



CUY-90-14.90

PID 77332/85531

APPENDIX EX-74

**CUY-090-1490 and CUY-071-1865 PID 0.500
(Reference Document)**

State of Ohio
Department of Transportation
Jolene M. Molitoris, Director

**Innerbelt Bridge
Construction Contract Group 1 (CCG1)**

61-W

MAY 3

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

CUY-71-18.65 CUY-90-14.90 CUYAHOGA COUNTY CITY OF CLEVELAND

CUYAHOGA COUNTY CUY-71-18.65 CUY-90-14.90	OHIO FHWA REGION 5	1 53
I-FI-71-5(51) 247; I-FI-90-1(109) 28 ISSUE 1		FEDERAL PROJECT

DESIGN DESIGNATION	
CURRENT ADT (1978)	111,464
DESIGN YEAR ADT (1995)	132,364
DHV	7,280
T	11%
D	60%
V	60 MPH

RECOMMENDED
JUL 6 1984

I-FI-71-5(51) 247
I-FI-90-1(109) 28
ISSUE 1

PROJECT DESIGNATION CUY-71-18.57
CUY-90-14.64
APPEARING THROUGHOUT THIS PLAN SHALL BE
CONSIDERED TO READ CUY-71-18.65
CUY-90-14.90

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, REVISED CODE OF OHIO

1977 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.

The right of way for this improvement will be provided by the State of Ohio.

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

Approved Thomas M. Hall
Date 6-16-78 District Deputy Director of Transportation

Approved Robert B. Phipps
Date 8-22-78 Engineer, Bureau of Bridges and Structural Design

Approved R.E. Gattlin
Date 9-27-78 Chief Engineer, Planning and Design

Approved David J. Wein
Date 9-27-78 Director, Department of Transportation

CONVENTIONAL SIGNS

County Line	-----	Limited Access (only)	-----	LA
Township Line	-----	Right of Way (only)	-----	RW
Section Line	-----	Limited Access & Right of Way	-----	LA & RW
Corporation Line	-----	Existing Right of Way	-----	
Fence Line (existing)	-----	Property Line	-----	(in existing fence)
Center Line	-----	Railroad	-----	or -----
Trees, Stumps	-----	Guardrail (existing)	-----	(proposed)
Utility Poles: Telephone	-----			
Power	-----			
Light	-----			

INDEX OF SHEETS

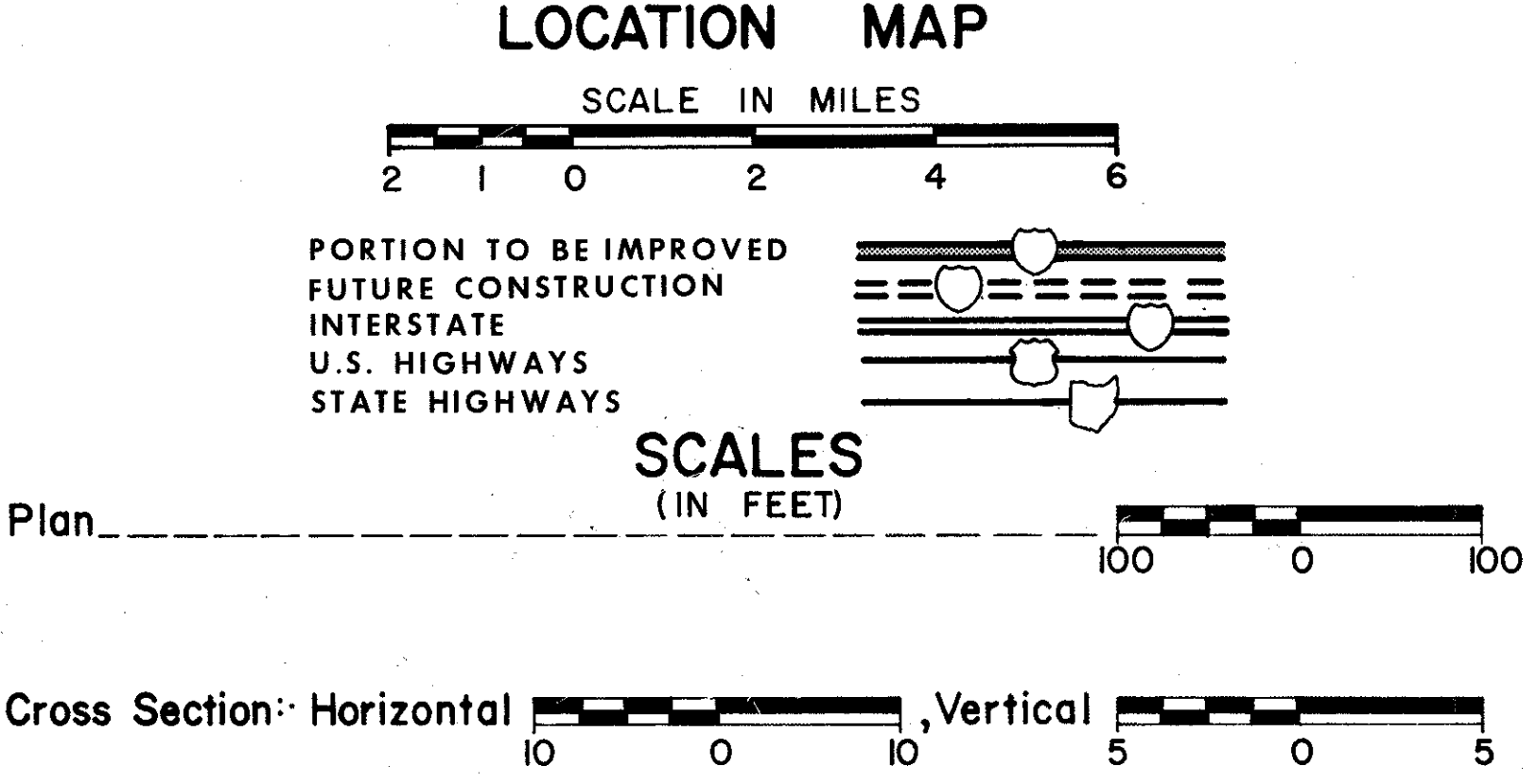
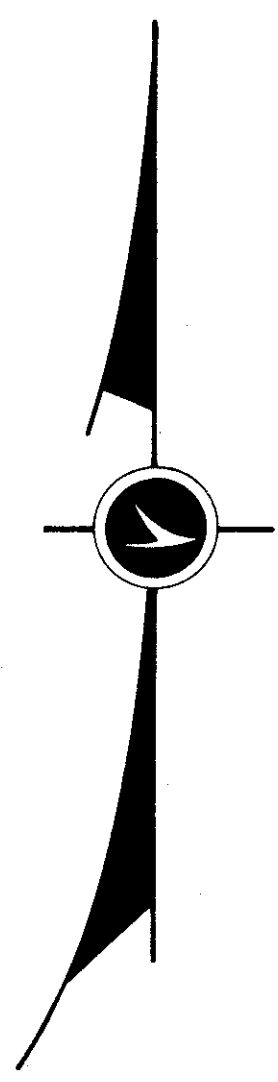
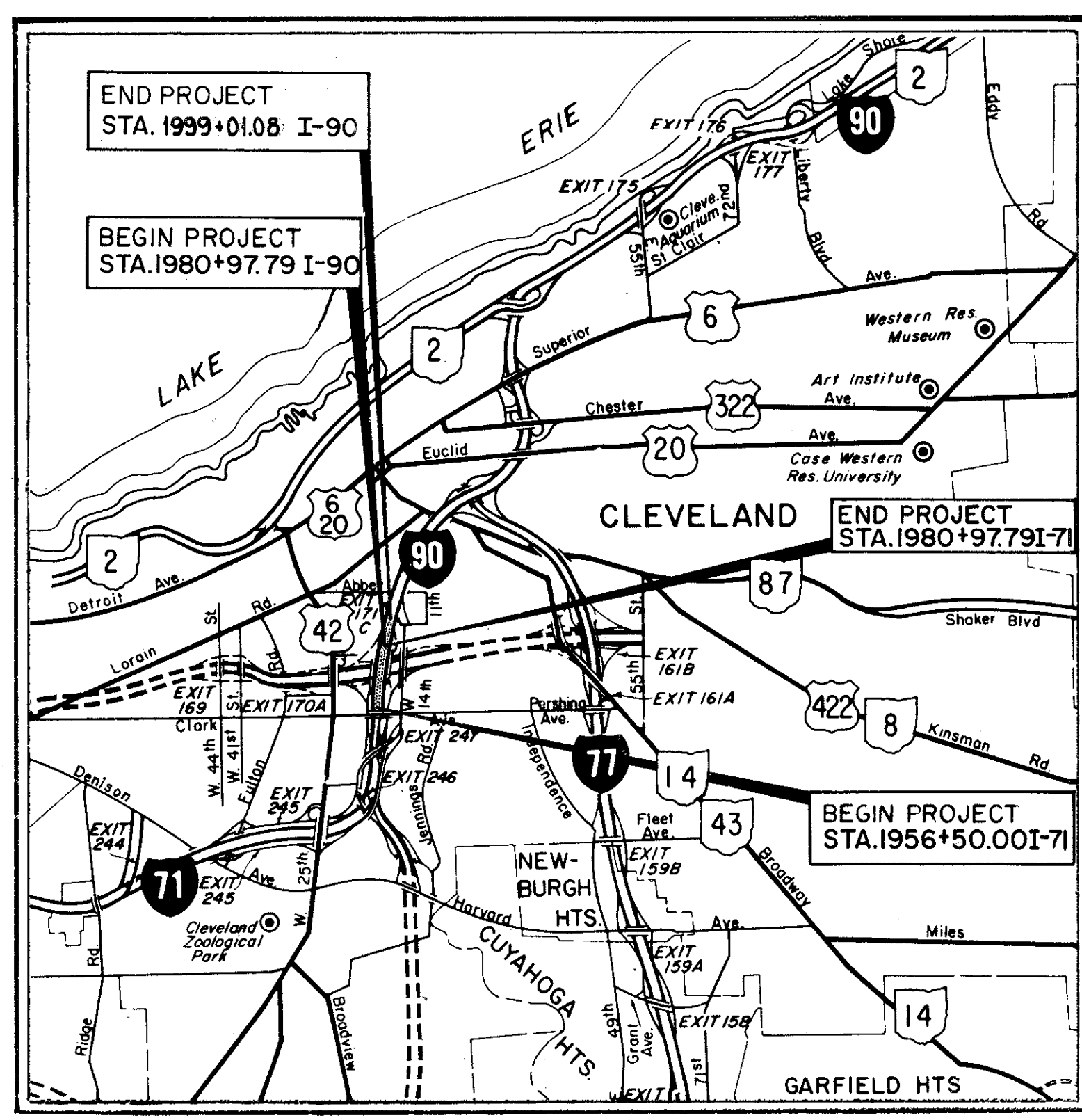
TITLE SHEET	1	CONCRETE BARRIER QUANTITIES AND DETAILS	19-21
SCHEMATIC PLAN	2	EROSION CONTROL	22
TYPICAL SECTIONS	3	TRAFFIC CONTROL SUB-SUMMARY	23
GENERAL NOTES & TRAFFIC MAINTENANCE	4-10, 10A	LIGHTING PLANS	24-44
COMPUTATIONS AND SUB-SUMMARIES	11	STRUCTURE PLANS	45-53
GENERAL SUMMARY	12-13		
PLAN SHEETS	14-15		
DRAINAGE QUANTITIES	16		
DRAINAGE DETAILS	17-18		

LINE DATA

I-71	Begin Project: Sta. 1956+50 End Project: Sta. 1980+97.79 Length of Project: 2447.79 Lin. Ft. or 0.463 Miles
I-90	Begin Project: Sta. 1980+97.79 End Project: Sta. 1999+01.08 Length of Project: 1803.29 Lin. Ft. or 0.341 Miles
I-71 & I-90	Begin Project: Sta. 1956+50 End Project: Sta. 1999+01.08 Length of Project: 4251.08 Lin. Ft. or 0.805 Miles

ADD WORK:

Sta. 1953+10 to Sta. 1956+50	340 Lin. Ft.
Sta. 930+40 to Sta. 931+85 (Sta. Eq. Sta. 8+80 Lane W-N = Sta. 931+85, I-90)	145.00 Lin. Ft.
Sta. 8+80.00 Lane W-N to Sta. 32+67.50 Lane W-N	2397.50 Lin. Ft.
Sta. 32+67.50 Lane W-N to Sta. 37.63 to Sta. 15+70	1182.50 Lin. Ft.
Total Length of Work	8305.95 Lin. Ft. or 1.573 Miles



SUPPLEMENTAL SPECIFICATIONS

NUMBER	DATE	NUMBER	DATE
S625	1-11-74	921	12-4-72
S713	1-11-74	853	6-26-78
844	11-8-74	839	11-25-70
847	4-3-76	808	1-1-71
836	3-12-75	845	6-27-77
1001	1-3-77	850	6-27-77
848	2-23-78	953	6-27-77
849	11-2-77	956	6-26-76

Sheet Nos. 6, 11, & 12
revised 11-27-78 S.M.K.

PREPARED AND RECOMMENDED BY

HOWARD NEEDLES TAMMEN AND BERGENDOFF

CONSULTING ENGINEERS

CLEVELAND

Browning Crow

BROWNING CROW 00586R

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS

NUMBER	DATE	NUMBER	DATE	NUMBER	DATE	NUMBER	DATE
BP-5	8-11-74	I-3	11-1-77	TC-21.31	10-1-74	CB-5	9-1-69
BP-11	1-3-75	MC-1	6-13-69	TC-22.10	10-1-74	TC-35.10	10-5-77
F-1	5-1-76	MC-3	6-1-73	HL-1	9-6-73	BP-3	12-6-76
GR-2B	12-6-76	MC-4	7-26-76	HL-2,3	7-27-73		
GR-3	12-6-76	MC-9	11-1-77	HL-6	3-22-77		
GR-4	12-6-76	MH-1	6-12-75	HL-8	1-21-76		
GR-4A	7-26-76	TC-18.24	10-1-74	HL-9	3-22-77		
GR-5	1-1-71	TC-51.10	6-2-75	HL-10	1-21-76		
GR-6	1-1-71	TC-51.11	6-2-75	HL-11	4-6-73		
GR-3A	12-6-76	TC-31.21	8-27-76	HL-15	1-21-76		
GR-3B	12-6-76	TC-32.11	8-27-76	HL-16	4-6-73		
GR-1	12-6-76	TC-32.10	8-27-76	HL-22	11-9-77		

Rev. 10-10-78

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ADMINISTRATOR DATE

Project: CUY-71-18.65 CUY-90-14.90
Date of Letting: 19, Contract No.

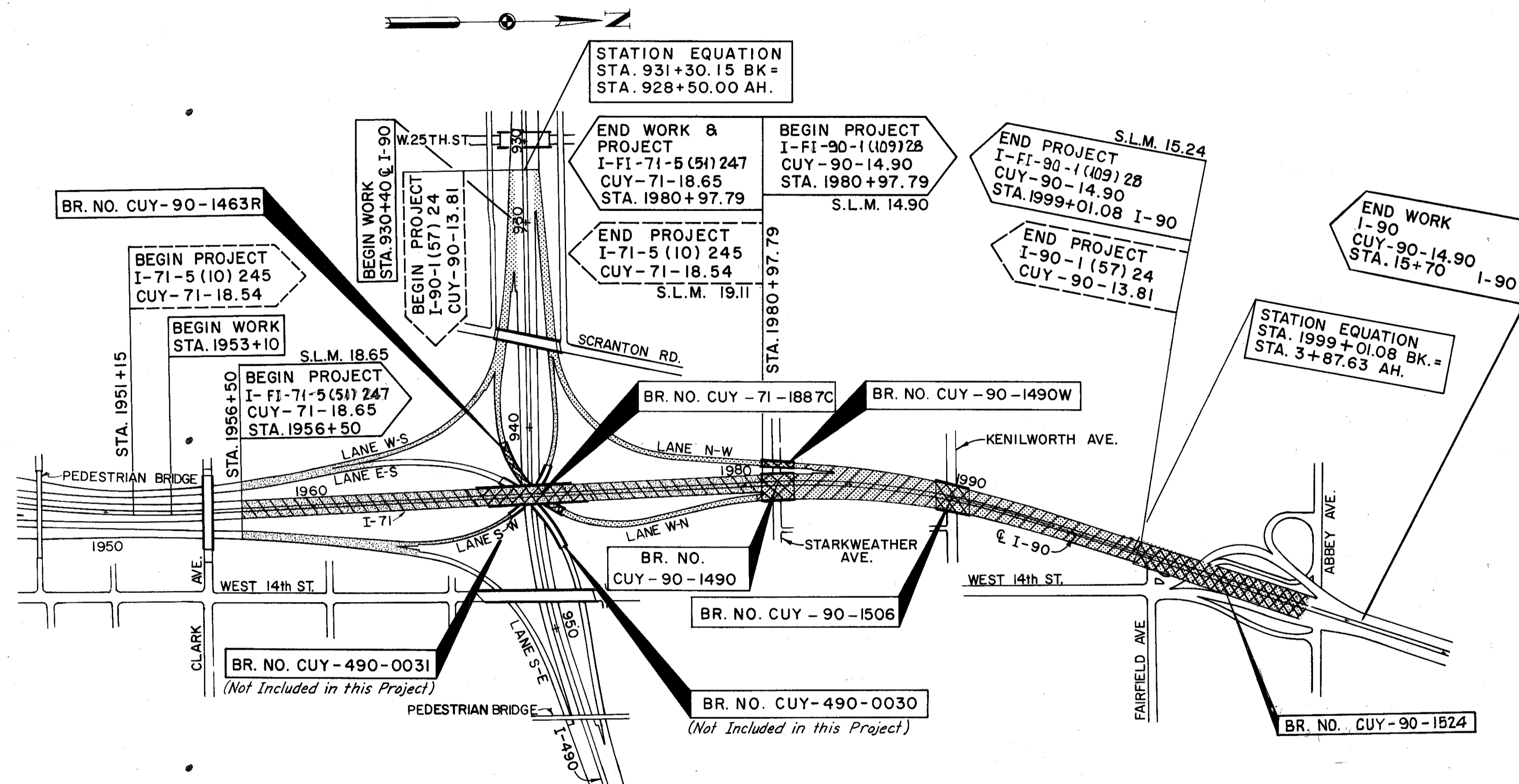
FWA REGION	STATE	PROJECT
5	OHIO	

2
53

CUYAHOGA COUNTY
 CUY-71-18.65
 CUY-90-14.90

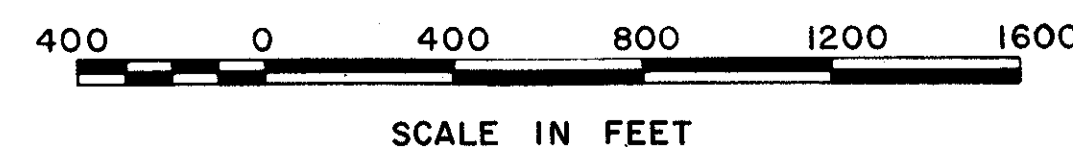
SCHEMATIC PLAN

CONSTRUCTION PROJECT AND RESURFACING LIMITS



LEGEND

- CUY-71-18.65
- ASPHALT RESURFACING IN CUY-71-18.65
- CUY-90-14.90
- ASPHALT RESURFACING IN CUY-90-14.90
- ORIGINAL CONSTRUCTION PROJECT
- DENSE CONCRETE OVERLAY
- BRIDGES IN CUY-71-18.65
- DENSE CONCRETE OVERLAY
- BRIDGES IN CUY-90-14.90



MADE D.S.P. DATE 11-10-76
 TRACED D.L.R. DATE 11-30-76
 CHECKED M.E.G. DATE 2-15-78
 SCALE 1"=400'

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

HNTB

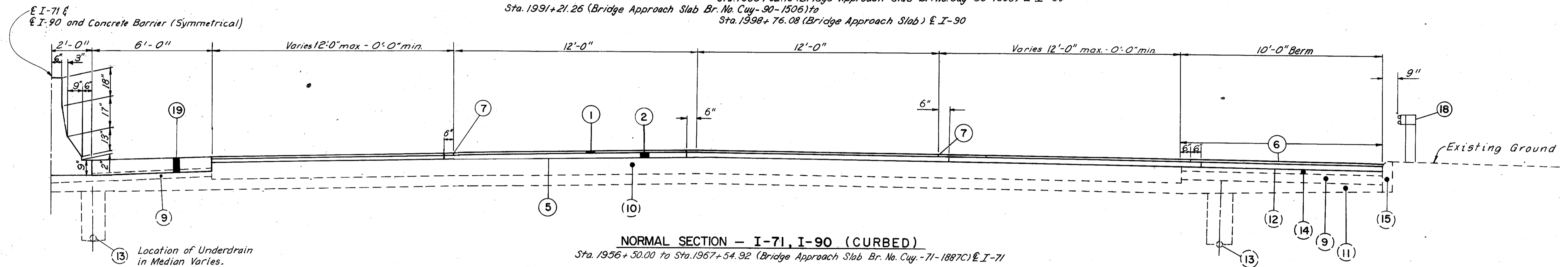
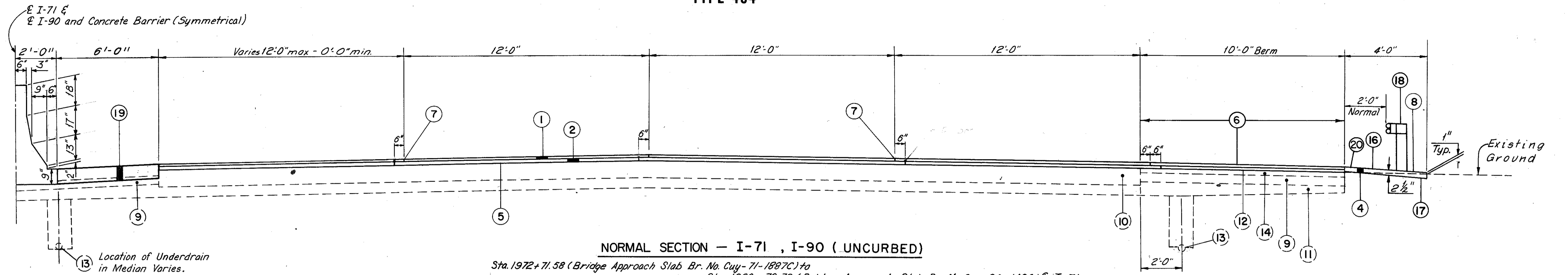
TYPICAL SECTIONS

FHWA REGION	STATE	PROJECT
5	OHIO	

3
53

CUYAHOGA COUNTY
CUY-71-18.57
CUY-90-14.64

TYPE 404



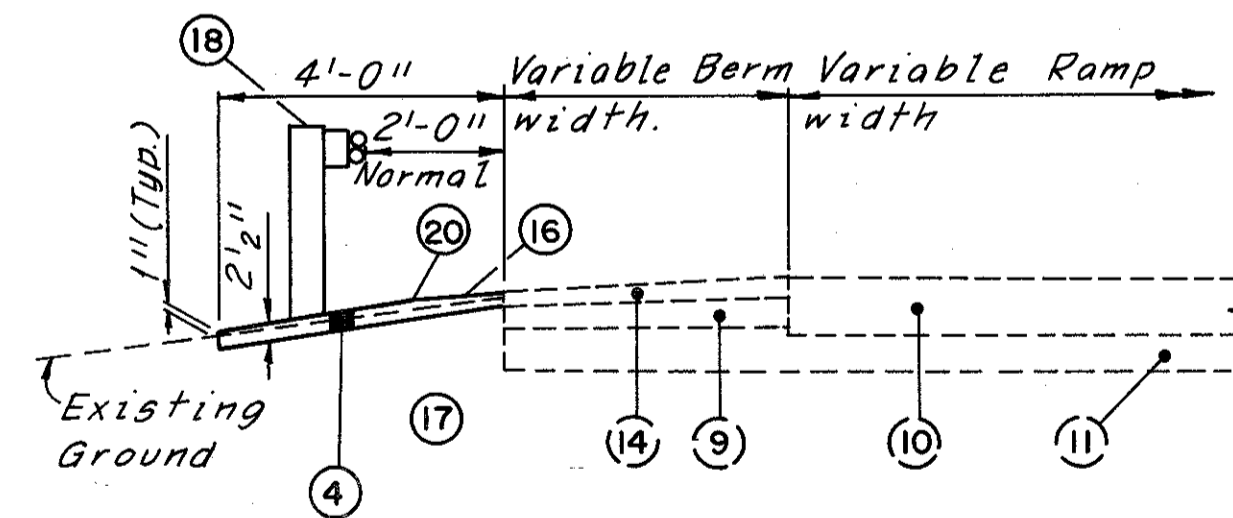
NOTES

SPREADING EQUIPMENT: An automatic screed control having a 40 foot ski arm (Min.) shall be used for placing the 402 and 404 course. The maximum paver operating speed shall be 30 feet per minute for rubber tired pavers. For full width paving, the width laid shall not exceed the paver's rated width as recommended by the paver manufacturer.

TEMPORARY LANE LINES: See General Note, Sheet 6.

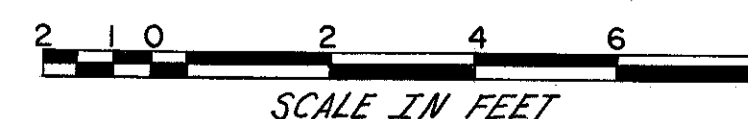
TYPICAL SECTIONS are intended to show the general roadway and pavement features only. For details see the plan sheets & detail sheets. For Median Typical Sections see sheet 19.

LONGITUDINAL JOINTS- 402 AND 404 COURSES: Longitudinal joints between a pavement lane and adjoining berm and between a speed change lane and the adjoining berm shall be made the same day. The Contractor's attention is directed to section 401.15 of the specifications. Longitudinal and transverse joints shall be painted with the bituminous material used in the mixture on both surface courses as directed by the Engineer.



LEGEND

PROPOSED		EXISTING	
1	Item 404 1 1/2" Asphalt Concrete AC-20	9	Stabilized Crushed Aggregate Shoulders
2	Item 402 1 1/2" Asphalt Concrete AC-20	10	Portland Cement Concrete Pavement
3	Item 622 Concrete Barrier, Type B, Modified As Per Plan.	11	Subbase
4	Item 617 Compacted Aggregate, as per plan	12	Surface Treatment
5	Item 407 Tack Coat: 702.02, RC-250; or 702.04, SS-1, SS-1H, MS-2 or RS-1. Tack Coat Rate- 0.1 Gal. per Sq. Yd. with Cover Aggregate at the rate of 7 lbs. per Sq. Yd.	13	Underdrain
6	Item 409 Seal Coat Bituminous Material, 702.02, MC-800 or MC-3000; 702.09 RT-9 or RT-10, 702.03, CBAE-800; or 702.04, RS-1, RS-2, CRS-1 or CRS-2 Applied at the rate of 0.30 Gal. per Sq. Yds. Cover Aggregate No. 8 at the rate of 0.008 Cu. Yds. per Sq. Yd.	14	Waterproofed Aggregate Base
7	Hot Longitudinal Joint, See note in proposal	15	Curb
8	Item 409 Seal Coat, Bituminous Material, 702.09, RT-9 or RT-10; 702.02, MC-800 or MC-3000; 702.04, RS-1, RS-2, CRS-1 or CRS-2; or 702.03, CBAE-800 applied at the rate of 0.35 Gal. per Sq. Yd.		
16	Item 617 Water, applied at the rate of 5 Gal. per Sq. Yd.		
17	Item Special Herbicides for Weed Control.		
18	Item 606 Guard Rail, Type 5,		
19	Item 452 9" Plain Portland Cement Concrete Pavement		
20	Item 408 Bituminous Prime Coat 702.09, RT-2 or RT-3; 702.02, MC-30 or MC-70; 702.03, Primer 20 applied at the rate of 0.40 Gal per Sq. Yd.		



GENERAL NOTES

FHWA REGION	STATE	PROJECT	
5	OHIO		

4
53

CUYAHOGA COUNTY
CUY-71-18.57
CUY-90-14.64

GENERAL

FIELD OFFICE

The Contractor shall provide a suitable field office having a minimum of 300 Sq. Ft. of floor space, and in addition to the requirements of Item 619, he shall provide and maintain sanitary provisions as per 107.06. All the above is included in the lump sum price bid per Item 619 - "Field Office".

ESTIMATED QUANTITIES

Specific locations and usage of the estimated quantities set up on this plan to be used "as directed by the Engineer" shall be made a matter of record by incorporation into the final change order governing completion on this project. Estimated quantities of materials shall not be ordered for delivery to the project unless authorized by the Engineer.

UNDERGROUND UTILITIES

Extreme caution should be exercised in areas with underground electrical conduit or cable, sewers, drains, water lines or other underground utilities.

The contractor is fully responsible for all damage inflicted on underground utilities in the excavation and replacement of sign support foundations, guard rail and the like.

The Contractor shall be responsible for locating all underground utilities and shall protect them or be fully responsible for all damage to underground utilities in the excavation and replacement of sign support foundations, guard rail and the like.

COST PARTICIPATION

The Quantities which appear in the plans have been placed in one of the following participation areas:

COST PARTICIPATION I

FEDERAL INTERSTATE, STATE AND CLEVELAND PARTICIPATION

COST PARTICIPATION II

FEDERAL PRIMARY AND STATE PARTICIPATION

COST PARTICIPATION III

100% STATE PARTICIPATION

COST PARTICIPATION IV

89.78% FEDERAL PRIMARY AND STATE
10.22% FEDERAL INTERSTATE, STATE AND CLEVELAND

PROJECT STATIONING

Original centerline stationing in Projects I-71-5(10)245 and I-90-1(57)24 have been adjusted by 100 stations to establish stationing used in these plans.

ORIGINAL CONSTRUCTION PLANS

For further information in regard to the Original Construction Project Plans, the Contractor shall refer to the Schematic Plan, Sheet 2. These plans may be reviewed at the Ohio Department of Transportation, District Twelve Office at 10100 Broadway Avenue, Garfield Heights, Ohio 44105.

EXISTING TYPICAL SECTIONS

Existing typical sections have been taken from the records and are believed to represent the existing pavement, but the State of Ohio does not guarantee the accuracy of the same.

PUBLIC SAFETY

The period of time that a hazard is left unprotected by the removal of guardrail shall be held to an absolute minimum and in no case shall such a period be longer than one working day. If, after one day, the entire run of guardrail construction is not completed, the following shall apply:

- In areas where existing guardrail has been removed or the guardrail is in a partial stage of completion the Contractor shall provide and maintain Type II barricades with Type C (steady burning) warning lights (see Sheet 9 for detail) within the limits of the unprotected area. The barricades shall be placed at 50' intervals and offset at least two feet from the edge of traveled roadway and in close proximity to the construction. The approach end of a partially completed run of guardrail shall be fastened at ground level to a steel drum.
- If the existing guardrail is for the protection of an obstacle (i.e. sign support, bridge parapet, etc.) the Contractor shall erect Type 6 temporary beam rail in accordance with Item 606.04 for a length of 50 feet preceding the obstacle in the direction of traffic. The requirements of part (A) shall apply to the remaining guardrail within the run.
- The requirements stated in (A) and (B) shall apply for a period not to exceed one week. Where the rebuilding or construction of any run of guardrail cannot be accomplished within one week, the Contractor shall provide and maintain temporary beam rail, in accordance with Item 606.04, in the interim time it takes to complete the work. On the traffic approach end of the temporary beam rail, the end of the first section of rail shall be fastened to the steel drum so that the end of the rail is at the pavement or ground surface. In addition, a Type II barricade with Type B (High Intensity Flasher) Warning Light shall be placed in front of this initial section of temporary beam rail to provide forewarning to the approaching traffic.

The term "guardrail" as used herein shall be understood to cover all types of guardrail existing or proposed for the project including barrier design guardrail.

The work associated with the construction of Item 622, Concrete Barrier, shall be so scheduled as to minimize the time that the median is not blocked by either the existing barrier rail or by the Concrete Barrier. This requirement shall not be construed as waiving the requirements of Item 614, Maintaining Traffic.

The cost of complying with these safety procedures shall be included in the lump sum bid for Item 614, Maintaining Traffic.

EQUIPMENT AND MATERIAL STORAGE

In order to provide for the safety of the traveling public, the Contractor's attention is directed to the following:

- Construction equipment shall not be parked nor materials stored within the existing right of way limits of this project overnight.
- Construction equipment and vehicles in use during the working day shall not be parked any closer than thirty feet (30 ft) to the edge of roadway pavement, unless behind permanent guardrail, when the equipment and/or vehicles are not in operation.
- Private vehicles shall not be parked within the existing right of way limits of this project at any time.
- Materials removed for disposal, reuse, or storage may be stockpiled for pick-up and removal by the end of the same normal working day. Locations of the pick-up points shall be designated by the Engineer and shall be at least thirty feet (30 ft) away from the edge of the roadway pavement, unless behind permanent guardrail.
- Materials brought on-site for use in the project construction should be restricted to that quantity expected to be used during a working day and shall be stockpiled at a location greater than thirty feet (30 ft) from the edge of the roadway pavement, unless behind permanent guardrail. Materials not used during the same working day shall be removed from within the existing project right of way in accordance with (1) above.
- Items 1 through 5 shall apply between the extreme work limits of this project. The above procedures shall be in addition to Item 614.03, Traffic Control, paragraph five. Exceptions to the above procedures shall not be made except as approved in writing by the Director.

The cost of complying with these safety procedures shall be included in the lump sum bid for Item 614, Maintaining Traffic.

MAINTAINING VEHICULAR TRAFFIC

General Provisions:

- Two-way, two-lane traffic shall be maintained at all times on the existing pavement without interruption during construction of the work unless two-way, one-lane traffic is approved for short durations by the Engineer. The Contractor shall set up and operate his equipment in such a manner as to minimize encroachment upon the traveled width of pavement.
- The Contractor shall notify the Engineer and the City of Cleveland Police Division not less than twenty-four (24) hours prior to a scheduled disruption of traffic.
- No stoppage of traffic or lane restrictions shall occur during work hours without law enforcement personnel at each location to direct traffic.
- During overhead construction the Contractor shall provide, if deemed necessary by the Engineer, safety nets and/or other safety devices under the structures to protect traffic in the area of construction.
- During non-working periods, open excavations shall be covered with steel plates and delineated with warning flashers and/or other approved devices as deemed appropriate by the Engineer. Steel plates shall be anchored as directed by the Engineer.
- Existing signs located within the road work areas which are necessary for interim or permanent traffic control shall be removed and reerected in locations as approved by the Engineer.
- The Contractor shall furnish, erect and maintain all new warning and information signs necessary in maintaining traffic. The Contractor shall determine what signs are needed and advise the Engineer two (2) weeks in advance of his detailed plans.
- Traffic control devices shall be set up prior to the start of construction, and shall be properly maintained during the time such special conditions exist. They shall remain in place only as long as they are needed and shall be immediately removed thereafter. Where operations are performed in stages, there shall be in place only those devices that apply to the condition present during the stage in progress. All signs with messages which do not apply during a certain period shall be covered or set aside out of the view of traffic.
- Placement of final Roadway Pavement Markings shall be accomplished only Monday thru Friday between the hours of 9:00 a.m. and 3:00 p.m. with a maximum of one lane each direction closed at any one time. The Contractor shall provide two (2) trailing vehicles plus a police cruiser with flashing beacon following the pavement marking equipment when markings are placed in order to provide advance warning to the motorist of the temporary lane closure and construction. The two (2) trailing vehicles shall travel 500 feet apart with the remote vehicle traveling on the shoulder (left or right as applicable) where usable shoulder is available. The intermediate trailing vehicle shall travel in the closed lane 500 feet behind the pavement marking equipment. The police cruiser shall travel 500 to 1000 feet behind the remote trailing vehicle. Each trailing vehicle shall have yellow flashing beacons plus orange and black construction warning signs mounted on the back facing traffic with standard type messages advising motorists of the work ahead, advisory warning speed, and which lane is closed.
- The Contractor shall furnish all material, labor and equipment necessary to maintain traffic in accordance with the preceding requirements.
- All labor, materials, equipment and any incidentals required to complete the work as described above shall be included in the lump sum bid for Item 614 - Maintaining Traffic.

GENERAL NOTES

FHWA REGION	STATE	PROJECT	
5	OHIO		

CUYAHOGA COUNTY
CUY-71-18.65
CUY-90-14.90

GENERAL CONSTRUCTION SEQUENCE

The Contractor is reminded that, in the conduct of this project, his sequence of operations shall be planned and executed in such a way as to minimize the number of lane reductions and/or lane width reductions required to maintain traffic through the project. In this regard, when a traffic lane is closed, all operations to that lane (except the asphalt concrete overlay and pavement marking) shall be performed in an orderly sequence such that it will not be necessary to again close that lane until the overlay and pavement marking operations begin.

It is the intent of this project to maintain a minimum of two lanes of traffic in both directions on the mainline pavement unless otherwise noted. Also, the Contractor is reminded that the flow of traffic shall not be "split" when being diverted around a work area unless the work is being done in the gore areas of an exit ramp.

Overhead sign supports that are being installed to replace existing sign supports shall be in place prior to the removal of the existing signs and supports.

Schedule of thru lanes to be maintained:

Approximate Station Limits on I-71	Basic Roadway Typical Section (Existing Thru Lanes)	No. of Thru Lanes to be Maintained During Construction*
1. Sta. 1956+50 to Sta. 1980+97.79	3 lanes each direction, 16 foot Median	2 lanes each direction
Sta. 1980+97.79 to Sta. 1984 ± N.B. and Sta. 1989 ± S.B.	3 lanes each direction, 16 foot Median	2 lanes each direction
2. Sta. 1984 ± N.B. and Sta. 1989 ± S.B. to Sta. 1999+13	4 lanes each direction, Median varies from 16 feet to 8 feet	2 lanes each direction
Sta. 4+00 to Sta. 15+70		

*Unless otherwise directed by the Engineer, the minimum width of each thru traffic lane being maintained shall be 11 feet.

Major Work Items

The following major work items will require traffic maintenance procedures which shall be incorporated into the Contractor's sequence of operations:

- A. Removal of existing median pavement and guardrail.
- B. Installation of median drainage facilities.
- C. Installation of concrete median barrier.
- D. Installation of median mounted lighting.
- E. Removal of overhead sign supports.
- F. Installation of overhead sign supports.
- G. Repair of pavement joints.
- H. Repair of pavement panels.
- I. Repair of bridge decks, install safety shape median.
- J. Installation of pressure relief joints.
- K. Jacking conduit under pavement.
- L. Asphalt Concrete overlay.
- M. Pavement Marking.

Suggested Construction Sequence

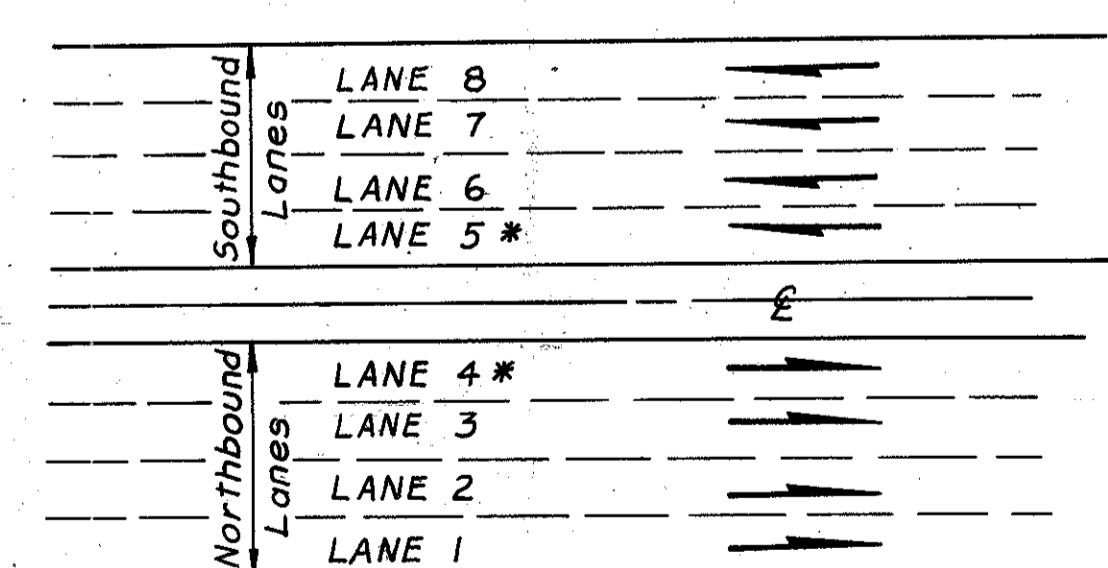
1. Construct all 9" Item 305 required for the maintenance of traffic throughout this project including that determined necessary by the Engineer at the time the work on this project begins.
2. Perform all work in the median and to the median lanes, (Lanes 3,4,5, and 6 in four lanes each direction or Lanes 2,3,6, and 7 in three lanes each direction) while maintaining traffic in accordance with the above schedule. For Lane Number Scheme see detail below. The work referred to herein shall include, but not necessarily be limited to Major Work Items A thru K. The Contractor's operations during the performance of such Work Items as Items E, F, and J will have to be phased in order to conform to the schedule of thru lanes to be maintained.

After Items A thru K have been constructed, Item 403, Asphalt Concrete (leveling course) shall be installed in accordance with the detail of Asphalt Feathering for Maintaining Traffic, see below. The asphalt concrete shall be placed the full length of Sequence 3. (970' minimum) The asphalt shall be removed when Sequence 3 is complete.

The cost of furnishing, placing, maintaining, and removing of Item 403, Asphalt Concrete shall be included in the lump sum bid for Item 614, Maintaining Traffic.
3. Maintain traffic on Lanes 3,4,5, and 6 in four lanes each direction, or Lanes 2,3,6, and 7 in three lanes each direction. Perform the necessary repair work on Lanes 1,2,7, and 8, in four lanes each direction or Lane 1,8, and the two 10 foot outside shoulders. Complete the installation of major overhead sign supports at this time.
4. Perform Major Work Items L and M in accordance with these plans.

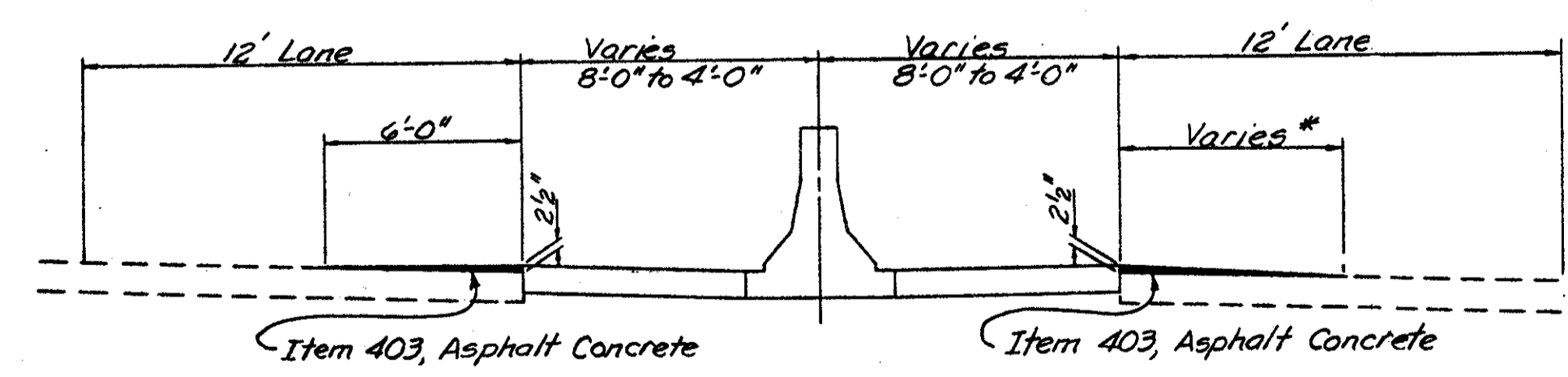
If the Contractor so elects, he may submit an alternate construction sequence provided the intent of the contract (Subsection 104.01) is followed and no additional inconvenience to the traveling public results therefrom. No alternate plan shall be placed into effect until approval has been granted, in writing, by the Director.

The requirements set forth in Section 108.03 of the Specifications are not to be considered waived by the foregoing Suggested Construction Sequence.



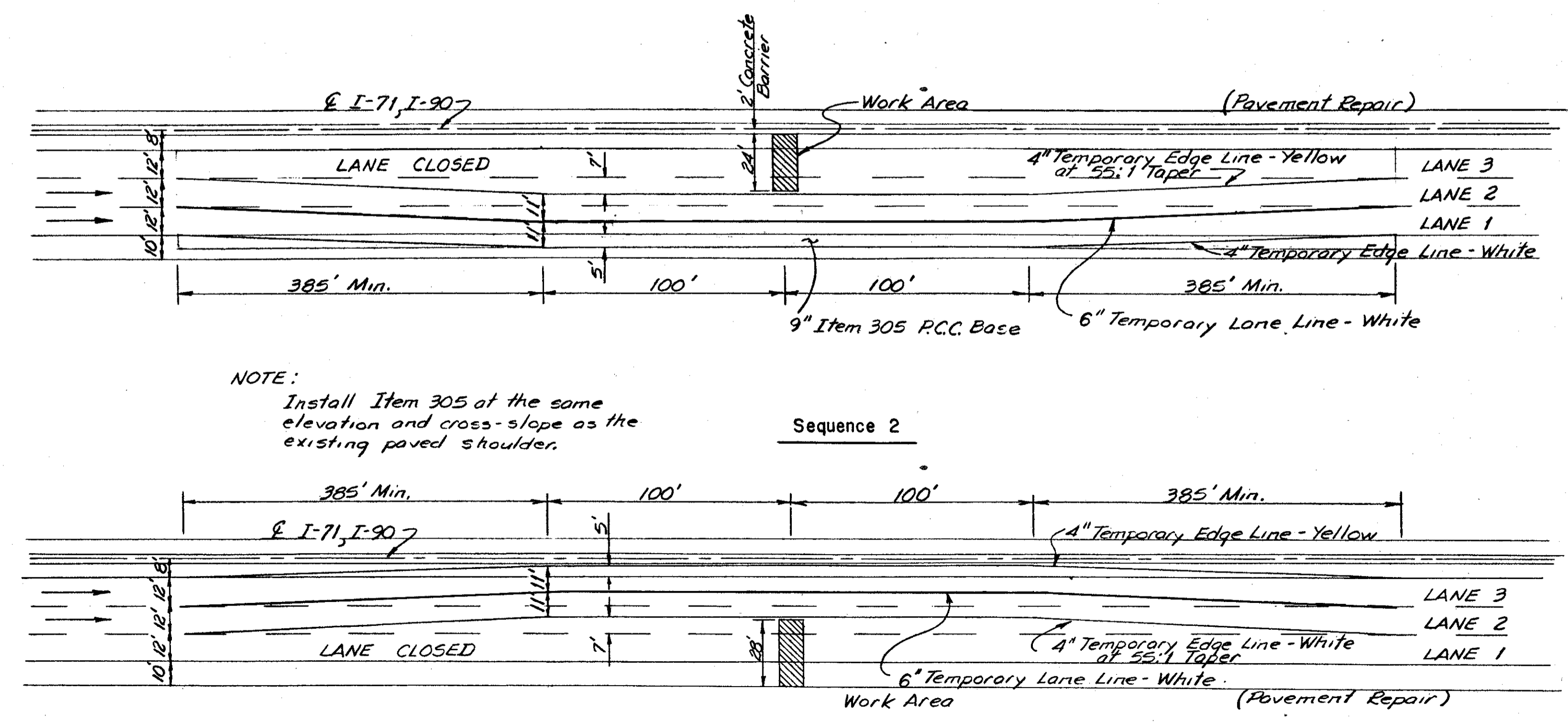
*Reference to Lanes 4 & 5 are not to be used if 3 Lanes of travel exist.

LANE NUMBERING SCHEME
No Scale



*Width varies from 6'-0" minimum for normal cross-slope to 10'-9" maximum for full superelevation cross-slope.

ASPHALT FEATHERING FOR MAINTAINING TRAFFIC



NOTE:
Install Item 305 at the same elevation and cross-slope as the existing paved shoulder.

Sequence 3 DRUMS, NOT SHOWN, SHALL BE SPACED AT A MAXIMUM OF 50 FT. CENTER TO CENTER,

NOTES: SEE SHEETS 10 & 10A FOR TRAFFIC CONTROL DETAILS AT BRIDGE DECK REPAIRS
SEE SHEET 6 FOR NOTE REGARDING PAYMENT FOR TEMPORARY PAVEMENT MARKINGS
SEE SHEET 9 FOR ADDITIONAL INFORMATION

GENERAL NOTES

GENERAL (CONT.)

QUANTITY CALCULATIONS
 MADE BY D.S.P. DATE 11-11-76
 CHECKED BY M.E.E. DATE 2-15-78

FHWA REGION	STATE	PROJECT	
5	OHIO		

6
53

CUYAHOGA COUNTY
 CUY-71-18.57
 CUY-90-14.64

TEMPORARY SIGNS AND SUPPORTS FOR MAINTAINING TRAFFIC

The following requirements shall be adhered to regarding materials and placement of signs to be furnished, installed, maintained, and subsequently removed by the Contractor in accordance with the plans.

Signs shall be aluminum sheet or plywood type with reflective sheeting in accordance with Supplemental Specification 844. Sign Material shall conform with the following schedule:

Individual Sign Area	Material
less than 10 sq. ft.	0.060 Alum. Sheet
10-16 sq. ft.	0.080 Alum. Sheet
16-20 sq. ft.	0.100 Alum. Sheet
over 20 sq. ft.	3/4 inch Plywood

The Contractor shall have the option of furnishing extrusheet aluminum panels as a substitute for plywood.

All supports for ground mounted signs not erected on drums or overpass mounted may be steel channel type, driven to a minimum depth of 5 feet or other method approved by the Engineer, such as banding signs to existing poles. Signs shall have 1, 2, or 3 separate supports in accordance with the following schedule:

TOTAL SIGN ASSEMBLY AREA (Sq. Ft.)	SIGN LENGTH (Horiz.)	4 Ft. or Less	4-10 Ft.	11 Ft. or More
10 or Less		1-3 Lb. Post	2-3 Lb. Post	-
10-20		1-6 Lb. Beam	2-3 Lb. Post	-
21-75		-	2-6 Lb. Beam	3-6 Lb. Beam

Six lb. beam may be used behind guardrail or at some other protected area.

Supports for ground mounted signs greater than 75 sq. ft. in area shall be as directed by the Engineer.

Mounting height and lateral placement of temporary signs shall be in accordance with Figure C-1 of the Ohio Manual of Uniform Traffic Control Devices.

Standards and sign layouts for temporary signs are available from The Bureau of Design Services, 25 South Front Street, Columbus, Ohio 43215.

The Contractor shall be responsible for removal of all temporary signs and supports when no longer needed, and he shall restore each sign site to its original condition.

All signs and supports furnished, erected, maintained, and removed by the Contractor shall become the property of the contractor.

Basis of payment for the above described work shall be included in the Lump Sum Bid for Item 614, Maintaining Traffic.

FLASHING ARROW BARRICADE

Whenever any part of the traveled surface is closed, the motorist shall be warned and diverted by the Contractor through the use of a Flashing Arrow Barricade. The Contractor shall refer to TC-35.10, and the provision set forth in the Ohio Manual of Uniform Traffic Control Devices for Streets and Highways, current edition, for all information regarding furnishing, maintaining, and use of Flashing Arrow Barricades. Payment for Flashing Arrow Barricade shall be included in the lump sum bid for Item 614, maintaining traffic.

TEMPORARY PLASTIC PAVEMENT MARKINGS (PREFORMED)

See note on sheet no. 9 regarding the requirements of this item of work. This item is to be used for the installation of the temporary pavement markings as detailed on sheets 5, 10 & 10A.

The following quantities are included in 614 Maintaining Traffic.

	I-71	I-90
4" temporary edge line, 847.10 type B 1800OLF 3250OLF	-	-
6" temporary continuous lane line, 847.10 type B 900OLF 1400OLF	-	-

TEMPORARY LANE LINES (PAINTED)

After bridge deck repairs have been made and before traffic is returned to normal and before traffic is returned to the 402 intermediate course of resurfacing after rolling is completed, the Contractor shall furnish and apply a 4" painted lane line as per 847.12. This line shall be placed at the joints as shown in the typical sections, sheet 3.

An estimated quantity which includes furnishing, placing, maintaining and if necessary removing the temporary lane lines.

The following quantities are included in 614 Maintaining Traffic.

I-71	4" Temporary Lane Line	5.50 Miles
I-90	4" Temporary Lane Line	7.50 Miles

ITEM SPECIAL - HERBICIDES FOR WEED CONTROL

Prior to placing the Item 617 Compacted Aggregate, an application of Princep 80 W using 25 lbs. in 30 gallons of water per 5000 square yards, for Amizine or approved equal shall be applied to the shoulder bed. The rate and method of application of an approved equal shall be in strict conformance with the manufacturer's instructions.

Payment shall be made at the contract unit price bid per square yard, "Item Special - Herbicides for Weed Control," which price shall constitute full compensation for all labor, materials, tools, equipment and water required to complete this item of work.

The following estimated quantity has been added to the General Summary:

I-71	1909 s.y.	Cost Participation 75%
I-90	2432 s.y.	Cost Participation 75%

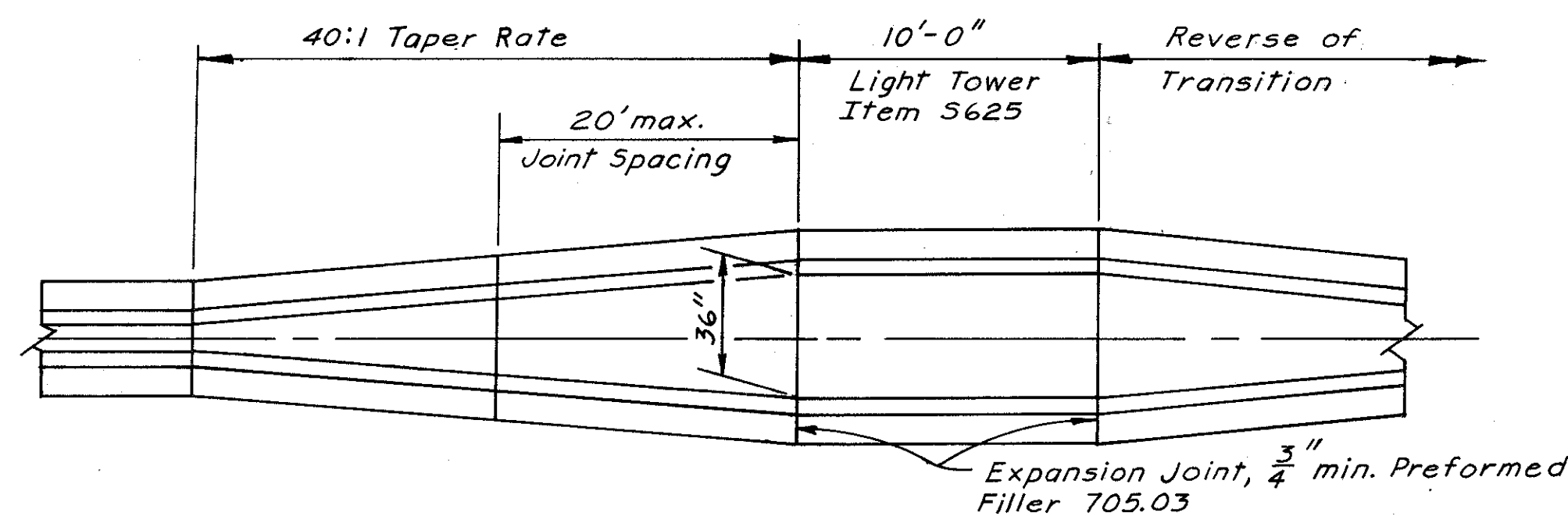
ROADWAY

LOCATIONS OF GUARD RAIL

The location of guard rail runs as shown in these plans are subject to adjustment, as determined by the Engineer, to assure that the planned installations will afford maximum protection for traffic. The location of proposed guard rail as shown on the plans may need to be shifted longitudinally so that the locations of the new guard rail posts do not coincide with the old rail post locations.

ITEM 622 - TRANSITIONS MEDIAN MOUNTED LIGHT TOWER FOUNDATION

The concrete barrier shall transition from a normal width of 12" to a light tower foundation width of 36" at a 40:1 taper rate. The construction shall be performed as shown on the detail.



MEDIAN LIGHT TOWER FOUNDATION TRANSITION

NO SCALE

Locations and details of the Light Tower Foundations are shown in the Lighting Plans. The basis of payment for transitioning the concrete barrier shall be included in the unit price bid per linear feet of Item 622, Concrete Barrier.

GUARDRAIL REMOVED

In areas where guardrail is removed or new guardrail is to be installed outside the limits of Item 617, the following shall apply:

- All areas disturbed by the removal of guardrail shall be graded and seeded to match surrounding conditions.
- An area under new guardrail 3' wide, measured from one foot in front of the rail shall not be seeded.

Payment for all of the above shall be at the unit price bid for Item 202 Guardrail Removed for Storage or Item 202 Guardrail, Barrier Design, Removal for Storage, measured by the linear foot, center-to-center of terminal posts, or center of bridge connection splices.

FASTENING OF BRIDGE TERMINAL ASSEMBLIES:

Bridge terminal assemblies which are to be fastened to existing concrete parapets by steel box blockouts shall be attached by means of through bolts. Expansion anchor bolts will not be permitted.

Where self-drilling anchors are permitted and are used, the holes shall be drilled with the tubular expansion shell, rather than with a bit, to insure a proper fit. The anchors shall be installed flush with the surface of concrete.

848 ASPHALT CONCRETE

Subsequent to the completion of plans, the asphalt concrete used on this project has been revised from items 402 and 404 to supplemental specification 848. All reference to 402 and 404 appearing on the plans shall be considered to read as follows:

- 402 becomes 848 Asphalt Concrete Intermediate Course, Type 2
- 404 becomes 848 Asphalt Concrete Surface Course, Type 1

On this project, item 848, table 2-2, properties of mixtures shall be for heavy traffic volumes.

CONCRETE BARRIER, TYPE B MODIFIED, AS PER PLAN

This item of work shall include all labor and materials necessary to complete this item as detailed in the plans, including transitions of sign supports, station marking, 4" raceway and at lead-in barriers to structures.

The Contractor shall stencil station numbers into both sides of the concrete barrier before it takes its final set. The complete station number is to be marked every 100 feet. The numerals shall be (3) or (4) inches in height and (4) inches in depth. The station numbers shall be placed parallel with the pavement edge and centered near the top edge of the concrete barrier section.

All lateral tapering of the concrete barrier in transition sections shall be done at a minimum rate of one foot in forty feet.

Installation of the 4" raceway in transition sections shall be adjusted to permit alignment with 4" conduit, as shown on Sheet 21, for "Barrier Wall Assembly for Existing Sign Supports, As Per Plan".

Payment for all of the above shall be included in the unit price bid per linear foot of Item 622 Concrete Barrier, Type B, Modified, As Per Plan.

GENERAL NOTES

QUANTITY CALCULATIONS
 MADE BY D.S.P. DATE 11-15-76
 CHECKED BY M.E.E. DATE 2-15-78

FHWA REGION	STATE	PROJECT
5	OHIO	

7
53

CUYAHOGA COUNTY
 CUY-71-18.57
 CUY-90-14.64

ROADWAY (CONT.)

SPECIAL - EROSION REPAIR

Eroded areas shown in the plans and cross sections, to be repaired, shall be graded smooth (eliminating all erosion ridges) to a level just beneath the bottom of the erosion gulleys and in the same plane as the fill or cut slope.

The slopes shall be returned to their original shape by filling with suitable material and compacting, as per Item 203.

The repair areas shall be seeded and mulched unless otherwise directed by the Engineer, except where crushed aggregate slope protection is used.

Payment for excavation and embankment or crushed aggregate slope protection required to regrade the slopes shall be included in the lump sum bid for Item Special - Erosion Repair; payment for Seeding and mulching shall be in accordance with Item 659.

SEEDING AND MULCHING

Seeding quantities associated with Item Special - Erosion Repair are only approximate and final payment will be for the actual number of square yards of disturbed area seeded, as per Item 659. Commercial fertilizer having a formula of 12-12-12 shall be applied per 659.08.

The following estimated quantities have been added to the General Summary to be used as directed by the Engineer; for Project I-FI-71-5(5)247, and Project I-FI-90-1(109)28

ITEM 659	Commercial Fertilizer (12-12-12)	
	0.25 Tons	Cost Participation III
ITEM 659	Seeding and Mulching	
	2000 s.y.	Cost Participation III
ITEM 659	Water	
	4.5 M. gal.	Cost Participation III

AGRICULTURAL LIMING, AS PER PLAN

The location and need for agricultural liming will be determined by laboratory tests, after rough grading operations have been performed. The following quantity of agricultural liming shall be added to the General Summary and is sufficient for the entire project. However, if laboratory tests show that liming is not required, this work will be nonperformed.

The following quantity has been added to the General Summary.

Cost Participation III	1 Ton	I-FI-71-5(5)247
Cost Participation III	1 Ton	I-FI-90-1(109)28

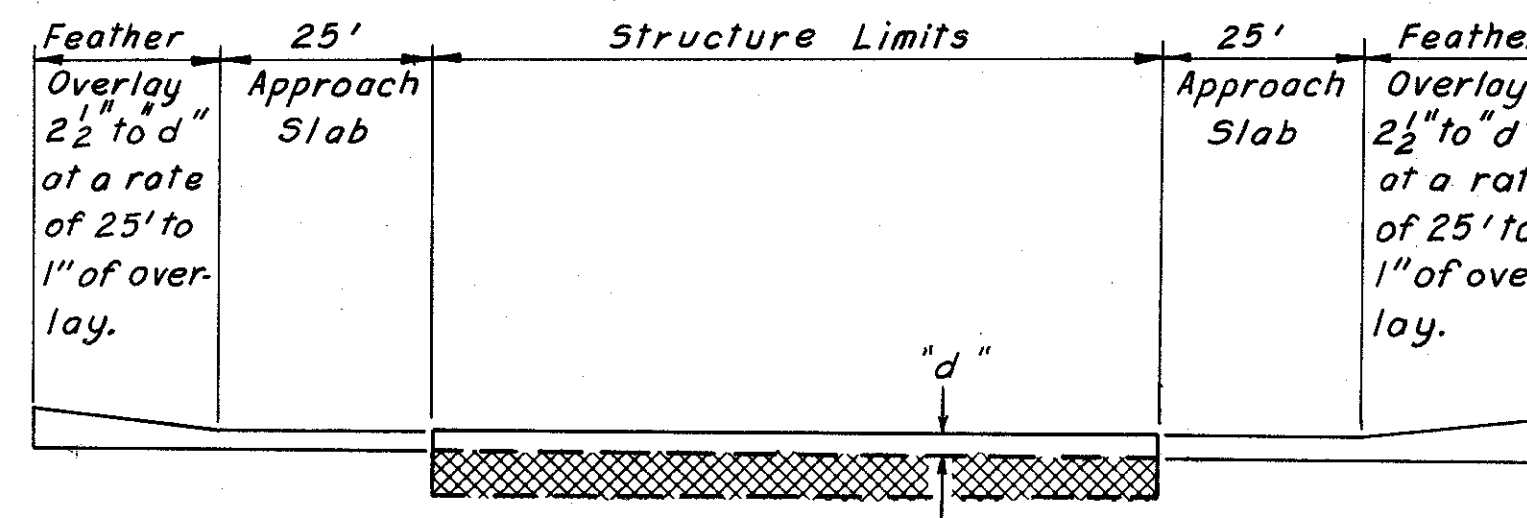
REMOVAL OF EXISTING PIPE

The removal of all existing pipe drains which would normally be removed in various excavation items shall be included for payment in the unit price bid for the respective excavation items unless otherwise itemize in the plans. Any pipes abandoned will have ends plugged.

PAVEMENT

FEATHERING RESURFACING ON APPROACH SLABS

The proposed depth of asphalt resurfacing on the roadway shall be feathered as shown in the detail in order to match the proposed depth of the resurfacing on structures, CUY-71-1887C, CUY-90-1490, CUY-90-1490W (North approach slab only), and CUY-90-1505. For structures CUY-90-1463R and CUY-90-1490W (South approach slab only), the overlay shall be feathered from the depth "d" to 0 inches.



TYPICAL FEATHERING DETAIL AT STRUCTURES

No Scale

$$d = 1\sqrt{2}$$

ITEM 404 ASPHALT CONCRETE

Where resurfacing terminates on the mainline and ramps, any pavement removed by chipping or other means for installing butt joints as per Standard Drawing BP-5 shall be included in the payment per cubic yard of the accepted quantities of Item 404 Asphalt Concrete, complete in place.

ITEM 617 COMPACTED AGGREGATE AS PER PLAN

This item of work shall include site restoration, excavation and embankment operations necessary for the placement of this item in accordance with the requirements of Item 203.

The site restoration work will include grading of the shoulder area and adjacent slopes where traffic or weather may have built a ridge of earth and debris. The Contractor shall provide smooth shoulder slopes to assure positive shoulder drainage. All areas disturbed by site restoration work outside the limits of Item 617 shall be reseeded, unless under new guardrail.

Before completion of work on this project by the Contractor, any damage to the Compacted Aggregate caused by the installation of guardrail or other item of work shall be repaired and approved by the Engineer, at no additional cost to the State.

All site restoration, excavation and embankment operations shall be included in the unit price bid for Item 617, Compacted Aggregate, As Per Plan.

The following estimated quantities have been provided in the General Summary.

I-71		
ITEM 617	Compacted Aggregate, As Per Plan	
	133 c.y.	Cost Participation II
ITEM 617	Water	
	10 M. gal.	Cost Participation II
ITEM 616	Calcium Chloride	
	1 Ton	Cost Participation II
I-90		
ITEM 617	Compacted Aggregate, As Per Plan	
	169 c.y.	Cost Participation II
ITEM 617	Water	
	15 M. Gal.	Cost Participation II
ITEM 616	Calcium Chloride	
	1.25 Ton	Cost Participation II

ITEM 305 - 9" PORTLAND CEMENT CONCRETE BASE AS PER PLAN

This item shall include the removal and disposal of the existing paved shoulder material to a depth of 9 inches, compaction of the excavated area and construction of a 9" Item 305-Portland Cement Concrete Base, * where shown in the plans or directed by the Engineer, for the purpose of maintaining traffic.

Payment for the labor, materials and equipment shall be at the unit price bid per square yard of Item 305-9" Portland Cement Concrete Base.

The following estimated quantity has been added to the General Summary:

	I-71	Cost
Item 305 - 9" Portland Cement Concrete Base, As Per Plan	3,500 Sq. Yds.	Part. I
	I-90	
	3000 Sq. Yds.	Part. I

*An expansion bolt joint as shown on std. construction drawing BP-3 is required as part of this item

ITEM 404 ASPHALT CONCRETE FOR MAINTAINING TRAFFIC

This item shall be used to temporarily repair holes in the bridge decks, roadway and paved shoulders.

The following estimated quantities have been provided in the general summary.

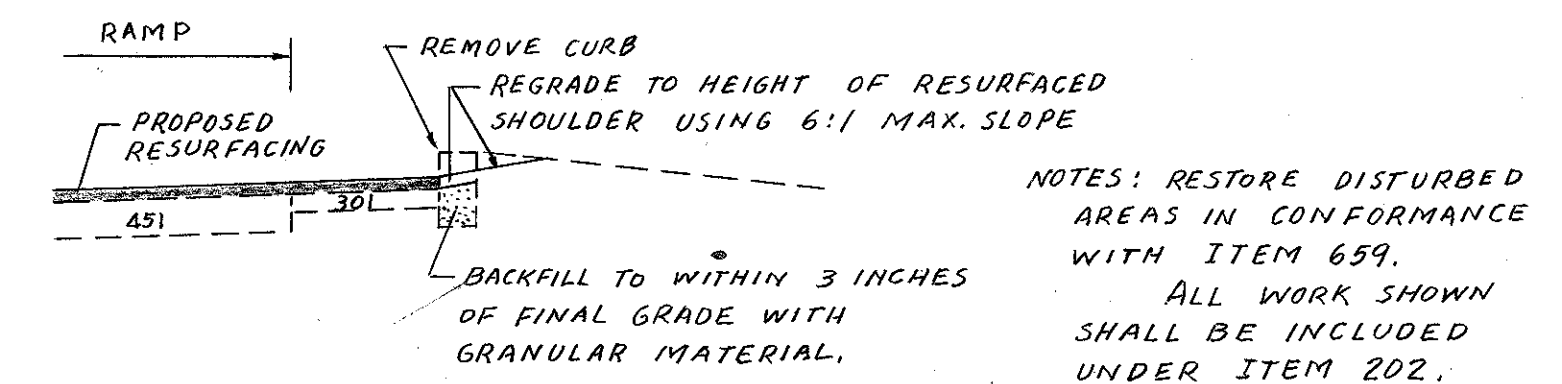
I-71	
Item 404 Bituminous Concrete for maintaining traffic	
40 C.Y.	cost participation I

I-90	
Item 404 Bituminous Concrete for maintaining traffic	
25 C.Y.	cost participation I

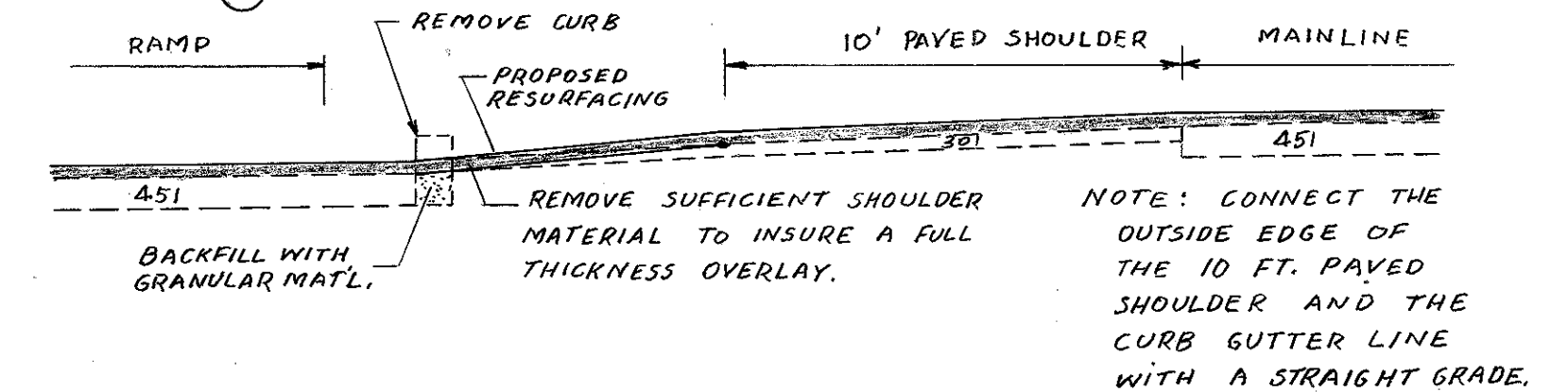
ITEM 202 - CURB REMOVED AS PER PLAN (TYPE 7 & TYPE 8)

THE FOLLOWING DETAILS AND SPECIFICATIONS SHALL APPLY TO THIS ITEM OF WORK:

CASE (1) - TYPE 7 CURB REMOVED

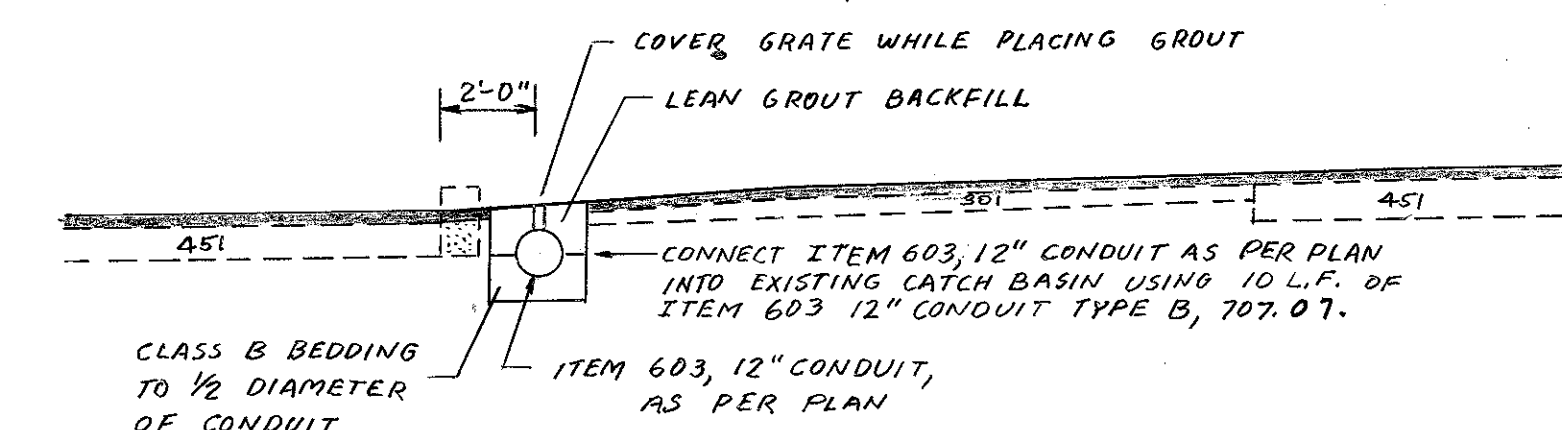


CASE (2A) - TYPE 8 CURB REMOVED (MAINLINE AND RAMP ON UPGRADE)



CASE (2B) - TYPE 8 CURB REMOVED (MAINLINE AND RAMP ON DOWNGRADE)

THE DETAILS OF CASE 2A, SHALL APPLY WITH THE FOLLOWING EXCEPTIONS



ALL COSTS OF LABOR AND MATERIALS TO PERFORM ALL WORK AS DETAILED ABOVE (WITH THE EXCEPTION OF THE RESURFACING ITEMS AND THE 603 ITEMS) SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 202 - CURB REMOVED, AS PER PLAN.

(See Sh. No. 16)

MADE D.S.P. DATE 2-17-77
 TRACED 349 DATE 2-14-78
 CHECKED M.E.E. DATE 2-18-78
 SCALE None

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

HNTB

Rev. 10-10-78
 GENERAL NOTES

GENERAL NOTES

QUANTITY CALCULATIONS
 MADE BY D.S.P. DATE 11-15-77
 CHECKED BY M.E.E. DATE 2-15-78

FHWA REGION	STATE	PROJECT
5	OHIO	

8
53

CUYAHOGA COUNTY
 CUY-71-18.57
 CUY-90-14.64

DRAINAGE

REVIEW OF DRAINAGE FACILITIES

Before any work is started on the project, and before the final acceptance by the State, representatives of the State and the Contractor along with local representatives shall make an inspection of the existing sewers within the work limits which are to remain in service and which may be affected by the work. The condition of the existing conduits and their appurtenances shall be determined from field observations. Records of the inspection shall be kept in writing by the State.

All new conduits, inlets, catch basins and manholes constructed as part of the project shall be free of all foreign matter and in a clean condition before the project will be accepted by the State.

All existing sewers inspected initially by the above-mentioned parties shall be maintained and left in a condition reasonably comparable to that determined by the original inspection. Any change in the condition resulting from the Contractor's operations shall be corrected by the Contractor to the satisfaction of the Engineer.

Payment for all operations described above shall be included in the unit prices bid for the pertinent 603 conduit items of the contract.

CATCH BASINS AND INLETS AT CURBED SHOULDERS & CURBED RAMP NOSES

While performing the resurfacing work, the Contractor shall take care to keep open the grates of existing catch basins and curb openings of existing curb inlets at curbed shoulders and curbed ramp noses. The contractor shall taper the resurfacing course to match the existing elevations of the grates and curb openings as directed by the Engineer.

CONNECTION TO EXISTING PIPES

Where the plans provide for a proposed conduit to be connected to, or to cross either over or under an existing sewer, it shall be the responsibility 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.

LOCATION AND FLOW LINE ELEVATIONS OF EXISTING SEWERS AND EXISTING UNDERDRAINS

Flow line elevations and locations of existing sewers and existing underdrains have been obtained from the existing design plans.

It shall be the Contractor's responsibility to locate the existing sewers and existing underdrains both as to line and grade, before connecting the pipes to the proposed median inlets.

Payment for all operations described above shall be included in the unit price bid for the pertinent 604 structure item.

EXISTING UNDERDRAINS

Where existing underdrains are encountered and no provision has been made for new underdrains, they shall be connected to new inlet with Item 605. The following quantities have been provided in the General Summary to be used as directed by the Engineer for that purpose. The materials shall not be ordered by the Contractor unless prior approval is received from the Project Engineer.

COST PARTICIPATION

Item 605 6" Unclassified Pipe Underdrains	50 Lin. Ft. I-FI-71-5(51)247
Item 605 6" Unclassified Pipe Underdrains	50 Lin. Ft. I-FI-90-1(109)28

PROPOSED I-3 MEDIAN INLETS

Normal Gutter (N.G.) elevations given in the plans for the proposed I-3 Median Inlets were obtained using existing design plans and adding 2 1/2" thickness of resurfacing courses.

Payment for proposed inlets include all excavations (including removal of any obstruction), labor and materials to construct new inlets. Existing pipes are to be left in place, unless otherwise noted on the plans, and proposed inlets are to be built around existing pipes. Care should be taken to protect existing pipes from damage during construction of the inlets. All inlets shall be cast-in-place below grade.

Payment for all operations described above shall be included in the unit price bid for the pertinent 604 structure item.

ITEM 604 - STANDARD NO. I-3B MEDIAN INLET, MODIFIED N, AS PER PLAN

In place of the 4'-6" depressed apron, shown on detail "Standard No. I-3B Median Inlet, Modified, As Per Plan" on sheet 18, a variable width apron with a width of 4'-3" at the center of the inlet shall be provided.

Payment for the above work shall be included in the contract bid price per each Item 604 - Standard No. I-3B Median Inlet, Modified N, As Per Plan.

ITEM 604 - STANDARD NO. I-3B MEDIAN INLET, MODIFIED O, AS PER PLAN

In place of the 4'-6" depressed apron, shown on detail "Standard No. I-3B Median Inlet, Modified, As Per Plan" on sheet 18, a variable width apron with a width of 3'-8" at the center of the inlet shall be provided.

Payment for the above work shall be included in the contract bid price per each Item 604 - Standard No. I-3B Median Inlet, Modified O, As Per Plan.

EXISTING PIPES

If existing pipes are encountered (which are not shown in the plans) and disturbed while removing existing inlets they shall be replaced by new pipes as directed by the Engineer. The following estimated quantities have been provided in the general summary to be used as directed by the Engineer.

COST PARTICIPATION I

Item 202 Pipe Removed 15" and Under	I-FI-71-5(51)247	I-FI-90-1(109)28
Item 603 12" Type B Conduit	5 Lin. Ft.	5 Lin. Ft.
Item 603 15" Type B Conduit	5 Lin. Ft.	5 Lin. Ft.

The material shall not be ordered by the Contractor unless prior approval is received from the Engineer.

SIGNING

SIGNS, BY TYPE

Sign face background material shall be Type F reflective sheeting unless otherwise specified in the plans. The proposed background color and legend type shall be shown on each sign layout shop drawing submitted for review in accordance with 844.04.

202 REMOVAL OF GROUND MOUNTED SIGNS FOR STORAGE

This work shall consist of the removal of ground mounted signs as shown on the plans. All signs removed shall be stored within the limits of the project at locations approved by the Engineer for removal by State forces.

To assure maintenance of adequate traffic control at all times, no signs shall be removed without the approval of the Engineer.

Payment for removal of signs will include all necessary labor and equipment required to perform the required work as indicated above.

Basis of payment will be as follows for all signs less than forty (40) square feet:

202 Removal of Ground Mounted Signs for Storage, at the contract bid price per each.

EXISTING SIGN REVISED, AS PER PLAN

This item of work shall consist of revising an existing sign by removing existing legend and furnishing and installing demountable copy and extrusheet sign panel and back bracing as needed to change the sign as detailed on the plan sheets.

Payment will be made for each Existing Sign Revised as per plan at the contract unit price and be full compensation for all labor and materials required to complete the work in a craftsman like manner.

202 REMOVAL OF GROUND MOUNTED SIGN INSTALLATIONS FOR STORAGE

This work shall consist of the removal of sign installations as shown on the plans. Work shall consist of the removal of sign supports, signs and foundations and the disposal of surplus material.

All signs, supports and accessories removed shall be stored within the limits of the project at locations approved by the Engineer for removal by State forces.

To assure maintenance of adequate traffic control at all times, no signs shall be removed without the approval of the Engineer.

Payment for removal of Ground Mounted Sign Installations will include all necessary labor and equipment required to perform the required work as indicated above.

Basis of payment will be as follows:

202 Removal of Ground Mounted Sign Installations for Storage, at the contract bid price per each, for signs less than forty (40) square feet

202 REMOVAL OF OVERHEAD SIGN SUPPORT FOUNDATION, AS PER PLAN

This item of work shall include the removal of foundations and electrical connections for existing overhead sign support installations.

The existing foundations shall be removed to a depth below ground of one foot in accordance with Item 202. If in accordance with these specifications, the minimum depth of removal of a median foundation interferes with the installation of the concrete barrier base, the Contractor shall remove the foundation to a satisfactory depth to avoid obstruction. Any material required to match the surrounding subbase shall be included in this work. All work necessary to provide a suitable subbase for concrete barrier base shall be approved by the Engineer prior to installation of the concrete barrier base.

Additional work shall include the removal of the sign service cable, and capping of the sign service conduit in the pullbox adjacent to the outside berm. Cable splices, when required, are included in this work and shall be made in accordance with 5713.15(2).

Payment shall include all labor and materials necessary to complete the work as described above at the contract bid price per each foundation for Item 202-Removal Of Overhead Sign Support Foundations, As Per Plan.

MADE D.S.P. DATE 2-18-77
 TRACED JAG DATE 2-7-78
 CHECKED M.E.E. DATE 2-15-78
 SCALE None

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

HNTB

TRAFFIC NOTES & DETAILS

FOR ASPHALT CONCRETE WORK

FHWA REGION	STATE	PROJECT	
5	OHIO		

9
53

CUYAHOGA COUNTY
CUY-71-18.57
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TRAFFIC CONTROL TIMING AND SEQUENCE OF OPERATIONS FOR ASPHALT CONCRETE WORK:

ALL ASPHALT CONCRETE OPERATIONS SHALL BE CONDUCTED IN A MANNER THAT WILL ASSURE MINIMUM DANGER AND INCONVENIENCE TO THE HIGHWAY USERS. ALL ASPHALT CONCRETE WORK ON ANY TRAVELED PORTION OF THE HIGHWAY FACILITY SHALL BE PERFORMED AT NIGHT BETWEEN THE HOURS OF 6:30 P.M. AND 6:30 A.M.

IN EITHER TRAVELED DIRECTION, ALL OF THE INTERMEDIATE LEVELING COURSE SHALL BE PLACED BEFORE WORK IS BEGUN ON THE SURFACE COURSE. THE PROCEDURE FOR INSTALLATION OF ANY LAYER ASPHALT SHALL BE SUCH THAT NO DISCONTINUITY IN THE ELEVATION OF THE TRAVELED SURFACE SHALL EXIST AT ANY TIME OTHER THAN DURING THE PERMITTED WORKING HOURS AND THEN ONLY WHEN SUCH PROPER TRAFFIC CONTROL DEVICES ARE IN PLACE AS WILL PREVENT SUCH A DISCONTINUITY BEING A DANGER TO HIGHWAY USERS.

TRAFFIC MUST BE MAINTAINED AT ALL TIMES IN BOTH DIRECTIONS; HOWEVER, EITHER THE RIGHT (2) OR LEFT (2) LANE(S) IN EITHER DIRECTION MAY BE CLOSED ONLY DURING THE PERMITTED WORK HOURS TO ALLOW THE LAYING OF ASPHALT CONCRETE. TRAFFIC CONTROL FOR SUCH LANE CLOSINGS SHALL BE AS SHOWN ON THIS SHEET.

WHENEVER ANY PART OF THE TRAVELED SURFACE IS CLOSED, THE MOTORISTS SHALL BE WARNED AND DIVERTED BY THE CONTRACTOR THROUGH THE USE OF A FLASHING ARROW, IN ADDITION TO THOSE PROVISIONS SET FORTH IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS.

REFERENCE SHALL ALSO BE MADE TO SUPPLEMENTAL SPECIFICATION 844.
FOR A TWO LANE DIRECTIONAL PAVEMENT, ONLY ONE LANE AT A TIME MAY BE CLOSED DURING THE PAVING OPERATIONS.

AN ACCEPTABLE METHOD OF ACCOMPLISHING THE PLACEMENT OF ANY LAYER OF ASPHALT CONCRETE WOULD BE FOR THE CONTRACTOR TO CLOSE THE LEFT (TWO) LANE(S) IN EITHER DIRECTION AT THE BEGINNING OF THE PERMITTED DAILY WORK PERIOD AND TO PLACE ONE LAYER OF ASPHALT CONCRETE AN EQUAL DISTANCE IN EACH OF THE CLOSED LANES DURING THE FIRST HALF OF THE DAILY WORK PERIOD. THE RIGHT (TWO) LANES WOULD THEN BE CLOSED AND, DURING THE SECOND HALF OF THE SAME SINGLE DAILY WORK PERIOD, THE CORRESPONDING LAYER OF ASPHALT CONCRETE WOULD BE PLACED IN (BOTH OF) THE RIGHT (TWO) LANES FOR THE SAME DISTANCE AND ADJACENT TO THE AREA IN WHICH IT WAS PLACED IN THE LEFT (TWO) LANE(S). ANY OTHER METHOD THE CONTRACTOR DESIRES TO USE MUST BE APPROVED BY THE ENGINEER BEFORE ANY WORK BEGINS.

LANE MARKING:

LANE MARKINGS SHALL BE PLACED AND MAINTAINED ON ANY SURFACE OPEN TO TRAFFIC, INCLUDING THE 402 INTERMEDIATE COURSE WHEN IT IS BEING USED TO CARRY TRAFFIC:

ON ANY SURFACE WHICH IS TO BE LATER COVERED WITH ASPHALT MATERIAL AS PART OF THIS PROJECT, THE RATE OF APPLICATION OF PAINT MAY BE HALF OF THAT SET OUT IN 621.05 HOWEVER, THE RATE APPLICATION OF GLASS BEADS REMAIN AT 6 POUNDS PER GALLON OF PAINT.

PAYMENT FOR THIS ITEM SHALL BE INCLUDING IN LUMP SUM BID FOR ITEM 614 MAINTAINING TRAFFIC RATHER THAN AS DESCRIBED IN 621.16.

BEFORE ANY PORTION OF THE FINAL 404 WEARING COURSE BEING PLACED AS PART OF THIS CONTRACT IS OPENED TO TRAFFIC, THE CONTRACTOR SHALL PERFORM EITHER OF THE FOLLOWING:

- 1) APPLY LANE MARKINGS TO THE LEFT OF PROPOSED LOCATIONS OF THE FINAL PAVEMENT MARKING ITEMS SHOWN ON SHEETS 14 THROUGH 15. THE RATE OF APPLICATION OF PAINT AND BEADS SHALL BE THE SAME AS THAT SPECIFIED ABOVE FOR THE 402 INTERMEDIATE COURSE. PAYMENT SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614-MAINTAINING TRAFFIC.

- OR 2) IMMEDIATELY COMPLETE THE FINAL PAVEMENT MARKING ITEMS SHOWN ON SHEETS 14 THROUGH 15

TRAFFIC CONTROL MATERIALS:

SIGN:

SIGN DIMENSIONS AND SPECIFICATIONS, INCLUDING LETTER SIZE, SHALL BE AS PROVIDED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

ALL SIGNS SHALL HAVE A REFLECTORIZED BACKGROUND OF REFLECTIVE MATERIAL AS DESCRIBED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

BARRELS:

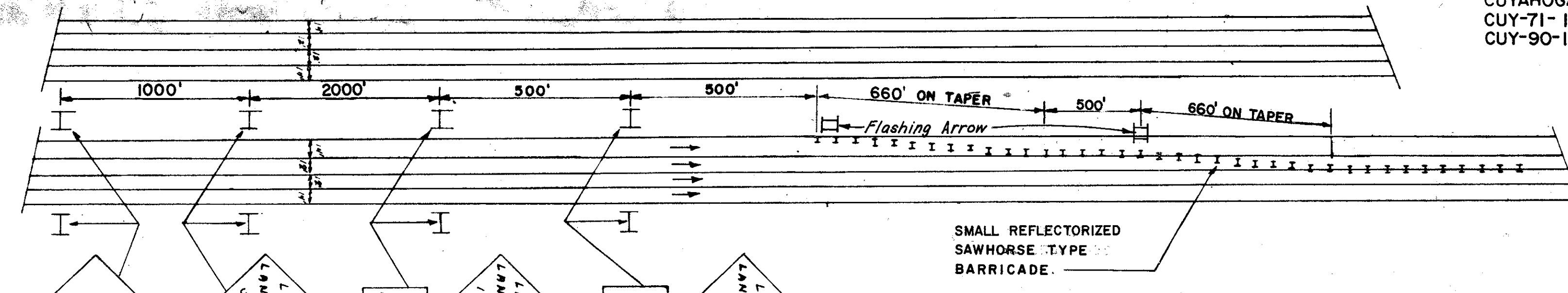
ALL BARRELS SHALL BE 55 GALLON STEEL DRUMS PAINTED BLACK AND MARKED ALTERNATELY WITH (3) ORANGE AND (2) WHITE CIRCUMFERENTIAL BANDS, AS PER 614.03. THEY SHALL BE SUBSTANTIALLY FREE FROM RUST AND MAJOR DEFORMITIES, AND SHALL BE FILLED AND MAINTAINED 1/3 FULL WITH WATER, TO INSURE STABILITY. WARNING SIGNS AND DRUMS SHALL BE IN ACCORDANCE WITH PERTINENT SECTIONS OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

FLASHERS:

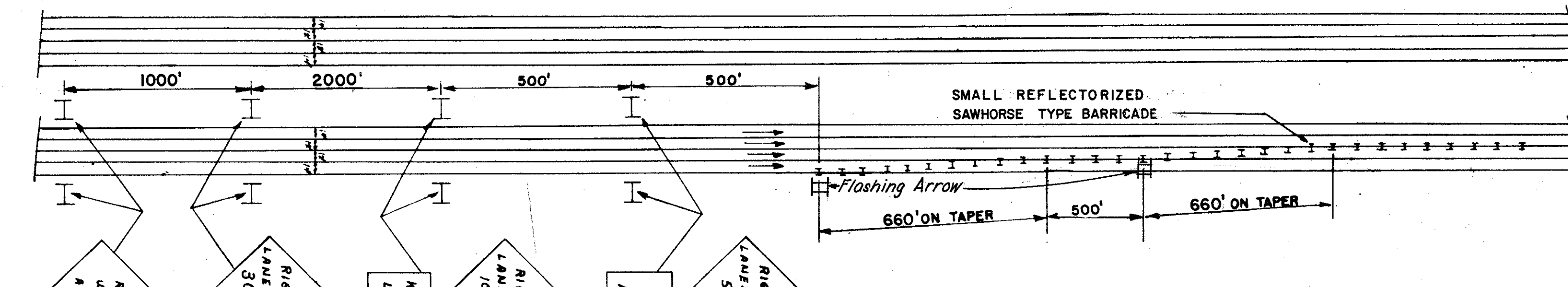
FLASHERS SHALL BE IN ACCORDANCE WITH PERTINENT SECTIONS OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AND SUPPLEMENTAL SPECIFICATION 844

SMALL BARRICADES:

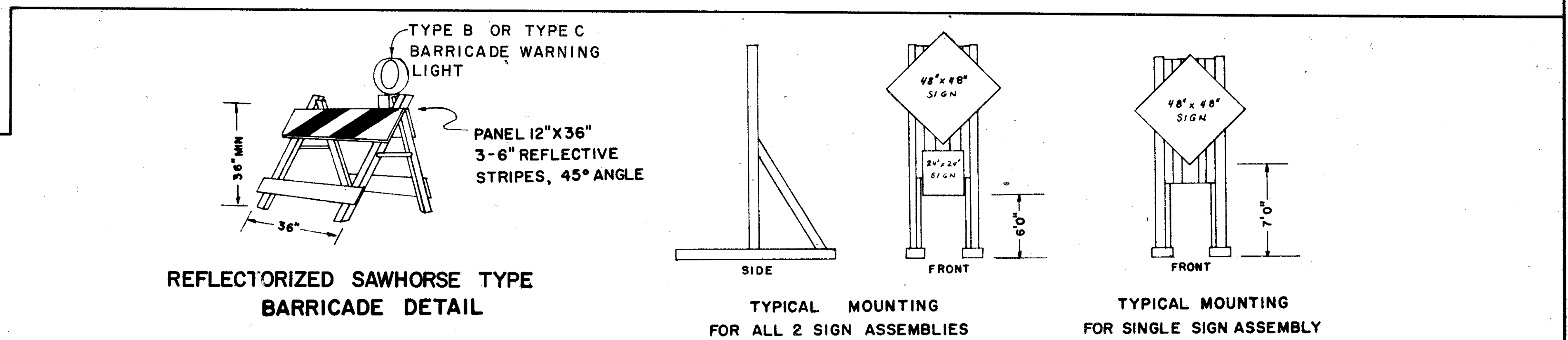
TYPE II BARRICADES SHALL BE USED TO CLOSE LANES WHERE REQUIRED, FOR ALL REPAIRS. THESE SHALL BE OF EITHER WOOD OR METAL. THESE SHALL BE AT LEAST 36" HIGH AND 36" WIDE. NEAR THE TOP OF THE BARRICADE THERE SHALL BE A PANEL WITH ALTERNATE ORANGE AND REFLECTORIZED WHITE 6" WIDE STRIPES. THIS PANEL SHALL BE AT LEAST 36" WIDE AND 12" HIGH. A SINGLE FACED FLASHER SHALL BE LOCATED AT THE TOP OF THE BARRICADE AT THE END NEAREST TO TRAFFIC. THE FLASH SHALL FACE ONCOMING TRAFFIC. THE BARRICADES SHALL BE OF SUFFICIENT STABILITY SO THAT WIND OR TRAFFIC AIR TURBULANCE WILL NOT UPSET THEM. BARRICADES SHALL BE IN ACCORDANCE WITH PERTINENT SECTIONS OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.



LEFT 2 LANES CLOSED



RIGHT 2 LANES CLOSED



IF WEIGHTS ARE ADDED TO IMPROVE STABILITY, THE WEIGHTS SHALL BE ADDED TO THE LOWER HORIZONTAL BRACING.

SIGN STANDARDS SHALL BE INSTALLED DURING WORKING HOURS 2 FT. OFF EDGE OF BERM OR BEHIND GUARDRAIL WHEN POSSIBLE.

GENERAL TRAFFIC CONTROL NOTES AND DETAILS

FOR ADDITIONAL NOTES, SEE SHEETS 4-5

TEMPORARY PLASTIC PAVEMENT MARKINGS SHALL INCLUDE REMOVING ALL CONFLICTING EXISTING PAVEMENT MARKINGS. THE WORK WILL NOT BE CONSIDERED ACCEPTABLE UNLESS THE PAVEMENT MARKINGS ARE REMOVED. ALL TEMPORARY PAVEMENT MARKINGS SHALL BE MAINTAINED FOR THE DURATION OF THE PARTICULAR CLOSURE AT NO ADDITIONAL COST TO THE STATE. ALL TEMPORARY PAVEMENT MARKINGS SHALL BE REMOVED CONCURRENTLY WITH THE REMOVAL OF EACH TRAFFIC CLOSURE UNLESS THEY ARE TO BE USED IN THE FOLLOWING PHASE. WORK SHALL INCLUDE ALL MATERIALS, LABOR, TOOLS, AND EQUIPMENT TO PERFORM THE VARIOUS ITEM OF WORK. COST OF TEMPORARY PAVEMENT MARKINGS SHALL BE INCLUDED IN ITEM 614 MAINTAINING TRAFFIC. SEE NOTE IN PROPOSAL.

MADE M.F.E. DATE 5-3-76
TRACED J.B.G. DATE 5-2-76
CHECKED D.S.P. DATE 5-13-76
SCALE None

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

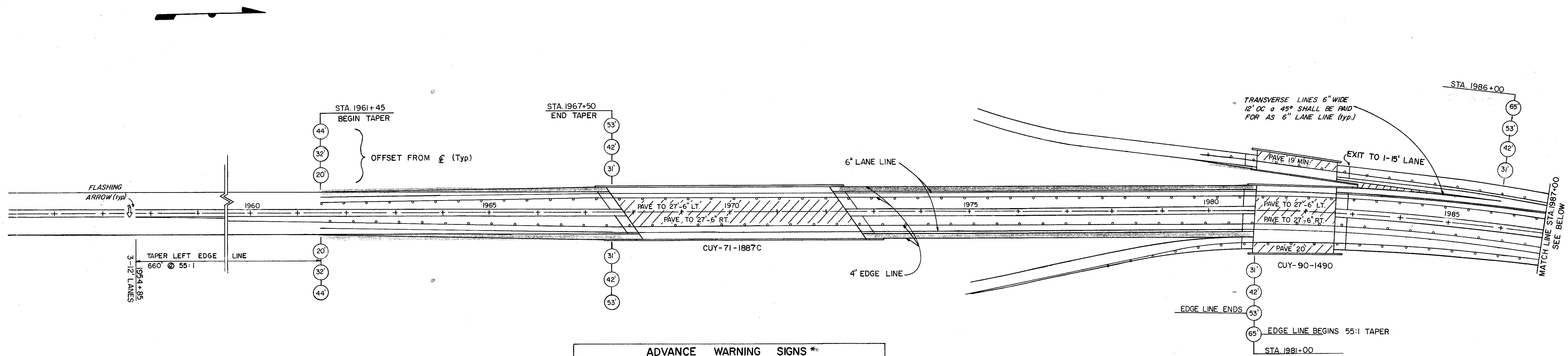
HNTB

TRAFFIC MAINTENANCE PLAN

FHWA REGION	STATE	PROJECT
5	OHIO	

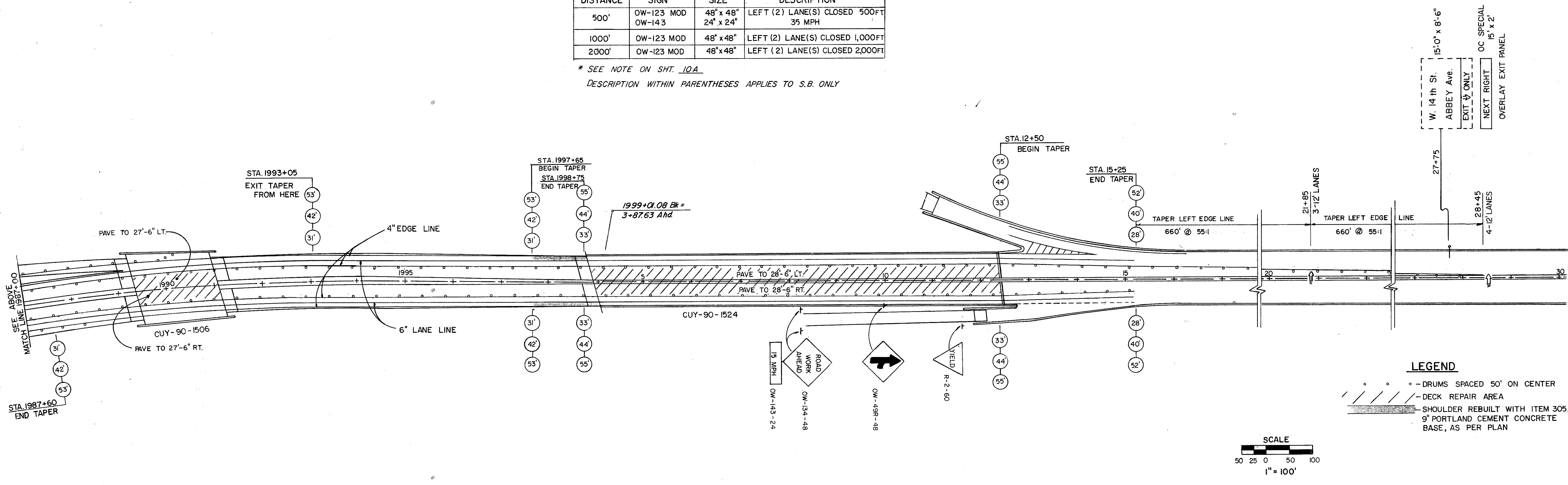
10
53

CUYAHOGA COUNTY
CUY-71-18.65
CUY-90-14.90

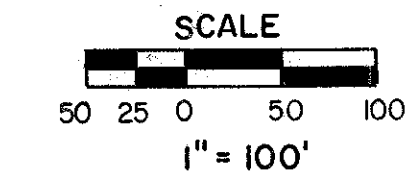


ADVANCE WARNING SIGNS *			
DISTANCE	SIGN	SIZE	DESCRIPTION
500'	OW-123 MOD OW-143	48" x 48" 24" x 24"	LEFT (2) LANE(S) CLOSED 500FT 35 MPH
1000'	OW-123 MOD	48" x 48"	LEFT (2) LANE(S) CLOSED 1,000FT
2000'	OW-123 MOD	48" x 48"	LEFT (2) LANE(S) CLOSED 2,000FT

* SEE NOTE ON SHT. 10A
DESCRIPTION WITHIN PARENTHESES APPLIES TO S.B. ONLY



- LEGEND**
- - DRUMS SPACED 50' ON CENTER
 - ▨ - DECK REPAIR AREA
 - ▨ - SHOULDER REBUILT WITH ITEM 305, 9" PORTLAND CEMENT CONCRETE BASE, AS PER PLAN



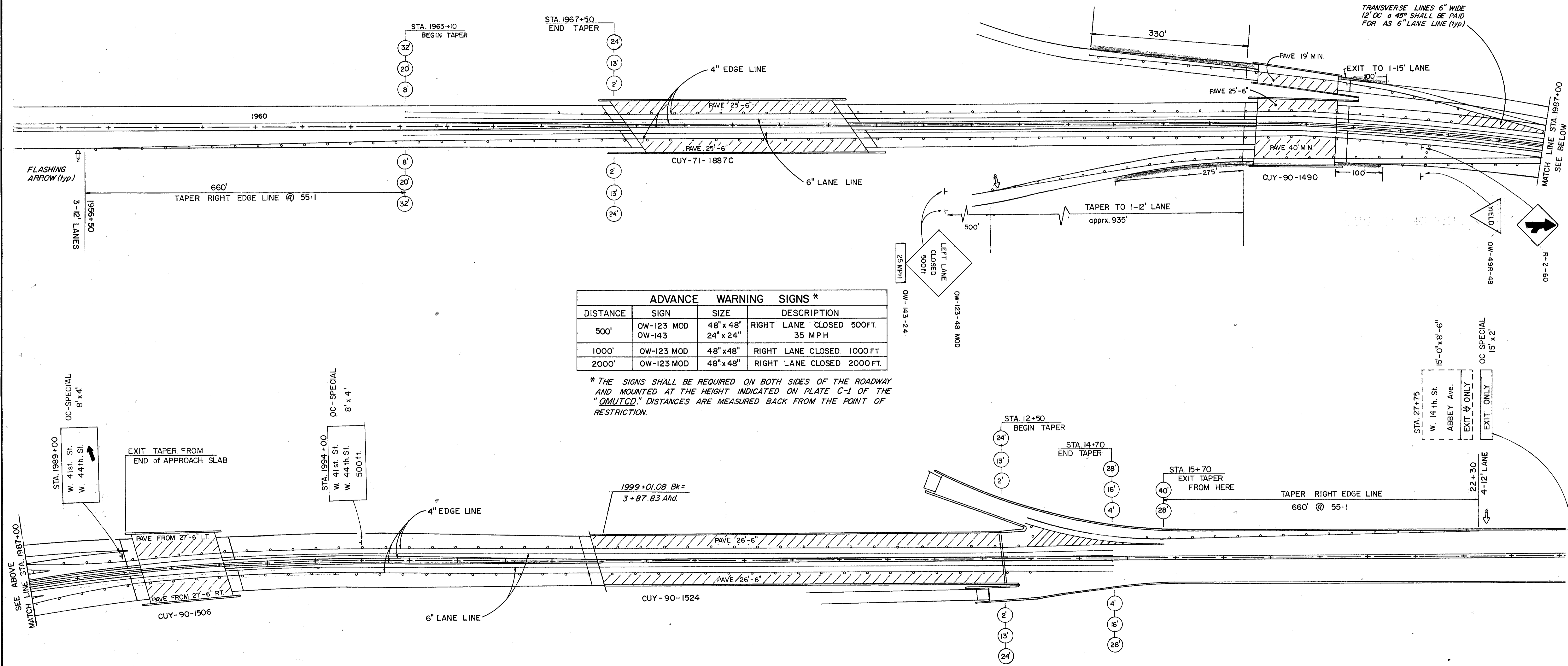
PHASE A
TRAFFIC MAINTENANCE

TRAFFIC MAINTENANCE PLAN

FHWA REGION	STATE	PROJECT	
5	OHIO		

10A
53

CUYAHOGA COUNTY
CUY-71-18.65
CUY-90-14.90



ADVANCE WARNING SIGNS *			
DISTANCE	SIGN	SIZE	DESCRIPTION
500'	OW-123 MOD OW-143	48" x 48" 24" x 24"	RIGHT LANE CLOSED 500FT. 35 MPH
1000'	OW-123 MOD	48" x 48"	RIGHT LANE CLOSED 1000 FT.
2000'	OW-123 MOD	48" x 48"	RIGHT LANE CLOSED 2000 FT.

* THE SIGNS SHALL BE REQUIRED ON BOTH SIDES OF THE ROADWAY AND MOUNTED AT THE HEIGHT INDICATED ON PLATE C-1 OF THE "OMUTCD." DISTANCES ARE MEASURED BACK FROM THE POINT OF RESTRICTION.

LEGEND

- ○ ○ ○ - DRUMS SPACED 50' ON CENTER
- //// - DECK REPAIR AREA
- ▨ - SHOULDER REBUILT WITH ITEM 305, BASE, AS PER PLAN

SCALE

50 25 0 50 100
1" = 100'

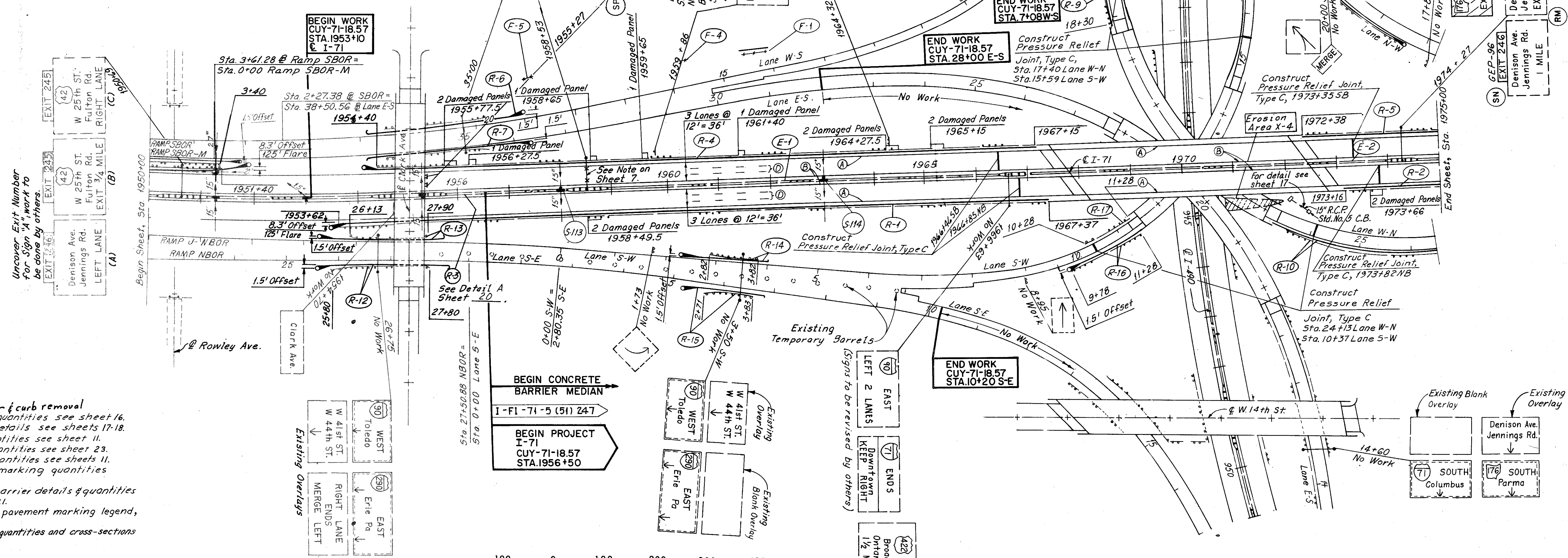
GUARD RAIL-COST PARTICIPATION I

Ref. No.	Station		Side	202		606		606		606		Bridge Terminal Assembly	606
	From	To		G.R. Removed	B.R. Removed	G.R. Type 5	Anchor Assembly Type T	Anchor Assembly Type A	Type	G.R. Type 5 Barrier Design			
	Lin. Ft.	Lin. Ft.	Lin. Ft.	Each	Each	A	D	E	J	Lin. Ft.			
I-71													
R-1	1953+50	1967+38	Rt.	1375						1			
R-2	1973+15	1975+00	Rt.	184						1			
R-3	1955+97.5	1956+10	Q									12.5	
R-4	1954+28.5	1967+16	Lt.	1275									
R-5	1972+37	1975+00	Lt.	262									
E-1	1955+97.5	1967+80	Q	500	932.5								
E-2	1972+47	1975+00	Q	225	140.5								
R-6	19+00 W-S	21+75 W-S	Rt.	225						1			
R-7	19+00 W-S	21+75 W-S	Lt.	225						1			
R-12	25+55 NBOR	28+75 NBOR	Rt.	200						1			
R-13	25+55 NBOR	28+75 NBOR	Lt.	175						1			
R-14	2+25 S-W	4+00 S-W	Lt.	100						1			
R-15	2+25 S-W	4+00 S-W	Rt.	112.5						1			
R-16	9+78 S-W	11+28 S-W	Rt.	150						1			
R-17	9+78 S-W	11+28 S-W	Lt.	25						1			
R-18	16+26 S-W	23+01 S-W	Lt.	662.5						1			
I-90													
R-8	12+00 W-N	17+37.5 W-N	Lt.	537.5						1			
R-9	16+80 W-N	18+30 W-N	Rt.	150						1			
R-10	23+54 W-N	26+50 W-N	Rt.	296						1			
R-11	18+50 N-W	22+00 N-W	Lt.	350						1			
SHEET TOTAL I-71				5696	1073	5085.5	8	8	2	2	2	3	12.5
SHEET TOTAL I-90				1338.5	-	1246	1	3	-	-	2	1	-

QUANTITY CALCULATIONS
MADE BY DSP DATE 11-10-76
CHECKED BY M.E.E. DATE 2-15-78

FHWA REGION	STATE	PROJECT	14
5	OHIO		53

CUYAHOGA COUNTY
CUY-71-18.57
CUY-90-14.64



Notes:
 1. For drainage quantities see sheet 16.
 2. For drainage details see sheets 17-18.
 3. For fence quantities see sheet 11.
 4. For signing quantities see sheet 23.
 5. For overlay quantities see sheets 11.
 6. For pavement marking quantities see sheet 23.
 7. For concrete barrier details & quantities see sheets 19-21.
 8. For signing and pavement marking legend, see sheet 23.
 9. For erosion area quantities and cross-sections see sheet 22.

MADE DSP DATE 2-18-77
 TRACED TJK DATE 2-14-77
 CHECKED M.E.E. DATE 2-15-78
 SCALE 1"=100'

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

HNTB



Rev. 10-10-78
 STA. 1950+00 TO STA. 1975+00 CLARK FREEWAY INTERCHANGE

QUANTITY CALCULATIONS
 MADE BY D.S.P. DATE 11-11-76
 CHECKED BY M.E.E. DATE 2-15-78

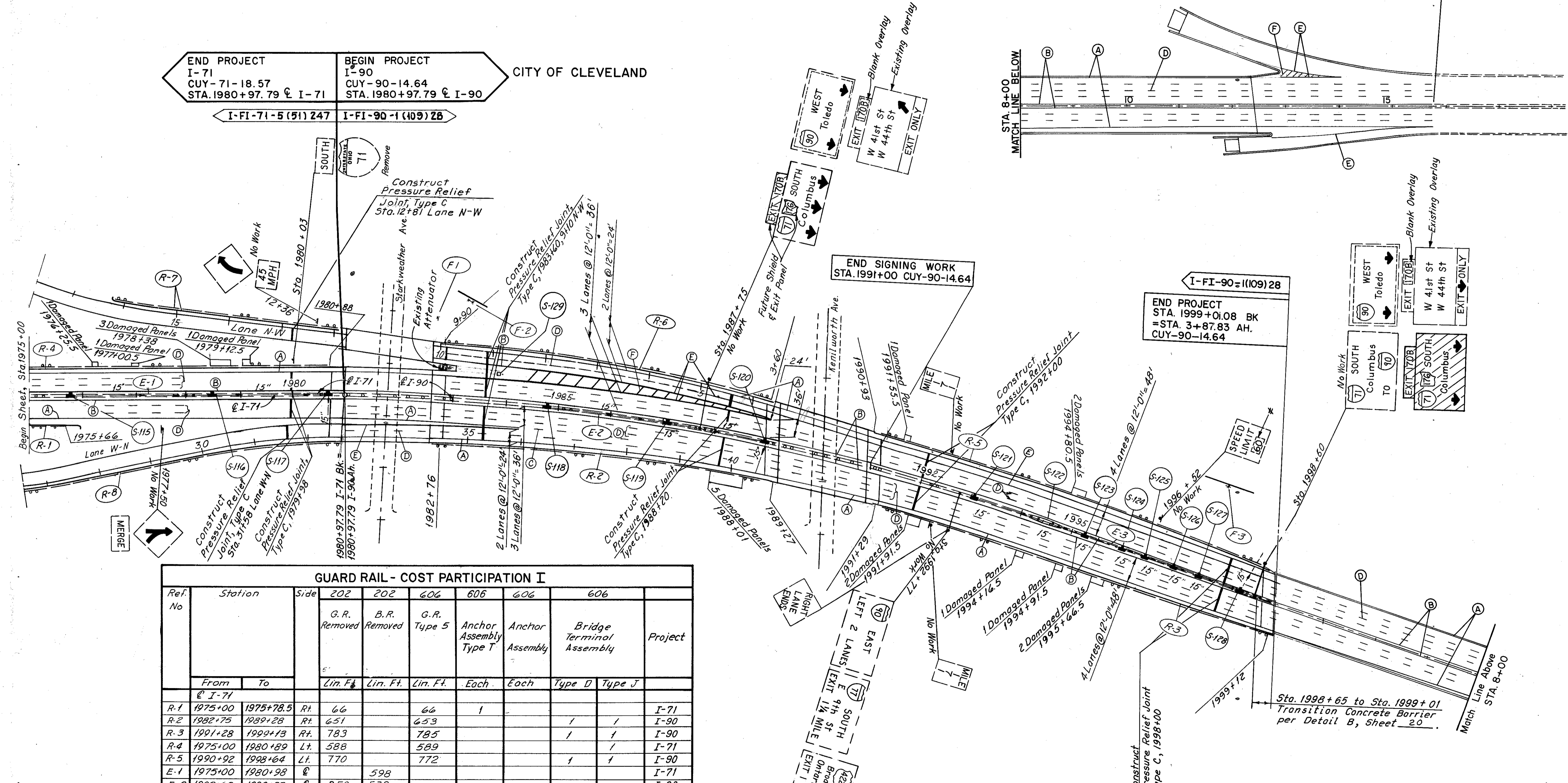
FHWA REGION	STATE	PROJECT
5	OHIO	

15
53

CUYAHOGA COUNTY
 CUY-71-18.57
 CUY-90-14.64

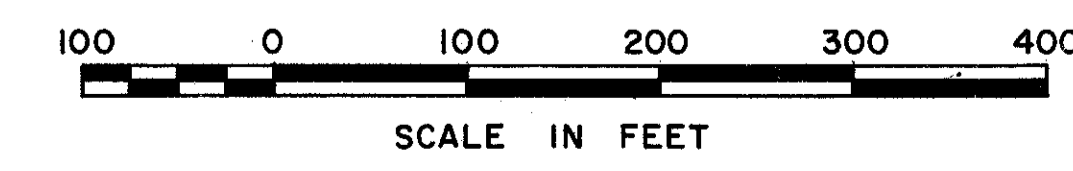
END WORK
 STA. 15+70
 CUY-90-14.64

CITY OF CLEVELAND
 END PROJECT I-71 CUY-71-18.57 STA. 1980+97.79 & I-71
 BEGIN PROJECT I-90 CUY-90-14.64 STA. 1980+97.79 & I-90
 I-FI-71-5 (51) 247 I-FI-90-1 (109) 28



GUARD RAIL - COST PARTICIPATION I

Ref. No	Station	Side	202		606		606		Project	
			G.R. Removed	B.R. Removed	G.R. Type 5	Anchor Assembly Type T	Anchor Assembly	Bridge Terminal Assembly		
	From	To	Lin. Ft.	Lin. Ft.	Lin. Ft.	Each	Each	Type D	Type J	
	@ I-71									
R-1	1975+00	1975+78.5	Rt.	66		66	1			I-71
R-2	1982+75	1989+28	Rt.	651		653		1	1	I-90
R-3	1991+28	1999+13	Rt.	783		785		1	1	I-90
R-4	1975+00	1980+89	Lt.	588		589		1	1	I-71
R-5	1990+92	1998+64	Lt.	770		772		1	1	I-90
E-1	1975+00	1980+98	@		598					I-71
E-2	1982+63	1989+27	@	250	539					I-90
E-3	1990+96	1999+01	@	500	555					I-90
	LANE N-W									
R-6	3+59	9+91	Rt.	630		632		1	1	I-90
R-7	11+80	16+30	Rt.	437.5		437.5	1		1	I-90
	LANE W-N									
R-8	26+50	32+50	Rt.	600		600		1		I-90
I-71	SHEET TOTAL			654	598	655	1	0	1	I-71
I-90	SHEET TOTAL			4621.5	1094	3879.5	1	0	5	I-90



Notes: For curb removal quantities see Sh. 16
 For signing and pavement marking legend, see sheet 23.
 For signing quantities see sheet 23.
 For overlay quantities see sheets 11.
 For drainage quantities see sheet 16.
 For drainage details see sheets 17-18. & 7
 For concrete barrier details & quantities see sheets 19-21.
 For pavement marking quantities see sheet 23.
 For fence quantities see sheet 11.

Rev. 10-10-78

SCALE 1"=100'
 HOWARD, NEEDLES, TAMMEN & BERGENOFF
 MADE A.U.S. DATE 10-26-73 CONSULTING ENGINEERS
 TRCD_KK DATE 11-6-73
 CKD_DSP DATE 2-4-77 KANSAS CITY CLEVELAND NEW YORK

DRAINAGE QUANTITIES

QUANTITY CALCULATIONS
 MADE BY A.H.S. DATE 8-11-75
 CHECKED BY D.S.P. DATE 11-11-76

FHWA REGION	STATE	PROJECT	
5	OHIO		

16
53

CUYAHOGA COUNTY
 CUY-71-18.57
 CUY-90-14.64

DRAINAGE (COST PARTICIPATION I)																			
REF. NO.	STATION	SIDE	202		603	604		604		604		604		604		Inlet Adjusted to Grade	Bends & Branches	N.G. Elevation of Proposed I-3B Median Inlets	Flow line Elevations of existing and/or proposed storm sewers and underdrains at proposed I-3B Median inlets (See Drainage Notes) Sheet 7.
			Inlet Abandoned #	Pipe Removed 15" and under Lin. Ft.		Type B Conduit 15" Lin. Ft.	Catch Basin Adjusted to Grade Each	Standard Number I-3B Median Inlet, modified as per plan /###	Standard Number I-3B Median Inlet, modified H as per plan *	Standard Number I-3B Median Inlet, modified B as per plan *	Standard Number I-3B Median Inlet, modified N as per plan ***	Standard Number I-3B Median Inlet, modified O as per plan ***	Each	Each	Each				
	I-71																		
S-113	1958+00	€			2		1											675.48	6"(N) 671.10; 15"(E&W) 670.25
S-114	1963+00	↑			2		1											690.48	6"(N) 686.10; 15"(E&W) 685.27
S-115	1975+75						1											706.54	6"(S) 702.10; 15"(N) 701.78
S-116	1978+50	↑					1											705.03	6"(S) 700.60; 15"(N&S) 700.13
S-117	1980+75	€		3	5			1								1	703.80	6"(S) 699.40; 15"(S&E) 699.03	
	TOTAL			3	9		4	1	0	0	0								
	I-90																		
S-118	1984+75	€		4	6		1									1	709.59	6"(S) 697.2; 15"(SW&E) 696.83	
S-119	1987+00	↑					1											700.35	6"(S) 696.00; 15"(S&N) 695.59
S-120	1989+00			3	5			1								1	699.26	6"(S) 694.8; 15"(S&E) 694.49	
S-121	1993+00								1									697.08	6"(S) 692.60; 15"(N) 692.56
S-122	1994+50		1															695.83	6"(S) 691.8; 15"(S&N) 691.66
S-123	1995+25						1											695.83	6"(S) 691.4; 15"(S&N) 691.06
S-124	1996+00						1											695.44	6"(S) 691.0; 15"(S&N) 690.31
S-125	1996+50						1											695.17	6"(S) 690.7; 15"(S&N) 689.56
S-126	1997+00										1							694.90	6"(S) 690.4; 15"(S&N) 688.81
S-127	1997+59	€										1		1				694.59	6"(S) 689.8; 15"(S&N) 687.93
S-128	1998+34	€									1							694.43	6"(S&N) 690.0; 15"(S&NW) 686.81
S-129	1983+81	Lt.																	
	Ramps SW & WN						2												
	TOTAL		1	7	11		5	1	2	1	1	1	1	1					
							2												

NOTES:
 * For Detail, see Sheet 17
 *** For Note, see Sheet 7
 *** For Detail, see Sheet 18
 # Existing pipes shall be connected through the structure.

ITEM 603 ~ 12" CONDUIT, AS PER PLAN
 This item shall consist of 12" diameter slotted drain, bituminous coated corrugated (2 2/3 x 1/2) steel conduit 707.07 (0.079") with 6" x 3/16" galvanized solid bar grate with hugger type coupling bands, as manufactured by Armco Steel Corporation or an approved equal. All costs for labor and materials including bedding and backfilling as detailed shall be included in the price bid for item 603, 12" Conduit, as per plan. (See Sh. No. 7)

ESTIMATED QUANTITIES See Sh. No. 7							
Ramp	Location		202		603		
			Curb Removed as per plan	Catch Basin Removed	Pipe Removed 24" Under as per plan	12" Conduit as per plan	12" Conduit Type B 707.07
	From	To	L.F.	Ea.	L.F.	L.F.	L.F.
W-N	29+30	32+64	339	2	103	140	10
S-W	17+31	19+81	250			60	10
W-S	11+77	15+26	351				
Total I-90 Code I			940	2	103	200	20

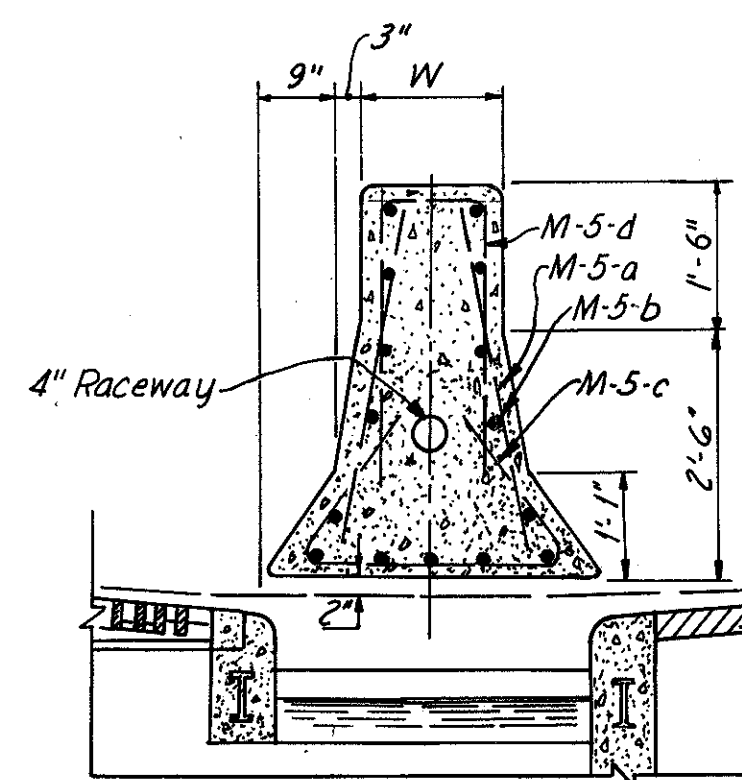
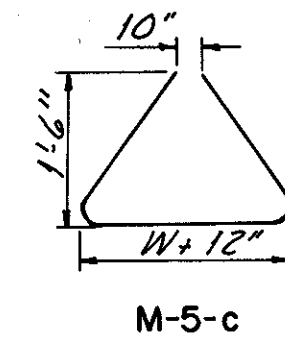
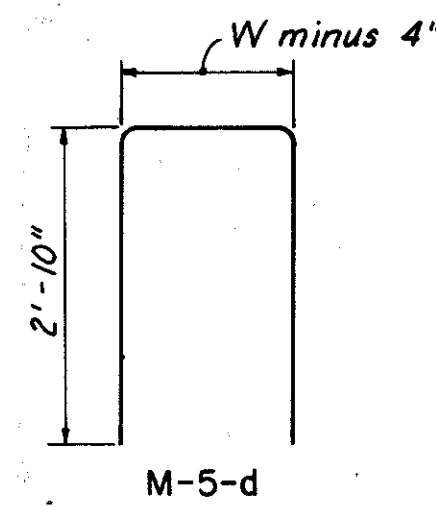
DRAINAGE DETAILS

FHWA REGION	STATE	PROJECT
5	OHIO	

17
53

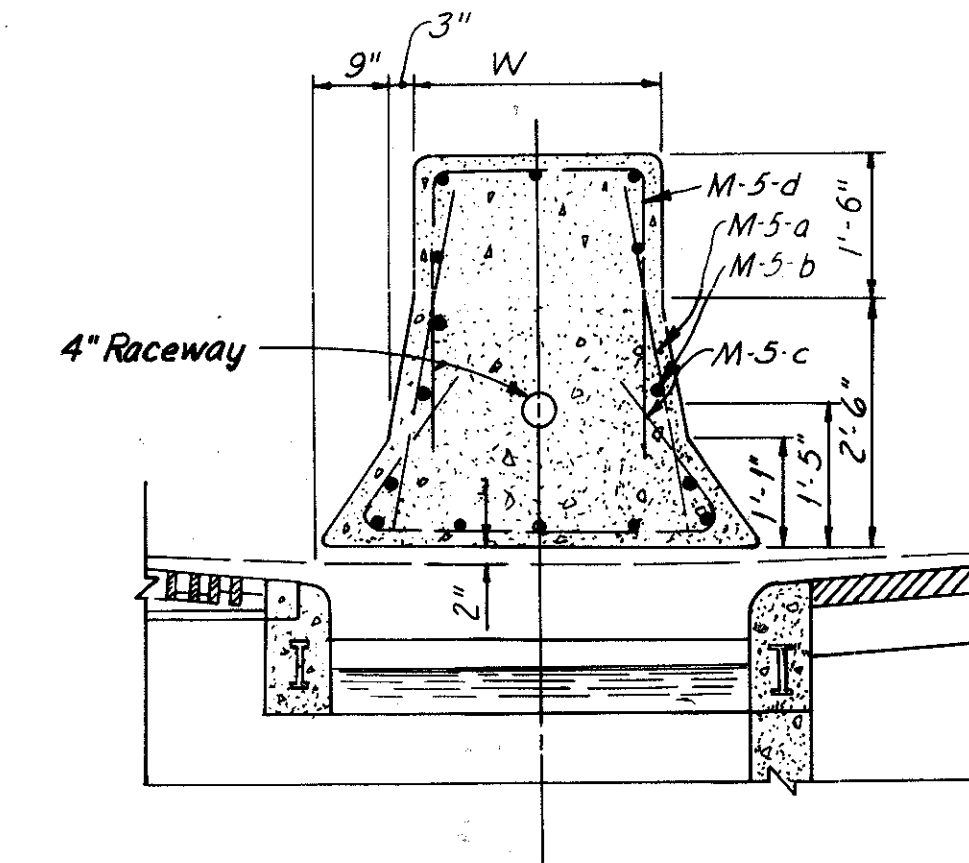
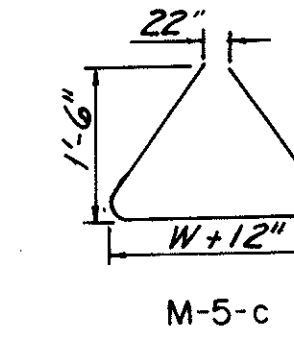
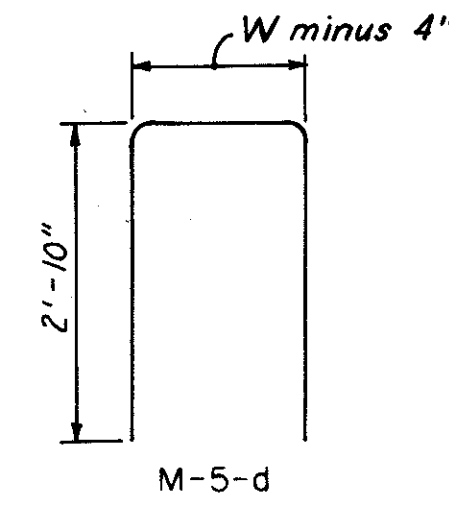
CUYAHOGA COUNTY
CUY-71-18.57
CUY-90-14.64

STEEL LIST										
W	M-5-a	M-5-b	M-5-c	6 I I 2.5	M-5-d					
NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	
18"	20	3'-6"	15	19'-8"	10	5'-11"	2	11'-0"	10	6'-10"



Note:
For additional details see
"Standard No. I-3B Median Inlet
Modified As Per Plan on Sheet 18."

STEEL LIST										
W	M-5-a	M-5-b	M-5-c	6 I I 2.5	M-5-d					
NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	
30"	20	3'-6"	16	19'-8"	10	6'-11"	2	11'-0"	10	7'-10"



Note: STANDARD NO. I-3B MEDIAN INLET, AS PER PLAN-B

NO SCALE

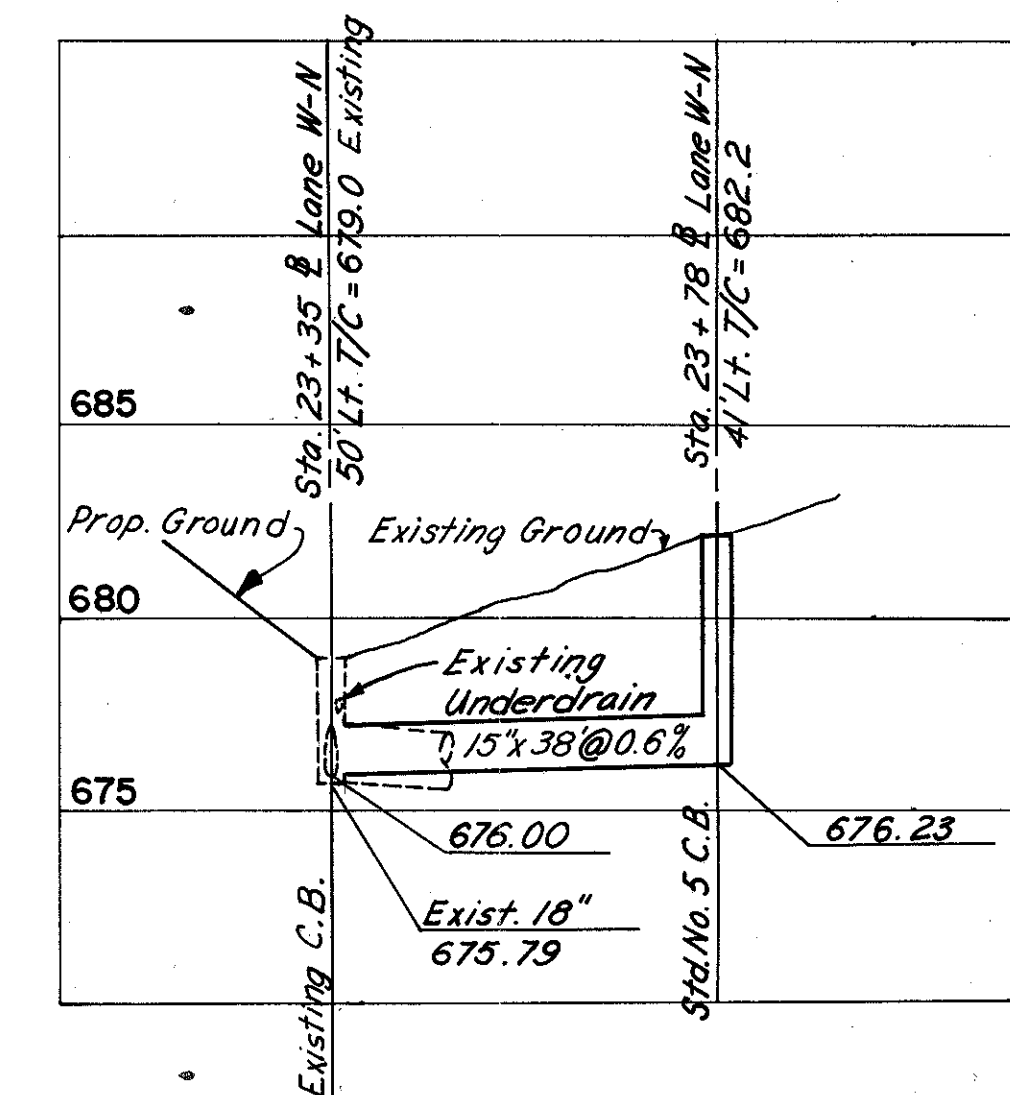
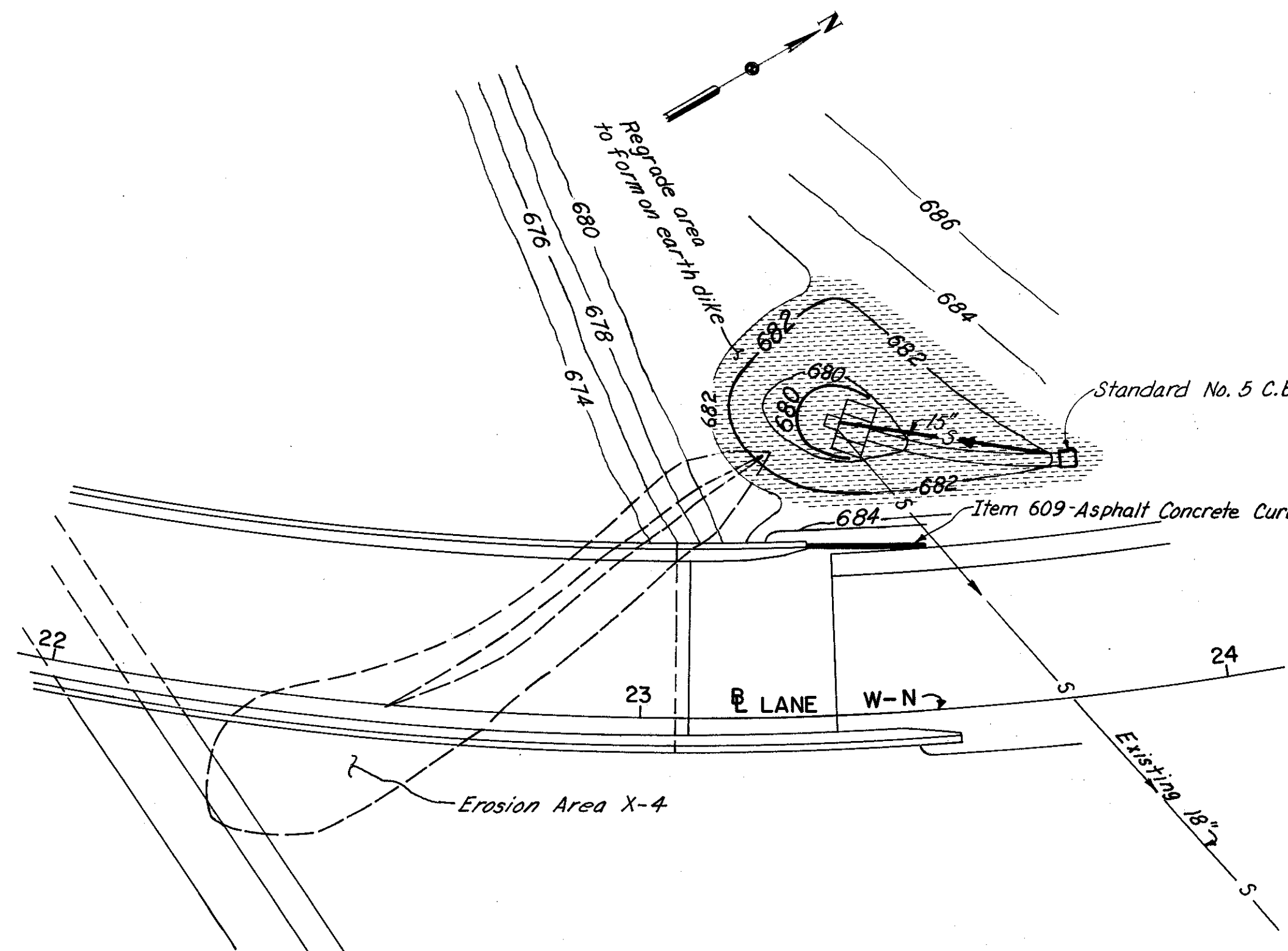
Note:
In place of the 4'-6" depressed apron, shown on detail "Standard No. I-3B Median Inlet, Modified, As Per Plan" on sheet 18 a variable width apron with a width of 2'-11" at the center of the inlet shall be provided.

Note:
For additional details see
"Standard No. I-3B Median Inlet,
As Per Plan on Sheet 18."

STANDARD NO. I-3B MEDIAN INLET MODIFIED H, AS PER PLAN

NO SCALE

ADDITIONAL QUANTITIES FOR EROSION REPAIR AREA X-4 COST PARTICIPATION III					
	203	603	604	609	660
	Excavation Including Embankment Construction	15" Conduit Type B	Std. No. 5 Catch Basin	Asphalt Concrete Curb	Sodding
	Cu. Yds.	Lin. Ft.	Each	Lin. Ft.	Sq. Yds.
I-90	47	38	1	20	170
Total	47	38	1	20	170



Item 660 - Sodding

DETAIL OF DRAINAGE UPGRADING

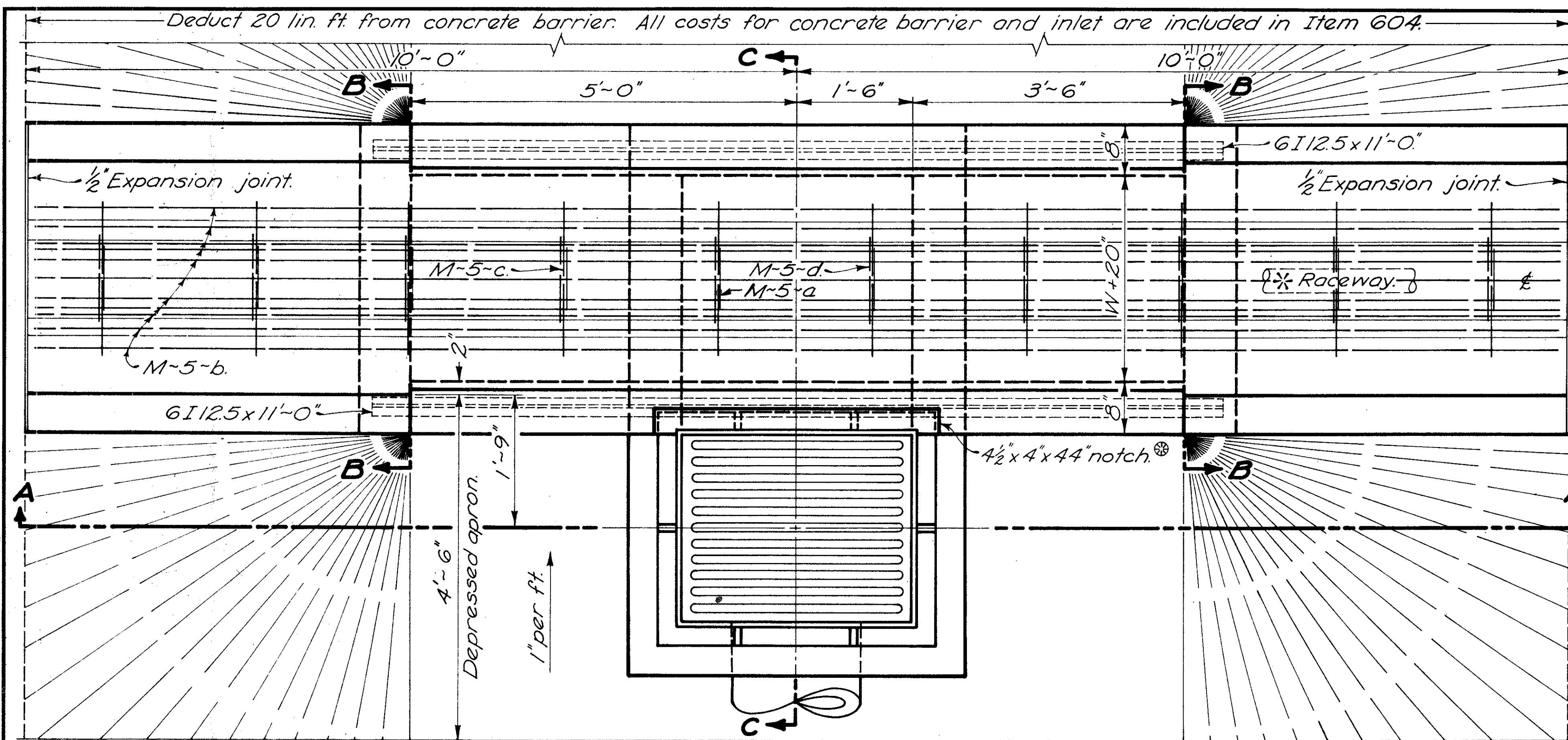
FOR EROSION AREA X-4

Scale: Horz. 1" = 20'
Vert. 1" = 5'

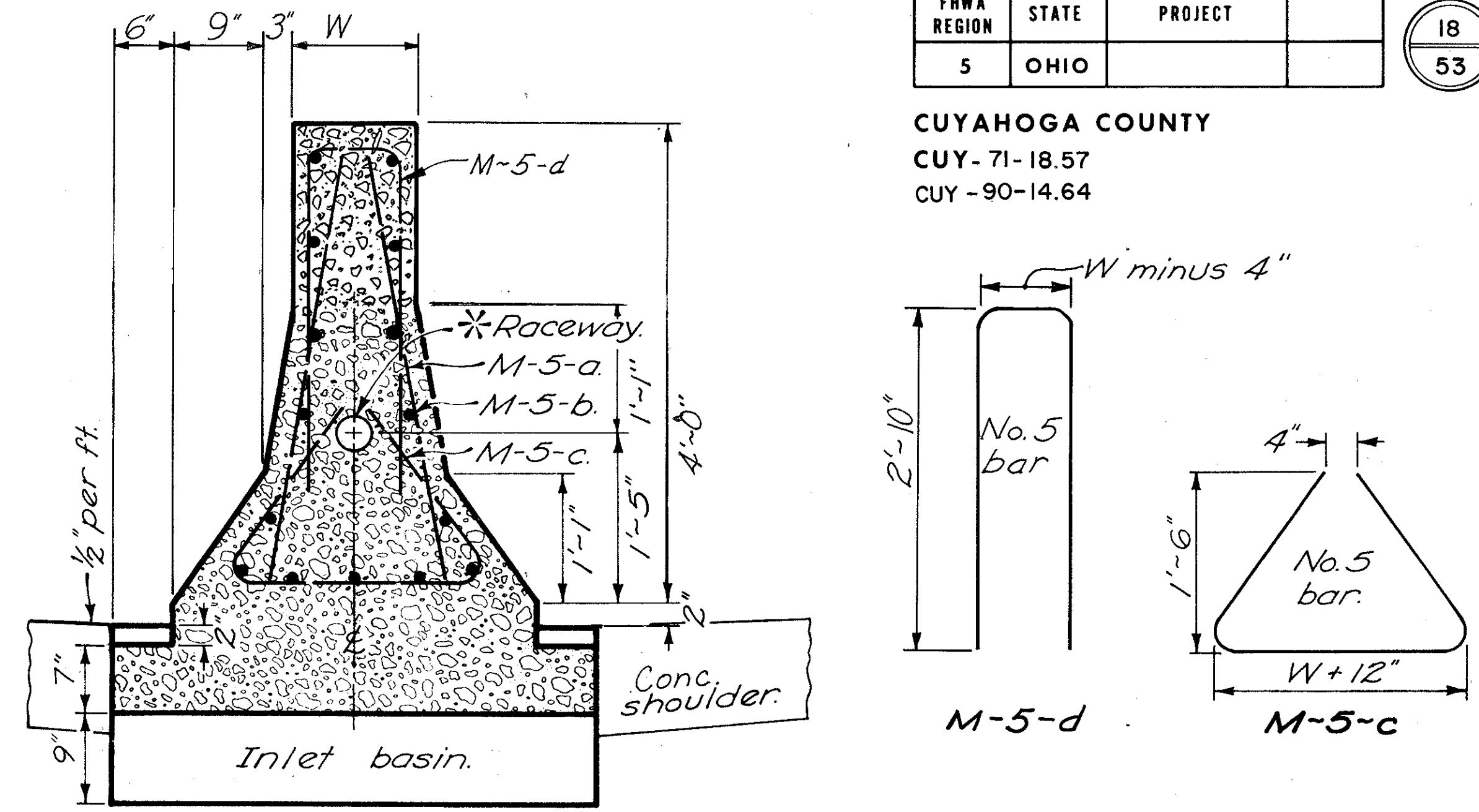
Deduct 20 lin. ft. from concrete barrier. All costs for concrete barrier and inlet are included in Item 604.

FHWA REGION	STATE	PROJECT
5	OHIO	

CUYAHOGA COUNTY
CUY-71-18.57
CUY-90-14.64



PLAN



SECTION B-B

NOTES

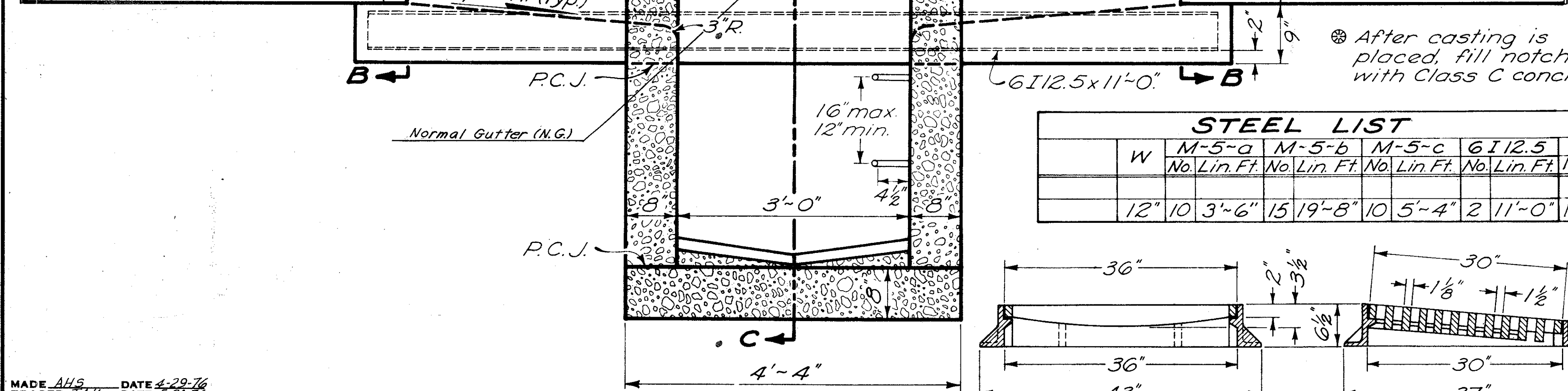
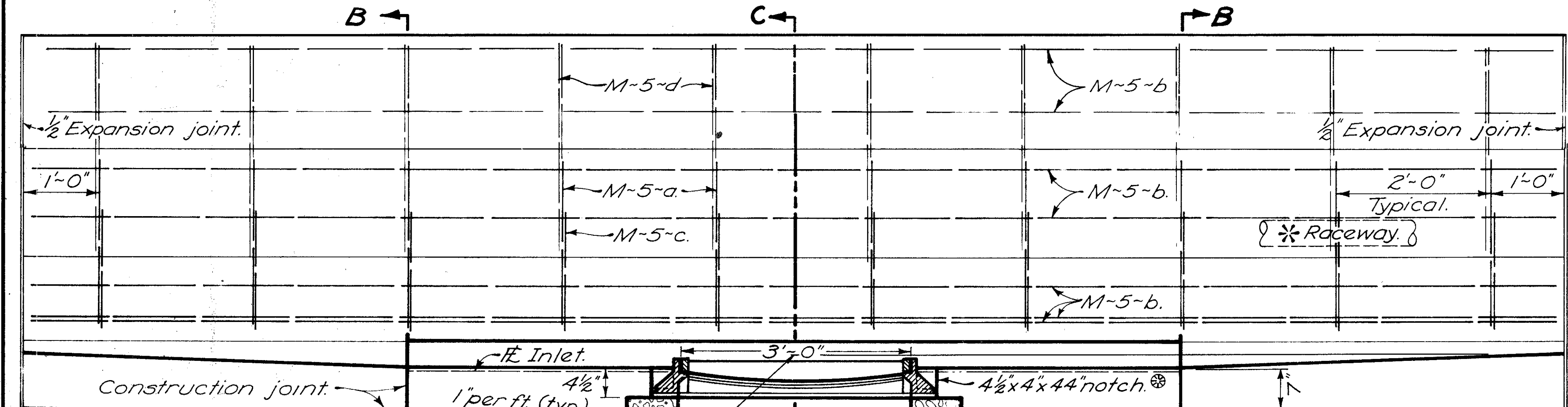
WALLS: The sections between the base and the upper permissible construction joint may be built of brick, concrete block, or cast-in-place concrete, 8" nominal thickness, for depths of 12" or less. The unit above the upper permissible construction joint may be precast or cast-in-place. Concrete for precast or cast-in-place construction shall meet the requirements of 511 Class C. If a skewed pipe protrudes more than 2" inside a wall, the pipe shall be trimmed flush and finished to produce a neat appearance.

STEPS shall be in accordance with Standard Drawing MH-1. Minimum weight of frame and cover shall be 540 pounds.

GRATE LOCATION: In super-elevated curves or at other locations where there is unequal discharge from the directional roadways, the inlet grating shall be located in the roadway which discharges the major flow.

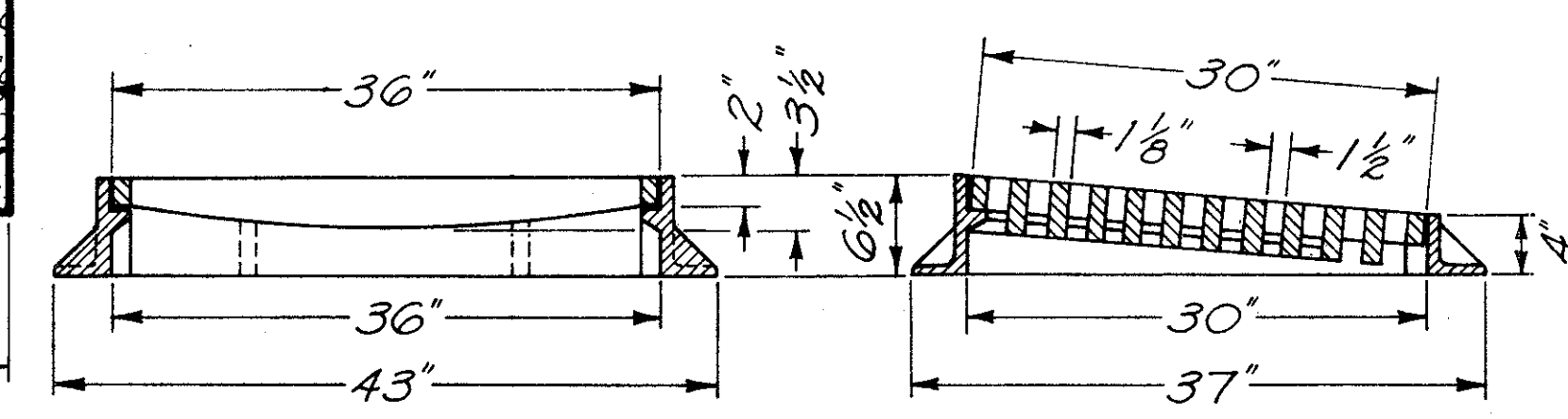
INLETS OVER 12 FEET IN DEPTH shall be built of Class C concrete reinforced by placing $\frac{1}{2}$ " bars 12" center-to-center both vertically and horizontally with a 2" clearance from inside face of the wall.

* 4" Lighting raceway, if required elsewhere by the plans.

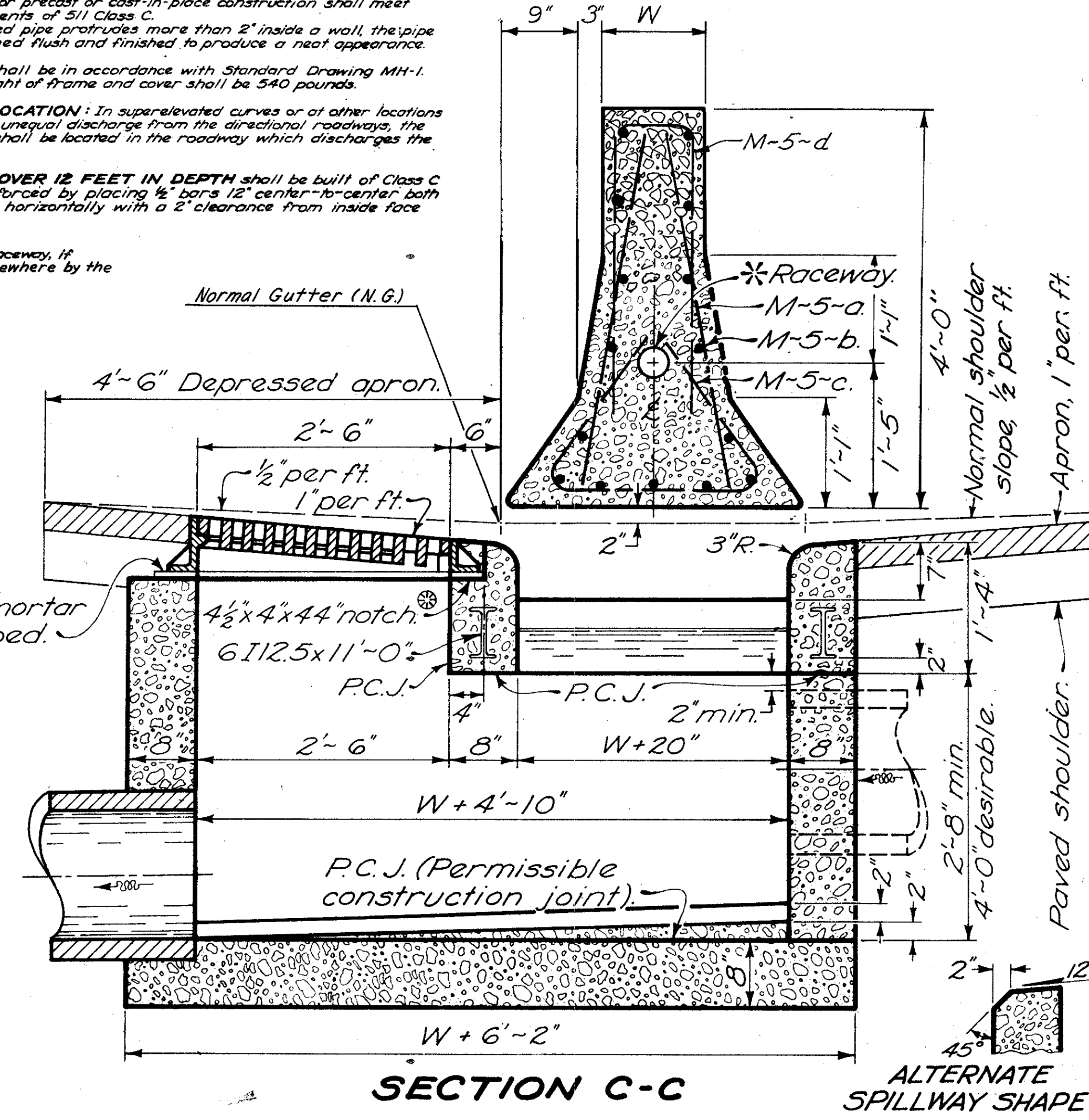


HNTB SECTION A-A

W	M-5-a		M-5-b		M-5-c		6I12.5		M-5-d	
	No.	Lin. Ft.	No.	Lin. Ft.	No.	Lin. Ft.	No.	Lin. Ft.	No.	Lin. Ft.
12"	10	3'-6"	15	19'-8"	10	5'-4"	2	11'-0"	10	6'-4"



CASTING DETAILS



SECTION C-C

ALTERNATE SPILLWAY SHAPE

MADE AHS DATE 4-29-76
TRACED TAZ DATE 3-20-76
CHECKED G.S. DATE 3-26-76
SCALE 1/4" = 1'-0"

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS

CONCRETE BARRIER MEDIAN DETAILS

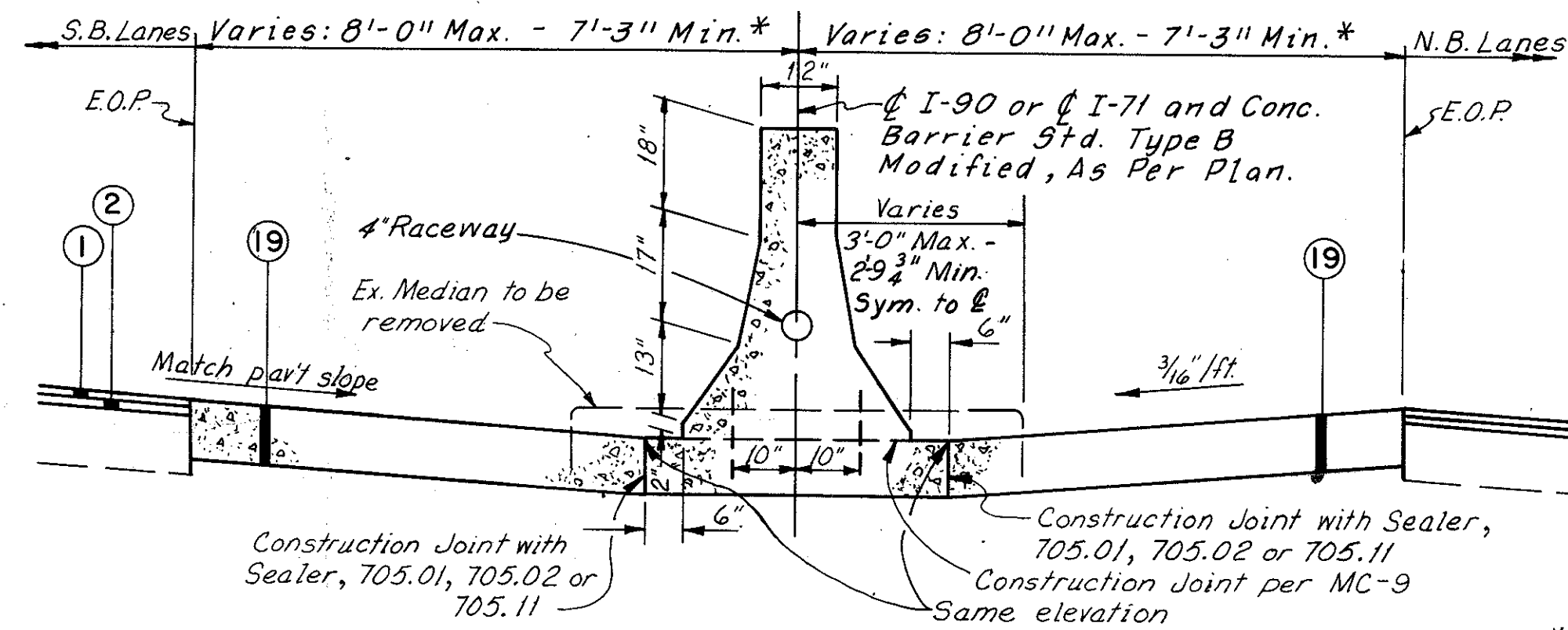
QUANTITY CALCULATIONS

MADE BY M.E.E. DATE 6-5-75
 CHECKED BY D.S.P. DATE 2-21-77

FHWA REGION	STATE	PROJECT
5	OHIO	

19
53

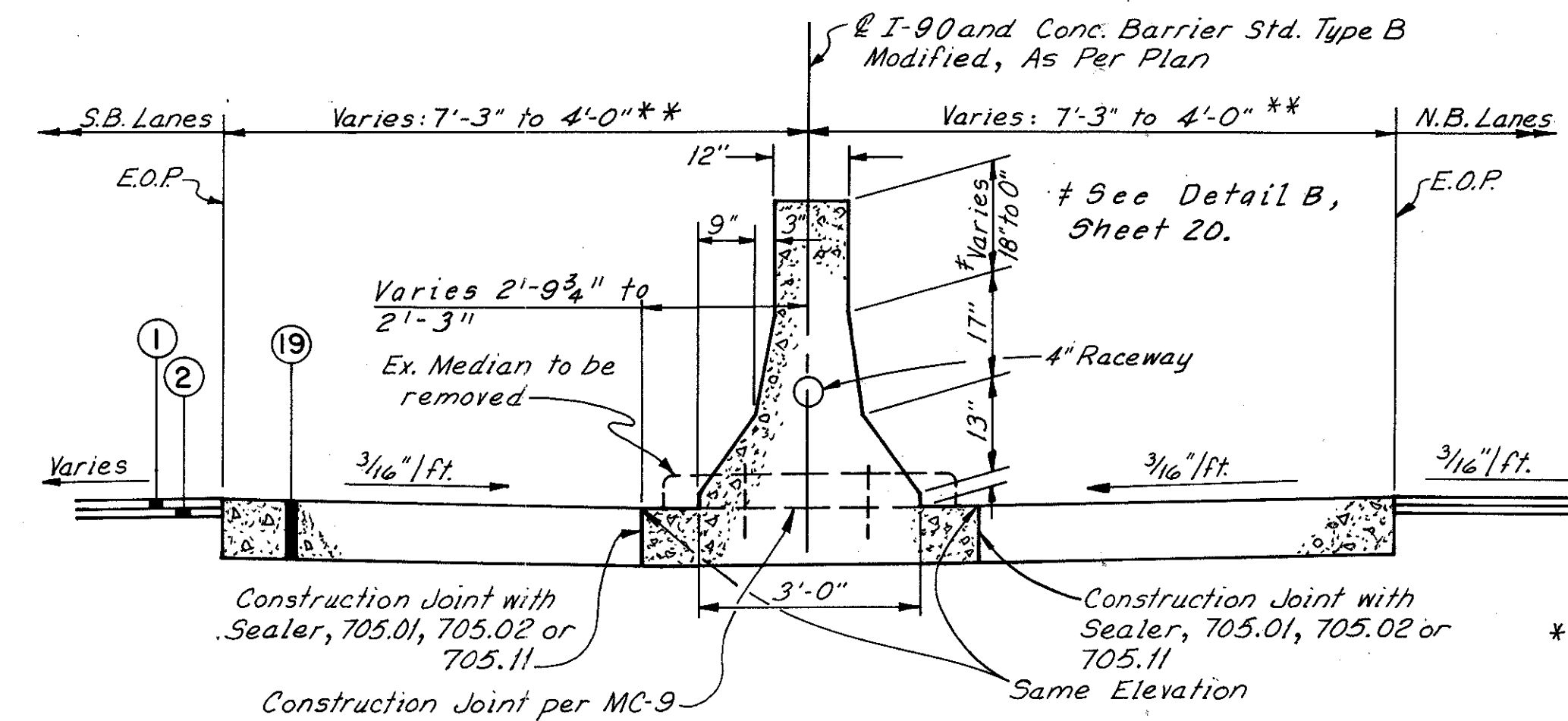
CUYAHOGA COUNTY
 CUY-71-18.57
 CUY-90-14.64



TYPICAL 1
 CONCRETE BARRIER STANDARD TYPE B MODIFIED, AS PER PLAN
 SCALE: 1/2" = 1'-0"

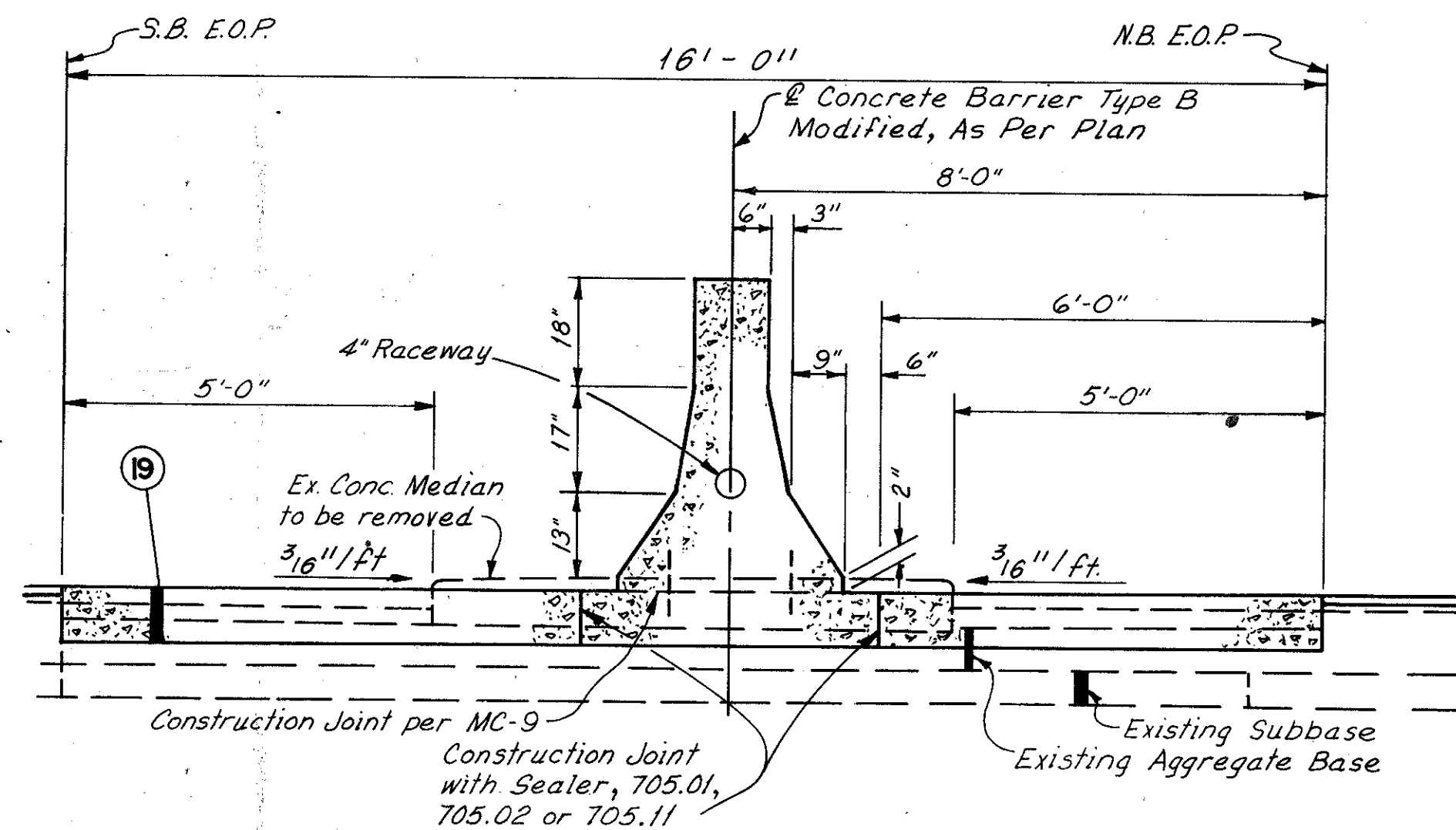
Note:
 For Legend References
 See Sheet 3.

* Note:
 Median width varies uniformly from 16'-0" at Sta. 1994+75 to 14'-6" at Sta. 1995+50. Existing raised concrete median varies from 6'-0" at Sta. 1994+79 to 5'-7 1/2" at Sta. 1995+50.



TYPICAL 3
 CONCRETE BARRIER STANDARD TYPE B MODIFIED, AS PER PLAN
 SCALE: 1/2" = 1'-0"

** Note:
 Median width varies uniformly from 14'-6" at Sta. 1995+50 to 8'-0" at Sta. 1998+75. Existing raised concrete median varies from 5'-7 1/2" at Sta. 1995+50 to 4'-0" at Sta. 1998+75.

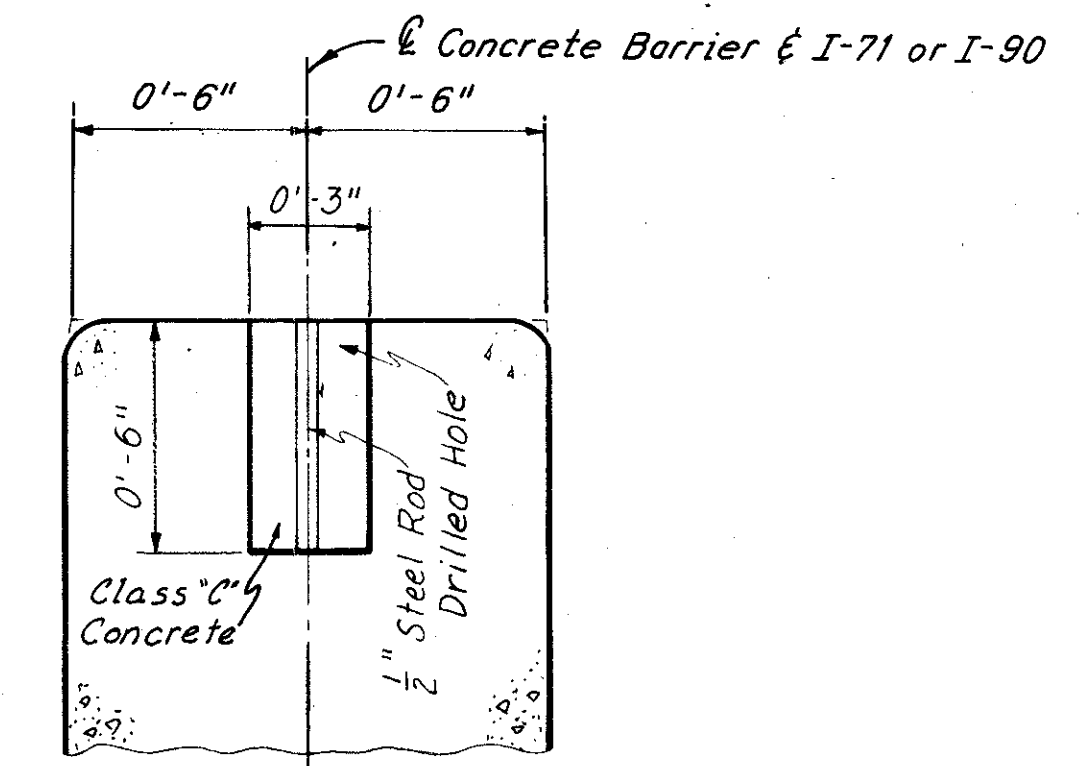


TYPICAL 2
 CONCRETE BARRIER STANDARD TYPE B MODIFIED, AS PER PLAN
 SCALE: 1/2" = 1'-0"

Note:
 For additional notes and details on installation of P.V.C. conduit see sheets 25, 38, 39 & 40.

ITEM 622 CONCRETE BARRIER QUANTITIES					
STATION		Concrete Barrier Type B, Modified As Per Plan Lin. Ft.	Remarks		
FROM	TO		I		
I-71					
1956+44	1967+79.92	1136			TYPICAL 2
1972+46.58	1980+97.79	851			DETAIL A Typical 2
		(-100)			Less (5) Inlets
		(-20)			Less (2) Sign Wall Assemblies
		(-60)			Less (6) Lt. Towers
TOTAL		1807			
I-90					
1982+63.30	1989+27.15	664			Typical 1
1990+96.20	1995+50	479			Typical 1
1995+50	1998+65	290			Typical 3
1998+65	1999+01.08	36			TYPICAL 3 DETAIL B
		(-200)			Less (10) Inlets
		(-30)			Less (3) Sign Wall Assemblies
		(-30)			Less (3) Lt. Towers
TOTAL		1209			

Note:
 See sheet 20 for Details A and B.



Note:
 Cost of furnishing and placing steel rod and Class "C" concrete included in price bid for 604 Reference Monument Modified, as per plan.

REFERENCE
 MONUMENT MODIFIED, AS PER PLAN
 No Scale

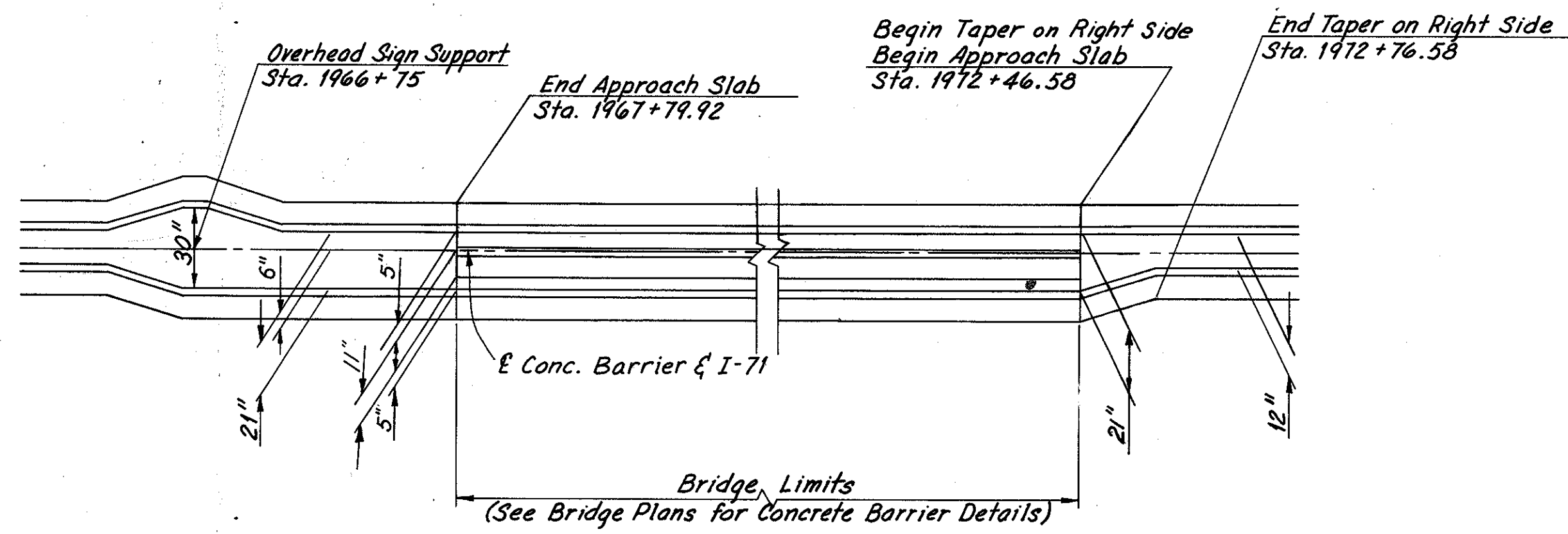
REFERENCE MONUMENT, MODIFIED AS PER PLAN COST PART I		
STATION	604 Ref Monument Mod. As Per Plan	PROJECT
	Each	
P.O.T. Sta. 1964+00.00	1	I-71
P.O.T. Sta. 1973+00.00	1	I-71
P.C. Sta. 1980+25.35	1	I-71
P.O.C. Sta. 1987+00.00	1	I-90
P.T. Sta. 1994+42.69	1	I-90
TOTAL	3	I-71
TOTAL	2	I-90

CONCRETE BARRIER MEDIAN DETAILS

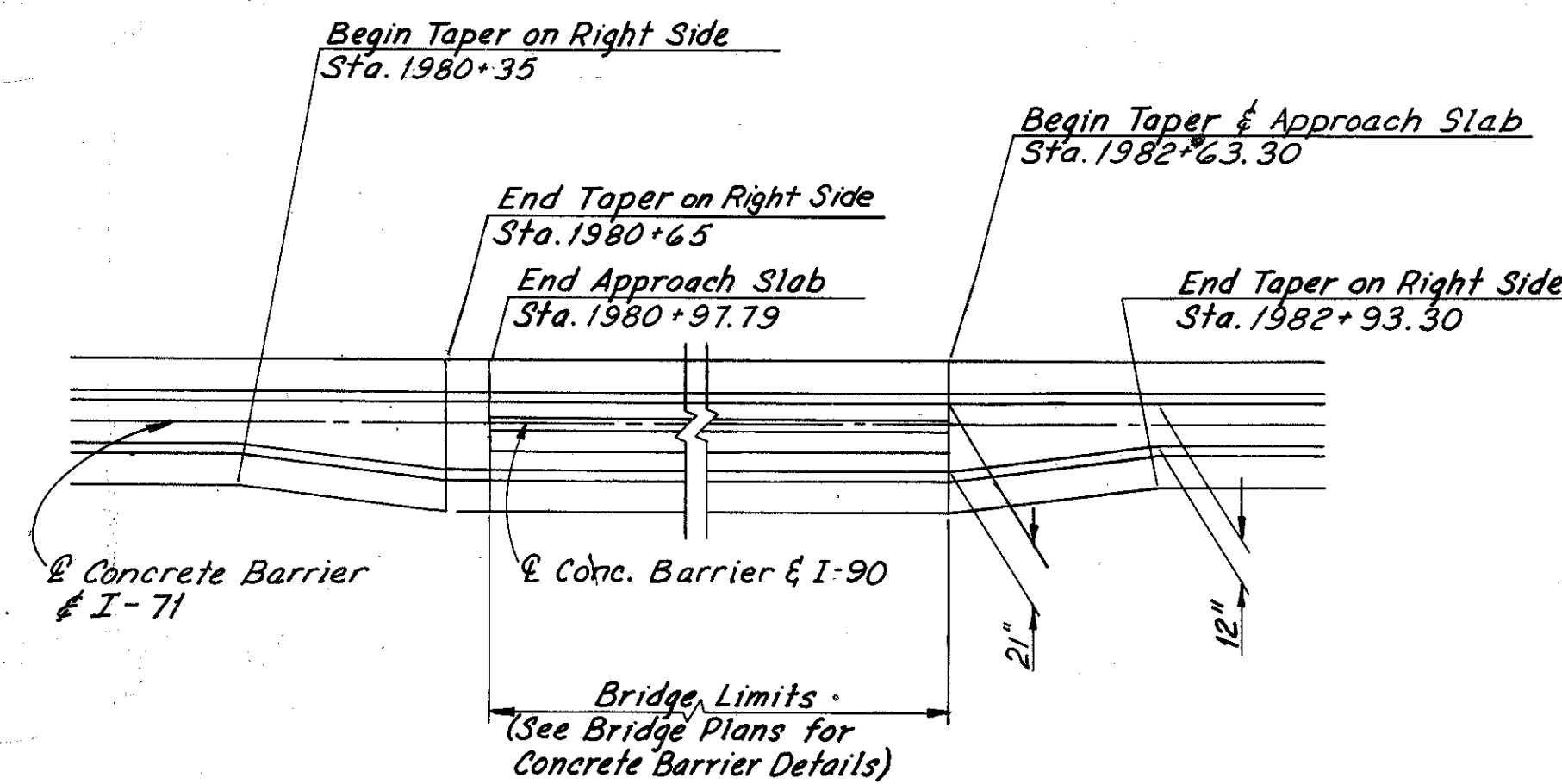
FHWA REGION	STATE	PROJECT
5	OHIO	

20
53

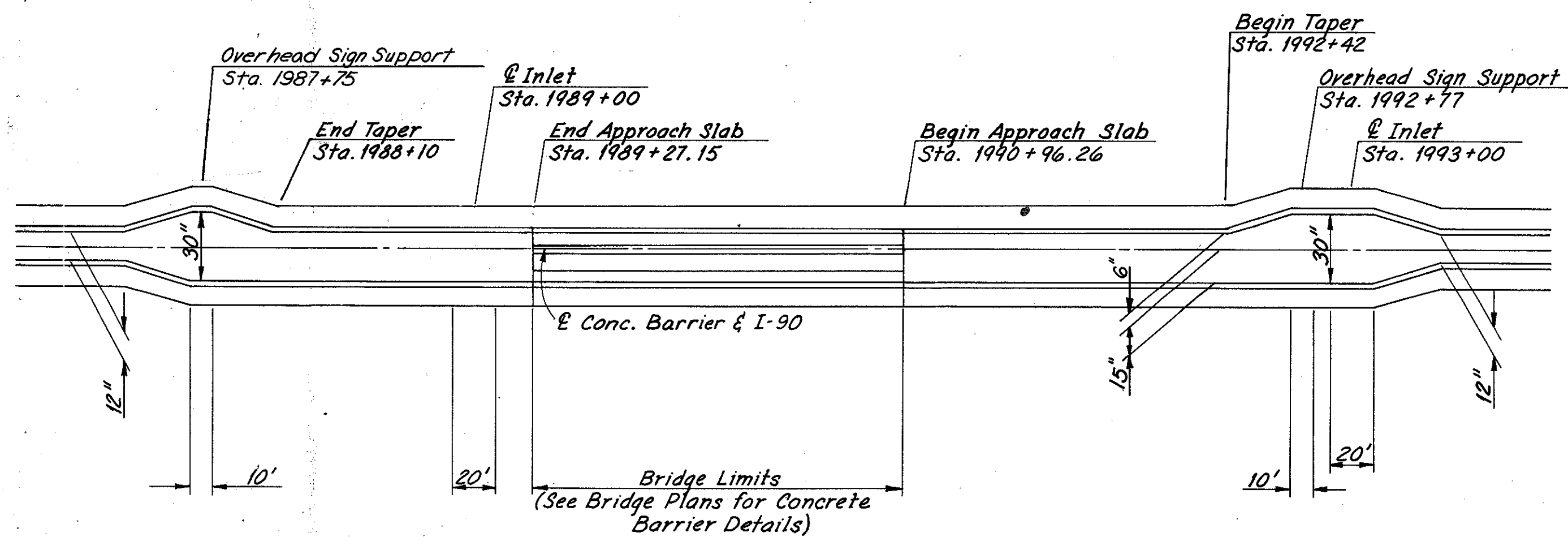
CUYAHOGA COUNTY
CUY-71-18.57
CUY-90-14.64



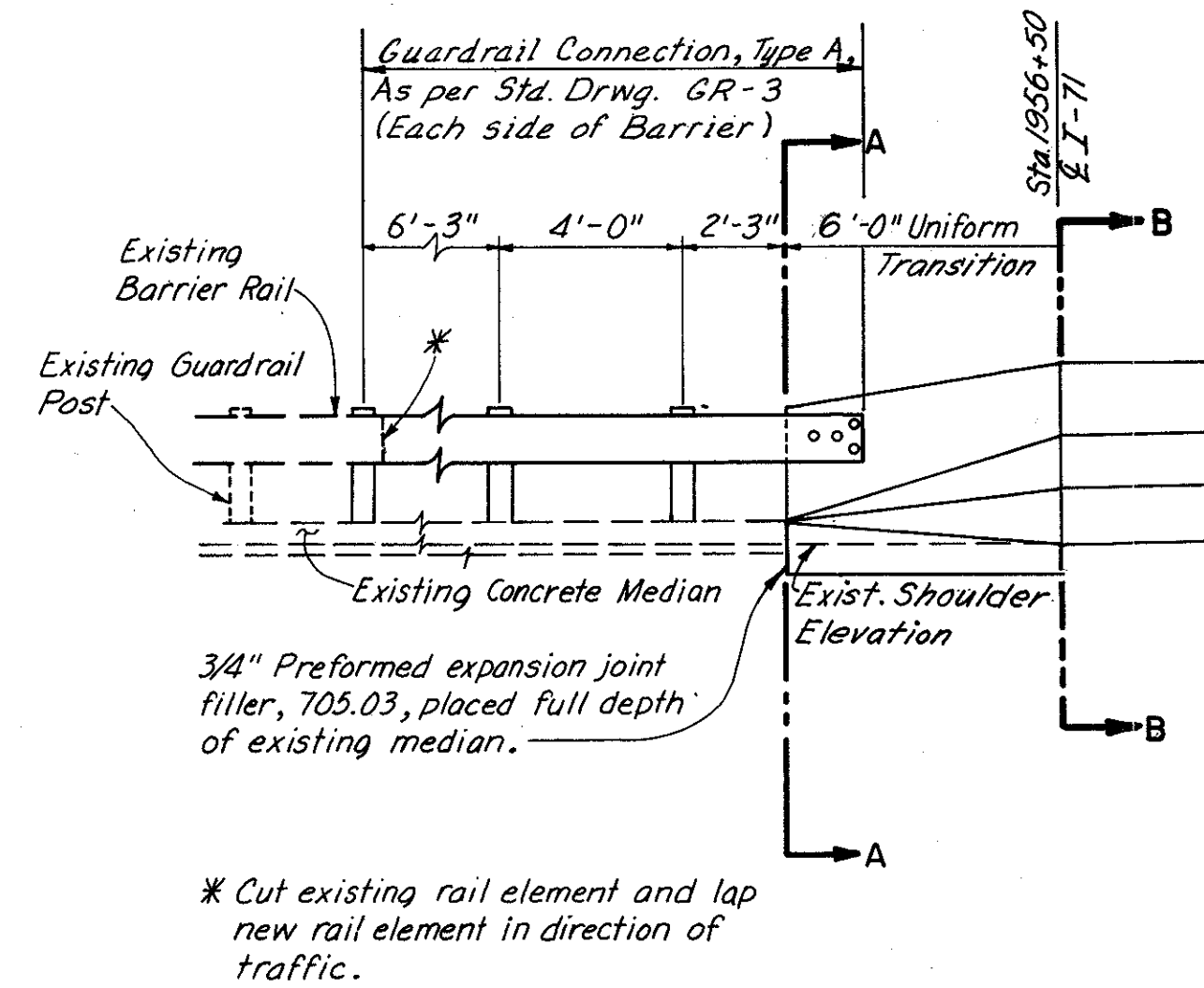
BR. NO. CUY-71-1887C
No Scale



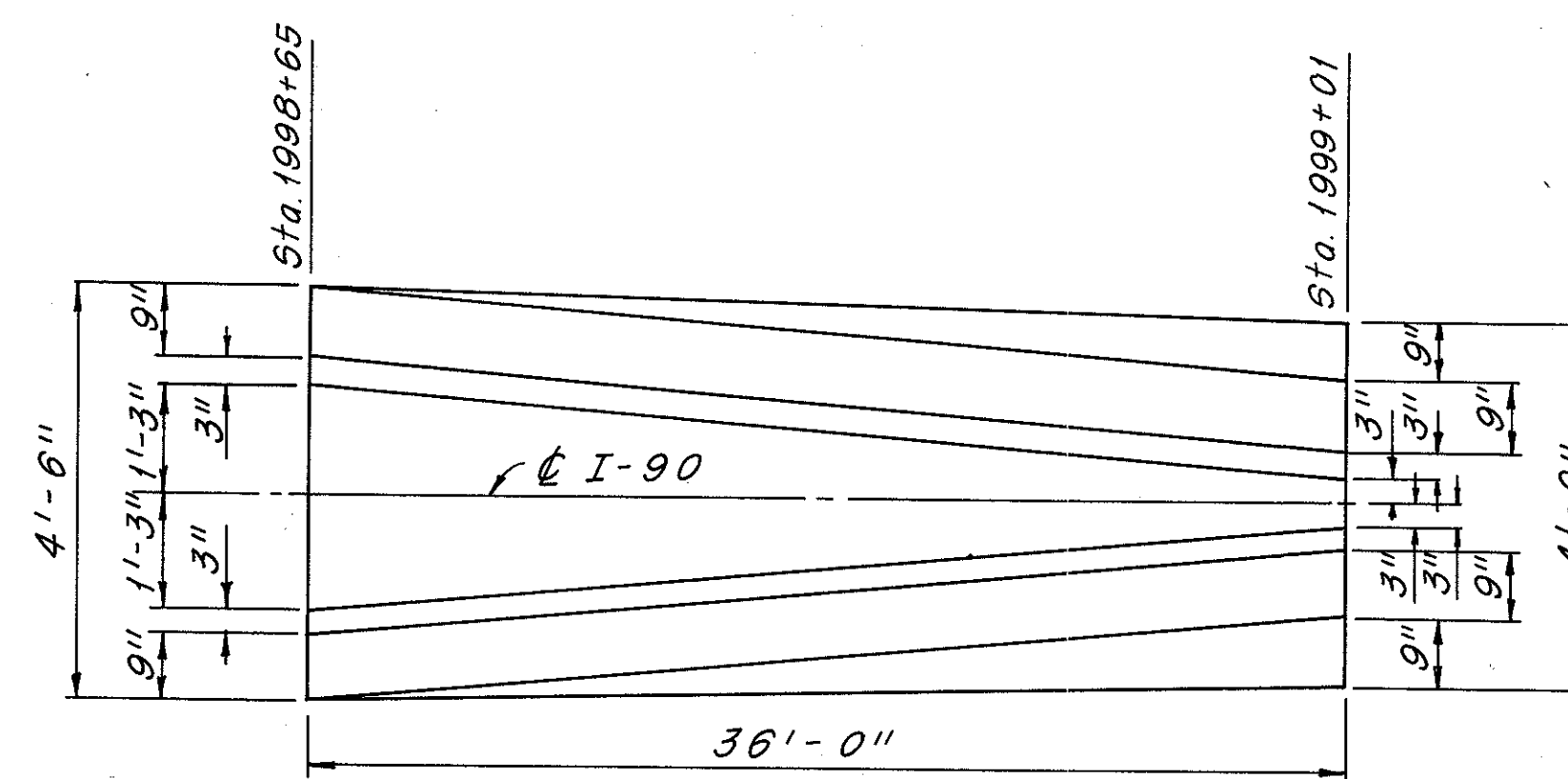
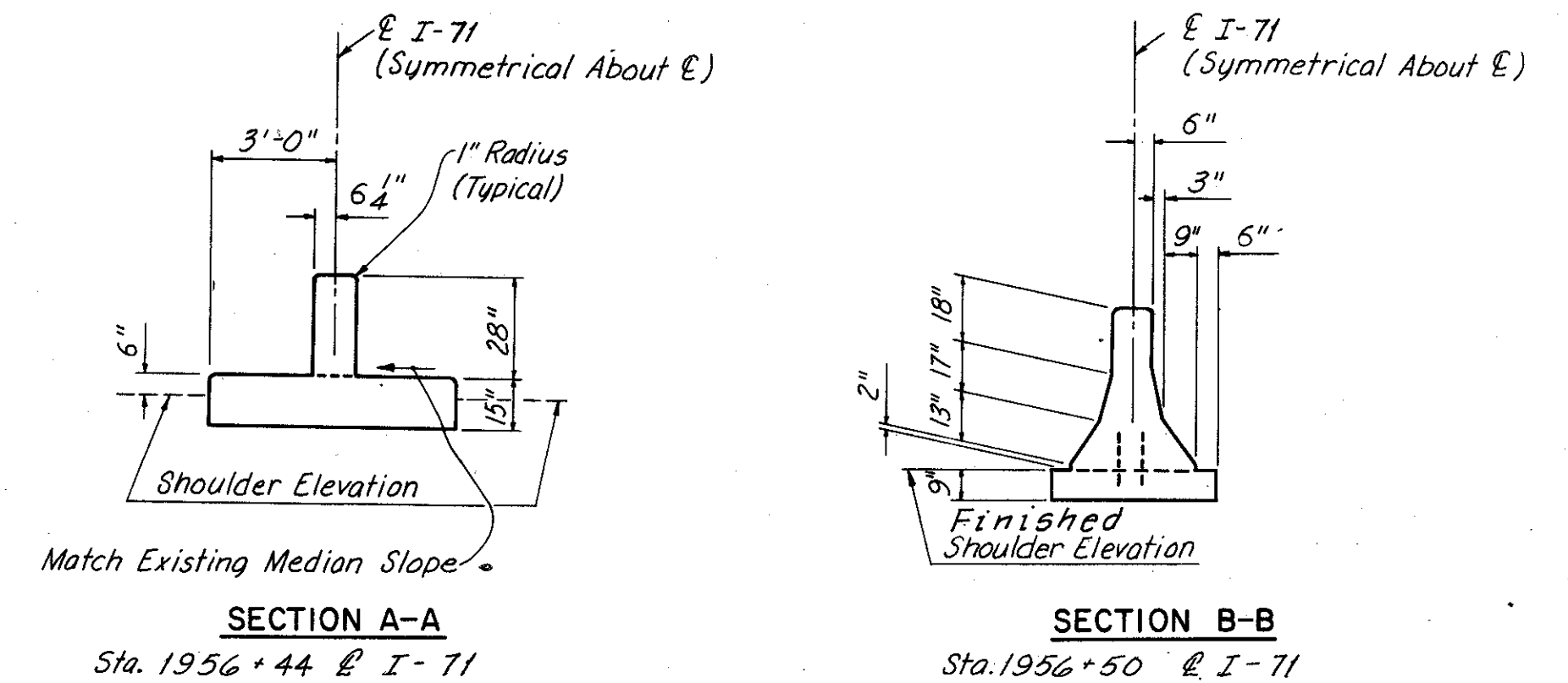
BR. NO. CUY-90-1490
No Scale



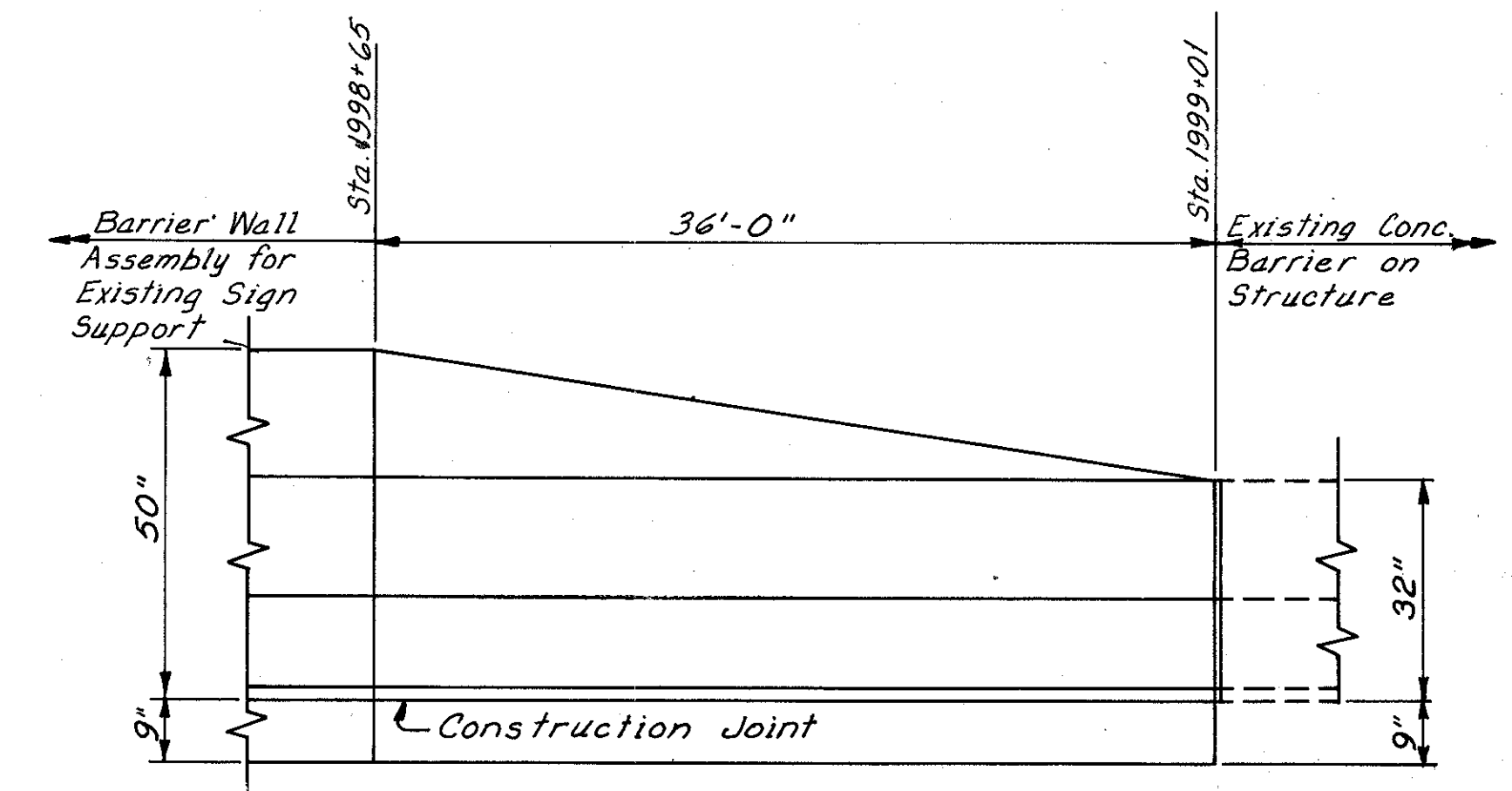
BR. NO. CUY-90-1506
No Scale



DETAIL A
No Scale



PLAN



ELEVATION

DETAIL B
No Scale

MADE BY MEF DATE 8-12-75
TRACED BY JAK DATE 2-18-77
CHECKED BY JAK DATE 2-18-77
SCALE None

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

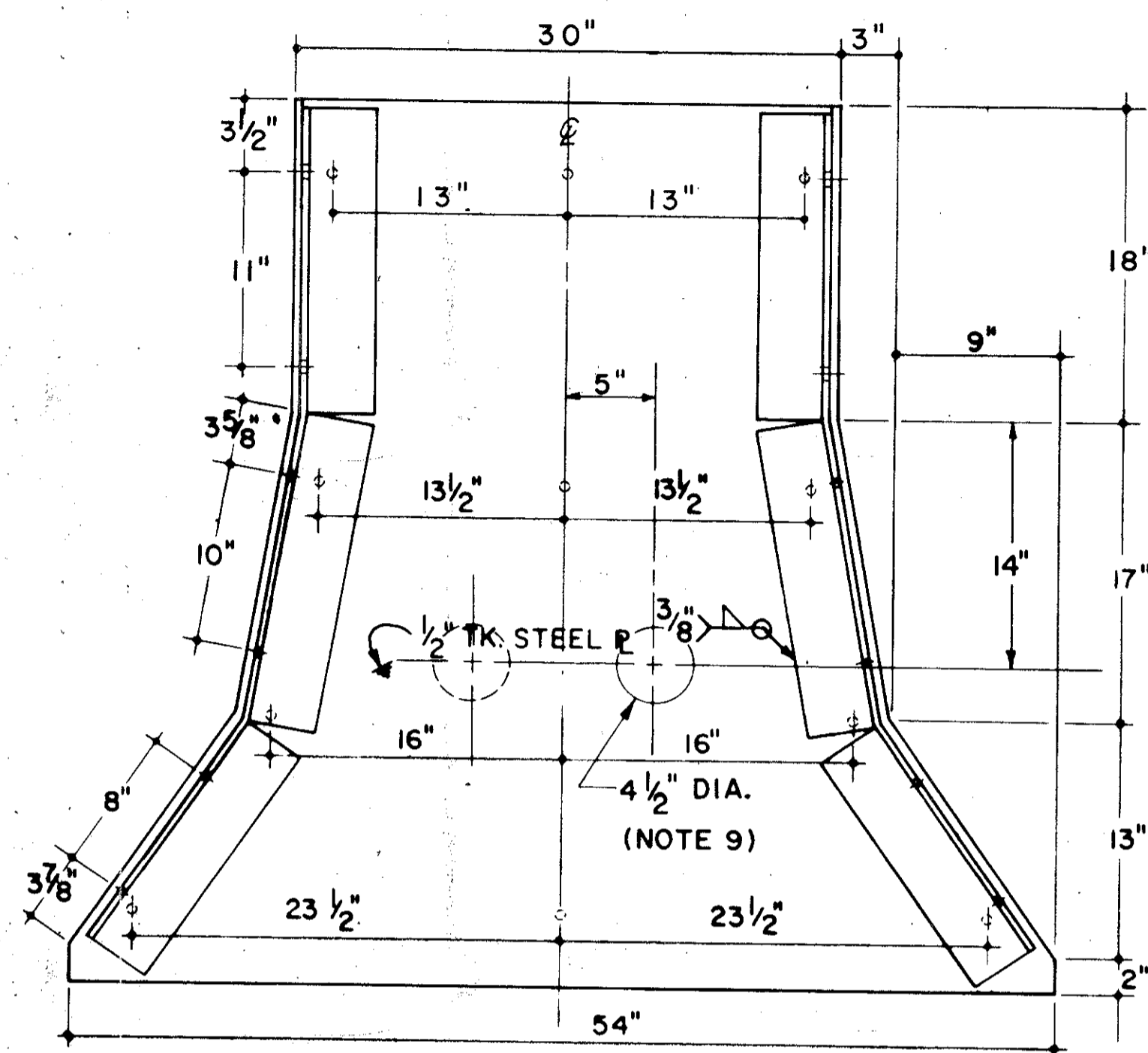
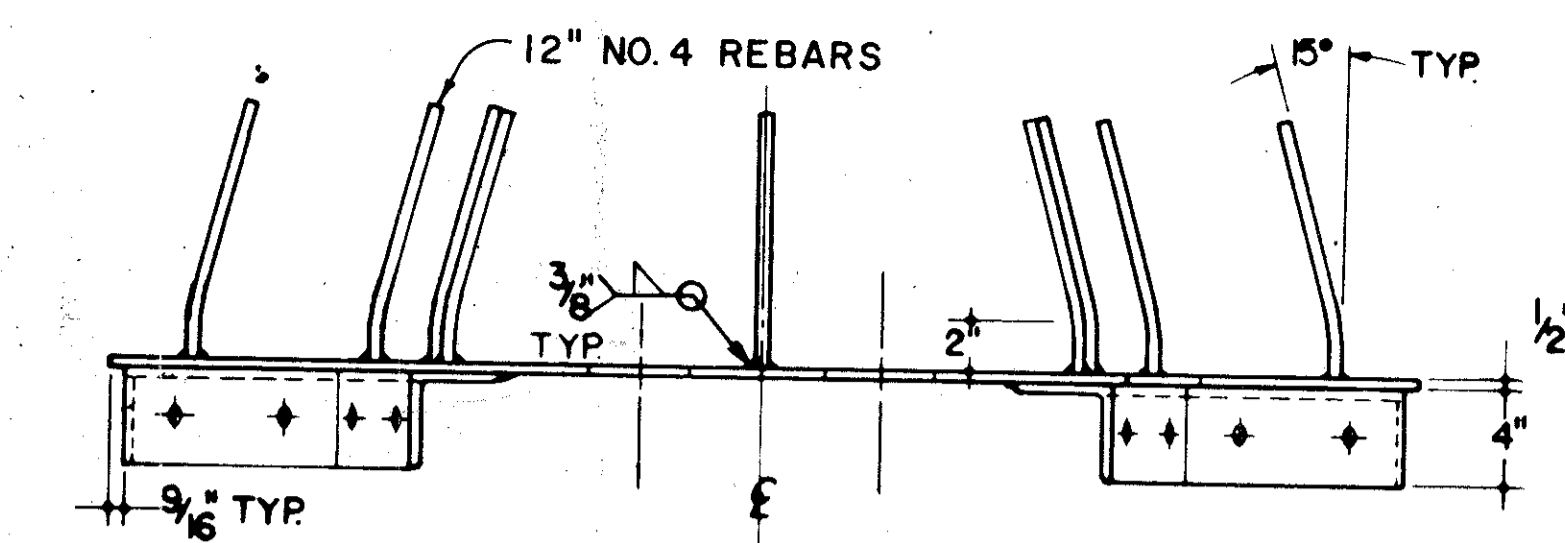
HNTB

CUYAHOGA COUNTY
CUY-71-18.57
CUY-90-14.64

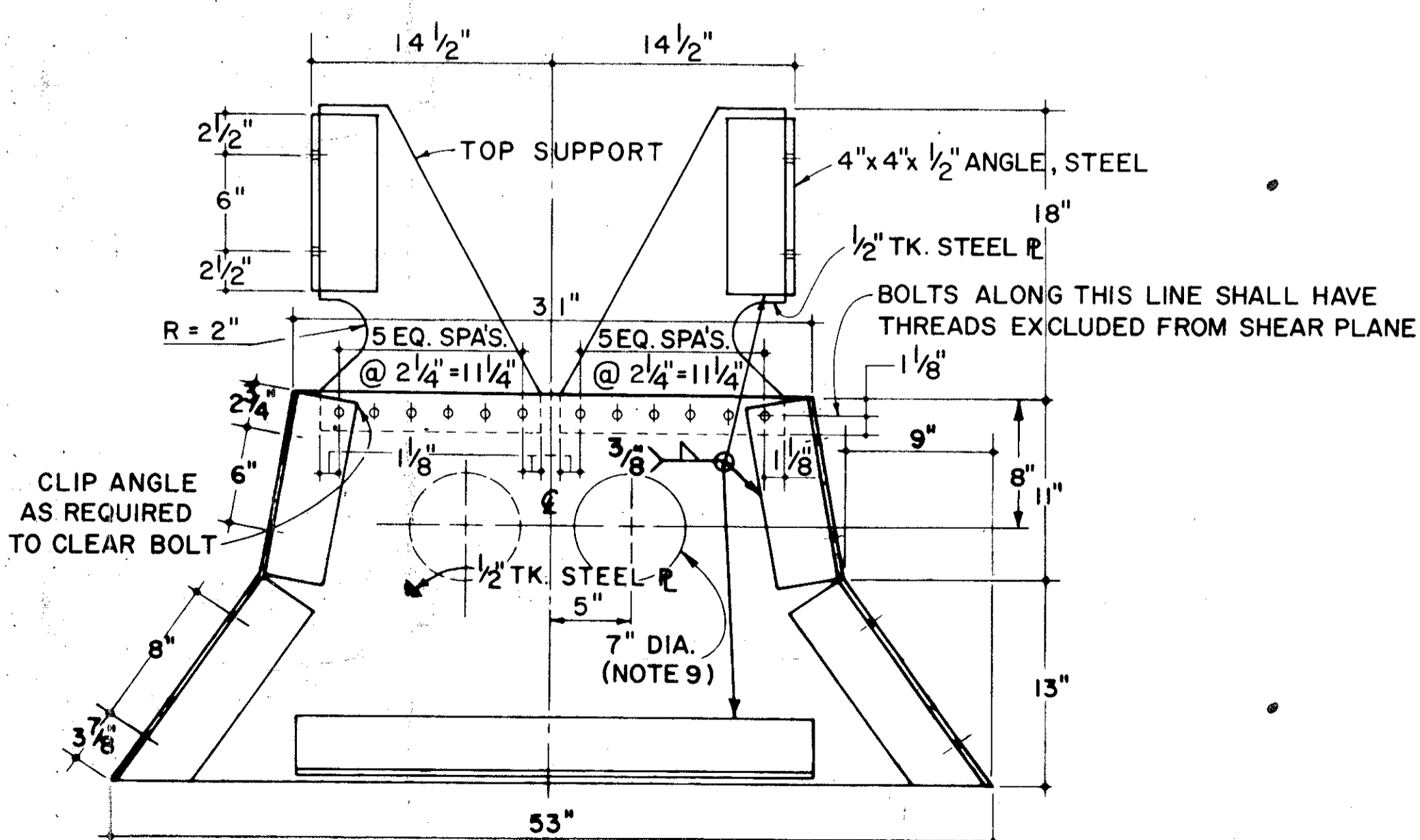
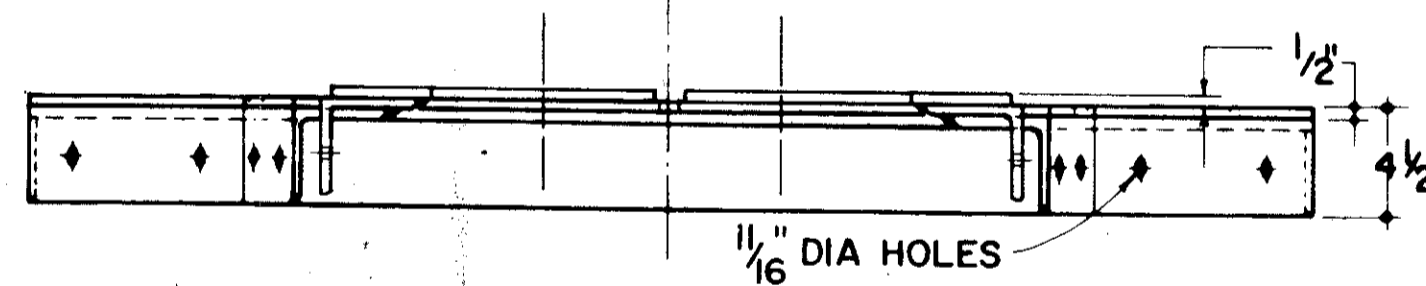
DESIGN	BARRIER WALL OPENING	WALL R LENGTH
1	10'-0"	9'-10"
2*	4'-0"	3'-10"

CHART "A"

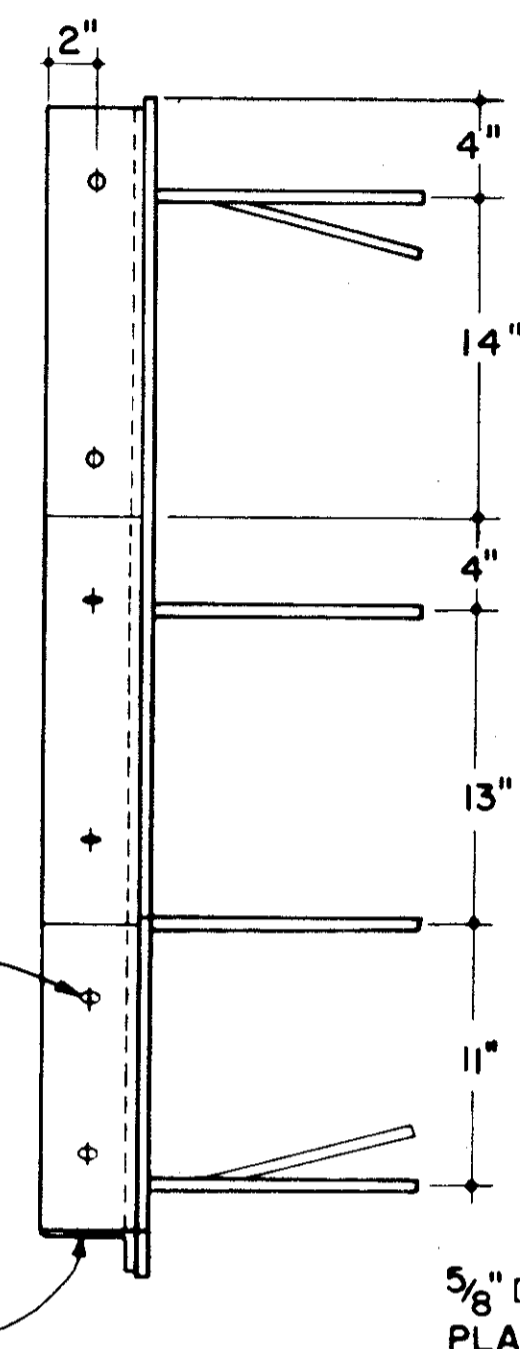
* SEE NOTE 8



END BULKHEAD



CENTER BULKHEAD



5/8" DIA. BOLTS, NUTS, PLAIN AND LOCKWASHERS (TYPICAL)

BARRIER WALL BASE

SLOPE TO DRAIN

SECTION-A-A

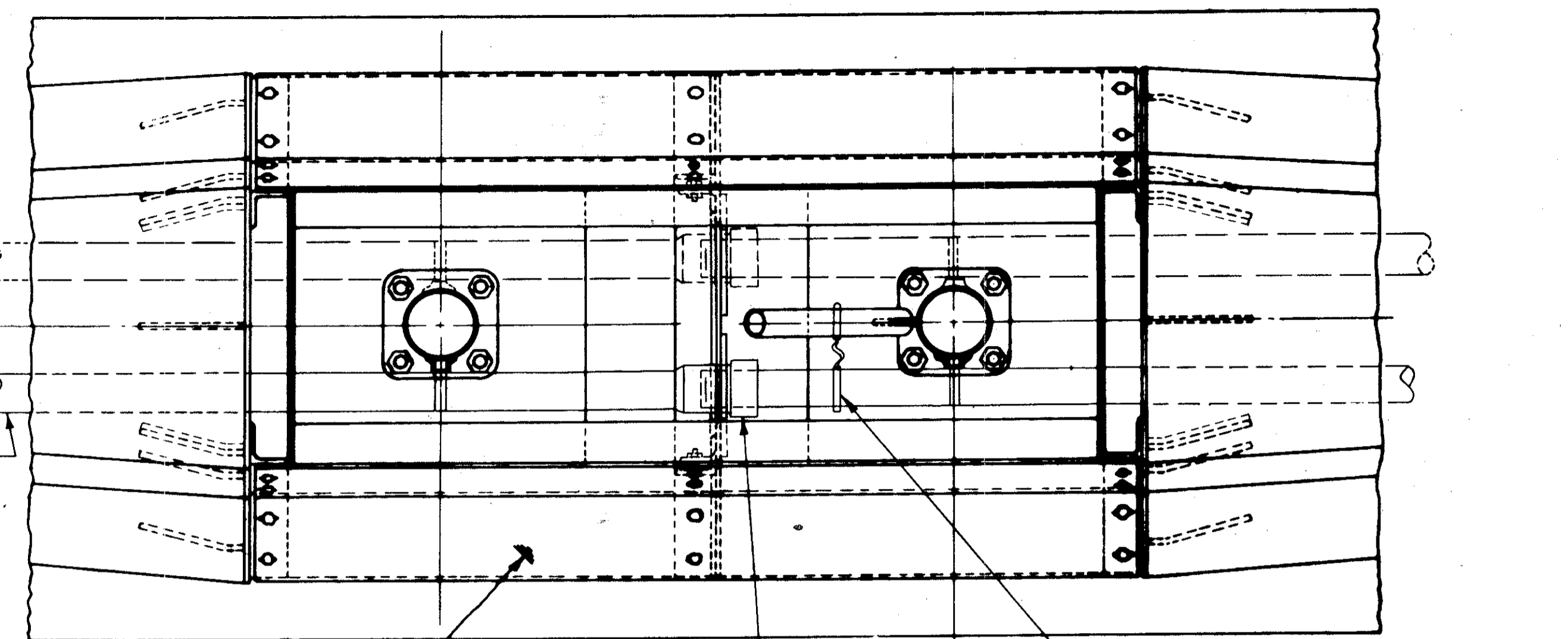
NOTE

1. ALL STEEL PARTS SHALL BE GALVANIZED AFTER FABRICATION AS PER ASTM A-123.
2. ALL 5/8" BOLTS, NUTS, PLAIN WASHERS AND LOCKWASHERS SHALL BE GALVANIZED AS PER ASTM A 153.
3. REINFORCING BARS SHALL BE ASTM A-615, GRADE 40.
4. AFTER FABRICATION AND GALVANIZING THE PARTS SHALL BE SHOP ASSEMBLED AND SHIPPED TO THE JOB SITE AS A UNIT.
5. INSTALLATION: REMOVE ONE WALL PLATE, AND ONE TOP SUPPORT, PLACE THE UNIT AROUND THE SIGN SUPPORT, REINSTALL WALL PLATE AND TOP SUPPORT, AND FORM THE CONCRETE BARRIER UP TO THE END BULKHEADS.
6. PLATES AND ANGLES SHALL BE ASTM A-36 STEEL.
7. EACH WALL PLATE MAY BE MADE FROM A SINGLE PIECE AND FORMED ON A PRESS BRAKE OR THREE PIECES WELDED USING A 100% PENETRATION BUTT JOINT WELD.
8. FOR CANTILEVER, CENTER MOUNT AND BUTTERFLY TYPE SIGN SUPPORTS PROVIDE A 3'-0" SECTION OF CONCRETE BARRIER WALL ON EACH SIDE OF THE 3'-10" WALL R AS A PART OF THIS ITEM. ELIMINATE THE CENTER BULKHEAD ON DESIGN 2.
9. INSTALLATION OF ELECTRICAL CONDUIT, INCLUDING ALL LABOR, MATERIAL, AND INCIDENTALS SHALL BE INCLUDED IN THE UNIT BID PRICE PER EACH ITEM 844 - "BARRIER WALL ASSEMBLY FOR EXISTING SIGN SUPPORTS, DESIGN , AS PER PLAN."

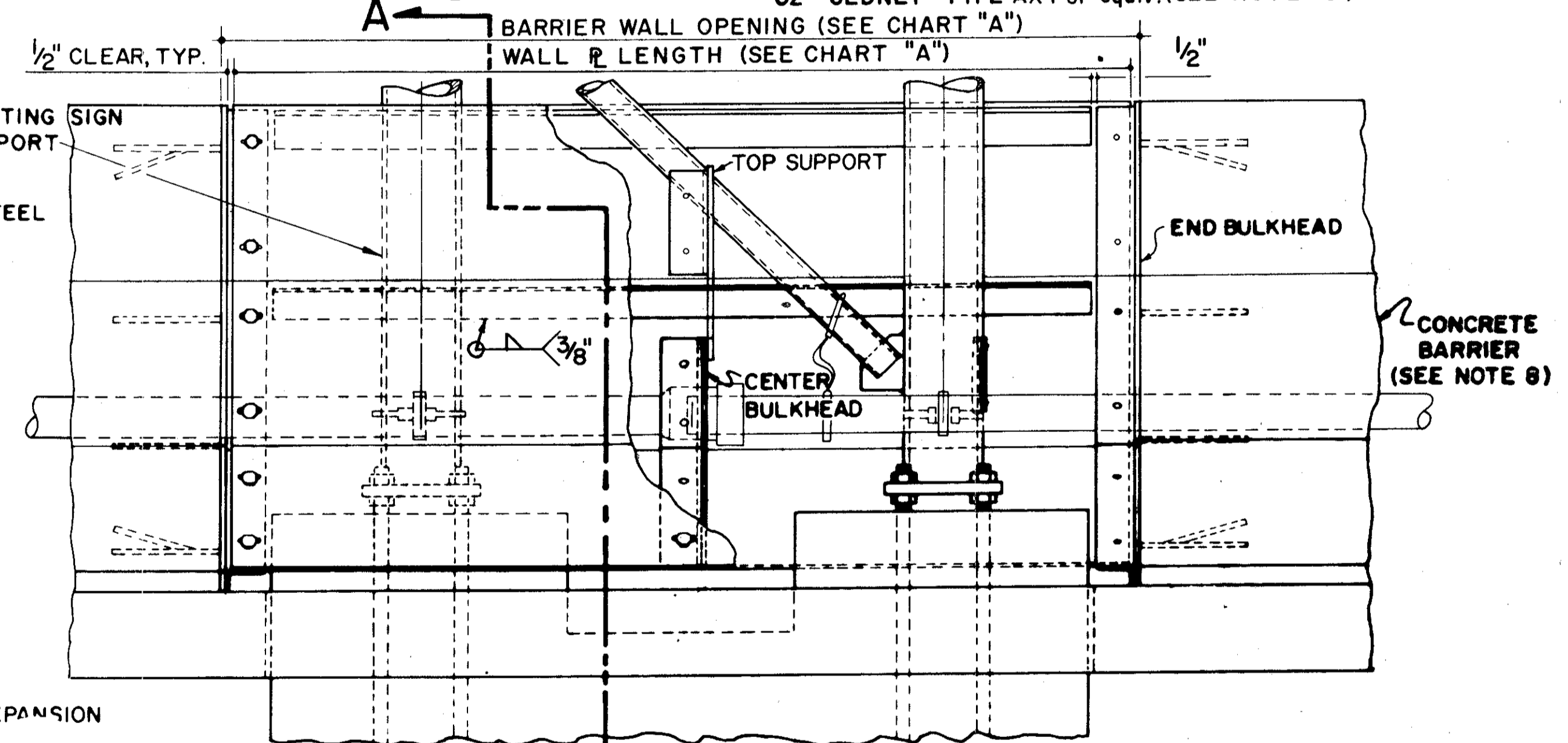
OPPOSITE HAND AS REQUIRED

of Barrier

4" CONDUIT, 713.04 THRU TO NEAREST PULLBOX (BOTH ENDS) (NOTE 9)



1/2 THICK WALL PLATE EXPANSION FITTING OZ - GEDNEY TYPE-AX4 or equiv. (SEE NOTE 10) BONDING JUMPER, OZ - TYPE BJ or equiv.



10. SET FREE END OF CONDUIT AT THE CENTER OF THE EXPANSION COUPLING TRAVEL.

NOTE:
THE PURPOSE OF THIS DRAWING IS TO SHOW THE MODIFICATION TO STANDARD CONSTRUCTION DRAWING TC-21.31, FOR THE PURPOSE OF INCLUDING 4" RACEWAY AND AN 18" VERTICAL EXTENSION, AS PART OF THIS DETAIL. DRAWING TC-21.31 REFERRED TO IS THAT DRAWING LAST DATED 10-1-74.

QUANTITY CALCULATIONS

MADE BY D.S.P. DATE 2-16-77
 CHECKED BY M.E.E. DATE 2-14-78

CUYAHOGA COUNTY
 CUY-71-18.57
 CUY-90-14.64

Note:
 Cross Sections shown on this sheet are from field survey in November 1976. Cross Sections and Quantities are shown for information only.
 For additional information see Note on Sheet 7 for Item Special-Erosion Repair.

Erosion Area X-4
 This area requires repair and replacement of Crushed Aggregate Slope Protection. No Seeding and Mulching required. Cost Participation III I-90

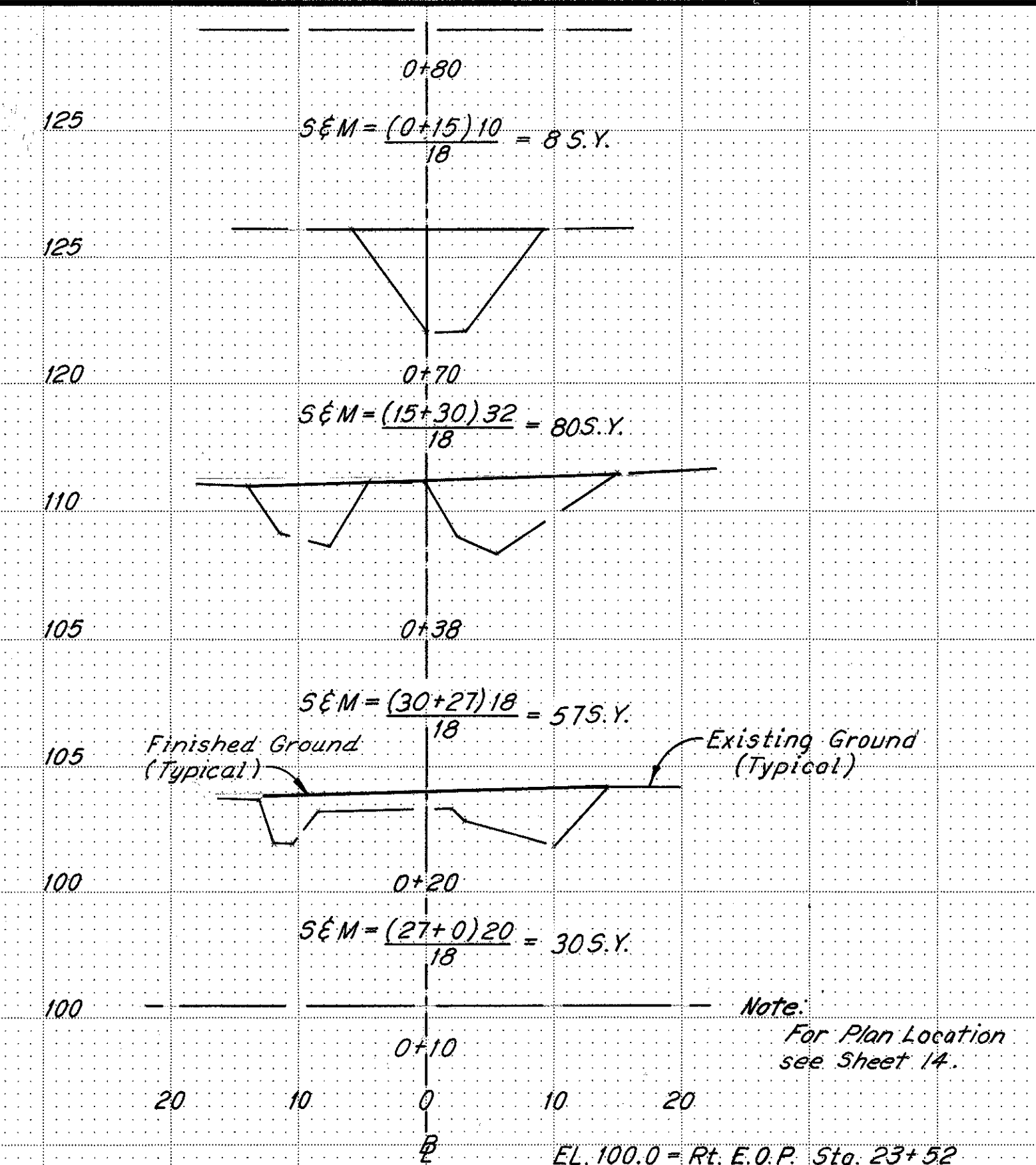
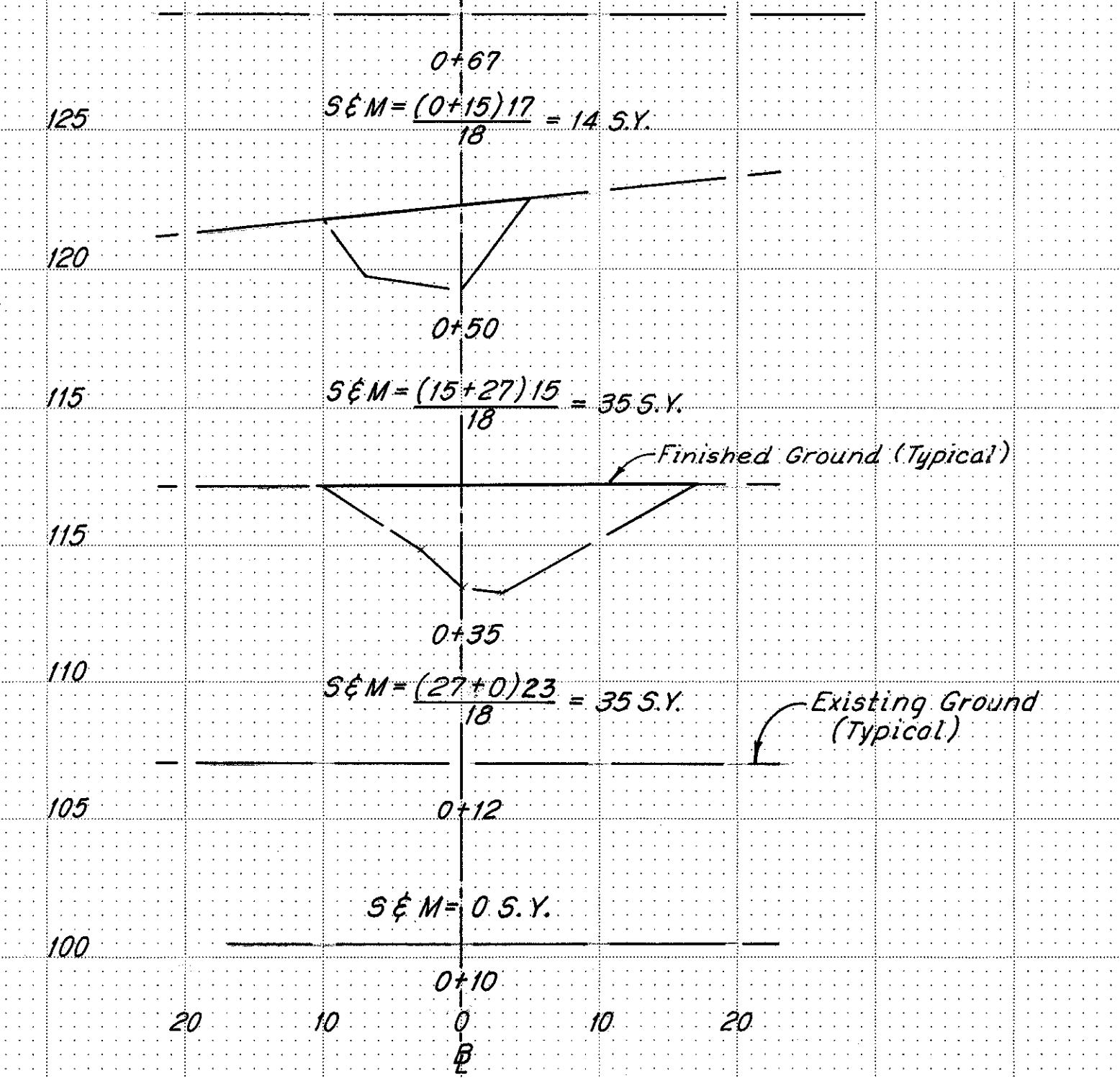
Provide approximately 75 Cu. Yds. of material meeting the requirements of Item 601.05. Payment included in the lump sum price bid for Item Special-Erosion Repair.

Remove and dispose of approximately 20 Cu. Yds. of eroded material as directed by the Engineer. Payment included in the Lump Sum bid for Item Special Erosion Repair.

Note:
 For Plan Location see sheet 14.

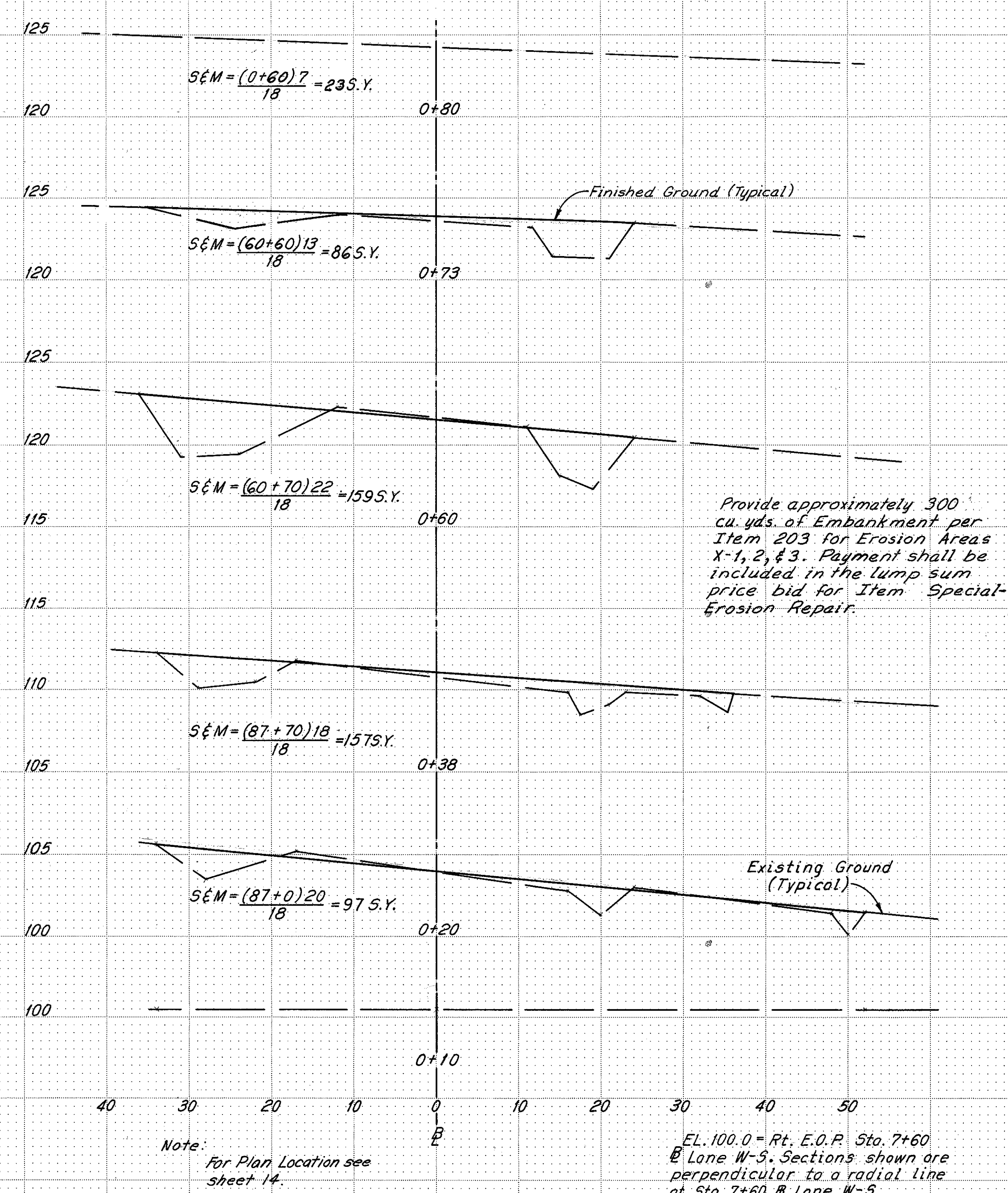
Scale: 1" = 10'-0" Horiz.
 1" = 5'-0" Vert.

Erosion Area X-3
 Total Seeding and Mulching = 84 S.Y.
 Cost Participation III I-90
 EL. 100.0 = Rt. E.O.P. Sta. 30+36
 @ Lane N-W. Sections shown are perpendicular to a radial line at Sta. 30+36 @ Lane N-W.
 Note:
 For Plan Location see sheet 14.



Erosion Area X-2
 Total Seeding and Mulching = 175 S.Y.
 Cost Participation III I-90
 EL. 100.0 = Rt. E.O.P. Sta. 23+52
 @ Lane N-W. Sections shown are perpendicular to a radial line at Sta. 23+52 @ Lane N-W.
 Note:
 For Plan Location see sheet 14.

Erosion Area X-1
 Total Seeding and Mulching = 522 S.Y.
 Cost Participation III I-71



Provide approximately 300 cu. yds. of Embankment per Item 203 for Erosion Areas X-1, 2, & 3. Payment shall be included in the lump sum price bid for Item Special-Erosion Repair.

EL. 100.0 = Rt. E.O.P. Sta. 7+60
 @ Lane W-S. Sections shown are perpendicular to a radial line at Sta. 7+60 @ Lane W-S.

MADE D.S.P. DATE 2-16-77
 TRACED D.S.P. DATE 2-16-77
 CHECKED M.E.E. DATE 2-14-78
 SCALE AS SHOWN

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 CONSULTING ENGINEERS
 CLEVELAND, OHIO



TRAFFIC CONTROL SUB-SUMMARIES

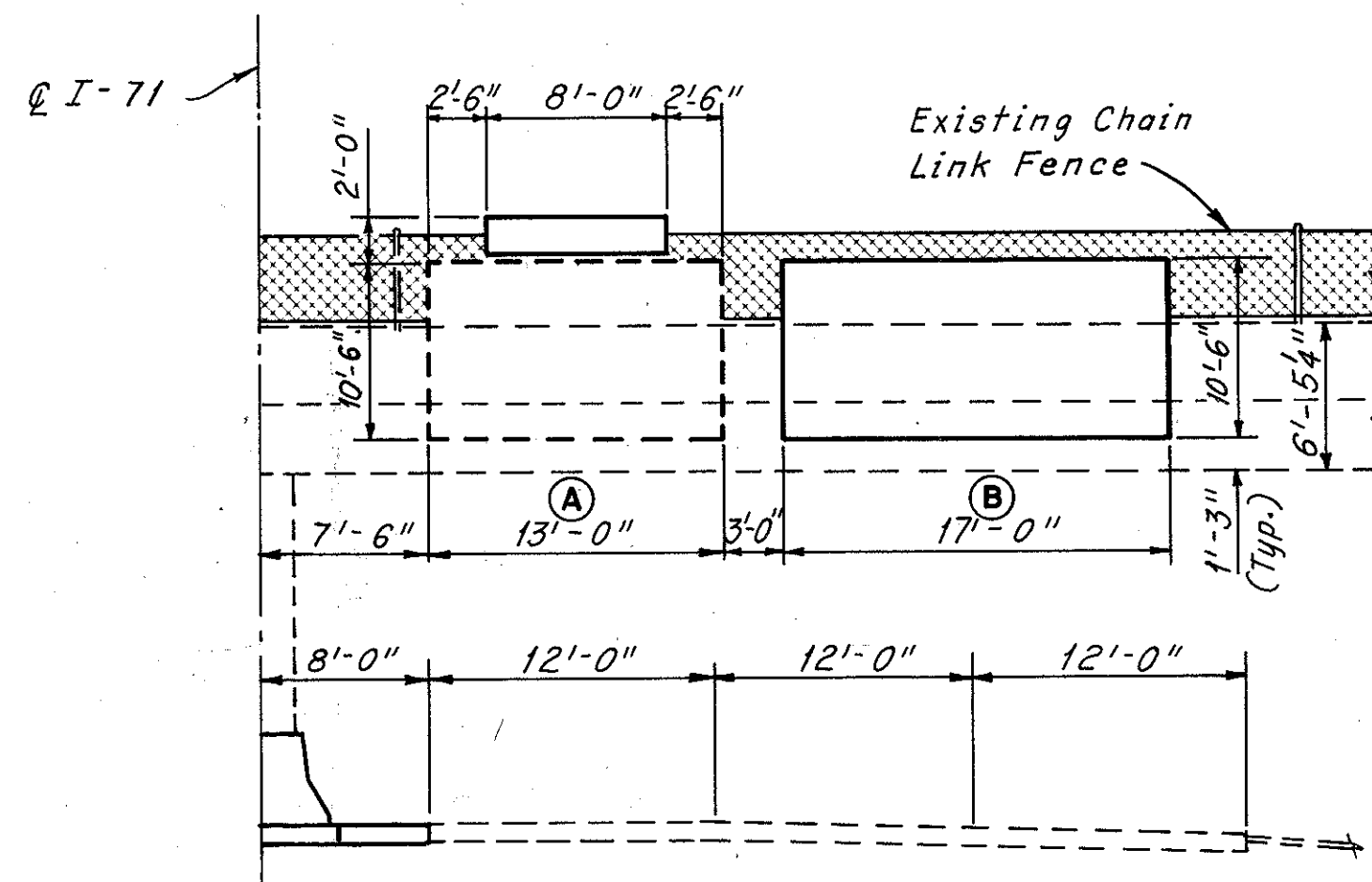
QUANTITY CALCULATIONS
 MADE BY D.S.P. DATE 2-22-77
 CHECKED BY M.E.E. DATE 2-09-78

FHWA REGION	STATE	PROJECT			
5	OHIO				

CUYAHOGA COUNTY
 CUY-71-18.57
 CUY-90-14.64

SIGNING SUB-SUMMARY															
SHEET NO.	SIGN NO.	STATION	CODE NO.	SIGN SIZE	SIGN ERECTED, EXTRU SHEET		844 SIGNS				202			STRUCTURE MOUNTED SUPPORT TC-18.24	
					I	II	FLAT		EXTRU. TYPE	FLAT SHEET	REMOVAL G.M. SIGNS	REMOVAL G.M. INSTALL.	REMOVAL O.H. SUPP. FOUNDATION	I	II
							Sq. Ft.	Each							
14		I-71													
		1958+535B													2
		1959+865B	R-16B-48	48" x 60"				20							
		1964+325B	R-7B-48	48" x 96"				32							
		1974+275B	GEP-96	8'-0" x 2'-0"						16					
	(A)	1955+275B	GEP-96	8'-0" x 2'-0"						16					
	(A)			13'-0" x 10'-6"											1
	(B)			17'-0" x 10'-6"											1
TOTAL I-71						130	1	52	32	170		3		2	1
15		I-90													
		1980+03WB													1
TOTAL I-90															1

SIGN LIGHTING SUB-SUMMARY COST PARTICIPATION I												
SIGN NUMBER	ROADWAY	STATION	SHEET NO.	Panel Size	Sign Watts	844	844	844	844	844	844	625
						Sign Service	Signs Wired Complete Overpass Structure Mounted	Switch Enclosure Mounting Bracket	Disconnect Switch With Enclosure, Size X	Mercury Vapor Luminaires With Type H30-22KB 175 Watt, Lamp	Ballast Type CMRT-175 (480)	Ground Rod
						Each	Each	Each	Each	Each	Each	Each
(A) I-71		1955+275B	14	13'-0" x 10'-6"	350	1	1	1	1	2	2	1
(B) I-71		1955+275B	14	17'-0" x 10'-6"	350		1			2	2	
(C) Clark Ave.			14									
TOTAL I-71						1	2	1	1	4	4	1



SIGN NO. 1
 Sta. 1955+27, SB I-71
 (2)-TC-18.24

BARRIER WALL ASSEMBLY FOR EXISTING SIGN SUPPORTS				
STATION	SHEET NO.	844 DESIGN I AS PER PLAN	PROJECT	
1966+63	14	1	I-71	
1974+27	14	1	I-71	
1987+75	15	1	I-90	
1992+77	15	1	I-90	
1998+80	15	1	I-90	
TOTAL		2	I-71	
TOTAL		3	I-90	

LOCATIONS AND STATIONS		SIDE, NORTH-BOUND OR SOUTH-BOUND	4" WHITE EDGE LINE	4" YELLOW EDGE LINE	4" LANE LINE	6" LANE LINE	8" WHITE CHANNELIZING LINE	24" WHITE BROAD TRANSVERSE LINE
			621 (A)	621 (B)	847 (C)	847 (D)	847 (E)	847 (F)
			LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.
I-71								
Sh. 14 I-71								
	1956+50-1975+00	SB	1850	1850		3700		
	1956+50-1975+00	NB	1850	1850		3700		
Sh. 15								
I-71								
	1975+00-1980+98	NB	598	598		1196		
	1975+00-1980+98	SB	598	598		1196		
Total I-71			4896	4896		9792		
I-90								
Sh. 15								
I-90								
	1980+98-1984+30	EB	332				332	
	1980+98-1999+01	EB	1803	1803		5409		
	1984+30-1986+30	EB			200			
	1980+98-1983+00	WB	202					
	1980+98-1999+01	WB	1803	1803		3606		
	1983+36-1988+90	WB					1100	680
	1988+90-1999+01	WB					1011	
	3+60-5+00	Lane N-W					140	
	5+00-12+00	Lane N-W				700		
	9+30-12+00	Lane N-W		270				
	3+88-15+70	EB	1182	1182		2364		
	12+80-15+70	EB					290	
	3+88-15+70	WB		1182		3546		
	3+88-12+85	WB	897					
	12+85-14+05	WB					240	85
Total I-90			6219	6240	200	15625	3113	765

LEGENDS

- SIGNING**
- (SN) Provide New Sign
 - (SP) Provide New Support
 - (RM) Revise Existing Sign Legend
 - Proposed Sign
 - Existing Sign
 - ≠ Sign Existing with Overlay
 - ▨ Future Sign by Others
 - (BY) Black on Yellow Panel
- PAVEMENT MARKING**
- (A) 4" White Edge Line
 - (B) 4" Yellow Edge Line
 - (C) 4" Lane Line
 - (D) 6" Lane Line
 - (E) 8" White Channelizing Line
 - (F) 24" White Broad Transverse Line

LIGHTING SCHEMATIC PLAN

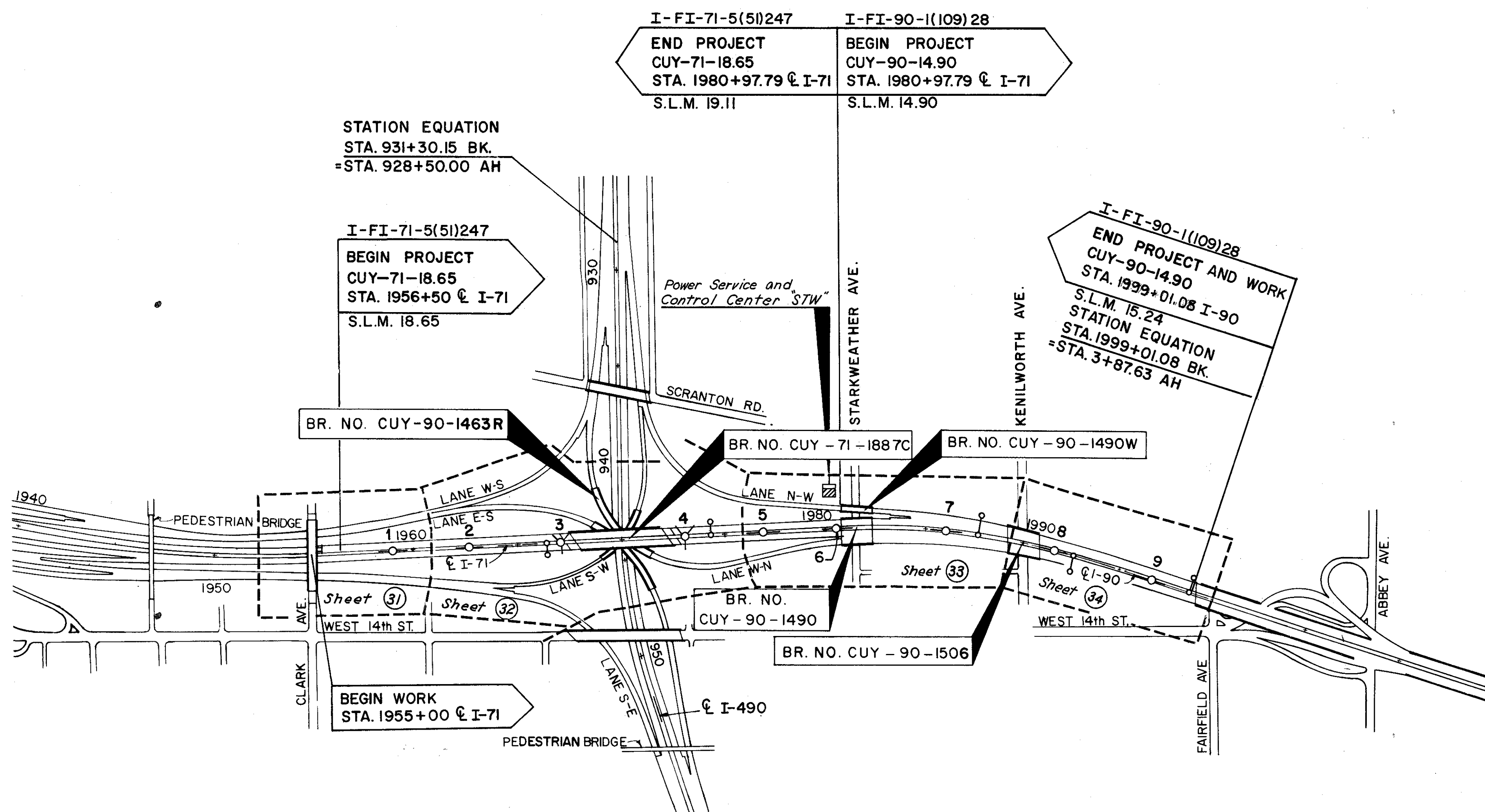
FHWA REGION	STATE	PROJECT
5	OHIO	

24
53

CUYAHOGA COUNTY
 CUY-71-18.65
 CUY-90-14.90



CITY OF CLEVELAND



LEGEND

- LIGHT TOWERS
- SIGNS

MADE ERH DATE 11-8-77
 TRACED JY DATE 11-11-77
 CHECKED EF DATE 12-20-77
 SCALE 1"=400'

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



LIGHTING NOTES

QUANTITY CALCULATIONS

MADE BY ERH DATE 12-14-77
CHECKED BY EFJ DATE 12-20-77

FRWA REGION	STATE	PROJECT
5	OHIO	

25
53

CUYAHOGA COUNTY
CUY-71-18.65
CUY-90-14.90

SPECIFICATIONS

These notes are supplemental to Items 625 and 713 of the State of Ohio Department of Transportation Construction and Material Specifications.

Reference shall be made to Standard Construction Drawings listed on the title sheet of these plans.

PLAN SPECIFICATION REFERENCES

References to Items 625 and 713 in these plans shall be considered to read as respective references to Items S625 and S713.

GENERAL

This project has been designed on the basis of full lighting with an average illumination of 1.2 ft.-cd. (initial) and a maximum uniformity ratio of 4.0 to 1 for light pole units and 3.0 to 1 for light tower illuminated areas.

The project will receive 480-volt, two-wire, controlled secondary service with one side grounded, from:

Cleveland Electric Illuminating Company (C.E.I.)
P.O. Box 5000, 55 Public Square, Cleveland, Ohio 44101

The Contractor will not be required to furnish or install the primary distribution lines, transformers, transformer pole, photocell, arresters or line fuses. The Contractor shall provide connection to branch circuits and grounds as hereinafter specified, and shall assure that all power service requirements with the power supplying agency are provided.

This project has been designed on the basis of a 5% maximum voltage drop in all branch circuits.

UNDERGROUND UTILITIES

The information shown in these plans concerning type and location of underground utilities, such as gas lines, electrical conduit or cable, waterlines, sewers, drains, etc., is not guaranteed to be accurate or all inclusive. The Contractor is responsible for making his own determinations as to the type and location of underground utilities as may be necessary to avoid damage thereto.

The Contractor should exercise extreme caution and is fully responsible for all damage inflicted on underground utilities in excavation and trenching operations, replacement of guardrail and the like.

REVIEW, INSPECTION and MAINTENANCE of EXISTING ROADWAY and SIGN LIGHTING FACILITIES

Before any work is started on this project, representatives of the State, City and the Contractor shall make a visual inspection of the existing roadway and sign lighting systems within the project work limits. Records of this inspection as to pole, sign and circuit outages shall be kept in writing by the State.

It shall be the Contractor's responsibility to continuously maintain the existing roadway and sign lighting systems which have been inspected and determined operational by the above parties, and shall maintain such systems (except the replacement of knocked-down poles) until the new lighting facilities have been installed and approved, and the high voltage test 839 is accomplished. Then, subject to the approval of the Engineer, any existing circuit(s) may be disconnected and the new roadway and sign lighting circuit(s) activated.

The Contractor's liability for said work will commence 120 calendar days after award of contract and will continue for the duration of the project. During said time the Engineer will deduct from the lump sum price bid for this work 0.5% per day whenever ten percent (10%) or more, of the remaining roadway lights within this project are not completely illuminated.

Basis of payment shall be at the lump sum bid price for Item 625 "Maintaining Existing Lighting" which shall be full compensation for furnishing all labor, materials and incidentals necessary to complete the item of work.

ELECTRICAL SERVICE FOR ILLUMINATED SIGNS

The pay items in the Lighting General Summary include the pull box or junction box adjacent to each lighted sign and the electrical service connections leading into the box, including connector kits if required.

Payment for restoring electrical service to existing lighted signs is to be included in the bid price for electrical cable.

ELECTRICAL CABLES

In lieu of the requirements listed under S713.02, paragraphs 2(a) and 2(b), all cable to be used for 300 and 600 volt service shall be UL Type RHH, or RHW, or RHH/RHW and further meet the requirements of UL Type USE.

All single conductor cables to be used for 300 and 600 volt service shall not have a separate outer covering.

Alternate bids for 5KV cable shall be for an XLP Type UL MV-90, dry.

CONNECTOR KITS

Cable connections in pullboxes, junction boxes, and other enclosures below ground may be accomplished by the use of either of the following:

(1.) A sleeve or tee cable connector conforming to the general requirements of Style "S" or "H", or other connecting device approved by the Engineer. The connector shall be installed in accordance with the manufacturer's directions and the connection shall be sealed and waterproofed with a hi-dielectric compound such as "Aqua Seal"

by Kearney, "Scotch Kit No. 2200" by 3M, or a similar compound by Blackburn or equal as approved by the Engineer. The sealing material shall be applied in accordance with the manufacturer's directions to make a watertight connection. Connections not accomplished in-line or in tee form shall be additionally protected by use of a hi-dielectric PVC, or other approved material, banded with an approved fastening device.

(2.) A preassembled kit, as manufactured by Joy or Bussman, or approved equal, with a waterproof or water-tight rating acceptable to the Engineer.

PULL BOX COVERS

Supplementing S713.09(3), covers for circular pullboxes shall be precast, steel reinforced concrete, of the size and dimensions detailed in the plans, with two (2) No. 4 Ga. galvanized steel lifting eyes recessed flush with the top of the cover. The cover shall be constructed with 4 x 4/6 reinforcing mesh and Class C concrete with No. 4 aggregate conforming to Item 499 of the Specifications.

Payment for Pullbox Covers, for circular pullboxes, shall be included in the unit price bid for Item 625 "Pullbox, Circular, By Size, with Concrete Cover, As per plan."

CONDUIT JACKED UNDER PAVEMENT

This item shall consist of furnishing and installing conduit of the size or sizes indicated under existing pavement and contiguous shoulders by an approved method such as "drilling" or "jacking".

The Contractor shall place the conduit with the least amount of disturbance to existing pavement, subbase, berm pavement or shoulders of the roadway, and to prevent damage to the existing utilities. All push pits or necessary excavations shall be backfilled and restored in accordance with 625.01. Measurement of the conduit shall be the actual amount of lineal feet installed under pavement and shoulders, measured in place, as accepted by the Engineer. The unit price bid for Item 625 "Conduit Jacked Under Pavement", shall be full compensation for excavation, drilling or jacking, backfilling, compaction, restoration of pavement and all labor, material, equipment and incidentals necessary to complete the work as specified.

POLYVINYL-CHLORIDE PLASTIC CONDUIT

POLYVINYL-CHLORIDE CONDUIT FOR ENCASEMENT IN CONCRETE SHALL BE OF THE SIZE AND TYPE SPECIFIED AND SHALL CONFORM TO NEMA STANDARDS PUBLICATION No. TC6-74 WITH EXCEPTION THAT CONDUIT AND CONDUIT FITTINGS COMPOSED OF ACRYLONITRILE-BUTADIENE-STYRENE (ABS) SHALL NOT BE ACCEPTABLE.

CONDUIT ON STRUCTURES AND STRUCTURE GROUNDING

The structure grounds and expansion joints shown in the plans should not be considered complete in number or better than approximate in location.

Expansion fittings for conduit on structures shall be OZ-Gedney Type AX, Crouse-Hinds Type XJ-4, Appleton Type XJ-4, or equal as approved by the Engineer, and installed in the manner detailed on HL-5.

Each expansion fitting shall have a copper external bonding jumper to assure electrical continuity of the grounding system.

Basis of payment shall be included in the unit bid price of the 625 Item Conduit, installed complete, in place, with all materials, labor, and incidentals.

EXISTING LIGHT POLE AND FOUNDATION, TO BE REMOVED

Supplementing Item 202 of the Specifications, the Contractor shall remove existing roadway lighting units, pole and foundation, and the adjacent pullbox where described in the plans.

The Contractor shall carefully remove and store on the project, at the location specified by the Engineer, the lamp and luminaire assembly from each light pole unit, all transformer bases and connector kits, and certain poles, bracket arms and other items deemed salvageable by the Engineer. All remaining items removed shall become the property of the Contractor.

All abandoned circuit cable and accessories must be removed from existing crossovers and ducts. Foundations to be removed may be removed either completely or to not less than one foot below finished grade. Pullboxes are to be abandoned in place in the manner described in 202.09 and backfill in accordance with 202.02.

Upon removal of light poles on structures, new transformer bases will be installed with gasketed 1/2" galvanized rainproof covers. (See detail on sheet 37) Where existing underpass lighting circuits are to be maintained, restore existing Circuit with Style "S" S713.05 Connectors. Payment for Transformer Bases cover and connectors, required for this work shall be at the unit price bid for each, "Transformer base, steel, with cover, as per plan", including all labor, materials and incidentals, installed. Removal work as described shall also comply with Item 4 of the "Equipment and Material Storage" note as found on Sheet No. 4.

Basis of payment shall be at the unit bid price per each:
Item 202 - "Existing Lighting Unit, to be removed, as per Plan"
Item 202 - "Existing Lighting Unit (Structure Mounted), to be removed, as per plan" including all labor, material, equipment and incidentals to complete the item of work and accepted as specified. Salvageable lighting material removed by the Contractor shall be delivered to the following address: Ohio Department of Transportation, District Lighting Engineer, Riveredge Yard, Grayton Road, Riveredge Township, Ohio.

EXISTING UNDERPASS LIGHTING SYSTEM, TO BE REMOVED

Supplementing Item 202 of the Specifications, the Contractor shall remove all existing underpass lighting units, fixtures, brackets, hangers, junction boxes, conduit, wire, and other materials of the installation on bridges where shown in the plans.

Basis of payment shall be at the lump sum bid price for Item 202, "Existing Underpass Lighting System, To Be Removed, Bridge No., As Per Plan", including all labor, material, equipment, and incidentals to complete the item of work.

CONTROL CENTER

The Contractor shall furnish and install control center, located as per plans, to serve roadway lighting circuits. The control center shall include the control equipment, mounted as shown on lighting detail sheets, and as specified.

The Contractor shall provide electrical service from the Power Company service pole to the Lighting Control Center, installed in the manner shown in the plans. This item of work shall include furnishing, and installing the conduit risers, weatherhead, arrestor, and ground rod at the service pole, trench and conduit to the Control Center, all wiring of the size indicated in the plans and all other materials and incidentals as may be required to complete the item of work.

Basis of payment shall be at the lump sum bid price for Item 625 - "Control Center, By Type, in place, with all materials, labor, and incidentals, installed, tested, and accepted."

BYPASS SWITCH

A 20 AMPERE BYPASS SWITCH RATED AT 240 VOLTS, COMPLETE WITH WIRE AND CONDUIT, SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. THE CLEVELAND ELECTRIC ILLUMINATING COMPANY WILL MAKE FINAL CONNECTION TO THE SWITCH FOR MANUAL BYPASS CONTROL OF THEIR LIGHTING CONTROLLER

BASIS OF PAYMENT SHALL BE INCLUDED IN ITEM 625 "CONTROL CENTER BY DESIGNATION."

PADLOCKS AND KEYS

Each enclosure shall be furnished with at least one padlock. Padlocks shall have a corrosion proof body and a corrosion protected steel shackle and shall be either brass or bronze equal to Master No. 4 DKA or Wilson Bohannon 660A. All padlocks for the project shall be keyed alike. The Contractor shall contact the maintaining agency to obtain the appropriate master key number.

Payment will be included in the bid for the each item being locked.

LIGHTING NOTES

(CONTINUED)

FHWA REGION	STATE	PROJECT	
5	OHIO		

26
53

QUANTITY CALCULATIONS

MADE BY ERH DATE 12-14-77
CHECKED BY EFJ DATE 12-20-77

CUYAHOGA COUNTY
CUY-71-18.65
CUY-90-14.90

LIGHT TOWER

ALL LIGHT TOWERS ON THIS PROJECT SHALL HAVE THE FOLLOWING ITEMS:

- A LOWERING DEVICE WITH A POSITIVE LATCHING MECHANISM TO REMOVE THE LOAD OF THE LUMINAIRE RING FROM THE LIFTING CABLES WHEN IN THE RAISED AND LATCHED POSITION. LATCHING AND UNLATCHING SHALL BE TRIGGERED BY THE OPERATION OF THE WINCH.
- THE HANDHOLE SHALL BE COVERED WITH A HINGED DOOR WITH A NONREMOVABLE STAINLESS STEEL PIN AND INCLUDE A HASP FOR PADLOCKING.
- A SECONDARY SURGE ARRESTER INSTALLED IN OR ON THE LUMINAIRE SUPPORT RING AND CONNECTED TO THE LOAD SIDE OF THE TERMINAL BLOCK.
- A 600V CIRCUIT BREAKER OR FUSE BLOCK INSTALLED IN THE TOWER BASE WITH LUGS TO ACCOMMODATE BOTH INCOMING AND OUTGOING CIRCUIT CABLES OF THE SIZE SPECIFIED IN THE PLANS.
- A WINCH WITH CABLE FOLLOWER OR OTHER APPROVED MEANS TO CONTAIN THE CABLE ON THE WINCH.
- FITTINGS FOR LIGHT TOWERS SHALL COMPLY WITH THE REQUIREMENTS OF S713.21 PARAGRAPH 6, EXCEPT GALVANIZED STEEL SHALL NOT BE PERMITTED.
- THE LUMINAIRE SUPPORT RING SHALL HAVE ROLLER CONTACT CENTERING ARMS OR SILICONE RUBBER BUMPER ROLLERS HAVING A DUROMETER HARDNESS SUCH THAT THE SHOCK TRANSFERRED TO EQUIPMENT MOUNTED ON THE LOWERING RING WILL NOT EXCEED 4G'S.
- THE CONTROL CABLE ON THE PORTABLE POWER UNIT SHALL BE A MINIMUM OF 20' FOOT LONG, A HAND HOLE, WHICH SHALL BE LOCATED AS SHOWN IN THE PLANS.

TOWER LIGHTNING PROTECTION

The unit price bid for each "Item S625, Tower Lightning Protection" shall be full compensation for furnishing and installing the air terminal, mounting bracket, grounding conductor, and bonding strap, and all labor, material, equipment, and incidentals necessary to complete the work as specified. See detail, Sheet 30.

GROUND RODS, AS PER PLAN

All Ground Rods for light towers shall have a resistance to earth not to exceed 10 ohms, in lieu of 25 ohms as specified in S625.10.

LAMPS - HIGH PRESSURE SODIUM (HPS)

Supplementing 625.08, and 713.14 of the Specifications, High Pressure Sodium (HPS) Lamps shall be of the wattage indicated in the plans and shall be General Electric "Lucalox", Westinghouse "Ceramalux", Sylvania "Lumalux", or equal as approved by the Engineer.

LAMPS - MERCURY

Supplementing 625.08 and 713.14 of the Specifications, Mercury lamps shall be of the type and wattage indicated in the plans and shall be General Electric, Westinghouse, Sylvania, or equal as approved by the Engineer.

Basis of payment shall be at the unit price bid per each, complete, installed, tested and accepted.

TOWER LUMINAIRES

Luminaires for Tower Lighting shall have a single rated 480 volt regulator type, 1000 watt ballast designed for use with a 1000 watt High Pressure Sodium lamp, and shall conform to the photometric requirements for asymmetric (IES Type I) or symmetric (IES Type V) distribution, as specified.

UNDERPASS LUMINAIRES

Supplementing 625.07 and 713.13 of the Specifications, 250 Watt underpass luminaires shall be Holophane "Underpass Wallpack", Westinghouse, McGraw-Edison, General Electric or equal as approved by the Engineer.

Each unit shall be furnished with a wireguard, an integral fuse holder with a 10-ampere fuse, and an integral ballast of a regulator type for the specified wattage and rated for 120 volts.

LIGHT TOWER FOUNDATION, MEDIAN BARRIER

This work consists of constructing a special concrete median barrier with an integral light tower foundation of the type and size indicated in the plans.

Construction shall be in conformance with the requirements of 511, 622, 625 and as supplemented herein or indicated on the details.

Light tower foundations shall be located by the Contractor and staked. After stakeout, the Contractor shall notify the Engineer at least three days in advance of the scheduled work so that the foundation locations may be verified and field checked for underground obstructions. Approval by the Engineer as to the type of foundation to be employed is required prior to construction. The Contractor is fully responsible for any damage to underground pipes. When the foundation excavation is complete, the shaft shall be inspected to check the dimensions and alignment. The shaft shall be sunk vertically such that its center at any horizontal plane will not be out of plumb from the center of the shaft at the top by more than 2-inches in 10-feet. When any final excavations for shafts exceeds the tolerance specified, its deviation from such tolerances shall be compensated for by placing additional reinforcing steel in the shaft or by other approved construction at the expense of the Contractor. Any excavation for the shaft beyond the lines required by the plan dimensions shall be backfilled with concrete.

Casing will be required for shaft excavation when it is necessary to prevent caving of foundation materials, or when necessary to seal the excavation off from ground water seepage. Casing, where required, shall be of metal and of ample strength to withstand handling stresses, the internal pressure of fresh concrete and the external pressure of the surrounding earth and water. In addition, the casing shall be watertight. Whenever a casing is used that is to be removed, the casing shall be smooth and well oiled and shall extend sufficiently above the finished shaft grade to provide excess concrete to be placed for the anticipated slump due to casing removal. Also, where casings are to be removed, the concrete shall be of such workability as to minimize vibrating and rodding of the concrete. Casings to be removed shall be retracted as the concrete is placed and a minimum concrete head of two feet shall be maintained at all times above the bottom of the casing. Extreme care shall be taken to pull the casings in a truly vertical direction in order to prevent distortion of the shaft. If any upward movement of concrete occurs inside the casing at the beginning of the retraction operation, or at any time during retraction, pulling shall be stopped immediately and that portion of the casing remaining shall be left in place.

The reinforcing steel cage for the foundation shaft shall be completely assembled and placed as a unit for the full length of the shaft prior to placing any concrete. The cage shall be supported by a positive method to prevent its displacement. Additional reinforcement may be added to stiffen the cage at the Contractor's option, after approval by the Engineer.

Concrete for the shaft shall be placed immediately after all excavation and inspection are complete, and the reinforcing steel has been placed. Concrete placement shall be as continuous an operation as practicable, with minimum time intervals allowed between successive loads of concrete, for pulling of the casing, and for other operations necessarily carried on in sequence with the placing operations. Concrete shall be placed through a tremie tube with vibrators operated as required to assure proper consolidation of the concrete and elimination of entrapped air in the concrete. The concrete shall preferably be placed in the dry. Accordingly, the Contractor shall make a diligent effort to dewater the shafts. If, after making such an effort, it is determined that dewatering is not possible, a concrete seal shall be placed by the tremie method. The seal shall be placed in one continuous pour to an elevation, as necessary, to permit dewatering. At the time the seal is placed, the water level in the casing shall have stabilized to prevent flow into the casing. All concrete above the seal shall be placed in the dry. The steel casing shall not be retracted from the excavation when seal concrete is used and the casing shall become a permanent part of the foundation.

When a slab is required, it shall be placed over well compacted soil.

Basis of payment shall be at the unit price bid per each Item 625 "Light Tower Foundation, Median Barrier, (Spread Footer), As Per Plan" and shall be full compensation for excavating, forming and placing the foundation and barrier section with pullbox cavity as detailed, furnishing and placing anchor bolts, conduit, ells, bushings, ground cable, pullbox frame and cover, and all labor, material, equipment and incidental items necessary to complete the work as specified.

STANDARD CONSTRUCTION DRAWING HL-3

Pole base details shown on this drawing are essentially for galvanized steel poles. For aluminum designs, or other permitted steel material designs, variations from these details will be acceptable, as approved by the Engineer.

SERVICE TO UNDERPASS LIGHTING, AS PER PLAN

This item shall consist of providing complete electrical service, except for luminaires, lamps and structure grounding, for an underpass lighting system on Bridges where shown in the plans.

The installation work shall include conduits, conduit grounding, mountings, fittings, junction boxes, cables and all incidentals necessary to complete, ready for use. Component parts not specifically mentioned but required for satisfactory operation of this item shall be furnished and considered paid for as part of the item.

The lump sum price bid for "Item 625 - Service to Underpass Lighting, as per plan", shall include payment for all equipment, labor and materials necessary to complete the work as specified for each designated bridge.

ESTIMATED QUANTITIES

Specific locations and usage of estimated quantities set up on this plan to be used "as directed by the Engineer" shall be made a matter of record by incorporation into the final change order governing completion of this project. Estimated quantities of materials shall not be ordered for delivery to the project unless authorized by the Engineer.

- An estimated quantity of 100 linear feet of 605, 1/4 inch shallow pipe underdrains is provided in the lighting General Summary for use as directed by the Engineer in providing positive drainage for pull boxes in fill areas. It is intended that all pull boxes in these areas be provided with such drainage, provided the length of under-drain necessary to obtain a satisfactory outfall does not exceed 20 feet approximately. A perforated PVC pipe or conduit material approved by the Engineer may be used in the construction of this item.
- An estimated quantity of 20 each, Item 202 "Pullbox, To Be Removed" is provided in the General Summary for use as directed by the Engineer. This work shall be for the purpose of removing existing pullboxes not associated with lightpoles or crossovers, as provided elsewhere.
- An estimated quantity of 10 each, Item 625 "Pullbox Cover, Concrete, Replacement, As Per Plan", is provided in the General Summary for use as directed by the Engineer to replace missing or damaged covers to existing pullboxes which will be retained. These covers shall be salvageable covers, in good condition, removed from pullboxes which have been removed as provided elsewhere in these plans. When directed by the Engineer, the Contractor shall clean all debris from the pullbox to be recovered and assure that the cover seats flush with the top of the pullbox with not more than 0.5 inches total clearance each way.

HIGH VOLTAGE TEST

A high voltage direct current test, as described in Supplemental Specification 839, shall be performed on all distribution cable and duct cable systems to be installed on this project. The test shall not be performed until after all new construction, such as guard rail, fence, delineator posts, sign supports, etc., in the immediate vicinity of the location of the cable run being tested, has been completed.

The testing requirements of 625.22(b) are hereby waived for those circuits on which the high voltage test is to be performed.

TRANSITION JUNCTION BOX

The unit price bid for each "Item S625, Transition Junction Box" shall be full compensation for furnishing and placing the junction box as shown in the detail on sheet 38, and all labor, material, equipment, and incidentals necessary to complete the work as specified.

HIGH VOLTAGE DIRECT CURRENT TEST ON 5KV CABLE

A high voltage direct current test for testing cables rated at 5,000 volts shall be conducted as described in Supplemental Specification 839 except as follows:

839.02 Preparation, second paragraph, second sentence, shall read as follows: The equipment shall have adequate milliampere capacity capable of supplying a variable, metered direct current voltage from 0 to 25,000 volts to a circuit, and a meter to read the system leakage current.

839.03 Procedure. The voltage steps listed in paragraph d(2) shall be 5,000, 10,000, 15,000, 20,000 and 25,000 volts in lieu of 1,500, 3,000, 4,500 and 6,000 volts.

The voltage listed in paragraphs d(3) and g shall read 25,000 volts in lieu of 6,000 volts.

All other provisions of Supplemental Specification 839 not herein amended nor changed shall apply.

LIGHTING QUANTITIES SUB-SUMMARIES

QUANTITY CALCULATIONS
 MADE BY ERH DATE 12-3-77
 CHECKED BY EFJ DATE 4-28-78

FHWA REGION	STATE	PROJECT
5	OHIO	

CUYAHOGA COUNTY
 CUY-71-18.65
 CUY-90-14.90

LINE NUMBER	STATION	STATION	SIDE	625		625		625		625		625		625		625		625		625		625		625		625		625		
				Lin. Ft.	I-90	Lin. Ft.	I-90	Lin. Ft.	I-90	Lin. Ft.	I-90	Each	I-90	Each	I-90	Each	I-90	Each	I-90	Each	I-90	Each	I-90	Each	I-90	Each	I-90	Each	I-90	Each
1	PARTICIPATION																													
2																														
3	SHEET	31																												
5	1955+45		Lt																											
6	1958+75	1961+00	☉	920		20																								
8	TOTAL	SHEET 31		920		20																								
10	SHEET	32																												
12	1961+00	1962+75	☉	720		20																								
13	1962+75	1966+75	☉	1620																										
14	1966+75	1972+85	☉/Lt		280			120																						
15	1966+75	1972+85	☉	2530		40																								
16	1972+95	1974+15	☉	520																										
17	1974+15	1974+15	Lt		140																									
18	1974+15	1976+00	☉	760				60																						
19	1966+75	1971+41	Lt		760																									
20	1966+75	1971+49.5	Rt		880																									
22	TOTAL	SHEET 32		6150		2120		180																						
24	SHEET	33																												
26	1976+00	1980+25	☉	1750		20																								
27	1980+25	1987+65	☉	170	1360	20	20																							
28	1987+65	1987+65	Lt			200																								
29	1987+65	1989+00	☉		280			100																						
30	1980+25	CC-Stw	☉/Lt		1650			160	100																					
35	Br.Cuy-90-1490																													
36	Br.Cuy-90-1490W																													
39	TOTAL	SHEET 33		1920	3290	40	220	160	200	1	2	2																		
41	SHEET	34																												
43	1989+00	1992+85	☉		800	20																								
44	1992+85	1992+85	☉/Rt			160		70																						
45	1992+85	1999+01	☉		1350	20																								
46	1998+50		Lt																											
47	Br.Cuy-90-1506		☉																											
49	TOTAL	SHEET 34		2150		200		70																						
54	TOTAL	I-71		8990		2180		180																						
55	TOTAL	I-90		5440		420		160	270	1	2	2	2	4	18	28	28	3	160	Lump	Lump	Lump								
56																														

MADE ERH DATE 12-3-77
 TRACED JYJ DATE 12-18-77
 CHECKED EFJ DATE 4-21-78
 SCALE

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



Note:
 All Stationing is \pm I-71 or \pm I-90 unless noted.
 Structure (1) is Bridge No. CUY-71-1887C
 Structure (2) is Bridge No. CUY-90-1490
 Structure (3) is Bridge No. CUY-90-1490W
 Structure (4) is Bridge No. CUY-90-1506
 Structure Quantity Summary is shown (s)

LIGHTING QUANTITIES SUB-SUMMARIES

QUANTITY CALCULATIONS
 MADE BY ERH DATE 12-3-77
 CHECKED BY EFJ DATE 4-24-78

FHWA REGION	STATE	PROJECT
5	OHIO	

CUYAHOGA COUNTY
 CUY-71-18.65
 CUY-90-14.90

LINE NUMBER	TOWER NO.	STATION	LOCATION	SIDE	COST PARTICIPATION	625		625		625		625		625		625		625		625	
						Light Tower Design BB100	Light Tower Design BB100	Light Tower Foundation Median Barrier As per plan	Light Tower Foundation Median Barrier Spread Footer As per plan	Lamp, 1000 W. HPS High Pressure Sodium	Luminaire, 1000 W. Asymmetric, HPS Type I	Luminaire, 1000 W. Symmetric, HPS Type II	Ground Rod, 10 Ohms 5713, 16, As per plan	Portable Power Unit As per plan	Tower Lighting Protection, As per plan						
						Each I-71	Each I-90	Each I-71	Each I-90	Each I-71	Each I-90	Each I-71	Each I-90	Each I-71	Each I-90	Each I-71	Each I-90	Each I-71	Each I-90	Each I-71	Each I-90
1																					
2																					
3		SHEET 31																			
4																					
5	1	1958+75		⊕	I-71	1		1		2		2		2	1		1				
6																					
7		TOTAL SHEET 31				1		1		2		2		2	1		1				
8																					
9		SHEET 32																			
10																					
11	2	1962+75		⊕	I-71	1		1		2		2		2		1					
12	3	1967+30		⊕	I-71		1			3		3		2		1					
13	4	1972+95		⊕	I-71		1			3		3		2		1					
14																					
15		TOTAL SHEET 32				1	2	3		8		8		6		3					
16																					
17		SHEET 33																			
18																					
19	5	1976+50		⊕	I-71	1		1		2		2		2		1					
20	6	1980+50		⊕	I-71	1		1		2	2	2		2		1					
21	7	1986+00		⊕	I-90		1		1		2	2		2		1					
22																					
23		TOTAL SHEET 33				2	1	2	1	4	2	2	2	4	2	2	1				
24																					
25		SHEET 34																			
26																					
27	8	1991+50		⊕	I-90	1		1		2	2	2		2		1					
28	9	1996+75		⊕	I-90	1		1		2	2	2		2		1					
29																					
30		TOTAL SHEET 34				2		1	1	4	4	4		4		2					
31																					
32																					
33																					
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49																					
50																					
51																					
52		TOTAL			I-71	4	2	4	2	14	2	12		12	1	6					
53		TOTAL			I-90		3	1	2	6	6	6		6		3					
54																					
55		TOTAL SHEET 29				7	2	5	4	20	8	12		18	1	9					
56																					

LIGHTING REMOVAL SUB-SUMMARY

QUANTITY CALCULATIONS
 MADE BY ERH DATE 11-10-77
 CHECKED BY EFJ DATE 4-24-77

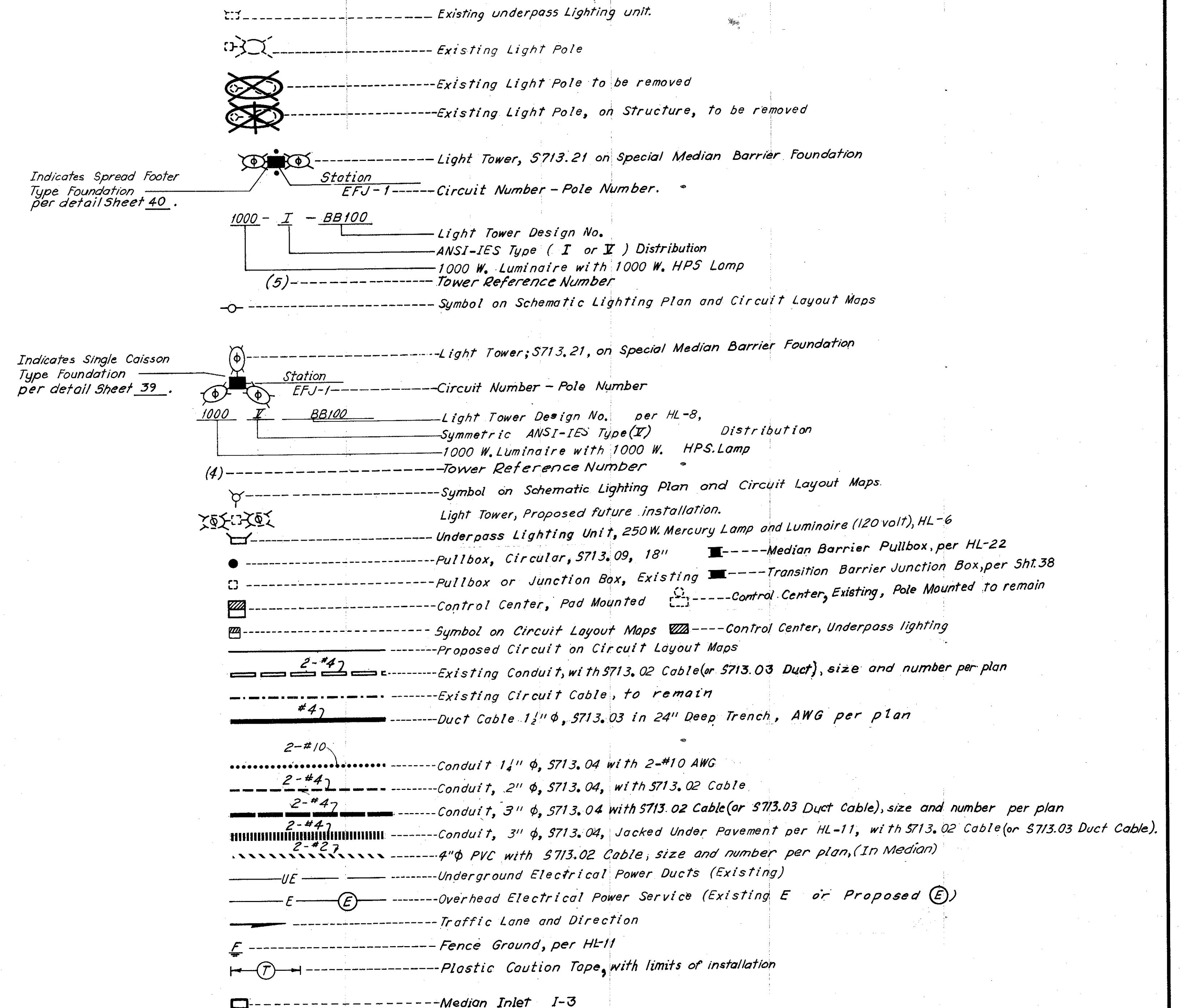
FHWA REGION	STATE	PROJECT
5	OHIO	

CUYAHOGA COUNTY
 CUY-71-18.65
 CUY-90-14.90

LINE NUMBER	STATION	STATION	SIDE	202		202		202	
				Existing lighting unit to be removed		Existing lighting unit, structure mounted, to be removed, wgs per plan		Existing Underpass Lighting System to be removed	
				Each	Lump	Each	Lump	Each	Lump
1	COST PARTICIPATION			I-71	I-90	I-71	I-90		
2									
3	SHEET	41							
4									
5	1955+85	1965+60	LT/RT	12					
6									
7	TOTAL SHEET	41		12					
8									
9	SHEET	42							
10									
11	1967+49	1973+36	LT/RT	2		6(1)			
12									
13	TOTAL SHEET	42		2		6			
14									
15	SHEET	43							
16									
17	1975+35	1982+11	LT	4		1(2)		Lump (2)	
18	1975+32	1982+11	RT	3		1(2)			
19	11+16 N-W	9+25 N-W	RT		1	1(3)		Lump (3)	
20	1982+11	1990+21	RT		5	1(4)			
21	1984+71	1990+21	LT		4	1(4)		Lump (4)	
22			RT						
23									
24	TOTAL SHEET	43		7	10	5		Lump	
25									
26	SHEET	44							
27									
28	1991+72	1997+98	LT/RT		10				
29									
30	TOTAL SHEET	44			10				
31									
32									
33									
34									
35									
36									
39									
40									
41									
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54	TOTAL SHEET	30		21	20	6	5	Lump	
55									
56									

Stationing is @ I-71 or @ I-90 unless noted.
 Structure (1) is Bridge No. CUY-71-1887C
 Structure (2) is Bridge No. CUY-90-1490
 Structure (3) is Bridge No. CUY-90-1490W
 Structure (4) is Bridge No. CUY-90-1506

LEGEND

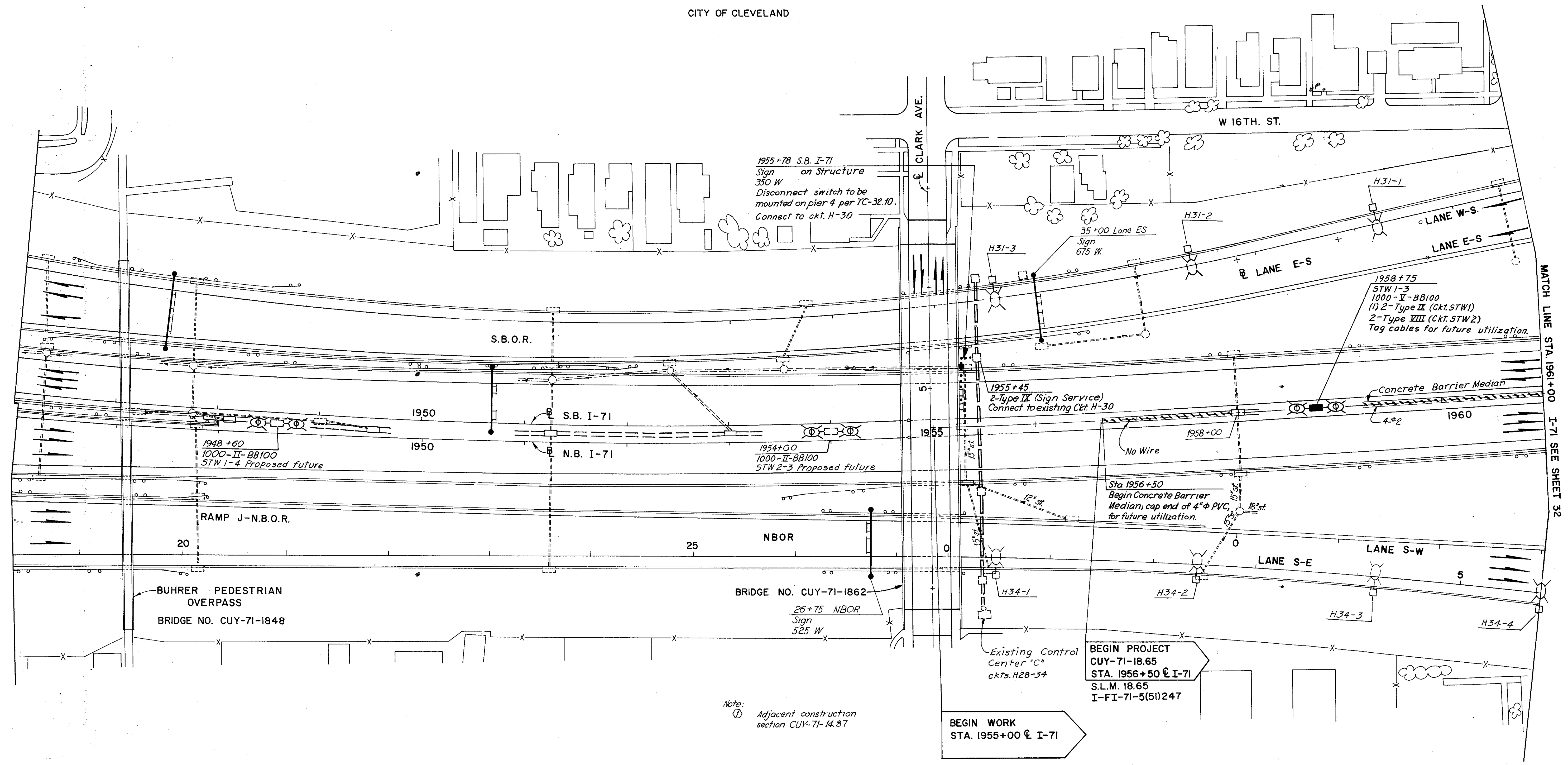


LIGHTING PLANS

FHWA REGION	STATE	PROJECT
5	OHIO	

31
53

CUYAHOGA COUNTY
CUY-71-18.65
CUY-90-14.90



Note:
① Adjacent construction section CUY-71-14.87

BEGIN PROJECT
CUY-71-18.65
STA. 1956+50 @ I-71
S.L.M. 18.65
I-FI-71-5(5)247

BEGIN WORK
STA. 1955+00 @ I-71

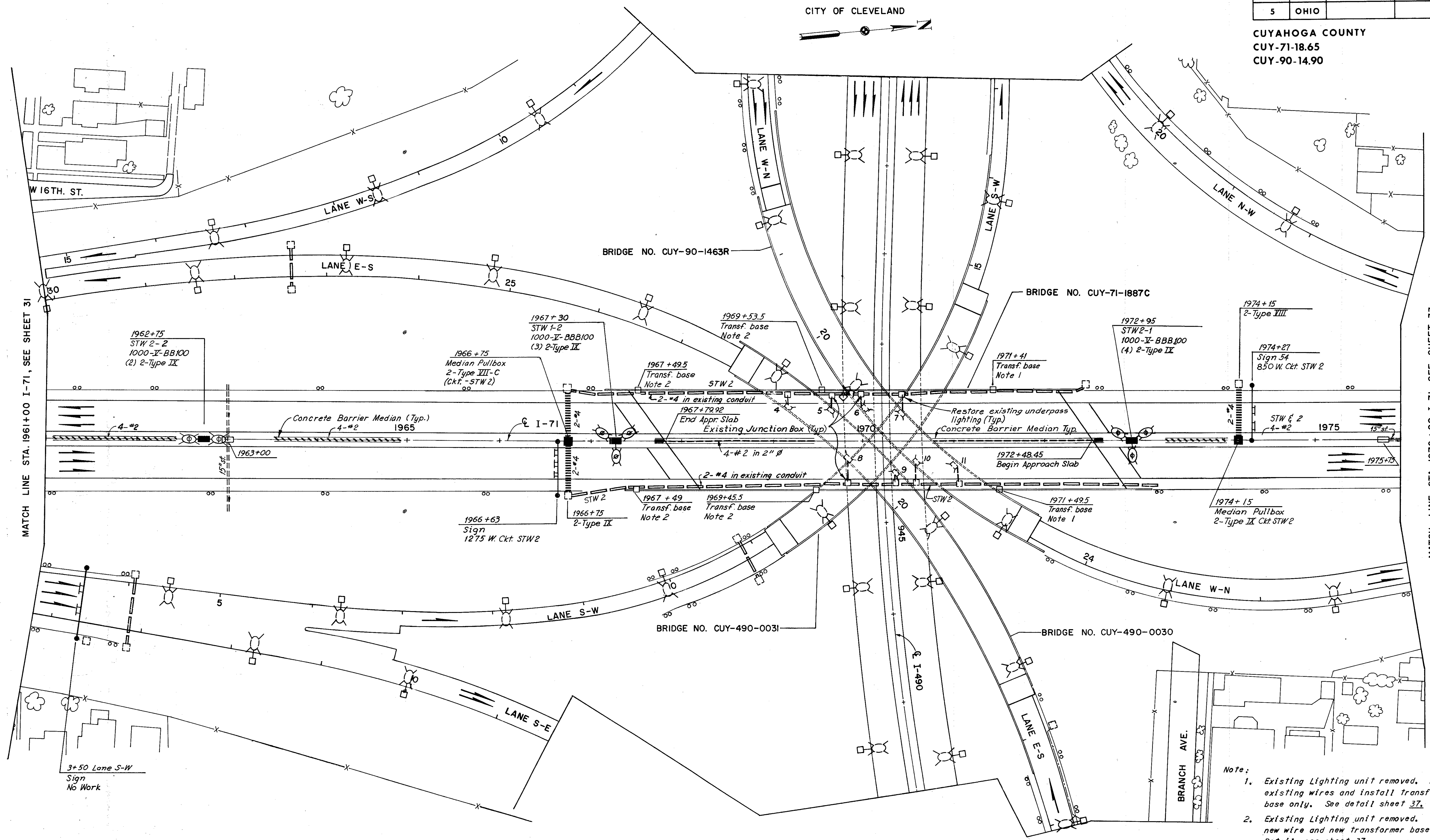
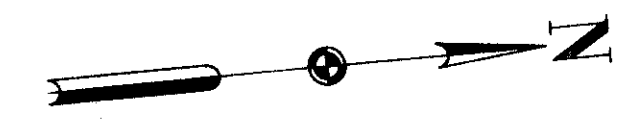
MATCH LINE STA. 1961+00 I-71 SEE SHEET 32

FHWA REGION	STATE	PROJECT
5	OHIO	

32
53

CUYAHOGA COUNTY
CUY-71-18.65
CUY-90-14.90

CITY OF CLEVELAND



MATCH LINE STA. 1961+00 I-71, SEE SHEET 31

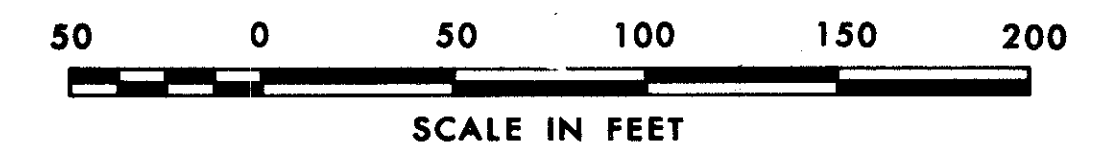
MATCH LINE STA. 1976+00 I-71, SEE SHEET 33

- Note:
- Existing Lighting unit removed. Remove existing wires and install transformer base only. See detail sheet 37.
 - Existing Lighting unit removed. Install new wire and new transformer base. For Detail, see sheet 37.

FOR LEGEND SEE SHEET 30

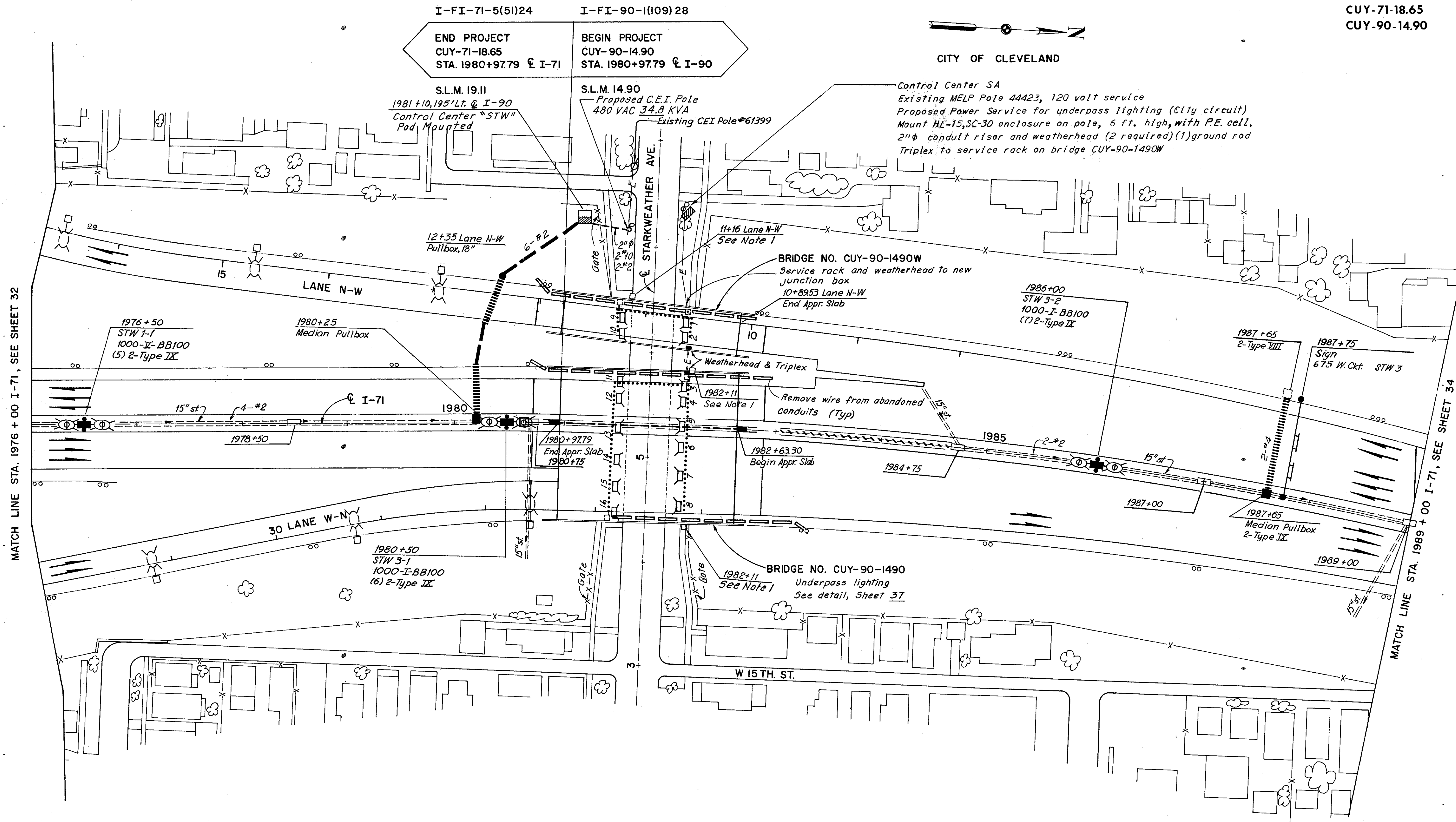
MADE ERH DATE 12-3-77
 TRACED JVV DATE 12-6-77
 CHECKED EDY DATE 12-20-77
 SCALE 1"=50'

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



LIGHTING PLAN I-71 STA. 1961+00 TO STA. 1976+00

CUYAHOGA COUNTY
 CUY-71-18.65
 CUY-90-14.90



MATCH LINE STA. 1976 + 00 I-71, SEE SHEET 32

MATCH LINE STA. 1989 + 00 I-71, SEE SHEET 34

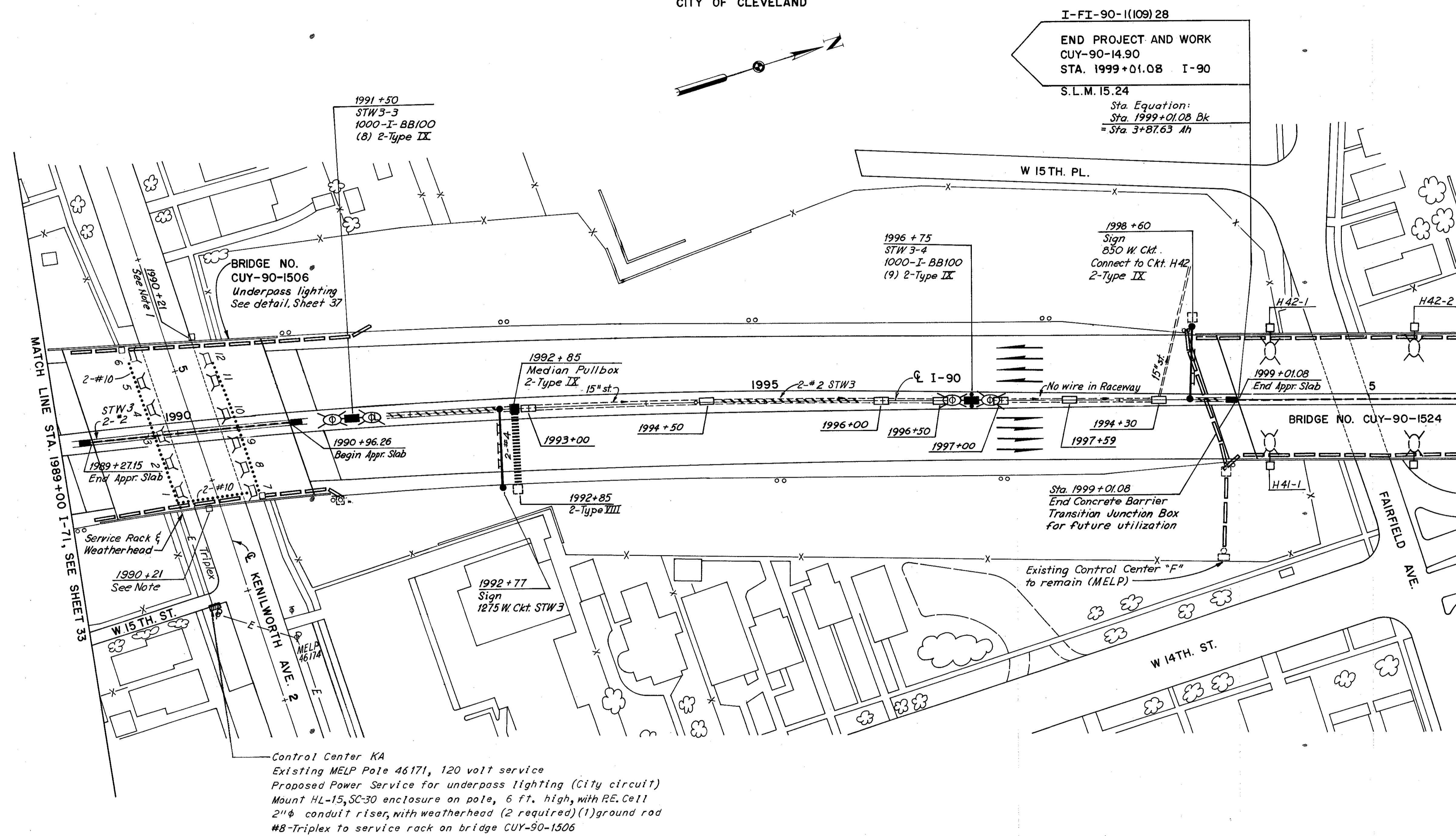
Note:
 1. Existing Lighting unit removed. Remove existing wires and install transformer base only. See detail sheet 37.

FHWA REGION	STATE	PROJECT	
5	OHIO		

34
53

CUYAHOGA COUNTY
CUY-71-18.65
CUY-90-14.90

CITY OF CLEVELAND



I-FI-90-1(109) 28
END PROJECT AND WORK
CUY-90-14.90
STA. 1999+01.08 I-90
S.L.M. 15.24
Sta. Equation:
Sta. 1999+01.08 Bk
= Sta. 3+87.63 Ah

MATCH LINE STA. 1989+00 I-71, SEE SHEET 33

Control Center KA
Existing MELP Pole 46171, 120 volt service
Proposed Power Service for underpass lighting (City circuit)
Mount HL-15, SC-30 enclosure on pole, 6 ft. high, with RE Cell
2" φ conduit riser, with weatherhead (2 required) (1) ground rod
#8-Triplex to service rack on bridge CUY-90-1506

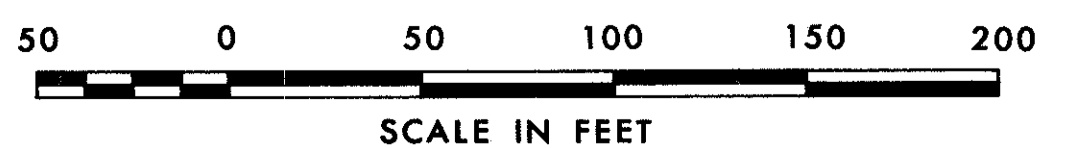
Sta. 1999+01.08
End Concrete Barrier
Transition Junction Box
for future utilization
Existing Control Center "F"
to remain (MELP)

Note:
1. Existing Lighting unit removed. Remove existing wires and install transformer base only. See detail sheet 37.

FOR LEGEND SEE SHEET 30

MADE ERH DATE 12-3-77
TRACED JYJ DATE 12-7-77
CHECKED ERK DATE 12-20-77
SCALE 1"=50'
Howard, Needles, Tammen & Bergendoff
CONSULTING ENGINEERS
CLEVELAND, OHIO

HNTB



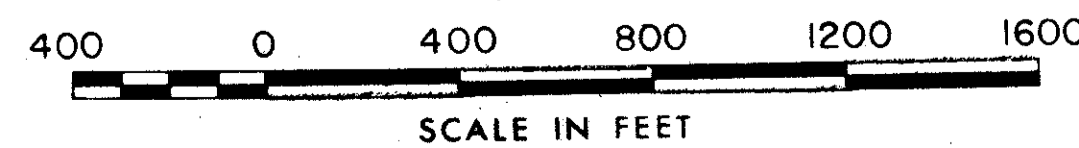
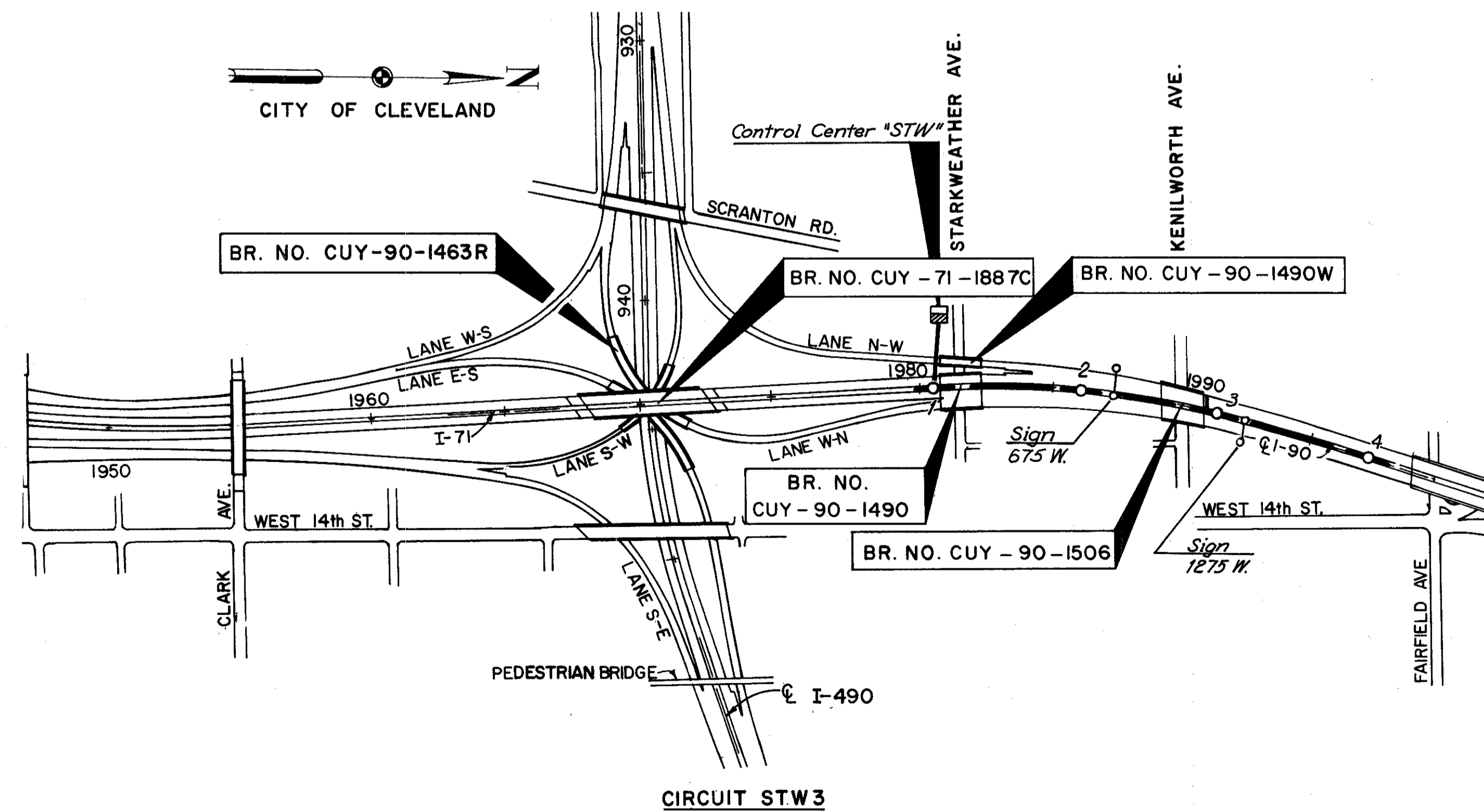
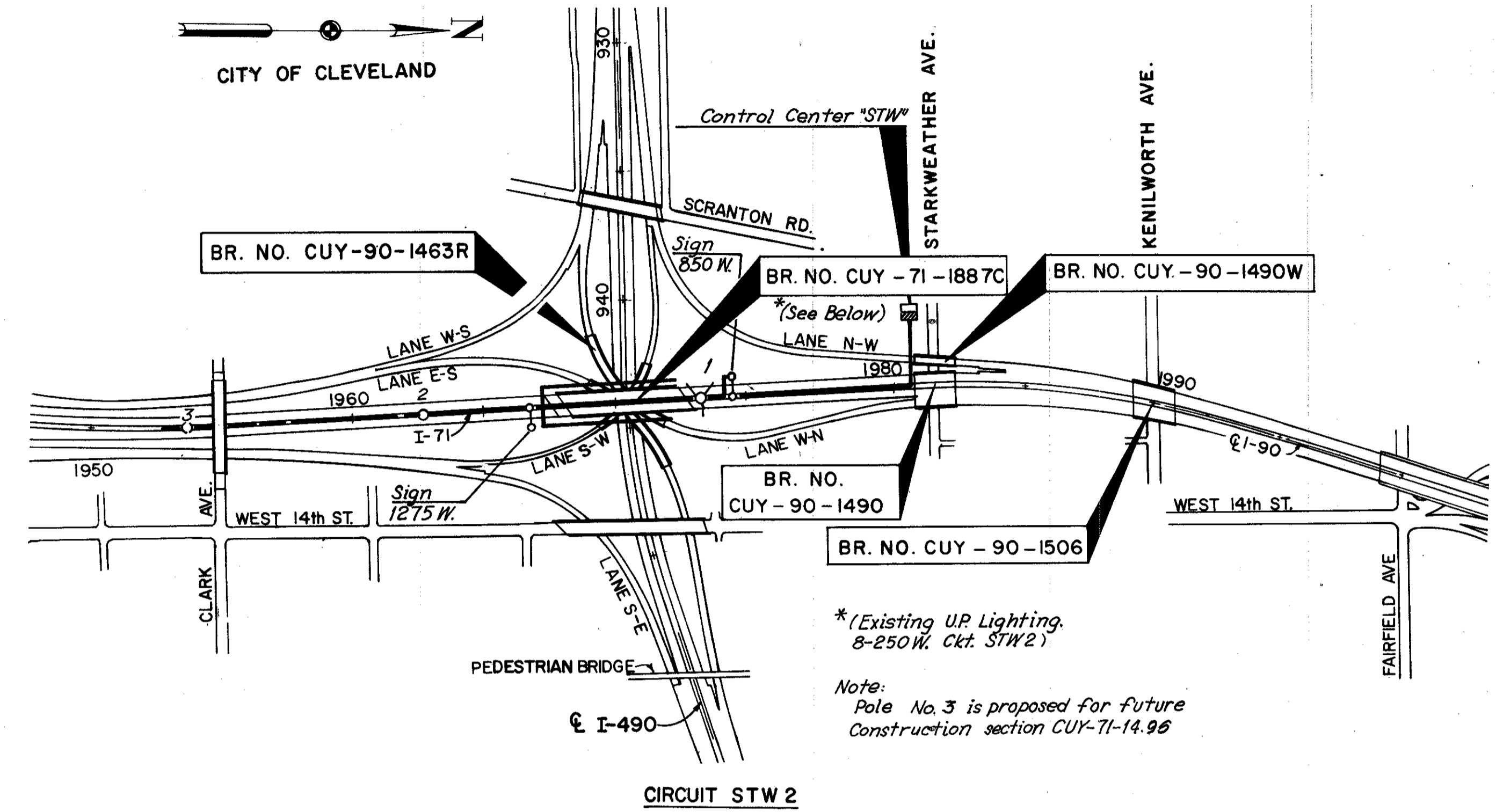
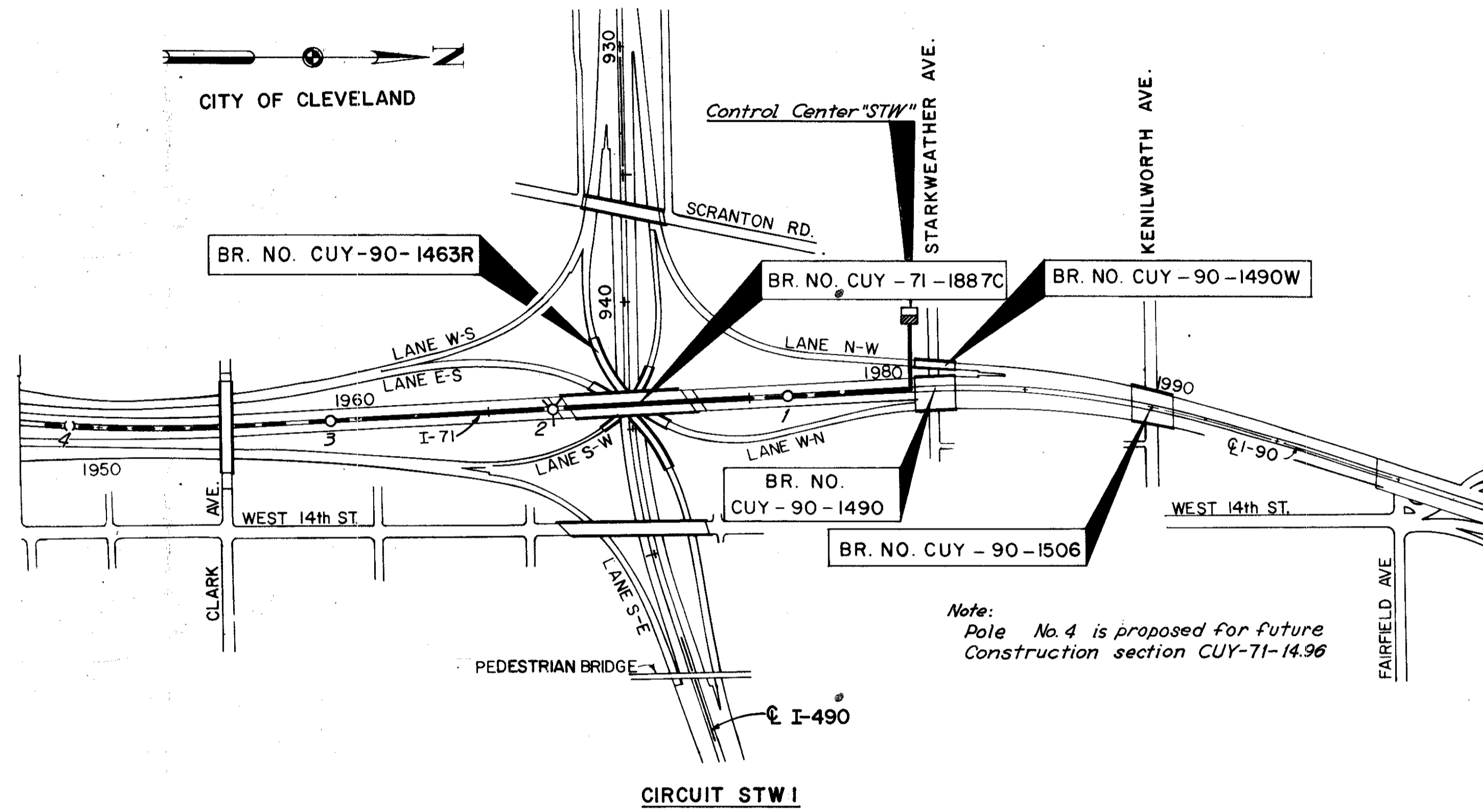
LIGHTING PLAN I-90 STA. 1989+00 TO STA. 6+00

CIRCUIT LAYOUT MAPS

FHWA REGION	STATE	PROJECT
5	OHIO	

35
53

CUYAHOGA COUNTY
CUY-71-18.65
CUY-90-14.90

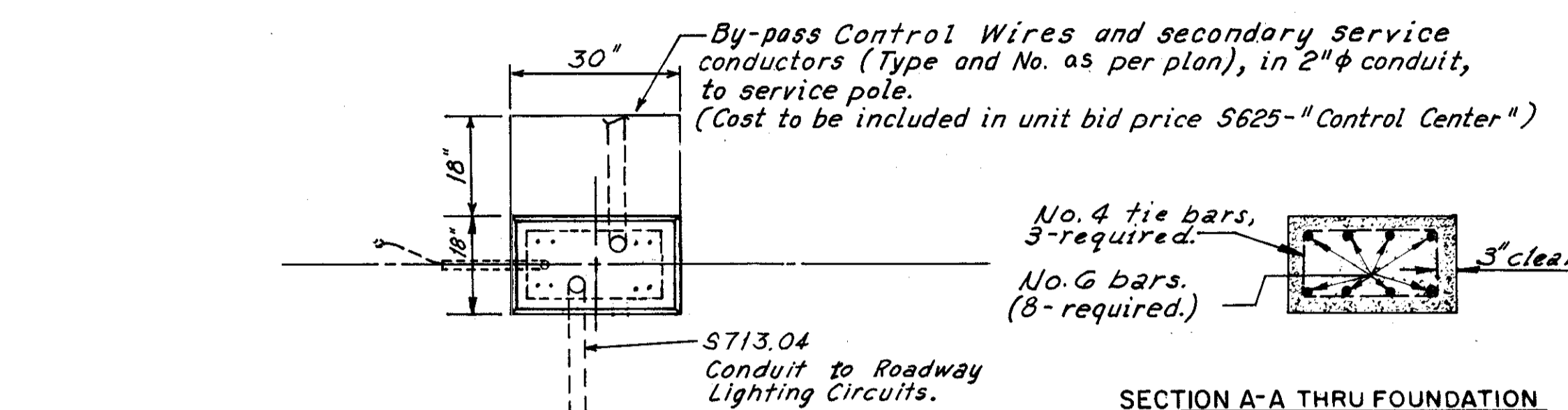
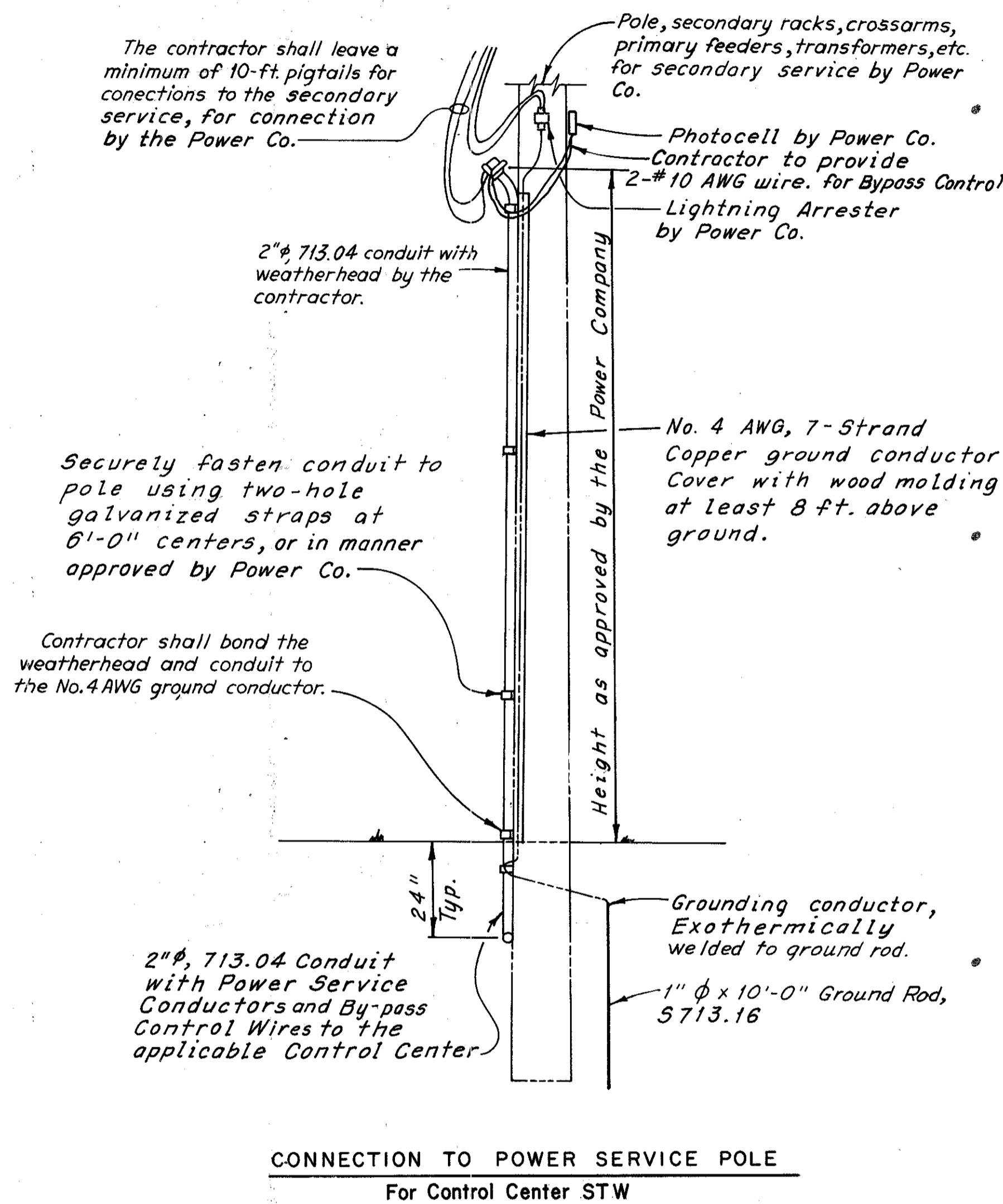


MADE ERH DATE 11-18-77
TRACED JJJ DATE 12-3-77
CHECKED EFJ DATE 12-20-77
SCALE 1" = 400'

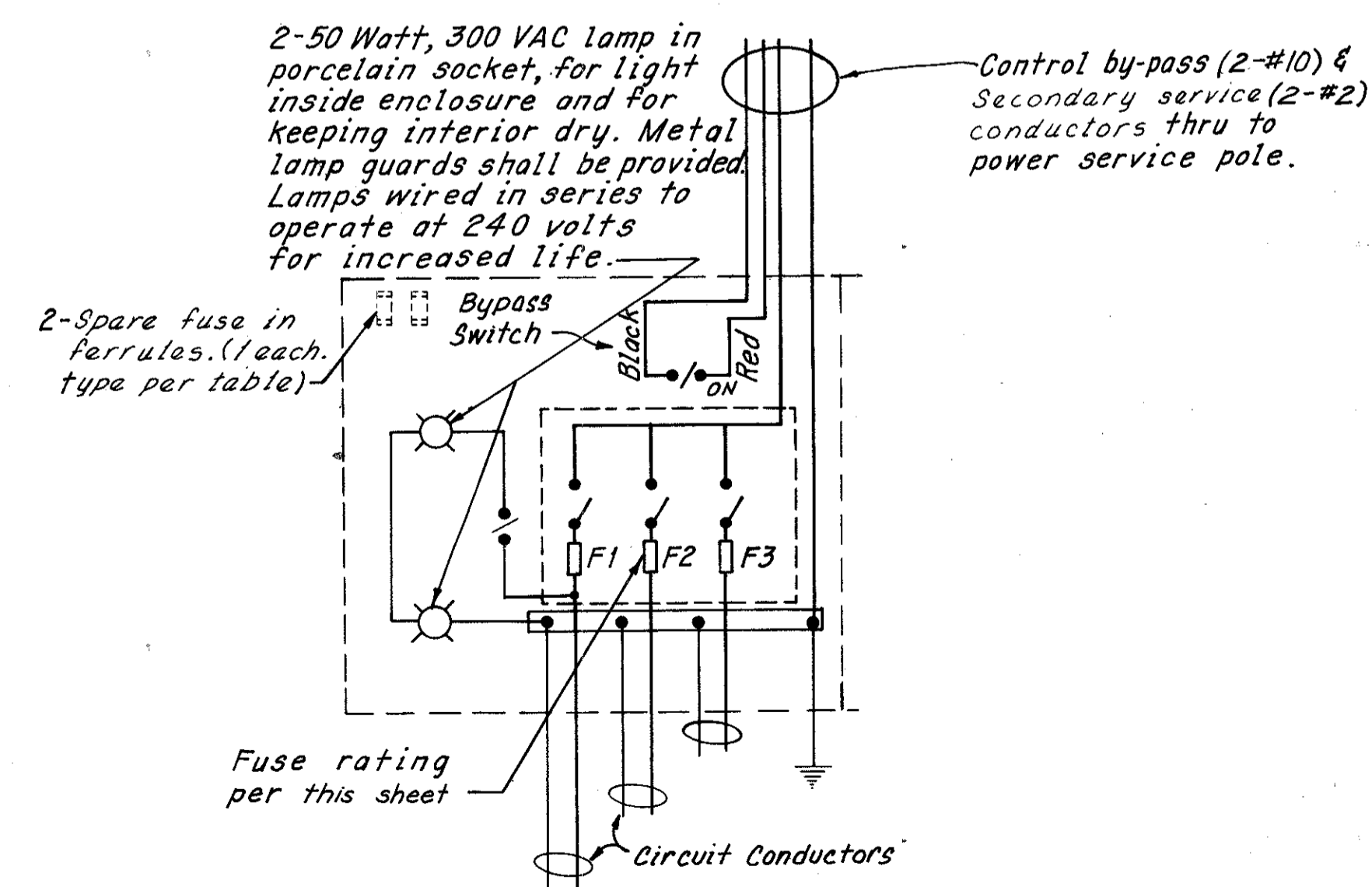
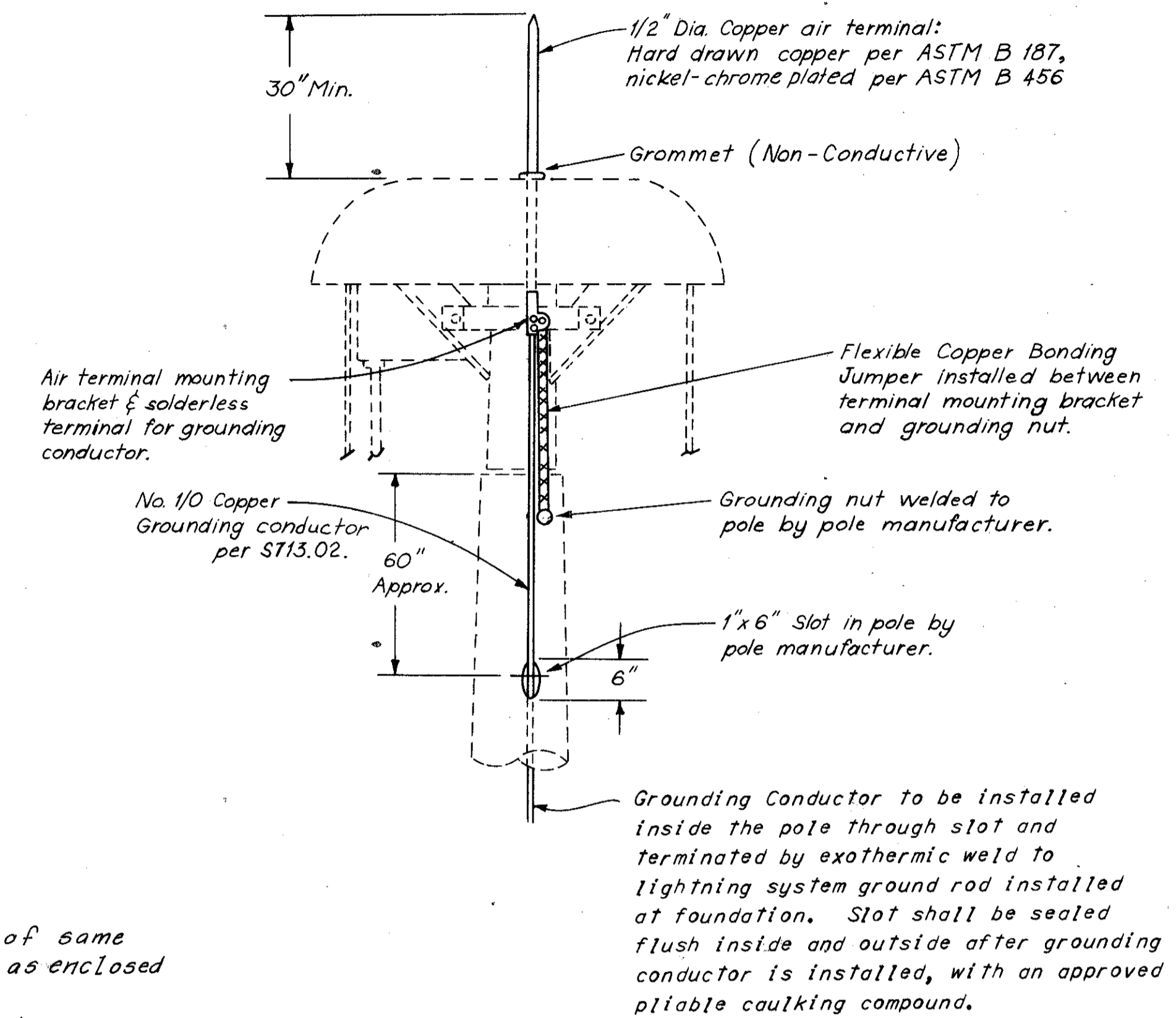
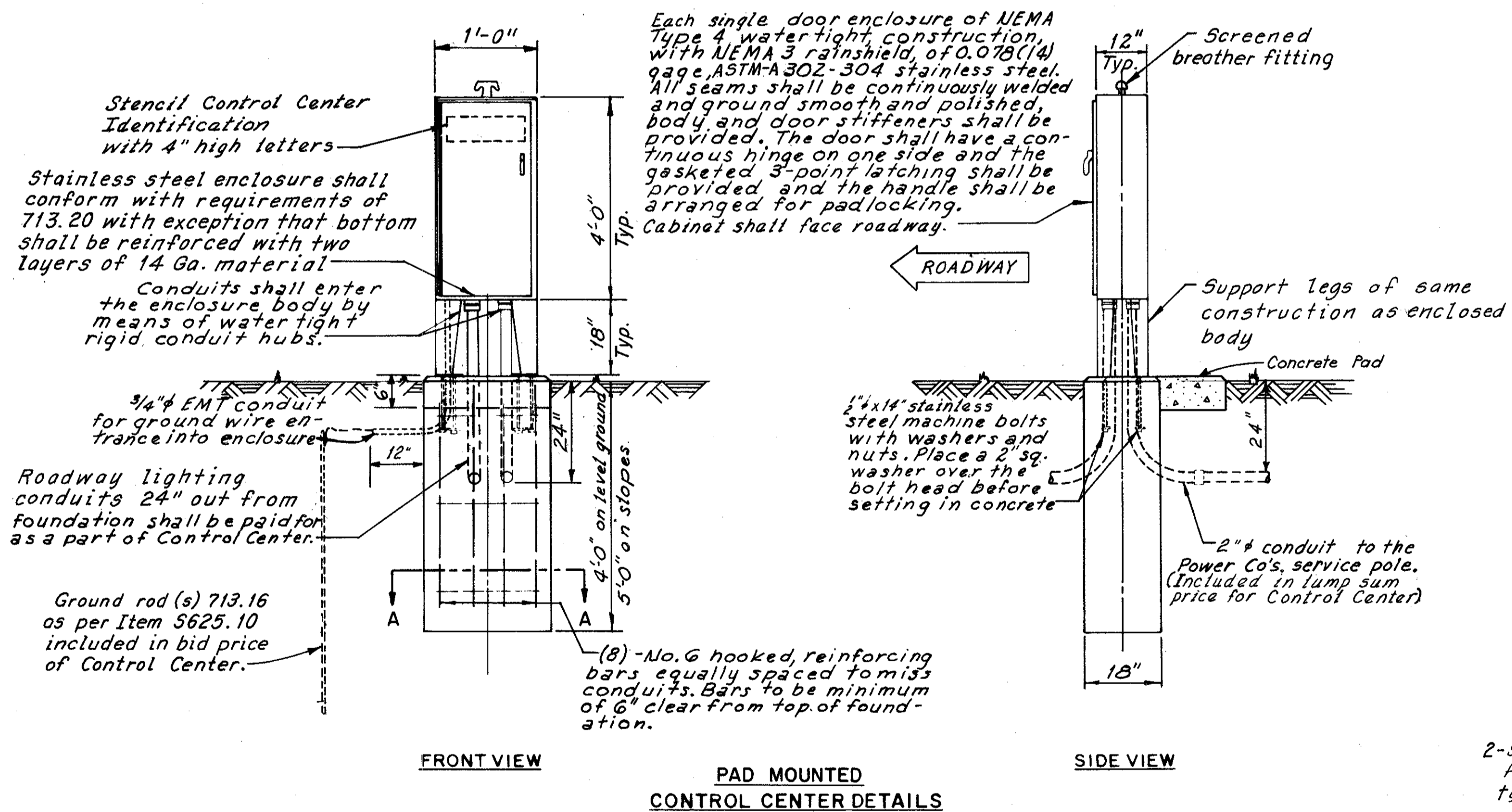
Howard, Needles, Tammen & Bergendoff
CONSULTING ENGINEERS
CLEVELAND, OHIO

HNTB

LIGHTING DETAILS CONTROL CENTER DATA



Notes:
 See "Lighting Layout" sheets for direction and number of conduits out of foundation.
 Spacing and placement of anchor bolts in foundation is dependent upon the enclosure manufacturers dimensions.
 Enclosure dimensions are inside measurements.



Note:
 1. All power service pole material shown, conduit, weatherhead, wire, ground rod and miscellaneous material and labor are to be included in the lump sum unit bid price for the Item \$625, "Control Center, By Designation".
 2. No materials shall be attached to the power service pole without approval of the power company.

CONTROL CENTER DATA												
CENTER CIRCUIT	LOCATION	SECONDARY			SERVICE SWITCH (TYPE)	LAMP TYPE		SIGN LOAD (WATTS)	CIRCUIT LOAD (AMPS)	CIRCUIT FUSES (AMPS)	CIRCUIT DROP (%)	NOTES
		VOLTAGE (VOLTS)	LOAD (KVA)	LOAD (KVA) (FUTURE)		250 W MERC 0.5A Eq. (EXISTING)	1000 W HPS 2.5A Eq.					
STW	1981+10,195' LT & T-90	480	30.0	34.8	5-60	8	20(4)	4075	62.5			
STW 1			8.4	10.8			7 (2)		17.5	25	2.72	3.15% (Future)
STW 2			10.0	12.4		8	5 (2)	2125	20.9	30	2.75	3.12% (Future)
STW 3			11.6	11.6			8	1950	24.1	30	1.90	

(2) - Add 2 lamps for future installation.
 (4) - Add 4 lamps for future installation

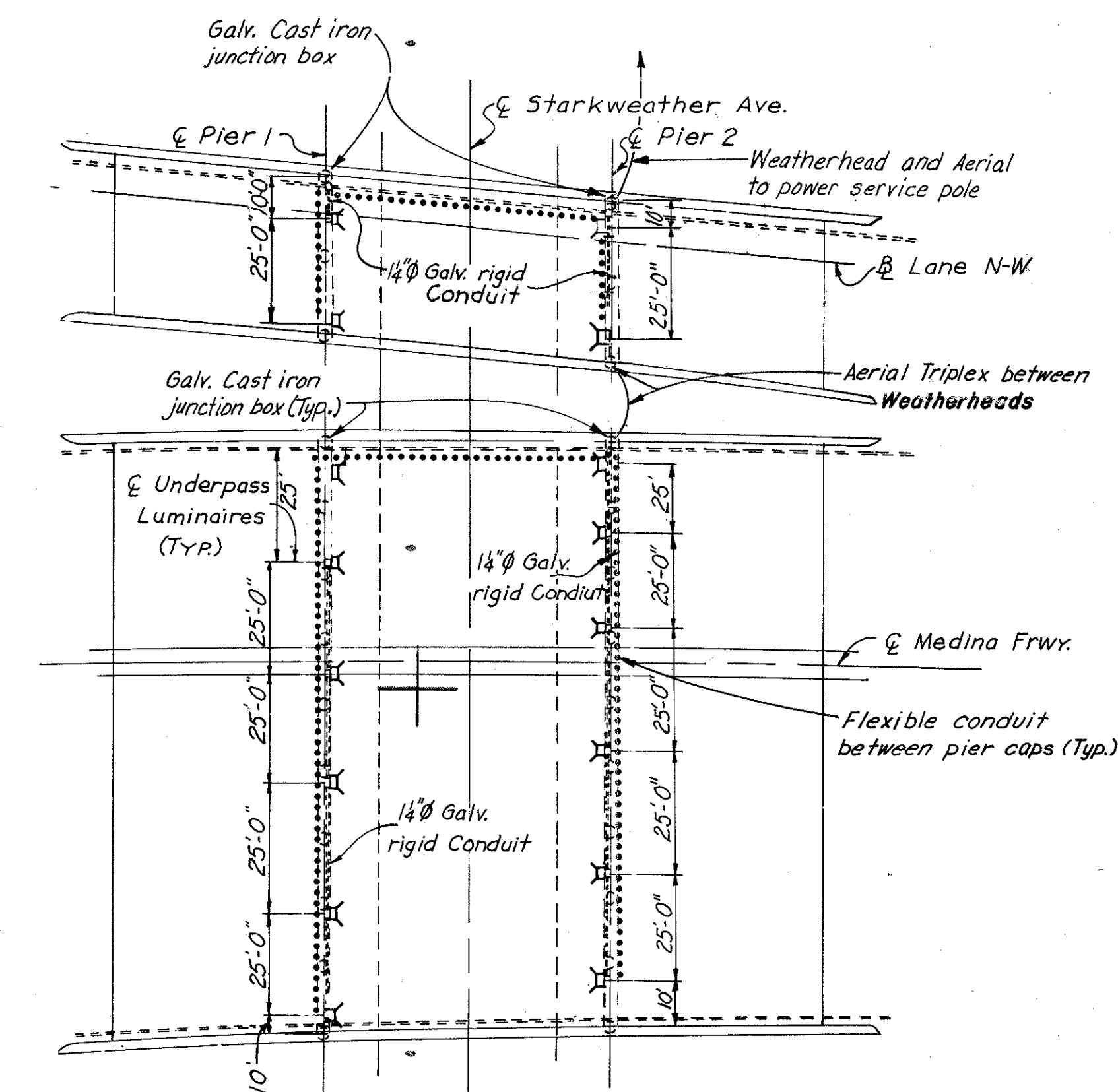
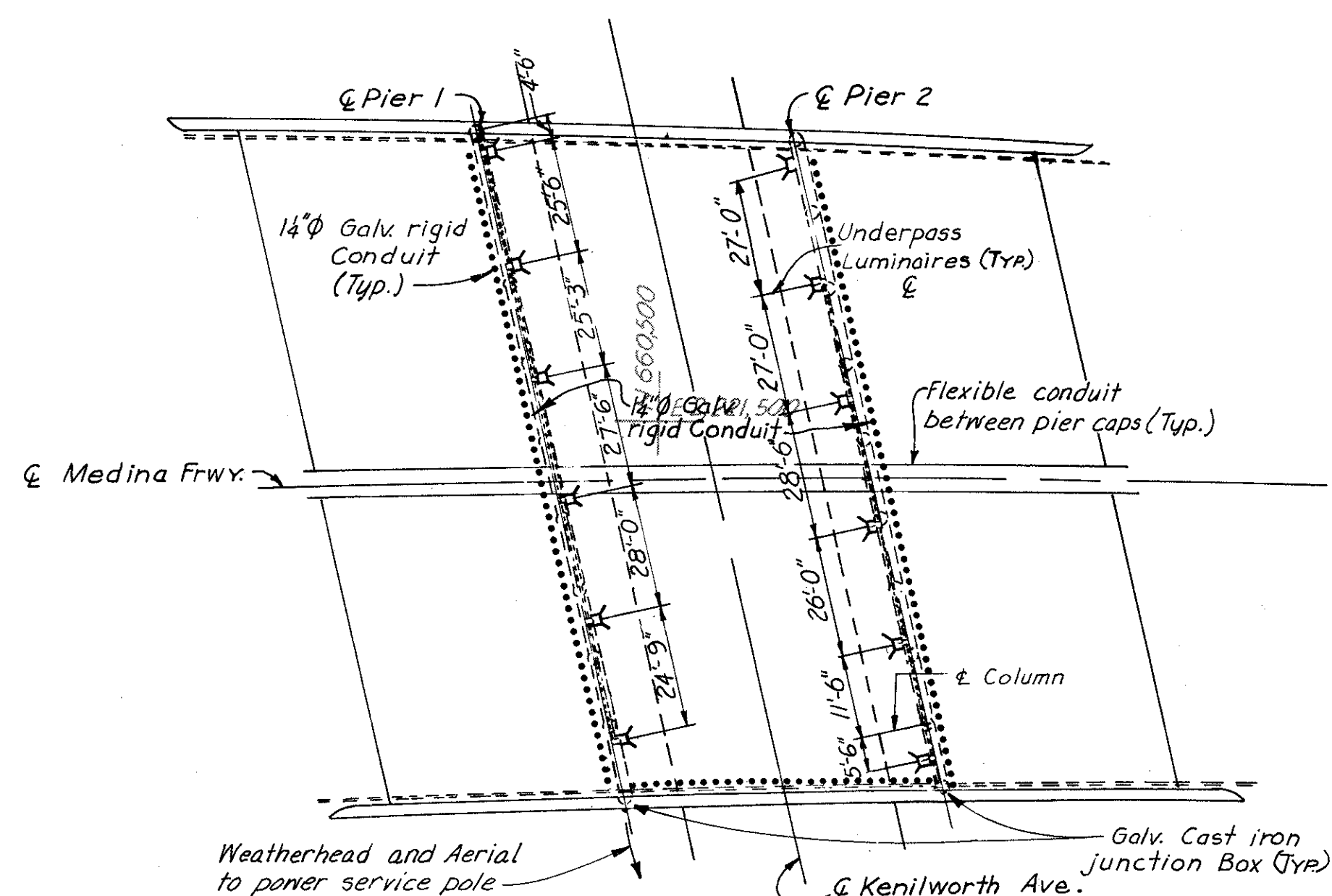
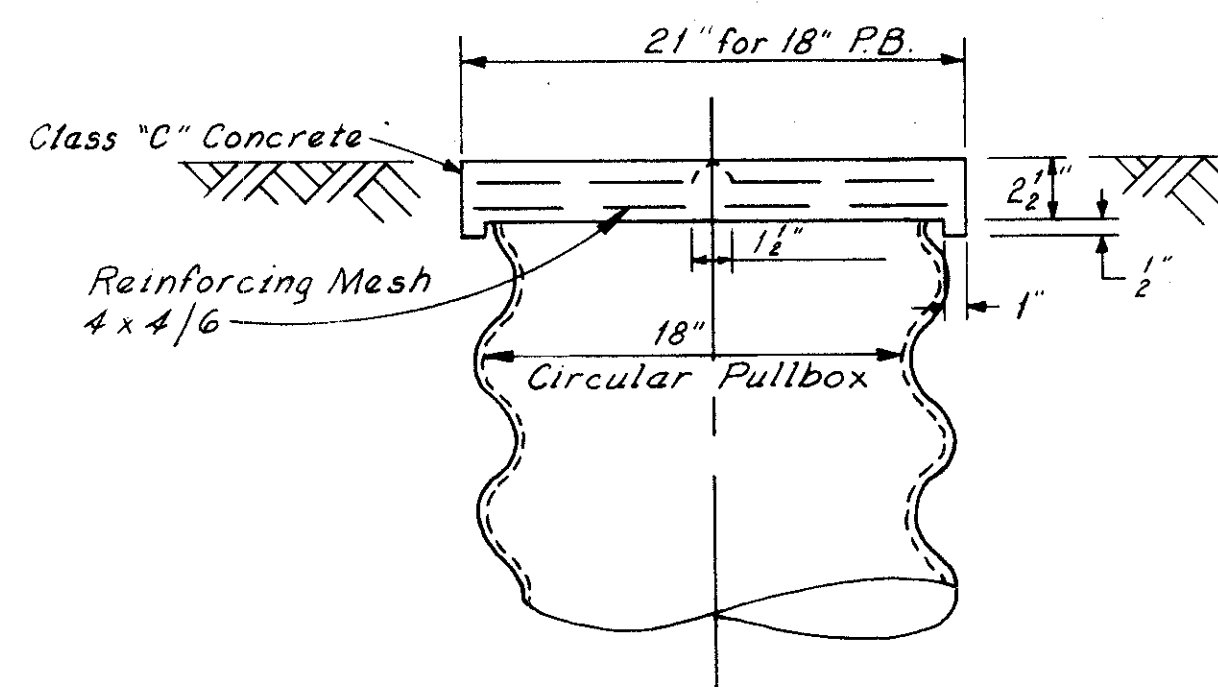
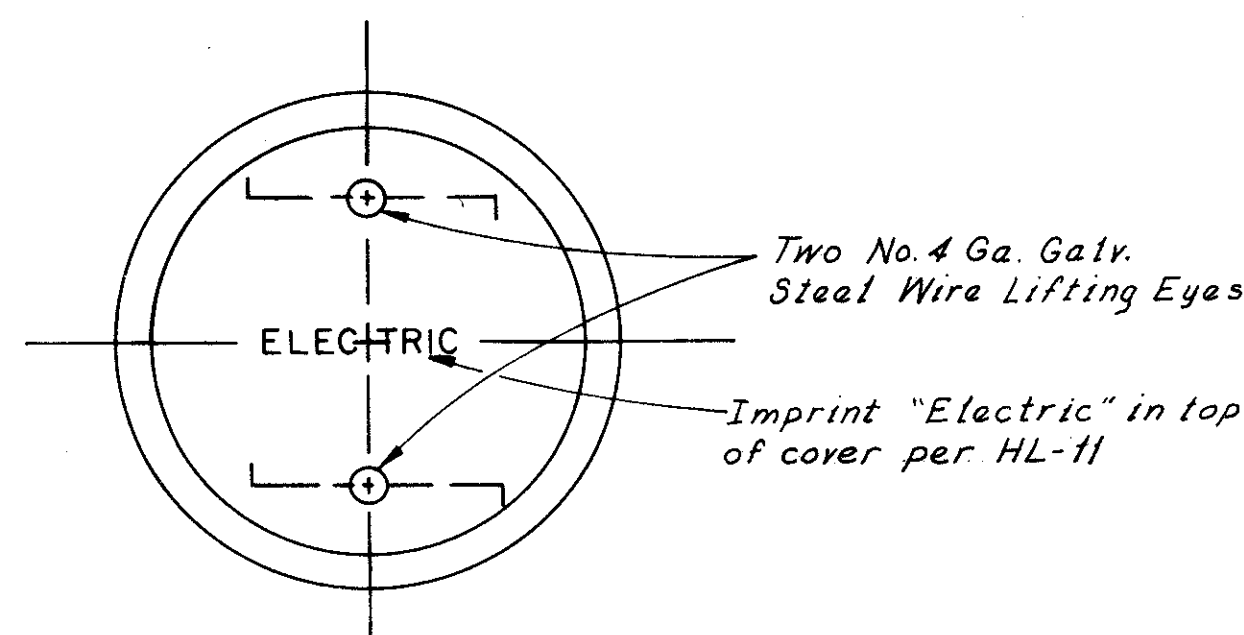
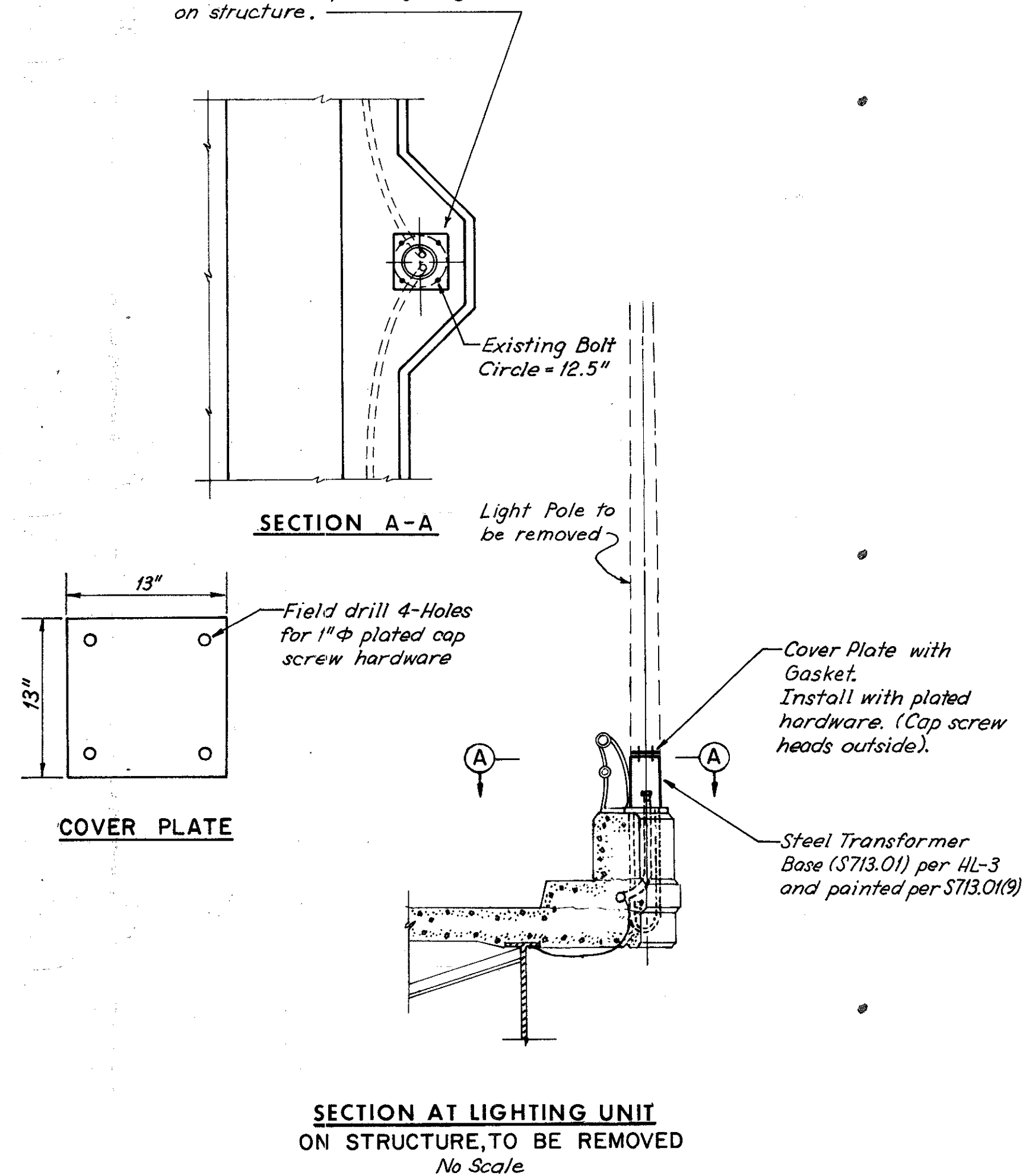
LIGHTING DETAILS

FHWA REGION	STATE	PROJECT
5	OHIO	

37
53

CUYAHOGA COUNTY
CUY-71-18.65
CUY-90-14.90

Where structure mounted light poles are to be removed, install Transformer Base with gasketed 1/4" galvanized rainproof cover and S713.15 Type S splicing sleeves as necessary to maintain underpass lighting circuit on structure.



MADE ERH DATE 12-12-77
TRACED DWT DATE 12-13-77
CHECKED EFJ DATE 12-20-77
SCALE As Shown

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CONSULTING ENGINEERS
CLEVELAND, OHIO

HNTB

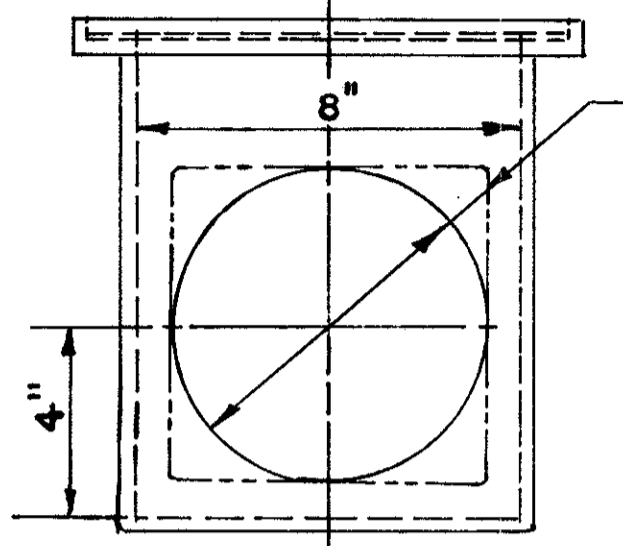
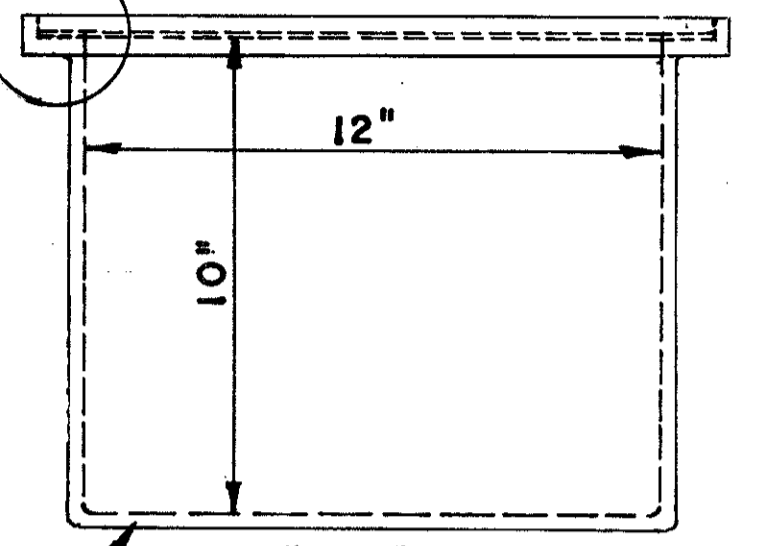
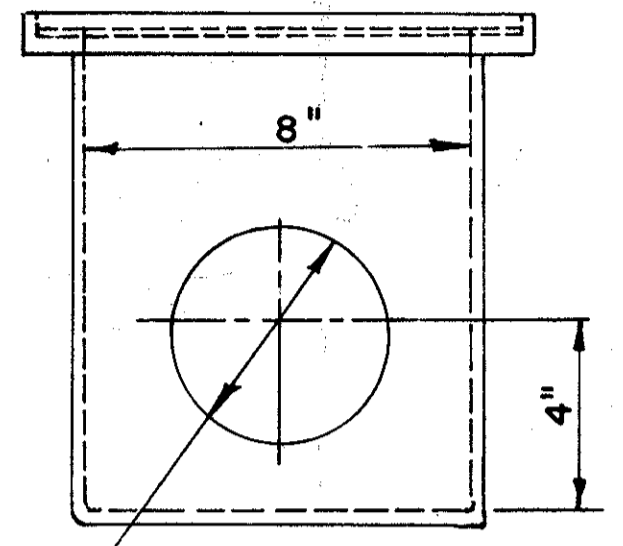
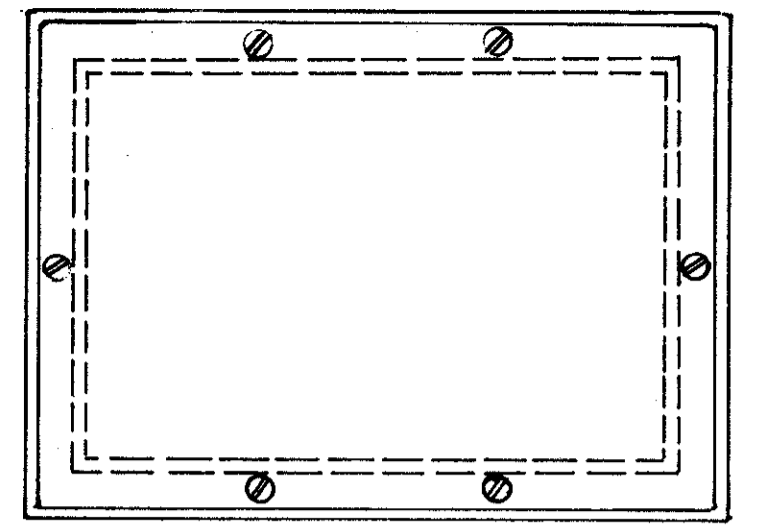
CUYAHOGA COUNTY
CUY-71-18.65
CUY-90-14.90

REVISIONS
JUN 8 1988

5/16" GALVANIZED STEEL
PLATE COVER
FLUSH MOUNTED

S.S. FL. HD. SCREWS

1/8" NEOPRENE GASKET



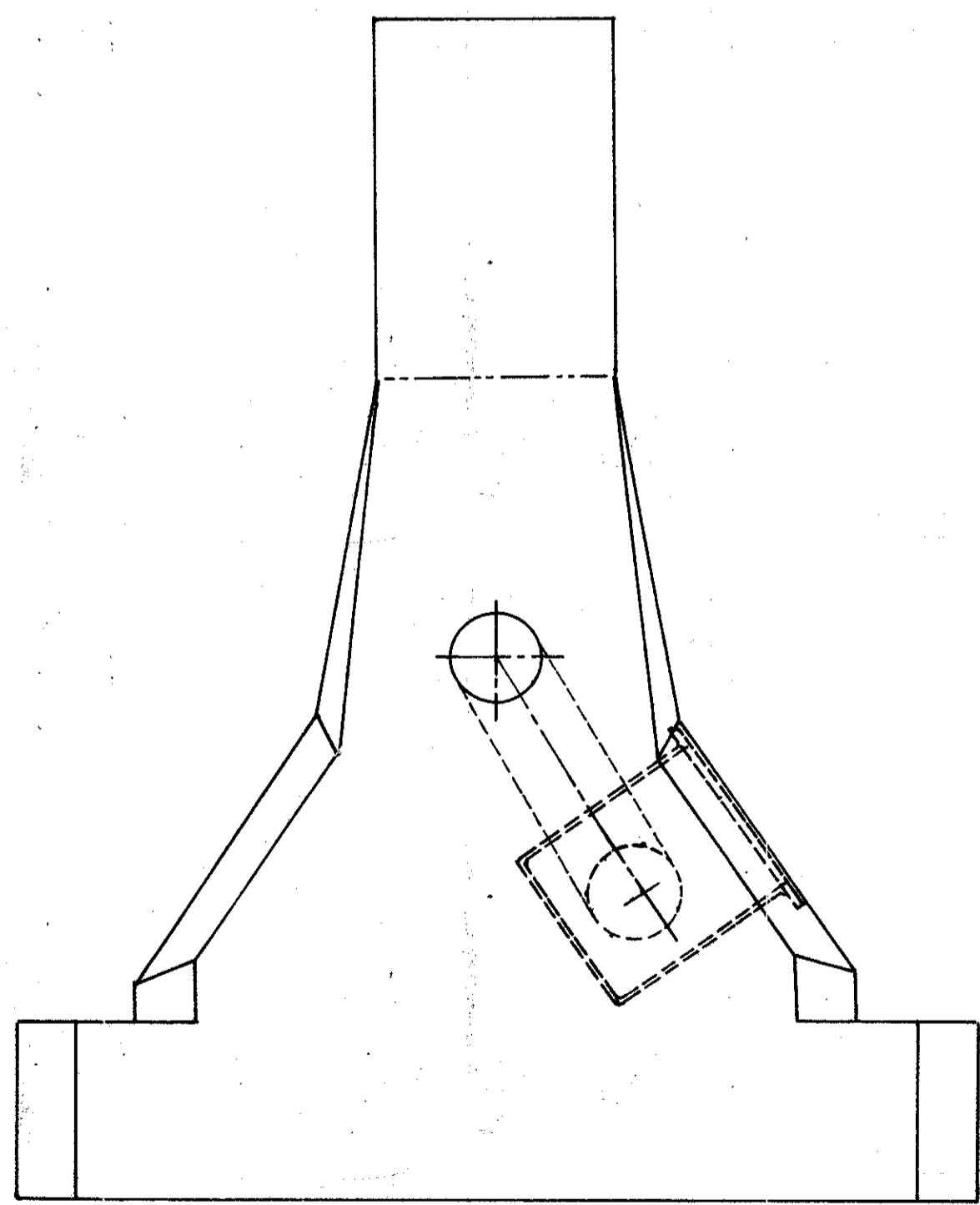
6 3/4" SQUARE HOLE, OR
6 3/4" DIA. RD. HOLE.

Preformed Joint Filler 705.05

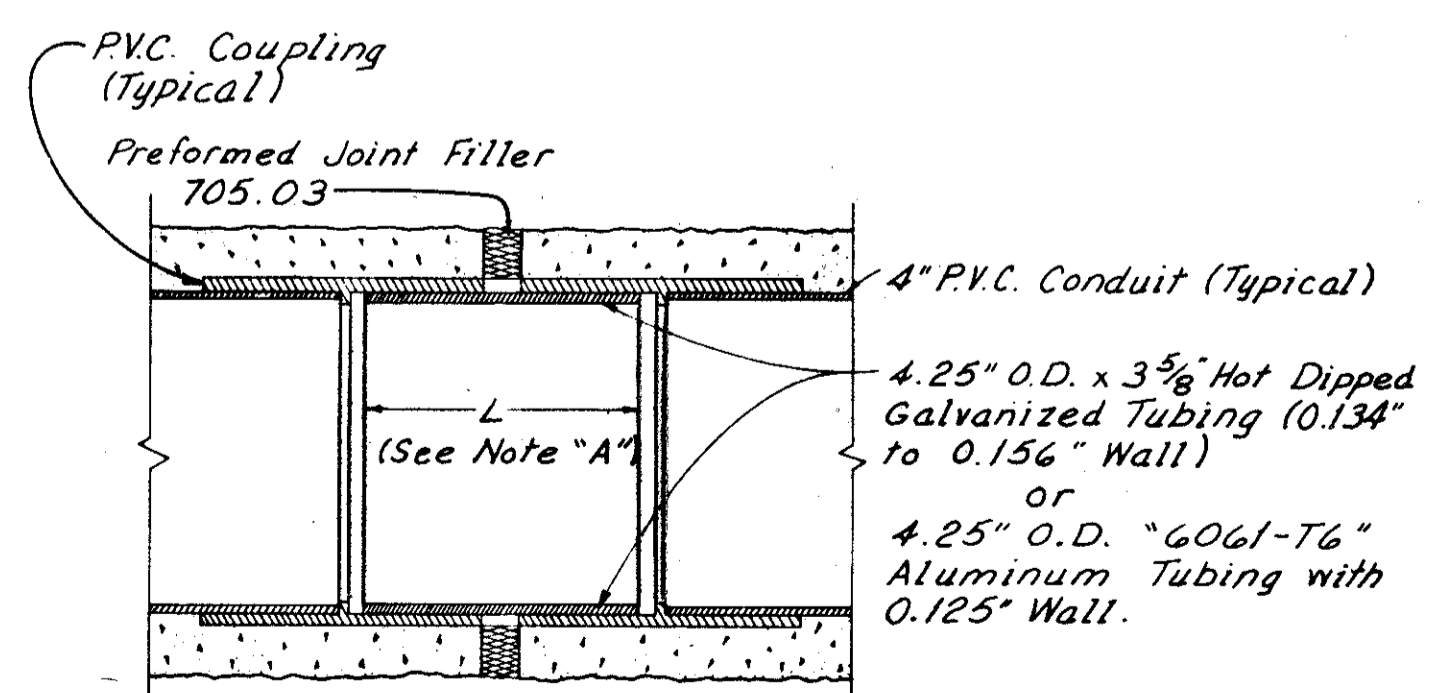
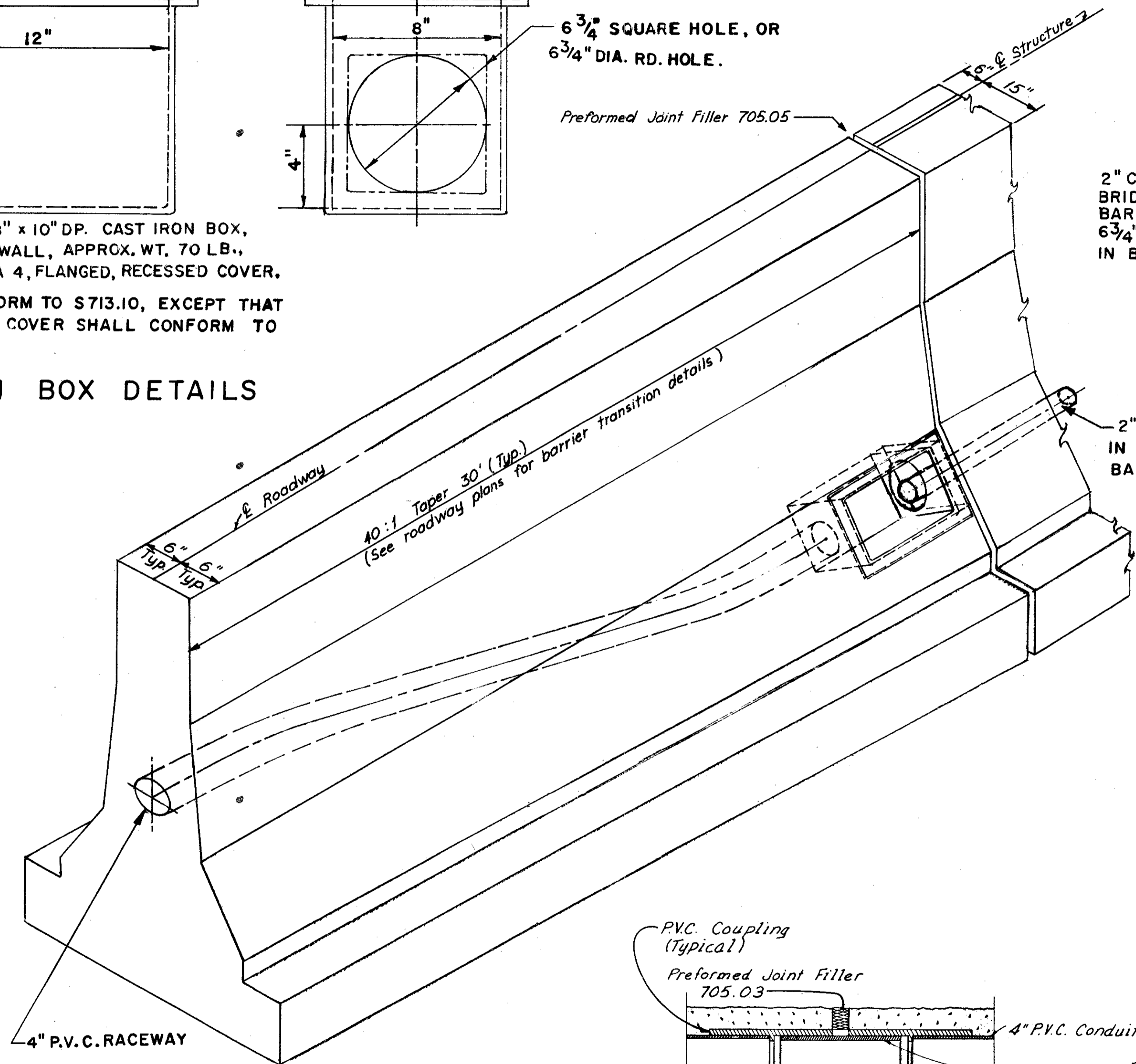
12" x 8" x 10" DP. CAST IRON BOX,
5/16" WALL, APPROX. WT. 70 LB.,
NEMA 4, FLANGED, RECESSED COVER.

JUNCTION BOX SHALL CONFORM TO S713.10, EXCEPT THAT
THE GALVANIZED STEEL PLATE COVER SHALL CONFORM TO
ASTM A-242 OR A-36.

TRANSITION JUNCTION BOX DETAILS

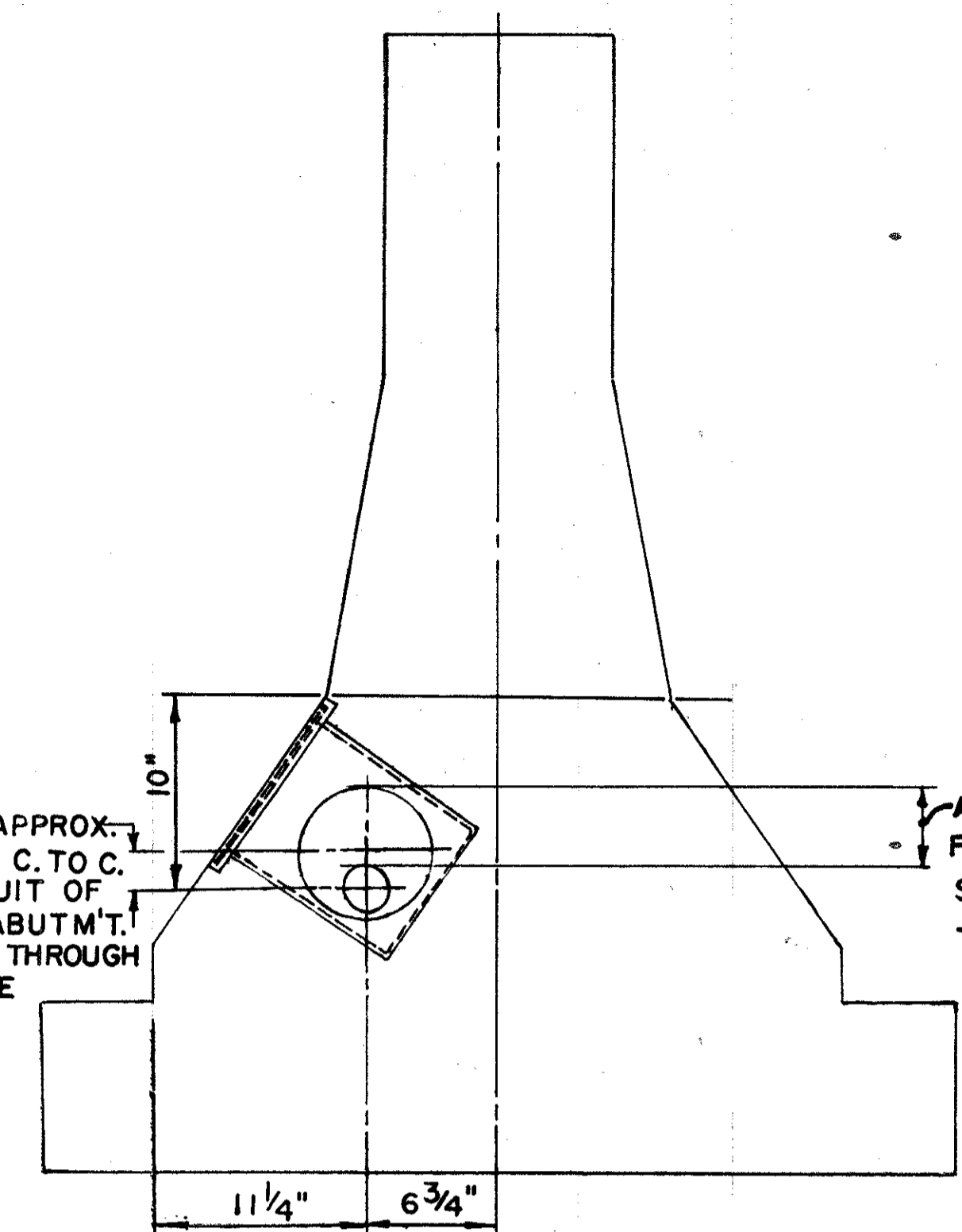


END ELEV. A-A



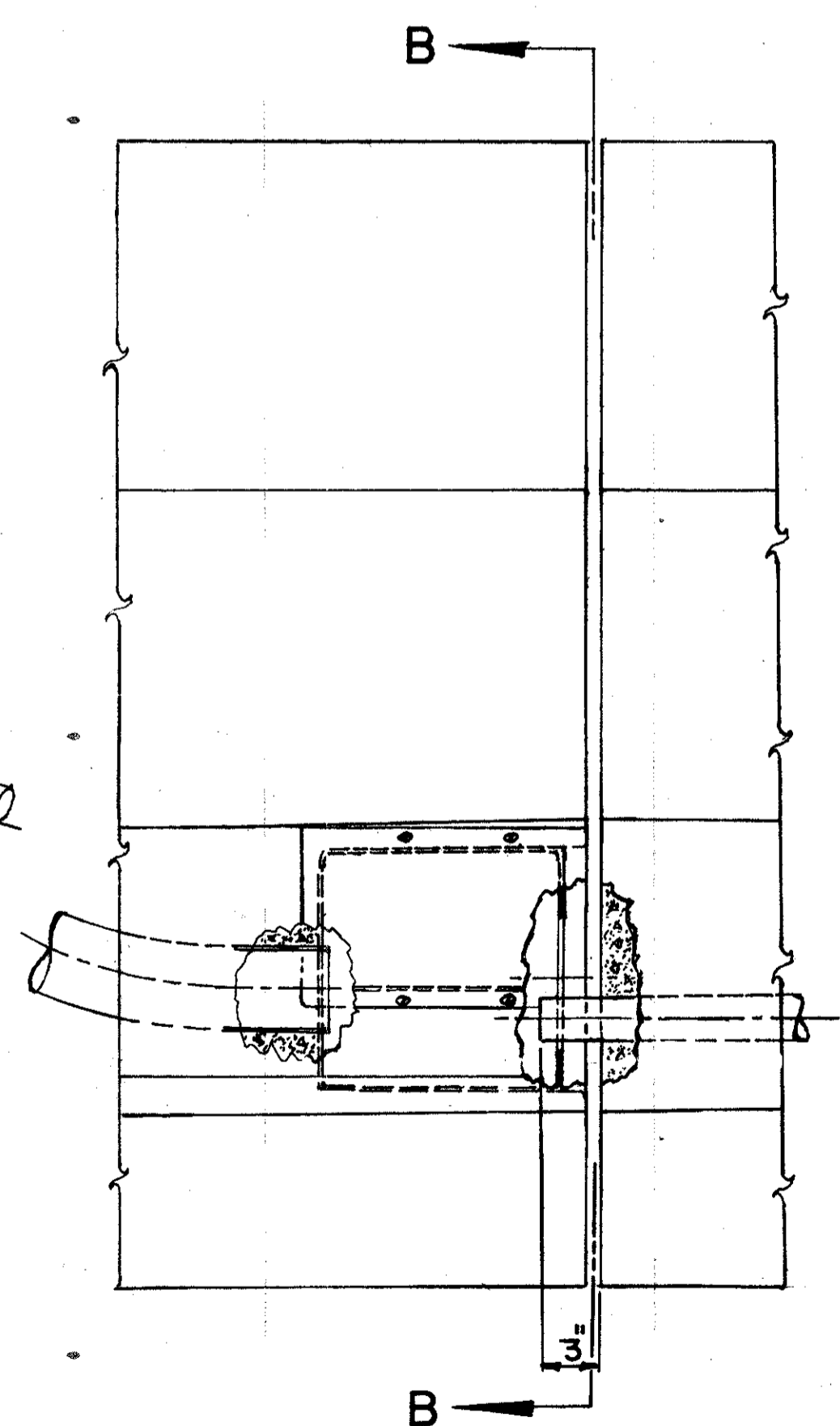
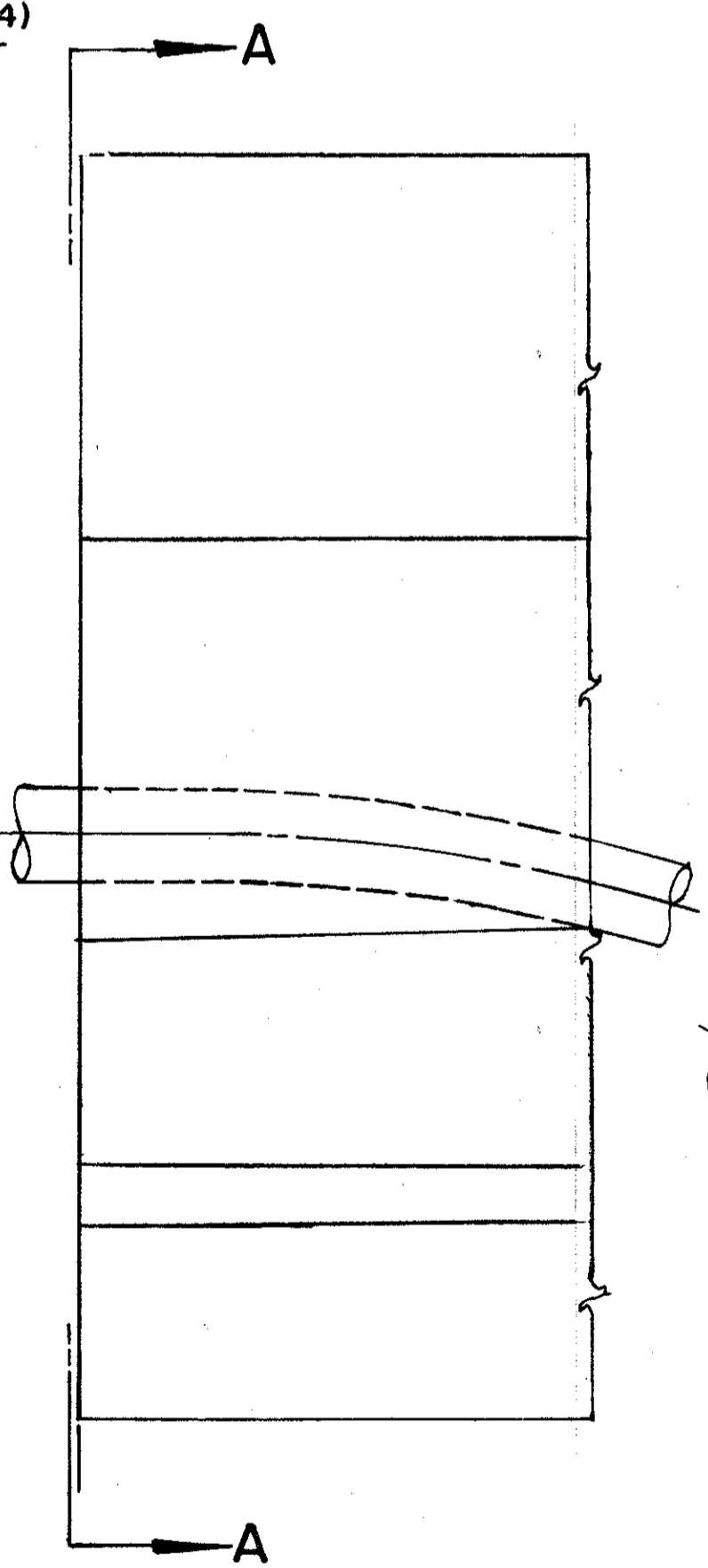
4" P.V.C. COUPLING AT CONSTRUCTION JOINT IN
CONCRETE BARRIER MEDIAN
No Scale

Note "A": "L" is approximately 3 3/4" when joint is 1/2".
Note "B": Conduit couplings as detailed herein shall be provided at all median barrier joints where a joint filler is used, as required or permitted by Item 622 or Standard Construction Drawing MC-9.



END ELEV. B-B

ALLOW APPROXIMATELY 4"
FOR ROADWAY BARRIER
SETTLEMENT ADJACENT
TO ABUTMENT SECTION.

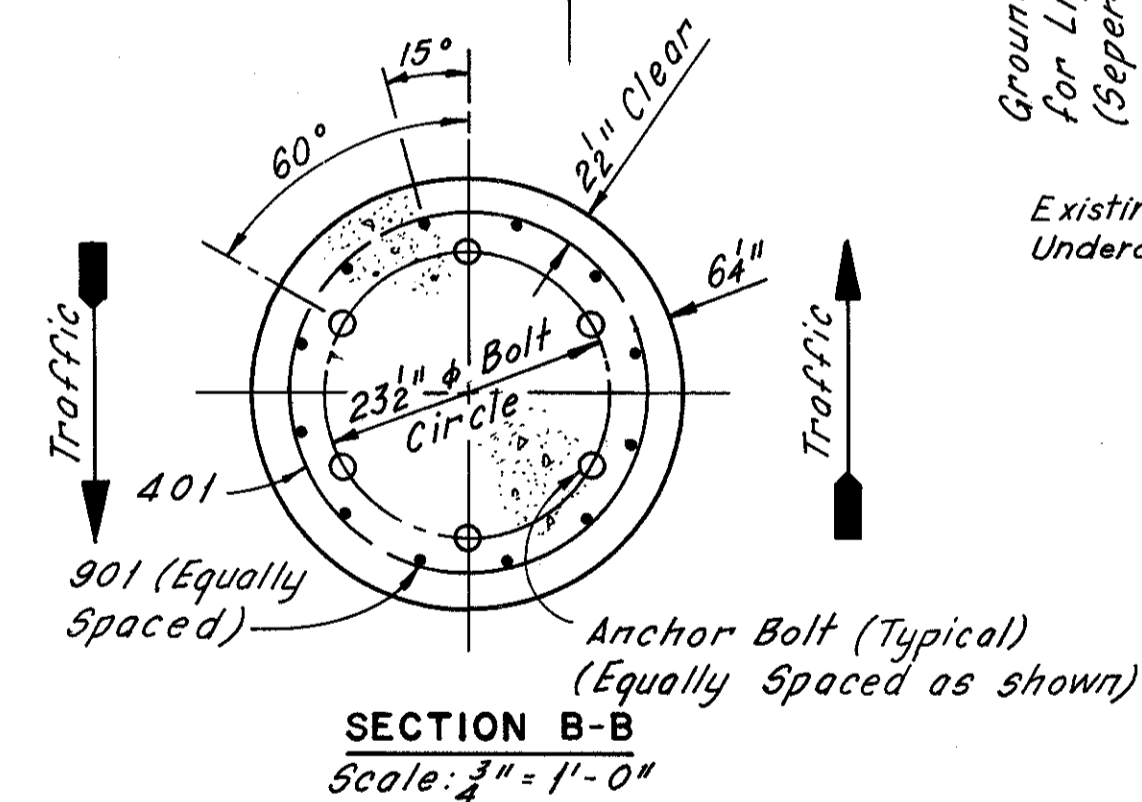
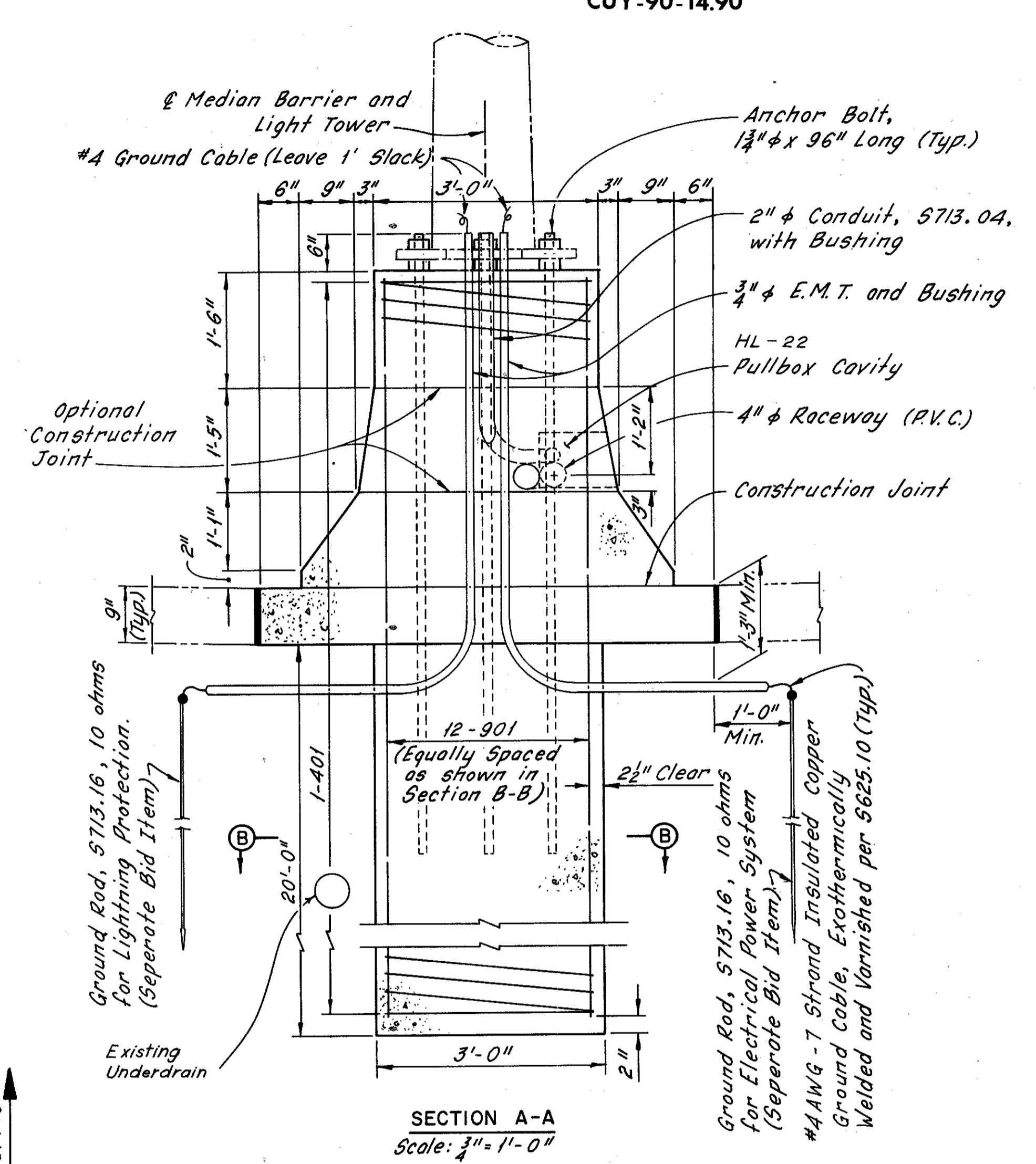
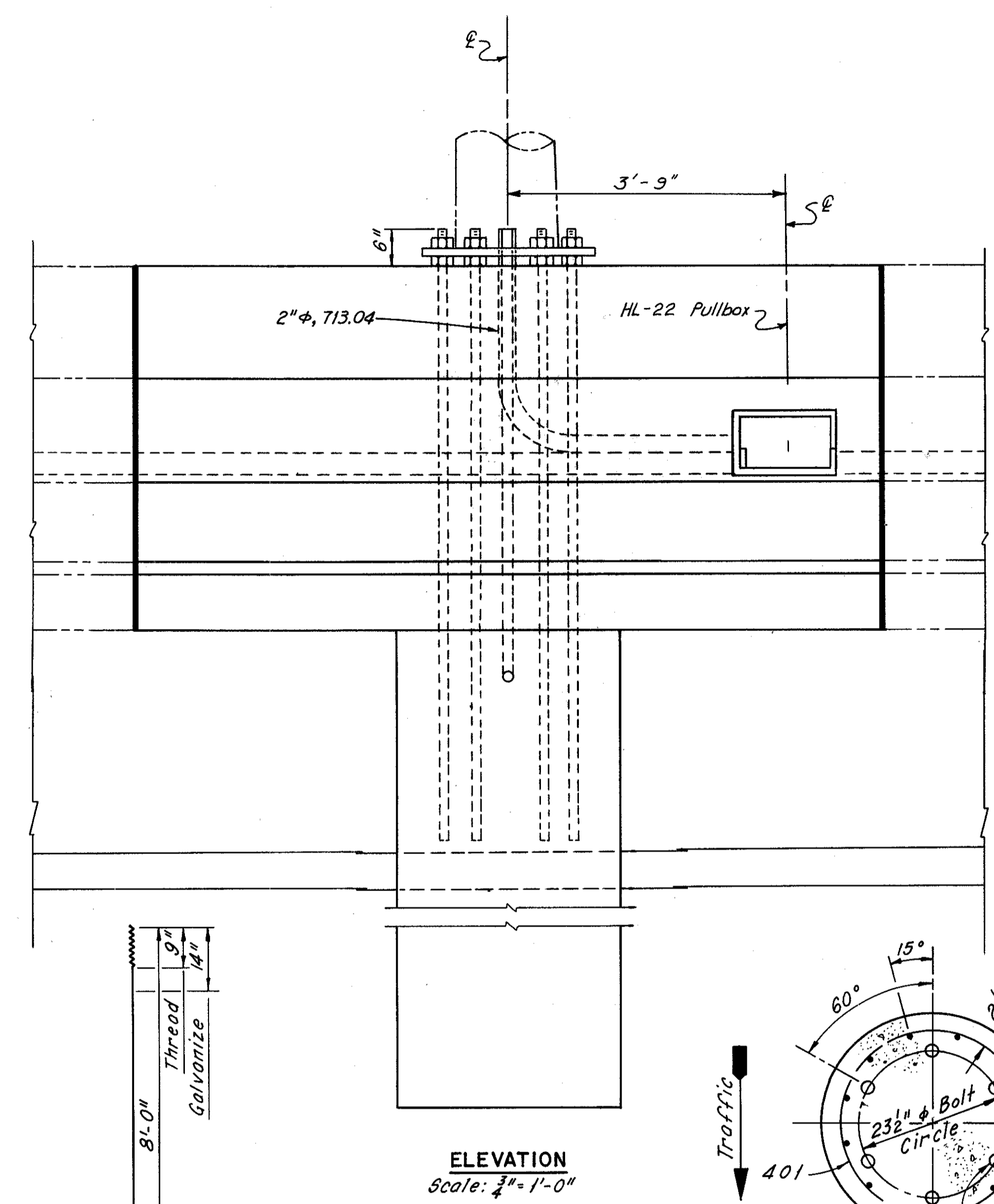
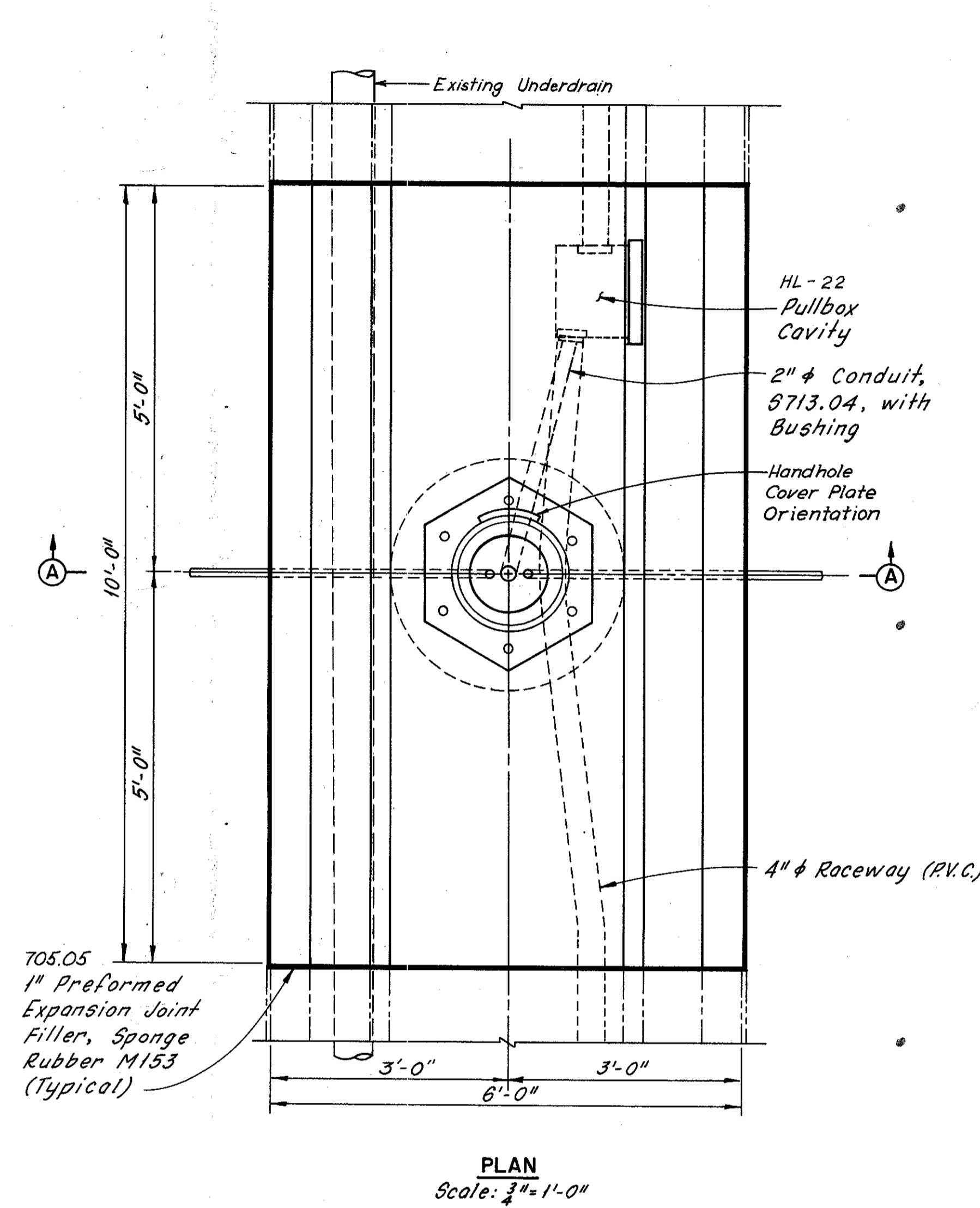


SIDE ELEVATION, TRANSITION BARRIER
FROM ROADWAY TO BRIDGE CONFIGURATIONS

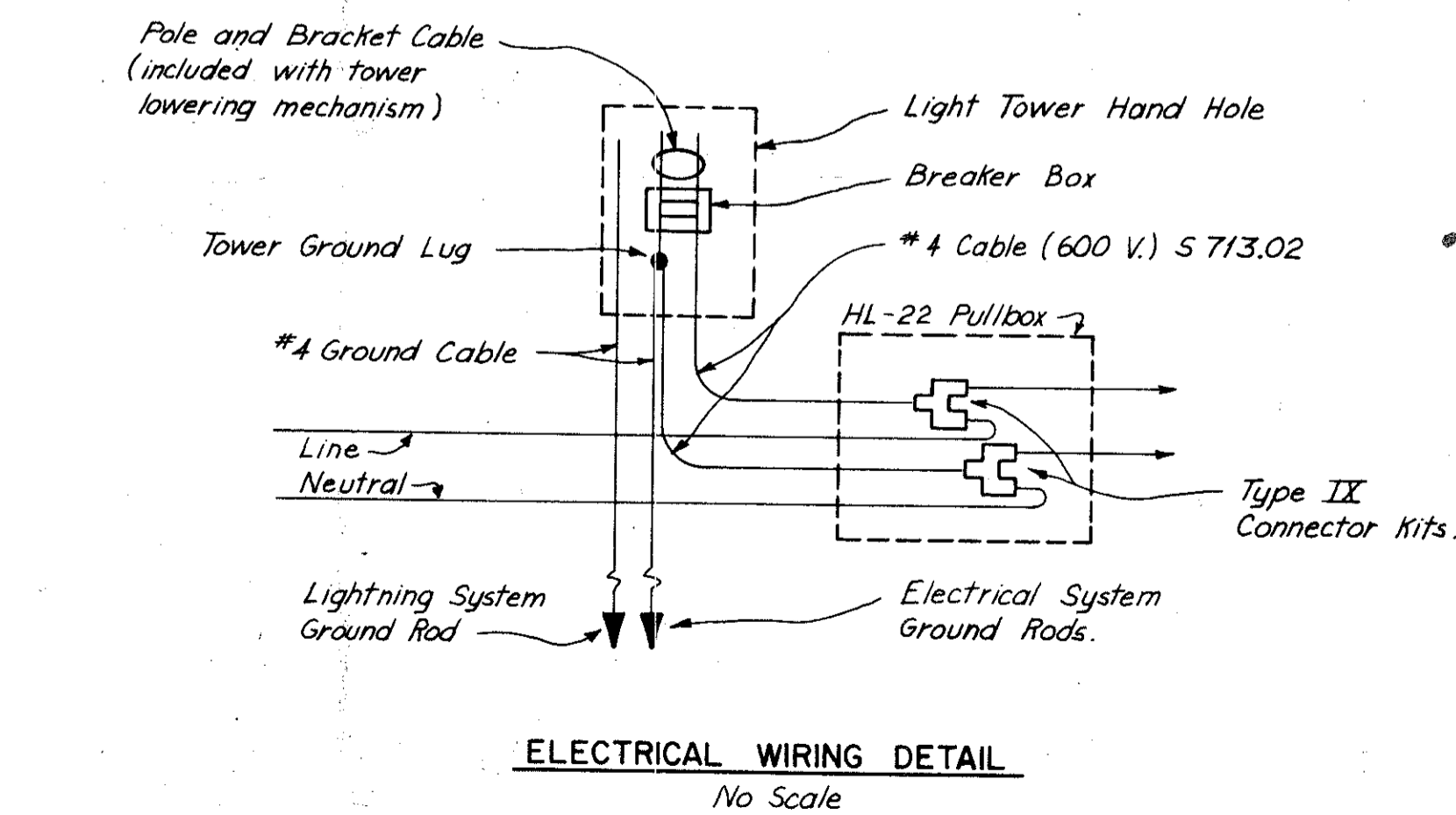
LIGHT TOWER FOUNDATION DETAILS - MEDIAN BARRIER

FHWA REGION	STATE	PROJECT
5	OHIO	

CUYAHOGA COUNTY
CUY-71-18.65
CUY-90-14.90



ANCHOR BOLT DETAIL
Threads shall be Unified Standard Series for basic Major Diameter of 1 1/2"



REINFORCEMENT SCHEDULE						
MARK	NO.	LENGTH	TYPE	SER. INCR	WEIGHT (LBS.)	BENDING DIAGRAM
401	1	543'-7"	150		441	
901	12	24'-6"	6tr.		1,000	
					Total =	1,441

SPIRAL REINFORCEMENT
NOTE:
The Length shown on the No. 4 Spiral Bar Bending Diagram is the foundation embedment depth with a 3" clearance.
Four steel channels, tee or angle spacers, weighing approximately 0.80 lbs. per foot of spacer shall be provided for each spiral unit.
They shall be equally spaced along the periphery of the coil.

NOTES
For additional notes, see General Notes. Anchor bolts, pullbox and cover, conduits, 4" PVC raceway, and expansion joint filler included in price bid for foundation. Foundation to be cast-in-place, Class "C" Concrete. Reinforcement to comply with and be placed in accordance with 509. Coissons and slabs shall be placed in well-compacted, undisturbed soil.

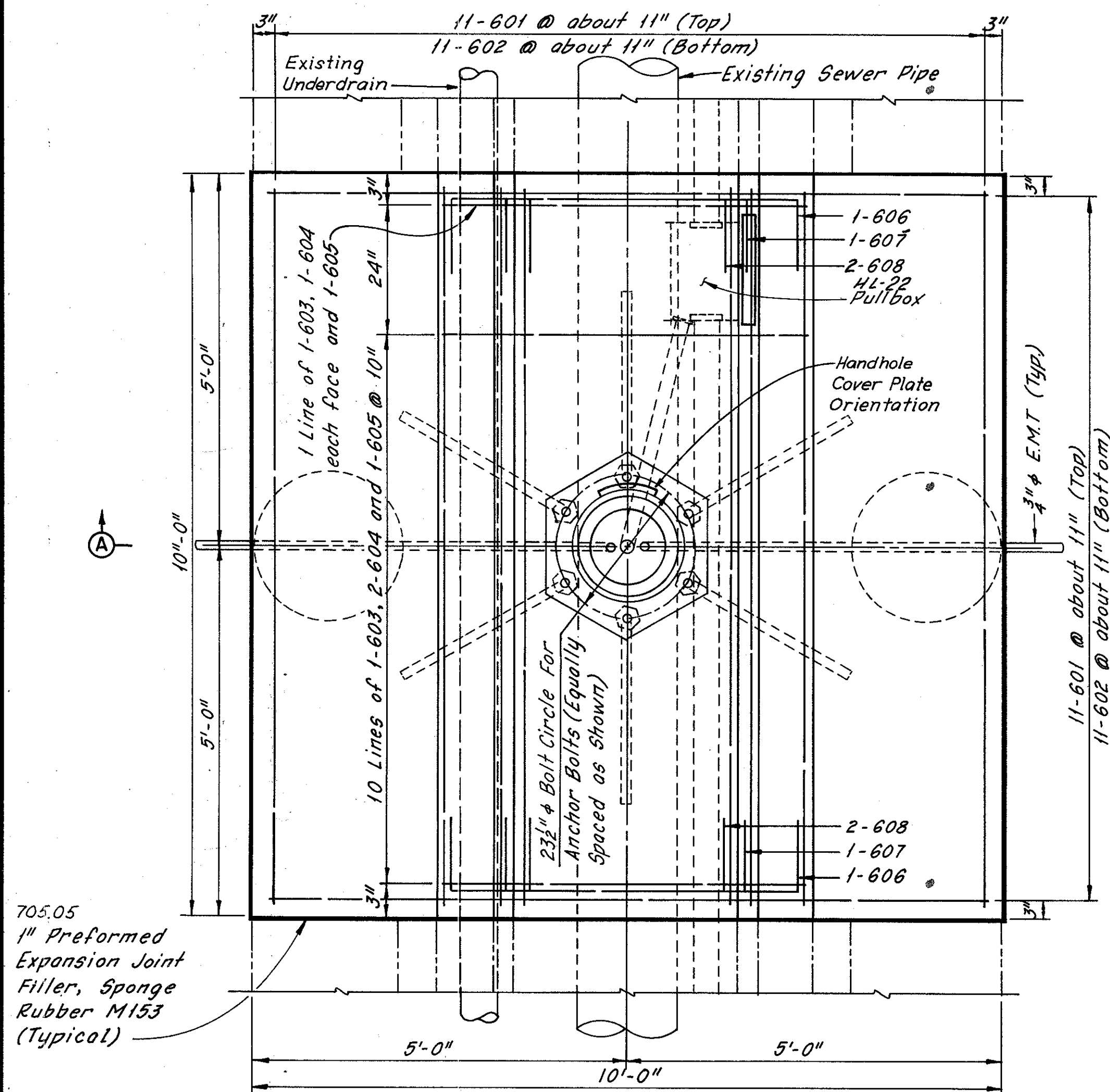
LIGHT TOWER FOUNDATION DETAILS - MEDIAN BARRIER

FHWA REGION	STATE	PROJECT
5	OHIO	

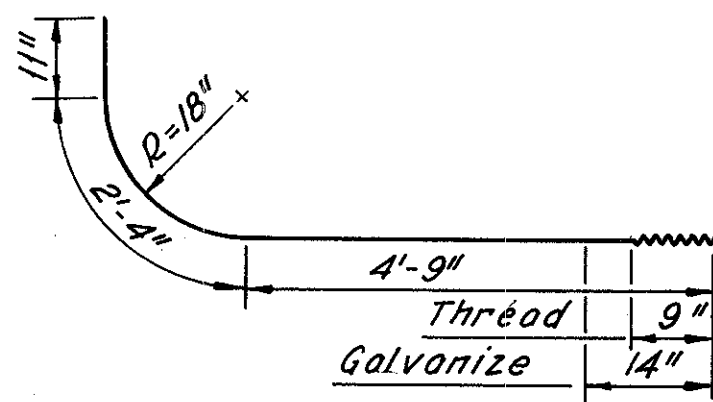
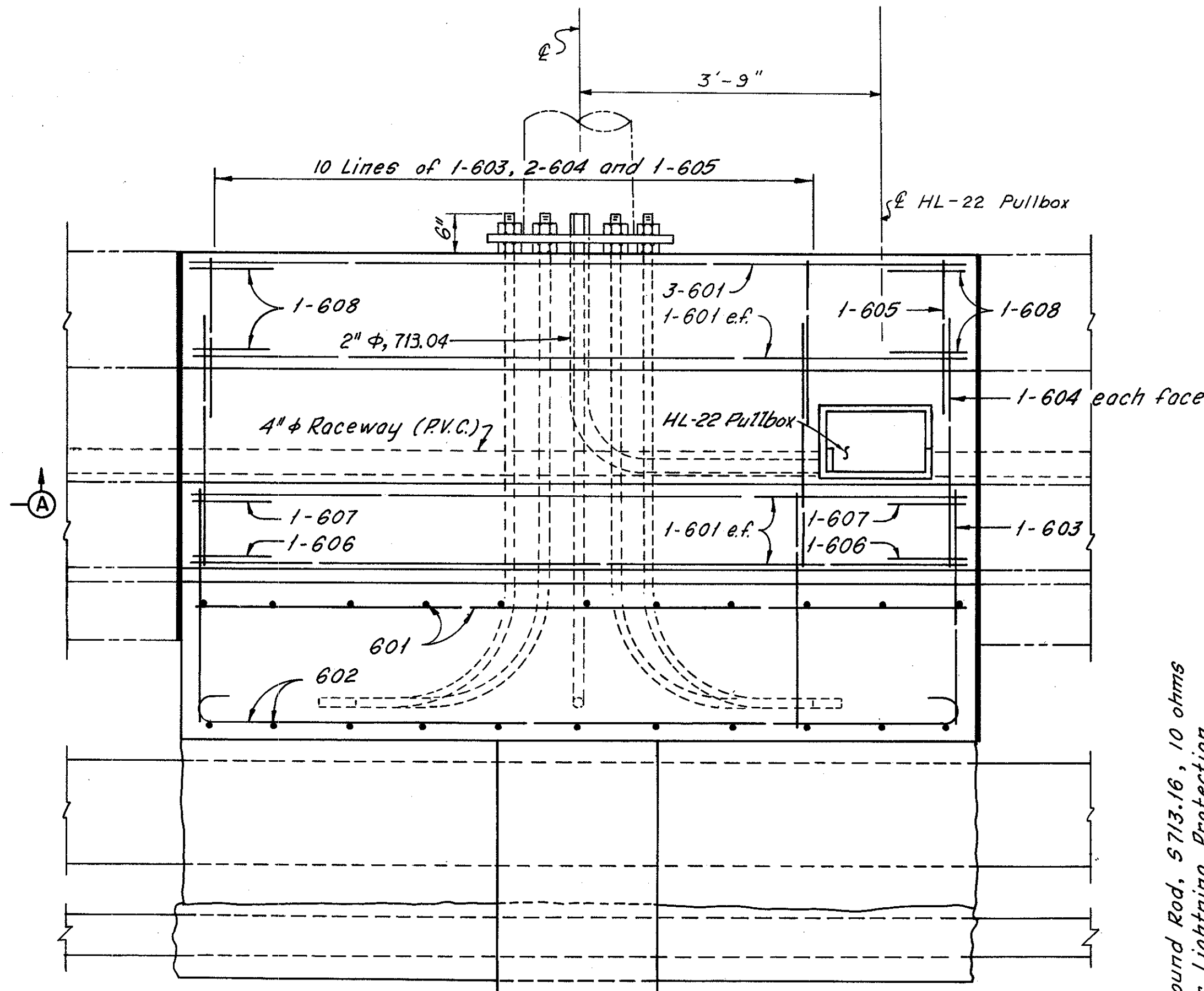
40
53

CUYAHOGA COUNTY
CUY-71-18.65
CUY-90-14.90

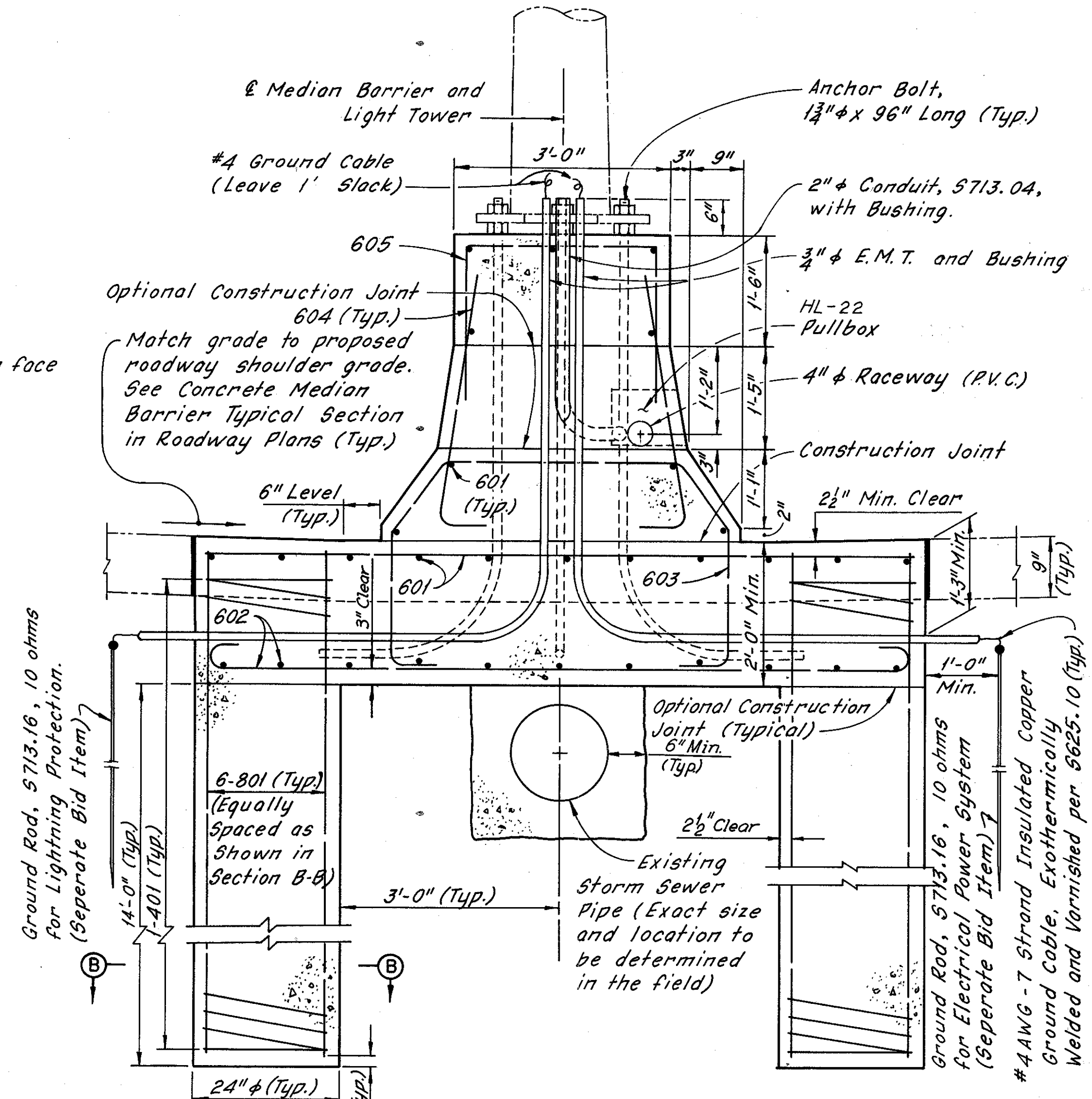
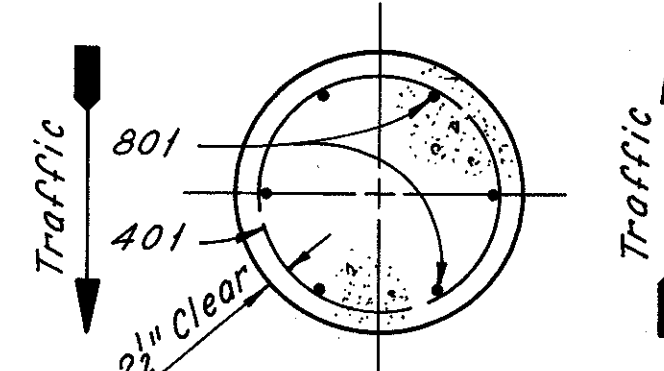
SPREAD FOOTER



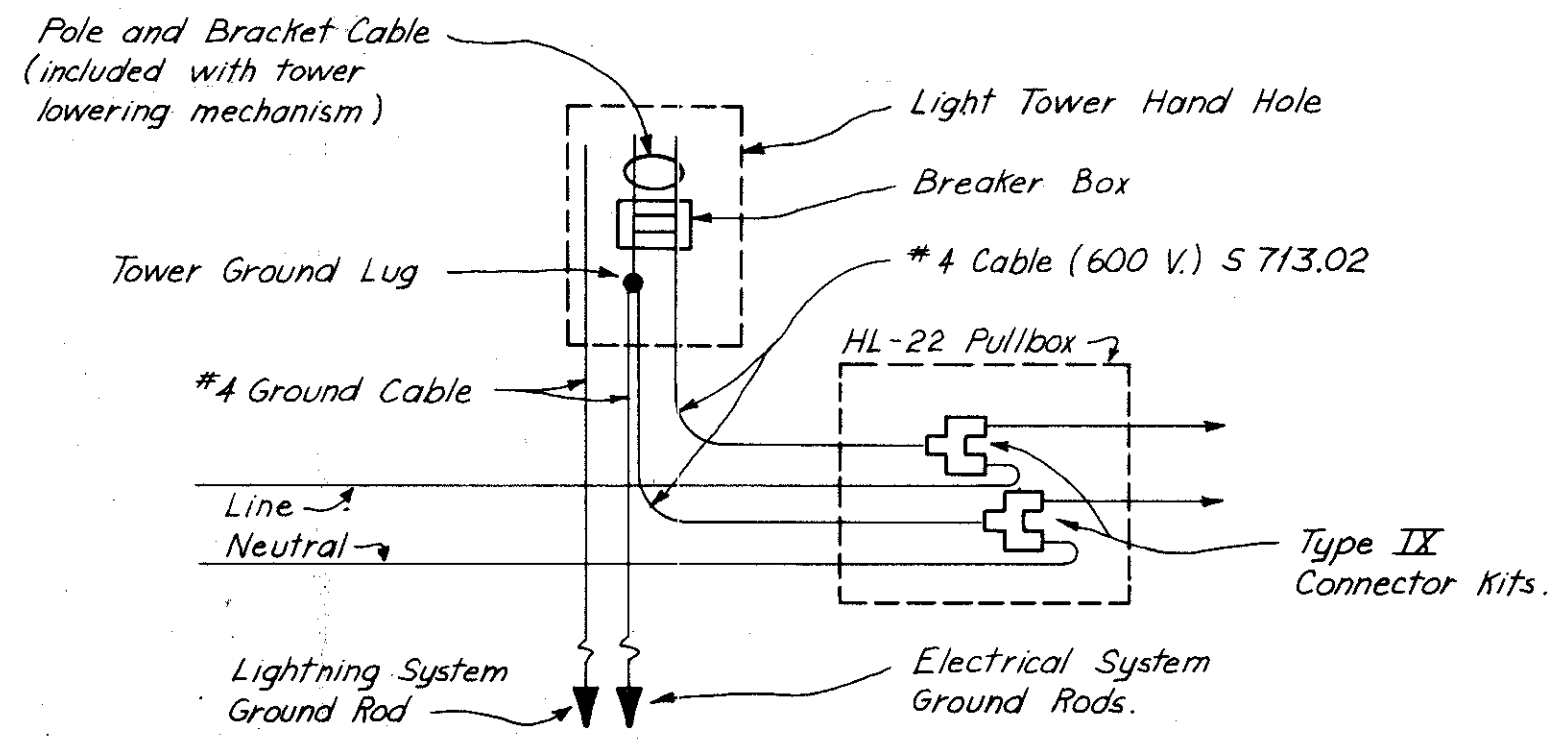
PLAN
Scale: 3/4" = 1'-0"



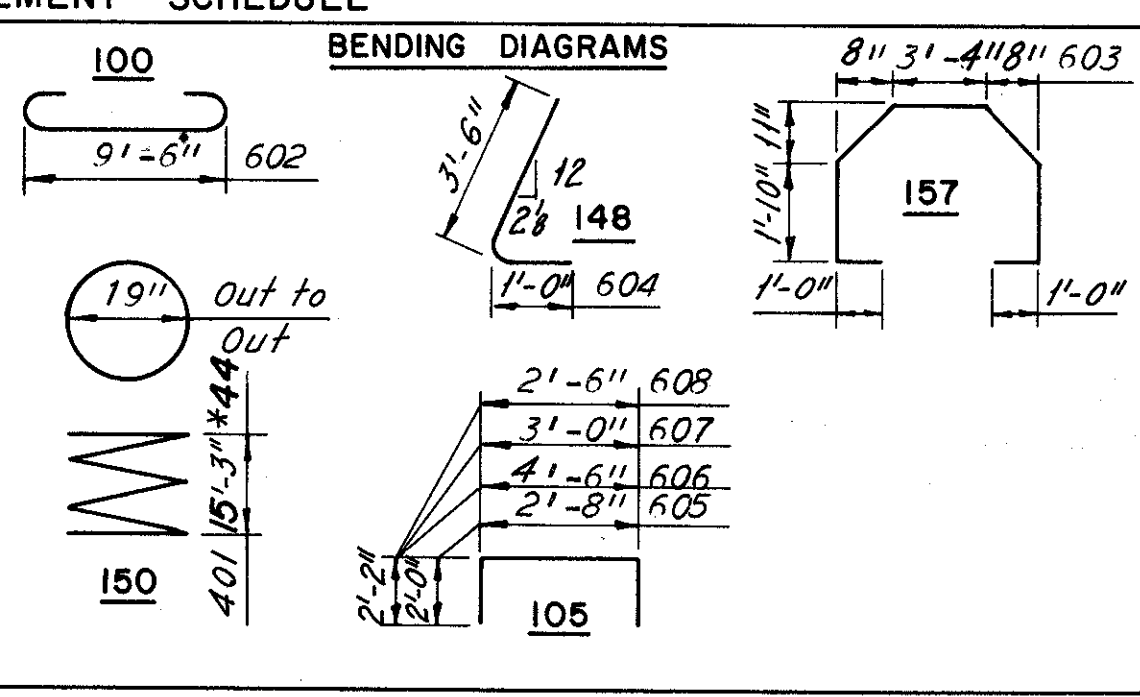
ANCHOR BOLT DETAIL
Threads shall be Unified Standard Series for basic Major Diameter of 1 1/2"



SECTION A-A
Scale: 3/4" = 1'-0"



REINFORCEMENT SCHEDULE					
MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS.)
401	2	213'-9"	150		383
601	31	9'-6"	Str.		442
602	22	10'-10"	100		358
603	11	10'-7"	157		175
604	22	4'-4"	148		143
605	11	6'-4"	105		105
606	2	8'-6"	105		26
607	2	7'-0"	105		21
608	4	6'-6"	105		39
801	12	15'-6"	Str.		497
Total *					2,189



SPIRAL REINFORCEMENT NOTE:

The Length shown on the No. 4 Spiral Bar Bending Diagram is the foundation embedment depth with a 3" clearance.

Four steel channels, tee or angle spacers, weighing approximately 0.80 lbs. per foot of spacer shall be provided for each spiral unit.

They shall be equally spaced along the periphery of the coil.

NOTES

Anchor bolts, pullbox and cover, conduits, 4" φ PVC raceway, and expansion joint filler included in price bid for foundation.

Foundation to be cast-in-place, Class "C" Concrete. Reinforcement to comply with and be placed in accordance with 509.

Caissons and slabs shall be placed in well-compacted, undisturbed soil.

MADE BY DATE 11-30-77
TRACED BY DATE 12-27-77
CHECKED BY DATE 1-21-78
SCALE AS SHOWN

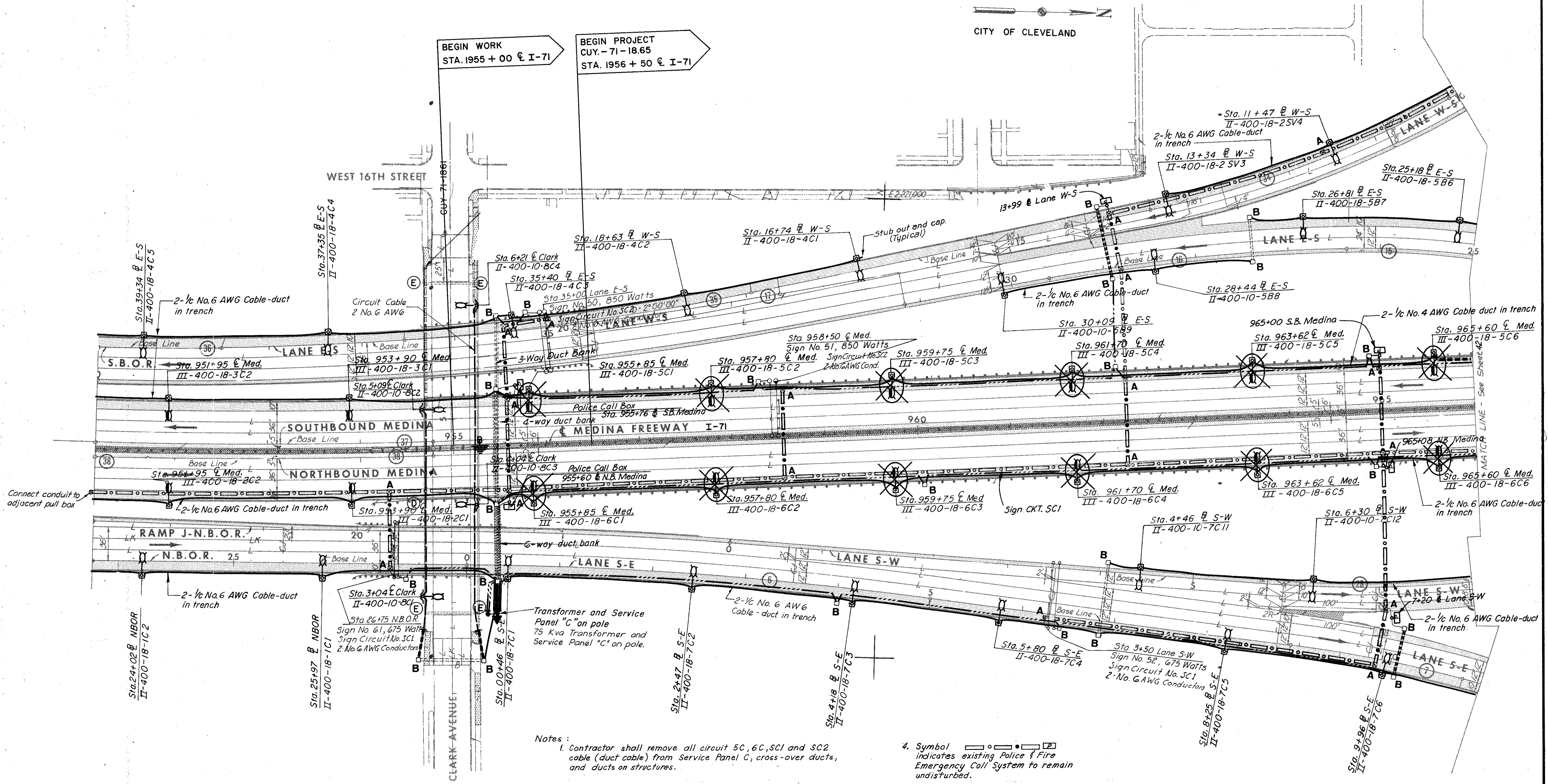
Howard, Needles, Tammen & Bergendoff
CONSULTING ENGINEERS
CLEVELAND, OHIO

HNTB


* Number of Turns @ 4 1/2" pitch includes 1 1/2 turns at each end.

FHWA REGION	STATE	PROJECT
5	OHIO	

CUYAHOGA COUNTY
CUY-71-18.65
CUY-90-14.90



Notes:

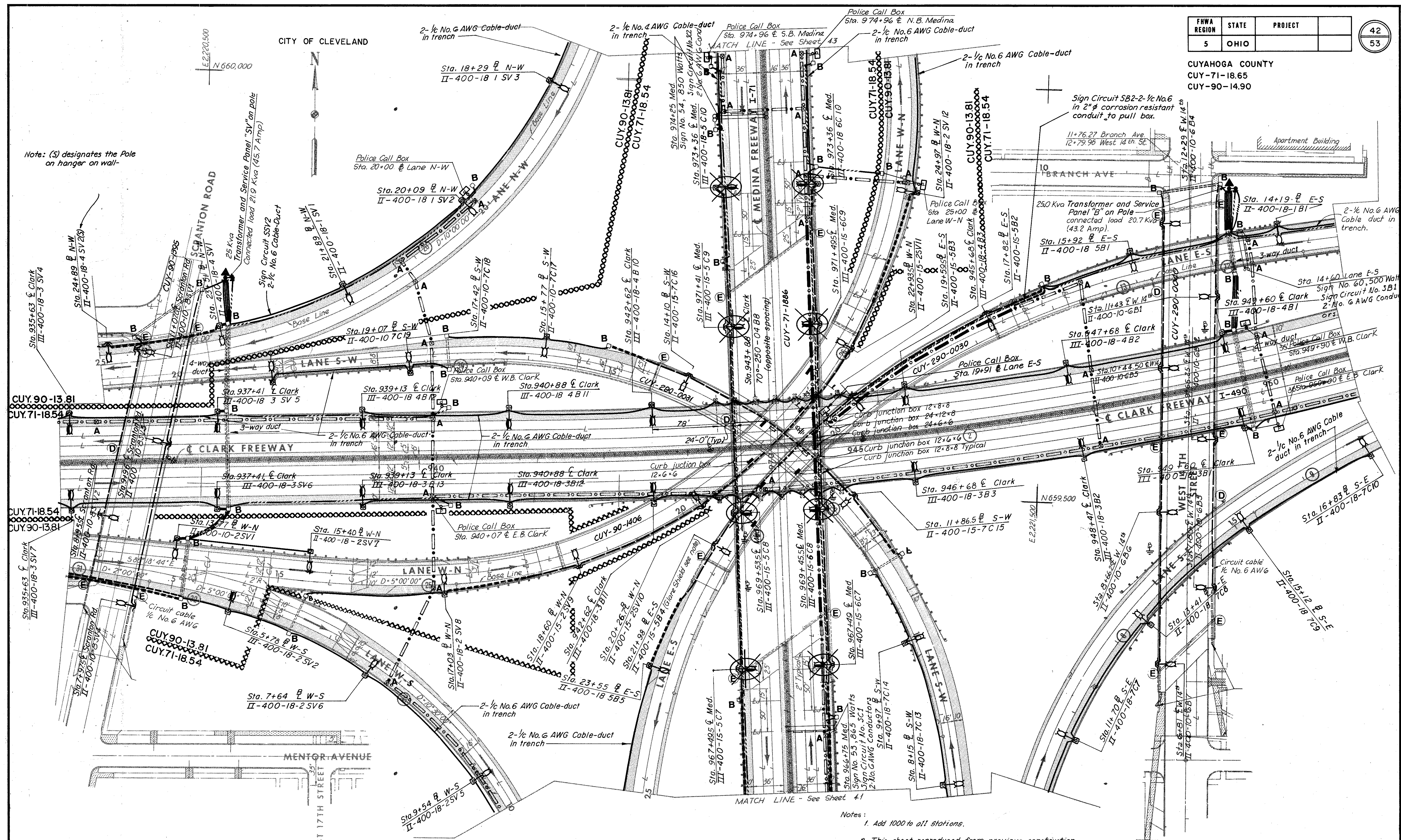
- Contractor shall remove all circuit 5C, 6C, SC1 and SC2 cable (duct cable) from Service Panel C, cross-over ducts, and ducts on structures.
- Add 1000 to all stations.
- This sheet reproduced from previous construction project CUY-71/90-18.54/13.81.
- Symbol  indicates existing Police & Fire Emergency Call System to remain undisturbed.

MADE BY ERH DATE 11-9-77
 TRACED BY DWI DATE 12-7-77
 CHECKED BY JJJ DATE 12-20-77
 SCALE 1" = 30'

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



CUYAHOGA COUNTY
 CUY-71-18.65
 CUY-90-14.90



Note: (S) designates the Pole on hanger on wall-

MADE BY ERH DATE 11-9-77
 TRACED BY DATE 12-20-77
 CHECKED BY DATE 12-20-77
 SCALE 1" = 50'

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

HNTB

- Notes:
1. Add 1000 to all stations.
 2. This sheet reproduced from previous construction project CUY-71/90-18.54/13.81.
 3. See Note 4, Sheet 41.

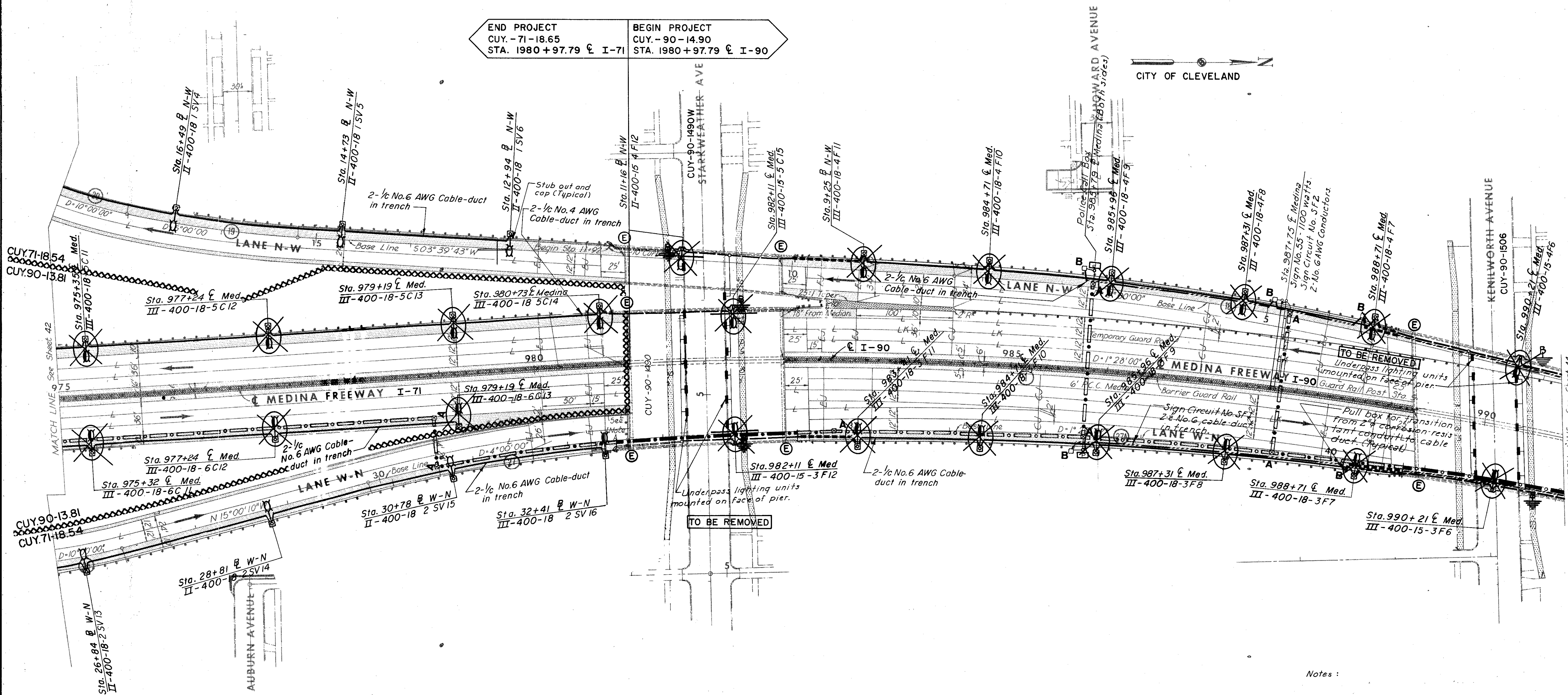
FHWA REGION	STATE	PROJECT
5	OHIO	

43
53

CUYAHOGA COUNTY
 CUY-71-18.65
 CUY-90-14.90

END PROJECT
 CUY-71-18.65
 STA. 1980+97.79 @ I-71

BEGIN PROJECT
 CUY-90-14.90
 STA. 1980+97.79 @ I-90



- Notes:
1. This sheet reproduced from previous construction project CUY-71/90-18.54/13.81.
 2. See Note 4, Sheet 41.
 3. Add 1000 to all stations.

MADE ERH DATE 11-8-77
 TRACED DWY DATE 12-6-77
 CHECKED ETV DATE 12-20-77
 SCALE 1" = 50'

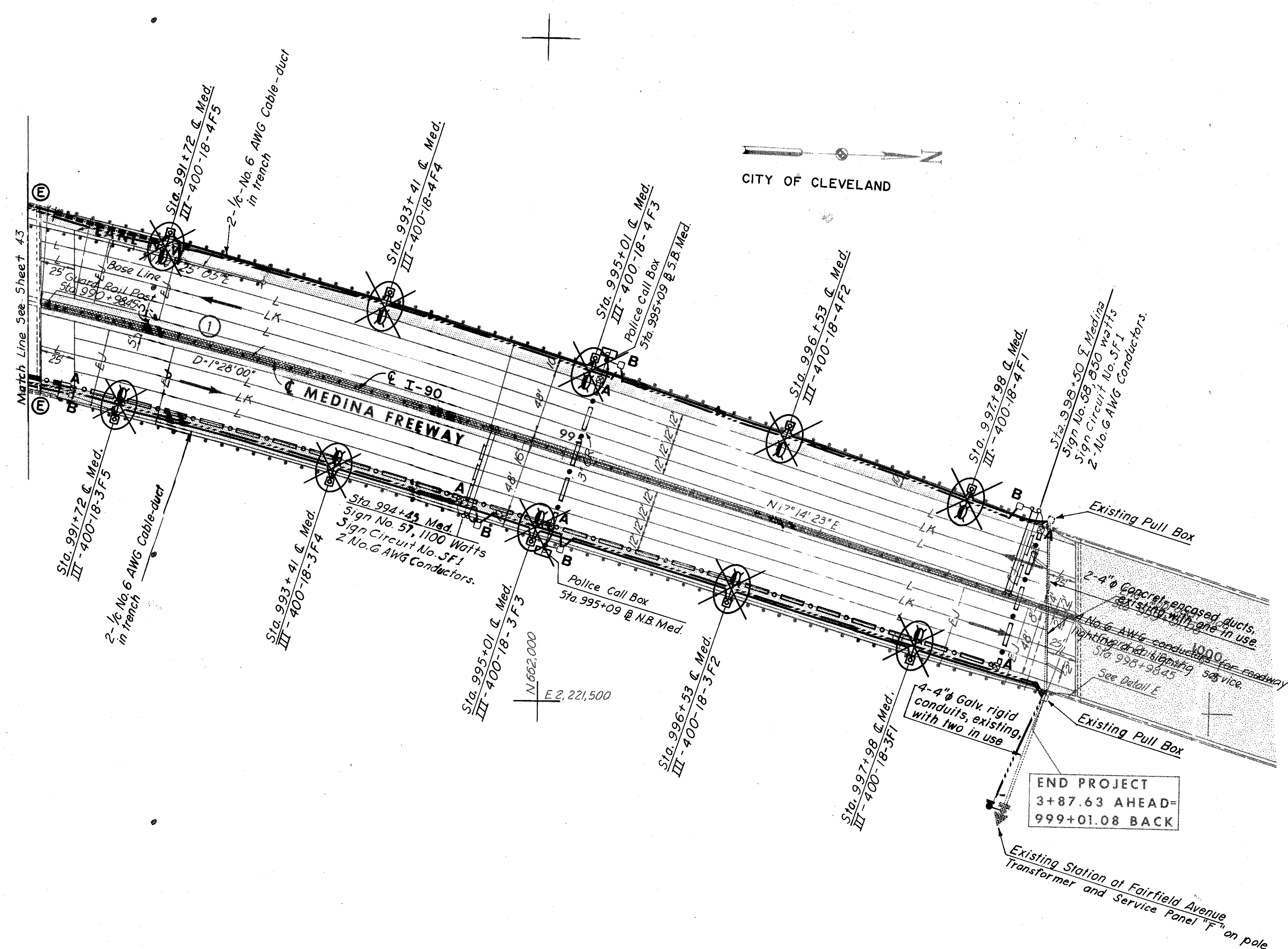
Howard, Needles, Tammen & Bergendoff
 CONSULTING ENGINEERS
 CLEVELAND, OHIO



FHWA REGION	STATE	PROJECT	
5	OHIO		

44
53

CUYAHOGA COUNTY
CUY-71-18.65
CUY-90-14.90



- Notes:
1. Contractor shall remove all circuit 3F, 4F, SF1 and SF2 cables from Service Panel F, cross-over ducts, and ducts on structure which will not be retained for maintaining the existing underpass lighting.
 2. Add 1000 to all stations.
 3. This sheet reproduced from previous construction project CUY. - 71/90 - 18.54 / 13.81.
 4. See Note 4, Sheet 41.

MADE ERH DATE 11-8-77 HOWARD, NEEDLES, TAMMEN & BERGENDOFF
 TRACED DW DATE 12-6-77 CONSULTING ENGINEERS
 CHECKED RF DATE 12-20-77 CLEVELAND, OHIO
 SCALE 1" = 30'



GENERAL NOTES - STRUCTURES OVER 20 - FT SPAN

FHWA REGION	STATE	PROJECT	
5	OHIO		

45
53

CUYAHOGA COUNTY
CUY-71-18.57
CUY-90-14.64

1. PROPOSED WORK

A. SURFACING BRIDGE DECKS INCLUDING DECK REPAIRS

THE CONCRETE DECK OF ALL BRIDGES IDENTIFIED ON SHEETS 3/9 AND 4/9 SHALL BE REPAIRED IN ACCORDANCE WITH ITEM 850 - DENSE CONCRETE OVERLAY. RAISING THE EXPANSION JOINTS AND SCUPPERS AS SHOWN IN THE PLANS ALSO IS REQUIRED IN CONJUNCTION WITH THIS WORK.

B. REPLACEMENT OF DEEP BEAM BARRIER MEDIAN WITH CONCRETE BARRIER MEDIAN

THE EXISTING DEEP BEAM GUARDRAIL, INCLUDING THE CONCRETE MEDIAN, FOR BRIDGES LISTED ON SHEET 3/9 SHALL BE REMOVED AND REPLACED WITH A CONCRETE BARRIER MEDIAN. MODIFICATIONS AS SHOWN IN THE PLANS ARE REQUIRED TO THE EXISTING ABUTMENTS AND EXPANSION JOINTS IN CONJUNCTION WITH THE CONSTRUCTION OF THE NEW MEDIAN.

2. DESIGN SPECIFICATIONS

STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS, DATED 1973, INCLUDING THE 1974 (EXCEPT FOR REINFORCEMENT LAPS) 1975, 1976 AND 1977 INTERIM SPECIFICATIONS AND THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

THE CLASSES OF CONCRETE AND THE GRADES OF STRUCTURAL STEEL AND REINFORCING STEEL, TOGETHER WITH THE WORKING STRESSES FOR EACH ARE AS FOLLOWS:

CONCRETE CLASS C - UNIT STRESS 1200 PSI FOR SUPERSTRUCTURE
STRUCTURAL STEEL - ASTM A36 - UNIT STRESS 20,000 PSI
REINFORCING STEEL - ASTM A615, A616, A617 - UNIT STRESS 20,000 PSI

3. SUPPLEMENTAL SPECIFICATIONS

REFERENCE SHALL BE MADE TO SUPPLEMENTAL SPECIFICATIONS 808 DATED 1-1-71, 836 DATED 3-12-75, 845 DATED 6-27-77, 850 DATED 6-27-77, AND 853 & 956, BOTH DATED 6-26-78.

4. PLANS OF EXISTING BRIDGES

CONSTRUCTION PLANS FOR THE EXISTING BRIDGES ARE ON FILE AT THE OHIO DEPARTMENT OF TRANSPORTATION, DISTRICT 12 OFFICE, 10100 BROADWAY AVENUE, GARFIELD HEIGHTS, OHIO, AND ARE AVAILABLE FOR REFERENCE.

5. DIMENSIONS

DIMENSIONS GIVEN ARE MEASURED HORIZONTALLY AND AT 60°F. DIMENSIONS GIVEN FOR EXISTING STRUCTURES ARE FROM THE ORIGINAL CONSTRUCTION PLANS. SOME VARIATION FROM PLAN DIMENSIONS IS EXPECTED. ANY ADDITIONAL COST RESULTING FROM VARIATION IN THE PLAN DIMENSIONS IS THE RESPONSIBILITY OF THE CONTRACTOR AND NO ADDITIONAL PAYMENT WILL BE AWARDED BY THE STATE.

6. REMOVAL

A. GENERAL

STRUCTURAL STEEL DESIGNATED BY THE PLANS FOR REMOVAL MAY BE REMOVED BY METHODS OF THE CONTRACTOR'S SELECTION AND AS APPROVED BY THE ENGINEER.

WHEN SO DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL WET DOWN CONCRETE THOROUGHLY DURING REMOVAL OPERATIONS TO PREVENT SPREAD OF DUST. ALL NECESSARY LABOR AND MATERIAL SHALL BE PROVIDED BY THE CONTRACTOR AND INCLUDED WITH ITEM 202, PORTIONS OF STRUCTURES REMOVED, FOR PAYMENT.

B. CONCRETE REMOVAL

THE REMOVAL OF UNSOUND DECK CONCRETE SHALL BE IN ACCORDANCE WITH ITEM 850 - DENSE CONCRETE OVERLAY. NO TRAFFIC SHALL BE PERMITTED ON ANY PORTION OF THE DECK WHICH HAS BEEN SCARIFIED. OTHER CONCRETE SHALL BE REMOVED BY MEANS OF APPROVED PNEUMATIC HAMMERS EMPLOYING POINTED AND BLUNT CHISEL EDGED TOOLS. THE MAXIMUM WEIGHT OF HAMMER SHALL NOT EXCEED 35 POUNDS.

WHERE EXISTING REINFORCEMENT IS TO BE RETAINED CARE SHALL BE EXERCISED TO PREVENT CUTTING, STRETCHING OR DAMAGING ANY EXPOSED REINFORCING STEEL.

C. DISPOSAL OF REMOVED MATERIAL

ALL CONCRETE, REINFORCING STEEL, ASPHALT, ETC., REMOVED FROM THE STRUCTURE AND NOT REUSED SHALL, UNLESS OTHERWISE SPECIFIED, BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED BY HIM FROM THE SITE.

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

7. REINFORCING STEEL

ALL BARS ARE DESIGNATED ON THE PLANS BY BAR NUMBERS. THE BAR SIZE IS INDICATED BY THE FIRST DIGIT.

ALL BAR DIMENSIONS ARE GIVEN OUT TO OUT.

THE CLEAR DISTANCE BETWEEN REINFORCING STEEL AND FACE OF CONCRETE SHALL BE 2" UNLESS OTHERWISE NOTED ON THE PLANS. MINIMUM REINFORCING STEEL BAR LAPS SHALL BE 30 BAR DIAMETERS.

8. PAINTING STRUCTURAL STEEL

ALL NEW STRUCTURAL STEEL AND EXISTING STRUCTURAL STEEL WHERE THE PAINT SURFACE WAS DAMAGED DURING REPAIR OPERATIONS (AS NOTED IN THE PLANS) SHALL BE PAINTED IN ACCORDANCE WITH ITEM 514 - PAINTING.

9. CONSTRUCTION SEQUENCE

ALL WORK AFFECTING TRAFFIC FLOW SHALL BE PERFORMED IN ACCORDANCE WITH THE MAINTENANCE OF TRAFFIC NOTES COVERED ON DRAWING NO. 5 OF THE ROADWAY PLANS.

10. ITEM 510 - DOWEL HOLES, AS PER PLAN

ALL APPLICABLE PROVISIONS OF ITEM 510, DOWEL HOLES, AS SET FORTH IN THE CONSTRUCTION AND MATERIAL SPECIFICATIONS SHALL APPLY EXCEPT AS NOTED HEREIN.

METHOD OF CONSTRUCTION. THE HOLES SHALL BE DRILLED AT THE LOCATION AND TO THE DEPTH SHOWN ON THE PLANS, AND THE DOWEL BARS PLACED. THE WORK SHALL BE AS PER SUPPLEMENTAL SPECIFICATION 853. PAYMENT SHALL BE UNDER "DOWEL HOLES", RATHER THAN AS DESCRIBED IN SUPPLEMENTAL SPECIFICATION 853.

11. ITEM 516 - VERTICAL EXTENSION OF STRUCTURAL EXPANSION JOINTS, AS PER PLAN

VERTICAL EXTENSION OF STRUCTURAL STEEL EXPANSION JOINTS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE DETAILS SHOWN ON SHEET 3/9 OF THE PLANS. PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE BID FOR ITEM 516, VERTICAL EXTENSION OF STRUCTURAL STEEL EXPANSION JOINTS, AS PER PLAN. THIS PRICE SHALL BE PAYMENT IN FULL FOR ALL MATERIAL EQUIPMENT AND LABOR NECESSARY TO COMPLETE THIS WORK.

12. REPLACEMENT REINFORCEMENT AT AREAS OF FULL DEPTH DECK REPAIR

REPLACEMENT REINFORCEMENT REQUIRED AT AREAS OF FULL DEPTH DECK REPAIR SHALL BE THE SAME SIZE AS THE ORIGINAL BARS AND SHALL BE PLACED AS NEAR AS POSSIBLE TO THEIR ORIGINAL PLAN LOCATION. BARS SHALL BE SPLICED BY LAPPING IN ACCORDANCE WITH SEC. 509.08. ALL MATERIALS AND LABOR NECESSARY TO COMPLETE THE ABOVE WORK SHALL BE INCLUDED FOR PAYMENT WITH ITEM 850, FULL-DEPTH REPAIR.

13. SCUPPER MODIFICATION, AS PER PLAN

MODIFICATION OF SCUPPERS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH SHEET 9 OF 9 OF THE PLANS AND SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR ITEM SPECIAL, SCUPPER MODIFICATION AS PER PLAN. THIS PRICE SHALL BE PAYMENT IN FULL FOR ALL MATERIAL, EQUIPMENT AND LABOR NECESSARY TO COMPLETE THIS WORK.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND				HNTB
GENERAL NOTES				
CUYAHOGA COUNTY				OHIO
DRAWN C.K.B. DATE 2/16/77	TRACED W.E.B. DATE 3/1/77	CHECKED C.A.B. DATE 3/15/77	REVIEWED	REVISED
				SHEET 1 / 9

FHWA REGION	STATE	PROJECT	
5	OHIO		

46
53

CUYAHOGA COUNTY
CUY-71-18.57
CUY-90-14.64

ESTIMATED QUANTITIES													
ITEM	TOTAL	UNIT	DESCRIPTION	BR. NO. CUY-71-1887C	BR. NO. CUY-90-1463	BR. NO. CUY-90-1490	BR. NO. CUY-90-1490W	BR. NO. CUY-90-1506	BR. NO. CUY-90-1524 ⊕ ⊕ ⊕	PARTICIPATION		TOTALS	
										I-71 CODE II	I-90 CODE II	I-71 CODE I	I-90 CODE I
*202	Lump Sum	Lump Sum	Portions of Structures Removed	Lump Sum	---	Lump Sum	---	Lump Sum				Lump	Lump
509	31,286	Pounds	Reinforcing Steel	18,362	---	6,408	---	6,516				18,362	12,924
510	1,786	Each	Dowel Holes, As Per Plan	1,052	---	364	---	370				1,052	734
*511	180	Cu. Yds.	Class C Concrete, Concrete Barrier Median	105	---	37	---	38				105	75
513	1,216	Pounds	Structural Steel (ASTM A36)	463	---	372	---	381				463	753
516	57	Sq. Ft.	1" Preformed Expansion Joint Filler	26	---	15	---	16				26	31
##514	Lump Sum	Lump Sum	Field Painting of New Structural Steel	Lump Sum	---	Lump Sum	---	Lump Sum				Lump	Lump
808	180	Units	Chemical Admixture For Concrete, Type A, B or D	105	---	37	---	38				105	75
516	945	Lin. Ft.	Vertical Extension of Structural Expansion Joints, As Per Plan	251	60	275	78	281				251	694
⊕ 850	12,474	Sq. Yd.	Dense Concrete Overlay (1 3/4 inches thick)	5,249	1,503	2,484	695	2,543				5,249	7,225
⊕ 850	910	Cu. Yd.	Dense Concrete Overlay (Variable thickness)	306	38	83	17	127	339	306	604		
**850	15	Cu. Yd.	Full Depth Repair	2	2	2	2	2	5	2	13		
⊕ 850	10,165	Sq. Yd.	Dense Concrete Overlay, As Per Plan (2 1/4 Inches Thick)						10,165		10,165		
Special	79	Each	Scupper Modification, As Per Plan	46	13	9	3	8				46	33
202	10,165	Sq. Yd.	Wearing Course Removed						10,165		10,165		

Note:
Removal of Portions of Structures shall include the following approximate quantity of concrete:

Bridge No.	Cu. Yds.
CUY-71-1887C	53
CUY-90-1490	19
CUY-90-1506	19

Note:
The 2" Raceway as shown in the Plans shall be 2" metal conduit (Type I) meeting the requirements of S 713.04 and shall be included in the unit price bid for Item 511, Class C Concrete, Concrete Barrier Median, for payment.

*Includes existing concrete median above construction joint (see Table - this sheet), concrete beneath end dams as required, guardrail, guardrail posts including nuts and plates, median curb plates and bulb angles as required.

**This quantity is provided as a contingency and is subject to non-performance if found not to be required.

⊕ Includes 1/4" expansion joint filler at median deflection joints, all sheet asbestos packing and all welded wire fabric.

##Includes all median plates and end dam extension members at medians.

⊕ The Contractor may use Item 845 latex modified concrete overlay in place of dense concrete overlay at his own discretion. When Item 845 is used, the Contractor shall adjust the plate thicknesses for Item 516, Vertical Extension of Structural Expansion Joints, As Per Plan, the scupper heights for Item Special, Scupper Modification, As Per Plan, and the height of the vertical gutter face of the new median barrier. These adjustments shall be consistent with the thickness of the latex modified concrete overlay specified in Item 845. He shall also remove any portion of the vertical leg of the bulb angle gutter which would extend above the finished surface of the latex concrete overlay. This removal would be included with the concrete overlay for payment. The method of measurement and basis of payment shall be as per Item 850. If Item 845 is used for BR. No. CUY-90-1524, all references to "1 3/4 inches" shall be considered to read "2 1/4 inches".

⊕⊕All work on this structure is included under participation CODE II.

ITEM 850 DENSE CONCRETE OVERLAY AS PER PLAN (2 1/4 INCHES THICK)
This item of work is intended to be identical to ITEM 850, DENSE CONCRETE OVERLAY (1 3/4 inches thick) with the exception that all reference to "1 3/4 inches" shall be considered to read "2 1/4 inches."

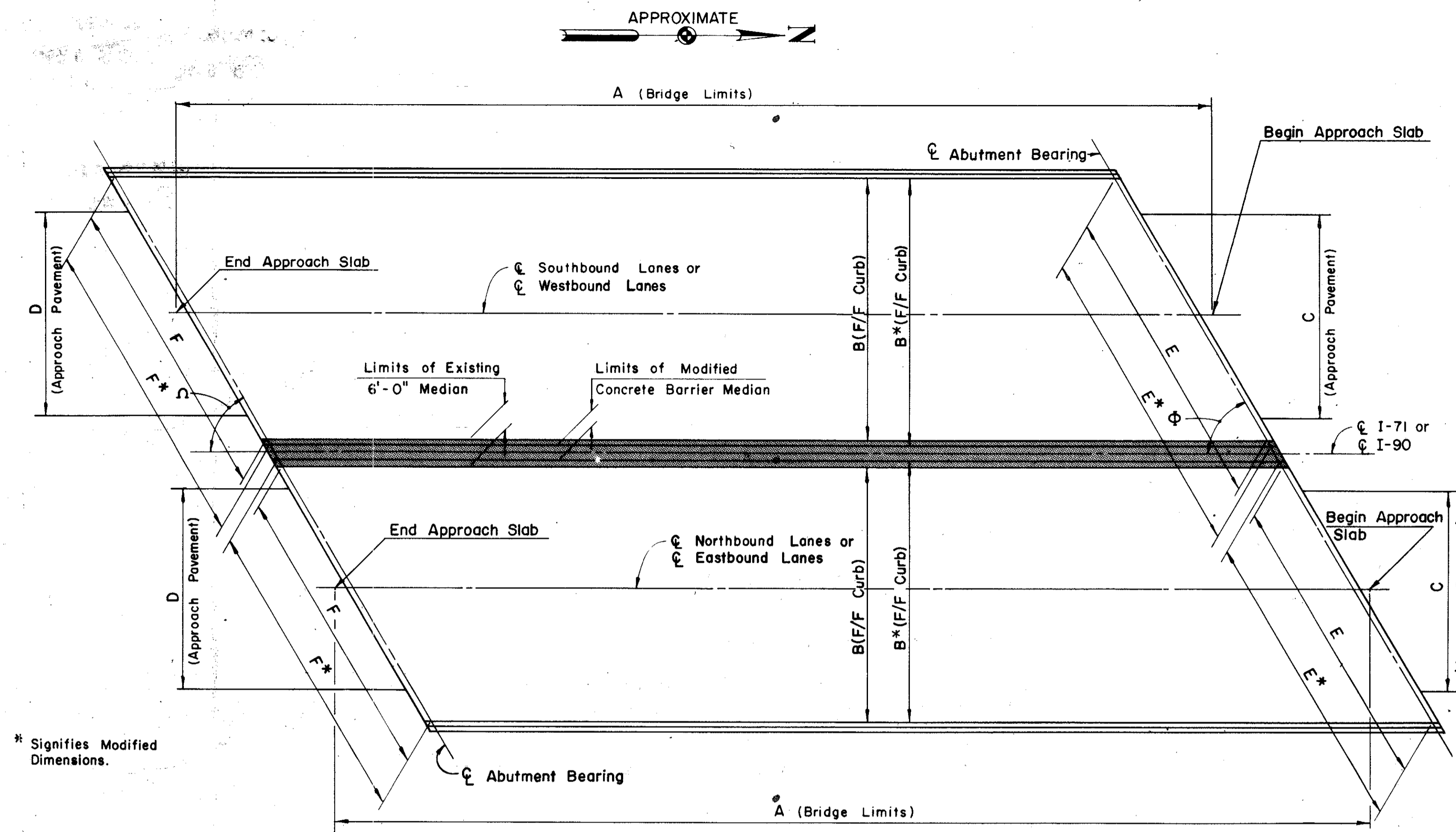
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND

HNTB

ESTIMATED QUANTITIES

DRAWN C.N.B.		TRACED W.E.B.	CHECKED A.M.	REVIEWED	REVISED
DATE 2-25-77		DATE 2-28-77	DATE 2-28-77	DATE	SHEET 2 9

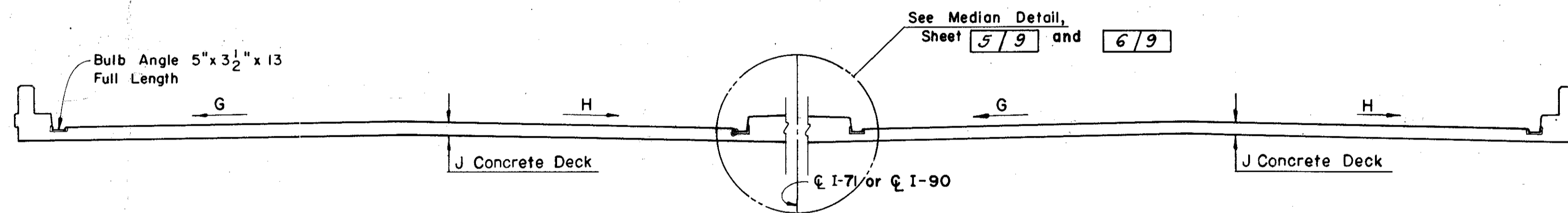
CUYAHOGA COUNTY
 CUY-71-18.57
 CUY-90-14.64



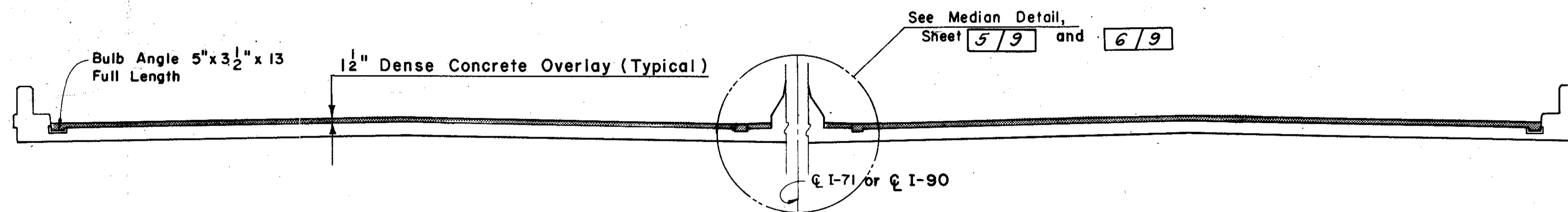
* Signifies Modified Dimensions.

EXISTING & MODIFIED PLAN
 No Scale

TABLE OF DIMENSIONS													
BRIDGE NO.	LANE	Φ	Ω	A	B	B*	C	D	E & E*	F & F*	G	H	J
CUI-71-1887C	SB	54°30'00"	54°30'00"	466'-8"	50'-0"	51'-6"	3 Lanes @ 12'-0" = 36'-0"	3 Lanes @ 12'-0" = 36'-0"	61'-5" / 63'-3 1/2"	61'-5" / 63'-3 1/2"	3 1/8" / Ft.	3 1/8" / Ft.	9"
	NB	54°30'00"	54°30'00"	466'-8"	50'-0"	50'-9"	3 Lanes @ 12'-0" = 36'-0"	3 Lanes @ 12'-0" = 36'-0"	61'-5" / 62'-4 1/2"	61'-5" / 62'-4 1/2"	3 1/8" / Ft.	3 1/8" / Ft.	9"
CUI-90-1490	SB	88°58'45"	91°20'25"	165'-6 1/2"	50'-0"	51'-6"	3 Lanes @ 12'-0" = 36'-0"	3 Lanes @ 12'-0" = 36'-0"	50'-0" / 51'-6 1/2"	50'-0" / 51'-6 1/2"	1 1/2" / Ft.	1 1/2" / Ft.	9"
	NB	88°58'45"	91°20'25"	165'-6 1/2"	82'-10 1/2" Min. / 84'-10 1/2" Avg. / 86'-11 1/2" Max.	83'-7 1/2" Min. / 85'-7 1/2" Avg. / 87'-8 1/2" Max.	4 Lanes @ 12'-0" = 48'-0"	5 Lanes @ 12'-0" = 60'-0"	82'-10 1/2" / 83'-7 1/2"	86'-11 1/2" / 87'-8 1/2"	3 1/8" / Ft.	3 1/8" / Ft.	9"
CUI-90-1506	SB	76°45'48"	79°10'33"	170'-4 1/2"	66'-1 1/4" Min. / 71'-0 1/2" Avg. / 75'-11 1/2" Max.	67'-7 1/4" Min. / 72'-6 1/2" Avg. / 77'-5 1/2" Max.	3 Lanes @ 12'-0" = 36'-0"	4 Lanes @ 12'-0" = 48'-0"	67'-7 1/4" / 69'-1 3/8"	77'-8 1/4" / 79'-2 3/8"	1 1/2" / Ft.	1 1/2" / Ft.	9"
	NB	76°45'48"	79°10'33"	168'-9 1/2"	62'-4" Min. / 63'-11 1/2" Avg. / 65'-7 1/2" Max.	63'-1" Min. / 64'-8 1/2" Avg. / 66'-4 1/2" Max.	3 Lanes @ 12'-0" = 36'-0"	3 Lanes @ 12'-0" = 36'-0"	63'-8 1/2" / 64'-5 1/2"	67'-1" / 67'-10 3/8"	3 1/8" / Ft.	3 1/8" / Ft.	9"
CUI-90-1524 (INNERBELT) EXTENSION ONLY	SB	83°00'00"	71°40'28"	854'-10" ±	53'-9"	NO MEDIAN MODIFICATION	4 Lanes @ 12'-0" = 48'-0"	4 Lanes @ 12'-0" = 48'-0"	53'-2" ±	56'-7 7/16"	3 1/16" / Ft.	-3 1/16" / Ft.	8 1/2"
	NB	83°00'00"	71°40'28"	854'-10" ±	53'-9"	NO MEDIAN MODIFICATION	4 Lanes @ 12'-0" = 48'-0"	4 Lanes @ 12'-0" = 48'-0"	53'-2" ±	56'-7 7/16"	3 1/16" / Ft.	-3 1/16" / Ft.	8 1/2"



EXISTING TYPICAL SECTION
 No Scale



MODIFIED TYPICAL SECTION[⊕]
 No Scale

⊕ The existing typical section of Br.No. CUY-90-1524 (Innerbelt Extension) is identical to the Modified Typical Section shown except 1) there are no bulb angles and 2) there is an existing 2 inch asphalt wearing course. The proposed modification consists of removing the existing asphalt wearing course, then repairing the deck with dense concrete overlay to the original grade. (i.e. 2 inches above the concrete deck)

- Notes:
- For schematic plan and bridge locations, see Sheet 2.
 - For details of raising existing end dams, see Sheet 8/9.
 - For details of resurfacing, see Sheet 8/9 and 9/9.
 - For concrete barrier median details, see "Deck Modification At Median", Sheets 5/9 and 6/9.
 - For "Expansion Joint Modification At Median", see Sheet 7/9.
 - For scupper modification, see Sheet 9/9.

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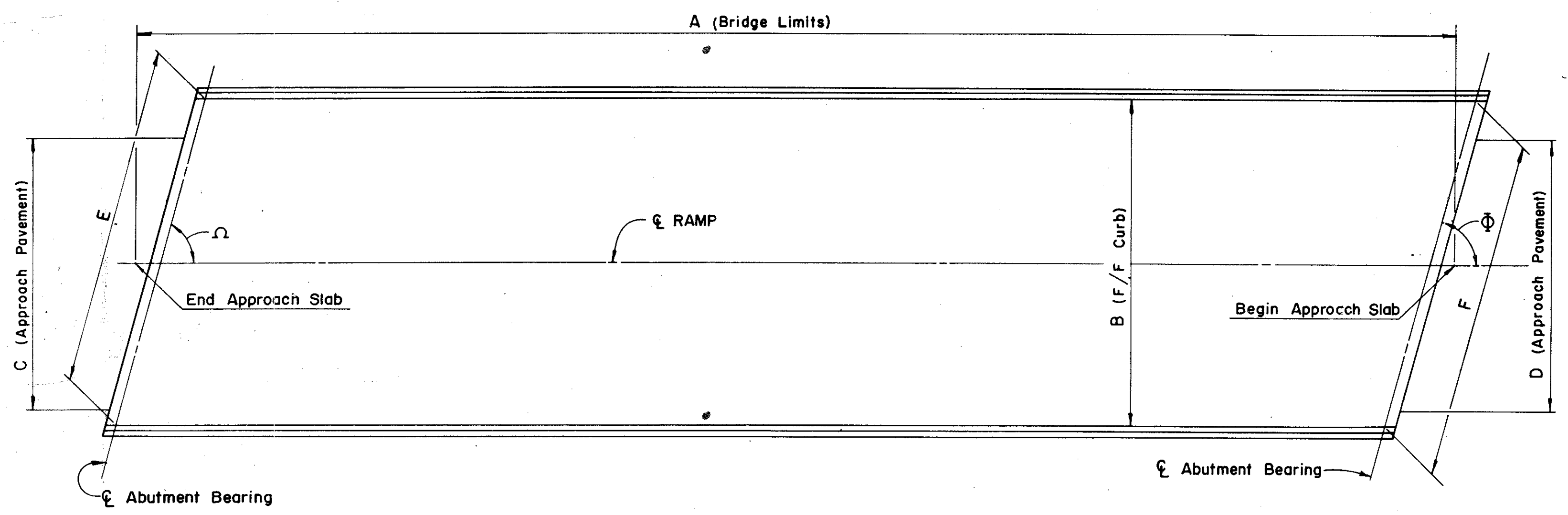
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EXISTING & MODIFIED
 DECK PLAN & TYPICAL SECTION

BR. NO. CUY-71-1887C
 BR. NO. CUY-90-1490
 BR. NO. CUY-90-1506

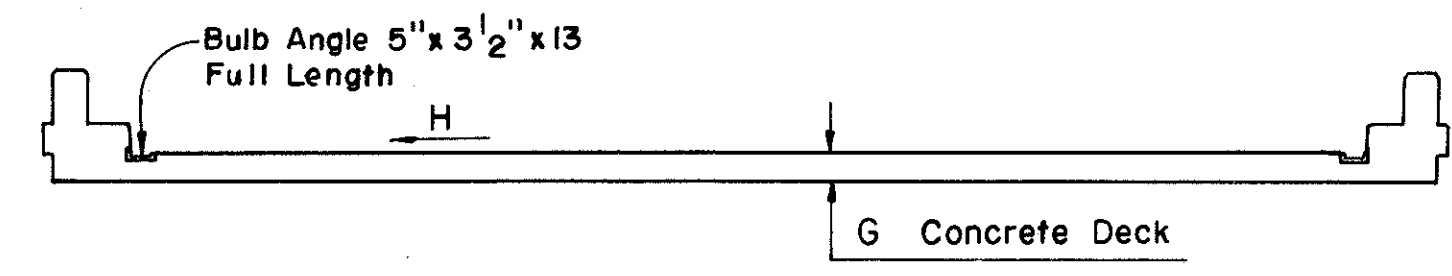
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C.K.B.	W.E.B.	A.M.		
DATE 2-15-77	DATE 2-16-77	DATE 2-24-77	DATE	DATE

CUYAHOGA COUNTY
 CUY-71-18.57
 CUY-90-14.64

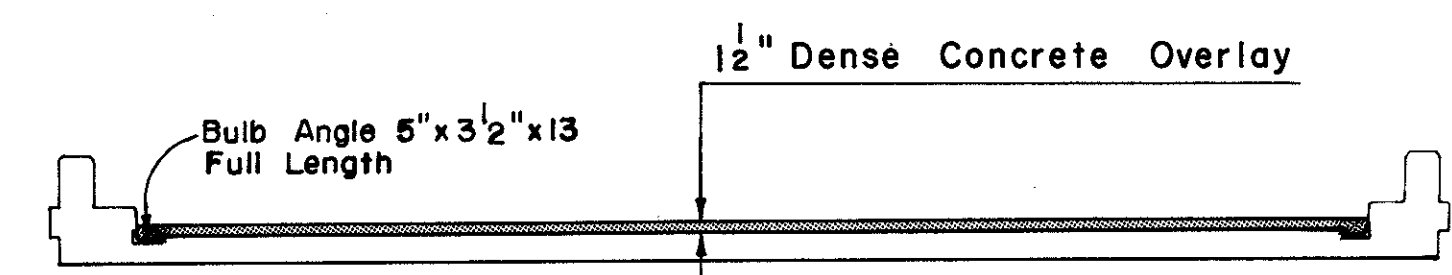


EXISTING & MODIFIED PLAN
 No Scale

TABLE OF DIMENSIONS										
BRIDGE NO.	Φ	Λ	A	B	C	D	E	F	G	H
CUY-90-1463	90°00'00"	90°00'00"	453'-3 ⁵ / ₈ "	30'-0"	2 Lanes @ 12'-0" = 24'-0"	2 Lanes @ 12'-0" = 24'-0"	30'-0"	30'-0"	9"	1 ¹ / ₈ " Ft.
CUY-90-1490W	94°46'26"	94°46'26"	166'-1 ⁵ / ₈ "	38'-0" Min, 39'-3 ³ / ₄ " Avg, 39'-10 ¹ / ₈ " Max	2 Lanes @ 12'-0" = 24'-0"	2 Lanes @ 12'-0" = 24'-0"	38'-1 ⁵ / ₈ "	39'-11 ³ / ₄ "	9"	3 ¹ / ₈ " Ft.



EXISTING TYPICAL SECTION
 No Scale



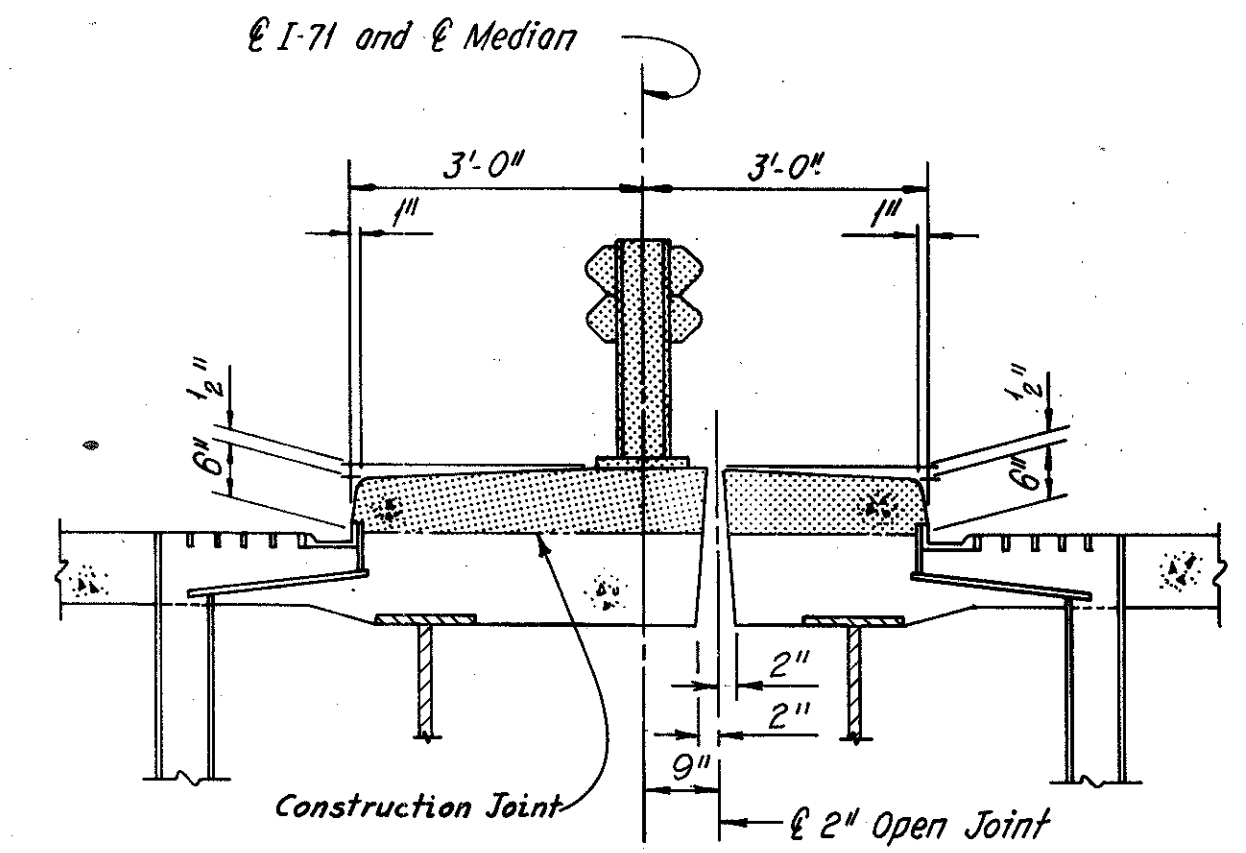
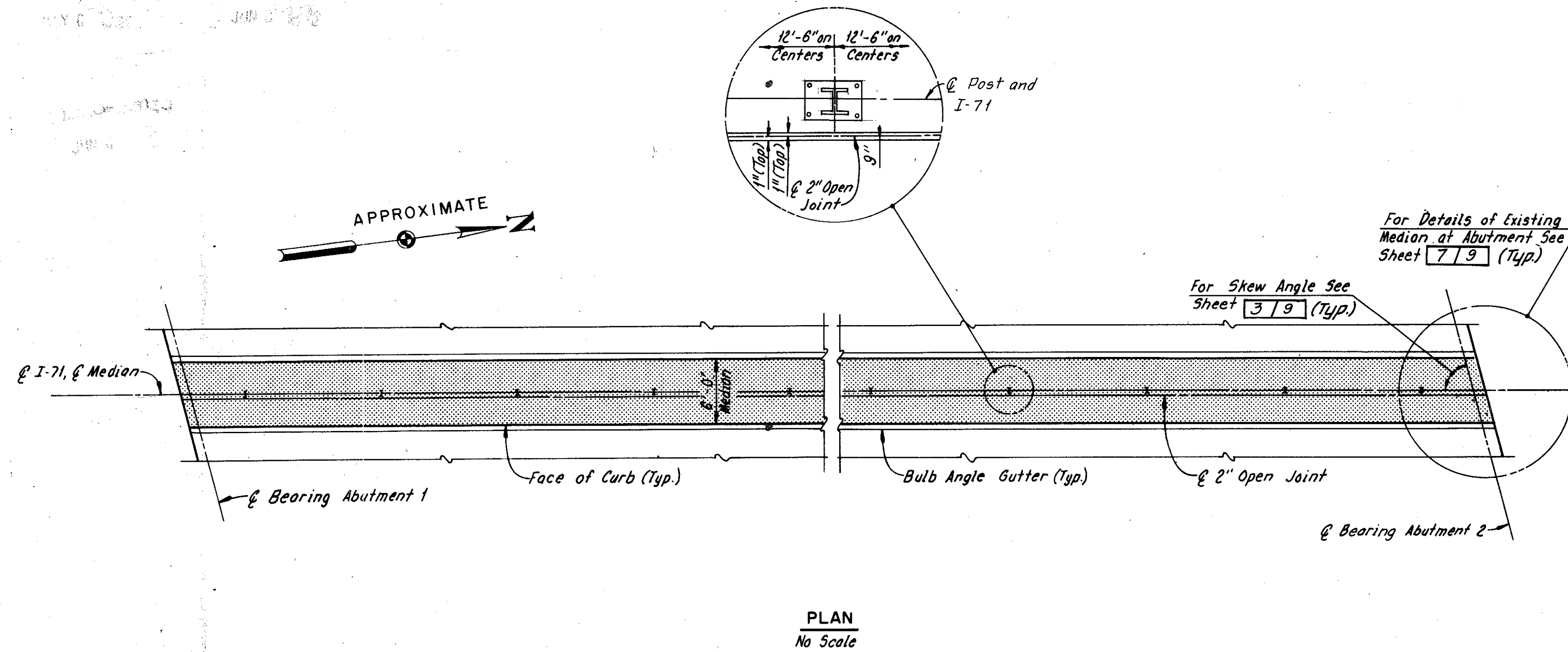
MODIFIED TYPICAL SECTION
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Notes:
 For schematic plan and bridge locations, see Sheet 2.
 For details of raising existing end dams, see Sheet 8/9
 For details of resurfacing, see Sheet 8/9 and 9/9
 For scupper modification, see Sheet 9/9

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND		HNTB	
EXISTING & MODIFIED DECK PLAN & TYPICAL SECTION			
BR. NO. CUY-90-1463 BR. NO. CUY-90-1490W			
CUYAHOGA COUNTY OHIO			
DRAWN A.M. DATE 2/15/77	TRACED W.E.B. DATE 2/17/77	CHECKED C.H.B. DATE 2/23/77	REVIEWED DATE REVISED DATE
			SHEET 4/9

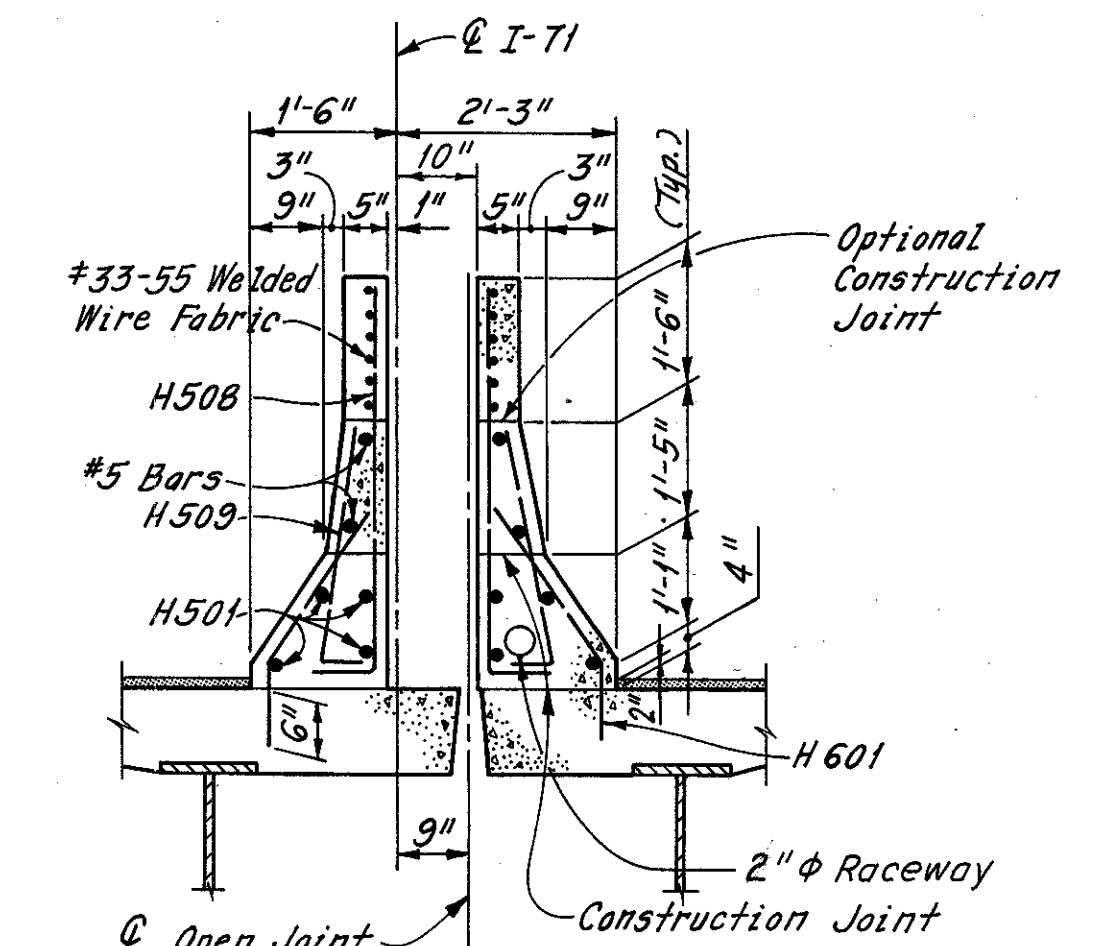
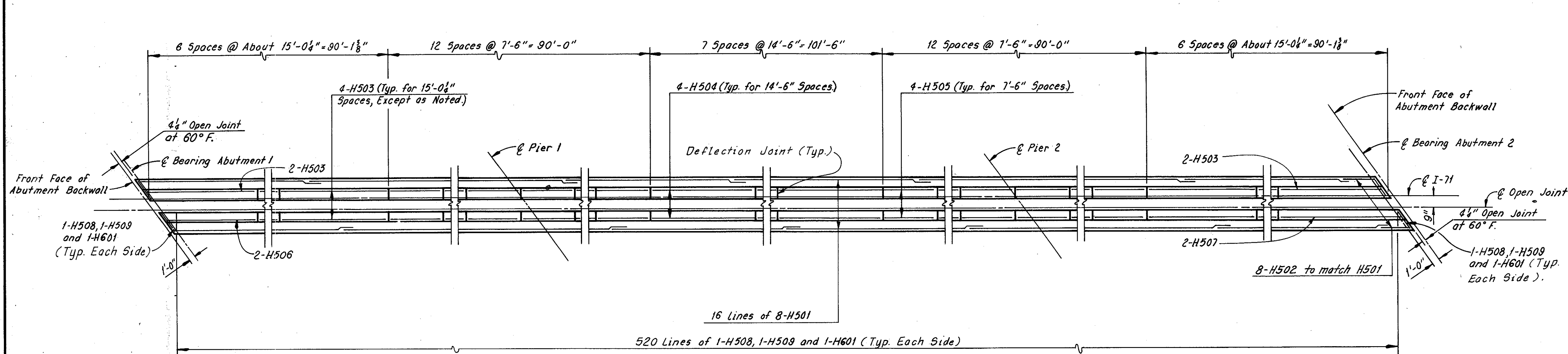
CUYAHOGA COUNTY
 CUY-71-18.57
 CUY-90-14.64

- Remove guardrails, posts, nuts, plates and anchor plates above the construction joint. Include with Item 202, Portions of Structures Removed, for payment.
- Remove existing median above the construction joint. Include with Item 202, Portions of Structures Removed, for payment.
- Remove bulb angle gutter. Include with Item 202, Portions of Structures Removed, for payment.



EXISTING PLAN & CROSS SECTION AT MEDIAN

Indicates removal



CONCRETE BARRIER MEDIAN PLAN BR. NO. CUY-71-1887C

MODIFIED PLAN & CROSS SECTION AT MEDIAN

Indicates wearing surface

- Notes:
- For angles and dimensions, see "Table of Dimensions", Sheet 3/9.
 - For resurfacing details, see Sheet 8/9 and 9/9.
 - For details of deflection joints in the concrete barrier median, see Sheet 8/9.
 - For spacing of 601 bars and concrete barrier median reinforcement, see Sheet 8/9.
 - For reinforcement schedule and bar bending diagrams, see Sheet 9/9.
 - For scupper modification, see Sheet 9/9.

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DECK MODIFICATION AT MEDIAN
 OPEN JOINT 9" OFFSET FROM C

BR. NO. CUY-71-1887C

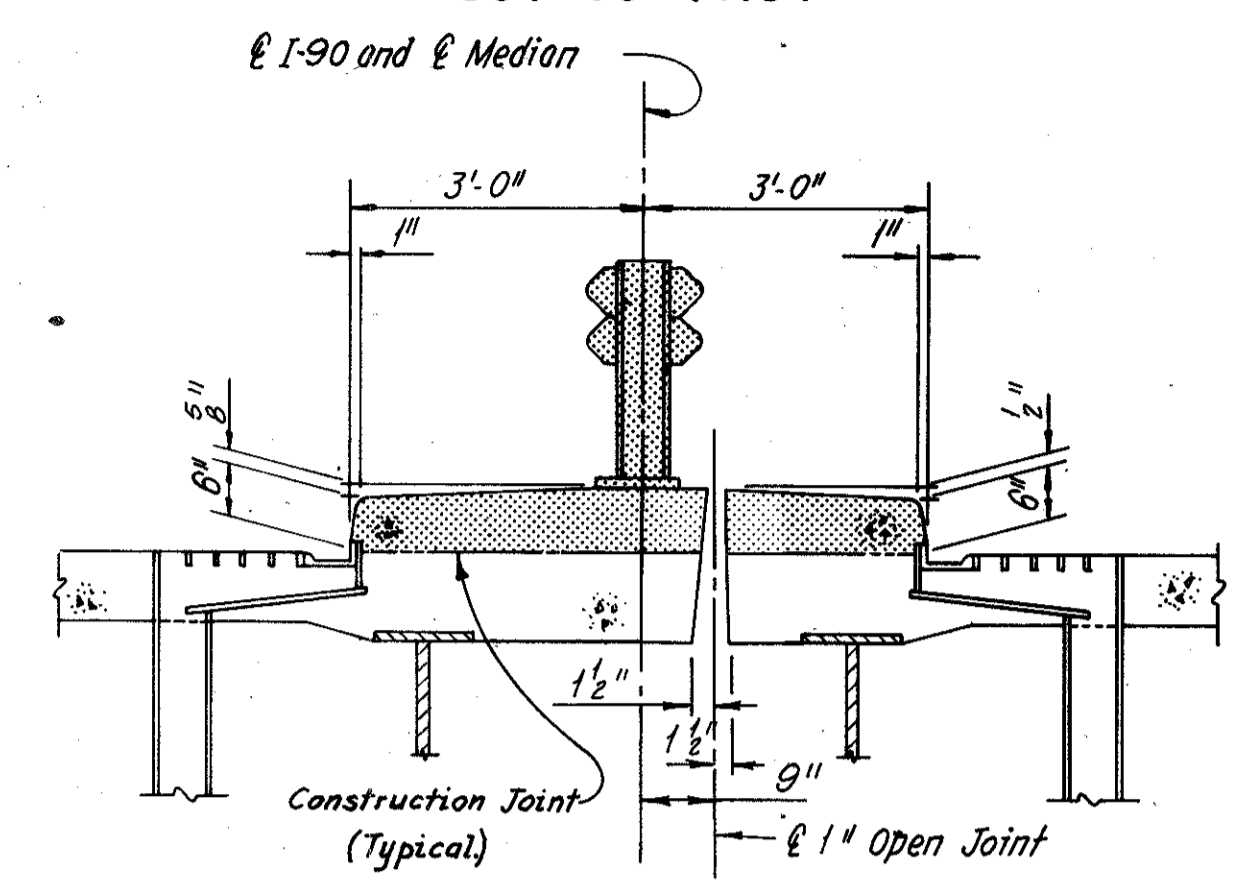
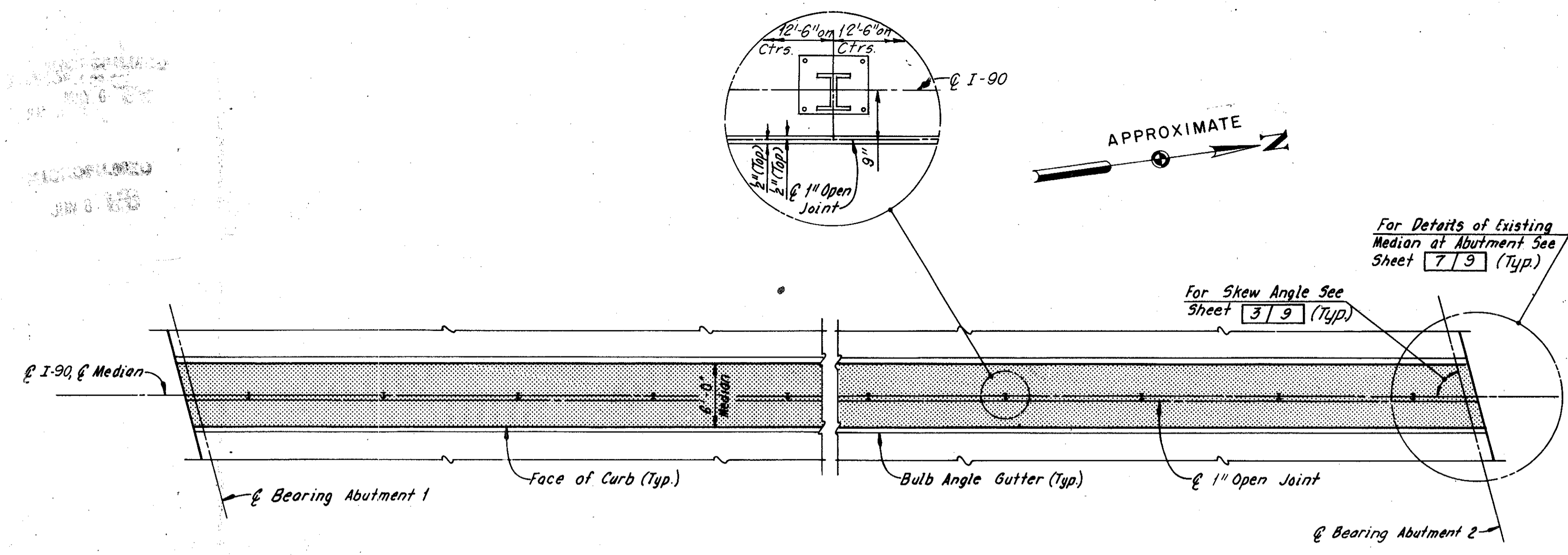
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C.K.B.		J.L.R. & W.E.B.		R.A.S.					
DATE 2/18/77		DATE 2/25/77		DATE 2/25/77		DATE		DATE	
								SHEET 5 / 9	

FNWA REGION	STATE	PROJECT
5	OHIO	

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CUYAHOGA COUNTY
CUY-71-18.57
CUY-90-14.64

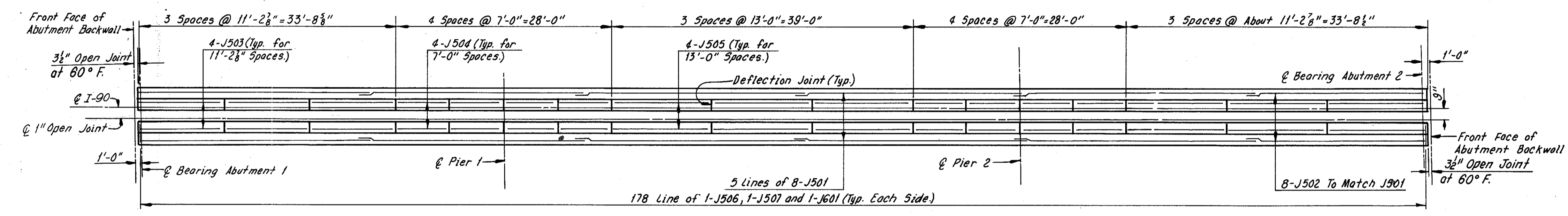
- Remove guardrails, posts, nuts, plates and anchor plates above the construction joint. Include with Item 202, Portions of Structures Removed, for payment.
- Remove existing median above the construction joint. Include with Item 202, Portions of Structures Removed, for payment.
- Remove bulb angle gutter. Include with Item 202, Portions of Structures Removed, for payment.



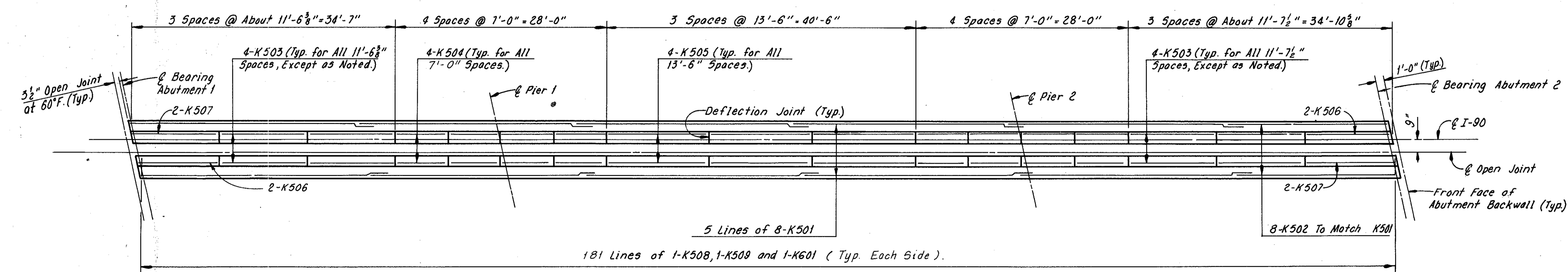
PLAN
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EXISTING PLAN & CROSS SECTION AT MEDIAN

Indicates removal



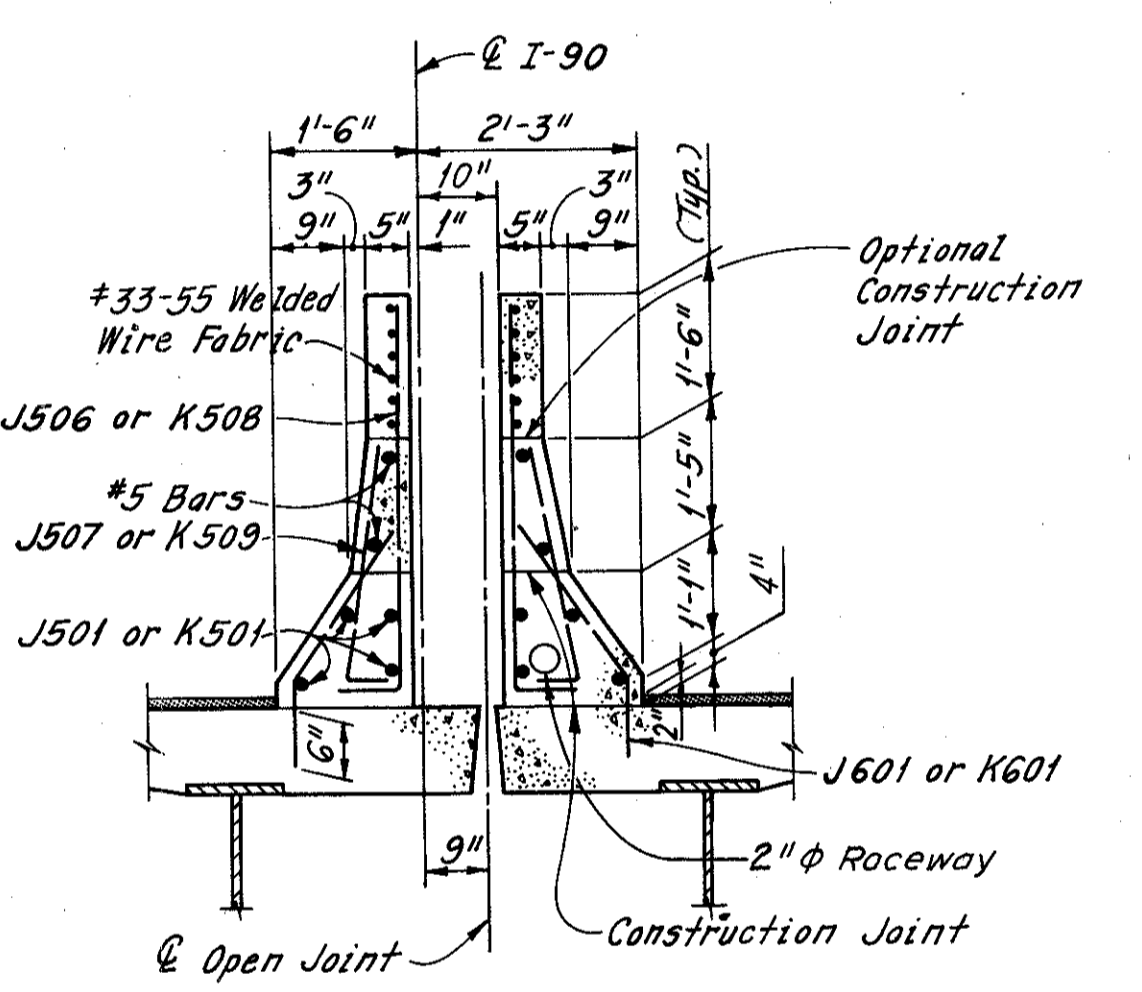
CONCRETE BARRIER MEDIAN PLAN - BR. NO. CUY-90-1490



CONCRETE BARRIER MEDIAN PLAN - BR. NO. CUY-90-1505

MODIFIED PLAN & CROSS SECTION AT MEDIAN

Indicates wearing surface



MODIFIED TYPICAL CROSS SECTION

*33-55 Welded Wire Fabric is included with Item 511, Class C Concrete, Concrete Barrier Median, for payment.

- Notes:
- For angles and dimensions, see "Table of Dimensions", Sheet 3/9.
 - For resurfacing details, see Sheet 8/9 and 9/9.
 - For details of deflection joints in the concrete barrier median, see Sheet 8/9.
 - For spacing of 601 bars and concrete barrier median reinforcement, see Sheet 8/9.
 - For reinforcement schedule and bar bending diagrams, see Sheet 9/9.
 - For scupper modification, see Sheet 9/9.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND HNTB

DECK MODIFICATION AT MEDIAN
OPEN JOINT 9" OFFSET FROM C

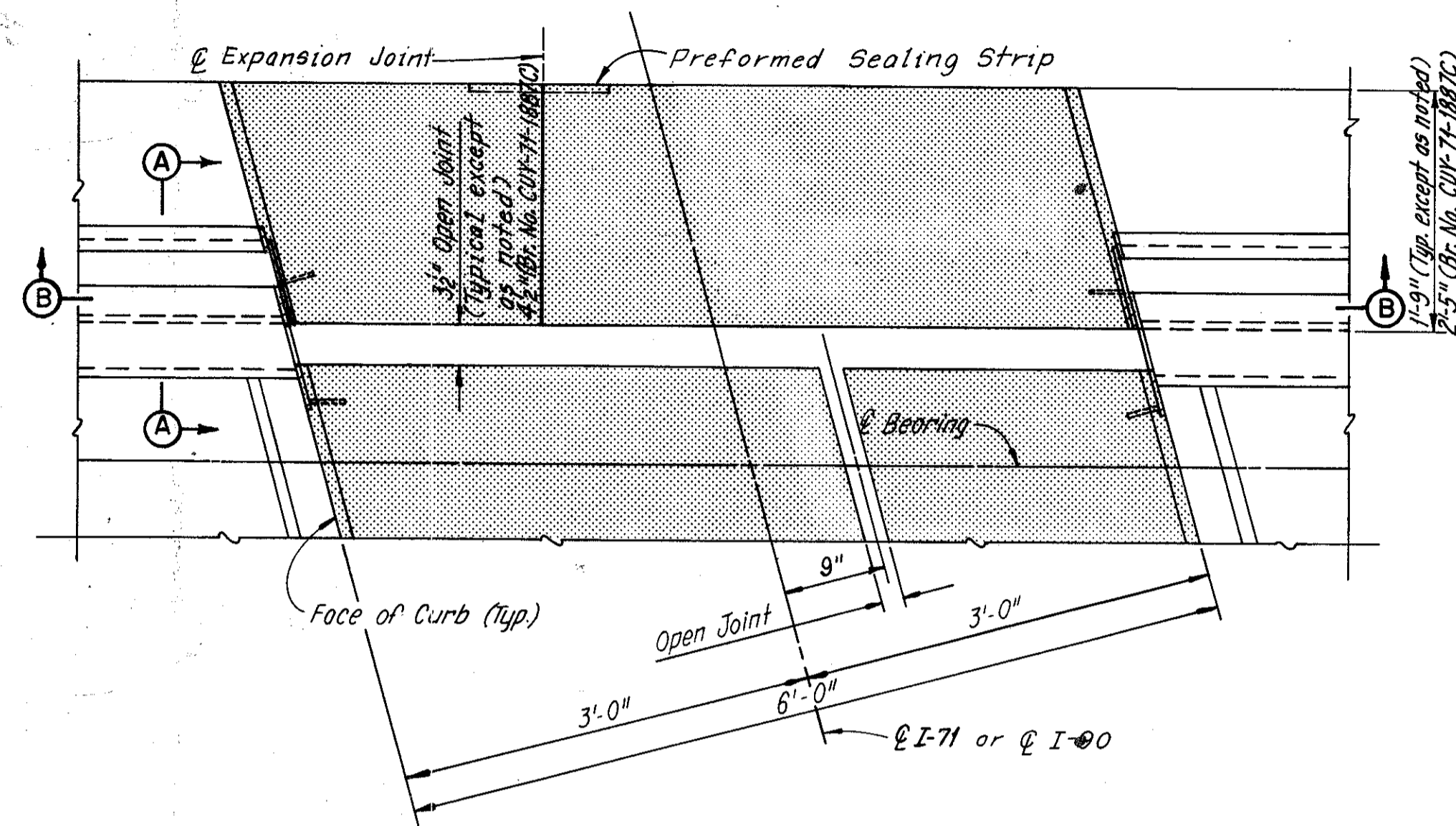
BR. NO. CUY-90-1490
BR. NO. CUY-90-1506

DRAWN C.R.B. DATE 2/18/77	TRACED J.L.R.WEA. DATE 2/25/77	CHECKED R.A.S. DATE 2/25/77	REVIEWED DATE	REVISED DATE
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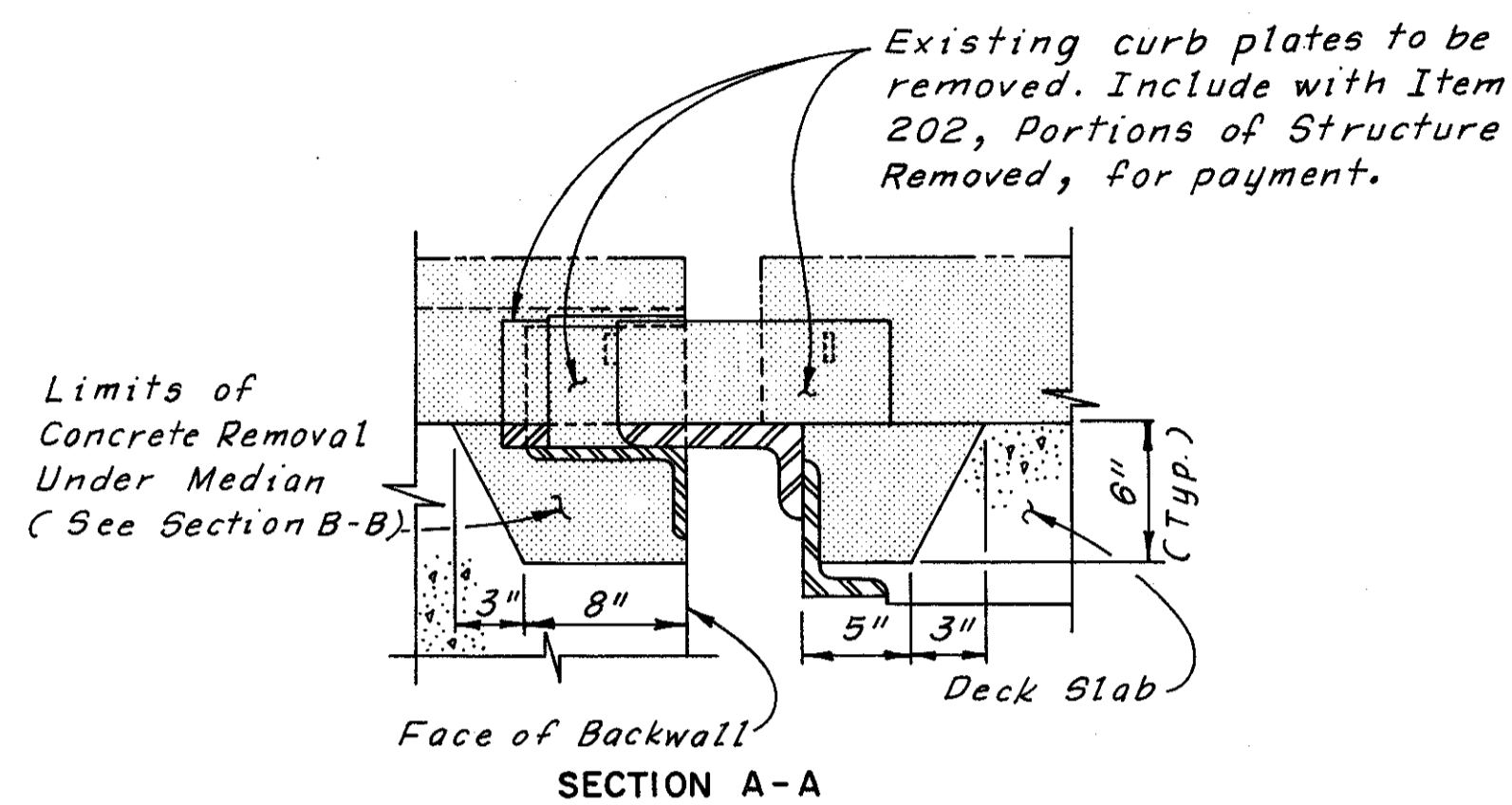
FHWA REGION	STATE	PROJECT	
5	OHIO		

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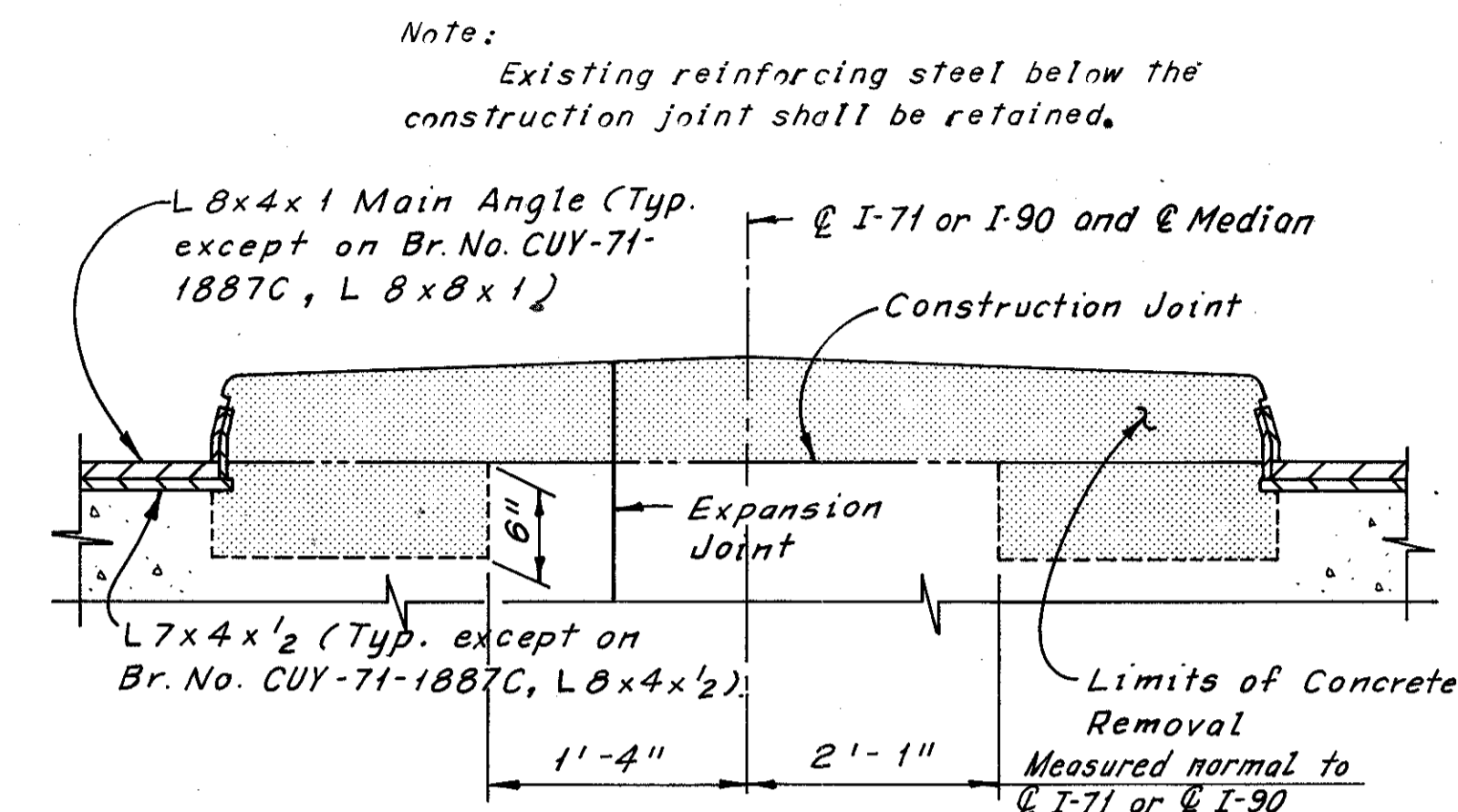
CUYAHOGA COUNTY
CUY-71-18.57
CUY-90-14.64



PLAN



SECTION A-A

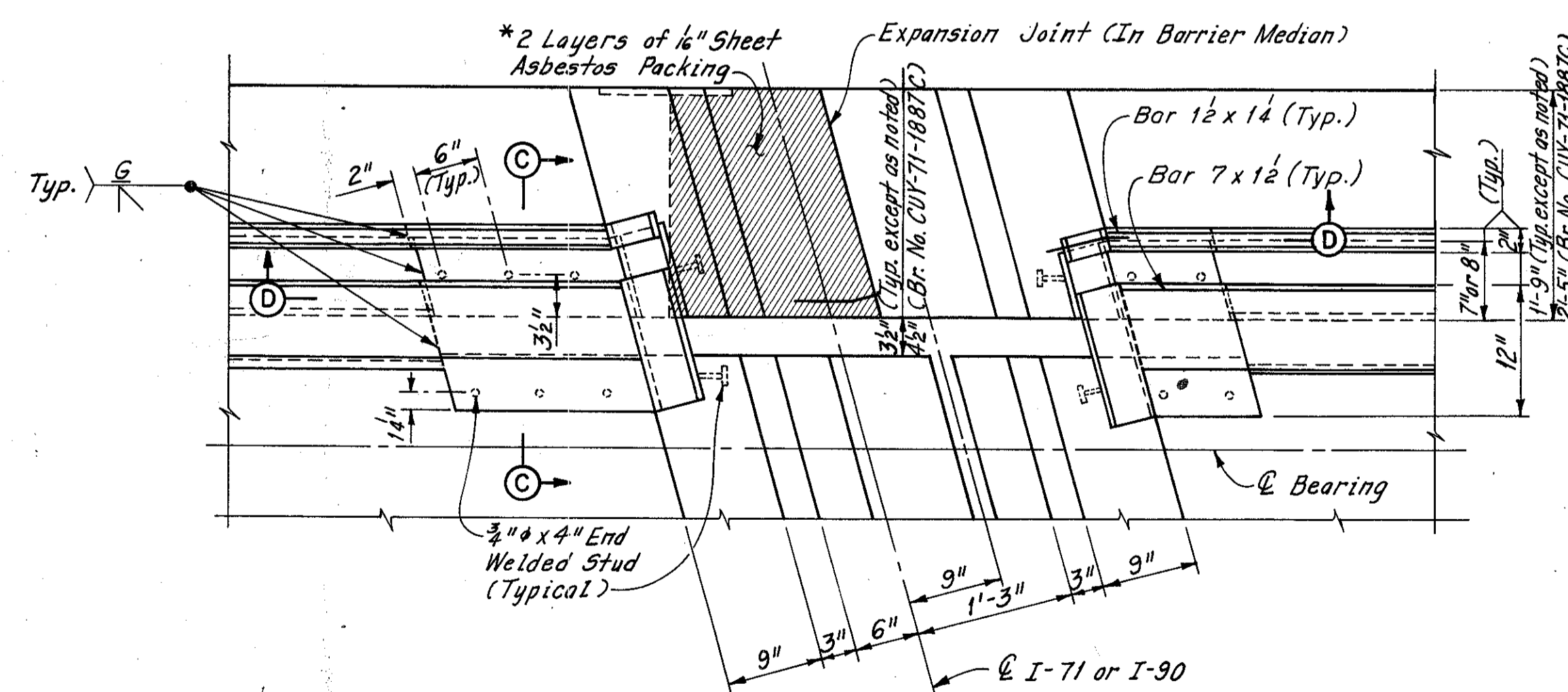


SECTION B-B

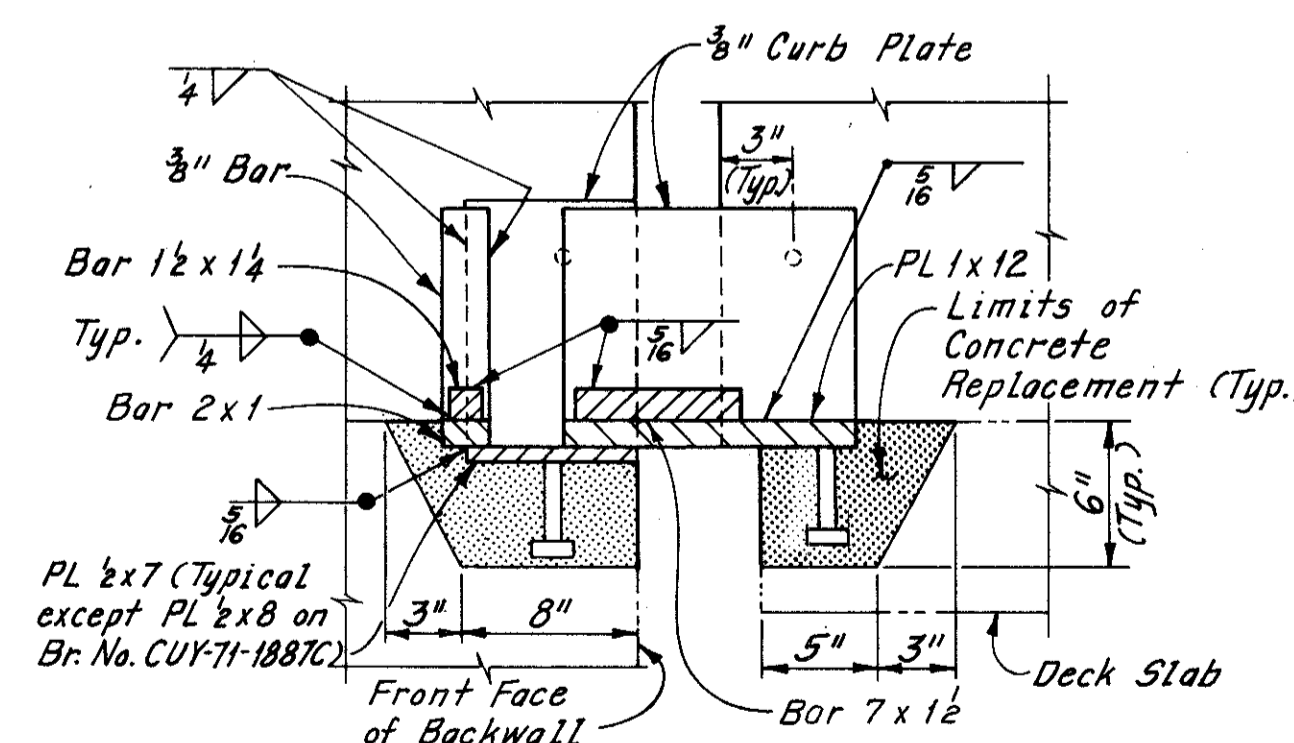
EXISTING PLAN & CROSS SECTION AT MEDIAN

Indicates removal

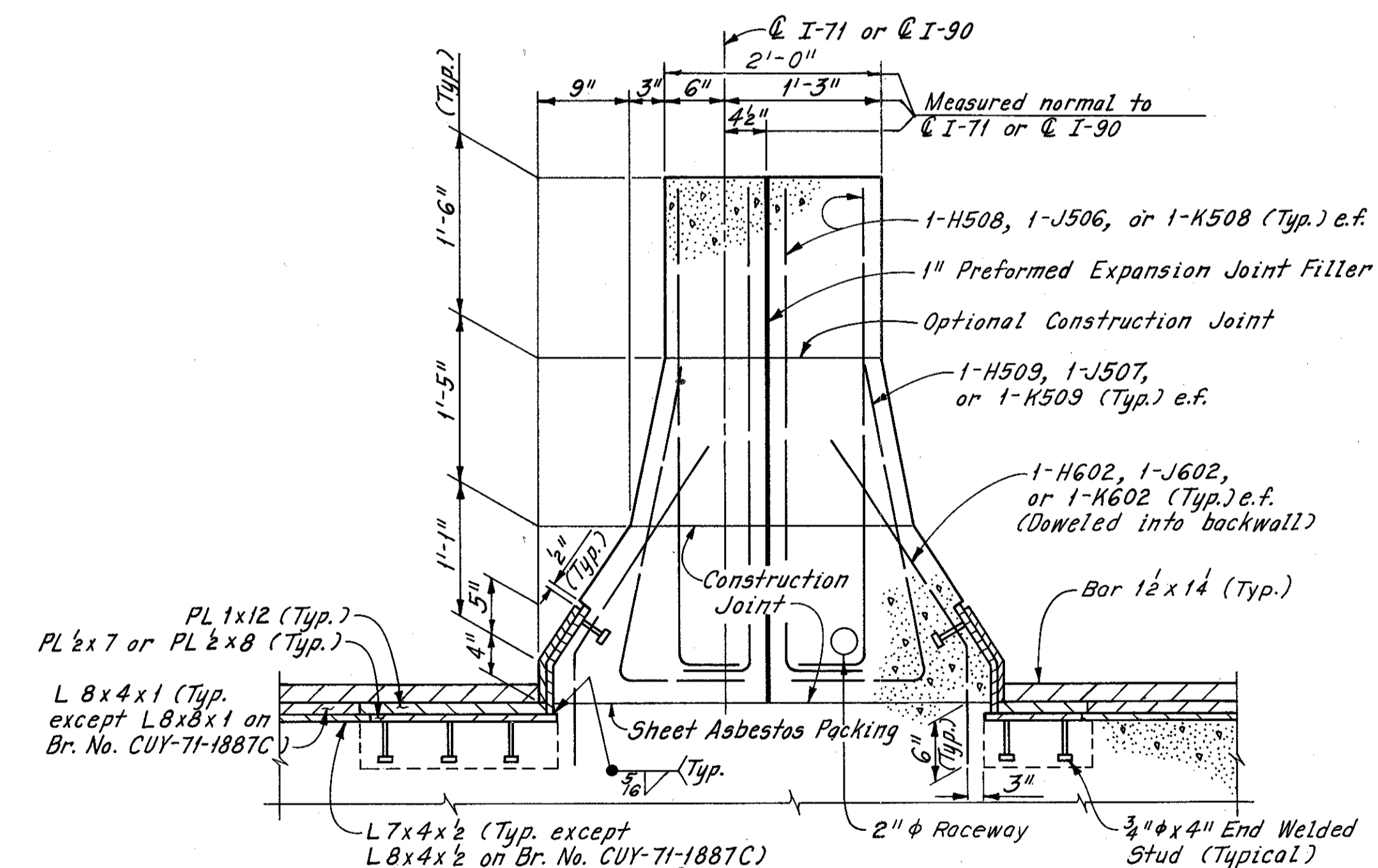
*Note: Sheet Asbestos Packing shall be in accordance with 711.22 and shall be included in the unit price bid for Item 511, Class C Concrete, Concrete Barrier Median, for payment.



PLAN



SECTION C-C



SECTION D-D

MODIFIED PLAN & CROSS SECTION AT MEDIAN

Notes:
For angles and dimensions see "Table of Dimensions", Sheet 3/9.
For reinforcement schedule and bar bending diagrams, see Sheet 9/9.
The following abbreviations are used:
Typ. = Typical
e.f. = each face

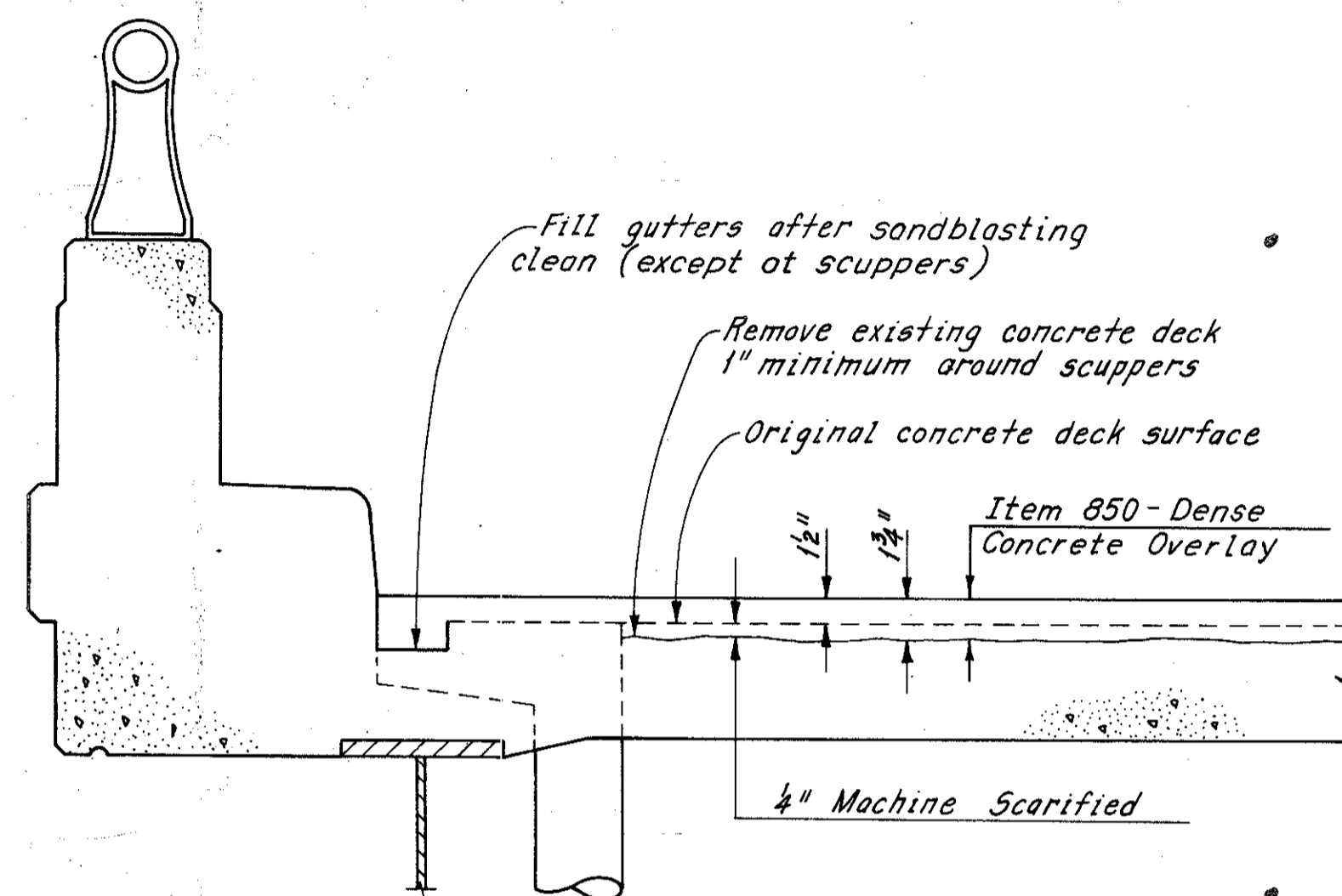
HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND		HNTB	
EXPANSION JOINT DETAILS AT MEDIAN (EXISTING AND MODIFIED)			
BR. NO. CUY-71-1887C BR. NO. CUY-90-1490 BR. NO. CUY-90-1506			
CUYAHOGA COUNTY		OHIO	
DRAWN C.K.B. DATE 2/18/77	TRACED W.E.B. DATE 2/21/77	CHECKED H.A.S. DATE 2/23/77	REVIEWED REVISOR DATE
			SHEET 7/9

FHWA REGION	STATE	PROJECT	
5	OHIO		

52
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CUYAHOGA COUNTY
 CUY-71-18.57
 CUY-90-14.64

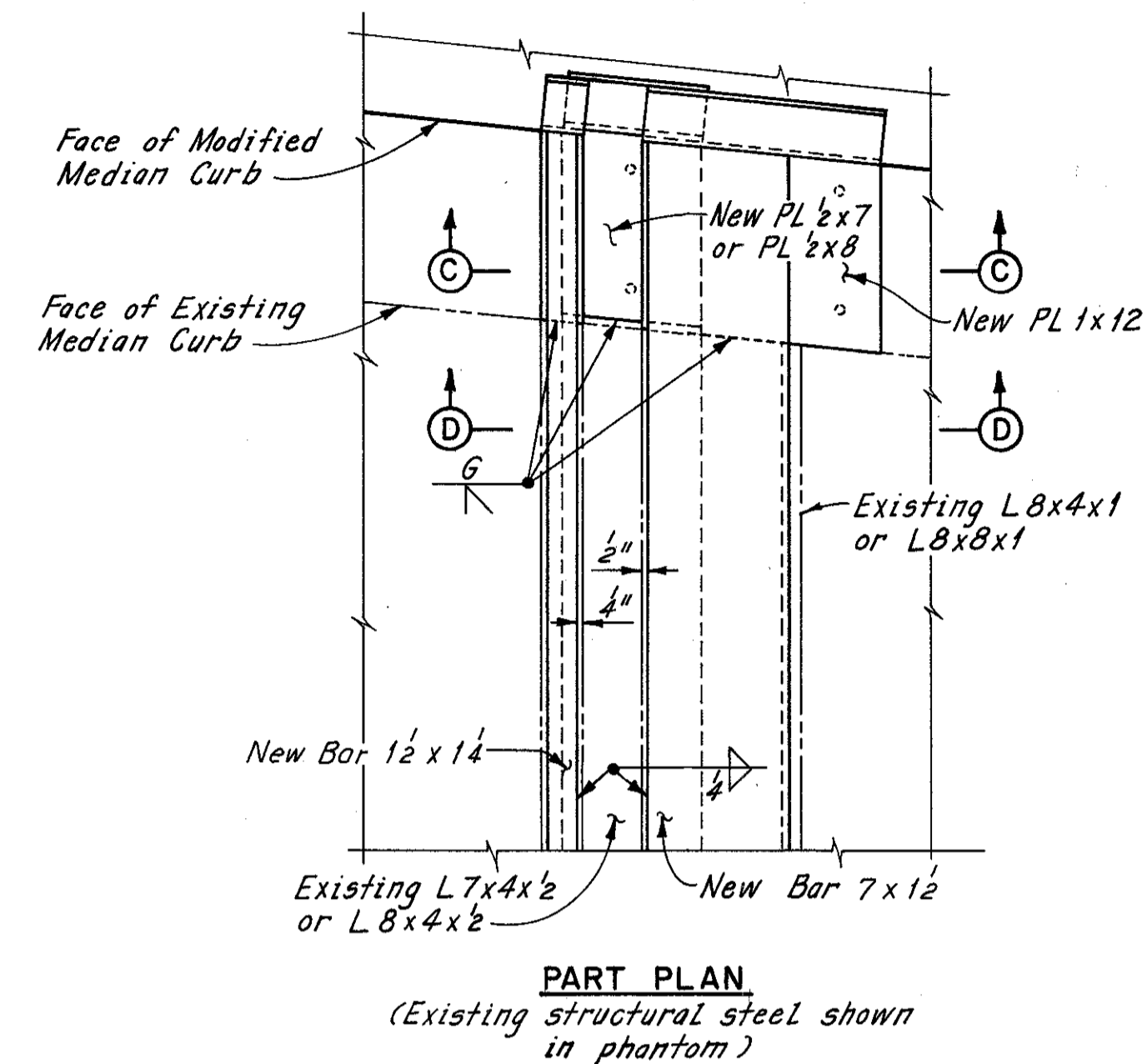
Note:
 New structural steel and areas of damaged paint on existing structural steel shall be painted in accordance with Item 514. Payment for painting shall be included with Item 516, Vertical Extension of Structural Expansion Joints, As Per Plan.



TYPICAL SECTION - DENSE CONCRETE OVERLAY

RESURFACING DETAILS

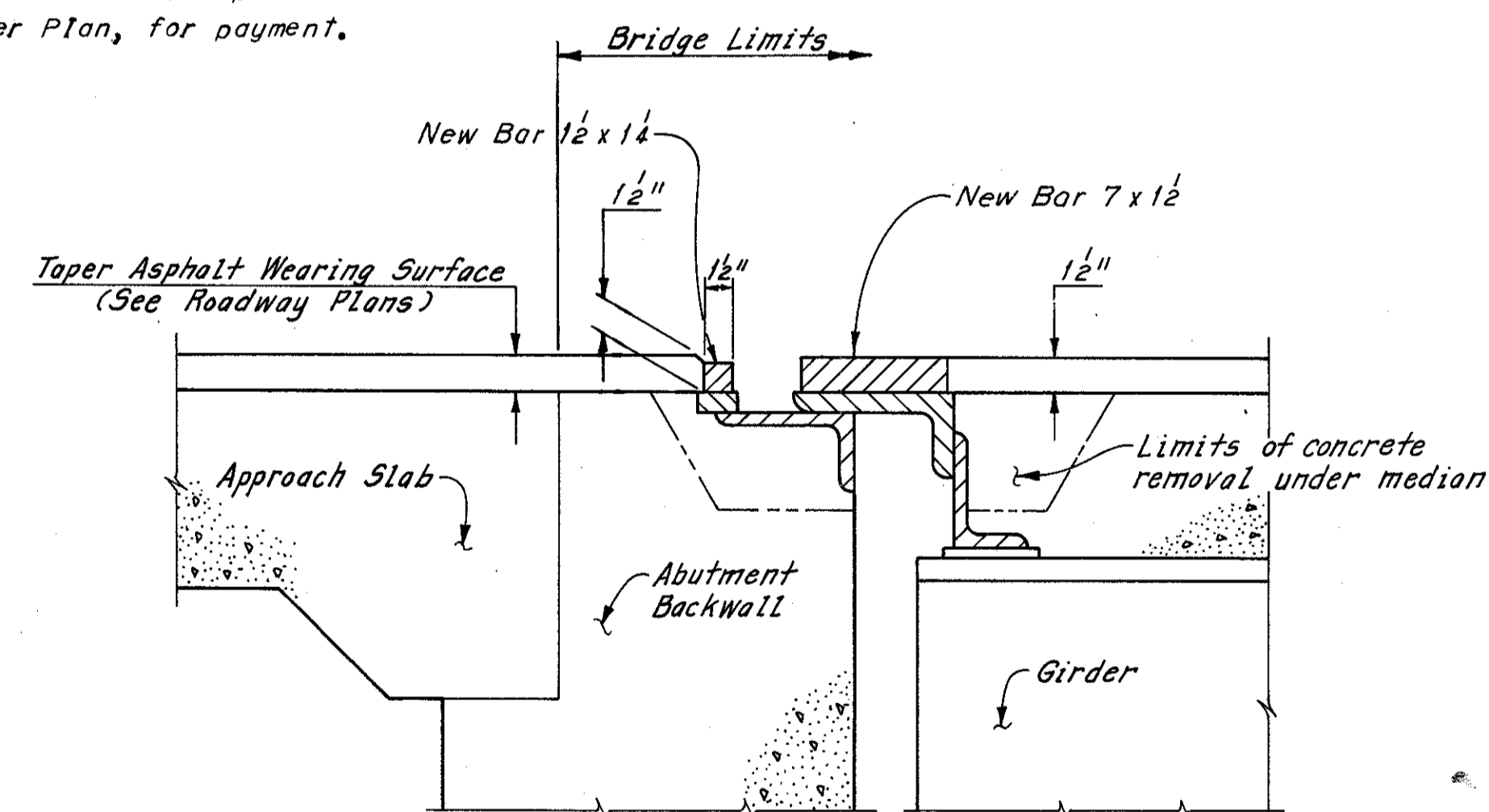
Note:
 Sandblasting gutters and removal of existing concrete around scuppers shall be included in the unit price bid for Item 850, Dense Concrete Overlay, (1 1/2 inches thick), for payment.



PART PLAN

(Existing structural steel shown in phantom)

Note:
 New 7" bars and 1 1/2" bars shall be included with Item 516, Vertical Extension of Structural Expansion Joints, As Per Plan, for payment.

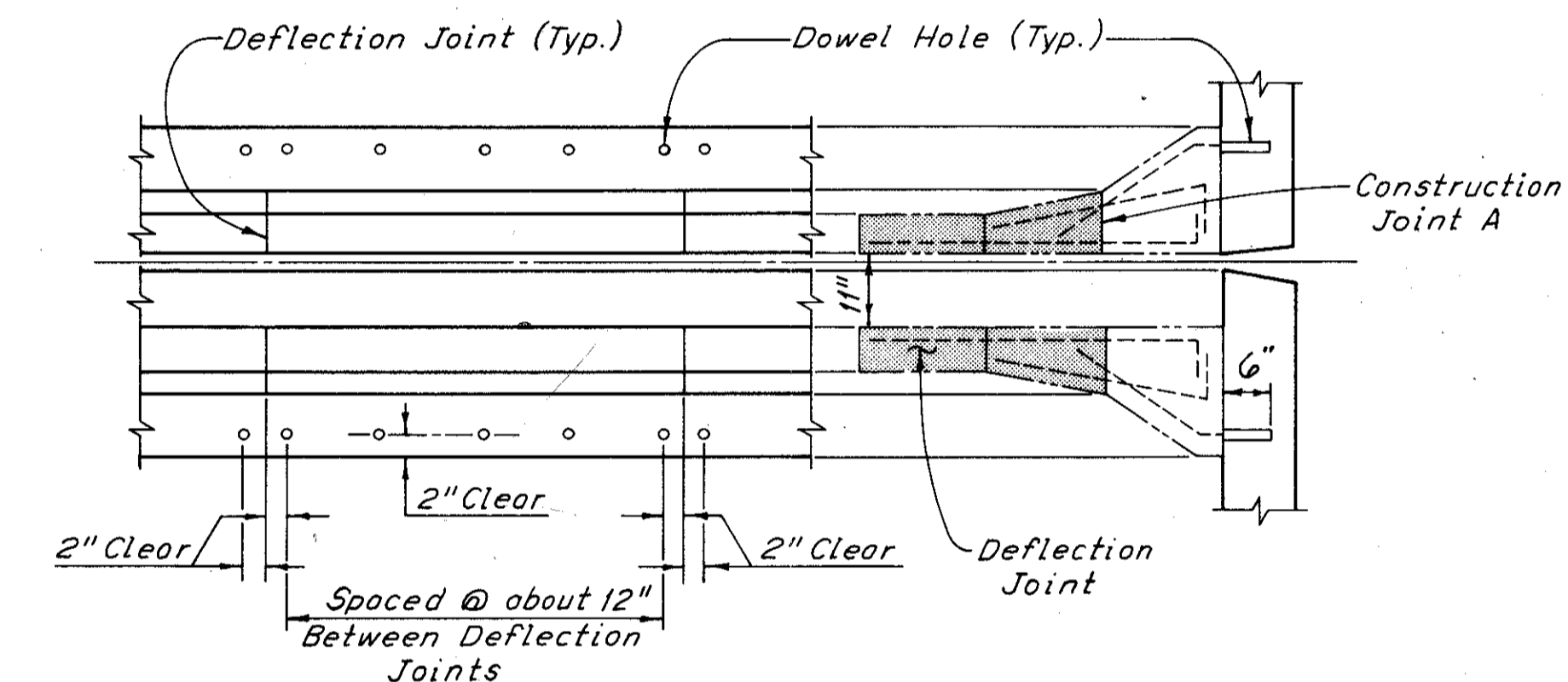


SECTION D-D

RAISING EXPANSION JOINT

Notes:
 For Section C-C, see Sheet 7/9.
 For additional details, see "Expansion Joint Modification At Median", Sheet 7/9.

Note:
 The deflection joints in the new concrete barrier median shall be 1/4" gray cellular polyvinyl chloride (PVC) sponge or 1/4" gray sponge rubber. If rubber is used, it shall meet the requirements of AASHTO M-153. The deflection joint shall extend from the top of parapet to Construction Joint (A) and is included with Item 511 for payment. Above Construction Joint (A) the median shall be placed in alternate sections by the use of bulkheads. Closing sections shall be placed after removal of bulkheads, and after placement of expansion joint filler. Exposed edges of the filler shall be flush with the surface of concrete and shall be free of mortar.



DOWEL HOLE SPACING FOR 60I BARS

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND				HNTB
RESURFACING DETAILS, RAISING EXPANSION JOINT AND DOWEL HOLE SPACING FOR 60I BARS DETAILS				
CUYAHOGA COUNTY OHIO				
DRAWN C.A.B. DATE 2/21/77	TRACED W.E.B. DATE 2/22/77	CHECKED R.A.S. DATE 2/23/77	REVIEWED	REVISED
				SHEET 8 9

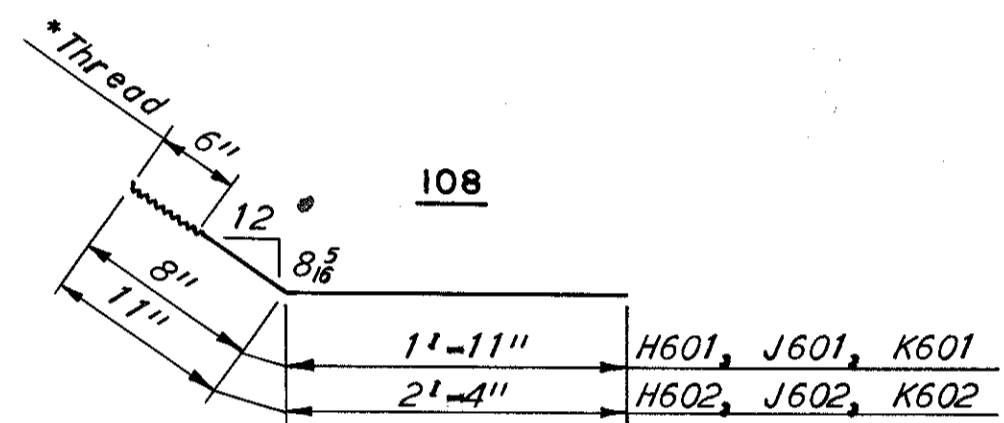
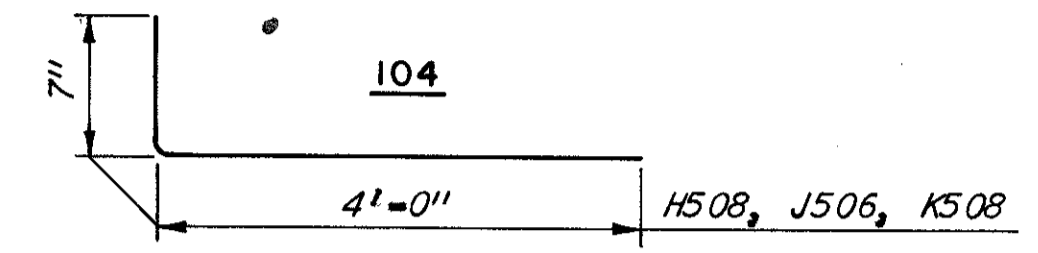
FHWA REGION	STATE	PROJECT	
5	OHIO		

53
53

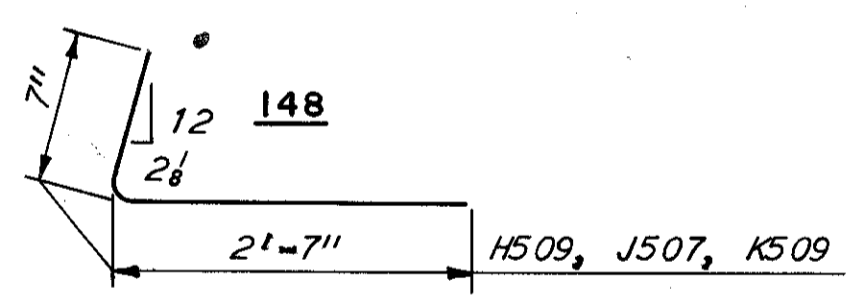
CUYAHOGA COUNTY
CUY-71-18.57
CUY-90-14.64

Notes:
New structural steel and areas with damaged paint on existing structural steel shall be painted in accordance with Item 514. Payment for painting shall be included with Item Special, Scupper Modification, As Per Plan.

BENDING DIAGRAMS



*Bars shall be threaded and degreased. The threads shall be Uniform Standard Series for Basic Major Diameter of 3/4". Threading and degreasing of bars shall be included with Item 509, Reinforcing Steel, for payment.

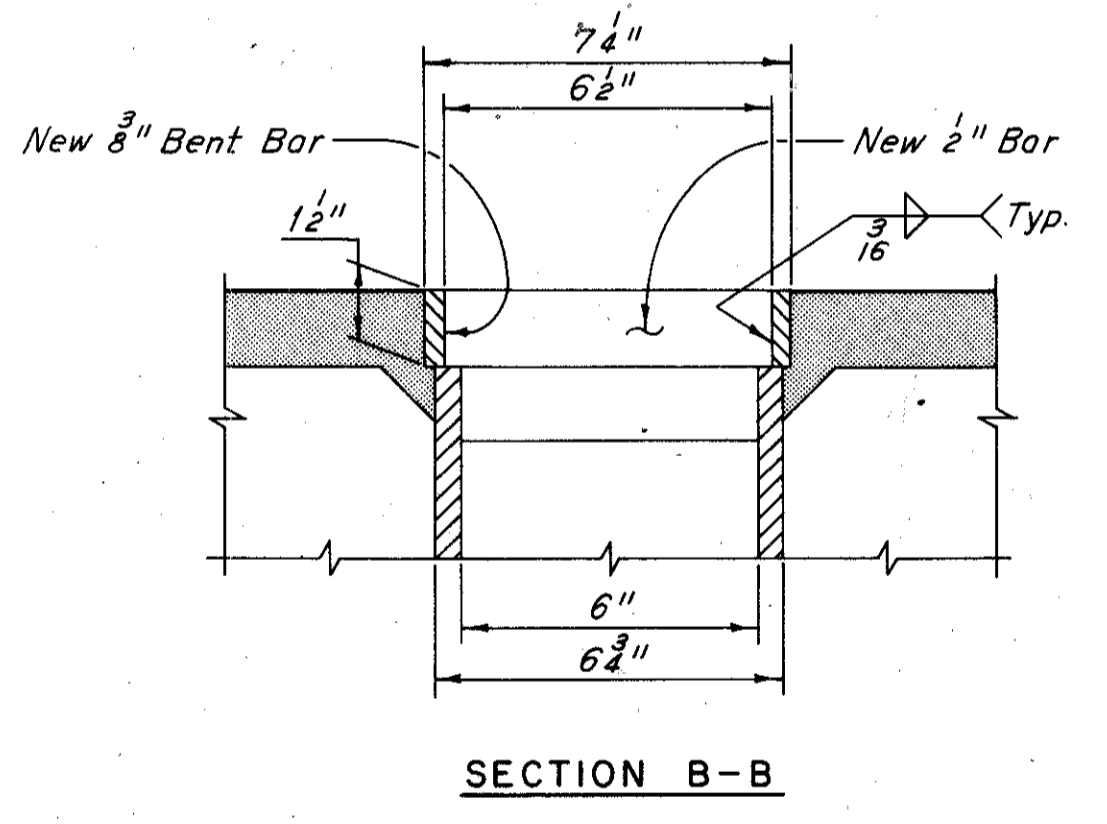
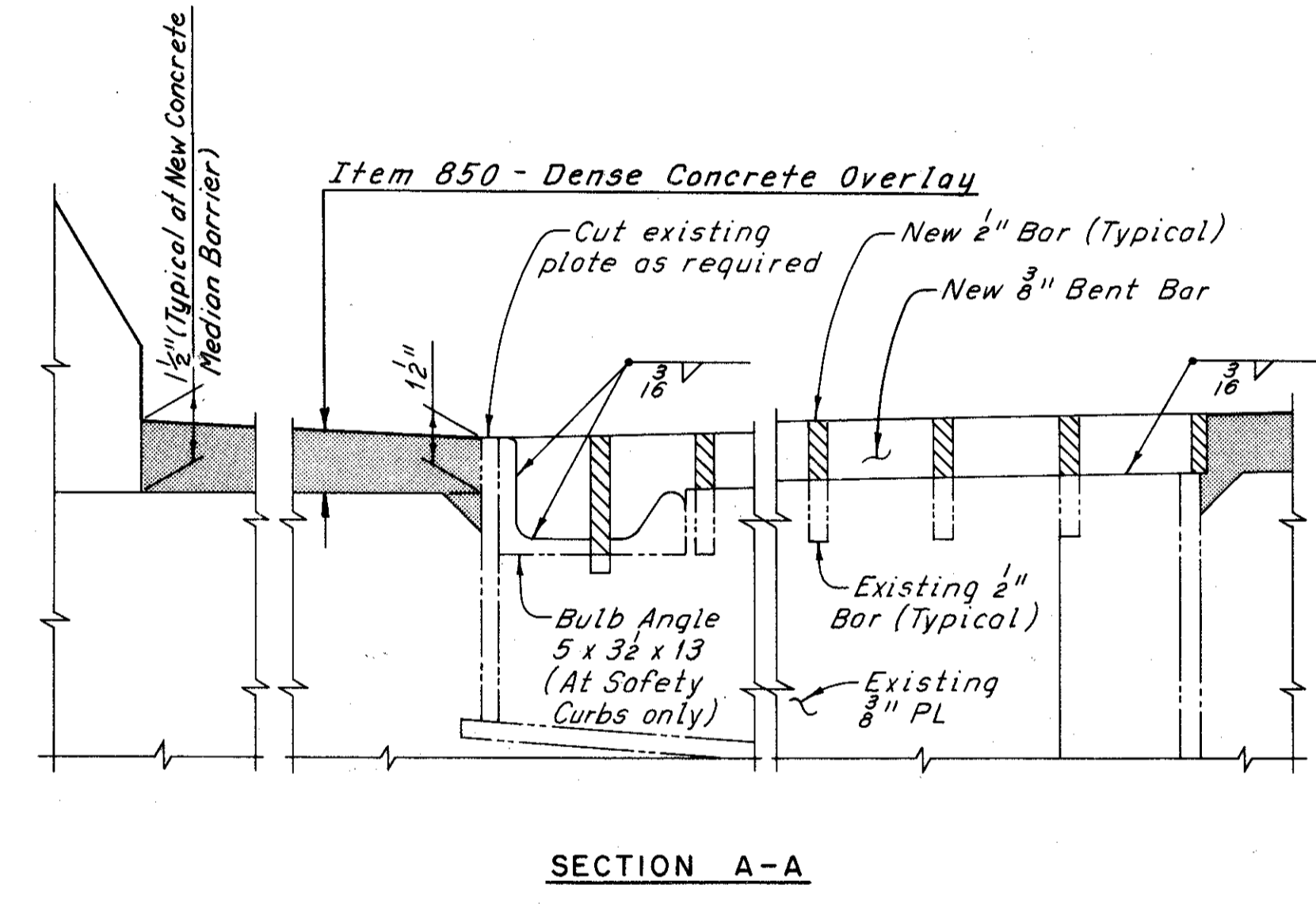
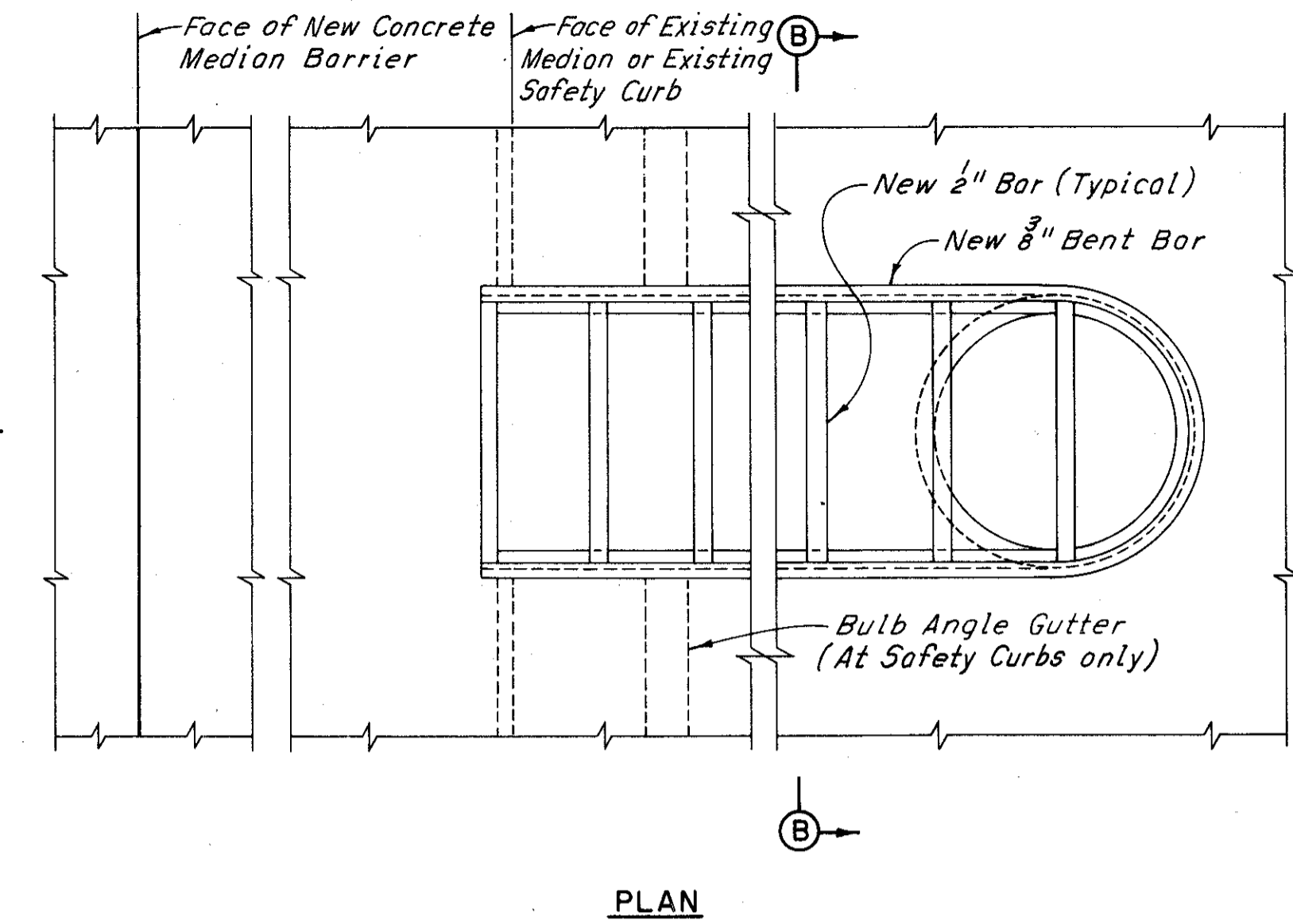


REINFORCING STEEL SAMPLES

Refer to CMS Sections 106.03, 700, 709.01 through 709.05 and 709.08. Sufficient additional reinforcing steel shall be provided for sampling. Random samples shall be replaced in the structures by the additional steel, spliced in accordance with 509.08.

REINFORCEMENT SCHEDULES

MARK	NO.	LENGTH	TYPE	SER. INCR.	WEIGHT (LBS.)
CUY-71-1887C					
H501	128	30'-0"	Str.		4005
H502	8	3'-6"	Str.		29
H503	44	14'-9"	Str.		677
H504	28	14'-3"	Str.		416
H505	96	7'-3"	Str.		726
H506	2	13'-0"	Str.		27
H507	2	16'-6"	Str.		34
H508	1060	4'-6"	104		4975
H509	1052	3'-1"	148		3383
H601	1044	2'-7"	108		4051
H602	8	3'-3"	108		39
Total Weight =					18,362
CUY-90-1490					
J501	40	30'-0"	Str.		1252
J502	8	19'-9"	Str.		165
J503	24	10'-9"	Str.		269
J504	32	6'-9"	Str.		225
J505	12	12'-9"	Str.		160
J506	372	4'-6"	104		1746
J507	364	3'-1"	148		1171
J601	356	2'-7"	108		1381
J602	8	3'-3"	108		39
Total Weight =					6408
CUY-90-1506					
K501	40	30'-0"	Str.		1252
K502	8	22'-0"	Str.		184
K503	16	11'-3"	Str.		188
K504	32	6'-9"	Str.		225
K505	12	13'-3"	Str.		166
K506	4	10'-9"	Str.		44
K507	4	11'-9"	Str.		49
K508	378	4'-6"	104		1774
K509	370	3'-1"	148		1190
K601	362	2'-7"	108		1405
K602	8	3'-3"	108		39
Total Weight =					6516



SCUPPER MODIFICATION AND RESURFACING DETAILS

Note:
The Contractor shall be responsible for the fit-up of all scupper modifications. Adequate measurements shall be made in the field to determine dimensions of the scuppers and the number and spacing of scupper bars. The cost of field measurement shall be included with the contract unit price bid for Item Special, Scupper Modification, As Per Plan.

HOWARD NEEDLES TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND **HNTB**

REINFORCEMENT SCHEDULES, SCUPPER MODIFICATION AND RESURFACING DETAILS

CUYAHOGA COUNTY OHIO

DRAWN	TRACED	CHECKED	REVIEWED	REVISED
C.A.B.	W.E.B.	R.A.S.		
DATE 2-18-77	DATE 2-25-77	DATE 3-3-77	DATE	DATE

SHEET 9 | 9