NOTE)			418	
SPECIAL	1,460	SQ. YD.	SEALING OF CONCRETE SURFACES (EPOXY) (SEE PROPOSAL NOTE)	249	589	622	
SPECIAL	LUMP SUM	LUMP SUM	INSPECTION OF EXISTING CONCRETE ELEMENTS	LUMP SUM	LUMP SUM		

ITEM 202, PORTIONS OF STRUCTURES 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	APPROXIMATE QUANTITY
STRUCTURAL STEEL	209,000 POUNDS (APPROXIMATELY 87% OF THE STEEL QUANTITY IS CONC. ENCASED)
SUPERSTRUCTURE CONCRETE	570 CU. YD.
SUBSTRUCTURE CONCRETE	180 CU. YD.

**DESIGNATES AN ALTERNATE BID ITEM.

‡ 50% NORMAL, 50% NON-FEDERAL PARTICIPATION.

NOTE: * THE STRUCTURAL STEEL QUANTITY SHOWN IN THE TABLE OF ESTIMATED QUANTITIES INCLUDE 933 POUNDS OF STRUCTURAL STEEL WHICH IS TO BE PAID FOR BY THE CLEVELAND ELECTRIC ILLUMINATING CO. (280 POUNDS IS THAT PORTION OF THE BEAM WEIGHT ADDED TO STRUCTURALLY SUPPORT THE ADDED WEIGHT OF THE C.E.I. UTILITY LINE, AND 653 POUNDS IS THE WEIGHT OF STRUCTURAL MEMBERS MEMBERS TO SUPPORT THE C.E.I. DUCTS.)

GENERAL NOTES - STRUCTURE OVER 20 FT.

1. DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, DATED 1983, INCLUDING THE 1984 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA

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

CONCRETE CLASS S - COMPRESSIVE STRENGTH 4500 PSI FOR SUPERSTRUCTURE.

CONCRETE CLASS C - UNIT STRESS 1333 PSI FOR SUBSTRUCTURE.

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

STRUCTURAL STEEL ASTM A588 - UNIT STRESS 27,000 PSI.

DECK PROTECTION METHOD - EPOXY COATED REINFORCING STEEL, BOTH MATS AND LATEX MODIFIED CONCRETE OVERLAY, 1-1/4" THICK.

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

2. SUPPLEMENTAL SPECIFICATIONS

REFERENCE SHALL BE MADE TO SUPPLEMENTAL SPECIFICATIONS 824 DATED 10/8/82; 836 DATED 11/12/85; 845 DATED 2/25/86; 849 DATED 12/24/85; 853 DATED 6/26/78; 953 DATED 8/21/80; AND 956 DATED 6/26/78.

3. REFERENCE DRAWINGS

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS AS-1-81, DATED 11/27/81, FR-1-82, DATED 5-10-82, RB-1-55, DATED 2-2-59, SD-1-69, DATED 6/12/69, AND EXJ-2-81, DATED 4/2/84.

4. 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.

5. UTILITIES

INFORMATION SHOWN IN THE PLANS CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL - INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO.

THE FOLLOWING UTILITY FACILITIES ARE CARRIED ON OR ARE ATTACHED TO OR CROSS THE EXISTING BRIDGE AS SHOWN IN THE SITE PLAN ON SHEET NO. 4/20.

A. ONE - 8-IN. CITY OF CLEVELAND WATERLINE.
B. NINE - 4-IN. CLEVELAND ELECTRIC ILLUMINATING CO. DUCTS.
C. ONE - 12-IN. EAST OHIO GAS COMPANY (EOG) LINE.
D. TWO - GCRTA TRACTION POWER LINES.
E. ONE - N.&.W.R.R. COMMUNICATION AND SIGNAL LINE.
F. TWO - GCRTA COMMUNICATION AND SIGNAL LINES.
G. ONE - R.R. SIGNAL.
H. ONE - LITEL TELECOMMUNICATIONS CORP. CABLE

THE RELOCATION OF WATERLINE SHALL BE DONE UNDER THIS CONTRACT. THE RELOCATION OF TRACTION POWER LINES, COMMUNICATION AND SIGNAL LINE AND THE R.R. SIGNAL WILL BE DONE BY THE RESPECTIVE AGENCIES. THE GAS LINE ON THE BRIDGE WILL BE ABANDONED BY OTHERS.

THE CONTRACTOR AND UTILITY 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. WORK ADJACENT TO OR OVER AN ACTIVE UTILITY SHALL NOT BE COMMENCED UNTIL ALL ARRANGEMENTS NECESSARY FOR THEIR PROTECTION HAVE BEEN MADE. THE CONTRACTOR'S PROVISIONS FOR PROTECTION MUST BE ACCEPTABLE TO THE UTILITY OWNER AND APPROVED BY THE ENGINEER. ANY PROTECTIVE MEASURE CONSIDERED BY THE ENGINEER TO BE ADDITIONAL TO NORMAL PROTECTIVE MEASURES WILL BE AT THE EXPENSE OF THE UTILITY OWNER. NO SEPARATE PAYMENT WILL BE MADE FOR NORMAL PROTECTIVE MEASURES.

SUPPORTS FOR EACH RELOCATED UTILITY AS SHOWN IN THE BRIDGE PLANS ARE INCLUDED UNDER THIS CONTRACT. THE WEIGHT OF STRUCTURAL STEEL ATTRIBUTABLE TO SUPPORTING PRIVATELY-OWNED UTILITIES ON THE PROPOSED BRIDGE AND INCLUDED UNDER THIS CONTRACT IS NOTED IN THE ESTIMATED QUANTITIES AND WILL BE PAID FOR BY THE PRIVATELY-OWNED UTILITY. PAYMENT FOR SUPPORTING PUBLICLY-OWNED UTILITIES WILL BE PAID FOR AS PART OF THIS CONTRACT. THE INSTALLATION OF THE FOUR ELECTRICAL DUCTS SHALL BE DONE BY THE CLEVELAND ELECTRIC ILLUMINATING COMPANY.

NOTES CONTINUED ON SHEET 2/20

POLYTECH, INC. 1/20
CONSULTING ENGINEERS CLEVELAND, OHIO

ESTIMATED QUANTITIES AND GENERAL NOTES
WEST 85TH STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. 1066

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
GA	—	—	CT	GA	1/87	

GENERAL NOTES - STRUCTURE OVER 20 FT.

FHWA REGION	STATE	PROJECT	
5	OHIO	IX-IC25(1)	

20/38

CUYAHOGA COUNTY
WEST 85TH STREET

6. NOT USED.

7. NOT USED

8. ITEM 519 - PATCHING CONCRETE STRUCTURES, AS PER PLAN

ALL CONCRETE REPAIR WORK WITH AN AVERAGE DEPTH GREATER THAN 6-INCHES WHERE SHOWN ON THE PLANS OR AS ORDERED BY THE ENGINEER DURING CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH ODOT SPECIFICATION ITEM 519 AND WITH THE MODIFICATIONS AND ADDITIONS DESCRIBED HEREIN.

A. THE AREAS OUTLINED SHALL FIRST BE SAW-CUT TO A DEPTH AS INDICATED BY THE ENGINEER.

B. SURFACE PREPARATION - CLEANING SHALL CLOSELY PRECEDE THE APPLICATION OF THE BONDING GROUT. THE SURFACE TO BE PATCHED SHALL BE THOROUGHLY CLEANED BY SANDBLASTING. IMMEDIATELY PRIOR TO PLACING THE CONCRETE PATCH MATERIAL, THE NEWLY EXPOSED CONCRETE SURFACES SHALL BE CLEANED WITH AN AIR BLAST AND COVERED WITH A THIN COATING OF BONDING GROUT.

C. BONDING GROUT - THE GROUT FOR BONDING SHALL CONSIST OF EQUAL PARTS BY VOLUME OF PORTLAND CEMENT AND SAND, MIXED WITH SUFFICIENT WATER TO FORM A STIFF SLURRY. THE CONSISTENCY OF THIS SLURRY SHALL BE SUCH THAT IT CAN BE APPLIED WITH A STIFF BRUSH OR BROOM TO THE EXISTING SURFACE IN A THIN, UNIFORM COATING. THE COATING OF GROUT SHALL BE SCRUBBED ONTO THE DRY SURFACE IMMEDIATELY BEFORE PLACING THE CONCRETE. CARE SHALL BE EXERCISED TO INSURE THAT NO EXCESS GROUT IS PERMITTED TO COLLECT IN LOW SPOTS. IN NO CASE SHALL THE GROUT BE PERMITTED TO DRY BEFORE PLACING THE NEW CONCRETE.

9. BONDING NEW CONCRETE TO EXISTING CONCRETE

BONDING GROUT SHALL BE USED FOR BONDING AT ALL LOCATIONS WHERE NEW CONCRETE IS PLACED IN CONTACT WITH EXISTING CONCRETE. THE GROUT MATERIAL, METHOD OF SURFACE PREPARATION, AND SUBSEQUENT PLACING OF GROUT MATERIALS SHALL BE AS DESCRIBED IN "ITEM 519, PATCHING CONCRETE STRUCTURES."

NO SEPARATE PAYMENT WILL BE MADE FOR BONDING NEW CONCRETE TO OLD USING BONDING GROUT, BUT THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PERTINENT CONCRETE ITEM. THIS PRICE SHALL INCLUDE ALL LABOR, MATERIAL AND EQUIPMENT INCLUDING CLEANING AND PREPARING OF THE EXISTING SURFACE.

10. 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 500 POUNDS IS INCLUDED IN ITEM 509 FOR THIS PURPOSE.

11. DIMENSIONS

DIMENSIONS GIVEN ARE MEASURED HORIZONTALLY AT 60°F. UNLESS OTHERWISE NOTED.

12. CONCRETE DECK

A. THE STEEL BEAMS SHALL BE FABRICATED WITH CAMBER, AS SPECIFIED ON THE PLANS, TO COMPENSATE FOR THE DEFLECTIONS DUE TO WEIGHT OF CONCRETE, AND STEEL AND FOR VERTICAL CURVATURE OF THE ROADWAY. THE THEORETICAL DEFLECTIONS ARE TABULATED ON THE PLANS.

B. THE FINAL SURFACE OF THE ROADWAY CONFORM TO THE ELEVATIONS SHOWN ON THE PLANS. TO COMPENSATE FOR DEFLECTIONS DUE TO DEADLOAD OF THE CONCRETE, THE SCREEDS USED TO STRIKE OFF THE SURFACE OF THE CONCRETE TO THE DESIRED GRADE LINE SHALL BE ADJUSTED BY THE AMOUNTS EQUAL TO DEFLECTIONS SHOWN FOR THIS DEAD LOAD. SCREEDS MAY REQUIRE FURTHER ADJUSTMENTS DUE TO IRREGULARITIES IN THE FABRICATED STEEL. THE THEORETICAL TOP OF PORTLAND CEMENT CONCRETE DECK ELEVATIONS AT THE GUTTER LINES BEFORE THE DEFLECTIONS FROM THE CONCRETE HAVE OCCURRED ARE TABULATED ON THE PLANS.

C. THE DEPTH OF CONCRETE OVER EACH BEAM (TOP OF CONCRETE TO TOP OF FLANGE) IS GIVEN ON THE PLANS. THE CONCRETE SLAB SHALL BE OF UNIFORM THICKNESS BETWEEN BEAMS WITH ADJUSTMENTS OBTAINED BY VARYING THE THICKNESS OF THE HAUNCHES OVER THE BEAMS.

13. CLASS S CONCRETE, SUPERSTRUCTURE, USING SHRINKAGE COMPENSATING CEMENT AS PER PLAN

A. DESCRIPTION

ALL APPLICABLE PROVISIONS OF ITEM 511 OF THE SPECIFICATIONS SHALL APPLY EXCEPT AS MODIFIED HEREIN.

B. MATERIALS

THE CEMENT SHALL BE EXPANSIVE HYDRAULIC CEMENT CONFORMING TO ASTM C845, TYPE K.

THE CHEMICAL ADMIXTURES, WHEN REQUIRED BY 511.05, SHALL BE LIMITED TO 705.12, TYPE D.

THE 703.02 COARSE AGGREGATE SHALL BE CRUSHED CARBONATE STONE.

C. PROPORTIONS

THE MAXIMUM WATER/CEMENT RATIO GIVEN FOR CLASS S CONCRETE IN 499.03 OF THE SPECIFICATIONS SHALL BE REVISED FROM 0.44 TO 0.50.

D. SLUMP

MAXIMUM SLUMP AT THE TIME AND PLACE OF CONCRETE PLACEMENT SHALL BE SIX INCHES (6").

E. PLACING CONCRETE

MAXIMUM AMBIENT TEMPERATURE AT THE TIME OF PLACEMENT OF CONCRETE SHALL BE 80°F.

F. CURING

CONCRETE SHALL BE CURED BY 511.14 METHOD (A) WATER CURING EXCEPT THE USE OF WHITE POLYETHYLENE SHEETING OR PLASTIC COATED BURLAP BLANKETS WILL NOT BE PERMITTED. THE MINIMUM CURING PERIOD SHALL BE 7 DAYS. IF THE CURING IS NOT STARTED BEFORE THE SURFACE OF THE CONCRETE BEGINS TO DRY, THE SURFACE OF THE CONCRETE SHALL BE GIVEN A FOG SPRAY OF WATER. ADDITIONAL APPLICATIONS OF A FOG SPRAY SHALL BE APPLIED AS NEEDED UNTIL CURING MATERIAL IS IN PLACE. FOG SPRAY NOZZLES AND WANDS OF SUFFICIENT LENGTH TO REACH THE ENTIRE EXPOSED CONCRETE SURFACE SHALL BE ON HAND.

14. REINFORCING STEEL

A. ALL BARS ARE DESIGNATED ON THE PLANS BY BAR NUMBERS. THE BAR SIZE IS DESIGNATED BY THE FIRST DIGIT OF THREE-DIGIT NUMBERS AND BY THE FIRST TWO DIGITS OF FOUR-DIGIT NUMBERS.

B. ALL BAR DIMENSIONS ARE GIVEN OUT-TO-OUT.

C. ALL BARS OF A SERIES SHALL VARY BY A CONSTANT INCREMENT.

D. REQUIRED BAR LAP LENGTHS ARE SHOWN ON THE PLANS.

E. THE CLEAR DISTANCE BETWEEN REINFORCING STEEL AND FACE OF CONCRETE SHALL BE AS GIVEN IN ITEM 509 OF THE CONSTRUCTION AND MATERIALS SPECIFICATIONS UNLESS NOTED OTHERWISE ON THESE PLANS.

POLYTECH, INC. 2/20
CONSULTING ENGINEERS CLEVELAND, OHIO

GENERAL NOTES

WEST 85TH STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. 1066

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
GA	—	—	CT	GA	1/87	

GENERAL NOTES - STRUCTURE OVER 20 FT.

15. INSPECTION OF EXISTING CONCRETE ELEMENTS

THE EXISTING SURFACES OF CONCRETE ELEMENTS THAT ARE TO BE INSPECTEDARE THE NORTH ABUTMENT FACE , THE ABUTMENT WINGWALLS AND THE PIER CRASHWALLS. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY MATERIAL, EQUIPMENT AND LABOR, TO PERMIT INSPECTION OF DETERIORATED ELEMENTS INCLUDING REFUSE REMOVAL. THE CONTRACTOR'S SUPERINTENDENT SHALL ACCOMPANY THE ENGINEER IN MAKING THE DETAILED EXAMINATION TO MARK THE AREAS OF REPAIR TO BE MADE.

INSPECTION OF THE EXISTING CONCRETE ELEMENTS WILL BE PAID FOR AT THE CONTRACT LUMP SUM BID FOR ITEM SPECIAL - INSPECTION OF EXISTING CONCRETE ELEMENTS. THIS PRICE SHALL BE PAYMENT IN FULL FOR ALL MATERIAL, EQUIPMENT AND LABOR NECESSARY TO COMPLETE THE WORK.

16. ITEM 520 - PNEUMATICALLY PLACED MORTAR, AS PER PLAN

ALL CONCRETE REPAIR WORK WITH AN AVERAGE DEPTH EQUAL TO OR LESS THAN 6-INCHES WHERE SHOWN ON THE PLANS OR AS ORDERED BY THE ENGINEER DURING CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THIS SPECIFICATION. ALL APPLICABLE PROVISIONS OF ITEM 520 AS SET FORTH IN THE CONSTRUCTION AND MATERIAL SPECIFICATIONS SHALL APPLY, UNLESS MODIFIED HEREIN, AND THE FOLLOWING SHALL BE CONSIDERED AS SUPPLEMENTAL TO THE PROVISIONS SET FORTH.

A. PRECONSTRUCTION QUALIFICATION

ALL SHOTCRETE WORK SHALL BE PERFORMED UNDER THE SUPERVISION OF A FOREMAN WHO HAS HAD AT LEAST 4 YEARS EXPERIENCE IN DIRECT CHARGE OF THIS TYPE OF WORK. NOZZLEMEN SHALL HAVE HAD AT LEAST 2 YEARS EXPERIENCE IN SIMILAR WORK. SATISFACTORY WRITTEN EVIDENCE OF SUCH EXPERIENCE SHALL BE FURNISHED TO THE ENGINEER.

AN INVESTIGATION SHALL BE MADE PRIOR TO THE START OF THE WORK TO CHECK THE OPERATION OF THE EQUIPMENT AND QUALIFICATIONS OF THE APPLICATION CREWS. A PANEL SHALL BE FABRICATED BY GUNNING ONTO THE PLYWOOD BOTTOM OF AN OPEN BOX 4-FT SQUARE AND WITH A DEPTH OF 6-INCHES. THE SIDES OF THE BOX SHALL FLARE OUT ON A 45° ANGLE. WIRE FABRIC OF THE TYPE TO BE USED ON THE STRUCTURE SHALL BE INCORPORATED INTO THE TEST PANEL. THE DESIGN OF THE PANELS SHALL BE APPROVED BY THE ENGINEER. THE BOX SHALL BE MOUNTED VERTICALLY AND SHOTCRETE SHALL BE APPLIED USING THE PERSONNEL, EQUIPMENT, AND PROCEDURES PROPOSED FOR THE JOB, UNTIL THE BOX IS FULL. THE MIXING WATER SHALL BE ADJUSTED TO PROVIDE SHOTCRETE OF THE PROPER CONSISTENCY BUT THE TOTAL WATER CONTENT, INCLUDING THE FREE MOISTURE IN THE AGGREGATE AND WATER ADDED AT THE NOZZLE, SHALL NOT EXCEED 4.5 GALLONS PER SACK OF CEMENT.

THE CONTRACTOR SHALL TAKE CORES FROM THE PANELS FOR THE PURPOSE OF TESTING AS DIRECTED BY THE ENGINEER. A COMPRESSIVE STRENGTH OF AT LEAST 4,000 PSI AT 28 DAYS WILL BE REQUIRED. IN ORDER TO PRECLUDE A POSSIBLE DELAY IN STARTING THE WORK, 3,000 PSI AT 7 DAYS WILL BE ACCEPTED.

THE PANELS SHALL ALSO BE BROKEN AND CHIPPED BY THE CONTRACTOR SO THAT THE INTERIOR PORTIONS CAN BE CAREFULLY EXAMINED BY THE ENGINEER. THEY SHALL BE SUBSTANTIALLY FREE OF LENSES AND SAND POCKETS.

EACH CREW MUST FABRICATE A SATISFACTORY PANEL BEFORE APPLYING SHOTCRETE TO THE STRUCTURE.

THE CONTRACTOR MAY REQUEST APPROVAL TO APPLY THE SHOTCRETE TO THE PREPARED SURFACES OF THE STRUCTURE IN LIEU OF PANELS. IN THE EVENT OF SUCH TESTING, ALL SUCH SHOTCRETE SHALL BE REMOVED FROM THE STRUCTURE AT THE CONCLUSION OF THE TESTS.

B. PLACING

GROUND WIRES AND GUIDE STRIPS SHALL BE USED TO ESTABLISH LINES AND GRADES FOR THE SHOTCRETE.

SHOTCRETING SHALL BE TEMPORARILY SUSPENDED IF:

A. HIGH WINDS SEPARATE THE CEMENT FROM THE SAND AFTER THE MATERIAL LEAVES THE NOZZLE.

B. TEMPERATURES APPROACH FREEZING AND THE WORK CANNOT BE PROTECTED.

C. RAIN OCCURS WHICH MAY CAUSE WASHOUTS OR SLOUGHING OF THE SURFACE.

IF PREMATURE STIFFENING IS EXPERIENCED IN WARM WEATHER, THE CONTRACTOR SHALL COOL THE INGREDIENTS, USE A RETARDER, OR TAKE SUCH OTHER MEASURES AS APPROPRIATE.

ALL HORIZONTAL JOINTS SHALL BE SQUARE JOINTS, AND SPECIAL CARE SHALL BE TAKEN TO AVOID OR REMOVE TRAPPED REBOUND AT THE JOINT. THE ENTIRE JOINT SHALL BE THOROUGHLY CLEANED AND WETTED PRIOR TO THE APPLICATION OF ADDITIONAL SHOTCRETE. VERTICAL JOINTS MAY BE TAPERED TO A SHALLOW EDGE FORM ABOUT 1-INCH THICK.

C. SURFACE FINISH

THE NOZZLEMAN SHALL CARRY THE SHOTCRETE TO A POINT JUST BEYOND THE GUIDE STRIPS OR GROUND WIRES. THE SHOTCRETE SHALL THEN BE ALLOWED TO STIFFEN OR HARDEN TO THE POINT WHERE THE SURFACE WILL NOT PULL OR CRACK WHEN SCREEDED WITH A ROD OR TROWEL. EXCESS MATERIAL IS THEN TRIMMED, SLICED, OR SCRAPED TO BRING THE SURFACE TO TRUE LINE AND GRADE. IF THE RESULTING TROWEL FINISH PROVIDES A SIGHTLY APPEARANCE ACCEPTABLE TO THE ENGINEER, A FLASHCOAT WILL NOT BE REQUIRED.

D. INSPECTION AND TESTING

ACCEPTANCE OF THE SHOTCRETE WILL BE BASED ON SOUNDING AND ON TEST RESULTS OF CORES TAKEN FROM THE STRUCTURE. THE CONTRACTOR SHALL TAKE 3 CORES AS DIRECTED BY THE ENGINEER. THE AVERAGE 28 DAY COMPRESSIVE STRENGTH OF THE 3 CORES SHALL NOT BE LESS THAN 3,000 PSI AND NO CORE SHALL TEST LOWER THAN 2,600 PSI. EXCESSIVE LENSES AND SAND POCKETS, AND POOR BOND TO THE EXISTING CONCRETE WILL ALSO BE CAUSE FOR REJECTION.

IF AT ANY TIME DURING THE APPLICATION OF SHOTCRETE, THE QUALITY OF SHOTCRETE IN PLACE IS UNSATISFACTORY IN THE OPINION OF THE ENGINEER, THE ENGINEER SHALL HAVE THE RIGHT TO STOP THE WORK UNTIL CHANGES OR ADJUSTMENTS IN THE MATERIALS, PROPORTIONS, EQUIPMENT, NOZZLE OPERATIONS, AND/OR COMPONENTS OF THE SHOTCRETE OPERATION ARE MADE THAT WILL PRODUCE SATISFACTORY SHOTCRETE AS DETERMINED BY THE ENGINEER.

ALL DEFECTIVE SHOTCRETE SHALL BE REMOVED AND REPLACED BY AN APPROVED PROCEDURE AT THE CONTRACTOR'S EXPENSE. CORE HOLES SHALL BE FILLED BY THE CONTRACTOR WITH CONVENTIONAL CONCRETE.

E. METHOD OF MEASUREMENT

THE QUANTITY SHALL BE THE ACTUAL AREA IN SQUARE FEET OF THE EXPOSED SURFACES OF ALL COMPLETED SHOTCRETE REPAIRS, IRRESPECTIVE OF THE DEPTH OR THICKNESS OF THE REPAIR, AND SHALL INCLUDE ALL MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS REQUIRED TO COMPLETE THE WORK. THE COST OF ALL TEST PANELS SHALL BE INCLUDED IN THE CONTRACT PRICE. NO SEPARATE PAYMENT WILL BE MADE FOR THIS ITEM.

17. SEALING OF CONCRETE SURFACES

AN EPOXY CONCRETE SEALER SHALL BE APPLIED TO THE FOLLOWING EXPOSED CONCRETE SURFACES:

A. TOP OF SIDEWALKS.

B. PARAPETS & BARRIERS

C. DECK EDGES AND THE UNDERSIDE OF THE CANTILEVER DECK EXTENDING TO THE EXTERIOR BEAM.

D. ALL EXPOSED SURFACES OF THE ABUTMENTS AND WINGWALLS

E. ALL EXPOSED SURFACES OF THE PIERS

SEE THE PROPOSAL NOTE FOR SURFACE PREPARATION REQUIREMENTS,APPLICATION RATES,MATERIAL REQUIREMENTS AND APPLICATION PROCEDURES.

18. ITEMS NOT INCLUDED IN BRIDGE PLANS

THE FOLLOWING ITEMS ARE NOT INCLUDED IN THE BRIDGES PLANS. SEE ROADWAY PLANS FOR DETAILS.

(A) EMBANKMENT AND EXCAVATION AT APPROACHES, GRADING, APPROACH PAVEMENT, APPROACH SLABS AND APPROACH SIDEWALKS.

(B) RELOCATION OR REMOVAL OF EXISTING UTILITIES.

NOTES CONTINUED ON SHEET 3A/20

GENERAL NOTES - STRUCTURE OVER 20 FT.

FHWA REGION	STATE	PROJECT	
5	OHIO	IX-IC25(1)	

21A / 38

CUYAHOGA COUNTY
WEST 85TH STREET

19. REQUIREMENTS OF N & W RY. AND GCRTA

ALL REFERENCE TO "THE RAILROAD" OR "THE RAILROAD COMPANY" HEREIN SHALL BE MEANT TO APPLY TO THE NORFOLK AND WESTERN RAILWAY COMPANY (N & W) AND/OR THE GREATER CLEVELAND REGIONAL TRANSIT AUTHORITY (GCRTA).

A. GENERAL

THE CONTRACTOR SHALL:

1. COOPERATE AT ALL TIMES WITH THE LOCAL OFFICIALS OF THE RAILROAD COMPANY.

2. USE CARE AND DILIGENCE IN THE WORK IN ORDER TO AVOID ACCIDENTS, DAMAGE OR UNNECESSARY DELAY TO, OR INTERFERENCE WITH, THE TRAINS AND OTHER PROPERTY OF THE RAILROAD COMPANY.

3. CONDUCT WORK IN A MANNER SATISFACTORY TO THE CHIEF ENGINEER OF THE RAILROAD COMPANY OR ITS AUTHORIZED REPRESENTATIVE, IN SUCH MANNER AND AT SUCH TIME AS TO NOT UNNECESSARILY INTERFERE WITH THE MOVEMENT OF TRAINS OR RAILROAD TRAFFIC, AND TO HOLD THE WORK AT ALL TIMES OPEN TO INSPECTION BY RAILROAD COMPANY INSPECTORS.

4. COOPERATE WITH PUBLIC UTILITIES, RAILROAD COMPANIES OR OTHER ORGANIZATIONS HAVING OCCASION TO DO WORK ON AND IN CONNECTION WITH THE IMPROVEMENT.

5. PRIOR TO COMMENCING ANY WORK INVOLVING THE REMOVAL OF THE EXISTING STRUCTURE, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER AND RAILROADS, FOR APPROVAL, COMPLETE DETAILS OF THE PROPOSED METHOD FOR REMOVING THE EXISTING STRUCTURE. NO DEMOLITION SHALL BEGIN UNTIL WRITTEN APPROVAL IS RECEIVED FROM THE RAILROADS AND THE ENGINEER. ALL WORK ABOVE OR DIRECTLY ADJACENT TO THE RAILROAD SHALL BE SUBJECT TO THE APPROVAL OF THE RAILROAD COMPANY AND TO INSPECTION AT ALL TIMES BY ITS PROPERLY DESIGNATED REPRESENTATIVE. SAFETY AND CONTINUITY OF OPERATIONS OF THE RAILROAD TRAFFIC AND THE PROTECTION OF RAILROAD COMMUNICATION AND TOWER LINES SHALL BE OF MAJOR IMPORTANCE AND SHALL AT ALL TIMES BE PROTECTED AND SAFEGUARDED. THE CONTRACTOR SHALL GIVE WRITTEN NOTICE TO THE DULY AUTHORIZED REPRESENTATIVE OF THE RAILROAD AT LEAST TEN WORKING DAYS IN ADVANCE OF THE TIME THE CONTRACTOR INTENDS TO COMMENCE ANY WORK ABOVE OR DIRECTLY ADJACENT TO THE RAILROAD. WHENEVER PERFORMING ANY WORK SUCH AS CONSTRUCTION OF PIERS OR SETTING OF NEW BEAMS WHICH, IN THE OPINION OF THE ENGINEER, COULD AFFECT RAILROAD OPERATION, THE CONTRACTOR SHALL SUBMIT COMPLETE PLANS AND DETAILS OF THE PROPOSED WORK TO BOTH THE RAILROAD AND THE ENGINEER FOR APPROVAL. NO SUCH WORK SHALL BE COMMENCED OR PROSECUTED WITHOUT PRIOR APPROVAL OF BOTH AGENCIES. APPROVAL OF SUCH WORK SHALL NOT BE CONSTRUED AS A RELEASE FROM RESPONSIBILITY OR LIABILITY FOR ANY DAMAGE WHICH THE RAILROAD MAY SUFFER.

6. THE CONTRACTOR SHALL NOT AT ANY TIME PERMIT EQUIPMENT IN HIS USE TO ENTER UPON OR FOUL THE RAILROAD COMPANY'S TRACKS EXCEPT WHEN SUCH EQUIPMENT IS PROTECTED BY AUTHORIZED EMPLOYEES OF THE RAILROAD COMPANY. FOR ADDITIONAL REQUIREMENTS PERTAINING TO THE RAILROAD, SEE PROJECT PROPOSAL NOTE.

7. RAILROAD AERIAL LINES WILL BE RELOCATED BY THE RAILROAD. THE CONTRACTOR SHALL USE ALL PRECAUTIONS NECESSARY TO SEE THAT THE LINES ARE NOT DISTURBED DURING THE CONSTRUCTION STAGE AND SHALL COOPERATE WITH THE RAILROAD IN THE RELOCATION OF THESE LINES. THE COST OF THE RELOCTAION SHALL BE INCLUDED IN THE RAILROAD FORCE ACCOUNT WORK.

8. CONSTRUCTION ADJACENT TO TRACKS

THE CONSTRUCTION CLEARANCE FOR EACH RAILROAD SHALL BE AS LISTED BELOW:

GCRTA	N&W
17'-2 1/4"	19'-6" VERTICALLY ABOVE TOP RAIL (ALL TRACKS
7'-9 1/4"	*6'-9" HORIZONTALLY FROM THE CENTER OF TRACK (W.B. MAIN)

*LATERAL CLEARANCES FOR OTHER TRACKS WILL BE 7-IN. LESS THAN PERMANENT LATERAL CLEARANCES. TEMPORARY CLEARANCE REDUCTIONS FOR BOTH MAINLINE TRACKS MAY BE IN EFFECT CONCURRENTLY FOR NO MORE THAN ONE MONTH.

NO OBSTRUCTION CLOSER TO THE TRACK THAN PERMITTED BY THE CONSTRUCTION CLEARANCE SHALL EXTEND ABOVE THE TOP OF RAIL.

B. REMOVAL

1. THE CONTRACTOR SHALL REMOVE THE DESIGNATED PORTIONS OF THE EXISTING BRIDGE TO THE LIMITS SHOWN ON THE PLANS OR TO THE LIMITS DIRECTED BY THE ENGINEER. PARTS DESIGNATED BY THE PLANS FOR REMOVAL MAY BE REMOVED BY METHODS OF THE CONTRACTOR'S SELECTION. NO PART OR DEBRIS SHALL BE PERMITTED TO BE DROPPED ON THE GROUND OR ON THE RAILROAD. THE PLANS OF THE EXISTING BRIDGE ARE AVAILABLE FOR PERUSAL AT ROOM 518, CITY HALL, CLEVELAND, OHIO.

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

(I) SUPERSTRUCTURE INCLUDING STRUCTURAL STEEL I-BEAMS, 18"-DIAMETER STEEL PIPES, REINFORCED CONCRETE DECK SLAB, ASPHALT WEARING COURSE, CURB, SIDEWALKS, PARAPETS, FENCE, APPROACH SLABS OR APPROACH PAVEMENT AND OTHER ITEMS ASSOCIATED WITH THE EXISTING BRIDGE DECK.

(II) RAILINGS NEAR THE APPROACH PAVEMENT OR APPROACH SLAB.

(III) PORTIONS OF EXISTING PIERS, WITH ENCASED CHANNEL SECTIONS AND STEEL LACING AND ENCASED STEEL COLUMN.

(IV) STEEL GRATING PLATFORM AND STRUCTURAL SUPPORT NEAR EAST COLUMN OF PIER 3 FOR R.R. SIGNAL POST.

(V) PORTIONS OF EXISTING ABUTMENTS.

(VI) PORTIONS OF EXISTING WINGWALLS.

3. PORTIONS OF EXISTING ABUTMENTS SHALL BE REMOVED AS PER PLAN AND PER ITEM 202.03 OF CONSTRUCTION & MATERIAL SPECIFICATIONS.# CONCRETE SHALL BE REMOVED BY MEANS OF APPROVED PNEUMATIC HAMMERS EMPLOYING POINTED AND BLUNT CHISEL TOOLS, OR BY A METHOD FIRST APPROVED BY THE ENGINEER. THE WEIGHT OF HAMMER SHALL BE APPROVED BY THE ENGINEER. EXISTING REINFORCEMENT WITHIN THE REMOVAL LIMITS SHALL BE REMOVED AND DISPOSED OF. REMOVAL SHALL BE TO A NEAT LINE AS SHOWN IN THE PLANS.

4. PORTIONS OF EXISTING PIERS SHALL BE REMOVED AS PER PLAN AND PER ITEM 202.03 OF CONSTRUCTION AND MATERIAL SPECIFICATIONS AND AS PER THE REMOVAL NOTE 3 ABOVE. CONTRACTOR'S ATTENTION IS ALSO DRAWN TO THE CONSTRUCTION CLEARANCE REQUIREMENTS. HE SHALL OBTAIN THE APPROVAL OF THE ENGINEER FOR THE REMOVAL METHOD BEFORE THE ACTUAL DEMOLITION WORK IS STARTED.

BOTH MANHOLES ONE IN EACH EXISTING ABUTMENT AT THE ℄ OF W. 85 ST. SHALL BE REMOVED TO THE LIMITS INDICATED IN THE PLAN.

5. THE EXISTING PARAPET FENCE SHALL BE CAREFULLY DISMANTLED AND STORED FOR REUSE. THIS FENCE WILL BE PICKED UP BY GCRTA. ALL OTHER MATERIAL INCLUDING THE CHAIN LINK FENCE ANCHORED TO THE DECK, ALL CONCRETE, STEEL, REINFORCING STEEL, ASPHALT CONCRETE, ETC., REMOVED FROM THE STRUCTURE SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED BY HIM FROM THE SITE.

6. UNDER NO CIRCUMSTANCES SHALL THE MATERIAL BE PERMITTED TO REMAIN ON THE PREMISES, RIGHT-OF-WAY OR STREETS PENDING DISPOSAL OF SAME OR FOR ANY OTHER PURPOSES, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

C. RESTRICTIONS BY GCRTA

1. ALL WORK OVER GCRTA TRACKS SHALL BE COORDINATED WITH AUTHORITY PERSONNEL. AUTHORITY PERSONNEL WILL PERFORM ALL WORK NECESSARY FOR MAINTENANCE OF REGULAR, CONTINUOUS RAPID TRANSIT SERVICE.

2. WHILE PERFORMING THE FOLLOWING MAJOR WORK ITEMS OVER AND ADJACENT TO (WITHIN TEN (10) FEET FROM CENTERLINE) ANY GCRTA TRACK, THE FOLLOWING RESTRICTIONS APPLY.

WORK ITEM	RESTRICTIONS
DEMOLITIONS AND PORTIONS OF STRUCTURE REMOVAL	NIGHTTIME WORK ONLY
SUPERSTRUCTURE STEEL ERECTION	NIGHTTIME WORK ONLY
ALL WORK RELATED TO THE REMOVAL & CONSTRUCTION/ RECONSTRUCTION OF SUBSTRUCTURE (ABUTMENT,PIERS, ETC.)	SINGLE TRACK OPERATION

THE FOLLOWING DEFINE THE NIGHTTIME AND THE SINGLE TRACK OPERATION PERIODS FOR THE GCRTA TRACKS.

NIGHTTIME WORK* - BETWEEN 1:00 A.M. AND 4:00 A.M.

SINGLE TRACK OPERATION* - MONDAY THRU FRIDAY
BETWEEN 9:30 A.M. AND 3:00 P.M.
BETWEEN 7:30 P.M. AND 1:00 A.M.

SATURDAY AND SUNDAY
BETWEEN 7:30 P.M. SATURDAY AND 1:00 A.M. MONDAY

EXCEPTION - NO SINGLE TRACK OPERATION PERMITTED ON SPECIAL EVENT DAYS, AS DETERMINED BY GCRTA

*DURING THE NIGHTTIME PERIOD BETWEEN 1:00 A.M. AND 4:00 A.M., THE OVERHEAD POWER TO THE CATENARY SYSTEM WILL BE DE-ENERGIZED BY THE GCRTA PERSONNEL. AT ALL OTHER TIMES, THE OVERHEAD POWER WILL BE ENERGIZED. THE CONTRACTOR MUST VERIFY WITH GCRTA DAILY, THE EXACT DE-ENERGIZATION TIMING.

3. NO AT-GRADE CROSSING OF GCRTA TRACKS WILL BE PERMITTED.

4. THE CONTRACTOR SHALL PROVIDE, INSTALL, ERECT AND MAINTAIN SUITABLE LIGHTING AND PROTECTIONS FOR SAFE AND EFFICIENT PROGRESS OF NIGHTTIME WORK AND FOR ANY WORK THAT IS TO BE PERFORMED AFTER DAYLIGHT HOURS.

5 NO SEPARATE PAYMENT WILL BE MADE TO THE CONTRACTOR FOR ADDITIONAL COSTS DUE TO WORK RESTRICTIONS FOR NIGHTTIME AND/OR THE SINGLE TRACK OPERATION. THE COSTS SHALL BE INCLUDED WITH THE UNIT PRICE BID FOR WORK ITEMS OF THE CONTRACT SO RESTRICTED.

D. TEMPORARY FALSEWORK AND PROTECTIVE STRUCTURES

1. GENERAL

THIS WORK SHALL CONSIST OF CONSTRUCTING AND REMOVING ELECTRICALLY INSULATED RIGID TEMPORARY CONSTRUCTIONS REQUIRED TO COMPLETE THE WORK IN ADDITION TO THE FORMWORK AND ITEMS WHICH ARE SPECIFICALLY INCLUDED ELSEWHERE. THE WORK INCLUDES TEMPORARY PLATFORMS OR OTHER MEANS TO PREVENT LOOSE MATERIALS FROM FALLING DURING THE CONSTRUCTION OF SUPERSTRUCTURE OVER THE GCRTA TRACKS.

2. REQUIREMENTS

IN ORDER TO PROTECT GCRTA TRAFFIC, AGAINST DAMAGE FROM FALLING MATERIAL AND DEBRIS, WHILE SUPERSTRUCTURE CONCRETE IS BEING PLACED OR WHILE WORK IS IN PROGRESS OVERHEAD, THE CONTRACTOR SHALL FURNISH AND ERECT A TEMPORARY PROTECTIVE STRUCTURE UNDER THE SPANS THAT ARE DIRECTLY OVER THE GCRTA TRACKS.
THE FLOORING AND SIDING OF THE STRUCTURES SHALL HAVE NO CRACKS OR OPENINGS THROUGH WHICH MATERIAL PARTICLES MAY FALL. AS A MINIMUM, ONE LAYER OF 3/4 INCH PLYWOOD WITH LAPPED JOINTS OR AN EQUIVALENT DESIGN SHALL BE PLACED BETWEEN THE LOWER FLANGES OF THE STRUCTURAL STEEL BEAMS ABOVE THE TRACK BED AND SHOULDERS OF THE GCRTA TRACKS. THE PROTECTION IN ALL CASES SHALL EXTEND BEYOND THE EXTERIOR STRUCTURAL BEAMS A SUFFICIENT DISTANCE TO PROTECT UNDER THE BRIDGE RAILINGS.

AFTER THE TEMPORARY FALSEWORK AND PROTECTIVE STRUCTURES HAVE SERVED THEIR PURPOSE, AND WHEN SO DIRECTED BY THE ENGINEER, THEY SHALL BE REMOVED. ALL MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR AT HIS OWN EXPENSE.

DETAILS OF THE TEMPORARY FALSEWORK AND PROTECTIVE STRUCTURES INCLUDING THE PROPOSED TEMPORARY UNDERCLEARANCES TO THE GCRTA TRACKS, SHALL BE SUBMITTED TO THE ENGINEER AND GCRTA FOR APPROVAL.

3. PAYMENT

TEMPORARY FALSEWORK AND PROTECTIVE STRUCTURES WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED WITH THE UNIT PRICE BID FOR ITEM 513 STRUCTURAL STEEL.

E. SPECIAL GCRTA REQUIREMENTS

1. GCRTA FLAGMEN WILL BE REQUIRED WHENEVER WORK IS PERFORMED OVER OR WITHIN 10 FT. OF THE CENTERLINE OF EITHER TRACK. REQUEST FOR FLAGMEN MUST BE SUBMITTED TO THE DIRECTOR OF RAIL TRANSPORTATION A MINIMUM OF 48 HOURS IN ADVANCE OF DATE NEEDED.

2. SINGLE TRACKING REQUEST SHALL BE SUBMITTED TO THE DIRECTOR OF RAIL TRANSPORTATION A MINIMUM OF 72 HOURS IN ADVANCE OF THE DATE NEEDED.

3. CONTRACTOR PERSONNEL SHALL WEAR SAFETY VESTS WHENEVER WORK IS PERFORMED WITHIN 10 FEET OF THE CENTERLINE OF EITHER TRACK.

3A/20

POLYTECH, INC.
CONSULTING ENGINEERS CLEVELAND, OHIO

GENERAL NOTES

WEST 85TH STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. 1-066

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
GA	—	—	CT	GA	1/87	

FHWA REGION	STATE	PROJECT	
5	OHIO	IX-1C25(1)	

22/38

CUYAHOGA COUNTY
WEST 85TH STREET

CURVE DATA FOR EAST GUTTERLINE		
CURVE NO.	1	2
P.I. STA.	5+05.31, 12.00' RT.	15+46.00, 75.70' RT.
Δ	57°26'4.6"	18°14'30.4"
R	90.00'	163.68'
Dc	63°39'43.1"	35°00'17.1"
T	49.31'	26.28'
L	90.22'	52.11'
C	86.49'	51.89'
E	12.62'	2.10'
P.C.C. STA. 5+31.85, 53.56' RT.		

MINIMUM HORIZONTAL CLEARANCES	
LOCATION	EXIST. AND PROPOSED
RUNAROUND TRACK	7.93'
GCRTA E.B.	8.93'
GCRTA W.B.	7.78'
E.B. SIDING	6.72'
E.B. MAIN	7.09'
W.B. MAIN	7.31'
W.B. SIDING	6.71'

NOTE: FOR DISPOSITION OF UTILITIES, SEE GENERAL NOTE NO. 5 ON SHEET 7120

MINIMUM VERTICAL CLEARANCES		
LOCATION	EXISTING	PROPOSED
RUNAROUND TRACK	17.80'	18.16'
GCRTA E.B.	17.20'	17.35'
GCRTA W.B.	17.20'	17.27'
E.B. SIDING	20.70'	20.81'
E.B. MAIN	20.30'	20.34'
W.B. MAIN	20.15'	20.18'
W.B. SIDING	20.00'	20.18'

EXISTING STRUCTURE

TYPE: 4-SPAN REINFORCED CONC. DECK SLAB ON SIMPLY SUPPORTED ENCASED 24" STEEL I BEAM STRINGER

SUB STRUCTURES: CONC. ENCASED STEEL BENTS AND CONC. GRAVITY-TYPE ABUTMENTS

SPANS: 33.33', 32.0', 29.0', 30.33'

ROADWAY WIDTH: 24'-0" F/F CURB

SKEW ANGLE: NONE

LOAD CAPACITY: TWO 24-TON TRUCKS IN ANY POSITION ON ROADWAY

FLOOR: ASPHALT ON 4" PAVING BRICK AND 1" MORTAR

DATE BUILT: 1920±

PROPOSED STRUCTURE

TYPE: 4-SPAN REINFORCED CONC. DECK SLAB ON CONTINUOUS ROLLED STEEL BEAMS RECONSTRUCTED PIER CAPS AND COLUMNS. ABUTMENTS MODIFIED AS REQUIRED FOR REUSE.

SPANS: 33.33', 32.00', 29.00', 30.33'

ROADWAY WIDTH: VARIES, 24'-0" F/F CURB MIN.

SIDEWALK WIDTH: 5'-0" BOTH SIDES

DESIGN LOADING: HS 20-44 CASE II AND INTERSTATE ALTERNATE MILITARY LOADING.

SKEW ANGLE: NONE

WEARING SURFACE: 1¼" LATEX MODIFIED CONC.

APPROACH SLABS: 15'-0"

ALIGNMENT: ON TANGENT

SUPER ELEVATION: NONE

FOUNDATION DATA

THE EXISTING NORTH ABUTMENT SHALL BE RECONSTRUCTED ABOVE EL. 675.95± AND THE SOUTH ABUTMENT SHALL BE RECONSTRUCTED ABOVE EL. 676.14± THE PIERS SHALL BE RECONSTRUCTED ABOVE THE EXISTING CRASH WALLS

TRAFFIC DATA

5,365 ADT (1986) 7900 ADT (2006)
268 T (1986) 395 T (2006)

RAILROAD TRAFFIC DATA

N&W. R.R.
VOLUME = 6 TRAINS PER DAY
TYPE = FREIGHT
SPEED = 40 M.P.H.

G.C.R.T.A.
VOLUME = 212 TRAINS PER DAY ON WEEKDAYS
142 TRAINS PER DAY ON SATURDAYS
108 TRAINS PER DAY ON SUN./HOL.
TYPE = PASSENGER COMMUTER
SPEED = 55 M.P.H.

POLYTECH, INC. 4/80

SITE PLAN
CITY OF CLEVELAND BRIDGE NO. 1:066
WEST 85TH STREET
OVER
N.W. RAILWAY AND GCRTA TRACKS
STA. 4+02.69 TO STA. 5+31.85

SCALE IN FEET: 0 10 20

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEY	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
BAUER SURVEY	—	LYH	GS	GA	RLB

FHWA REGION	STATE	PROJECT	
5	OHIO	IX-1C25(1)	

23/38

CUYAHOGA COUNTY
WEST 85th STREET

GENERAL PLAN

ELEVATION

VERTICAL CURVE DATA

P.V.I. STA.	4 + 58.00
P.V.I. EL.	686.75
V.C.	= 160'
M.	= -1.576'
GRADE G1	= +4.40 %
GRADE G2	= -3.48 %

TRACK LOCATION DATA

℄ OF EXISTING TRACK LOCATIONS AT WEST 85th STREET ℄

TRACK	℄ STATION
RUNAROUND TRACK	4 + 29.34
EASTBOUND GCRTA	4 + 48.20
WESTBOUND GCRTA	4 + 61.49
EASTBOUND SIDING	4 + 77.99
EASTBOUND MAIN	4 + 91.18
WESTBOUND MAIN	5 + 07.58
WESTBOUND SIDING	5 + 20.56

POLYTECH, INC. 5/20
CONSULTING ENGINEERS CLEVELAND, OHIO

GENERAL PLAN & ELEVATION

WEST 85th STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. 1-066

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
EDV	EK	—	CT	GA	1/87	

FHWA REGION	STATE	PROJECT	
5	OHIO	IX-1C25 (1)	

24/38

CUYAHOGA COUNTY
WEST 85TH STREET

PLAN

SECTION A-A

ELEVATION

SECTION B-B

NOTES:

1. POROUS BACKFILL, WIDTH AS SHOWN, SHALL EXTEND UP TO THE LEVEL OF SUBGRADE AND LATERALLY TO THE ENDS OF THE ABUTMENT WINGWALLS.
2. FOR WINGWALL DETAILS, SEE SHEET 8/20
3. FOR REINFORCEMENT SCHEDULE, SEE SHEET 7/20
4. REINFORCEMENT AT UTILITY OPENINGS SHALL BE FIELD CUT AS REQUIRED.
5. ℄ ELEVATION OF UTILITY OPENINGS ARE GIVEN AT THE FRONT FACE OF BACKWALL. OPENINGS SHALL SLOPE DOWNWARD AT 3/8-INCH PER FOOT TOWARDS THE BACKFACE OF BACKWALL.
6. CLEAN DEMOLITION DEBRIS FALLEN INTO THE EXIST. 6" VCP STANDPIPE AND THEN CONNECT TO 6" ELBOW, WITH THE COST TO BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 518-6-IN. NON-PERFORATED HELICAL CORRUGATED STEEL PIPE, INCLUDING SPECIALS.
7. THE FOLLOWING ABBREVIATIONS ARE USED:

N.F.	= NEAR FACE	W/	= WITH
F.F.	= FAR FACE	℄	= CENTERLINE
E.F.	= EACH FACE	APPROX	= APPROXIMATE
TYP.	= TYPICAL	Ø	= DIAMETER
C.J.	= CONSTRUCTION JOINT	MAX	= MAXIMUM
STD.	= STANDARD	V.C.P.	= VITRIFIED CLAY PIPE
DWG.	= DRAWING	I.D.	= INSIDE DIAMETER
EL.	= ELEVATION	BRG.	= BEARING
ADD'TL	= ADDITIONAL	BOT.	= BOTTOM
EXIST.	= EXISTING	EXP. JT.	= EXPANSION JOINT
SPA.	= SPACES	INCR.	= INCREMENT
STA.	= STATION	SER.	= SERIES
REINF.	= REINFORCEMENT	@	= AT
MIN.	= MINIMUM		
C.M.P.	= CORRUGATED METAL PIPE		
INV.	= INVERT		

8. THE FOLLOWING MIN. BAR SPLICE LAP LENGTHS SHALL BE PROVIDED:
   NO. 5 BARS = 1'-4"
   NO. 6 BARS = 1'-5"
9. FOR SEALING OF CONCRETE SURFACES, SEE GENERAL NOTE 17 ON SHEET 3/20

NOTE:

10. THE ENTIRE EXPOSED SURFACES OF EXISTING ABUTMENT INCLUDING WINGWALLS SHALL BE PATCHED IN ACCORDANCE WITH ITEM 519-"PATCHING CONCRETE STRUCTURE, AS PER PLAN". THE PATCHING SHALL INCLUDE REMOVAL OF THE CONCRETE SURFACE DESCRIBED ABOVE TO A MINIMUM DEPTH OF 6 INCHES OR TO A GREATER DEPTH AS REQUIRED TO REMOVE DISINTEGRATED & LOOSE CONCRETE. THE SOUND CONCRETE (BENEATH THE DISINTEGRATED CONCRETE) SHALL BE REMOVED FOR A DEPTH OF NOT LESS THAN 1/4". HATCHING INDICATE APPROXIMATE LIMITS OF PATCHING AREA REQUIRING REMOVAL OF UNSOUND CONCRETE DEEPER THAN 6 INCHES.

REINFORCING BAR MARKS SHALL BE PREFIXED AS FOLLOWS:
SOUTH ABUTMENT - SA
NORTH ABUTMENT - NA

POLYTECH, INC. 6/20
CONSULTING ENGINEERS CLEVELAND, OHIO

SOUTH ABUTMENT
WEST 85TH STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. 1:066

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
SFM	SFM	GS	CT	GA	1/87	

FHWA REGION	STATE	PROJECT	
5	OHIO	IX-IC 25 (1)	

25/38

CUYAHOGA COUNTY
WEST 85TH STREET

POLYTECH, INC. 7/20
CONSULTING ENGINEERS CLEVELAND, OHIO

NORTH ABUTMENT
WEST 85TH STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO 1066

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
SFM	SFM	GS	CT	GA	1/87	

FHWA REGION	STATE	PROJECT	
5	OHIO	IX-IC25(1)	

26/38

CUYAHOGA COUNTY
WEST 85TH STREET

VIEW C-C
(SOUTH-WEST WALL)

AREA OF UNSOUND CONCRETE SURFACE TO BE PATCHED IN ACCORDANCE WITH ITEM 519 AS PER PLAN

NOTES:

1. THE NORTH END OF PARAPET OF NORTH-WEST WALL SHALL BE CONNECTED TO THE ROADWAY GUARDRAIL BY MEANS OF BRIDGE TERMINAL ASSEMBLY, TYPE A WITH WHEELGUARD. FOR LOCATION OF ANCHOR ASSEMBLY AND BOLT HOLE, SEE STANDARD DWG. GR-3. CONCRETE INSERT ANCHOR ASSEMBLY SHALL BE INCLUDED WITH ITEM 511, CLASS C CONCRETE, ABUTMENT & WINGWALLS, FOR PAYMENT.
2. FOR RUSTICATION DETAILS, SEE SHEET 18/20

VIEW D-D
(NORTH-WEST WALL)

SLEEVE DETAIL FOR WATERMAIN AT ABUTMENTS

NOTE: FOR PACKING, INSULATION, & SEALING DETAILS SEE WATERWORK PLANS.

SECTION E-E

SECTION F-F

SECTION G-G

SECTION H-H

POLYTECH, INC.
CONSULTING ENGINEERS CLEVELAND, OHIO

8/20

WINGWALL DETAILS
WEST 85TH STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. 1:066

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
SFM	SFM	—	CT	GA	1/87	

FHWA REGION	STATE	PROJECT	
5	OHIO	IX-IC25(1)	

27/38

CUYAHOGA COUNTY
WEST 85TH STREET

SECTION B-B

PLAN

SECTION A-A

ELEVATION

NOTES

1. ROCKER BEARING R-150 SHALL BE USED AT PIER NO. 1. SEE STD. DWG. RB-1-55 FOR DETAILS
2. FIXED BEARINGS F-150 SHALL BE USED AT PIER NO. 2 SEE STD. DWG. FB-1-82 FOR DETAILS.
3. EXISTING PIER CAPS SHALL BE COMPLETELY REMOVED, EXISTING COLUMNS SHALL BE PARTIALLY REMOVED TO LEAVE A 5'-6"± LENGTH OF EXISTING C15 CHANNEL ABOVE THE EXISTING TOP OF THE CRASH WALL. CONCRETE ENCASEMENT WITHIN THE EXISTING C15 CHANNEL SHALL BE REMOVED.
4. FOR REINFORCEMENT SCHEDULE, SEE SHEET 20/20
5. BRIDGE SEAT REINFORCING: REINFORCING STEEL IN THE VICINITY OF THE BRIDGE SEAT SHALL BE ACCURATELY PLACED TO AVOID INTERFERENCE WITH THE DRILLING OF BEARING ANCHOR HOLES OR PRE-SETTING OF BEARING ANCHORS.
6. STIRRUPS IN THE CAP BEAMS SHALL BE PLACED WITH THE HOOKS ON THE TOP IN THE AREAS MARKED COMPRESSION AND ON THE BOTTOM IN AREAS MARKED TENSION.

POLYTECH, INC. 9/20
CONSULTING ENGINEERS CLEVELAND, OHIO

PIER 1 & 2
WEST 85TH STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. 1:066

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
GA	LYH	GS	CT	GA	1/87	

FHWA REGION	STATE	PROJECT	
5	OHIO	IX-IC25(1)	

CUYAHOGA COUNTY
WEST 85TH STREET

28/38

NOTES:

1. SPLICE P803 BARS WITH P804 BARS AND STAGGER SPLICE
2. FOR ADDITIONAL NOTES, SEE SHEET 5/20
3. ROCKER BEARING R-150 SHALL BE USED AT PIER NO. 3. SEE STD. DWG. RB-1-55 FOR DETAILS.
4. EXISTING PIER CAPS SHALL BE COMPLETELY REMOVED, EXISTING COLUMN SHALL BE PARTIALLY REMOVED TO LEAVE A 5'-6"± LENGTH OF EXISTING 14WF61 STEEL COLUMN ABOVE THE EXISTING TOP OF CRASH WALL.

POLYTECH, INC. 10/20
CONSULTING ENGINEERS CLEVELAND, OHIO

PIER NO. 3
WEST 85TH STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. 1:066

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
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FHWA REGION	STATE	PROJECT	
5	OHIO	IX-1C25(1)	

29/38

CUYAHOGA COUNTY
WEST 85TH STREET

FRAMING PLAN

EAST EDGE OF DECK SLAB LAYOUT

DETAIL 1

DETAIL 2

DETAIL 3

* DO NOT COPE BOTTOM FLANGE OF BEAM W 21.

NOTES:

1. HIGH STRENGTH BOLTS SHALL BE ONE-INCH DIAMETER ASTM A325 UNLESS OTHERWISE NOTED.
2. THE BOLTS SHALL BE PLACED WITH THEIR HEADS ON THE OUTSIDE FACE OF THE EXTERIOR BEAMS AND ON THE BOTTOM OF THE FLANGES. FOR ADDITIONAL DETAILS AND NOTES, SEE OHIO STANDARD BRIDGE DRAWING SD-1-69, SHEET 4 OF 4.
3. ALL STRUCTURAL STEEL BEAMS, CONNECTION PLATES AND SPLICE PLATES SHALL MEET THE SPECIFIED MINIMUM NOTCH TOUGHNESS REQUIREMENTS (CVN) AS SPECIFIED IN 711.01 OF CMS.
4. FOR DETAILS OF CROSSFRAMES F-1 THROUGH F-11 SEE SHEETS 14/20 AND 15/20
5. FOR BEAM ELEVATION, CAMBER AND BEARING DETAILS, AND BEAM LENGTHS, SEE SHEET 12/20
6. FOR FIXED BEARING DETAILS, SEE OHIO STANDARD BRIDGE DRAWING FB-1-82.
7. FOR ROCKER DETAILS, SEE OHIO STANDARD BRIDGE DRAWING RB-1-55.
8. BEVELED UPPER LOAD PLATE SHALL BE USED FOR ALL R-100 ROCKERS AS SHOWN ON SHEET 12/20
9. PARTIAL PAINTING OF ASTM A588 STEEL: A FIVE FOOT LENGTH OF THE ENDS OF BEAMS ADJACENT TO THE ABUTMENTS, AND ALL CROSSFRAMES AND OTHER A588 STEEL WITHIN THESE LIMITS SHALL BE PAINTED, EXCEPT FOR SURFACES OF THE FASCIA BEAMS SPECIFIED TO BE BLAST CLEANED. PAINT SHALL BE ITEM 514, SYSTEM A. THE PRIME COAT SHALL BE ITEM 708.17. THE TOP COAT SHALL BE ITEM 708.18 EXCEPT THAT THE COLOR SHALL CLOSELY APPROACH FEDERAL STANDARD NO. 595A-20045 OR 20059. SUCH PARTIAL PAINTING OF A588 STEEL SHALL BE PAID FOR UNDER ITEM 514-FIELD PAINTING OF NEW STRUCTURAL STEEL, SYSTEM A, AS PER PLAN.
10. FOR A588 STEEL LEFT UNPAINTED, SEE CMS 513.221 FOR CLEANING REQUIREMENTS.
11. WELDED ATTACHMENT OF SUPPORTS FOR CONCRETE DECK FINISHING MACHINE MAY BE MADE TO AREAS OF THE FASCIA STRINGER FLANGES DESIGNATED "COMPRESSION". ATTACHMENTS SHALL NOT BE MADE TO AREAS DESIGNATED "TENSION". FILLET WELDS TO COMPRESSION FLANGES SHALL BE NOT CLOSER THAN 1" FROM EDGE OF FLANGE, BE NOT MORE THAN 2" LONG, AND BE NOT SMALLER THAN THE MINIMUM SIZE REQUIRED BY AASHTO REQUIREMENTS.
12. BEARINGS: IN LIEU OF A588 STEEL, A36 STEEL, GALVANIZED MAY BE FURNISHED FOR BEARINGS, EXCEPT FOR UPPER PLATE ELEMENT OF BEARINGS. THIS A36 STEEL SHALL BE INCLUDED WITH THE A588 STEEL QUANTITY FOR PAYMENT.

POLYTECH, INC. 11/20
CONSULTING ENGINEERS CLEVELAND, OHIO

FRAMING PLAN

WEST 85TH STREET OVER
N & W RAILWAY AND GCRTA TRACKS

CITY OF CLEVELAND BRIDGE NO. 1:066

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
CT	LYH	GS	GA	GA	1/87	

FHWA REGION	STATE	PROJECT	
5	OHIO	IX-IC25(1)	

30/35

CUYAHOGA COUNTY
WEST 85TH STREET

NOTE:
THE 1/2 SPAN DEFLECTION AND CAMBER SHOWN FOR THE BEAM J IN SPAN 3 IS GIVEN ALONG THE MIDPOINT BETWEEN ℄ PIERS 2 & 3 AND FOR BEAM K IN SPAN 4, IS GIVEN ALONG MIDPOINT BETWEEN ℄ OF PIER 3 & ℄ BEARING NORTH ABUTMENT.

BEAM ELEVATION

SECTION A-A

NORTH ABUTMENT PLAN
BEVELED PLATE DETAIL
(NOTE: CROSSFRAMES NOT SHOWN)

DEAD LOAD DEFLECTION AND CAMBER

BEAM	SPAN 1 1/2 SPAN				SPAN 2 1/2 SPAN				SPAN 3 ℄ FIELD SPLICE				SPAN 3 1/2 SPAN				SPAN 4 ℄ FIELD SPLICE				SPAN 4 1/2 SPAN			
	STL. D.L.	REM. D.L.	CONV.	TOT.	STL. D.L.	REM. D.L.	CONV.	TOT.	STL. D.L.	REM. D.L.	CONV.	TOT.	STL. D.L.	REM. D.L.	CONV.	TOT.	STL. D.L.	REM. D.L.	CONV.	TOT.	STL. D.L.	REM. D.L.	CONV.	TOT.
A	1/16	3/16	13/16	1 1/16	0	1/16	3/4	13/16	0	0	3/8	3/8	0	0	5/8	5/8	–	–	–	–	0	1/8	11/16	13/16
B	1/16	3/16	13/16	1 1/16	0	1/16	3/4	13/16	0	0	3/8	3/8	0	0	5/8	5/8	–	–	–	–	0	1/8	11/16	13/16
C	1/16	3/16	13/16	1 1/16	0	1/16	3/4	13/16	0	0	3/8	3/8	0	0	5/8	5/8	–	–	–	–	0	1/8	11/16	13/16
D	1/16	3/16	13/16	1 1/16	0	1/16	3/4	13/16	0	0	3/8	3/8	0	0	5/8	5/8	–	–	–	–	0	1/8	11/16	13/16
E OR L	0	3/16	13/16	1	0	1/16	7/8	15/16	–	–	–	–	0	0	1/16	1/16	–	–	–	–	0	1/8	11/16	13/16
F	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0	3/16	5/8	13/16
G	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0	1/8	5/16	7/16
H	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0	0	0	0
I	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0	0	0	0
J	–	–	–	–	–	–	–	–	0	0	11/16	11/16	0	3/16	1/4	1 7/16	–	–	–	–	–	–	–	–
K	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0	1/8	15/16	1 1/16	1/16	1/2	1/4	1 13/16

CAMBER DIAGRAM

NOTES FOR DEFLECTION & CAMBER:

A. WORK POINTS ARE TOP OF BEAM FLANGE, AT CENTERLINE OF BEARING OR AT CENTERLINE OF BEAM INTERSECTION AS SHOWN ON SHEET 11/20

B. THE WORK LINE IS A STRAIGHT LINE BETWEEN THE INDICATED WORK POINTS ALONG THE CENTERLINE OF BEAM.

C. THE BASELINE IS A STRAIGHT LINE BETWEEN INDICATED WORK POINTS AT ABUTMENTS, ALONG THE CENTERLINE OF BEAM.

D. THE TABULATED DEFLECTION AND CAMBER DATA IS MEASURED FROM THE WORK LINE

E. THE 1/2 SPAN DEFLECTION AND CAMBER SHOWN FOR THE BEAM L IN SPAN 3 IS GIVEN ALONG THE MIDPOINT BETWEEN ℄ PIERS 2 & 3 AND FOR BEAM G IN SPAN 4, IS GIVEN ALONG THE MIDPOINT BETWEEN ℄ PIER 3 & ℄ BEARING NORTH ABUTMENT

F. DEFLECTION AND CAMBER ARE GIVEN TO THE NEAREST 1/16 INCH

G. THE FOLLOWING ABBREVIATIONS ARE USED:
STL. D.L. DEAD LOAD DEFLECTION DUE TO STEEL BEAMS, FRAMING AND UTILITY LOADS.
REM. D.L. DEFLECTION DUE TO REMAINING DEAD LOAD.
CONV. CONVEXITY
TOT. TOTAL REQUIRED CAMBER IN INCHES.

BEAM	a	b	c
A	0' – 9"	0' – 11 1/8"	1' – 2 7/8"
B	0' – 9"	0' – 11 1/4"	1' – 3"
C	0' – 9 1/8"	0' – 11 3/8"	1' – 2 7/8"
D	0' – 9 1/8"	0' – 11 3/8"	1' – 3 1/8"
E, J, & K	0' – 11 1/4"	1' – 3 7/8"	1' – 7 1/8"
F, G, H, I, L	—	—	—

POLYTECH, INC. 12/20
CONSULTING ENGINEERS CLEVELAND, OHIO

BEAM & BEARING DETAILS
WEST 85TH STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. I:066

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
CT.	CT.	GS	GA	GA	1/87	

FHWA REGION	STATE	PROJECT	
5	OHIO	IX-IC 25(1)	

31/38

CUYAHOGA COUNTY
WEST 85TH STREET

TYPICAL FIELD SPLICE DETAIL

FOR BEAMS A, B, C, & D

FIELD SPLICE DETAIL A & B

FOR BEAMS E, J & K

SECTION C-C

NOTE:
BEAM F (W21X93) FRAMING INTO BEAM N (W24X94) SHOWN.
BEAM L (W24X94) FRAMING INTO BEAM M (W24X94) TO BE SIMILAR.

ELEVATION

DEVELOPED ELEVATION

NOTE: ALL HIGH STRENGTH BOLTS SHALL BE 1" DIAMETER, ASTM A325, UNLESS OTHERWISE INDICATED.

NOTE:
BEAM L (W24X94) FRAMING INTO BEAM M (W24X94) SHOWN.
BEAM F (W21X93) FRAMING INTO BEAM N (W24X94) TO BE SIMILAR.

SECTION D-D

POLYTECH, INC. 13/20
CONSULTING ENGINEERS CLEVELAND, OHIO

FIELD SPLICE DETAILS
WEST 85TH STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. 1:066

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
CT	GS	—	GA	GA	1/87	

FHWA REGION	STATE	PROJECT	
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32/38

CUYAHOGA COUNTY
WEST 85TH STREET

CROSS FRAME F-1 & F-2
(LOOKING NORTH)

NOTE:
1. CROSS FRAME F-1A IS SIMILAR TO F-1; SLOPE, HAUNCH & BEAM SIZES DIFFER.
2. CROSS FRAME F-1B IS SIMILAR TO F-1; SLOPE & HAUNCH DIFFER.

SECTION A-A

DETAIL B

CROSS FRAME F-3 & F-4
(LOOKING NORTH)

SECTION C-C

SECTION D-D

NOTE:
1. CROSS FRAME F-6A IS SIMILAR TO F-6; SLOPE & HAUNCH DIFFER. CROSS FRAME F-6B IS SIMILAR TO F-6; SLOPE, HAUNCH, BEAM SPACING & BEAM SIZES DIFFER. FOR BOTH CROSS FRAMES F-6A AND F-6B, CONNECTION TO FASCIA BEAM AND SIDEWALK EXPANSION JOINT DETAILS ARE SIMILAR TO F-5.
2. CROSS FRAME F-6C IS SIMILAR TO F-6; SLOPE, HAUNCH & BEAM SIZES DIFFER.
3. CROSS FRAME F-6D & 6E IS SIMILAR TO F-6; SLOPE & HAUNCH DIFFER.

END CROSS FRAMES F-5, F-6, F-7
(LOOKING NORTH) AS SHOWN
(LOOKING SOUTH) OPP. HAND

FOR NOTES SEE SHEET 15/20

14/20

POLYTECH, INC.
CONSULTING ENGINEERS CLEVELAND, OHIO

CROSS FRAME DETAILS
WEST 85th STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. 1-066

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
SFM	SFM	F.K	CT	GA	1'87	

FHWA REGION	STATE	PROJECT	
5	OHIO	IX-IC25(1)	

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CUYAHOGA COUNTY
WEST 85TH STREET

CROSSFRAME L'S 4 x 4 x 3/8 WELD BOTH SIDES OF VERTICLE LEG AND TOP OR BOT. SIDE OF HORIZONTAL LEG TO BEAM WITH 1/4" CONTINOUS FILLET WELD

CROSS FRAME F-8 & F-9
(LOOKING NORTH)

NOTE 1. CROSSFRAME F-8A IS SIMILAR TO F-8; SLOPE, HAUNCH & BEAM SIZES DIFFER.

SECTION A-A

CROSS FRAME F-10
(LOOKING NORTH)

CROSS FRAME F-11
(LOOKING NORTH)

NOTE: C.E.I. DUCTS (NOT SHOWN) TO BE PLACED BY THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

SECTION C-C

SECTION A-A

PARTIAL PLAN
WATER MAIN SUPPORT DETAIL
FOR CROSS FRAMES F-4 & F-10

SECTION B-B

NOTE: FOR WATERMAIN PIPE ASSEMBLY DETAILS, SEE WATERWORK SHEETS

NOTES

1. INSTALLATION OF SEAL: DURING INSTALLATION OF SUPPORT/ARMOR FOR THE SUPERSTRUCTURE SIDE OF EXP. JOINT SEAL, THE SEATING OF BEAMS ON BEARINGS SHALL BE CAREFULLY OBSERVED TO ASSURE THAT POSITIVE BEARINGS IS MAINTAINED. PROPER VERTICAL FIT OF SUPPORT/ARMOR ON THE BEAMS SHALL BE ACHIEVED BY POSITIONING OF THE BEVEL FILL PLATES RATHER THAN CLAMPING FORCE.
2. COMPRESSION JOINT ARMOR STEEL: STEEL MEMBERS SHALL BE FURNISHED IN LENGTHS AS LONG AS PRACITCABLE. AT ALL FIELD BUTT JOINTS THEY SHALL BE RIGIDLY FASTENED TOGETHER AS REQUIRED PRIOR TO PLACING CONCRETE.
3. PAYMENT PER LINEAR FOOT FOR ITEM 516-STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC COMPRESSION SEAL, INCLUDES ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO COMPLETE THE JOINT IN PLACE INCLUDING THE JOINT ARMOR, 1/2" STEEL PLATES, THE CUT-OUT DETAILS FOR WATERMAIN IN CROSS FRAME F-7, ALL ANCHORING DEVICES AND THE TOP GUSSET-PLATES ATTACHED TO THE C15 x 40 IN CROSS FRAMES F-6. ALL VERTICAL, DIAGONAL AND BOTTOM MEMBERS (BELOW BOTTOM FLANGE OF C15 x 40) OF CROSS FRAMES F-5, F-6, AND F-7 SHALL BE INCLUDED IN ITEM 513.
4. FOR EXPANSION JOINT DETAILS, SEE STD. DWG. EXJ-2-81.

POLYTECH, INC. 15/20
CONSULTING ENGINEERS CLEVELAND, OHIO

CROSS FRAME DETAILS
WEST 85TH STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. 1:066

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
SFM	SFM	GS	CT	GA	1/87	

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CUYAHOGA COUNTY
WEST 85th STREET

◉ FOR EXACT LOCATION AND SIZE OF OPENING FOR AIR RELIEF VALVE BOX, SEE WATERWORK SHEETS. THE DECK SLAB REINFORCEMENT AT THIS OPENING SHALL BE FIELD CUT AS REQUIRED.

DECK SLAB PLAN

THE SPACING OF BOTTOM BARS ES506/ES508 & ES509 BETWEEN BEAMS "F" TO "I" SHALL BE AS SHOWN IN TYPICAL CROSS SECTION. THE SPACING OF ES506/ES508 BARS WEST OF BEAM "F" & ES509 BARS EAST OF BEAM "I" SHALL BE 11".

TYPICAL CROSS SECTION

(LOOKING NORTH)

** RADIAL DIMENSION ALONG CURVE

NOTE: FOR BEAMS L, F, G, H, I THE HAUNCH THICKNESS SHALL BE 9 5/8" (OUTSIDE THE SIDEWALK AREA)

DETAIL "A"

REQUIRED LAP LENGTHS (MIN.)
NO. 4 BARS - 1'-0"
NO. 5 BARS - 1'-4"
NO. 6 BARS - 1'-5"

TOP OF FINAL PAVEMENT ELEVATIONS (TOP OF LATEX MODIFIED CONCRETE)

	SPAN 1			SPAN 2		SPAN 3			SPAN 4		
AT BEAM	℄ BRG. S. ABUT.	1/2 SPAN	PIER NO.1	1/2 SPAN	PIER NO.2	℄ FIELD SPLICE	1/2 SPAN	PIER NO.3	℄ FIELD SPLICE	1/2 SPAN	℄ BRG N. ABUT
A	683.94	684.39	684.70	684.86	684.90	684.88	684.83	684.65	—	684.36	683.95
B	684.11	684.55	684.86	685.02	685.06	685.05	684.99	684.82	—	684.52	684.11
C	684.24	684.68	684.99	685.15	685.19	685.18	685.12	684.94	—	684.65	684.24
D	684.11	684.55	684.86	685.02	685.06	685.05	684.99	684.82	—	684.52	684.11
E OR L	683.94	684.39	684.70	684.86	684.88	—	684.86	684.69	—	684.39	683.98
F	—	—	—	—	—	—	—	684.46	—	684.26	683.85
G	—	—	—	—	—	—	—	—	—	684.13	683.73
H	—	—	—	—	—	—	—	—	—	—	683.60
I	—	—	—	—	—	—	—	—	—	—	683.47
J	—	—	—	—	—	684.85	684.74	684.37	—	—	—
K	—	—	—	—	—	—	—	—	684.26	683.86	683.10

DECK SCREED ELEVATIONS (TOP OF PORTLAND CEMENT CONCRETE DECK)

BEAM A	683.94	684.40	684.70	684.87	684.90	684.88	684.83	684.65	—	684.37	683.95
BEAM C	684.13	684.59	684.88	685.05	685.09	685.07	685.02	684.84	—	684.56	684.14
BEAM E	683.94	684.40	684.70	684.87	684.88	—	—	—	—	—	—
BEAM J	—	—	—	—	—	684.85	684.75	684.37	—	—	—
BEAM K	—	—	—	—	—	—	—	—	684.27	683.91	683.10

NOTES:

1. TOP OF FINAL PAVEMENT ELEVATIONS ARE GIVEN AT THE TOP OF LATEX MODIFIED CONCRETE FOR THE INTERIOR BEAMS IN THE ROADWAY AREA. FOR FASCIA BEAMS AND INTERIOR BEAMS IN THE SIDEWALK AREA, THE TOP OF FINAL PAVEMENT ELEVATIONS ARE GIVEN AT THE LEVEL CONSTRUCTION JOINT OF THE CONCRETE DECK AS SHOWN IN THE TYPICAL SECTION.
2. DECK SCREED ELEVATIONS SHOWN ARE TO THE TOP OF THE PORTLAND CEMENT CONCRETE DECK AND ARE THE ELEVATIONS THAT ARE REQUIRED BEFORE CONCRETE IS PLACED. PROPER ALLOWANCE HAS BEEN MADE FOR DEAD LOAD DEFLECTIONS OF THE BEAMS DUE TO CONCRETE AND THE LATEX MODIFIED CONCRETE WEARING COURSE.
3. THE 1/2 SPAN TOP OF FINAL PAVEMENT ELEVATIONS AND DECK SCREED ELEVATIONS SHOWN FOR THE BEAMS L, F, G, J & K IN SPANS 3 & 4 ARE GIVEN ALONG THE MIDPOINT BETWEEN ℄ PIERS 2 & 3 FOR SPAN 3 AND BETWEEN ℄ PIER 3 AND ℄ BEARING NORTH ABUTMENT FOR SPAN 4.
4. DECK SLAB DEPTH: THE DISTANCE SHOW FROM TOP OF DECK SLAB TO TOP OF STEEL BEAM IS THE DESIGN DIMENSION. THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED ON THIS DIMENSION, EVEN THOUGH DEVIATION FROM IT MAY BE NECESSARY BECAUSE THE TOP FLANGE OF THE BEAM MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISHED GRADE.
5. A TYPICAL HAUNCH WIDTH OF 9" SHALL BE USED FOR COMPUTING QUANTITY OF CONCRETE. HOWEVER THE HAUNCH WIDTH MAY VARY BETWEEN 6" AND 12", PROVIDED THAT THE SLOPE SHALL NOT BE MORE THAN 1:4 FOR A HAUNCH LESS THAN 9" IN WIDTH.
6. FIELD BEND TRANSVERSE BARS TO FIT CROWN. BENDING TO BE INCLUDED IN ITEM 824 FOR PAYMENT. EPOXY COATED BARS DAMAGED BY FIELD BENDING SHALL BE REPAIRED AS PER APPROVED MANUFACTURER'S RECOMMENDATIONS.
7. ALL DECK SLAB REINFORCING SHALL BE EPOXY COATED. THESE BARS ARE PREFIXED E.
8. FOR REINFORCEMENT SCHEDULE, SEE SHEET 19/20.

16/20

POLYTECH, INC.
CONSULTING ENGINEERS CLEVELAND, OHIO

DECK SLAB PLAN & TYPICAL CROSS SECTION

WEST 85th STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. 1-066

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
SFM	SFM	EK	CT	GA	1/87	

FHWA REGION	STATE	PROJECT	
5	OHIO	IX-1C25(1)	

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CUYAHOGA COUNTY
WEST 85TH STREET

SECTION A-A

SOUTH APPROACH SLAB

NOTES:

1. THE ADDITIONAL TRANSVERSE BARS SHOWN ON THIS SHEET SHALL BE LAPPED WITH B501 BARS (TOP & BOTTOM) SHOWN IN STD. DWG. AS-1-81
2. ALL ADDITIONAL BARS SHOWN ON THIS SHEET ARE STRAIGHT BARS EXCEPT #10 BARS WHICH ARE HOOKED ON ONE SIDE AS SHOWN IN STD. DWG. AS-1-81 FOR A1001 BARS.
3. THE ADDITIONAL REINFORCEMENT SHOWN ON THIS SHEET SHALL BE INCLUDED WITH ITEM 611 "REINFORCED CONCRETE APPROACH SLABS, MODIFIED AS PER PLAN" FOR PAYMENT.
4. FOR ADDITIONAL DETAILS, SEE STD. DWG. AS-1-81.

NORTH APPROACH SLAB

DETAIL AT NORTHEAST CORNER OF BRIDGE

SECTION B-B

SECTION C-C

POLYTECH, INC. 17/20
CONSULTING ENGINEERS CLEVELAND, OHIO

APPROACH SLAB AND MISC. DETAILS
WEST 85TH STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. 1:066

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
SFM	EDV	GS	CT	GA	1/87	

FHWA REGION	STATE	PROJECT	
5	OHIO	IX-IC 25(1)	

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CUYAHOGA COUNTY
WEST 85TH STREET

* FIELD BEND REINFORCING BARS IN TRANSITION SECTION AS REQUIRED TO FIT

PLAN

ELEVATION

SECTION A-A

SECTION B-B

SECTION C-C

BARRIER TRANSITION DETAILS

DEFLECTION JOINT DETAIL

ELEVATION AT NORTHEAST CORNER OF BRIDGE

TABLE II

NUMBER OF BARRIER UNITS	LENGTH L	BAR DESIGNATION	NUMBER OF ES517 & ES518 UNIT
1	10'-0"	—	0
1	11'-9¾"	ES538	3
1	12'-2"	ES539	3
1	**16-3⅜"	ES540	6

** DISTANCE MEASURED ALONG CURVE

TYPICAL PARAPET UNIT

PARAPET DEFLECTION JOINT DETAIL

TABLE I

NUMBER OF PARAPET UNITS	LENGTH L	BAR DESIGNATION	NUMBER OF ES606 PER UNIT
28	8'-0"	ES511	7
1	10'-0"	ES512	8
1	11'-9¾"	ES513	9
1	12'-2"	ES514	9

ELEVATION AT SOUTHWEST AND NORTHWEST CORNER OF BRIDGE

POST SIZE

OVER WINGWALLS		OVER DECK SLAB PARAPET
END POST	2½"Ø	3"Ø
LINE POST	2½"Ø	3"Ø

(ALL PIPE SHALL BE SCHEDULE 40 - NOMINAL DIAMETER SHOWN.)

SECTION

PARAPET & FENCE DETAILS

NOTES:

1. ALL FENCE DETAILS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE ODOT CONSTRUCTION AND MATERIAL SPECIFICATION 710.03 EXCEPT AS NOTED OR SHOWN OTHERWISE HEREON. FOR FENCE POST AND RUSTICATION SPACING, SEE SHEET 16/20. SEE NOTE 7 FOR CHAIN LINK FENCE SPECIFICATIONS.

2. PAYMENT FOR THE PARAPET AND FENCE SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR ITEM 517-RAILING (CONCRETE PARAPET WITH VINYL COATED FENCE), AS PER PLAN, THIS PRICE SHALL INCLUDE ALL PARAPET CONCRETE, LONGITUDINAL REINFORCING STEEL IN THE PARAPET, PARAPET DEFLECTION JOINT MATERIAL, ALL FENCE MATERIAL, FENCE POST SLEEVES AND GROUT AND ALL LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE PARAPET AND FENCING, PAYMENT LENGTH WILL BE THE OVERALL LENGTH OF THE PARAPETS.

3. ADDITIONAL CONCRETE QUANTITY REQUIRED BEYOND THE NOMINAL PARAPET SECTION OF 1'-0" x 2'-3" IN THE PARAPET CONSTRUCTION AT THE ABUTMENTS HAS BEEN ADDED TO THE QUANTITY OF ITEM 511, CLASS C CONCRETE, ABUTMENTS AND WINGWALLS.

4. THE PREFORMED EXPANSION JOINT FILLER IN THE RAILING PARAPET AND BARRIER DEFLECTION JOINTS MAY BE EITHER 1/4" GRAY SPONGE RUBBER OR 1/4" GRAY CELLULAR POLYVINYL CHLORIDE (P.V.C.) SPONGE, THE FILLER SHALL MEET THE REQUIREMENTS OF AASHTO M-153, TYPE I., EXCEPT THAT THE DENSITY OF P.V.C. SPONGE SHALL NOT BE LESS THAN 20 LBS, PER CUBIC FEET.

5. QUANTITIES OF CONCRETE AND REINFORCING STEEL FOR THE BARRIER ARE INCLUDED WITH THEIR APPROPRIATE ITEM UNDER SUPERSTRUCTURE FOR PAYMENT. THE PREFORMED EXPANSION JOINT FILLER SHALL BE INCLUDED WITH SUPERSTRUCTURE CONCRETE FOR PAYMENT.

6. PARAPET AND BARRIER SHALL BE PLACED IN ALTERNATE SECTIONS BY THE USE OF BULKHEADS. CLOSING SECTION SHALL BE PLACED AFTER REMOVAL OF THE BULKHEADS AND AFTER PLACEMENT OF THE JOINT MATERIAL.

7. CHAIN LINK FENCE SHALL BE AASHTO M-181-86, TYPE IV, CLASS B (PVC COATED DARK GREEN). FABRIC SHALL BE 9 GAUGE (0.148 IN. CORE WIRE), 1 INCH MESH. POSTS, RAILS, FRAMES, AND FITTINGS SHALL BE GRADE 1 (GALVANIZED) AND SHALL BE CLASS B (PVC COATED DARK GREEN). THE PVC THICKNESS COATING RANGE FOR POSTS, RAILS, AND FRAMES SHALL BE 0.010 IN. TO 0.015 IN. THE GALVANIZED COATING AND THE PVC COATING SHALL BE APPLIED TO THE VARIOUS FRAMEWORK PARTS AFTER EACH OF THE MEMBERS HAS BEEN FORMED TO ITS FINAL SHAPE.

POLYTECH, INC. 18/20
CONSULTING ENGINEERS CLEVELAND, OHIO

PARAPET, FENCE, AND BARRIER DETAILS
WEST 85TH STREET OVER N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. 1:066

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
SFM	SFM	GS	CT	GA	1/07	

FED. RD. DIVISION	STATE	PROJECT	
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CUYAHOGA COUNTY
WEST 85TH STREET

DECK SLAB

MARK	NO.	LENGTH	TYPE	A	B	C	D	E	F	SERIES INCR.	WEIGHT (LBS)
ES401	226	30'-0"	STR								4,529
ES402	53	9'-10"	STR								348
ES403	1 SER OF 53	33'-8" / 33'-8 1/4"	STR							2'-2 1/4"	177
ES404	1 SER OF 53	30'-0" / 30'-2 1/4"	STR							0'-8 3/4"	478
ES405	3	1'-11"	STR								4
ES406	167	13'-6"	STR								1,506
ES501	89	38'-8"	STR								3,589
ES502	123	28'-3"	STR								3,771
ES503	1 SER OF 123	30'-1" / 30'-1 1/2"	STR							0'-2 1/2"	1,942
ES504	39	26'-1"	STR								1,061
ES505	1 SER OF 39	32'-9" / 32'-9 1/8"	STR							0'-8 3/8"	762
ES506	184	30'-0"	STR								5,757
ES507	43	11'-2"	STR								501
ES508	1 SER OF 43	34'-3" / 34'-3 1/4"	STR							2'-7 3/4"	247
ES509	1 SER OF 43	32'-5" / 32'-0"	STR							0'-11"	613
ES510	3	1'-11"	STR								6
ES511	168	7'-8"	STR								**
ES512	6	9'-8"	STR								**
ES513	6	11'-5"	STR								**
ES514	6	11'-10"	STR								**
ES515	6	10'-7"	20	8'-8"	1'-11"	6 1/2					**
ES516	108	7'-8"	STR								864
ES517	228	7'-5"	6	0'-8"	2'-11 1/4"	0'-6"	2'-11"	0'-8"	1 1/4		1,764
ES518	228	3'-6"	5	0'-10"	0'-10"	2'-0"	8 3/8				832
ES519	230	2'-11"	2	1'-2"	1'-0"	1'-0"					700
ES520	230	5-10"	STR								1,399
ES521	230	2'-8"	2	0'-11"	1'-0"	1'-0"					640
ES522	41	30'-0"	STR								1,283
ES523	5	11'-2"	STR								58
ES524	5	23'-7"	STR								123
* ES525	18	30'-0"	STR								563
* ES526	5	31'-5"	STR								164
ES527	20	30'-0"	STR								626
ES528	4	11'-2"	STR								47
ES529	4	23'-7"	STR								98
* ES530	8	30'-0"	STR								250
* ES531	4	31'-5"	STR								131
ES532	3 SER OF 4	35'-4" / 35'-1"	18	3'-1" / 0'-10"	0'-9"					0'-3"	134
ES533	8	8'-0"	STR								67
ES534	8	5'-0"	STR								42
ES535	16	9'-10"	STR								164
ES536	8	5'-0"	STR								42
ES537	20	2'-9"	5	0'-10"	0'-8"	1'-4"	8 3/8				57
ES538	4	3'-0"	STR								13
ES539	4	3'-4"	STR								14
ES540	4	7'-6"	STR								31
ES541	1 SER OF 10	37'-4" / 37'-1"	19	3'-1" / 0'-10"	0'-9"					0'-3"	134
ES542	4	22'-8"	STR								95
ES543	4	14'-6"	STR								60
* ES544	4	23'-5"	STR								98
ES601	89	38'-8"	STR								5,169
ES602	128	32'-5"	STR								6,232
ES603	1 SER OF 87	30'-0" / 30'-0"	STR							0'-2 3/4"	2,768
ES604	31	26'-2"	STR								1,218
ES605	1 SER OF 31	28'-3" / 28'-9"	STR							0'-9"	792
ES606	232	7'-0"	7	0'-8"	2'-8"						2,439
										SUB TOTAL	54,402

SOUTH ABUTMENT

MARK	NO.	LENGTH	TYPE	A	B	C	D	E	F	SERIES INCR.	WEIGHT (LBS)
SA501	57	6'-2"	2	3'-11"	1'-3"	1'-3"					367
SA502	40	5'-0"	3	1'-6"	3'-7"	1/2					209
SA503	18	22'-2"	STR								416
SA504	18	18'-0"	STR								338
SA505	1	27'-0"	STR								28
SA506	2	7'-4"	STR								15
SA507	4	9'-1"	STR								38
SA508	12	3'-0"	STR								38
SA601	80	5'-2"	STR								621
SA602	40	9'-3"	2	1'-5"	4'-1"	4'-1"					556
SA603	40	4'-1"	2	1'-5"	1'-6"	1'-6"					245
SA604	25	5'-3"	2	0'-11"	2'-4"	2'-4"					197
SA605	15	7'-1"	2	1'-5"	3'-0"	3'-0"					160
SDA801	18	4'-10"	15	1'-5"	2'-0"	1'-5"	12				232

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CUYAHOGA COUNTY
WEST 85TH STREET

NOTES:

1. SPLICE P803 BARS WITH P804 BARS AND STAGGER SPLICE
2. FOR ADDITIONAL NOTES, SEE SHEET 9/20
3. ROCKER BEARING R-150 SHALL BE USED AT PIER NO. 3. SEE STD. DWG. RB-1-55 FOR DETAILS.
4. EXISTING PIER CAPS SHALL BE COMPLETELY REMOVED, EXISTING COLUMN SHALL BE PARTIALLY REMOVED TO LEAVE A 6'-6"± LENGTH OF EXISTING 14WF61 STEEL COLUMN ABOVE THE EXISTING TOP OF CRASH WALL.

Polytech 5-27-88

POLYTECH, INC. 10/20
CONSULTING ENGINEERS CLEVELAND, OHIO

PIER NO. 3
WEST 85TH STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. 1:066

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
GA	LYH	GS	CT	GA	1/87	

FHWA REGION	STATE	PROJECT	
5	OHIO	IX-IC25(1)	

30
38

CUYAHOGA COUNTY
WEST 85TH STREET

NOTE:
THE 1/2 SPAN DEFLECTION AND CAMBER SHOWN FOR THE BEAM J IN SPAN 3 IS GIVEN ALONG THE MIDPOINT BETWEEN ℄ PIERS 2 & 3 AND FOR BEAM K IN SPAN 4, IS GIVEN ALONG MIDPOINT BETWEEN ℄ OF PIER 3 & ℄ BEARING NORTH ABUTMENT.

BEAM ELEVATION

SECTION A-A

NORTH ABUTMENT PLAN
BEVELED PLATE DETAIL
(NOTE: CROSSFRAMES NOT SHOWN)

DEAD LOAD DEFLECTION AND CAMBER

BEAM	SPAN 1 1/2 SPAN STL. D.L.	REM. D.L.	CONV.	TOT.	SPAN 2 1/2 SPAN STL. D.L.	REM. D.L.	CONV.	TOT.	SPAN 3 ℄ FIELD SPLICE STL. D.L.	REM. D.L.	CONV.	TOT.	SPAN 3 1/2 SPAN STL. D.L.	REM. D.L.	CONV.	TOT.	SPAN 4 ℄ FIELD SPLICE STL. D.L.	REM. D.L.	CONV.	TOT.	SPAN 4 1/2 SPAN STL. D.L.	REM. D.L.	CONV.	TOT.
A	1/16	3/16	13/16	1 1/16	0	1/16	3/4	13/16	0	0	3/8	3/8	0	0	5/8	5/8	–	–	–	–	0	1/8	11/16	13/16
B	1/16	3/16	13/16	1 1/16	0	1/16	3/4	13/16	0	0	3/8	3/8	0	0	5/8	5/8	–	–	–	–	0	1/8	11/16	13/16
C	1/16	3/16	13/16	1 1/16	0	1/16	3/4	13/16	0	0	5/8	3/8	0	0	5/8	5/8	–	–	–	–	0	1/8	11/16	13/16
D	1/16	3/16	13/16	1 1/16	0	1/16	3/4	13/16	0	0	3/8	3/8	0	0	5/8	5/8	–	–	–	–	0	1/8	11/16	13/16
E or L	0	3/16	13/16	1	0	1/16	7/8	15/16	–	–	–	–	0	0	1/16	1/16	–	–	–	–	0	1/8	11/16	13/16
F	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0	3/16	5/8	13/16
G	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0	1/8	5/16	7/16
H	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0	0	0	0
I	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0	0	0	0
J	–	–	–	–	–	–	–	–	0	0	11/16	11/16	0	3/16	1 1/4	1 7/16	–	–	–	–	–	–	–	–
K	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	0	1/8	15/16	1 1/16	1/16	1/2	1 1/4	1 13/16

CAMBER DIAGRAM

NOTES FOR DEFLECTION & CAMBER:

A. WORK POINTS ARE TOP OF BEAM FLANGE, AT CENTERLINE OF BEARING OR AT CENTERLINE OF BEAM INTERSECTION AS SHOWN ON SHEET 11120

B. THE WORK LINE IS A STRAIGHT LINE BETWEEN THE INDICATED WORK POINTS ALONG THE CENTERLINE OF BEAM.

C. THE BASELINE IS A STRAIGHT LINE BETWEEN INDICATED WORK POINTS AT ABUTMENTS, ALONG THE CENTERLINE OF BEAM.

D. THE TABULATED DEFLECTION AND CAMBER DATA IS MEASURED FROM THE WORK LINE

E. THE 1/2 SPAN DEFLECTION AND CAMBER SHOWN FOR THE BEAM L IN SPAN 3 IS GIVEN ALONG THE MIDPOINT BETWEEN ℄ PIERS 2 & 3 AND FOR BEAM G IN SPAN 4, IS GIVEN ALONG THE MIDPOINT BETWEEN ℄ PIER 3 & ℄ BEARING NORTH ABUTMENT

F. DEFLECTION AND CAMBER ARE GIVEN TO THE NEAREST 1/16 INCH

G. THE FOLLOWING ABBREVIATIONS ARE USED:
STL.D.L. DEAD LOAD DEFLECTION DUE TO STEEL BEAMS, FRAMING AND UTILITY LOADS.
REM.D.L. DEFLECTION DUE TO REMAINING DEAD LOAD.
CONV. CONVEXITY
TOT. TOTAL REQUIRED CAMBER IN INCHES.

BEAM	a	b	c
A	0'-9"	0'-11 1/8"	0'-2 7/8"
B	0'-9"	0'-11 1/4"	0'-3"
C	0'-9 1/8"	0'-11 3/8"	0'-2 7/8"
D	0'-9 1/8"	0'-11 3/8"	0'-3 1/8"
E,J,& K	0'-11 1/2"	1'-3 1/8"	1'-7 1/8"
F,G,H,I,L	—	—	—

8 7/16"
8 7/16"
8 7/16"
8 7/16"
1'-0 9/16"

Polytech 5-17-88

POLYTECH, INC. 12120
CONSULTING ENGINEERS CLEVELAND, OHIO

BEAM & BEARING DETAILS
WEST 85TH STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. 1036

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
CT.	CT.	GS	GA	GA	1/87	

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO	IX-1C25(1)	

38/38

CUYAHOGA COUNTY
WEST 85TH STREET

PIER NO. 1

MARK	NO.	LENGTH	TYPE	A	B	C	D	E	F	SERIES INCR.	WEIGHT (LBS)
P401	40	7'-10"	8	1'-11"	1'-8"						209
P402	40	5'-0"	8	0'-10"	1'-4"						134
P501	8	19'-1"	STR								159
P502	8	4'-11"	2	1'-8"	1'-9"	1'-9"					41
P503	20	3'-11"	2	1'-8"	1'-3"	1'-3"					82
P504	33	8'-4"	8	1'-8"	2'-2"						287
P701	48	7'-6"	STR								736
P702	48	11'-2"	STR								1,096
P703	32	11'-2"	STR								730
P704				NOT	USED						
P801	8	13'-0"	STR								278
P802	6	38'-7"	2	36'-2"	1'-5"						618
P901	6	15'-6"	STR								316
										SUB TOTAL	4,686

PIER NO. 2

MARK	NO.	LENGTH	TYPE	A	B	C	D	E	F	SERIES INCR.	WEIGHT (LBS)
P401	40	7'-10"	8	1'-11"	1'-8"						209
P402	40	5'-0"	8	0'-10"	1'-4"						134
P501	8	19-1"	STR								159
P502	8	4'-11"	2	1'-8"	1'-9"	1'-9"					41
P503	20	3'-11"	2	1'-8"	1'-3"	1'-3"					82
P504	33	8'-4"	8	1'-8"	2'-2"						287
P701	48	7'-6"	STR								736
P702		—	—	NOT	USED						
P703	32	11'-2"	STR								730
P704	48	11'-8"	STR								1145
P801	8	13'-0"	STR								278
P802	6	38'-7"	2	36'-2"	1'-5"						618
P901	6	15'-6"	STR								316
										SUB TOTAL	4,735

PIER NO. 3

MARK	NO.	LENGTH	TYPE	A	B	C	D	E	F	SERIES INCR.	WEIGHT (LBS)
P401	50	7'-10"	8	1'-11"	1'-8"						262
P402	40	5'-0"	8	0'-10"	1'-4"						134
P501				NOT	USED						
P502	8	4'-11"	2	1'-8"	1'-9"	1'-9"					41
P503	28	3'-11"	2	1'-8"	1'-3"	1'-3"					114
P504	47	8'-4"	8	1'-8	2'-2"						409
P505	8	26'-0"	STR								217
P701	68	7'-6"	STR								1,042
P703	THRU	704	NOT	USED							
P705	48	11'-7"	STR			11'-1"					1,136
P706	32	11'-7"	STR			11'-1"					758
P707	20	11'-6"	STR			11'-0"					470
P801	8	13'-0"	STR								278
P802		NOT			USED						
P803	6	25'-9"	2	24'-6"	1'-5"						413
P804	6	30'-0"	2	28'-9"	1'-5"						481
P901	12	15'-6"	STR								632
										SUB TOTAL	6,387

NOTES:

BAR SIZE: The 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: A506 is a No.5 size bar and P1101 is a No.11 size bar.

SPIRAL REINFORCING BARS: The "Length" shown in the steel list for the spiral bars is the distance from the top of the footing to the bottom of the pier cap. The "No. of Turns" shown is the "Length" divided by the pitch, plus 3 turns (total number of closed coils), expressed as the nearest whole number. Spiral reinforcing bars shall may have deformation and shall in other respects conform to Item 509. 1½ closed coils shall be provided at the ends of each spiral unit. Four steel channel, tee or angle spacers, weighing approximately 0.80 lb. per lin. ft. of spacers, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. The number of pounds of these spacers, based on 0.80 lb. per lin. ft., will be paid for as reinforcing steel and is included in the tabulated quantity of spiral bars.

REINFORCING STEEL SAMPLES: Refer to CMS Sections 106.03, 700, 709.01 through 709.05 and 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

All bar dimensions are given out-to-out.

All bars of a given series vary by a constant increment.

Estimated weight is based upon steel bars without the weight of epoxy coatings.

Polytech 9-27-78

POLYTECH, INC. 20/20
CONSULTING ENGINEERS CLEVELAND, OHIO

REINFORCEMENT SCHEDULE
WEST 85TH STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. 1:066

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
GA	GS	—	SFM	GA	1/87	

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO	IX-1C25(1)	

38/38

CUYAHOGA COUNTY
WEST 85TH STREET

PIER NO. 1

MARK	NO.	LENGTH	TYPE	A	B	C	D	E	F	SERIES INCR.	WEIGHT (LBS)
P401	40	7'-10"	8	1'-11"	1'-8"						209
P402	40	5'-0"	8	0'-10"	1'-4"						134
P501	8	19'-1"	STR								159
P502	8	4'-11"	2	1'-8"	1'-9"	1'-9"					41
P503	20	3'-11"	2	1'-8"	1'-3"	1'-3"					82
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P704				NOT	USED						
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P802	6	38'-7"	2	36'-2"	1'-5"						618
P901	6	15'-6"	STR								316
										SUB TOTAL	4,686

PIER NO. 2

MARK	NO.	LENGTH	TYPE	A	B	C	D	E	F	SERIES INCR.	WEIGHT (LBS)
P401	40	7'-10"	8	1'-11"	1'-8"						209
P402	40	5'-0"	8	0'-10"	1'-4"						134
P501	8	19-1"	STR								159
P502	8	4'-11"	2	1'-8"	1'-9"	1'-9"					41
P503	20	3'-11"	2	1'-8"	1'-3"	1'-3"					82
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P702		—	—	NOT	USED						
P703	32	11'-2"	STR								730
P704	48	11'-8"	STR								1145
P801	8	13'-0"	STR								278
P802	6	38'-7"	2	36'-2"	1'-5"						618
P901	6	15'-6"	STR								316
										SUB TOTAL	4,735

PIER NO. 3

MARK	NO.	LENGTH	TYPE	A	B	C	D	E	F	SERIES INCR.	WEIGHT (LBS)
P401	50	7'-10"	8	1'-11"	1'-8"						262
P402	40	5'-0"	8	0'-10"	1'-4"						134
P501				NOT	USED						
P502	8	4'-11"	2	1'-8"	1'-9"	1'-9"					41
P503	28	3'-11"	2	1'-8"	1'-3"	1'-3"					114
P504	47	8'-4"	8	1'-8	2'-2"						409
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P703	THRU 704 NOT USED										
P705	48	11'-7"	STR								1,136
P706	32	11'-7"	STR								758
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P802		NOT			USED						
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REINFORCING STEEL SAMPLES; Refer to CMS Sections 106.03, 700, 709.01 through 709.05 and 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

All bar dimensions are given out-to-out.

All bars of a given series vary by a constant increment.

Estimated weight is based upon steel bars without the weight of epoxy coatings.

POLYTECH, INC. 20/20
CONSULTING ENGINEERS CLEVELAND, OHIO

REINFORCEMENT SCHEDULE
WEST 85TH STREET OVER
N & W RAILWAY AND GCRTA TRACKS
CITY OF CLEVELAND BRIDGE NO. 1:066

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
GA	GS	—	SFM	GA	1/87	

HERRON CONSULTANTS INC.		
PROJECT: CLEVELAND BRIDGE NO. 1:066 CUY-WEST 85TH STREET OVER RAILROAD AND R.T.A. TRACKS		
CLIENT: POLYTECH INC.		
DATE: 7-29-83	SCALE:	DRAWN BY: KP
PROJECT NO.: 0083-A143PK	DRAWING NO.: 8-4-20	

FEDERAL PROJECT: IX-IC25(1)

1/3

GENERAL INFORMATION

INTRODUCTION

THIS REPORT SUMMARIZES THE RESULTS OF SUBSURFACE INVESTIGATION STUDIES CONDUCTED IN CONNECTION WITH THE PROPOSED RENOVATION OF CITY OF CLEVELAND BRIDGE NO. 1:066 WHICH CARRIES WEST 85TH STREET OVER THE NEW RAILWAY AND RTA TRACK LINES. THE BRIDGE IS LOCATED IMMEDIATELY SOUTH OF FRANKLIN BOULEVARD IN THE CITY OF CLEVELAND, CUYAHOGA COUNTY, OHIO.

SITE GEOLOGY

THE INVESTIGATED SITE IS LOCATED IN THE LAKE PLAINS PHYSIOGRAPHIC PROVINCE. THE AREA WAS ONCE SUBMERGED BENEATH THE HIGHER GLACIAL LIKE LEVELS OF LAKE ERIE, WHICH OCCURRED DURING THE LATER PERIODS OF THE WISCONSIN STATE OF GLACIATION. THE AREA'S OVERBURDEN SOILS ARE PREDOMINANTLY LACUSTRINE IN ORIGIN AND CONSIST OF FINE-GRAINED DEPOSITS OF SILTS AND CLAYS WITH MINOR FRACTIONS OF SANDS AND GRAVELS. THE OVERBURDEN SOILS ARE UNDERLAIN AT CONSIDERABLE DEPTHS BY SHALE BEDROCK OF THE DEVONIAN PERIOD.

EXPLORATION

TEST BORINGS WERE ADVANCED BY ROTARY-DRIVE DRILLING PROCEDURES EMPLOYING 8.25-INCH O.D. BY 3.25-INCH I.D. HOLLOW STEM CONTINUOUS FLIGHT AUGERS. REPRESENTATIVE SAMPLES OF THE AREA'S VARIOUS SUBSURFACE FORMATIONS WERE TAKEN BY MEANS OF A TWO (2)-INCH O.D. SPLIT-SPOON SAMPLING DEVICE, DRIVEN BY A 140-POUND HAMMER, FREE FALLING THROUGH A DISTANCE OF THIRTY (30) INCHES.

IN THE LABORATORY, REPRESENTATIVE SAMPLES OF THE SUBSURFACE SOILS WERE CLASSIFIED IN ACCORDANCE WITH THE OHIO DEPARTMENT OF TRANSPORTATION TESTING LABORATORY CLASSIFICATION OF SOILS PROCEDURES. PARTICLE SIZE ANALYSIS AND ATTERBERG LIMITS TESTS WERE PERFORMED IN ACCORDANCE WITH APPLICABLE ASTM STANDARD METHODS.

INVESTIGATIONAL FINDINGS

TEST BORINGS B-7, B-8 AND B-9 WERE CARRIED THROUGH APPROXIMATELY THREE (3) INCHES OF ASPHALT CONCRETE, FOUR (4) INCHES OF TOPSOIL, AND EIGHT (8) INCHES OF PAVING BRICK, RESPECTIVELY.

UNDERLYING THE PAVEMENT STRUCTURES AND/OR TOPSOIL, FILL MATERIALS CONSISTING PREDOMINANTLY OF BROWN SILTY SANDS CONTAINING MINOR FRACTIONS OF BRICK FRAGMENTS AND SLAG WERE ENCOUNTERED. THE FILL MATERIALS EVIDENCED LOOSE TO MEDIUM RELATIVE DENSITIES AND MOIST CONSISTENCIES, AND EXTENDED TO DEPTHS RANGING BETWEEN APPROXIMATELY TEN (10) AND TWELVE (12) FEET BELOW THE SURFACE GRADES.

UNDERLYING THE FILL MATERIALS AND EXTENDING TO THE TERMINAL DEPTHS OF THE TEST BORINGS, STRATA OF SILTS, SILT-CLAYS AND SILTY FINE SANDS WERE ENCOUNTERED. THE SILT AND SILTY FINE SAND MATERIALS GENERALLY EXHIBITED MEDIUM TO VERY DENSE RELATIVE DENSITIES, WHILE THE SILT-CLAY FORMATIONS WERE FOUND IN HARD STRUCTURAL STATES. THESE FORMATIONS EVIDENCED MOIST TO WET CONSISTENCIES.

NOTE

INFORMATION SHOWN ON THE PROFILE SHEETS WAS OBTAINED SOLELY FOR USE IN ESTABLISHING DESIGN CONTROLS FOR THE PROJECT. THE STATE OF OHIO DOES NOT GUARANTEE THE ACCURACY OF THIS DATA, AND IT IS NOT TO BE CONSTRUED AS PART OF THE PLANS GOVERNING CONSTRUCTION OF THIS PROJECT.

LEGEND FOR PROJECT & AVERAGE RESULTS OF TESTS

DESCRIPTION	H.R.B. CLASS	OHIO CLASS	% AGGREGATE	% COARSE SAND	% FINE SAND	% SILT	% CLAY	LIQUID LIMIT	PLASTICITY LIMIT	SAMPLES TESTED
SILT	A-4(8)	A-4b	----	----	15	73	12	NP	NP	6
						VISUAL CLASSIFICATION				26
SILTY SAND (FILL)						VISUAL CLASSIFICATION				4

AUGER BORING LOCATION - PLAN VIEW

AUGER BORING PLOTTED TO VERTICAL SCALE ONLY

-W FREE WATER

NUMBER OF BLOWS FOR "STANDARD PENETRATION" TEST

X = NUMBER OF BLOWS FOR FIRST 6 INCHES

Y = NUMBER OF BLOWS FOR SECOND 6 INCHES

NP INDICATES NON-PLASTIC MATERIALS

NOTE VISUAL CLASSIFICATION OF SOIL SAMPLES WAS CONDUCTED IN SUBSTANTIAL ACCORDANCE WITH THE REQUIREMENTS OF THE AMERICAN SOCIETY FOR TESTING AND MATERIALS' STANDARD METHOD DESIGNATION D-2488, "DESCRIPTION OF SOILS (VISUAL-MANUAL PROCEDURE)", AND IDENTIFIED EMPLOYING THE TERMINOLOGY AND GROUP SYMBOLS OF THE UNIFIED SOIL CLASSIFICATION SYSTEMS (ASTM D-2487).

A UNIFIED SOIL CLASSIFICATION CHART WHICH LISTS PRINCIPAL SYMBOLS AND SOIL DESIGNATIONS IS INCLUDED IN APPENDIX II OF HERRON CONSULTANTS, INC., GEOTECHNICAL REPORT TITLED "SUBSURFACE INVESTIGATION REPORT, CITY OF CLEVELAND, BRIDGE NO. 1:066", HCI PROJECT NO. 0083-A.143PK, AND DATED JUNE 30, 1983.

CITY OF CLEVELAND
CUYAHOGA COUNTY

LOCATION MAP

STRUCTURE FOUNDATION INVESTIGATION

HERRON CONSULTANTS INC.	
PROJECT: CLEVELAND BRIDGE NO 1066 CUY-WEST 85TH STREET OVER RAILROAD AND R.T.A. TRACKS	
CLIENT: POLYTECH, INC.	
DATE: 7-29-83	SCALE: SHOWN	DRAWN BY: LP
PROJECT NO.: 0083-A143 PK	DRAWING NO.: B-4-20

2/3

PLAN

PROFILE

STRUCTURE FOUNDATION INVESTIGATION

HERRON CONSULTANTS INC.		
PROJECT: CLEVELAND BRIDGE NO. 1:066 CUT-WEST 85TH STREET OVER RAILROAD AND R.T.A. TRACKS		
CLIENT: POLYTECH INC.		
DATE: 7-29-83	SCALE:	DRAWN BY: JP
PROJECT NO.: 0083-A.143PK	DRAWING NO.: B-4-20	

3/3

TEST BORING LOGS

TEST BORING LOG

TEST HOLE B-7
FILE NO. 0083-A.143P

PROJECT: WEST 85th STREET BRIDGE - BRIDGE NO. 1:066
FOR: POLYTECH, INC. - CLEVELAND, OHIO
ELEV. DATUM: M S L
DRILLED: MARCH 13, 1982 BY R. TAYLOR

ELEV. (FT.)	DEPTH (FT.)	SAMPLE NO.	SAMPLE TYPE	BLOW COUNT	CLASSIFICATION
683	0				0 - 0.2' Asphalt.
		1	SS	4-4-4	Brown SILTY SAND, Clayey. Trace Gravel. Loose. Moist. (SM)
678	5				
		2	SS	4-5-4	
673	10				
		3	SS	8-9-9	Brown SILTY FINE SAND. Medium. Moist. (SM)
668	15				
		4	SS	15-21-26	
663	20				Gray SILTY FINE SAND. Trace Clay. Dense. Wet. (SM)
		5	SS	15-23-26	
658	25				
		6	SS	12-13-16	Gray SILT with Fine Sand. Trace Clay. Medium to Very Dense. Wet. (ML)
653	30				
		7	SS	16-22-31	
648	35				
648	35				
		8	SS	13-20-22	
643	40				
		9	SS	16-30-44	Gray SILT with Fine Sand. Trace Clay. Medium to Very Dense. Wet. (ML)
638	45				
		10	SS	18-25-31	
633	50				
		11	SS	18-24-29	54.5' Thin Layer of Clay.
628	55				Gray SILT-CLAY. Trace Fine Sand. Hard. Wet. (ML-CL)
		12	SS	21-26-28	
623	60				

GROUNDWATER: ENCOUNTER: 17.8' AT COMPLETION: 27.0' AFTER ___ AT ___
TERMINAL DEPTH: 60.0'

HERRON CONSULTANTS INC
ENGINEERING · TESTING · INSPECTION

TEST BORING LOG

TEST HOLE B-8
FILE NO. 0083-A.143P

PROJECT: WEST 85th STREET BRIDGE - SOUTH OF I-90 - BRIDGE NO. 1:066
FOR: POLYTECH, INC. - CLEVELAND, OHIO
ELEV. DATUM: M S L
DRILLED: MARCH 12, 1982 BY R. TAYLOR

ELEV. (FT.)	DEPTH (FT.)	SAMPLE NO.	SAMPLE TYPE	BLOW COUNT	CLASSIFICATION
681	0				0 - 0.3' Topsoil.
		1	SS	4-3-3	Brown SILTY SAND, Clayey. Trace Gravel. Fill. Loose. Moist. (SM)
676	5				
		2	SS	50/5"	Brown SILTY SAND. Some Gravel and Slag. Trace Brick Fragments. Fill. Moist.
671	10				
		3	SS	7-7-7	Brown SILTY FINE SAND. Trace Clay. Medium. Moist. (SM) (A-4b)
666	15				Pass No. 10 = 99% Non-Plastic Pass NO. 40 = 99% Pass No.200 = 64%
		4	SS	4-5-5	
661	20				
		5	SS	6-6-6	Gray SILTY FINE SAND. Trace Clay. Medium. Wet. (SM) (A-4b)
656	25				Pass No. 10 = 100% Non-Plastic Pass No. 40 = 100% Pass No.200 = 80%
		6	SS	6-14-12	
651	30				
		7	SS	10-14-19	Gray SILT. Clayey. Trace Fine Sand. Dense. Wet. (ML) (CA-4b)
646	35				
646	35				Pass No. 10 = 100% Non-Plastic Pass No. 40 = 100% Pass No.200 = 96%
		8	SS	9-19-20	Gray SILT with Fine Sand. Trace Clay. Dense to Very Dense. Wet. (ML) (A-4b)
641	40				Pass No. 10 = 100% Non-Plastic Pass No. 40 = 100% Pass No.200 = 85%
		9	SS	10-11-14	
636	45				
		10	SS	21-25-36	
631	50				
		11	SS	22-24-31	Pass No. 10 = 100% Non Plastic Pass No. 40 = 100% Pass No.200 = 89%
626	55				
		12	SS	26-51	
621	60				

GROUNDWATER: ENCOUNTER: 21.0' AT COMPLETION: CAVED IN @ 22.0' AFTER ___ AT ___
TERMINAL DEPTH: 60.2'

HERRON CONSULTANTS INC
ENGINEERING · TESTING · INSPECTION

TEST BORING LOG

TEST HOLE B-9
FILE NO. 0083-A.143P

PROJECT: WEST 85th STREET BRIDGE - BRIDGE NO. 1:066
FOR: POLYTECH, INC. - CLEVELAND, OHIO
ELEV. DATUM: M S L
DRILLED: MARCH 15, 1982 BY R. TAYLOR

ELEV. (FT.)	DEPTH (FT.)	SAMPLE NO.	SAMPLE TYPE	BLOW COUNT	CLASSIFICATION
682	0				2 Layers of Red Brick.
		1	SS	3-3-3	Brown SILTY SAND with Brick Fragments. Gravel. Trace Clay. Fill. Loose. Moist. (SM)
677	5				
		2	SS	7-6-7	Brown and Gray SILTY SAND with Thin Layers of Clay. Trace Gravel. Fill. Medium. Moist. (SM)
672	10				
		3	SS	7-13-11	
667	15				Brown SILTY FINE SAND. Medium. Moist. (SM)
		4	SS	6-10-11	
662	20				
		5	SS	9-13-17	Gray SILT with Fine Sand. Trace Clay. Medium to Dense. Wet. (ML)
657	25				
		6	SS	12-19-24	
652	30				
		7	SS	15-23-27	Gray SILT with Clay Lamina. Trace Fine Sand. Dense. Moist. (ML)
647	35				
		8	SS	14-22-24	
642	40				
		9	SS	21-38-50/3"	Gray SILT with Fine Sand. Trace Clay. Dense to Very Dense. Wet. (ML)
637	45				
		10	SS	22-36-50	
632	50				
		11	SS	33-58	
627	55				
		12	SS	37/6" 50/4"	
622	60				

GROUNDWATER: ENCOUNTER: 22.0' AT COMPLETION: CAVED IN NEAR SURFACE AFTER ___
TERMINAL DEPTH: 59.5'

HERRON CONSULTANTS INC
ENGINEERING · TESTING · INSPECTION

STRUCTURE FOUNDATION INVESTIGATION

METAL SUBGRADE TEMPLET

ELEVATION

END VIEW

SECTION B–B

SECTION A–A

NOTES

The method of checking the setting of the pins shall be accomplished by means of a line with the templet in its service position supported on its rollers.

Weight of the templet to be not less than 50 lbs. per foot.

TYPE "A" PAVEMENT SLOPES:—Pins No. 1 and 2 shall be spaced similar to pins No. 24 and 25. Depth of pins below I beam shall be constant and shall be determined by the depth of the pavement.

Type "A" Pavement slopes to be used for continuous 3/16" per ft. slope.

TYPE "B" CROWN to be used when two lanes adjacent to the high point of crown are finished in one operation.

ORDINATES BELOW TOP OF FORMS FOR 24' PAVEMENT, TYPE "B" CROWN

PAVE. DEPTH	PIN NUMBER 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
7"	4 13/16"	4 27/32"	4 29/32"	4 31/32"	5 1/32"	5 3/32"	5 3/16"	5 9/32"	5 3/8"	5 15/32"	5 9/16"	5 21/32"	5 3/4"	5 27/32"	5 15/16"	6 1/32"	6 1/8"	6 7/32"	6 5/16"	6 13/32"	6 1/2"	6 19/32"	6 11/16"	6 3/4"	6 13/16"
8"	5 13/16"	5 27/32"	5 29/32"	5 31/32"	6 1/32"	6 3/32"	6 3/16"	6 9/32"	6 3/8"	6 15/32"	6 9/16"	6 21/32"	6 3/4"	6 27/32"	6 15/16"	7 1/32"	7 1/8"	7 7/32"	7 5/16"	7 13/32"	7 1/2"	7 19/32"	7 11/16"	7 3/4"	7 13/16"
9"	6 13/16"	6 27/32"	6 29/32"	6 31/32"	7 1/32"	7 3/32"	7 3/16"	7 9/32"	7 3/8"	7 15/32"	7 9/16"	7 21/32"	7 3/4"	7 27/32"	7 15/16"	8 1/32"	8 1/8"	8 7/32"	8 5/16"	8 13/32"	8 1/2"	8 19/32"	8 11/16"	8 3/4"	8 13/16"

TABLES OF OFFSETS BELOW TOP OF FORMS FOR POINTS OF SUBGRADE TEMPLET ARE 1/8" ABOVE SPECIFIED DEPTH OF PAVEMENT

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

SUBGRADE TEMPLETS

DATE 6-1-65

STANDARD CONSTRUCTION DRAWING **BP-1**

APPROVED R. N. Kirkpatrick ENGR. L. & D.

CITY OF COLUMBUS STREET

LONGITUDINAL JOINTS

TIE BAR OR HOOK BOLT SPACING

PLAN

CROSS SECTION

HOOK BOLT ALTERNATE

EXPANSION BOLT JOINT

BUTT JOINT

DETAIL OF JOINT

SAWED JOINT

DETAIL OF JOINT

* For 451 only.

GROOVE AND SEAL DETAIL

HOOK BOLT

BUTT JOINT

ACCEPTABLE METHOD OF FORMING JOINT

NOTES

GENERAL: Longitudinal joints shall be used when called for on the typical section and shall be constructed as shown on this drawing in 451 and 452 pavement and 305 base.

The joint shall be on the centerline of the pavement unless otherwise shown on the plans.

Tie bars shall be 5/8 inch round, deformed bars. A satisfactory device shall be used to hold the tie bars in proper position or they may be installed by a mechanical installing device.

BUTT JOINT: The longitudinal joint between adjoining slabs poured in separate operations shall be a butt joint with hook bolts or tie bars, unless otherwise shown on plans. If tie bars are to be bent they shall be of billet grade steel and no part of the bend shall extend into the first slab poured.

Aluminum couplings for hook bolts may be substituted for steel, provided that the specified strength requirements for metal assemblies are met.

EXPANSION BOLT JOINT: Self-drilling anchors may be of the flush-end type or of the snap-off chuck-end type conforming to Federal Specification No. FF-S-325, Group III, Type 1(a) or (c) except for the outside diameter of the anchor. The hook bolt or alternate may be used to complete the assembly. Unless otherwise required by the plans expansion anchors and bolts shall be spaced at 30 inches where pavement widening is 6 feet or less in width and at 60 inches where widening exceeds 6 feet in width. Cost of expansion bolt joint shall be included in the unit price bid for new pavement and no separate payment will be made.

GROOVES: Grooves for sealing expansion bolt or butt joints in 451 or 452 pavements shall be formed by impressing a device or bar into the newly deposited concrete adjacent to the existing or previously poured lane. The device or bar shall be removed as soon as the concrete is in such condition as to preclude distortion of the concrete.

Adjoining slabs adjacent to grooved joints shall be edged with a thin metal edger having a radius of 1/8 inch. Any impression left in the surface of the pavement by the flat part of the edging tool shall be eliminated.

In lieu of the above method the longitudinal joint may be sawed to a depth of one inch and an approximate width of 1/8 inch.

After the joint is formed it shall be protected from dirt and foreign matter until the joint seal is placed.

SEALING JOINTS: Sawed joints may be sealed with 705.01, 705.02 or 705.11 joint sealer.

Sealing of longitudinal joints in 305 base is not required.

HOOK BOLTS: Hook bolt inserts shall be turned to a tight fit when installed in threaded anchor shields, hook bolts or coupling.

METAL STRENGTH: Tie bars, hook bolt assemblies and hook bolt alternate shall have a minimum strength of 11,000 pounds.

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF TRANSPORTATION

LONGITUDINAL PAVEMENT JOINTS

DATE
6-1-65
12-20-66
1-10-67
5-1-68
12-1-68
1-1-71
12-6-76

STANDARD CONSTRUCTION DRAWING BP-3

APPROVED W. J. Cunningham ENGR., L. & D.

TRANSVERSE JOINTS

CONTRACTION JOINTS

SECTION – 451 PAVEMENT

SECTION – 452 PAVEMENT

SECTION – 851 & 305 BASE

CONSTRUCTION JOINT

SECTION THROUGH CONSTRUCTION JOINT

EXPANSION JOINT

SECTION THROUGH EXPANSION JOINT

SIDE ELEVATION OF EXPANSION JOINT

GENERAL: Notes and details shown on this drawing shall be considered in conjunction with and supplemental to the pertinent specifications for portland cement concrete pavements and bases, and incidentals related thereto.

All joints shall be constructed normal to the centerline of the pavement lane unless otherwise directed.

Where dowels are specified, they shall be round, straight steel bars of the size indicated in the following table, and shall be shop coated with a suitable rust inhibitor. Dowels shall be spaced at 12" centers, beginning 6" from the longitudinal joint.

DOWEL SIZE	
(T) THICKNESS OF PAVEMENT	DIAMETER OF DOWEL
8.5" or less	1"
8.6" to 10"	1 1/4"
over 10"	1 1/4" or as shown on plan

ASSEMBLY: Each joint assembly used to hold dowels in position shall be continuous between longitudinal joints or between longitudinal joint and pavement edge. The assembly shall be firmly held in proper position by at least eight 1/2" steel pins driven at an angle to brace the assembly from lateral and vertical displacement during the placing of the concrete. These pins shall be at least 18" in length. Two of these pins shall be driven opposite each other at each end of the assembly and the remaining pins shall be driven in staggered positions on each side of the assembly. In exceptional cases where it is impractical to use the 18" length pins, such as where hardpan or rock is encountered, the Engineer may authorize use of shorter pins provided the assembly is held firmly. Where the assembly is placed on granular material which may allow settlement or distortion of the assembly, a minimum of 6 steel plates, each having a bearing area of approximately 25 square inches and a cross-section which will not bend under the imposed load, shall be placed under the assembly. One plate shall be used at each of the four end pins. The remaining plates shall be spaced uniformly on each side of the assembly. The method of staking and placing bearing plates shall be approved by the Engineer.

Dowel spacing is shown for pavement lanes of even foot widths. Where other widths are specified, standard cages may be used with dowel spacings adjusted as follows:

The 6" dowel spacing shall be maintained at the longitudinal joint. The spacing at the outer edge of the lane may be increased up to 12". Where an odd width of lane occurs, a dowel shall be placed 6" from the outer edge of the lane if the standard cage would provide for a space exceeding 12". Such a dowel shall be held rigidly in proper position by a method satisfactory to the Engineer, or a dowel cage of greater length than required may be used by cutting the assembly and splicing to attain the required length.

This drawing is intended for use with a uniform depth pavement. When the project involves the placing of variable depth pavement, the joint components shall be held in place in accordance with the method shown in the plan or as approved by the Engineer.

EXPANSION JOINTS: Expansion joint filler shall be held rigidly in position and shall be continuous for the full width of each lane. The face of the expansion joint shall be perpendicular to the concrete surface and shall not be skewed horizontally except when abutting a skewed bridge approach slab.

Smooth dowels shall be used, and free movement shall be provided by applying a coating of an oil such as S.A.E. 140 or other "bond-breaking" material just prior to placing the concrete.* One free end of each dowel shall be equipped, after coating, with a sleeve of metal or other approved material approximately 3" long, designed with crimped end and overlapping seams, fitting closely around the dowel. Each sleeve shall be provided with a depression or interior projection to act as a stop for the dowel, sufficiently distant from the crimped end to allow 1" for longitudinal dowel movement with pavement expansion. In lieu of this, requirement, any other means may be used if approved by the Director.

Proper size dowel holes shall be punched or drilled into the preformed expansion joint filler in order to insure tight fitting dowels.

CONTRACTION JOINTS: All contraction joints in 451 reinforced concrete pavement shall be dowelled. Contraction joints in plain concrete base or pavement shall be dowelled if within 500' of a pressure relief joint. Contraction joints without dowels shall be skewed with the right edge of the joint 4 feet ahead of the left edge in the direction of travel for a 24-foot wide pavement.

To provide for longitudinal movement at the joint, dowels shall be smooth and coated with a bond breaking material such as S.A.E. 140 oil just prior to placing the concrete.*

Contraction joints of the type specified shall be spaced in accordance with the following table:

CONTRACTION JOINT SPACING		
TYPES OF PAVEMENT OR BASE	MAXIMUM SPACING BETWEEN JOINTS	
451 Reinforced Concrete Pavement	40 lin. ft.	
452 Plain Concrete Pavement	17 lin. ft.	Skewed when not dowelled
851 & 305 Plain Concrete Base	20 lin. ft.	

CONSTRUCTION JOINTS: Smooth dowels shall be used in transverse construction joints in all portland cement concrete pavement and base. The joint shall be formed by using an adequate bulkhead that will provide a straight joint. The bulkhead shall have openings provided for dowel bars spaced as outlined under "ASSEMBLY." The bulkhead shall be shaped to fit the typical section of the pavement or base. Dowels shall be held rigidly in position during the placing of the concrete.

Construction joints in reinforced concrete pavement may be located at a contraction joint or between contraction joints, provided they are not closer than 10 feet to another parallel joint. In plain concrete pavement or concrete base a construction joint shall not be located closer than 5 feet to another parallel joint.

Kerf and seal conforming in all respects to details shown for contraction joints shall be provided at each construction joint in concrete pavement and base.

SEALING BASE CONTRACTION JOINTS: All contraction joints for plain concrete bases shall be sealed as detailed hereon and the cost included in the unit price bid for Item 305 or 851.

The requirement for sealing base contraction joints may be waived by the Engineer provided the joints will not be contaminated by traffic or construction equipment and will be cleaned and free of all foreign material just prior to overlaying with the surface courses.

* Dowel coatings conforming to the requirements of specification 709.13 Type A do not require a bond breaker.

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF TRANSPORTATION

TRANSVERSE PAVEMENT JOINTS

STANDARD CONSTRUCTION DRAWING BP-4

APPROVED R. S. Jonkins ENGR., L. & D.

DATE
6-1-65
1-10-67
12-1-68
1-1-71
12-6-76
7-16-81
1-11-85
10-1-87

RESURFACING

✣ Increase as necessary to maintain 2" min. opening
✱ Vertical extension of joints found to be closed to 1/2" or less may be non-performed as directed by the Engineer.

As a part of Item 516, seal joint with a hot-applied bridge deck waterproofing material which also meets the requirements of 705.04. Sandblast vertical surfaces (⧵) and wipe clean. Seal joint before rust forms. If rust forms, re-sandblast. Use bond breaker on the horizontal surface (·····).

MAINTENANCE OF TRAFFIC: Generally the bars shall be welded while the lane is closed for waterproofing or resurfacing. However, if traffic is routed over the bars before resurfacing, temporary ramps shall be constructed to the tops of the bars using 402 or 404 feathering at a max. slope of 6 ft/in. The ramps shall be removed prior to resurfacing. Payment for placing and removing the ramps shall be included in the lump sum bid for Item 614.

VERTICAL EXTENSION OF STRUCTURAL EXPANSION JOINTS

The Bituminous Aggregate in the upper part of the base widening shall finish approximately 1/4" above the edge of the existing pavement where no preleveling is used. Where a preleveling (using intermediate course material) is specified it shall be placed prior to excavation of the widening trench and the upper course of the base widening shall finish approximately 1/4" above the preleveling.

COURSE DETAIL FOR WIDENING

Details assume non-settled approach slabs. Smoothing of the profile for settlement is required per plan grades or as directed by the Engineer.

FEATHERING AT STRUCTURES

BUTT JOINT TYPE

TAPER EDGE TYPE

NOTE: Either butt or taper type may be used unless type is specified by the plan.

PLACING FEATHERED AREAS

USING CONCRETE OR MORTAR

LAPPING LONGITUDINAL JOINTS

MERGING EDGE OF PAVEMENT WIDENING WITH EDGE OF EXISTING PAVEMENT

Metal adjusting rings shall: (a) attach securely to the existing frame by welding or mechanical devices; (b) consist either of cast metal having an integral rim and seat, or be fabricated metal with a sturdy connection between the seat and rim; and (c) provide an even seat for the manhole cover. In addition, the adjusting ring type shall be a design acceptable to the local governmental agency responsible for street and sewer maintenance. Any installation unacceptable to the Engineer shall be replaced by the Contractor at his expense.

MANHOLES ADJUSTED TO GRADE

Aggregate drains to be placed where and as directed by Engineer. Provide filter fabric when specified as a separate pay item

AGGREGATE DRAIN

Special care shall be taken during construction to obtain maximum compaction of bituminous concrete in gutters.

GUTTER FINISH

TYPE I ASPHALT CONCRETE CURB

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF TRANSPORTATION

RESURFACING

STANDARD CONSTRUCTION DRAWING — BP-5

APPROVED [signature] ENGR., L&D

DATE
6-1-65
1-1-71
6-1-72
8-11-75
4-16-79
7-16-81
1-11-85
10-1-87

STANDARD CONCRETE CURBS AND COMBINED CURB AND GUTTER

TYPE 1

TYPE 2

TYPE 2-A

TYPE 2-B

TYPE 6

TYPE 3

TYPE 3-A

TYPE 3-B

TYPE 4

TYPE 4-A

TYPE 4-B

TYPE 8

TYPE 7

NOTES

GENERAL : This drawing shows alternate types of curb that may be used on various types of pavement. Typical section of project shows the type to be used, also the thickness of the edge of the pavement or the edge of the curb and gutter section.

JOINTS: One inch expansion joints shall extend up to the top of the curb and shall be constructed in the curb and gutter section in such a manner that the joint seal will extend the full width of the gutter and into the curb face a sufficient distance to seal the joint to an elevation of at least two (2) inches above the flow line of the gutter. Dowel bars shall be used in the curb and gutter section at expansion joints which are identical with the joints in the pavement.

All joints shall be constructed perpendicular to the edge of the curb and to the surface of the pavement.

Transverse expansion joint material shall meet the requirements of 705.03.

* Expansion joint material and joint sealer is not required when curb is adjacent to flexible type pavement.

⊕Butt joints shall be provided between combined curb-and-gutter and new rigid pavements, with tie bars or hook bolts provided at five foot intervals. Combined curb-and-gutter shall be tied to existing rigid pavements with expansion hook bolts spaced at five foot intervals. If the combined curb-and-gutter adjoins a new rigid base or an existing rigid base or pavement that is to be surfaced with bituminous material, a butt joint shall be provided and tie bars, hook bolts or expansion hook bolts shall be omitted.

Thickness of gutter plate "T" shall be 9 inches unless otherwise show on the plans

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF TRANSPORTATION

CONCRETE CURBS AND COMBINED CURB AND GUTTER

DATE
6-1-65
1-1-66
12-6-76
10-1-87

STANDARD CONSTRUCTION DRAWING BP-7

APPROVED D. J. Ruettman ENGR., L&D

TYPICAL RAMP LOCATIONS

TYPE 1

TYPE 2

SECTION D-D

SECTION C-C

VIEW B-B

SECTION A-A

ALTERNATE DETAIL

SECTION A-A

IN EXISTING WALK

NOTES

PAYMENT: Walk and curb, items 608 and 609, shall be measured through the curb ramp area and paid for under their respective items. Item "608, each, Curb ramp" constructed in new curb and walk shall include the cost of any additional materials, grading, forming and finishing. Item "608, square foot, Curb ramp", constructed in existing curb and walk shall include the total cost of furnishing all materials and constructing the curb and walk of the curb ramp. Removal of existing curb and walk shall be paid for as 202 items.

SURFACE TEXTURE shall be obtained by coarse brooming transverse to the ramp slopes and shall be rougher than adjacent walk.

JOINTS shall be provided in the curb ramp as extensions of walk joints and consistant with 608.03 requirements for new concrete walk. A ½" 705.03 expansion joint filler shall be provided around the edge of ramps built in existing concrete walk. Lines shown on this drawing to indicate the ramp edge and slope changes are not necessarily joint lines.

DIMENSIONS, LOCATION AND TYPE of curb ramp may be modified as directed by the engineer in accordance with the following:

TYPE of curb ramp built shall be the type that best fits the location unless a specific type is specified. Type 1 is preferred because of the flatter side slopes. Any combination of Type 1 and 2 side slopes on opposite sides of a ramp may be used to best fit the site conditions.

SLOPE of the ramp toward the curb is preferred to be 12:1 or flatter related to the horizontal but the maximum slope shall be 12:1 related to the existing or proposed walk slope. The minimum ramp length is 5' from the back of a 6" curb and may be increased where feasible to obtain a flatter ramp slope or to better blend with the walk configuration.

WIDTH of ramp shall normally be 4' but a minimum width of 40" may be used to better fit the walk configuration or where site conditions are restricted by narrow walks, pole foundations, drainage inlets, etc. The width may be tapered.

WALK THICKNESS in the ramp slopes shall be 4" minimum or thicker as necessary to match adjacent walk thickness.

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF TRANSPORTATION

CURB RAMPS

DATE
8-11-75
7-7-81
10-1-87

STANDARD CONSTRUCTION DRAWING BP-12

APPROVED R. L. Kirchman ENGR., L.D.

TYPE CL FENCE

ROLL FORM ALTERNATE

ROLL FORM ALTERNATE CORNER POST

Fabric outside.

DRIVE ANCHOR DETAIL

For line post alternate.

TYPE CLT FENCE

SECTION A-A

INTERMEDIATE ANCHOR POST ASSEMBLY

For Type CLT Fence

NOTES

CONCRETE: The provisions of 511.12 are modified to the extent that concrete shall be protected during the curing period in a manner such that it will not freeze.

STREAM CROSSINGS: Where chain link fence is to be constructed continuously across streams, and stream crossing closures are required by the plans, the closure shall be constructed in accordance with details shown on Standard Construction Drawing F-6, modified as necessary to conform with chain link fence dimensions and details.

TENSION WIRE shall be used instead of the top rail when specified on the plans as Item 607, Fence, Type CLT. The wire shall be stretched taut and fastened to or passed through the top fitting. The fence shall be fastened to the tension wire with fabric ties consisting of hog rings every 24" or less.

GATES: Each gate shall be equipped with an approved padlock with double locking bolt, five-pin tumbler, laminated steel case, brass cylinder, rust-proof. Where companion gates are installed on opposite sides of the highway, tumblers shall be identically set in each lock so that the same key will open each lock. Two keys shall be furnished with each padlock.

LINE POST ANCHOR ALTERNATES: Where specified on the plan, either steel drive anchors, or longer posts driven 48 inches deep, may be used in lieu of concrete encasement of line posts located in highly inaccessible locations. All end, corner and pull panel posts shall be encased in concrete.

FRAMEWORK AND FABRIC may be any type permitted by 710.03 of the specifications.

FENCE GROUNDING, when needed for overhead electric lines, is to be in accordance with HL-11.

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF TRANSPORTATION

CHAIN LINK FENCE

STANDARD CONSTRUCTION DRAWING F-1

APPROVED _____ ENGR., L. & D.

DATE
2-1-63
6-1-65
3-10-69
6-1-72
5-1-76
11-10-83

BUFFER END SECTION

FLARED END SECTION

TERMINAL CONNECTOR

SECTION
BEAM RAIL

RECTANGULAR PLATE WASHER

MEASURING GUARDRAIL HEIGHT

CONCRETE INSERT ANCHOR ASSEMBLY

L (in)		Min. min	Bolt Use
Std	Bar		
18	26	3 1/2	Type 5: WP/WB
10		2 1/2	Type 4: WP Type 5: SP/WB
2		1 1/2	Type 4: SP Type 5: SP/SB
1 1/4		Full	Splice bolt

WP = wood post WB = wood block
SP = steel post SB = steel block
Longer bolt may be needed for round WP larger than 8" dia.

BUTTON HEAD BOLT
(For post and splice bolts)

BEAM RAIL SPLICE

INLET MOUNTED POST

Footing anchor and hardware need not be galvanized.

FOOTING ANCHOR

NOTES

BEAM RAIL ELEMENTS shall be 12'-6" effective length, unless otherwise specified, with 3/4" x 2 1/2" post bolt slots on 6'-3" centers regardless of post spacing. Field punching or drilling of bolt holes or slots for irregularly spaced posts shall be according to 606.05.

BEAM RAIL SPLICE between two rail elements, or rail and terminal connector shall be lapped in the direction of traffic. The buffer or flared end sections shall lap on the traffic face. A 12" length of beam rail (Back-Up Plate), with a 3/4" dia. bolt hole or a 3/4" x 2 1/2" slot, shall be provided at posts not having a rail splice.

SPECIAL POST MOUNTINGS: Inlet mounted posts are required for guardrail posts located on a drainage inlet. Footing anchors are required for guardrail posts located on footers with less than 3'-5" cover except that for footer cover of 2'-6" to 3'-5" the posts may be installed by using a 4" minimum concrete encasement. The inlet mounted post may be used for footing anchors in runs with steel posts.

When standard post depth is not available due to a culvert, the guardrail posts directly over the culvert shall not be driven, but set in holes with a 4" minimum concrete encasement for the maximum post depth available.

Cost of the inlet mounted posts, footing anchors, and concrete encasement shall be included in the unit price bid for guardrail of the type required by the plan.

STEEL POST SIZES: The WG x 8.5 and WG x 15.5 posts may be used in lieu of the WG x 9 and WG x 15 respectively which are shown on the various Standard Construction Drawings for guardrail.

* **ANCHORS** conforming to 712.01, or anchors per FF-S-325 Group II, Type 4, Class 1 or 2 or Group VIII, Type 1 or 2 with proof load certification per 712.01, may be substituted with the same bolt diameter specified. If there is any question of deteriorated concrete, expansion anchors will not be allowed, as determined by the Engineer. Where self-drilling anchors are permitted and used for guardrail construction, the holes shall be drilled with the expansion shield (not by a drill bit) and the shield shall be installed flush with the concrete surface.

The Engineer shall visually inspect, after installation, all expansion anchors used in guardrail construction. The Engineer may require the Contractor to test load any expansion anchor to 1/4 the certified proof load in direct pull. The equipment and method used shall meet the approval of the Engineer. Each expansion anchor that fails to meet the test requirements shall be reset or removed and replaced with bolts extending through the concrete or grouted in place, as directed by the Engineer.

PROTECTIVE COATING: In lieu of the requirements of 710.06, expansion shields, anchors and insert anchor assemblies installed (embedded) in concrete may be coated according to good commercial practices. Any bolts screwed into these embedded devices shall meet 710.06.

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF TRANSPORTATION

GUARDRAIL DETAILS

DATE 12-6-76 2-5-82 1-11-85

STANDARD CONSTRUCTION DRAWING GR-1

APPROVED _____ ENGR., L. & D.

Alternate methods of placing the spacer blocks on the round posts may be submitted for consideration and approval by the Engineer.

ROUND WOOD POSTS

RAISING EXISTING GUARDRAIL HEIGHT

NOTES

POSTS may be round (single rail only) or 6"x8" square-sawed pressure-treated wood or W6x9 galvanized steel. The same type post shall be used throughout the length of project unless otherwise required by the plans or permitted by the Engineer. Round posts shall be 8" plus or minus 1" in diameter at the top and not more than 3" larger at the butt with a uniform taper.

Posts may be set in drilled holes or may be driven to grade.

Wood posts shall be fabricated with square ends. Posts and spacer blocks shall be pressure-treated as per 710.14. Bolt holes shall be bored and tops of posts trimmed, if required, after posts are set.

FOR DETAILS not shown see GR-1.

SPACER BLOCKS: When wood spacer blocks are used with the steel post, a roofing nail shall be driven through the hole in the adjacent flange to prevent blocks from turning.

WASHERS: Place a rectangular plate washer between the face of rail and post bolt head or nut. All other washers indicated are standard galvanized steel of the appropriate size.

WELDED BEAM guardrail posts and spacer blocks may be used for Item 606, Guardrail, provided the web and flange sizes are as shown hereon. Welding of the web to the flanges shall conform to ASTM A769, Class 1 using A36 steel with the following exceptions:

7.2 Test reports of tensile properties for each lot shall accompany each shipment.

11. Ultrasonic inspection need not be performed on welded beams used for Item 606.

12. Beams which have imperfections repaired by welding shall not be accepted for use in Item 606.

15. Random samples shall be tested by the Department from materials delivered to the project site or other locations designated by the Laboratory.

STEEL BEAM POSTS & BLOCKS

Size	Beam depth	Flange width	Flange thickness	Web thickness
Rolled W 6x8.5	5.83"	3.94"	.194"	.170
Rolled W 6x9	5.90"	3.94"	.215"	.170
Rolled W 8x10	7.89"	3.94"	.205"	.170
Welded 6x8.5	6.0"	3.94"	.194"	.170
Welded 6x9	6.0"	3.94"	.215"	.170
Welded 8x10	8.0"	3.94"	.205"	.170

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF TRANSPORTATION

GUARDRAIL TYPE 5

STANDARD CONSTRUCTION DRAWING

GR-2B

DATE 2-15-80 1-1-71 11-9-71 12-6-76 2-5-82

APPROVED _____ ENGR., L.&D.

NOTES

PAYMENT for item 606, each, Bridge terminal assembly, Type ___, shall include the additional cost in excess of normal guardrail cost, such as: additional or heavier posts, concrete encasement, wheelguard, terminal connector, and other hardware, payment for bridge railing and parapets shall include the cost of the concrete insert anchor assembly, and the TS 8x4 spacers and tubular back-up rail at and in between the first posts off the bridge.

TYPE A: The wheelguard shall be required on all uncurbed approach connections and on all uncurbed trailing connections on undivided highways. The wheelguard shall be omitted: on all curbed connections, on uncurbed trailing connections on divided or directional roadways, and all three posts shall have spacer blocks and concrete encasement.

TERMINAL CONNECTORS of Type A shall be fastened to existing (safety shape) parapets, not having concrete insert anchor assemblies, with four ⅞" dia. hexhead bolts through the parapet with 3"x3"x½" plate washers and hex nuts on back of parapet.

POST TYPE shall be the same material type as used on approach guardrail except the first post off the bridge for Type B shall be as shown.

FOR DETAILS not shown, see GR-1 and other Standard Construction Drawings pertaining to design of specific guardrail Type.

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF TRANSPORTATION

BRIDGE TERMINAL ASSEMBLIES

STANDARD CONSTRUCTION DRAWING GR-3

APPROVED E. T. Orsel ENGR., L.&D.

DATE
1-1-71
11-9-71
12-6-76
2-5-82
1-21-85

PLAN

ALTERNATE ONE PIECE END SECTION

Alternate to include same size & weight steel diaphragms as the standard end section.

DRIVE OPENING

FLARE OFFSETS		
Post	X	Y
0	0.00	0.00
1	6.25	0.11
2	12.49	0.45
3	18.71	1.01
4	24.92	1.79
5	31.08	2.79
6	37.22	4.00

NOTE: Omit rectangular plate washers at posts #0 thru #6. If Type 4 or 7 guardrail is used, omit posts #1 and #3. Offsets are measured to face of rail at post bolt holes.

PLAN

ELEVATION

TYPE B

ELEVATION

CABLE ASSEMBLY

FRONT VIEW

ALTERNATE WELDED ANCHOR PLATE

LEFT END A-A

ANCHOR PLATE DETAILS

WOOD POST FOR STEEL TUBE

BEARING PLATE

STEEL TUBE

SOIL PLATE

ELEVATION

ALTERNATE STEEL TUBE FOUNDATION

PAYMENT: All materials and labor for the 12'-6" Type B Anchor Assembly shown including any extra cost for using a 25' long rail element and other costs involved in the flare, shall be included in the unit price bid for Item 606 Anchor Assembly, Type B.

GENERAL: For details not shown, see GR-1 and other Standard Construction Drawings pertaining to design of specific guardrail types.

STRENGTH: The minimum breaking strength of the assembly shall be 40,000 pounds.

POSTS: The two posts with the 2 ⅜" ø hole shall be encased in reinforced concrete and the embedded portion of the posts shall be wrapped with a double layer of felt paper.

FLARE OFFSET: The 4'-0" offset flare will not be used when the anchor is used with the flares shown on GR-5.

ALTERNATES: Any or all of the alternates shown may be furnished and installed at the contractor's option at no additional cost to the State.

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF TRANSPORTATION

TYPE B ANCHOR ASSEMBLY

DATE 2-5-82

STANDARD CONSTRUCTION DRAWING GR-4B

APPROVED _____ ENGR., L. & D.

WORK ZONE PAVEMENT MARKINGS AND SIGNS

614 WORK ZONE PAVEMENT MARKINGS

GENERAL

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND WHEN NECESSARY, REMOVE WORK ZONE RETROREFLECTIVE PAVEMENT MARKINGS ON EXISTING, RECONSTRUCTED, RESURFACED OR TEMPORARY ROADS WITHIN THE WORK LIMITS, IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.

THE MARKINGS SHALL BE EVALUATED BY THE ENGINEER IN ACCORDANCE WITH THE THREE PERFORMANCE PARAMETERS CONTAINED IN SUPPLEMENT 1047. THE MARKINGS SHALL BE REPAIRED OR REPLACED WHEN THE NUMERICAL RATING OF A PARAMETER IS (a) SIX OR LOWER FOR DURABILITY, (b) FOUR OR LOWER FOR VISUAL EFFECTIVENESS AND (c) FOUR OR LOWER FOR NIGHT VISIBILITY. THE CONTRACTOR SHALL REPAIR OR REPLACE UNSATISFACTORY MARKINGS IMMEDIATELY AND AT NO ADDITIONAL COST TO THE STATE.

TEMPORARY PAVEMENT MARKING MATERIALS

UNLESS OTHERWISE INDICATED ON THE PLANS, TEMPORARY PAVEMENT MARKINGS MAY BE EITHER 621.02 PAINT OR 947.03 TYPE B OR TYPE C PREFORMED MATERIAL.

PAINT

PAINTED MARKINGS SHALL BE IN ACCORDANCE WITH 621 EXCEPT THAT (a) PARAGRAPH 621.14 SHALL NOT APPLY, (b) WHERE THE MARKINGS ARE NOT LIABLE TO BE TRACKED, EITHER CONVENTIONAL OR FAST DRY PAINT MAY BE USED FOR 621.02, AND (c) WHEN APPLIED TO NEW ASPHALT PAVEMENT SURFACES OR PLANED ASPHALT PAVEMENT SURFACES, THE SPECIFIED APPLICATION RATE SHALL BE AS FOLLOWS:

GALLONS PER MILE OF LINE					
WIDTH OF LINE, IN.	4	6	8	12	24
SOLID LINE	24	36	48	72	144
DASHED LINE	6	9	-	-	-
DOTTED LINE	8	12			

TYPE B AND TYPE C PREFORMED MATERIAL

PREFORMED MATERIAL SHALL COMPLY WITH 947.03 EXCEPT THAT NO PREFORMED MATERIAL CONTAINING METAL SHALL BE PLACED ON ANY SURFACE UNLESS IT WILL BE REMOVED LATER BY THE CONTRACTOR. TEMPORARY PAVEMENT MARKINGS OF 947.03 PREFORMED MATERIAL SHALL BE REMOVED PRIOR TO PLACEMENT OF 621 OR 847 SURFACE COURSE MARKINGS AT THAT LOCATION. PREFORMED MATERIAL SHALL BE APPLIED IN ACCORDANCE WITH 847 EXCEPT AS MODIFIED HEREIN.

PLACEMENT

TEMPORARY MARKINGS SHALL BE COMPLETE AND IN PLACE ON ALL PAVEMENT, INCLUDING RAMPS, PRIOR TO EXPOSING IT TO TRAFFIC. WHEN TEMPORARY MARKINGS CONFLICT WITH THE TRAFFIC PATTERN, THEY SHALL BE REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH 621.134.

LINE PLACEMENT TOLERANCE FOR FINAL SURFACES SHALL BE IN ACCORDANCE WITH 621.052. ON SURFACES OTHER THAN THE FINAL, THE TOLERANCE PERMITTED SHALL BE TWICE THAT IN 621.052.
LAYOUT AND PREMARKING SHALL BE IN ACCORDANCE WITH 621.051.

TEMPORARY MARKING CLASSES

CLASS I MARKINGS

CLASS I MARKINGS SHALL BE APPLIED TO THE FULL DIMENSIONS AS DEFINED IN 621 WITH THE FOLLOWING ADDITIONS OR EXCEPTIONS:

1. TRANSVERSE LINES SHALL BE 8-INCHES IN WIDTH.
2. STOP LINES SHALL BE 12-INCHES IN WIDTH.
3. CROSS WALK LINES SHALL BE 8-INCHES IN WIDTH.

TEMPORARY MARKING CLASSES (CONTINUED)

CLASS II MARKINGS

CLASS II MARKINGS (ABBREVIATED) SHALL BE DEFINED AS FOLLOWS:

CENTER LINES SHALL CONSIST OF SINGLE, YELLOW 4-INCH WIDE BY A MINIMUM OF 48-INCH LONG DASHES SPACED AT A MAXIMUM OF 40-FOOT INTERVALS.

LANE LINES SHALL CONSIST OF WHITE 4-INCH WIDE BY A MINIMUM OF 48-INCH LONG DASHES SPACED AT A MAXIMUM OF 40-FOOT INTERVALS.

GORE MARKINGS SHALL BE CONTINUOUS, WHITE 4-INCH LINES PLACED AT THE THEORETICAL GORE OF AN EXIT RAMP OR DIVERGING ROADWAYS.

THE PAINT APPLICATION RATE SHALL BE NOT LESS THAN 2.4 GALLONS PER MILE FOR LANE LINE AND CENTER LINE AND 24 GALLONS PER MILE FOR GORE MARKINGS.

CONFLICTING EXISTING MARKINGS

THE CONTRACTOR SHALL, PRIOR TO PLACING TEMPORARY MARKINGS, REMOVE ALL CONFLICTING EXISTING MARKINGS VISIBLE TO THE TRAVELING PUBLIC DURING DAYLIGHT OR NIGHTTIME HOURS IN ACCORDANCE WITH 621.134. THE COST FOR REMOVAL OF CONFLICTING MARKINGS SHALL BE INCLUDED IN 614 MAINTAINING TRAFFIC UNLESS SPECIFICALLY ITEMIZED.

THE CONTRACTOR SHALL ALSO REMOVE THE PRISMATIC RETRO-REFLECTOR WITHIN ANY RAISED PAVEMENT MARKER (RPM) WHICH IS IN CONFLICT WITH THE TEMPORARY PAVEMENT MARKINGS. WHEN THE TEMPORARY PAVEMENT MARKINGS ARE REMOVED AND THE RPM IS NO LONGER IN CONFLICT, THE CONTRACTOR SHALL THOROUGHLY CLEAN THE RECESSED REFLECTOR ATTACHMENT AREA OF THE CASTING AND INSTALL A NEW PRISMATIC RETRO-REFLECTOR OF THE SAME KIND AND COLOR. THE COST FOR THIS WORK SHALL BE INCIDENTAL TO THE VARIOUS PAY ITEMS.

INTERIM MARKINGS

WITHIN 21 CALENDAR DAYS AFTER OPENING ANY LENGTH OF PAVEMENT TO TRAFFIC, THE 621 OR 847 PAVEMENT MARKINGS CALLED FOR IN THE PLANS SHALL BE APPLIED. EQUIVALENT 614 CLASS I, PAINT MARKINGS MAY BE USED IN LIEU OF FINAL MARKINGS. IN THIS EVENT, THE CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT AND MATERIAL NECESSARY TO PLACE AND MAINTAIN 614 CLASS I PAINT MARKINGS AS PART OF THE LUMP SUM BID FOR 614 MAINTAINING TRAFFIC.

FOR EACH CALENDAR DAY BEYOND 21 DAYS THAT THIS WORK SHALL REMAIN UNCOMPLETED, THE SUM OF $200 PER CALENDAR DAY WILL BE DEDUCTED FROM ANY MONEY DUE THE CONTRACTOR, NOT AS A PENALTY BUT AS LIQUIDATED DAMAGES.

METHOD OF MEASUREMENT

TEMPORARY PAVEMENT MARKINGS WILL BE MEASURED COMPLETE IN PLACE, BY CLASS AND MATERIAL, IN THE UNITS DESIGNATED. LINE QUANTITIES WILL BE THE LENGTH OF THE COMPLETED STRIPE, INCLUDING GAPS, INTERSECTIONS, AND OTHER SECTIONS OF PAVEMENT NOT NORMALLY MARKED.

TEMPORARY PAVEMENT MARKINGS WILL INCLUDE THE LAYOUT, APPLICATION AND REMOVAL OF THE MARKINGS, WHEN REQUIRED.

BASIS OF PAYMENT

PAYMENT FOR ACCEPTED QUANTITIES COMPLETE IN PLACE WILL BE MADE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL BE FULL COMPENSATION FOR ALL MATERIALS, LABOR, INCIDENTALS AND EQUIPMENT FOR PLACEMENT, MAINTENANCE AND NECESSARY REMOVAL OF MARKINGS.

BASIS OF PAYMENT (CONTINUED)

ITEM	UNIT	DESCRIPTION
614	MILES	TEMPORARY LANE LINES, CLASS____, __•__
614	MILES	TEMPORARY CENTER LINES, CLASS____, __•__
614	LIN. FT.	TEMPORARY CHANNELIZING LINES, CLASS I, __•__
614	MILES	TEMPORARY EDGE LINES, CLASS I, __•__
614	LIN. FT.	TEMPORARY GORE MARKINGS, CLASS II, __•__
614	LIN. FT.	TEMPORARY STOP LINES, CLASS I, __•__
614	LIN. FT.	TEMPORARY CROSSWALK LINES, CLASS I, __•__
614	EACH	TEMPORARY LANE ARROWS, CLASS I, __•__
614	EACH	TEMPORARY RAILROAD SYMBOL MARKINGS, CLASS I, __•__
614	EACH	TEMPORARY WORD "ONLY" ON PAVEMENT, 72 INCH, CLASS I, __•__
614	LIN. FT.	TEMPORARY TRANSVERSE LINES, CLASS I, __•__
614	LIN. FT.	TEMPORARY DOTTED LINES, CLASS I, __•__

• TYPE MATERIAL (621 PAINT, 947.03 TYPE B OR 947.03 TYPE C OR LEFT BLANK TO PERMIT ANY OF THE THREE)

614 WORK ZONE MARKING SIGNS

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND SUBSEQUENTLY REMOVE WORK ZONE MARKING SIGNS (OW-167 AND OW-168) WITHIN THE WORK LIMITS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.

THE CONTRACTOR SHALL, IN ADVANCE OF ANY SECTION OF ROADWAY LACKING OMUTCD FULL PATTERN STANDARD DIMENSION EDGE LINE OR CENTER LINE MARKINGS, ERECT A "NO EDGE LINES" (OW-167-36) SIGN OR "UNMARKED NO PASSING ZONES" (OW-168-36) SIGN OR BOTH AS MAY BE APPROPRIATE. ON FREEWAYS AND EXPRESSWAYS AN OW-167-48 SIGN SHALL BE USED. THESE SIGNS SHALL BE IN PLACE PRIOR TO EXPOSING THE ROADWAY TO TRAFFIC. THESE SIGNS SHALL ALSO BE ERECTED ON EACH ENTRANCE RAMP, AT INTERSECTIONS OF THROUGH ROADS TO WARN ENTERING OR TURNING TRAFFIC OF THE CONDITION AND AT LEAST ONCE EVERY TWO MILES ALONG THE ROADWAY. THESE SIGNS SHALL BE REMOVED WHEN THEY NO LONGER APPLY.

THE CONTRACTOR MAY USE SIGNS AND SUPPORTS IN USED BUT GOOD CONDITION PROVIDED THE SIGNS MEET CURRENT DEPARTMENT SPECIFICATIONS. SIGN FACES SHALL BE REFLECTORIZED WITH TYPE G SHEETING COMPLYING WITH THE REQUIREMENTS OF 730.19. WORK ZONE MARKING SIGNS SHALL BE PROVIDED WITH SUITABLE YIELDING SUPPORTS OF SUFFICIENT STRENGTH AND STABILITY.

WORK ZONE MARKING SIGNS WILL BE MEASURED AS THE NUMBER OF SIGN INSTALLATIONS, INCLUDING THE SIGN AND NECESSARY SUPPORTS. ALL OTHER WORK ZONE SIGNS SHALL BE INCLUDED IN 614 MAINTAINING TRAFFIC UNLESS SEPARATELY ITEMIZED.

PAYMENT FOR ACCEPTED QUANTITIES, COMPLETE, IN PLACE WILL BE MADE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL BE FULL COMPENSATION FOR ALL MATERIALS, LABOR, INCIDENTALS AND EQUIPMENT FOR PLACEMENT, MAINTENANCE AND REMOVAL OF THE SIGNS.

ITEM	UNIT	DESCRIPTION
614	EACH	WORK ZONE MARKING SIGNS

BUREAU OF DESIGN SERVICES
DIVISION OF HIGHWAYS
OHIO DEPARTMENT OF TRANSPORTATION

MAINTENANCE OF TRAFFIC

DATE 11/14/86

WORK ZONE PAVEMENT MARKINGS AND SIGNS

STANDARD CONSTRUCTION DRAWING MT-99.10

APPROVED [illegible] ENGR. OF DESIGN SERVICES

DESIGN NO. (Note 1)	POLE HEIGHT (feet)	BASE MOMENT AT YIELD (ft. kips)	MESSENGER WIRE MIN. DIA. (Inches)
4	26	101.0	5/16
5	30	121.0	3/8
6	30	149.0	3/8
7	30	176.0	3/8
8	30	206.0	3/8
9	30	228.0	7/16
10	32	270.0	7/16
11.	32	316.0	7/16
12	32	385.0	1/2

MESSENGER WIRE ASSEMBLY

ALTERNATE MESSENGER WIRE ASSEMBLY

SIGN HANGER ASSEMBLY, SPAN WIRE, TYPE I.

NOTES

1. FOR DETAILS OF POLES AND APPURTENANCES SEE TC-81.10. POLES FOR SPAN WIRE SUPPORT DESIGN NUMBERS ARE IDENTICAL WITH POLES OF THE SAME DESIGN NUMBER ON TC-81.10.
2. SEE STANDARD CONSTRUCTION DRAWING TC-21.20 FOR FOUNDATION DETAILS.
3. PREFORMED GUY GRIPS SHALL NOT BE USED TO ATTACH THE MESSENGER WIRE TO THE SPAN WIRE CLAMPS.
4. BEARING PLATES TO CONFORM TO DETAILS ON STANDARD CONSTRUCTION DRAWING TC-41.20.
5. UPPER MESSENGER WIRE SHALL BE ASSEMBLED, INSTALLED WITH SIGNS, AND ADJUSTED TO PROPER CLEARANCE TO BOTTOM OF SIGN WITH A SAG BETWEEN 4% AND 5%. THE SIGNS SHALL BE POSITIONED ON BRACKETS SUCH THAT AFTER ERECTION IS COMPLETED THE SIGNS ARE APPROXIMATELY CENTERED VERTICALLY ON THE WIRES.
6. THE LOWER MESSENGER WIRE SHALL BE ASSEMBLED AND ADJUSTED WITH A SAG APPROXIMATELY 3 INCHES GREATER THAN THE UPPER WIRE. SAG ADJUSTMENT SHALL BE PRIOR TO ANY FASTENING OF SIGN HANGERS TO THE LOWER WIRE.
7. SIGN HANGER SHALL BE CLAMPED SNUGLY TO THE LOWER WIRE. J OR U-BOLTS SHALL HAVE DOUBLE NUTS. ON BACK-TO-BACK SIGNS, SPACERS SHALL BE 1/16 INCH LESS THAN THE MESSENGER WIRE DIAMETER.
8. STRAIN POLES SHALL BE INSTALLED WITH AN INITIAL OUTWARD RAKE OF 3 TO 5 INCHES.
9. SPACER FOR SIGN HANGER ASSEMBLIES MAY BE ALUMINUM OR GALVANIZED STEEL.

ALL ITEMS SHALL CONFORM TO C & M SPECIFICATION 630 AND/OR 730, UNLESS OTHERWISE SPECIFIED.

BUREAU OF DESIGN SERVICES
DIVISION OF HIGHWAYS
OHIO DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL

SPAN WIRE
OVERHEAD SIGN SUPPORT

DATE: 3-8-78, 3-1-79, 1-20-84

STANDARD CONSTRUCTION DRAWING TC-17.10

APPROVED [signature] Engineer of Design Services

TYPE P

TYPE F

POST NO.	TYPE	LB/FT	DIMENSIONS (INCHES)		
			A	B	C
1	F	1.12	0.875	2.063	0.813
2	P	2.00	1.469	3.063	1.281
	F	2.00	1.516	3.125	1.250
3	P	3.00	1.875	3.500	1.313
	F	3.00	1.750	3.500	1.625
4	P	4.00	TWO NO. 2 POST		
	F	4.00	TWO NO. 2 POST		
6	P	6.00	TWO NO. 3 POST		
	F	6.00	TWO NO. 3 POST		

SIGN ATTACHMENT DETAIL

BEARING PLATE

TYPICAL DRIVEN INSTALLATION

ALL ITEMS SHALL CONFORM TO C&M SPECIFICATIONS, 712.20 AND SUPPLEMENTAL SPECIFICATIONS 857 AND 957, UNLESS OTHERWISE SPECIFIED.

BUREAU OF DESIGN SERVICES
DIVISION OF HIGHWAYS
OHIO DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL

YIELDING POST

DATE
4/1/77
3/26/79

STANDARD CONSTRUCTION DRAWING TC-41.20

APPROVED: Engineer of Design Services

NOTES

1. BEARING PLATES SHALL CONFORM TO DETAILS ON STANDARD CONSTRUCTION DRAWING TC-41.20.

2 REQUIRED PER SIGN

SIGN HANGER ASSEMBLY, SPAN WIRE TYPE 1.

a	d (in.)
0°	0
15°	2.4
30°	4.7
45°	6.9
60°	9

SIGN HANGER ASSEMBLY, SPAN WIRE TYPE 2.

SIGN HANGER ASSEMBLY, MAST ARM

ALL ITEMS SHALL CONFORM TO SUPPLEMENTAL SPECIFICATIONS 857 AND 957, UNLESS OTHERWISE SPECIFIED.

BUREAU OF DESIGN SERVICES
DIVISION OF HIGHWAYS
OHIO DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL

DATE 8/2/79

SPECIAL SIGN ATTACHMENTS

STANDARD CONSTRUCTION DRAWING TC-41.41

APPROVED: [signature] Engineer of Design Services

RURAL UNDIVIDED

RURAL UNDIVIDED
(W/ SECONDARY SIGN)

RURAL DIVIDED

RURAL DIVIDED
(W/ SECONDARY SIGN)

MEDIAN

PAVED MEDIAN

MEDIAN-EXPRESSWAY OR FREEWAY

URBAN-RESIDENTAL AND BUSINESS

EXPRESSWAY OR FREEWAY
(W/ SECONDARY SIGN)

EXPRESSWAY OR FREEWAY

EXPRESSWAY OR FREEWAY
(W/ SECONDARY SIGN)

EXPRESSWAY OR FREEWAY
(W/ SECONDARY SIGN)

EXPRESSWAY OR FREEWAY

DETAIL A.

NOTES

1. SEE STANDARD CONSTRUCTION DRAWING TC-41.20 FOR DETAILS ON YIELDING SUPPORTS.
2. ALL SIGNS SHALL BE PLACED 90° TO THE ROADWAY, EXCEPT PARKING SIGNS WITH ARROW SHALL BE SET AT AN ANGLE OF NOT LESS THAN 30° NOR MORE THAN 45° WITH A LINE PARALLEL TO THE FLOW OF TRAFFIC.
3. A CLEARANCE OF ONE FOOT IS PERMISSIBLE WHERE SIDEWALK WIDTH IS LIMITED OR WHERE EXISTING POLES ARE CLOSE TO THE CURB.
4. SEE STANDARD CONSTRUCTION DRAWINGS TC-52.10 AND TC-52.20 FOR DIMENSIONS BETWEEN SUPPORTS.

ALL ITEMS SHALL CONFORM TO SUPPLEMENTAL SPECIFICATIONS 857 AND 957, UNLESS OTHERWISE SPECIFIED

BUREAU OF DESIGN SERVICES
DIVISION OF HIGHWAYS
OHIO DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL

TYPICAL SIGN PLACEMENT
REGULATORY, WARNING AND ROUTE MARKER SIGNS

DATE
4/1/77
3/26/79

STANDARD CONSTRUCTION DRAWING TC-42.20

APPROVED: Engineer of Design Services

OCTA-1-3

A	B	C	GAUGE	SQ.FT.
30	3	12	.080	6.25
36	6	12	.080	9.00

OCTA-2-6

A	B	C	D	GAUGE	SQ.FT.
48	12	24	12	.100	16.00

TRI-1-3

A	B	C	D	R	GAUGE	SQ.FT.
36	3	10	11	2.00	.100	3.90

TRI-2-4

A	B	C	D	R	GAUGE	SQ.FT.
48	3	12	12	3	.100	6.93
60	3	18	15	4	.100	10.83

DIA-1-3

A	B	R	GAUGE	SQ.FT.
24	12	1.50	.063	4.00
30	15	1.88	.080	6.25
36	18	2.25	.080	9.00

DIA-2-6

A	B	C	R	GAUGE	SQ.FT.
48	15	15	3	.100	16.00
60	18	18	3.75	.100	25.00

I.S.-1-2

A	B	C	D	GAUGE	SQ.FT.
24	24	3	9	.063	4.00
30	24	3	9	.080	5.00
30	30	3	12	.080	6.25
40	30	3	12	.080	8.33

I.S.-1-3

A	B	C	D	GAUGE	SQ.FT.
36	36	6	12	.080	9.00
48	36	6	12	.100	12.00

CO-1-2

A	B	C	R_1	R	GAUGE	SQ.FT.
18	15	1	5	2	.063	2.25
24	18	2	5.31	2.69	.063	4.00
30	24	2	6.63	3.38	.080	6.25

PENT-1-3

A	B	C	D	R	GAUGE	SQ.FT.
30	10	11	3	1.88	.080	6.25
36	12	12	3	2.25	.080	9.00
42	14	13	4	2.50	.100	12.25

CIR-1-3

A	B	GAUGE	SQ.FT.
30	12	.063	6.25
36	15	.080	9.00

ISOS-1-2

A	B	C	D	R	GAUGE	SQ.FT.
40	30	7.50	12	1.88	.080	3.86
48	36	9	15	2.25	.100	5.56

ROUTE SHIELDS

(FOR GUIDE SIGNS ONLY)

M-1C-

A	B	C	D
24	24	7	7
30	24	8	8
30	30	9	9
37.5	30	9	9
36	36	10	10
45	36	15	10

M-2C-

A	B	C	D
24	24	7	7
30	24	8	8
30	30	9	9
37.5	30	9	9
36	36	10	10
45	36	15	10

M-5C-

A	B	C	D
24	24	7	7
30	24	8	8
30	30	9	9
40	30	9	9
36	36	10	10
48	36	15	10

ALL SHIELDS SHALL BE .063 GAUGE

NOTES

1. ALL DIMENSIONS ARE IN INCHES, UNLESS OTHERWISE NOTED.
2. ALL BOLT HOLES SHALL BE 3/8" DIAMETER, AND MAY BE DRILLED OR PUNCHED TO FINISHED SIZE.
3. DIMENSIONS BETWEEN BOLT HOLES SHALL BE TO TOLERANCE OF ±1/32 INCH.
4. FOR ADDITIONAL BLANK DETAILS SEE SIGN LAYOUT DRAWINGS.

SHAPE — NO. BOLTS REQUIRED

OCTA-2-6

NO. SUPPORT REQUIRED

ALL ITEMS SHALL CONFORM TO SUPPLEMENTAL SPECIFICATIONS 857 AND 957, UNLESS OTHERWISE SPECIFIED.

BUREAU OF DESIGN SERVICES
DIVISION OF HIGHWAYS
OHIO DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL

SIGN BLANK DETAILS I

DATE 4/1/77 4/3/79

STANDARD CONSTRUCTION DRAWING TC-52.10

APPROVED: Engineer of Design Services

H-REC-1-2

A	B	C	D	R	GAUGE	SQ.FT.
12	6	1.50	3	1.50	.063	.50
18	6	1.50	3	1.50	.063	.75
18	12	1.50	9	1.50	.063	1.50
21	15	1.50	12	1.50	.063	2.19
21	18	3	12	1.50	.063	2.63
24	6	1.50	3	1.50	.063	1.00
24	8	1.50	5	1.50	.063	1.33
24	10	1.50	7	1.50	.063	1.67
24	12	1.50	9	1.50	.063	2.00
24	18	3	12	1.50	.063	3.00
30	8	1.50	5	1.50	.063	1.67
30	10	1.50	7	1.50	.063	2.08
30	12	1.50	9	1.50	.080	2.50
30	15	1.50	12	1.50	.080	3.13
30	16	1.50	13	1.50	.080	3.33
30	18	3	12	1.50	.080	3.75
30	24	3	18	1.50	.080	5.00
36	6	1.50	3	1.50	.080	1.50
36	12	1.50	9	1.50	.080	3.00
36	15	1.50	12	1.50	.080	3.75
36	18	3	12	1.50	.080	4.50
36	24	3	18	1.50	.080	6.00
37.5	30	3	24	1.50	.080	7.81
42	15	1.50	12	1.50	.080	4.38
48	20	3	14	1.50	.080	6.67

H-REC-2-4

A	B	C	D	E	F	R	GAUGE	SQ.FT.
36	24	3	18	6	24	1.50	.080	6.00
36	30	3	24	6	24	1.88	.080	7.50
40	20	3	14	6	28	1.50	.080	5.56
42	36	6	24	9	24	2.25	.100	10.50
45	36	6	24	9	27	2.25	.100	11.25
48	8	1.50	5	9	30	1.50	.080	2.67
48	8.50	1.50	5.50	9	30	1.50	.080	2.83
48	14	1.50	11	9	30	1.50	.080	4.67
48	16	1.50	13	9	30	1.50	.080	5.33
48	18	3	12	9	30	1.50	.080	6.00
48	24	3	18	9	30	1.88	.100	8.00
48	30	3	24	9	30	1.88	.100	10.00
48	36	6	24	9	30	2.25	.100	12.00
48	42	6	30	9	30	2.25	.100	14.00
56	8	1.50	5	12	32	1.50	.100	3.11
60	12	1.50	9	12	36	1.50	.080	5.00
60	24	3	18	12	36	1.50	.100	10.00
60	30	3	24	12	36	1.88	.100	12.50
60	36	6	24	12	36	2.25	.100	15.00
60	40	6	28	12	36	2.25	.100	16.67
64	8	1.50	5	12	40	1.50	.100	3.56
66	24	3	18	12	42	1.50	.100	11.00
66	36	6	24	12	42	2.25	.100	16.50
72	12	1.50	9	12	48	1.50	.100	6.00
72	18	3	12	12	48	1.50	.100	9.00
72	24	3	18	12	48	1.50	.100	12.00
72	36	6	24	12	48	1.50	.100	18.00

H-REC-1-4 (ONE WAY)

A	B	C	D	R	GAUGE	SQ.FT.
36	12	4	1	1.50	.080	3.00
48	18	6	1.50	1.50	.100	6.00

SQ-1-2

A	B	C	R	GAUGE	SQ.FT.
15	3	4 1/2	1.50	.063	1.56
18	3	6	1.50	.063	2.25
24	3	9	1.50	.063	4.00

SQ-1-3

A	B	C	R	GAUGE	SQ.FT.
30	3	12	1.88	.080	6.25
36	6	12	2.25	.080	9.00

SQ-2-6

	A	B	C	D	E	R	GAUGE	SQ.FT.
*	36	6	12	6	24	2.25	.080	9.00
	48	6	18	9	30	3.00	.100	16.00

* "DO NOT ENTER" SIGN.

V-REC-1-2

A	B	C	D	R	GAUGE	SQ.FT.
8	26	5	16	1.50	.063	1.44
9	12	1.50	9	1.50	.063	.75
12	18	1.50	15	1.50	.063	1.50
12	24	3	18	1.50	.063	2.00
18	24	3	18	1.50	.063	3.00

V-REC-1-3

A	B	C	D	R	GAUGE	SQ.FT.
6	54	9	18	1.50	.080	2.25
12	36	3	15	1.50	.063	3.00
12	48	6	18	1.50	.080	4.00
24	30	3	12	1.50	.080	5.00
24	36	3	15	1.50	.080	6.00
24	48	9	15	1.50	.100	8.00
30	36	3	15	1.88	.080	7.50
30	38	3	16	1.50	.080	7.92
30	42	9	12	1.50	.080	8.75
36	42	9	12	2.25	.100	10.50

V-REC-2-6

A	B	C	D	E	F	R	GAUGE	SQ.FT.
36	48	6	18	6	24	2.25	.080	12.00
36	54	6	21	6	24	2.25	.100	13.50
36	60	6	24	6	24	2.25	.100	15.00
36	72	9	27	6	24	2.25	.100	18.00
48	54	6	21	9	30	3.00	.100	18.00
48	60	6	24	9	30	3.00	.100	20.00
48	96	12	36	9	30	3.00	.100	32.00

NOTES

1. ALL DIMENSIONS ARE IN INCHES, UNLESS OTHERWISE NOTED.
2. ALL BOLT HOLES SHALL BE 3/8" DIAMETER, AND MAY BE DRILLED OR PUNCHED TO FINISHED SIZE.
3. DIMENSIONS BETWEEN BOLT HOLES SHALL BE TO TOLERANCE OF ±1/32 INCH.
4. FOR ADDITIONAL BLANK DETAILS SEE SIGN LAYOUT DRAWINGS.

SHAPE — NO. BOLTS REQUIRED

H-REC-2-4

NO. SUPPORTS REQUIRED

ALL ITEMS SHALL CONFORM TO SUPPLEMENTAL SPECIFICATIONS 857 AND 957, UNLESS OTHERWISE SPECIFIED.

BUREAU OF DESIGN SERVICES
DIVISION OF HIGHWAYS
OHIO DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL

SIGN BLANK DETAILS II

DATE 4/1/77 4/3/79

STANDARD CONSTRUCTION DRAWING TC-52.20

APPROVED: Engineer of Design Services

TAPERED TUBE

PIPE

POLE DETAILS

BASE PLATE

EMBEDDED POLE DETAILS

SPAN WIRE CLAMP

ANCHOR TYPE SHACKLE

COMBINATION POLE

NOTES

1. TAPERED TUBE - SHALL BE STEEL WITH A MINIMUM OF 55,000 PSI YIELD STRESS AFTER GALVANIZING.
2. PIPE - SHALL BE ASTM A36 STEEL WITH A MINIMUM OF 36,000 PSI YIELD STRESS AFTER GALVANIZING.
3. PIPE - SHALL BE GRADE X52 STEEL OF THE AMERICAN PETROLEUM INSTITUTE STANDARD 5LX, WITH A MINIMUM OF 52,000 PSI YIELD STRESS AFTER GALVANIZING.
4. EMBEDDED POLE - THE EMBEDDED PORTION OF THE POLE MAY BE EXTENDED TO WITHIN 3 INCHES OF THE FOUNDATION BOTTOM IN LIEU OF PROVIDING REINFORCING STEEL AS SHOWN ON TC-21.20. THE BASE DIAMETER IS THE POLE AT THE GROUNDLINE.
5. SIGNAL CABLE ENTRANCE - SHALL BE A 2 INCH BLIND HALF COUPLING, WITH A REMOVABLE PLUG, PROVIDED IN EACH POLE.
6. SERVICE WIRE ENTRANCE - SHALL BE A 1½ INCH BLIND HALF COUPLING, WITH A REMOVABLE PLUG, WHEN REQUIRED BY THE PLANS. ORIENTATION AND HEIGHT SHALL BE AS REQUIRED BY THE PLANS.
7. SPAN WIRE CLAMP - SHALL BE GALVANIZED STEEL, CAPABLE OF RESISTING A LOAD OF 12,500 POUNDS MINIMUM WITHOUT PERMANENT DISTORTION.
8. FOR ANCHOR BOLT AND FOUNDATION DETAILS, SEE STANDARD CONSTRUCTION DRAWING TC-21.20.
9. THE BASE PLATE SHALL BE WELDED TO TWO PLY POLES WITH AWS PREQUALIFIED WELDS IN CONFORMANCE WITH 730.04.
10. ALTERNATE MESSENGER WIRE ASSEMBLY (WRAPPING) AS SHOWN ON TC-17.10 OR TC-84.20 MAY BE USED IN LIEU OF THE SPAN WIRE CLAMP.

ALL DIMENSIONS ARE IN INCHES, UNLESS OTHERWISE NOTED.

DESIGN NO.	POLE HEIGHT (feet)	BASE MOMENT AT YIELD (ft. kips)	TAPERED (NOTE 1.) BASE DIA.	TAPERED (NOTE 1.) MIN. WALL THICKNESS	A 36 PIPE (NOTE 2) SECTION	A 36 PIPE DIA.	A 36 PIPE LENGTH (feet)	A 36 PIPE WALL THICKNESS	A 36 PIPE REDUCER TYPE *	API GRADE X52 PIPE (NOTE 3) SECTION	API GRADE X52 PIPE DIA.	API GRADE X52 PIPE LENGTH (feet)	API GRADE X52 PIPE WALL THICKNESS	API GRADE X52 PIPE REDUCER TYPE *	ANCHOR BASE BOLT CIRCLE	ANCHOR BASE F	ANCHOR BASE S	ANCHOR BASE T	ANCHOR BASE H	ANCHOR BOLT DIA.	ANCHOR BOLT LENGTH
1	20	39.5	7	.239	B	5	10	0.312	SCH 80	B	5	10	0.219	SCH 80	10	7 1/16	10 1/2	1 1/4	1 5/8	1 1/4	42
					A	6	10	0.500		A	6	10	0.312								
2	24	67.0	9	.239	B	6	12	0.375	SCH 80	B	6	12	0.250	SCH 40	12 1/2	8 7/8	12 3/4	1 1/2	1 7/8	1 1/2	54
					A	8	12	0.500		A	8	12	0.322								
3	26	83.4	10	.239	B	8	13	0.277	SCH 30	B	8	13	0.188	SCH. 40	13 1/2	9 9/16	14 1/8	1 1/2	1 7/8	1 1/2	54
					A	10	13	0.365		A	10	13	0.250								
4	26	101.0	11	.239	B	8	13	0.312	SCH. 40	B	8	13	0.203	SCH 40	15	10 5/8	15 5/8	2	2 1/8	1 3/4	84
					A	10	13	0.483		A	10	13	0.279								
5	30	121.0	12	.239	B	8	9	0.203	SCH 20	B	8	9	0.188	SCH 40	16	11 5/16	17	2	2 1/8	1 3/4	84
					C	10	10	0.307	SCH. 30	C	10	10	0.203	SCH. 40							
					A	12	11	0.375		A	12	11	0.250								
6	30	149.0	12	.299	B	8	8	0.219	SCH. 20	B	8	10	0.188	SCH. 40	16	11 5/16	17	2	2 1/8	1 3/4	84
					C	10	10	0.365	SCH. 40	C	10	10	0.279	SCH. 40							
					A	12	12	0.500		A	12	10	0.312								
7	30	176.0	13	.299	B	8	10	0.375	SCH. 60	B	8	10	0.250	SCH. 40	18	12 3/4	18 1/2	2	2 3/8	2	90
					C	10	10	0.500	SCH. 60	C	10	10	0.344	SCH. 40							
					A	12	10	0.562		A	12	10	0.375								
8	30	206.0	14	.299	B	8	9	0.375	SCH. 60	B	8	10	0.277	SCH. 80	20	14 1/8	20 1/2	2	2 3/8	2	90
					C	10	10	0.562	SCH. 80	C	10	10	0.438	SCH. 80							
					A	12	11	0.688		A	12	10	0.438								
9	30	228.0	12	478 (2 PLY)	B	8	8	0.406	SCH. 60	B	8	10	0.312	SCH. 80	22	15 1/2	23	2 1/2	2 3/8	2	90
					C	10	10	0.594	SCH. 80	C	10	10	0.438	SCH. 80							
					A	12	12	0.750		A	12	10	0.500								
10	32	270.0	13	.478 (2 PLY)	B	8	8	0.406	SCH. 60	B	8	8	0.250	SCH. 80	22	15 1/2	23	2 1/2	2 5/8	2 1/4	90
					C	10	11	0.719	SCH. 100	C	10	12	0.500	SCH. 80							
					A	12	13	1.000		A	12	12	0.562								
11	32	316.0	14	.478 (2 PLY)	B	8	9	0.562	SCH. 100	B	8	8	0.312	SCH 80	22	15 1/2	23	2 1/2	2 5/8	2 1/4	90
					C	10	11	1.000	SCH. 40	C	10	12	0.594	SCH 80							
					A	12	12	1.125		A	12	12	0.688								
12	32	385.0	14	.598 (2 PLY)	B	10	9	0.438	SCH. 60	B	10	8	0.250	SCH. 80	23 1/2	16 5/8	24 1/2	2 1/2	2 7/8	2 1/2	114
					C	12	11	0.750	SCH 100	C	12	12	0.500	SCH. 80							
					A	14	12	1.094		A	14	12	0.688								

* DIAMETER EQUAL TO ABUTTING PIPE.

ALL ITEMS SHALL CONFORM TO C & M SPECIFICATIONS 630, 730, 632 AND 732, UNLESS OTHERWISE SPECIFIED.

BUREAU OF DESIGN SERVICES
DIVISION OF HIGHWAYS
OHIO DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL

STRAIN POLE DETAILS

DATE: 4-18-77, 4/10/78, 1/20/84

STANDARD CONSTRUCTION DRAWING TC-81.10

APPROVED _____ Engineer of Design Services

PLAN

SECTION A-A

Note: X shall never be less than T

APPROACH SLAB FOR SKEWED BRIDGE

SECTION B-B

Expansion Joint See Standard Construction Drawing BP-4

* 1'-3" embedment length is measured in the plane of the D801 bar.

REINFORCING STEEL
(For one approach slab)

Length L	Thickness T	A-BARS Sp'c'g M	A-BARS Mark	A-BARS Length	A-BARS Dimension A	A-BARS No. Req'd.	B501 (bottom) * Length	B501 (bottom) Sp'c'g N	B501 (bottom) No. Req'd.	B501 (top) * Length	C-BARS No. Req'd.	C-BARS Mark	C-BARS Length	C-BARS No. Req'd.	D801 or D802 No. Req'd
15'-0"	12"	10"	A1001	15'-11"	14'-6"	$\frac{W-0.5}{M}+1$	(W-0.5) sec θ	9"	22	(W-0.5) sec θ	11	C501	14'-6"	$\frac{W-0.5}{18}+1$	$12\left[\frac{W-0.5}{18}+1\right]$
20'-0"	13"	7½"	A1002	20'-11"	19'-6"			8"	31		14	C502	19'-6"		
25'-0"	15"	7"	A1003	25'-11"	24'-6"			8"	39		18	C503	24'-6"		
30'-0"	17"	6½"	A1004	30'-11"	29'-6"	12		8½"	44		21	C504	29'-6"	12	

W = Approach Slab Width, out-to-out, in feet
θ = Angle of Skew
M = A-bar spacing in inches
N = B-bar spacing in inches
X = Approach Slab Thickness at abutment end in feet.

* At the option of the contractor, the B501 bars may be lapped 1'-8" minimum at the centerline of roadway, or where required for longitudinal construction joints.

DESIGN SPECIFICATIONS: This standard drawing conforms to "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway and Transportation Officials, 1977, including the 1978, 1979, 1980 and 1981 Interim Specifications and the Ohio "Supplement" to these specifications.

DESIGN DATA
Design Loading: HS20-44 and the Alternate Military Loading

Concrete Class C: compressive strength 4000 p.s.i.

Reinforcing Steel: ASTM A615, A616 or A617 - Grade 60 minimum yield strength 60,000 p.s.i.

REINFORCING STEEL: For skewed bridges the A and C bars shall be placed parallel to the center line of roadway and the B bars shall be placed parallel to the abutments.

PREFORMED EXPANSION JOINT FILLER AND SEALER at the corners and sides of the approach slab shall be included in the price bid per sq. yd. for the approach slab.

PREFORMED ELASTOMERIC JOINT SEALER shown at the bridge limit end of the approach slab shall be included in the price bid per sq. yd. for the approach slab.

LONGITUDINAL CONSTRUCTION JOINTS required for stage construction shall be as per 511.09

CURBS, BRIDGES WITH SIDEWALKS: For bridges constructed with raised sidewalks, deflector parapets or other types of construction which retain roadway surface drainage, the approach slabs shall either include integral curbs or be constructed in conjunction with bridge curbs. Curb height shall be transitioned uniformly between bridge curb height and approach curb height in a length as follows: Where wingwall extends beyond end of approach slab, use a minimum length of 10 ft. beyond end of wingwall. Where the approach slab extends beyond the end of wingwall, transition in this length. However, the transition length shall not be less than 10 ft. and the transition shall extend beyond the end of approach slab if necessary.

APPROACH SLAB WIDTH (W): Generally approach slabs shall be the same width as the bridge roadway.

LENGTH of approach slabs shall be shown on project plans.

CROWN shall conform to that of the approach pavement and bridge deck. If the rate of crown of the bridge deck differs from that of the approach pavement, a smooth transition shall be provided within the limits of the approach slab.

WEARING SURFACE: Generally approach slabs shall have an asphalt concrete wearing surface only when both the approach pavement surface and the bridge wearing surface are asphalt concrete.

EXPANSION JOINT details at the appoach pavement end of the approach slab are used only in conjunction with concrete pavement or concrete base course. Payment for the expansion joint, including dowel bars, preformed expansion joint filler and joint sealer, is included in the price bid per sq. yd. for the approach slab.

GENERAL: This drawing provides design and general construction details. The project plans will show length, skew, curbs (if any), estimated quantity (sq. yds.), and special notes and details where necessary. For conditions other than those indicated hereon, the approach slab shall be adapted to fit the ends of the bridge and the approach pavement.

ANCHOR BARS D801 or D802 shall be detailed for the specific bridge and shall be included with Item 509 under abutments or superstructure for payment. D801 bars cannot be used as shown where approach slabs are supported on backwalls less than 14 inches thick. D802 bars shall be used on prestressed concrete box beam bridges where the approach slab is supported on an 11 inch thick backwall.

REVISIONS

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
BUREAU OF BRIDGES AND STRUCTURAL DESIGN

STANDARD
REINFORCED CONCRETE APPROACH SLABS

APPROVED: Robert A. Pfeifer, ENGINEER OF BRIDGES
DATE: 11-27-81
DRWG NO AS-1-81

PREPARED	TRACED	CHECKED	REVIEWED	SHEET NO 1 OF 3 SHEETS
FFE		GSB	W.J.J	

MICROFILMED
MAR 16 1992

DETAIL A | DETAIL B | DETAIL C | DETAIL D | DETAIL E | DETAIL F | DETAIL G | DETAIL H

ASPHALT CONCRETE WEARING SURFACE ON BRIDGE DECK AND APPROACH SLAB

CONCRETE WEARING SURFACE ON BRIDGE DECK AND APPROACH SLAB

CONCRETE WEARING SURFACE ON BRIDGE DECK ONLY

ASPHALT CONCRETE WEARING SURFACE ON BRIDGE DECK ONLY

ON BRIDGES WITH INTEGRAL CONSTRUCTION

ON SLAB BRIDGES

ON PRESTRESSED CONCRETE BOX BEAM BRIDGES

APPROACH SLAB SUPPORTED ON ABUTMENT BACKWALL

Note: Approach slab seat on prestressed concrete box beam bridges is shown at same elevation as beam seat. However, it may actually be higher or lower than the beam seat depending on box beam depth.

Note 1: 2" joint sealer 705.01 or 705.02

Note 2: Preformed elastomeric joint sealer 705.11 (1¼" for ½" joint) depressed ⅛" below roadway, placed in ½"x2¼" groove.

Note 3: Preformed elastomeric joint sealer 705.11 (1¼" for ½" joint) placed in ½"x2⅛" groove.

Note 4: 1" preformed expansion joint filler.

Note 5: Type A waterproofing.

Type A waterproofing shall not extend above the bottom of the groove into which the preformed elastomeric joint sealer is to be placed. It shall be applied to the entire area of the abutment or superstructure which comes into contact with the approach slab.

For prestressed concrete box beam bridges with asphalt concrete on both bridge deck and approach slab, the top of approach slab at the bridge end shall be constructed to the level of the top of the beams to facilitate waterproofing of the joint. The thickness of asphalt concrete at the approach end shall be the thickness of asphalt concrete used on the roadway pavement. The thickness of asphalt concrete shall vary uniformly, if necessary, in the length of the approach slab. The base shall be graded to permit the bottom of the approach slab to be parallel to the top.

For structures having asphalt concrete wearing surface on both bridge deck and approach slabs and where no deck expansion devices are provided, the deck membrane waterproofing shall extend beyond the bridge limits a distance of 2'-0".

REVISIONS	STATE OF OHIO DEPARTMENT OF TRANSPORTATION BUREAU OF BRIDGES AND STRUCTURAL DESIGN				
	STANDARD REINFORCED CONCRETE APPROACH SLABS				
	APPROVED: Robert A. Pfeifer DATE: 11-27-81 ENGINEER OF BRIDGES				DRWG. NO. AS-1-81
	PREPARED FFE	TRACED	CHECKED GSB	REVIEWED WJJ	SHEET NO. 2 OF 3 SHEETS

HILLS CO.—1000 #19—7156—7-79

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MAR 16 1992

PLAN
Bridge With Deflector Parapets

Where curb is used, guard rail "Flare Arc" as per GR-6 shall start at end of approach slab. Curb alignment shall be parallel to guard rail "Flare Arc."

PLAN
Bridge With Sidewalks

PLAN
Bridge Without Curbs

SECTION A-A

SECTION B-B

SECTION C-C

REVISIONS	STATE OF OHIO DEPARTMENT OF TRANSPORTATION BUREAU OF BRIDGES AND STRUCTURAL DESIGN				
	STANDARD REINFORCED CONCRETE APPROACH SLABS				
	APPROVED: Robert B. Chaffin ENGINEER OF BRIDGES DATE: 11-27-81				DRWG. NO. AS-1-81
	PREPARED FFE	TRACED	CHECKED GSB	REVIEWED WJJ	SHEET NO. 3 OF 3 SHEETS

END CROSSFRAME

For beam spacing of 8'-0" or less measured parallel to end dam.

END CROSSFRAME

For beam spacing of 8'-0" to 12'-0" measured parallel to end dam.

BRIDGE WITH CURBS

BRIDGE WITH SIDEWALK

BRIDGE WITHOUT CURBS

END DAM DETAILS AT FASCIA BEAM

(For additional details see Sheet No 2)

END CROSSFRAME

For beam spacing of 12'-0" to 16'-0" measured parallel to end dam

FOR SQUARE BRIDGES FOR SKEWED BRIDGES

SECTION B - B

* Where necessary, cope corner of masonry plate in order to maintain 1" clearance.

DETAIL D

BRIDGE WITH ROADWAY PARAPET RAILING

A welded butt joint in the end dam, at the apex of roadway, will be required for that portion of the end dam attached to the superstructure. The portion attached to the backwall shall be placed in segments not less than 6'-0" in length, with a joint at each joint in the backwall and with one of the joints at the apex of roadway. These shall be closely butted but shall not be welded.

SECTION A - A

SHOWING ROADWAY END DAM FOR MONOLITHIC WEARING SURFACE

† Furnish different thickness if required to compensate for grades in excess of 2%.

SECTION A - A

SHOWING ROADWAY END DAM FOR BITUMINOUS WEARING SURFACE

Same as SECTION A-A for monolithic wearing surface except as shown.

WELDED BUTT JOINT IN SUPERSTRUCTURE END DAM

When end dam contains no apex, a butt joint may be furnished near the centerline of the deck, if necessary to facilitate handling and shipping.

LONGITUDINAL SECTION BRIDGE ON GRADE

REVISIONS	STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES				
	STANDARD SUPERSTRUCTURE DETAILS FOR STEEL BEAM AND GIRDER BRIDGES				
	APPROVED: C. H. Wheeler DATE 6-12-69 ENGINEER OF BRIDGES				DRAWING NUMBER SD-1-69
	PREPARED FFE	TRACED NAB	CHECKED WJJ FFE	REVIEWED CDB RJH BFS	SHEET NO. 1 OF 4 SHEETS

PART DECK PLAN
SKEWED BRIDGES

PART DECK PLAN
SQUARE BRIDGES

PART DECK PLAN
SQUARE BRIDGES

SECTION C-C

PART DECK PLAN
SKEWED BRIDGES

SIDEWALK END DAMS
FOR BRIDGE ON GRADE

For additional details see Section D-D

SIDEWALK END DAM DETAILS

SECTION D-D

For additional notes and details see Section A-A on Sheet No. 1

SECTION A-A

SECTION B-B

CURB PLATE DETAILS
SIDEWALKS, SAFETY CURBS
AND RAISED MEDIANS

PART DECK PLAN
SQUARE BRIDGES

SECTION E-E

SECTION F-F

PART DECK PLAN
SKEWED BRIDGES

WELDS on non-stress-carrying members are shown thus: N 5/16

CURB PLATE DETAILS
ROADWAY PARAPET
RAILINGS AND BARRIER MEDIANS

REVISIONS	STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES				
	STANDARD SUPERSTRUCTURE DETAILS FOR STEEL BEAM AND GIRDER BRIDGES				
	APPROVED. DATE: 6-12-69 C. H. Allbaugh ENGINEER OF BRIDGES				DRAWING NUMBER SD-1-69
	PREPARED FFE JFS	TRACED NRB	CHECKED MPB CDB	REVIEWED CSB RVH RFG	SHEET NO. 2 OF 4 SHEETS

PLAN
STANDARD SCUPPER

SCUPPER ELEVATION

SECTION A-A

DETAIL A

Scupper elevation showing method for lengthening scupper where necessary to clear the flanges.

DETAIL B

DETAIL C

For scuppers that are not located adjacent to a beam or girder flange.

SCUPPER SUPPORT BOLTS

Scuppers shall be furnished in sufficient number to provide one square inch of net scupper opening for each 12 to 15 square feet of deck area to be drained. The downspout shall have at least one square inch of opening for each five square inch of net scupper opening, with a minimum nominal diameter of 6 inches.

Scupper should clear crossframes by at least 6" and abutments by 2'-6". They shall be no nearer to ℄ of pier bearings than 0.10 of span length

The support angles and support bolts are included with scupper for payment.

Scuppers, including support angles, shall be galvanized in accordance with 711.

TOP FLANGE

BOTTOM FLANGE

MOMENT PLATES

* See Standard Drawings or project plans for dimension "A". Dimension "A" equals ½ plate length unless otherwise shown, in which case the plans shall indicate the span to which dimension "A" applies.

REVISIONS	STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES			
	STANDARD SUPERSTRUCTURE DETAILS FOR STEEL BEAM AND GIRDER BRIDGES			
	APPROVED: C. T. Alforate DATE 6-12-69 ENGINEER OF BRIDGES			DRAWING NUMBER SD-1-69
	PREPARED MRB	TRACED NRB	CHECKED AJJ	REVIEWED JDB RLH BFG	SHEET NO. 3

GENERAL: This drawing provides design and construction details. The Project plans shall show the location of splices plus a reference to this drawing for pertinent details and notes. For splicing beams of different sizes or where splices are located at beam bend points, the project plans shall include sufficient details supplementing this drawing to completely describe the splice.

DESIGN SPECIFICATIONS: This drawing conforms to "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway Officials, 1965, including the Ohio "Supplement" to these specifications.

BASIC UNIT STRESSES:

Structural Steel	ASTM A-36	20,000 psi	bending
		12,000 psi	shear
High Strength Bolts	ASTM A-325	13,500 psi	shear

FATIGUE UNIT STRESSES: Where the ratio of the minimum to the maximum moment R is .20 the splice design shall be based on the allowable fatigue unit stresses as required by Section 1.7.3 instead of on the basic unit stresses noted above. The effect of this change in the allowable unit stresses may be conveniently implemented in the design by increasing the calculated maximum stresses (moment and shear) by the ratio of the basic unit stress to the fatigue unit stress. These modified maximum stresses may then be used as specified in the DESIGN note to verify the adequacy of the splice design shown hereon, or to establish modified strength requirements for special designs using basic unit stresses.

DESIGN: For each structure the designer shall choose a splice location and determine the maximum total stresses (moment and shear) at that point. The splice shall be designed for not less than (1) the average of the calculated maximum stress and the static strength of the beam, (2) the modified maximum stress specified in the FATIGUE UNIT STRESSES note, or (3) 75 % of the static strength of the beam. The splice designs shown hereon are designed for (3). If stresses (1) or (2) are more critical, this design shall not be used and such splices should be designed to meet the established requirements. The static beam strength at the splice is based on the net section for bending and the gross section for shear using the basic unit stresses. When splicing beams of different sizes, the splice design shall be based on the lighter weight beam.

FASTENERS: 1" diameter High Strength Bolts.

SPLICE MATERIAL WEIGHT plus the weight of fills, where required, shall be included with the structural steel quantity for payment.

FABRICATION AND ASSEMBLY: Beam ends at splices shall be cut and fit as per plan. The opening between beam ends after assembly shall not exceed $\frac{1}{4}$".

FILLS shown on the project plans and shop drawings shall be dimensioned to the nearest $\frac{1}{16}$ inch in thickness, but not less than $\frac{1}{8}$ inch thick, based on the dimensions for detailing and intended relative position of the abutting flanges and webs, to be spliced. However, in the final shop assembly, fills shall be furnished with thicknesses sufficient to compensate for any misalignment of abutting flanges and webs due to standard rolling mill tolerances. The actual fills used in the splice shall be such as to compensate for differences in total thickness or relative positions of $\frac{1}{16}$ inch or more.

VERTICAL CLEARANCE: For grade separation structures an allowance of $\frac{3}{4}$ inches plus the thickness of the outside flange splice plate shall be used in computing the actual vertical clearance under a beam splice.

BEAM SPLICE DATA

Beam		DETAILS: Flange Splice										Web Splice			Weight of splice material ≠ lbs.	DESIGN: Beam Strength	
		TYPE	Flange Plates: Outside 2 required	Flange Plates: Inside 4 required	Flange Bolts: Number	N Spa.	Dimensions (inches): Pitch	A	B	C	TYPE	Web Plates 2 required	Web Bolts No		Moment ft.-kips	Shear kips
36 WF	280	B	16 x $\frac{11}{16}$ x 6'-3"	$6\frac{1}{2}$ x $\frac{13}{16}$ x 6'-3"	80	9	$3\frac{3}{4}$	$2\frac{1}{16}$	3	$6\frac{1}{2}$	B	$19\frac{1}{2}$ x $\frac{7}{16}$ x 2'-7"	60	1210	1455	354
	260	B	16 x $\frac{3}{8}$ x 5'-0"	$6\frac{1}{2}$ x $\frac{3}{4}$ x 5'-0"	64	7	$3\frac{3}{4}$	2	3	$6\frac{1}{2}$	B	$19\frac{1}{2}$ x $\frac{7}{16}$ x 2'-7"	60	950	1338	338
	245	B	16 x $\frac{9}{16}$ x 5'-0"	$6\frac{1}{2}$ x $\frac{11}{16}$ x 5'-0"	64	7	$3\frac{3}{4}$	2	3	$6\frac{1}{2}$	B	$19\frac{1}{2}$ x $\frac{7}{16}$ x 2'-7"	54	880	1261	321
	230	B	16 x $\frac{9}{16}$ x 5'-0"	$6\frac{1}{2}$ x $\frac{5}{8}$ x 5'-0"	64	7	$3\frac{3}{4}$	2	3	$6\frac{1}{2}$	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 2'-7"	54	840	1180	306
	194	A	11 x $\frac{3}{8}$ x 2'-$11\frac{1}{2}$"	$4\frac{1}{2}$ x $\frac{3}{4}$ x 2'-$11\frac{1}{2}$	40	4	$3\frac{1}{2}$	$2\frac{9}{16}$	–	7	B	$19\frac{1}{2}$ x $\frac{7}{16}$ x 2'-7"	54	540	891	314
	182	A	11 x $\frac{9}{16}$ x 2'-$11\frac{1}{2}$"	$4\frac{1}{2}$ x $\frac{11}{16}$ x 2'-$11\frac{1}{2}$	40	4	$3\frac{1}{2}$	$2\frac{9}{16}$	–	7	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 2'-7"	48	490	838	295
	170	A	11 x $\frac{1}{2}$ x 2'-$11\frac{1}{2}$"	$4\frac{1}{2}$ x $\frac{5}{8}$ x 2'-$11\frac{1}{2}$	40	4	$3\frac{1}{2}$	$2\frac{1}{2}$	–	7	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 2'-7"	48	460	782	277
	160	A	11 x $\frac{1}{2}$ x 2'-$4\frac{1}{2}$"	$4\frac{1}{2}$ x $\frac{9}{16}$ x 2'-$4\frac{1}{2}$	32	3	$3\frac{1}{2}$	$2\frac{1}{2}$	–	7	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 2'-7"	48	400	729	266
	150	A	11 x $\frac{9}{16}$ x 2'-$4\frac{1}{2}$"	$4\frac{1}{2}$ x $\frac{5}{16}$ x 2'-$4\frac{1}{2}$	32	3	$3\frac{1}{2}$	$2\frac{1}{2}$	–	7	A	$13\frac{1}{2}$ x $\frac{3}{8}$ x 2'-7"	40	340	670	255
	135	A	11 x $\frac{3}{8}$ x 2'-$4\frac{1}{2}$"	$4\frac{1}{2}$ x $\frac{1}{2}$ x 2'-$4\frac{1}{2}$	32	3	$3\frac{1}{2}$	$2\frac{1}{2}$	–	7	A	$13\frac{1}{2}$ x $\frac{3}{8}$ x 2'-7"	40	320	583	244
33 WF	240	B	15 x $\frac{5}{8}$ x 4'-$8\frac{1}{2}$"	6 x $\frac{13}{16}$ x 4'$8\frac{1}{2}$	64	7	$3\frac{1}{2}$	$2\frac{5}{16}$	$2\frac{1}{2}$	$6\frac{1}{4}$	B	$19\frac{1}{2}$ x $\frac{7}{16}$ x 2'-4"	54	870	1140	306
	220	B	15 x $\frac{9}{16}$ x 4'-$8\frac{1}{2}$"	6 x $\frac{11}{16}$ x 4'$8\frac{1}{2}$	64	7	$3\frac{1}{2}$	$2\frac{1}{4}$	$2\frac{1}{2}$	$6\frac{1}{4}$	B	$19\frac{1}{2}$ x $\frac{7}{16}$ x 2'-4"	54	790	1040	286
	200	B	15 x $\frac{1}{2}$ x 3'-$6\frac{1}{2}$"	6 x $\frac{5}{8}$ x 3'-$6\frac{1}{2}$	48	5	$3\frac{1}{2}$	$2\frac{1}{4}$	$2\frac{1}{2}$	$6\frac{1}{4}$	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 2'-4"	48	580	943	264
	152	A	10 x $\frac{1}{2}$" x 2'-$4\frac{1}{2}$"	4 x $\frac{11}{16}$ x 2'-$4\frac{1}{2}$	32	3	$3\frac{1}{2}$	$2\frac{11}{16}$	–	$6\frac{1}{4}$	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 2'-4"	42	380	655	239
	141	A	10 x $\frac{7}{16}$ x 2'-$4\frac{1}{2}$"	4 x $\frac{5}{8}$ x 2'-$4\frac{1}{2}$	32	3	$3\frac{1}{2}$	$2\frac{5}{8}$	–	$6\frac{1}{4}$	A	$13\frac{1}{2}$ x $\frac{3}{8}$ x 2'-4"	36	320	595	228
	130	A	10 x $\frac{7}{16}$" x 2'-$4\frac{1}{2}$"	4 x $\frac{9}{16}$ x 2'-$4\frac{1}{2}$	32	3	$3\frac{1}{2}$	$2\frac{5}{8}$	–	$6\frac{1}{4}$	A	$13\frac{1}{2}$ x $\frac{3}{8}$ x 2'-4"	36	310	539	218
	118	A	10 x $\frac{3}{8}$ x 1'-$9\frac{1}{2}$"	4 x $\frac{1}{2}$ x 1'-$9\frac{1}{2}$	24	2	$3\frac{1}{2}$	$2\frac{5}{8}$	–	$6\frac{1}{4}$	A	$13\frac{1}{2}$ x $\frac{3}{8}$ x 2'-4"	36	250	476	208
30 WF	132	A	10 x $\frac{7}{16}$ x 2'-$4\frac{1}{2}$"	4 x $\frac{5}{8}$ x 2'-$4\frac{1}{2}$	32	3	$3\frac{1}{2}$	$2\frac{1}{4}$	–	6	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 2'-1"	42	350	501	209
	124	A	10 x $\frac{7}{16}$ x 2'-$4\frac{1}{2}$"	4 x $\frac{9}{16}$ x 2'-$4\frac{1}{2}$	32	3	$3\frac{1}{2}$	$2\frac{1}{4}$	–	6	A	$13\frac{1}{2}$ x $\frac{3}{8}$ x 2'-1"	32	300	464	199
	116	A	10 x $\frac{3}{8}$ x 1'-$9\frac{1}{2}$"	4 x $\frac{1}{2}$ x 1'-$9\frac{1}{2}$	24	2	$3\frac{1}{2}$	$2\frac{1}{4}$	–	6	A	$13\frac{1}{2}$ x $\frac{3}{8}$ x 2'-1"	32	240	430	192
	108	A	10 x $\frac{3}{8}$ x 1'-$9\frac{1}{2}$"	4 x $\frac{7}{16}$ x 1'-$9\frac{1}{2}$	24	2	$3\frac{1}{2}$	$2\frac{1}{4}$	–	6	A	$13\frac{1}{2}$ x $\frac{3}{8}$ x 2'-1"	32	230	392	186
	99	A	10 x $\frac{3}{8}$ x 1'-$9\frac{1}{2}$"	4 x $\frac{3}{8}$ x 1'-$9\frac{1}{2}$	24	2	$3\frac{1}{2}$	$2\frac{1}{4}$	–	6	A	$13\frac{1}{2}$ x $\frac{3}{8}$ x 2'-1"	32	220	353	177
27 WF	114	A	$9\frac{1}{2}$ x $\frac{7}{16}$ x 1'-$9\frac{1}{2}$"	4 x $\frac{1}{2}$ x 1'-$9\frac{1}{2}$	24	2	$3\frac{1}{2}$	$2\frac{1}{16}$	–	5	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 1'-11"	36	270	390	174
	102	A	$9\frac{1}{2}$ x $\frac{3}{8}$ x 1'-$9\frac{1}{2}$"	4 x $\frac{7}{16}$ x 1'-$9\frac{1}{2}$	24	2	$3\frac{1}{2}$	2	–	6	A	$13\frac{1}{2}$ x $\frac{3}{8}$ x 1'-11"	28	220	345	158
	94	A	$9\frac{1}{2}$ x $\frac{3}{8}$ x 1'-$9\frac{1}{2}$"	4 x $\frac{7}{16}$ x 1'-$9\frac{1}{2}$	24	2	$3\frac{1}{2}$	2	–	6	A	$13\frac{1}{2}$ x $\frac{3}{8}$ x 1'-11"	28	220	315	150
	84	A	$9\frac{1}{2}$ x $\frac{3}{8}$ x 1'-$9\frac{1}{2}$"	4 x $\frac{3}{8}$ x 1'-$9\frac{1}{2}$	24	2	$3\frac{1}{2}$	2	–	6	A	$13\frac{1}{2}$ x $\frac{3}{8}$ x 1'-11"	28	210	273	141
24 WF	110	A	10 x $\frac{7}{16}$ x 2'-$4\frac{1}{2}$"	$4\frac{1}{2}$ x $\frac{1}{2}$ x 2'-$4\frac{1}{2}$	32	3	$3\frac{1}{2}$	$2\frac{3}{4}$	–	$6\frac{1}{2}$	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 1'-8"	30	300	373	138
	100	A	10 x $\frac{7}{16}$ x 2'-$4\frac{1}{2}$"	$4\frac{1}{2}$ x $\frac{1}{2}$ x 2'-$4\frac{1}{2}$	32	3	$3\frac{1}{2}$	$2\frac{3}{4}$	–	$6\frac{1}{2}$	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 1'-8"	30	300	338	126
	94	A	$8\frac{1}{2}$ x $\frac{1}{2}$ x 1'-$9\frac{1}{2}$"	$3\frac{1}{2}$ x $\frac{1}{2}$ x 1'-$9\frac{1}{2}$	24	2	$3\frac{1}{2}$	2	–	5	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 1'-8"	30	230	282	140
	84	A	$8\frac{1}{2}$ x $\frac{3}{8}$ x 1'-$9\frac{1}{2}$"	$3\frac{1}{2}$ x $\frac{1}{2}$ x 1'-$9\frac{1}{2}$	24	2	$3\frac{1}{2}$	2	–	5	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 1'-8"	30	230	250	127
	76	A	$8\frac{1}{2}$ x $\frac{3}{8}$ x 1'-$9\frac{1}{2}$"	$3\frac{1}{2}$ x $\frac{1}{2}$ x 1'-$9\frac{1}{2}$	24	2	$3\frac{1}{2}$	2	–	5	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 1'-8"	30	230	223	119
	68	A	$8\frac{1}{2}$ x $\frac{3}{8}$ x 1'-$9\frac{1}{2}$"	$3\frac{1}{2}$ x $\frac{7}{16}$ x 1'-$9\frac{1}{2}$	24	2	$3\frac{1}{2}$	2	–	5	A	$13\frac{1}{2}$ x $\frac{3}{8}$ x 1'-8"	24	200	195	112
21 WF	68	A	$8\frac{1}{2}$ x $\frac{3}{8}$ x 1'-$9\frac{1}{2}$"	*$3\frac{1}{2}$ x $\frac{3}{8}$ x 1'-$9\frac{1}{2}$	24	2	$3\frac{1}{2}$	$1\frac{3}{4}$	–	$4\frac{3}{4}$	B	$19\frac{1}{2}$ x $\frac{3}{8}$ x 1'-5"	24	190	175	102

* Trim plates as required to fit beam fillets.

≠ Tabulated weights are approximate and are for estimating purposes only. They include an allowance for weight of bolts and washers.

VIEW A-A
Flange Splice-TYPE B

VIEW A-A
Flange Splice-TYPE A

BEAM SPLICE DETAIL
Web Splice - TYPE B

BEAM SPLICE DETAIL
Web Splice - TYPE A

PARTIAL SECTION
(at ℄ of beam splice)

VIEW A-A
Splice detail for beams having different flange widths

REVISIONS

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

STANDARD
BOLTED BEAM SPLICE DETAILS
FOR STEEL BEAM BRIDGES

APPROVED: C. H. Albrecht, ENGINEER OF BRIDGES
DATE: 6-12-69

DRAWING NUMBER: SD-1-69

PREPARED	TRACED	CHECKED	REVIEWED	
MPB	CAM	CPD	HHM BFG CDB	RJH

SHEET NO. 4 OF 4 SHEETS

PART PLAN AT ABUTMENT
FOR BRIDGES WITH ROADWAY PARAPET RAILING

NOTE A:
Locate anchors immediately below the upper deck slab reinforcing steel.

SECTION A-A
WITH ROADWAY GRADIENT OF 2% OR LESS SHOWN

TYPICAL END DAM SUPPORT DETAIL
WITH ROADWAY GRADIENT IN EXCESS OF 2% SHOWN
‡ ¾"ϕ H.S. hex. head bolts, nuts and washers required.

JOINTS IN END DAM ARMOR
Transverse joints in superstructure angles or channel shall have complete penetration butt welds. Transverse joints in abutment angle shall be closely butted with a minimum of 6'-0" between joints. Welds in contact with seal shall be ground flush.

DOUBLE ANGLE ARMOR ALTERNATE
FOR ADDITIONAL DETAILS SEE SECTION A-A AND END CROSSFRAME DETAIL

SECTION X-X

SECTION B-B ⚠

SECTION C-C ⚠
SEE SECTION B-B FOR OTHER DETAILS

DETAIL A

⚠ See SIDEWALK AND PARAPET JOINT ARMOR ANCHORS note on sheet 2/2.

END CROSSFRAME DETAIL

* For C dimensions and support points other than shown and additional end crossframe details see Standard Drawing SD-1-69, sheet 1 of 4.

JOINT ARMOR ADJUSTMENT DETAIL

DETAIL B
TEMPORARY SUPPORT BARS

NOTE:
For dimensions A, DA, and additional notes and details see Sheet 2/2.

REVISIONS	STATE OF OHIO DEPARTMENT OF TRANSPORTATION BUREAU OF BRIDGES AND STRUCTURAL DESIGN	1/2
4-2-84	STANDARD COMPRESSION SEAL EXPANSION JOINTS AT ABUTMENTS FOR STEEL STRINGER STRUCTURES	
	APPROVED: 9-1-81 DATE — Robert B. Taylor ENGINEER OF BRIDGES	DRAWING NO
	DESIGNED MPB · DRAWN AJM · TRACED — · CHECKED RLD · PREV'Y MED MPB	EXJ-2-81

MICROFILMED
OCT 21 1981

PART PLAN AT ABUTMENT
FOR BRIDGES WITH SIDEWALK
PARAPET RAILING

SECTION D-D ⊿

NOTE:
For additional notes and details see sheet 1/2.

* Typical for 1/2"ϕ bar segments in sidewalk

SECTION E-E ⊿

NOTE: Joint seal not shown in SECTION E-E and SECTION F-F.

SECTION F-F ⊿

GENERAL NOTES

REFERENCE shall be made to Supplemental Specification 849 for installation procedures, material requirements and manufacturing control.

⊙ PROCEDURE: Set dimension "A" to 3"± the adjustment shown in the chart below. After the abutment backwall has been placed, loosen bolts as noted.

T_A = Anticipated peak ambient temperature (F°).
D_A = Actual distance to neutral point of superstructure along centerline of roadway. See SECTION A-A on sheet 1/2. (feet)
D_M = Modified distance for determining joint adjustment. (feet)
θ = Skew angle of expansion joint.

DIMENSION "A" ADJUSTMENT D_{TA}

MATERIALS: A588 or A36 with paint as specified for the main structural steel, except that System B shall be used when the main structural steel is to remain unpainted. No shop coat is required. Field paint shall consist of one prime coat for System A or two prime coats for System B, and one finish coat.

MEASUREMENT for pay purposes shall be based on the sealed length of joints measured horizontally along the joint centerlines. Payment per linear foot for Item 516, "Structural expansion joints including elastomeric compression seals," includes all labor, materials and equipment necessary to complete the joint in place including the joint armor, 1/2" steel plates, anchoring devices and end crossframe gusset plates.

⊿ SIDEWALK AND PARAPET JOINT ARMOR ANCHORS: In lieu of the 1/2"ϕ end-welded studs shown, alternate methods of anchoring the joint armor may be used, subject to approval by the Director.

** See manufacturer's catalogue for seal actually chosen for use.

COMPRESSION SEAL DETAIL
U.S. BROWN'S CV 5000, ACME'S J 500, WATSON BOWMAN'S WB 500, OR AN APPROVED ALTERNATE.

VIEW Y-Y

CONSTRUCTION PROCEDURE

1. Abutment backwall concrete shall not be placed until after superstructure concrete in the span adjacent to the abutment has been placed.
2. Place backwall concrete during stable or rising ambient temperatures and conclude placement at or immediately before the day's peak ambient temperature.
3. Not more than four hours prior to the day's peak ambient temperature, set abutment expansion joint width to dimension A which shall be determined as follows:
   A = 3"± D_{TA}, where
   A = Joint width (inches) measured normal to joint
   D_{TA} = Adjustment (inches) for a peak ambient temperature other than 60°F (see chart).
4. Loosen temporary end dam bolts after initial set of concrete, preferably not later than two hours after conclusion of concrete placement.

NOTES TO DESIGNER

Design Limits: Generally θ not greater than 15°. D_M (see chart above) not longer than 150 feet.

REVISIONS	STATE OF OHIO DEPARTMENT OF TRANSPORTATION BUREAU OF BRIDGES AND STRUCTURAL DESIGN	2/2
4-2-84	STANDARD COMPRESSION SEAL EXPANSION JOINTS AT ABUTMENTS FOR STEEL STRINGER STRUCTURES	
	APPROVED: 9-1-81 DATE — Robert B. Rinehart ENGINEER OF BRIDGES	DRAWING NO.
	DESIGNED MPB · DRAWN AJM · TRACED — · CHECKED RLD · REVIEWED MPB	EXJ-2-81

STRUCTURAL STEEL BOLSTER

See table below for additional dimensions.

STRUCTURAL STEEL ROCKER

See table below for additional dimensions.

Bolster No.	Rocker No.	Dimensions (inches)													Weight each (lb.)		Maximum Load (lb.)
		A	B	C	D	F	G	H	K	L	M	R	T	Y	Bolster	Rocker	
	R-75	2 1/2	8	2 1/2	1 3/4	1/2	7	9 5/8	9	18	16	5 1/2	1 1/2	1 3/16		205	75,000
B-100	R-100	2 1/2	10	2 1/2	2	1/2	7 1/2	10 5/8	9	19	17	6 1/2	1 1/2	1 3/16	225	250	100,000
B-125	R-125	3	11	3	2	1/2	8	12 1/8	10 1/2	20	18	7 1/2	1 1/2	1 7/16	295	315	125,000
B-150	R-150	3	12	3	2 1/4	1/2	8 1/2	13 3/8	11 1/2	22	19	8 1/2	1 3/4	1 7/16	360	400	150,000
B-175	R-175	3	14	3 1/2	2 1/2	1/2	9	15 1/8	12	23	20	9 1/2	2	1 7/16	455	505	175,000
B-200	R-200	3	16	3 1/2	2 3/4	5/8	9	16 3/8	12	24	21	10 1/2	2 1/4	1 7/16	540	605	200,000
B-225	R-225	3	17	3 1/2	2 3/4	5/8	9	16 7/8	13	25	22	11	2 1/4	1 7/16	590	665	225,000
B-250	R-250	3 1/2	18	3 1/2	2 3/4	3/4	10	17 5/8	13	26	23	11 1/2	2 1/2	1 11/16	695	775	250,000
B-275	R-275	3 1/2	19	3 1/2	3 1/4	3/4	12	18 3/8	14	27	24	12	2 3/4	1 11/16	800	945	275,000
B-300	R-300	3 1/2	20	3 1/2	3 1/4	3/4	12	19 1/8	14	28	25	12 1/2	3	1 11/16	895	1050	300,000

Weights given are for one rocker or bolster complete (including sheet lead, anchor bolts and washers).

TOP BEARING DETAIL

DOWEL DETAIL

DESIGN SPECIFICATIONS: This standard drawing conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated October 1, 1951, together with revisions thereof dated July 15, 1952, April 1, 1954 and February 1, 1955.

LIMITATION: This rocker and bolster design shall not be used where the anticipated movement is in excess of 2 inches.

REVISIONS

2-2-59

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

STANDARD

ROCKERS AND BOLSTERS

FOR STEEL BEAM AND GIRDER BRIDGES

REACTIONS 75,000 lb. TO 300,000 lb.

APPROVED: Richard D. Jett
DATE: 3-1-59 ENGINEER OF BRIDGES

PREPARED	TRACED	CHECKED	REVIEWED
MPB CFB JCM WHR	JVP	CEM BPH	CBD BFB CHA AJF DHO

DRAWING NUMBER: RB-1-55

ELEVATIONS OF FIXED BEARING

SEE TABLE FOR ADDITIONAL DIMENSIONS

	FIXED BEARING NO.	FIXED BEARINGS DIMENSIONS (INCHES) A	B	C	D	E	F	G	H	K	DIA.	WEIGHT EA. (LBS)	MAXIMUM LOAD (LBS)
①	F - 50	6	6	1 1/2	3	1 1/4	8	16	1 1/2	5 1/8	2	100	50,000
①	F - 100	7	9	1 3/4	4	1 1/2	9	18	1 1/2	5 5/8	2	143	100,000
	F - 150	9	9	2 1/2	5	1 1/2	11	20	2	6 7/8	2 1/2	244	150,000
	F - 200	10	10	3	6	2	11	22	2	7 7/8	2 1/2	300	200,000
	F - 250	11	10	3 1/2	7	2	12	24	2 1/2	8 7/8	3	400	250,000
	F - 300	12	11	3 3/4	8	2 1/2	14	25	2 1/2	9 5/8	3	502	300,000
②	F - 350	12	11	3 3/4	8	2 1/2	16	25	2 1/2	9 5/8	3	540	350,000
②	F - 400	12	12	3 3/4	8	2 1/2	18	26	2 1/2	9 5/8	3	610	400,000

① ONLY 2 ANCHOR RODS REQUIRED, PLACED IN DIAGONALLY OPPOSITE CORNERS OF THE MASONRY PLATE.

② BEARING STIFFENERS ARE REQUIRED ON BOTH SIDES OF THE BEAM OR GIRDER WEB ABOVE.

WEIGHTS GIVEN ARE FOR ONE COMPLETE BEARING, INCLUDING SHEET LEAD AND ANCHOR RODS.

BEARING PIN DETAIL

MASONRY PLATE DIMENSIONS SHOWN IN TABLE MAY BE USED PROVIDED CLIPPED CORNERS DO NOT REDUCE THE BEARING AREA OF THE PLATE BY MORE THAN 5%. BEARINGS WITH CLIPPED MASONRY PLATES SHALL BE IDENTIFIED ON THE PLANS WITH THE WORD "MODIFIED". THUS : "F - 300 MODIFIED"

PLAN VIEW OF TOP OF PIER

SHOWING MASONRY PLATE FOR BRIDGE ON SKEW

NOTES

DESIGN SPECIFICATIONS : THIS STANDARD DRAWING CONFORMS TO THE REQUIREMENTS OF "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 1977, INCLUDING THE 1978, 1979, 1980 AND 1981 INTERIMS TO THE ABOVE AND THE OHIO SUPPLEMENT TO THESE SPECIFICATIONS, EXCEPT THAT THE MASONRY PLATES FOR THE BEARINGS ARE DESIGNED ON THE BASIS OF AN ALLOWABLE BENDING STRESS OF 30,000 P.S.I. ASSUMING UNIFORM DISTRIBUTION OF BEARING ON THE CONCRETE.

STEEL PLATES : IF THE SUPERSTRUCTURE MEMBERS ARE A36 STEEL THE PLATES SHALL BE THE SAME MATERIAL AND SHALL BE PAINTED IN ACCORDANCE WITH THE SAME SPECIFICATIONS. IF THE SUPERSTRUCTURE MEMBERS ARE A588 STEEL, UNPAINTED, THE PLATE ELEMENT ABOVE THE BEARING PIN SHALL ALSO BE A588 STEEL. THE PLATE ELEMENTS BELOW THE BEARING PIN MAY BE EITHER A36, GALVANIZED BEFORE WELDING, OR A588 UNPAINTED, BUT BOTH PLATES SHALL BE OF THE SAME MATERIAL.

BEARING PINS : IF THE SUPERSTRUCTURE MEMBERS ARE A36 STEEL THE PINS SHALL BE MADE FROM STOCK MEETING THE REQUIREMENTS OF 711.04 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS, AND SHALL BE PAINTED IN ACCORDANCE WITH THE SAME SPECIFICATIONS AS THOSE FOR PAINTING THE SUPERSTRUCTURE MEMBERS. IF THE SUPERSTRUCTURE MEMBERS ARE A588 STEEL AND THE BOTTOM PLATES ARE A36, GALVANIZED, THE PINS SHALL BE AS ABOVE, GALVANIZED INSTEAD OF PAINTED. IF THE BOTTOM PLATES ARE A588 THE PINS SHALL ALSO BE A588. BEARING PINS MAY BE FABRICATED FROM ONE PIECE OF STOCK OR FROM ROD STOCK AND PLATES, WELDED AS SHOWN ON THESE DETAILS.

SURFACE FINISH : SURFACE FINISHES SHOWN ON THESE DETAILS SHALL BE MINIMUM BEFORE GALVANIZING. A 500 FINISH OR SMOOTHER SHALL BE USED WHERE NOT OTHERWISE NOTED.

ROADWAY GRADE : IF THE ROADWAY GRADE EXCEEDS 2% THE UPPER LOAD PLATE OF THE BEARING SHALL BE BEVELED TO MATCH THE GRADE. DIMENSION C SHALL BE MAINTAINED AT THE CENTER OF THE PLATE.

LATERAL EXPANSION : ALL BEARINGS MUST BE ACCURATELY PLACED SO THAT PROPER CLEARANCE WILL BE PROVIDED AT ALL BEARINGS FOR LATERAL EXPANSION OF THE SUPERSTRUCTURE. IF THE SUPERSTRUCTURE EXCEEDS 60' IN WIDTH THE 1/8" CLEARANCE SHOWN AT EACH END OF THE BEARING PIN SHALL BE INCREASED. A CLEARANCE OF 1/4" AT EACH END WILL BE ADEQUATE FOR A SUPERSTRUCTURE WIDTH UP TO 120'.

BEARING ANCHOR RODS : AT THE OPTION OF THE CONTRACTOR, THE BEARING ANCHOR RODS (OR FORMED HOLES), LOCATED AND SUPPORTED BY TEMPLATES, MAY BE CAST IN PLACE.

BRIDGE SEAT REINFORCING : PROJECT PLAN SHALL INCLUDE A PLAN VIEW OF THE SEAT AREA FOR THE FIXED BEARING SHOWING THE OUTLINE OF THE MASONRY PLATE, THE ANCHOR RODS AND THE MAIN REINFORCING BARS IN THE TOP OF THE BRIDGE SEAT. ADEQUATE DIMENSIONS SHALL BE PROVIDED TO ENSURE THAT THERE WILL BE NO INTERFERENCE BETWEEN THE ANCHOR RODS AND THE RE-BARS, AND THAT THE SEAT AREA WILL ACCOMODATE THE BEARING.

REVISIONS	STATE OF OHIO DEPARTMENT OF TRANSPORTATION DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES				
	STANDARD				
	FIXED BEARINGS FOR STEEL BEAM AND GIRDER BRIDGES				
	APPROVED : DATE : 5-10-82 Robert B. Chaffee ENGINEER OF BRIDGES				DRAWING NO. FB-1-82
	PREPARED DWI BFG	TRACED REF	CHECKED FFE	REVIEWED WJJ	