OHIO | FHWA REGION 5 | 1/91

IR-271-6(65) 229 | FEDERAL PROJECT

SUM-271-0.82

MICROFILM

DESIGN DESIGNATION

CURRENT A.D.T. (1985) = 16,445
DESIGN YEAR (2005) = 23,023
DHV = 2,763
D = 50%
T = 14%
V = 70 M.P.H.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
SUM-271-0.82
VILLAGE OF RICHFIELD
RICHFIELD, BOSTON AND NORTHFIELD CENTER TOWNSHIP
SUMMIT COUNTY

CONVENTIONAL SIGNS

County Line
Township Line
Section Line
Corporation Line
Fence Line (existing) (proposed)
Center Line 352 353
Trees, Stumps, (to be removed)
Utility Poles: Telephone, Power, Light.

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

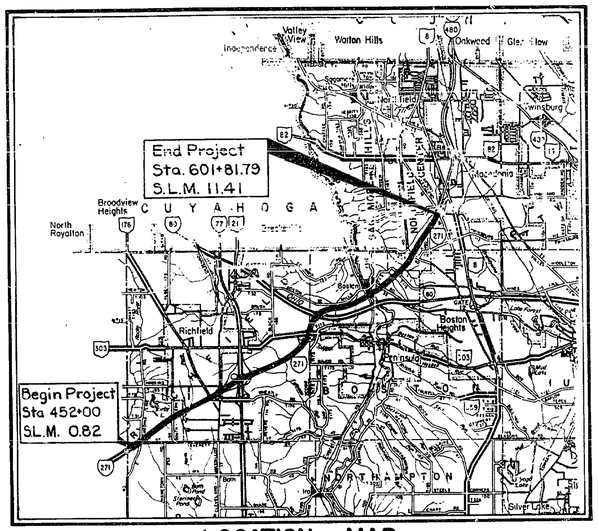
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Sheet Numbers Not Used In Plan:	27, 18

LINE DATA

BEGIN PROJECT:
Sta. 452+00 To 564+70.52 Back = 11,279.82 Lin. Ft.
Sta Equ 56 + 9. Back = Sta. 154+70 Ahd.
Sta. 154+70 To 522+16.12 S.B. = 36,746.12 Lin. Ft.
Sta Equ 522+16.12 S.B. To 522+23.23 ℄
Sta 522+23.23 To 601+81.79 = 7,958.56 Lin. Ft.
LENGTH OF PROJECT = 55,984.50 Lin. Ft.
Or 10.603 Miles

ADD FOR WORK
C.R. 17
Sta. 51+20 To Sta. 71+30 = 2,010.00 Lin. Ft.
S.R. 303
Sta. 128+50 To 142+42.35 Back = 1,392.35 Lin. Ft.
Sta 142+42.35 Back = 42+41.28 Ahead
Sta. 42+41.28 To Sta. 63+05 = 2,063.72 Lin. Ft.
LENGTH OF WORK = 61,450.57 Lin. Ft.
Or 11.638 Miles



LOCATION MAP

SCALE IN MILES 0 1 2 3 4 5 6 7 8

Portion to be improved
State & Federal Routes
Other Roads

SCALES

Plan 0 50 100 200
Profile: Horizontal, Vertical
Cross Section: Horizontal 0 5 10 20, Vertical 0 5 10 20

UNDERGROUND UTILITIES

48 HOURS
BEFORE YOU DIG
Call—800-362-2764 (Toll free)
OHIO UTILITIES PROTECTION SERVICE

NON-MEMBERS
MUST BE CALLED DIRECTLY

LIMITED ACCESS

This improvement is especially designed for through traffic and has been declared a limited access highway or freeway by action of the Director in accordance with the provisions of Section 5511.02 of the Revised Code of Ohio.

1985 SPECIFICATIONS

The standard specifications of the State of Ohio, Department of Transportation, including changes and supplemental specifications listed in the proposal shall govern this improvement.

I hereby approve these plans and declare that the making of this improvement will not require the closing to traffic of the highway and that provisions for the maintenance and safety of traffic will be as set forth on the Plans and Estimates.

Approved Francis J. Slivka
Date 2-27-85 District Deputy Director of Transportation

SUPPLEMENTAL SPECIFICATIONS			
824	10-8-82	932	3-25-85
847	10-17-83	846	10-3-85
845	1-13-84		
947	10-17-83		
903	1-1-69		
921	12-4-72		
924	9-23-74		
953	8-21-80		
848	10-2-85		

Approved Walter J. Jastrzab
Date 9-27-85 Engineer, Bureau of Bridges and Structural Design

Approved
Date Chief Engineer, Planning and Design

Approved
Date Director, Department of Transportation

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS									
TC-12.30	1-20-84	TC-42.10	8-19-77	GR-1	1-11-85	F-1	11-10-83	HW-4A	4-1-80
TC-21.20	1-20-84	TC-42.20	3-26-79	GR-2B	2-5-82	F-2	5-1-76	HW-4B	4-1-80
TC-22.10	3-1-79	TC-51.10	1-20-84	GR-3	1-21-85	F-5	5-1-76	MC-9	1-30-84
TC-22.20	3-1-79	TC-51.11	1-20-84	GR-3A	2-5-82	F-6	5-1-76	BR-1-65	2-1-75
		TC-52.10	4-3-79	GR-3B	1-21-85	HL-15	12-28-84	BR-1-	5-29-79
TC-31.21	3-6-79	TC-52.20	4-3-79	GR-4	2-5-82	HL-16	12-28-84		
TC-32.10	3-8-79	TC-61.10	4-5-82	GR-4A	1-30-84	MC-4	7-26-76		
TC-32.11	3-21-79	TC-71.10	4-9-79	GR-5	2-5-82	MC-9A	1-11-85		
TC-35.10	8-29-84	TC-72.20	2-26-82	GR-6	2-5-82	MC-11	8-1-78		
TC-41.10	8-29-84	TC-81.10	1-20-84	BP-2	1-11-85				
TC-41.20	3-26-79	TC-83.10	1-20-84	BP-4	1-11-85				
TC-41.40	6-18-79	TC-83.20	1-20-84	BP-5	1-11-85				
TC-41.50	3-26-79			BP-11	1-30-84				

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ADMINISTRATOR DATE

Project: SUM-271-0.82
Date of Letting 19, Contract No.

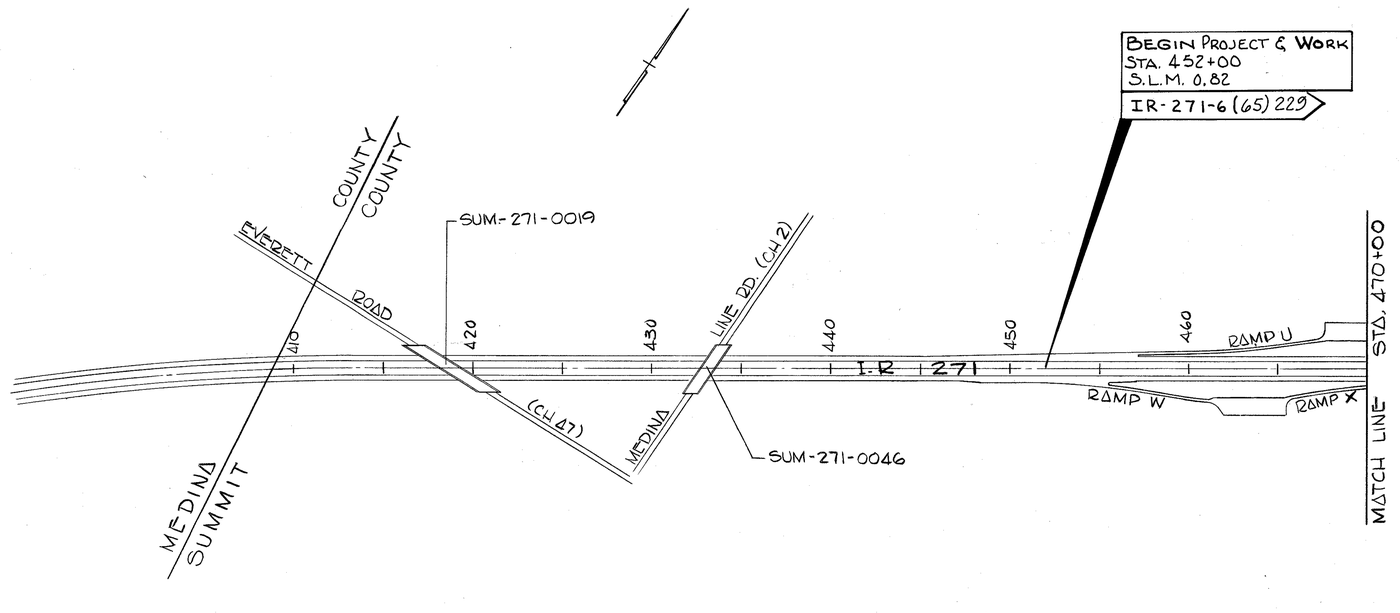
LD0300 Rev. 1-1-81

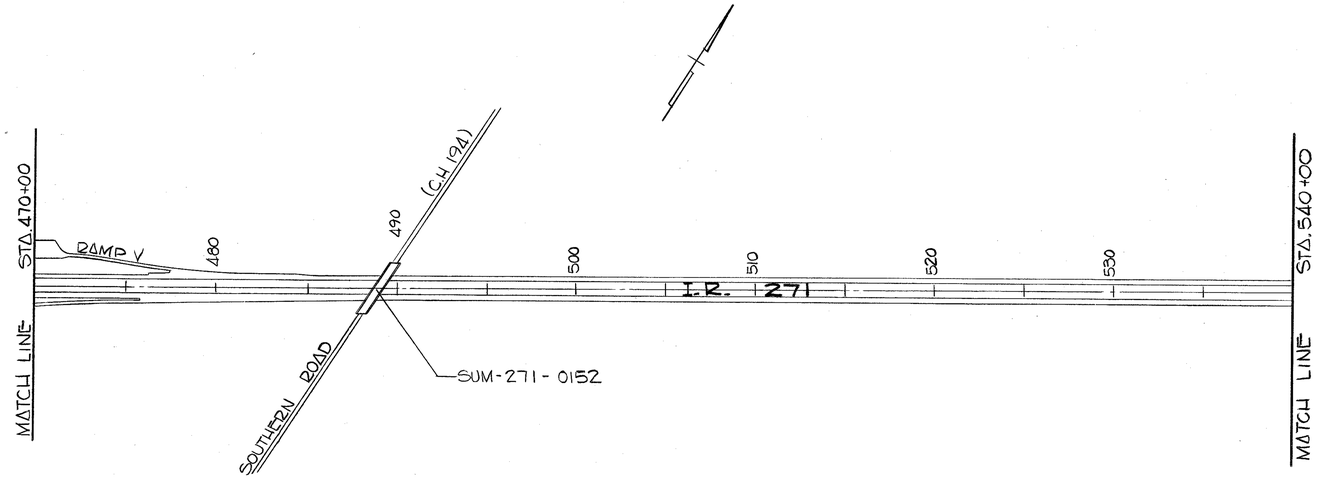
Rev. 8-26-86

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

2
91

SUM-271-0.82





SCALE IN FEET
500 250 100 0 400

33770

SCHEMATIC PLAN

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

3
91

SUM-271-0.82

BEGIN SHEET STA. 540+00

SUM-I-271-0276

BROADVIEW ROAD

S.R. 176

550

560

RAMP A

STA. 564+79.82 BK. = STA. EQ.
STA. 154+70 AHD.

(CH 17)

END WORK
STA. 71+30

160

RICHFIELD VILLAGE
RICHFIELD TOWNSHIP

170

180

RAMP A

RAMP D

I.R. 77

SUM-I-271-0358 L&R

I.R. 271

SUM-I-271-0378 L&R

200

RAMP B

RAMP C

RAMP B

SUM-I-271-0295

BROOKSVILLE ROAD

END WORK
STA. 51+20

SUM-I-271-0354

210

220

230

MATCH LINE STA. 240+00

MATCH LINE STA. 240+00

250

260

270

280

290

300

RAMP F

RAMP G

RAMP H

RAMP F

S.R. [illegible]

310

320

330

340

350

BEGIN WORK
STA 128+50

STA. 142+42.35 BK. SR. 303 = STA. EQ.
STA. 42+41.28 AHD. S.R. 303

SUM-I-271-0602

OHIO TURNPIKE

SUM-I-271-0658 L&R

SUM-I-271-0656

MATCH LINE STA. 360+00

END WORK
STA. 63+05

SCALE IN FEET
400 200 0 500

SCHEMATIC PLAN

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

4/91

SUM-271-0.82

MATCH LINE STA. 360+00

370

380

390

400

410

420

I.R. 271

ROAD (CH 9)

B & O R.R.

SUM I-271-0802 L&R

RIVER

CANAL

430

440

(CH 32)

450

SUM I-271-0834 L&R

097

017

MATCH LINE STA. 480+00

RIVERVIEW

CUYAHOGA

OHIO

BOSTON MILLS RD.

MATCH LINE STA. 480+00 (T2 115)

SUM-I-271-0914

490

500

BRANDYWINE ROAD

SUM-I-271-0966

STA. 522+30.34 WB
STA. 522+23.23 ℄

520

530

540

550

560

I.R. 271

015

080

085

ROAD (CH 16)

SUM-I-271-1122 L&R

MATCH LINE STA. 600+00

LINES HILL ROAD

(CH 40)

SUM-I-271-1117 L&R

AKRON CLEVELAND

BRANDYWINE CREEK

STA. 522+14.12 E.B.
STA. 522+23.23 ℄

STA. E.B.

NORTHFIELD CENTER TOWNSHIP

STA. 609+81.79 (BK) =
STA. 32+00 (AH)

MATCH LINE STA. 600+00

I.R. 271

40

RAMP R-4

RAMP R-1

S.R. 8

50

RAMP R-3

60

RAMP R-2

END PROJECT & WORK
STA. 601+81.79

IR-271-6 (65) 229

SUM-I-271-1186 L&R

MACEDONIA CITY CORP. LIMIT

SCALE IN FEET
400 200 0 500

23779

SCHEMATIC PLAN

TYPICAL SECTIONS

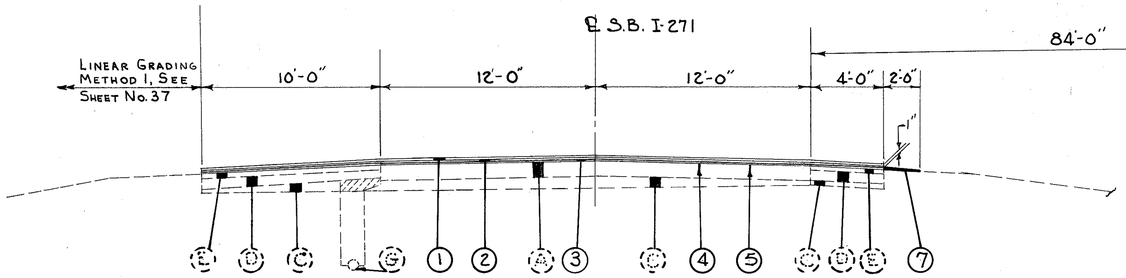
TYPE-SPECIAL RUBBERIZED OPEN GRADED ON 404

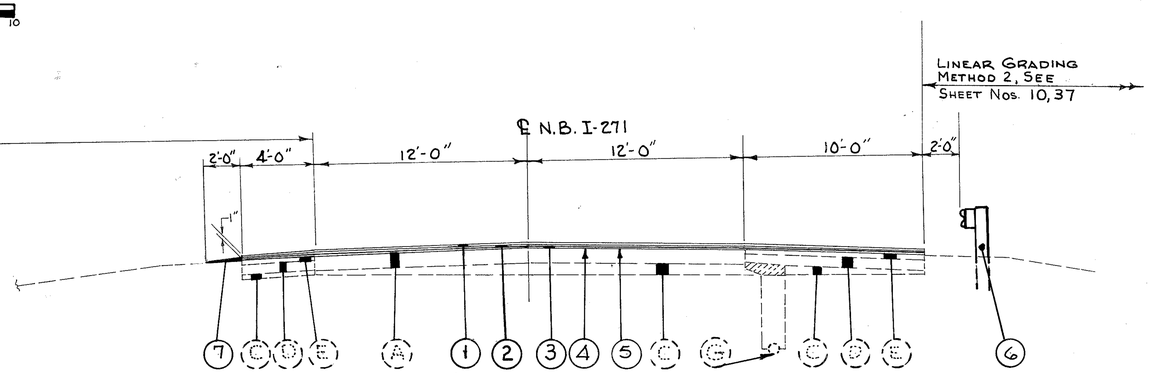
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

5/91

SUM-271-0.82

SCALE IN FEET 0 5 10



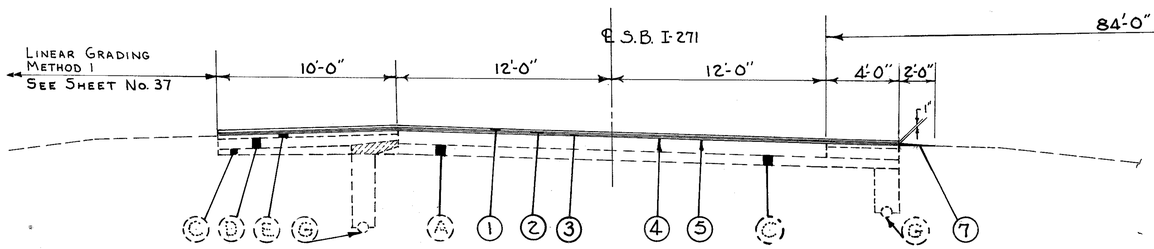


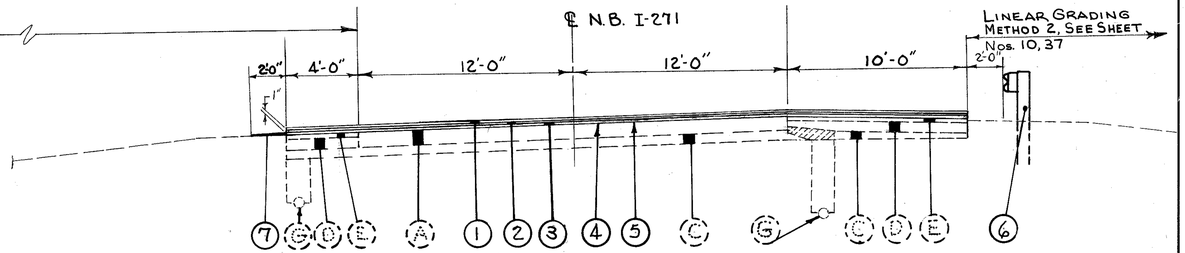
NORMAL SECTION

STATION FROM	STATION TO	DISTANCE LIN. FT.	REMARKS
452+00	564+79.82	11,279.82	
564+79.82 BK =	154+70 AHD.		STA. EQUATION
154+70	185+17.21	3,047.21	
204+96.03	221+33.38	1,637.35	
233+35.65	265+65.18	3229.49	
302+67.28	336+02.38	3335.10	
362+64.05	376+10.96	1346.91	
418+53.21	421+49.75	296.54	
421+49.75	421+97.75		LT. ONLY
421+45.75	436+07.25		RT. STRUCTURE

STATION FROM	STATION TO	DISTANCE LIN. FT.	REMARKS
421+97.75	436+38.25		LT. STRUCTURE
436+07.25	436+98.25	91.00	RT. ONLY
436+38.25	449+28.78	1235.53	
449+33.78	449+47.62	13.84	RT. ONLY
449+33.78	451+24.24		LT. STRUCTURE
449+47.62	451+10.16		RT. STRUCTURE
451+10.16	451+24.24	14.08	RT. ONLY
451+24.24	451+50.61	26.37	
469+47.88	507+43.10	3795.22	
507+43.10	508+11.64	68.54	RT. ONLY

STATION FROM	STATION TO	DISTANCE LIN. FT.	REMARKS
521+47.48	522+30.34		LT. ONLY
522+30.34 WB =	522+23.23 ℄		STA. EQUATION
522+16.12 EB =	522+23.23 ℄		STA. EQUATION
522+23.23	536+20.79	1397.56	
556+68.95	588+34.02	3165.07	
588+34.02	589+69.18		STRUCTURE
589+69.18	590+98.18	129.00	
590+98.18	592+58.82		STRUCTURE
592+58.82	601+81.79	92297	
	TOTAL	35031.55	





SUPERELEVATED SECTION

STATION FROM	STATION TO	DISTANCE LIN. FT.	REMARKS
185+17.21	187+36.11	218.90	
187+36.11	190+84.72		STRUCTURE
190+84.72	198+39.17	754.45	
198+39.17	199+67.21		STRUCTURE
199+67.21	204+96.03	528.82	
221+33.38	233+35.69	1202.36	
265+65.18	302+67.28	3702.20	
336+02.38	346+13.02	1010.64	
346+13.02	346+15.94	2.92	RT. ONLY
346+13.02	348+47.14		LT. STRUCTURE
346+15.94	348+30.81		RT. STRUCTURE

STATION FROM	STATION TO	DISTANCE LIN. FT.	REMARKS
348+30.81	348+47.14		LT. ONLY
348+47.14	362+64.05	1416.91	
376+10.96	418+53.21	4242.25	
451+50.61	469+47.88	1797.27	
507+43.10	508+11.64		LT. ONLY
508+11.64	521+47.48	1335.84	
521+47.48	522+16.12	68.54	RT. ONLY
536+20.79	556+68.95	2048.16	
	TOTAL	18,329.26	

LEGEND

1. SPECIAL 3/4" OPEN GRADED ASPHALT FRICTION COURSE, RUBBERIZED
2. 846 1¼" ASPHALT CONCRETE *Surface Course, Type 1, AC-20*
3. 846 1½" ASPHALT CONCRETE *Intermediate Course, Type 2, AC-20 (See Proposal Note)*
4. 848 0" MIN. ASPHALT CONCRETE *Intermediate Course, Type 1, AC-20, Leveling Course*
5. 407 TACK COAT USING SS924 @ 0.1 GAL./SQ.YD. & COVER AGGREGATE
6. 605 GUARDRAIL, TYPE 5
7. 617 COMPACTED AGGREGATE
- EXIST. 10" REINFORCED PORTLAND CEMENT CONCRETE PAVEMENT
- EXIST. 9" REINFORCED PORTLAND CEMENT
- EXIST. SUBBASE
- EXIST. AGGREGATE BASE
- EXIST. BITUMINOUS AGGREGATE BASE
- EXIST. BITUMINOUS SURFACE TREATMENT
- EXIST. UNDERDRAIN

TYPICAL SECTIONS

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

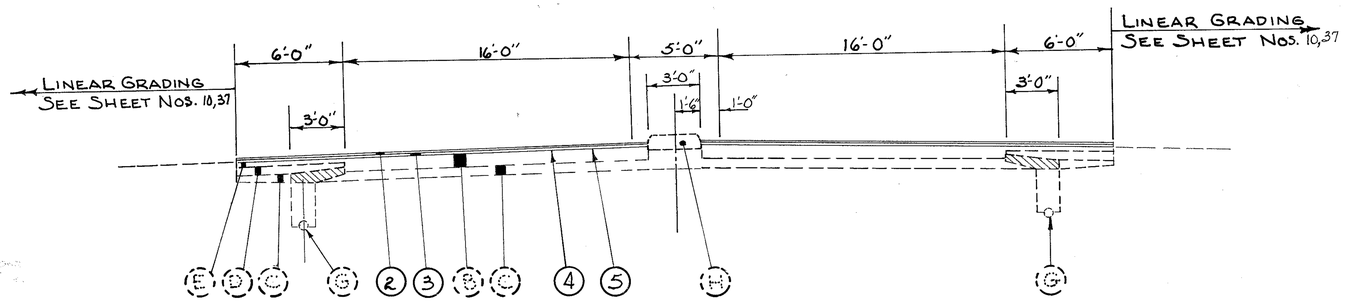
SUM-271-0.82

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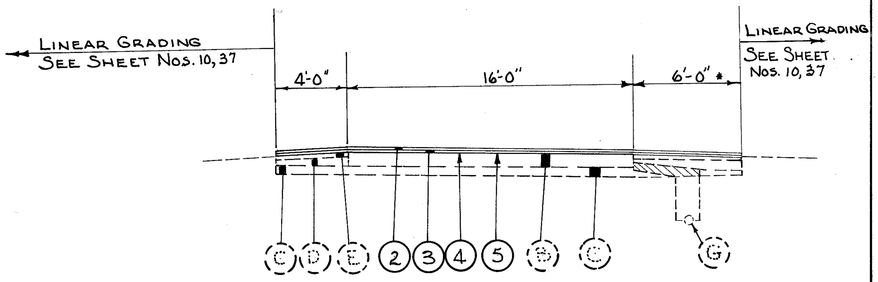
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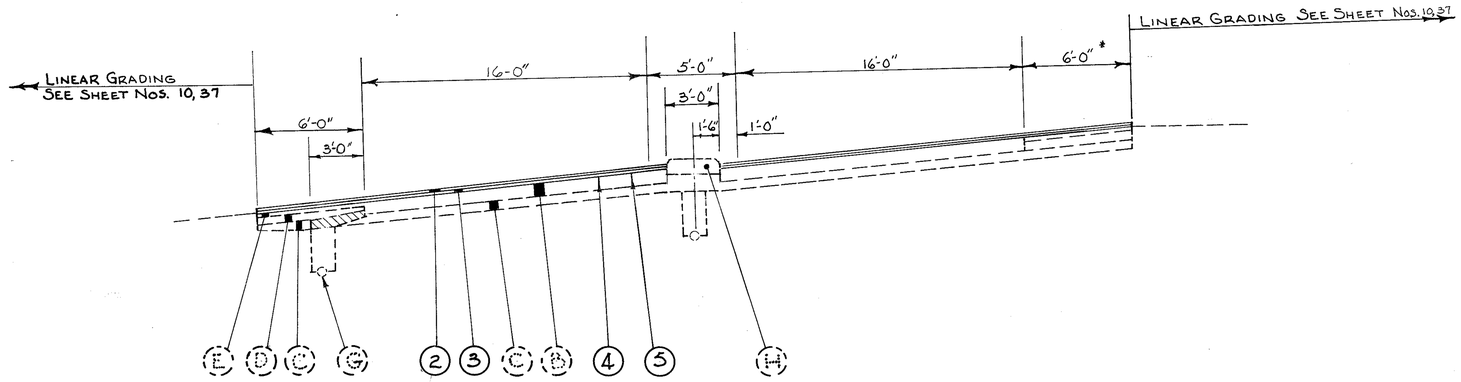
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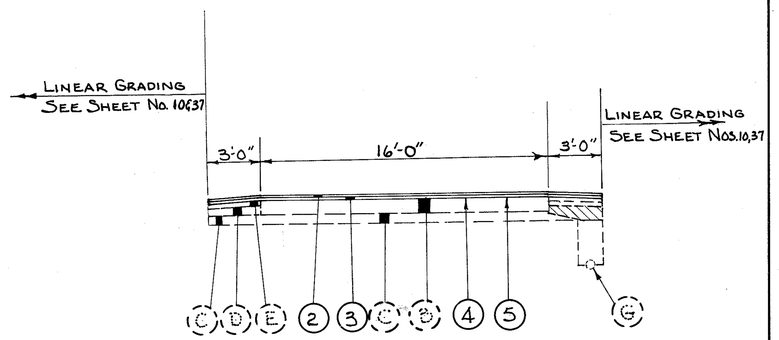
S.R. 303 INTERCHANGE RAMPS "E", "F", "G" AND "H"



I-77 INTERCHANGE RAMPS "A" & "B"



S.R. 303 INTERCHANGE RAMPS "E*", "F", "G*" AND "H"



REST AREA RAMP "U", "V", "X" AND "W"
C.H. 17 INTERCHANGE RAMP "A" AND "B"
I-77 INTERCHANGE RAMP "C" AND "D"
S.R. 303 INTERCHANGE RAMP "E*" AND "F", "G*" AND "H"

* NOTE: SEE SHEET No. 7,60 FOR WIDENING DETAILS @ RAMPS "G" AND "E", S.R. 303 INTERCHANGE
See Sheet 12 For Additional Paving
At Rest Area Ramps
SEE SHEET No. 5 FOR LEGEND

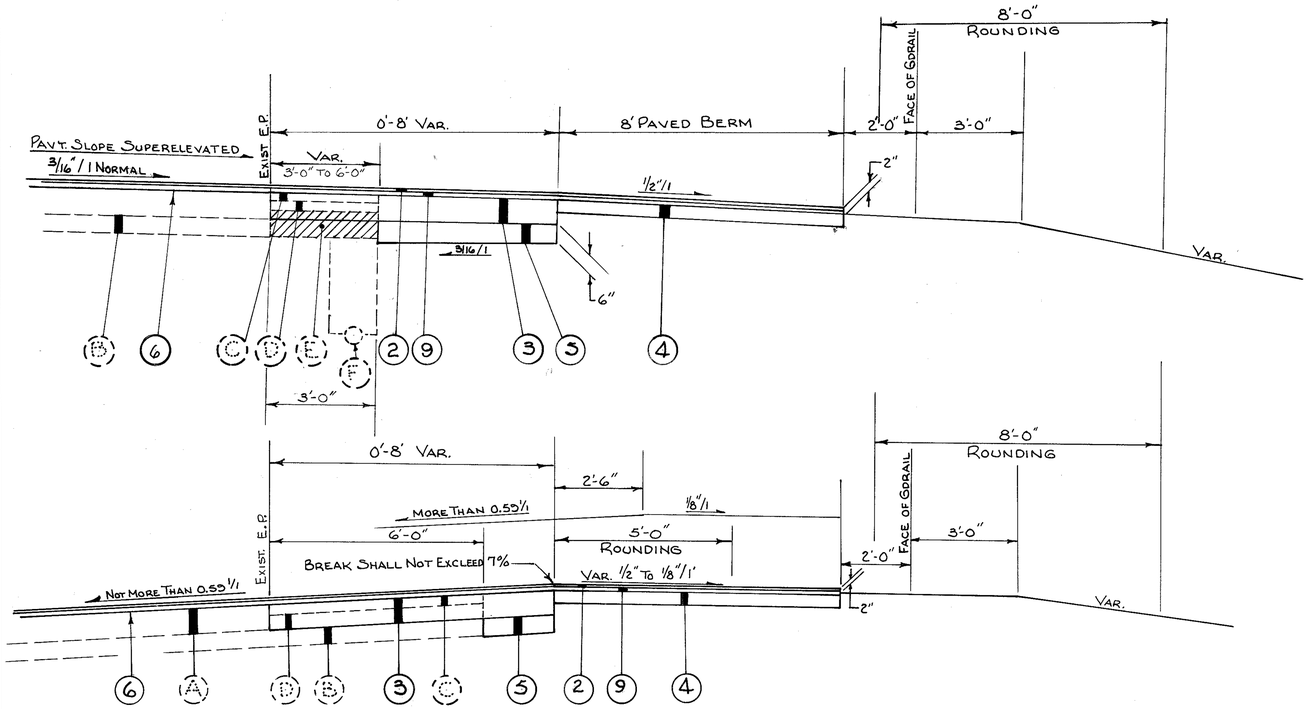
33720

TYPICAL SECTIONS
RAMP WIDENING
TYPE-404 ON 402

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

SUM-271-0.82

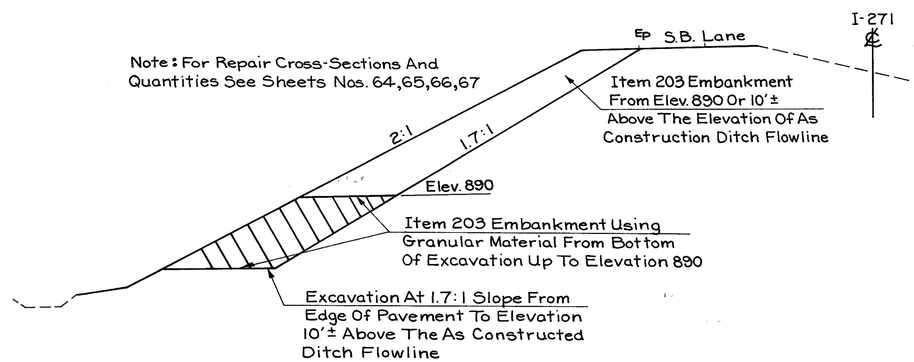
7/91



NOTE: FOR LIMITING STATIONS SEE SHEET NOS. 53, 57.

LEGEND

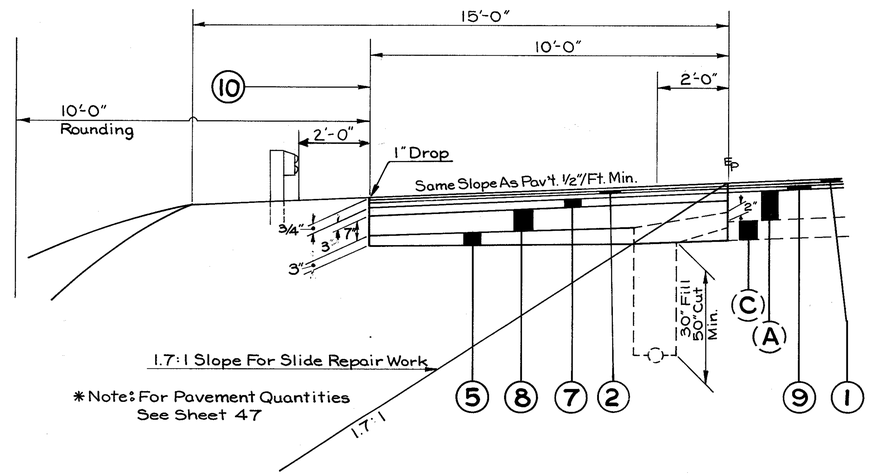
1		SPECIAL 3/4" OPEN GRADED ASPHALT FRICTION COURSE, RUBBERIZED
3	2	848 1 3/4" ASPHALT CONCRETE *Surface Course, Type 1, AC-20*
5	4	305 9" CONCRETE BASE
	6	301 4" BITUMINOUS AGGREGATE BASE: AC-20; RT-11 OR RT-12
A	B	310 VARIABLE DEPTH SUBBASE TYPE 1, GRADING A
C	D	407 TACK COAT USING SS-924 @ 0.1 GAL/S.Y. & COVER AGGREGATE
E	F	* EXISTING REINFORCED CONCRETE PAVEMENT
* 7	8	EXISTING SUBBASE
9		EXISTING BITUMINOUS AGGREGATE BASE
	10	EXISTING AGGREGATE BASE
		EXISTING NO.8 AGGREGATE DRAINAGE CONNECTION
		EXISTING UNDERDRAIN
		301 3" Bituminous Aggregate Base: AC-20; or RT-11 or RT-12
		304 (Variable Depth) Aggregate Base
		848 1 1/2" Asphalt Concrete *Intermediate Course, Type 2, AC-20*
		659 Seeding And Mulching *(See General Note)*



LIMITING STATIONS
SOUTHBOUND LANE
STA. 374+00 TO STA. 381+00

SLIDE REPAIR

(For additional information see note on Sht. No. 8.)



LIMITING STATIONS
SOUTHBOUND LANE
STA. 374+00 TO STA. 381+00

BERM REPLACEMENT

GENERAL NOTES

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

8
91

SUM-271-0.82

ITEM 403 ASPHALT CONCRETE

An Estimated Quantity Of 1200 C.Y. Shall Be Carried To The General Summary For Use As Directed By The Engineer As A Leveling Course In Areas Where A Profile Correction Is Needed.

PROJECT STATIONING

The Existing Station Numbers, Which May Be Found On The Right Edge Of The Pavement As Described In Sec. 451.09 Will Be Used As Stationing For This Project.

ITEM 404 BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC

A Quantity Of 1000 Cu. Yds. Of 404 Bituminous Concrete For Maintaining The Existing Pavement Prior To Resurfacing As Directed By The Engineer.

PARTIAL DEPTH PAVEMENT JOINT REPAIR

Before Work On This Item Begins, The Project Engineer Shall Mark With Paint The Areas For Removal And Replacement.

See Note In Proposal For Item Specifications.

An Estimated Quantity Of 500 Sq. Yds. Of Partial Depth Pavement Repair Shall Be Provided For Use As Directed By The Engineer. The Depth Of Pavement Removal Shall Be Variable But Not More Than 2 ins.

ITEM SPECIAL PAVEMENT SAWING

A Quantity Of 750 Lin. Ft. Special Pavement Sawing Shall Be Provided For Use As Directed By The Engineer.

UNDERCUTTING SUBGRADE AND SUBBASE

In Pavement Replacement Areas, Where Directed By The Engineer, The Contractor Shall Undercut The Subgrade And Subbase To The Depth Required By The Engineer And Backfill With Item 310. Broken Pavement May Be Used For Compacted Backfill As Directed By The Engineer.

Aggregate Drains Shall Be Placed At Each Undercut Area.

The Following Quantities Have Been Carried To The General Summary For Use With This Item

ITEM 203 EXCAVATION_____ 25 Cu. Yds.
ITEM 310 SUBBASE_____ 25 Cu. Yds.
ITEM 605 AGGREGATE DRAINS_____ 100 Lin. Ft.

GUARDRAIL REPLACEMENT

No Hazard Shall Be Left Unprotected Except For The Actual Time Necessary To Remove, Grade And Reinstall Guardrail In A Continuous Operation. The Removal Of All Guardrail Shall At All Times Be As Directed By The Engineer. No Guardrail Shall Be Removed Until The Replacement Material Is On The Site, Ready For Installation. Failure To Comply With This Requirement Shall Be Deemed Sufficient Cause To Order Work Suspended On This Project Until Such Time That The Engineer Is Assured Of Said Compliance.

STORAGE OF MATERIALS-(EQUIPMENT-VEHICLES)

The Contractor's Materials Shall Be Stored In A Staging Area Off The Right Of Way. All Private Vehicles Shall Be Parked In The Staging Area And Workman Provided Transportation To Worksites. Temporary Storage Of Equipment And Materials May Be Approved By The Project Engineer If It Is Behind Guardrail.

ITEM SPECIAL FULL DEPTH RIGID PAVEMENT REMOVAL AND FLEXIBLE REPLACEMENT

A Quantity Of 600 Sq. Yds. For Item Special Full Depth Rigid Removal And Flexible Replacement Shall Be Provided For Use As Directed By The Engineer. The Areas Are To Be Removed In Accordance With Item 202 Of The Specifications And Shall Be Outlined By Sawing Full Depth. All Work Shall Be Performed In Accordance With The Proposal Note.

CONTINGENCY QUANTITIES

The Contractor Shall Not Order Materials Or Perform Work For Plan Items Set Up 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.

FENCE TYPE 47, AS PER PLAN AND FENCE TYPE CL, AS PER PLAN

Fence Lines And Locations Shown On The Plan Are Only Approximate And May Be Adjusted By The Engineer For Actual Ground Conditions. Final Payment For Fence Type 47, As Per Plan And Fence Type CL, As Per Plan, Shall Be The Actual Linear Feet Of Fence, Complete In Place. No Intermediate Anchor Posts Or Corner Post Assemblies Are Shown On The Plan Sheets, But It Is Not Intended That The Requirements Of 607.05(b) Shall Be Waived. Fence Terminals At Culvert Ends Shall Be As Per Standard Drawing F-5 Or As Directed By The Engineer. Additional Stream Crossings Shall Be Provided Where Requested By The Engineer.

This Item Of Work Shall Also Include All Work Necessary To Repair Damaged Fence And Barbed Wire At Stream Crossings. This Work Shall Be Performed In Accordance With The Details On Standard Construction Drawing F-6 Or As Directed By The Engineer.

It Is Intended That When Rebuilding Type 47 Or Type CL Fence That The Contractor Will Re-use, In Lieu Of New Fence, Existing Fence If In Satisfactory Condition, As Determined By The Engineer.

Payment For All Of The Above Shall Be At The Unit Price Bid For Fence Type 47, As Per Plan And Fence Type CL, As Per Plan.

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.

ITEM SPECIAL CRACK SEALING, HOT APPLIED DESCRIPTION

This Work Shall Consist Of The Preparation And Sealing Of Pavement Joints And/Or Cracks With A Hot-Poured Asphalt Sealant Material In Accordance With These Specifications. All Work Will Be At The Direction Of The Engineer.

Cracks And Joints With A Width Of 1/4 To 3/4 Inch Shall Be Cleaned And Filled, And This May Include Centerline And Pavement Widening Cracks. It Is Intended That The Cracks Within This Range Be Determined By The Cleaning Operator By Visual Observation, Subject To Confirmation By The Engineer As The Work Progresses.

MATERIAL

The Sealant Shall Be Either Hot-Poured Elastic Type Material Or A Mixture Of Ground Tire Rubber And Asphalt. Material Shall Meet The Requirement Of 705.01 And The Asphalt-Compatability Requirements Of ATM D 3405.

EQUIPMENT

Equipment Used In The Performance Of The Work Shall Be Subject To The Approval Of The Engineer And To The Requirements Of 108.05.

The Sealant Shall Be Heated In A Kettle Or Melter Constructed As A Double Boiler, With The Space Between The Inner And Out Shells Filled With Oil Or Other Heat Transfer Fluid. Positive Temperature Control, Mechanical Agitation, And Recirculating Pumps Shall Be Provided. Direct Heating Shall Not Be Used.

The Sealant Shall Be Applied With A Mechanical Applicator Capable Of Continuously Feeding The Sealant Through Nozzles Shaped To Penetrate The Joint Or Crack.

Air Compressors Shall Be Portable And Capable Of Furnishing Not Less Than 100 PSI Air Pressure At The Nozzle. The Compressor Shall Be Equipped With Traps That Will Maintain The Compressed Air Free Of Oil And Water.

PREPARATION

The Engineer Shall Designate The Location Of The Joints And/Or Cracks To Be Sealed. Prior To The Application Of The Hot Asphalt Sealant, joints And Cracks Shall Be Thoroughly Cleaned By An Approved Method Or Methods To Remove Dust, Dirt, Moisture And Foreign Material That Will Prevent Bonding Of The Sealant. These Areas Shall Be Kept Clean Until All Sealing Operations Are Completed.

APPLICATION OF SEALANT

The Temperature Of The Sealant In The Field Application Shall Not Exceed The Safe Heating Temperature Recommended By The Manufacturer Or Temperatures Listed In 702.00, Unless Otherwise Approved By The Engineer.

No Sealant Shall Be Applied Where Frost, Snow, Ice Or Free Water Is Present.

Sealant On The Roadway Surface In Excess Of 2 Inches On Each Side Of The Crack Will Not Be Acceptable. A Narrow "V" Shaped Squeegee Or Approved Hand Tool Shall Be Used To Prevent Excessive Use Of The Sealant.

Joints And Cracks Shall Be Filled With Sealant From The Bottom Up To Approximately Flush With The Pavement Surface (± 1/8 In.). This May Require More Than One Application. Traffic Shall Not Be Allowed On The Sealant Until It Has Cured Or A Method Which Has Been Approved By The Engineer Is Used To Prevent Tracking.

METHOD OF MEASUREMENT

The Quantities Will Be The Number Of Pounds Of Asphalt Sealant In Place, Completed And Accepted. Quantities For Blended Rubber-Asphalt Mixtures Shall Be The Combined Weights Of The Asphalt Cement (Or Residual Asphalt) And The Ground Tire Rubber.

BASIS OF PAYMENT

Payment For This Work Will Be Made At The Contract Unit Price Per Pound For Crack Sealing, Hot Applied, Which Price Shall Include Preparation And Sealing Of Joints And/Or Cracks In The Existing Pavement, Complete In Place, And All Materials, Equipment, Tools And Labor Incidental There To.

ITEM	UNIT	DESCRIPTION
Special	156,000 Pounds	Crack Sealing, Hot Applied, 705.01

Estimated Quantity To General Summary

SLIDE REPAIR

The contractor shall limit slide repair construction to the period of July 1, 1986 through Sept. 30, 1986 and work 24 hour days while the excavation is open. For additional information see detail on Sht. No. 7.

GENERAL NOTES

F.H.W.A. REGION	STATE	PROJECT	
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ITEM 202- RAISED PAVEMENT MARKERS REMOVED FOR STORAGE

ITEM 202- RAISED PAVEMENT MARKERS REMOVED FOR STORAGE 2660 EACH

ITEM SPECIAL PRESSURE RELIEF JOINT TYPE C

An Estimated Quantity Of 1800 Lin. Ft. Of Item Special Pressure Relief Joint Type C Shall Be Provided For Use As Directed By The Engineer To Provide Pressure Relief Joints As Shown In Standard Drawing BP-11 At Structures And Otherwise Spaced At Approximately 2000 Ft. Intervals Throughout The Project Limits. An Estimated Quantity Of 2100 Lin. Ft. Of Aggregate Drains Shall Be Provided For Use At The Pressure Relief Joint Areas.

UTILITY OWNERSHIP

The Following Utilities And Owners Are Located Within The Work Limits Of This Project:

1. Western Reserve Telephone Co.
   245 North Main St.
   Hudson, Ohio 44236
   Attn: Mr. Dennis Giesey, Const. & Engr. Mgr.
   Ph. 650-8000
2. The East Ohio Gas Co.
   Gas Supply Operation
   7015 Freedom St. NW.
   North Canton, Ohio 44720
   Attn: Mr. Ron Revlock, Supv. Of Engr. & Const.
   Ph. 497-5132
3. American Telephone & Telegraph
   300 So. Riverside Plaza, Rm. 223
   Chicago, Ill 60606
   Attn: Mr. L.O. Givens, Distr. Engr.
   Ph. 559-7810
4. The East Ohio Gas Co.
   1201 East 55th St.
   Cleveland, Ohio 44103
   Attn: Mr. R.N. Jender, Supv. Of Plan.
   Ph. 432-6803
5. City Of Akron, Bureau Of Water
   Public Utilities Bureau
   65 S. High St.
   Akron, Ohio 44308
   Attn: Mr. James L. Six, Utilities Engr.
   Ph. 375-2690
6. The East Ohio Gas Co.
   2100 Eastwood Ave.
   Akron, Ohio 44305
   Attn: Mr. Leeland Jourden, Div. Engr.
   Ph. 798-7140
7. City Of Cleveland
   Department Of Water
   1201 Lakeside Ave.
   Cleveland, Ohio 44114
   Attn: Mr. W.J. Sweeney, Consult. Engr.
   Ph. 664-3351
8. Mr. Fred Merchant, Adm.
   Sewer Design, Const. Div.
   Summit County Dept. Of Env. Services
   19 N. High St.
   Akron, Ohio 44308
   Ph. 379-2477
9. Ohio Edison Co.
   76 So. Main St.
   Akron, Ohio 44308
   Attn: Mr. A.B. Magazeni, Trans. Engr.

   Ohio Edison Co.
   Building One
   76 So. Main St.
   Akron, Ohio 44308
   Attn: Mr. John C. Lewis, Jr., Div. Engr.
   Ph. 384-4702

ITEM 511- CONCRETE, SUPERSTRUCTURE AS PER PLAN

DESCRIPTION

This Item Shall Be Used To Reconstruct Existing Parapets Using Class S Concrete As Detailed On Sheet Nos. 87 Thru 90. All Cost Of Removal Shall Be Included Under Item 202- Portions Of Structures Removed.

REMOVAL OF CONCRETE

In Addition To The Removal Areas As Shown On The Structure Modification Details All Loose, Soft, Honeycombed And Disintegrated Concrete Plus 1/4" Depth Of Sound Concrete Shall Be Removed. Where The Bond Between The Concrete And A Reinforcing Bar Has Been Destroyed, Or Where More Than One Half The Periphery Of Such A Bar Has Been Exposed, The Adjacent Concrete Shall Be Removed To A Depth That Will Provide A Minimum 3/4" Clearance Around The Bar, Except Where Other Reinforcing Bars Make This Impractical. After Completion Of The Removal Operation, The Engineer Shall Sound The Parapet To Insure That Only Sound Concrete Remains. All Work Shall Be Done In Such A Manner As Not To Damage Or Shatter The Concrete That Is To Remain And Prevent The Reinforcing Steel That Is To Remain From Being Cut, Elongated Or Damaged In Any Way.

Concrete May Be Removed By Chipping Or Hand Dressing. Chipping Hammers Shall Not Be Heavier Than The Nominal 35 Pound Class. Where Existing Reinforcing Bars Would Be Less Than One Inch From The Proposed Finished Surface Of Concrete, They Shall, If Practical, Be Driven Back Into Recesses Cut In The Masonry To Obtain That Coverage, Unless Otherwise Approved By The Engineer.

SURFACE PREPARATION

Not More Than 24 Hours Prior To Placing The Patch, All Surfaces To Which The Patch Is To Bond, Including Exposed Reinforcing And Structural Steel, Shall Be Cleaned By Abrasive Blasting Or An Approved Method Of Water Blasting. These Surfaces Shall Be Made Free Of Spalls, Laitance And All Traces Of Foreign Material. If Necessary, Detergent Cleaning Shall Precede Blast Cleaning To Insure The Removal Of Contaminants Detrimental To Achieving An Adequate Bond.

REINFORCING STEEL

All Costs Of Labor And Material Necessary To Cut And Tie The Existing No. 5 Rebars As Shown On The Modified Parapet Details Shall Be Included Under This Item Of Work. All Other Steel Will Be Paid For Separately Under Item 824.

Method Of Measurement

Volume Shall Be The Total Number Of Cubic Yards Measured As Indicated By Meter Printout, Or As Indicated By Volume Ticket (Transit Mix) Less Any Volume Not Used.

BENCHING OF FOUNDATION SLOPES

Although Cross Sections On This Plan Indicate Specific Widths And Depths Of Proposed Benching Of The Embankment Foundation In Certain Areas, No Waiver Of The Specifications Is Intended, And All Other Sloped Foundation Areas Shall Be Benched As Set Forth In 203.09. No Additional Payment Will Be Made For Benching Required By The Provisions Of 203.09.

CONNECTION TO EXISTING PIPE

Where The Plans Provide For Proposed Conduit To Be Connected To, Or To Cross Either Over Or Under An Existing Sewer, It Shall Be The Responsiblity Of The Contractor To Locate The Existing Pipe Both As To Line And Grade Before He Starts To Lay The Proposed Conduit.

Payment For All Operations Described Above Shall Be Included In The Unit Price Bid For The Pertinent 603 Conduit Items.

VERTICAL CONTROLS

Controls For Elevations Shown In Cross Sections Consist Of Existing Pavement Elevations As Shown In The Original Construction Plans. These Original Construction Plans Are Available At The ODOT District 4 Offices At 705 Oakwood Street, Ravenna, Ohio.

COOPERATION OF CONTRACTORS

It Shall Be The Responsibility Of The Contractor To Coordinate His Work With The Contractor Conducting Bridge Repair Work, Under Separate Contract, On The Sum-271-0802 Lt. & Rt. Structures. The Contractor Shall Organize His Work So That Neither Contractor Will Be Unduly Delayed In The Prosecution Of His Work.

848 ASPHALT CONCRETE

Subsequent To The Completion Of Plans, The Asphalt Concrete Used On This Project Has Been Revised From Items 402, 403, And 404 To Supplemental Specification 848. All Reference To 402, 403, And 404 Appearing On The Plans Shall Be Considered To Read As Follows:

402 Becomes 846 Asphalt Concrete Intermediate Course, Type 2, AC-20
403 Becomes 848 Asphalt Concrete Intermediate Course, Type 1, AC-20
404 Becomes 846 Asphalt Concrete Surface Course, Type 1, AC-20

On This Project, Item 848, Table 2-2, Properties Of Mixtures Shall Be For Heavy Traffic Volumes.

ITEM 202 GUARDRAIL REMOVED FOR STORAGE

Guardrail Pannels And Accompanying Hardware Shall Be Transported To The Ohio Department Of Transportation's District 4 Headquarters At 705 Oakwood Street, Ravenna, Ohio For Storage As Directed By The Engineer. Payment For The Above Mentioned Work Shall Be Included In The Price Bid For Item 202 Guardrail Removed For Storage.

UNDERGROUND UTILITIES

The locations of the underground utilities shown on the plans are as obtained from the owners of the utility as required by Section 153.64 ORC.

33770

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ITEM SPECIAL - SAWING AND SEALING TRANSVERSE JOINTS

THIS WORK SHALL CONSIST OF MAKING A SAW CUT TRANSVERSELY ACROSS THE FINISHED SURFACE OF THE 402 ASPHALT CONCRETE AND SEALING THIS TRANSVERSE JOINT. THE INTENT OF THIS WORK IS TO ESTABLISH A WEAKENED PLAN JOINT TO CONTROL REFLECTIVE CRACKING IN THE NEWLY INSTALLED OPEN GRADED ASPHALT FRICTION COURSE.

CONSTRUCTION METHODS - SAWING JOINTS

THE SAW CUT SHALL BE MADE DIRECTLY OVER THE EXISTING TRANSVERSE JOINT IN THE UNDERLYING CONCRETE PAVEMENT. THE EXISTING JOINT SHALL BE PROPERLY MARKED BY THE CONTRACTOR SO THE SAWED JOINT MAY BE PERFORMED AT THE SAME LOCATION. THE 402 ASPHALT CONCRETE SHALL HAVE AGED SUFFICIENTLY TO ALLOW A CLEAN CUT TO BE MADE AND TO WITHSTAND THE ERODING EFFECTS OF THE SAW OR OTHER CUTTING DEVICE.

THE SAW CUT SHALL BE MADE WITH AN APPROVED POWER DRIVEN SAW. THE SAW CUT SHALL BE 1/4"±1/16" WIDE BY 1 1/2" DEEP. THE SAW CUT SHALL BE MADE WITH AN ABRASIVE BLADE AND SAWN DRY OR WITH A DIAMOND BLADE AND SAWN WET.

THE COMPLETED CUT SHALL EXTEND IN A STRAIGHT LINE TRANSVERSELY ACROSS THE PAVEMENT TO A POINT TWO FEET BEYOND THE EDGE OF THE UNDERLYING CONCRETE PAVEMENT.

UPON THE SATISFACTORY COMPLETION OF EACH CUT, IT SHALL BE SEALED WITH HOT RUBBER ASPHALT JOINT SEALER.

CONSTRUCTION METHODS - SEALING JOINTS

THE SAWED JOINTS SHALL BE SEALED IMMEDIATELY AFTER THE CUT HAS BEEN MADE. TRAFFIC SHALL NOT BE ALLOWED TO KNEAD TOGETHER OR DAMAGE THE SAWED JOINT. EACH JOINT SHALL BE THOROUGHLY CLEAN AND DRY PRIOR TO PLACEMENT OF THE SEALING COMPOUND. CLEANING SHALL BE PERFORMED BY BLOWING OUT ALL DIRT, DUST OR DELETERIOUS MATTER THAT MAY HAVE ACCUMULATED IN THE SAW JOINTS. SUFFICIENT AIR PRESSURE SHALL BE PROVIDED TO INSURE THOROUGH CLEANING. POURED JOINT MATERIAL SHALL BE HOT APPLIED CONFORMING TO AASHTO SPECIFICATION 173, 705.01.

THE JOINT SEAL SHALL BE APPLIED WITH A MOBILE CARRIAGE AND RUBBER SHOE AND HAVE A CONTROL VALVE WHICH ALLOWS ALL CRACKS TO BE FILLED TO REFUSAL, SO AS TO ELIMINATE ALL VOIDS OR ENTRAPPED AIR, AND NOT LEAVE UNNECESSARY CRACK SEALER ON THE PAVEMENT SURFACE. THE HOT SEAL SHALL COMPLETELY FILL THE JOINT, SUCH THAT AFTER COOLING, THE LEVEL OF THE SEALER WILL NOT BE GREATER THAN 1/8" BELOW THE PAVEMENT SURFACE. ANY DEPRESSION IN THE SEAL GREATER THAN 3/16" SHALL BE BROUGHT UP TO THE SPECIFIED LIMIT BY FURTHER ADDITION OF HOT SEAL. OVERFILLING OF THE JOINTS WILL NOT BE ALLOWED AND SPILLAGE OF THE SEALER SHALL BE AVOIDED.

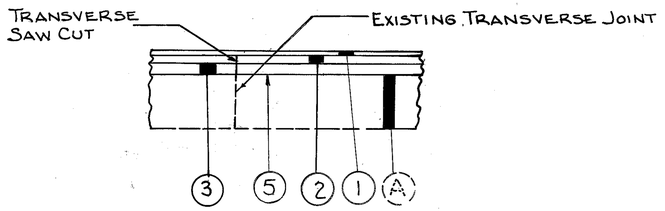
METHOD OF MEASUREMENT

THIS WORK SHALL BE MEASURED FOR PAYMENT BY THE ACTUAL NUMBER OF LINEAR FEET OF JOINT SAWED AND SEALED IN THE 402 ASPHALT CONCRETE, MEASURED IN PLACE AND ACCEPTED.

BASIS OF PAYMENT

PAYMENT FOR THIS WORK WILL BE AT THE CONTRACT UNIT PRICE PER LINEAR FOOT FOR SAWING AND SEALING TRANSVERSE JOINTS, COMPLETE IN PLACE, WHICH PRICE SHALL INCLUDE ALL MATERIALS, EQUIPMENT, TOOLS AND LABOR INCIDENTAL TO THIS WORK.

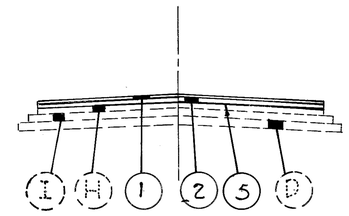
AN ESTIMATED QUANTITY OF 82,300 L.F. OF ITEM SPECIAL, SAWING AND SEALING TRANSVERSE JOINTS HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR USE WITH THIS ITEM.



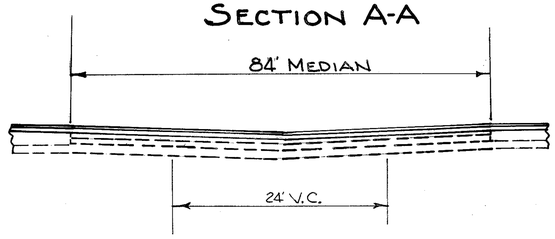
1		SPECIAL 3/4" OPEN GRADED ASPHALT FRICTION COURSE, RUBBERIZED
2	846	1¼" ASPHALT CONCRETE, AC-20, *Surface type 1.*
A 5	407	TACK COAT USING SS924 @ 0.1 GAL/SY.
E D	EXIST.	10" REINFORCED PORTLAND CEMENT CONCRETE
H	EXIST.	6" SUBBASE
I	EXIST.	3" BITUMINOUS AGGREGATE BASE
	EXIST.	7" AGGREGATE BASE
3	846	1½" ASPHALT CONCRETE, AC-20, *Intermediate, Type 2.*

MEDIAN CROSSOVER ESTIMATED QUANTITIES

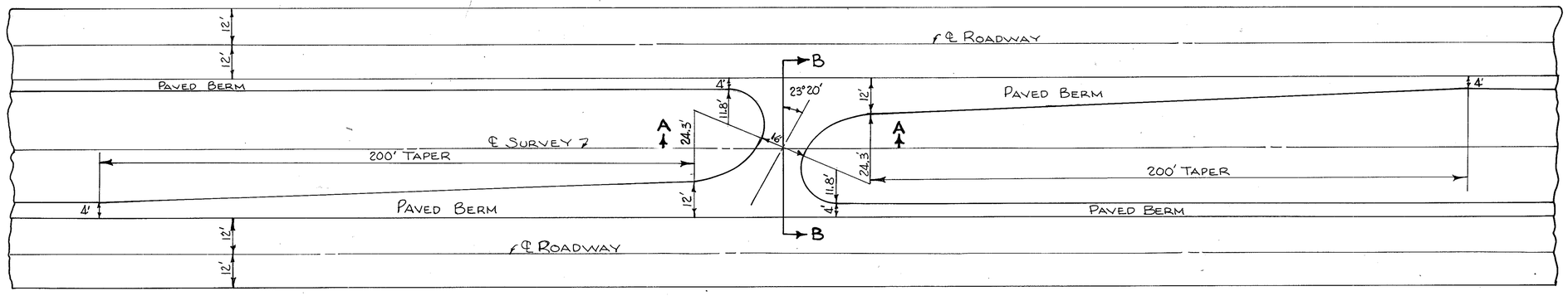
STATION	402 ASPH. CONC. 2½" C.Y.	SPECIAL 3/4" OPEN GRD. ASPH. CONC. C.Y.	407 TACK COAT GAL.
531+00	35	11	51
259+50	35	11	51
385+30	35	11	51
462+50	35	11	51
581+38	35	11	51
TOTALS	175	55	255



SECTION A-A



SECTION BB



TYPICAL MEDIAN CROSSOVER

GENERAL NOTES

Calc. By G.L.B.
Date 12/84
Ck'd. By A.P.
Date 1/85

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ITEM SPECIAL- SHOULDER STABILIZATION USING EMUSILSIFIED ASPHALT

DESCRIPTION: THIS WORK SHALL CONSIST OF PROCESSING THE EXISTING SHOULDER MATERIAL IN-PLACE, PLACING ADDITIONAL AGGREGATE WHERE NEEDED TO CONFORM TO PLAN LINES, MIXING EMULSIFIED ASPHALT WITH THE PROCESSED MATERIAL AND SHAPING AND COMPACTING THE MIXTURE IN ACCORDANCE WITH THESE SPECIFICATIONS AND IN REASONABLY CLOSE CONFORMITY WITH THE TYPICAL SECTIONS SPECIFIED OR ESTABLISHED BY THE ENGINEER. THIS WORK SHALL ONLY BE PERFORMED IN AREAS WHICH HAVE BEEN DESIGNATED BY THE ENGINEER.

MATERIALS: MATERIALS SHALL BE EMULSIFIED ASPHALT, 702.04, SS-1 AGGREGATE, 617.03, AND WATER IF NEEDED.

PROCESSING AND MIXING EQUIPMENT: IN-PLACE MIXERS OF THE ROTARY TILLER TYPE WITH THE CAPABILITY TO PROCESS AND MIX THE MATERIAL TO THE REQUIRED DEPTH SHALL BE USED. THE MIXERS SHALL BE EQUIPPED WITH MEANS FOR APPLYING THE FULL SPECIFIED QUANTITITY OF EMULSIFIED ASPHALT IN ONE PASS OF THE MIXER. WATER, IF NEEDED, SHALL BE ADDED DURING PROCESSING EITHER BY MEANS OF A SPRAY BAR EQUIPPED WATER TRUCK OR BY MEANS OF THE MIXER SPRAY EQUIPMENT.

PROCESSING: THE EXISTING BITUMINOUS AGGREGATE BASE SHALL BE BROKEN UP SO THAT INDIVIDUAL PARTICLES DO NOT EXCEED 3INCHES IN SIZE AND SHALL BE BLENDED WITH THE UNDERLYING AGGREGATE BASE, USING IN-PLACE MIXERS, TO A TOTAL DEPTH OF 6" BELOW THE FINISHED SURFACE AS SHOWN BY THE TYPICAL SECTIONS. AGGREGATE SHALL BE ADDED WHERE NEEDED TO CONFORM TO PLAN LINES. THE BLENDED MATERIAL THEN SHALL BE BROUGHT TO THE MOISTURE CONTENT FOR SUBSEQUENT ADDING AND MIXING OF EMULSIFIED ASPHALT BY FURTHER PROCESSING USING IN-PLACE MIXERS EITHER ADDING WATER OR AERATING AS CONDITIONS DICTATE. THE COST OF ADDED WATER SHALL BE INCLUDED IN THE COST OF THE SHOULDERS STABILIZATION ITEM. THE MOISTURE CONTENT NECESSARY FOR MIXING SHALL BE DETERMINED BY THE CONTRACTOR AND SHALL BE APPROVED BY THE ENGINEER.

AT THE TIME OF COMPACTION, THE MOISTURE CONTENT OF THE BLENDED MATERIALS SHALL NOT EXCEED OPTIMUM BY MORE THAN 1%. THE MOISTURE CONTENT OF THE EXISTING BERM MATERIAL SHALL BE ADJUSTED, BY METHODS DESCRIBED IN 203.11, AS NECESSARY TO ACCOMPLISH THIS REQUIREMENT. COST OF ALL WORK FOR MOISTURE CONTROL TO BE INCLUDED WITH ITEM SPECIAL, SHOULDER STABILIZATION USING EMULSIFIED ASPHALT.

MIXING: EMULSIFIED ASPHALT SHALL BE APPLIED THROUSH THE SPRAY BAR OF THE IN-PLACE MIXER AT THE RATE SPECIFIED BY THE ENGINEER IN GALLONS PER SQ.YD.; THE FULL QUANTITY SHALL BE APPLIED DURING ONE PASS OF THE MIXER. THE RATE OF MIXING SHALL BE CONTROLLED BY THE CONTRACTOR AS NECESSARY TO PRODUCE A MIXTURE VISUALLY UNIFORM IN COMPOSITION THROUGHOUT. ADDITIONAL PASSES OF THE MIXER MAY BE REQUIRED TO CORRECT NONUNIFORMITY OF COMPOSITION. THERE SHALL BE NO POCKETS OF UNMIXED MATERIAL ADJACENT TO THE EDGE OF THE PAVEMENT OR BETWEEN ADJACENT PASSES OF THE MIXER.

SHAPING: AFTER MIXING AND PRIOR TO COMPACTION, THE MIXTURE SHALL BE SHAPED AS NECESSARY FOR COMPLIANCE AFTER COMPACTION WITH THE TYPICAL SECTIONS AND THE SURFACE TOLERANCES OF 304.04. THE LOOSE MIXTURE SHALL BE SETUP AT THE PAVEMENT EDGE AS REQUIRED TO FINISH FLUSH WITH THE PAVEMENT EDGE AND TO INSURE FULL DENSIFICATION AT THIS POINT.

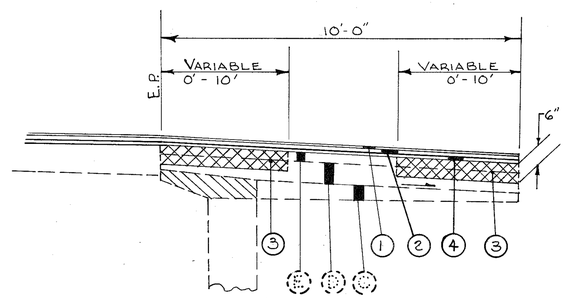
COMPACTION: COMPACTION SHALL FOLLOW MIXING AS CLOSELY AS CONDITIONS PERMIT. SHOULD THE MIXTURE BE UNSTABLE UNDER THE ROLLERS DUE TO EXCESS MOISTURE, THE ENGINEER MAY REQUIRE THE MIXTURE TO BE AERATED USING THE IN-PLACE MIXER TO REDUCE THE MOISTURE CONTENT. COMPACTION REQUIREMENTS SHALL BE AS PROVIDED IN 304.04 EXCEPT THAT WATER SHALL NOT BE APPLIED.

ITEM SPECIAL-SHOULDER STABILIZATION USING EMULSIFIED ASPHALT (CON'T.)

METHOD OF MEASUREMENT: THE NUMBER OF SQ.YDS. OF SHOULDER STABILIZATION SHALL BE CALCULATED USING PLAN LINES AND DIMENSIONS. THE NUMBER OF GALLONS OF EMULSIFIED ASPHALT SHALL BE MEASURED IN ACCORDANCE WITH 109. THE NUMBER OF CUBIC YARDS OF AGGREGATE SHALL BE MEASURED IN ACCORDANCE WITH 617.06.

BASIS OF PAYMENT: PAYMENT FOR ACCEPTED QUANTITIES COMPLETE IN PLACE WILL BE MADE AT THE CONTRACT UNIT PRICE FOR:

ITEM	QUANTITY	UNIT	DESCRIPTION
SPECIAL	53,800	SQ.YD.	SHOULDER STABILIZATION, USING EMULSIFIED ASPHALT
SPECIAL	322,800	GALLON	EMULSIFIED ASPHALT, 702.04, SS-1
SPECIAL	1,000	CU.YD.	AGGREGATE, USING 617.03 AGGREGATE



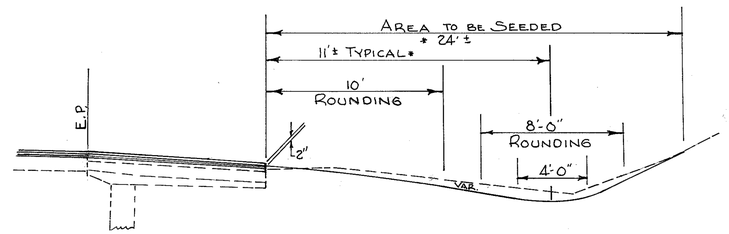
LEGEND

① SPECIAL 3/4" OPEN GRADED ASPHALT CONCRETE FRICTION COURSE, RUBBERIZED
② 846 1 1/4" ASPHALT CONCRETE, AC-20, *Surface Type 1.*
③ SPECIAL SHOULDER STABILIZATION, USING EMULSIFIED ASPHALT
④ 846 1 1/2" ASPHALT CONCRETE AC-20, *Intermediate, Type 2*
Ⓒ Ⓓ Ⓔ EXISTING SUBBASE, EXISTING AGGREGATE BASE, EXISTING BITUMINOUS AGGREGATE BASE

ITEM 203 LINEAR GRADING, METHOD 3, AS PER PLAN

THIS ITEM SHALL CONSIST OF REGRADING THE EXISTING SHOULDER AND DITCH FROM THE EDGE OF THE EXISTING PAVED SHOULDER THROUGH THE DITCH TO RE-ESTABLISH THE GRADE OF THE SHOULDER AND THE ORIGINAL DITCH FLOW LINE AND SHALL INCLUDE ALL EXCAVATION NECESSARY TO PERFORM THE ABOVE DETAILED WORK AS DIRECTED BY THE ENGINEER. WHERE AREAS ARE REGRADED THEY SHALL BE SEEDED AS PER ITEM 659.09. THE METHOD OF MEASUREMENT SHALL BE CONSIDERED AS ONE STATION, 100 L.F. MEASURED SEPARATELY FOR NORTHBOUND AND SOUTHBOUND LANES. PAYMENT FOR ALL THE WORK LISTED ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID PER STATION FOR ITEM 203 LINEAR GRADING, METHOD 3, AS PER PLAN.

AN ESTIMATED QUANTITY OF 70 STATIONS OF ITEM 203 LINEAR GRADING, METHOD 3, AS PER PLAN SHALL BE CARRIED TO THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER.



* DISTANCE MAY VARY AS DIRECTED BY THE ENGINEER.

ITEM SPECIAL PAVEMENT PLANING BITUMINOUS

An Estimated Quantity Of 2,000 S.Y. Of Item Special Pavement Planing, Bituminous Shall Be Provided For Use As Directed By The Engineer To Restore The Cross Slope In Heaved Areas Of The Existing Paved Berm.

GENERAL NOTES

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ITEM SPECIAL — ASPHALT UNDERSEALING OF EXISTING CONCRETE PAVEMENT

THIS WORK SHALL CONSIST OF FURNISHING AND PUMPING AN ASPHALT MATERIAL UNDER PORTLAND CEMENT CONCRETE PAVEMENT.

ASPHALT MATERIAL SHALL MEET THE REQUIREMENTS OF AASHTO DESIGNATION M-238 "ASPHALT FOR UNDERSEALING PORTLAND CEMENT CONCRETE PAVEMENT".

THE ASPHALT TANKER SHALL BE FULLY INSULATED, SHALL BE EQUIPED WITH REMOVEABLE MANHOLE COVERS, SHALL HAVE A 2" (5 CM) MINIMUM SIZE OVERFLOW PIPE AND SHALL HAVE SUITABLE STRAINERS AT THE OUTLET TO THE PUMP. THE ASPHALT TRANSPORT TANKER SHALL HAVE A MINIMUM CAPACITY OF 4,000 GALLONS, AND SHALL BE ATTACHED TO A SEPERATE, SELF-CONTAINED REVERSIBLE PUMP WHICH CAN BE QUICKLY DETACHED FROM ONE TANKER TO ANOTHER. THE ASPHALT TRANSPORT TANKER SHALL BE CAPABLE OF HEATING THE ASPHALT TO APPLICATION TEMPERATURE, AND CIRCULATING IT DURING THE ENTIRE HEATING PROCESS. ALL NECESSARY EQUIPMENT FOR ACTUALLY MEASURING THE TEMPERATURE OF THE ASPHALT SHALL BE PROVIDED. A PUMP FILTER SHOULD BE EQUIPPED WITH A RETURN LINE FOR RECIRCULATION, A 1-1/2 INCH (38 MM) MINIMUM SIZE, FLEXIBLE METAL CIRCULATING HOSE WITH A QUICK CUT-OFF VALVE SHALL BE PROVIDED.

A PRESSURE WATER DISTRIBUTOR TRAILER WITH A MINIMUM OF 50 GALLON CAPACTIY SHALL BE PROVIDED.

A TAPERED NOZZLE SHALL BE USED IN PUMPING THE ASPHALT MATERIAL UNDER THE PAVEMENT. THE NOZZLE SHALL BE EQUIPPED WITH A 3-WAY VALVE SO DESIGNED THAT THE ASPHALT MAY CIRCULATE BACK TO THE DISTRIBUTOR TANK WHEN PUMPING OPERATIONS ARE NOT IN PROGRESS. A COMBINATION FOOT STAND AND SHIELD SHALL BE ATTACHED TO THE NOZZLE IN SUCH A WAY THAT AFTER THE NOZZLE HAS BEEN FIRMLY WEDGED INTO THE HOLE, THE OPERATOR CAN HOLD IT IN POSITION BY STANDING ON THE WINGS OF THE STAND.

AIR OR ELECTRIC-POWERED DRILLS CAPABLE OF DRILLING HOLES NOT TO EXCEED 1-1/2 INCH IN DIAMETER THROUGH THE PAVEMENT SHALL BE OPERATED IN SUCH A MANNER THAT "OUT-OF-ROUND" HOLES WILL NOT BE PRODUCED.

AIR COMPRESSORS TO BE USED FOR BLOWING AIR INTO CAVITIES BENEATH THE PAVEMENT SHALL BE CAPABLE OF DELIVERING A MINIMUM OF 105 CU. FT. OF AIR PER MINUTE.

ALL STORAGE TANKS, PIPES, RETORTS, BOOSTER TANKS, AND DISTRIBUTORS USED IN STORING OR HANDLING THE ASPHALT SHALL BE KEPT CLEAN AND IN GOOD OPERATING CONDITION AT ALL TIMES SO THERE WILL BE NO CONTAMINATION OF THE ASPHALT WITH FOREIGN MATERIAL.

ASPHALT INJECTION HOLES WILL BE DRILLED IN A PATTERN INDICATED OF THE PLANS OR DESIGNATED BY THE ENGINEER. THEY SHALL NOT BE LARGER THAN 1-1/2 INCH IN DIAMETER. THEY SHALL BE DRILLED VERTICALLY AND ROUND AND TO A DEPTH SUFFICIENT TO PENETRATE ANY STABILIZED BASE, BUT SHALL NOT PENETRATE A GRANULAR SUBBASE MORE THAN 2 INCHES. IN CASE OF AN EXISTING BITUMINOUS OVERLAY ON RIGID PAVEMENT, HOLES SHALL BE DRILLED THROUGH THE OVERLAY AND THE UNDERLYING CONCRETE AND THE NOZZLE SHALL BE OF SUFFICIENT LENGTH THAT IT CAN BE DRIVEN TO A SNUG FIT INTO THE CONCRETE SLAB WITHOUT THE UPPER PART OF THE NOZZLE BEING BELOW THE ELEVATION OF THE EXISTING BITUMINOUS SURFACE. UNSATISFACTORY OR "OUT-OF-ROUND" HOLES THAT DO NOT ACCOMODATE THE ASPHALT NOZZLE SHALL BE PLUGGED AND NEW HOLES DRILLED.

THE ASPHALT MATERIAL SHALL BE HEATED TO A TEMPERATURE OF 400°F TO 450°F BEFORE PUMPING OPERATIONS BEGIN. WHEN PUMPED UNDER THE PAVEMENT, THE TEMPERATURE OF THE ASPHALT SHALL BE NOT LESS THAN 350°F. THE ASPHALT SHALL BE CIRCULATED THROUGH THE NOZZLE PRIOR TO PUMPING IN ORDER TO FREE AND WARM THE NOZZLE AND HOSES. ASPHALT HEATED TO A TEMPERATURE OF 500°F OR MORE WILL BE REJECTED.

WATER, LIMEWATER, OR SAND SHALL BE SPRINKLED AROUND THE HOLE PRIOR TO PUMPING TO PREVENT ANY ASPHALT THAT MAY LEAK FROM AROUND THE NOZZLE FROM STICKING TO THE PAVEMENT. PRIOR TO PUMPING THE ASPHALT, COMPRESSED AIR AT APPROXIMATELY 70 P.S.I. PRESSURE SHALL BE BLOWN THROUGH THE HOLE FOR NOT LESS THAN 15 SECONDS NOR MORE THAN 60 SECONDS. THE AIR NOZZLE SHALL BE FIRMLY WEDGED INTO THE HOLE.

THE ASPHALT NOZZLE SHALL BE INSERTED IN THE HOLE, DRIVEN TO A SNUG FIT, AND PUMPING OF THE ASPHALT CONTINUED UNTIL THE UNDERSEALING IS COMPLETE. A POSITIVE MEANS OF MONITORING LIFT FROM A STABLE REFERENCE POINT SHALL BE PERFORMED BY THE CONTRACTOR USING A DUNCAN GAUGE OR APPROVED EQUAL EQUIPMENT SATISFACTORY TO THE ENGINEER. PAVEMENT WHICH HAS BEEN RAISED IN EXCESS OF 1/8 INCH SHALL BE DEEMED UNACCEPTABLE. NO PAYMENT FOR ANY UNDERSEALING MATERIAL AT THE SUBJECT LOCATION SHALL BE MADE WHEN THIS TOLERANCE HAS BEEN EXCEEDED. IF ASPHALT SEEPS FROM THE JOINTS OR CRACKS BEFORE THE UNDER-SEALING IS COMPLETE, THE PUMPING SHALL BE STOPPED UNTIL THE EXTRUDED ASPHALT HAS CONGEALED. UPON COMPLETION OF THE PUMPING OPERATION, THE NOZZLE SHALL BE REMOVED AND A TEMPORARY PLUG DRIVEN INTO THE HOLE WITHOUT AN EXCESSIVE BACK-FLOW OF ASPHALT. AFTER THE ASPHALT HAS HARDENED, THE PLUG SHALL BE REMOVED AND A HARDWOOD PLUG AT LEAST 3 INCHES LONG AND A MINIMUM OF 1/16 INCH LARGER THAN THE DIAMETER OF THE DRILLED HOLE SHALL BE DRIVEN FLUSH WITH THE SURFACE OF THE CONCRETE PAVEMENT. ANY ASPHALT EXTRUDED DURING THE PUMPING OPERATIONS SHALL BE IMMEDIATELY CLEANED FROM THE PAVEMENT SURFACE AND REMOVED FROM THE PROJECT.

ASPHALT UNDERSEALING SHALL NOT BE PERFORMED WHEN DAYTIME TEMPERATURES ARE BELOW 40 F OR IF THE SUBGRADE OR BASE COURSE MATERIAL IS FROZEN OR CONTAINS AN ABNORMAL AMOUNT OF MOISTURE FROM RECENT RAINFALL. THE DRILLING AND PUMPING OPERATIONS SHALL BE DONE ONLY WHEN GENERAL WEATHER CONDITIONS ARE SUITABLE.

WHERE TRAFFIC IS MAINTAINED, A MOVABLE SHIELD AT LEAST 4 FT. BY 4 FT. IN SIZE SHALL BE PLACED BETWEEN THE PUMPING OPERATIONS AND THE TRAFFIC. TRAFFIC MAY BE PERMITTED TO USE THE PUMPED AREAS UPON REMOVAL OF THE TEMPORARY PLUGS AND AFTER THE HARDWOOD PLUGS ARE DRIVEN.

HOLES DRILLED THROUGH THE EXISTING PAVEMENT, AT THE LOCATION AND TO THE DEPTH SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER, WILL BE MEASURED AS THE NUMBER OF HOLES. PAYMENT FOR EACH HOLE WILL BE FULL COMPENSATION FOR DRILLING, TEMPORARY PLUGGING, AND FINAL PLUGGING OF THE HOLE.

ASPHALT MATERIAL WILL BE MEASURED BY THE GALLON AT THE APPLIED TEMPERATURE AND CONVERTED TO 60°F BY THE APPROPRIATE COLUMN OF TABLE 25 OF "ASTM-IP PETROLEUM MEASUREMENT TABLES", ASTM DESIGNATION D-1250. THE UNIT PRICE PER GALLON SHALL BE FULL COMPENSATION FOR THE FURNISHING OF ALL LABOR, MATERIALS, EQUIPMENT AND TOOLS, AND ALL OTHER COSTS NECESSARY FOR AND INCIDENTALL TO THE UNDERSEALING OF THE PAVEMENT AT THE DESIGNATED LOCATIONS IN ACCORDANCE WITH THESE SPECIFICATIONS AND THE PLAN REQUIRMENTS OR AS DESIGNATED BY THE ENGINEER.

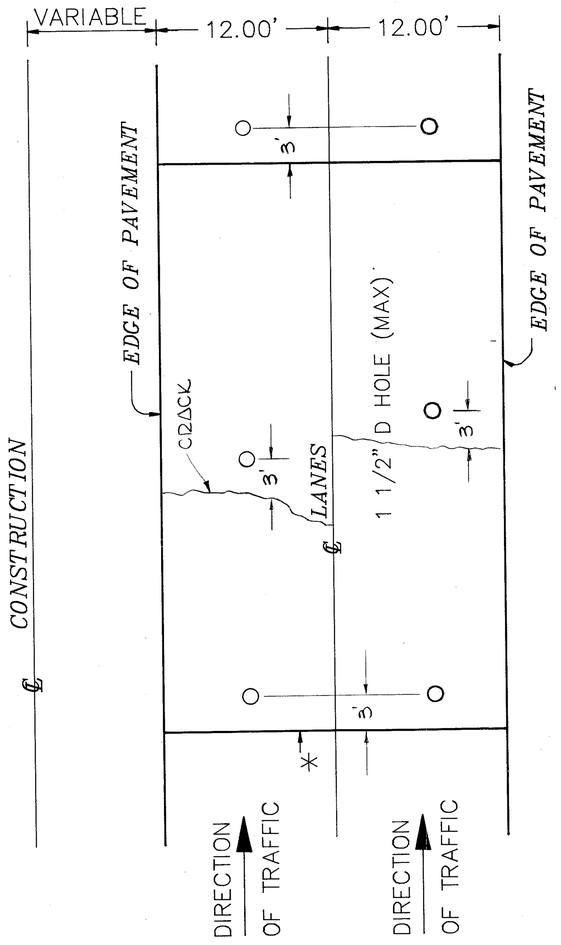
ON PROJECTS WITH FULL DEPTH PAVEMENT REMOVAL AND REPLACEMENT, THE ASPHALT UNDERSEALING AT EACH SLAB OR JOINT SHALL BE DONE AFTER THE COMPLETION OF THE FULL DEPTH PAVEMENT REMOVAL AND REPLACEMENT ITEM.

PAYMENT WILL BE MADE AT THE CONTRACT PRICES FOR:

ITEM	UNIT	DESCRIPTION
SPECIAL 2568	EACH	HOLES FOR UNDERSEALING
SPECIAL 46224	GALLONS	UNDERSEALING MATERIAL

(SEE DYNAFLECT TESTING NOTE SHEET NO. 12 TO DETERMINE THE LOCATIONS AND LIMITS OF THE PAVEMENT TO BE UNDERSEALED.)

HOLE PATTERN



* *TRANSVERSE JOINT*

NOTE:
UNDERSEALING HOLES SHOULD BE DRILLED NOT MORE THAN 3' PAST EACH CRACK AND JOINT. TRANSVERSE PLACEMENT OF THE HOLES SHOULD BE EXPERIMENTED WITH TO FIND THE OPTIMUM LOCATION. BEGIN BY PLACING THE HOLE IN THE CENTER OF THE LANE AND MAKE NOTE OF WHICH SIDE OF THAT LANE THE MATERIAL CREEPS OUT OF FIRST, THE EDGE OF THE PAVEMENT ON THE LONGITUDINAL JOINT. IF ON THE AVERAGE THE MATERIAL IS SEEN FIRST AT THE EDGE OF THE PAVEMENT, MOVE THE HOLES TOWARD THE LONGITUDINAL JOINT, AND VICE-VERSA. AN ADDITIONAL QUANTITY OF HOLES HAS BEEN PROVIDED IN THE GENERAL SUMMARYFOR THE ABOVE DESCRIBED PURPOSE.

ITEM SPEC. HOLES FOR UNDERSEALING EACH
ITEM SPEC. UNDERSEALING MATERIAL GAL.

Calc. By A.P. Date 2/85
Chkd. By G.L.B Date 2/85

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GENERAL NOTES

ITEM SPECIAL-DYNAFLECT TESTING OF EXISTING PAVEMENT

The Item Of Work Shall Be Performed On Each Pavement Panel (60 Foot), Transverse Pavement Joints And Distressed Cracks Within The Station Limits Shown In This Note. The Information From This Testing Will Be Analyzed By The Engineer To Determine The Locations Of The Asphalt Undersealing. It May Also Be Used To Determine Additional Pavement Panel And Joint Repair Locations. In Addition, After The Completion Of Any Pavement Panel Repair Work And Asphalt Undersealing, Dynaflect Testing Shall Be Performed At The Same Station Limits As Used Previously. The Second Testing To Be Done To Determine The Effectiveness Of The Asphalt Underseal. Results Of All Dynaflect Testing Shall Be Submitted To The Project Engineer.

The Dynaflect Is A Mobile Electromechanical Device Used For Inducing And Measuring Pavement Deflections. The Pavement Deflections At Five Points W_1, W_2, W_3, W_4, And W_5 Are Measured Simultaneously At Each Text Location.

The Following Tests And Data Analysis Is Required For Each Lane.

1. Midslab Test - The Unit Shall Be Positioned Approximately Midway Between Orginal Transverse Joints And Relatively Midway Between Any Transverse Cracks In The Pavement. The Deflection Readings Shall Be Taken And The Following Information Shall Be Determined;
   A. Spreadibility = Spr. $= \frac{W_1+W_2+W_3+W_4+W_5}{5W_1} \times 100$
   B. Base Indicator = W_5
2. Crack And Joint Tests - The Unit Shall Be Positioned Such That Deflection Sensors 1 And 2 Straddle The Existion Transverse Pavement Joint Or Crack. The Deflection Readings Shall Be Taken And The Following Information Determined;
   A. Surface Curvature Index = Sci = $W_1 - W_2$
   B. Spreadibility = Spr. (See Above)
   C. Relative Strength = Rs = W_1 (Test Required On Both Sides Of The Joint.)

At Each Test Location The Aforementioned Test Information Shall Be Painted Directly On The Pavement And Written Results Submitted To The Project Engineer For Evaluation. ("Spr" And "W_5" For Midslab Tests "Sci", "Spr" And Both W_1 Values For Crack And Joint Tests)

Mainline Dynaflect Testing Shall Be Done Behind Temporary Lane Closures. The Contractor Shall Be Responsible For Remarking Any Test Data Which Is Obliterated By Traffic Prior To Joint Evaluation.

All Dynaflect Tests Must Be Performed When The Pavement Is Cool. During Summer Tests Must Be Performed During The First Several Hours Of Daylight Or At Night. During Spring Or Fall Tests May Also Be Performed During Overcast Daytime Hours. Outside Temperatures Should Be Below 70° During Testing. Sun Light And/Or High Temperatures Cause The Joints To "Lock Up", Subsequently Giving The Indication Of A Sound Joint. Testing Shall Be Suspended When This Occurs And Any Questionable Test Area Must Be Re-Tested After The Pavement Releases.

Payment For This Item Of Work Shall Be Based On The Number Of Lane-Miles Tested.

Testing To Be Done At The Approximate Locations As Shown Below. The Following Estimated Quantity Has Been Carried To The General Summary For Use With This Item.

Item Special - Dynaflect Testing Of Existing Pavement 19.46 Lane Miles.

LANE MILE DEFINITION (PORTLAND CEMENT CONCRETE PAVEMENT ONLY)

MAINLINE - ONE PER 12 FT. WIDTH ANY FRACTIONAL PORTION OF A LANE SHALL BE CONSIDERED A FULL LANE (I.E. 0.1' TO 12.0' IS ONE LANE).
A LANE MILE IS ONE LANE, AS DEFINED ABOVE ONE MILE LONG.

DYNAFLECT STATIONS

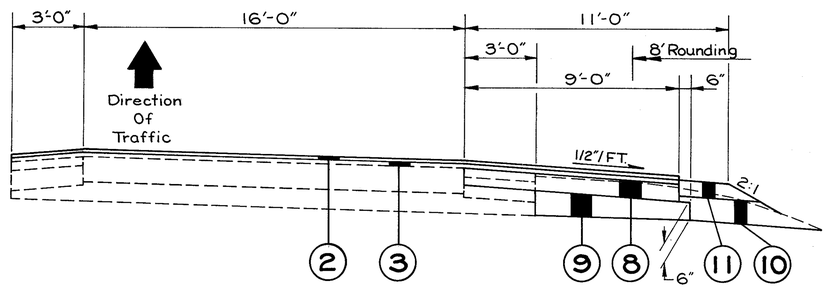
NORTHBOUND OUTSIDE LANE STA TO STA	NORTHBOUND INSIDE LANE STA TO STA	SOUTHBOUND OUTSIDE LANE STA TO STA	SOUTHBOUND INSIDE LANE STA TO STA
452+00 To 477+34		452+00 To 458+86	
491+07 To 501+10		459+92 To 467+84	
507+97 To 509+55		471+01 To 474+18	
533+31 To 535+95		479+98 To 490+54	
Sta. Eqn. 566+09.76	Bk = 156+00 Ah.	494+77 To 502+69	
189+21 To 199+25		507+97 To 510+61	
214+03 To 215+61		516+42 To 543+34	
233+57 To 244+65		551+79 To 557+60	
369+79 To 376+13		559+71 To 561+82	
378+77 To 442+13		565+52 To 566+09.76	
448+46 To 508+65		Sta. Eqn. 566+09.76	Bk. = 156+00 Ah.
511+82 To 518+69		156+00 To 160+17	
Sta. Eqn. 522+16.1	2 Bk. = 522+23.23 Ah.	188+16 To 198+72	
522+38 To 523+97		206+64 To 208+75	
534+00 To 538+22		238+32 To 265+25	
585+21 To 601+81.79		276+86 To 278+45	
		352+89 To 477+50	
		493+34 To 502+85	
		509+71 To 520+80	
		Sta. Eqn. 522+16.12	Bk. = 522+23.23 Ah.
		530+83 To 536+11	
		537+69 To 549+84	
		585+21 To 592+61	
		579+89 To 601+81.79	
22,147 L.F.	22,147 L.F.	31,182 L.F.	31,182 L.F.
4.19 Mi.	4.19 Mi.	5.91 Mi.	5.91 Mi.
20.20 Lane Miles			

Outside Lane — As Same

Same — As Outside Lane

REST AREA PAVED BERM WIDENING

The Paved Berm On The Outside At The Rest Area Ramps U, V, W & X Shall Be Widened In Accordance With The Typical Section Shown Below.



TYPICAL SECTION

Ramp U - Sta. 60+00 To Sta. 66+91.01
Ramp V - Sta. 71+91.95 To Sta. 76+00
Ramp W - Sta. 57+00 To Sta. 60+98.05
Ramp X - Sta. 65+98.99 To Sta. 72+90

~ LEGEND ~

2	846	1¼ Asphalt Concrete, AC-20, *Surface, Type 1.*
3	846	1½" Asphalt Concrete, AC-20, *Interm. Type 2.*
8	301	6" Bituminous Aggregate Base: AC-20; RT-110r RT-12
9	310	Subbase, Type 1, Grading A
10	605	Aggregate Drains
11	203	Embankment, As Per Plan *

* Note: Embankment To Be Limited To Soil As Defined In 203.02 Of The Construction And Materials Specifications.

~ ESTIMATED QUANTITIES ~ *100% STATE*

The Following Quantities Have Been Carried To The General Summary For Use With This Item.

846 = 44 C.Y., *Surface, Type 1.*
846 = 52 C.Y., *Interm. Type 2.*
301 = 329 C.Y.
310 = 264 C.Y.
605 = 440 L.F.
* 203 = 90 C.Y.

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GENERAL NOTES

PROFILE AND ALIGNMENT

THE PROPOSED PAVEMENT RESURFACING COURSE SHALL FOLLOW THE ALIGNMENT AND PROFILE OF THE EXISTING PAVEMENT. PREVIOUS CONSTRUCTION PLANS SHOWING THE ORIGINAL ALIGNMENT AND PROFILE GRADE ARE ON FILE FOR INSPECTION IF NECESSARY AT THE OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 4 OFFICE, 705 OAKWOOD STREET, RAVENNA, OHIO 44266 AS PROJECT NUMBERS

SUM 271-0.83 SUM 271-2.98
SUM 271-7.65 SUM 271-8.29

THE PROPOSED ASPHALT CONCRETE OVERLAY SHALL HAVE A UNIFORM THICKNESS OF APPROXIMATELY 3.25 INCHES M AND 2.75" RAMPS.

FIELD OFFICE

THE CONTRACTOR SHALL PROVIDE A SUITABLE FIELD OFFICE HAVING A MINIMUM OF 800 SQ.FT. OF FLOOR SPACE. *Payment shall be at the lump sum price bid for Item 619, Field Office.*

ROUNDING OF CORNERS SHOWN ON CROSS SECTIONS

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

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL

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

207 TEMPORARY SEEDING AND MULCHING	6800 SQ. YD.
207 STRAW OR HAY BALES	200 EACH
207 TEMPORARY SLOPE DRAINS	2,000 LIN. FT.
207 TEMPORARY BENCHES, DIKES DAMS AND SEDIMENT BASINS	5,000 CU. YDS.
659 MOWING	76 M. SQ. FT.
659 COMMERCIAL FERTILIZER	2 TON
659 REPAIR SEEDING AND MULCHING	1700 SQ. YD.
659 WATER	15 M. GAL.

SEEDING

QUANTITIES FOR SEEDING ARE CALCULATED FOR THE SOIL AREAS BETWEEN FIVE (5) FEET OUTSIDE THE WORK LIMITS, AS SHOWN ON THE CROSS SECTIONS, OR TO THE R/W FENCE LINE, IF SUCH LINE IS LESS THAN FIVE (5) FEET FROM THE WORK LIMITS.

WATERING AND MOWING PERMANENT SEEDED AREAS

The following estimated quantities are to be used as directed by the Engineer to promote growth and to care for the permanent seeded areas, as per 659.09:

659 Water 45 M Gals.
659 Mowing 93 M Sq. Ft.

EROSION CONTROL

Items 601 are provided in the plans for erosion control, Rock of a stable nature will not be removed in order to place any of these items. The Engineer shall check and non-perform quantities or adjust locations and quantities for these items where indicated by field conditions during construction.

REMOVAL OF TEMPORARY CROSSOVER

AN ESTIMATED QUANTITY OF 125 C.Y. OF ITEM 203 EXCAVATION SHALL BE PROVIDED FOR USE AS DIRECTED BY THE ENGINEER TO REMOVE THE EXISTING TEMPORARY CROSSOVER.

AN ESTIMATED QUANTITY OF 125 C.Y. OF ITEM 653 TOPSOIL FURNISHED AND PLACED, AND AN ESTIMATED QUANTITY OF 700 SQ. YDS. OF ITEM 659 SEEDING AND MULCHING SHALL BE PROVIDED FOR USE AS DIRECTED BY THE ENGINEER TO GRADE AND SEED THE ABOVE MENTIONED AREA.

FLUSHING AND REPAIR OF UNDERDRAINS

ALL EXISTING UNDERDRAINS SHALL BE FLUSHED WITH WATER TO DETERMINE IF THEY ARE FUNCTIONING PROPERLY AND IF NOT THE OBSTUCTIONS ARE TO BE LOCATED AND REPAIRED. A COPY OF THE ORIGINAL CONSTRUCTION PLANS SHOWING THE LOCATION OF THE UNDERDRAINS AND OUTLETS WILL BE ON FILE IN THE PROJECT OFFICE. THE FOLLOWING PROCEDURES AND METHODS OF PAYMENT ARE PROVIDED FOR THIS PURPOSE:

1. ITEM SPECIAL, UNDERDRAIN OPENING, EACH. THIS ITEM SHALL CONSIST OF EXPOSING THE FIRST TILE AT THE UPPER END OF AN UNDERDRAIN LINE OR A SUBSEQUENT INTERMEDIATE UNDERDRAIN OPENING AS PROVIDED HEREIN. PAYMENT FOR EACH OPENING SHALL INCLUDE THE TRENCH EXCAVATION LENGTHWISE OVER THE EXISTING TILE, REPLACING THE 6 INCH TILE BROKEN IN MAKING THE OPENING AND THE FULL DEPTH BACKFILL WITH NO. 8 AGGREGATE, ALL IN ACCORDANCE WITH ITEM 605. PAYMENT FOR THE OPERATIONS DESCRIBED ABOVE SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS INCIDENTAL TO COMPLETING THE ITEM, INCLUDING A MAXIMUM OF 6 LINEAL FEET OF 6 INCH TILE AND SHALL BE MADE FOR BY ITEM SPECIAL, UNDERDRAIN OPENING, EACH.

2. ITEM SPECIAL, WATER, M. GALS. AFTER THE UNDERDRAIN OPENING HAS BEEN MADE AND THE EXPOSED TILE REMOVED, THE LINE SHALL BE FLUSHED WITH WATER USING A MINIMUM SIZE HOSE OF 2 INCHES AND A MAXIMUM VOLUME OF WATER CALCULATED AT 1-1/2 GALLONS PER LIN. FT. OF UNDERDRAIN LINE. THE FLUSHING OPERATION MAY BE STOPPED AT ANY TIME BY THE ENGINEER IF FIELD OBSERVATIONS SHOW THE LINE TO BE EITHER PLUGGED OR OPERATING EFFICIENTLY.

   IN THE EVENT THE LINE IS FOUND TO BE PLUGGED OR FLOW RESTRICTED IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE RESTRICTION BY RODDING OR OTHER SIMILAR METHODS APPROVED BY THE ENGINEER. AN INTERMEDIATE UNDERDRAIN OPENING WILL BE PERMITTED AND PAID FOR, PROVIDING IT IS NO CLOSER THAN 500 FEET TO THE INITIAL OPENING, OR AT THE MID POINT OF THE LINE. THE COST OF RODDING THE LINE IS TO BE INCLUDED IN THE UNIT BID PRICE FOR WATER.

   THE METHOD OF MEASUREMENT FOR THE ITEM SPECIAL, WATER, WILL BE IN ACCORDANCE WITH 616.03 AND PAYMENT WILL BE PER THOUSAND GALLONS (M. GAL.) USED.

3. WHERE A SECTION OF TILE IS FOUND TO BE PLUGGED OR BROKEN, IT IS TO BE ISOLATED AS NOTED ABOVE BY RODDING. THIS SECTION SHALL BE REPLACED, AT APPROXIMATELY THE LINE GRADE, IN ITS ENTIRETY WITH 6 INCH TILE IN ACCORDANCE WITH 605.03. THE COST OF REMOVAL OF THE EXISTING TILE IS CONSIDERED TO BE INCIDENTAL TO THIS WORK AND EXTREME CARE IS TO BE EXERCISED IN NOT DAMAGING OR REMOVING ANY MORE TILE THAN NECESSARY. MEASUREMENT AND PAYMENT FOR THIS WORK WILL BE AS PER 605.06 AND 605.07 RESPECTIVELY.

4. AFTER ALL REPAIRS HAVE BEEN MADE TO A LINE, A FINAL FLUSHING WILL BE PERFORMED TO ASCERTAIN IF THE LINE IS FUNCTIONING PROPERLY, AFTER WHICH THE CLOSING OF THE INITIAL OPENING WILL BE PERMITTED.

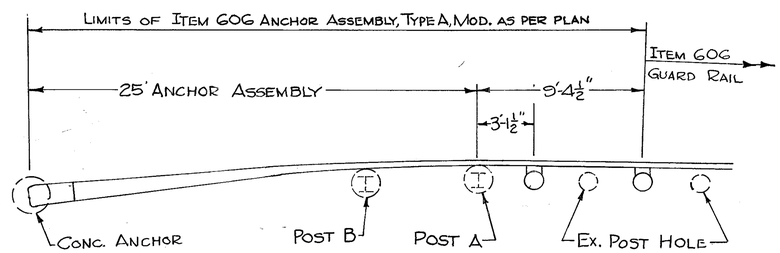
THE FOLLOWING ESTIMATED QUANTITIES ARE PROVIDED IN THE SUMMARY FOR THIS WORK ON THE PARTS OF THIS PROJECT:

100% State	ITEM SPECIAL	UNDERDRAIN OPENING	120 *EACH*
	ITEM SPECIAL	WATER	200 M GAL.
	ITEM 605	6" UNCLASSIFIED PIPE UNDERDRAINS	500 LIN. FT.
	ITEM 603	6" CONDUIT, TYPE F	80 LIN. FT.

ITEM 606 ANCHOR ASSEMBLY, TYPE A, *MOD.* AS PER PLAN

THE EXISTING TYPE A, ANCHOR ASSEMBLIES ON THE APPROACH ENDS OF THE GUARD RAIL SHALL BE MODIFIED AS PER PLAN TO REMOVE POST C (POST C IS LOCATED 12'-6" FROM THE END CONCRETE ANCHOR) THE POST SHOULD BE CUT FLUSH WITH THE CONCRETE ENCASEMENT & THIS POST & HARDWARE SHOULD BE REMOVED. A NEW 25 FT. RAIL ELEMENT AND TERMINAL CONNECTOR SHALL BE PLACED ON THE EXISTING CONCRETE ENCLOSED POSTS, AS PER STANDARD DRAWING GR-4. DRILLED HOLES, CONCRETE INSERT ANCHOR & BOLTS SHALL BE PLACED IN CONCRETE ANCHOR AS REQUIRED. NEW SPACERS, BOLTS, NUTS & WASHERS SHALL BE PROVIDED AS AS DIRECTED BY THE ENGINEER. THE EXISTING RAIL ELEMENT SHALL BE REMOVED FOR STORAGE. ANY SALVAGABLE RAIL ELEMENT SHALL BE REMOVED BY ODOT MAINTAINENCE PERSONNEL & UNSALVAGABLE RAIL ELEMENT SHALL BE DISPOSED OF BY THE CONTRACTOR. AN ADDITIONAL GUARD RAIL ELEMENT (9FT. - 4 1/2IN.) & POSTS SHALL BE PLACED BETWEEN THE END OF THE ANCHOR ASSEMBLY & THE STANDARD TYPE 5 GUARD RAIL AS SHOWN BELOW. THE POST SHALL BE LOCATED 3FT.-1 1/2IN. FROM THE END OF THE ANCHOR ASSEMBLY. THE INTENT OF THIS GUARD RAIL IS TO PROVIDE A HEIGHT TRANSITIONFROM THE EXISTING ANCHOR ASSEMBLY TO THE NEW GUARD RAIL & PROVIDE NEW LOCATIONS FOR THE GUARD RAIL POSTS. ALL EXISTING POST HOLES SHALL BE BACKFILLED & COMPACTED PRIOR TO INSTALLATION OF NEW POSTS.

PAYMENT FOR ALL LABOR, NECESSARY MATERAILS, REMOVAL & DISPOSAL OF MATERIAL & OTHER INCIDENTALS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 606 ANCHOR ASSEMBLY, TYPE A, MODIFIED AS PER PLAN.



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MAINTENANCE OF TRAFFIC

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MAINTENANCE OF TRAFFIC

THIS ITEM SHALL CONSIST OF MAINTENANCE OF TRAFFIC ON EXISTING ROAD-WAYS AND RAMPS IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, CURRENT EDITION, LATEST REVISION, THE SPECIFICATIONS AND THE FOLLOWING:

1. TWO LANE DIRECTIONAL TRAFFIC SHALL BE MAINTAINED ON THE MAIN LINE EXISTING PAVEMENT AT ALL TIMES WITHOUT INTERRUPTION DURING CONSTRUCTION OF THE WORK EXCEPT UNDER THE CONDITIONS SPECIFIED BELOW.
   A. CONSTRUCTION WORK WHICH REQUIRES MEN AND/OR EQUIPMENT TO OCCUPY ONE OR MORE THROUGH LANES. THIS WORK SHALL NOT BEGIN UNTIL THE TRAFFIC CONTROL PLANS (AS SUBMITTED BY THE CONTRACTOR) ARE APPROVED BY THE ENGINEER. * SEE NOTE
   B. REQUIREMENTS OF THE SPECIFICATIONS FOR PROTECTION OF COMPLETED ASPHALT COURSES.
2. NO MORE THAN ONE LANE OF DIRECTIONAL TRAFFIC IN EACH DIRECTION SHALL BE CLOSED AT ANY TIME. THE CONTRACTOR SHALL SET UP AND OPERATE HIS EQUIPMENT IN SUCH A MANNER AS TO ENCROACH UPON THE TRAVELED WIDTH OF THE PAVEMENT TO A MINIMUM EXTENT. TRAFFIC SHALL NOT BE CROSSED OVER THE MEDIAN AT ANY TIME.
3. IN AREAS OF PARTIAL DEPTH AND FULL DEPTH PAVEMENT REPAIR THE CONTRACTOR SHALL LIMIT THE LENGTH THAT CAN BE REPLACED DURING THE SAME WORKING DAY, EXCEPT WITHIN THE LIMITS OF BRIDGE DECK REPAIR AND WATERPROOFING.
4. THE CONTRACTOR SHALL PROVIDE THE SERVICE OF (1) SPECIAL DUTY LAW ENFORCEMENT OFFICER (L.E.O.) WITH A PATROL CAR, AT THE ENGINEER'S REQUEST, FOR THE EXCLUSIVE PURPOSE OF CONTROLLING THROUGH TRAFFIC. THE L.E.O. WITH A PATROL CAR SHALL BE UTILIZED DURING INSTALLATION AND REMOVAL OF TRAFFIC CONTROL DEVICES. THE L.E.O. SHALL CONSTANTLY MOVE WITH THE BACK UP OF TRAFFIC SO THAT HE IS ALWAYS IN A POSITION ON THE SHOULDER NEAR THE END OF STOPPED TRAFFIC TO ASSIST IN CONTROLLING THE TRAFFIC AND INFORMING DRIVERS AS TO THE NATURE OF THE DELAY. INFORMATION REGARDING ARRANGEMENTS AND PAYMENTS BY THE CONTRACTOR FOR THE SPECIAL DUTY SERVICES MAY BE OBTAINED BY CONTACTING THE OHIO HIGHWAY PATROL, 660 EAST MAIN STREET, COLUMBUS, OHIO. TELEPHONE 614-466-2300. IF AFTER CONTACTING THE OHIO HIGHWAY PARTOL, IT IS DETERMINED THAT THEY CANNOT SUPPLY THE SPECIAL DUTY PATROLMAN THEN AN AUTHORIZED COUNTY POLICE OFFICER, EQUIPPED WITH A MARKED AND FLASHER LIGHT EQUIPPEDOFFICIAL POLICE OR PATROL CAR, SHALL BE PROVIDED.
5. IN AREAS OF LANE CLOSURES, THE CONTRACTOR SHALL BE RESPON-SIBLE FOR GRADING THE SHOULDERS TO AN ELEVATION NOT LESS THAN ONE (1) INCH BELOW EXISTING PAVEMENT ELEVATION AND MAINTAIN THE SHOULDERS IN A SAFE CONDITION DURING THE DURATION OF LANE CLOSING OR THE OTHER LANE RESTRICTION.
6. AN ESTIMATED QUANTITY OF 300 Cu.Yds. 301 BITUMINOUS AGGREGATE BASE HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR USE IN MAINTAINING SHOULDERS.
7. DURING THE TIME OF LANE CLOSURES FOR 24 HOURS OR MORE, THE CONTRACTOR SHALL HAVE SOMEONE ON THE PROJECT TWENTY-FOUR HOURS A DAY TO MAINTAIN SIGNS AND WARNING DEVICES.
8. A FLASHING ARROW BARRICADE SHALL BE USED FOR TRAFFIC CONTROL WHENEVER THERE IS A LANE RESTRICTION.
9. ALL TRAFFIC CONTROL DEVICES REQUIRED INSIDE THE WORK LIMITS EXCEPT REGULATORY SIGNS, SHALL BE FURNISHED, ERECTED AND MAINTAINED BY THE CONTRACTOR.
10. THE CONTRACTOR SHALL FURNISH AND MAINTAIN ALL FLAGS, FLAGMEN, WATCHMEN, BARRICADES, SIGN SUPPORTS AND INCIDENTALS RELATED THERETO AND SHALL BE UTILIZED IN CONFORMANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION, LATEST REVISION.
11. TEMPORARY SIGNS IN THE MEDIAN AND WHEREVER ELSE PRACTICAL, SHALL BE MOUNTED ON SUPPORT POSTS FIXED TO EXISTING GUARDRAIL POSTS. WHERE THIS IS NOT POSSIBLE, EASELS OR BARRELS WITH A SUPPORT POST ATTACHED AND FILLED TO 1/2 CAPACITY WITH AGGREGATE SHOULD BE USED. BARRELS SHALL BE REFLECTORIZED WITH REFLECTIVE SHEETING, TYPE G, IN ACCORDANCE WITH 730.19.
12. IN ORDER TO MAINTAIN ADEQUATE TRAFFIC CONTROL AT ALL TIMES, A MINIMUM OF TWO (2) MAJOR GUIDE SIGNS SHALL BE IN PLACE AT ALL TIMES, TO DIRECT MOTORISTS TO APPROPRIATE EXITS OR THROUGH ROADWAYS. THE ERECTION OF ANY TEMPORARY SIGNS NECESSARY DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
13. TEMPORARY CLOSURES OF ALL LANES MAY BE REQUIRED DURING THE ERECTION OR REMOVAL OF OVERHEAD SIGN SUPPORT SPANS AND/OR WORK ON OVERHEAD SIGNS THAT ARE IN PLACE OVER THE PAVEMENT. THESE CLOSURES SHALL BE HELD TO A MAXIMUM OF TEN (10) MINUTES AT ANY ONE TIME AND ANY SUCCEEDING CLOSURE SHALL NOT BEGIN UNTIL THE TRAFFIC HAS BEEN CLEARED FROM THE PREVIOUS CLOSURE. THE L.E.O. REQUIRED FOR THE CLOSURE OF ALL LANES SHALL CONSTANTLY MOVE WITH THE BACKUP OF TRAFFIC STOPPED FOR THE CLOSURE, TO ASSIST IN CONTROLLING TRAFFIC AND INFORMING DRIVERS TO THE NATURE OF THE DELAY.
14. TEMPORARY CONCRETE BARRIER SHALL BE UTILIZED BY THE CONTRACTOR AS SHOWN IN THE DETAIL ON SHEET NO. 25 TO PROTECT TRAFFIC AND WORKMEN FOR THE DURATION OF DECK REPAIR WORK AND DURING SLIDE REPAIR WORK AS DIRECTED BY THE ENGINEER. PAYMENT FOR TEMPORARY CONCRETE BARRIER INCLUDING ALL LABOR AND MATERIALS NECESSARY TO ERECT, MAINTAIN AND REMOVE THE BARRIER, SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 614 MAINTAINING TRAFFIC, LUMP.
15. PROTECTION SHALL BE SUPPLIED FOR TRAFFIC UNDER STRUCTURES TO BE RETROFITTED WITH SAFETY SHAPE PARAPETS. PORTIONS OF THE EXISTING PARAPETS WILL BE REMOVED CAUSING A POSSIBILITY OF FALLING DEBRIS. NO WORK SHALL BEGIN UNTIL PLANS FOR THE PROTECTION OF THE TRAFFIC UNDER THE STRUCTURES (AS SUBMITTED BY THE CONTRACTOR) ARE APPROVED BY THE ENGINEER.
16. THE CONTRACTOR SHOULD BE AWARE THAT INTENSE SHORT TERM TRAFFIC VOLUMES ARE GENERATED BY THE RICHFIELD COLISEUM LOCATED AT THE S.R.303 AND S.R. 271 INTERCHANGE. THE CONTRACTOR SHALL PROVIDE FOR TWO-LANE TRAFFIC IN EACH DIRECTION ACROSS STRUCTURE No. SUM-271-0602 (S.R.303 OVER I.R. 271) FROM 6:00 P.M. TO 6:00 A.M. THROUGH THE USE OF TEMPORARY SIGNING AND BARRICADES AND TEMPORARY PAVEMENT.
17. ALL OF THE ABOVE MAINTENANCE OF TRAFFIC SHALL BE PAID FOR UNDER THE FOLLOWING ITEMS:

ITEM 614 MAINTAINING TRAFFIC	LUMP
ITEM SPECIAL LAW ENFORCEMENT OFFICER WITH PATROL CAR	1000 HOURS
ITEM 301 BITUMINOUS AGGREGATE BASE: AC-20, RT-11 OR RT-12	300 CU.YDS.

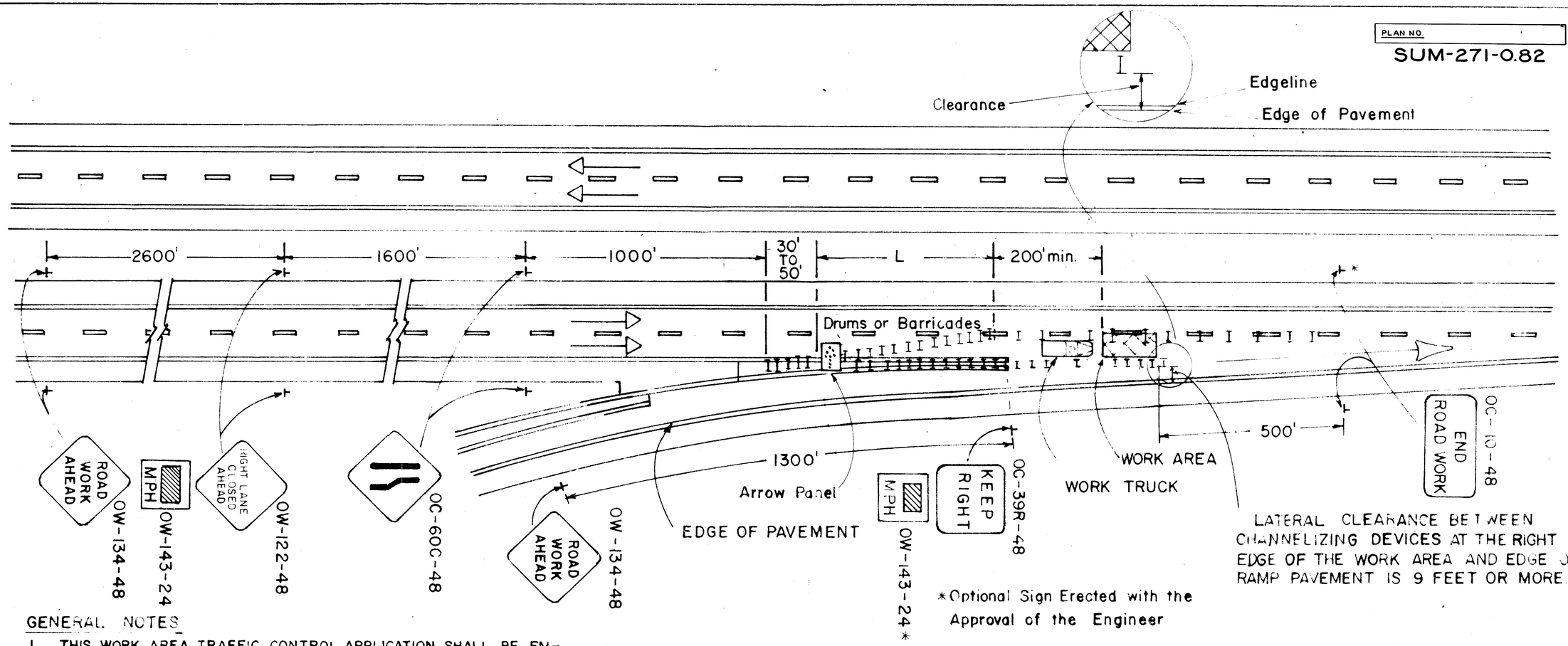
NOTE: DURING STRUCTURE REPAIR WORK IT MAY NOT BE POSSIBLE TO MAINTAIN TWO LANES OF DIRECTIONAL TRAFFIC ACROSS THE STRUCTURES. PROVISIONS SHALL BE MADE TO PROVIDE TWO LANES OF DIRECTIONAL TRAFFIC ACROSS STRUCTURES WHEREVER POSSIBLE, AS DIRECTED BY THE ENGINEER. TRANSITIONS SHALL BE PROVIDED UTILIZING THE EXISTING BERM AREAS. TRANSITION TAPERS SHALL BE APPROVED BY THE ENGINEER.

SEE NOTE 13 FOR ADDITIONAL CLOSURE REQUIREMENTS.

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PLAN NO. SUM-271-0.82

15/91



LATERAL CLEARANCE BETWEEN CHANNELIZING DEVICES AT THE RIGHT EDGE OF THE WORK AREA AND EDGE OF RAMP PAVEMENT IS 9 FEET OR MORE.

*Optional Sign Erected with the Approval of the Engineer

GENERAL NOTES

1. THIS WORK AREA TRAFFIC CONTROL APPLICATION SHALL BE EMPLOYED WHEN THE LATERAL CLEARANCE BETWEEN THE CHANNELIZING DEVICES AT THE RIGHT EDGE OF THE WORK AREA AND THE EDGE OF THE RAMP PAVEMENT IS 9 FEET OR MORE. WHEN THE CLEARANCE IS LESS THAN 9 FEET, THE TRAFFIC CONTROL ON "LANE CLOSURE AT ENTRANCE RAMP: PLAN B" SHOULD BE USED, OR THE RAMP SHOULD BE CLOSED, OR ALLOWING RAMP TRAFFIC TO USE THE BERM SHOULD BE CONSIDERED PROVIDED THE OPERATION IS "SHORT" IN DURATION. WHEN THE RAMP IS CLOSED, APPROPRIATE DETOUR SIGNS SHALL BE PROVIDED.

2. THIRTEEN (13) DRUMS OR BARRICADES SHALL BE USED TO FORM THE LANE TRANSITION TAPER IN ADVANCE OF THE WORK AREA. FIVE (5) CHANNELIZING DEVICES SHALL BE USED TO FORM THE TAPER ON THE SHOULDER. DRUMS, OR BARRICADES SHALL BE SPACED AT 50 FOOT CENTERS. CONES MAY BE SUBSTITUTED FOR BARRICADES OR **DRUMS FOR** THE LANE CLOSURES DURING DAYLIGHT HOURS ONLY.

3. RAMP SIGNS SHALL BE DUAL MOUNTED ON MULTILANE RAMPS.

4. THE FLASHING ARROW PANEL SHALL BE IN ACCORDANCE WITH TC-35.10.

5. THE WORK TRUCK SHOWN AT THE BEGINNING OF THE WORK AREA SHALL BE IN PLACE AND UNOCCUPIED WHENEVER MEN ARE WORKING WITHIN THE WORK AREA. THIS TRUCK SHALL BE MOVED FROM THE PAVEMENT WHENEVER WORKMAN ARE NOT IN THE WORK AREA. OTHER PROTECTIVE DEVICES MAY BE USED IN LIEU OF WORK TRUCK SHOWN WHEN APPROVED BY THE ENGINEER. A TRUCK MOUNTED IMPACT ATTENUATOR MAY BE EMPLOYED.

6. TYPE C STEADY BURNING BARRICADE WARNING LIGHTS SHALL BE ERECTED ON DRUMS OR BARRICADES FOR NIGHT LANE CLOSURES. MAXIMUM SPACING SHALL BE 50' CENTER TO CENTER IN ADVANCE OF THE WORK AREA AND 200' CENTER TO CENTER WITHIN THE LIMITS OF THE WORK AREA.

7. ~~CONES MAY BE SUBSTITUTED FOR DRUMS OR BARRICADES AT NIGHT FOR SHORT-TERM LANE CLOSURES. CONES USED AT NIGHT SHALL BE ELECTORIZED OR EQUIPPED WITH LIGHTING DEVICES FOR MAXIMUM VISIBILITY.~~ FOR NIGHT CLOSURES EACH OF THE FIRST TWO SIGNS IN THE SEQUENCE (ROAD WORK AHEAD AND RIGHT LANE CLOSED AHEAD) IS REQUIRED TO BE SUPPLEMENTED BY A TYPE A FLASHING BARRICADE WARNING LIGHT.

8. WORK VEHICLES SHALL BE EQUIPPED WITH A 360° ROTATING OR FLASHING AMBER BEACON CLEARLY VISIBLE A MINIMUM OF 1/4 MILE.

9. THE SPACINGS BETWEEN CONSTRUCTION AND MAINTENANCE SIGNS SHOWN ON THIS DETAIL MAY REQUIRE ADJUSTMENTS (INCREASES OR DECREASES) TO ASSURE THAT THEY ARE POSITIONED NO CLOSER TNAN 200 FEET TO EXISTING SIGNS AS DETERMINED BY THE ENGINEER.

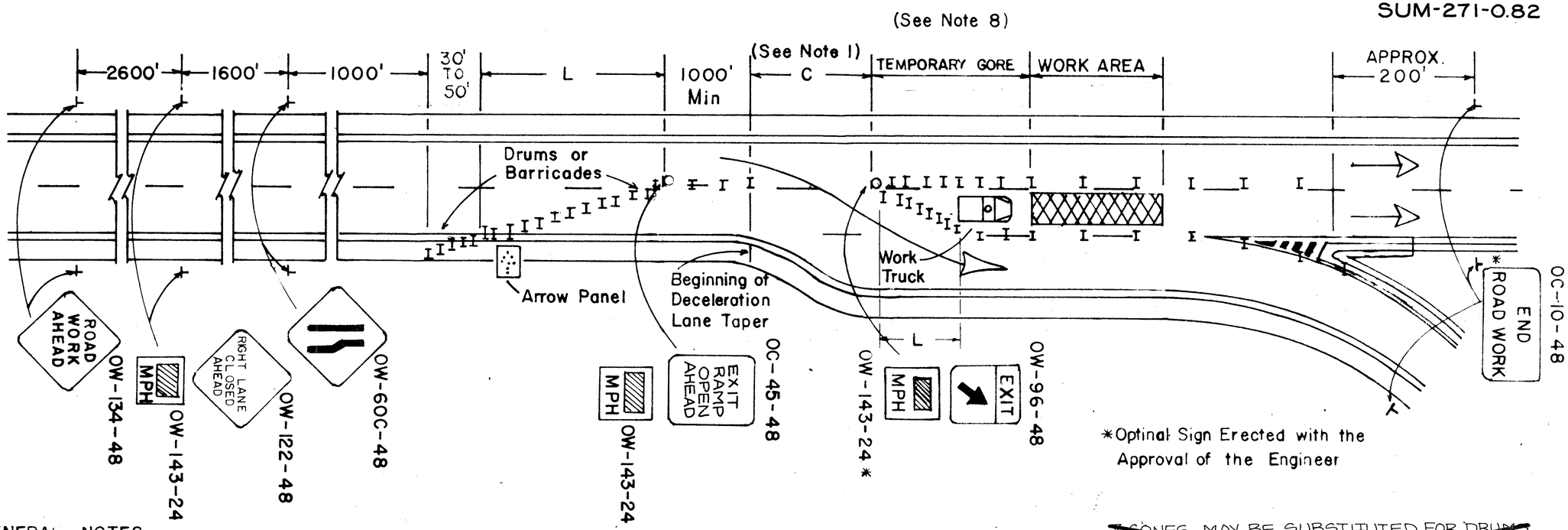
OHIO DEPARTMENT OF TRANSPORTATION

LANE CLOSURE AT ENTRANCE RAMP: PLAN A	DATE 8-3-79

PLAN NO.

SUM-271-0.82

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*Optinal Sign Erected with the Approval of the Engineer

GENERAL NOTES

1. **THIS WORK AREA TRAFFIC CONTROL APPLICATION SHALL ONLY BE USED WHEN THE DISTANCE "C" IS 100 FEET OR GREATER. WHEN "C" IS LESS THAN 100 FEET, THE TRAFFIC CONTROL SHOWN ON THE "LANE CLOSURE BEFORE EXIT GORE" DETAIL SHOULD BE USED, OR THE EXIT SHOULD BE CLOSED, OR THE TRAFFIC CONTROL ON THIS DRAWING MAY BE USED WITH APPROVAL OF THE ENGINEER. WHEN THE EXIT IS CLOSED, APPROPRIATE DETOUR SIGNS SHALL BE PROVIDED.**

2. WHEN WORK IS BEING PERFORMED IN ONLY THE LANE ADJACENT TO THE MEDIAN ON A DIVIDED HIGHWAY, REFER TO THE TYPICAL WORK AREA TRAFFIC CONTROL SHOWN IN FIGURE C-21 OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

3. THE WORK TRUCK SHOWN AT THE BEGINNING OF THE WORK AREA SHALL BE IN PLACE AND UNOCCUPIED WHENEVER MEN ARE WORKING WITHIN THE WORK AREA. THIS TRUCK SHALL BE MOVED FROM THE PAVEMENT WHENEVER WORKMEN ARE NOT IN THE WORK AREA. OTHER PROTECTIVE DEVICES MAY BE USED IN LIEU OF THE WORK TRUCK SHOWN WHEN APPROVED BY THE ENGINEER. A TRUCK MOUNTED IMPACT ATTENUATOR MAY BE EMPLOYED.

4. THE FLASHING ARROW PANEL SHALL BE IN ACCORDANCE WITH Tc-35.10.

5. THIRTEEN (13) DRUMS OR BARRICADES SHALL BE USED TO FORM THE LANE TRANSITION TAPER IN ADVANCE OF THE WORK AREA. FIVE (5) CHANNELIZING DEVICES SHALL BE USED TO FORM THE TAPER ON THE SHOULDER. DRUMS, OR BARRICADES SHALL BE SPACED AT 50 FOOT CENTERS. CONES MAY BE SUBSTITUTED FOR BARRICADES OR **DRUMS FOR THE LANE** CLOSURES DURING DAYLIGHT HOURS ONLY.

6. TYPE C STEADY BURNING BARRICADE WARNING LIGHTS SHALL BE ERECTED ON DRUMS OR BARRICADES FOR NIGHT LANE CLOSURES. MAXIMUM SPACING SHALL BE 50' CENTER TO CENTER IN ADVANCE OF THE WORK AREA AND 200' CENTER TO CENTER WITHIN THE LIMITS OF THE WORK AREA.

7. ~~CONES MAY BE SUBSTITUTED FOR DRUMS OR BARRICADES AT NIGHT FOR SHORT-TERM LANE CLOSURES. CONES USED AT NIGHT SHALL BE REFLECTORIZED OR EQUIPPED WITH LIGHTING DEVICES FOR MAXIMUM VISIBILITY.~~

7. FOR NIGHT CLOSURES EACH OF THE FIRST TWO SIGNS IN THE SEQUENCE (ROAD WORK AHEAD AND *RIGHT* LANE CLOSED AHEAD) IS REQUIRED TO BE SUPPLEMENTED BY A TYPE A FLASHING BARRICADE WARNING LIGHT.

8. WORK VEHICLES SHALL BE EQUIPPED WITH A 360° ROTATING OR FLASHING AMBER BEACON CLEARLY VISIBLE A MINIMUM OF 1/4 MILE.

9. TAPER FORMULA SHALL BE IN ACCORDANCE WITH OMUTCD, SECTION 7F-17.

10. WHEN CREATING A TEMPORARY GORE, CHANNELIZING DEVICES SHOULD BE SPACED 25' CENTER TO CENTER SO AS TO CREATE A "SOLID GORE" **EFFECT.**

11. THE SPACINGS BETWEEN CONSTRUCTION AND MAINTENANCE SIGNS SHOWN ON THIS DETAIL MAY REQUIRE ADJUSTMENTS (INCREASES OR DECREASES) TO ASSURE THAT THEY ARE POSITIONED NO CLOSER THAN 200 FEET TO EXISTING SIGNS AS DETERMINED BY THE ENGINEER.

OHIO DEPARTMENT OF TRANSPORTATION

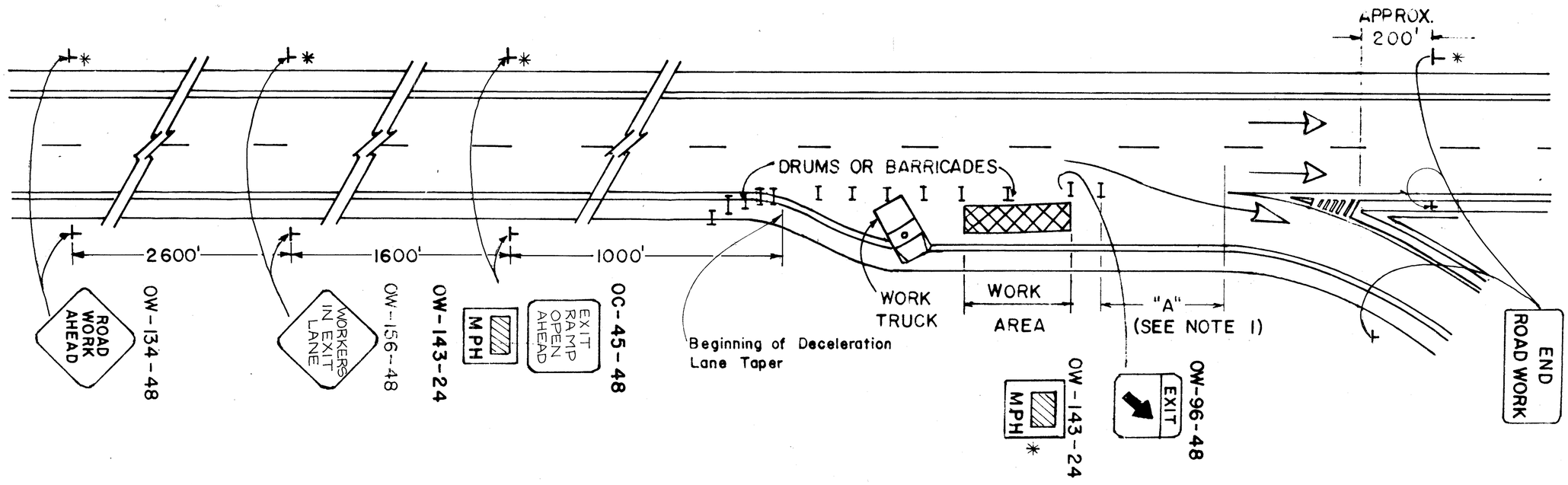
LANE CLOSURE AT EXIT GORE

DATE 8-3-79

FHWA REGION	STATE	PROJECT	
5	OHIO		

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21

SUM-271-0.82



* OPTIONAL SIGN ERECTED WITH THE APPROVAL OF THE ENGINEER.

GENERAL NOTES.

1. THIS WORK AREA TRAFFIC CONTROL APPLICATION SHALL ONLY APPLY WHEN THE DISTANCE "A" IS GREATER THAN 100'. WHEN DISTANCE "A" IS LESS THAN 100', THE RAMP SHALL BE CLOSED. WHEN THE RAMP IS CLOSED, THE TRAFFIC CONTROL SHALL INCLUDE DETOUR SIGNING FOR EXIT RAMP CLOSURES IN ACCORDANCE WITH OMUTCD.

2. DRUMS OR BARRICADES SHALL BE SPACED AT 50 FOOT CENTERS. CONES MAY BE SUBSTITUTED FOR BARRICADES OR DRUMS FOR THE LANE CLOSURES DURING DAYLIGHT HOURS ONLY.

3. TYPE C STEADY BURNING BARRICADE WARNING LIGHTS SHALL BE ERECTED ON DRUMS OR BARRICADES FOR NIGHT LANE CLOSURES. MAXIMUM SPACING SHALL BE 50' CENTER TO CENTER IN ADVANCE OF THE WORK AREA AND 200' CENTER TO CENTER WITHIN THE LIMITS OF THE WORK AREA.

4. THE WORK TRUCK SHOWN AT THE BEGINNING OF THE WORK AREA SHALL BE IN PLACE AND UNOCCUPIED WHENEVER MEN ARE WORKING WITHIN THE WORK AREA. THIS TRUCK SHALL BE MOVED FROM THE PAVEMENT WHENEVER WORKMEN ARE NOT IN THE WORK AREA. OTHER PROTECTIVE DEVICES MAY BE USED IN LIEU OF THE WORK TRUCK SHOWN WHEN APPROVED BY THE ENGINEER.

5. THE SPACINGS BETWEEN CONSTRUCTION AND MAINTENANCE SIGNS SHOWN ON THIS DETAIL MAY REQUIRE ADJUSTMENTS (INCREASES OR DECREASES) TO ASSURE THAT THEY ARE POSITIONED NO CLOSER THAN 200 FEET TO EXISTING SIGNS AS DETERMINED BY THE ENGINEER.

6 SEE SHEET 20 WHEN WORK CAN BE CONFINED TO 8 FEET FROM EDGE OF PAVEMENT. LEAVING ADEQUATE PAVEMENT FOR TRAFFIC ON RAMP

7. ~~CONES MAY BE SUBSTITUTED FOR DRUMS OR BARRICADES AT NIGHT FOR SHORT TERM LANE CLOSURES. CONES USED AT NIGHT SHALL BE REFLECTORIZED OR EQUIPPED WITH LIGHTING DEVICES FOR MAXIMUM VISIBILITY.~~
7. FOR NIGHT CLOUSURES, EACH OF THE FIRST TWO SIGNS IN THE SEQUENCE (ROAD WORK AHEAD AND WORKERS IN EXIT LANE) IS REQUIRED TO BE SUPPLEMENTED BY A TYPE A FLASHING BARRICADE WARNING LIGHT.
8. WORK VEHICLES SHALL BE EQUIPPED WITH A 360° ROTATING OR FLASHING AMBER BEACON CLEARLY VISIBLE A MINIMUM OF 1/4 MILE.

OHIO DEPARTMENT OF TRANSPORTATION

LANE CLOSURE IN DECELERATION LANE

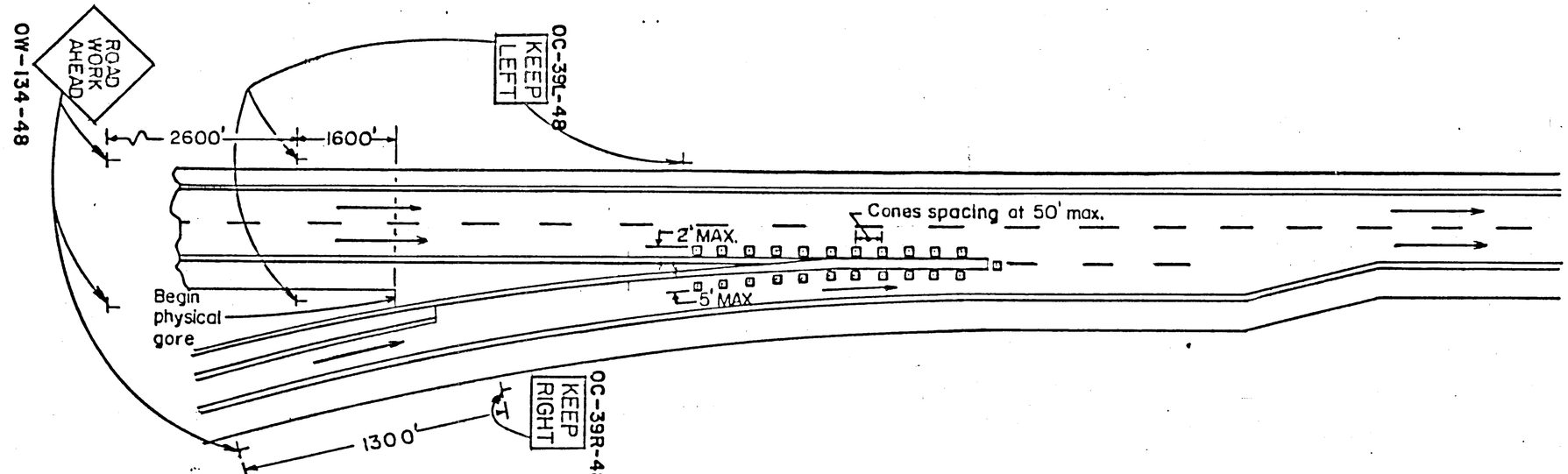
DATE 8-3-79

FHWA REGION	STATE	PROJECT NO.	FUNDS
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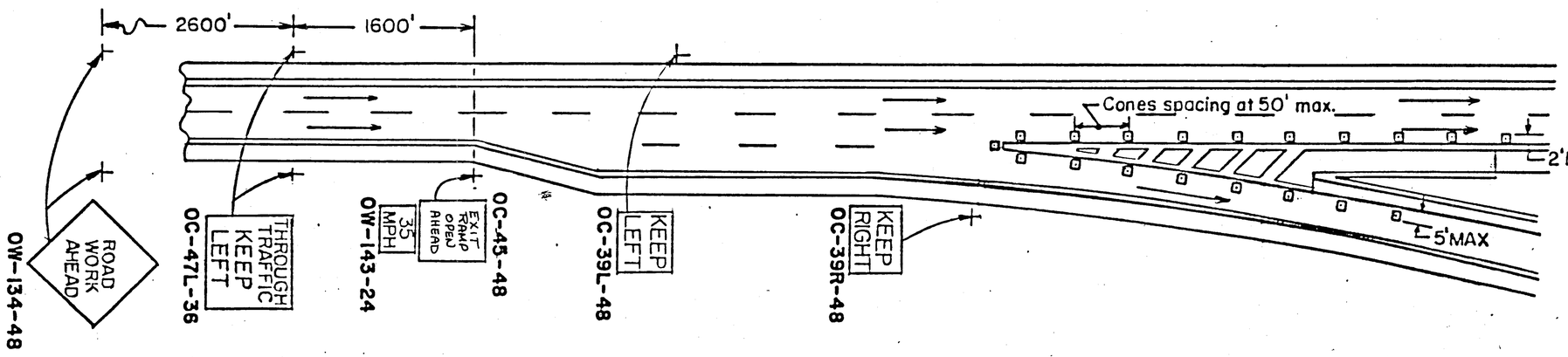
19/91

SUM-271-0.82

ENTRANCE GORE TRAFFIC CONTROL



EXIT GORE TRAFFIC CONTROL



GENERAL NOTES

1. WHERE THE ONLY WORK IN THE GORE AREA CONSISTS OF APPLICATION OF EDGELINE MARKINGS WITH FAST DRY PAVEMENT MARKING MATERIALS, THE TRAFFIC CONTROL FOR "EDGELINE PAVEMENT MARKING OPERATIONS" SHOULD BE EMPLOYED.
2. WHERE THE WORK IN THE GORE AREA REQUIRES MORE POSITIVE TRAFFIC CONTROL OR OVERNIGHT WORK AREA PROTECTION, THE TRAFFIC CONTROL FOR "LANE CLOSURE AT THE ENTRANCE RAMP" OR "LANE CLOSURE AT EXIT GORE" SHOULD BE EMPLOYED. **SEE SHEET** 15,16,23.
3. THE SPACING BETWEEN SIGNS SHOWN ON THIS DETAIL MAY BE ADJUSTED (INCREASED OR DECREASED) WITH THE APPROVAL OF THE ENGINEER TO POSITION THEM NO CLOSER THAN 200 FEET TO EXISTING SIGNS WHICH MUST REMAIN IN USE.
4. AT AN ISOLATED ENTRANCE GORE AREA, A FLASHING ARROW PANEL CONFORMING TO TC-35.10 MAY BE SUBSTITUTED FOR THE ADVANCE OC-39-48 SIGNS.
5. AT AN INTERCHANGE WHERE BOTH EXITS AND ENTRANCES ARE MARKED WITH TRAFFIC CONTROL IN PLACE AT THE SAME TIME, THE OW-134-48 SIGN ON THE ENTRANCE RAMP IS NOT REQUIRED.

OHIO DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL FOR WORK IN GORE AREAS

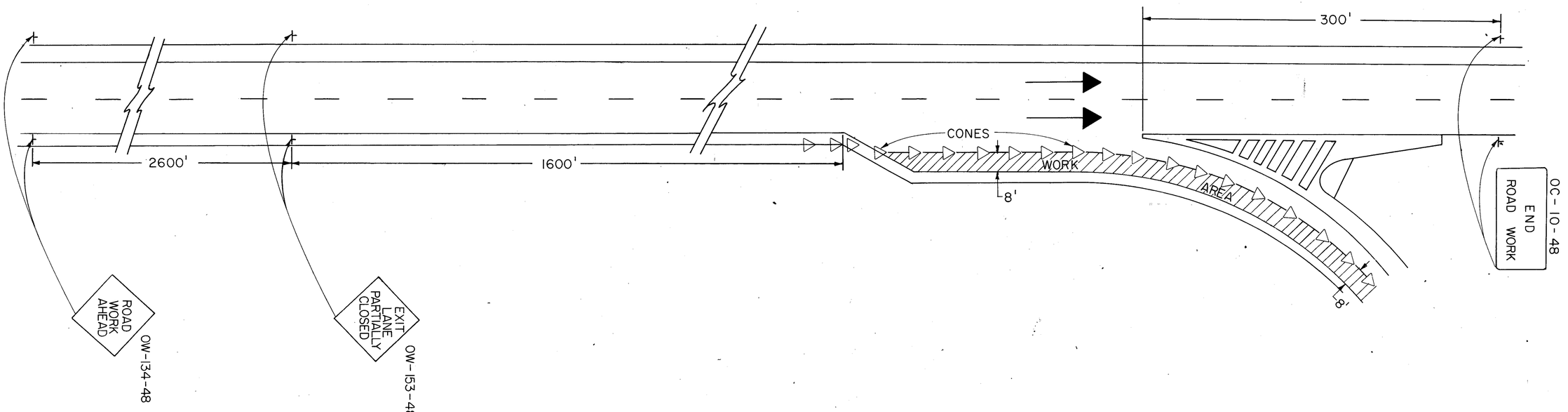
DATE 1/81

PLAN NO.

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

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SUM-271-0.82



FOR THE FIRST 1000 FEET OF THE WORK AREA, CONES SHALL BE SPACED AT 50 FOOT CENTERS AND AT A MAXIMUM OF 100 FEET FOR THE BALANCE OF THE WORK AREA. ALL CONES SHALL BE A MINIMUM OF 36 INCHES IN HEIGHT.

RAMP TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.

SEE SHEET 17 WHEN WORK CANNOT BE CONFINED TO 8 FEET FROM EDGE OF PAVEMENT.

CONES SHALL BE USED ONLY FOR SHORT TERM CLOSURES DURING DAYLIGHT HOURS ONLY. DRUMS OR BARRICADES SHALL BE USED AT OTHER TIMES.

OHIO DEPARTMENT OF TRANSPORTATION

TYPICAL LANE CLOSURE IN DECELERATION LANE AND RAMP - FOR CLOSING INSIDE PORTION OF CURVE

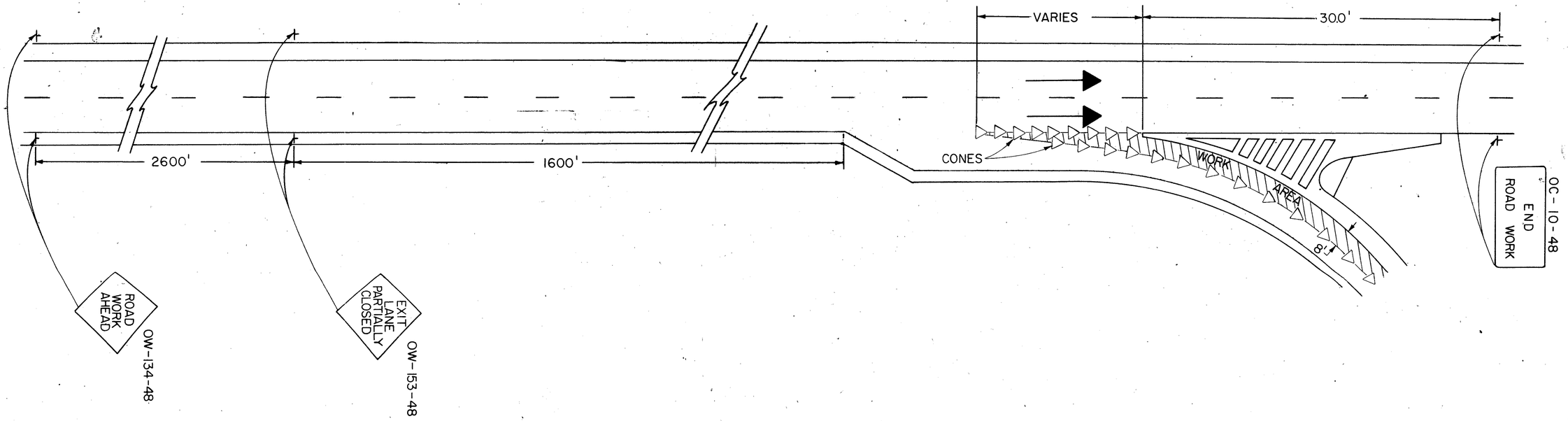
DATE 11/77

PLAN NO.

FED. RD. DIVISION	STATE	PROJECT	
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SUM-271-0.82



FOR THE FIRST 1000 FEET OF THE WORK AREA, CONES SHALL BE SPACED AT 50 FOOT CENTERS AND AT A MAXIMUM OF 100 FEET FOR THE BALANCE OF THE WORK AREA. ALL CONES SHALL BE A MINIMUM OF 36 INCHES IN HEIGHT.

RAMP TRAFFIC SHALL BE MAINTAINED AT ALL TIMES.

SEE SHEET 17 WHEN THE WORK CAN NOT BE CONFINED TO 8' FROM EDGE OF PAVEMENT

CONES SHALL BE USED ONLY FOR SHORT TERM CLOSURES DURING DAYLIGHT HOURS ONLY. DRUMS OR BARRICADES SHALL BE USED AT OTHER TIMES.

OHIO DEPARTMENT OF TRANSPORTATION

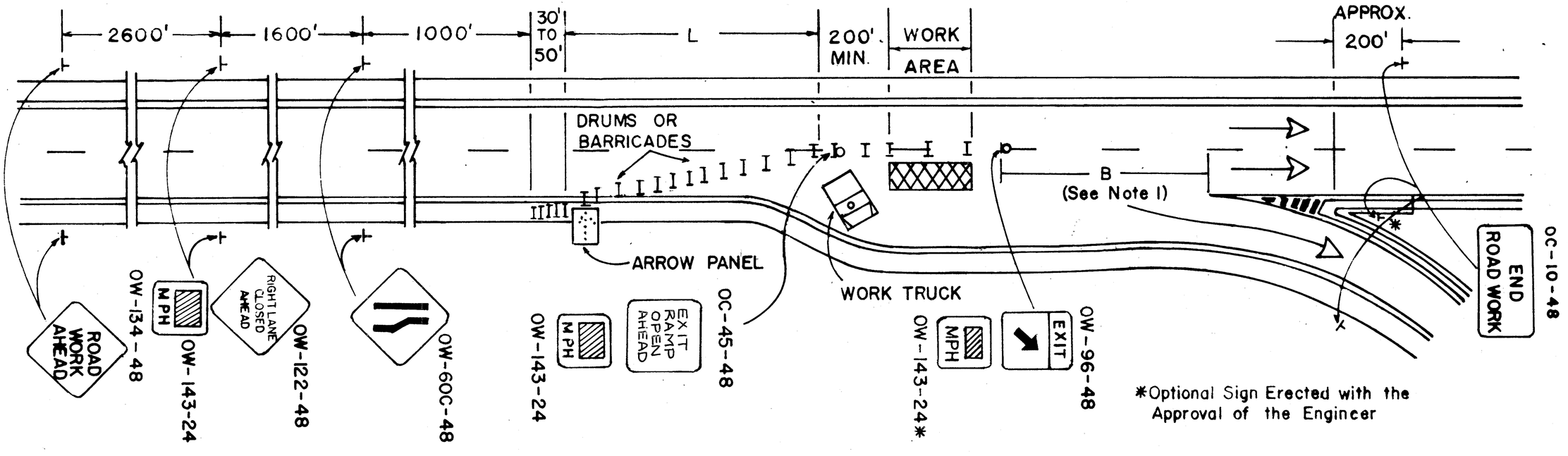
TYPICAL LANE CLOSURE IN RAMP
- FOR CLOSING OUTSIDE PORTION OF CURVE

DATE 11/77

FHWA REGION	STATE	PROJECT NO.	FUNDS
5	OHIO		

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91

SUM-271-0.82



*Optional Sign Erected with the Approval of the Engineer

GENERAL NOTES

1. THIS WORK AREA TRAFFIC CONTROL APPLICATION SHALL ONLY BE USED WHEN THE DISTANCE "B" IS 100 FEET OR GREATER. WHEN "B" IS LESS THAN 100 FEET, THE TRAFFIC CONTROL SHOWN ON THE "LANE CLOSURE AT EXIT GORE" DETAIL SHOULD BE USED, OR THE EXIT SHOULD BE CLOSED, OR THE TRAFFIC CONTROL ON THIS DRAWING MAY BE USED WITH APPROVAL OF THE ENGINEER. WHEN THE EXIT IS CLOSED, APPROPRIATE DETOUR SIGNS SHALL BE PROVIDED.

2. WHEN WORK IS BEING PERFORMED IN THE LANE ADJACENT TO THE MEDIAN ON A DIVIDED HIGHWAY, REFER TO THE TYPICAL WORK AREA TRAFFIC CONTROL SHOWN IN FIGURE C-21 OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

3. THE WORK TRUCK SHOWN AT THE BEGINNING OF THE WORK AREA SHALL BE IN PLACE AND UNOCCUPIED WHENEVER MEN ARE WORKING WITHIN THE WORK AREA. THIS TRUCK SHALL BE MOVED FROM THE PAVEMENT WHENEVER WORKMEN ARE NOT IN THE WORK AREA. OTHER PROTECTIVE DEVICES MAY BE USED IN LIEU OF THE WORK TRUCK SHOWN WHEN APPROVED BY THE ENGINEER.

4. THE FLASHING ARROW PANEL SHALL BE IN ACCORDANCE WITH

5. THIRTEEN (13) DRUMS OR BARRICADES SHALL BE USED TO FORM THE LANE TRANSITION TAPER IN ADVANCE OF THE WORK AREA. FIVE (5) CHANNELIZING DEVICES SHALL BE USED TO FORM THE TAPER ON THE SHOULDER. DRUMS, OR BARRICADES SHALL BE SPACED AT 50 FOOT CENTERS. CONES MAY BE SUBSTITUTED FOR BARRICADES OR DRUMS FOR THE LANE CLOSURES DURING DAYLIGHT HOURS ONLY.

6. TYPE C STEADY BURNING BARRICADE WARNING LIGHTS SHALL BE ERECTED ON DRUMS OR BARRICADES FOR NIGHT LANE CLOSURES. MAXIMUM SPACING SHALL BE 50' CENTER TO CENTER IN ADVANCE OF THE WORK AREA AND 200' CENTER TO CENTER WITHIN THE LIMITS OF THE WORK AREA.

7. TAPER FORMULA SHALL BE IN ACCORDANCE WITH OMUTCD SECTION 7F-17.

8. THE SPACINGS BETWEEN CONSTRUCTION AND MAINTENANCE SIGNS SHOWN ON THIS DETAIL MAY REQUIRE ADJUSTMENTS (INCREASES OR DECREASES) TO ASSURE THAT THEY ARE POSITIONED NO CLOSER THAN 200 FEET TO EXISTING SIGNS AS DETERMINED BY THE ENGINEER.

~~9. CONES MAY BE SUBSTITUTED FOR DRUMS OR BARRICADES AT NIGHT FOR SHORT-TERM LANE CLOSURES. CONES USED AT NIGHT SHALL BE RETROFLECTORIZED OR EQUIPPED WITH LIGHTING DEVICES FOR MAXIMUM VISIBILITY.~~

9. FOR NIGHT CLOSURES EACH OF THE FIRST TWO SIGNS IN THE SEQUENCE (ROAD WORK AHEAD AND RIGHT LANE CLOSED AHEAD) IS REQUIRED TO BE SUPPLEMENTED BY A TYPE A FLASHING BARRICADE WARNING LIGHT.

10. WORK VEHICLES SHALL BE EQUIPPED WITH A 360° ROTATING OR FLASHING AMBER BEACON CLEARLY VISIBLE A MINIMUM OF 1/4 MILE.

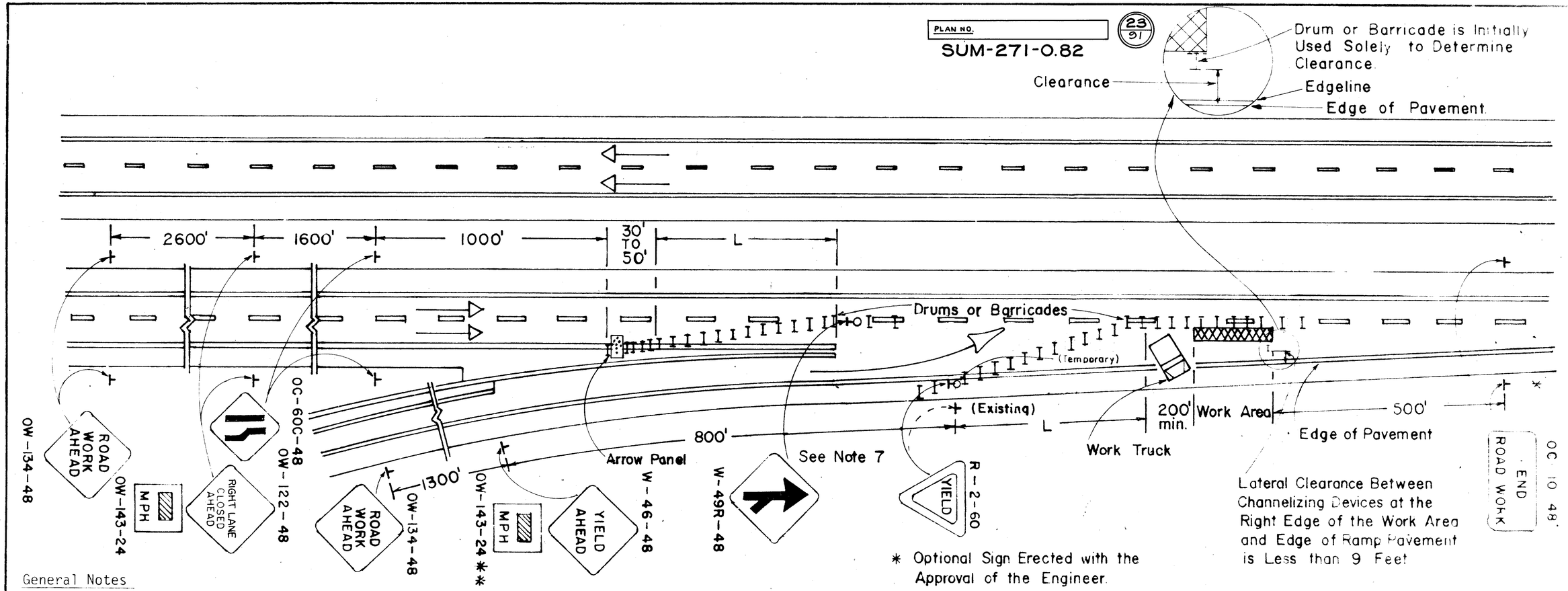
OHIO DEPARTMENT OF TRANSPORTATION

LANE CLOSURE BEFORE EXIT GORE

DATE 8-3-79

PLAN NO. SUM-271-0.82

23/91



* Optional Sign Erected with the Approval of the Engineer.

Lateral Clearance Between Channelizing Devices at the Right Edge of the Work Area and Edge of Ramp Pavement is Less than 9 Feet

General Notes

1. This work area traffic control application shall be employed when the lateral clearance between channelizing devices at the right edge of the work area and the edge of the ramp pavement is less than 9 feet. When the clearance is more than 9 feet, the traffic control on "Lane Closure at Entrance Ramp: Plan A" should be used, or the ramp should be closed. When the ramp is closed, appropriate detour signs shall be provided.

2. Thirteen (13) drums or barricades shall be used to form the lane transition taper in advance of the work area. Five (5) channelizing devices shall be used to form the taper on the shoulder. drums, or barricades shall be spaced at 50 foot centers. Cones may be substituted for barricades or drums for the lane closures during daylight hours only.

3. Ramp signs shall be dual mounted on multi-lane ramps. When the ramp is not long enough to allow placement as specified above, the signs may be spaced proportionately within the space available as determined by the Engineer (a 200' minimum spacing must be maintained).

4. The flashing arrow panel shall be in accordance with TC-35.10.

5. The work truck shown at the beginning of the work area shall be in place and unoccupied whenever men are working within the work area. This truck shall be moved from the pavement whenever workmen are not in the work area. Other protective devices may be used in lieu of work truck shown when approved by the Engineer.

6. Type C steady burning barricade warning lights shall be erected on drums or barricades for night lane closures. Maximum spacing shall be 50' center to center in advance of the work area and 200' center to center within the limits of the work area.

7. It may be necessary to move the location of an existing Yield condition In these cases, the permanent R-2 sign installation shall be covered and the temporary installation shall be mounted upon a drive post which shall be banded to a drum with stainless steel strapping material or other techniques subject to the approval of the Engineer.

8. Taper Formula Shall Be In Accordance With OMUTCD, Section 7F-17.

~~9. CONES MAY BE SUBSTITUTED FOR DRUMS OR BARRICADES AT NIGHT FOR SHORT-TERM LANE CLOSURES. CONES USED AT NIGHT SHALL BE REFLECTORIZED OR EQUIPPED WITH LIGHTING DEVICES FOR MAXIMUM VISIBILITY.~~

9. FOR NIGHT CLOSURES EACH OF THE FIRST TWO SIGNS IN THE SEQUENCE (ROAD WORK AHEAD AND RIGHT LANE CLOSED AHEAD) IS REQUIRED TO BE SUPPLEMENTED BY A TYPE A FLASHING BARRICADE WARNING LIGHT.

10. THE SPACINGS BETWEEN CONSTRUCTION AND MAINTENANCE SIGNS SHOWN ON THIS DETAIL MAY REQUIRE ADJUSTMENTS (INCREASES OR DECREASES) TO ASSURE THAT THEY ARE POSITIONED NO CLOSER THAN 200 FEET TO EXISTING SIGNS AS DETERMINED BY THE ENGINEER.

11. WORK VEHICLES SHALL BE EQUIPPED WITH A 360° ROTATING OR FLASHING AMBER BEACON CLEARLY VISIBLE A MINIMUM OF 1/4 MILE.

OHIO DEPARTMENT OF TRANSPORTATION

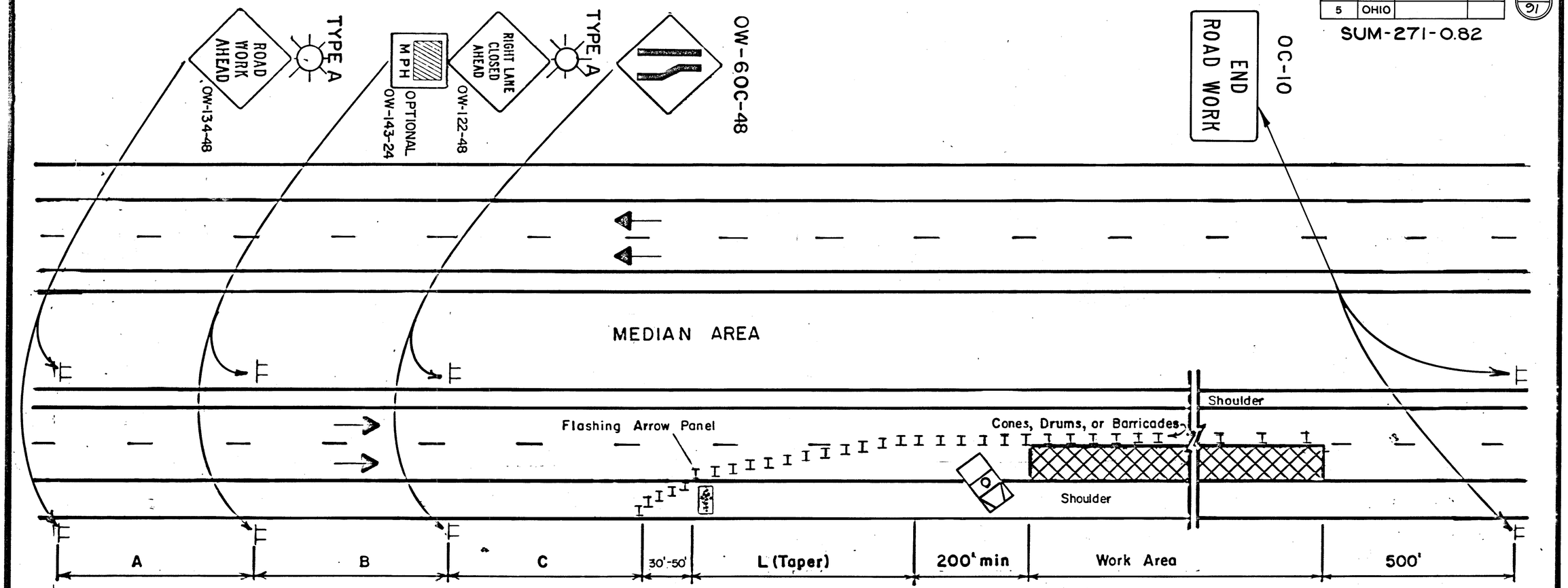
LANE CLOSURE AT ENTRANCE RAMP PLAN B

DATE 8-3-79

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

24
91

SUM-271-0.82



GENERAL NOTES:

1. The taper length (L) shall be in accordance with Section 7F-17 of the OMUTCD. The location of the transition taper and location of the advance warning signs should be adjusted to provide for adequate sight distance for the existing vertical and horizontal roadway alignment. In order to determine the minimum number of channelizing devices for the transition taper see Table 7-5 OMUTCD. For a 55 MPH prevailing speed and a 12 ft. lane, not less than thirteen (13) drums or barricades shall be used to form the lane transition taper in advance of the work area. Not less than five (5) drums or barricades shall be used to form the taper on the shoulder. drums or barricades shall be spaced approximately 50' to 60' center to center for the first 1000 feet of the work area and at a maximum of 100 to 120 feet for the balance of the work area. Cones may be substituted for barricades or drums for short term lane closures during daylight hours only.

2. The major standard level warning sign sizes may be used on divided streets or highways that are not classified as freeways or expressways.

3. When work is being performed in the lane adjacent to the median on a divided highway an OW-123-48 sign(s) shall be substituted for the OW-122-48 sign(s) and an OW-60D-48 sign(s) shall be substituted for the OW-60C sign(s).

4. The work vehicle shown at the beginning of the work area shall be in place and unoccupied whenever workers are in the work area. This work vehicle shall be removed from the pavement whenever workers are not in the work area. Other protective devices may be used in lieu of the work vehicle shown when approved by the Engineer. The vehicle shall be equipped with a 360° rotating or flashing amber beacon clearly visible a minimum of a ½ mile.

5. The flashing arrow panel shall meet requirements contained in TC-35.10.

6. Type C steady burning barricade warning lights shall be erected on drums or barricades for night lane closures. The maximum spacing shall be identical to the channelizing device spacing requirements described in Note 1.

MINIMUM DISTANCE	A	B	C
MAJOR STANDARD	500'	500'	500'
URBAN FREEWAY & EXPRESSWAY	500' TO 1000'	500' TO 1000'	500' TO 1000'
RURAL FREEWAY & EXPRESSWAY	2600'	1600'	1000'

7. Type A flashing barricade warning lights shown on the "Road Work Ahead" and the "Right Lane Closed Ahead" signs are required whenever a night lane closure is necessary.

8. Some work area locations may require more than just static or conventional signs to enhance communication with the driver. At these locations Portable Changeable Message Signs (PCMS) units are recommended. These devices should be located 2,000 To 4,000 Feet in advance of a lane closure or other point of required action. See Section 7G-8.1, OMUTCD for further guidance on use of PCMS units.

OHIO DEPARTMENT OF TRANSPORTATION

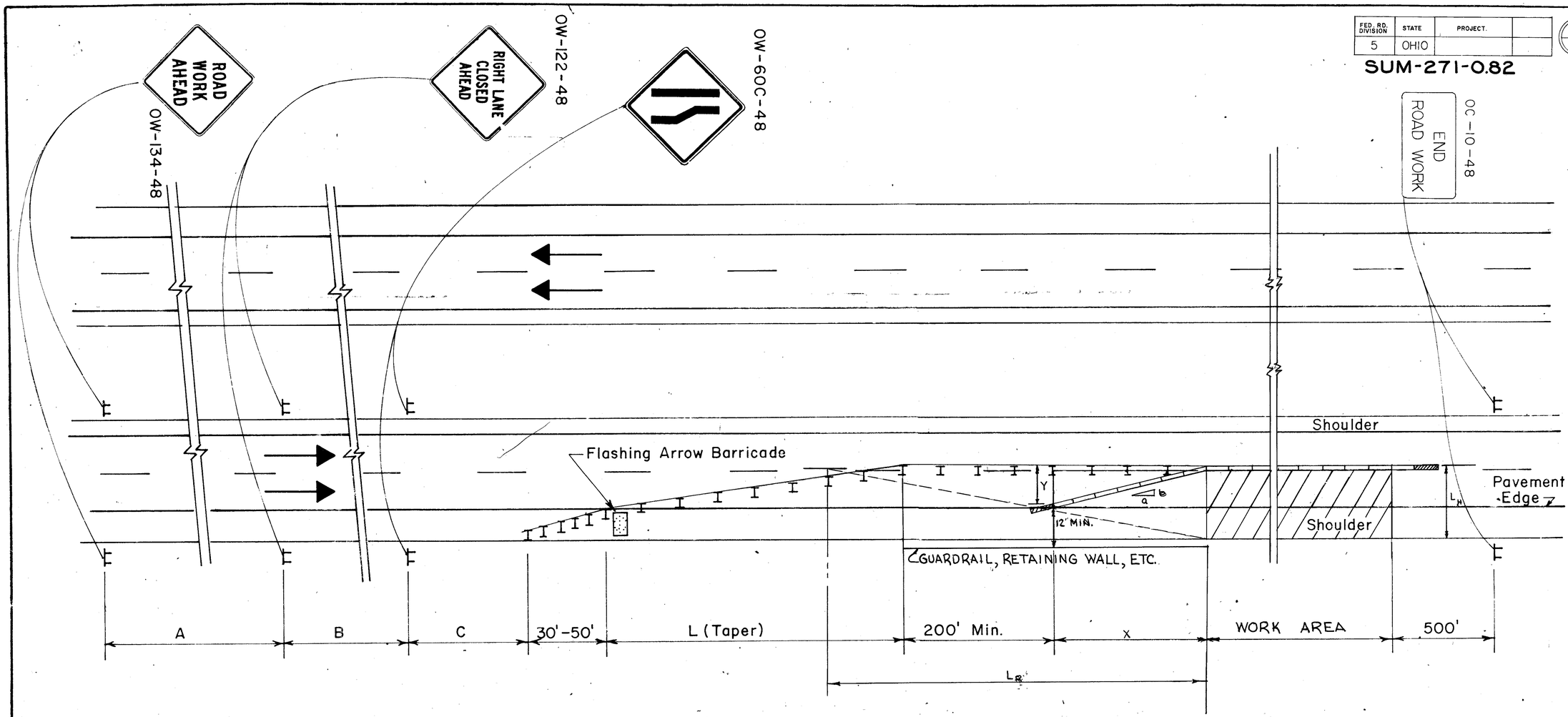
CLOSING ONE LANE OF A FOUR LANE DIVIDED HIGHWAY

DATE 12/82

FED. RD. DIVISION	STATE	PROJECT.	
5	OHIO		

25/91

SUM-271-0.82



▨ = STANDARD MC-9A END TERMINAL

SPEED	a:b	L_R (Ft.)
55	15:1	360
50	15:1	320
45	12:1	280

$L_1 = 0$, $L_2 = 0$

$$X = \frac{L_H + \frac{L_1}{a} - L_2}{\frac{1}{a} + \frac{L_H}{L_R}}$$

$$Y = L_H - \frac{X \times L_H}{L_R} \qquad Y \geq 8'$$

DISTANCE	A	B	C	L
URBAN	200	200	200	425
MAJOR STANDARD	500	500	500	600
FREEWAY AND EXPRESSWAY	2600	1600	1000	720

GENERAL NOTES

1. THIRTEEN (13) DRUMS OR BARRICADES SHALL BE USED TO FORM THE LANE TRANSITION TAPER IN ADVANCE OF THE WORK AREA. FIVE (5) CHANNELIZING DEVICES SHALL BE USED TO FORM THE TAPER ON THE SHOULDER. DRUMS OR BARRICADES SHALL BE SPACED AT 50 FOOT CENTERS FOR THE FIRST 1000 FEET OF THE WORK AREA AND AT A MAXIMUM OF 100 FEET FOR THE BALANCE OF THE WORK AREA.

2. WHEN WORK IS BEING PERFORMED IN THE LANE ADJACENT TO THE MEDIAN ON A DIVIDED HIGHWAY "OW-123-48" SIGNS SHALL BE SUBSTITUTED FOR "OW-122-48" SIGNS AND THE OW-60D SIGNS SHALL BE SUBSTITUTED FOR THE OW-60C SIGNS

3. THE "WORK AREA" IS DEFINED TO INCLUDE AREAS WHERE HEAVY EQUIPMENT OR MATERIALS ARE STORED.

4. THE FLASHING ARROW BARRICADE SHALL BE IN ACCORDANCE WITH THE DETAILS SHOWN ON STANDARD DRAWING TC 35.10

5. SIGNS SHALL BE MOUNTED ON PORTABLE SIGN SUPPORTS WITH APPROPRIATE WEIGHTING AND SHALL BE IN ACCORDANCE WITH OMUTCD, CURRENT EDITION, LATEST REVISION.

6. A MINIMUM WIDTH OF 12' IS REQUIRED FOR ACCESS TO WORK AREA.

OHIO DEPARTMENT OF TRANSPORTATION

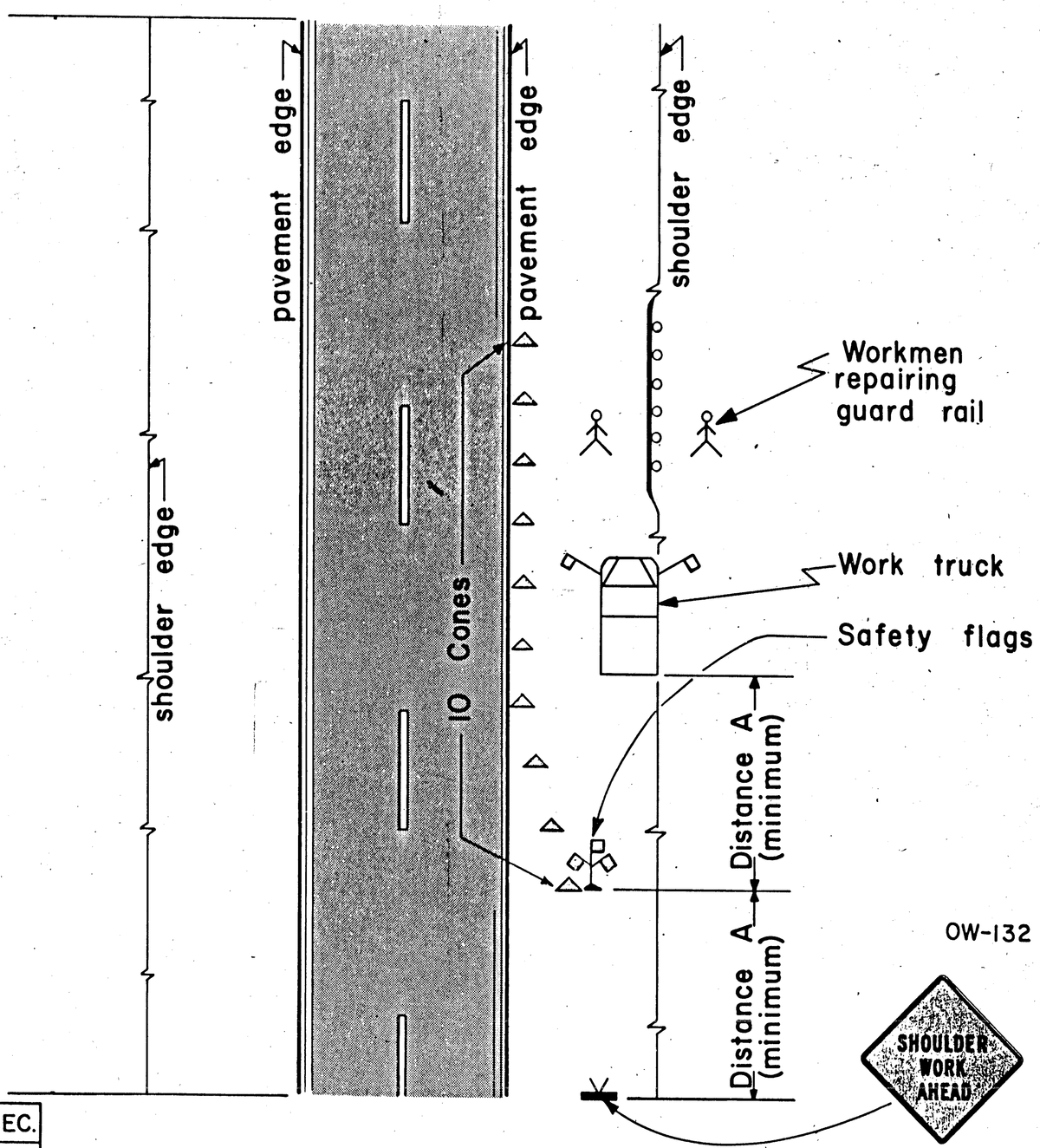
CLOSING ONE LANE OF A FOUR LANE DIVIDED HIGHWAY WITH TEMPORARY CONC. BARRIER

DATE 4/77

DR. | CK

FHWA REGION	STATE	PROJECT
5	OHIO	SUM-271-0.82

TYPICAL APPLICATIONS OF TRAFFIC CONTROL DEVICES FOR STATIONARY OPERATIONS ON THE SHOULDER



REF. SEC.
7D-16

NOTES:
1. Space the cones at 50' maximum.
2. For work within the median, install the same cones and signs for both directions of travel.

TYPE OF ROADWAY	DISTANCE A - ft.
Urban	200
Standard	500
Expressway	750

CALC. BY ____ DATE ____
CHKD. BY ____ DATE ____

OHIO | FHWA REGION 5 | 28 / 91

SUM-271-0.82

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 MAINTAINED IN GOOD CONDITION TO PROVIDE DAY AND NIGHT VISIBILITY. THE MARKINGS SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE ENGINEER TO MAINTAIN REQUIRED VISUAL EFFECTIVENESS AND NIGHT VISIBILITY AT NO ADDITIONAL COST TO THE STATE.

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) SIGN OR "UNMARKED NO PASSING ZONES" (OW-168) SIGN OR BOTH AS MAY BE APPROPRIATE. THESE SIGNS SHALL BE IN PLACE PRIOR TO EXPOSING THE ROADWAY TO TRAFFIC. THESE SIGNS SHALL BE REPEATED EVERY 1 TO 2 MILES AND AT OTHER LOCATIONS AS NECESSARY. THESE SIGNS SHALL BE REMOVED WHEN THEY NO LONGER APPLY. THE COST FOR FURNISHING AND ERECTING AND SUBSEQUENTLY REMOVING THESE SIGNS SHALL BE INCLUDED IN 614 MAINTAINING TRAFFIC, UNLESS SPECIFICALLY ITEMIZED.

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 C PREFORMED MATERIAL. WHERE PAVEMENT MARKING ARE NOT LIABLE TO BE TRACKED, EITHER CONVENTIONAL OR FAST-DRYING PAINT MAY BE USED FOR 621.02.

PAINT

PAINTED MARKINGS SHALL BE IN ACCORDANCE WITH 621 EXCEPT THAT THE INCREASE OF 25 PERCENT IN THE APPLICATION RATE FOR NEW BITUMINOUS PAVEMENT AND PARAGRAPH 621.14 SHALL NOT APPLY.

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 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.

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) LANE LINES SHALL BE 4-INCHES IN WIDTH.
2) TRANSVERSE LINES SHALL BE 8-INCHES IN WIDTH.
3) STOP LINES SHALL BE 12-INCHES IN WIDTH.
4) CROSS WALK LINES SHALL BE 8-INCHES IN WIDTH.

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 TWO 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 1.6 GALLONS PER MILE FOR LANE LINE AND CENTER LINE AND 16 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 OR EQUIVALENT 614 CLASS I, PAINT MARKINGS SHALL BE APPLIED. 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 PROVISIONS OF 108.07 WILL BE INVOKED, EXCEPT THAT BETWEEN NOVEMBER 15 AND APRIL 15 WEATHER CONDITIONS SHALL NOT BE AN ACCEPTABLE REASON FOR EXTENSION.

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, IN ACCORDANCE WITH 621.15.

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 THE MARKINGS.

ITEM	UNIT	DESCRIPTION		QUANTITIES
614	MILES	TEMPORARY LANE LINES, CLASS I,	*	65.4
614	MILES	TEMPORARY CENTER LINES, CLASS I,	*	0.6
614	LIN. FT.	TEMPORARY CHANNELIZING LINES, CLASS I,	*	15,000
614	MILES	TEMPORARY EDGE LINES, CLASS I,	*	150
614	LIN. FT.	TEMPORARY STOP LINES, CLASS I,	*	300

*621 PAINT, 947.03 TYPE B OR 947.03 TYPE C

fh4

July 25, 1984
February 6, 1985

CALCULATIONS

Calc. By G.L.B.
Date 12/84
Ckd. By A.P.
Date 12/84

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

SUM-271-0.82

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91

EXISTING MI PAVEMENT AREA

STATION TO STATION	LENGTH	SIDE	AREA	
452+00 TO 564+79.82	11279.82	Lt. & Rt.	11279.82 x 24 x 2 ÷ 9 = 60159.04	S.Y.
564+79.82 Bk. = 154+70 Ahd. Sta. Equation				
154+70 to 187+36.11	3266.11	Lt. & Rt.	3266.11 x 24 x 2 ÷ 9 = 17419.25	S.Y.
190+84.72 to 198+39.17	754.45	Lt. & Rt.	754.45 x 24 x 2 ÷ 9 = 4023.73	S.Y.
199+67.21 to 346+13.02	14645.81	Lt.	14645.81 x 24 ÷ 9 = 39055.50	S.Y.
199+67.21 to 346+15.94	14648.73	Rt.	14648.73 x 24 ÷ 9 = 39063.28	S.Y.
348+30.81 to 421+49.75	7318.94	Rt.	7318.94 x 24 ÷ 9 = 19517.18	S.Y.
348+47.14 to 421+97.75	7350.61	Lt.	7350.61 x 24 ÷ 9 = 19601.63	S.Y.
436+98.25 to 449+33.78	1235.53	Lt.	1235.53 x 24 ÷ 9 = 3294.48	S.Y.
436+07.25 to 449+47.62	1340.37	Rt.	1340.37 x 24 ÷ 9 = 3574.32	S.Y.
451+24.24 to 522+30.34	7106.10	Lt.	7106.10 x 24 ÷ 9 = 18949.60	S.Y.
451+10.16 to 522+16.12	7105.96	Rt.	7105.96 x 24 ÷ 9 = 18949.22	S.Y.
522+30.34 S.B.L., 522+16.12 N.B.L. Sta. Equation				
℄ 522+23.23				
522+23.23 To 588+34.02	6610.79	Lt. & Rt.	6610.79 x 24 x 2 ÷ 9 = 35257.55	S.Y.
589+69.18 To 590+98.18	129.00	Lt. & Rt.	129.00 x 24 x 2 ÷ 9 = 688.00	S.Y.
592+58.82 To 601+81.79	922.97	Lt. & Rt.	922.97 x 24 x 2 ÷ 9 = 4922.51	S.Y.

Speed Change Lanes

Rest Area

Ramp X

475+90 to 487+90 1200 = 1666.67 S.Y.

Ramp V

477+45.27 to 485+45.26 799.99 = 1815.43 S.Y.

Ramp W

452+00 To 456+44.73 444.73 = 1148.37 S.Y.

Ramp U

452+00 To 457+00 500.00 = 1099.54 S.Y.

CH. 17 Interchange

Ramp A

541+07.11 To 553+07.11 1200.00 = 1666.67 S.Y.

Ramp B

548+59.73 To 556+59.73 800.00 = 1682.10 S.Y.

I-77 Interchange

Ramp A

158+88.87 To 170+88.87 1200.00 = 1666.67 S.Y.

Ramp B

167+60.48 To 175+58.71 798.23 = 1715.27 S.Y.

Ramp C

199+67.21 To 210+53.11 1085.90 = 1364.61 S.Y.

Ramp D

187+60.03 To 196+60.03 900.00 = 943.32 S.Y.

S.R. 303 Interchange

Ramp F

288+72.34 To 300+72.34 1200.00 = 1666.67 S.Y.

Ramp E.

298+54.73 To 307+54.73 900.00 = 1810.73 S.Y.

Ramp G

312+45.27 To 321+45.27 900.00 = 1815.43 S.Y.

Ramp H

319+00 To 331+00 1200.00 = 1666.67 S.Y.

TOTAL AREA (A) = 306203.44 S.Y.

EXISTING OUTSIDE BERM

10' WIDTH

North Bound 45382.95 Lin. Ft.
South Bound 45155.02 Lin. Ft.
90537.97 x 10 ÷ 9 = 100,597.74 S.Y.

8' WIDTH

North Bound 5646.15 Lin. Ft.
South Bound 5581.98 Lin. Ft.
11228.13 x 8 ÷ 9 = 9980.56 S.Y.

VARIABLE WIDTH

North Bound = 7895.93 S.Y.
South Bound = 3579.12 S.Y.

TOTAL MI OUTSIDE BERM TOTAL AREA (B) 122053.35 S.Y.

EXISTING MEDIAN BERM

FROM MI PAVEMENT LENGTHS

((11279.82 + 3266.11 + 754.45 + 6610.79 + 129.00 + 922.97) x 2)
+ 14645.81 + 14648.73 + 7318.94 + 7350.61 + 1235.43 + 1340.37
+ 7160.10 + 7105.96) x 4 ÷ 9 =

TOTAL EXIST. MEDIAN BERM TOTAL AREA (C) 47436.55 S.Y.

EXISTING RAMPS AND RAMP BERMS

Rest Area

Ramp U Sta. 57+00 to Sta. 66+91.01

PAVEMENT		BERM	
991.01 Lin. Ft.	1739.57 S.Y.	300 x 8 ÷ 9 =	266.67 S.Y.
		150 x (8+3) ÷ 2 ÷ 9 =	91.67 S.Y.
		541 x 2 x 3 ÷ 9 =	360.67 S.Y.
		50 x (2+3) ÷ 2 ÷ 9 =	13.89 S.Y.

Ramp V Sta. 71+91.95 to Sta. 77+46.93

PAVEMENT		BERM	
554.98 Lin. Ft.	997.74 S.Y.	1010.03 x 3 ÷ 9 =	336.68 S.Y.
		99.93 x (3+8) ÷ 2 ÷ 9 =	61.07 S.Y.

Ramp W Sta. 55+44.73 to Sta. 60+98.05

PAVEMENT		BERM	
553.32 Lin. Ft.	994.60 S.Y.	1008.37 x 3 ÷ 9 =	336.12 S.Y.
		98.27 x (8+3) ÷ 2 ÷ 9 =	60.05 S.Y.

Ramp X Sta. 65+98.99 to 75+90

PAVEMENT		BERM	
991.01 Lin. Ft.	1739.57 S.Y.	541.01 x 2 x 3 ÷ 9 =	360.67 S.Y.
		300 x 8 ÷ 9 =	266.67 S.Y.
		150 x (3+8) ÷ 2 ÷ 9 =	91.67 S.Y.
		50 x (3+2) ÷ 2 ÷ 9 =	13.89 S.Y.

CH. 17 Interchange

Ramp A Sta. 53+07.11 to Sta. 67+19.89

PAVEMENT		BERM	
1299.16 Lin. Ft. + Return	2660.73 S.Y.	300 x 8 ÷ 9 =	266.67 S.Y.
		1333.78 x 3 ÷ 9 =	644.59 S.Y.
		150 x (8+3) ÷ 2 ÷ 9 =	91.67 S.Y.
		50 x (2+3) ÷ 2 ÷ 9 =	13.89 S.Y.

Ramp B Sta. 56+57.08 to E.P. C.H. 17

PAVEMENT		BERM	
579.36 Lin. Ft. + Return	1325.53 S.Y.	1238.86 x 3 ÷ 9 =	412.95 S.Y.
		100 x (8+3) ÷ 2 ÷ 9 =	61.11 S.Y.

EXISTING RAMPS AND RAMP BERMS CONT.

I-77 Interchange

Ramp A Sta. 170+88.87 to Sta. 199+14.15

PAVEMENT		BERM	
2852.28 Lin. Ft.	5011.61 S.Y.	300 x 8 ÷ 9 =	266.67 S.Y.
		2325.28 x 6 ÷ 9 =	1550.19 S.Y.
		2325.28 x 4 ÷ 9 =	1033.46 S.Y.
		200 x (8+6) ÷ 2 ÷ 9 =	155.56 S.Y.
		100 x (4+3) ÷ 2 ÷ 9 =	38.89 S.Y.

Ramp B Sta. 175+58.71 to Sta. 222+39.11

PAVEMENT		BERM	
4358.38 Lin. Ft.	7737.12 S.Y.	300 x 8 ÷ 9 =	266.67 S.Y.
		3858.38 x 6 ÷ 9 =	2572.25 S.Y.
		3858.38 x 4 ÷ 9 =	1714.84 S.Y.
		200 x (8+6) ÷ 2 ÷ 9 =	155.56 S.Y.
		100 x (4+2) ÷ 2 ÷ 9 =	33.33 S.Y.

Ramp C Sta 187+22.69 to Sta. 198+34

PAVEMENT		BERM	
1111.31 Lin. Ft.	1971.21 S.Y.	280.89 x 8 ÷ 9 =	249.68 S.Y.
		1257.73 x 3 ÷ 9 =	419.24 S.Y.
		150 x (8+3) ÷ 2 ÷ 9 =	91.67 S.Y.
		53.11 x (3+2) ÷ 2 ÷ 9 =	14.75 S.Y.

Ramp D Sta. 167+35 to Sta. 187+53

PAVEMENT		BERM	
2018.00 Lin. Ft.	3576.61 S.Y.	300 x 8 ÷ 9 =	266.67 S.Y.
		3033.06 x 3 ÷ 9 =	1011.02 S.Y.
		250 x (8+3) ÷ 2 ÷ 9 =	152.78 S.Y.
		50 x (2+3) ÷ 2 ÷ 9 =	13.89 S.Y.

S.R. 303 Interchange

Ramp E Sta. 306+53.07 to Sta. 320+00

PAVEMENT		BERM	
1346.93 Lin. Ft.	3622.23 S.Y.	961.42 x 3 ÷ 9 =	320.47 S.Y.
		468.11 x 6 ÷ 9 =	312.07 S.Y.
		100 x (8+3) ÷ 2 ÷ 9 =	61.11 S.Y.
		40 x (6+8) ÷ 2 ÷ 9 =	31.11 S.Y.

Ramp H Sta. 308+38.77 to Sta. 319+00

PAVEMENT		BERM	
1061.23 Lin. Ft.	1931.49 S.Y.	300 x 8 ÷ 9 =	266.67 S.Y.
		878.71 x 3 ÷ 9 =	292.90 S.Y.
		132.52 x (6+3) ÷ 2 ÷ 9 =	66.26 S.Y.
		150 x (3+8) ÷ 2 ÷ 9 =	91.67 S.Y.
		50 x (3+2) ÷ 2 ÷ 9 =	13.89 S.Y.

Ramp F Sta. 300+72.34 to Sta. 315+52.52

PAVEMENT		BERM	
1480.18 Lin. Ft.	3551.61 S.Y.	300 x 8 ÷ 9 =	266.67 S.Y.
		348.14 x 6 ÷ 9 =	232.09 S.Y.
		1201.94 x 3 ÷ 9 =	400.65 S.Y.
		150 x (8+3) ÷ 2 ÷ 9 =	91.67 S.Y.
		50 x (3+2) ÷ 2 ÷ 9 =	13.89 S.Y.
		100 x (3+6) ÷ 2 ÷ 9 =	50.00 S.Y.
		20 x (8+6) ÷ 2 ÷ 9 =	15.56 S.Y.

Ramp G Sta. 307+17.80 to Sta. 313+46.93

PAVEMENT		BERM	
629.13 Lin. Ft.	1190.67 S.Y.	589.93 x 3 ÷ 9 =	196.64 S.Y.
		100 x (3+8) ÷ 2 ÷ 9 =	61.11 S.Y.
		100 x (3+2) ÷ 2 ÷ 9 =	27.78 S.Y.

TOTAL RAMP PAVEMENT = 46,996.20 S.Y. TOTAL AREA (D)

TOTAL RAMP BERM = 16,569.93 S.Y. TOTAL AREA (E)

33770

CALCULATIONS CONT.

CALC. BY GLB
DATE 2-2-85
CK'D. BY A.P.
DATE 2/85

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

SUM-271-0.82

FEATHER AREAS:

	PAVEMENT	BERM
#1.	1756.67 S.Y.	378.10 S.Y.
#2.	1055.36 S.Y.	601.27 S.Y.
#3.	800.00 S.Y.	466.68 S.Y.
#4.	438.34 S.Y.	133.34 S.Y.
#5.	5160.72 S.Y.	2683.40 S.Y.
	*688.00 S.Y.	*401.34 S.Y.
#6.	755.25 S.Y.	443.06 S.Y.
#7.	400.00 S.Y.	233.33 S.Y.
#7A.	525.00 S.Y.	297.92 S.Y.
#8.	930.56 S.Y.	166.66 S.Y.

* DENOTES AREAS OF 403 @ 1/2" THICKNESS

ITEM 202 WEARING COURSE REMOVED

S.R. 303 INTERCHANGE

RAMP F	245.11 S.Y.
RAMP H	780.76 S.Y.
RAMP G	865.27 S.Y.

I-77 INTERCHANGE

RAMP A	143.75 S.Y.
RAMP B	118.75 S.Y.
RAMP C	143.75 S.Y.
RAMP D	118.75 S.Y.

STA. 452+00 TO 452+50 RT. = 221.12 S.Y.
STA. 452+00 TO 452+50 LT. = 217.22 S.Y.
STA. 601+06.79 TO 601+81.79 LT. & RT. = 400 S.Y.
TOTAL 3254.97 S.Y.

TO GENERAL SUMMARY 3255 SQ. YD.

RAMP WIDENING AREAS S.R. 303 INTERCHANGE

	PAVEMENT	BERM
RAMP E		
STA. 309+53.07 TO E.P. S.R. 303	817.15 S.Y.	
STA. 306+53.07 TO E.P. S.R. 303		1122.76 S.Y.
RAMP G		
E.P. S.R. 303 TO STA. 310+46.93	458.95 S.Y.	
E.P. S.R. 303 TO STA. 313+46.93		753.51 S.Y.
TOTAL AREA (F)	1276.10 S.Y.	1876.27 S.Y. AREA (G)
STA. 320+45.27 TO 329+45.27 SB		
AREA (H)	1066.67 S.Y.	811.11 S.Y. AREA (I)

ITEM 301 BITUMINOUS AGGREGATE BASE

AREA (G) + AREA (I)
(1876.27 + 811.11) x 4 ÷ 36 = 298.60

TO GENERAL SUMMARY 299 CU. YD.

ITEM 310 SUBBASE

RAMP E	STA. 306+53.07 TO E.P. S.R. 303	82.48 C.Y.
RAMP G	E.P. S.R. 303 TO STA. 313+46.93	43.72 C.Y.
STA. 320+45.27 TO 329+45.27		26.54 C.Y.
	TOTAL	152.74 C.Y.

TO GENERAL SUMMARY 153 CU. YDS.

ITEM 653 TOPSOIL FURNISHED AND PLACED
AVE. DEPTH 6"
ITEM 659 SEEDING AND MULCHING

STATION	SIDE	SEEDING S.Y.	WIDTH	L/A OFFSET	END AREA	VOLUME
523+22.6	RT.		0	125	0	
		227				38
525+00	RT.		23	125	12	
		300				50
526+00	RT.		31	125	16	
		506				84
527+00	RT.		60	142.5	30	
		811				135
528+00	RT.		86	162.7	43	
		956				159
529+00	RT.		86	168	43	
		933				156
530+00	RT.		82	173.3	41	
		1006				168
531+00	RT.		99	178.7	49.5	
		1022				170
532+00	RT.		85	184.0	42.5	
		794				132
533+00	RT.		58	189.3	29	
		412				69
533+70	RT.		48	193	24	
		97				16
534+00	RT.		10	194.7	5	
		56				9
535+00	RT.		0		0	
TOTALS		7120				1186

ITEM 653 TOPSOIL FURNISHED AND PLACED 1186 C.Y.
TO GENERAL SUMMARY 1186 CU.YD.

ITEM 659 SEEDING AND MULCHING 7120 S.Y. (100% STATE)
TO GENERAL SUMMARY 7120 SQ.YD.

ITEM SPECIAL OPEN GRADED ASPHALT CONCRETE FRICTION COURSE RUBBERIZED

@ 3/4" T, AREAS A+B+C+H+I-(#2+#3+#5+#6)
[(306203.44 + 122053.35 + 47436.55) - (1055.36 + 601.27 + 800 + 466.68 + 5160.72 + 2683.40 + 688 + 401.34) + 1066.67 + 811.11] x 3/4 ÷ 36 = 9677.42 C.Y.
+ 755.25 + 443.06

@ .63" AVE. T FEATHER AREAS #5 +
(5160.72 + 2683.40 + 688.00 + 401.34) x .63 ÷ 36 = 156.34 C.Y.

@ 3/4" T 2/3 x FEATHER AREA #3
(800.00 + 466.68) x 2/3 x .75 ÷ 36 = 17.59 C.Y.
9677.42 + 156.34 + 17.59 = 9851.35 C.Y.

TO GENERAL SUMMARY 9851 CU.YD.

ITEM 846 ASPHALT CONCRETE AC-20 *Intermediate Course Type 2.*

@ 1 1/2" AREAS A+B+C+D+E-(#1+#3+#4+#5+#6+#7+#7A)+F+G+H+I
[(306203.44 + 122053.35 + 47436.55 + 46906.29 + 16569.93) - (1756.67 + 378.10 + 800.00 + 466.68 + 438.34 + 133.34 + 5160.72 + 2683.40 + 688.00 + 401.34 + 755.25 + 443.06 + 400 + 233.33 + 525.00 + 297.92) + 1276.10 + 1876.27 + 1066.67 + 811.11] x 1.5 ÷ 36 = 21899 C.Y.

@ 1 3/4" AREA #4
(438.34 + 133.34) x 1.75 ÷ 36 = 27.79
21899 + 27.79 = 21926.79 C.Y.

TO GENERAL SUMMARY 21927 CU.YD.

ITEM 846 ASPHALT CONCRETE AC-20, *Surface Course Type 1.*

@ 1" AREAS A+B+C+D+E+F+G+H+I-(#1+#3+#4+#5+#6+#7+#7A)
(FROM 402 @ 1 1/2")
525576.23 x 1.25 ÷ 36 = 18,249.17 C.Y.

TO GENERAL SUMMARY 18,250 CU.YD.

ITEM 848 ASPHALT CONCRETE AC-20 *Intermediate Course Type 1.*

[(1756.67 + 378.10) x 2.75/2 + (800 + 466.68 x 2/3 x 2.5/2 + (800 + 466.68) x 1/3 x .75/2)
+ (438.34 + 133.34) x .75/2 + (5160.72 + 2683.4) x 1.75 + .5/2 + (688 + 401.34) x .5
+ (755.25 + 443.06) x 2 + .5/2 + (400 + 233.33) x 1.5 + .75/2 + (930.56 + 166.66) x 1.5/2
+ (525 + 297.92) x 1.5 + .25/2 + 1055.36 + 601.27 x .75/2 + (755.25 + 443.06) x 1 + .5/2] ÷ 36 = 527.95 C.Y.

TO GENERAL SUMMARY 528 CU. YD.

ITEM 407 TACK COAT, USING SS-924 @ 0.1 GAL/S.Y.

AREAS A+B+C+D+E+F+H - 53,800 S.Y. (BERM REPAIR) + #8 FEATHER-988.89 S.Y. (BERM REMOVED)
(306203.44 + 122053.35 + 47436.55 + 46906.29 + 16,569.93 + 1276.10 - 53,800 + 1097.22 + 1066.67 - 988.89) x 0.1 = 48791.07 GAL.

TO GENERAL SUMMARY 48791 GAL.

ITEM 407 COVER AGGREGATE

48791.070 x 7 ÷ 2000 = 1707.69 TONS

TO GENERAL SUMMARY 1708 TONS

ITEM 617 COMPACTED AGGREGATE

FROM M1 PAVEMENT LENGTHS - CROSSOVERS
(((11279.82 + 3266.11 + 754.45 + 6610.79 + 129.00 + 922.97) x 2) + 14645.81
+ 14648.73 + 7318.94 + 7350.61 + 1235.43 + 1340.37 + 7106.10 + 7105.56
- (47.84 LENGTH/CROSSOVER x 2 SIDES x 5 CROSSOVERS)) x 2.25/12 x 2 ÷ 2 ÷ 27 = 737.50 CU. YDS.

TO GENERAL SUMMARY 738 CU.YD.

ITEM 203 SUBGRADE COMPACTION

AREA (F) + AREA (G) + AREA (H) + AREA (I) = 1276.10 + 1876.27 + 1066.67 + 811.11 = 5030.15 S.Y.
TO GENERAL SUMMARY 5030 S.Y.

ITEM 659 COMMERCIAL FERTILIZER

Ramp E	5,571 S.Y.	EXIT GORE RECONSTRUTION	500 S.Y.
Ramp F	356 S.Y.	RAMP G EXTENSION	7,377 S.Y.
Ramp G	1,218 S.Y.		
575+00 To 588+00	6,933 S.Y.		
Slide Repair	10,477 S.Y.		
Calc. Sheet Regrading	7,120 S.Y.		
446+50 To 449+51	299 S.Y.		
592+51 To 595+50	1,166 S.Y.		
Crossover	700 S.Y.		
Total			41,717 S.Y.

(41,717 S.Y.)(0.00009 Ton/S.Y.) = 3.754 Ton
TO GENERAL SUMMARY 3.75 TONS

ITEM 659 AGRICULTURAL LIMING

(41,717 S.Y.)(0.00045 Ton/S.Y.) = 18.77 Ton
TO GENERAL SUMMARY 18.77 TONS

ITEM 305 9" CONCRETE BASE

AREA (F) + H 1276.10 + 1066.67 = 2342.77 S.Y.
TO GENERAL SUMMARY 2343 S.Y.

SUB-SUMMARY

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

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SUM-271-0.82

CALC. BY	H.B.
DATE	9-13-73
CK'D. BY	D.S.P.
DATE	2-3-76
REVISED BY	G.L.B.
DATE	11-26-84

REF. NO.	STATION FROM	STATION TO	SIDE	607 FENCING TYPE 47 AS PER PLAN LIN. FT.	604 CATCH BASIN ADJUSTED TO GRADE EACH	601 ROCK CHANNEL PROTECTION WITH FILTER, TYPE B CU. YDS.
	SHEET 38					
F-1	454+00	454+25	RT.	25 *		
RAMP W						
F-2	59+75	60+00	RT.	25*		
REST	AREA					
F-3	61+50	61+80	RT.	25*		
CB-1	455+50		RT.		1	
CB-2	58+00	RAMP U			1	
	SHEET 39					
F-1	519+20	519+45	RT.	25*		
F-2	520+75	521+00	RT.	25*		
F-3	540+60	541+10	RT.	50*		
F-4	518+00	518+10	LT.	25*		
F-5	526+30	526+66	LT.	37*		
	SHEET 41					
RAMP A						
F-1	61+43	61+46	LT.	3*		
	SHEET 43					
CB-1	198+00		RT.		1	
RAMP B						
F-1	213+62.5	213+87.5	RT.	25*		
	SHEET 44					
F-1	255+50	257+50	RT.	496		7 *
F-2	213+45	242+00	RT.	2457		
F-3	218+80	219+00	LT.	20 *		
F-4	223+35	223+60	LT.	25 *		
F-5	225+08	225+20	LT.	12 *		
F-6	239+83	240+20	LT.	37*		9*
F-7	242+75	243+00	LT.	25*		
F-8	252+63	256+00	LT.	455		
	SHEET 46					
CB-1	313+43		LT.		1	
F-1	318+66	318+84	RT.	30*		
CB-2	317+25		RT.		1	
CB-3	318+97		RT.		1	
	SHEET 47					
F-1	357+87	359+22	LT.	180		
	SHEET 48					
F-1	423+00	423+79	RT.	79 *		
F-2	390+00	393+90	RT.	400		
F-3	393+96	401+42	RT.	780		
	SHEET 49					
F-1	451+00	451+15	RT.	16*		
F-2	455+00	473+00	RT.	2200		
F-3	489+32	494+21	RT.	520		
F-4	442+24	442+36	LT.	12*		
F-5	446+80	447+33	LT.	86 *		9*
F-6	452+87	474+00	LT.	2271		
F-7	489+18	494+00	LT.	540		
F-8	497+78	498+38	LT.	60 *		
F-9	498+73	498+85	LT.	12*		
TOTAL	(1)			10299	6	
TOTAL	(1)*			679 *		25 *

REF. NO.	STATION FROM	STATION TO	SIDE	607 FENCING TYPE 47 AS PER PLAN LIN. FT.	607 FENCING TYPE CL AS PER PLAN LIN. FT.	601 ROCK CHANNEL PROTECTION WITH FILTER, TYPE B CU.YDS.	604 CATCH BASIN ADJUSTED TO GRADE EACH
	SHEET 50						
F-2	511+88	511+98	RT.	12 *			
F-3	533+90	534+22	RT.	37*			
F-4	534+25	534+40	LT.	15*			
F-5	538+32	546+64	LT.	860			
F-7	551+13	551+50	LT.	37*			
	SHEET 51						
F-1	567+70	568+00	LT.	45*		7*	
F-2	569+85	570+20	LT.	50*			
F-3	583+88	584+00	LT.	12*			
F4	587+93	588+05	LT.	12*			
	SEE NOTE			400 *	100 *		
	TOTAL (2)			860			
	TOTAL (2)*			620*	100*	7*	
SHEET	TOTAL	(NORMAL)		11159	0		6
SHEET	TOTAL	(100% STATE)		1299	100	32	

NOTE: ADDITIONAL QUANTITIES OF 400 LINEAR FEET OF ITEM 607 FENCE, TYPE 47 AS PER PLAN, AND 100 LINEAR FEET OF ITEM 607 FENCE, TYPE CL AS PER PLAN SHALL BE PROVIDED FOR USE AS DIRECTED BY THE ENGINEER AT 100% STATE PARTICIPATION.

* 100% STATE PARTICIPATION

GENERAL SUMMARY

Calc. By G.L.B. Date 2/85
Chkd. By A.P. Date 2/85

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

SUM-271-0.82

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9.1

* 100% State

ITEM	8	8A	9	10	11	12	13	30	31	36 * / 36A	37	38	39	41	43	44	45	46	47	48	49	50	51	52	54	55	58	61	62	63	64	65	66	67	68	60A	100% State	State / Fed.
202										229*																											
202																								44													
202										4009 / 1217*		2350	6875	1113	7023	11,400	3463	3073	5113	3750	6370	6700	4936														
202		2660																																			
202															300	100			200		100		100														
202								3255																													
202																																					
203										50*														733	131	3866	189	3855	154	49	5343	3802	5000	729		381			
203																															979	5852	3733				50	24,111
203	25						125			50*																										260		10,564
						90*																			309	829	308	222		311	6774	9137	8151	719		3631	50	30,541
203											396																										90	—
203											565																											
203				70																																		
203								5030																														
404	1000														4																						
606															2																						
606															3	1			2		2		2														
606												2	1	5	4	1	1	5	2	3	3	5	3														
606												1700	6900	512.5	6386	11,487	3600	2512.5	5062.5	3825	5912.5	6412.5	2700														
606															225	75			150		150		150														
607										1299* / 1115?																											
607										100*																											
606													1		4	4	1	2	1	4	2	1	1														
606												2	2	2	5	4	2	3	2	6	5	5	3														
606														4	11			5	4	8	6	1	6														
408											14,721																										14,721	—
617								738																													738	—
Spec.		82,300																																			82,300	—
Spec.					2568																																2,568	—
Spec.					46,224																																46,224	—
Spec.				53,800																																	53,800	—
Spec.				322,800																																	322,800	—
Spec.				1000																																	1000	—
Spec.						20.20																															20.20	—
622												584		486	126						306	144	448															
622															473			234				78																
207							6800																														6800	—
207							200																														200	—
207							2000																														2000	—
207							5000																														5000	—
601																								23													23	—
601									32*										153					2														
601																								1													32	155
653							125	1186*																													3	3
659							2	3.75																													1186	125
659								18.77																													5.75	5.75
659							700	7120*		500*														88	582	4989	1574	6933	299	1166	2819	3236	3325	650		7377	18.77	18.77
659							1700																														7620	33,738	41,358
659							60																														1700	1700
659							169																														60	60
																																				160	160

ITEM	QUANT.	UNIT	DESCRIPTION
			ROADWAY
202	229	Sq. Yd.	Traffic Island Removed
202	44	Sq. Yd.	Concrete Riprap Removed
202	62,166	Lin. Ft.	Guardrail Removed For Storage
202	5217	Lin. Ft.	Curb Removed
202	2660	Each	Raised Pavement Markers Removed For Storage
202	800	Lin. Ft.	Guardrail Barrier Design, Removed For Storage
202	3255	Sq. Yd.	Wearing Course Removed
202	381	Sq. Yd.	Concrete Median Removed
203	24,161	Cu. Yd.	Embankment
203	10,564	Cu. Yd.	Embankment, Using Granular Material
203	30,591	Cu. Yd.	Excavation Not Including Embankment Construction
203	90	Cu. Yd.	Embankment, As Per Plan
203	396	Sta.	Linear Grading, Method 1, As Per Plan
203	565	Sta.	Linear Grading, Method 2, As Per Plan
203	70	Sta.	Linear Grading, Method 3, As Per Plan
203	5030	Sq. Yd.	Subgrade Compaction
404	1000	Cu. Yd.	Bituminous Concrete For Maintaining Traffic
606	4	Each	Bridge Terminal Assembly, Standard Type D
606	2	Each	Bridge Terminal Assembly, Standard Type J
606	10	Each	Anchor Assembly, Barrier Design, Standard Type A
606	35	Each	Anchor Assembly, Standard Type A, Mod. As Per Plan
606	57,010.5	Lin. Ft.	Guardrail, Type 5
606	750	Lin. Ft.	Guardrail, Barrier Design, Type 5
607	12,458	Lin. Ft.	Fence, Type 47, As Per Plan
607	100	Lin. Ft.	Fence, Type CL, As Per Plan
606	21	Each	Anchor Assembly, Standard Type A
606	41	Each	Anchor Assembly, Standard Type T
606	45	Each	Bridge Terminal Assembly, Standard Type A
			PAVEMENT
408	14,721	Gal.	Bituminous Prime Coat
617	738	Cu. Yd.	Compacted Aggregate
Spec.	82,300	Lin. Ft.	Sawing And Sealing Transverse Joints
Spec.	2,568	Each	Holes For Undersealing
Spec.	46,224	Gal.	Undersealing Material
Spec.	53,800	Sq. Yd.	Shoulder Stabilization Using Emulsified Asphalt
Spec.	322,800	Gal.	Emulsified Asphalt, 702.04, SS-1
Spec.	1000	Cu. Yd.	Aggregate, Using 617.03 Aggregate
Spec.	20.2	Lane Mi.	Dynaflect Testing Of Existing Pavement
622	2094	Ln. Ft.	Concrete Barrier, Standard Type D, Modified as per plan
622	785	Ln. Ft.	Concrete Barrier, Standard Type D
			(Pavement Continued On Sht. 33)
			EROSION CONTROL
207	6800	Sq. Yd.	Temporary Seeding And Mulching
207	200	Each	Straw Or Hay Bales
207	2000	Lin. Ft.	Temporary Slope Drains
207	5000	Cu. Yd.	Temporary Benches, Dikes, Dams And Sediment Basins
601	23	Sq. Yd.	Riprap Using 6" Reinforced Concrete Slab
601	187	Cu. Yd.	Rock Channel Protection, Type B With Filter
653	3	Cu. Yd.	Rock Channel Protection, Type C With Filter
659	1,311	Cu. Yd.	Topsoil Furnished And Placed
659	5.75	Ton	Commercial Fertilizer
659	18.77	Ton	Agricultural Liming
659	41,358	Sq. Yd.	Seeding And Mulching
659	1700	Sq. Yd.	Repair Seeding And Mulching
659	60	M. Gal.	Water
659	160	M. Sq. Ft.	Mowing

Calc.By GL.B. Date 2/85
Chkd.By A.P. Date 2/85

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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9.1

SUM-271-0.82

GENERAL SUMMARY

* 100% State

ITEM	8	8A	9	10	12	13	14	28	30	31	36	37	36A	47	52	61	68	84	85	86
602															3.7	0.3				
603						80*														
603														248						
603															5					
603																12				
603															10					
603															39					
604										6										
605						500*														
605	100	2100			440*															
Spec.						120*														
Spec.						200*														
301					329*		300		299		116		16	65			27			
304														146						
305									2343											
310	25				264*				153					73						
846			175		52*				21027		20	1636	3							
848	1200								528				1							
846					44*				18250		16		2				14			
407			255						48791								37			
407									1708											
Spec.			55						9851											
Spec.		1800																		
Spec.	156000																			
Spec.	600																			
Spec.	750																			
Spec.	500																			
Spec.				2000																
509	384														14,214	47,897	12,938			
510															1698	5615	1461			
511															152	532	145			
516															263	716	497			
516															93	66	82			
202															Lump	Lump	Lump			
Spec.															2326	9414	2175			
845															4365	17,500	3987			
845															143	649	70			
845															3	8	6			
Spec.																				
614								65.4												
614								0.6												
614								15000												
614								150												
614								300												
Spec.							1000													
624																				
619						Lump														
623																				
614							Lump													

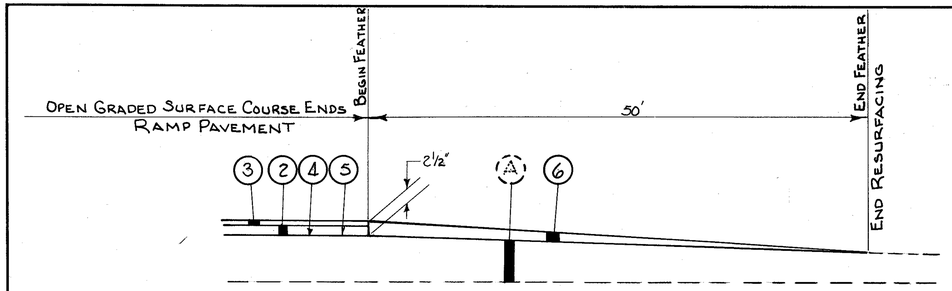
100% State	State/ Fed.	ITEM	QUANT.	UNIT	DESCRIPTION
					DRAINAGE
	4.0	602	4.0	Cu.Yd.	Concrete Masonry
80		603	80	Lin.Ft.	6" Conduit, Type F
	248	603	248	Lin.Ft.	6" Conduit, Type F, 707.01 Type III or 707.21 Type III
	5	603	5	Lin.Ft.	12" Conduit, Type B
	12	603	12	Lin.Ft.	15" Conduit, Type B
	10	603	10	Lin.Ft.	18" Conduit, Type A, 706.02
	39	603	39	Lin.Ft.	54" Conduit, Type A, 707.05
	6	604	6	Each	Catch Basin, Adjusted To Grade
500		605	500	Lin.Ft.	6" Unclassified Pipe Underdrains
440	2,200	605	2,640	Lin.Ft.	Aggregate Drains
120		Spec.	120	EACH	Underdrain Opening
200		Spec.	200	M.Gals	Water
					PAVEMENT (continued from sht. 32)
329	823	301	1152	Cu.Yd.	Bituminous Aggregate Base: AC-20, RT-11 or RT-12
	146	304	146	Cu.Yd.	Aggregate Base
	2343	305	2343	Sq.Yd.	9" Concrete Base
264	251	310	515	Cu.Yd.	Subbase Type I, Grading A
52	23,761	846	23,813	Cu.Yd.	Asphalt Concrete Intermediate Course, Type 2, AC-20
	1729	848	1729	Cu.Yd.	Asphalt Concrete Intermediate Course, Type 1, AC-20
44	18,282	846	18,326	Cu.Yd.	Asphalt Concrete Surface Course, Type 1, AC-20
	49083	407	49083	Gal.	Tack Coat Using SS 924
	1,708	407	1,708	Ton	Cover Aggregate
	9906	Spec.	9906	Cu.Yd.	Open Graded Asphalt Friction Course, Rubberized
	1,	Spec.	1800	Lin.Ft.	Pressure Relief Joint, Standard Type C
	156,000	Spec.	156,000	Lbs.	Crack Sealing, Hot Applied, 705.01
	600	Spec.	600	Sq.Yd.	Full Depth Rigid Pavement Removal And Flexible Replacement
	750	Spec.	750	Lin.Ft.	Pavement Sawing
	500	Spec.	500	Sq.Yd.	Partial Depth Pavement Joint Repair
	2,000	Spec.	2000	Sq.Yd.	Pavement Planing, Bituminous
					STRUCTURES
	75,049	509	75049	Lbs.	Epoxy Coated Reinforcing Steel, Grade 60
	8,774	510	8774	Lin.Ft.	Dowel Holes
	829	511	829	Cu.Yd.	Superstructure Concrete, As Per Plan
	1,476	516	1476	Lin.Ft.	Vertical Extension Of Structural Expansion Joints, As Per Plan
	241	516	241	Lin.Ft.	Vertical Extension Of Structural Expansion Joints, Type H, As Per Plan
	Lump	202	Lump		Portions Of Structure Removed
	13,915	Spec.	13,915	Sq.Yd.	Sealing Of Concrete Surfaces (see proposal Note)
	25,852	845	25852	Sq.Yd.	Latex Modified Concrete Overlay (1¼ inches thick)
	862	845	862	Cu.Yd.	Latex Modified Concrete Overlay (variable thickness)
	17	845	17	Cu.Yd.	Full Depth Repair
					TRAFFIC CONTROL
	65.4	614	65.4	Miles	Temporary Lane Lines, Class I
	0.6	614	0.6	Miles	Temporary Centerlines, Class I
	15,000	614	15,000	Lin. Ft	Temporary Channelizing Lanes, Class I
	150	614	150	Miles	Temporary Edge Lines, Class I
	300	614	300	Lin. Ft.	Temporary Stop Lines, Class I
					(Continued on sht. 34)
	1000	Spec.	1000	Hrs	Law Enforcement Officer With Patrol Car
	Lump	624	Lump		Mobilization
	Lump	619	Lump		Field Office
	Lump	623	Lump		Construction Layout Stakes
	Lump	614	Lump		Maintaining Traffic

GENERAL SUMMARY

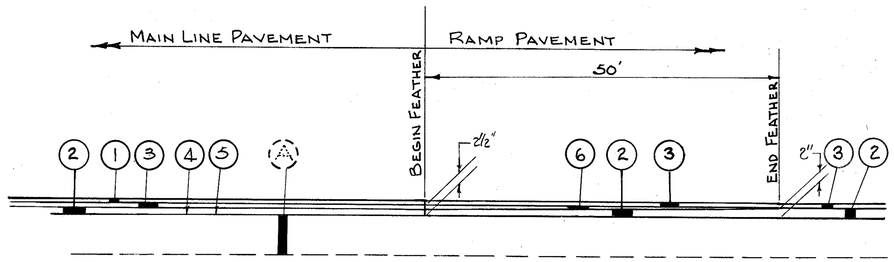
CALC. BY GHR DATE 1/31/85	FED. RD. DIVISION	STATE	PROJECT		34 / 91
CHKD. BY J.K.P. DATE 1/31/85	5	OHIO			

REVISED BY HEH 10-11-85 SUM-271-0.82

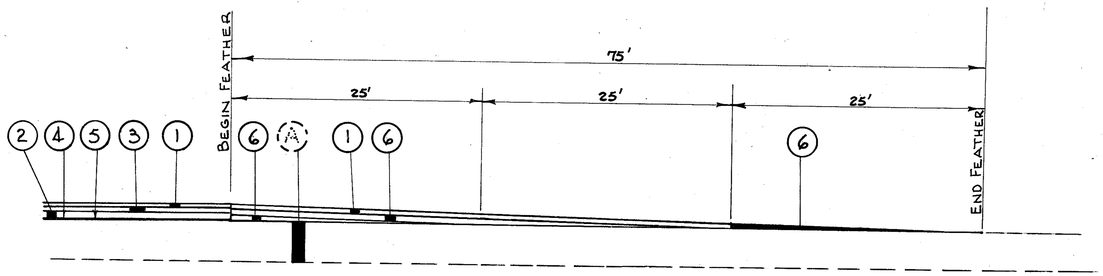
ITEM	SHEET NUMBER 69	70	71	72	73	74	75	76	79	ITEM	QUANT.	UNIT	DESCRIPTION
													TRAFFIC CONTROL
620								2		620	2	Each	REFLECTOR, TYPE D
630				6.0	16.0	24.8	3.9	16.7		630	67.4	Cu.Yd.	Concrete For Embedded Foundation
630									216	630	216	Lin.Ft.	Ground-Mounted Supports, No. 2 Post
630				52		27	93	87		630	259	Lin.Ft.	Ground-Mounted Supports, No. 3 Post
630				96	95	311	4.03	118		630	1023	Lin.Ft.	Ground-Mounted Supports, No. 4 Post
630				106	251	100	66	73		630	596	Lin.Ft.	Ground-Mounted Supports, S4×7.7 Beam
630							36			630	36	Lin.Ft.	Ground-Mounted Supports, W6×9 Beam
630				47				47		630	94	Lin.Ft.	Ground-Mounted Supports, W8×18 Beam
630				41	43	44	40	81		630	249	Lin.Ft.	Ground-Mounted Supports, W10×12 Beam
630					47					630	47	Lin.Ft.	Ground-Mounted Supports, W10×22 Beam
630					136.5	389		172		630	698	Lin.Ft.	Ground-Mounted Supports, W12×30 Beam
630						17				630	17	Lin.Ft.	One Way Supports No. 4 Post
630				6	18	12	8	4		630	48	Each	Breakaway Beam Connection
630				7	7	6				630	20	Each	Sign Attachment Assembly
630						1				630	1	Each	Sign Support Assembly, Pole Mounted
630				54.0	120.3	211	241.2	73.7	56	630	756	Sq.Ft.	Signs, Flat Sheet, Type G
630				242.0	748.0	1476.5	409.5	765.0		630	3641	Sq.Ft.	Signs, Extrusheet, Type G
630								32		630	32	Sq.Ft.	Signs Erected, Flat Sheet
630				1		1				630	2	Each	Existing Signs Revised With Demountable Copy
630				8	25	15	47	7		630	102	Each	Removal Of Ground Mounted Sign And Storage
630					3	8	2	5		630	18	Each	Removal Of Ground Mounted Major Sign And Storage
630				2	4	2	3	3		630	14	Each	Removal Of Ground Mounted Sign And Reerection
630				1	1	1	1	1		630	5	Each	Removal Of Ground Mounted Major Sign And Reerection
630				16	25	44	37	21		630	143	Each	Removal Of Ground Mounted Post Support
630					2			8		630	10	Each	Removal Of Ground Mounted Beam Support
630					1	2				630	3	Each	Removal Of Overhead Mounted Sign And Storage
630				2	1					630	3	EACH	REMOVAL OF OVERHEAD MOUNTED SIGN AND REERECTION
625	1								6	625	7	Each	Ground Rod
625									4	625	4	Each	Pull Box, 713.09, 18 INCH
625									1680	625	1680	Lin.Ft.	Trench
625									1840	625	1840	Lin.Ft.	1½ Inch Duct Cable With Two No. 4 AWG 5000 Volt Cables
625									8	625	8	Each	Cable Splicing Kit
625									2	625	2	EACH	POWER SERVICE
631									4	631	4	Each	Sign Service
631									6	631	6	Each	Signs Wired
631									2	631	2	Each	Signs Wired, Overpass Structure Mounted
631									4	631	4	Each	Disconnect Switch With Enclosure, Type X
631									2	631	2	Each	Switch Enclosure Mounting Bracket Assembly
631									4	631	4	Each	Ballast, Type CMRI-175-480
631									5	631	5	Each	Ballast, Type CMRI-175-120
631									5	631	5	Each	Ballast, Type CMRI-250-120
631									1	631	1	Each	Ballast Wiring Enclosure, Type A
631									3	631	3	Each	Ballast Wiring Enclosure, Type B
631									9	631	9	Each	Mercury Vapor Luminaire Type TC 31.21 With 175 Watt Lamp
631									5	631	5	Each	Mercury Vapor Luminaire Type TC 31.21 With 250 Watt Lamp
631									2	631	2	EACH	BALLAST WIRING ENCLOSURE MOUNTING BRACKET
630									1	630	1	Each	Overhead Sign Support Type TC 12.30 Design No. 3, 17' ARMS
630									1	630	1	Each	Overhead Sign Support Type TC 12.30 Design No. 4, 19' ARMS
630									6.3	630	6.3	Cu.Yd.	Concrete For Anchor Base Foundations
621		50.05	0.64							621	50.69	Miles	Edge Lines
621		21.98	0.56							621	22.54	Miles	Lane Lines
621			0.61							621	0.61	Miles	Center Lines
621		7498	20							621	7518	Lin.Ft.	Channelizing Lines
621		75	72							621	147	Lin.Ft.	Stop Lines
621		2785								621	2785	Lin.Ft.	Transverse Lines
621		3580								621	3580	Lin.Ft.	Curb Marking
621		120	360							621	480	Sq.Ft.	Island Marking
621		2								621	2	Each	Lane Arrows
621		1								621	1	Each	Word "ONLY" ON PAVEMENT, 96 INCH
621			337							621	337	Lin.Ft.	Dotted Lines, 4-In
608	12									608	12	Sq.Ft.	4" Concrete Walk, As Per Plan
632	2.8									632	2.8	Cu.Yd.	Concrete For Anchor Base Foundation
632	1									632	1	Each	Strain Pole Type TC-81.10 Design No. 7, As Per Plan
202	1									202	1	Each	Remove Existing Foundation, As Per Plan



TYPICAL FEATHER No.1



TYPICAL FEATHER No.2

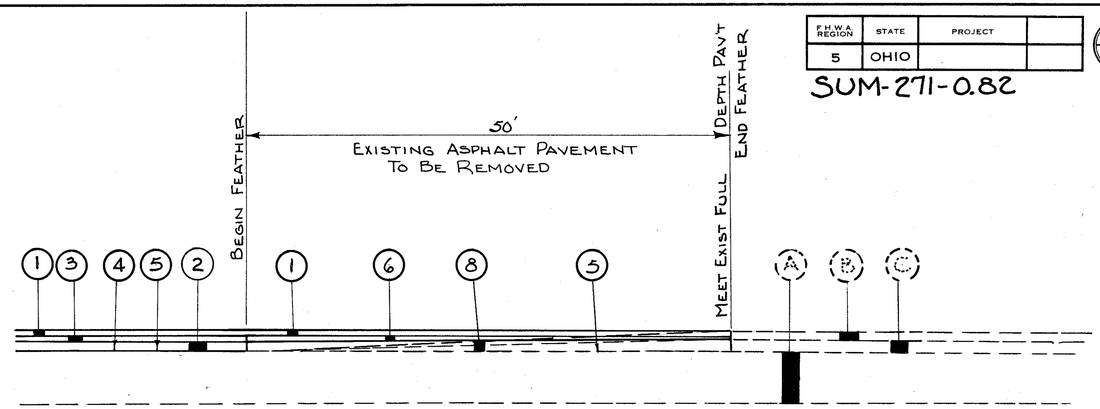


TYPICAL FEATHER No.3

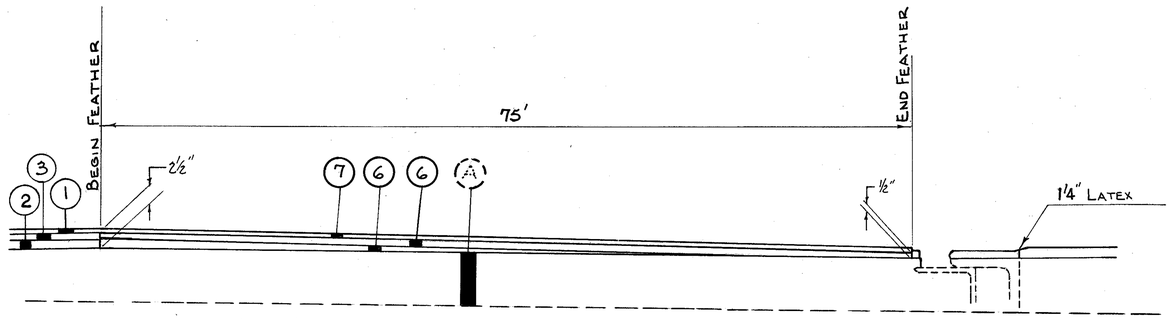
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TYPICAL FEATHER No.4



TYPICAL FEATHER No.5

LEGEND

1	SPECIAL	¾" OPEN GRADED ASPHALT CONCRETE FRICTION COURSE, RUBBERIZED
2	846	1½" ASPHALT CONCRETE *Intermediate Course, Type 2, AC-20*
3	846	1¼" ASPHALT CONCRETE *Surface Course, Type 1, AC-20*
4	848	0" MIN. ASPHALT CONCRETE *Intermediate Course, Type 1, AC-20, Leveling Course*
5	407	TACK COAT USING SS924 & COVER AGGREGATE
6	403	VARIABLE DEPTH ASPHALT CONCRETE, AC-20
7	SPECIAL	SAME AS ITEM 1 EXCEPT VARIABLE DEPTH ¾" TO ½"
8	848	1¾" ASPHALT CONCRETE. *Intermediate Course, Type 2, AC-20*
9	848	VARIABLE DEPTH ASPHALT CONCRETE *Surface Course, Type 1, AC-20*
10	301	9" *Bituminous Aggregate Base: AC-20, RT-11 or RT-12*

A	EXISTING REINFORCED CONCRETE PAVEMENT
B	EXISTING 404, 1¼" ±
C	EXISTING 402, 1¾" ±
D	EXISTING 402, 1½" ±
E	EXISTING OPEN GRADED ASPHALT CONCRETE FRICTION COURSE RUBBERIZED ¾"
F	EXISTING TRAFFIC ISLAND
G	EXISTING 310 SUBBASE

FEATHER DETAILS

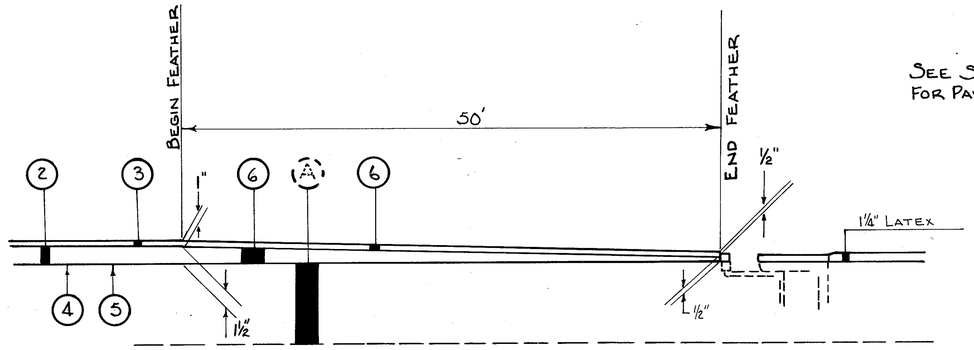
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Calc. By G.L.B. Date 11/84
Chkd. By A.P. Date 12/84

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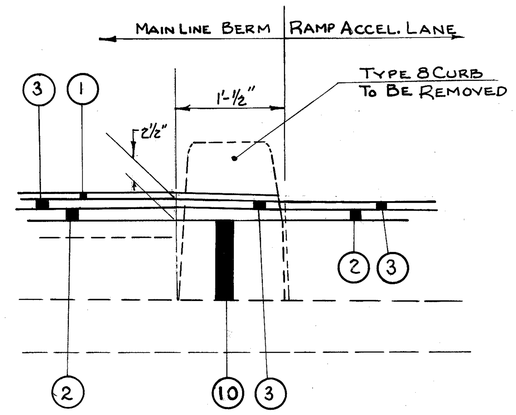
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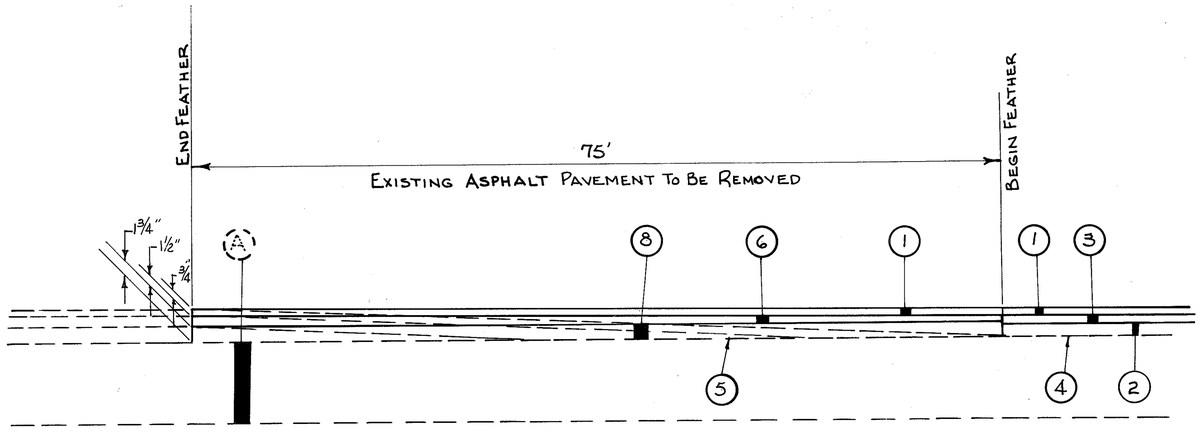
SEE SHEET NO. 35
FOR PAVEMENT LEGEND

TYPICAL FEATHER NO. 6



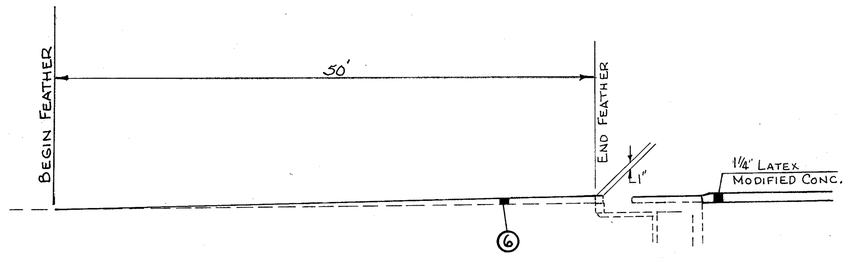
CURB REMOVAL AND REPLACEMENT @ ACCELERATION LANES

LOCATION	STATION FROM	STATION TO	202 CURB REMOVED LIN. FT.	301 Bituminous Aggregate Base Cu. Yd.	846 ASPHALT CONCRETE AC-20 Interm. Type 2. Cu. Yd.	846 ASPHALT CONCRETE AC-20 Surface Type 1.
REST AREA RAMP X	70+99	75+90	491	14.18	2.37	1.98
REST AREA RAMP U	57+00	61+91	491	14.18	2.37	1.98
C.H. 17 RAMP A	53+07	57+74	467	13.49	2.25	1.88
I-77 RAMP A	170+89	174+84	395	11.41	1.90	1.59
I-77 RAMP C	193+95	198+44	449	12.97	2.17	1.80
S.R. 303 RAMP F	300+72	305+24	452	13.06	2.18	1.81
SR. 303 RAMP H	314+85	319+00	421	12.16	2.03	1.69
I-77 RAMP D	167+35	171+65	430	12.44	2.07	1.73
I-77 RAMP B	218+35	222+39	404	11.69	1.95	1.63
TOTALS			4000	115.58	19.29	16.09



TYPICAL FEATHER NO. 7

TYPICAL FEATHER No. 7A SAME AS TYPICAL No. 7 EXCEPT ITEM (1) IS REPLACED BY ITEM (3) & ITEM (3) IS REPLACED BY ITEM (2)

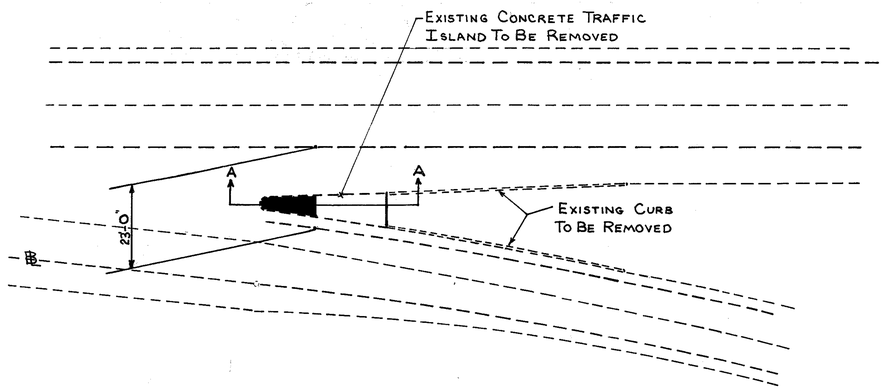


TYPICAL FEATHER NO. 8

33770

TYPICAL DETAILS

EXIT GORE RECONSTRUCTION



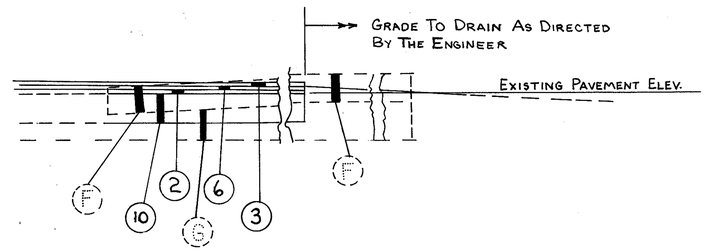
NOTE: SHADING DENOTES AREA WHERE ITEM 301 BITUMINOUS AGGREGATE BASE IS TO PLACED

	ITEM 202 TRAFFIC ISLAND REMOVED S.Y.	ITEM 202 CURVE REMOVED LIN. FT.	ITEM 301 BITUMINOUS AGGREGATE BASE CU. YD.	ITEM 846 ASPHALT INT. Tp.2 CONCRETE AC-20 CU. YD.	ITEM 848 ASPHALT INT. Tp.1 CONCRETE AC-20 CU. YD.	ITEM 846 ASPHALT Surf. Tp.1 CONCRETE AC-20 CU. YD.
CH 17						
RAMP B	25	124	1.76	0.29	0.07	0.20
REST AREA						
RAMP W	25	139	1.76	0.29	0.07	0.20
RAMP V	25	139	1.76	0.29	0.07	0.20
I-77						
RAMP A	25	139	0.93	0.15	0.04	0.10
RAMP B	29	129	0.93	0.15	0.04	0.10
RAMP C	25	136	2.12	0.35	0.09	0.24
RAMP D	25	138	1.76	0.29	0.07	0.20
SR 303						
RAMP E	25	135	2.12	0.35	0.09	0.24
RAMP G	25	138	2.40	0.40	0.10	0.27
TOTALS	229	1217	15.54	2.56	0.64	1.75

NOTE: THE FOLLOWING ESTIMATED QUANTITIES ARE PROVIDED FOR USE AS DIRECTED BY THE ENGINEER:

ITEM 203	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	50 C.Y.
ITEM 203	EMBANKMENT	50 C.Y.
ITEM 659	SEEDING AND MULCHING	500 S.Y.

SECTION AA



FOR LEGEND SEE SHT. 35

LINEAR GRADING

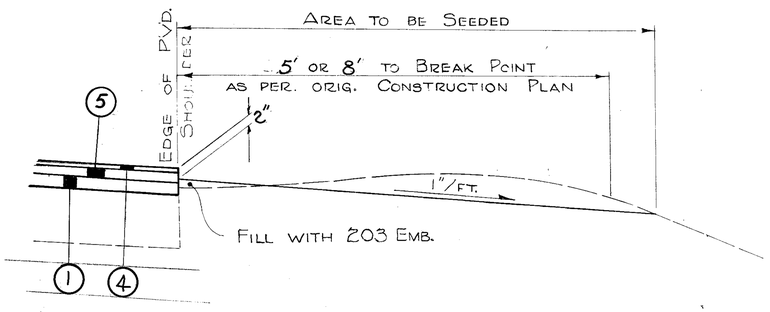
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Date 11/84
Ck'd. By A.P
Date 12/84

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METHOD 1, AS PER PLAN



LINEAR GRADING - METHOD 1

THIS WORK SHALL CONSIST OF REGRADING THE EXISTING OUTSIDE SHOULDER IN NON-GUARD RAIL AREAS AS INDICATED IN THE SKETCH. REGRADING WILL BE ACCOMPLISHED BY REMOVING EXCESS TURF BETWEEN THE EDGE OF THE PAVED SHOULDER AND THE BREAK OVER POINT USING A SLOPE OF APPROXIMATELY 1"/FT.

EXCESS MATERIAL SHALL BE WINDROWED ON THE SHOULDER AND REMOVED BY THE CONTRACTOR. ANY VOIDS OR IRREGULARITIES BETWEEN THE EDGE OF THE PAVED SHOULDER AND BREAK POINT SHALL BE FILLED AND ADEQUATELY COMPACTED USING THE EXCESS MATERIAL. EXISTING RUTTED AREAS CAUSED BY SURFACE EROSION SHALL BE SCARIFIED PRIOR TO FILLING. A DROP OF 2" SHALL BE MAINTAINED BETWEEN THE EDGE OF THE RESURFACED PAVED SHOULDER AND THE REGRADED SHOULDER. AFTER GRADING OPERATION IS COMPLETED THE DISTURBED AREA SHALL BE SEEDED AS PER ITEM 659 EXCEPT MULCHING WILL NOT BE REQUIRED. COMPACTION REQUIREMENT AS PER 203 IS WAIVED FOR THIS OPERATION.

THE METHOD OF MEASUREMENT SHALL BE CONSIDERED AS ONE STATION EQUAL TO 100 LIN. FT. MEASURED SEPARATELY FOR THE NORTHBOUND AND SOUTHBOUND LANES AND SHALL INCLUDE ALL WORK REQUIRED AS DESCRIBED ABOVE INCLUDING THE NECESSARY SEEDING.

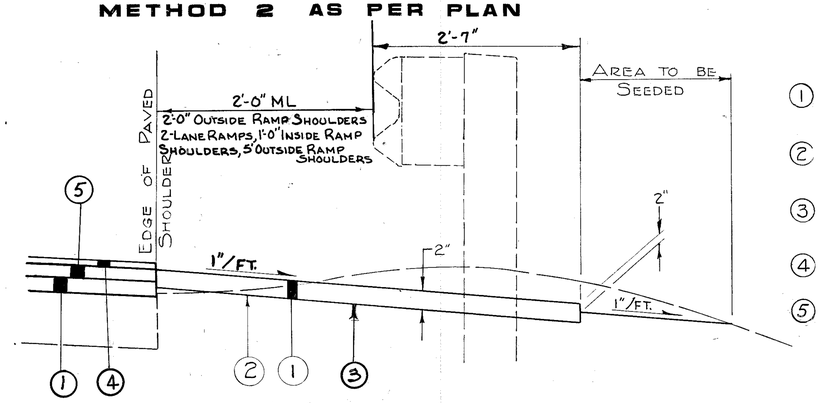
THERE MAY BE AREAS WHERE THIS TREATMENT MAY NOT BE REQUIRED IN THE FIELD. THE ENGINEER SHALL DETERMINE THESE LOCATIONS AND APPROPRIATE DEDUCTIONS MADE AS A RESULT OF THIS FIELD INVESTIGATION.

THE COST OF THE ABOVE OPERATION SHALL BE INCLUDED IN THE PRICE BID FOR FOR ITEM 203 LINEAR GRADING METHOD 1, AS PER PLAN.

ESTIMATED QUANTITIES

203 Linear Grading, Method 1, as per plan = 396 Stations

METHOD 2 AS PER PLAN



LEGEND

1. 402 Asphalt Concrete - AC-20
2. 408 Prime Coat (See Spec. this sheet)
3. Soil Sterlizer (See Spec. This Sheet)
4. 3/4" Open Graded Asphalt Friction Course
5. 404 Asphalt Concrete AC-20

LINEAR GRADING - METHOD 2

THIS WORK SHALL CONSIST OF GRADING THE EXISTING SHOULDER BETWEEN THE EDGE OF THE PAVED SHOULDER AND BREAK POINT OF THE SHOULDER IN GUARD RAIL AREAS(0+)* IT SHALL CONSIST OF REMOVING THE EXCESS TURF IN THE VICINITY OF THE GUARD RAIL TO PROVIDE A POSITIVE SLOPE AWAY FROM THE PAVED SHOULDER. A SLOPE OF APPROXIMATELY 1"/FT. SHALL BE PROVIDED IN THESE AREAS.

THE AREA BETWEEN THE PAVED SHOULDER AND 1 FT. BEYOND THE REAR OF THE GUARD RAIL POSTS SHALL BE EXCAVATED SUFFICIENTLY IN DEPTH TO PROVIDE A 2" COMPACTED COURSE OF 402.

A DROP OF APPROXIMATELY 2" BETWEEN THIS 402 TREATMENT AND THE TURF SHALL BE MAINTAINED AS INDICATED IN THE SKETCH. EXCESS MATERIAL BEYOND THE GUARD RAIL MAY BE WASTED OVER THE SLOPE AT THE DIRECTION OF THE ENGINEER. PRIOR TO PLACING THIS MATERIAL A SOIL STERILIZER USING EITHER OF THE FOLLOWING BRANDS SHALL BE APPLIED BETWEEN THE PAVED SHOULDER AND 1' BEYOND THE POST AT THE RATE RECOMMENDED BY THE MANUFACTURER:

1. PRAMITOL 25E BY CIBA-GEIGY - 2. KOVAR BY DIAMOND SHAMROCK.

A PRIME COAT SHALL BE APPLIED AT THE RATE OF 0.5 GAL/S.Y. BEFORE APPLYING THE ASPHALT CONCRETE.

AREAS DISTURBED BEYOND THE 1' LIMIT SHALL BE SEEDED AS PER 659 EXCEPT MULCHING WILL NOT BE REQUIRED.

THE METHOD OF MEASUREMENT SHALL BE CONSIDERED AS ONE STATION EQUAL TO 100 LIN. FT. AND SHALL INCLUDE ALL WORK REQUIRED AS DESCRIBED ABOVE EXCEPT FOR ITEM 402, ASPHALT CONCRETE, AND 408 PRIME COAT THE COST FOR THE ABOVE OPERATION SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 203 LINEAR GRADING METHOD 2, AS PER PLAN.

* Do not use Method 2 Linear Grading in areas where the face of the guardrail is more than 5' beyond the edge of paved shoulder.

(0+) See Sheet No. 37A, 37B for detail of Method 2 Linear Grading in Concrete Barrier Safety Shape Areas.

ESTIMATED QUANTITIES

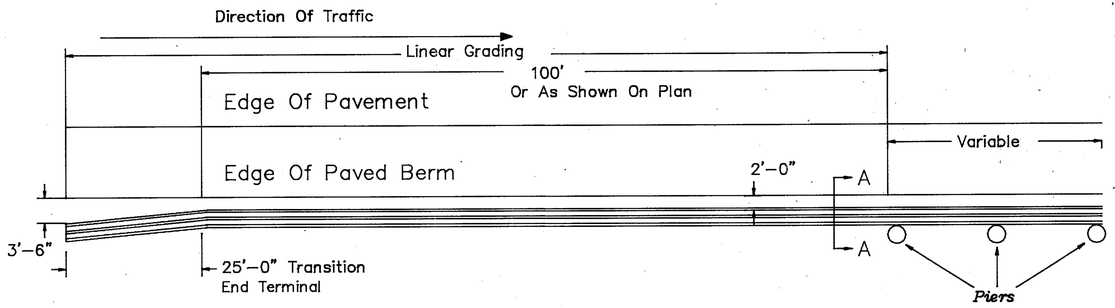
203 Lin. Grading, Method 2, as per plan	=	565	Stations
402 - Asphalt Concrete, AC-20	=	1636	Cu. Yd.
408 - Bituminous Prime Coat	=	14,721	Gal.

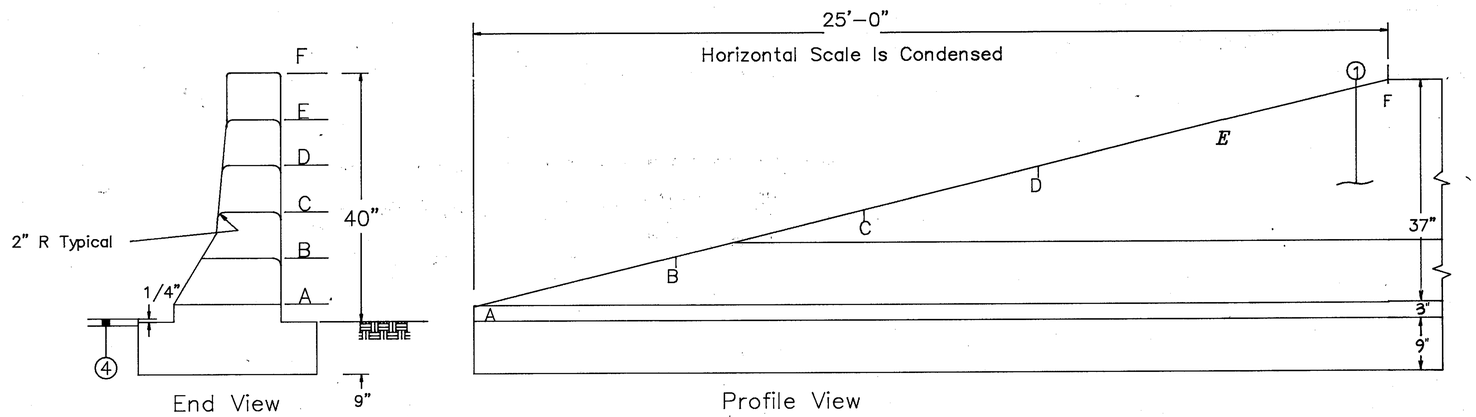
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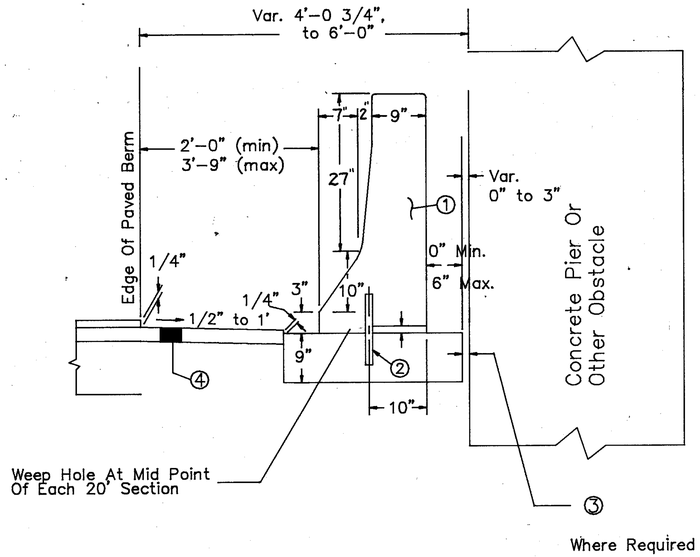
CONCRETE BARRIER OBSTRUCTION PROTECTION





END TERMINAL DETAIL

SECTION A–A CONCRETE BARRIER



LEGEND

(1)	Item 622 Concrete Barrier, Type D, **Modified as per Plan**
(2)	No. 8 Deformed Bars 12" Long Spaced On 4' Centers. The End Terminal Will Require Shorter Dowel Between Points A & B. Omit Dowels When Top Is Constructed Integral With The Base.
(3)	Expansion Joint, 3/4" Min. Preformed Filler 705.03
(4)	Linear Grading Type 2 Item 404 Asphalt Concrete AC–20 (T=2")

See Sheet No. 37 For Additional Linear Grading Details & Quantities

Concrete Barrier
Obstruction Protection

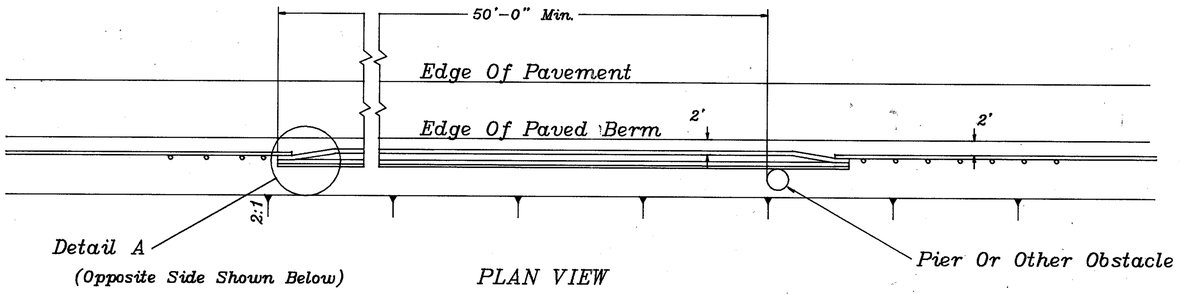
3770

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

37-B 21

SUM-271-0.82

TRANSITION TYPE 5 GUARDRAIL WITH CONCRETE BARRIER



PLAN VIEW

NOTE: Payment For All Work Detailed On This Sheet Shall Be Included In The Prices Bid For The Following Items

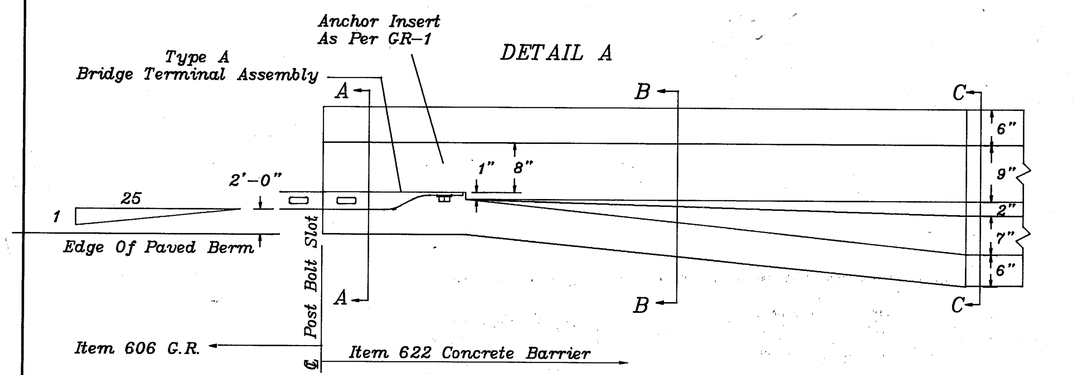
- *Item 606 Each Bridge Terminal Assembly, Type A*
- *Item 606 Linear Ft. Type 5 Guardrail*
- *Item 622 Linear Ft. Concrete Barrier Type D*
- *Item 203 Stations Linear Grading*
- *Item 404 Cu. Yd. Asphalt Concrete AC-20*

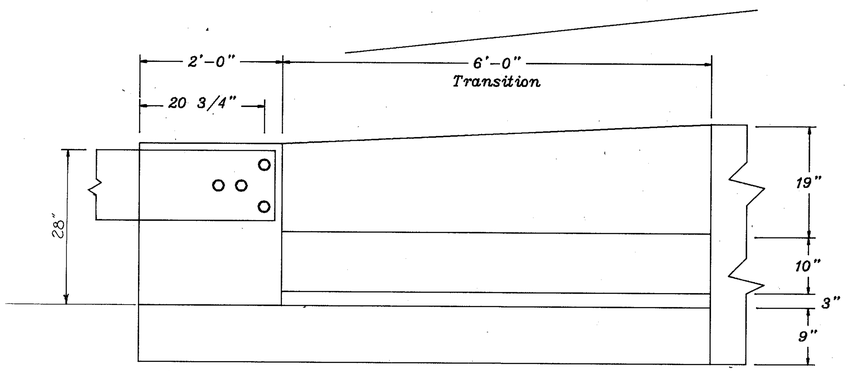
NOTE: For Additional Details Of Materials & Work Required See Standard Drawing No. GR-1, GR-3, MC-9

LEGEND

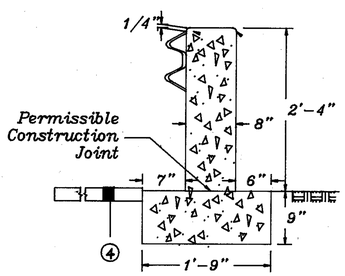
1. Item 622 Concrete Barrier, Type D
   No. 8 Deformed Bars 12" Long Spaced On 4' Centers.
2. The End Terminal Will Require Shorter Dowel Between Points A & B. Omit Dowels When Top Is Constructed Integral With The Base.
3. Expansion Joint, 3/4" Min. Preformed Filler 705.03
4. Linear Grading Type 2
   Item 404 Asphalt Concrete AC-20 (T=2")

See Sheet No. 37 For Additional Linear Grading Details & Quantities

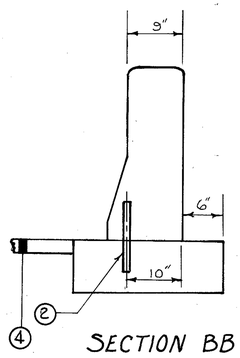




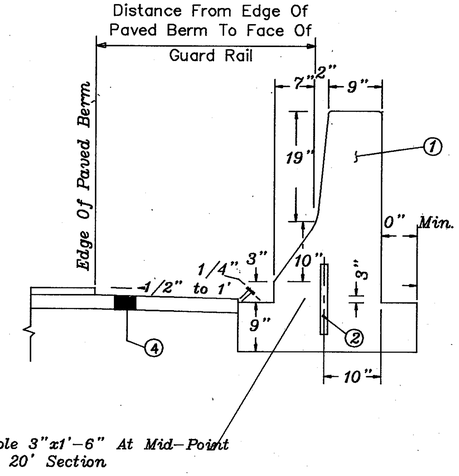
PROFILE VIEW



SECTION AA



SECTION BB



SECTION CC

TYPE 5 GUARDRAIL – CONCRETE BARRIER TRANSITION

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

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91

SUM.-271-0.82

QUANTITY CALCULATIONS
MADE BY AJS DATE 9-7-73
CHECKED BY DSP DATE 7-14-77
REVISED GLB DATE 10-84

GUARDRAIL

MARK	STATION FROM	STATION TO	SIDE	202 GUARDRAIL REMOVED FOR STORAGE L.F.	606 ANCHOR ASS'Y TYPE T EA.	606 ANCHOR ASS'Y TYPE A EA.	606 GUARD RAIL TYPE 5 L.F.	622 CONCRETE BARRIER TYPE D L.F. ⊛
R-1	488+68	488+95	RT.	27				
R-2	467+25	484+00	LT. MED.	1675	1	1*	1637.5	
	487+10	488+68	RT.	135.5				158
B-2	483+35	490+99	LT.	140				164
B-3	501+72	503+03	RT.	103				131
B-4	501+72	503+03	RT. MED.	103				131
R-3	503+03	503+25	RT.	22				
R-4	503+03	503+25	RT. MED.	22				
R-5	483+125	483+35	LT.	22.5				
R-6	59+08	60+08	RT.	100	1	1*	62.5	
TOTALS				2350.0	2	2*	1700	584

* AS PER PLAN

⊛ Denotes Modified As Per Plan

BEGIN PROJECT AND WORK
STA. 452+00.00
S.L.M. 0.82
I-R-271 (48)220

Begin Sheet Sta. 445+00

Match Line: This Sheet

End Sheet Sta. 505+00
Match Line: This Sheet 39

Legend:
A-Indicates New Sign
B-Indicates New Support
C-Revise Sign Legend
F- Fence Quantities see sheet 31
For Signing Quantities see Sheet 72
CB For Catch Basin Adjustment Quantities see Sheet No. 31
For Mile Marker Quanties see Sheet 79
R- Indicates upgrade guardrail
6 Sign Installation Reference Number
▨ — Feather
▩ — Depth Transition

SCALE 1"=100'
MADE AJS DATE 4-14-73
TRCD FCG DATE 1-14-74
CKD DSP DATE 1-15-74

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

100 0 100 200 300 400

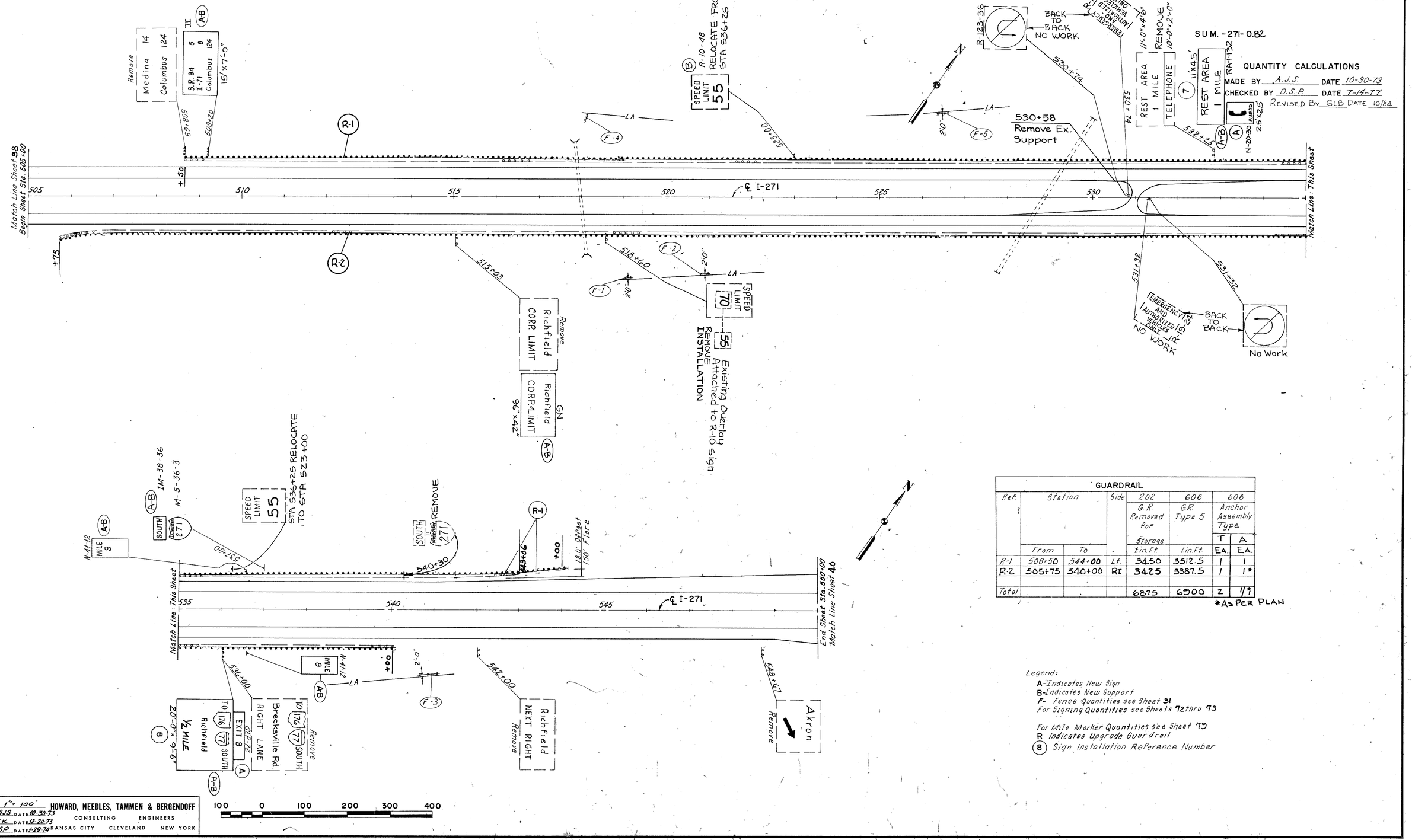
STA. 445+00 TO STA. 505+00

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

39
91

SUM. - 271- 0.82

QUANTITY CALCULATIONS
MADE BY A.J.S. DATE 10-30-73
CHECKED BY D.S.P. DATE 7-14-77
REVISED BY GLB DATE 10/84



GUARDRAIL

Ref.	Station From	Station To	Side	202 G.R. Removed For Storage Lin.Ft.	606 G.R. Type 5 Lin.Ft.	606 Anchor Assembly Type T EA.	606 Anchor Assembly Type A EA.
R-1	508+50	544+00	Lt.	3450	3512.5	1	1
R-2	505+75	540+00	Rt.	3425	3387.5	1	1*
Total				6875	6900	2	1/1

*As Per Plan

Legend:
A-Indicates New Sign
B-Indicates New Support
F- Fence Quantities see Sheet 31
For Signing Quantities see Sheets 72 thru 73

For Mile Marker Quantities see Sheet 75
R Indicates Upgrade Guardrail
(8) Sign Installation Reference Number

SCALE 1"= 100'
MADE AJS DATE 10-30-73
TRCD KK DATE 12-20-73
CKD DSP DATE 1-29-74

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

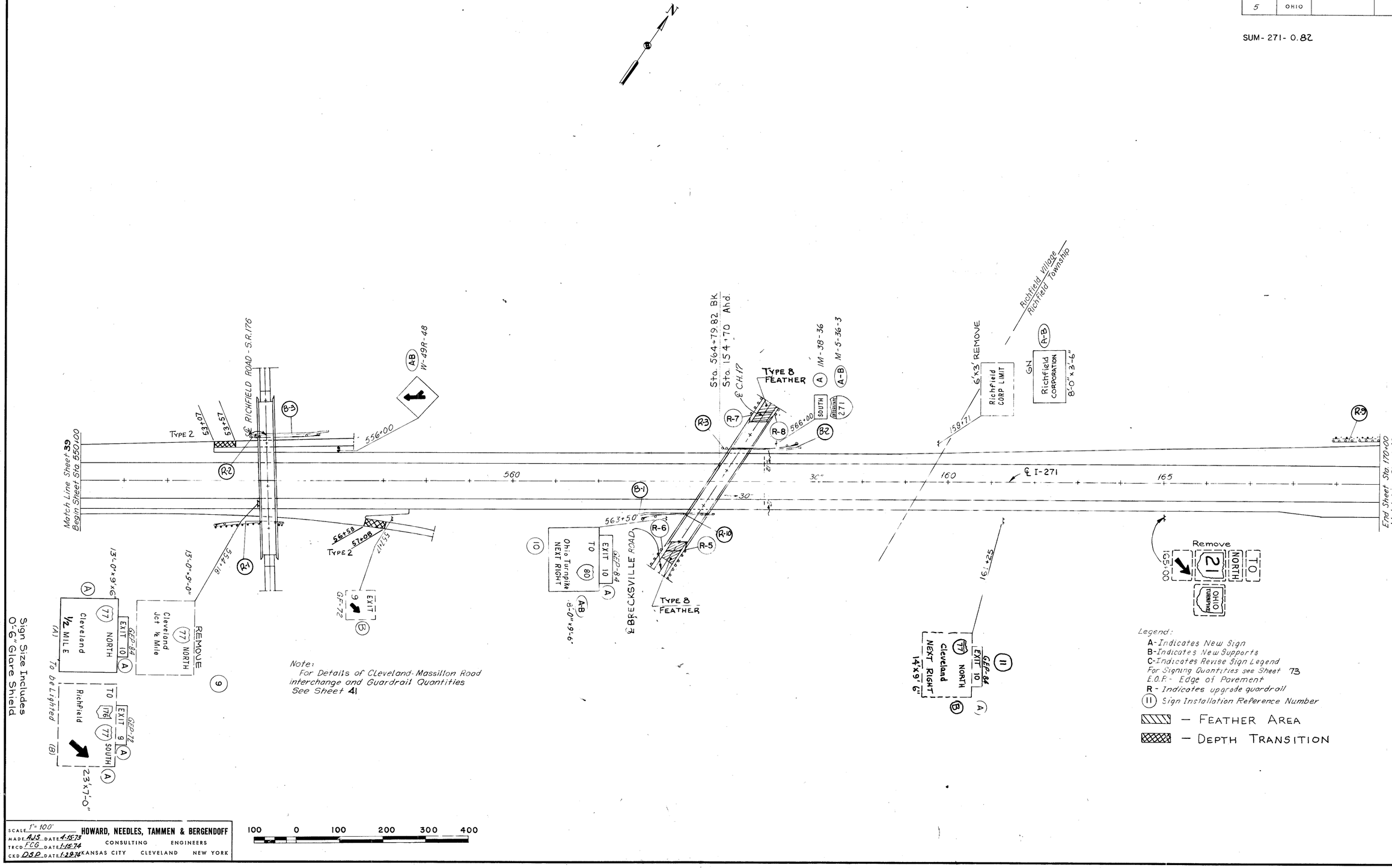
100 0 100 200 300 400

STA. 505+00 TO STA. 550+00

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

40
21

SUM-271-0.82



SCALE 1"=100'
MADE AJS DATE 1-15-75
TRCD FCG DATE 1-15-74
CKD DSD DATE 1-29-74

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

100 0 100 200 300 400

STA. 550+00 TO STA. 170+00

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

41
91

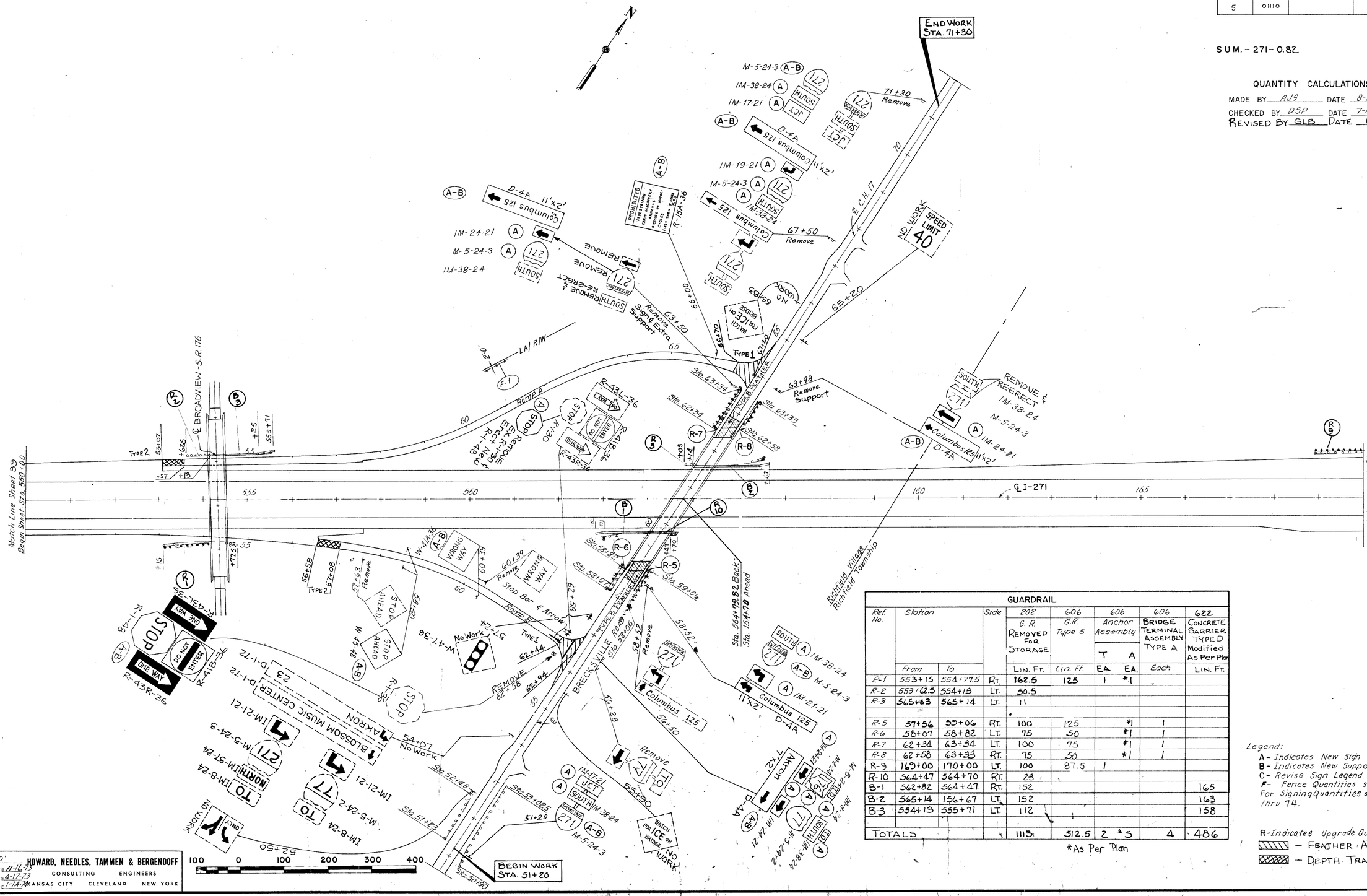
SUM. - 271 - 0.82

QUANTITY CALCULATIONS

MADE BY AJS DATE 8-18-73

CHECKED BY DSP DATE 7-19-77

REVISED BY GLB DATE 11-84



SCALE 1"=100'
MADE AJS DATE 11-16-73
TRCD JAG DATE 4-17-73
CKD DSP DATE 1-14-74

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

GUARDRAIL

Ref. No.	Station From	Station To	Side	202 G.R. Removed For Storage Lin. Ft.	606 G.R. Type 5 Lin. Ft.	606 Anchor Assembly T EA.	606 Anchor Assembly A EA.	606 Bridge Terminal Assembly Type A Each	622 Concrete Barrier Type D Modified As Per Plan Lin. Ft.
R-1	553+15	554+77.5	Rt.	162.5	125	1	*1		
R-2	553+62.5	554+13	Lt.	50.5					
R-3	565+63	565+14	Lt.	11					
R-5	57+56	59+06	Rt.	100	125		*1	1	
R-6	58+07	58+82	Lt.	75	50		*1	1	
R-7	62+34	63+34	Lt.	100	75		*1	1	
R-8	62+58	63+33	Rt.	75	50		*1	1	
R-9	169+00	170+00	Lt.	100	87.5	1			
R-10	564+47	564+70	Rt.	23					
B-1	562+82	564+47	Rt.	152					165
B-2	565+14	156+67	Lt.	152					163
B-3	554+13	555+71	Lt.	112					158
TOTALS				1113	512.5	2 *5		4	486

*As Per Plan

Legend:
A- Indicates New Sign
B- Indicates New Support
C- Revise Sign Legend
F- Fence Quantities see Sheet 31 For Signing Quantities see Sheets 73 thru 74.

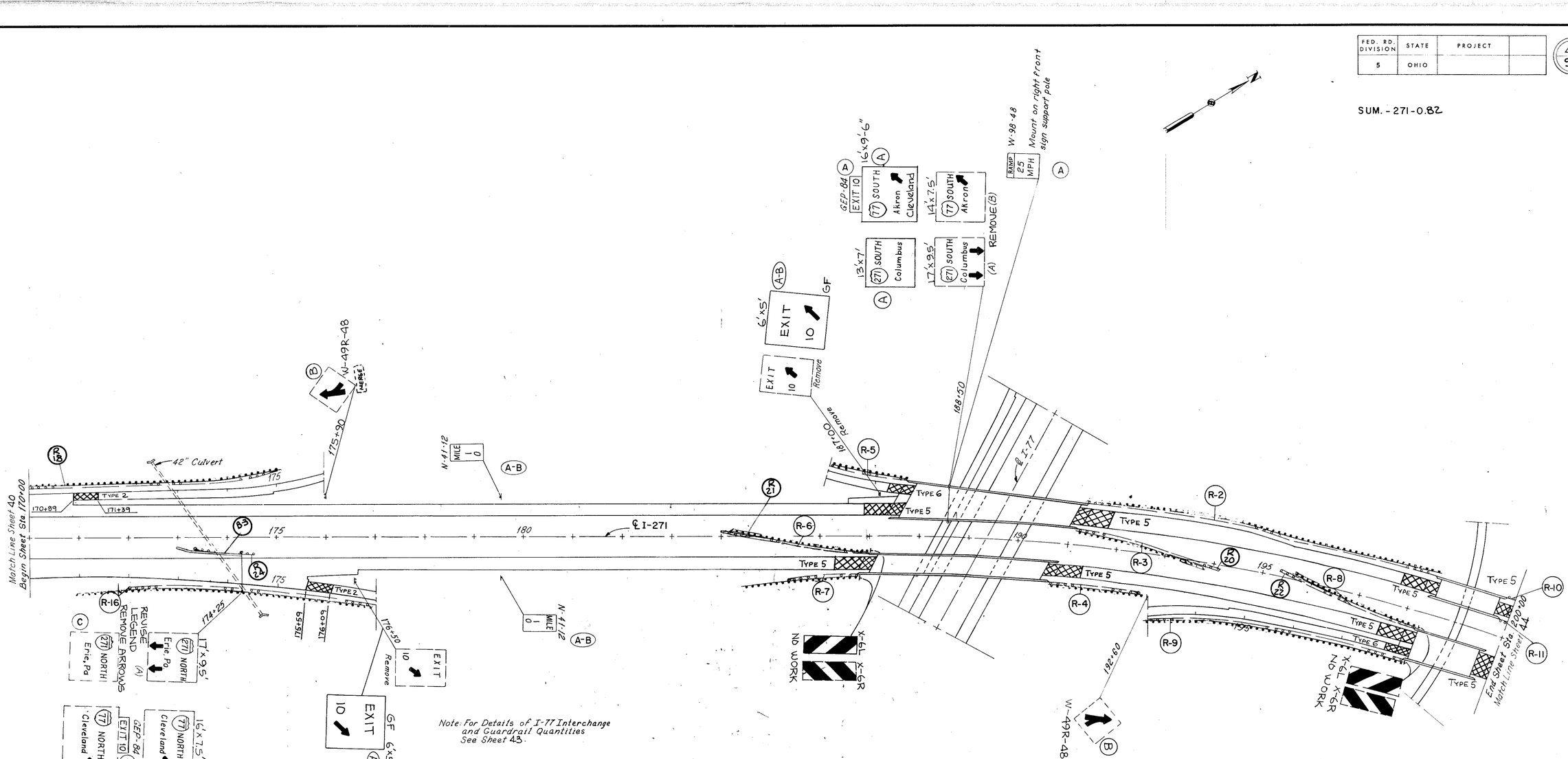
R-Indicates Upgrade Guardrail
▨ — FEATHER AREA
▩ — DEPTH TRANSITION

C.H. 17 BRECKVILLE ROAD INTERCHANGE

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

42
91

SUM. - 271-0.82



Legend:
A Indicates New Sign
B Indicates New Support
For Signing Quantities see Sheet 74

For Mile Marker Quantities see Sheet 79
C Indicates Revise Legend
R- Indicates upgrade guardrail
▨ — DEPTH TRANSITION

SCALE 1"=100'
MADE AJS DATE 4-17-73
TRCD M.E.F. DATE 4-9-74
CKD DSP DATE 4-14-74

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

100 0 100 200 300 400

STA. 170+00 TO STA. 200+00

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

43/91

SUM. - 271 - 0.82

QUANTITY CALCULATIONS

MADE BY AJS DATE 9-19-73
CHECKED BY DSP DATE 7-14-77
REVISED BY GLB DATE 11-84

GUARDRAIL


Ref. No.	Station I-271 From	Station I-271 To	Side	202 G.R. Removed For Storage Type 5 Lin. Ft.	202 G.R. Removed For Storage Barrier Lin. Ft.	606 Anchor Assembly Type T EA.	606 Anchor Assembly Type A EA	606 G.R. Type 5 L.F.	606 G.R. Barrier L.F.	606 Anchor Assembly Type A Barrier Design Each	606 Bridge Terminal Assembly Type A EA.	606 Bridge Terminal Assembly Type D EA.	606 Bridge Terminal Assembly Type J EA.
R-1	Ramp B 189+16	Ramp B 200+28.5	Rt.	955				1112.5			1		
R-2	191+36	198+34	Lt.	698				698			1	1	
R-3	191+16	193+88.5	Lt. Med.	200	75			175	75	1		1	
R-4	190+67	192+54.5	Rt.	187.5		1		175					1
R-5	Ramp D 185+34.5	187+72	Lt.	237.5		1		225					1
R-6	184+27.5	187+00	Rt. Med.	200	75			175	75	1		1	
R-7	184+58	186+83	Rt.	150			1	200				1	
R-8	195+50.5	198+23	Rt. Med.	200	75			175	75	1	1		
R-9	Ramp C 191+21	198+21	Rt.	700			*1	675			1		
R-10	199+80	200+00	Lt.	20				20			1		
R-11	199+82	200+00	Rt. Med.	18				18			1		
R-12	Ramp B 184+04.5	185+67	Lt.	162.5			*1	137.5			1		
R-13	Ramp B 189+18	191+05.5	Lt.	187.5		1		175			1		
R-14	Ramp B 184+01.5	185+64	Rt.	162.5			1	137.5			1		
R-15	Ramp B 202+63.5	202+87.5	Lt.	24				[illegible]					
R-16	Ramp B 171+00	181+37.5	Rt.	1037.5		1	1	1000					
R-17	Ramp B 195+00	200+25	Lt.	525			*1	500					
R-18	170+00	Ramp A 175+00	Lt.	500			*1	475					
R-19	Ramp B 202+63	202+86	Rt.	23									
R-20	193+88.5	194+13	Lt. Med.		25								
R-21	184+00	184+27.5	Rt. Med.		25								
R-22	195+28	195+50.5	Rt. Med.		25								
R-23	Ramp B 211+50	215+00	Rt.	237.5		1	1	312.5					
R-24	174+26	174+50	Rt. Med.	24									
Sheet Totals				+o 6449.5	300	5	4/*4	6386	225	3	+o 9	4	2

+o Totals carried to table at right

GUARDRAIL CON'T.

Ref No.	Station From	Station To	Side	202 Gd. Rail Rem'd For Storage Type 5 L.F.	622 Concrete Barrier Type D L.F.	606 Bridge Terminal Ass'y Type A Each
B-1	Ramp B 200+28.5	202+63	Rt.	234.5	234.5	1
B-2	200+25	202+63.5	Lt.	238.5	238.5	1
B-3	173+00	174+26	Rt. Med.	101	126.0 ⊛	
From table at left +o				+o 6449.5	—	+o 9
Sheet Totals				7023.5	473/126⊛	11

⊛ Denotes Modified As Per Plan



Legend:
F- Fence Quantities see Sheet 31
R- Indicates Upgrade Guardrail
A - Indicates New Sign.
B - Indicates New Support.
CB - For Catch Basin Adjustment Quantities see Sheet No. 31

For Signing Sub-Summary See Sheet 74

▧ — Feather Area
▩ — Depth Transition

SCALE 1" = 100'
MADE AJS DATE 11-8-73
TRCD. MET DATE 12-13-73
CKD. DSP DATE 1-17-74

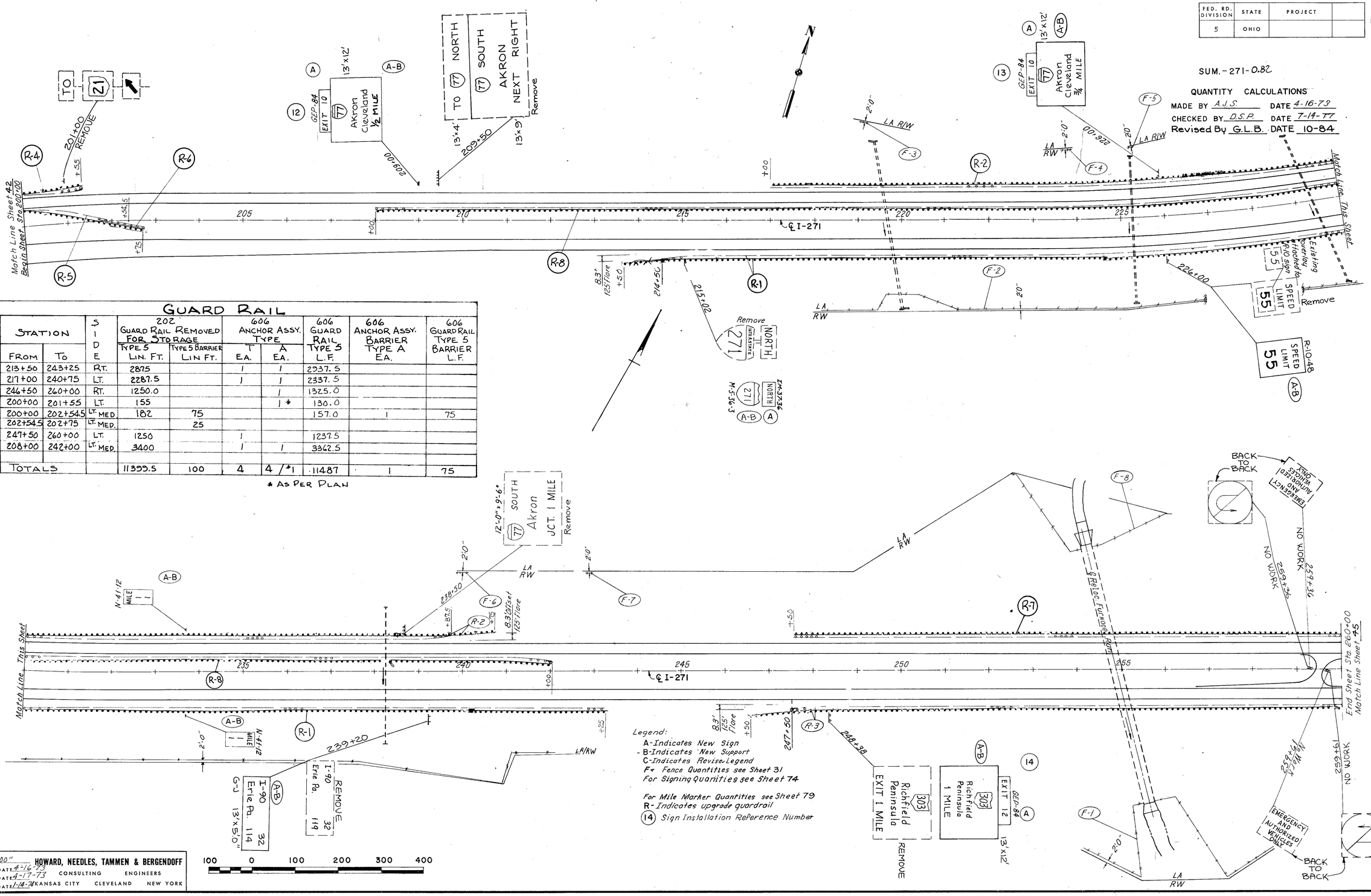
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

44
31

SUM. - 271 - 0.82

QUANTITY CALCULATIONS
MADE BY A.J.S. DATE 4-16-73
CHECKED BY D.S.P. DATE 7-14-77
Revised By G.L.B. DATE 10-84



GUARD RAIL

REF. No.	STATION FROM	STATION TO	SIDE	202 GUARD RAIL REMOVED FOR STORAGE TYPE 5 LIN. FT.	202 GUARD RAIL REMOVED FOR STORAGE TYPE 5 BARRIER LIN FT.	606 ANCHOR ASSY. TYPE T EA.	606 ANCHOR ASSY. TYPE A EA.	606 GUARD RAIL TYPE 5 L.F.	606 ANCHOR ASSY. BARRIER TYPE A EA.	606 GUARD RAIL TYPE 5 BARRIER L.F.
R-1	213+50	243+25	RT.	2875		1	1	2337.5		
R-2	217+00	240+75	LT.	2287.5		1	1	2337.5		
R-3	246+50	260+00	RT.	1250.0			1	1325.0		
R-4	200+00	201+55	LT.	155			1 *	130.0		
R-5	200+00	202+54.5	LT. MED.	182	75			157.0	1	75
R-6	202+54.5	202+75	LT. MED.		25					
R-7	247+50	260+00	LT.	1250		1		1237.5		
R-8	208+00	242+00	LT. MED.	3400		1	1	3362.5		
	TOTALS			11393.5	100	4	4 /*1	11487	1	75

* AS PER PLAN

Legend:
A - Indicates New Sign
B - Indicates New Support
C - Indicates Revise Legend
F - Fence Quantities see Sheet 31
For Signing Quantities see Sheet 74

For Mile Marker Quantities see Sheet 79
R - Indicates upgrade guardrail
(14) Sign Installation Reference Number

SCALE 1"=100" MADE AJS DATE 4-16-73 TRCD FCC DATE 4-17-73 CKD DSP DATE 7-14-74
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

100 0 100 200 300 400

STA. 200+00 TO STA. 260+00

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

45
91

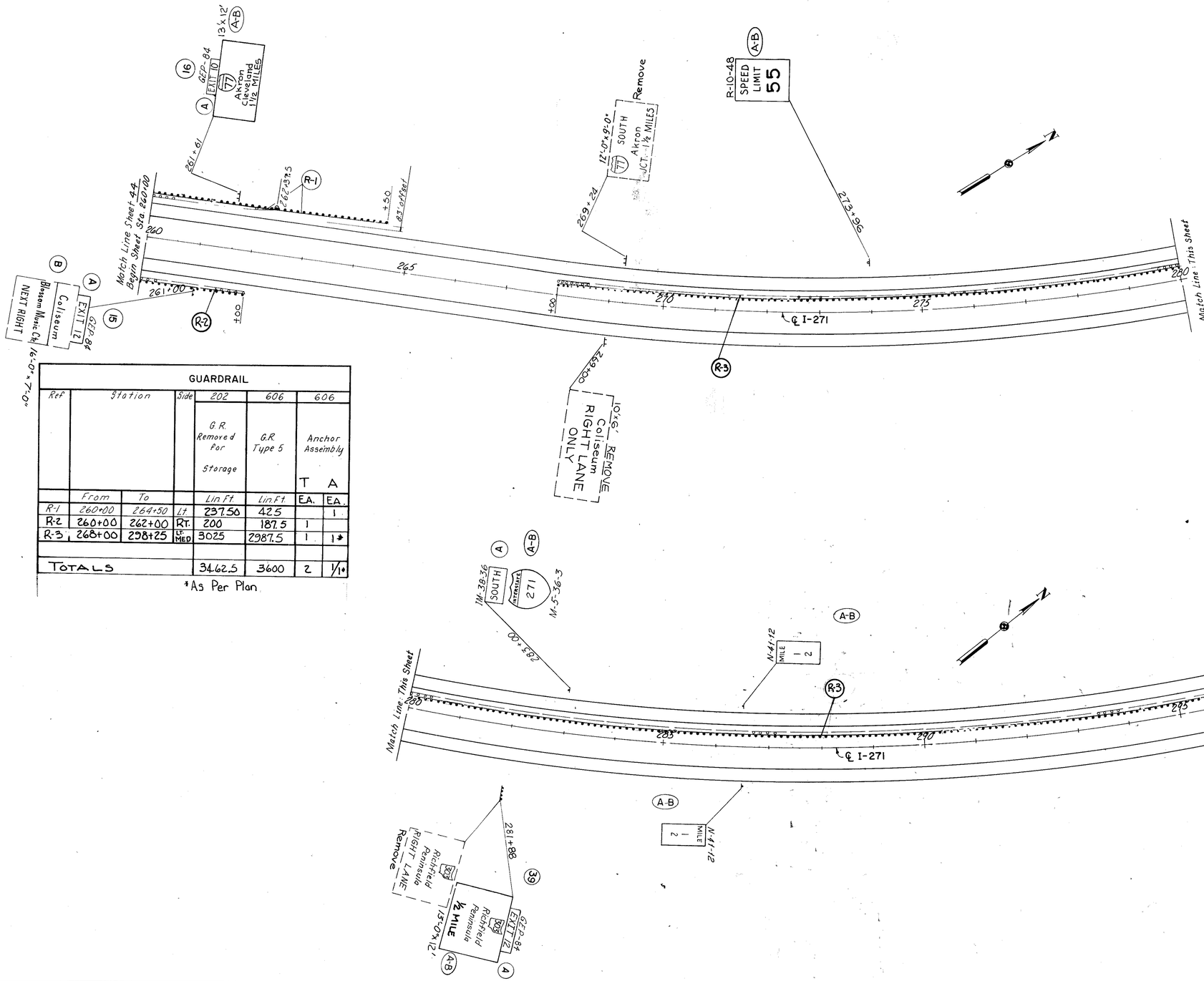
SUM.-271-0.82

QUANTITY CALCULATIONS

MADE BY A.J.S DATE 4-16-73

CHECKED BY D.S.P. DATE 7-14-77

REVISED BY G.L.B. DATE 11-84



GUARDRAIL

Ref	Station		Side	202	606	606
				G.R. Removed For Storage	G.R. Type 5	Anchor Assembly
						T A
	From	To		Lin.Ft.	Lin.Ft.	EA. EA.
R-1	260+00	264+50	Lt	237.50	42.5	1
R-2	260+00	262+00	Rt.	200	187.5	1
R-3	268+00	298+25	Lt MED	3025	2987.5	1 1*
TOTALS				3462.5	3600	2 1/1*


*As Per Plan

SCALE 1" = 100'
MADE A.J.S. DATE 4-16-73
TRCD F.C.G. DATE 4-18-73
CKD D.S.P. DATE 1-15-74

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

100 0 100 200 300 400

STA. 260+00 TO STA. 300+00



FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

46/91

MED. -271-0.00
SUM. -271-0.00

QUANTITY CALCULATIONS

MADE BY AJS DATE 11-13-74
CHECKED BY DSP DATE 7-14-77
REVISED BY G.L.B. DATE 2-85

GUARDRAIL

Ref. No.	Station From	Station To	Side	202 G.R. Removed for Reuse or Storage Lin. Ft.	606 Anchor Assembly Type T	606 Anchor Assembly Type A	606 G.R. Type 5 as per plan Lin. Ft.		606 Bridge Terminal Assembly Type A Each	622 Concrete Barrier Type D Lin. Ft.
R-1	316+92.5	319+30	RT.	237.5		1**	212.50			
	S.R. 303	Ramp H								
R-2	51+61	318+92	Rt.	425	1		412.5		1	
R-3	51+84	56+96.5	Lt.	512.5	—	1**	487.5		1	
R-4	43+89.5	48+27	Lt.	437.5		1**	412.5		1	
R-5	44+03	48+03	Rt.	400		1**	375.0		1	
	S.R. 303	Ramp F								
R-6	141+00	142+25	Rt.		1	1	75			
	Ramp H	Ramp								
R-7	317+01	308+35.14	LT.	200						
	RAMP A									
R-8	314+00	316+00	Rt.	200		1**	175			
R-9	315+45	315+72	LT.	27						
	RAMP E									
R-10	314+00	318+00	RT.	400	1	1	362.5			
B-1	315+72	316+92.5	LT.	120.5					1	120.5
B-2	316+00	317+13	RT.	113						113
TOTALS				3073	3	2/5**	2512.5		5	233.5

** AS PER PLAN.

Legend:
A-Indicates New Sign
B-Indicates New Support
C-Indicates Revise Legend
F- Fence Quantities see Sheet 31
For Signing Quantities see Sheets 75 & 76
CB- For Catch Basin Adjusment Quantities see Sheet No. 31
For Mile Marker Quantities see Sheet 79
For Stop Bar and Lane Arrow Quantities see Sheet 70
R-E Indicates Upgrade Guardrail
* 100% State Participation
(18) Sign Installation Reference Number
FEATHER

*NOTE: EXISTING MEDIAN TO BE REMOVED. SEE SHEET NO. 69 FOR DETAILS AND QUANTITIES.

SCALE 1" = 100'
100 0 100 200 300 400

MADE AJS DATE 1-8-73
TRCD JAG DATE 4-9-73
CKD DSP DATE 1-17-74

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

STA. 300+00 TO STA. 320+00 S.R. 303 INTERCHANGE

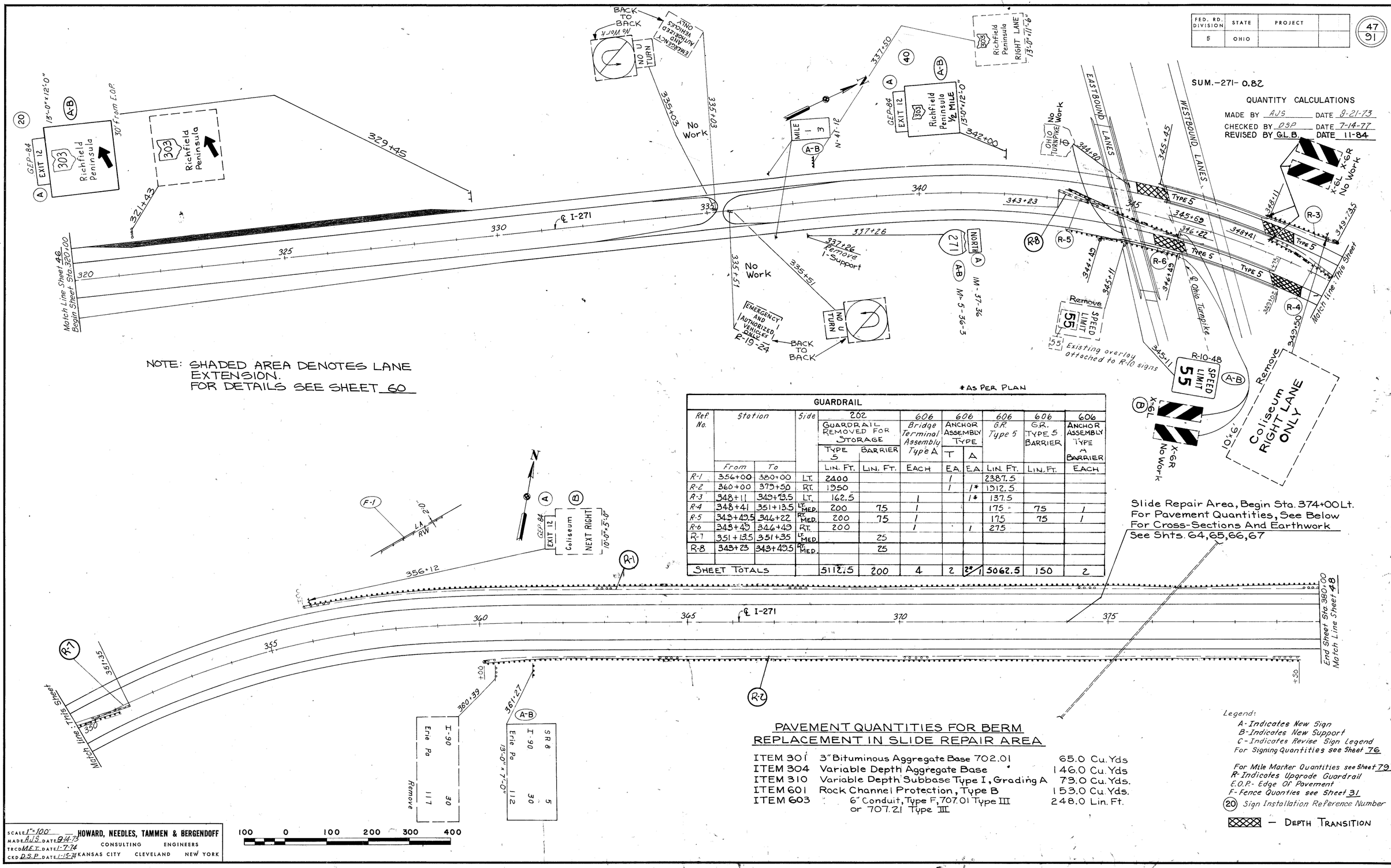
FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

47
91

SUM.-271- 0.82

QUANTITY CALCULATIONS

MADE BY AJS DATE 9-21-73
CHECKED BY DSP DATE 7-14-77
REVISED BY G.L.B. DATE 11-84



NOTE: SHADED AREA DENOTES LANE EXTENSION.
FOR DETAILS SEE SHEET 60

*AS PER PLAN

GUARDRAIL

Ref. No.	Station From	Station To	Side	202 Guardrail Removed for Storage, Type 5 Barrier Lin. Ft.	606 Bridge Terminal Assembly Type A Lin. Ft.	606 Bridge Terminal Assembly Type A Each	606 Anchor Assembly Type T Ea.	606 Anchor Assembly Type A Ea.	606 GR Type 5 Lin. Ft.	606 GR. Type 5 Barrier Lin. Ft.	606 Anchor Assembly Type A Barrier Each
R-1	356+00	380+00	LT.	2400			1		2387.5		
R-2	360+00	379+50	RT.	1950			1	1*	1512.5		
R-3	348+11	349+13.5	LT.	162.5		1		1*	137.5		
R-4	348+41	351+13.5	LT. MED.	200	75	1			175	75	1
R-5	343+49.5	346+22	RT. MED.	200	75	1			175	75	1
R-6	343+49	346+43	RT.	200		1		1	275		
R-7	351+13.5	351+35	LT. MED.		25						
R-8	343+23	343+49.5	RT. MED.		25						
SHEET TOTALS				5112.5	200	4	2	2*/1	5062.5	150	2

Slide Repair Area, Begin Sta. 374+00 Lt.
For Pavement Quantities, See Below
For Cross-Sections And Earthwork
See Shts. 64, 65, 66, 67

PAVEMENT QUANTITIES FOR BERM REPLACEMENT IN SLIDE REPAIR AREA

ITEM 301	3" Bituminous Aggregate Base 702.01	65.0 Cu. Yds
ITEM 304	Variable Depth Aggregate Base	146.0 Cu. Yds
ITEM 310	Variable Depth Subbase Type I, Grading A	73.0 Cu. Yds.
ITEM 601	Rock Channel Protection, Type B	153.0 Cu. Yds.
ITEM 603	6" Conduit, Type F, 707.01 Type III or 707.21 Type III	248.0 Lin. Ft.

Legend:
A - Indicates New Sign
B - Indicates New Support
C - Indicates Revise Sign Legend
For Signing Quantities see Sheet 76

For Mile Marker Quantities see Sheet 79
R - Indicates Upgrade Guardrail
E.O.P. - Edge Of Pavement
F - Fence Quantities see Sheet 31
(20) *Sign Installation Reference Number*
▨ — DEPTH TRANSITION

SCALE 1"=100'
MADE AJS DATE 9-14-73
TRC M.E.T. DATE 1-7-74
CKD D.S.P. DATE 1-15-74

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

STA. 320+00 TO STA. 380+00

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

48
91

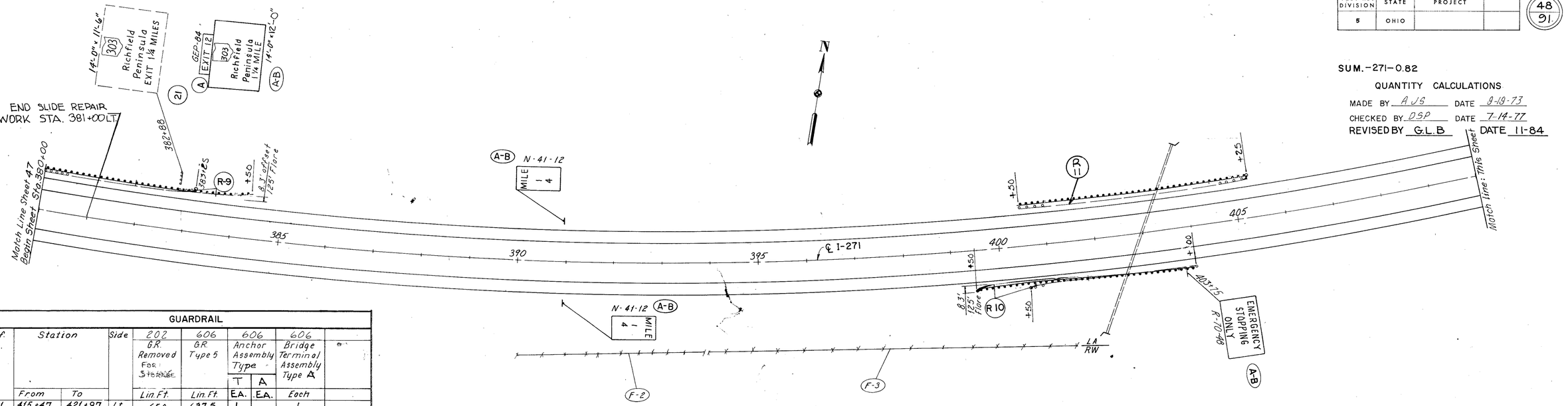
SUM.-271-0.82

QUANTITY CALCULATIONS

MADE BY A.J.S. DATE 9-19-73

CHECKED BY D.S.P. DATE 7-14-77

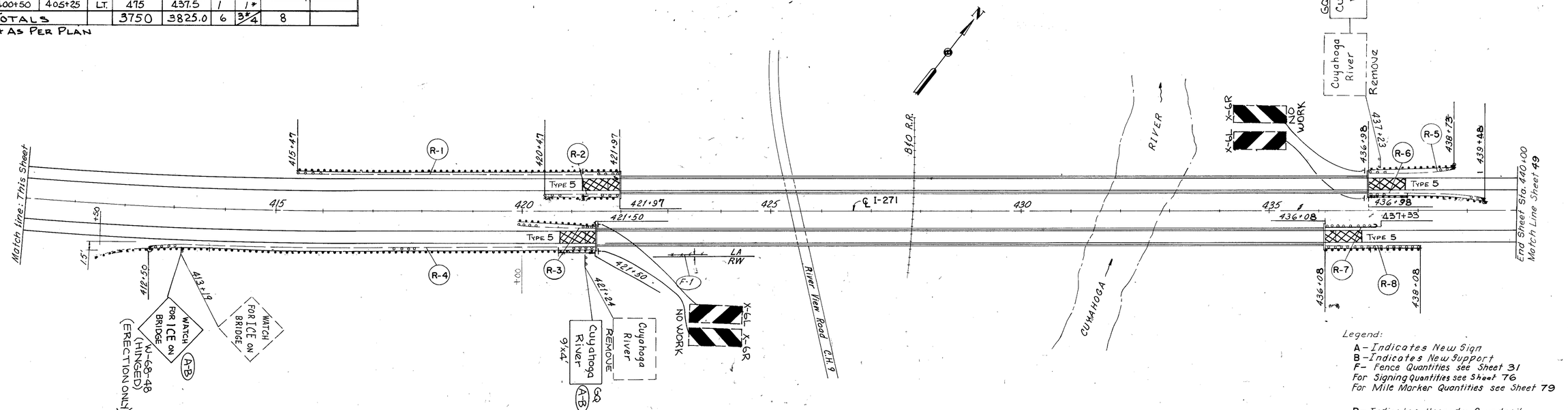
REVISED BY G.L.B DATE 11-84



GUARDRAIL

Ref. No.	Station From	Station To	Side	202 GR. Removed For Storage Lin. Ft.	606 GR Type 5 Lin. Ft.	606 Anchor Assembly Type T EA.	606 Anchor Assembly Type A EA.	606 Bridge Terminal Assembly Type A Each	
R-1	415+47	421+97	Lt.	650	637.5	1		1	
R-2	420+47	421+97	Lt. MED	150	137.5	1		1	
R-3	420+00	421+50	Rt. MED	150	125		1*	1	
R-4	411+50	421+50	Rt.	900	975		1	1	
R-5	436+98	438+73	Lt.	175	150		1*	1	
R-6	436+98	439+48	Lt. MED	250	225		1	1	
R-7	436+08	437+33	Rt. MED	125	112.5	1		1	
R-8	436+08	438+08	Rt.	200	187.5	1		1	
R-9	380+00	384+50	Lt.	325	425		1		
R-10	399+50	404+00	Rt.	350	412.5	1	1		
R-11	400+50	405+25	Lt.	475	437.5	1	1*		
TOTALS				3750	3825.0	6	3*/4	8	

* AS PER PLAN



Legend:

A - Indicates New Sign
B - Indicates New Support
F - Fence Quantities see Sheet 31
For Signing Quantities see Sheet 76
For Mile Marker Quantities see Sheet 79

R - Indicates Upgrade Guardrail
(31) Sign Installation Reference Number
▨ — Depth Transition

SCALE 1"=100'
MADE A.J.S. DATE 10-8-73
TRCD M.E.T. DATE 12-13-73
CKD D.S.P. DATE 1-17-74

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
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KANSAS CITY CLEVELAND NEW YORK

100 0 100 200 300 400

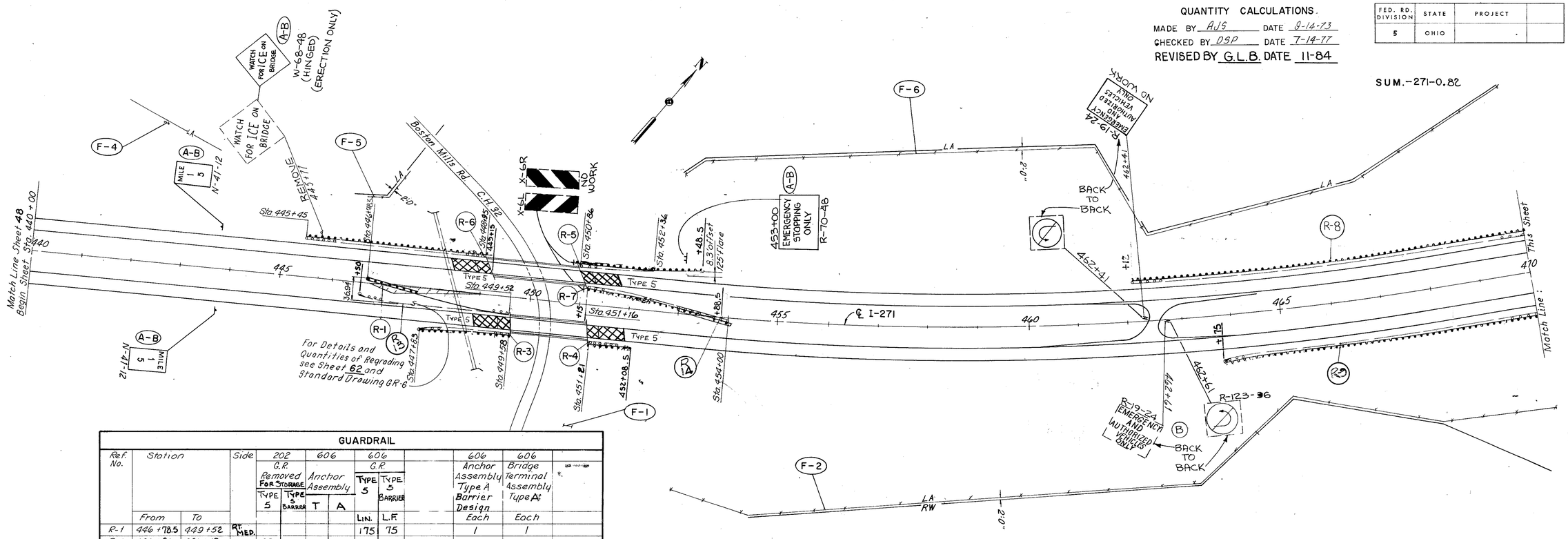
STA. 380+00 TO STA. 440+00

QUANTITY CALCULATIONS.
MADE BY AJS DATE 9-14-73
CHECKED BY DSP DATE 7-14-77
REVISED BY G.L.B. DATE 11-84

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

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SUM.-271-0.82



GUARDRAIL

Ref. No.	Station From	Station To	Side	202 G.R. Removed For Storage Type 5	202 G.R. Removed For Storage Type 5 Barrier	606 Anchor Assembly T	606 Anchor Assembly A	606 G.R. Type 5 Lin.	606 G.R. Type 5 Barrier L.F.		606 Anchor Assembly Type A Barrier Design Each	606 Bridge Terminal Assembly Type A Each	
R-1	446+78.5	449+52	RT. MED.					175	75		1	1	
R-2	480+80	481+19	LT.	39									
R-3	447+83	449+58	RT.	175			1*	162.5				1	
R-4	451+21	452+08.5	RT.	87.5		1		75.0				1	
R-5	450+86	453+88.5	LT.	150			1	237.5				1	
R-6	445+45	448+35	LT.	350		1		337.5				1	
R-7	451+16	453+88.5	LT. MED	200	75			175	75		1	1	
R-8	462+12	477+24.5	LT	1425		1	1	1475					
R-9	463+75	473+50	RT.	975		1	1*	937.5					

GUARDRAIL CON'T.

REF No	STATION From	STATION To	SIDE	622 CONCRETE BARRIER TYPE D ⊛ EA.	202 GD. RAIL REM'D FOR STORAGE
B-1	481+19	482+72	LT.	153	131
B-2	480+25	481+78	RT.	153	137.5

⊛ Denotes Modified As Per Plan

GUARDRAIL CON'T.

REF No.	STATION From	STATION To	SIDE	202 GUARD RAIL REM'D FOR STORAGE TYPE 5 L.F.	202 GUARD RAIL REM'D FOR STORAGE TYPE 5 BARRIER L.F.	606 ANCHOR ASSEMBLY TYPE T EA.	606 ANCHOR ASSEMBLY TYPE A EA.	606 GD. RAIL TYPE 5 BARRIER L.F.	606 GD. RAIL TYPE 5 L.F.	606 ANCHOR ASSEMBLY BARRIER TYPE A EA.	606 BRIDGE TERMINAL ASSEMBLY TYPE A EA.	622 CONCRETE BARRIER TYPE D ⊛ EA.
R-10	481+78	482+03	RT.	25								
R-11	487+75	500+00	RT.	1225			1*		1200			
R-13	446+50	449+52	RT. MED.	300								
R-14	453+88.5	454+00	LT. MED.	25								
R-12	488+50	500+00	Lt.	1150		1			1137.5			
SHEET TOTALS				1370	100	5	2 1/3	150	59125	2	6	306

Legend:
A- Indicates New Sign
B- Indicates New Supports
F- Fence Quantities see Sheet 31
for Signing Quantities see Sheet 76
For Mile Marker Quantities see Sheet 79

R- Indicates upgrade guardrail
▨ — DEPTH TRANSITION

SCALE 1"=100'
MADE AJS DATE 10-8-73
TRCD MET DATE 1-16-74
CKD DSP DATE 1-17-74

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

100 0 100 200 300 400

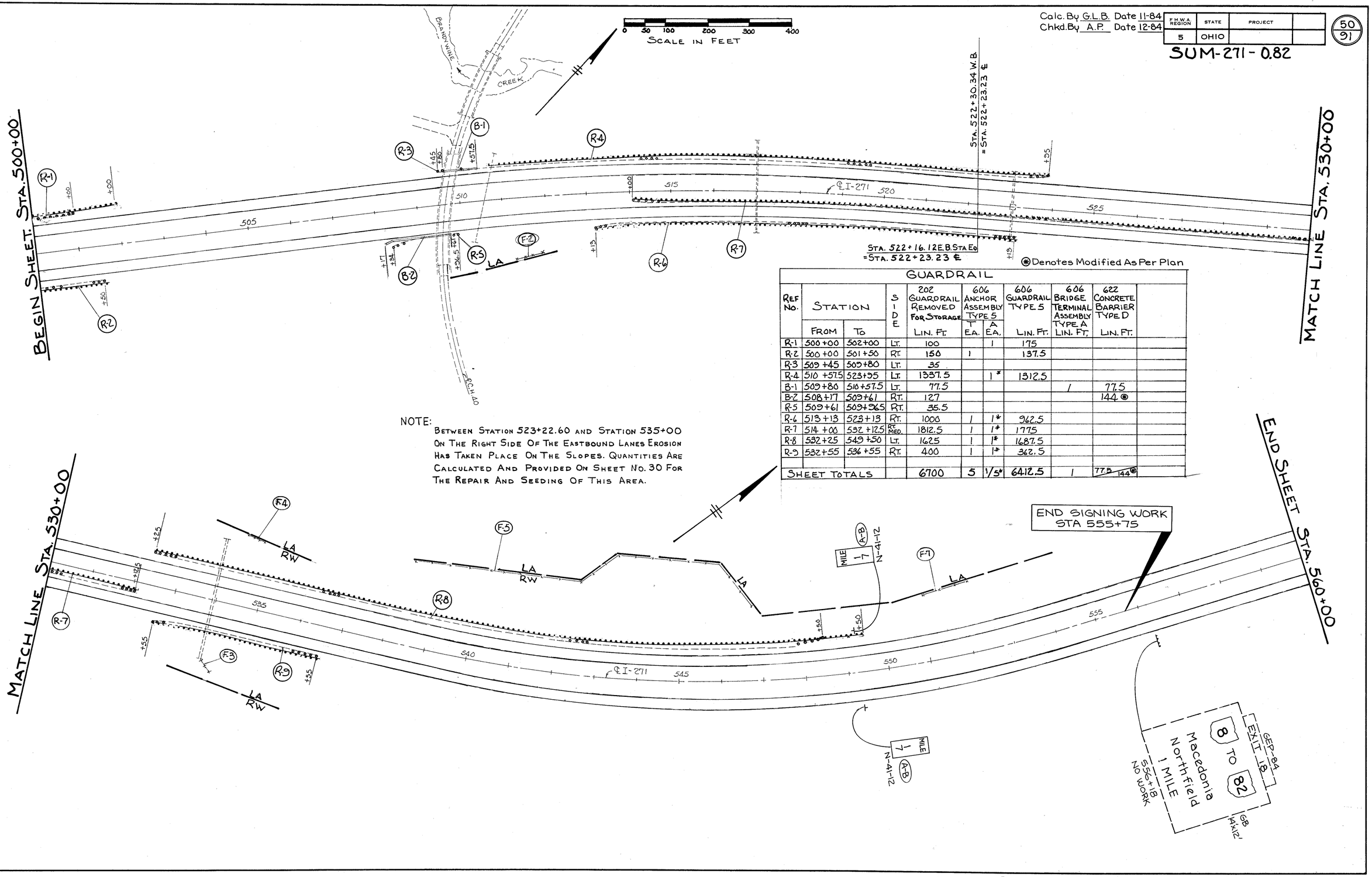
STA. 440+00 TO STA. 500+00

Calc. By G.L.B. Date 11-84
Chkd.By A.P. Date 12-84

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

50/91

SUM-271-0.82



NOTE:
BETWEEN STATION 523+22.60 AND STATION 535+00 ON THE RIGHT SIDE OF THE EASTBOUND LANES EROSION HAS TAKEN PLACE ON THE SLOPES. QUANTITIES ARE CALCULATED AND PROVIDED ON SHEET No. 30 FOR THE REPAIR AND SEEDING OF THIS AREA.

✱ Denotes Modified As Per Plan

GUARDRAIL

REF No.	STATION FROM	STATION To	SIDE	202 GUARDRAIL REMOVED FOR STORAGE LIN. FT.	606 ANCHOR ASSEMBLY TYPE 5 T EA.	606 ANCHOR ASSEMBLY TYPE 5 A EA.	606 GUARDRAIL TYPE 5 LIN. FT.	606 BRIDGE TERMINAL ASSEMBLY TYPE A LIN. FT.	622 CONCRETE BARRIER TYPE D LIN. FT.	
R-1	500+00	502+00	LT.	100		1	175			
R-2	500+00	501+50	RT.	150	1		137.5			
R-3	509+45	509+80	LT.	35						
R-4	510+57.5	523+95	LT.	1337.5		1✱	1312.5			
B-1	509+80	510+57.5	LT.	77.5				1	77.5	
B-2	508+17	509+61	RT.	127					144 ⑥	
R-5	509+61	509+36.5	RT.	35.5						
R-6	513+13	523+13	RT.	1000	1	1✱	962.5			
R-7	514+00	532+12.5	RT. MED.	1812.5	1	1✱	1775			
R-8	532+25	549+50	LT.	1625	1	1✱	1687.5			
R-9	532+55	536+55	RT.	400	1	1✱	362.5			
SHEET TOTALS				6700	5	1/5✱	6412.5	1	77.5 / 144 ⑥	

LINE SHEET STA. 500+00 TO STA. 560+00

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

SUM-271- 0.82

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Calc. By G.L.B Date 11/84
Chkd. By A.P. Date 12/84

0 50 100 200 300 400
SCALE IN FEET

BEGIN SHEET STA. 560+00

MATCH LINE STA. 590+00

MATCH LINE STA. 590+00

END SHEET STA. 35+00

GUARDRAIL

Ⓐ Denotes Modified as per plan

REF. No.	STATION FROM	STATION TO	SIDE	202 GUARDRAIL REMOVED FOR STORAGE TYPE 5 L.F.	202 GUARDRAIL REMOVED FOR STORAGE BARRIER	606 ANCHOR ASSY. TYPE T E.A.	606 ANCHOR ASSY. TYPE A EA.	606 GUARD RAIL TYPE 5 L.F.	606 BRIDGE TERMINAL ASSEMBLY TYPE A EA.	606 GUARDRAIL TYPE 5 BARRIER L.F.	606 ANCHOR ASSY. TYPE A BARRIER EA.	622 CONC. BARRIER TYPE D AS PER PLAN L.F.
B-1	590+44	590+79	LT.	35								35*
B-2	590+02	589+89	LT. MED.	87								87*
B-3	589+61	591+07	RT. MED.	146								146*
B-4	589+37	591+17	RT.	180								180*
R-1	567+29	571+29	LT.	400		1	1	362.5				
R-2	566+00	569+00	RT.	300		1	1*	262.5				
R-3	584+03.5	587+78.5	RT.	375			1*	350	1			
R-4	585+28.5	588+01	RT. MED.	200	75			175	1	75	1	
R-5	592+40	595+90	LT.	350			1*	325	1			
R-6	592+50	595+22.5	LT. MED.	225				175	1	75	1	
R-7	592+77.5	601+81.79	RT.	900				900	1			
R-8	571+29	587+04	LT.	1575								
R-9	585+00	585+28.5	RT. MED.		25							
R-10	587+04	588+66.5	LT	162.5		1		150	1			
SHEET TOTALS				4935.5	100	3	1 / 3*	2700	6	150	2	448*

No Work
Emergency Stopping Only R-70-48

LA RW

2'-0"

567+50

F-1 R-1 F-2

2'-0" Rock Channel Protection Type B 15'x6'x1.5'

+29 +29

R-8

16'x7'

SR 303
I-77
COLUMBUS
NO WORK

Back to Back
No Work
Emergency Authorized Vehicles Only

NO WORK R-10-48
SPEED LIMIT 55
STA. 586+00

X-6L X-6R NO WORK

F-4

F-3 2'-0"

R-10

LA RW

+04 +66.5

+00 +28.5

+44 +02

Type 5

R-4

+01 +42 +61

B-3

565 570 575 ℄ I-271 580 585

Type 5

R-2

+00 +00

No Work

R-3 +03.5

R-5 X-6L NO WORK X-6R

+18.5

ASBURY-CLEVELAND RD.

+37

B-4

Ⓐ Denotes Modified as per plan

Northfield Park Next Right
568+90 17'x45'

GEP-84 EXIT 18

Emergency Authorized Vehicles Only
Back to Back
No Work

8 TO 82
Macedonia Northfield
½ MILE
587+00 NO WORK 14'x12'

GEP-84 EXIT 18

FOR DETAILS AND QUANTITIES FOR EXTENDING SEE CROSS-SECTION ON SHEET No. 61

B-2 B-1 STA. 590+79 CREEK STA. 592+40 X-6R NO WORK R-5 X-6L R-6 +90

SOUTH IM-38-36 271 M-5-363 594+46 NO WORK

LA RW LA RW

601+32

Type 5 590+89 Type 5 +12 Type 5 +62.5 Type 6 Type 6

600 ℄ I-271 605 32

B-3 B-4 STA. 591+17 BRANDYWINE STA. 598+55 STA. 592+77.5 R-7

79-X 79-X X-6R NO WORK

END Project Ⓐ Work
STA. 601+81.79
S.L.M. 11.41
IR-271-6 (65) 229

FOR DETAILS AND QUANTITIES OF REGRADING SEE SHEET No. 63 AND STANDARD DRAWING GR-6

NORTHFIELD CENTER TWP.
MACEDONIA CITY CORP. LIMIT

STA. 603+81.79 BACK =
STA. 32+00.00 AHEAD

▨ – FEATHER AREA
▩ – DEPTH TRANSITION

LINE SHEET STA. 560+00 TO STA. 35+00

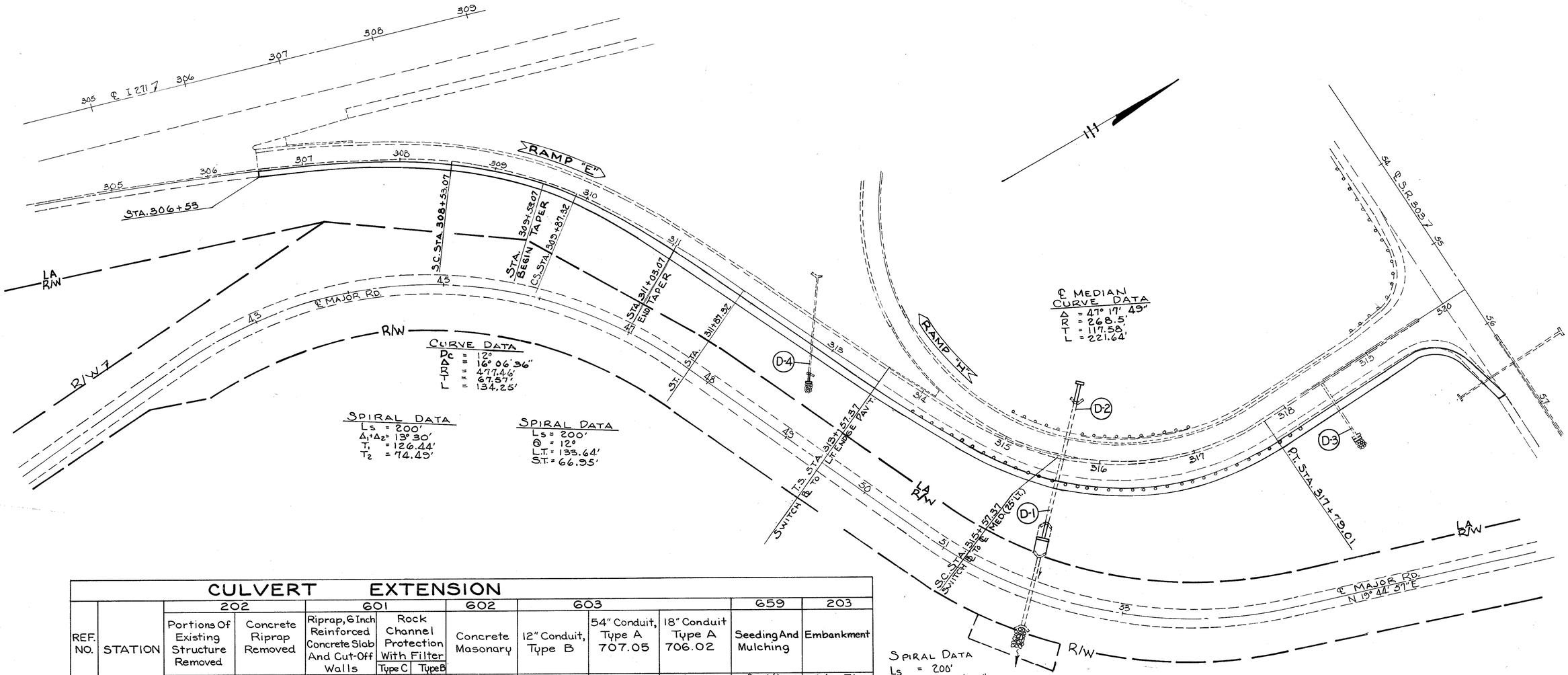
Calc. By G.L.B. Date 11-84
Chkd. By A.P. Date 12-84

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

SUM-271-0.82

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CURVE DATA
Dc = 1° 30'
Δ = 6° 47' 46"
R = 3819.72'
T = 226.80'
L = 453.07'
P.C. STA. 302+00



CULVERT EXTENSION

REF. NO.	STATION	202 Portions Of Existing Structure Removed	202 Concrete Riprap Removed	601 Riprap, 6 Inch Reinforced Concrete Slab And Cut-Off Walls	601 Rock Channel Protection With Filter Type C	601 Rock Channel Protection With Filter Type B	602 Concrete Masonary	603 12" Conduit, Type B	603 54" Conduit, Type A 707.05	603 18" Conduit Type A 706.02	659 Seeding And Mulching	203 Embankment
	RAMP "E"	Lump	Sq. Yds.	Sq. Yds.	Cu. Yds.		Cu. Yds.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Sq. Yds.	Lin. Ft.
D-1	315+63	Lump	43.5	22.5			1.8		18			
D-2	315+63	Lump					1.33		21		88	733
D-3	318+44	Lump			1.1		0.21	5				
D-4	312+88	Lump				2.2	0.33			10		
TOTALS			43.5	22.5	1.1	2.2	3.67	5	39	10	88	733

Note: For Additional Drainage Details
See Sheets 55, 59

RAMP "E" DETAILS

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

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SUM-271-0.82

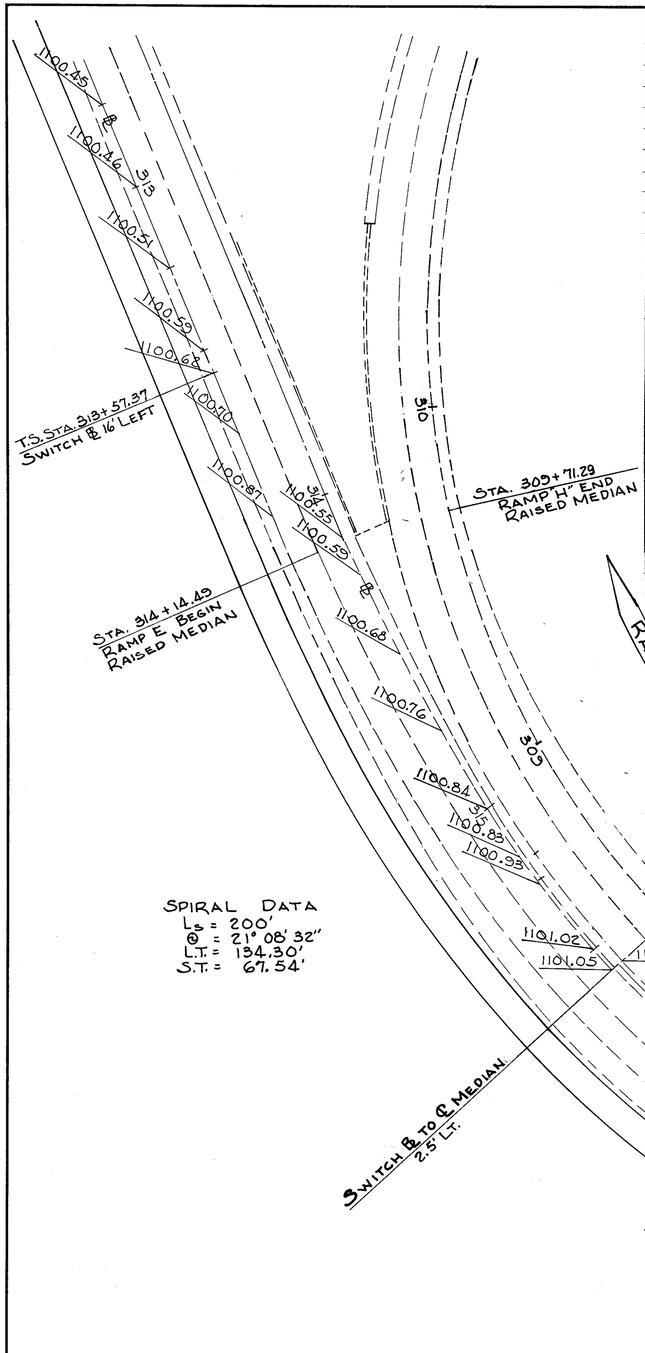
RAMP WIDENING

	STATION	OFFSET PROP. E.P.	OFFSET EXIST. E.P.	EXIST. ELEV.*	PROP. ELEV.†
RAMP E	309+50		0	1103.19	—
BEGIN TAPER	309+53.07				
	309+75	1.17' Rt.	0	1102.87	1102.77
	310+00	2.50' Rt.	0	1102.55	1102.36
	310+25	3.84' Rt.	0	1102.23	1101.96
	310+50	5.17' Rt.	0	1101.91	1101.59
	310+75	6.51' Rt.	0	1101.61	1101.26
	311+00	7.84' Rt.	0	1101.34	1100.99
END TAPER	311+03.07	8.00' Rt.	0		
	311+25	8.00' Rt.	0	1101.11	1100.82
	311+50	8.00' Rt.	0	1100.91	1100.69
	311+75	8.00' Rt.	0	1100.75	1100.59
	312+00	8.00' Rt.	0	1100.62	1100.52
	312+25	8.00' Rt.	0	1100.53	1100.48
	312+50	8.00' Rt.	0	1100.50	1100.46
	312+75	8.00' Rt.	0	1100.45	1100.48
	313+00	8.00' Rt.	0	1100.46	1100.53
	313+25	8.00' Rt.	0	1100.51	1100.61
	313+50	8.00' Rt.	0	1100.59	1100.72
SWITCH & 16' LT.	313+57.37	24.00' Rt.	16' Rt.	1100.62	1100.75
	313+75	24.00' Rt.	16' Rt.	1100.70	1100.84
	314+00	24.00' Rt.	16' Rt.	1100.87	1101.06
	314+25	24.00' Rt.	16' Rt.	1101.05	1101.28
	314+50	24.00' Rt.	16' Rt.	1101.29	1101.60

RAMP WIDENING

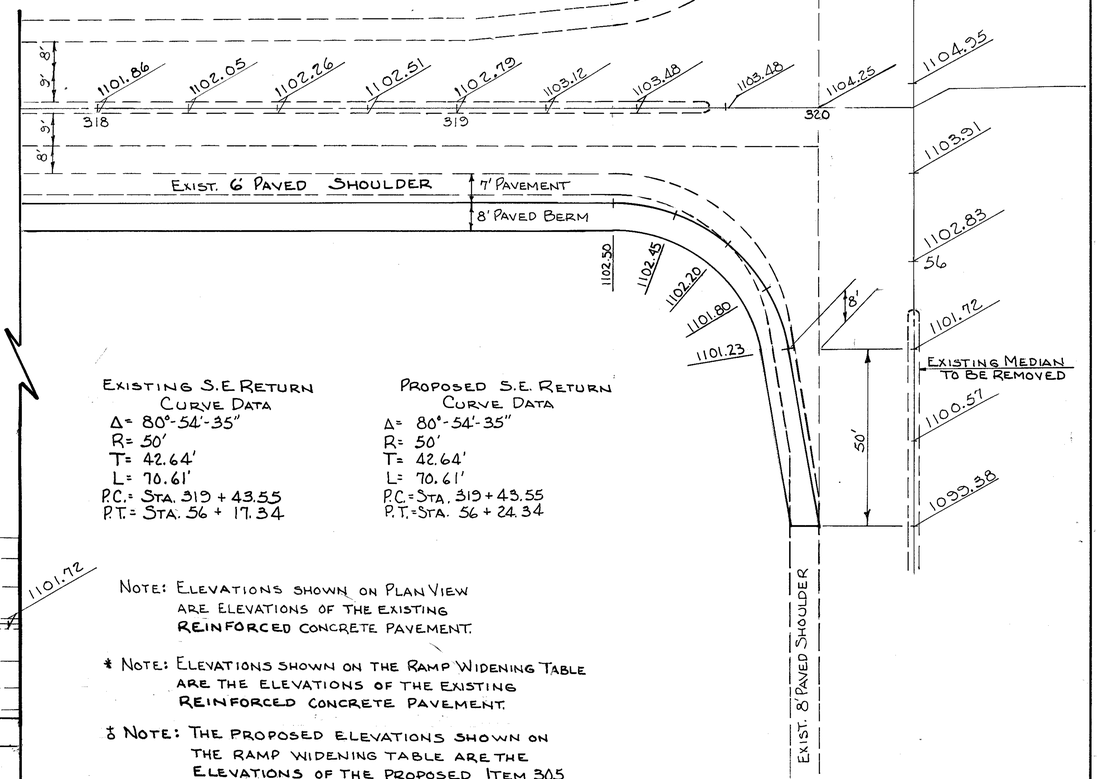
	STATION	OFFSET PROP. E.P.	OFFSET EXIST. E.P.	EXIST ELEV.*	PROP. ELEV.†
RAMP E	314+75	24.00' Rt.	16' Rt.	1101.54	1101.33
	315+00	24.00' Rt.	16' Rt.	1101.79	1102.27
	315+25	24.00' Rt.	16' Rt.	1102.04	1102.60
	315+50	24.00' Rt.	16' Rt.	1102.30	1102.94
SWITCH & TO ℄ MEDIAN 2.5 LT.	315+57.37				
	315+75	25.50' Rt.	18.5' Rt.	1102.45	1103.03
	316+00	25.50' Rt.	18.5' Rt.	1102.53	1103.11
	316+25	25.50' Rt.	18.5' Rt.	1102.56	1103.12
	316+50	25.50' Rt.	18.5' Rt.	1102.53	1103.04
	316+75	25.50' Rt.	18.5' Rt.	1102.44	1102.88
	317+00	25.50' Rt.	18.5' Rt.	1102.37	1102.75
	317+25	25.50' Rt.	18.5' Rt.	1102.29	1102.60
	317+50	25.50' Rt.	18.5' Rt.	1102.20	1102.44
	317+75	25.50' Rt.	18.5' Rt.	1102.13	1102.30
	318+00	25.50' Rt.	18.5' Rt.	1102.11	1102.21
	318+25	25.50' Rt.	18.5' Rt.	1102.13	1102.16
	318+50	25.50' Rt.	18.5' Rt.	1102.17	1102.13
	318+75	25.50' Rt.	18.5' Rt.	1102.25	1102.14
	319+00	25.50' Rt.	18.5' Rt.	1102.37	1102.20
	319+25	25.50' Rt.	18.5' Rt.	1102.53	1102.40

EXISTING S.W RETURN CURVE DATA
Δ = 78° 34' 44"
R = 60'
T = 49.09'
L = 82.29'
P.C. = STA. 54+80.51
P.T. = STA. 319+43.19



SPIRAL DATA
L_s = 200'
Θ = 21° 08' 32"
L.T. = 134.30'
S.T. = 67.54'

℄ MEDIAN CURVE DATA
Δ = 47° 17' 49"
D_c = 21° 20' 21"
R = 268.50'
T = 117.56'
L = 221.64'



EXISTING S.E. RETURN CURVE DATA
Δ = 80°-54'-35"
R = 50'
T = 42.64'
L = 70.61'
P.C. = STA. 319+43.55
P.T. = STA. 56+17.34

PROPOSED S.E. RETURN CURVE DATA
Δ = 80°-54'-35"
R = 50'
T = 42.64'
L = 70.61'
P.C. = STA. 319+43.55
P.T. = STA. 56+24.34

NOTE: ELEVATIONS SHOWN ON PLAN VIEW ARE ELEVATIONS OF THE EXISTING **REINFORCED** CONCRETE PAVEMENT.

* NOTE: ELEVATIONS SHOWN ON THE RAMP WIDENING TABLE ARE THE ELEVATIONS OF THE EXISTING **REINFORCED** CONCRETE PAVEMENT.

† NOTE: THE PROPOSED ELEVATIONS SHOWN ON THE RAMP WIDENING TABLE ARE THE ELEVATIONS OF THE PROPOSED ITEM 305 PORTLAND CEMENT CONCRETE BASE COURSE.

33770

INTERSECTION DETAILS S.R. 303 AND RAMP "E"

FED RD DIVISION	STATE	PROJECT	
5	OHIO		

SUM-271-0.82

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	Seeding		End Area		Cu. Yds.	
	L.F.	S.Y.	Cut	Fill	Exc.	Emb.
309+50						
1103.19						
	10		5	0		
		74			13	0
308+83						
1104.05						
	10		5	0		
		97			17	0
307+96						
1105.00						
	10		5	0		
		108			13	0
306+98						
1105.81						
	10		2	0		
		25			2	0
Begin Earthwork Sta. 306+53.09	0		0	0		
312+00						
1100.62						
	10		52	23		
		111			167	87
311+00						
1101.34						
	10		38	24		
		111			85	44
310+00						
1102.55						
	10		8	0		
		56			12	0
Sta. 309+50	10		5	0		
Sheet Totals		582			309	131

FINAL SURVEY
ORIGINAL SURVEY
DATE
BY
SURVEYED
PLOTTED
TRACED
CHECKED
NOTE BOOK
TEMPLATE
PAGE
AREAS CHECKED
NO.

HIGHWAY FEDERAL AID SERIES
PLATE 3-FULL CROSS SECTION-FULL LINE
WIDENING
PRINTED IN U.S.A.

Cross Sections Sta. 306+98 to Sta. 312+00 Ramp "E"

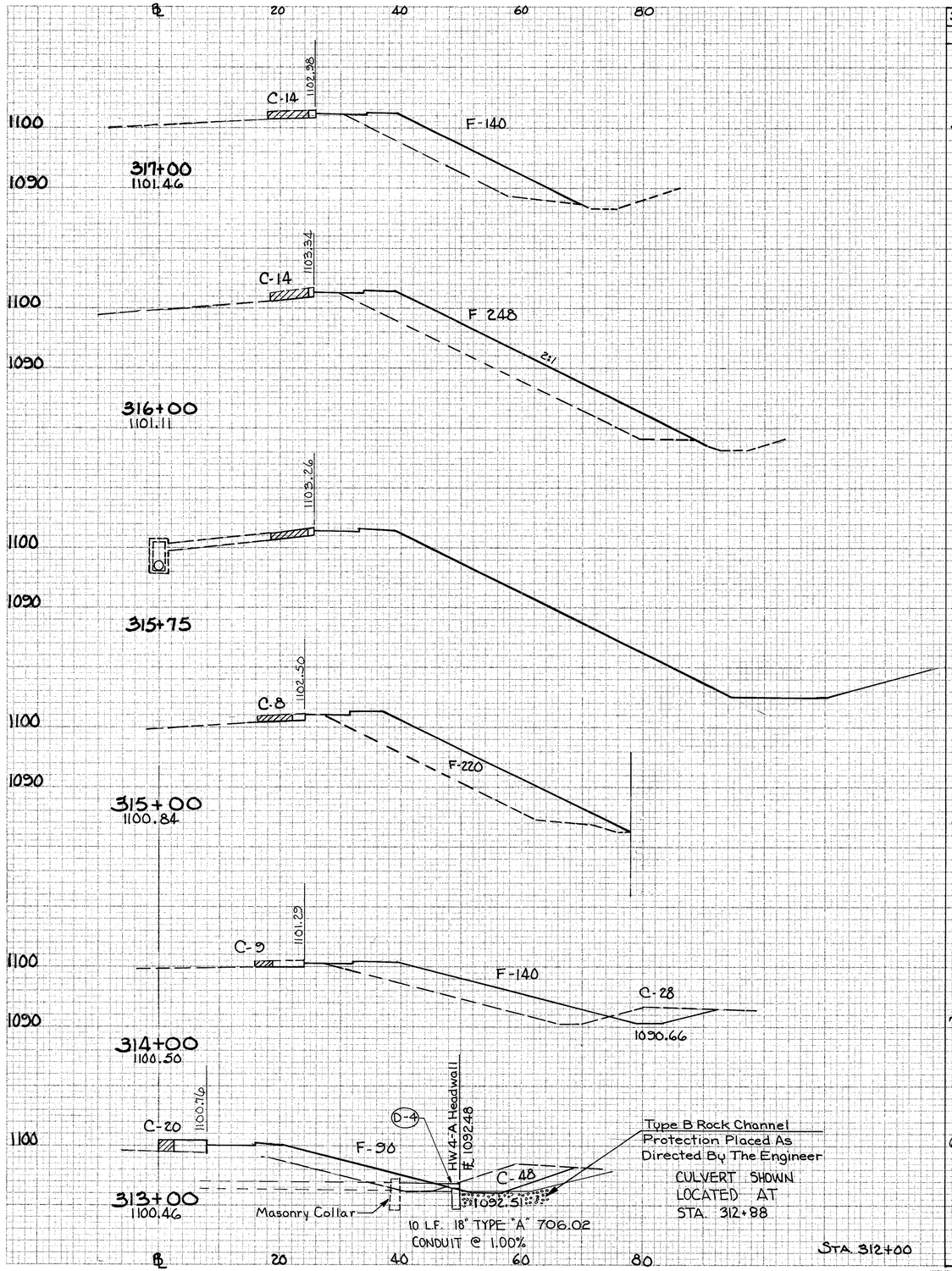
FED RD DIVISION	STATE	PROJECT	
5	OHIO		

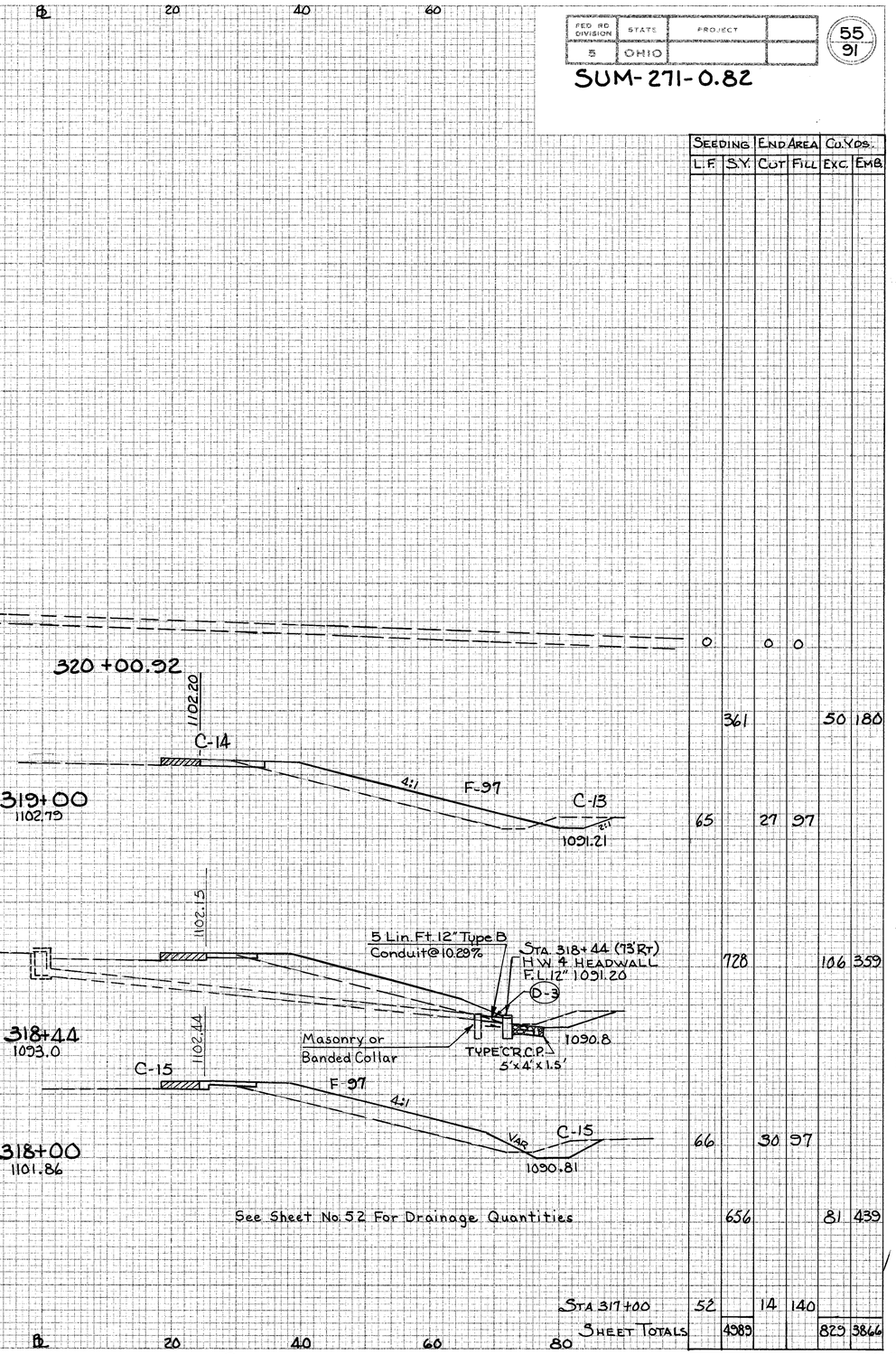
55
91

SUM-271-0.82

	SEEDING		END AREA		CU. YDS.	
	L.F.	S.Y.	CUT	FILL	EXC.	EMB.
317+00	52		14	140		
	683				52	719
316+00	71		14	248		
	683				41	867
315+75	52		8	220		
	694				83	667
315+00	73		37	140		
	767				194	426
314+00	65		68	30		
	417				222	209
313+00	10		52	23		
STA. 312+00						

	SEEDING		END AREA		CU. YDS.	
	L.F.	S.Y.	CUT	FILL	EXC.	EMB.
320+00.92					0	
					0	0
319+00	361					50 180
	65		27	97		
318+44	728					106 359
318+00	66		30	97		
	656					81 439
STA 317+00	52		14	140		
3 SHEET TOTALS	4989					829 3866





ORIGINAL SURVEY
FINAL SURVEY
SURVEYED
PLOTTED
TEMPLATE
AREAS
NOTE BOOK
NO.
CHECKED

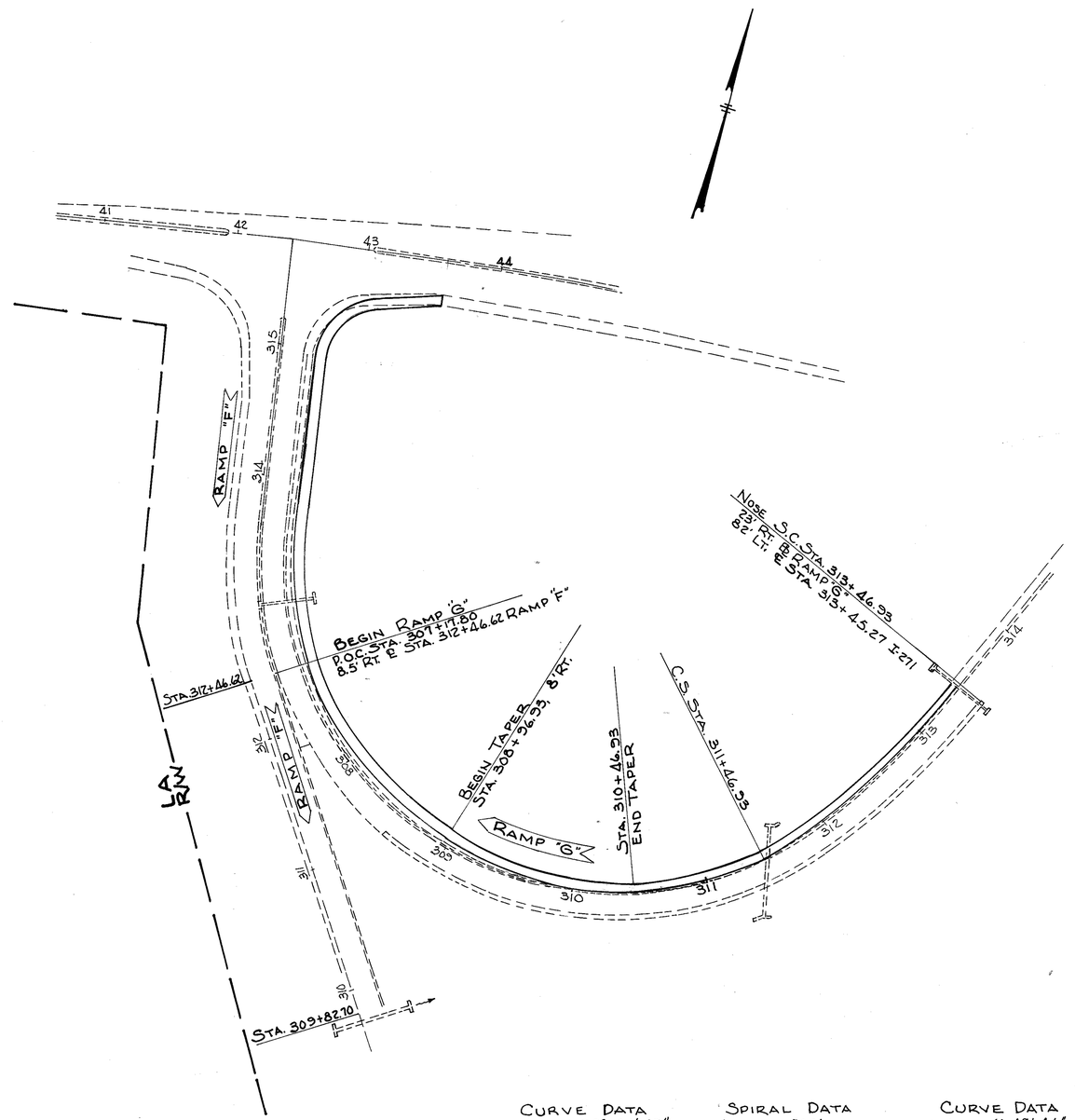
HIGHWAY PERSONAL USE SHEET
PLATE 3-FULL CROSS SECTION-FULL LINE
TELEDYNE
PRINTED IN U.S.A.

CROSS SECTIONS STA. 313+00 TO STA. 320+00 RAMP "E"

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

56/91

SUM-271-0.82



CURVE DATA		SPIRAL DATA		CURVE DATA	
Δ	= 98° 20' 55"	L_s	= 200'	Δ	= 6° 47' 46"
R	= 250'	$\Delta_1 + \Delta_2$	= 24° 25' 06"	R	= 3819.72'
T	= 289.37'	T_1	= 72.04'	T	= 226.80'
L	= 429.13'	T_2	131.04'	L	= 453.07'

RAMP "G" DETAILS

33770

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

57
91

SUM-271-0.82

RAMP WIDENING

	STATION	PROP. E.P. OFFSET	EXIST. E.P. OFFSET	EXISTING* ELEVATION	PROPOSED† ELEVATION
BEGIN TAPER RAMP G	310+46.93	—	0	1102.34	
	310+25	1.17' LT.	0	1102.65	1102.55
	310+00	2.50' LT.	0	1102.98	1102.77
	309+75	3.84' LT.	0	1103.27	1102.95
	309+50	5.17' LT.	0	1103.58	1103.15
	309+25	6.51' LT.	0	1103.89	1103.35
	309+00	7.84' LT.	0	1104.20	1103.55
END TAPER 308+96.55	308+75	8.00' LT.	0	1104.51	1103.85
	308+50	8.02' LT.	0	1104.82	1104.15
	308+25	8.09' LT.	0	1105.13	1104.46
	308+00	8.16' LT.	0	1105.44	1104.76
	307+75	8.23' LT.	0	1105.75	1105.06
	307+50	7.69' LT.	0	1106.06	1105.42
	307+25	7.16' LT.	0	1106.37	1105.79
RAMP G	307+17.80	SWITCH ℄	TO ℄ MEDIAN		
RAMP F	312+46.62	25.5' RT.	18.5' RT.	1106.46	1105.88
	312+50	25.5' RT.	18.5' RT.	1106.50	1105.92
	312+75	25.5' RT.	18.5' RT.	1106.79	1106.21
	313+00	25.5' RT.	18.5' RT.	1107.15	1106.59
	313+25	25.5' RT.	18.5' RT.	1107.63	1107.11
	313+50	25.5' RT.	18.5' RT.	1108.20	1107.76
	313+75	25.5' RT.	18.5' RT.	1108.81	1108.44
	314+00	25.5' RT.	18.5' RT.	1109.48	1109.18
	314+25	25.5' RT.	18.5' RT.	1110.18	1109.35
	314+50	25.5' RT.	18.5' RT.	1110.92	1110.76
	314+75	25.5' RT.	18.5' RT.	1111.66	1111.50
	314+93.25	25.5' RT.	18.5' RT.	1112.18	1112.10

NOTE: ELEVATIONS SHOWN ON PLAN VIEW ARE ELEVATIONS OF THE EXISTING REINFORCED CONCRETE PAVEMENT.

* NOTE: ELEVATIONS SHOWN ON THE RAMP WIDENING TABLE ARE THE ELEVATIONS OF THE EXISTING REINFORCED CONCRETE PAVEMENT.

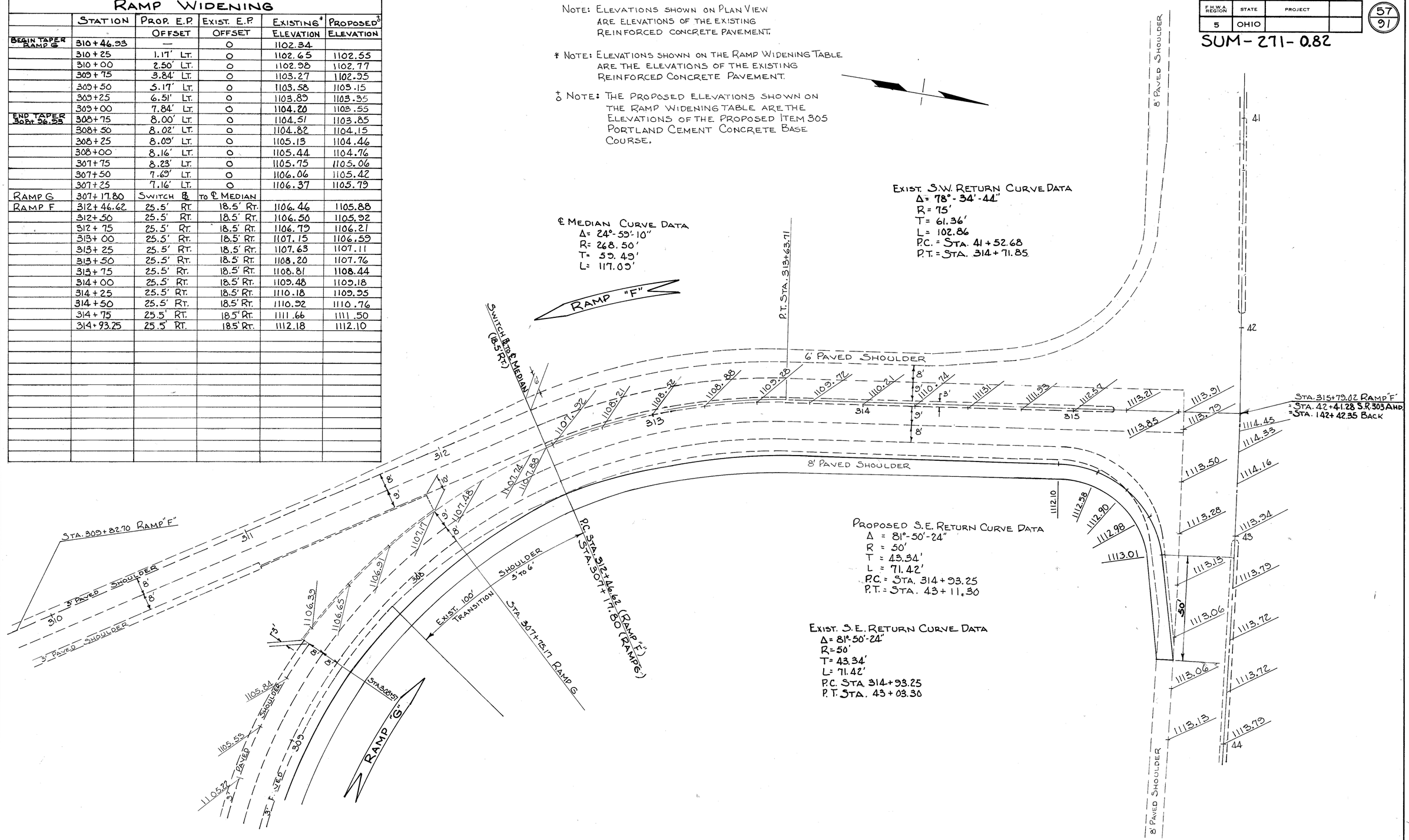
† NOTE: THE PROPOSED ELEVATIONS SHOWN ON THE RAMP WIDENING TABLE ARE THE ELEVATIONS OF THE PROPOSED ITEM 305 PORTLAND CEMENT CONCRETE BASE COURSE.

℄ MEDIAN CURVE DATA
Δ = 24°-59'-10"
R = 268.50'
T = 59.49'
L = 117.09'

EXIST. S.W. RETURN CURVE DATA
Δ = 78°-34'-44"
R = 75'
T = 61.36'
L = 102.86
P.C. = STA. 41+52.68
P.T. = STA. 314+71.85

PROPOSED S.E. RETURN CURVE DATA
Δ = 81°-50'-24"
R = 50'
T = 43.34'
L = 71.42'
P.C. = STA. 314+93.25
P.T. = STA. 43+11.30

EXIST. S.E. RETURN CURVE DATA
Δ = 81°-50'-24"
R = 50'
T = 43.34'
L = 71.42'
P.C. STA. 314+93.25
P.T. STA. 43+03.30



INTERSECTION DETAILS S.R. 303 AND RAMP 6

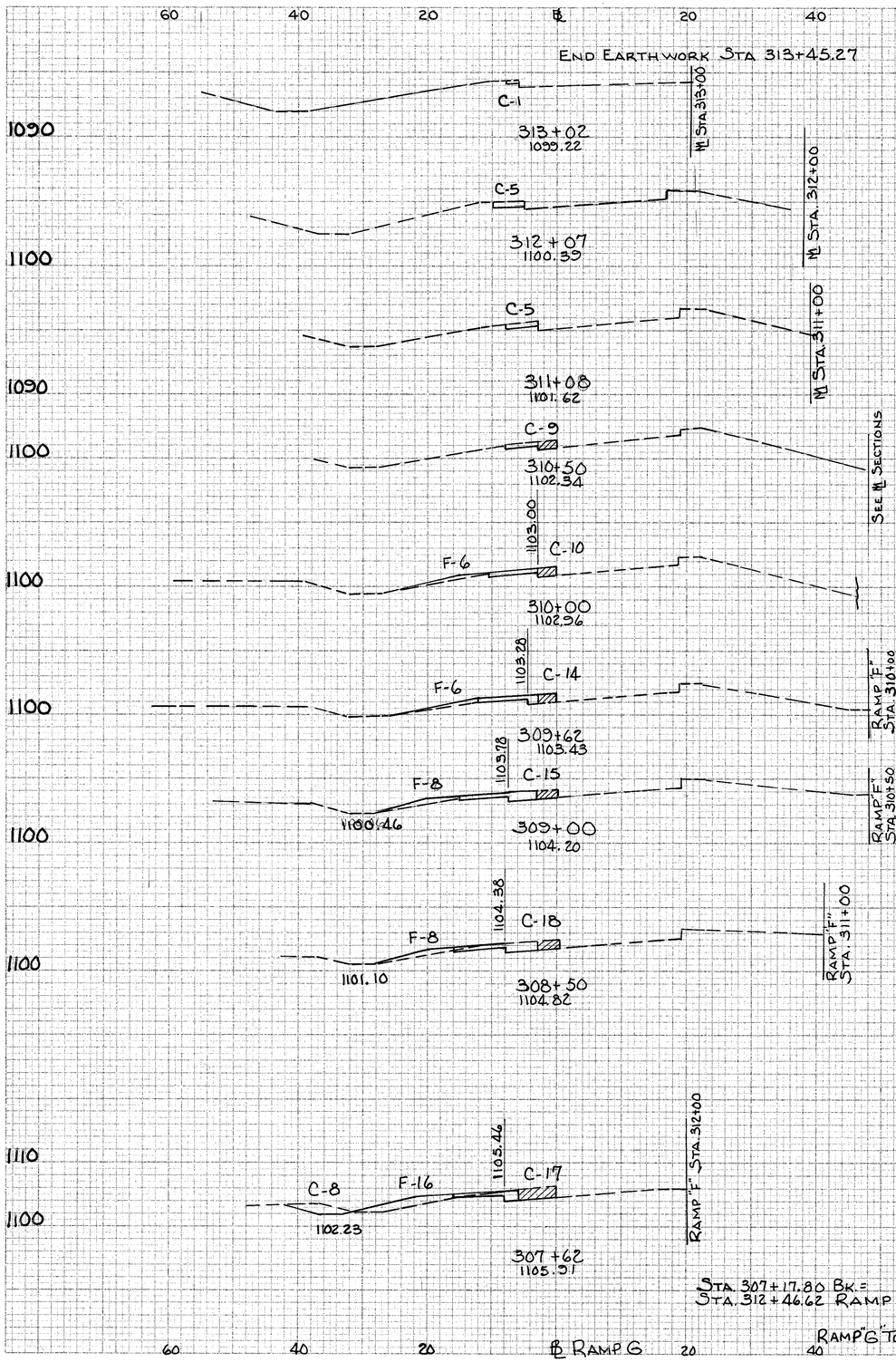
Calc. By G.L.B. 11/84
Chkd. By A.P. 12/84

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

SUM-271-0.82

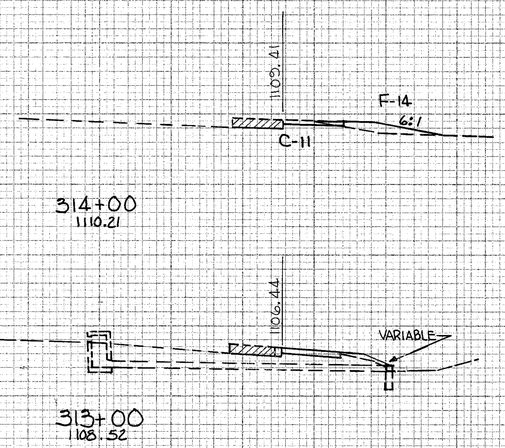
58
91

END EARTHWORK STA 313+45.27



SEEDING L.F.	SEEDING S.Y.	END AREA CUT	END AREA FILL	CU. YDS EXC.	CU. YDS EMB.
0		0	0		
	24			2	0
10		1	0		
	105			10	0
10		5	0		
	110			19	0
10		5	0		
	64			15	0
10		9	0		
	100			18	6
26		10	6		
	108			17	8
25		14	6		
	165			33	16
25		15	8		
	131			31	15
24		18	8		
	278			70	39
33		25	16		
	133			30	25
21		11	14		
	1218			245	109

RAMP "G" TOTALS



STA. 312+46.62 BK. =
STA. 307+17.80 RAMP G

℄ RAMP "F"

SEEDING L.F.	SEEDING S.Y.	END AREA CUT	END AREA FILL	CU. YDS. EXC.	CU. YDS. EMB.
21		11	14		
	233			41	52
21		11	14		
	123			22	28
21		11	14		
	356			63	80

RAMP "F" TOTALS

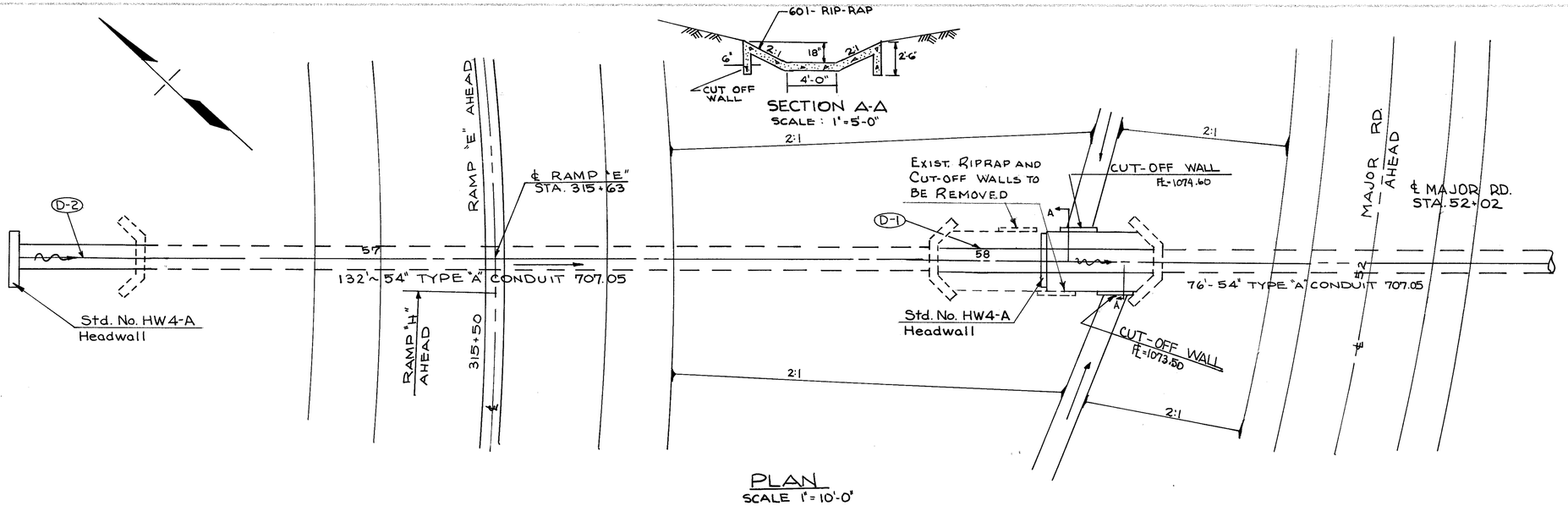
CROSS SECTIONS RAMP "G" AND RAMP "F"

PLATE 3-FULL CROSS SECTION-FULL LINE
HIGHWAY FEDERAL AID SHEET
50 FILED INK
PRINTED IN U.S.A.

PROJECT			
FED. RD. DIVISION	STATE		
5	OHIO		

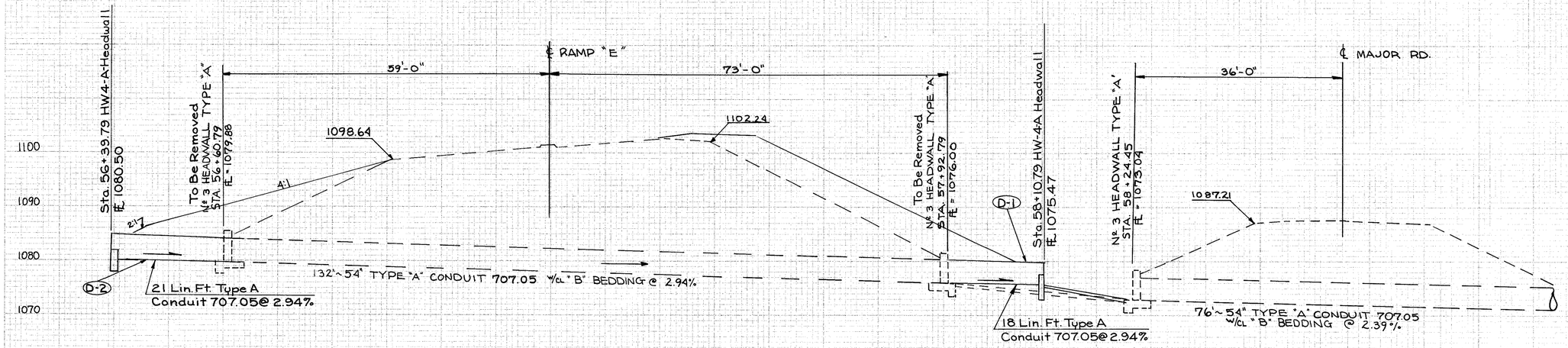
59
91

SUM-271-0.82



PLAN
SCALE 1"=10'-0"

*NOTE: SEE SHEET Nº 52 FOR QUANTITIES



PROFILE
SCALE : 1"=10'-0"

CULVERT DETAILS
RAMP "E" STA. 315+63
MAJOR RD. STA. 52+02

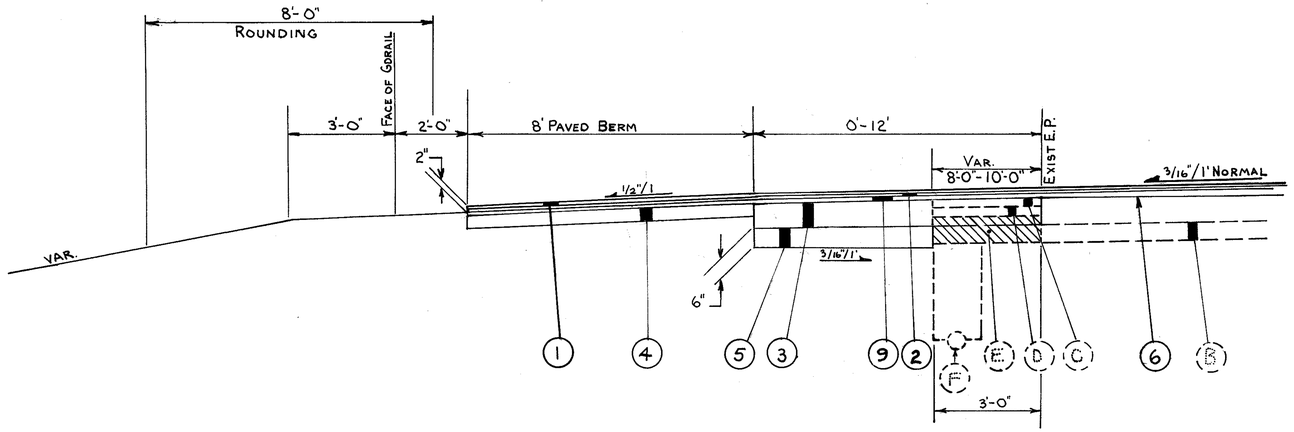
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

SUM-271-0.82

60/91

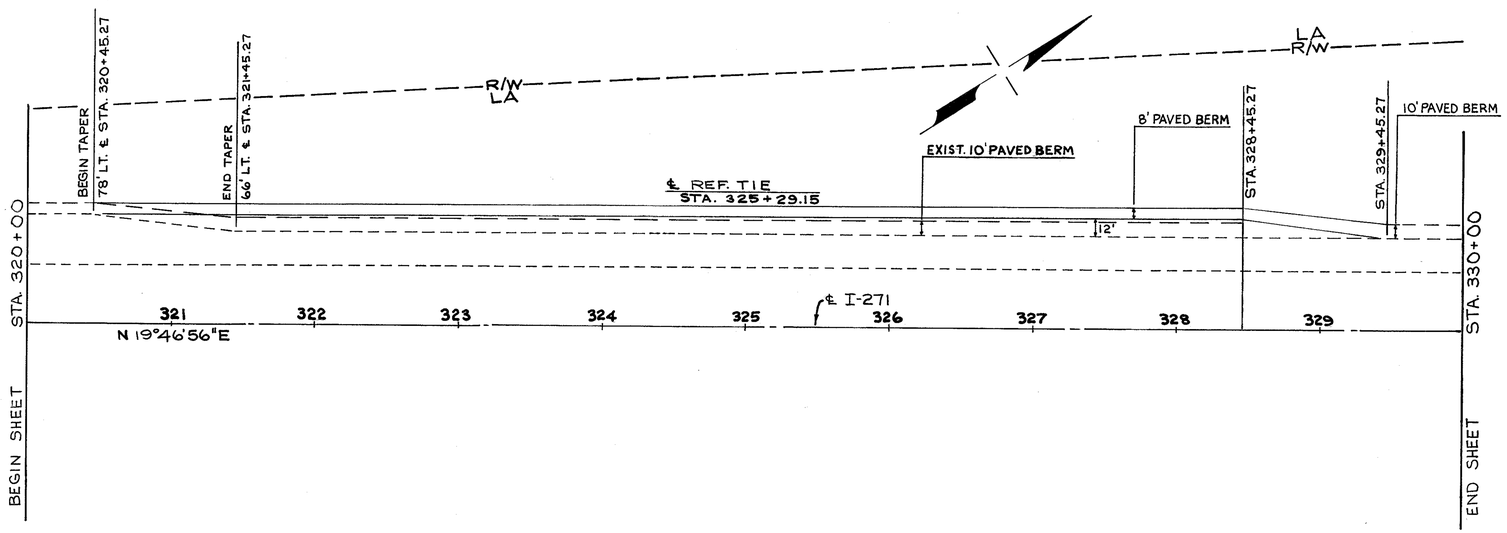
RAMP WIDENING TYPICAL

TYPE 404 ON 402



RAMP G

STA. 320 + 45.27 TO 329 + 45.27 = 900 LIN. FT.



LEGEND

1. Special 3/4" Open Graded Asphalt Concrete Friction Course, Rubberized
2. 404 1" Asphalt Concrete AC-20
3. 305 9" Concrete Base, Class C
4. 301 4" Bituminous Aggregate Base: AC-20; or RT-11 or RT-12
5. 310 Variable Depth Subbase Type 1, Grading A
6. 407 Tack Coat Using SS-924 @ 0.1 Gal./S.Y. & Cover Aggregate
7. 301 3" Bituminous Aggregate Base: AC-20; or RT-11 or RT-12
8. 304 (Variable Depth) Aggregate Base
9. 402 1½" Asphalt Concrete AC-20
10. 659 Seeding and Mulching

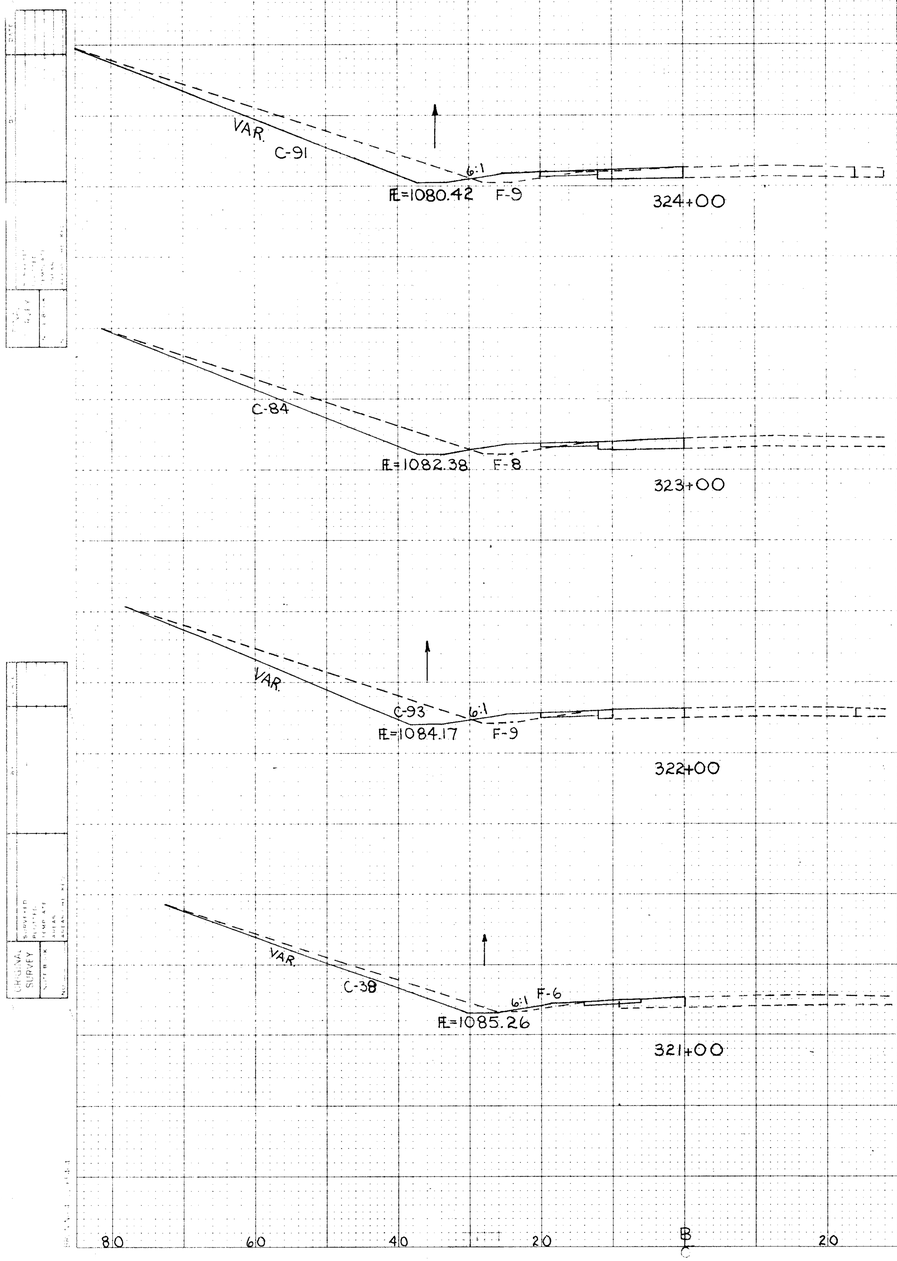
A. Existing Reinforced Concrete Pavement
B. Existing Subase
C. Existing Bituminous Aggregate Base
D. Existing Aggregate Base
E. Existing No. 8 Aggregate Drainage Connection
F. Existing Underdrain

RAMP G EXTENSION @ S.R. 303 INTERCHANGE

SUM-271-0.82

END EARTHWORK
STA. 329+45.27

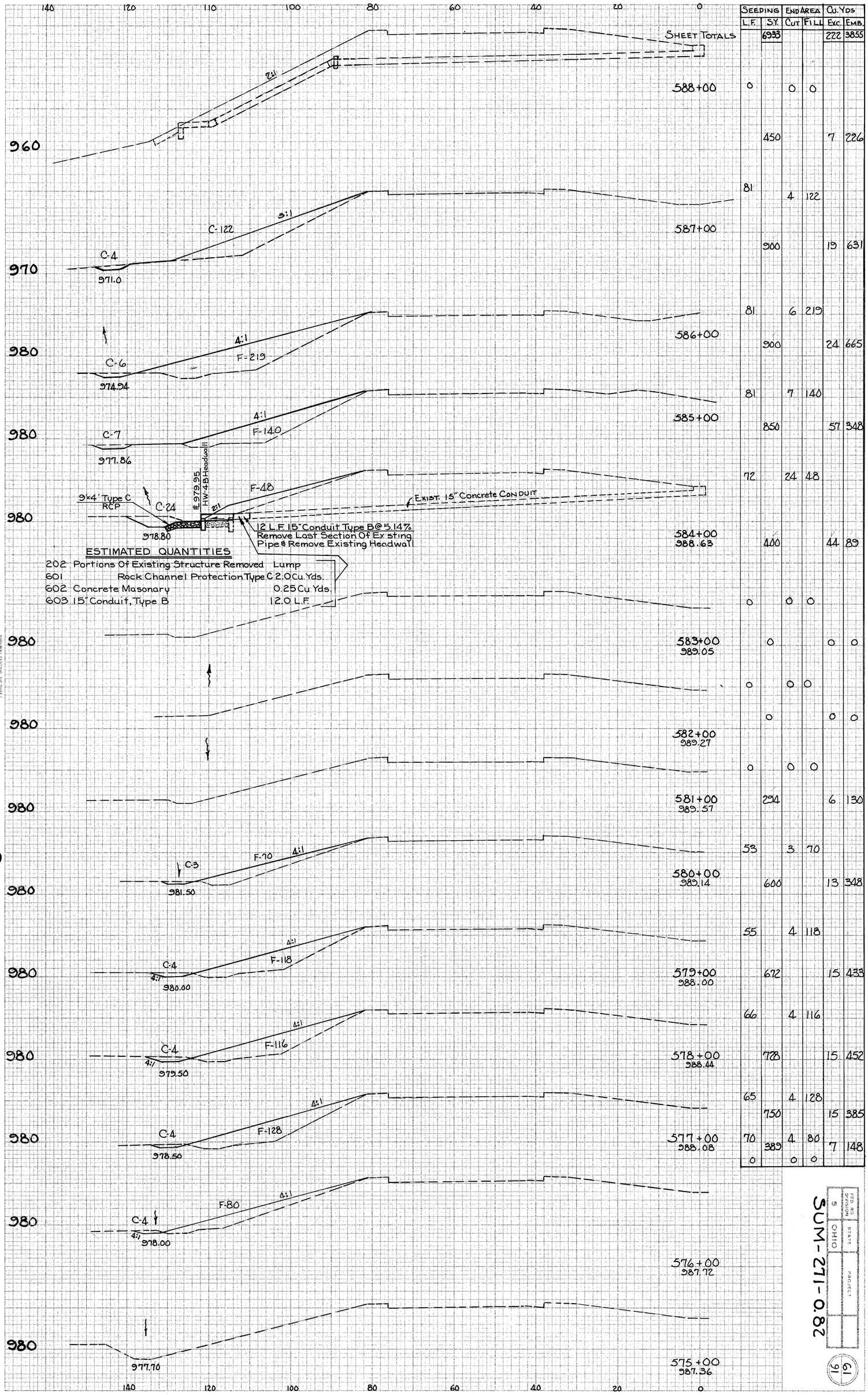
	Seeding		End Area		Cu. Yds.	
	L.F.	S.Y.	Cut	Fill	Exc.	Emb.
STA. 325+00	80		84	9		
		833			324	33
	70		91	9		
		767			324	31
	68		84	8		
		728			328	31
	63		93	9		
		700			243	28
	63		38	6		
		192			39	6
BEGIN EARTHWORK STA. 320+45.27	0		0	0		



	Seeding		End Area		Cu. Yds.	
	L.F.	S.Y.	Cut	Fill	Exc.	Emb.
	0		0	0		
		257			53	4
	102		63	4		
		1100			506	24
	96		210	9		
		1000			722	35
	84		180	10		
		911			635	35
	80		163	9		
		889			457	33
	80		84	9		
TOTALS		7377			3631	260

PLATE 3 FULL CROSS SECTION
CHARLES BRUNING COMPANY
MADE IN U.S.A.

CROSS SECTIONS STA. 321+00 TO STA. 329+00



	SEEDING		END AREA		CU. YDS	
	L.F.	S.Y.	CUT	FILL	EXC.	EMB.
SHEET TOTALS		6933			222	3855
588+00	0		0	0		
		450			7	226
	81		4	122		
587+00						
		900			19	631
	81		6	219		
586+00						
		900			24	665
	81		7	140		
585+00						
		850			57	348
	72		24	48		
584+00						
588.63		400			44	89
	0		0	0		
583+00						
583.05		0			0	0
	0		0	0		
		0			0	0
582+00						
582.27						
	0		0	0		
581+00						
581.57		294			6	130
	53		3	70		
580+00						
580.14		600			13	348
	55		4	118		
579+00						
578.88.00		672			15	433
	66		4	116		
578+00						
578.44		778			15	452
	65		4	128		
		750			15	385
577+00	70		4	80		
578.08		389			7	148
	0		0	0		
576+00						
576.72						
575+00						
575.36						

PLATE 3-FULL CROSS SECTION-FULL WIDTH

I.R.-271

CROSS SECTIONS STA. 575+00 TO STA. 588+00

SUM-271-0.82

5	STR. RD. DIVISION
OHIO	STATE
	PROJECT

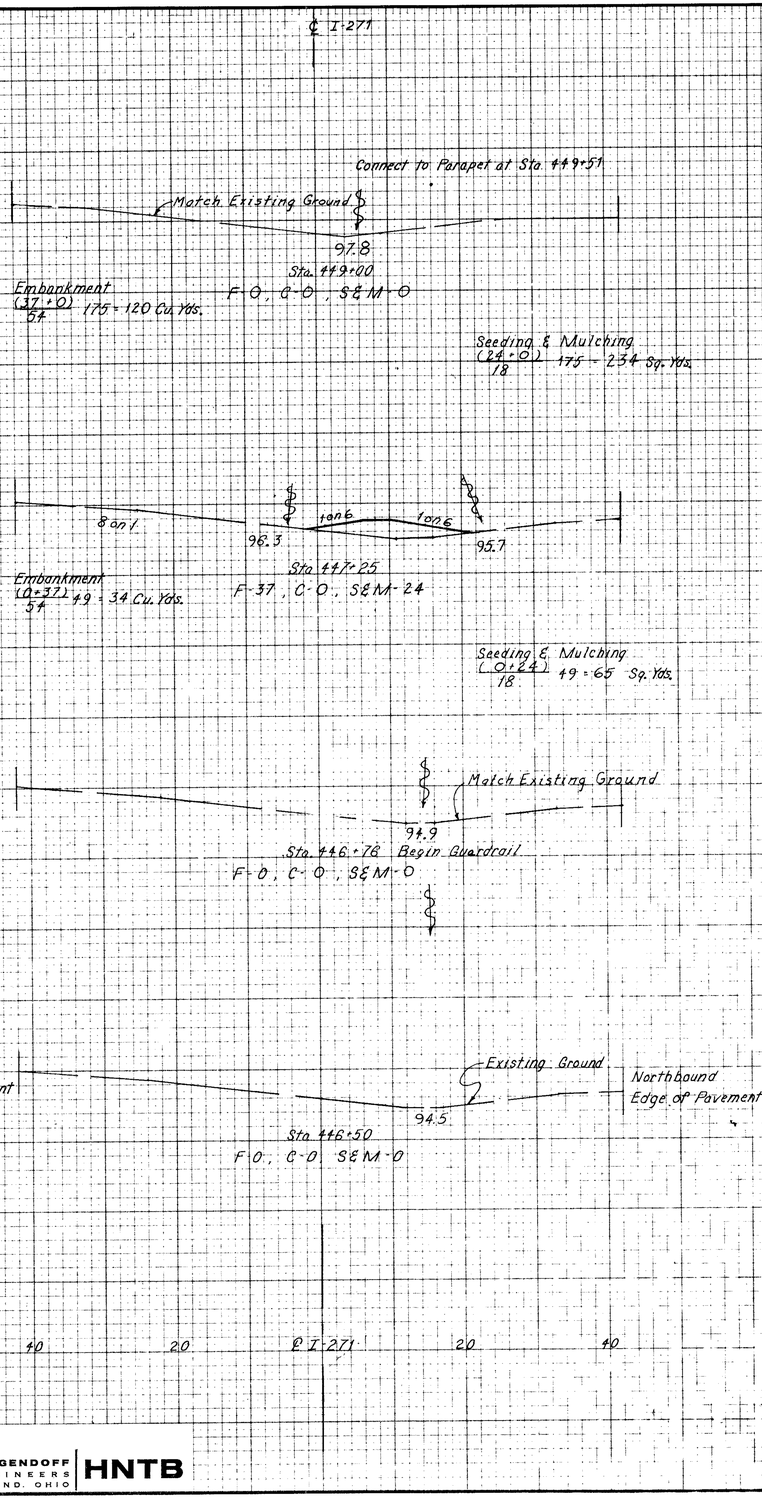
61
16

FHWA REGION	STATE	PROJECT	
5	OHIO		

62
91

SUM-271-0.82

Quantity Calculations
Made By H.B. Date 6-20-73
Checked By A.J.S. Date 7-24-73



Temporary Bench Mark
Sta. 448+00, Left Edge
Southbound Pavement
I-271, Elevation 100.0

ESTIMATED QUANTITIES			
ITEM	DESCRIPTION	QUANTITY	UNIT
203	Embankment	154	Cu. Yds.
659	Seeding & Mulching	299	Sq. Yds.

Scale: 1"=10' Horz.
1"=10' Vert.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND, OHIO
HNTB

FINAL SURVEY — SURVEYED — PLOTTED — TEMPLATE — NOTE BOOK — AREAS — AREAS CHECKED — NO — BY — DATE

ORIGINAL SURVEY — SURVEYED — PLOTTED — TEMPLATE — NOTE BOOK — AREAS — AREAS CHECKED — NO — BY H.B. H.B. A.J.S. — DATE 6.20.73 6.20.73 7.24.73

I.R. 271 STA. 446+50 TO STA. 449+51

FHWA REGION	STATE	PROJECT	
5	OHIO		

63
91

SUM-271-0.82

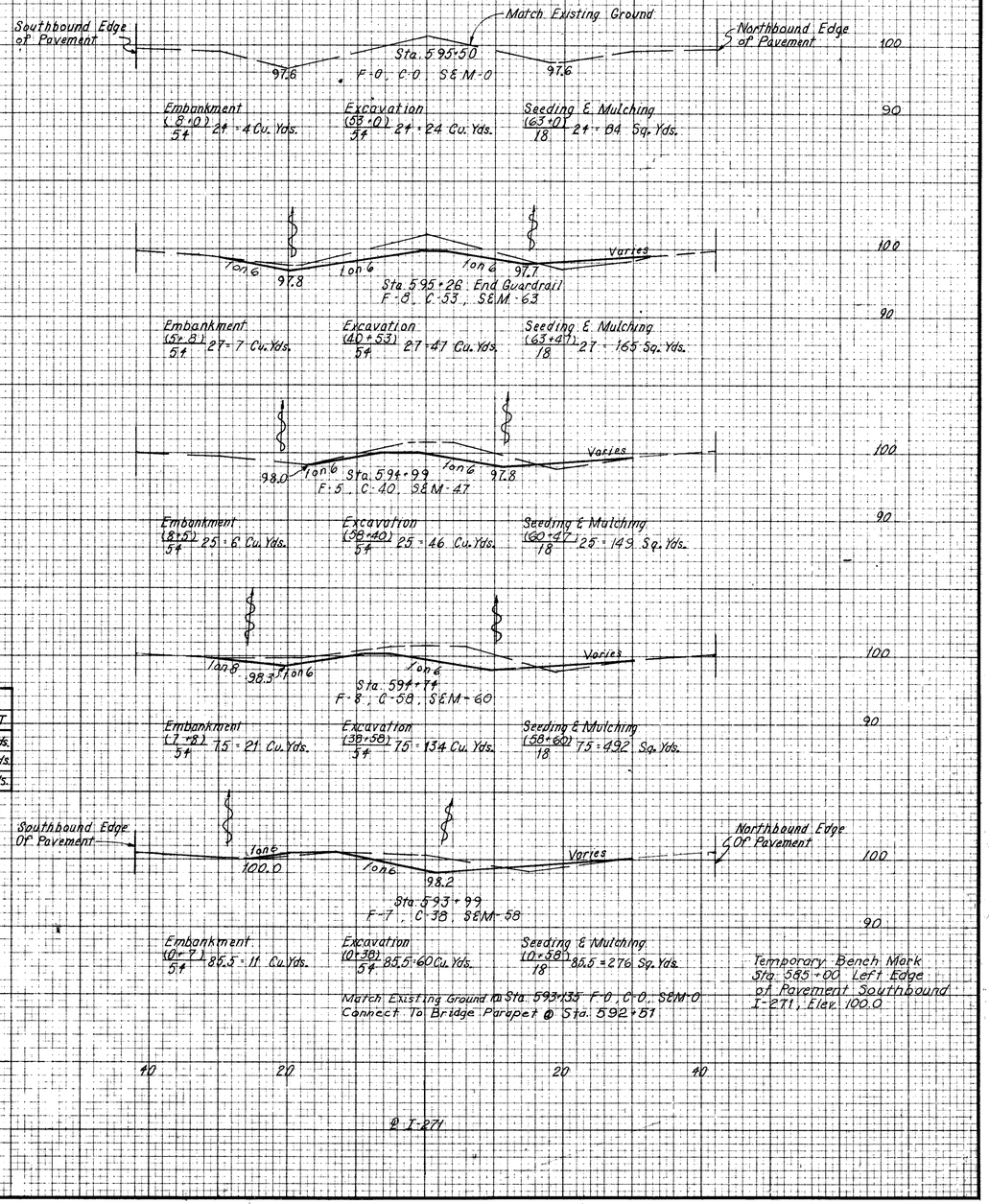
Quantity Calculations

Made By H.B. Date 6-21-73

Checked By A.J.S. Date 7-17-73

	BY	DATE
ORIGINAL SURVEY: SURVEYED	H.B.	6-21-73
PLOTTED	H.B.	6-21-73
NOTE BOOK AREAS: MAKE	H.B.	6-21-73
NO. AREAS CHECKED	A.J.S.	7-17-73

	BY	DATE
FINAL SURVEY: SURVEYED		
PLOTTED		
NOTE BOOK AREAS: MAKE		
NO. AREAS CHECKED		



ESTIMATED QUANTITIES			
ITEM	DESCRIPTION	QUANTITY	UNIT
203	Embankment	49	Cu. Yds.
203	Excavation, not incluf. Emb. const.	311	Cu. Yds.
659	Seeding & Mulching	1186	Sq. Yds.

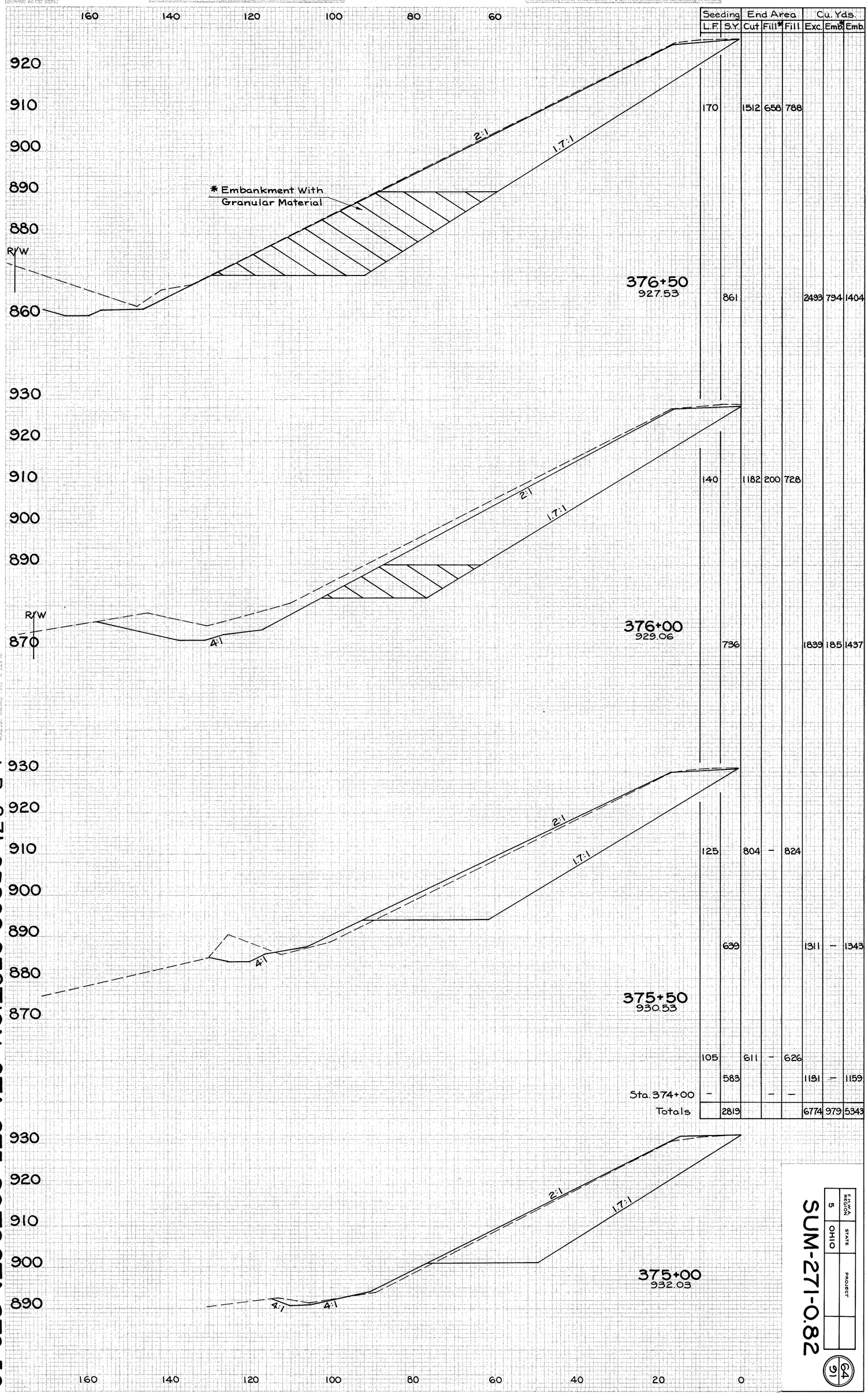
Scale: 1" - 10' Horz.
1" - 10' Vert.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND, OHIO
HNTB

127 B DRAFTEX

PLATE 3 CROSS SECTION B P R STANDARD
EUGENE DIETZGEN CO. CHICAGO - NEW YORK

I. R. 271 STA. 592+51 TO STA. 595+50



	Seeding		End Area			Cu. Yds.		
	L.F.	S.Y.	Cut	Fill*	Fill	Exc.	Emb*	Emb.
376+50	170	861	1512	658	788	2493	794	1404
376+00	140	736	1182	200	728	1839	185	1437
375+50	125	639	804	–	824	1311	–	1343
	105	583	611	–	626	1181	–	1159
Sta. 374+00	–			–	–			
Totals		2819				6774	979	5343

I.R. 271 CROSS SECTION STA. 375+00 TO STA. 376+50

SUM-271-0.82

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

64
91

ORIGINAL SURVEY	BY	DATE
SURVEYED		
PLOTTED		
NOTE BOOK		
TEMPLATE		
AREAS		
NO. AREAS CHECKED		

FINAL SURVEY	BY	DATE
SURVEYED		
PLOTTED		
NOTE BOOK		
TEMPLATE		
AREAS		
NO. AREAS CHECKED		

GRUBBING 44-152 &3537

I.R. 271 CROSS SECTIONS STA. 377+00 TO STA. 378+00

Seeding		End Areas			Cu. Yds.		
L.F.	S.Y.	Cut	Fill*	Fill	Exc.	Emb*	Emb
205		1896	1374	614			
	1125				3224	2338	1202
200		1586	1152	684			
	1097				2991	1985	1252
195		1644	992	668			
	1014				2922	1528	1348
TOTALS	3236				9137	5852	3802

160 140 120 100 80 60 40 20 0

920 910 900 890 880 870 860 850

2:1 1.7:1

6" CONDUIT, TYPE F @ 5%

6" CONDUIT, TYPE F OUTLET @ 5% SLOPE. ℄ ELEV. 849.0' INCL. 6" TEE CONNECTION, TYPE F

378+00
922.54

377+50
924.23

377+00
925.87

* Embankment W/Granular Material

BEGIN 6" CONDUIT, TYPE F ℄ ELEV. 856.0'

840

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

SUM-271-0.82

65
91

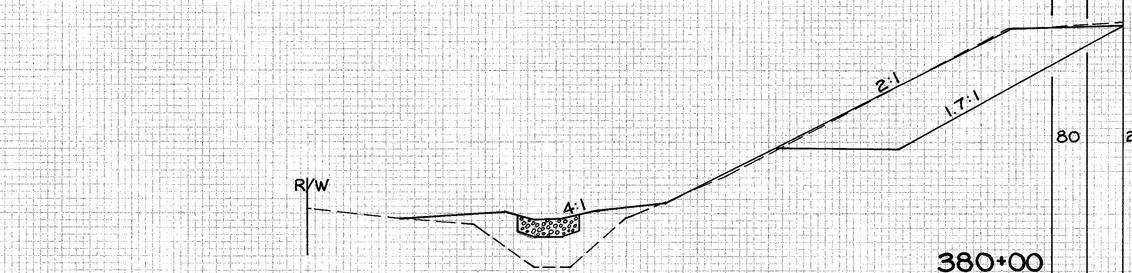
ORIGINAL SURVEY		BY	DATE
	SURVEYED		
	PLOTTED		
NOTE BOOK	TEMPLATE		
	AREAS		
NO.	AREAS CHECKED		

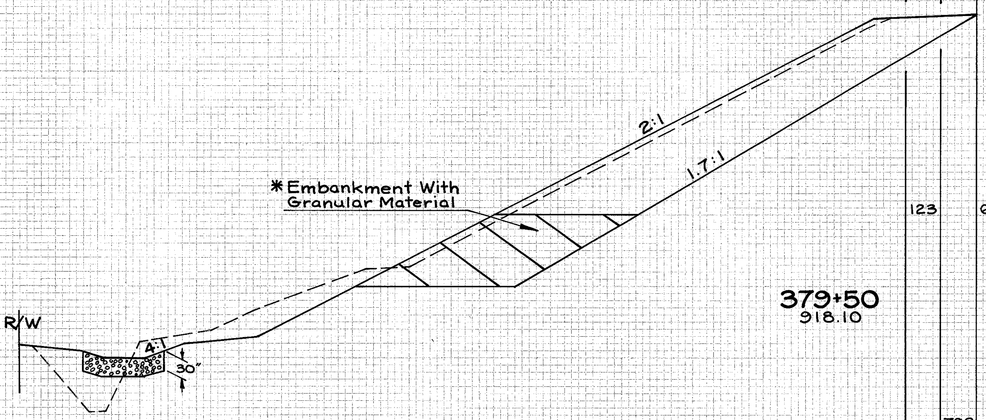
FINAL SURVEY		BY	DATE
	SURVEYED		
	PLOTTED		
NOTE BOOK	TEMPLATE		
	AREAS		
NO.	AREAS CHECKED		

BRIDGING 44-132 5'5337

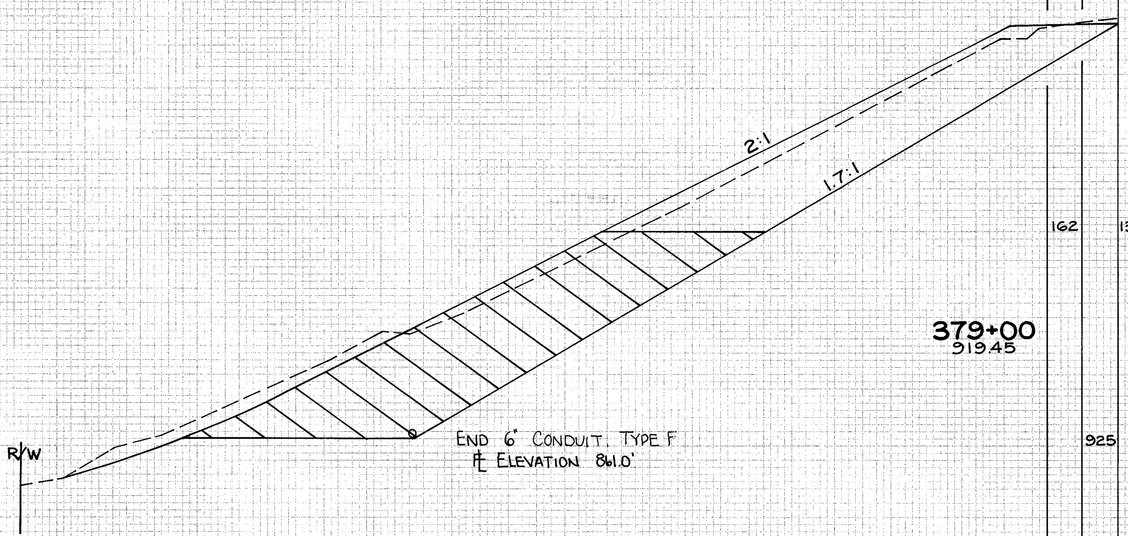
I.R. 271 CROSS SECTIONS STA. 378+50 TO STA. 380+00

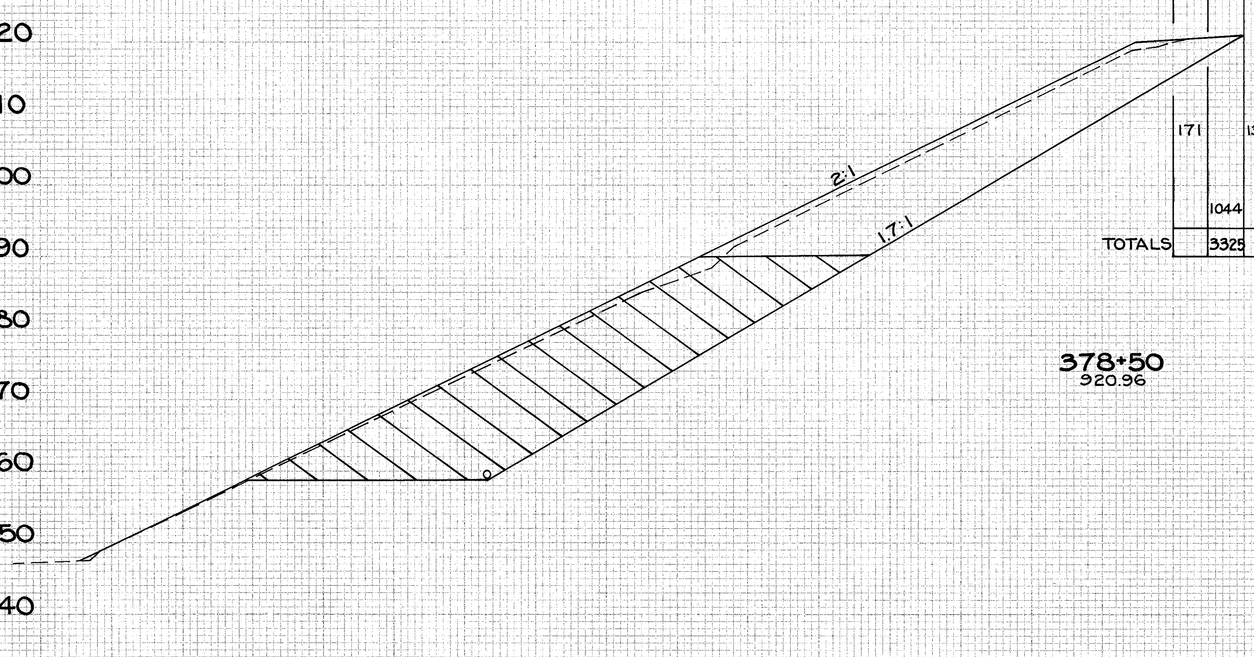
	Seeding		End Areas			Cu. Yds.		
	L.F.	S.Y.	Cut	Fill*	Fill	Exc.	Emb*	Emb.
380+00 916.74	80		284	-	396			
		564				884	195	841
379+50 918.10	123		670	210	512			
		792				1836	711	1245
379+00 919.45	162		1312	558	832			
		925				2445	1036	1558
378+50 920.96	171		1328	560	850			
		1044				2986	1791	1356
TOTALS		3325				8151	3733	5000





Item 601 Rock Channel Protection
Type B Begin Sta. 379+25





F.H.W.A. REGION 5	STATE OHIO	PROJECT	SUM-271-0.82

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ORIGINAL SURVEY — SURVEYED, PLOTTED, TEMPLATE, AREAS, AREAS CHECKED, NOTE BOOK, NO.

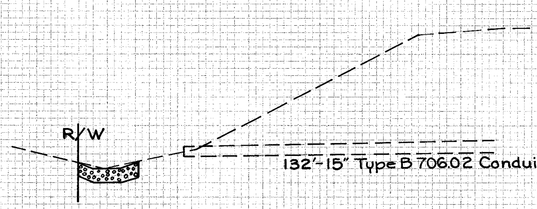
FINAL SURVEY — CORRECTED, PLOTTED, TEMPLATE, AREAS, AREAS CHECKED, NOTE BOOK, NO.

BRUNING A4-132.5SSKY

PLOTTED BY ELECTRONIC CROSS SECTION SYSTEM, INC. CINCINNATI, OHIO

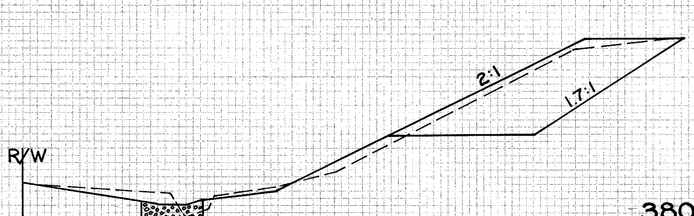
I.R. 271 CROSS SECTION STA. 380+50 TO STA. 381+00

	Seeding		End Area		Cu. Yds.	
	L.F.	S.Y.	Cut	Fill	Exc.	Emb.
381+00						
		214			228	127
	77		246	254		
		436			491	602
Totals		650			719	729



End Rock Channel Protection Type B Sta. 381+00

381+00
913+77



380+50
915.27

920
910
900
890
920
910
900
890
880

100 80 60 40 20 0

SUM-271-0.82

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

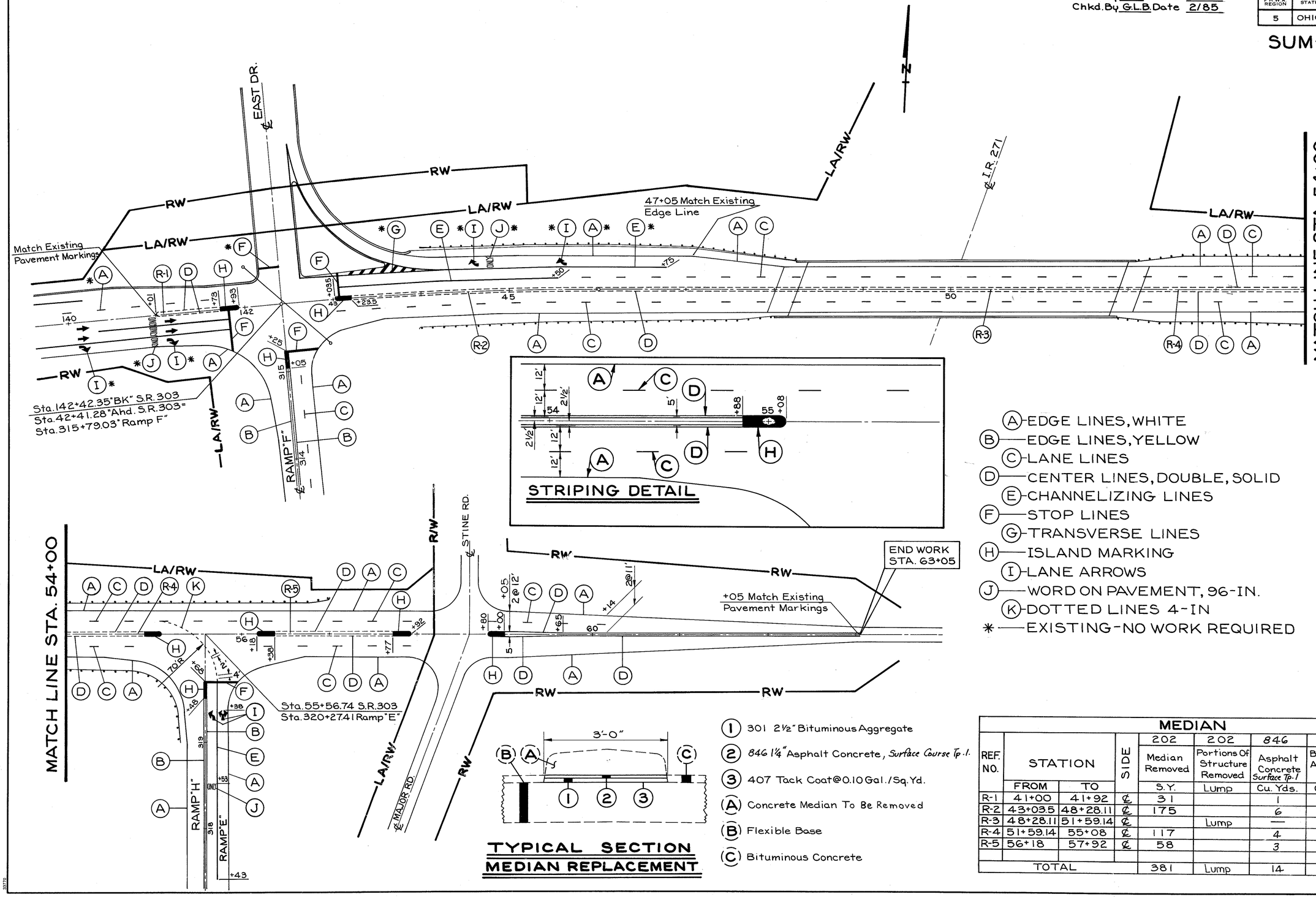
67
91

Calc. By T.P. Date 2/85
Chkd. By G.L.B. Date 2/85

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

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SUM-271-0.82



- (A) EDGE LINES, WHITE
- (B) EDGE LINES, YELLOW
- (C) LANE LINES
- (D) CENTER LINES, DOUBLE, SOLID
- (E) CHANNELIZING LINES
- (F) STOP LINES
- (G) TRANSVERSE LINES
- (H) ISLAND MARKING
- (I) LANE ARROWS
- (J) WORD ON PAVEMENT, 96-IN.
- (K) DOTTED LINES 4-IN
- ✱ EXISTING - NO WORK REQUIRED

- (1) 301 2½" Bituminous Aggregate
- (2) 846 1¼" Asphalt Concrete, *Surface Course Tp. 1.*
- (3) 407 Tack Coat @ 0.10 Gal./Sq. Yd.
- (A) Concrete Median To Be Removed
- (B) Flexible Base
- (C) Bituminous Concrete

MEDIAN

REF. NO.	STATION FROM	STATION TO	SIDE	202 Median Removed	202 Portions Of Structure Removed	846 Asphalt Concrete *Surface Tp. 1*	301 Bituminous Aggregate Base	407 Tack Coat
				S.Y.	Lump	Cu. Yds.	Cu. Yds.	Gal.
R-1	41+00	41+92	℄	31		1	3	3
R-2	43+03.5	48+28.11	℄	175		6	12	17
R-3	48+28.11	51+59.14	℄		Lump	—	—	—
R-4	51+59.14	55+08	℄	117		4	8	11
R-5	56+18	57+92	℄	58		3	4	6
TOTAL				381	Lump	14	27	37

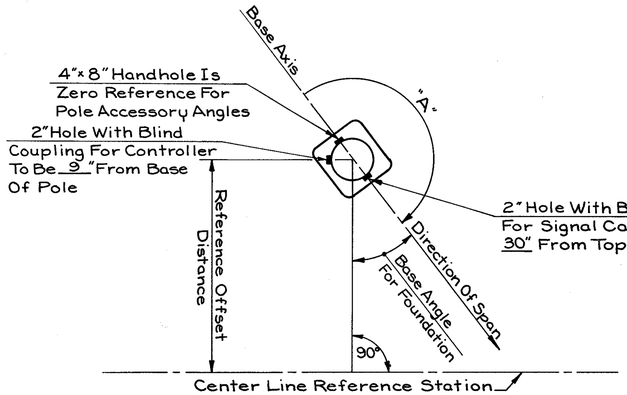
S.R. 303 TRAFFIC CONTROL AND MEDIAN REMOVAL

TRAFFIC CONTROL GENERAL NOTES

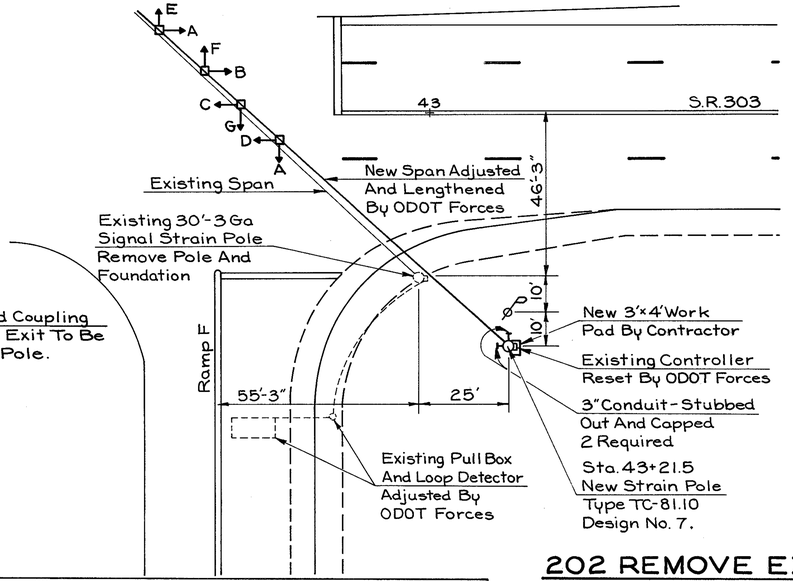
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

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SUM-271-0.82



ORIENTATION ANGLES



QUANTITIES			
ITEM	QUANT	UNIT	DESCRIPTION
625	1	Each	Ground Rod
632	1	Each	Strain Pole Type TC-81.10 Design No.7 As Per Plan
632	2.8	Cu.Yd.	Concrete For Anchor Base Foundation
202	1	Each	Remove Existing Foundation, As Per Plan
608	12	Sq.Ft.	4" Concrete Walk, As Per Plan

CABLE ENTRANCE DETAILS FOR STRAIN POLE

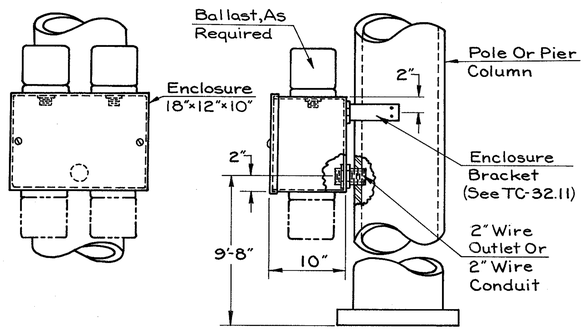
SIGNAL SUPPORT DESIGN NO.___	STATION	OFFSET DISTANCE	STRAIN POLE				ACCESSORY ANGLES						
			GA.	DIA.	LENGTH		Base Angle For Foundation	Handhole 4"x8"	2" Blind Coupling Signal Cable	2" Blind Coupling For Controller	Direction Of Span	3" Ells In Foundation	
TC-81.10 Des. No.7	43+21.5	66.25 Rt.	0.299"	13"	32'		48°	0°	180°	318°	180°	138°&228°	

630 SIGNS, ERECTED

In Addition To The Provisions Of Specification 630, The Following Requirement Shall Apply. The Contractor Shall Submit To The Engineer A Schedule Of Sign Erection At Least 21 Days In Advance Of Any Erection Work. The Schedule Shall Be In Writing With 2 Copies And Shall Include Erection Dates, Sign Numbers And Delivery Point. The Copies Will Be Distributed By The Engineer To The District 4 Traffic Engineer 705 Oakwood St. Ravenna, Ohio.

TRAFFIC CONTROL STANDARD CONSTRUCTION DRAWING

Reference To Supplemental Specifications 843, 857, 858, 859, 957, 958, And 959 On The Traffic Control Standard Construction Drawings In These Plans Shall Be Considered To Read As Respective References To Items 861, 961, 630, 631, 632, 730, 731 And 732.



BALLAST ENCLOSURE TYPE B

202 REMOVE EXISTING FOUNDATION, AS PER PLAN

At The Location Shown In The Plan The Contractor Shall Remove The Existing Strain Pole Foundation To A Point 1 Foot Below The Surrounding Ground Line. The Resulting Hole Shall Be Backfilled In Accordance With Item 603.08 And The Site Restored In Accordance With Item 603.09.

Basis Of Payment For The Above Described Work Shall Be Included In The Contract Unit Price Bid Per Each Item 202 Remove Existing Foundation, As Per Plan And Shall Include All Labor, Material, Equipment And Incidentals Necessary To Complete The Work.

630 MILE MARKER LOCATION

The Location Of Mile Markers On The Plans Are Approximate And A More Precise Location Will Be Provided By The Department. The Contractor Shall Notify The Engineer At Least 30 Days In Advance Of The Planned Date Of Marker Installation. The Engineer Will Contact The Bureau Of Technical Services Which Will Locate The Longitudinal Position Of Mile Markers By Means Of A Paint Mark On The Pavement Edge. Alternate Marks Will Not Be Provided On Divided Highways And The Contractor Shall Set Markers For The Opposite Roadway Across From The Provided Mark. Delineators Whose Normal Position Falls Within 50 Feet Of A Mile Marker Shall Be Omitted.

632 POWER SUPPLY FOR SIGN LIGHTING

Electric Power Shall Be Obtained From Ohio Edison Co. Akron, Ohio At The Location Indicated On The Plans. Power Supplied Shall Be As Indicated On The Plans.

632 STRAIN POLE, TYPE TC-81.10, AS PER PLAN

At The Location Shown In The Plan The Contractor Shall Furnish And Erect A New 632 Strain Pole Type 81.10 Design No. 7. The Contractor Shall Arrange His Construction Schedule So That The Strain Pole And The Associated Concrete Foundation And Ground Rod Are Completed Within The First Six Months Of The Letting Of The Contract.

After The Contractor Has Completed The Erection Of The Strain Pole He Shall Notify The Engineer Who Shall Contract The ODOT District 4 Traffic Engineer. The District Traffic Engineer's Office Shall Have Sixty (60) Days To Remove And Reerect The Existing Signal Controller, To Lengthen And/Or Replace The Existing Messenger Wire, The Existing Signal Cables, The Existing Loop Detector Lead-In Cables And To Transfer The Existing Traffic Signal Heads To The New Span. During The Same Sixty Days The District Traffic Engineer's Office Shall Coordinate The Installation Of The New Loop Detector Lead-In Cable And Associated Pull Box With The Contractor's Widening And Resurfacing Of Ramp F. The Pull Box And The Loop Detector Lead-In Cable Shall Be Furnished And Installed By ODOT Forces.

After The State Has Completed The Transfer Of The Traffic Signal Equipment From The Existing Strain Pole To The New Strain Pole, The Contractor Shall Then Remove The Existing Strain Pole For Storage And Subsequent Removal By State Forces. The Contractor Shall Then Remove The Existing Foundation As Noted Elsewhere.

Basis Of Payment For The Above Described Work Shall Be Included In The Contract Unit Price Bid Per Each Item 632 Strain Pole, Type TC-81.10 Design No. 7, As Per Plan And Shall Include All Labor, Material, Equipment, Incidentals And Scheduling Necessary To Preform The Work.

608-4" CONCRETE WALK, AS PER PLAN

A Quantity Of 12 Sq. Ft. Of 4" Concrete Walk, As Per Plan, Is Included For Use When Directed By The Engineer. This Is To Provide 4 Ft. x 3 Ft. Platforms Near Pole Or Pedestal Mounted Signal Control Cabinets In Unpaved Areas, From Which Signal Maintenance Personnel Can Conveniently Reach The Signal Equipment For Service.

33770

PAVEMENT MARKING SUB-SUMMARY

Complete By A.P. Date 1/85
Checked By J.K.P. Date 2/85

FHWA REGION	STATE	PROJECT NO.	FUNDS
5	OHIO		

SUM-271-0.82

LOCATION	SIDE	STATION FROM	STATION TO	Edge Lines, Yellow	Edge Lines, White	Lane Lines, 4 Inch	Center Lines, Double Solid	Channelizing Lines	Stop Lines	Transverse Lines, Yellow	Transverse Lines, White	Curb Marking	Island Marking	Lane Arrows	Word On Pavement 96 Inch,"ONLY"
				Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Each	Each
I.R. 271	N.B.	452+00	452+48	48	48	96									
		452+48	455+40	292	292	292		584			456				
		455+40	475+90	2050	2050	2050									
		475+90	479+12	322	644	322		322							
		479+12	482+24	312	312	624									
		482+24	551+25	6901	6901	6901									
		551+25	552+90	165	165	330									
		552+90	556+60	370	370	370		740			466				
		556+60	566+09.76"BK"	950	950	950									
		156+00"Ahd"	170+40	1440	1440	1440									
		170+40	172+20	180	180	360									
		172+20	175+60.48	340	340	340		680			449				
		175+60.48	176+58.71	98	98	98		196				196			
		178+26	198+03.11	1977	1977	1977									
		198+03.11	200+40	237	474	237		237							
		200+40	205+40	500	500	1000									
		205+40	301+72	9632	9632	9632									
		301+72	303+90	218	218	436									
		303+90	306+53.07	263	263	263		526			347				
		306+53.07	319+00	1247	1247	1247									
		319+00	322+60	360	720	360		360							
		322+60	325+90	330	330	660									
	N.B.	325+90	601+81.79	27,592	27,592	27,592									
RAMPS															
REST AREA															
RAMP W		55+50	61+00	455	550			100				190			
RAMP X		65+98.99	75+90	991	991							190			
INTERCHANGE	C.H.	17													
RAMP B		56+58.07	62+51.80	484	594			100				110			
		62+51.80	63+09.8	50	100										
INTERCHANGE I-		77													
RAMP B		176+58.71	222+39.11	4580	4580							504			
RAMP C		187+22.69	198+03.11	980	1080			100				200			
INTERCHANGE		S.R.303													
RAMP E		306+53.07	311+03	350	450			100				260			
		311+03	317+43	640	640	640									
		317+43	319+68	225	225			225	40				60	2	1
RAMP H		320+27.41	319+48		120										
		319+48	315+57.37"BK"	385	385										
		308+38.77"Ahd"	319+00	1061	1061							200			

LOCATION	SIDE	STATION FROM	STATION TO	Edge Lines, Yellow	Edge Lines, White	Lane Lines, 4 Inch	Center Lines, Double Solid	Channelizing Lines	Stop Lines	Transverse Lines, Yellow	Transverse Lines, White	Curb Marking	Island Marking	Lane Arrows	Word On Pavement 96 Inch,"ONLY"
				Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Each	Each
I.R. 271	S.B.	452+00	454+60	260	260	520									
		454+60	457+00	240	480	240		240							
		457+00	476+45.27	1945	1945	1945									
		476+45.27	477+45.27	100		100		100				200			
		477+45.27	480+22	277	277	277		554			366				
		480+22	482+33	211	211	422									
		482+33	547+79	6546	6546	6546									
		547+79	550+67	288	288	576									
		550+67	553+07.11	240	480	240		240							
		553+07.11	556+09.76"BK"	303	303	303									
		156+00"Ahd"	165+61	961	961	961									
		165+61	168+49	288	288	576									
		168+49	170+88.87	240	480	240		240							
		170+88.87	187+51.53	1663	1663	1663									
		187+51.53	190+30	278	278	278		556			367				
		190+30	192+45	215	215	430									
		192+45	295+44	10,299	10,299	10,299									
		295+44	298+32	288	288	576									
		298+32	300+72.34	240	480	240		240							
		300+72.34	312+45	1173	1173	1173									
		312+45	313+46.93	102	102	102		102				204			
		313+46.93	316+25	278	278	278		556			334				
		316+25	318+35	210	210	420									
		318+35	601+81.79	28,347	28,347	28,347									
		318+35	326+35			800									
RAMPS															
REST AREA															
RAMP U		57+00	66+91.01	991	991							280			
RAMP V		71+91.95	77+45	443	543			100							
INTERCHANGE		C.H.17													
RAMP A		53+07.11	67+19.89	1443	1393							140			
INTERCHANGE		I-77													
RAMP A		170+88.87	199+14.15	2725	2825			100				506			
RAMP D		187+51.53	167+35	1917	2017			100				200			
INTERCHANGE		S.R.303													
RAMP F		300+72.34	315+79.02	1448	1548							200			
RAMP G		312+45	307+17.80"BK"	427	527			100							
		312+46.62 Ahd.	315+79.02	273	373	273			35				60		
				130684	133588	116042									
				264272											
				50.0515		21.98									
TOTALS				50.1 Miles		22.0 Miles		7498	75		2785	3580	120	2	1

PAVEMENT MARKING SUB-SUMMARY

FHWA REGION	STATE	PROJECT NO.	FUNDS
5	OHIO		

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SUM-271-0.82

Complete By A.P. Date 2/85
Checked By J.K.P. Date 2/85

* Indicates Quantity Paid For But No Marking Placed

LOCATION	SIDE	STATION FROM	STATION TO	Edge Lines, Yellow	Edge Lines, White	Lane Lines, 4 Inch	Center Lines, Double Solid	Dotted Line, 4 Inch	Channelizing Lines	Stop Lines	Transverse Lines, Yellow	Transverse Lines, White	Curb Marking	Island Marking	Lane Arrows	Word On Pavement 96 Inch, "ONLY"
				Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Sq.Ft.	Each	Each
S.R. 303																
	℄	141+01	141+73		72		144									
	℄	141+73	141+92		22									60		
	Rt.	141+85								47						
	Lt.	43+03.5	43+23.5		20	25			20	25				60		
	Lt&Rt	43+35	45+50		227	227	454	227								
	Lt&Rt	45+50	47+05		155	310	310									
	Lt&Rt	47+05	54+88		1560	1566	1566									
	Lt&Rt	54+88	55+08		40	40								60		
	Lt&Rt	55+08	56+18		110	110/110*		110								
	Lt&Rt	56+18	56+38		40	40								60		
	Lt&Rt	56+38	57+72		268	268	268									
	Lt&Rt	57+72	57+92		40	40								60		
	Lt&Rt	57+92	58+80			88*										
	Lt&Rt	58+80	59+00		40	20								60		
	Lt&Rt	59+00	59+65		130	65	130									
	Lt&Rt	59+65	60+14		98	49	49									
	℄	60+14	63+05		578		289									
					3400	2958	3210									
					0.6439	0.5602	0.6079									
TOTALS					0.6 Miles	0.6 Miles	0.6 Miles	337	20	72				360		

LOCATION	SIDE	STATION FROM	STATION TO	Edge Lines, Yellow	Edge Lines, White	Lane Lines, 4 Inch	Center Lines, Double Solid		Channelizing Lines	Stop Lines	Transverse Lines, Yellow	Transverse Lines, White	Curb Marking	Island Marking	Lane Arrows	Word On Pavement 96 Inch, "ONLY"
				Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.		Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Sq.Ft.	Each	Each

K&E 10-1285 1-73

SIGNING SUB-SUMMARY

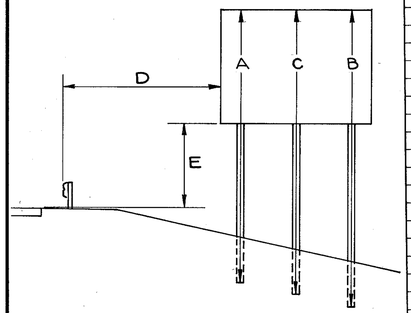
FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

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SUM.- 271- 0.82

QUANTITY CALCULATIONS

MADE BY D.S.P. DATE 12-12-73
CHECKED BY M.G.B. DATE 7-1-77
REVISED BY J.K.P. DATE 5-8-81, 12-84



DETAIL "A"

SHEET NO.	SIGN NO.	STATION	CODE NO.	SIGN SIZE	DIMENSIONS SEE DETAIL "A" SHEET NO. 72 (Lin. Ft.) A	B	C	D	E	REMOVE & REERECT G.M. SIGN Each MIN.	MAJ.	REVISE SIGN DEM. COPY EACH	630 SIGNS FLAT SHEET SQ. FT.	EXTRU. TYPE Sq. Ft.	630 CONC. EMBEDDED FDNS Cu. Yd.	630 SUPPORTS NO. 3 POST Lin. Ft.	NO. 4 POST Lin. Ft.	S4x7.7 Lin. Ft.	W10x12 Lin. Ft.	W10x22 Lin. Ft.	W8x18 Lin. Ft.	BREAK-AWAY CONN. Each	630 REMOVAL G.M. SIGNS Each MIN.	MAJ.	REMOVAL G.M. SUPP. Each ≤8'*	>8'*	REVISE O.H. SIGN AND REERECT Each	620 Delineators As Per Plan Each	REMOVE O.H. SIGN Each	SIGN ATTACH ASSEMBLY Each
38		I-271																												
		455+95 NB	RA-4-72	6'0"x5'6"	17.5	17.5			5.0					33	0.54			35.0				2	1		2					
		461+30 SB	W-49R-48	48"x48"	15.5	15.5			7.0	1							31						1		1					
		470+12 NB	W-49R-48	48"x48"	15.5	15.5			7.0				16				31						2		1					
		476+91 SB	RA-4-72	6'0"x5'6"	17.5	17.5			5.0					33	0.54			35.0				2	1		2					
		497+10									1														3					
		490+00 SB	RA-SPECIAL	11'0"x4'8"	19.75	20.75		16.0	7.0						2.2				40.5			2								
	6	503+00 NB	GEP-84	7'0"x2'0"										14.0																
	(A)			13'0"x 0'6"								1		6.5													1			3
			GEP-72	6'0"x2'0"										12.0																
	(B)			20'0"x0'-6"										10.0													1			4
		N.B REST AREA																												
		61+00 R	R-41B-36	36"x36"	13.0	13.0			7.0				9.0			26														
			RA-74-48	48"x30"									10.0																	
		S.B REST AREA																												
		72+00 L	R-41B-36	36"x36"	13.0	13.0			7.0				9.0			26														
			RA-74-48	48"x30"									10.0																	
39		I-271																												
		508+69 SB																						1	3					
		509+20 SB		15'0"x7'0"	22	24.5		16.0	7.0					105	2.2						46.5									
		515+03 NB	GN	8'0"x3'6"	16.5	19		16.0	7.0					28	0.54			35.5					1		2					
		518+60 NB	R-10-48	48"x60"																			1		1					
		523+00 SB	R-10-48	48"x60"	16.5	17.0		18.0		1							33.5													
		536+25 SB	R-10-48	48"x60"																					1					
										2	1	1	54	241.5	6.02	52	95.5	105.5	40.5		46.5	6	8	16		2			7
TOTAL *100% STATE PART.																														
NORMAL PART.										2	1	1	54	241.5	6.02	52	95	105.5	40.5		46.5	6	8	16		2			7

Note:
For elevation views of numbered signs, see sheets 77, 78

*100% STATE PARTICIPATION

MADE DSP DATE 12-12-73
TRACED B.B. DATE 11-21-73
CHECKED N.B. DATE 12-7-73
SCALE None

Howard, Needles, Tammen & Bergendoff
CONSULTING ENGINEERS
CLEVELAND, OHIO

HNTB

K&E 10-1253 1-73

SIGNING SUB-SUMMARY

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

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SUM.-271-0.82

QUANTITY CALCULATIONS

MADE BY DSP DATE 12-13-73
CHECKED BY M.G.B. DATE 7-1-77
REVISED BY J.K.P. DATE 5-12-81, 12-84

SHEET NO.	SIGN NO.	STATION	CODE NO.	SIGN SIZE	DIMENSIONS SEE DETAIL "A" SHEET NO. 72 (Lin. Ft.) A	B	C	D	E	REMOVE & REERECT G.M. SIGN Each MIN.	MAJ.	REVISE SIGN AS PER PLAN- EACH	630 SIGNS FLAT SHEET SQ. FT.	EXTRU. TYPE Sq. Ft.	630 CONC. EMBEDDED FDNS Cu. Yd.	630 SUPPORTS No. 4 POST Lin. Ft.	S4×7.7 Lin. Ft.	W10×12 Lin. Ft.	W10×22 Lin. Ft.	W12×30 Lin. Ft.	BREAK-AWAY CONN. Each	630 REMOVAL G.M. SIGNS Each MIN.	MAJ.	REMOVAL G.M. SUPP. Each ≤8'*	>8'*	Remove O.H. Sign & Reerect EACH	REMOVAL STR. MNT. SUPP. Each	SIGN ATTACH. TO EXISTING SUPPORT Each	REMOVE O.H. MTD. SIGN Each
39	Con't	I-271																										
	7	532+25 SB	RA-1-132	11'-0"x4'-6"	19.75	22.75		16.0						49.5	2.2			42.5				1	1	2					
			N-20-30	2'-6"x2'-6"					7.0				6.25																
	8	536+00 NB		20'-0"x9'-6"	26.0	23.0	32.0	16.0	7.0					190.0	4.5					87			1	3					
			GEP-72	6'-0"x2'-0"										12.0															
		537+00 SB	M-5-36-3	48"x 36"	16.0			16.0	7.0				12.0			16													
			IM-38-36	36"x18"									4.5																
		542+00 NB																				1		2					
		540+30 SB																				2		1					
		548+67 NB																					1	2					
		530+58																						1					
40		556+00 SB	W-49R-48	48"x48"	15	15.5							16.0			30.5													
		I-271																											
		554+16 NB	GEP-84	7'-0"x2'-0"										14.0															
	9 (A)			13'-0"x10'-0"										130														3	1
			GEP-72	6'-0"x2'-0"										12.0															
	9 (B)			23'-0"x0'-6"										11.5													1		
		557+17 NB	GF-72	6'-0"x5'-0"	16.0	16.0			7.0	1					0.54		32				2							4	
		165+00 NB																				5		2					
	10	563+50 NB		18'-0"x9'-6"	25.0	24.5		21.0	7.0					171.0	3.0					49.5	2								
			GEP-84	7'-0"x2'-0"										14.0															
		566+00 SB	M-5-36-3	48"x 36"	16.0			16.0	7.0				12.0			16.0													
			IM-38-36	36"x18"									4.5																
		159+71 SB	GN	8'-0"x3'-6"	16.5	15.0		29.0	7.0					28.0	0.54		31.5				2	1		2					
	11	161+20 NB		19'-0"x9'-6"	24.75	22.25		30.0	7.0		1				2.5				47.0		2				2				
			GEP-84	7'-0"x2'-0"										14.0															
41		CLEVELAND - MASSILLON ROAD																											
		51+20 R	IM-17-24	24"x 12"			16.0		7.0				2.0			16.0													
			IM-38-24	24"x12"									2.0																
			M-5-24-3	30"x24"									5.0																
		56+50 R	M-8-24	24"x 12"									2.0																
			M-2-24-3	30"x 24									5.0																
			M-24-21	21"x 15"									2.2																
			IM-8-24	24"x 12"									2.0																
			IM38-24	24"x 12"									2.0																
			IM 24-21	21"x 15"									2.2																
			M-5-24-2	24"x 24"									4.0																
			D-4A	7'-0"x2'-0"	19.0	20.0			7.0					14.0	0.54		39.0				2								
		56+28 R																				3		1					
		58+52 R	IM-38-24	24"x 12"									2.0									3		2					
			M-5-24-3	30"x 24"									5.0																
			IM-21-21	21"x 15"									2.2																
			D-4A	11'-0"x2'-0"	20.5	18.5		12.0	7.0					22.0	0.54		39.0				2								
		63+50 L	IM-24-21	21"x 15"																		2		2					
			IM-38-24	24"x 12"						1			2.0																
			M-5-24-3	30"x 24"									5.0																
			D-4A	11'-0"x2'-0"	20.0	19.0								22.0	0.54		37.0				2								
		63+93 R	IM-38-24	24"x 12"						1														2					
			M-5-24-3	30"x24"						1																			
			IM-24-21	21"x 15"									2.2																
			D-4A	11'-0"x2'-0"	19.5	16.5								22.0	0.54		36.0				2								
		67+50 L	IM-38-24	24"x 12"									2.0									4		2					
			M-5-24-3	30"x 24"									5.0																
			IM-19-21	21"x 15"									2.2																
			D-4A	11'-0"x2'-0"	19.5	16.5			7.0					22.0	0.54		36.0				2								
		71+30 L	IM-17-24	24"x 12"									2.0									3		1					
			IM-38-24	24"x 12"									2.0																
			M-5-24-3	30"x 24"			16						5.0			16													
TOTAL										4	1		120.25	748.0	15.98	94.5	250.5	42.5	47	136.5	18	25	3	25	2	1	7	1
*100% STATE PART																												
NORMAL PART.										4	1		120.25	748.0	15.98	94.5	250.5	42.5	47	136.5	18	25	3	25	2	1	7	1

Note:
For elevation views of numbered signs, see sheets 77, 78

*100% STATE PARTICIPATION

MADE DSP DATE 12-13-73
TRACED B.B. DATE 11-22-74
CHECKED M.B. DATE 12-19-73
SCALE NONE

Howard, Needles, Tammen & Bergendoff
CONSULTING ENGINEERS
CLEVELAND, OHIO

HNTB

K&E 10 1253 1-73

SIGNING SUB-SUMMARY

FED. RD. DIVISION	STATE	PROJECT	
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SUM.-271-0.82

QUANTITY CALCULATIONS

MADE BY D.S.P. DATE 12-17-73
CHECKED BY M.G.B. DATE 7-1-77
REVISED BY J.K.P. DATE 5-13-81

SHEET NO.	SIGN NO.	STATION	CODE NO.	SIGN SIZE	DIMENSIONS SEE DETAIL "A" SHEET NO. 72 (Lin. Ft.) A	B	C	D	E	REMOVE & REERECT G.M. SIGN Each MIN.	MAJ.	REVISE SIGN DEMOUNT COPY EACH	630 SIGNS FLAT SHEET SQ. FT.	EXTRU. TYPE Sq. Ft.	630 CONC. EMBEDDED FDNS Cu. Yd.	630 SUPPORTS No. 3 POST Lin. Ft.	NO. 4 POST Lin. Ft.	S4×7.7 Lin. Ft.	W10×12 Lin. Ft.	W10×22 Lin. Ft.	W12×30 Lin. Ft.	BREAK-AWAY CONN. Each	630 REMOVAL G.M. SIGNS Each MIN.	MAJ.	REMOVAL G.M. SUPP. Each ≤8*	>8*	ONE WAY SUPPORT NO.4 POST Lin. Ft.	REMOVE O.H. MTD. SIGN Each	SIGN ATTACHMENT ASSEMBLY Each	POLE MOUNT SIGN SUPPORT ASSEMBLY Each
41	Con't																													
		Ramp A																												
		66+00L	R-15A-36	36"x 36"			15.0						9.0				15.0													
42		I-271																												
		175+90SB	W-49R-48	48"x 48"	16.0	16.0				1							32						1		1					
43		Ramp B																												
		185+40	W-2-36	36"x 36"			15.7						9.0				15.7													
		195+50	W-2-36	36"x 36"			15.7						9.0				15.7						1		1					
41	Con't.	Ramp "B"																												
		57+63 R																					1		1					
		58+50 R	W-45-48	48"x 48"	16.0	16.0							16.0				32													
		60+39 R	R-41A-36	36"x 24"			13.5						6.0			13.5														
		60+39 L	R-41A-36	36"x 24"			13.5						6.0			13.5							1		1					
		62+58R	R-1-48	48"x 48"	16.0	17.0			7.0				16.0				16						1		1		17			
			R-41B-36	36"x 36"									9.0																	
			R-43R-36	36"x 12"									3.0																	
			R-43L-36	36"x 12"									3.0																	
		62+58L	R-1-48	48"x 48"									16.0										1							
		58+50L	W-45-48	48"x 48"	16.0	16.0							16.0				32													
42	Con't	I-271																												
		174+25NB	GEP-84	7'-0"x 2'-0"								1		14.0																
		176+50NB	GF	6'-0"x 5'-0"	16.0	16.0			7.0					30.0	0.54			32				2	1		2					
	A	188+50SB	GG	13'-0"x 7'-6"										97.5														1	3	
		188+50SB	W-98-48	48"x 60"									20.0																	1
		187+00SB	GF	6'-0"x 5'-0"	16.0	16.0			7.0					30.0	0.54			32				2	1		2					
43	Con't.	Ramp "D"																												
		184+00	W-32-96	96" x 48"	17.0	17.5		16.0						32.0	0.54			35.5				2								
44		I-271																												
	12	209+00SB	GEP-84	7'-0"x 2'-0"										14.0																
				13'-0"x 12'-0"	28.5	30.5		16.0	7.0					156.0	3.0						59.0	2								
		215+02NB	M-5-36-3	48"x 36"	16.0				7.0				12.0				16.0						/		1					
			IM-37-36	36"x 18"									4.5										/							
	13	226+00SB	GEP-84	7'-0"x 2'-0"										14.0																
				13'-0"x 12'-0"	29.0	33.0		16.0	7.0					156.0	3.0						62									
		226+00NB	R-10-48	48"x 60"	16	17							20.0				33						1		1					
		238+50SB																						1	3					
	14	248+38 NB	GEP-84	7'-0"x 2'-0"										14.0																
				13'-0"x 12'-0"	27.5	32.5		16.0	7.0					156.0	3.0						60.0			1	4					
		201+00SB																					3		1					
		209+50SB																						2	5					
		239+20		13'x 5'	20	24		16.0	7.0					65	2.2				44				1		2					
42	Con't.	I-271																												
	B	188+50SB	GEP-84	7'x 2'										14																
			GE	16'x 10'										160														1	3	
45		I-271																												
	15	261+00 NB		16'-0"x 7'-0"	22.75	25.75		16.0	7.0		1				3.0						48.5				4					
			GEP-84	7'-0"x 2'-0"										14.0																
	16	261+61SB		13'0"x 12'-0"	23.5	25.5		16.0	7.0					156.0	3.0						49									
			GEP-84	7'-0"x 2'-0"										14.0																
		269+24SB																						1	3					
		273+96SB	R-10-48	48"x 60"	18.5	20.5		16.0	7.0				20				40.0													
		283+00SB	IM-38-36	36"x 18"									4.5				32.0													
			M-5-36-3	48"x 36"	16.0	16.0		16.0	7.0				12																	
		269+00																						1	2					
	17	298+67NB	GEP-84	7'-0"x 2'-0"										14.0																
				13'-0"x 12'-0"	28.25	26.0		30.0	8.25					156.0	3.0						54.25	2		1	4					
	39	281+88NB		13'-0"x 12'-0"	28.75	26.0		33.0	9.0					156.0	3.0						55.75	2		1	4					
			GEP-84	7'-0"x 2'-0"										14.0																
42	Con't.	192+60	W-49R-48	48"x 48"	16.0	16.0			7	1							32								1					
		TOTAL								2	1	1	211	1476.5	24.8	27.0	311.4	99.5	44		388.5	12	15	8	44		17		2	6	1
		*100% STATE PART.																												
		NORMAL PART.								2	1	1	211	1476.5	24.8	27.0	311.4	99.5	44		388.5	12	15	8	44		17		2	6	1

Note:
For elevation views of numbered signs, see sheets 77,78

*100% STATE PARTICIPATION

MADE D.S.P. DATE 12-17-73
TRACED B.B. DATE 11-26-74
CHECKED H.B. DATE 12-19-73
SCALE NONE

Howard, Needles, Tammen & Bergendoff
CONSULTING ENGINEERS
CLEVELAND, OHIO

HNTB

SIGNING SUB-SUMMARY

FED. RD. DIVISION	STATE	PROJECT	
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SUM.-271-0.82

QUANTITY CALCULATIONS

MADE BY D.S.P. DATE 12-17-73
CHECKED BY M.G.B. DATE 7-1-77
REVISED BY J.K.P. DATE 6-11-81

SHEET NO.	SIGN NO.	STATION	CODE NO.	SIGN SIZE	DIMENSIONS SEE DETAIL "A" SHEET NO. 72 (Lin. Ft.) A	B	C	D	E	REMOVE & REERECT G.M. SIGN Each MIN.	MAJ.	REVISE SIGN AS PER PLAN EACH	630 SIGNS FLAT SHEET SQ. FT.	EXTRU. TYPE Sq. Ft.	630 CONC. EMBEDDED FDNS Cu. Yd.	630 SUPPORTS NO. 3 POST Lin. Ft.	NO. 4 POST Lin. Ft.	S4x7.7 Lin. Ft.	W6x9 Lin. Ft.	W10x12 Lin. Ft.	W12x30 Lin. Ft.	BREAK-AWAY CONN. Each	630 REMOVAL G.M. SIGNS Each MIN.	MAJ.	REMOVAL G.M. SUPP. Each ≤8'	>8'	620 DELIN. AS PER PLAN Each
46													16.0				32.0										
		302+00	W-49R-48	4'-0"x4'-0"	16.0	16.0		16.0	7.0					30.0	0.54			33.0				2	1		2		
		307+15 NB.	GF-72	6-0"x5'-0"	16.5	16.5			7.0														2		1		
		308+63 NB.																							1		
		311+85 SB.																									
		312+85 SB.	GF-72	6'-0"x5'-0"	16.5	16.5			7.0					30.0	0.54			33.0				2	2		2		
		317+00 SB.	W-97-48	48"x60"	16	16		16.0	7.0				20.0				32.0										
		314+00 N.B.	W-49R-48	48"x48"	16.0	16.0		16.0	7.0				16.0				32.0										
		SR. 303																									
		128+50	M-5-24-3	30x24									5.0														
			IM-17-29	24"x12"			13.7						2.0			13.7											
		135+50	M-50-66	5'-6"x2'-0"	14.0	14.0		16.0	7.0				11.0				28.0							1		2	
			IM-8-24	24"x12"									2.0											1			
			M-5-24-3	30"x24"									5.0											1			
			IM-24-21	21"x15"									2.2											1			
	18 (A)	141+80 R		9'-0"x7'-0"										63.0													
	18 (B)			9'-0"x7'-0"										63.0													
		130+50 R	M-50-66	5'-6"x2'-0"	14.0	14.0		16.0	7.0	3			11.0				28.0							1		2	
		142+10 L																						3	1	3	
		42+83 R																						1		2	
		142+05 L	M-50-66	5'-6"x2'-0"	14.0	14.0		16.0	7.0				11.0				28.0							2		2	
		47+76 R	M-45-42	42"x60"	15.5	16.5			7.0					17.5			32.0							3		1	
		52+07 L	M-45-42	42"x60"	15.5	16.5			7.0					17.5			32.0							3		1	
	19 (A)	54+80 R		9'-0"x7'-0"										63.0													
	19 (B)			9'-0"x7'-0"										63.0													
		55+48																						3		1	
		55+59	M-50-66	5'-6"x2'-0"	14.0	14.0		16.0	7.0				11.0				28.0							2		1	
		141+00																						1		1	
		314+50 F	R-15A-36	36"x36"	14.0			16.0	7.0				9				14										
		61+97 L	M-52A	9'-0"x2'-6"	15.0	15.0			7.0					22.5			30.0							5		2	
		56+20																						1		1	
		54+99																						1		1	
		141+85																						2		1	
		43+15																						1		1	
		Ramp "E"																									
		310+87 R	W-45-48	48"x48"	15	15.5			7.0				16.0				30.5										
			R-41A-36	36"x24"									6.0														
		310+87 L	R-41A-36	36"x24"			12.5		7.0				6.0			12.5											
		314+00 R																						1		1	
		316+41 R																							1	2	
		319+72 R	R-1-48	48"x48"	14.5	14.5			7.0				16.0				29.0									1	
			R-41B-36	36"x36"									9.0											1			
		314+50 R	D-4-Spec	10'x4'	17.0	19.0			7.0					40	0.66				36.0			2					
		318+00 R	R-31J-42	42"x30"			13.5		7.0				8.75				13.5										
		Ramp "H"																									
		318+92	R-15A-36	36"x36"	14.0			16.0	7.0				9.0				14.0										
		Ramp "G"																									
		314+65																						1		2	
		307+80 L	R-41A-36	36"x24"									6.0											1			
			M-2-24-3	30"x24"									5.0											1			
			M-25-21	21"x15"									2.2											1			
			D-A-2	10'-0"x6'-0"	19.5	20.5			7.0		1				2.2					40.0		2			2		
		310+00 L	W-45-48	48"x48"																							
			R-41A-36	36"x24"									6.0														
		310+00 R	R-41A-36	36"x24"			12.5		7.0				6.0			12.5											
		SR. 303																									
		58+74	D-7-72	6'-0"x1'-0"									6.0														
			D-7-72	6'-0"x1'-0"	13.0	14.0			7.0				6.0			27.0											
		58+20	D-7-72	6'-0"x1'-0"	13.0	14.0			7.0				6.0			27.0								2		1	
			D-7-72	6'-0"x1'-0"									6.0														
				TOTAL						3	1		241.15	409.5	3.94	92.7	403.0	66.0	36.0	40.0		8	47	2	37		
				*100% STATE PART.																							
				NORMAL PART.						3	1		241.15	409.5	3.94	92.7	403.0	66.0	36.0	40.0		8	47	2	37		

Note:
For elevation views of numbered signs, see sheets 77,78

*100% STATE PARTICIPATION

MADE D.S.P. DATE 12-17-73
TRACED B.B. DATE 11-25-74
CHECKED M.B. DATE 12-18-73
SCALE NONE

Howard, Needles, Tammen & Bergendoff
CONSULTING ENGINEERS
CLEVELAND, OHIO

HNTB

SIGNING SUB-SUMMARY

FED. RD. DIVISION	STATE	PROJECT	
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SHEET NO.	SIGN NO.	STATION	CODE NO.	SIGN SIZE	DIMENSIONS SEE DETAIL "A" SHEET NO. 72 (Lin. Ft.) A	B	C	D	E	REMOVE & REERECT G.M. SIGN Each MIN.	MAJ.	630 SIGNS FLAT SHEET Sq. FT.	EXTRU. TYPE Sq. Ft.	630 CONC. EMBEDDED FDNS Cu. Yd.	630 SUPPORTS No. 3 POST Lin. Ft.	No. 4 POST Lin. Ft.	S4x7.7 Lin. Ft.	W8x18 Lin. Ft.	W10x12 Lin. Ft.	W12x30 Lin. Ft.	BREAK-AWAY CONN. Each	630 REMOVAL G.M. SIGNS Each MIN.	MAJ.	REMOVAL G.M. SUPP. Each ≤8*	>8*	SIGNS ERECTED FLAT SHEET Sq. Ft.	620 REFLECT. TYPE D Each
		RAMP E																									
		316+81 R	D-4B	11'x 6'									66.0														
			M-2-24-3	30"x 24"								5.0															
			R-4A-36	36"x 24"								6.0															
			M-25-21	21"x 15"	20.0	23.3			7.0			2.2		2.2					43.3								
47	40	337+50 SB		13'-0"x12'-0"	30.0	26.25		30.0	9.5				156	3.0						56.25	2		1		4		
		342+00 SB	GEP-84	7'-0"x 2'-0"									14.0														
		356+12 SB		10'-0"x 5'-0"	18.0	20.0		16.0	7.0		1			2.2					38.0								
			GEP-84	7'-0"x 2'-0"									14.0														
		I-271																									
	20	321+43 SB		13'-0"x12'-0"	30.0	26.25		30.0	9.5				156	3.0						56.25	2		1		4		
		329+45 SB	GEP-84	7'-0"x 2'-0"									14.0														
		349+50 SB																					1		2		
		337+26 NB	IM-37-36	36"x 18"			16.5	18.0	7.0			4.5				16.5									1		
			M-5-38-3	48"x 36"								12.0															
		360+39 NB																					1		3		
		361+27 NB		13'-0"x 7'-0"	21.2	25.5		16.0	7.0				91	2.2			46.7										
		345+11 NB	R-10-48	48"x 60"	17.5	17.5			7.0			20.0				35.0						1		1			
		346+22 NB	X-6L-R	12"x 36"			13.5			1					13.5									1			
48		I-271																									
	21	382+88 SB		14'-0"x12'-0"	28.5	31.25		16.0	7.0				168.0	3.0						59.75			1		4		
			GEP-84	7'-0"x 2'-0"									14.0														
		403+75 NB	R-70-48	48"x 36"	14.5	15.0		14.0	7.0			12.0			29.5												
49		I-271																									
		462+61 NB	R-19-24	24"x 30"			14.5		7.0	1					14.5										1		2
			R-123-36	36"x 36"						1																	
		488+00 ℄																					1		1		
		489+30 ℄																					1		1		
		453+00 SB	R-70-48	48"x 36"	14.5	15.0		14.0	7.0			12.0			29.5												
		455+77	W-68-48	48"x 48"	16.0	17.25		16.0	7.0							33.25							1		1		16
48	Cont.	413+19 NB	W-68-48	48"x 48"	16.0	17.25		16.0	7.0							33.25							1		1		16
		421+24 NB	GQ	9'x 4'	17.1	19.6		16.0	7.0					36 0.54			36.7						1		2		
		437+23 SB	GQ	9'x 4'	17.1	19.6		16.0	7.0					36 0.54			36.7						1		2		
				TOTAL						3	1	73.7	765	16.68	87	118	73.4	46.7	81.3	172.25	4	7	5	21	8	32	2
				#100% STATE PART																							
				NORMAL PART.						3	1	73.7	765	16.68	87	118	73.4	46.7	81.3	172.25	4	7	5	21	8	32	2

SUM.-271-0.82

QUANTITY CALCULATIONS

MADE BY D.S.P. DATE 12-26-73
CHECKED BY M.G.B. DATE 7-5-77
REVISED BY J.K.P. DATE 6-19-81
REVISED BY J.K.P. DATE 12-22-83

Note:
For elevation views of numbered signs, see sheets 77, 78

*100% STATE PARTICIPATION

MADE DSP DATE 12-26-73
TRACED B.A. DATE 1-22-74
CHECKED MB DATE 12-28-73
SCALE NONE

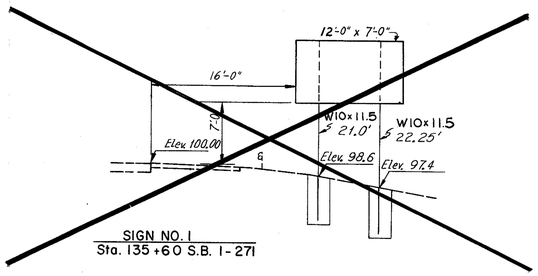
Howard, Needles, Tammen & Bergendoff
CONSULTING ENGINEERS
CLEVELAND, OHIO

HNTB

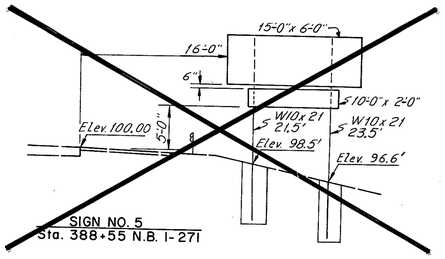
SIGN SUPPORT DETAILS

FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

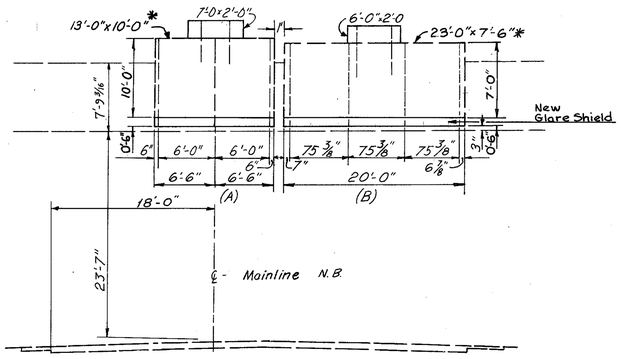
77
91



SIGN NO. 1
Sta. 135+60 S.B. I-271



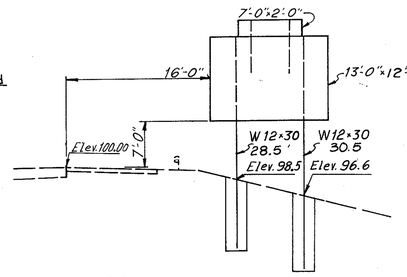
SIGN NO. 5
Sta. 388+55 N.B. I-271



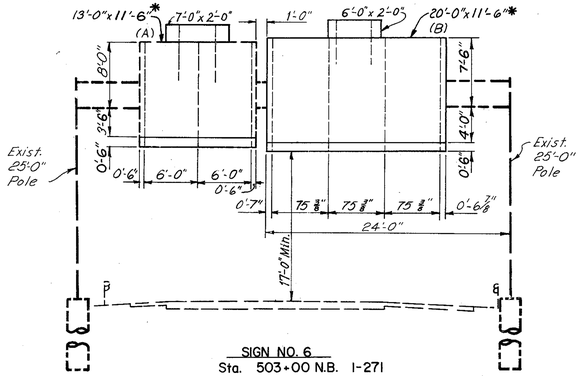
SIGN NO. 9
Sta. 554+16 N.B. I-271

* Includes New
0'-6" Glare Shield

SUM. - 271-0.82

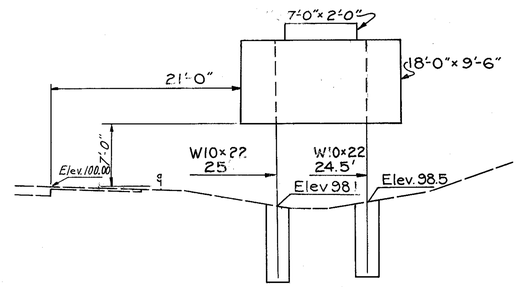


SIGN NO. 12
Sta. 209+00 S.B. I-271

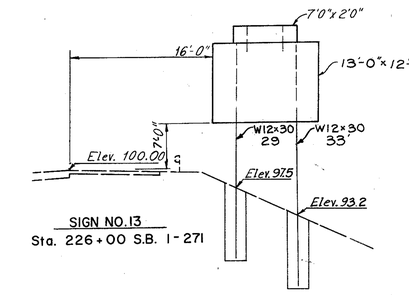


SIGN NO. 6
Sta. 503+00 N.B. I-271
Existing Overhead Sign
Std. 7.4, Design 1
4-8' Span

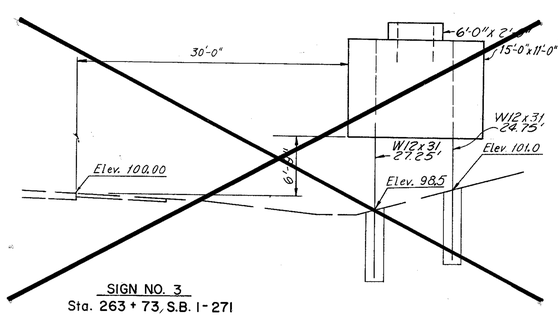
* Includes New
0'-6" Glare Shield



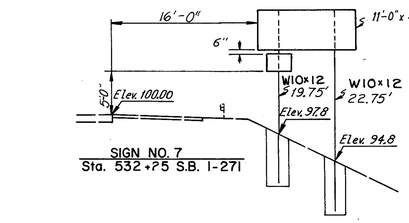
SIGN NO. 10
Sta. 563+50 N.B. I-271



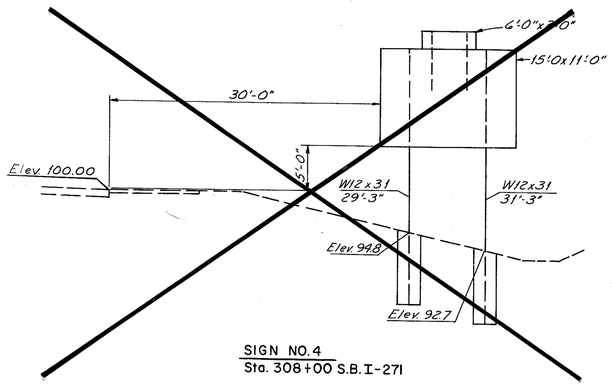
SIGN NO. 13
Sta. 226+00 S.B. I-271



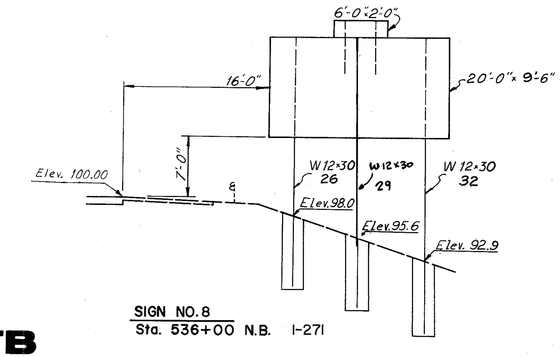
SIGN NO. 3
Sta. 263+73, S.B. I-271



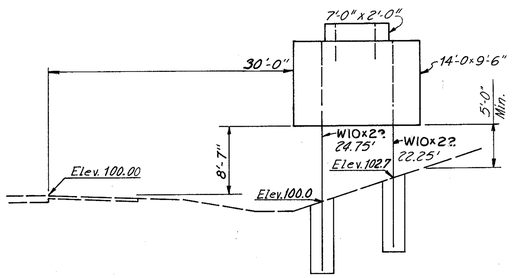
SIGN NO. 7
Sta. 532+25 S.B. I-271



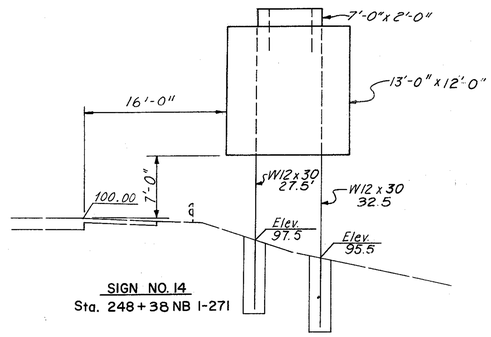
SIGN NO. 4
Sta. 308+00 S.B. I-271



SIGN NO. 8
Sta. 536+00 N.B. I-271



SIGN NO. 11
Sta. 161+20 N.B. I-271



SIGN NO. 14
Sta. 248+38 NB I-271

MADE M.G.B. DATE 1-28-74
TRACED J.P.H. DATE 1-30-74
CHECKED D.S.B. DATE 1-31-74
SCALE 1/8"=1'

Howard, Needles, Tammen & Bergendoff
CONSULTING ENGINEERS
CLEVELAND, OHIO

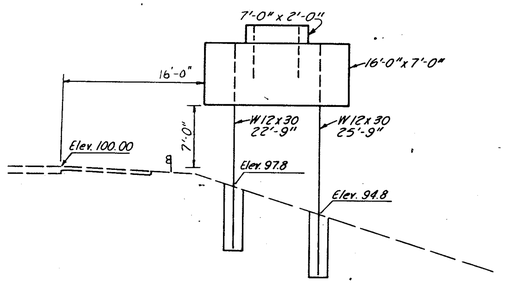
HNTB

SIGN SUPPORT DETAILS

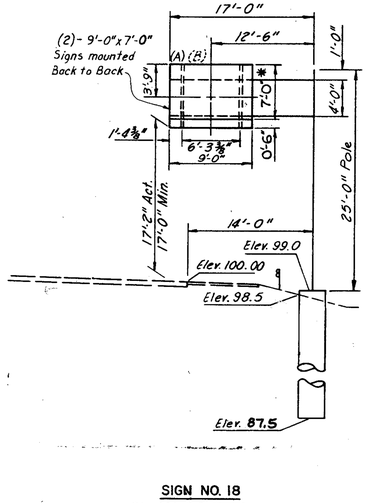
FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

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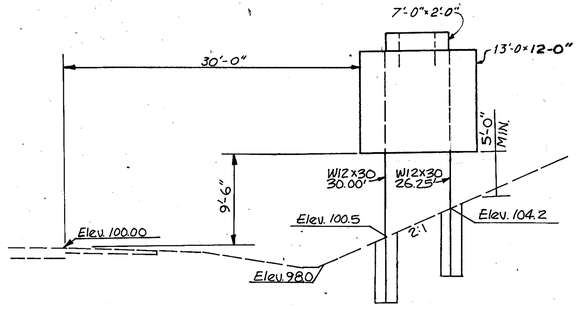
SUM.-271-0.82



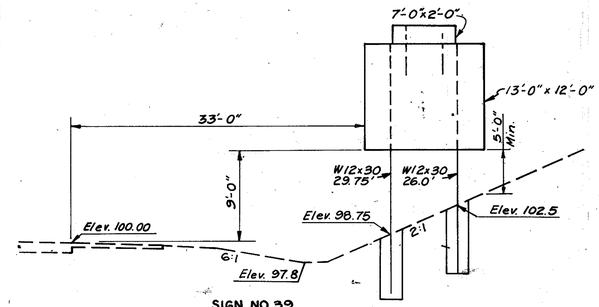
SIGN NO. 15
Sta. 261+00 N.B. I-271



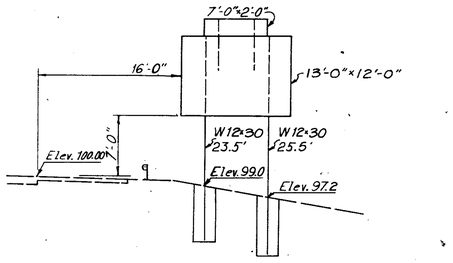
SIGN NO. 18
Sta. 141+80 Rt. S.R. 303
TC-12.30 Design No. 3
* Sign Height Includes 6 Inch Glare Shield



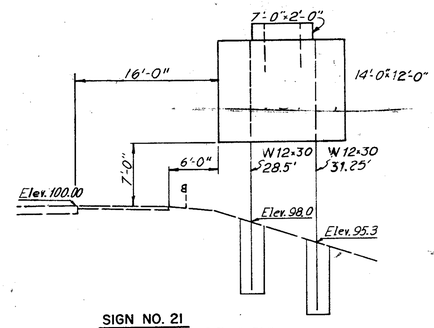
SIGN NO. 20
Sta. 329+45 S.B. I-271



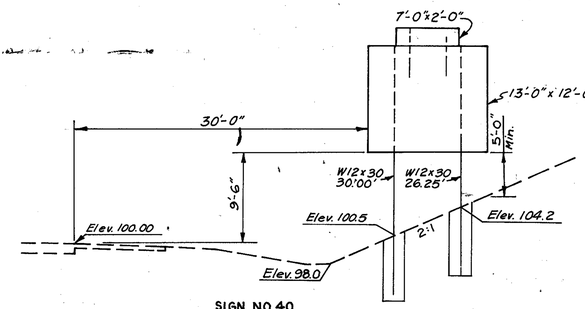
SIGN NO. 39
Sta. 282+88 N.B. I-271



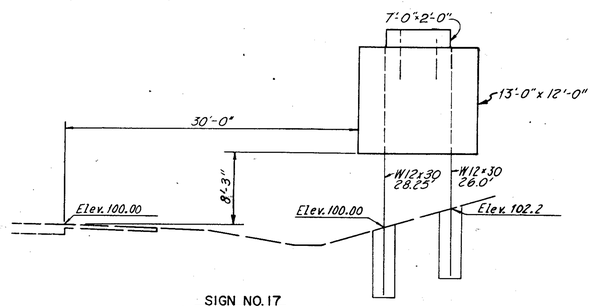
SIGN NO. 16
Sta. 261+61 S.B. I-271



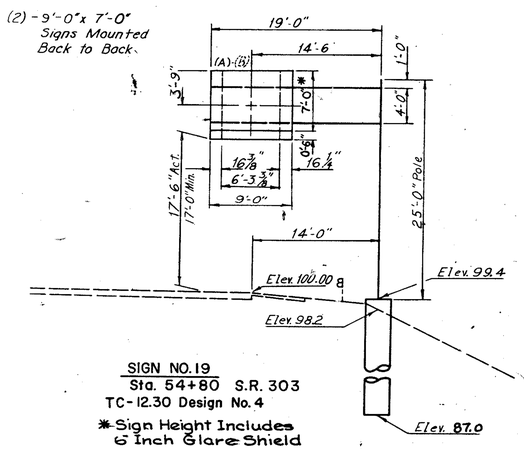
SIGN NO. 21
Sta. 382+88 S.B. I-271



SIGN NO. 40
Sta. 342+00 S.B. I-271



SIGN NO. 17
Sta. 298+67 N.B. I-271



SIGN NO. 19
Sta. 54+80 S.R. 303
TC-12.30 Design No. 4
* Sign Height Includes 6 Inch Glare Shield

MADE A.J.S. DATE 12-18-73
TRACED JSK. DATE 1-28-74
CHECKED M.G.B. DATE 1-24-74
SCALE 1/8"=1'

Howard, Needles, Tammen & Bergendoff
CONSULTING ENGINEERS
CLEVELAND, OHIO

HNTB

SIGN SUPPORT DETAILS

SIGN LIGHTING SUB-SUMMARY

Calc. By J.K.P. Date 2/85
Chkd. By J.K.P. Date 2/85

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

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SIGN NUMBER	LOCATION	SHEET NUMBER	SIGN SIZE	SIGN WATTS	631 Mercury Vapor Luminaire Type TC-31.21 W/175 Watt Lamp Each	631 Mercury Vapor Luminaire Type TC-31.21 W/250 Watt Lamp Each	631 Ballast Type CMRI-175-480 Each	631 Ballast Type CMRI-175-120 Each	631 Ballast Type CMRI-250-120 Each	631 SIGN SERVICE Each	631 SIGNS WIRED Each	631 Sign Wired, Overpass Structure Mounted Each	631 Disconnect Switch With Enclosure, Type X Each	631 Switch Enclosure Mounting Bracket Assembly Each	631 Ballast Wiring, Enclosure Type A Each	631 Ballast Wiring, Enclosure Type B Each	631 BALLAST WIRING ENCLOSURE MOUNTING BRACKET EACH	630 OVERHEAD SIGN SUPPORT TC-12.30 DESIGN 3, 17' ARMS EACH	630 OVERHEAD SIGN SUPPORT TC-12.30 DESIGN 4, 19' ARMS EACH	630 CONCRETE FOR ANCHOR BASE FOUNDATIONS CU.YD.	625 Ground Rod 713.16 Each	625 Trench 24" Deep Lin.Ft.	625 1½ Inch Duct Cable With Two No.4 AWG 5000 Volt Cables Lin.Ft.	625 Pull Box Circular Metal, 18" Each	625 Cable Splicing Kit Each	625 POWER SERVICE EACH	625 Conduit 713.04, 2" Lin.Ft.
	I.R. 271																										
6A	From 37+00 C.H. 194	38	13'x11.5'	500		2			2	1	1		1*	1*	1		1				2	1530	1555	2	2	1	10*
6B	To 503+00	80	20'x11.5'	750		3			3		1																
9A	544+16	40	13'x10'	350	2			2		1		1	1*	1*		1	1				2	90	105	1	2	1	10*
9B		80	23'x7.5'	525	3			3				1															
18A	141+80-S.R.303	46	9'x7'	175	1		1			1	1		1			1		1		3.01	1	60	180	1	2		
18B		80	9'x7'	175	1		1				1																
19A	54+80-S.R.303	46	9'x7'	175	1		1			1	1		1			1			1	3.25	1				2		
19B		80	9'x7'	175	1		1				1																
	TOTAL				9	5	4	5	5	4	6	2	4	2	1	3	2	1	1	6.26	6	1680	1840	4	8	2	

* PAID UNDER 625 POWER SERVICE

MILE MARKER QUANTITIES

MILE NO.	STATION I-271	N-41-12 Sq. Ft. 1'x2'	N-41-12 Sq. Ft. 1'x3'	Ground Mounted Support No.2 Post L.F.
8	483+79	4		20
9	536+59	4		20
10	179+52		6	22
11	233+70		6	22
12	286+50		6	22
13	336+50		6	22
14	390+95		6	22
15	443+75		6	22
16	496+55		6	22
17	549+35		6	22
TOTAL		56		216

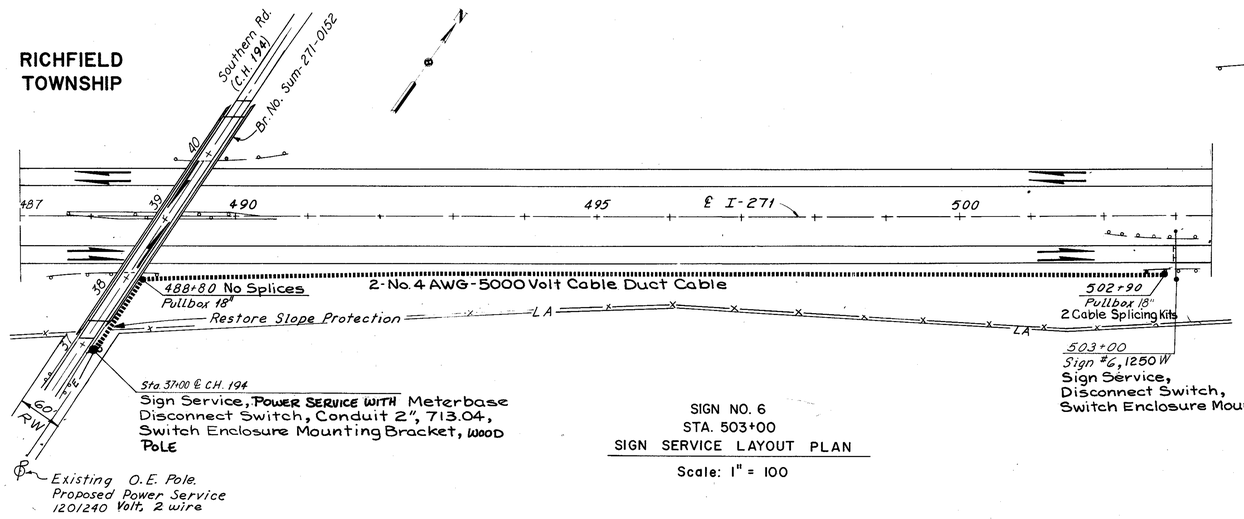
33770

SIGN LIGHTING SUB-SUMMARY

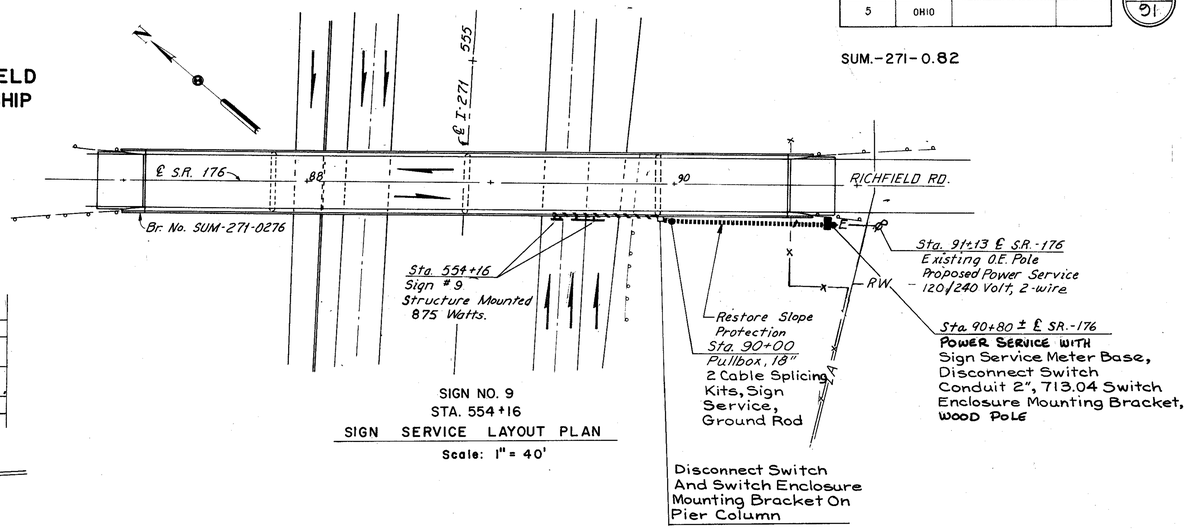
FED. RD. DIVISION	STATE	PROJECT	
5	OHIO		

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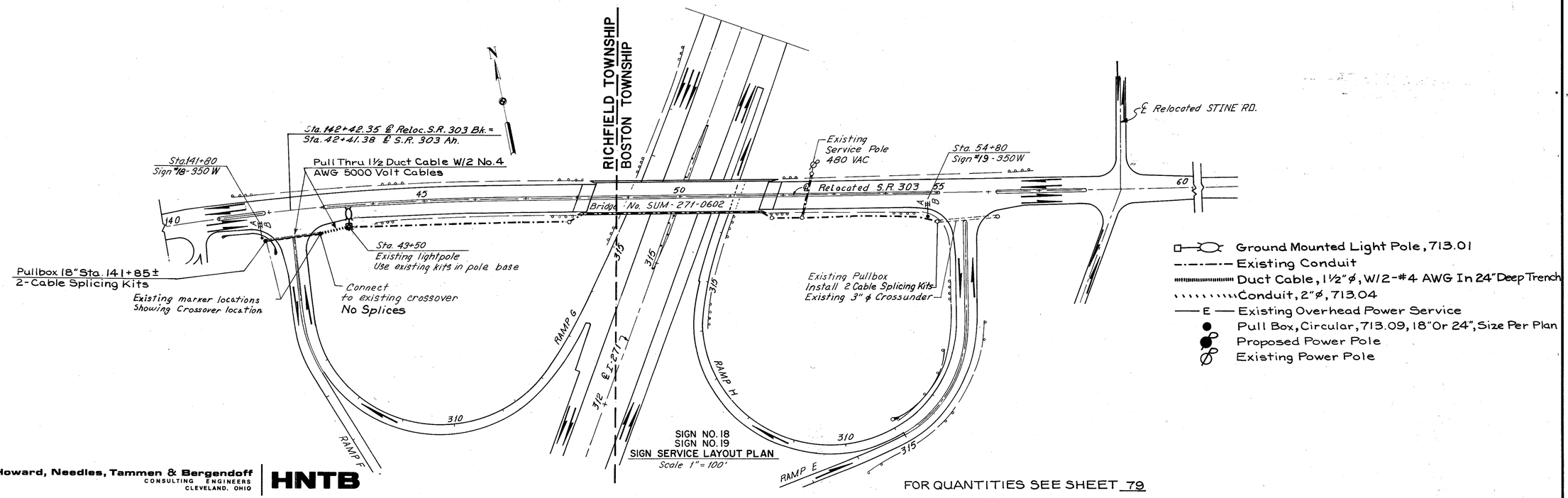
SUM.-271-0.82



SIGN NO. 6
STA. 503+00
SIGN SERVICE LAYOUT PLAN
Scale: 1" = 100



SIGN NO. 9
STA. 554+16
SIGN SERVICE LAYOUT PLAN
Scale: 1" = 40'



SIGN NO. 18
SIGN NO. 19
SIGN SERVICE LAYOUT PLAN
Scale 1" = 100'

FOR QUANTITIES SEE SHEET 79

MADE WGP DATE 4-19-74
TRACED KK DATE 4-22-74
CHECKED EAJ DATE 4-25-74
SCALE As Shown

Howard, Needles, Tammen & Bergendoff
CONSULTING ENGINEERS
CLEVELAND, OHIO

HNTB

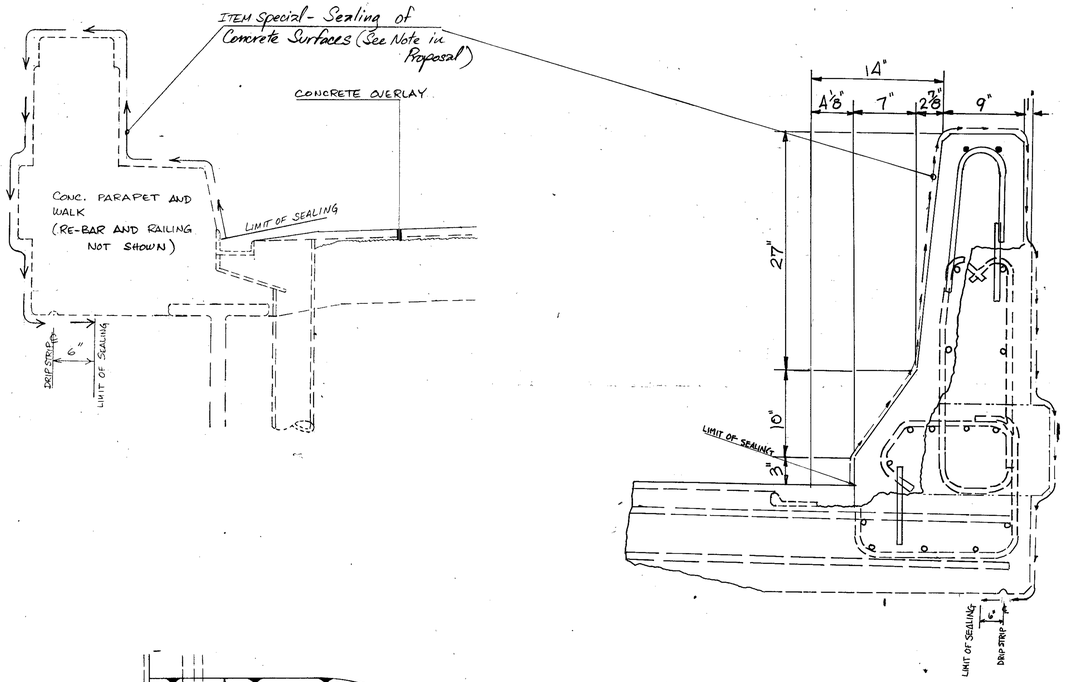
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

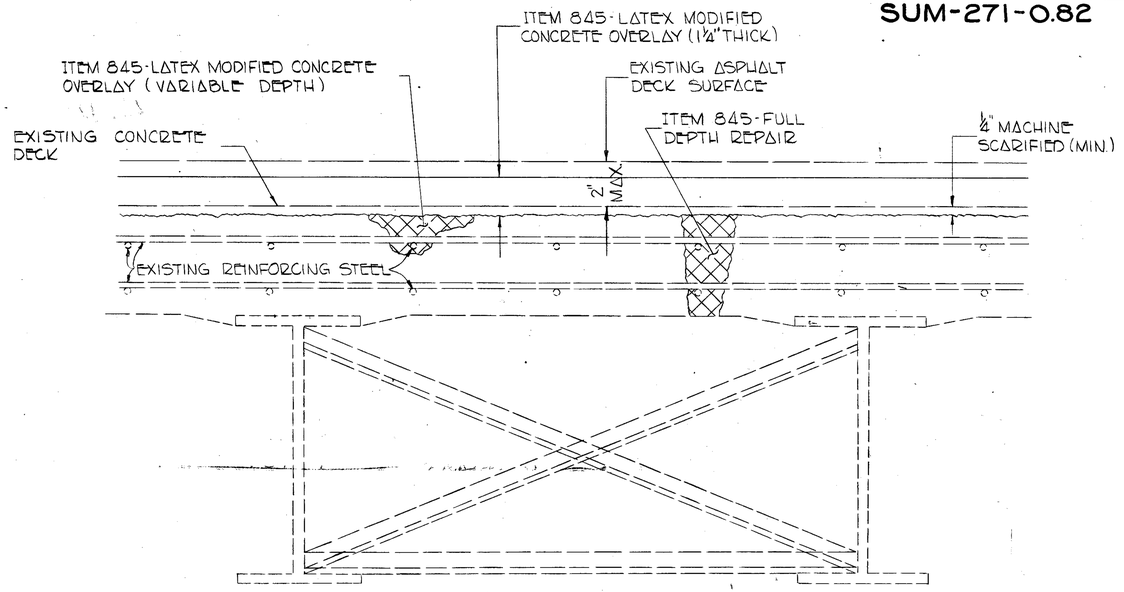
81
91

SUM-271-0.82

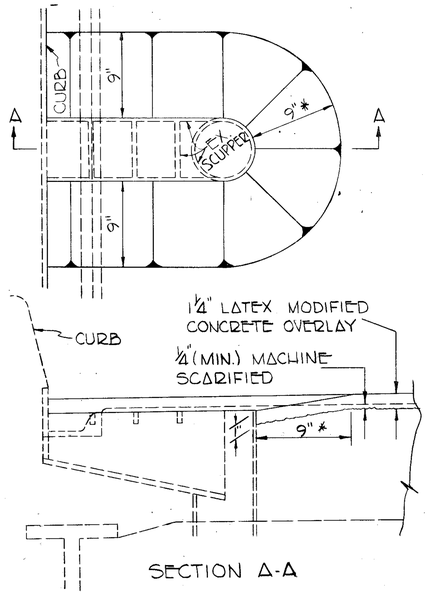
ITEM SPECIAL - SEALING OF CONCRETE SURFACES

THE EXPOSED SURFACE OF CURBS AND PARAPETS SHALL BE SEALED THROUGHOUT THE ENTIRE LENGTH OF THE BRIDGE, INCLUDING WINGWALLS, TO THE LIMITS AS SHOWN BELOW. SEE NOTE IN PROPOSAL FOR COMPLETE SPECIFICATION.

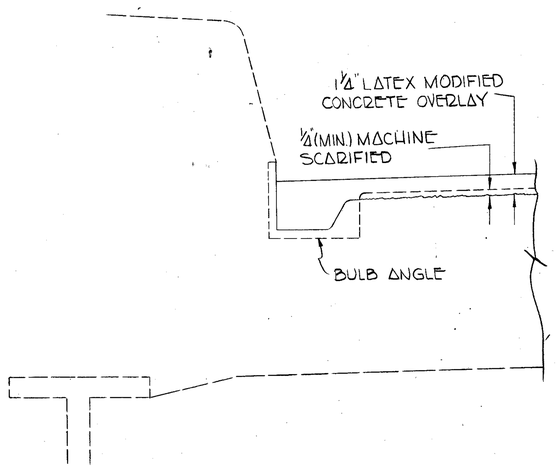




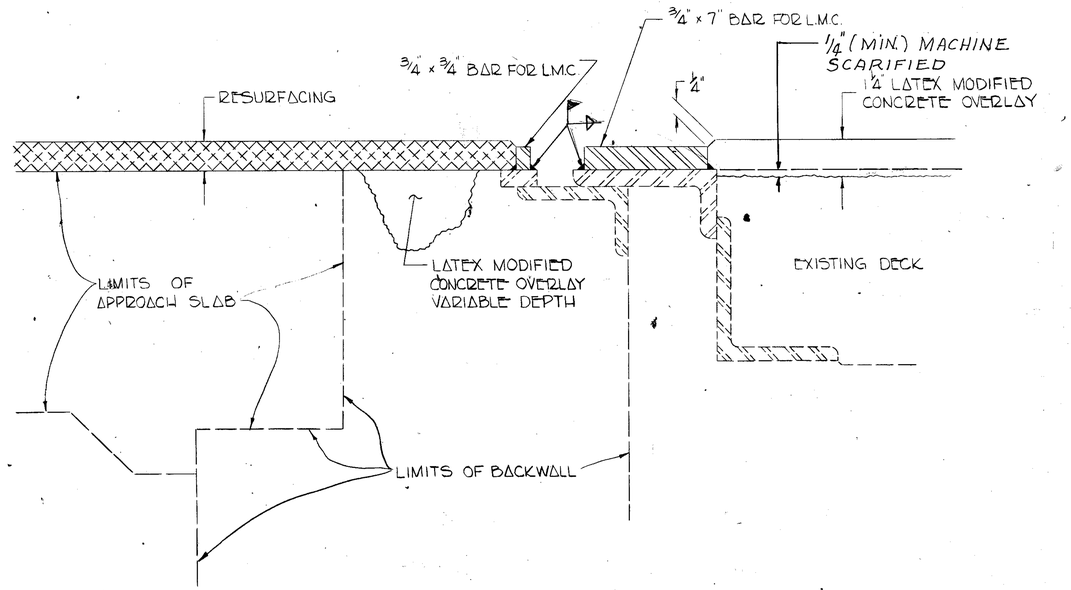
LATEX MODIFIED CONCRETE OVERLAY



TYPICAL OVERLAY DETAIL AT SCUPPERS



TYPICAL OVERLAY DETAIL AT BULB ANGLES



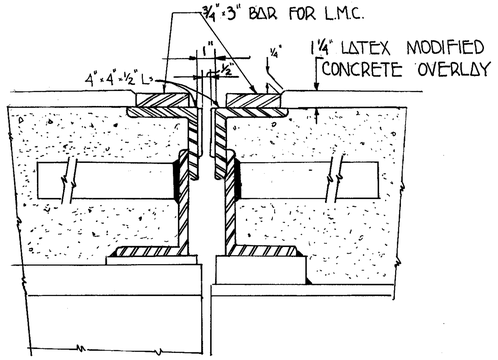
VERTICAL EXTENSION OF STRUCTURAL EXPANSION JOINT

* 12" WITH SUPERPLASTICIZED DENSE CONCRETE

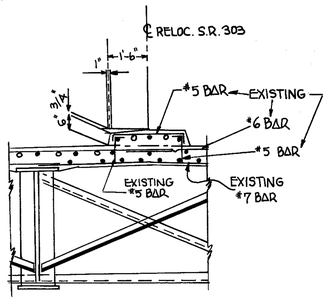
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

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ITEM 516 - VERTICAL EXTENSION OF STRUCTURAL EXPANSION JOINTS, AS PER PLAN TYPE H



STR. NO. SUM.-I271-0602

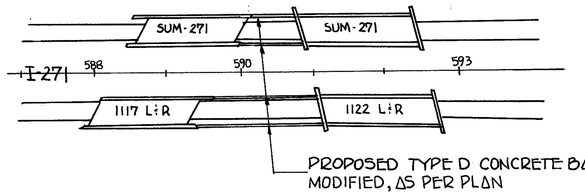
NOTE: THE EXISTING CONCRETE MEDIAN SHALL BE REMOVED TO AN ELEVATION WHICH WILL BE FLUSH WITH THE SURROUNDING SCARIFIED DECK AREA. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 202 PORTIONS OF STRUCTURE REMOVED, LUMP.

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F.H.W.A. REGION	STATE	PROJECT	
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SUM-271-0.82



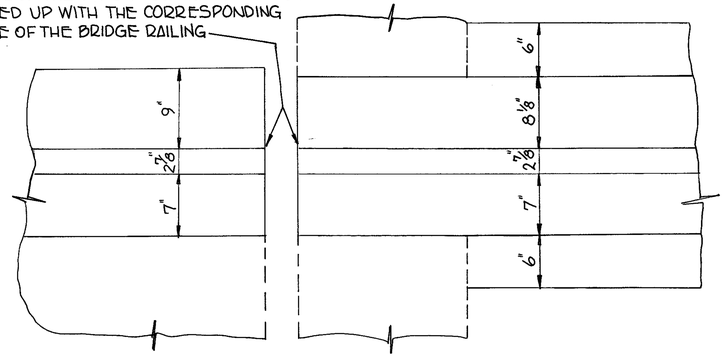
ESTIMATED QUANTITIES

448 L.F. - ITEM 622 - CONCRETE BARRIER, STANDARD TYPE D, MODIFIED, AS PER PLAN HAS BEEN CARRIED FROM SHT. 51 TO THE GENERAL SUMMARY.

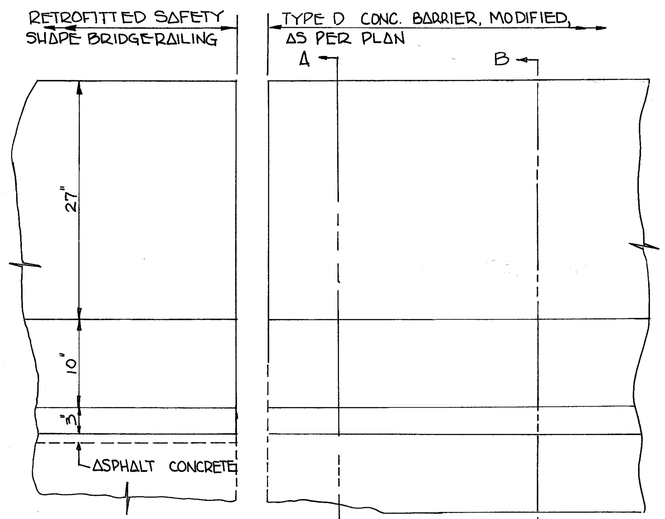
LOCATION

STA. 590+44 to 590+79 (LT)	= 35 L.F.
STA. 590+02 to 590+89 (LT. MED)	87 L.F.
STA. 589+61 to 591+07 (RT. MED)	146 L.F.
STA. 589+37 to 591+17 (RT.)	180 L.F.

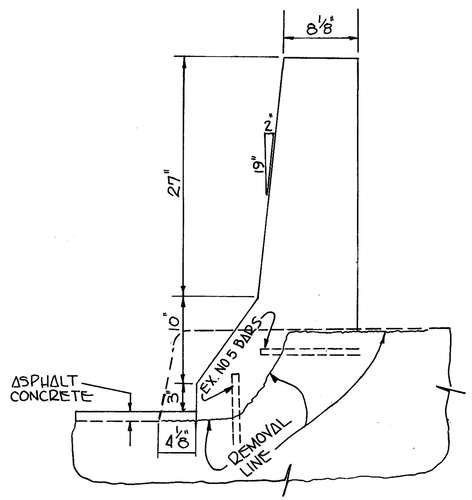
BECAUSE OF THE DIFFERENT WIDTHS, THE FRONT FACE OF THE TYPE D BARRIER SHALL BE LINED UP WITH THE CORRESPONDING FACE OF THE BRIDGE RAILING



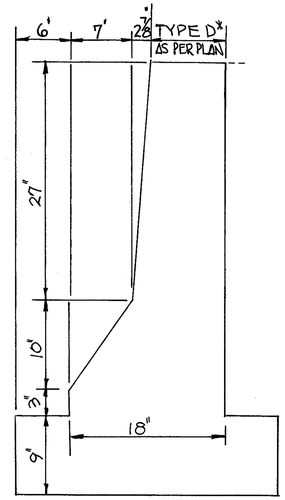
PLAN VIEW



PROFILE VIEW



SECTION A-A



SECTION B-B

* MODIFIED

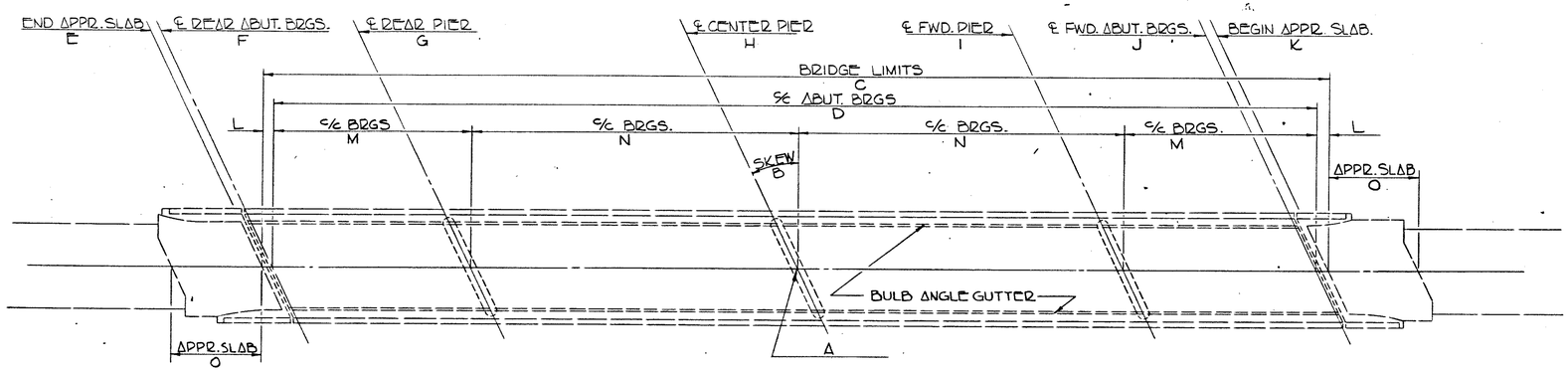
NOTE: REQUIRED REINFORCING STEEL SHALL BE THE SAME AS REQUIRED FOR ITEM 622 CONCRETE BARRIER TYPE D AS PER STD. DRWG. MC-9.

CONCRETE BARRIER & BRIDGE DETAILS

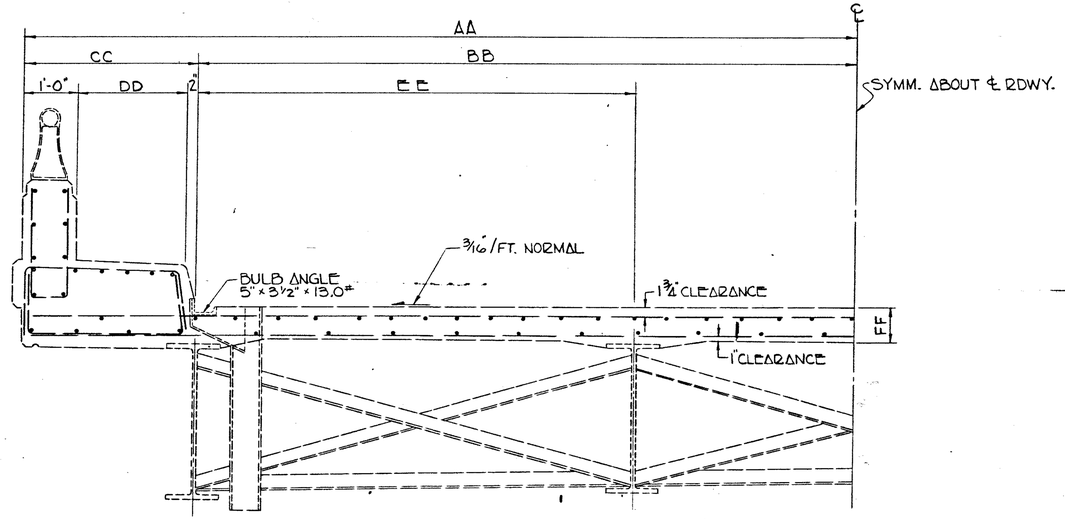
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

SUM-271-0.82

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PLAN VIEW



TRANSVERSE HALF SECTION

* NOTE: THE EXISTING STRUCTURE INCLUDES A 3'-0" MEDIAN LOCATED SYMMETRICALLY ABOUT THE CENTER LINE WHICH IS TO BE REMOVED. FOR DETAIL SHEET No. 82.

EXISTING STRUCTURE DATA

	SUM 271 0295 C.H. 17 over 271	SUM 271 0354 Ramp B over 271	SUM 271 0602 S.R. 303 over 271 *	SUM 271 0656 E/B Tpk. over 271				
A	564+79.82	187+47.87	316+40.60	179+75.89				
B	32°-57'-00" (R.F.)	5°-54'-22" (L.F.)	20°-01'-59" (L.F.)	27°-54'-55"				
C	325.86'	322.02'	331.03'	408.05'				
D	320.50'	317.50'	326.25'	402.97'				
E	59+07.27	185+81.11	48+28.11	177+68.80				
F	59+09.95	185+83.37	48+30.50	177+71.32				
G	59+72.95	186+53.12	48+97.50	178+51.73				
H	60+70.20	187+47.87	316+40.60	179+75.89				
I	61+67.47	188+61.37	51+14.75	180+95.72				
J	62+30.45	189+00.87	51+56.75	181+74.29				
K	62+33.13	189+03.13	51+59.14	181+76.85				
L	2.68'	2.26'	2.39'	2.56'				
M	63'-0"	69'-9" (R) 39'-6" (F)	67'-0" (R) 42'-0" (F)	81'-0" (R) 78'-0" (L)				
N	97'-3"	94'-9" (R) 113'-6" (F)	102'-6" (R) 114'-9" (F)	124'-6" (R) 119'-6" (F)				
O	25'-0"	25'-0"	25'-0"	25'-0"				
AA	18'-0"	15'-0"	32'-6"	18'-0"				
BB	15'-0"	13'-0"	29'-6"	15'-0"				
CC	3'-0"	2'-0"	3'-0"	3'-0"				
DD	1'-10"	0'-10"	1'-10"	1'-10"				
EE	7'-6"	8'-8"	8'-5"	Varies				
FF	8¾"	9"	8½"	8¾"				

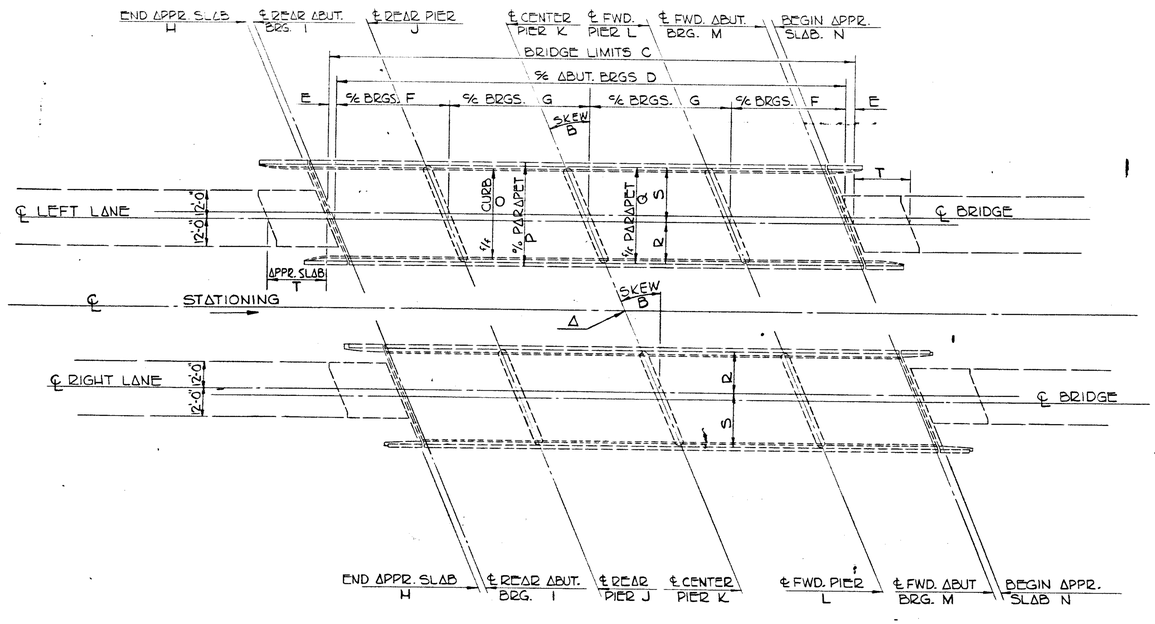
⊙ DENOTES AS PER PLAN

STRUCTURE QUANTITIES SUB-SUMMARY

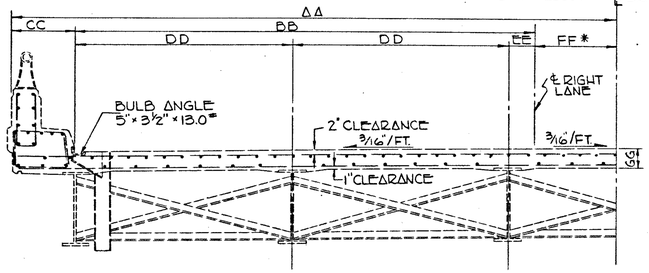
STRUCTURE Nº	845 L.M.C. OVERLAY (1¼") SQ. YD.	845 L.M.C. OVERLAY VAR. THICKNESS CU. YD.	845 L.M.C. FULL DEPTH REPAIR CU. YD.	511 CLASS C CONCRETE SUPERSTRUCTURE AS PER PLAN CU. YD.	202 PORTIONS OF STRUCTURES REMOVED LUMP	516⊙ VERT. EXTENSION OF STRUCTURAL EXPANSION JOINTS LIN. FT.	516⊙ VERT EXTENSION OF STRUCTURAL EXPANSION JOINTS TYPE H, LIN. FT	SPECIAL SEALING OF CONCRETE SURFACES SQ. YD	509 REINFORCING STEEL POUNDS	510 DOWEL HOLES LIN. FT.		
SUM 271-0295	1173	93	1	50	LUMP	78	—	765	4695	558		
SUM 271-0354	946	30	1	50	LUMP,	53	27	764	4728	567		
SUM 271-0602	2246	20	1	52	LUMP	132	66	797	4791	573		
SHEET TOTAL	4365	143	3	152	LUMP	263	93	2326	14,214	1698		

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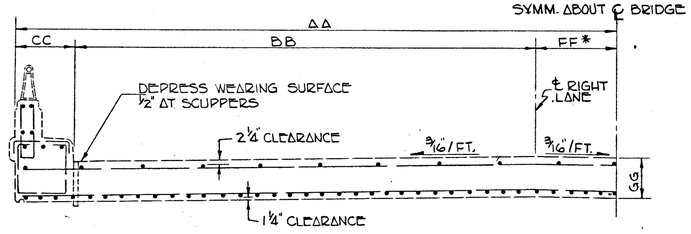
SUM-271-0.82



PLAN VIEW



TRANSVERSE HALF SECTION A



* DISTANCE FF IS RIGHT OF ℄ OF BRIDGE FOR LEFT LANE. TRANSVERSE SECTION TAKEN LOOKING UP STATION

TRANSVERSE HALF SECTION B

NOTE: PARAPET ON STRUCTURES SUM-271-0358L, SUM-271-0358R WILL NOT BE RETROFITTED

⊙ DENOTES AS PER PLAN

STRUCTURE QUANTITIES SUB-SUMMARY

STRUCTURE №	845 LATEX MODIFIED CONCRETE OVERLAY T=1¼" SQ. YD.	845 LATEX MODIFIED CONCRETE (var. depth) CU. YD.	516 ⊙ VERTICAL EXTENSION OF EXPANSION JOINTS. AS PER PLAN. LIN. FT.	516 ⊙ VERT. EXTENSION OF STRUCTURAL EXPANSION JOINT TYPE H, LIN. FT.	845 L.M.C. FULL DEPTH REPAIR CU. YD.	202 PORTIONS OF STRUCTURES REMOVED LUMP	SPECIAL SEALING OF CONCRETE SURFACES SQ. YD.	509 REINFORCING STEEL POUNDS	510 DOWEL HOLES LIN. FT.	511 CLASS C CONC SUPER-STRUCTURE AS PER PLAN		
SUM 271-0358-L	2203	10	127	—	1	LUMP	657	—	—			
SUM 271-0358-R	1257	41	73	—	1	LUMP	677	—	—			
SUM 271-0378-L	541	10	77	—	1	LUMP	321	1960	223	21		
SUM 271-0378-R	867	16	123	—	1	LUMP	323	1984	225	21		
SUM 271-0658-L	994	27	92	—	1	LUMP	583	3407	386	38		
SUM 271-0658-R	911	65	92	—	1	LUMP	541	3195	366	36		
SUM 271-0802-L	5442	226	66	33	1	LUMP	3202	18931	2239	211		
SUM 271-0802-R	5285	254	66	33	1	LUMP	3110	18420	2176	205		
SHEET TOTAL	17,500	643	716	66	8	LUMP	9414	47897	5615	532		

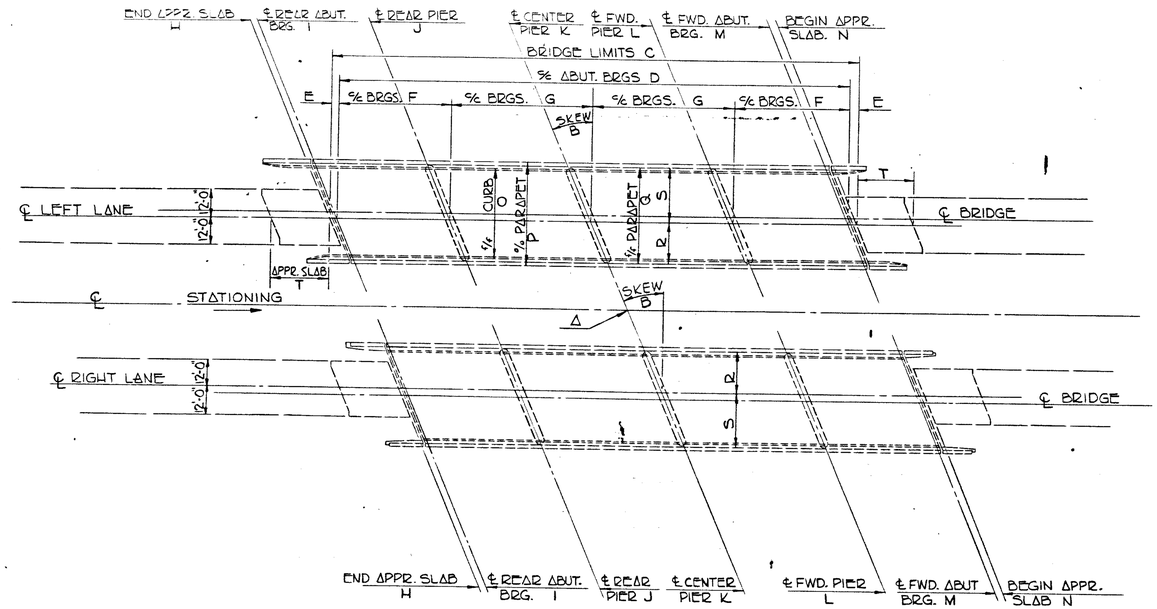
EXISTING STRUCTURE DATA

	SUM 271 0358-L over I.R. 77	SUM 271 0358-R over I.R. 77	SUM 271 0378-L over I.R. 77	SUM 271 0378-R over I.R. 77	SUM 271 0658-L over W.B.L. OHIO TPK.	SUM 271 0658-R over W.B.L. OHIO TPK.	SUM 271 0802-L OVER C.R. "9 AND	SUM 271 0802-R OVE CUM. RIVER
Δ	189+35.03	189+35.03	199+17.49	199+17.49	347+02.70	347+02.70	427+84.69 R.R. 425+89.24 C&H9	427+84.69 R.R. 425+89.24 C&H9
B	24°-56'-00" (L.F.)	24°-56'-00" (L.F.)	3°-21'-06" (L.F.)	3°-21'-06" (L.F.)	34°-03'-01" (L.F.)	34°-03'-01" (L.F.)	0°00'	0°00'
C	348.60'	348.60'	128.04'	128.04'	234.12'	214.87'	1500.5'	1457.5'
D	343.63'	343.63'	123.53'	123.53'	228.61'	209.39'	1496.0'	1453.0'
E	2.43'	2.43'	2.25'	2.25'	2.76	2.74	2.25'	2.25'
F	76'-6" (R) 58'-6" (F)	76'-6" (R) 58'-6" (F)	38'-6" (R) 36'-0" (F)	38'-6" (R) 36'-0" (F)	66'-0" (R) 60'-0" (F)	63'-0" (R) 54'-0" (F)	120'-0" (R) 150'-0" (F)	105'-0" (R) 150'-0" (F)
G	117'-6" (R) 90'-0" (F)	117'-6" (R) 90'-0" (F)	49'-0"	49'-0"	100'-3"	45'-4½"	170'-0" (R) 188'-0" (F)	165'-0" (R) 188'-0" (F)
H	187+36.11	187+36.11	198+39.17	198+39.17	346+13.02	346+15.94	421+97.75	421+49.75
I	187+38.65	187+38.65	198+41.43	198+41.43	346+15.66	346+18.58	422+00	421+52
J	188+16.68	188+16.68	198+79.96	198+79.96	346+80.44	346+80.44	423+20	422+57
K	189+35.03	189+35.03	N/A	N/A	N/A	N/A	N/A	N/A
L	190+24.56	190+24.56	199+28.98	199+28.98	348+81.73	347+71.96	435+46	434+55
M	190+82.28	190+82.28	199+64.96	199+64.96	348+44.27	348+27.96	436+96	436+05
N	190+84.71	190+84.71	199+67.21	199+67.21	348+47.14	348+30.81	436+98.25	436+07.25
O	68'-6" max 46'-9" min	33'-0"	38'-0"	61'-4"	38'-0"	38'-0"	30'-0"	30'-0"
P	71'-10" max 50'-1" min	36'-4"	42'-2"	65'-8"	42'-4"	42'-4"	36'-4"	36'-4"
Q	69'-6" max 47'-9" min	34'-0"	40'-0"	63'-4"	40'-0"	40'-0"	34'-0"	34'-0"
R	16'-6"	16'-6"	18'-0"	18'-0"	18'-0"	18'-0"	17'-0"	17'-0"
S	12'-0" plus var. ramp	16'-6"	22'-0"	45'-4"	22'-0"	22'-0"	17'-0"	17'-0"
T	25'-0"	25'-0"	25'-0"	25'-0"	25'-0"	25'-0"	25'-0"	25'-0"
TRANSVERSE SECTION	A	A	A	A	A	A	A	A
AA	35'-9" max 24'-10½" min	18'-0"	21'-0"	32'-10" varies	21'-0"	21'-0"	18'-2"	18'-2"
BB	16'-6"	18'-2"	21'-0"	18'-0"	17'-0"	17'-0"	15'-0"	15'-0"
CC	1'-6"	1'-6"	2'-0"	2'-0"	2'-0"	2'-0"	3'-2"	3'-2"
DD	10'-0" varies on ramp	10'-11"	9'-4½"	8'-8"	varies,	varies	9'-4"	9'-4"
EE	—	—	—	—	—	—	4'-8"	4'-8"
FF	16'-9" max 5'-9" min	varies	2'-0"	13'-2"	2'-0"	2'-0"	N/A	N/A
GG	9"-0"	9"-0"	9"-0"	9"-0"	9"-0"	9"-0"	9"	9"

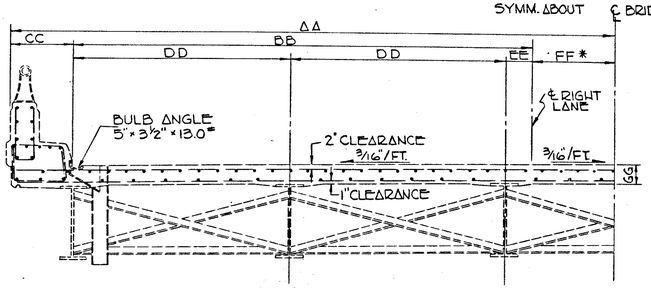
F.H.W.A. REGION	STATE	PROJECT #	
5	OHIO		

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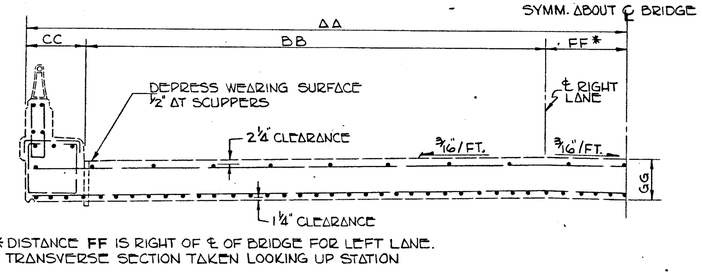
SUM-271-0.82



PLAN VIEW



TRANSVERSE HALF SECTION A



TRANSVERSE HALF SECTION B

* DISTANCE FF IS RIGHT OF ℄ OF BRIDGE FOR LEFT LANE.
TRANSVERSE SECTION TAKEN LOOKING UP STATION

EXISTING STRUCTURE DATA								
	SUM 271 0834-L over C.H. 32	SUM 271 0834-R over C.H. 32	SUM 271 1117-L over C.H. 16	SUM 271 1117-R over C.H. 16	SUM 271 1122-L over BRANDYWINE CREEK	SUM 271 1122-R over Brandywine Creek		
Δ	449+93.21	449+98.39	589+01.60	589+01.60	591+78.50	591+78.50		
B	27°00'-00" (R.F.)	7°30'-00" (R.F.)	29°-23'-52" (L.F.)	29°-23'-52" (L.F.)	13°-45'-00" (R.F.)	13°-45'-00" (R.F.)		
C	190.56'	162.54'	135.16'	135.16'	160.64'	160.64'		
D	185.50'	158.00'	130.00'	130.00'	156.00'	156.00'		
E	2.53'	2.27'	2.58'	2.58'	2.32'	2.32'		
F	57'-0"	48'-6"	38'-0"	38'-0"	48'-0"	48'-0"		
G	71'-6"	61'-0"	27'-0"	27'-0"	30'-0"	30'-0"		
H	449+33.68	449+47.62	588+34.02	588+34.02	590+98.18	590+98.18		
I	449+36.31	449+49.89	588+36.60	588+36.60	591+00.50	591+00.50		
J	449+93.21	449+98.39	588+74.60	588+74.60	591+48.50	591+48.50		
K	N/A	N/A	N/A	N/A	N/A	N/A		
L	450+64.71	450+59.39	589+28.60	589+28.60	592+08.50	592+08.50		
M	451+21.71	451+07.89	589+66.60	589+66.60	592+56.50	592+56.50		
N	451+24.04	451+10.16	589+69.18	589+69.18	592+58.82	592+58.82		
O	38'-0"	38'-0"	38'-0"	38'-0"	38'-0"	38'-0"		
P	42'-4"	42'-4"	42'-4"	42'-4"	42'-4"	42'-4"		
Q	40'-0"	40'-0"	40'-0"	40'-0"	40'-0"	40'-0"		
R	18'-0"	18'-0"	18'-0"	18'-0"	18'-0"	18'-0"		
S	22'-0"	22'-0"	22'-0"	22'-0"	22'-0"	22'-0"		
T	25'-0"	25'-0"	25'-0"	25'-0"	25'-0"	25'-0"		
TRANSVERSE SECTION	A	A	A	A	A	A		
AA	21'-0"	21'-0"	21'-0"	21'-0"	21'-0"	21'-0"		
BB	17'-0"	17'-0"	17'-0"	17'-0"	17'-0"	17'-0"		
CC	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"		
DD	9'-6"	9'-6"	9'-6"	9'-6"	9'-6"	9'-6"		
EE	—	—	—	—	—	—		
FF	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"		
GG	9"	9"	9"	9"	9"	9"		

⊙ DENOTES AS PER PLAN

STRUCTURE QUANTITIES SUB-SUMMARY												
STRUCTURE №	845 L.M.C. OVERLAY (1¼") SQ YD.	845 L.M.C. OVERLAY VAR. THICKNESS CU. YD.	845 L.M.C. FULL DEPTH REPAIR CU. YD.	511 CLASS C CONC. SUPERSTURE AS PER PLAN CU. YD.	202 PORTIONS OF STRUCTURES REMOVED LUMP	516 ⊙ VERT. EXTENSION OF STRUCTURAL EXPANSION JOINTS LIN. FT.	516 ⊙ VERT. EXTENSION OF STRUCTURAL EXPANSION JOINTS TYPE H, LIN. FT.	SPECIAL SEALING OF CONCRETE SURFACES SQ. YD	509 REINFORCING STEEL POUNDS	510 DOWEL HOLES LIN. FT.		
SUM 271-0834 L	804	25	1	28	LUMP	86	43	427	2435	286		
SUM 271-0834 R	685	4	1	24	LUMP	77	39	359	2187	247		
SUM 271-1117 L	569	6	1	24	LUMP	88	—	361	2076	240		
SUM 271-1117 R	569	3	1	23	LUMP	88	—	341	2076	240		
SUM 271-1122 L	680	25	1	23	LUMP	79	—	344	2052	224		
SUM 271-1122 R	680	7	1	23	LUMP	79	—	343	2052	224		
SHEET TOTAL	3987	70	6	145	LUMP	497	82	2175	12,938	1461		

LEFT & RIGHT STRUCTURES

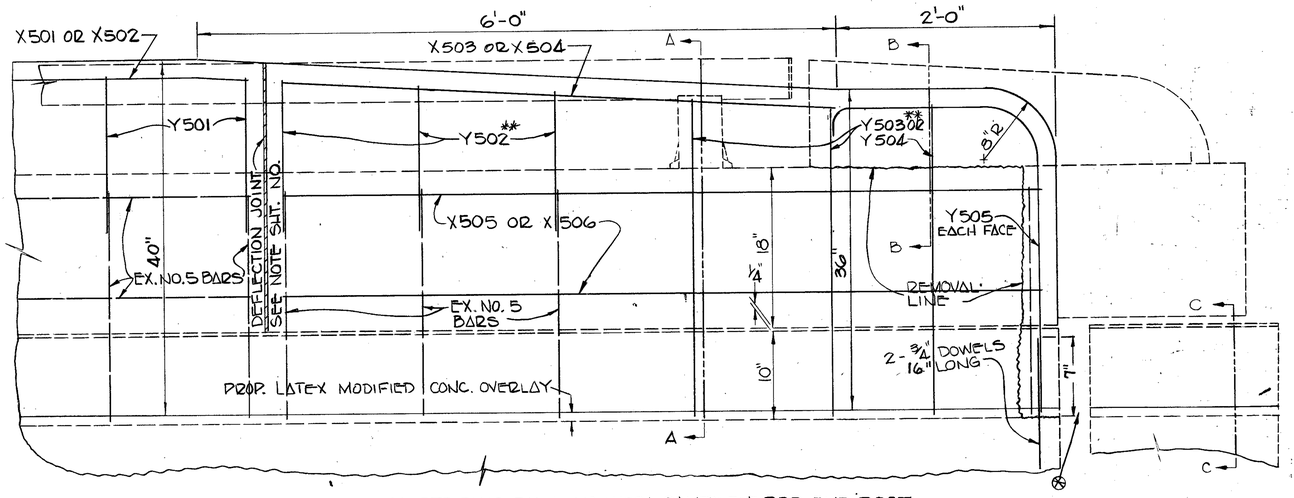
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

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SUM-271-0.82

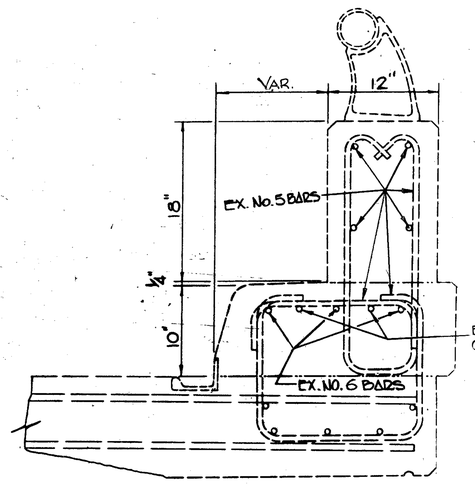
** EXACT LENGTHS TO BE DETERMINED IN THE FIELD.

REMOVE CANTILEVERED END POST, AS SHOWN BELOW BY REMOVAL LINES, TO ALLOW CLEARENCE FOR THE ADDITION OF THE Y505 BAR AND DOWELS.

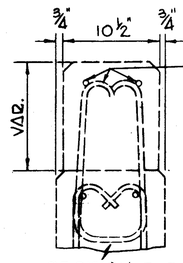


PROFILE VIEW - BRIDGE BUILT TO STD. DWG. BR-1-65 WITH CANTILEVERED END POST

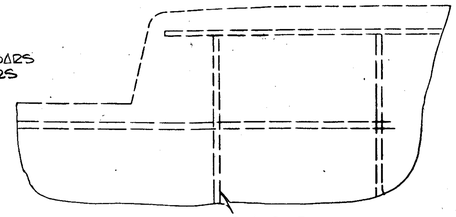
NOTE: FOR SECTIONS D-D TO GG & D.-D. TO G.-G. SHOWING PROPOSED RETROFIT SEE SHT. Nº 89



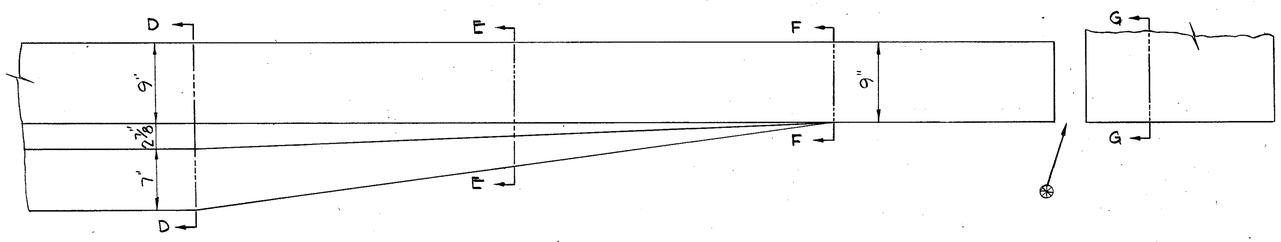
SECTION A-A
(EXISTING)



SECTION B-B
(EXISTING)

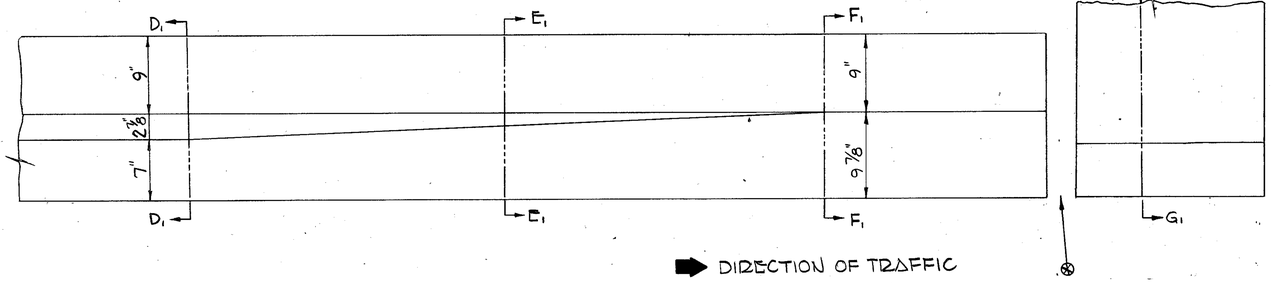


SECTION C-C
(EXISTING)



DIRECTION OF TRAFFIC

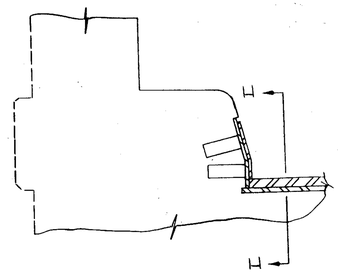
PLAN VIEW APPROACH END



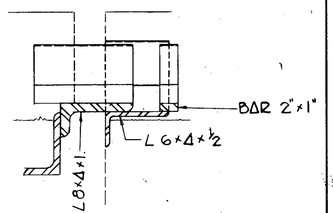
DIRECTION OF TRAFFIC

PLAN VIEW TRAILING END

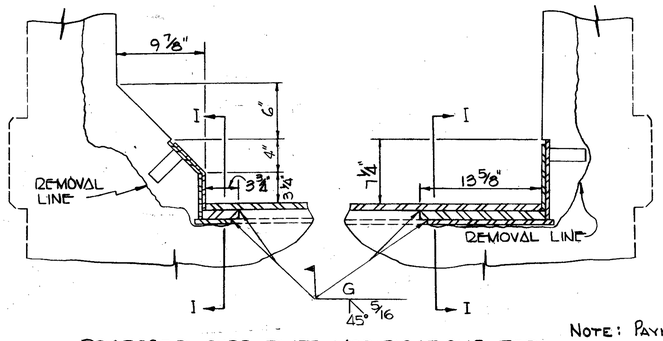
⊗ NOTE: SEE CURB PLATE DETAILS



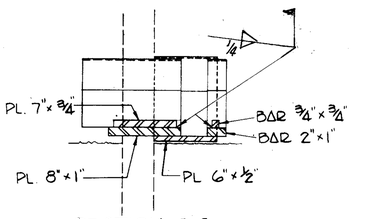
EXISTING CURB PLATE



SECTION H-H



PROPOSED CURB PLATE MODIFICATIONS FOR LATEX MODIFIED CONCRETE OVERLAY



SECTION I-I

NOTE: PAYMENT FOR CURB PLATE MODIFICATIONS SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 516 VERTICAL EXTENSION OF STRUCTURAL EXPANSION JOINTS, AS PER PLAN.

RETROFITTED STRUCTURES

33770

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

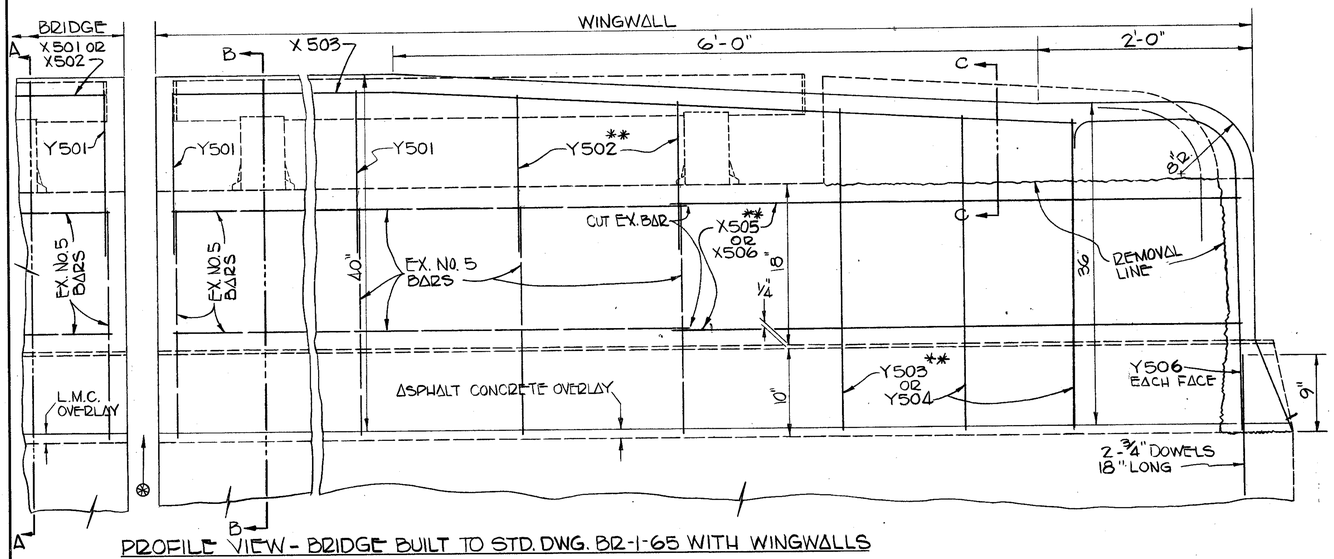
88
91

SUM-271-0.82

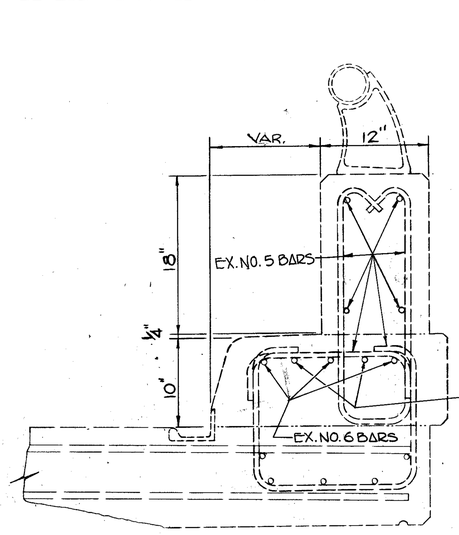
** EXACT LENGTH TO BE DETERMINED IN THE FIELD

REMOVE SUPPORTED END POST, AS SHOWN BELOW BY REMOVAL LINES, AND ALLOW CLEARENCE FOR THE ADDITION OF THE Y508 BARS & DOWELS.

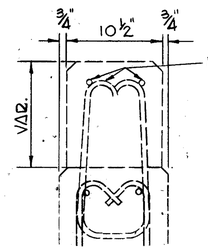
BY THIS NOTE ALL DETAIL SHEETS 87 88 89 90 ____ ____ ____ ARE REVISED TO SHOW THAT THE REINFORCING STEEL SHALL BE EPOXIED. ALL PROPOSED BARS THAT ARE SHOWN (EXAMPLE X501) SHALL BE READ (EXAMPLE XE501).



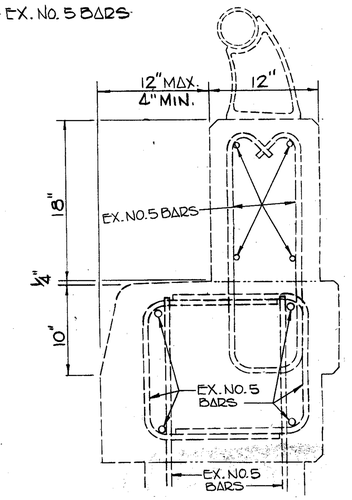
PROFILE VIEW - BRIDGE BUILT TO STD. DWG. BR-1-65 WITH WINGWALLS



SECTION A-A (EXISTING)



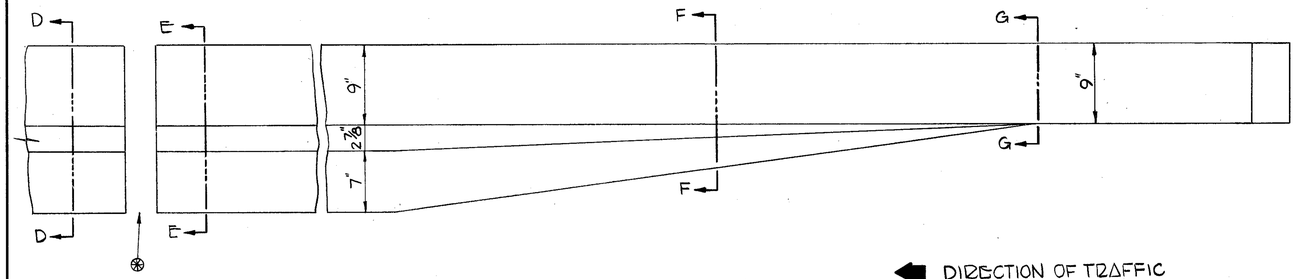
SECTION C-C (EXISTING)



SECTION B-B (EXISTING)

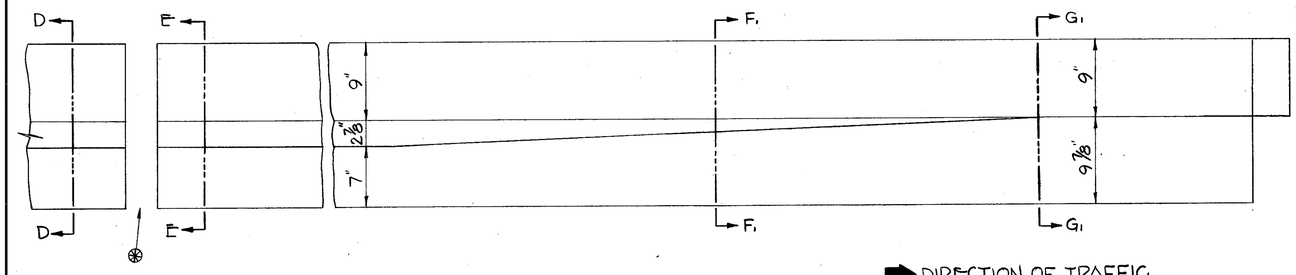
NOTE: FOR SECTIONS D-D TO G-G & F,-F, TO G,-G, SHOWING PROPOSED RETROFIT SEE SHT Nº 89

NOTE: PAYMENT FOR CURB PLATE MODIFICATIONS SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 516 VERTICAL EXTENSION OF STRUCTURAL EXPANSION JOINTS, AS PER PLAN.



PLAN VIEW APPROACH END

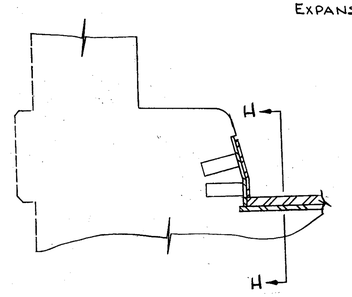
DIRECTION OF TRAFFIC



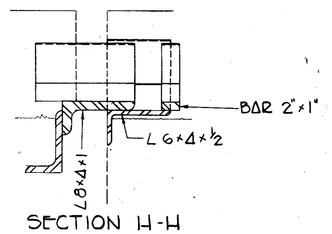
DIRECTION OF TRAFFIC

PLAN VIEW TRAILING END

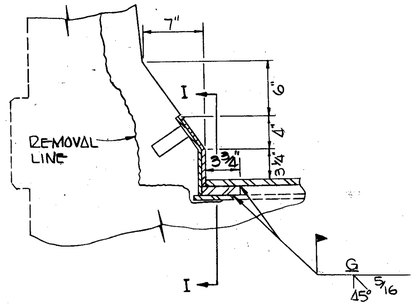
⊛ NOTE: SEE CURB PLATE DETAILS

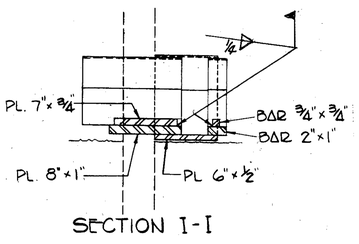


EXISTING CURB PLATE



SECTION H-H





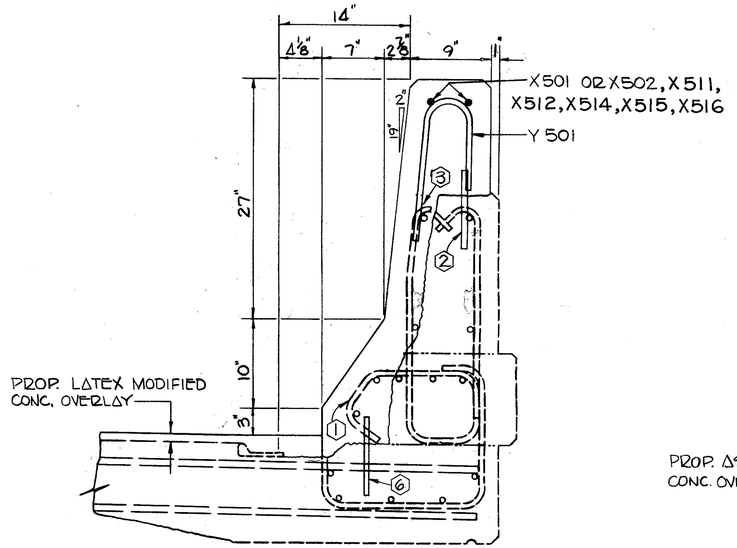
SECTION I-I

PROPOSED CURB PLATE MODIFICATIONS FOR LATEX MODIFIED CONCRETE OVERLAY

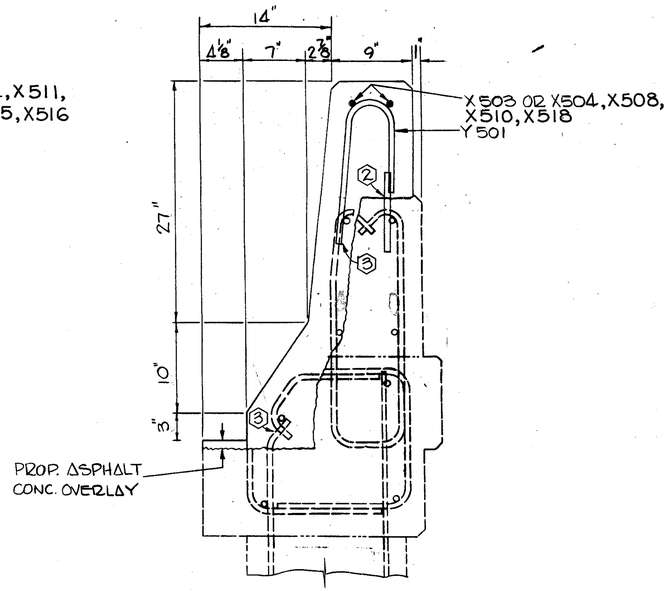
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

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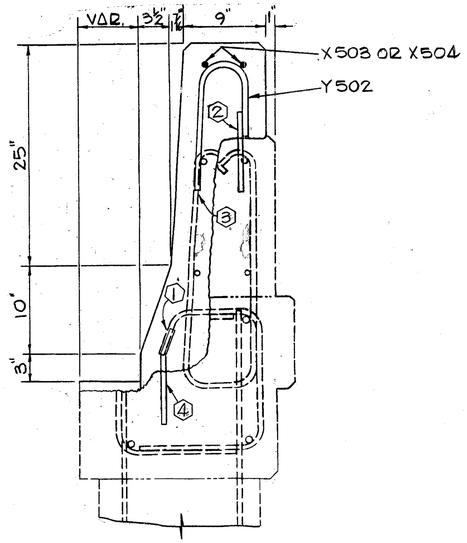
SUM-271-0.82



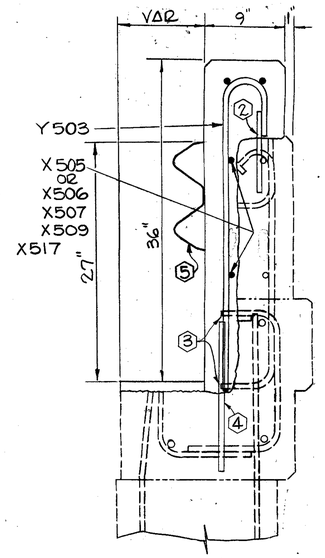
SECTION D-D



SECTION E-E



SECTION F-F



SECTION G-G

REMOVE VERTICAL LEG OF BULB ANGLE, IF REMAINING BULB ANGLE BECOMES LOOSE, IS DAMAGED OR IF UNSOUND CONCRETE EXISTS UNDERNEATH THE BULB ANGLE THE CONTRACTOR SHALL REMOVE THE ENTIRE BULB ANGLE.

COST OF THE ABOVE WORK SHALL BE INCLUDED FOR PAYMENT UNDER ITEM 202-PORTIONS OF STRUCTURES REMOVED.

RECONSTRUCT PARAPET USING ITEM 511-CONCRETE, SUPERSTRUCTURE AS PER PLAN.

SCARIFY ALL EXISTING SURFACES TO BE IN CONTACT WITH FRESH CONCRETE.

INSTALL DEFLECTION JOINTS AS PER STD. CONSTRUCTION DRAWING BR-1 SPACING SHALL COINCIDE WITH EXISTING DEFLECTION JOINT LOCATIONS.

ALL DOWELS & REINFORCING STEEL SHALL BE EPOXY COATED. THIS WILL BE INCLUDED FOR PAYMENT UNDER ITEM 824-EPOXY COATED REINFORCING STEEL, GRADE 60.

RAILING AND POSTS SHALL BE REMOVED AND DELIVERED TO THE STATE MAINTENANCE YARD ON
705 Oakwood Street
Ravenna, Ohio

(1) CUT EXISTING No 5 REBAR, BEND AND TIE TO ¾" DOWEL BARS
¾" x 12" DOWEL BARS AS PER 709.01, 709.13

(2) 709.03 & 709.05. DOWELS SHALL BE SET IN EXISTING CONCRETE TO A DEPTH OF 6" AND 18" ℄ MAX.

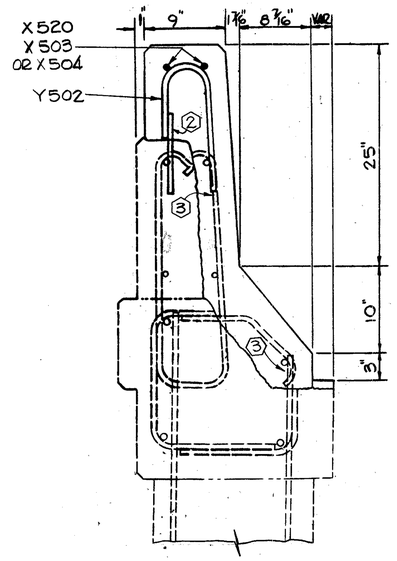
(3) TIE TO EXISTING STEEL

(4) ¾" x 18" DOWEL BARS AS PER 709.01, 709.03, 709.05 & 709.13. DOWELS SHALL BE SET IN EXISTING CONCRETE TO A DEPTH OF 9" AND 18" ℄ MAX. BEND IN FIELD WHERE NECESSARY.

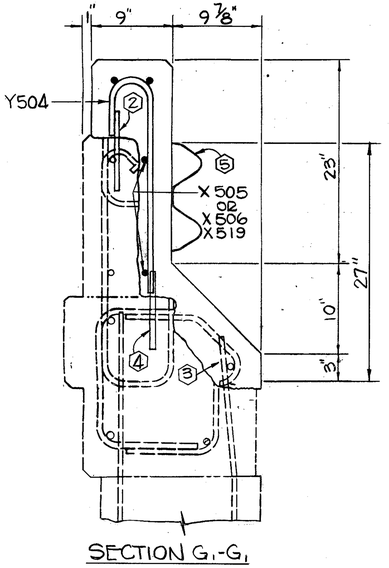
(5) BOTH TYPE A & TYPE J TERMINAL CONNECTORS SHALL BE FASTENED TO THE PROPOSED RETROFITTED PARAPET WITH 1-⅞" DIA. HEX HEAD BOLTS THROUGH THE PARAPET WITH 3"x3"x½" PLATE WASHERS AND HEX NUTS ON BACK OF PARAPET. SEE GR-3 & GR-3B

(6) ¾" x 16" DOWEL BARS AS PER 709.01, 709.03, 709.05 AND 709.13. DOWELS SHALL BE SET IN EXISTING CONCRETE TO A DEPTH OF 7" AND 18" ℄ MAX. BEND IN FIELD WHERE NECESSARY.

SEE SHEET NO. 91 FOR REINFORCING STEEL AND BENDING DIAGRAMS.



SECTION F.-F.



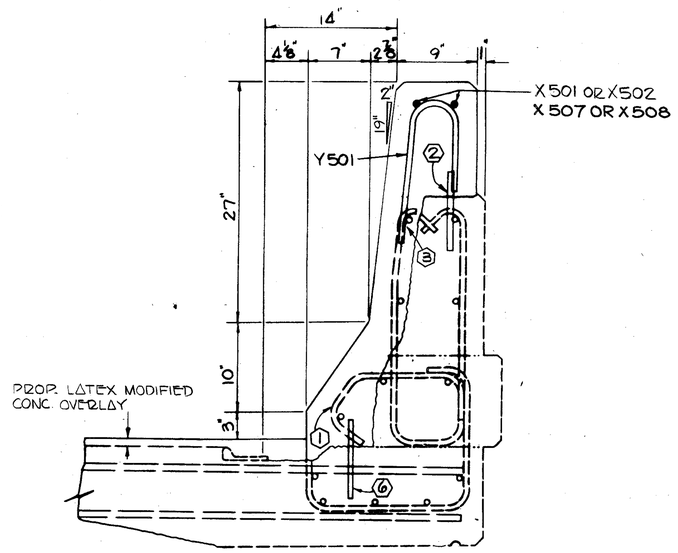
SECTION G.-G.

RETROFIT SECTIONS

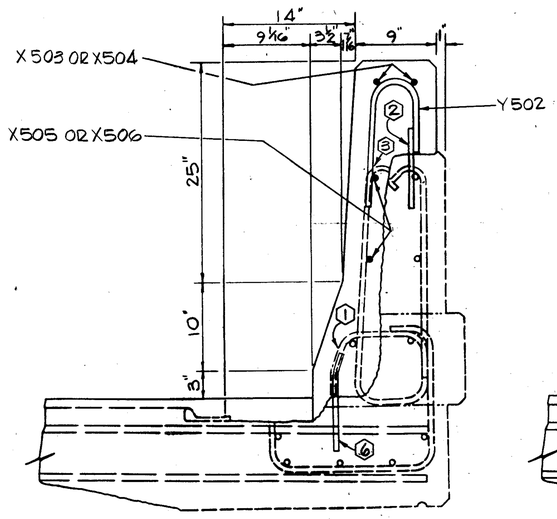
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

SUM-271-0.82

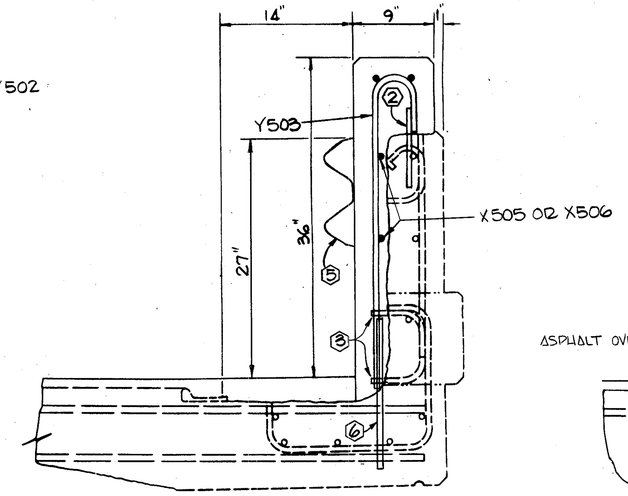
90
91



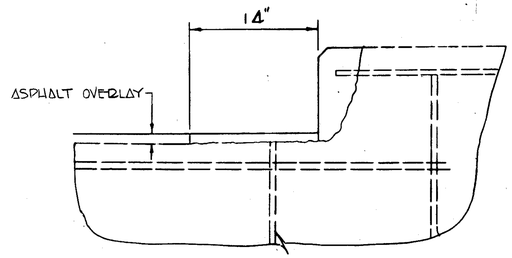
SECTIONS D-D & D1-D1



SECTION E-E



SECTION F-F



SECTION G-G

REMOVE VERTICAL LEG OF BULB ANGLE, IF REMAINING BULB ANGLE BECOMES DAMAGED, LOOSE OR IF UNSOUND CONCRETE EXISTS UNDERNEATH THE BULB ANGLE THE CONTRACTOR SHALL REMOVE THE ENTIRE BULB ANGLE. COST FOR THE ABOVE WORK SHALL BE INCLUDED FOR PAYMENT UNDER ITEM 202 - PORTIONS OF STRUCTURES REMOVED.

RECONSTRUCT PARAPET USING ITEM 511-CONCRETE, SUPERSTRUCTURE AS PER PLAN.

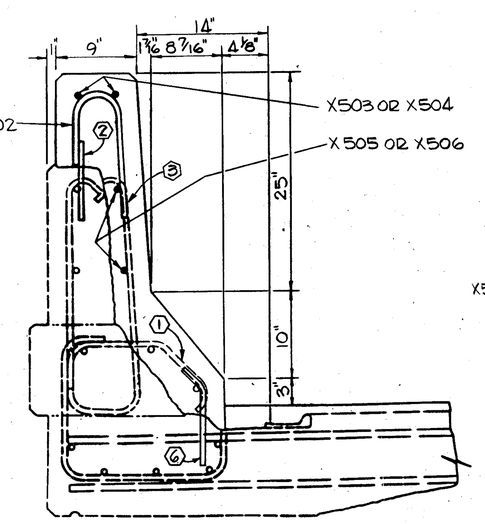
SCARIFY ALL EXISTING SURFACES TO BE IN CONTACT WITH FRESH CONCRETE.

INSTALL DEFLECTION JOINTS AS PER STD. CONSTRUCTION DRAWING BR-1 SPACING SHALL COINCIDE WITH EXISTING DEFLECTION JOINT LOCATIONS.

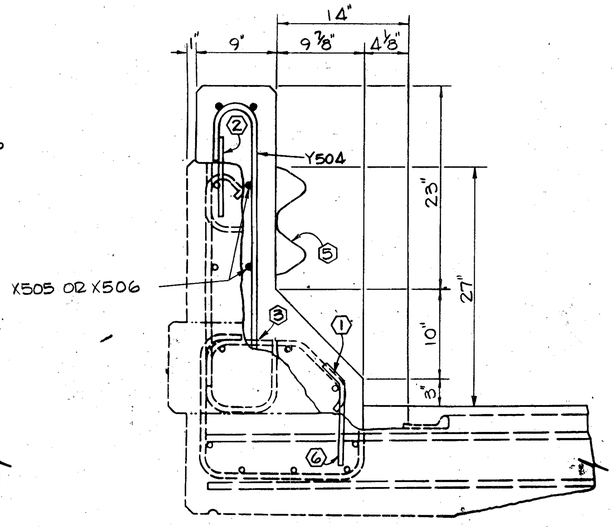
ALL DOWELS & REINFORCING STEEL SHALL BE EPOXY COATED. THIS WILL BE INCLUDED FOR PAYMENT UNDER ITEM 824 - EPOXY COATED REINFORCING STEEL, GRADE 60.

RAILING AND POSTS SHALL BE REMOVED AND DELIVERED TO THE STATE MAINTENANCE YARD ON
705 Oakwood Street
Ravenna, Ohio

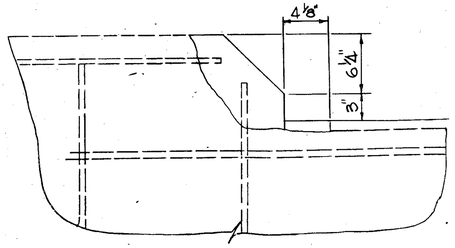
1. CUT EXISTING No 5 REBAR, BEND AND TIE TO ¾" DOWEL BARS.
2. ¾" x 12" DOWEL BARS AS PER 709.01, 709.13, 709.03 OR 709.05. DOWELS SHALL BE SET IN EXISTING CONCRETE TO A DEPTH OF 6" AND 18" c/c MAX.
3. TIE TO EXISTING STEEL
4. ¾" x 18" DOWEL BARS AS PER 709.01, 709.03, 709.05 & 709.13. DOWELS SHALL BE SET IN EXISTING CONCRETE TO A DEPTH OF 9" AND 18" c/c MAX. BEND IN FIELD WHERE NECESSARY.
5. TERMINAL CONNECTORS SHALL BE FASTENED TO THE PROPOSED RETROFITTED PARAPET WITH 4-⅞" DIA. HEX HEAD BOLTS THROUGH THE PARAPET WITH 3" x 3" x ½" PLATE WASHERS AND HEX NUTS ON BACK OF PARAPET. SEE GR-3 & GR-3B.
6. ¾" x 16" DOWEL BARS AS PER 709.01, 709.03, 709.05 AND 709.13 DOWELS SHALL BE SET IN EXISTING CONCRETE TO A DEPTH OF 7" AND 18" C/C MAX. BEND IN FIELD WHERE NECESSARY.



SECTION E1-E1



SECTION F1-F1



SECTION G1-G1

SEE SHEET NO. 91 FOR REINFORCING STEEL AND BENDING DIAGRAMS.

RETROFIT SECTIONS

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P91-MUC-38

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

91/91

SUM-271-0.82

SUM-271-0295

MARK	No.	LENGTH	WEIGHT	SHAPE
Y501	506	2'6"	1320	BENT
Y502	8	2'6"	21	"
Y503	8	3'10"	32	"
Y506	8	4'5"	37	"
X501	8	4'5"	37	STRAIGHT
X502	84	14'7"	1278	"
X503	8	13'3"	111	"
X505	8	7'8"	64	"
DOWELS	522	1'0"	784	"
DOWELS	24	1'-6"	54	"
DOWELS	478	1'-4"	957	"
TOTAL			4695 LBS.	

SUM-271-0354

MARK	No.	LENGTH	WEIGHT	SHAPE
Y501	504	2'6"	1315	BENT
Y502	18	2'6"	47	"
Y503	4	3'10"	16	"
Y504	4	3'0"	13	"
Y506	8	4'5"	37	"
X501	8	10'5"	87	STRAIGHT
X502	76	12'11"	1025	"
X503	2	15'10"	33	"
X504	2	17'4"	37	"
X505	8	6'7"	55	"
X511	8	9'10"	82	"
X512	8	12'1"	101	"
X513	2	13'0"	28	"
X514	2	14'0"	30	"
DOWELS	530	1'0"	796	"
DOWELS	480	1'-4"	961	"
DOWELS	29	1'-6"	65	"
TOTAL			4728 LBS.	

SUM-271-0378 RIGHT

MARK	No.	LENGTH	WEIGHT	SHAPE
DOWELS	172	1'-4"	345	STRAIGHT
DOWELS	24	1'-6"	54	"
Y501	187	2'6"	488	BENT
Y502	16	2'6"	42	"
Y503	4	3'10"	16	"
Y504	4	3'0"	13	"
Y506	8	4'5"	37	"
X501	28	14'2"	418	STRAIGHT
X502	8	11'4"	95	"
X503	2	10'10"	23	"
X504	4	9'10"	41	"
X505	2	6'7"	14	"
X506	6	6'8"	42	"
X508	2	12'10"	27	"
DOWELS	213	1'0"	329	"
TOTAL			1984 LBS.	

LEFT

MARK	No.	LENGTH	WEIGHT	SHAPE
DOWELS	172	1'-4"	345	STRAIGHT
DOWELS	24	1'-6"	54	"
Y501	186	2'6"	485	BENT
Y502	16	2'6"	42	"
Y503	4	3'10"	16	"
Y504	4	3'0"	13	"
Y506	8	4'5"	37	"
X501	28	14'2"	414	STRAIGHT
X502	8	11'4"	95	"
X503	4	10'10"	46	"
X504	4	9'10"	41	"
X505	4	6'7"	28	"
X506	4	6'8"	28	"
DOWELS	210	1'0"	316	"
TOTAL			1960 LBS.	

SUM-271-0602

MARK	No.	LENGTH	WEIGHT	SHAPE
Y501	504	2'6"	1315	BENT
Y502	20	2'6"	53	"
Y503	8	3'10"	32	"
X501	8	10'7"	89	STRAIGHT
X502	8	12'10"	107	"
X503	8	15'2"	127	"
X505	8	6'9"	57	"
X507	8	10'11"	92	"
X508	76	13'2"	1044	"
Y506	8	4'5"	37	BENT
DOWELS	532	1'0"	799	STRAIGHT
DOWELS	36	1'-6"	78	"
DOWELS	480	1'-4"	361	"
TOTAL			4791 LBS.	

SUM-271-0658

RIGHT

MARK	No.	LENGTH	WEIGHT	SHAPE
Y501	322	2'6"	840	BENT
Y502	18	2'6"	47	"
Y503	4	3'10"	16	"
Y504	4	3'0"	13	"
Y506	8	4'5"	37	"
X511	26	14'4"	389	STRAIGHT
X514	4	11'0"	46	"
X515	26	14'6"	394	"
X516	4	11'1"	47	"
X517	4	6'9"	29	"
X518	4	17'2"	72	"
X519	4	7'4"	31	"
X520	4	16'4"	69	"
DOWELS	348	1'0"	515	"
DOWELS	292	1'-4	585	"
DOWELS	29	1'-6"	65	"
TOTAL			3195 LBS.	

LEFT

MARK	No.	LENGTH	WEIGHT	SHAPE
Y501	346	2'6"	903	BENT
Y502	18	2'6"	47	"
Y503	4	3'10"	16	"
Y504	3	3'0"	10	"
Y506	8	4'5"	37	"
X501	28	14'2"	414	STRAIGHT
X502	4	11'5"	48	"
X503	2	19'6"	41	"
X504	2	18'3"	38	"
X505	2	6'10"	15	"
X506	2	6'6"	14	"
X507	2	7'7"	16	"
X508	2	19'4"	41	"

LEFT (CONT.)

MARK	No.	LENGTH	WEIGHT	SHAPE
X509	2	7'9"	17	STRAIGHT
X510	2	16'7"	35	"
X511	28	14'4"	419	"
X512	4	11'2"	47	"
DOWELS	378	1'0"	568	"
DOWELS	312	1'-4"	625	
DOWELS	25	1'-6"	56	
TOTAL			3407 LBS.	

SUM-271-0834

RIGHT

MARK	No.	LENGTH	WEIGHT	SHAPE
Y501	202	2'6"	527	BENT
Y502	16	2'6"	42	"
Y503	2	3'10"	8	"
Y504	4	3'0"	13	"
Y505	8	5'1"	43	"
X501	28	13'8"	400	STRAIGHT
X502	4	11'5"	48	"
X503	4	12'0"	50	"
X504	4	12'8"	53	"
X505	4	13'6"	57	"
X506	4	14'3"	60	"
X507	4	20'1"	84	"
DOWELS	224	1'0"	337	"
DOWELS	232	1'-4"	465	"
TOTAL			2187 LBS.	

LEFT

MARK	No.	LENGTH	WEIGHT	SHAPE
Y501	236	2'6"	616	BENT
Y502	16	2'6"	42	"
Y503	4	3'10"	16	"
Y504	4	3'0"	13	"
Y505	8	5'1"	43	"
X501	44	12'10"	589	STRAIGHT
X502	4	10'9"	45	"
X503	4	13'0"	55	"
X504	4	4'7"	20	"
X505	4	13'11"	58	"
X506	4	6'0"	25	"
X507	4	10'7"	45	"
DOWELS	260	1'0"	391	"
DOWELS	268	1'-4"	537	"
TOTAL			2435 LBS.	

SUM-271-1117

RIGHT

MARK	No.	LENGTH	WEIGHT	SHAPE
Y501	194	2'6"	506	BENT
Y502	16	2'6"	42	"
Y503	4	3'10"	16	"
Y504	4	3'0"	13	"
Y506	8	4'5"	37	"
X501	8	10'10"	91	STRAIGHT
X502	32	13'4"	445	"
X503	2	10'2"	22	"
X504	6	12'8"	80	"
X505	8	6'10"	57	"
DOWELS	224	1'0"	337	"
DOWELS	34	1'-6"	77	"
DOWELS	176	1'-4"	353	"
TOTAL			2076 LBS.	

LEFT

MARK	No.	LENGTH	WEIGHT	SHAPE
Y501	194	2'6"	506	BENT
Y502	16	2'6"	42	"
Y503	4	3'10"	16	"
Y504	4	3'0"	13	"
Y506	8	4'5"	37	"
X501	8	10'10"	91	STRAIGHT
X502	32	13'4"	445	"
X503	2	10'2"	22	"
X504	6	12'8"	80	"
X505	8	6'10"	57	"
DOWELS	224	1'0"	337	"
DOWELS	34	1'-6"	77	"
DOWELS	176	1'-4"	353	"
TOTAL			2076 LBS.	

SUM-271-1122

RIGHT

MARK	No.	LENGTH	WEIGHT	SHAPE
Y501	186	2'6"	485	BENT
Y502	8	2'6"	21	"
Y503	4	3'10"	16	"
Y504	4	3'0"	13	"
Y505	8	5'1"	43	"
X501	32	15'6	518	STRAIGHT
X503	8	13'1"	110	"
X505	8	14'6"	121	"
DOWELS	202	1'0"	304	"
DOWELS	210	1'-4"	421	"
TOTAL			2052 LBS.	

LEFT

MARK	No.	LENGTH	WEIGHT	SHAPE
Y501	186	2'6"	485	BENT
Y502	8	2'6"	21	"
Y503	4	3'10"	16	"
Y504	4	3'0"	13	"
Y505	8	5'1"	43	"
X501	32	15'6"	518	STRAIGHT
X503	8	13'1"	110	"
X505	8	14'6"	121	"
DOWELS	202	1'0"	304	"
DOWELS	210	1'-4"	421	"
TOTAL			2052 LBS.	

SUM-271-0802

RIGHT

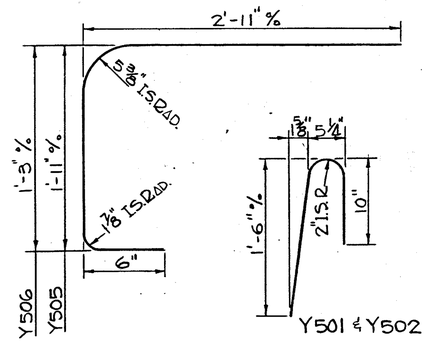
MARK	No.	LENGTH	WEIGHT	SHAPE
Y501	1976	2'6"	5153	BENT
Y502	16	2'6"	42	"
Y503	6	3'10"	24	"
Y504	6	3'0"	19	"
Y505	8	5'1"	43	"
X501	348	15'8"	5688	STRAIGHT
X502	8	9'8"	81	"
X503	4	18'2"	75	"
X504	4	19'8"	83	"
X505	4	19'10"	83	"
X506	4	21'5"	90	"
DOWELS	2004	1'0"	3010	"
DOWELS	2012	1'-4"	4029	"
TOTAL			18,420 LBS.	

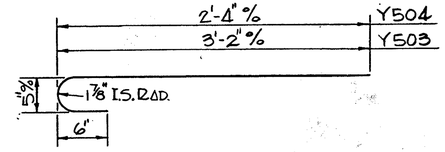
LEFT

MARK	No.	LENGTH	WEIGHT	SHAPE
Y501	2038	2'6"	5315	BENT
Y502	12	2'6"	32	"
Y503	6	3'10"	24	"
Y504	6	3'0"	19	"
Y505	8	5'1"	43	"
X501	360	15'8"	5884	STRAIGHT
X502	8	9'8"	81	"
X503	4	12'6"	53	"
X504	4	20'0	84	"
X505	4	21'10"	92	"
X506	4	14'5"	61	"
DOWELS	2062	1'0"	3097	"
DOWELS	2070	1'-4"	4146	"
TOTAL			18,931 LBS.	

MARK	No.	LENGTH	WEIGHT	SHAPE

MARK	No.	LENGTH	WEIGHT	SHAPE





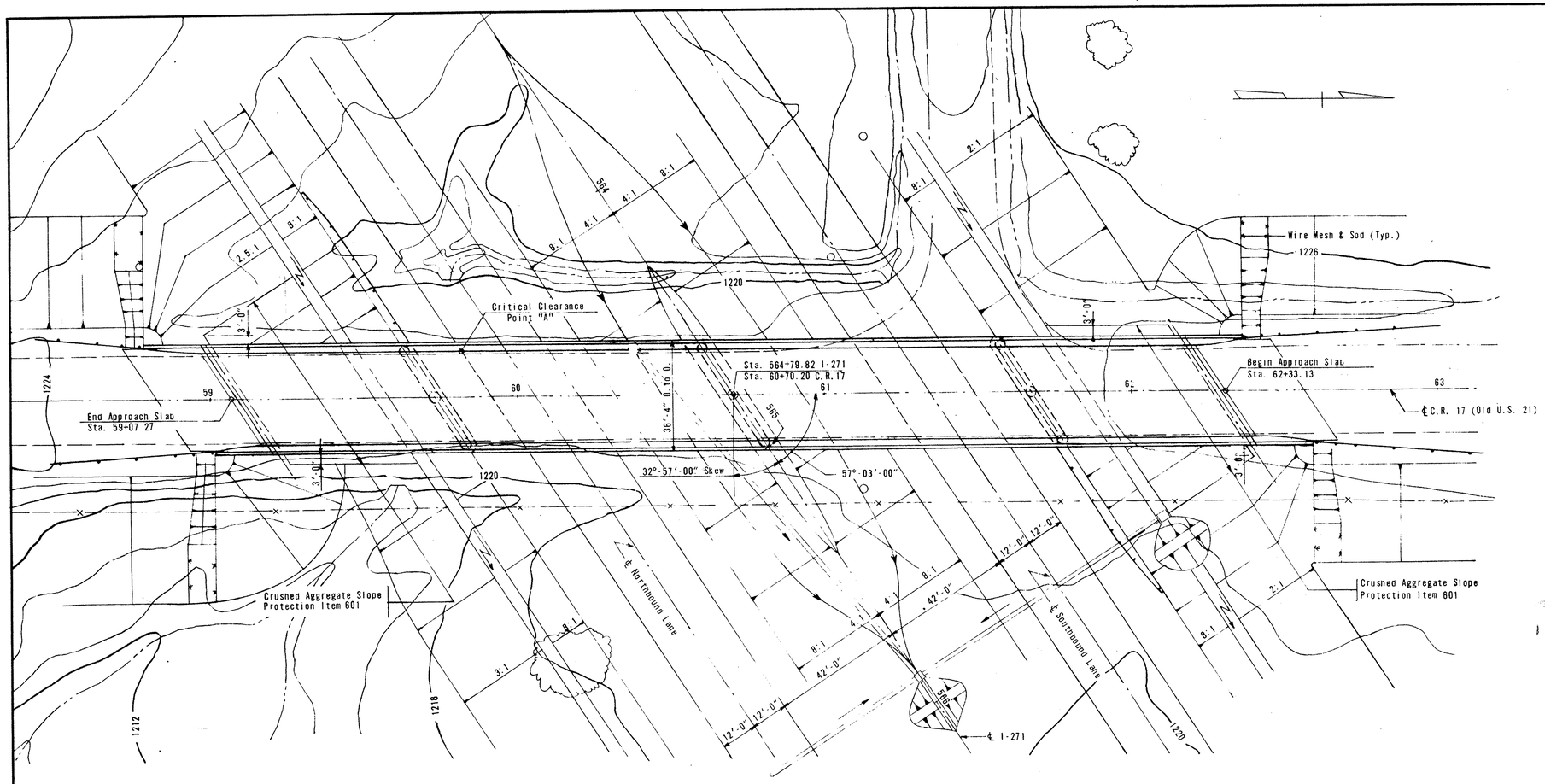
REINFORCING STEEL & BENDING DIAGRAMS

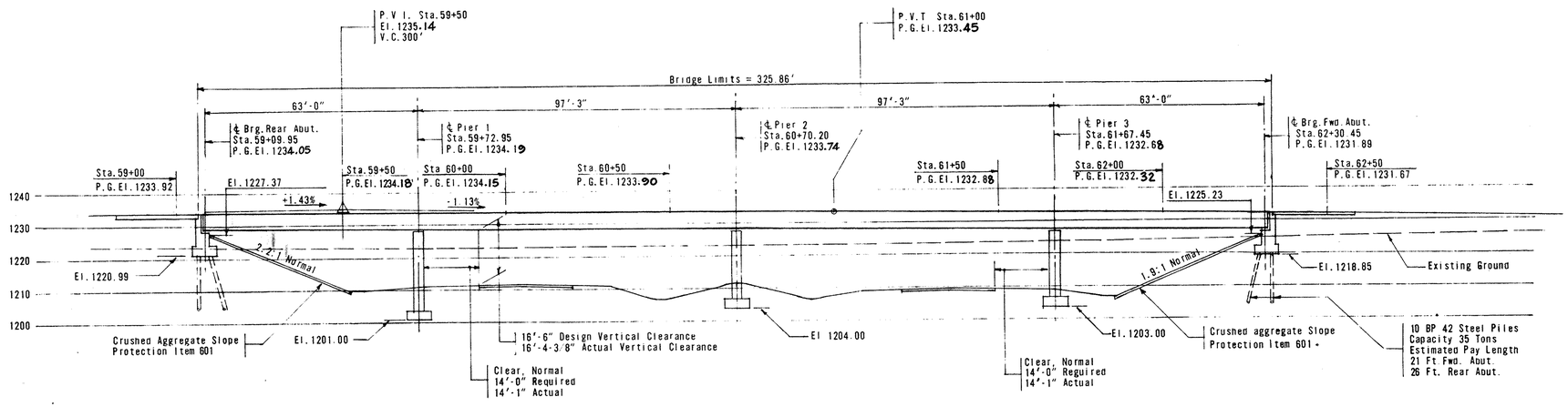
[redacted]

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(CHANGE ORDER)





EXIST. STRUCTURE

TYPE: Continuous welded girders with reinforced concrete deck and substructure.
SPANS. 63'-0"; 97'-3"; 97'-3"; 63'-0"
ROADWAY: 30'-0" face to face of 2'-0" safety curbs.
LOAD FREQUENCY: C.F. = 2.000(57).
SKEW. 32°-57'-00"(R.F.)
WEARING SURFACE: 1" Monolithic concrete.
APPROACH SLABS: AS-1-54 (25' long)
ALIGNMENT. Tangent

PROPOSED WORK

- REMOVE EXISTING DECK
- REPLACE DECK, WITH DEFLECTOR TYPE PARAPETS, NEW SCUPPERS, RE-USE EXISTING END DAMS PROFILE GRADE AS SHOWN (1" HIGHER THAN EXISTING)
- REMOVE CURBS AND PARAPETS ON ABUTMENTS, REPLACE WITH DEFLECTOR TYPE PARAPETS.
- INSTALL BRIDGE TERMINAL ASSEMBLIES.

[redacted]

SITE PLAN

BRIDGE NO. SUM-271-0295
INTERSTATE HIGHWAY #271 UNDER
SUMMIT COUNTY ROAD NO.17

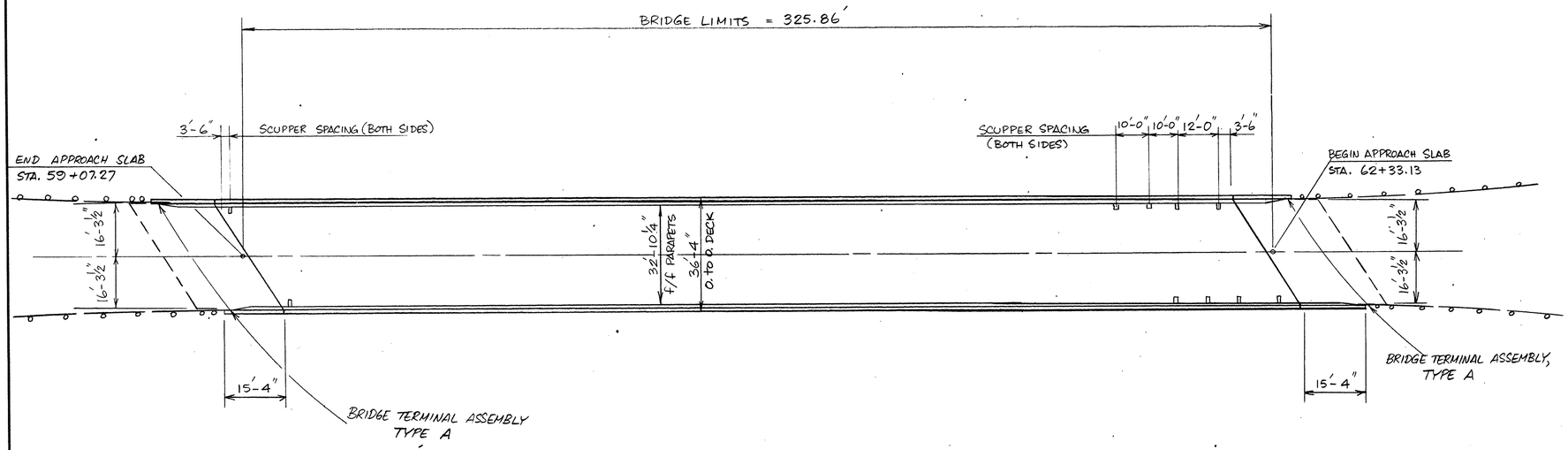
SUMMIT CO. STA.564+79.82

[redacted]

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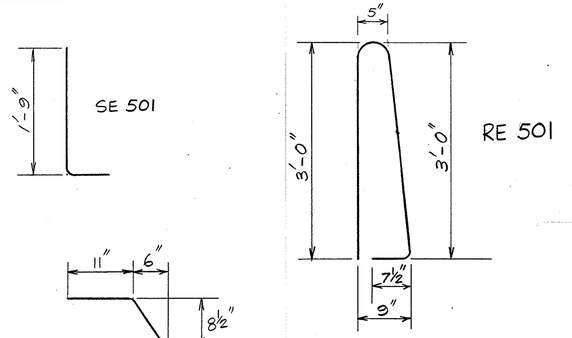
SUM-271-0.82
(CHANGE ORDER)



GENERAL PLAN

SUPERSTRUCTURE

REINFORCING STEEL LIST & BENDING DIAGRAMS



MARK	No.	LENGTH	WEIGHT	SHP.
SE 501	448	2'-5½"	1149	B
SE 502	448	3'-6"	1635	B
SE 601	451	35'-8"	24161	S
SE 602	567	37'-6"	31936	S
SE 603	66	39'-0"	4218	S
SE 604	4	22'-10"	137	S
SE 605	6	6'-0"	54	S
SE 606 TO SE 633	2 Series of 28	33'-0" TO 6'-3"	1651	S
SE 701	451	35'-8"	32879	S
SE 702	4	23'-0"	188	S
SE 703	6	6'-0"	74	S
SE 704 TO SE 731	2 Series of 28	33'-0" TO 6'-3"	2246	S
RE 501	448	6'-10½"	3212	B
RE 502	168	14'-7"	2555	S
RE 502A	16	4'-5"	74	S
RE 503	36	37'-0"	1389	S
RE 601	36	37'-0"	2001	S
RE 602	6	39'-0"	352	S
		TOTAL	109911	Lbs.

NOTE

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, SE 603 IS A No. 6 SIZE BAR.

ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUTS.	GENERAL
202	100	Lin. Ft.	GUARDRAIL REMOVED			100
202	LUMP	SUM	PORTIONS OF STRUCTURES REMOVED		LUMP SUM	
202	LUMP	SUM	BRIDGE DECK REMOVED	LUMP SUM		
403	1	Cu. Yd	ASPHALT CONCRETE		1	
606	4	Each	BRIDGE TERMINAL ASSEMBLY, TYPE A			4
510	84	Each	DOWEL HOLES		84	
511	464	Cu. Yd.	CLASS "C" CONCRETE, SUPERSTRUCTURE	456	8	
518	10	Each	SCUPPERS, INCLUDING SUPPORTS	10		
824	110938	Lbs.	EPOXY COATED REINFORCING STEEL, GRADE 60	109911	1027	
SPEC.	720	Sq. Yd.	SEALING OF CONCRETE SURFACES	661	59	

REFERENCE SHOULD BE MADE TO :

STANDARD DRAWING	SD-1-69	DATED 6-12-69
	BR-1	DATED 5-29-79
	GR-3	DATED 1-21-85
SUPPLEMENTAL SPEC.	824	DATED 10-8-82

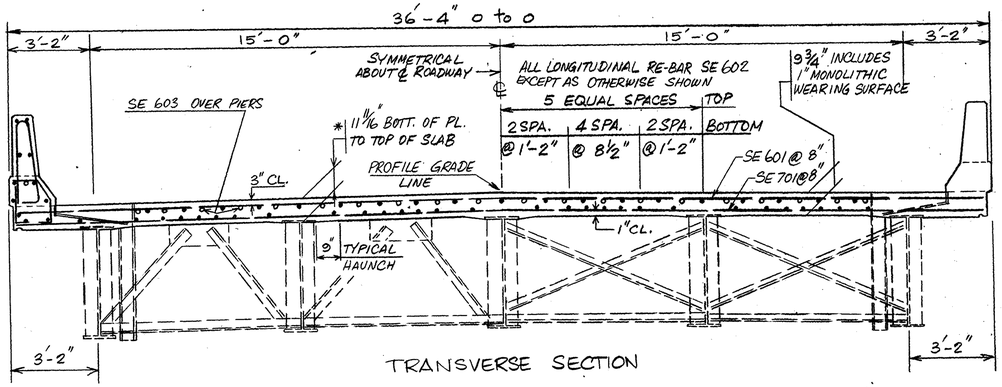
FOR REINFORCING STEEL LIST AND BENDING DIAGRAMS OF ABUTMENTS PARAPET RETROFITTING, SEE SHEET No. 6

BR. No. SUM-271-0295
UNDER C.H. 17

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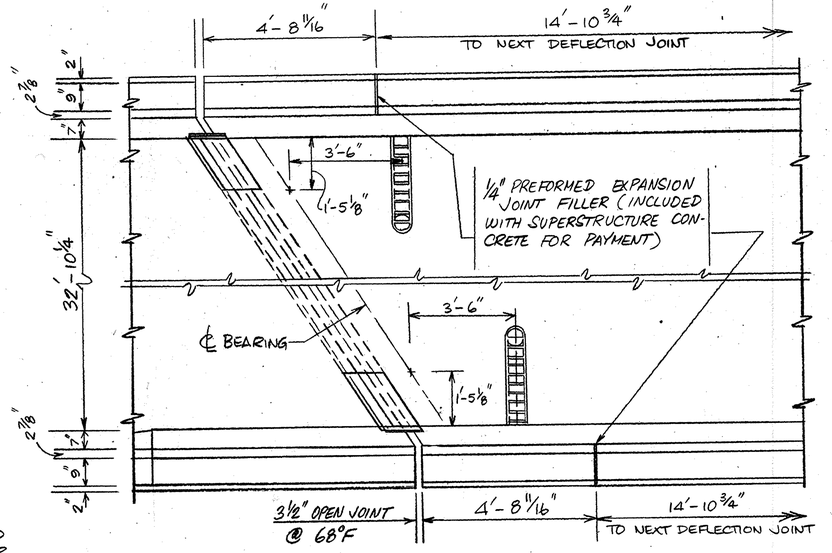


TRANSVERSE SECTION

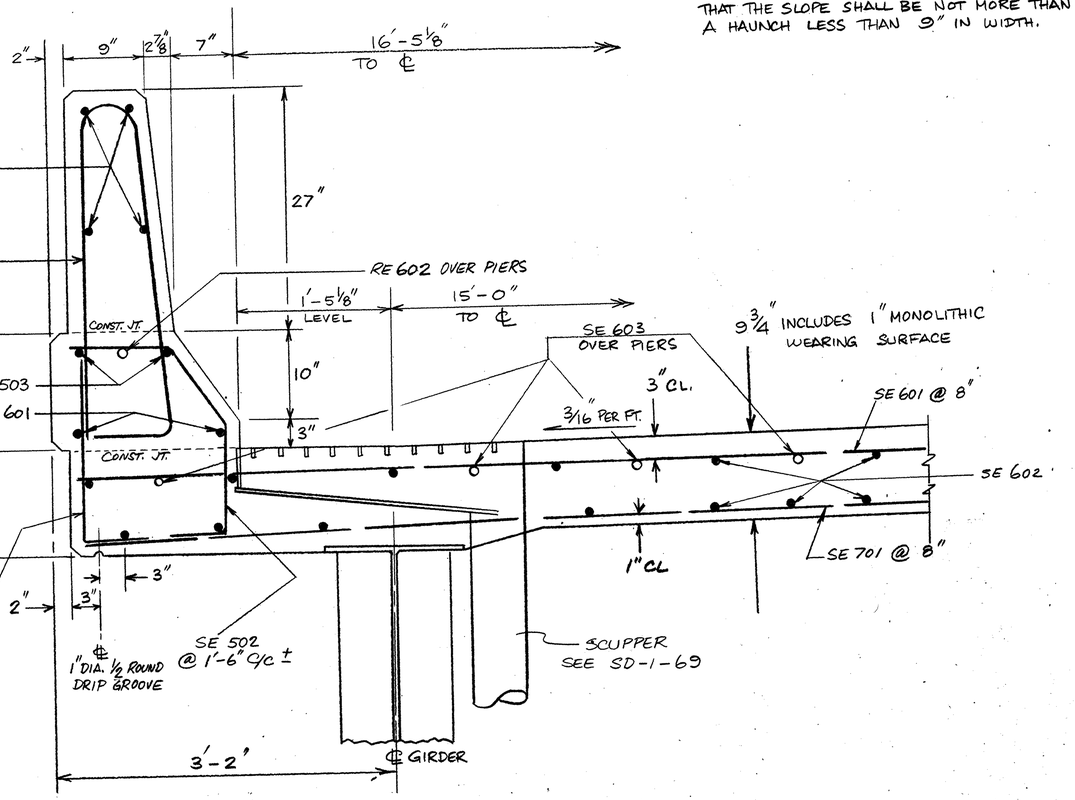
SEE PARAPET DETAIL BELOW

* THIS IS THE NOMINAL DIMENSION. THE QUANTITY OF DECK CONCRETE TO BE PAID FOR SHALL BE BASED UPON THIS DIMENSION, EVEN THOUGH DEVIATION FROM IT MAY BE NECESSARY BECAUSE THE TOP FLANGE OF THE GIRDER MAY NOT HAVE THE EXACT CAMBER OR CONFORMATION REQUIRED TO PLACE IT PARALLEL TO THE FINISHED GRADE. DEDUCTION SHALL BE MADE FOR VOLUME OF ENCASED STEEL PLATES AS PER SEC. 511.18 OF THE C.M.S.

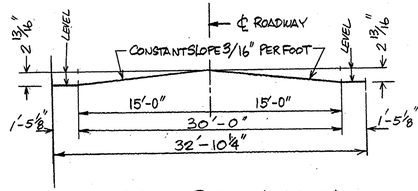
A TYPICAL HAUNCH WIDTH OF 9" SHALL BE USED FOR COMPUTING QUANTITY OF CONCRETE. HOWEVER, THE HAUNCH WIDTH MAY VARY FROM 6" TO 12" PROVIDED THAT THE SLOPE SHALL BE NOT MORE THAN 1:4 FOR A HAUNCH LESS THAN 9" IN WIDTH.



PART PLAN AT ABUTMENTS



PARAPET DETAIL



BRIDGE ROADWAY CROWN

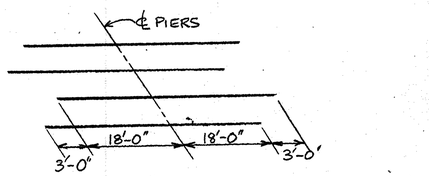
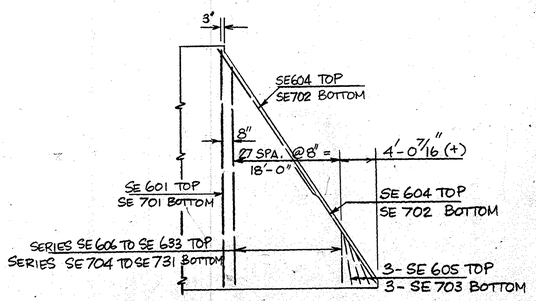


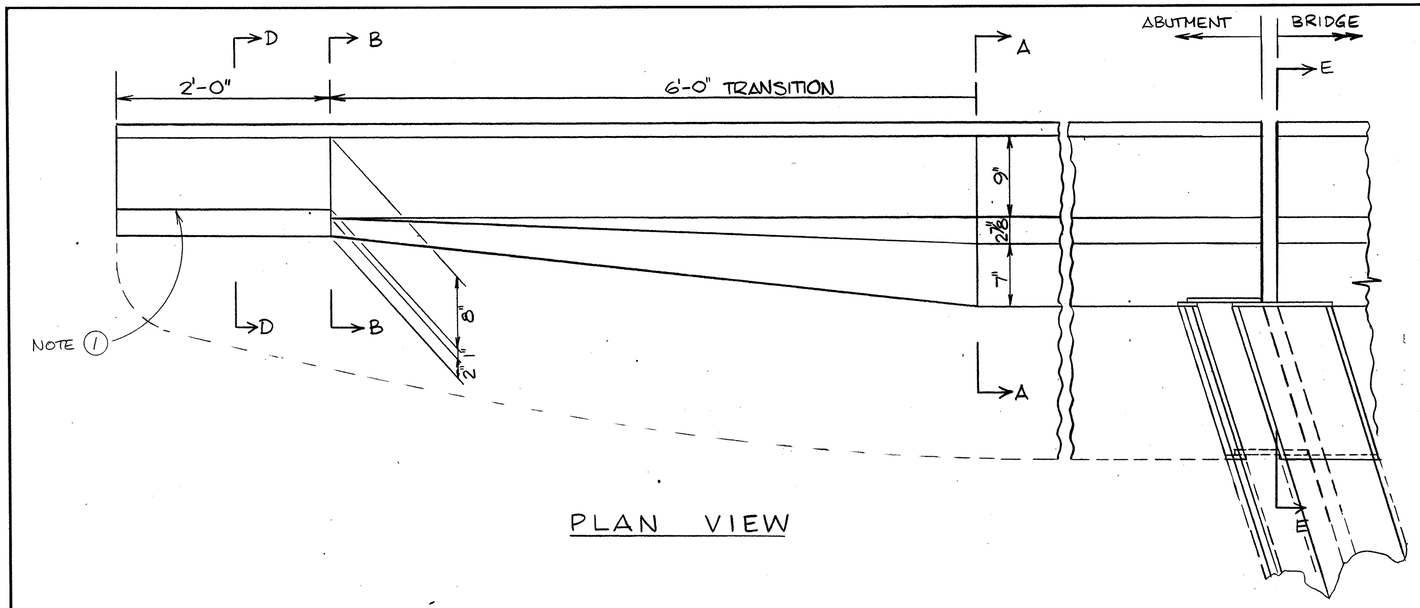
DIAGRAM SHOWING STAGGER OF SE 603 BARS OVER PIERS



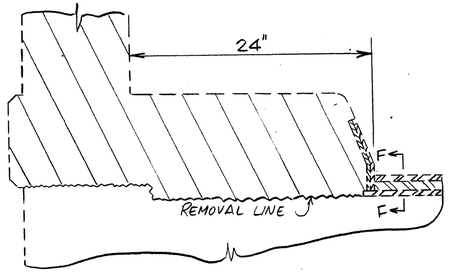
SLAB REINFORCING STEEL LAYOUT

BR. No. SUM-271-0295

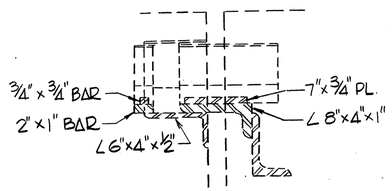
SUPERSTRUCTURE DETAILS



PLAN VIEW

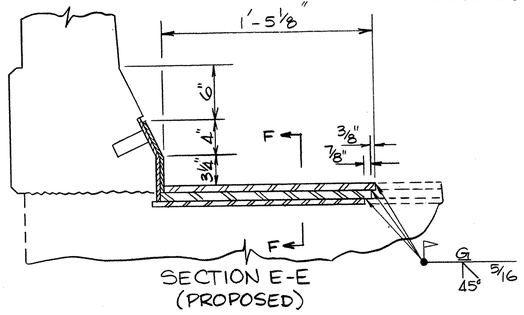


SECTION E-E
(EXISTING)

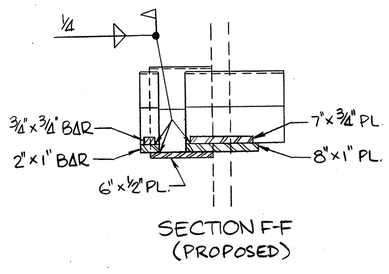


SECTION F-F
(EXISTING)

CURB PLATE DETAILS



SECTION E-E
(PROPOSED)



SECTION F-F
(PROPOSED)

NOTE : ALL COSTS FOR MATERIALS AND LABOR FOR THE MODIFICATION OF THE CURB PLATES AS SHOWN, TO BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 511 - CLASS "C" CONCRETE, SUPERSTRUCTURE.

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NOTE (1) TYPE A TERMINAL CONNECTORS SHALL BE FASTENED TO THE PROPOSED RETROFITTED PARAPET WITH 7/8" DIA. HEX HEAD BOLTS THROUGHT THE PARAPET WITH 3" BY 3" BY 1/2" PLATE, WASHERS AND HEX NUTS ON BACK OF PARAPET. (SEE GR-3)

NOTE (2) RAILINGS AND POSTS SHALL BE REMOVED AND DELIVERED TO THE DISTRICT 4 MAINTENANCE YARD AT

705 OAKWOOD STREET, RAVENNA, OHIO 44266

ITEM 202 - PORTIONS OF STRUCTURES REMOVED

IN ADDITION TO THE REMOVAL AREAS AS SHOWN ON THE PLAN, ALL LOOSE, SOFT, HONEYCOMBED AND DISINTEGRATED CONCRETE PLUS 1/4" DEPTH OF SOUND CONCRETE SHALL BE REMOVED. AFTER COMPLETION OF THE REMOVAL OPERATION, THE ENGINEER SHALL SOUND THE REMAINING CONCRETE TO INSURE THAT ONLY SOUND CONCRETE REMAINS. ALL WORK SHALL BE DONE IN SUCH A MANNER AS NOT TO DAMAGE OR SHATTER THE CONCRETE THAT IS TO REMAIN AND PREVENT THE REINFORCING STEEL THAT IS TO REMAIN FROM BEING CUT, ELONGATED OR DAMAGED IN ANY WAY. CONCRETE MAY BE REMOVED BY CHIPPING OR HAND DRESSING. CHIPPING HAMMERS SHALL NOT BE HEAVIER THAN THE NOMINAL 35 POUND CLASS.

NOT MORE THAN 24 HOURS PRIOR TO PLACING THE NEW PARAPET WALL, ALL SURFACES TO WHICH THE WALL IS TO BOND, INCLUDING EXPOSED REINFORCING AND STRUCTURAL STEEL, SHALL BE CLEANED BY ABRASIVE BLASTING OR AN APPROVED METHOD OF WATER BLASTING. THESE SURFACES SHALL BE MADE FREE OF SPALLS, LAITANCE AND ALL TRACES OF FOREIGN MATERIAL, IF NECESSARY, DETERGENT CLEANING SHALL PRECEDE BLAST CLEANING TO INSURE THE REMOVAL OF CONTAMINANTS DETRIMENTAL TO ACHIEVING AN ADEQUATE BOND.

ALL COSTS OF LABOR AND MATERIAL NECESSARY FOR THE OPERATION MENTIONED ABOVE SHALL BE PAID FOR UNDER THE LUMP SUM PRICE BID FOR

ITEM 202 - PORTIONS OF STRUCTURES REMOVED LUMP SUM

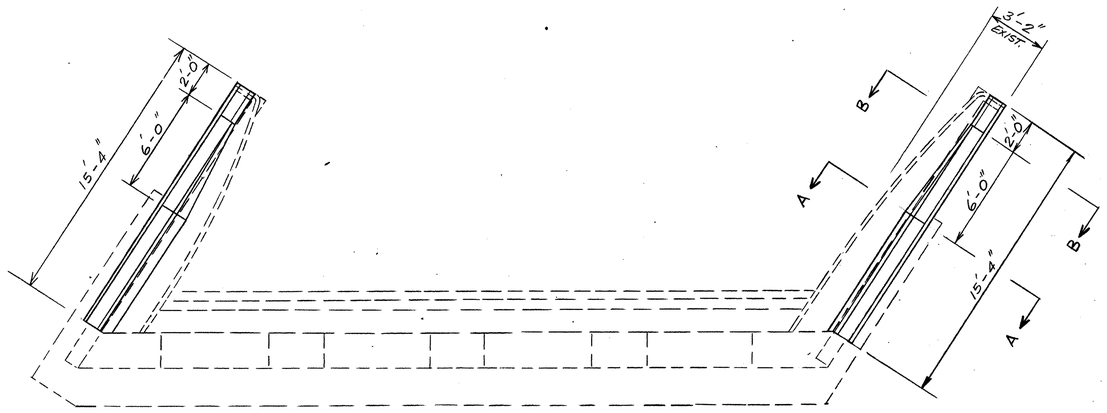
BR. No. SUM-271-0295

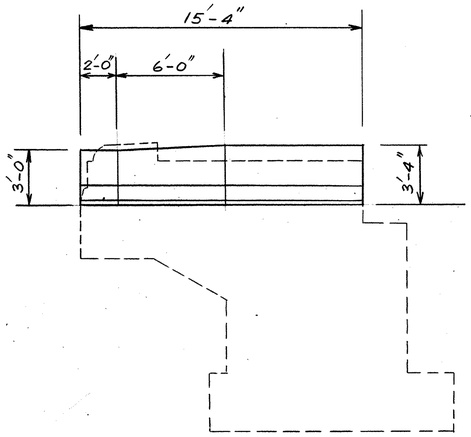
ABUTMENT PARAPETS

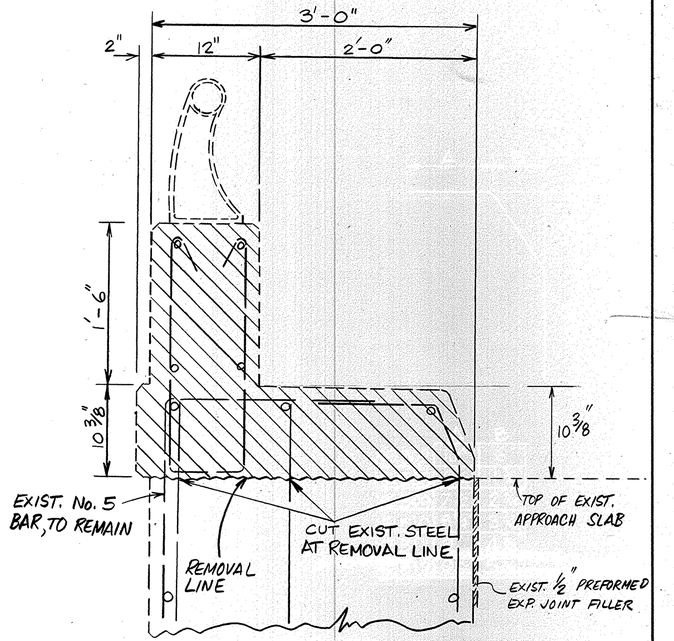
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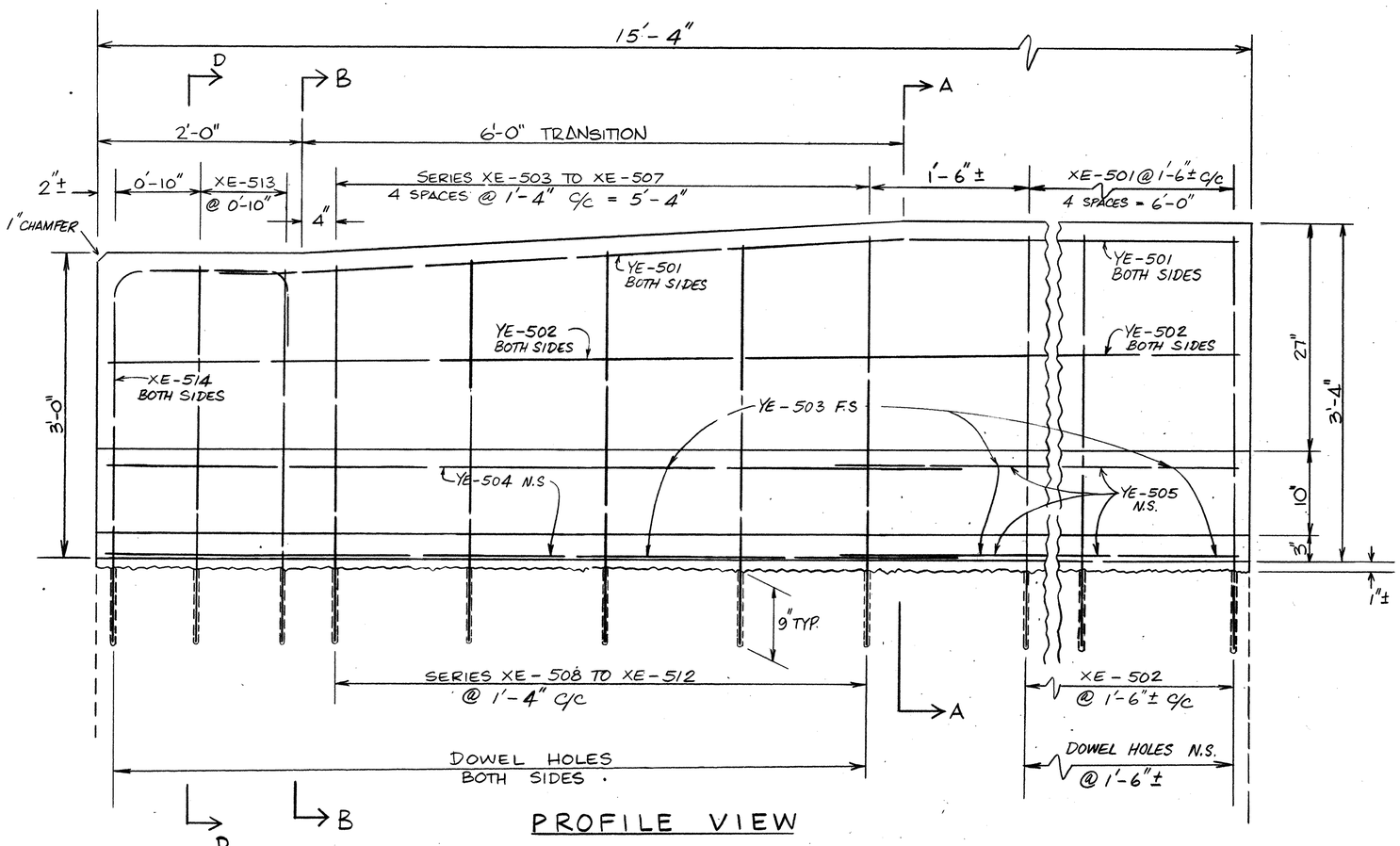
SUM-271-0.82
(CHANGE ORDER)



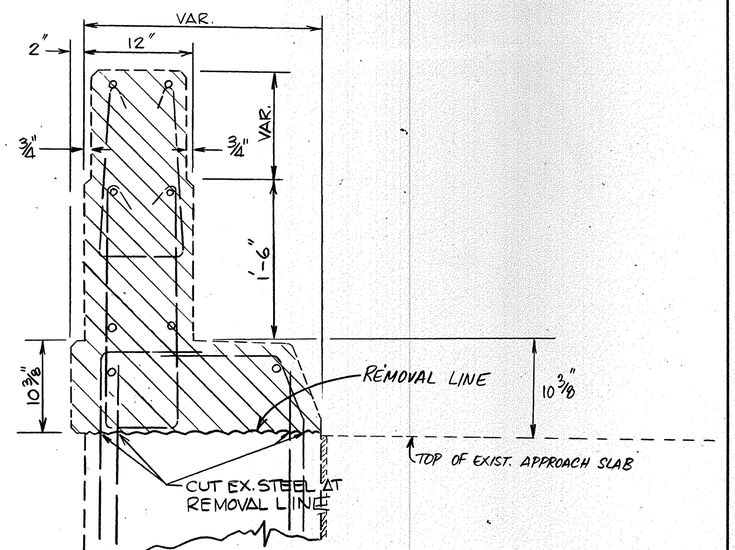




SECTION A-A
(EXISTING)



PROFILE VIEW



SECTION B-B
(EXISTING)

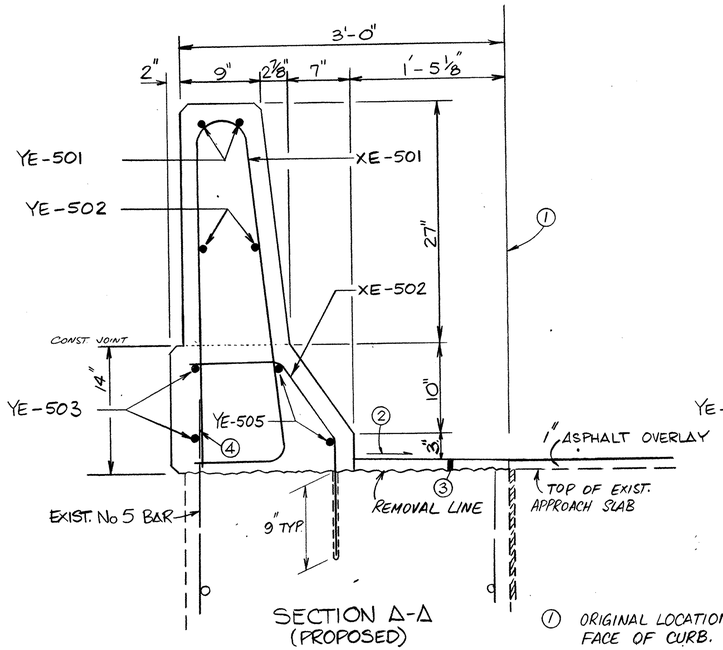
BR. No.
SUM-271-0295

ABUTMENT PARAPETS

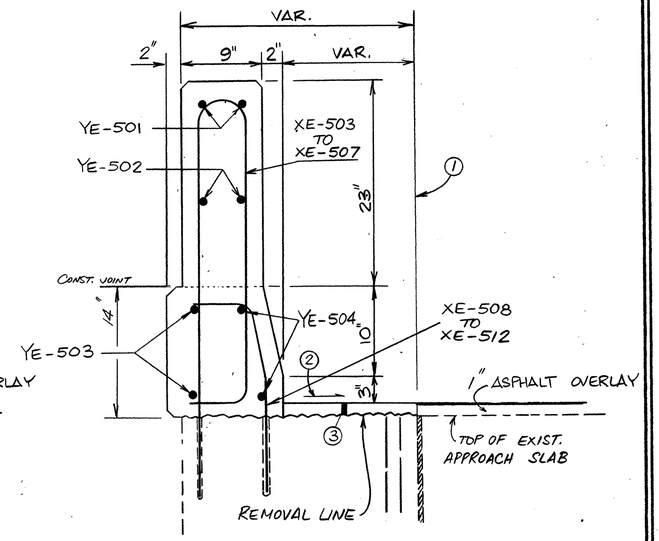
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SECTION A-A
(PROPOSED)



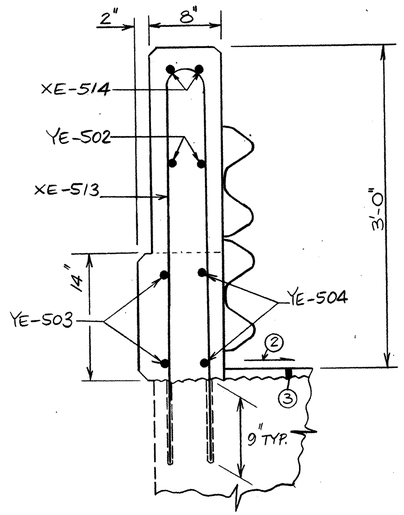
SECTION B-B
(PROPOSED)

① ORIGINAL LOCATION OF FACE OF CURB.

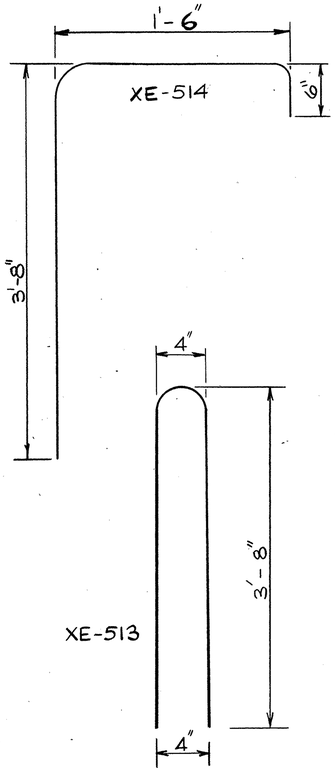
② SLOPE TO DRAIN

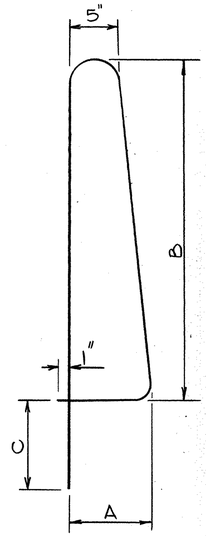
③ 403 - ASPHALT CONCRETE (1" THICK ±)

④ TIE TO EXISTING No. 5 BAR

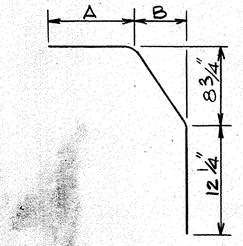


SECTION D-D
(PROPOSED)
SHOWING APPROACH END
WITH GUARDRAIL AND WHEEL GUARD





	A	B	C
XE501	2¼"	3'-2"	0"
XE503	4¼"	2'-10"	10"
XE504	5½"	2'-11"	10"
XE505	6¾"	3'-0"	10"
XE506	7¾"	3'-0¾"	10"
XE507	9"	3'-1¾"	10"



	A	B
XE502	10"	6"
XE508	6¾"	1¾"
XE509	7½"	2¾"
XE510	8¼"	3¾"
XE511	9"	4¾"
XE512	9¾"	5¾"

ABUTMENTS

REINFORCING STEEL LIST

MARK	No.	LENGTH	WEIGHT	SHAPE
XE 501	20	7'-2¾"	151	B
XE 502	20	2'-9"	57	B
XE 503	4	7'-0"	29	B
XE 504	4	7'-3"	30	B
XE 505	4	7'-6¼"	31	B
XE 506	4	7'-8¾"	32	B
XE 507	4	8'-0"	33	B
XE 508	4	2'-4"	10	B
XE 509	4	2'-5"	10	B
XE 510	4	2'-6"	10	B
XE 511	4	2'-7¼"	11	B
XE 512	4	2'-8½"	11	B
XE 513	8	7'-5"	62	B
XE 514	8	5'-5"	45	B
YE 501	8	14'-0"	117	STR.
YE 502	8	15'-0"	125	STR.
YE 503	8	15'-0"	125	STR.
YE 504	8	8'-7"	72	STR.
YE 505	8	7'-11"	66	STR.
DOWEL HOLES = 84 Ea.				
ABUTMENT TOTAL			1027	Lbs.

BR. No.
SUM-271-0295

ABUTMENT PARAPETS

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

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SUM-271-0.82
(CHANGE ORDER)

CURVE DATA

℄ RAMP "C"

P.C. STA. 182+69.62 ℄ RAMP "C"
78' RT ℄ STA. 907+83.78
Dc = 1°-30'-00
R = 3819.72'

PROPOSED WORK

- REMOVE EXISTING DECK
- REPLACE DECK, WITH DEFLECTOR TYPE PARAPETS, NEW SCUPPERS, RE-USE EXISTING END DAMS AT ABUTMENT AND HINGES. PROFILE GRADE AS SHOWN (1" HIGHER THAN EXISTING.)
- REMOVE CURBS AND PARAPETS ON ABUTMENTS, REPLACE WITH DEFLECTOR TYPE PARAPETS.
- INSTALL BRIDGE TERMINAL ASSEMBLIES.

EXISTING STRUCTURE

TYPE: CONTINUOUS WELDED STEEL PLATE GIRDERS WITH HINGE DESIGN, WITH REINFORCED CONC. DECK AND SUBSTRUCTURE.
SKEW: 5°-54'-22" LF.
SPANS: 69'-9" - 94'-9" - 113'-6" - 39'-6" c/c BRGS.
ROADWAY: 28'-0" F/F PARAPETS - 1'-0" CURBS
LOAD FREQUENCY: CF 2000 ADEQUATE FOR A.A.S.H.O. ALTERNATE LOADING.
WEARING SURFACE: 1" MONOLITHIC
APPROACH SLAB: 25' LONG (AS-1-54)
ALIGNMENT: TANGENT
SUPERELEVATION: NONE
SLOPE PROTECTION: CRUSHED AGGREGATE

TRAFFIC COUNT: 5850 - 1975 ADT.

[redacted]

SITE PLAN
BRIDGE NO. SUM-271-0354
RAMP "B" (I 271) OVER I-77
SUMMIT COUNTY
STA. 185+81.11 TO STA. 189+03.13

[redacted]

NOSE: STA. 167+35.00 ℄ RAMP "D"
91' LT. ℄ STA 915+81.98

STA 911+71.66 ℄ EXIST. I-77 =
STA 187+47.87 BL RAMP "B"

RAMP "D"
RAMP "B" EXISTING
℄ SOUTHBOUND LANES
℄ NORTHBOUND LANES
5°-54'-22" SKEW
PT. OF MIN. VERT. CLEARANCE:
RAMP "C"
HORIZ. CLEARANCE: 10.00' REQ'D; 10.12' ACTUAL
8°-05'-38"
2.083'/100 TAPER
HORIZ. CLEARANCE: 10.00' REQ'D; 10.10' ACTUAL
NOSE: 23' LT. ℄ STA. 187+22.69 ℄ RAMP "C"
END PAV. GUTT. STA. 911+85
END PAV. GUTT. STA. 187+00
26'-10¼" c/c PARAPETS
19'-5⅞"
℄ HINGES
SLOPE PROTECTION
℄ RAMP "B"
END APPROACH SLAB STA. 185+81.11
BEGIN PAVED GUTTER STA. 911+10
PAVED GUTTER
BEGIN PAVED GUTTER STA. 186+80
BEGIN APPROACH SLAB STA. 189+03.13
T.S. STA. 189+46.12
℄ I-77 (EXIST.)
RAMP "D" EXISTING
EXISTING PROFILE
INDICATE EXISTING GRADE AT ℄ SOUTHBOUND LANES
INDICATE EXISTING GRADE AT ℄ NORTHBOUND LANES

EL. 1090.49 / EL. 1090.50
EL. 1090.96 / EL. 1090.98
EL. 1091.43 / EL. 1091.45
EL. 1091.88 / EL. 1091.89
EL. 1092.33 / EL. 1092.33
EL. 1092.81 / EL. 1092.80

VERTICAL CLEARANCE:
DESIGN = 16.50'; ACTUAL = 16.42'

AVERAGE ESTIMATED PAY LENGTH FOR PILES
(12¢ CAST-IN-PLACE REINF. CONC. PILES.)
ABUTMENT #1 — 40'
ABUTMENT #2 — 25'
PIERS #1, 2 & 3 — 20'

EL. 1126.15 | STA. 185+81.11 | EL. 1124.50 | PVI STA. 188+25.00 EL. 1123.32 P.G. EL. 1123.55 | EL. 1122.54 | EL. 1120.35 | EL. 1117.93 | EL. 1115.28 | PVT STA. 188+25.00 EL. 1110.87 | EL. 1112.43 | EL. 1109.55 | STA. 189+03.13 | EL. 1106.59

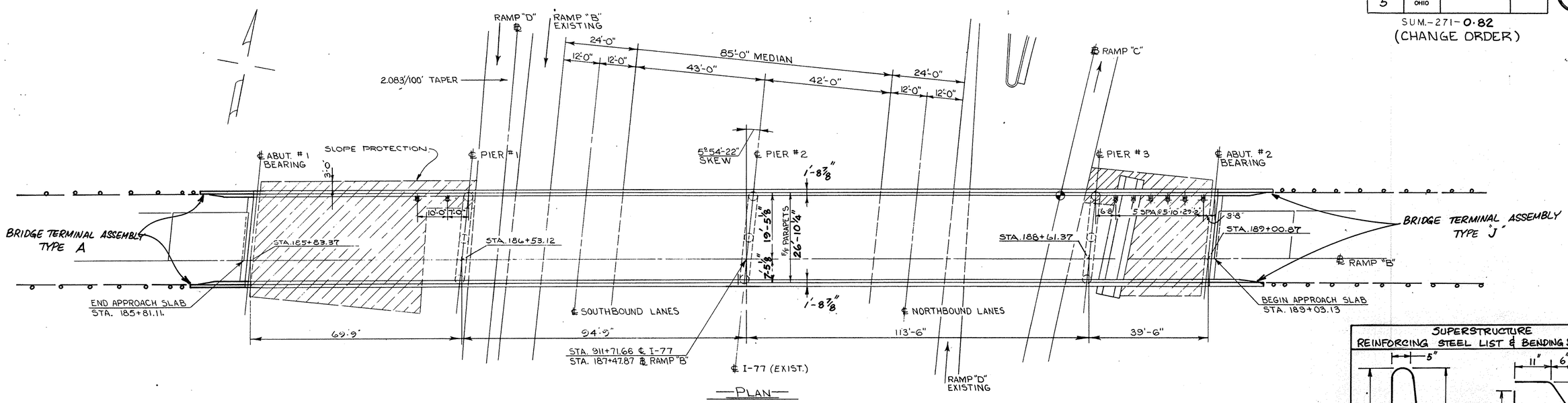
BRIDGE LIMITS = 322.02
-2.08% 400' V.C. 5.76%
PROPOSED PROFILE GRADE
HINGES
EL. 1117.58
EL. 1111.55
2:1 NORMAL
EL. 1102.10
EL. 1096.07
EL. 1085.00
EL. 1085.00
EL. 1084.50

186+00 187+00 188+00 189+00

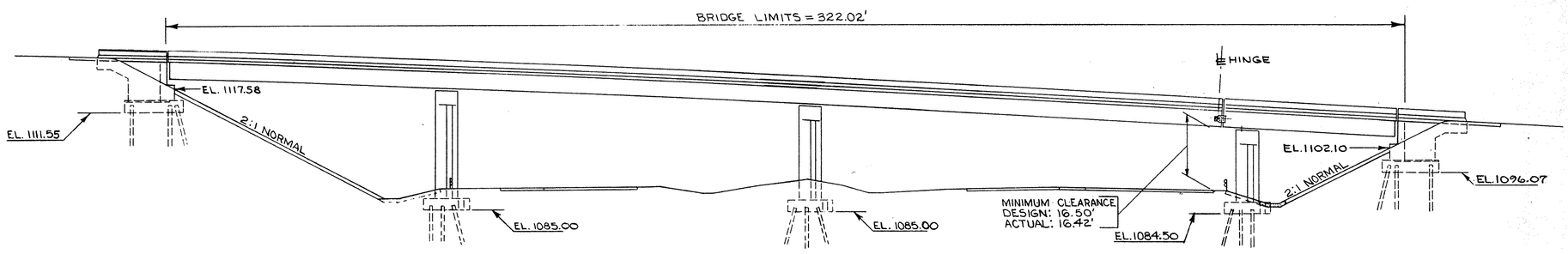
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

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(CHANGE ORDER)



—PLAN—



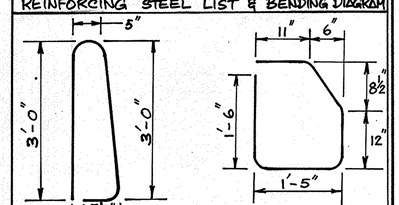
—ELEVATION—

REFERENCE SHALL BE MADE TO :

STANDARD DRAWINGS

SD-1-69	DATED 6-12-69		
BR-1	5-29-79		
GR-3	1-21-85		
GR-3B	1-21-85		
BP-5	1-11-85		
HL-1	12-28-84 ,	HL-7	1-21-76
HL-5	9-6-73 ,	HL-10	12-28-84

SUPERSTRUCTURE REINFORCING STEEL LIST & BENDING DIAGRAM



MARK	No.	LENGTH	WEIGHT	SHP.
SE-501	480	6'-10½"	3442	B
SE-502	428	5'-4"	2381	B
SE-601	478	29'-9"	21359	STR.
SE-602	406	40'-8"	24799	STR.
SE-603	44	40'-0"	2644	STR.
SE-604	116	23'-6"	4094	STR.
SE-605	22	12'-0"	397	STR.
SE-701	478	29'-9"	29067	STR.
RE-501	16	10'-5"	174	STR.
RE-502	152	12'-11"	2048	STR.
RE-503	16	9'-10"	164	STR.
RE-504	16	12'-1"	202	STR.
		TOTAL	90771	Lbs.

NOTE: BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT INDICATES THE BAR SIZE NUMBER FOR EXAMPLE, SE-603 IS A No. 6 SIZE BAR.

SEE SHEET No. 7 FOR REINFORCING STEEL LIST AND BENDING DIAGRAM OF ABUTMENT PARAPET RETROFIT.

—ESTIMATED QUANTITIES—

SUPPLEMENTAL SPEC. 824 DATED 10-8-82

ITEM	TOTAL	UNIT	DESCRIPTION	SUPER	ABUTS.		GEN.			ITEM	TOTAL	UNIT	DESCRIPTION	SUPER	ABUTS.		GEN.			ITEM	TOTAL	UNIT	DESCRIPTION	SUPER	ABUTS.		GEN.		
										202	100	Lin. Ft.	GUARDRAIL REMOVED				100			510	94	Each	DOWEL HOLES		94				
										202	LUMP SUM		PORTIONS OF STRUCTURES REMOVED		LUMP SUM					511	406	Cu. Yd.	CLASS "C" CONCRETE, SUPERSTRUCTURE	398	8				
										202	LUMP SUM		BRIDGE DECK REMOVED	LUMP SUM						516	27	Lin. Ft.	VERTICAL EXTENSION OF STRUCTURAL EXPANSION JOINT, AS PER PLAN	27					
										403	1	Cu. Yd.	ASPHALT CONCRETE		1					518	8	Each	SCUPPERS, INCLUDING SUPPORTS	8					
										606	2	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE A				2											
										606	2	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE J				2											
																				824	91888	Lbs.	EPOXY COATED REINFORCING STEEL, GRADE 60	90771	1117				
										625	342	Lin. Ft.	CONDUIT 713.04, 2 INCH.	342														
										625	20	Lin. Ft.	TRENCH				20			SPEC.	711	Sq. Yd.	SEALING OF CONCRETE SURFACES	654	57				
										625	2	Each	PULL BOX 713.09, 18 INCH.				2											
										625	1	Each	STRUCTURE GROUNDING SYSTEM	1														

GENERAL PLAN & ELEVATION

BRIDGE NO. SUM-271-0354
RAMP "B" (I-271) OVER I-77
SUMMIT COUNTY
STA. 185+81.11 To STA. 189+03.13

F.H.W.A. REGION	STATE	PROJECT	
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SUM-271-0.82 (CHANGE ORDER)

273'-2½" OUT TO OUT - SLAB
409 SPA. @ 8" = 272'-8" 410 SE601 TOP & 410 SE701 BOTT.

45'-4½" OUT TO OUT - SLAB
67 SPA. @ 8" = 44'-8"
68 SE601 TOP & 68 SE701 BOTT.

SE-602 (7 LENGTHS) IN LOWER PARAPET
SE-603 IN LOWER PARAPET OVER PIER #1 & #2
SE-604 (2 LENGTHS) IN LOWER PARAPET
SE-605 IN LOWER PARAPET
SE-604 (2 LENGTHS) IN LOWER PARAPET

30'-0 % SLAB
22 SE-602 TOP (7 LENGTHS)
30 SE-602 BOTT. (7 LENGTHS)
18 SE-603 STAGGERED TOP (TYP OVER PIER #1 & #2)
21'-6" 18'-6" 18'-6" 21'-6"
18' SE-605 TOP
22 SE-604 TOP (2 LENGTHS)
30 SE-604 BOTT. (2 LENGTHS)

℄ ABUT #1 BRG'S.
182 SPA. @ 1'-6" = 273'-0 EA. PARAPET
183 SE502
℄ PIER #1
℄ HINGE
1" JOINT
℄ PIER #3
℄ ABUT #2 BRG'S.
30 SPA. @ 1'-6" = 45'-0 EA. PARAPET
31 SE502

— SLAB REINFORCING PLAN —

PREFORMED ELASTIC JOINT SEALER
(Transverse Section)

NOTE: ON DETAIL "A", 2 - 3½" x 1" PLATES ARE NEW. THE REST OF THE STEEL SHALL BE SALVAGED AND RE USED.

COST OF MATERIAL AND INSTALLATION OF THE NEW PLATES SHALL BE PAID BY THE UNIT PRICE BID FOR

ITEM 516 - VERTICAL EXTENSION OF STRUCTURAL EXPANSION JOINT, AS PER PLAN L.F.

NORTH — SOUTH

30'-4"
26'-10¼"
19'-5⅛" 7'-5⅛"
1'-8⅞" 1'-8⅞"
6 EQUAL SPA.
SE-603 OVER PIER #1 & 2
SE-605 OVER PIER #3
TYP TOP
℄ RAMP "B"
SLOPE: 3/16"/FT.
SEE PARAPET DETAIL BELOW
SE-602 OR SE-604
SE-601@8"
A = SEE TABLE BELOW.
10" TYP.
3" CL.
2" ℄ CONDUIT
SE-502
12½"
CONST. JTS. LEVEL
HAUNCH SEE NOTE #
FILLER PL. TO SUIT
1" DIA. HALF ROUND DRIP GROOVE
3 x 3 x 5/16 Ls
SCUPPER
2 SPA. @ 1'-3⅜"
5 SPA. @ 8½"
2 SPA. @ 1'-3⅜"
TYP. BOTT.
3 SPA. @ 8'-8" = 26'-0" ℄ To ℄ GIRDERS.
2'-0"

— TRANSVERSE SECTION —

HINGE DETAIL

5¼" 1" JOINT
½" ½"
¼ SQUARE ROD.
4 x 4 x ½ Ls
SEE DETAIL "A"
ANCHOR BARS - 2 x ½ x 1'-6 @ 12" c/c
10⅜" 10" SLAB 10" 11⅞" SLAB
5" WIDE BEVEL PL.
2⅛" FLG. PL.
2'-0"
2 - 6 x 4 x ½ Ls
5/8 FLG. PL.
3½ ø PIN, WASHER & HEX. NUT.
6 x ⅜ x 47⅞" STIFFENER PLS. EA. SIDE
2⅝ Web PL.
⅜ WEB PL.
2 PLS 17½ x 1⅛ x 2'-0½"
10¾" 5¼" 1'-7¼" 2'-1"
5'-3¼" To ℄ PIER #3

— HINGE DETAIL —

APTER INSTALLING PREFORMED ELASTIC JOINT SEALER, SEAL THE TOP 1" WITH HOT-APPLIED BRIDGE DECK WATERPROOFING AS PER STD. DRWG. BP-5

3½" x 1" PLATE
4 x 4 x ½" Ls
PREFORMED ELASTIC JOINT SEALER (SEE CURB PLATE AND JOINT SEALER DETAIL)
¼ SQUARE ROD
2 x ½ x 1'-6 ANCHOR BARS @ 12" c/c
½ x 8
2 x ½ x 1'-6 ANCHOR BARS @ 12" c/c
SEE NOTE #1
6 x 4 x ½ L
2⅛ FLG. PL.
5 WIDE BEVEL PLATES
⅜ WEB PL.
6 x 4 x ½ L
5/8 FLG. PL.
⅜ WEB PL.

NOTE #1
THIS WELD MUST BE COMPLETED BEFORE OTHER ANGLES ARE PLACED.

— DETAIL "A" —

— SLAB THICKNESS OVER ℄ GIRDERS —

DIMENSION "A"	THICKNESS OF FLANGE PLATE
10⅛"	2⅜
10⅜"	2⅛
11"	1½
11⅜"	1⅛
11⅞"	⅝

2" 9" 2⅜" 7" 26'-10¼" f/f PARAPETS
RE-501
RE-502
RE-503 OR RE-504
SE-501
2'-3"
SE-603 OVER PIERS
SE-601
10" TYP.
3" CL.
CONST. JOINT LEVEL
1'-1"
10"
3"
SE-602 SE-604 OR SE-605
CONST. JT. LEVEL
12½"
SE-502
3"
2"
3"
SE-701
1" CL.
SE-602 OR SE-604
1" DIA. HALF ROUND DRIP GROOVE.
NEW SCUPPER SEE SD-1-69
2'-0"
℄ GIRDER

PARAPET DETAIL

(ELEVATIONS) SEE TRANSVERSE SECTION			
STATION	A	PROFILE GRADE B	C
186+00	1124.23	1124.50	1124.62
+25	1123.28	1123.55	1123.69
+50	1122.25	1122.54	1122.65
+75	1121.19	1121.48	1121.60
187+00	1120.07	1120.35	1120.48
+25	1118.88	1119.17	1119.27
+50	1117.64	1117.93	1118.05
+75	1116.40	1116.64	1116.81
188+00	1115.09	1115.28	1115.50
+25	1113.68	1113.87	1114.08
+50	1112.17	1112.43	1112.56
+75	1110.69	1110.98	1111.10
189+00	1109.25	1109.55	1109.66

2-3 x 3 x ⅜ CURB PLS.
PREFORMED ELASTIC JOINT SEALER (ITEM 705.11)

— CURB PLATE AND JOINT — SEALER DETAIL —

3 x 3 x ⅜ PL.
4 x 4 x ½ L

— SECTION "Y-Y" —

1"
¼"
JOINT SEALER
2⅜"

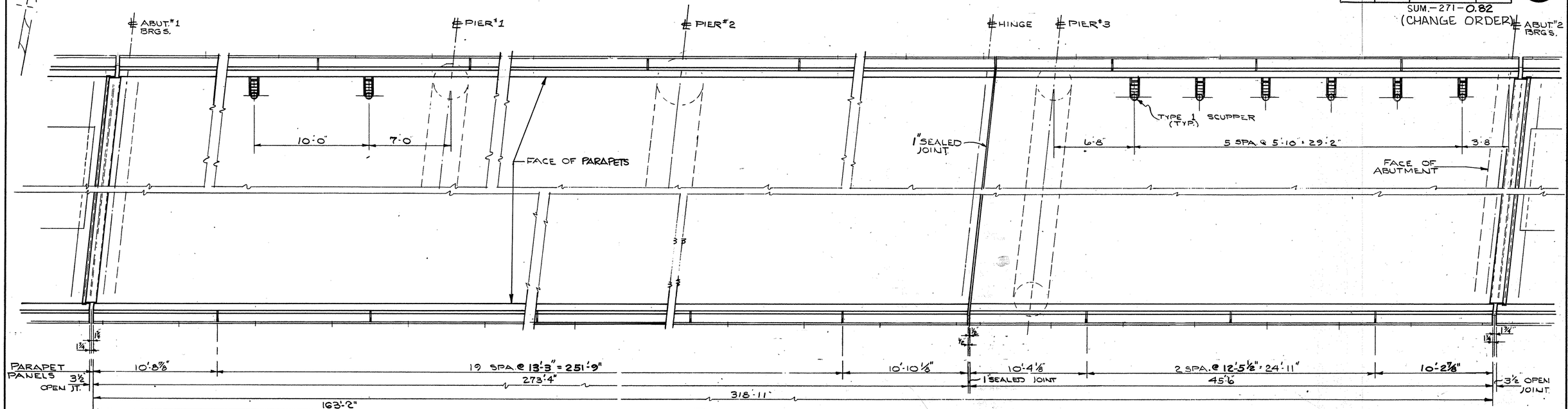
— SECTION "X-X" —

SLAB REINFORCING & FRAMING DETAILS
BRIDGE NO. SUM.-271-0354
RAMP "B" (I-271) OVER I-77
SUMMIT COUNTY
STA. 185+81.11 To STA. 189+03.13

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

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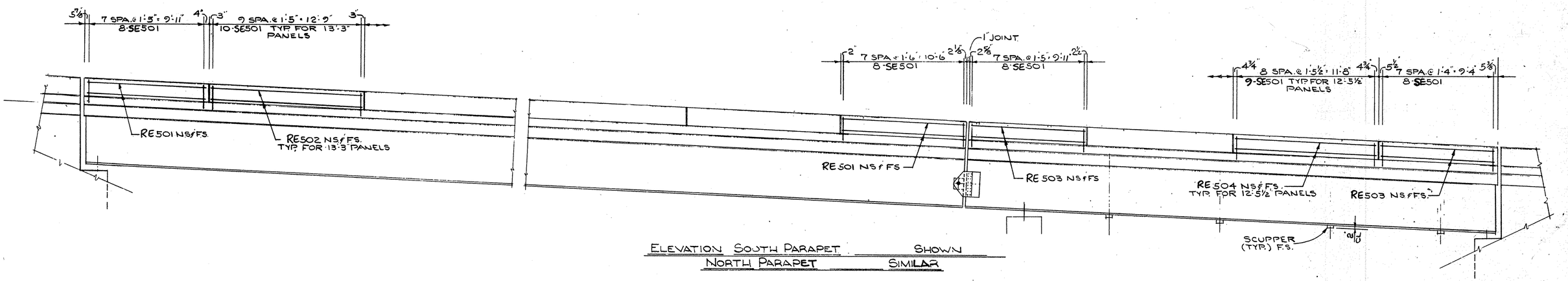
SUM.-271-0.82
(CHANGE ORDER)



— PARTIAL PLAN —

— SCUPPERS IN NORTH GUTTER ONLY —

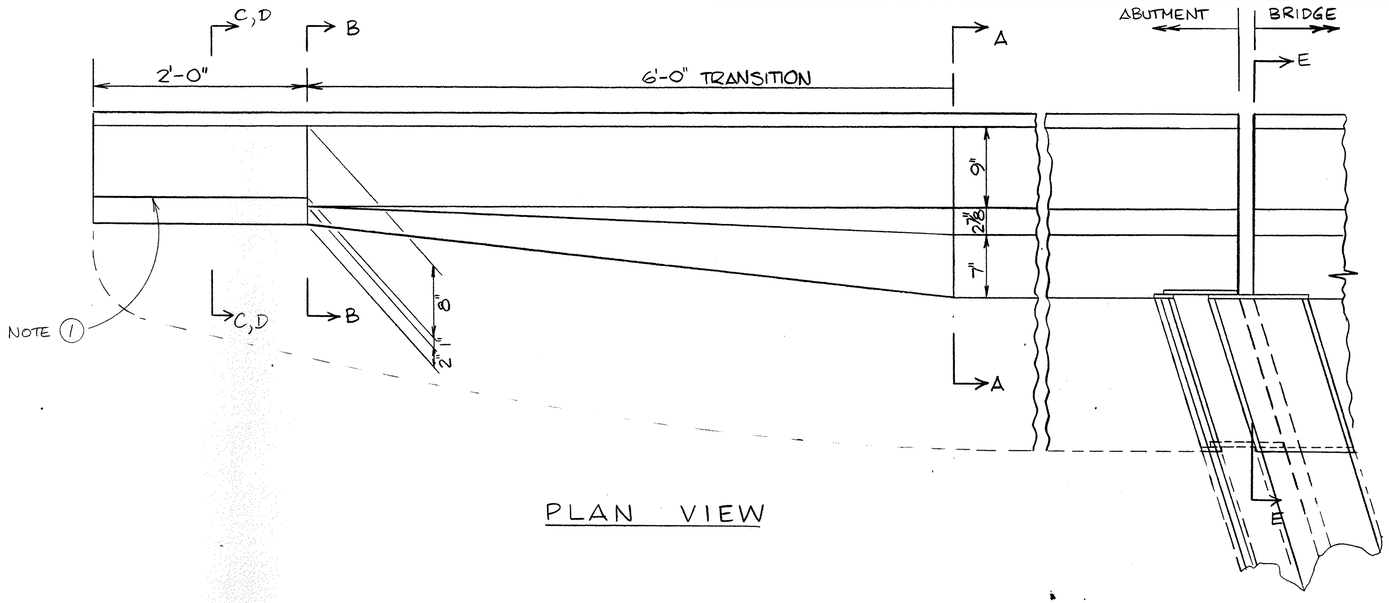
— SOUTH PARAPET DIMENSIONED, NORTH PARAPET SIMILAR —



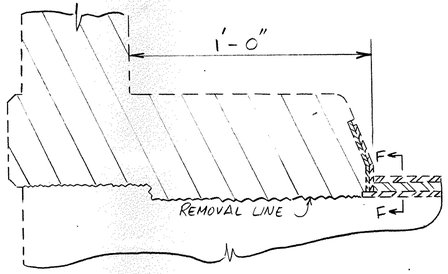
ELEVATION SOUTH PARAPET SHOWN
NORTH PARAPET SIMILAR

PARAPETS & DRAINAGE DETAILS

BRIDGE NO. SUM-271-0354
RAMP "B" (I 271) OVER I-77
SUMMIT COUNTY
STA. 185+81.11 To STA 189+03.13

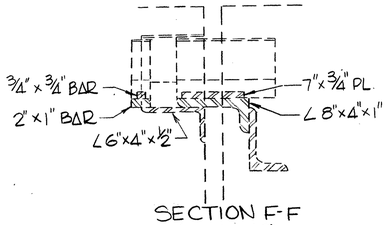


PLAN VIEW

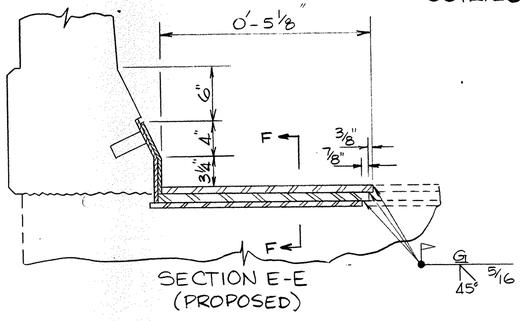


SECTION E-E
(EXISTING)

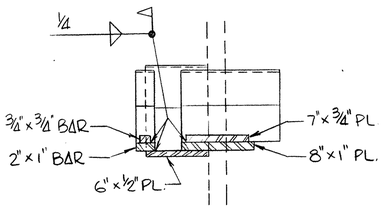
CURB
PLATE
DETAILS



SECTION F-F
(EXISTING)



SECTION E-E
(PROPOSED)



SECTION F-F
(PROPOSED)

NOTE : ALL COSTS FOR MATERIALS AND LABOR FOR THE MODIFICATION OF THE CURB PLATES AS SHOWN, TO BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 511 - CLASS "C" CONCRETE, SUPERSTRUCTURE.

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

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SUM-271-0.82
(CHANGE ORDER)

NOTE (1) TYPE A & TYPE J TERMINAL CONNECTORS SHALL BE FASTENED TO THE PROPOSED RETROFITTED PARAPET WITH 7/8" DIA. HEX HEAD BOLTS THROUGHT THE PARAPET WITH 3" BY 3" BY ½" PLATE, WASHERS AND HEX NUTS ON BACK OF PARAPET. (SEE GR-3)

NOTE (2) RAILINGS AND POSTS SHALL BE REMOVED AND DELIVERED TO THE DISTRICT 4 MAINTENANCE YARD AT

705 OAKWOOD STREET, RAVENNA, OHIO 44266

ITEM 202 - PORTIONS OF STRUCTURES REMOVED

IN ADDITION TO THE REMOVAL AREAS AS SHOWN ON THE PLAN, ALL LOOSE, SOFT, HONEYCOMBED AND DISINTEGRATED CONCRETE PLUS ¼" DEPTH OF SOUND CONCRETE SHALL BE REMOVED. AFTER COMPLETION OF THE REMOVAL OPERATION, THE ENGINEER SHALL SOUND THE REMAINING CONCRETE TO INSURE THAT ONLY SOUND CONCRETE REMAINS. ALL WORK SHALL BE DONE IN SUCH A MANNER AS NOT TO DAMAGE OR SHATTER THE CONCRETE THAT IS TO REMAIN AND PREVENT THE REINFORCING STEEL THAT IS TO REMAIN FROM BEING CUT, ELONGATED OR DAMAGED IN ANY WAY. CONCRETE MAY BE REMOVED BY CHIPPING OR HAND DRESSING. CHIPPING HAMMERS SHALL NOT BE HEAVIER THAN THE NOMINAL 35 POUND CLASS.

NOT MORE THAN 24 HOURS PRIOR TO PLACING THE NEW PARAPET WALL, ALL SURFACES TO WHICH THE WALL IS TO BOND, INCLUDING EXPOSED REINFORCING AND STRUCTURAL STEEL, SHALL BE CLEANED BY ABRASIVE BLASTING OR AN APPROVED METHOD OF WATER BLASTING. THESE SURFACES SHALL BE MADE FREE OF SPALLS, LAITANCE AND ALL TRACES OF FOREIGN MATERIAL, IF NECESSARY, DETERGENT CLEANING SHALL PRECEDE BLAST CLEANING TO INSURE THE REMOVAL OF CONTAMINANTS DETRIMENTAL TO ACHIEVING AN ADEQUATE BOND.

ALL COSTS OF LABOR AND MATERIAL NECESSARY FOR THE OPERATION MENTIONED ABOVE SHALL BE PAID FOR UNDER THE LUMP SUM PRICE BID FOR

ITEM 202 - PORTIONS OF STRUCTURES REMOVED LUMP SUM

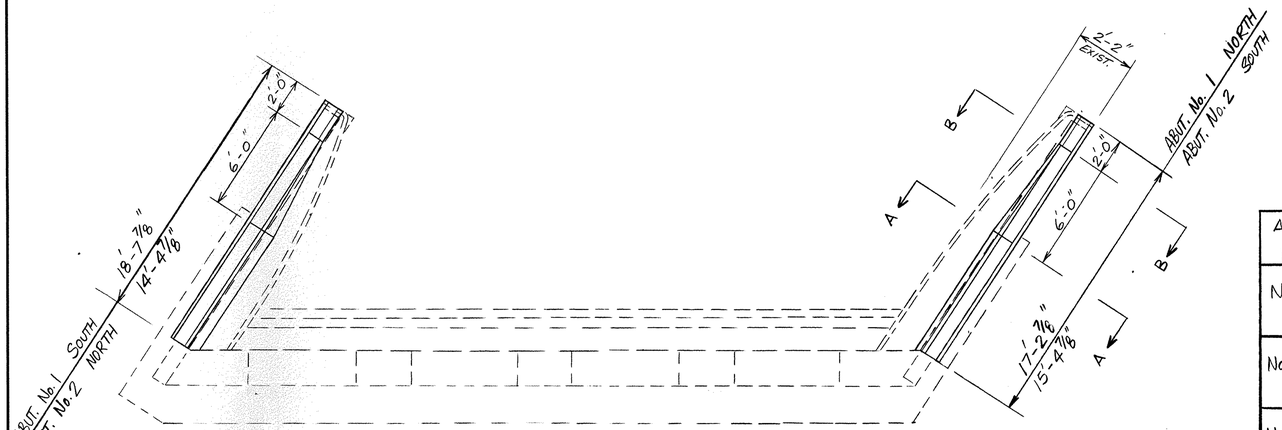
BR. No. SUM-271-0354

ABUTMENT PARAPETS

FHWA REGION	STATE	PROJECT	
5	OHIO		

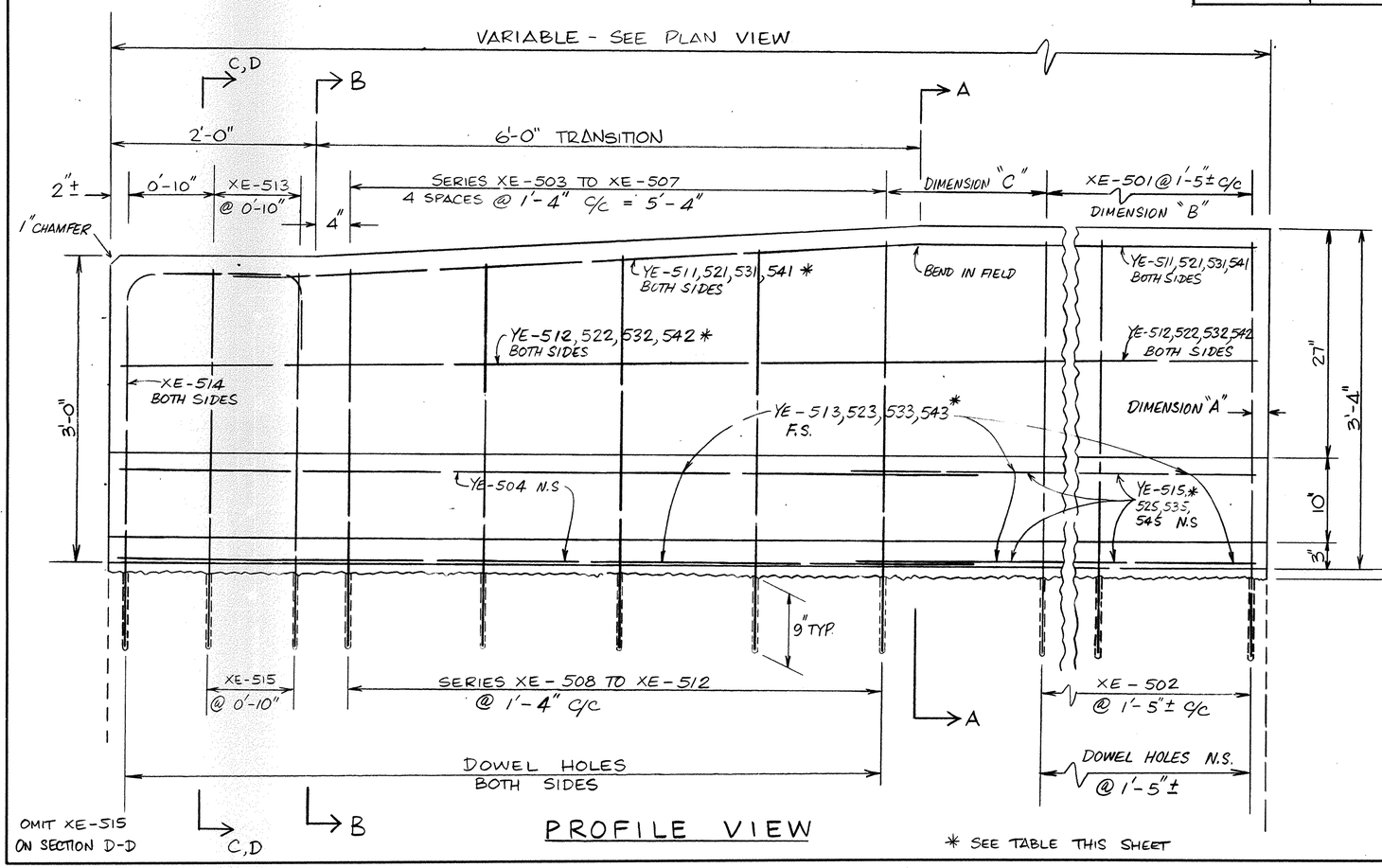
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SUM-271-0.82
(CHANGE ORDER)



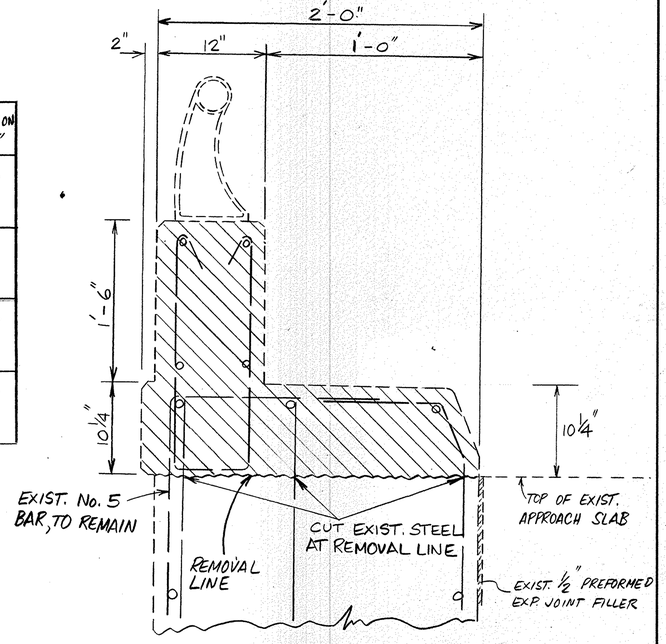
PLAN VIEW

ABUTMENT No. / SIDE	LONGITUDINAL RE-BAR	DIMENSION "A"	DIMENSION "B"	DIMENSION "C"
No. 1 NORTH	YE-511, YE-512 YE-513, YE-515	5 7/8"	6 SPACES @ 1'-5" = 8'-6"	7"
No. 1 SOUTH	YE-521, YE-522 YE-523, YE-525	7 7/8"	7 SPACES @ 1'-5" = 9'-11"	5"
No. 2 NORTH	YE-531, YE-532 YE-533, YE-535	8 7/8"	4 SPACES @ 1'-5" = 5'-8"	2"
No. 2 SOUTH	YE-541, YE-542 YE-543, YE-545	3 7/8"	5 SPACES @ 1'-5" = 7'-1"	4"

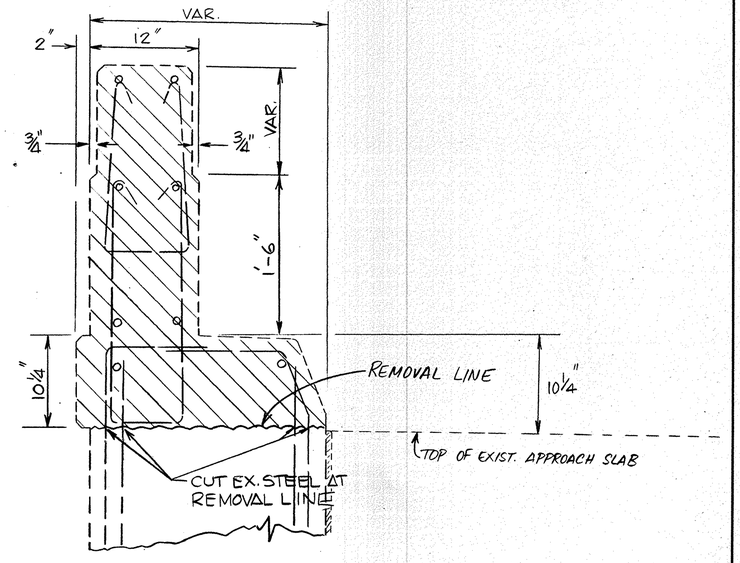


PROFILE VIEW

* SEE TABLE THIS SHEET



SECTION A-A
(EXISTING)



SECTION B-B
(EXISTING)

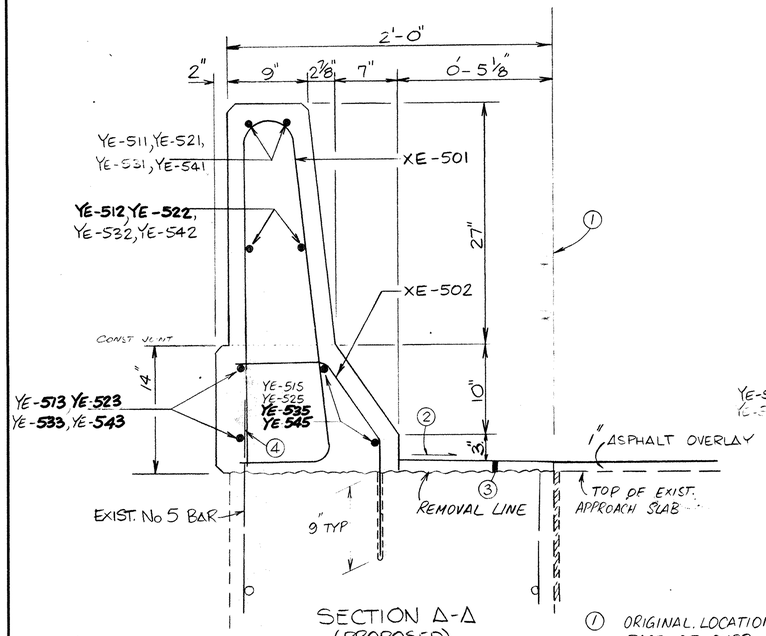
BR. No.
SUM-271-0354

ABUTMENT PARAPETS

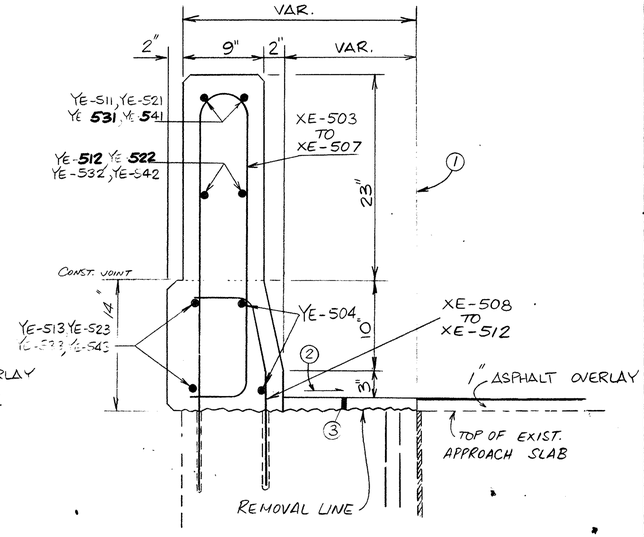
F.H.W.A. REGION	STATE	PROJECT	
5	OHIO		

7/7

SUM-271-0.82
(CHANGE ORDER)



SECTION A-A
(PROPOSED)



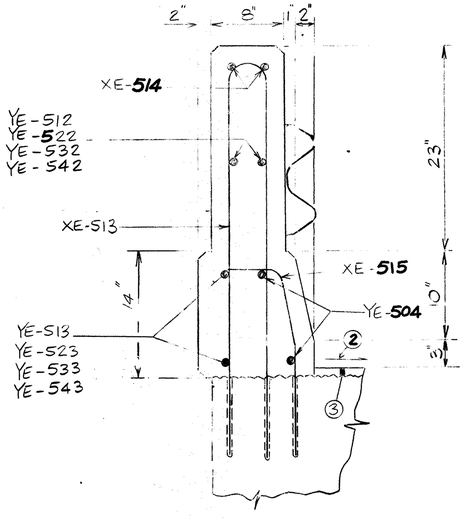
SECTION B-B
(PROPOSED)

① ORIGINAL LOCATION OF FACE OF CURB.

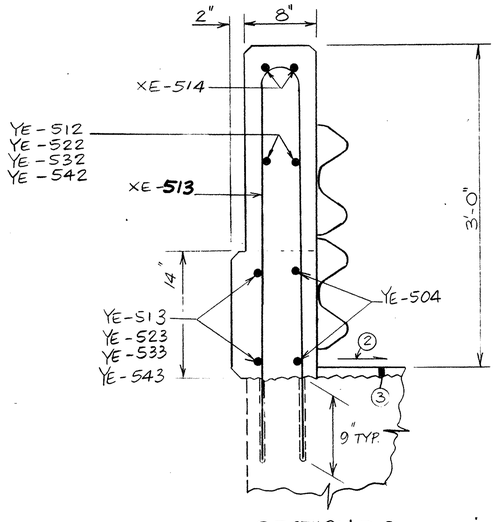
② SLOPE TO DRAIN

③ **403 - ASPHALT CONCRETE** (1" THICK ±)

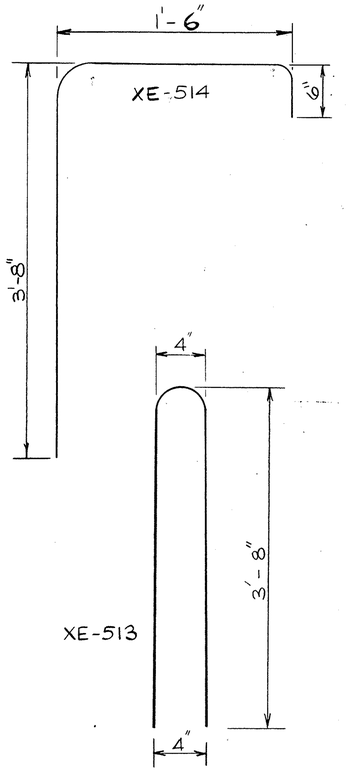
④ TIE TO EXISTING No. 5 BAR

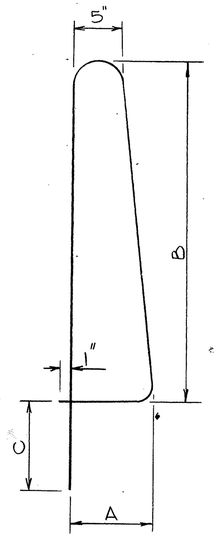


SECTION C-C
(PROPOSED)
SHOWING TRAILING END WITH GUARDRAIL
(WITHOUT WHEEL GUARD)

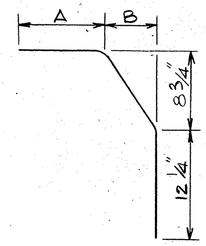


SECTION D-D
(PROPOSED)
SHOWING APPROACH END
WITH GUARDRAIL AND WHEEL GUARD





	A	B	C
XE501	9¼"	3'-2"	0"
XE503	4¼"	2'-10"	10"
XE504	5½"	2'-11"	10"
XE505	6¾"	3'-0"	10"
XE506	7¾"	3'-0¾"	10"
XE507	9"	3'-1¾"	10"



	A	B
XE502	10"	6"
XE508	6¾"	1¾"
XE509	7½"	2¾"
XE510	8¼"	3¾"
XE511	9"	4¾"
XE512	9¾"	5¾"
XE515	6½"	1½"

ABUTMENTS REINFORCING STEEL LIST

MARK	No.	LENGTH	WEIGHT	SHAPE
XE 501	26	7'-2¾"	196	B
XE 502	20	2'-9"	57	B
XE 503	4	7'-0"	29	B
XE 504	4	7'-3"	30	B
XE 505	4	7'-6¼"	31	B
XE 506	4	7'-8¾"	32	B
XE 507	4	8'-0"	33	B
XE 508	4	2'-4"	10	B
XE 509	4	2'-5"	10	B
XE 510	4	2'-6"	10	B
XE 511	4	2'-7¼"	11	B
XE 512	4	2'-8½"	11	B
XE 513	8	7'-5"	62	B
XE 514	8	5'-5"	45	B
XE 515	4	2'-4"	10	B
YE 511	2	16'-0"	33	STR.
YE 512	2	16'-11"	35	STR.
YE 513	2	16'-11"	35	STR.
YE 515	2	9'-10"	21	STR.
YE 521	2	17'-5"	36	STR.
YE 522	2	18'-4"	38	STR.
YE 523	2	18'-4"	38	STR

MARK	No.	LENGTH	WEIGHT	SHAPE
YE 525	2	11'-3"	23	STR.
YE 531	2	13'-2"	27	STR.
YE 532	2	14'-1"	29	STR.
YE 533	2	14'-1"	29	STR.
YE 535	2	7'-0"	15	STR.
YE 541	2	14'-2"	30	STR.
YE 542	2	15'-1"	31	STR.
YE 543	2	15'-1"	31	STR.
YE 545	2	8'-0"	17	STR.
YE 504	8	8'-7"	72	STR
DOWEL HOLES =		94 Ea.		
ABUTMENT TOTAL			1117	Lbs.

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ABUTMENT PARAPETS