



CUY-90-14.90

PID 77332/85531

APPENDIX EX-71

CUY-077-1379 and CUY-090-1621 PID 0.231
(Reference Document)

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

Innerbelt Bridge
Construction Contract Group 1 (CCG1)

11-0

STATE OF OHIO DEPARTMENT OF TRANSPORTATION CUY-77-13.79 AND CUY-90-16.21 CUYAHOGA COUNTY CITY OF CLEVELAND

I-FI-77-5(18)161
I-FI-90-1(101)29
ISSUE I

| FHWA REGION | STATE | PROJECT |
|-------------|-------|--------------------------------------|
| 5 | OHIO | I-FI-77-5(18)161 I-FI-90-1(101)29 |

CUYAHOGA COUNTY
CUY-77-13.79
CUY-90-16.21

Project designation CUY-77/90-14.12/16.21 appearing throughout this plan shall be considered to read CUY-77/90-13.79/16.21

Federal Funds I-77-5(18)161 & I-90-1(101)29 appearing throughout this plan shall be considered to read I-FI-77-5(18)161 & I-FI-90-1(101)29

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 5-9-78 District Deputy Director of Transportation

Approved: Robert B. Pfeiffer
Date 8-15-78 Engineer, Bureau of Bridges and Structural Design

Approved: R. E. Ballin
Date 10-3-78 Chief Engineer, Planning And Design

Approved: Daniel A. Wein
Date 10-3-78 Director, Department of Transportation

Sheets 1 and 123 revised 4-5-79 WJW

| | | |
|--|--------------------------------|---|
| Corporation Line | Existing Sewer | □ |
| Fence Line (existing) — x — (proposed) * — x — | Existing Catch Basin or Inlet | ○ |
| Center Line 12 13 14 | Existing Manhole | ● |
| Limited Access (only) — LA — | Manhole Adjusted to Grade | ⊕ |
| Limited Access & Right of Way — LA & RW — | Std. No. 1 - 3 Median Inlet | ⊕ |
| Railroad — or — | Manhole Reconstructed to Grade | ⊕ |
| Guardrail (existing) — — — (proposed) — — — | | |

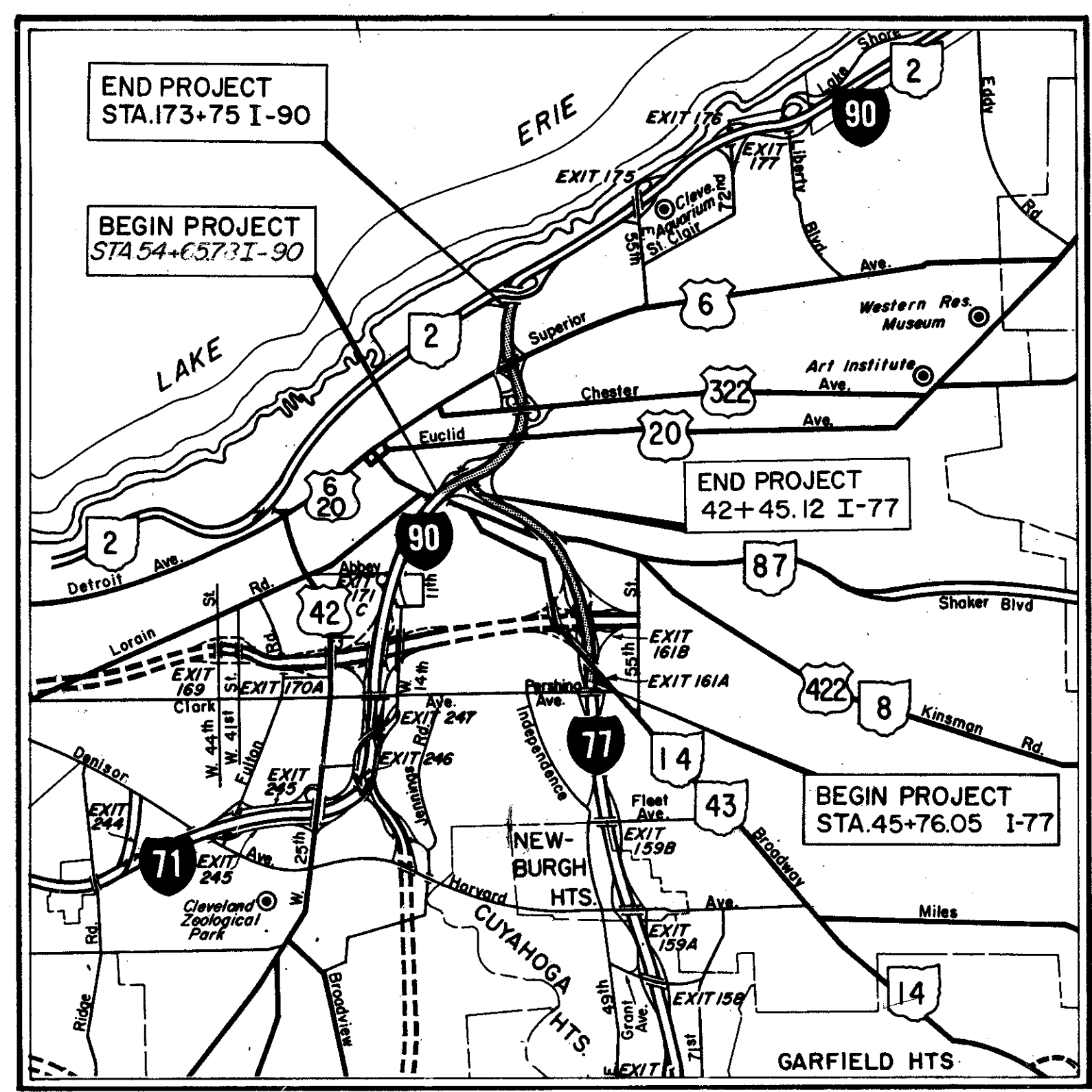
INDEX OF SHEETS

| | | | |
|-------------------------------------|--------------------------|---|-------------------|
| Title Sheet | 1 | Drainage Quantities | 30 |
| Typical Sections | 2 | Concrete Barrier Details and Quantities | 31-39, 38A |
| Schematic Plan | 3 | Drainage Details | 40-43, 43A |
| General Notes | 7A, 4-11, 9A-93, 10A-10M | Miscellaneous Details | 44-48, 44A |
| Schematic Plan: Asphalt Resurfacing | 12 | Traffic Control Plans and Quantities | 49-94 |
| Computation and Sub-Summaries | 13-16 | Cross Sections: Grading Areas | 95-103, 109A-109C |
| General Summaries | 17-19, 19A | Tree Relocation Plans and Quantities | 111-112 |
| Plan Sheets | 20-27, 24A-24C | Lighting Plans | 113-121, 119A |
| Guard Rail Sub-Summaries | 28, 29 | Structure Plans | 122-169, 145A |

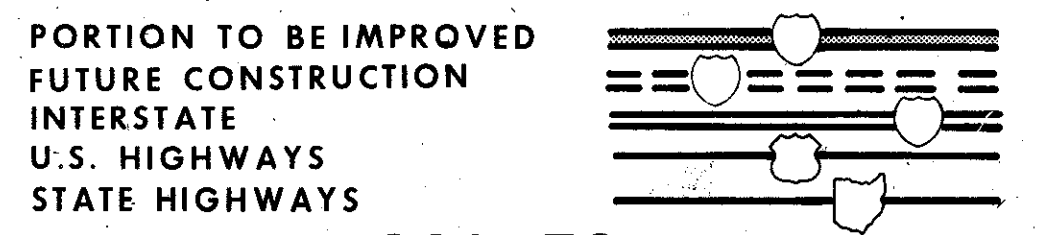
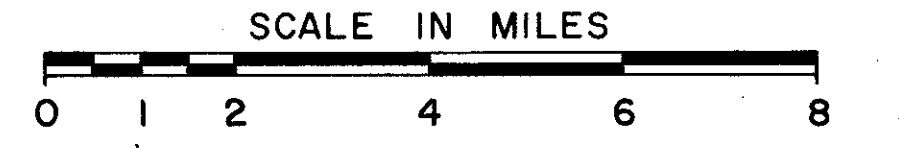
OMIT SHEET No. 110

LINE DATA

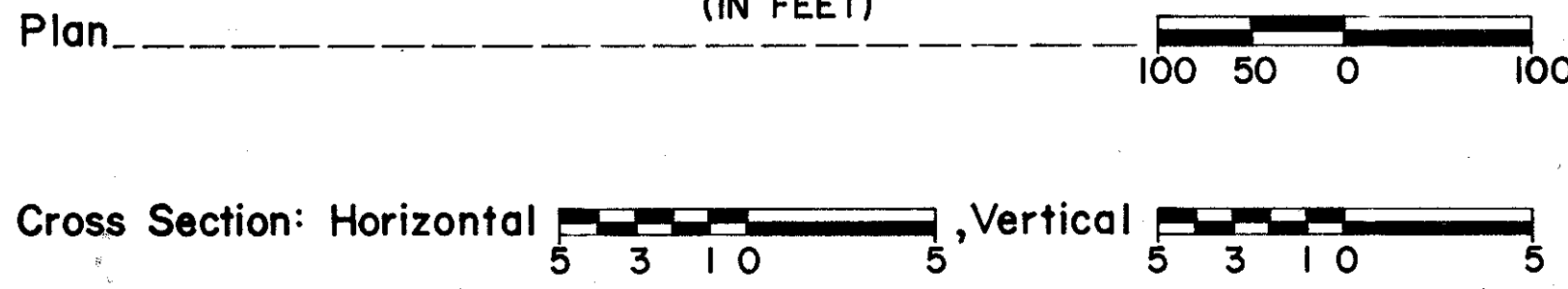
| | | | |
|------------------------|--|-----------------------|--|
| <u>I-77-5(18)161</u> | | | |
| Begin Project I-77 | Sta. 45+76.05 to Sta. 130+41.88 | 8,465.83 Lin. Ft. | |
| | (Eqn: 130+41.88 Bk. = 30+41.88 Ah.) | 1,203.24 Lin. Ft. | |
| End Project I-77 | Sta. 30+41.88 to Sta. 42+45.12 | 9,669.07 Lin. Ft. or | |
| Net Length of Project | | 1.831 Miles | |
| Add Work | Sta. 198+75 I-77 to Sta. 199+83.68 I-77 | 108.68 Lin. Ft. | |
| Net Length of Work | | 9777.75 Lin. Ft. or | |
| | | 1.85 Miles | |
| <u>I-90-1(101)29</u> | | | |
| Begin/End Project I-77 | Sta. 42+45.12 to Sta. 51+77.74 | 932.62 Lin. Ft. | |
| Begin Project I-90 | Sta. 54+57.73 to Sta. 83+09.31 | 2,843.53 Lin. Ft. | |
| | (Eqn: 83+09.31 Bk. = 98+00 Ah.) | 2,909.87 Lin. Ft. | |
| | Sta. 98+00 to Sta. 127+09.87 | 4,713.87 Lin. Ft. | |
| | (Eqn: 127+09.87 Bk. = 126+61.13 Ah.) | 11,359.89 Lin. Ft. or | |
| End Project | Sta. 126+61.13 to Sta. 173+75 | 2.150 Miles | |
| Net Length of Project | | 1,638.08 Lin. Ft. | |
| Add Work | Sta. 1982+63 I-90 to Sta. 1999+01.08 I-90 | 5,078.15 Lin. Ft. | |
| | (Eqn: 1999+01.08 I-90 Bk. = 3+87.63 I-90 Ah.) | 1,023.24 Lin. Ft. | |
| | Sta. 3+87.63 I-90 to Sta. 51+53.91 I-90 | 728.69 Lin. Ft. | |
| | (Eqn: 183+98.24 I-90 W.B. Bk. = 67+26.31 I-90 Ah.) | 1,400.00 Lin. Ft. | |
| | Sta. 173+75 I-90 to Sta. 183+98.24 I-90 W.B. | 505.00 Lin. Ft. | |
| | (Eqn: 183+98.24 I-90 W.B. Bk. = 67+26.31 I-90 Ah.) | 305.00 Lin. Ft. | |
| | Sta. 67+26.31 I-90 to Sta. 74+55 I-90 | 250.00 Lin. Ft. | |
| East 9th St. | Sta. 5+00 to Sta. 19+00 | 350.00 Lin. Ft. | |
| East 14th St. N.B. | Sta. 18+60 to Sta. 23+65 | 95.00 Lin. Ft. | |
| East 14th St. S.B. | Sta. 5+10 to Sta. 8+15 | 1,590.00 Lin. Ft. | |
| East 22nd St. | Sta. 1+75 to Sta. 4+25 | 170.00 Lin. Ft. | |
| Carnegie Ave. | Sta. 5+00 to Sta. 8+50 | 1,860.00 Lin. Ft. | |
| Relocated Cedar Ave. | Sta. 1+00 to Sta. 3+20 | 245.00 Lin. Ft. | |
| Cedar Ave. | Sta. 0+50 to Sta. 1+45 | 1,460.00 Lin. Ft. | |
| Prospect Ave. | Sta. 2+90 to Sta. 18+80 | 670.00 Lin. Ft. | |
| Euclid Ave. | Sta. 6+00 to Sta. 7+70 | 170.00 Lin. Ft. | |
| Chester Ave. | Sta. 0+4+20 to Sta. 14+40 | 260.00 Lin. Ft. | |
| Payne Ave. | Sta. 5+00 to Sta. 7+45 | 29,418.05 Lin. Ft. or | |
| Superior Ave. | Sta. 0+6+00 to Sta. 8+60 | 5.571 Miles | |
| St. Clair Ave. | Sta. 0+30 to Sta. 7+00 | | |
| Hamilton Ave. | Sta. 5+85 to Sta. 7+55 | | |
| Lakeside Ave. | Sta. 6+35 to Sta. 8+95 | | |
| Net Length of Work | | | |



LOCATION MAP



SCALES (IN FEET)



| SUPPLEMENTAL SPECIFICATIONS | | | |
|-----------------------------|----------|--------|---------|
| NUMBER | DATE | NUMBER | DATE |
| 836 | 3-12-75 | 845 | 6-27-77 |
| 839 | 11-25-70 | 850 | 6-27-77 |
| 844 | 11-8-74 | 855 | 5-5-78 |
| 921 | 12-4-72 | 853 | 6-26-78 |
| 1001 | 1-3-71 | 808 | 1-1-71 |
| 956 | 6-26-78 | 847 | 4-3-76 |
| S625 | 1-11-74 | 953 | 6-27-77 |
| S713 | 1-11-74 | 848 | 2-23-78 |
| 849 | 4-25-77 | 949 | 11-2-77 |

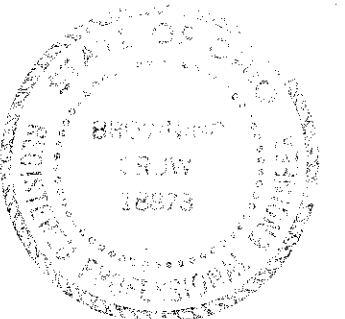
| SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS | | | | | | | | | |
|---|---------|----------|---------|---------|---------|----------|---------|----------|---------|
| NUMBER | DATE | NUMBER | DATE | NUMBER | DATE | NUMBER | DATE | NUMBER | DATE |
| AS-1-72(Sh. 142) | 6-30-72 | GR-1 | 12-6-76 | HL-9 | 3-22-77 | MH-1 | 6-12-75 | TC-41.10 | 8-19-77 |
| SD-1-69(Sh. 1014) | 6-12-69 | GR-2B | 12-6-76 | HL-10 | 1-21-76 | TC-7.65 | 10-1-74 | TC-41.20 | 4-1-77 |
| BP-3 | 12-6-76 | GR-3A, 3 | 12-6-76 | HL-11 | 4-6-73 | TC-12.30 | 10-1-74 | TC-41.50 | 4-1-77 |
| BP-4 | 12-6-76 | GR-3B | 12-6-76 | HL-17A | 4-6-73 | TC-18.24 | 10-1-74 | TC-42.10 | 8-19-77 |
| BP-5 | 8-11-75 | GR-4 | 12-6-76 | MC-6 | 6-1-65 | TC-18.26 | 10-1-74 | TC-42.20 | 4-1-77 |
| BP-7 | 12-6-76 | GR-4A | 7-26-76 | I-2A | 6-6-69 | TC-21.10 | 10-1-74 | TC-51.10 | 6-2-75 |
| BP-11 | 1-3-75 | GR-5&6 | 1-1-76 | I-3 | 1-20-70 | TC-22.10 | 10-1-74 | TC-51.11 | 6-2-75 |
| CB-2-2A&B | 6-1-65 | BP-1 | 6-1-65 | L-1&L-2 | 6-1-73 | TC-22.20 | 8-19-77 | TC-52.10 | 4-1-77 |
| CB-3 | 1-1-76 | HL-2 | 7-27-73 | MC-1 | 6-13-69 | TC-31.20 | 8-27-76 | TC-52.20 | 4-1-77 |
| F-1 & F-3 | 5-1-76 | HL-5 | 9-6-73 | MC-3 | 6-1-73 | TC-31.21 | 8-27-76 | TC-61.10 | 8-19-77 |
| F-7 | 11-1-77 | HL-7 | 1-21-76 | MC-4 | 7-26-76 | TC-32.10 | 8-27-76 | TC-71.10 | 12-1-75 |
| F-5 | 5-1-76 | HL-8 | 1-21-76 | MC-9 | 1-1-74 | TC-32.11 | 8-27-76 | TC-35.10 | 10-2-77 |

Rev 2-14-79
Rev. 1-9-79
Rev. 10-26-78

PREPARED AND RECOMMENDED BY
HOWARD NEEDLES TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND

Browning Crow
BROWNING CROW 00316R

Total Length of Project = 21,068.96 L.F. or 3.990 Mi.
Total Length of Work = 39,195.80 L.F. or 7.423 Mi.



DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED: _____
DIVISION ADMINISTRATOR DATE _____

Project: CUY-77-13.79 & CUY-90-16.21
Date of Letting: 19____ Contract No. _____
LD0300 Rev. 11-21-73

Revised 4-5-79

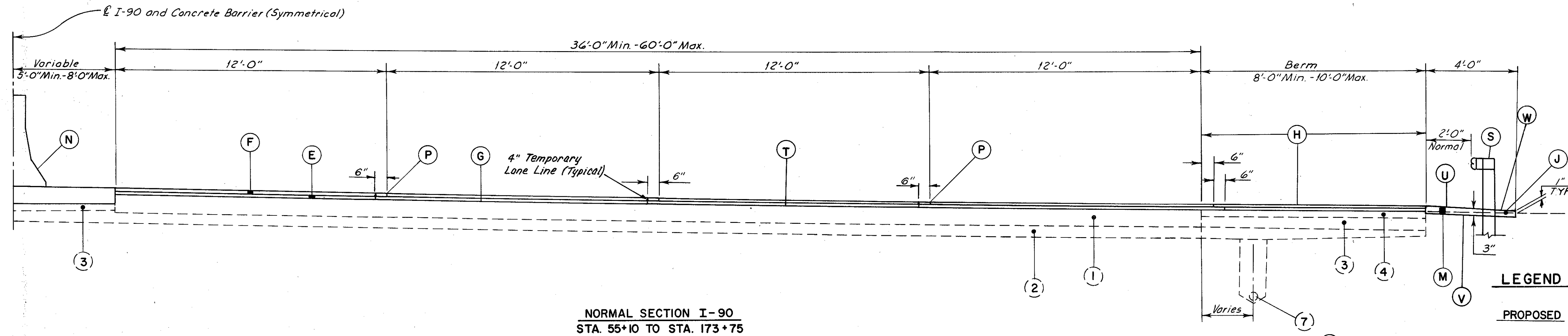
TYPICAL SECTIONS

TYPE 404

| | | | |
|-------------|-------|---------|--|
| FHWA REGION | STATE | PROJECT | |
| 5 | OHIO | | |

2
169

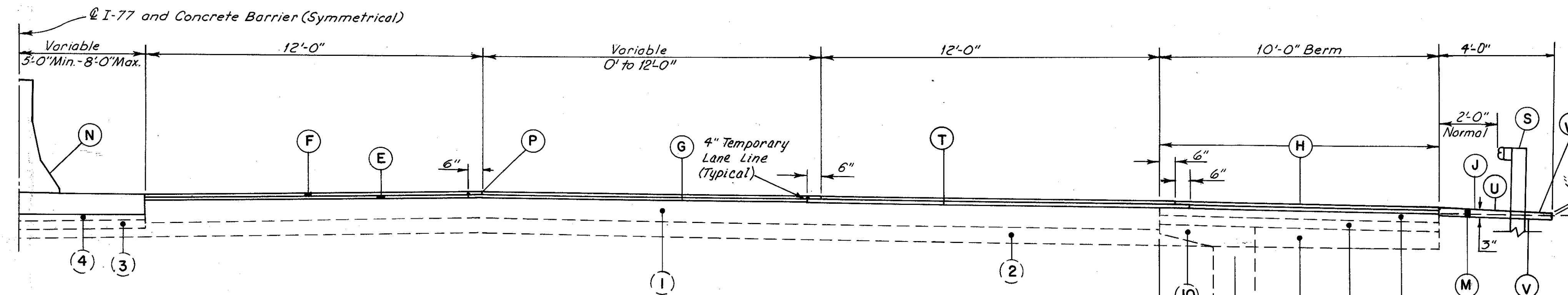
CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



*NOTE: A "hot Longitudinal Joint" shall not be required at the right edge of pavement (in the direction of traffic). Location of such joints shall depend upon the width of the pavement to be resurfaced and in no case shall the width between joints be greater than 24'. For additional information concerning this item see note in proposal.

LEGEND
PROPOSED

- (E) Item 848 1 1/2" Asphalt Concrete Intermediate Course, Type 2
- (F) Item 848 1 1/2" Asphalt Concrete Surface Course, Type 1
- (G) Item 407 Tack Coat: 702.02, RC-250, or 702.04, SS-1, SS-1H, MS-2 or RS-1 with Cover Aggregate
- (H) Item 409 Seal Coat: Bituminous Material, 702.02, MC-800 or MC-3000, 702.03, CBAE-800, or 702.04, RS-1, RS-2, CRS-1, or CRS-2; or 702.09, RT-9 or RT-10. Applied at the rate of 0.35 Gal. per Sq. Yds. Cover Aggregate No. 8 at the rate of 0.008 Cu. Yds. per Sq. Yd.
- (J) Item 409 Seal Coat: Bituminous Material, 702.02, MC-800 or MC-3000, 702.03, CBAE-800, or 702.04, RS-1, RS-2 or CRS-1, CRS-2; 702.09, RT-9 or RT-10, applied at the rate of 0.35 Gal. per Sq. Yd. Compacted Aggregate, As Per Plan
- (M) Item 617 Water: Applied as directed by the Engineer.
- (N) Item 622 Concrete Barrier, Type B, C, or D, Modified, as per plan
- (P) Hot Longitudinal Joint *
- (S) Item 606 Guard Rail, Type 5, as per plan
- (T) Item 848 Asphalt Concrete, Intermediate Course, Type 1
- (U) Item 617 Water: Applied as directed by the Engineer.
- (V) Item Special Weed Control
- (W) Item 408 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. (Place prior to 'J', Item 409)



NOTES:

SPREADING EQUIPMENT: An automatic screed control having a minimum 40 foot ski arm shall be used for placing the 402 and 404 courses on the mainline only (see proposed note). 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.

LONGITUDINAL JOINTS- 402 AND 404 COURSES: Longitudinal joints between a pavement lane and adjoining berm of speed change lane 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.

848 ASPHALT CONCRETE: Subsequent to the completion of plans, the asphalt concrete used on this project has been revised from items 402, 403, and 404 to supplemental specification 848. All reference to 402, 403, and 404 appearing on the plans shall be considered to read as follows:

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

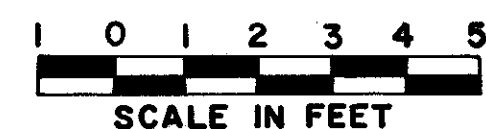
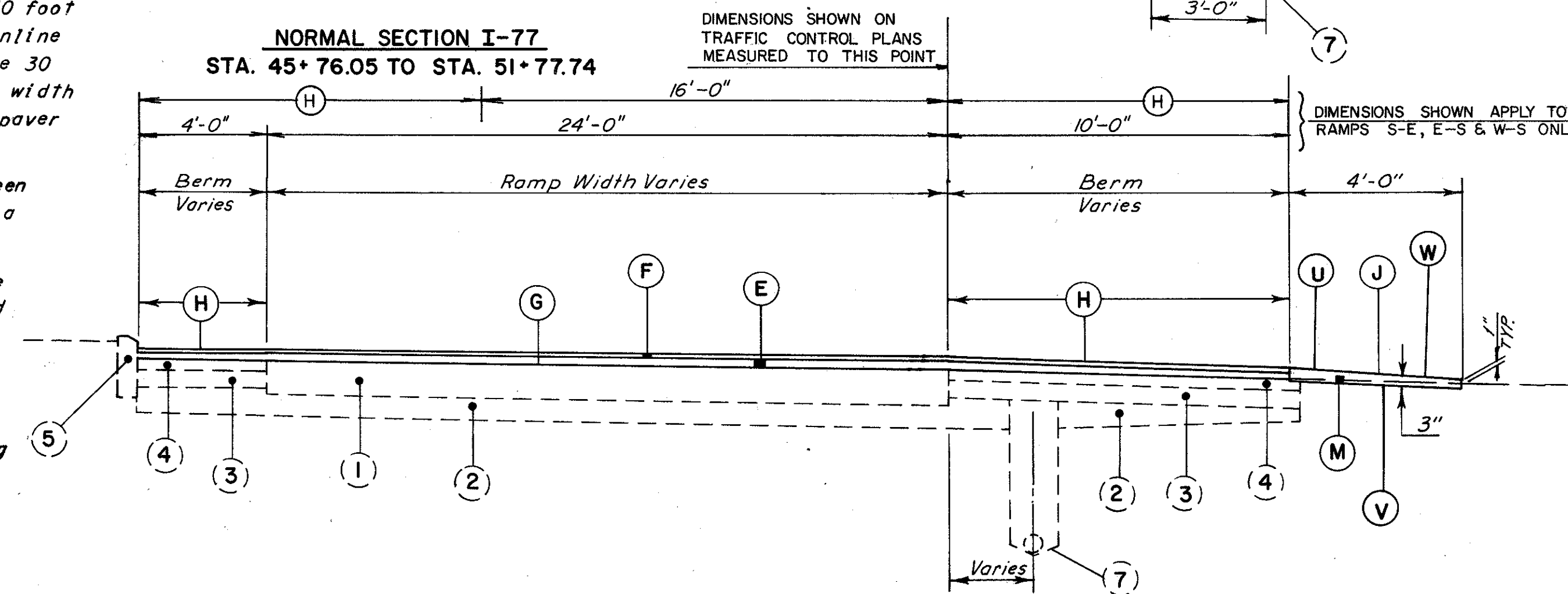
On this project, item 848, table 2-2, properties of mixtures shall be for heavy traffic volumes.

MADE D.S.P. DATE 3-24-75
TRACED DATE 5-2-75
CHECKED G.E.M. DATE 3-27-75
SCALE 3/4"=1'-0"

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

HNTB

NORMAL RAMP SECTION



Note:

Typical Sections are intended to show the general roadway and pavement features only. For details see the plan sheets and detail sheets or refer to original construction projects as shown on Sheet 3.

For Median Typical Sections see Sheets 31432.

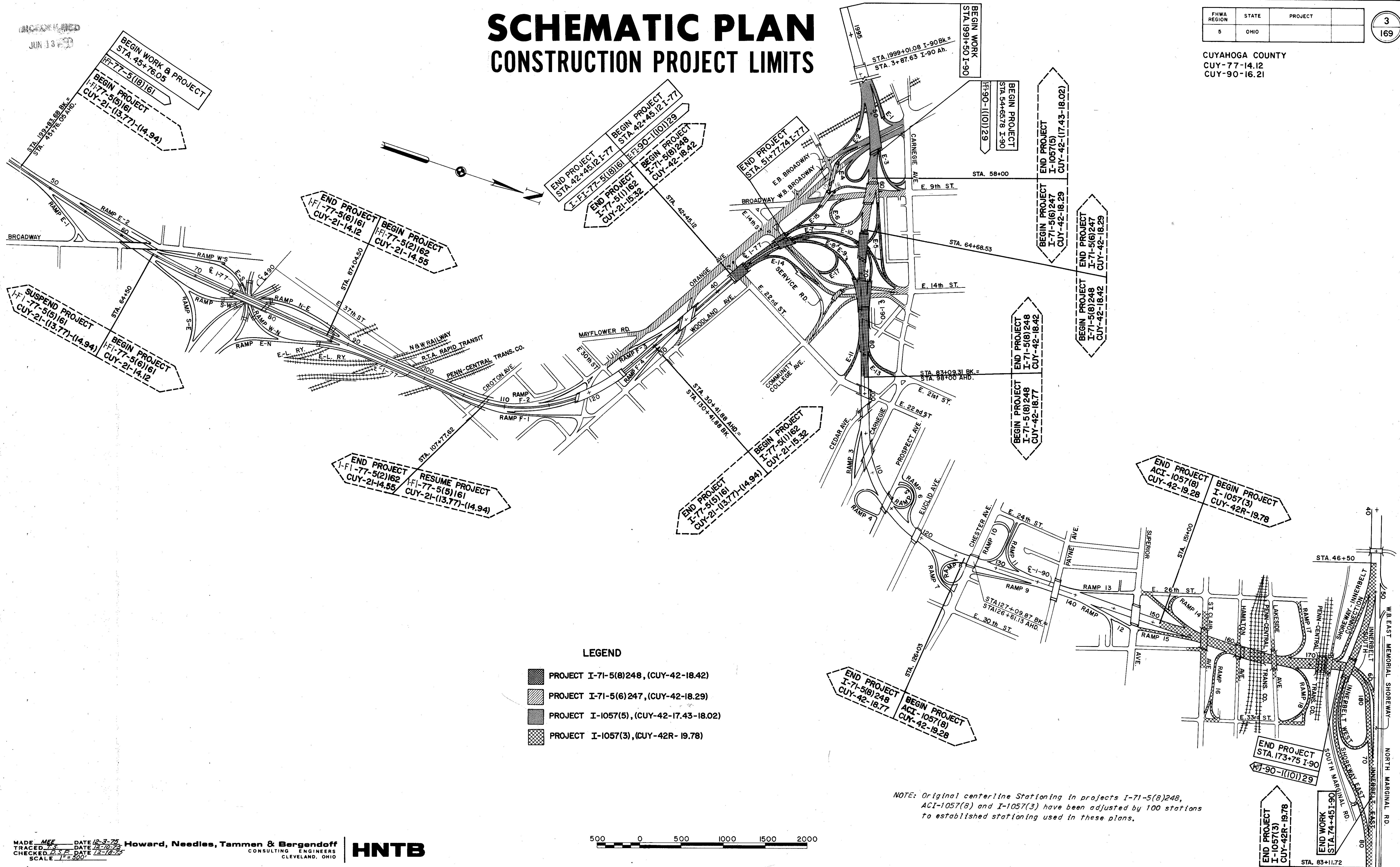
ACCEPTED
JUN 13 1972

SCHEMATIC PLAN CONSTRUCTION PROJECT LIMITS

| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

3
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



LEGEND

- PROJECT I-71-5(8)248, (CUY-42-18.42)
- PROJECT I-71-5(6)247, (CUY-42-18.29)
- PROJECT I-1057(5), (CUY-42-17.43-18.02)
- PROJECT I-1057(3), (CUY-42R-19.78)



NOTE: Original centerline Stationing in projects I-71-5(8)248, ACI-1057(8) and I-1057(3) have been adjusted by 100 stations to established stationing used in these plans.

MADE BY MEE DATE 12-3-72
 TRACED BY J.S.P. DATE 12-10-72
 CHECKED BY J.S.P. DATE 12-18-72
 SCALE 1"=500'

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

HNTB

GENERAL NOTES

GENERAL

QUANTITY CALCULATIONS
 MADE BY GFM DATE 12-5-75
 CHECKED BY DSP DATE 12-12-75

| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

4
169

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

FIELD OFFICE

The Contractor shall provide a suitable field office having a minimum of 800 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 CITY PARTICIPATION
 COST PARTICIPATION III
 STATE PARTICIPATION

COST PARTICIPATION II, FI-Funds

FEDERAL PRIMARY
 AND STATE PARTICIPATION

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. For further information in regard to the existing typical sections the Contractor shall refer to the previous construction sections noted on Sheet 3, Schematic Plan. These plans may be reviewed at The Ohio Department of Transportation, District Twelve Offices 10100 Broadway Road, Garfield Heights, Ohio 44125.

ITEM SPECIAL - HERBICIDES FOR WEED CONTROL

Prior to placing the Item 617 Compacted Aggregate, an application of Princep 80W, using 25 lbs. in 30 gallons of water per 5000 square yards, or an 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 quantities has been added to the General Summary:

| | |
|-------------------------|-------------------------|
| <u>1-77-5(18)161</u> | <u>1-90-1(101)29</u> |
| 12,114 sy Cost Part. II | 18,574 sy Cost Part. II |

GRADING AT EXISTING LIGHT TOWER FOUNDATIONS

This note shall apply when a light tower foundation (provided by others) is encountered within the grading limits of an infield area being regraded. Where directed by the Engineer, the Contractor shall grade and sod the areas adjacent to the light tower foundations in accordance with the details shown on Sheet 110. Grading adjacent to the light tower foundations shall be considered incidental to the proposed grading for that area and not a separate pay item. An estimated quantity of 75 sq. yds. of Item 660 Sodding has been included in the General Summary to be used as directed by the Engineer.

IMPACT ATTENUATOR ASSEMBLIES

This project requires bids for the impact attenuators to be supplied. The type has been limited to the HI-DRO CUSHION System as manufactured by Energy Absorption Systems, Inc., Chicago, Illinois.

The Attenuation Devices shall be constructed within the reserve area shown on the plan and shall be designed in accordance with the following criteria:

Performance Criteria:

| | |
|--|---|
| Vehicle Weight Range | 2000 to 4500 lbs. |
| Vehicle Speed | 60 MPH |
| Impact Angle | 0 degrees to 25 degrees measured from the direction of the roadways. |
| Average Permissible Vehicle Deceleration | 12 g's while preventing actual impacting of the hazard or backup wall |
| Maximum occupant Deceleration onset rate | 500 g's per second |

Dimensional Criteria:

| | |
|-----------------|--|
| Side taper rate | 10:1 minimum relative to the adjacent edge of pavement |
|-----------------|--|

The Impact Attenuator Assemblies shall be constructed in accordance with manufacturer, recommendations and specifications. The work to be performed under this item shall include all labor, equipment, materials and incidentals necessary for furnishing and installing the attenuation device including foundations, backup walls, anchor blocks, surface treatment or any other items necessary for a complete and functional installation. Prior to ordering any of the impact attenuators the Contractor shall supply site plans and working drawings together with performance data for each location for approval by the Director.

The materials used in the installation shall be all new, first quality and free from defects. The method of measurement for this item shall be the actual number of impact attenuator assemblies complete and accepted.

The basis of payment shall be at the contract price for:

| | |
|---|--|
| <u>1-90-1(101)29</u> - Cost Participation I | |
| Item Special - Impact Attenuator (HI-DRO Cushion) | |
| For No. 1, see Sheet 36. (Cost Participation III) | |
| For No. 2, see Sheet 23. (Cost Participation I) | |

SEEDING AND MULCHING

Seeding quantities associated with 203 earthwork items shown on the plan 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.

| | |
|----------------------|-----------------------------------|
| ITEM 659 | Commercial Fertilizer (12-12-12) |
| <u>1-90-1(101)29</u> | 1.72 Ton Cost Participation I |
| ITEM 659 | Water |
| <u>1-90-1(101)29</u> | 41.30 M.Gal. Cost Participation I |

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.

| | |
|----------------------|--------------------------------|
| ITEM 659 | Agricultural Liming |
| <u>1-90-1(101)29</u> | 8.60 Tons Cost Participation I |

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 12D 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 supersede Item 614.03, Traffic Control, paragraph three. 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.

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.

GENERAL NOTES

QUANTITY CALCULATIONS

MADE BY FSJ DATE 8-11-77
CHECKED BY DSP DATE 10-21-77

| FHWA REGION | STATE | PROJECT |
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5
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21

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.

GUARDRAIL REMOVED

All posts, blocks, bolts, rail and other material shall be disposed of by the Contractor. All post holes shall be carefully filled and tamped to match existing ground.

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

1. All areas disturbed by the removal of guardrail shall be graded and seeded to match the surrounding conditions.
2. 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 or Item 202 Guardrail, Barrier Design, Removed, measured by the linear foot, center-to-center of terminal posts, or center of bridge connection splices.

GUARD RAIL, TYPE 5, AS PER PLAN

Rail elements salvaged under 202 on this project may be used in lieu of furnishing new rail elements for 606 Guardrail. If salvaged rail is used, it must be repainted prior to installation and new splice bolts furnished.

Painted rail elements shall be dismantled and all paint, rust, dirt and other foreign material detrimental to galvanizing shall be removed from rails, and intermediate post bolt slots $\frac{3}{4}$ " x 2- $\frac{1}{2}$ " shall be punched where required for Type 5 installations. The rail shall then be galvanized in accordance with 710.06, immediately after award of the contract. The Contractor shall submit an outline of the galvanizing plant operations. The outline shall include information on the plant capacity and storage facilities for the articles as delivered for galvanizing and storage facilities for the articles after the work is completed. This outline, when approved by the Department, will become a part of the contract.

The Contractor shall notify the Engineer at least 72 hours in advance of galvanizing any lot of articles in order that arrangements may be made to have the Department Inspector at the plant when the work is in progress. The Inspector shall have free entry, at all times while work on the contract is being performed, to all parts of the plant that concern the cleaning and galvanizing of the articles. The Contractor shall afford the Inspector all reasonable facilities without charge, to satisfy him that the work is being performed in accordance with these specifications.

Existing galvanized rail elements shall be cleaned of rust, dirt and other foreign materials. Intermediate post bolt slots $\frac{3}{4}$ " x 2- $\frac{1}{2}$ " shall be field punched or drilled. Areas on which the spelter coating has been damaged and intermediate holes shall be repaired or regalvanized in accordance with AASHTO Specification M 36-73, Section 23 or they may be repaired under the direction of the Engineer with stick-form galvanizing repair compound meeting the requirements of FSS O-G-93.

Payment for all of the above shall be included in the unit price bid for 606 Guardrail, Type 5, as per plan of 606 Guardrail, Type 5, barrier design, as per plan.

GUARDRAIL FLARES

Guardrail flare dimensions at approach anchor assemblies shall be 1'-6" unless noted otherwise on the plan. Guardrail flares shall be in accordance with Standard Construction Drawings GR-4 and GR-5.

CONCRETE BARRIER MEDIAN REMOVED

This item of work shall involve the careful removal of the existing concrete barrier median between Stations 73+55 I-90 and 74+45 I-90, for the installation of Sign Support No. 55 at Station 74+00, shown on Sheet 74.

Payment shall include all labor, materials and items necessary to remove 90 linear feet per Item 202 - Concrete Barrier Median Removed, COST PART. III

RAILING REMOVED, AS PER PLAN

This item or work shall include the careful removal of all existing bridge railing and the repair of existing anchor bolts where Type CL Fence, Modified, As Per Plan, is to be erected. All railing removed shall be delivered to 734 S.O.M. Center Rd. (S.R. 91) by the Contractor.

All approach railing shall remain in place and any missing railing end caps shall be replaced. The cost or replacement end caps shall be incidental to the unit price bid for this item.

After the railing has been removed, the Engineer shall inspect all railing anchor bolt groups for damage. Any set of anchor bolts deemed unfit for reuse shall be repaired or replaced. Replacement bolt groups shall be located in accordance with the specifications of Item 607 Type CL Fence, Modified, As Per Plan, and to the satisfaction of the Engineer. Payment for the replacement bolts shall be per Item Special - Threaded Sleeve Anchor Bolts.

Existing bolt groups which are not reused shall be cut down and ground smooth so as to be flush with the top of the parapet concrete.

Payment for the work described, except as noted, shall include all labor, materials and other necessary items at the unit price bid per linear foot for: Item 202 - Railing Removed, As Per Plan.

607 - TYPE CL FENCE, MODIFIED, AS PER PLAN

This item of work shall include all labor, material and other necessary items required to install chain link fence on the existing overpass structures across I-90, as detailed in the plans. The chain link fence fabric shall be 48" in height and shall have knuckled selvage edges at the top and bottom.

End posts and line posts shall be welded to a steel base plate as detailed on Sheet 45. The base plates and posts shall be galvanized in accordance with 711.02 of the Construction and Material Specifications.

All post assemblies (post and base plate) shall be fastened to the existing parapet by reusing the existing aluminum bridge railing anchor bolts (or replacement bolt group). One aluminum nut and washer shall be provided for each aluminum anchor bolt (existing nut and washer may be reused). To protect against electrolytic action between dissimilar metals the following procedure is recommended: The projecting portions of each bolt shall be coated, the annular spaces between bolts and base plates shall be caulked and protection shall be provided between the bolt nuts and base plates, in accordance with 517.05 of the Construction and Material Specifications.

If steel anchor bolts are encountered during the erection of the post assemblies, one steel nut and washer shall be provided for each steel bolt (existing nut and washer may be reused) and the requirements of 517.05 shall be waived.

Payment for the work described shall be at the unit price bid per linear foot for: Item 607 - Type CL Fence, Modified, As Per Plan.

ITEM SPECIAL - THREADED SLEEVE ANCHOR BOLTS

This item or work shall consist of all labor, material and equipment necessary to install $\frac{3}{4}$ " \emptyset self-drilling threaded sleeve anchor bolts for fastening the chain link fence post assemblies at locations designated by the Engineer.

The self-drilling threaded sleeve anchor bolts shall be capable of developing a pullout resistance of not less than 10,000 lbs. Samples shall be provided for laboratory testing.

Payment for the work described above shall be at the unit price bid per each for: Item Special - Threaded Sleeve Anchor Bolts.

An estimated quantity of 200 $\frac{3}{4}$ " \emptyset Threaded Sleeve Anchor Bolts is included in the General Summary to be used as directed by the Engineer.

TYPE CL FENCE, AS PER PLAN

This item of work shall include all labor, equipment and materials necessary to repair damaged Type CL Fence, or close gaps between sections of existing Type CL fence where noted in the plans. It is intended that when rebuilding Type CL fence that the Contractor reuse, in lieu of new fence, existing fence if in satisfactory condition, as determined by the Engineer.

Fence lines and locations shown on the plan are only approximate and may be adjusted by the Engineer for actual ground conditions. No intermediate anchor posts or corner post assemblies are shown on the plan sheets, but it is not intended that the requirement of 607.05 (b) be waived.

Final payment for Type CL Fence, as per plan, shall be the actual linear feet of fence, or fence repaired, complete in place.

Payment for all of the above shall be included in the unit price bid for: Item 607-Type CL Fence, As Per Plan.

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 itemized in the plans. Any pipes abandoned will have ends plugged.

CURB REMOVED, AS PER PLAN

This work shall consist of removing entrance ramp and exit ramp curbs as detailed in the plans on Sheet 48. Removal of curb is to provide a continuous minimum ten foot mainline berm. Any open trenches resulting from removing curb shall be back filled with Item 305. Portland Cement Concrete Base, in accordance with the requirements of Item 305.

Payment for all of the above shall be at the unit price bid per linear foot of 202- Curb Removed, As Per Plan.

PAVEMENT REMOVED, AS PER PLAN

The existing pavement shall be removed by sawing a neat line for the full depth required by the pavement replacement details, Sheet 46. In addition the cost of removing the subbase material for the 305 replacements shall be included in the unit price bid for the pavement removal item. All loose and broken concrete must be removed from the joints. Adequate protection against damaging the abutting pavement shall be taken. The Contractor's attention is directed to 107.12 of the Specifications. The cost of reshaping and recompacting the subbase or subgrade disturbed during the removal operations, and any additional excavation along the existing paved berm necessary for the pavement replacement operations, shall also be included in the unit price bid for the pavement removal item.

ITEM 664 PLANTING SALVAGED PLANTS, AS PER PLAN

In addition to the requirements of Item 664 of the Construction and Material Specifications, the following shall apply to this item of work:

- a) Each tree removed for replanting will have the specified earth ball intact.
- b) During the period of time the tree is out of the ground the earth ball shall be covered with straw and kept moist.
- c) All work will be done between the months of April and October.

In lieu of storing and replanting the trees designated to be relocated, the Contractor shall have the option of providing new trees of like kind and caliper at the relocated station and offset shown on the plan.

Prior to the start of this work the Contractor and the Engineer shall field review the trees designated for relocation. If in the judgement of the Engineer, any tree is unfit for relocation it shall be removed per Item 201 and the requirements for replanting be nonperformed.

Payment for all labor, material, and equipment necessary to complete the work as noted will be made at the contract bid price per each for:

Item 664 Planting Salvaged Plants, as per plan

ITEM 665 LARGE TREES MOVED AND RESET, AS PER PLAN

In addition to the requirements of Item 665 of the Construction and Material Specification, the following shall apply to this item of work:

- a) Each tree removed for replanting will have the specified earth ball intact.
- b) During the period of time the tree is out of the ground the earth ball shall be covered with straw and kept moist.
- c) All work will be done between the months of April and October.

In lieu of storing and replanting the trees designated to be relocated, the Contractor shall have the option of providing new trees of like kind and caliper at the relocated station and offset shown on the plan.

Prior to the start of this work the Contractor and the Engineer shall field review the trees designated for relocation. If in the judgement of the Engineer, any tree is unfit for relocation it shall be removed per Item 201 and the requirements for replanting be nonperformed.

Payment for all labor, material, and equipment necessary to complete the work as noted will be made at the contract bid price per each for:

Item 665 Large Trees Moved and Reset, as per plan.

MADE M.E. DATE 12-4-75 **Howard, Needles, Tammen & Bergendoff**
TRACED P.M. DATE 12-11-75 CONSULTING ENGINEERS
CHECKED D.S.B. DATE 12-12-75 CLEVELAND, OHIO
SCALE

HNTB

GENERAL NOTES

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| FHWA REGION | STATE | PROJECT |
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6
169

QUANTITY CALCULATIONS

MADE BY G.F.M. DATE 12-10-75
 CHECKED BY D.S.P. DATE 12-12-75

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

848, Asphalt Concrete

Subsequent to the completion of plans, the asphalt concrete used on this project has been revised from items 402, 403 and 404 to supplemental specification 848. All reference to 402, 403 and 404 appearing on the plans shall be considered to read as noted on sheet 2.

TEMPORARY CONCRETE BARRIER

The temporary concrete barrier to be provided at Ramp S-W on Sheet 20, shall be either cast-in-place or precast concrete barrier sections (without 9" base or dowels). The requirements of Item 622 and Standard Construction Drawing MC-9 shall apply except that the concrete barrier sections shall be limited to 10'-0" in length and pinned together.

Each section of barrier shall be provided with lifting rings to allow for ease in handling the sections during placing or removal operations.

Also included in this item of work, but incidental to the unit price bid, is the removal of any steel drums in the Ramp S-W gore. The steel drums shall be disposed of at the direction of the Engineer.

Payment for all labor, equipment and material necessary to complete this item, as noted above, shall be at the unit price bid per linear foot for:

| | |
|---|---------------------|
| <u>I-77-5(18)161</u> | <u>Cost Part. I</u> |
| Item 622 - Concrete Barrier, Standard Type A, As Per Plan | 260 Lin.Ft. |

ITEM 305 - 15" PORTLAND CEMENT CONCRETE BASE, AS PER PLAN

All patches are to be undercut a minimum of 6 inches below the bottom of the existing pavement and shall extend back under the existing pavement 9 inches along all sides. No dowels are required at the joints. One inch performed expansion joint material, 705.03 shall be installed along one side of full width replacement, the cost to be included in the unit price bid for Item 305, 15" Portland Cement Concrete Base, as per plan.

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

This item of work shall involve the replacement of pavement sections as designated in the plans on Sheet 46. Removal of pavement full depth and cutting off all protruding dowel bars. Before any section is replaced the existing base shall be examined and determined if suitable, by the Engineer. The surface smoothness required by 451.12 shall be waived. A one inch preformed expansion joint filler, 705.03, shall be placed at each transverse joint abutting existing pavement.

Payment for all operations and material necessary to perform the work shall be at the unit price bid per square yard of Item 305, 9" Portland Cement Concrete Base, as per plan.

ITEM 402 ASPHALT CONCRETE, AS PER PLAN

Areas of pavement which do not require repair as detailed on Sheet 46 and have loose and broken concrete shall have all loose and broken concrete removed to the satisfaction of the Engineer. The areas in which loose and broken concrete has been removed shall be filled with Item 402 "Asphalt Concrete" to match the elevation of the surrounding pavement.

Prior to placing the 402 material, the affected area shall be painted in accordance with the materials approved for Item 407 in these plans.

This item of work shall include all labor and materials necessary to complete the work described above. An estimated quantity of 100 C.Y. of Item 402, as per plan, shall be used in the locations as directed by the Engineer, as follows:

| | | |
|----------------------|-------------|-----------------------|
| <u>I-77-5(18)161</u> | 50 Cu. Yds. | Cost Participation II |
| <u>I-90-1(101)29</u> | 50 Cu. Yds. | Cost Participation II |

ITEM 403 ASPHALT CONCRETE

In order to correct any irregularities in the existing pavement surface prior to placing the Item 402 course, the Contractor apply an Item 403 Asphalt Concrete AC-20, Preleveling Course.

FEATHERING OVERLAY AT BRIDGES

This note shall apply only at bridges which have been overlaid under previous contracts. The existing asphalt featherers shall be removed to a minimum 1/2 inches below final grade and then resurfaced as per the typical feather detail at structures. The following estimated quantity is included in the general summary for the removal of the existing asphalt featherers.

| | |
|----------------------|--|
| <u>I-77-5(18)161</u> | Item 202-Wearing Course Removed 1300 Sq. Yds. Cost Participation I |
| <u>I-90-1(101)29</u> | Item 202-Wearing Course Removed 2100 Sq. Yds. Cost Participation I |

MADE BY G.F.M. DATE 12-10-75
 TRACED BY D.S.P. DATE 12-11-75
 CHECKED BY D.S.P. DATE 12-12-75
 SCALE

HNTB

HOWARD, NEEDLES, TAMMEN & BERGENSON
 CONSULTING ENGINEERS
 CLEVELAND, OHIO

PAVEMENT

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 305 - 9" PORTLAND CEMENT CONCRETE BASE

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:

| | |
|----------------------|---|
| <u>I-77-5(18)161</u> | Item 305 - 9" Portland Cement Concrete Base 7500 Sq.Yds. Cost Participation I |
|----------------------|---|

I-90-1(101)29

Item 305 - 9" Portland Cement Concrete Base 11,000 Sq.Yds. Cost Participation I
 * - The locations for this item as shown on the plan sheets are approximate. The exact locations shall be as determined by the traffic control plans.
 @ - An expansion joint as shown on std. constr. drwg. BP-3 is req'd as part of this item.

DIMENSIONS FOR PAVEMENT REPLACEMENTS

The dimensions for the concrete pavement replacements shown in the plans are approximate. The field dimensions for the replacements may be adjusted by the Engineer and final payment quantities shall be actual completed work dimensions.

ITEM SPECIAL - RUMBLE GROOVES

This item of work shall consist of forming Rumble Grooves to the new dense concrete overlay or concrete as shown on Sheet 92. The application shall consist of six sets of Rumble Grooves consisting of twelve grooves per set. The grooves shall be 4" wide at the pavement surface with edges tapered to approximately 3/4" at the bottom of the strip. The strips will be 3/8" deep and spaced on one foot centers.

All labor, materials and incidentals required to perform this work shall be included in the unit price bid per foot of Item Special - Rumble Grooves

UNSTABLE MATERIALS REMOVED AND REPLACED

This work shall consist of removing of unstable subbase and subgrade materials as encountered in areas of Item 305 pavement replacement. Work shall include preparing a new surface as required, furnishing, placing and compacting aggregate base as reasonably close as possible to conform with existing cross-sections. All under cut areas are to be drained to existing underdrain, cost to be included in this item. This work shall be performed only when deemed necessary and in specific areas determined by the Engineer. The aggregate base specifications, Item 310, of the Construction and Materials Specifications, shall apply where pertinent to the operations being performed. Otherwise work shall be as directed by the Engineer.

The following estimated quantity is provided to be used as directed by the Engineer for such unsuitable material replacement and payment for accepted quantities, complete in place, shall be made at the unit price bid.

Item Special-Removal and Replacement of Unstable Materials
 Using 310 Subbase, Grading A, As Per Plan

| | | |
|----------------------|--------------|-----------------------|
| <u>I-77-5(18)161</u> | 150 Cu. Yds. | Cost Participation II |
| <u>I-90-1(101)29</u> | 500 Cu. Yds. | Cost Participation II |

ITEM 404 Bituminous CONCRETE FOR MAINTAINING TRAFFIC

This item shall be used to temporarily repair holes in the bridge decks and to relevel berms which have been previously rebuilt with item 301 and are to be used for maintaining traffic.

It shall also be used to ramp along the longitudinal joints of the bridge deck repairs when the said joint is exposed to traffic. The ramp shall be four ft. wide and shall be installed before traffic is exposed to the longitudinal joint.

The following estimated quantity is included in the general notes to be used where and as directed by the Engineer.

| | |
|----------------------|---|
| <u>I-77-5(18)161</u> | Item 404 Bit. Concrete for Maintaining Traffic 75 Cu. Yds. Cost Participation I |
| <u>I-90-1(101)29</u> | Item 404 Bit. Concrete for Maintaining Traffic 50 Cu. Yds. Cost Participation I |

COMPACTED AGGREGATE, AS PER PLAN

All excavation and embankment operations necessary for the placement of this item shall meet the requirements of Item 203 "Roadway Excavation and Embankment".

Also to be included in this item of work is any grading of the shoulder area where traffic or weather may have built a ridge of earth and debris along the shoulder or under guard rail. In areas where guard rail has been removed and new guard rail is to be constructed, the site restoration for the placement of Item 617 "Compacted Aggregate" shall be completed prior to placing of the new guard rail. The extent of this work shall be such that smooth shoulder slopes are maintained to assure positive drainage of the shoulder.

Payment for all excavation and embankment operations shall be included in the unit price bid for Item 617 "Compacted Aggregate, As Per Plan".

Any damage to the Item 617 due to the subsequent guardrail installation will be repaired by the Contractor and at no additional expense to the State.

The following estimated quantities have been provided in the General Summary, Item 617 Compacted Aggregate, as per plan:

| | |
|---|-------------------------|
| <u>I-77-5(18)161</u> | (Cost Participation II) |
| Item 617 COMPACTED AGGREGATE, AS PER PLAN | 1010 C.Y. |
| Item 617 WATER | 60.6 M.Gal. |

I-90-1(101)29 (Cost Participation II)

| | |
|---|-------------|
| Item 617 COMPACTED AGGREGATE, AS PER PLAN | 1592 C.Y. |
| Item 617 WATER | 95.5 M.Gal. |

CONCRETE BARRIER, STANDARD TYPE A

This item of work shall include all labor and materials necessary to complete the installation of concrete barrier transition sections, to and from the concrete barrier median overhead sign No. 55 foundation between stations 73+95 to 74+05 & I-90. During the placement of the concrete barrier base, restoration of any disturbed subbase shall be replaced with No. 8 or No. 9 Aggregate to the satisfaction of the Engineer at no additional cost to the State.

| | |
|---|-----------------------|
| Payment for the work described above is as follows: | <u>I-90-1(101)29</u> |
| Item 622 Concrete Barrier, Standard Type A | <u>Cost Part. III</u> |
| | 80 L.F. |

CONCRETE BARRIER, STANDARD TYPE, MODIFIED, AS PER PLAN

This item of work shall include all labor, equipment and materials to provide concrete barrier median and base as detailed in the plans. The median base shall be continuous (including median base at sign support foundations and inlets) and extend from edge of pavement to edge of pavement or to the dimensions shown on the plan. This item shall also include 4" raceway, station marking, lead-in parapets to structures and transitions to bridge piers, inlets and sign supports.

The 4" raceway alignment in transition sections shall be adjusted to permit proper alignment with the 4" conduit in the "Barrier Wall Assembly at Existing Sign Supports, as per plan" as detailed on Sheet 44.

The Contractor shall stencil station numbers into the 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 to 4 inches in height and 1/4 inch in depth. The station numbers shall be placed parallel with the pavement on each face near the top of the 18" vertical section.

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

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

ITEM 310 SUBBASE, GRADING A, AS PER PLAN

Material for this item shall meet the requirements of Grading A of 310.02 after all operations of placing and compacting have been completed.

GENERAL NOTES

DRAINAGE

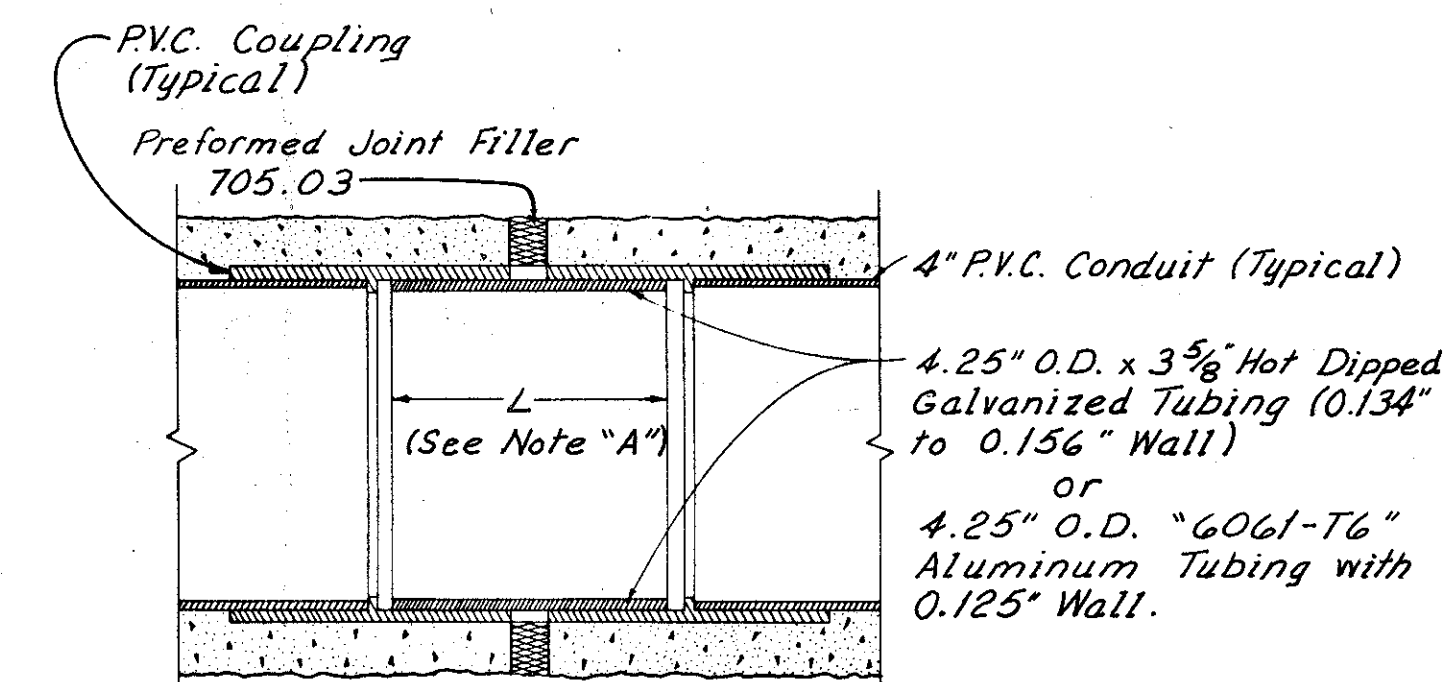
QUANTITY CALCULATIONS
 MADE BY A.H.S. DATE 5-6-75
 CHECKED BY M.E.E. DATE 5-9-75

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7
169

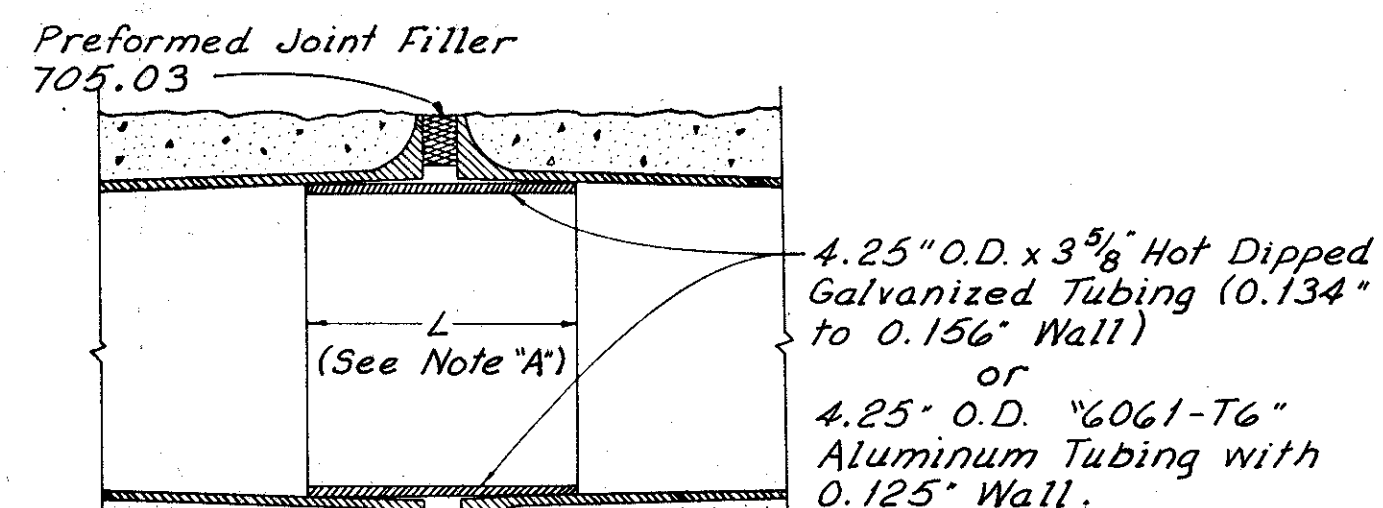
CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

PAVEMENT (CONT.)

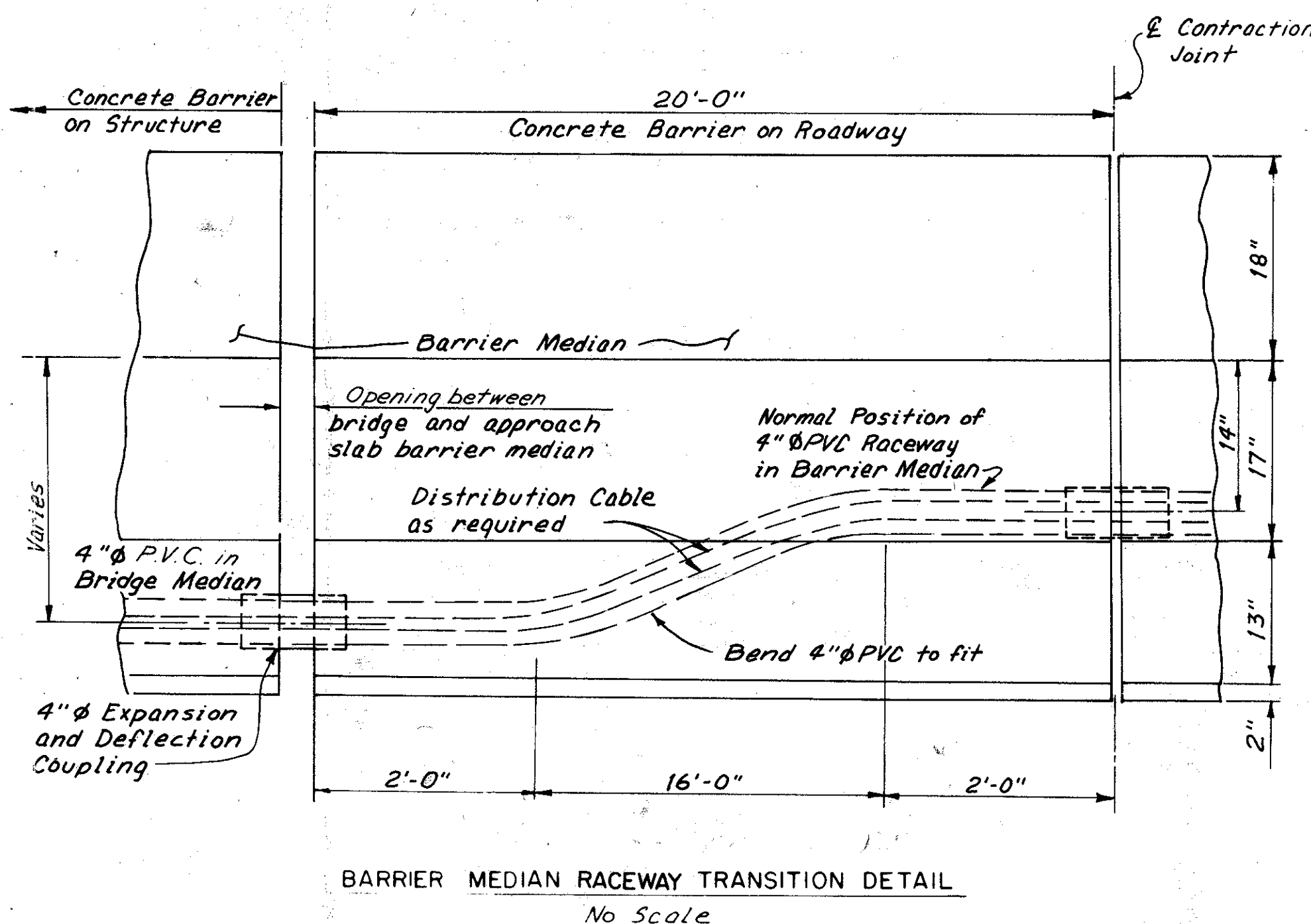


4" P.V.C. COUPLING AT CONSTRUCTION JOINT IN CONCRETE BARRIER MEDIAN
 No Scale

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.



4" P.V.C. (WITH BELL ENDS) COUPLING AT CONSTRUCTION JOINT IN CONCRETE BARRIER MEDIAN
 No Scale



BARRIER MEDIAN RACEWAY TRANSITION DETAIL
 No Scale

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.

CONNECTIONS 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

CATCH BASINS AND INLETS AT CURBED SHOULDERS & CURBED RAMP NOSES

While performing the resurfacing work, the Contractor shall take care to keep open the gates 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 gates and curb openings as directed by the Engineer.

MANHOLE COVERS

The Contractor shall set the frames for manhole covers at such an elevation and inclination as to place the surface of the cover in the plane of the finished surface.

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.

COST PARTICIPATION I

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| | CUY.-77-14.12 | CUY.-90-16.21 |
| Item 603 12" Type B Conduit | 125 Lin. Ft. | 125 Lin. Ft. |
| Item 603 15" Type B Conduit | 125 Lin. Ft. | 125 Lin. Ft. |

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

EXISTING UNDERDRAINS

Where existing underdrains are encountered and no provision has been made for new underdrains, they shall be connected to new inlet, or suitably outletted with Item 605. Following quantity has 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 I

| | | |
|---|---------------|---------------|
| | CUY.-77-14.12 | CUY.-90-16.21 |
| Item 605 6" Unclassified Pipe Underdrains | 125 Lin. Ft. | 125 Lin. Ft. |
| Item 603 6" Type F Conduit | 125 Lin. Ft. | 125 Lin. Ft. |

ITEM 604 - MANHOLE ADJUSTED TO GRADE WITH BOLT DOWN CASTING AS PER PLAN

All existing manholes shall be adjusted to grade by increasing the height of the structure walls by 2 1/2" except at the following locations: D-61, D-62, D-63, D-66, D-67, and D-70 where walls shall be increased by 1 1/2" and at structure D-80 where walls shall be decreased by 6 1/2".

This adjustment shall be done as specified in method (a) under 604.03. The existing castings of the "Manholes Adjusted to Grade With Bolt Down Castings As per plan" which are to remain within the pavement or berm limits shall be replaced with EAST JORDAN IRON WORKS CATALOGUE NO. 1040-T or NEENAH FOUNDRY CATALOGUE NO. 1915 G or approved equal bolt down castings.

Payment for above work shall be included in the contract bid price per each Item 604-Manhole Adjusted To Grade With Bolt Down Castings, As Per Plan.

ITEM 604 - MANHOLE RECONSTRUCTED TO GRADE WITH BOLT DOWN CASTING, MODIFIED A OR B AS PER PLAN

The Existing castings of Manhole Reconstructed to grade with Bolt Down Castings modified A or B as per plan which are to remain within the pavement or berm limits shall be replaced with EAST JORDAN IRON WORKS CATALOGUE NO. 1040-T or NEENAH FOUNDRY CATALOGUE NO. R-1915 G or approved equal bolt down casting. For additional modifications, see Sheets 42 & 43.

Payment for above work shall be included in the contract bid price per each Item 604-Manhole Reconstructed to grade with bolt down casting, modified A or B as per plan.

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

Modifications are same as shown (on Sheet 40) for standard No. I-3B median inlet, modified I as per plan except the dimension A is 2'-6", the dimension B is 0'-0", length of bar M-5-a is 7'-2", no. of M-5-b bars are 18, length of bar M-5-c is 6'-10", and length of bar M-5-d is 4'-8".

Payment for above work shall be included in the contract bid price per each item 604 - Standard No. I-3B median inlet, modified B as per plan.

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

The existing pavement removed for construction of proposed inlet shall be replaced by Item 305, Portland Cement Concrete Base (to match existing pavement) using dowelled joints as per BP-4. In place of the standard 4'-6" depressed apron, a 2'-3" apron shall be provided. Additional modifications are same as shown for standard No. I-3B median inlet modified D, as per plan (on Sheet 40) except W is 30", length of bar M-5-a is 10'-2", length of bar M-5-c is 9'-4" and no. of M-5-b bars are 23.

Payment for all operations described above shall be included in the contract bid prices per each Item 604 - Standard No. I-3 median inlet, modified E as per plan.

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

Modifications are same as shown for standard No. I-3B Median inlet modified D as per plan on sheet 40, except the depressed apron shall be 3'-0" and the existing pavement removed for construction of proposed inlet shall be replaced by the Item 305, Portland Cement Concrete Base (to match existing pavement) using dowelled joints as per BP-4.

Payment for above work shall be included in the contract bid price per each Item 604 - Standard No. I-3B median inlet modified F as per plan.

ITEM 604 - STANDARD NO. I-3B MEDIAN INLET, MODIFIED G AS PER PLAN (D-60, D-69)

Modifications are same as shown (on sheet 40) for standard no. I-3B median inlet, modified C as per plan except the depressed apron shall be 2'-2", the casting shall be NEENAH FOUNDRY CATALOGUE NO. R-3233-F (without curb box) or EAST JORDAN IRON WORKS CATALOGUE NO. 5130 or approved equal with maximum width of 22" and the existing pavement removed for construction of proposed inlet shall be replaced by the Item 305, Portland Cement Concrete Base (to match existing pavement) using dowelled joints as per BP-4.

Payment for above work shall be included in the contract bid price per each item 604 Standard No. I-3B median inlet, modified G as per plan.

ITEM 604 - STANDARD NO I-3B MEDIAN INLET MODIFIED H AS PER PLAN

Modifications are same as shown (on sheet 40) for standard no. I-3B median inlet modified C as per plan except the depressed apron shall be 3'-0" and the existing pavement removed to construct the proposed inlet shall be replaced by Item 305 Portland Cement Concrete Base (to match existing pavement) using dowelled joints as per BP-4.

Payment for above work shall be included in the unit price bid per each item 604 Standard no. I-3B median inlet modified H as per plan.

ITEM 604 - STANDARD NO. I-3A MEDIAN INLET MODIFIED AS PER PLAN, I-3B MEDIAN INLET MODIFIED A OR B OR C OR D OR E OR F OR G OR H OR I OR J AS PER PLAN

Payment for proposed inlets include all excavations (including removal of any obstruction), labor and materials to construct new structure. Existing pipes are to be left in place, unless otherwise noted on plans, and proposed structures 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.

The cost of this work shall be at contract bid price per each Standard No. I-3A, Median Inlet, modified as per plan, and Standard No. I-3B Median Inlet Modified A or B or C or D or E or F or G or H or I or J as per plan.

MADE A.H.S. DATE 5-6-75
 TRACED FS DATE 5-8-75
 CHECKED M.E.E. DATE 5-9-75
 SCALE NONE

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

HNTB

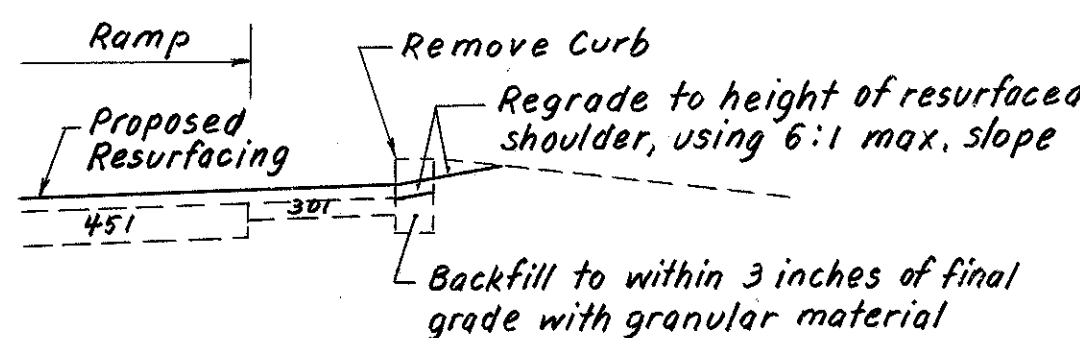
ITEM 603 12" CONDUIT, AS PER PLAN

This item shall consist of 12" diameter slotted drain, bituminous coated corrugated (2 2/3 x 1/2) steel conduit 707.05 (0.079") with 6" by 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.

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

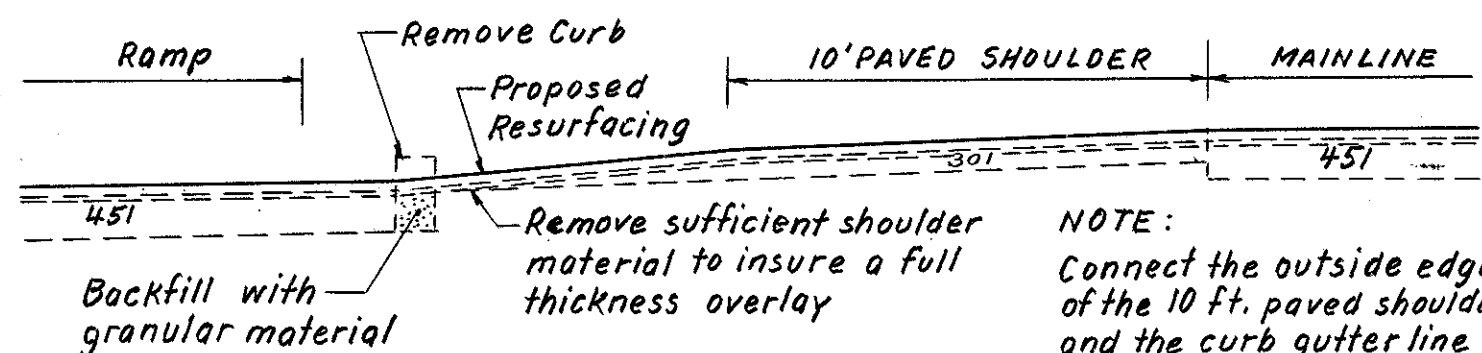
THE FOLLOWING DETAILS AND SPECIFICATIONS SHALL APPLY TO THIS ITEM OF WORK

CASE 1 - TYPE 7 CURB REMOVED



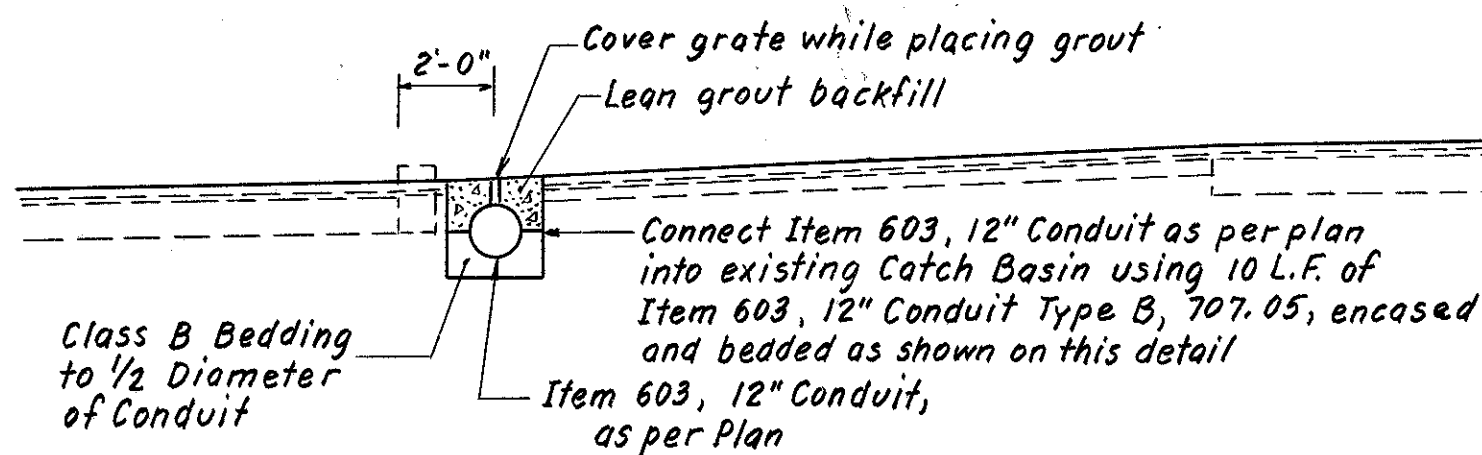
NOTES
Restore disturbed areas in conformance with Item 659
All work shown shall be included under Item 202

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



NOTE:
Connect the outside edge of the 10 ft. paved shoulder and the curb gutter line with a straight grade

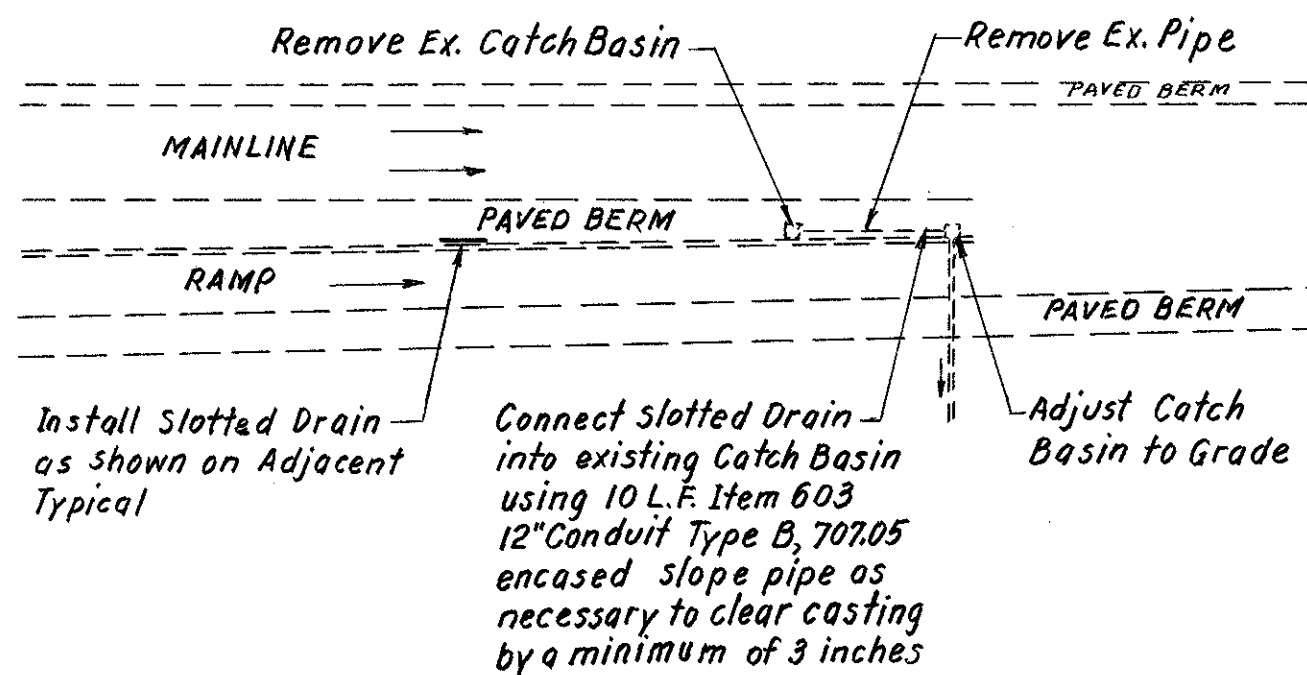
CASE 2B - TYPE B CURB REMOVED (MAINLINE AND RAMP ON DOWNGRADE)
THE DETAILS OF CASE 2A SHALL APPLY WITH THE FOLLOWING EXCEPTIONS



ALL COST 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.

TYPICAL DRAINAGE MODIFICATIONS

CASE 2B SHOWN



CURB REMOVAL AT ENTRANCE RAMP

| RAMP | LOCATION | 202 | | 603 | | 604 |
|---------------------|----------|---------------------------|---------------------|--------------------------|---------------------------|-----------------------------------|
| | | CURB REMOVED AS PER PLAN* | CATCH BASIN REMOVED | PIPE REMOVED 24" & UNDER | 12" CONDUIT, AS PER PLAN* | 12" CONDUIT TYPE B 707.05 ENCASED |
| | | LIN. FT. | EACH | LIN. FT. | LIN. FT. | EACH |
| S-E | RAMP N-E | 270 | | | | |
| E-N | RAMP W-N | 255 | | | | |
| F-2 | I-77 SB | 290 | | | 170 | 10 |
| W-5 | I-77 SB | 270 | | | | |
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| | | | | | | |
| Total I-77 (Code I) | | 1085 | | | 170 | 10 |

TRAFFIC CONTROL NOTES

| FHWA REGION | STATE | PROJECT |
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| 5 | OHIO | |

8
169

CUYAHOGA COUNTY
CUY - 77-14.12
CUY - 90-16.21

SIGNING

202 REMOVAL OF GROUND MOUNTED SIGNS

THIS WORK SHALL CONSIST OF THE REMOVAL OF GROUND MOUNTED SIGNS AS SHOWN ON THE PLANS.

At

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 OTHER SIGNS:

202 REMOVAL OF GROUND MOUNTED SIGNS AT THE CONTRACT BID PRICE PER EACH.

202 REMOVAL OF GROUND MOUNTED

THIS ITEM OF WORK SHALL CONSIST OF THE REMOVAL OF GROUND MOUNTED SIGN SUPPORTS AND FOUNDATIONS AS INDICATED IN THE PLANS.

THE FOUNDATIONS SHALL BE REMOVED TO A MINIMUM OF ONE FOOT BELOW THE GROUND SURFACE. BACKFILLING, RESTORATION AND DISPOSAL OF SURPLUS MATERIAL WILL ALSO BE INCLUDED IN THIS WORK.

BASIS OF PAYMENT WILL BE AS FOLLOWS WHICH PRICE WILL INCLUDE ALL LABOR AND EQUIPMENT NECESSARY TO PERFORM THE REQUIRED ITEM OF WORK:

- (1) 202 REMOVAL OF GROUND MOUNTED SIGN SUPPORTS, NO. 8 POSTS AND SMALLER, AT THE CONTRACT BID PRICE PER EACH.
- (2) 202 REMOVAL OF GROUND MOUNTED SIGN SUPPORTS, BEAMS LARGER THAN NO. 8 POSTS, AT THE CONTRACT BID PRICE PER EACH.

202 REMOVAL OF GROUND MOUNTED SIGN INSTALLATIONS

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.

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:

- (1) 202 REMOVAL OF GROUND MOUNTED MAJOR SIGN INSTALLATIONS AT THE CONTRACT BID PRICE PER EACH, FOR SIGNS FORTY (40) SQUARE FEET OR GREATER.
- (2) 202 REMOVAL OF GROUND MOUNTED SIGN INSTALLATIONS AT THE CONTRACT BID PRICE PER EACH, FOR SIGNS LESS THAN FORTY (40) SQUARE FEET.

202 REMOVAL OF OVERHEAD SIGN SUPPORT BY TYPE

THIS WORK SHALL CONSIST OF THE REMOVAL OF THE OVERHEAD SIGN SUPPORT SHOWN ON THE PLANS. WORK SHALL ALSO INCLUDE REMOVAL OF SIGN SUPPORT FOUNDATIONS AND DISPOSAL OF ANY SURPLUS MATERIAL.

TO ASSURE MAINTENANCE OF ADEQUATE TRAFFIC CONTROL AT ALL TIMES, NO SIGNS SHALL BE REMOVED WITHOUT THE APPROVAL OF THE ENGINEER.

REMOVAL OF THE OVERHEAD MOUNTED SIGNS AND/OR SIGN LIGHTING IS COVERED UNDER A SEPARATE PAY ITEM.

PAYMENT FOR REMOVAL OF THE SIGN SUPPORT WILL INCLUDE ALL NECESSARY LABOR AND EQUIPMENT REQUIRED TO PERFORM THE REQUIRED WORK AS INDICATED ABOVE.

BASIS OF PAYMENT WILL BE AT THE CONTRACT PRICE PER EACH FOR 202 REMOVAL OF OVERHEAD SIGN SUPPORT BY TYPE.

202 REMOVE OVERHEAD MOUNTED SIGNS

This work shall consist of the removal of overhead mounted signs and their disposal.

The work required shall include the removal of signs, sign attachment assemblies and miscellaneous hardware. Materials removed will become the property of the Contractor.

Removal of sign lighting items is covered under a separate pay item

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

Basis of payment will be as follows which price will include all labor, materials, equipment and incidentals necessary to perform the required item of work:

202 Remove overhead mounted signs at the contract bid price per each.

202 REMOVAL OF OVERPASS STRUCTURE MOUNTED SUPPORT,

This work shall consist of the removal of the overpass structure mounted sign supports shown on the plan. Work shall also include the removal of all anchor bolts flush with the surface of the parapet concrete or removal entirely and the resulting holes filled with grout.

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

Removal of overhead mounted signs and sign lighting items are covered under separate pay items.

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

Basis of payment will be at the contract price per each Item 202 Removal of Overpass Structure Mounted Support,

844 GROUND MOUNTED SUPPORTS, NO. 4 POST, AS PER PLAN

THIS WORK SHALL CONSIST OF THE FURNISHING, ASSEMBLY AND INSTALLATION OF TWO (2) NO. 2 DRIVE POSTS (NO. 4 POST) IN COMBINATION WITH A SQUARE WELDED OR SEAMLESS GALVANIZED TUBULAR POST EXTENSION SPLICED TO THE TOP OF THE NO. 4 POST. DETAILS ARE SHOWN ON STANDARD CONSTRUCTION DRAWING TC-41.50.

WORK SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, AND HARDWARE NECESSARY TO PERFORM THE REQUIRED WORK.

BASIS OF PAYMENT WILL BE FOR 844 GROUND MOUNTED SUPPORTS, NO. 4 POST, AS PER PLAN, PER LINEAR FOOT MEASURED BY THE TOTAL OVERALL LENGTH OF COMBINATION POST.

844 REMOVE AND REERECT GROUND MOUNTED SIGNS

THIS WORK SHALL INCLUDE THE REMOVAL OF EACH SIGN AND THE REERECTION ON THE GROUND MOUNTED SUPPORT AT THE LOCATION SHOWN IN THE PLANS.

BASIS OF PAYMENT WILL BE AS FOLLOWS AND WILL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT AND INCIDENTALS NECESSARY TO PERFORM THE REQUIRED WORK:

- (1) 844 REMOVE AND REERECT GROUND MOUNTED MAJOR SIGNS, AT THE CONTRACT PRICE BID PER EACH, FOR SIGNS FORTY (40) SQUARE FEET OR GREATER.
- (2) 844 REMOVE AND REERECT GROUND MOUNTED SIGNS, AT THE CONTRACT PRICE BID PER EACH, FOR SIGNS LESS THAN FORTY (40) SQUARE FEET.

844 SIGN ATTACHMENT TO EXISTING SUPPORT

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING COMPLETE IN PLACE THE REQUIRED OVERHEAD SIGN SUPPORT BRACKETS, SIGN LIGHTING ARMS, LUMINAIRE MOUNTING STRUCTURES, OTHER NECESSARY STRUCTURAL MEMBERS AND MISCELLANEOUS HARDWARE ON EXISTING OVERHEAD SIGN SUPPORTS WHERE INDICATED IN THE PLANS.

PAYMENT SHALL BE FOR EACH OVERHEAD SIGN TO BE ATTACHED

PAYMENT WILL INCLUDE ALL LABOR AND MATERIALS REQUIRED TO PERFORM THE WORK AS INDICATED FOR 844 SIGN ATTACHMENT TO EXISTING SUPPORT, AT THE CONTRACT BID PRICE PER EACH.

844 REMOVE AND REERECT OVERHEAD SIGN SUPPORT, BY TYPE

THIS WORK SHALL CONSIST OF THE REMOVAL AND REERECTION OF THE OVERHEAD SIGN SUPPORT SHOWN IN THE PLANS.

WORK SHALL ALSO INCLUDE THE REMOVAL OF THE SIGN SUPPORT FOUNDATIONS AS REQUIRED IN 202. IN ADDITION, ANCHOR BOLTS IN THE NECESSARY QUANTITY SHALL BE FURNISHED ONLY AND ARE INCLUDED AS PART OF THIS ITEM OF WORK.

PAYMENT FOR THIS WORK WILL BE MADE AT THE CONTRACT UNIT PRICE BID PER EACH, 844 REMOVE AND REERECT OVERHEAD SIGN SUPPORT, BY TYPE, INSTALLED IN PLACE AND ACCEPTED, WHICH PRICE WILL BE FULL COMPENSATION FOR FURNISHING ALL ANCHOR BOLTS, 2" AND 3/4" EMT CONDUIT ELLS (FOR INSTALLATION UNDER 844 CONCRETE FOR ANCHOR BASE FOUNDATIONS) AND FOR TRANSPORTING AND INSTALLING THE OVERHEAD SIGN SUPPORT STRUCTURE INCLUDING ALL COMPONENT PARTS NECESSARY TO MAKE A COMPLETE WORKABLE INSTALLATION, READY FOR SIGN ERECTION, INSTALLATION OF DISCONNECT SWITCH AND ENCLOSURE, GROUND ROD AND WIRE CONNECTIONS AND SIGN WIRING.

TRAFFIC CONTROL NOTES

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| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21

SIGNING (CONT.)

844 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.

844 ALTERNATE DESIGNS FOR SIGN SUPPORTS

IF THE CONTRACTOR DESIRES TO FURNISH ALTERNATE DESIGN(S) OR MATERIALS FOR SIGN SUPPORTS, THE ALTERNATE DESIGN(S) SHALL BE SUBMITTED TO THE STATE AT LEAST 21 DAYS PRIOR TO OPENING OF BIDS. THE BIDDER WILL BE NOTIFIED AS TO ACCEPTANCE OR REJECTION OF ALTERNATE DESIGN AT LEAST 7 DAYS BEFORE BIDS ARE TO BE OPENED. SUBMISSIONS SHALL BE MADE TO THE OHIO DEPARTMENT OF TRANSPORTATION, BUREAU OF DESIGN SERVICES, 25 SOUTH FRONT STREET, COLUMBUS, OHIO 43215.

844 DRIVE POSTS

DRIVE POSTS SHALL BE STEEL IN ACCORDANCE WITH 712.20.

844 POLE MOUNTED SIGN ATTACHMENT

THIS WORK SHALL CONSIST OF THE FURNISHING AND INSTALLATION OF STAINLESS STEEL STRAPS, MOUNTING BRACKETS, AND HARDWARE AS DETAILED ON SHEET 92.

BASIS OF PAYMENT WILL BE AT THE CONTRACT BID PRICE PER EACH 844 POLE MOUNTED SIGN ATTACHMENT WHICH PRICE WILL INCLUDE ALL LABOR, MATERIAL, EQUIPMENT AND INCIDENTALS NECESSARY TO PERFORM THE REQUIRED ITEM OF WORK.

844 BRIDGE CONNECTIONS FOR SMALL SIGNS

This work shall consist of the furnishing, fabrication, and erection of the bridge connection as detailed on Sheet 92.

Payment for the signs is covered under separate items within the plans.

Basis of payment will be as follows and will include all materials, equipment, labor and incidentals required to perform the work.

844 Bridge Connections For Small Signs, at the contract bid price per each.

844 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 ENTRUSHEET 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.

SIGN LIGHTING

202 & 844 REMOVE AND REERECT SIGN LIGHTING FIXTURES

THIS WORK SHALL CONSIST OF THE DISMANTLING OF SIGN LIGHTING FIXTURES AND APPURTENANCES AND THEIR DISPOSAL OR REERECTION.

SIGN LIGHTING FIXTURES NOT REUSED SHALL BE STORED WITHIN THE PROJECT FOR REMOVAL BY STATE FORCES.

THE WORK REQUIRED FOR REERECTION SHALL INCLUDE CLEANING AND REPAIR, PROVIDING NEW HARDWARE IF NECESSARY, AND THE INSTALLATION OF NEW LAMPS OF THE PROPER TYPE AND SIZE AFTER REERECTION, IN ACCORDANCE WITH 844.10.

INCIDENTAL MATERIALS NOT REUSED WILL BECOME THE PROPERTY OF THE CONTRACTOR, WHO SHALL DISPOSE OF THEM.

BASIS OF PAYMENT WILL BE AS FOLLOWS WHICH PRICE WILL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT AND INCIDENTALS NECESSARY TO PERFORM THE REQUIRED WORK.

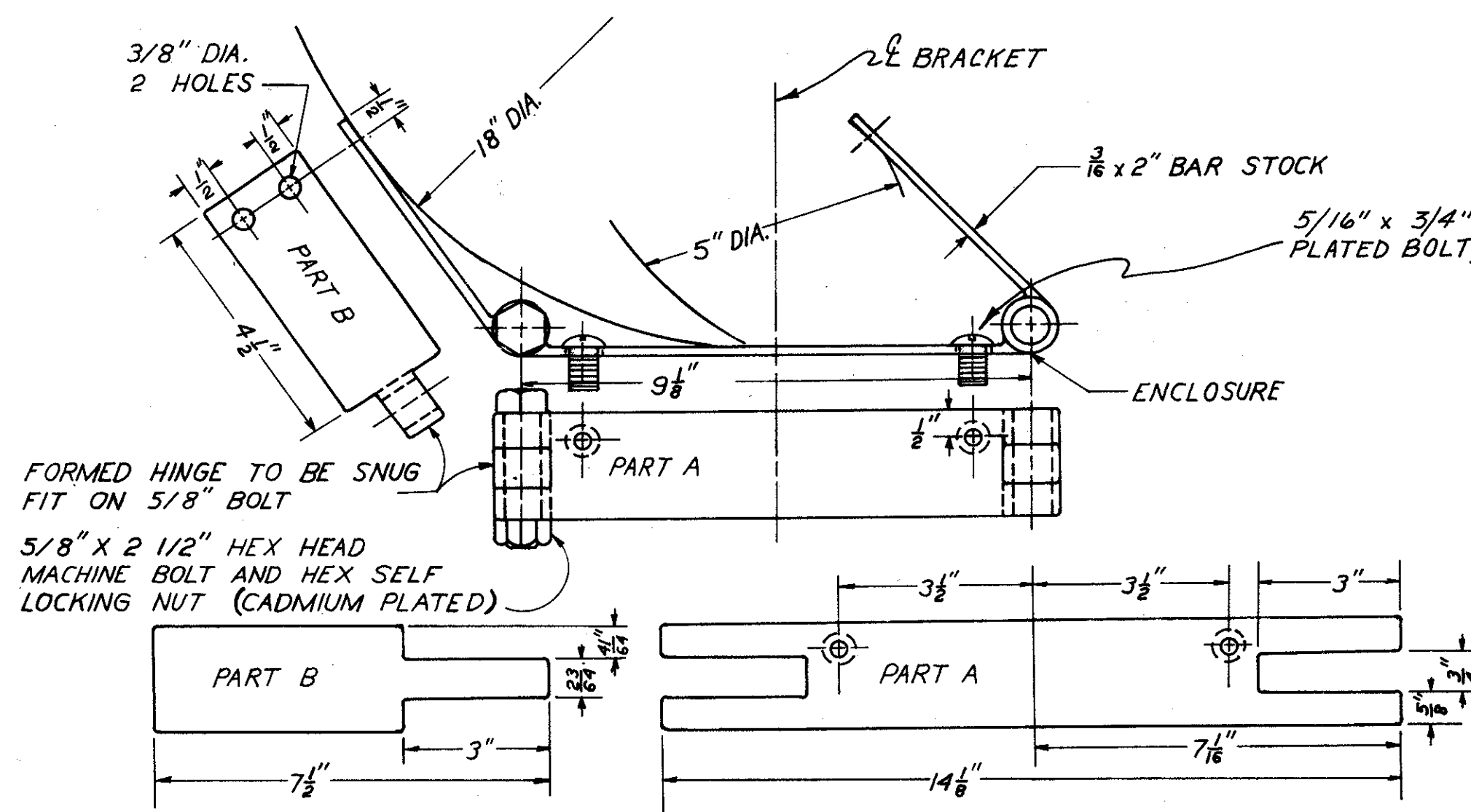
- (1) 202 REMOVE SIGN LIGHTING FIXTURES FOR STORAGE, AT THE CONTRACT BID PRICE PER EACH.
- (2) 844 REMOVE AND REERECT SIGN LIGHTING FIXTURES, AT THE CONTRACT BID PRICE PER EACH.

844 DISCONNECT SWITCH ENCLOSURE MOUNTING BRACKETS

This work shall include the fabricating, furnishing and installation of disconnect switch enclosure mounting brackets when enclosures are mounted on existing overhead sign supports (not part of this project) or attached to concrete bridge columns or abutments.

Work shall consist of field drilling, attachment and hardware for installation on an existing overhead sign support, as detailed on this sheet. For details of attachment to concrete bridge columns or abutments see Standard Construction Drawing TC-32.11.

Basis of payment will be at the contract bid price per each, 844 Disconnect Switch Enclosure Mounting Bracket which price will be full compensation for furnishing, fabrication and installation including all labor, material and incidentals necessary to complete this work.



ENCLOSURE MOUNTING BRACKET
(EXISTING SUPPORT MOUNTING DETAIL)
NO SCALE

844 SIGN SERVICE, AS PER PLAN

This item shall consist of providing complete electrical service per 844.10, under existing pavement and contiguous shoulders, from an existing pullbox to a median mounted disconnect switch, by an approved method such as "Drilling" or "Jacking" and as detailed on Standard Construction Drawing TC-32.10.

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 existing utilities. All push pits or necessary excavation shall be back-filled and restored in accordance with 844.10.

Payment shall be at the contract unit price bid per each, including full compensation for excavation, drilling or jacking, backfilling, compaction, restoration of pavement and all labor, material, equipment and incidentals necessary to complete the work for: 844 Sign Service, As Per Plan.

844 PADLOCKS AND KEYS

Padlocks furnished shall be either brass or bronze padlocks equal to Master No. 4 BKA or Wilson Bohannon 660 and shall be keyed in accordance with 844.10.

Payment will be included in the bid for the item(s) being locked.

844 BALLASTS

IN ADDITION TO THE REQUIREMENTS OF 844.10, BALLASTS FOR MERCURY VAPOR LUMINAIRES SHALL BE LOCATED WITHIN THE LUMINAIRE HOUSING OR CONTAINED IN A WEATHERPROOF HOUSING CONTIGUOUS TO THE LUMINAIRE.

202 REMOVE OVERHEAD STRUCTURE MOUNTED WARNING FLASHERS, AS PER PLAN

This item or work shall involve the complete and careful removal of the structure mounted warning flasher units from the Hamilton Ave. bridge parapet over I-90. All appurtenances, conduit and wires shall be removed to the source of the electrical service connection.

The warning flasher units and appurtenances removed shall be stored as directed by the Engineer for removal by State forces. All items not removed by State forces shall become the property of the Contractor.

Payment for this item of work will include all labor, materials and equipment required to perform the work at the lump sum bid price for:

Item 202 - Remove Overhead Structure Mounted Warning Flashers, As Per Plan

S625 ELECTRICAL EQUIPMENT

This item of work shall provide for an 18" Pullbox, 2 - IX Connector Kits and the connection to the existing lighting circuit at Sta. 74+00 I-90, shown on Sheet 74, and in accordance with S625.

Payment for this item shall be on a lump sum basis and include all electrical materials, equipment and incidentals, including specified tests required, complete in place.

TRAFFIC MAINTENANCE NOTES

QUANTITY CALCULATIONS
 MADE BY DSP DATE 10-27-77
 CHECKED BY FWH DATE 11-21-77

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| FHWA REGION | STATE | PROJECT |
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9A
169

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

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. | 1/2 Inch Plywood |

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

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

| TOTAL SIGN ASSEMBLY AREA (Sq. Ft.) | SIGN LENGTH (Horiz.) | SUPPORT TYPE |
|------------------------------------|----------------------|------------------|
| 10 or Less | 4 Ft. or Less | 4-10 Ft. or More |
| 10-20 | 1-3 Lb. Post | 2-3 Lb. Post |
| 21-40 | 1-6 Lb. Beam | 2-3 Lb. Post |
| 41-75 | 2-6 Lb. Beam | 3-6 Lb. Beam |

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, current edition, latest revisions.

Standards and sign layouts for temporary signs are available from the Office of Highway 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.

DRUMS AND TEMPORARY BEAM RAIL FOR MAINTAINING TRAFFIC

Maintenance of traffic through and around work areas on this project shall be done with drums or temporary beam rail per Item 606 of the Construction and Material Specifications, except that drums shall be spaced at intervals of 50 feet unless specified to be 25 feet in the plans or directed by the Engineer.

It is estimated that approximately 2000 Lin. Ft. is required for the above. Payment for the above shall be included in the lump sum bid for item 614 Maintaining Traffic.

844 Remove and reerect overhead sign supports as per plan

This item of work shall consist of the removal and reerection of overhead sign supports to coincide with the maintenance of traffic plans for I.R. 77.

Work shall include the removal of the sign span including sign lighting, wiring and hardware, end frame (median side only) and foundation to approximately 6 inches below temporary pavement grade (when located off structure).

Required work on structure mounted supports shall include the removal of the end frame anchor bolts (bolted connection) at sta. 89+90 SB and the removal of the mounting framework at sta. 101+04 SB. The latter shall be accomplished by either 1) Unbolting the entire support frame from the plate girder web stiffener or 2) by cutting the support beam free from the mounting frame.

Reerection includes all bolting, welding and painting as per 514 to return the support to its pre-construction condition.

Sign supports, end frames and spans shall be stored within the I.R. 490 interchange area (on the closed roadways). Temporary ground mounted guide signs as shown on the traffic control plans shall be installed before the corresponding overhead sign support is removed.

Each overhead sign support shall be reerected as soon as possible after the median is no longer used for maintaining traffic.

The concrete foundation shall be rebuilt to its original dimensions or modified as detailed. Rebars shall be spliced using approved mechanical connectors or threaded sleeves. Anchor bolts shall be spliced using threaded sleeves only. All work shall be subject to the approval of the Engineer.

All new materials required to perform the subject work shall meet the requirements of 844.03. Mechanical rebar connectors, threaded sleeves, reinforcing bars, electrical conduits, electrical connector kits and any other necessary hardware required to perform this work shall be furnished by the contractor and are included as part of this item of work.

Before placing new concrete, the surface to be bonded to shall be thoroughly cleaned and covered with a bonding grout as approved by the Engineer.

The following is a list of overhead sign supports which will require the aforementioned work.

| STATION | TYPE |
|----------------|---------------|
| 1-77 80+78 NB | off structure |
| 1-77 89+90 SB | on structure |
| 1-77 101+14 SB | on structure |
| 1-77 108+81 NB | off structure |
| 1-77 125+45 NB | off structure |
| 1-77 32+94 SB | off structure |

For additional details see sheet no. 10A.

Payment for this work shall be made at the contract unit price bid per each, item 844 Remove and reerect overhead sign support as per plan, which price will be full compensation for furnishing all materials and labor necessary to remove and subsequently reerect each sign support, including foundation, to its pre-construction condition or modified as shown on the construction details.

| Item | Cost Participation I |
|---------------|----------------------|
| 1-77-5(18)161 | 6 each |

"T" Shaped steel plates over structure open joints

"T" Shaped steel plates shall be anchored to the bridge deck as approved by the engineer.

Any difference in grade between the steel plate and the bridge deck shall be ramped with item 404-asphalt concrete at a rate not to exceed 1" per 5 feet. All costs for the installation and subsequent removal of the steel plates and asphalt shall be included in the unit price 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 Panel, Type A. The Contractor shall refer to TC-35.10, Item 844 and the provision set forth in the Ohio Manual of Uniform Traffic Control Devices for Streets and Highways, current edition, latest revision, for all information regarding furnishing, maintaining and use of Flashing Arrow Barricades.

Payment shall be included under item 614-maintaining traffic.

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 2. Cost to be included in item 614 Maintaining Traffic.

An estimated quantity which includes furnishing, placing, maintaining and removing the temporary lane lines has been added to the General Summary as follows:

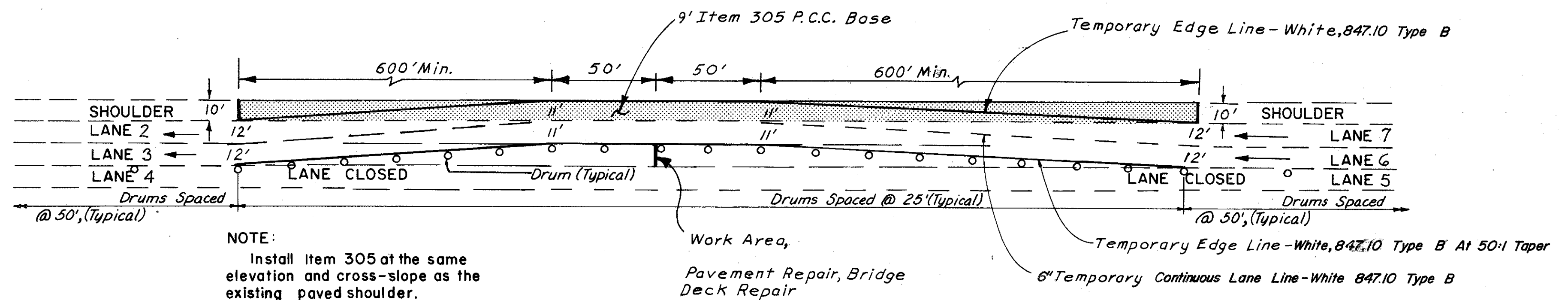
| | | | |
|---------------|------------------------|----------|----------------------|
| 1-77-5(18)161 | | | |
| Item 847 | 4" Temporary Lane Line | 14 Miles | Cost Participation I |
| 1-90-1(10)29 | | | |
| Item 847 | 4" Temporary Lane Line | 18 Miles | Cost Participation I |

Temporary Plastic Pavement Markings (Preformed)

Preformed temporary plastic pavement markings as shown below and on the maintenance of traffic detail sheets shall specifically include the cost of removing all conflicting existing pavement markings and the current removal of these temporary pavement markings at the termination of the pertinent traffic control phase.

| | |
|---|-------------------------|
| 1-77-5(18)161 | 1-90-1(10)29 |
| Item 847 4" Temporary Edge Line, 847.10 Type B | 60,000 L.F. 97,500 L.F. |
| Item 847 6" Temporary Continuous Lane Line, 847.10 Type B | 55,000 L.F. 45,000 L.F. |

Cost to be included in item 614 Maintaining Traffic.



NOTE:

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

Work Area,
Pavement Repair, Bridge Deck Repair

MAINTENANCE OF TRAFFIC AROUND WORK AREA
 Lane 7 Southbound or Lane 2 Northbound

Item 615-Flexible Temporary Pavement, Class B, As Per Plan

This item of work shall consist of the construction of a flexible temporary pavement consisting on 1 1/2 inches of 402 on 5 inches of 301. The following estimated quantity is included in the general summary for providing temporary pavement within the median area or where otherwise shown.

Item 615, Flexible Temporary Pavement, Class B, As Per Plan

1-77-5(18)161 6000 S.Y. Cost Participation I
 1-90-1(10)29 4200 S.Y. Cost Participation I

MADE DSP DATE 10-27-77
 TRACED K.A.L. DATE 10-27-77
 CHECKED F.W.H. DATE 11-21-77
 SCALE None

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

HNTB

Rev. 1-9-79

TRAFFIC MAINTENANCE NOTES

TRAFFIC MAINTENANCE NOTES

| | | | |
|-------------|-------|---------|--|
| FHWA REGION | STATE | PROJECT | |
| 5 | OHIO | | |

9B
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21

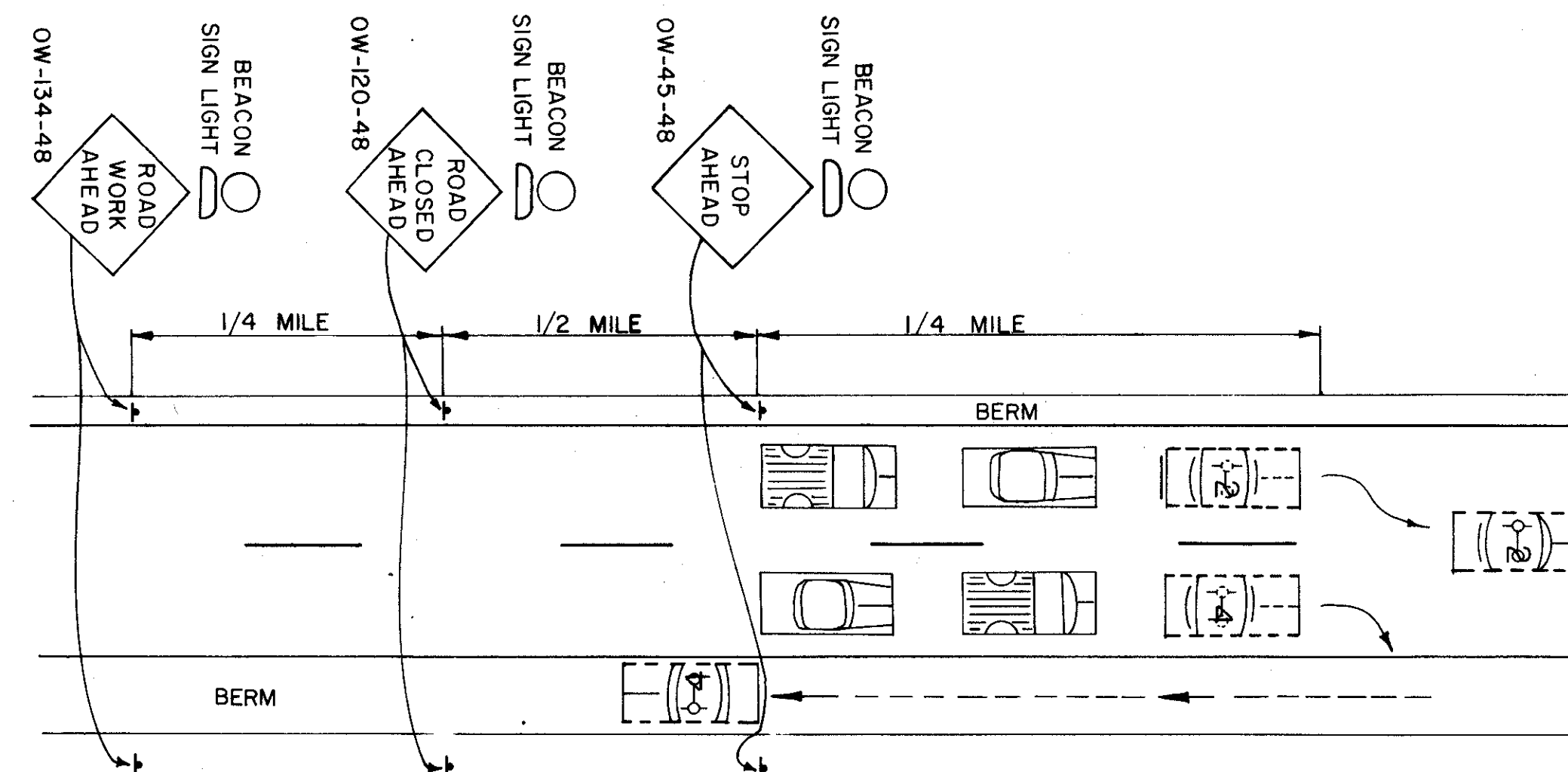
MAINTAINING VEHICULAR TRAFFIC

General Provisions:

The basic objective of this note is to emphasize to the Contractor that the planned construction occur, with a minimum of hazard, delay and inconvenience to the motoring public using the highway. In general, the Contractor shall conduct his operations so as to achieve this objective. The following general provisions are mandatory:

- The minimum number of thru lanes to be maintained during construction will be as specified in the "General Construction Sequence" note or as otherwise noted in the plans.
- Construction shall be done in stages as outlined in the "General Construction Sequence" note. The Contractor shall notify the Engineer two (2) weeks prior to starting work on each stage, in order that the Engineer can coordinate with the District Traffic Engineer the detour signing to be performed by the Contractor.
- 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.
- Law Enforcement Officer with Patrol Car shall be used only when it is necessary for a complete stoppage of traffic. An estimated quantity of 200 Hr. for item Special, Law Enforcement Officer is included in the general summary for this purpose as further detailed in Paragraph 12.
- 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 deemed necessary for interim or permanent traffic control, shall be removed and reerected in locations approved by the Engineer.
- The Contractor shall furnish, erect and maintain all new warning and information signs necessary for maintaining traffic. The Contractor shall determine what signs are needed and advise the Engineer two (2) weeks in advance of initiating his detailed plans.
- A 35 MPH speed limit will be imposed during maintained lane operations. The 35 MPH R-24-10 signs shall be provided every 1/4 mile at locations approved by the Engineer.
- 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.

- Erection of span type and bridge mounted overhead supports shall be accomplished in such a manner that complete stoppage on all lanes of any directional roadway is not more than fifteen (15) minutes in any one (1) consecutive thirty (30) minute period. A minimum of two (2) law enforcement patrol vehicles shall be used to pace motorists to a stop. After traffic has been stopped, one (1) patrol vehicle shall travel along the roadway shoulder 500 feet behind the backup of stopped vehicles. Where stoppages occur in the vicinity of freeway entrances, the Contractor shall place flagmen on the ramps to stop traffic. Patrol vehicles shall have high-rise flashing beacons to provide adequate visibility to approaching motorists. When the Engineer deems appropriate, the Contractor shall erect and maintain "ROADWORK AHEAD", "ROAD CLOSED AHEAD", and "STOP AHEAD" signs with flashing twelve inch (12") traffic signal heads in accordance with 842.08. These signs shall be illuminated during night operation. Patrol vehicles and signs shall be located in accordance with the following sketch. This work shall be limited to the hours of 1:00 am to 5:00 am Monday thru Friday.



- The planned construction at Bridges on I-77 and I-90 shall have the following special conditions apply in addition to the general provisions for this project:

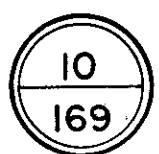
- The number of lanes and the lane widths maintained shall be as shown on the traffic control plans sheets 10B-10Z.
- Lanes shall be a minimum ten (10') feet wide. Whenever possible, additional room adjacent to the driving lanes (2 foot minimum each side desirable) should be provided.
- There shall be positive removal or obliteration of pavement markings which conflict with the temporary traffic patterns created by the proposed construction. The markings may be removed by grinding, sandblasting, chemical treatment or any other method approved by the Engineer. Upon removal, all stains shall be removed by the use of kerosene, gasoline or other approved solvent. However, the pavement shall not be damaged in any way. The removal of existing pavement marking shall be done before opening the area to traffic.
- Temporary pavement markings during the construction phases for the bridge deck work shall be made with 84710 type B tape in lieu of paint.
- During the construction on the subject bridges, the Contractor shall not disrupt or impede the normal flow of traffic on the underpass roadways.
- The traffic control phases on I-77 and I-90 are not intended to be coordinated with each other.
- Channelization of traffic thru the construction area shall be accomplished with Temporary Concrete Barrier (Type A) in maximum lengths of ten feet (10'), cast with lifting rings. Channelization of traffic in areas where temporary concrete barrier is not specified shall be done with steel drums spaced at intervals of fifty (50') feet and mounted with Type B or C Barricade Warning Lights and or Temporary Beam Rail.
- The impact attenuator and temporary concrete barrier used during the phased construction shall become the property of the State, after completion of the work.
- Placement of final Roadway Pavement Markings shall be accomplished only Monday thru Friday between the hours of 9:00am and 3:00pm with a maximum of one lane each direction closed at any one time. The Contractor shall provide two (2) trailing vehicles 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.

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 general provisions except for item Special, Law Enforcement Officer. Payment shall be at the lump sum bid for item G14 Maintaining Traffic.

TRAFFIC MAINTENANCE NOTES

| | | |
|-------------|-------|---------|
| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |



CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

SUGGESTED GENERAL CONSTRUCTION SEQUENCE

The Contractor is reminded that, in the conduct of this project, his sequence of operation 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, traffic shall be maintained by staging construction of the major work items. When traffic lanes are closed during a particular stage, all operations to that lane shall be performed in an orderly sequence such that it will not be necessary to again close that lane (except for the asphalt concrete overlay and pavement marking).

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:

| APPROX. STATION LIMITS | BASIC ROADWAY TYPICAL SECTION (EXIST. THRU LANES) | NO. OF THRU LANES TO BE MAINTAINED DURING CONSTRUCTION* |
|---|---|--|
| <u>I-77</u> | | |
| 1. Sta 45+76± to Sta 66+75 | 2 Lanes each direction 12' Median | 2 Lanes each direction using some temporary pavement |
| 2. Sta 66+75 to Sta 95± (Sta 87± to Sta 95±) | 2 Lanes each direction Median transition down to 10' (on CUY-77-1459) | 2 Lanes each direction using some temporary pavement. |
| 3. Sta 95± to Sta 129+50 (Sta 95± to Sta 108±) | 3 Lanes each direction Median transitions up to 16' (on CUY-77-1459) | 2 Lanes each direction using some temporary pavement |
| 4. Sta 129+50 to Sta 47± | 3 Lanes each direction 16' Median | 2 Lanes each direction using some temporary pavement |
| 5. Sta 47± to Sta 51+77± | 2 Lanes each direction 16' Median | 2 Lanes each direction using some temporary pavement |
| <u>I-90</u> | | |
| 1. Sta 55± to Sta 83± | 3 Lanes each direction 10' Median transitions up to 16' | 2 Lanes each direction using some temporary pavement |
| 2. Sta 83± to Sta 149± | 3 Lanes each direction 16' Median | 2 Lanes each direction |
| 3. Sta 149± to Sta 155± | 3 Lanes each direction 16' Median transitions down to a 12' Median | 2 Lanes each direction |
| 4. Sta 155± to Sta 172± | 4 Lanes each direction 12' Median | 3 Lanes (E.B.) 2 Lanes (W.B.) |
| 5. Sta 172± (WB) to Sta 70± (WB) | 2 Lanes Median varies | 2 Lanes thru Innerbelt Curve (Using temporary pavement) |

*Unless otherwise directed by the Engineer or noted on the plan, 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:

- Removal of existing median pavement.
- Installation of median drainage facilities.
- Installation of concrete barrier median.
- Removal of overhead sign supports.
- Installation of overhead sign supports.
- Repair of pavement joints.
- Repair of pavement panels.
- Repair of bridge decks, trimming end dams and safety shape median.
- Installation of pressure relief joints.
- Jacking conduit under pavement (Sign Service, As Per Plan).
- Concrete Barrier at Innerbelt Curve.
- Realignment and widening of Ramp E-13.
- Overhead median mounted sign support on Memorial Shoreway (Sta 74+00 W.B. I-90).
- Asphalt Concrete Overlay.
- Pavement Marking.

SUGGESTED CONSTRUCTION SEQUENCE

STAGE 1 (I-90)

- 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.
- Install Major Work Item M.
- Begin phased construction work on Bridge CUY-90-1524, CUY-90-1628, CUY-90-1640 and CUY-90-1651, as detailed on sheets 10W - 10Z, and as follows:

PHASE I (A)

- Close Ramps E-11 and E-13 to traffic.
- Do all work for Major Work Item L which does not interfere with maintenance of traffic for this phase.

PHASE I (B)

- Remove median barrier guardrail within the limits shown.
- The resulting open joint, after the barrier guardrail's removed, shall be covered by the Contractor with a method approved by the Engineer.
- Provide Temporary Flexible Pavement, Class B, as per plan off the structure within the limits of the median concrete and guardrail removed.
- Provide a drop lane condition for westbound I-90 traffic exiting to I-77.
- Repair approach slab and backwall as detailed in the plans.

PHASE II

- Ramps E-11 and E-13 to remain closed to traffic.
- All temporary pavement marking, temporary concrete barrier and steel drums used to maintain eastbound traffic during Phase I (B), to remain in place.
- Maintenance of westbound traffic shall be revised as shown, including the installation of a temporary Fitch type attenuation device at Sta 76+27 I-90.
- Repair approach slab and backwall as detailed in the plans.
- Do all work for Major Work Item L which does not interfere with maintenance of traffic for this phase.

PHASE III

- Ramps E-11 and E-13 to remain closed to traffic.
- Temporary Fitch attenuation device installed in Phase II will be relocated at the start of work on Phase III to Sta. 76+60±.
- Control and maintenance of traffic shall be as detailed in the plans.
- Repair approach slab and backwall as detailed in the plans.
- Do all work for Major Work Item L which does not interfere with the maintenance of traffic for this phase.

PHASE IV

- Ramps E-11 and E-13 to remain closed to traffic.
- Control and maintenance of traffic shall be as detailed in the plans.
- Repair approach slab and backwall as detailed in the plans.
- Do all work for Major Work Item L which does not interfere with the maintenance of traffic for this phase.

PHASE V (not detailed in the plans)

- Complete Major Work Item L.
- Maintain traffic in accordance with the General Provisions for this project.

STAGE 2 (I-77)

- 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.
- Begin phased construction work on bridge no. CUY-77-1436C, CUY-77-1439B, CUY-77-1440A, CUY-77-1459, CUY-77-1519, CUY-77-1548, CUY-77-1564, CUY-77-1576, CUY-90-1640B, ramps E-15 and E-18 over E.9th and ramp E-15 over Broadway, as detailed on sheets 10B-10V, and as follows:
Phases I thru V B
 - Remove median barrier guardrail within the limits shown.
 - The resulting open joint, after the barrier guardrail's removal, shall be covered by the contractor with a method approved by the Engineer.
 - Provide temporary flexible pavement, Class B, as per plan, off the structure within the limits of the median concrete and guardrail removed.
 - Remove overhead sign spans as detailed on sheet 10A.
 - Provide temporary modifications to the median drainage structures as detailed on sheet 10A.

STAGE 3

- Maintain traffic on Lanes 3,4,5 and 6 and perform the necessary repair work on Lanes 1,2,7 and 8. Complete the installation of major overhead sign supports at this time.

STAGE 4

- Perform Major Work Items N and O in accordance with these plans.

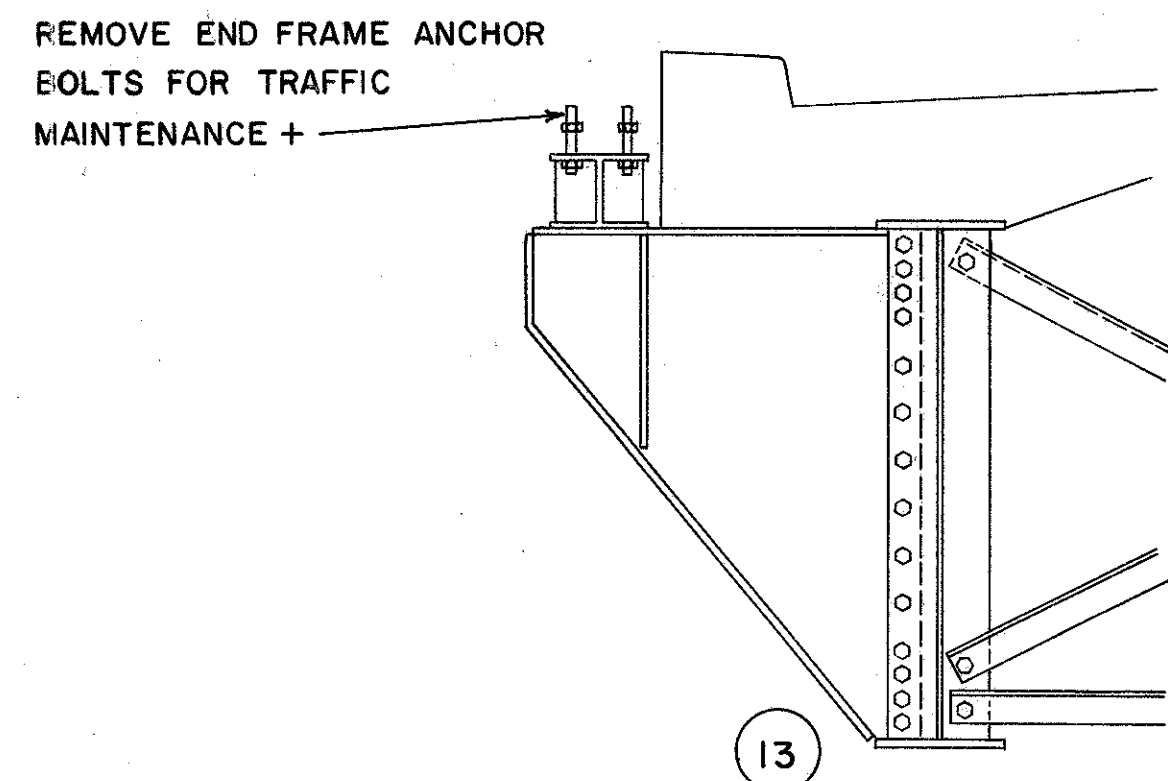
If the Contractor so elects, he may submit an alternate construction sequence provided the intent of the contract (subsection 104.01) is followed and no additional inconvenience to the traveling public results there from. No alternate plan shall be placed into effect until approval has been granted,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

TRAFFIC MAINTENANCE PLAN

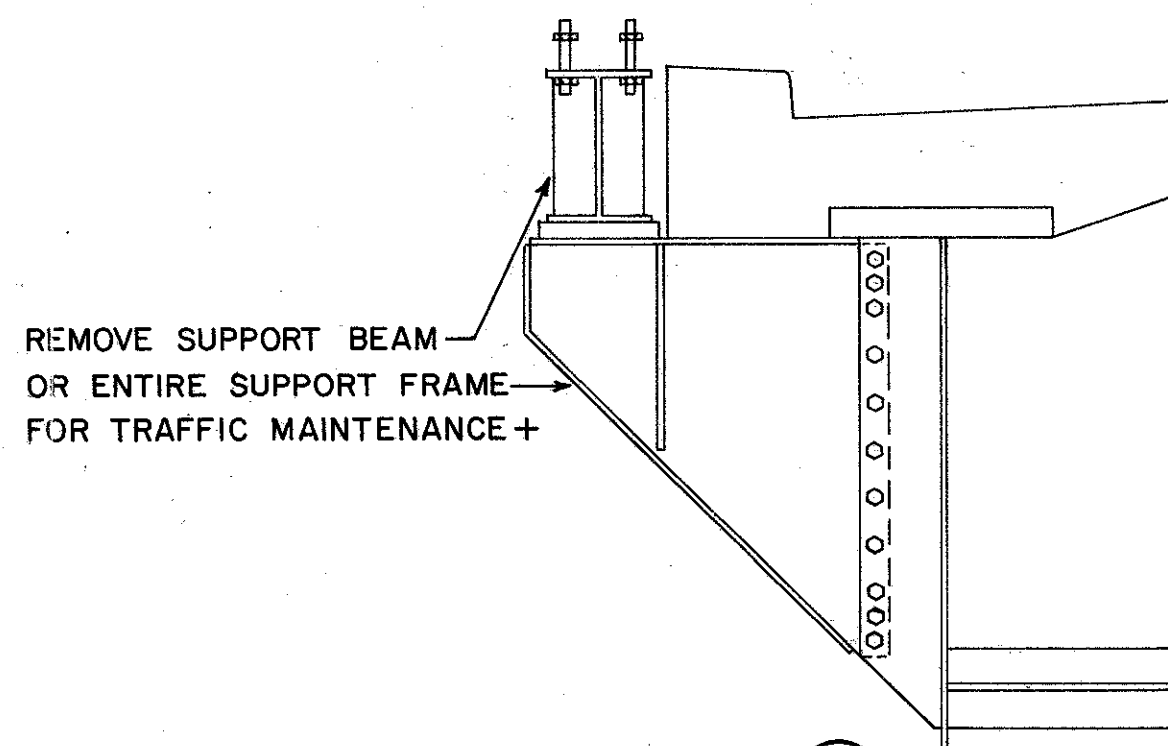
| | | | |
|-------------|-------|---------|------|
| FWHA REGION | STATE | PROJECT | 10 A |
| 5 | OHIO | | 169 |

CUYAHOGA COUNTY
CUY-77/90 - 13.79/16.21

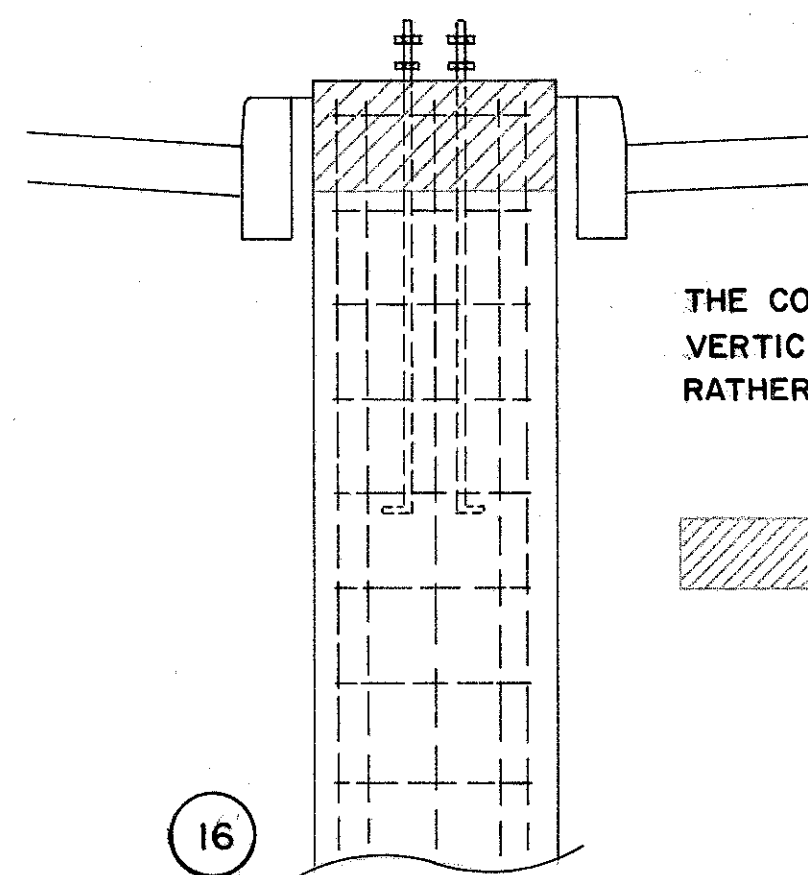


13
STA. 89+90 SB
EXISTING CROSS SECTION *
SCALE 1/2" = 1'-0"

* - PROPOSED SIMILAR EXCEPT FOR BARRIER MEDIAN ADDITION, GUARDRAIL AND END FRAME NOT SHOWN
+ - SEE GENERAL NOTES



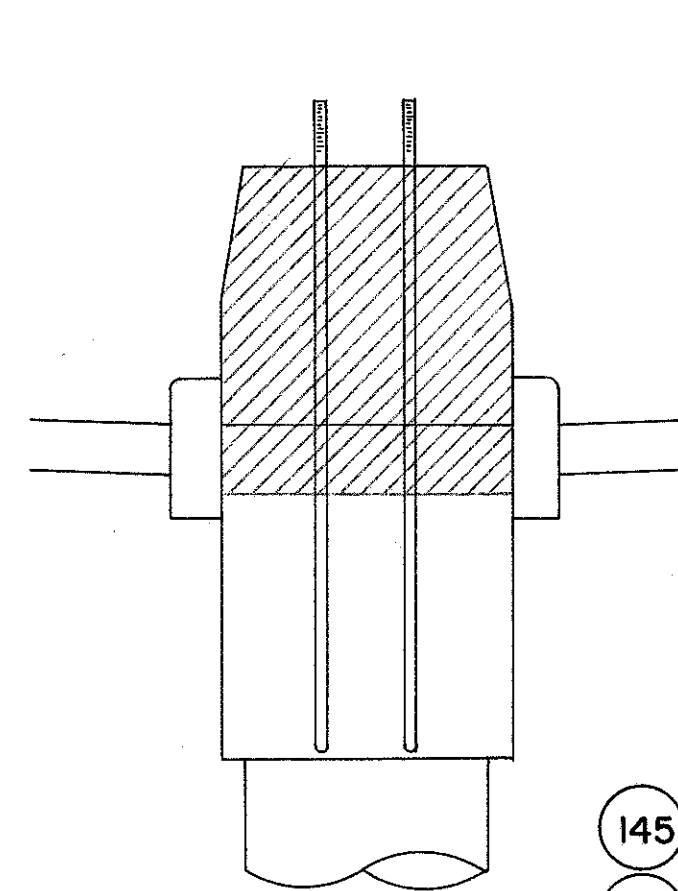
15
STA. 101+14 SB
EXISTING CROSS SECTION *
SCALE 1/2" = 1'-0"



16
STA. 108+81 NB
EXISTING CROSS SECTION *
SCALE 1/2" = 1'-0"

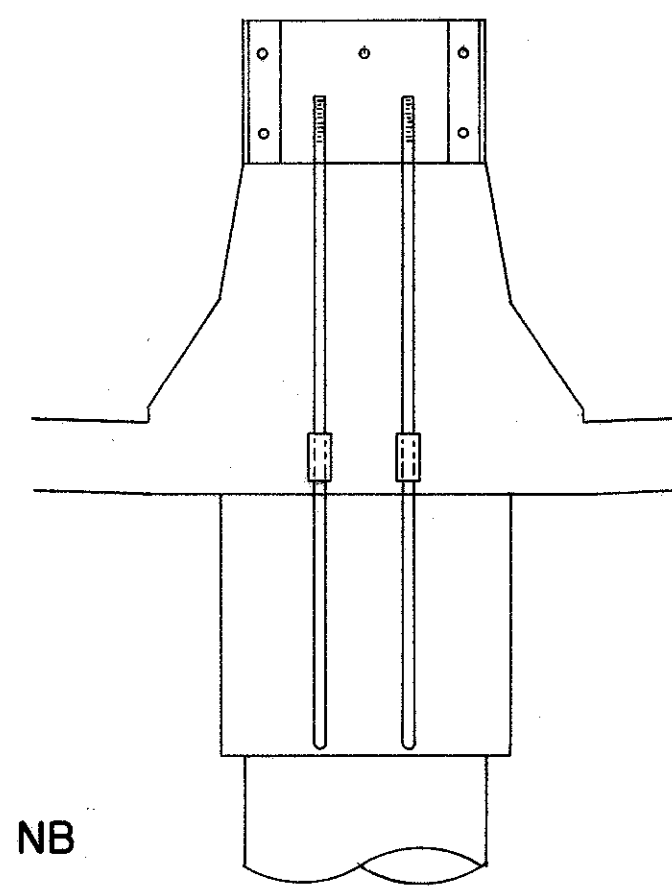
THE CONTRACTOR MAY BEND THE VERTICAL REINFORCING BARS FLUSH RATHER THAN CUTTING OFF.

— INDICATES REMOVAL



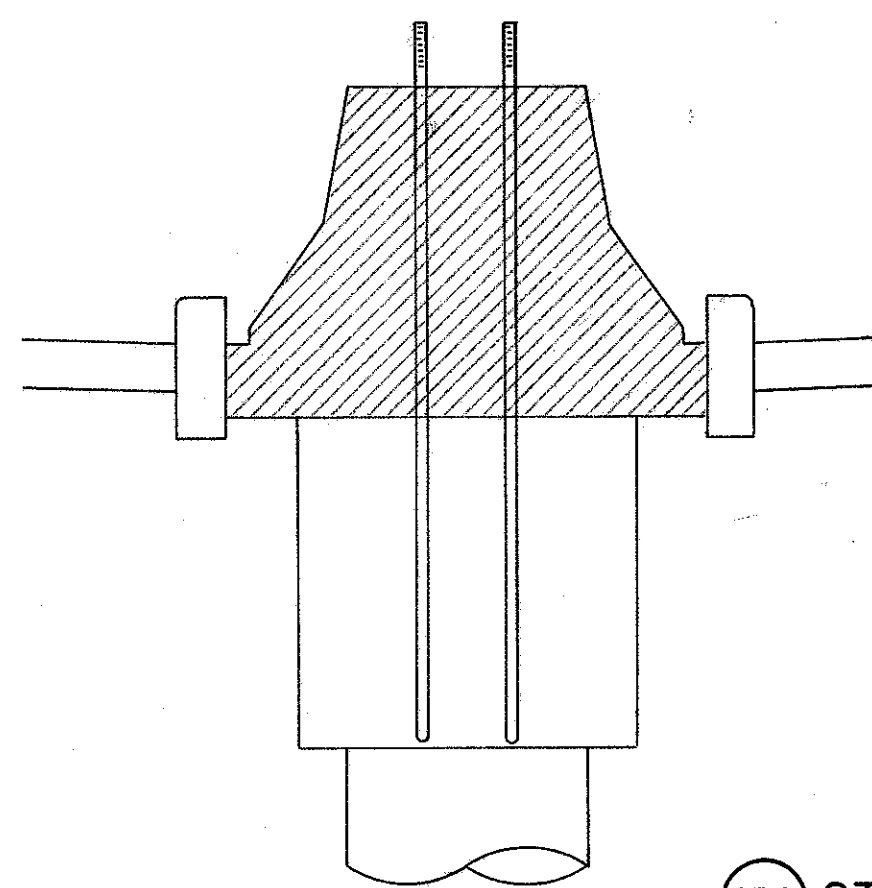
145 STA. 80+78 NB

EXISTING TYPICAL SECTION
SCALE 1/2" = 1'-0"



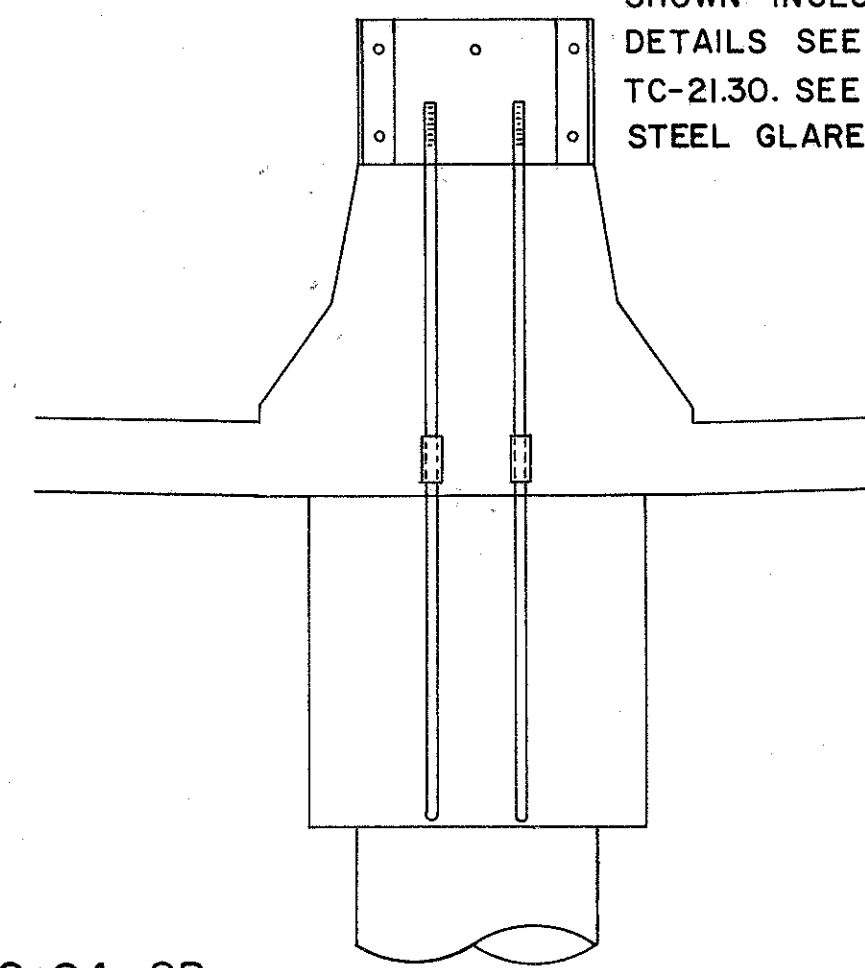
154 STA. 125+45 NB

MODIFIED TYPICAL SECTION ⊕
SCALE 1/2" = 1'-0"



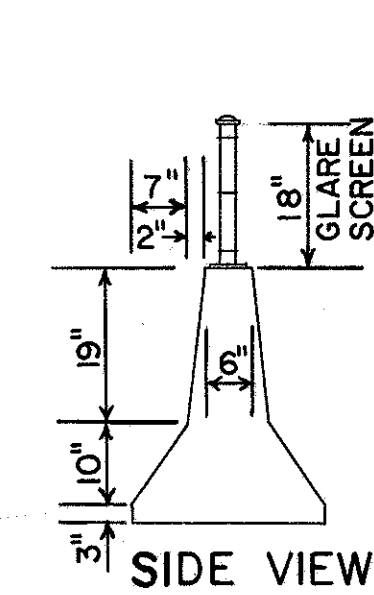
156 STA. 32+94 SB

EXISTING TYPICAL SECTION
SCALE 1/2" = 1'-0"

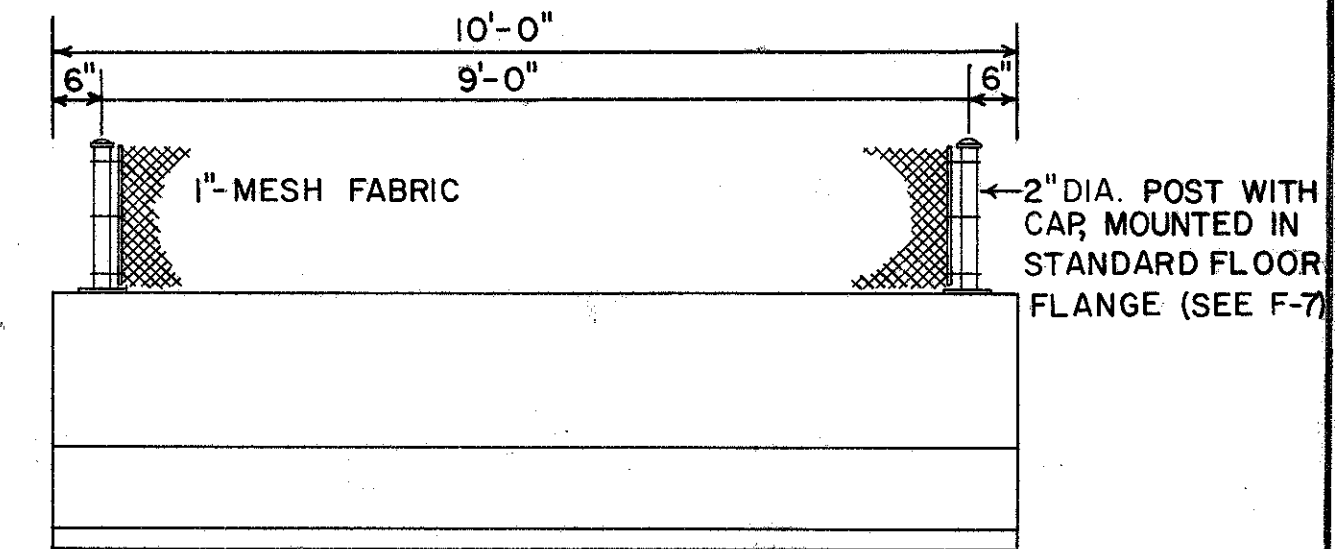


MODIFIED TYPICAL SECTION ⊕
SCALE 1/2" = 1'-0"

⊕ FOR DIMENSIONS AND DETAILS NOT SHOWN INCLUDING REINFORCING DETAILS SEE STD. CONSTR. DRAWING TC-21.30. SEE SHEET NO. 44 FOR STEEL GLARE SCREEN DETAILS.



SIDE VIEW

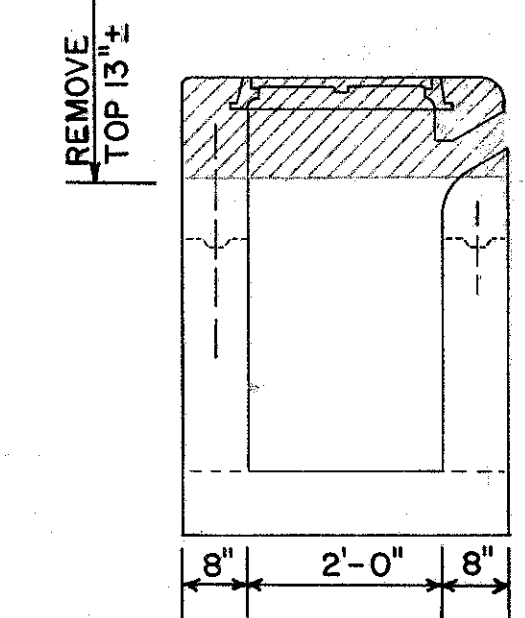


TEMPORARY CONCRETE BARRIER

NOTES:
TEMPORARY CONCRETE BARRIER SHALL MEET THE REQUIREMENTS OF ITEM 622 AND STD. CONSTR. DRWG. MC-9 DATED 11-1-77. THE BARRIER SECTIONS SHALL BE TIED TOGETHER WITH STEEL CABLE OR BOLTED TOGETHER WITH STEEL CONNECTORS ALONG THE TOP OF THE BARRIER, EITHER METHOD IS SUBJECT TO THE APPROVAL OF THE ENGINEER. WHEN THE TEMPORARY CONCRETE BARRIER IS USED FOR SEPARATING OPPOSING TRAFFIC LANES AN 18 INCH GLARE SCREEN SHALL BE INCLUDED AS DETAILED ABOVE. FOR GLARE SCREEN DETAILS AND SPECIFICATIONS NOT SHOWN SEE STD. CONSTR. DRWG. F-7. ALL COSTS FOR THE TEMPORARY CONCRETE BARRIER AND GLARE SCREEN SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614-MAINTAINING TRAFFIC. AT THE COMPLETION OF THE PROJECT ALL USED BARRIER SECTIONS AND GLARE SCREENS WHICH REMAIN USEABLE SHALL BE DELIVERED AND UNLOADED AT THE STATE MAINTENANCE YARD AT SR. 175 AND EMERY ROAD IN WARRENSVILLE HTS. OHIO.

PROVIDE NEW TEMPORARY HEAVY DUTY CASTING CONFORMING TO NEENAH R-3475 OR EAST JORDAN 5200 OR APPROVED EQUAL. SET IN BED OF FRESH MORTAR AT LEVEL GRADE.

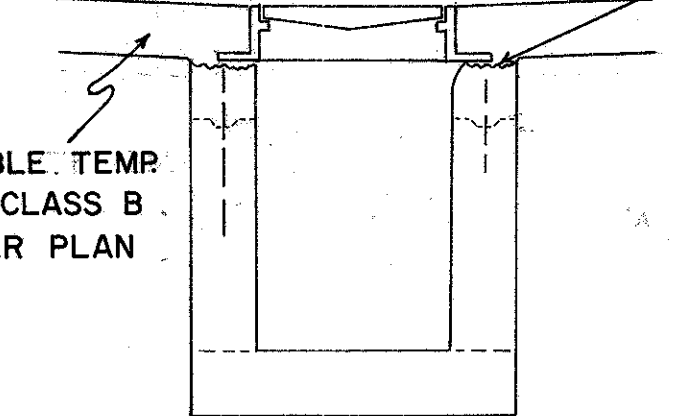
AFTER REMOVING TROUGH REBUILD INLET WALLS AS NECESSARY WITH MASONRY TO PROVIDE LEVEL SEAT FOR CASTING.



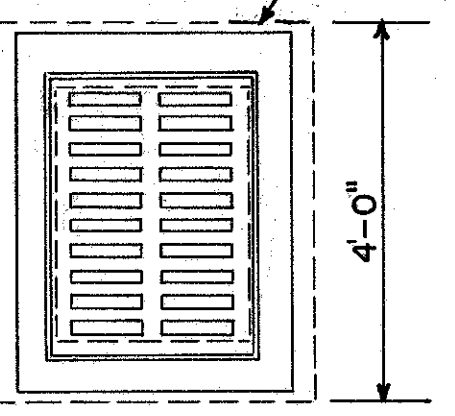
EXISTING MEDIAN INLET
SCALE 1/2" = 1'-0"

EXISTING MEDIAN INLETS ARE SIMILAR TO CURRENT STD. CONSTR. DRWG. 1-2A. (TROUGH NOT SHOWN)

FLEXIBLE TEMP PAV'T, CLASS B AS PER PLAN



PROFILE VIEW



TOP VIEW

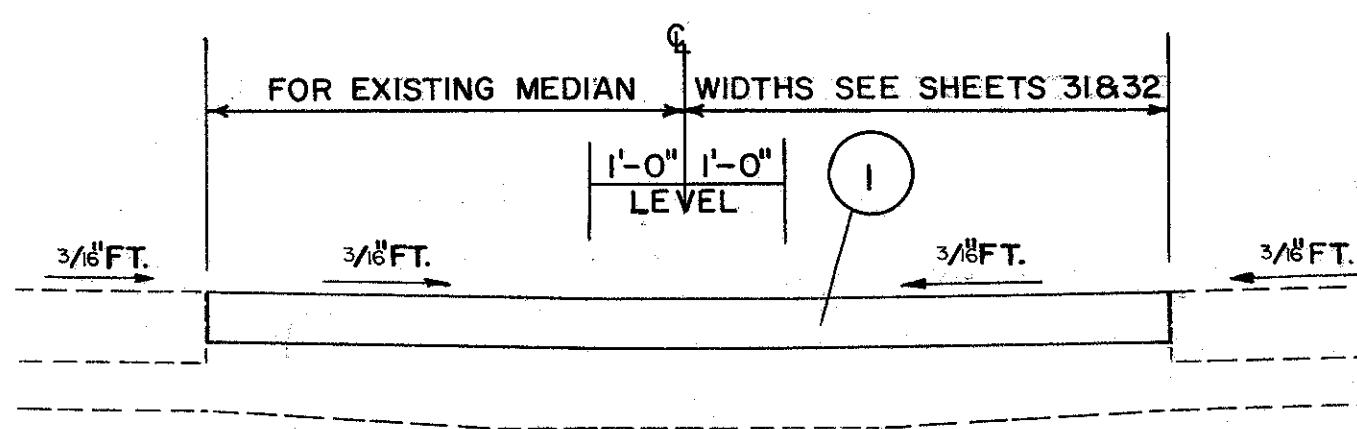
MODIFIED MEDIAN INLET

THE MODIFIED MEDIAN INLETS AS SHOWN ABOVE ARE TO BE USED WHERE THE MAINTENANCE OF TRAFFIC PLANS INDICATE THE MEDIAN IS TO BE USED FOR MAINTAINING TRAFFIC AND A POSITIVE DRAINAGE SYSTEM IS REQUIRED. ALL COSTS OF THE PARTIAL REMOVAL AND THE EVENTUAL TOTAL REMOVAL OF THE AFFECTED MEDIAN INLETS SHALL BE INCLUDED IN THE COST OF THE PERTINENT NEW 604 ITEM. ALL OTHER COSTS FOR MATERIALS AND LABOR NECESSARY TO MODIFY THE INLETS AS SHOWN SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614-MAINTAINING TRAFFIC.

THE FOLLOWING IS A LIST OF MEDIAN INLETS WHICH WILL REQUIRE THE ABOVE MODIFICATION:

| | | |
|------|------------|------------|
| 1-77 | STA. 66+50 | STA. 85+50 |
| | STA. 69+50 | STA. 86+62 |

THE REMAINDER OF MEDIAN INLETS (8 LOCATIONS ON 1-77 & 8 LOCATIONS ON 1-90) SHALL BE SLABBED OVER AFTER PARTIAL REMOVAL TO SUPPORT THE PROPOSED TEMPORARY PAVEMENT. ALL COSTS FOR THE INSTALLATION AND EVENTUAL REMOVAL OF THE FOREMENTION INLET SLABS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614-MAINTAINING TRAFFIC.



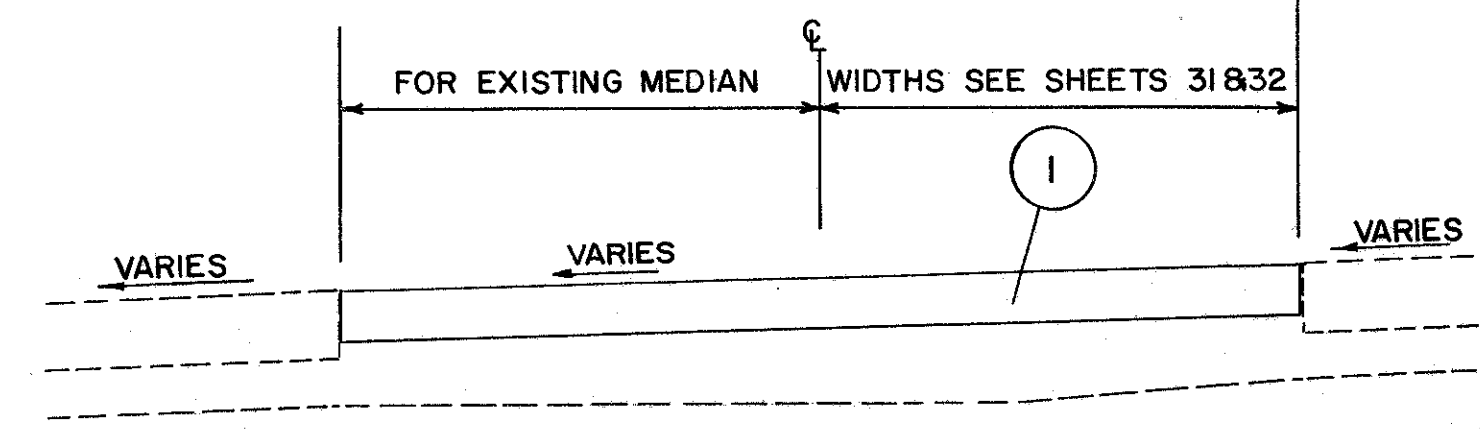
NORMAL SECTION

1-77
STA. 66+00 TO STA. 75+13.27
STA. 79+39.20 TO STA. 87+29.50
+ STA. 130+25 TO STA. 34+02.53
+ STA. 36+16.47 TO STA. 42+45.12
1-90
+ STA. 73+96.25 TO STA. 84+80

TEMPORARY MEDIAN PAVEMENT
FOR EXISTING TYPICALS SEE SHEET NO. 31

1 - 6 1/2" - FLEXIBLE TEMPORARY PAVEMENT CLASS B, AS PER PLAN (1 1/2" - 402 ON 5" - 301)

+ - REVERSE ALL SLOPES SHOWN ON TYR SECTION
+ - INCLUDES TRANSITIONS



SUPERELEVATED SECTION +

1-77
STA. 107+52.62 TO STA. 118+89.71
STA. 124+11.43 TO STA. 130+25
STA. 44+54.88 TO STA. 49+30.16
STA. 51+07.08 TO STA. 51+77.74
1-90
STA. 54+65.78 TO STA. 58+79.98
STA. 61+16.05 TO STA. 65+10.18
STA. 68+19.03 TO STA. 70+89.23

TRAFFIC MAINTENANCE PLAN

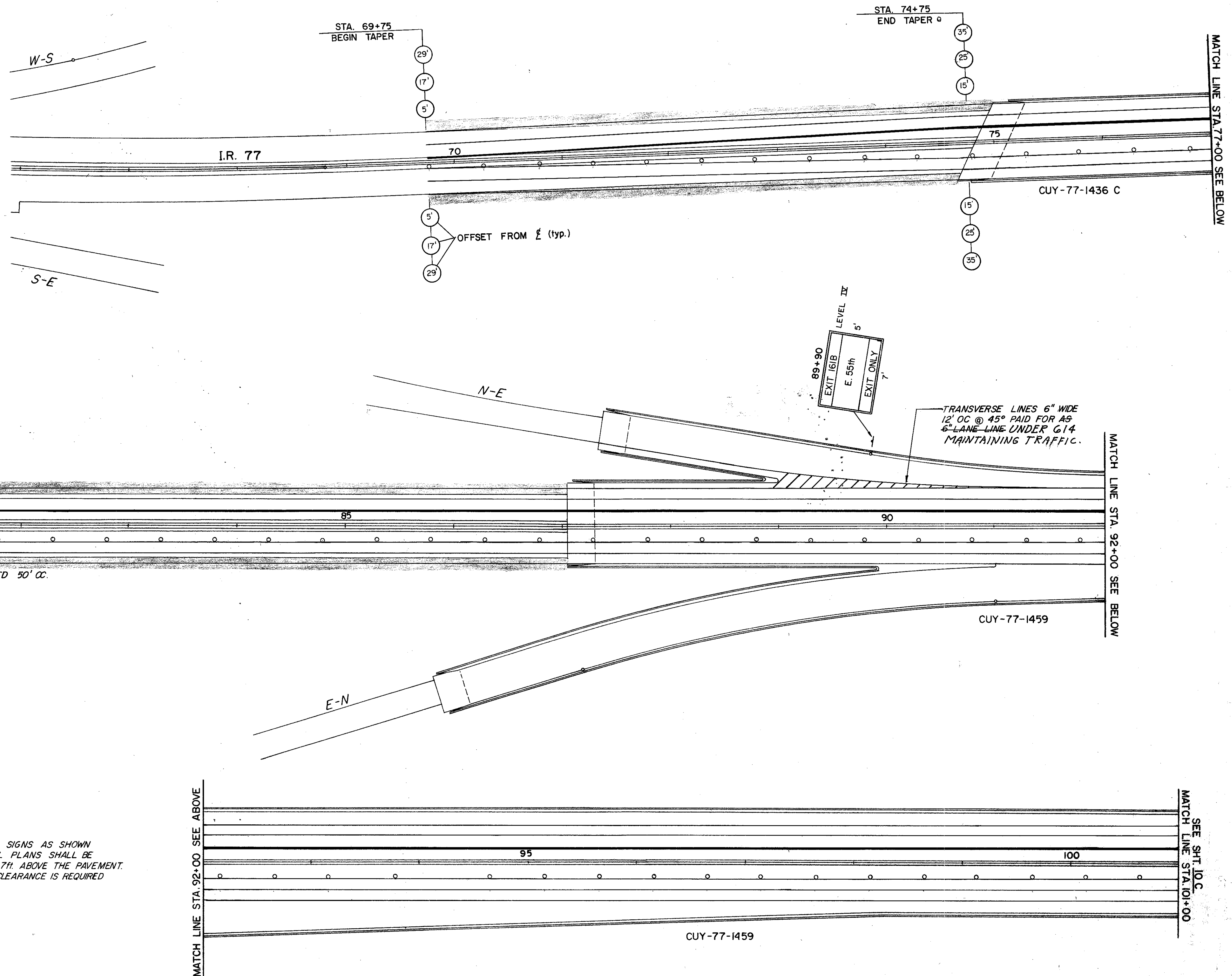
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| FHWA REGION | STATE | PROJECT | |
| 5 | OHIO | | |

10 B
169

CUYAHOGA COUNTY
CUY-77-13.79
CUY-90-16.21

ADVANCE WARNING SIGNS FOR ANY CONDITION WHICH RESTRICTS OR REDIRECTS TRAFFIC SHALL BE ERECTED BEFORE ANY SUCH RESTRICTION IS PUT INTO EFFECT. ALL SUCH SIGNS SHALL BE COVERED OR REMOVED FROM THE VIEW OF TRAFFIC WHENEVER THEY ARE NOT APPLICABLE. THE SIGNS SHALL BE REQUIRED ON BOTH SIDES OF THE ROADWAY & MOUNTED AT THE HEIGHT INDICATED ON PLATE C-1 OF THE "OMUTCD". THE SIGN LEGENDS AND LOCATIONS SHALL BE AS INDICATED IN THE FOLLOWING TABLE. DISTANCES ARE MEASURED BACK FROM THE POINT OF RESTRICTION.

| | DISTANCE | SIGN | SIZE | DESCRIPTION |
|------------------------|----------|---------------------|------------------------|------------------------------------|
| LANE LEFT LANE CLOSED | 500' | OW-123MOD OW-143 | 48" x 48" 30" x 30" | LEFT LANE CLOSED 500ft. 35 MPH |
| | 1000' | OW-123MOD | 48" x 48" | LEFT LANE CLOSED 1000ft. |
| | 2000' | OW-123MOD | 48" x 48" | LEFT LANE CLOSED 2000 ft. |
| LANE RIGHT LANE CLOSED | 500' | OW-122MOD OW-143 | 48" x 48" 30" x 30" | RIGHT LANE CLOSED 500ft. 35 MPH |
| | 1000' | OW-122MOD | 48" x 48" | RIGHT LANE CLOSED 1000ft. |
| | 2000' | OW-122MOD | 48" x 48" | RIGHT LANE CLOSED 2000 ft. |
| LANE SHIFT | 1000' | OW-134MOD OW-143 | 48" x 48" 30" x 30" | ROAD WORK 1000ft. 35 MPH |



MATCH LINE STA. 77+00 SEE ABOVE

MATCH LINE STA. 92+00 SEE BELOW

SEE SHT. 10 C
MATCH LINE STA. 101+00

LEGEND

- LOCATION of REPAIR
- ITEM 305-9" PORTLAND CEMENT CONCRETE BASE
- TEMPORARY CONCRETE BARRIER
- TEMPORARY CONCRETE BARRIER (PREVIOUS PHASE)
- BARRICADE
- 6" TEMPORARY CONTINUOUS LANE LINE 847.10 or 4" TEMPORARY CONTINUOUS EDGE LINE 847.10
- TEMPORARY LINES PLACED UNDER PREVIOUS PHASE
- TEMPORARY FLEXIBLE PAVEMENT (TYPE B)
- T" SHAPED STEEL PLATE COVERED WITH ASPHALT CONCRETE (ANCHORED as APPROVED by ENGINEER)
- EXISTING IMPACT ATTENUATOR
- TEMPORARY IMPACT ATTENUATOR (FITCH TYPE)
- TYPE 6 TEMPORARY BEAM RAIL

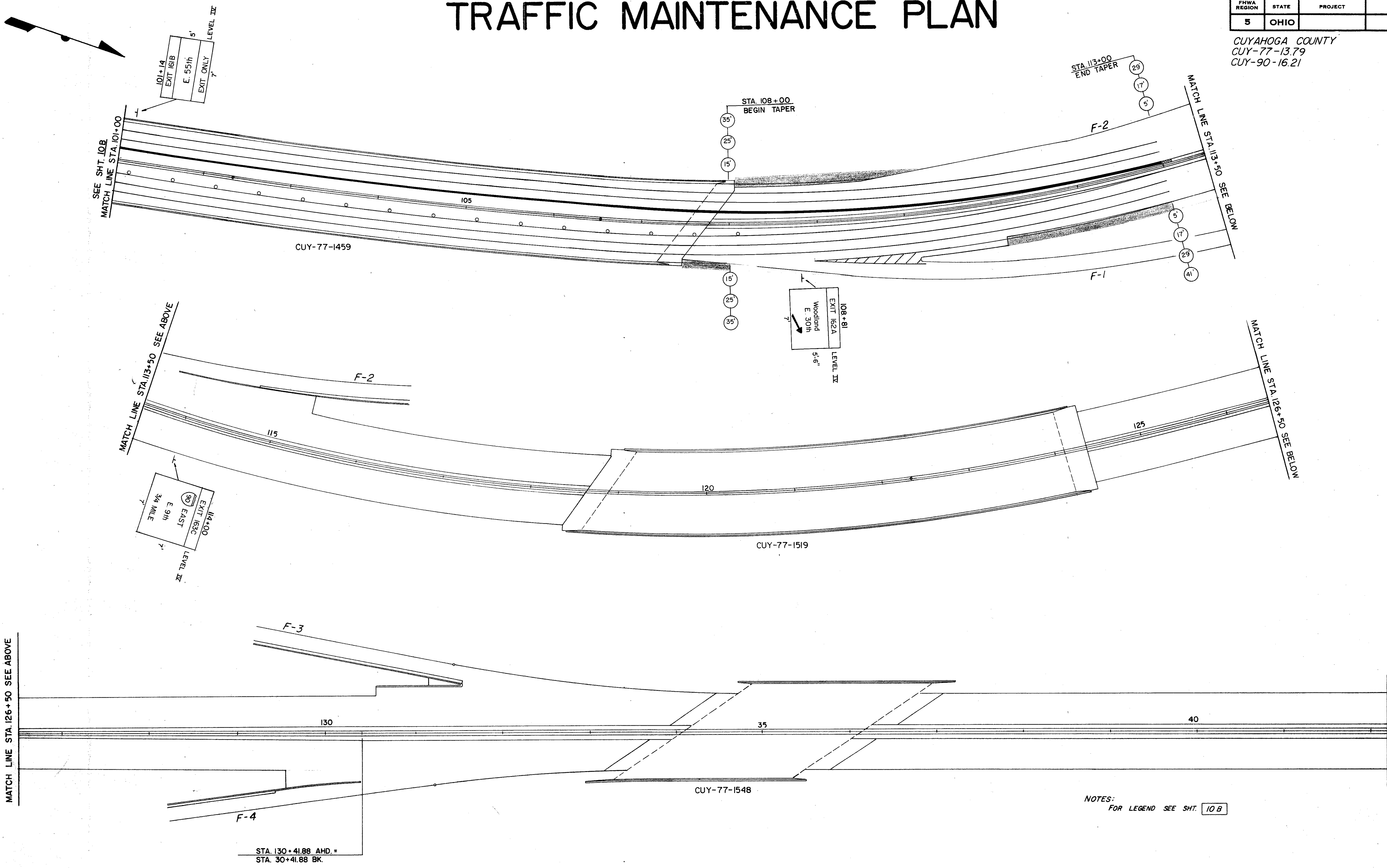
NOTE:
ALL TEMPORARY GUIDE SIGNS AS SHOWN ON THE TRAFFIC CONTROL PLANS SHALL BE MOUNTED A MINIMUM OF 7ft. ABOVE THE PAVEMENT. A MINIMUM 1ft. LATERAL CLEARANCE IS REQUIRED TO ANY TRAVELED WAY.

TRAFFIC MAINTENANCE PLAN

| FHWA REGION | STATE | PROJECT |
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| 5 | OHIO | |

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CUYAHOGA COUNTY
CUY-77-13.79
CUY-90-16.21

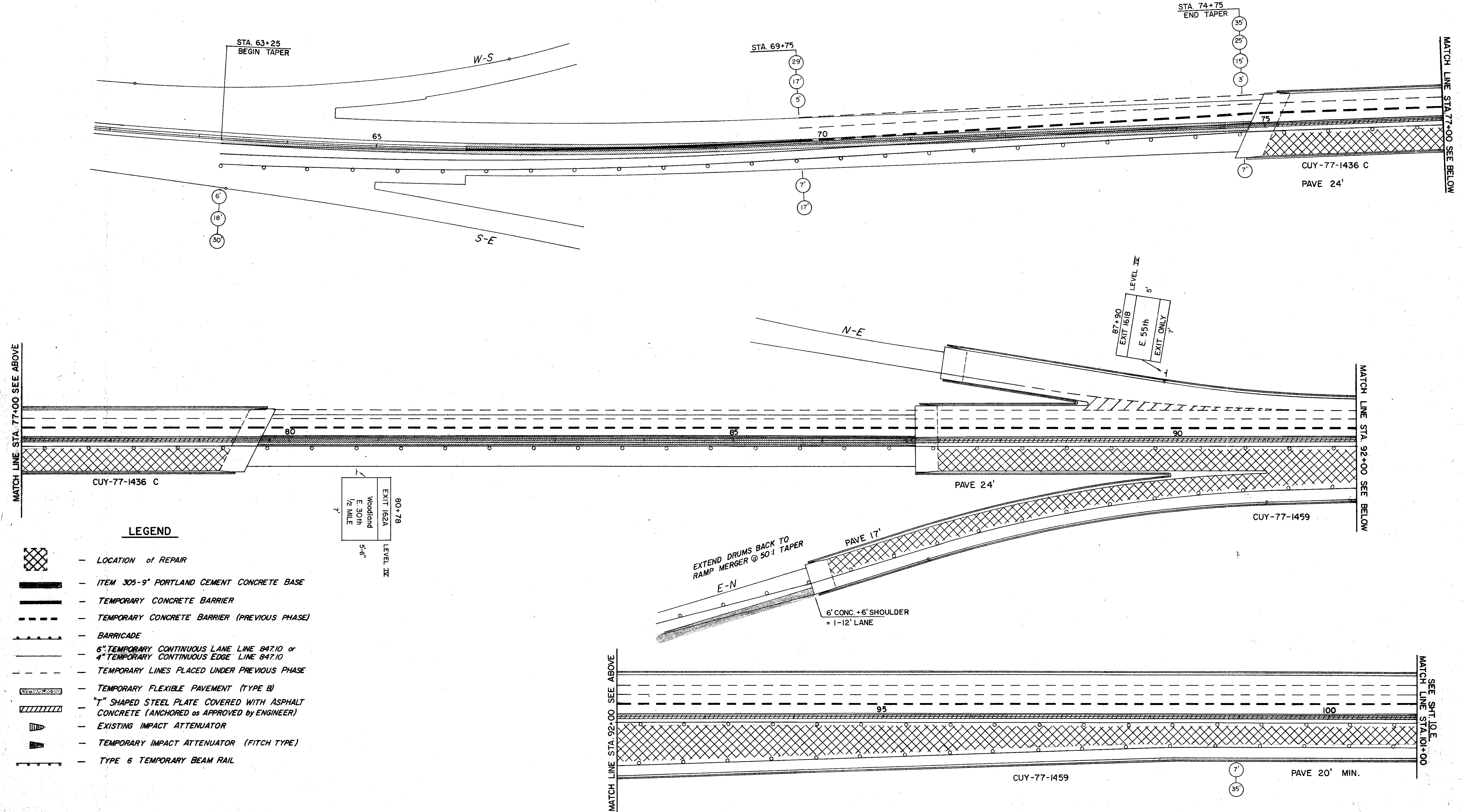


NOTES:
FOR LEGEND SEE SHT. 10B

TRAFFIC MAINTENANCE PLAN

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| FHWA REGION | STATE | PROJECT | 10 D |
| 5 | OHIO | | 169 |

CUYAHOGA COUNTY
 CUY-77-13.79
 CUY-90-16.21



LEGEND

- LOCATION of REPAIR
- ITEM 305-9' PORTLAND CEMENT CONCRETE BASE
- TEMPORARY CONCRETE BARRIER
- TEMPORARY CONCRETE BARRIER (PREVIOUS PHASE)
- BARRICADE
- 6" TEMPORARY CONTINUOUS LANE LINE 847.10 or 4" TEMPORARY CONTINUOUS EDGE LINE 847.10
- TEMPORARY LINES PLACED UNDER PREVIOUS PHASE
- TEMPORARY FLEXIBLE PAVEMENT (TYPE B)
- "T" SHAPED STEEL PLATE COVERED WITH ASPHALT CONCRETE (ANCHORED as APPROVED by ENGINEER)
- EXISTING IMPACT ATTENUATOR
- TEMPORARY IMPACT ATTENUATOR (FITZ TYPE)
- TYPE 6 TEMPORARY BEAM RAIL

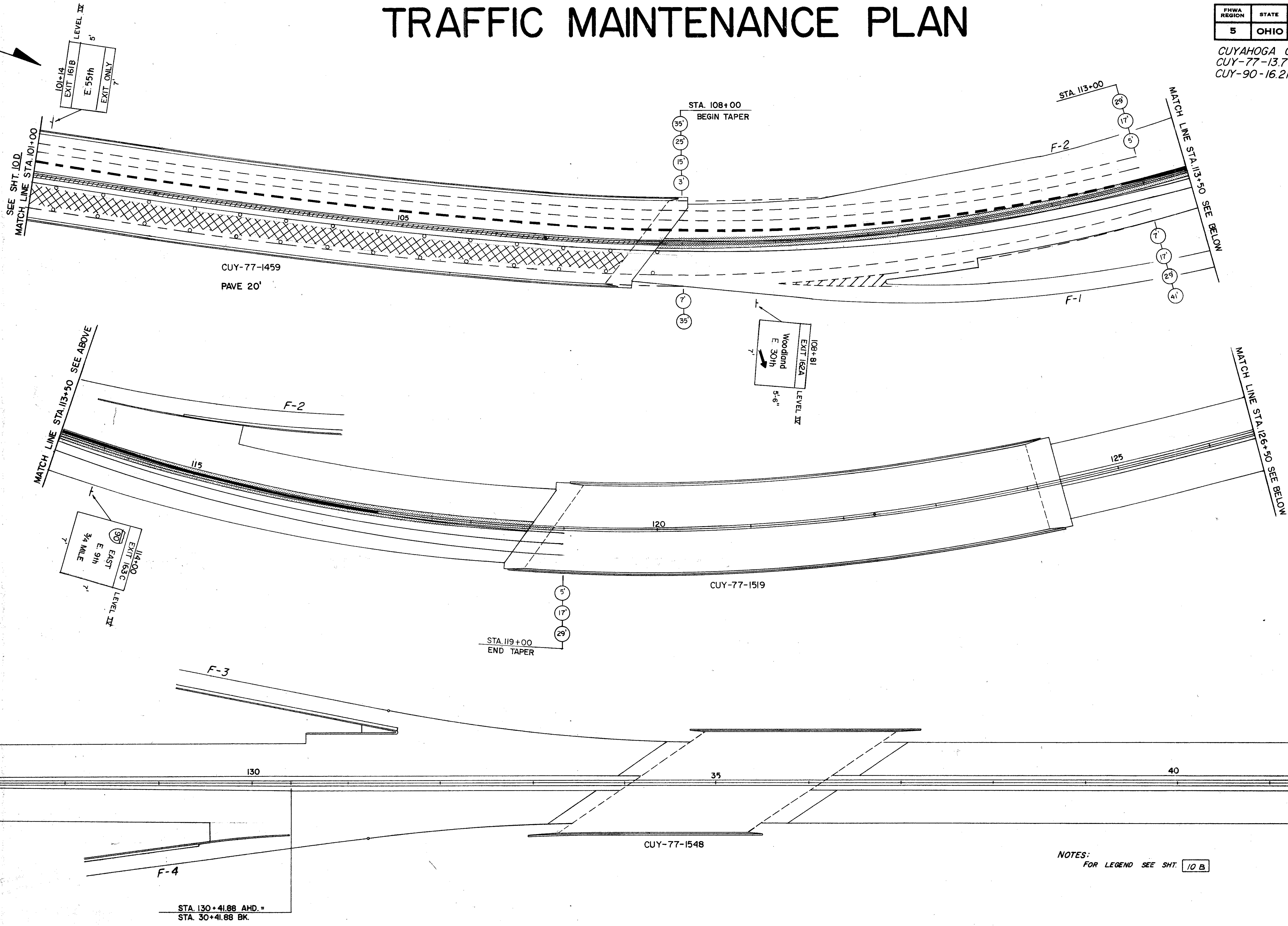
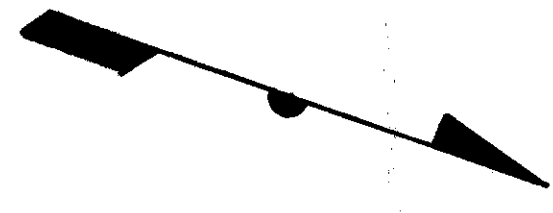
80+78
 EXIT 162A
 Woodland
 E. 30th
 1/2 MILE
 5'-6"
 LEVEL III

TRAFFIC MAINTENANCE PLAN

| FHWA REGION | STATE | PROJECT |
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| 5 | OHIO | |

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CUYAHOGA COUNTY
 CUY-77-13.79
 CUY-90-16.21



MATCH LINE STA. 126+50 SEE ABOVE

NOTES:
 FOR LEGEND SEE SHT. 10 B

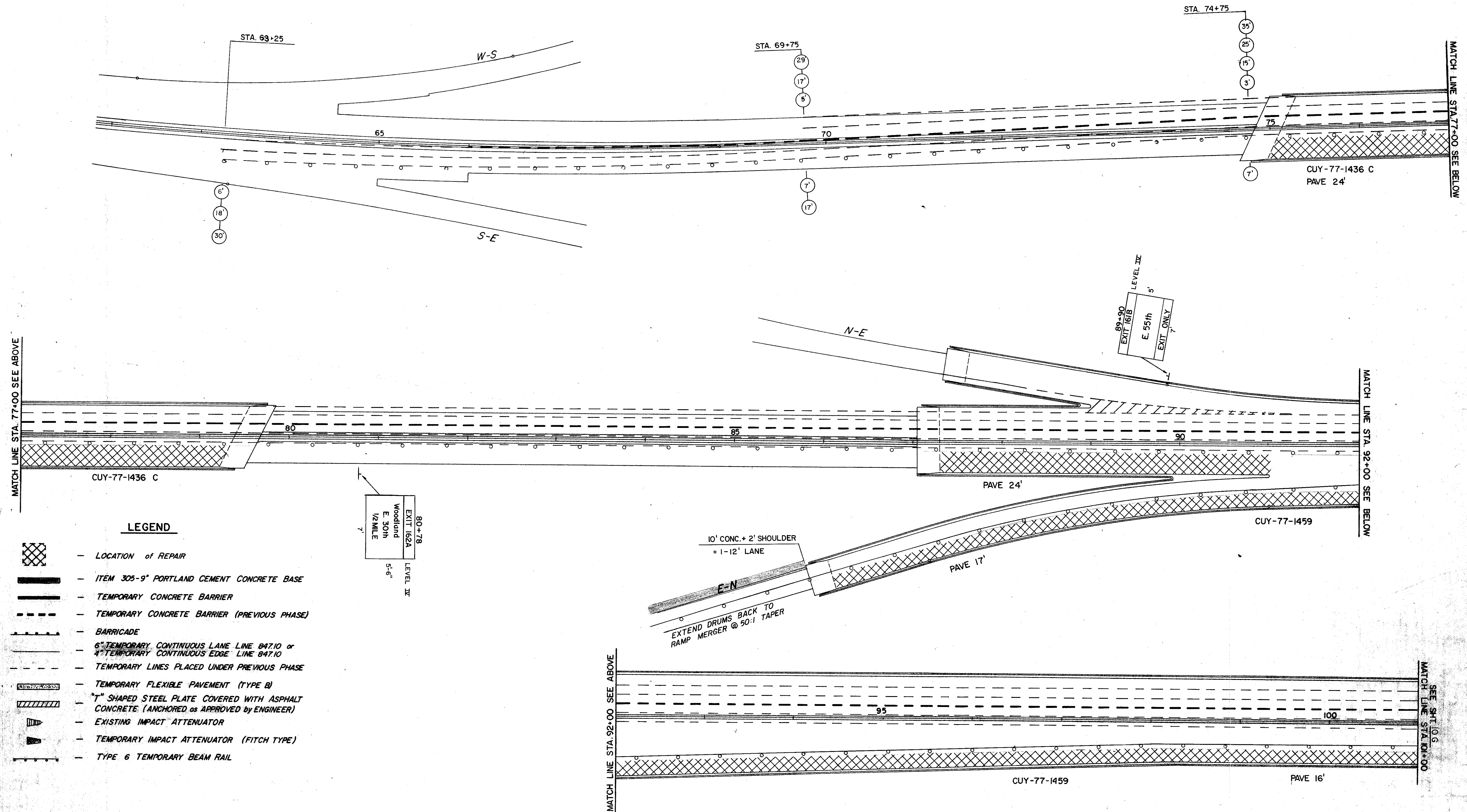
STA. 130+41.88 AHD. =
 STA. 30+41.88 BK.

TRAFFIC MAINTENANCE PLAN

| FHWA REGION | STATE | PROJECT |
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| 5 | OHIO | |

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CUYAHOGA COUNTY
 CUY-77-13.79
 CUY-90-16.21



LEGEND

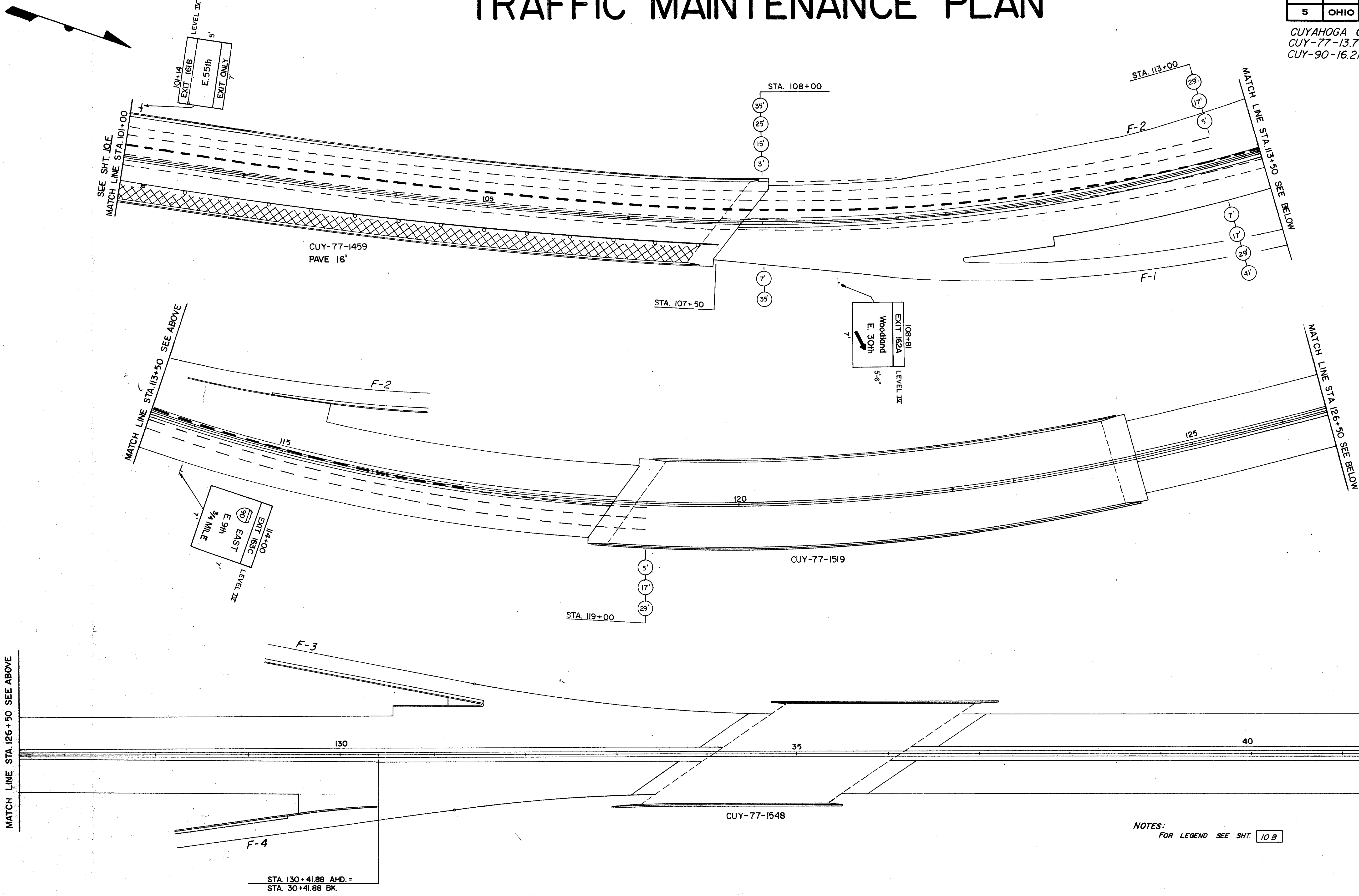
- LOCATION of REPAIR
- ITEM 305-9" PORTLAND CEMENT CONCRETE BASE
- TEMPORARY CONCRETE BARRIER
- TEMPORARY CONCRETE BARRIER (PREVIOUS PHASE)
- BARRICADE
- 6" TEMPORARY CONTINUOUS LANE LINE 847.10 or 4" TEMPORARY CONTINUOUS EDGE LINE 847.10
- TEMPORARY LINES PLACED UNDER PREVIOUS PHASE
- TEMPORARY FLEXIBLE PAVEMENT (TYPE B)
- 7" SHAPED STEEL PLATE COVERED WITH ASPHALT CONCRETE (ANCHORED as APPROVED by ENGINEER)
- EXISTING IMPACT ATTENUATOR
- TEMPORARY IMPACT ATTENUATOR (FITZ TYPE)
- TYPE 6 TEMPORARY BEAM RAIL

TRAFFIC MAINTENANCE PLAN

| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

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CUYAHOGA COUNTY
CUY-77-13.79
CUY-90-16.21

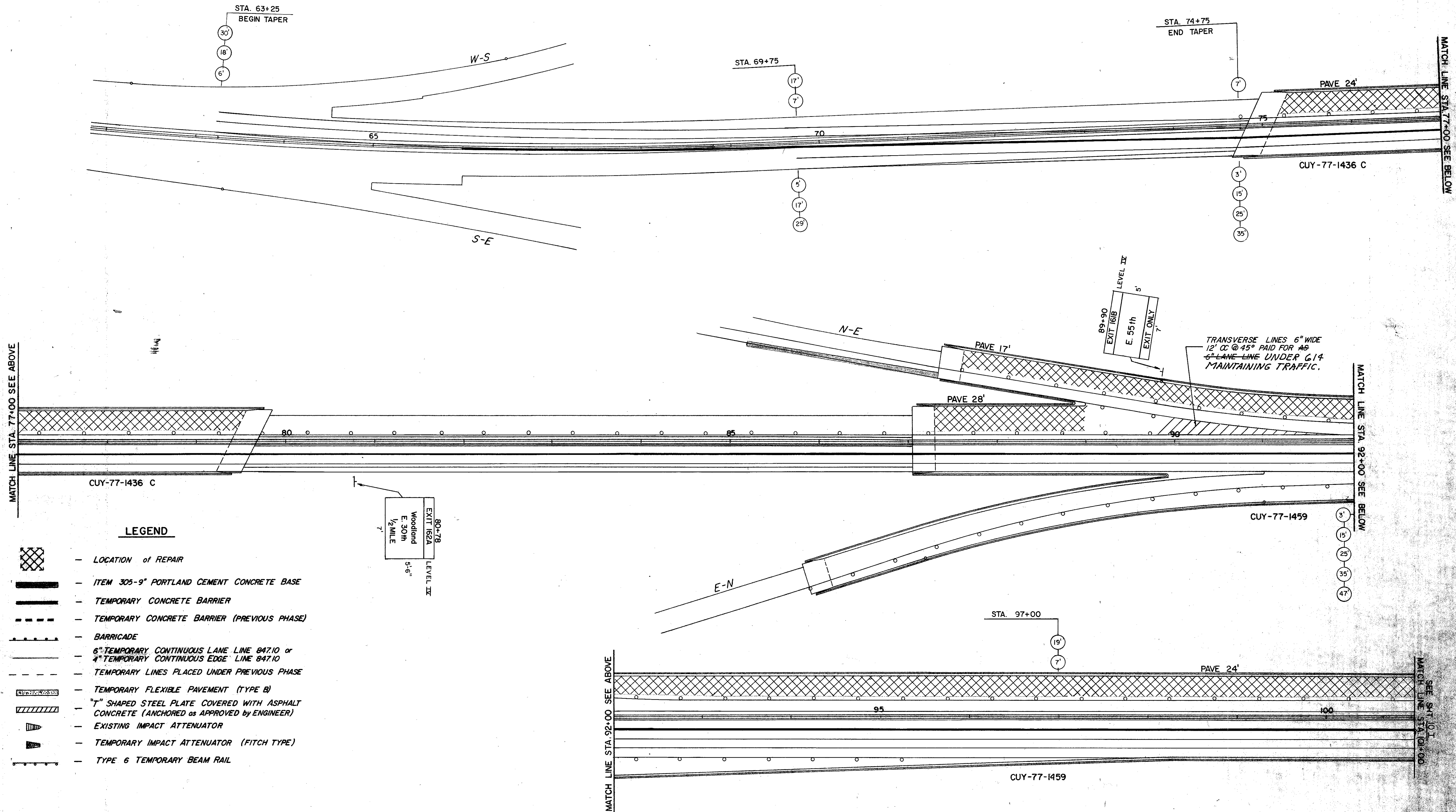


TRAFFIC MAINTENANCE PLAN

| FHWA REGION | STATE | PROJECT |
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| 5 | OHIO | |

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CUYAHOGA COUNTY
CUY-77-13.79
CUY-90-16.21



LEGEND

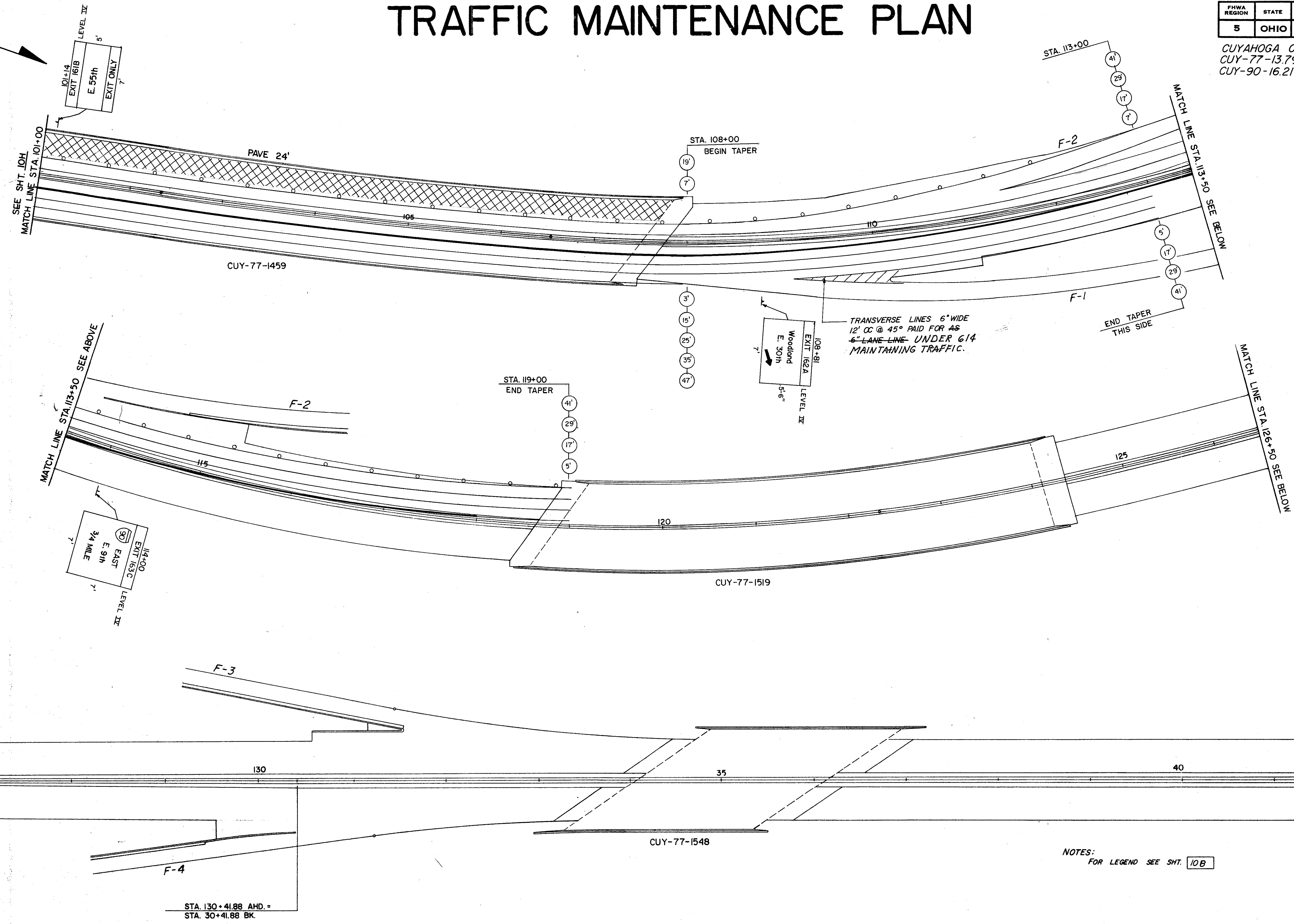
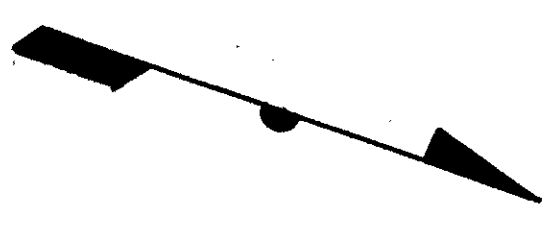
- LOCATION of REPAIR
- ITEM 305-9" PORTLAND CEMENT CONCRETE BASE
- TEMPORARY CONCRETE BARRIER
- TEMPORARY CONCRETE BARRIER (PREVIOUS PHASE)
- BARRICADE
- 6" TEMPORARY CONTINUOUS LANE LINE 847.10 or 4" TEMPORARY CONTINUOUS EDGE LINE 847.10
- TEMPORARY LINES PLACED UNDER PREVIOUS PHASE
- TEMPORARY FLEXIBLE PAVEMENT (TYPE B)
- "T" SHAPED STEEL PLATE COVERED WITH ASPHALT CONCRETE (ANCHORED as APPROVED by ENGINEER)
- EXISTING IMPACT ATTENUATOR
- TEMPORARY IMPACT ATTENUATOR (FITZ TYPE)
- TYPE 6 TEMPORARY BEAM RAIL

TRAFFIC MAINTENANCE PLAN

| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

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CUYAHOGA COUNTY
 CUY-77-13.79
 CUY-90-16.21



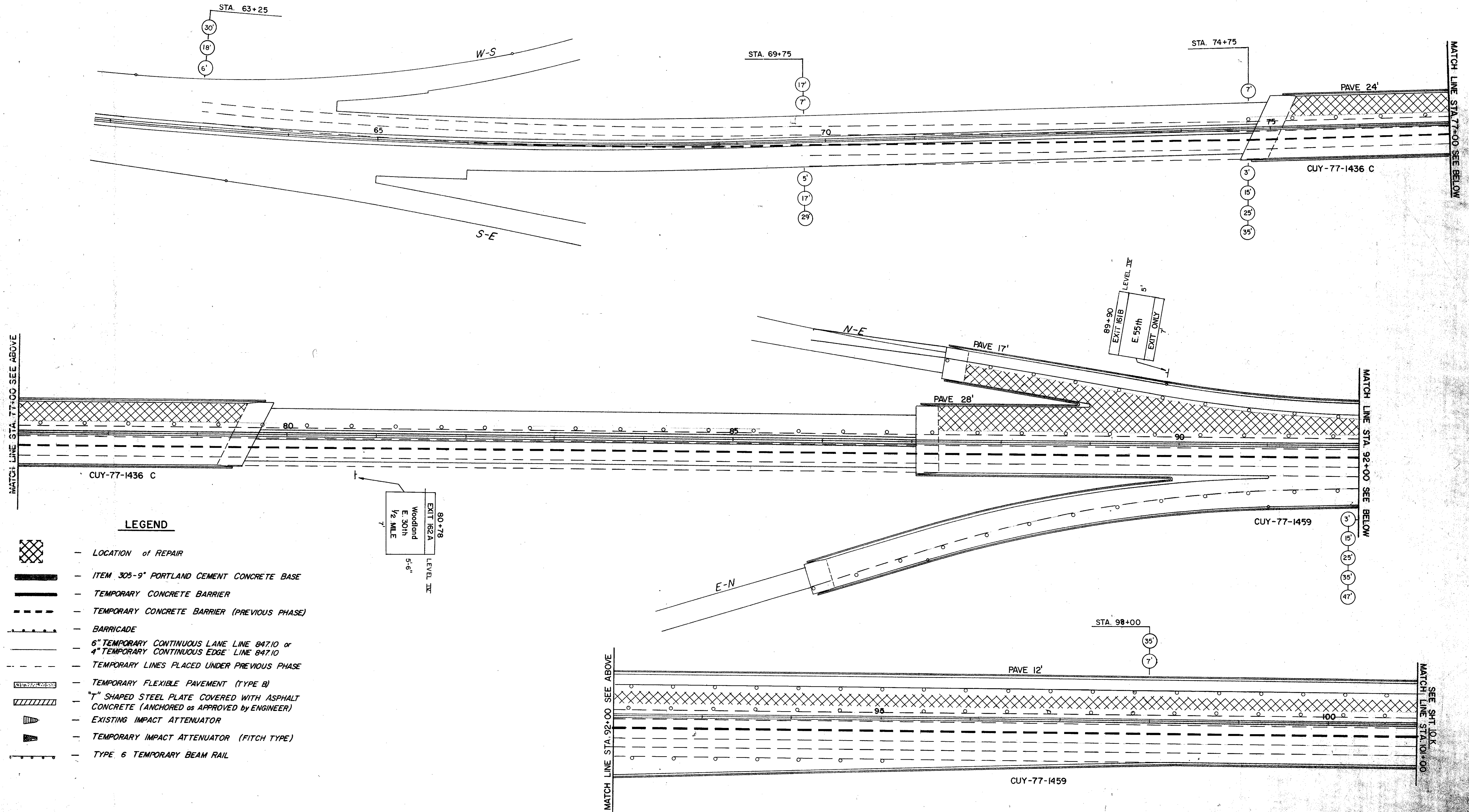
NOTES:
 FOR LEGEND SEE SHT. 10B

TRAFFIC MAINTENANCE PLAN

| FHWA REGION | STATE | PROJECT |
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| 5 | OHIO | |

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CUYAHOGA COUNTY
CUY-77-13.79
CUY-90-16.21



LEGEND

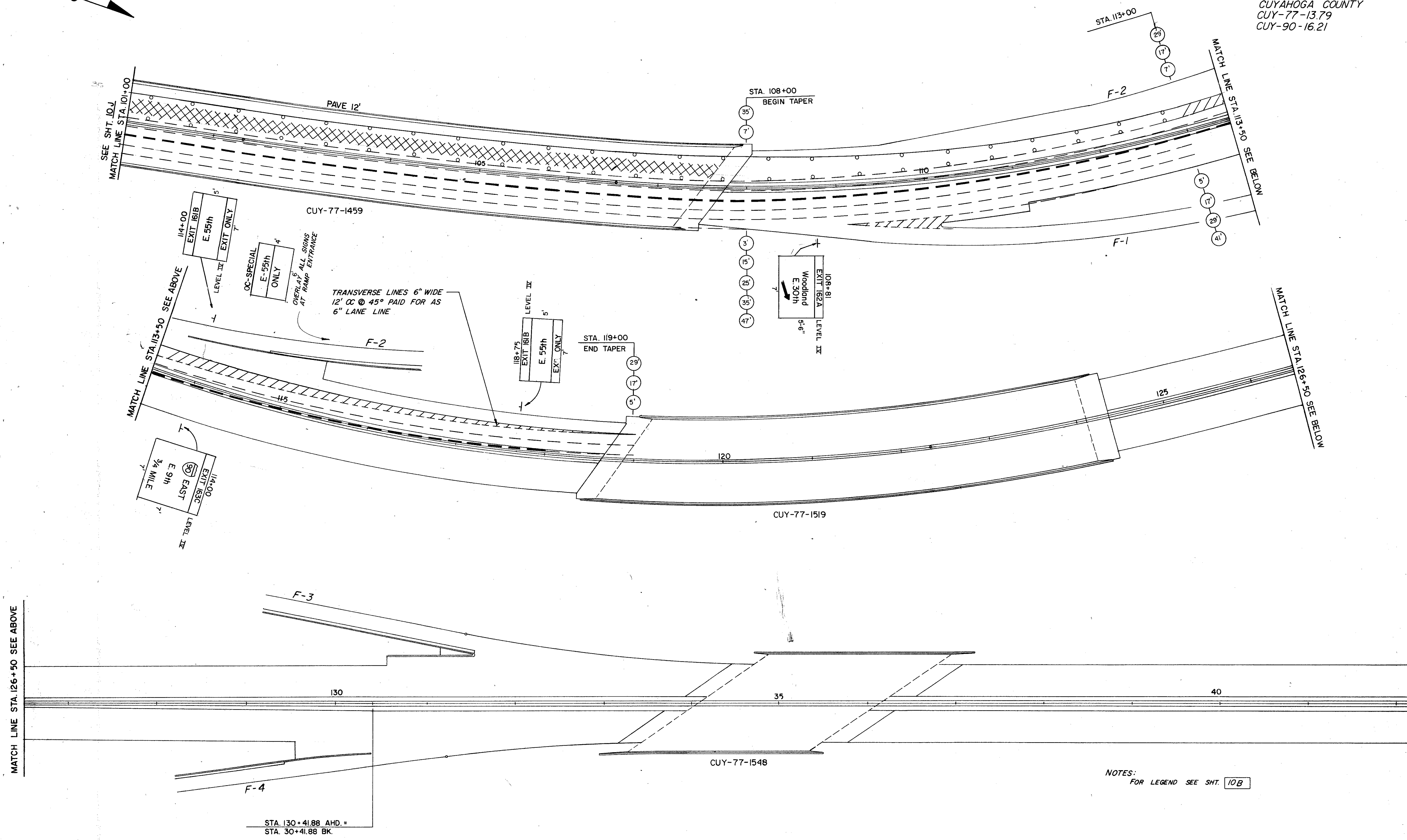
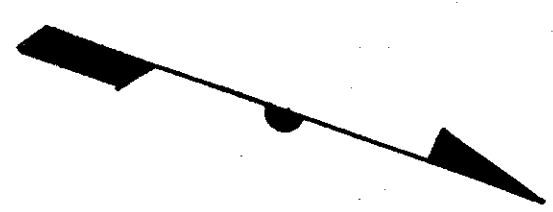
- LOCATION of REPAIR
- ITEM 305-9" PORTLAND CEMENT CONCRETE BASE
- TEMPORARY CONCRETE BARRIER
- TEMPORARY CONCRETE BARRIER (PREVIOUS PHASE)
- BARRICADE
- 6" TEMPORARY CONTINUOUS LANE LINE 847.10 or 4" TEMPORARY CONTINUOUS EDGE LINE 847.10
- TEMPORARY LINES PLACED UNDER PREVIOUS PHASE
- TEMPORARY FLEXIBLE PAVEMENT (TYPE B)
- "T" SHAPED STEEL PLATE COVERED WITH ASPHALT CONCRETE (ANCHORED as APPROVED by ENGINEER)
- EXISTING IMPACT ATTENUATOR
- TEMPORARY IMPACT ATTENUATOR (FITCH TYPE)
- TYPE 6 TEMPORARY BEAM RAIL

TRAFFIC MAINTENANCE PLAN

| FWWA REGION | STATE | PROJECT |
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| 5 | OHIO | |

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CUYAHOGA COUNTY
CUY-77-13.79
CUY-90-16.21



NOTES:
FOR LEGEND SEE SHT. 10B

STA. 130+41.88 AHD. =
STA. 30+41.88 BK.

PHASE III B

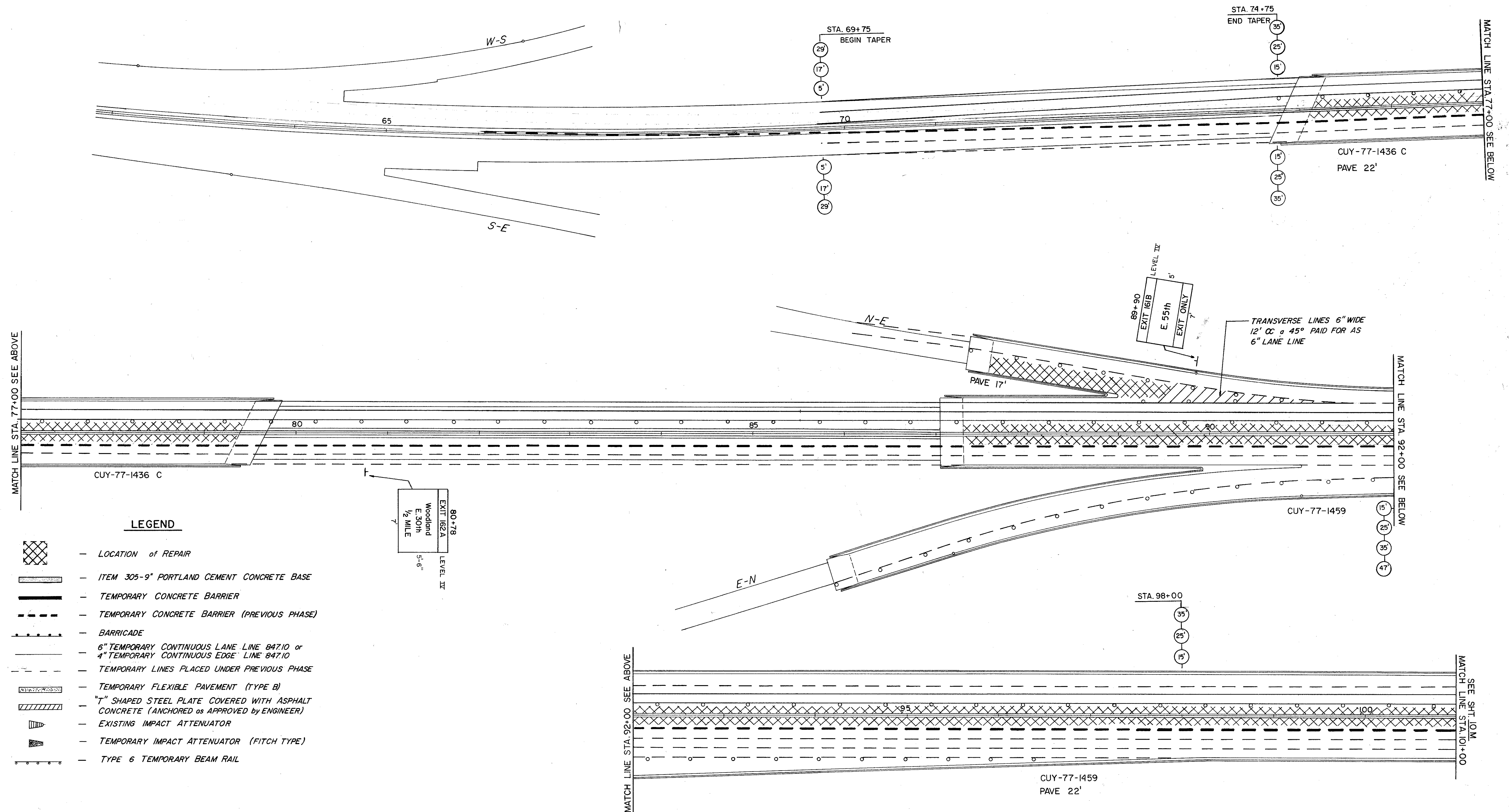
TRAFFIC MAINTENANCE PLAN

TRAFFIC MAINTENANCE PLAN

| FHWA REGION | STATE | PROJECT |
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| 5 | OHIO | |

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169

CUYAHOGA COUNTY
 CUY-77-13.79
 CUY-90-16.21



LEGEND

- LOCATION of REPAIR
- ITEM 305-9" PORTLAND CEMENT CONCRETE BASE
- TEMPORARY CONCRETE BARRIER
- TEMPORARY CONCRETE BARRIER (PREVIOUS PHASE)
- BARRICADE
- 6" TEMPORARY CONTINUOUS LANE LINE 847.10 or 4" TEMPORARY CONTINUOUS EDGE LINE 847.10
- TEMPORARY LINES PLACED UNDER PREVIOUS PHASE
- TEMPORARY FLEXIBLE PAVEMENT (TYPE B)
- "T" SHAPED STEEL PLATE COVERED WITH ASPHALT CONCRETE (ANCHORED as APPROVED by ENGINEER)
- EXISTING IMPACT ATTENUATOR
- TEMPORARY IMPACT ATTENUATOR (FITCH TYPE)
- TYPE 6 TEMPORARY BEAM RAIL

PHASE IV A&B

TRAFFIC MAINTENANCE PLAN

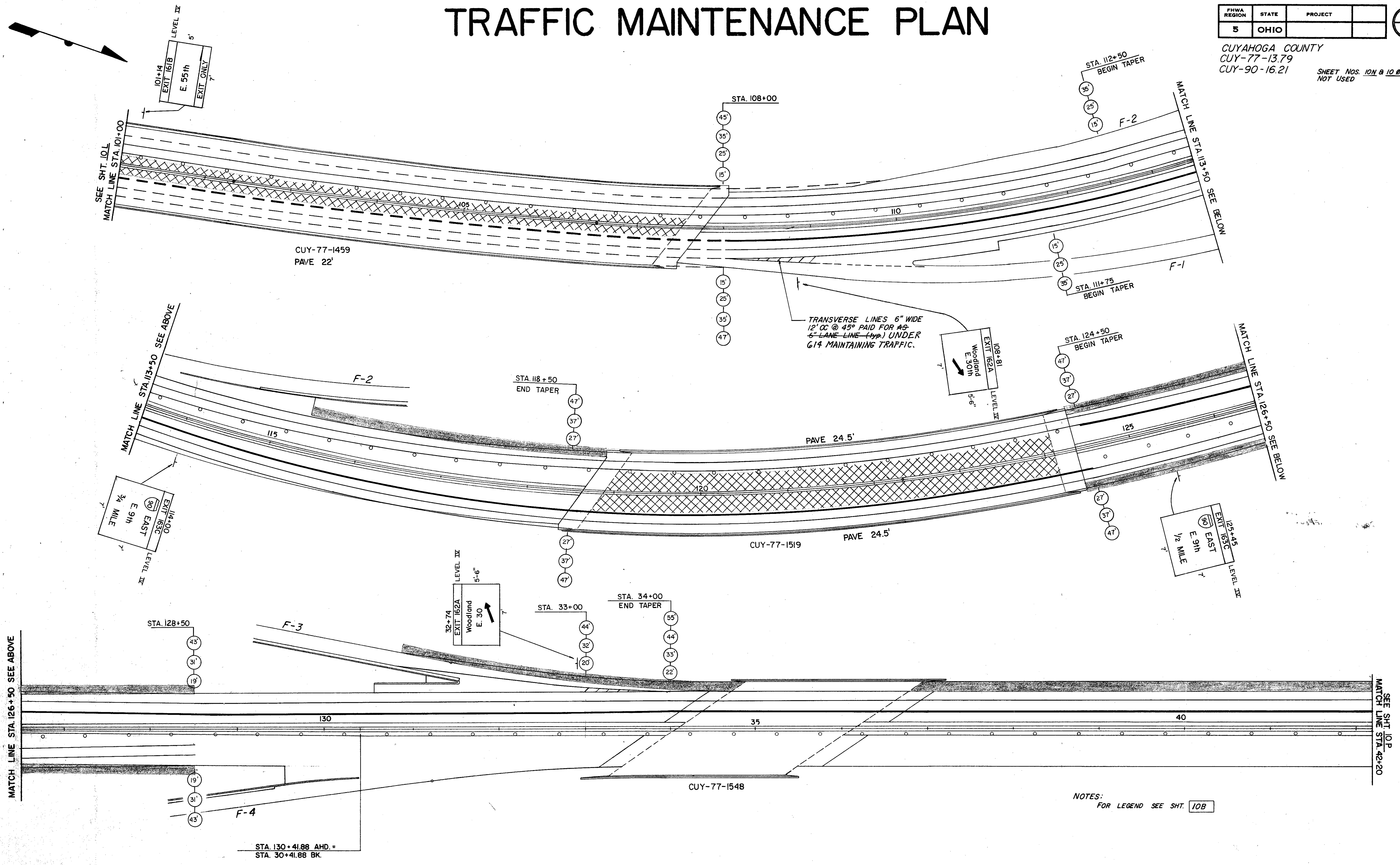
TRAFFIC MAINTENANCE PLAN

| FHWA REGION | STATE | PROJECT | |
|-------------|-------|---------|--|
| 5 | OHIO | | |

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169

CUYAHOGA COUNTY
 CUY-77-13.79
 CUY-90-16.21

SHEET NOS. 10A & 10B
 NOT USED



STA. 130+41.88 AHD. =
 STA. 30+41.88 BK.

PHASE IV A

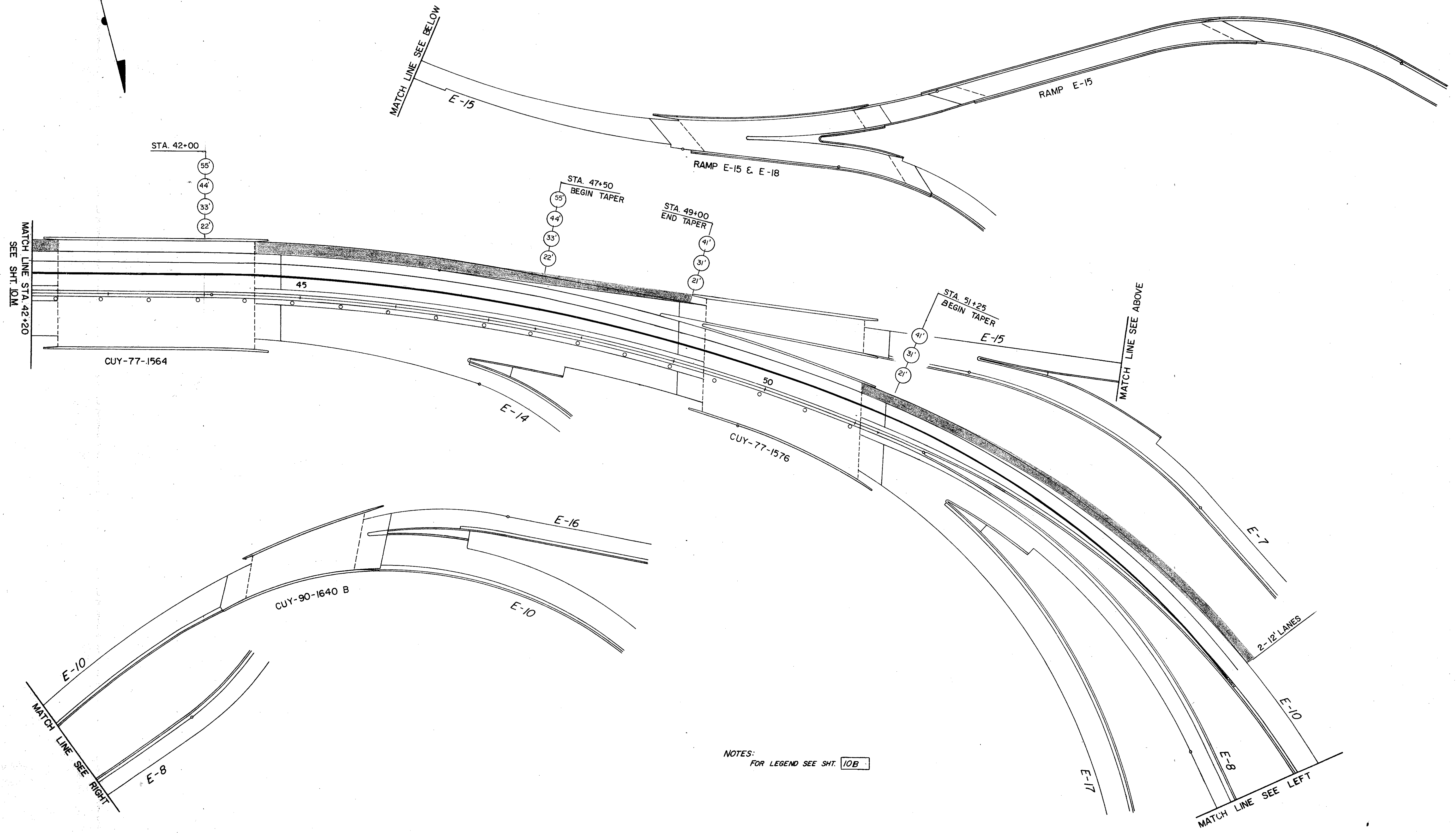
TRAFFIC MAINTENANCE PLAN

TRAFFIC MAINTENANCE PLAN

| FHWA REGION | STATE | PROJECT |
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| 5 | OHIO | |

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CUYAHOGA COUNTY
 CUY-77-13.79
 CUY-90-16.21



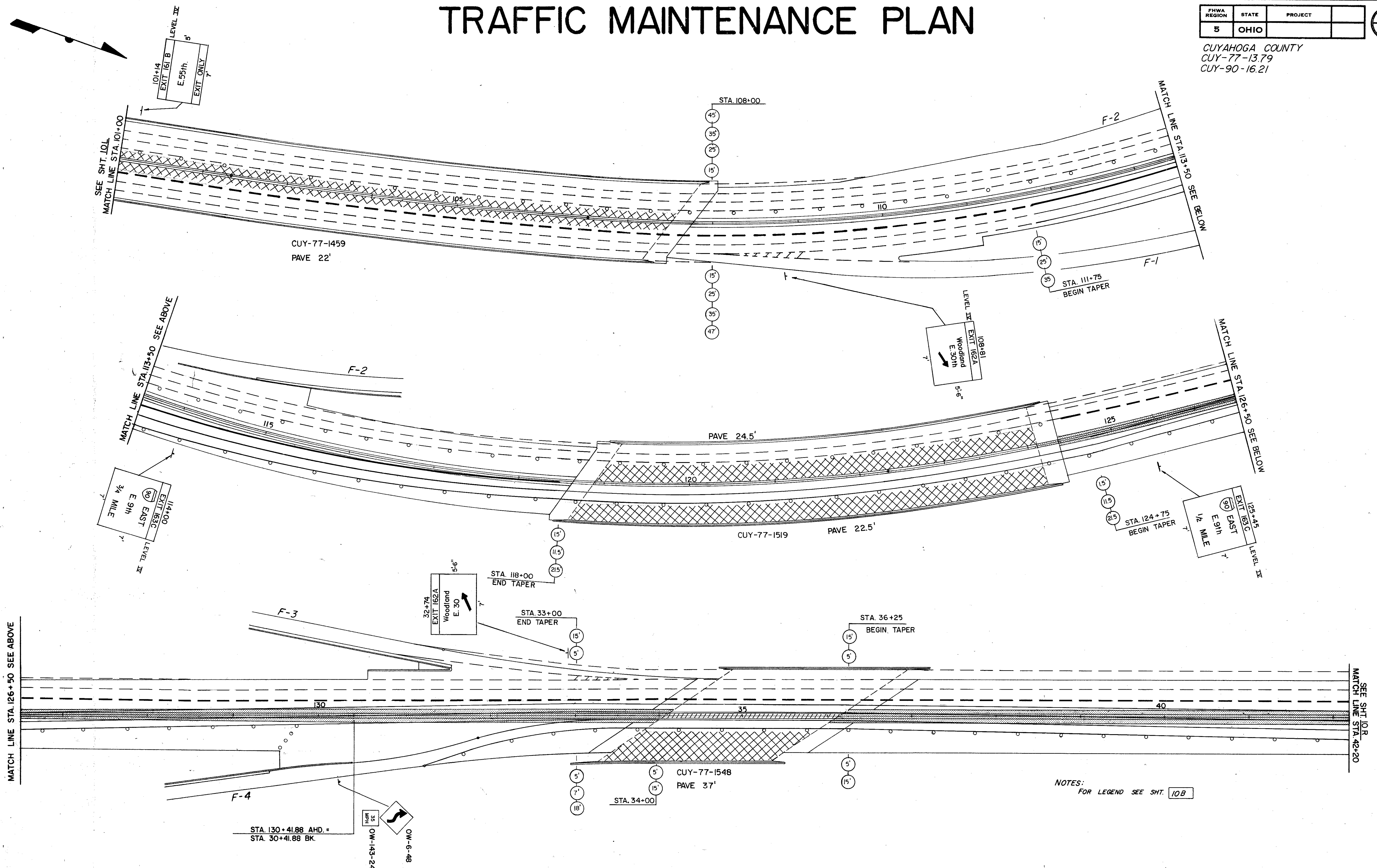
NOTES:
 FOR LEGEND SEE SHT. 10B

TRAFFIC MAINTENANCE PLAN

| FHWA REGION | STATE | PROJECT | |
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| 5 | OHIO | | |

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CUYAHOGA COUNTY
 CUY-77-13.79
 CUY-90-16.21



NOTES:
 FOR LEGEND SEE SHT. 10 B

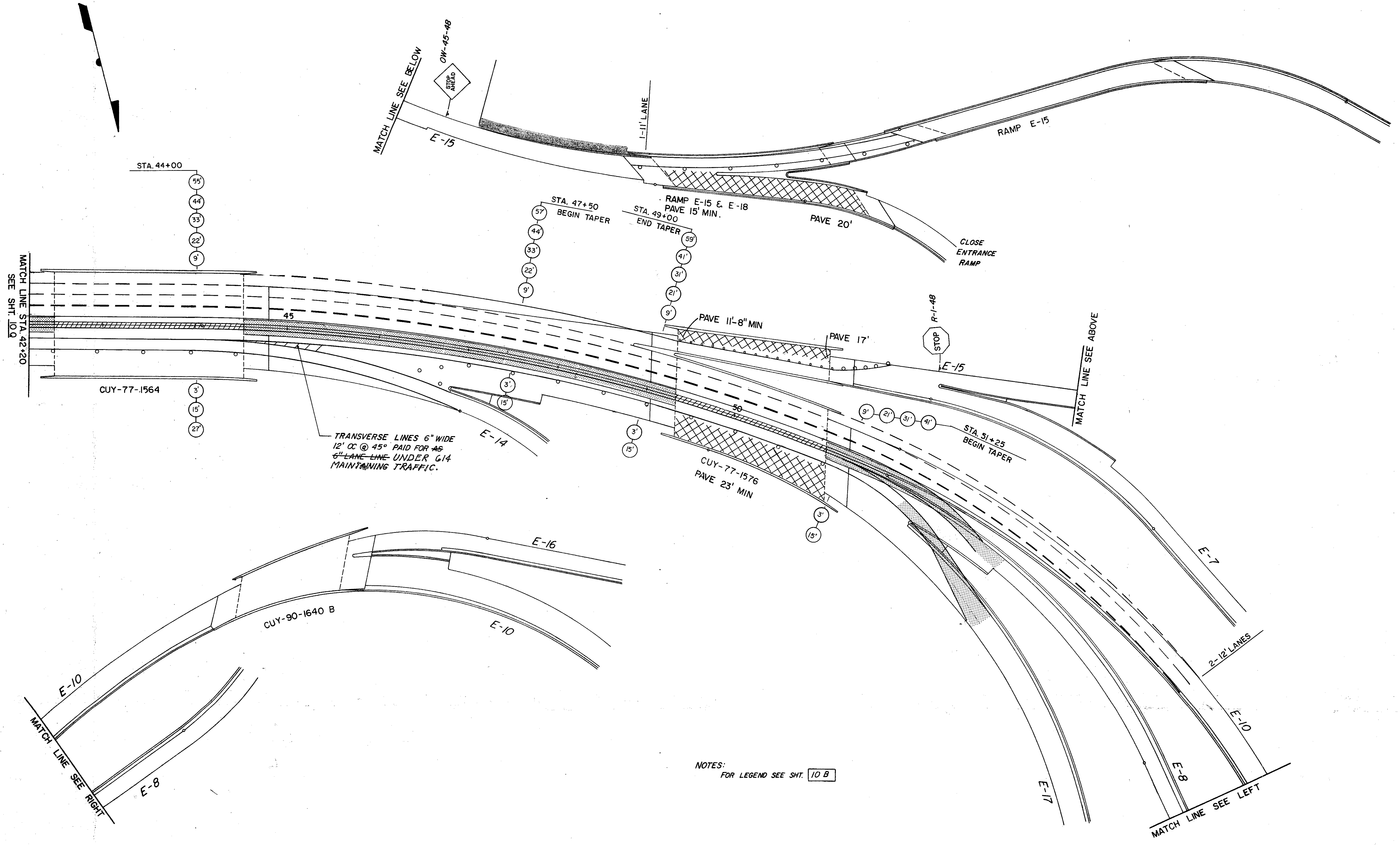
PHASE IV B

TRAFFIC MAINTENANCE PLAN

TRAFFIC MAINTENANCE PLAN

| FHWA REGION | STATE | PROJECT | 10R 169 |
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| 5 | OHIO | | |

CUYAHOGA COUNTY
 CUY-77-1379
 CUY-90-1621



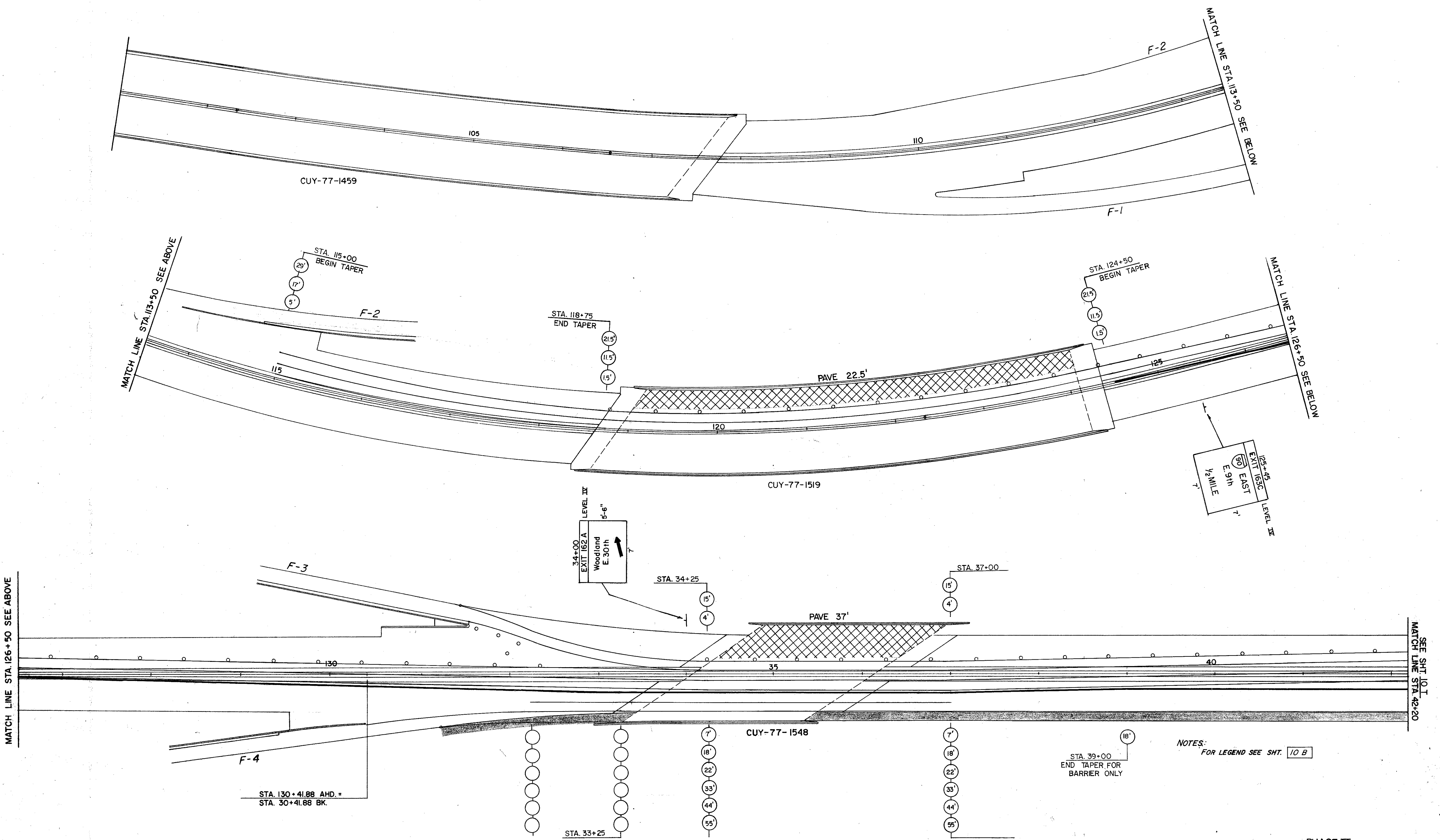
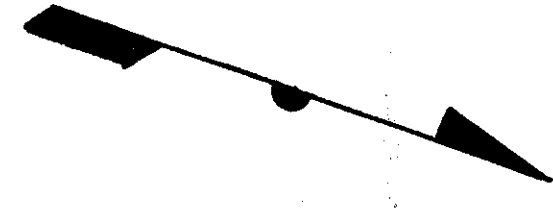
NOTES:
 FOR LEGEND SEE SHT. 10 B

TRAFFIC MAINTENANCE PLAN

| FHWA REGION | STATE | PROJECT |
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| 5 | OHIO | |

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CUYAHOGA COUNTY
 CUY-77-13.79
 CUY-90-16.21



PHASE V A

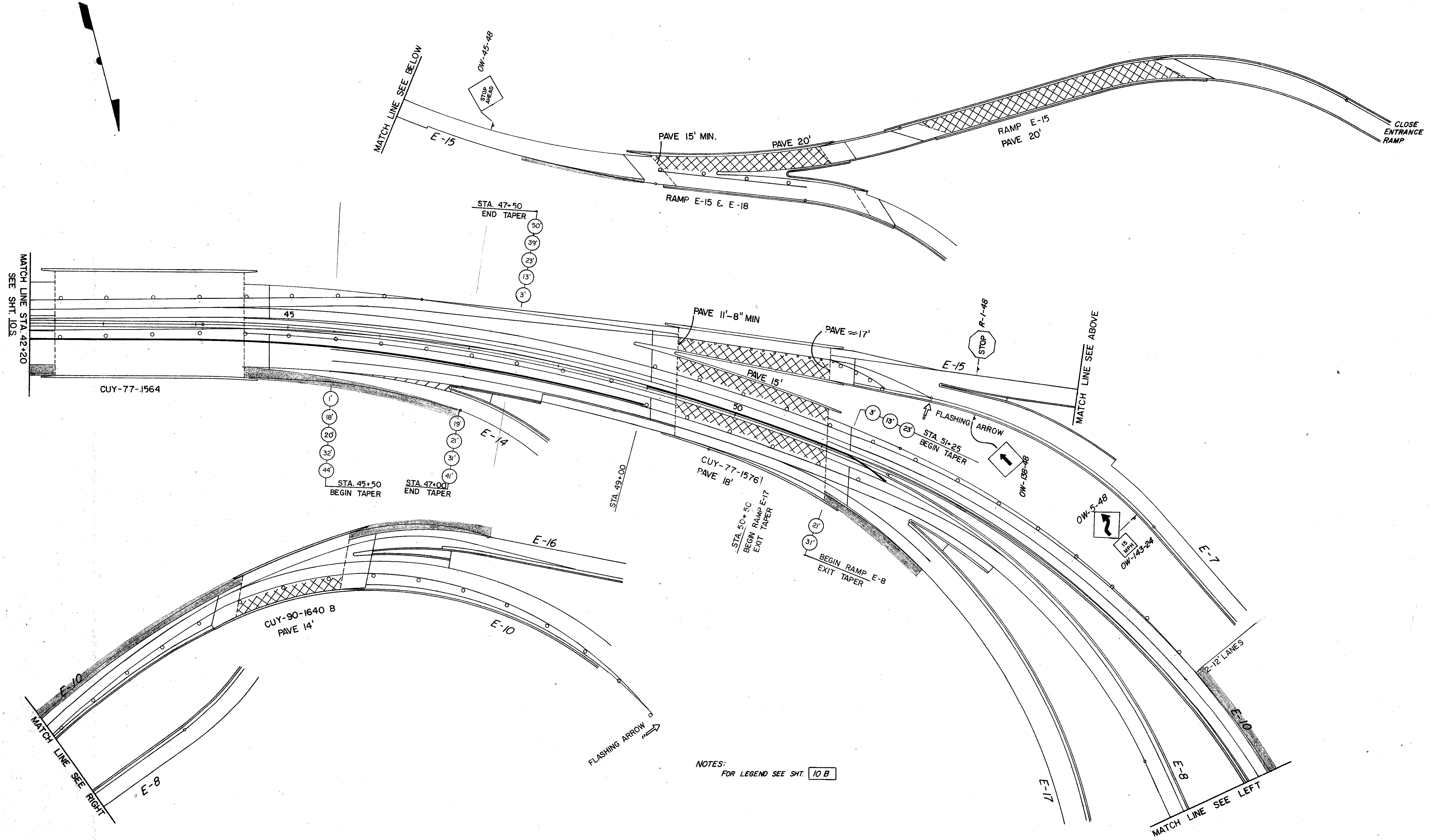
TRAFFIC MAINTENANCE PLAN

TRAFFIC MAINTENANCE PLAN

| FHWA REGION | STATE | PROJECT |
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CUYAHOGA COUNTY
 CUY-77-13.79
 CUY-90-16.21



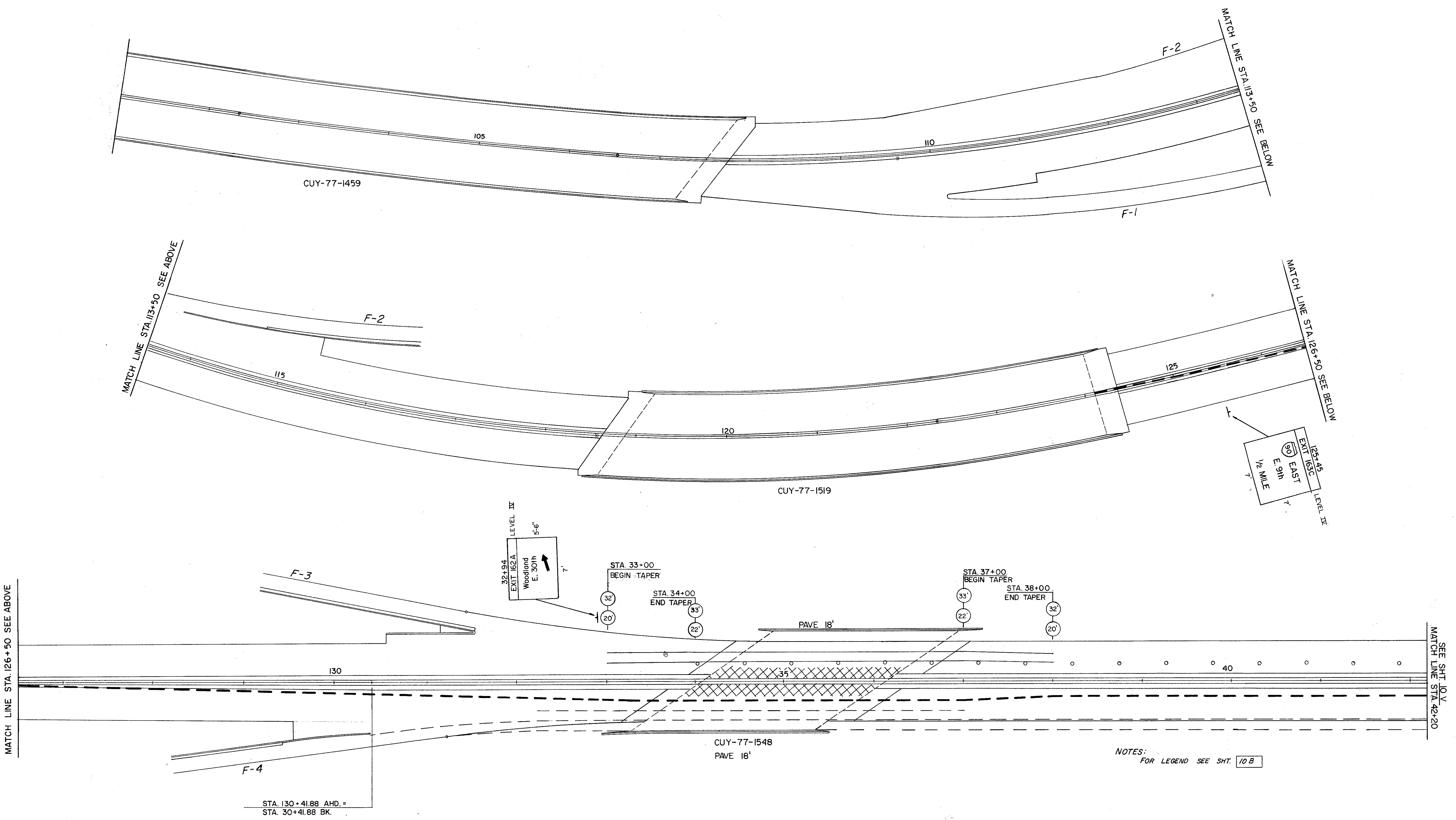
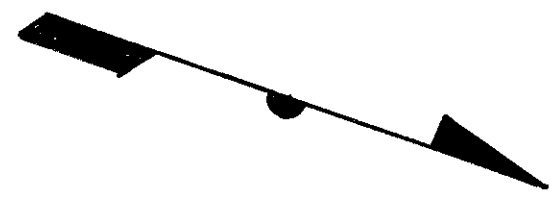
NOTES:
 FOR LEGEND SEE SHT. 10 B

TRAFFIC MAINTENANCE PLAN

| FHWA REGION | STATE | PROJECT |
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| 5 | OHIO | |

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CUYAHOGA COUNTY
 CUY-77-13.79
 CUY-90-16.21



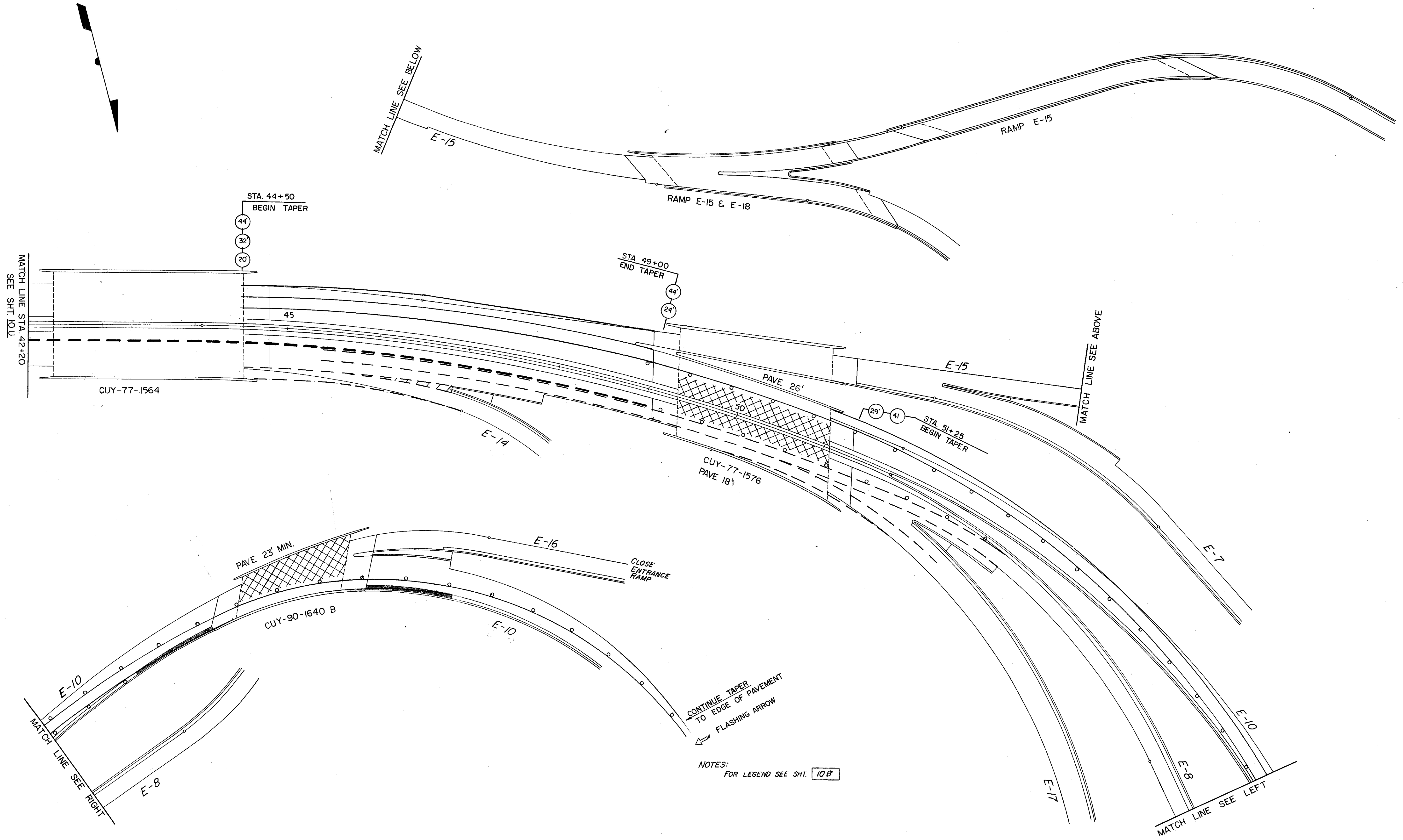
NOTES:
 FOR LEGEND SEE SHT. 10 B

TRAFFIC MAINTENANCE PLAN

| FHWA REGION | STATE | PROJECT |
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| 5 | OHIO | |

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CUYAHOGA COUNTY
 CUY-77-1379
 CUY-90-1621

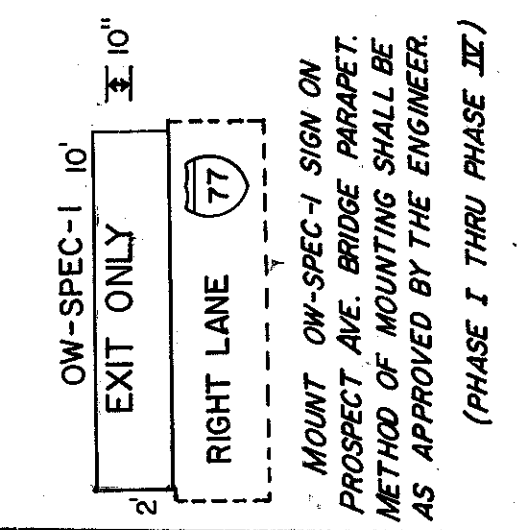
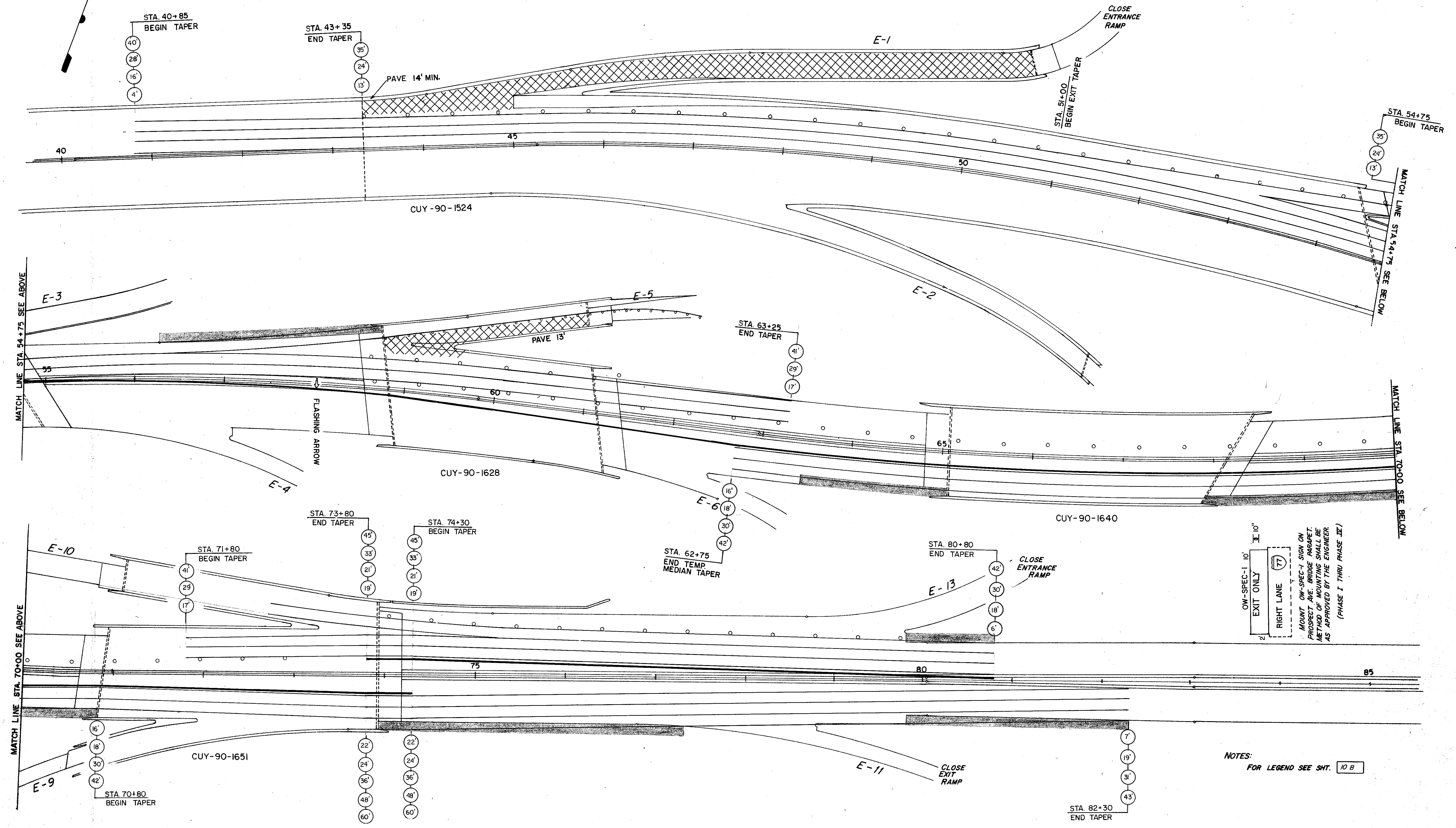


TRAFFIC MAINTENANCE PLAN

| FHWA REGION | STATE | PROJECT |
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| 5 | OHIO | |

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CUYAHOGA COUNTY
 CUY-77-13.79
 CUY-90-16.21



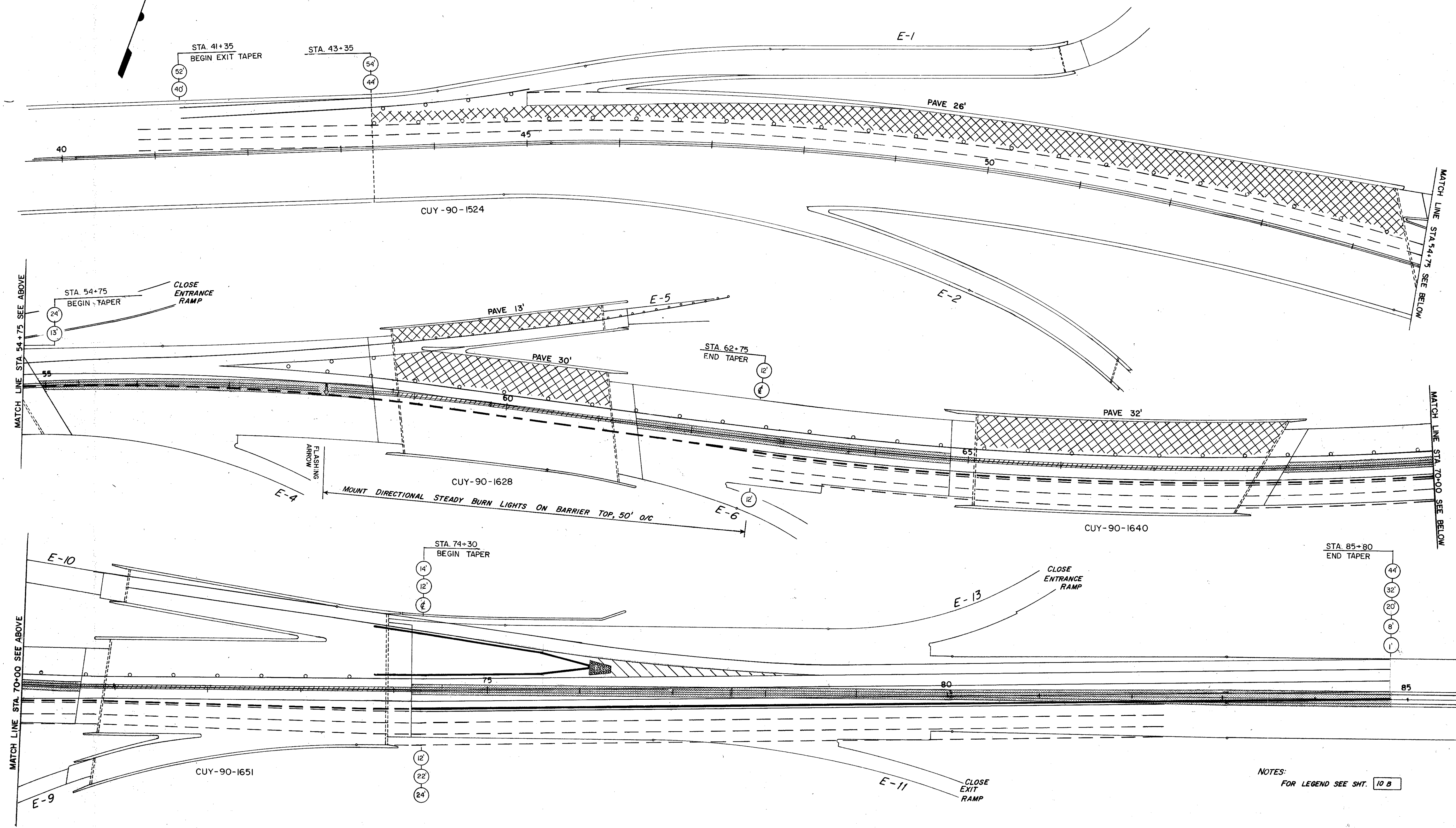
NOTES:
 FOR LEGEND SEE SHT. 10 B

TRAFFIC MAINTENANCE PLAN

| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

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CUYAHOGA COUNTY
 CUY-77-13.79
 CUY-90-16.21



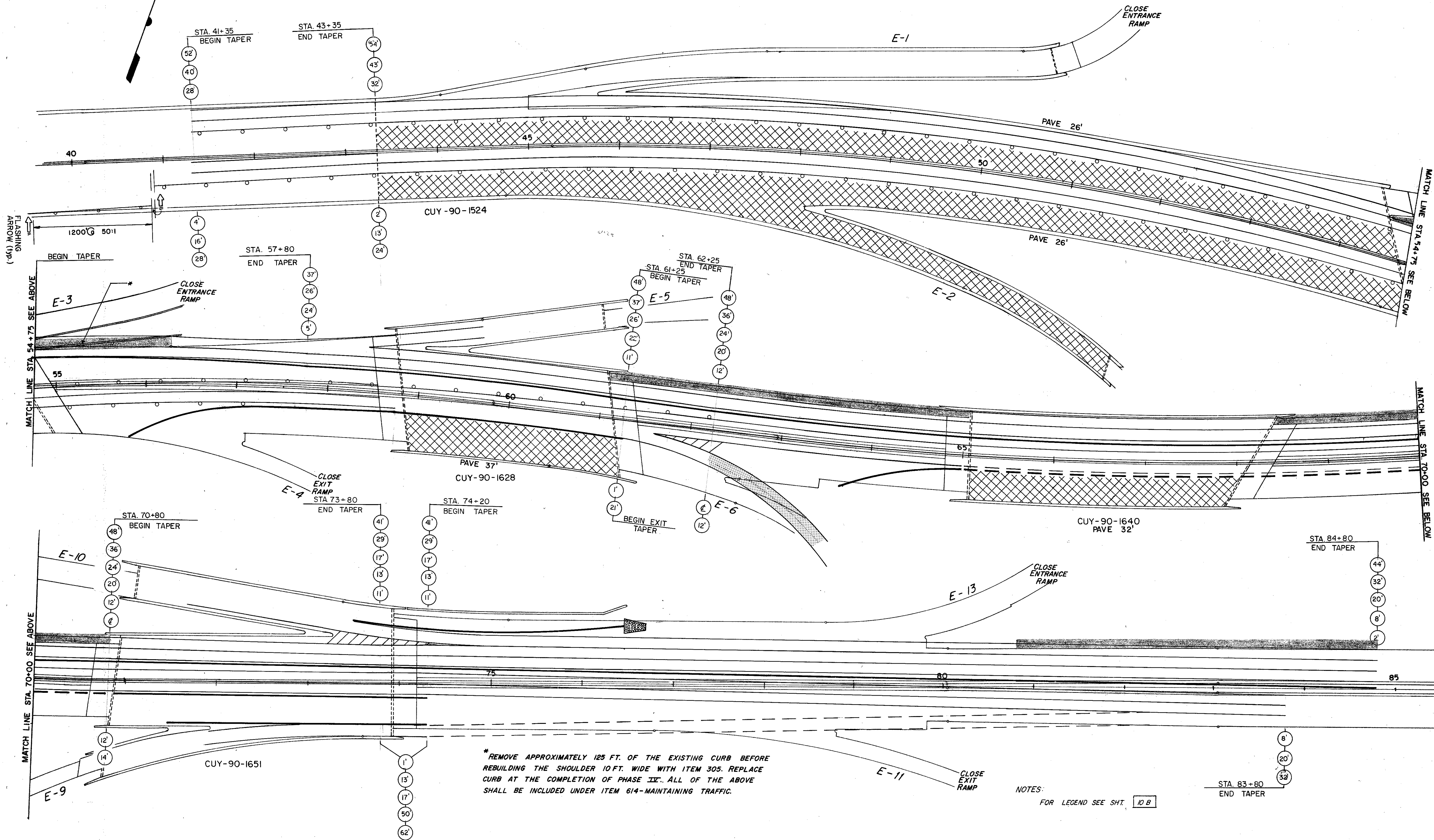
NOTES:
 FOR LEGEND SEE SHT. 10 B

TRAFFIC MAINTENANCE PLAN

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| FHWA REGION | STATE | PROJECT | |
| 5 | OHIO | | |

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169

CUYAHOGA COUNTY
 CUY-77-13.79
 CUY-90-16.21



* REMOVE APPROXIMATELY 125 FT. OF THE EXISTING CURB BEFORE REBUILDING THE SHOULDER 10 FT. WIDE WITH ITEM 305. REPLACE CURB AT THE COMPLETION OF PHASE III. ALL OF THE ABOVE SHALL BE INCLUDED UNDER ITEM 614-MAINTAINING TRAFFIC.

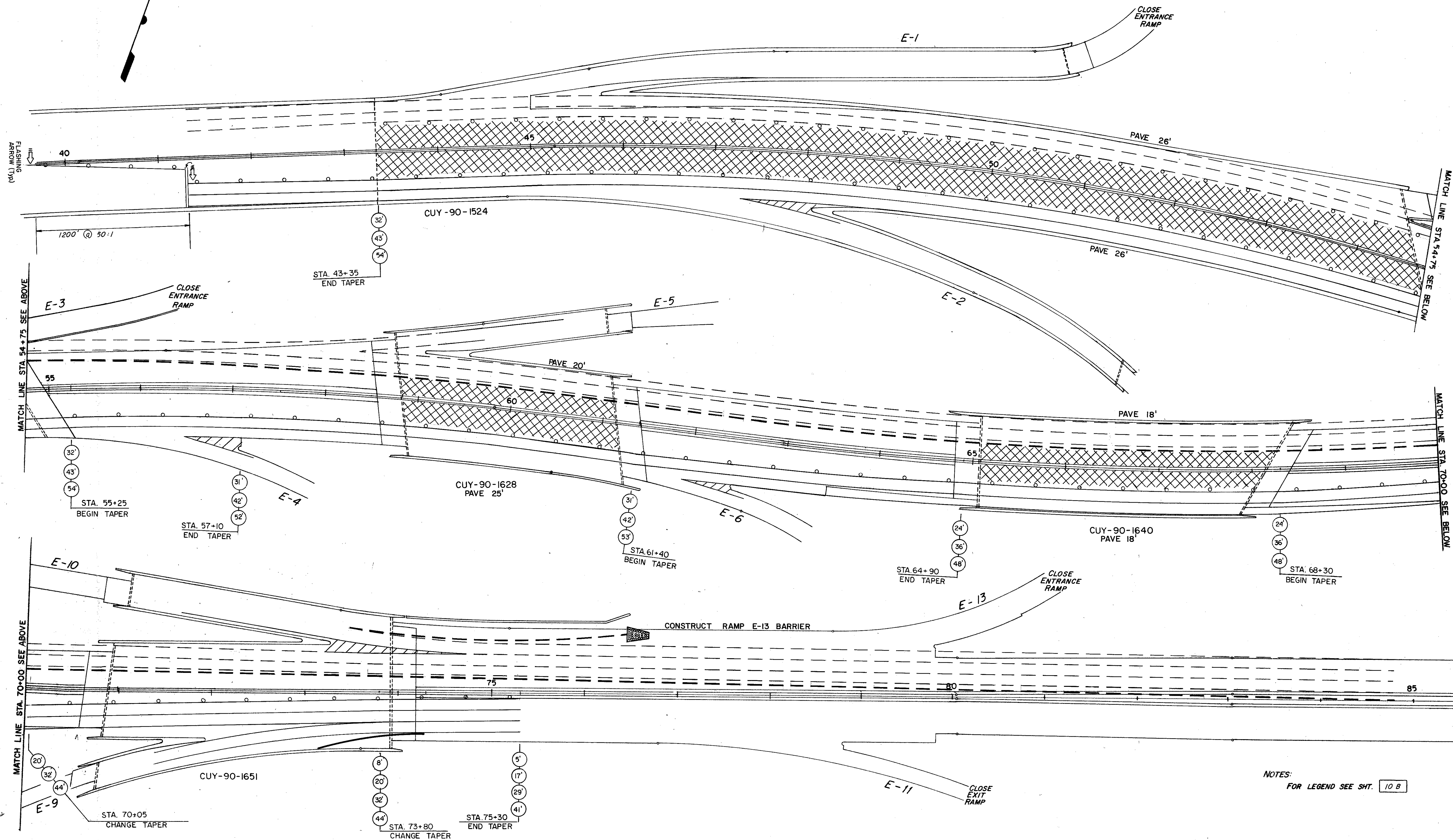
NOTES:
 FOR LEGEND SEE SHT. 10 B

TRAFFIC MAINTENANCE PLAN

| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

102
169

CUYAHOGA COUNTY
 CUY-77-13.79
 CUY-90-16.21



NOTES:
 FOR LEGEND SEE SHT. 10 B

TRAFFIC NOTES & DETAILS

FOR ASPHALTIC CONCRETE WORK

| | | | |
|-------------|-------|---------|--|
| FHWA REGION | STATE | PROJECT | |
| 5 | OHIO | | |

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169

CUYAHOGA COUNTY
CUY-77-13.79
CUY-90-16.21

TRAFFIC CONTROL TIMING AND SEQUENCE OF OPERATIONS FOR ASPHALTIC CONCRETE WORK:

ALL ASPHALTIC CONCRETE OPERATIONS SHALL BE CONDUCTED IN A MANNER THAT WILL ASSURE MINIMUM DANGER AND INCONVENIENCE TO THE HIGHWAY USERS. ALL ASPHALTIC 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 THE WESTBOUND OR EASTBOUND 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 LANES 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, CURRENT EDITION, LATEST REVISIONS. REFERENCE SHALL ALSO BE MADE TO SUPPLEMENTAL SPECIFICATION 844 AND THE DETAILS ON SHEET 10E.

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 ASPHALTIC CONCRETE WOULD BE FOR THE CONTRACTOR TO CLOSE THE LEFT TWO LANES IN EITHER DIRECTION AT THE BEGINNING OF THE PERMITTED DAILY WORK PERIOD AND TO PLACE ONE LAYER OF ASPHALTIC 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 LANES. 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 ASPHALTIC 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 INCLUDED 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 49 THROUGH 64. THE RATE OF APPLICATION OF PAINT AND BEADS SHALL BE THE SAME AS THAT SPECIFIED ABOVE FOR THE 402 INTERMEDIATE COURSE. PAVEMENT 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 49 THROUGH 64.

TRAFFIC CONTROL MATERIALS:

SIGN:

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

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

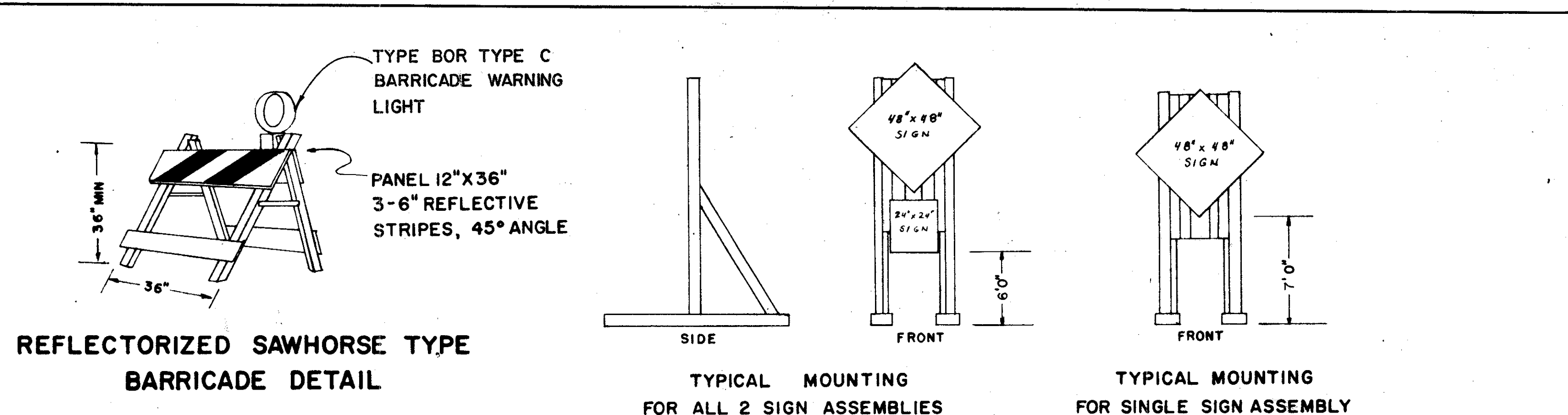
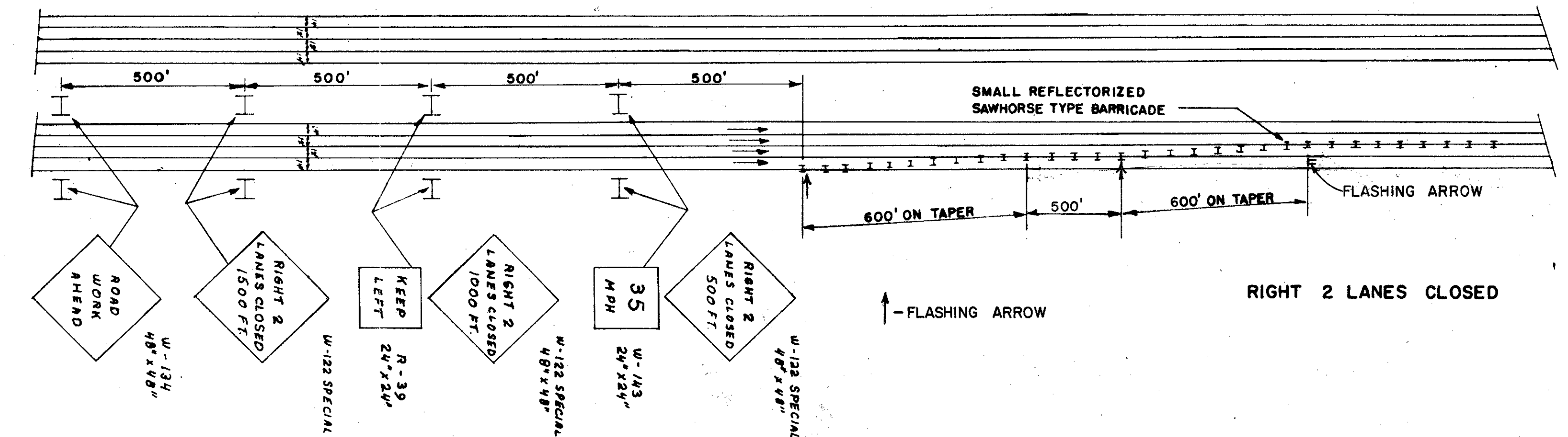
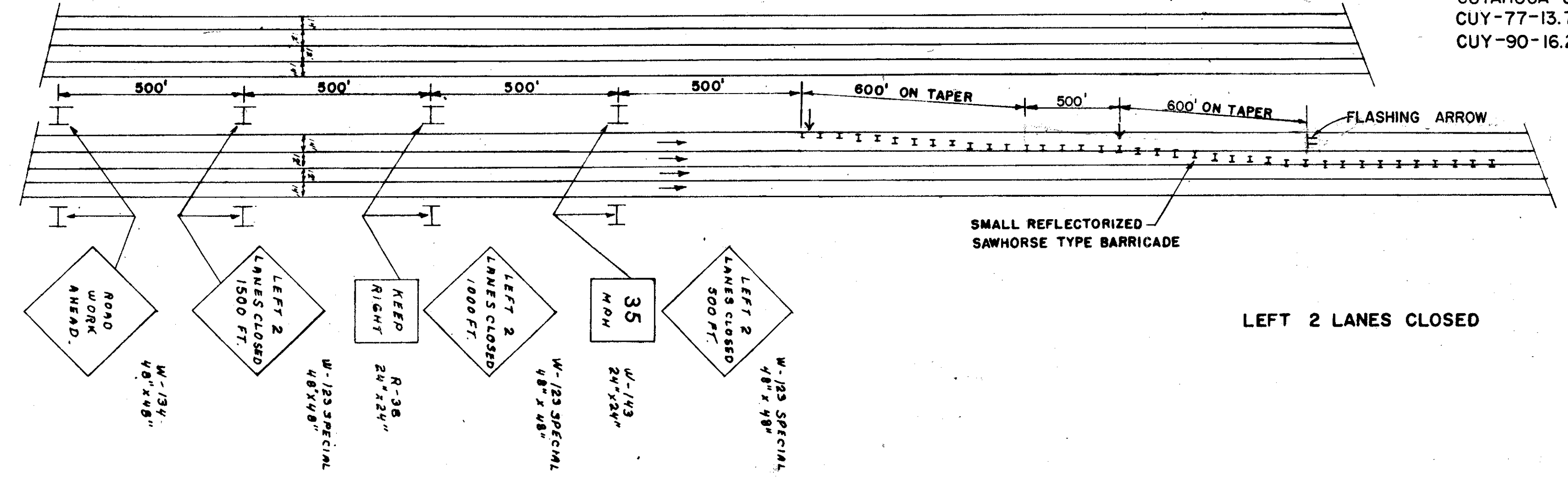
BARRELS:

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 WITH SUFFICIENT GRANULAR MATERIAL TO INSURE STABILITY. WARNING SIGNS AND DRUMS SHALL BE IN ACCORDANCE WITH PERTINENT SECTIONS OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION.

FLASHERS:

FLASHERS SHALL BE IN ACCORDANCE WITH PERTINENT SECTIONS OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION, LATEST REVISIONS. SUPPLEMENTAL SPECIFICATION 844 AND SHEET 10E SMALL BARRICADES:

TYPE II BARRICADES SHALL BE USED TO CLOSE LANES WHERE REQUIRED, FOR RESURFACING. 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, CURRENT EDITION, LATEST REVISIONS.



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 2FT. OFF EDGE OF BERM OR BEHIND GUARDRAIL WHEN POSSIBLE, AND REMOVED FROM VIEW IN THEIR ENTIRETY ALL OTHER TIMES.

GENERAL TRAFFIC CONTROL NOTES AND DETAILS

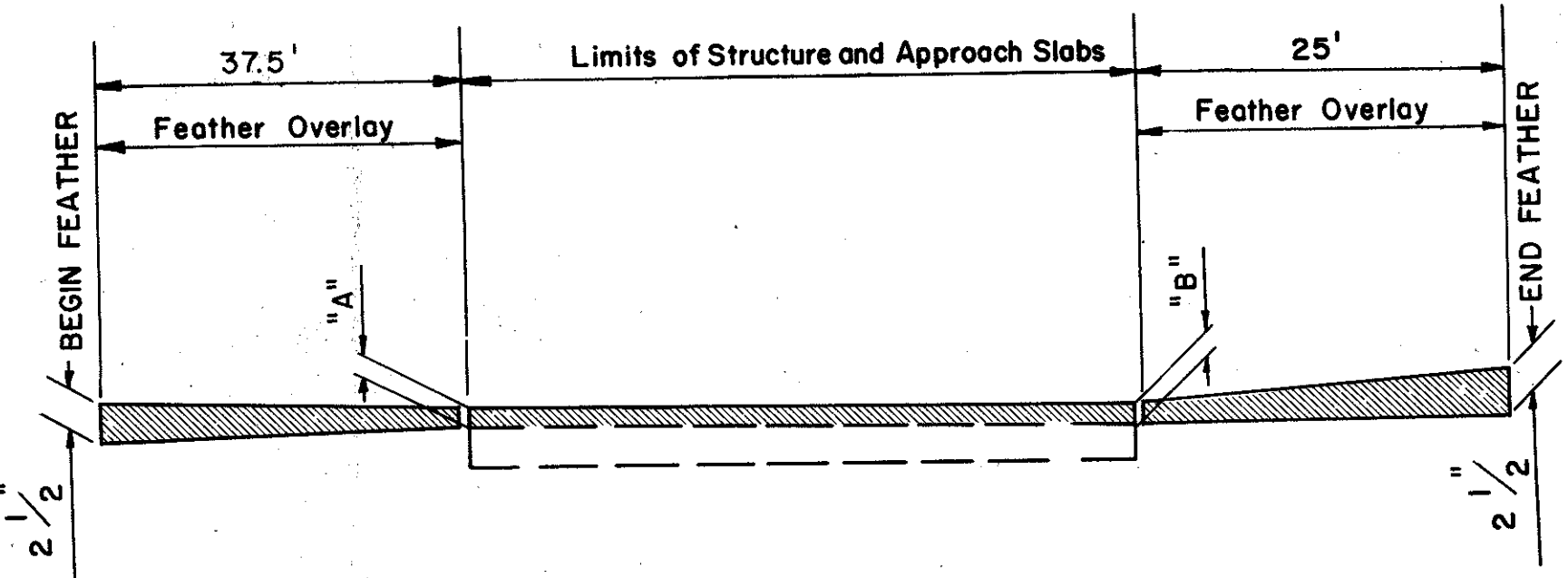
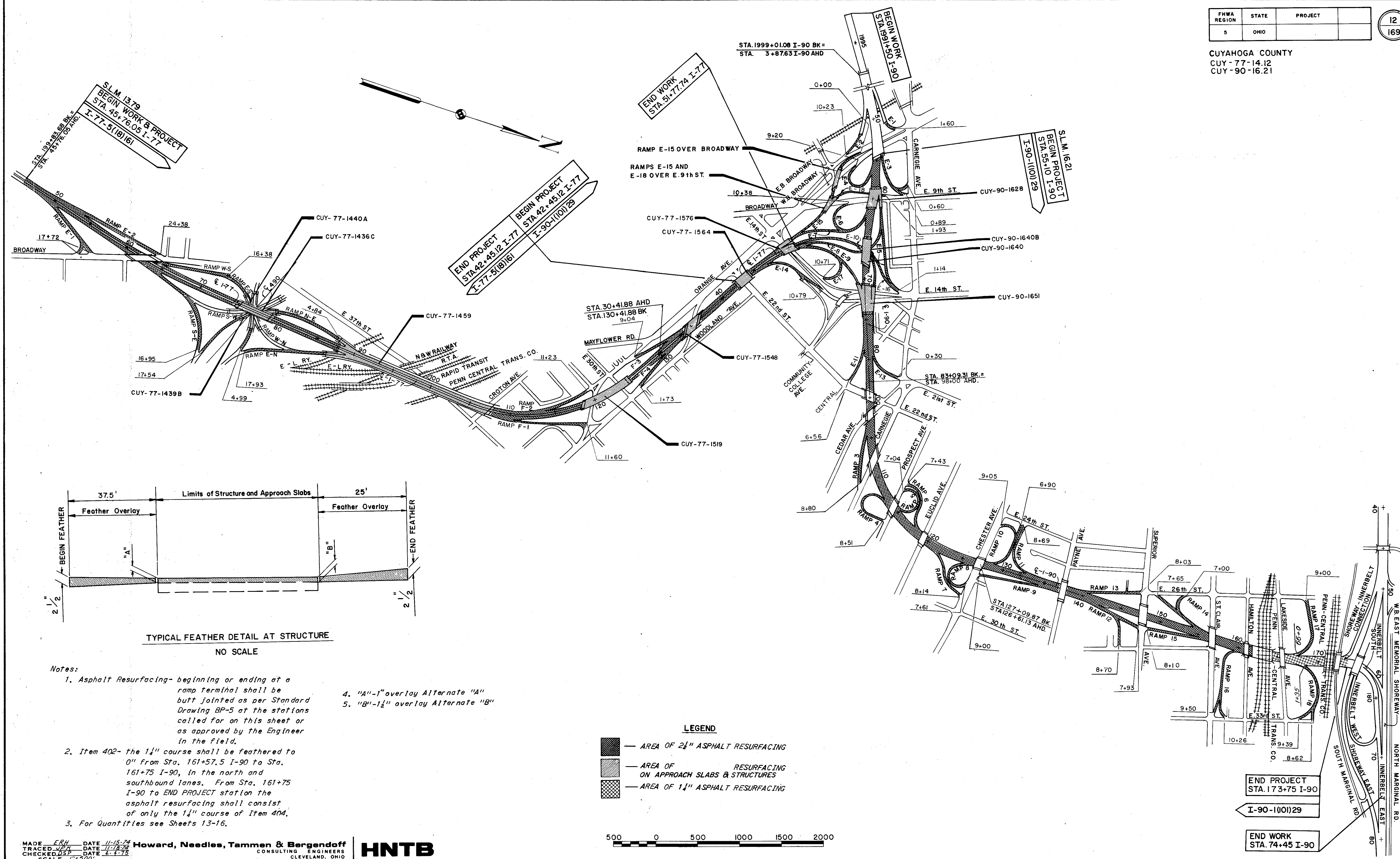
FOR ADDITIONAL NOTES, SEE SHEETS 9A & 9B.

MADE G.F.M. DATE 12-10-75
TRACED J.M. DATE 12-10-75
CHECKED J.S.P. DATE 12-10-75
SCALE 1/4"

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

HNTB

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

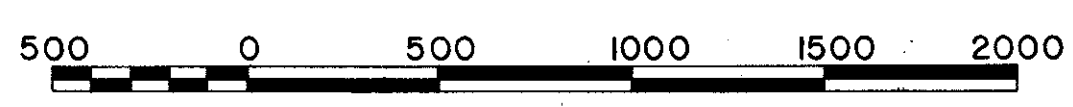


TYPICAL FEATHER DETAIL AT STRUCTURE
 NO SCALE

- Notes:
1. Asphalt Resurfacing- beginning or ending at a ramp terminal shall be butt jointed as per Standard Drawing BP-5 at the stations called for on this sheet or as approved by the Engineer in the field.
 2. Item 402- the 1 1/2" course shall be feathered to 0" from Sta. 161+57.5 I-90 to Sta. 161+75 I-90, in the north and southbound lanes. From Sta. 161+75 I-90 to END PROJECT station the asphalt resurfacing shall consist of only the 1 1/2" course of Item 404.
 3. For Quantities see Sheets 13-16.
 4. "A"-1" overlay Alternate "A"
 5. "B"-1 1/2" overlay Alternate "B"

LEGEND

- AREA OF 2 1/2" ASPHALT RESURFACING
- AREA OF RESURFACING ON APPROACH SLABS & STRUCTURES
- AREA OF 1 1/2" ASPHALT RESURFACING



MADE BY ERH DATE 11-15-74
 TRACED BY JTB DATE 11-14-74
 CHECKED BY DSP DATE 4-1-75
 SCALE 1"=500'

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

HNTB

11-0

COMPUTATIONS AND SUB-SUMMARIES

QUANTITY CALCULATIONS

MADE BY D.S.P. DATE 4-4-78
CHECKED BY G.F.M. DATE 5-14-78

| | | |
|-------------------|-------|---------|
| FED. RD. DIVISION | STATE | PROJECT |
| 6 | OHIO | |

13
169

CUYAHOGA COUNTY
CUY. 77-14.12
CUY. 90-16.21

| ITEM 402 & 404 COST PARTICIPATION I & II | | | | | | | |
|--|-----------|---------|------------------|-------------------------|-----------------------|-----------------------|--|
| I-77 Stations | | Side | End Widths (Ft.) | Surface Area (Sq. Yds.) | 404 Volume (Cu. Yds.) | 402 Volume (Cu. Yds.) | |
| From | To | | | | | | |
| 45+76.05 | 47+81 | Rt. | 46' | 1047.52 | 36.37 | | |
| 45+76.05 | 62+23.45 | Lt. | 36' | 6589.6 | 228.81 | | |
| 47+81 | 49+73 | Rt. | 57' | 1216.0 | 42.22 | | |
| 49+73 | 50+71 | Rt. | 43' | 468.22 | 16.26 | | |
| 50+71 | 52+00 | Rt. | 46' | 659.33 | 22.89 | | |
| 52+00 | 59+19.51 | Rt. | 46' | 3677.50 | 127.69 | | |
| 59+19.51 | 64+50 | Rt. | 24' | 1414.64 | 49.12 | | |
| 60+75 | 63+20 | Rt. | 8' | 217.78 | 7.56 | | |
| 63+20 | 64+50 | Rt. | 7.45' | 107.61 | 3.74 | | |
| 62+23.45 | 64+50 | Lt. | 24' | 604.13 | 20.98 | | |
| 63+08 | 64+50 | Lt. | 6' | 94.67 | 3.29 | | |
| 50+85 | 54+76 | Lt. | 6.5' | 282.39 | 9.81 | | |
| 54+75 | 62+23.34 | Lt. | 10' | 831.49 | 28.87 | | |
| 56+85 | 62+23.34 | Lt. | 7' | 418.71 | 14.54 | | |
| 64+50 | 70+50 | Rt. Lt. | 24' | 3200.0 | 111.11 | | |
| 64+50 | 74+88.27 | Rt. | 10' | 1153.63 | 40.06 | | |
| 64+50 | 65+40 | Lt. | 15' | 150.0 | 5.21 | | |
| 65+40 | 74+88.27 | Lt. | 10' | 1053.63 | 36.58 | | |
| 70+50 | 74+88.27 | Rt. Lt. | 24' | 2337.44 | 81.16 | | |
| 79+64.20 | 87+04.50 | Rt. Lt. | 34' | 5593.38 | 194.21 | | |
| 107+77.62 | 118+64.71 | Rt. Lt. | 36' | 8696.72 | 301.97 | | |
| 107+58 | 108+75 | Rt. | 8' | 104.0 | 3.61 | | |
| 108+75 | 110+13.45 | Rt. | 25.5' | 392.28 | 13.62 | | |
| 110+13.45 | 111+13.45 | Rt. | 10' | 111.11 | 3.86 | | |
| 107+77.62 | 109+16 | Rt. | 10' | 153.76 | 5.34 | | |
| 107+77.62 | 112+68 | Lt. | 10' | 544.87 | 18.92 | | |
| 109+50 | 112+73 | Lt. | 8' | 287.11 | 9.97 | | |
| 112+73 | 115+45 | Lt. | 11' | 332.44 | 11.54 | | |
| 115+45 | 118+64.71 | Lt. | 10' | 355.23 | 12.33 | | |
| 111+13.45 | 118+64.71 | Rt. | 10' | 894.73 | 28.98 | | |
| 124+36.43 | 130+41.88 | Rt. Lt. | 46' | 6189.04 | 214.90 | | |
| 30+41.88 | 33+77.53 | Rt. Lt. | 36' | 2685.2 | 93.24 | | |
| 30+53.61 | 31+53.61 | Lt. | 10' | 111.11 | 3.86 | | |
| 31+41.88 | 34+69 | Lt. | 15' | 545.2 | 18.93 | | |
| 30+41.88 | 33+39 | Rt. | 14' | 462.19 | 16.05 | | |
| 30+41.88 | 30+61.88 | Lt. | 10' | 22.22 | 0.77 | | |
| 36+41.47 | 42+20 | Rt. Lt. | 46' | 5913.86 | 205.34 | | |
| CUI-77-1436C | | | | | | | |
| 74+88.27 | 75+13.27 | Rt. Lt. | 33.65 | 186.94 | 6.49 | 4.54 | |
| 79+39.20 | 79+64.20 | Rt. Lt. | 33.65 | 186.94 | 6.49 | 4.54 | |
| CUI-290-0189ES | | | | | | | |
| 7+72.70 | 8+02.70 | | 38.42 | 128.07 | 4.45 | 3.11 | |
| 11+08.37 | 11+33.37 | | 31.0 | 86.11 | 2.99 | 2.09 | |
| CUI-290-0191NE | | | | | | | |
| 7+75.96 | 8+00.96 | | 30 | 83.33 | 2.89 | 2.03 | |
| 13+33.46 | 13+58.46 | | 30 | 83.33 | 2.89 | 2.03 | |
| CUI-77-1459 | | | | | | | |
| 87+04.5 | 87+29.5 | Rt. Lt. | 37.65 | 209.17 | 7.26 | 5.08 | |
| 107+52.62 | 107+77.62 | Rt. Lt. | 45.65 | 253.61 | 8.81 | 6.16 | |
| 26+74.5 | 26+99.5 | | 35.29 | 98.03 | 3.40 | 2.38 | |
| 4+58.5 | 4+83.5 | | 35.29 | 98.03 | 3.40 | 2.38 | |
| CUI-77-1519 | | | | | | | |
| 118+64.71 | 118+89.71 | Rt. Lt. | 45.65 | 253.61 | 8.81 | 6.16 | |
| 124+11.43 | 124+36.43 | Rt. Lt. | 45.65 | 253.61 | 8.81 | 6.16 | |
| CUI-77-1548 | | | | | | | |
| 33+77.53 | 34+02.53 | Rt. Lt. | 51 | 283.33 | 9.84 | 6.89 | |
| 36+16.47 | 36+41.47 | Rt. Lt. | 51 | 283.33 | 9.84 | 6.89 | |
| CUI-77-1564 | | | | | | | |
| 42+20.12 | 42+45.12 | Rt. Lt. | 46 | 255.56 | 8.87 | 6.21 | |
| Cost Participation I Subtotal | | | | | 2139 | | |
| Cost Participation II Subtotal | | | | | | 2110 | |

SAME AS ITEM 404

| ITEM 402 & 404 COST PARTICIPATION I & II | | | | | | | |
|--|--------------|------|------------------|-------------------------|-----------------------|-----------------------|--|
| Stations | | Side | End Widths (Ft.) | Surface Area (Sq. Yds.) | 404 Volume (Cu. Yds.) | 402 Volume (Cu. Yds.) | |
| From | To | | | | | | |
| RAMP E-1 | | | | | | | |
| 49+73 I-77 | 10+87 Rp E-1 | Rt. | 10 | 133.33 | 4.63 | | |
| 10+87 | 11+81 | Rt. | 5 | 52.22 | 1.81 | | |
| 47+81 I-77 | 10+65 Rp E-1 | Rt. | 13.5 | 434.37 | 15.08 | | |
| 10+65 | 11+65 | Rt. | 22 | 233.52 | 8.11 | | |
| 11+65 | 17+72 | Rt. | 24 | 1618.51 | 56.20 | | |
| 14+42 | 15+92 | Rt. | 6 | 100.0 | 3.47 | | |
| 15+92 | 17+72 | Rt. | 12 | 240.0 | 8.33 | | |
| Ramp Turn-Out | | | | (100' x 16') | 177.78 | 6.17 | |
| | | | | | | 103.80 | |
| RAMP S-E | | | | | | | |
| 0+00 | 1+55 | | 13 | 223.89 | 7.77 | | |
| 1+55 | 5+33.20 | | 12 | 504.27 | 17.51 | | |
| 4+04 | 5+33.20 | | 12.5 | 179.44 | 6.23 | | |
| 0+00 | 5+33.20 | | 10 | 592.44 | 20.57 | | |
| 5+33.20 | 5+82.84 | | 29.95 | 165.19 | 5.74 | | |
| 5+33.20 | 16+95.42 | Rt. | 10 | 1291.36 | 44.84 | | |
| 5+82.84 | 6+82.84 | Lt. | 29 | 322.22 | 11.19 | | |
| 6+82.84 | 8+23 | | 13 | 202.45 | 7.03 | | |
| 6+82.84 | 9+00 | Lt. | 4 | 96.52 | 3.35 | | |
| 6+82.84 | 10+75.47 | | 12 | 523.51 | 18.18 | | |
| 8+23 | 10+75.47 | | 13 | 364.68 | 12.66 | | |
| 10+75.47 | 11+75.47 | | 25 | 277.78 | 9.65 | | |
| 11+75.47 | 15+95.42 | | 24 | 1119.87 | 38.88 | | |
| 15+95.42 | 16+95.42 | | 25 | 277.78 | 9.65 | | |
| 10+75.47 | 16+95.42 | Lt. | 4 | 275.53 | 9.57 | | |
| | | | | | | 222.82 | |
| RAMP E-2 | | | | | | | |
| 5+55.67 | 10+65 | | 7.92 | 448.21 | 15.56 | | |
| 10+65 | 13+61.5 | | 12 | 395.33 | 13.73 | | |
| 13+61.5 | 14+54.09 | | 13 | 133.74 | 4.64 | | |
| 14+54.09 | 15+53 | | 14 | 153.86 | 5.34 | | |
| 15+53 | 16+53 | | 15 | 166.67 | 5.79 | | |
| 18+00 | 20+00 | | 16 | 355.56 | 12.35 | | |
| 20+00 | 22+63.47 | | 20 | 585.49 | 20.33 | | |
| 22+63.47 | 24+38 | | 16 | 278.28 | 9.66 | | |
| Ramp E-2 Turn-Out | | | | (75' x 17') | 141.67 | 4.92 | |
| 5+55.67 | 6+90.03 | Lt. | 5.6 | 83.60 | 2.90 | | |
| 6+90.03 | 14+54.09 | Lt. | 8 | 679.16 | 23.58 | | |
| 14+54.09 | 15+04.09 | Lt. | 7.5 | 41.67 | 1.45 | | |
| 15+04.09 | 19+37 | Lt. | 7 | 336.71 | 11.69 | | |
| 19+37 | 20+75 | Lt. | 5 | 76.67 | 2.66 | | |
| 20+75 | 23+75 | Lt. | 3 | 100.0 | 3.47 | | |
| 23+75 | 24+00 | Lt. | 1.5 | 4.17 | 0.14 | | |
| 15+53 | 22+63.47 | Rt. | 3 | 236.82 | 8.22 | | |
| 22+63.47 | 23+38 | Rt. | 1.5 | 12.5 | 0.43 | | |
| | | | | | | 146.86 | |
| RAMP W-S | | | | | | | |
| 26+78 | 25+92.76 | | 13 | 123.12 | 4.28 | | |
| 25+92.76 | 23+71.02 | | 12 | 295.65 | 10.27 | | |
| 25+10 | 23+71.02 | | 13 | 200.75 | 6.97 | | |
| 25+92.76 | 16+38.21 | Lt. | 10 | 1060.61 | 36.83 | | |
| 23+71.02 | 22+71.02 | | 27 | 300.0 | 10.42 | | |
| 22+71.02 | 21+71.02 | | 25 | 277.78 | 9.65 | | |
| 22+71.02 | 21+71.02 | Rt. | 3 | 33.33 | 1.16 | | |
| 21+71.02 | 20+77 | | 13 | 135.81 | 4.72 | | |
| 20+77 | 17+30 | | 8 | 308.44 | 10.71 | | |
| 17+30 | 16+38.21 | | 13 | 132.59 | 4.61 | | |
| 25+92.76 | 25+10 | | 13 | 119.54 | 4.15 | | |
| | | | | | | 103.77 | |
| RAMP E-S | | | | | | | |
| 21+44.12 | 20+48 | | 12 | 128.16 | 4.45 | | |
| 21+44.12 | 11+33.37 | Lt. | 4 | 449.22 | 15.60 | | |
| 20+48 | 11+33.37 | | 24 | 2439.01 | 84.69 | | |
| 7+72.70 | 5+98.80 | | 24 | 463.73 | 16.10 | | |
| 5+98.80 | 0+00 | | 30.57 | 2034.22 | 70.63 | | |
| 17+00 | 16+12.56 | | 6.5 | 63.15 | 2.19 | | |
| 16+12.56 | 11+33.37 | Rt. | 10 | 532.43 | 18.49 | | |
| 7+72.70 | 6+00 | Rt. | 10 | 191.89 | 6.67 | | |
| 7+72.70 | 0+00 | Lt. | 4 | 343.42 | 11.92 | | |
| | | | | | | 165.92 | |

SAME AS ITEM 404

| ITEM 402 & 404 COST PARTICIPATION I & II | | | | | | | |
|--|----------|---------|------------------|-------------------------|-----------------------|-----------------------|--|
| Stations | | Side | End Widths (Ft.) | Surface Area (Sq. Yds.) | 404 Volume (Cu. Yds.) | 402 Volume (Cu. Yds.) | |
| From | To | | | | | | |
| RAMP E-N | | | | | | | |
| 17+92.61 | 18+92.61 | | 17 | 188.89 | 6.56 | | |
| 18+92.61 | 21+22.44 | | 16 | 408.59 | 14.19 | | |
| 21+22.44 | 23+22.44 | | 15 | 333.33 | 11.57 | | |
| 23+22.44 | 24+45 | | 19.5 | 265.55 | 9.22 | | |
| 12+94 | 26+24.50 | Rt. | 10 | 1478.29 | 51.33 | | |
| 17+92.61 | 21+22.44 | Lt. | 4 | 146.59 | 5.09 | | |
| 21+22.44 | 22+22.44 | Lt. | 3 | 33.33 | 1.16 | | |
| 25+75.94 | 26+74.50 | Lt. | 28 | 306.6 | 10.65 | | |
| | | | | | | 90.53 | |
| RAMP W-N | | | | | | | |
| 14+45.40 | 15+65 | | 14 | 186.04 | 6.46 | | |
| 15+65 | 16+94.75 | | 25 | 360.42 | 12.51 | | |
| 14+45.40 | 16+94.75 | | 4 | 110.82 | 3.85 | | |
| | | | | | | 22.82 | |
| RAMP N-E | | | | | | | |
| 17+54.39 | 13+58.46 | Rt. | 26 | 1143.80 | 39.72 | | |
| 17+54.39 | 13+58.46 | Lt. | 4 | 175.97 | 6.11 | | |
| 7+75.96 | 4+28.01 | Rt. | 26 | 1005.19 | 34.90 | | |
| 7+75.96 | 0+38.48 | Lt. | 4 | 327.77 | 11.38 | | |
| 4+28.01 | 3+28.01 | | 27 | 300.0 | 10.42 | | |
| 3+28.01 | 2+22.34 | | 11 | 129.15 | 4.48 | | |
| 3+28.01 | 2+28 | | 14.5 | 161.11 | 5.59 | | |
| 2+28 | 1+40 | | 6 | 58.67 | 2.04 | | |
| 2+22.34 | 1+40 | | 12 | 109.79 | 3.81 | | |
| 1+40 | 0+38.48 | | 25 | 282.0 | 9.79 | | |
| | | | | | | 128.24 | |
| RAMP N-W | | | | | | | |
| 5+32.48 | 4+83.50 | | 38 | 206.80 | 7.18 | | |
| 6+33 | 7+28 | | 12 | 126.67 | 4.40 | | |
| 7+28 | 8+19.86 | | 18 | 183.72 | 6.38 | | |
| 5+32.48 | 8+19.86 | Rt. | 10 | 319.31 | 11.09 | | |
| | | | | | | 29.05 | |
| RAMP F-1 | | | | | | | |
| 2+80.63 | 3+80.63 | | 17 | 188.89 | 6.56 | | |
| 1+83.12 | 3+80.63 | Rt. | 6.5 | 142.65 | 4.95 | | |
| 2+80.63 | 11+55 | Lt. | 3 | 291.46 | 10.12 | | |
| 3+80.63 | 7+75 | | 16 | 701.10 | 24.34 | | |
| 3+80.63 | 10+42.33 | Rt. | 3 | 220.57 | 7.66 | | |
| 10+42.33 | 11+60 | | 24 | 313.79 | 10.90 | | |
| Ramp Turn-Out | | | | (75' x 26') | 216.67 | 7.52 | |
| 11+19 | 11+43 | Rt. | 5 | 13.33 | 0.46 | | |
| | | | | | | 72.51 | |
| RAMP F-2 | | | | | | | |
| 4+28 | 6+21.87 | | 14 | 301.58 | 10.47 | | |
| 4+28 | 5+21.87 | Lt. | 10 | 104.30 | 3.62 | | |
| 5+21.87 | 7+21.87 | Lt. | 6.5 | 144.44 | 5.02 | | |
| 6+21.87 | 7+21.87 | Rt. | 17.5 | 194.44 | 6.75 | | |
| 7+21.87 | 10+22.49 | Rt. Lt. | 22 | 734.85 | 25.52 | | |
| 10+22.49 | 11+23 | Rt. Lt. | 8.5 | 94.93 | 3.30 | | |
| | | | | | | 54.68 | |
| RAMP F-3 | | | | | | | |
| 3+50 | 7+04.20 | | 16 | 629.69 | 21.86 | | |
| 7+04.20 | 9+04.20 | | 19 | 422.22 | 14.66 | | |
| 3+53.61 | 9+04.20 | Lt. | 3 | 183.53 | 6.37 | | |
| 0+30 | 6+98 | Rt. | 8 | 593.78 | 20.62 | | |
| | | | | | | 63.51 | |
| RAMP F-4 | | | | | | | |
| 7+16.4 | 1+73.65 | | 16 | 964.89 | 33.50 | | |
| 2+75 | 1+73.65 | | 8 | 90.09 | 3.13 | | |
| 10+00 | 2+75 | Rt. | 1 | | | | |

COMPUTATIONS AND SUB-SUMMARIES

QUANTITY CALCULATIONS

MADE BY D.S.P. DATE 4-4-75

CHECKED BY G.F.M. DATE 5-14-75

| | | |
|-------------------|-------|---------|
| FED. RD. DIVISION | STATE | PROJECT |
| 6 | OHIO | |

14
169

CUYAHOGA COUNTY
CUY. 77-14.12
CUY. 90-16.21

| ITEM 402 & 404 COST PARTICIPATION I & II | | | | | | |
|--|------|-------------|------------------|-------------------------|-----------------------|--------------------------|
| Stations | | Side | End Widths (Ft.) | Surface Area (Sq. Yds.) | 404 Volume (Cu. Yds.) | 402 Volume II (Cu. Yds.) |
| From | To | | | | | |
| 44+79 | I-77 | 48+00 I-77 | Lt. | 49' | 1747.67 | 60.68 |
| 44+79 | | 46+85 | Rt. | 8' | 183.11 | 6.36 |
| 44+79 | | 48+00 | Rt. | 24' | 856.0 | 29.72 |
| 44+79 | | 48+00 | Rt. | 11' | 392.33 | 13.62 |
| 47+90 | | 48+00 | Rt. | 10' | 11.11 | 0.39 |
| 48+00 | | 48+73 | Lt. | 46,42' | 376.52 | 13.07 |
| 48+00 | | 49+04 | Lt. | 9' | 104.0 | 3.61 |
| 48+73 | | 49+04 | Lt. | 14,63' | 50.39 | 1.75 |
| 48+73 | | 49+04 | Lt. | 32,83' | 113.08 | 3.93 |
| 48+00 | I-77 | 49+04 I-77 | Rt. | 34' | 392.89 | 13.64 |
| 54+65.78 I-90 | | 57+06 I-90 | Rt. | 63,84' | 1703.96 | 59.17 |
| 57+06 | | 58+54 | Rt. | 60,34' | 992.26 | 34.45 |
| 54+80 | | 56+30 | Lt. | 38,42' | 640.33 | 22.23 |
| 56+30 | | 58+54 | Lt. | 42,39' | 1055.04 | 36.63 |
| 54+75 | | 56+50 | Lt. | 6' | 116.67 | 4.05 |
| 56+50 | | 58+54 | Lt. | 10' | 226.67 | 7.87 |
| 61+43 | | 64+87.7 | Rt. Lt. | 36' | 2757.6 | 95.75 |
| 61+50 | | 62+50 | Rt. | 26,5' | 294.44 | 10.22 |
| 62+50 | | 63+50 | Rt. | 10' | 111.11 | 3.86 |
| 63+50 | | 64+87.7 | Rt. | 10' | 153.0 | 5.31 |
| 61+35 | | 64+87.7 | Lt. | 10' | 391.89 | 13.61 |
| 68+46 | | 70+63 | Rt. Lt. | 46' | 2218.22 | 77.02 |
| 74+21 | | 75+47 | Lt. | 49,68' | 695.52 | 24.15 |
| 75+47 | | 79+86 | Lt. | 48' | 2341.33 | 81.29 |
| 79+86 | | 83+09 | Lt. | 46' | 1650.89 | 57.32 |
| 74+21 | | 76+85.5 | Rt. | 58' | 1704.56 | 59.19 |
| 76+85.5 | | 78+87 | Rt. | 58,5' | 1309.75 | 45.48 |
| 78+87 | | 79+87 | Rt. | 46' | 511.11 | 17.75 |
| 79+87 | | 83+09 | Rt. | 46' | 1645.78 | 57.15 |
| 98+00 | | 101+25 | Rt. Lt. | 46' | 3322.22 | 115.35 |
| 101+25 | | 104+88 | Rt. Lt. | 36' | 2904.0 | 100.83 |
| 104+45 | | 105+75 | Rt. | 8' | 115.56 | 4.01 |
| 101+25 | | 102+00 | Rt. | 10' | 83.33 | 2.89 |
| 101+25 | | 104+88 | Lt. | 10' | 403.33 | 14.00 |
| 104+88 | | 118+00 | Rt. Lt. | 36' | 10,496.0 | 364.44 |
| 105+75 | | 112+00 | Rt. | 10' | 694.44 | 24.11 |
| 113+90 | | 118+00 | Rt. | 10' | 455.56 | 15.82 |
| 104+88 | | 110+94.5 | Lt. | 10' | 673.89 | 23.40 |
| 115+50 | | 117+10 | Lt. | 10' | 177.78 | 6.17 |
| 113+90 | | 120+10 | Rt. | 12' | 826.67 | 28.70 |
| 113+00 | | 114+10 | Lt. | 12' | 146.67 | 5.09 |
| 110+94.5 | | 113+00 | Lt. | 6' | 137.0 | 4.76 |
| 110+94.5 | | 114+10 | Lt. | 10' | 350.56 | 12.17 |
| 118+00 | | 124+88 | Rt. | 36' | 2752.0 | 95.56 |
| 119+00 | | 124+88 | Lt. | 58' | 3789.33 | 131.57 |
| 118+00 | | 120+10 | Rt. | 10' | 233.33 | 8.10 |
| 118+00 | | 119+00 | Lt. | 36' | 400.00 | 13.89 |
| 121+89 | | 122+30 | Rt. | 8' | 36.44 | 1.27 |
| 122+30 | | 125+00 | Rt. | 10' | 300.0 | 10.42 |
| 125+00 | | 126+03 | Rt. | 5' | 57.22 | 1.99 |
| 126+61 | | 130+00 | Rt. | 36' | 1356.0 | 47.08 |
| 124+88 | | 127+10 | Rt. | 36' | 888.0 | 30.83 |
| 126+75 | | 127+40 | Rt. | 12' | 152.0 | 5.28 |
| 127+40 | | 129+00 | Rt. | 6' | 106.67 | 3.70 |
| 126+75 | | 130+00 | Rt. | 10' | 361.11 | 12.54 |
| 124+88 | | 127+10 | Lt. | 48' | 1184.0 | 41.11 |
| 126+61 | | 127+30 | Lt. | 48' | 368.0 | 12.78 |
| 124+88 | | 127+30 | Lt. | 10' | 323.33 | 11.23 |
| 127+30 | | 130+00 | Lt. | 36' | 1080.0 | 37.50 |
| 128+80 | | 131+80 | Lt. | 10' | 333.33 | 11.57 |
| 131+80 | | 132.34 | Lt. | 8' | 48.0 | 1.67 |
| 134+50 | I-90 | 139+00 I-90 | Lt. | 22' | 1100.0 | 38.19 |

| ITEM 402 & 404 COST PARTICIPATION I & II | | | | | | |
|--|-----------|---------|------------------|-------------------------|-----------------------|-----------------------|
| I-90 Stations | | Side | End Widths (Ft.) | Surface Area (Sq. Yds.) | 404 Volume (Cu. Yds.) | 402 Volume (Cu. Yds.) |
| From | To | | | | | |
| 130+00 | 142+05 | Rt. | 36' | 4820.0 | 167.36 | |
| 130+00 | 131+75 | Rt. | 10' | 194.44 | 6.75 | |
| 130+00 | 140+14 | Lt. | 36' | 4056.0 | 140.83 | |
| 136+00 | 139+94 | Rt. | 22' | 963.11 | 33.44 | |
| 142+05 | 143+50 | Rt. | 7' | 112.78 | 3.92 | |
| 142+05 | 151+00 | Rt. | 38' | 3778.89 | 131.21 | |
| 140+14 | 151+00 | Lt. | 38' | 4585.33 | 159.21 | |
| 143+50 | 151+00 | Rt. | 10' | 833.33 | 28.94 | |
| 141+75 | 151+00 | Lt. | 10' | 1027.78 | 35.69 | |
| 151+00 | 155+46 | Rt. | 40' | 1982.22 | 68.83 | |
| 151+00 | 153+70 | Rt. | 8' | 240.0 | 8.33 | |
| 151+00 | 154+07 | Lt. | 40' | 1364.44 | 47.38 | |
| 151+00 | 153+32 | Lt. | 4' | 103.11 | 3.58 | |
| 151+50 | 156+07 | Lt. | 6,75' | 192.75 | 6.79 | |
| 155+46 | 156+48 | Rt. | 40' | 453.33 | 15.74 | |
| 155+82 | 172+64,25 | Lt. | 52' | 9719.67 | 337.49 | 117.22 |
| 155+82 | 166+25 | Lt. | 8' | 927.11 | 32.19 | 18.03 |
| 156+48 | 173+75 | Rt. | 52' | 9978.22 | 346.47 | 103.97 |
| 156+48 | 159+40 | Rt. | 8' | 259.56 | 9.01 | 9.01 |
| 160+90 | 167+00 | Rt. | 8' | 542.22 | 18.83 | 2.35 |
| 168+32,6 | 169+15 | Rt. | 4' | 36.62 | 1.27 | |
| 169+15 | 173+75 | Rt. | 8' | 408.89 | 14.20 | |
| 168+00 | 172+64,25 | Lt. | 8' | 412.67 | 14.33 | |
| 172+64,25 | 173+14 | Lt. | Varies | 281.11 | 9.76 | |
| 173+14 | 173+75 | Lt. | 28' | 189.78 | 6.59 | |
| CUY-77-1564 | | | | | | |
| 44+54,88 | 44+79,88 | Rt. Lt. | 46 | 255.56 | 8.87 | 6.21 |
| CUY-77-1576 | | | | | | |
| 49+05,16 | 49+30,16 | | (39+38+23) | 277.78 | 9.65 | 6.75 |
| 51+07,08 | 51+32,08 | | (44+36) | 222.22 | 7.72 | 5.40 |
| 15+02,70 | 15+27,70 | | 34 | 94.44 | 3.28 | 2.30 |
| CUY-90-1640 | | | | | | |
| 64+85,18 | 65+10,18 | Rt. Lt. | 49 | 272.22 | 9.45 | 6.62 |
| 68+19,03 | 68+44,03 | Rt. Lt. | 49 | 272.22 | 9.45 | 6.62 |
| CUY-90-1640B | | | | | | |
| 7+94,83 | 8+19,83 | | 61 | 109.44 | 3.80 | 2.66 |
| 9+38,16 | 9+63,16 | | 37 | 102.78 | 3.57 | 2.50 |
| CUY-90-1651 | | | | | | |
| 70+64,23 | 70+89,23 | Lt. Rt. | 49 | 272.22 | 9.45 | 6.62 |
| 4+36,11 | 4+61,11 | | 29 | 80.56 | 2.80 | 1.96 |
| 3+86,38 | 4+11,38 | | 37 | 102.78 | 3.57 | 2.50 |
| 73+96,25 | 74+21,25 | Lt. | 77.66 | 215.72 | 7.49 | 5.24 |
| | | Rt. | 57.33 | 159.25 | 5.53 | 3.87 |
| CUY-90-Ramp E-18 over E. 9th | | | | | | |
| 10+24,01 | 10+49,01 | | 30 | 83.33 | 2.89 | 2.03 |
| 7+74,55 | 7+99,55 | Lt. | 20 | 55.56 | 1.93 | 1.35 |
| | | Rt. | 22 | 61.11 | 2.12 | 1.49 |
| CUY-90-Ramp E-15 over Broadway Ave. | | | | | | |
| 3+92,75 | 4+17,75 | | 23 | 63.89 | 2.22 | 1.55 |
| 6+85,67 | 7+10,67 | | 21 | 58.33 | 2.03 | 1.42 |
| CUY-90-1628 | | | | | | |
| 58+54,98 | 58+79,98 | Rt. | 61 | 169.44 | 5.88 | 4.12 |
| | | Lt. | 66 | 183.33 | 6.37 | 4.46 |
| 61+16,05 | 61+41,05 | Rt. | 66 | 183.33 | 6.37 | 4.46 |
| | | Lt. | 50 | 138.89 | 4.82 | 3.38 |
| 12+00,16 | 12+25,16 | | 29 | 80.56 | 2.80 | 1.96 |
| CUY-90-1619 | | | | | | |
| 54+65,78 | 54+90,78 | | (52+38+25) | 319.44 | 11.09 | 7.76 |
| 2+77,77 | 3+02,77 | | 38 | 105.56 | 3.67 | 2.57 |
| 6+95,01 | 7+20,01 | | 30 | 83.33 | 2.89 | 2.03 |
| Cost Participation I Subtotal | | | | | 3874 | |
| Cost Participation II Subtotal | | | | | | 3293 |

| ITEM 402 & 404 COST PARTICIPATION I & II | | | | | | |
|--|----------|---------|------------------|-------------------------|-----------------------|-----------------------|
| Stations | | Side | End Widths (Ft.) | Surface Area (Sq. Yds.) | 404 Volume (Cu. Yds.) | 402 Volume (Cu. Yds.) |
| From | To | | | | | |
| RAMP E-14 | | | | | | |
| 0+80 | 3+23 | Rt. | 9 | 243.00 | 8.44 | |
| 3+23 | 6+75 | Rt. | 8 | 312.89 | 10.86 | |
| 2+76,73 | 10+79,56 | | 16 | 1427.25 | 49.56 | |
| 2+76,73 | 9+79,56 | Lt. | 3 | 234.28 | 8.13 | |
| 10+50 | 11+00 | Rt. | 4 | 22.22 | 0.77 | |
| 4+72 | 6+00 | | 4 | 56.89 | 1.98 | |
| 6+00 | 7+77 | | 19 | 373.67 | 12.97 | |
| 8+77 | 10+50 | | 8 | 153.78 | 5.34 | |
| 7+77 | 8+77 | | 8 | 88.89 | 3.09 | |
| RAMP E-17 | | | | | 101.14 | |
| 1+50,62 | 2+31,62 | | 48 | 432.0 | 15.00 | |
| 2+31,62 | 6+21,14 | Lt. | 27 | 1168.56 | 40.58 | |
| 1+50,62 | 5+83,64 | Rt. | 10 | 481.13 | 16.71 | |
| 6+21,14 | 7+06,65 | | 13 | 123.51 | 4.29 | |
| 7+06,65 | 8+90,65 | | 19 | 388.44 | 13.49 | |
| 8+90,65 | 9+70,65 | | 24,25 | 215.56 | 7.48 | |
| 9+70,65 | 10+70,65 | | 19,25 | 213.89 | 7.43 | |
| 5+83,64 | 8+90,65 | Rt. | 9 | 307.01 | 10.66 | |
| 7+06,65 | 9+70,65 | | 3 | 88.0 | 3.06 | |
| RAMP E-9 | | | | | 118.70 | |
| 0+00 | 1+90 | | 24 | 506.67 | 17.59 | |
| 1+90 | 4+40 | | 16 | 444.44 | 15.43 | |
| 1+90 | 3+80 | | 8 | 168.89 | 5.86 | |
| 3+80 | 4+40 | | 9 | 60.0 | 2.08 | |
| 0+00 | 4+40 | | 3 | 146.67 | 5.09 | |
| RAMP E-8 | | | | | 46.05 | |
| 0+47,96 | 1+47,96 | | 24 | 266.67 | 9.26 | |
| 0+00 | 14+10 | Lt. | 3 | 470.0 | 16.32 | |
| 1+47,96 | 9+94,52 | Rt. | 24 | 2257.49 | 78.39 | |
| 9+94,52 | 11+74,52 | | 20 | 400.0 | 13.89 | |
| 11+74,52 | 14+10 | | 10 | 261.64 | 9.08 | |
| RAMP E-5 | | | | | 126.94 | |
| 11+95 | 2+50,32 | | 16 | 1679.43 | 58.31 | |
| 11+95 | 1+84 | Rt. | 8 | 898.67 | 31.20 | |
| 8+60,56 | 2+50,32 | Lt. | 3 | 203.41 | 7.06 | |
| 2+50,32 | 1+13,65 | | 36,06 | 547.59 | 19.01 | |
| RAMP E-16 | | | | | 115.58 | |
| 1+82,29 | 2+82,29 | | 24 | 266.67 | 9.26 | |
| 2+82,29 | 4+86,88 | | 16 | 363.72 | 12.63 | |
| 4+86,88 | 5+10,88 | | 16,5 | 44.00 | 1.53 | |
| 5+10,88 | 5+50,46 | | 17 | 74.76 | 2.60 | |
| 5+50,46 | 6+30 | | 16,5 | 145.82 | 5.06 | |
| 2+82,29 | 6+30 | Rt. | 8 | 309.08 | 10.73 | |
| 0+38,25 | 5+50,46 | Lt. | 3 | 170.74 | 5.93 | |
| RAMP E-10 | | | | | 47.74 | |
| 4+10 | 7+10 | Rt. | 33 | 1100.0 | 38.19 | |
| 7+10 | 8+00 | | 34,5 | 345.0 | 11.98 | |
| 4+10 | 8+00 | Lt. | 3 | 130.0 | 4.51 | |
| 9+70 | 10+20 | | 25 | 138.89 | 4.82 | |
| 10+20 | 17+95 | | 24 | 2066.67 | 71.76 | |
| 9+70 | 17+95 | Rt. Lt. | 13 | 1191.67 | 41.38 | |
| Cost Participation I Sheet Total | | | | | I-90-11(01)29 | |
| Cost Participation II Sheet Total | | | | | I-90-11(01)29 | 4033 |

MADE BY D.S.P. DATE 4-4-75
 TRACED BY G.F.M. DATE 5-14-75
 CHECKED BY G.F.M. DATE 5-14-75

COMPUTATIONS AND SUB-SUMMARIES

QUANTITY CALCULATIONS

MADE BY D.S.P. DATE 4-4-75
 CHECKED BY G.F.M. DATE 5-14-75

| FED. RD. DIVISION | STATE | PROJECT |
|-------------------|-------|---------|
| 5 | OHIO | |

15
169

CUYAHOGA COUNTY
 CUY. 77-14.12
 CUY. 90-16.21

| ITEM 402 & 404 COST PARTICIPATION I & II | | | | | | |
|--|-------|---------|------------------|-------------------------|-----------------------|-----------------------|
| Stations | | Side | End Widths (Ft.) | Surface Area (Sq. Yds.) | 404 Volume (Cu. Yds.) | 402 Volume (Cu. Yds.) |
| From | To | | | | | |
| RAMP E-15 | | | | | | |
| 15+03 | 14+06 | | 30 | 323.33 | 11.23 | |
| 14+06 | 12+26 | | 16.5 | 330.0 | 11.46 | |
| 12+26 | 9+90 | | 20 | 524.44 | 18.21 | |
| 15+03 | 11+00 | Rt. | 8 | 358.22 | 12.44 | |
| 12+26 | 9+75 | Lt. | 3 | 83.67 | 2.91 | |
| 11+00 | 10+00 | Rt. | 6.1 | 67.78 | 2.35 | |
| 7+65 | 7+00 | | 20 | 144.44 | 5.02 | |
| 7+65 | 7+00 | Rt. Lt. | 4 | 28.89 | 1.00 | |
| 3+80 | 0+00 | | 20 | 844.44 | 29.32 | |
| 3+80 | 0+30 | Rt. | 3 | 116.67 | 4.05 | |
| | | | | | 97.99 | |
| RAMP E-7 | | | | | | |
| 6+50 | 4+50 | | 19 | 422.22 | 14.66 | |
| 4+50 | 2+35 | | 16 | 382.22 | 13.27 | |
| 2+35 | 1+37 | | 24 | 261.33 | 9.07 | |
| 7+40 | 1+37 | Lt. | 3 | 201.0 | 6.98 | |
| 4+50 | 2+35 | Rt. | 8 | 191.11 | 6.64 | |
| | | | | | 50.62 | |
| RAMP E-18 | | | | | | |
| 1+93 | 5+79 | | 16 | 686.22 | 23.83 | |
| 5+79 | 7+90 | | 18 | 422.0 | 14.65 | |
| 1+93 | 7+60 | Lt. | 3 | 189.0 | 6.56 | |
| 1+93 | 7+90 | Rt. | 8 | 530.67 | 18.43 | |
| | | | | | 63.47 | |
| RAMP E-6 | | | | | | |
| 1+98 | 2+18 | | 16 | 35.56 | 1.23 | |
| 2+18 | 4+48 | | 21.5 | 549.44 | 19.08 | |
| 4+48 | 5+68 | | 38.5 | 513.33 | 17.82 | |
| 5+68 | 8+38 | | 19 | 570.0 | 19.79 | |
| 8+38 | 9+38 | | 24.5 | 272.22 | 9.45 | |
| 9+38 | 10+38 | | 18.5 | 205.56 | 7.14 | |
| 5+68 | 9+38 | Rt. | 3 | 123.33 | 4.28 | |
| 1+05 | 5+43 | Lt. | 10 | 486.67 | 16.90 | |
| 4+93 | 5+43 | | 9 | 50.0 | 1.74 | |
| 4+93 | 8+38 | Rt. | 8 | 306.67 | 10.65 | |
| 5+68 | 9+38 | Lt. | 3 | 123.33 | 4.28 | |
| 1+98 | 5+68 | Lt. | 3 | 123.33 | 4.28 | |
| | | | | | 116.64 | |
| RAMP E-4 | | | | | | |
| 2+39 | 7+27 | | 18 | 976.0 | 33.89 | |
| 7+27 | 8+40 | | 17 | 213.44 | 7.41 | |
| 8+40 | 9+20 | | 17 | 151.11 | 5.25 | |
| 1+60 | 8+40 | Rt. | 8 | 604.44 | 20.99 | |
| | | | | | 67.54 | |
| RAMP E-3 | | | | | | |
| 6+60 | 2+56 | | 25 | 1122.22 | 38.97 | |
| 2+56 | 2+03 | | 30.5 | 179.61 | 6.24 | |
| 2+03 | 0+60 | | 18 | 286.0 | 9.93 | |
| Conn. 2+07 | 0+87 | | 18 | 240.0 | 8.33 | |
| 1+00 | 6+60 | | 8 | 497.78 | 17.28 | |
| | | | | | 80.75 | |
| RAMP E-1 | | | | | | |
| 1+60 | 2+77 | | 30 | 390.0 | 13.54 | |
| 1+67 | 2+77 | | 8 | 97.78 | 3.40 | |
| | | | | | 16.94 | |
| RAMP E-2 | | | | | | |
| 7+10 | 10+23 | | 17 | 591.22 | 20.53 | |
| 7+20 | 9+43 | | 8 | 198.22 | 6.88 | |
| 9+43 | 9+78 | | 5 | 19.44 | 0.68 | |
| | | | | | 28.09 | |
| RAMP E-11 | | | | | | |
| 1+98.5 | 3+90 | | 16 | 340.44 | 11.82 | |
| 3+90 | 5+60 | | 18 | 340.0 | 11.81 | |

| ITEM 402 & 404 COST PARTICIPATION I & II | | | | | | |
|--|---------|------|------------------|-------------------------|-----------------------|-----------------------|
| Stations | | Side | End Widths (Ft.) | Surface Area (Sq. Yds.) | 404 Volume (Cu. Yds.) | 402 Volume (Cu. Yds.) |
| From | To | | | | | |
| RAMP E-11 (Cont'd) | | | | | | |
| 5+60 | 6+56 | | 24 | 256.0 | 8.89 | |
| 0+00 | 1+98.5 | Rt. | 9 | 198.5 | 6.89 | |
| 1+98.5 | 4+66.3 | Rt. | 8 | 238.04 | 8.27 | |
| 4+66.3 | 5+46.3 | Rt. | 5 | 44.44 | 1.54 | |
| 1+98.5 | 5+60 | Lt. | 3 | 120.5 | 4.18 | |
| | | | | | 53.40 | |
| RAMP E-13* | | | | | | |
| 1+28.89 | 0+30 | | 24 | 263.70 | 9.16 | |
| 0+90 | 0+30 | | 35 | 233.33 | 8.10 | |
| 1+28.89 | 0+90 | Lt. | 3 | 12.96 | 0.45 | |
| 1+28.89 | 1+05 | Rt. | 6 | 15.93 | 0.55 | |
| | | | | | 18.26 | |
| RAMP No. 3 | | | | | | |
| 0+00 | 2+45 | | 14.5 | 394.72 | 13.71 | |
| 2+45 | 3+34 | | 22 | 217.56 | 7.55 | |
| 3+34 | 8+80 | | 24 | 1456.0 | 50.56 | |
| 0+00 | 1+99 | Rt. | 9 | 199.0 | 6.91 | |
| 1+99 | 8+30 | Rt. | 8 | 560.89 | 19.48 | |
| 8+30 | 8+80 | Rt. | 4 | 22.22 | 0.77 | |
| | | | | | 98.98 | |
| RAMP No. 4 | | | | | | |
| 0+00 | 1+06 | | 14.5 | 170.78 | 5.93 | |
| 1+06 | 1+83 | | 16 | 136.89 | 4.75 | |
| 1+83 | 7+93 | | 18 | 1220.0 | 42.36 | |
| 7+93 | 8+51 | | Planimeter | 213.0 | 7.40 | |
| 0+00 | 1+06 | Lt. | 9 | 106.0 | 3.68 | |
| 1+06 | 7+93 | Lt. | 8 | 610.67 | 21.20 | |
| | | | | | 85.32 | |
| RAMP No. 5 | | | | | | |
| 0+00 | 1+15 | Lt. | 9 | 115.0 | 3.99 | |
| 0+00 | 0+50 | | 14.5 | 80.56 | 2.80 | |
| 0+50 | 1+15 | | 16 | 115.56 | 4.01 | |
| 1+15 | 6+18 | | 18 | 1006.0 | 34.93 | |
| 1+15 | 6+37 | Lt. | 8 | 464.0 | 16.11 | |
| 6+18 | 6+38 | | 18 | 40.0 | 1.39 | |
| | | | | | 63.23 | |
| RAMP No. 6 | | | | | | |
| 0+00 | 1+30.39 | | 25 | 362.22 | 12.58 | |
| 1+30.39 | 1+65.25 | | 26 | 100.71 | 3.50 | |
| 1+65.25 | 6+50 | | 24 | 1292.67 | 44.88 | |
| 6+50 | 7+42.71 | | Planimeter | 311.11 | 10.80 | |
| 0+00 | 1+04 | Rt. | 9 | 104.0 | 3.61 | |
| 1+04 | 6+50 | Rt. | 8 | 485.33 | 16.85 | |
| 6+50 | 6+85 | Rt. | 5 | 19.44 | 0.68 | |
| | | | | | 92.90 | |
| RAMP No. 7 | | | | | | |
| 0+00 | 1+81.54 | | 23.5 | 474.02 | 16.46 | |
| 1+81.54 | 2+23.36 | | 25 | 116.17 | 4.03 | |
| 2+23.36 | 7+27 | | 24 | 1343.04 | 46.63 | |
| 7+27 | 8+14 | | Planimeter | 270.0 | 9.38 | |
| 0+00 | 0+75 | Rt. | 10 | 83.33 | 2.89 | |
| 0+75 | 1+81.54 | Rt. | 9 | 106.54 | 3.70 | |
| 1+81.54 | 7+27 | Rt. | 8 | 484.85 | 16.84 | |
| 7+27 | 7+62 | Rt. | 5 | 19.44 | 0.68 | |
| | | | | | 100.61 | |
| RAMP No. 8 | | | | | | |
| 0+00 | 0+71 | Lt. | 23.5 | 185.39 | 6.44 | |
| 0+71 | 1+47.6 | | 16 | 136.18 | 4.73 | |
| 1+47.6 | 6+70.1 | | 18 | 1045.0 | 36.28 | |
| 6+70.1 | 7+61.1 | | Planimeter | 112.0 | 3.89 | |

| ITEM 402 & 404 COST PARTICIPATION I & II | | | | | | |
|--|-----------------|------|------------------|-------------------------|-----------------------|-----------------------|
| Stations | | Side | End Widths (Ft.) | Surface Area (Sq. Yds.) | 404 Volume (Cu. Yds.) | 402 Volume (Cu. Yds.) |
| From | To | | | | | |
| RAMP No. 8 (Cont'd) | | | | | | |
| 0+71 | 6+90 | Lt. | 8 | 550.22 | 19.10 | |
| | | | | | 70.44 | |
| RAMP No. 10 | | | | | | |
| 0+00 | 0+58.5 | | 14.5 | 94.25 | 3.27 | |
| 0+58.5 | 1+23.6 | | 16 | 115.73 | 4.02 | |
| 1+23.6 | 5+09 | | 18 | 770.8 | 26.76 | |
| 5+09 | 6+37 Conn. | | Planimeter | 290.0 | 10.07 | |
| 5+78 | 6+90 | | Planimeter | 223.0 | 7.74 | |
| 6+37 Conn. | 8+14 Conn. | | 18 | 354.0 | 12.29 | |
| 8+14 Conn. | 9+05 Conn. | | Planimeter | 106.0 | 3.68 | |
| 0+00 | 1+23.6 | Lt. | 9 | 123.6 | 4.29 | |
| 1+23.6 | 8+34.1 | Lt. | 8 | 631.56 | 21.93 | |
| | | | | | 94.05 | |
| RAMP No. 11 | | | | | | |
| 0+00 | 2+14.5 | Rt. | 32.5 | 774.58 | 26.90 | |
| 2+14.5 | 2+55.9 | | 25 | 115.0 | 3.99 | |
| 2+55.9 | 8+68 | | 24 | 1632.27 | 56.68 | |
| 8+18 | 8+53 | Rt. | 5 | 19.44 | 0.68 | |
| 2+14.5 | 8+18 | Rt. | 8 | 536.44 | 18.63 | |
| | | | | | 106.88 | |
| RAMP No. 9 | | | | | | |
| 0+00 | 1+41.2 | Lt. | 23.5 | 368.69 | 12.80 | |
| 1+41.2 | 2+24 | | 15 | 138.0 | 4.79 | |
| 2+24 | 8+62 | | 16 | 1134.22 | 39.38 | |
| 1+41.2 | 8+62 | Lt. | 8 | 640.71 | 22.25 | |
| 8+62 | 9+00 | | 23.5 | 99.22 | 3.45 | |
| | | | | | 82.67 | |
| RAMP No. 12 | | | | | | |
| 0+00 | 2+09.4 | | 23.5 | 546.77 | 18.98 | |
| 2+09.4 | 2+72.5 | | 25 | 175.28 | 6.09 | |
| 2+72.5 | 4+06.3 | | 24 | 356.8 | 12.39 | |
| 4+06.3 | 5+27 5+23 Conn. | | Planimeter | 565.0 | 19.62 | |
| 5+27 | 7+19 | | 24 | 512.0 | 17.78 | |
| 7+19 | 7+93 | | Planimeter | 239.0 | 8.30 | |
| Connection | | | | | | |
| 5+53 | 7+79 | | 24 | 602.67 | 20.92 | |
| 7+79 | 8+70 | | Planimeter | 310.0 | 10.76 | |
| 0+00 | 1+57 | Rt. | 9 | 157.0 | 5.45 | |
| 1+57 | 7+79 Conn. | Rt. | 8 | 552.89 | 19.20 | |
| 7+79 Conn. | 8+14 Conn. | Rt. | 5 | 19.44 | 0.68 | |
| 5+27 Rp. 12 | 7+19 Rp. 12 | Rt. | 8 | 170.67 | 5.93 | |
| 7+19 Rp. 12 | 7+54 Rp. 12 | Rt. | 5 | 19.44 | 0.68 | |
| | | | | | 146.78 | |
| RAMP No. 13 | | | | | | |
| 0+00 | 1+13.5 | Lt. | 24.5 | 308.97 | 10.73 | |
| 1+13.5 | 1+63.7 | | 15 | 83.67 | 2.91 | |
| 1+63.7 | 4+08 | | 16 | 434.31 | 15.08 | |
| 4+08 | 8+03 | | Planimeter | 1246.0 | 43.26 | |
| 1+13.5 | 4+08 | Lt. | 8 | 261.78 | 9.09 | |
| 4+08 | 5+06 | Lt. | 5 | 84.44 | 2.93 | |
| | | | | | 84.00 | |
| RAMP No. 14 | | | | | | |
| 0+00 | 0+91 | Rt. | 4 | 40.44 | 1.40 | |
| 0+00 | 1+73 | | 27.4 | 526.69 | 18.29 | |
| 1+73 | 2+02 | | 25 | 80.56 | 2.80 | |
| 2+02 | 3+75 | | 24 | 461.33 | 16.02 | |
| 3+75 | 4+68 4+66 Conn. | | Planimeter | 342.22 | 11.88 | |
| 4+68 | 7+65 | | 24 | 792.0 | 27.50 | |
| 4+66 Conn. | 5+43 Conn. | | 24 | 205.33 | 7.13 | |
| 5+43 Conn. | 7+00 Conn. | | Planimeter | 355.56 | 12.35 | |
| | | | | | 97.37 | |
| Cost Participation I Sheet Total | | | | | | |

GENERAL SUMMARY

QUANTITY CALCULATIONS

MADE BY DSP DATE 10-25-77
 CHECKED BY JAG DATE 12-5-77

| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

17
169

TYPE CODE 6706

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

| I-77-5(18)161 SHEET NUMBER | | | | | | | | | | I-90-1(10)29 SHEET NUMBER | | | | | | | | | | I-77-5(18)161 | | I-90-1(10)29 | | TOTAL | UNIT | ITEM | DESCRIPTION |
|-------------------------------|--|--|--|--|--|--|--|--|--|------------------------------|--|--|--|--|--|--|--|--|--|---------------|----------|--------------|----------|----------|-------------------------|--|-----------------------|
| | | | | | | | | | | | | | | | | | | | | COST PART. | | COST PART. | | QUANT. | | | ROADWAY |
| | | | | | | | | | | | | | | | | | | | | I II & III | | I II & III | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | 2 | Each | 202 | Catch Basin Abandoned |
| | | | | | | | | | | | | | | | | | | | | | | 159 | Sq. Yd. | 202 | Concrete Gutter Removed | | |
| | | | | | | | | | | | | | | | | | | | | 11,175 | 22,019 | 1050* | 34,244 | Lin. Ft. | 202 | Guardrail Removed | |
| | | | | | | | | | | | | | | | | | | | | 4416 | 8596 | | 13,012 | Lin. Ft. | 202 | Guardrail, Barrier Design, Removed | |
| | | | | | | | | | | | | | | | | | | | | 5513 | 21,348 | 1016* | 27,877 | Lin. Ft. | 202 | Curb Removed | |
| | | | | | | | | | | | | | | | | | | | | | 4 | 1** | 5 | Each | 202 | Inlet Abandoned | |
| | | | | | | | | | | | | | | | | | | | | 108.5 | 2683 | | 3768 | Lin. Ft. | 202 | Curb Removed, As Per Plan | |
| | | | | | | | | | | | | | | | | | | | | 1300 | 2100 | | 3400 | Sq. Yd. | 202 | Wearing Course Removed | |
| | | | | | | | | | | | | | | | | | | | | 10 | 826 | | 836 | Lin. Ft. | 202 | Pipe Removed 24" and Under | |
| | | | | | | | | | | | | | | | | | | | | | | 90** | 90 | Lin. Ft. | 202 | Concrete Barrier Median Removed | |
| | | | | | | | | | | | | | | | | | | | | 2028 | 9150 | 624** | 11,802 | Sq. Yd. | 202 | Concrete Median Pavement Removed | |
| | | | | | | | | | | | | | | | | | | | | 374* | 374* | | 4282 | Sq. Yd. | 202 | Pavement Removed, As Per Plan | |
| | | | | | | | | | | | | | | | | | | | | | 4058 | | 4058 | Lin. Ft. | 202 | Hailing Removed, as per plan | |
| | | | | | | | | | | | | | | | | | | | | 6000 | 4210 | | 10,210 | Sq. Yd. | 615 | Temporary Pavement, class B, flexible design, as per plan | |
| | | | | | | | | | | | | | | | | | | | | | 915 | | 915 | Sq. Yd. | 203 | Subgrade Compaction | |
| | | | | | | | | | | | | | | | | | | | | | | | 2006 | Cu. Yd. | 203 | Excavation not including Embankment Construction | |
| | | | | | | | | | | | | | | | | | | | | | 164** | 138* | 15,421 | Cu. Yd. | 203 | Embankment | |
| | | | | | | | | | | | | | | | | | | | | | | | 14 | Each | 604 | Centerline Reference Monument, Modified, As Per Plan | |
| | | | | | | | | | | | | | | | | | | | | 11,454 | 16,964.5 | | 28,418.5 | Lin. Ft. | 606 | Guardrail, Type 5, | |
| | | | | | | | | | | | | | | | | | | | | | | | 42 | Each | 606 | Anchor Assembly, Type A | |
| | | | | | | | | | | | | | | | | | | | | | | | 39 | Each | 606 | Anchor Assembly, Type T | |
| | | | | | | | | | | | | | | | | | | | | | | | 1 | Each | 606 | Bridge Terminal Assembly, Type A | |
| | | | | | | | | | | | | | | | | | | | | | | | 7 | Each | 606 | Bridge Terminal Assembly, Type C | |
| | | | | | | | | | | | | | | | | | | | | | | | 14 | Each | 606 | Bridge Terminal Assembly, Type D | |
| | | | | | | | | | | | | | | | | | | | | | | | 5 | Each | 606 | Bridge Terminal Assembly, Type E | |
| | | | | | | | | | | | | | | | | | | | | | | | 8 | Each | 606 | Bridge Terminal Assembly, Type E | |
| | | | | | | | | | | | | | | | | | | | | | | | 1 | Each | 606 | Bridge Terminal Assembly, Type H | |
| | | | | | | | | | | | | | | | | | | | | | | | 25 | Each | 606 | Bridge Terminal Assembly, Type J | |
| | | | | | | | | | | | | | | | | | | | | 1018 | 410* | 522* | 1950 | Lin. Ft. | 607 | Fence, Type CL, As Per Plan | |
| | | | | | | | | | | | | | | | | | | | | | 4058 | | 4058 | Lin. Ft. | 607 | Fence, Type CL, Modified, As Per Plan | |
| | | | | | | | | | | | | | | | | | | | | | 3* | 2* | 5 | Each | 607 | Gate, Type CL | |
| | | | | | | | | | | | | | | | | | | | | 61* | | 97* | 158 | M. Gal. | 617 | Water | |
| | | | | | | | | | | | | | | | | | | | | | | 1** | 2 | Each | Special | Impact Attenuator (HI-DRO CUSHION) | |
| | | | | | | | | | | | | | | | | | | | | | 200 | | 200 | Each | Special | 3/4" Threaded Sleeve Anchor Bolts | |
| | | | | | | | | | | | | | | | | | | | | | 1010* | 1618* | 2628 | Cu. Yd. | 617 | Compacted Aggregate, as per plan | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | 125 | Cu. Yd. | 404 | Bituminous Concrete | |
| | | | | | | | | | | | | | | | | | | | | | | | 111 | Cu. Yd. | 301 | Bituminous Aggregate Base: 702.01 AC-20; or 702.09 RT-11 or RT-12 | |
| | | | | | | | | | | | | | | | | | | | | 7500 | 13190 | | 20690 | Sq. Yd. | 305 | 9" Portland Cement Concrete Base | |
| | | | | | | | | | | | | | | | | | | | | 327* | 3768* | | 4095 | Sq. Yd. | 305 | 9" Portland Cement Concrete Base, As Per Plan | |
| | | | | | | | | | | | | | | | | | | | | 47* | 140* | | 187 | Sq. Yd. | 305 | 15" Portland Cement Concrete Base, As Per Plan | |
| | | | | | | | | | | | | | | | | | | | | | 544 | 129* | 673 | Cu. Yd. | 310 | Subbase, Grading A, As Per Plan | |
| | | | | | | | | | | | | | | | | | | | | 260 | | | 260 | Lin. Ft. | 622 | Concrete Barrier, Standard Type A, As per plan | |
| | | | | | | | | | | | | | | | | | | | | 3469* | | 6221* | 9630 | Cu. Yd. | 848 | Asphalt Concrete Intermediate Course, Type 2 | |
| | | | | | | | | | | | | | | | | | | | | 50* | 50* | | 100 | Cu. Yd. | 848 | Asphalt Concrete Intermediate Course, Type 2 As Per Plan | |
| | | | | | | | | | | | | | | | | | | | | 1071* | | 2144* | 3215 | Cu. Yd. | 848 | Asphalt Concrete Intermediate Course, Type 1 | |
| | | | | | | | | | | | | | | | | | | | | 3497 | 6813 | | 10310 | Cu. Yd. | 848 | Asphalt Concrete Surface Course, Type 1 | |
| | | | | | | | | | | | | | | | | | | | | 10,072 | 19623 | | 29,695 | Gal. | 407 | Tack Coat: 702.02, RC-250, or 702.04, SS-1, SS-1H, MS-2 or HS-1 | |
| | | | | | | | | | | | | | | | | | | | | 353 | 687 | | 1040 | Ton | 407 | Cover Aggregate | |
| | | | | | | | | | | | | | | | | | | | | 4845* | 7560* | | 12,405 | Gal. | 408 | Bituminous Prime Coat: 702.09, RT-2 or RT-3; 702.02 MC-30 or MC-70; 702.03 Primer 20 | |
| | | | | | | | | | | | | | | | | | | | | 8870 | 4239* | 13995 | 6501* | Gal. | 409 | Seal Coat Bituminous Material: 702.09, RT-9 or RT-10; 702.02, MC-800 or MC-3000; 702.04, RS-1 or RS-2, CRS-1 or CRS-2; or 702.03, CBAE-800 | |
| | | | | | | | | | | | | | | | | | | | | 203 | 319 | | 522 | Cu. Yd. | 409 | Seal Coat Cover Aggregate, No. 8 | |
| | | | | | | | | | | | | | | | | | | | | | | | 20* | Cu. Yd. | 511 | Class C Concrete | |
| | | | | | | | | | | | | | | | | | | | | | | | 90 | Lin. Ft. | 609 | Curb, Type 6, Modified, As Per Plan | |
| | | | | | | | | | | | | | | | | | | | | | | | 326* | Sq. Yd. | 612 | 4" Concrete Median | |
| | | | | | | | | | | | | | | | | | | | | | | | 80** | Lin. Ft. | 622 | Concrete Barrier, Standard Type A | |
| | | | | | | | | | | | | | | | | | | | | | | | 40 | Lin. Ft. | 622 | Concrete Barrier, Standard Type B | |
| | | | | | | | | | | | | | | | | | | | | 4272 | 5544 | | 9816 | Lin. Ft. | 622 | Concrete Barrier, Standard Type B, Modified, As Per Plan | |
| | | | | | | | | | | | | | | | | | | | | | 4147 | | 4147 | Lin. Ft. | 622 | Concrete Barrier, Standard Type C, Modified, As Per Plan | |
| | | | | | | | | | | | | | | | | | | | | | | | 972 | Lin. Ft. | 622 | Concrete Barrier, Standard Type D, Modified, As Per Plan | |
| | | | | | | | | | | | | | | | | | | | | | | | 646 | Lin. Ft. | 622 | Concrete Barrier, Standard Type A, Modified, As Per Plan | |
| | | | | | | | | | | | | | | | | | | | | | | | 1843* | Lin. Ft. | Special | Pressure Relief Joint, Standard Type C | |
| | | | | | | | | | | | | | | | | | | | | 150* | 500* | | 650 | Cu. Yd. | Special | Removal & Replacement of Unstable Materials using 310 Subbase Grading A | |

MADE DSP DATE 10-25-77
 TRACED J.D. DATE 11-3-77
 CHECKED J.W.H. DATE 11-9-77
 SCALE _____

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



- Quantities continued on Sheet 18.
- For explanation of Cost Participation I, II & III, see Sheet 4.
- Quantities with an asterisk (*) are included in Cost Participation II. (FI)
- Quantities with (2) asterisks (**) are included in Cost Participation III.

Rev. 1-9-79 Rev. 10-26-78

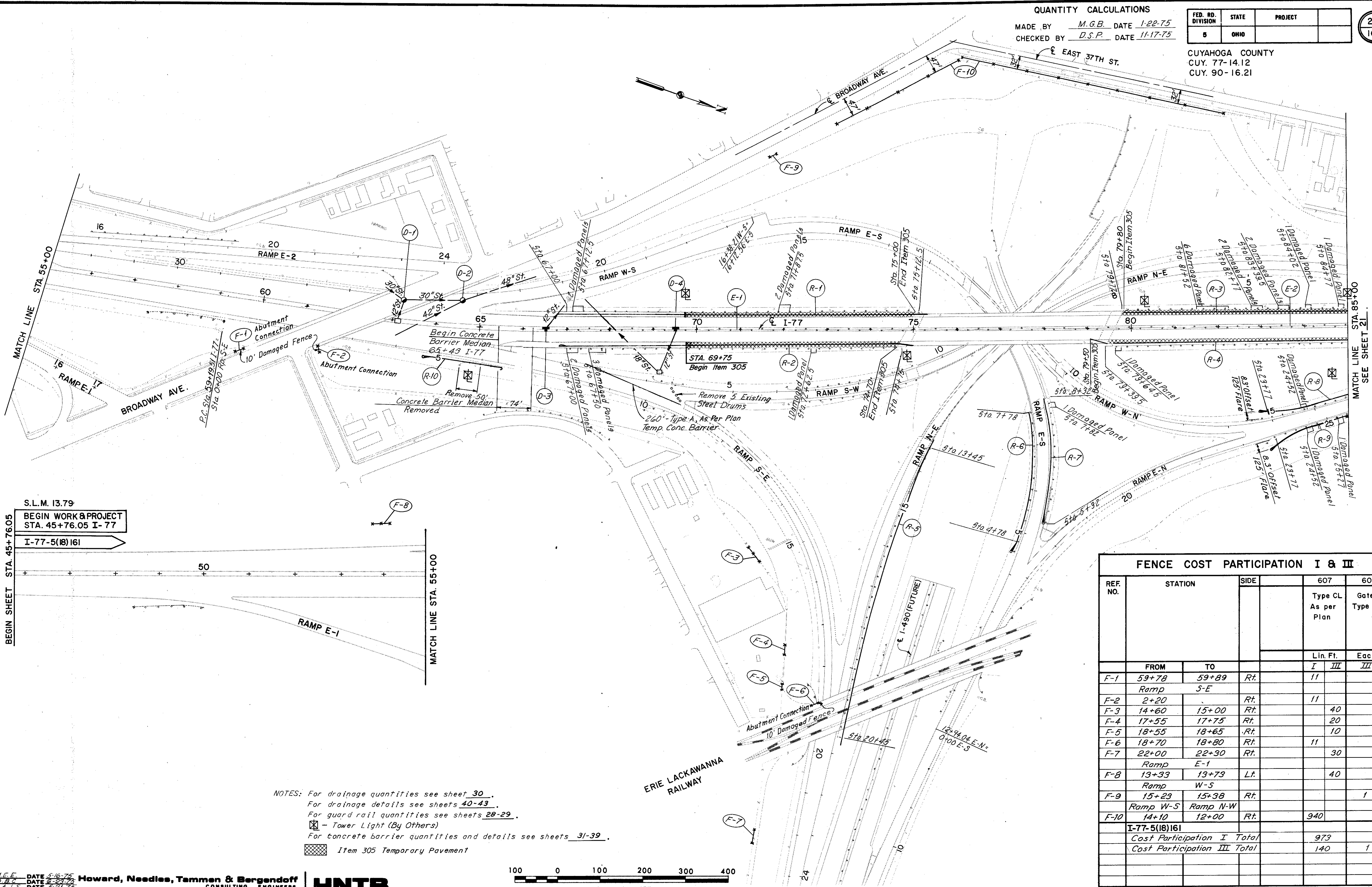
QUANTITY CALCULATIONS

MADE BY M.G.B. DATE 1-22-75
 CHECKED BY D.S.P. DATE 11-17-75

| | | |
|-------------------|-------|---------|
| FED. RD. DIVISION | STATE | PROJECT |
| 5 | OHIO | |

20
169

CUYAHOGA COUNTY
 CUY. 77-14.12
 CUY. 90-16.21



S.L.M. 13.79
 BEGIN WORK & PROJECT
 STA. 45+76.05 I-77
 I-77-5(18)161

NOTES: For drainage quantities see sheet 30.
 For drainage details see sheets 40-43.
 For guard rail quantities see sheets 28-29.
 ☒ - Tower Light (By Others)
 For concrete barrier quantities and details see sheets 31-39.
 [Hatched Box] Item 305 Temporary Pavement



| FENCE COST PARTICIPATION I & III | | | | | | |
|----------------------------------|-------------------|------|---------------------|--------------|------------|----------|
| REF. NO. | STATION | SIDE | 607 | | 607 | |
| | | | Type CL As per Plan | Gate Type CL | Lin. Ft. I | Each III |
| F-1 | 59+78 | Rt. | | | 11 | |
| | Ramp S-E | | | | | |
| F-2 | 2+20 | Rt. | | | 11 | |
| F-3 | 14+60 | Rt. | | | | 40 |
| F-4 | 17+55 | Rt. | | | | 20 |
| F-5 | 18+55 | Rt. | | | | 10 |
| F-6 | 18+70 | Rt. | | | 11 | |
| F-7 | 22+00 | Rt. | | | | 30 |
| | Ramp E-1 | | | | | |
| F-8 | 13+33 | Lt. | | | | 40 |
| | Ramp W-S | | | | | |
| F-9 | 15+29 | Rt. | | | | 1 |
| | Ramp W-S Ramp N-W | | | | | |
| F-10 | 14+10 | Rt. | | | 940 | |
| I-77-5(18)161 | | | | | | |
| Cost Participation I Total | | | | | 973 | |
| Cost Participation III Total | | | | | 140 | 1 |

MADE M.E.E. DATE 5-16-75
 TRACED B.C. DATE 8-21-75
 CHECKED A.J.S. DATE 3-21-75
 SCALE 1"=100'

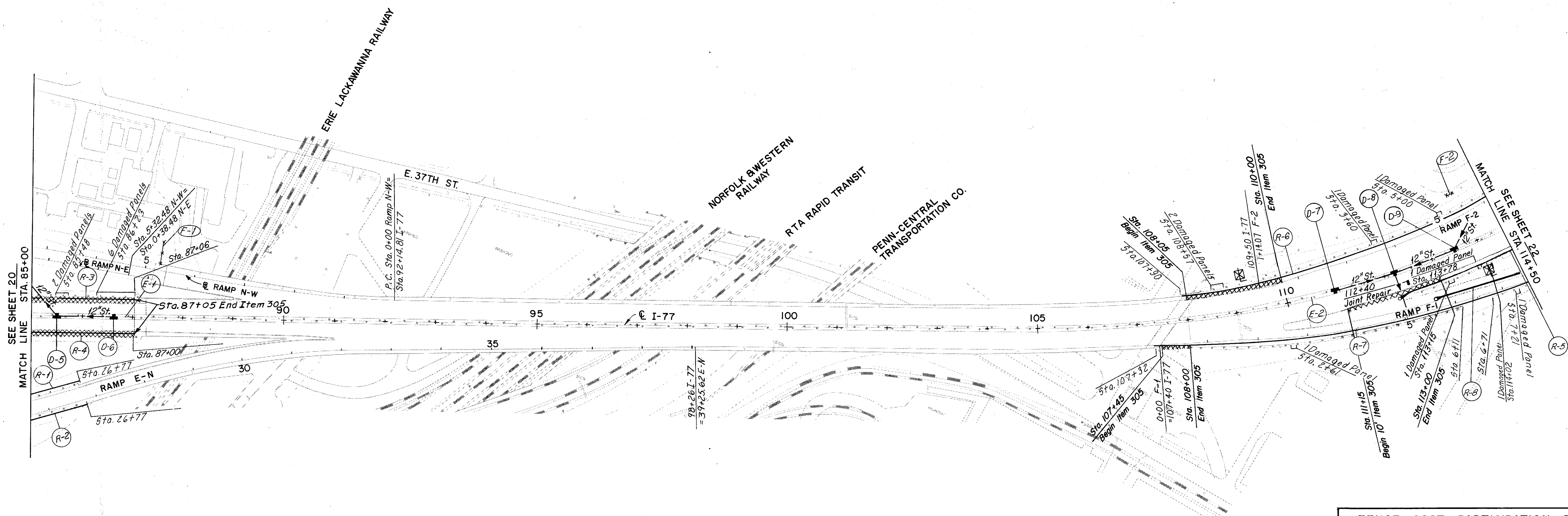
HNTB
 CONSULTING ENGINEERS
 CLEVELAND, OHIO

QUANTITY CALCULATIONS
 MADE BY M.G.B. DATE 1-23-75
 CHECKED BY D.S.P. DATE 11-17-75

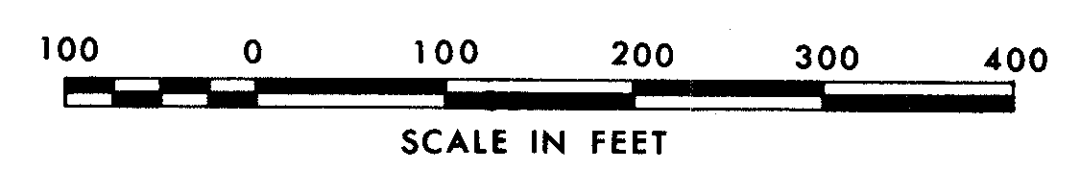
| | | |
|-------------------|-------|---------|
| FED. RD. DIVISION | STATE | PROJECT |
| 5 | OHIO | |

21
169

CUYAHOGA COUNTY
 CUY. 77-14.12
 CUY. 90-16.21



NOTES: For drainage quantities see sheet 30.
 For drainage details see sheets 40-43.
 For guard rail quantities see sheets 28-29.
 ☒ - Tower Light by others.
 For concrete barrier quantities and details see sheets 31-39.
 [Hatched Box] Item 305 Temporary Pavement
 For joint repair details see Sheet 46



| FENCE COST PARTICIPATION I & III | | | | |
|----------------------------------|------------------------------|----------|----------|-------------|
| REF. NO. | STATION | SIDE | 607 | |
| | | | Type CL | As per Plan |
| | | | Lin. Ft. | |
| | FROM | TO | I | III |
| | Ramp N-W | | | |
| F-1 | 4+75 | 4+75 Rt. | Rt. | 45' |
| | Ramp F-2 | | | |
| F-2 | 5+39 | 5+43 | Lt. | 10' |
| | I-77-5 (10) 161 | | | |
| | Cost Participation I Total | | | 45 |
| | Cost Participation III Total | | | 10 |

MADE M.E.E. DATE 5-16-75
 TRACED D.B.G. DATE 6-23-75
 CHECKED A.U.S. DATE 5-27-75
 SCALE 1"=100'

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

HNTB

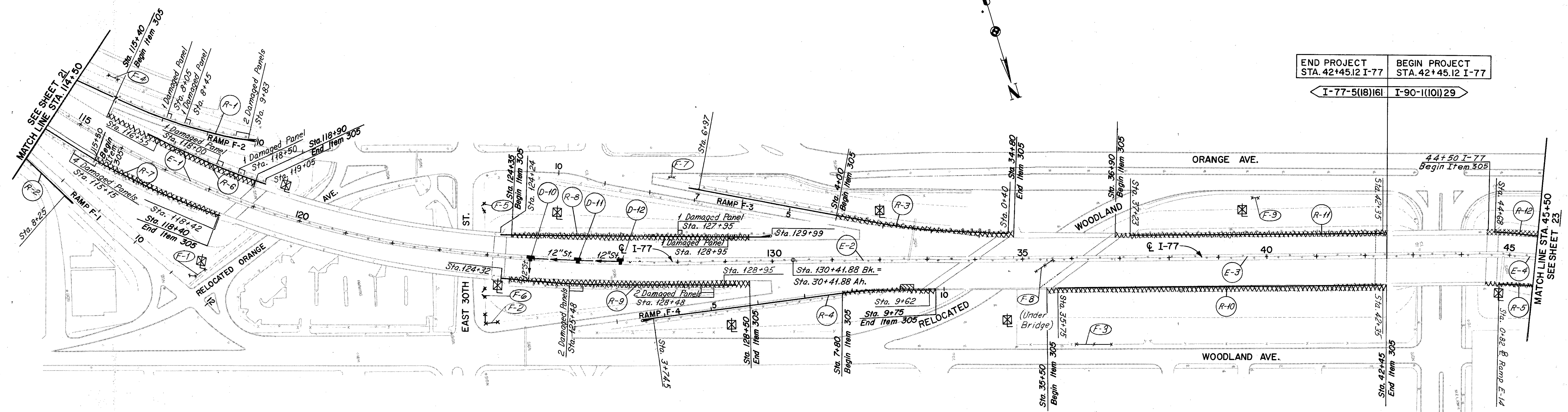
QUANTITY CALCULATIONS
 MADE BY M.G.B. DATE 1-23-75
 CHECKED BY D.S.P. DATE 11-17-75

| | | |
|-------------------|-------|---------|
| FED. RD. DIVISION | STATE | PROJECT |
| 5 | OHIO | |

22
169

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

| | |
|-----------------------------------|-------------------------------------|
| END PROJECT STA. 42+45.12 I-77 | BEGIN PROJECT STA. 42+45.12 I-77 |
| I-77-5(18)161 | I-90-1(10)29 |



| FENCE COST PARTICIPATION III | | | | |
|------------------------------|-----------------------|-------|---------------------------|-----------------|
| REF. NO. | STATION | SIDE | 607 | 607 |
| | | | Type CL As per Plan | Gate Type CL |
| | | | Lin. Ft. | Each |
| | | | III | III |
| | Relocated Orange Ave. | | | |
| F-1 | 5+75 | 6+35 | Lt. | 60 |
| | Ramp F-4 | | | |
| F-2 | 0+40 | 0+60 | Lt. | 40 |
| | I-77 N.B. | | | |
| F-9 | 36+07 | 36+77 | Lt. | 70 |
| | Ramp F-2 | | | |
| F-4 | 6+60 | 6+80 | Lt. | 20 |
| | East 30 St. | | | |
| F-5 | | | | 1 |
| F-6 | | | | 1 |
| | Ramp F-3 | | | |
| F-7 | 7+54 | 7+63 | Rt. | 10 |
| | Relocated Woodland | | | |
| F-8 | 4+45 | 4+95 | Lt. | 50 |
| | Orange Ave. | | | |
| F-9 | 18+10 | 18+20 | Rt. | 10 |
| | I-77-5(18)161 | | | |
| | Total | | | 260 2 |

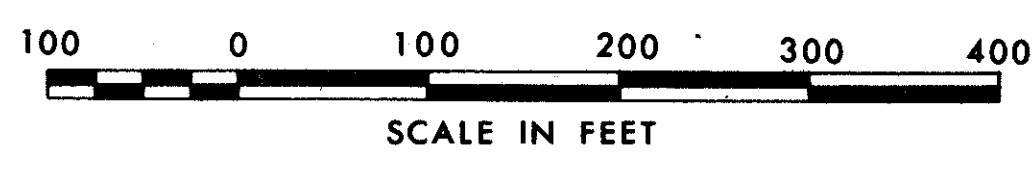
NOTES: For drainage quantities see sheet 30.
 For drainage details see sheets 40-43.
 For guard rail quantities see sheets 28-29.
 ☒ - Tower Light (By others)
 For concrete barrier quantities and details see sheets 31-39.

▨ Item 305 Temporary Pavement
 ▨ For pavement replacement details, see sheet 46.

MADE A.V.S. DATE 5-6-75
 TRACED D.B.C. DATE 3-23-75
 CHECKED B.E.E. DATE 3-8-75
 SCALE 1"=100'

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

HNTB



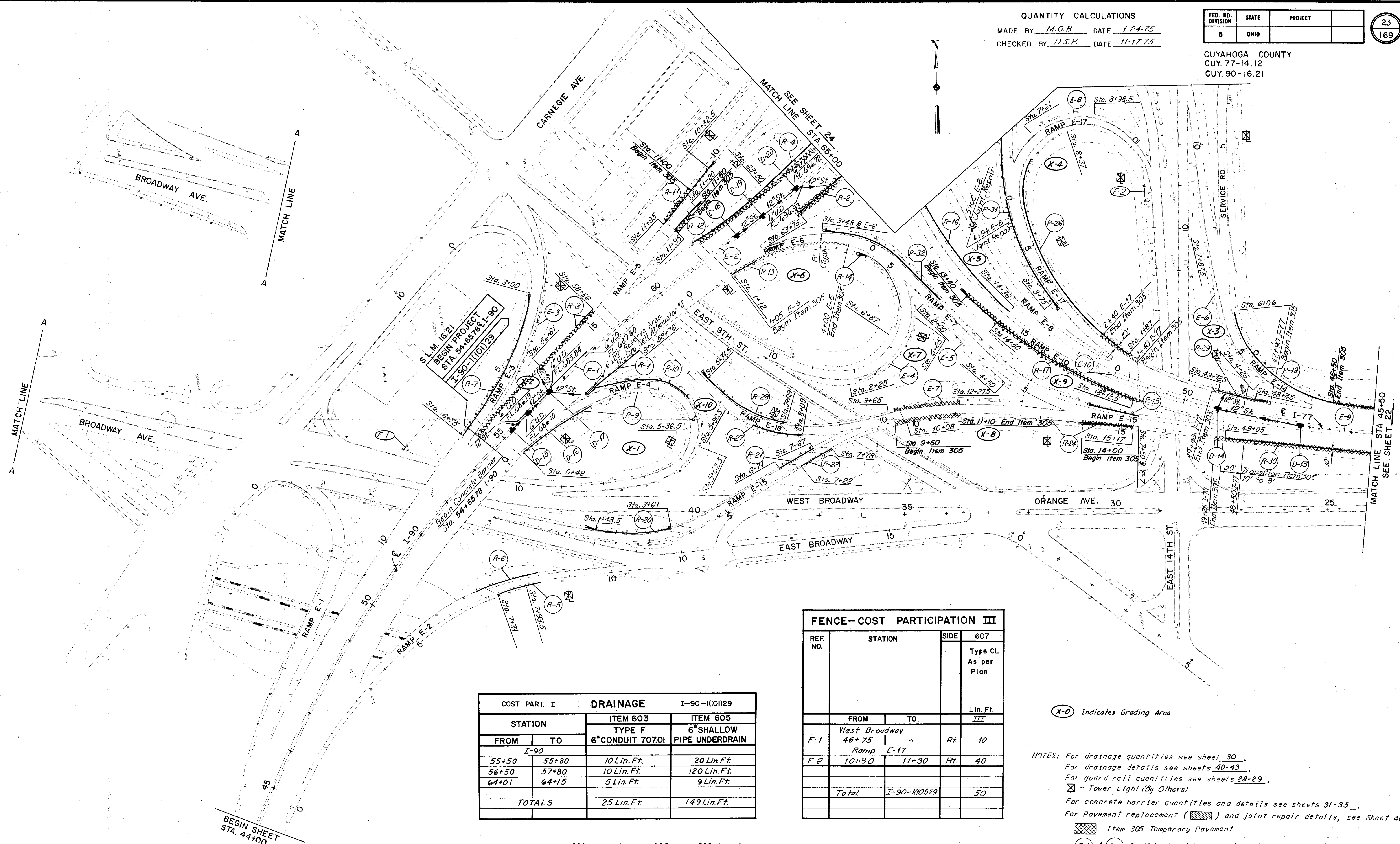
QUANTITY CALCULATIONS

MADE BY M.G.B. DATE 1-24-75
 CHECKED BY D.S.P. DATE 11-17-75

| | | |
|-------------------|-------|---------|
| FED. RD. DIVISION | STATE | PROJECT |
| 5 | OHIO | |

23
169

CUYAHOGA COUNTY
 CUY. 77-14.12
 CUY. 90-16.21



| COST PART. I | | DRAINAGE | | I-90-I(10)129 | |
|--------------|-------|-----------------------------|-------------------------------|---------------|--|
| STATION | | ITEM 603 | ITEM 605 | | |
| FROM | TO | TYPE F 6" CONDUIT 707.01 | 6" SHALLOW PIPE UNDERDRAIN | | |
| I-90 | | | | | |
| 55+50 | 55+80 | 10 Lin. Ft. | 20 Lin. Ft. | | |
| 56+50 | 57+80 | 10 Lin. Ft. | 120 Lin. Ft. | | |
| 64+01 | 64+15 | 5 Lin. Ft. | 9 Lin. Ft. | | |
| TOTALS | | 25 Lin. Ft. | 149 Lin. Ft. | | |

| FENCE-COST PARTICIPATION III | | | | |
|------------------------------|---------------|-------|------|---|
| REF. NO. | STATION | | SIDE | 607 Type CL As per Plan Lin. Ft. III |
| | FROM | TO | | |
| | West Broadway | | | |
| F-1 | 46+75 | ~ | Rt. | 10 |
| | Ramp E-17 | | | |
| F-2 | 10+90 | 11+30 | Rt. | 40 |
| | Total | | | I-90-I(10)129 50 |

(X-D) Indicates Grading Area

NOTES: For drainage quantities see sheet 30.
 For drainage details see sheets 40-43.
 For guard rail quantities see sheets 28-29.
 [Symbol] - Tower Light (By Others)
 For concrete barrier quantities and details see sheets 31-35.
 For pavement replacement ([Symbol]) and joint repair details, see Sheet 46.
 [Symbol] Item 305 Temporary Pavement
 (R-1) & (R-10) Shall begin at the rear face of the backwall for Hi-Dro Cell Attenuator #2.
 For Cross Section Layout Sheet of Grading Areas, See Sheet 95.

MADE M.G.B. DATE 5-16-75
 TRACED P.B.C. DATE 6-22-75
 CHECKED A.T.S. DATE 3-20-75
 SCALE 1"=100'

HNTB
 CONSULTING ENGINEERS
 CLEVELAND, OHIO



STA. 45+50 I-77
 STA. 44+50 I-90 TO STA. 65+00 I-90

QUANTITY CALCULATIONS
 MADE BY M.G.B. DATE 1-24-75
 CHECKED BY D.S.P. DATE 11-17-75

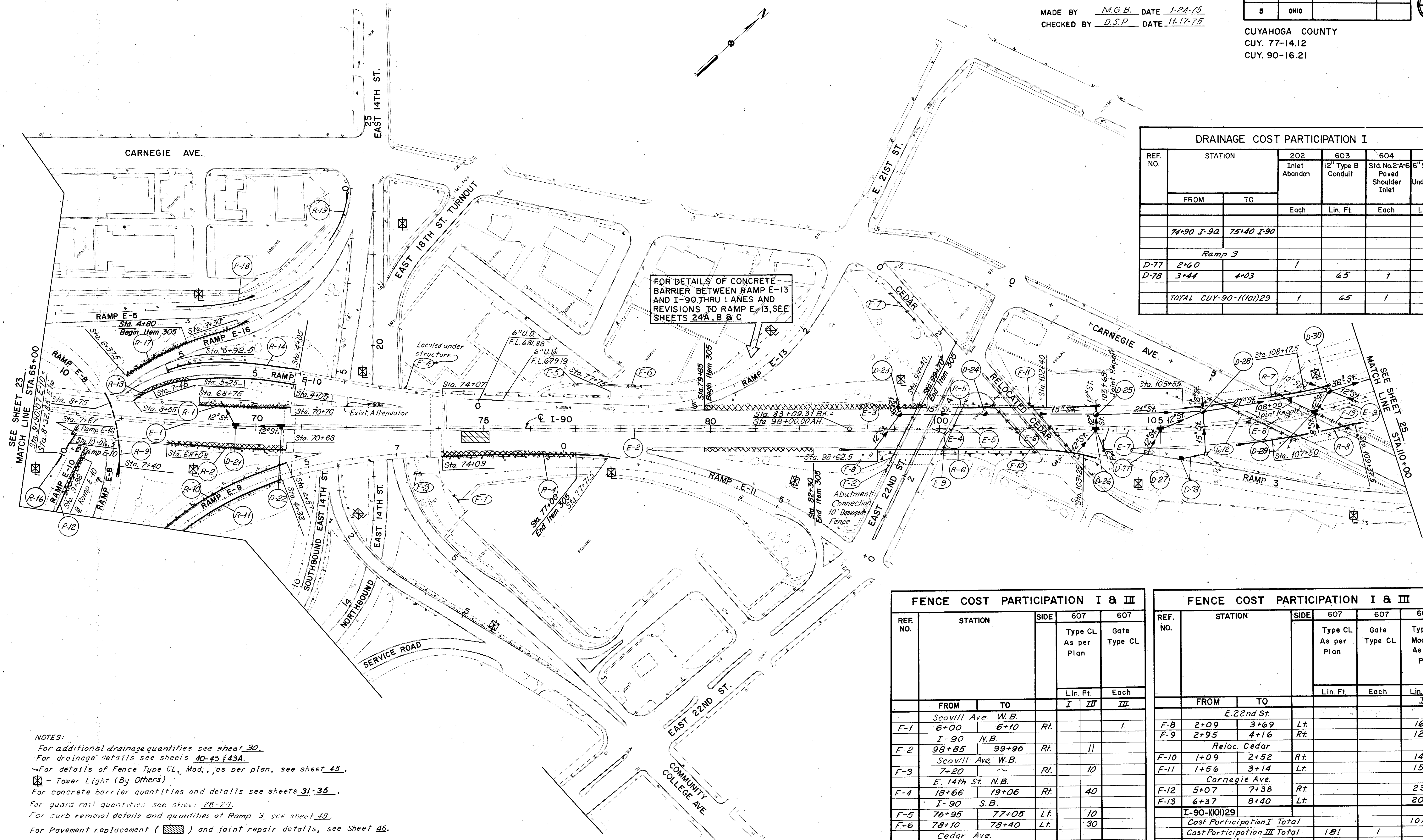
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|-------------------|-------|---------|--|
| FED. RD. DIVISION | STATE | PROJECT | |
| 5 | OHIO | | |

24
169

CUYAHOGA COUNTY
 CUY. 77-14.12
 CUY. 90-16.21

| DRAINAGE COST PARTICIPATION I | | | | | | |
|-------------------------------|------------|------------|---------------|--------------------|--------------------------------------|----------------------------|
| REF. NO. | STATION | | 202 | 603 | 604 | 605 |
| | FROM | TO | Inlet Abandon | 12" Type B Conduit | Std. No. 2-A-6" Paved Shoulder Inlet | 6" Shallow Pipe Underdrain |
| | | | Each | Lin. Ft. | Each | Lin. Ft. |
| | 74+90 I-90 | 75+40 I-90 | | | | 50 |
| Ramp 3 | | | | | | |
| D-77 | 2+60 | | 1 | | | |
| D-78 | 3+44 | 4+03 | | 65 | 1 | |
| TOTAL CUY-90-1(101)29 | | | 1 | 65 | 1 | 50 |

FOR DETAILS OF CONCRETE BARRIER BETWEEN RAMP E-13 AND I-90 THRU LANES AND REVISIONS TO RAMP E-13, SEE SHEETS 24A, B & C



SEE SHEET 23
MATCH LINE STA 65+00

MATCH LINE STA 110+00
SEE SHEET 25

NOTES:
 For additional drainage quantities see sheet 30.
 For drainage details see sheets 40-43 & 43A.
 For details of Fence Type CL, Mod., as per plan, see sheet 45.
 ☒ - Tower Light (By Others)
 For concrete barrier quantities and details see sheets 31-35.
 For guard rail quantities see sheet 28-29.
 For curb removal details and quantities of Ramp 3, see sheet 49.
 For Pavement replacement (▨) and joint repair details, see Sheet 46.

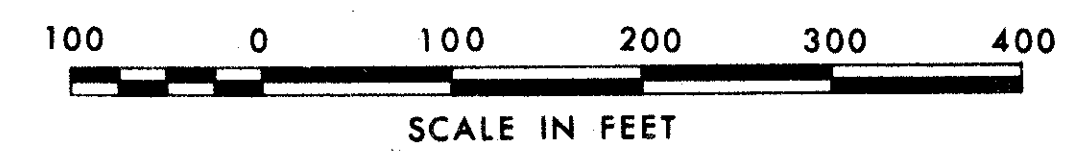
| FENCE COST PARTICIPATION I & III | | | | | | |
|----------------------------------|-------------------|-------|------|---------------------|--------------|----------|
| REF. NO. | STATION | | SIDE | 607 | 607 | 607 |
| | FROM | TO | | Type CL As per Plan | Gate Type CL | |
| | | | | Lin. Ft. | Each | Lin. Ft. |
| | | | | I | III | I |
| | Scovill Ave. W.B. | | | | | |
| F-1 | 6+00 | 6+10 | Rt. | | 1 | |
| | I-90 N.B. | | | | | |
| F-2 | 98+85 | 99+96 | Rt. | | 11 | |
| | Scovill Ave. W.B. | | | | | |
| F-3 | 7+20 | ~ | Rt. | 10 | | |
| | E. 14th St. N.B. | | | | | |
| F-4 | 18+66 | 19+06 | Rt. | 40 | | |
| | I-90 S.B. | | | | | |
| F-5 | 76+95 | 77+05 | Lt. | 10 | | |
| F-6 | 78+10 | 78+40 | Lt. | 30 | | |
| | Cedar Ave. | | | | | |
| F-7 | 0+58 | 1+38 | Rt. | 80 | | |

| FENCE COST PARTICIPATION I & III | | | | | | |
|----------------------------------|---------------|------|------|---------------------|--------------|------------------------------|
| REF. NO. | STATION | | SIDE | 607 | 607 | 607 |
| | FROM | TO | | Type CL As per Plan | Gate Type CL | Type CL Modified As per Plan |
| | | | | Lin. Ft. | Each | Lin. Ft. |
| | E. 22nd St. | | | | | |
| F-8 | 2+09 | 3+69 | Lt. | | | 160 |
| F-9 | 2+95 | 4+16 | Rt. | | | 121 |
| | Reloc. Cedar | | | | | |
| F-10 | 1+09 | 2+52 | Rt. | | | 143 |
| F-11 | 1+56 | 3+14 | Lt. | | | 158 |
| | Carnegie Ave. | | | | | |
| F-12 | 5+07 | 7+38 | Rt. | | | 231 |
| F-13 | 6+37 | 8+40 | Lt. | | | 203 |
| I-90-1(101)29 | | | | | | |
| Cost Participation I Total | | | | | | 1016 |
| Cost Participation III Total | | | | 181 | 1 | |

MADE M.E.E. DATE 5-8-75
 TRACED D.B.C. DATE 6-27-75
 CHECKED D.S.P. DATE 6-19-75
 SCALE 1"=120'

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

HNTB



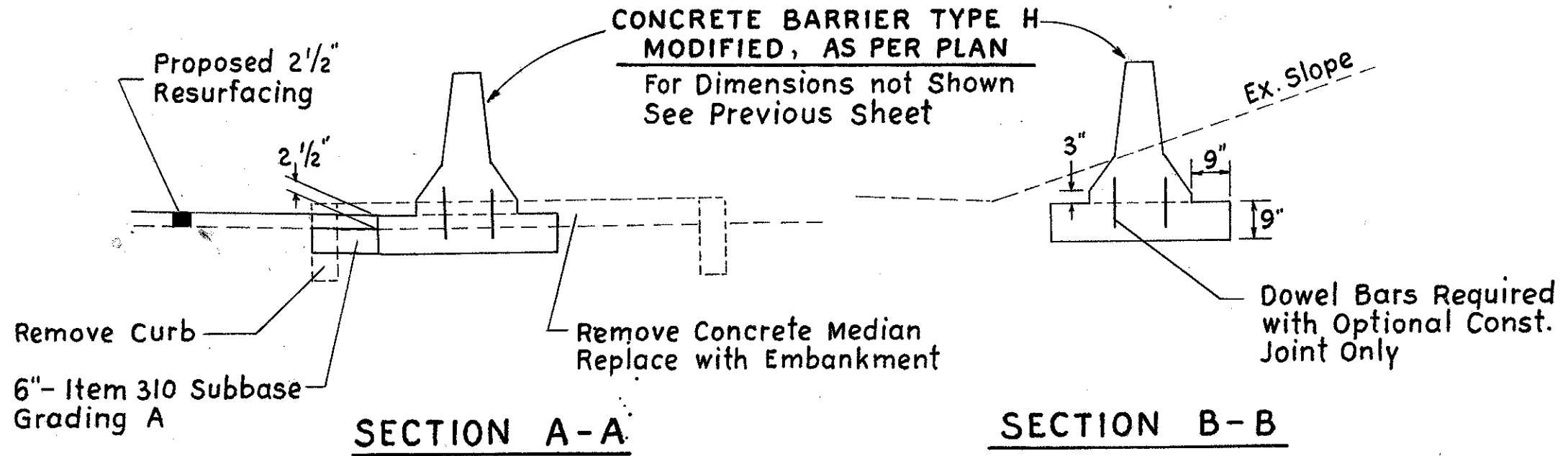
Rev. 10-26-78

PAVEMENT MARKINGS COST PART. I

| STATION TO STATION | SIDE | 621 | 847 | 847 |
|---------------------------|------|------------------------|-------------------------|--------------------------|
| | | 4" White Edge Line (A) | 4" Yellow Edge Line (B) | 8" Channelizing Line (C) |
| | | Lin.Ft. | Lin.Ft. | Lin.Ft. |
| I+28.89 E-13 to I+03 E-10 | Rt. | 944 | | |
| I+28.89 E-13 to O+78 E-10 | Lt. | | 914 | |
| O+78 E-10 to I+03 E-10 | Lt. | | | 25 |
| I-90-1(101)29 | | | | |
| TOTALS | | 944 | 914 | 25 |

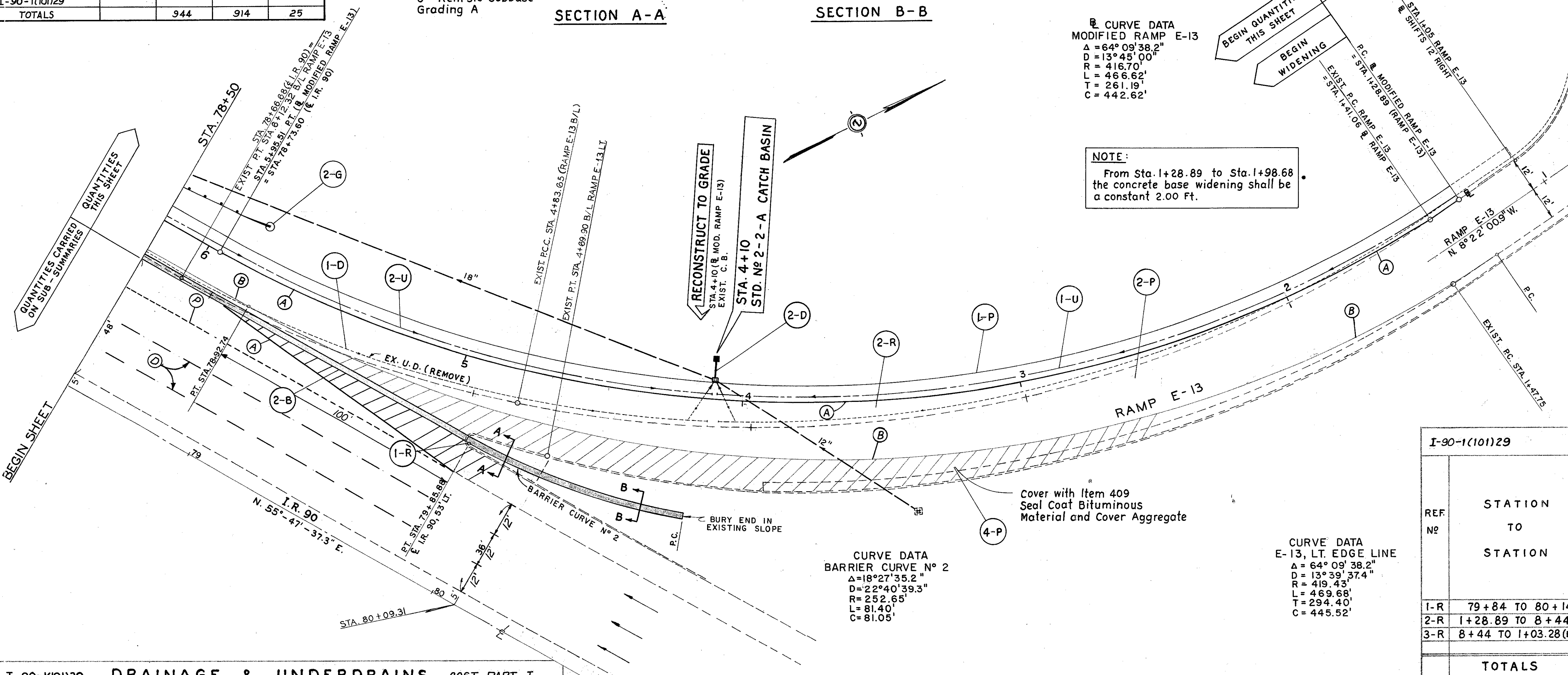
CUYAHOGA COUNTY
 CUY-77-13.79
 CUY-90-16.21

COMPUTED BY: E.N.F. 9-14-77
 CHECKED BY: M.A.A. 9-16-77



CURVE DATA
 MODIFIED RAMP E-13
 $\Delta = 64^\circ 09' 38.2''$
 $D = 13^\circ 45' 00''$
 $R = 416.70'$
 $L = 466.62'$
 $T = 261.19'$
 $C = 442.62'$

NOTE:
 From Sta. I+28.89 to Sta. I+98.68
 the concrete base widening shall be
 a constant 2.00 Ft.



| STATION TO STATION | | SIDE | EROSION CONTROL COST PART. I | | |
|--------------------|---------|------|------------------------------|----------------------------------|---------------------|
| | | | Seeding and Mulching | Commercial Fertilizer (12-12-12) | Agricultural Liming |
| I-90-1(101)29 | | | 659 | | |
| I+29 | TO 8+44 | RT. | 1151 | 0.10 | 0.52 |

| STATION TO STATION | | SIDE | ROADWAY COST PARTICIPATION I | | | | |
|--------------------|------------------------|------|----------------------------------|--------------|---------------------|--|------------|
| | | | Concrete Median Pavement Removed | Curb Removed | Subgrade Compaction | Excavation not Including Embankment Construction | Embankment |
| I-1-R | 79+84 TO 80+14 | LT. | 21 | 34 | | 1 | |
| I-2-R | I+28.89 TO 8+44 | RT. | | | 780 | 698 | |
| I-3-R | 8+44 TO I+03.28 (E-10) | RT. | | | 135 | 116 | |
| TOTALS | | | 21 | 34 | 915 | 814 | 222 |

I-90-1(101)29 DRAINAGE & UNDERDRAINS COST PART. I

| REF. NO. | STATION TO STATION | SIDE | 202 | 603 | 604 | | | | 605 | |
|----------|--------------------|------|--------------------------|--------------------|--------------------|--------------------------------|------------------------------------|------------------------------|-------------------------------|----------------------------|
| | | | Pipe Removed 24" & Under | 6" Conduit, Type F | 12" Conduit Type B | Manhole Reconstructed to Grade | Catch Basin Reconstructed to Grade | Standard Catch Basin No. 2-A | Catch Basin Adjusted to Grade | 6" Shallow Pipe Underdrain |
| | | | Lin. Ft. | Lin. Ft. | Lin. Ft. | EACH | EACH | EACH | EACH | Lin. Ft. |
| I-D | I+29 TO 8+45 | RT. | 756 | | | | | | | |
| I-2-D | 4+10 | RT. | | | 8 | | | | | |
| I-3-D | 6+22 | RT. | | | | 1 | | | | |
| I-4-D | 8+46 | RT. | | | | | | | | |
| I-1-U | I+29 TO 4+09 | RT. | | 5 | | | | | | 280 |
| I-2-U | 4+11 TO 8+61 | RT. | | 5 | | | | | | 450 |
| TOTALS | | | 756 | 10 | 8 | 1 | 1 | 1 | 1 | 730 |

I-90-1(101)29 GUARDRAIL & CONCRETE BARRIER COST PART. I

| REF. NO. | STATION TO STATION | SIDE | 202 | 606 | | | 622 |
|----------|---------------------|------|-------------------|------------------|------------------------|----------------------------------|---|
| | | | Guardrail Removed | Guardrail Type 5 | Anchor Assembly Type A | Bridge Terminal Assembly, Type A | Concrete Barrier Type D-50 Modified as per Plan |
| | | | Lin. Ft. | Lin. Ft. | EACH | EACH | Lin. Ft. |
| I-G | 6+92 TO 0+91 (E-10) | RT. | 369 | | | | |
| I-2-G | 5+84 TO 8+61 | RT. | | 250 | 1 | 1 | |
| I-1-B | 8+61 TO 0+91 (E-10) | RT. | | | | | 200 |
| I-2-B | 74+21 TO 80+65 | LT. | | | | | 646 |
| TOTALS | | | 369 | 250 | 1 | 1 | 200 646 |

I-90-1(101)29 PAVEMENT All Quantities are cost participation I, unless noted by asterisk (*) to be cost participation II.

| REF. NO. | STATION TO STATION | SIDE | 301 | 305 | 310 | 617 | 402 | 404 | 407 | | 409 | | 408 | 617 | SPECIAL | |
|----------|------------------------|------|---------------------------|----------------------------------|-------------------------------|---------|--------------------------|--------------------------|-----------|-----------------|-------------------------------|---------------------------------|------------|---------------------------------|--------------|------|
| | | | Bituminous Aggregate Base | 9" Portland Cement Concrete Base | Subbase Grading A as per Plan | Water | Asphalt Concrete (AC-20) | Asphalt Concrete (AC-20) | Tack Coat | Cover Aggregate | Seal Coat Bituminous Material | Seal Coat Cover Aggregate No. 8 | Prime Coat | Compacted Aggregate as per Plan | Weed Control | |
| | | | Cu. Yd. | Sq. Yd. | Cu. Yd. | M. Gal. | Cu. Yd. | Cu. Yd. | GAL | TON | GAL. | Cu. Yd. | GAL | Cu. Yd. | Sq. Yd. | |
| I-P | I+28.89 TO 8+61 | R/L | | | | 1.6* | | | | | | 95 | 130* | 26* | 325* | |
| I-2-P | I+28.89 TO 0+78 (E-10) | R/L | 97 | 904 | 276 | | 98* | 98 | 283 | 10 | | 181 | 5 | | | |
| I-3-P | 0+78 (E-10) TO I+03.28 | R/L | 14 | 11 | 5 | | | | | | | 150 | 4 | | | |
| I-4-P | I+28.89 TO 0+78 (E-10) | LT. | | | | | | | | | | | | | | |
| TOTALS | | | 111 | 915 | 281 | 1.6* | 98* | 98 | 283 | 10 | | 426 | 9 | 130* | 26* | 325* |

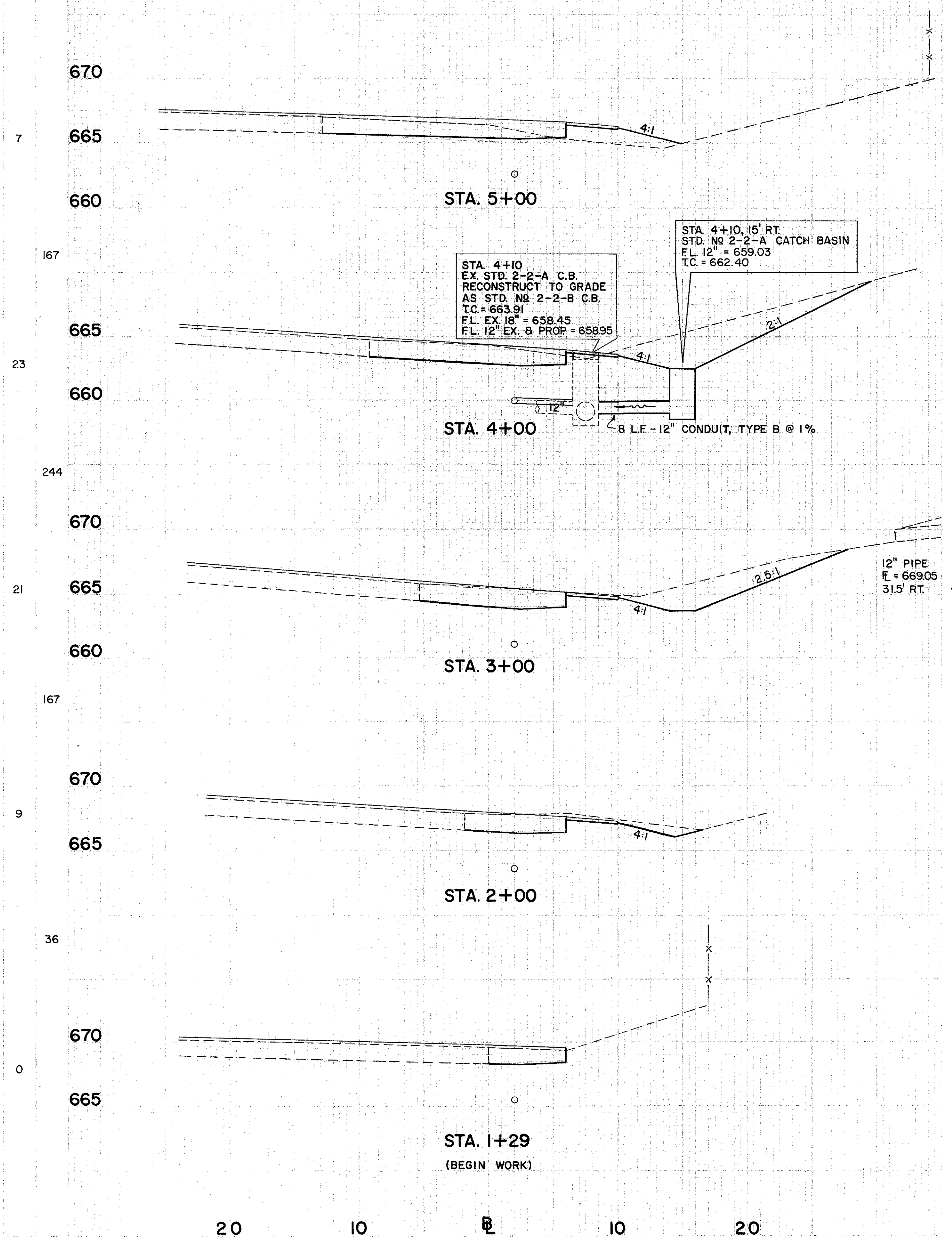
20 10 0 10 20

| END AREA | | VOLUME | | SEEDING | |
|----------|------|--------|------|-----------|----------|
| CUT | FILL | CUT | FILL | END WIDTH | SQ. YDS. |
| | | | | | |

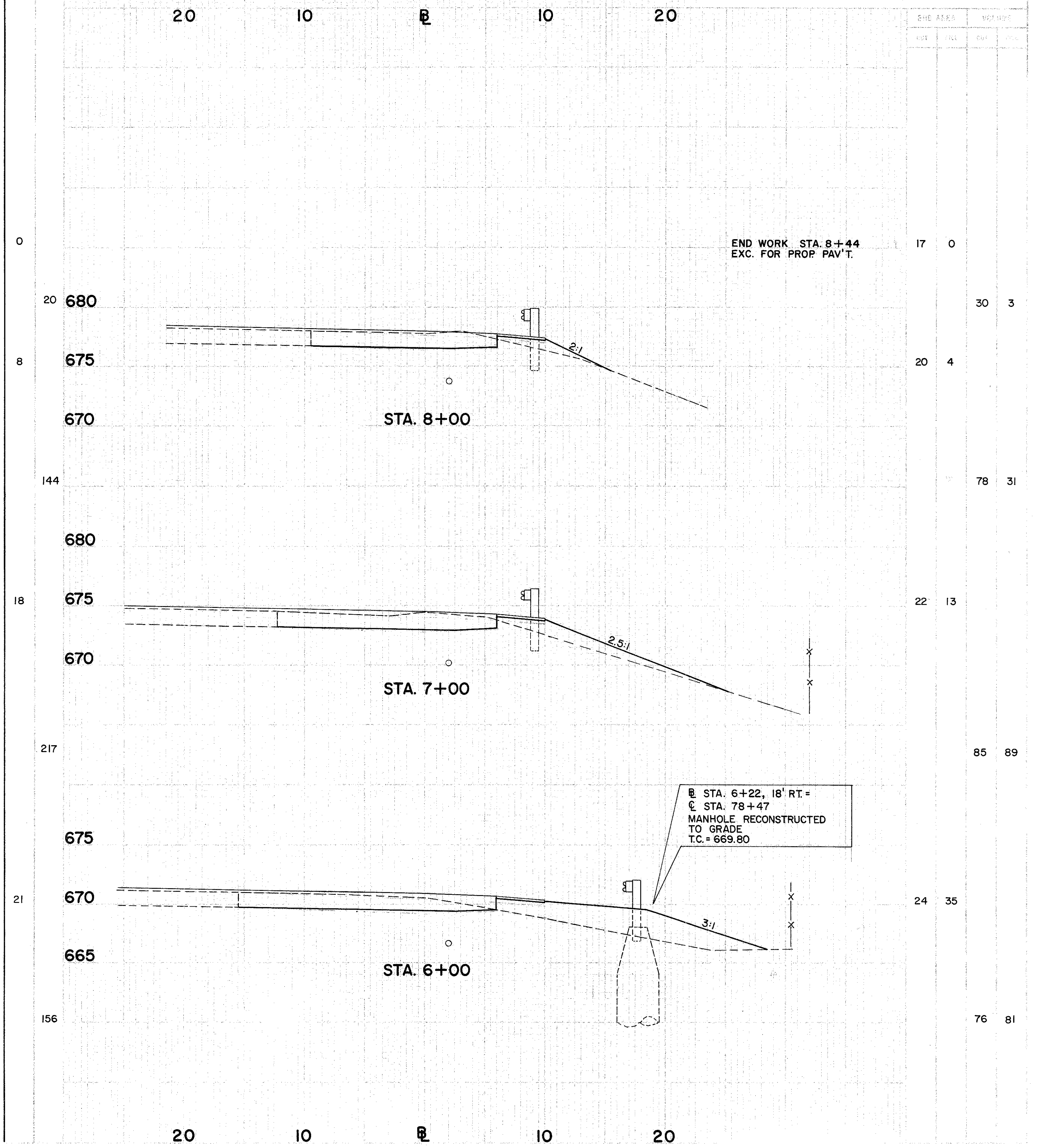
24C
169

CUYAHOGA COUNTY
CUY-77-13.79
CUY-90-16.21

COMPUTED BY: M.A.A. 9/15/77
CHECKED BY: E.N.F. 9/16/77



20 10 0 10 20



QUANTITY CALCULATIONS
 MADE BY MGB DATE 1-24-75
 CHECKED BY DSP DATE 11-17-75

| | | |
|-------------------|-------|---------|
| FED. RD. DIVISION | STATE | PROJECT |
| 5 | OHIO | |

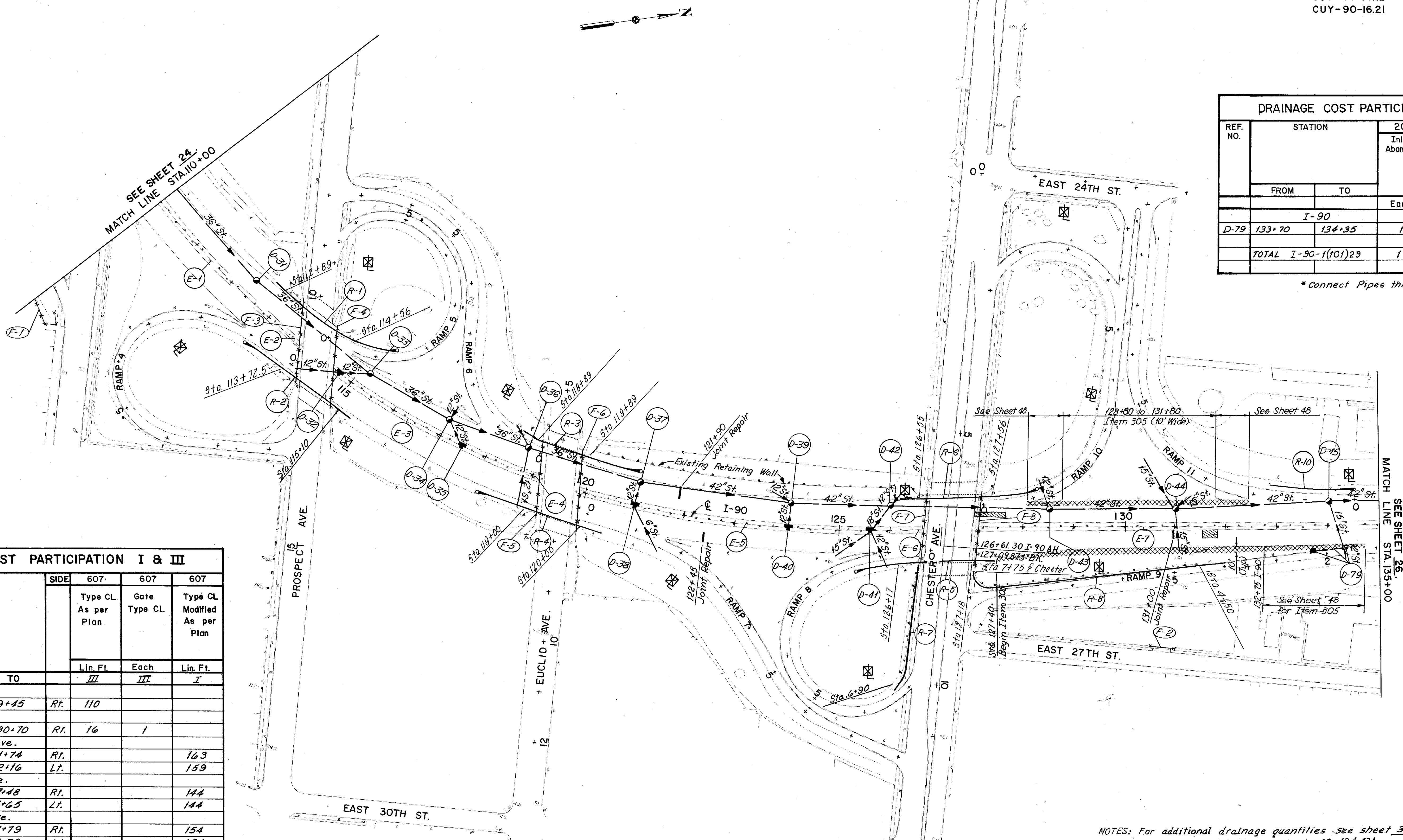
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169

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

| DRAINAGE COST PARTICIPATION I | | | | |
|-------------------------------|---------|----------------|--------------------|-------------------|
| REF. NO. | STATION | 202 | | |
| | | Inlet Abandon* | 12" Type B Conduit | Std.No.2-2-B C.B. |
| | FROM | TO | Each | Lin. Ft. |
| I-90 | | | | |
| D-79 | 133+70 | 134+35 | 1 | 67 |
| TOTAL I-90-1(101)29 | | | 1 | 67 |

* Connect Pipes thru.

| FENCE COST PARTICIPATION I & III | | | | | |
|----------------------------------|---------|--------|---------------------|--------------|------------------------------|
| REF. NO. | STATION | SIDE | 607 | | |
| | | | Type CL As per Plan | Gate Type CL | Type CL Modified As per Plan |
| | FROM | TO | Lin. Ft. | Each | Lin. Ft. |
| Ramp 3 | | | | | |
| F-1 | 8+80 | 9+45 | Rt. | 110 | |
| I-90 N.B. | | | | | |
| F-2 | 130+40 | 130+70 | Rt. | 16 | 1 |
| Prospect Ave. | | | | | |
| F-3 | 10+11 | 11+74 | Rt. | | 163 |
| F-4 | 10+57 | 12+16 | Lt. | | 159 |
| Euclid Ave. | | | | | |
| F-5 | 6+04 | 7+48 | Rt. | | 144 |
| F-6 | 6+21 | 7+65 | Lt. | | 144 |
| Chester Ave. | | | | | |
| F-7 | 6+25 | 7+79 | Rt. | | 154 |
| F-8 | 6+18 | 7+72 | Lt. | | 154 |
| I-90-1(101)29 | | | | | |
| Cost Participation I Total | | | | | 918 |
| Cost Participation III Total | | | 126 | 1 | |



NOTES: For additional drainage quantities see sheet 30.
 For drainage details see sheets 40-43 & 43A.
 For guard rail quantities see sheets 28-29.
 ☒ - Tower Light (By Others)
 For concrete barrier quantities and details see sheets 31-39.
 For details of Fence Type CL, Mod., as per plan, see sheet 45.
 For curb removal details at Ramps 4,5,6,7,8,9,10,11, see sheet 48.
 For pavement replacement (▨) and joint repair details, see sheet 46.
 ▨ Item 305 Temporary Pavement



SCALE IN FEET

MADE MEE DATE 5-8-75
 TRACED DBC DATE 6-23-75
 CHECKED DSP DATE 6-18-75
 SCALE 1"=100'

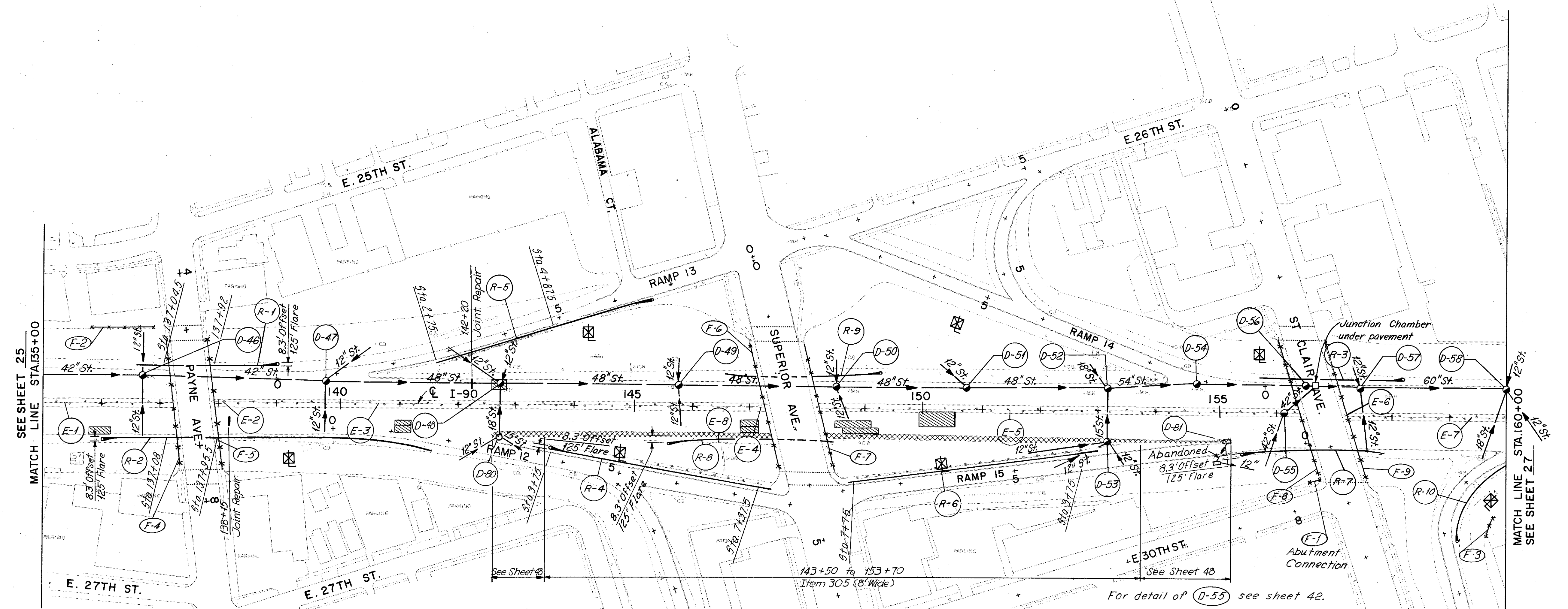
Howard, Needles, Tammen & Bergendoff
 CONSULTING ENGINEERS
 CLEVELAND, OHIO

HNTB

QUANTITY CALCULATIONS
 MADE BY MGB DATE 1-24-75
 CHECKED BY DSP DATE 11-17-75

| | | |
|-------------------|-------|---------|
| FED. RD. DIVISION | STATE | PROJECT |
| 5 | OHIO | |

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21



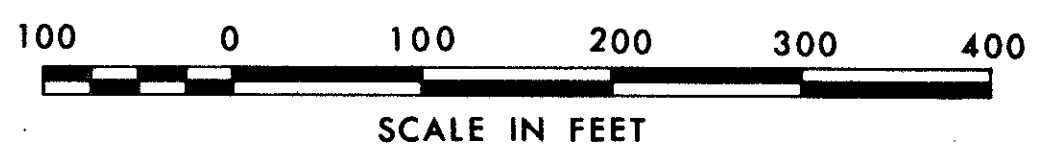
| REF. NO. | STATION | 202 | | 604 | |
|--------------------|---------|-------|----------|---------|--|
| | | Inlet | Abandon* | Manhole | Adj. to Grade w/ Bolt down casting As Per Plan * |
| FROM TO | | Each | Each | Each | Each |
| I-90 | | | | | |
| D-80 | 142+75 | | | 1 | |
| D-81 | 155+25 | | 1 | | |
| TOTAL I-90-(101)29 | | | 1 | 1 | |

* Connect Pipes thru
 ** See Note Sheet 7.

FENCE COST PARTICIPATION I & III

| REF. NO. | STATION | SIDE | 607 | |
|------------------------------|----------------|--------|---------------------|------------------------------|
| | | | Type CL As per Plan | Type CL Modified As per Plan |
| | | | Lin. Ft. | Lin. Ft. |
| | FROM | TO | I | III |
| | I-90 N.B. | | | |
| F-1 | 156+60 | 156+65 | Rt. | 5' |
| | I-90 S.B. | | | |
| F-2 | 135+70 | 136+90 | Lt. | 120 |
| | Ramp 16 | | | |
| F-3 | 2+60 | 3+00 | Lt. | 30 |
| | Payne Ave. | | | |
| F-4 | 5+07 | 7+31 | Rt. | 224 |
| F-5 | 5+15 | 7+39 | Lt. | 224 |
| | Superior Ave. | | | |
| F-6 | 1+49 | 3+73 | Rt. | 224 |
| F-7 | 1+71 | 3+95 | Lt. | 224 |
| | St. Clair Ave. | | | |
| F-8 | 4+06 | 6+48 | Rt. | 242 |
| F-9 | 4+30 | 6+72 | Lt. | 242 |
| Cost Participation I Total | | | | 1380 |
| Cost Participation III Total | | | 155 | |
| Total | | | 155 | 1380 |

NOTES: For additional drainage quantities see sheet 30.
 For drainage details see sheets 40-43.
 For guard rail quantities see sheets 28-29.
 ☒ - Tower Light (BY OTHERS)
 For concrete barrier quantities and details see sheets 31-39.
 For details of Fence Type CL, Mod., as per plan, see sheet 45.
 For curb removal details at Ramps 12, 13, 15 & 16, see sheet 48.
 ☒ Item 305 Temporary Pavement
 For pavement replacement (▨) and joint repair details, see sheet 46.

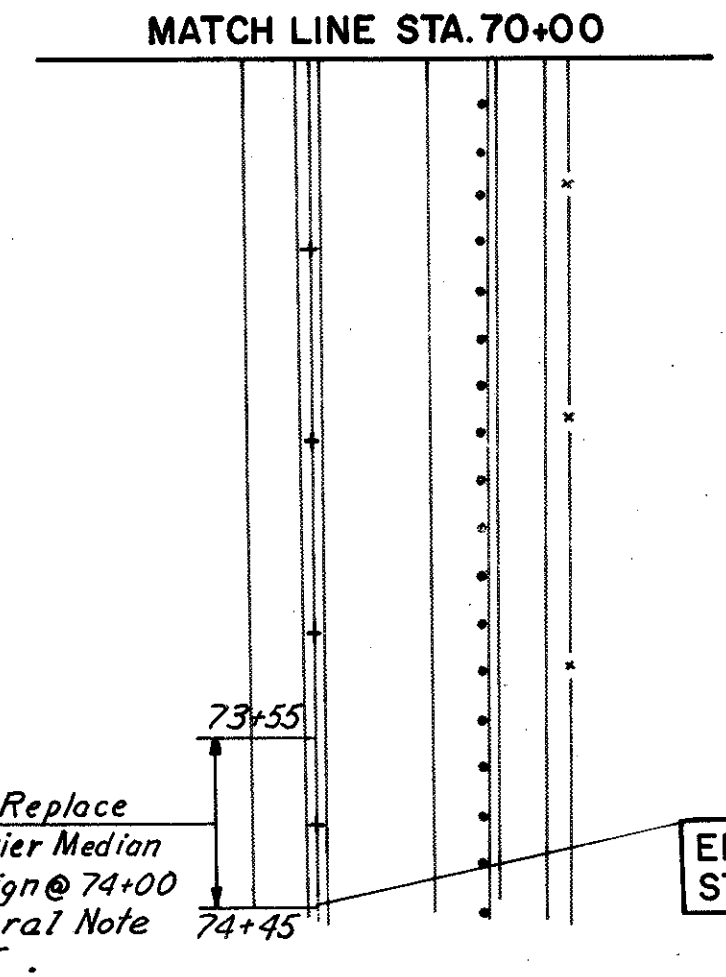
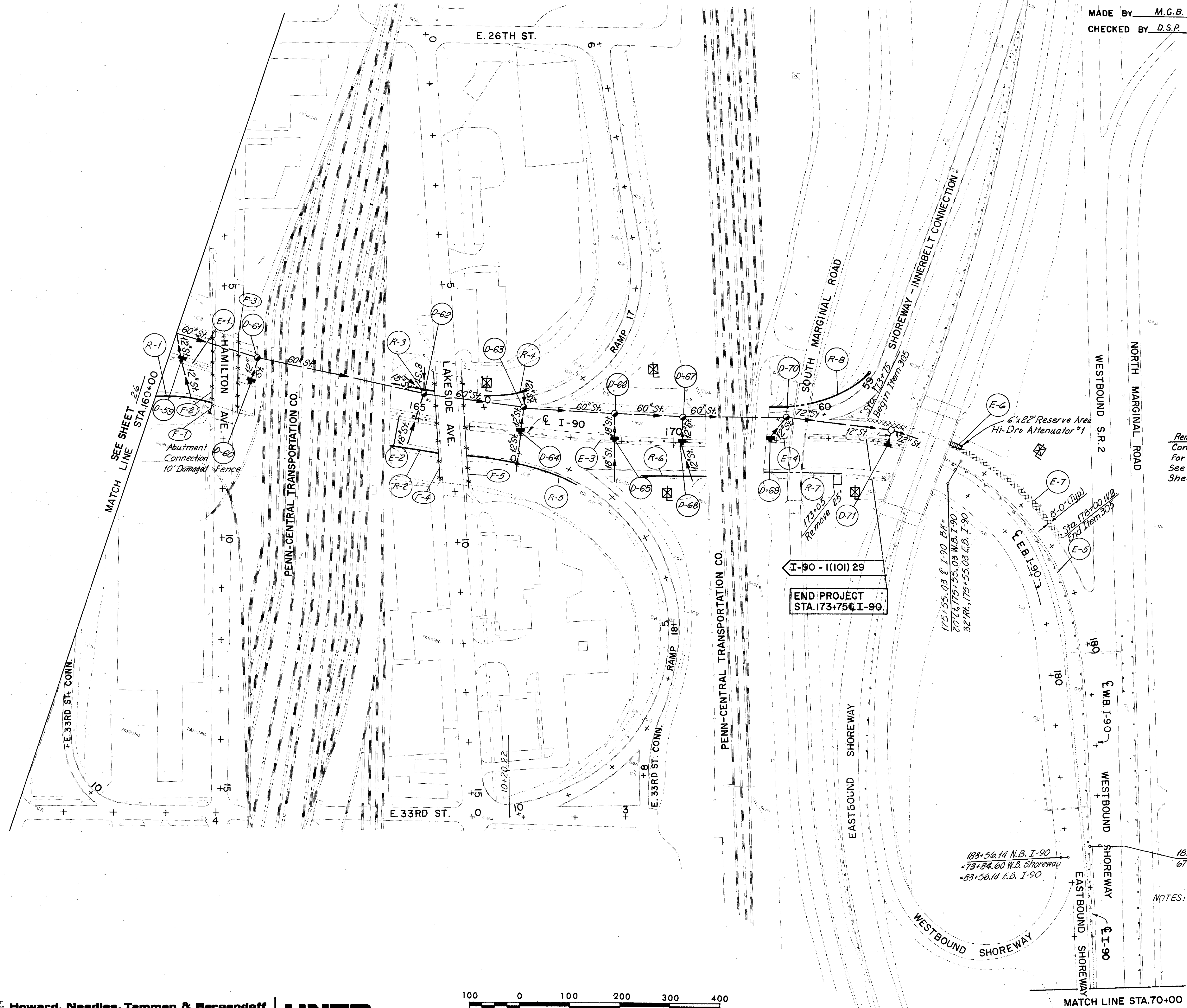
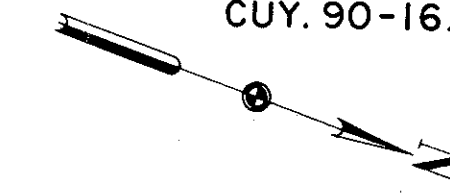


QUANTITY CALCULATIONS
 MADE BY M.G.B. DATE 1-24-75
 CHECKED BY D.S.P. DATE 11-17-75

| | | |
|-------------------|-------|---------|
| FED. RD. DIVISION | STATE | PROJECT |
| 5 | OHIO | |

27
169

CUYAHOGA COUNTY
 CUY. 77-14.12
 CUY. 90-16.21

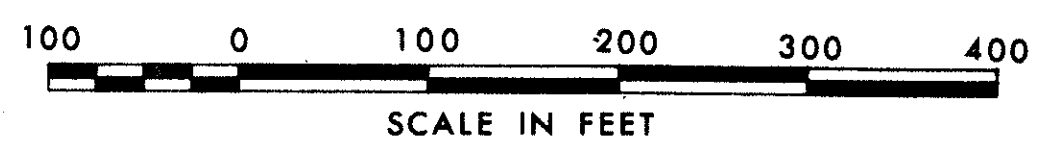


END WORK
 STA. 74+45 @ I-90

| FENCE COST PARTICIPATION I | | | | | |
|----------------------------|---------------|------|------|---------------------|------------------------------|
| REF. NO. | STATION | | SIDE | 607 | 607 |
| | FROM | TO | | Type CL As per Plan | Type CL Modified As per Plan |
| | | | | Lin. Ft. | Lin. Ft. |
| | | | | III | I |
| | I-90 N.B. | | | | |
| F-1 | 161+08 | ~ | Rt. | 10 | |
| | Hamilton Ave. | | | | |
| F-2 | 5+93 | 7+35 | Rt. | | 142 |
| F-3 | 6+07 | 7+49 | Lt. | | 142 |
| | Lakeside Ave. | | | | |
| F-4 | 6+40 | 8+70 | Rt. | | 230 |
| F-5 | 6+60 | 8+90 | Lt. | | 230 |
| | I-90-I(10)29 | | | | |
| | | | | 10 | 744 |
| | Total | | | | |

NOTES: For drainage quantities see sheet 30.
 For drainage details see sheets 40-43.
 For guard rail quantities see sheets 28-29.
 ☒ - Tower Light (By Others)
 For concrete barrier quantities and details see sheets 31-39.
 For details of Fence Type CL, Mod., as per plan, see sheet 26.
 For curb removal details at Ramp 17, see sheet 48.
 For drainage work east of Sta. 174+20 @ I-90, see sheets 31 & 32.
 For concrete barrier quantities and details east of Sta. 175+33.42 @ I-90, see sheets 36-39.
 ☒ Item 305 Temporary Pavement

MADE M.E.E. DATE 5-9-75
 TRACED D.B.C. DATE 6-24-75
 CHECKED G.F.M. DATE 6-3-75
 SCALE 1"=100'
Howard, Needles, Tammen & Bergendoff
 CONSULTING ENGINEERS
 CLEVELAND, OHIO



GUARD RAIL SUB-SUMMARIES

QUANTITY CALCULATIONS
 MADE BY DSP DATE 9-17-76
 CHECKED BY MGB DATE 6-3-77

| | | | |
|-------------|-------|---------|--|
| FHWA REGION | STATE | PROJECT | |
| 5 | OHIO | | |

28
169

CUYAHOGA COUNTY
 CUY-77-14.12 CUY-90-16.21

| GUARD RAIL - COST PARTICIPATION I | | | | | | | | | | | | | |
|-----------------------------------|----------|---------------------------|------|-------------------|---------------------|------------------|------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|------------------------|--|
| SH. NO. | REF. NO. | STATION | SIDE | 202 | | 606 | | 606 | | 606 | | 606 | |
| | | | | Guardrail Removed | Barrierrail Removed | Guardrail Type 5 | Anchor Assembly Type A | Bridge Terminal Assembly Type C | Bridge Terminal Assembly Type E | Bridge Terminal Assembly Type D | Bridge Terminal Assembly Type J | Anchor Assembly Type T | |
| | | FROM TO | | Lin. Ft. | Lin. Ft. | Lin. Ft. | Each | Each | Each | Each | Each | Each | |
| 20 | | I-77-5(18)161 I-77 | | | | | | | | | | | |
| | R-1 | 66+76 75+13.5 | Lt. | 812.5 | | 825.0 | | | | | | 1 | |
| | R-2 | 66+75 74+75 | Rt. | 775.0 | | 775.0 | 1 | | | | | | |
| | R-3 | 79+76 85+100 | Lt. | 523.0 | | 524.0 | | | | | | | |
| | R-4 | 79+38 85+100 | Rt. | 560.5 | | 561.5 | | | | | | | |
| | E-1 | 66+17 75+13.27 | Ctr. | | | 896.0 | | | | | | | |
| | E-2 | 79+39.2 85+100 | Ctr. | | | 561.0 | | | | | | | |
| | | Ramp N-E | | | | | | | | | | | |
| | R-5 | 13+34 20+71.5 | Lt. | 700.0 | | 725.0 | | | | | | 1 | |
| | | Ramp E-9 | | | | | | | | | | | |
| | R-6 | 4+53 7+79 | Lt. | 300.0 | | 300.0 | | | | | | | |
| | R-7 | 5+33 8+33 | Rt. | 300.0 | | 275.0 | | | | | | | |
| | | Ramp E-N | | | | | | | | | | | |
| | R-8 | 23+53 25+90 | Lt. | 212.0 | | 212.0 | | | | | | | |
| | R-9 | 23+53 25+75 | Rt. | 197.0 | | 197.0 | | | | | | | |
| | | Ramp S-E | | | | | | | | | | | |
| | R-10 | 4+65 6+40 | Rt. | 50.0 | | 137.5 | | | | | | 1 | |
| 21 | | Ramp E-N | | | | | | | | | | | |
| | R-1 | 25+90 26+78 | Lt. | 87.0 | | 88.0 | | | | | | | |
| | R-2 | 25+75 26+78 | Rt. | 102.0 | | 103.0 | | | | | | | |
| | | I-77 | | | | | | | | | | | |
| | R-3 | 85+00 87+06 | Lt. | 206.0 | | 206.0 | | | | | | | |
| | R-4 | 85+00 87+00 | Rt. | 200.0 | | 200.0 | | | | | | | |
| | R-5 | 112+05.5 114+50 | Rt. | 215.0 | | 219.5 | | | | | | | |
| | E-1 | 85+00 87+27.5 | Ctr. | | | 227.5 | | | | | | | |
| | E-2 | 107+55 114+50 | Ctr. | | | 695.0 | | | | | | | |
| | | I-77 Ramp F-2 | | | | | | | | | | | |
| | R-6 | 107+89 6+00 | Lt. | 646.0 | | 647.0 | | | | | | | |
| | | I-77 Ramp F-1 | | | | | | | | | | | |
| | R-7 | 107+31 7+42 | Rt. | 700.0 | | 751.0 | | | | | | | |
| | | Ramp F-1 | | | | | | | | | | | |
| | R-8 | 5+65 7+40 | Lt. | | | 137.5 | | | | | | 1 | |
| 22 | | Ramp F-2 | | | | | | | | | | | |
| | R-1 | 6+00 10+03 | Lt. | 383.0 | | 378.0 | | | | | | | |
| | | Ramp F-1 | | | | | | | | | | | |
| | R-2 | 7+42 8+54.5 | Rt. | 108.0 | | 100.0 | | | | | | 1 | |
| | | Ramp F-3 | | | | | | | | | | | |
| | R-3 | 0+39 7+14 | Rt. | 657.0 | | 662.5 | | | | | | 1 | |
| | | Ramp F-4 | | | | | | | | | | | |
| | R-4 | 3+50.5 9+63 | Rt. | 587.5 | | 587.5 | | | | | | | |
| | | I-77 | | | | | | | | | | | |
| | R-6 | 116+31 119+06 | Lt. | 250.0 | | 262.5 | | | | | | 1 | |
| | R-7 | 114+50 118+43 | Rt. | 392.0 | | 393.0 | | | | | | | |
| | R-8 | 124+23 129+98 | Lt. | 575.0 | | 550.0 | | | | | | | |
| | R-9 | 124+31 129+18.5 | Rt. | 462.5 | | 462.5 | | | | | | | |
| | R-10 | 35+74 42+35 | Rt. | 661.0 | | 661.0 | | | | | | | |
| | R-11 | 37+22 42+35 | Lt. | 513.0 | | 513.0 | | | | | | | |
| | E-1 | 114+50 118+88 | Ctr. | | | 438.0 | | | | | | | |
| | E-2 | 124+13 33+98.5 | Ctr. | | | 986.0 | | | | | | | |
| | E-3 | 96+23.5 42+36 | Ctr. | | | 612.5 | | | | | | | |
| | | I-77-5(18)161 Sheet Total | | | 11,175.0 | 4416.0 | 12 | 8 | 5 | 10 | | 7 | |

| GUARD RAIL - COST PARTICIPATION I | | | | | | | | | | | | | |
|-----------------------------------|----------|-----------------------------|------|-------------------|---------------------|------------------|------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|------------------------|
| SH. NO. | REF. NO. | STATION | SIDE | 202 | | 606 | | 606 | | 606 | | 606 | |
| | | | | Guardrail Removed | Barrierrail Removed | Guardrail Type 5 | Anchor Assembly Type A | Bridge Terminal Assembly Type C | Bridge Terminal Assembly Type E | Bridge Terminal Assembly Type D | Bridge Terminal Assembly Type J | Bridge Terminal Assembly Type H | Anchor Assembly Type T |
| | | FROM TO | | Lin. Ft. | Lin. Ft. | Lin. Ft. | Each | Each | Each | Each | Each | Each | |
| 22 | | I-90-1(10)29 I-77 | | | | | | | | | | | |
| | R-12 | 44+67 45+60 | Lt. | 82.0 | | 83.0 | | | | | | 1 | |
| | E-4 | 44+61 45+50 | Ctr. | | | 89.0 | | | | | | | |
| | | Ramp E-14 | | | | | | | | | | | |
| | R-5 | 0+81 1+51 | Rt. | 69.0 | | 70.0 | | | | | | 1 | |
| 23 | | I-90 | | | | | | | | | | | |
| | R-1 | 57+30 58+76 | Rt. | 100.0 | | 146.0 | | | | | | | |
| | R-2 | 63+75 65+00 | Rt. | 125.0 | | 100.0 | | | | | | 1 | |
| | R-3 | 58+06 58+56 | Lt. | 175.0 | | 37.5 | | | | | | 1 | |
| | R-4 | 61+25 64+75 | Lt. | 350.0 | | 350.0 | | | | | | | |
| | E-1 | 54+66 58+86 | Ctr. | | | 420.0 | | | | | | | |
| | E-2 | 61+10 65+00 | | | | 390.0 | | | | | | | |
| | | Ramp E-2 | | | | | | | | | | | |
| | R-5 | 7+30 8+30 | Rt. | 62.5 | | 87.5 | | | | | | 1 | |
| | R-6 | 6+90.5 8+28 | Lt. | | | 125.0 | | | | | | 1 | |
| | | Ramp E-3 | | | | | | | | | | | |
| | R-7 | 3+00 6+75 | Rt. | 375.0 | | 350.0 | | | | | | 1 | |
| | E-3 | 2+60 4+35 | Lt. | 175.0 | | | | | | | | | |
| | | Ramp E-4 | | | | | | | | | | | |
| | R-9 | 0+45 2+45 | Rt. | 487.5 | | 187.5 | | | | | | 1 | |
| | R-10 | 2+63 4+63 | Lt. | 287.5 | | 187.5 | | | | | | 1 | |
| | | Ramp E-5 | | | | | | | | | | | |
| | R-11 | 10+20 11+95 | Rt. | 162.5 | | 150.0 | | | | | | 1 | |
| | R-12 | 11+07.5 11+95 | Lt. | 75.0 | | 62.5 | | | | | | 1 | |
| | | Ramp E-6 | | | | | | | | | | | |
| | R-13 | 1+12 1+74.5 | Rt. | 575.0 | | 50.0 | | | | | | 1 | |
| | R-14 | 4+20 5+95 | | | | 137.5 | | | | | | 1 | |
| | E-4 | 6+25 8+25 | Lt. | 200.0 | | | | | | | | | |
| | | Ramp E-7 | | | | | | | | | | | |
| | E-5 | 2+00 4+50 | Rt. | 250.0 | | | | | | | | | |
| | R-15 | 6+25 7+50 | Lt. | | | 100.0 | | | | | | 1 | |
| | | Ramp E-10 | | | | | | | | | | | |
| | R-16 | 11+36 14+36 | Lt. | 300.0 | | 287.5 | | | | | | 1 | |
| | R-17 | 13+25 18+12.5 | Rt. | 362.5 | | 462.5 | | | | | | | |
| | | Ramp E-14 | | | | | | | | | | | |
| | E-6 | 4+25 7+87.5 | Lt. | 362.5 | | | | | | | | | |
| | R-19 | 1+51 6+06 | Rt. | 449.0 | | 442.5 | | | | | | 1 | |
| | | Ramp E-15 | | | | | | | | | | | |
| | R-20 | 1+48.5 3+61 | Lt. | 187.5 | | 187.5 | | | | | | 1 | |
| | R-21 | 6+71 7+67 | Lt. | 96.0 | | 96.0 | | | | | | | |
| | R-22 | 7+22 7+78 | Rt. | 56.0 | | 56.0 | | | | | | 1 | |
| | E-7 | 9+65 12+27.5 | Lt. | 262.5 | | | | | | | | | |
| | R-24 | 13+92 15+17 | Rt. | 509.0 | | 100.0 | | | | | | 1 | |
| | | Ramp E-17 | | | | | | | | | | | |
| | E-8 | 7+61 8+98.5 | Lt. | 137.5 | | | | | | | | | |
| | R-26 | 1+87 7+24.5 | Rt. | 650.0 | | 525.0 | | | | | | 1 | |
| | | Ramp E-18 | | | | | | | | | | | |
| | R-27 | 6+84 8+09 | Rt. | 212.5 | | 100.0 | | | | | | 1 | |
| | R-28 | 5+19 7+69 | Lt. | 237.5 | | 225.0 | | | | | | 1 | |
| | | I-77 | | | | | | | | | | | |
| | R-29 | 48+07.5 49+32.5 | Rt. | 87.5 | | 100.0 | | | | | | 1 | |
| | R-30 | 45+50 49+05 | Lt. | 355.0 | | 355.0 | | | | | | 1 | |
| | | Ramp E-17 Ramp E-9 | | | | | | | | | | | |
| | R-31 | 3+50 2+00 | Lt. | 462.5 | | 437.5 | | | | | | 1 | |
| | | Ramp E-6 Ramp E-7 | | | | | | | | | | | |
| | R-32 | 3+48 2+12.5 | Lt. | 850.0 | | 275.0 | | | | | | 1 | |
| | | I-90-1(10)29 Sheet Subtotal | | | 9128.5 | 899.0 | 5873.5 | 14 | 0 | 5 | 9 | 10 | 1 |

SCALE: 1"=40'
 HOWARD, NEEDLES, TAMMEN & BERGENDOFF
 MADE P.E. DATE: 5-16-75
 TRCD J.P.M. DATE: 6-23-75
 CKD G.F.M. DATE: 5-16-75
 CONSULTING ENGINEERS
 KANSAS CITY CLEVELAND NEW YORK

NOTE: THE FOLLOWING REFERENCE NUMBERS WERE NOT USED: R-8, R-18, R-23, ON SHEET 23

(Quantities Cont. on Sheet 29.)

GUARD RAIL SUB-SUMMARIES

QUANTITY CALCULATIONS
 MADE BY DSP DATE 9-17-76
 CHECKED BY MGB DATE 6-3-77

| | | | |
|-------------|-------|---------|-----------|
| FHWA REGION | STATE | PROJECT | 29 169 |
| 5 | OHIO | | |

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

| GUARD RAIL - COST PARTICIPATION I | | | | | | | | | | | | |
|-----------------------------------|----------|--------------|----------|------|-------------------|--------------------|------------------|------------------------|---------------------------------|---------------------------------|---------------------------------|------------------------|
| SH. NO. | REF. NO. | STATION | | SIDE | 202 | | 606 | | 606 | | 606 | |
| | | | | | Guardrail Removed | Barrierail Removed | Guardrail Type 5 | Anchor Assembly Type A | Bridge Terminal Assembly Type C | Bridge Terminal Assembly Type D | Bridge Terminal Assembly Type J | Anchor Assembly Type T |
| | | FROM | TO | | Lin. Ft. | Lin. Ft. | Lin. Ft. | Each | Each | Each | Each | Each |
| Sheet 23 (Cont) | | | | | | | | | | | | |
| I-77 | | | | | | | | | | | | |
| | E-9 | 45+50 | 49+30 | Ctr. | | 380.0 | | | | | | |
| | E-10 | 51+05 | 51+86 | Ctr. | | 81.0 | | | | | | |
| 24 | I-90 | | | | | | | | | | | |
| | R-1 | 68+75 | 70+76 | Lt. | 201.0 | | 201.0 | | | | | |
| | R-2 | 68+08 | 70+68 | Rt. | 2600 | | 2600 | | | | | |
| | R-3 | NOT USED | | | | | | | | | | |
| | R-4 | 74+09 | 77+96.5 | Rt. | 362.5 | | 375.0 | | | | | |
| | R-5 | 99+02.5 | 103+6.5 | Lt. | 300.0 | | 425.0 | | | | | |
| | R-6 | 82+71.81 | 103+75 | Rt. | 462.5 | | 575.0 | | | | | |
| | R-7 | 105+55 | 109+05 | Lt. | 262.5 | | 312.5 | | | | | |
| | R-8 | 106+75 | 109+62.5 | Rt. | 187.5 | | 250.0 | | | | | |
| | R-9 | Ramp E-8 | | | | | | | | | | |
| | R-9 | 7+12.5 | 9+00 | Rt. | 137.5 | | 150.0 | | | | | |
| | R-10 | Ramp E-9 | | | | | | | | | | |
| | R-10 | 2+00 | 4+57 | Lt. | 257.0 | | 257.0 | | | | | |
| | R-11 | 2+00 | 4+33 | Rt. | 233.0 | | 233.0 | | | | | |
| | R-12 | Ramp E-10 | | | | | | | | | | |
| | R-12 | 9+86 | 11+36 | Lt. | 150.0 | | 150.0 | | | | | |
| | R-13 | 4+05 | 8+05 | Lt. | 177.0 | | 400.0 | | | | | |
| | R-14 | 4+05 | 7+05 | Rt. | 287.5 | | 287.5 | | | | | |
| | R-15 | Not Used | | | | | | | | | | |
| | R-16 | Ramp E-16 | | | | | | | | | | |
| | R-16 | 7+87 | 8+74.5 | Rt. | 625 | | 75.0 | | | | | |
| | R-17 | 3+25 | 6+37.5 | Rt. | 287.5 | | 287.5 | | | | | |
| I-90 | | | | | | | | | | | | |
| | E-1 | 68+19 | 70+89 | Ctr. | | 270.0 | | | | | | |
| | E-2 | 73+96 | 83+89 | Ctr. | | 913.0 | | | | | | |
| | E-3 | 98+00 | 99+05 | Ctr. | | 105.0 | | | | | | |
| | E-4 | 99+05 | 100+55 | Ctr. | 300.0 | | | | | | | |
| | E-5 | 100+55 | 101+42.5 | Ctr. | | 87.5 | | | | | | |
| | E-6 | 101+42.5 | 102+80 | Ctr. | 275.0 | | | | | | | |
| | E-7 | 102+80 | 106+80 | Ctr. | | 400.0 | | | | | | |
| | E-8 | 106+80 | 108+67.5 | Ctr. | 375.0 | | | | | | | |
| | E-9 | 108+67.5 | 110+00 | Ctr. | | 132.5 | | | | | | |
| | R-18 | Ramp E-5 | | | | | | | | | | |
| | R-18 | 3+55 | 5+30 | Rt. | | 137.5 | | | | | | |
| | R-19 | 0+00 | 1+25 | Rt. | | 87.5 | | | | | | |
| 25 | I-90 | | | | | | | | | | | |
| | R-1 | 112+64 | 1+29 | Lt. | 162.5 | | 237.5 | | | | | |
| | R-2 | Ramp 4 I-90 | | | | | | | | | | |
| | R-2 | 0+92.5 | 115+47.5 | Rt. | 137.5 | | 212.5 | | | | | |
| | R-3 | Ramp 6 I-90 | | | | | | | | | | |
| | R-3 | 0+61 | 121+01.5 | Lt. | 100.0 | | 225.0 | | | | | |
| | R-4 | Ramp 7 I-90 | | | | | | | | | | |
| | R-4 | 118+00 | 0+40 | Rt. | 100.0 | | 212.5 | | | | | |
| | R-5 | Ramp 8 I-90 | | | | | | | | | | |
| | R-5 | 1+58 | 127+68 | Rt. | 150.0 | | 262.5 | | | | | |
| | R-6 | Ramp 10 I-90 | | | | | | | | | | |
| | R-6 | 125+70 | 1+13.5 | Lt. | 150.0 | | 287.5 | | | | | |
| | R-10 | Ramp 11 | | | | | | | | | | |
| | R-10 | 0+00 | 1+75 | Rt. | | 137.5 | | | | | | |

| GUARD RAIL - COST PARTICIPATION I | | | | | | | | | | | | |
|-----------------------------------|----------|---------------------|------------------|------|-------------------|--------------------|------------------|------------------------|---------------------------------|---------------------------------|----------------------------------|------------------------|
| SH. NO. | REF. NO. | STATION | | SIDE | 202 | | 606 | | 606 | | 606 | |
| | | | | | Guardrail Removed | Barrierail Removed | Guardrail Type 5 | Anchor Assembly Type A | Bridge Terminal Assembly Type J | Bridge Terminal Assembly Type C | Bridge Terminal Assembly Type D. | Anchor Assembly Type T |
| | | FROM | TO | | Lin. Ft. | Lin. Ft. | Lin. Ft. | Each | Each | Each | Each | Each |
| Sheet 25 (Cont) | | | | | | | | | | | | |
| I-90 | | | | | | | | | | | | |
| | R-7 | Ramp 8 Chester Ave. | | | | | | | | | | |
| | R-7 | 6+65 | 7+80 | Rt. | 225.0 | | 237.5 | | | | | |
| | R-8 | Ramp 9 Chester Ave. | | | | | | | | | | |
| | R-8 | 4+00 | 7+72 | Rt. | 462.5 | | 500.0 | | | | | |
| | E-1 | 110+00 | 113+42.5 | Ctr. | | 342.5 | | | | | | |
| | E-2 | 113+42.5 | 114+80 | Ctr. | 275.0 | | | | | | | |
| | E-3 | 114+80 | 118+80 | Ctr. | | 400.0 | | | | | | |
| | E-4 | 118+80 | 120+17.5 | Ctr. | 275.0 | | | | | | | |
| | E-5 | 120+17.5 | 126+30 | Ctr. | | 612.5 | | | | | | |
| | E-6 | 126+30 | 127+42.5 | Ctr. | 225.0 | | | | | | | |
| | E-7 | 127+42.5 | 135+00 | Ctr. | | 757.5 | | | | | | |
| | R-9 | Not Used | | | | | | | | | | |
| 26 | I-90 | | | | | | | | | | | |
| | R-1 | 136+55 | 139+05 | Lt. | 87.5 | | 212.5 | | | | | |
| | R-2 | 135+95 | 1+76 Ramp 12 | Rt. | 87.5 | | 537.5 | | | | | |
| | R-3 | 155+70 | 158+20 | Lt. | | | 212.5 | | | | | |
| | R-4 | Ramp 12 | | | | | | | | | | |
| | R-4 | 3+75 | 7+37.5 | Lt. | 362.5 | | 337.5 | | | | | |
| | R-5 | Ramp 13 | | | | | | | | | | |
| | R-5 | 2+75 | 6+75 | Rt. | 212.5 | | 362.5 | | | | | |
| | R-6 | Ramp 15 | | | | | | | | | | |
| | R-6 | 3+57 | 7+82 | Rt. | 400.0 | | 412.5 | | | | | |
| | R-7 | I-90 Ramp 15 | | | | | | | | | | |
| | R-7 | 157+85 | 1+13 | Rt. | | | 212.5 | | | | | |
| | E-1 | 135+00 | 136+93 | Ctr. | | 193.0 | | | | | | |
| | E-2 | 136+93 | 138+18 | Ctr. | 250.0 | | | | | | | |
| | E-3 | 138+18 | 146+93 | Ctr. | | 875.0 | | | | | | |
| | E-4 | 146+93 | 148+43 | Ctr. | 300.0 | | | | | | | |
| | E-5 | 148+43 | 155+80.5 | Ctr. | | 737.5 | | | | | | |
| | E-6 | 155+80.5 | 157+80.5 | Ctr. | 400.0 | | | | | | | |
| | E-7 | 157+80.5 | 160+00 | Ctr. | | 219.5 | | | | | | |
| | E-8 | 146+29 | 146+79 | Rt. | 50.0 | | | | | | | |
| | R-10 | Ramp 16 | | | | | | | | | | |
| | R-10 | 0+90 | 3+22.5 | Lt. | | | 207.5 | | | | | |
| | R-8 | I-90 | | | | | | | | | | |
| | R-8 | 145+50 | 148+37.5 | Rt. | | | 250.0 | | | | | |
| | R-9 | 146+53 | 149+28 | Lt. | | | 237.5 | | | | | |
| 27 | I-90 | | | | | | | | | | | |
| | E-1 | 160+00 | 160+30.5 | Ctr. | | 30.5 | | | | | | |
| | E-2 | 160+30.5 | 166+55.5 | Ctr. | 1250.0 | | | | | | | |
| | E-3 | 166+55.5 | 170+05.5 | Ctr. | | 350.0 | | | | | | |
| | E-4 | 170+05.5 | 175+33.5 | Ctr. | 1056.0 | | | | | | | |
| | E-5 | 175+33.5 | 185+63.5 | Lt. | 1050.0 | | | | | | | |
| | E-6 | 174+40 | 175+65 W.B. | Lt. | 125.0 | | | | | | | |
| | E-7 | 177+16 W.B. | 177+41 W.B. | Lt. | 25.0 | | | | | | | |
| | R-1 | Ramp 16 I-90 | | | | | | | | | | |
| | R-1 | 0+90 | 16+05 | Rt. | | | 105.0 | | | | | |
| | R-2 | I-90 | | | | | | | | | | |
| | R-2 | 164+50 | 165+50 | Rt. | | | 100.0 | | | | | |
| | R-3 | 164+40 | 165+30 | Lt. | | | 90.0 | | | | | |
| | R-4 | 165+85 | 0+85 Ramp 17 | Lt. | | | 100.0 | | | | | |
| | R-5 | 66+05 | 1+55 Ramp 18 | Rt. | | | 237.5 | | | | | |
| | R-6 | 169+40 | 170+65 | Rt. | | | 100.0 | | | | | |
| | R-7 | 171+75 | 173+30 | Rt. | 25 | | 155.0 | | | | | |
| | R-8 | 171+90 | 59+00 Shwy Conn. | Lt. | | | 175.0 | | | | | |
| I-90-1(10)29 Sheet Total | | | | | 12,521.5 | 7697.0 | 10,841.0 | 27 | 15 | 7 | 5 | 28 |

SCALE: 1"=40' HOWARD, NEEDLES, TAMMEN & BERGENOFF
 MADE ME DATE 5-16-75 CONSULTING ENGINEERS
 TRCD. JPA DATE 6-24-75
 CKD. G.F.M. DATE 3-19-76 ANSAS CITY CLEVELAND NEW YORK

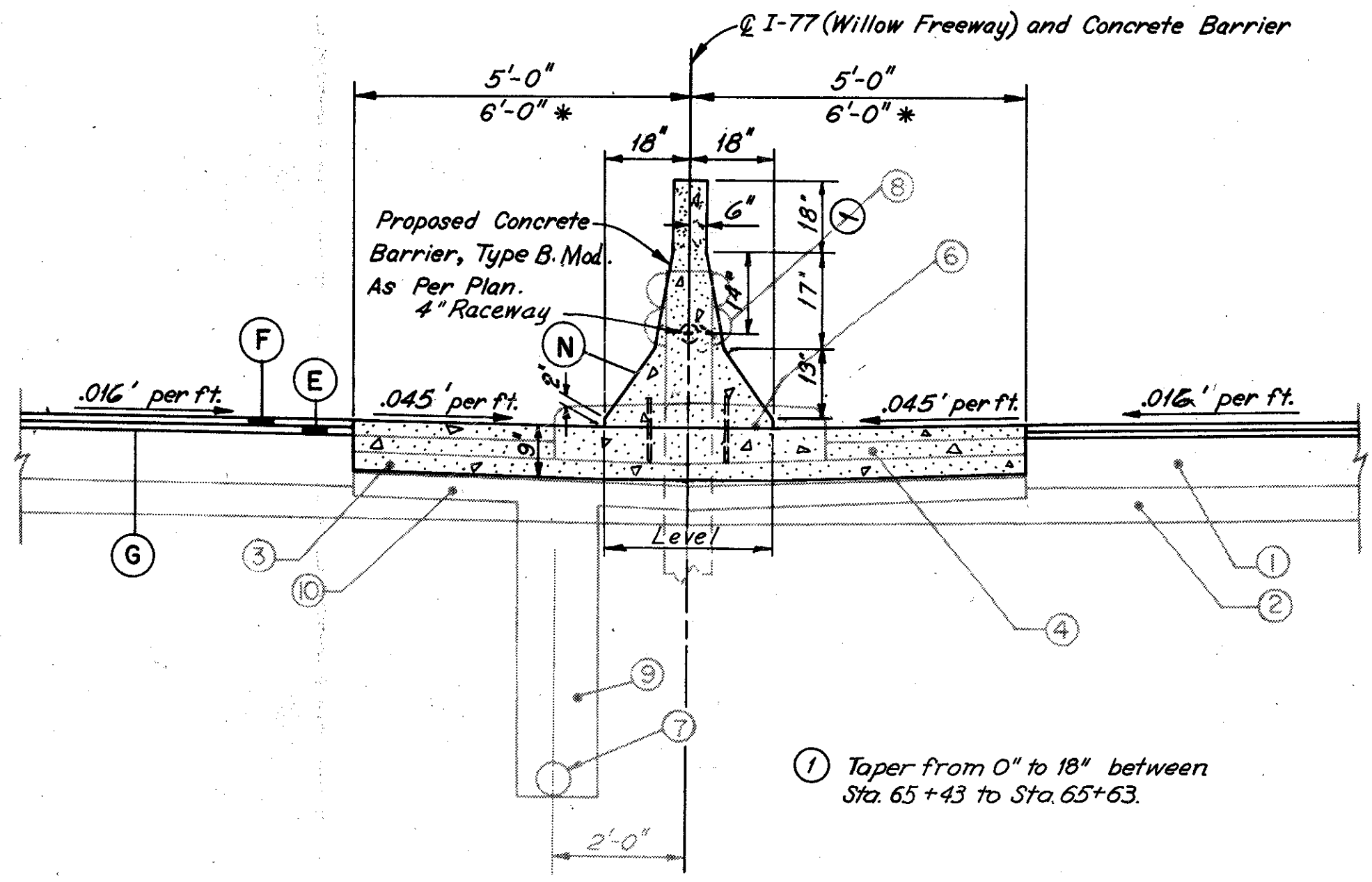
Note: All Quantities on This Sheet
 are Part of Project I-90-1(10)29

CONCRETE BARRIER TYPICAL SECTIONS

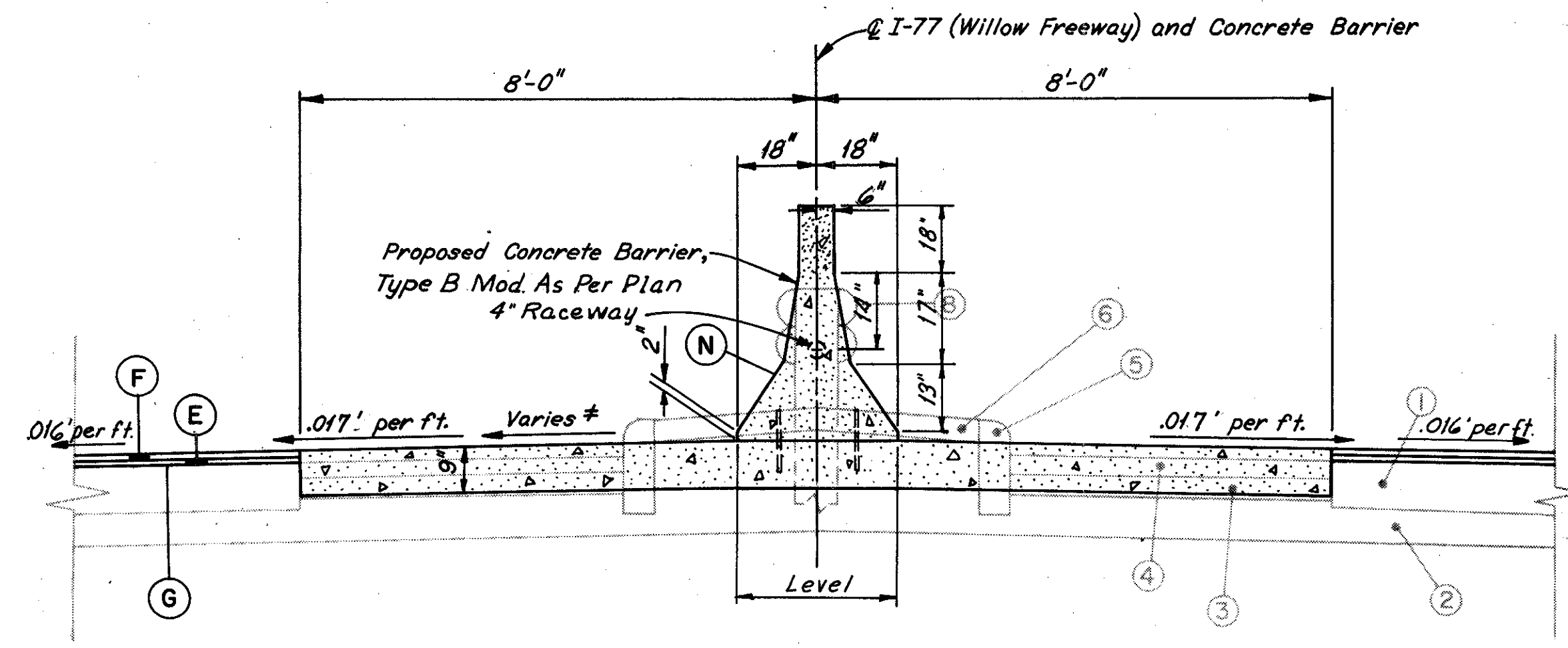
| | | |
|-------------|-------|---------|
| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

31
169

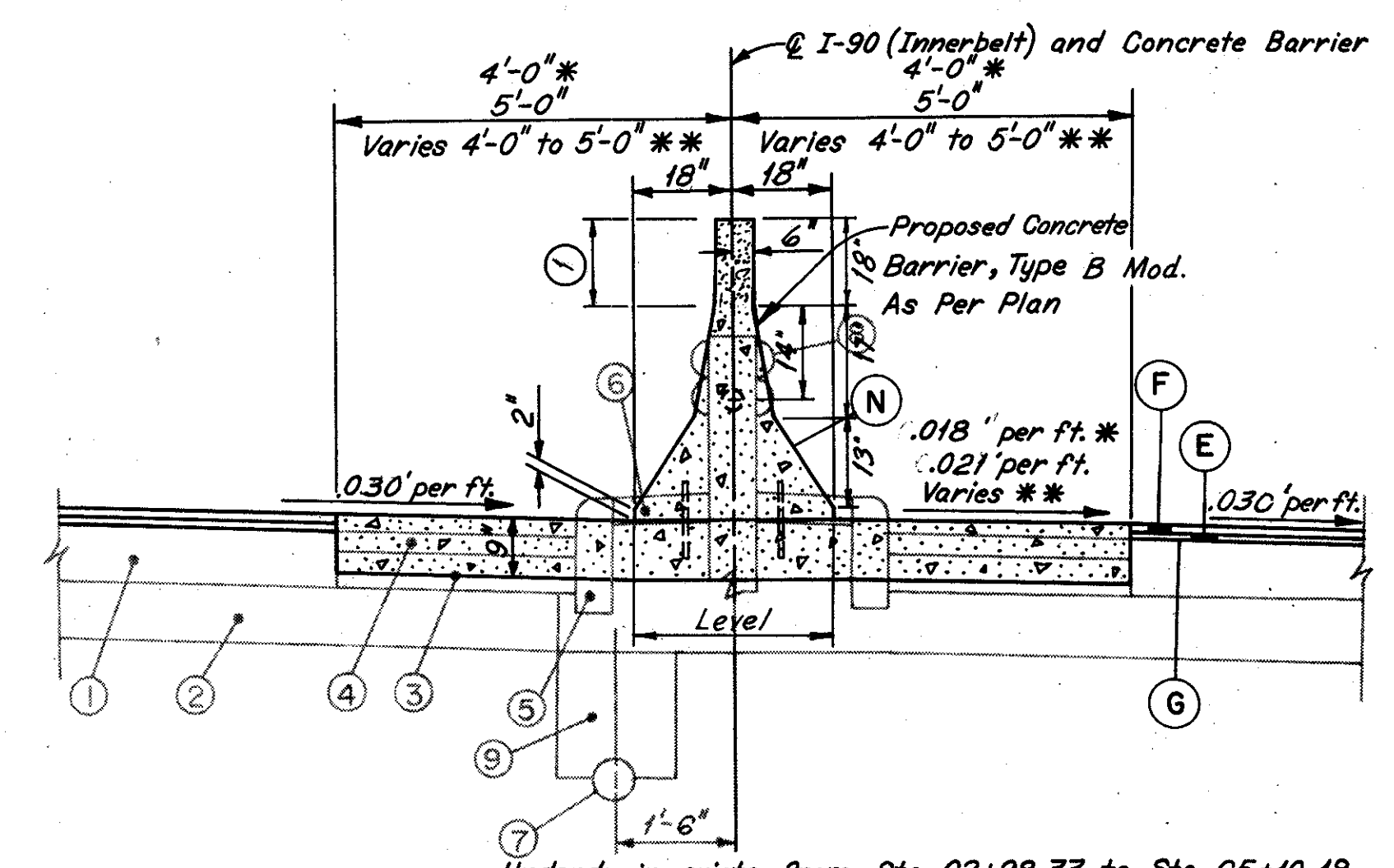
CUYAHOGA COUNTY
CUY - 77-14.12
CUY - 90-16.21



I-77 (WILLOW FREEWAY) - NORMAL SECTION
 * Sta. 65+43 to Sta. 66+75
 * Sta. 66+75 to Sta. 68+75 (Median Width Varies from 12'-0" to 10'-0")
 * Sta. 68+75 to Sta. 75+13.27
 * Sta. 79+39.20 to Sta. 87+29.50
 (1) Taper from 0" to 18" between Sta. 65+43 to Sta. 65+63.



I-77 (WILLOW FREEWAY) - NORMAL SECTION
 Sta. 130+25 to Sta. 130+41.88
 Sta. 30+41.88 to Sta. 34+02.53
 Sta. 36+16.47 to Sta. 40+75
 * Sta. 40+75 to Sta. 42+45.12



I-90 (INNERBELT) - SUPERELEVATED SECTION
 Underdrain exists from Sta. 62+98.33 to Sta. 65+10.18 and from Sta. 68+19.03 to Sta. 70+89.23
 (1) Taper from 0" to 18" between Sta. 54+63.78 and Sta. 54+85.78

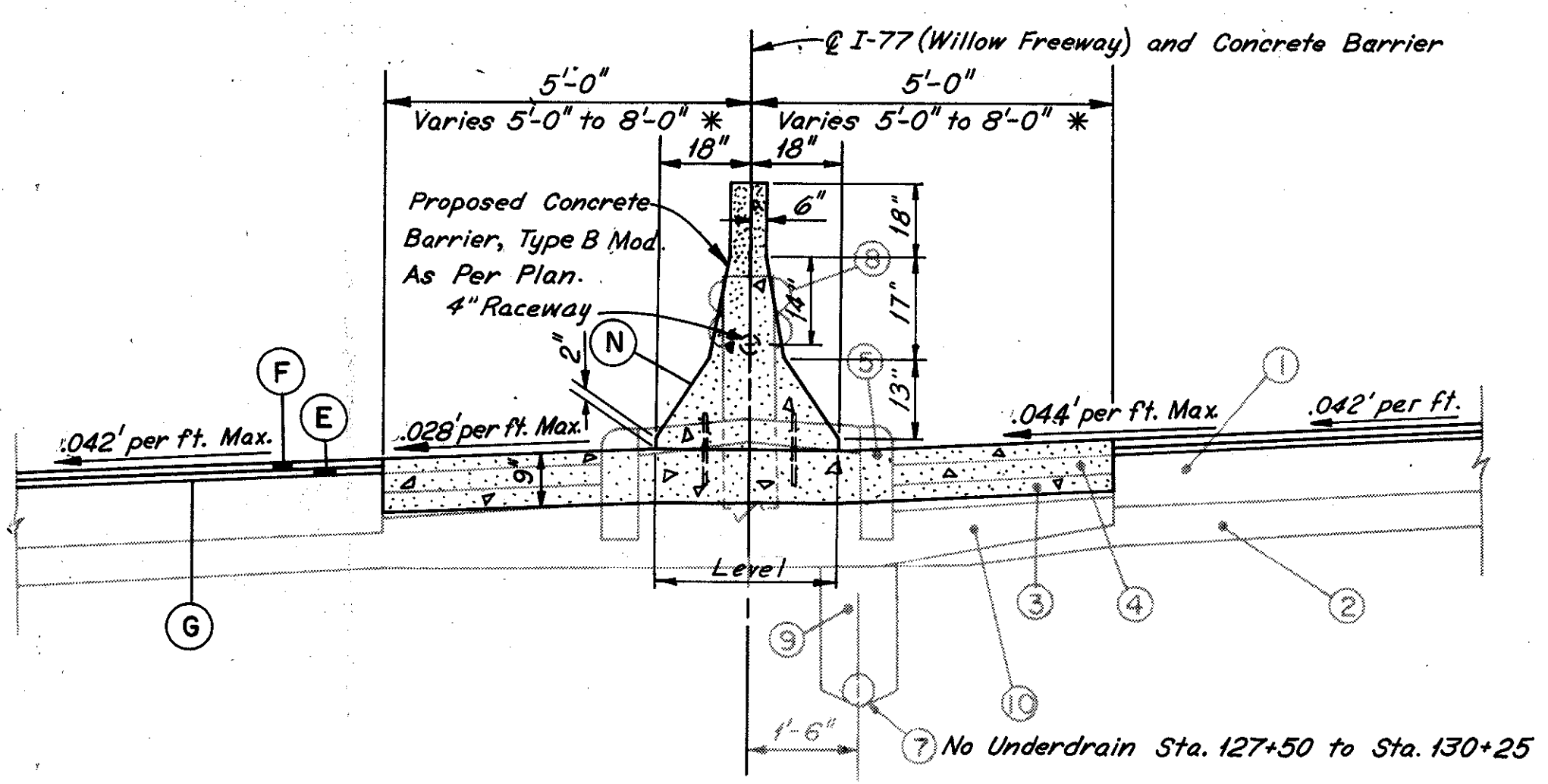
FREEWAY CURVE TO THE RIGHT
 * Sta. 54+65.78 to Sta. 55+00
 ** Sta. 55+00 to Sta. 58+00
 Sta. 58+00 to Sta. 58+79.98

FREEWAY CURVE TO THE LEFT
 Sta. 62+98.33 to Sta. 65+10.18
 Sta. 68+19.03 to Sta. 70+89.23

SUPERELEVATION TRANSITION
 Sta. 61+16.05 to Sta. 62+98.33

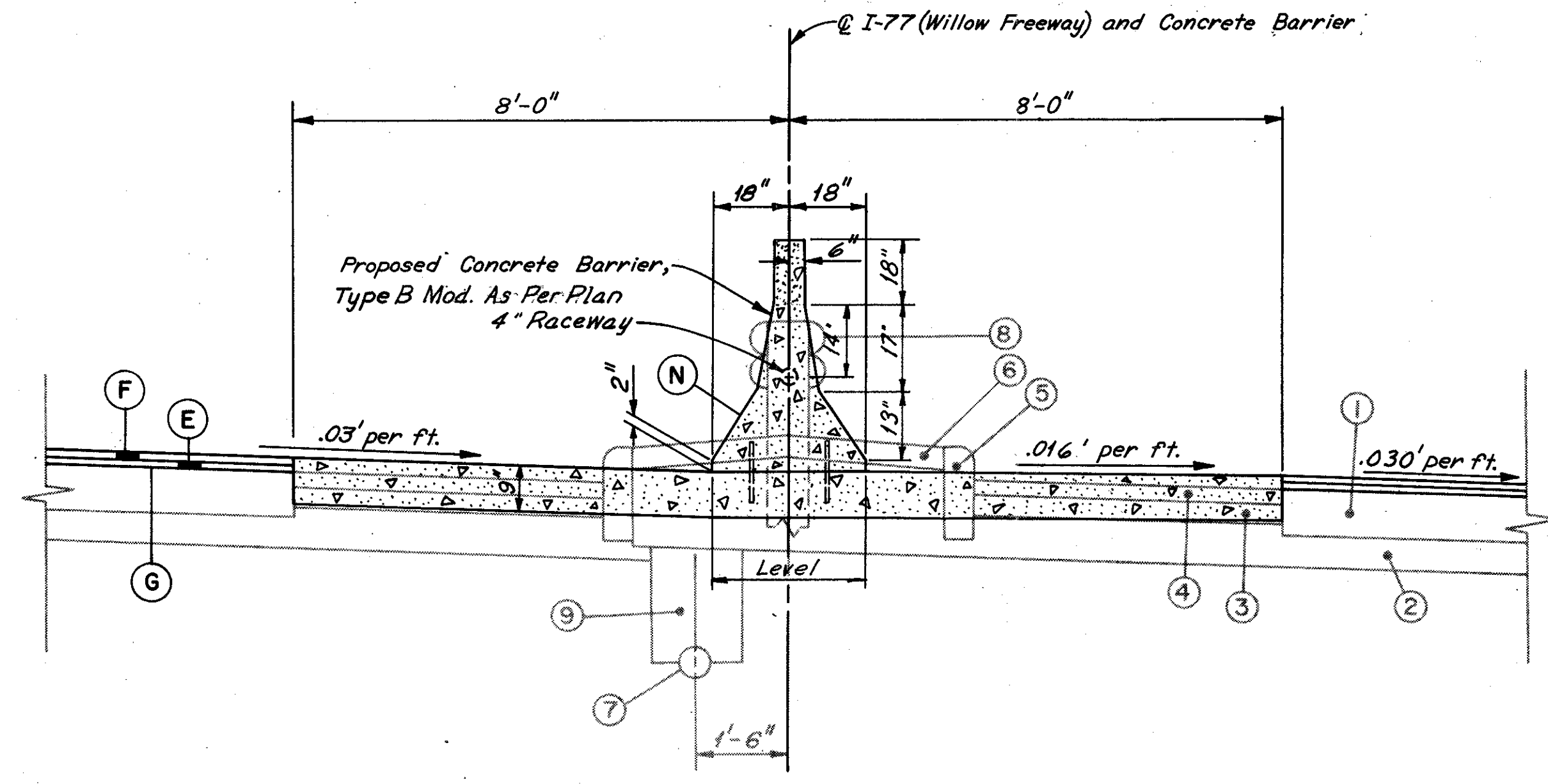
LEGEND

- (1) Portland Cement Concrete Pavement
- (2) Subbase
- (3) Aggregate Base
- (4) Waterproofed Bituminous Base Course
- (5) Curb
- (6) Concrete Median
- (7) Underdrain
- (8) Guard Rail
- (9) Porous Backfill
- (10) No. 6 Aggregate



I-77 (WILLOW FREEWAY) - SUPERELEVATED SECTION
FREEWAY CURVE TO THE LEFT
 Sta. 108+25 to Sta. 118+89.71

SUPERELEVATION TRANSITION
 Sta. 107+52.62 to Sta. 108+25
 Sta. 124+11.43 to Sta. 124+50
 * Sta. 124+50 to Sta. 130+25



I-77 (WILLOW FREEWAY) - SUPERELEVATED SECTION
FREEWAY CURVE TO THE RIGHT
 Sta. 44+54.88 to Sta. 49+30.16
 Sta. 51+07.08 to Sta. 51+77.74

Note:
 The Contractor shall be advised that during the removal of the existing concrete curb and median for the installation of concrete median barrier, restoration of any disturbed subbase shall be replaced with no. 8 or 9 aggregate to the satisfaction of the Engineer, at no additional cost to the State.

- PROPOSED**
- (E) Item 402 1 1/2" Asphalt Concrete, AC-20
 - (F) Item 404 1 1/2" Asphalt Concrete, AC-20
 - (G) Item 407 Tack Coat 702.02, RC-250; 702.04, SS-1, SS-1H, MS-2 or RS-1 with Cover Aggregate
 - (N) Item 622 Concrete Barrier
 - (R) Expansion joint, 3/4" min. Preformed Filler 705.03

MADE GFM DATE 4-1-75
 TRACED JTB DATE 4-17-74
 CHECKED 252 DATE 2-27-77
 SCALE NONE

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

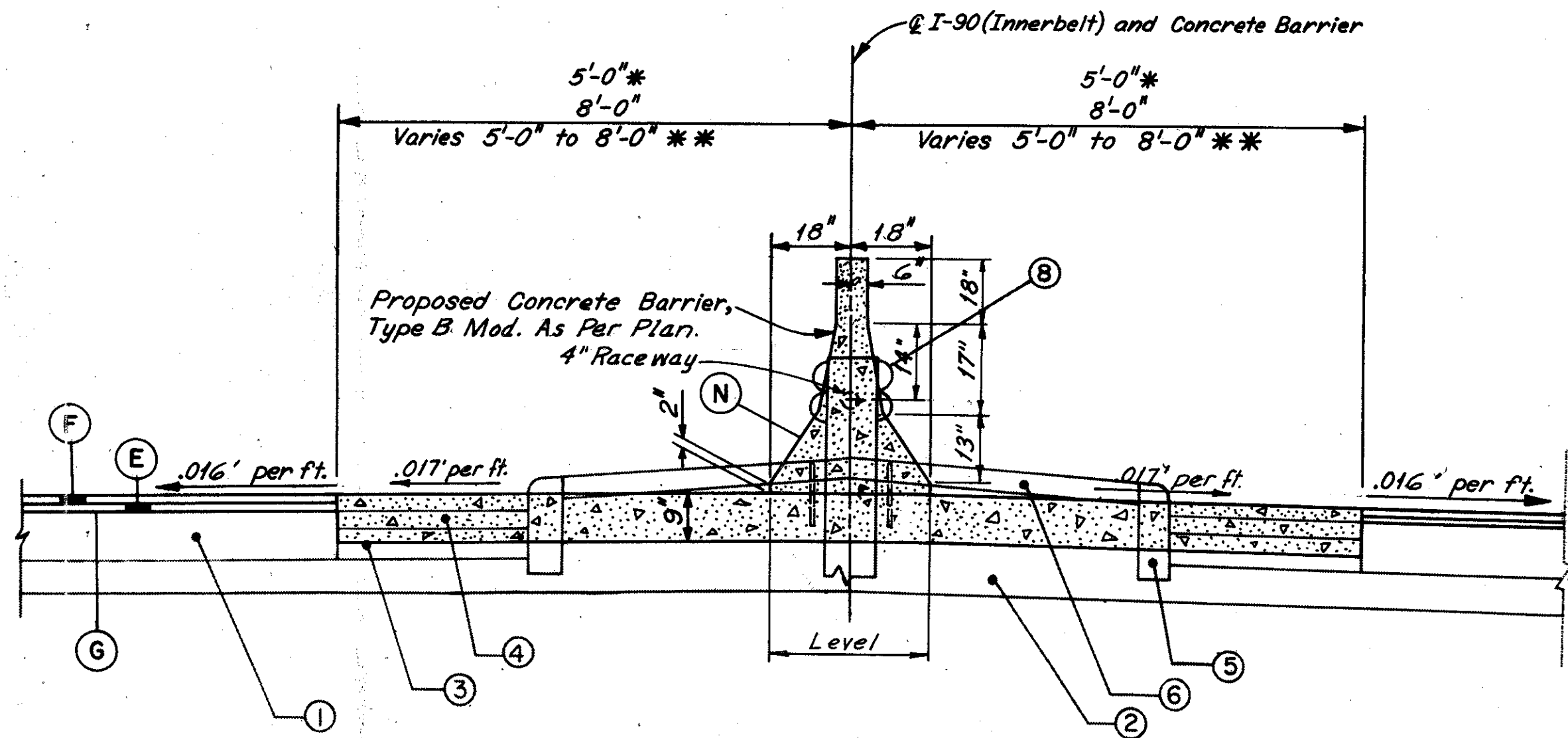
HNTB

CONCRETE BARRIER TYPICAL SECTIONS

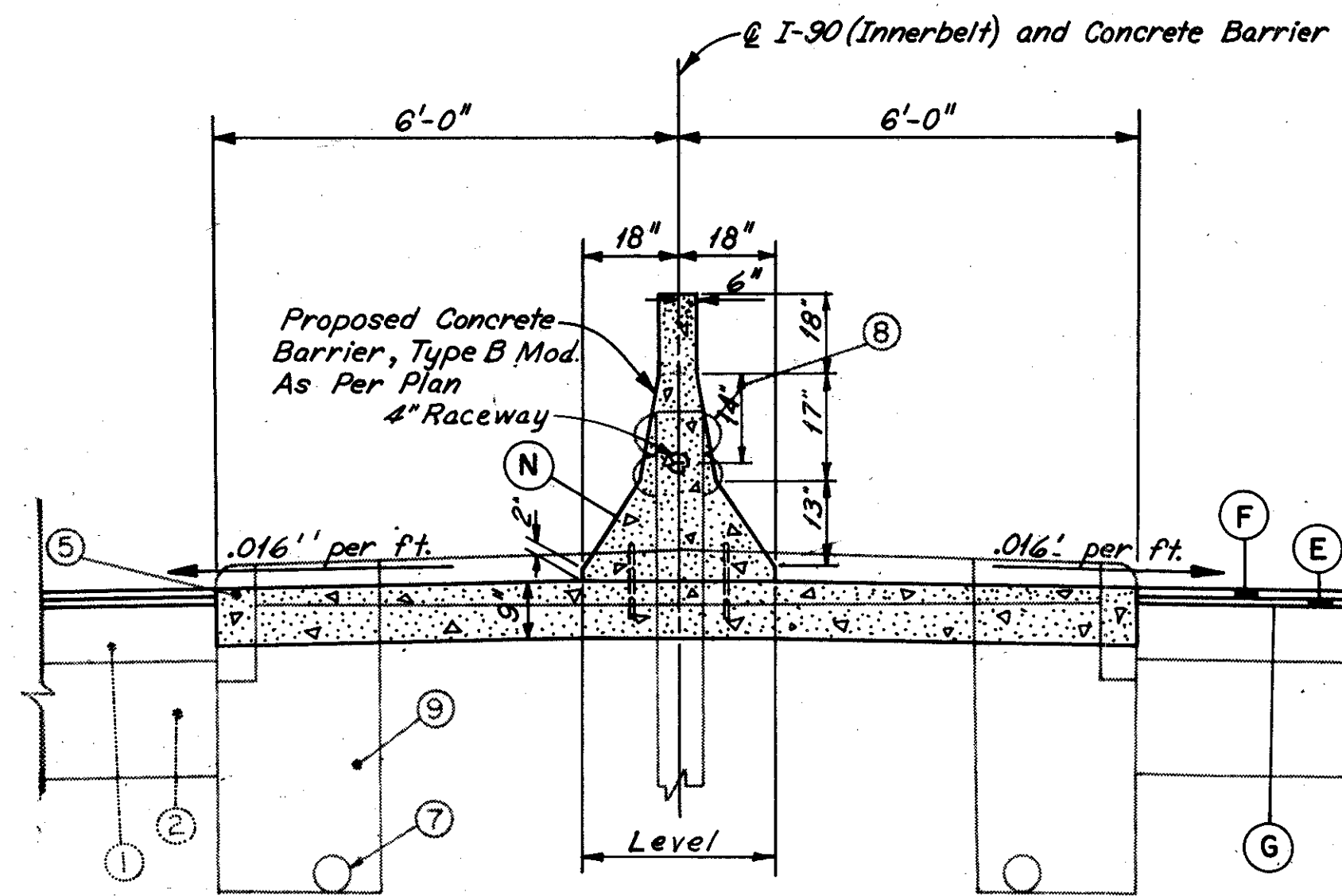
| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

32
169

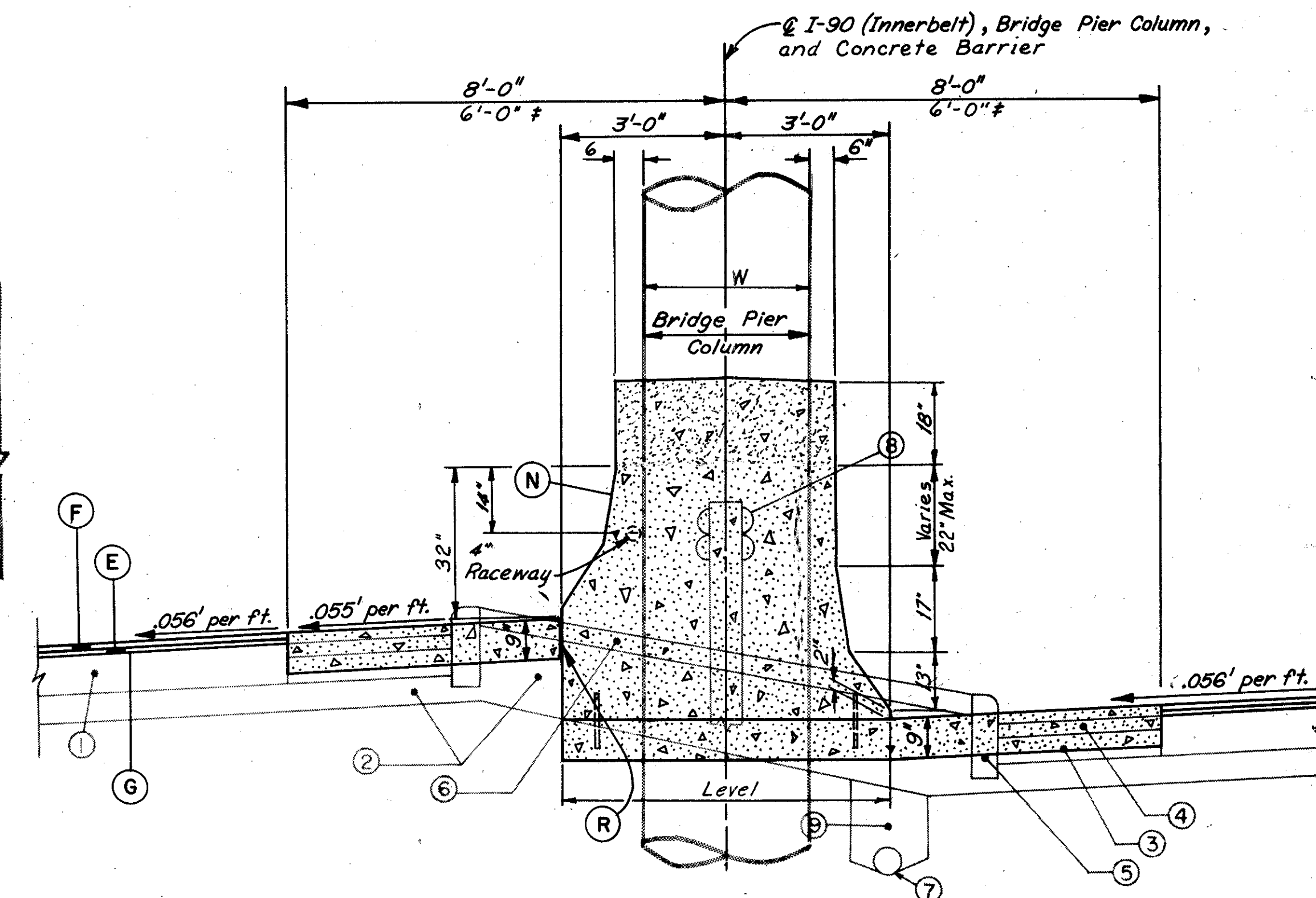
CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



I-90 (INNERBELT) — NORMAL SECTION
 *Sta. 73+96.25 to Sta. 80+09.31
 **Sta. 80+09.31 to Sta. 83+09.31 Bk.
 Sta. 98+00 Ah. to Sta. 101+25
 Sta. 127+75 to Sta. 151+00



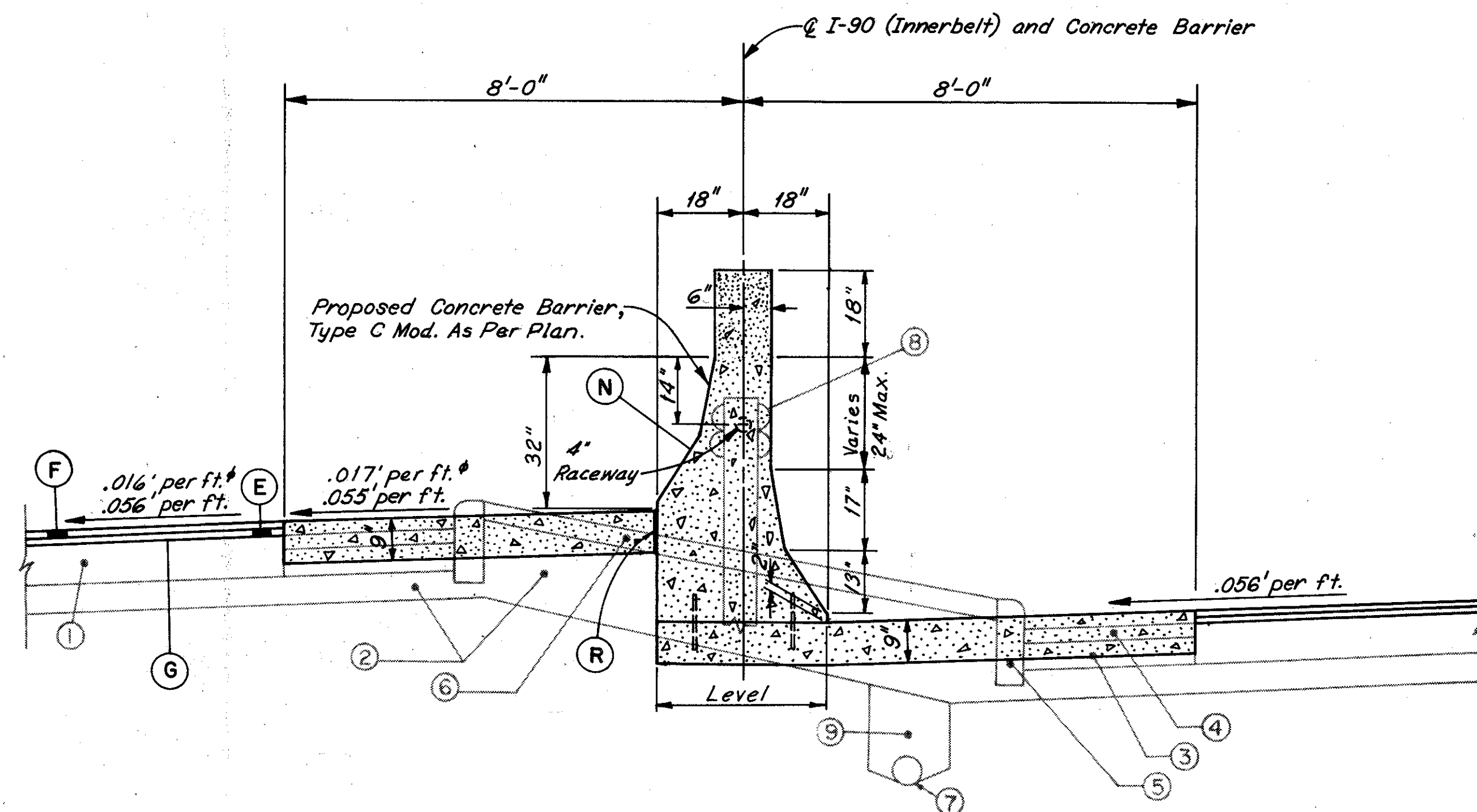
I-90 (INNERBELT) — NORMAL SECTION
 Sta. 151+00 to Sta. 157+00



I-90 (INNERBELT) SUPERELEVATED SECTION AT BRIDGE PIERS

- Sta. 101+66.99 to Sta. 102+55.16 (W=36")
- Sta. 106+90 to Sta. 108+44.29 (W=39")
- Sta. 113+63.56 to Sta. 114+57.50 (W=36")
- Sta. 118+99.29 to Sta. 119+90.29 (W=36")
- Sta. 126+50.61 to Sta. 127+20.39 (W=36")
- ±Sta. 157+00 to Sta. 157+25.69 (W=36")
- ±Sta. 160+81.55 to Sta. 161+25 (W=36")
- ±Sta. 161+75 to Sta. 164+49 (W=54")
- ±Sta. 170+54.19 to Sta. 171+83.27 (W=56")
- ±Sta. 172+36.60 to Sta. 172+61.58 (W=36")
- ±Sta. 174+38.88 to Sta. 175+33.42 (Opposite Hand)(W=36")

For Proposed and Existing LEGENDS see sheet 31



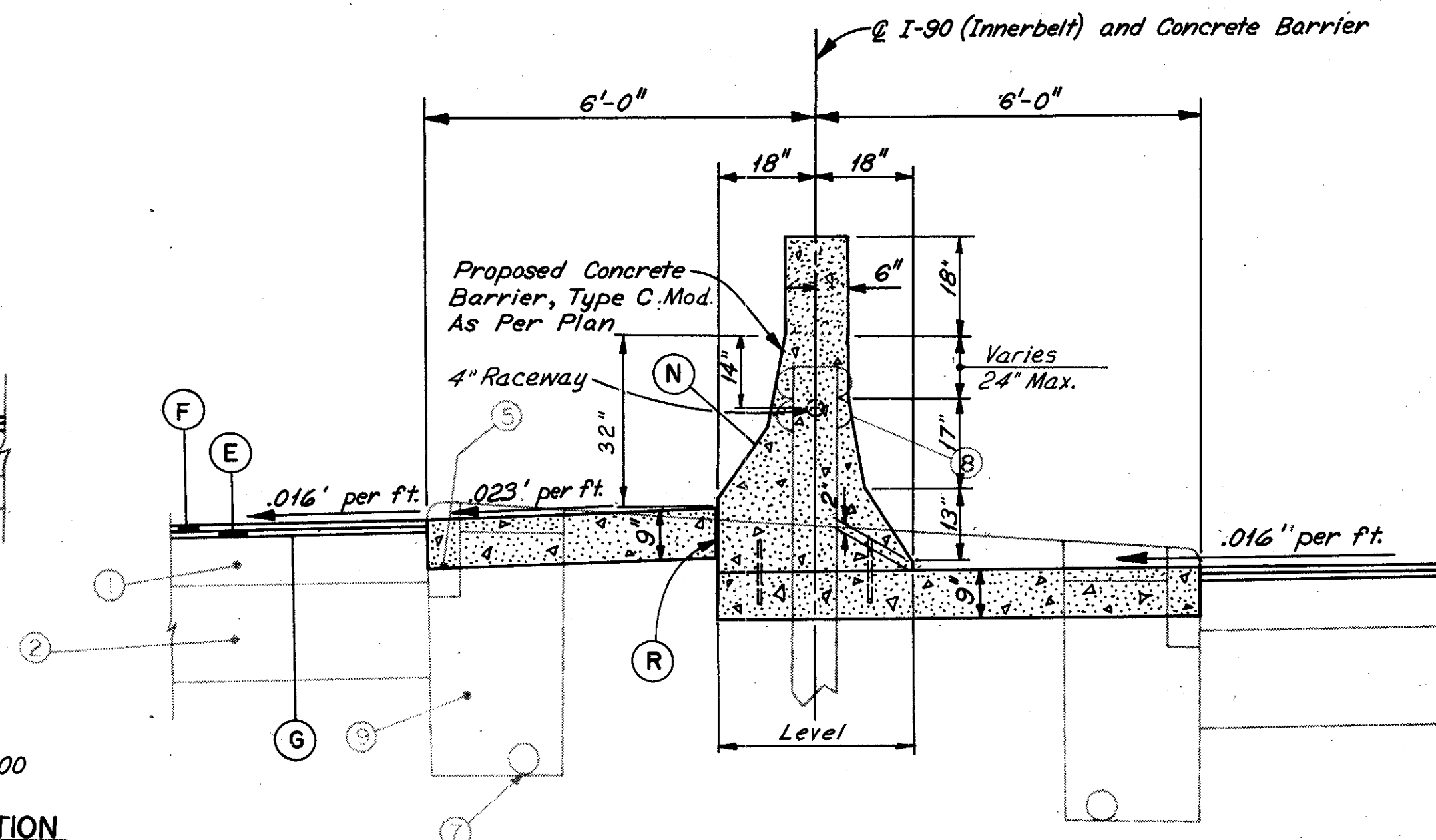
I-90 (INNERBELT) — SUPERELEVATED SECTION
 SOUTHBOUND
 Sta. 106+25 to Sta. 122+00
 FREEWAY CURVE TO THE LEFT

SOUTHBOUND
 Sta. 106+25 to Sta. 122+00

SOUTHBOUND TRANSITION
 Sta. 101+25 to Sta. 106+25
 Sta. 122+00 to Sta. 127+00
 ±Sta. 127+00 to Sta. 127+09.87 Bk.
 ±Sta. 126+61.13 Ah. to Sta. 127+75.00

NORTHBOUND
 Sta. 107+75 to Sta. 122+00

NORTHBOUND TRANSITION
 Sta. 101+25 to Sta. 107+75
 Sta. 122+00 to Sta. 127+09.87 Bk.
 Sta. 126+61.13 Ah. to Sta. 127+75



I-90 (INNERBELT) — SUPERELEVATED SECTION
 FREEWAY CURVE TO THE LEFT

Sta. 160+00 to Sta. 165+26.75
 Sta. 165+91.92 to Sta. 171+50
SUPERELEVATION TRANSITION
 Sta. 157+00 to Sta. 160+00
 Sta. 171+50 to Sta. 173+14.03
 Sta. 173+14.03 to Sta. 175+33.42 (Opposite Hand)

MADE G.E.M. DATE 4-1-75
 TRACED T.S. DATE 4-17-75
 CHECKED D.S.P. DATE 4-12-77
 SCALE None

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

HNTB

CONCRETE BARRIER MEDIAN QUANTITIES

| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

33
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21

| ITEM 202-CURB REMOVED | | | |
|-----------------------|--------------|--------------------|----------------------------------|
| STATION | | CALCULATION | COST PARTICIPATION I LIN. FT. |
| FROM | TO | | |
| I-77-5(18)161 | | | |
| E I-77 | | | |
| 107+52.62 | 118+89.71 | 1137.09' x 2 Sides | 2274 |
| 124+11.43 | 130+41.88 BK | 630.45' x 2 Sides | 1261 |
| 30+41.88 AH | 34+02.53 | 360.65' x 2 Sides | 721 |
| 36+16.47 | 42+45.12 | 628.65' x 2 Sides | 1257 |
| I-77-5(18)161 TOTAL | | | 5513 |
| I-90-1(101)29 | | | |
| E I-77 | | | |
| 44+54.88 | 49+30.16 | 475.28' x 2 Sides | 951 |
| E I-90 | | | |
| 54+65.78 | 58+79.98 | 414.20' x 2 Sides | 828 |
| 61+16.05 | 65+10.18 | 394.13' x 2 Sides | 788 |
| 68+19.03 | 70+89.23 | 270.20' x 2 Sides | 540 |
| 73+96.25 | 80+09.31 | 613.06' x 2 Sides | 1226 |
| 80+09.31 | 83+09.31 BK | 300.00' x 2 Sides | 600 |
| 98+00 AH | 127+09.87 BK | 2909.87' x 2 Sides | 5820 |
| 126+61.13 AH | 151+00 | 2438.87' x 2 Sides | 4878 |
| 151+00 | 175+33.42 | 2433.42' x 2 Sides | 4867 |
| I-90-1(101)29 TOTAL | | | 20,498 |

| ITEM 202-CONCRETE MEDIAN REMOVED | | | |
|----------------------------------|--------------|--------------------------|----------------------------------|
| STATION | | CALCULATION | COST PARTICIPATION I SQ. YDS. |
| FROM | TO | | |
| I-77-5(18)161 | | | |
| E I-77 | | | |
| 66+17 | 66+75 | 58' x 6' + 9 | 39 |
| 66+75 | 68+75 | 200' x (6' + 4') + 18 | 111 |
| 68+75 | 75+13.27 | 638.27' x 4' + 9 | 284 |
| 79+39.20 | 87+29.50 | 790.30' x 4' + 9 | 351 |
| 107+52.62 | 118+89.71 | 1137.09' x 3' + 9 | 379 |
| 124+11.43 | 124+50 | 38.57' x 3' + 9 | 13 |
| 124+50 | 126+92.27 | 242.27' x (3' + 5') + 18 | 108 |
| 126+92.27 | 130+41.88 BK | 349.61' x 5' + 9 | 194 |
| 30+41.88 AH | 34+02.53 | 360.65' x 5' + 9 | 200 |
| 36+16.47 | 42+45.12 | 628.65' x 5' + 9 | 349 |
| I-77-5(18)161 TOTAL | | | 2028 |
| I-90-1(101)29 | | | |
| E I-77 | | | |
| 44+54.88 | 49+30.16 | 475.28' x 5' + 9 | 264 |
| 51+07.08 | 51+77.74 | 70.66' x 6' + 9 | 47 |
| E I-90 | | | |
| 54+65.78 | 58+79.98 | 414.20' x 3' + 9 | 138 |
| 61+16.05 | 65+10.18 | 394.13' x 3' + 9 | 131 |
| 68+19.03 | 70+89.23 | 270.20' x 3' + 9 | 90 |
| 73+96.25 | 80+09.31 | 613.06' x 3' + 9 | 204 |
| 80+09.31 | 83+09.31 BK | 300.00' x (3' + 9') + 18 | 200 |
| 98+00 AH | 127+09.87 BK | 2909.87' x 9' + 9 | 2910 |
| LESS FOR BRIDGE PIERS | | | -61 |
| 126+61.13 AH | 151+00 | 2438.87' x 9' + 9 | 2439 |
| LESS FOR BRIDGE PIERS | | | -36 |
| 151+00 | 175+33.42 | 2433.42' x 11' + 9 | 2974 |
| LESS FOR BRIDGE PIERS | | | -171 |
| I-90-1(101)29 TOTAL | | | 9129 |

| ITEM 622-CONCRETE BARRIER, COST PARTICIPATION I | | | | | |
|---|-----------|---|--------------------|--|--|
| STATION | | TYPE B MOD. AS PER PLAN LIN. FT. | TYPE B LIN. FT. | TYPE C, MOD. AS PER PLAN LIN. FT. | TYPE D, MOD. AS PER PLAN LIN. FT. |
| FROM | TO | | | | |
| E I-77 I-77-5(18)161 | | | | | |
| 65+43 | 75+13.27 | 970.27 | | | |
| 79+39.20 | 87+29.50 | 790.30 | | | |
| 107+52.62 | 118+89.71 | 1137.09 | | | |
| 124+11.43 | 130+41.88 | 630.49 | | | |
| (Station Equation) | | | | | |
| 30+41.88 | 34+02.53 | 360.65 | | | |
| 36+16.47 | 42+45.12 | 628.65 | | | |
| Deductions: | | | | | |
| 1. I-3 Median Inlets | | | | | |
| 10 @ 20.0 Lin. Ft. | | (200.00) | | | |
| 2. Barr. Wall Assem. @ Exist Signs | | | | | |
| 4 @ 10.0 Lin. Ft. | | (40.00) | | | |
| 3. Med. Pullbox 2 @ 2.5 L.F. | | | | | |
| | | (5.00) | | | |
| TOTAL I-77-5(18)161 | | 4272 | 0 | 0 | 0 |
| E I-77 I-90-1(101)29 | | | | | |
| 44+54.88 | 49+30.16 | 475.28 | | | |
| 51+07.08 | 51+77.74 | 70.66 | | | |
| Ramp E 10 | | | | | |
| 17+02.72 | 17+41.98 | 39.26 | | | |
| 16+62.72 | 17+02.72 | | 40.00 | | |
| 16+52.72 | 16+62.72 | | | 10.00 | |
| 9+78.75 | 16+52.72 | | | 673.97 | |
| Interstate 90 | | | | | |
| 54+65.78 | 58+79.98 | 414.20 | | | |
| 61+16.05 | 65+10.18 | 394.13 | | | |
| 68+19.03 | 70+89.23 | 270.20 | | | |
| 73+96.25 | 83+09.31 | 913.06 | | | |
| (Station Equation) | | | | | |
| 98+00 | 101+25 | 325.00 | | | |
| 101+25 | 127+09.87 | | | 2584.87 | |
| (Station Equation) | | | | | |
| 126+61.30 | 127+75 | | | 113.87 | |
| 127+75 | 157+00 | 2925.00 | | | |
| 157+00 | 165+26.75 | | | 826.75 | |
| 165+26.75 | 165+91.92 | | | 130.34 | |
| 165+91.92 | 175+33.42 | | | 941.50 | |
| Deductions: | | | | | |
| 1. I-3 Median Inlets | | | | | |
| 10 @ 20.0 Lin. Ft. | | (200.00) | | | |
| 15 @ 20.0 Lin. Ft. | | | | (300.00) | |
| 2 @ 20.0 Lin. Ft. | | | | (40.00) | |
| 2. TC-2130 Sign Support Fd. | | | | | |
| 7 @ 10.0 Lin. Ft. | | (70.00) | | | |
| 1 @ 10.0 Lin. Ft. | | | | (10.00) | |
| 3. Med Pullbox 5 @ 2.5 L.F. | | | | | |
| 4 @ 2.5 Lin. Ft. | | | | (10.00) | |
| 1 @ 2.5 Lin. Ft. | | | | (2.5) | |
| TOTAL I-90-1(101)29 | | 5544 | 40 | 4147 | 772 |

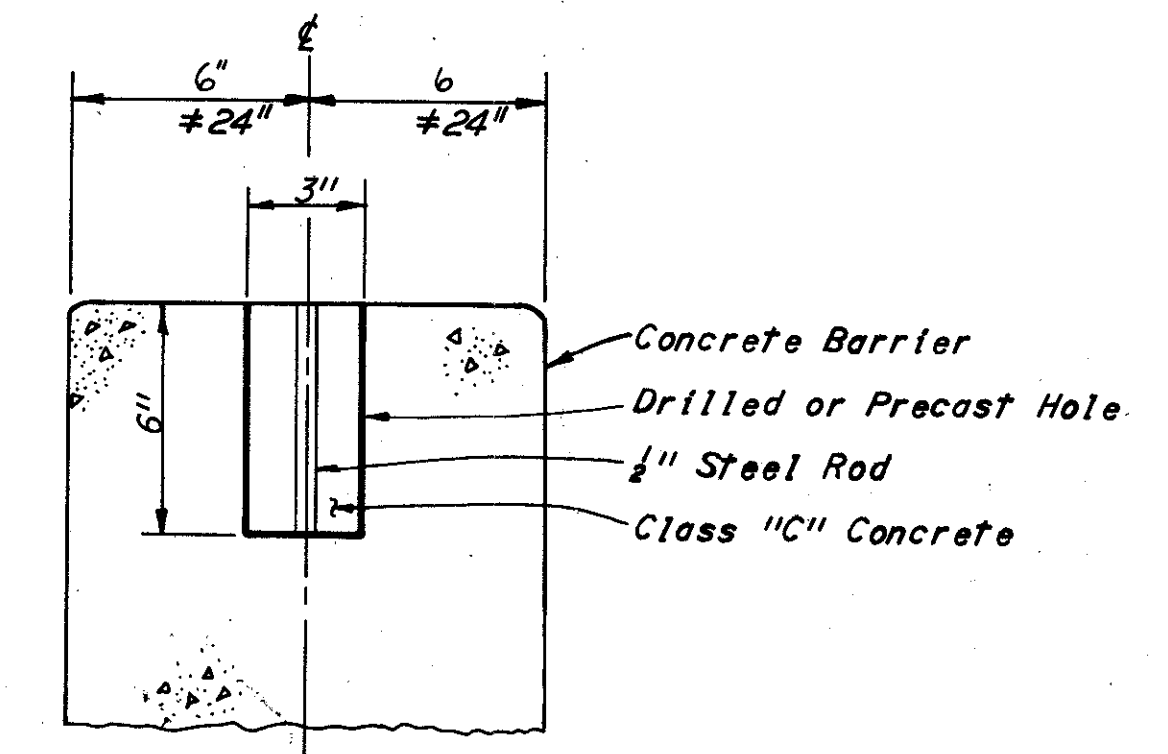
See Detail H Sheet 35.

| ITEM 844-BARRIER WALL ASSEMBLY FOR EXISTING SIGN SUPPORTS COST PARTICIPATION I | | | |
|--|------------|-----------|----|
| Station | Design IA# | Design I# | |
| | | Each | I# |
| Interstate 77 | | | |
| 80+78 | | 1 | |
| 108+81 | | | 1 |
| 125+45 | | 1 | |
| 32+94 | | 1 | |
| TOTAL I-77-5(18)161 | | 3 | 1 |

See Sheet 44 for details.

QUANTITY CALCULATIONS
MADE BY AHS DATE 8-30-77
CHECKED BY DSP DATE 9-1-77

| CENTERLINE REFERENCE MONUMENT, MODIFIED AS PER PLAN COST PART I | | |
|---|---|---------------|
| STATION | 604 Ref Monument Mod. As Per Plan Each | PROJECT |
| | | |
| P.O.T. Sta. 74+00 @ I-77 | 1 | |
| P.O.T. Sta. 84+92.29 @ I-77 | 1 | |
| S.C. Sta. 108+32.99 @ I-77 | 1 | |
| P.O.C. Sta. 118+00 @ I-77 | 1 | |
| S.T. Sta. 128+32.99 @ I-77 | 1 | I-77-5(18)161 |
| P.O.T. Sta. 99+00 @ I-90 | 1 | I-90-1(101)29 |
| P.C. Sta. 104+88.37 @ I-90 | 1 | |
| P.T. Sta. 124+88.26 @ I-90 | 1 | |
| P.O.T. Sta. 139+01.71 @ I-90 | 1 | |
| P.O.T. Sta. 152+00 @ I-90 | 1 | |
| P.C. Sta. 159+86.30 @ I-90 | 1 | |
| P.O.C. Sta. 165+00 @ I-90 | 1 # | |
| P.C. Sta. 173+15.03 @ I-90 | 1 # | I-90-1(101)29 |
| TOTAL | | 6 |
| TOTAL | | 8 |



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

DETAIL CENTERLINE REFERENCE MONUMENT PLACED IN CONCRETE BARRIER
No Scale

Cost Part I CUY-90-1(101)29

| ITEM 609-CURB, MOD. AS PER PLAN | | | |
|---------------------------------|------|------|--------------------|
| Station | From | To | Length Lin. Ft. |
| E-8 | 0+44 | 0+54 | 10 |
| TOTAL | | | 10 |

Cost Part I CUY-90-1(101)29

| ITEM 202 - CURB REMOVED | | | |
|-------------------------|------|-------|----------------------|
| Station | From | To | Length (Lin. Ft.) |
| E-10 | 9+80 | 17+42 | 762 |
| E-8 | 0+44 | 0+54 | 10 |
| E-8 | 0+00 | 0+44 | 44 |
| TOTAL (COST PART I) | | | 816 |

| ITEM 310 - SUBBASE, GRADING A COST PART I AS PER PLAN | | | | |
|---|----------|--|----------|------|
| STATION | | CALCULATION | QUANTITY | UNIT |
| FROM | TO | | | |
| Ramp E-10 | | | | |
| 9+90 | 16+52.72 | $673.97 + 2.5 \times \frac{7}{12} \times \frac{1}{27}$ | 36 | C.Y. |
| 16+52.72 | 16+92.72 | $40 \times \left(\frac{5.75 + 2.5}{2} \right) \times \frac{7}{12} \times \frac{1}{27}$ | 4 | C.Y. |
| 16+92.72 | 17+41.98 | $49.26 \times \left(\frac{10.83 + 9.17}{2} \right) \times \frac{7}{12} \times \frac{1}{27}$ | 11 | C.Y. |
| CUY-90-1(101)29 TOTAL | | | 51 | C.Y. |

MADE AHS DATE 8-20-77
TRACED AK DATE 8-27-77
CHECKED DSP DATE 9-2-77
SCALE 1/8"=1'-0"

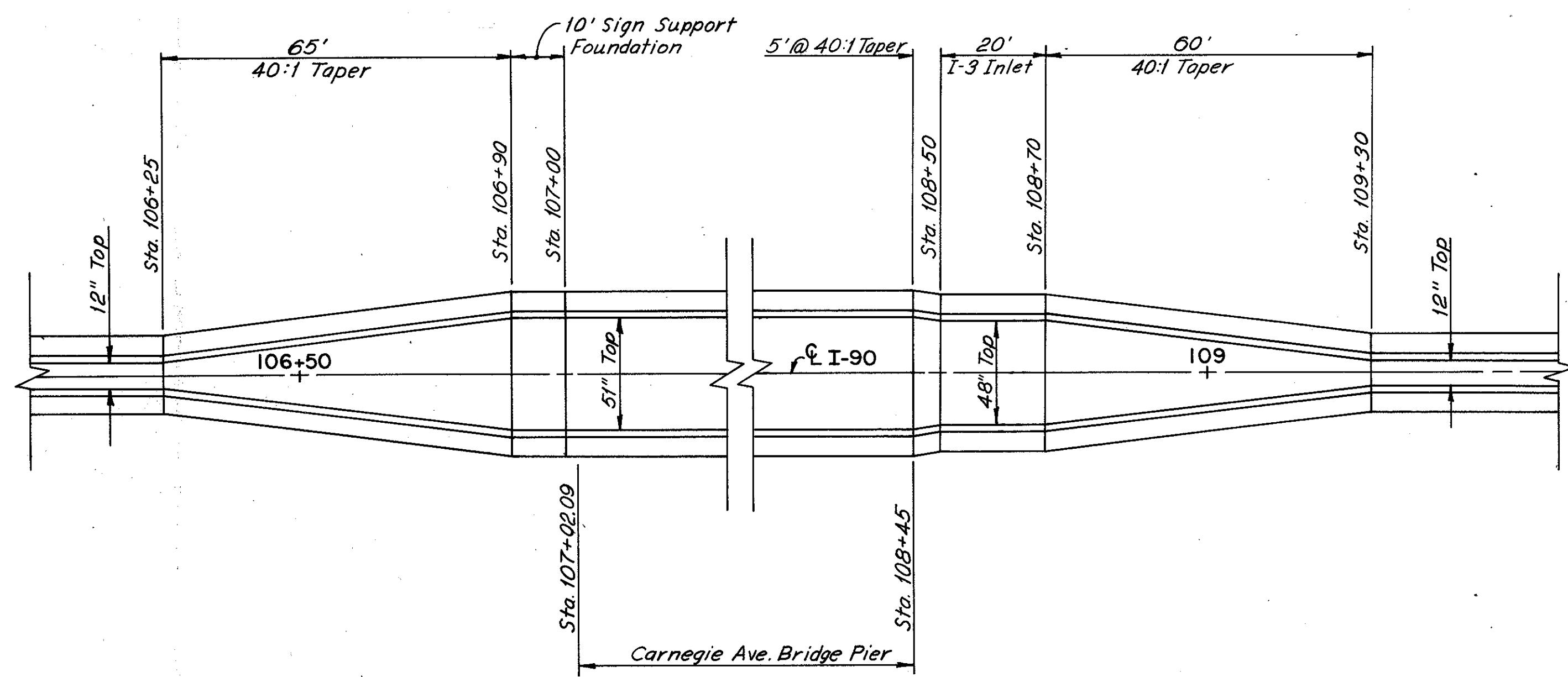
Howard, Needles, Tammen & Bergendoff
CONSULTING ENGINEERS
CLEVELAND, OHIO

HNTB

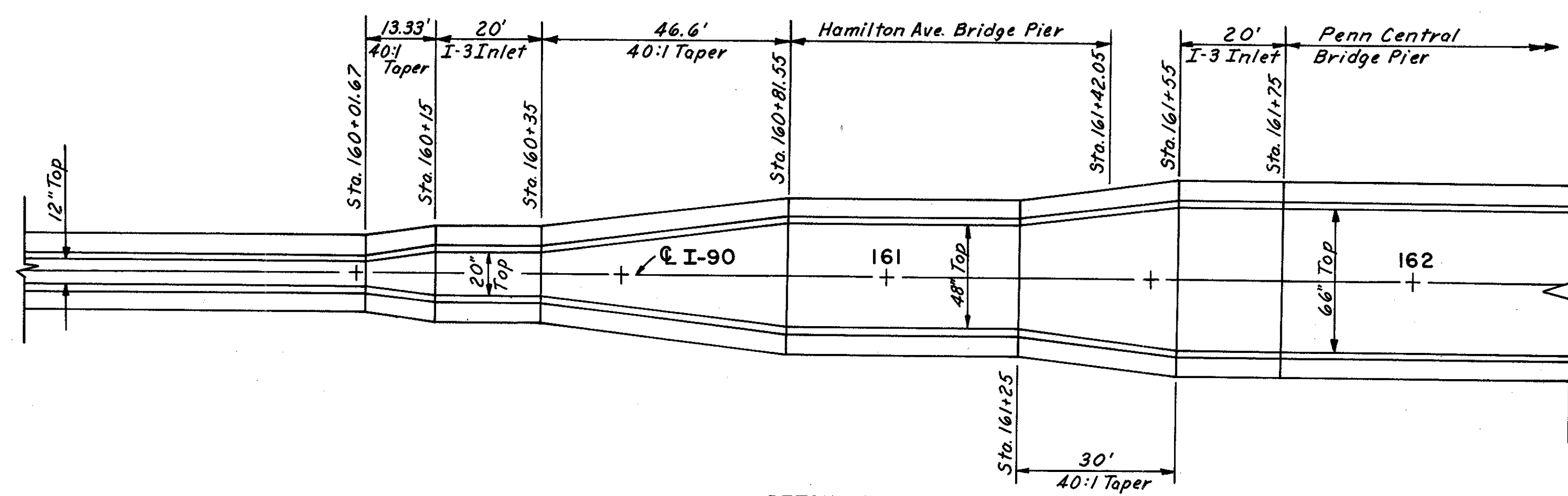
CONCRETE BARRIER MEDIAN DETAILS

| | | |
|-------------|-------|---------|
| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

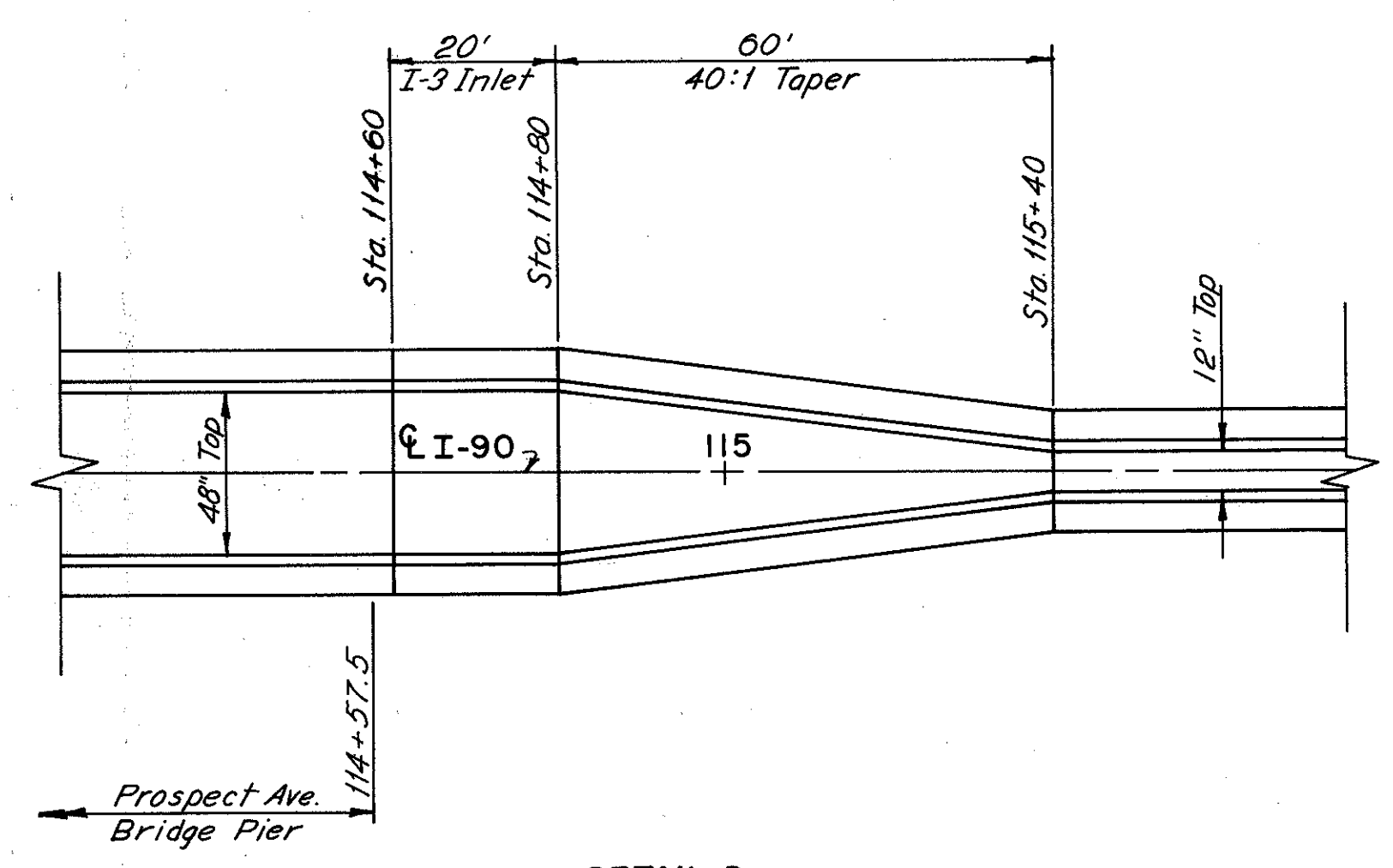
CUYAHOGA COUNTY
CUY - 77-14.12
CUY - 90-16.21



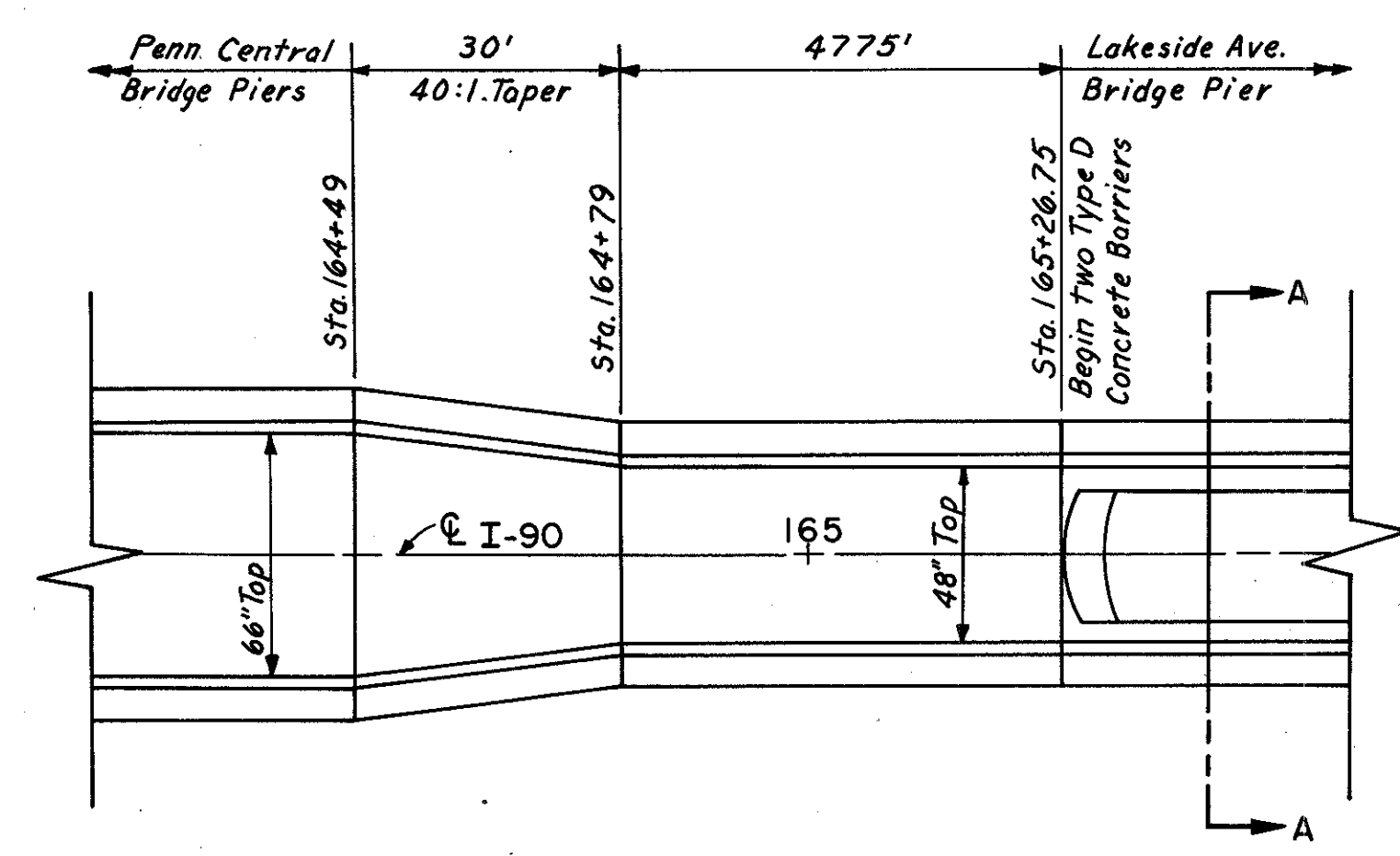
DETAIL C
Sta. 106+25 To Sta. 109+90
No Scale



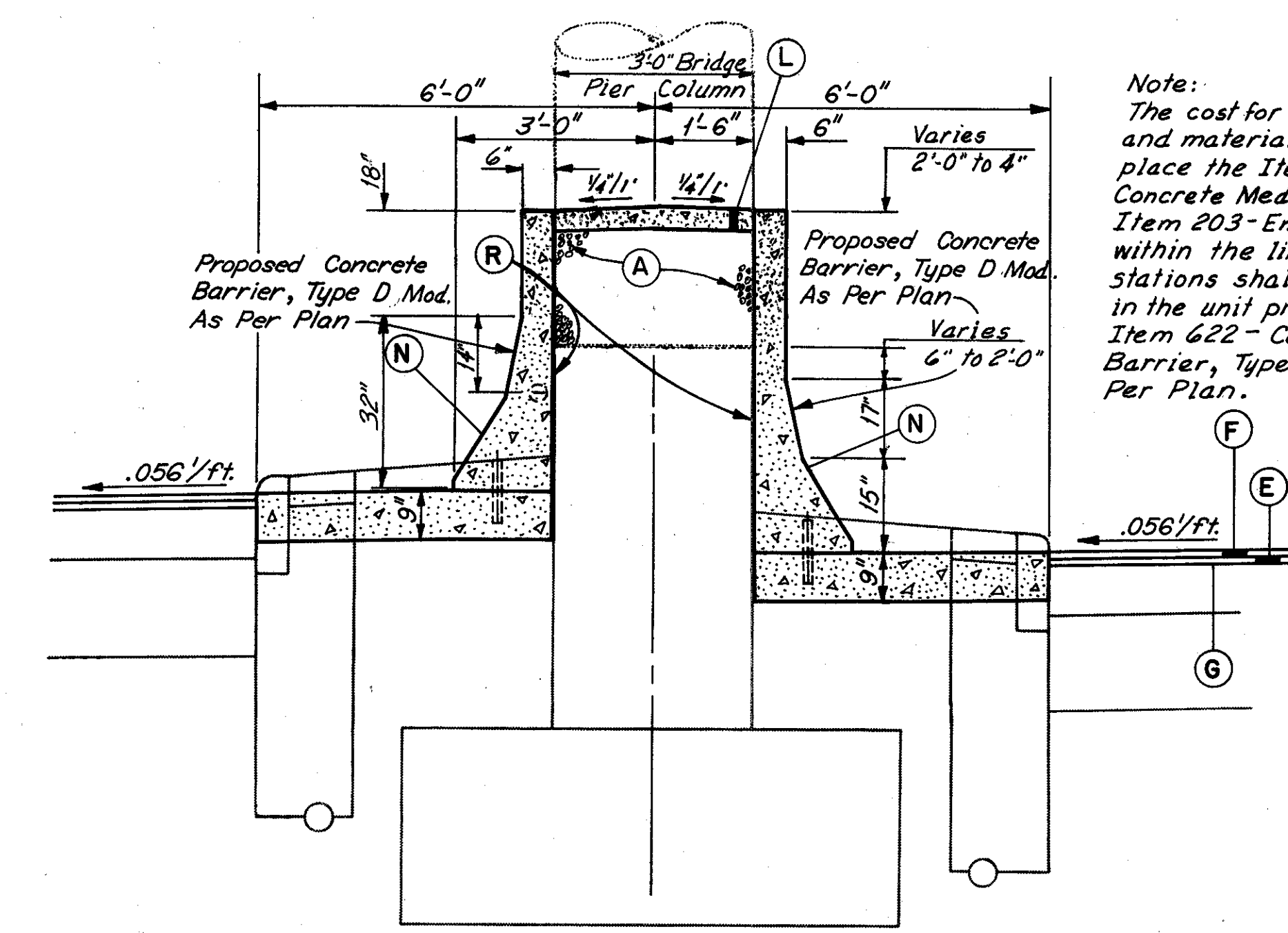
DETAIL E
Sta. 160+01.67 to Sta. 161+75 & I-90
No Scale



DETAIL D
Sta. 114+57.5 to Sta. 115+40 & I-90
No Scale



DETAIL F
Sta. 164+49 to Sta. 165+26.75
No Scale



SECTION A-A
Sta. 165+26.75 to Sta. 165+91.92

Note:
The cost for all labor and materials required to place the Item 612 - 4" Concrete Median and Item 203 - Embankment within the limiting stations shall be included in the unit price bid for Item 622 - Concrete Barrier, Type D Mod. As Per Plan.

MADE GFM DATE 11-19-75
TRACED TS DATE 11-20-75
CHECKED HEE DATE 11-21-75
SCALE AS SHOWN

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

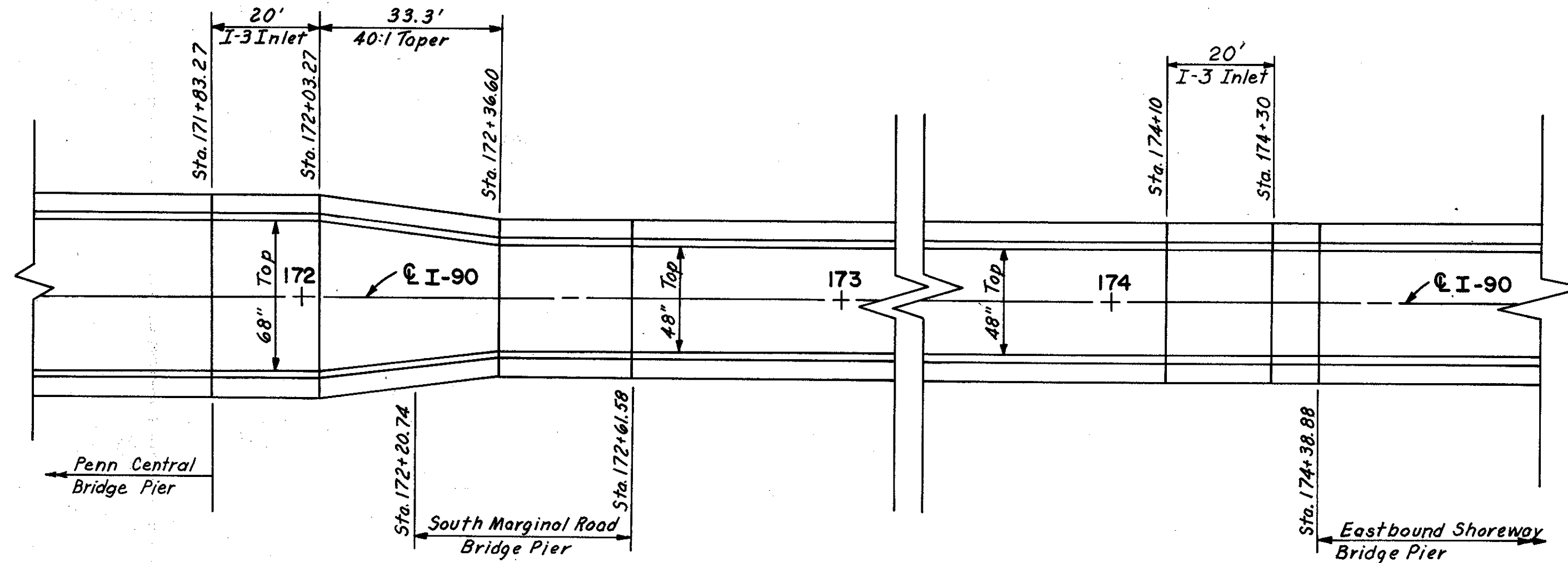


CONCRETE BARRIER MEDIAN DETAILS

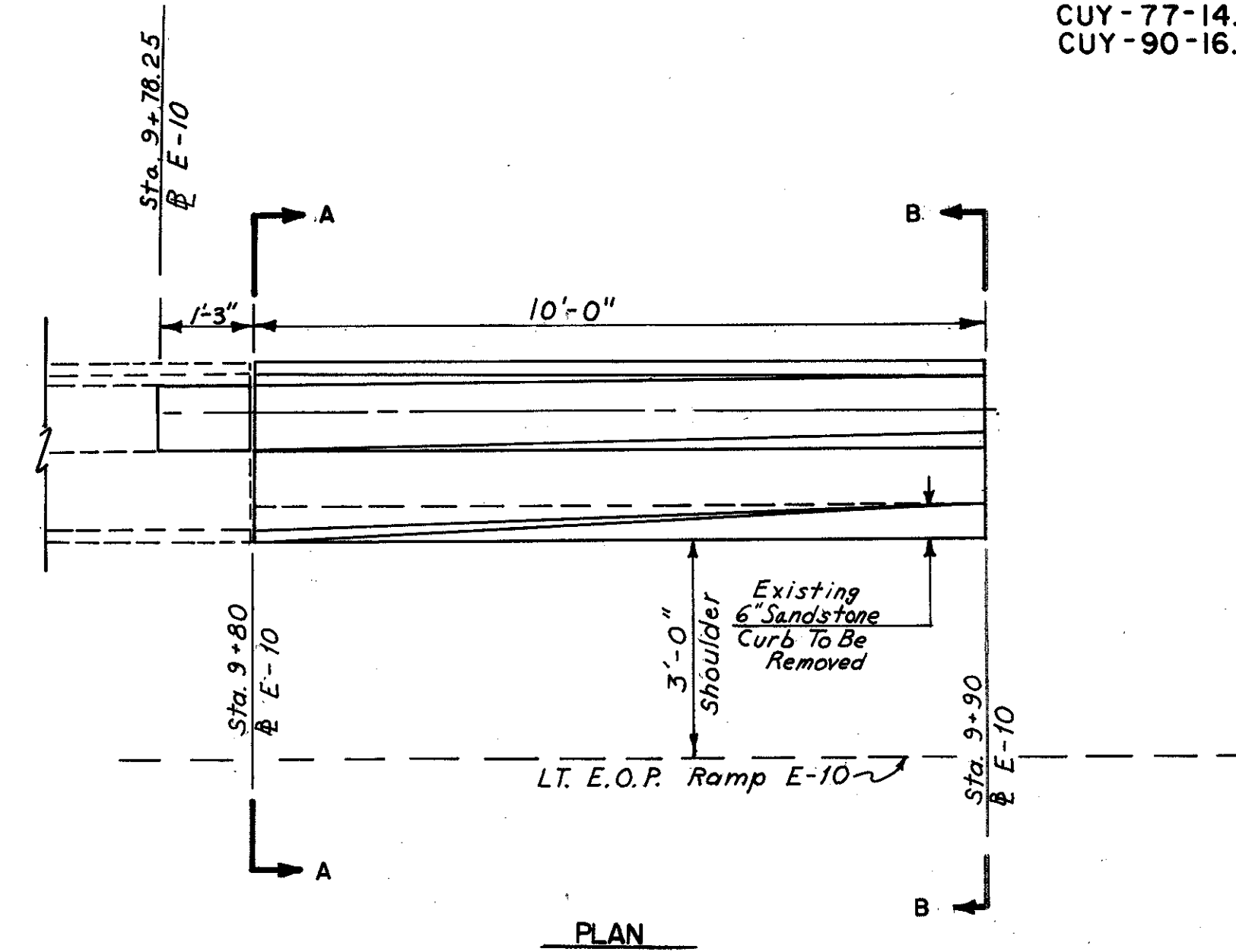
| | | |
|-------------|-------|---------|
| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

35
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21

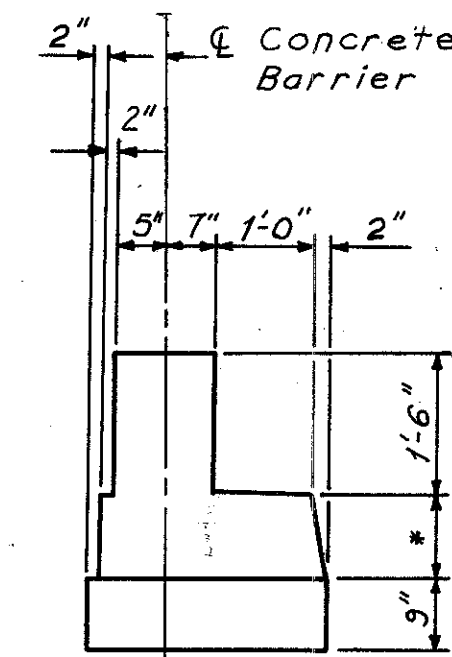


DETAIL G
Sta. 171+83.27 to Sta. 174+38.88 & I-90
No Scale

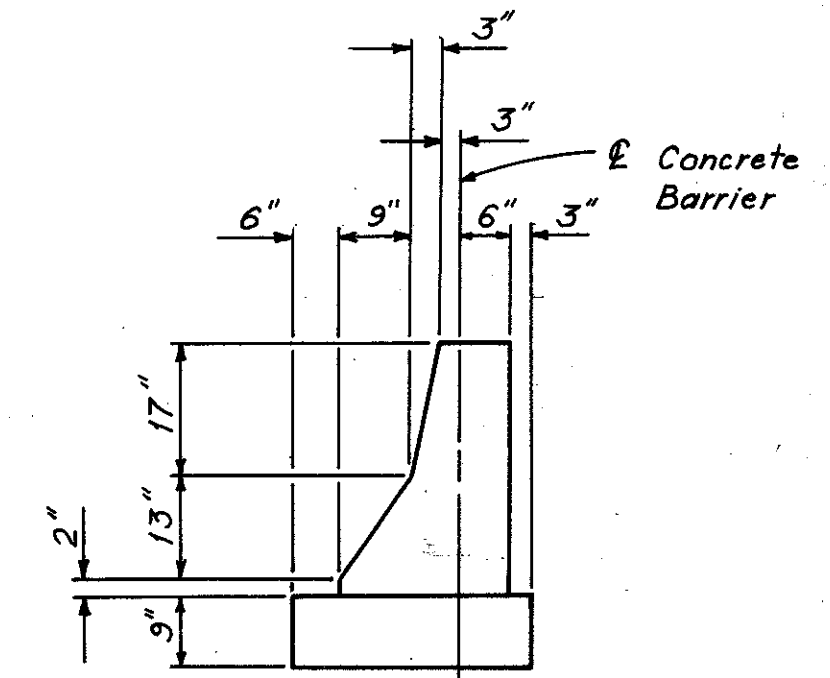


PLAN

ELEVATION



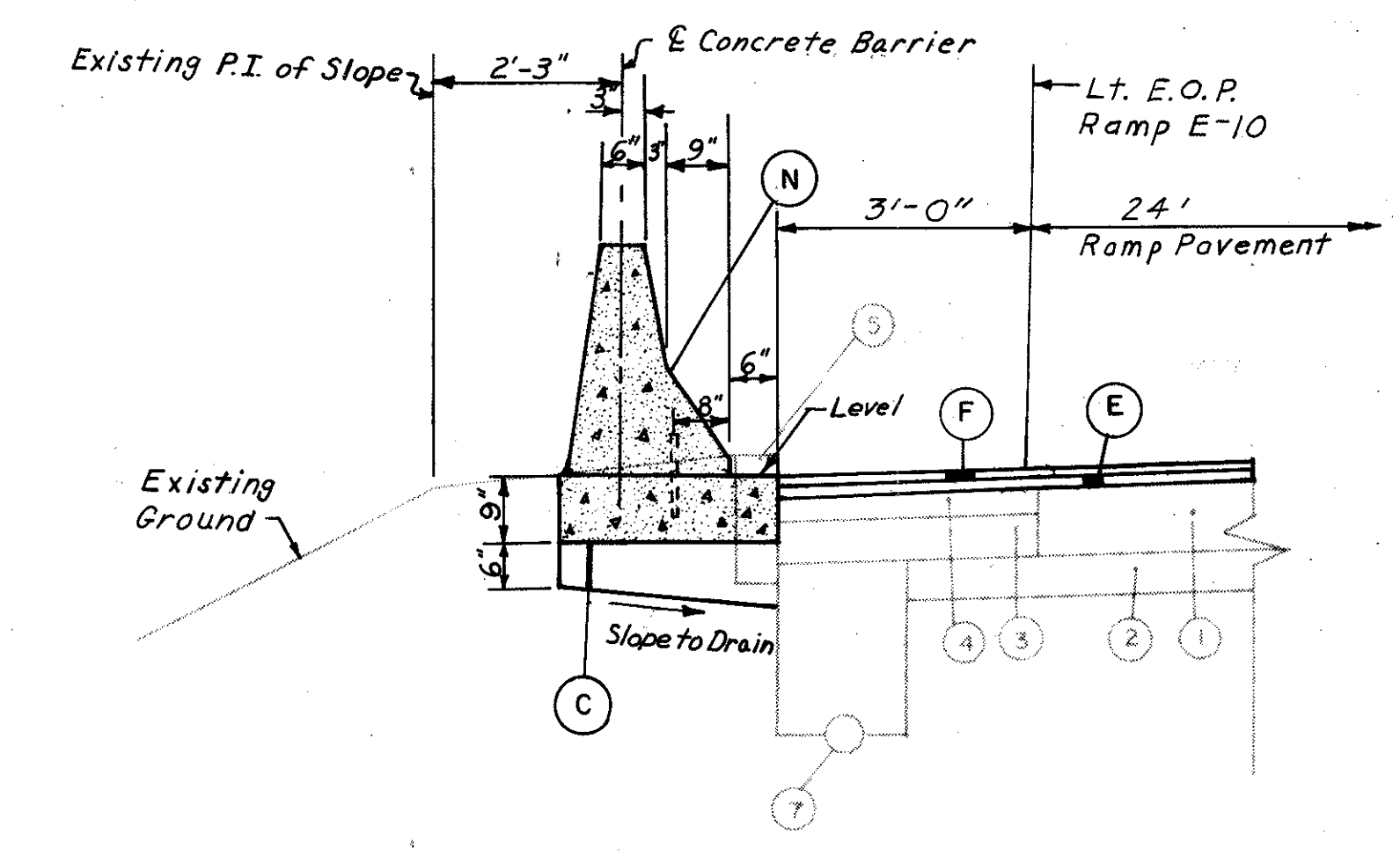
SECTION A-A



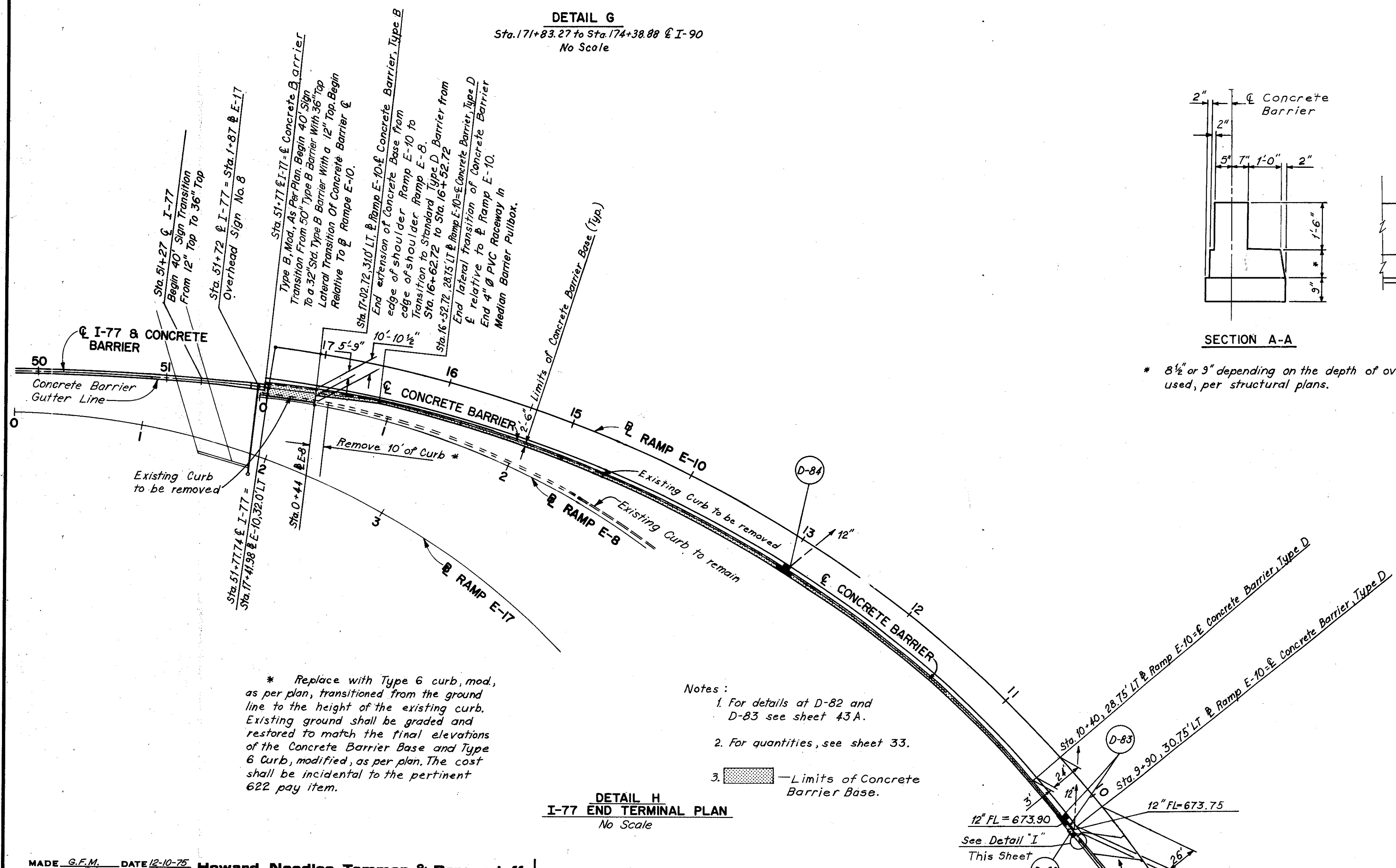
SECTION B-B

* 8 1/2" or 9" depending on the depth of overlay used, per structural plans.

DETAIL - I
SCALE: 1/2" = 1'-0"



RAMP E-10
Sta. 9+90 To Sta. 16+52.72
Scale: 1/2" = 1'-0"



DETAIL H
I-77 END TERMINAL PLAN
No Scale

- Notes:
1. For details at D-82 and D-83 see sheet 43A.
 2. For quantities, see sheet 33.
 3. [Symbol] - Limits of Concrete Barrier Base.

MADE G.F.M. DATE 12-10-75
TRACED T.S. DATE 12-11-75
CHECKED D.S.P. DATE 9-27-77
SCALE No Scale

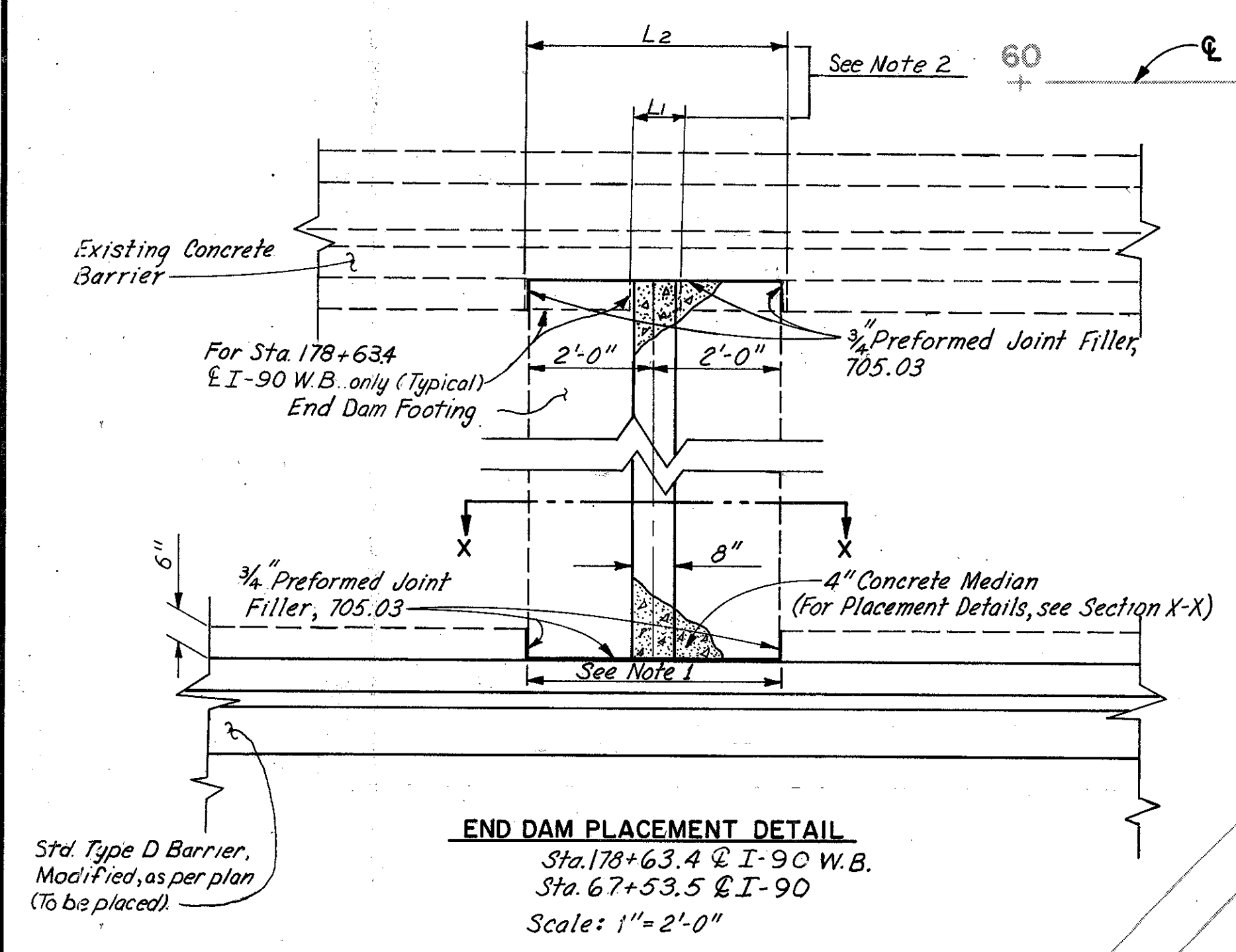
Howard, Needles, Tammen & Bergendoff
CONSULTING ENGINEERS
CLEVELAND, OHIO

HNTB

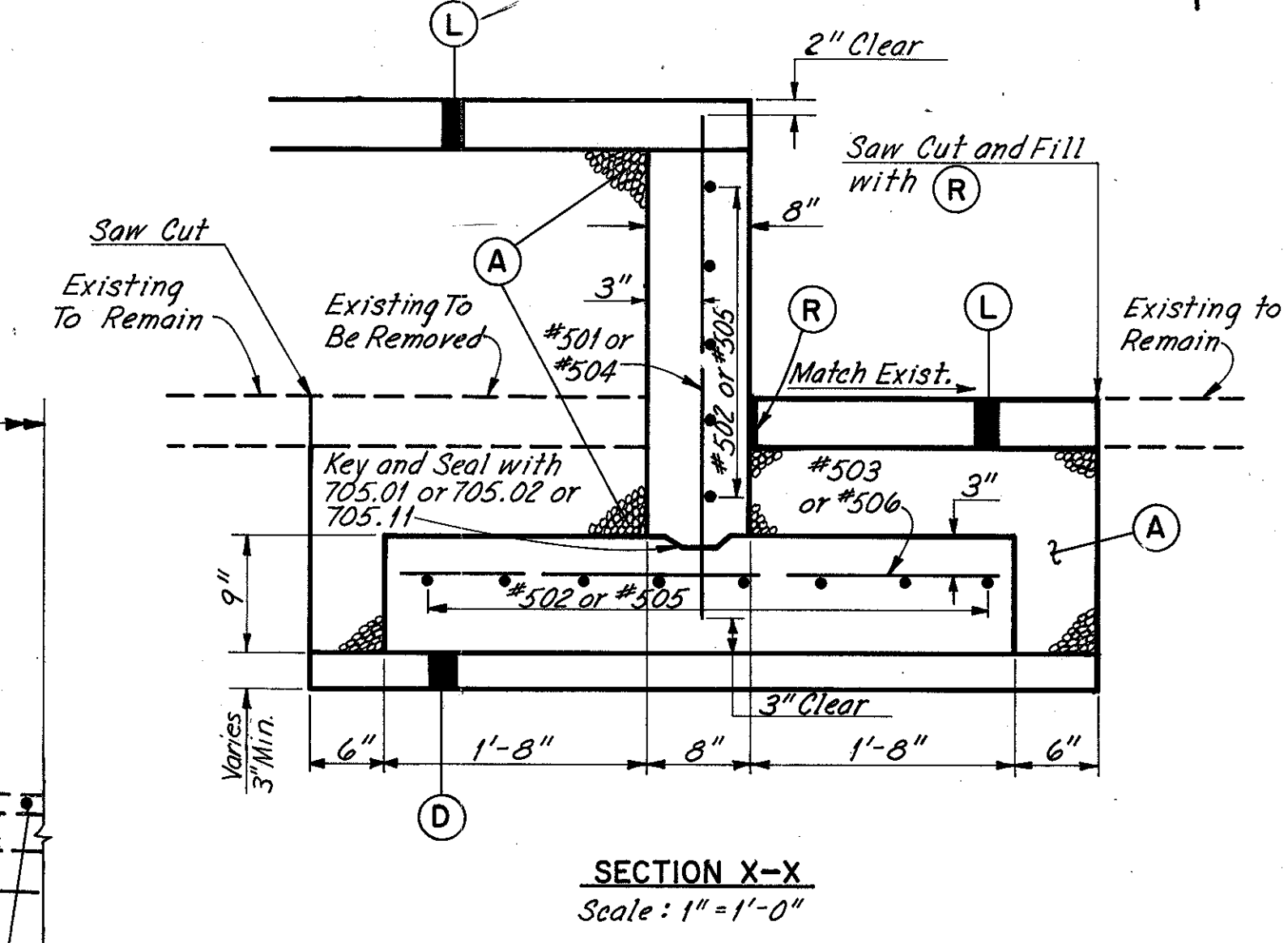
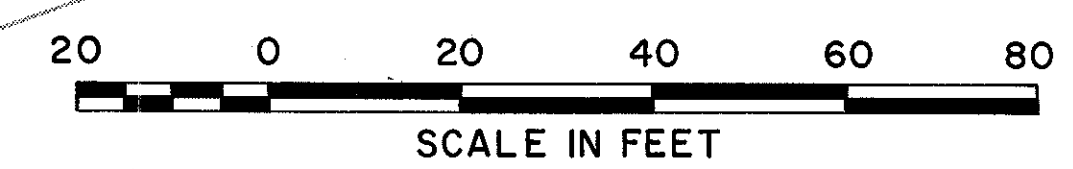
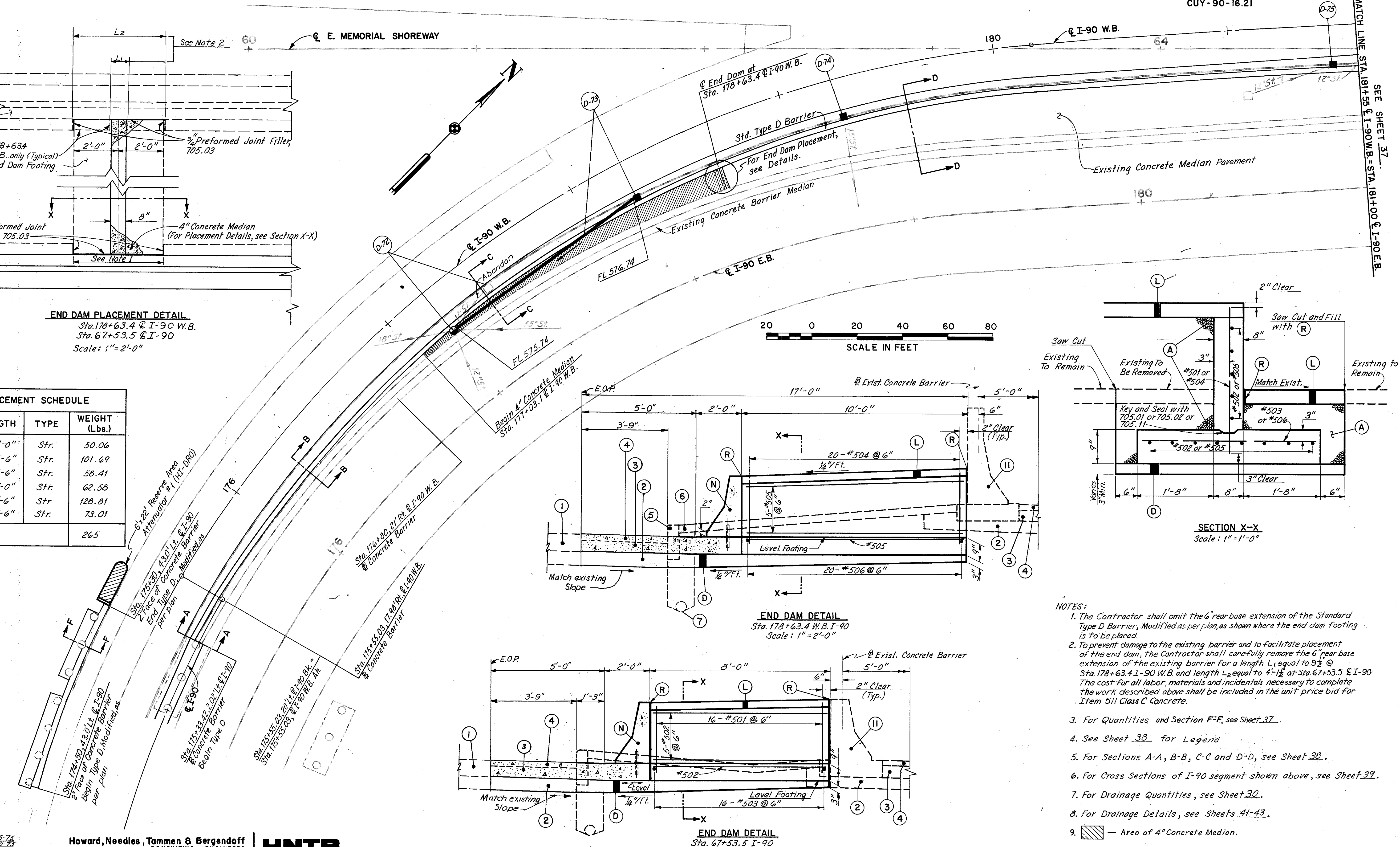
CUY-90-1640 B

For Proposed and Existing
Legends refer to Sheet 31.

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



| REINFORCEMENT SCHEDULE | | | | |
|------------------------|----------|--------|------|---------------|
| MARK | NO. BARS | LENGTH | TYPE | WEIGHT (Lbs.) |
| 501 | 16 | 3'-0" | Str. | 50.06 |
| 502 | 13 | 7'-6" | Str. | 101.69 |
| 503 | 16 | 3'-6" | Str. | 58.41 |
| 504 | 20 | 3'-0" | Str. | 62.58 |
| 505 | 13 | 9'-6" | Str. | 128.81 |
| 506 | 20 | 3'-6" | Str. | 73.01 |
| TOTAL | | | | 265 |



- NOTES:**
- The Contractor shall omit the 6" rear base extension of the Standard Type D Barrier, Modified as per plan, as shown where the end dam footing is to be placed.
 - To prevent damage to the existing barrier and to facilitate placement of the end dam, the Contractor shall carefully remove the 6" rear base extension of the existing barrier for a length L_1 equal to $9\frac{1}{2}$ ' @ Sta. 178+63.4 I-90 W.B. and length L_2 equal to $4\frac{1}{2}$ ' @ Sta. 67+53.5 I-90. The cost for all labor, materials and incidentals necessary to complete the work described above shall be included in the unit price bid for Item 511 Class C Concrete.
 - For Quantities and Section F-F, see Sheet 37.
 - See Sheet 38 for Legend.
 - For Sections A-A, B-B, C-C and D-D, see Sheet 38.
 - For Cross Sections of I-90 segment shown above, see Sheet 39.
 - For Drainage Quantities, see Sheet 30.
 - For Drainage Details, see Sheets 41-43.
 - Area of 4" Concrete Median.

MADE M.E.E. DATE 9-15-75
TRACED T.B.M. DATE 7-10-75
CHECKED D.S.D. DATE 9-25-75
SCALE AS SHOWN

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

HNTB

QUANTITY CALCULATIONS
 MADE BY M.E.E. DATE 9-15-75
 CHECKED BY G.F.M. DATE 10-17-75

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

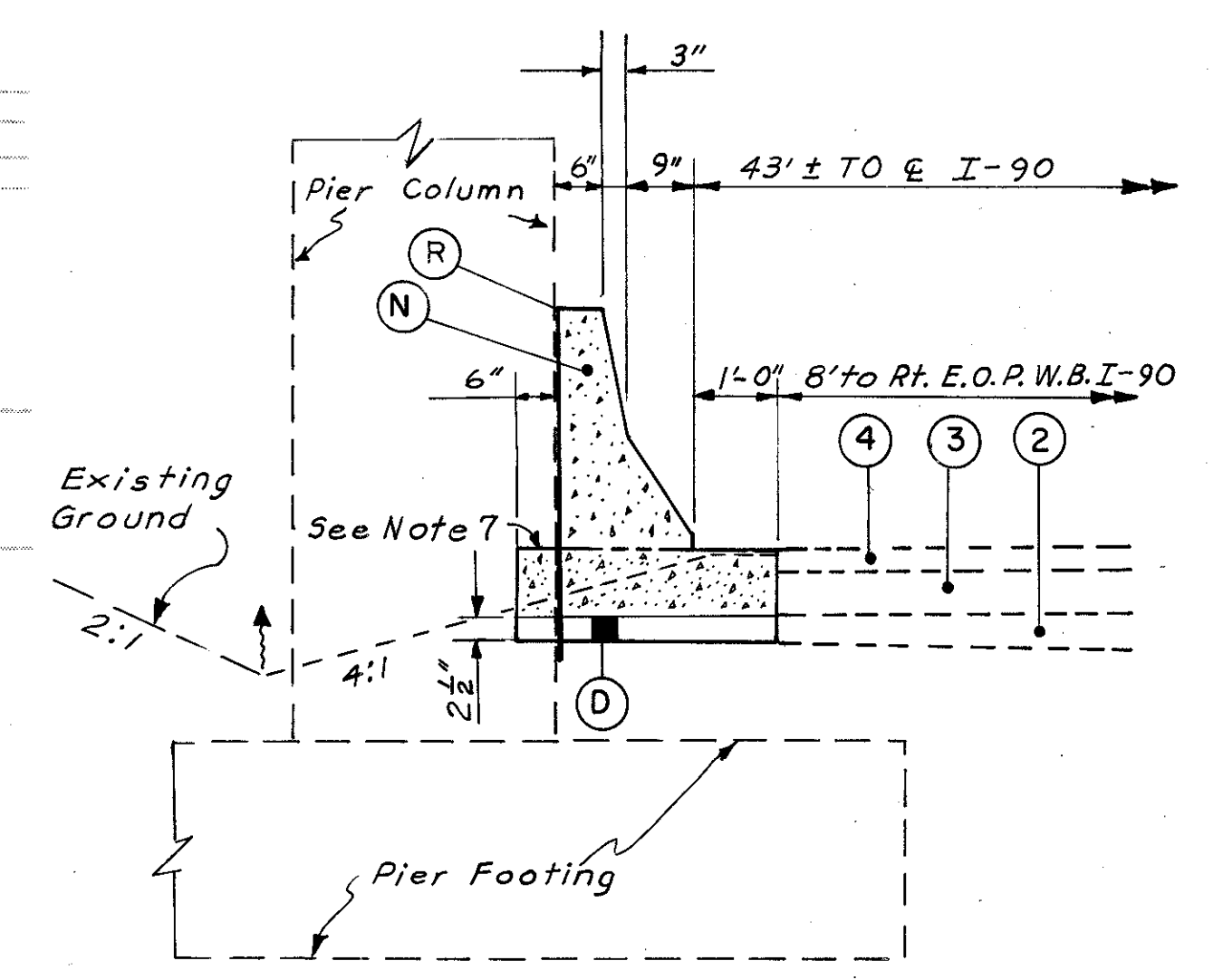
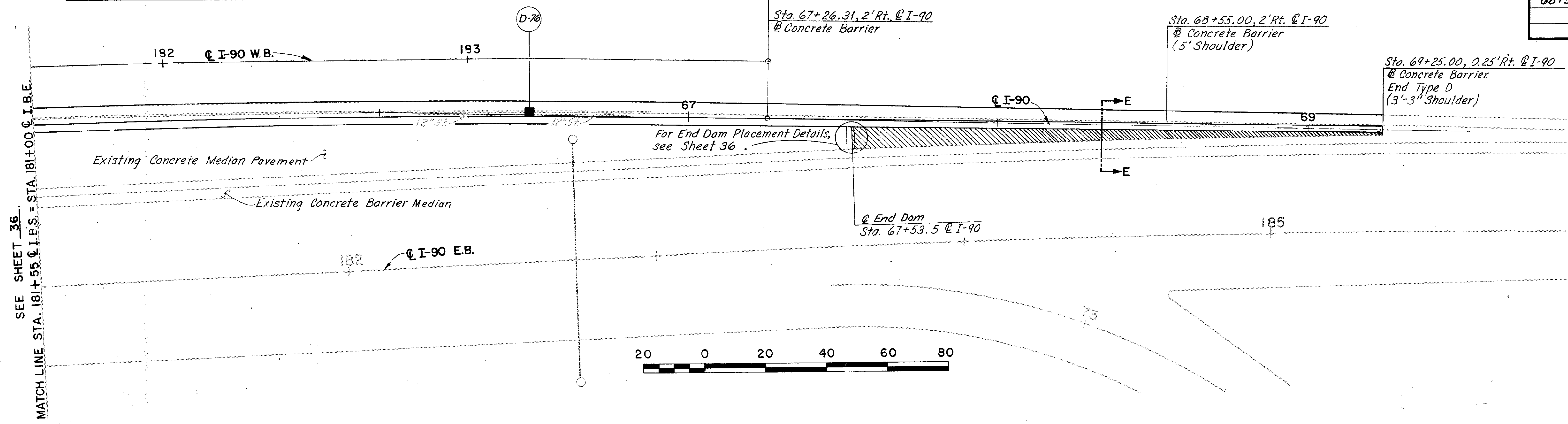
| ITEM 202-CURB REMOVED (Cost Participation III) | | | | |
|---|--------|-----------|-------------|------------------------|
| STATION | | ℄ | CALCULATION | QUANTITY (Lin. Ft.) |
| FROM | TO | | | |
| 175+33 | 175+55 | I-90 | | 22 |
| 175+55 | 177+50 | FROM B. | | 190 |
| 177+50 | 177+90 | I-90 W.B. | | 40 |
| 177+90 | 178+50 | I-90 W.B. | | 60 |
| 178+50 | 180+16 | I-90 W.B. | | 160 |
| 180+16 | 183+98 | I-90 W.B. | | 382 |
| 67+26 | 69+25 | I-90 | | 199 |
| Sub-Total | | | | 1053 |
| Less out for inlets | | | | -37 |
| TOTAL | | | | 1016 |

| ITEM 203-EMBANKMENT (Cost Participation III) | | | | |
|---|--------|-----------|---|------------------------|
| STATION | | ℄ | CALCULATION End Area (Typicals) x Length | QUANTITY (Cu. Yds.) |
| FROM | TO | | | |
| 177+03 | 178+63 | I-90 W.B. | $6.53 \times 160 \div 27$ | 38.7 |
| 67+53 | 69+25 | I-90 | $15.64 \times 172 \div 27$ | 99.6 |
| TOTAL | | | | 138 |

| ITEM 202-GUARD RAIL REMOVED (Cost Participation III) | | | | |
|---|--------|-----------|-------------|------------------------|
| STATION | | ℄ | CALCULATION | QUANTITY (Lin. Ft.) |
| FROM | TO | | | |
| 175+33 | 183+98 | I-90 W.B. | 851 | 851 |
| 67+26 | 69+25 | I-90 | 199 | 199 |
| TOTAL | | | | 1050 |

| ITEM 612-4" CONCRETE MEDIAN (Cost Participation III) | | | | |
|---|--------|-----------|-------------------------------------|------------------------|
| STATION | | ℄ | CALCULATION | QUANTITY (Sq. Yds.) |
| FROM | TO | | | |
| 177+03 | 178+63 | I-90 W.B. | $(2+10) \div 2 \times 160 \div 9$ | 106.7 |
| 178+63 | 67+53 | I-90 | $2 \times 562 \div 9$ | 124.9 |
| 67+53 | 69+25 | I-90 | $(8+1.92) \div 2 \times 172 \div 9$ | 94.8 |
| TOTAL | | | | 326 |

| ITEM 202- CONCRETE MEDIAN PAVEMENT REMOVED (Cost Participation III) | | | | |
|--|----------|-----------|----------------------------------|------------------------|
| STATION | | ℄ | CALCULATION | QUANTITY (Sq. Yds.) |
| FROM | TO | | | |
| 175+33 | 175+55 | I-90 | $(4.23+4.86) \times 22 \div 18$ | 11.1 |
| 175+55 | 176+29 | I-90 W.B. | $(4.86+5.40) \times 74 \div 18$ | 42.2 |
| 176+29 | 176+80 | I-90 W.B. | $(5.40+7.29) \times 51 \div 18$ | 36.0 |
| 176+80 | 177+03 | I-90 W.B. | $(7.29+8) \times 23 \div 18$ | 19.5 |
| 177+03 | 177+50 | I-90 W.B. | $8.5 \times 47 \div 9$ | 44.4 |
| 177+50 | 178+50 | I-90 W.B. | $(8.5+4.75) \times 100 \div 18$ | 73.6 |
| 178+50 | 178+62.5 | I-90 W.B. | $4.75 \times 12.5 \div 9$ | 6.6 |
| 178+62.5 | 178+67.5 | I-90 W.B. | $(16.83+17.18) \times 5 \div 18$ | 9.4 |
| 178+67.5 | 183+98 | I-90 W.B. | $4.75 \times 530.5 \div 9$ | 280.0 |
| 67+26 | 67+50.5 | I-90 | $4.75 \times 24.5 \div 9$ | 12.9 |
| 67+50.5 | 67+55.5 | I-90 | $(9.62+9.34) \times 5 \div 18$ | 5.3 |
| 67+55.5 | 68+55 | I-90 | $4.75 \times 100 \div 9$ | 52.8 |
| 68+55 | 69+25 | I-90 | $(4.75+3) \times 70 \div 18$ | 30.1 |
| TOTAL | | | | 624 |



SECTION F-F
 Scale: 1"=2'-0"

| ITEM 310- SUBBASE, GRADING A, AS PER PLAN (Cost Participation III) | | | | |
|---|--------|-----------|---|------------------------|
| STATION | | ℄ | CALCULATION | QUANTITY (Cu. Yds.) |
| FROM | TO | | | |
| 175+33.42 | 175+55 | I-90 W.B. | $1.40 \text{ sf} \times 21.58' \div 27$ | 1.12 |
| 175+55 | 176+80 | I-90 W.B. | $\frac{1}{2} (1.40 \text{ sf} + 3.06 \text{ sf}) \times 125' \div 27$ | 10.32 |
| 176+80 | 177+03 | I-90 W.B. | $\frac{1}{2} (3.06 \text{ sf} + 3.44 \text{ sf}) \times 23' \div 27$ | 2.77 |
| 177+03 | 68+55 | I-90 W.B. | $3.44 \text{ sf} \times 823.93' \div 27$ | 104.97 |
| 68+55 | 69+25 | I-90 | $\frac{1}{2} (4.16 \text{ sf} + 2.37 \text{ sf}) \times 70' \div 27$ | 7.53 |
| 174+50 | 175+30 | I-90 Lt. | $\frac{1}{2} (2.5'' + 3'') \times 3' \times 80' \times \frac{501.87}{458.37} \div 27$ | 2.23 |
| TOTAL | | | | 129 |

| ITEM 511- CLASS C CONCRETE (Cost Participation III) | | | | |
|--|--------|-----------|---|------------------------|
| STATION | | ℄ | CALCULATION | QUANTITY (Cu. Yds.) |
| FROM | TO | | | |
| 175+33.42 | 176+00 | I-90 W.B. | $(3+2) \times \frac{1}{2} \times (66.58) \div 27$ | 6.16 |
| 176+00 | 177+03 | I-90 W.B. | $(2+5) \times \frac{1}{2} \times (103) \div 27$ | 13.35 |
| TOTAL | | | | 20 |

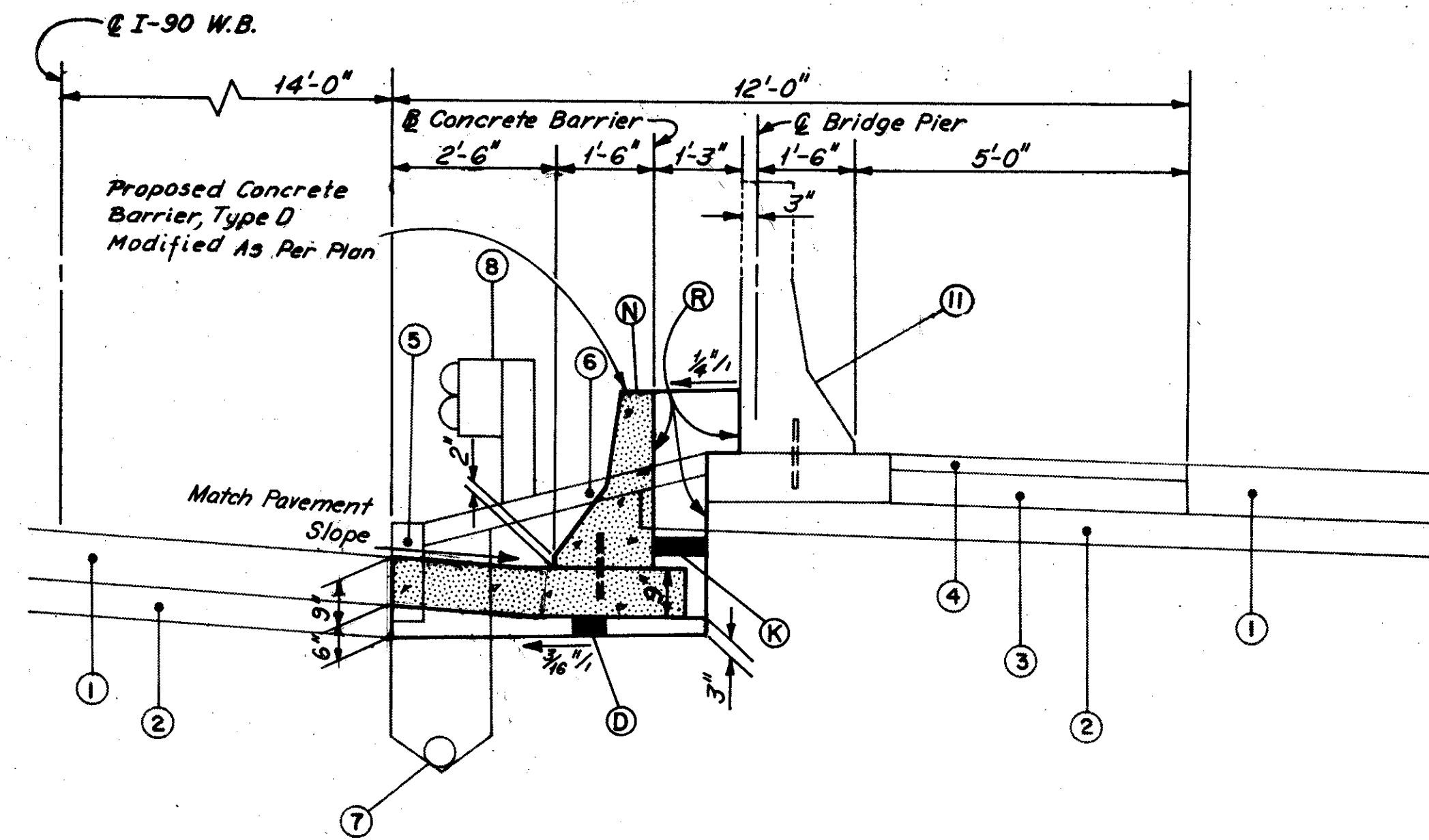
| ITEM 622- CONCRETE BARRIER, TYPE D MODIFIED AS PER PLAN (Cost Participation III) | | | | |
|---|-----------|------------------|------------------------|--|
| STATION | | LOCATION | QUANTITY (Lin. Ft.) | |
| FROM | TO | | | |
| 174+50 | 175+30 | I-90 Lt. | 80 | |
| 175+33.42 | 176+02.09 | I-90 W.B. Median | 69 | |
| 176+02.09 | 176+70.09 | I-90 W.B. Median | 68 | |
| 176+70.09 | 177+00 | I-90 W.B. Median | 30 | |
| 177+00 | 180+00 | I-90 W.B. Median | 300 | |
| 180+00 | 181+00 | I-90 W.B. Median | 100 | |
| 181+00 | 182+00 | I-90 W.B. Median | 100 | |
| 182+00 | 183+00 | I-90 W.B. Median | 100 | |
| 183+00 | 68+00 | I-90 Median | 172 | |
| 68+00 | 69+25 | I-90 Median | 125 | |
| (Less) 4 Catch Basins @ 16'-0" | | | (64) | |
| TOTAL | | | 1080 | |

- NOTES:
- For Section E-E, see Sheet 38, also legend
 - For Cross Sections of I-90 segment shown above, see Sheet 39.
 - For End Dam details, see Sheet 36.
 - For Drainage Quantities, see Sheet 30.
 - For Drainage Details, see Sheets 41-43.
 - Area of 4" Concrete Median.
 - The Contractor shall omit the 6" rear base extension of the Standard, Type D Concrete Barrier at the pier columns.
 - All Quantities included in Project I-90-1 (101) 29.
 - See Sheet 36 for location of Section F-F.

CONCRETE BARRIER TYPICAL SECTIONS

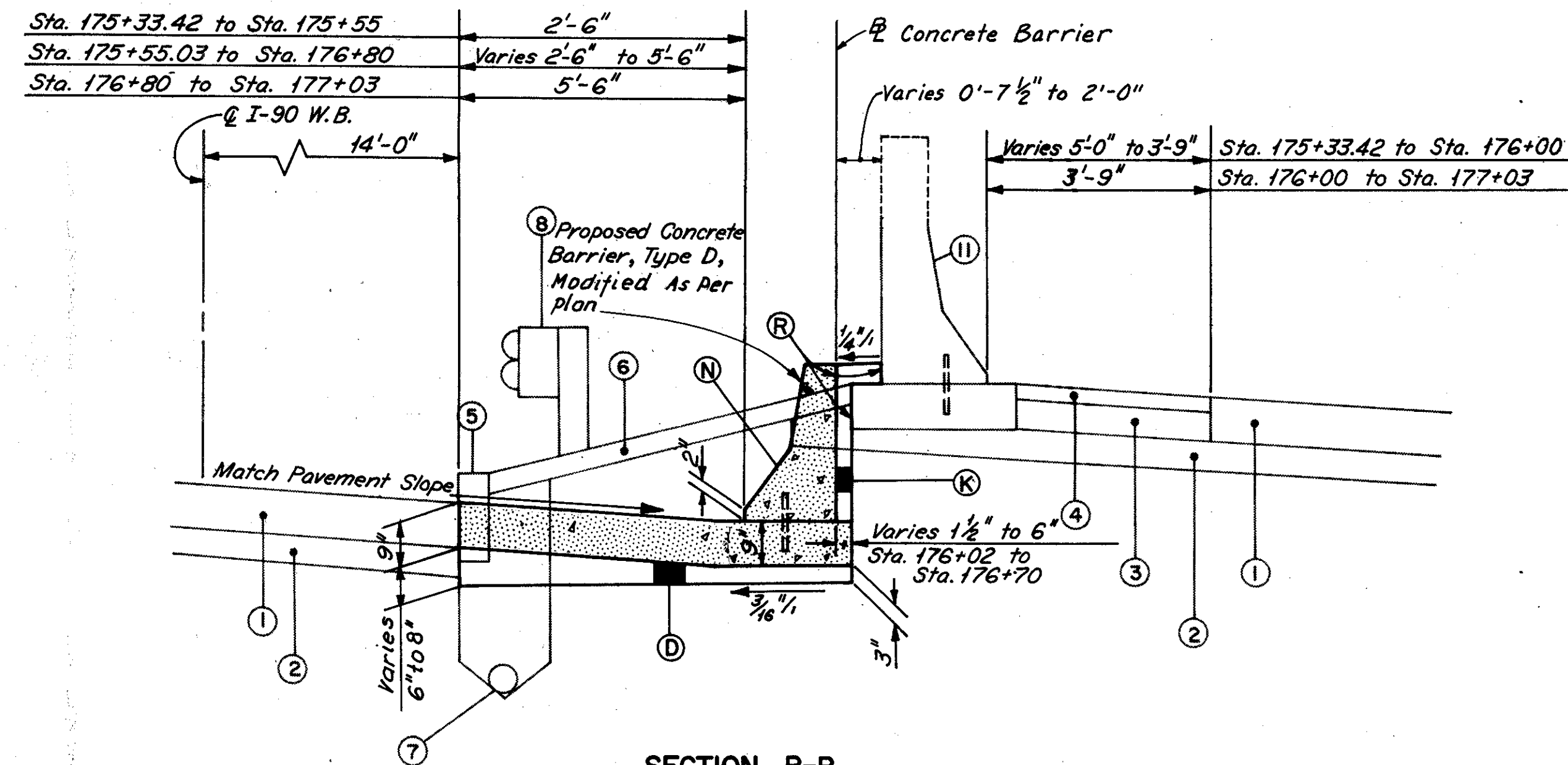
| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

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CUY-77-14.12
CUY-90-16.21



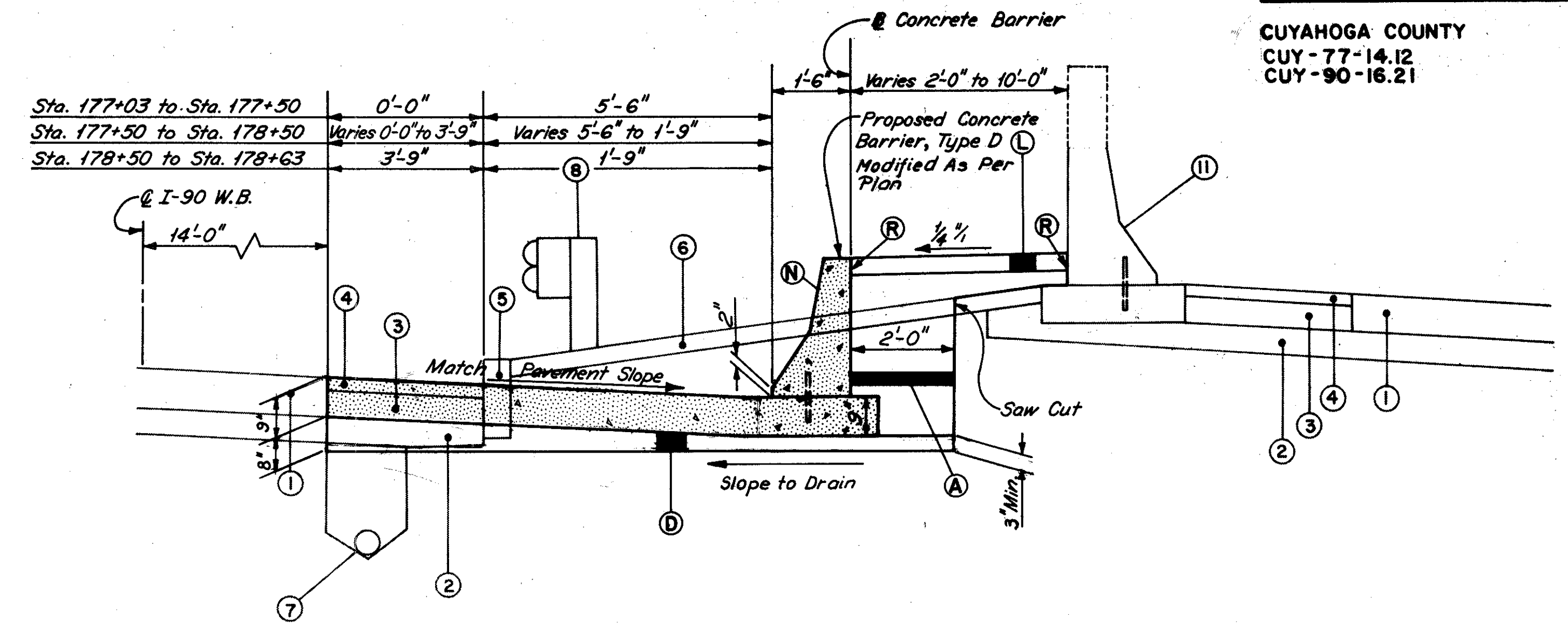
SECTION A-A

Sta. 175+33.42 @ I-90 W.B.



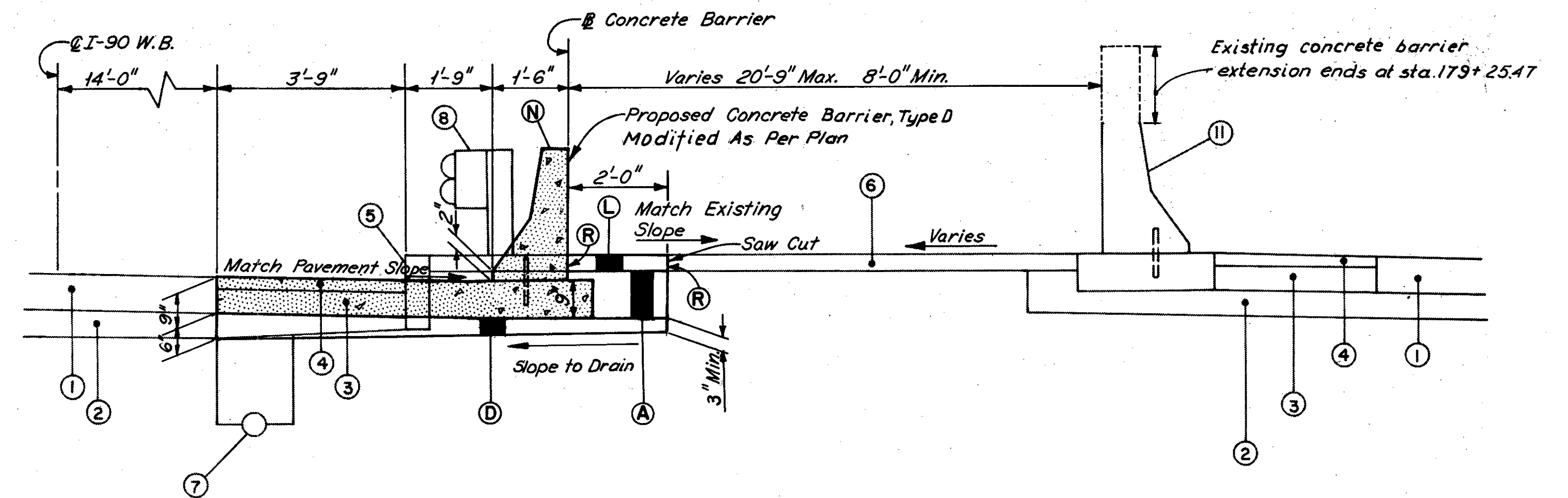
SECTION B-B

Sta. 175+33.42 to Sta. 177+03 @ I-90 W.B.



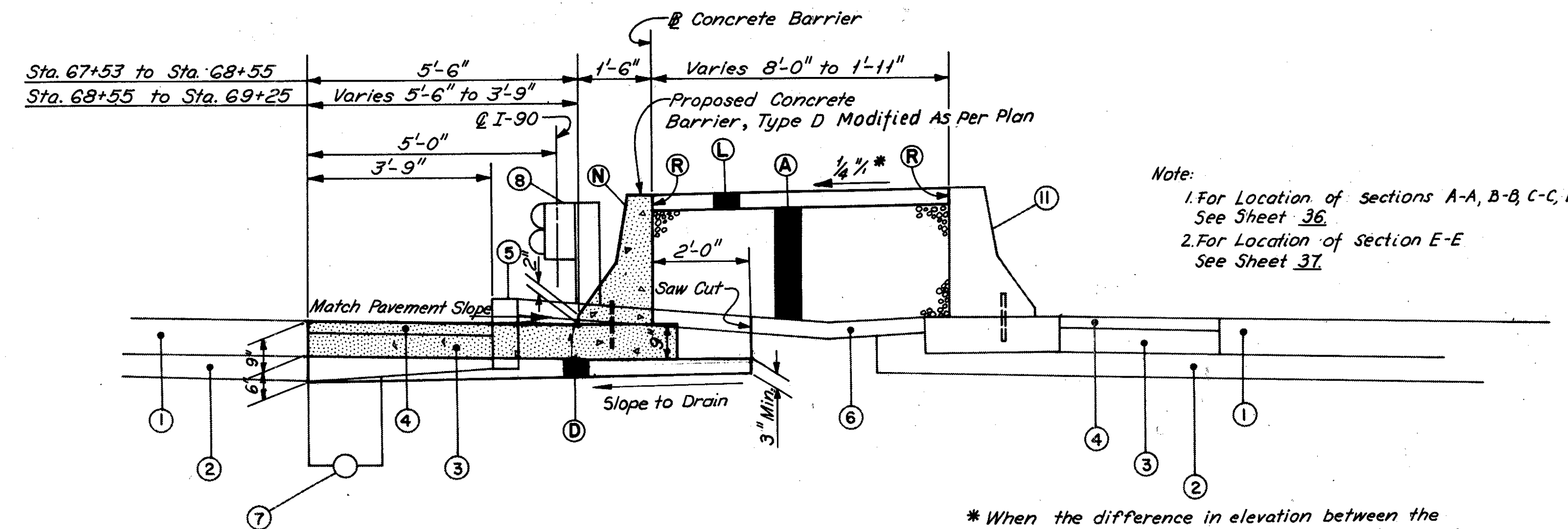
SECTION C-C

Sta. 177+03 to Sta. 178+63 @ I-90 W.B.



SECTION D-D

Sta. 178+63 @ I-90 W.B. to Sta. 67+53 @ I-90



SECTION E-E

Sta. 67+53 to Sta. 69+25 @ I-90

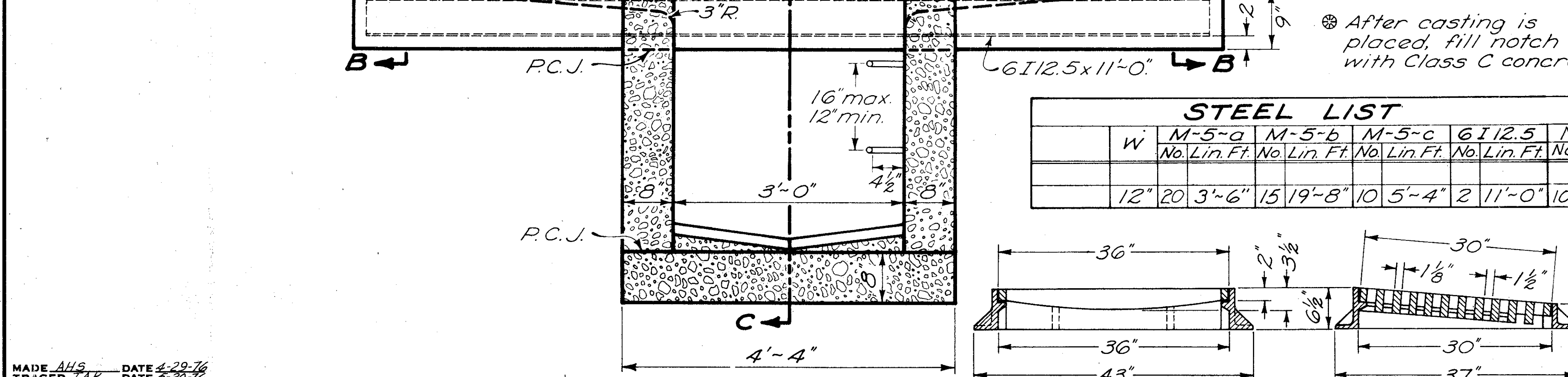
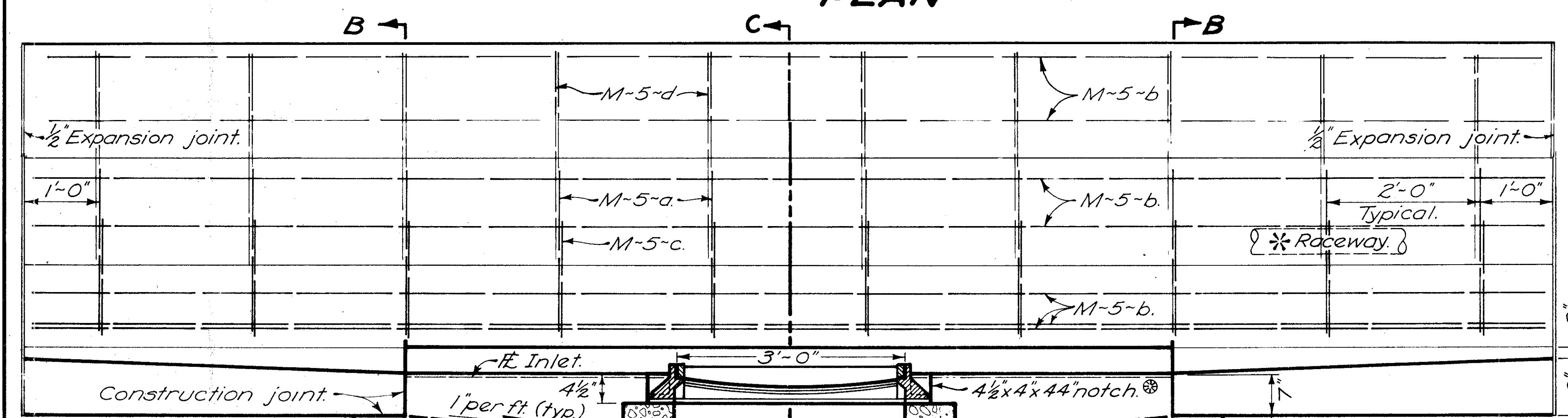
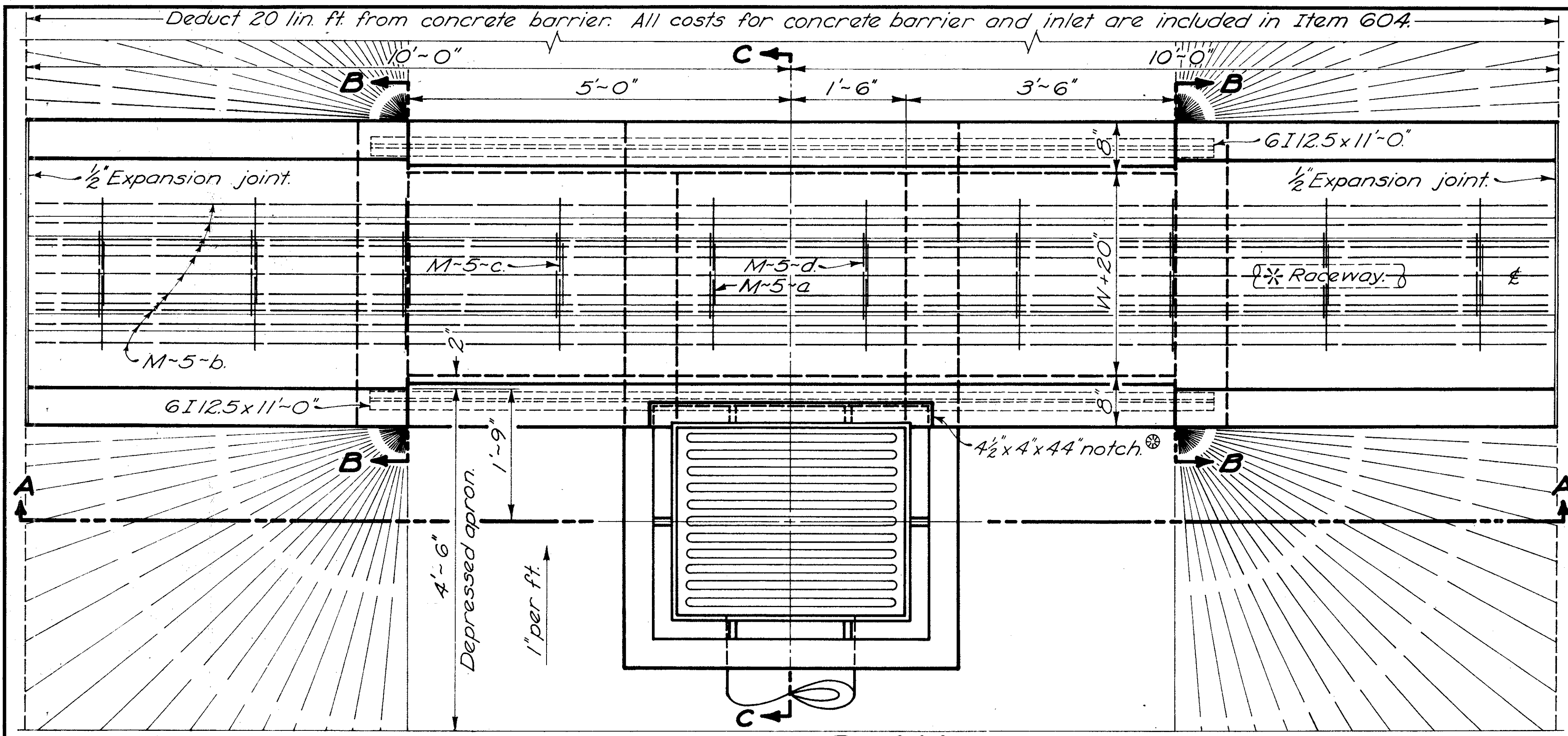
LEGEND

- | | |
|--|--|
| <p>PROPOSED</p> <ul style="list-style-type: none"> (A) Item 203 Embankment (D) Item 310 Subbase, Grading A (K) Item 511 Class C Concrete (L) Item 612 4" Concrete Median (N) Item 622 Concrete Barrier, Type D Modified As Per Plan (R) 3/4" Preformed Joint Filler, 705,03 | <p>EXISTING</p> <ul style="list-style-type: none"> (1) Portland Cement Concrete Pavement (2) Subbase (3) Aggregate Base (4) Waterproofed Bituminous Base Course (5) Curb (6) Concrete Median (7) Underdrain (8) Guard Rail (11) Concrete Barrier |
|--|--|

Note:
1. For Location of Sections A-A, B-B, C-C, D-D, See Sheet 36.
2. For Location of Section E-E See Sheet 37.

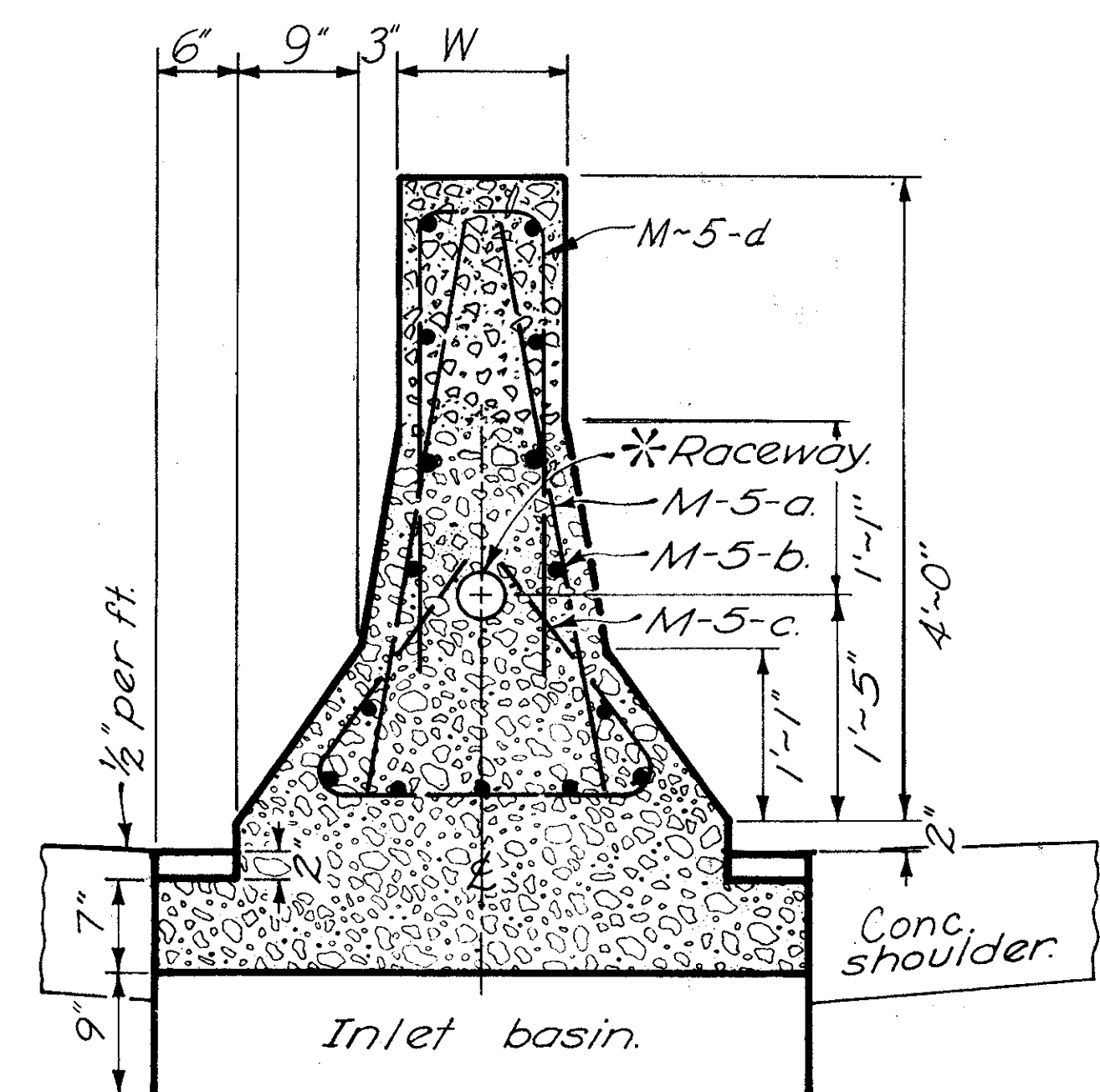
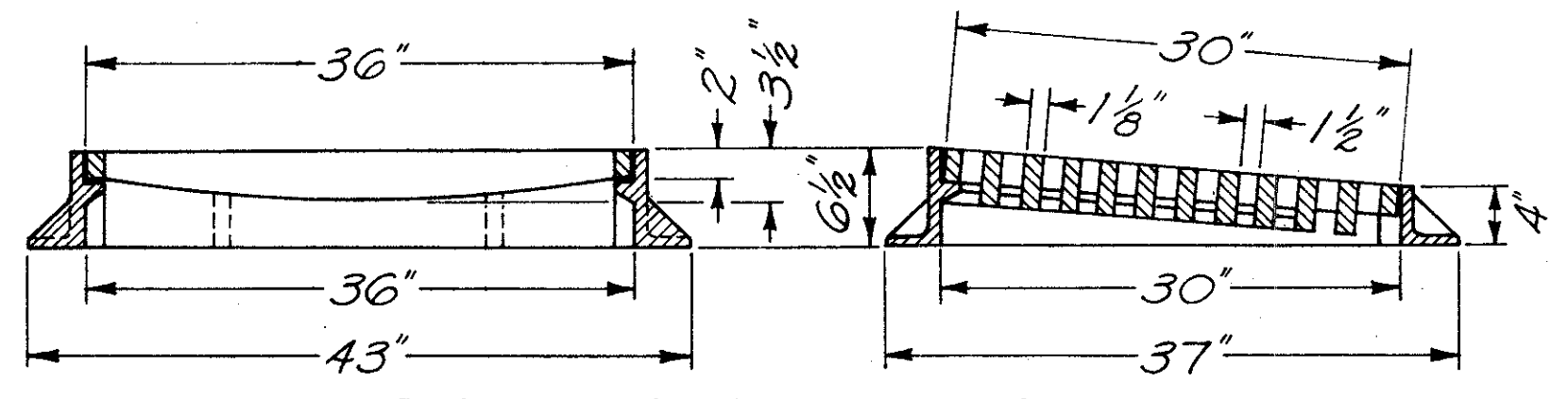
* When the difference in elevation between the existing and proposed barriers will not permit a continuous 1/4"/ft. slope on the 4" Conc. Median, the 4" Conc. Median shall be crowned with a minimum cross slope of 1/4"/ft. in either direction.

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



STEEL LIST

| W | M-5-a No. Lin. Ft. | M-5-b No. Lin. Ft. | M-5-c No. Lin. Ft. | 6I12.5 No. Lin. Ft. | M-5-d No. Lin. Ft. |
|-----|-----------------------|-----------------------|-----------------------|------------------------|-----------------------|
| 12" | 20 3'-6" | 15 19'-8" | 10 5'-4" | 2 11'-0" | 10 6'-4" |



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, of 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 S11 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.

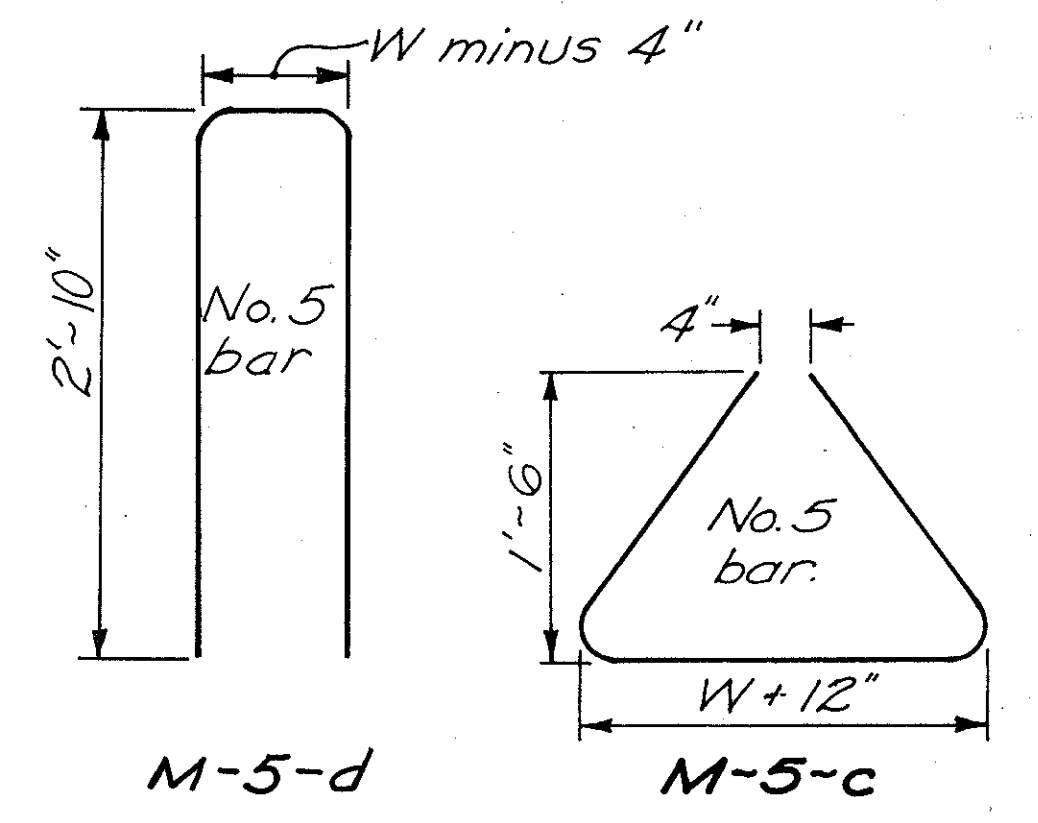
INLETS OVER 12 FEET IN DEPTH shall be built of Class C concrete reinforced by placing 6" bars 12" center-to-center, both vertically and horizontally with a 2" clearance from inside face of the wall.

* 4" Lighting raceway, styrene or fiber electrical duct required elsewhere by the plans.

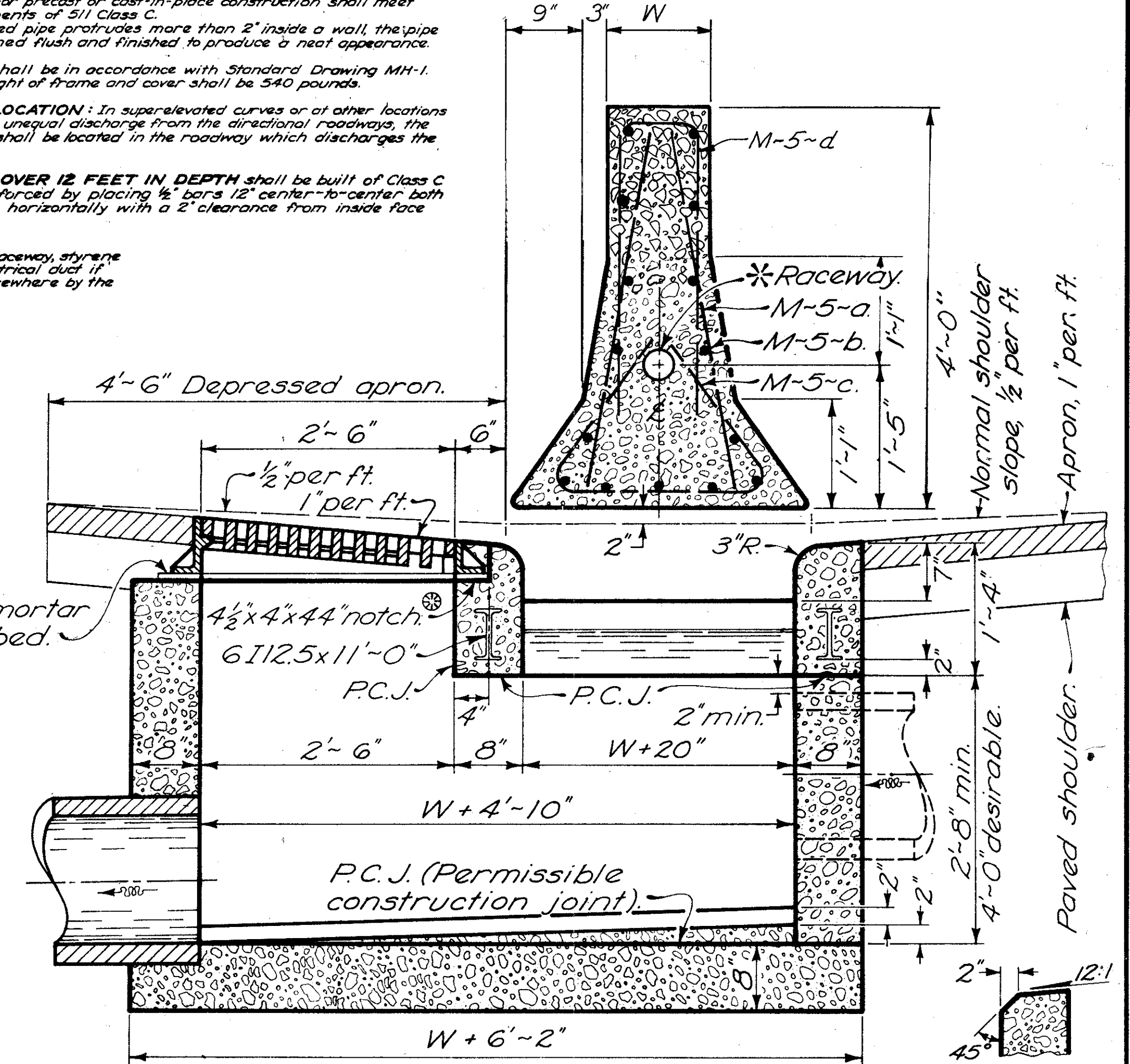
| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

38A
169

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NOTE: THE PURPOSE OF THIS DRAWING IS TO SHOW THE MODIFICATION TO STANDARD CONSTRUCTION DRAWING I-3, FOR THE PURPOSE OF INCLUDING AN 18 INCH VERTICAL EXTENSION, AS PART OF THIS DETAIL.



SECTION C-C

ALTERNATE SPILLWAY SHAPE

MADE AHS DATE 4-29-76
TRACED TJK DATE 2-20-76
CHECKED DSB DATE 3-22-76
SCALE 1/4" = 1'-0"

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS

HNTB SECTION A-A

CASTING DETAILS

QUANTITY CALCULATIONS

MADE BY G.F.M. DATE 10-17-75
 CHECKED BY M.E.E. DATE 10-27-75

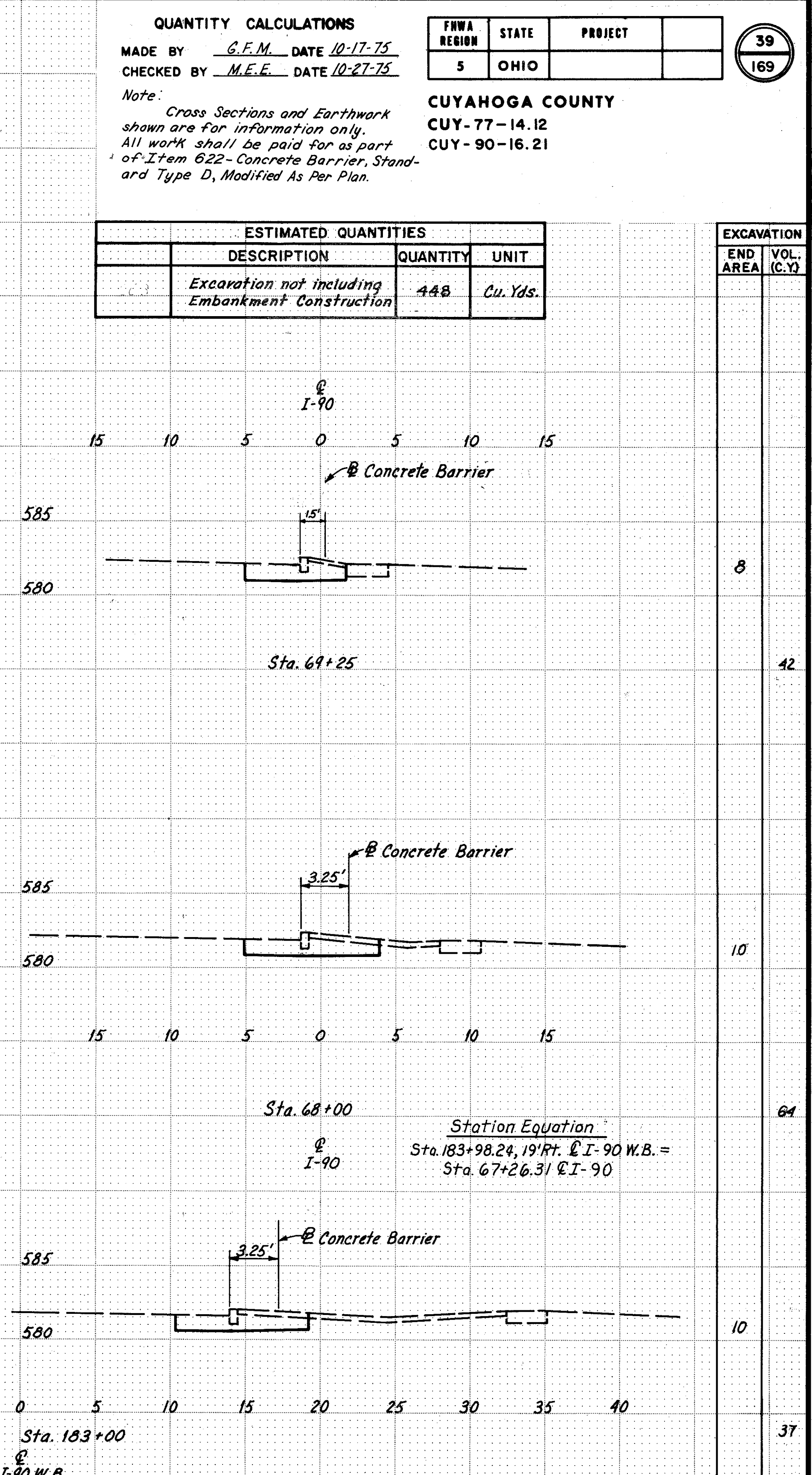
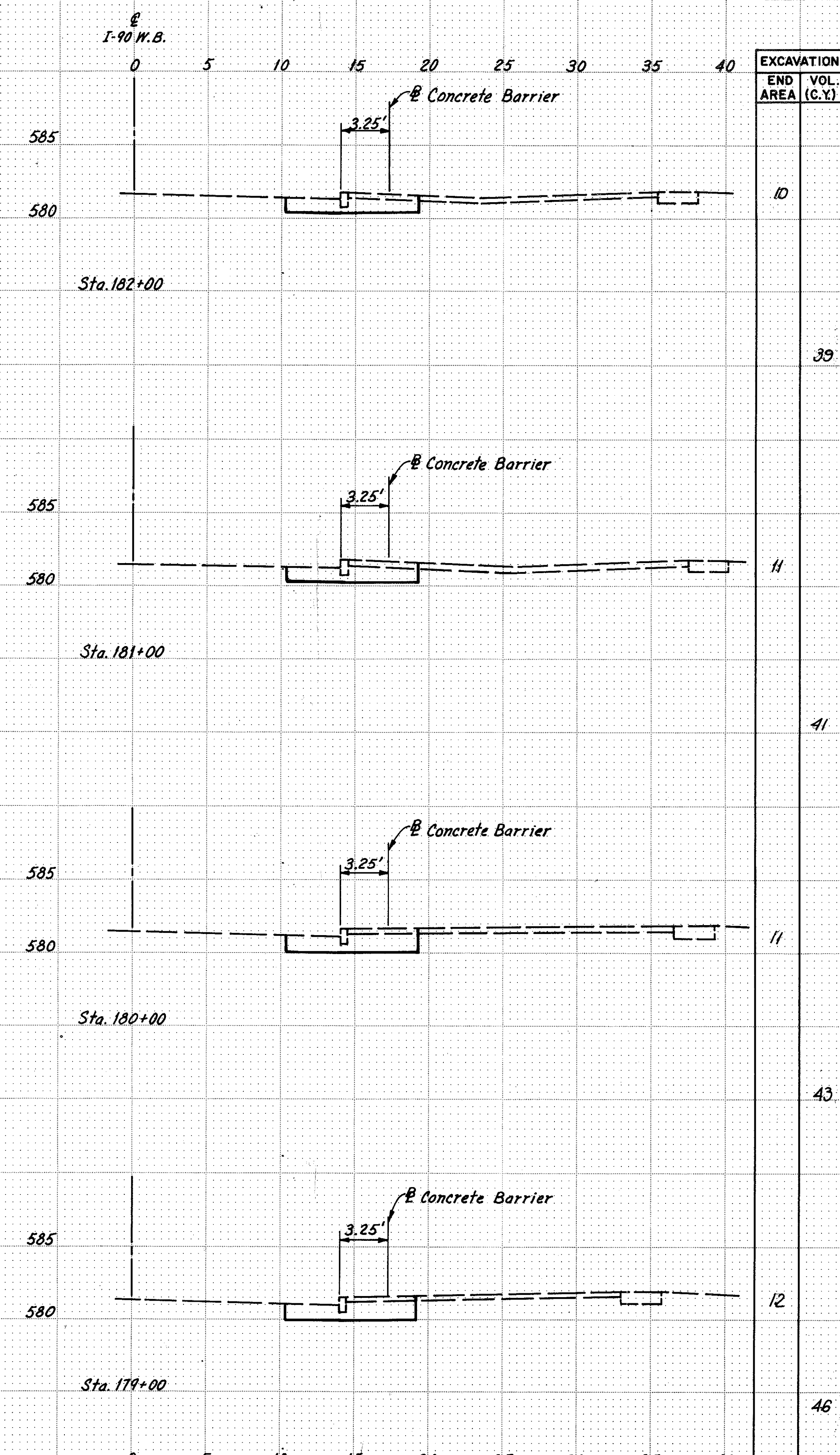
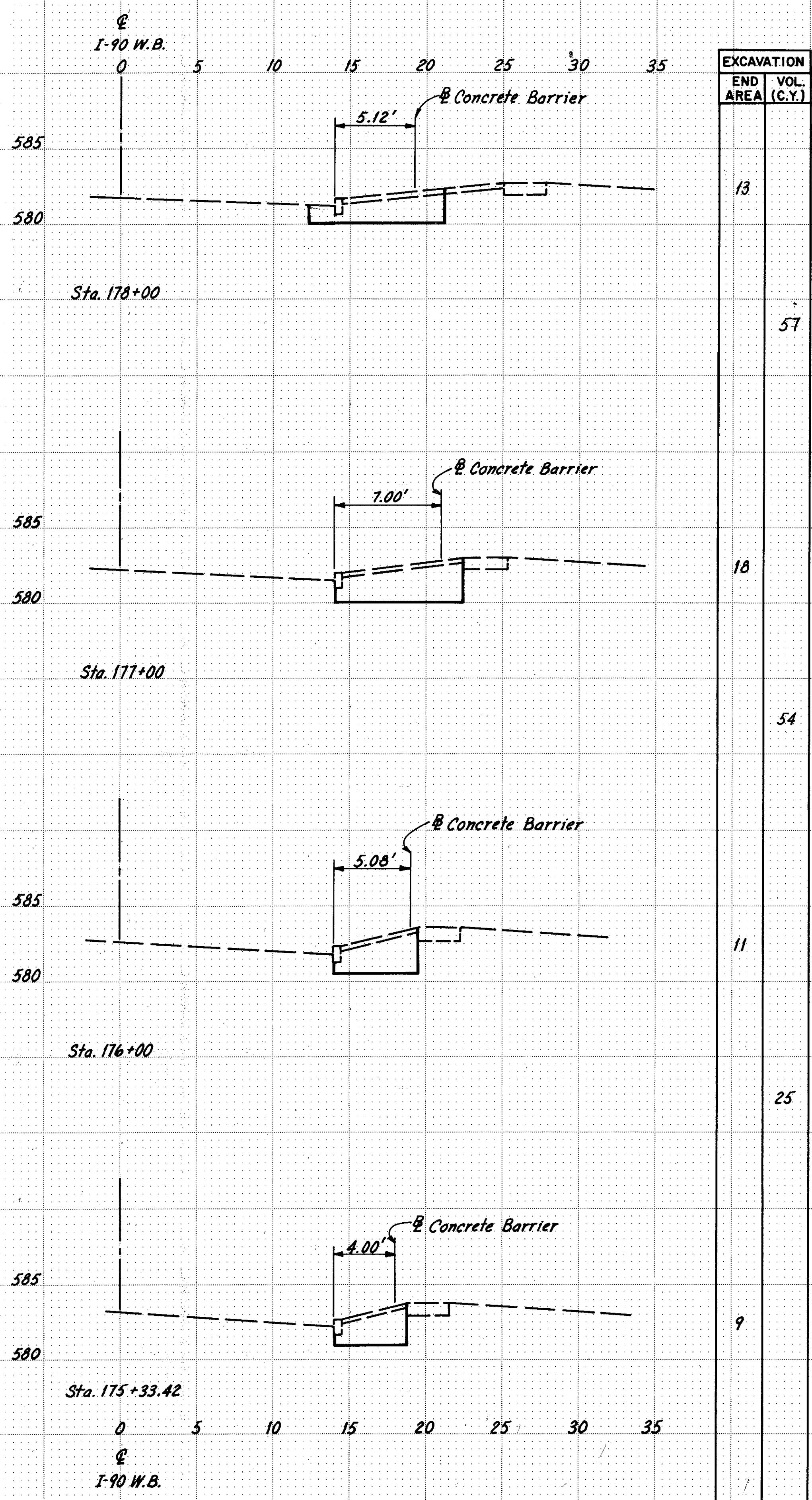
| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

Note: Cross Sections and Earthwork shown are for information only. All work shall be paid for as part of Item 622- Concrete Barrier, Standard Type D, Modified As Per Plan.

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

| ESTIMATED QUANTITIES | | |
|--|----------|----------|
| DESCRIPTION | QUANTITY | UNIT |
| Excavation not including Embankment Construction | 448 | Cu. Yds. |

| EXCAVATION | |
|------------|-------------|
| END AREA | VOL. (C.Y.) |



MADE G.F.M. DATE 10-17-75
 TRACED P.M. DATE 10-31-75
 CHECKED M.E.E. DATE 10-27-75
 SCALE 1" = 5' HOR. VERT.

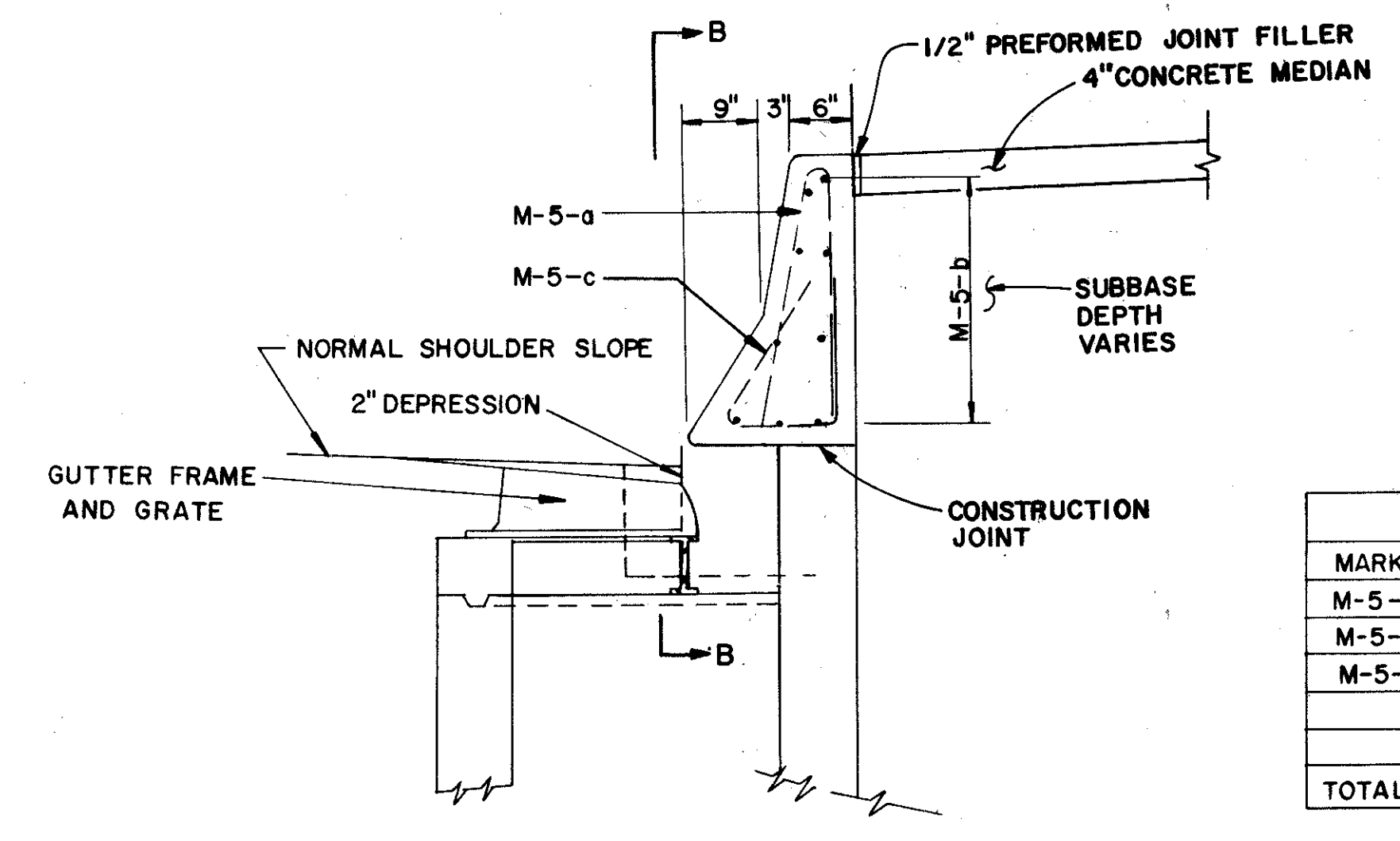
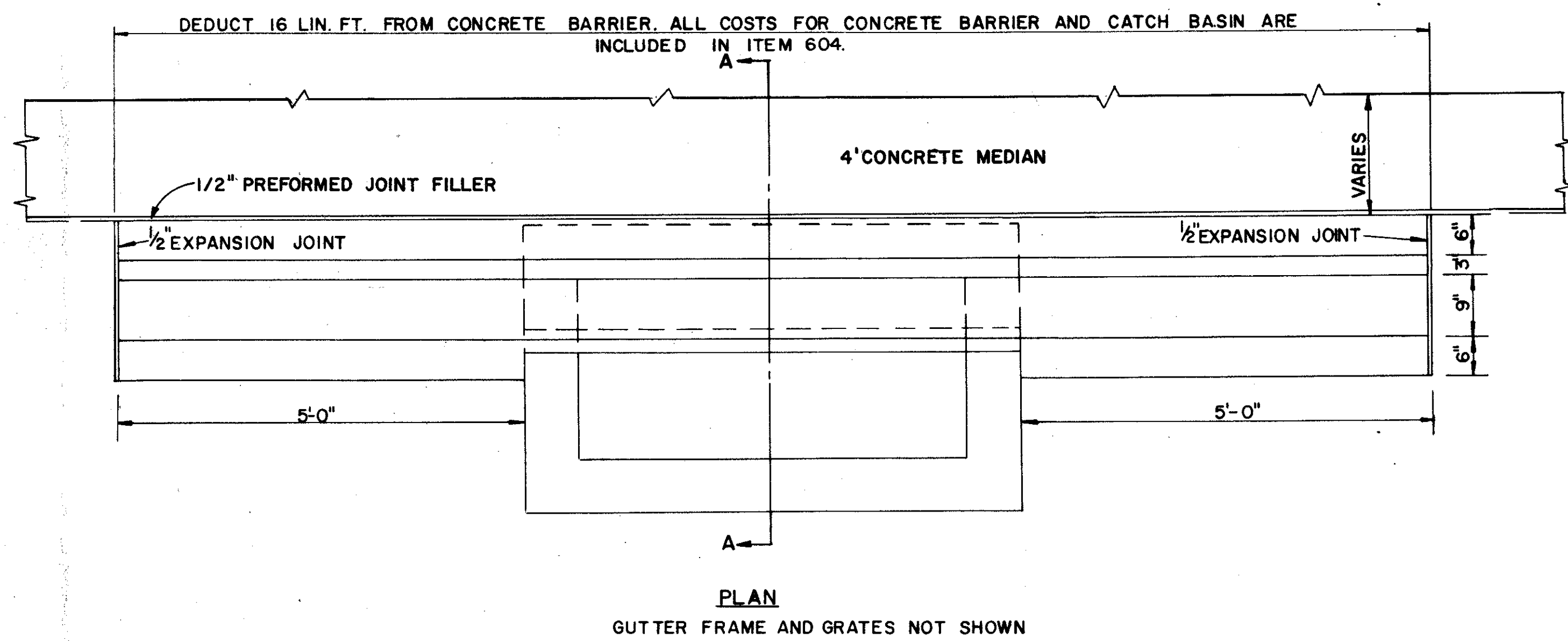
Howard, Needles, Tammen & Bergendoff
 CONSULTING ENGINEERS
 CLEVELAND, OHIO



SCALE: 1" = 5' HORIZONTAL AND VERTICAL

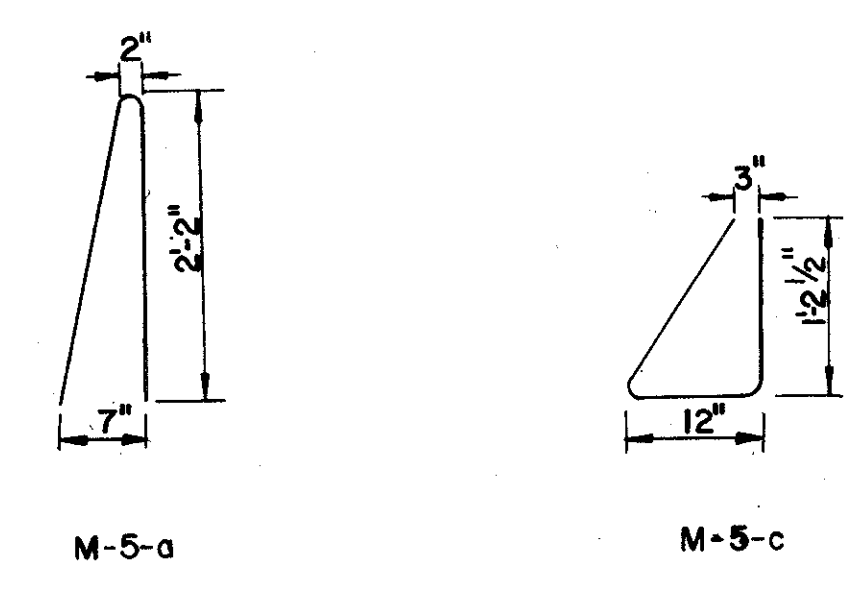
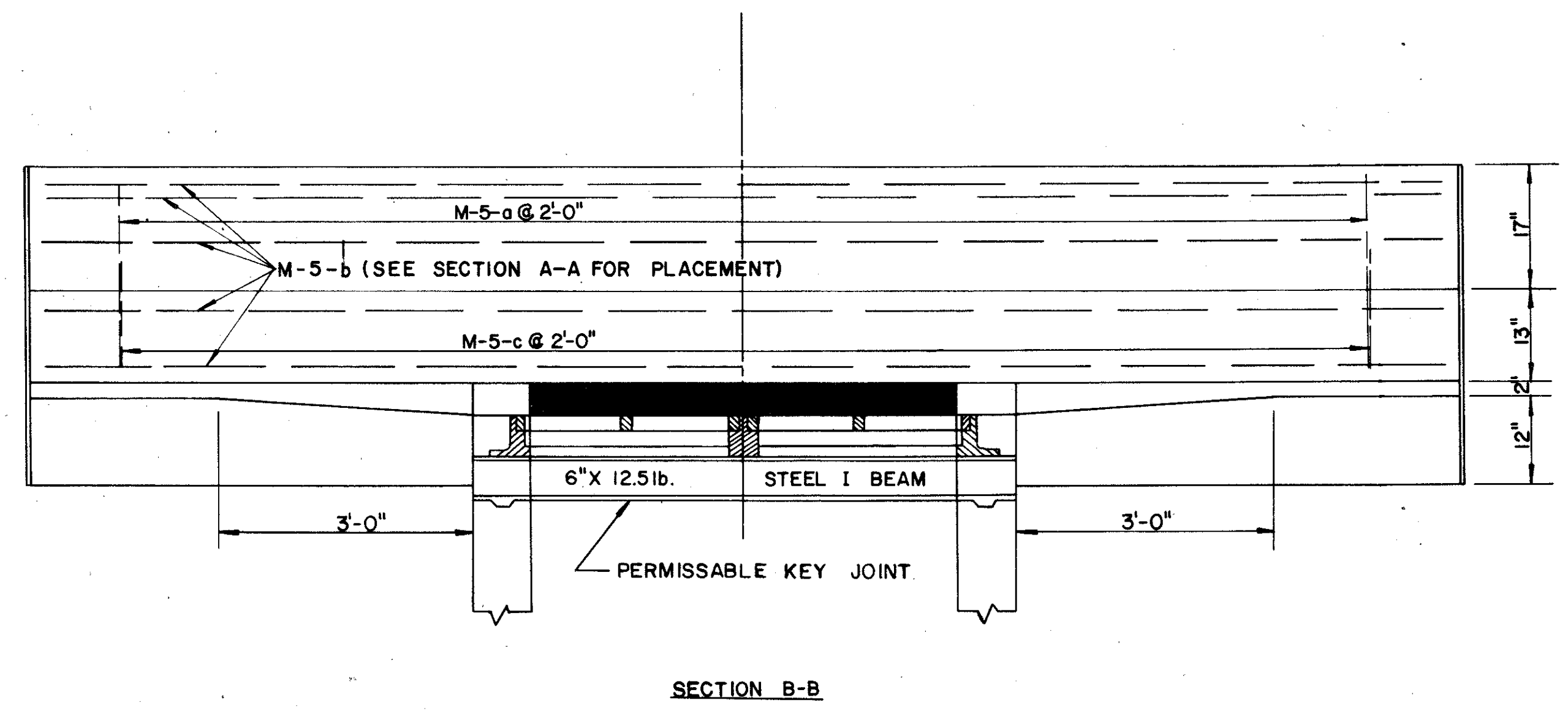
T.B.M. - "X" on E. Side, Conc. Base of Light Pole, 42.5' Lt. of Sta. 177+25 I-90 W.B. Elev. 582.59

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 CUY-77-14.12
 CUY-90-16.21



| STEEL LIST | | | |
|-------------------------|-----|--------|----------|
| MARK | NO. | LENGTH | WEIGHT |
| M-5-a | 8 | 4'-5" | 37 |
| M-5-b | 9 | 15'-8" | 147 |
| M-5-c | 8 | 3'-6" | 29 |
| TOTAL REINFORCING STEEL | | | 213 lbs. |

NOTES:
 THE STEEL LIST TABLE QUANTITY IS INCLUDED WITH THIS DRAWING FOR ESTIMATING PURPOSES ONLY.
 FOR NOTES, DIMENSIONS AND DETAILS NOT SHOWN STANDARD CONSTRUCTION DRAWINGS CB-3 "CATCH BASINS" AND I-3 "MEDIAN INLETS" SHALL APPLY.



STANDARD NO.3 CATCH BASIN, MODIFIED, AS PER PLAN

BRUNING 44560 10943

MADE BY: ANS DATE: 3-2-72
 TRACED BY: BDL DATE: 3-1-72
 CHECKED BY: MRE DATE: 3-4-72
 SCALE: 1/4" = 1'-0"

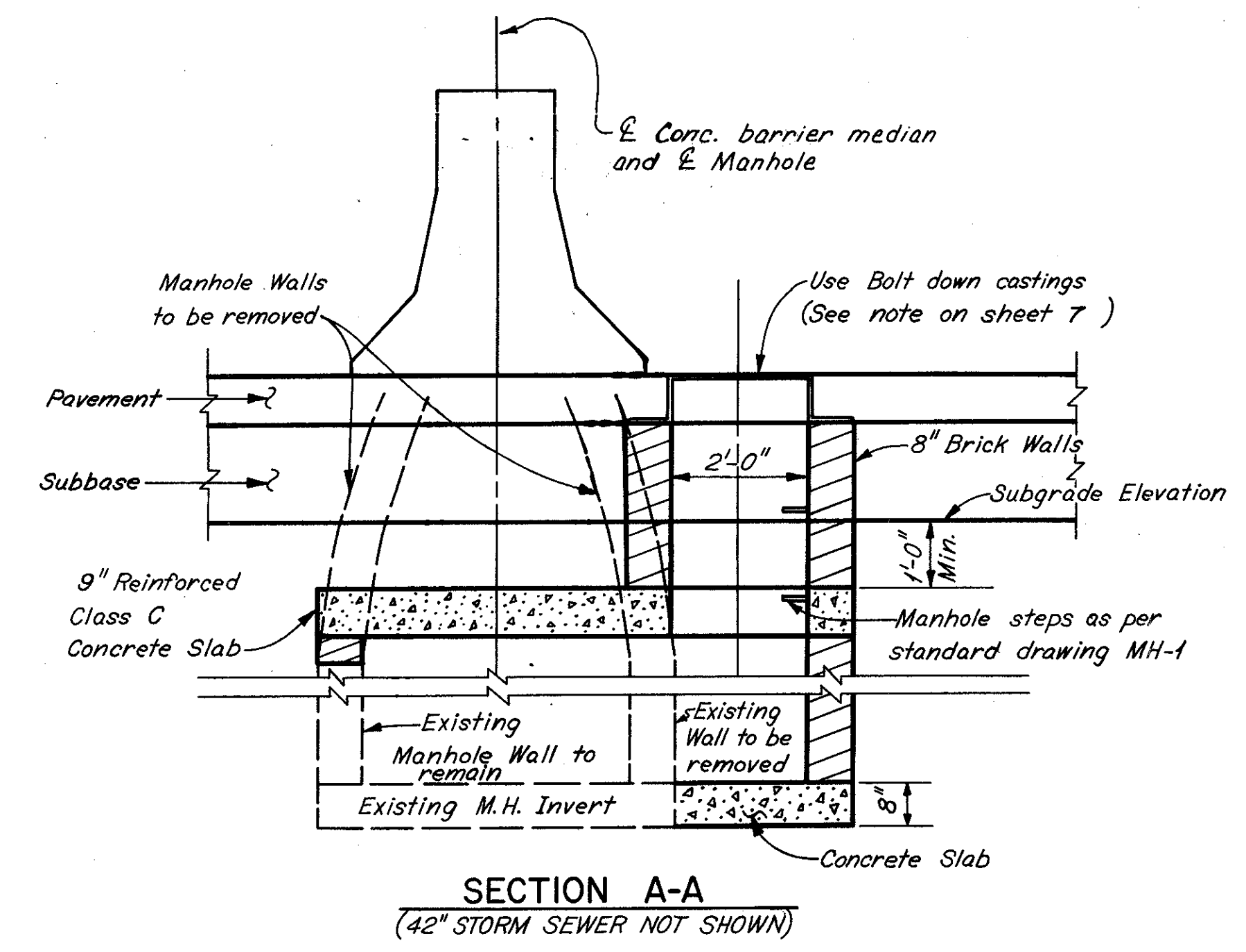
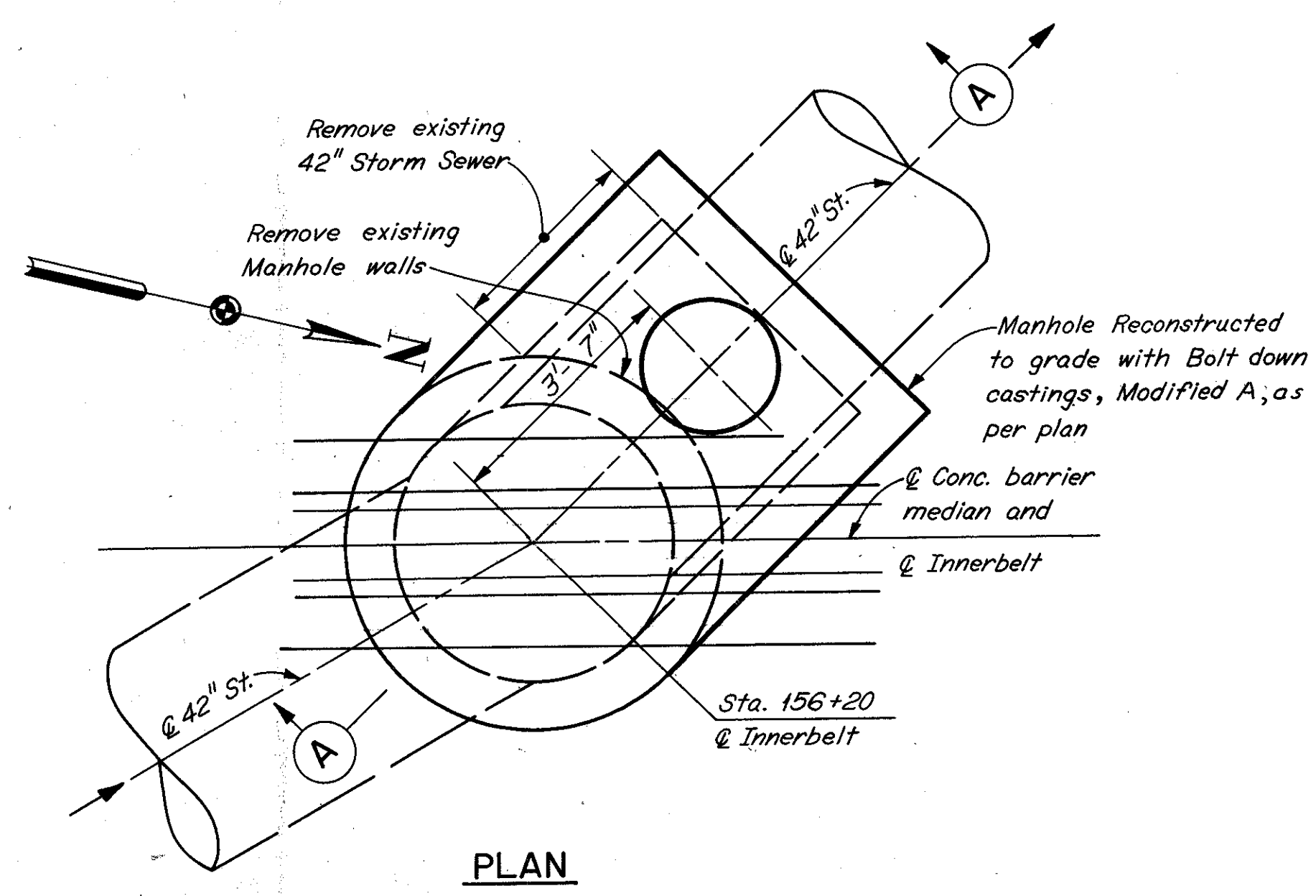
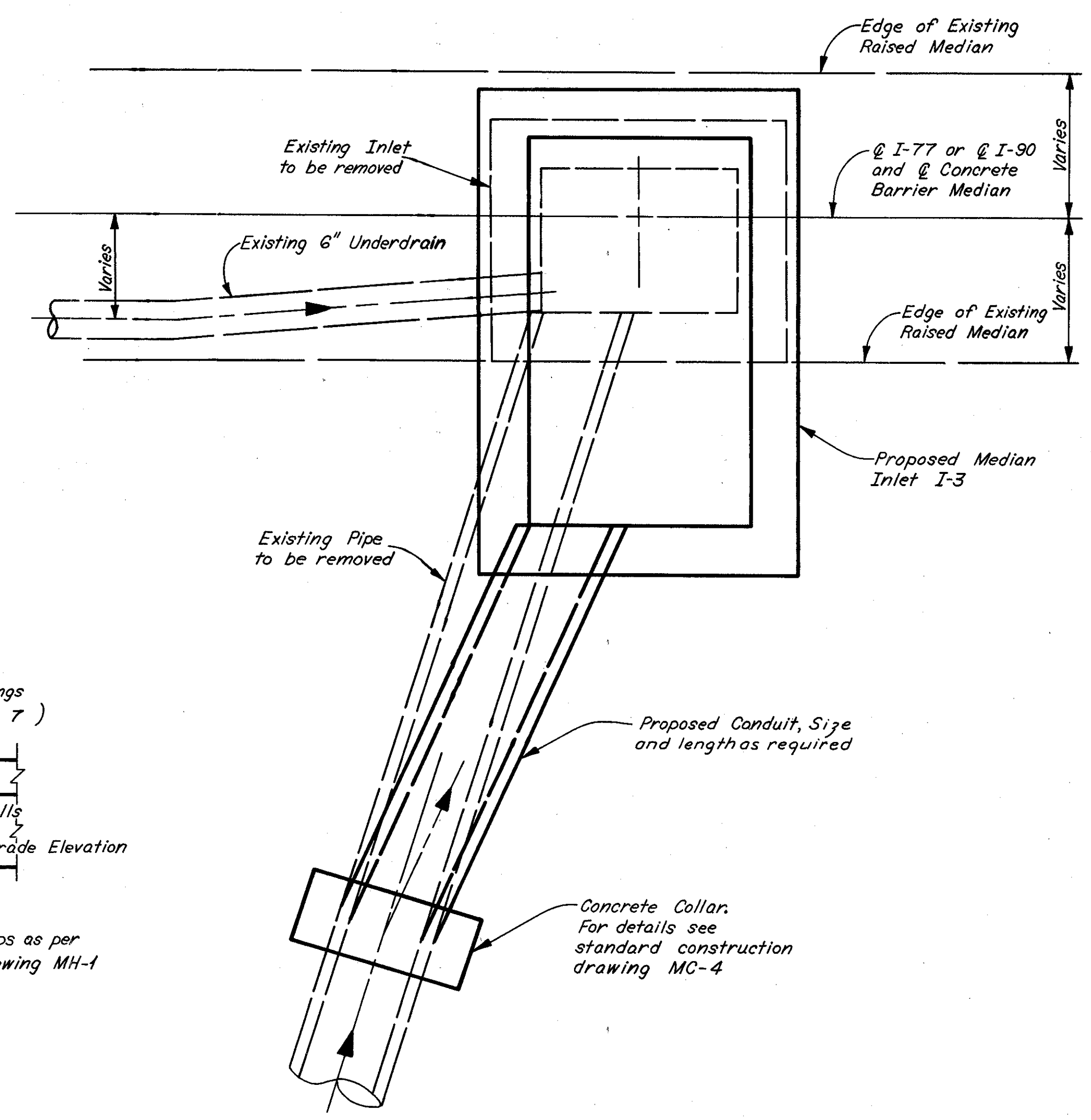
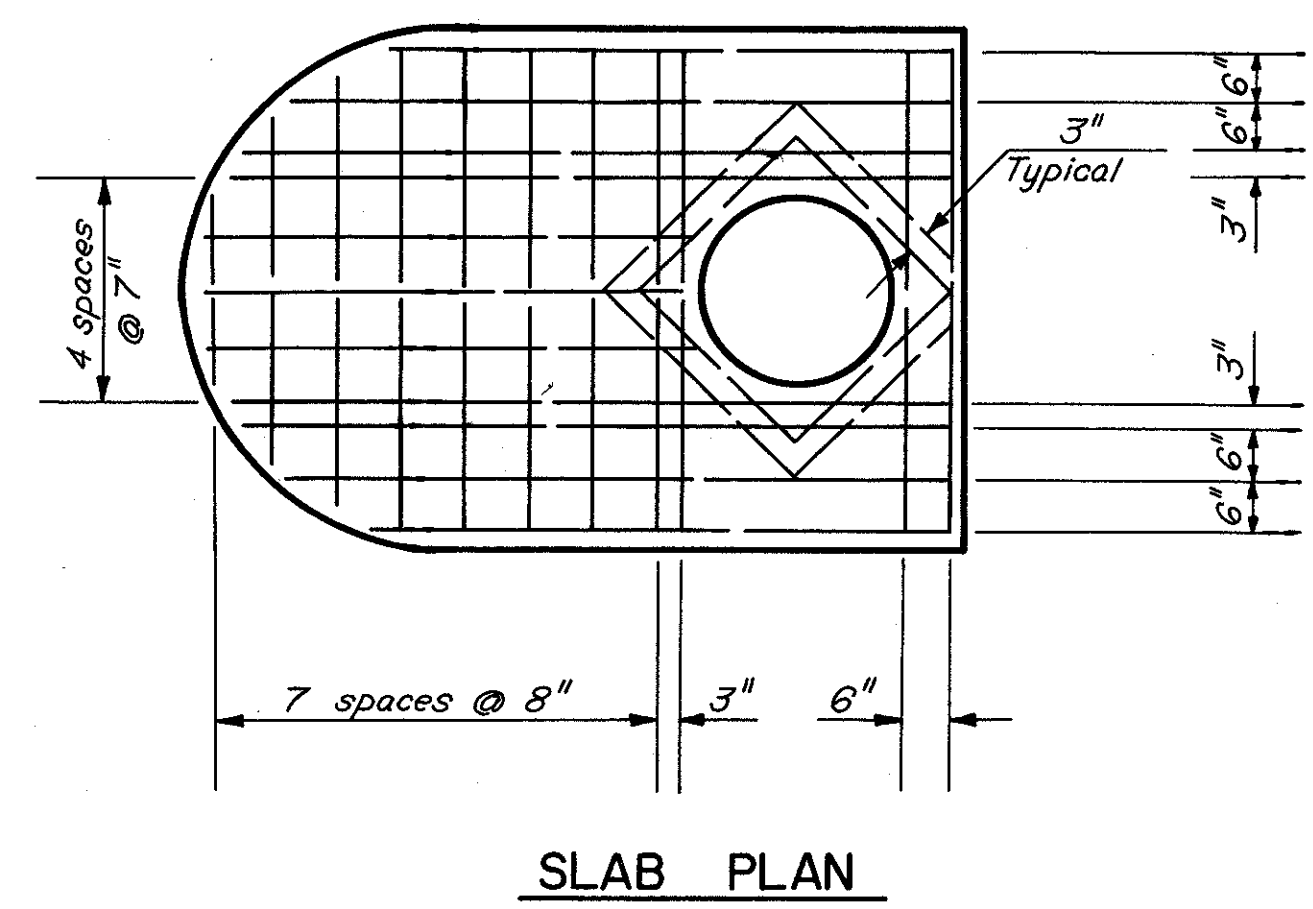
Howard, Needles, Tammen & Bergendoff
 CONSULTING ENGINEERS
 CLEVELAND, OHIO



DRAINAGE DETAILS

| | | | |
|-------------|-------|---------|--|
| FHWA REGION | STATE | PROJECT | |
| 5 | OHIO | | |

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NOTES:
All dimensions and elevations to be determined in the field by the Engineer.
Reinforcing bars shall be No. 6 spaced as indicated, with a minimum cover of 1 1/2". Reinforcing rods shall be cut, bent and placed in the field as directed by the Engineer.
Payment for above work shall be included with unit price bid per each item.
604 - Manhole Reconstructed to grade with bolt down casting, modified A, as per plan.

MANHOLE RECONSTRUCTED TO GRADE WITH BOLT DOWN CASTING, MODIFIED A, AS PER PLAN

Scale: 1/2" = 1'-0"

MADE A.H.S. DATE 4-30-75
TRACED T.S. DATE 5-3-75
CHECKED M.E. DATE 5-2-76
SCALE As Shown

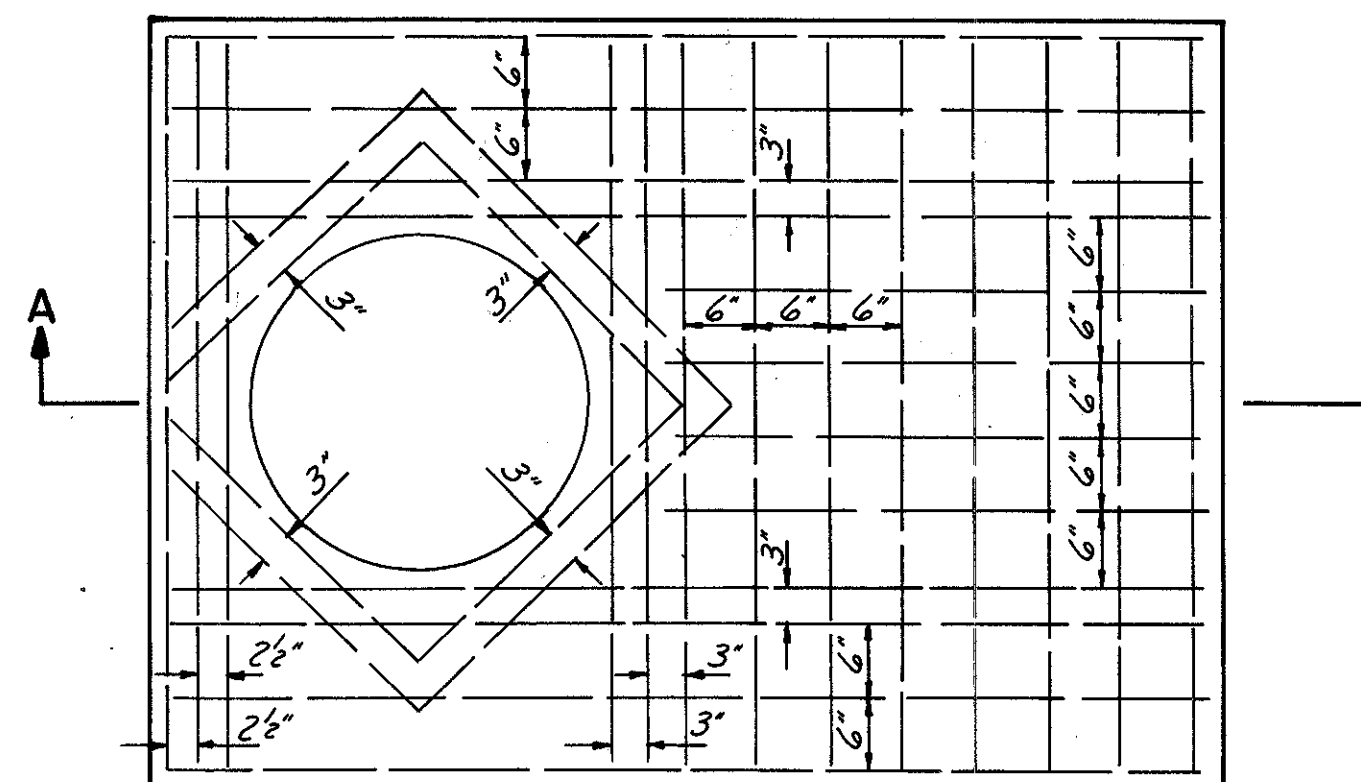
Howard, Needles, Tammen & Bergendoff
CONSULTING ENGINEERS
CLEVELAND, OHIO

HNTB

| FHWA REGION | STATE | PROJECT |
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| 5 | OHIO | |

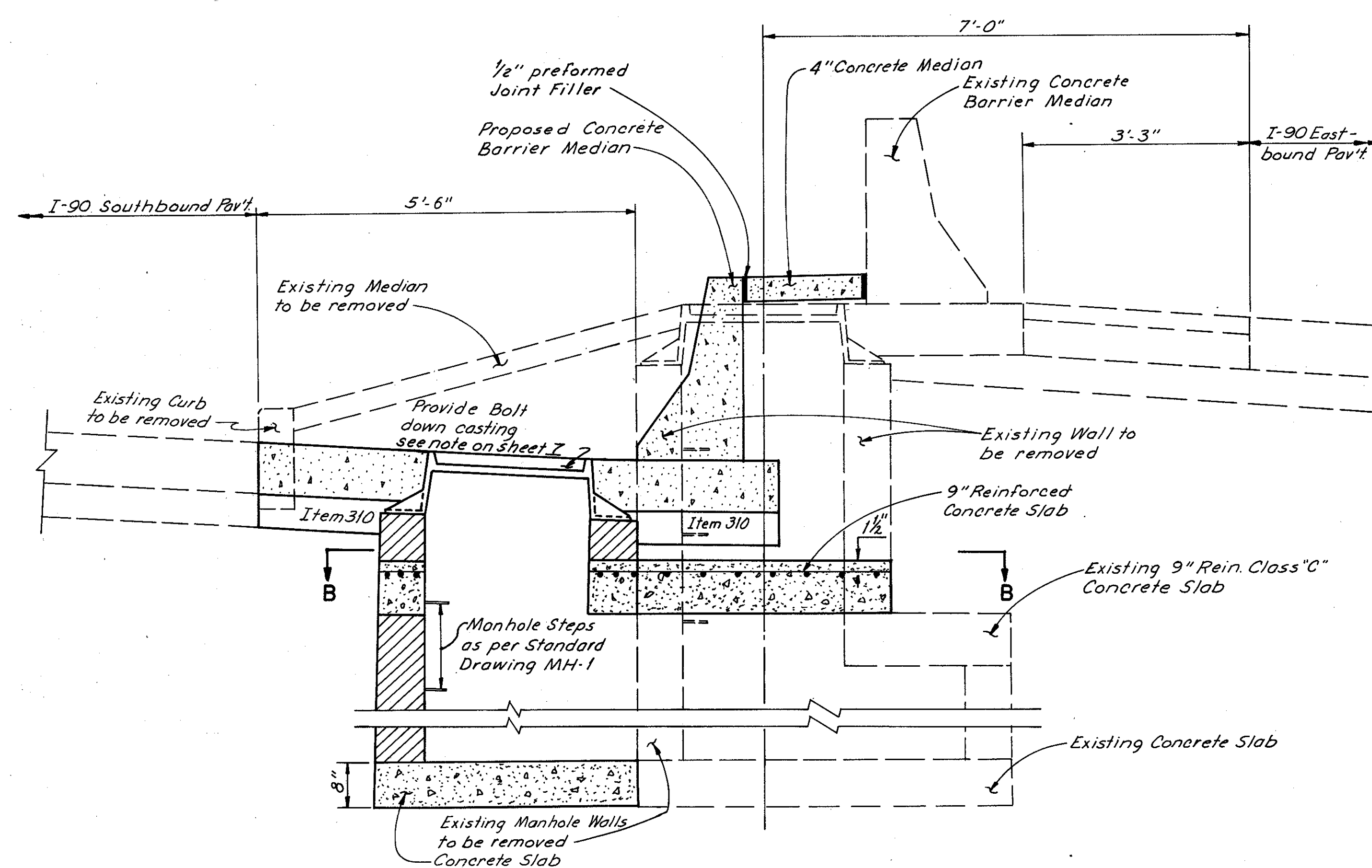
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CUY-90-16.21

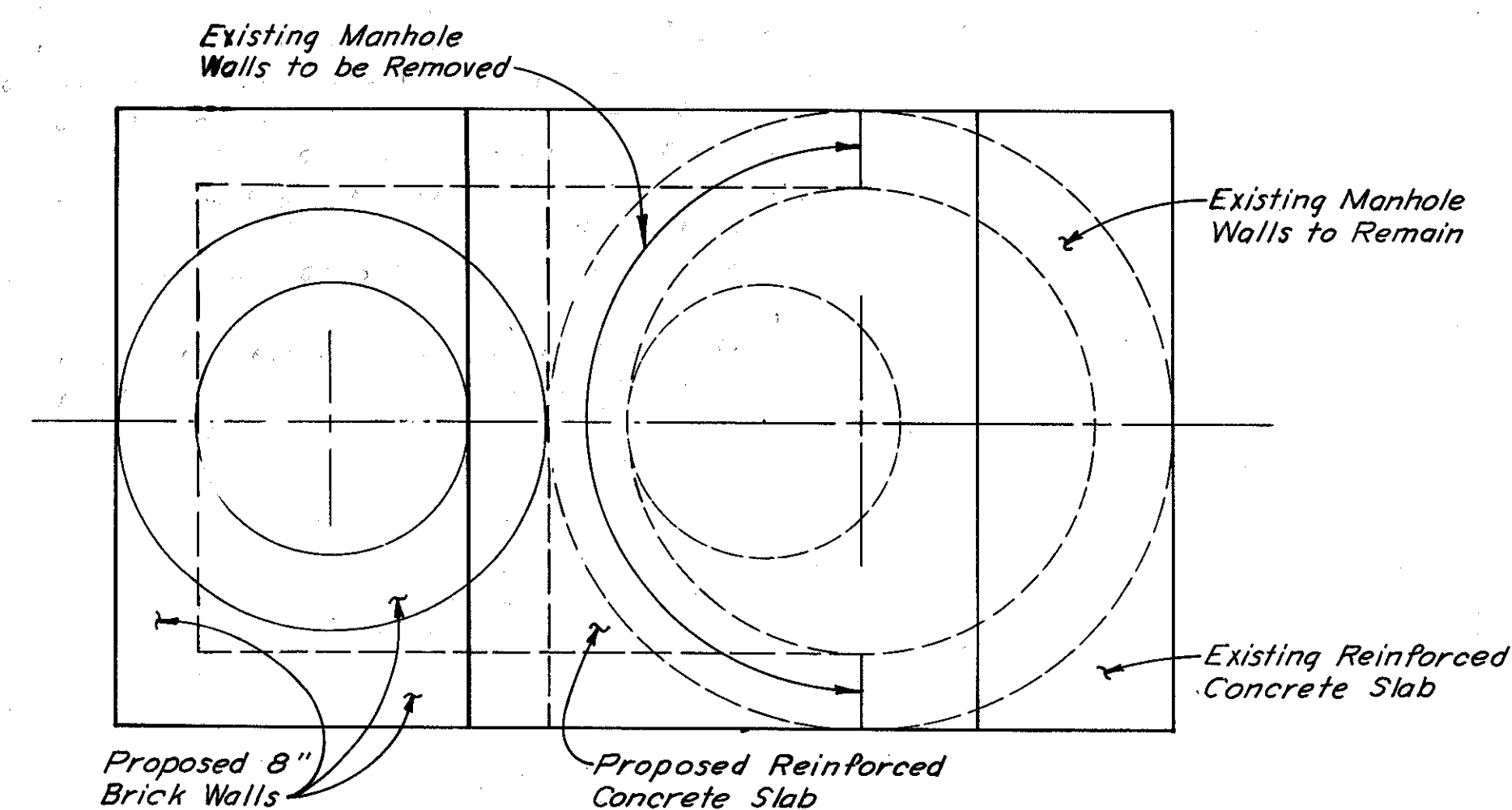


For reinforcing see note below

SLAB PLAN



SECTION A-A
(Storm Sewers not shown)



SECTION B-B

NOTES:

All dimensions and elevations to be determined in the field by the Engineer.
Reinforcing bars shall be No. 6 spaced as indicated, with a minimum cover of 1 1/2". Reinforcing rods shall be cut, bent and placed in the field as directed by the Engineer.
Payment for above work shall be included with unit price bid per each item 604 - Manhole Reconstructed to grade with bolt down casting, modified B, as per plan.

MANHOLE RECONSTRUCTED TO GRADE WITH
BOLT DOWN CASTING, MODIFIED B AS PER PLAN

I-90 EAST BOUND STA. 77+00

MADE AHS DATE 9-1-75
TRACED RDJ DATE 3-2-75
CHECKED MEE DATE 2-3-75
SCALE 3/4" = 1'-0"

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

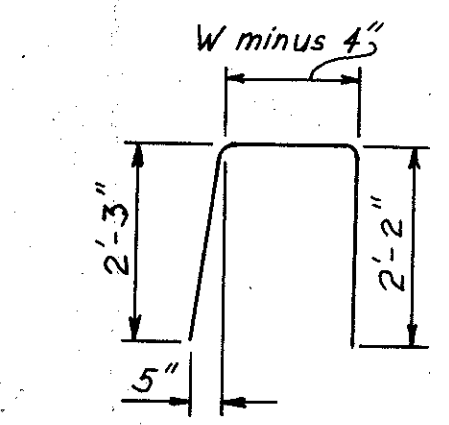
HNTB

QUANTITY CALCULATIONS
 MADE BY DSP DATE 6-16-77
 CHECKED BY AHS DATE 6-22-77

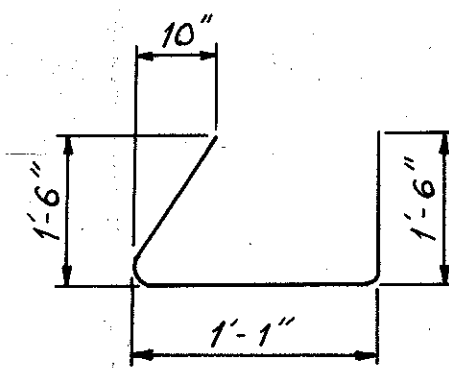
CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

| STEEL LIST | | | | | | | |
|------------|-------|----------|-------|----------|-------|----------|----------|
| W | M-5-a | | M-5-b | | M-5-c | | 6 I 12.5 |
| | No. | Lin. Ft. | No. | Lin. Ft. | No. | Lin. Ft. | No. |
| 9" | 10 | 4'-10" | 9 | 19'-8" | 10 | 4'-3" | 2 |
| | | | | | | | 11'-0" |

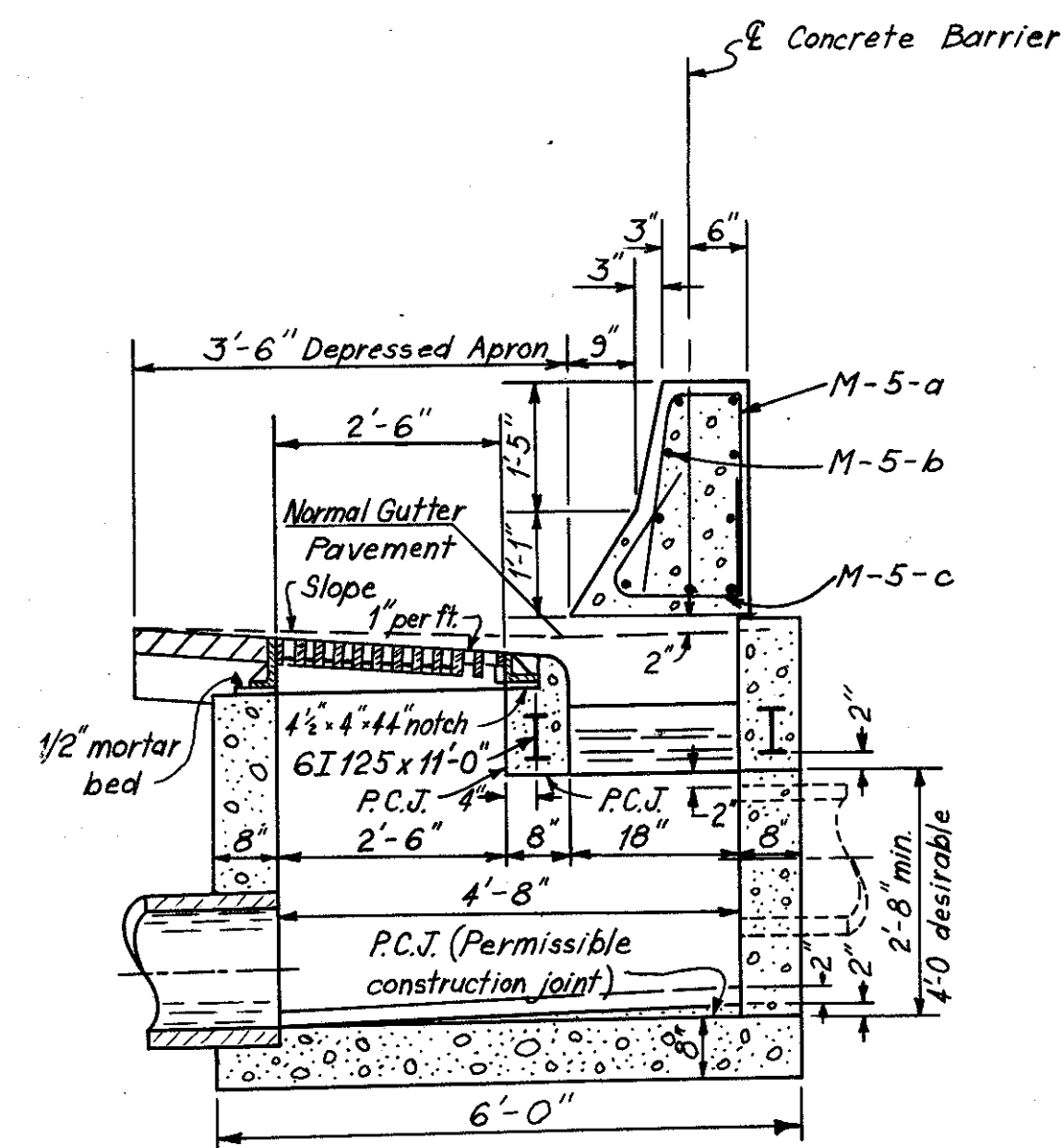
NOTE: For additional details see Standard Construction Drawing I-3, Median Inlets.



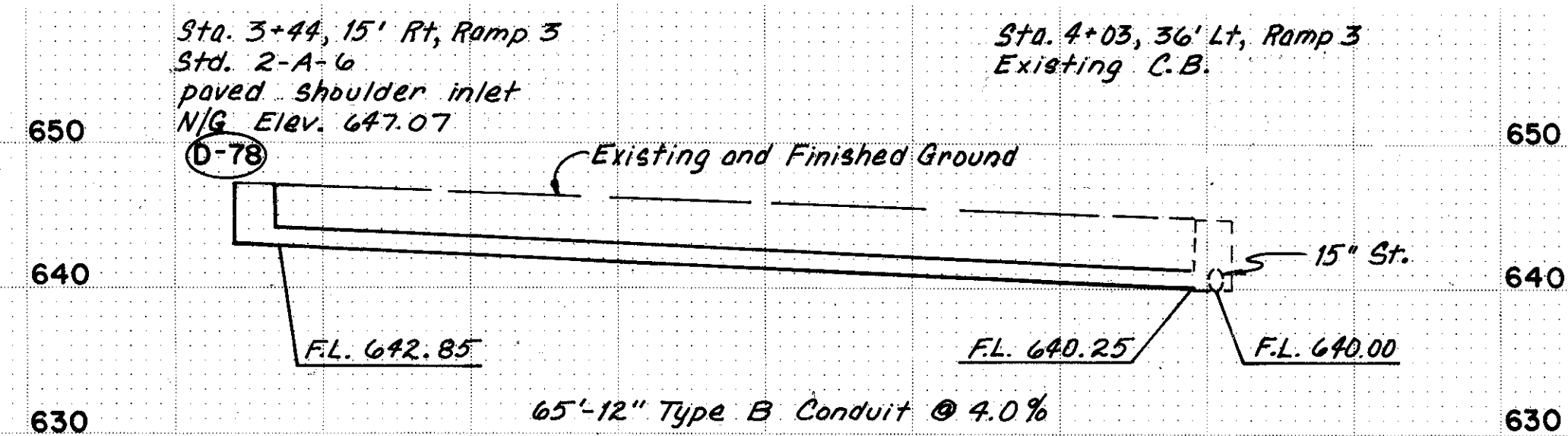
M-5-a



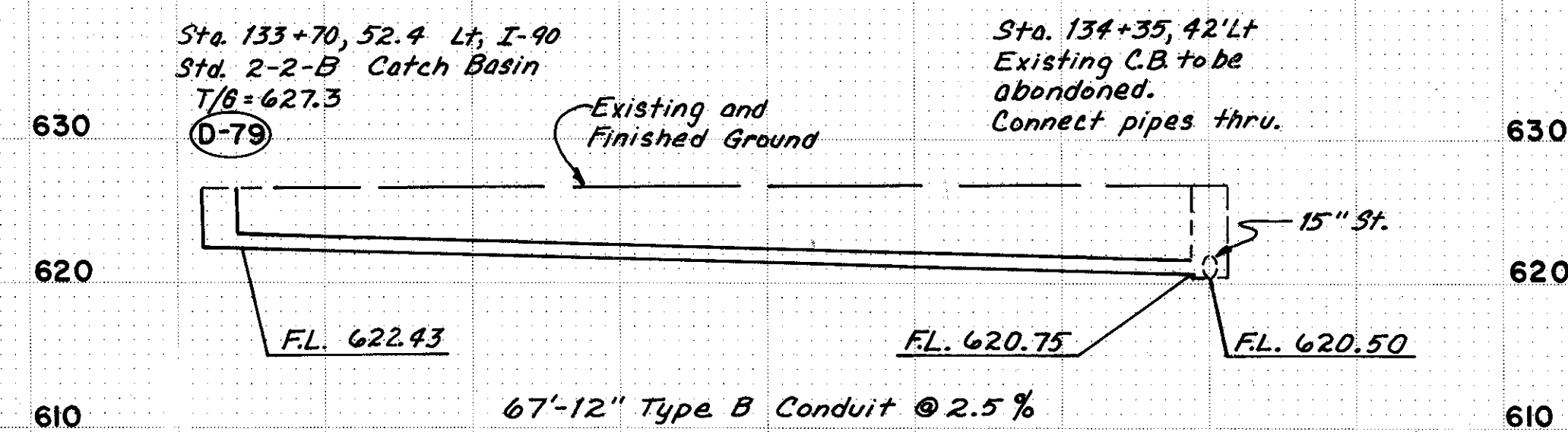
M-5-c



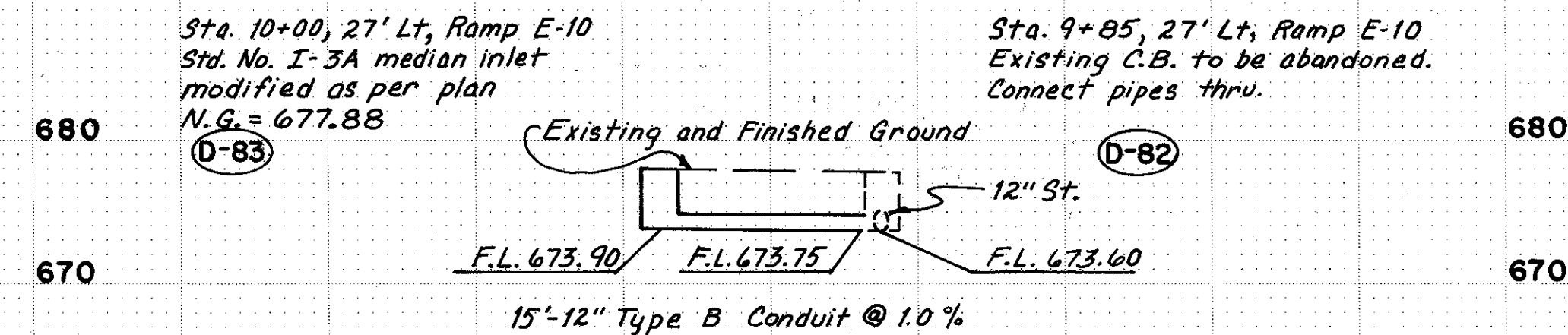
STANDARD NO. I-3A MEDIAN INLET MODIFIED AS PER PLAN
 (Section C-C as noted on Std. Const. Drwg. I-3)
 (Scale 1/2" = 1'-0")



DETAILS AT D-78



DETAILS AT D-79



DETAILS AT D-82 AND D-83

| DRAINAGE COST PARTICIPATION I | | | | | | | | Flow line elevations of existing and/or proposed storm sewers and Underdrains at proposed median inlets. | |
|-------------------------------|---------|-------|-----------------|----------------------------|-------------------|--------------------|--|--|---|
| REF. NO. | STATION | | 202 | 202 | 603 | 603 | 604 | | N.G. |
| | FROM | TO | Inlet Abandoned | Pipe Removed 24" and Under | Type F Conduit 6" | Type B Conduit 12" | Std. I-3A Median Inlet Mod., As per plan | | |
| D-82 | 9+85 | | 1** | | | | | 677.35 | 12"(S) 673.80 12"(SW) 673.60; 6"(S) 674.10 |
| D-83 | 9+85 | 10+00 | | 15 | 10 | 15 | 1 | 677.88 | 12"(N) 673.90; 6"(S) 674.74 |
| D-84 | | 13+00 | | | | | 1 | 680.32 | 12"(NW) 676.57; 6"(S) 677.25 |
| | TOTALS | | 1 | 15 | 10 | 15 | 2 | | |

** Connect pipes through

Notes:
 For location of D-78 see sheet 24.
 For location of D-79 see sheet 25.
 For location of D-82 and D-83 see sheet 35.

11-0

| | | | |
|-------------|-------|---------|--|
| FHWA REGION | STATE | PROJECT | |
| 5 | OHIO | | |

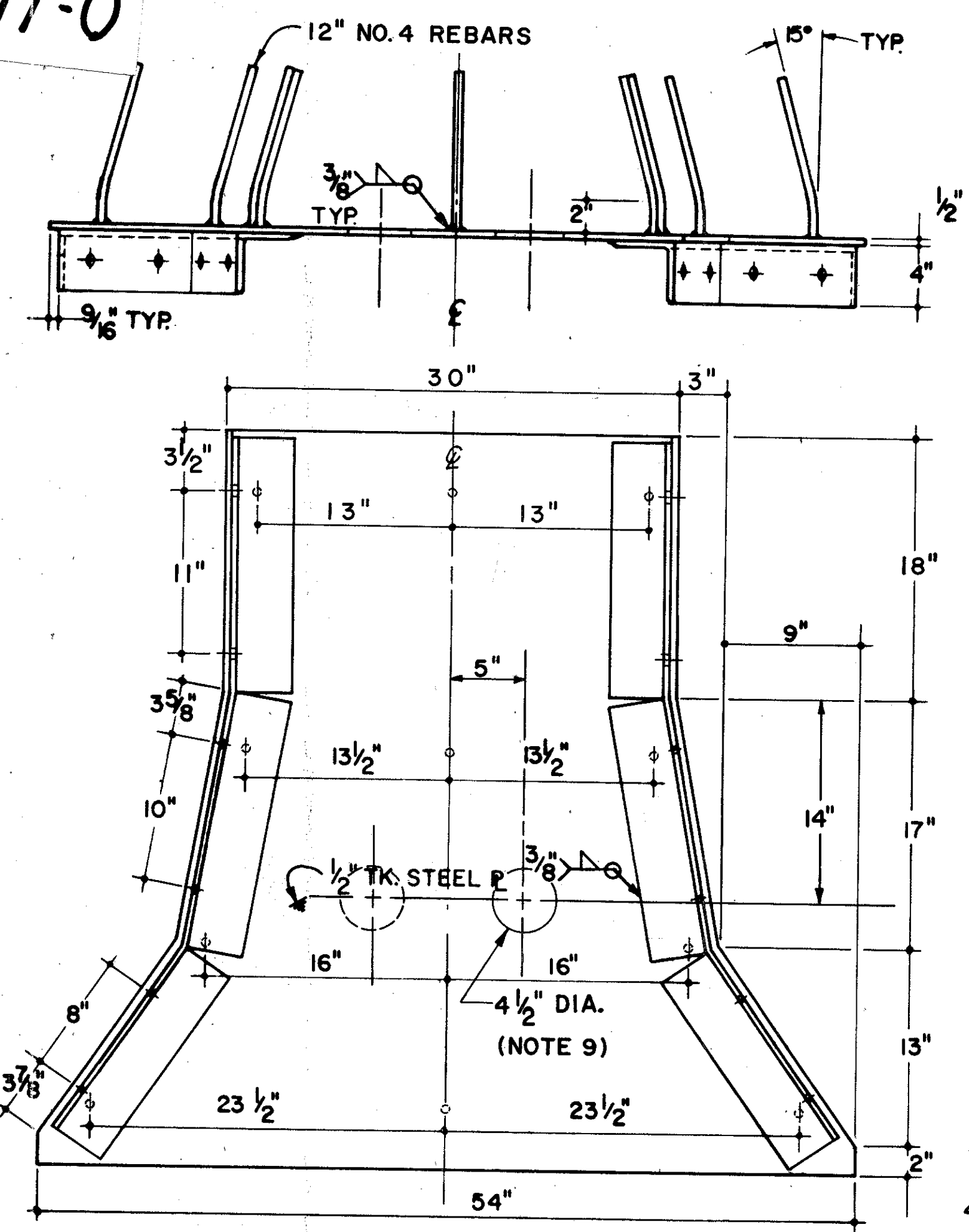
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169

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CUY-77-13.79
CUY-90-16.21

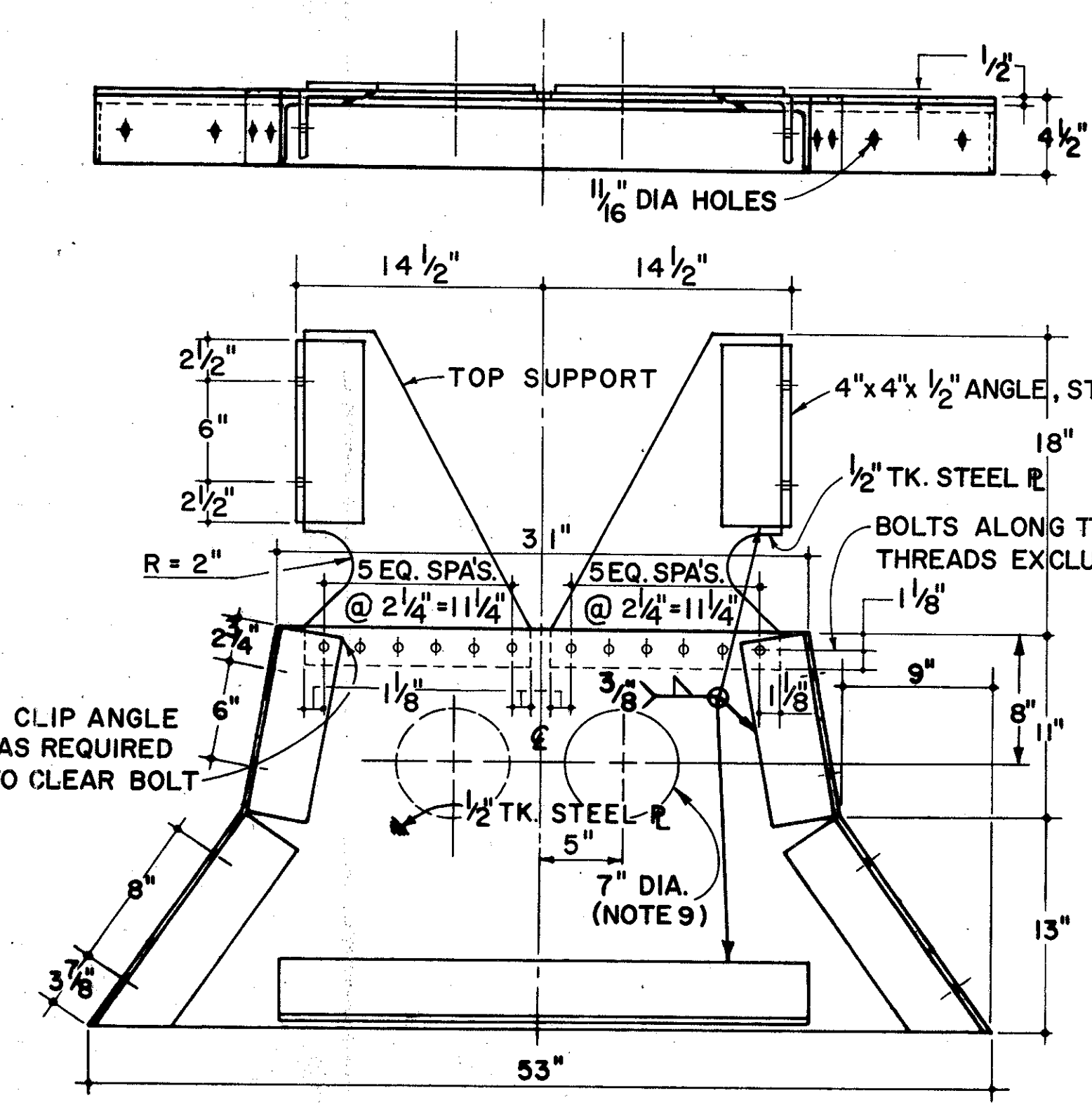
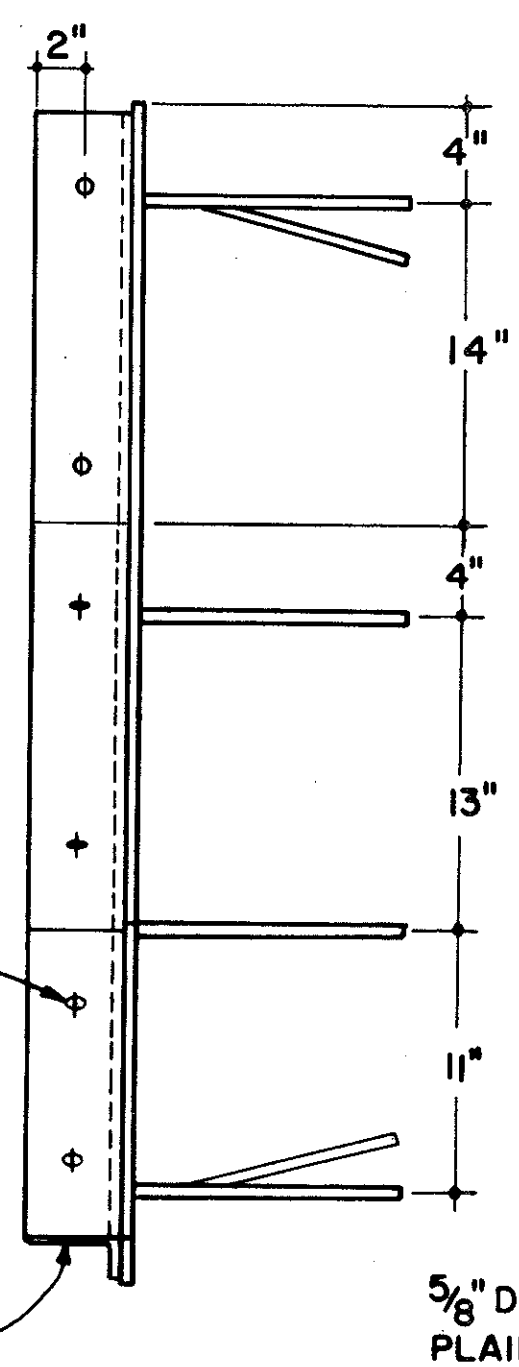
| DESIGN | BARRIER WALL OPENING | WALL R LENGTH |
|-----------------|----------------------|---------------|
| 1 | 10'-0" | 9'-10" |
| 2* | 4'-0" | 3'-10" |
| 1A [⊕] | 10'-0" | 9'-10" |

CHART "A"

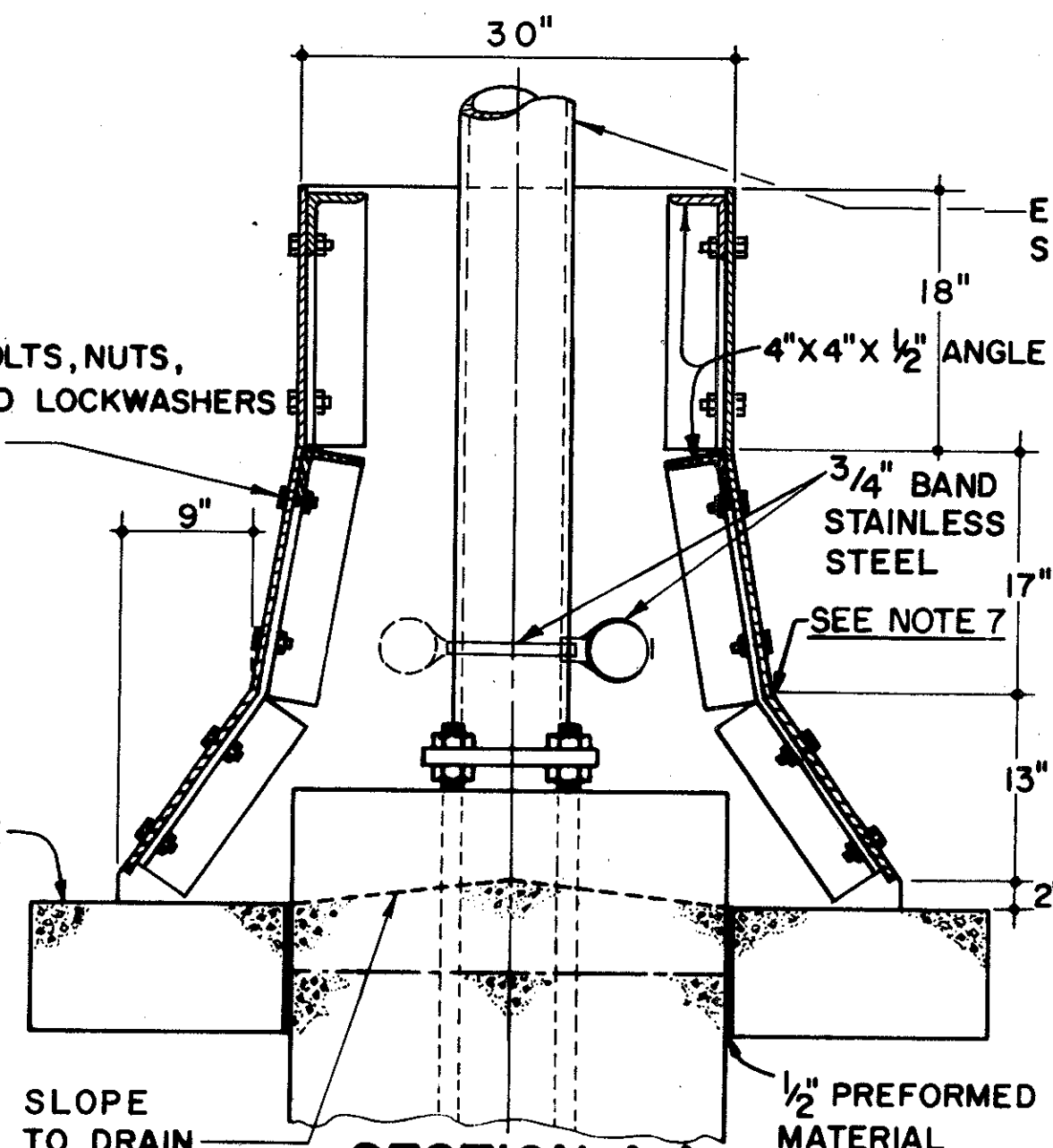
* SEE NOTE 8
⊕ SEE NOTE II



END BULKHEAD



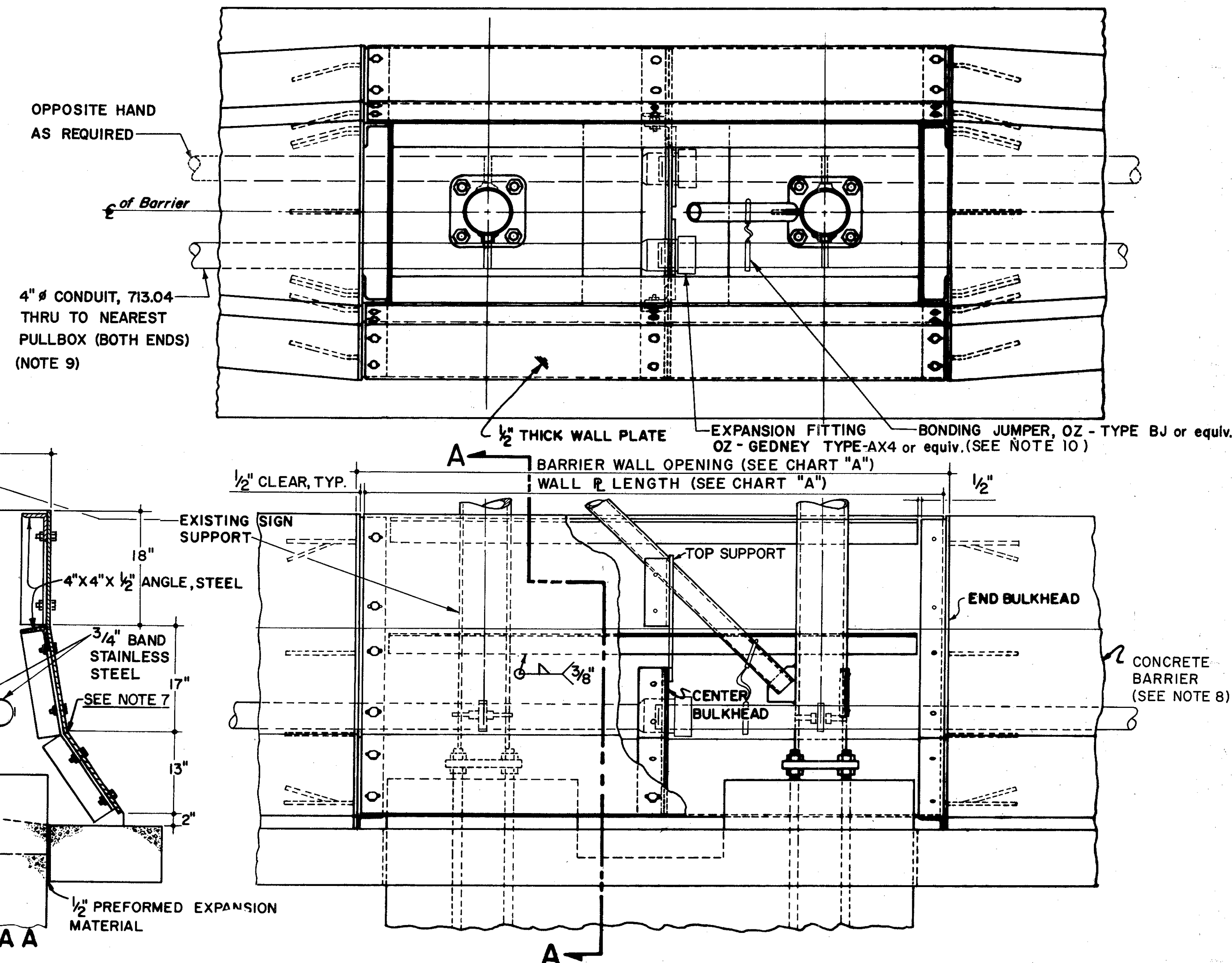
CENTER BULKHEAD



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."



10. SET FREE END OF CONDUIT AT THE CENTER OF THE EXPANSION COUPLING TRAVEL.
11. DESIGN 1A CONSISTS OF 18 INCH STEEL GLARE SCREEN ONLY. THE DESIGN SHALL BE ESSENTIALLY THE SAME AS THE TOP 18 INCHES OF THE BARRIER SHOWN WITH THE FOLLOWING EXCEPTION; ADD TWO ADDITIONAL REBAR ANCHORS AT EACH END BULKHEAD 3 1/2 INCHES FROM THE BOTTOM OF THE FRAMEWORK. (2) ANCHOR THE TOP SUPPORT OF THE CENTER BULKHEAD INTO THE CONCRETE MEDIAN USING TWO 12 INCH NO. 4 REBAR ANCHORS PER SIDE.

NOTE :

THE PURPOSE OF THIS DRAWING IS TO SHOW THE MODIFICATION TO STANDARD CONSTRUCTION DRAWING TC-2131, FOR THE PURPOSE OF INCLUDING 4" RACEWAY AND AN 18" VERTICAL EXTENSION, AS PART OF THIS DETAIL.

NOTE

REFER TO STANDARD CONSTRUCTION DRAWING TC-21.10 FOR TYPICAL DIMENSIONS WITH THE FOLLOWING MODIFICATIONS TO REINFORCEMENT SCHEDULES.

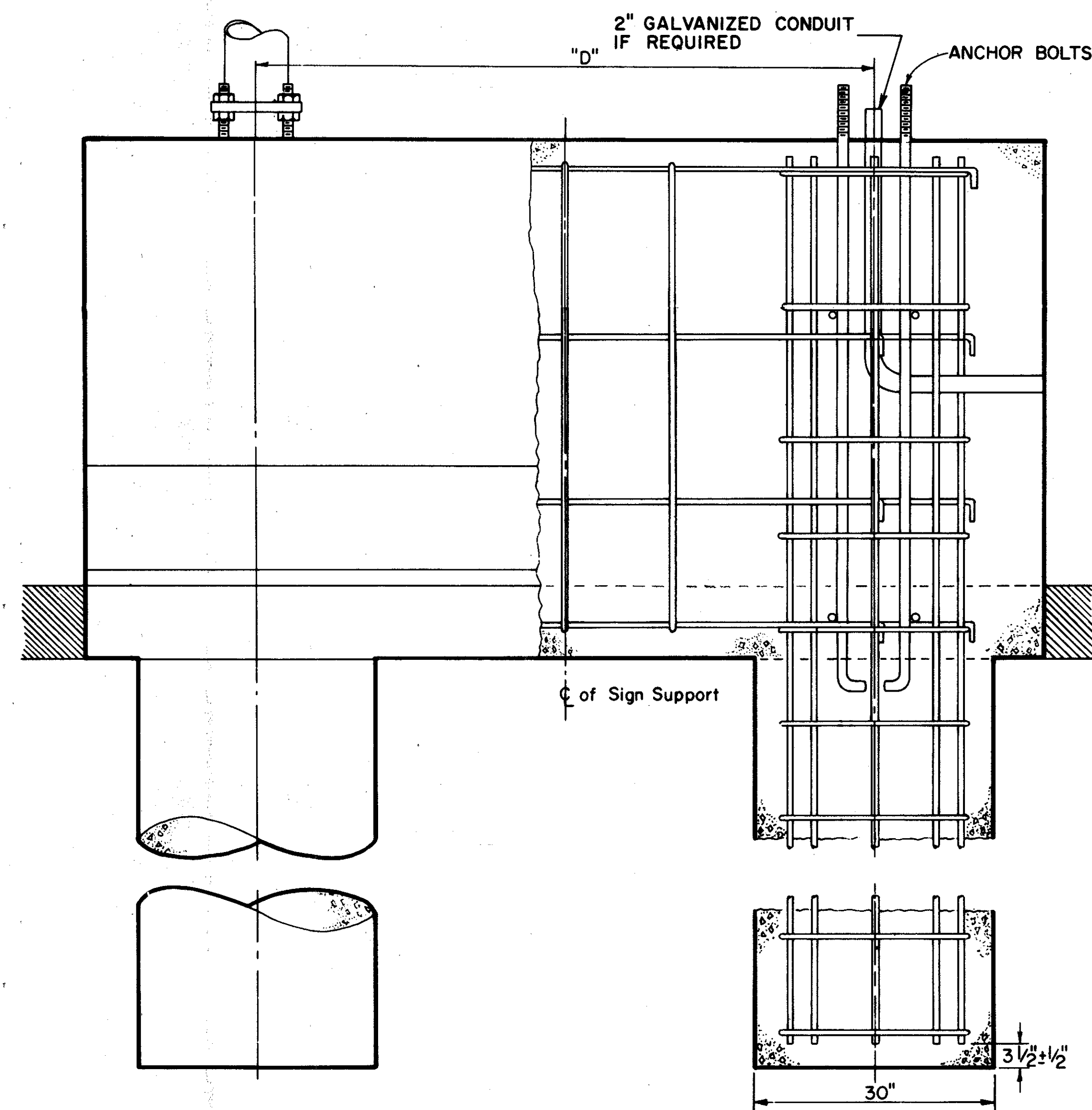
- MARK 601 LENGTH = D MIN. + 5"
- MARK 603 NUMBER = 4
- MARK 604 NUMBER = 8
- MARK 402 VERTICAL DIMENSION = 52"

REFER TO STANDARD CONSTRUCTION DRAWING TC-21.30 FOR ADDITIONAL DETAILS.

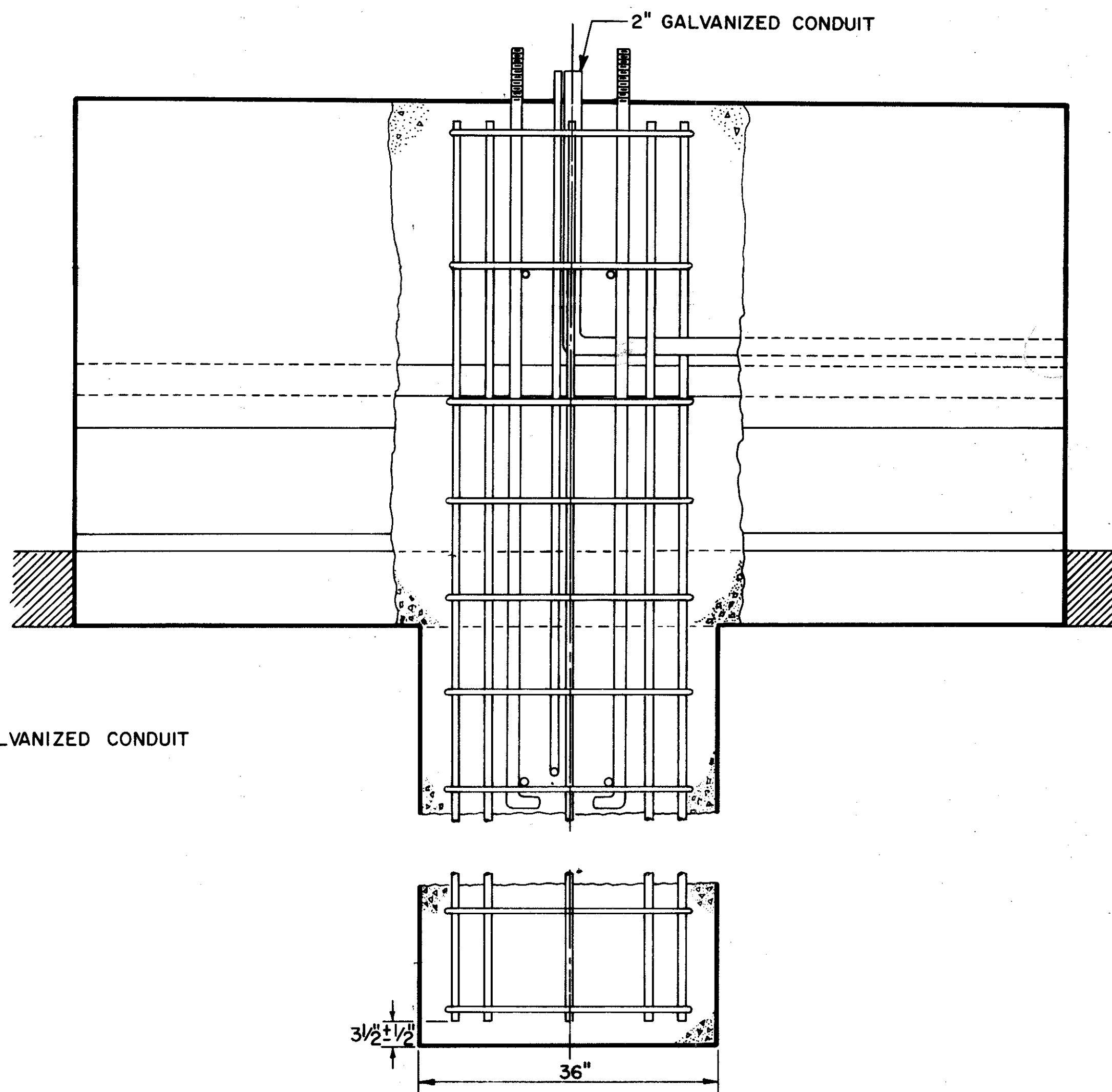
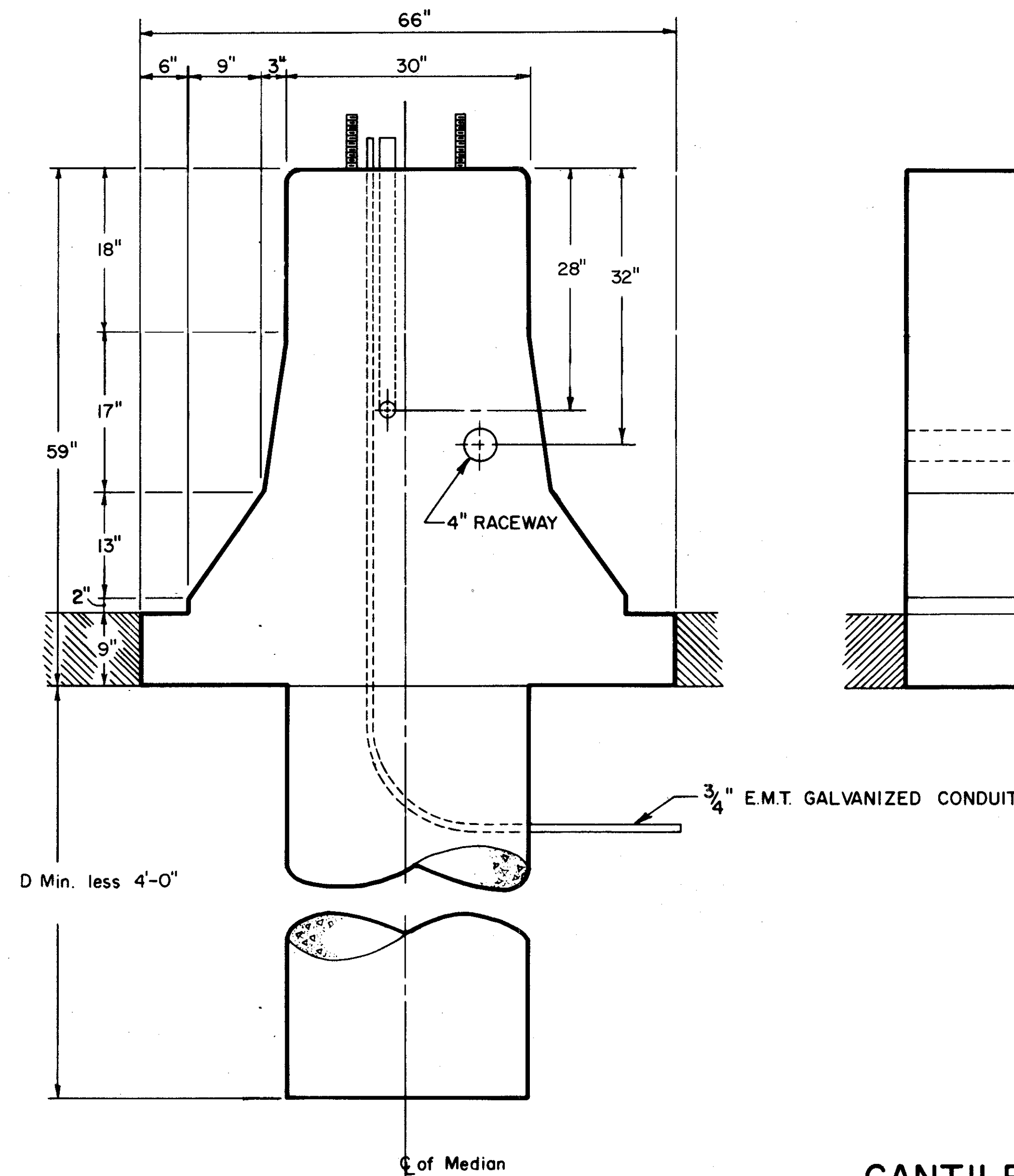
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| FHWA REGION | STATE | PROJECT | |
| 5 | OHIO | | |

44A
169

CUYAHOGA COUNTY
CUY-77-13.79
CUY-90-16.21



SPAN TYPE



CANTILEVER, BUTTERFLY OR CENTER MOUNT TYPE

FOR INFORMATION REGARDING THE TRANSITION SECTIONS OF THE BARRIER WALL SEE STANDARD CONSTRUCTION DRAWING MC-9.

MADE *MSB* DATE 6-21-77
TRACED *DWT* DATE 3-15-77
CHECKED *DSZ* DATE 3-15-77
SCALE No Scale

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

HNTB

Note:
For dimensions "D" and "D" Min. refer to Standard Construction Drawing TC-21.10.

CONCRETE BARRIER MEDIAN
OVERHEAD
SIGN SUPPORT FOUNDATIONS

FOR 50" BARRIER HEIGHT

No Scale

FENCE DETAILS

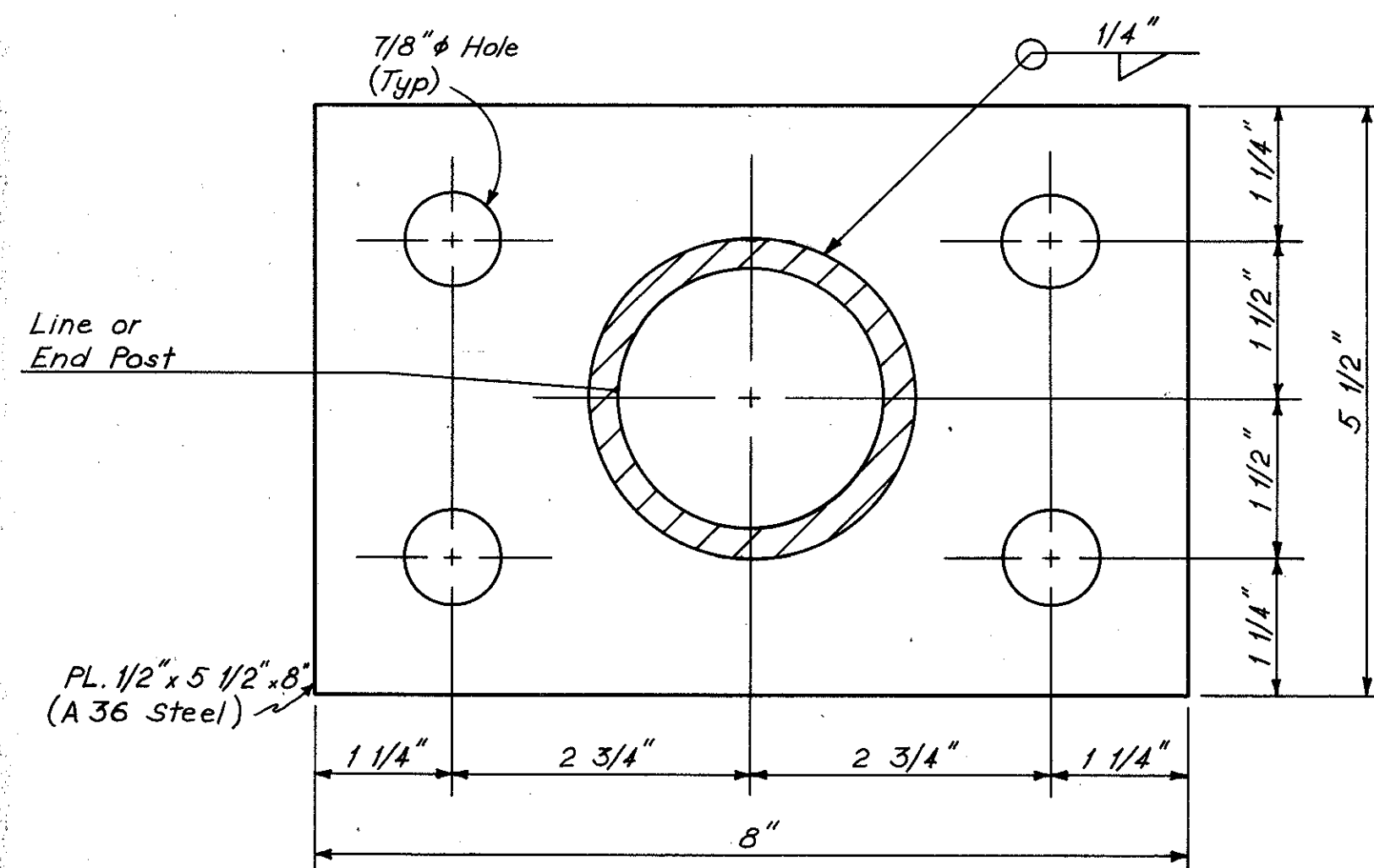
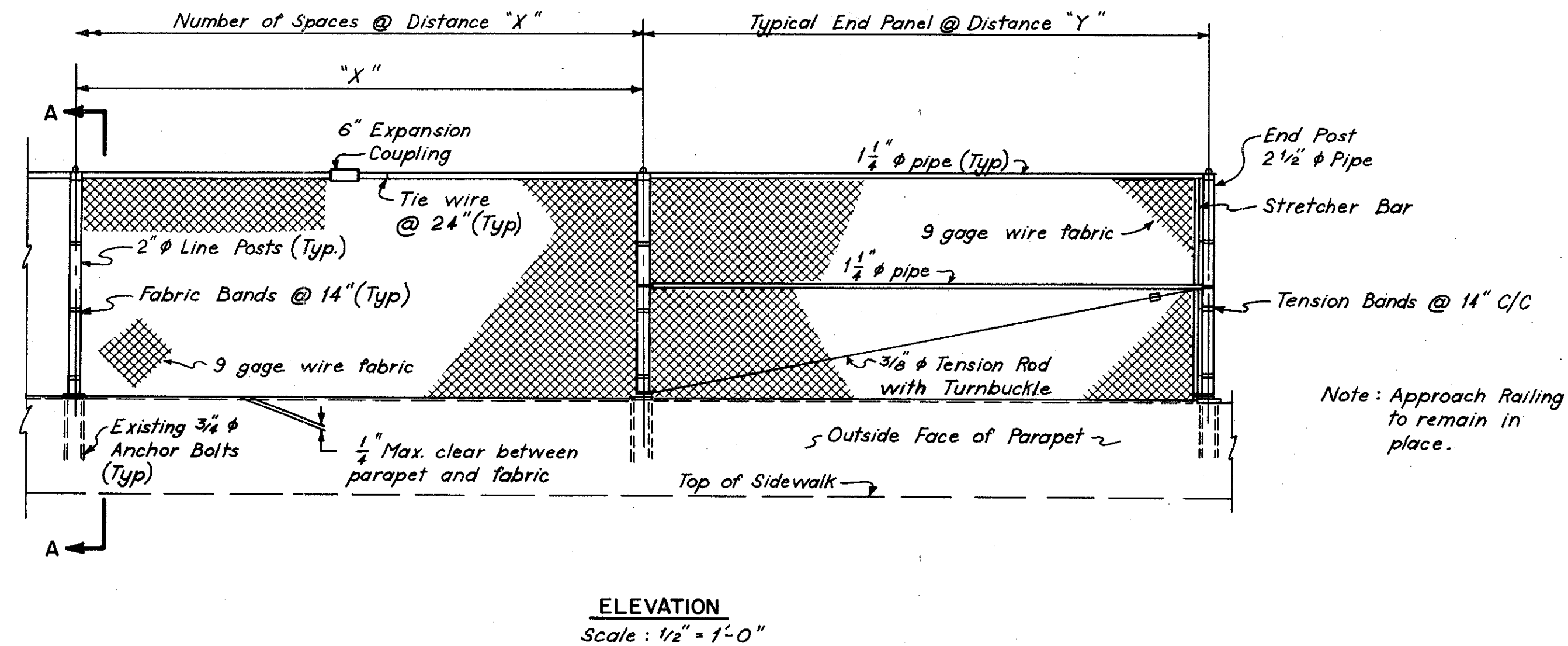
| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

45
169

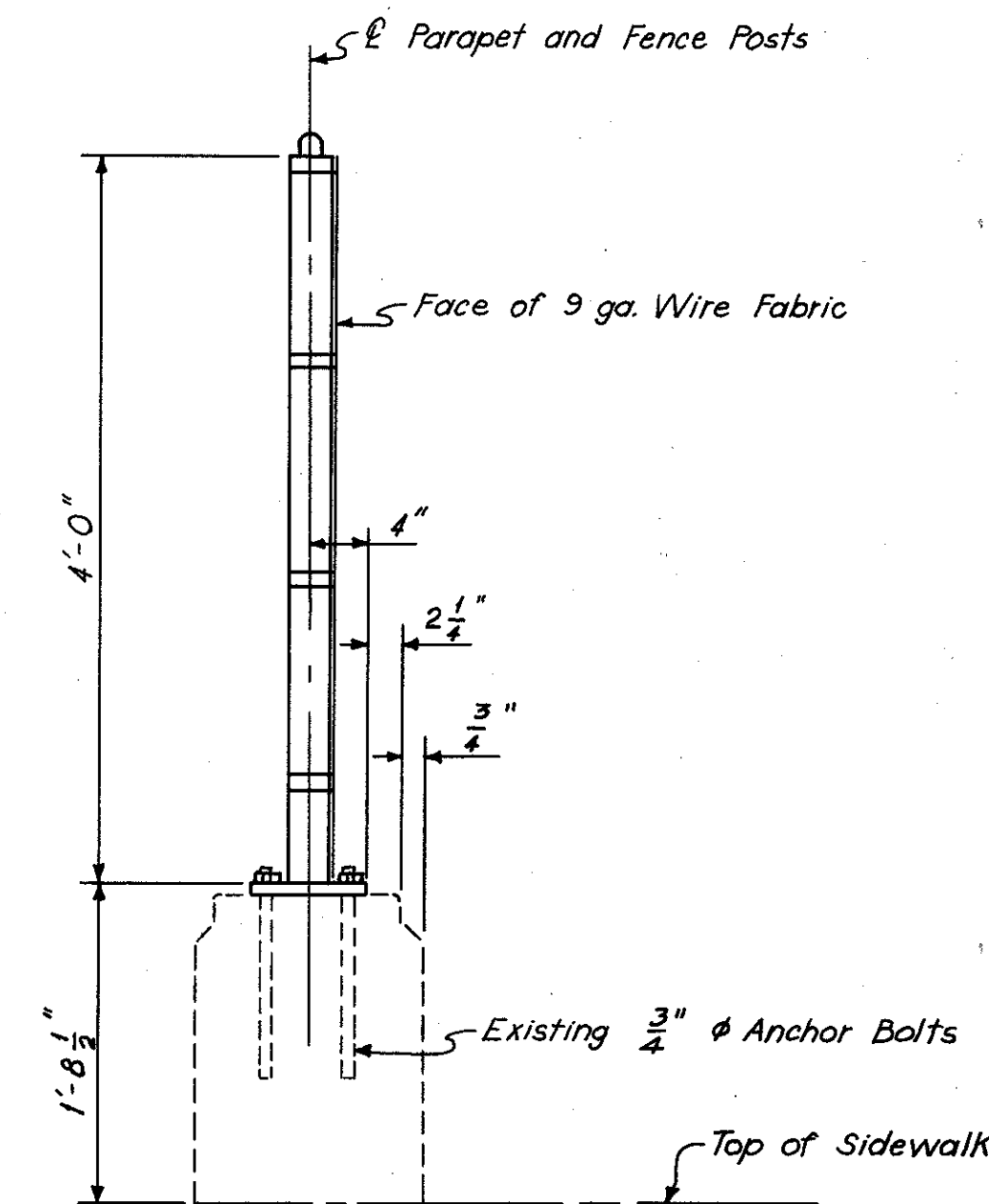
CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21

| FENCE DATA | | | | | |
|------------|-------------|-----------|---------------|---------------|-------------------------|
| PLAN SHEET | DESIGNATION | "X" | NO. OF SPACES | "Y" | STRUCTURE OVER I-90 |
| 24 | F-8 | 9'-2" | 11 | (2)-9'-2" | E. 22 nd ST. |
| | F-9 | 9'-2" | 11 | (2)-9'-2" | |
| | F-10 | 8'-4" | 15 | (2)-8'-4" | CEDAR AVE. |
| | F-11 | 8'-0" | 17 | (2)-8'-0" | |
| | F-12 | 7'-6 1/4" | 26 | (2)-7'-6 1/4" | CARNEGIE AVE. |
| 25 | F-13 | 7'-8 1/8" | 22 | (2)-7'-8 1/8" | |
| | F-3 | 8'-4" | 17 | (2)-8'-4" | PROSPECT AVE. |
| | F-4 | 8'-1" | 17 | (2)-8'-1" | |
| | F-5 | 9'-4" | 13 | (2)-9'-4" | EUCLID AVE. |
| | F-6 | 9'-3" | 13 | (2)-9'-3" | |
| 26 | F-7 | 10'-0" | 13 | (2)-10'-0" | CHESTER AVE. |
| | F-8 | 10'-0" | 13 | (2)-10'-0" | |
| | F-4 | 8'-2" | 25 | (2)-8'-2" | PAYNE AVE. |
| | F-5 | 8'-2" | 25 | (2)-8'-2" | |
| | F-6 | 8'-3" | 25 | (2)-8'-3" | SUPERIOR AVE. |
| 27 | F-7 | 8'-3" | 25 | (2)-8'-3" | |
| | F-8 | 8'-3" | 26 | (2)-8'-3" | ST. CLAIR AVE. |
| | F-9 | 8'-3" | 27 | (2)-8'-3" | |
| | F-2 | 9'-3" | 13 | (2)-9'-3" | HAMILTON AVE. |
| | F-3 | 9'-3" | 13 | (2)-9'-3" | |
| | F-4 | 10'-0" | 21 | (2)-10'-0" | LAKE SIDE AVE. |
| | F-5 | 10'-0" | 21 | (2)-10'-0" | |

Dimensions "X" & "Y" are from field measurements.



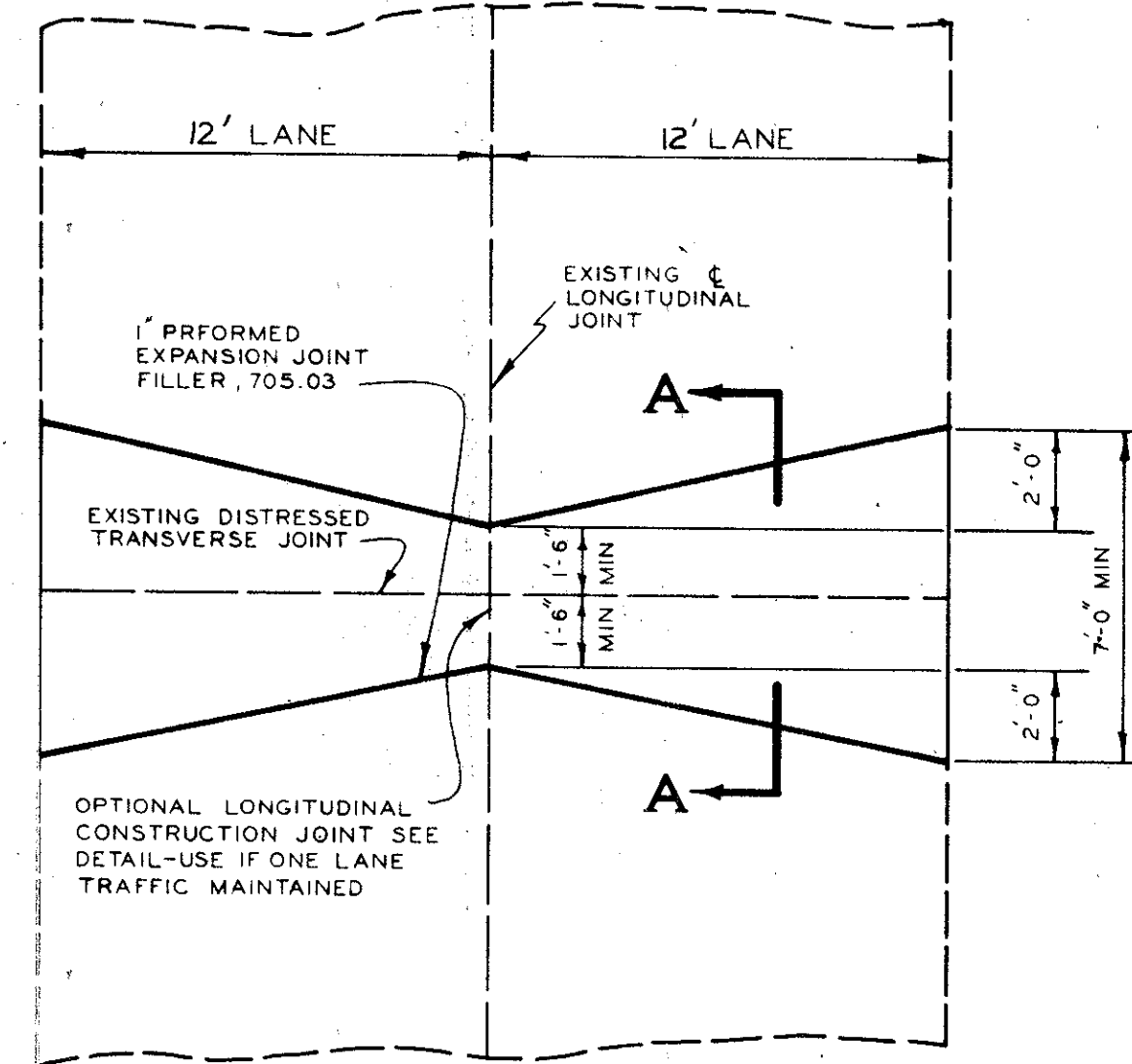
LINE & END POST BASE PLATE DETAIL
No Scale



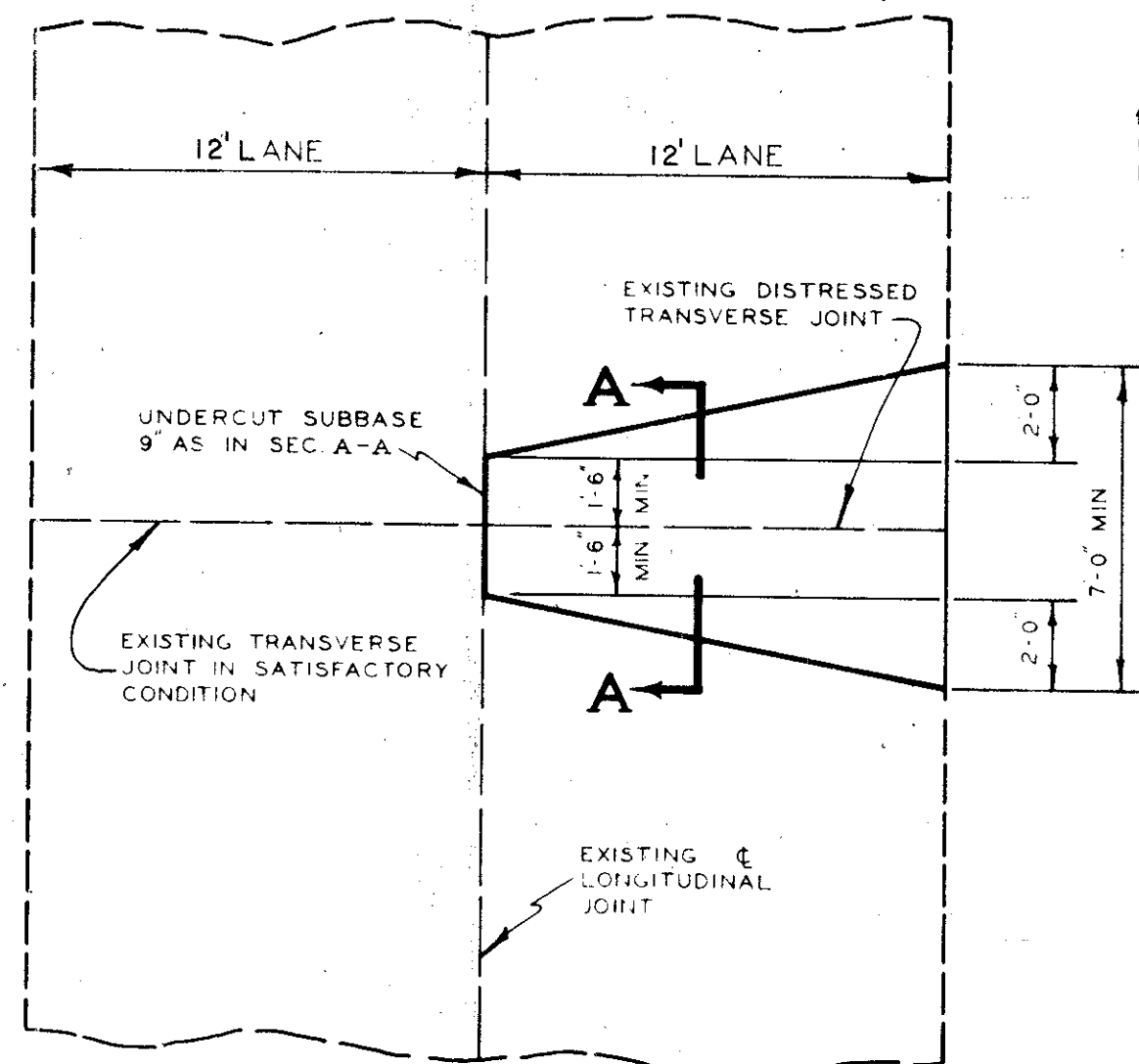
SECTION A-A
Scale 1" = 1'-0"

- Notes:
- For additional information of type CL fence, modified, as per plan see general note on Sheet 5.
 - For quantities see Sheets 24, 25, 26, 27.

305 PAVEMENT REPLACEMENT DETAILS



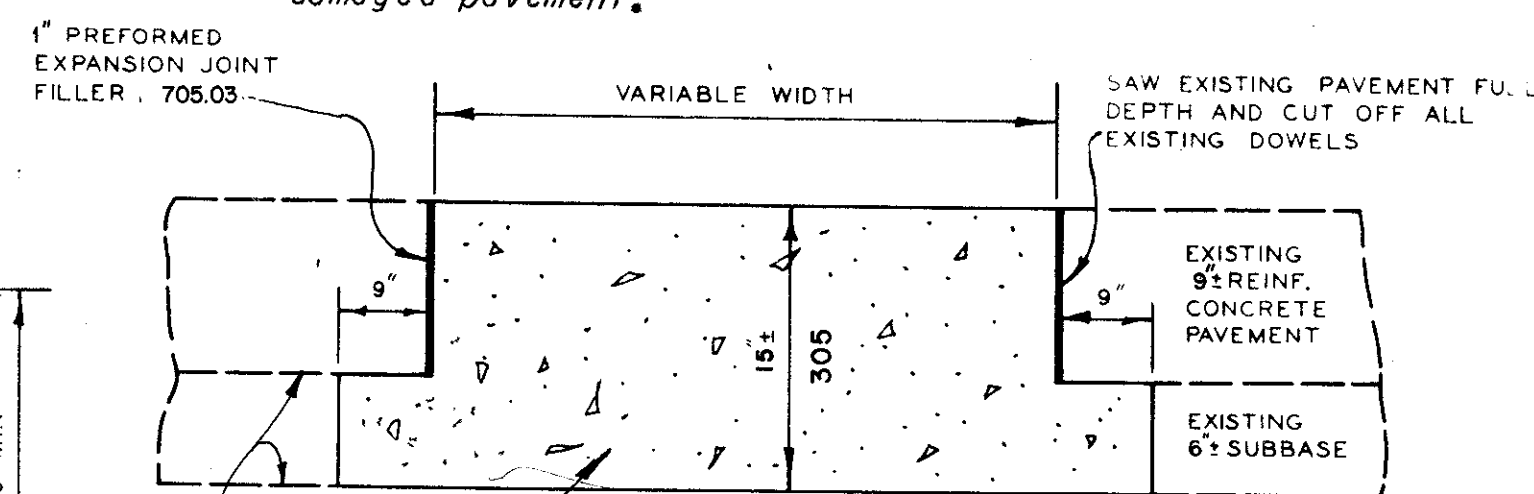
TWO LANE REPLACEMENT



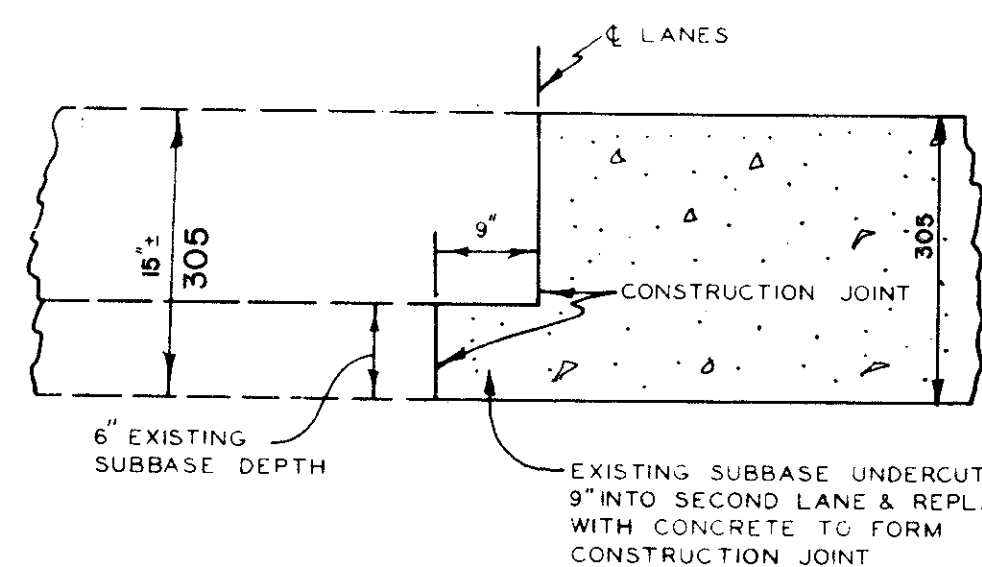
SINGLE LANE REPLACEMENT

| PAVEMENT REPLACEMENT | | | |
|----------------------|----------|----------------------|-------------------------|
| STATION | LANE NO. | 305 | 305 |
| | | TWO LANE REPLACEMENT | SINGLE LANE REPLACEMENT |
| | | EACH | EACH |
| I-77-5(18)161 | | | |
| 112+40 @ I-77 Rt. | 3 | | 1 |
| Additional * | | 2 | 2 |
| TOTAL | | 2 | 3 |
| I-90-1(10)29 | | | |
| 103+65 @ I-90 E.B. | 2 | | 1 |
| 108+00 @ I-90 W.B. | 7 | | 1 |
| 121+90 @ I-90 W.B. | 6#7 | 1 | |
| 122+45 @ I-90 E.B. | 2 | | 1 |
| 131+00 @ I-90 E.B. | 3#4 | 1 | |
| 138+15 @ I-90 E.B. | 3 | | 1 |
| 142+20 @ I-90 W.B. | 7 | | 1 |
| 163+00 @ I-90 W.B. | 6#7 | 1 | |
| 4+94 @ Ramp E-8 | 1 | 1 | |
| 5+06 @ Ramp E-8 | 1 | 1 | |
| Additional * | | 2 | 2 |
| TOTAL | | 7 | 7 |

*Additional Locations as required and determined by the Engineer.
 # Stations listed in the table indicate the station of a line or transverse joint which bisects the damaged pavement.



SECTION A-A



OPTIONAL LONGITUDINAL CONSTRUCTION JOINT FOR FULL WIDTH REPLACEMENT WHERE ONE LANE OF TRAFFIC MAINTAINED

SEE SHEET No. 6 FOR GENERAL NOTES PERTAINING TO PAVEMENT REMOVAL AND REPLACEMENT

THIS WORK IS FOR THE REPAIRING OF DETERIORATED TRANSVERSE PAVEMENT JOINTS AND OTHER SMALL DETERIORATED AREAS. THE LOCATION AND SIZES OF THE REPAIRS SHALL BE THE DIRECTION OF THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITIES ARE PROVIDED FOR THIS PAVEMENT REPAIR WORK.

I-77-5(18)161
 2 TWO LANE REPAIRS @ 13 S.Y. EACH (AVG. AREA) = 26 S.Y.
 3 SINGLE LANE REPAIRS @ 7 S.Y. EACH (AVG. AREA) = 21 S.Y.

I-90-1(10)29
 7 TWO LANE REPAIRS @ 13 S.Y. EACH (AVG. AREA) = 91 S.Y.
 7 SINGLE LANE REPAIRS @ 7 S.Y. EACH (AVG. AREA) = 49 S.Y.

ITEM 202 PAVEMENT REMOVED AS PER PLAN 47 S.Y. COST PART. II
 ITEM 305 9" PORTLAND CEMENT CONCRETE BASE 47 S.Y. COST PART. II

ITEM 202 PAVEMENT REMOVED, AS PER PLAN 140 S.Y. COST PART. II
 ITEM 305 15" PORTLAND CEMENT CONCRETE BASE, AS PER PLAN 140 S.Y. COST PART. II

THE COST OF RESHAPING, RECONSTRUCTING AND RECOMPACTING OF THE EXISTING SUBBASE NECESSARY SHALL BE INCLUDED IN THE UNIT PRICE BID FOR 305, 15" PORTLAND CEMENT CONCRETE BASE, AS PER PLAN

MADE M.E.E. DATE 12-4-75
 TRACED P.A.K. DATE 12-12-75
 CHECKED G.F.M. DATE 12-9-75
 SCALE No Scale

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

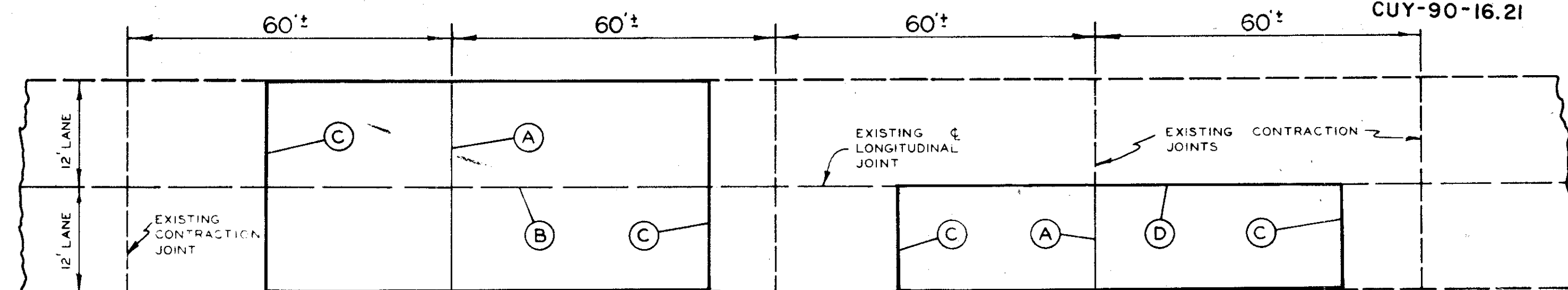
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305 PAVEMENT REPLACEMENT DETAILS

| FHWA REGION | STATE | PROJECT |
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| 5 | OHIO | |

46
169

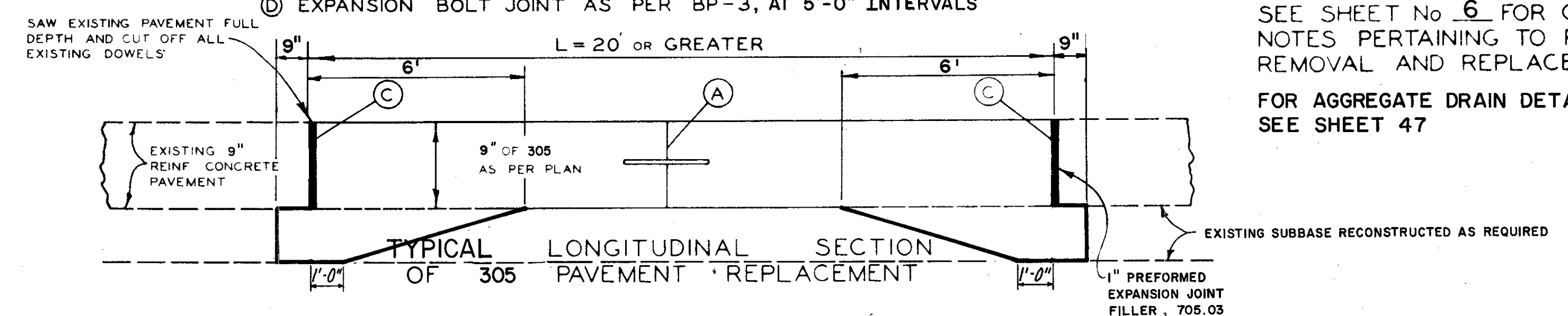
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TYPICAL TWO LANE REPLACEMENT

TYPICAL ONE LANE REPLACEMENT

- (A) STANDARD CONTRACTION JOINT AS PER STD. DRWG. BP-4 - LOCATE ON STRAIGHT LINE EXTENSION OF EXISTING JOINT FOR SINGLE LANE PAVEMENT
- (B) LONGITUDINAL JOINT - LONGITUDINAL CONSTRUCTION JOINT AS PER BP-3 OPTIONAL IF ONE LANE TRAFFIC IS TO BE MAINTAINED (TO BE USED ONLY WHEN PAVEMENT REPLACEMENT IS FULL WIDTH)
- (C) EXPANSION JOINT USING 705.03
- (D) EXPANSION BOLT JOINT AS PER BP-3, AT 5'-0" INTERVALS



THIS WORK IS FOR THE REPAIRING OF THE LARGER SIZE DETERIORATED PAVEMENT AREAS OF EITHER SINGLE OR TWO LANE WIDTHS. THE LOCATIONS AND SIZES OF THESE REPAIRS SHALL BE AT THE DIRECTION OF THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITIES ARE PROVIDED FOR THIS PAVEMENT REPLACEMENT WORK:

I-77-5(18)161
 ITEM 202 PAVEMENT REMOVED, AS PER PLAN S.Y. COST PART. II
 ITEM 305 9" PORTLAND CEMENT CONCRETE BASE, AS PER PLAN S.Y. COST PART. II

I-90-1(10)29
 ITEM 202 PAVEMENT REMOVED, AS PER PLAN S.Y. COST PART. II
 ITEM 305 9" PORTLAND CEMENT CONCRETE BASE, AS PER PLAN S.Y. COST PART. II

THE COST OF RESHAPING, RECONSTRUCTING AND RECOMPACTING OF THE EXISTING SUBBASE NECESSARY SHALL BE INCLUDED IN THE UNIT PRICE BID FOR 305 9" PORTLAND CEMENT CONCRETE BASE, AS PER PLAN

| Westbound Lanes | Lane 8 * | | |
|-----------------|----------|----------|--|
| | Lane 7 | | |
| | Lane 6 | | |
| | Lane 5 | | |
| | | @ I-90.7 | |
| Eastbound Lanes | Lane 4 | | |
| | Lane 3 | | |
| | Lane 2 | | |
| | Lane 1 * | | |

* Reference to Lanes 1 & 8 are to be used only if 4 lanes of travel exist.

Lane 1
 Lane 2

RAMPS

LANE NUMBERING SCHEME FOR PAVEMENT REPLACEMENT QUANTITIES
 No Scale

QUANTITY CALCULATIONS

MADE BY M.E.E. DATE 12-4-75
 CHECKED BY G.F.M. DATE 12-9-75

| PAVEMENT REPLACEMENT | | | |
|----------------------|----------|------------------------------|---|
| # STATION | LANE NO. | 202 | 305 |
| | | PAVEMENT REMOVED AS PER PLAN | 9" PORTLAND CEMENT CONC. BASE AS PER PLAN |
| | | SQ. YDS. | SQ. YDS. |
| I-77-5(18)161 | | | |
| 9+00 @ Ramp F-4 | 1 | 27 | 27 |
| Additional * | | 300 | 300 |
| TOTAL | | 327 | 327 |
| I-90-1(10)29 | | | |
| 2+30 @ Ramp E-6 | 1 | 53 | 53 |
| 74+50 @ I-90 E.B. | 3#4 | 160 | 160 |
| 127+25 @ I-90 W.B. | 6 | 80 | 80 |
| 0+10 @ Ramp 9 | 1 | 53 | 53 |
| 131+50 @ I-90 E.B. | 3#4 | 80 | 80 |
| 141+00 @ I-90 E.B. | 2#3 | 80 | 80 |
| 142+70 @ I-90 W.B. | 6#7 | 27 | 27 |
| 147+00 @ I-90 E.B. | 2#3 | 80 | 80 |
| 148+45 @ I-90 E.B. | 3 | 80 | 80 |
| 148+60 @ I-90 E.B. | 2 | 80 | 80 |
| 149+95 @ I-90 E.B. | 3#4 | 80 | 80 |
| 162+35 @ I-90 W.B. | 7 | 80 | 80 |
| 163+25 @ I-90 W.B. | 5#6 | 160 | 160 |
| Additional * | | 2675 | 2675 |
| TOTAL | | 3768 | 3768 |

* Additional locations as required and determined by the Engineer.

Stations listed in the table indicate the beginning station of the damaged pavement in the direction of traffic.

Rev. 1 - 9-79

LONGITUDINAL & TRANSVERSE AGGREGATE DRAIN DETAILS

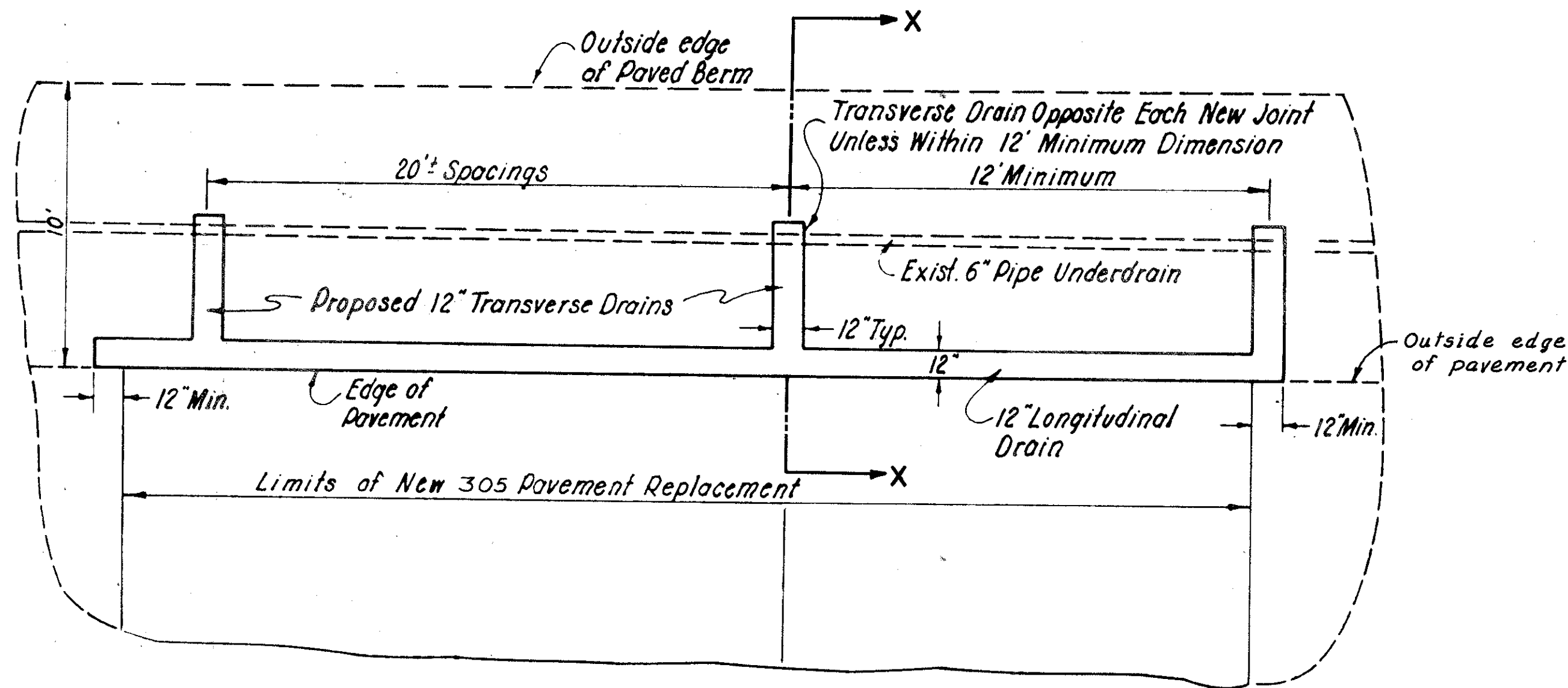
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| 5 | OHIO | |

47
169

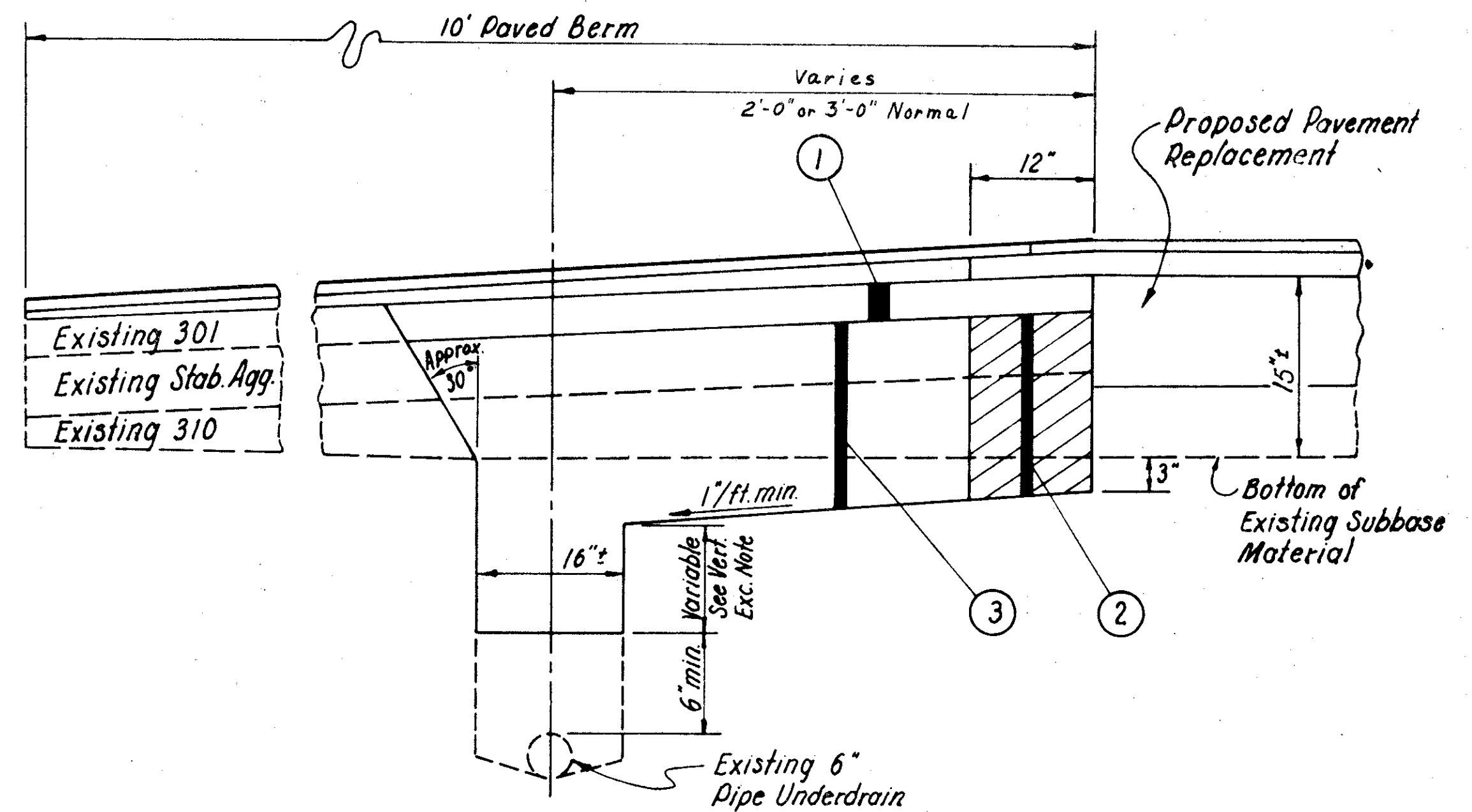
CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21

QUANTITY CALCULATIONS
Made By MEE Date 12-4-75
Checked By GFM Date 12-9-75

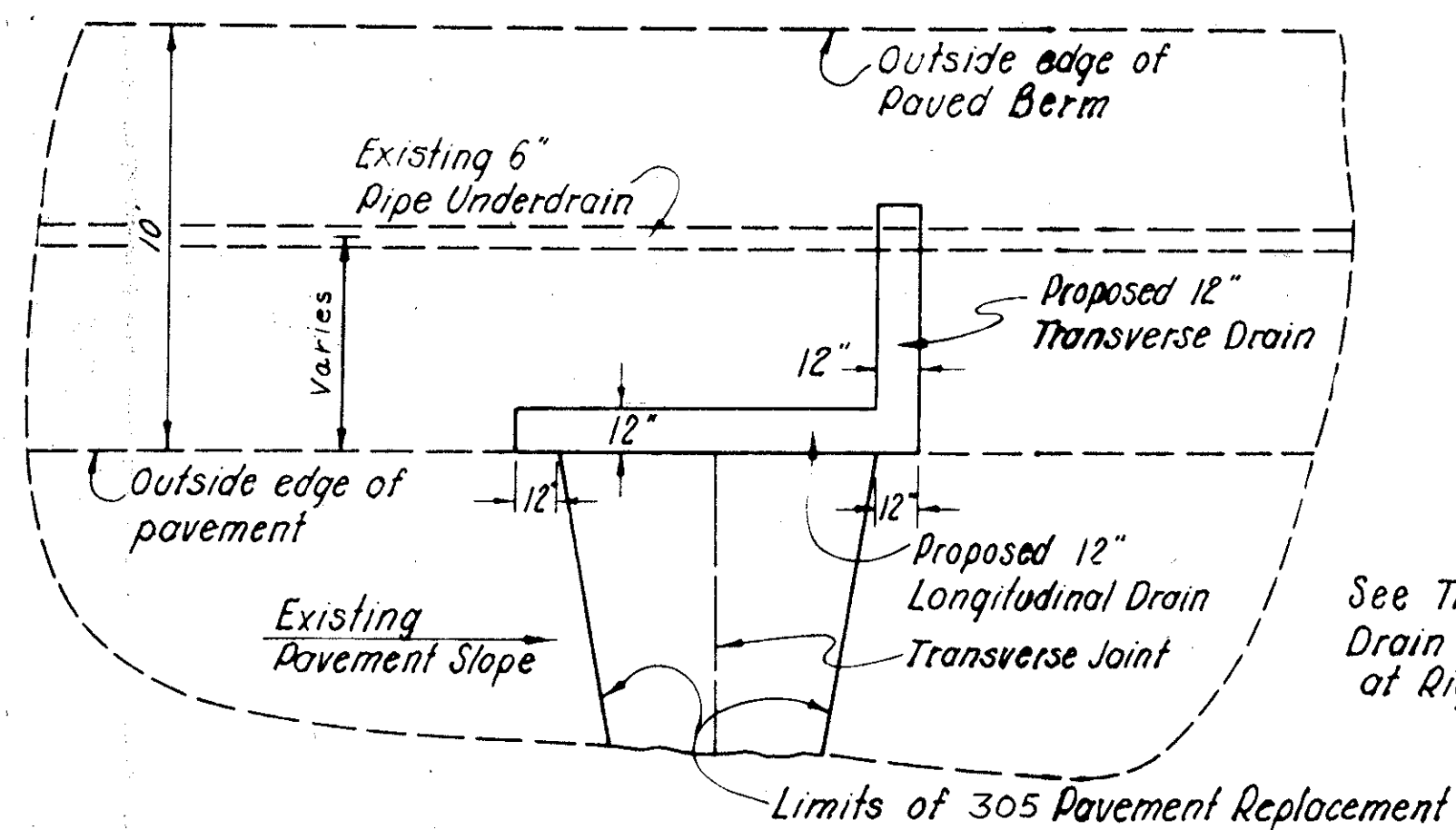
For Full Width 305 Replacement, the Spacing of the Transverse Drains on the Inside Berm shall be the same as for the Outside Berm.



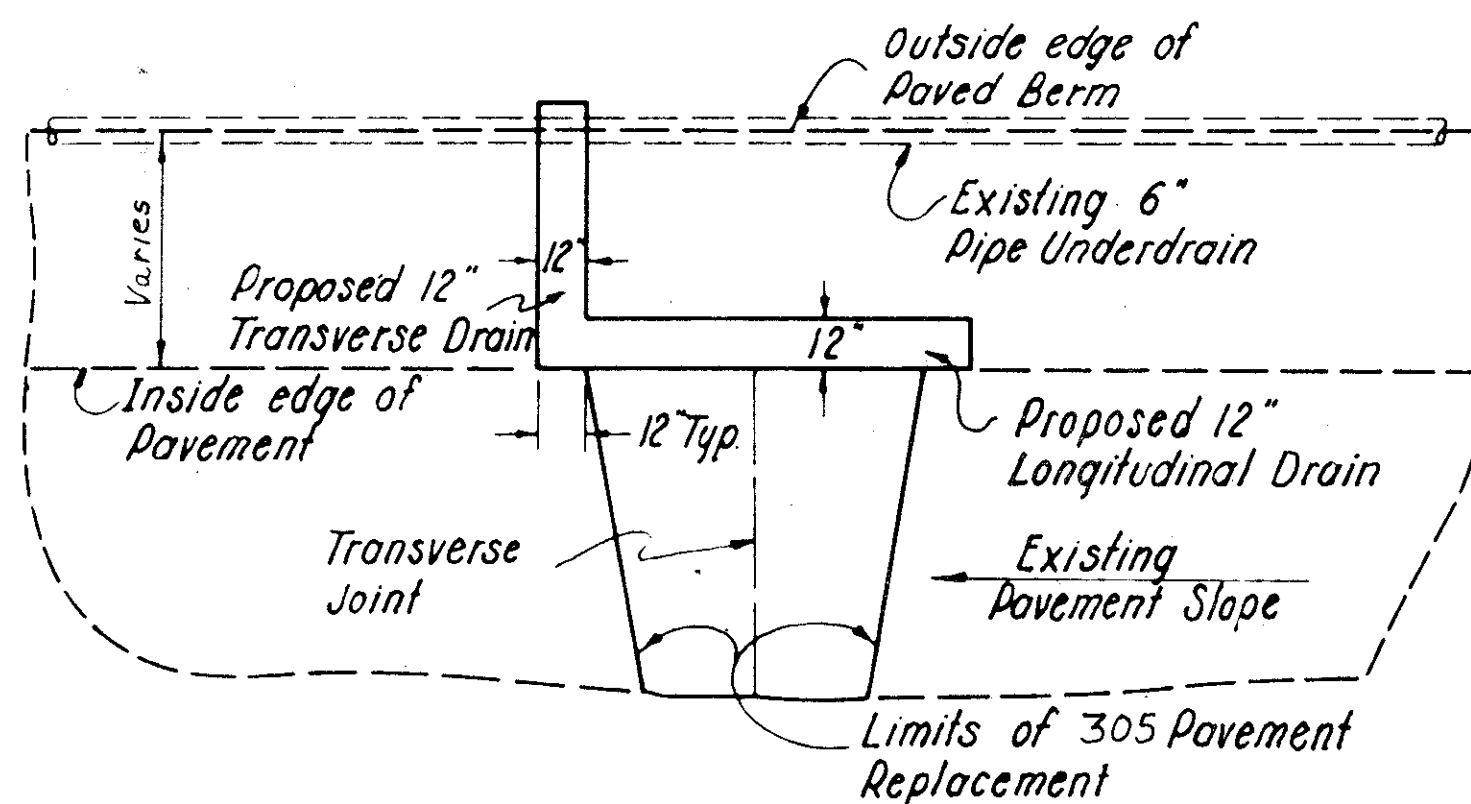
TYPICAL LONGITUDINAL AND TRANSVERSE AGGREGATE DRAIN DETAILS WITH 305 PAVEMENT REPLACEMENTS



TRANSVERSE DRAIN DETAIL FOR OUTSIDE BERM
SECTION X-X



OUTSIDE PAVEMENT EDGE



INSIDE PAVEMENT EDGE

TYPICAL LONGITUDINAL AND TRANSVERSE AGGREGATE DRAIN DETAILS WITH 305 PAVEMENT REPLACEMENTS

NOTES

Longitudinal aggregate drains shall be constructed continuously along the pavement edges for the full length of 305 Pavement Replacements (see Sheet 46 for details). Transverse aggregate drains shall be constructed at 20 feet maximum spacing along the length of the pavement replacements or as directed by the Engineer.

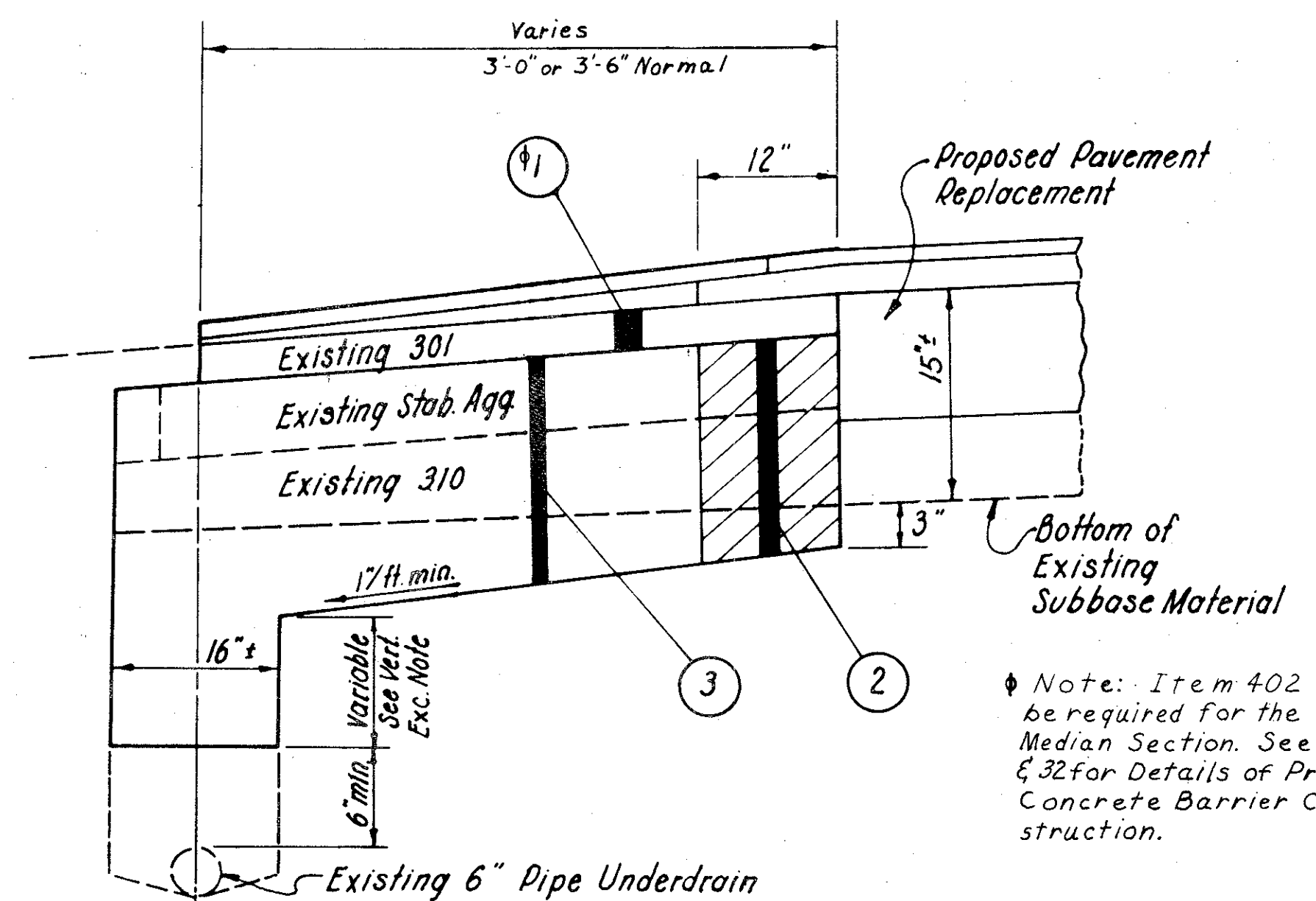
The vertical limit of the excavation shall be to six (6) inches above the top of the existing pipe underdrain or to the top of vertical limit of the existing No. 8 aggregate underdrain trench backfill. Positive drainage must be secured. Any tile broken or damaged as a result of this operation shall be replaced by the Contractor at his expense.

The unit price bid for Item 605 Aggregate Drains, As Per Plan, shall include the removing and disposing of existing berm materials, the furnishing, placing and compacting of the No. 8 Aggregate, furnishing, placing and compacting of the 402 Asphalt Concrete and all incidental requirements necessary to complete these items.

The 402 Asphalt Concrete shall be placed and compacted on the berms as directed by the Engineer for the aggregate drain estimated quantities.

* Additional quantity provided for use by the Engineer. It is to be used in conjunction with additional areas of pavement replacement other than those listed on Sheet 46, as determined by the Engineer.

| ESTIMATED QUANTITIES | |
|---|---|
| I-77-5(18)161 | I-90-1(10)29 |
| Item 605 AGGREGATE DRAINS, AS PER PLAN (LONGITUDINAL) | Item 605 AGGREGATE DRAINS, AS PER PLAN (LONGITUDINAL) |
| 1 x 9' (Avg. Length) = 9 Lin. Ft. | 13 x 62' (Avg. Length) = 806 Lin. Ft. |
| Additional * = 80 Lin. Ft. | 8 x 9' (Avg. Length) = 72 Lin. Ft. |
| | Additional * = 80 Lin. Ft. |
| | 958 Lin. Ft. |
| I-77-5(18)161 | I-90-1(10)29 |
| Item 605 AGGREGATE DRAINS, AS PER PLAN (TRANSVERSE) | Item 605 AGGREGATE DRAINS, AS PER PLAN (TRANSVERSE) |
| 1 x 5' (Avg. Length) = 5 Lin. Ft. | 8 x 3' (Avg. Length) = 24 Lin. Ft. |
| Additional * = 15 Lin. Ft. | Additional * = 50 Lin. Ft. |
| | 74 Lin. Ft. |
| TOTAL COST, PART. II 109 Lin. Ft. | TOTAL COST, PART. II 1032 Lin. Ft. |



TRANSVERSE DRAIN DETAIL FOR MEDIAN BERM

- ① 3" 402 Asphalt Concrete (AC-20)
- ② 605 Longitudinal Aggregate Drain, As Per Plan, Using No. 8 Aggregate
- ③ 605 Transverse Aggregate Drain, As Per Plan, Using No. 8 Aggregate

CURB REMOVAL AND PAVEMENT REPLACEMENT

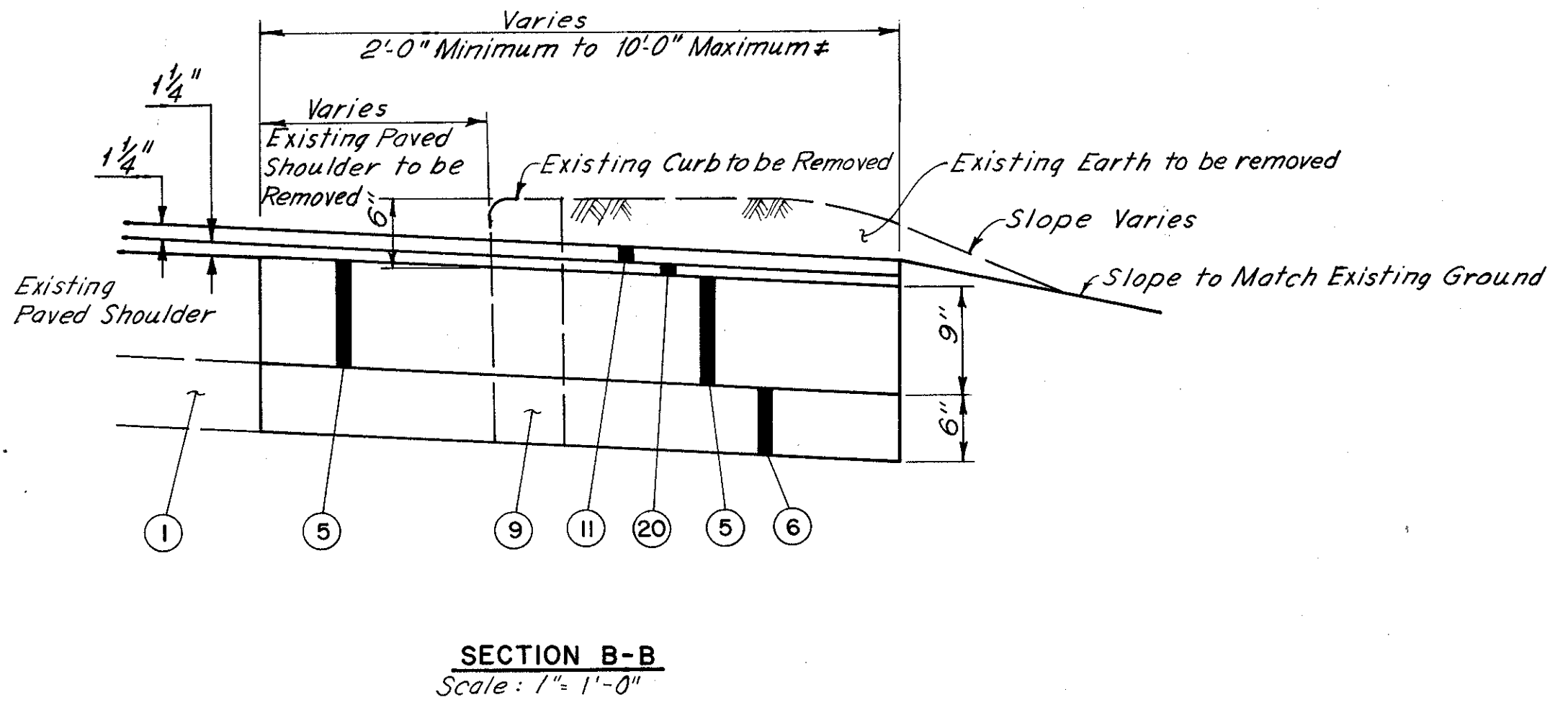
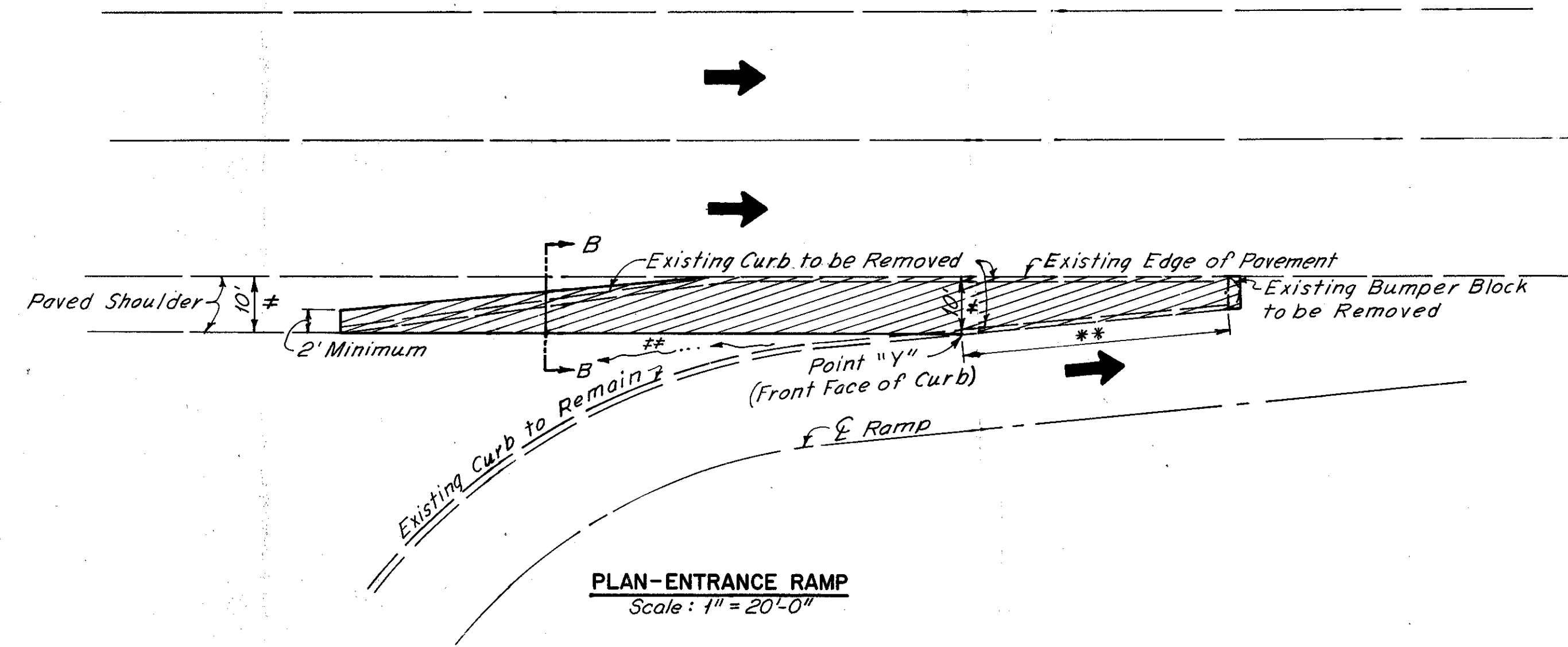
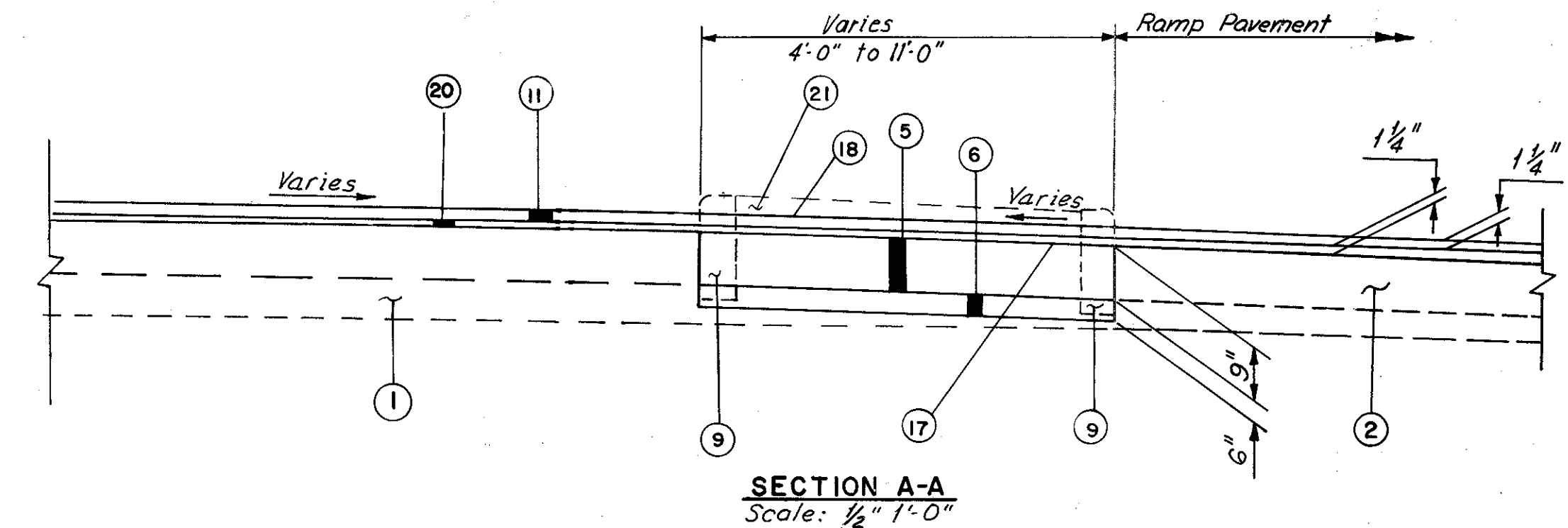
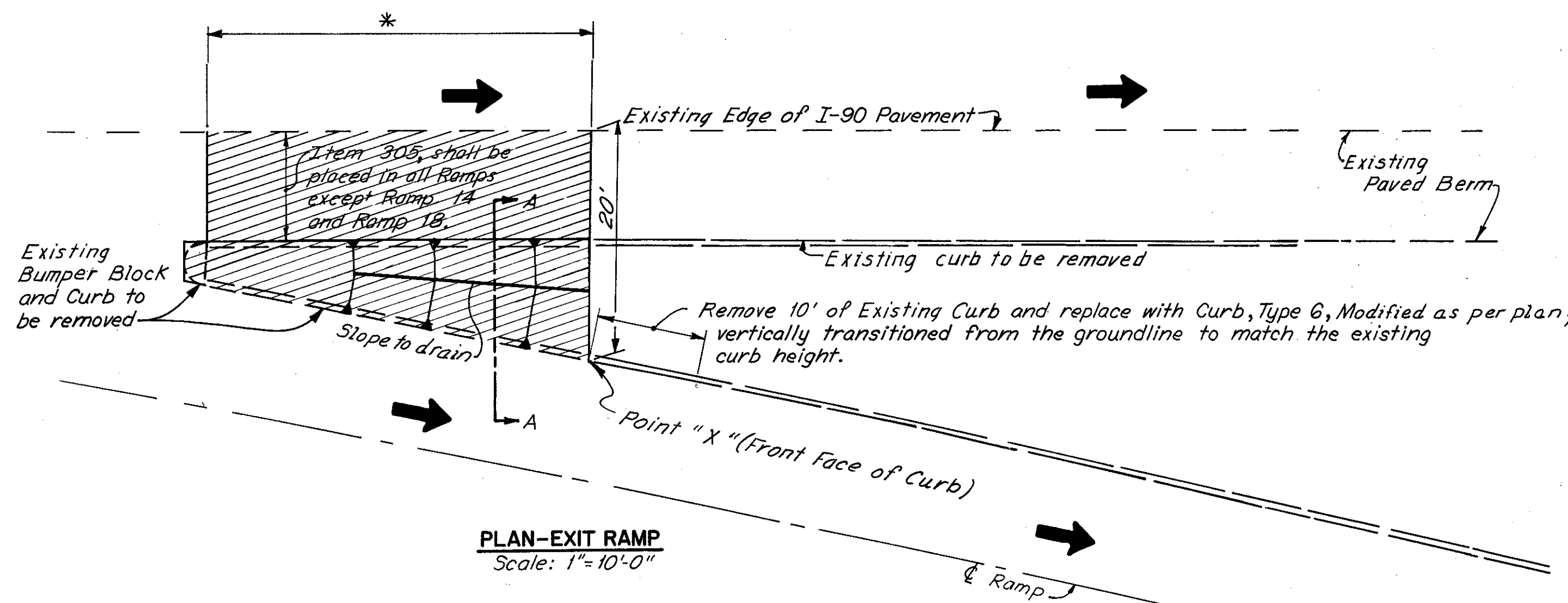
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| FHWA REGION | STATE | PROJECT | 48 169 |
| 5 | OHIO | | |

QUANTITY CALCULATIONS
 MADE BY M.G.B. DATE 4-10-75
 CHECKED BY T.D.V. DATE 4-11-75

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

| COST PARTICIPATION I (unless noted * to be COST PARTICIPATION II) | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---------------|--------|----------------|--|--------------------------|------------------------------------|----------------------------------|---------------------------------|---------------------------------|-----------|-------------------------------|-----------------|-------------------------------|-----------------|-----------------------------------|-----------|--|-----|--|-----|--|-----|--|-----|--|--|
| SH. NO. | STATION | SIDE | Reference Ramp | 203 | | 202 | | 310 | | 305 | | 402* | | 404 | | 407 | | 409 | | 407 | | 409 | | 609 | | |
| | | | | Excavation not including Embankment Construction | Curb Removed as per plan | Subbase Grading Type A as per plan | 9" Portland Cement Concrete Base | 1 1/4" Asphalt Concrete (AC-20) | 1 1/4" Asphalt Concrete (AC-20) | Tack Coat | Seal Coat Bituminous Material | Cover Aggregate | Seal Coat Bituminous Material | Cover Aggregate | Curb, Type 6 Modified as per plan | | | | | | | | | | | |
| FROM | TO | | | Cu. Yds. | Lin. Ft. | Cu. Yds. | Sq. Yds. | Cu. Yds. | Sq. Yds. | Cu. Yds. | Sq. Yds. | Gal. | Gal. | Tons | Cu. Yds. | Lin. Ft. | | | | | | | | | | |
| | 112+00 | 112+86 | Rt. | 4 | 21.63 | 134 | 8.18 | 49.09 | 1.7 | 1.7 | 4.9 | 17.2 | 0.2 | 0.4 | | | | | | | | | | | | |
| | 114+62 | 115+50 | Lt. | 5 | 23.05 | 127 | 8.31 | 49.87 | 1.7 | 1.7 | 5.0 | 17.5 | 0.2 | 0.4 | | | | | | | | | | | | |
| | 117+10 | 117+61 | Lt. | 6 | 11.04 | 80 | 4.09 | 24.54 | 0.9 | 0.9 | 2.5 | 8.6 | 0.1 | 0.2 | 10 | | | | | | | | | | | |
| | 121+87 | 122+30 | Rt. | 7 | 17.74 | 82 | 6.53 | 39.17 | 1.4 | 1.4 | 3.9 | 13.8 | 0.1 | 0.3 | 10 | | | | | | | | | | | |
| | 125+00 | 126+03 | Rt. | 8 | 26.01 | 155 | 9.66 | 57.95 | 2.0 | 2.0 | 5.8 | 20.3 | 0.2 | 0.5 | | | | | | | | | | | | |
| | 131+75 | 134+58 | Rt. | 9 | 120.81 | 359 | 38.60 | 231.60 | 8.0 | 8.0 | 23.2 | 81.1 | 0.8 | 1.9 | | | | | | | | | | | | |
| | 127+89 | 128+80 | Lt. | 10 | 23.06 | 135 | 8.59 | 51.52 | 1.8 | 1.8 | 5.2 | 18.1 | 0.2 | 0.4 | | | | | | | | | | | | |
| | 131+80 | 132+34 | Lt. | 11 | 27.79 | 103 | 10.21 | 61.28 | 2.1 | 2.1 | 6.1 | 21.5 | 0.2 | 0.5 | 10 | | | | | | | | | | | |
| | 142+05 | 143+50 | Rt. | 12 | 49.52 | 231 | 18.51 | 111.05 | 3.9 | 3.9 | 11.1 | 38.9 | 0.4 | 0.9 | 10 | | | | | | | | | | | |
| | 140+14 | 142+00 | Lt. | 13 | 73.16 | 248 | 23.20 | 139.20 | 4.8 | 4.8 | 13.9 | 48.8 | 0.5 | 1.1 | | | | | | | | | | | | |
| | 153+70 | 155+46 | Rt. | 15 | 53.68 | 289 | 22.97 | 137.85 | 4.8 | 4.8 | 13.8 | 48.3 | 0.5 | 1.1 | | | | | | | | | | | | |
| | 159+40 | 159+91 | Rt. | 16 | 25.42 | 75 | 7.07 | 42.42 | 1.5 | 1.5 | 4.2 | 14.8 | 0.1 | 0.3 | | | | | | | | | | | | |
| | 167+24 | 168+00 | Lt. | 17 | 34.69 | 99 | 10.83 | 64.97 | 2.3 | 2.3 | 6.5 | 22.8 | 0.2 | 0.5 | | | | | | | | | | | | |
| | 104+45 | 105+75 | Rt. | 3 | 65.18 | 225 | 23.53 | 141.17 | 4.9 | 4.9 | 14.1 | 49.5 | 0.5 | 1.1 | 10 | | | | | | | | | | | |
| | 153+32 | 154+07 | Lt. | 14 | 7.19 | 103 | 2.36 | 14.19 | 0.5 | 0.5 | 1.4 | 5.0 | 0.1 | 0.1 | 10 | | | | | | | | | | | |
| | 168+33 | 169+15 | Rt. | 18 | 5.79 | 106 | 1.90 | 11.39 | 0.4 | 0.4 | 1.1 | 4.0 | 0.1 | 0.1 | 10 | | | | | | | | | | | |
| | 57+06 | 58+06 | Rt. | E-4 | 23.26 | 132 | 7.88 | 47.3 | 1.6 | 1.6 | 4.7 | 16.6 | 0.2 | 0.4 | 10 | | | | | | | | | | | |
| | TOTALS | | | | | 609 | 2683 | 212 | 1275 | 44 | 44 | 127 | 447 | 4.6 | 10 | 80 | | | | | | | | | | |

Notes:
 * Item 305, 9" Portland Cement Concrete Base
 ** The length of Ramp Curb to be removed shall be determined by setting Point "Y" 10 Ft. from the near edge of pavement of the mainline.
 # On Ramp Nos. 15, 16 and 17, the width of the existing paved shoulder along the mainline to be removed and replaced with Item 305, is 8 Ft.
 * Length of Proposed 9" Portland Cement Concrete Base is determined by setting Point "X" 20 Ft. from the near edge of pavement of the mainline, except at the following location:
 Ramp E-4 * = 24'
 ** Grade to drain at Ramp 15.



- LEGEND**
- ① Existing Subbase
 - ② Existing Reinforced Concrete Pavement
 - ⑤ Item 305, 9" Portland Cement Concrete Base
 - ⑥ Item 310, Subbase Grading Type "A", As per plan
 - ⑨ Existing Sandstone or Concrete Curb
 - ⑪ Item 404, Asphalt Concrete, AC-20
 - ⑰ Item 407, Tack Coat: 702.02, AC-250, or 702.04, SS-1, SS-1h, MS-2 or RS-1, Applied at the rate of 0.1 gal. per sq. yds. Cover Aggregate at a rate of 7 lbs. per sq. yds.
 - ⑱ Item 409, Seal Coat Bituminous Material: 702.02, MC-800 or MC-3000; 702.03, CBAE-800, or 702.04, RS-1, RS-2 or CRS-1, CRS-2; 702.09, RT-9 or RT-10. Applied at the rate of .35 gal. per sq. yds. Cover Aggregate No. 8 at the rate of .008 cu. yds. per sq. yds.
 - ⑳ Item 402, Asphalt Concrete, AC-20
 - ㉑ Existing Tamped Earth

MADE M.G.B. DATE 4-10-75
 TRACED J.R.K. DATE 4-18-75
 CHECKED T.D.V. DATE 4-11-75
 SCALE AS SHOWN

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

HNTB

PAVEMENT MARKING SUB-SUMMARIES

QUANTITY CALCULATIONS

MADE BY T.D.V. DATE 3-27-75

CHECKED BY D.S.P. DATE 4-24-75

| | | |
|-------------|-------|---------|
| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

49
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21

| PAVEMENT MARKINGS - ITEM 847-COST PARTICIPATION I | | | | | | | | |
|---|----------|-------------|-------------|----------|----------|------------------------|----------------------------|----------------------|
| LOCATIONS AND STATIONS | SIDE | 4" WHITE | 4" YELLOW | 4" LANE | 6" LANE | 8" WHITE | 24" WHITE | CURB MARKING "WHITE" |
| | | EDGE LINE * | EDGE LINE * | LINE (C) | LINE (D) | CHANNEL-IZING LINE (E) | BROAD TRANS-VERSE LINE (F) | |
| | | (A) | (B) | (C) | (D) | (E) | (F) | |
| | | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. |
| <i>I-77-5(18)161</i> | | | | | | | | |
| <i>I-77</i> | | | | | | | | |
| 45+76.05 - 130+41.88 | Med. x 2 | | 16932 | | | | | |
| 45+76.05 - 51+00 | Rt. x 2 | | | 300 | 1048 | | | |
| 46+62 - 49+62 | Rt. | | | | | | | |
| 49+62 - 51+71 | Rt. | | | | | 209 | 72 | |
| 50+71 - 51+71 | Rt. | | | | | | | 100 |
| 45+76.05 - 48+10.78 | Rt. | 235 | | | | | | |
| 51+71 - 59+20 | Rt. | 749 | | | | | | |
| 45+76.05 - 62+23 | Lt. x 2 | | | | 3294 | | | |
| 53+30 - 54+73 | Lt. | | | | | 143 | | |
| 50+81 - 53+30 | Lt. | | | 249 | | | | |
| 50+81 - 62+23 | Lt. | 1142 | | | | | | |
| 51+00 - 94+30 | Rt. | | | | 4330 | | | |
| 51+00 - 66+00 | Rt. | | | | | 1500 | | |
| 65+00 - 66+00 | Rt. x 2 | | | | | | | 200 |
| 66+00 - 94+30 | Rt. | 2830 | | | | | | |
| 62+23 - 100+80 | Lt. | | | | 3857 | | | |
| 55+00 - 64+50 | Lt. | | | | | 950 | | |
| 62+23 - 88+00 | Lt. | 2577 | | | | | | |
| 88+00 - 100+80 | Lt. | | | | | 1280 | | |
| 94+30 - 130+41.88 | Rt. x 2 | | | | 7224 | | | |
| 100+80 - 130+41.88 | Lt. x 2 | | | | 5924 | | | |
| 98+26 - 107+40 | Rt. | 914 | | | | | | |
| 92+15 - 109+50 | Lt. | 1735 | | | | | | |
| 108+87 - 111+13 | Rt. | | | | | 226 | | |
| 108+87 - 110+13 | Rt. | | | | | 116 | 142 | |
| 111+13 - 130+41.88 | Rt. | 1929 | | | | | | |
| 113+00 - 130+41.88 | Lt. | 1742 | | | | | | |
| 112+00 - 113+00 | Lt. | | | 100 | | | | |
| 30+53 - 32+62 | Lt. | | | | | 109 | | |
| 31+60 - 32+62 | Lt. | | | | | | 173 | |
| 30+41.88 - 42+45.12 | MED. | | 1203 | | | | | |
| 30+41.88 - 42+45.12 | MED. | | 1203 | | | | | |
| 30+41.88 - 42+45.12 | Rt. x 2 | | | | 2406 | | | |
| 33+79 - 42+45 | Rt. | 866 | | | | | | |
| 35+09 - 42+45 | Lt. | 796 | | | | | | |
| 30+41.88 - 42+45 | Lt. x 2 | | | | 2406 | | | |
| TOTAL I-77-5(18)161 | | 15,455 | 19,338 | 649 | 30,483 | 4,533 | 387 | 300 |
| <i>I-90-1(10)29</i> | | | | | | | | |
| <i>I-77</i> | | | | | | | | |
| 42+45.12 - 51+74 | MED. | | 929 | | | | | |
| 42+45.12 - 51+78 | MED. | | 939 | | | | | |
| 42+45.12 - 43+49 | Rt. x 2 | | | | 208 | | | |
| 43+49 - 49+82 | Rt. | | | | 633 | | | |
| 42+45.12 - 43+99 | Rt. | 154 | | | | | | |
| 45+49 - 47+89 | Rt. | | | | | 240 | | |
| 47+89 - 49+81 | Rt. | 192 | | | | | | |
| 42+45 - 46+38 | Lt. | 393 | | | | | | |
| 42+45 - 46+38 | Lt. x 2 | | | | 786 | | | |
| 46+90 - 47+90 | Rt. | | | | | | | 100 |
| 46+38 - 51+78 | Lt. | | | | 540 | | | |
| 47+18 - 51+78 | Lt. | 460 | | | | | | |
| 47+18 - 48+73 | Lt. | | | | | 155 | | |
| 46+38 - 47+18 | Lt. | | | 80 | 80 | | | |

| PAVEMENT MARKINGS - ITEM 847-COST PARTICIPATION I | | | | | | | | |
|---|---------------|-------------|-------------|----------|----------|------------------------|----------------------------|----------------------|
| LOCATIONS AND STATIONS | SIDE | 4" WHITE | 4" YELLOW | 4" LANE | 6" LANE | 8" WHITE | 24" WHITE | CURB MARKING "WHITE" |
| | | EDGE LINE * | EDGE LINE * | LINE (C) | LINE (D) | CHANNEL-IZING LINE (E) | BROAD TRANS-VERSE LINE (F) | |
| | | (A) | (B) | (C) | (D) | (E) | (F) | |
| | | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. |
| <i>I-90</i> | | | | | | | | |
| 40+85 - 54+90 | Lt. Rt. | 3395 | 3560 | 250 | 7205 | 1110 | 430 | |
| 72+25 - 74+65 | Lt. | | | | | 240 | | |
| 54+90 - 58+00 | Lt. | 310 | | | | | | |
| 58+09 - 72+25 | Lt. | 1416 | | | | | | |
| 56+56 - 58+16 | Rt. | | | | | 160 | | |
| 57+16 - 58+16 | Rt. | | | | | | | 100 |
| 59+09 - 63+49 | Rt. | | | | | 440 | | |
| 62+49 - 63+49 | Rt. | | | | | | | 100 |
| 58+16 - 60+47 | Rt. | 231 | | | | | | |
| 77+06 - 79+87 | Rt. | | | | | 281 | | |
| 76+41 - 77+06 | Rt. | | | 65 | | | | |
| 78+87 - 79+87 | Rt. | | | | | | | 100 |
| 63+49 - 72+93 | Rt. | 944 | | | | | | |
| 73+63 - 76+86 | Rt. | 323 | | | | | | |
| 54+90 - 83+09.31 | Med. x 2 | | 5639 | | | | | |
| 54+90 - 59+09 | Lt. & Rt. x 5 | | | | 2095 | | | |
| 59+09 - 83+09.31 | Lt. & Rt. x 4 | | | | 9601 | | | |
| 74+21 - 83+09.31 | Lt. | 888 | | | | | | |
| 79+87 - 83+09.31 | Rt. | 322 | | | | | | |
| 103+93 - 105+75 | Rt. | | | | | 182 | | |
| 74+65 - 76+75 | Lt. | | | 210 | | | | |
| 98+00 - 102+00 | Rt. | 400 | | | | | | |
| 113+40 - 115+90 | Rt. | | | 200 | | | | |
| 105+75 - 113+40 | Rt. | 765 | | | | | | |
| 113+90 - 120+10 | Rt. | 620 | | | | | | |
| 83+09.31 - 114+10 | Lt. | 3101 | | | | | | |
| 113+55 - 114+10 | Lt. | | | 55 | | | | |
| 114+10 - 117+10 | Lt. | 300 | | | | | | |
| 117+10 - 119+57 | Lt. | | | | | 267 | | |
| 119+57 - 120+77 | Lt. | | | 120 | | | | |
| 120+25 - 122+30 | Rt. | | | | | 205 | | |
| 119+25 - 120+25 | Rt. | | | 100 | | | | |
| 122+30 - 126+75 | Rt. | 445 | | | | | | |
| 125+00 - 126+75 | Rt. | | | | | 175 | | |
| 126+75 - 127+09.87 | Rt. | | | | | 35 | | |
| 126+61 - 126+84 | Rt. | | | | | 23 | | |
| 83+09.31 - 127+09.87 | Lt. & Rt. x 4 | | | | 17602 | | | |
| 83+09.31 - 127+09.87 | Med. x 2 | | 8801 | | | | | |
| 119+00 - 127+09.87 | Lt. | 810 | | | | | | |
| 135+24 - 136+69 | Rt. | | | 125 | | | | |
| 126+75 - 135+24 | Rt. | 849 | | | | | | |
| 125+39 - 127+09.31 | Lt. | | | 171 | | | | |
| 126+61.13 - 128+10 | Lt. | | | 149 | | | | |
| 128+10 - 131+80 | Lt. | 370 | | | | | | |
| 131+80 - 134+25 | Lt. | | | | | 245 | | |
| 134+25 - 135+05 | Lt. | | | 80 | | | | |
| 134+50 - 139+00 | Lt. | 450 | | | | | | |
| 140+21 - 143+50 | Rt. | | | | | 329 | | |
| 139+46 - 140+21 | Rt. | | | 75 | | | | |
| 138+30 - 140+00 | Lt. | | | 170 | | | | |
| 140+00 - 153+32 | Lt. | 1332 | | | | | | |
| 143+50 - 160+04 | Rt. | 1654 | | | | | | |
| 160+90 - 167+00 | Rt. | 610 | | | | | | |
| 155+82 - 166+25 | Lt. | 1043 | | | | | | |
| 153+32 - 158+00 | Lt. | | | | | 468 | | |
| 167+11 - 173+22 | Lt. | 611 | | | | | | |
| TOTAL I-90-1(10)29 | | | | | | | 430 | |

* - Mainline And Ramps On Structure

| PAVEMENT MARKINGS - ITEM 847-COST PARTICIPATION I | | | | | | | | |
|---|----------|-------------|-------------|----------|----------|------------------------|-----------|----------------------|
| LOCATIONS AND STATIONS | SIDE | 4" WHITE | 4" YELLOW | 4" LANE | 6" LANE | 8" WHITE | 4" DOTTED | CURB MARKING "WHITE" |
| | | EDGE LINE * | EDGE LINE * | LINE (C) | LINE (D) | CHANNEL-IZING LINE (E) | LINE (P) | |
| | | (A) | (B) | (C) | (D) | (E) | (P) | |
| | | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. |
| <i>I-90 Cont.</i> | | | | | | | | |
| 168+33 - 169+15 | Rt. | | | | | | | 82 |
| 167+95 - 169+15 | Rt. | | | | | | 120 | |
| 172+64 - 173+14 | Lt. | 50 | | | | | 50 | |
| 173+14 - 173+75 | Lt. | | | | | | | 61 |
| 169+15 - 173+75 | Rt. | 460 | | | | | | |
| 126+61.13 - 173+75 | Med. x 2 | | 4714 | | | | | |
| 126+61.13 - 156+48 | Rt. x 2 | | | | 5974 | | | |
| 126+61.13 - 158+00 | Lt. x 2 | | | | 6278 | | | |
| 158+00 - 172+64 | Lt. x 3 | | | | 4392 | | | |
| 156+48 - 173+75 | Rt. x 3 | | | | 5181 | | | |
| 172+64 - 173+14 | Lt. | | | | 50 | | | |
| 172+64 - 173+75 | Lt. | | | | 111 | | | |
| <i>Mod. Ramp E-13</i> | | | | | | | | |
| 0+78 - 2+11 | Lt. | 133 | | | | | | |
| 76+75 - 79+86 | Lt. | | | | | | 311 | |
| TOTAL I-90-1(10)29 | | | | | | | | |
| Sheet Total | | 23,031 | 24,576 | 1,908 | 60,736 | 4,667 | 311 | 543 |

(Quantities Cont. on Sheet 50)

* ITEM 621 PAINT

MADE BY D.S.P. DATE 4-24-75
 TRACED BY J.P.K. DATE 3-17-75
 CHECKED BY M.G.B. DATE 7-16-75
 SCALE NONE

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

HNTB

Rev 12-18-78

PAVEMENT MARKING SUB-SUMMARIES

PAVEMENT MARKING SUB-SUMMARIES

QUANTITY CALCULATIONS
 MADE BY T.D.V. DATE 3-27-75
 CHECKED BY D.S.P. DATE 4-15-75

| | | |
|-------------|-------|---------|
| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

50
169

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

| PAVEMENT MARKINGS - ITEM 847 - COST PARTICIPATION I | | | | | | | | | | | | | | |
|---|---------|----------------------|-----------------------|--------------|--------------|-----------------------------|----------------------------------|------------------------|-------------|----------------|--------------------------|-------------------------|-------------------------|---------------------|
| LOCATIONS AND STATIONS | SIDE | 4" WHITE EDGE LINE * | 4" YELLOW EDGE LINE * | 4" LANE LINE | 6" LANE LINE | 8" WHITE CHANNEL-IZING LINE | 24" WHITE BROAD TRANS-VERSE LINE | CURB MARKING "WHITE" * | LANE ARROWS | 24" STOP LINES | ISLAND MARKING "WHITE" * | WORD "ONLY" ON PAVEMENT | CURB MARKING "YELLOW" * | 6" CROSS-WALK LINES |
| | | (A) | (B) | (C) | (D) | (E) | (F) | (G) | (H) | (I) | (J) | (K) | (L) | (M) |
| | | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | EACH | LIN. FT. | SQ. FT. | EACH | LIN. FT. | LIN. FT. |
| RAMP E-1 | | | | | | | | | 5 | | | 3 | | |
| 9+60 - 10+68 | Lt. | | | | | | 108 | | | | | | | |
| 10+68 - 11+11 | Lt. | | 100 | | | | | 100 | | | | | | |
| 14+00 - 16+40 | Lt. | | | 240 | | | | | | | | | | |
| 15+77 - 16+40 | Lt. | | | | | | 63 | | | | | | | |
| 16+40 - 17+35 | Lt. | | | | | | 190 | | | | | | | |
| 8+11 - 11+91 | Rt. | 380 | | | | | | | | | | | | |
| 11+11 - 17+75 | Lt. | | | | | | | | | | | | 664 | |
| 11+91 - 16+00 (Conn.) | Rt. | | | | | | | 411 | | | | | | |
| 16+35 - 17+40 | Rt. | | | | | | | 105 | | | | | | |
| 15+20 - 16+00 (Conn.) | Lt. | | | | | | | | | | | | 80 | |
| 17+45 | | | | | | | | | 36 | | | | | |
| 15+90 (Conn.) | | | | | | | | | 12 | | | | | |
| 16+45 - 17+45 | Q | | 200 | | | | | | | | | | | |
| RAMP E-2 | | | | | | | | | | | | | | |
| 14+56 - 16+56 | Rt. | | | | | | | 200 | | | | | | |
| 5+56 - 24+30 | Lt. | 1874 | | | | | | | | | | | | |
| 15+56 - 23+80 | Rt. | | 824 | | | | | | | | | | | |
| RAMP S-E | | | | | | | | | | | | | | |
| 1+80 - 5+83 | Lt. | | | | | 403 | 533 | | | | | | | |
| 5+83 - 16+95 | Lt. | | 1112 | | | | 225 | | | | | | | |
| 0+00 - 16+95 | Rt. | 1695 | | | NONE | | | | | | | | | |
| 65+00 - 65+45 | Lt. | | | | | | | | | 297 | | | | NONE |
| RAMP W-S | | | | | | | | | | | | | | |
| 21+71 - 25+93 | Q & Rt. | 422 | | | | | | | | | | | | |
| 22+71 - 23+71 | Lt. | | | | | | | 100 | | | | | | |
| RAMP E-S | | | | | | | | | | | | | | |
| 0+00 - 5+00 | Rt. | | 500 | | | 335 | 155 | | | | | | | |
| 5+00 - 21+44 | Lt. | | 1644 | | | | | | | | | | | |
| 6+00 - 21+44 | Rt. | 1544 | | | | | | | | | | | | |
| RAMP N-E | | | | | | | | | | | | | | |
| 0+39 - 17+93 | Lt. | | 1754 | | | | | | | | | | | |
| 5+33 - 17+93 | Rt. | 1260 | | | | | | | | | | | | |
| RAMP N-W | | | | | | | | | | | | | | |
| 3+14 - 5+33 | Lt. | | 219 | | | | | | | | | | | |
| 1+35 - 3+14 | Lt. | | | | | 179 | 300 | | | | | | | |
| 0+00 - 5+33 | Rt. | 533 | | | | | | | | | | | | |
| 4+82 - 8+19 | Rt. | | | | | | 292 | | | | | | | |

| PAVEMENT MARKINGS - ITEM 847 - COST PARTICIPATION I | | | | | | | | | | | | | | |
|---|------|----------------------|-----------------------|--------------|--------------|-----------------------------|----------------------------------|------------------------|-------------|----------------|--------------------------|-------------------------|-------------------------|---------------------|
| LOCATIONS AND STATIONS | SIDE | 4" WHITE EDGE LINE * | 4" YELLOW EDGE LINE * | 4" LANE LINE | 6" LANE LINE | 8" WHITE CHANNEL-IZING LINE | 24" WHITE BROAD TRANS-VERSE LINE | CURB MARKING "WHITE" * | LANE ARROWS | 24" STOP LINES | ISLAND MARKING "WHITE" * | WORD "ONLY" ON PAVEMENT | CURB MARKING "YELLOW" * | 6" CROSS-WALK LINES |
| | | (A) | (B) | (C) | (D) | (E) | (F) | (G) | (H) | (I) | (J) | (K) | (L) | (M) |
| | | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | EACH | LIN. FT. | SQ. FT. | EACH | LIN. FT. | LIN. FT. |
| RAMP E-N | | | | | | | | | | | | | | |
| 17+93 - 18+08 | Lt. | | | | | | | | | | | | | 117 |
| 17+93 - 18+93 | Lt. | | | | | | | 100 | | | | | | |
| 17+93 - 22+22 | Lt. | | 429 | | | | | | | | | | | |
| 21+00 - 23+22 | Lt. | | | | | | | | | | | | 222 | |
| 12+94 - 39+28 | Rt. | 2632 | | | | | | | | | | | | |
| 23+22 - 24+73 | Lt. | | | | | | | | | | | | 151 | |
| 32+00 - 35+30 | Lt. | | | | | | | | | | | | 330 | |
| 30+88 - 32+00 | Lt. | | | | | | | | | | | | 112 | |
| RAMP F-1 | | | | | | | | | | | | | | |
| | | | | | | | | | 5 | | | | | 2 |
| 2+60 - 3+60 | Lt. | | | | | | | | | | | | 100 | |
| 3+60 - 11+60 | Lt. | | 800 | | | | | | | | | | | |
| 11+50 | | | | | | | | | | | | | | 30 |
| 0+00 - 11+30 (Turnout) | Rt. | 1130 | | | | | | | | | | | | |
| 10+50 - 12+00 (Turnout) | Rt. | | | | | | | | | | | | 150 | |
| 11+00 (Turnout) - 11+50 (Turnout) | Lt. | | | | | | | | | | | | | 50 |
| 11+50 (Turnout) | | | | | | | | | | | | | | 16 |
| 11+15 - 11+55 | Rt. | | | | | | | | | | | | 40 | |
| 9+50 - 11+00 | Q | | | | | | | | | 150 | | | | |
| 11+00 - 11+50 | Q | | | | | | | | | | | | 50 | |
| RAMP F-2 | | | | | | | | | | | | | | |
| 1+14 - 10+15 | Lt. | 901 | | | | | | | | | | | | |
| 4+50 - 5+30 | Rt. | | | | | | | | | | | | 80 | |
| 5+30 - 6+50 | Rt. | | | | | | | | | | | | | 120 |
| 6+50 - 11+40 | Rt. | | 490 | | | | | | | | | | | |
| 10+15 - 11+45 | Lt. | | | | | | | | | | | | | 130 |
| RAMP F-4 | | | | | | | | | | | | | | |
| 6+16 - 7+16 | Lt. | | | | | | | | | | | | | 560 |
| 6+16 - 6+36 | Lt. | | | | | | | | | | | | 20 | |
| 7+16 - 8+22 | Lt. | 106 | | | | | | | | | | | 106 | |
| 1+73 - 2+33 | Rt. | | | | | | | | | | | | | 420 |
| 2+33 - 2+73 | Rt. | | | | | | | | | | | | 40 | |
| 2+73 - 10+52 | Rt. | 779 | | | | | | | | | | | | |
| 1+73 - 6+16 | Lt. | | 443 | | | | | | | | | | | |
| RAMP F-3 | | | | | | | | | | | | | | |
| | | | | | | | | | 1 | | | | | |
| 3+54 - 3+94 | Lt. | | | | | | | | | | | | | 280 |
| 3+54 - 4+54 | Lt. | | | | | | | | | | | | 100 | |
| 2+45 - 3+54 | Lt. | | | | | | | | | | | | 109 | |
| I-77-5(18)161 | | | | | | | | | | | | | | |
| Sheet Subtotal | | 13257 | 8515 | 390 | 0 | 2104 | 1505 | 2050 | 11 | 99 | 1674 | 5 | 794 | 0 |

(Quantities Cont. on Sheet 51) * ITEM 621 PAINT

MADE D.S.P. DATE 4-15-75
 TRACED J.P.K. DATE 3-14-75
 CHECKED M.G.B. DATE 2-16-75
 SCALE NONE

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



Rev 12-18-78

PAVEMENT MARKING SUB-SUMMARIES

QUANTITY CALCULATIONS
 MADE BY T.D.V. DATE 3-27-75
 CHECKED BY D.S.P. DATE 4-16-75

| | | |
|-------------|-------|---------|
| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

51
169

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

| PAVEMENT MARKINGS - ITEM 847 - COST PARTICIPATION I | | | | | | | | | | | | | | |
|---|---------|----------|-----------|----------|----------|----------|-----------|----------|--------|----------|---------|-----------|----------|-----------|
| LOCATIONS AND STATIONS | SIDE | 4" WHITE | 4" YELLOW | 4" LANE | 6" LANE | 8" WHITE | 24" WHITE | CURB | LANE | 24" STOP | ISLAND | WORD | CURB | 6" CROSS- |
| | | EDGE | EDGE | LINE | LINE | CHANNEL- | BROAD | MARKING | ARROWS | LINES | MARKING | "ONLY" ON | MARKING | WALK |
| | | LINE | LINE | LINE | LINE | IZING | TRANS- | "WHITE" | EACH | LIN. FT. | "WHITE" | PAVEMENT | "YELLOW" | LINES |
| | | (A) | (B) | (C) | (D) | (E) | (F) | (G) | (H) | (I) | (J) | (K) | (L) | (M) |
| | | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | EACH | LIN. FT. | SQ. FT. | EACH | LIN. FT. | LIN. FT. |
| Ramp F-3 Cont. | | | | | | | | | | | | | | |
| 0+00-6+98 | Rt. | 698 | | | | | | | | | | | | |
| 3+54-9+04 | Lt. | | 550 | | | | | | | | | | | |
| 6+98-9+04 | Rt. | | | | | | | 206 | | | | | | |
| I-77-5(18)161 | | | | | | | | | | | | | | |
| Sheet Total | | 698 | 550 | | | | | 206 | | | | | | |
| I-90-1(10)29 | | | | | | | | | | | | | | |
| Ramp E-14 | | | | | | | | | | | | | | |
| 1+50-2+77 | Lt. | | | | | 127 | 217 | | | | | | | |
| 2+77-3+17 | Lt. | | | | | | | | | 270 | | | | |
| 2+77-3+77 | Lt. | | | | | | | 100 | | | | | | |
| 0+00-3+03 Access Rd. | Rt. | 776 | | | | | | | | | | | | |
| 8+77-10+50 | Rt. | 173 | | | | | | | | | | | | |
| 2+77-9+80 | Lt. | | 703 | | | | | | | | | | | |
| 9+80-10+80 | Lt. | | | | | | | 100 | | | | | | |
| 7+00-8+77 | Rt. | | | | | 177 | | | | | | | | |
| 7+00-7+77 | Rt. | | | | | 77 | 75 | | | | | | | |
| Ramp E-9 | | | | | | | | | | | | | | |
| 0+62-1+94 | Rt. | | | | | | 132 | | | | | | | |
| 0+00-5+80 | Lt. | | 580 | | | | | | | | | | | |
| 1+95-7+50 | Rt. | 555 | | | | | | | | | | | | |
| 5+80-6+80 | Lt. | | | | | | 100 | | | | | | | |
| 6+80-74+33(I-90) | Rt. | | | 140 | | | | | | | | | | |
| Ramp E-17 | | | | | | | | | | | | | | |
| 0+00-2+31 | Lt. | | | | | | 231 | | | | | | | |
| 1+40-3+31 | Lt. | | | | | | 191 | 132 | | | | | | |
| 2+31-3+31 | Lt. x 2 | | | | | | | | 200 | | 188 | | | |
| 6+75-7+07 | Lt. | | | | | | 32 | 15 | | | | | | |
| 7+07-8+07 | Lt. x 2 | | | | | | | | 200 | | 140 | | | |
| 7+07-9+71 | Lt. | | 264 | | | | | | | | | | | |
| 9+71-10+71 | Lt. | | | | | | | | | | | 100 | | |
| 2+31-6+75 | Lt. | | | 444 | | | | | | | | | | |
| 0+00-8+91 | Rt. | 891 | | | | | | | | | | | | |
| 8+91-11+11 | Rt. | | | | | | | | 220 | | | | | |
| 2+31-6+21 | Lt. | | 390 | | | | | | | | | | | |
| Ramp E-8 | | | | | | | | | | | | | | |
| 1+60-10+05 | Rt. | 845 | | | | | | | | | | | | |
| 0+00-14+18 | Lt. | | 1418 | | | | | | | | | | | |
| 10+05-11+75 | Rt. | | | | | | | | 170 | | | | | |
| 11+75-12+25 | Rt. x 2 | | | | | | 100 | | | | | | | |
| 12+25-12+75 | Rt. | | | 50 | | | | | | | | | | |
| Ramp E-10 | | | | | | | | | | | | | | |
| 9+90-17+42 | Rt. | 752 | | | | | | | | | | | | |
| 1+70-17+42 | Lt. | | 1572 | | | | | | | | | | | |

| PAVEMENT MARKINGS - ITEM 847 - COST PARTICIPATION I | | | | | | | | | | | | | | |
|---|---------|----------|-----------|----------|----------|----------|-----------|----------|--------|----------|---------|-----------|----------|-----------|
| LOCATIONS AND STATIONS | SIDE | 4" WHITE | 4" YELLOW | 4" LANE | 6" LANE | 8" WHITE | 24" WHITE | CURB | LANE | 24" STOP | ISLAND | WORD | CURB | 6" CROSS- |
| | | EDGE | EDGE | LINE | LINE | CHANNEL- | BROAD | MARKING | ARROWS | LINES | MARKING | "ONLY" ON | MARKING | WALK |
| | | LINE | LINE | LINE | LINE | IZING | TRANS- | "WHITE" | EACH | LIN. FT. | "WHITE" | PAVEMENT | "YELLOW" | LINES |
| | | (A) | (B) | (C) | (D) | (E) | (F) | (G) | (H) | (I) | (J) | (K) | (L) | (M) |
| | | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | EACH | LIN. FT. | SQ. FT. | EACH | LIN. FT. | LIN. FT. |
| Ramp E-10 Cont. | | | | | | | | | | | | | | |
| 2+11-17+42 | Lt. | | | | 31 | | | | | | | | | |
| 7+10-8+10 | Rt. x 2 | | | | | | | | | | | | 200 | |
| 1+03-8+10 | Rt. | 207 | | | | | | | | | | | | |
| 8+10-8+40 | Rt. x 2 | | | | | | | 60 | | | | | | |
| 0+40-1+70 | Lt. | | | | | | | 130 | | 155 | | | | |
| 1+03-2+11 | Lt. | | | | | | | 108 | | | | | | |
| Ramp E-13 | | | | | | | | | | | | | | |
| 1+00-75+30(I-90) | Lt. | | 849 | | | | | | | | | | | 70 |
| 0+30-1+00 | Lt. | | | | | | | | | | | | 100 | |
| 0+30-1+20 | Rt. | | | | | | | | | | | | | |
| 1+20-1+28.89 | Rt. | 9 | | | | | | | | | | | | |
| 0+33-0+43 | | | | | | | | | | | | | | 120 |
| Ramp E-16 | | | | | | | | | | | | | | |
| 0+38-5+50 | Lt. | | 512 | | | | | | | | | | | |
| 2+82-8+33 | Rt. | 551 | | | | | | | | | | | 100 | |
| 1+82-2+82 | Rt. | | | | | | | | | | | | | |
| 1+15-2+82 | Lt. | | | | | | | 167 | | | | | | |
| 0+38-0+58 | Lt. | | | | | | | | | | | | | |
| Ramp E-5 | | | | | | | | | | | | | | |
| 0+00-2+00 | Rt. | | | | | | | | | | | | 200 | |
| 2+00-15+20 | Rt. | 1320 | | | | | | | | | | | | |
| 2+50-8+60 | Lt. | | 610 | | | | | | | | | | | |
| 1+85-2+50 | Lt. | | | | | | | | | | | | 65 | 58 |
| 2+50-2+80 | Lt. | | | | | | | | | | | | | 280 |
| 8+60-9+60 | Lt. | | | | | | | | | | | | 100 | |
| 13+91-14+51 | Lt. | | | | | | | | | | | | 60 | |
| 14+51-15+11 | Lt. | | | | | | | | | | | | | 100 |
| 12+04-13+55 | Lt. | | 151 | | 60 | | | | | | | | | |
| Ramp E-15 | | | | | | | | | | | | | | |
| 0+00-19+80 | Rt. | 1980 | | | | | | | | | | | | |
| 0+00-0+25 | Rt. | | | | | | | | | | | | 25 | 125 |
| 0+00-7+65 | Lt. | | 765 | | | | | | | | | | | |
| 7+65-9+05 | Lt. | | | | | | | | | | | | 140 | |
| 9+05-9+55 | Lt. | | | | | | | | | | | | 50 | |
| 9+55-10+05 | Lt. | | | | | | | | | 50 | | | | |
| 12+23-14+06 | Lt. | | | | | | | | | | | | 183 | |
| 14+06-14+56 | Lt. | | | | | | | | | | | | 50 | |
| 14+56-16+59 | Lt. | | | | | | | | | | | | 97 | |
| 16+53-17+40 | Lt. | | | | | | | | | | | | 87 | |
| I-90-1(10)29 | | | | | | | | | | | | | | |
| Sheet Total | | | | | | | | | | | | | | |
| | | 8559 | 7911 | 744 | 1531 | 1857 | 652 | 2125 | 2 | 0 | 1143 | 0 | 170 | 120 |

(Quantities Cont. on Sheet 52.) * ITEM 621 PAINT

MADE D.S.P. DATE 4-16-75
 TRACED J.P.K. DATE 6-4-75
 CHECKED M.G.B. DATE 7-16-75
 SCALE 1/2"=1'

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



Rev-12-18-79

PAVEMENT MARKING SUB-SUMMARIES

QUANTITY CALCULATIONS

MADE BY T.D.V. DATE 3-27-75
 CHECKED BY D.S.P. DATE 4-22-75

| | | |
|-------------|-------|---------|
| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

52
169

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

| PAVEMENT MARKINGS - ITEM 847- COST PARTICIPATION I | | | | | | | | | | | | | | |
|--|---------|--------------------|---------------------|--------------|--------------|-----------------------------|----------------------------------|----------------------|-------------|----------------|------------------------|-------------------------|-----------------------|---------------------|
| LOCATIONS AND STATIONS | SIDE | 4" WHITE EDGE LINE | 4" YELLOW EDGE LINE | 4" LANE LINE | 6" LANE LINE | 8" WHITE CHANNEL-IZING LINE | 24" WHITE BROAD TRANS-VERSE LINE | CURB MARKING "WHITE" | LANE ARROWS | 24" STOP LINES | ISLAND MARKING "WHITE" | WORD "ONLY" ON PAVEMENT | CURB MARKING "YELLOW" | 6" CROSS-WALK LINES |
| | | (A) | (B) | (C) | (D) | (E) | (F) | (G) | (H) | (I) | (J) | (K) | (L) | (M) |
| | | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | EACH | LIN. FT. | SQ. FT. | EACH | LIN. FT. | LIN. FT. |
| RAMP E-18 | | | | | | | | | | | | | | |
| 1+93 - 10+20 | Rt. | 827 | | | | | | | | | | | | |
| 1+93 - 13+66 | Lt. | | 1173 | | | | | | | | | | | |
| 1+93 - 2+18 | Lt. | | | | | | | | | | 175 | | | |
| 1+93 - 2+93 | Lt. x 2 | | | | | | | 200 | | | | | | |
| RAMP E-4 | | | | | | | | | | | | | | |
| 1+79 - 2+39 | Lt. | | | | | 60 | | | | | | | | |
| 3+39 - 9+20 | Lt. | | | | | | | | | | | | 681 | |
| 2+39 - 3+39 | Lt. | | | | | | | 100 | | | | | | |
| 0+50 - 8+85 | Rt. | 835 | | | | | 43 | | | | | | | |
| RAMP E-3 | | | | | | | | | | | | | | |
| 0+00 - 1+00 | Rt. | | | | | | | 100 | | | | | | |
| 1+00 - 6+60 | Rt. | 560 | | | | | | | | | | | | |
| 0+50 - 2+03 | Lt. | | | | | | | | | | | | 153 | |
| 0+20 (Conn.) - 2+07 (Conn.) | Rt. | | | | | | | 187 | | | | | | |
| 0+86 (Conn.) - 2+07 (Conn.) | Lt. | | 121 | | | | | | | | | | | |
| 2+03 - 5+74 | Lt. | | 371 | | | | | | | | | | | |
| 2+03 - 2+53 | Lt. | 50 | | | | 50 | | | | | | | | |
| 2+53 - 6+60 | Q | | | 407 | | | | | | | | | | |
| 0+10 - 0+66 | Lt. | | | | | | | | | | | | | |
| 5+74 - 6+74 | Lt. | | | | | | | 100 | | | | | | 80 |
| RAMP E-1 | | | | | | | | | | | | | | |
| 0+00 - 1+82 | Rt. | | | | | | | 182 | | | | | | |
| 1+82 - 2+77 | Rt. | 95 | | | | | | | | | | | | |
| 1+60 - 2+77 | Lt. | | | | | | | | | | | | 117 | |
| RAMP E-2 | | | | | | | | | | | | | | |
| 7+20 - 9+23 | Lt. | | | | | | | | | | | | | 203 |
| 9+23 - 10+23 | Lt. | | | | | | | 100 | | | | | | |
| 7+20 - 9+80 | Rt. | 260 | | | | | | | | | | | | |
| 9+43 - 10+23 | Rt. | | | | | | | 80 | | | | | | |
| 9+95 - 10+20 | Lt. | | | | | | | | | | | | | 60 |
| RAMP E-6 | | | | | | | | | | | | | | |
| 1+10 - 1+98 | Rt. | | | | | 88 | 56 | | | | | | | |
| 1+98 - 2+98 | Lt. | | | | | | | 100 | | | | | | |
| 1+98 - 2+38 | Lt. | | | | | | | | | | | | | |
| 1+98 - 4+48 | Lt. | | 250 | | | | | | | | | | | |
| 0+00 - 8+38 | Rt. | 838 | | | | | | | | | | | | |
| 8+38 - 10+38 | Rt. | | | | | | | 200 | | | 266 | | | |
| 9+38 - 10+38 | Lt. | | | | | | | 100 | | | | | | |

| PAVEMENT MARKINGS - ITEM 847- COST PARTICIPATION I | | | | | | | | | | | | | | |
|--|----------|--------------------|---------------------|--------------|--------------|-----------------------------|----------------------------------|----------------------|-------------|----------------|------------------------|-------------------------|-----------------------|---------------------|
| LOCATIONS AND STATIONS | SIDE | 4" WHITE EDGE LINE | 4" YELLOW EDGE LINE | 4" LANE LINE | 6" LANE LINE | 8" WHITE CHANNEL-IZING LINE | 24" WHITE BROAD TRANS-VERSE LINE | CURB MARKING "WHITE" | LANE ARROWS | 24" STOP LINES | ISLAND MARKING "WHITE" | WORD "ONLY" ON PAVEMENT | CURB MARKING "YELLOW" | 6" CROSS-WALK LINES |
| | | (A) | (B) | (C) | (D) | (E) | (F) | (G) | (H) | (I) | (J) | (K) | (L) | (M) |
| | | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | EACH | LIN. FT. | SQ. FT. | EACH | LIN. FT. | LIN. FT. |
| RAMP E-6 Cont. | | | | | | | | | | | | | | |
| 5+68 - 9+38 | Lt. | | 370 | | | | | | | | | | | |
| 5+40 - 5+68 | Lt. x 2 | | | | | | | | | | 56 | 16 | | |
| 5+68 - 5+88 | Lt. | | | | | | | | | | | | 140 | |
| 5+68 - 6+68 | Lt. | | | | | | | | | | | | 100 | |
| RAMP E-7 | | | | | | | | | | | | | | |
| 0+00 - 8+97 | Lt. | | 897 | | | | | | | | | | | |
| 1+37 - 2+37 | Rt. | | | | | | | | | | | | 100 | |
| 2+37 - 4+50 | Rt. | 213 | | | | | | | | | | | | |
| 4+50 - 6+50 | Rt. | | | | | | | | | | | | 200 | |
| 6+50 - 7+00 | Rt. | | | | | | | | | | 50 | 15 | | |
| RAMP E-11 | | | | | | | | | | | | | | |
| 0+00 - 6+00 | Rt. | 600 | | | | | | | | | | | | 3 |
| 5+00 - 6+56 (Conn.) | Rt. | | | | | | | | | | | | 156 | |
| 6+50 (Conn.) ; 6+75 | Lt. | | | | | | | | | | | | | 44 |
| 1+99 - 5+61 | Lt. | | 362 | | | | | | | | | | | |
| 5+61 - 6+56 | Lt. | | | | | | | | | | | | | 105 |
| 5+56 - 6+06 | Q | | | | | | | | | | 50 | | | |
| 6+06 - 6+56 | Q | | | | | | | | | | | | 50 | |
| Island | | | | | | | | | | | | | | |
| 6+26 (Conn.) - 6+50 (Conn.) | Lt. | | | | | | | | | | | | 60 | 1500 |
| 0+85 - 1+98 | Lt. | | | | | | | | | | | | | 24 |
| 1+98 - 2+38 | Lt. | | | | | | | | | | | | | |
| 1+98 - 2+98 | Lt. | | | | | | | | | | | | 100 | 256 |
| RAMP 3 | | | | | | | | | | | | | | |
| 5+85 - 8+90 | Q | | | | | | | | | | | | | 2 |
| 1+93 - 3+31 | Lt. | | | | | | | | | | | | 305 | |
| 3+31 - 4+85 | Lt. | | 154 | | | | | | | | | | | |
| 4+85 - 8+80 | Lt. | | | | | | | | | | | | | 395 |
| 0+00 - 8+80 | Rt. | 880 | | | | | | | | | | | | |
| 8+30 - 9+40 | Rt. | | | | | | | | | | | | 132 | |
| 8+90 - 9+00 | Lt. | | | | | | | | | | | | | 100 |
| RAMP 4 | | | | | | | | | | | | | | |
| 0+00 - 7+93 | Lt. | 793 | | | | | | | | | | | | |
| 7+93 - 8+80 | Lt. | | | | | | | | | | | | 87 | |
| 1+83 - 8+51 | Rt. | | | | | | | | | | | | | 668 |
| 1+54 - 1+83 | Rt. | | | | | | | | | | | | 29 | |
| 0+00 - 1+54 | Rt. | | | | | | | | | | | | 154 | |
| 8+40 - 8+50 | Lt. | | | | | | | | | | | | | 90 |
| I-90-1(10)29 | | | | | | | | | | | | | | |
| Sheet | Subtotal | 5951 | 3698 | 762 | 0 | 759 | 380 | 2413 | 8 | 44 | 2337 | 1 | 2346 | 330 |

(Quantities Cont. on Sheet 53) * ITEM 621 PAINT

MADE D.S.P. DATE 4-22-75
 TRACED J.P.K. DATE 9-22-75
 CHECKED M.G.B. DATE 7-22-75
 SCALE _____

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

HNTB

Rev 12-18-78

PAVEMENT MARKING SUB-SUMMARIES

QUANTITY CALCULATIONS
 MADE BY T.D.V. DATE 3-27-75
 CHECKED BY D.S.P. DATE 4-22-75

| | | |
|-------------|-------|---------|
| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

53
169

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

| PAVEMENT MARKINGS - ITEM 847- COST PARTICIPATION I | | | | | | | | | | | | | | |
|--|------|----------|-----------|----------|----------|----------|-----------|----------|--------|----------|---------|-----------|----------|-----------|
| LOCATIONS AND STATIONS | SIDE | 4" WHITE | 4" YELLOW | 4" LANE | 6" LANE | 8" WHITE | 24" WHITE | CURB | LANE | 24" STOP | ISLAND | WORD | CURB | 6" CROSS- |
| | | EDGE | EDGE | LINE | LINE | CHANNEL- | BROAD | MARKING | ARROWS | LINES | MARKING | "ONLY" ON | MARKING | WALK |
| | | LINE | LINE | LINE | LINE | IZING | TRANS- | "WHITE" | LINE | LINE | "WHITE" | PAVEMENT | "YELLOW" | LINES |
| | | (A) | (B) | (C) | (D) | (E) | (F) | (G) | (H) | (I) | (J) | (K) | (L) | (M) |
| | | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | EACH | LIN. FT. | SQ. FT. | EACH | LIN. FT. | LIN. FT. |
| <i>Ramp No. 5</i> | | | | | | | | | | | | | | |
| 1+15-6+37 | Rt. | | | | | | | | | | | | 532 | |
| 6+37-7+04 | Lt. | | | | | | | 67 | | | | | | |
| 0+00-6+37 | Lt. | 637 | | | | | | | | | | | | |
| 0+88-1+15 | Rt. | | | | | | | 37 | | | | | | |
| 0+00-0+88 | Rt. | | | | | 88 | | | | | | | | |
| 6+40-6+50 | | | | | | | | | | | | | | 80 |
| <i>Ramp No. 6</i> | | | | | | | | | | | | | | |
| 0+63-1+45 | Lt. | | | | | 82 | 90 | | 4 | | | 4 | | |
| 1+45-3+67 | Lt. | | 222 | | | | | | | | | | | |
| 0+00-7+00 | Rt. | 700 | | | | | | | | | | | | |
| 6+50-7+40 | Rt. | | | | | | | 113 | | | | | | |
| 4+50-6+70 | E | | | 220 | | | | | | | | | | |
| 8+70-7+20 | E | | | | | 50 | | | | | | | | |
| 7+20 | | | | | | | | | | 30 | | | | |
| 7+25-7+30 | | | | | | | | | | | | | | 80 |
| 3+67-7+40 | Lt. | | | | | | | | | | | | 373 | |
| <i>Ramp No. 7</i> | | | | | | | | | | | | | | |
| 0+00-7+75 | Rt. | 775 | | | | | | | | | | | | |
| 7+27-8+15 | Rt. | | | | | | | 119 | | | | | | |
| 1+15-1+86 | Lt. | | | | | 71 | 80 | | | | | | | |
| 1+86-4+26 | Lt. | | 240 | | | | | | | | | | | |
| 5+00-8+00 | E | | | 300 | NONE | | | | | 33 | NONE | | | |
| 8+00 | | | | | | | | | | | | | | |
| 8+05-8+10 | | | | | | | | | | | | | | 66 |
| 4+26-8+15 | | | | | | | | | | | | | 389 | |
| <i>Ramp No. 8</i> | | | | | | | | | | | | | | |
| 0+00-1+24 | Rt. | | | | | 124 | | | | | | | | |
| 0+00-6+90 | Lt. | 690 | | | | | | | | | | | | |
| 1+24-1+49 | Lt. | | | | | | | 50 | | | | | | |
| 1+49-6+90 | Rt. | | | | | | | | | | | | 541 | |
| 6+90-7+61 | Lt. | | | | | | | 71 | | | | | | |
| 6+95-7+00 | | | | | | | | | | | | | | 80 |
| <i>Ramp No. 9</i> | | | | | | | | | | | | | | |
| 0+76-2+16 | Rt. | | | | | 140 | | | | | | | | |
| 2+16-2+66 | Rt. | | | | | | | 50 | | | | | | |
| 2+66-9+12 | Rt. | | | | | | | | | | | | 646 | |
| 8+62-8+81 (Chester) | Lt. | | | | | | | 75 | | | | | | |
| 0+00-8+62 | Lt. | 862 | | | | | | | | | | | | |
| 8+82-8+87 | | | | | | | | | | | | | | 60 |

| PAVEMENT MARKINGS - ITEM 847- COST PARTICIPATION I | | | | | | | | | | | | | | |
|--|------|----------|-----------|----------|----------|----------|-----------|----------|--------|----------|---------|-----------|----------|-----------|
| LOCATIONS AND STATIONS | SIDE | 4" WHITE | 4" YELLOW | 4" LANE | 6" LANE | 8" WHITE | 24" WHITE | CURB | LANE | 24" STOP | ISLAND | WORD | CURB | 6" CROSS- |
| | | EDGE | EDGE | LINE | LINE | CHANNEL- | BROAD | MARKING | ARROWS | LINES | MARKING | "ONLY" ON | MARKING | WALK |
| | | LINE | LINE | LINE | LINE | IZING | TRANS- | "WHITE" | LINE | LINE | "WHITE" | PAVEMENT | "YELLOW" | LINES |
| | | (A) | (B) | (C) | (D) | (E) | (F) | (G) | (H) | (I) | (J) | (K) | (L) | (M) |
| | | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | EACH | LIN. FT. | SQ. FT. | EACH | LIN. FT. | LIN. FT. |
| <i>Ramp No. 10</i> | | | | | | | | | | | | | | |
| 0+80-1+05 | Rt. | | | | | | | | | | | | 25 | |
| 1+05-1+55 | Rt. | | | | | | | 50 | | | | | | |
| 1+55-7+12 | Rt. | | | | | | | | | | | | | 557 |
| 5+76-7+34 | Lt. | | | | | | | 203 | | | | | | |
| 8+34-9+05 (Conn.) | Rt. | | | | | | | 71 | | | | | | |
| 0+00-8+34 (Conn.) | Lt. | 834 | | | | | | | | | | | | 259 |
| 5+75-8+34 (Conn.) | Rt. | | | | | | | | | | | | | 70 |
| 8+29-8+34 | | | | | | | | | | | | | | |
| <i>Ramp No. 11</i> | | | | | | | | | | | | | | |
| 0+00-8+69 | Rt. | 869 | | | | | | | | | | | | |
| 8+18-9+08 | Rt. | | | | | | | | | | | | 114 | |
| 1+05-2+56 | Lt. | | | | | | | 151 | 183 | | | | | |
| 2+56-4+96 | Lt. | | 240 | | | | | | | | | | | |
| 4+96-8+88 | Lt. | | | | | | | | | | | | | 384 |
| 6+00-8+79 | E | | | | | | | | 273 | | | | | |
| 8+79 | | | | | | | | | | | | | | 24 |
| 8+23-8+79 | E | | | | | | | 50 | | | | | | |
| <i>Ramp No. 12</i> | | | | | | | | | | | | | | |
| 1+03-2+94 | Lt. | | | | | | | | | | | | 191 | 224 |
| 2+94-3+40 | Lt. | | 46 | | | | | | | | | | 46 | |
| 3+40-8+70 | | | | | | | | | | | | | | 538 |
| 0+00-8+29 | Rt. | 829 | | | | | | | | | | | | |
| 7+79-8+29 (Conn.) | Rt. | | | | | | | | | | | | | |
| 4+88-5+50 | Rt. | | | | | | | 62 | | | | | | |
| 4+88-5+24 (Conn.) | Lt. | | | | | | | 36 | 34 | | | | | |
| 5+24-5+53 (Conn.) | Lt. | | 29 | | | | | | | | | | 29 | |
| 5+27-5+50 | Rt. | | | | | | | | | | | | 23 | |
| 5+53-7+00 (Conn.) | Lt. | | | | | | | | | | | | | 136 |
| 6+22-8+02 (Conn.) | E | | | | | | | | 180 | | | | | |
| 8+02-8+52 (Conn.) | E | | | | | | | 50 | | | | | | |
| 7+69 (Conn.)-8+52 | | | | | | | | | | | | | 64 | |
| 8+56-8+61 | | | | | | | | | | | | | | 80 |
| 5+50-7+69 | Rt. | 219 | | | | | | | | | | | | |
| 7+73-7+78 | | | | | | | | | | | | | | 80 |
| 7+19-7+69 | E | | | | | | | | | | | | 50 | |
| 4+47-7+69 | E | | | | | | | | | 322 | | | | |
| <i>Ramp No. 13</i> | | | | | | | | | | | | | | |
| 0+00-5+60 | Lt. | 560 | | | | | | | | | | | | 2 |
| 5+60-5+81 | Lt. | | | | | | | | | | | | 21 | |
| 6+41-8+03 | Lt. | | | | | | | | | | | | 190 | |
| 2+25-8+03 | Rt. | | | | | | | | | | | | | 594 |
| 1+75-2+25 | Rt. | | | | | | | | | | | | 50 | |
| <i>I-90-1(10)29</i> | | | | | | | | | | | | | | |
| <i>Sheet Subtotal</i> | | | | | | | | | | | | | | |
| | | 6975 | 777 | 1295 | 0 | 1170 | 611 | 1492 | 22 | 151 | 0 | 14 | 4949 | 596 |

(Quantities Cont. on Sheet 54) * ITEM 621 PAINT

MADE D.S.P. DATE 4-22-75
 TRACED J.P.K. DATE 6-6-75
 CHECKED M.G.B. DATE 7-28-75
 SCALE NONE

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

HNTB

Rev 12-18-78

PAVEMENT MARKING SUB-SUMMARIES

PAVEMENT MARKING SUB-SUMMARIES

QUANTITY CALCULATIONS
 MADE BY T.D.V. DATE 3-27-75
 CHECKED BY D.S.P. DATE 4-24-75

| | | |
|-------------|-------|---------|
| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

54
169

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

* 621

| PAVEMENT MARKINGS-ITEM 847 COST PARTICIPATION I | | | | | | | | | | | | | |
|---|------|----------|-----------|----------|----------|-----------|----------|--------|----------|-----------|----------|-----------|----------|
| LOCATIONS AND STATIONS | SIDE | 4" WHITE | 4" YELLOW | 4" LANE | 8" WHITE | 24" WHITE | CURB | LANE | 24" STOP | WORD | CURB | 6" CROSS- | 4" |
| | | EDGE | EDGE | LINE | CHANNEL- | BROAD | MARKING | ARROWS | LINES | "ONLY" ON | MARKING | WALK | CENTER- |
| | | LINE * | LINE * | LINE | IZING | TRANS- | "WHITE" | | LINES | PAVEMENT | "YELLOW" | LINES | LINE |
| | | (A) | (B) | (C) | (E) | (F) | (G) | (H) | (I) | (K) | (L) | (M) | (N) |
| | | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | EACH | LIN. FT. | EACH | LIN. FT. | LIN. FT. | LIN. FT. |
| RAMP 13 Cont. | | | | | | | | | | | | | |
| 1+00 - 1+75 | Rt. | | | | 75 | | | | 15 | | | | |
| 7+90 | | | | | | | | | | | | | 240 |
| 6+70 - 7+90 | | | | | | | | | | | | 80 | |
| 7+94 - 8+00 | | | | | | | | | | | | | |
| RAMP 14 | | | | | | | | | | | | | |
| 0+80 - 1+75 | Lt. | | | | 95 | 115 | | 4 | | 4 | | | |
| 1+75 - 4+15 | Lt. | | 240 | | | | | | | | | | |
| 4+15 - 1+11 (E. 26th St.) | Lt. | | | | | | | | | | 400 | | |
| 1+73 - 2+73 | Lt. | | | | | | 100 | | | | | | |
| 4+54 - 4+69 | Rt. | | | | 15 | | | | | | | | |
| 4+69 - 7+65 | Rt. | | | | | | 296 | | | | | | |
| 7+60 - 7+65 | | | | | | | | | | | | 80 | |
| 5+00 - 7+60 | Q | | | 260 | | | | | | | | | |
| RAMP 14 CONNECTION | | | | | | | | | | | | | |
| 0+91 - 7+49 | Rt. | | | | | | 658 | | | | | | |
| 0+00 - 0+91 | Rt. | 91 | | | | | | | | | | | |
| 6+70 - 6+75 | | | | | | | | | | | | 70 | |
| 6+25 - 6+77 | Lt. | | | | | | | | | | 52 | | |
| 4+71 - 6+25 | Lt. | | 154 | | | | | | | | | | |
| 4+56 - 4+71 | Lt. | | | | 15 | 10 | | | | | | | |
| RAMP 15 | | | | | | | | | | | | | |
| 6+00 - 8+10 | Rt. | | | | | | | | | | 229 | | |
| 2+15 - 6+00 | Rt. | | 385 | | | | | | | | | | |
| 0+00 - 2+15 | Rt. | | | | 215 | | | | | | | | |
| 2+15 - 3+15 | Rt. | | | | | | 100 | | | | | | |
| 1+28 - 8+10 | Lt. | | | | | | 710 | | | | | | |
| 0+00 - 1+28 | Lt. | 128 | | | | | | | | | | | |
| 7+75 - 7+80 | | | | | | | | | | | | 75 | |
| RAMP 16 | | | | | | | | | | | | | |
| 6+00 - 7+47 | Lt. | 147 | | | 147 | | | | | | | | |
| 2+25 - 9+50 | Rt. | | | | | | | | | | 725 | | |
| 1+25 - 2+25 | Rt. | | | | | | 100 | | | | | | |
| 7+47 - 10+30 | Lt. | | | | | | 292 | | | | | | |
| 4+50 - 6+00 | Q | | | 150 | | | | | | | | | |
| 9+50 - 9+55 | | | | | | | | | | | | 90 | |
| 0+86 - 1+25 | Rt. | | | | 39 | | | | | | | | |
| (E. 33rd St. Connection) | | | | | | | | | | | | | |
| 7+47 - 10+26 | Rt. | | | | | | | | | | 279 | | |
| 0+70 - 10+26 | Lt. | | | | | | 956 | | | | | | |
| 0+00 - 0+70 | Lt. | 70 | | | | | | | | | | | |
| 10+20 - 10+25 | | | | | | | | | | | | 65 | |

| PAVEMENT MARKINGS-ITEM 847 COST PARTICIPATION I | | | | | | | | | | | | | |
|---|----------|----------|-----------|----------|----------|-----------|----------|--------|----------|-----------|----------|-----------|----------|
| LOCATIONS AND STATIONS | SIDE | 4" WHITE | 4" YELLOW | 4" LANE | 8" WHITE | 24" WHITE | CURB | LANE | 24" STOP | WORD | CURB | 6" CROSS- | 4" |
| | | EDGE | EDGE | LINE | CHANNEL- | BROAD | MARKING | ARROWS | LINES | "ONLY" ON | MARKING | WALK | CENTER- |
| | | LINE * | LINE * | LINE | IZING | TRANS- | "WHITE" | | LINES | PAVEMENT | "YELLOW" | LINES | LINE |
| | | (A) | (B) | (C) | (E) | (F) | (G) | (H) | (I) | (K) | (L) | (M) | (N) |
| | | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | EACH | LIN. FT. | EACH | LIN. FT. | LIN. FT. | LIN. FT. |
| RAMP 17 | | | | | | | | | | | | | |
| 0+86 - 1+21 | Rt. | | | | 35 | | | | | | 100 | | |
| 1+21 - 2+21 | Rt. | | | | | | | | | | | | |
| 1+95 - 7+89 | Rt. | | 594 | | | | | | | | | | |
| 0+65 - 9+00 | Lt. | | | | | | | | | | 876 | | |
| 0+00 - 0+65 | Lt. | 65 | | | | | | | | | | | |
| 7+89 - 9+00 | Rt. | | | | | | | | | | | 111 | |
| RAMP 18 | | | | | | | | | | | | | |
| 1+00 - 1+65 | | | | | 65 | 50 | | | | 1 | | | |
| 0+00 - 0+58 | Rt. | 58 | | | | | | | | | | NONE | NONE |
| 0+58 - 9+39 | Rt. | | | | | | | | | | 881 | | |
| 7+47 - 7+85 | Lt. | | | | | | | | | | 38 | | |
| 7+85 - 9+39 | Lt. | | | | | | | | | | | 154 | |
| 1+35 - 2+35 | Lt. | | | | | | | | | | 100 | | |
| 1+35 - 3+75 | Lt. | | 240 | | | | | | | | | | |
| 3+75 - 6+50 | Lt. | | | | | | | | | | | 275 | |
| 7+37 - 7+47 | Q x 2 | | | | | 20 | 10 | | | | | | |
| 5+15 - 9+30 | Q | | | | 415 | | | | | | | | |
| (E. 33rd St. Connection) | | | | | | | | | | | | | |
| 6+50 - 8+62 | Lt. | | | | | | | | | | | 212 | |
| 7+47 - 8+62 | Rt. | | | | | | | | | | 115 | | |
| 8+52 | | | | | | | | | | | | 22 | |
| I-90-1(101)29 | | | | | | | | | | | | | |
| Sheet | Subtotal | 559 | 1613 | 825 | 721 | 185 | 5322 | 10 | 37 | 5 | 2437 | 460 | 120 |

* 621

| PAVEMENT MARKING SUMMARY-ITEM 847 COST PARTICIPATION I | | | | | | | | | | | | | | | |
|--|----------|-----------|----------|----------|----------|-----------|----------|--------|----------|---------|-----------|----------|-----------|----------|----------|
| SHEET NO. | 4" WHITE | 4" YELLOW | 4" LANE | 6" LANE | 8" WHITE | 24" WHITE | CURB | LANE | 24" STOP | ISLAND | WORD | CURB | 6" CROSS- | 4" | 4" |
| | EDGE | EDGE | LINE | LINE | CHANNEL- | BROAD | MARKING | ARROWS | LINES | MARKING | "ONLY" ON | MARKING | WALK | CENTER- | DOTTED |
| | LINE * | LINE * | LINE | LINE | IZING | TRANS- | "WHITE" | | LINES | "WHITE" | PAVEMENT | "YELLOW" | LINES | LINE | LINE |
| | (A) | (B) | (C) | (D) | (E) | (F) | (G) | (H) | (I) | (J) | (K) | (L) | (M) | (N) | (P) |
| | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. | EACH | LIN. FT. | SQ. FT. | EACH | LIN. FT. | LIN. FT. | LIN. FT. | LIN. FT. |
| I-77-5(10)161 | | | | | | | | | | | | | | | |
| 49 | 15,455 | 19,338 | 649 | 30,489 | 4,533 | 387 | 300 | - | - | - | - | - | - | - | - |
| 50 | 13,257 | 8,515 | 390 | 0 | 2,104 | 1505 | 2050 | 11 | 94 | 1,674 | 5 | 794 | - | - | - |
| 51 | 698 | 550 | - | - | - | - | 206 | - | - | - | - | - | - | - | - |
| TOTAL | 29,410 | 28,403 | 1,039 | 30,489 | 6,637 | 1,892 | 2,556 | 11 | 94 | 1,674 | 5 | 794 | - | - | - |
| I-90-1(101)29 | | | | | | | | | | | | | | | |
| 49 | 23,031 | 2,457 | 1,908 | 6,073 | 4,667 | 430 | 543 | - | - | - | - | - | - | - | 311 |
| 51 | 8,559 | 7,911 | 744 | 1,531 | 1,857 | 652 | 2,125 | 2 | - | 1,143 | - | 170 | 120 | - | - |
| 52 | 5,951 | 3,698 | 762 | - | 759 | 380 | 2,413 | 8 | 44 | 2,337 | 1 | 2,346 | 330 | - | - |
| 53 | 6,975 | 777 | 1,295 | - | 1,170 | 611 | 1,492 | 22 | 151 | - | 14 | 4,949 | 596 | - | - |
| 54 | 559 | 1,613 | 825 | - | 721 | 185 | 5,322 | 10 | 37 | - | 5 | 2,437 | 460 | 240 | - |
| TOTAL | 45,075 | 38,575 | 5,534 | 6,226 | 9,174 | 2,258 | 11,895 | 42 | 232 | 3,480 | 20 | 9,902 | 1,506 | 240 | 311 |

MADE DSP DATE 4-25-75
 TRACED J.P.A. DATE 6-28-75
 CHECKED M.G.B. DATE 7-28-75
 SCALE _____

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

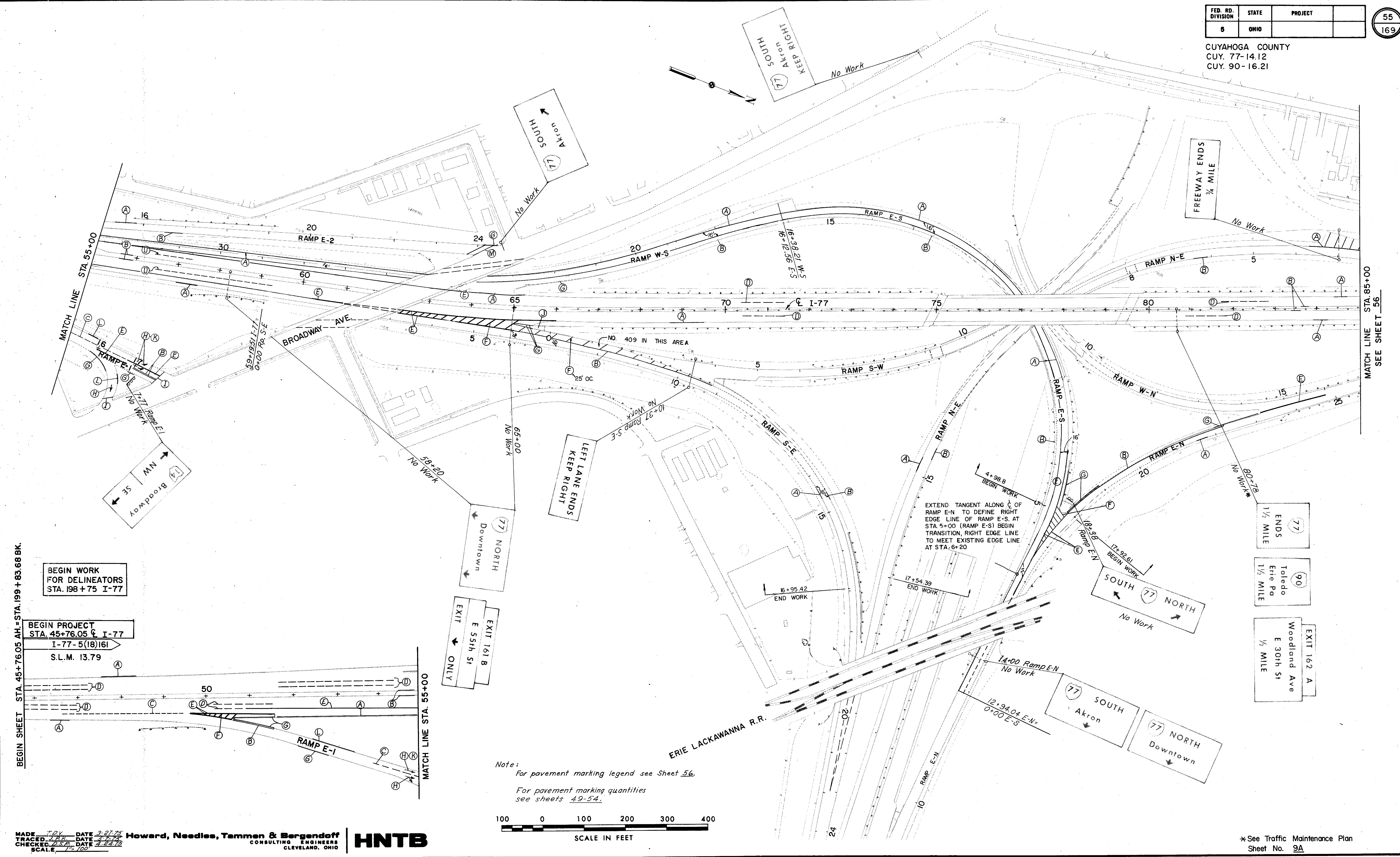
HNTB

Rev. 1-9-79 Rev. 10-26-78

| | | |
|-------------------|-------|---------|
| FED. RD. DIVISION | STATE | PROJECT |
| 5 | OHIO | |

55
169

CUYAHOGA COUNTY
CUY. 77-14.12
CUY. 90-16.21

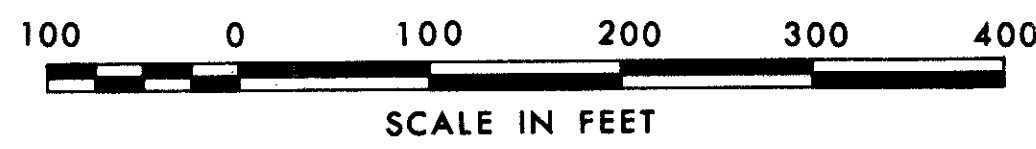


BEGIN SHEET STA. 45+76.05 AH=STA. 199+83.68 BK.

BEGIN WORK FOR DELINEATORS STA. 198+75 I-77

BEGIN PROJECT STA. 45+76.05 I-77
I-77-5(18)161
S.L.M. 13.79

Note:
For pavement marking legend see Sheet 56.
For pavement marking quantities see sheets 49-54.



MADE BY DATE 3-27-79
TRACED BY DATE 3-27-79
CHECKED BY DATE 4-24-79
SCALE 1"=100'

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

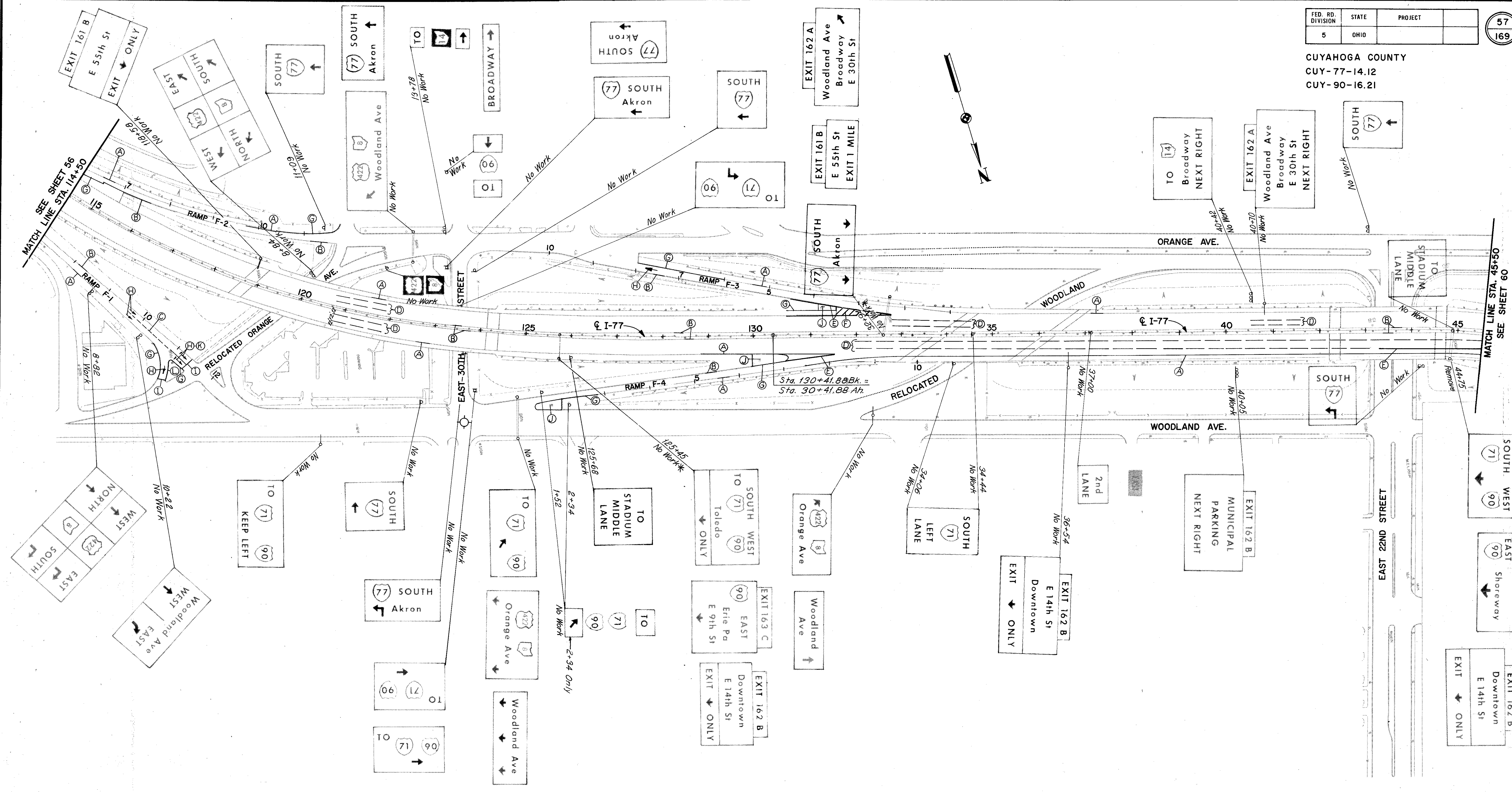


*See Traffic Maintenance Plan Sheet No. 9A

| | | |
|-------------------|-------|---------|
| FED. RD. DIVISION | STATE | PROJECT |
| 5 | OHIO | |

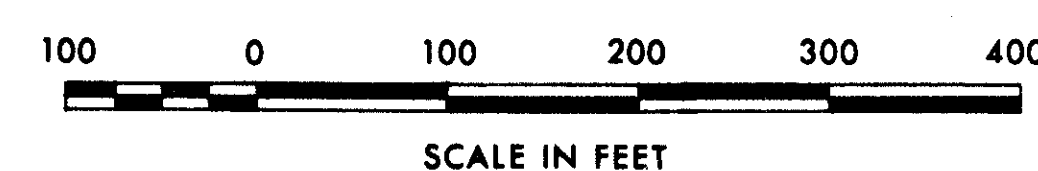
57
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



MATCH LINE STA. 14+50
SEE SHEET 56

MATCH LINE STA. 45+50
SEE SHEET 60



MADE T.O.V. DATE 3-27-75
TRACED J.B.K. DATE 3-8-79
CHECKED L.S.F. DATE 4-24-79
SCALE 1" = 100'

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



NOTE: For pavement marking quantities see sheet 49-54.

For pavement marking legend, see Sheet 56.

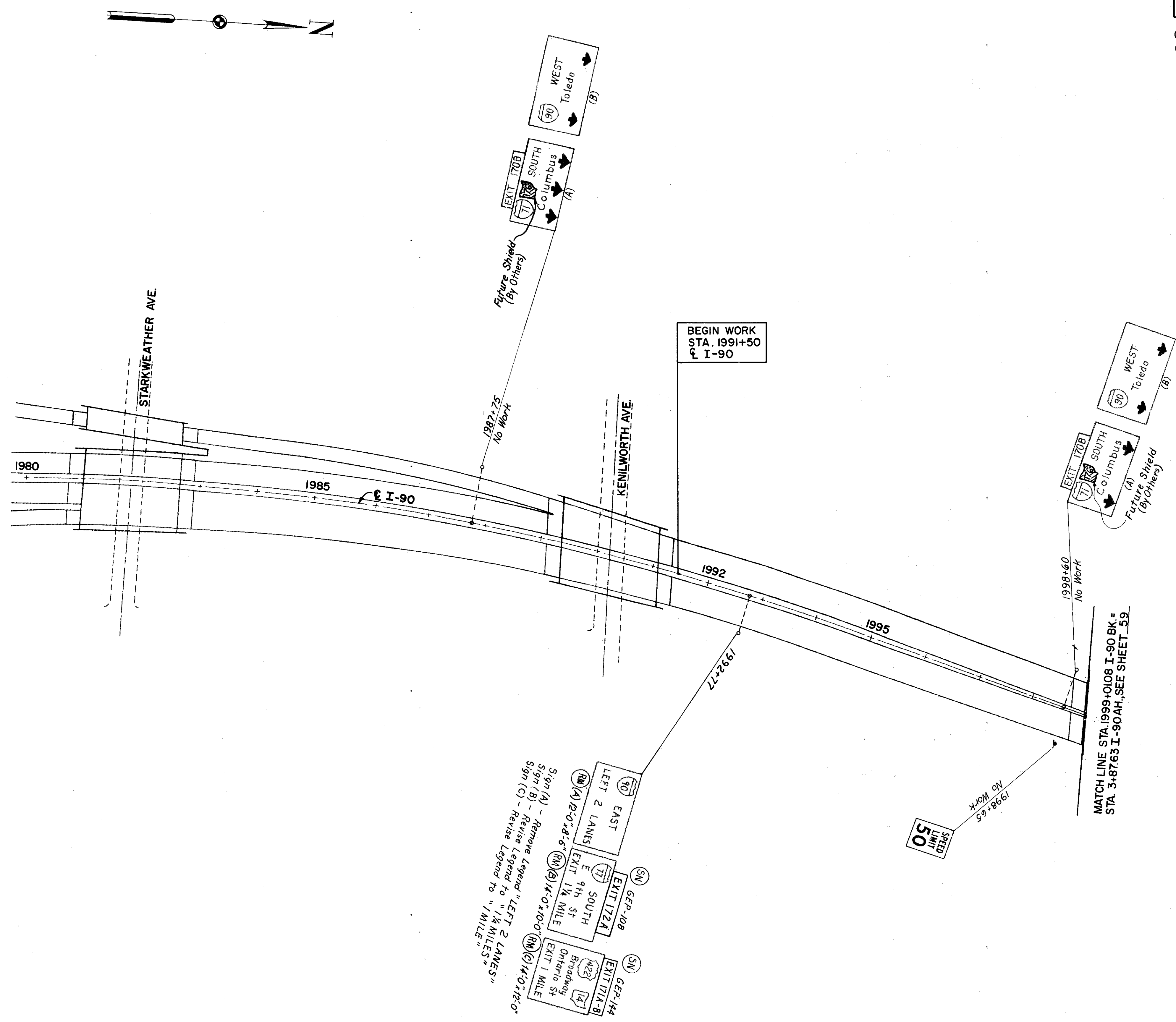
* See Traffic Maintenance Plan Sheet 9A

STA. 114+50 TO STA. 45+50 I-77: GUIDE SIGNS

| | | |
|-------------|-------|---------|
| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

58
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



LEGEND

- SIGNALIZED INTERSECTION (EXISTING)
- (SN) PROVIDE NEW SIGN
- (SP) PROVIDE NEW SUPPORT
- (RM) REVISE EXISTING SIGN LEGEND
- PROPOSED SIGN
- (D) EXISTING SIGN (SUBDUED)
- (F) FUTURE SIGN BY OTHERS
- (BY) BLACK ON YELLOW PANEL
- ||||| SIGN SERVICE, AS PER PLAN
- STATION PULL BOX - EXISTING PULL BOX ADJACENT TO OVERHEAD SIGN SUPPORT TO CONNECT SIGN SERVICE.
- E — POWER SERVICE DISTRIBUTION TO OVERHEAD SIGNS

Note: Roman numerals (I, II, III, IV) appearing near proposed Guide Signs do not refer to Cost Participation but to the "Level" of Signing, for use in determination of the Legend Size.

Sign (A) - Remove Legend "LEFT 2 LANES"
Sign (B) - Revise Legend to "1/4 MILES"
Sign (C) - Revise Legend to "1/2 MILES"

NOTE: For quantities see sheet 65.

MADE D.S.P. DATE 10-16-75
TRACED T.P.M. DATE 11-8-75
CHECKED G.F.M. DATE 10-22-75
SCALE 1/4" = 1'-0"

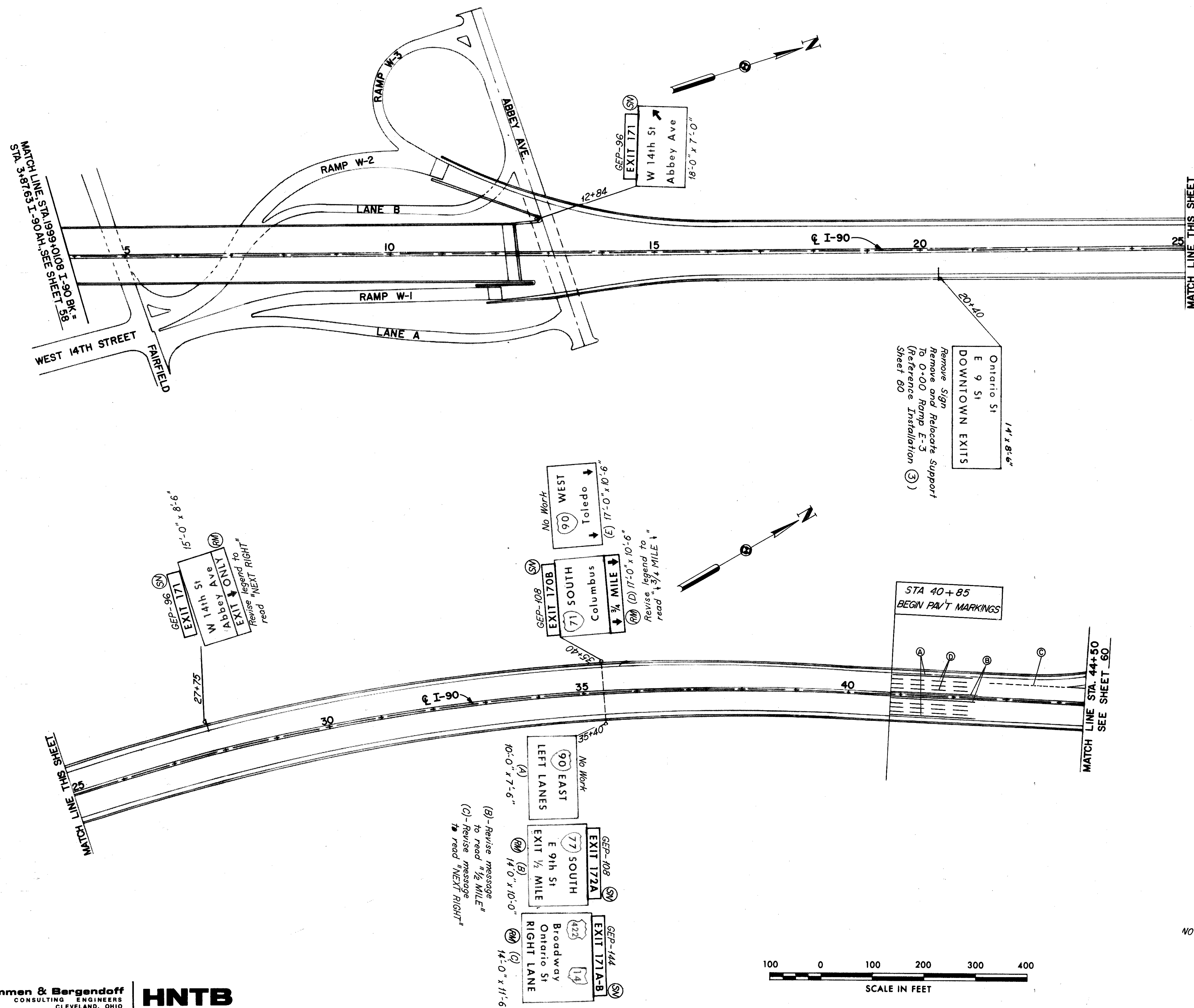
Howard, Needles, Tammen & Bergendoff
CONSULTING ENGINEERS
CLEVELAND, OHIO



| | | | |
|-------------------|-------|---------|--|
| FED. RD. DIVISION | STATE | PROJECT | |
| 5 | OHIO | | |

59
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



Remove Sign
Remove and Relocate Support
To 0+00 Ramp E-3
(Reference Installation (3))

(B) - Revise message
to read "1/2 MILE"
(C) - Revise message
to read "NEXT RIGHT"

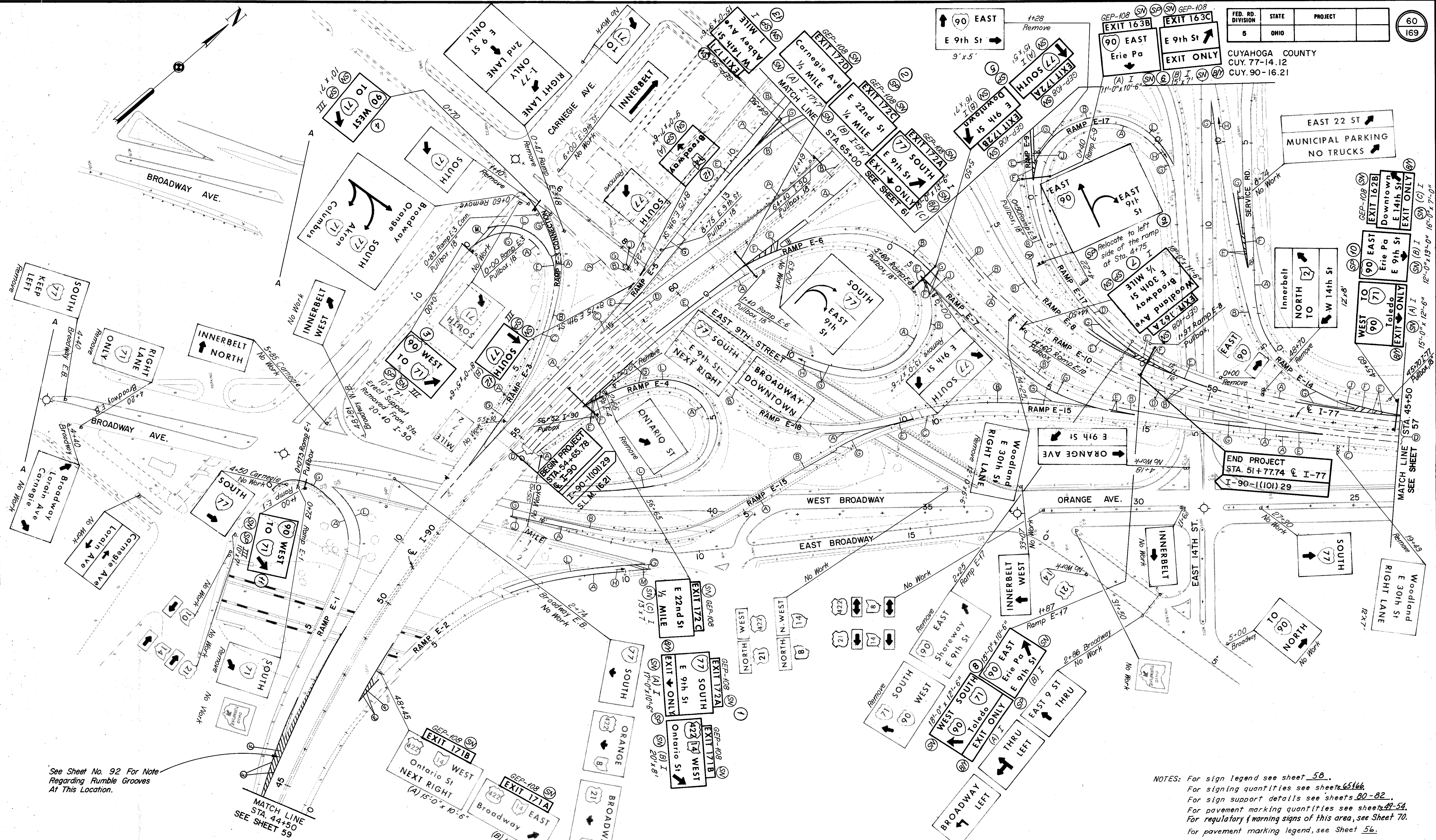
NOTES: For sign legend see sheet 58
For signing quantities see sheet 65

MADE D.S.P. DATE 10-16-75
TRACED D.P.C. DATE 10-22-75
CHECKED G.T.M. DATE 10-22-75
SCALE 1"=100'

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

HNTB

CUYAHOGA COUNTY
 CUY. 77-14.12
 CUY. 90-16.21



See Sheet No. 92 For Note Regarding Rumble Grooves At This Location.

MATCH LINE STA. 44+50 SEE SHEET 59

END PROJECT STA. 51+77.74 & I-77 I-90-1(101)29

MATCH LINE STA. 45+50 SEE SHEET 61

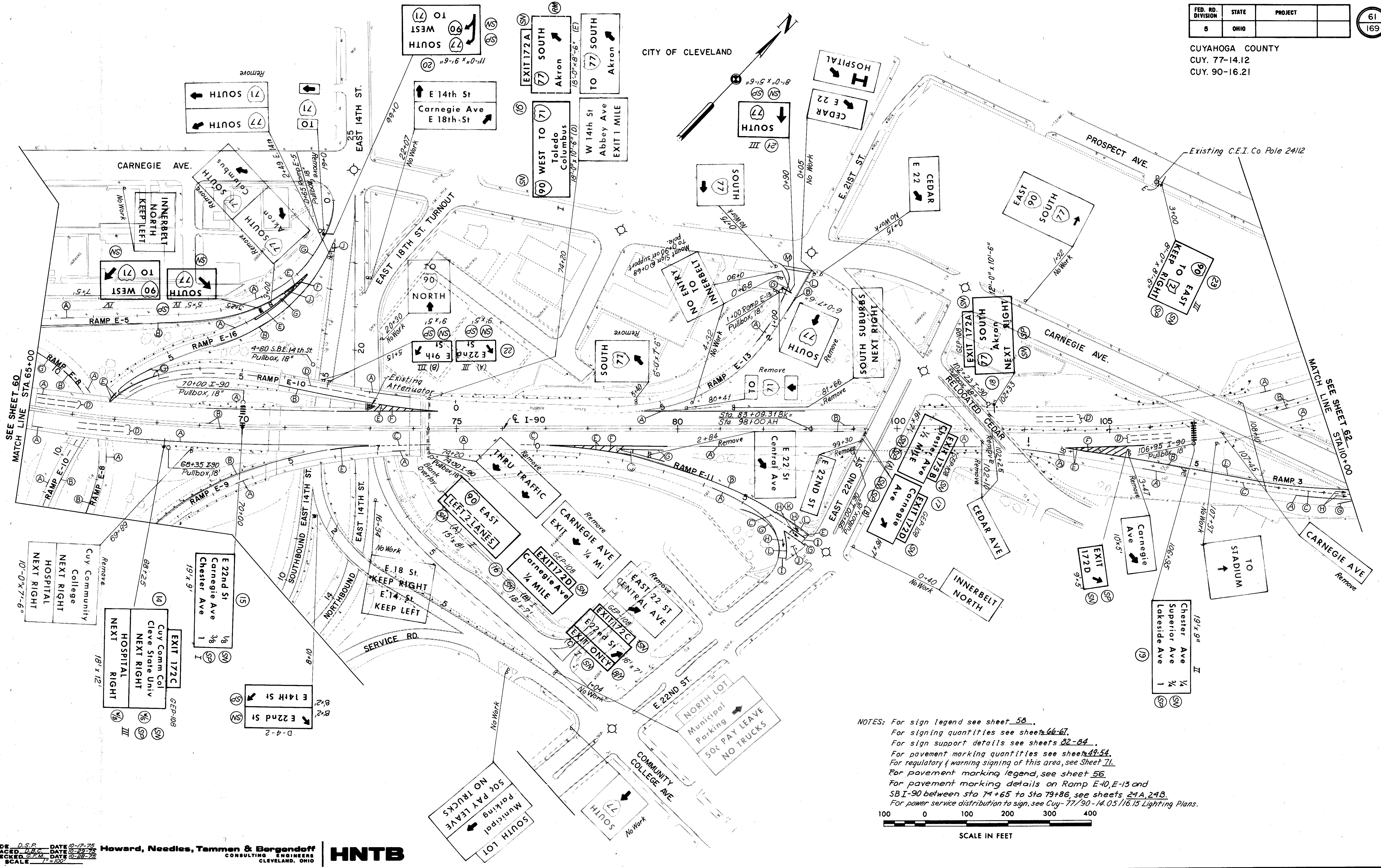
NOTES: For sign legend see sheet 58.
 For signing quantities see sheets 65-66.
 For sign support details see sheets 80-82.
 For pavement marking quantities see sheets 49-54.
 For regulatory & warning signs of this area, see Sheet 70.
 For pavement marking legend, see Sheet 56.

| | | | |
|-------------------|-------|---------|--|
| FED. RD. DIVISION | STATE | PROJECT | |
| 5 | OHIO | | |

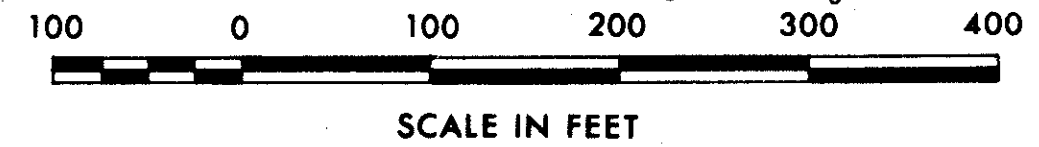
61
169

CUYAHOGA COUNTY
CUY. 77-14.12
CUY. 90-16.21

CITY OF CLEVELAND



NOTES: For sign legend see sheet 58.
 For signing quantities see sheets 66-67.
 For sign support details see sheets 82-84.
 For pavement marking quantities see sheets 49-54.
 For regulatory & warning signing of this area, see Sheet 71.
 For pavement marking legend, see sheet 56.
 For pavement marking details on Ramp E-10, E-13 and SB I-90 between sta 74+65 to Sta 79+86, see sheets 24A, 24B.
 For power service distribution to sign, see Cuy-77/90-14.05/16.15 Lighting Plans.



MADE D.S.P. DATE 10-17-75
 TRACED D.P.C. DATE 10-23-75
 CHECKED G.F.M. DATE 10-28-75
 SCALE 1"=100'
Howard, Needles, Tammen & Bergendoff
 CONSULTING ENGINEERS
 CLEVELAND, OHIO

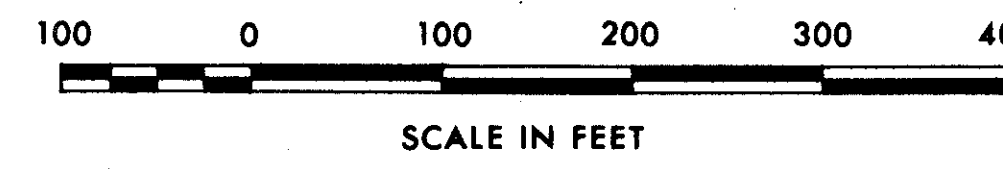
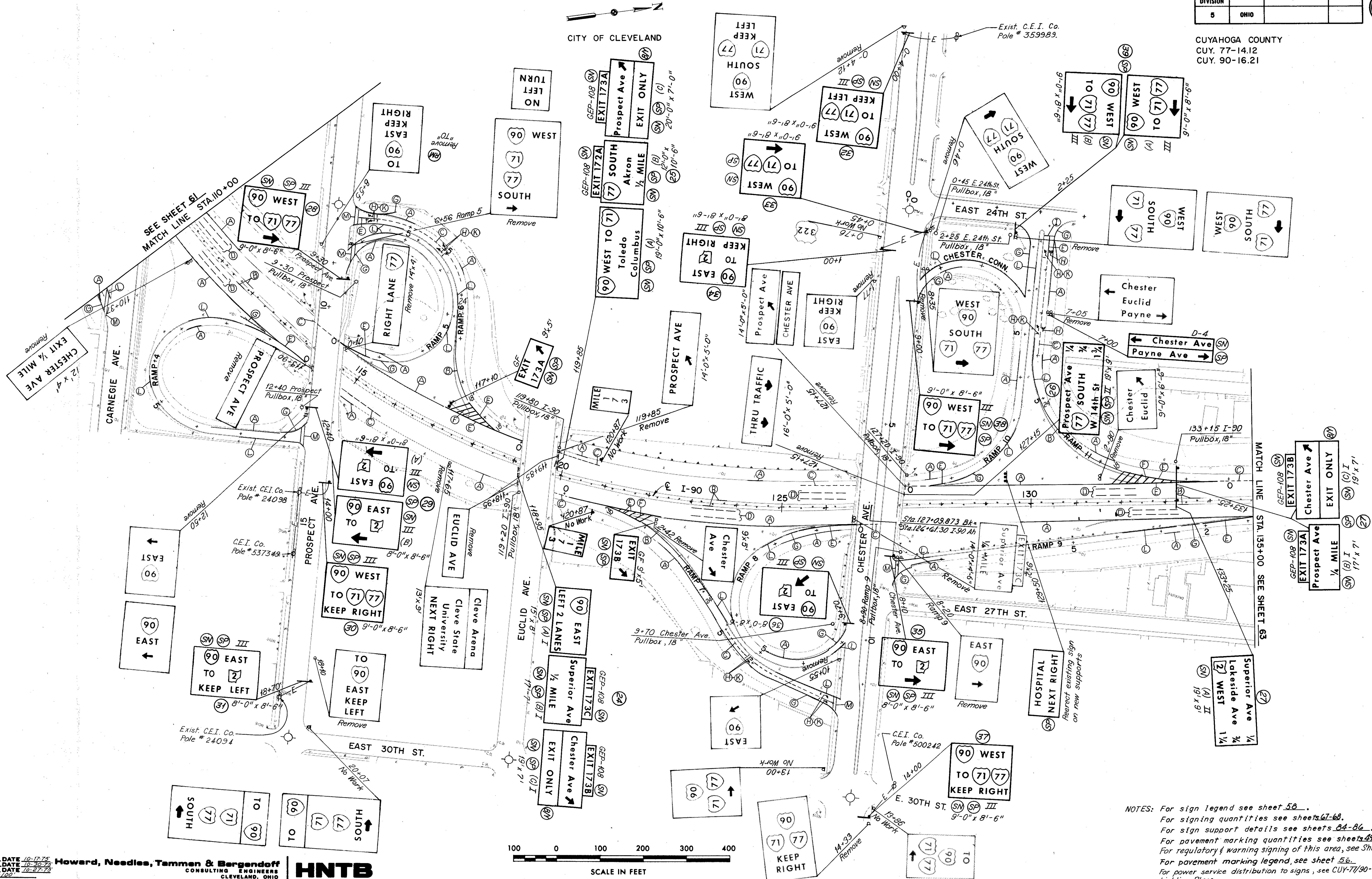
HNTB

| | | |
|-------------------|-------|---------|
| FED. RD. DIVISION | STATE | PROJECT |
| 5 | OHIO | |

62
169

CUYAHOGA COUNTY
CUY. 77-14.12
CUY. 90-16.21

CITY OF CLEVELAND



NOTES: For sign legend see sheet 58.
For signing quantities see sheets 67-68.
For sign support details see sheets 84-86.
For pavement marking quantities see sheets 49-54.
For regulatory & warning signing of this area, see sheet 72.
For pavement marking legend, see sheet 56.
For power service distribution to signs, see CUY-77/90-14.05/16.15 Lighting Plans.

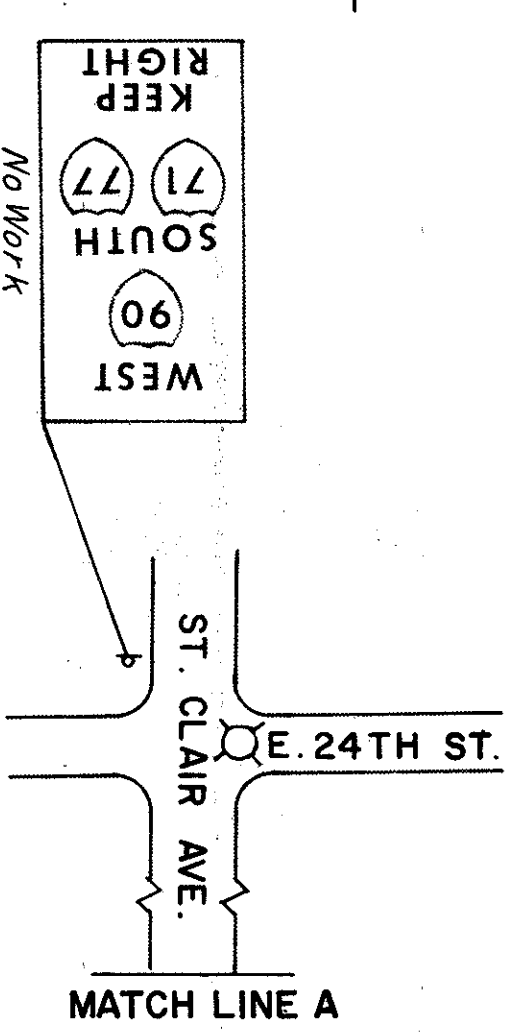
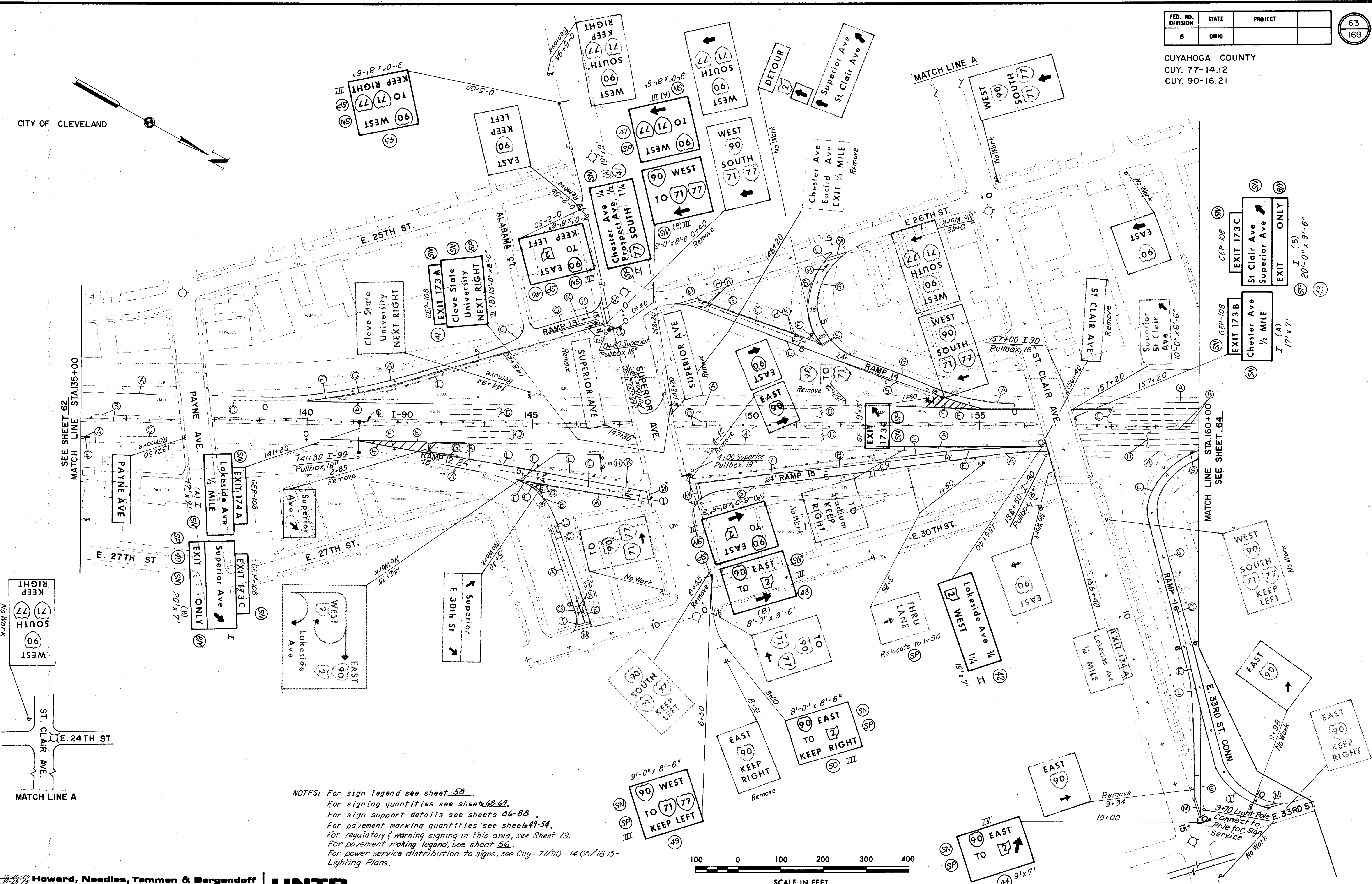
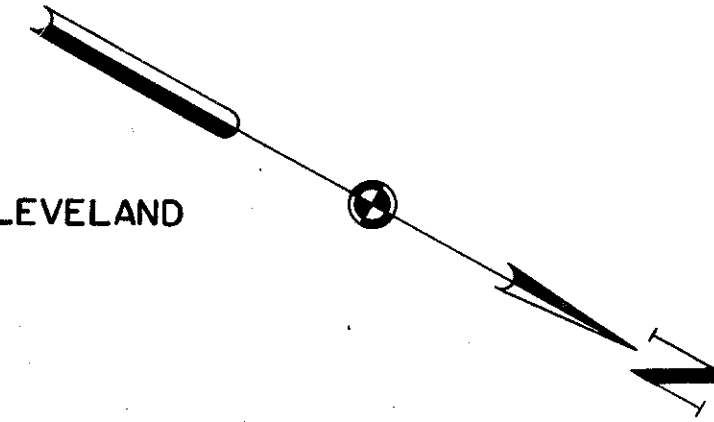
MADE D.S.P. DATE 10-17-75
TRACED F.S. DATE 10-30-75
CHECKED G.F.M. DATE 10-27-75
SCALE 1"=100'

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

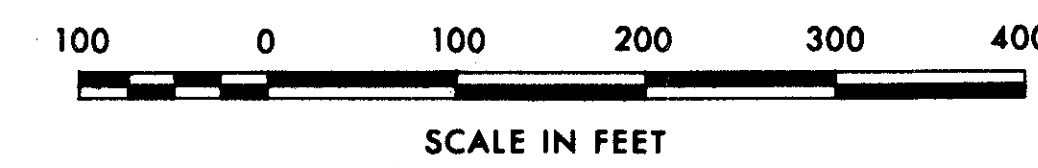
HNTB

CUYAHOGA COUNTY
 CUY. 77-14.12
 CUY. 90-16.21

CITY OF CLEVELAND



NOTES: For sign legend see sheet 58.
 For signing quantities see sheets 68-69.
 For sign support details see sheets 86-88.
 For pavement marking quantities see sheets 49-51.
 For regulatory warning signing in this area, see Sheet 73.
 For pavement marking legend, see sheet 56.
 For power service distribution to signs, see Cuy-77/90-14.05/16.15-Lighting Plans.



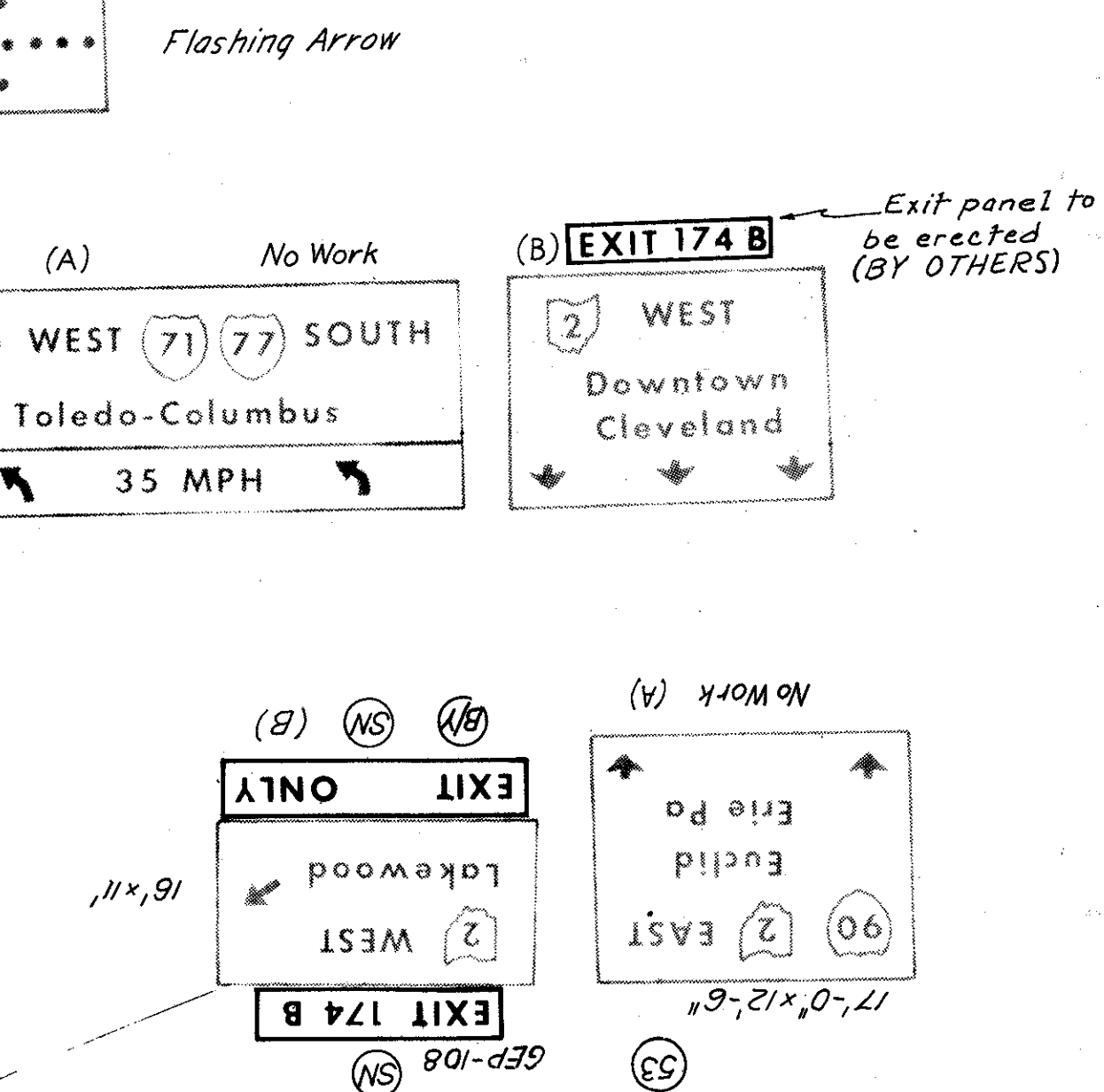
| | | |
|-------------------|-------|---------|
| FED. RD. DIVISION | STATE | PROJECT |
| 5 | OHIO | |

64
169

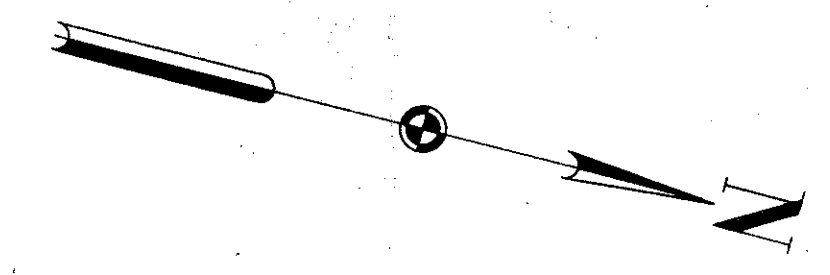
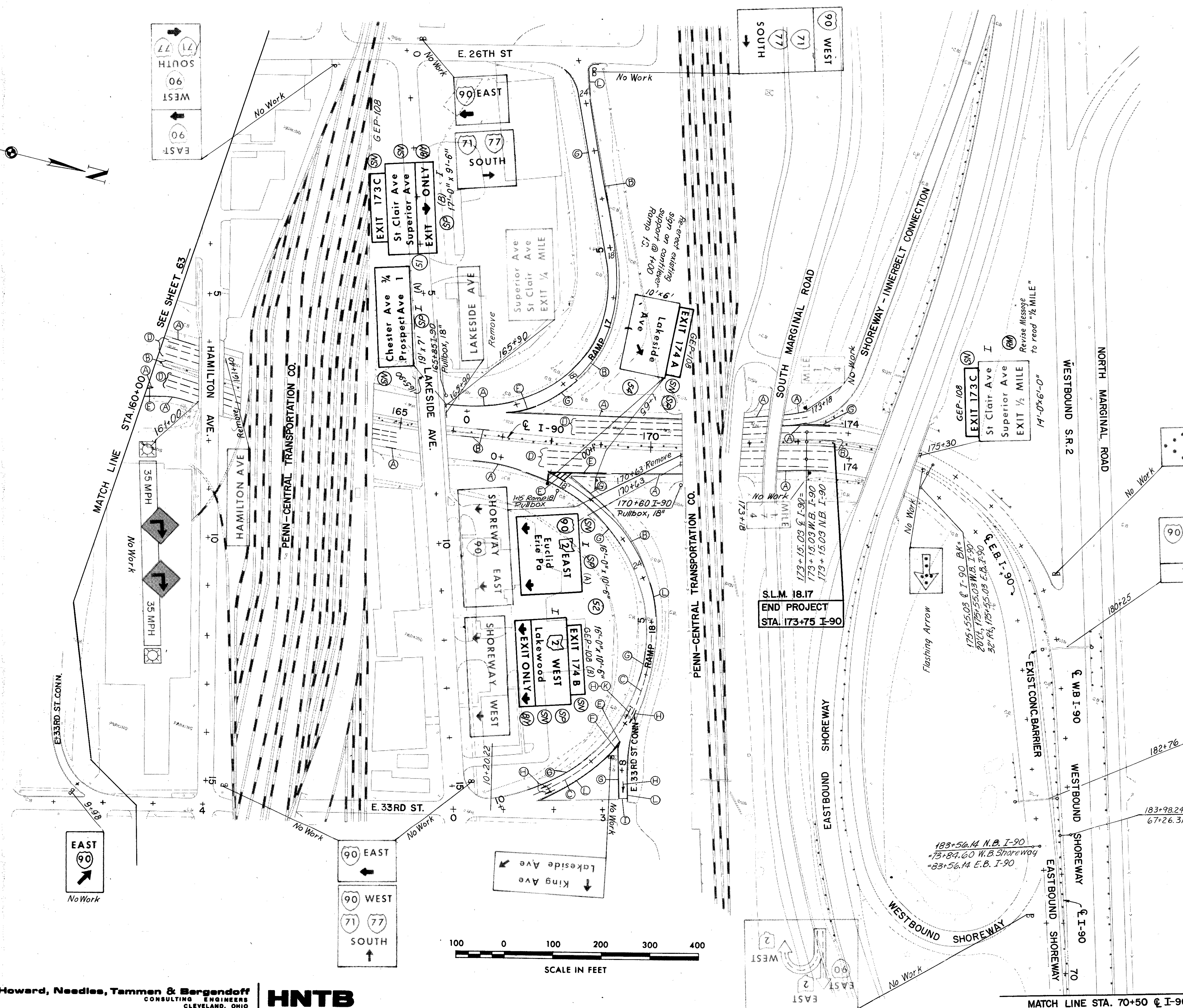
CUYAHOGA COUNTY
CUY. 77-14.12
CUY. 90-16.21

MATCH LINE STA. 70+50 @ I-90

END WORK STA. 74+45 @ I-90



NOTES: For sign legend see sheet 58.
For signing quantities see sheet 69.
For sign support details see sheets 88.
For pavement marking quantities see sheets 49-54.
For regulatory & warning signing in this area, see Sheet 74.
For pavement marking legend, see sheet 56.



MADE D.S.P. DATE 10-20-75
TRACED T.S. DATE 10-30-75
CHECKED G.F.M. DATE 10-28-75
SCALE 1" = 100'

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

HNTB

SIGNING SUB-SUMMARIES

QUANTITY CALCULATIONS
 MADE BY G.F.M. DATE 10-23-75
 CHECKED BY D.S.P. DATE 6-3-77

| | | |
|-------------|-------|---------|
| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

66
169

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

GUIDE SIGNING SUB-SUMMARY

| SHEET NO. | SIGN NO. | STATION | CODE NO. | SIGN SIZE | DIMENSIONS SEE DETAIL 'A' | | | | | REMOVE & REERECT | 844 SIGNS | | 844 CONC. | 844 CONC. | 844 SUPPORTS | | | | | 202 | | | | | REMOVE & REERECT O.H. SUPPORT | REMOVE & REERECT OVERHEAD MOUNTED SIGN | EXISTING SIGN REVISED AS PER PLAN | POLE MOUNTED SIGN ATTACHMENT | REMOVE O.H. STRUCTURE MOUNTED SUPPORT | REMOVE OVERHEAD MOUNTED SIGN | | | | | | | |
|----------------|----------|-----------------------------------|----------|-----------------|---------------------------|------|---|---|---|------------------|------------|------------|-----------|-----------|--------------|---------------|------------------|-----------|-------|--------|--------|------------------|--------------------|--------------------|-------------------------------|--|-----------------------------------|------------------------------|---------------------------------------|------------------------------|-----------------------|-----------------------|-----------------------------|------|---------|---------|---------|
| | | | | | SHEET NO. 92 (Lin. Ft.) | | | | | | G.M. SIGNS | FLAT SHEET | | | EXTRU. TYPE | EMBEDDED FDN. | ANCHOR BASE FDN. | 6 Lb BEAM | W8x17 | W10x21 | W12x31 | BREAK AWAY CONN. | REMOVAL G.M. SIGNS | REMOVAL G.M. SUPP. | | | | | | | REMOVAL G.M. INSTALL. | REMOVAL G.M. INSTALL. | REMOVAL EXISTING O.H. SUPP. | | | | |
| | | | | | A | B | C | D | E | | | | | | | | | | | | | | | | | | | | | | | | | Each | Sq. Ft. | Sq. Ft. | Cu. Yd. |
| 60 (Continued) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Ramp E-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 19+43 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Ramp E-17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 0+00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (8) | (A) 1+87 | | 18'-0" x 12'-6" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | (B) 2+25 | | 15'-0" x 10'-6" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 4+22 Rt. | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 4+75 Lt. | | | 20.0 | 21.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Ramp E-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 0+47 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 2+25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | I-77 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (10) | (A) 45+60 Rt. | | 15'-0" x 12'-6" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | (B) 12'-0" x 13'-0" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | (C) 16'-0" x 7'-0" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | (C) 108" x 24" | GEP-108 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 48+70 Rt. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Broadway Ave. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 4+20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 4+40 E | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Ramp E-1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 0+73 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (11) | 1+00 Rt. | | 10'-0" x 7'-0" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | E. 9th St. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (12) | (A) 8+75 Rt. | | 9'-0" x 7'-6" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | (B) 8'-0" x 5'-6" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | I-90 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (14) | 68+25 Rt. | | 108" x 24" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 68+69 Rt. | | 18'-0" x 12'-0" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (15) | 70+00 E | | 19'-0" x 9'-0" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (16) | (A) 74+20 | | 15'-0" x 8'-0" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | (B) 18'-0" x 7'-0" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | (B) GEP-108 | | 108" x 24" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | (C) GEP-108 | | 16'-0" x 7'-0" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | (C) GEP-108 | | 108" x 24" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | (D) GEP-108 | | 18'-0" x 10'-6" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | (E) GEP-108 | | 108" x 24" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | (E) 18'-0" x 8'-6" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 81+66 Lt. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (17) | (A) 99+30 Rt. | | 16'-0" x 7'-0" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | (A) GEP-108 | | 108" x 24" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | (B) GEP-108 | | 16'-0" x 7'-0" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | (B) GEP-108 | | 108" x 24" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 102+10 Rt. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (18) | 102+33 Lt. | | 12'-0" x 10'-6" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | GEP-108 | | 108" x 24" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (19) | 106+35 E | | 19'-0" x 9'-0" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 107+45 Rt. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 108+10 Lt. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 80+41 Lt. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Sheet Total Cost Participation I | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Sheet Total Cost Participation II | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Sheet Total | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

MADE BY GEM DATE 10-23-75
 TRACED BY AK DATE 11-4-75
 CHECKED BY HEE DATE 10-30-75
 SCALE _____

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

HNTB

* Cost Participation II

SIGNING SUB-SUMMARIES

QUANTITY CALCULATIONS
 MADE BY G.F.M. DATE 10-28-75
 CHECKED BY D.S.P. DATE 6-3-77

| | | | |
|-------------|-------|---------|--|
| FHWA REGION | STATE | PROJECT | |
| 5 | OHIO | | |

68
169

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

GUIDE SIGNING SUB-SUMMARY

| SHEET NO. | SIGN NO. | STATION | CODE NO. | SIGN SIZE | DIMENSIONS SEE DETAIL 'A' SHEET NO. 92 (Lin. Ft.) | | | | | REMOVE & REERECT | | 844 SIGNS | | 844 CONC. | 844 CONC. | 844 SUPPORTS | | | | 202 | | | | | REMOVE & REERECT O.H. SUPPORT | REMOVE & REERECT OVERHEAD MOUNTED SIGN | EXISTING SIGN REVISED AS PER PLAN | POLE MOUNTED SIGN ATTACHMENT | REMOVE O.H. STRUCTURE MOUNTED SUPPORT | REMOVE OVERHEAD MOUNTED SIGN | | | | | | | | |
|-----------------------------------|----------|------------|----------|------------|---|---------|---------|---------|----------|------------------|----------|-----------|-------|------------|-------------|----------------|-------------------|---------|-------|--------|--------|-----------------|--------------------|--------------------|-------------------------------|--|-----------------------------------|------------------------------|---------------------------------------|------------------------------|-----------------------|-----------------------|--------------------|------|------|------|------|--|
| | | | | | A | B | C | D | E | G.M. SIGNS | Each | MAJOR | MINOR | FLAT SHEET | EXTRU. TYPE | EMBEDDED FONS. | ANCHOR BASE FONS. | 5' X 7' | W8x17 | W10x21 | W12x31 | BREAK AWAY OBNH | REMOVAL G.M. SIGNS | REMOVAL G.M. SUPP. | | | | | | | REMOVAL G.M. INSTALL. | REMOVAL G.M. INSTALL. | REMOVAL O.H. SUPP. | | | | | |
| | | | | | Sq. Ft. | Sq. Ft. | Cu. Yd. | Cu. Yd. | Lin. Ft. | Lin. Ft. | Lin. Ft. | Lin. Ft. | Each | Each | Each | Each | Each | Each | Each | Each | Each | Each | Each | Each | | | | | | | Each | Each | Each | Each | Each | Each | Each | |
| 62 (Continued) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ramp No. 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 8+20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ramp No. 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 2+80 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 7+00 | D-4 | 9'0"x4'0" | 170 | 18.0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 7+05 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Prospect Ave. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 8+55 Rt. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (28) | 9+30 Lt. | | 9'0"x8'6" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (29) (A) | 12+40 Rt. | | 8'0"x8'6" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (B) | | | 8'0"x8'6" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (30) | 12+50 Rt. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 14+00 Lt. | | 9'0"x8'6" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 18+10 Lt. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (31) | 18+70 Lt. | | 8'0"x8'6" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chester Ave. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 0+41/2 Rt. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (32) | 0+400 Rt. | | 9'0"x8'6" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (33) | 0+45 Lt. | | 9'0"x8'6" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 0+46 Lt. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (34) | 1+00 Rt. | | 8'0"x8'6" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 1+77 Rt. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (35) | 8+10 Lt. | | 8'0"x8'6" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (36) | 9+70 Rt. | | 8'0"x8'6" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 10+55 Rt. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (37) | 14+00 Lt. | | 9'0"x8'6" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 14+33 Lt. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chester Ave. Connection | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 8+35 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (38) | 9+00 | | 9'0"x8'6" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| E. 24th St. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (39) (A) | 2+25 | | 9'0"x8'6" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (B) | | | 9'0"x8'6" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 63 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| I-90 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 137+30 Rt. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (40) (A) | 141+20 Rt. | | 17'0"x7'0" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (A) | | GEP-108 | 108"x24" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (B) | | | 20'0"x7'0" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (B) | | GEP-108 | 108"x24" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 144+94 Lt. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (41) (A) | 147+30 Rt. | | 19'0"x9'0" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (B) | | | 13'0"x8'0" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (B) | | GEP-108 | 108"x24" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 152+09 Lt. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (42) | 156+40 Rt. | | 19'0"x7'0" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (43) (A) | 157+20 Lt. | | 17'0"x7'0" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (B) | | | 20'0"x9'6" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (A) | | GEP-108 | 108"x24" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (B) | | GEP-108 | 108"x24" | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Ramp No. 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 2+85 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sheet Total Cost Participation I | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sheet Total Cost Participation II | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sheet Total | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | 1909.5 | 0.54 | 44.46 | 35 | | | | | 2 | 7 | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | 1909.5 | 0.54 | 44.46 | 35 | | | | | 2 | 7 | | | | | | | | | | | | | | | | | |

MADE G.F.M. DATE 10-28-75
 TRACED T.A.M. DATE 11-3-75
 CHECKED H.E.F. DATE 12-30-75
 SCALE

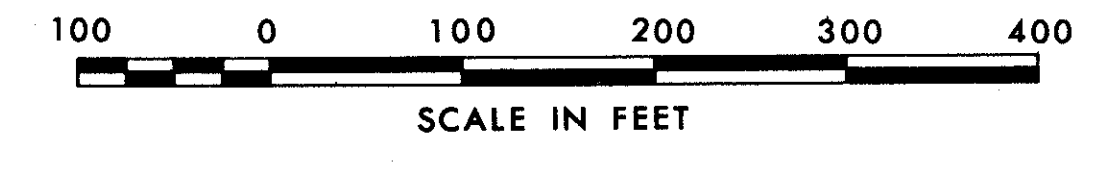
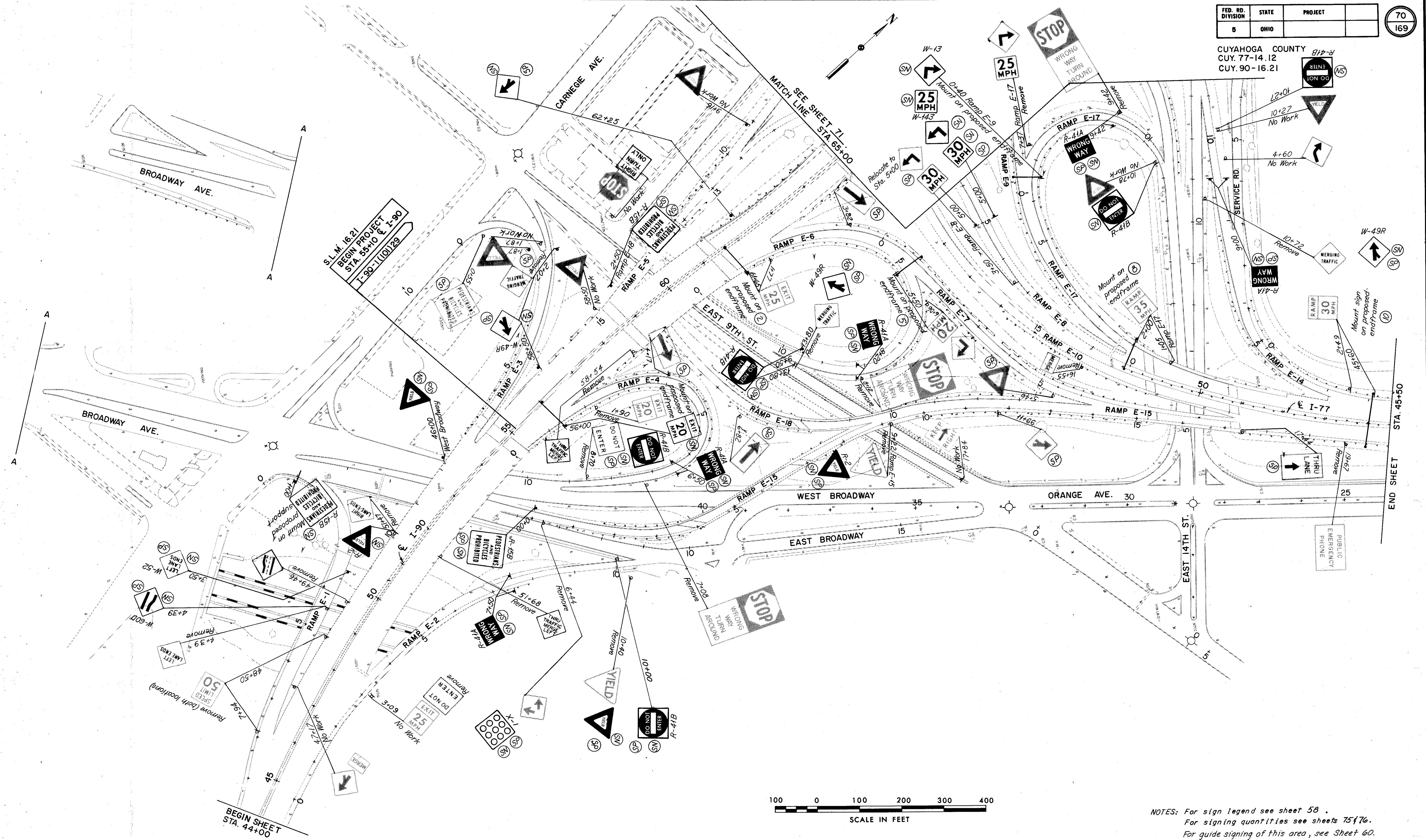
Howard, Needles, Tammen & Bergendoff
 CONSULTING ENGINEERS
 CLEVELAND, OHIO



* Cost Participation II

| | | | |
|-------------------|-------|---------|-----|
| FED. RD. DIVISION | STATE | PROJECT | 70 |
| 5 | OHIO | | 169 |

CUYAHOGA COUNTY
 CUY. 77-14.12
 CUY. 90-16.21



NOTES: For sign legend see sheet 58.
 For signing quantities see sheets 75 & 76.
 For guide signing of this area, see Sheet 60.

MADE M.G.B. DATE 2-19-75
 TRACED D.B.C. DATE 3-6-75
 CHECKED D.S.P. DATE 2-17-75
 SCALE 1"=100'

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

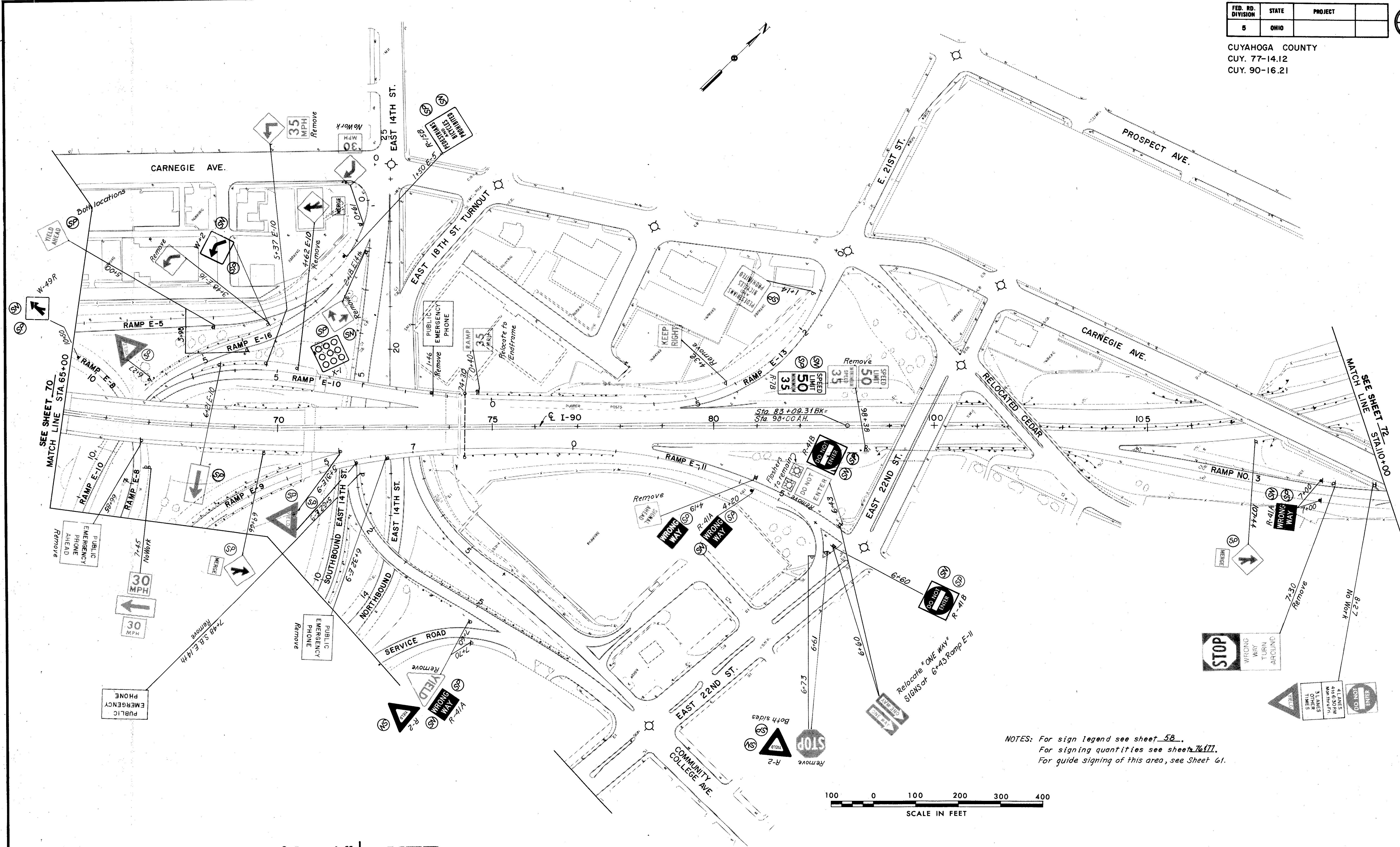


STA. 44+00 I-90 TO STA. 65+00 I-90: R & W SIGNING
 STA. 45+50 I-77

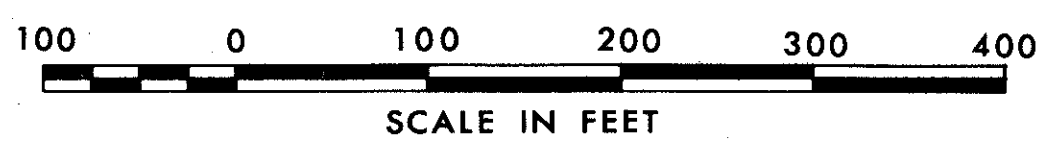
| | | |
|-------------------|-------|---------|
| FED. RD. DIVISION | STATE | PROJECT |
| 5 | OHIO | |

71
169

CUYAHOGA COUNTY
CUY. 77-14.12
CUY. 90-16.21



NOTES: For sign legend see sheet 58.
For signing quantities see sheets 76, 77.
For guide signing of this area, see Sheet 61.



MADE MGB DATE 2-14-75
TRACED BSC DATE 2-21-75
CHECKED BSC DATE 2-27-75
SCALE 1"=100'

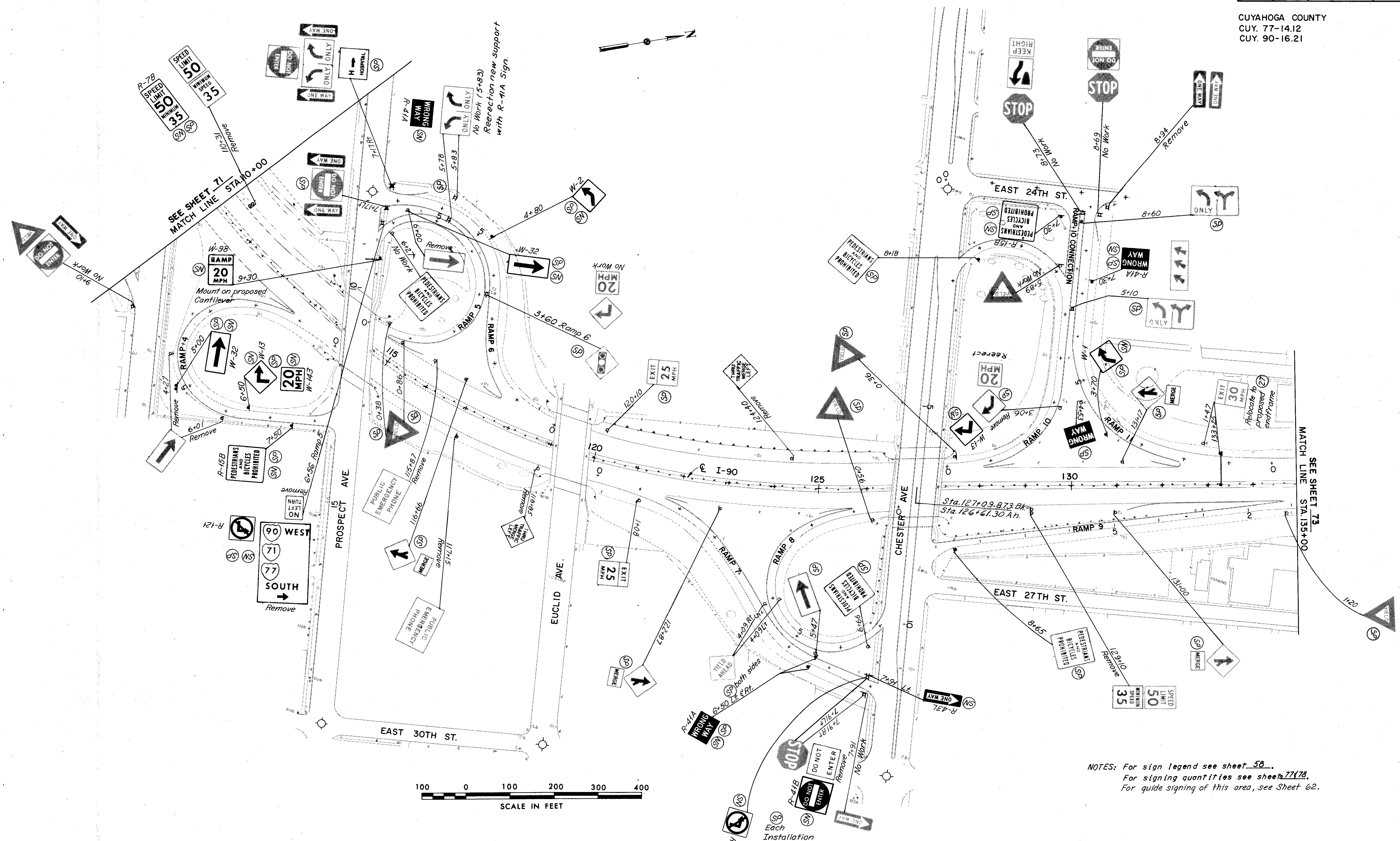
Howard, Needles, Tammen & Bergendoff
CONSULTING ENGINEERS
CLEVELAND, OHIO

HNTB

| | | | |
|-------------------|-------|---------|--|
| FED. RD. DIVISION | STATE | PROJECT | |
| 5 | OHIO | | |

72
169

CUYAHOGA COUNTY
CUY. 77-14.12
CUY. 90-16.21



SEE SHEET 71
MATCH LINE STA. 10+00

SEE SHEET 73
MATCH LINE STA. 135+00



NOTES: For sign legend see sheet 58.
For signing quantities see sheets 77 & 78.
For guide signing of this area, see Sheet 62.

MADE M.G.B. DATE 2-14-75
TRACED B.B.C. DATE 2-20-75
CHECKED D.S.P. DATE 2-19-75
SCALE 1"=100'

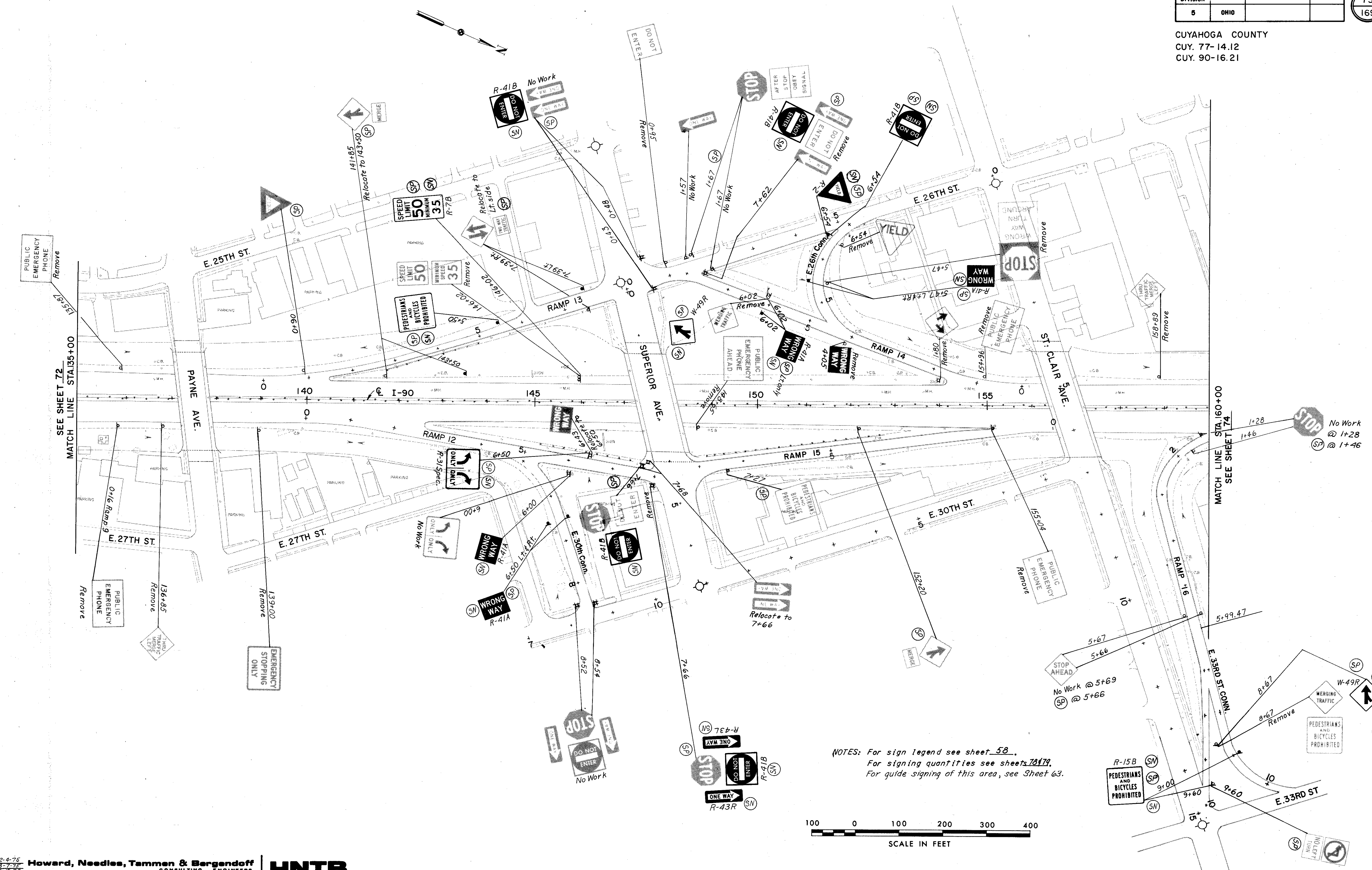
Howard, Needles, Tammen & Bergendoff
CONSULTING ENGINEERS
CLEVELAND, OHIO

HNTB

| | | | |
|-------------------|-------|---------|--|
| FED. RD. DIVISION | STATE | PROJECT | |
| 5 | OHIO | | |

73
169

CUYAHOGA COUNTY
CUY. 77-14.12
CUY. 90-16.21



NOTES: For sign legend see sheet 58.
For signing quantities see sheets 70, 71, 72.
For guide signing of this area, see Sheet 63.

MADE M.G.B. DATE 2-4-75
TRACED D.B.C. DATE 3-7-75
CHECKED D.S.P. DATE 2-19-75
SCALE 1"=100'

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

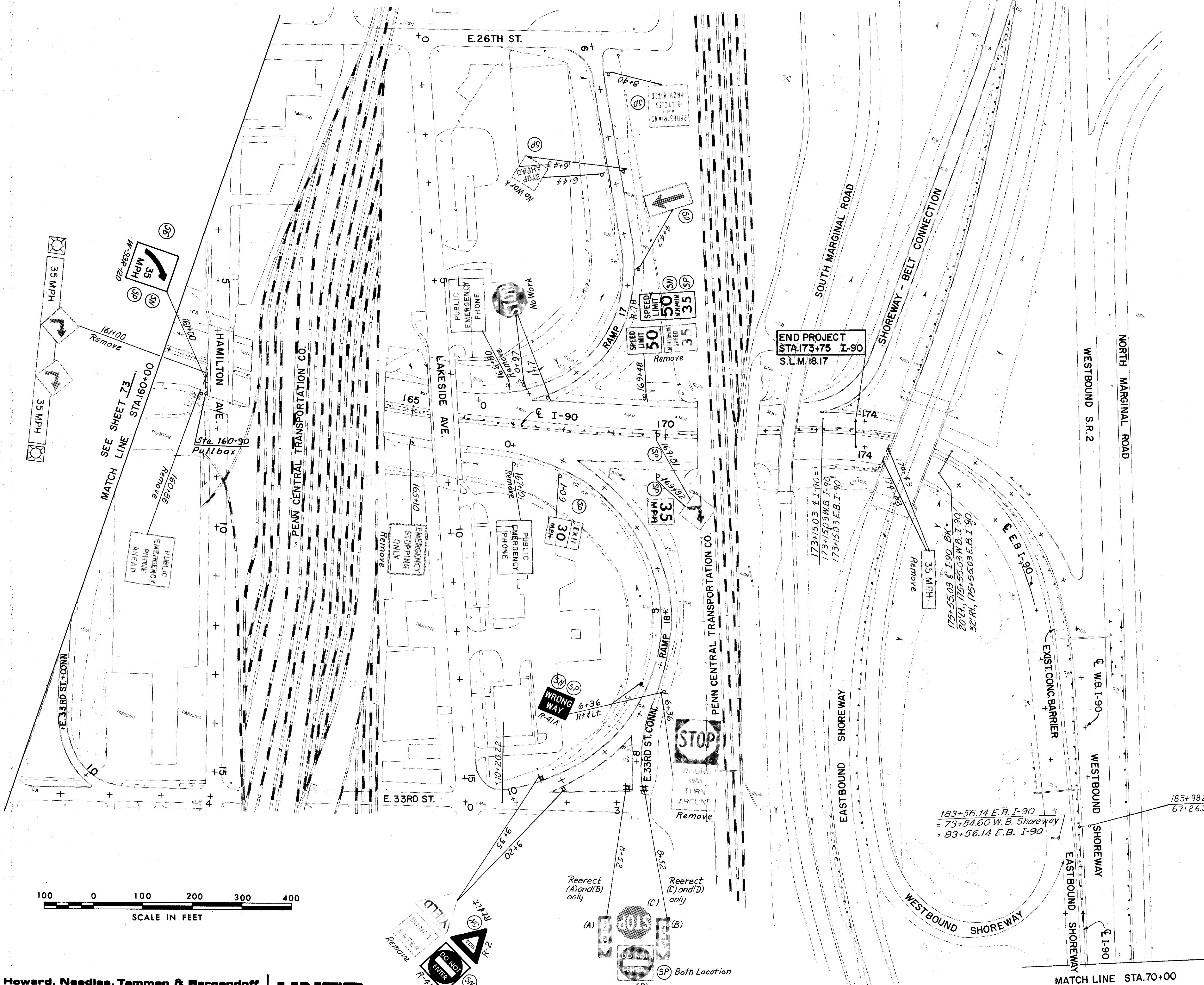
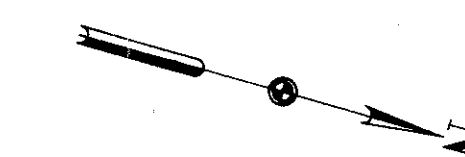
HNTB

| | | |
|-------------------|-------|---------|
| FED. RD. DIVISION | STATE | PROJECT |
| 5 | OHIO | |

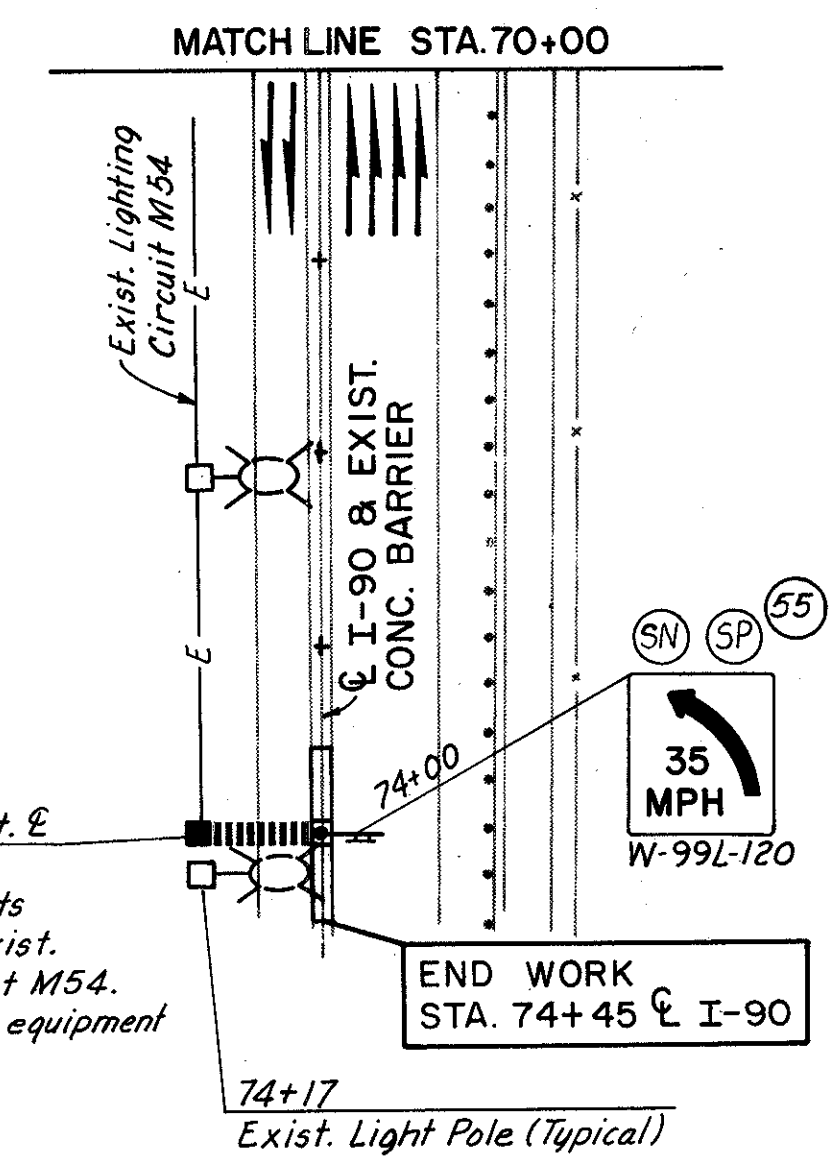
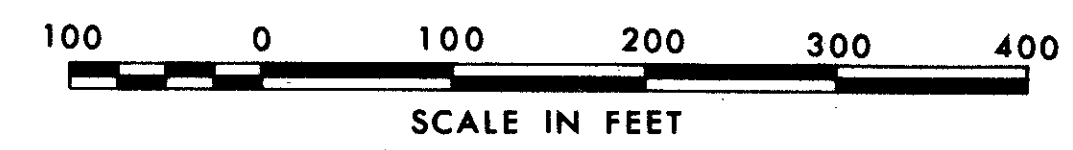
74
169

CUYAHOGA COUNTY
CUY. 77-14.12
CUY. 90-16.21

CITY OF CLEVELAND



NOTES: For sign legend see sheet 58.
For signing quantities see sheet 79.
For guide signing of this area, see Sheet 64.



MADE MGB DATE 2-17-75
TRACED D.B. DATE 3-7-75
CHECKED D.S.P. DATE 2-22-75
SCALE 1"=100'

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

HNTB

SIGNING SUB-SUMMARIES

| | | | |
|-------------|-------|---------|--|
| FHWA REGION | STATE | PROJECT | |
| 5 | OHIO | | |

77
169

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

QUANTITY CALCULATIONS

MADE BY G.F.M. DATE 10-21-75
 CHECKED BY D.S.P. DATE 4-13-77

| SHEET NO. | SIGN NO. | STATION | CODE NO. | SIGN SIZE | DIMENSIONS SEE DETAIL 'A' SHEET NO. 92 (Lin. Ft.) | | | | | REMOVE & REERECT | 844 SIGNS | | 844 CONC. EMBEDDED FDN. Cn. Yd. | 844 BREAKAWAY CON. BA | 844 SUPPORTS | | | 202 | | | 620 DELIM. AS PER PLAN | POLE MOUNTED SIGN ATTACHMENT | |
|----------------------------------|----------|------------|----------|-------------|---|------|---|-------|-------|------------------|------------|-------------|---------------------------------|-----------------------|-----------------------|-----------|----------|-------------------|-------------------|----------------------|------------------------|------------------------------|--------|
| | | | | | | | | | | | FLAT SHEET | EXTRU. TYPE | | | 4LB. BEAM AS PER PLAN | 3 LB POST | 54X7.7 | REMOVAL GM. SIGNS | REMOVAL GM. SUPP. | REMOVAL GM. INSTALL. | | | |
| | | | | | A | B | C | D | E | | Sq. Ft. | Sq. Ft. | | | Lin. Ft. | Lin. Ft. | Lin. Ft. | Each | Each | Each | | | |
| | | | | | | | | | | | Each | | | | | | | MINOR | MAJOR | ≤ 8 lb | | | > 8 lb |
| 71 (Continued) | | | | | | | | | | | | | | | | | | | | | | | |
| East 14th St. | | | | | | | | | | | | | | | | | | | | | | | |
| | | | X-1 | 18"x18" | | | | 14.0 | | | | | | | | | | | | | | | |
| | | 2+18 Rt. | | | | | | | | | 2.25 | | | | | | | | | | | | |
| | | 7+48 Lt. | | | | | | | | | | | | | | | | | | | | | |
| Service Rd. | | | | | | | | | | | | | | | | | | | | | | | |
| | | 7+60 Lt. | R-2-48 | 48"x48"x48" | | | | 15.5 | | | 6.9 | | | | | | | | | | | | |
| | | | R-41A-36 | 36"x24" | | | | | | | 6.0 | | | | | | | | | | | | |
| | | 7+70 Rt. | R-2-48 | 48"x48"x48" | | | | 15.5 | | | 6.9 | | | | | | | | | | | | |
| | | | R-41A-36 | 36"x24" | | | | | | | 6.0 | | | | | | | | | | | | |
| Ramp No. 3 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 7+00 Rt. | R-41A-36 | 36"x24" | | | | 14.0 | | | 6.0 | | | | | | | | | | | | |
| | | 7+00 Lt. | R-41A-36 | 36"x24" | | | | 14.0 | | | 6.0 | | | | | | | | | | | | |
| | | 7+30 Lt. | | | | | | | | | | | | | | | | | | | | | |
| I-90 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 69+66 Rt. | | | | | | 19.25 | 19.75 | | 2 | | | | | | | | | | | | |
| | | 66+85 Rt. | | | | | | | | | | | | | | | | | | | | | |
| | | 74+30 Lt. | | | | | | | | | | | | | | | | | | | | | |
| | | 98+38 Rt. | R-7B-48 | 48"x96" | 20.0 | 20.0 | | | | | 32.0 | 32.0 | 0.54 | 2 | | | | | | 1 | | | |
| | | 107+44 Rt. | | | | | | 17.25 | 17.75 | | 2 | | | | | | | | | | | | |
| 72 | | | | | | | | | | | | | | | | | | | | | | | |
| Ramp No. 4 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 4+27 Rt. | | | | | | | | | | | | | | | | | | | | | |
| | | 5+00 Rt. | W-32-36 | 36"x48" | 16.0 | 16.0 | | | | | 32.0 | 32.0 | 0.54 | 2 | | | | | | 1 | | | |
| | | 6+01 Rt. | | | | | | | | | | | | | | | | | | | | | |
| | | 6+50 Lt. | W-13-36 | 36"x36" | 17.15 | 18.5 | | | | | 9.0 | | | | | | | | | | | | |
| | | | W-143-24 | 24"x24" | | | | | | | 4.0 | | | | | | | | | | | | |
| | | 7+50 Rt. | R-15B | 30"x30" | | | | 15.5 | | | 6.25 | | | | | | | | | | | | |
| Ramp No. 5 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 0+38 Lt. | | | | | | 16.25 | 16.75 | | 1 | | | | | | | | | | | | |
| | | 6+00 Rt. | W-32-48 | 48"x24" | 14.0 | 14.0 | | | | | 8.0 | | 0.27 | 1 | | | | | | 1 | | | |
| | | 6+56 Rt. | R-121-24 | 24"x24" | | | | 15.5 | | | 4.0 | | | | | | | | | 1 | | | |
| | | 0+86 Rt. | | | | | | 15.75 | 16.25 | | 1 | | | | | | | | | | | | |
| Ramp No. 6 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 4+80 Rt. | W-2-36 | 36"x36" | | | | 16.25 | | | 9.0 | | | | | | | | | | | | |
| | | 5+78 Lt. | R-41A-36 | 36"x24" | | | | 12.0 | | | 6.0 | | | | | | | | | 1 | | | |
| | | 5+83 Rt. | R-41A-36 | 36"x24" | | | | | | | 6.0 | | | | | | | | | | | | |
| | | 7+17 Lt. | | | | | | 16.5 | | | | | | | | | | | | 1 | | | |
| | | 7+17 Rt. | | | | | | 18.0 | | | | | | | | | | | | 1 | | | |
| | | 3+60 Lt. | | | | | | 15.25 | 15.75 | | 3 | | | | | | | | | | | | |
| Ramp No. 7 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 6+50 Lt. | R-41A-36 | 36"x24" | | | | 14.0 | | | 6.0 | | | | | | | | | | | | |
| | | 6+50 Rt. | R-41A-36 | 36"x24" | | | | 14.0 | | | 6.0 | | | | | | | | | | | | |
| | | 7+91 Lt. | R-121-24 | 24"x24" | | | | 20.0 | | | 4.0 | | | | | | | | | 1 | | | |
| | | | R-43L-36 | 36"x15" | | | | | | | 3.75 | | | | | | | | | | | | |
| | | | R-41B-36 | 36"x36" | | | | | | | 9.0 | | | | | | | | | | | | |
| | | 7+91 Rt. | R-41B-36 | 36"x36" | | | | 16.5 | | | 9.0 | | | | | | | | | 1 | | | |
| | | 1+08 Rt. | | | | | | 15.75 | 16.25 | | 1 | | | | | | | | | | | | |
| Ramp No. 8 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 0+56 Lt. | | | | | | 16.75 | 17.25 | | 1 | | | | | | | | | | | | |
| | | 4+08 Lt. | | | | | | | 17.75 | | 1 | | | | | | | | | | | | |
| | | 4+08 Rt. | | | | | | | 17.75 | | 1 | | | | | | | | | | | | |
| | | 5+47 Rt. | | | | | | | 12.5 | | 1 | | | | | | | | | | | | |
| | | 6+66 Rt. | | | | | | | 13.5 | | 1 | | | | | | | | | | | | |
| Ramp No. 9 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 1+20 | | | | | | 16.75 | 16.25 | | 1 | | | | | | | | | | | | |
| | | 8+65 Lt. | | | | | | | 14.5 | | 1 | | | | | | | | | 1 | | | |
| Ramp No. 10 | | | | | | | | | | | | | | | | | | | | | | | |
| | | 0+36 Lt. | | | | | | 14.75 | 15.25 | | 1 | | | | | | | | | | | | |
| | | 3+06 Rt. | W-13-30 | 30"x30" | | | | 15.75 | 16.25 | | 1 | | | | | | | | | 1 | | | |
| | | 5+10 Rt. | | | | | | | 14.0 | | 2 | | | | | | | | | | | | |
| | | 8+18 Lt. | | | | | | | 14.5 | | 1 | | | | | | | | | 1 | | | |
| Ramp No. 10 Connection | | | | | | | | | | | | | | | | | | | | | | | |
| | | 7+30 Lt. | | | | | | | 14.5 | | | | | | | | | | | | | | |
| | | 8+60 Lt. | | | | | | | 14.0 | | 1 | | | | | | | | | | | | |
| Sheet Total Cost Participation I | | | | | | | | | | | 35 | 174.55 | 64.0 | 1.35 | 5 | 437.5 | 321.25 | 72.0 | 12 | 6 | 2 | 2 | 2 |
| Sheet Total | | | | | | | | | | | 35 | 174.55 | 64.0 | 1.35 | 5 | 437.5 | 321.25 | 72.0 | 12 | 6 | 2 | 2 | 2 |

Note: All quantities in this sheet included Project Cuy-90-1(10)29.

MADE G.F.M. DATE 10-24-75
 TRACED T.S. DATE 11-4-75
 CHECKED M.E.E. DATE 10-31-75
 SCALE

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

HNTB

SIGNING SUB-SUMMARIES

| | | | |
|-------------|-------|---------|--|
| FHWA REGION | STATE | PROJECT | |
| 5 | OHIO | | |

78
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21

QUANTITY CALCULATIONS
MADE BY GFM DATE 10-24-75
CHECKED BY DSP DATE 11-20-75

| REGULATORY AND WARNING SIGN SUB-SUMMARY | | | | | | | | | | | | | | | | | | | | | | |
|---|----------|----------------------------------|-----------|-----------|---|-------|--------|--------|-------|--|-----------------------|------------------------|------------------------------------|------------------------------|------------------------------------|-----------------------|--------------------|----------------------------|----------------------------|-------------------------------|-----------------------------------|--------------------------------------|
| SHEET NO. | SIGN NO. | STATION | CODE NO. | SIGN SIZE | DIMENSIONS SEE DETAIL 'A' SHEET NO. 92 (Lin. Ft.) | | | | | REMOVE & REERECT G.M. SIGNS Each | 844 SIGNS | | 844 CONC. EMBEDDED FDS. Cu. Yd. | 844 BREAK-AWAY CONN. Each | 844 SUPPORTS | | | 202 | | | 620 DELIV. AS PER PLAN Each | POLE MOUNTED SIGN ATTACHMENT Each |
| | | | | | A | B | C | D | E | | FLAT SHEET Sq. Ft. | EXTRU. TYPE Sq. Ft. | | | 4 IN. BEAM AS PER PLAN Lin. Ft. | 3 LB POST Lin. Ft. | 54X7.7 Lin. Ft. | REMOVAL G.M. SIGNS Each | REMOVAL G.M. SUPP. Each | REMOVAL G.M. INSTALL. Each | | |
| | | | | | MINOR | MAJOR | < 8 lb | > 8 lb | MINOR | | MAJOR | | | | | | | | | | | |
| 72 (Cont.) Ramp No. 11 | | | | | | | | | | | | | | | | | | | | | | |
| | | 4+53 | | | | | | | | | | | | | | | | | | | | |
| | | 1+47 Rt. | | | | | | | | | | | | | | | | | | | | |
| | | 3+70 Lt. | W-1-30 | 30"x30" | | | | | | | | | | | | | | | | | | |
| | | 7+30 Rt. | R-41A-36 | 36"x24" | | | | | | | | | | | | | | | | | | |
| | | 8+94 Rt. | | | | | | | | | | | | | | | | | | | | |
| | | Prospect Ave. | | | | | | | | | | | | | | | | | | | | |
| | | 9+30 Lt. | W-98-48 | 48"x60" | | | | | | | | | | | | | | | | | | |
| | | I-90 | | | | | | | | | | | | | | | | | | | | |
| | | 116+66 Lt. | | | 18.25 | 18.75 | | | | | | | | | | | | | | | | |
| | | 120+10 Lt. | | | 15.75 | 16.25 | | | | | | | | | | | | | | | | |
| | | 122+87 Lt. | | | 18.25 | 18.75 | | | | | | | | | | | | | | | | |
| | | 131+17 Lt. | | | 18.25 | 18.75 | | | | | | | | | | | | | | | | |
| | | 110+31 Lt. | R-7B-48 | 48"x96" | 20.0 | 20.0 | | | | | | | | | | | | | | | | |
| | | 115+87 Lt. | | | | | | | | | | | | | | | | | | | | |
| | | 117+15 Rt. | | | | | | | | | | | | | | | | | | | | |
| | | 118+85 Rt. | | | | | | | | | | | | | | | | | | | | |
| | | 124+40 Lt. | | | | | | | | | | | | | | | | | | | | |
| | | 129+10 Rt. | | | | | | | | | | | | | | | | | | | | |
| | | 133+25 Lt. | | | | | | | | | | | | | | | | | | | | |
| | | 131+00 Rt. | | | 15.75 | 16.25 | | | | | | | | | | | | | | | | |
| | | 73 Ramp No. 9 | | | | | | | | | | | | | | | | | | | | |
| | | 0+16 Rt. | | | | | | | | | | | | | | | | | | | | |
| | | Ramp No. 12 | | | | | | | | | | | | | | | | | | | | |
| | | 6+00 Rt. | R-41A-36 | 36"x24" | | | | | | | | | | | | | | | | | | |
| | | 6+43 Lt. | | | | | | | | | | | | | | | | | | | | |
| | | 6+50 Lt. | R-31Spec. | 36"x30" | | | 14.5 | | | | | | | | | | | | | | | |
| | | 7+66 Lt. | R-41B-36 | 36"x36" | | | 16.5 | | | | | | | | | | | | | | | |
| | | 7+66 Rt. | R-41B-36 | 36"x36" | | | | | | | | | | | | | | | | | | |
| | | | R-43L-36 | 36"x15" | | | | | | | | | | | | | | | | | | |
| | | | R-43R-36 | 36"x15" | | | | | | | | | | | | | | | | | | |
| | | 7+68 Lt. | | | | | | | | | | | | | | | | | | | | |
| | | Ramp No. 13 | | | | | | | | | | | | | | | | | | | | |
| | | 5+50 Lt. | R-15B | 30"x30" | | | 14.5 | | | | | | | | | | | | | | | |
| | | 7+39 Rt. | | | | | | | | | | | | | | | | | | | | |
| | | 7+39 Lt. | | | | | 17.0 | | | | | | | | | | | | | | | |
| | | 0+90 | | | | | 14.0 | | | | | | | | | | | | | | | |
| | | Ramp No. 14 | | | | | | | | | | | | | | | | | | | | |
| | | 1+80 Lt. | | | | | | | | | | | | | | | | | | | | |
| | | 4+05 Lt. | | | | | | | | | | | | | | | | | | | | |
| | | 6+02 Lt. | R-41A-36 | 36"x24" | | | 14.0 | | | | | | | | | | | | | | | |
| | | 6+02 Rt. | W-49R-30 | 30"x30" | | | 16.5 | | | | | | | | | | | | | | | |
| | | | R-41A-36 | 36"x24" | | | | | | | | | | | | | | | | | | |
| | | 7+62 Rt. | R-41B-36 | 36"x36" | | | 16.5 | | | | | | | | | | | | | | | |
| | | Ramp No. 16 | | | | | | | | | | | | | | | | | | | | |
| | | 8+67 Lt. | W-49R-30 | 30"x30" | | | 16.5 | | | | | | | | | | | | | | | |
| | | 9+60 Lt. | R-15B | 30"x30" | | | 14.5 | | | | | | | | | | | | | | | |
| | | 1+46 Lt. | | | 14.75 | 15.25 | | | | | | | | | | | | | | | | |
| | | 5+66 Lt. | | | 14.75 | 15.25 | | | | | | | | | | | | | | | | |
| | | East 26th St. | | | | | | | | | | | | | | | | | | | | |
| | | 0+43 Rt. | R-41B-36 | 36"x36" | | | 16.0 | | | | | | | | | | | | | | | |
| | | 0+48 Lt. | R-41B-36 | 36"x36" | | | 16.0 | | | | | | | | | | | | | | | |
| | | 0+95 Lt. | | | | | | | | | | | | | | | | | | | | |
| | | 1+67 Lt. | | | 18.25 | 18.75 | | | | | | | | | | | | | | | | |
| | | Sheet Total Cost Participation I | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | 30 | 135.75 | 32 | 0.54 | 2 | 368 | 149.5 | 40 | 9 | 4 | 2 | 5 | 3 |

NOTE:
All quantities on this sheet are Cost Participation I.

MADE BY GFM DATE 10-24-75
TRACED BY TS DATE 11-4-75
CHECKED BY SEE DATE 10-31-75
SCALE _____

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

HNTB

SIGNING SUB-SUMMARIES

| | | | |
|-------------|-------|---------|-----|
| FHWA REGION | STATE | PROJECT | 79 |
| 5 | OHIO | | 169 |

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

QUANTITY CALCULATIONS
 MADE BY GFM DATE 10-24-75
 CHECKED BY DSP DATE 11-20-75

| SHEET NO. | SIGN NO. | STATION | CODE NO. | SIGN SIZE | DIMENSIONS SEE DETAIL 'A' | | | | | REMOVE & REERECT | 844 SIGNS | | | 844 SUPPORTS | | | 202 | | | 620 | POLE MOUNTED SIGN ATTACHMENT | |
|------------------------------------|----------|------------------|-----------|-----------------|---------------------------|------|-------|-------|---|------------------|------------|-------|---------|----------------|------------|-----------------------|-------------------|-------------------|----------------------|------|------------------------------|--------------------|
| | | | | | SHEET NO. 92 (Lin. Ft.) | | | | | | G.M. SIGNS | FLAT | EXTRU. | 844 CONC. | 3 LB POST | 54X7.7 | REMOVAL GM. SIGNS | REMOVAL GM. SUPP. | REMOVAL GM. INSTALL. | | | DELIN. AS PER PLAN |
| | | | | | A | B | C | D | E | | | SHEET | TYPE | EMBEDDED FONS. | BREAKA-WAY | 4LB. BEAM AS PER PLAN | Lin. Ft. | Lin. Ft. | Lin. Ft. | | | Each |
| 73 (Continued) | | | | | | | | | | | | | | | | | | | | | | |
| East 26th Connection | | | | | | | | | | | | | | | | | | | | | | |
| | | 5+47 Lt. | R-41A-36 | 36"x24" | | | 14.0 | | | | | 6.0 | | | | | | | | | | |
| | | 5+47 Rt. | R-41A-36 | 36"x24" | | | 14.0 | | | | | 6.0 | | | | | | | | | | |
| | | 6+54 Rt. | | | | | | | | | | | | | | | | | | | | |
| | | 6+54 Lt. | R-2-36 | 36"x36"x36" | | | 15.0 | | | | | 3.9 | | | | | | | | | | |
| | | 6+54 Lt. | R-41B-36 | 36"x36" | | | 15.0 | | | | | 9.0 | | | | | | | | | | |
| East 30th Connection | | | | | | | | | | | | | | | | | | | | | | |
| | | 6+50 Lt. | R-41A-36 | 36"x24" | | | 14.0 | | | | | 6.0 | | | | | | | | | | |
| | | 6+50 Rt. | R-41A-36 | 36"x24" | | | 14.0 | | | | | 6.0 | | | | | | | | | | |
| Ramp No. 15 | | | | | | | | | | | | | | | | | | | | | | |
| | | 7+27 Rt. | | | | | 13.5 | | | | | | | | | | | | | | | |
| East 33rd Connection | | | | | | | | | | | | | | | | | | | | | | |
| | | 9+00 Lt. | R-15B | 30"x30" | | | 14.5 | | | | | 6.25 | | | | | | | | | | |
| I-90 | | | | | | | | | | | | | | | | | | | | | | |
| | | 135+87 Lt. | | | | | | | | | | | | | | | | | | 1 | | |
| | | 136+85 Rt. | | | | | | | | | | | | | | | | | | 1 | | |
| | | 139+00 Rt. | | | | | | | | | | | | | | | | | | 1 | | |
| | | 141+85 Lt. | | | | | | | | | | | | | | | | | | 2 | | |
| | | 143+50 Lt. | | | | | 18.5 | 19.0 | | | | | | | | | | | | | | |
| | | 146+02 Lt. | R-7B-48 | 48"x96" | 20.0 | 20.0 | | | | | | | 32.0 | 0.54 | 2 | 37.5 | | | | 40.0 | | |
| | | 148+45 RA | | | | | | | | | | | | | | | | | | 1 | | |
| | | 154+96 Lt. | | | | | | | | | | | | | | | | | | 1 | | |
| | | 155+04 RA | | | | | | | | | | | | | | | | | | 1 | | |
| | | 158+89 Lt. | | | | | | | | | | | | | | | | | | 1 | | |
| | | 152+20 Rt. | | | | | 18.25 | 18.75 | | | | | | | | | | | | 2 | | |
| 74 Ramp No. 18 | | | | | | | | | | | | | | | | | | | | | | |
| | | 6+36 Lt. | R-41A-36 | 36"x24" | | | 14.0 | | | | | | | | | | | | | | | |
| | | 6+36 Rt. | R-41A-36 | 36"x24" | | | 14.0 | | | | | | | | | | | | | | | |
| | | 9+20 Lt. | R-2-36 | 36"x36"x36" | | | 15.0 | | | | | | | | | | | | | | | |
| | | 9+35 Rt. | R-41B-36 | 36"x36" | | | 15.0 | | | | | | | | | | | | | | | |
| | | 9+35 Rt. | R-2-36 | 36"x36"x36" | | | 15.0 | | | | | | | | | | | | | | | |
| | | 9+35 Rt. | R-41B-36 | 36"x36" | | | 15.0 | | | | | | | | | | | | | | | |
| | | 1+09 Rt. | | | | | 15.5 | | | | | | | | | | | | | 1 | | |
| East 33rd Connection | | | | | | | | | | | | | | | | | | | | | | |
| | | (C)&(D) 8+52 Lt. | | | | | 17.5 | | | | | | | | | 17.5 | | | | 2 | | |
| | | (A)&(B) 8+52 Rt. | | | | | 17.5 | | | | | | | | | 17.5 | | | | 2 | | |
| I-90 | | | | | | | | | | | | | | | | | | | | | | |
| | | 160+86 Rt. | | | | | | | | | | | | | | | | | | 1 | | |
| | | 165+10 Rt. | | | | | | | | | | | | | | | | | | 1 | | |
| | | 166+80 Lt. | | | | | | | | | | | | | | | | | | 1 | | |
| | | 167+10 Rt. | | | | | | | | | | | | | | | | | | 1 | | |
| | | 169+48 Lt. | R-7B-48 | 48"x96" | 20.0 | 20.0 | | | | | | | 32.0 | 0.54 | 2 | 28** | | | | 40.0 | | |
| | | 169+81 R | | | | | 13.75 | 14.25 | | | | | | | | | | | | 1** | | |
| | | 169+82 Rt. | | | | | 20.75 | 20.75 | | | | | | | | | | | | 1** | | |
| | | 174+43 Rt. | | | | | | | | | | | | | | | | | | | | |
| | | (53) 74+00 R | W-99L-120 | 10'-0" x 11'-0" | | | | | | | | | 110.0** | | | | | | | | | |
| | | (56) 161+00 Rt. | W-99R-120 | 10'-0" x 11'-0" | | | | | | | | | 110.0** | | | | | | | | | |
| Ramp 17 | | | | | | | | | | | | | | | | | | | | | | |
| | | 4+47 Rt. | | | | | 13.0 | | | | | | | | | | | | | 1 | | |
| | | 6+43 Rt. | | | | | 14.0 | | | | | | | | | | | | | 1 | | |
| | | 8+40 Rt. | | | | | 13.5 | | | | | | | | | | | | | 1 | | |
| Sheet Total Cost Participation I | | | | | | | | | | 13 | 80.25 | 64.0 | | 109.5 | 228.0 | 80 | 18 | 2 | 4 | | | |
| Sheet Total Cost Participation III | | | | | | | | | | 4 | 220.00 | | | 28.0 | | 41.5 | | 2 | | | | |
| Sheet Total | | | | | | | | | | 17 | 300.95 | 64.0 | | 137.5 | 228.0 | 121.5 | 18 | 4 | 4 | | | |

NOTE:
 ** Indicates Cost Participation III.

MADE GFM DATE 10-24-75
 TRACED TS DATE 11-3-75
 CHECKED HEE DATE 10-31-75
 SCALE _____

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

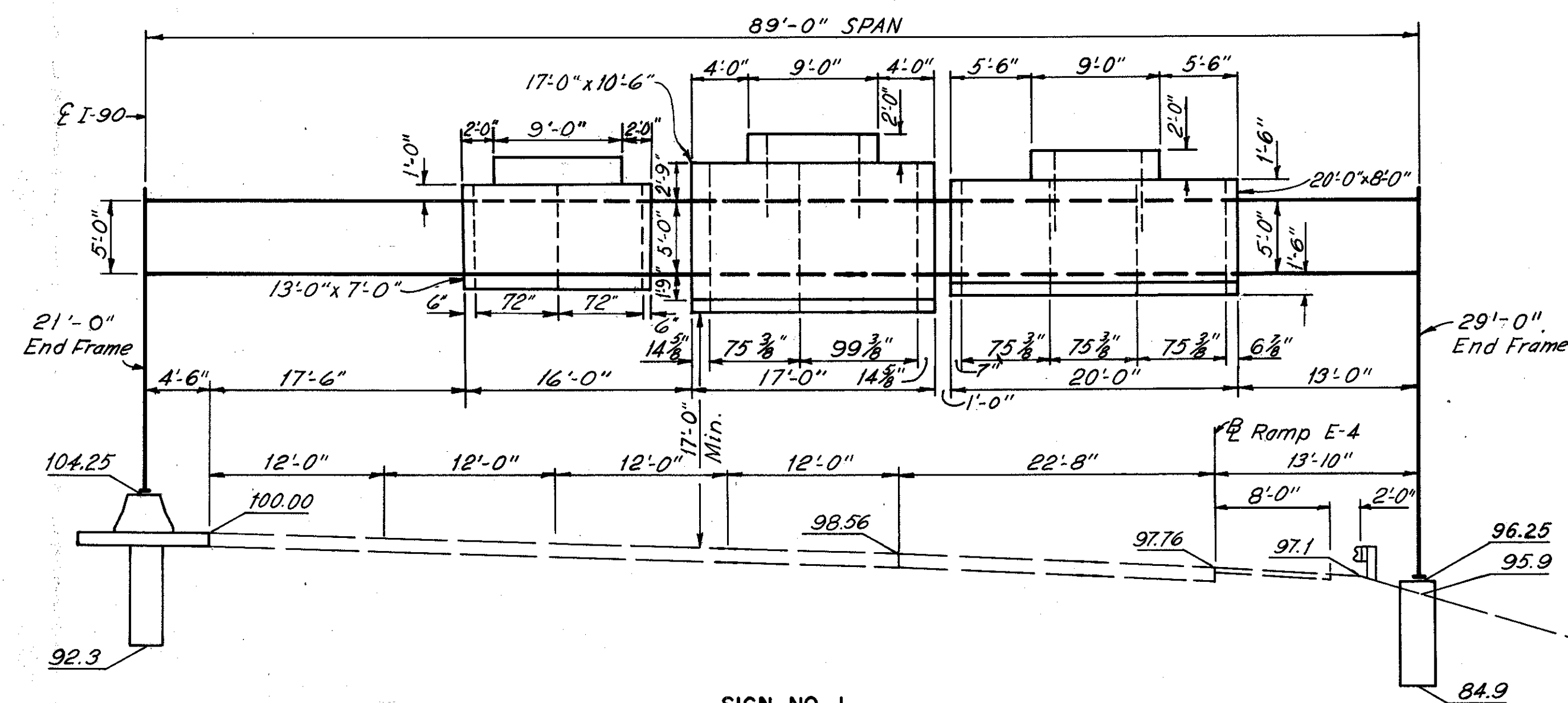


SIGN SUPPORT DETAILS

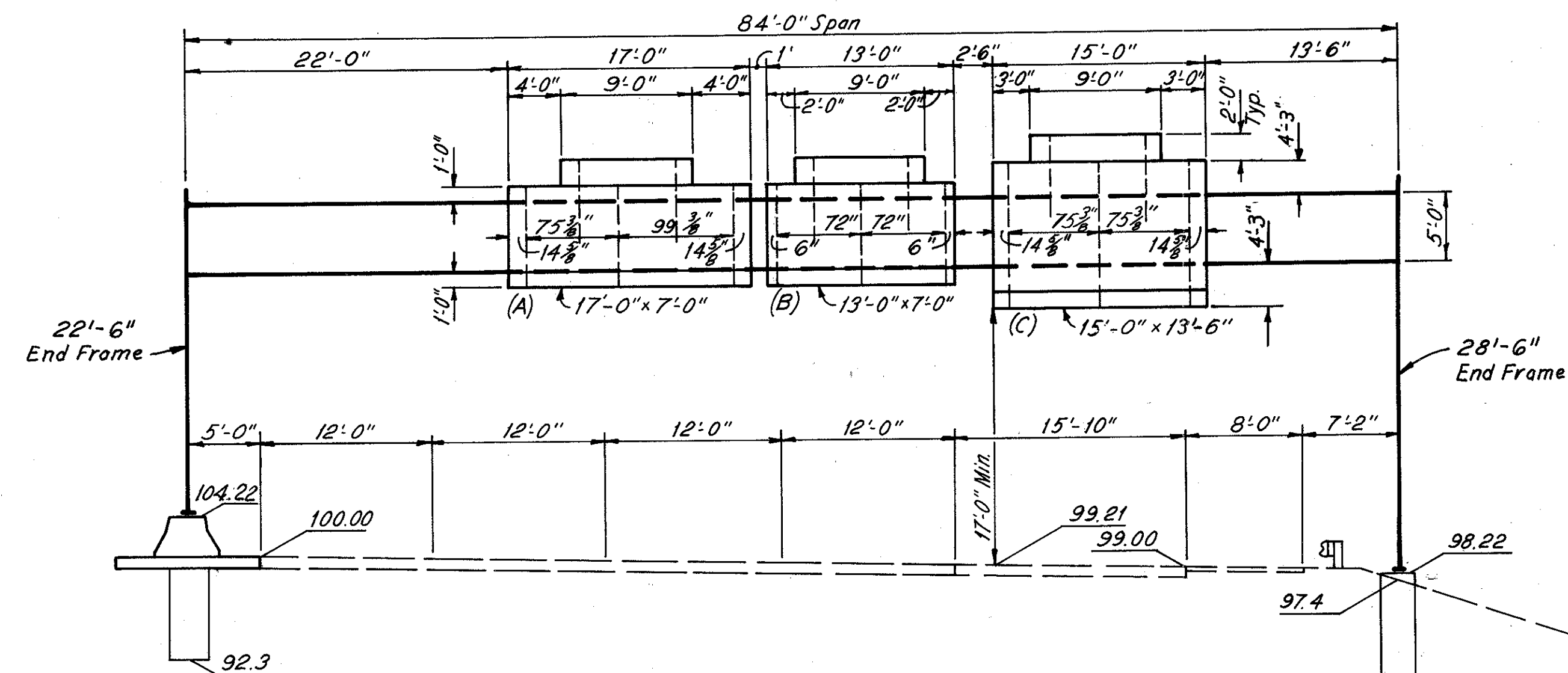
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| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

80
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



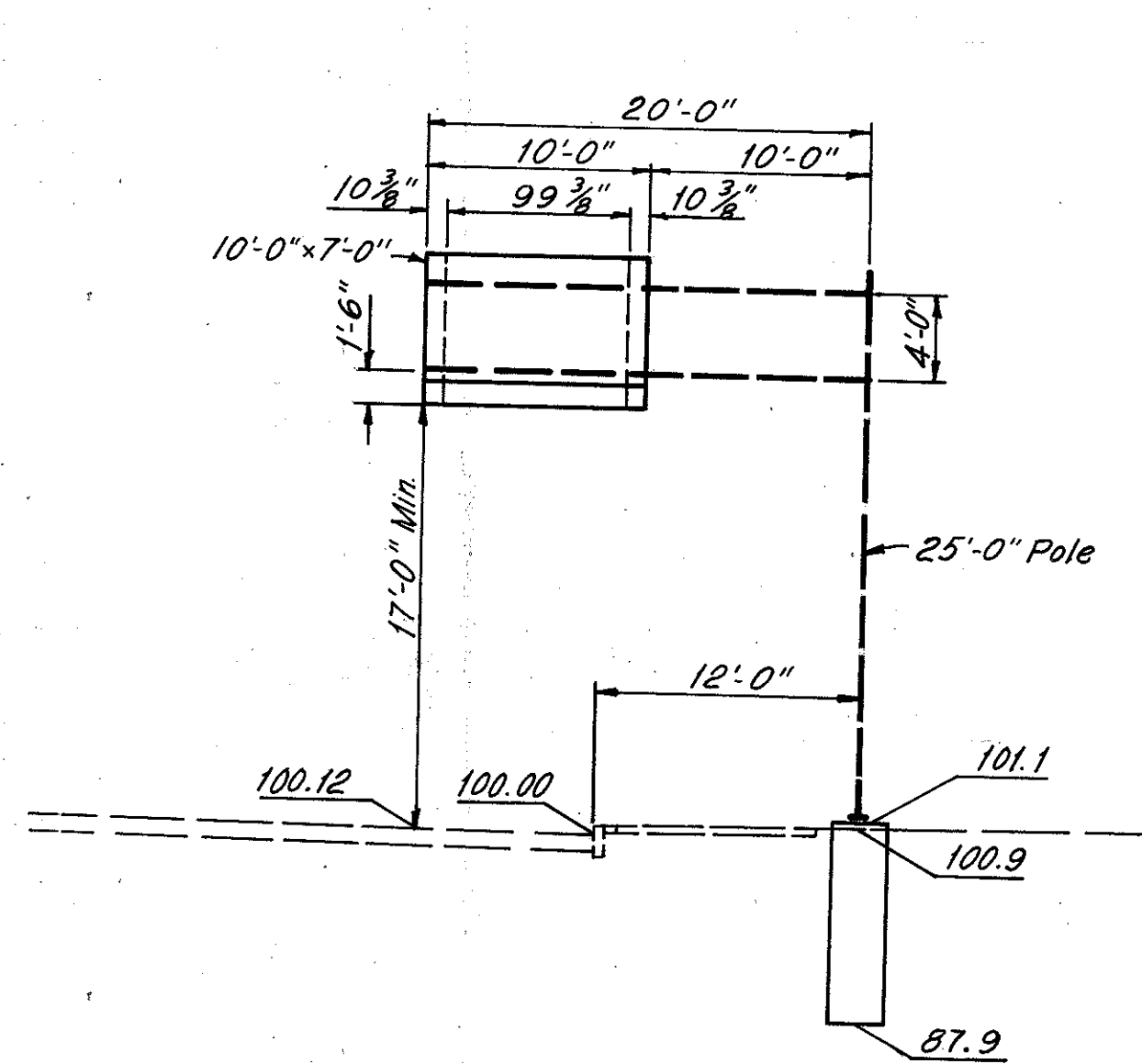
SIGN NO. 1
Sta. 56+65 E.B. I-90
TC-7.65, Design 8 Mod.
89'-0" Span



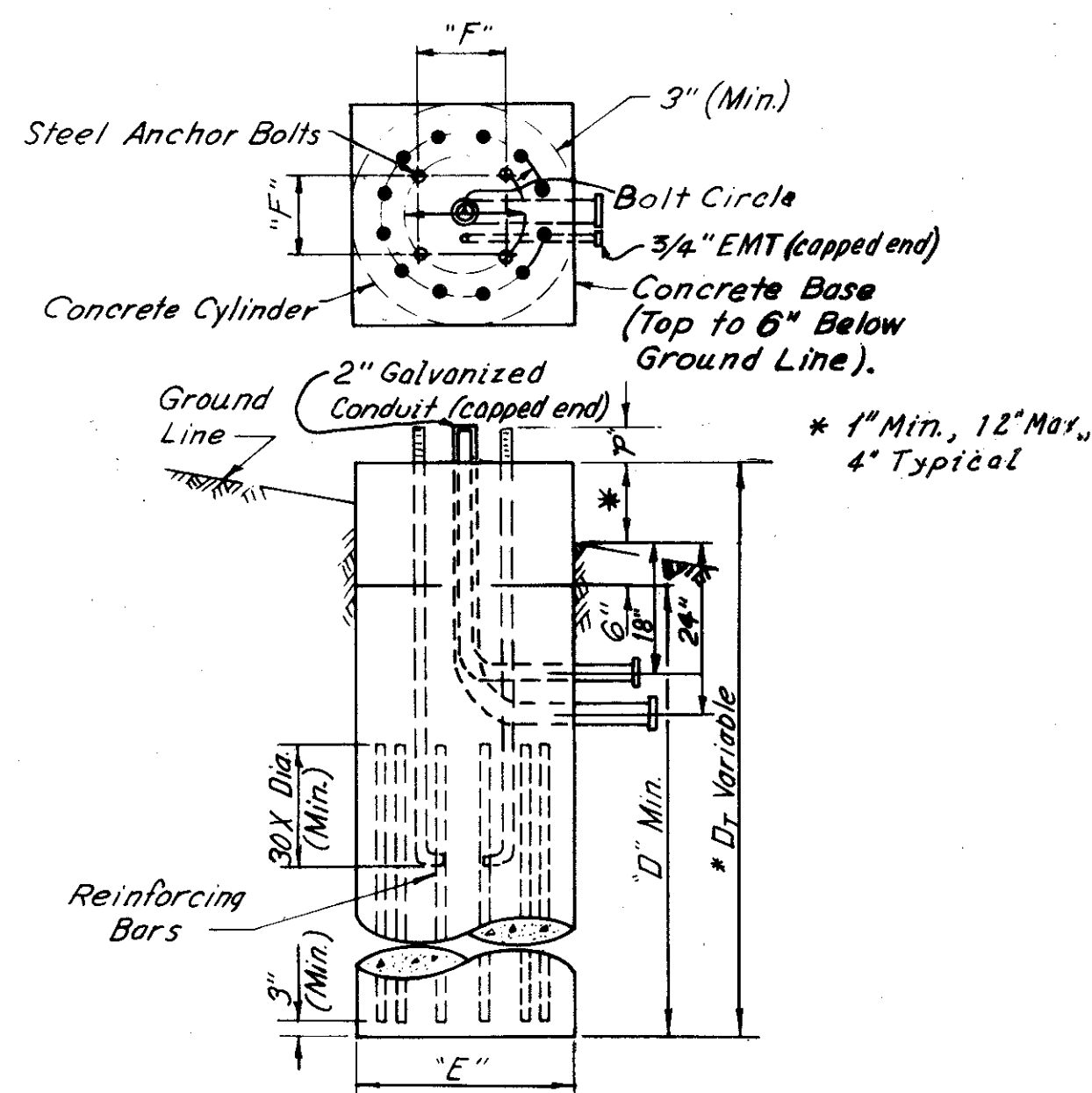
SIGN NO. 2
Sta. 61+71 E.B. I-90
TC-7.65, Design 8 Mod.
84'-0" Span

| SIGN NO. | "D" MIN | DIM E | DIM F | DIM P | BOLT CIRCLE | ANCHOR BOLT SIZE | REINF BARS SIZE | REINF BARS NO. |
|----------|---------|-------|-------|--------|-------------|------------------|-----------------|----------------|
| 3 | 13" | 3'-0" | 18" | 9 3/8" | 25 1/2" | 2 1/4" x 120" | 1 1/4" | 12 |

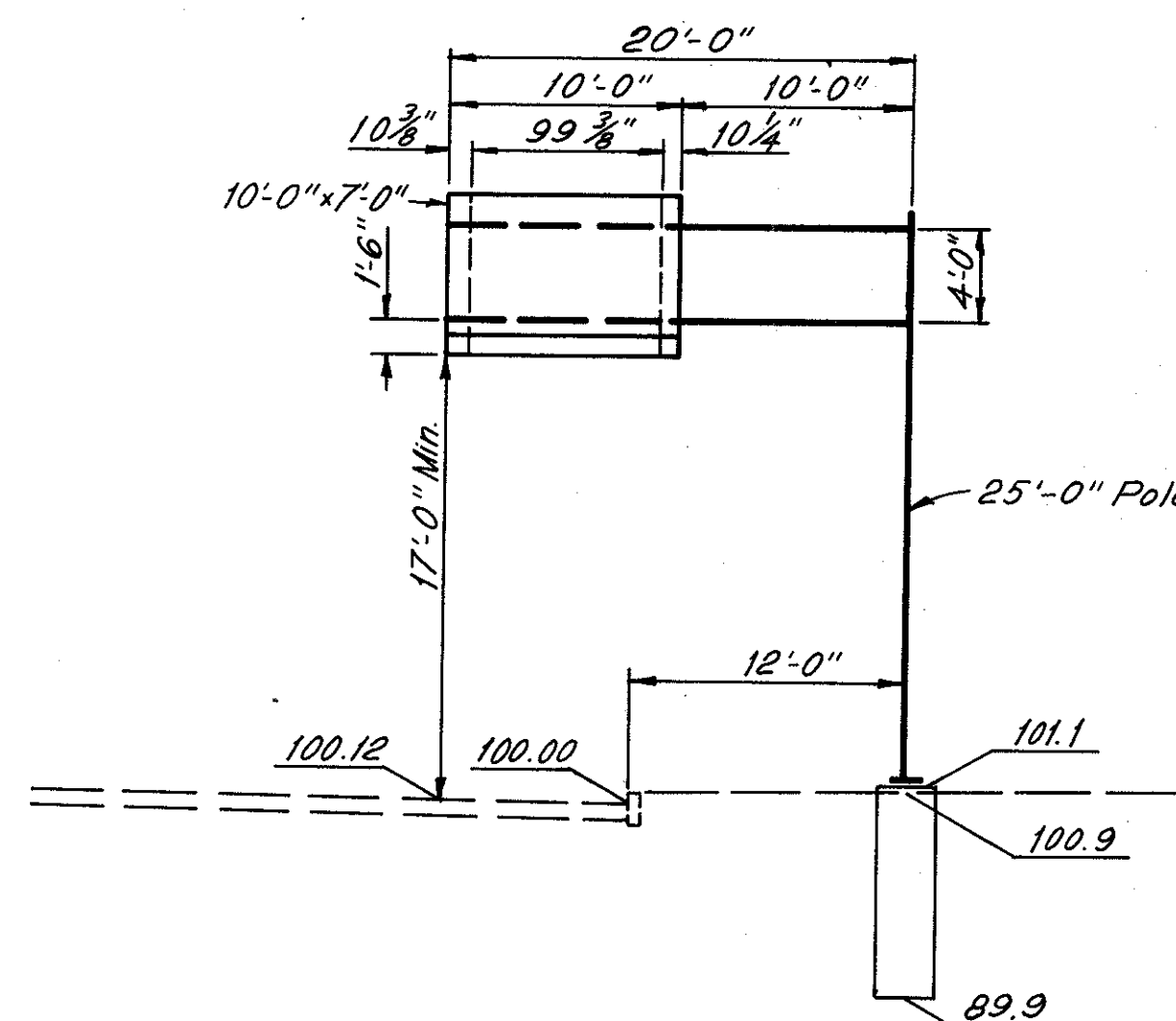
NOTE:
PRIOR TO CONSTRUCTING THE FOUNDATION FOR RELOCATED OVERHEAD SIGN SUPPORT, THE CONTRACTOR SHALL FIELD VERIFY BOLT CIRCLE DIMENSIONS, THE ANCHOR BOLT DIAMETERS, AND DIMENSION "P" FOR BASE PLATES OF OVERHEAD SIGN SUPPORTS BEING RELOCATED.



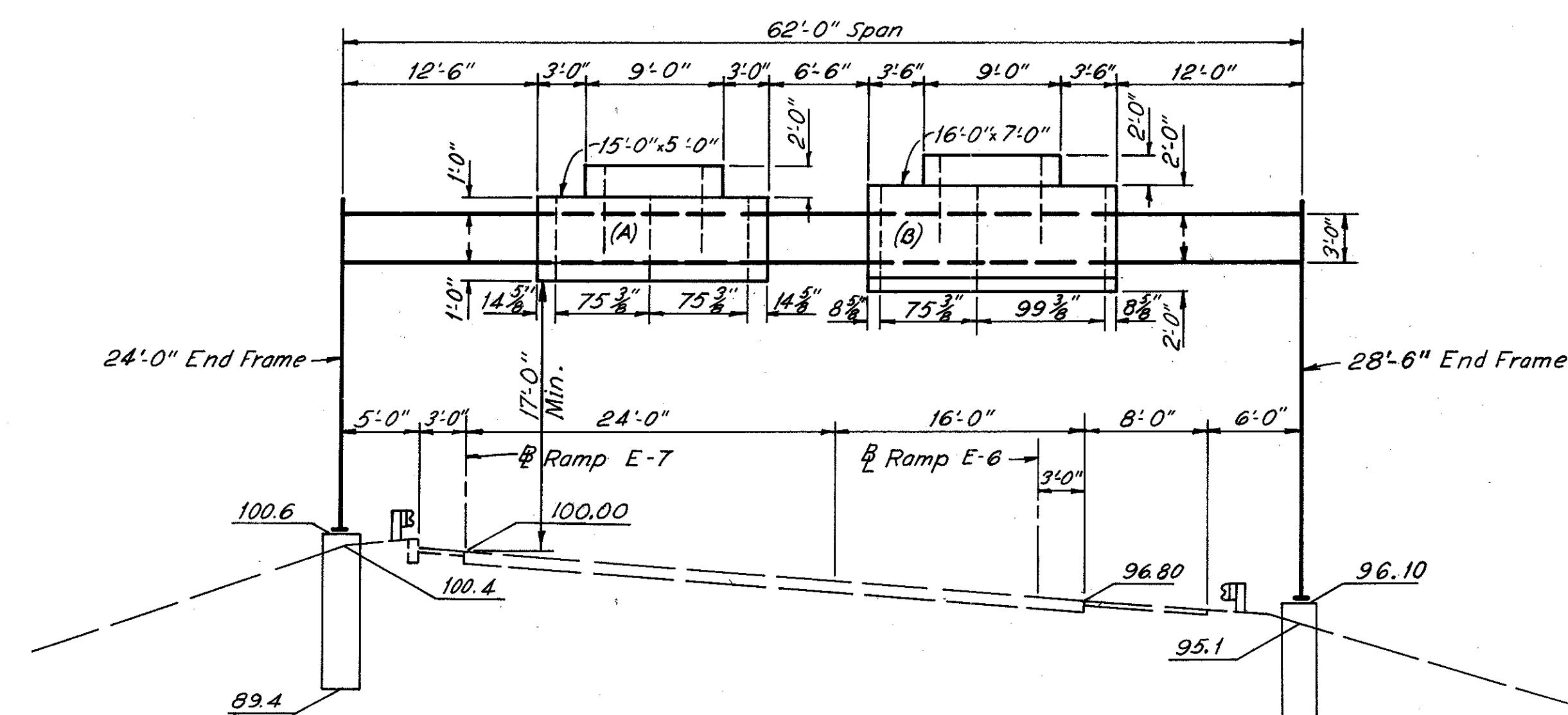
SIGN NO. 3
Sta. 0+00 Ramp E-3
Existing Support Relocated
from Sta. 20+40 I-90
(Cost Participation II)



FOUNDATION DETAIL
Existing Support
Type 12.24



SIGN NO. 4
Sta. 0+70 Ramp E-3 Conn.
Std. TC-12.30 Design 4 Mod.
20'-0" Arm



SIGN NO. 5
Sta. 5+50 Ramp E-6
TC-7.65, Design 6, Mod.
62'-0" Span

MADE GFM DATE 10-22-75
TRACED JPK DATE 11-3-77
CHECKED DSP DATE 11-4-77
SCALE No. 3016
Howard, Needles, Tammen & Bergendoff
CONSULTING ENGINEERS
CLEVELAND, OHIO

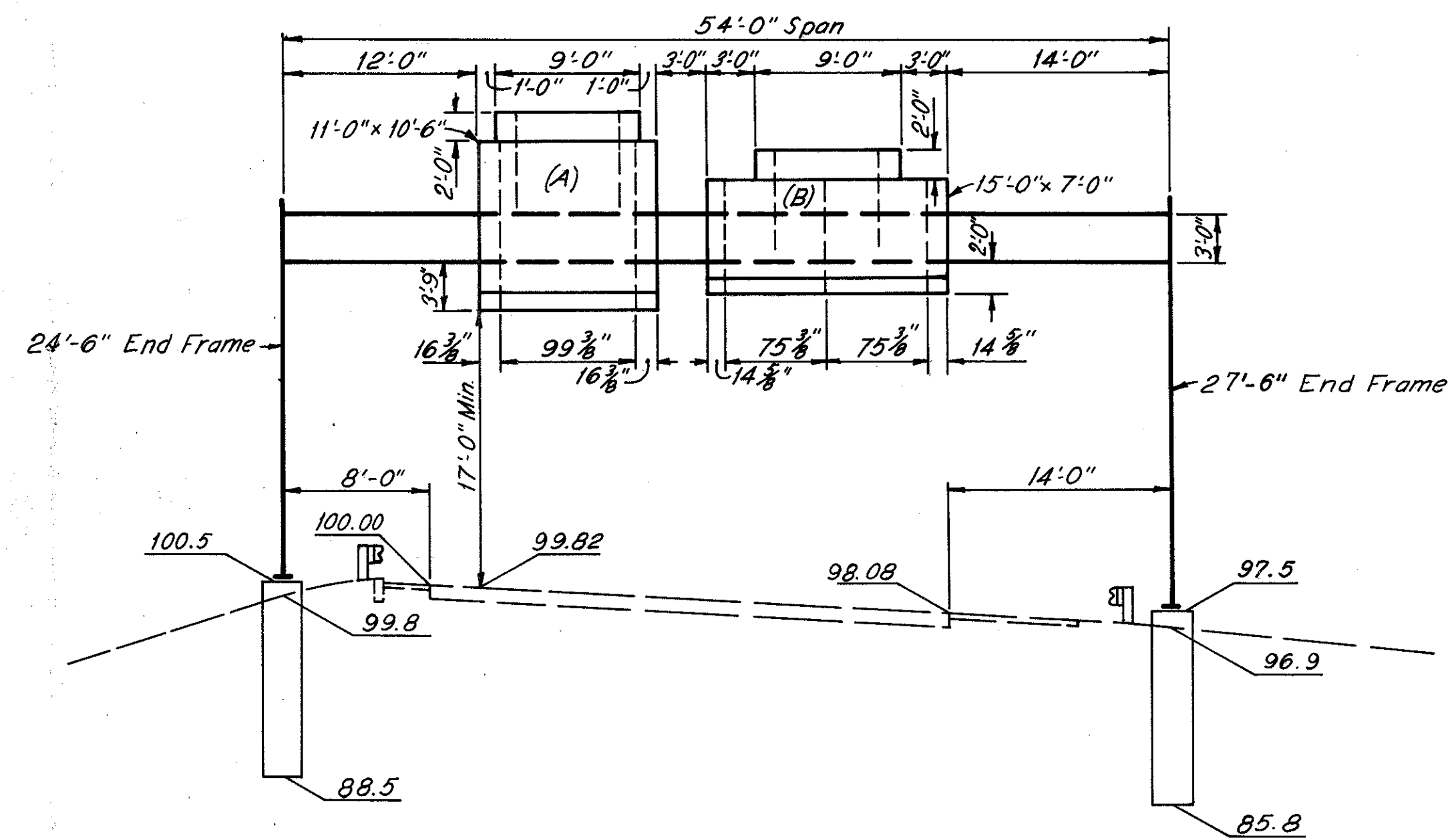
HNTB

SIGN SUPPORT DETAILS

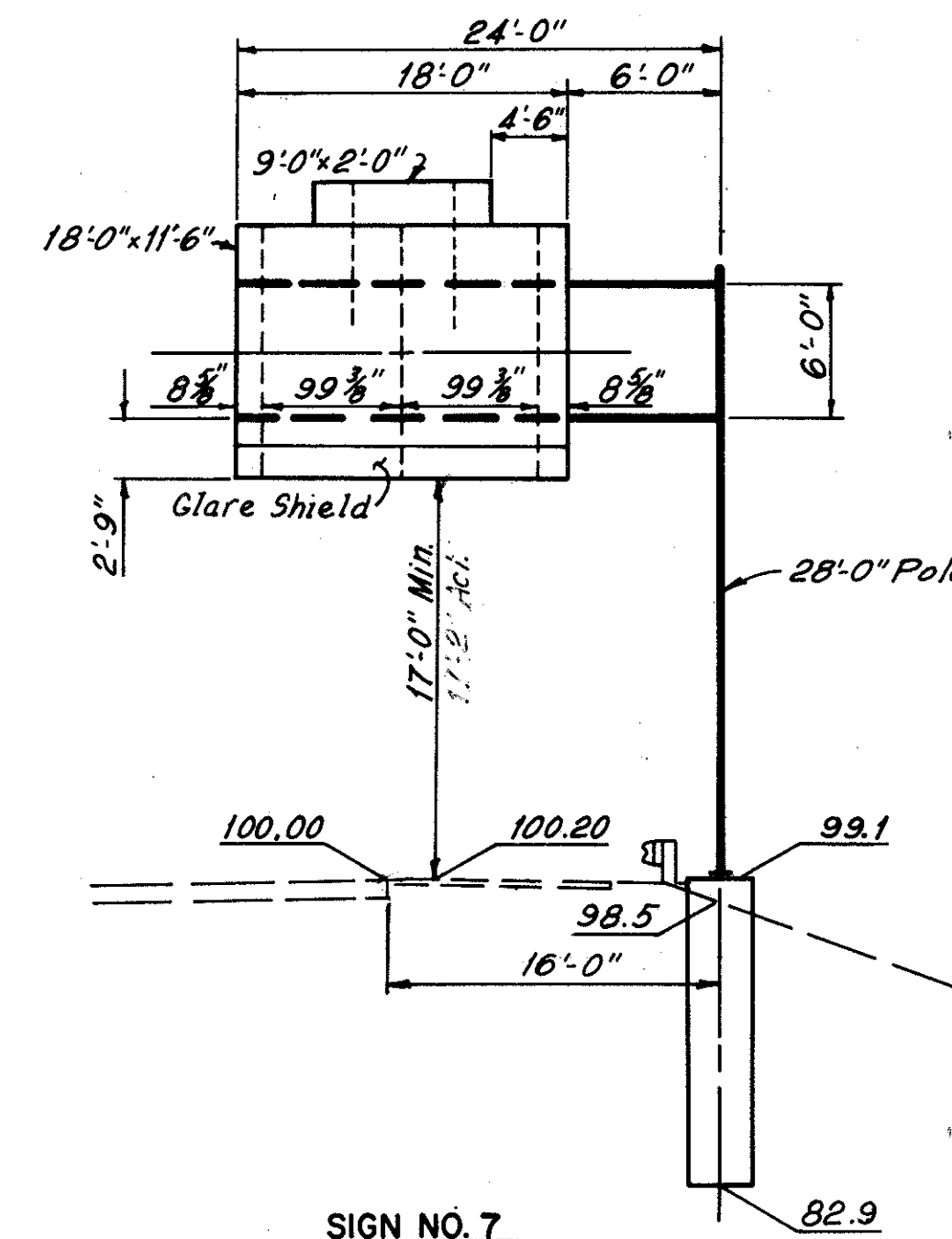
| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

81
169

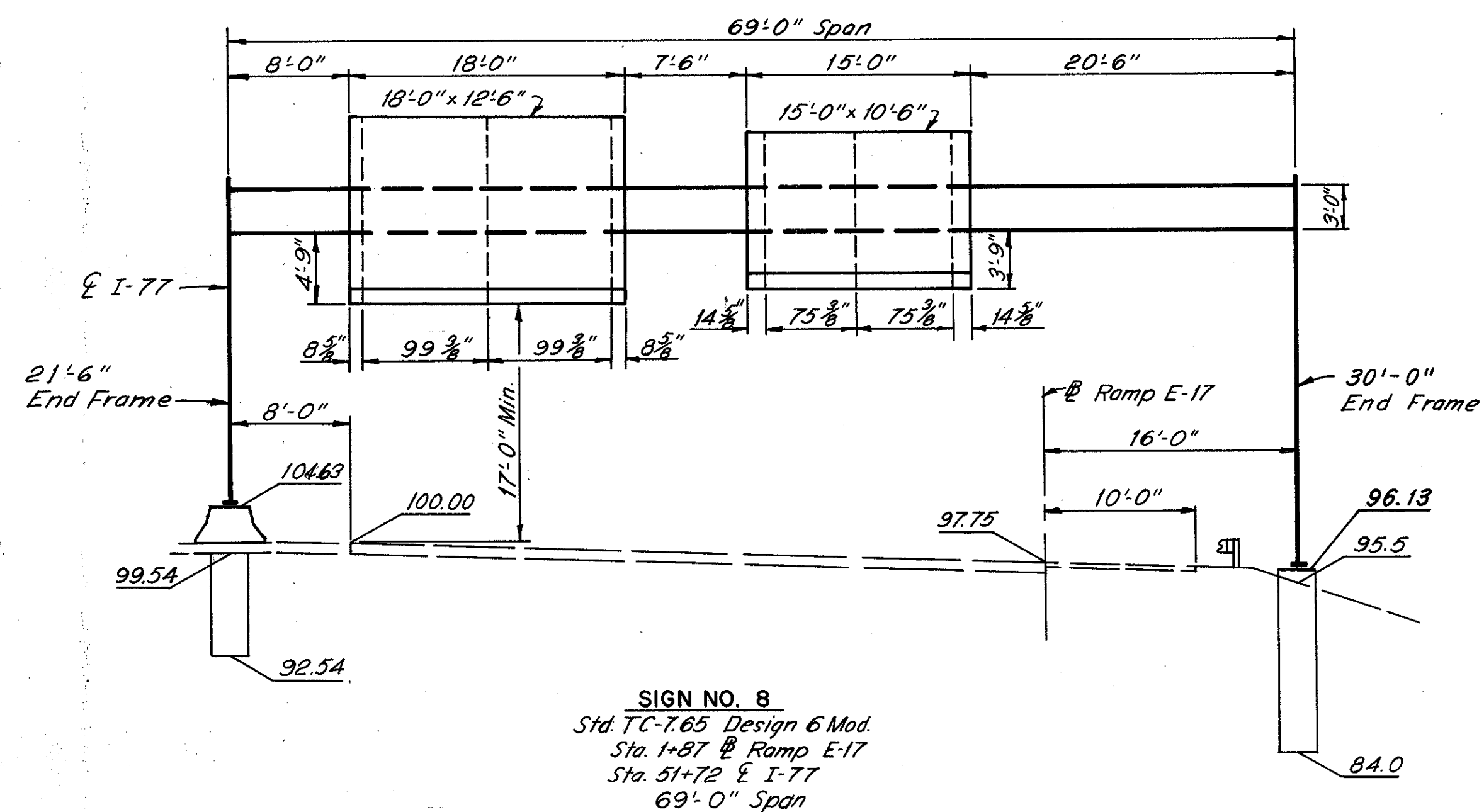
CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



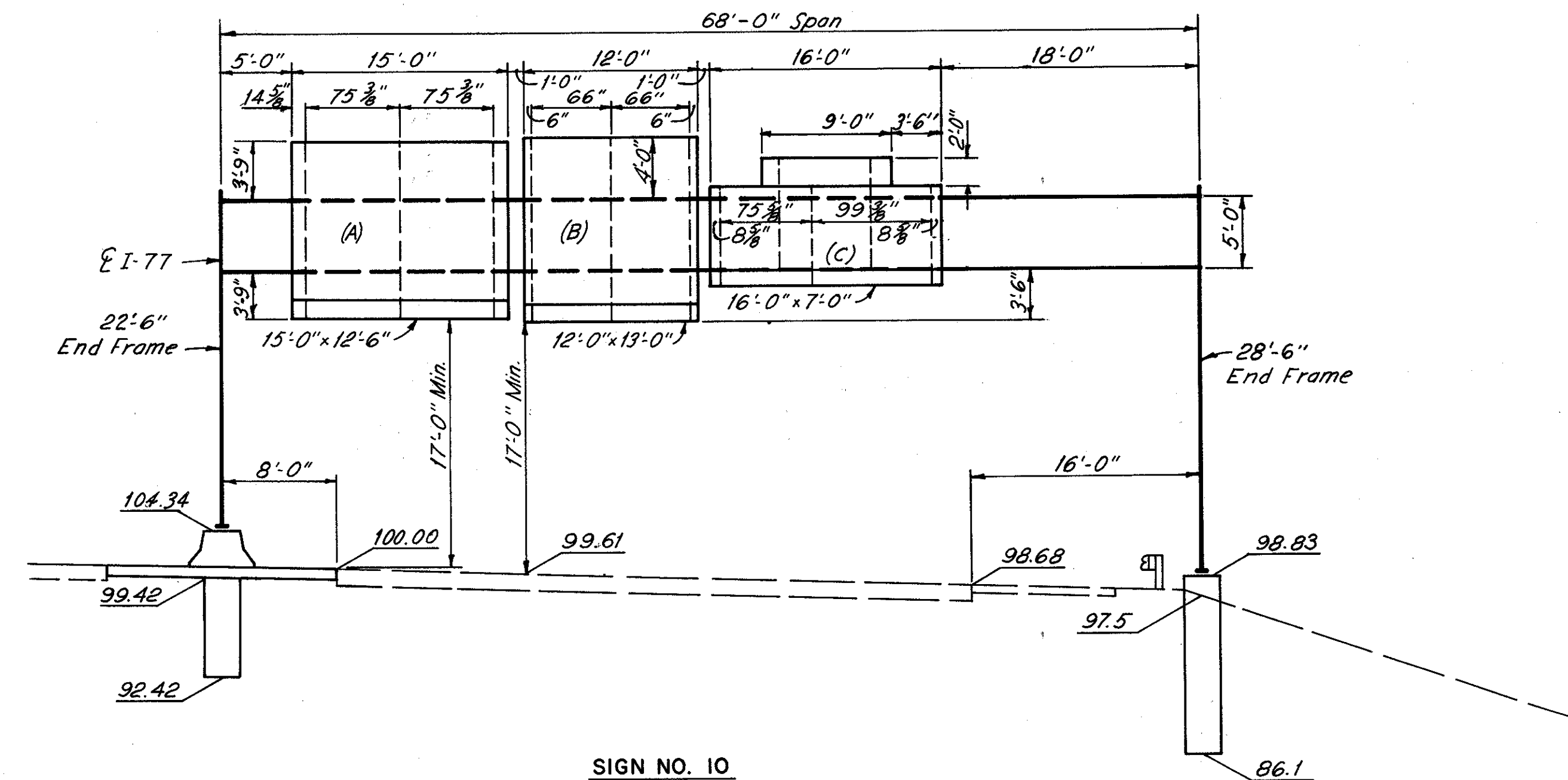
SIGN NO. 6
Sta. 0+40 Ramp E-9
Std. TC-7.65 Design 6 Mod.
54'-0" Span



SIGN NO. 7
Sta. 14+50 Ramp E-10
Std. TC-12.30 Design No. 9 Mod.
24'-0" Arm



SIGN NO. 8
Std. TC-7.65 Design 6 Mod.
Sta. 1+87 Ramp E-17
Sta. 51+72 I-77
69'-0" Span



SIGN NO. 10
Sta. 45+60 I-77 Rt.
Sta. TC-7.65 Design 8 Mod.
68'-0" Span

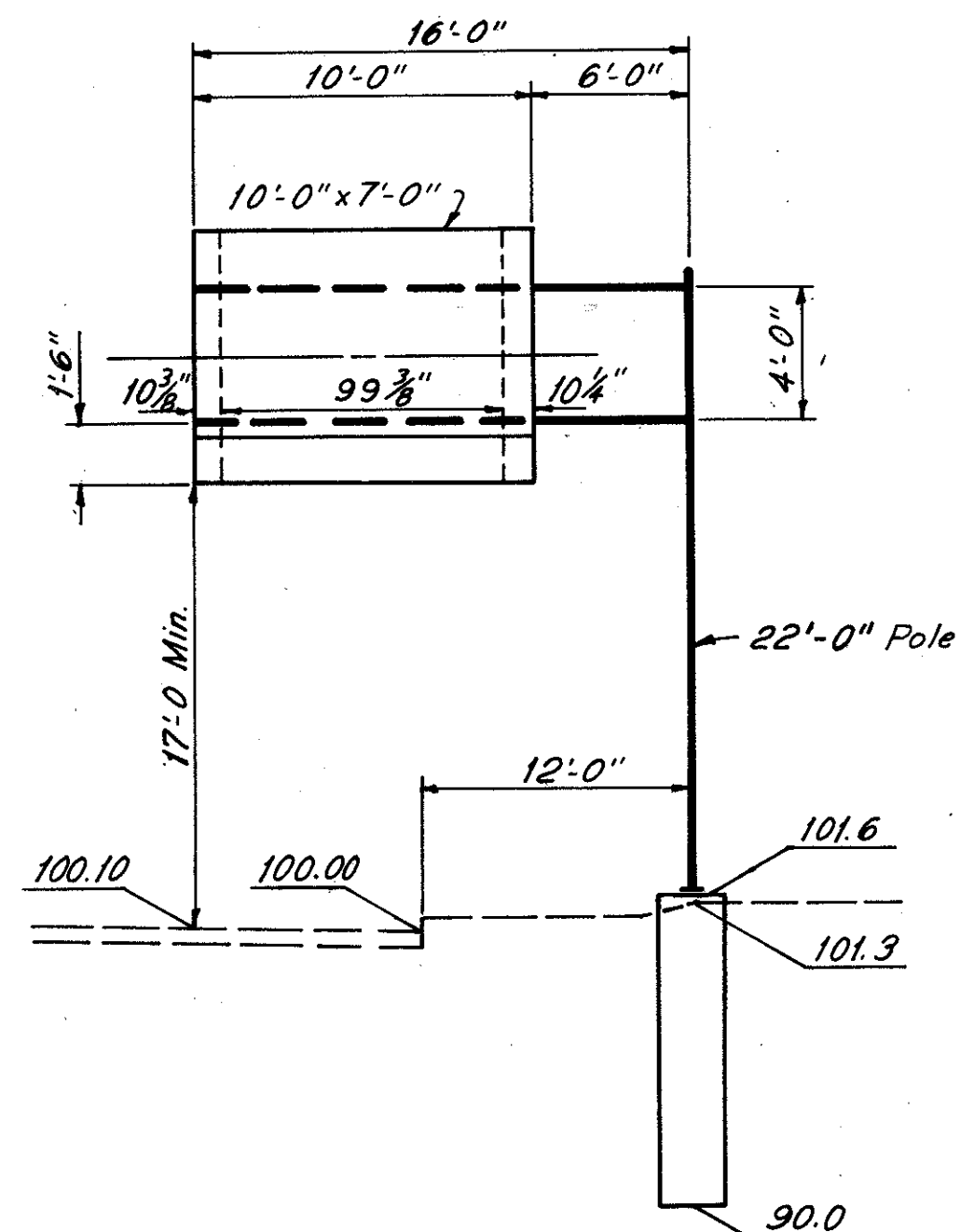
Note: 1. There is no reference to a Sign No. 9 in these plans.

SIGN SUPPORT DETAILS

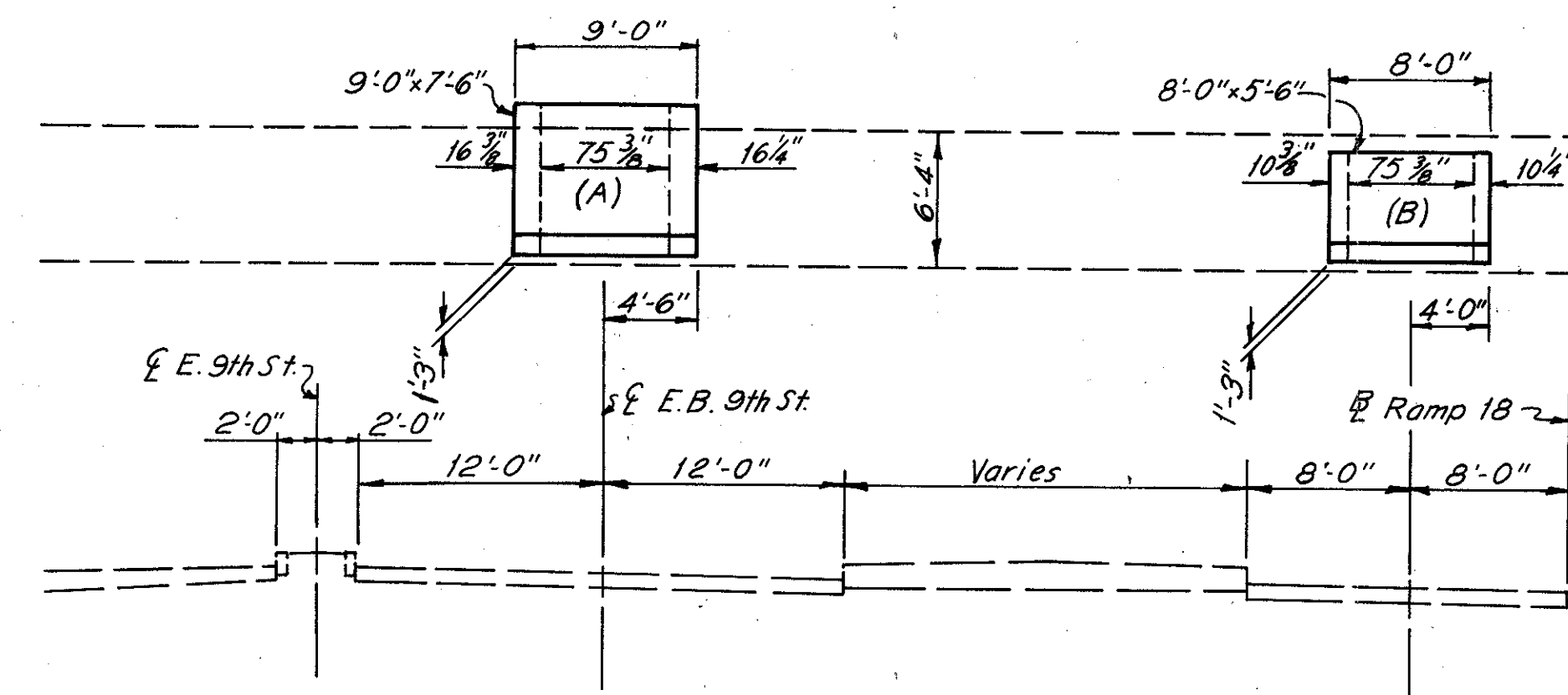
| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

82
169

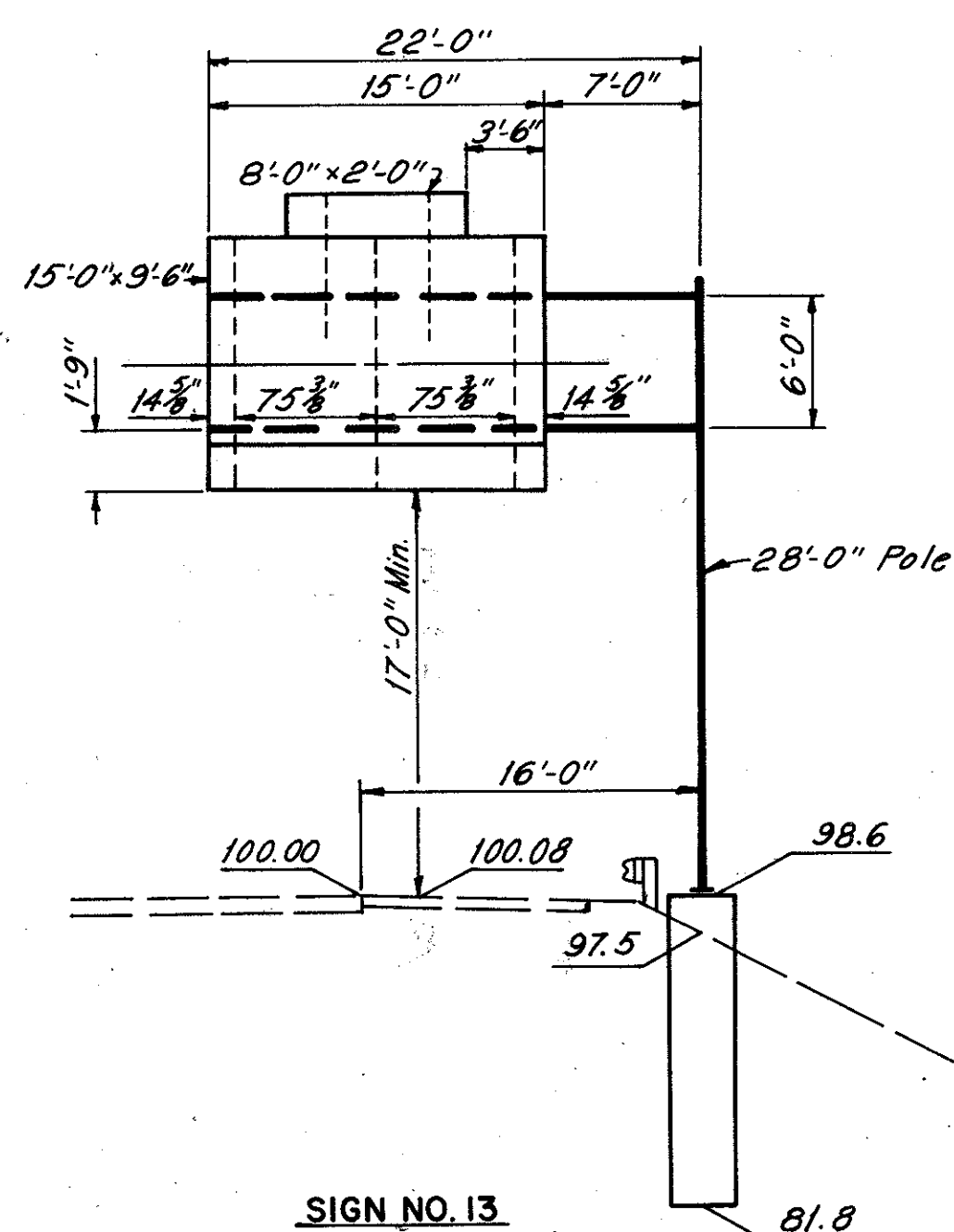
CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



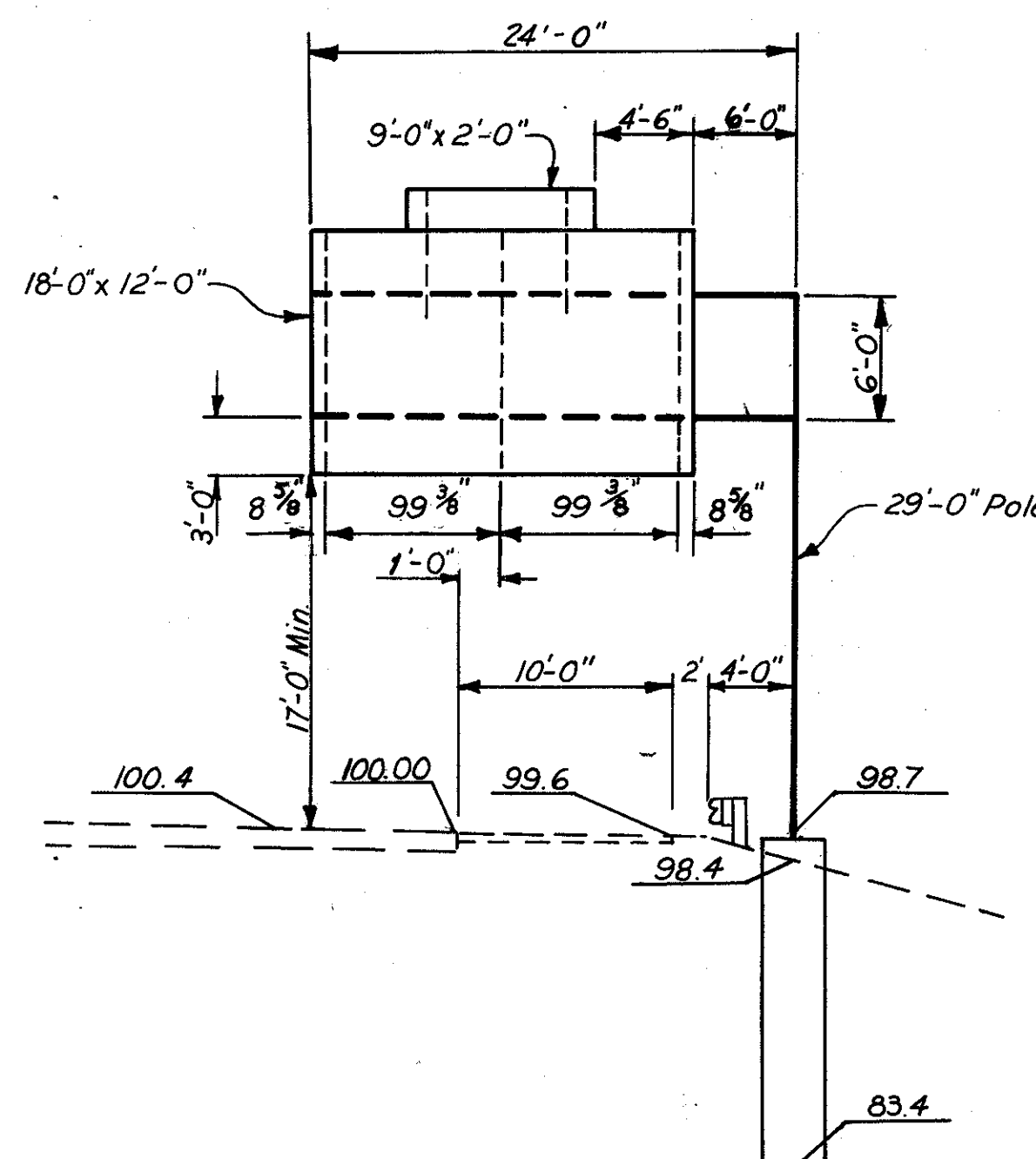
SIGN NO. 11
Sta. 1+00 Broadway E.B.
Std. TC-12.30 Design 2 Mod.
16'-0" Arm



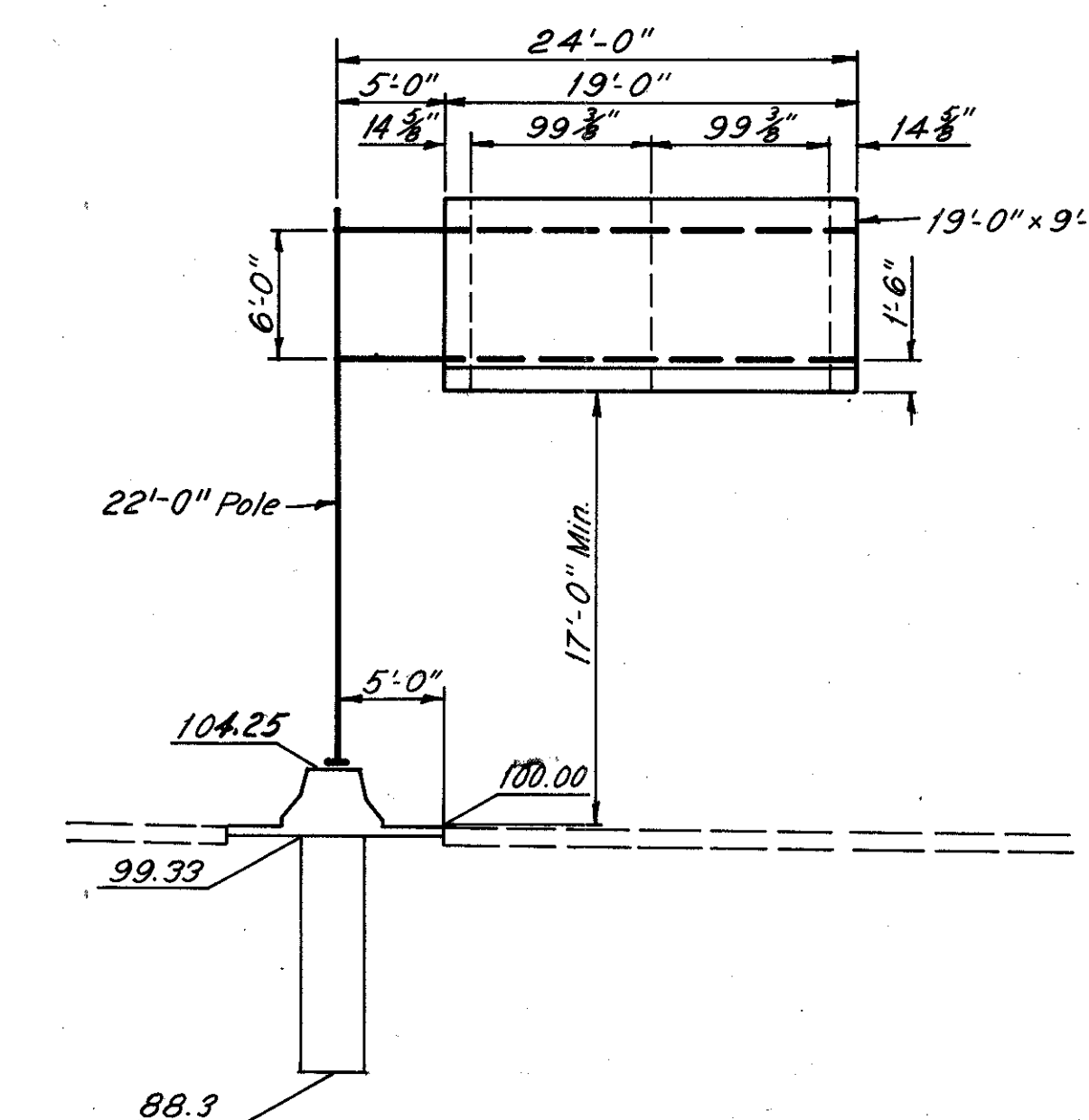
SIGN NO. 12
Sta. 8+75 E. 9th St.
(2) TC-18.24



SIGN NO. 13
Sta. 64+90 I-90 W.B.
Std. TC-12.30 Design 7 Mod.
22'-0" Arm



SIGN NO. 14
Sta. 68+25 I-90EB
Std. TC-12.30 Design 9 Mod.
24'-0" Arm



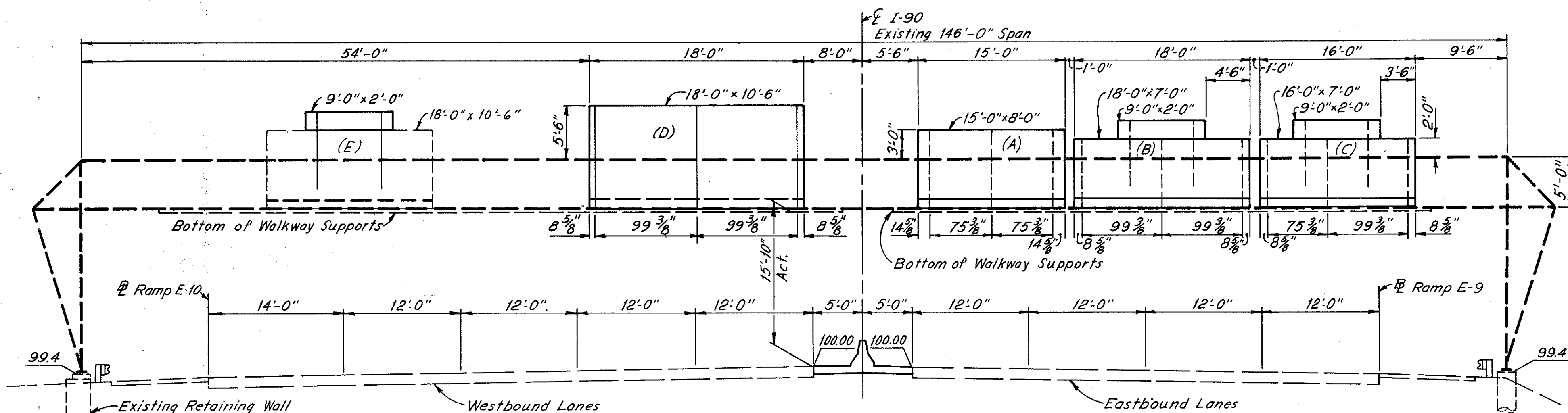
SIGN NO. 15
Sta. 70+00 I-90 E.B.
Std. TC-12.30 Design 7 Mod.
24'-0" Arm
See Sheet 44A for median foundation detail.

SIGN SUPPORT DETAILS

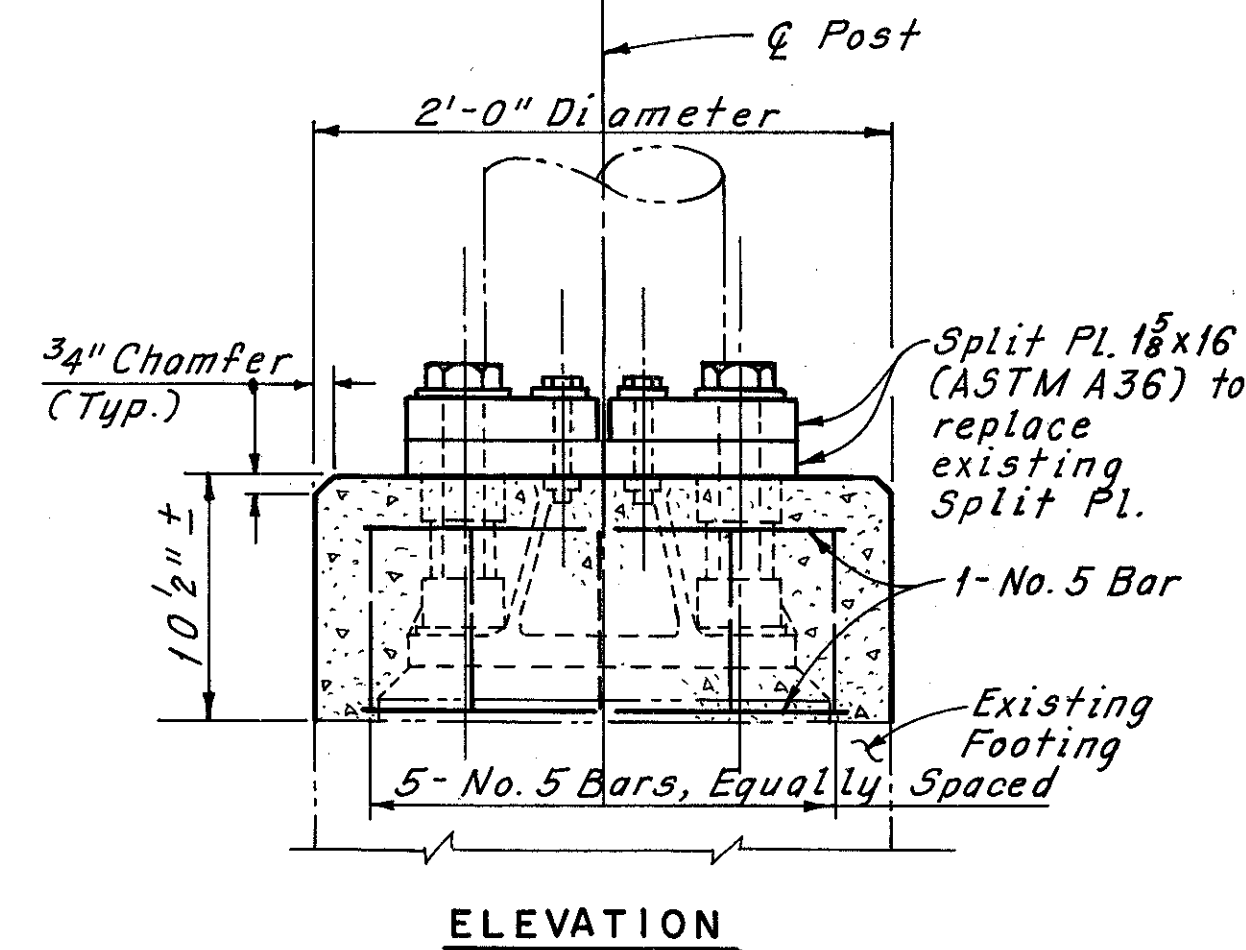
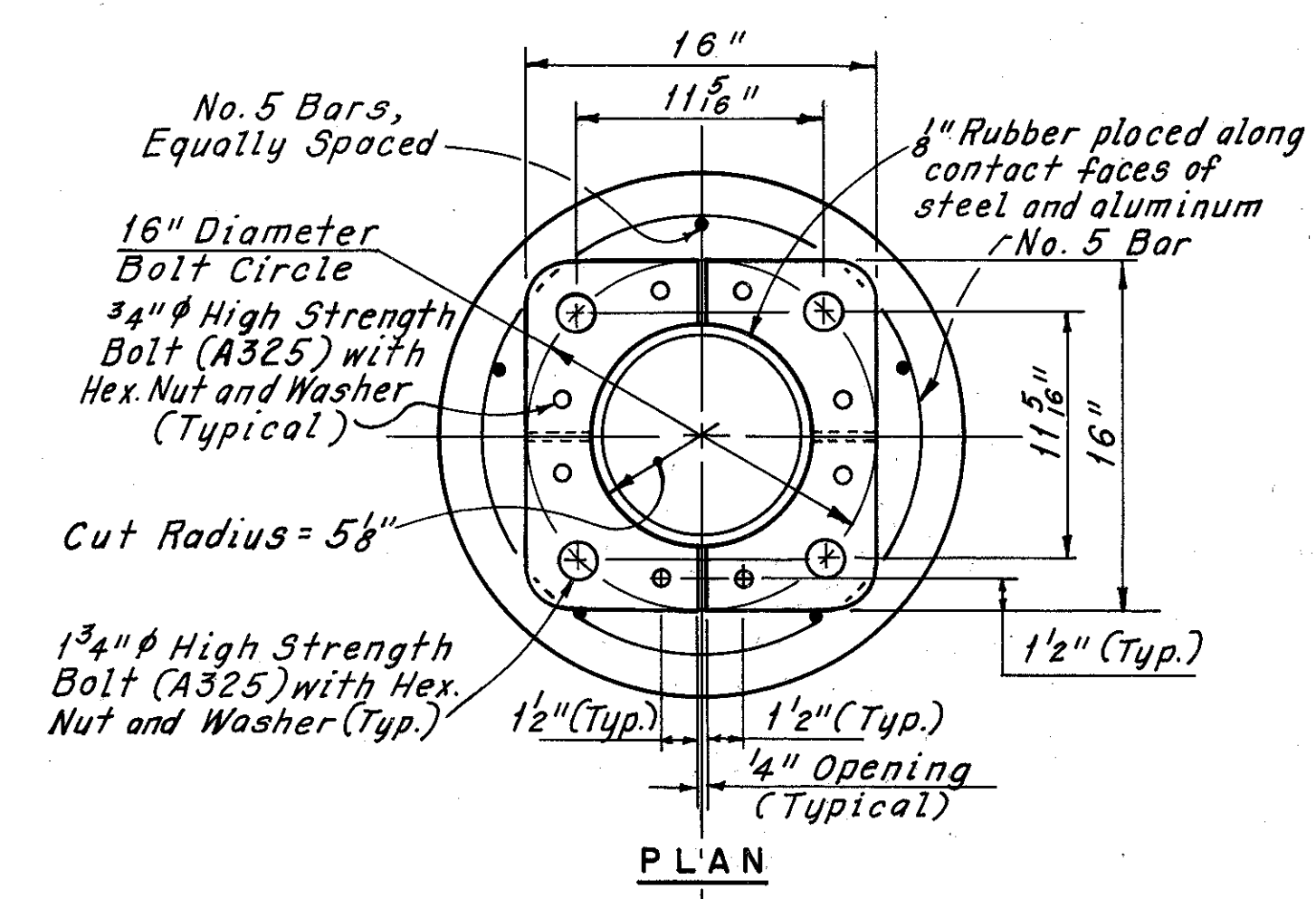
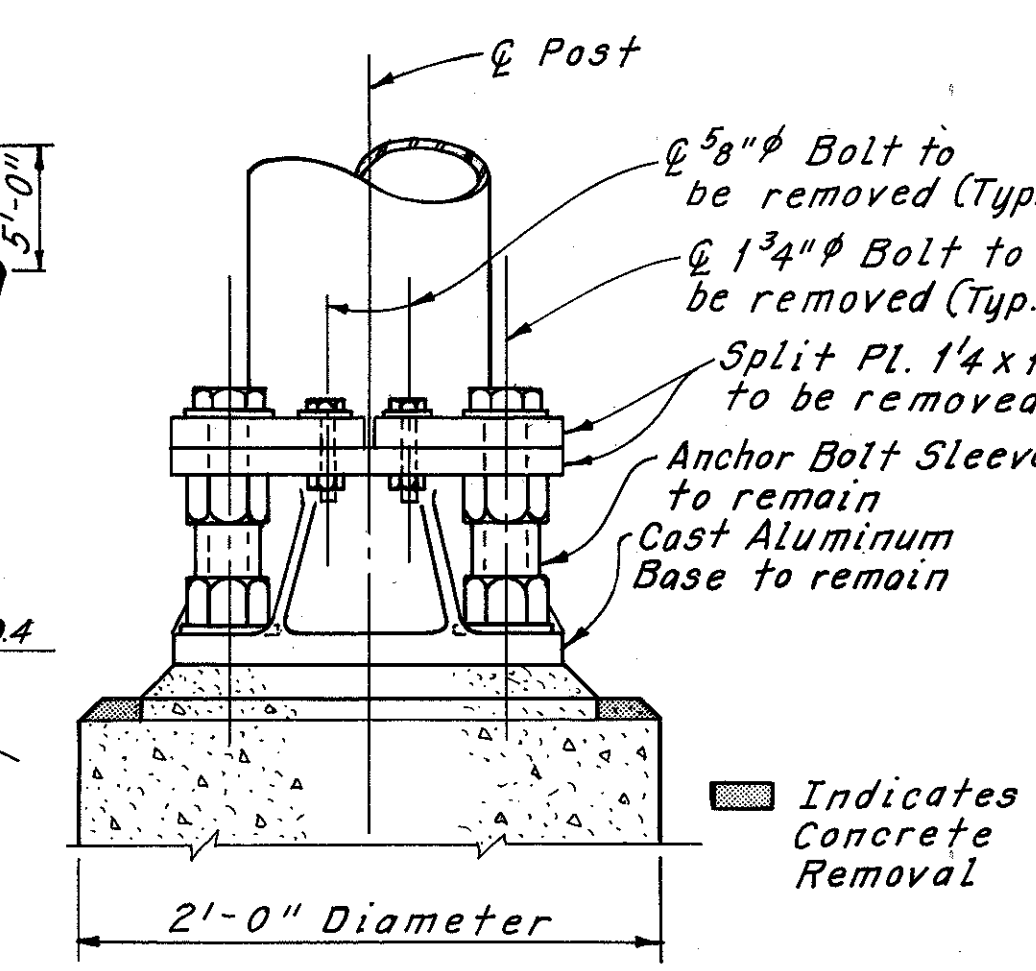
| | | |
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| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

83
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21

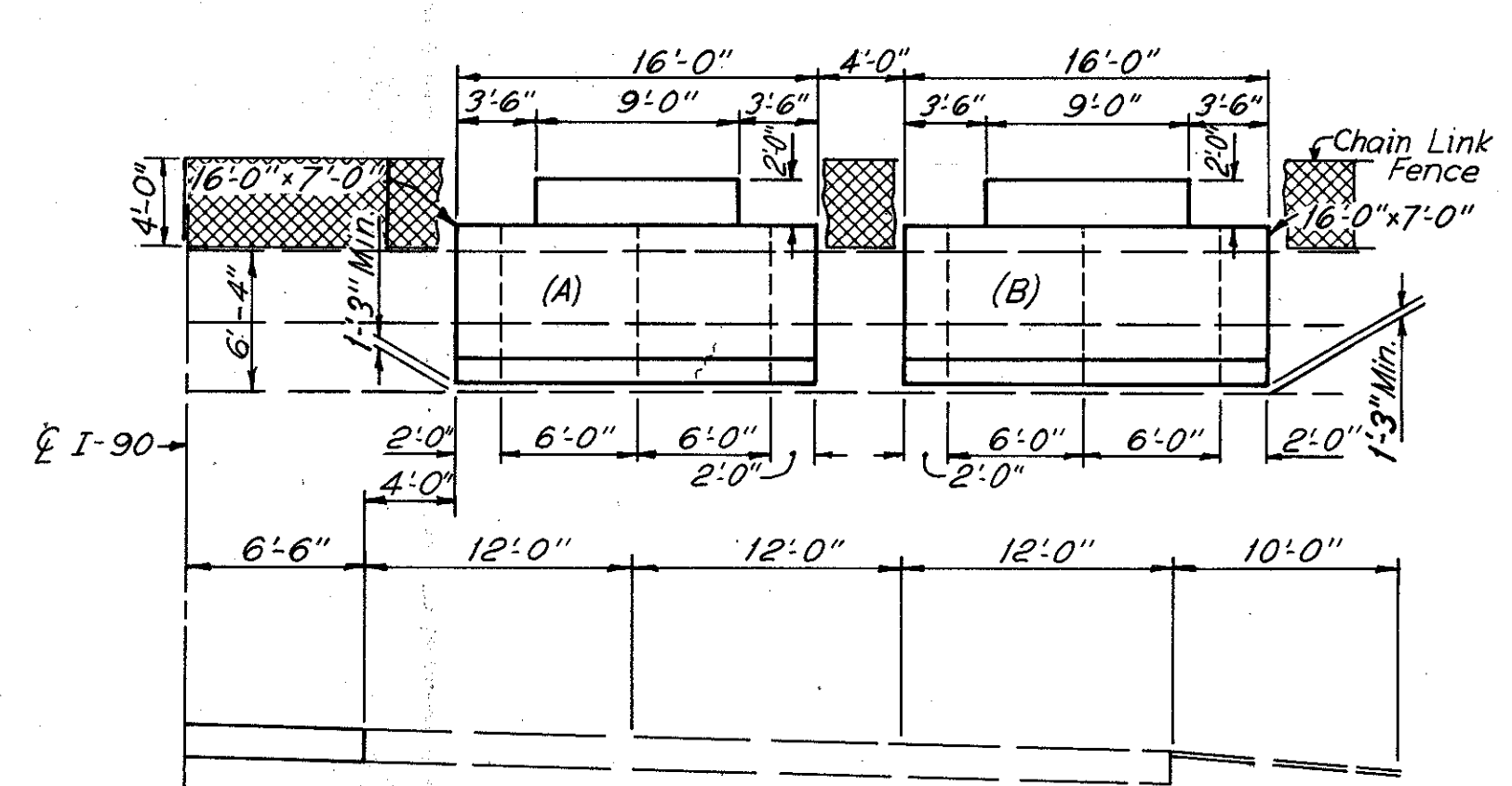


SIGN NO. 16
Sta. 74+20 I-90
Existing Sign Bridge

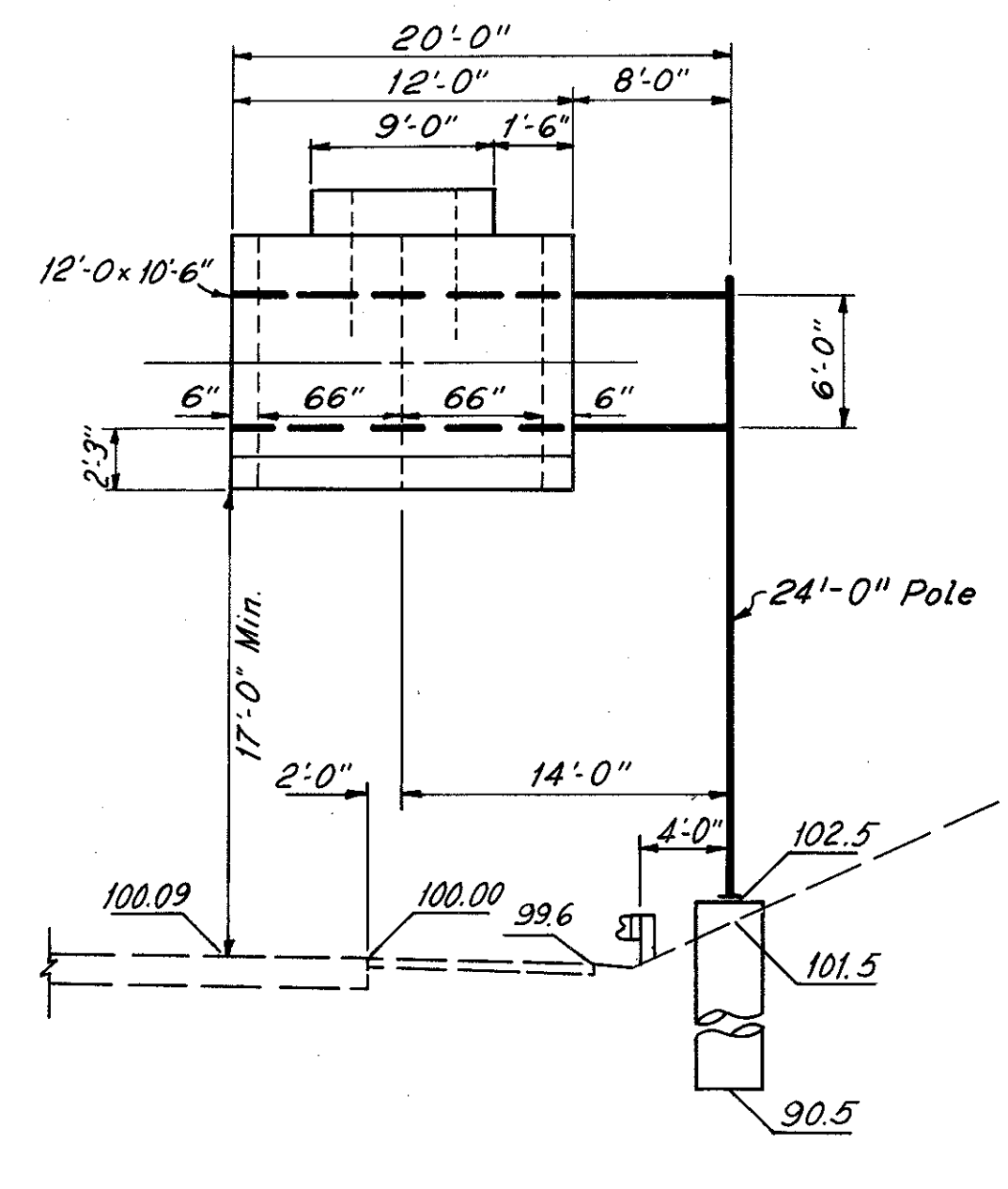


MODIFIED POST BASE DETAIL
SIGN NO. 16

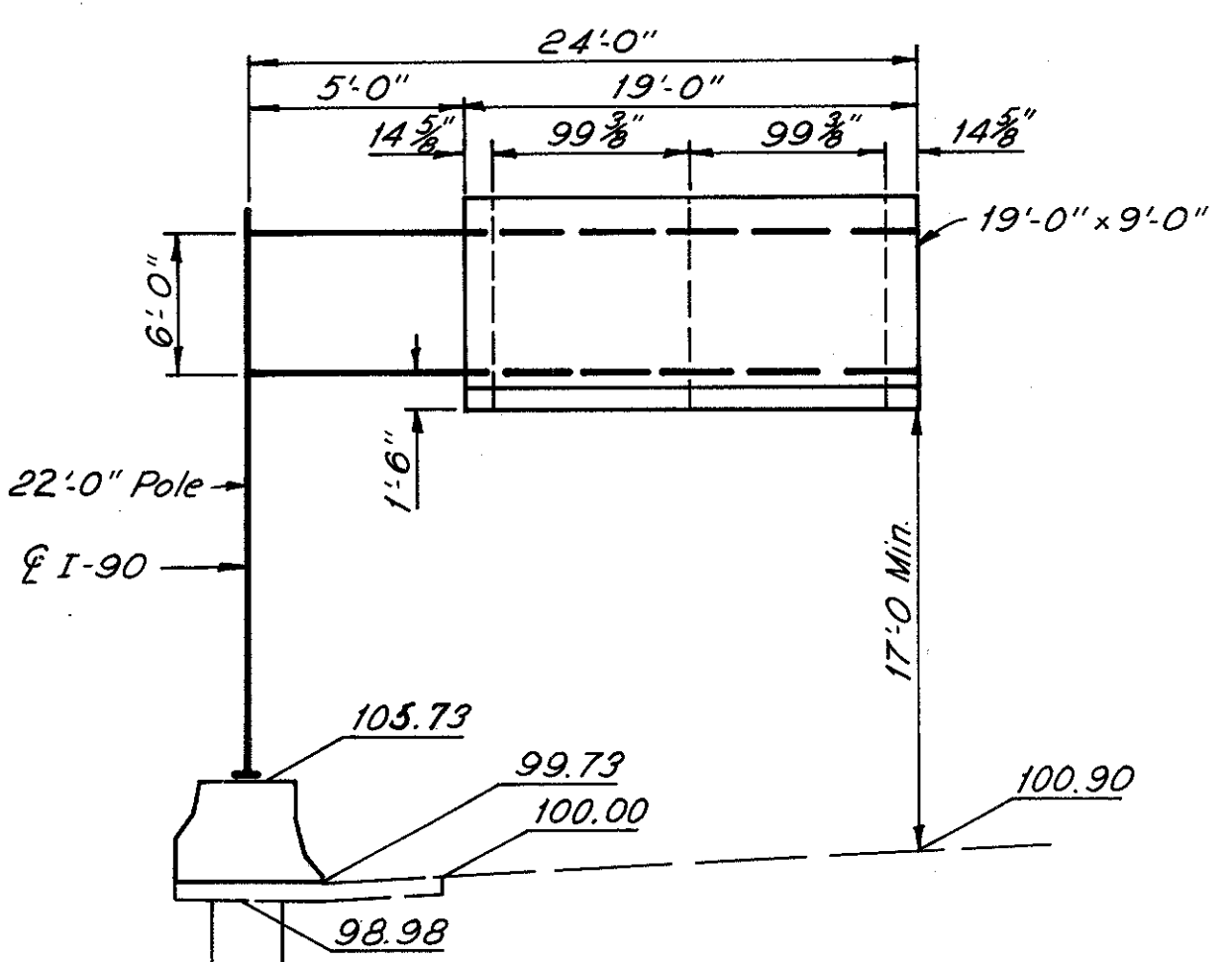
Notes: (Sign No. 16)
All new structural steel shall be galvanized according to 711.02 and shall be painted in accordance with Item 514.
New concrete shall be non-shrink epoxy grout (Sika-Dur Hi Mod, Fel-Pro FP132 or equal).
Surfaces between new and existing concrete shall be coated with Polysulfide Epoxy adhesive. The adhesive shall be Thiobond No. 100, Ceilcoat 348 Adhesive, Resiweld R-7680-G or adhesive meeting the requirements of AASHTO M-235-73 I.
Modification of the post base shall be performed when the temperature is about 60° F. and when the wind velocity is low.
The following abbreviation is used:
Typ. = Typical
Payment to repair the (4) existing pole bases, as detailed on this sheet, shall include all labor, equipment and material to complete the work for Item 844 - Repair Anchor Base Foundation, As Per Plan, Cost Participation III.



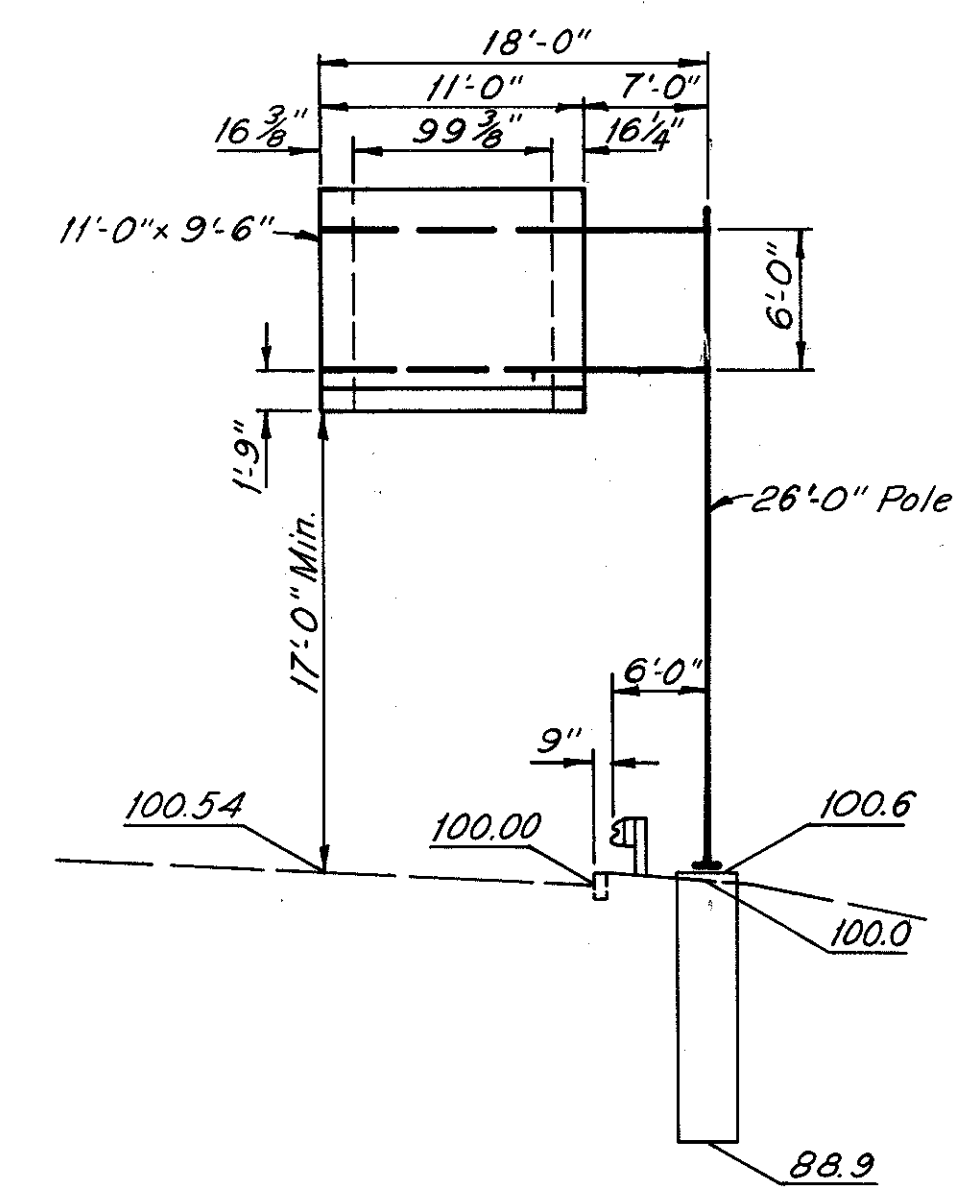
SIGN NO. 17
Sta. 99+30 I-90
2-TC-18-26 Design 7, Mod.



SIGN NO. 18
Sta. 102+33 W.B. I-90
TC-12.30, Design 5 Mod,
20'-0" Arm



SIGN NO. 19
Sta. 106+95 I-90
Std. TC-12.30 Design 7 Mod,
24'-0" Arm
See Sheet 44A for median foundation detail.



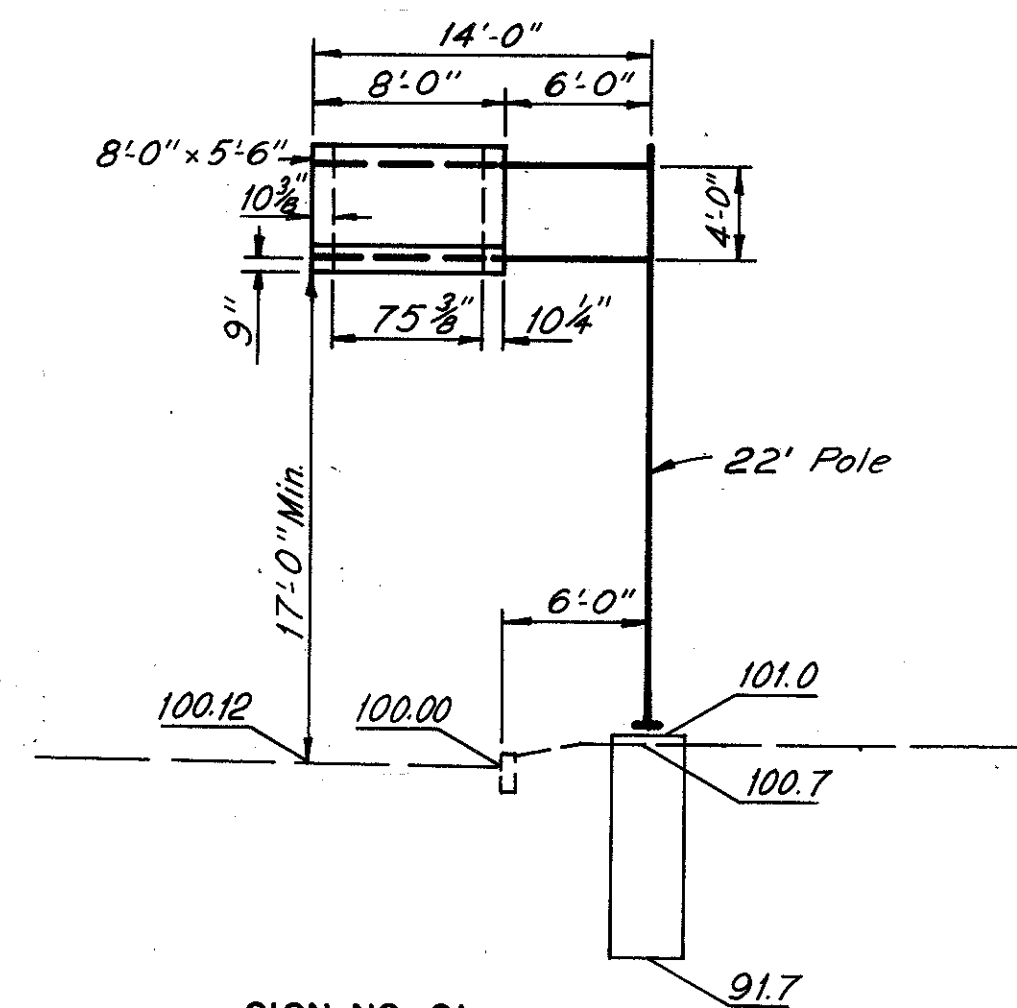
SIGN NO. 20
Sta. 0+60 Ramp E-5
Std. TC-12.30 Design 5 Mod,
18'-0" Arm

SIGN SUPPORT DETAILS

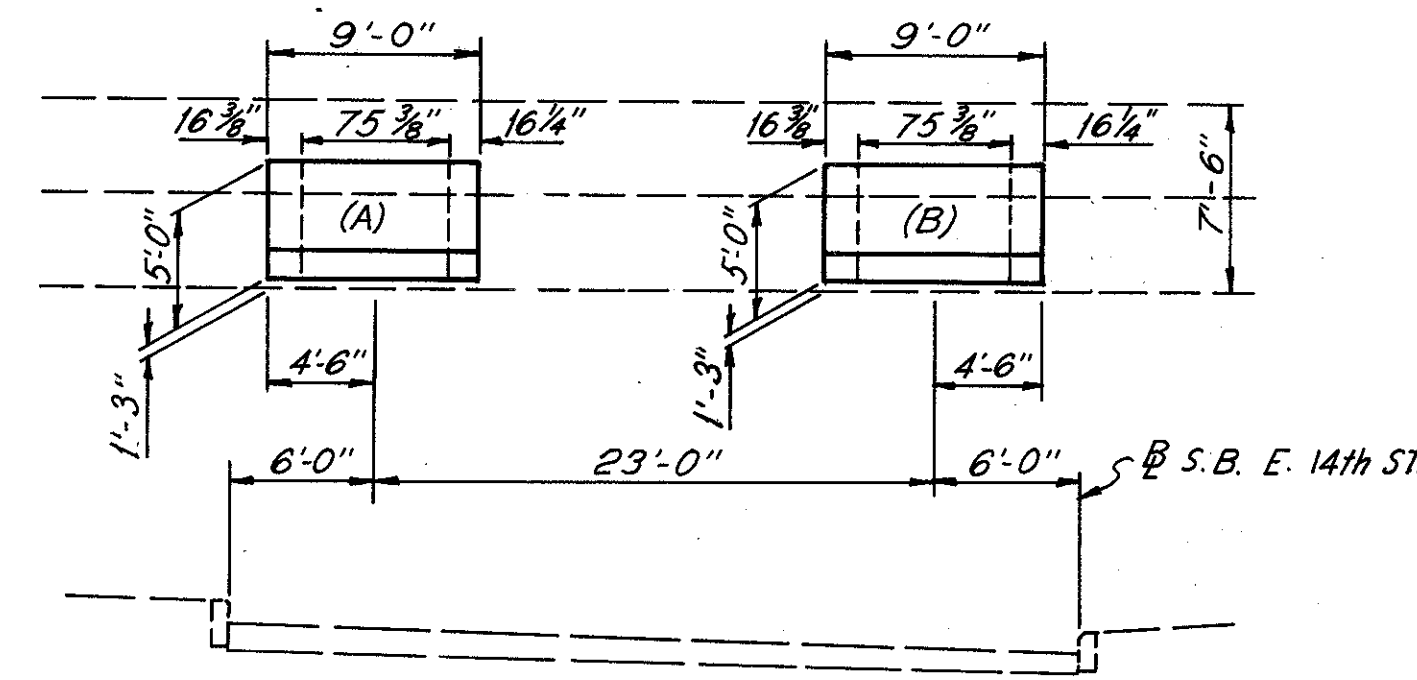
| FHWA REGION | STATE | PROJECT |
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| 5 | OHIO | |

84
169

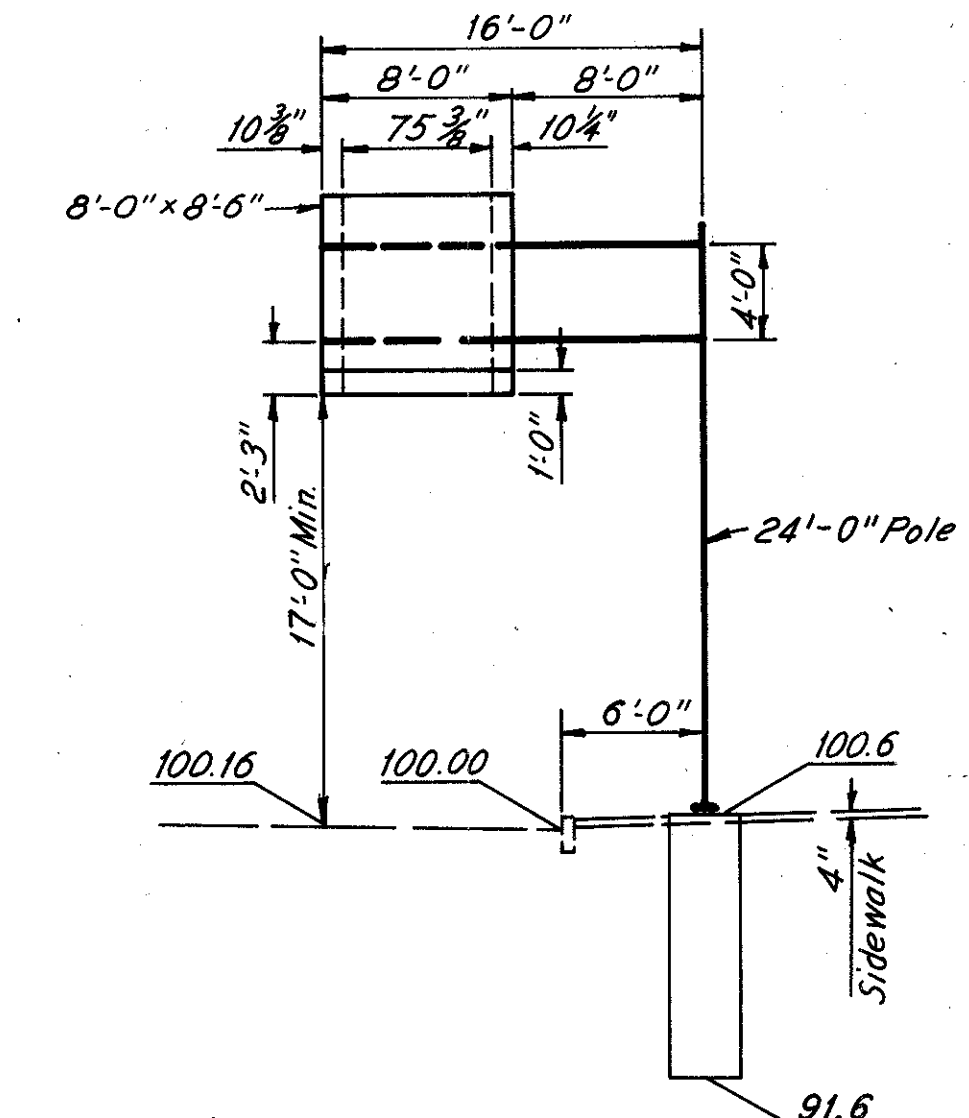
CUYAHOGA COUNTY
CUY - 77-14.12
CUY - 90-16.21



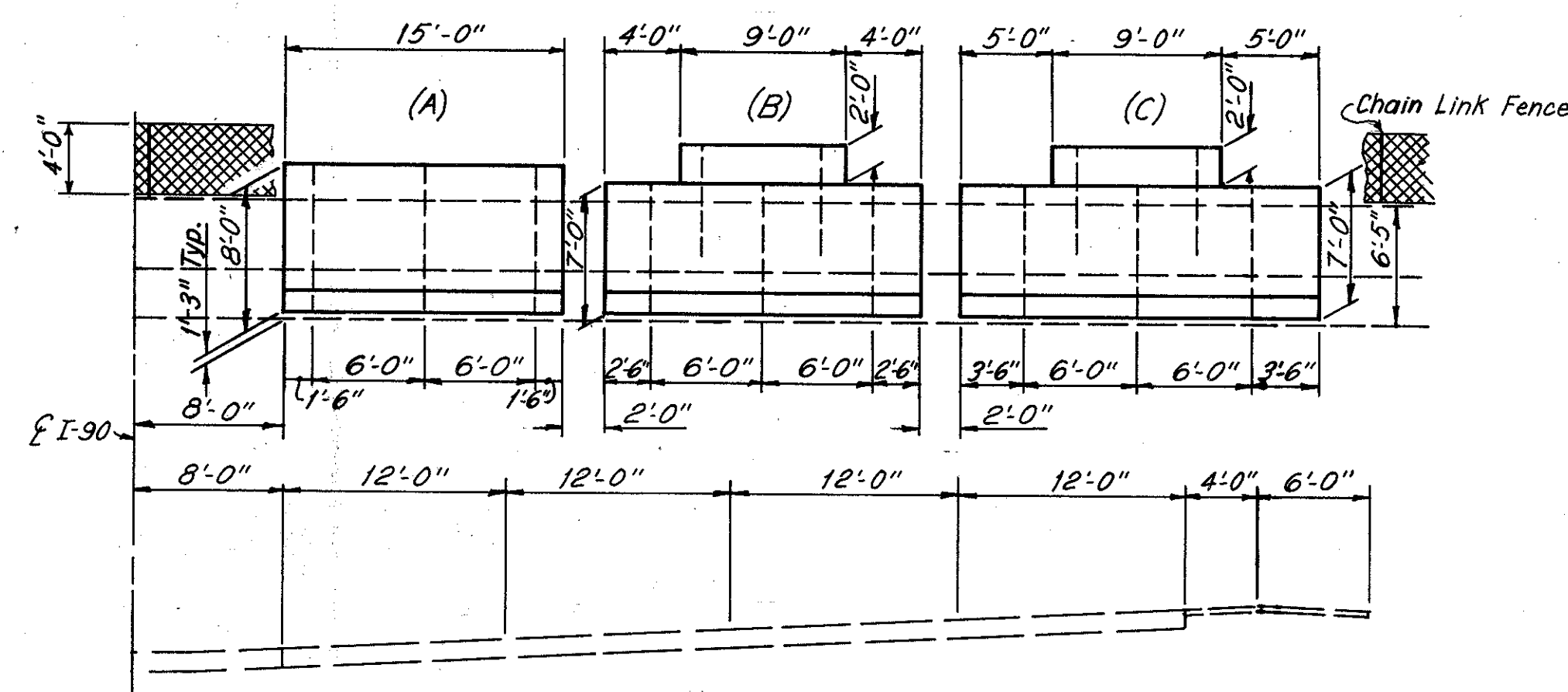
SIGN NO. 21
Sta. 0+90 B Ramp E-13
Std. TC-12.30, Design 2 Mod.
14'-0" Arm



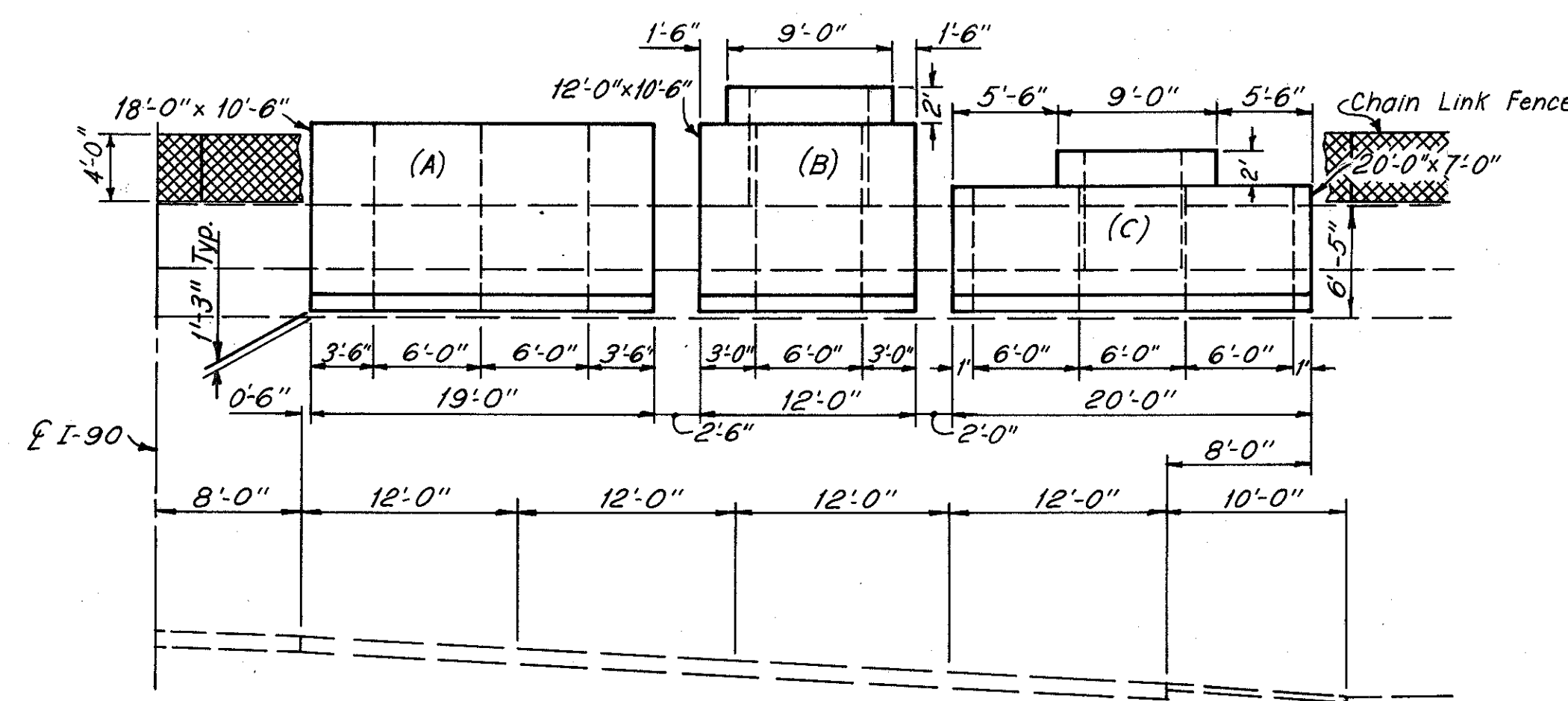
SIGN NO. 22
Sta. 5+15 S.B. E. 14th St.
(2)-TC-18.24



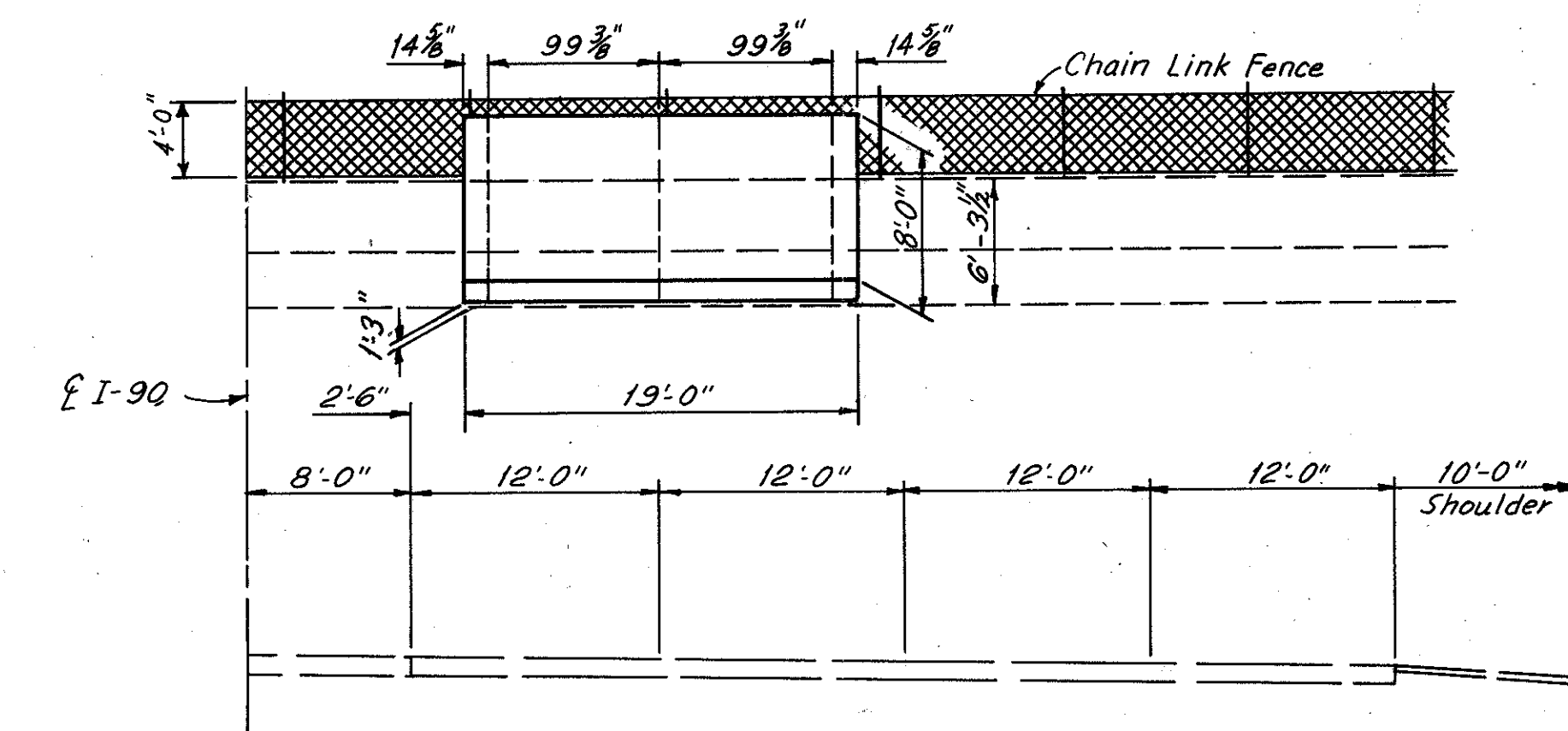
SIGN NO. 23
Sta. 3+00 Prospect Ave. E.B.
Std. TC-12.30, Design 2 Mod.
16'-0" Arm



SIGN NO. 24
Sta. 118+95 E.B. I-90
(3)-TC-18.26, Design 3



SIGN NO. 25
Sta. 119+85 W.B. I-90
(A) - TC-18.26, Design 3
(B) - TC-18.26, Design 2
(C) - TC-18.26, Design 4



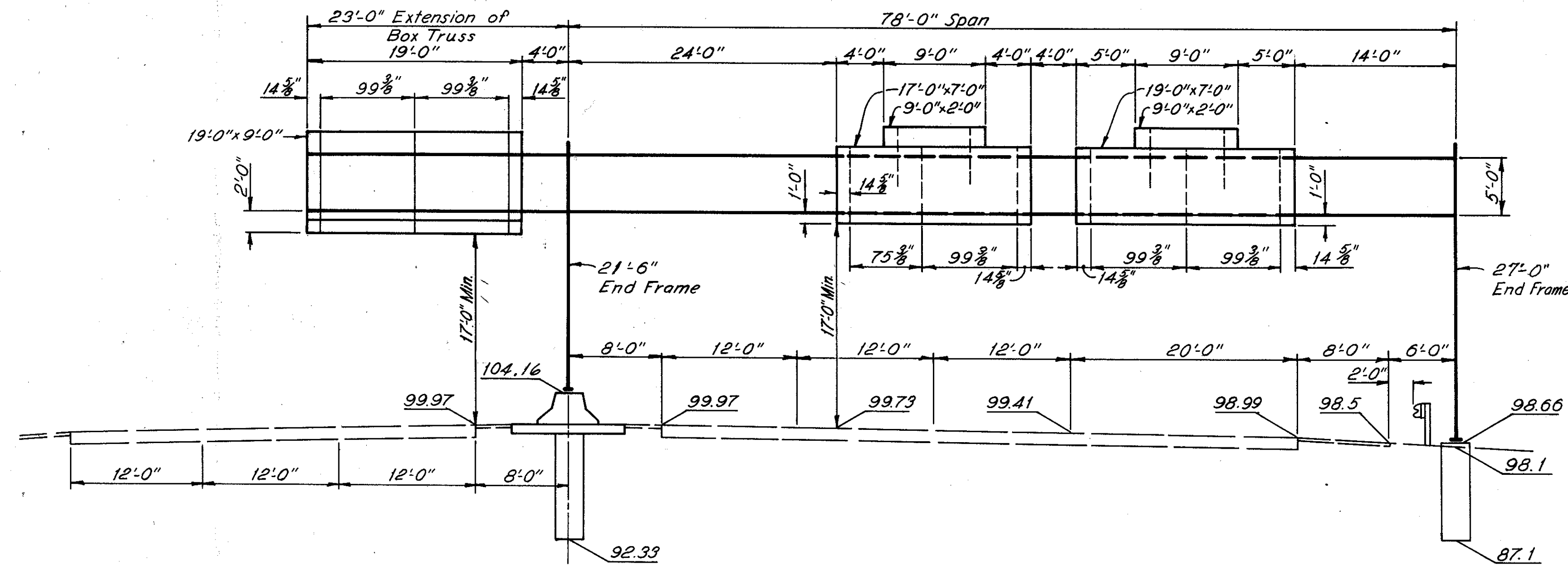
SIGN NO. 26
Sta. 127+15 W.B. I-90
TC-18.24

SIGN SUPPORT DETAILS

| FHWA REGION | STATE | PROJECT |
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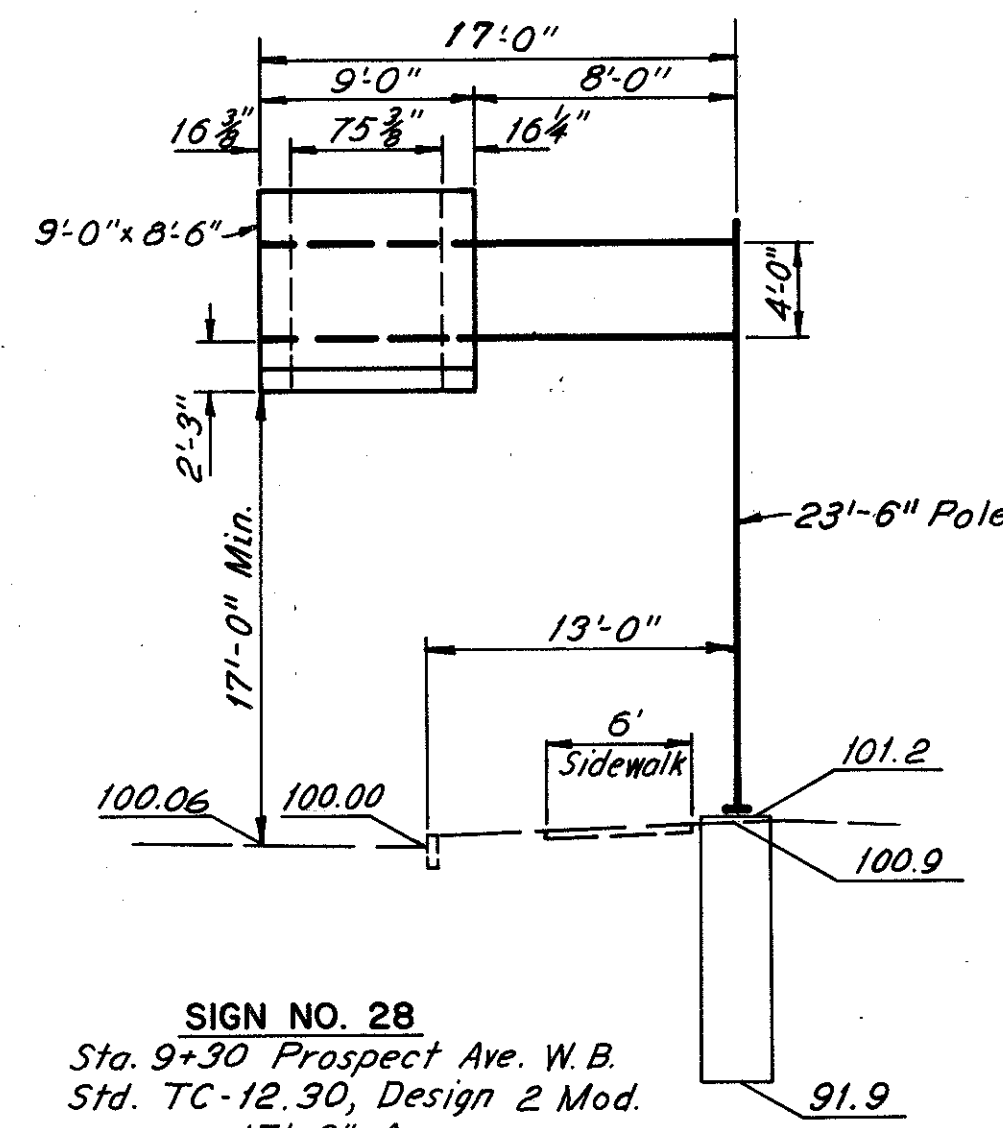
85
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21

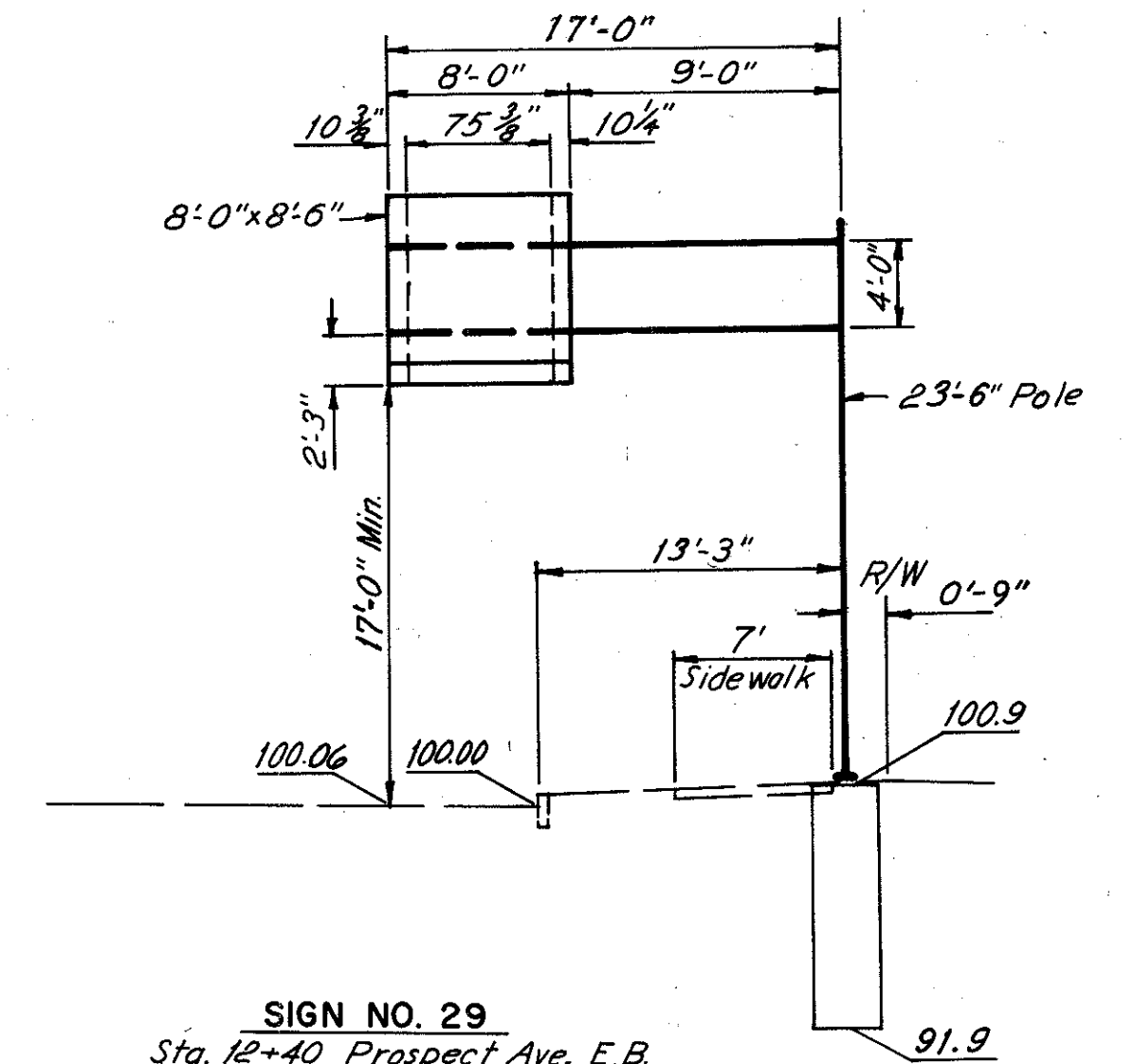


SIGN NO. 27
Sta. 133+25 W.B. I-90
TC-765, Design 8 Mod, As Per Plan
78'-0" Span

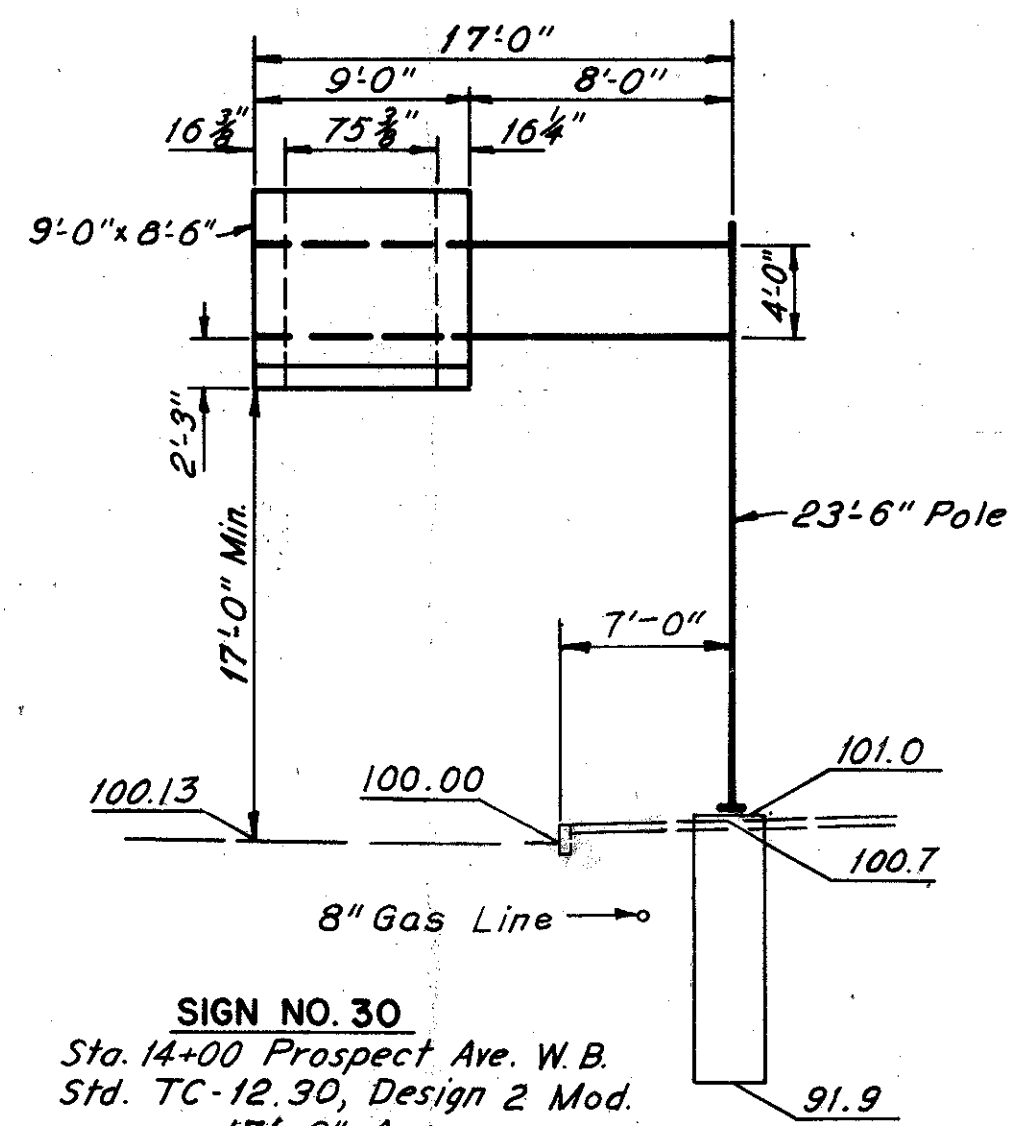
See Sheet 44A for Median
Foundation Detail.



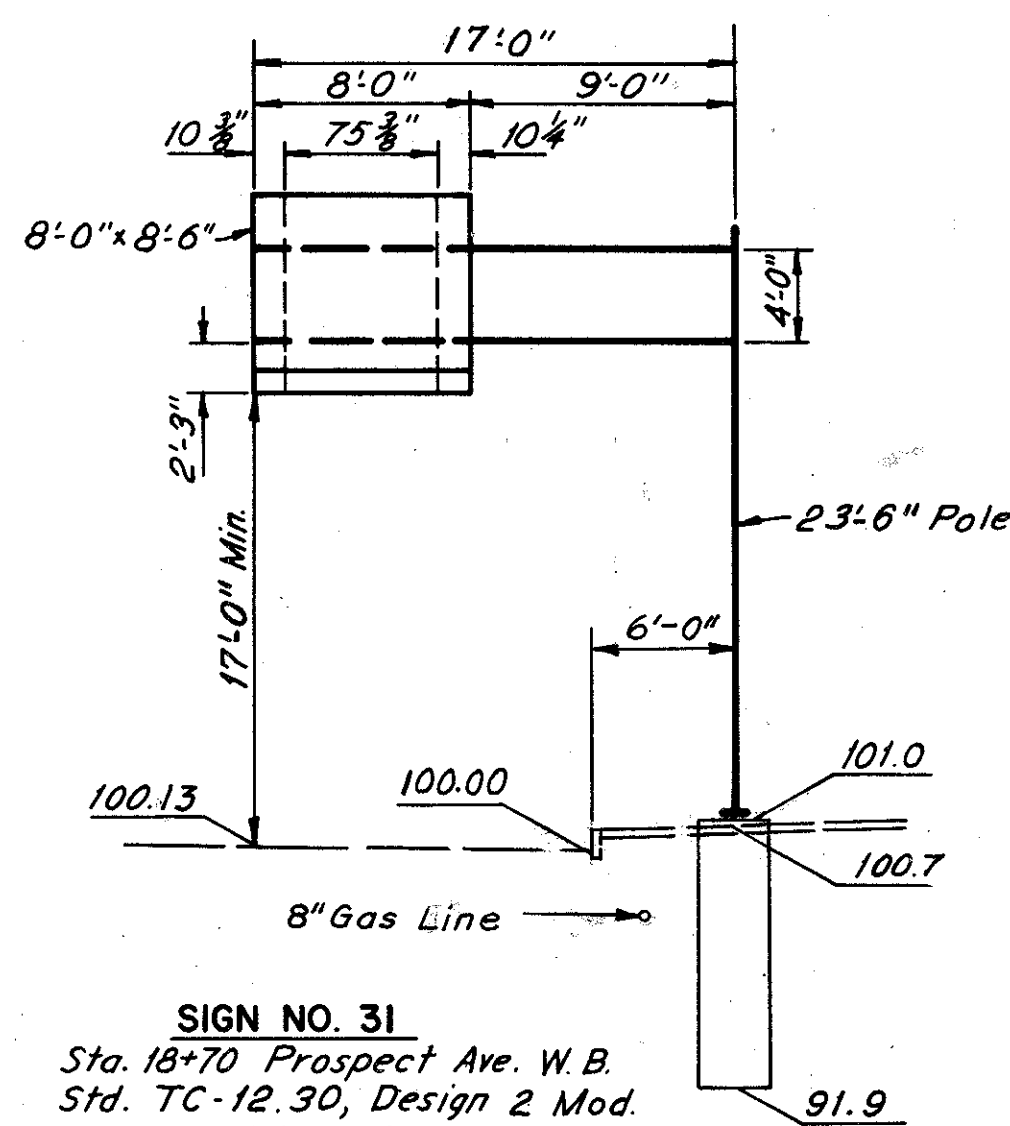
SIGN NO. 28
Sta. 9+30 Prospect Ave. W.B.
Std. TC-12.30, Design 2 Mod.
17'-0" Arm



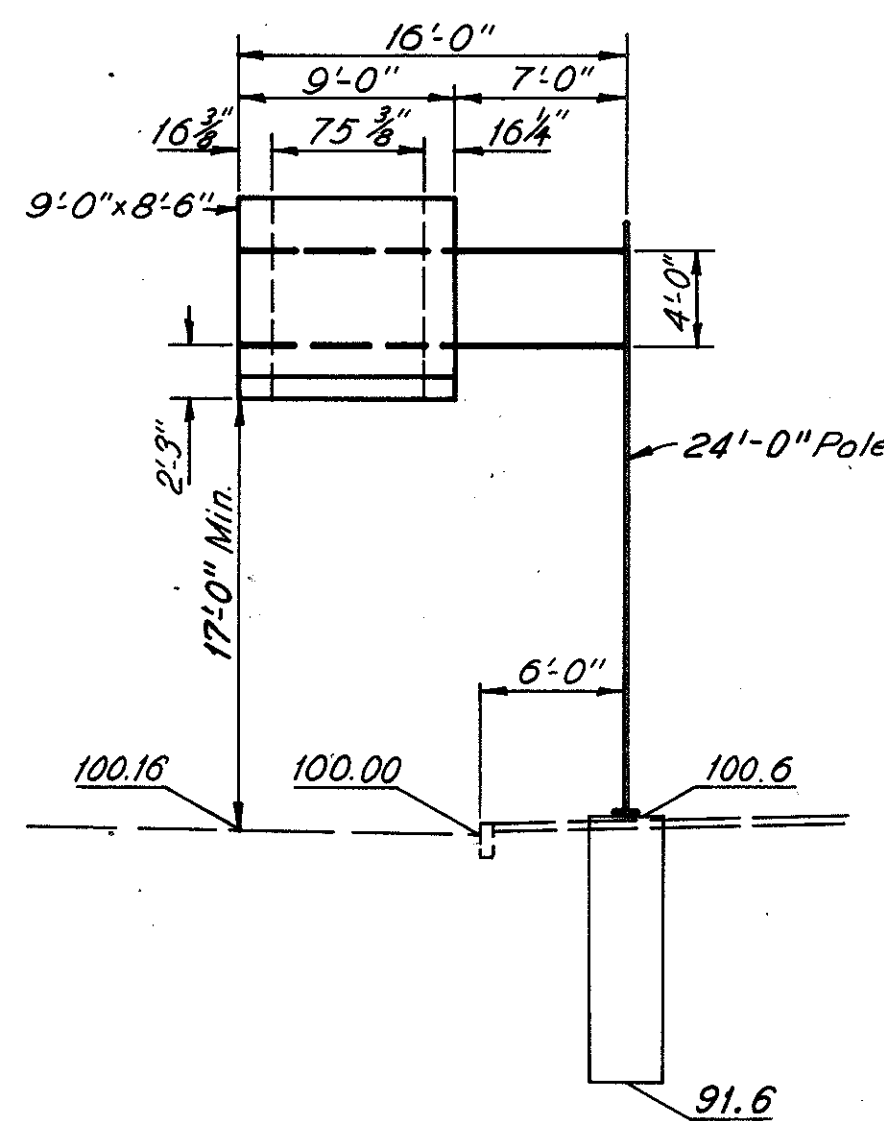
SIGN NO. 29
Sta. 12+40 Prospect Ave. E.B.
Std. TC-12.30, Design 2 Mod.
17'-0" Arm



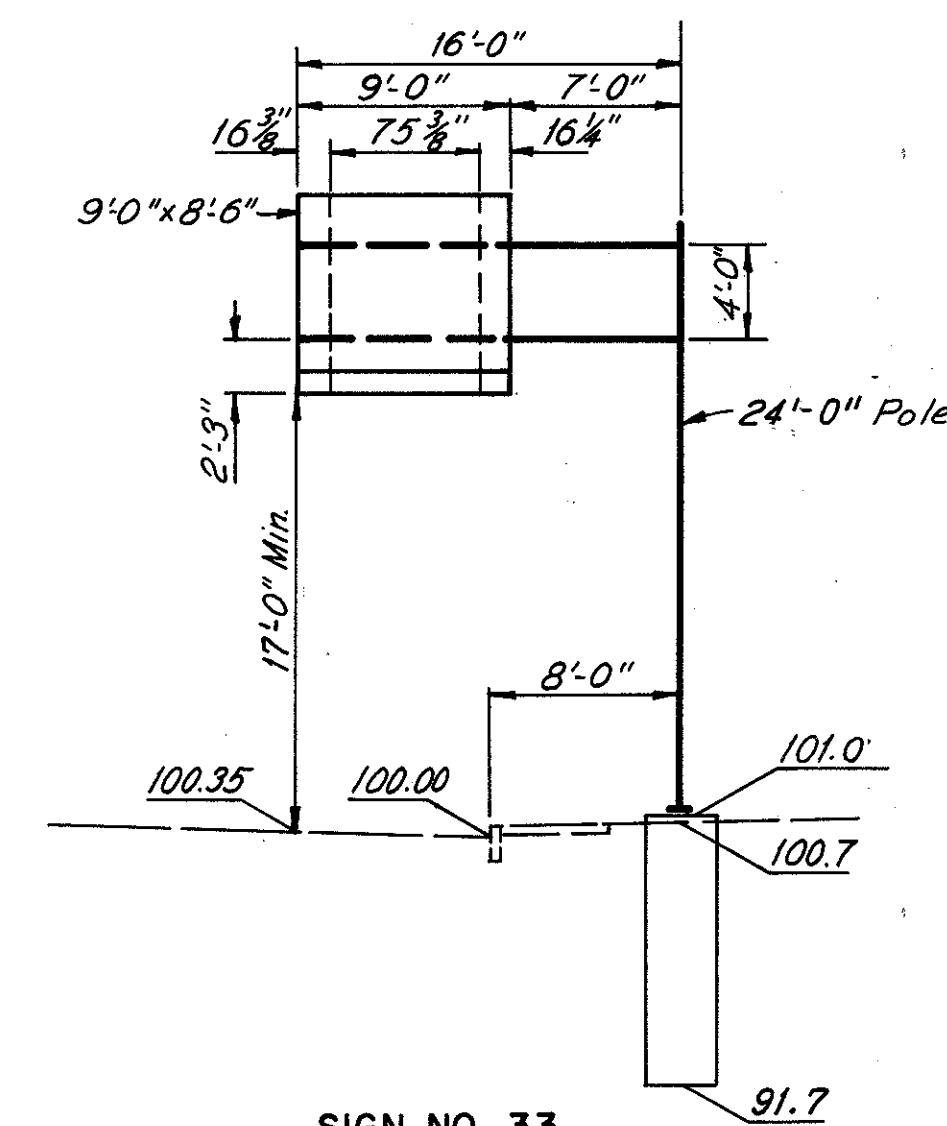
SIGN NO. 30
Sta. 14+00 Prospect Ave. W.B.
Std. TC-12.30, Design 2 Mod.
17'-0" Arm



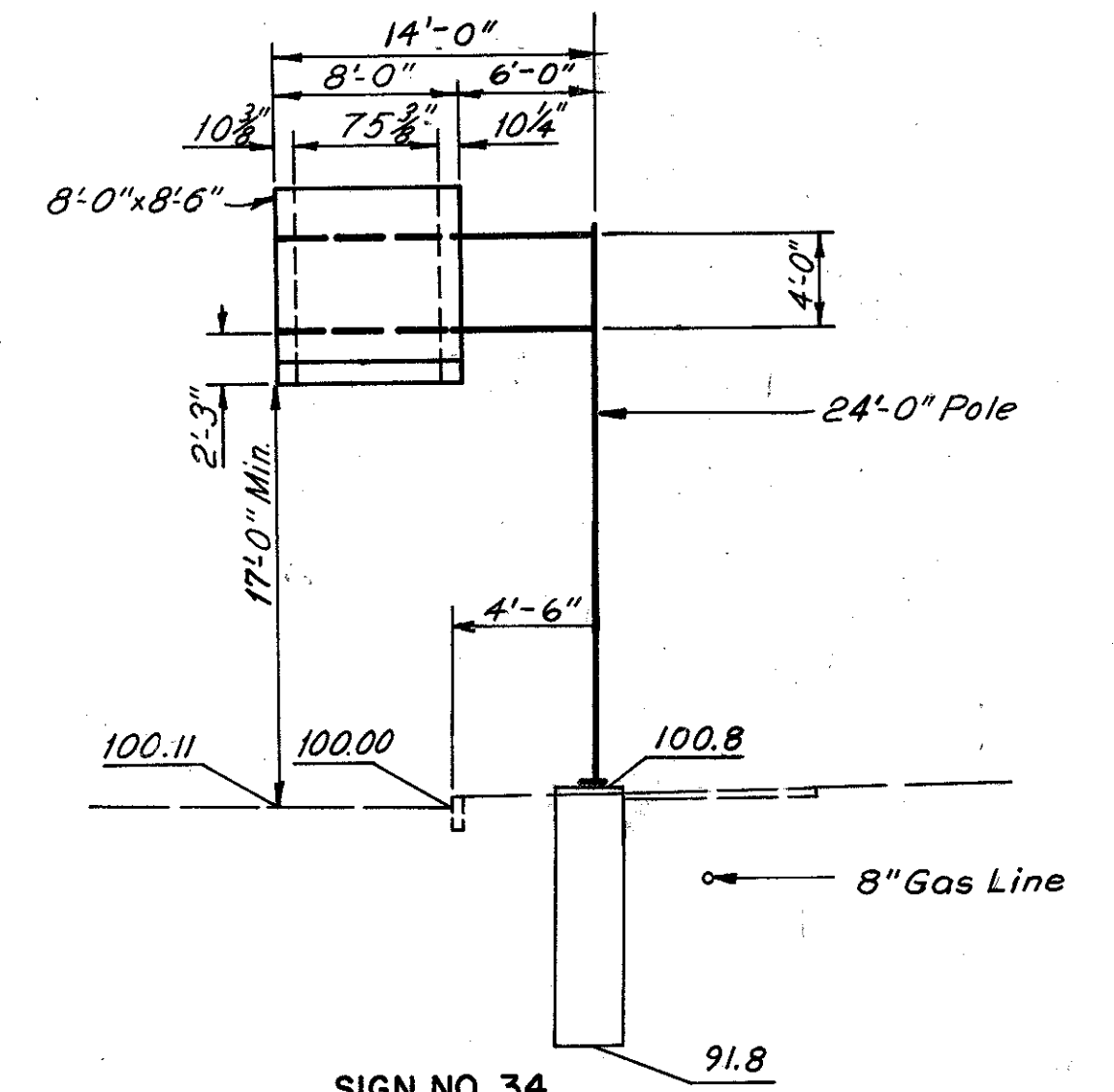
SIGN NO. 31
Sta. 18+70 Prospect Ave. W.B.
Std. TC-12.30, Design 2 Mod.
17'-0" Arm



SIGN NO. 32
Sta. 0-4+00 Chester Ave. E.B.
Std. TC-12.30, Design 2 Mod.
16'-0" Arm



SIGN NO. 33
Sta. 0+45 Chester Ave. W.B.
Std. TC-12.30, Design 2 Mod.
16'-0" Arm



SIGN NO. 34
Sta. 1+00 Chester Ave. E.B.
Std. TC-12.30, Design 2 Mod.
17'-0" Arm

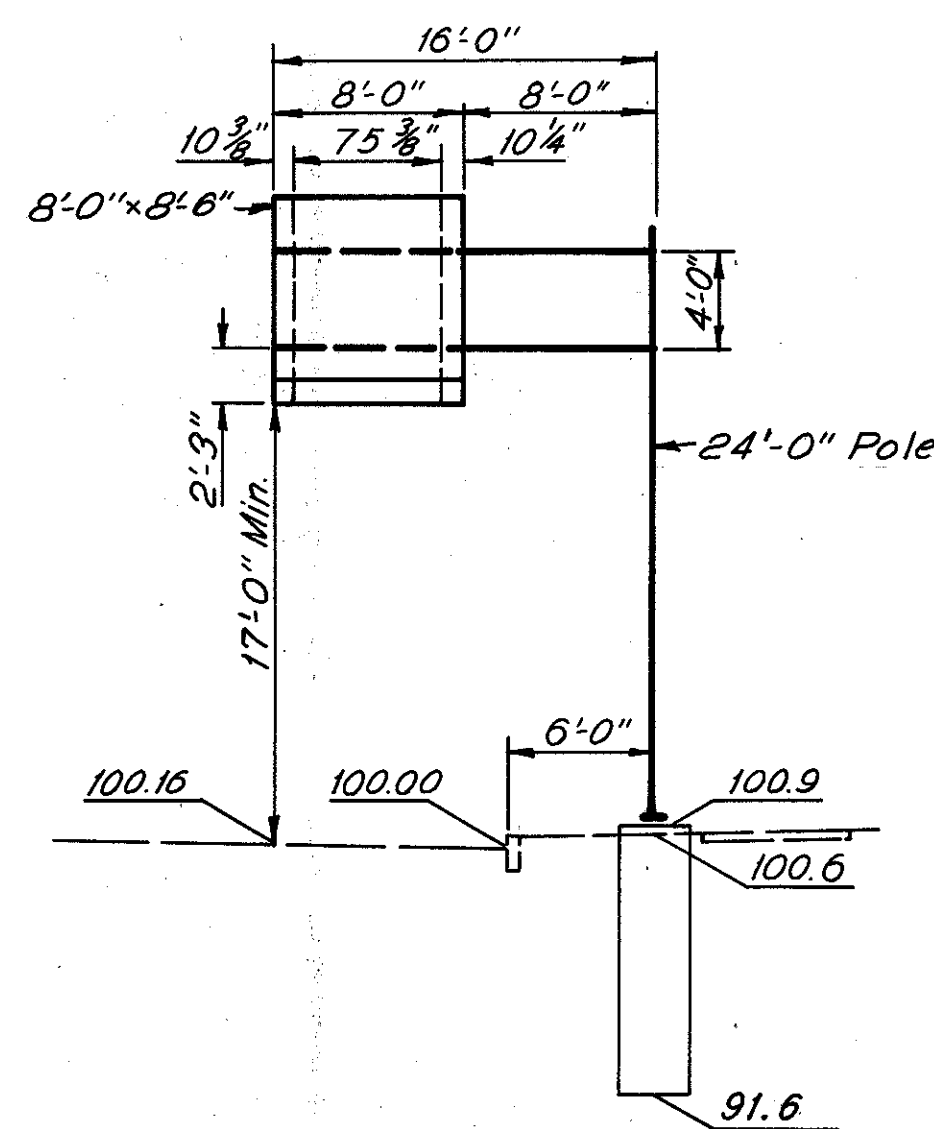
Contractor Note: Before installation of foundation, the location of Ohio Bell Telephone Company conduit in this area should be obtained.

SIGN SUPPORT DETAILS

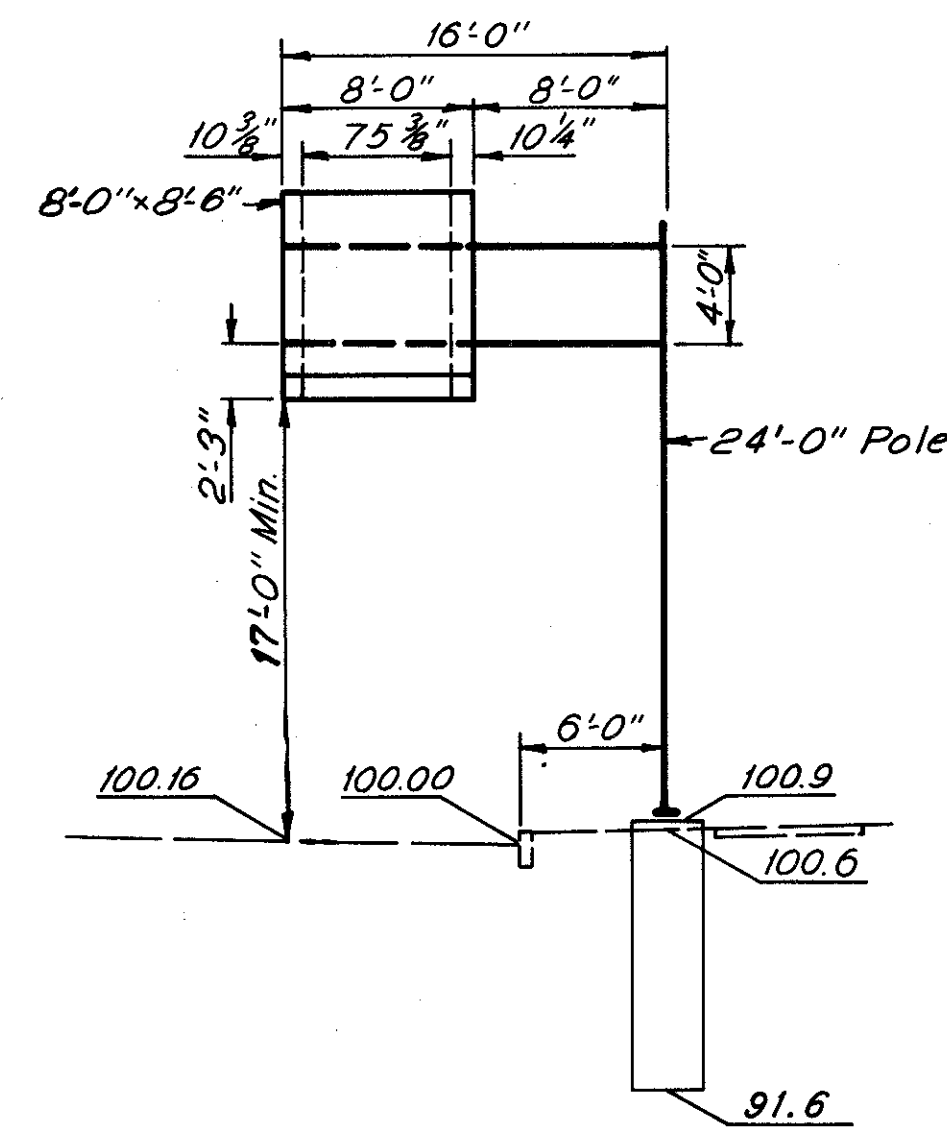
| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

86
169

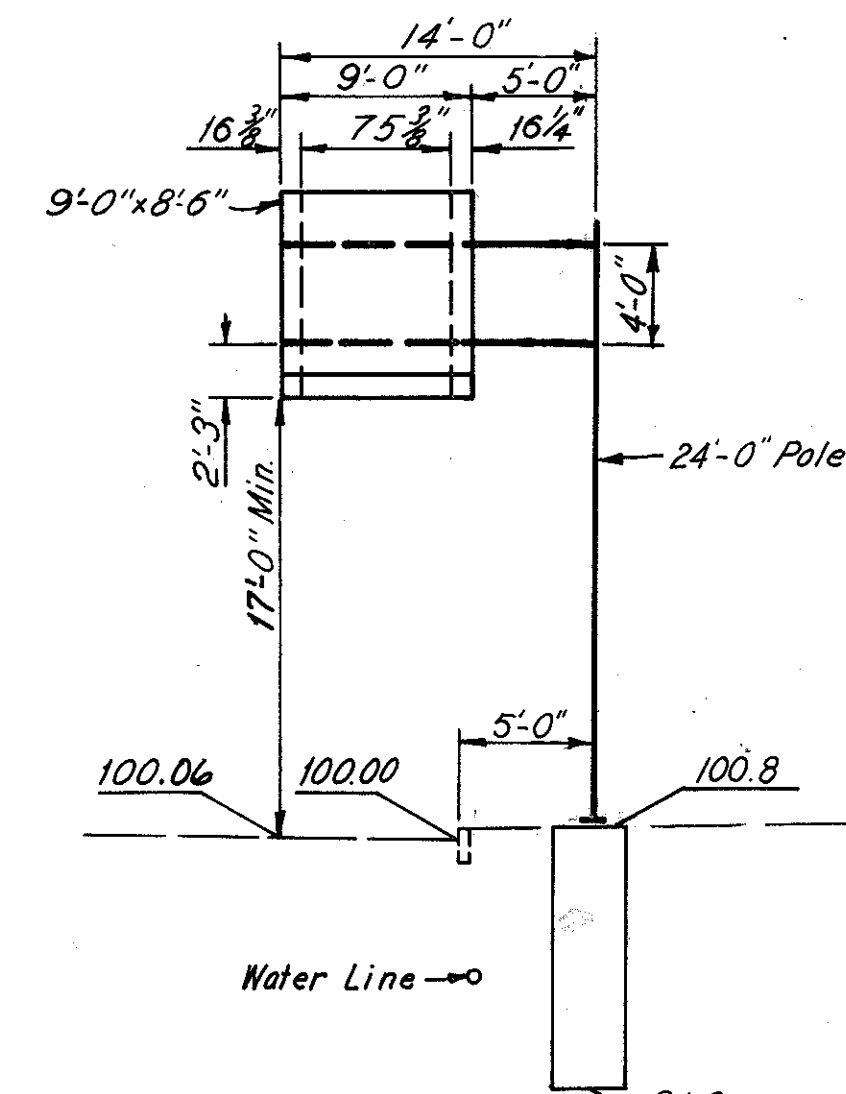
CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



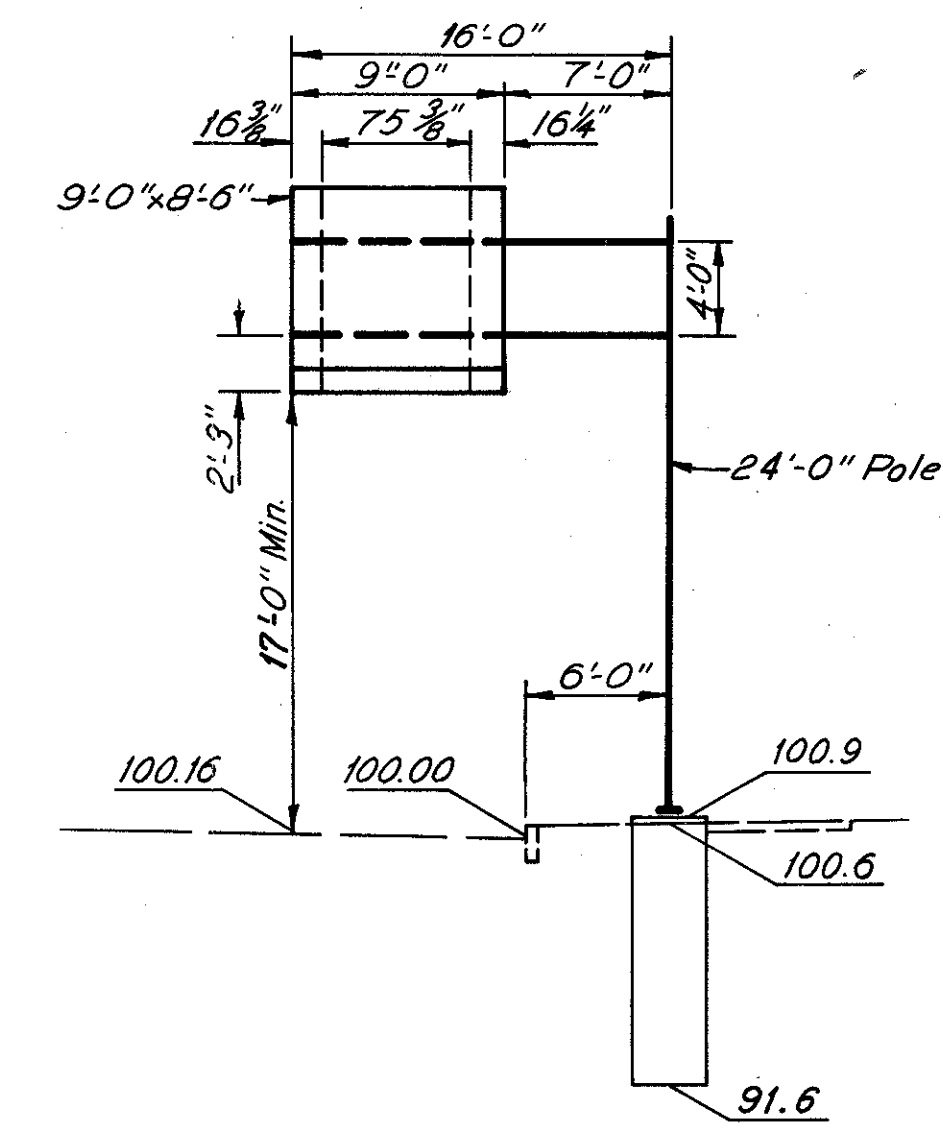
SIGN NO. 35
Sta. 8+10 Chester Ave. W.B.
Std. TC-12.30 Design 2 Mod.
16'-0" Arm



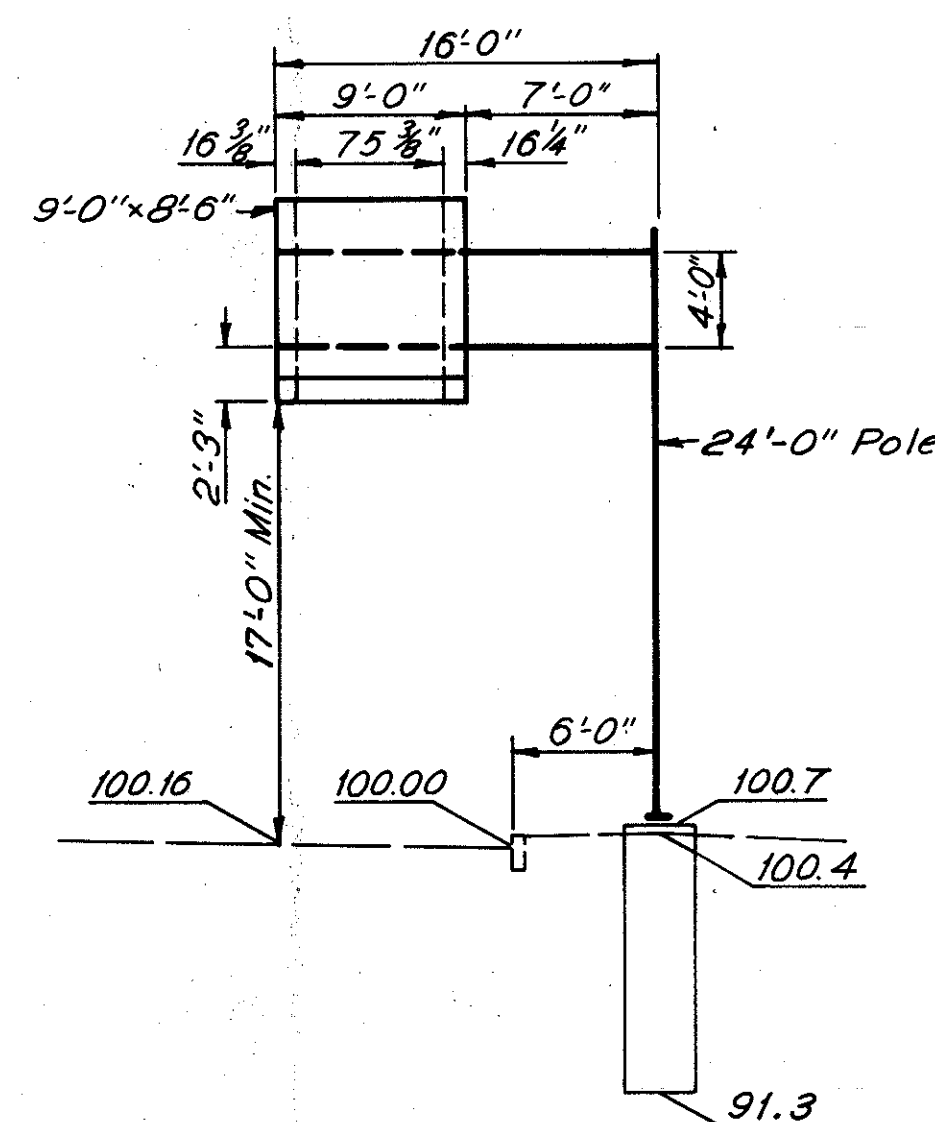
SIGN NO. 36
Sta. 9+70 Chester Ave. E.B.
Std. TC-12.30 Design 2 Mod.
16'-0" Arm



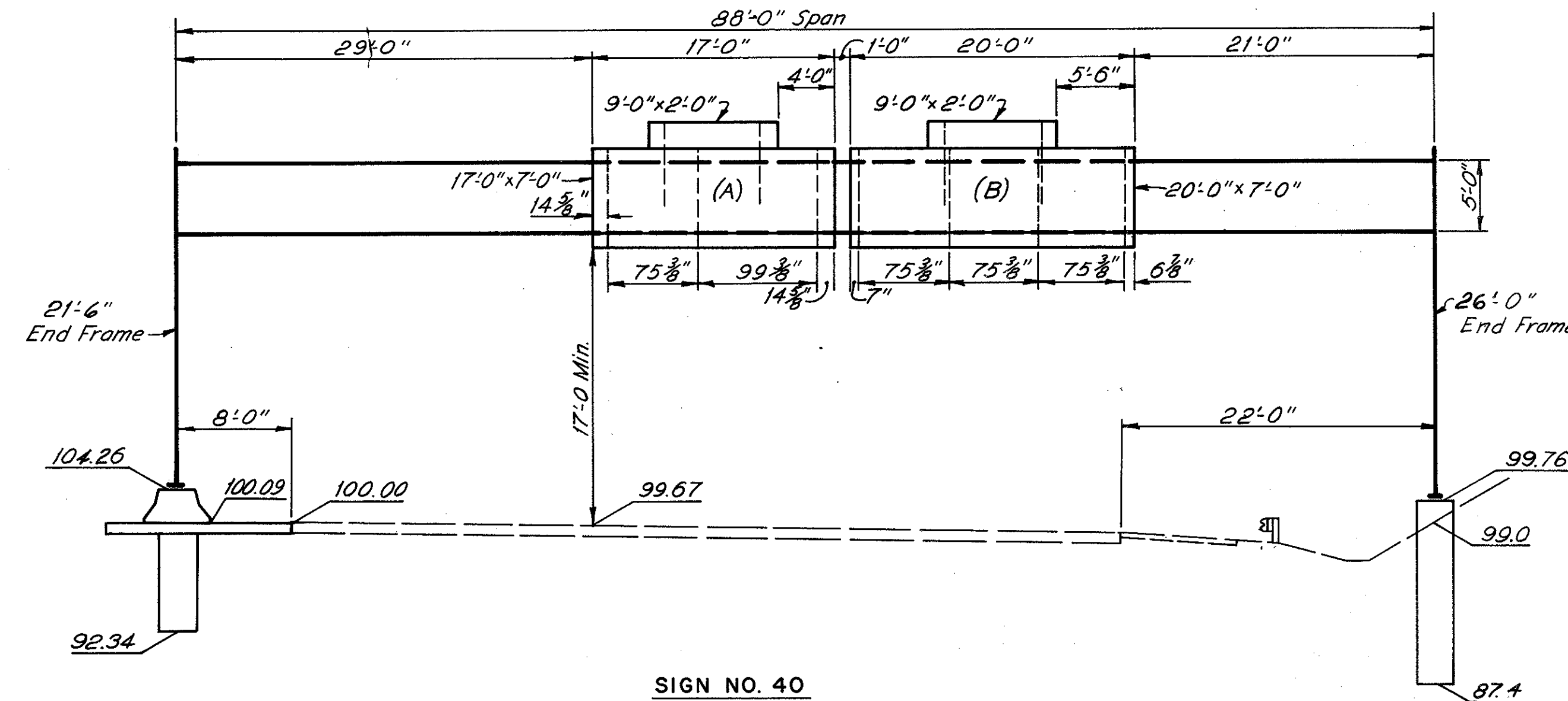
SIGN NO. 37
Sta. 14+00 Chester Ave. W.B.
Std. TC-12.30 Design 2 Mod.
14'-0" Arm



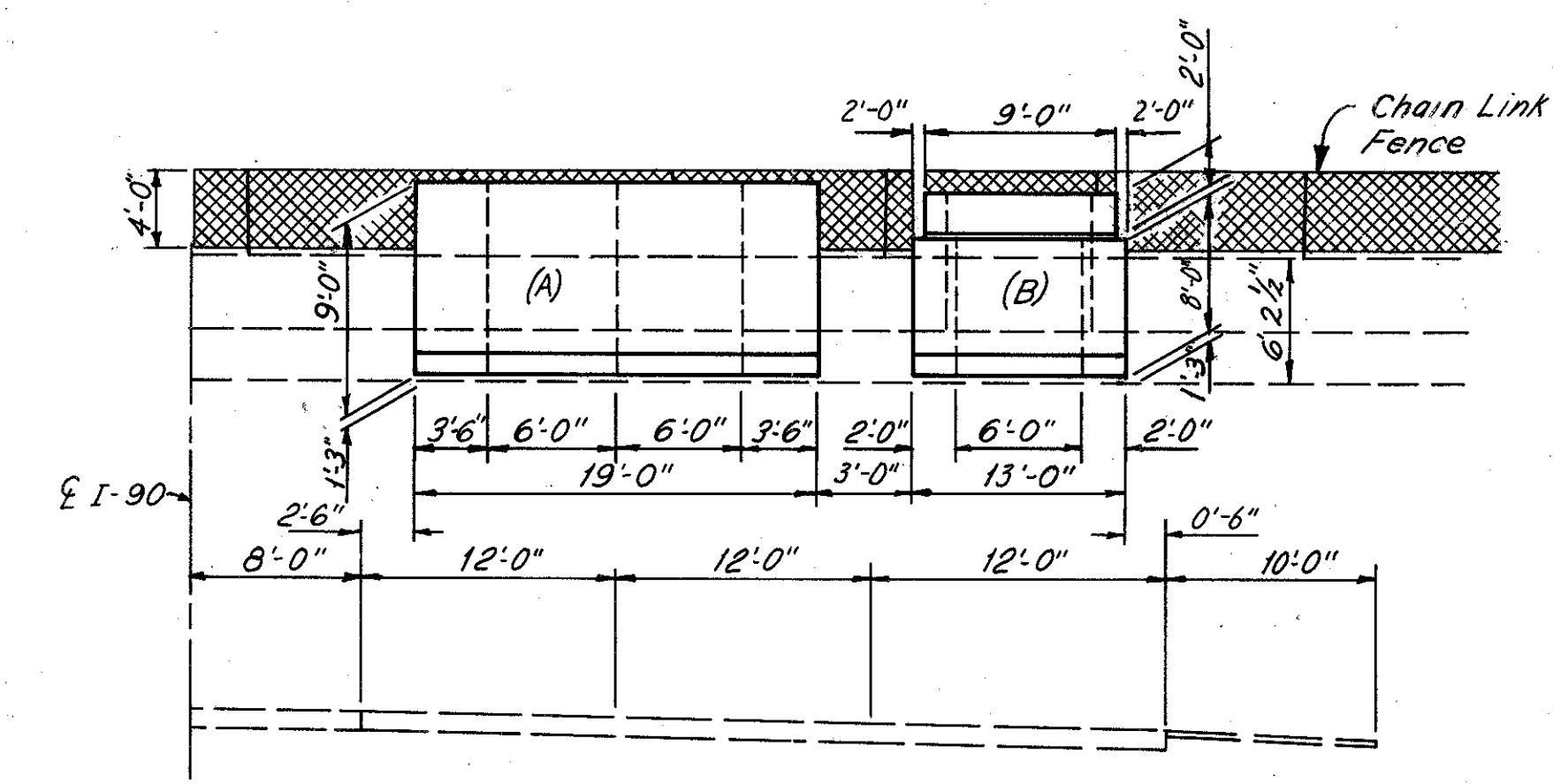
SIGN NO. 38
Sta. 9+00 Chester Connection
Std. TC-12.30, Design 2 Mod.
16'-0" Arm



SIGN NO. 39
Sta. 2+25 E. 24th St.
Std. TC-12.30, Design 2 Mod.
16'-0" Arm



SIGN NO. 40
Sta. 141+20 I-90 E.B.
Std. TC-7.65, Design 8 Mod.
88'-0" Span
See Sheet 44A for median foundation detail.



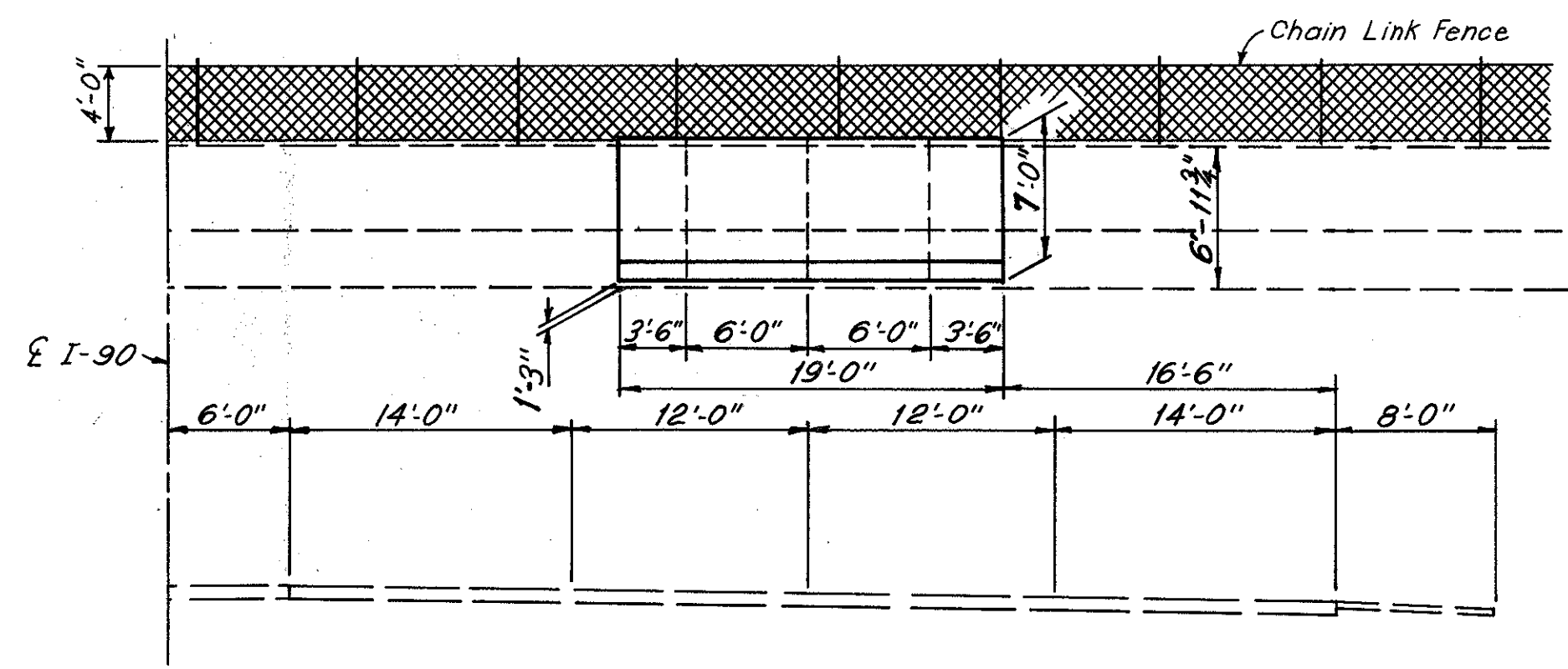
SIGN NO. 41
Sta. 148+20 W.B. I-90
(A)-TC-18.26, Design 2
(B)-TC-18.26, Design 3

SIGN SUPPORT DETAILS

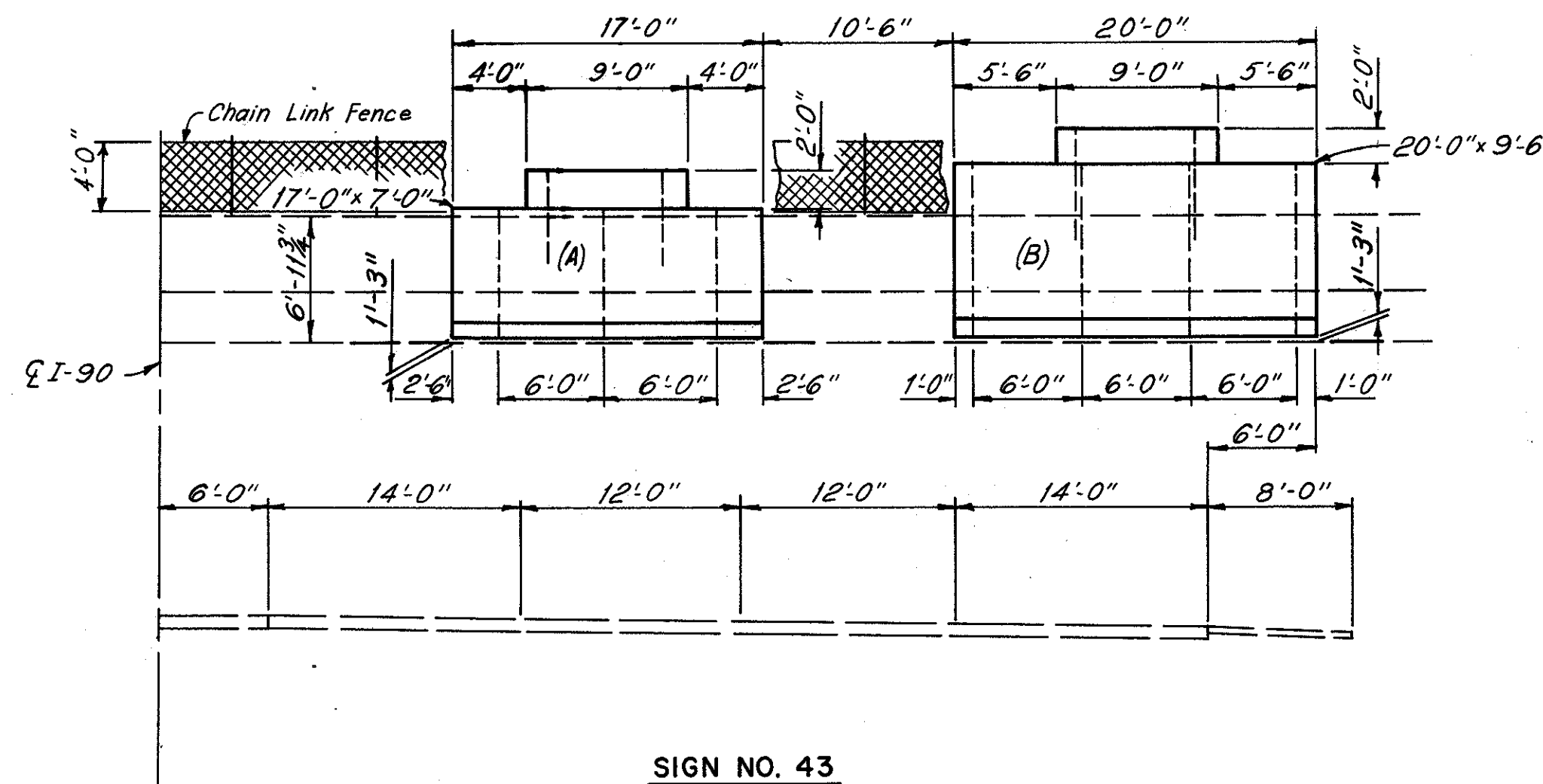
| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

87
169

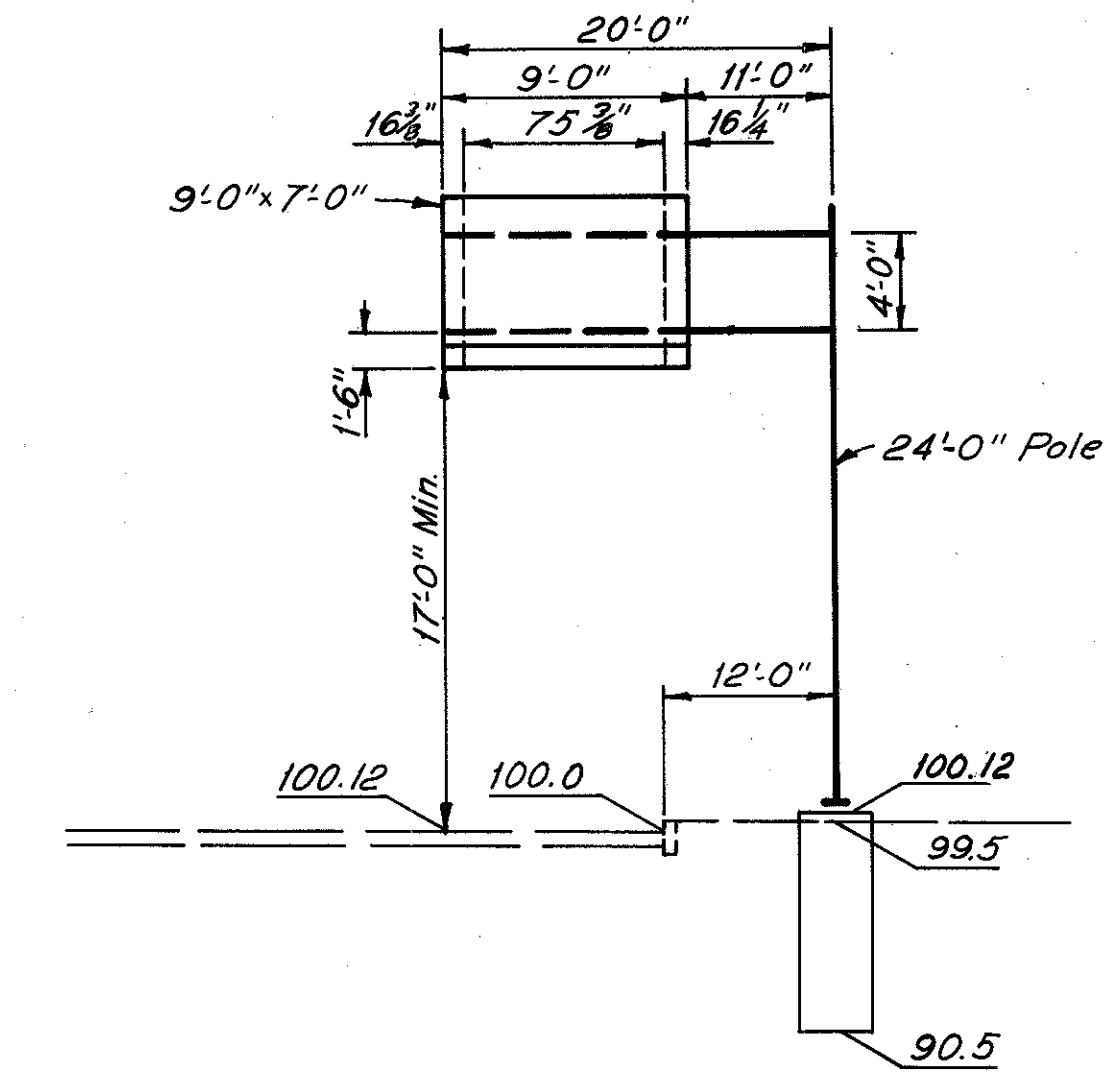
CUYAHOGA COUNTY
CUY - 77-14.12
CUY - 90-16.21



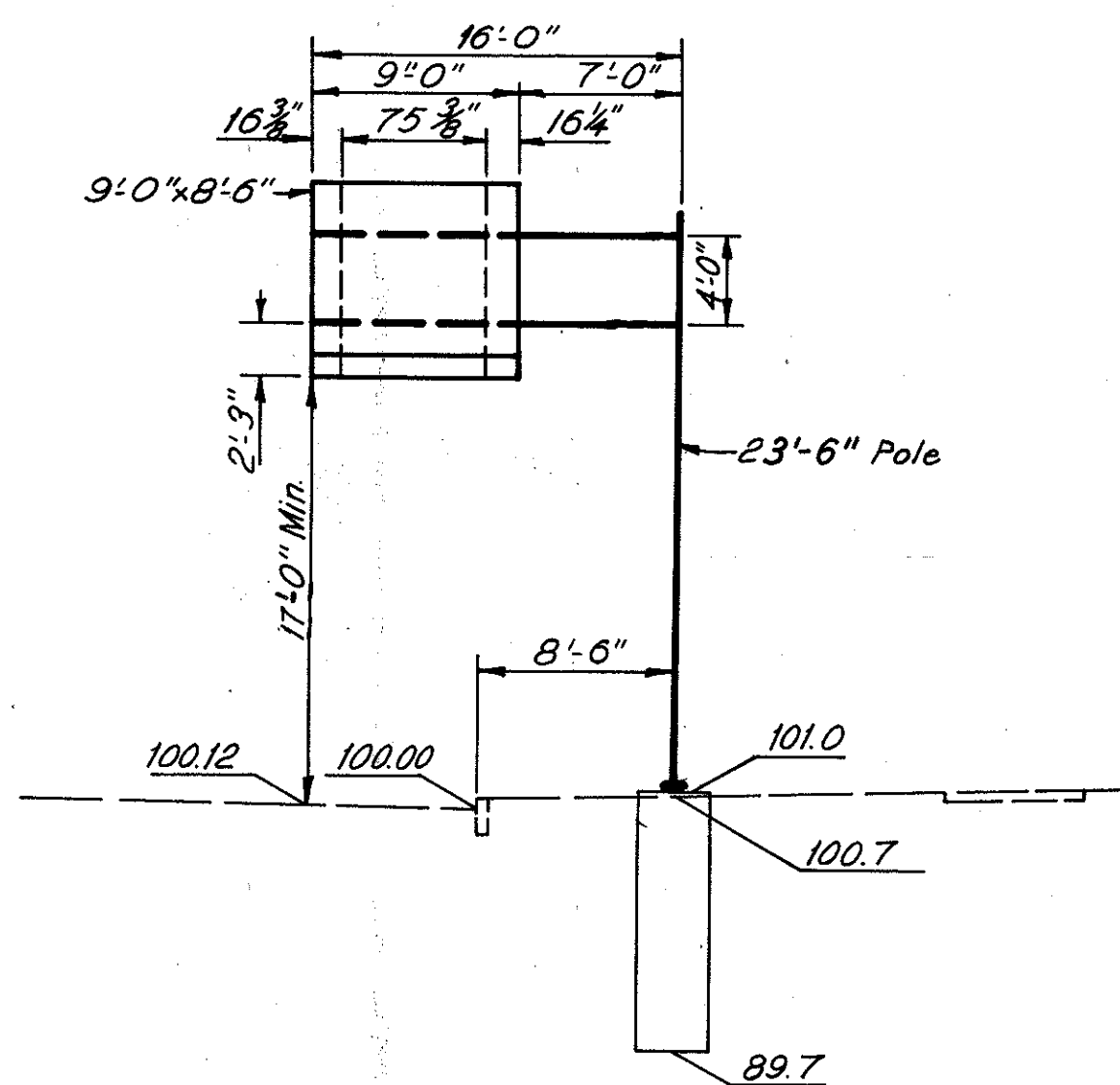
SIGN NO. 42
Sta. 156+40 E.B. I-90
TC-18.26, Design 3



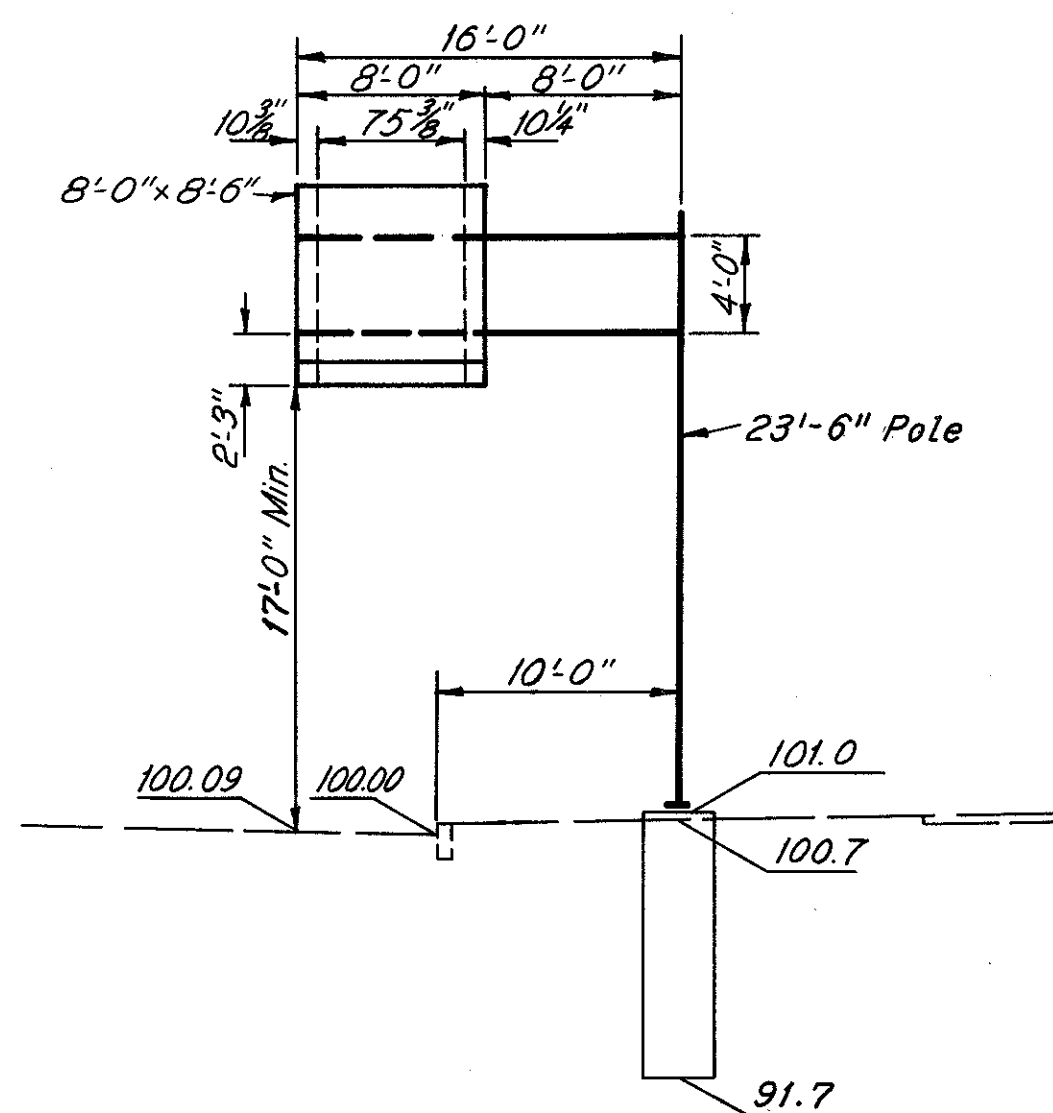
SIGN NO. 43
Sta. 157+20 W.B. I-90
(A) TC-18.26 Design 3
(B) TC-18.26 Design 4



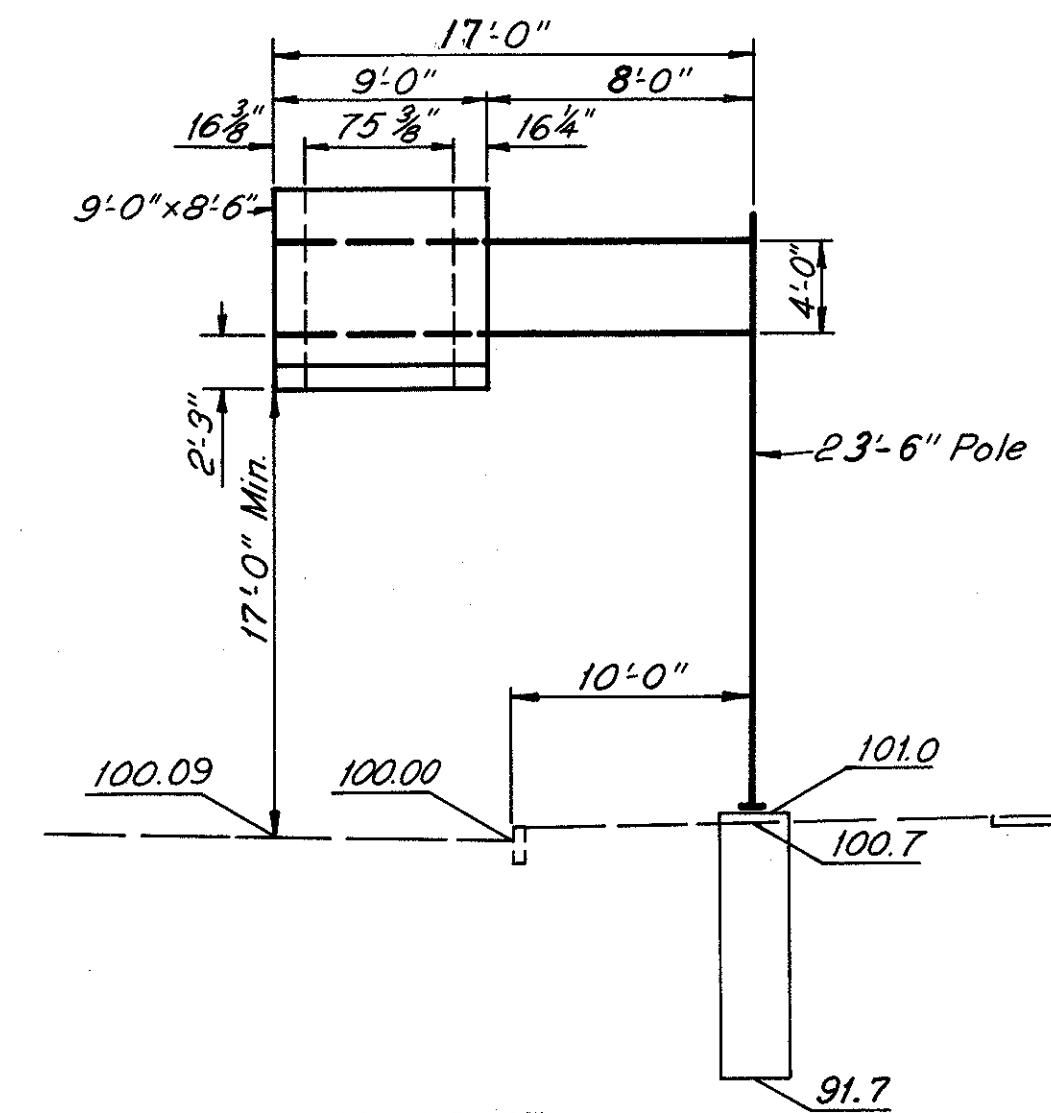
SIGN NO. 44
Sta. 10+00 Ramp 16
TC-12.30 Design 2 Mod.
20'-0" Arm



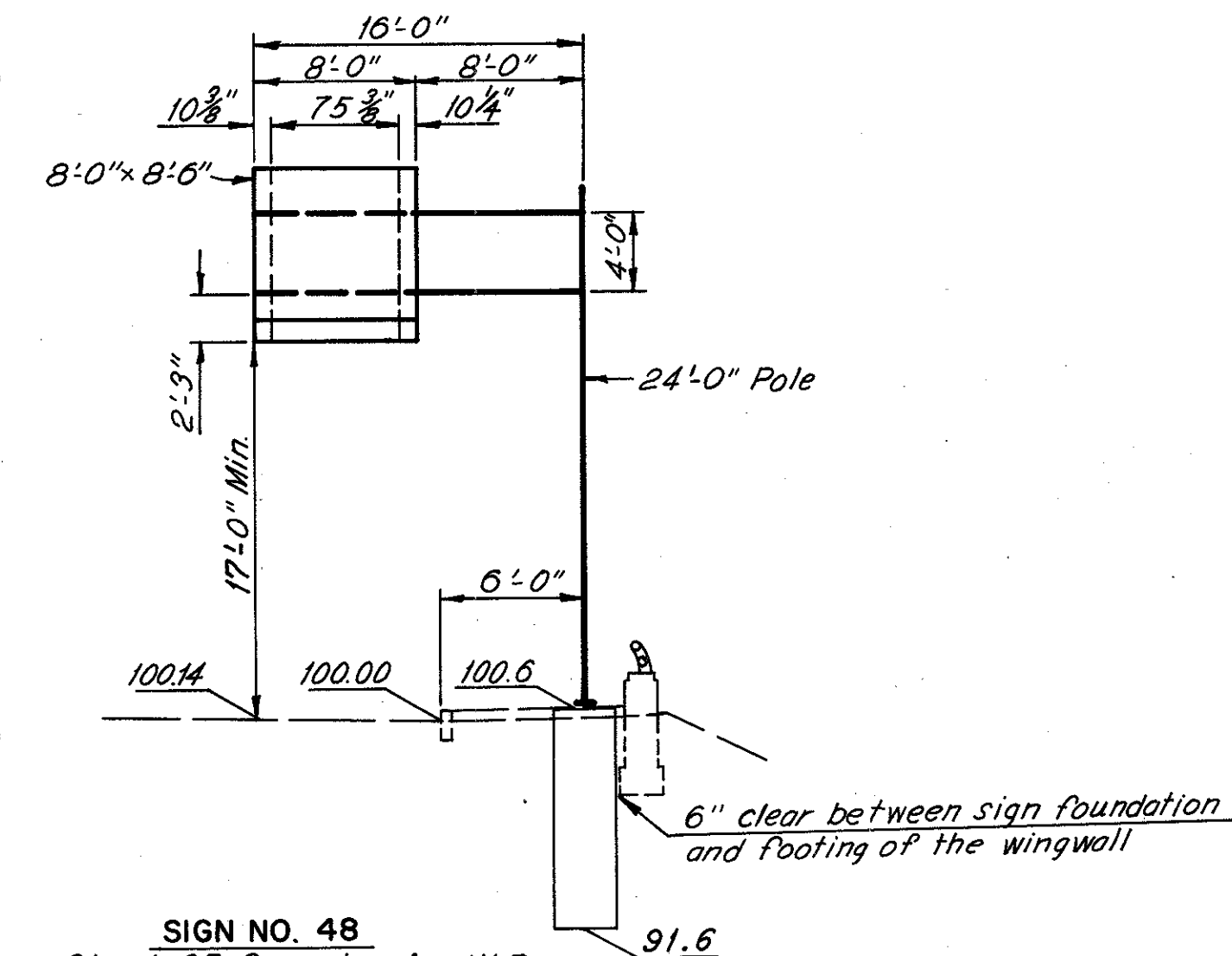
SIGN NO. 45
Sta. 0+5+00 Superior Ave. E.B.
Std. TC-12.30, Design 2 Mod.
16'-0" Arm



SIGN NO. 46
Sta. 0+2+50 Superior Ave. E.B.
Std. TC-12.30, Design 2 Mod.
16'-0" Arm



SIGN NO. 47
Sta. 0+40 Superior Ave. E.B.
Std. TC-12.30, Design 2 Mod.
17'-0" Arm



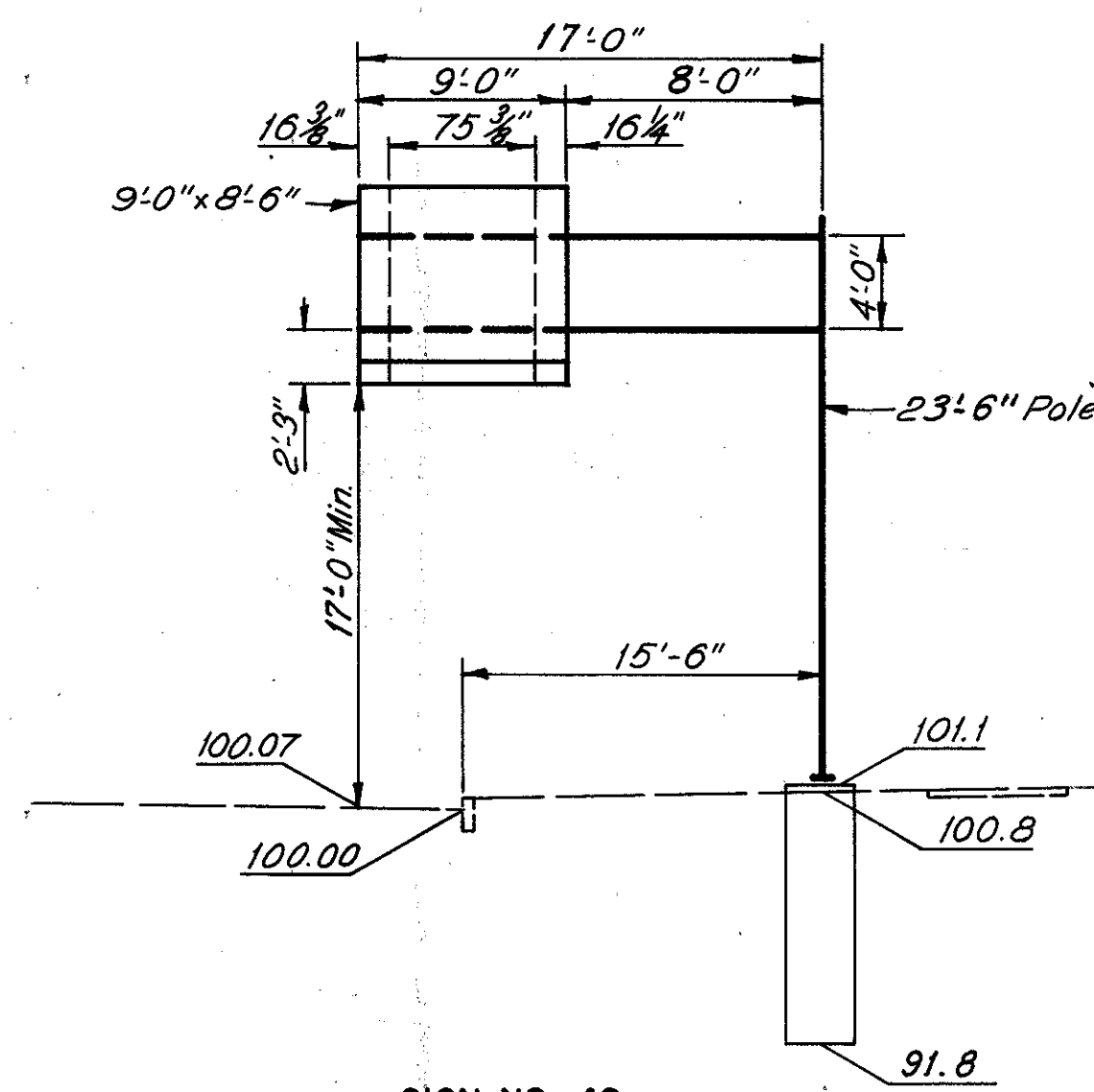
SIGN NO. 48
Sta. 4+05 Superior Ave. W.B.
Std. TC-12.30, Design 2 Mod.
16'-0" Arm

SIGN SUPPORT DETAILS

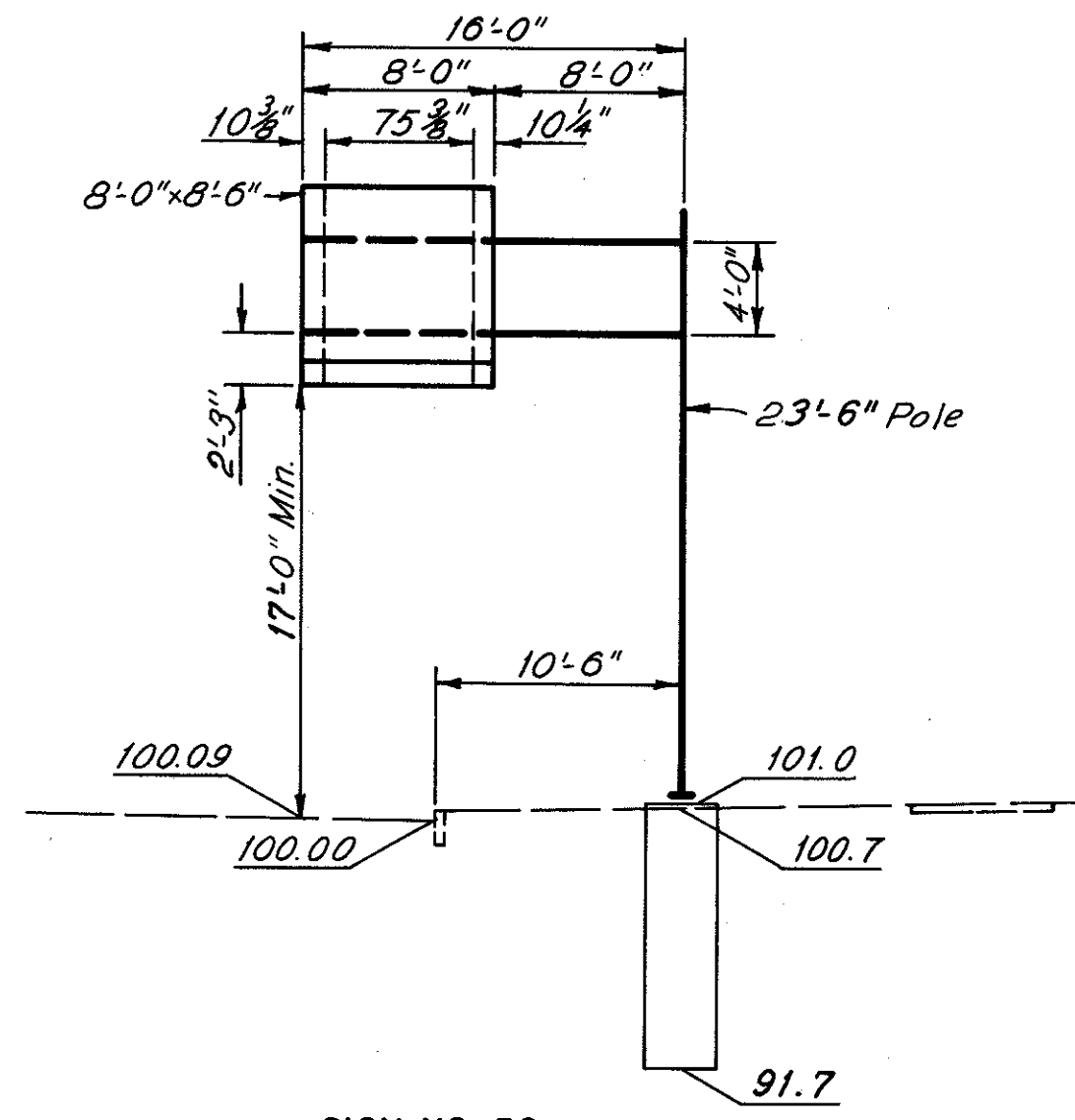
| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

88
169

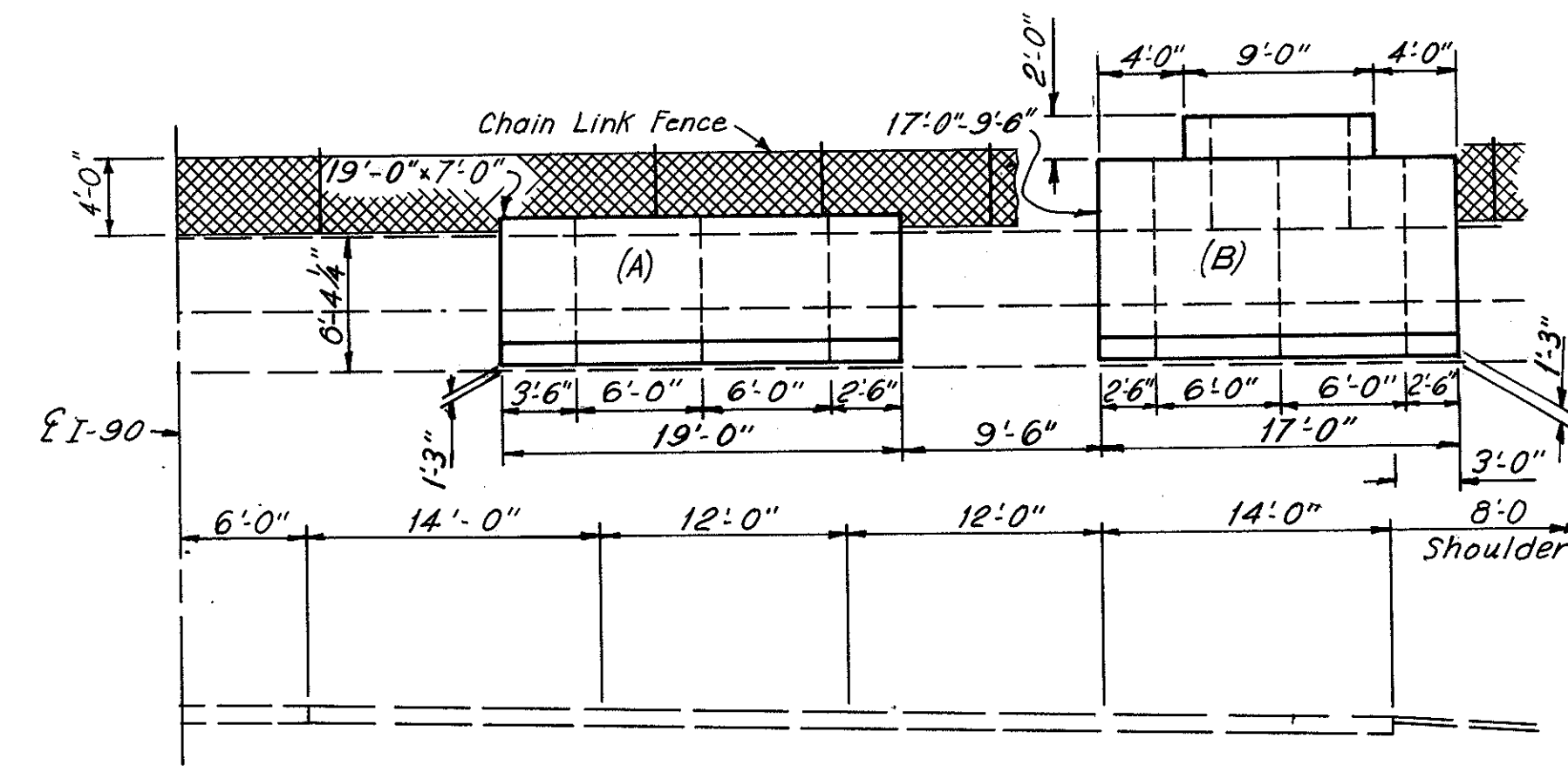
CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



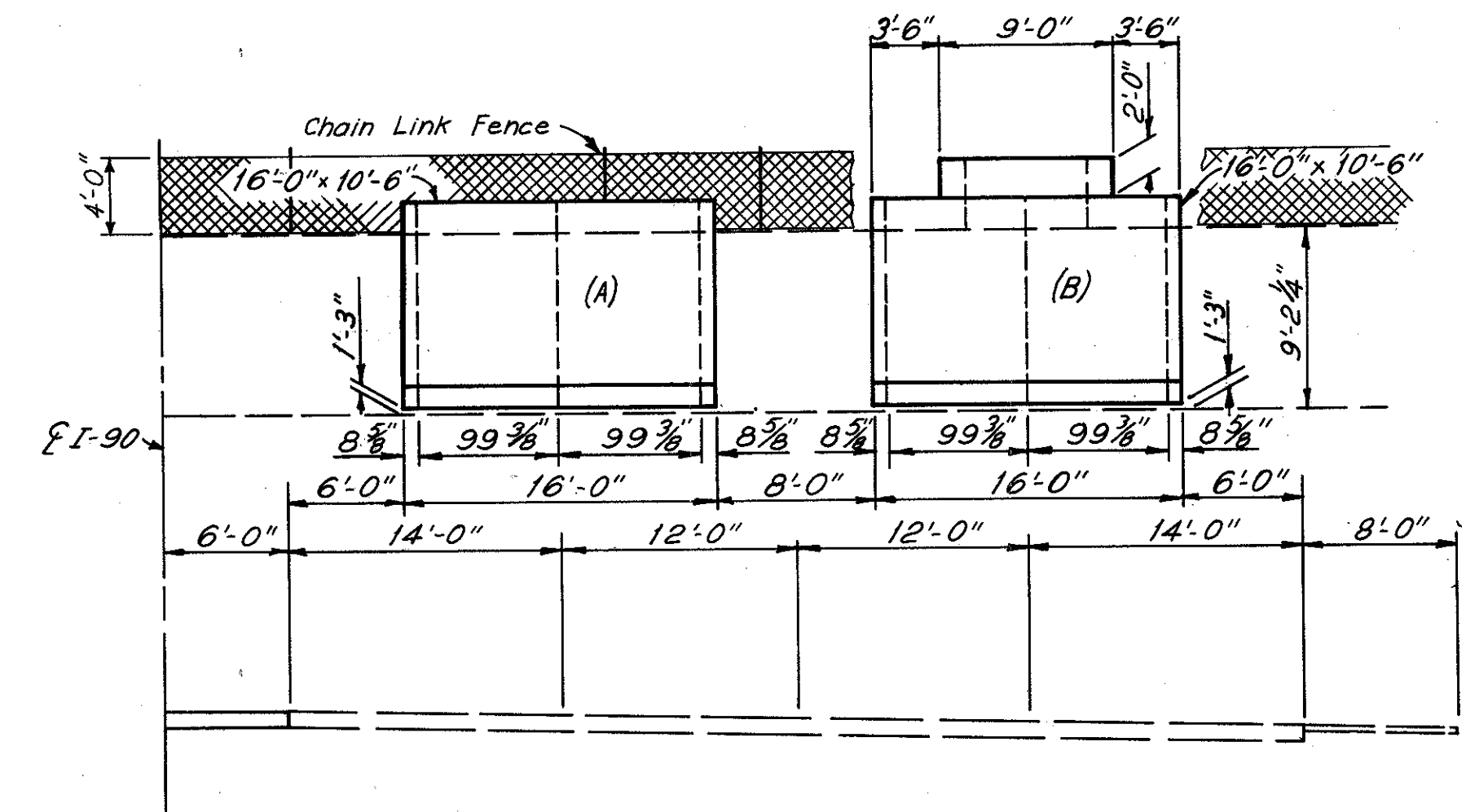
SIGN NO. 49
Sta. 6+50 Superior Ave. W.B.
Std. TC-12.30, Design 2 Mod.
17'-0" Arm



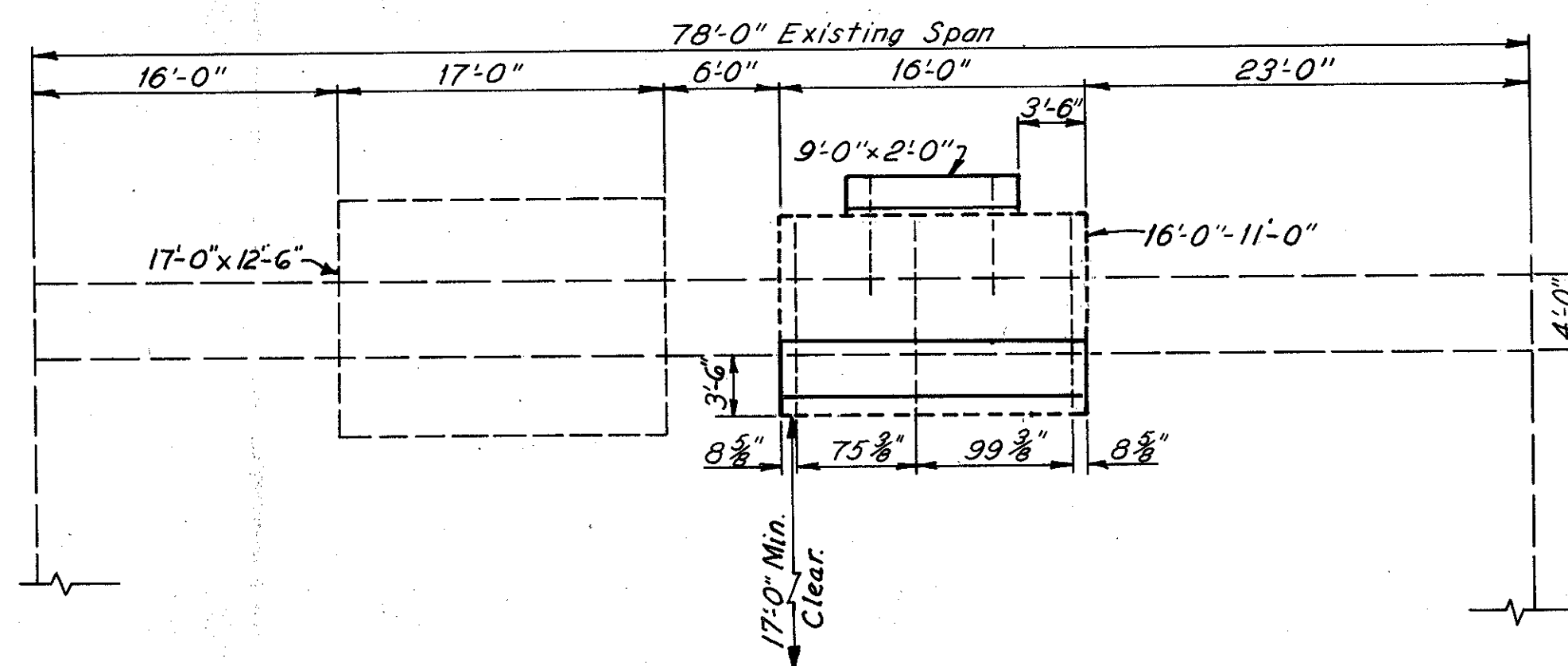
SIGN NO. 50
Sta. 8+00 Superior Ave. W.B.
Std. TC-12.30 Design 2 Mod.
16'-0" Arm



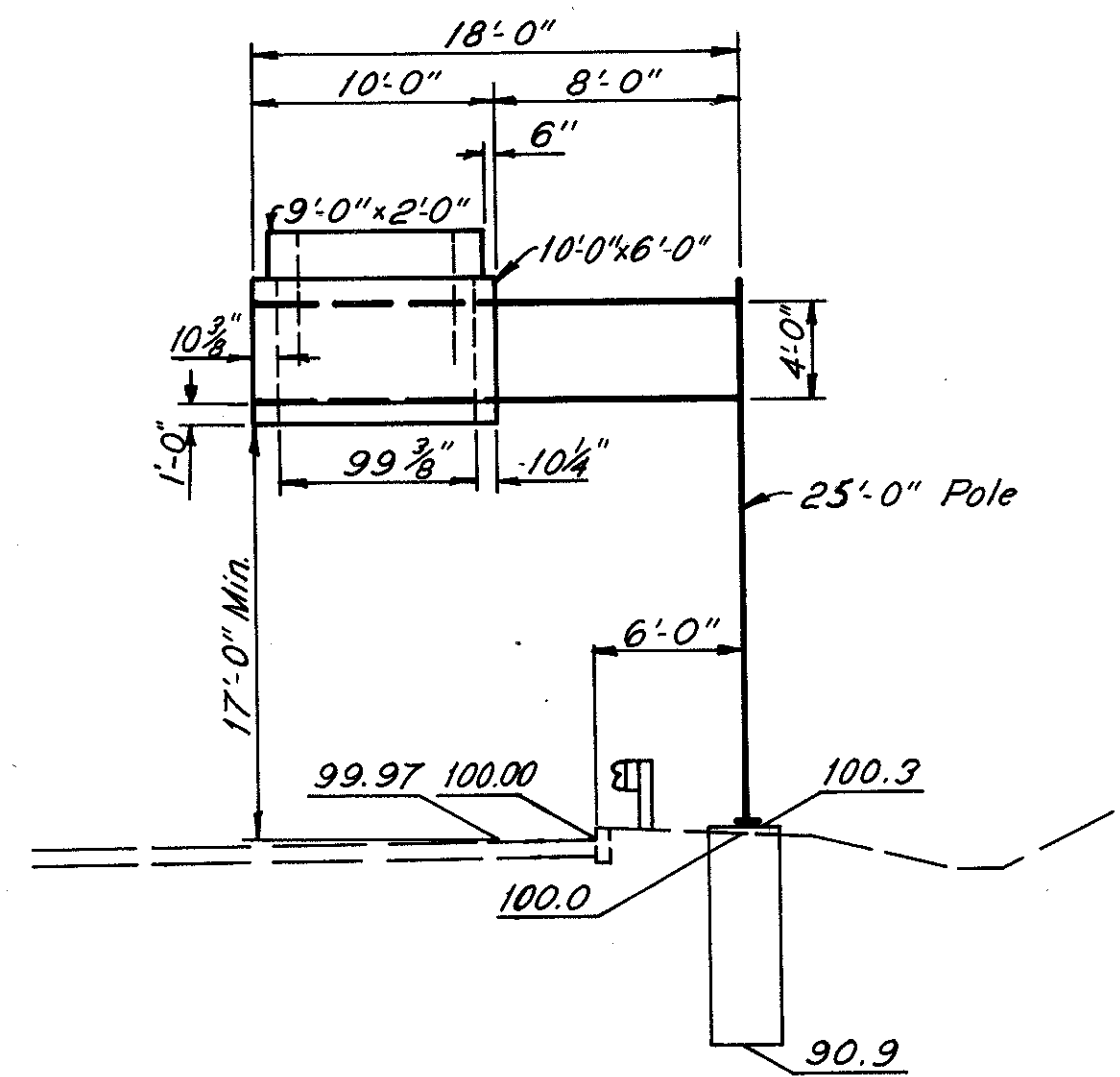
SIGN NO. 51
Sta. 165+90 W.B. I-90
(2) - TC-18.26, Design 3



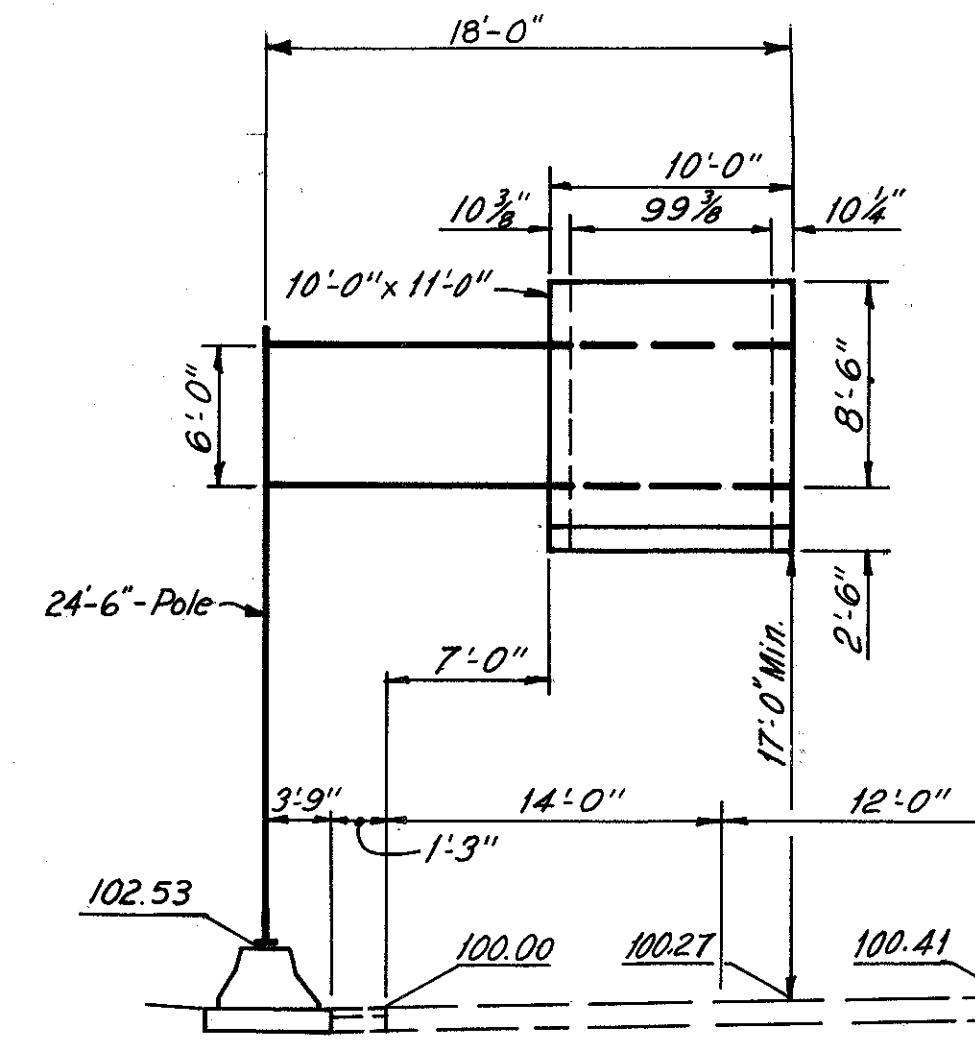
SIGN NO. 52
Sta. 170+63 E.B. I-90
(2) - TC-18.24



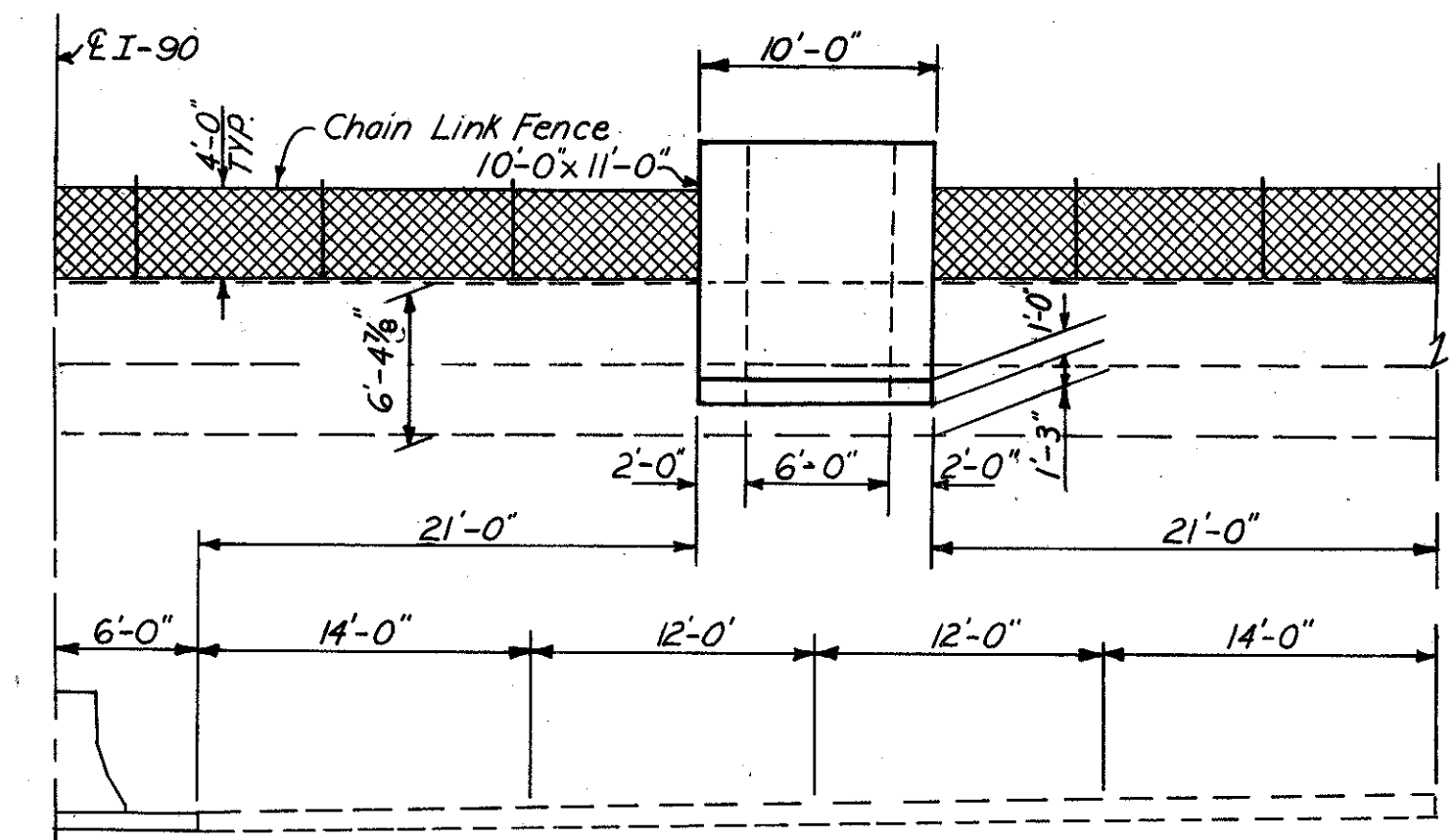
SIGN NO. 53
Sta. 182+76 E.B. I-90
Existing 78'-0" Span



SIGN NO. 54
Sta. 1+00 Ramp 18
Std. TC-12.30 Design 2
18'-0" Arm



SIGN NO. 55
Sta. 74+00 W.B. I-90
TC-12.30, Design 5, Mod.
22'-0" Arm
(Cost Participation III)



SIGN NO. 56
Sta. 161+00 I-90EB
TC-18.26 Design 2
(Cost Participation III)

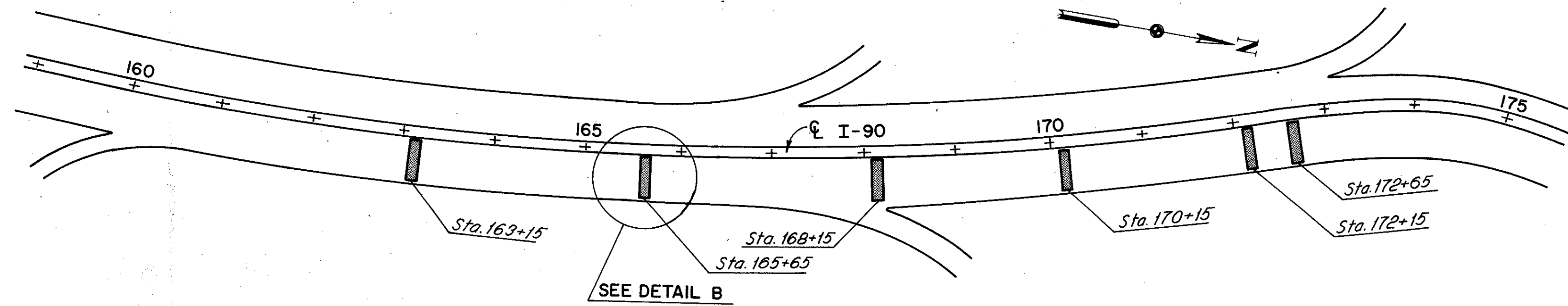
MISCELLANEOUS TRAFFIC CONTROL DETAILS

QUANTITY CALCULATIONS
 MADE BY M.E.E. DATE 12-10-75
 CHECKED BY D.S.P. DATE 12-11-75

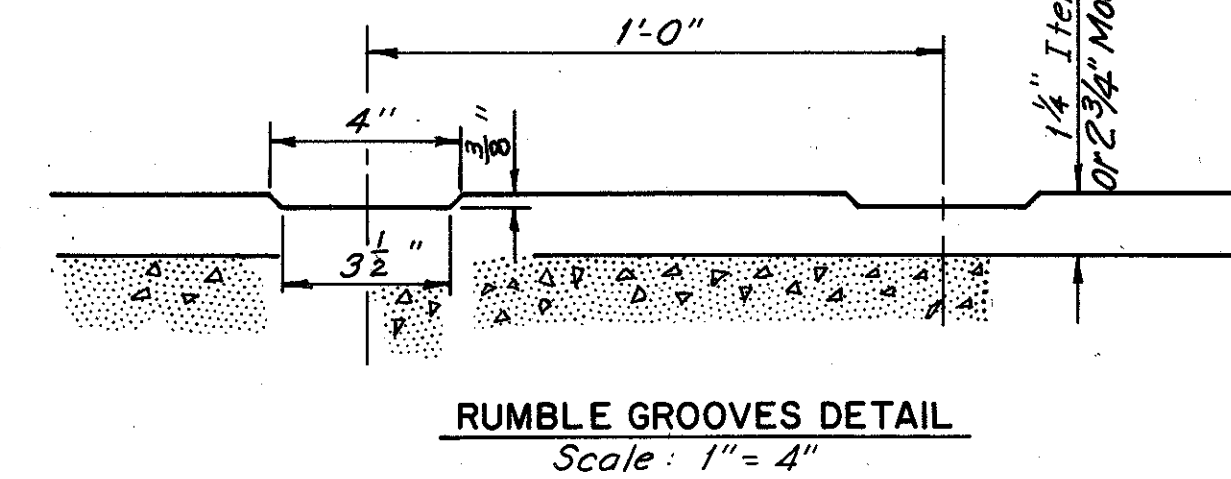
| | | |
|-------------|-------|---------|
| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

92
169

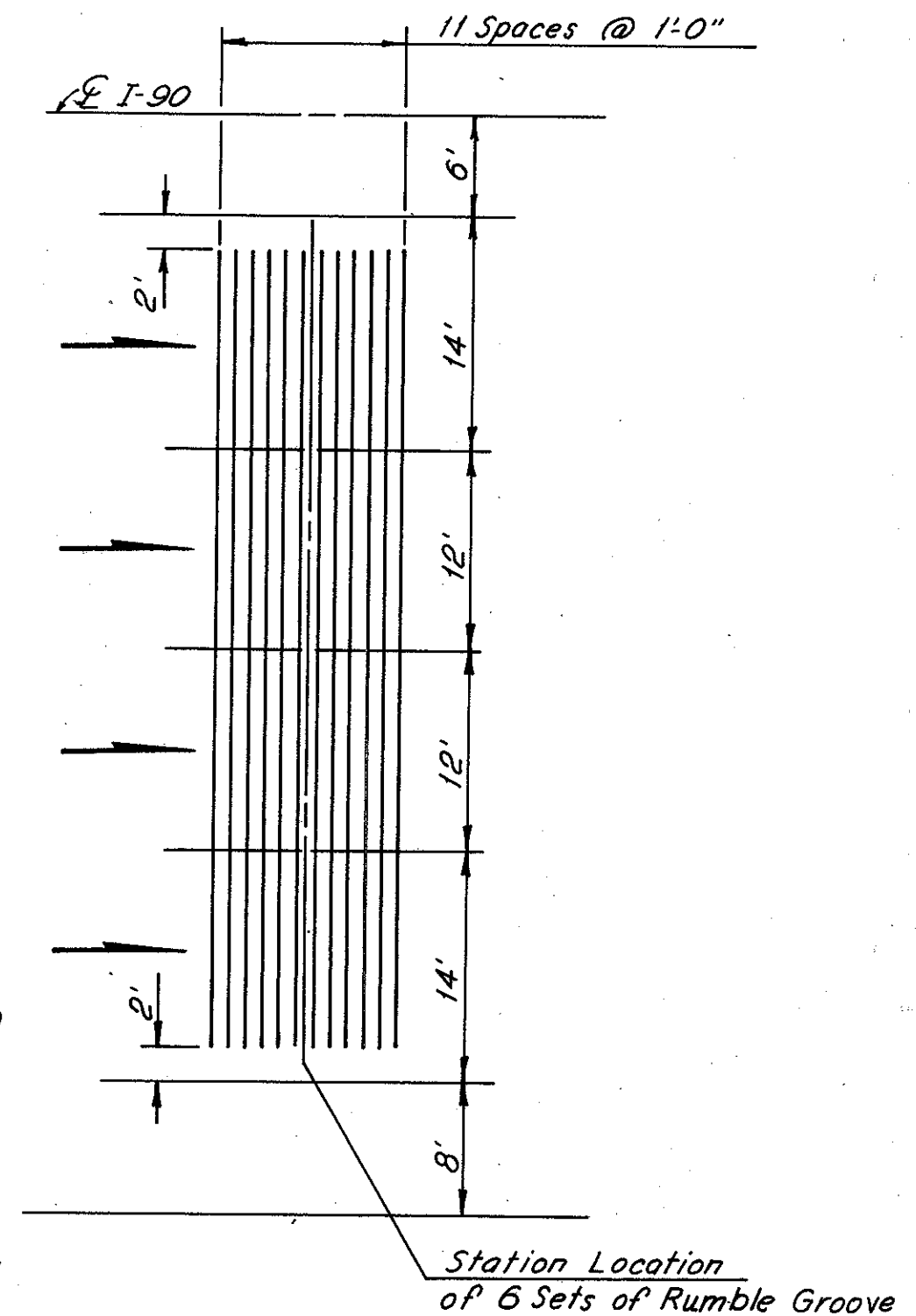
CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21



RUMBLE GROOVES LOCATIONS
PLAN VIEW
 Scale: 1"=100'

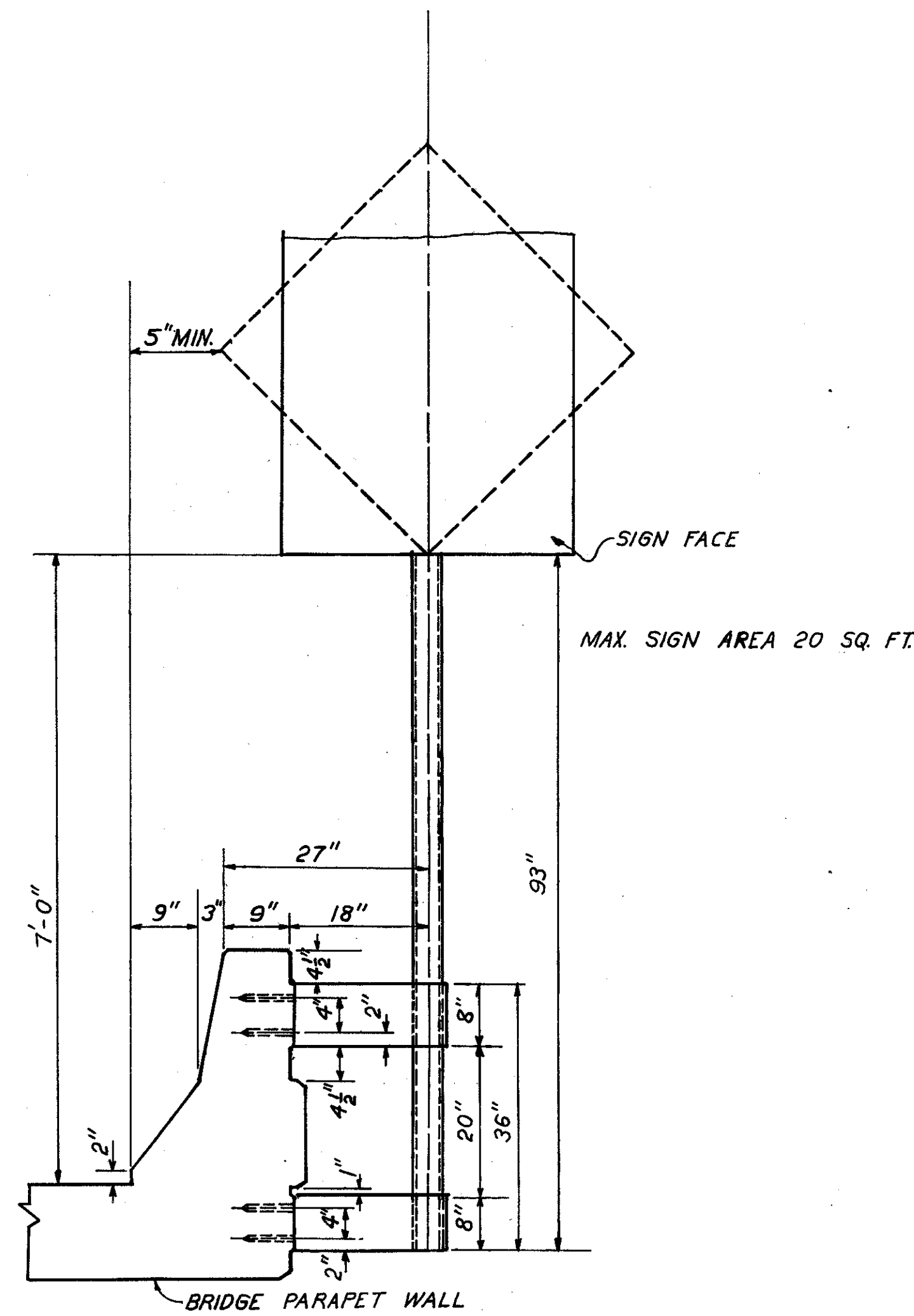
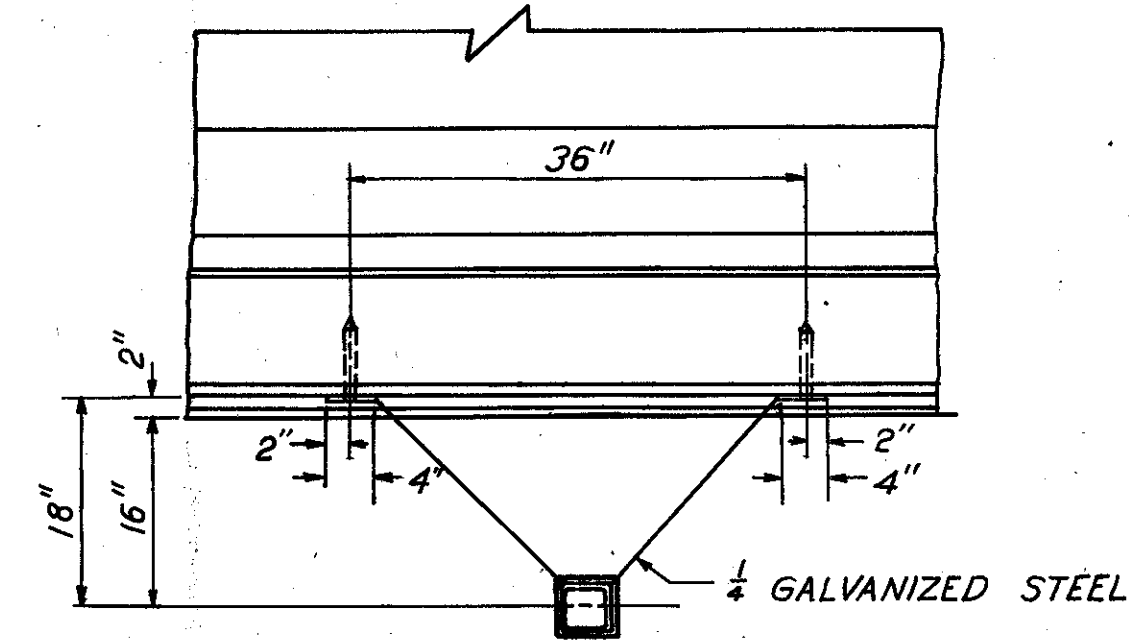


RUMBLE GROOVES DETAIL
 Scale: 1"=4"



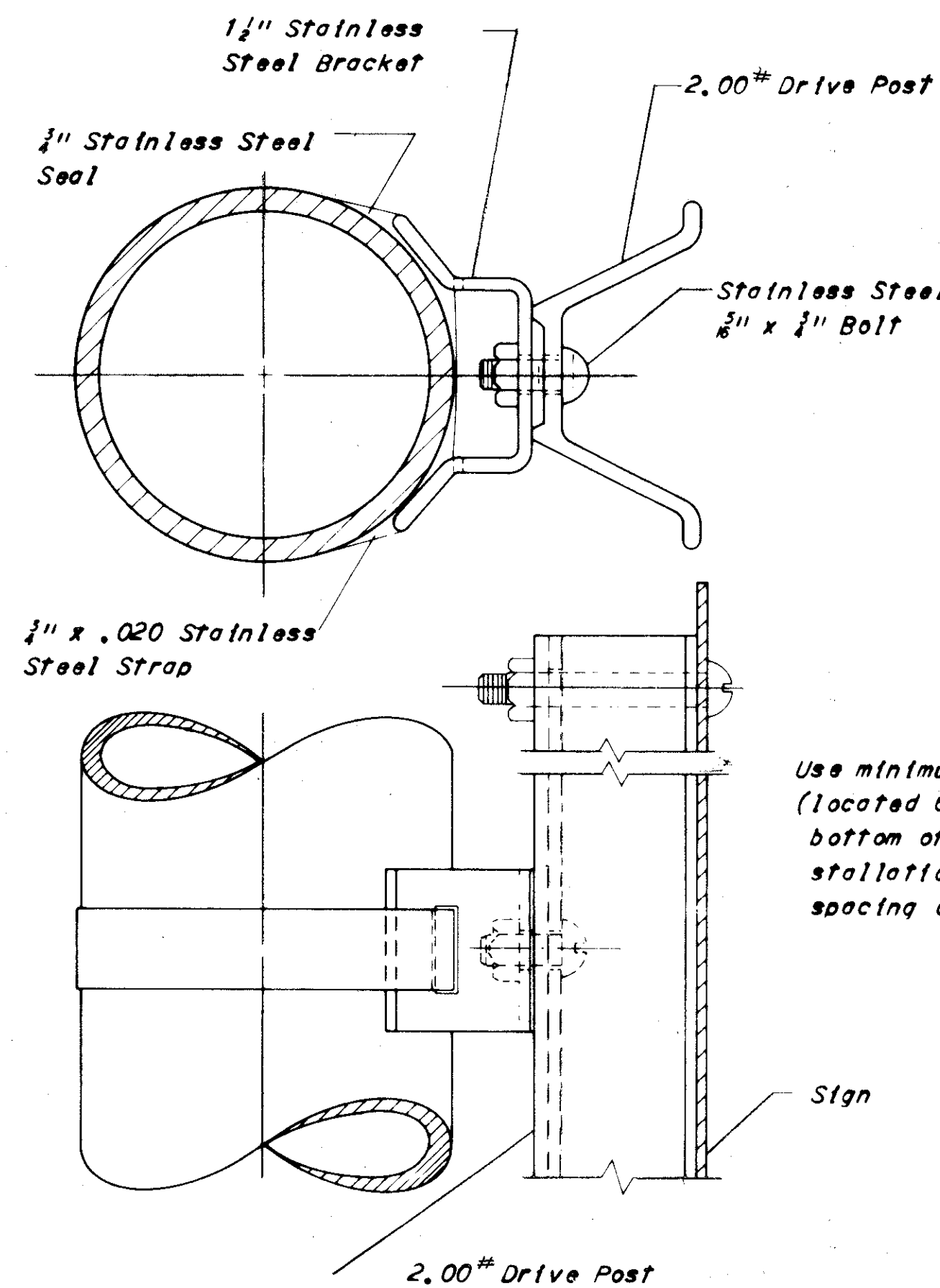
DETAIL B
 Scale: 1"=10'

* An Additional Estimated Quantity of 408 Lin. Ft. Of Rumble Grooves Is Included To Be Used On W.B. I-90 Between Sta. 45+00 And 47+00 Within The Striped Shoulder Area. (See Sheet No. 60 For Location). The Grooves Shall Be Constructed Above And Recessed 2 Ft. From The Curb And 2 Ft. From The Channelizing Line. The Sets Of Rumble Grooves Shall Be Located At Approximately 50 Ft. On Centers And Shall Not Be Installed Until The Completion Of Phase IV Of The I-90 Traffic Plans. They are to be installed in the Modified Dense Concrete overlay on Bridge No. CUY.90-1524



BRIDGE CONNECTION FOR SMALL SIGNS

NO SCALE

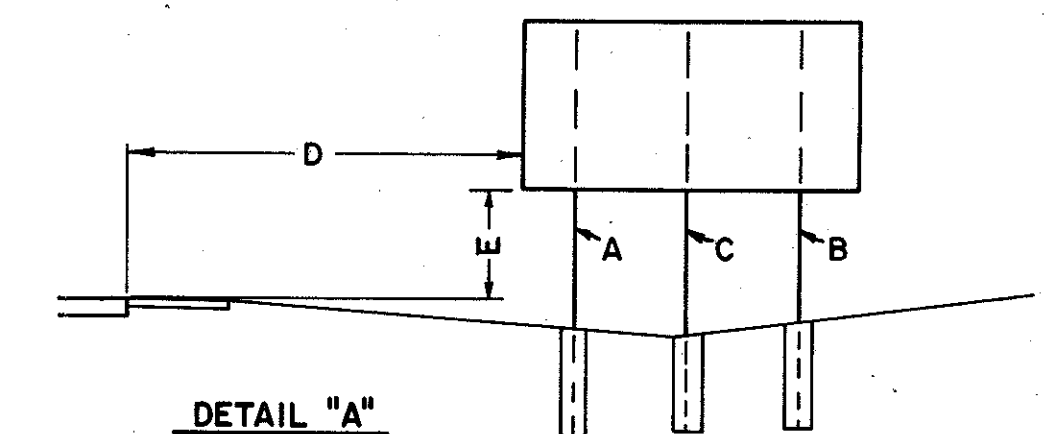
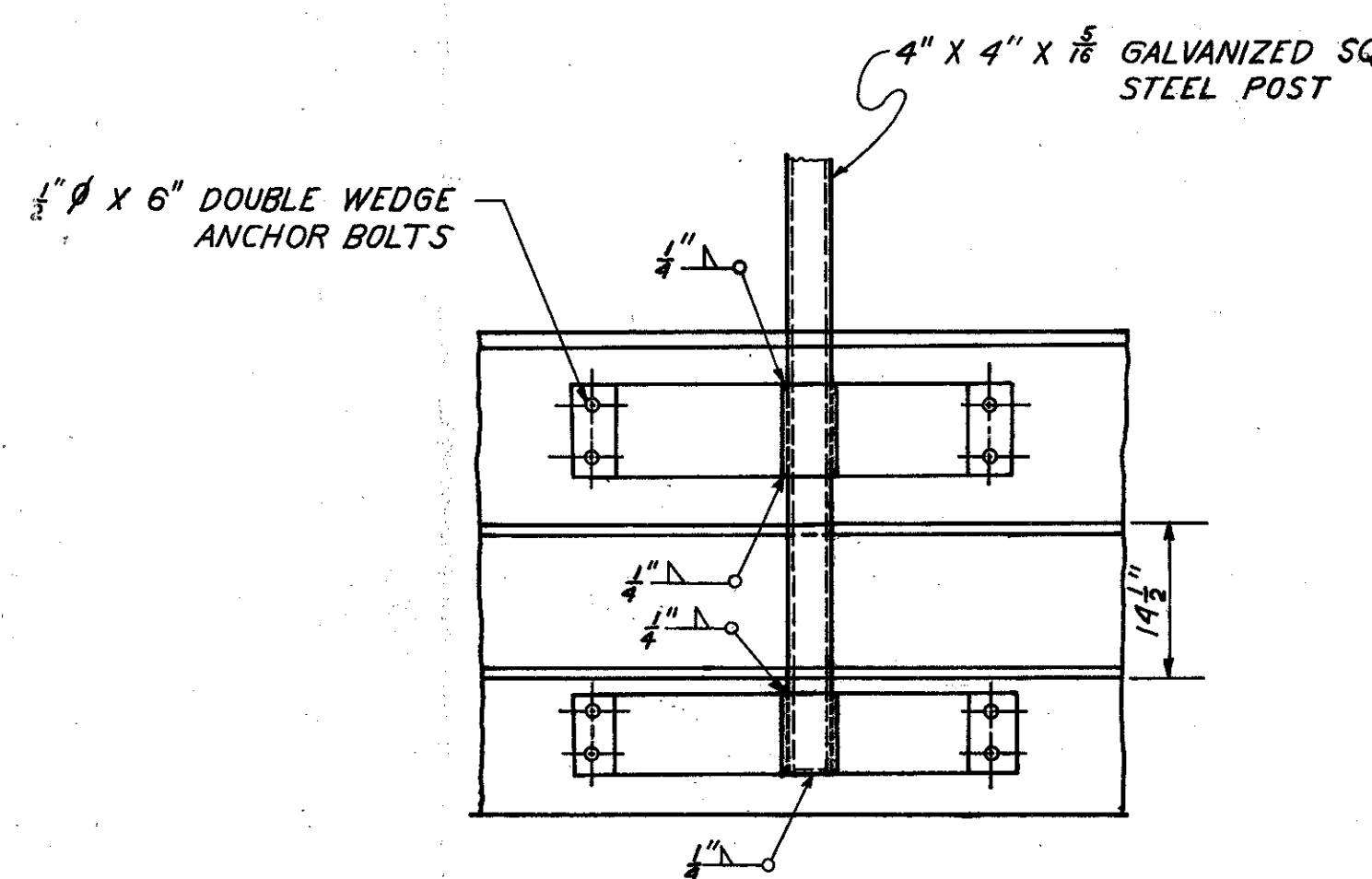


POLE MOUNTED SIGNS-ATTACHMENT DETAIL

(No Scale)

Use minimum of 2 Brackets (located 6" from top and bottom of sign) per installation with maximum spacing of 3'-0".

| ITEM SPECIAL-RUMBLE GROOVES | | | |
|-----------------------------|------|---------------------|---------------------|
| COST PARTICIPATION III | | | |
| STATION | SIDE | CALCULATIONS | QUANTITY (LIN. FT.) |
| I-90 | | | |
| 163+15 | Rt. | 144 x 4 | 576 |
| 165+65 | Rt. | 144 x 4 | 576 |
| 168+15 | Rt. | 144 x 4 | 576 |
| 170+15 | Rt. | 144 x 4 | 576 |
| 172+15 | Rt. | 144 x 4 | 576 |
| 172+65 | Rt. | 144 x 4 | 576 |
| * | Lt. | | 408 |
| TOTAL | | I-90-1(10)29 | 3864 |



DETAIL "A"

Typical Detail for Signs with greater than normal offsets.

MADE JAG DATE 10-06-77
 TRACED R.L.N. DATE 10-15-77
 CHECKED D.S.P. DATE 10-14-77
 SCALE AS SHOWN

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

HNTB

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21

DELINEATOR SUB-SUMMARY

QUANTITY CALCULATIONS

MADE BY MGB DATE 5-20-77
CHECKED BY TS DATE 6-22-77

| ITEM 620 DELINEATORS | | | | | | | |
|----------------------|----------------|-----------|------|-------------|-----------------------|--------------|--|
| ROADWAY | STATION | | SIDE | SPACE (FT.) | QUANTITY - TYPE C & D | | |
| | FROM | TO | | | POST MOUNTED | RAIL MOUNTED | |
| Ramp E-10 | 10+00 | 14+80 | RT | 60 | 9C | | |
| | 15+45 | 17+40 | RT | 65 | 4C | | |
| Ramp E-11 | 0+00 | 3+00 | RT | 60 | 6C | | |
| | 3+00 | 6+00 | LT | 60 | 6D | | |
| Ramp E-13 | 0+60 | 4+20 | LT | 40 | 10D | | |
| | 4+20 | 6+20 | RT | 40 | 6C | | |
| | 6+80 | 8+00 | RT | 60 | 3C | | |
| | 8+65 | 9+30 | RT | 65 | 2C | | |
| Ramp E-14 | 0+00 | 3+00 | RT | 60 | 4C | 2C | |
| | 3+30 | — | RT | 30 | 1C | | |
| | 3+30 | 6+30 | LT | 30 | 11D | | |
| | 6+90 | 7+50 | LT | 60 | 2D | | |
| | 8+50 | — | LT | 100 | 1D | | |
| | 8+50 | 11+50 | RT | 100 | 4C | | |
| Ramp E-15 | 0+00 | 2+10 | RT | 70 | 4C | | |
| | 2+50 | 4+90 | RT | 40 | 7C | | |
| | 5+50 | 6+10 | RT | 60 | 2C | | |
| | 6+10 | 7+90 | LT | 60 | 3D | 1D | |
| | 7+90 | 15+10 | RT | 60 | 9C | 4C | |
| | 15+80 | — | RT | 70 | — | 1C | |
| | 16+80 | 19+80 | RT | 100 | 3C | 1C | |
| | Ramp E-16 | 0+70 | 3+50 | LT | 40 | 8D | |
| Ramp E-18 | 3+50 | 7+10 | RT | 40 | 8C | 2C | |
| | 4+30 | 5+10 | LT | 80 | 2D | | |
| | 7+75 | — | RT | 65 | — | 1C | |
| Ramp E-18 | 0+80 | 5+60 | RT | 60 | 9C | | |
| | 5+90 | 8+60 | RT | 30 | 8C | 2C | |
| | 8+60 | 8+90 | LT | 30 | — | 2D | |
| | 9+50 | 13+10 | LT | 60 | 5D | 2D | |
| Ramp 3 | 0+00 | 3+60 | RT | 60 | 7C | | |
| | 4+60 | 8+60 | RT | 100 | 5C | | |
| Ramp 4 | 0+00 | 0+70 | LT* | 70 | 2C | | |
| | 1+10 | 1+90 | LT* | 40 | 3C | | |
| | 1+90 | 6+40 | RT* | 30 | 16D | | |
| | 7+00 | — | RT* | 60 | 1D | | |
| | 7+00 | 8+00 | RT* | 100 | 1D | | |
| I-90 WB | 110+95 | 112+95 | LT* | 100 | 3C | | |
| | 113+55 | 114+15 | LT* | 60 | 2C | | |
| Ramp 5 | 0+35 | 0+95 | LT* | 30 | 3C | | |
| | 0+95 | 6+05 | RT* | 30 | 18D | | |
| Ramp 6 | 0+00 | 0+80 | RT | 40 | 3C | | |
| | 1+10 | 1+70 | RT | 30 | 3C | | |
| | 1+70 | 2+60 | LT | 30 | 4D | | |
| | 3+10 | — | LT | 50 | 1D | | |
| I-90(WB) | 3+10 | 3+60 | RT | 50 | 2C | | |
| | 3+90 | 6+60 | RT | 30 | 10C | | |
| | 119+70; 121+70 | 125+70 | LT* | 100 | 6C | | |
| I-90(EB) | 126+40 BK | 126+80 AH | LT* | 70 | 2C | | |
| I-90(EB) | 114+90 | 119+10 | RT | 105 | 5C | | |
| Ramp 7 | 0+00 | — | RT | 100 | 1C | | |

| ITEM 620 DELINEATORS | | | | | | | | |
|-----------------------------|---------------------------|-----------|--------|-------------|-----------------------|--------------|--|--|
| ROADWAY | STATION | | SIDE | SPACE (FT.) | QUANTITY - TYPE C & D | | | |
| | FROM | TO | | | POST MOUNTED | RAIL MOUNTED | | |
| Ramp 7 | 1+20 | 2+10 | RT | 30 | 4C | | | |
| | 2+10 | 3+60 | LT | 30 | 6D | | | |
| | 4+20 | — | LT | 60 | 1D | | | |
| | 4+20 | 4+80 | RT | 60 | 2C | | | |
| | 5+10 | 6+30 | RT | 30 | 5C | | | |
| I-90(EB) | 6+90 | 7+50 | RT | 60 | 2C | | | |
| | 127+00 BK | 129+00 AH | RT | 50 | 6C | | | |
| | Ramp 8 | 0+25 | 1+25 | LT* | 50 | 3C | | |
| Ramp 8 | 1+55 | 1+85 | LT* | 30 | 2C | | | |
| | 1+85 | 6+65 | RT* | 30 | 17D | | | |
| | 6+65 | 7+65 | LT* | — | 2C | | | |
| | Ramp 9 | 0+00 | 8+00 | LT* | 100 | 9C | | |
| Ramp 10 | 0+00 | — | LT* | 70 | 1C | | | |
| | 0+40 | 1+20 | LT* | 40 | 3C | | | |
| (To Chester) | 1+50 | — | LT* | 30 | 1C | | | |
| | 1+50 | 3+60 | RT* | 30 | 8D | | | |
| | 4+20 | — | RT* | 60 | 1D | | | |
| | 4+20 | 4+80 | LT* | 60 | 2C | | | |
| | 5+10 | 6+00 | LT* | 30 | 4C | | | |
| | 6+00 | 8+10 | RT* | 30 | 8D | | | |
| | (To E. 24 th) | 6+00 | 7+00 | LT* | 100 | 2C | | |
| | Ramp 11 | 0+00 | 2+10 | RT | 70 | 4C | | |
| Ramp 11 | 2+40 | 2+70 | RT | 30 | 2C | | | |
| | 2+70 | 6+30 | LT | 30 | 13D | | | |
| | 6+90 | — | LT | 60 | 1D | | | |
| | 6+90 | 8+50 | RT | 80 | 3C | | | |
| | I-90(WB) | 135+25 | 138+25 | LT | 100 | 4C | | |
| | I-90(EB) | 137+00 | 139+00 | RT | 100 | 3C | | |
| | Ramp 12 | 0+00 | 3+50 | RT | 70 | 6C | | |
| | 4+10 | — | RT | 60 | 1C | | | |
| | (To E. 30 th) | 4+40 | 5+80 | RT | 30 | 5C | | |
| | 5+60 | 6+20 | LT | 30 | 3D | | | |
| (To Superior) | 6+80 | 7+80 | LT | 60 | 2D | | | |
| | 4+10 | 7+10 | LT | 100 | 4D | | | |
| Ramp 13 | 6+10 | 7+10 | RT | 100 | 2C | | | |
| | 0+00 | 3+00 | LT* | 60 | 6C | | | |
| Ramp 14 | 4+00 | 6+00 | LT* | 100 | 3C | | | |
| | 6+00 | 7+00 | RT* | 100 | 2D | | | |
| | 0+00 | 2+40 | RT | 40 | 7C | | | |
| (To E. 26 th NB) | 3+00 | 3+60 | RT | 60 | 2C | | | |
| | 3+90 | 4+80 | RT | 30 | 4C | | | |
| | 4+80 | 6+30 | LT | 30 | 6D | | | |
| | 3+90 | 4+90 | LT | 100 | 2D | | | |
| Ramp 15 | 4+90 | 6+90 | RT | 100 | 3C | | | |
| | 0+00 | 2+10 | LT* | 70 | 4C | | | |
| | 3+10 | 7+10 | LT* | 100 | 5C | | | |
| I-90(EB) | 157+50 | 159+50 | RT | 100 | 3C | | | |
| Ramp 16 | 0+00 | 1+80 | LT* | 30 | 7C | | | |
| | 1+80 | 3+30 | RT* | 30 | 6D | | | |
| | 3+90 | — | RT* | 60 | 1D | | | |

| ITEM 620 DELINEATORS | | | | | | | |
|---|---------|--------|------|-------------|-----------------------|--------------|-----------------|
| ROADWAY | STATION | | SIDE | SPACE (FT.) | QUANTITY - TYPE C & D | | |
| | FROM | TO | | | POST MOUNTED | RAIL MOUNTED | PARAPET MOUNTED |
| (To E. 33 rd) | 3+90 | 5+90 | LT* | 100 | 3C | | |
| | 6+90 | 7+90 | LT* | 100 | 2C | | |
| | 7+90 | 8+50 | RT* | 60 | 2D | | |
| (To St. Clair) | 8+80 | 10+00 | RT* | 30 | 5D | | |
| | 4+90 | 8+00 | RT* | 70 | 5D | | |
| | 8+00 | 9+40 | LT* | 70 | 3C | | |
| I-90(WB) | 156+50 | 165+65 | LT* | 101.7 | 10C | | |
| Ramp 17 | 0+00 | 1+50 | LT* | 30 | 6C | | |
| | 1+50 | 5+10 | RT* | 30 | 13D | | |
| | 5+70 | — | RT* | 60 | 1D | | |
| | 5+70 | 7+70 | LT* | 100 | 3C | | |
| Ramp 18 | 0+00 | 2+00 | RT | 40 | 6C | | |
| | 2+00 | 6+40 | LT | 40 | 12D | | |
| | 6+40 | 7+60 | RT | 40 | 4C | | |
| (E. 33 rd St Conn) | 7+60 | 8+80 | LT | 40 | 4D | | |
| | 6+80 | 7+60 | LT | 40 | 3D | | |
| | 7+60 | 8+40 | RT | 40 | 3C | | |
| Shoreway Innerbelt Connection | 46+50 | 52+10 | RT | 80 | 8C | | |
| | 53+10 | 57+10 | RT | 100 | 5C | | |
| WB Shoreway | 57+10 | 58+30 | LT | 60 | 3D | | |
| | 58+60 | 59+50 | LT | 30 | 4D | | |
| | 59+50 | 59+80 | RT | 30 | 2C | | |
| | 60+05 | 60+30 | RT | 25 | 2C | | |
| | 60+90 | 61+90 | RT | 100 | 2C | | |
| | 74+45 | 75+45 | LT* | 100 | 2C | | |
| Sheet 94 Total-Cost Participation I | 72+35 | 73+85 | LT* | 30 | 6C | | |
| | 68+15 | 72+35 | RT* | 30 | 15D | | |
| | 62+05 | 67+65 | RT* | 80 | 8D | | |
| | 61+50 | 165+50 | LT | 100 | 5D | | |
| | 66+30 | — | LT | 80 | 1D | | |
| Sheet 94 Total-Cost Participation I | Type C | 335 | 13 | — | | | |
| Sheet 94 Total-Cost Participation I | Type D | 251 | 5 | — | | | |
| Sheet 93 Total-Cost Participation I | Type C | 104 | 41 | — | | | |
| Sheet 93 Total-Cost Participation I | Type D | 127 | 21 | 9 | | | |
| I-90-1(10)29 Total-Cost Participation I | Type C | 439 | 54 | — | | | |
| I-90-1(10)29 Total-Cost Participation I | Type D | 378 | 26 | 9 | | | |

NOTES:

- Asterisk (*) indicates the side in the direction of increasing stationing.
- For delineator details see Standard Construction Drawing, TC-61.10.

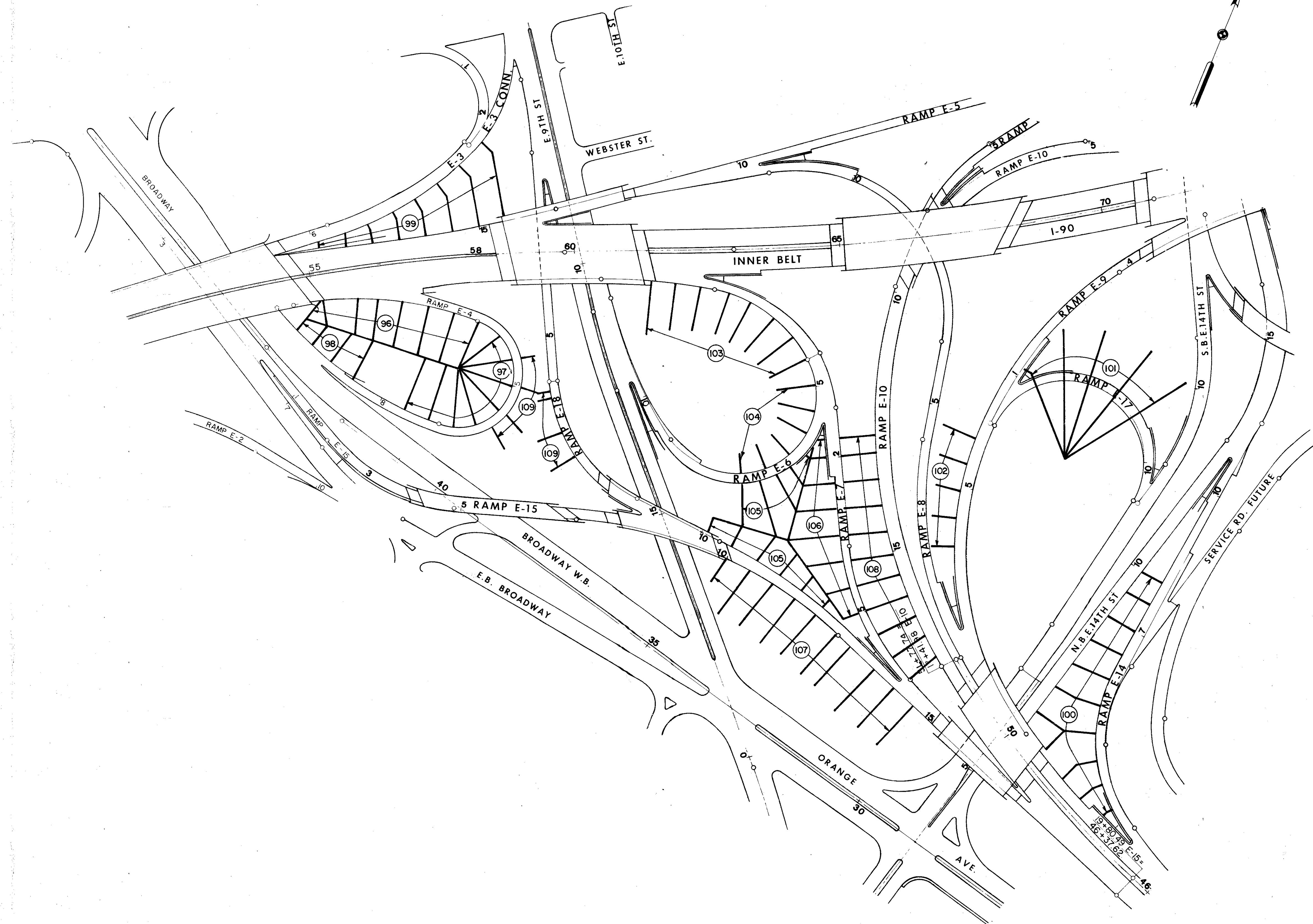
11-0

CROSS SECTION LAYOUT SHEET

| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

95
169

CUYAHOGA COUNTY
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SHEET NUMBER - (00)



SCALE IN FEET

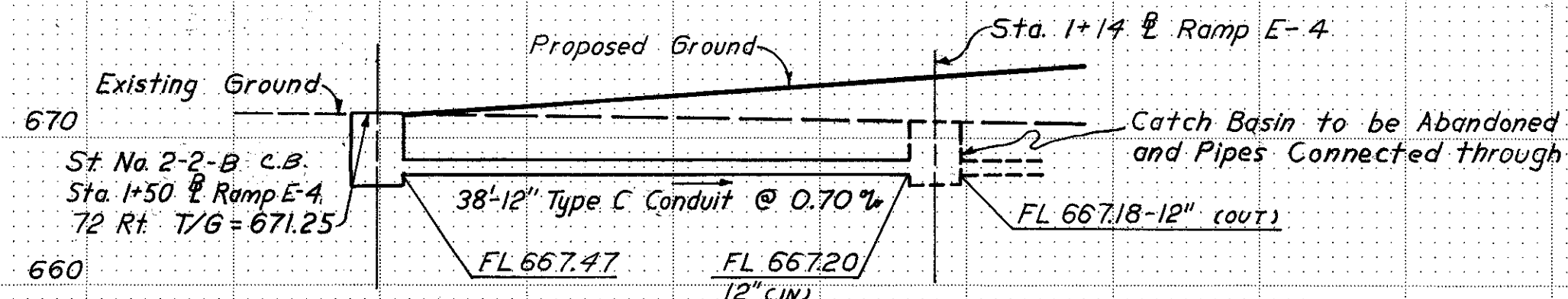
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 TRACED S.M.V. DATE 6-27-77
 CHECKED E.S. DATE 6-23-77
 SCALE 1"=100'

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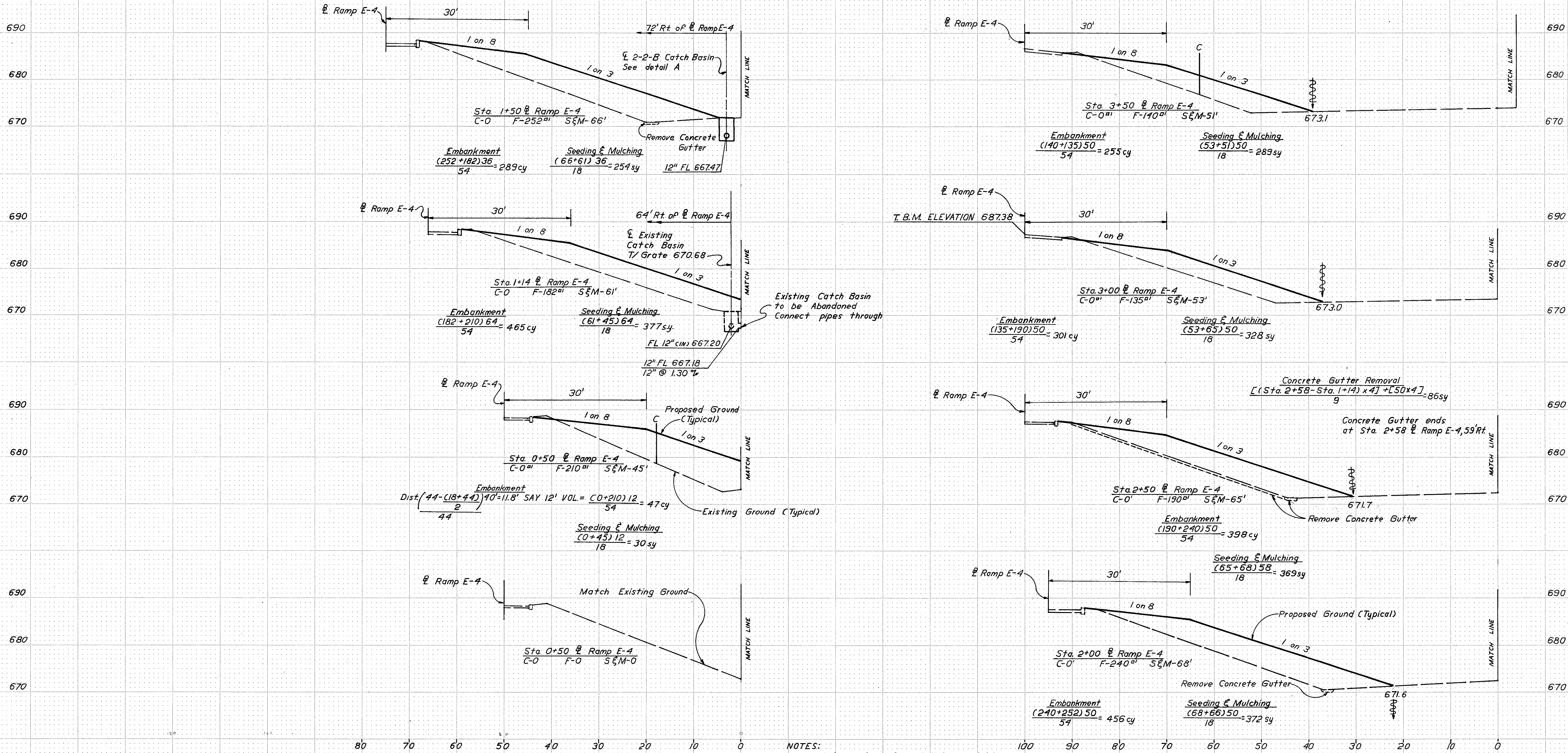
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QUANTITY CALCULATIONS
 MADE BY DSP DATE 5-9-77
 CHECKED BY TS DATE 6-23-77



DETAIL A



NOTES:

1. See note in General Notes pertaining to corrected arc length calculations.
2. Excavation of build-up area (non-curbed) adjacent to shoulder is included in cost of Item 617 Compacted Aggregate, as per plan.
3. Quantities for Grading Area (X-1) on Sheet 98.
4. Embankments shall be constructed in accordance with 203.09.
5. For location of Match Line see Cross Section Layout Sheet.

SCALE: 1" = 10' Vert.
 1" = 10' Horiz.

TEMPORARY BENCH MARK: Rt Edge of Pavement Ramp E-4
 Sta 3+00 Ramp E-4
 ELEV. = 687.38

MADE DSP DATE 5-9-77
 TRACED FMV DATE 7-1-77
 CHECKED TS DATE 7-1-77
 SCALE As SHOWN

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MADE BY DSP DATE 5-9-77
CHECKED BY TS DATE 6-23-77

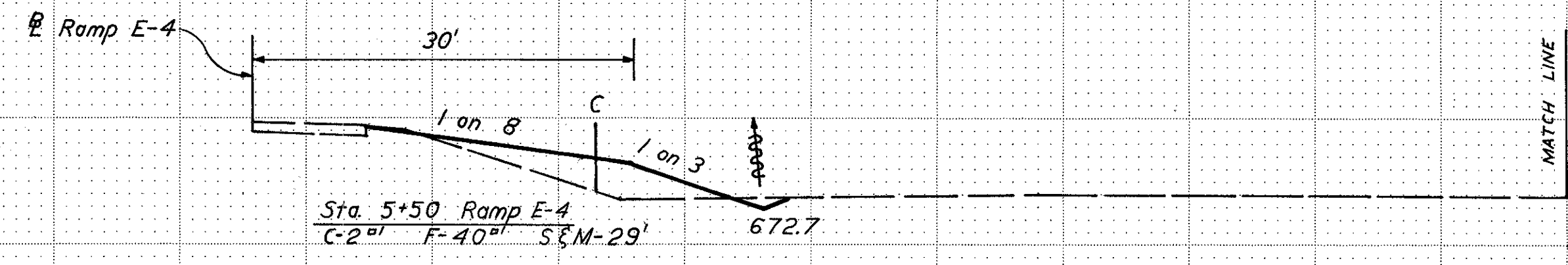
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CUY-77-14.12
CUY-90-16.21

Embankment
DIST. $\frac{104 - \frac{(27+23)}{2}}{104} 50 = 38.0'$
VOL. $= \frac{(20+40)38}{54} = 42 \text{ cy}$

Excavation
VOL. $= \frac{(3+2)32}{54} = 3 \text{ cy}$

Seeding & Mulching
 $\frac{(22+29)38}{18} = 108 \text{ sy}$

Excavation
DIST. $\frac{104 - \frac{(40+33)}{2}}{104} 50 = 32.4'$
Say 32'



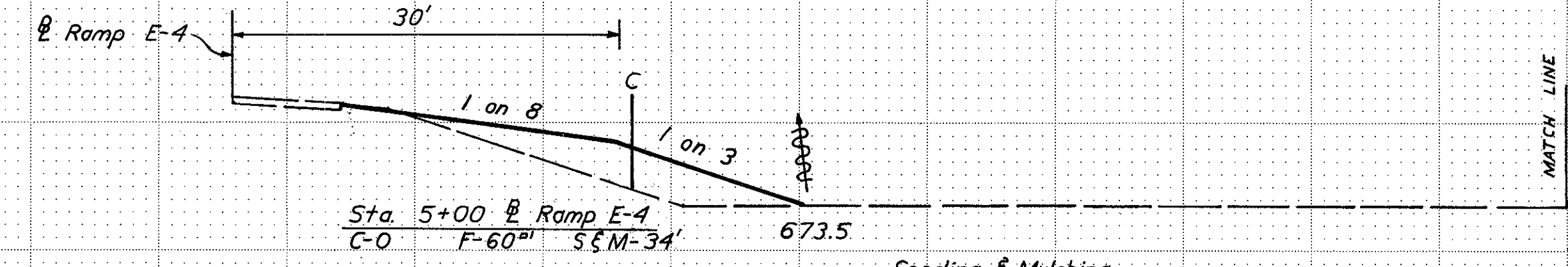
Embankment
VOL. $= \frac{(40+60)36}{54} = 67 \text{ cy}$

Seeding & Mulching
 $\frac{(29+34)36}{18} = 126 \text{ sy}$

Excavation
DIST. $\frac{104 - \frac{(104+40)}{2}}{104} 50 = 15.4'$
Say 15'

VOL. $= \frac{(0+2)15}{54} = 1 \text{ cy}$

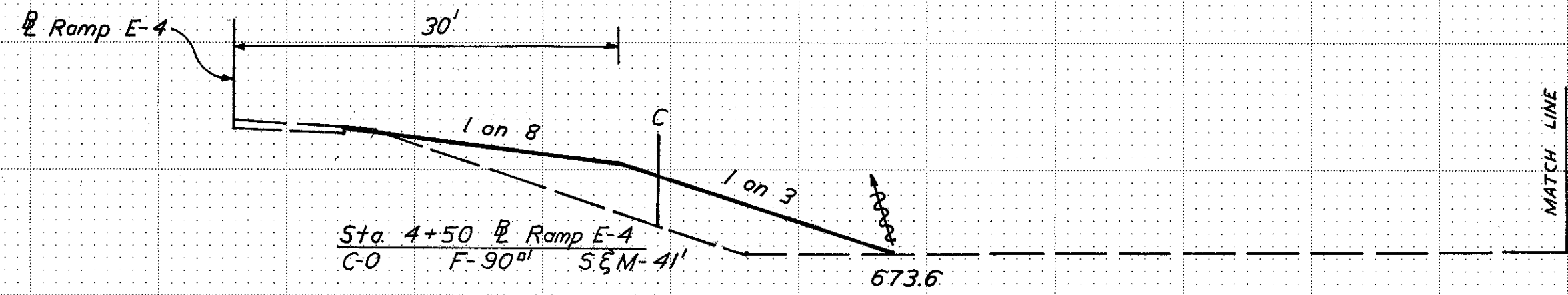
Excavation
DIST. $\frac{104 - \frac{(31+27)}{2}}{104} 50 = 36'$



Embankment
VOL. $= \frac{(60+90)35}{54} = 97 \text{ cy}$

Seeding & Mulching
 $\frac{(34+41)35}{18} = 146 \text{ sy}$

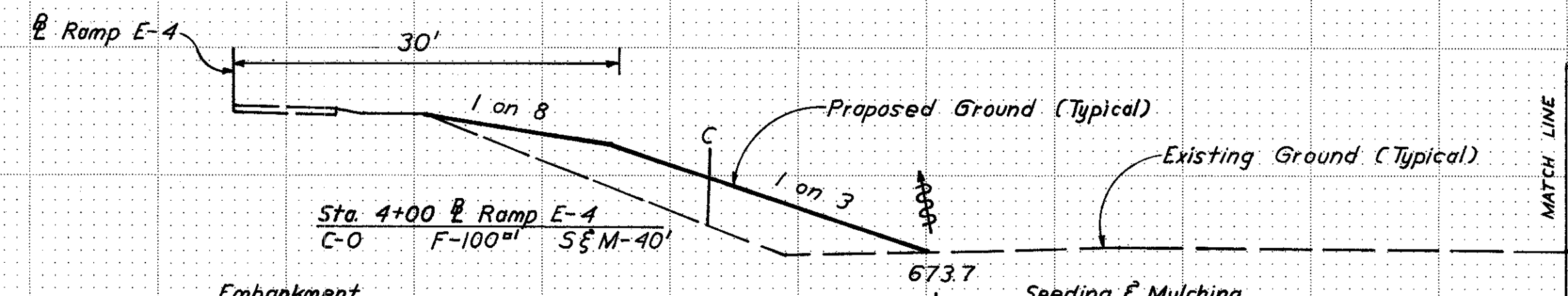
Excavation
DIST. $\frac{104 - \frac{(33+31)}{2}}{104} 50 = 34.6'$
Say 35'



Embankment
DIST. $\frac{104 - \frac{(37+33)}{2}}{104} 50 = 33.2'$
Say 33'

VOL. $= \frac{(90+100)33}{54} = 116 \text{ cy}$

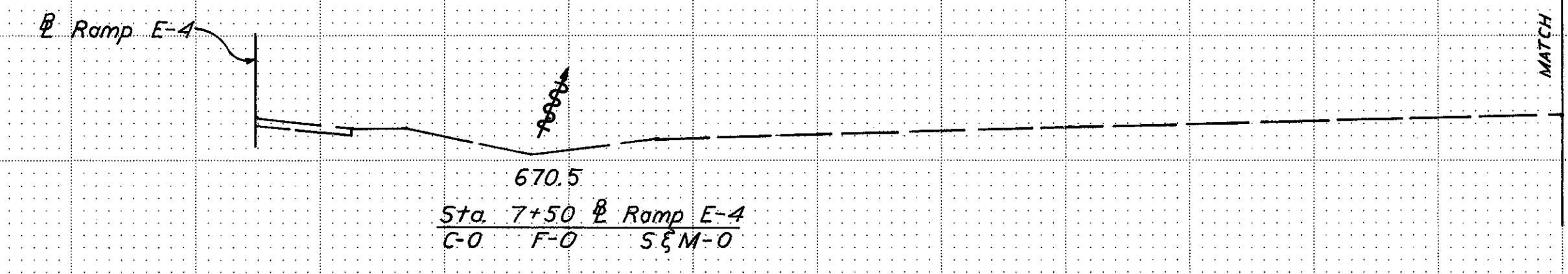
Seeding & Mulching
 $\frac{(41+40)33}{18} = 149 \text{ sy}$



Embankment
VOL. $= \frac{(100+140)32}{54} = 142 \text{ cy}$

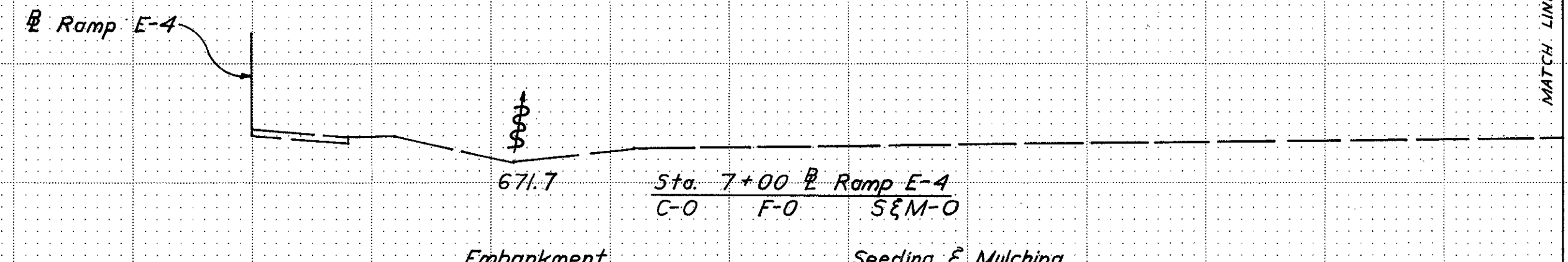
Seeding & Mulching
 $\frac{(40+51)32}{18} = 142 \text{ sy}$

Excavation
DIST. $\frac{104 - \frac{(37+37)}{2}}{104} 50 = 32.2'$
Say 32'



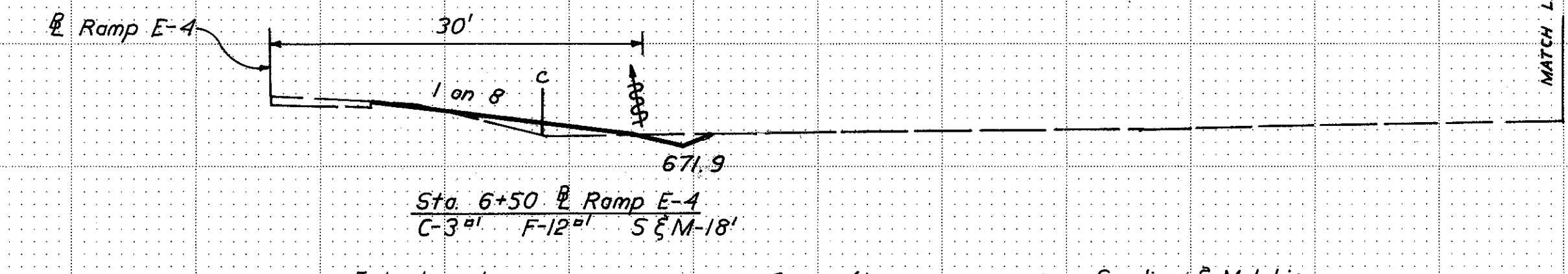
Embankment
VOL. $= \frac{(0+12)50}{54} = 11 \text{ cy}$

Seeding & Mulching
 $\frac{(0+18)50}{18} = 50 \text{ sy}$



Embankment
VOL. $= \frac{(0+12)50}{54} = 11 \text{ cy}$

Seeding & Mulching
 $\frac{(0+18)50}{18} = 50 \text{ sy}$



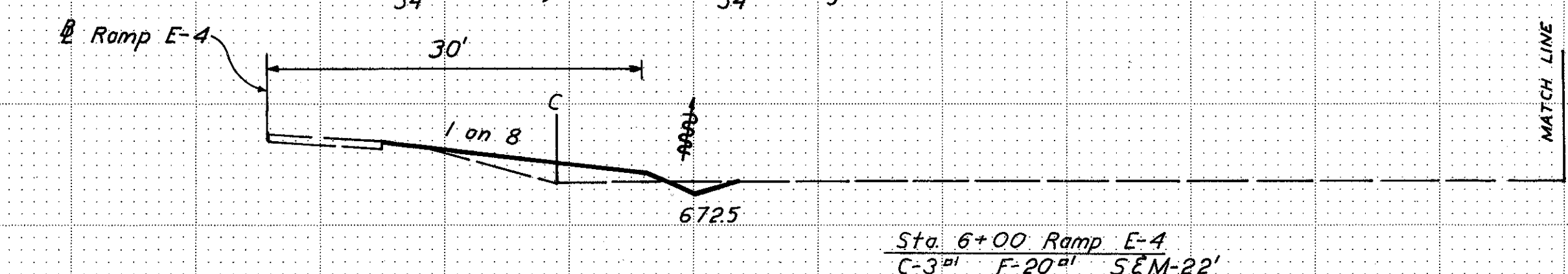
Embankment
VOL. $= \frac{(12+20)39}{54} = 23 \text{ cy}$

Excavation
DIST. $\frac{104 - \frac{(23+22)}{2}}{104} 50 = 39.2'$
Say 39'

Seeding & Mulching
 $\frac{(22+18)39}{18} = 87 \text{ sy}$

Excavation
DIST. $\frac{104 - \frac{(33+104)}{2}}{104} 50 = 17'$

Excavation
VOL. $= \frac{(3+3)17}{54} = 2 \text{ cy}$



Embankment
VOL. $= \frac{(100+140)32}{54} = 142 \text{ cy}$

Seeding & Mulching
 $\frac{(40+51)32}{18} = 142 \text{ sy}$

Excavation
DIST. $\frac{104 - \frac{(37+37)}{2}}{104} 50 = 32.2'$
Say 32'

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

- NOTES: 1. Embankments shall be constructed in accordance with 203.09.
2. See note in General Notes pertaining to corrected arc length calculations.
3. Excavation of build-up area adjacent to shoulder included in cost of Item 617 Compacted Aggregate, as per plan.
4. Quantities for Grading Area (X-1) on sheet 98.
5. For location of Match Line see Cross Section Layout Sheet.

| GRADING AREA X-1 | | | | | | |
|----------------------------------|--|----------|----------|----------|----------------|--------|
| ESTIMATED QUANTITIES COST PART I | | | | | | |
| ITEM | DESCRIPTION | SHEET 96 | SHEET 97 | SHEET 98 | TOTAL QUANTITY | UNIT |
| 202 | Concrete Gutter Removed | 86 | | | 86 | SY |
| 202 | Catch Basin Abandoned | 1 | | | 1 | Each |
| 203 | Excavation not Including Embankment Construction | | 9 | | 9 | CY |
| 203 | Embankment | 2211 | 498 | 170 | 2889 | CY |
| 603 | 12" Conduit Type C | 38 | | | 38 | Lin Ft |
| 604 | Std. No. 2-2-B Catch Basin | 1 | | | 1 | Each |
| 659 | Seeding & Mulching | 2019 | 828 | 147 | 3141 | SY |

QUANTITY CALCULATIONS
 MADE BY DSP DATE 5-12-77
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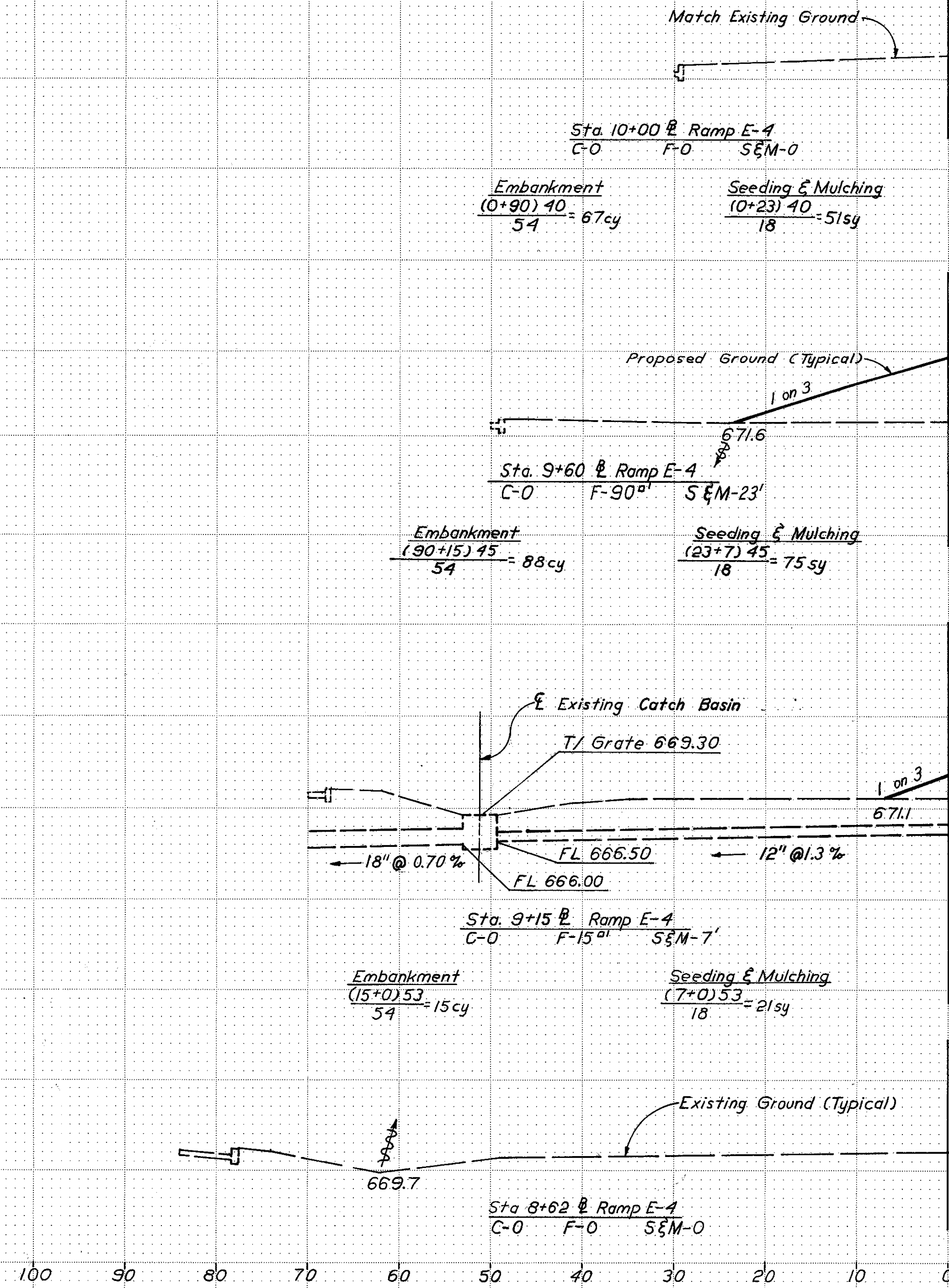
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Note:
 1. Embankments shall be constructed in accordance with 203.09

SCALE: 1" = 10'-0" Horiz.
 1" = 10'-0" Vert.

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 CHECKED TS DATE 6-23-77
 SCALE AS SHOWN

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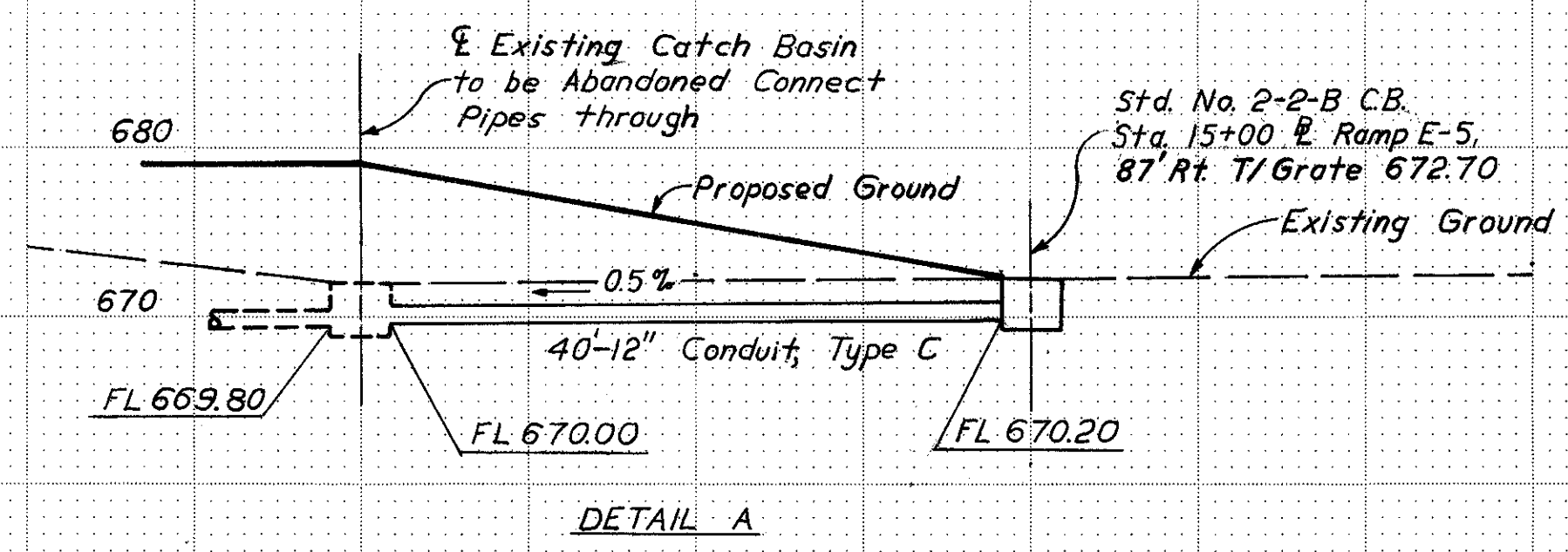


QUANTITY CALCULATIONS
 MADE BY DSP DATE 5-11-77
 CHECKED BY TS DATE 6-22-77

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| FHWA | STATE | PROJECT |
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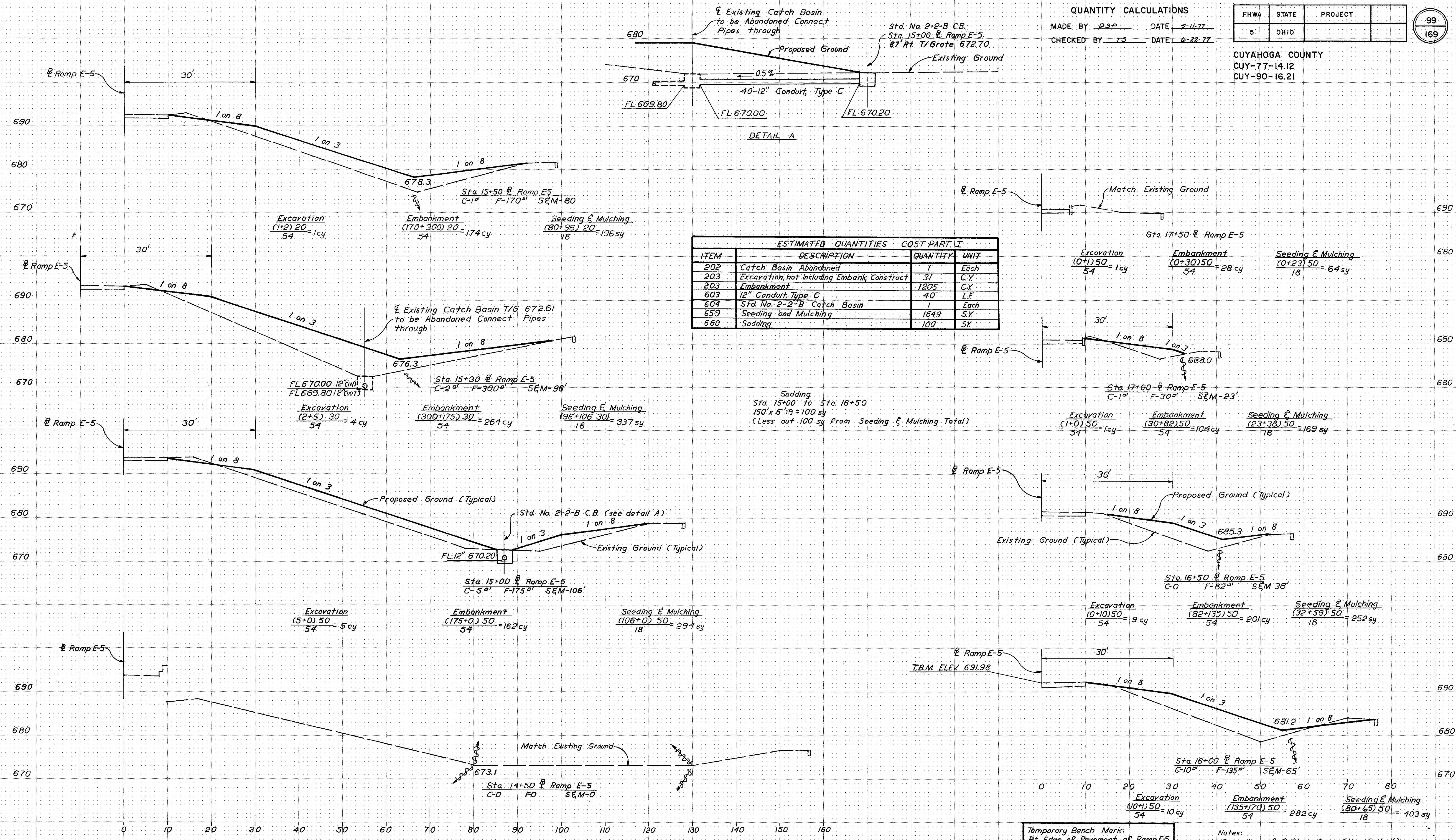
99
169

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21



| ITEM | DESCRIPTION | QUANTITY | UNIT |
|------|--|----------|------|
| 202 | Catch Basin Abandoned | 1 | Each |
| 203 | Excavation not including Embank. Construct | 31 | C.Y. |
| 203 | Embankment | 1205 | C.Y. |
| 603 | 12" Conduit, Type C | 40 | LF |
| 604 | Std. No. 2-2-B Catch Basin | 1 | Each |
| 659 | Seeding and Mulching | 1649 | S.Y. |
| 660 | Sodding | 100 | S.Y. |

Sodding
 Sta. 15+00 to Sta. 16+50
 150' x 6'-9" = 100 sy
 (Less out 100 sy from Seeding & Mulching Total)



SCALE: 1" = 10' Horiz.
 1" = 10' Vert.

Temporary Bench Mark:
 Rt. Edge of Pavement of Ramp E-5
 Sta. 16+00 @ Ramp E-5
 ELEV = 691.98

- Notes:
- Excavation of Build-up Area (Non-Curbed) Adjacent to shoulder included in cost of Item 617 Compacted Aggregate, as per plan.
 - Embankment Shall Be Constructed in Accordance with 203.09
 - Provide 6' Sodding along E ditch between Sta. 15+00 @ Ramp E-5 and Sta. 16+50 @ Ramp E-5

MADE DSP DATE 5-11-77
 TRACED ENY DATE 7-1-77
 CHECKED TS DATE 7-1-77
 SCALE AS SHOWN

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QUANTITY CALCULATIONS

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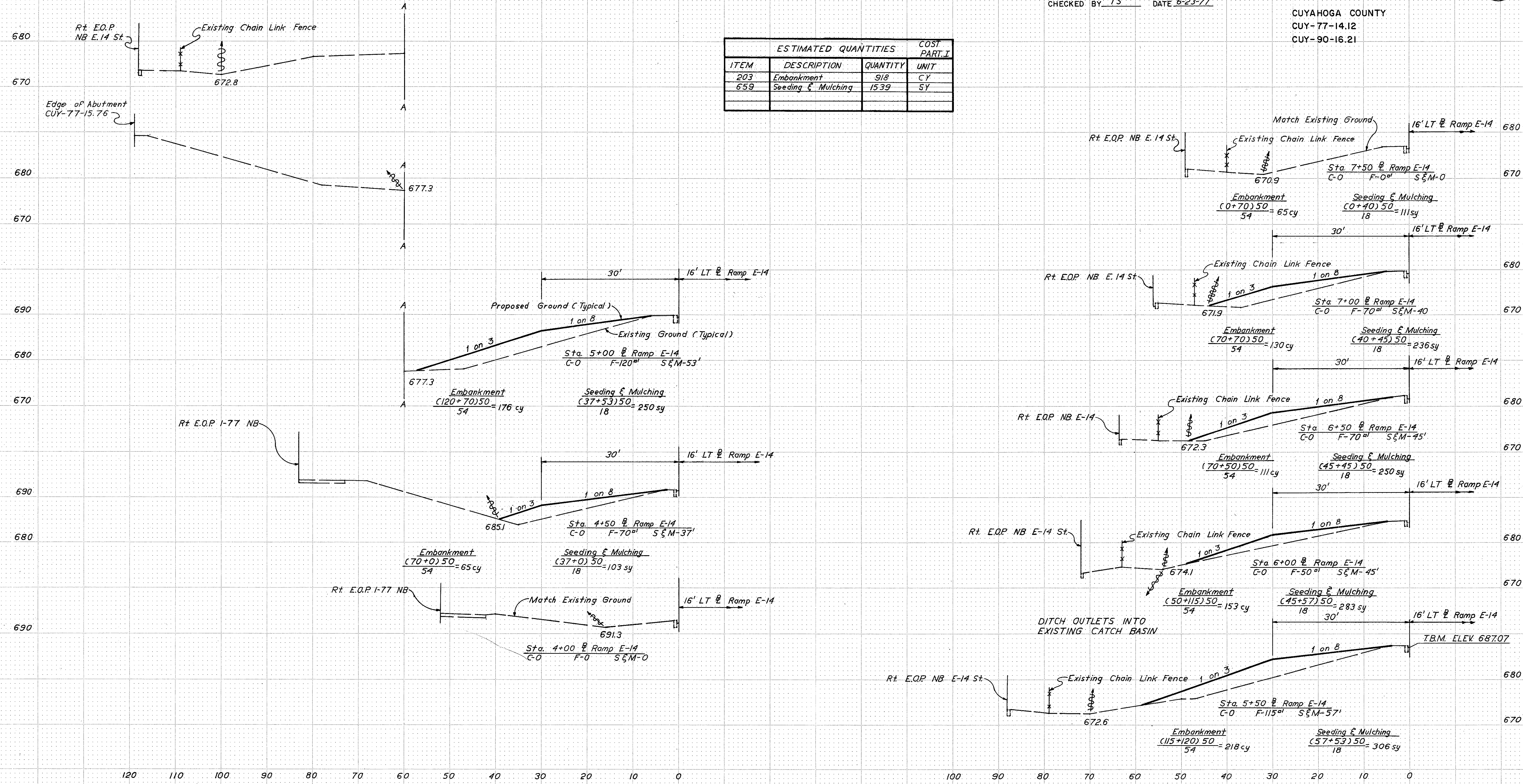
CHECKED BY TS DATE 6-23-77

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| 5 | OHIO | |

100
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21

| ESTIMATED QUANTITIES | | | COST PART. I |
|----------------------|--------------------|----------|--------------|
| ITEM | DESCRIPTION | QUANTITY | UNIT |
| 203 | Embankment | 918 | CY |
| 659 | Seeding & Mulching | 1539 | SY |



SCALE: 1" = 10' Horiz
1" = 10' Vert

TEMPORARY BENCH MARK: LT E.O.P. Sta. 5+50 Ramp E-14 ELEV. = 687.07

NOTE: 1. Embankments shall be constructed in accordance with 203.09

MADE DSP DATE 5-12-77
TRACED FMV DATE 6-21-77
CHECKED TS DATE 6-23-77
SCALE AS SHOWN

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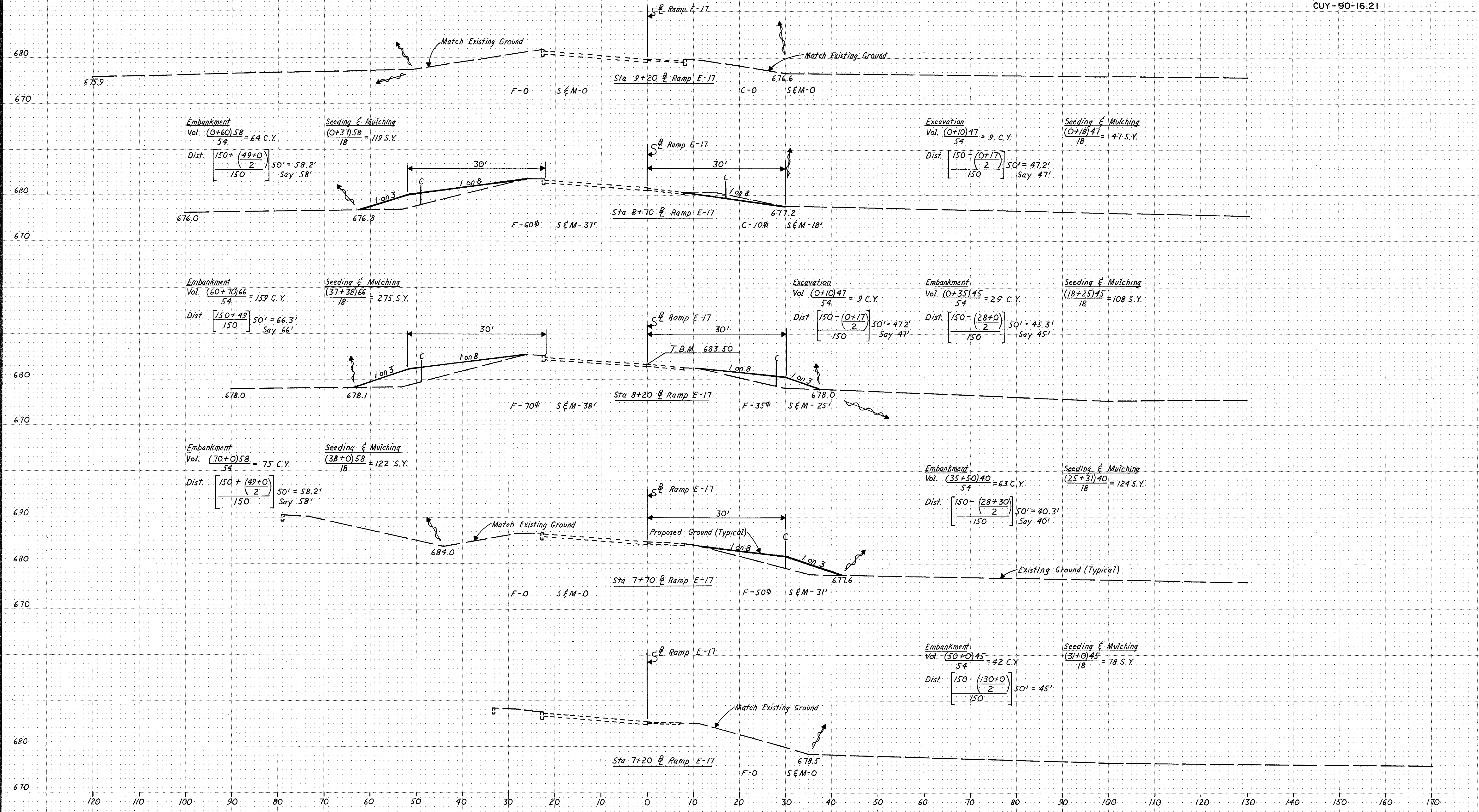


QUANTITY CALCULATIONS
 MADE BY DSP DATE 5-12-77
 CHECKED BY TS DATE 6-22-77

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101
169

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21



Embankment
 Vol. $\frac{(0+60)58}{54} = 64 \text{ C.Y.}$
 Dist. $\left[\frac{150 + \frac{(49+0)}{2}}{150} \right] 50' = 58.2'$
 Say 58'

Seeding & Mulching
 $\frac{(0+37)58}{18} = 119 \text{ S.Y.}$

Excavation
 Vol. $\frac{(0+10)47}{54} = 9 \text{ C.Y.}$
 Dist. $\left[\frac{150 - \frac{(0+17)}{2}}{150} \right] 50' = 47.2'$
 Say 47'

Seeding & Mulching
 $\frac{(0+18)47}{18} = 47 \text{ S.Y.}$

Embankment
 Vol. $\frac{(60+70)66}{54} = 159 \text{ C.Y.}$
 Dist. $\left[\frac{150 + \frac{49}{2}}{150} \right] 50' = 66.3'$
 Say 66'

Seeding & Mulching
 $\frac{(37+38)66}{18} = 275 \text{ S.Y.}$

Excavation
 Vol. $\frac{(0+10)47}{54} = 9 \text{ C.Y.}$
 Dist. $\left[\frac{150 - \frac{(0+17)}{2}}{150} \right] 50' = 47.2'$
 Say 47'

Embankment
 Vol. $\frac{(0+35)45}{54} = 29 \text{ C.Y.}$
 Dist. $\left[\frac{150 - \frac{(28+0)}{2}}{150} \right] 50' = 45.3'$
 Say 45'

Seeding & Mulching
 $\frac{(18+25)45}{18} = 108 \text{ S.Y.}$

Embankment
 Vol. $\frac{(70+0)58}{54} = 75 \text{ C.Y.}$
 Dist. $\left[\frac{150 + \frac{(49+0)}{2}}{150} \right] 50' = 58.2'$
 Say 58'

Seeding & Mulching
 $\frac{(38+0)58}{18} = 122 \text{ S.Y.}$

Embankment
 Vol. $\frac{(35+50)40}{54} = 63 \text{ C.Y.}$
 Dist. $\left[\frac{150 - \frac{(28+30)}{2}}{150} \right] 50' = 40.3'$
 Say 40'

Seeding & Mulching
 $\frac{(25+31)40}{18} = 124 \text{ S.Y.}$

Embankment
 Vol. $\frac{(50+0)45}{54} = 42 \text{ C.Y.}$
 Dist. $\left[\frac{150 - \frac{(130+0)}{2}}{150} \right] 50' = 45'$

Seeding & Mulching
 $\frac{(31+0)45}{18} = 78 \text{ S.Y.}$

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

| ESTIMATED QUANTITIES COST PART I | | | |
|----------------------------------|--|----------|------|
| Item | Description | Quantity | Unit |
| 203 | Excavation Not Including Embankment Construction | 18 | C.Y. |
| 203 | Embankment | 432 | C.Y. |
| 659 | Seeding & Mulching | 873 | S.Y. |

Notes: 1. See note in General Notes pertaining to corrected arc length calculations.
 2. Embankments shall be constructed in accordance with 203.09.

Temporary Bench Mark: Rt. Edge Of Pavement Sta 8+20
 Ramp E-17. ELEV. = 683.50

MADE DSP DATE 5-12-77
 TRACED RLL DATE 7-1-77
 CHECKED TS DATE 7-1-77
 SCALE As Shown

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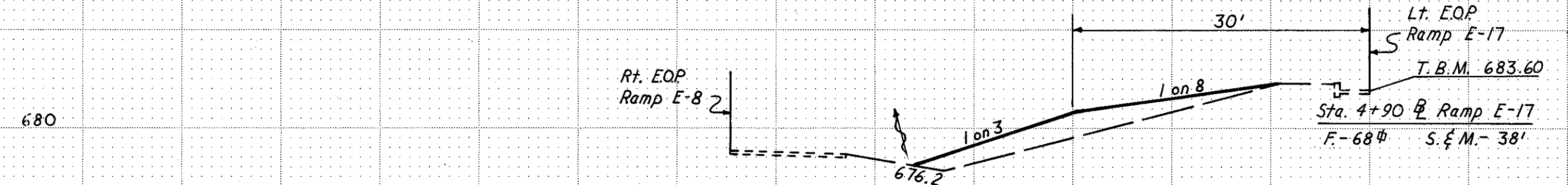
102
169

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 CUY-90-16.21

| ESTIMATED QUANTITIES COST PART I | | | |
|----------------------------------|--------------------|----------|------|
| Item | Description | Quantity | Unit |
| 203 | Embankment | 376 | C.Y. |
| 659 | Seeding & Mulching | 644 | S.Y. |

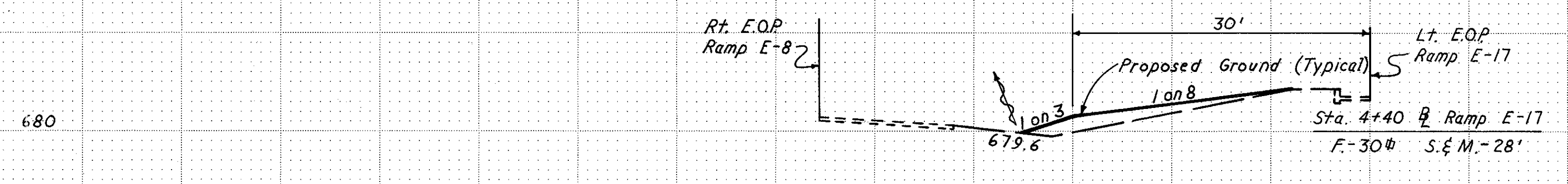
Embankment
 $\frac{(68+105)50}{54} = 160 \text{ C.Y.}$

Seeding & Mulching
 $\frac{(38+50)50}{18} = 244 \text{ S.Y.}$



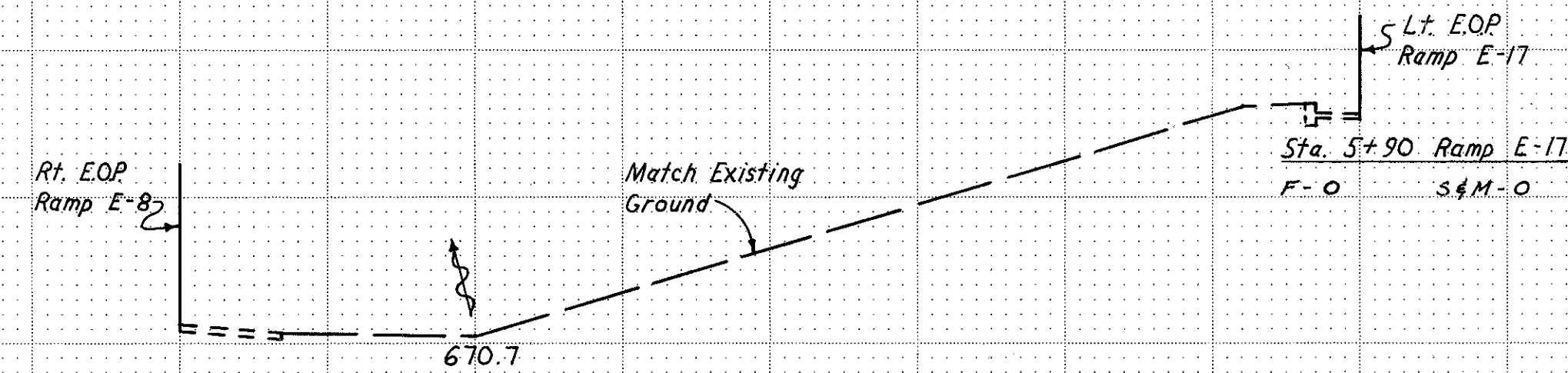
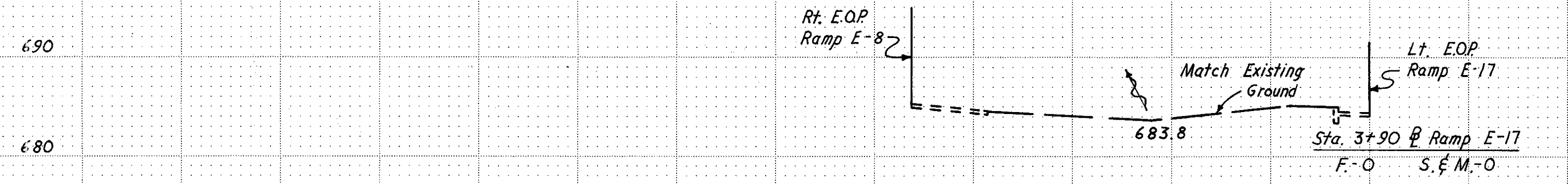
Embankment
 $\frac{(30+68)50}{54} = 91 \text{ C.Y.}$

Seeding & Mulching
 $\frac{(38+28)50}{18} = 183 \text{ S.Y.}$



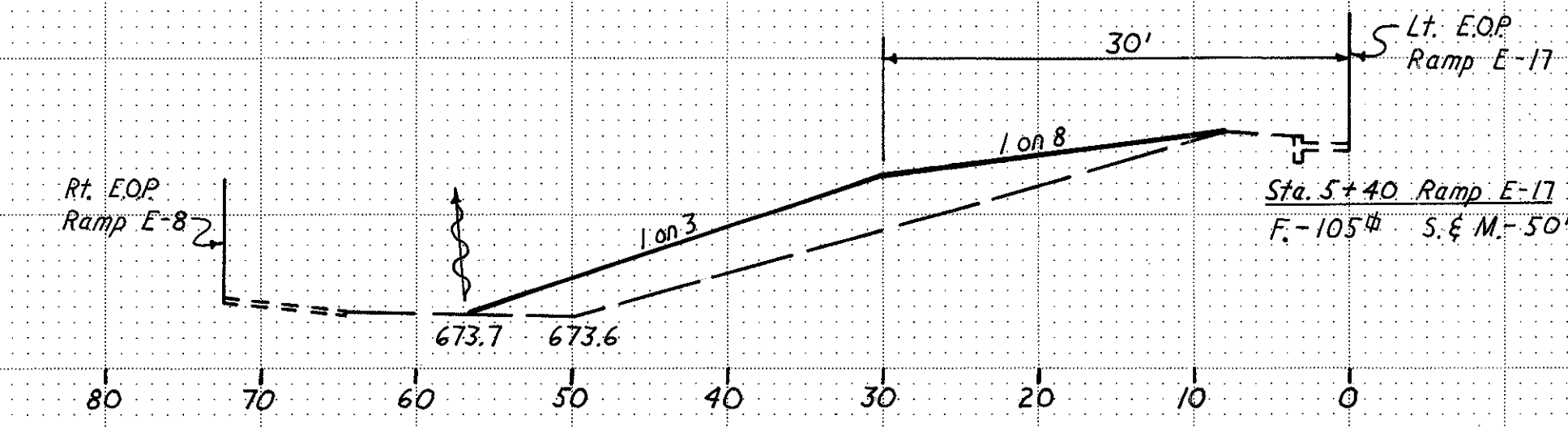
Embankment
 $\frac{(0+30)50}{54} = 28 \text{ C.Y.}$

Seeding & Mulching
 $\frac{(28+0)50}{18} = 78 \text{ S.Y.}$



Embankment
 $\frac{(105+0)50}{54} = 97 \text{ C.Y.}$

Seeding & Mulching
 $\frac{(50+0)50}{18} = 139 \text{ S.Y.}$



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

Temporary Bench Mark: Lt. Edge of Pavement Sta. 4+90
 Ramp E-17 ELEV. = 683.60

Note: 1. Embankments shall be constructed in accordance with 203.09.

MADE DSP DATE 5-13-77
 TRACED REL DATE 7-5-77
 CHECKED TS DATE 7-6-77
 SCALE AS SHOWN

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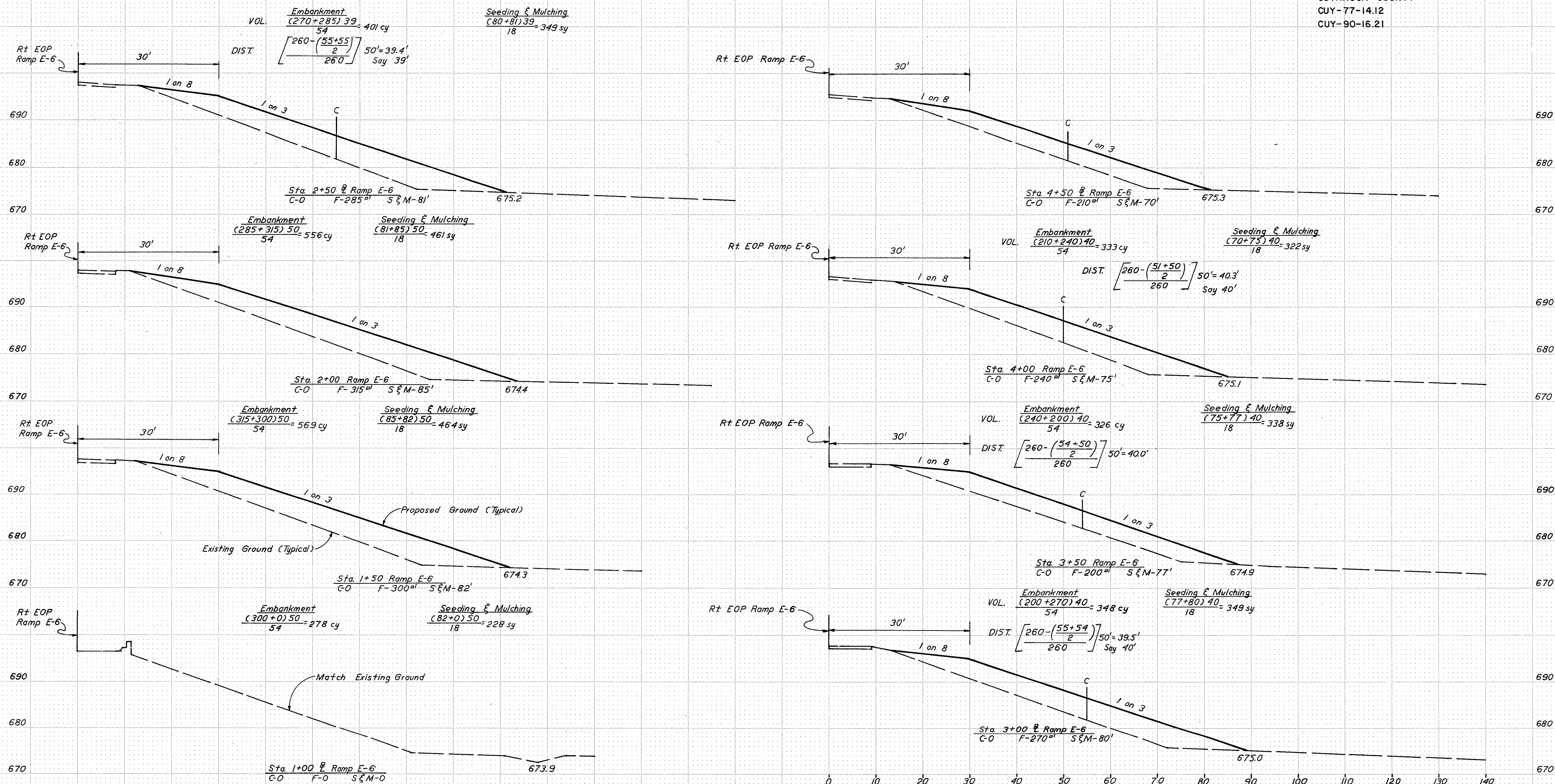


QUANTITY CALCULATIONS
 MADE BY DSP DATE 5-17-77
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| FHWA | STATE | PROJECT |
| 5 | OHIO | |

103
169

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21



NOTE: 1. See note in General Notes pertaining to corrected arc length calculations.
 2. Embankment Construction shall conform to 203.09
 3. Quantities from this sheet are summarized on sheet 104 for Grading Area (X-7)

TEMPORARY BENCH MARK
 Rt Edge of Pavement
 Sta. 4+00 Ramp E-6
 ELEV. 696.60

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

MADE DSP DATE 5-17-77
 TRACED FMV DATE 6-30-77
 CHECKED TS DATE 7-1-77
 SCALE AS SHOWN

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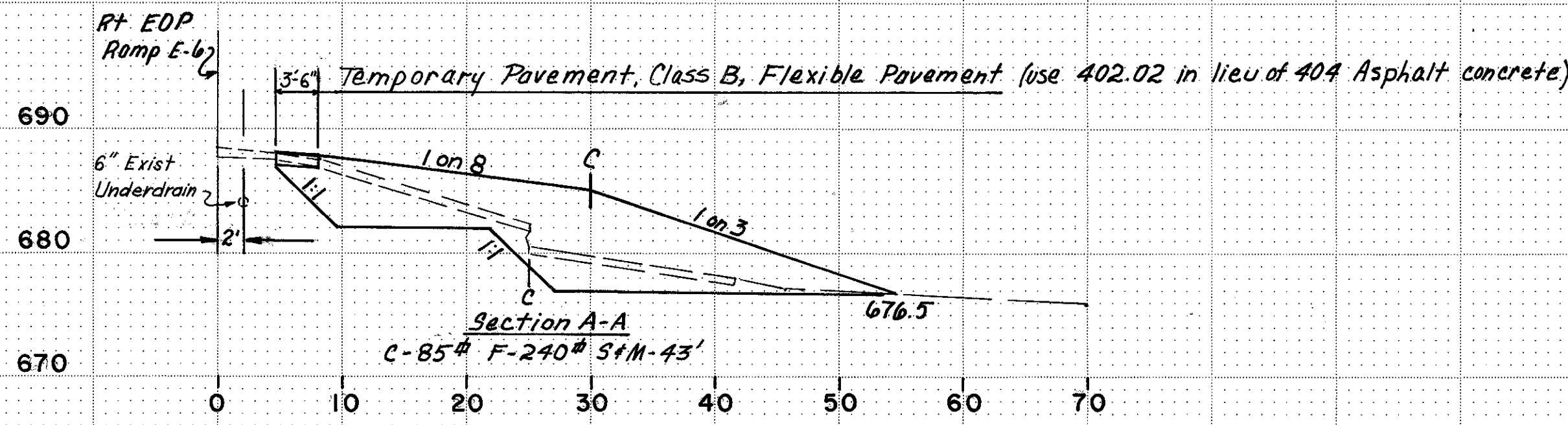
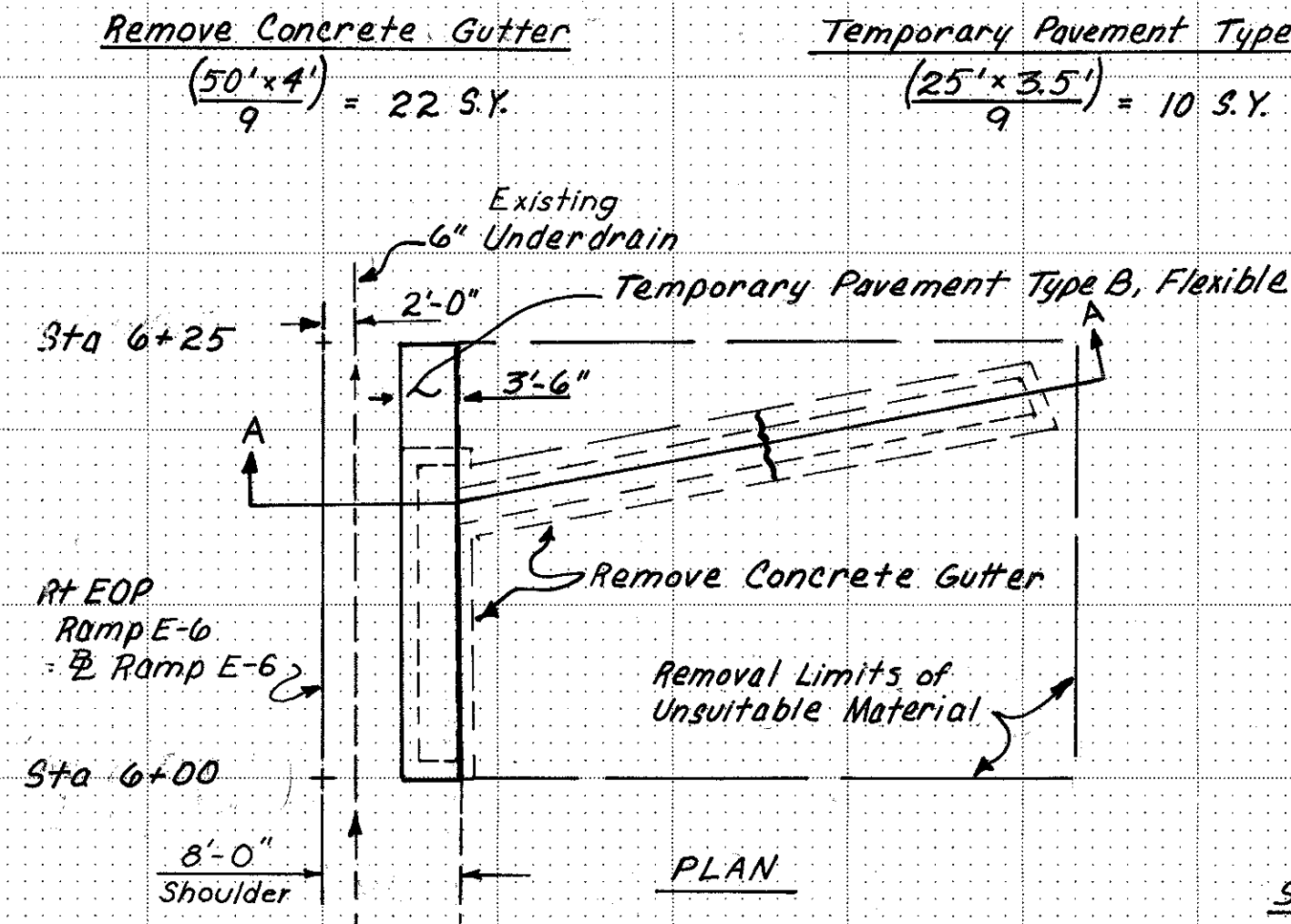
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QUANTITY CALCULATIONS
 MADE BY DSP DATE 5-17-77
 CHECKED BY TS DATE 6-22-77

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| FHWA | STATE | PROJECT |
| 5 | OHIO | |

104
169

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21



Excavation
 Vol. $\frac{(85 \cdot 85) 21}{54} = 66 \text{ C.Y.}$
 Dist. $\left[\frac{150+25}{150} \right] 25' = 20.8'$ Say 21'

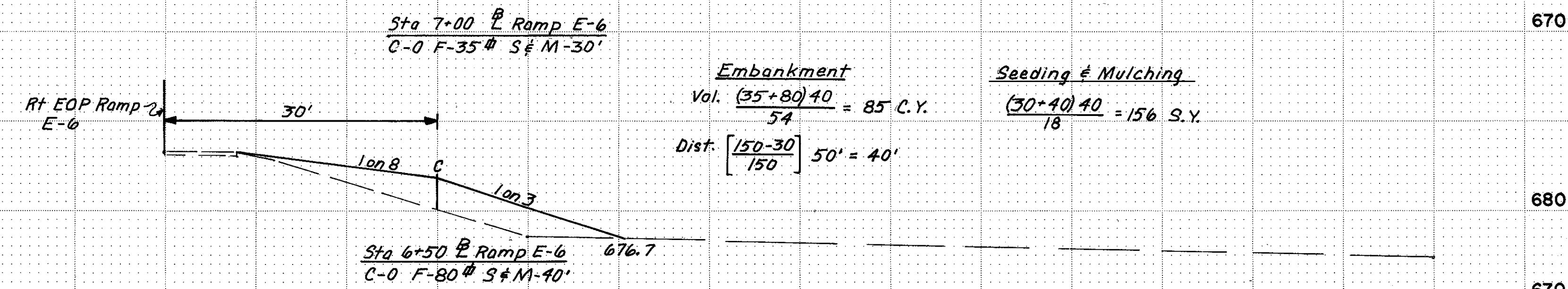
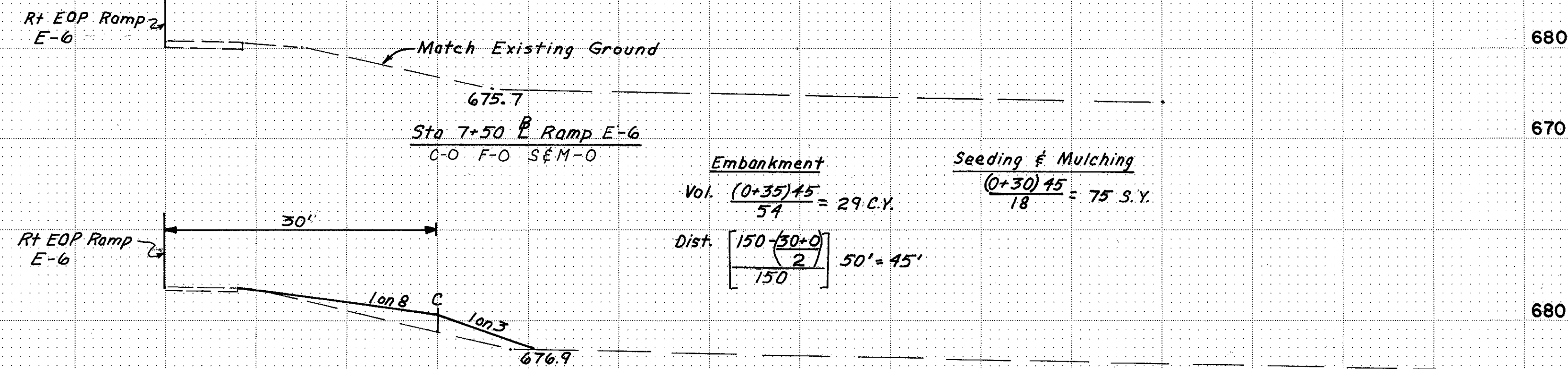
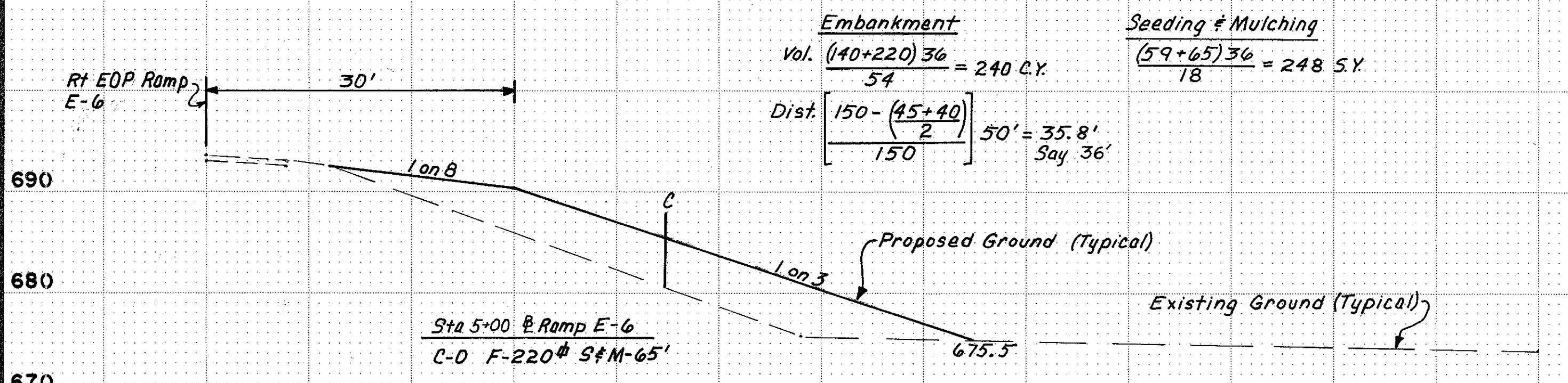
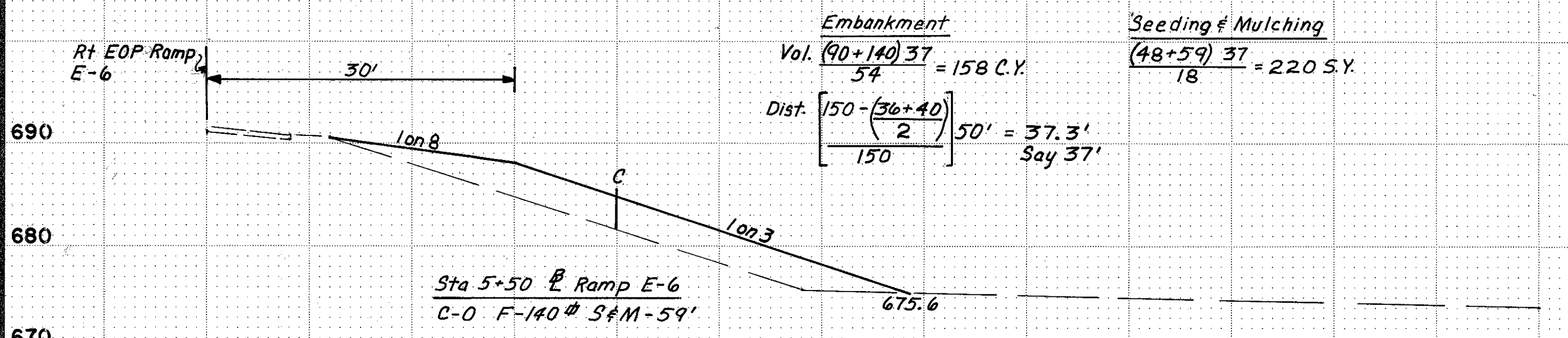
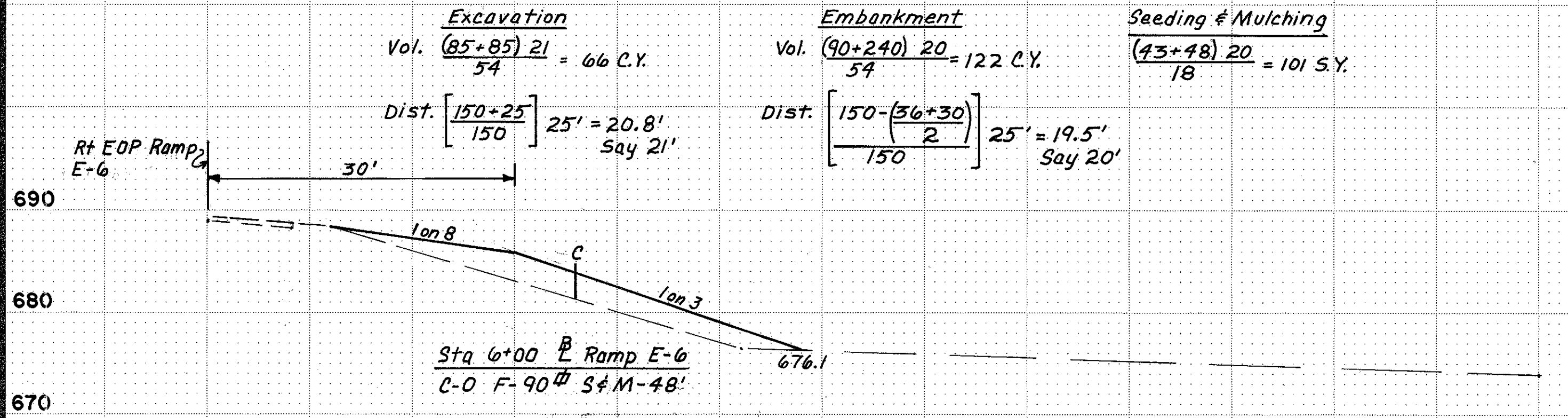
Embankment
 Vol. $\frac{(90+240) 20}{54} = 122 \text{ C.Y.}$
 Dist. $\left[\frac{150 - \frac{(36+30)}{2}}{150} \right] 25' = 19.5'$ Say 20'

Seeding & Mulching
 $\frac{(73+48) 20}{18} = 101 \text{ S.Y.}$

Embankment
 Vol. $\frac{(80+240) 20}{54} = 119 \text{ C.Y.}$
 Dist. $\left[\frac{150 - \frac{(30+30)}{2}}{150} \right] 25' = 20.0'$

Seeding & Mulching
 $\frac{(40+43) 20}{18} = 92 \text{ S.Y.}$

| GRADING AREA (X-6) | | | | | |
|----------------------------------|--|-----------------|-----------------|----------------|------|
| ESTIMATED QUANTITIES COST PART I | | | | | |
| ITEM | DESCRIPTION | TOTAL SHEET 103 | TOTAL SHEET 104 | TOTAL QUANTITY | UNIT |
| 202 | Remove Concrete Gutter | — | 22 | 22 | S.Y. |
| 203 | Excavation: Not Including Embank. Contr. | — | 66 | 66 | C.Y. |
| 203 | Embankment | 2811 | 1024 | 3835 | C.Y. |
| 659 | Seeding & Mulching | 2511 | 1147 | 3658 | S.Y. |
| 615 | Temp. Pavement, Type B, Flexible | — | 10 | 10 | S.Y. |



Embankment
 Vol. $\frac{(90+140) 37}{54} = 158 \text{ C.Y.}$
 Dist. $\left[\frac{150 - \frac{(36+40)}{2}}{150} \right] 50' = 37.3'$ Say 37'

Seeding & Mulching
 $\frac{(48+59) 37}{18} = 220 \text{ S.Y.}$

Embankment
 Vol. $\frac{(140+220) 36}{54} = 240 \text{ C.Y.}$
 Dist. $\left[\frac{150 - \frac{(45+40)}{2}}{150} \right] 50' = 35.8'$ Say 36'

Seeding & Mulching
 $\frac{(59+65) 36}{18} = 248 \text{ S.Y.}$

Embankment
 Vol. $\frac{(35+80) 40}{54} = 85 \text{ C.Y.}$
 Dist. $\left[\frac{150 - \frac{30}{2}}{150} \right] 50' = 40'$

Seeding & Mulching
 $\frac{(30+40) 40}{18} = 156 \text{ S.Y.}$

Excavation
 Vol. $\frac{(220+210) 34}{50} = 271 \text{ C.Y.}$
 Dist. $\left[\frac{150 - \frac{(51+45)}{2}}{150} \right] 50' = 34.0'$

Seeding & Mulching
 $\frac{(65+70) 34}{18} = 225 \text{ S.Y.}$

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

Notes: 1. See note in General Notes pertaining to corrected arc length calculations.
 2. Embankment Construction shall conform to 203.09.

Temporary Bench Mark: Rt. Edge Of Pavement Sta 4+00
 Ramp E-6 ELEV = 696.60

MADE DSP DATE 5-17-77
 TRACED KAL DATE 8-29-77
 CHECKED TS DATE 8-29-77
 SCALE AS SHOWN

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

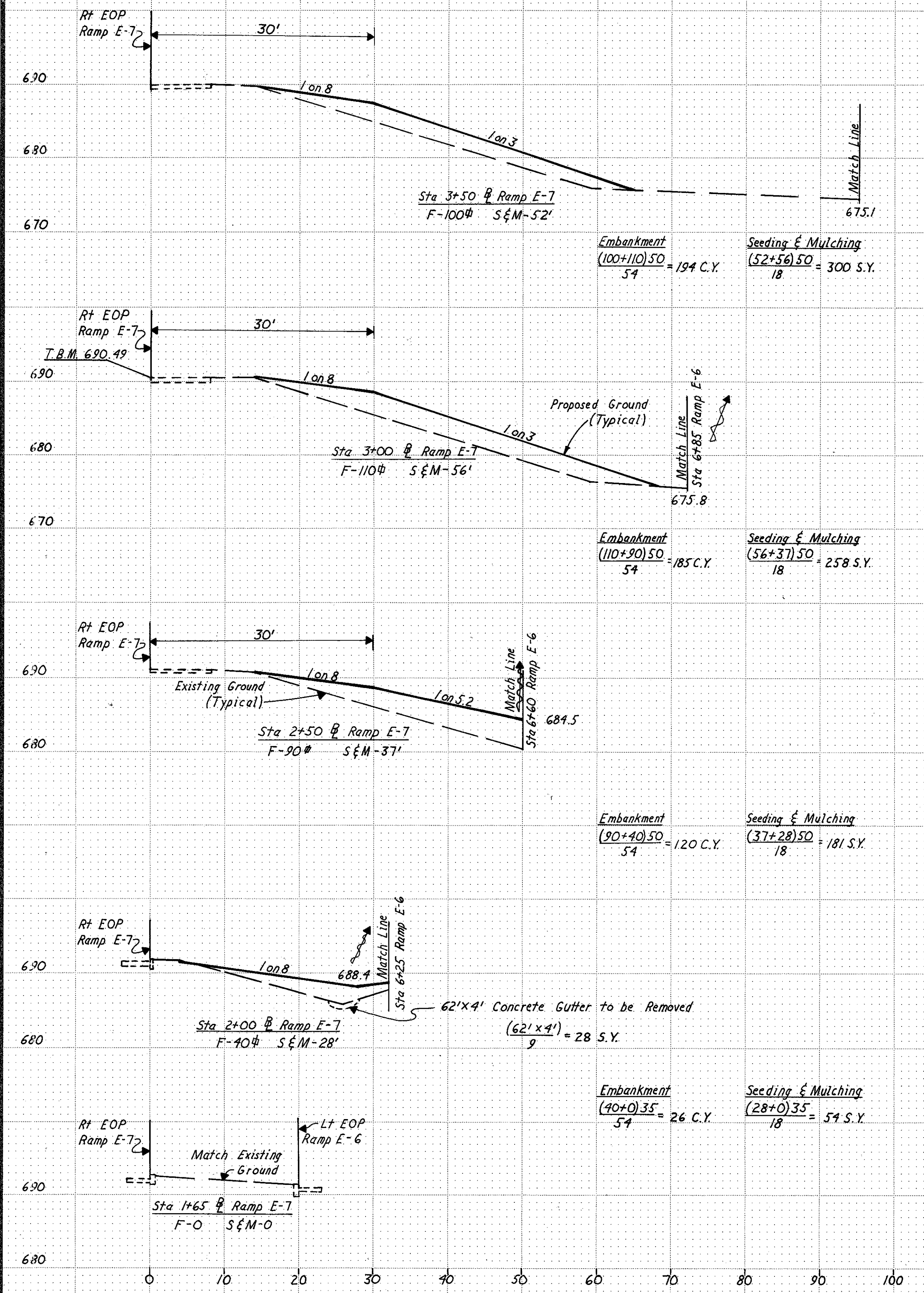


QUANTITY CALCULATIONS
 MADE BY DSP DATE 5-18-77
 CHECKED BY TS DATE 6-23-77

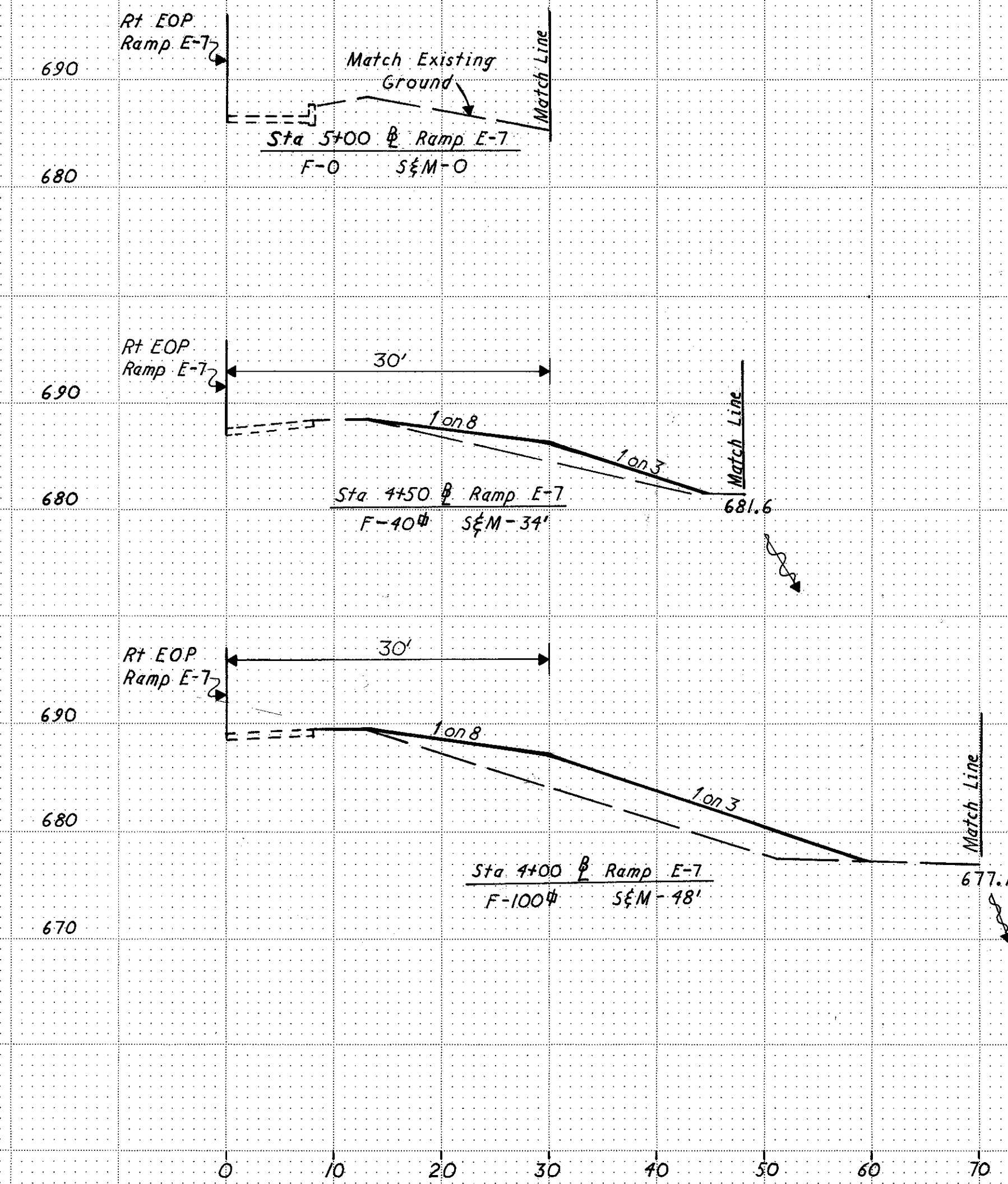
| | | |
|------|-------|---------|
| FHWA | STATE | PROJECT |
| 5 | OHIO | |

105
169

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21



Sodding
 6' Sodding between Sta 2+00 and Sta 3+00 along the C of ditch
 Quantity: $\frac{6 \times 100}{9} = 66.7 \text{ S.Y.}$
 (Less out 67 S.Y. From Seeding & Mulching)



| GRADING AREA (X-7) | | | | | |
|----------------------------------|-------------------------|-----------|-----------|----------------|------|
| ESTIMATED QUANTITIES COST PART I | | | | | |
| Item | Description | Sheet 106 | Sheet 105 | Total Quantity | Unit |
| 203 | Embankment | 1397 | 877 | 2274 | C.Y. |
| 659 | Seeding & Mulching | 1519 | 1393 | 2912 | S.Y. |
| 202 | Concrete Gutter Removed | | 28 | 28 | S.Y. |
| 660 | Sodding | | 67 | 67 | S.Y. |

Note: Embankments shall be constructed in accordance with 203.09

Temporary Bench Mark: See Sheet 106

MADE DSP DATE 5-18-77
 TRACED REL DATE 6-29-77
 CHECKED TS DATE 6-30-77
 SCALE AS SHOWN

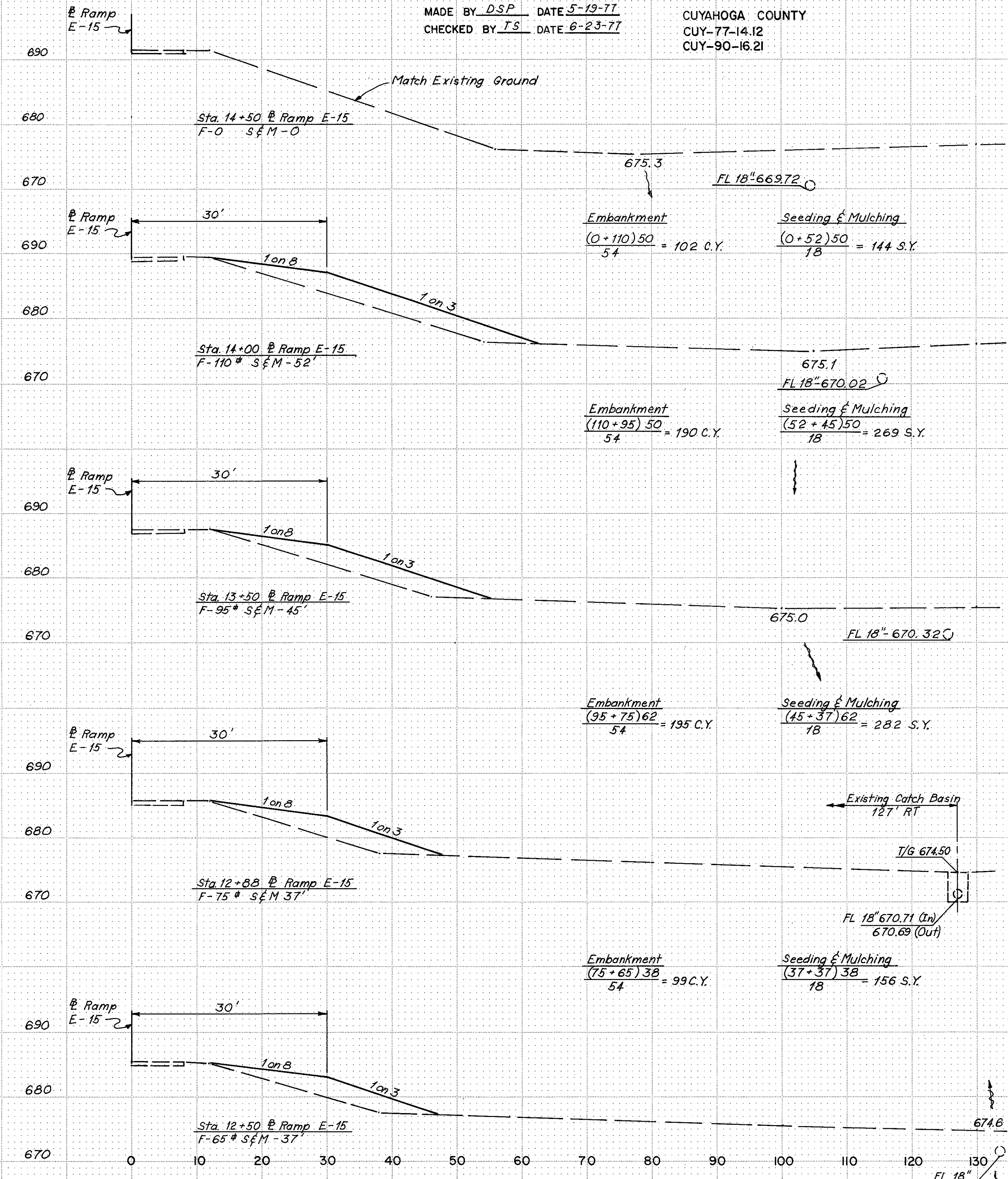
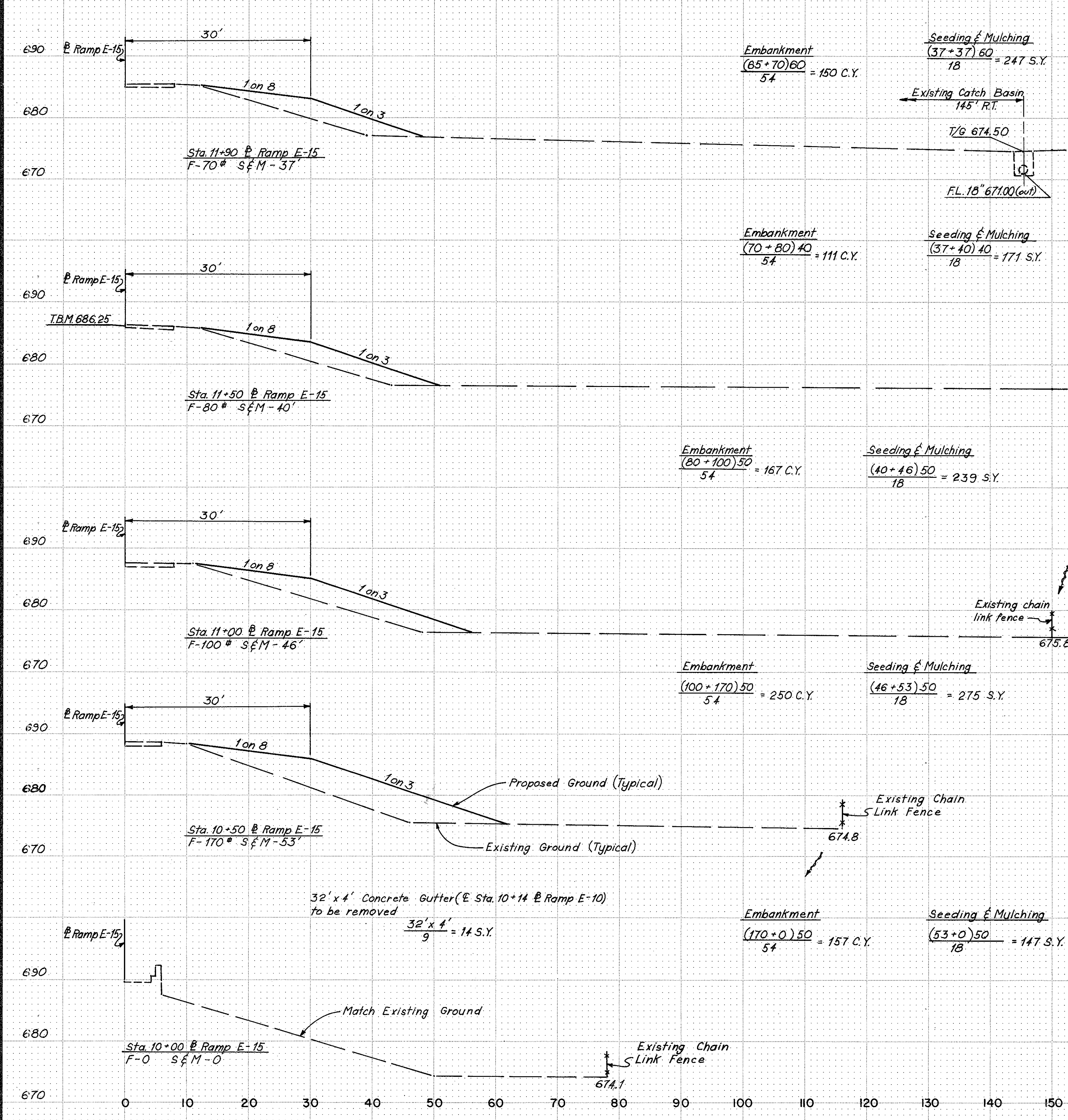
Howard, Needles, Tammen & Bergendoff
 CONSULTING ENGINEERS
 CLEVELAND, OHIO



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

QUANTITY CALCULATIONS
 MADE BY DSP DATE 5-19-77
 CHECKED BY JS DATE 6-23-77

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21



Temporary Bench Mark: RT. Edge of Pavement
 Sta. 11+50 Ramp E-15
 Elev. = 686.25

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

Note: Embankments Shall Be Constructed
 In Accordance With 203.09.

| ESTIMATED QUANTITIES COST PART I | | | |
|----------------------------------|-------------------------|----------|------|
| ITEM | DESCRIPTION | QUANTITY | UNIT |
| 203 | Embankment | 1421 | CY |
| 659 | Seeding & Mulching | 1930 | SY |
| 202 | Concrete Gutter Removed | 14 | SY |

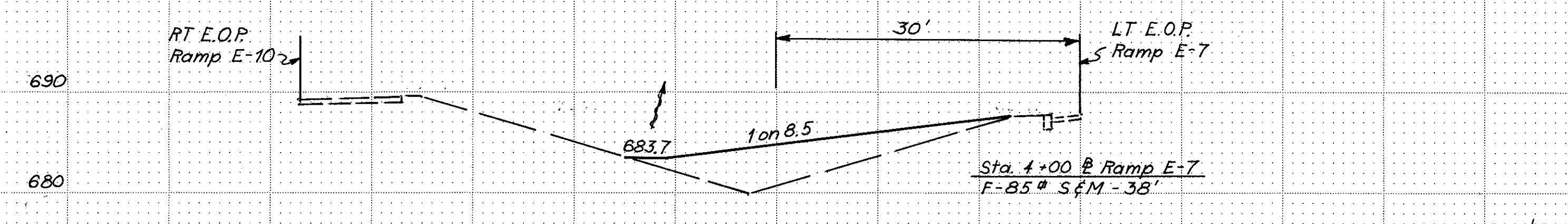
MADE DSP DATE 5-19-77
 TRACED DT DATE 8-28-77
 CHECKED JS DATE 8-29-77
 SCALE AS SHOWN

Howard, Needles, Tammen & Bergendoff
 CONSULTING ENGINEERS
 CLEVELAND OHIO



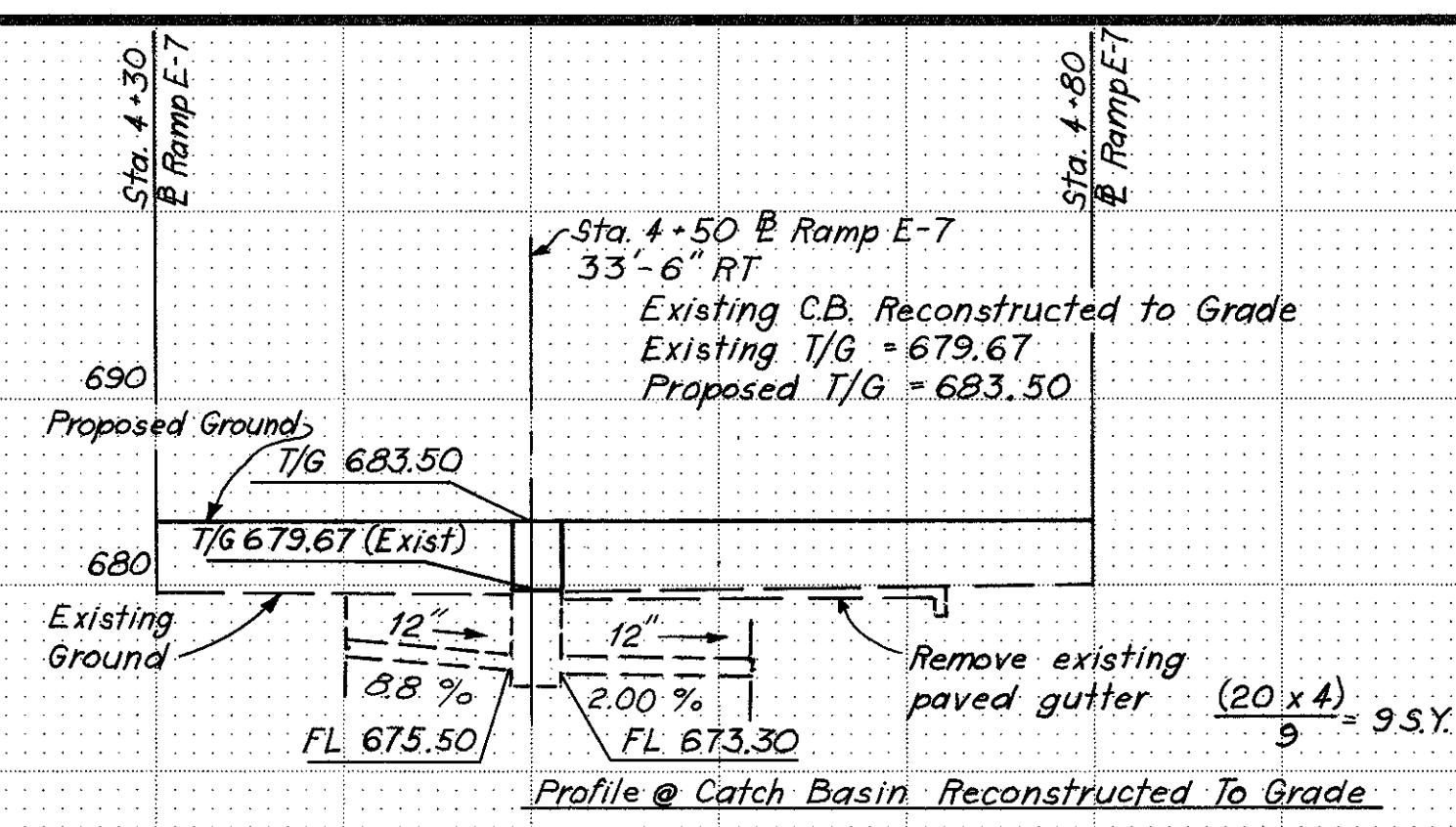
QUANTITY CALCULATIONS
 MADE BY DSP DATE 5-18-77
 CHECKED BY TS DATE 6-28-77

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

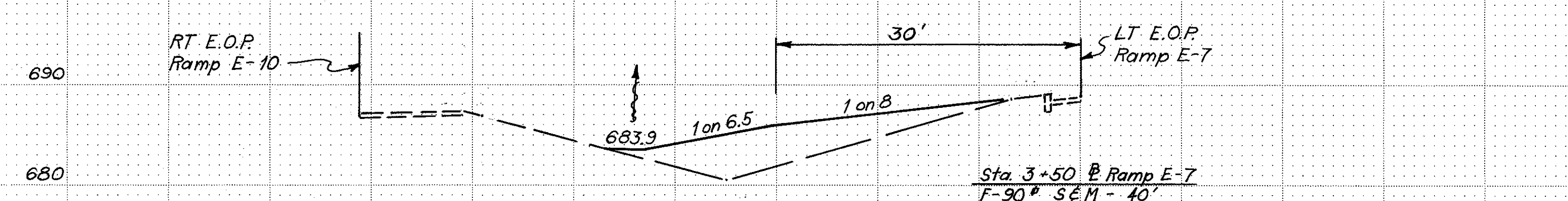


Embankment $\frac{(85+130)50}{54} = 199 \text{ C.Y.}$
 Seeding & Mulching $\frac{(38+60)50}{18} = 272 \text{ S.Y.}$

Embankment $\frac{(85+90)50}{54} = 162 \text{ C.Y.}$
 Seeding & Mulching $\frac{(38+40)50}{18} = 217 \text{ S.Y.}$

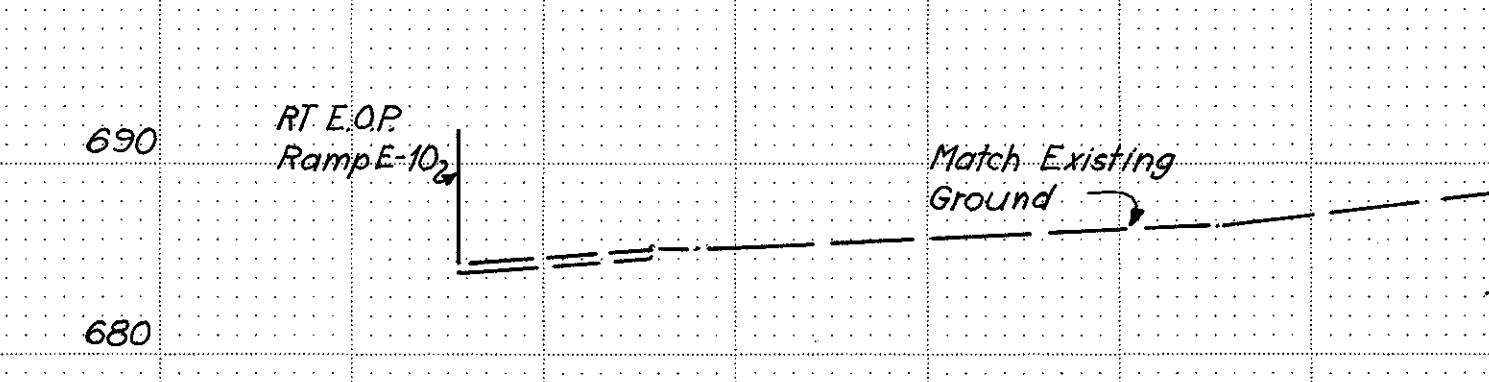


DETAIL - A

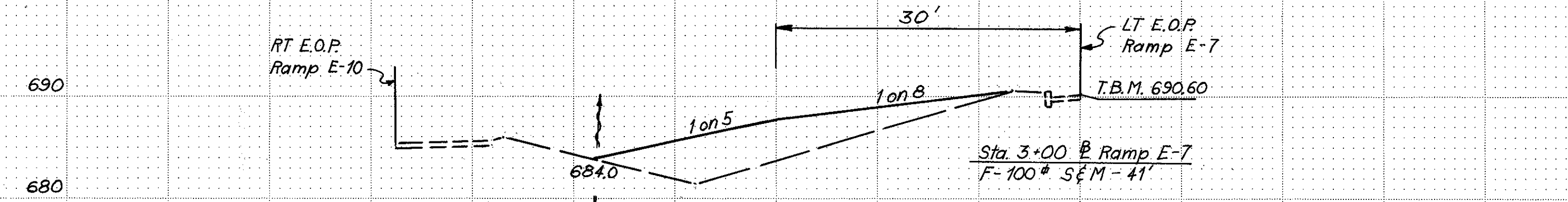


Embankment $\frac{(90+100)50}{54} = 176 \text{ C.Y.}$
 Seeding & Mulching $\frac{(40+41)50}{18} = 225 \text{ S.Y.}$

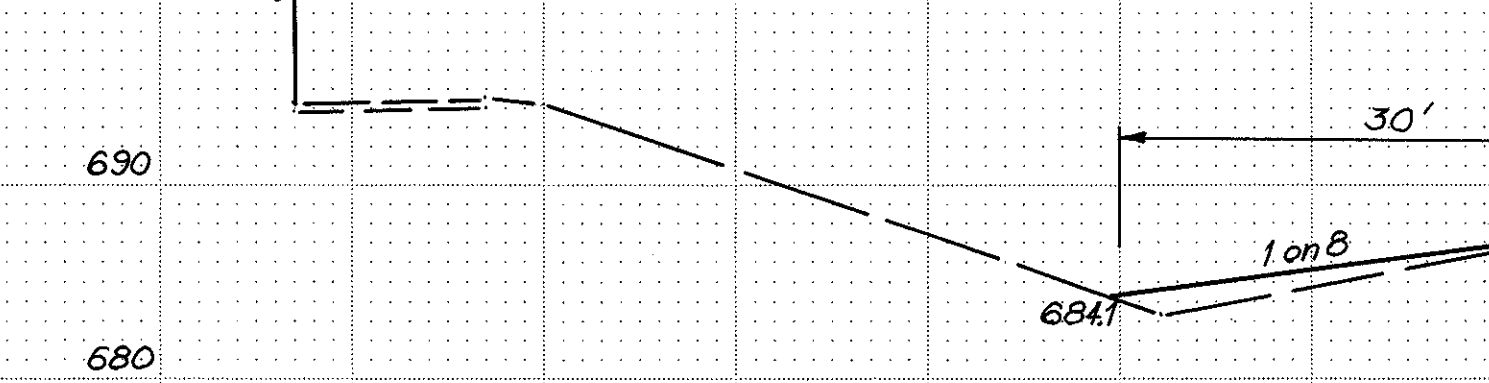
Embankment $\frac{(100+100)50}{54} = 185 \text{ C.Y.}$
 Seeding & Mulching $\frac{(41+42)50}{18} = 231 \text{ S.Y.}$



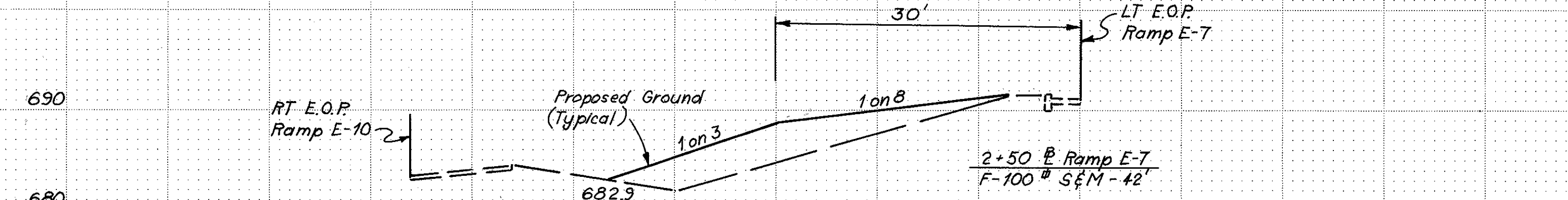
Embankment $\frac{(0+20)50}{54} = 19 \text{ C.Y.}$
 Seeding & Mulching $\frac{(0+23)50}{18} = 64 \text{ S.Y.}$



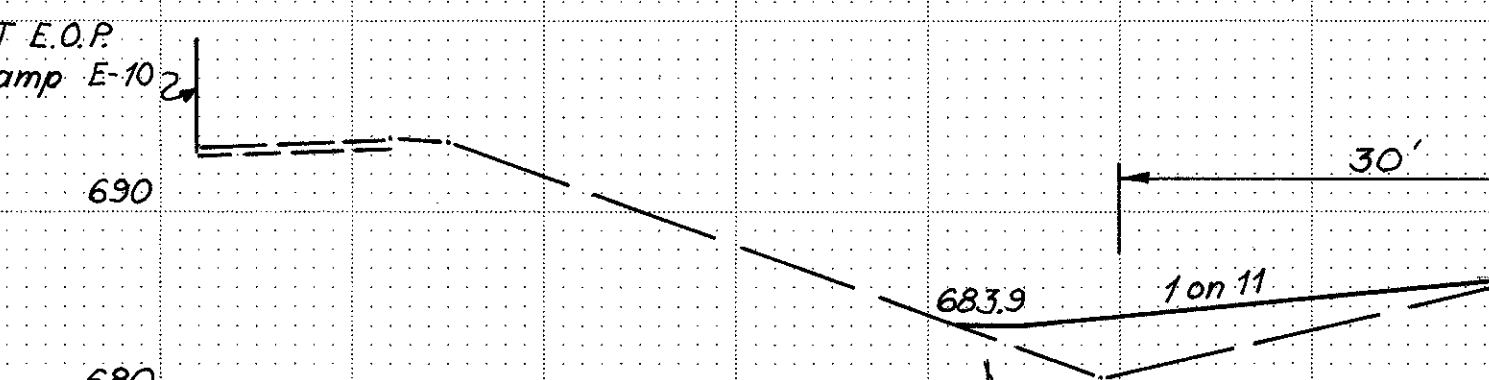
Embankment $\frac{(100+0)50}{54} = 93 \text{ C.Y.}$
 Seeding & Mulching $\frac{(42+0)50}{18} = 117 \text{ S.Y.}$



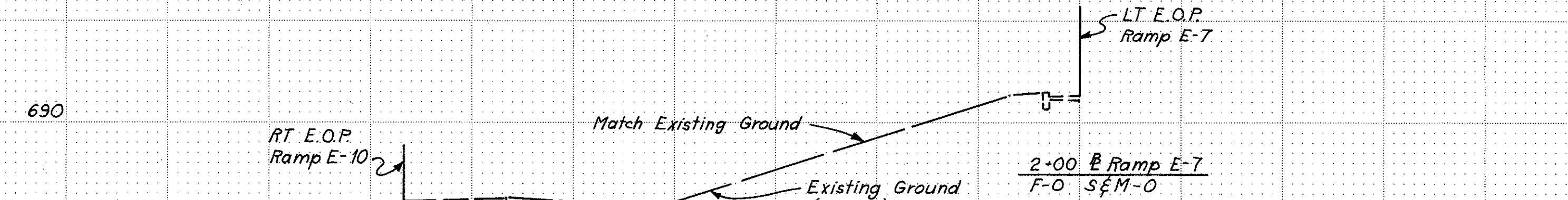
Embankment $\frac{(20+50)50}{54} = 65 \text{ C.Y.}$
 Seeding & Mulching $\frac{(23+30)50}{18} = 147 \text{ S.Y.}$



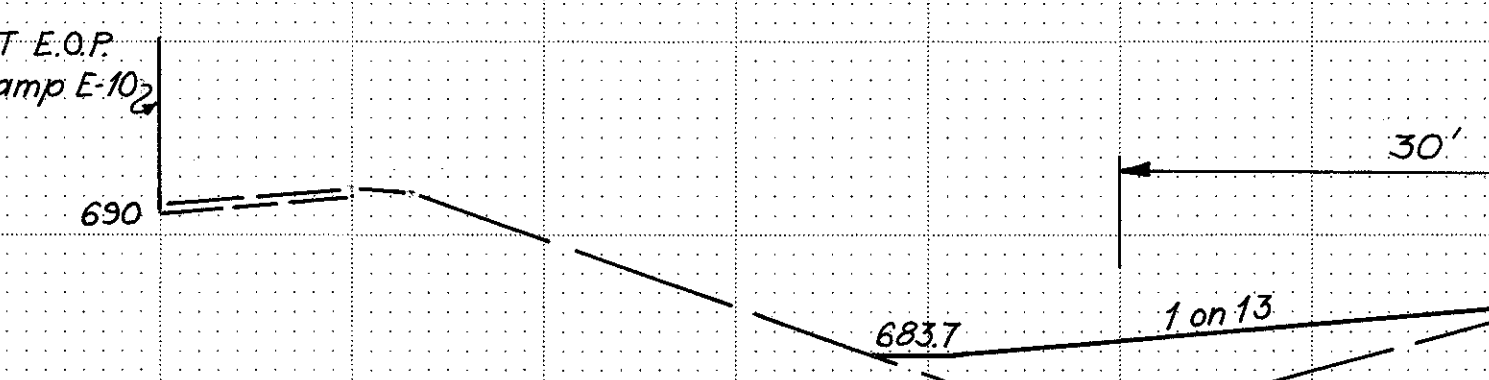
Embankment $\frac{(50+80)50}{54} = 120 \text{ C.Y.}$
 Seeding & Mulching $\frac{(30+35)50}{18} = 181 \text{ S.Y.}$



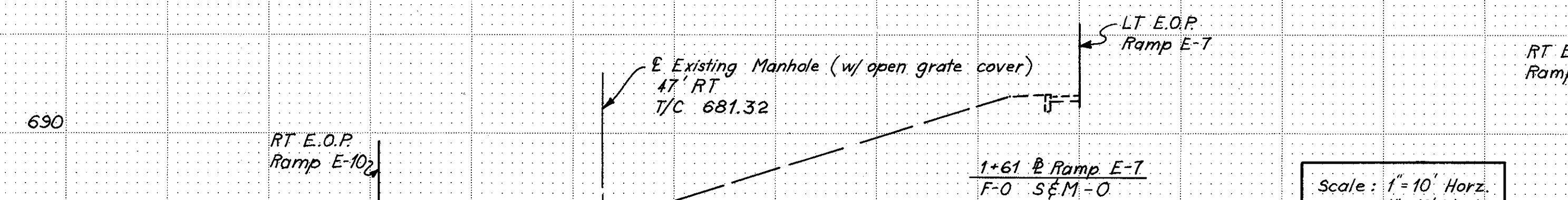
Embankment $\frac{(50+80)50}{54} = 120 \text{ C.Y.}$
 Seeding & Mulching $\frac{(30+35)50}{18} = 181 \text{ S.Y.}$



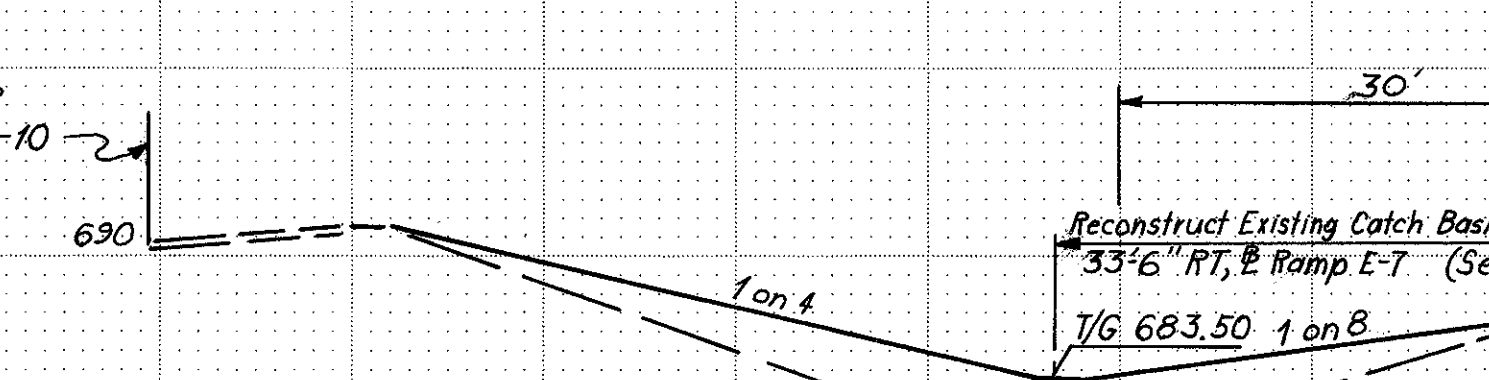
Embankment $\frac{(80+130)50}{54} = 194 \text{ C.Y.}$
 Seeding & Mulching $\frac{(35+60)50}{18} = 264 \text{ S.Y.}$



Embankment $\frac{(80+130)50}{54} = 194 \text{ C.Y.}$
 Seeding & Mulching $\frac{(35+60)50}{18} = 264 \text{ S.Y.}$



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



TEMPORARY BENCH MARK: Left edge of pavement, Sta. 3+00 @ Ramp E-7, Elev. 690.60.

MADE DSP DATE 5-18-77
 TRACED DT DATE 8-24-77
 CHECKED TS DATE 8-26-77
 SCALE AS SHOWN

Howard, Needles, Tammen & Bergendoff
 CONSULTING ENGINEERS
 CLEVELAND OHIO



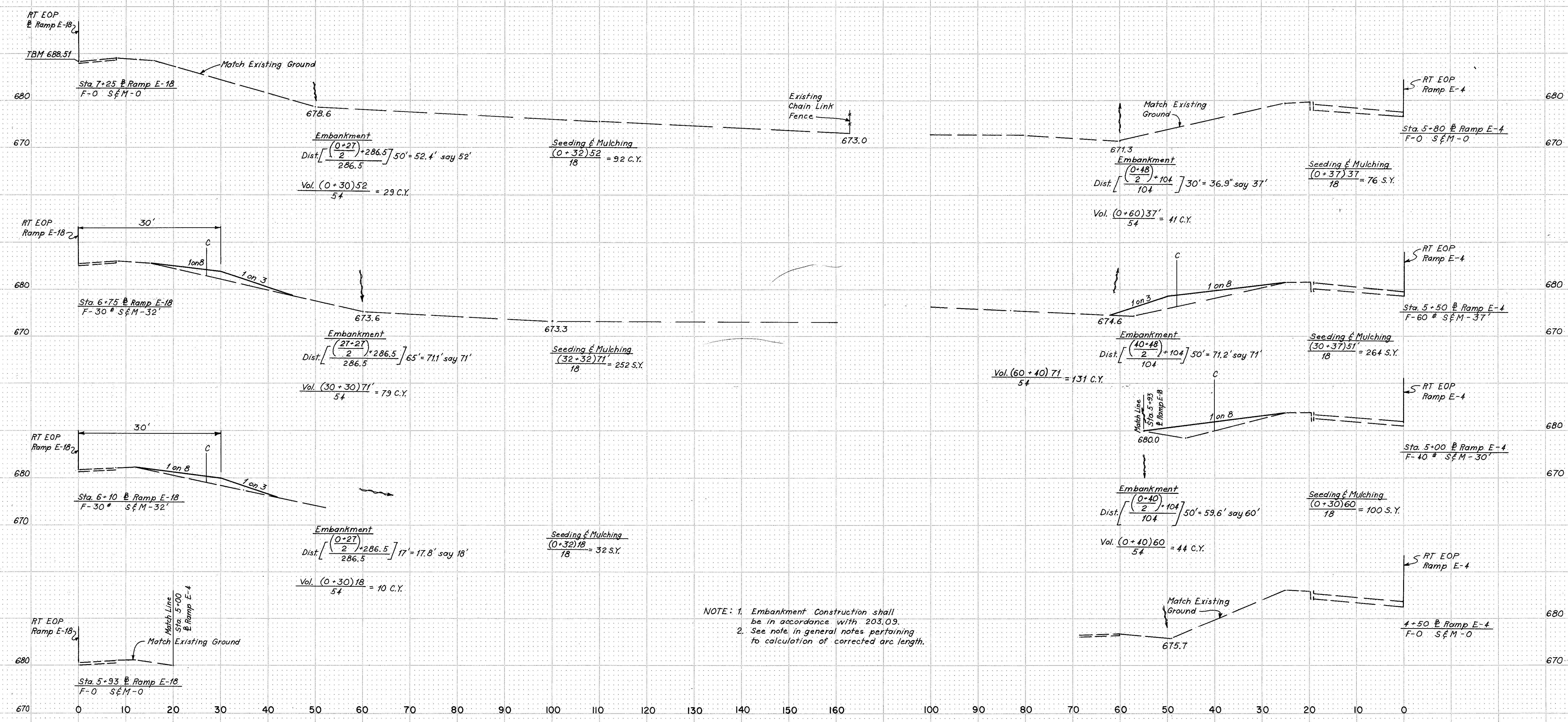
Note: Embankments shall be constructed per 203.09.

| ESTIMATED QUANTITIES COST PART. I | | | |
|-----------------------------------|------------------------------------|----------|------|
| ITEM | DESCRIPTION | QUANTITY | UNIT |
| 202 | Concrete Gutter Removed | 9 | SY |
| 203 | Embankment | 1213 | CY |
| 604 | Catch Basin Reconstructed to Grade | 1 | Each |
| 659 | Seeding & Mulching | 1718 | SY |

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21

QUANTITY CALCULATIONS
MADE BY DSP DATE 5-24-77
CHECKED BY TS DATE 6-23-77

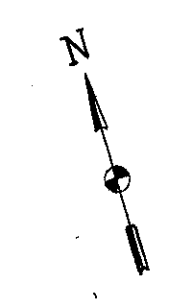
| ESTIMATED QUANTITIES COST PART I | | | |
|----------------------------------|--------------------|----------|------|
| ITEM | DESCRIPTION | QUANTITY | UNIT |
| 203 | Embankment | 334 | CY |
| 659 | Seeding & Mulching | 816 | SY |



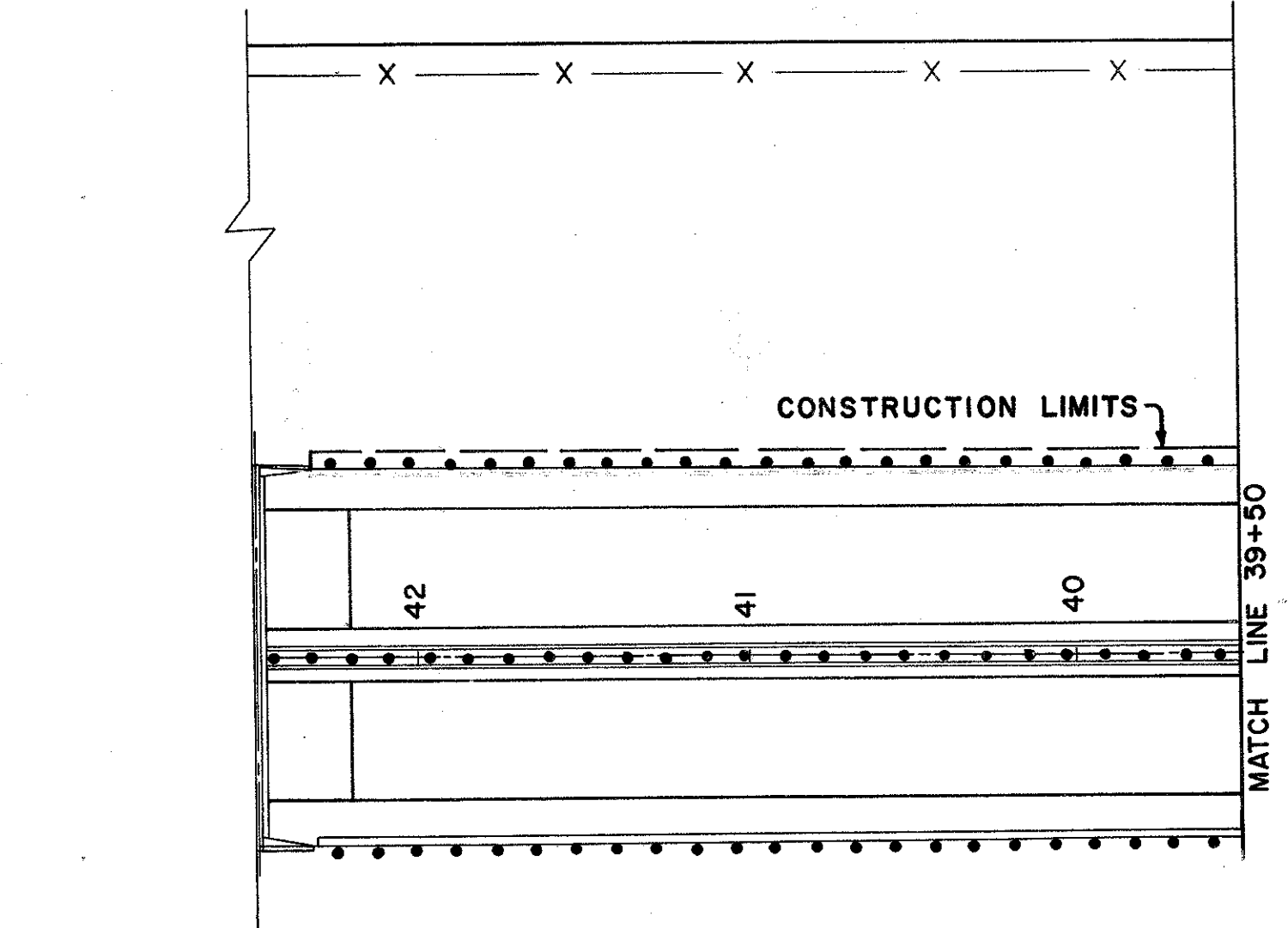
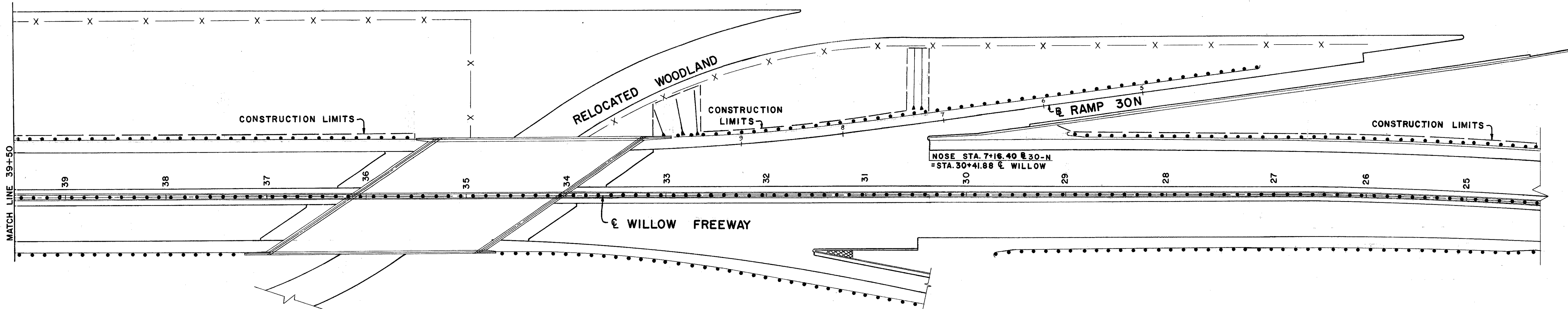
NOTE: 1. Embankment Construction shall be in accordance with 203.09.
2. See note in general notes pertaining to calculation of corrected arc length.

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

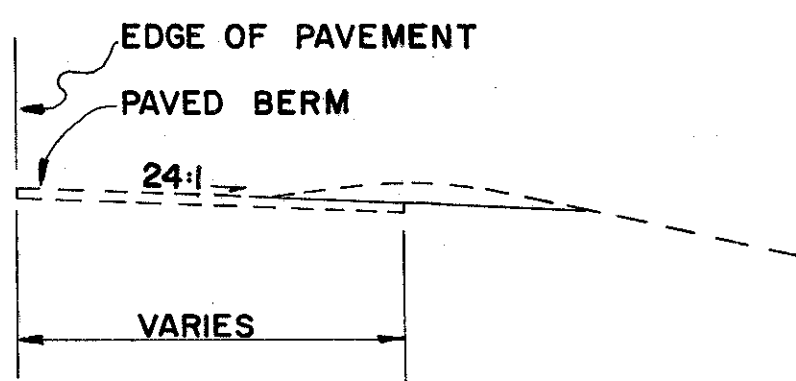
TEMPORARY BENCH MARK: RT Edge of Pavement
Sta. 7+25 @ Ramp E-18
Elev. = 688.51



WOODLAND AVENUE



| ESTIMATED QUANTITIES (100% State Participation) | | | | | | | | | | |
|---|------------|-------------------------|----|------|--|------------|----------|----------------------|---------------------|-----|
| SHEET NUMBER | REF-NUMBER | STATION TO STATION | | SIDE | 203 | | 659 | 659 | | 659 |
| | | FROM | TO | | EXCAVATION NOT INCLUDING EMBANKMENT CONST. | EMBANKMENT | | SEEDING AND MULCHING | AGRICULTURAL LIMING | |
| | | | | | CU. YDS. | CU. YDS. | SQ. YDS. | TONS | TONS | |
| 109B,C | * | FROM CROSS SECTIONS | | RT. | 166 | 164 | 326 | 0.15 | 0.03 | |
| | ** | FROM ESTIMATED QUANTITY | | RT. | 293 | | 1757 | 0.79 | 0.16 | |
| TOTAL | | | | | 459 | 164 | 2083 | 0.94 | 0.19 | |



RAMP 30-N
STA. 7+35 TO STA. 9+45 (RT.)

WILLOW FREEWAY
STA. 24+30 TO STA. 30+42 (RT.)
STA. 33+00 TO STA. 35+42 (BRIDGE RT.)
STA. 35+42 TO STA. 42+35 (RT.)

** SHOULDER DETAIL

**** NOTE:** THIS WORK SHALL CONSIST OF GRADING THE DESIGNATED SHOULDER AREAS WHERE TRAFFIC OR WEATHER MAY HAVE CAUSED A BUILDUP OF EARTH AND DEBRIS ALONG THE PAVED BERM OR UNDER THE GUARDRAIL. THE EXTENT OF THIS WORK SHALL BE SUCH THAT SMOOTH SHOULDER SLOPES ARE MAINTAINED TO ASSURE POSITIVE DRAINAGE OF THE SHOULDER. DAMAGE TO THE EXISTING PAVED BERM CAUSED BY THE CONTRACTOR'S NEGLIGENCE SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE STATE.

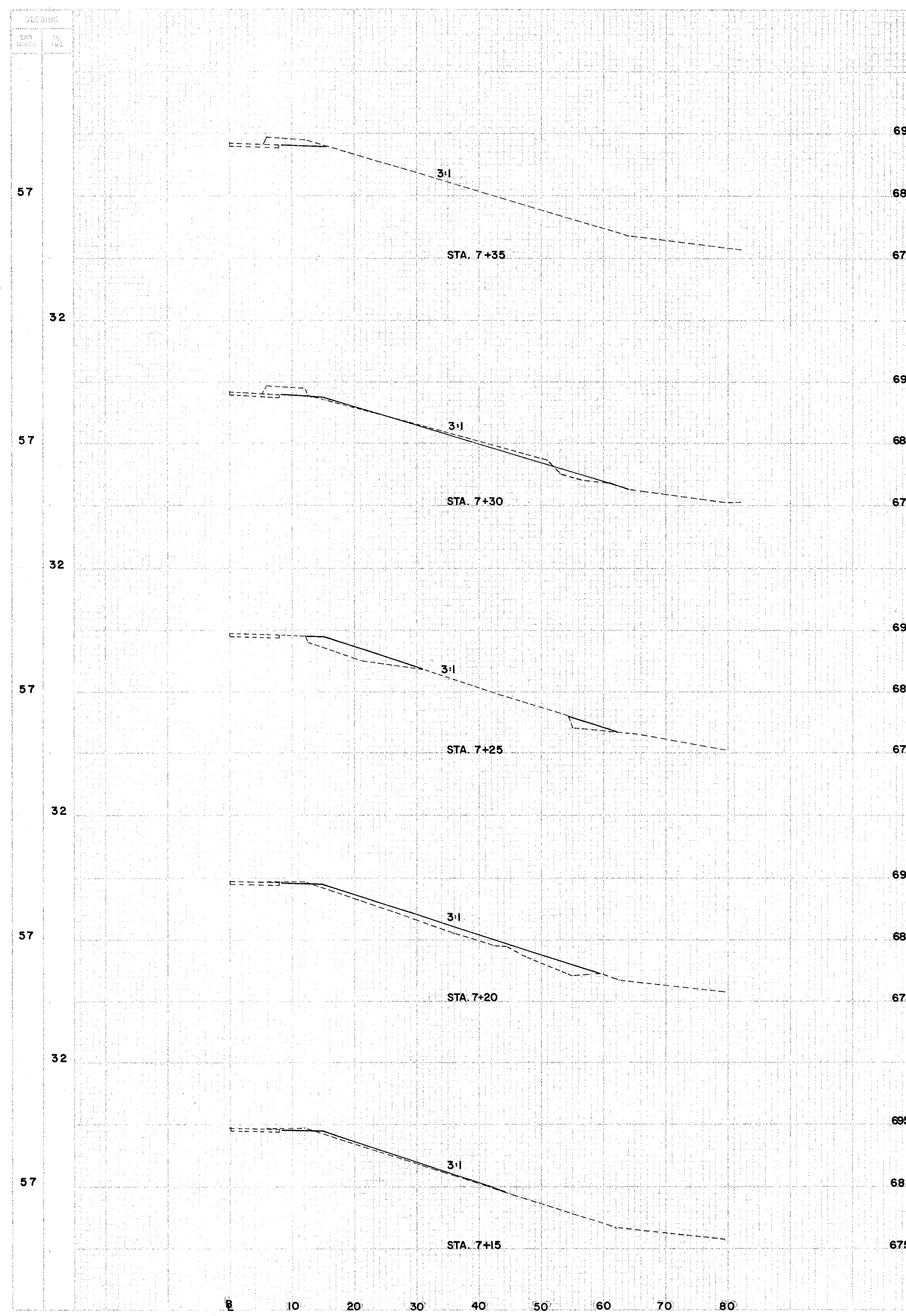
ESTIMATED QUANTITIES FOR THE WORK NOTED ABOVE ARE AS FOLLOWS:

ITEM 203 - EXCAVATION NOT INCLUDING EMBANKMENT 293 CU. YDS.

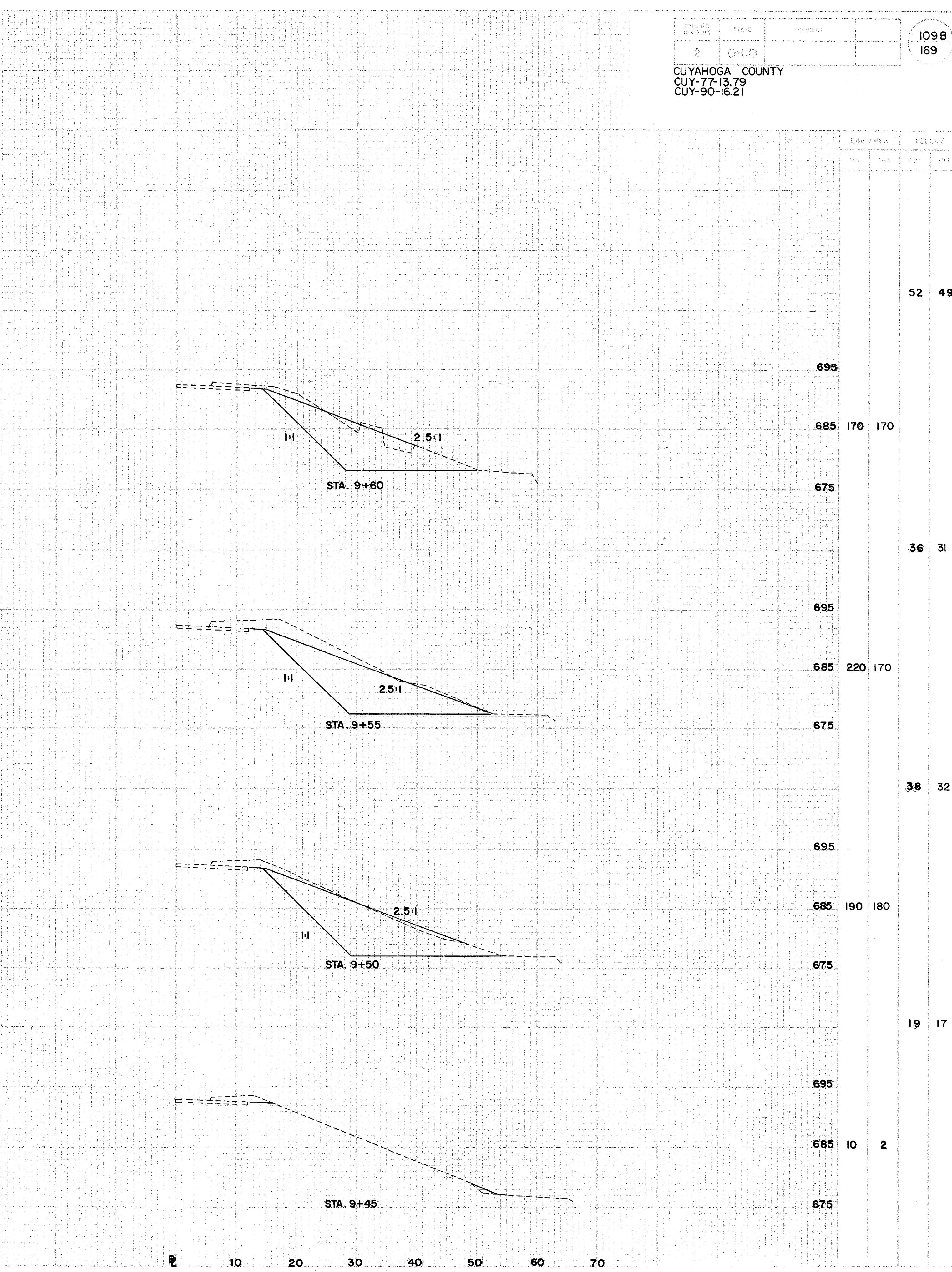
ITEM 659 - SEEDING AND MULCHING 1757 SQ.YD.

ITEM 659 - AGRICULTURAL LIMING 0.79 TONS

ITEM 659 - COMMERCIAL FERTILIZER 0.16 TONS



| END AREA | | VOLUME | | SEEDING | |
|----------|------|--------|------|-----------|----------|
| CUT | FILL | CUT | FILL | END WIDTH | SQ. YDS. |
| 9 | 0 | | | | |
| | | 3 | 1 | | |
| 19 | 8 | | | 42 | |
| | | 2 | 4 | | 23 |
| 0 | 40 | | | 42 | |
| | | 1 | 8 | | 23 |
| 1 | 45 | | | 42 | |
| | | 1 | 5 | | 23 |
| 1 | 4 | | | 42 | |



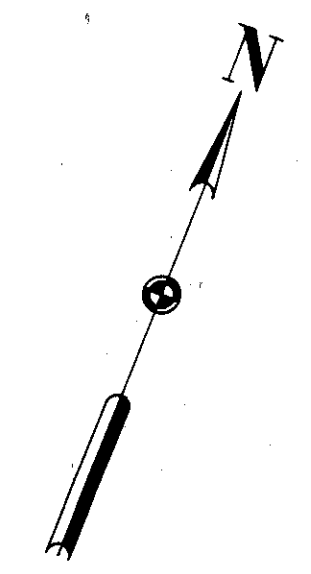
| END AREA | | VOLUME | |
|----------|------|--------|------|
| CUT | FILL | CUT | FILL |
| | | | |
| | | | |
| 170 | 170 | | |
| | | | |
| 220 | 170 | | |
| | | | |
| 190 | 180 | | |
| | | | |
| 10 | 2 | | |

TREE RELOCATION PLAN

| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

111
169

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21



- LEGEND**
- △ EXISTING TREE TO BE REMOVED
 - EXISTING TREE TO BE RELOCATED
 - PROPOSED TREE LOCATION
 - LIMITS OF GRADING



SCALE IN FEET

MADE DSP DATE 10-5-77 **Howard, Needles, Tammen & Bergendoff**
 TRACED Z.W.D. DATE 10-6-77 **CONSULTING ENGINEERS**
 CHECKED W.S. DATE 10-12-77 **CLEVELAND, OHIO**
 SCALE 1"=100'



TREE RELOCATION QUANTITIES

CUYAHOGA COUNTY
 CUY - 77-14.12
 CUY - 90-16.21

| ITEM 201 , ITEM 664 , ITEM 665 - COST PARTICIPATION I | | | | | | | | | | | | | | | | | | | |
|---|------------------|---------|-----------|--------------------|---------|-----------------------------|---------------------------------------|--|-----------------------------|---------------------------------------|--|-----------------------------|---------------------------------------|--|------|------|------|--|--|
| Ref No | Existing Station | Offset | Tree Size | Relocation Station | Offset | 201 | | | 664 | | | 665 | | | | | | | |
| | | | | | | Trees and/or Stumps Removed | Planting Salvaged Plants, as per plan | Large Trees Moved and Reset, as per plan | Trees and/or Stumps Removed | Planting Salvaged Plants, as per plan | Large Trees Moved and Reset, as per plan | Trees and/or Stumps Removed | Planting Salvaged Plants, as per plan | Large Trees Moved and Reset, as per plan | | | | | |
| | | | | | | | | | | | | | | | Each | Each | Each | | |
| 1 | 1+73 Ramp E-4 | 50' Rt. | 4" | 2+50 Ramp E-4 | 90' Rt. | | | | | | | | | | | | | | |
| 2 | 4+69 Ramp E-4 | 28' Rt. | 3" | | | | | | | | | | | | | | | | |
| 3 | 5+41 Ramp E-4 | 22' Rt. | 5" | | | | | | | | | | | | | | | | |
| 4 | 15+05 Ramp E-5 | 94' Rt. | 5" | 15+00 Ramp E-5 | 60' Rt. | | | | | | | | | | | | | | |
| 5 | 15+62 Ramp E-5 | 58' Rt. | 6" | | | | | | | | | | | | | | | | |
| 6 | 15+92 Ramp E-5 | 58' Rt. | 5" | | | | | | | | | | | | | | | | |
| 7 | 16+17 Ramp E-5 | 40' Rt. | 5" | 15+80 Ramp E-5 | 43' Rt. | | | | | | | | | | | | | | |
| 8 | 16+34 Ramp E-5 | 30' Rt. | 6" | 14+50 Ramp E-5 | 60' Rt. | | | | | | | | | | | | | | |
| 9 | 16+49 Ramp E-5 | 31' Rt. | 4" | 15+92 Ramp E-5 | 35' Rt. | | | | | | | | | | | | | | |
| 10 | 16+67 Ramp E-5 | 27' Rt. | 5" | 16+15 Ramp E-5 | 33' Rt. | | | | | | | | | | | | | | |
| 11 | 5+50 Ramp E-14 | 75' Lt. | Bush | | | | | | | | | | | | | | | | |
| 12 | 5+42 Ramp E-14 | 57' Lt. | 3" | 5+35 Ramp E-14 | 60' Lt. | | | | | | | | | | | | | | |
| 13 | 5+67 Ramp E-14 | 58' Lt. | 4" | 5+70 Ramp E-14 | 75' Lt. | | | | | | | | | | | | | | |
| 14 | 5+67 Ramp E-14 | 58' Lt. | 4" | 6+00 Ramp E-14 | 60' Lt. | | | | | | | | | | | | | | |
| 15 | 5+62 Ramp E-14 | 44' Lt. | 4" | 4+90 Ramp E-14 | 66' Lt. | | | | | | | | | | | | | | |
| 16 | 5+62 Ramp E-14 | 44' Lt. | 4" | 4+70 Ramp E-14 | 66' Lt. | | | | | | | | | | | | | | |
| 17 | 4+62 Ramp E-17 | 51' Lt. | 8" | 5+90 Ramp E-17 | 60' Lt. | | | | | | | | | | | | | | |
| 18 | 5+19 Ramp E-17 | 50' Lt. | 5" | 5+40 Ramp E-17 | 55' Lt. | | | | | | | | | | | | | | |
| 19 | 2+83 Ramp E-6 | 33' Rt. | 6" | | | | | | | | | | | | | | | | |
| 20 | 4+40 Ramp E-6 | 66' Rt. | 4" | | | | | | | | | | | | | | | | |
| 21 | 4+75 Ramp E-6 | 37' Rt. | 4" | | | | | | | | | | | | | | | | |
| 22 | 4+91 Ramp E-6 | 66' Rt. | 6" | | | | | | | | | | | | | | | | |
| 23 | 5+24 Ramp E-6 | 26' Rt. | 6" | | | | | | | | | | | | | | | | |
| 24 | 5+55 Ramp E-6 | 49' Rt. | 4" | 4+75 Ramp E-6 | 65' Rt. | | | | | | | | | | | | | | |
| 25 | 6+05 Ramp E-6 | 22' Rt. | 3" | 5+60 Ramp E-6 | | | | | | | | | | | | | | | |

| ITEM 201 , ITEM 664 , ITEM 665 - COST PARTICIPATION I | | | | | | | | | | | | | | | | | | | |
|---|------------------|---------|-----------|--------------------|---------|-----------------------------|---------------------------------------|--|-----------------------------|---------------------------------------|--|-----------------------------|---------------------------------------|--|------|------|------|--|--|
| Ref. No. | Existing Station | Offset | Tree Size | Relocation Station | Offset | 201 | | | 664 | | | 665 | | | | | | | |
| | | | | | | Trees and/or Stumps Removed | Planting Salvaged Plants, as per plan | Large Trees Moved and Reset, as per plan | Trees and/or Stumps Removed | Planting Salvaged Plants, as per plan | Large Trees Moved and Reset, as per plan | Trees and/or Stumps Removed | Planting Salvaged Plants, as per plan | Large Trees Moved and Reset, as per plan | | | | | |
| | | | | | | | | | | | | | | | Each | Each | Each | | |
| 26 | 6+43 Ramp E-6 | 28' Rt. | 3" | 6+45 Ramp E-6 | 45' Rt. | | | | | | | | | | | | | | |
| 27 | 6+74 Ramp E-6 | 21' Rt. | 3" | 6+75 Ramp E-6 | 40' Rt. | | | | | | | | | | | | | | |
| 28 | 7+20 Ramp E-6 | 24' Rt. | 10" | 7+25 Ramp E-6 | 50' Rt. | | | | | | | | | | | | | | |
| 29 | 2+75 Ramp E-7 | 38' Lt. | 4" | 2+50 Ramp E-7 | 55' Rt. | | | | | | | | | | | | | | |
| 30 | 3+23 Ramp E-7 | 45' Rt. | 4" | 3+00 Ramp E-7 | 55' Rt. | | | | | | | | | | | | | | |
| 31 | 3+49 Ramp E-7 | 46' Rt. | 4" | 3+40 Ramp E-7 | 50' Rt. | | | | | | | | | | | | | | |
| 32 | 3+78 Ramp E-7 | 41' Rt. | 5" | 3+70 Ramp E-7 | 55' Rt. | | | | | | | | | | | | | | |
| 33 | 4+05 Ramp E-7 | 39' Rt. | 4" | 3+90 Ramp E-7 | 55' Rt. | | | | | | | | | | | | | | |
| 34 | 11+21 Ramp E-15 | 52' Lt. | 3" | 4+15 Ramp E-7 | 65' Rt. | | | | | | | | | | | | | | |
| 35 | 11+21 Ramp E-15 | 52' Lt. | 3" | 4+35 Ramp E-7 | 55' Rt. | | | | | | | | | | | | | | |
| 36 | 11+21 Ramp E-15 | 52' Lt. | 3" | 4+50 Ramp E-7 | 50' Rt. | | | | | | | | | | | | | | |
| 37 | 11+21 Ramp E-15 | 52' Lt. | 3" | 11+15 Ramp E-15 | 65' Lt. | | | | | | | | | | | | | | |
| 38 | 11+35 Ramp E-15 | 58' Lt. | 3" | 10+80 Ramp E-15 | 70' Lt. | | | | | | | | | | | | | | |
| 39 | 11+35 Ramp E-15 | 58' Lt. | 3" | 10+60 Ramp E-15 | 80' Lt. | | | | | | | | | | | | | | |
| 40 | 11+05 Ramp E-15 | 65' Lt. | 3" | 9+75 Ramp E-15 | 75' Lt. | | | | | | | | | | | | | | |
| 41 | 11+05 Ramp E-15 | 65' Lt. | 3" | 10+00 Ramp E-15 | 65' Lt. | | | | | | | | | | | | | | |
| 42 | 11+05 Ramp E-15 | 65' Lt. | 3" | 10+25 Ramp E-15 | 65' Lt. | | | | | | | | | | | | | | |
| 43 | 10+50 Ramp E-15 | 60' Lt. | Bush | | | | | | | | | | | | | | | | |
| 44 | 9+95 Ramp E-15 | 60' Lt. | 4" | 9+60 Ramp E-15 | 60' Lt. | | | | | | | | | | | | | | |
| 45 | 10+25 Ramp E-15 | 28' Rt. | 8" | 10+00 Ramp E-15 | 40' Rt. | | | | | | | | | | | | | | |
| 46 | 10+31 Ramp E-15 | 45' Rt. | 6" | 10+50 Ramp E-15 | 65' Rt. | | | | | | | | | | | | | | |
| 47 | 10+45 Ramp E-15 | 33' Rt. | 4" | 10+75 Ramp E-15 | 45' Rt. | | | | | | | | | | | | | | |
| 48 | 11+05 Ramp E-15 | 47' Rt. | 2" | 13+45 Ramp E-15 | 40' Rt. | | | | | | | | | | | | | | |
| 49 | 11+05 Ramp E-15 | 47' Rt. | 2" | 13+50 Ramp E-15 | 40' Rt. | | | | | | | | | | | | | | |
| 50 | 11+05 Ramp E-15 | 47' Rt. | 2" | 13+47 Ramp E-15 | 45' Rt. | | | | | | | | | | | | | | |

| ITEM 201 , ITEM 664 , ITEM 665 - COST PARTICIPATION I | | | | | | | | | | | | | | | | | | | |
|---|------------------|---------|-----------|--------------------|---------|-----------------------------|---------------------------------------|--|-----------------------------|---------------------------------------|--|-----------------------------|---------------------------------------|--|------|------|------|--|--|
| Ref. No. | Existing Station | Offset | Tree Size | Relocation Station | Offset | 201 | | | 664 | | | 665 | | | | | | | |
| | | | | | | Trees and/or Stumps Removed | Planting Salvaged Plants, as per plan | Large Trees Moved and Reset, as per plan | Trees and/or Stumps Removed | Planting Salvaged Plants, as per plan | Large Trees Moved and Reset, as per plan | Trees and/or Stumps Removed | Planting Salvaged Plants, as per plan | Large Trees Moved and Reset, as per plan | | | | | |
| | | | | | | | | | | | | | | | Each | Each | Each | | |
| 51 | 11+05 Ramp E-15 | 47' Rt. | Bush | | | | | | | | | | | | | | | | |
| 52 | 11+28 Ramp E-15 | 26' Rt. | 3" | 11+40 Ramp E-15 | 40' Rt. | | | | | | | | | | | | | | |
| 53 | 11+28 Ramp E-15 | 26' Rt. | 3" | 11+50 Ramp E-15 | 45' Rt. | | | | | | | | | | | | | | |
| 54 | 11+41 Ramp E-15 | 38' Rt. | 3" | 11+55 Ramp E-15 | 40' Rt. | | | | | | | | | | | | | | |
| 55 | 11+41 Ramp E-15 | 38' Rt. | 3" | 11+60 Ramp E-15 | 45' Rt. | | | | | | | | | | | | | | |
| 56 | 11+57 Ramp E-15 | 24' Rt. | 4" | 11+70 Ramp E-15 | 40' Rt. | | | | | | | | | | | | | | |
| 57 | 11+72 Ramp E-15 | 36' Rt. | 3" | | | | | | | | | | | | | | | | |
| 58 | 12+31 Ramp E-15 | 29' Rt. | 12" | 12+30 Ramp E-15 | 60' Rt. | | | | | | | | | | | | | | |
| 59 | 12+77 Ramp E-15 | 42' Rt. | 12" | 12+60 Ramp E-15 | 55' Rt. | | | | | | | | | | | | | | |
| 60 | 12+87 Ramp E-15 | 33' Rt. | 9" | 12+87 Ramp E-15 | 60' Rt. | | | | | | | | | | | | | | |
| 61 | 13+03 Ramp E-15 | 28' Rt. | 6" | 14+00 Ramp E-15 | 60' Rt. | | | | | | | | | | | | | | |
| 62 | 13+22 Ramp E-15 | 42' Rt. | Bush | | | | | | | | | | | | | | | | |
| 63 | 13+64 Ramp E-15 | 32' Rt. | 3" | | | | | | | | | | | | | | | | |
| 64 | 14+00 Ramp E-15 | 38' Rt. | 4" | 14+25 Ramp E-15 | 40' Rt. | | | | | | | | | | | | | | |
| 65 | 2+32 Ramp E-7 | 27' Rt. | 3" | 2+50 Ramp E-7 | 35' Rt. | | | | | | | | | | | | | | |
| 66 | 2+64 Ramp E-7 | 35' Rt. | 4" | 2+90 Ramp E-7 | 35' Rt. | | | | | | | | | | | | | | |
| 67 | 3+57 Ramp E-7 | 42' Rt. | 2" | 3+45 Ramp E-7 | 35' Rt. | | | | | | | | | | | | | | |
| 68 | 4+89 Ramp E-4 | 27' Rt. | 3" | 5+25 Ramp E-4 | 50' Rt. | | | | | | | | | | | | | | |
| 69 | 4+95 Ramp E-4 | 38' Lt. | 8" | 5+50 Ramp E-4 | 60' Lt. | | | | | | | | | | | | | | |
| 70 | 6+57 Ramp E-18 | 50' Rt. | 1" | | | | | | | | | | | | | | | | |
| Total (Table 3) | | | | | | | | | | | | 14 | 10 | 5 | | | | | |
| Total (Table 2) | | | | | | | | | | | | 1 | 21 | 3 | | | | | |
| Total (Table 1) | | | | | | | | | | | | 10 | 18 | 2 | | | | | |
| Totals | | | | | | | | | | | | 25 | 44 | 10 | | | | | |

Note: 1. All offsets are perpendicular to the ramp baseline.
 2. All quantities are included in Project I-90-1(10) 29

LIGHTING NOTES

| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

113
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CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21

SPECIFICATIONS

These notes are supplemental to Items S625 and S713 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. Drawings HL-17A and HL-17B are to be used only for the base plate of the median pole and the special median barrier pull box. Median barrier light pole foundation details are shown on sheets 136 and 137.

PLAN SPECIFICATION REFERENCES

References to Item 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 conventional units.

The project will receive 480-volt, two-wire, controlled secondary service with one side grounded, from existing Control Centers.

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

MAINTAINING EXISTING LIGHTING

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 on Str. No. CUY-77-14.59. 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.

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 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.

LAMPS - HIGH PRESSURE SODIUM

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.

LUMINAIRES - HIGH PRESSURE SODIUM

53,000 lumen, horizontal Style C luminaires, designed for use with 310 watt HPS lamps, shall have single rated 480 volt, 310 watt integral regulator ballasts.

Style B luminaires shall be General Electric M-1000 Westinghouse 0V-50 McGraw-Edison "Unistyle - 1000" or equal approved by the Engineer.

LIGHT POLE ANCHOR BOLTS FOR BRIDGES

Anchor bolts for mounting light poles on bridges shall conform to the requirements of 713.01 and details shown on the plans and standard drawings, or the approved shop drawings, for the respective poles to be placed thereon.

Payment shall be made at the unit price bid for each set of the size required and necessary to install one pole, and this payment shall constitute full compensation for furnishing and placing the bolts.

CONNECTOR KITS

Type VI through Type IX 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" as 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, boot 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.

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 119A, and all labor, material, equipment, and incidentals necessary to complete the work as specified.

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-8, Appleton Type XJ-8, or equal as approved by the Engineer, as indicated in the plans as \ominus 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, approved and accepted.

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. Where in the plans it is required to tie an existing pullbox into a proposed transition junction box the contractor is required to field locate both appurtenances and to direct his jacking operation such that the conduit connection will be straight and nearly center to center between said boxes.

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.

EXISTING CIRCUIT CABLE AND ACCESSORIES

All existing circuit cable and accessories must be removed from existing cross-overs and ducts to allow new circuit cable to be installed. All removal material shall become the property of the Contractor.

Basis of payment for this item of work shall be included in the unit bid price for "Distribution Cable, By Type" and is incidental to the work.

EXISTING LIGHT POLE AND FOUNDATION, TO BE REMOVED

Removal work as subsequently described shall also comply with Item 4 of the "Equipment and Material Storage" note as found on Sheet No. 4.

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.

All items removed shall become the property of the Contractor. Circuits cable is to be abandoned in place or removed as directed in the plans. 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, protruding structure conduit shall be trimmed at the structure and a 1/4" galvanized steel or aluminum cover plate, fitting the existing light pole mounting bolt pattern, gasketed or caulked and installed over the opening. Excess bolt material shall be trimmed at the nut.

Basis of payment shall be at the unit bid price per each:
Item 202 - "Existing Lighting Unit, to be removed"
Item 202 - "Existing Lighting Unit (Structure Mounted), to be removed, including all labor, material, equipment and incidentals to complete the item of work and accepted as specified.

MEDIAN PULLBOX FOUNDATION

CONSTRUCTION OF THE MEDIAN BARRIER PULLBOX SECTION SHALL CONFORM TO THE REQUIREMENTS OF S625 AND 622 AND AS DETAILED ON HL-17A

BASIS OF PAYMENT SHALL BE AT THE UNIT PRICE BID FOR EACH:

ITEM 625 "SPECIAL MEDIAN BARRIER PULLBOX WITH 36" COVER PLATE

AND SHALL BE FULL COMPENSATION FOR EXCAVATION, FORMING, AND PLACING THE BARRIER SECTION AS DETAILED, MATCHING THE BARRIER TO THE ADJACENT BARRIER SECTIONS, FURNISHING AND PLACING ANCHOR BOLTS, CONDUITS AND COUPLINGS, AND ALL LABOR, MATERIAL, EQUIPMENT, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED.

HIGH VOLTAGE DIRECT CURRENT 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.

LIGHTING GENERAL SUMMARY

QUANTITY CALCULATIONS

MADE BY ERH DATE 8-15-77
 CHECKED BY EEL DATE 8-17-77

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| FHWA REGION | STATE | PROJECT |
| 8 | OHIO | |

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CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

| I-90-1(101)29 | | | | | | I-77-5(18)161 | | | | | | COST PARTICIPATION | | | | TOTAL QUANT. | UNIT | ITEM | DESCRIPTION | |
|---------------|-------------|---------------|-------------|-------------|-------------|---------------|-------------|-------------|-----------------|-----------------|---------------|--------------------|--|--|--|--------------|------|------------------|-------------|--|
| ROADWAY | CUY-77-1564 | CUY-77-1576 A | CUY-90-1628 | CUY-90-1640 | CUY-90-1651 | CUY-77-1436 C | CUY-77-1519 | CUY-77-1548 | ROADWAY | CUY-77-1459 | I-77-5(18)161 | I-90-1(101)29 | | | | | | | | |
| 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 115 | 113 115 117 118 | 117 118 120 121 | I | I | | | | | | | | |
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NOTE:

Cost Participation I - Federal - 90%, State - 5%, City - 5%.

MADE ERH DATE 8-15-77
 TRACED TAK DATE 8-17-77
 CHECKED EEL DATE 8-17-77
 SCALE None

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

HNTB

Rev. 1-9-79

GENERAL SUMMARY

LIGHTING QUANTITIES SUB-SUMMARIES

QUANTITY CALCULATIONS
 MADE BY ERH DATE 8-15-77
 CHECKED BY EFJ DATE 8-17-77

| | | |
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| FHWA REGION | STATE | PROJECT |
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115
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CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

| LINE NUMBER | STATION | STATION | SIDE | 625 | | 625 | | 625 | | 625 | | 625 | | 625 | | 625 | | 625 | | 625 | | 625 | | 625 | |
|-------------|-----------------|-----------------|---------|-----------------------------|--|------------------------|---|---|---|--------------------------------------|--------------------------------------|---|--|--|--|--|--------------------|--|-------------------------|----------------------------|--|----------------|--|----------------|--|
| | | | | Anchor Bolts As Per Plan | Light Pole Design S712BB49.0D Median Mounted | Conduit 2"φ S713.04 | No. 4 AWG, 600 Volt Distribution Cable | Conduit 3"φ, S713.04 Jacked-under Pavement | Luminaire, Style C w 310W HPS Ballasts Type III | Lamp 310W High Pressure Sodium | No. 10 AWG Pole and Bracket Cable | Connector Kit Type VII S713.15, As Per Plan | Connector Kit Type VIII-C S713.15, As Per Plan | Connector Kit Type VIII S713.15, As Per Plan | Connector Kit Type IX S713.15, As Per Plan | Pullbox, 18" with Cover As Per Plan | Conduit 4" S713.04 | Special Median Barrier Pullbox With 36" Cover Plate | Transition Junction Box | Structure Grounding System | | | | | |
| | | | | Sets | Each | Lin. Ft. | Lin. Ft. | Lin. Ft. | Each | Each | Lin. Ft. | Each | Each | Each | Lin. Ft. | Each | Each | Each | Each | Each | | | | | |
| 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | SHEET | 117 | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 5+15 N-W | 89+90 I77 | LI | | | | 470 ⁵ /250 | | | | | | | 2 | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | 87+29 | 100+00 | ℄ | 5 ^s | 5 ^s | | 3930 | | 10 ^s | 10 ^s | 1008 ^s | 10 ^s | 10 ^s | | | | | 1271 ^s | | 1 | | 1 ^s | | | |
| 6 | 99+69 | 100+00 | Rt. | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | TOTAL | SHEET 117 | | 5 ^s | 5 ^s | | 4470 ^s /250 ^s | | 10 ^s | 10 ^s | 1008 ^s | 10 ^s | 10 ^s | 2 | | | | 1271 ^s | | 1 | | 1 ^s | | | |
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| 10 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | SHEET | 118 | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | 101+14 | 108+16 | Lt. | | | | 1424 ^s | | | | | | | | | | | | | | | | | | |
| 14 | 100+00 | 108+90 | ℄ | 4 ^s | 4 ^s | | 3172 ^s /568 | | 8 ^s | 8 ^s | 807 ^s | 8 ^s | 8 ^s | | | | | 753 ^s | | 1 | | 1 | | | |
| 15 | 108+90 | | Lt./Rt. | | | 9 | 314 | | | | | | | 2 | | | | 9 | | | | | | | |
| 16 | 100+00 | 107+40 | Rt. | | | | 1490 ^s | | | | | | | | | | | | | | | | | | |
| 17 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | TOTAL | SHEET 118 | | 4 ^s | 4 ^s | 9 | 6086 ^s /882 | | 8 ^s | 8 ^s | 807 ^s | 8 ^s | 8 ^s /2 | | | | | 753 ^s /9 | | 1 | | 1 | | | |
| 19 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | 65+58.5, I77 | | ℄/Rt | | | 5 | | | | | | | | | | | | 427 ^s | | 1 | | 2 | | | |
| 24 | 75+12.77 | 79+39.70 | ℄ | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 79+57, 44' Rt | 79+39.70 | Rt/℄ | | | | 47 | | | | | | | | | | | | | | | | | | |
| 26 | 79+39.70 | 80+42, 44' Lt | ℄/Lt | | | | 111 | | | | | | | | | | | | | | | | | | |
| 27 | 118+28, 55' Rt | 118+89.21 | Rt/℄ | | | | 82 | | | | | | | | | | | | | | | | | | |
| 28 | 118+89.21 | 118+40, 55' Lt | ℄/Lt | | | | 74 | | | | | | | | | | | | | | | | | | |
| 29 | 118+89.21 | 124+11.93 | ℄ | | | | | | | | | | | | | | | 523 ^s | | | | 2 | | | |
| 30 | 32+98, 70' Rt | 34+02.03 | Rt/℄ | | | | 125 | | | | | | | | | | | | | | | | | | |
| 31 | 34+02.03 | 34+01, 65' Lt | ℄/Lt | | | | 65 | | | | | | | | | | | | | | | | | | |
| 32 | 34+02.03 | 36+16.97 | ℄ | | | | | | | | | | | | | | | 215 ^s | | | | 2 | | | |
| 33 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 34 | SUB TOTAL | I-77-5(18)161 | | | | 5 | 504 | | | | | | | | | | | 1165 ^s | | 1 | | 6 | | | |
| 35 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 36 | 42+44.62 | 44+55.38 | ℄ | | | | | | | | | | | | | | | 211 ^s | | | | 2 | | | |
| 37 | 44+90 | | ℄ | | | 9 | | | | | | | | | | | | | | | | | | | |
| 38 | 49+29.66 | 51+07.58 | ℄ | | | | | | | | | | | | | | | 178 ^s | | | | 2 | | | |
| 39 | 16+52 RMPEIO | | Lt | | | 9 | | | | | | | | | | | | | | | | | | | |
| 40 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 41 | 55+50 I 90 | | ℄ | | | 9 | | | | | | | | | | | | | | | | | | | |
| 42 | 58+79.48 | 61+16.55 | ℄ | | | | | | | | | | | | | | | 237 ^s | | | | 2 | | | |
| 43 | 65+09.68 | 68+19.53 | ℄ | | | | | | | | | | | | | | | 310 ^s | | | | 2 | | | |
| 44 | 68+79, 56.5' Rt | 68+19.53 | Rt/℄ | | | | 82 | | | | | | | | | | | | | | | | | | |
| 45 | 68+19.53 | 68+79, 56.5' Lt | ℄/Lt | | | | 82 | | | | | | | | | | | | | | | | | | |
| 46 | 70+88.73 | 73+96.75 | ℄ | | | | | | | | | | | | | | | 308 ^s | | | | 2 | | | |
| 47 | 82+52 | | ℄ | | | 9 | | | | | | | | | | | | | | | | | | | |
| 48 | 111+81 | | ℄ | | | 9 | | | | | | | | | | | | | | | | | | | |
| 49 | 125+05 | | ℄ | | | 9 | | | | | | | | | | | | | | | | | | | |
| 50 | 135+46 | | ℄ | | | 9 | | | | | | | | | | | | | | | | | | | |
| 51 | 151+30 | | ℄ | | | 9 | | | | | | | | | | | | | | | | | | | |
| 52 | 160+90 | | ℄ | | | 9 | | | | | | | | | | | | | | | | | | | |
| 53 | 174+39 | 174+39, 40' Lt | ℄/Lt | | | | 40 | | | | | | | | | | | | | | | | | | |
| 54 | | | | | | | | | | | | | | | | | | | | | | | | | |
| 55 | TOTAL Sh. 115 | I-90-1(10)1 | 29 | | | 81 | 202 | | | | | | | | | | | 1244 ^s | | 10 | | 10 | | | |
| 56 | TOTAL Sh. 115 | I-77-5(18) | 61 | 9 ^s | 9 ^s | 14 | 10556 ^s /132 | | 18 ^s | 18 ^s | 1815 ^s | 18 ^s | 18 ^s /2 | | | | | 3189 ^s /9 | | 2 | | 8 | | 1 ^s | |

MADE ERH DATE 8-15-77
 TRACED JAK DATE 8-22-77
 CHECKED EFJ DATE 8-22-77
 SCALE None

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

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NOTE:
 "S" Denotes Structure Quantity

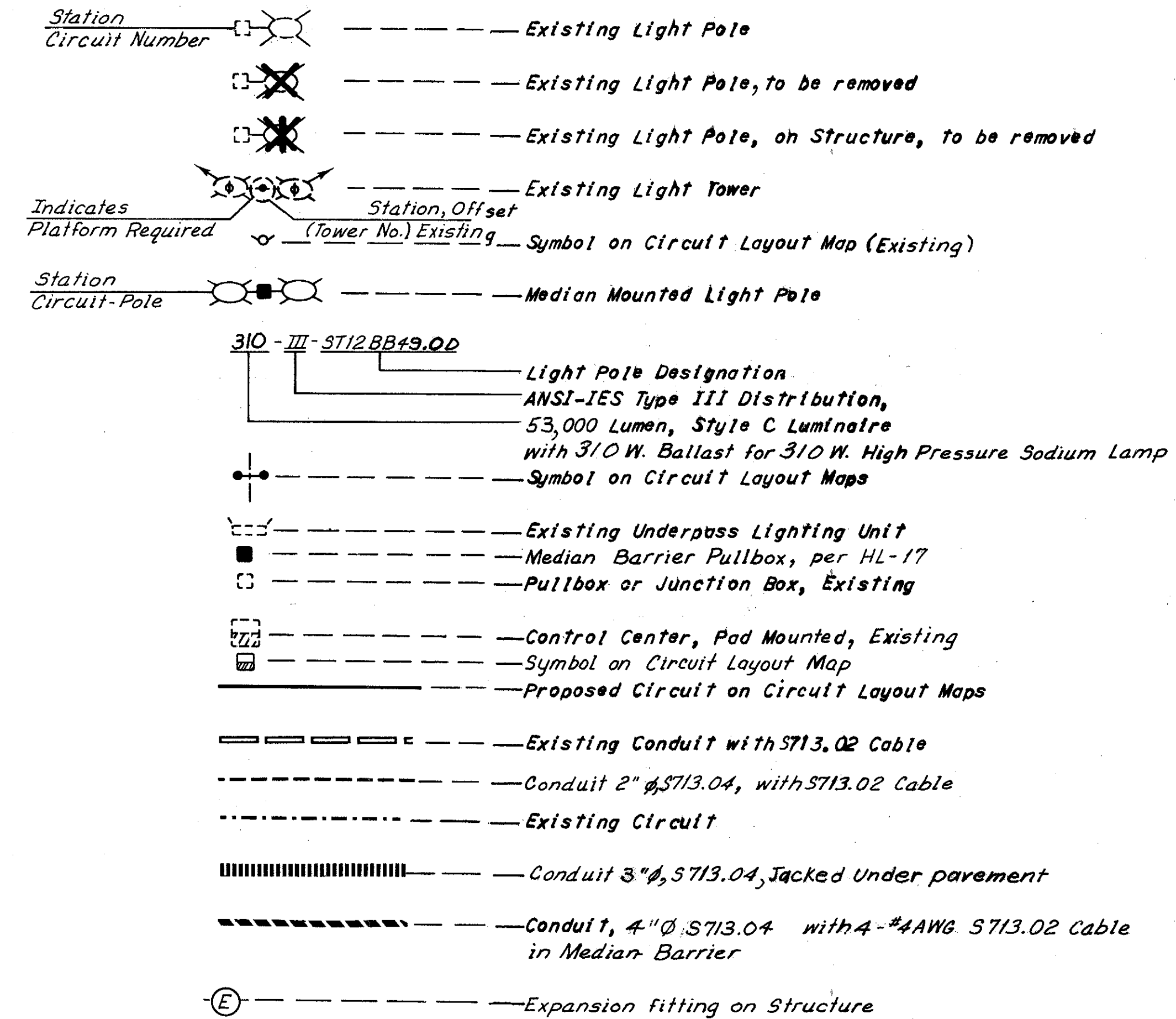
Note:
 Quantities on Lines 23 to 53 are from Roadway Sheets.

LEGEND

LIGHTING REMOVAL SUB-SUMMARY

| LINE NUMBER | STATION | STATION | SIDE | 202 | 202 |
|-------------|----------------|-----------|-------|---|---|
| | | | | Existing lighting unit to be removed, as per plan | Existing lighting unit, structure mounted, to be removed, as per plan |
| | | | | Each | Each |
| 1 | | | | | |
| 2 | Sheet 120 | | | | |
| 3 | | | | | |
| 4 | 4+89 Ramp N-W | 99+50 | Rt/Lt | 1 | 12 |
| 5 | 27+40 Ramp E-N | 99+03 | Rt/Lt | | 13 |
| 6 | | | | | |
| 7 | Total | Sheet 120 | | 1 | 25 |
| 8 | | | | | |
| 9 | Sheet 121 | | | | |
| 10 | | | | | |
| 11 | 100+58 | 107+06 | Lt. | | 7 |
| 12 | 100+10 | 106+43 | Rt. | | 7 |
| 13 | | | | | |
| 14 | Total | Sheet 121 | | | 14 |
| 15 | | | | | |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | TOTAL | SHEET 116 | | 1 | 39 |
| 22 | | | | | |
| 23 | | | | | |
| 24 | | | | | |
| 25 | | | | | |

NOTE:
 Structure Quantities are CUY-77-1459
 All Above quantities are I-77-5(18)161



2" Conduit, S713.04

This Item Of Work Will Include The Installation Of Rigid Ferrous Conduit At The Locations Specified On Sheet #115, Connecting The Existing Crossovers Into The Proposed Median Pullboxes.

All Crossovers (Except Sta. 65+58.5 And Sta. 108+90 I-77) Consist Of An 8 1/2" X 14" Concrete Encased Duct Bank Of Two 2" Conduits.

The Contractor Shall Determine By Inspection Which Of The Two Conduits Is Empty Or In The Case That Both Are Occupied Which Has Abandoned Cable In It. In The Event That Both Conduits Contain Utilized Conductors The Contractor Will Relocate Or Replace The Cables Of One Duct Into The Other And Report This Work And Location To The District Lighting Engineer.

The Contractor Shall Then Break Into The Available Duct (Being Carefull Not To Disturb The Remaining Conduit), Install Conduit Couplings, Conduit Ells And Two 2" Conduits Up Into The Pullbox Per HL-17A.

Restoration Shall Consist Of Encasing The New Conduit To Conform With The Adjacent Duct Bank And Replacement Of The Pavement Subbase In A Manner Suitable To The Engineer.

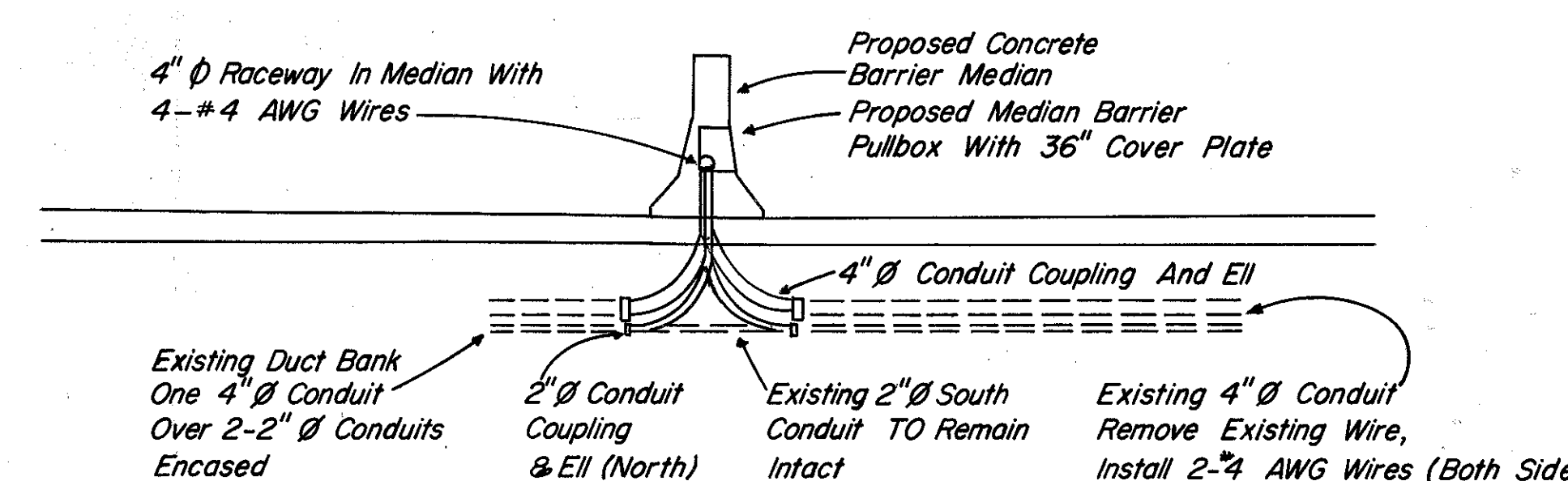
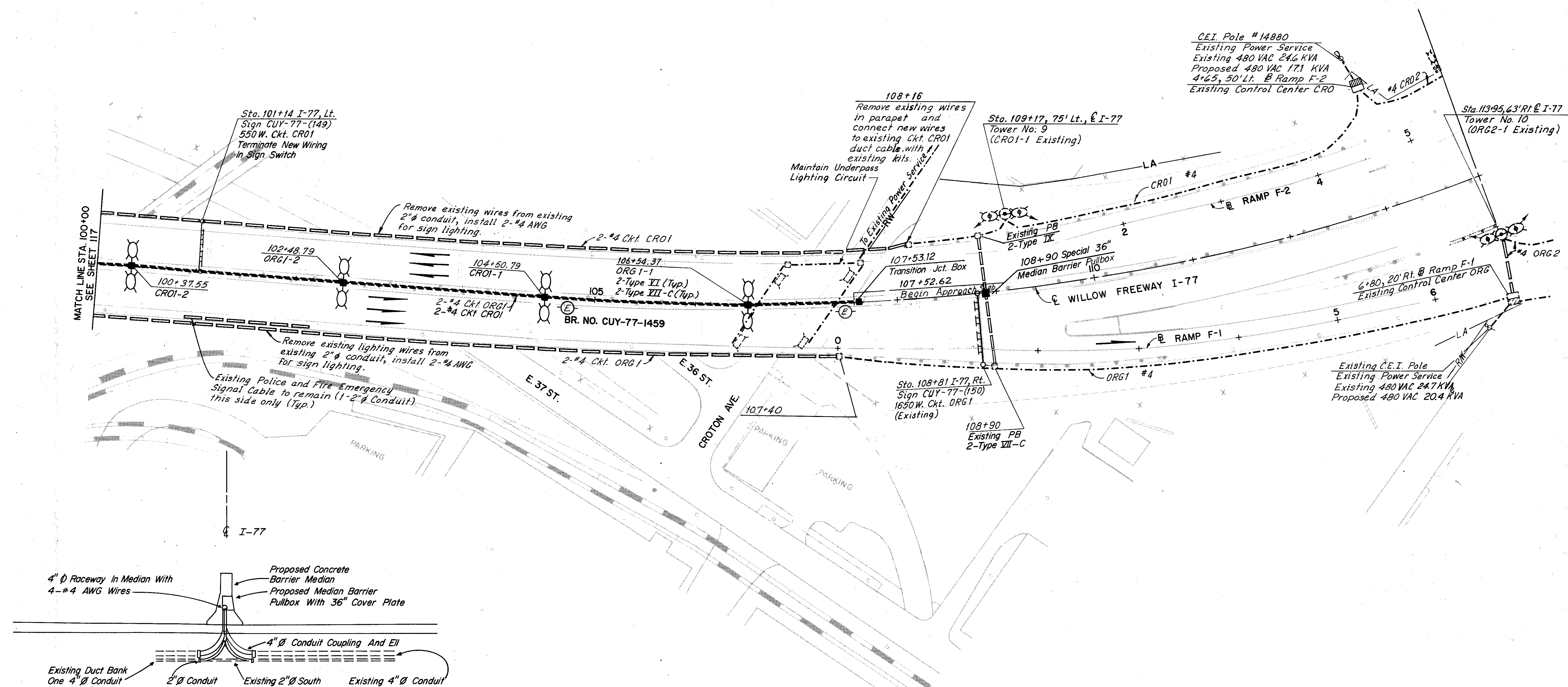
The Unit Price Bid For Item S625 2" Conduit, S713.04 Shall Be For Full Compensation For Excavation, Backfilling Compaction, Subbase Restoration, Concrete Encasement, Pullwire And All Labor, Materials Equipment And Incidentals Necessary To Complete The Work As Specified.

| | | |
|-------------|-------|---------|
| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

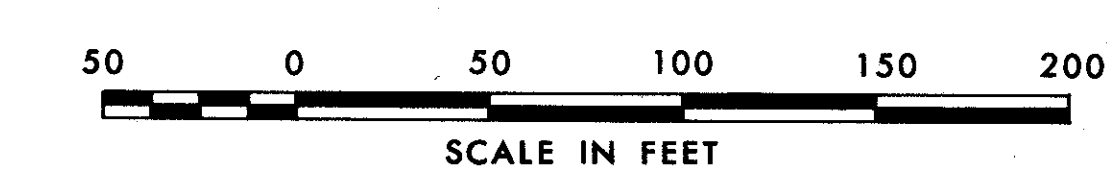
118
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21

CITY OF CLEVELAND



Note:
All Median Mounted Light Poles
on this sheet are 310 -III- ST128849.0.D
Reference A



MADE E.R.H. DATE 8-11-77
TRACED T.A.K. DATE 8-12-77
CHECKED E.F.J. DATE 8-17-77
SCALE 1/8" = 1'-0"

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

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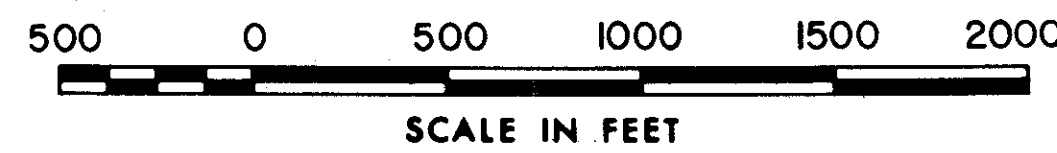
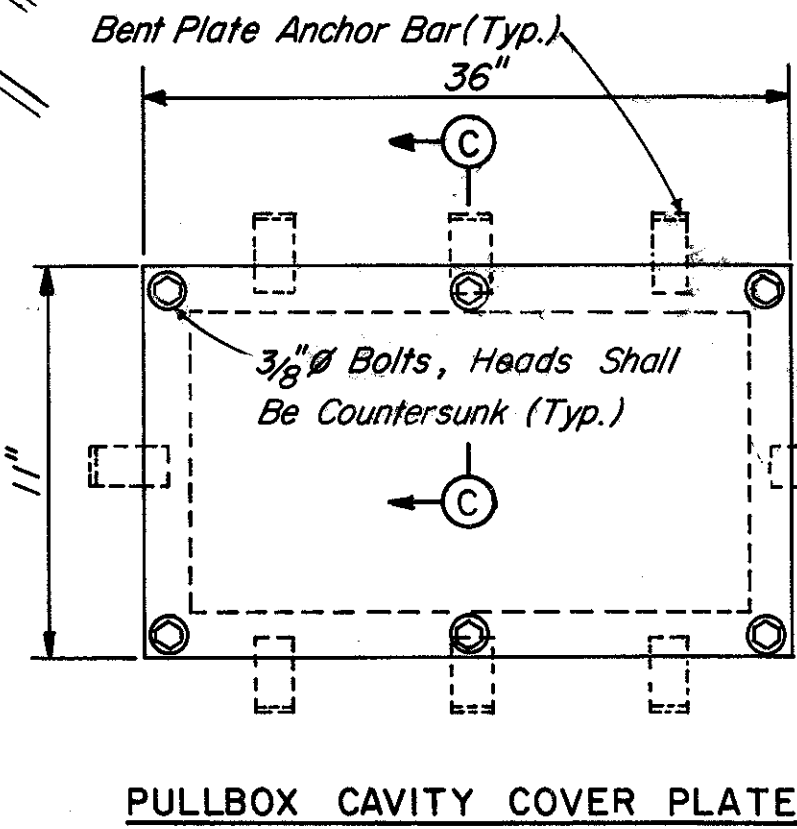
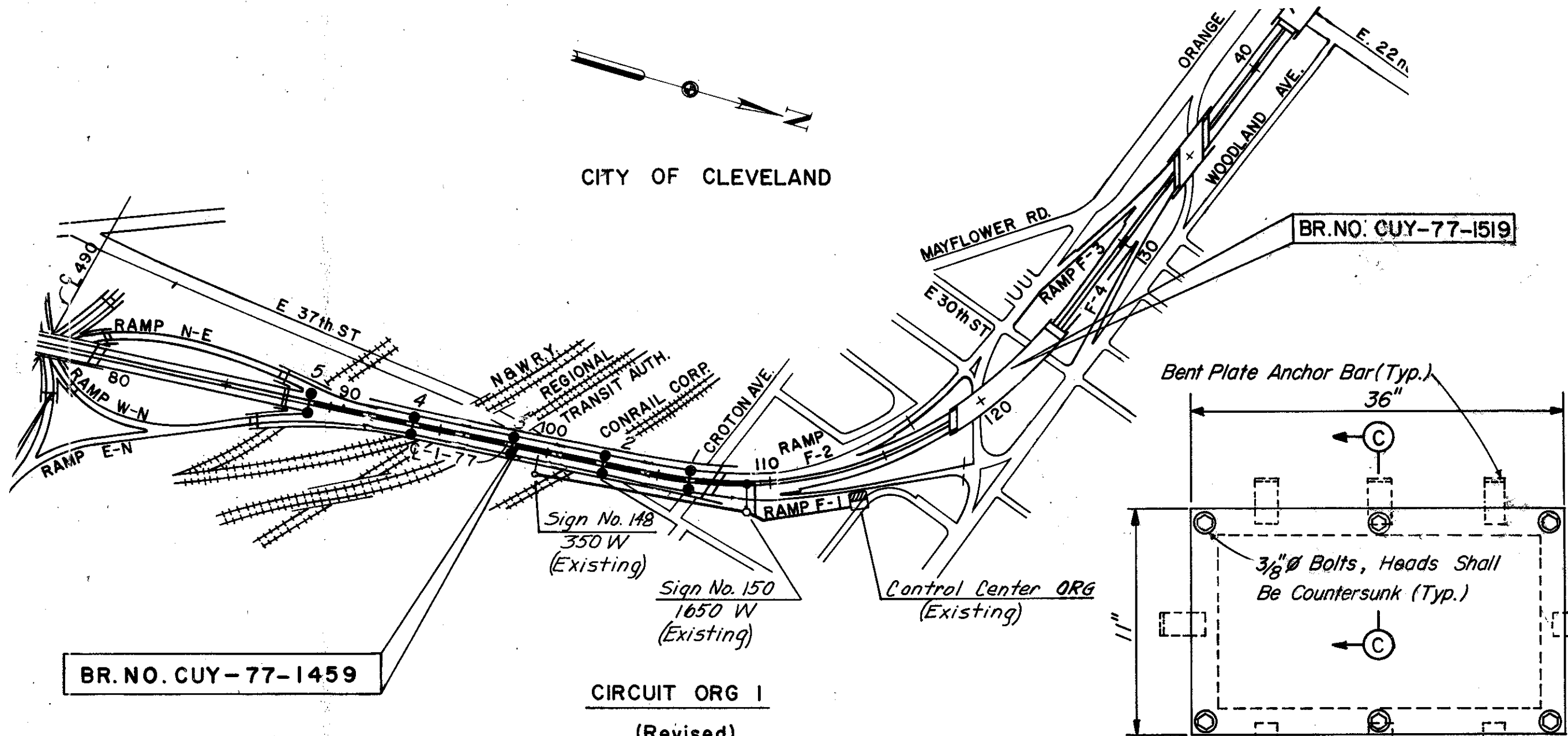
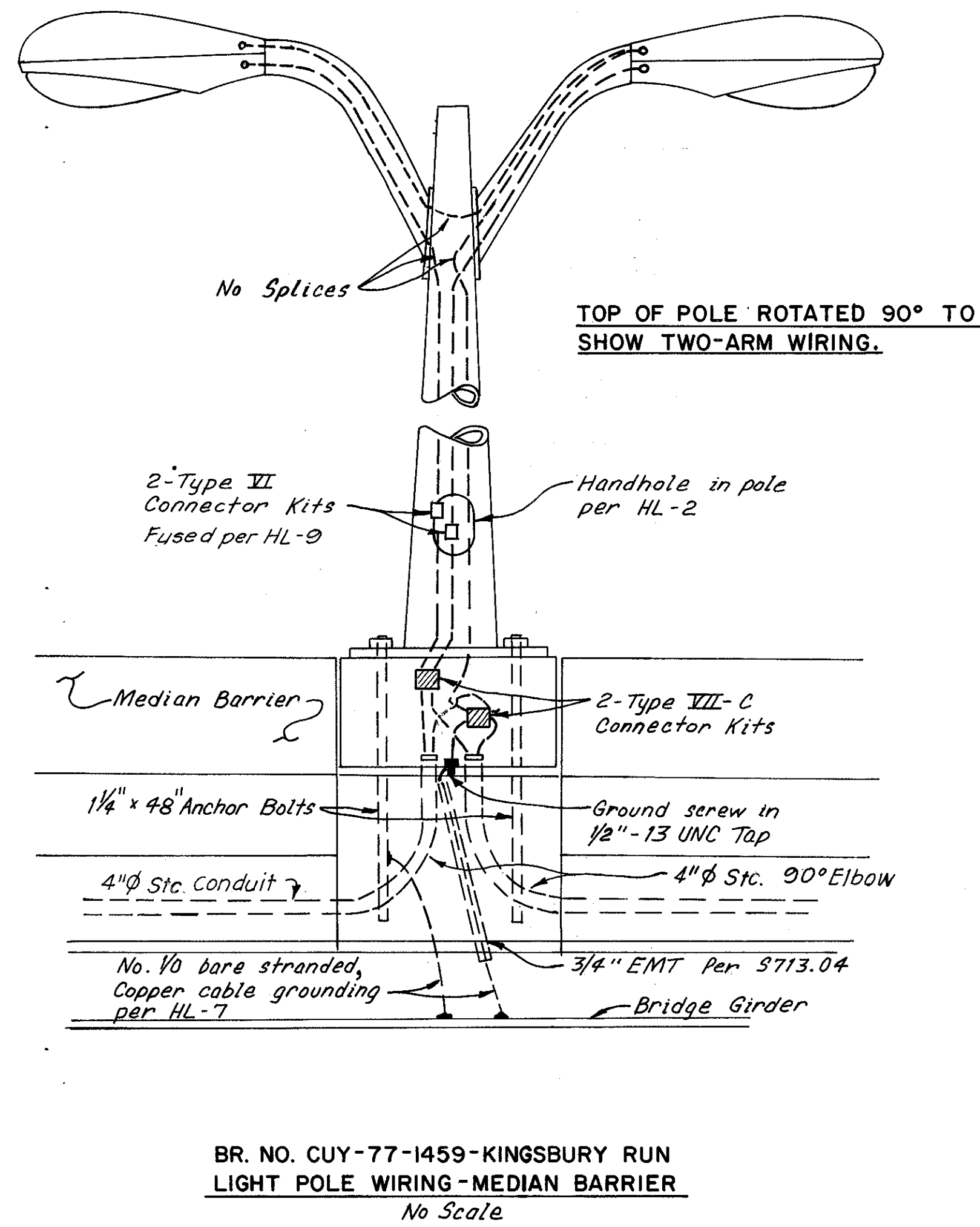
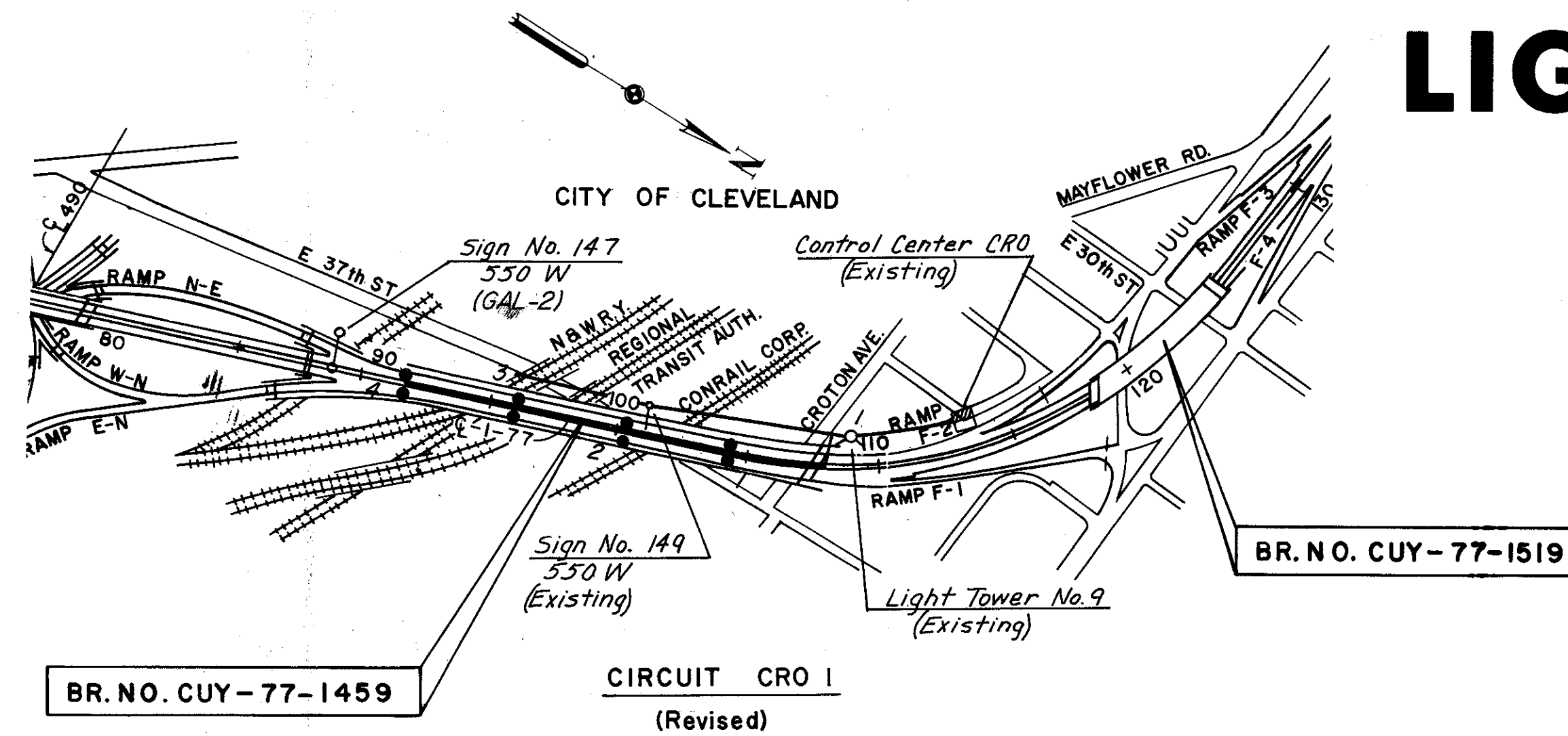
FOR LEGEND SEE SHEET 116

CIRCUIT LAYOUT MAPS CONTROL CENTER DATA LIGHTING DETAILS

| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

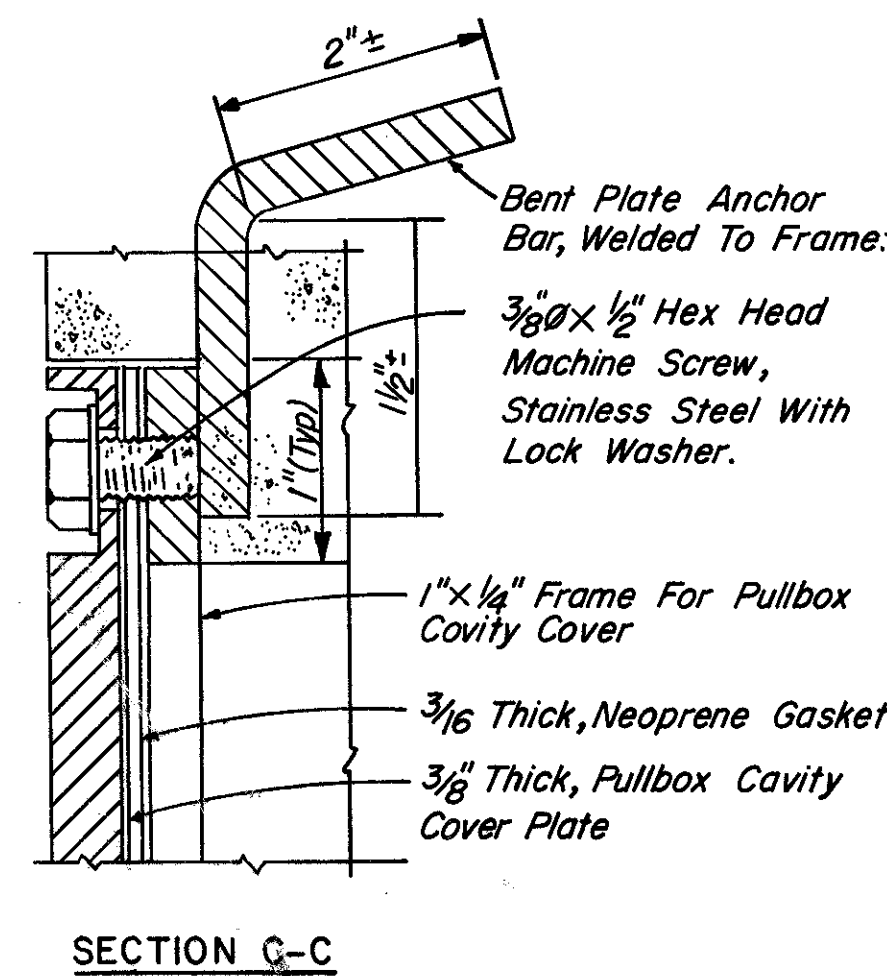
119
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



| LIGHT POLE DATA | | | | |
|------------------|---------------|-------------------------|----------------------|------------------------|
| REFERENCE LETTER | DESIGN NUMBER | FOUNDATION ANCHOR BOLTS | | TRANSFORMER BASE STYLE |
| | | SIZE | BOLT CIRCLE DIAMETER | |
| A | 5T12BB#30D | 1 1/4" x 48" | 8" x 18" | Special* |

† Special base plate as shown on HL-178
* Transformer base details shown on sheets 136 and 137



| 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) | XFMR. (KVA) | CABLE (AWG) | | 310W HPS 0.8A. Ea. | 1000W HPS 2.5A. Ea. | | | | | |
| SHEET 118 | | | | | | | | | | | | | |
| CRO | 4+65 Ramp F-2, 50' RT. | 480 | 17.5 | | | 5-100 | 8 | 10 | 2425 | 36.5 | | | Existing Control Center |
| CRO1 | | | 6.0 | | | | 8 | 2 | 550 | 12.6 | 20 | | |
| CRO2 | | | 11.5 | | | | | 8 | 1875 | 23.9 | 30 | 4.65 | Spare Circuit |
| CRO3 | | | | | | | | | | | 30 | | |
| ORG | 6+80 Ramp F-1, 20' RT. | 480 | 20.9 | | | 5-100 | 10 | 11 | 3800 | 42.4 | | | Existing Control Center |
| ORG1 | | | 5.9 | | | | 10 | | 2000 | 12.2 | 25 | | |
| ORG2 | | | 15.0 | | | | | 11 | 1800 | 31.2 | 40 | 3.23 | |
| ORG3 | | | | | | | | | | | 40 | | Spare Circuit |

MADE ERH DATE 8-10-77
TRACED LAL DATE 8-19-77
CHECKED EFL DATE 3-7-77
SCALE AS SHOWN

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CLEVELAND, OHIO

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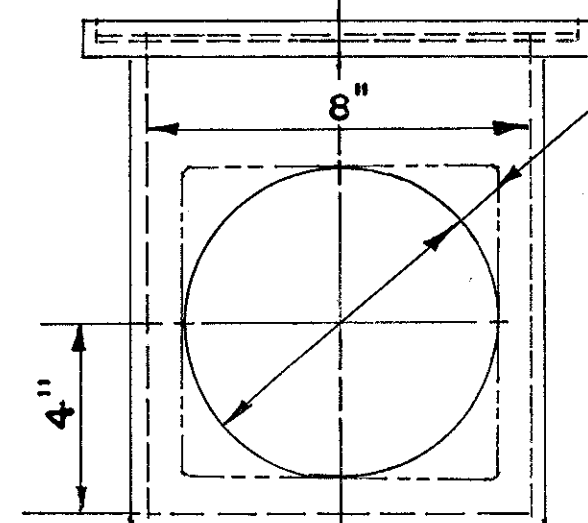
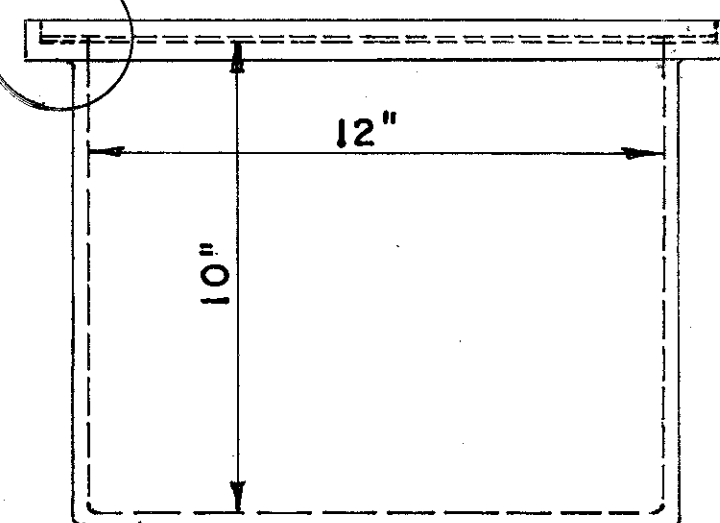
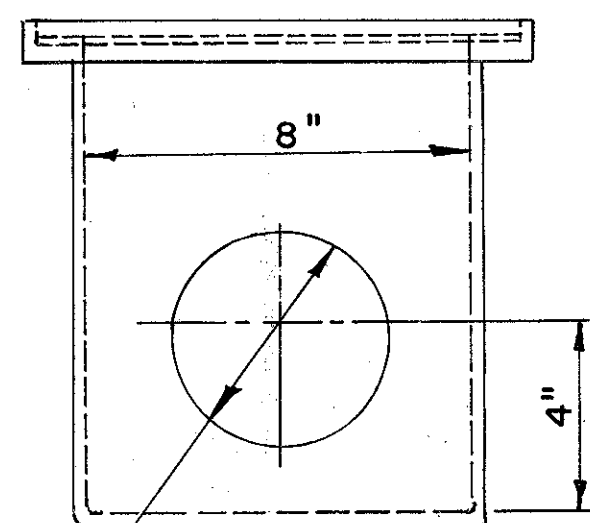
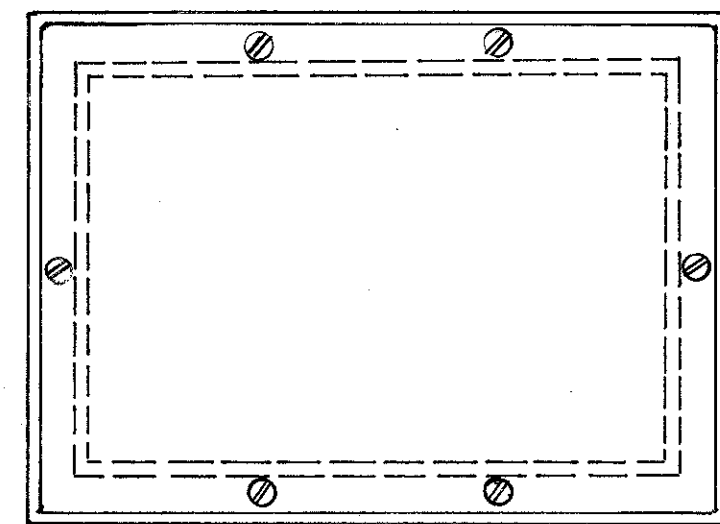
| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

119A
169

5/16" GALVANIZED STEEL
PLATE COVER
FLUSH MOUNTED

S.S. FL. HD. SCREWS

1/8" NEOPRENE GASKET



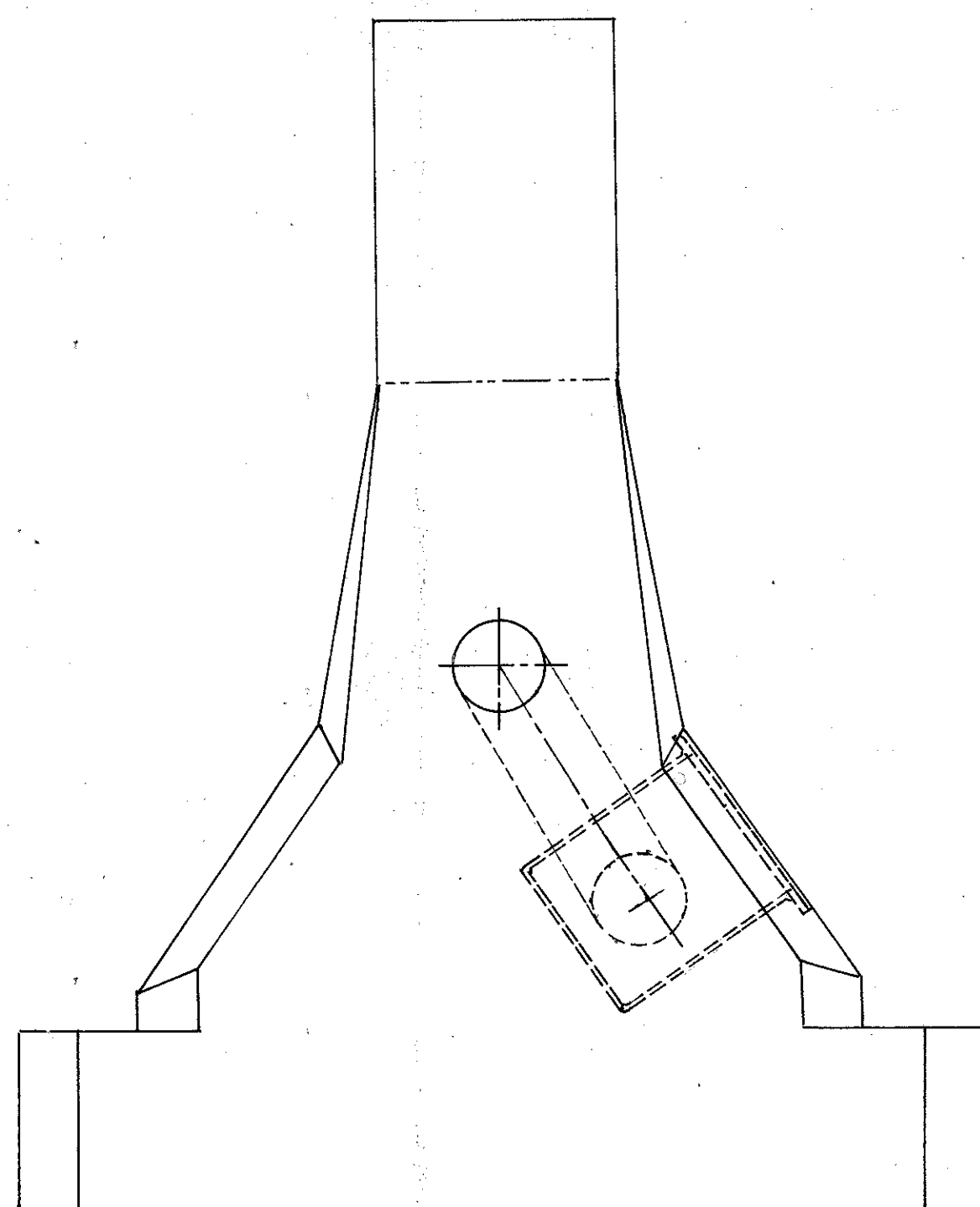
6 3/4" SQUARE HOLE, OR
6 3/4" DIA. RD. HOLE.

SLIP HOLE FOR 4"
CONDUIT.

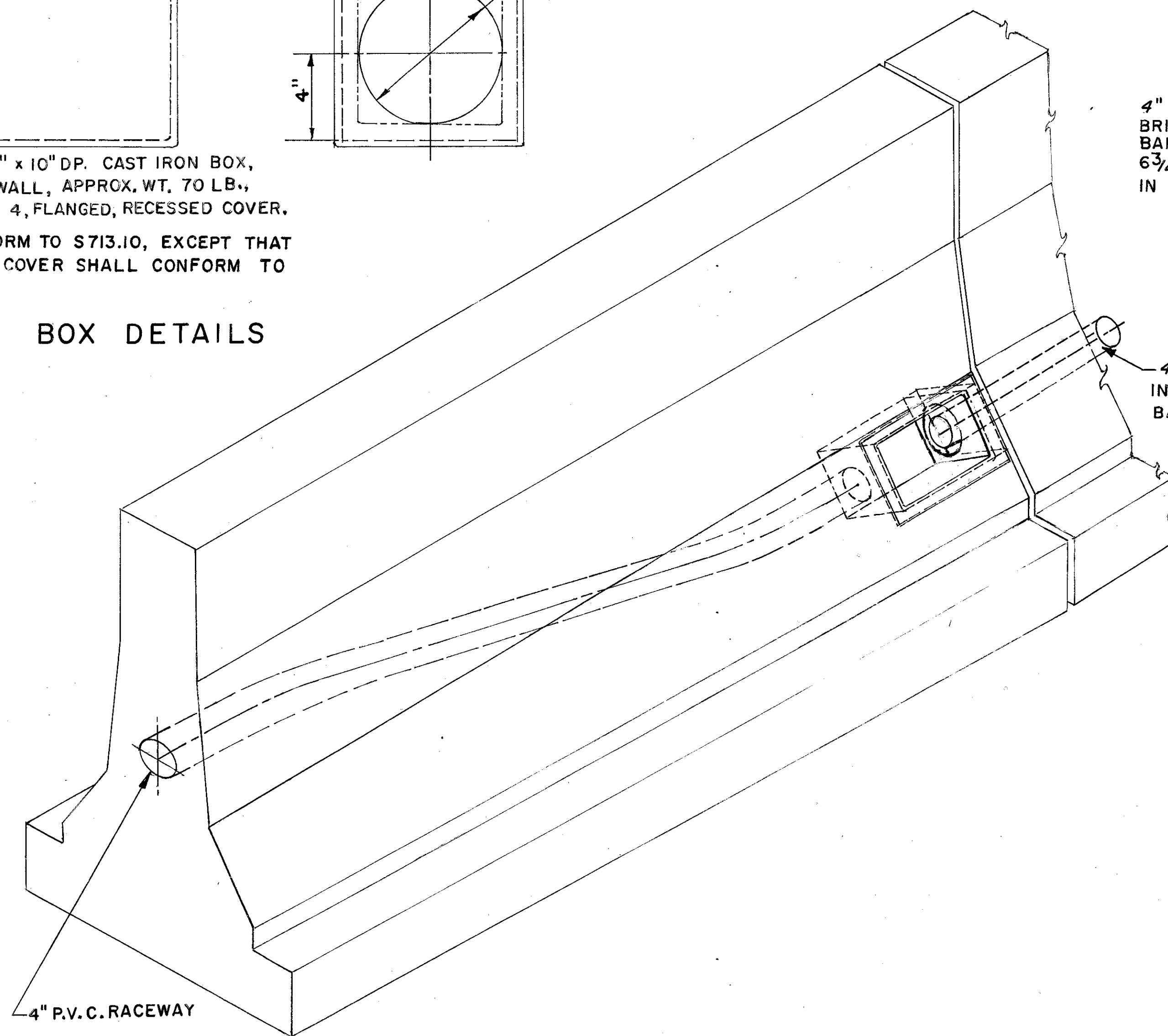
12" x 8" x 10" DP. CAST IRON BOX,
5/16" WALL, APPROX. WT. 70 LB.,
NEMA 4, FLANGED, RECESSED COVER.

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

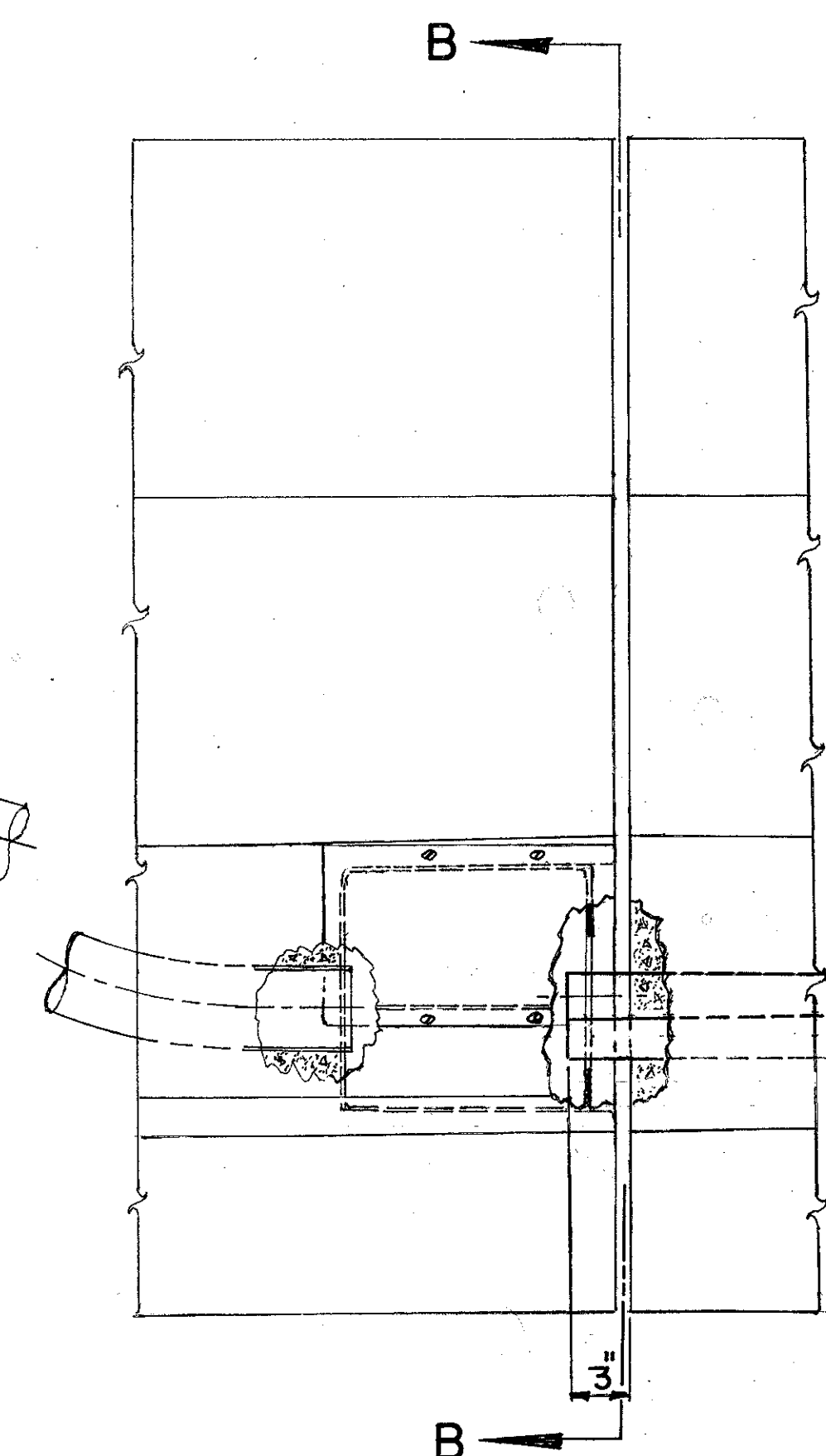
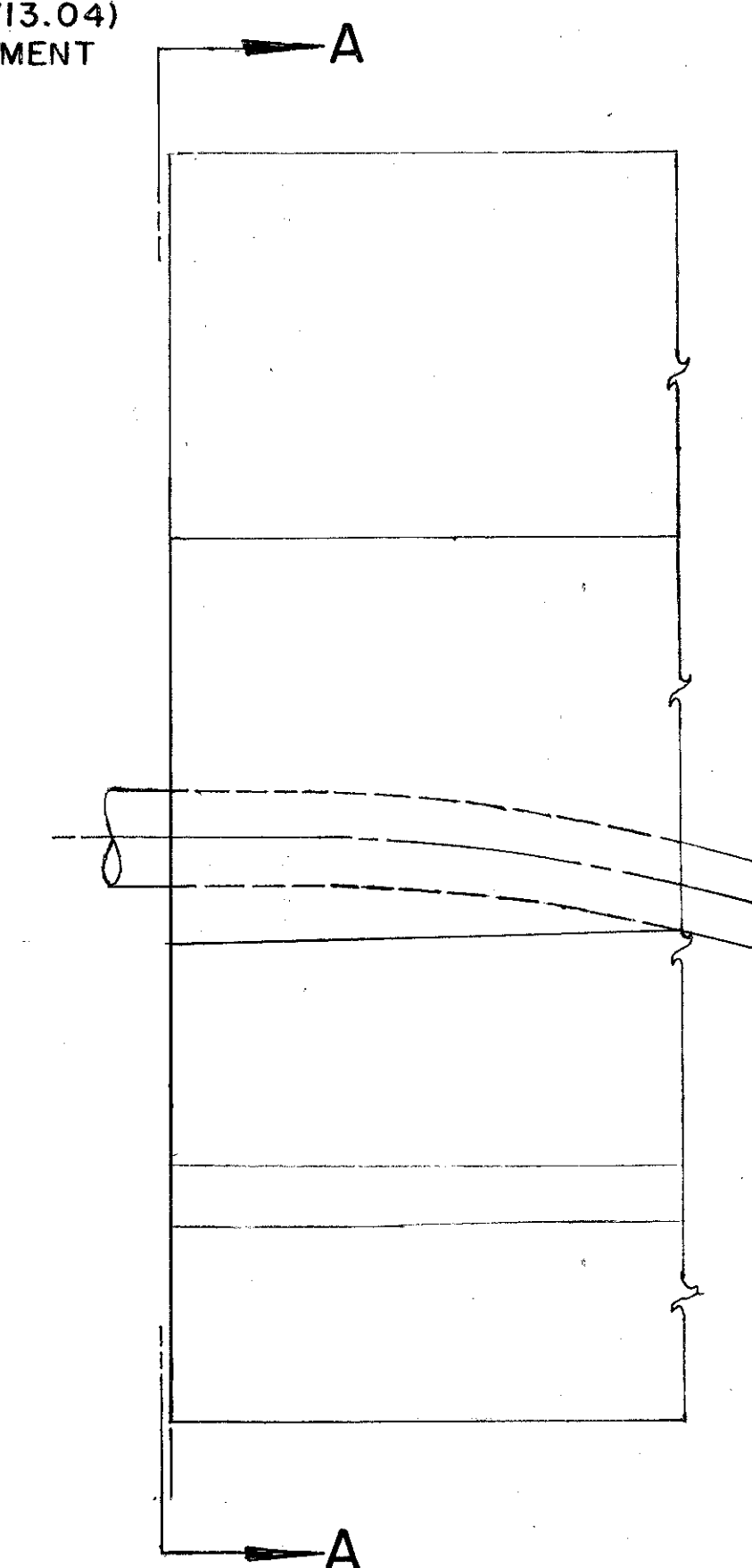


4" P.V.C. RACEWAY

4" CONDUIT (S713.04)
IN BRIDGE ABUTMENT
BARRIER

1" APPROX.
C. TO C.
4" CONDUIT OF
BRIDGE ABUTM'T.
BARRIER THROUGH
6 3/4" HOLE
IN BOX.

END ELEV. B-B



SIDE ELEVATION, TRANSITION BARRIER
FROM ROADWAY TO BRIDGE CONFIGURATIONS

ALLOW APPROXIMATELY 2"
FOR ROADWAY BARRIER
SETTLEMENT ADJACENT
TO ABUTMENT SECTION.

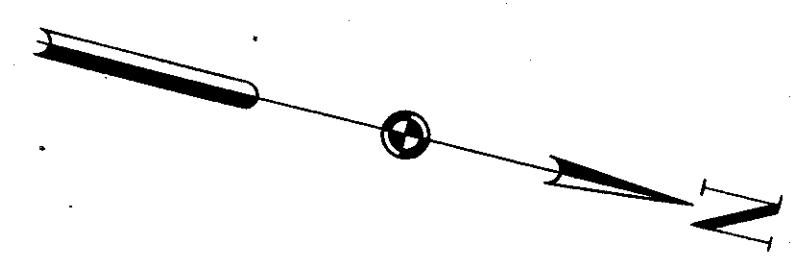
4" CONDUIT
(NOT DRAWING TO SCALE)

11 1/4" 6 3/4"

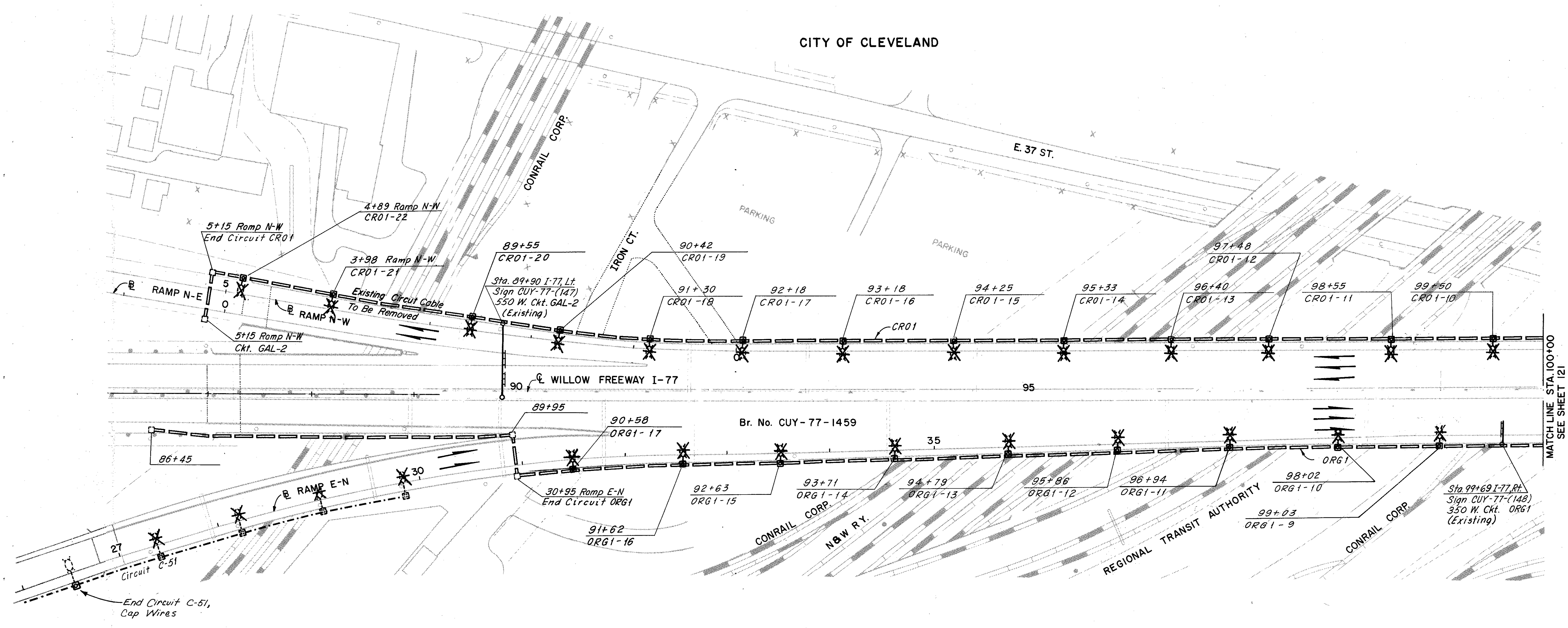
| | | | |
|-------------|-------|---------|--|
| FHWA REGION | STATE | PROJECT | |
| 5 | OHIO | | |

120
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21

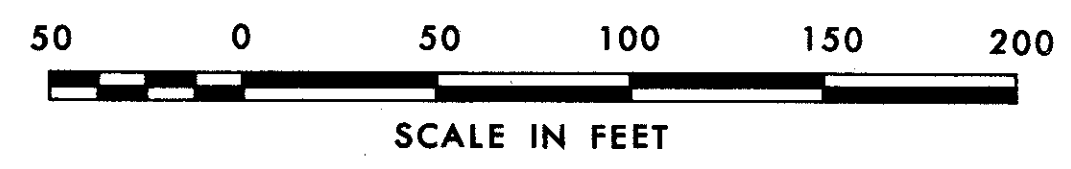


CITY OF CLEVELAND



MADE ERH DATE 8-16-77
 TRACED KAL DATE 8-16-77
 CHECKED P.V. DATE 8-17-77
 SCALE 1/4" = 1'-00"

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



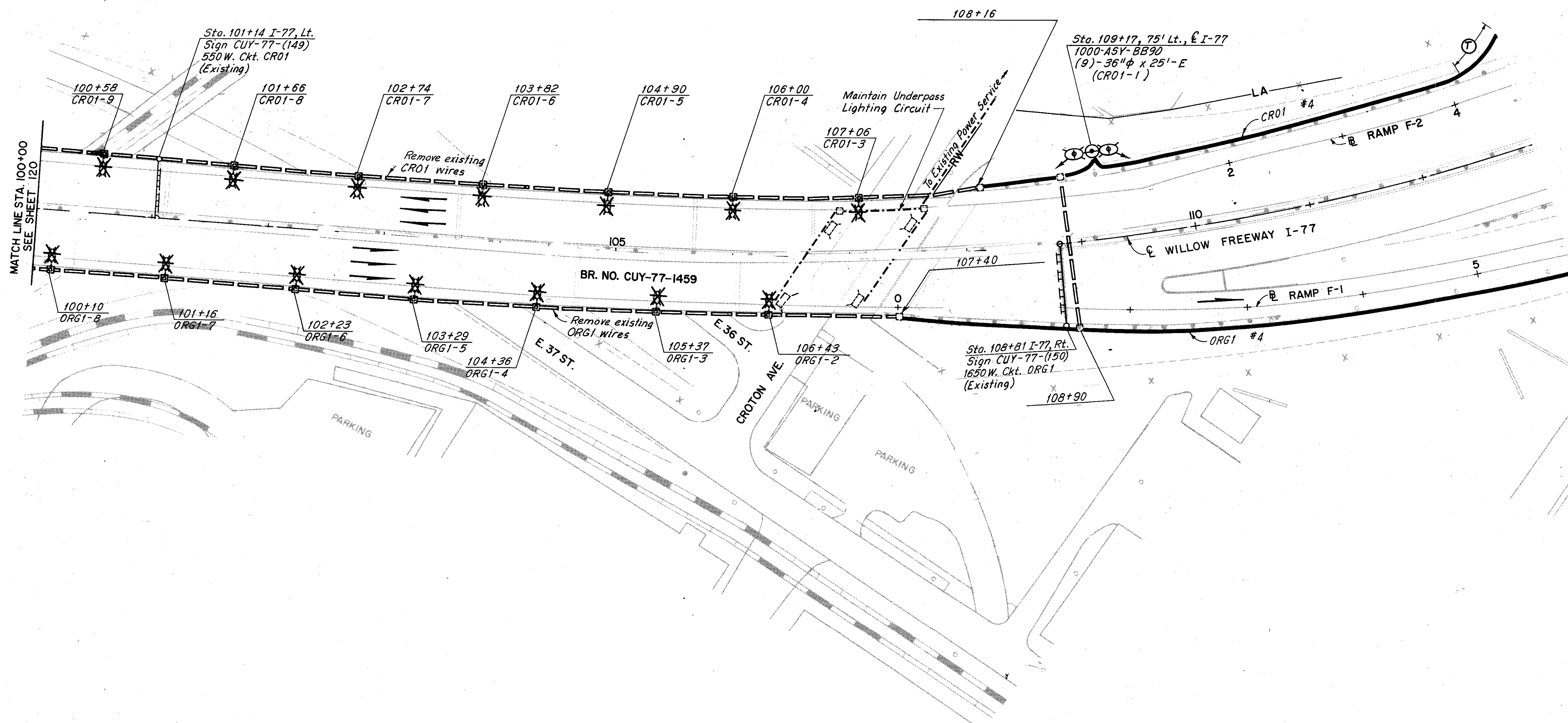
FOR LEGEND SEE SHEET 116

| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

121
169

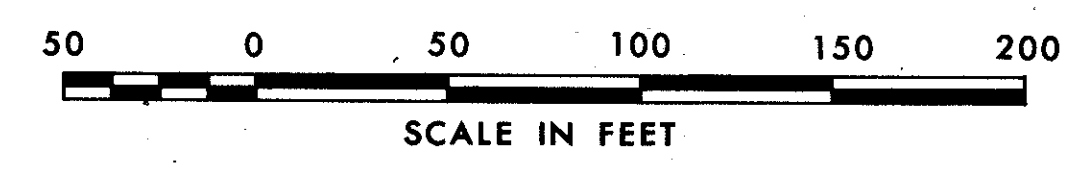
CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21

CITY OF CLEVELAND



MADE ERH DATE 8-16-77
 TRACED TAK DATE 8-16-77
 CHECKED E.E.I. DATE 8-17-77
 SCALE 1"=30'
Howard, Needles, Tammen & Bergendoff
 CONSULTING ENGINEERS
 CLEVELAND, OHIO

HNTB

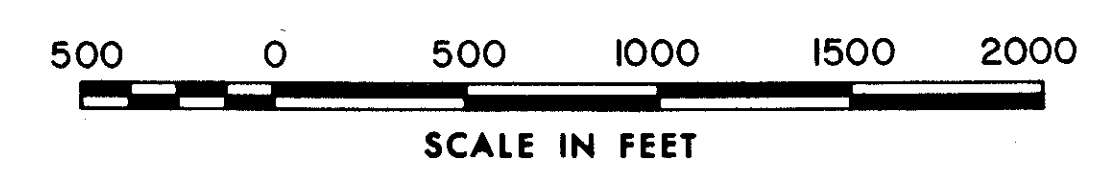
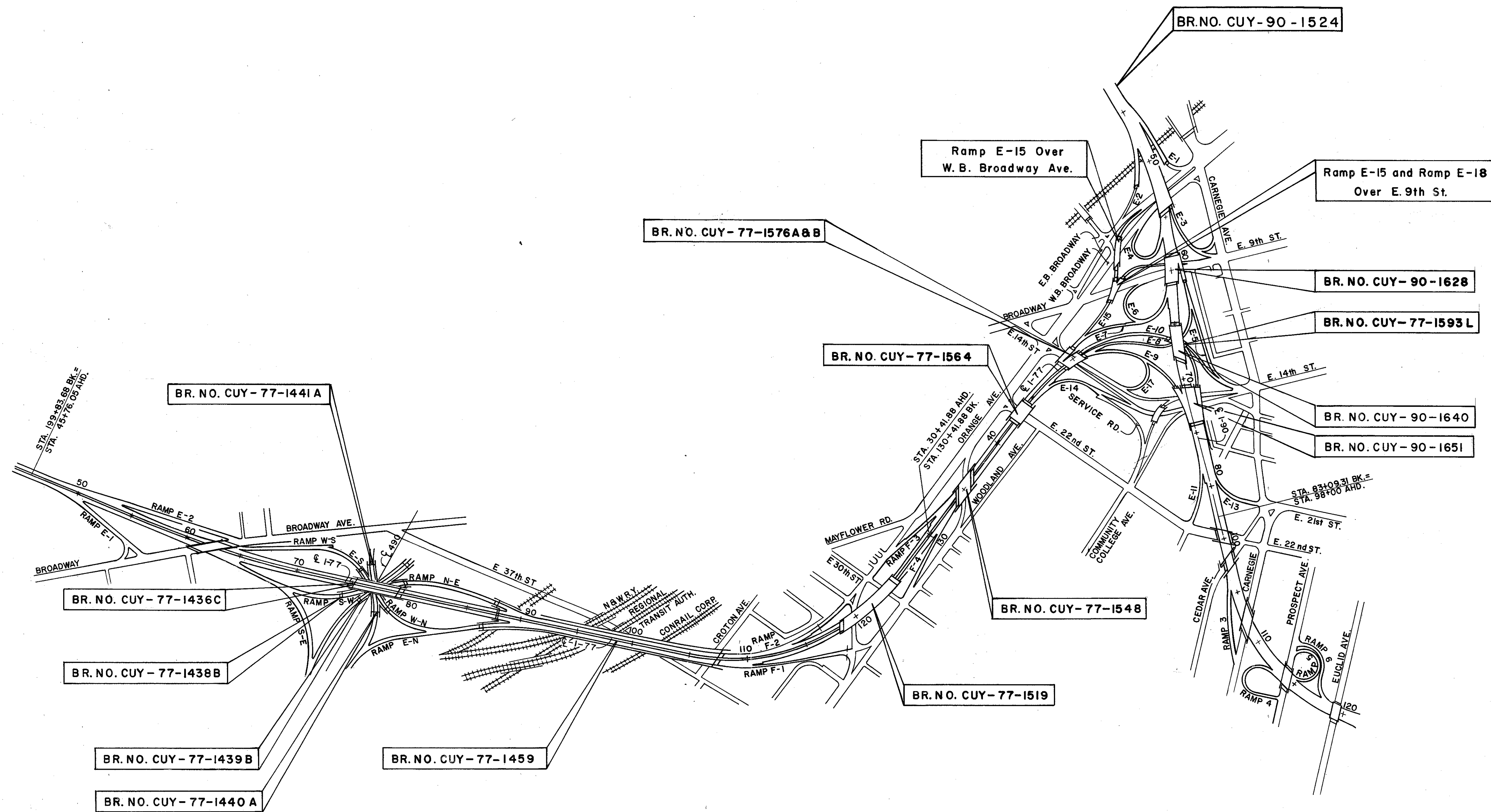
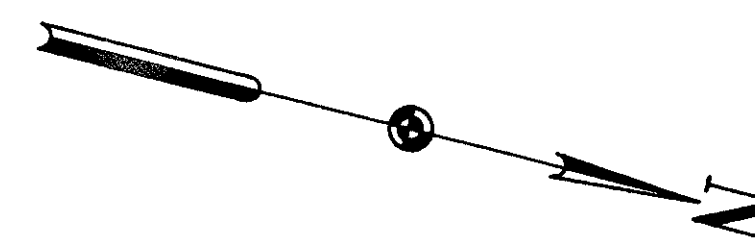


FOR LEGEND SEE SHEET 116

| | | | |
|-------------|-------|---------|--|
| FHWA REGION | STATE | PROJECT | |
| 5 | OHIO | | |

122
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



MADE C.K.B. DATE 3-9-77
 TRACED C.K.B. DATE 3-9-77
 CHECKED _____ DATE _____
 SCALE _____

Howard, Needles, Tammen & Bergendoff
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 CLEVELAND, OHIO



GENERAL NOTES - STRUCTURES OVER 20 - FT SPAN

| | | | |
|-------------|-------|---------|--|
| FHWA REGION | STATE | PROJECT | |
| 5 | OHIO | | |

123
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21

1. PROPOSED WORK

A. SURFACING BRIDGE DECKS INCLUDING DECK REPAIRS

THE ENTIRE CONCRETE DECK OF ALL BRIDGES IDENTIFIED ON SHEET 1/22 EXCEPT BR. NO. CUY-77-1564 AND BR. NO. CUY-90-1651 SHALL BE REPAIRED AND RESURFACED IN ACCORDANCE WITH THESE PLANS. RAISING THE EXPANSION JOINTS AND SCUPPERS AS SHOWN IN THE PLANS ALSO IS REQUIRED IN CONJUNCTION WITH THIS WORK. THE DECK OF BRs. NOS. CUY-77-1564 AND CUY-90-1651 HAVE PREVIOUSLY BEEN REPAIRED AND OVERLAID. THESE DECKS REQUIRE FURTHER REPAIR AND SURFACING AT THE PROPOSED MEDIAN. LIMITS OF THE PROPOSED OVERLAY ARE SHOWN IN THE PLANS.

THE BRIDGE DECKS SHALL BE REPAIRED AND RESURFACED USING ONE OF THE TWO ALTERNATES SPECIFIED EXCEPT THE BRIDGE DECK FOR BR. NO. CUY-77-1564, ~~CUY-90-1524~~. ALTERNATE "A" CONSISTS OF REPAIR, ~~RESURFACING THE BRIDGE DECKS IN ACCORDANCE WITH ITEM 845~~ LATEX MODIFIED CONCRETE OVERLAY, AND ALTERNATE "B" CONSISTS OF REPAIRING AND RESURFACING THE BRIDGE DECKS IN ACCORDANCE WITH ITEM 850, DENSE CONCRETE OVERLAY. THE BRIDGE DECK FOR BR. NO. CUY-77-1564 SHALL BE REPAIRED IN ACCORDANCE WITH ITEM SPECIAL. PATCHING CONCRETE BRIDGE DECKS TYPE I. THE SURFACING DETAILS FOR BR. NO. CUY-77-1564 ARE SHOWN IN THE PLANS AND REPAIR REQUIREMENTS ARE INCLUDED IN THE PROPOSAL. ~~SURFACING DETAILS FOR CUY-90-1524 ARE SHOWN ON THE PLANS AND IN THE PROPOSAL.~~

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

THE EXISTING DEEP BEAM GUARDRAIL, INCLUDING THE CONCRETE MEDIAN, SHALL BE REMOVED AND REPLACED WITH A CONCRETE BARRIER MEDIAN ON THE FOLLOWING BRIDGES:

BRIDGE No. CUY-77-1436 C
BRIDGE No. CUY-77-1459
BRIDGE No. CUY-77-1519
BRIDGE No. CUY-77-1548
BRIDGE No. CUY-77-1564
BRIDGE No. CUY-77-1576 A & B
BRIDGE No. CUY-90-1628
BRIDGE No. CUY-90-1640
BRIDGE No. CUY-90-1651

MODIFICATIONS AS SHOWN IN THE PLANS ARE REQUIRED TO THE EXISTING ABUTMENTS AND EXPANSION JOINTS IN CONJUNCTION WITH THE CONSTRUCTION OF THE NEW MEDIAN.

C. TRIM EXPANSION JOINT

THE EXPANSION JOINT SHALL BE TRIMMED AS SHOWN ON SHEET CD-7 OF THE PLANS AT THE FOLLOWING LOCATIONS:

BRIDGE No. CUY-77-1436 C (NORTH AND SOUTH ABUTMENTS)
BRIDGE No. CUY-77-1576 A & B (WEST ABUTMENT)
BRIDGE No. CUY-90-1651 (WEST ABUTMENT AND ABUTMENT E-9)

D. ADDITIONAL PROPOSED WORK (BRs. NOS. CUY-90-1628 AND CUY-90-1651)

ADDITIONAL PROPOSED WORK AT BRs. NOS. CUY-90-1628, ~~CUY-90-1651~~ IS SHOWN ON THE "SITE PLAN" OF THE BRIDGES. SEE SHEETS 1/5 & 1/8.

E. MEDIAN MOUNTED LIGHT POLE SUPPORTS

MEDIAN MOUNTED LIGHT POLE SUPPORTS SHALL BE PROVIDED AT BR. NO. CUY-77-1459. MODIFICATION OF THE EXISTING DECK AND PROPOSED SUPPORT DETAILS ARE SHOWN IN THE PLANS.

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
UNIT STRESS 1333 PSI FOR SUBSTRUCTURE
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 AND 836 DATED 3-12-75. 845 DATED ~~6-27-77~~, 850 DATED ~~6-27-77~~, AND 953 DATED ~~6-27-77~~ ³⁻⁸⁻⁷⁹ 853 AND 956 DATED 6-26-78

4. REFERENCE DRAWINGS

REFERENCE SHALL BE MADE TO THE OHIO STANDARD DRAWINGS SD-1-69 DATED 6-12-69 (SHEET 1 OF 4), AS-1-72 DATED 6-30-72 (SHEETS 1 AND 2), HL-5 DATED 9-6-73, AND HL-7 DATED 9-6-73.

5. 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.

6. DIMENSIONS

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

7. CONSTRUCTION SEQUENCE

ALL WORK AFFECTING TRAFFIC FLOW SHALL BE PERFORMED IN ACCORDANCE WITH THE PHASE CONSTRUCTION SEQUENCE SHOWN IN THE PLANS AND IN ACCORDANCE WITH THE MAINTENANCE OF TRAFFIC NOTES COVERED ON DRAWING No. 9A-10Z OF THE ROADWAY PLANS.

8. 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 845 LATEX MODIFIED CONCRETE OVERLAY, OR 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.

EXISTING REINFORCING STEEL THAT IS TO REMAIN IN THE REPAIRED STRUCTURE SHALL BE CUT AS INDICATED IN THE PLANS OR AS DIRECTED BY THE ENGINEER TO SERVE AS DOWELS OR PRINCIPAL REINFORCEMENT IN THE REBUILT STRUCTURE. CARE SHALL BE TAKEN TO PRESERVE THE BOND OF SUCH DOWELS OR PRINCIPAL REINFORCEMENT. THESE BARS SHALL BE CLEANED OF ALL CONCRETE FRAGMENTS AND FOREIGN MATTER. PNEUMATIC HAMMERS SHALL NOT BE PLACED IN DIRECT CONTACT WITH THE BARS; HAND TOOLS SHALL BE EMPLOYED FOR FINAL CLEANING. DAMAGED AREAS OF REINFORCEMENT THAT ARE TO REMAIN SHALL BE CUT AND STRESS TRANSFER ACCOMPLISHED BY EITHER A LAPPED OR MECHANICAL SPLICE. OTHER EXISTING REINFORCEMENT WITHIN THE REMOVAL LIMITS SHALL BE REMOVED AND DISPOSED.

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.

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| HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND | | HNTB | |
| GENERAL NOTES | | | |
| CUYAHOGA COUNTY | | OHIO | |
| DRAWN C.K.B. | TRACED C.A.B. | REVIEWED C.A.B. | REVISED |
| DATE 6-28-77 | DATE | DATE 7-5-77 | DATE |
| | | | SHEET GN-1 |

Revised 4-5-79

GENERAL NOTES - STRUCTURES OVER 20 - FT SPAN

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124
169

CUYAHOGA COUNTY
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9. BONDING NEW CONCRETE TO EXISTING CONCRETE

EXCEPT AT THE INTERFACE OF THE DECK AND CONCRETE BARRIER MEDIAN AND AT THE INTERFACE OF EXISTING CONCRETE AND LATEX MODIFIED CONCRETE, OR EXISTING CONCRETE AND LOW SLUMP CONCRETE, POLYSULFIDE-EPOXY RESIN ADHESIVE SHALL BE USED FOR BONDING NEW CONCRETE TO EXISTING CONCRETE AT ALL LOCATIONS WHERE NEW CONCRETE IS PLACED IN CONTACT WITH EXISTING CONCRETE. THE ADHESIVE SHALL BE THIOBOND NO. 100 AS MANUFACTURED BY STEELCOAT MFG. COMPANY, ST. LOUIS, MO., CEILCOAT 348 ADHESIVE, AS MANUFACTURED BY THE CEILCOAT COMPANY, BEREA, OHIO, RESIWELD R-7680-G AS MANUFACTURED BY THE H. B. FULLER COMPANY OR ADHESIVE MEETING THE REQUIREMENTS OF AASHTO M-235-73 I. IN THE EVENT OF APPLICATION AT LESS THAN 60° F. IT MAY BE NECESSARY TO OBTAIN A SLIGHTLY MODIFIED MATERIAL DEPENDING ON THE RECOMMENDATIONS OF THE MANUFACTURER.

PREPARATION OF THE SURFACE OF THE EXISTING CONCRETE SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. JUST PRIOR TO APPLICATION THE PREPARED SURFACE SHALL BE WASHED WITH WATER TO REMOVE ALL DUST. WHEN THE SURFACE IS DRY, UNLESS OTHERWISE SPECIFIED BY THE MANUFACTURER, THE ADHESIVE SHALL BE APPLIED BY THOROUGH BRUSHING ONTO THE SURFACE TO A THICKNESS OF NOT LESS THAN 15 MILS WITH THE COVERAGE AVERAGING AT LEAST ONE GALLON PER 100 SQ. FT. WHILE THE ADHESIVE IS TACKY, THE FRESH CONCRETE SHALL BE PLACED AGAINST IT. IF THE ADHESIVE SETS AND IS NO LONGER TACKY, A SECOND COAT SHALL BE APPLIED. THE ADHESIVE SHALL BE THOROUGHLY MIXED AND HEALTH PRECAUTIONS OBSERVED, ALL IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

NO SEPARATE PAYMENT WILL BE MADE FOR BONDING NEW CONCRETE TO OLD USING POLYSULFIDE-EPOXY RESIN ADHESIVE, BUT THIS WORK SHALL BE INCLUDED IN THE PERTINENT REPAIR ITEM. THIS WORK SHALL INCLUDE ALL LABOR, MATERIAL AND CLEANING, AND PREPARING OF THE EXISTING SURFACE. IF SANDBLASTING THE EXISTING SURFACE IS NECESSARY, THIS WORK SHALL ALSO BE INCLUDED.

10. 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.

11. 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.

12. 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. THE HOLES AND THE ANCHORING SHALL BE IN CONFORMANCE WITH SUPPLEMENTAL SPECIFICATION 853. IN LIEU OF THE BASIS OF PAYMENT DESCRIBED IN S.S. 853, PAYMENT WILL BE MADE AT CONTRACT UNIT PRICE BID FOR ITEM 510, DOWEL HOLES, AS PER PLAN. THIS PRICE SHALL BE PAYMENT IN FULL FOR ALL MATERIAL, EQUIPMENT, AND LABOR NECESSARY TO COMPLETE THIS WORK.

13. ITEM 516 - VERTICAL EXTENSION OF STRUCTURAL EXPANSION JOINTS (END DAMS AND LONGITUDINAL DECK JOINTS), AS PER PLAN

VERTICAL EXTENSION OF STRUCTURAL STEEL EXPANSION JOINTS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE DETAILS SHOWN ON SHEETS CD-5 AND CD-7 OF THE PLANS. PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE BID FOR ITEM 516. VERTICAL EXTENSION OF STRUCTURAL STEEL EXPANSION JOINTS (END DAMS AND LONGITUDINAL DECK JOINTS), AS PER PLAN. THIS PRICE SHALL BE PAYMENT IN FULL FOR ALL MATERIAL, EQUIPMENT, AND LABOR NECESSARY TO COMPLETE THIS WORK.

14. ITEM 516 - VERTICAL EXTENSION OF STRUCTURAL EXPANSION JOINTS (INTERMEDIATE EXPANSION JOINTS), AS PER PLAN

VERTICAL EXTENSION OF STRUCTURAL STEEL EXPANSION JOINTS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE DETAILS SHOWN ON SHEETS 9/22 AND 10/22 OF THE PLANS. PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE BID FOR ITEM 516, VERTICAL EXTENSION OF STRUCTURAL STEEL EXPANSION JOINTS (INTERMEDIATE EXPANSION JOINTS), AS PER PLAN. THIS PRICE SHALL BE PAYMENT IN FULL FOR ALL MATERIAL, EQUIPMENT, AND LABOR NECESSARY TO COMPLETE THIS WORK.

20. BR. NO. CUY-90-1651 NOW HAS A DENSE CONCRETE SURFACE. IF ALTERNATE A (LATEX MODIFIED) IS USED ON THE PROJECT, THE LATEX SURFACE OVERLAY THICKNESS SHALL MATCH THAT OF THE ADJACENT DENSE CONCRETE. PAYMENT WILL BE MADE AT UNIT PRICE BID FOR THE LATEX MODIFIED CONCRETE SURFACE OVERLAY (1 1/4" THICK).

16. ITEM SPECIAL - RESET BEARINGS

RESETTING OF BEARINGS SHALL BE ACCOMPLISHED IN CONNECTION WITH THE RAISING OF THE SUPERSTRUCTURE FOR BACKWALL REPLACEMENT AND IN ACCORDANCE WITH SHEET CD-7 OF THE PLANS AND SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR ITEM SPECIAL, RESET BEARINGS. THIS PRICE SHALL BE PAYMENT IN FULL FOR ALL MATERIAL, EQUIPMENT, AND LABOR NECESSARY TO COMPLETE THIS WORK.

17. 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 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 845 OR 850 FULL DEPTH REPAIR.

18. SCUPPER MODIFICATION.

MODIFICATION OF SCUPPERS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH SHEET CD-8 OF THE PLANS AND SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR ITEM SPECIAL, SCUPPER MODIFICATION. THIS PRICE SHALL BE PAYMENT IN FULL FOR ALL MATERIAL, EQUIPMENT, AND LABOR NECESSARY TO COMPLETE THIS WORK.

19. DENSE CONCRETE BRIDGE DECK OVERLAYS

THE CONTRACTOR HAS THE OPTION AT ANY TIME OR LOCATION TO USE LATEX MODIFIED CONCRETE (MATERIAL SUBJECT TO THE APPROVAL OF THE ENGINEER) IN LIEU OF DENSE CONCRETE. THE THICKNESS OF THE OVERLAY SHALL BE 1 3/4 INCHES WHEN ABUTTING A DENSE CONCRETE OVERLAY AND 1 1/4 INCHES OTHERWISE. PAYMENT FOR LATEX MODIFIED CONCRETE WHEN USED IN PLACE OF DENSE CONCRETE SHALL BE MADE AT THE UNIT PRICE BID FOR THE RESPECTIVE DENSE CONCRETE.

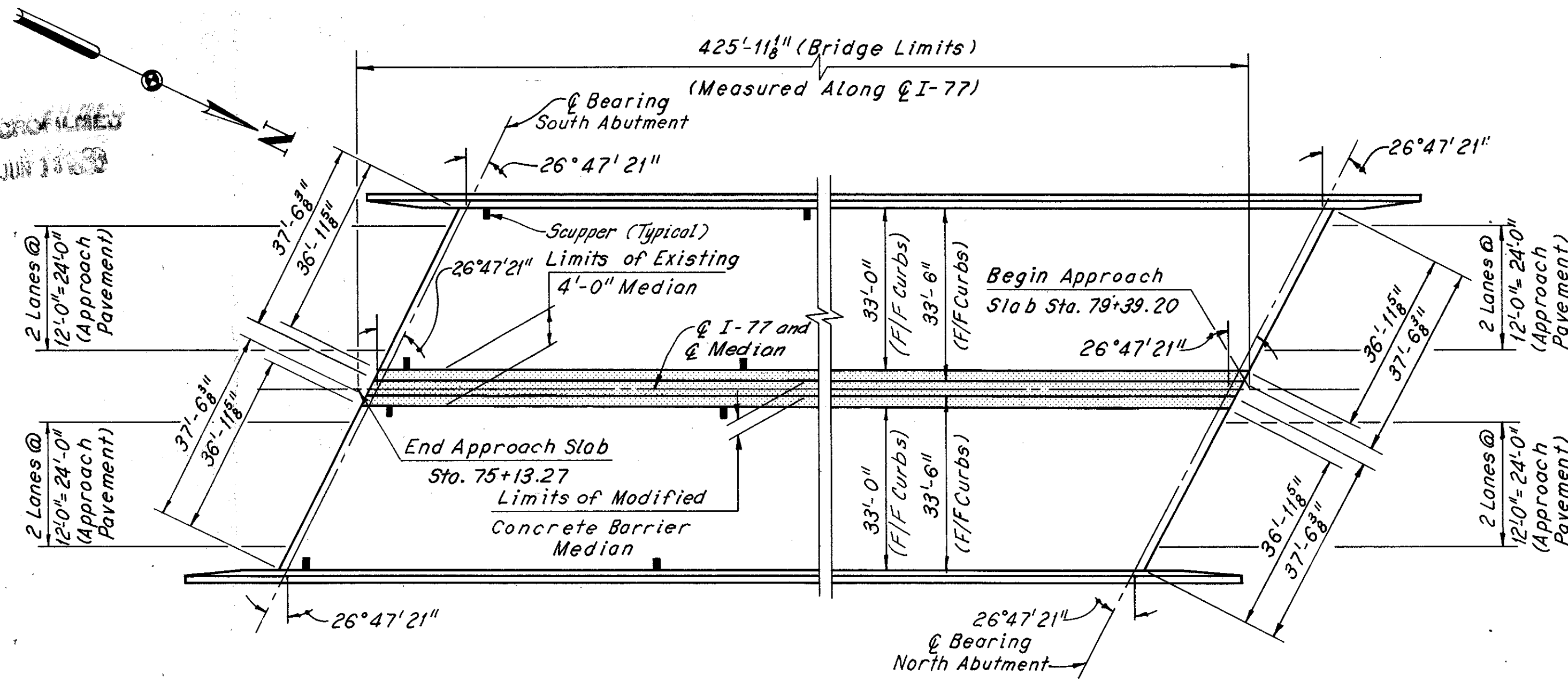
THIS NOTE IS SPECIFICALLY APPLICABLE BUT NOT LIMITED TO BR. NO. CUY-77-1576B BR. NO. CUY-77-1593L AND BR. NO. CUY-90-1628 WHERE WORK AREAS ARE LIMITED DUE TO TRAFFIC CONTROL CONSIDERATIONS. IT DOES NOT APPLY TO BR. NO. CUY-90-1524.

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| HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND | | | | HNTB | |
| GENERAL NOTES | | | | | |
| CUYAHOGA COUNTY OHIO | | | | | |
| DRAWN C.K.B. DATE 6/28/77 | TRACED | CHECKED C.A.B. DATE 7/5/77 | REVIEWED | REVISED | SHEET GN-2 |

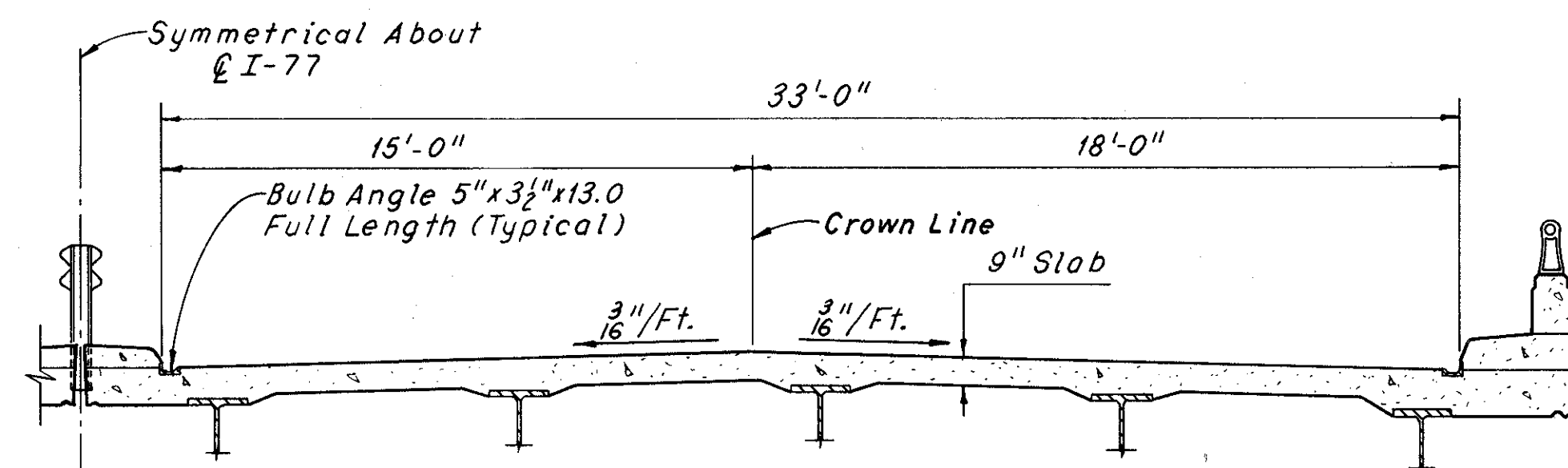
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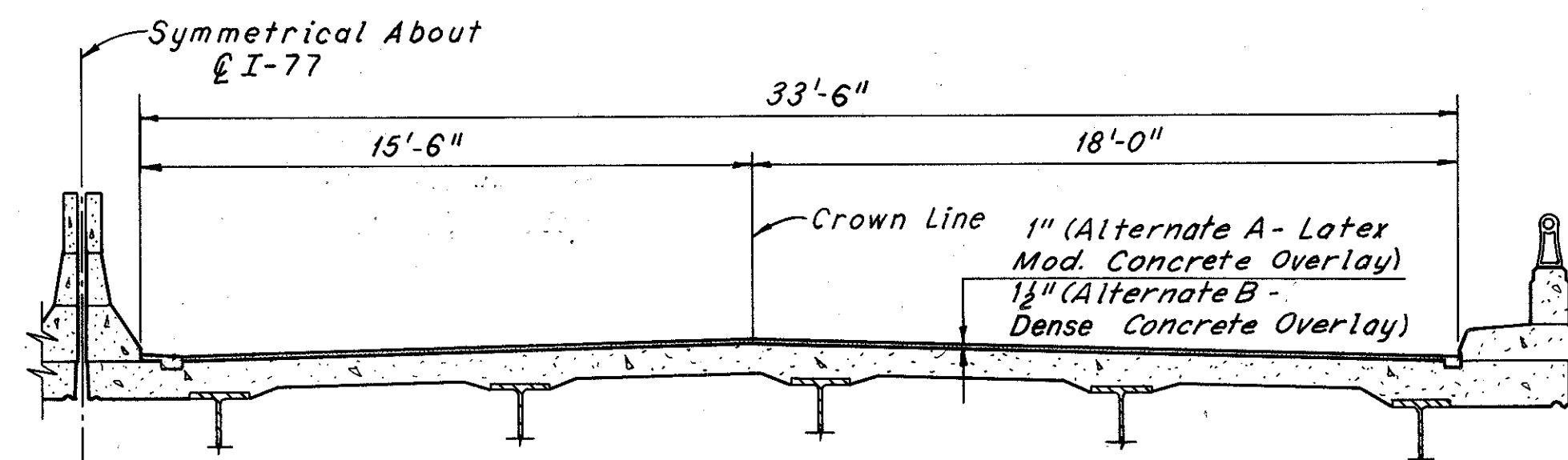
CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



EXISTING AND MODIFIED PLAN
Indicates removal

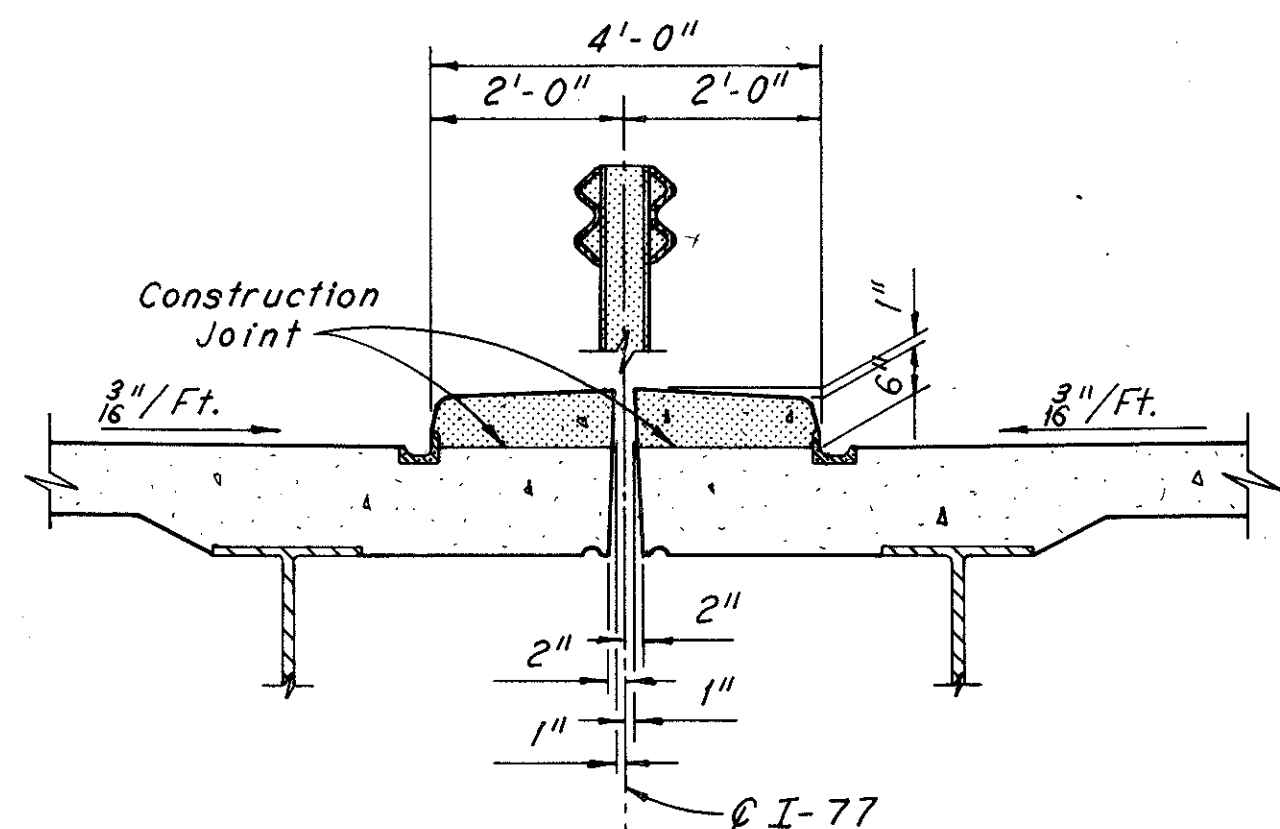


EXISTING TYPICAL SECTION

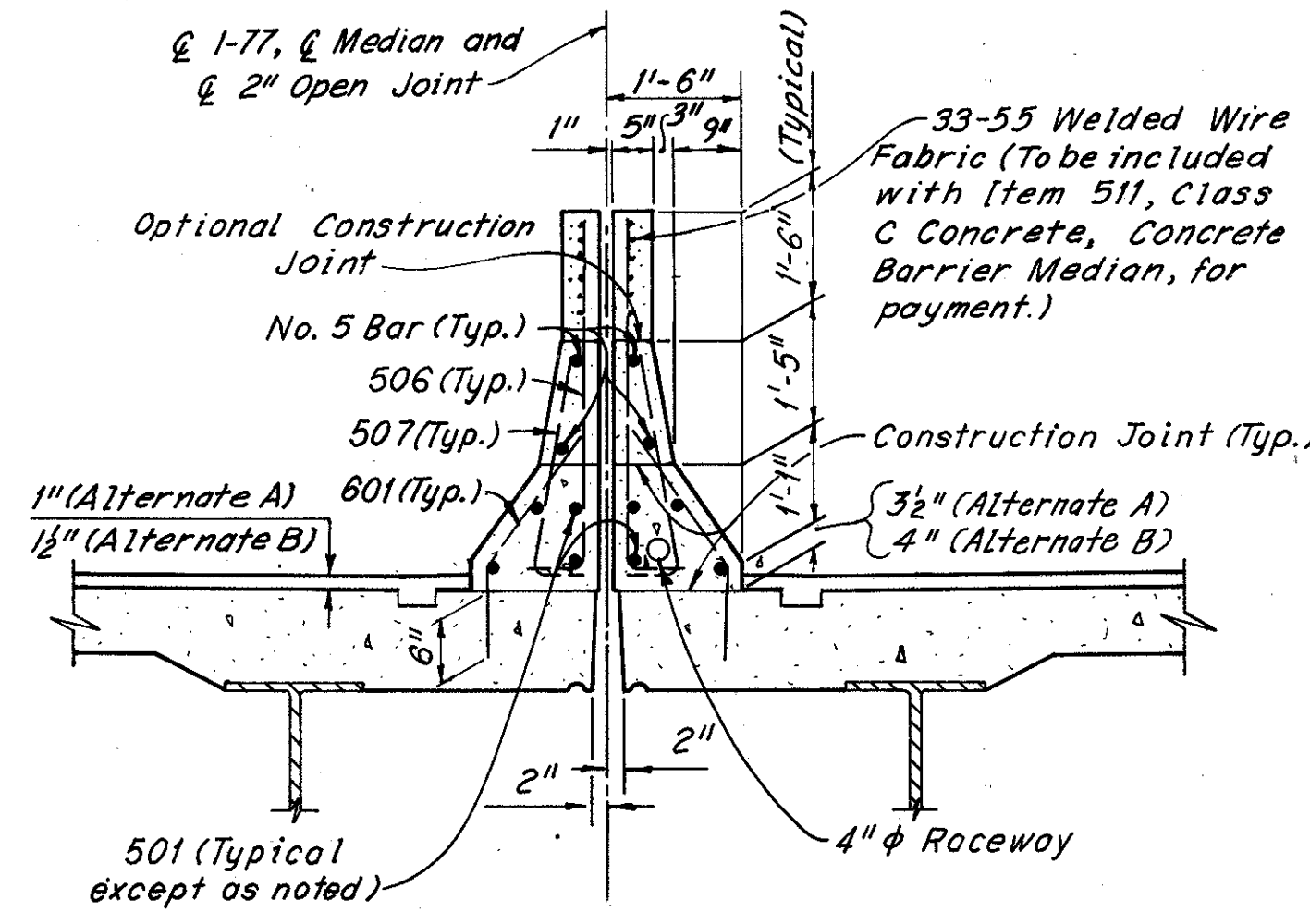


MODIFIED TYPICAL SECTION

- 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.



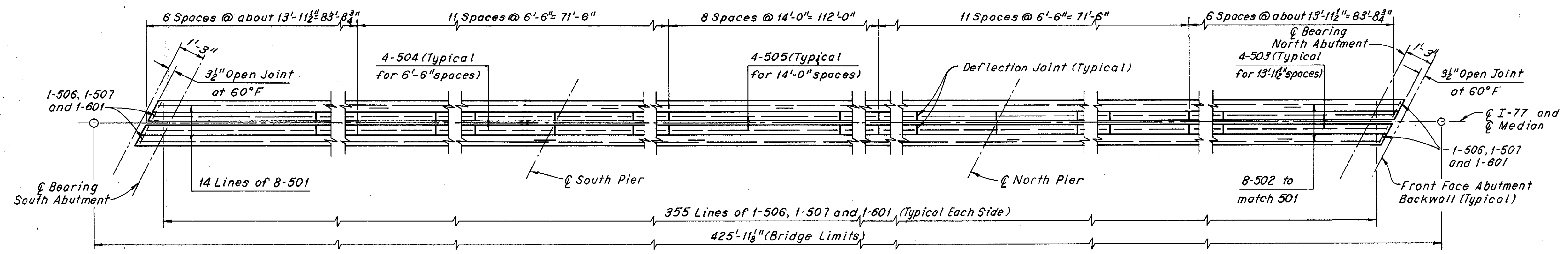
TYPICAL EXISTING MEDIAN CROSS SECTION
Indicates removal
(For post anchor detail see Sheet CD-6)



TYPICAL MODIFIED MEDIAN CROSS SECTION

Note: All reinforcing bar marks shall be prefixed AM.

- Notes:
- For schematic plan and bridge locations, see Sheet 122.
 - For expansion joint modification of the median, see Sheets CD-1 and CD-2.
 - For details of raising existing end dams, see Sheet CD-6.
 - For details of resurfacing, see Sheets CD-5 and CD-8.
 - For details of deflection joints in the concrete barrier median, see Sheet CD-6.
 - For spacing of dowel holes for 601 bars and concrete barrier median reinforcement, see Sheet CD-6.
 - For details of raising existing scuppers, see Sheet CD-8.
 - For reinforcement schedule, see Sheet CD-10.
- The following abbreviation is used:
Typ. = Typical



CONCRETE BARRIER MEDIAN PLAN

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND HNTB

EXISTING AND MODIFIED DECK PLAN AND MEDIAN

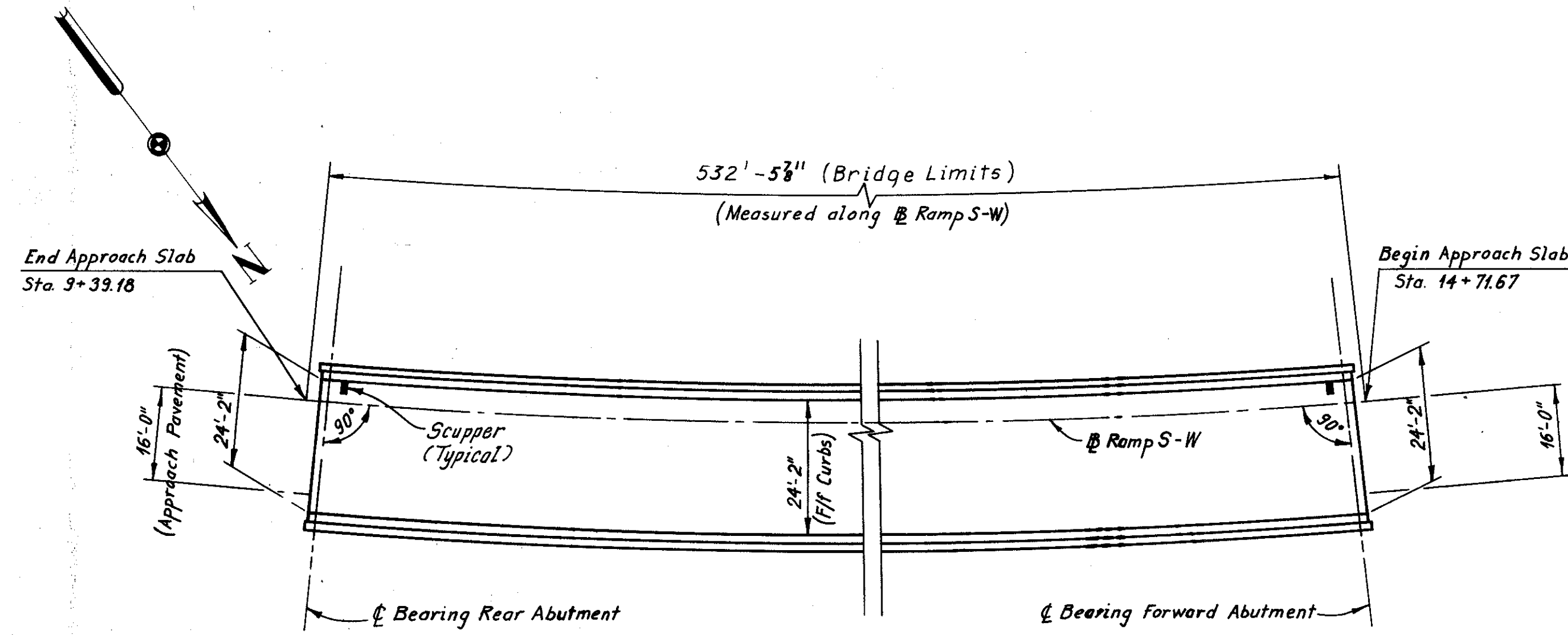
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| CUYAHOGA COUNTY | OHIO |
| DRAWN: A.B. | TRACED: R.C. |
| CHECKED: A.M. | REVIEWED: R.H.S. |
| DATE: 12-11-74 | DATE: 2-6-75 |
| DATE: 2-10-77 | DATE: |
| SHEET 2 22 | |

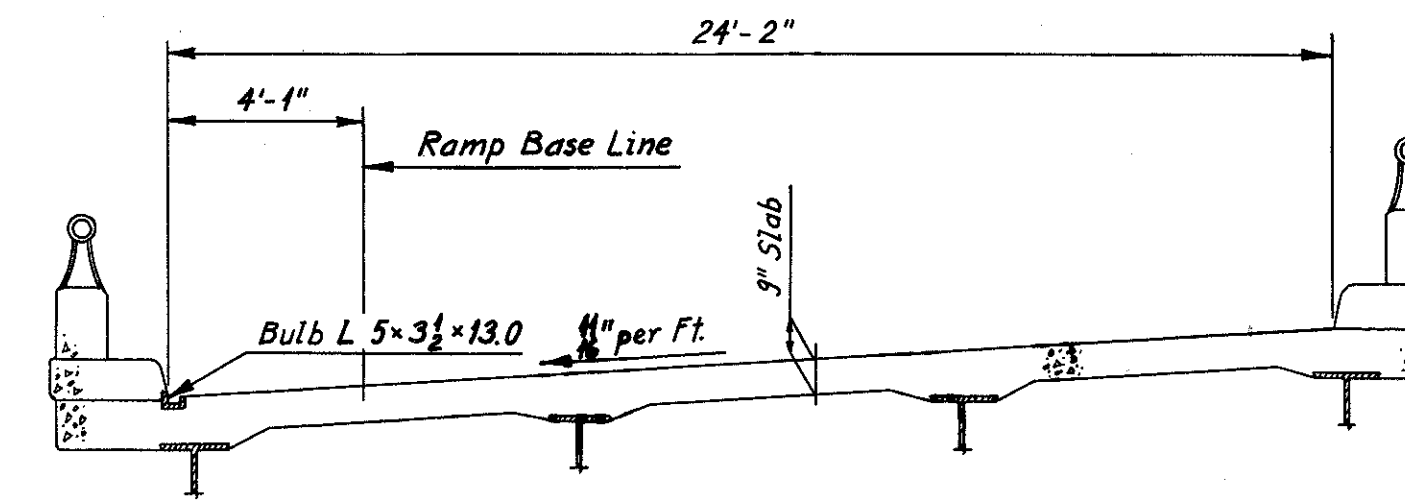
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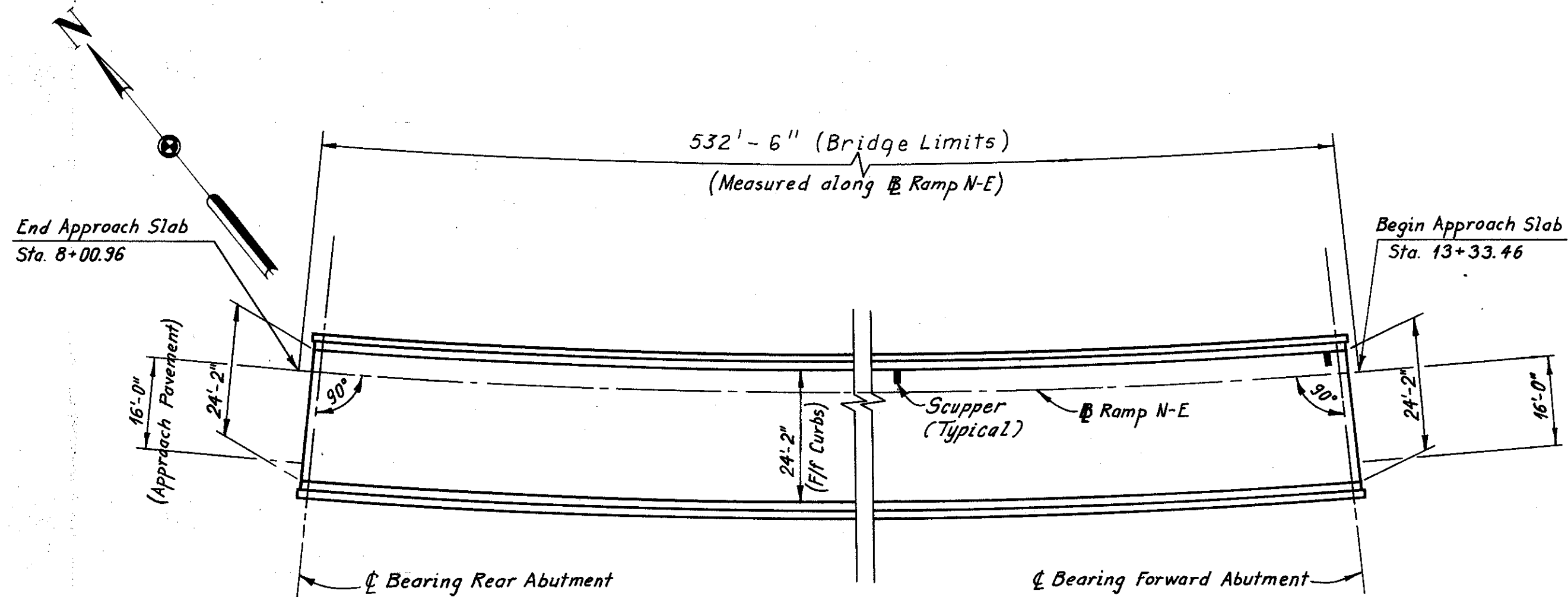
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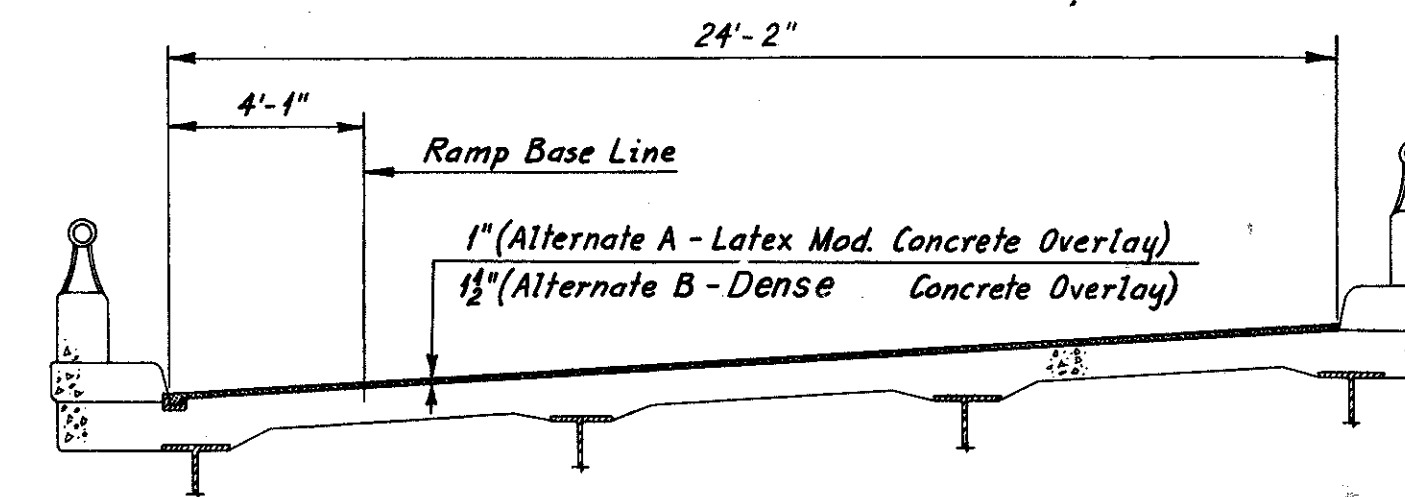
EXISTING AND MODIFIED PLAN
 BR. NO. CUY-77-1438 B



EXISTING TYPICAL SECTION



EXISTING AND MODIFIED PLAN
 BR. NO. CUY-77-1439 B



MODIFIED TYPICAL SECTION

Notes:
 For schematic plan and bridge location, see Sheet 122.
 For details of raising existing end dams, see Sheet CD-6.
 For details of resurfacing, see Sheet CD-5.
 For details of raising existing scuppers, see Sheet CD-8.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND HNTB

EXISTING AND MODIFIED DECK PLAN AND TYPICAL SECTION

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 BR. NO. CUY-77-1439B

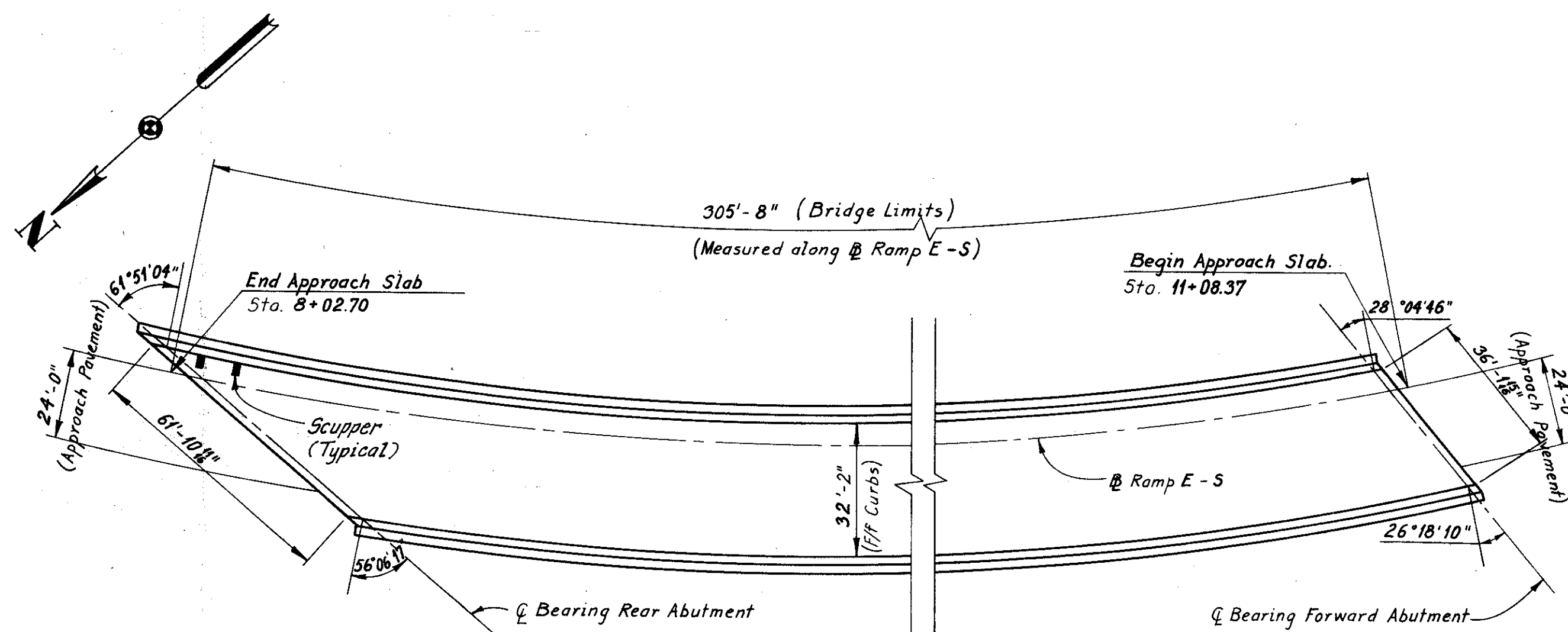
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| DRAWN A.N. | TRACED A.N. | CHECKED R.A.S. & D.H.S. | REVIEWED | REVISED |
| DATE 1-20-74 | DATE 1-25-74 | DATE 2-18-77 | DATE | DATE |

CUYAHOGA COUNTY OHIO SHEET 3 22

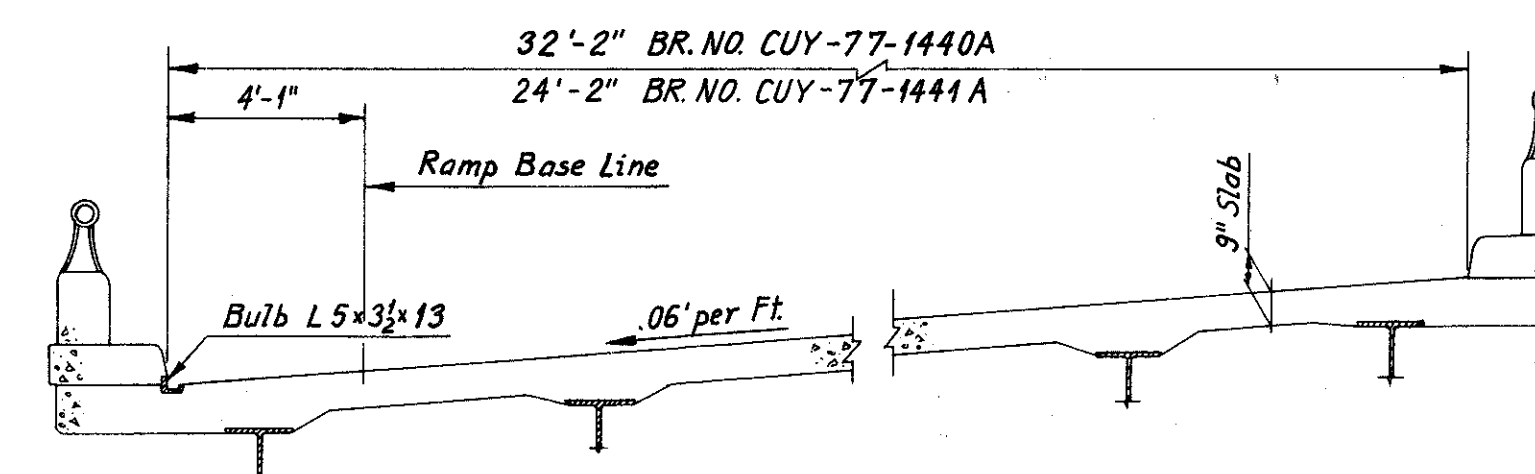
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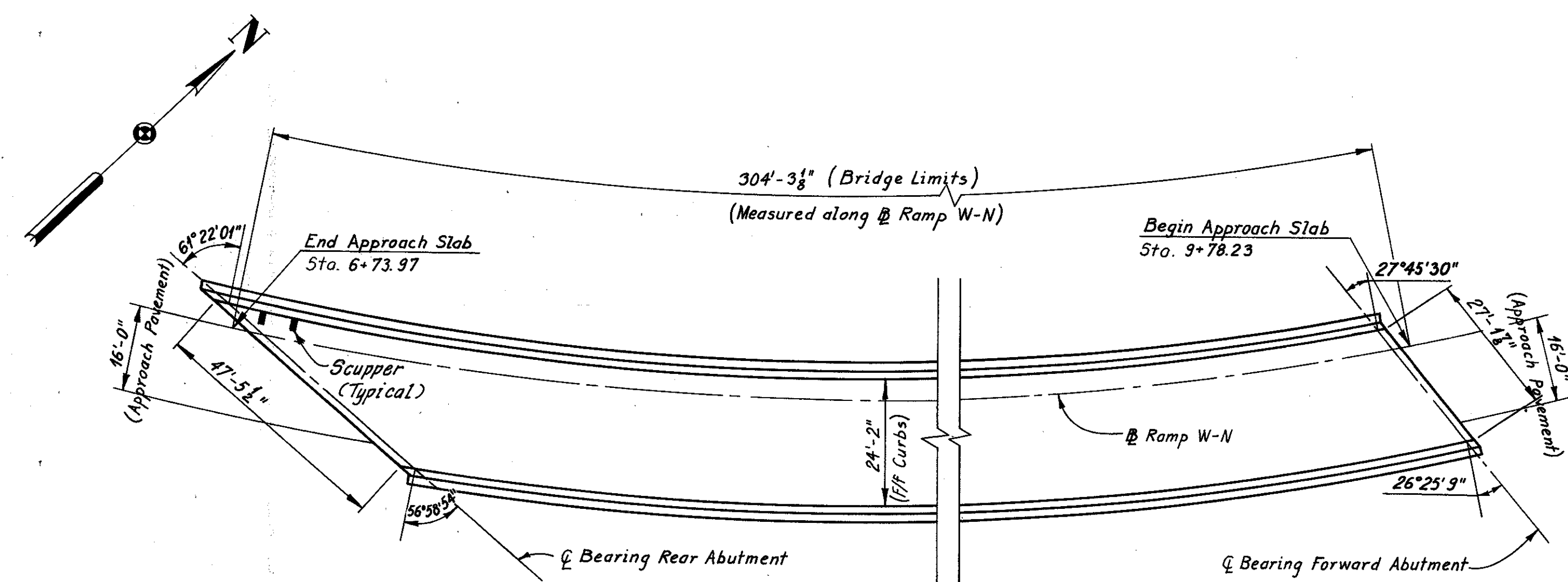
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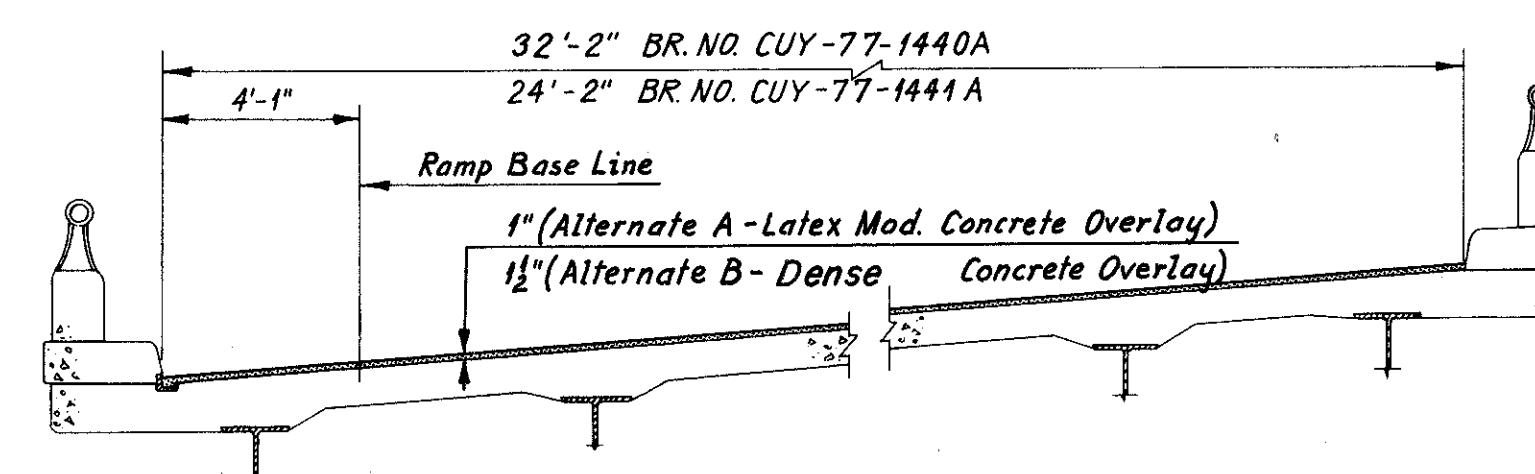
EXISTING AND MODIFIED PLAN
BR. NO. CUY-77-1440A



EXISTING TYPICAL SECTION



EXISTING AND MODIFIED PLAN
BR. NO. CUY-77-1441A



MODIFIED TYPICAL SECTION

Notes:
For schematic plan and bridge location, see Sheet 122.
For details of raising existing end dams, see Sheet CD-6.
For details of resurfacing, see Sheet CD-5.
For details of raising existing scuppers, see Sheet CD-8.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND

HNTB

EXISTING AND MODIFIED
DECK PLAN AND TYPICAL SECTION

BR. NO. CUY-77-1440A
BR. NO. CUY-77-1441A

CUYAHOGA COUNTY OHIO

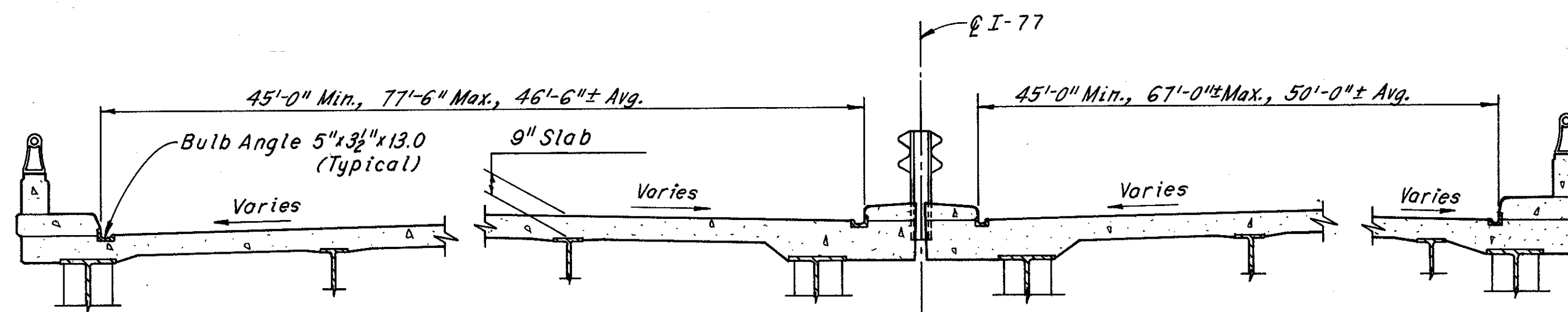
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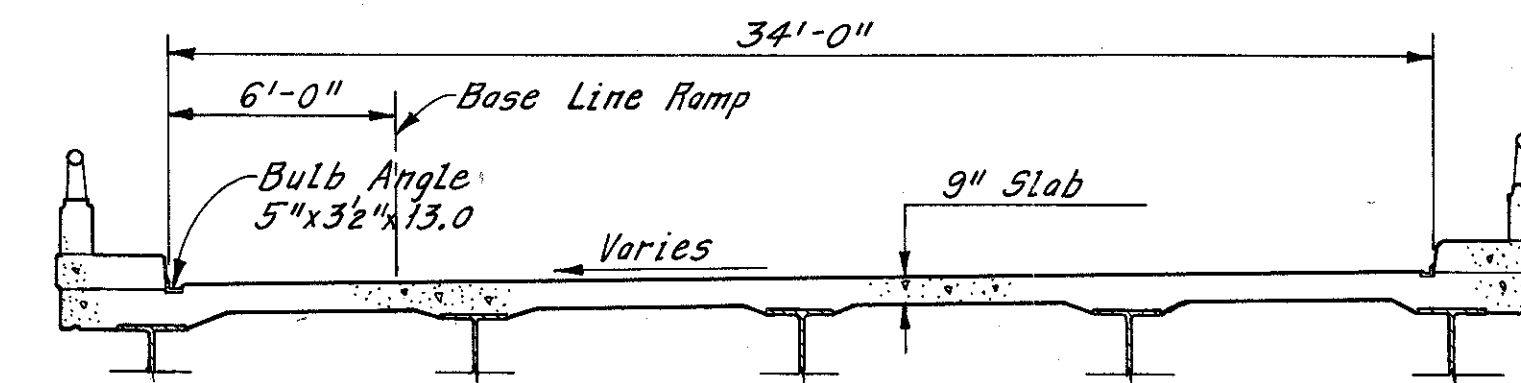
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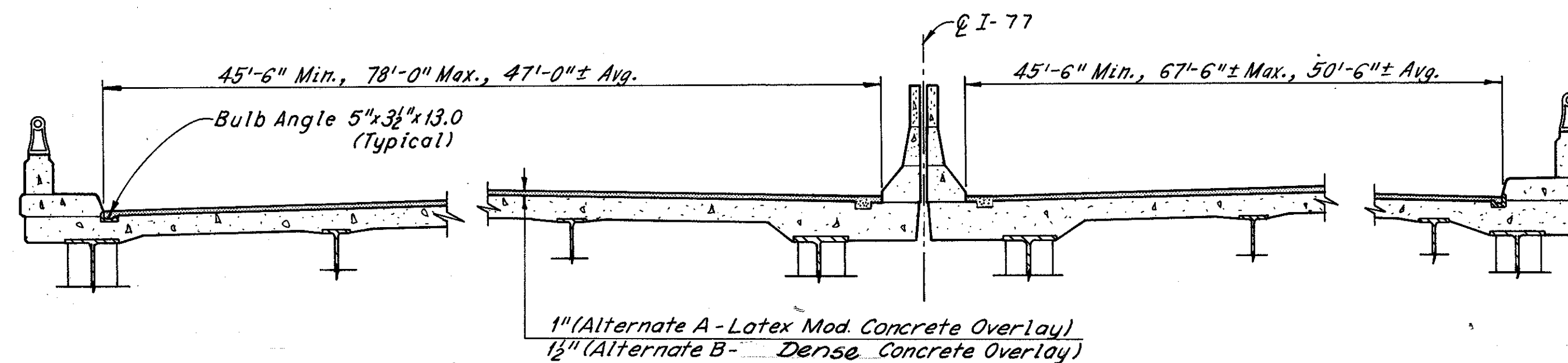
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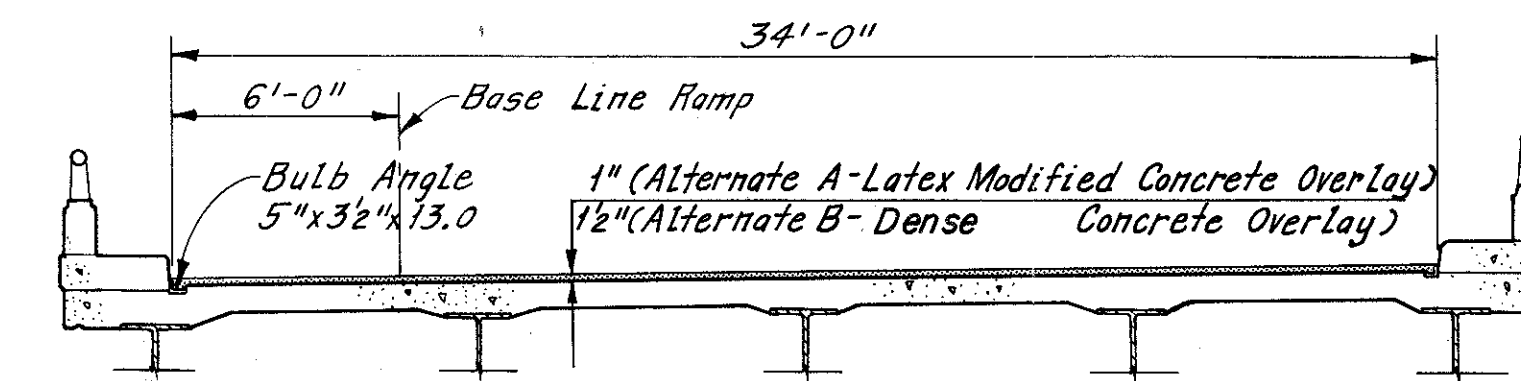
EXISTING TYPICAL SECTION
(Looking North)



EXISTING TYPICAL SECTION RAMP N-E (LOOKING NORTH)
EXISTING TYPICAL SECTION RAMP E-N (LOOKING SOUTH)

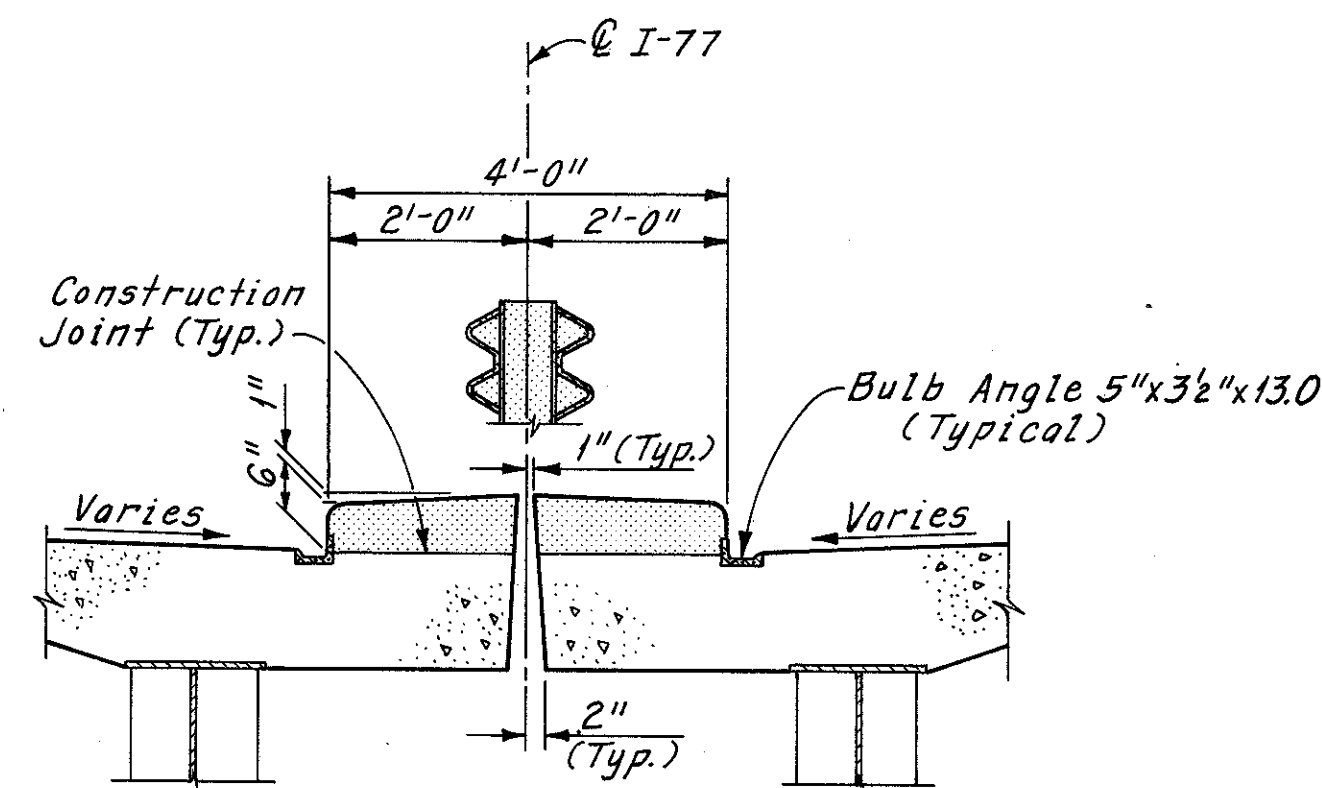


MODIFIED TYPICAL SECTION
(Looking North)



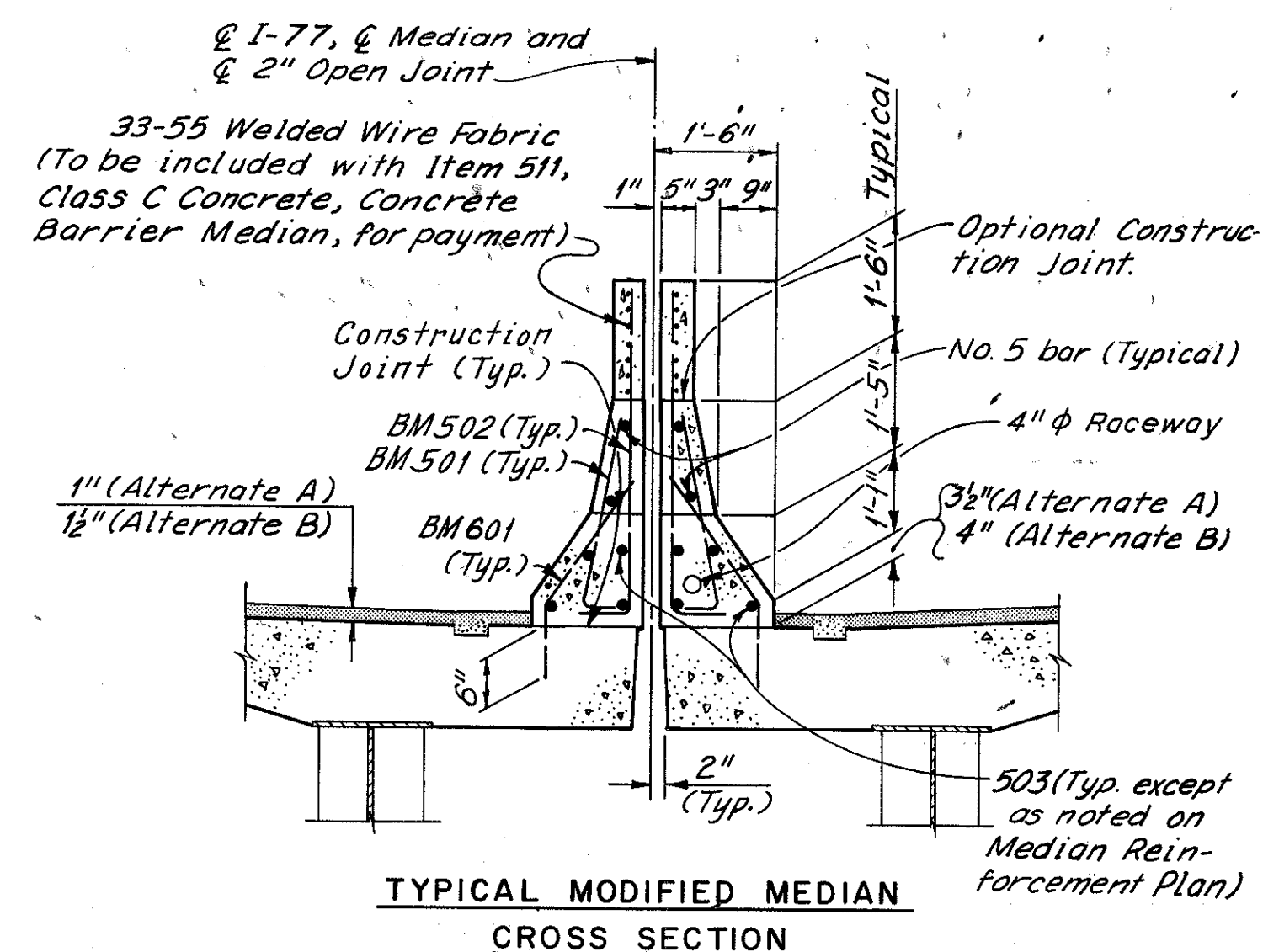
MODIFIED TYPICAL SECTION RAMP N-E (LOOKING NORTH)
MODIFIED TYPICAL SECTION RAMP E-N (LOOKING SOUTH)

- 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.



TYPICAL EXISTING MEDIAN
CROSS SECTION

Indicates removal
(For post anchor detail, see Sheet CD-6)



TYPICAL MODIFIED MEDIAN
CROSS SECTION

- Notes:
- For median reinforcement, see Sheets 7/22 and 8/22.
 - For details of resurfacing, see Sheets CD-5 and CD-8.
 - For reinforcement schedule, see Sheet CD-10.
- The following abbreviations are used:
- Typ. = Typical
 - Min. = Minimum
 - Max. = Maximum
 - Avg. = Average

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND HNTB

EXISTING AND MODIFIED
TYPICAL SECTIONS
BR. NO. CUY-77-1459

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| DATE 1-17-75 | | DATE 2-14-75 | | DATE 2-18-75 | | DATE | |

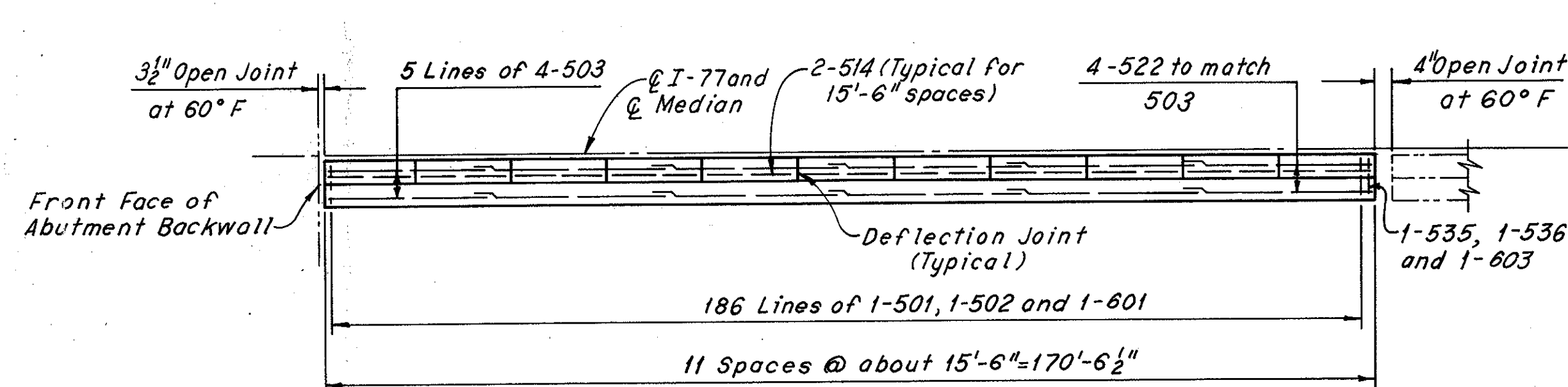
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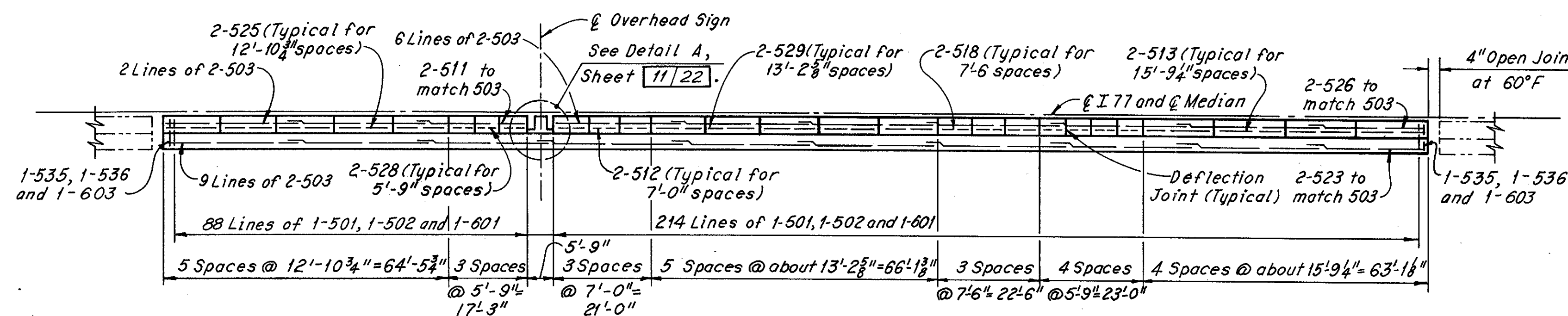
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CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21

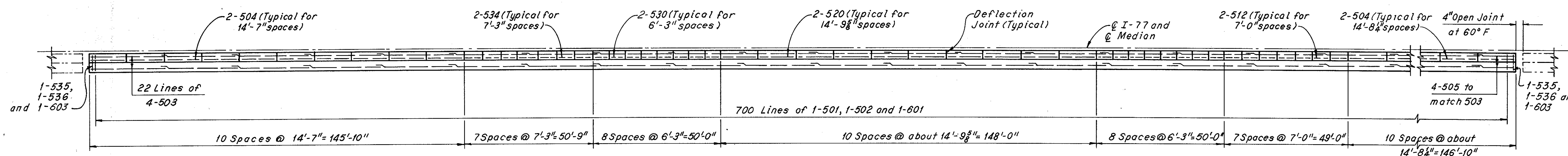
Note: All reinforcing bar marks shall be prefixed BM.



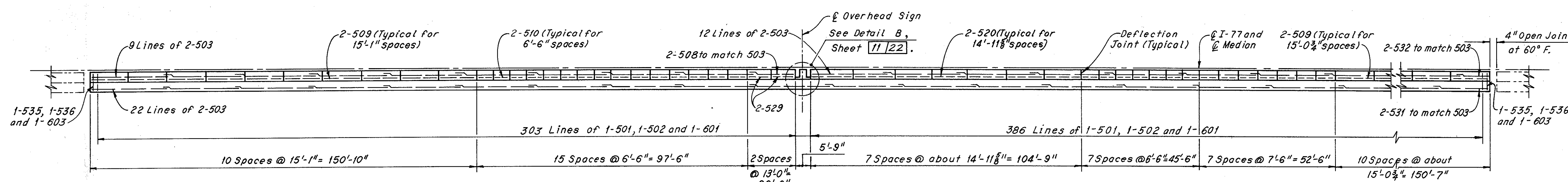
UNIT 1



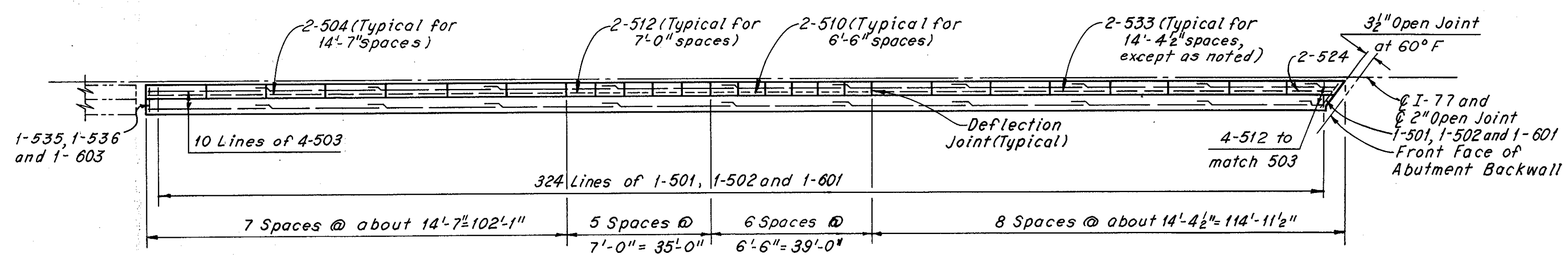
UNIT 2



UNIT 3



UNIT 4



UNIT 5

Notes:
 For typical modified cross section, see Sheet 6/22.
 For spacing of dowel holes for 601 bars and concrete barrier median reinforcement, see Sheet CD-6.
 For details of deflection joints in the concrete barrier median, see Sheet CD-6.
 For locations of median mounted light pole supports, see Sheet 5/22.
 For details of median mounted light pole supports, see Sheets 12/22 and 13/22.
 For intermediate expansion joint modification at the median, see Sheet 9/22.
 For abutment expansion joint modification at the median, see Sheets CD-1 and CD-2.
 For reinforcement schedule, see Sheet CD-10.

| | | |
|---|--------------|-----------------------|
| HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND | | HNTB |
| EAST MEDIAN REINFORCEMENT | | |
| BR. NO. CUY-77-1459 | | |
| CUYAHOGA COUNTY | | OHIO |
| DRAWN RAS | TRACED RCA | CHECKED J.A.B./D.H.S. |
| DATE 2-7-75 | DATE 2-10-75 | DATE 2-11-75 |
| REVIEWED | REVISOR | DATE |
| | | SHEET 7/22 |

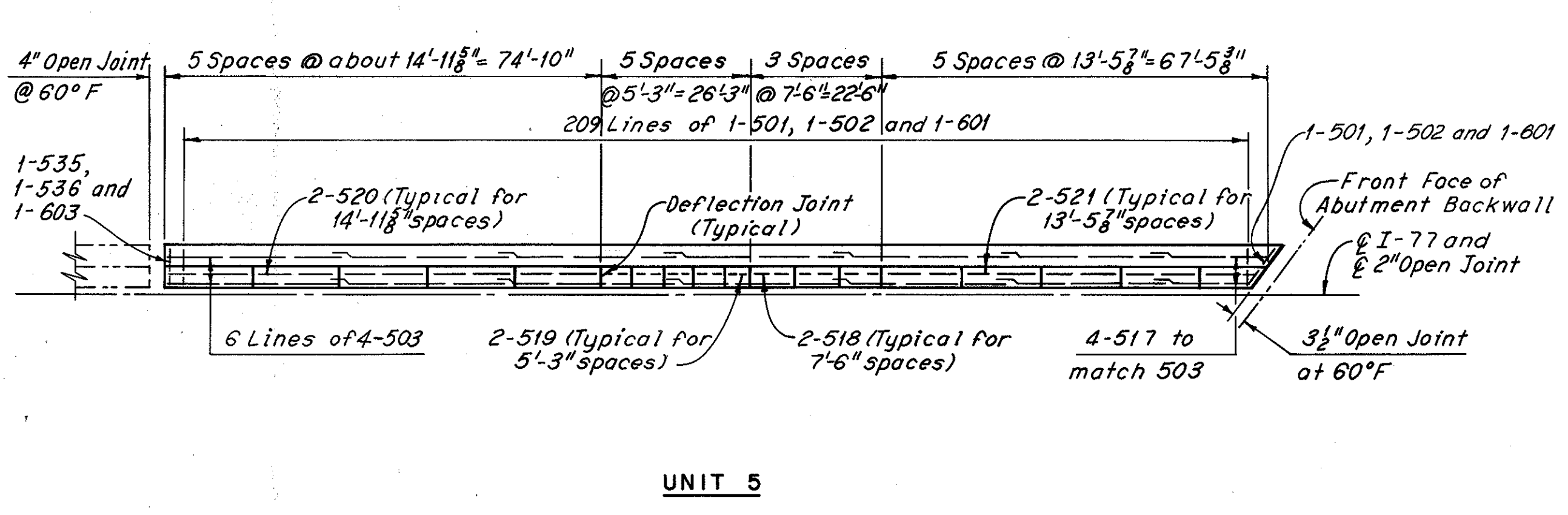
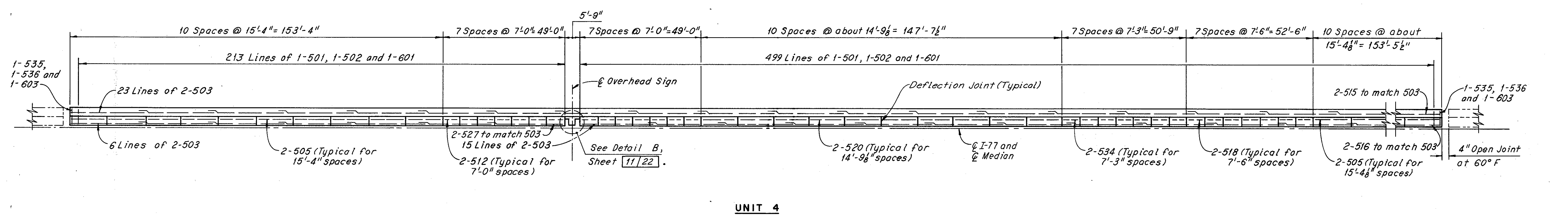
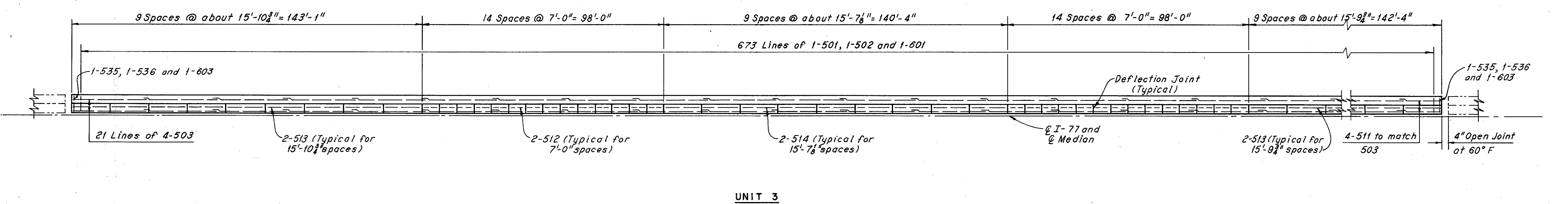
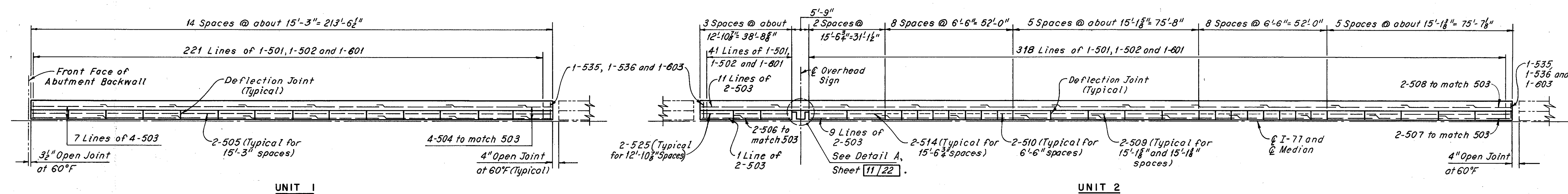
MICROFILMED
JUN 30 1978

| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

132
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21

Note: All reinforcing bar marks shall be prefixed BM.



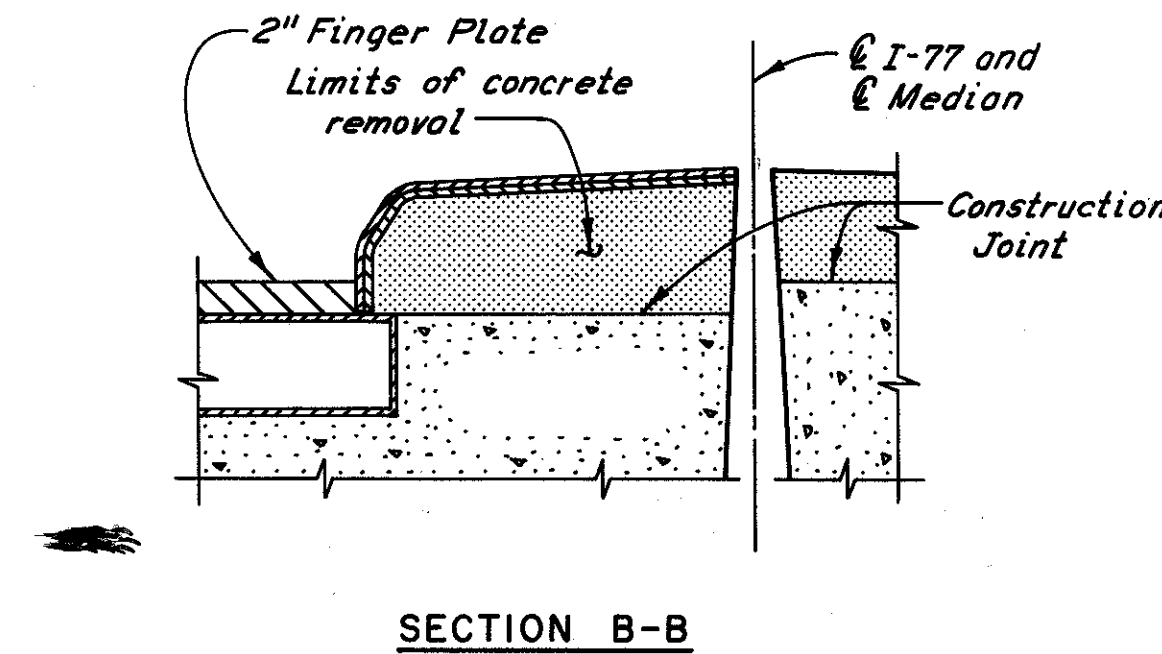
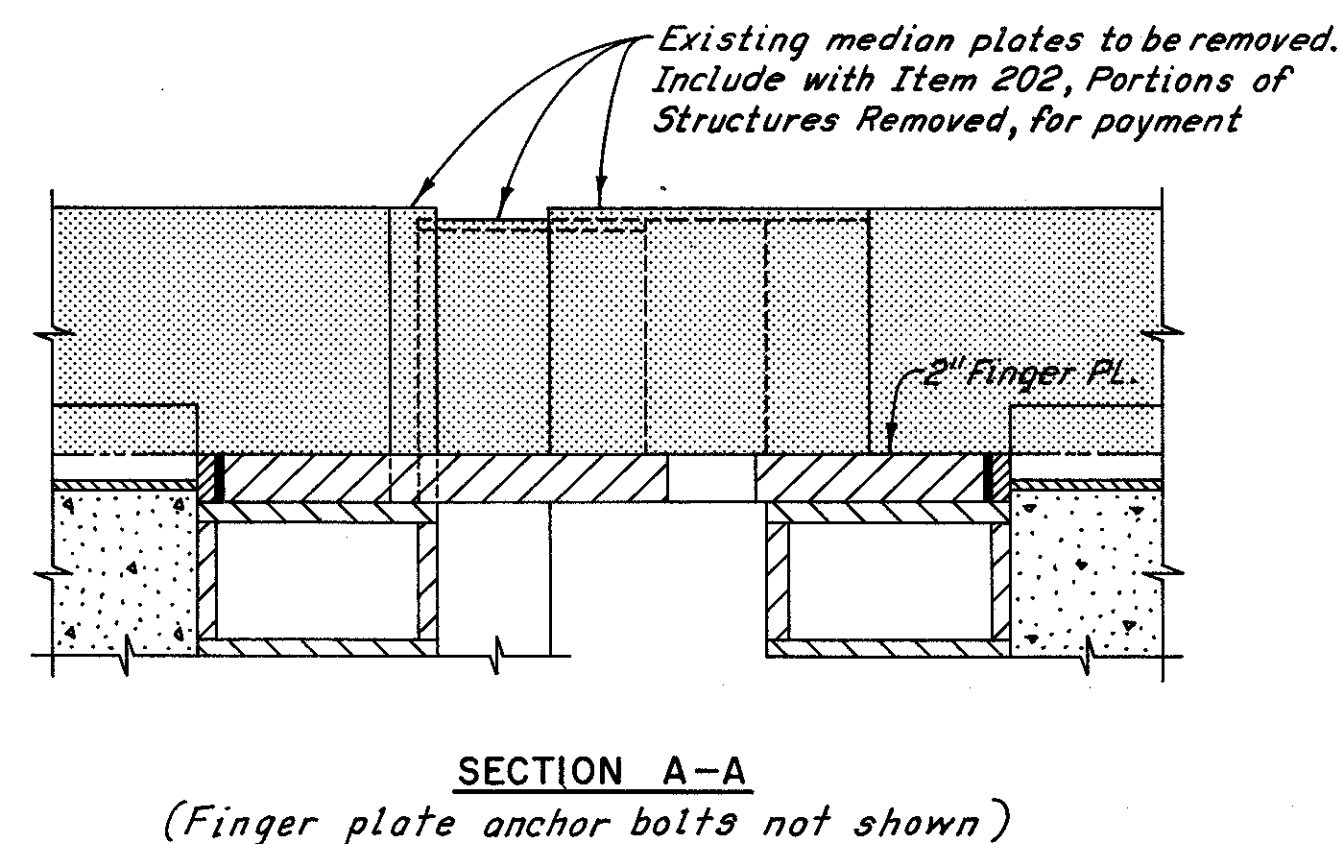
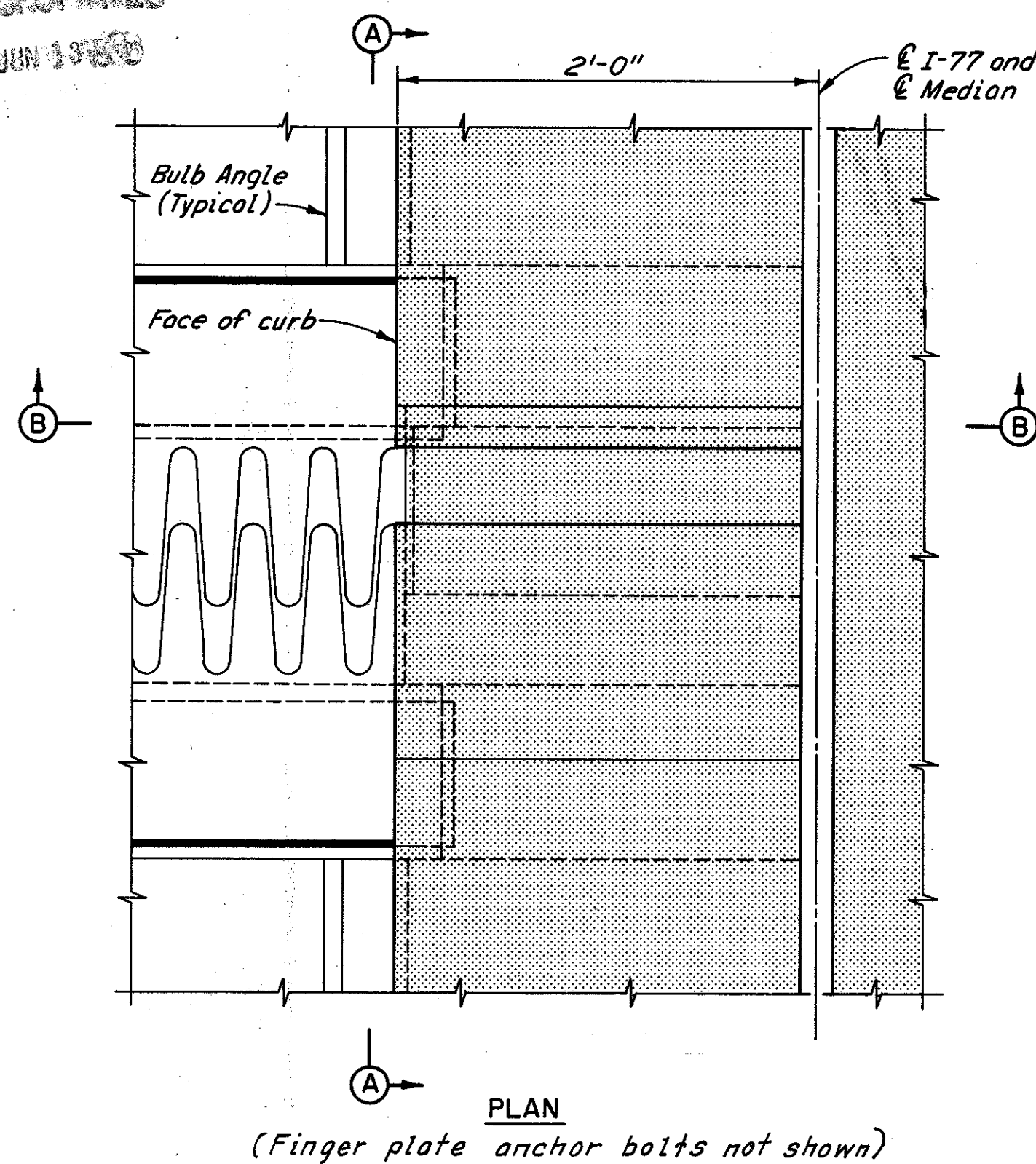
Notes:
 For typical modified cross section, see Sheet 6/22.
 For spacing of dowel holes for 601 bars and concrete barrier median reinforcement, see Sheet CD-6.
 For details of deflection joints in the concrete barrier median, see Sheet CD-6.
 For locations of median mounted light pole supports, see Sheet 5/22.
 For details of median mounted light pole supports, see Sheets 12/22 and 13/22.
 For intermediate expansion joint modification at the median, see Sheet 9/22.
 For abutment expansion joint modification at the median, see Sheets CD-1 and CD-2.
 For reinforcement schedule, see Sheet CD-10.

| | | | |
|---|-----------------|-------------------------|---------------|
| HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND | | HNTB | |
| WEST MEDIAN REINFORCEMENT | | | |
| BR. NO. CUY.-77-1459 | | | |
| CUYAHOGA COUNTY | | OHIO | |
| DRAWN BY: J.S. | TRACED BY: R.M. | CHECKED: J.A.B., D.H.S. | REVIEWED: [] |
| DATE: 2-9-75 | DATE: 2-11-75 | DATE: 2-11-75 | DATE: [] |
| | | | SHEET 8 / 22 |

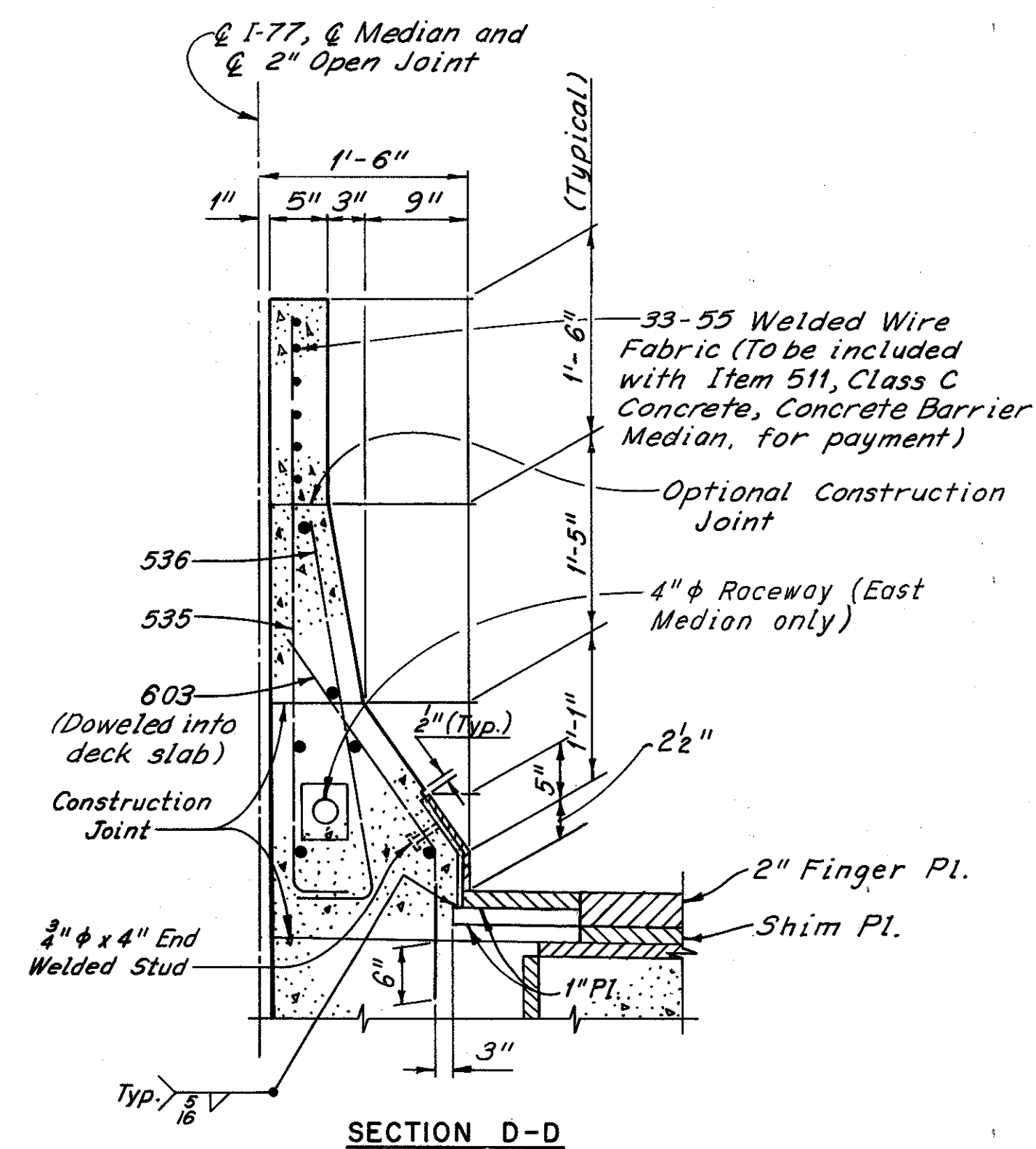
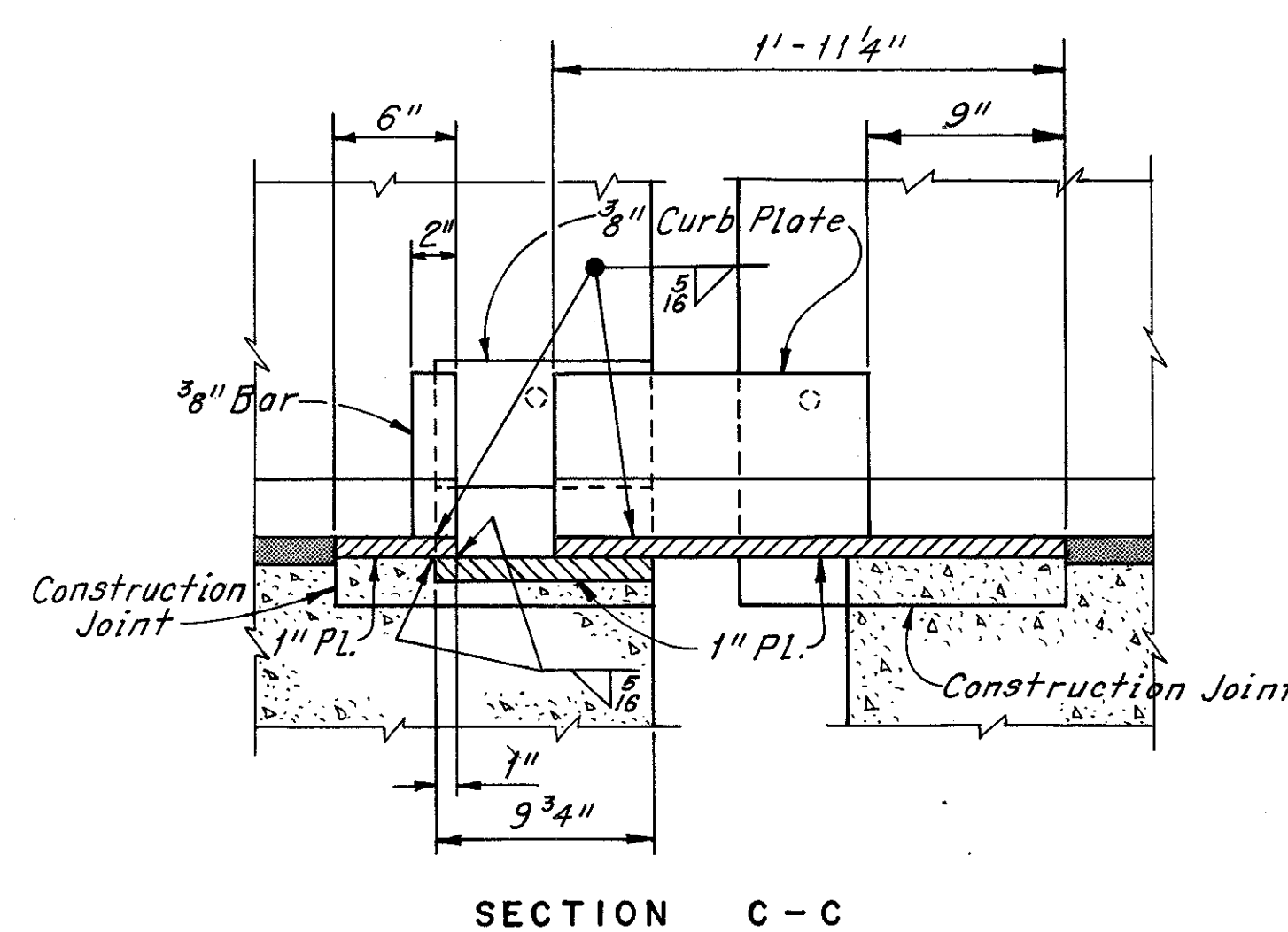
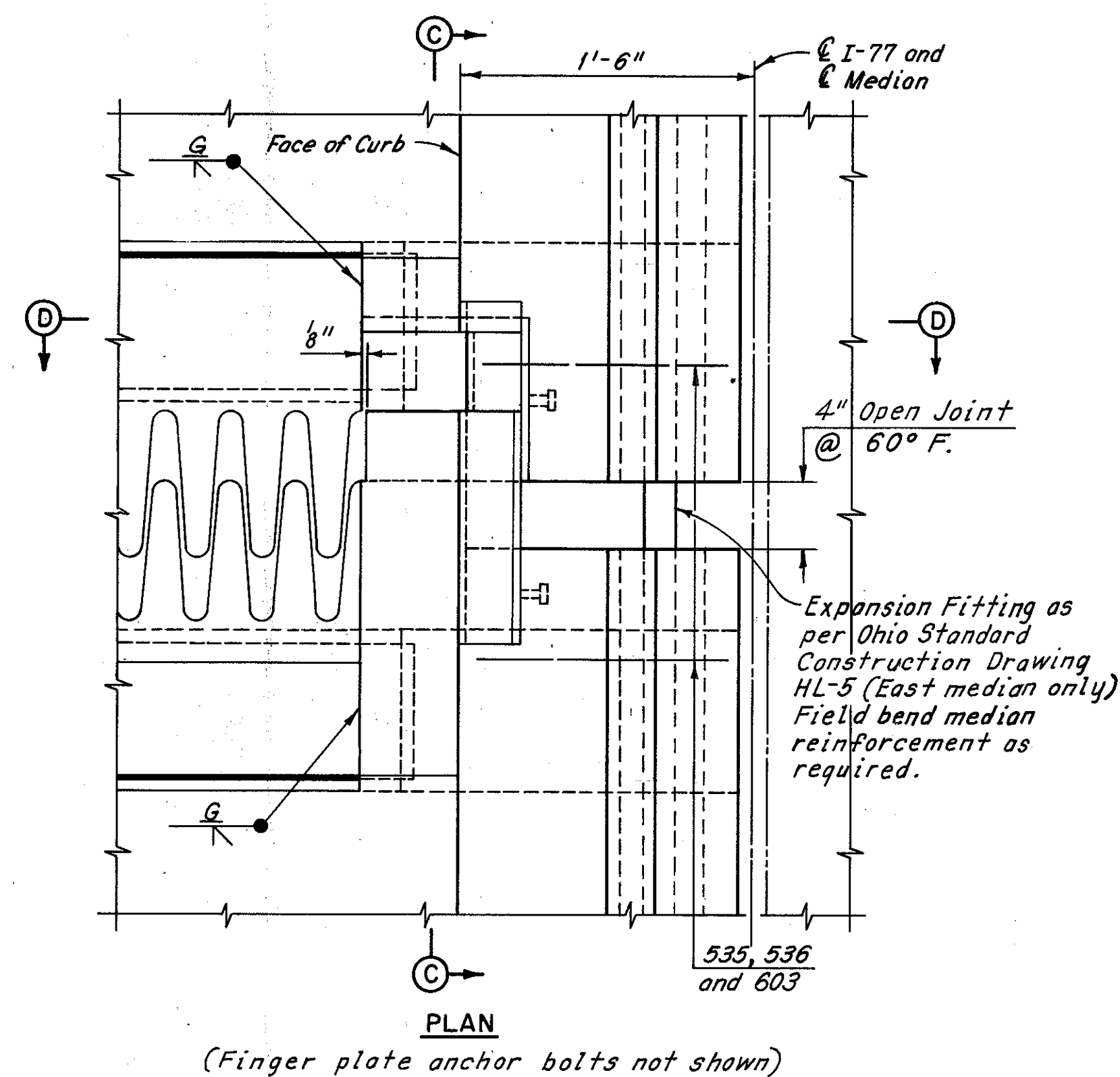
| | | |
|-------------|-------|---------|
| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

133
169

CUYAHOGA COUNTY
CUY - 77 - 14.12
CUY - 90 - 16.21



EXISTING PLAN AND CROSS SECTIONS AT MEDIAN
Indicates removal



MODIFIED PLAN AND CROSS SECTIONS AT MEDIAN
Indicates concrete overlay

Notes:
For locations of intermediate expansion joints, see Sheet 5/22.
For details of raising intermediate expansion joints, see Sheet 10/22.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND HNTB

INTERMEDIATE EXPANSION JOINT
MODIFICATION AT MEDIAN

BR. NO. CUY - 77 - 1459

| | | | | |
|-----------------|---------------|-------------------------|----------|---------|
| CUYAHOGA COUNTY | OHIO | | | |
| DRAWN R.A.S. | TRACED D.L.A. | CHECKED J.A.B. & C.N.B. | REVIEWED | REVISED |
| DATE 1-9-75 | DATE 2-10-75 | DATE 2-14-75 | DATE | DATE |

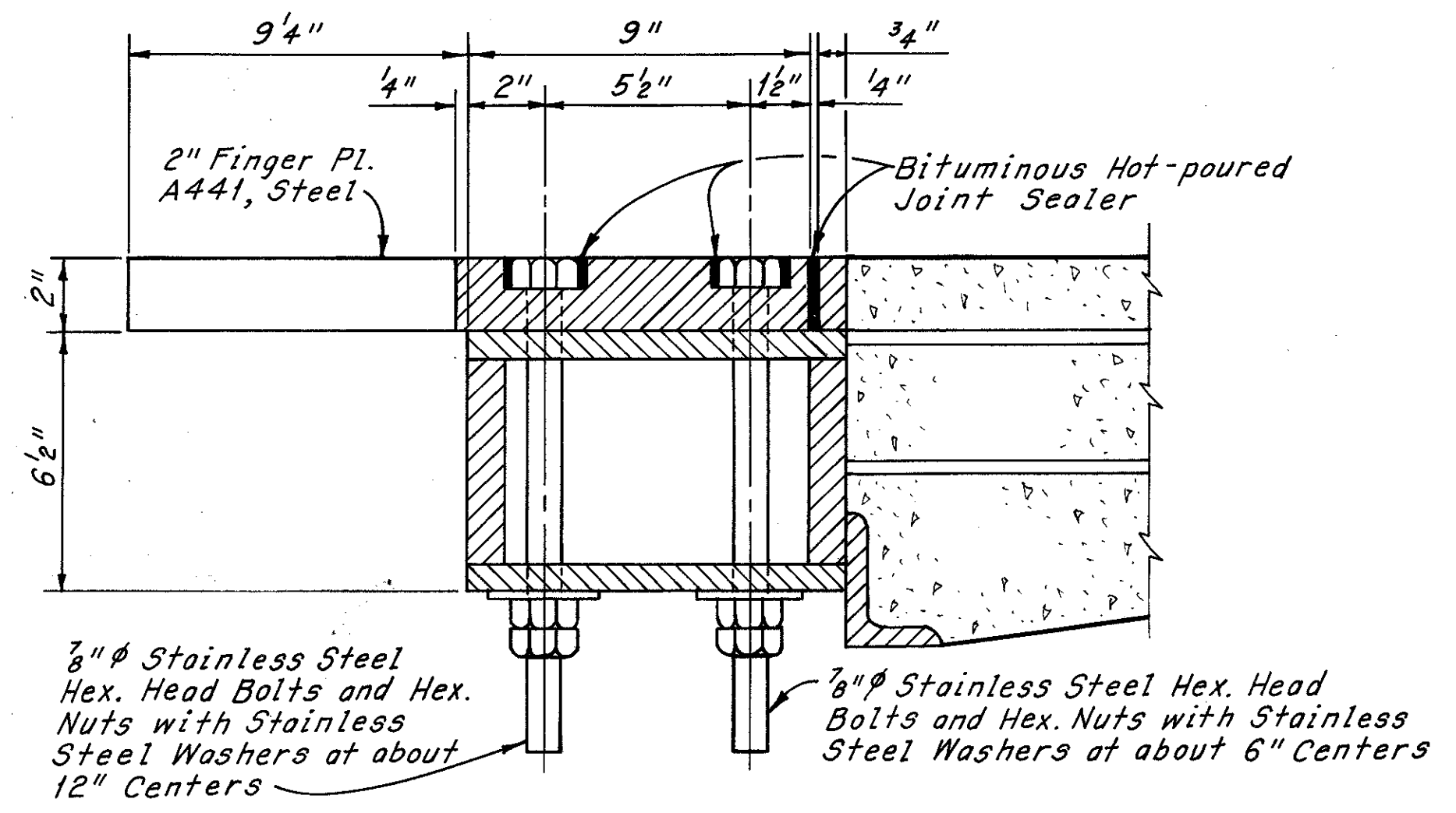
MICROFILMED

JUN 18 1978

| | | |
|-------------|-------|---------|
| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

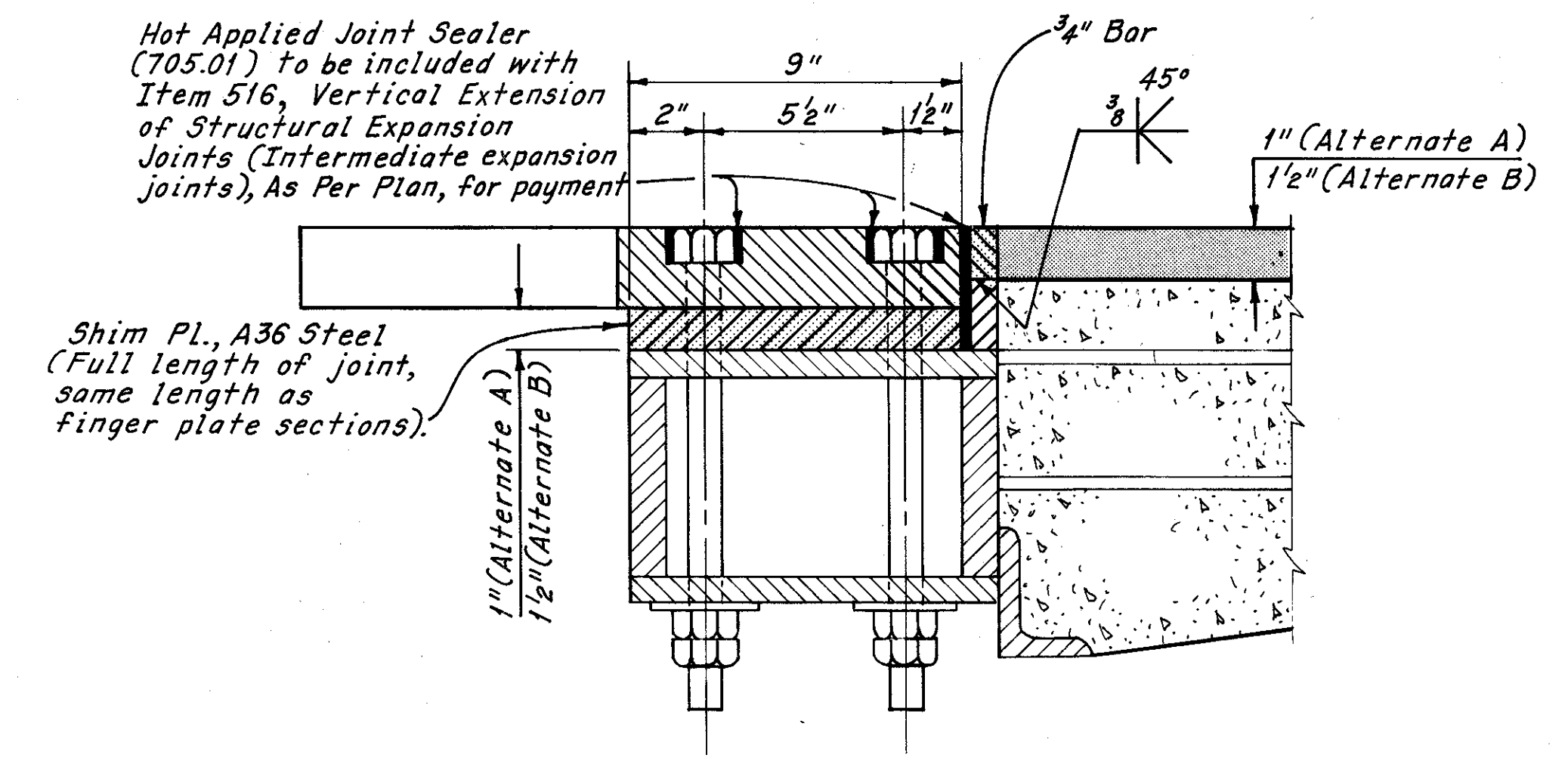
134
169

CUYAHOGA COUNTY
CUY - 77 - 14.12
CUY - 90 - 16.21



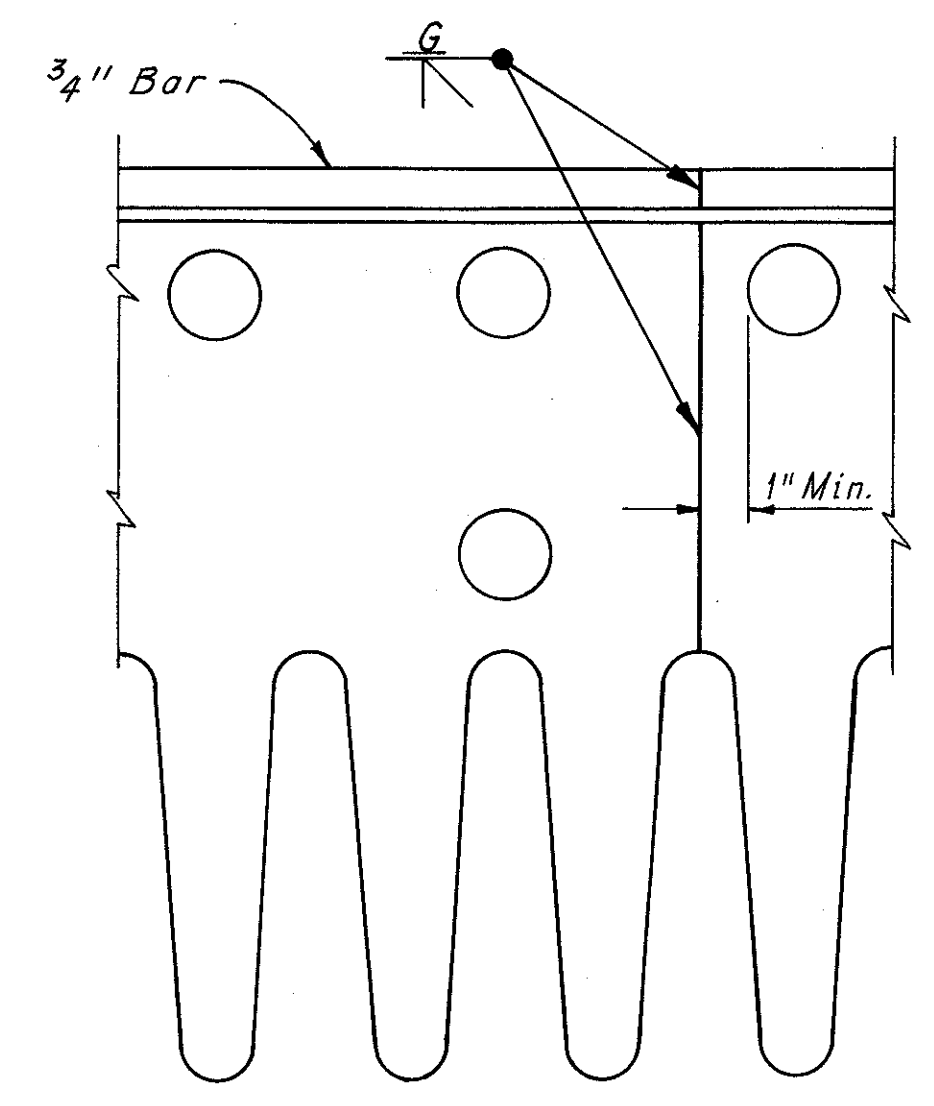
EXISTING DETAIL OF EXPANSION JOINT ASSEMBLY
(One-half of Assembly Shown, Other Half Similar)

Note:
Finger plate sections may be field cut and spliced as required for traffic maintenance. Extreme care shall be taken during cutting operations so that the finger plate support box is not damaged. For Maintenance of Traffic, see Roadway Plans.



MODIFIED DETAIL OF EXPANSION JOINT ASSEMBLY
(One-half of Assembly Shown, Other Half Similar)

indicates new structural steel



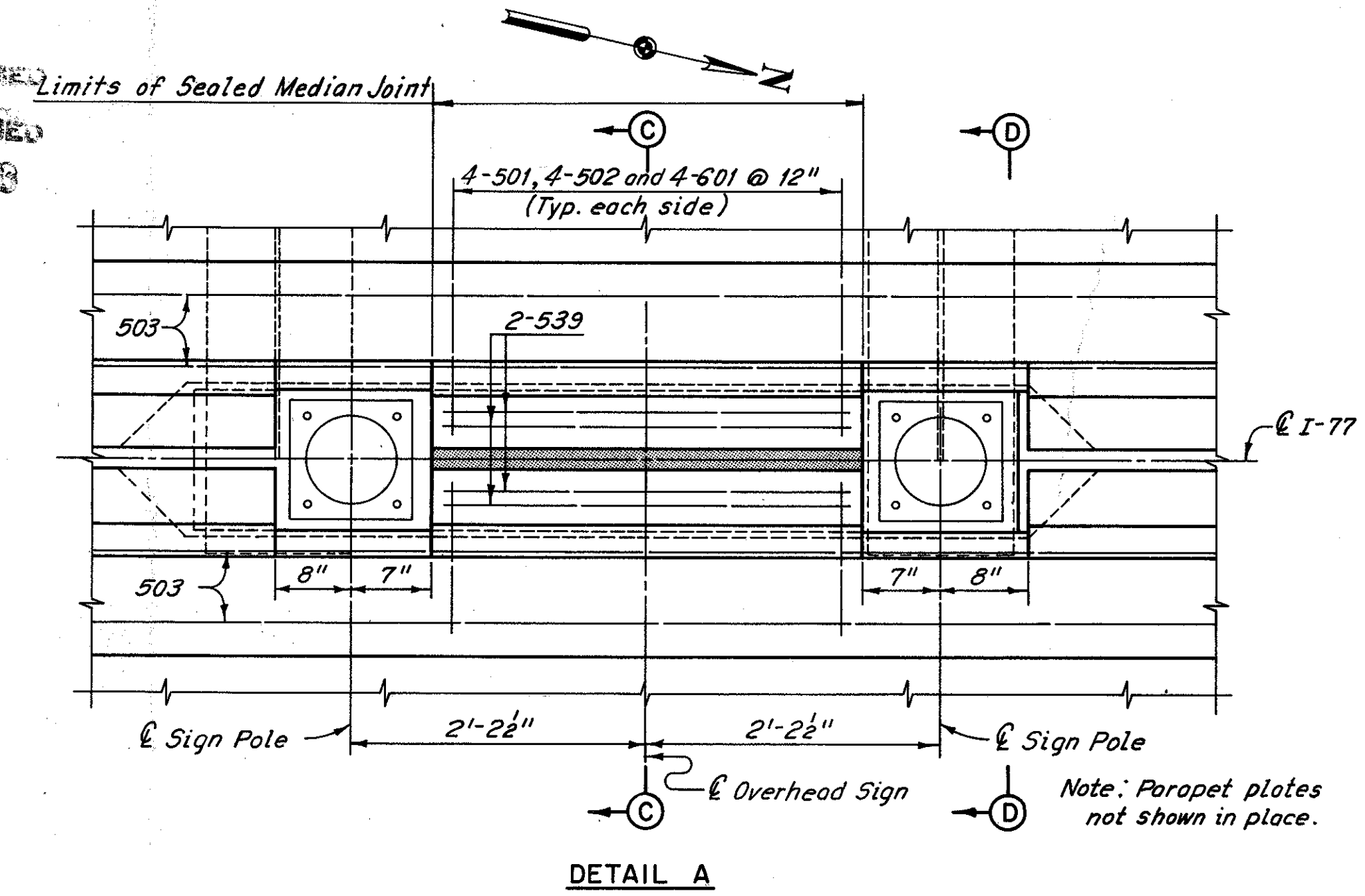
FINGER PLATE AND 3/4 BAR SPLICE DETAIL

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

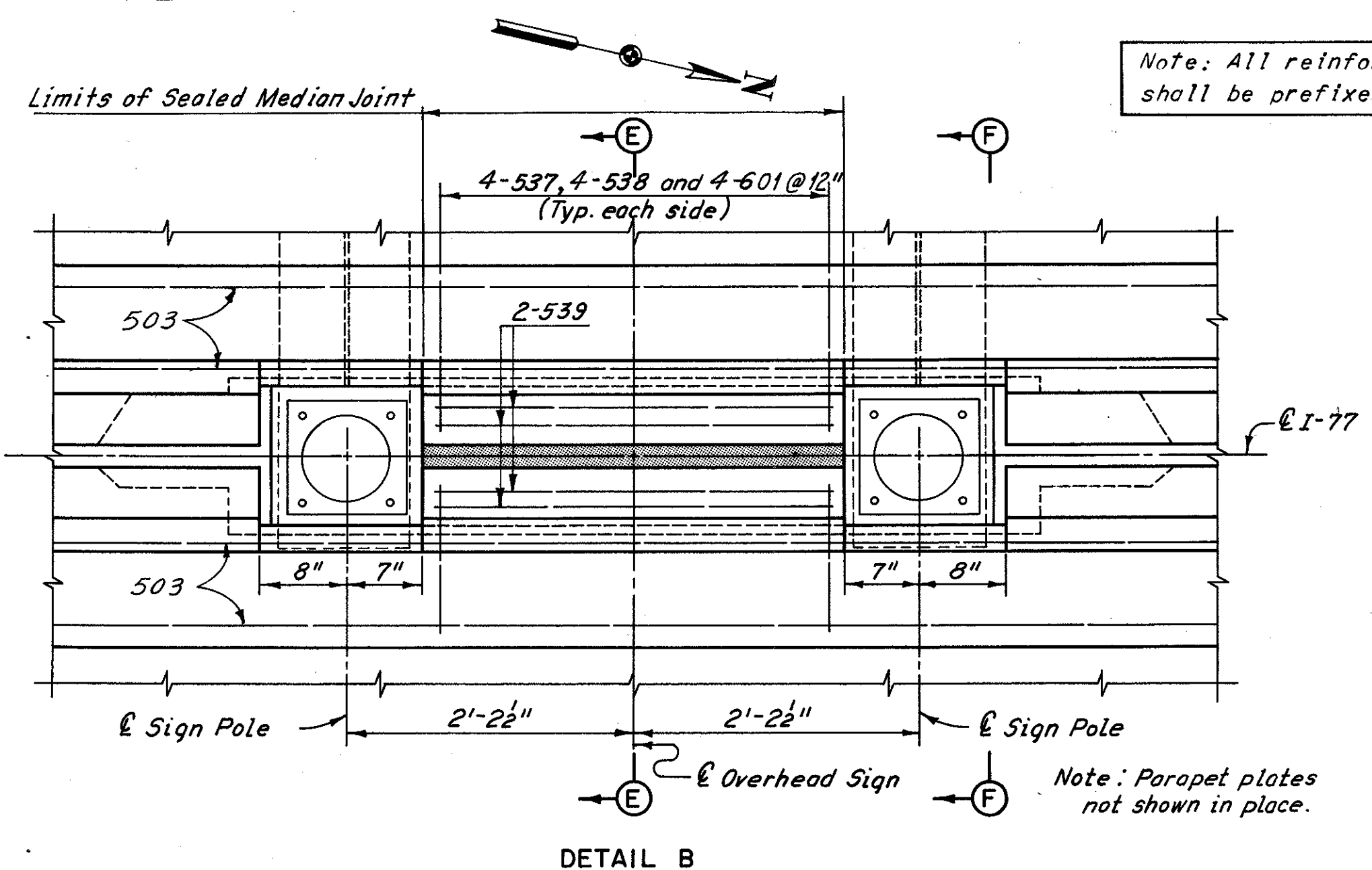
Notes:
For location and length of intermediate expansion joints, see Sheet 5/22.
For expansion joint modification at the median, see Sheet 9/22.

| | | | | |
|---|--------------|----------------|----------|-------------|
| HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND | | | | HNTB |
| RAISING INTERMEDIATE EXPANSION JOINTS | | | | |
| BR. NO. CUY-77-1459 | | | | |
| CUYAHOGA COUNTY | | | | OHIO |
| DRAWN C.K.B. | TRACED C.P. | CHECKED D.H.S. | REVIEWED | REVISED |
| DATE 6-1-77 | DATE 7-19-77 | DATE 7-20-77 | DATE | DATE |
| | | | | SHEET 10/22 |

LIMITED
MICROFILMED
JUN 13 1983



DETAIL A



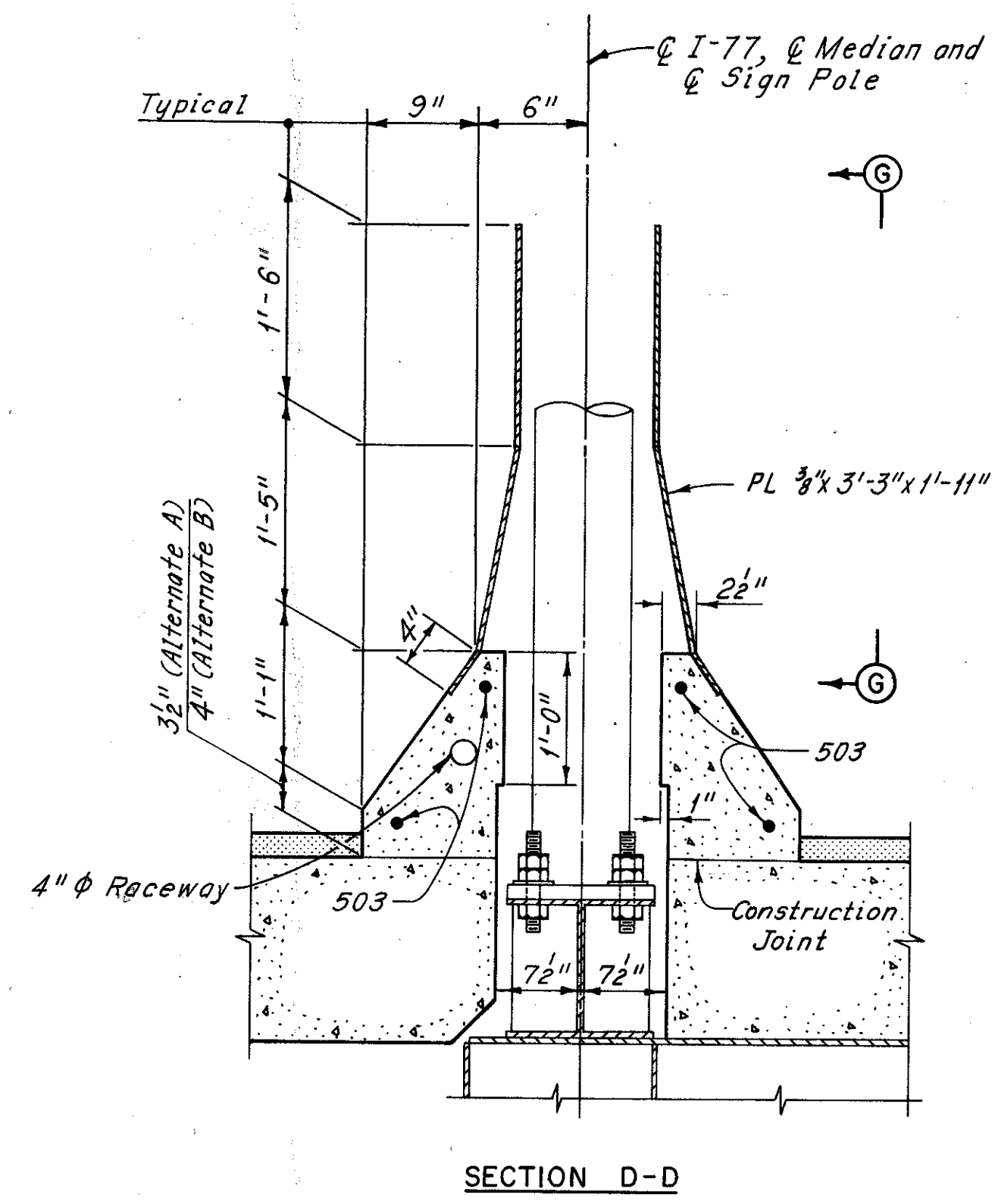
DETAIL B

Note: All reinforcing bar marks shall be prefixed BM.

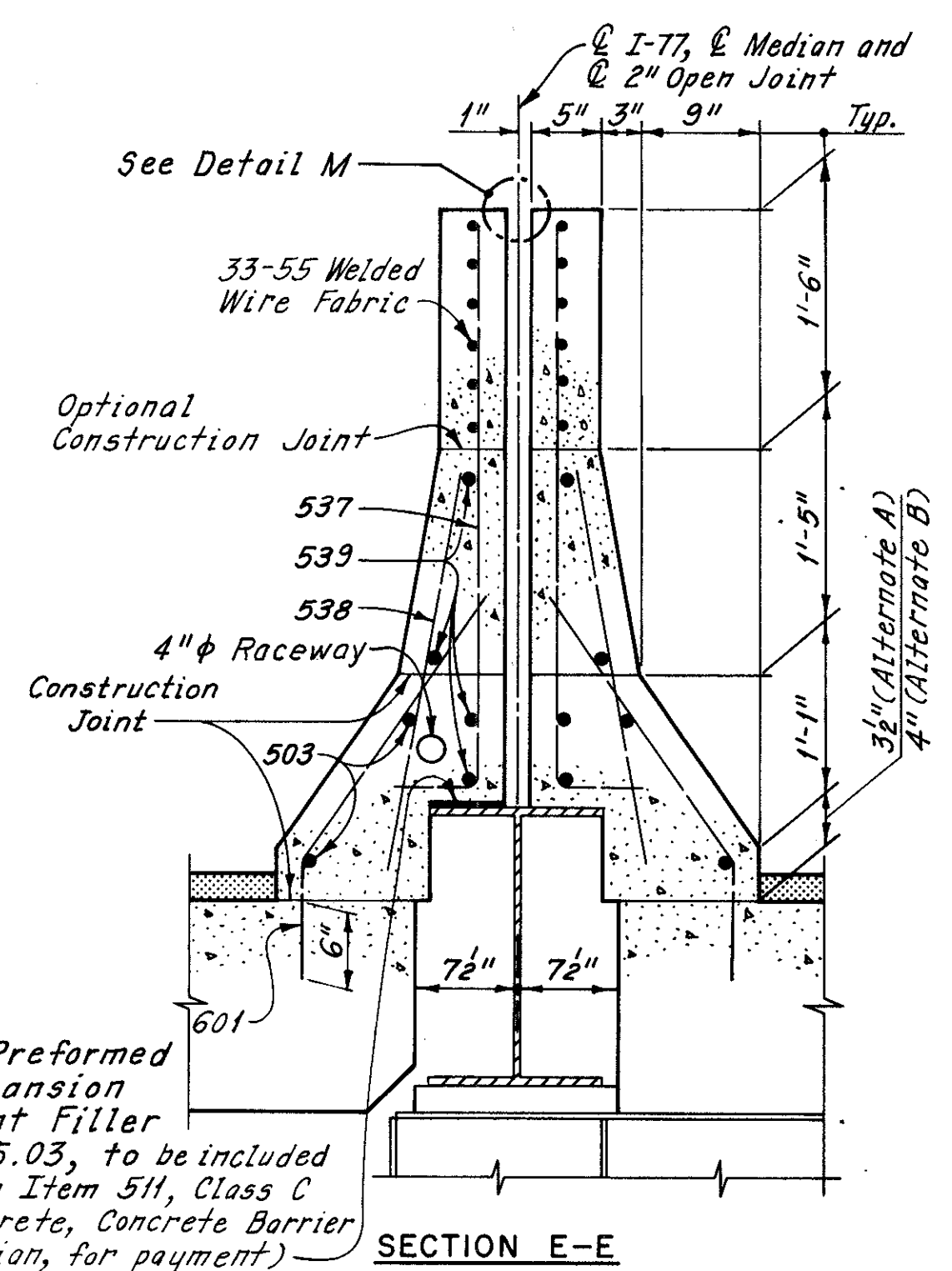
| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

135
169

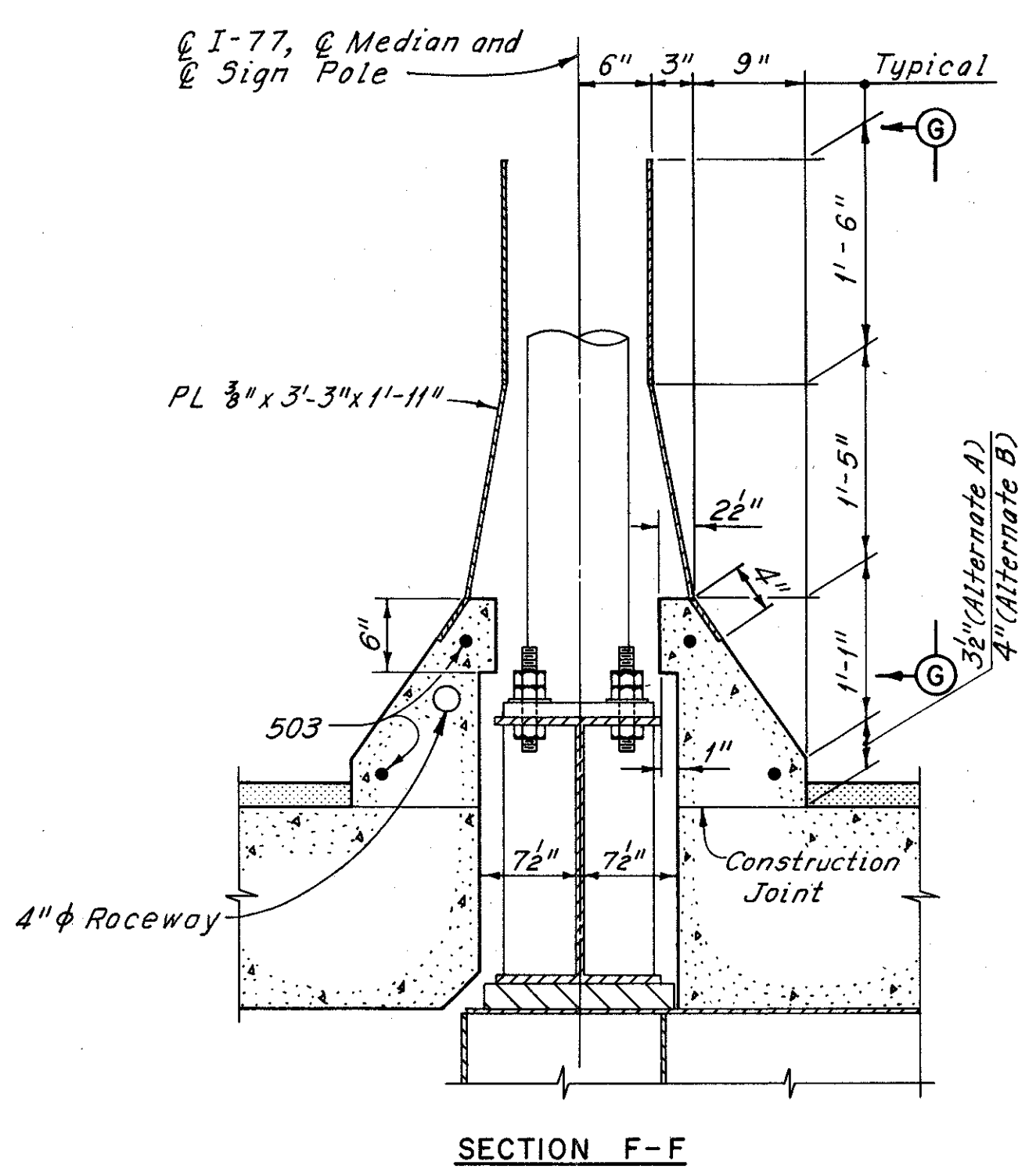
CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



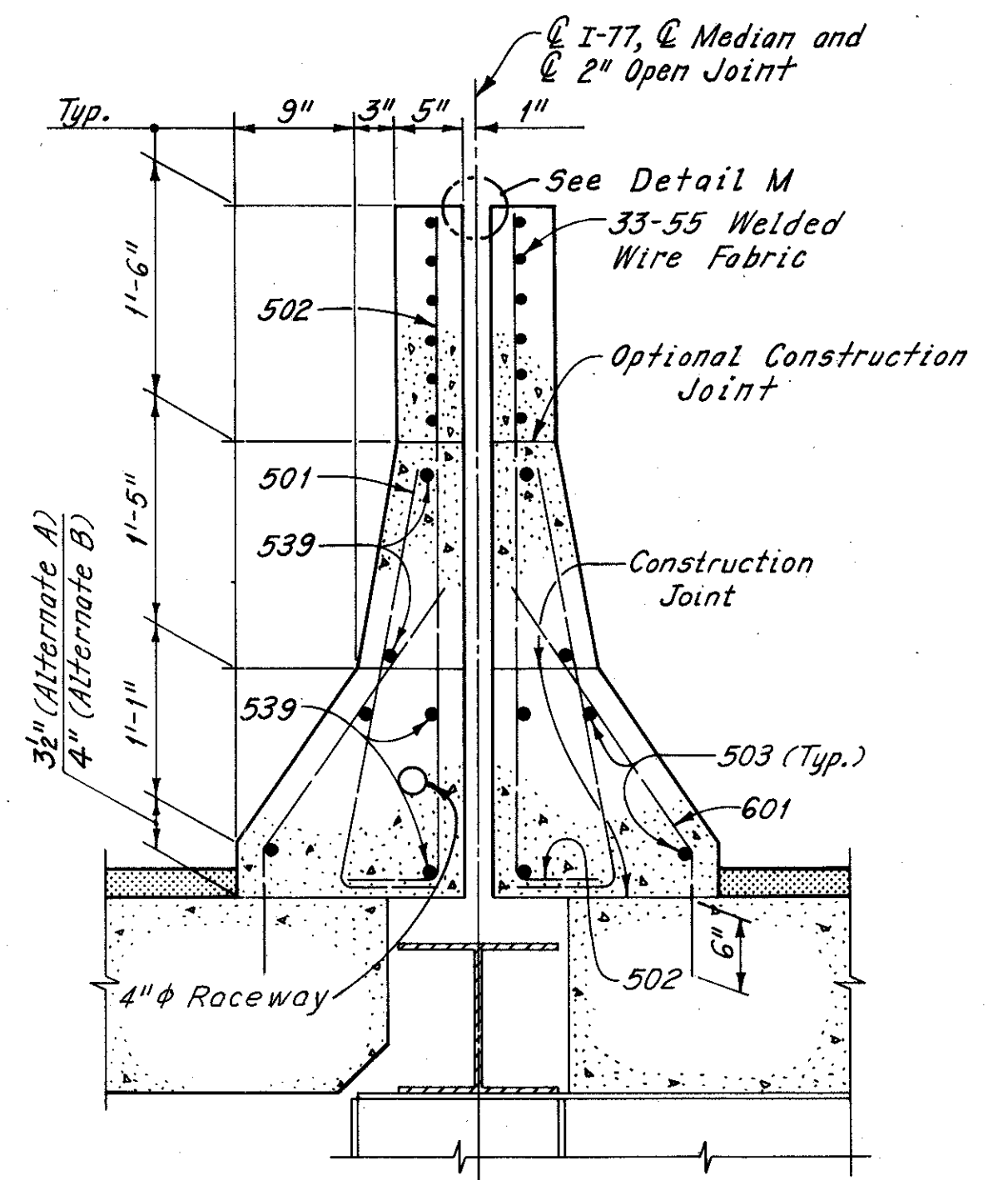
SECTION D-D



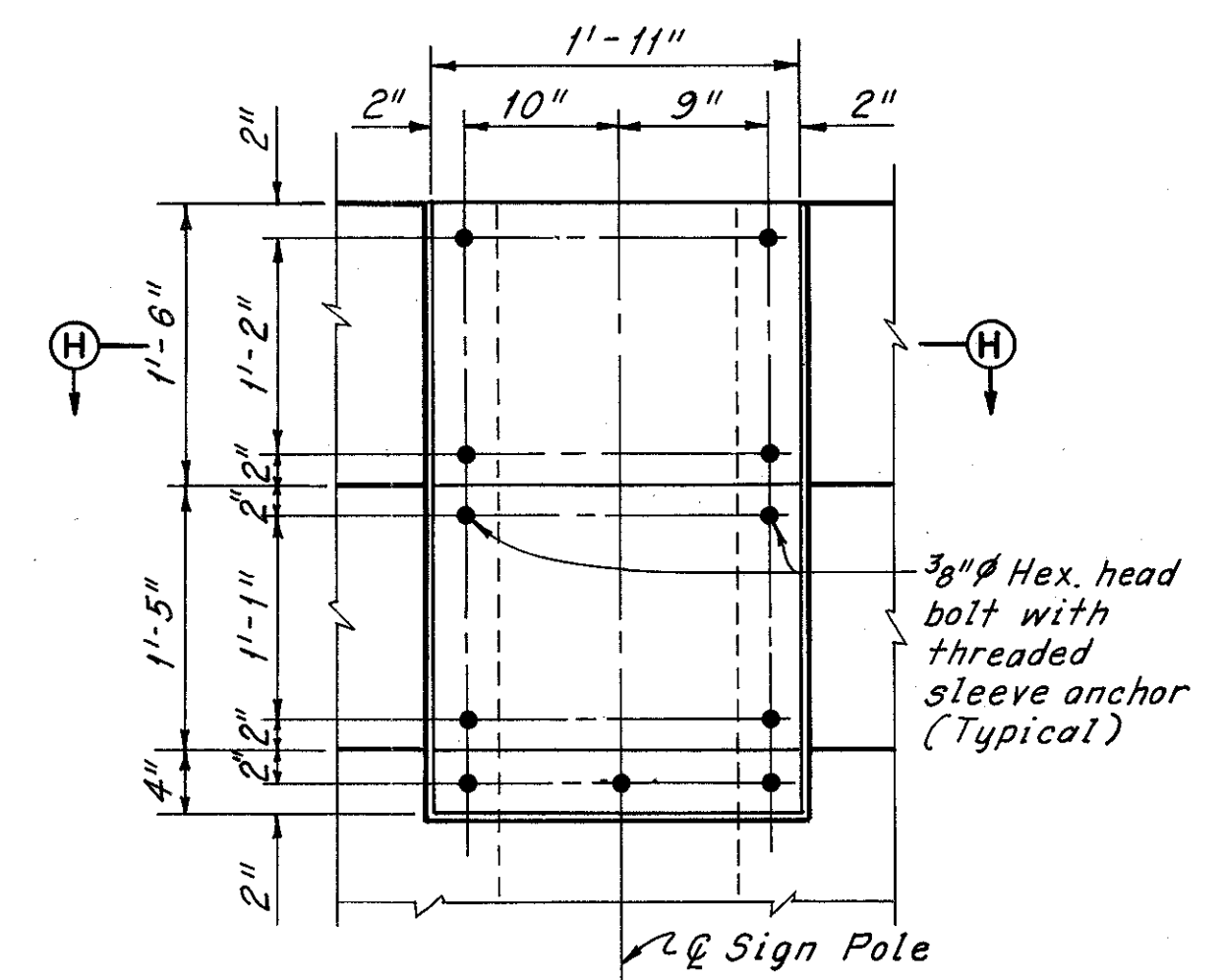
SECTION E-E



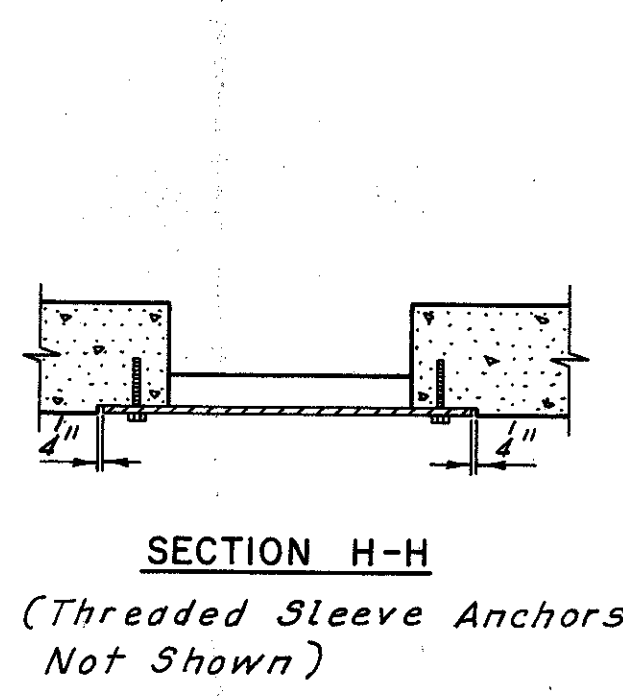
SECTION F-F



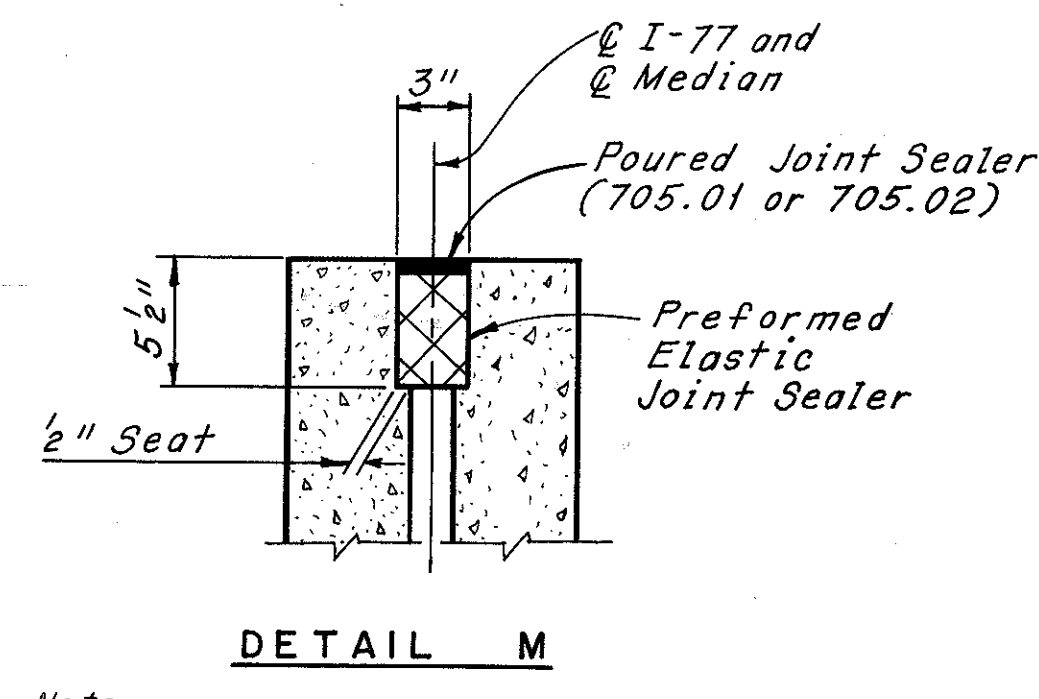
SECTION C-C



ELEVATION G-G

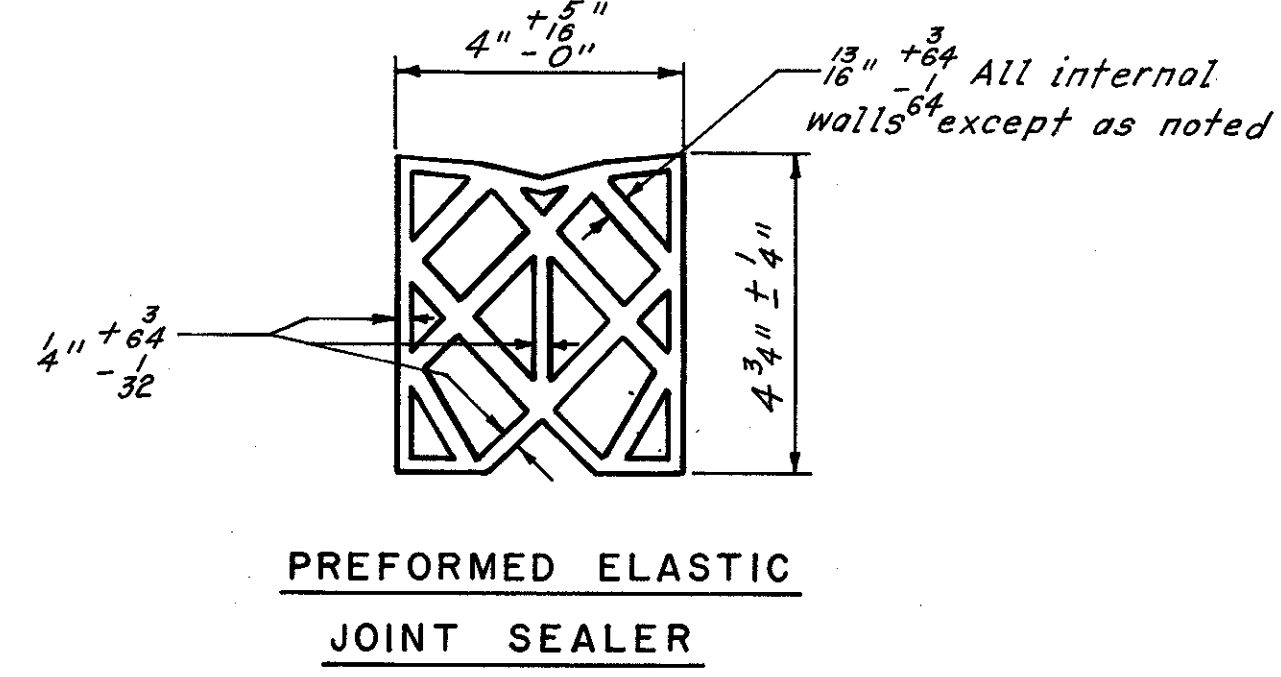


SECTION H-H
(Threaded Sleeve Anchors Not Shown)



DETAIL M

Note: Poured joint sealer and preformed elastic joint sealer shall be included with Item 511, Class C Concrete, Concrete Barrier Median, for payment.



PREFORMED ELASTIC JOINT SEALER

Notes:
 [Hatched Area] indicates concrete overlay.
 All steel plates shall be galvanized according to 711.02. Galvanizing shall be included with Item 513, Structural Steel, for payment.
 33-55 welded wire fabric shall be included with Item 511, Class C Concrete, Concrete Barrier Median, for payment.
 For locations of Detail A and Detail B, see Sheets 7/22 and 8/22.
 For reinforcement schedule, see Sheet CD-10.
 The following abbreviation is used:
 Typ. = Typical
 3/8" hex. head bolts and threaded sleeve anchors shall be included with Item 513, Structural Steel, for payment.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND HNTB

MODIFIED MEDIAN DETAILS AT OVERHEAD SIGN SUPPORTS

BR. NO. CUY-77-1459

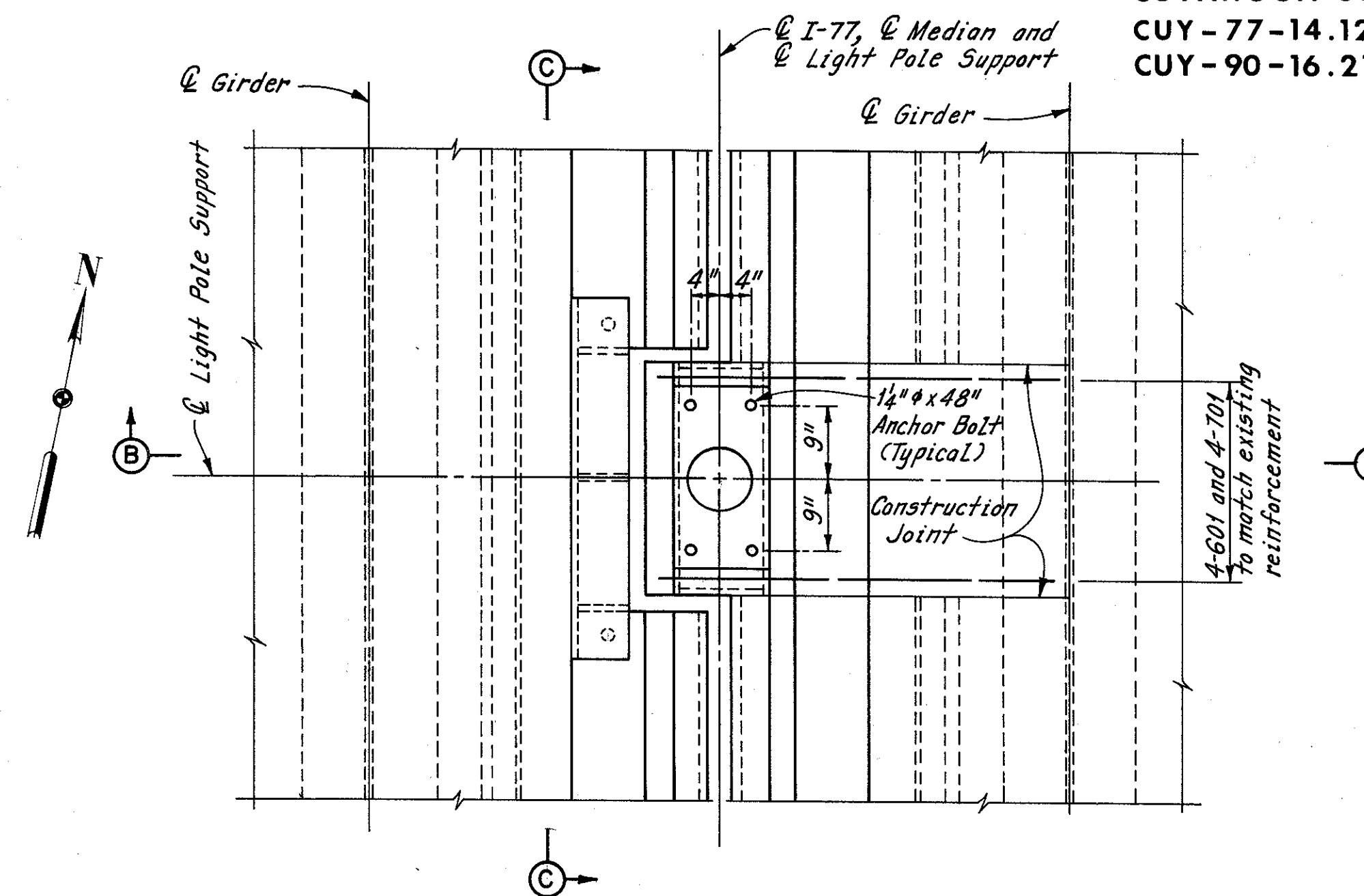
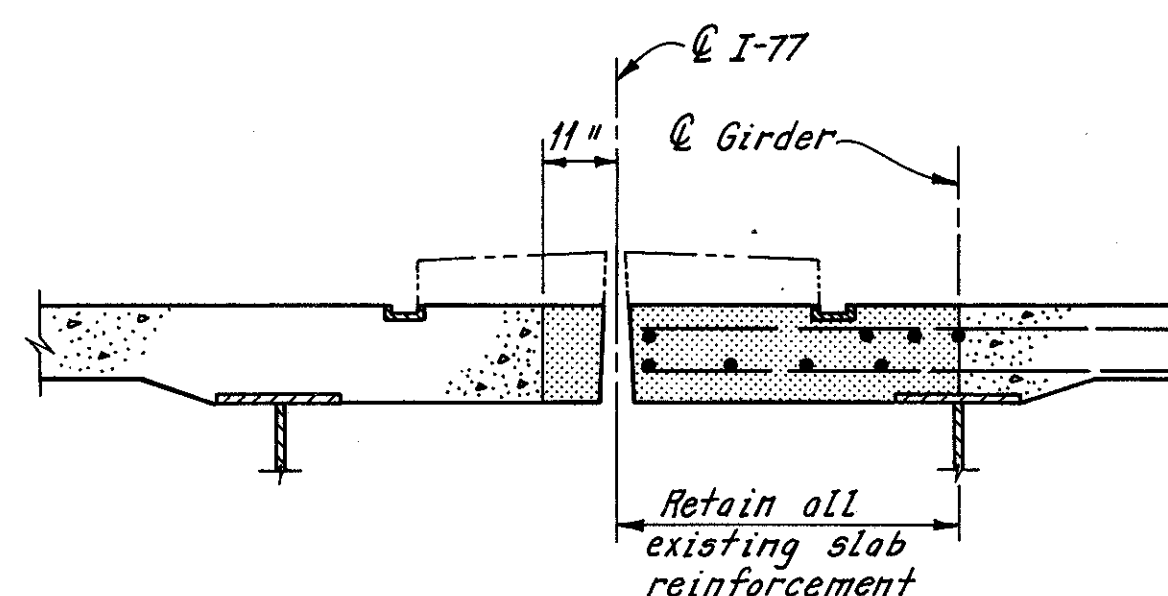
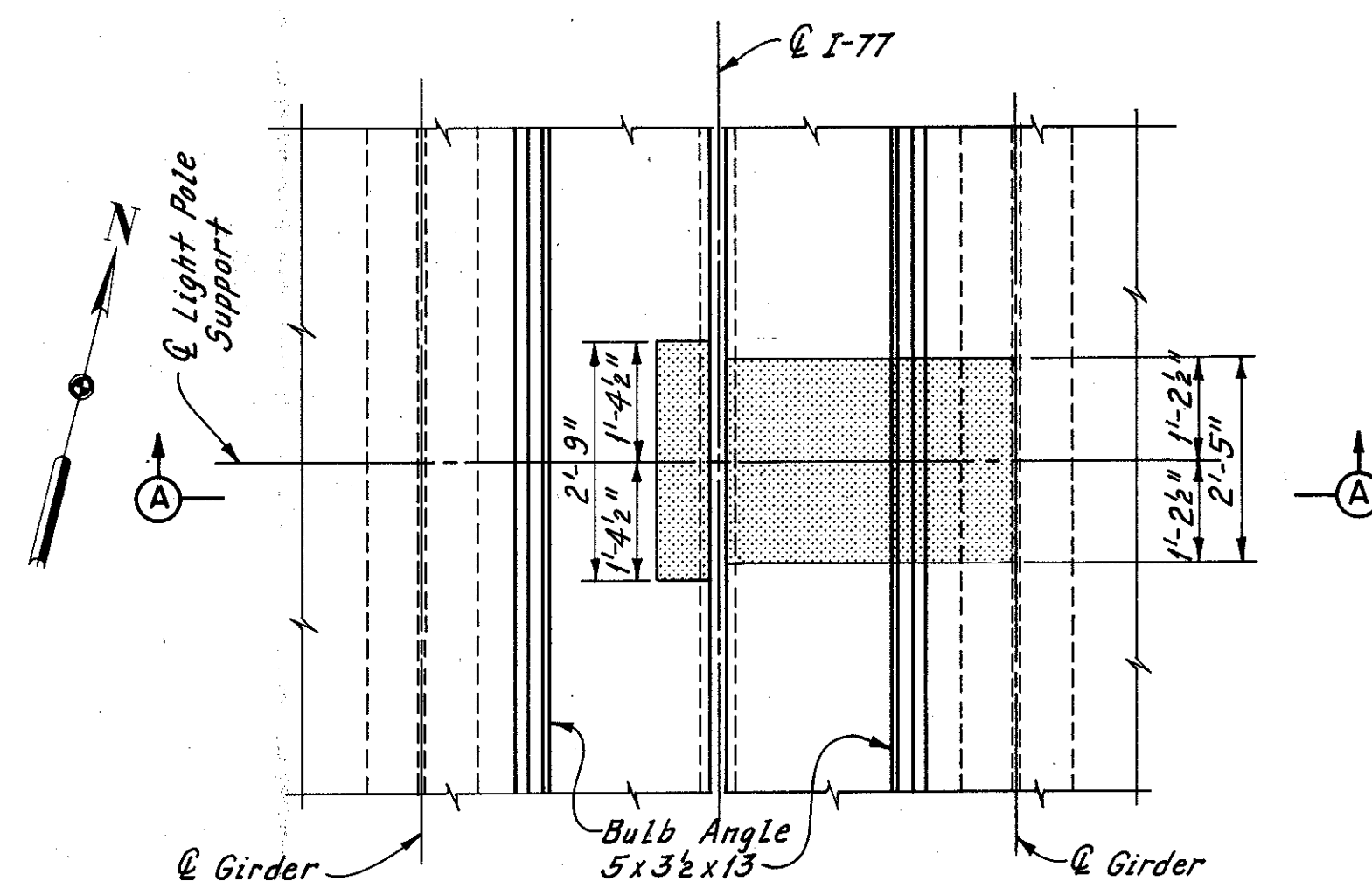
| | |
|--------------------|-------------------|
| CUYAHOGA COUNTY | OHIO |
| DRAWN BY: K.B. | TRACED BY: C.P. |
| CHECKED BY: J.H.S. | REVIEWED: [Blank] |
| DATE: 7/20/77 | DATE: 7/21/77 |
| DATE: 7/21/77 | DATE: [Blank] |
| SHEET 11/22 | |

MICROFILMED
JUN 19 1980

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|-------------|-------|---------|
| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

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169

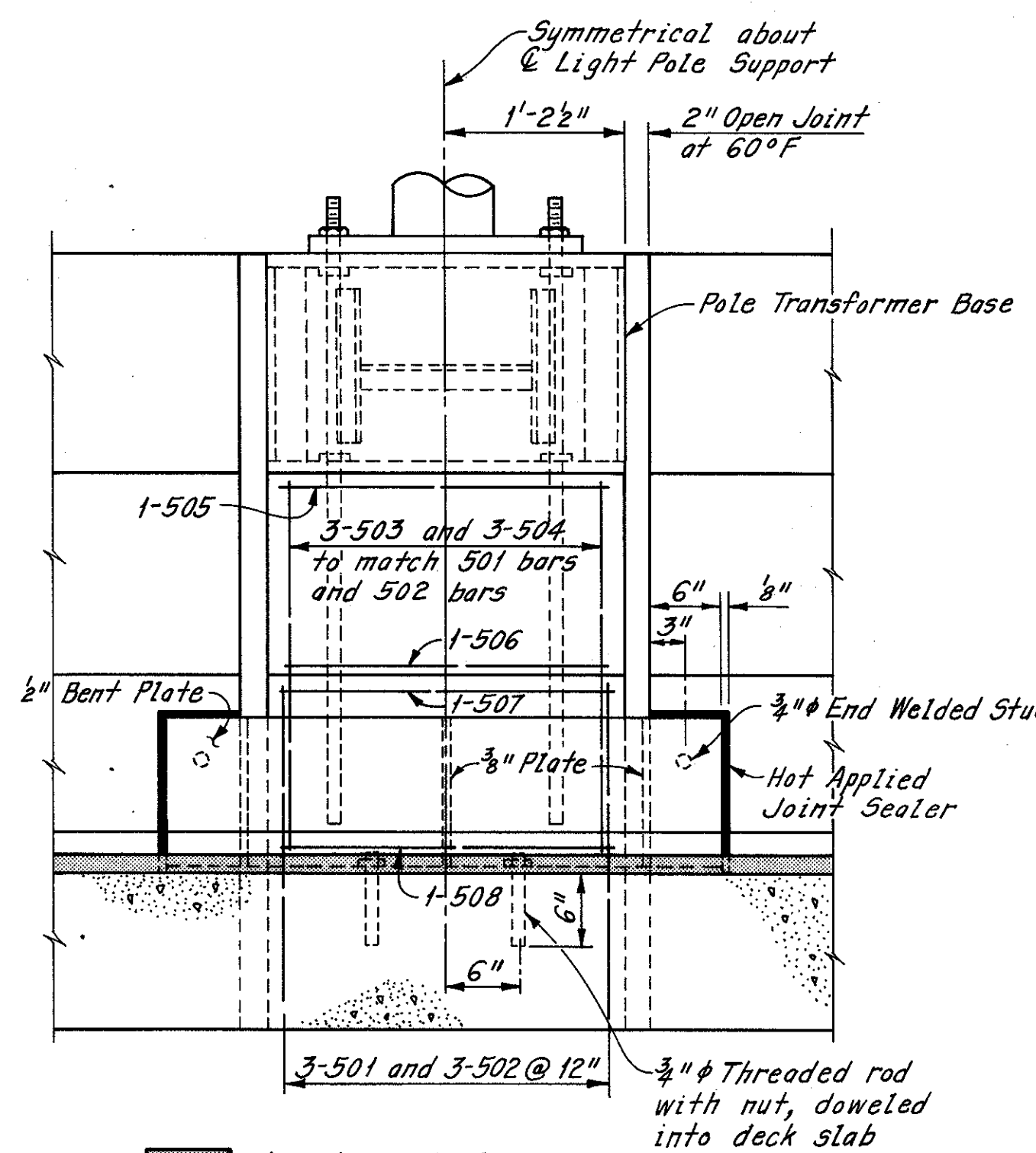
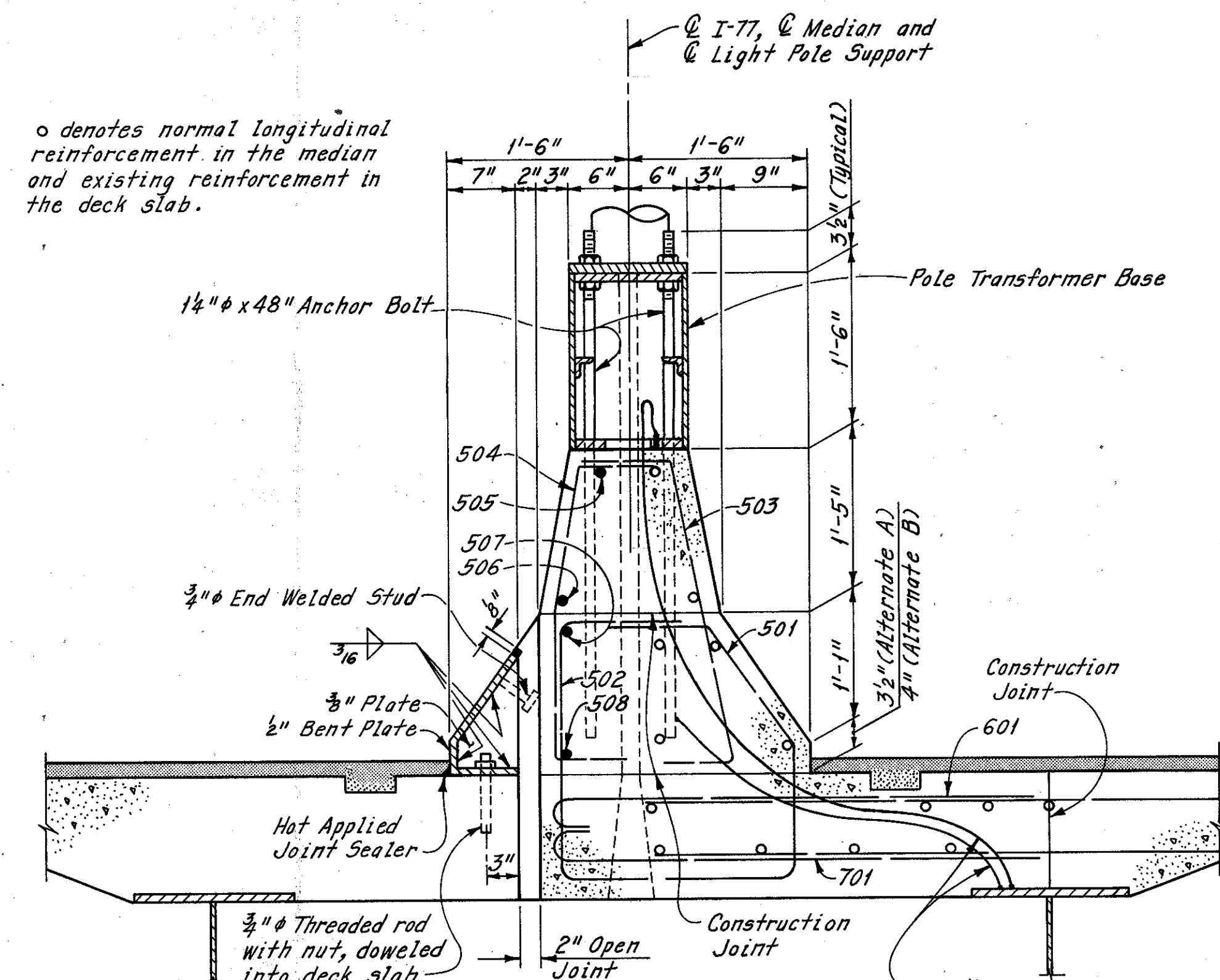
CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



DECK SLAB REMOVAL DETAILS

Indicates removal

Note: All reinforcing bar marks shall be prefixed BL.



Notes:

- For locations of median mounted light poles, see Sheet 5/22.
- Removal of the deck slab as required shall be included with Item 202, Portions of Structures Removed, for payment.
- Transverse reinforcement bars BL501, BL502, BL503, and BL504 replace normal median transverse reinforcement bars BM501, BM502, and BM602. Longitudinal reinforcement in the west median shall be field cut as required at the light pole support. Field cutting shall be included with Item 509, Reinforcing Steel, for payment.
- The 1 1/4" x 48" anchor bolts, nuts and pole transformer base shall be included with Item 625 for payment. (See Lighting Plans.)
- All structural steel shall be galvanized according to 711.02. Galvanizing of steel, except pole transformer base, shall be included with Item 513, Structural Steel, for payment. Galvanizing of the pole transformer base, including the 1 1/4" anchor bolts, shall be included with Item 625 for payment. (See Lighting Plans.)
- Deck slab concrete required at the light pole support shall be included with Item 511, Class C Concrete, Concrete Barrier Median, for payment.
- Hot poured joint sealer (Sec. 705.01) shall be included with Item 511, Class C Concrete, Concrete Barrier Median, for payment.
- For pole transformer base details, conduit details and reinforcement schedule, see Sheet 13/22.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND

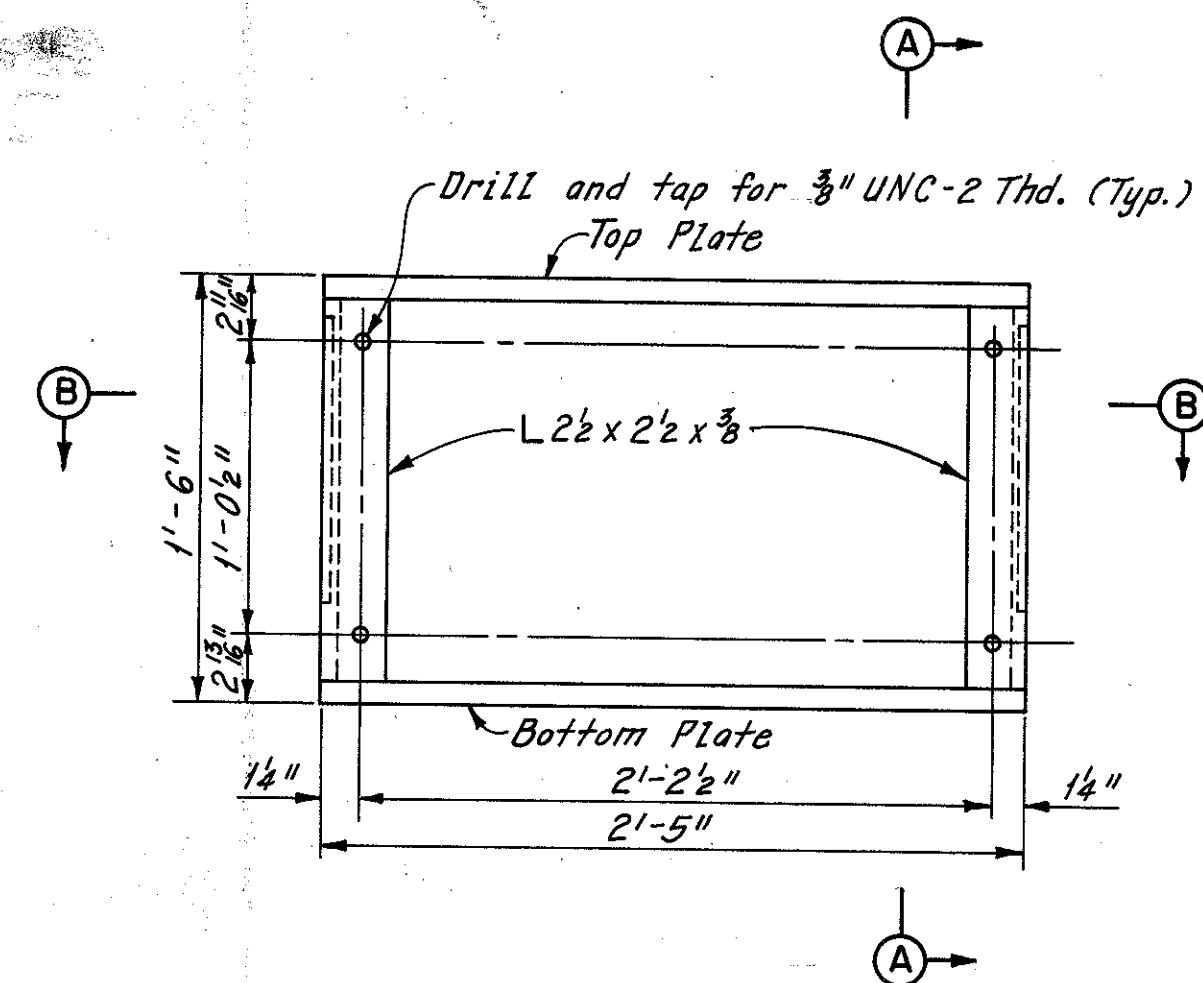
HNTB

MEDIAN MOUNTED LIGHT POLE
SUPPORT DETAILS

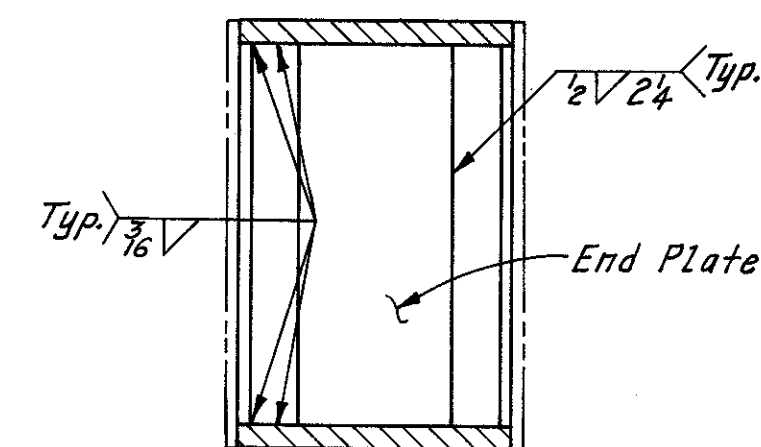
BR. NO. CUY-77-1459

| | | | | |
|-----------------|------------------|--------------------------|----------|---------|
| DRAWN C.K.B. | TRACED W.E.B. | CHECKED C.H.B./D.H.S. | REVIEWED | REVISED |
| DATE 3-7-77 | DATE 3-10-77 | DATE 3-17-77 | DATE | DATE |

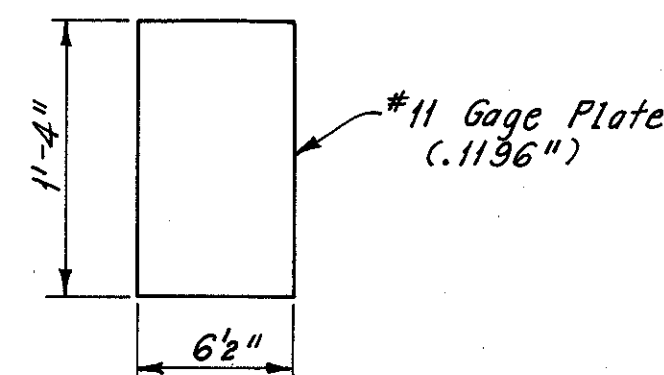
SHEET 12/22



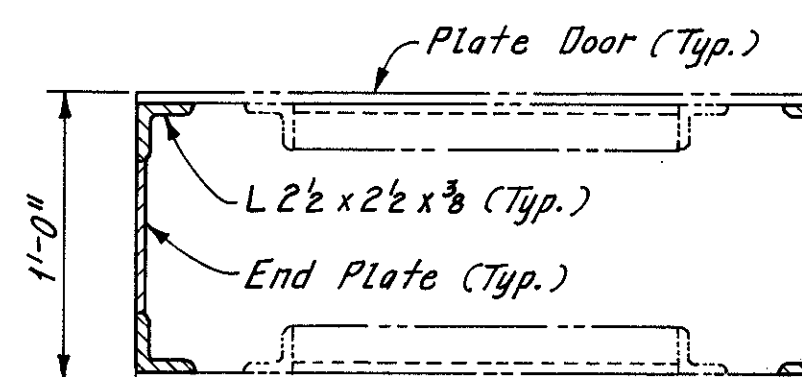
SIDE ELEVATION
(Plate door not shown)



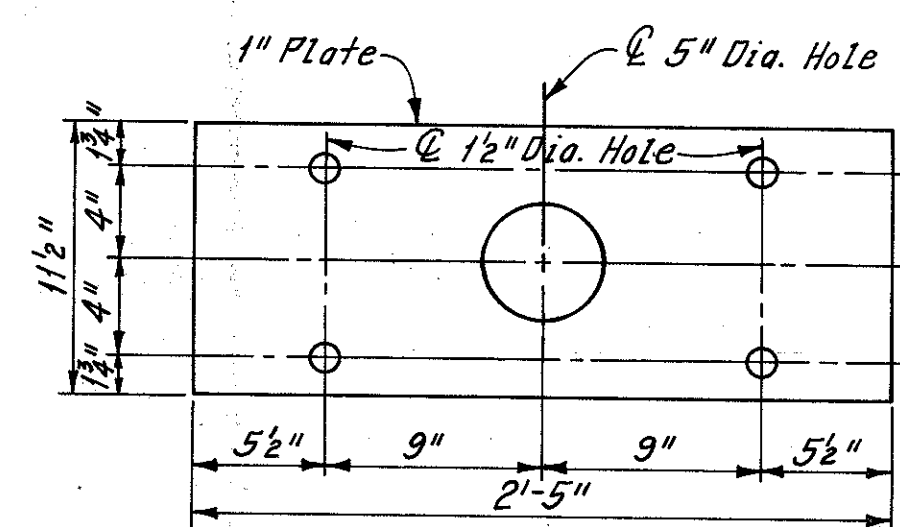
SECTION A-A



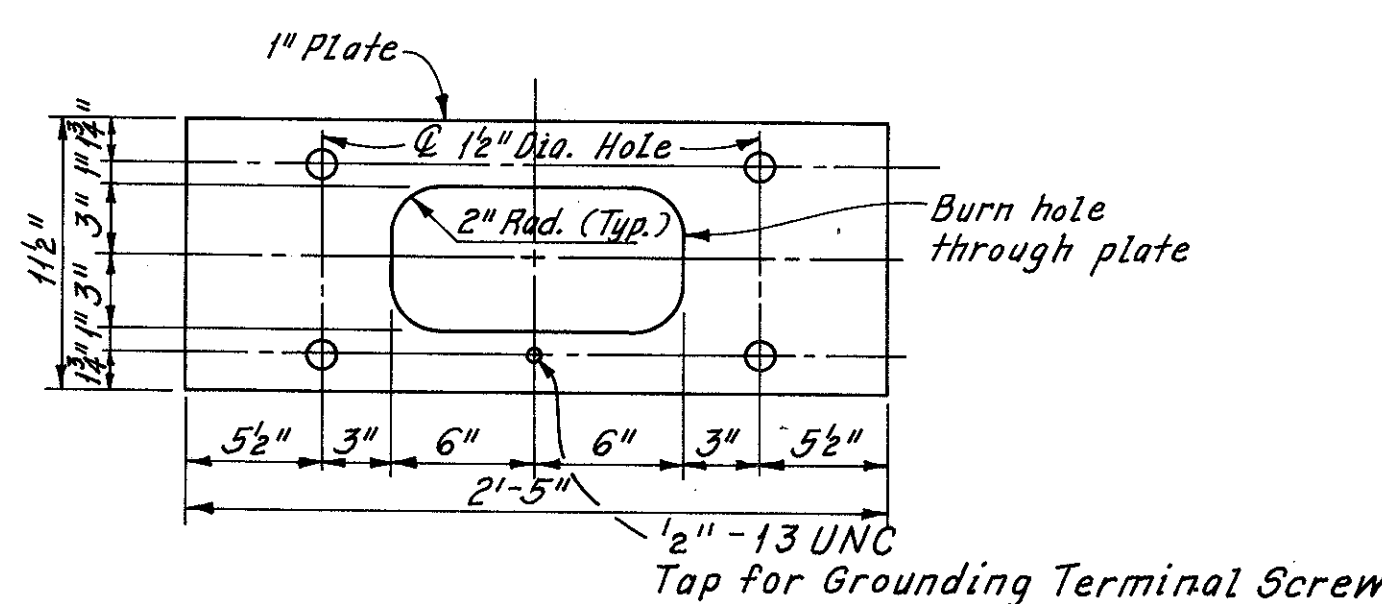
END PLATE DETAIL



SECTION B-B



TOP PLATE DETAIL



BOTTOM PLATE DETAIL

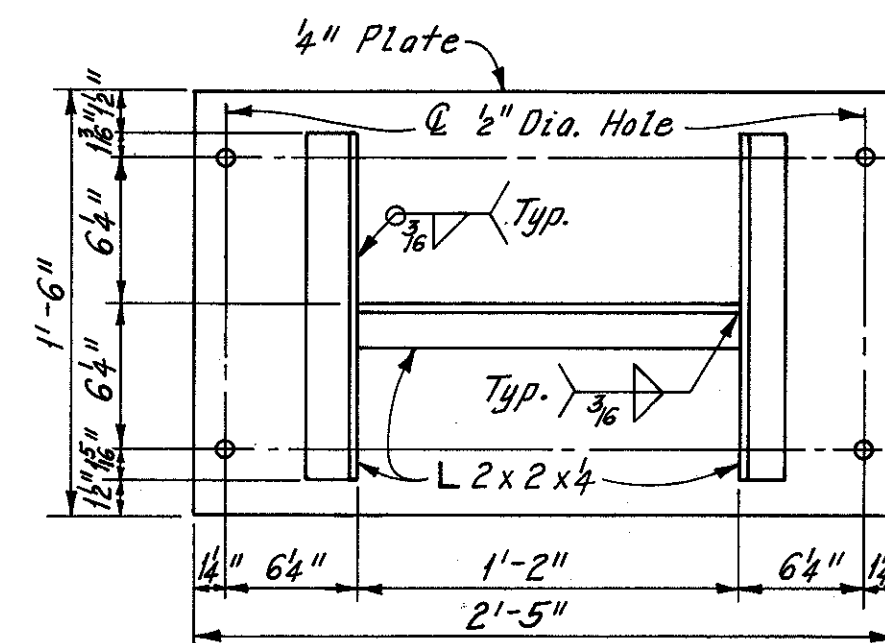
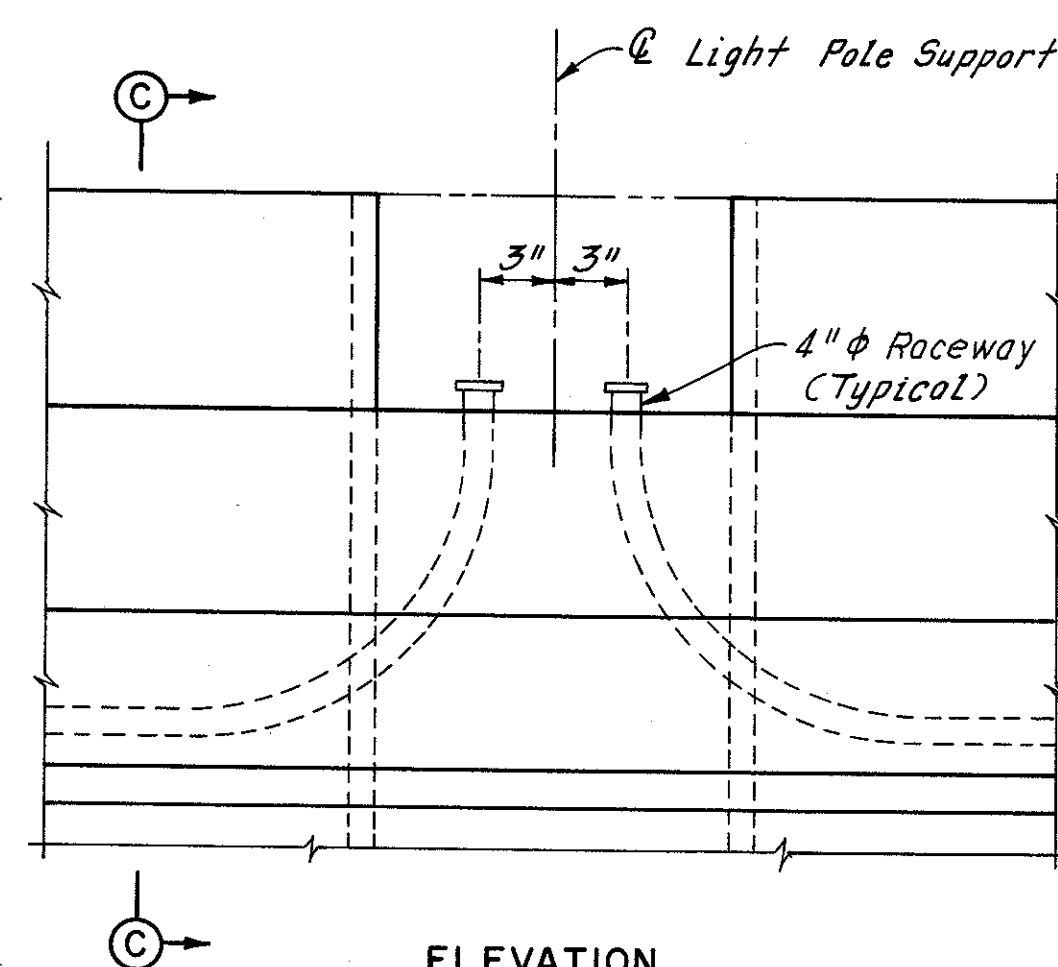
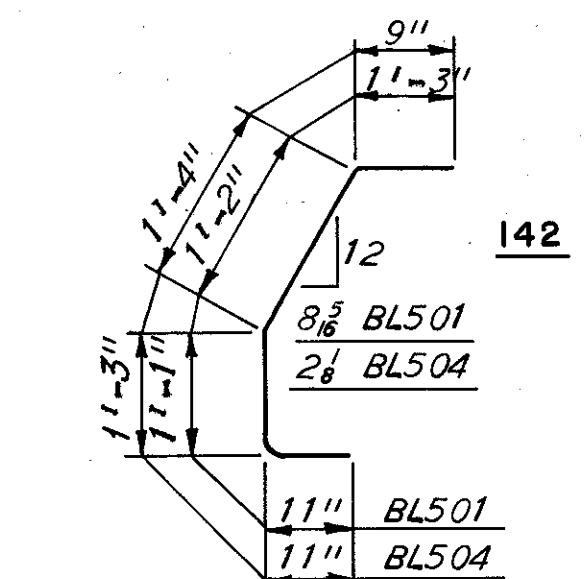
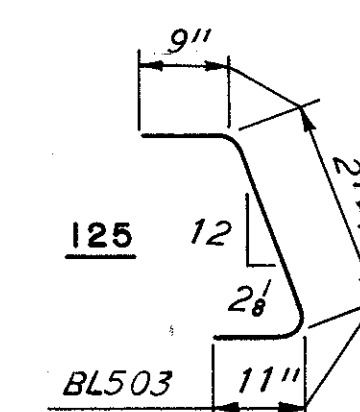
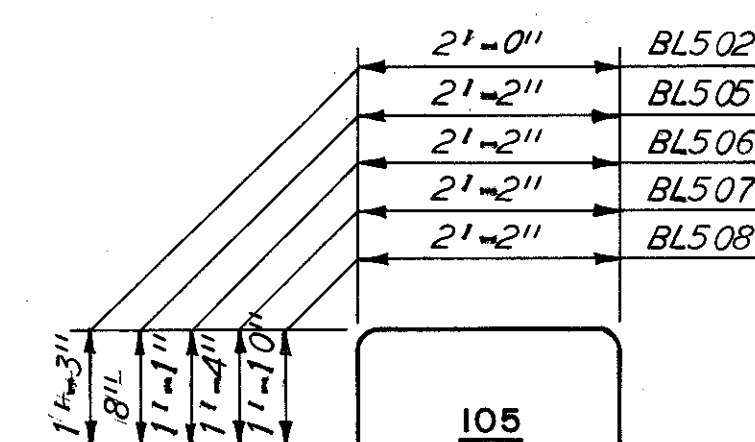
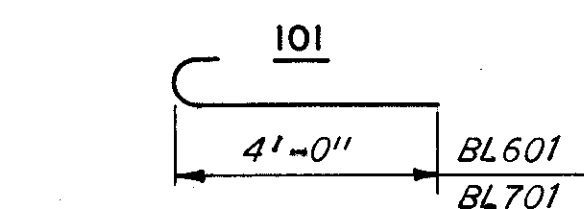


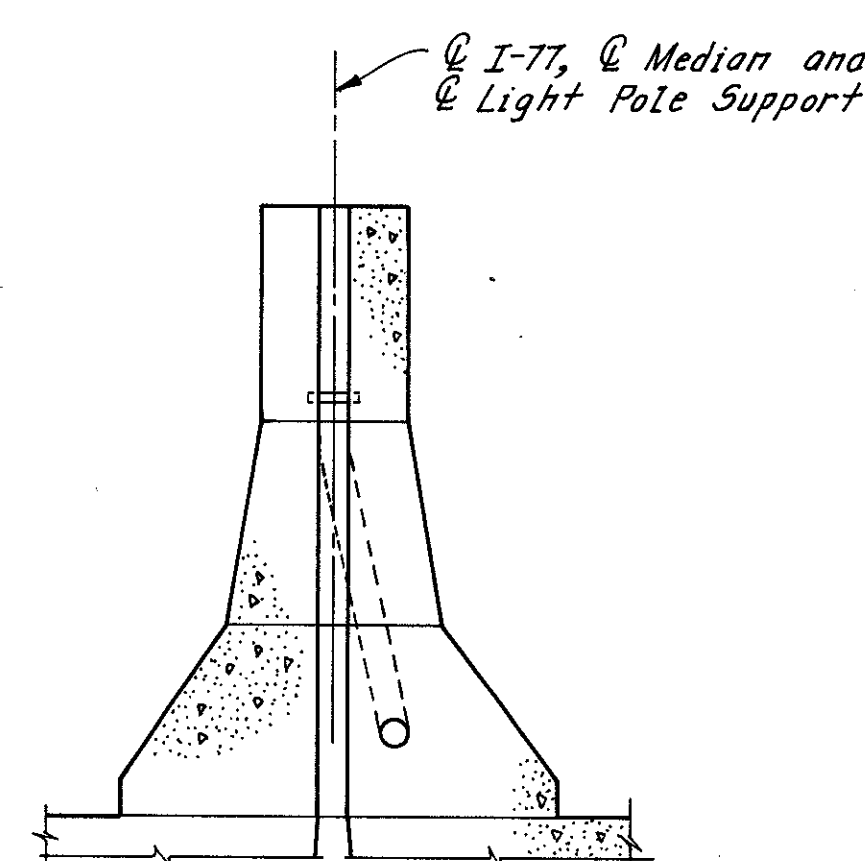
PLATE DOOR DETAIL
(Looking at back side)

| REINFORCEMENT SCHEDULE | | | | |
|--------------------------------------|-----|--------|------|---------------|
| MARK | NO. | LENGTH | TYPE | WEIGHT (LBS.) |
| BL501 | 3 | 4'-2" | 142 | 13 |
| BL502 | 3 | 4'-3" | 105 | 13 |
| BL503 | 3 | 4'-0" | 125 | 13 |
| BL504 | 3 | 4'-0" | 142 | 13 |
| BL505 | 1 | 3'-3" | 105 | 3 |
| BL506 | 1 | 4'-1" | 105 | 4 |
| BL507 | 1 | 4'-7" | 105 | 5 |
| BL508 | 1 | 5'-7" | 105 | 6 |
| BL601 | 4 | 4'-8" | 101 | 28 |
| BL701 | 4 | 4'-10" | 101 | 40 |
| Total Weight For One Light Support = | | | | 138 |

BENDING DIAGRAMS



ELEVATION
(Looking west)



SECTION C-C

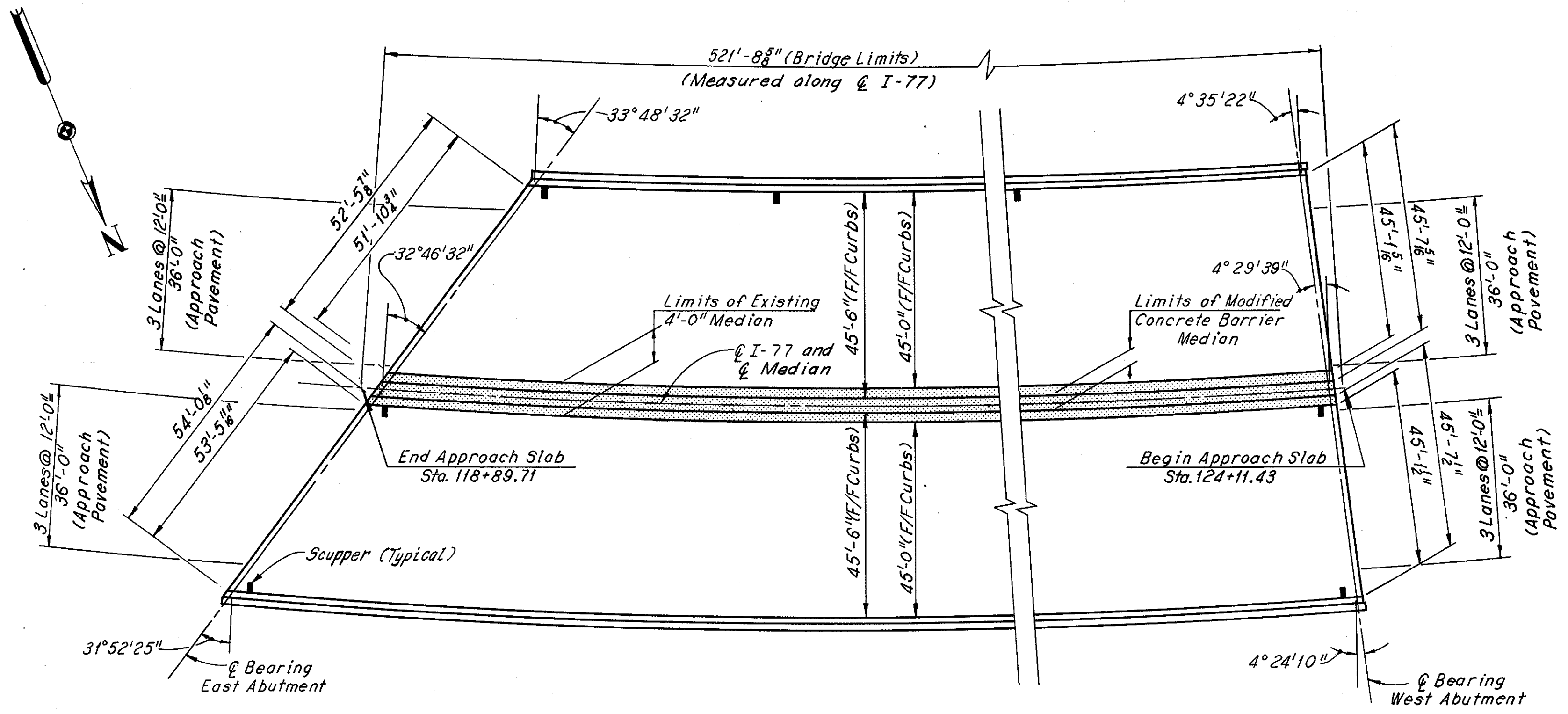
CONDUIT DETAILS

Note:
For notes, see Sheet 12/22

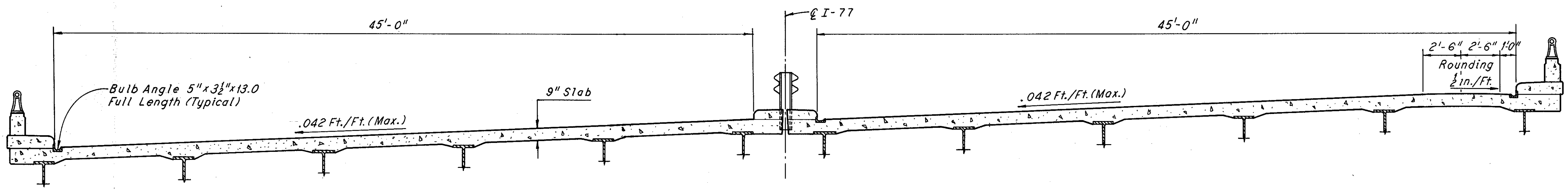
| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

138
169

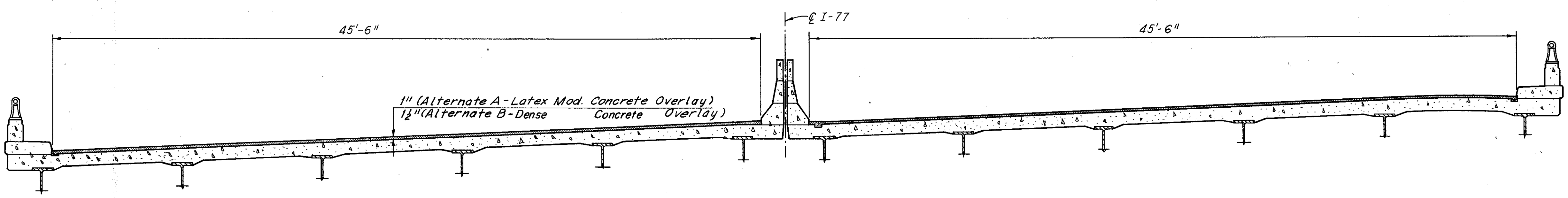
CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



EXISTING AND MODIFIED PLAN
Indicates removal



EXISTING TYPICAL SECTION



MODIFIED TYPICAL SECTION

Notes:
For schematic plan and bridge location, see Sheet 122.
For details of raising existing end dams, see Sheet CD-6.
For details of resurfacing, see Sheets CD-5 and CD-8.
For expansion joint modification at the median, see Sheets CD-1 and CD-2.
For details of raising existing scuppers, see Sheet CD-8.

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

EXISTING AND MODIFIED DECK PLAN AND TYPICAL SECTION
BR. NO. CUY-77-1519

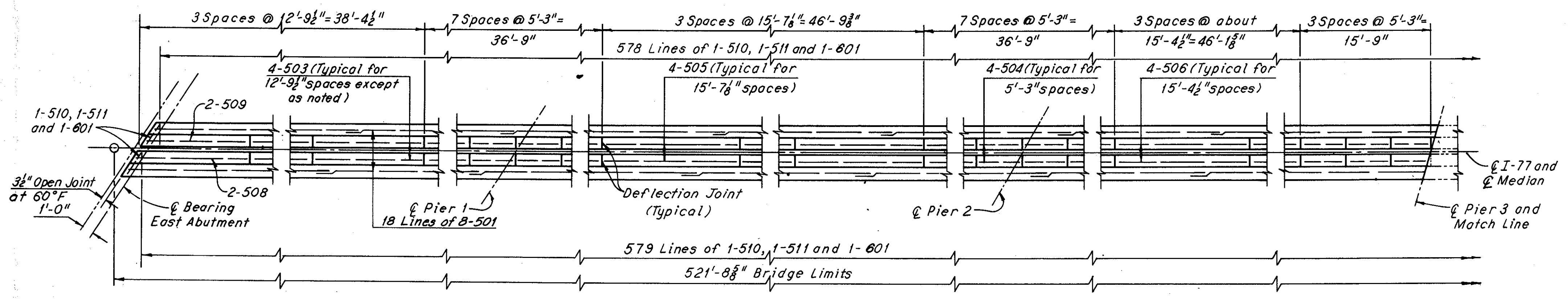
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|--------------------------|----------------|
| CUYAHOGA COUNTY | OHIO |
| DRAWN: RAS | TRACED: RYK |
| CHECKED: J.A.B. & D.H.S. | REVIEWED: DATE |
| DATE: 2-6-74 | DATE: 1-22-75 |
| DATE: 1-29-75 | DATE: DATE |

| | | |
|-------------|-------|---------|
| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

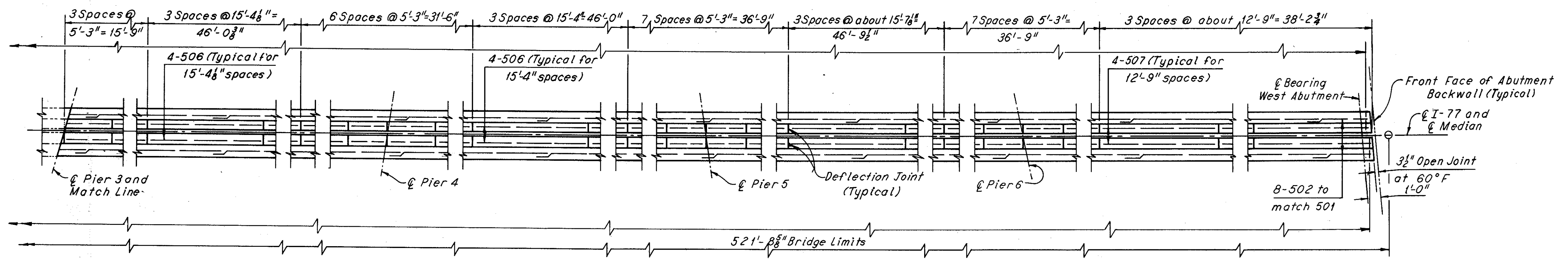
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CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21

MICROFILMED
JUN 13 1973



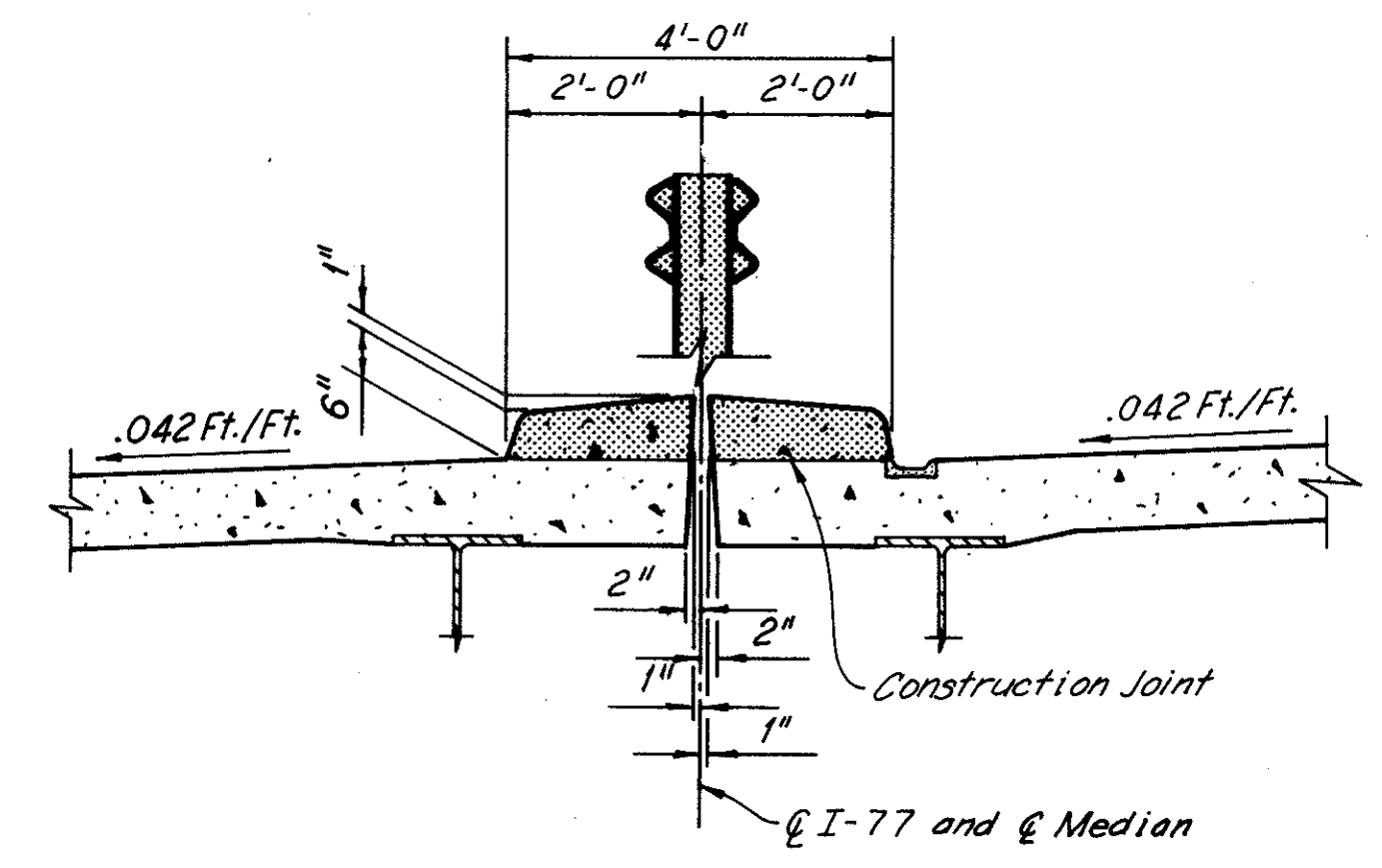
DEVELOPED CONCRETE BARRIER MEDIAN PLAN



DEVELOPED CONCRETE BARRIER MEDIAN PLAN

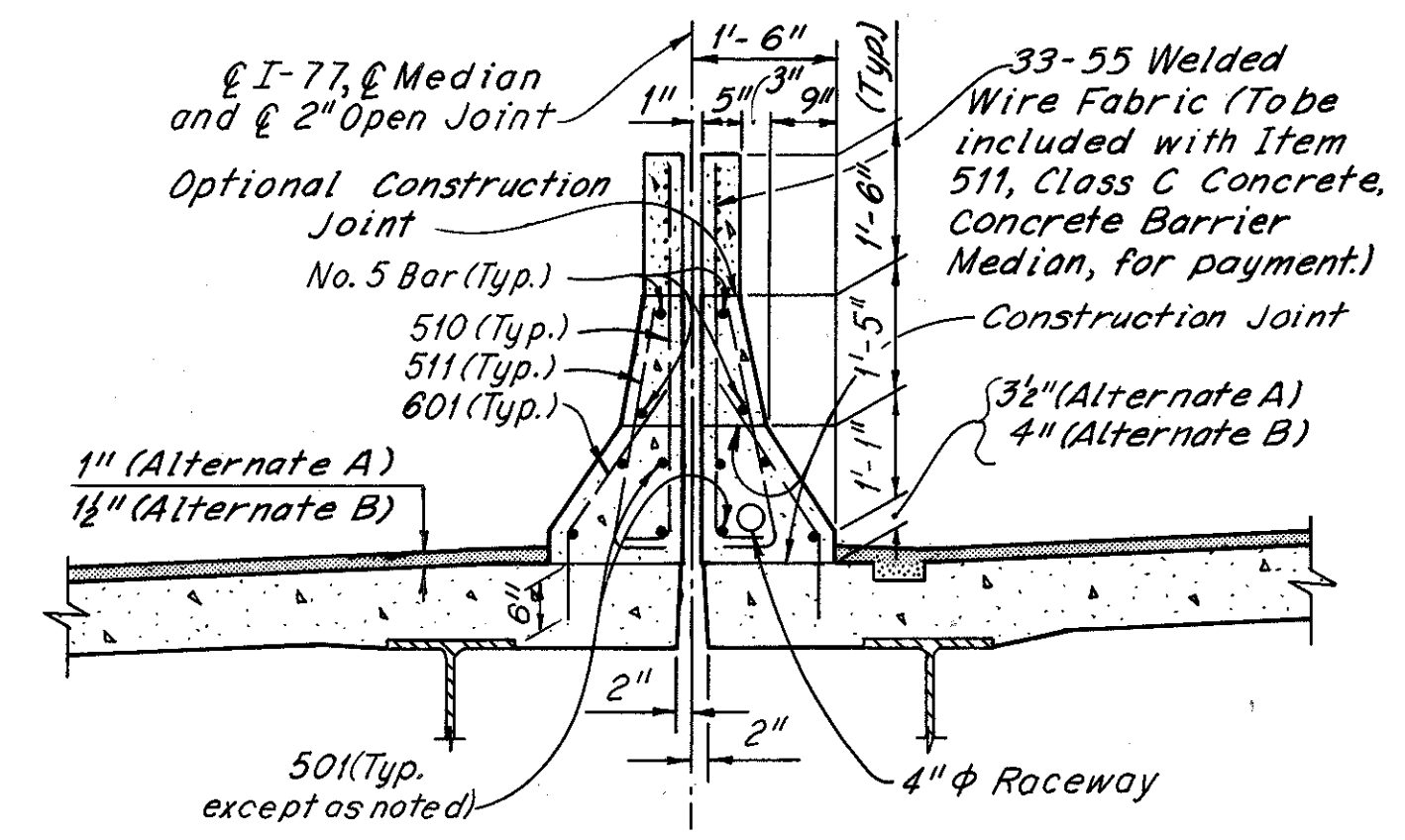
Note: All reinforcing bar marks shall be prefixed CM.

- 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.



TYPICAL EXISTING MEDIAN CROSS SECTION

Indicates removal
(For past anchor detail, see Sheet CD-6)



TYPICAL MODIFIED MEDIAN CROSS SECTION

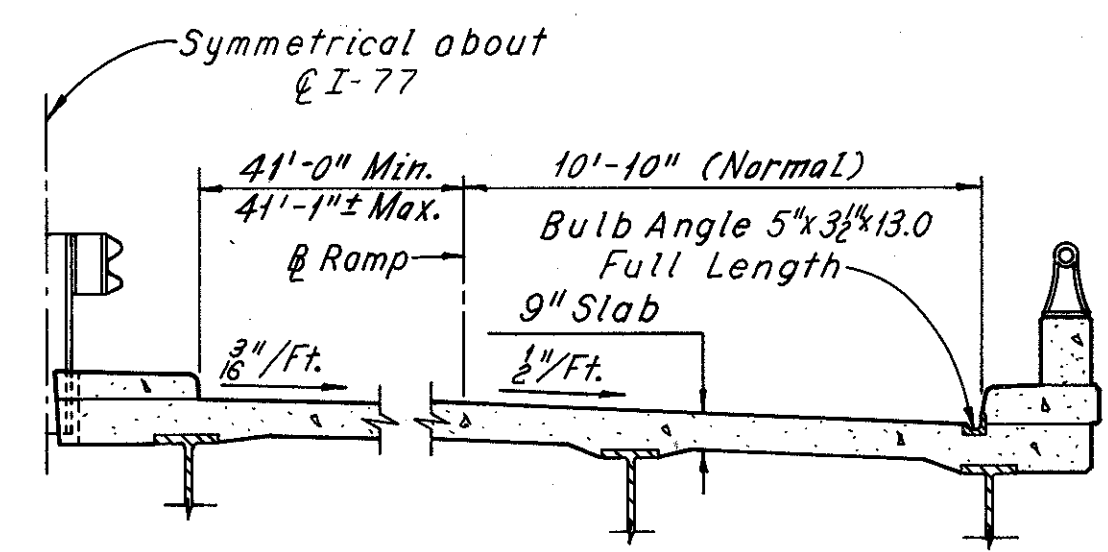
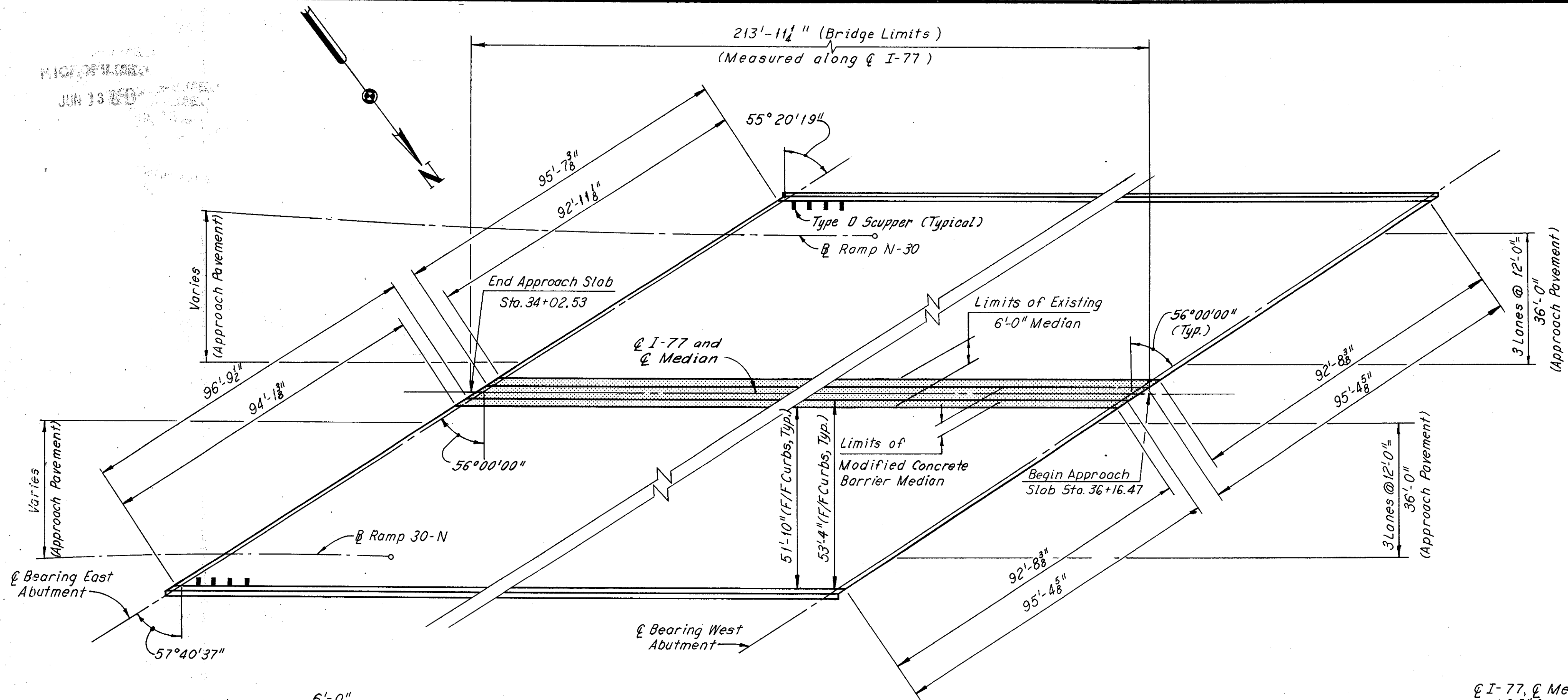
Notes:
For details of deflection joints in the concrete barrier median, see Sheet CD-6.
For spacing of dowel holes for 601 bars and concrete barrier median reinforcement, see Sheet CD-6.
For reinforcement schedule, see Sheet CD-10.
The following abbreviation is used:
Typ. = Typical

| | | | |
|---|--------------|-----------------------|---------------|
| HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND | | HNTB | |
| EXISTING AND MODIFIED MEDIAN DETAILS | | | |
| BR. NO. CUY-77-1519 | | | |
| CUYAHOGA COUNTY | | OHIO | |
| DRAWN RAS | TRACED RAS | CHECKED J.A.B./D.H.S. | REVIEWED |
| DATE 12-6-77 | DATE 1-22-78 | DATE 1-29-78 | DATE |
| | | | SHEET 15 / 22 |

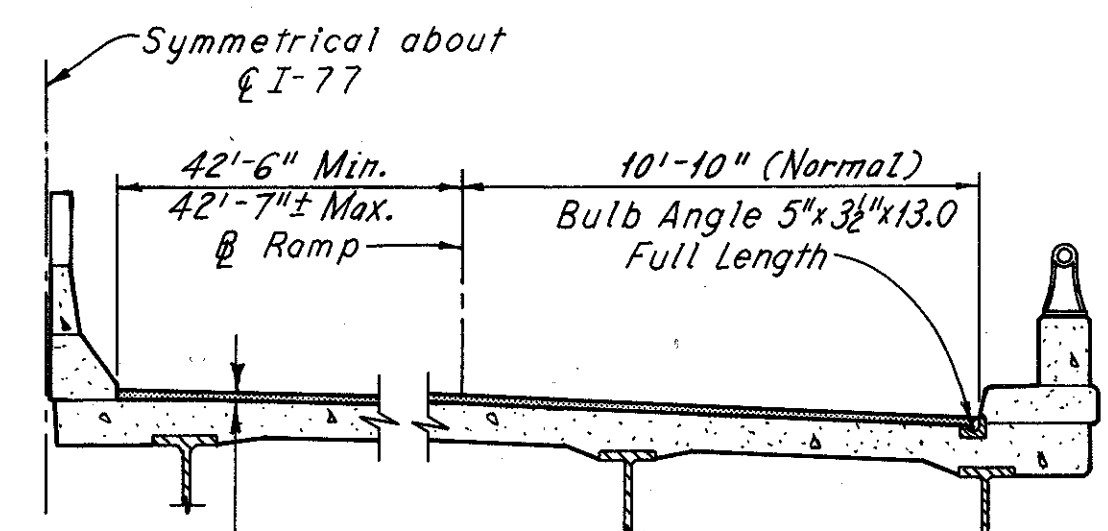
| | | |
|-------------|-------|---------|
| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

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169

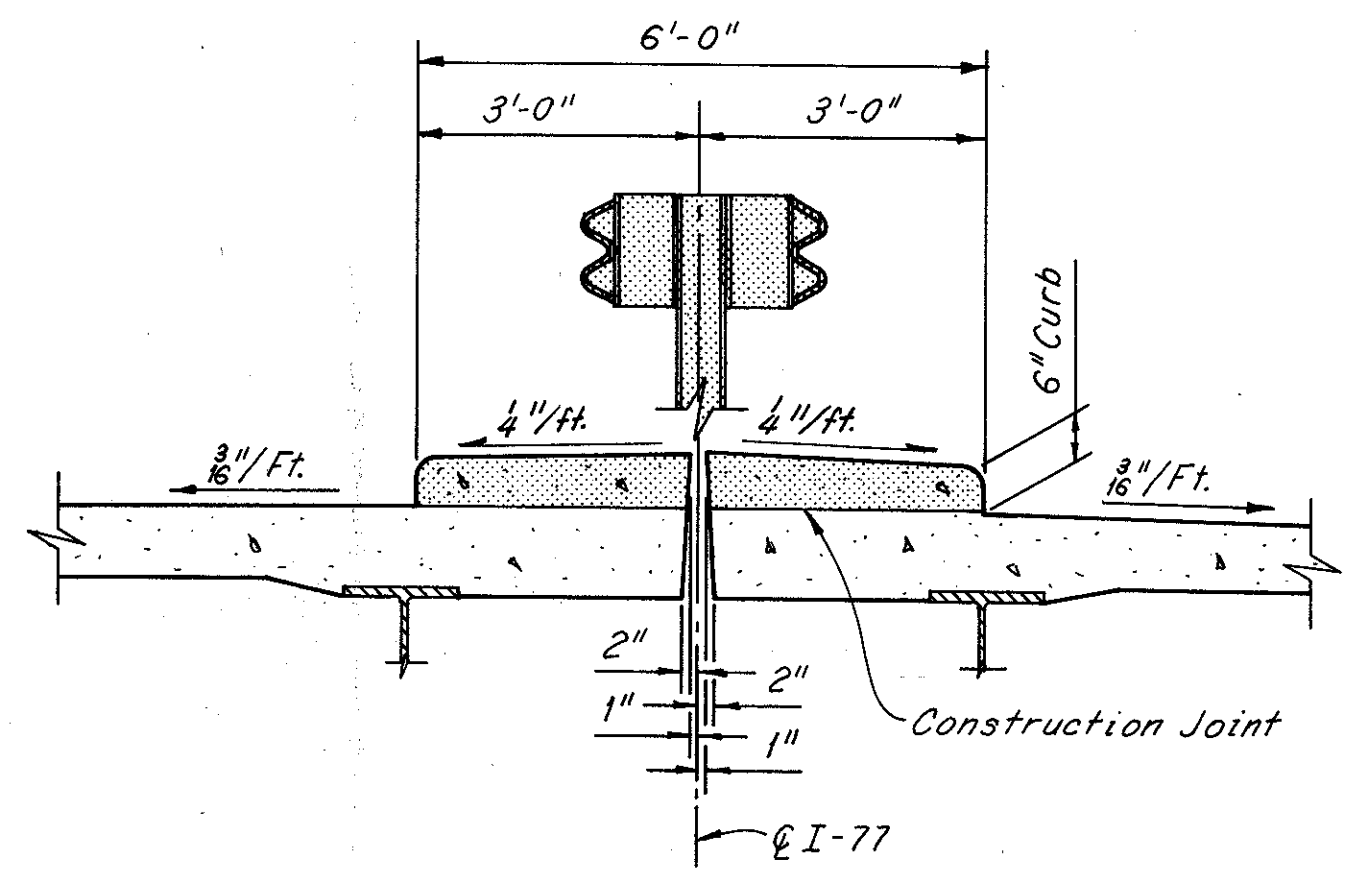
CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



EXISTING TYPICAL SECTION



MODIFIED TYPICAL SECTION



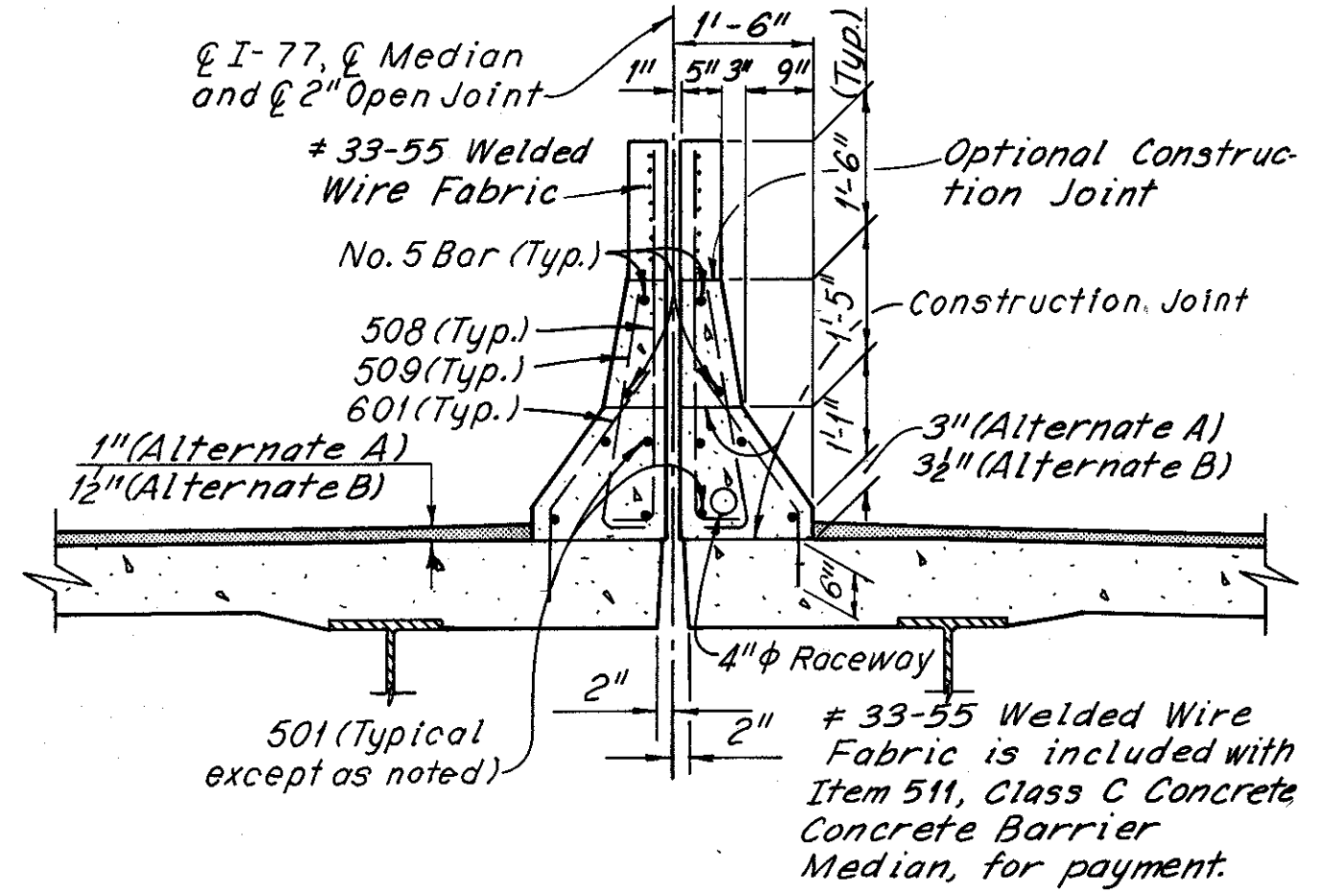
TYPICAL EXISTING MEDIAN CROSS SECTION

Indicates removal
(For post anchor detail see Sheet CD-6)

EXISTING AND MODIFIED PLAN

Indicates removal

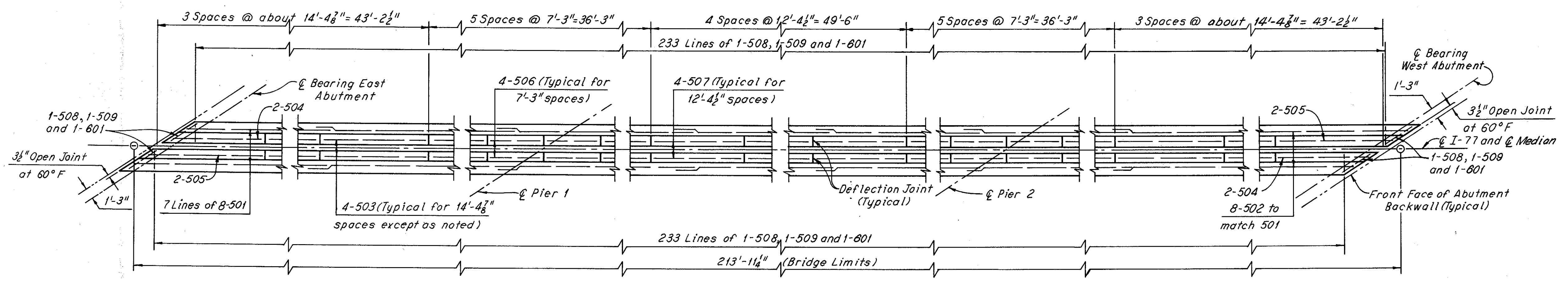
- Remove guardrails, posts, nuts, plates and anchor plates above the construction joint. Include with Item 202, Portions of Structures Removed, for payment.
- Remove existing median above the construction joint. Include with Item 202, Portions of Structures Removed, for payment.



TYPICAL MODIFIED MEDIAN CROSS SECTION

Note: All reinforcing bar marks shall be prefixed DM.

- Notes:
- For schematic plan and bridge locations, see Sheet 122.
 - For expansion joint modification at the median, see Sheets CD-3 and CD-4.
 - For details of raising existing end dams, see Sheet CD-6.
 - For details of resurfacing, see Sheet CD-5.
 - For details of deflection joints in the concrete barrier median, see Sheet CD-6.
 - For spacing of dowel holes for 601 bars and concrete barrier median reinforcement, see Sheet CD-6.
 - For reinforcement schedule, see Sheet CD-10.
 - For details of raising existing scuppers, see Sheet CD-8.
- The following abbreviations are used:
- Typ. = Typical
 - Min. = Minimum
 - Max. = Maximum



DEVELOPED CONCRETE BARRIER MEDIAN PLAN

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND HNTB

EXISTING AND MODIFIED DECK PLAN AND MEDIAN

BR. NO. CUY-77-1548

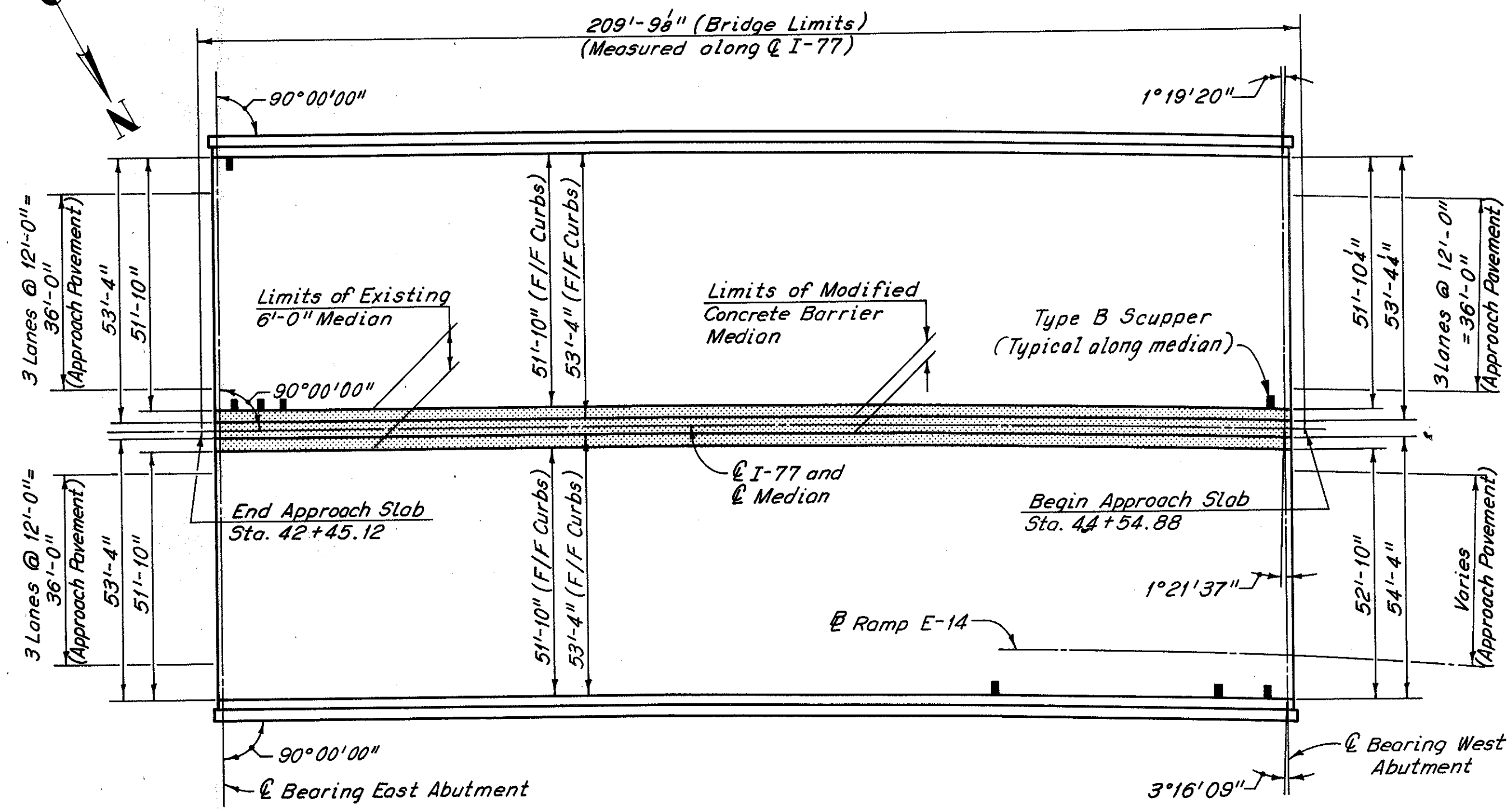
CUYAHOGA COUNTY OHIO

| | | | | |
|---------------|---------------|-------------------------|----------|---------|
| DRAWN R43 | TRACED R.C.A. | CHECKED J.A.B. & D.H.S. | REVIEWED | REVISED |
| DATE 11-21-74 | DATE 1-28-74 | DATE 2-3-75 | DATE | DATE |

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|-------------|-------|---------|
| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

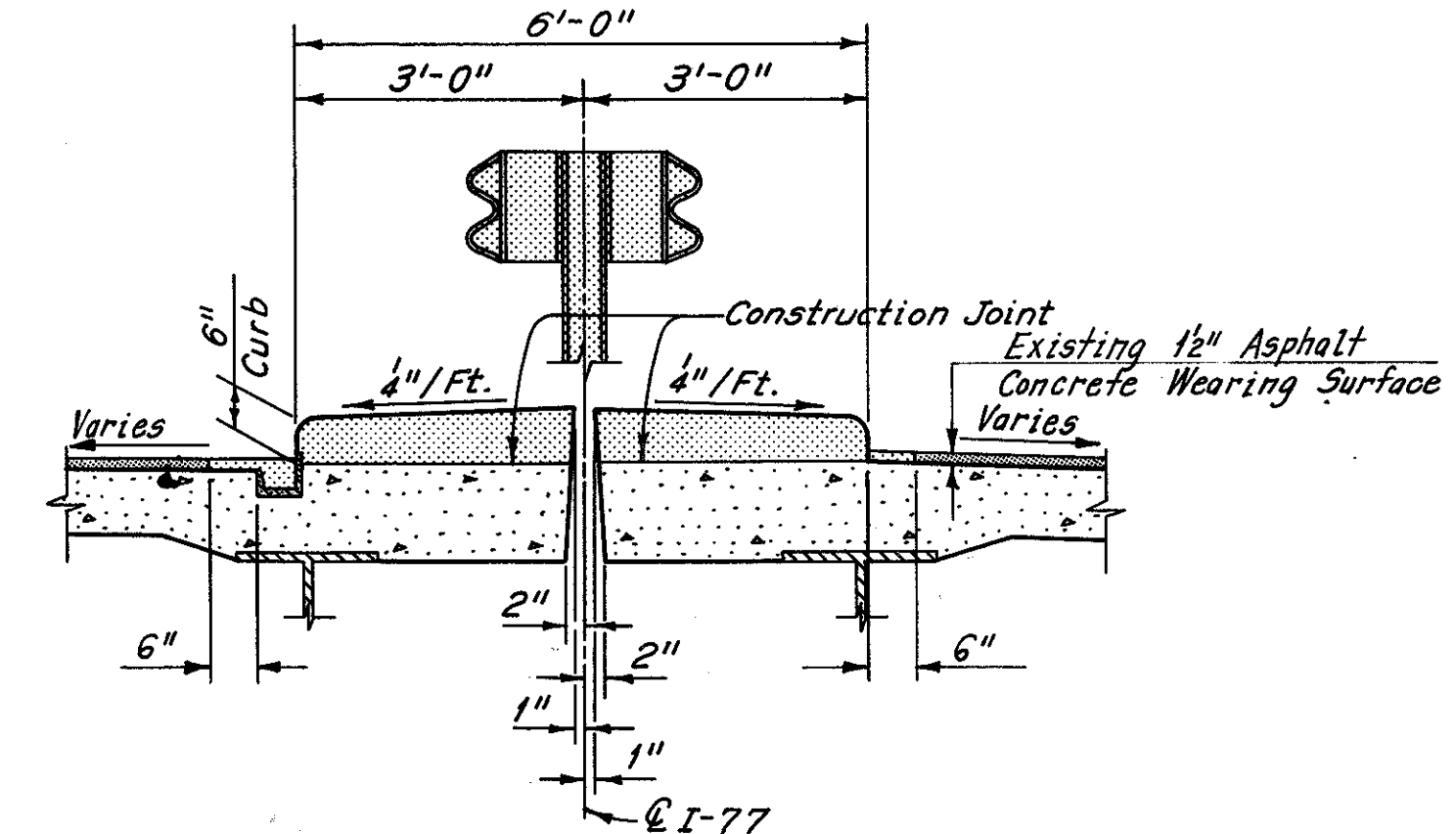
141
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21

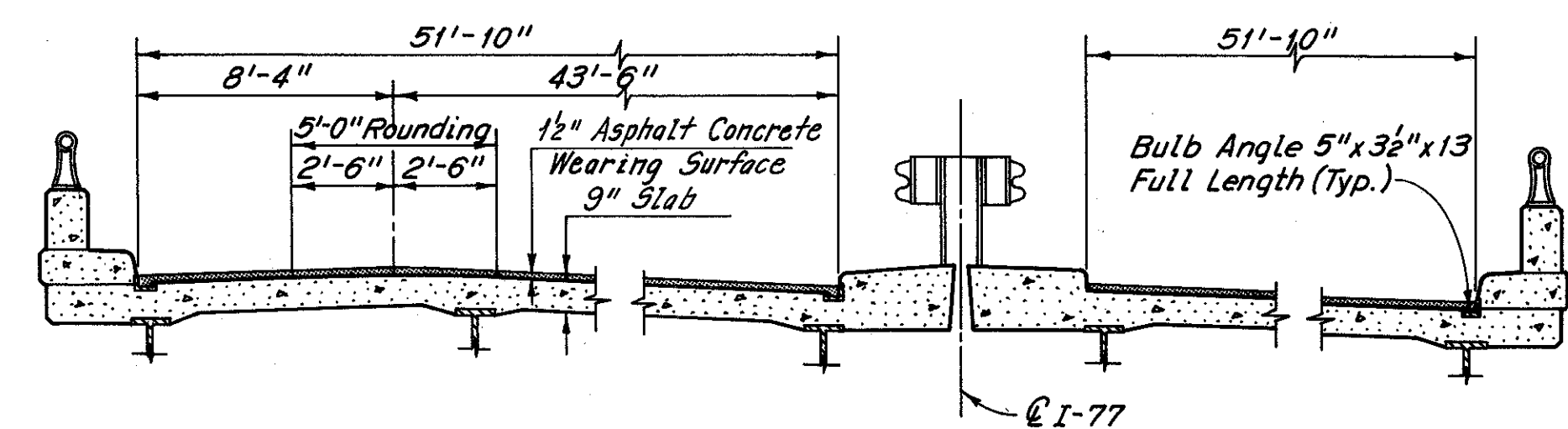


EXISTING AND MODIFIED PLAN
Indicates removal

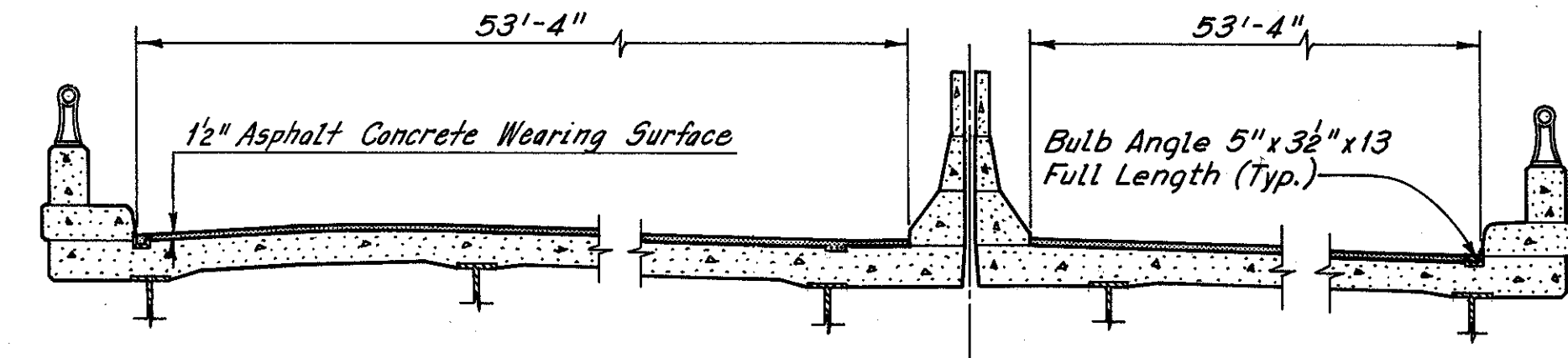
- Remove guardrails, posts, nuts, plates and anchor plates above the construction joint. Include with Item 202, Portions of Structures Removed, for payment.
- Remove existing median above the construction joint. Include with Item 202, Portions of Structures Removed, for payment.
- Remove bulb angle gutter. Include with Item 202, Portions of Structures Removed, for payment.
- Remove existing asphalt concrete adjacent to the median as shown in the Typical Existing Median Cross Section. Include with Item 202, Portions of Structures Removed, for payment.
- Remove existing asphalt concrete to 6" around the periphery of all median scuppers. Include with Item 202, Portions of Structures Removed, for payment.



TYPICAL EXISTING MEDIAN CROSS SECTION
Indicates removal
(For post anchor detail, see Sheet CD-6)

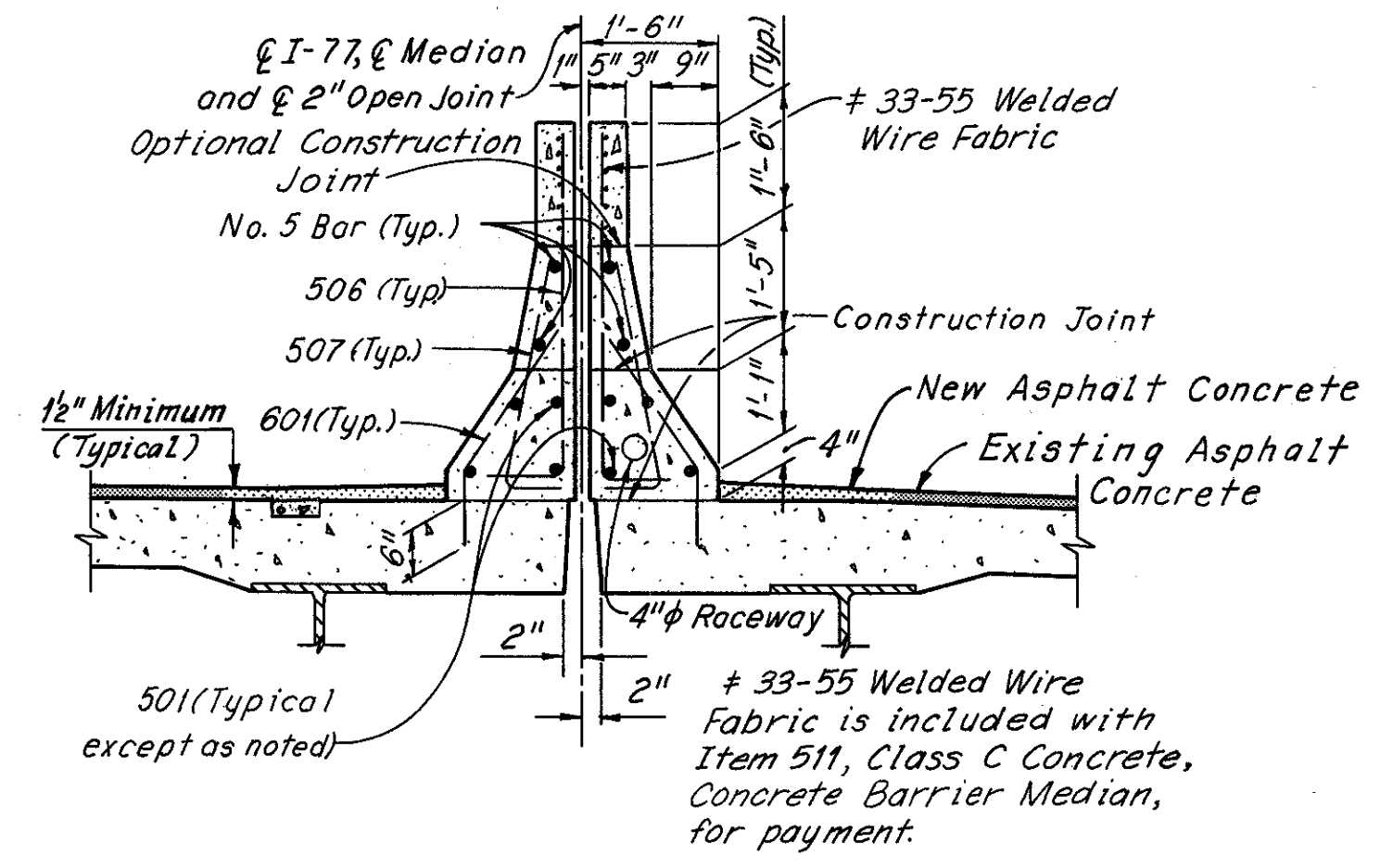


EXISTING TYPICAL SECTION



MODIFIED TYPICAL SECTION

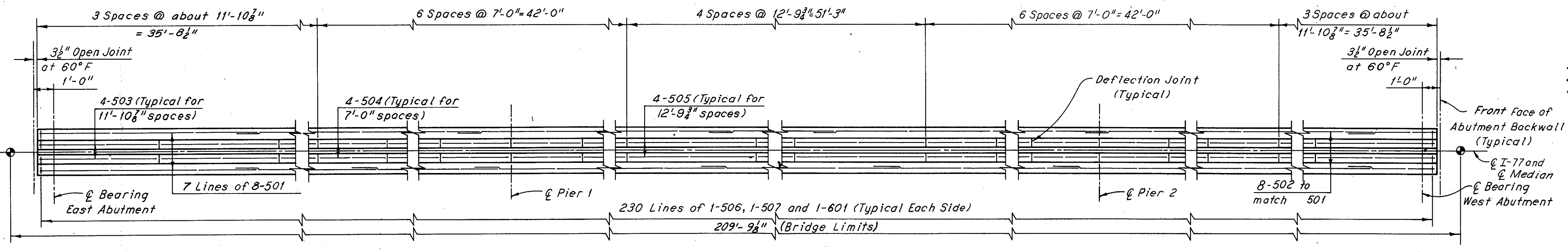
Note: All reinforcing bar marks shall be prefixed EM.



TYPICAL MODIFIED MEDIAN CROSS SECTION

Note: To provide deck drainage, an additional 1/2 inch of overlay shall be provided at the barrier median gutter line, sloping to the specified thickness at the roadway edge of the bulb angle gutter. Payment for the additional thickness of the overlay shall be included with Item 404, Asphalt Concrete (AC-20).

- Notes:
- For schematic plan and bridge locations, see Sheet 122.
 - For expansion joint modification at the median, see Sheets CD-3 and CD-4.
 - For details of raising existing end dams, see Sheet CD-6.
 - For details of deflection joints in the concrete barrier median, see Sheet CD-6.
 - For spacing of dowel holes for 601 bars and concrete barrier median reinforcement, see Sheet CD-6.
 - For details of raising existing scuppers at the median, see Sheet CD-8.
 - For reinforcement schedule, see Sheet CD-10.



DEVELOPED CONCRETE BARRIER MEDIAN PLAN

The void left in the deck after removal of bulb angle gutter shall be patched as per Item 519, Patching Concrete Structures, and included with Item Special, Membrane Waterproofing (Sheet Type 1) for payment.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND HNTB

EXISTING AND MODIFIED DECK PLAN AND MEDIAN
BR. NO. CUY-77-1564

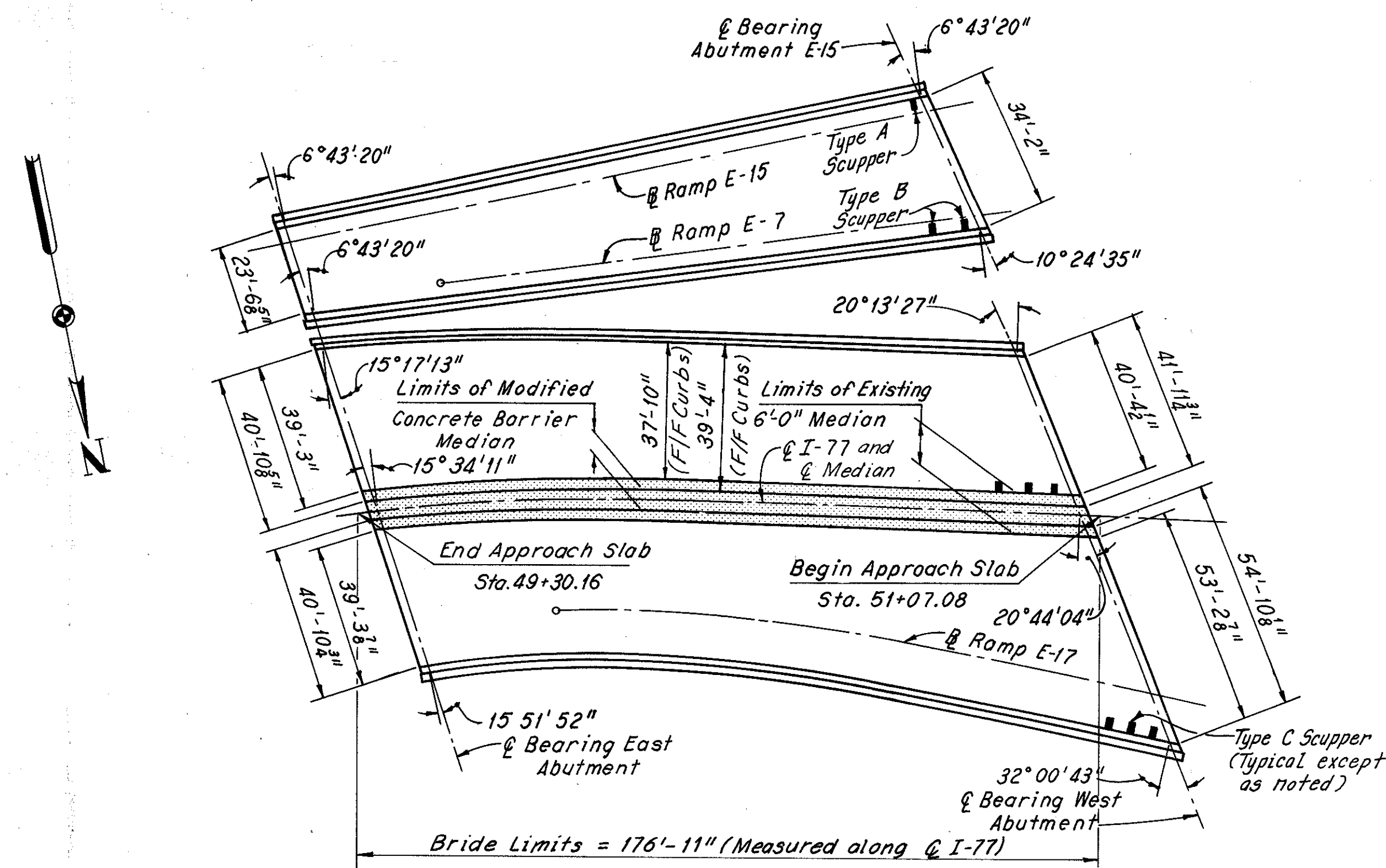
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|------------------------|----------------|
| CUYAHOGA COUNTY | OHIO |
| DRAWN: JAB | TRACED: DLR |
| DATE: 11-11-74 | DATE: 1-20-75 |
| CHECKED: A.N. & C.K.B. | REVIEWED: DATE |
| DATE: 2-9-77 | DATE |
| | SHEET 17 OF 22 |

MICROFILMED
JUN 19 1982

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|-------------|-------|---------|
| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

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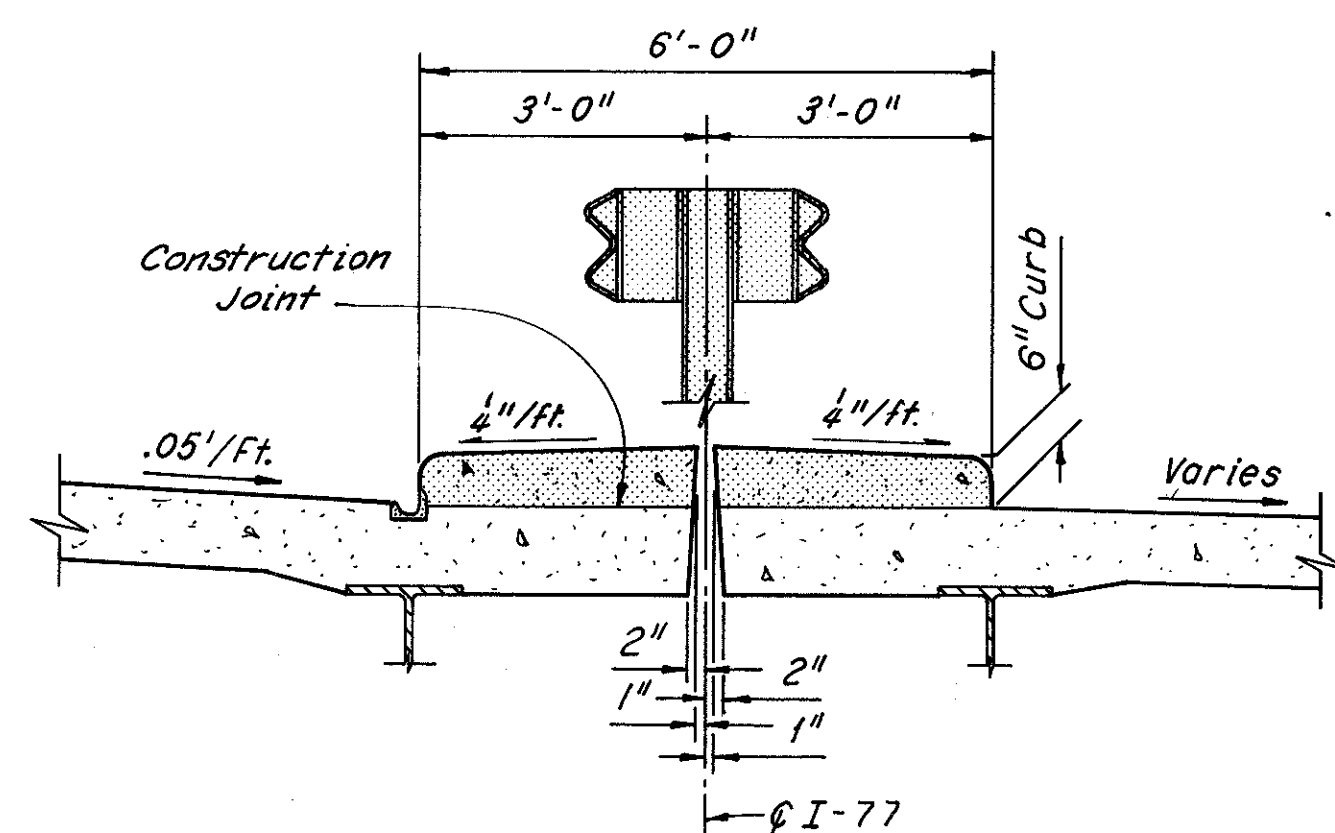
CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



EXISTING AND MODIFIED PLAN

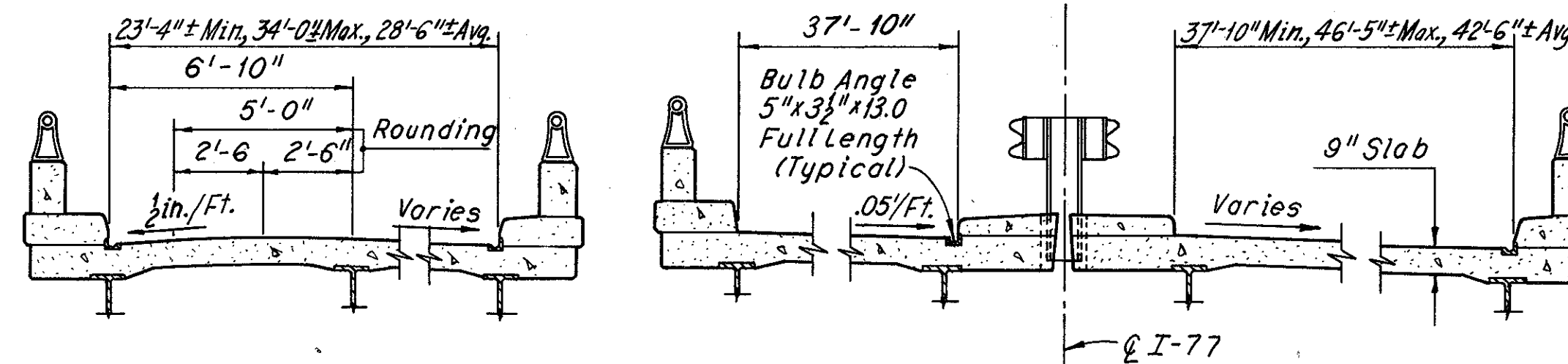
Indicates removal

- 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.

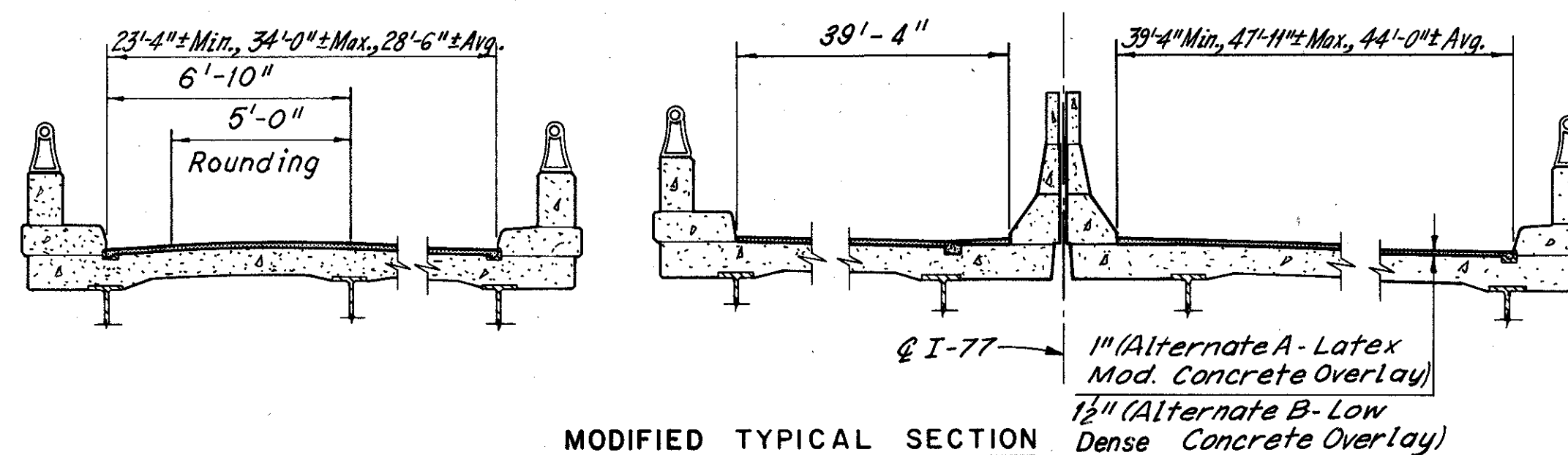


TYPICAL EXISTING MEDIAN CROSS SECTION

Indicates removal
(For post anchor detail, see Sheet CD-6)

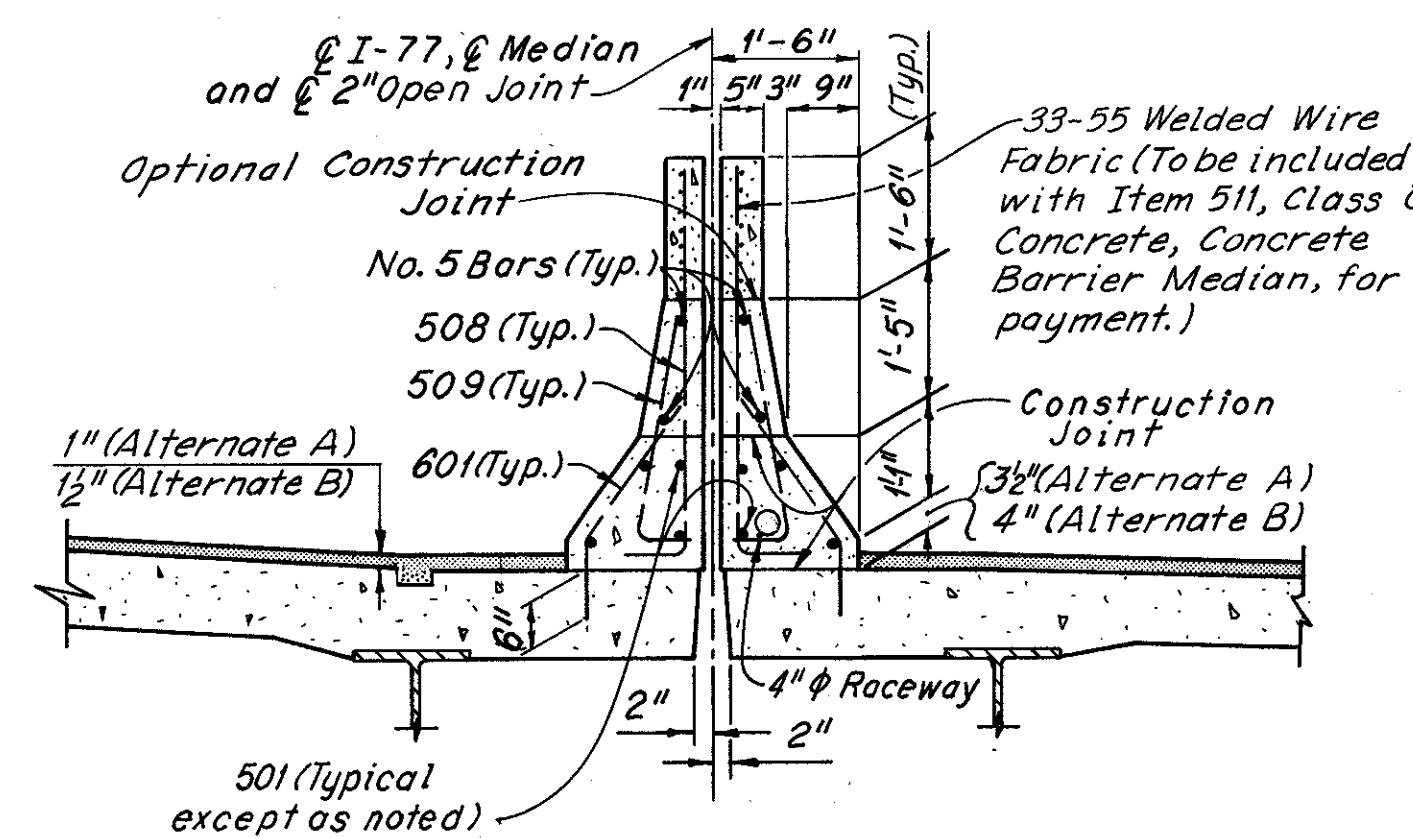


EXISTING TYPICAL SECTION



MODIFIED TYPICAL SECTION

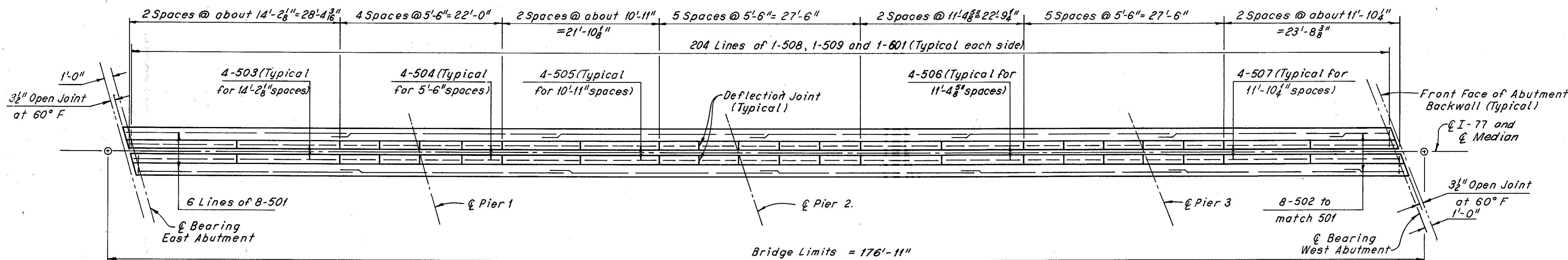
Note: All reinforcing bar marks shall be prefixed FM.



TYPICAL MODIFIED MEDIAN CROSS SECTION

- Notes:
- For schematic plan and bridge locations, see Sheet 122.
 - For expansion joint modification at the median, see Sheets CD-3 and CD-4.
 - For details of raising existing end dams, see Sheet CD-6.
 - For details of resurfacing, see Sheets CD-5 and CD-8.
 - For details of deflection joints in the concrete barrier median, see Sheet CD-6.
 - For spacing of dowel holes for 601 bars and concrete barrier median reinforcement, see Sheet CD-6.
 - For details of raising existing scuppers, see Sheet CD-8.
 - For reinforcement schedule, see Sheet CD-10.

The following abbreviations are used:
Typ. = Typical
Min. = Minimum
Max. = Maximum
Avg. = Average



DEVELOPED CONCRETE BARRIER MEDIAN PLAN

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND

HNTB

EXISTING AND MODIFIED
DECK PLAN AND MEDIAN
BR. NO. CUY.-77-1576 A & B

| | |
|-------------------------|---------------|
| CUYAHOGA COUNTY | OHIO |
| DRAWN R.A.S. | TRACED R.C.A. |
| CHECKED J.A.B. & D.H.S. | REVIEWED |
| DATE 11-21-74 | DATE 2-3-75 |

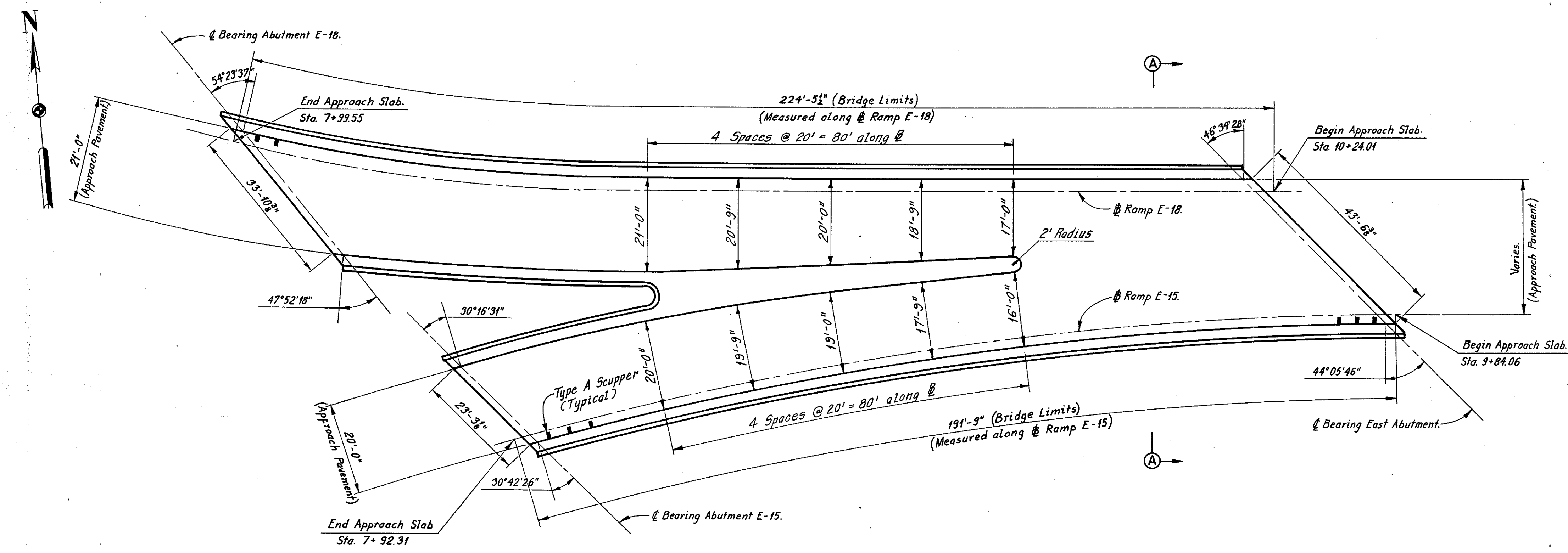
SHEET 18/22

MICROFILMED
JUN 14 1988

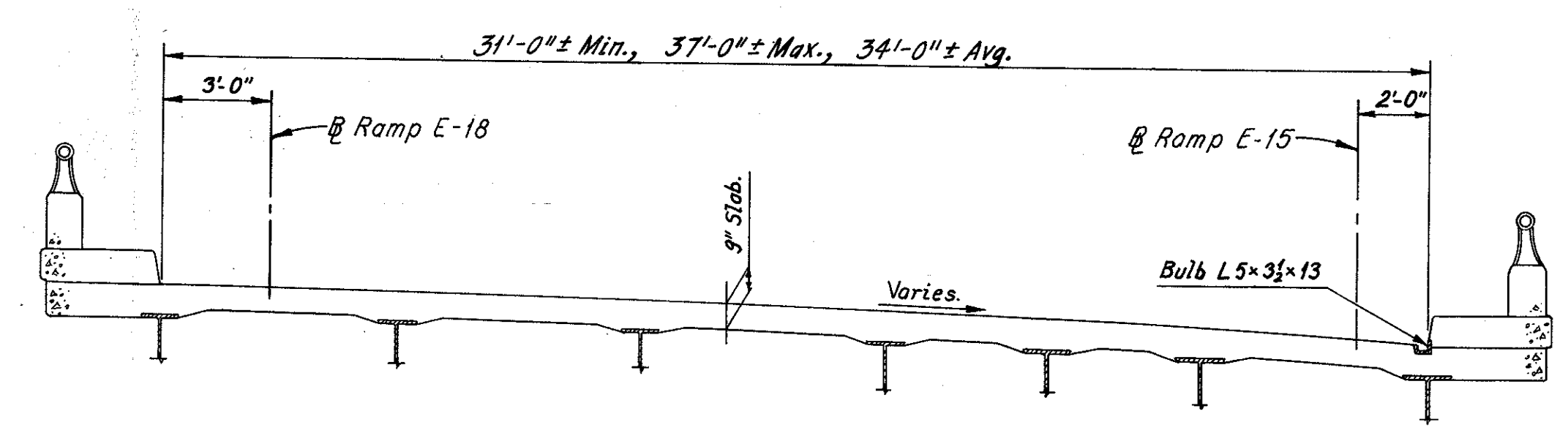
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| FHWA REGION | STATE | PROJECT | |
| 5 | OHIO | | |

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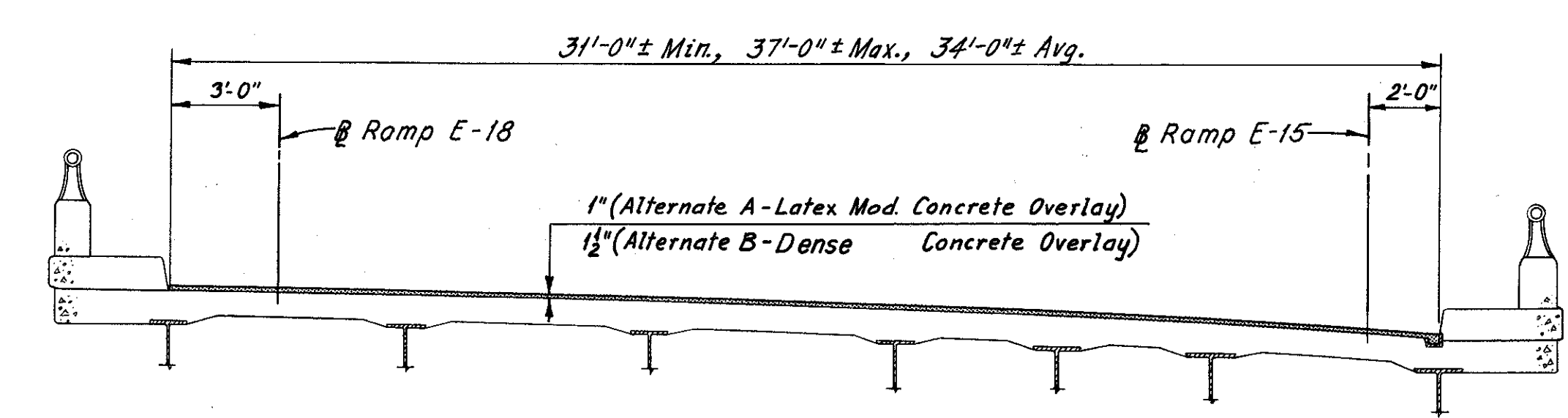
CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



EXISTING AND MODIFIED PLAN
RAMP E-15 AND E-18 OVER EAST 9TH STREET



EXISTING SECTION A-A



MODIFIED SECTION A-A

Notes:
For schematic plan and bridge location, see Sheet 122.
For details of raising existing end dams, see Sheet CD-6.
For details of resurfacing, see Sheet CD-5.
For details of raising existing scuppers, see Sheet CD-8.
The following abbreviations are used:
Min. = Minimum
Max. = Maximum
Avg. = Average

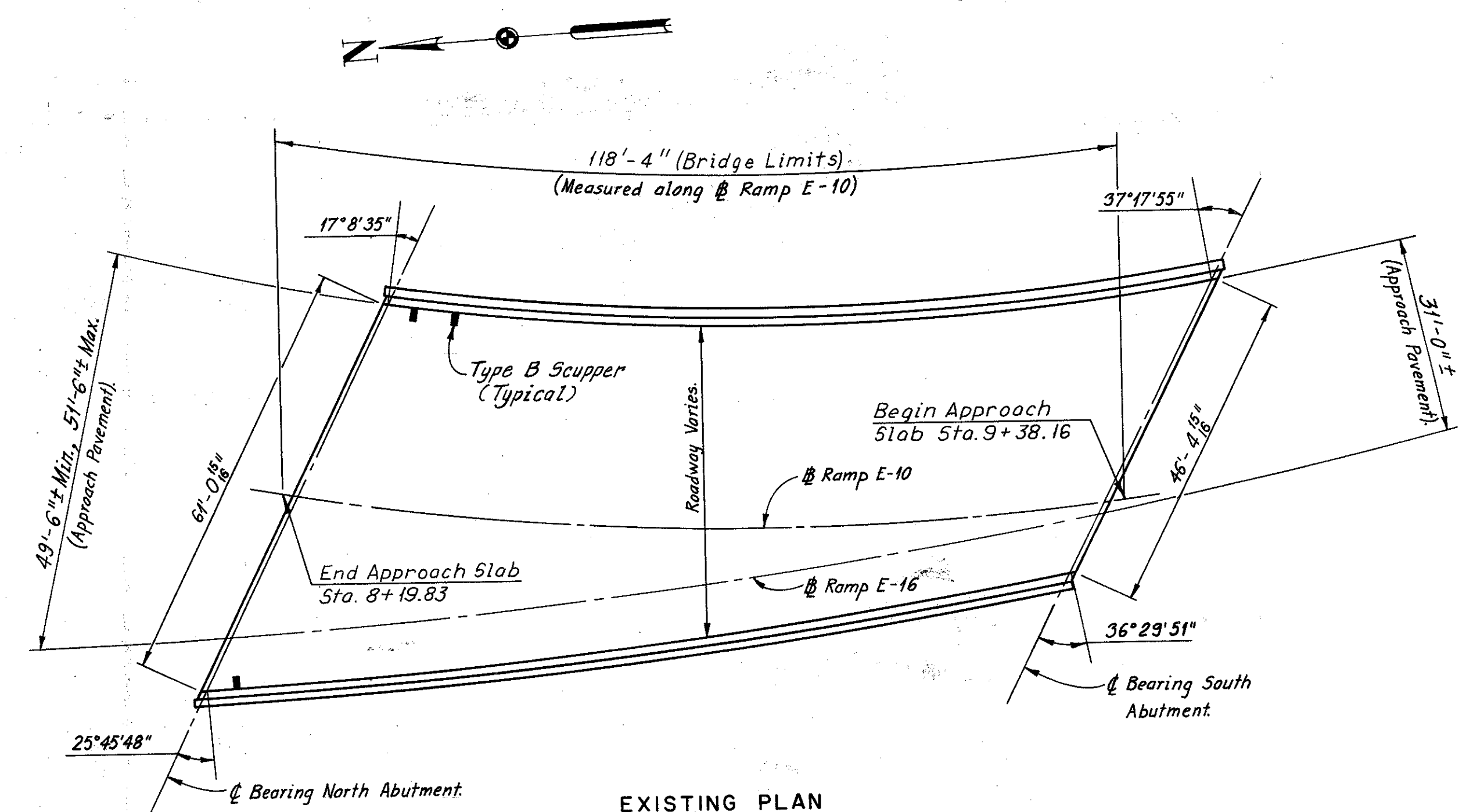
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|---|--------------|---------------------------|-------------|---------------|
| HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND | | | HNTB | |
| EXISTING AND MODIFIED DECK PLAN AND TYPICAL SECTION RAMP E-15 AND E-18 OVER EAST 9TH ST. | | | | |
| CUYAHOGA COUNTY | | | OHIO | |
| DRAWN A. N. | TRACED A. M. | CHECKED J. A. B. O. H. S. | REVIEWED | REVISED |
| DATE 12-5-74 | DATE 12-5-74 | DATE 12-9-75 | DATE | SHEET 19 22 |

JUN 14 1975

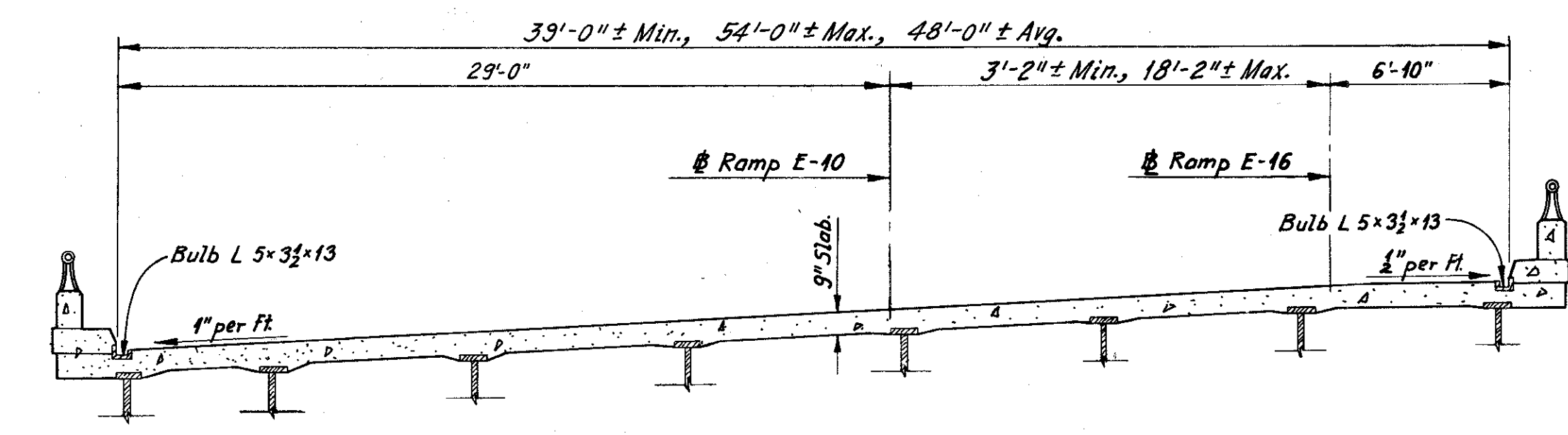
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|-------------|-------|---------|--|
| FHWA REGION | STATE | PROJECT | |
| 5 | OHIO | | |

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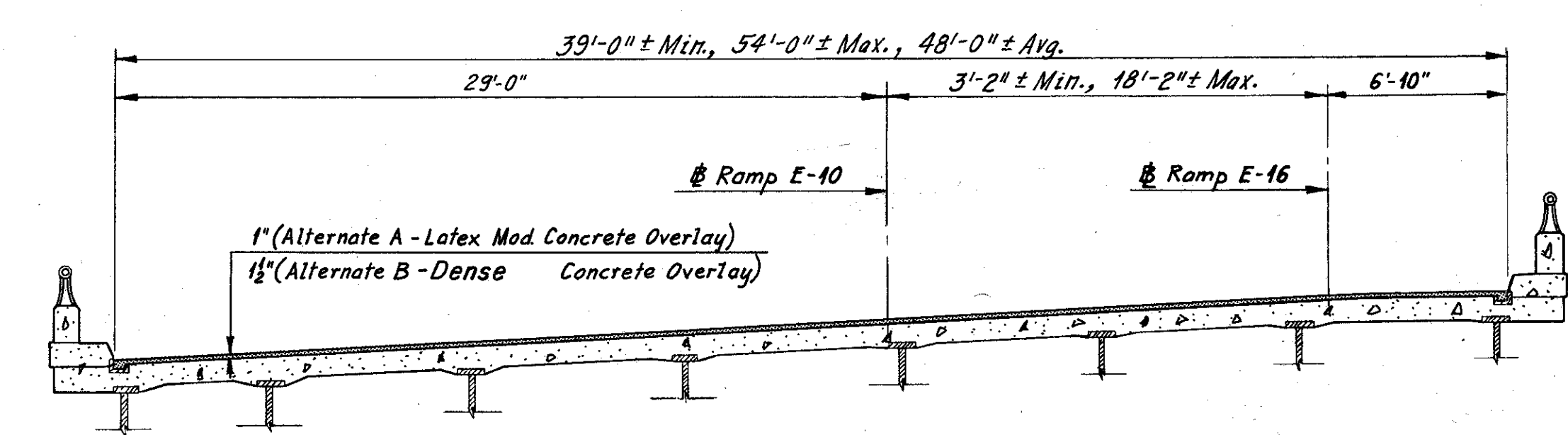
CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



EXISTING PLAN



EXISTING TYPICAL SECTION



MODIFIED TYPICAL SECTION

Notes:
 For schematic plan and bridge location, see Sheet 122.
 For details of raising existing end dams, see Sheet CD-6.
 For details of resurfacing, see Sheet CD-5.
 For details of raising existing scuppers, see Sheet CD-8.
 The following abbreviations are used:
 Min. = Minimum
 Max. = Maximum
 Avg. = Average

| | | | |
|---|--------------|-----------------------|---------------|
| HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND | | HNTB | |
| EXISTING AND MODIFIED DECK PLAN AND TYPICAL SECTION | | | |
| BR. NO. CUY-77-1593L | | | |
| CUYAHOGA COUNTY | | OHIO | |
| DRAWN A.N. | TRACED A.N. | CHECKED J.A.B./D.H.S. | REVIEWED |
| DATE 2/10/74 | DATE 2/16/74 | DATE 2/29/75 | DATE |
| | | | SHEET 21 / 22 |

MICROFILMED
JUN 14 1990

NOTES:

THE EXISTING STEEL BARRIER CURB SHALL BE RESET ON THE REMAINING CURB TO CONFORM WITH THE MODIFIED TYPICAL SECTION. ATTACH POSTS TO CONCRETE WITH $7/8"$ SELF DRILLING CONCRETE ANCHOR BOLTS WITH A PULLOUT RESISTANCE OF NOT LESS THAN 18,000 LBS. ANY OPEN SPACE BETWEEN THE BOLT AND THE CONCRETE SHALL BE FILLED TO PREVENT THE ENTRANCE OF WATER. THE FILLER SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

THE FACE OF THE CURB SHALL BE PATCHED WITH CONCRETE AS NECESSARY TO FORM A SMOOTH CONTINUOUS CURB FACE.

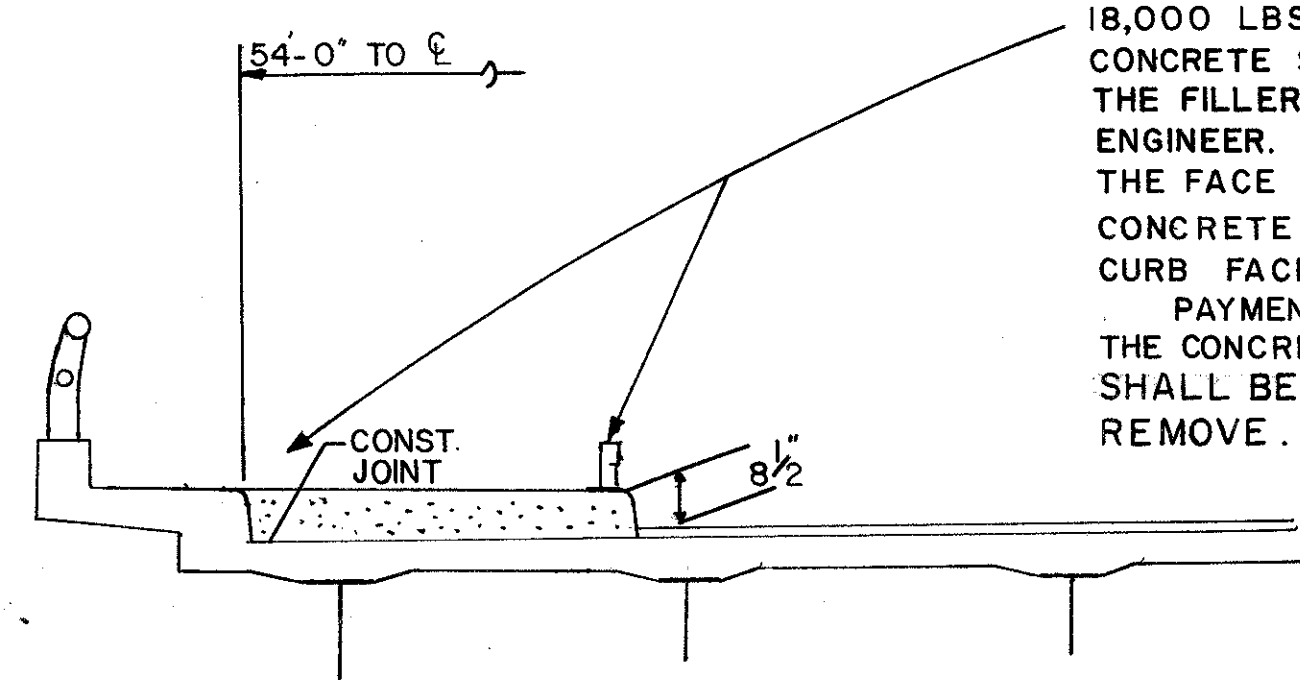
PAYMENT FOR ALL OF THE ABOVE INCLUDING REMOVAL OF THE CONCRETE MEDIAN AND RESETTING STEEL BARRIER CURBS SHALL BE INCLUDED UNDER ITEM 202- PORTION OF STRUCTURE REMOVE.

ALL EXCESS STEEL BARRIER CURB AND POSTS SHALL BECOME THE PROPERTY OF THE STATE OF OHIO AND SHALL BE STORED IN AN AREA CONVENIENT FOR PICKUP BY STATE FORCES.

| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

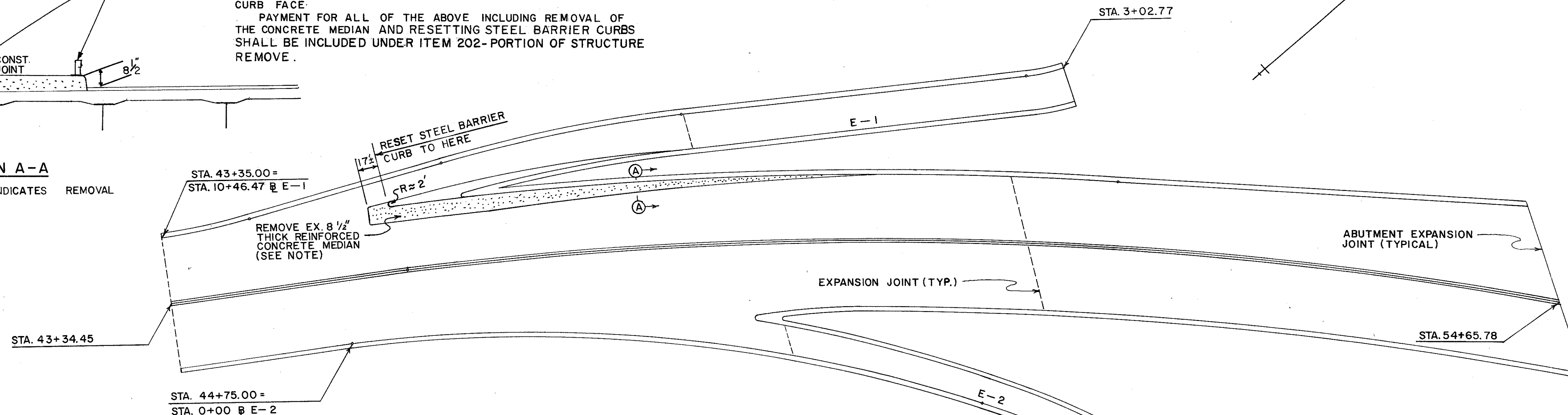
145A
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CUYAHOGA COUNTY
CUY - 77-13.79
CUY - 90-16.21

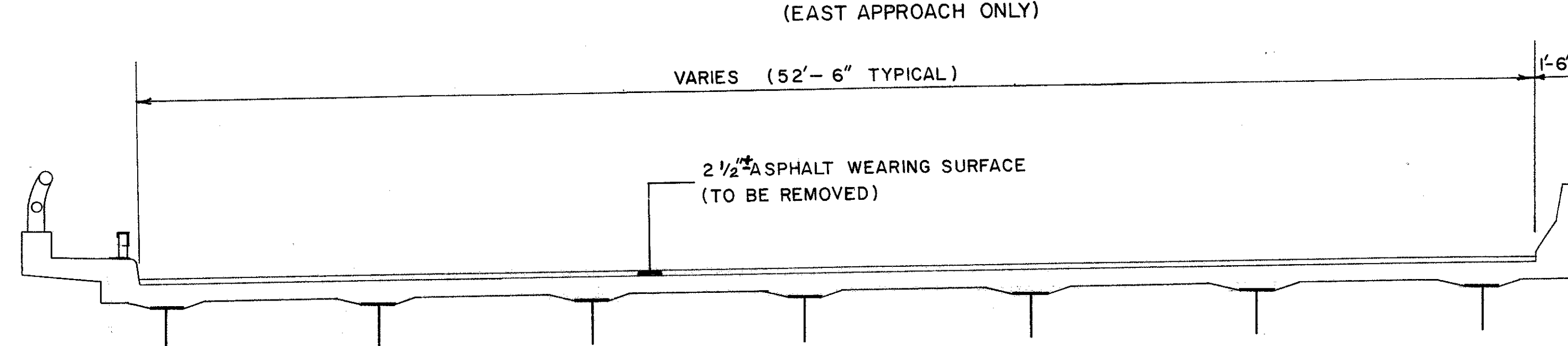


SECTION A-A

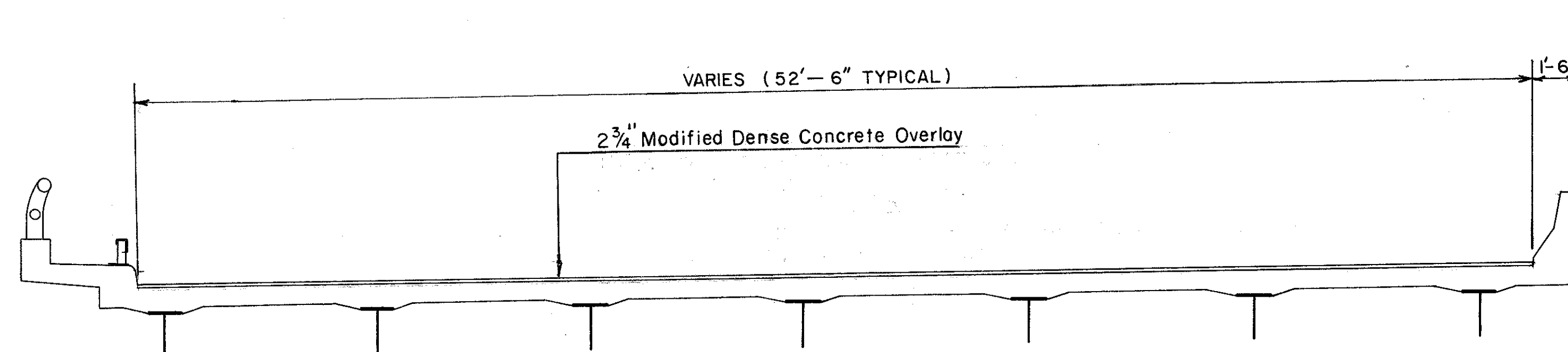
-INDICATES REMOVAL



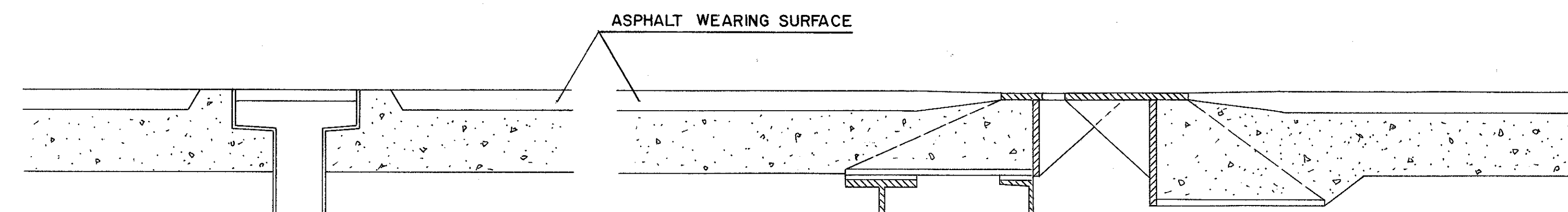
EXISTING AND MODIFIED PLAN
BR. NO. CUY-90-1524
(EAST APPROACH ONLY)



EXISTING TYPICAL HALF SECTION

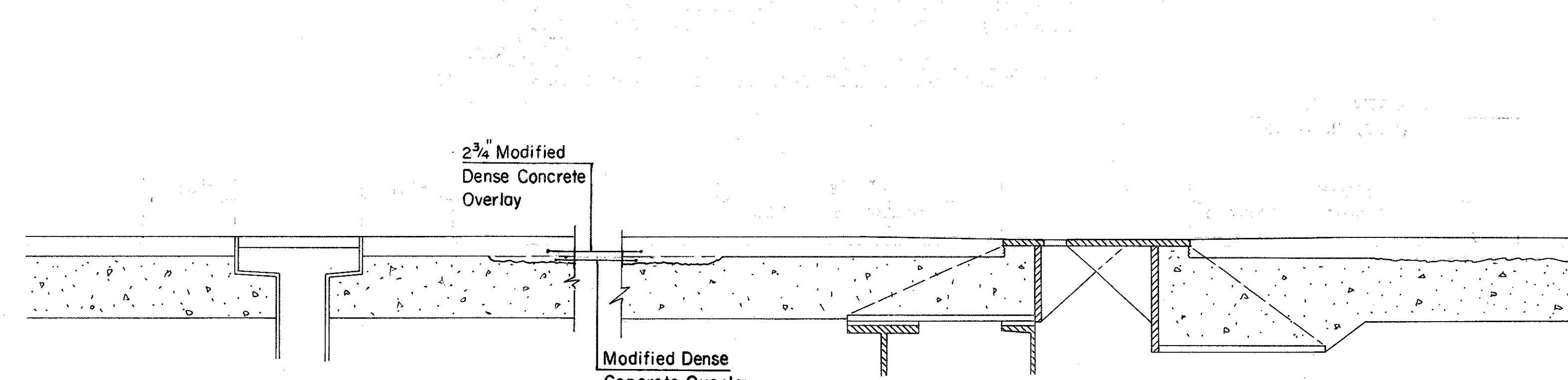


MODIFIED TYPICAL HALF SECTION



EXISTING SCUPPER DETAIL

EXISTING EXPANSION JOINT DETAIL



MODIFIED SCUPPER DETAIL

2 3/4" Modified Dense Concrete Overlay

MODIFIED EXPANSION JOINT DETAIL

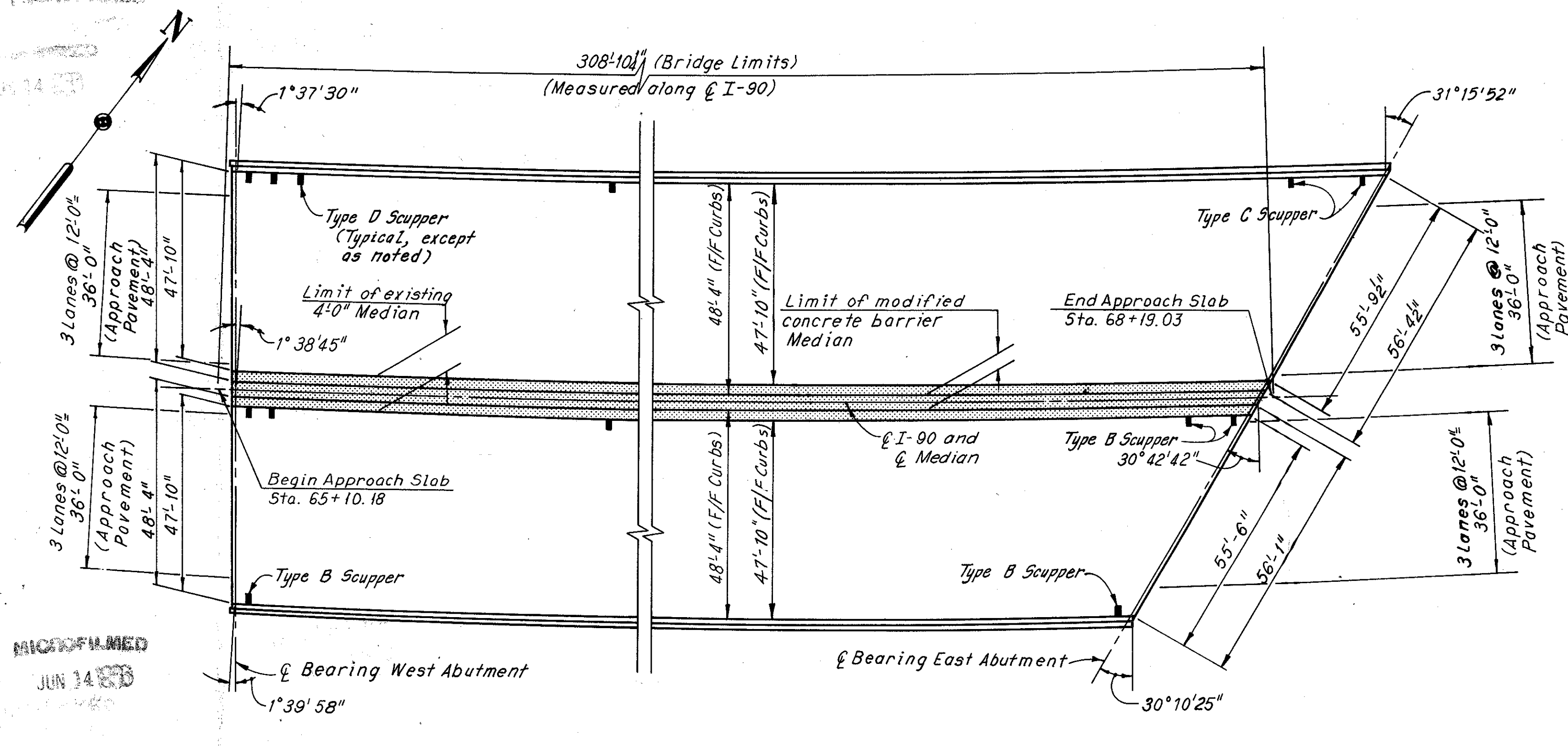
EXISTING AND MODIFIED DECK PLAN AND TYPICAL SECTION

BR. NO. CUY-90-1524 (EAST APPROACH ONLY)

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|-------------|-------|---------|
| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

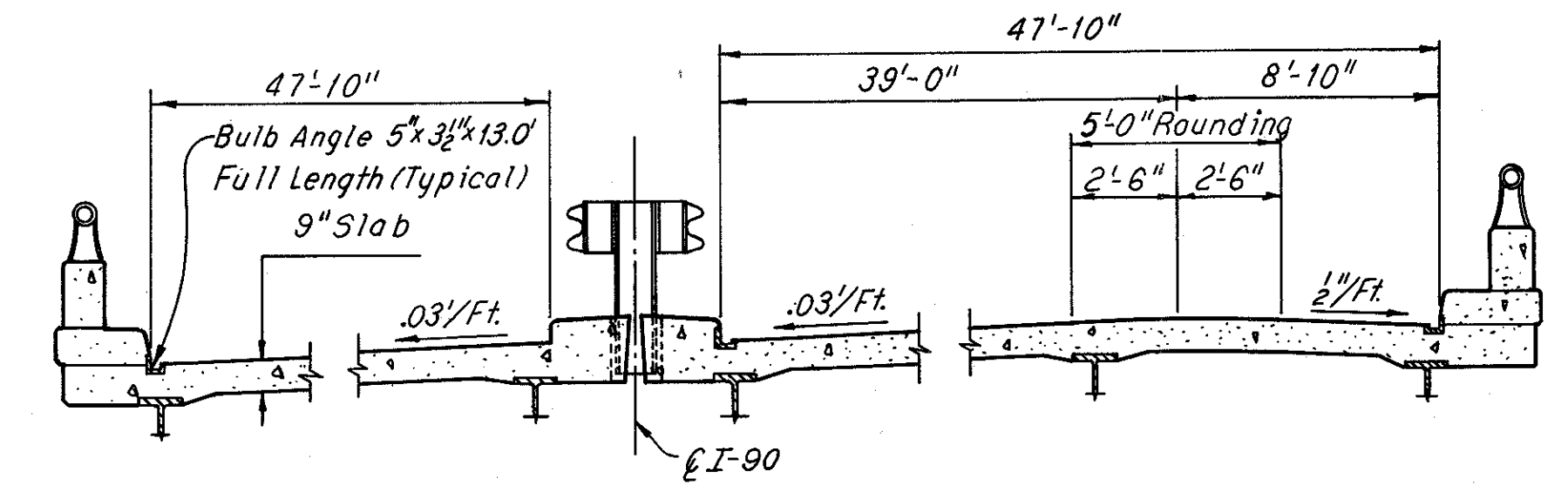
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CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21

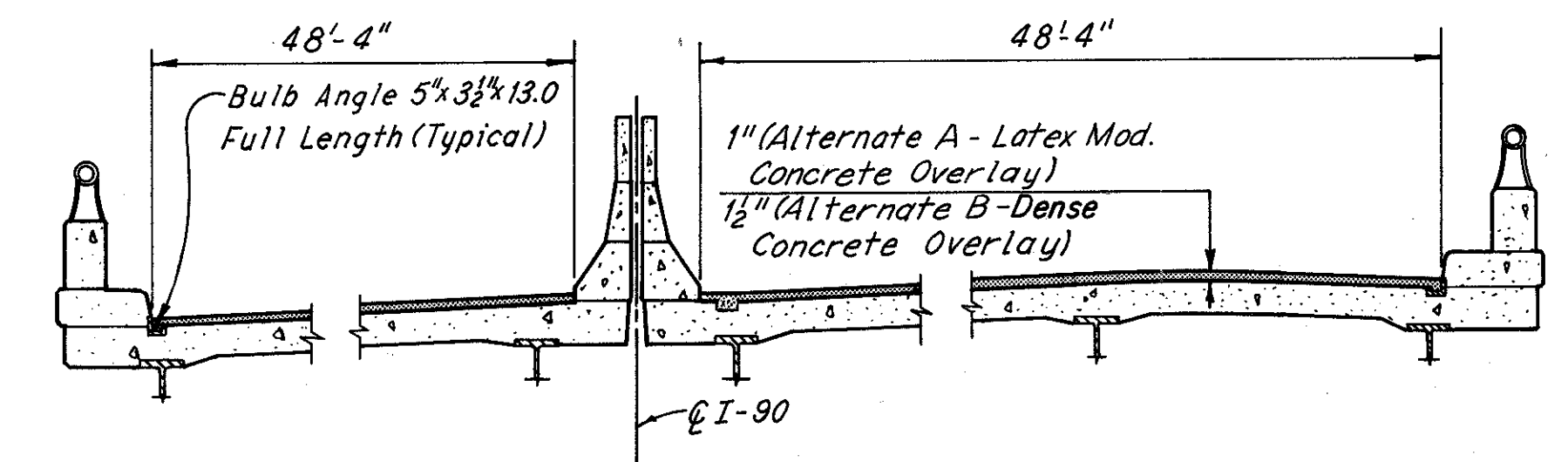


EXISTING AND MODIFIED PLAN
Indicates removal

MICROFILMED
JUN 14 1970



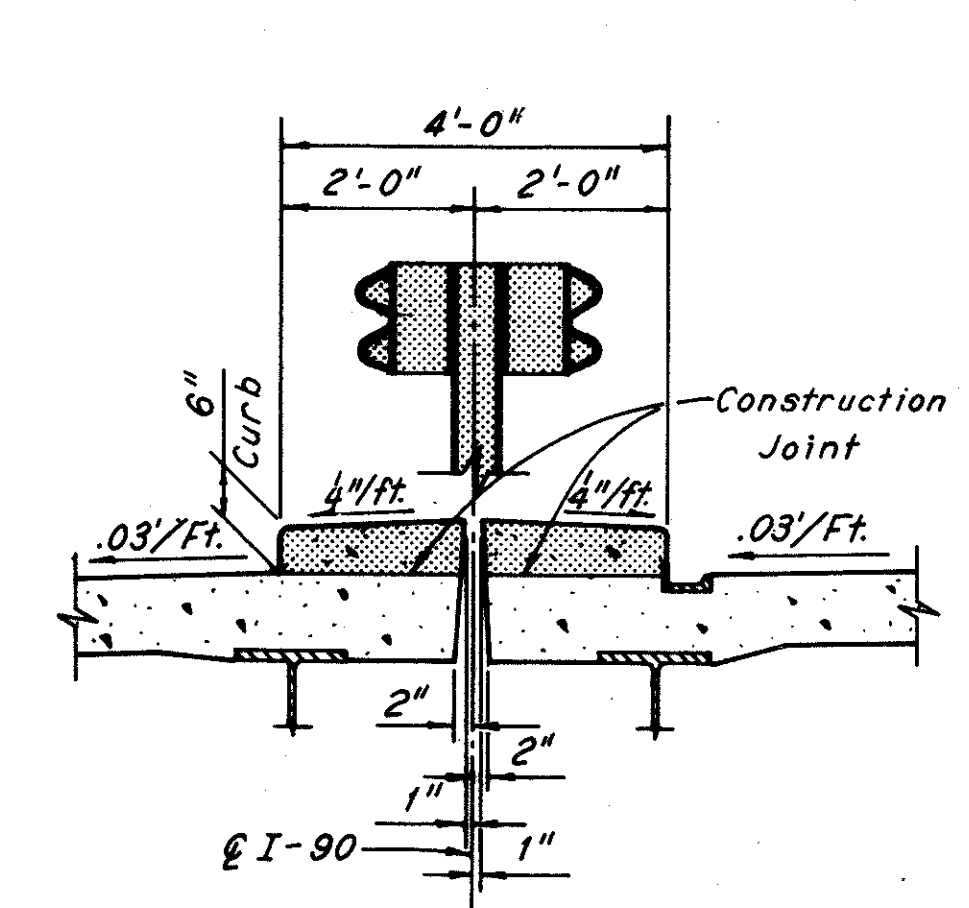
EXISTING TYPICAL SECTION



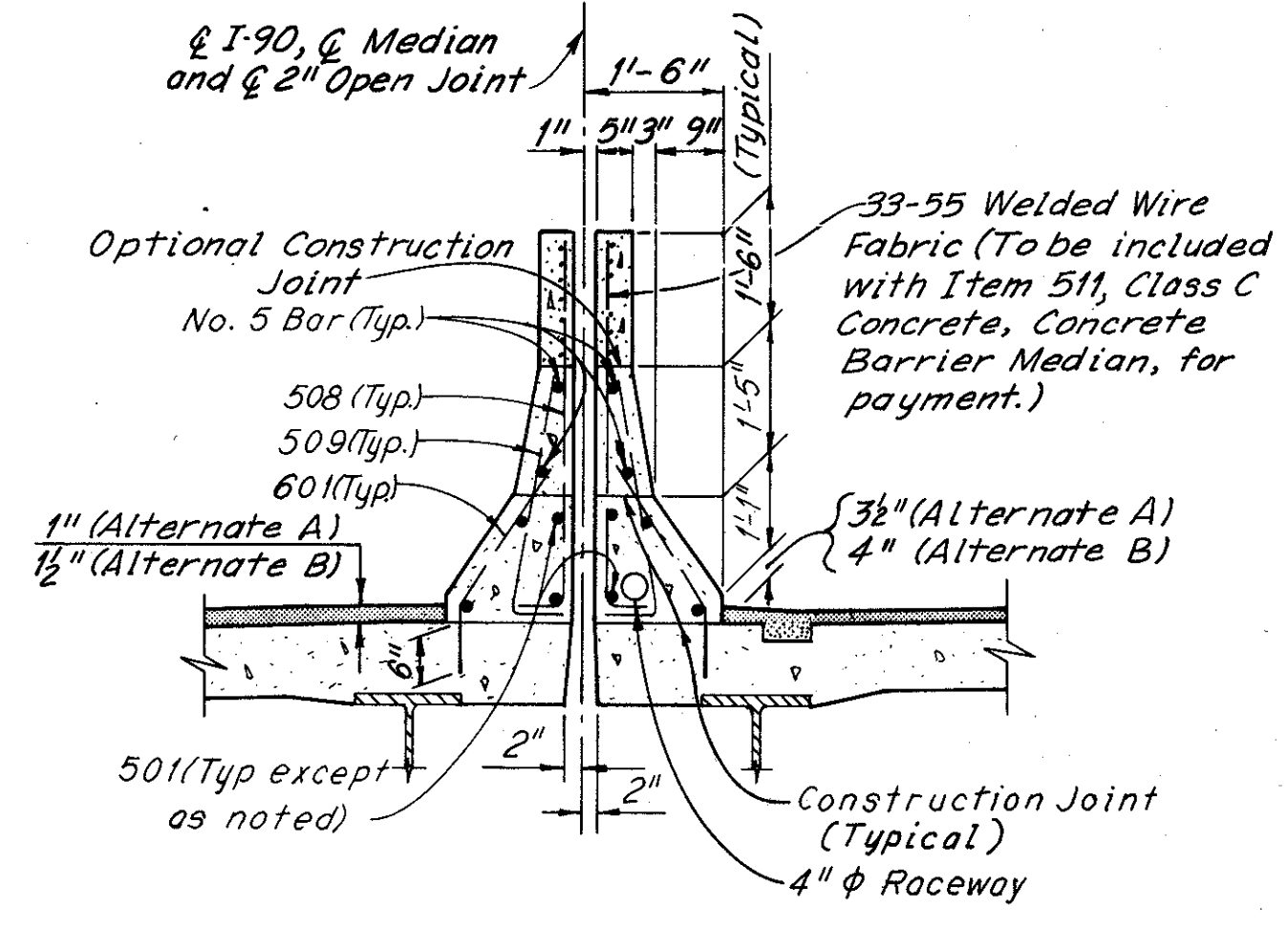
MODIFIED TYPICAL SECTION

- 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.

Note: All reinforcing bar marks shall be prefixed HM.

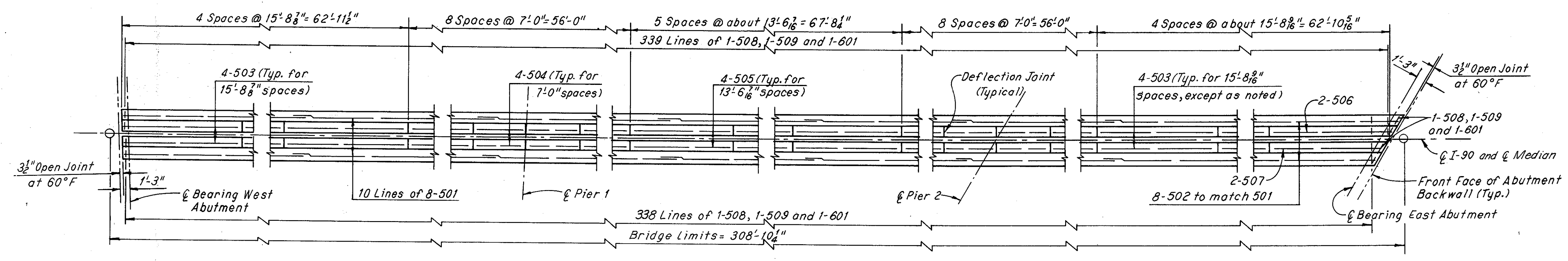


TYPICAL EXISTING MEDIAN CROSS SECTION
Indicates removal
(For post anchor detail, see Sheet CD-6)



TYPICAL MODIFIED MEDIAN CROSS SECTION

- Notes:
- For schematic plan and bridge locations, see Sheet 122.
 - For expansion joint modification at the median, see Sheets CD-1 and CD-2.
 - For details of raising existing end dams, see Sheet CD-6.
 - For details of resurfacing, see Sheets CD-5 and CD-8.
 - For details of deflection joints in the concrete barrier median, see Sheet CD-6.
 - For spacing of dowel holes for 601 bars and concrete barrier median reinforcement, see Sheet CD-6.
 - For details of raising existing scuppers, see Sheet CD-3.
 - For reinforcement schedule, see Sheet CD-10.
- The following abbreviation is used:
Typ. = Typical



DEVELOPED CONCRETE BARRIER MEDIAN PLAN

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND
HNTB

**EXISTING AND MODIFIED
DECK PLAN AND MEDIAN**

BR. NO. CUY-90-1640

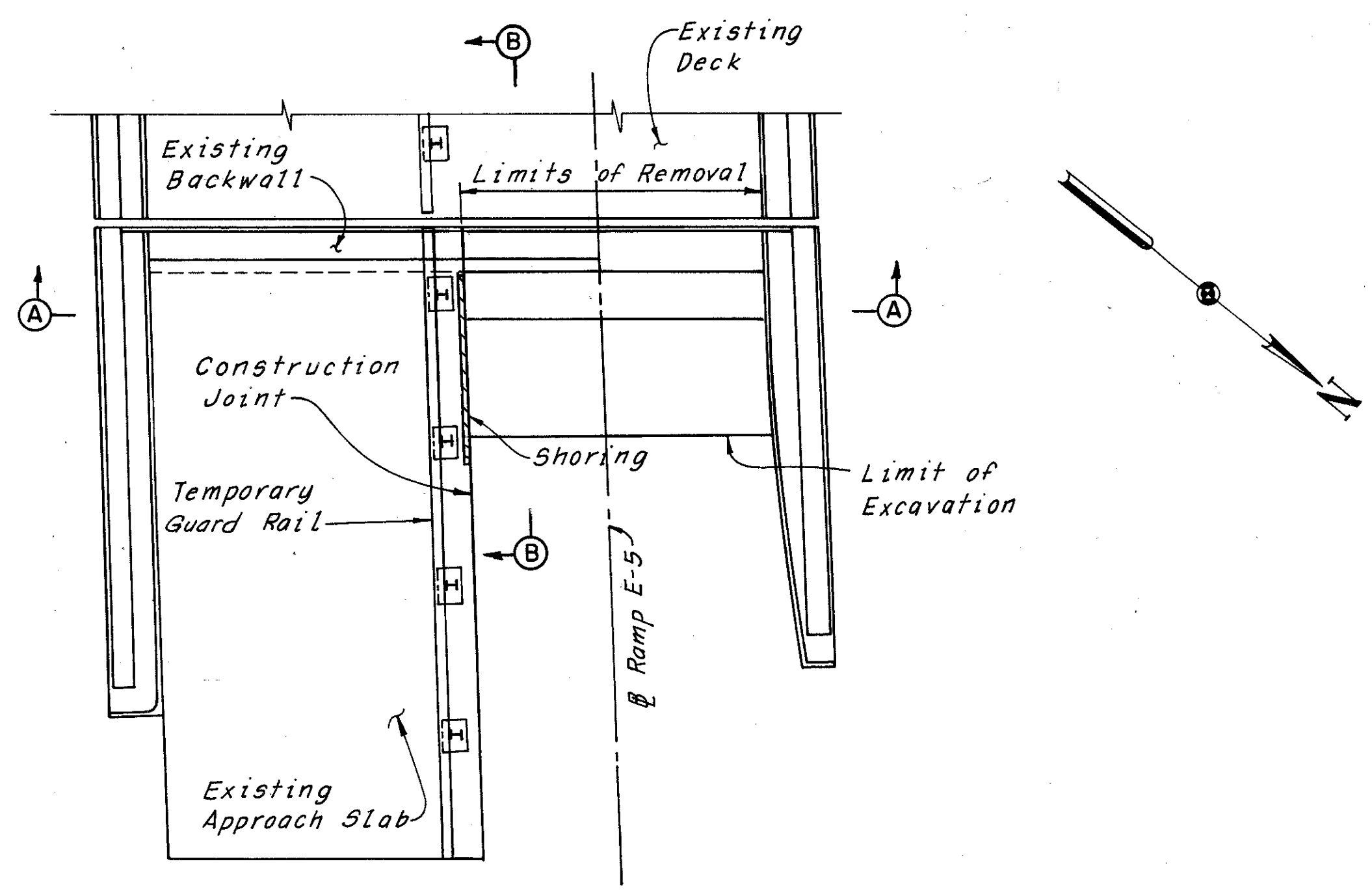
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|-----------------|---------------|
| CUYAHOGA COUNTY | OHIO |
| DRAWN/RAS | TRACED/RCA |
| CHECKED/J.A.B. | REVIEWED/H.S. |
| DATE/11-6-74 | DATE/1-22-75 |

REPRODUCED FROM ORIGINAL DRAWING
 DATE 1-15-76

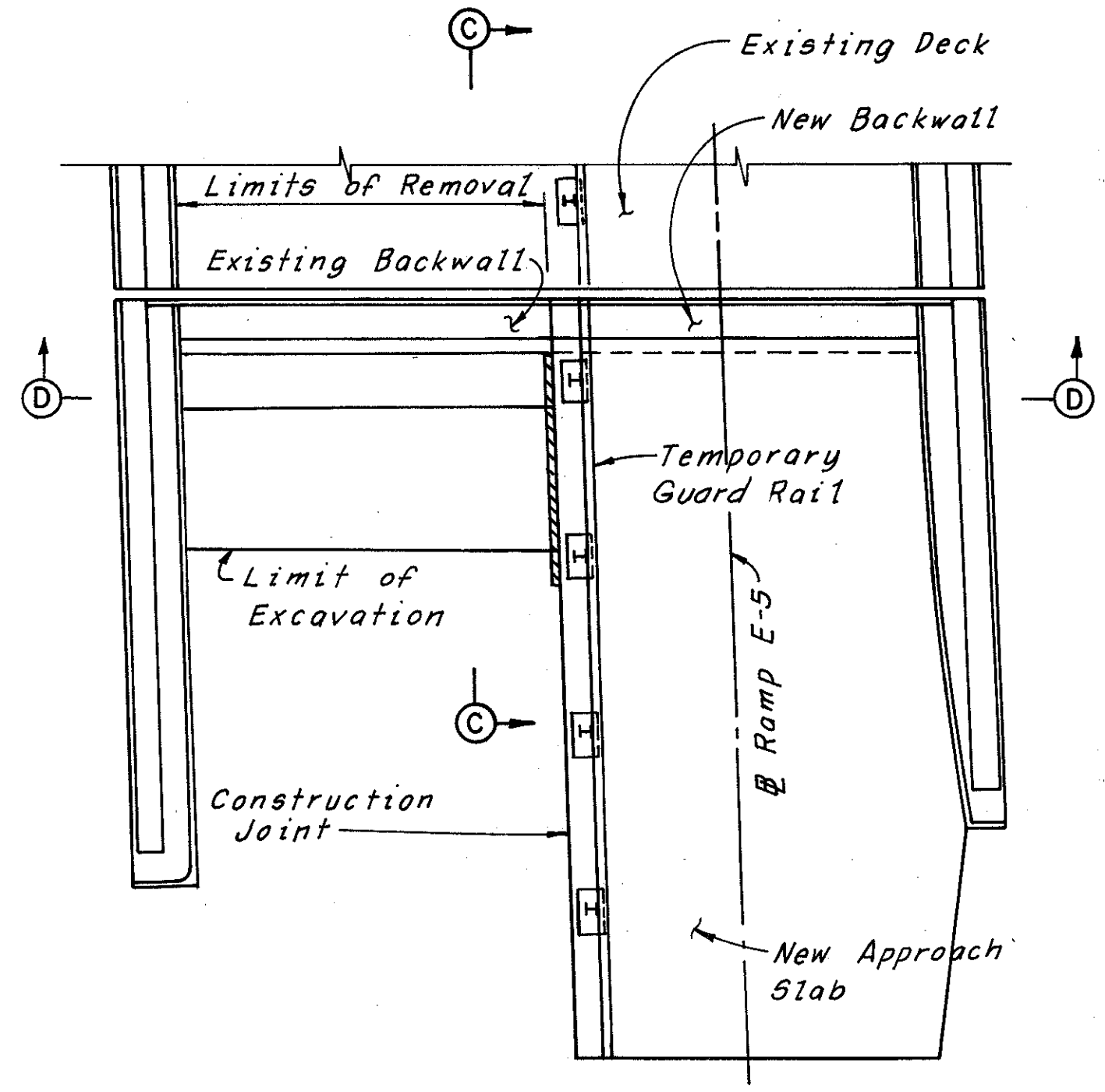
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|-------------|-------|---------|
| 5 | OHIO | |

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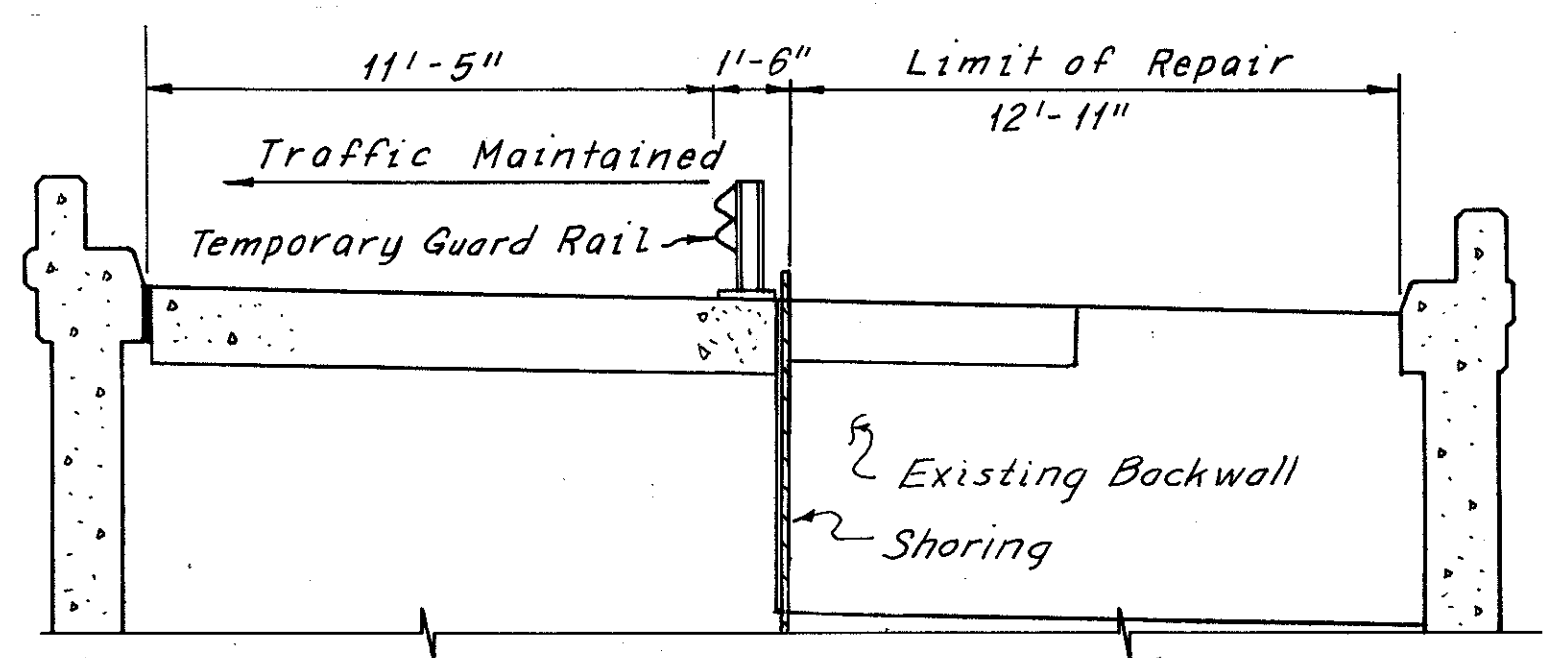
CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21



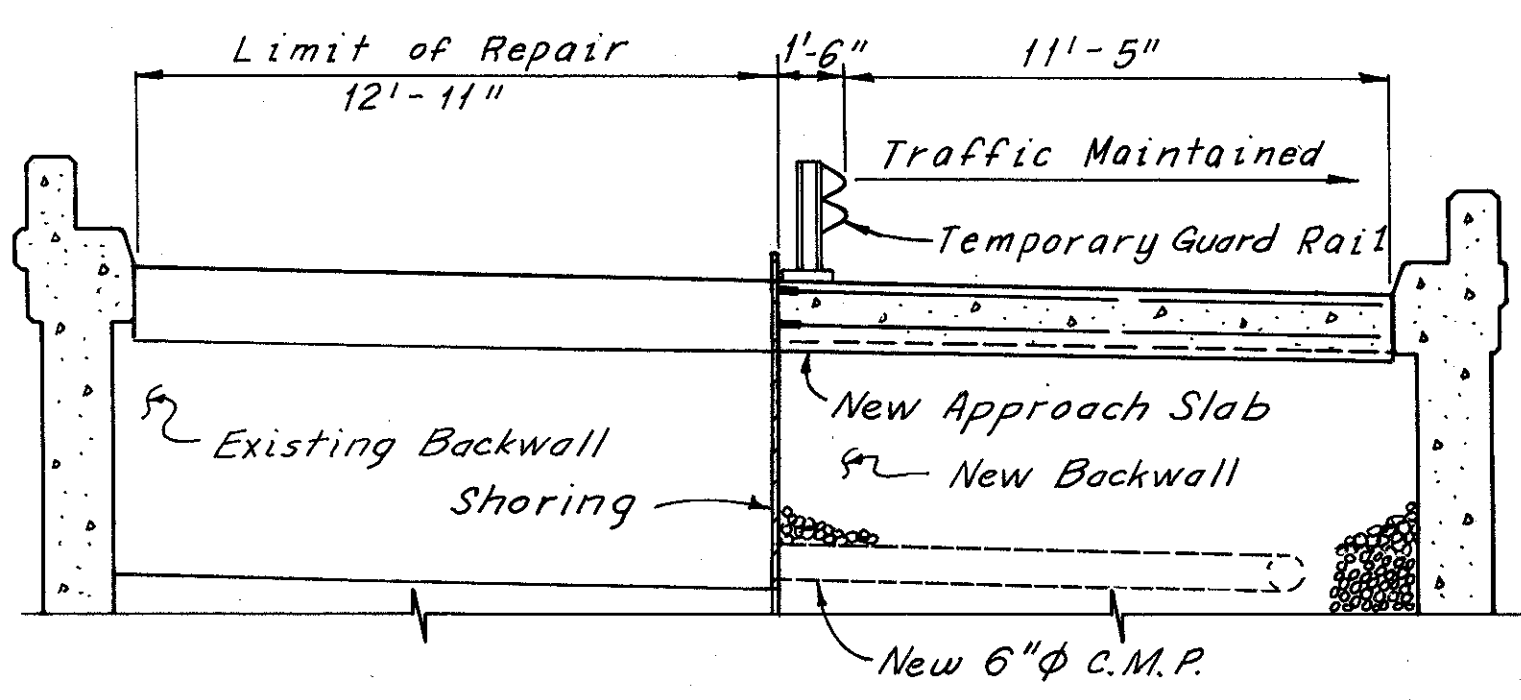
PLAN
 (Approach Slab Removed
 Excavation Complete)



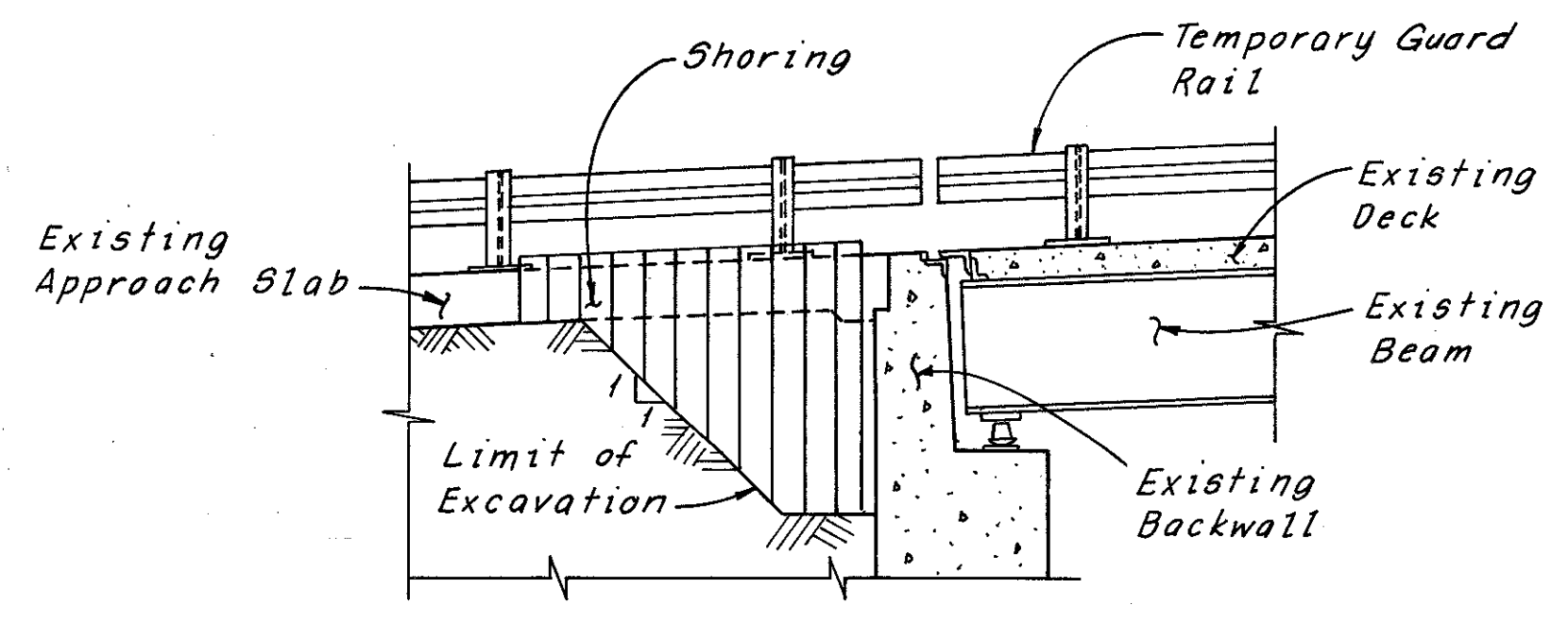
PLAN
 (Approach Slab Removed
 Excavation Complete)



SECTION A-A

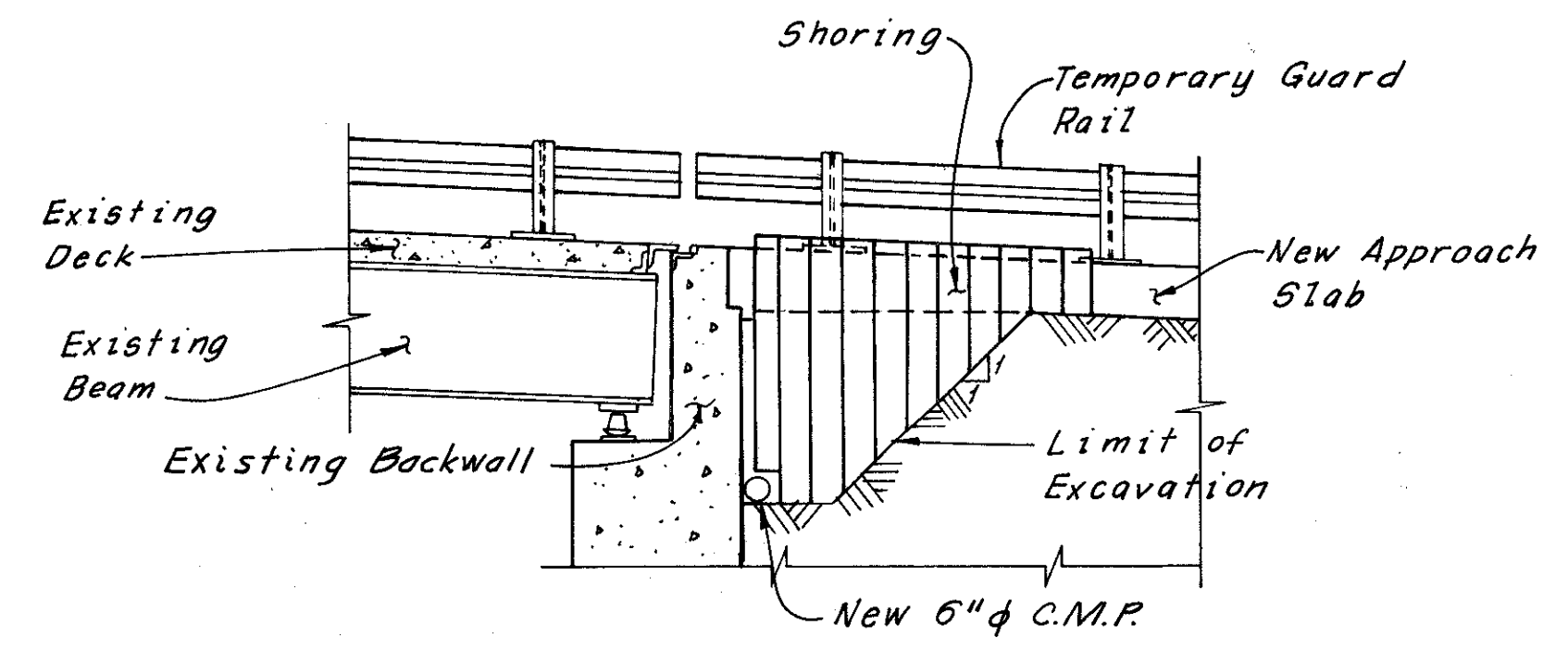


SECTION D-D



SECTION B-B
 (Reinforcement not shown)

PHASE I CONSTRUCTION



SECTION C-C
 (Reinforcement not shown)

PHASE II CONSTRUCTION

Notes:
 Any damage to the new approach slab resulting from the removal of the temporary guardrail or shoring shall be repaired by the Contractor to the satisfaction of the Engineer.
 For additional details of traffic maintenance, see Roadway Plans.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND HNTB

MAINTENANCE OF TRAFFIC AND SUGGESTED SHORING AT ABUTMENT E-5 I-90 OVER EAST 9th STREET

BR. NO. CUY - 90-1628 STA. 58+79.98
 CUYAHOGA COUNTY OHIO STA. 61+16.05

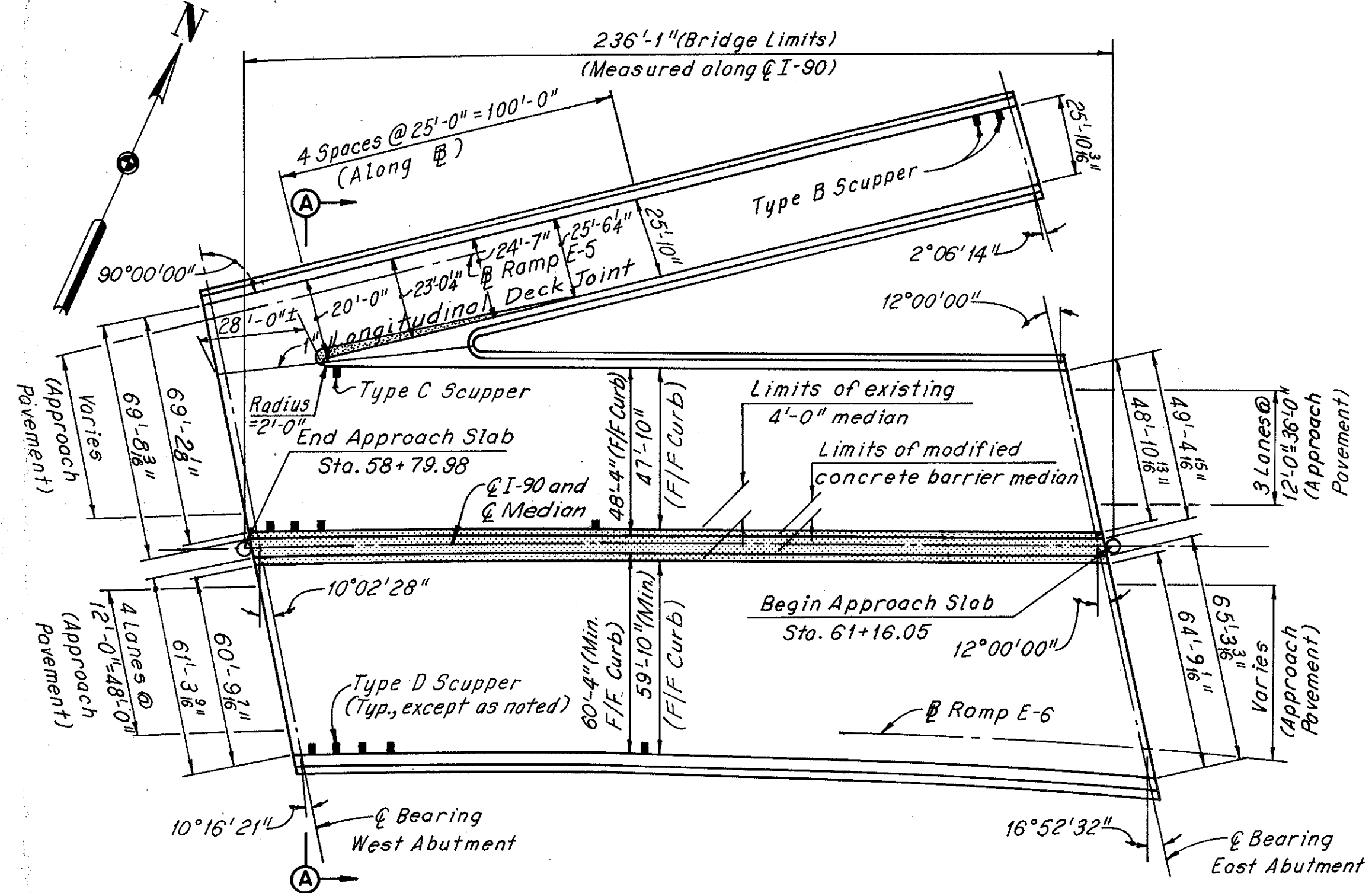
| DRAWN | TRACED | CHECKED | REVIEWED | REVISED |
|--------------|--------------|-------------|----------|---------|
| A.J.T. | A.J.T. | R.C.K. | | |
| DATE 6-15-76 | DATE 6-16-76 | DATE 7-7-76 | DATE | DATE |

NOT RECORDED
 JUN 14 1974

| | | |
|-------------|-------|---------|
| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

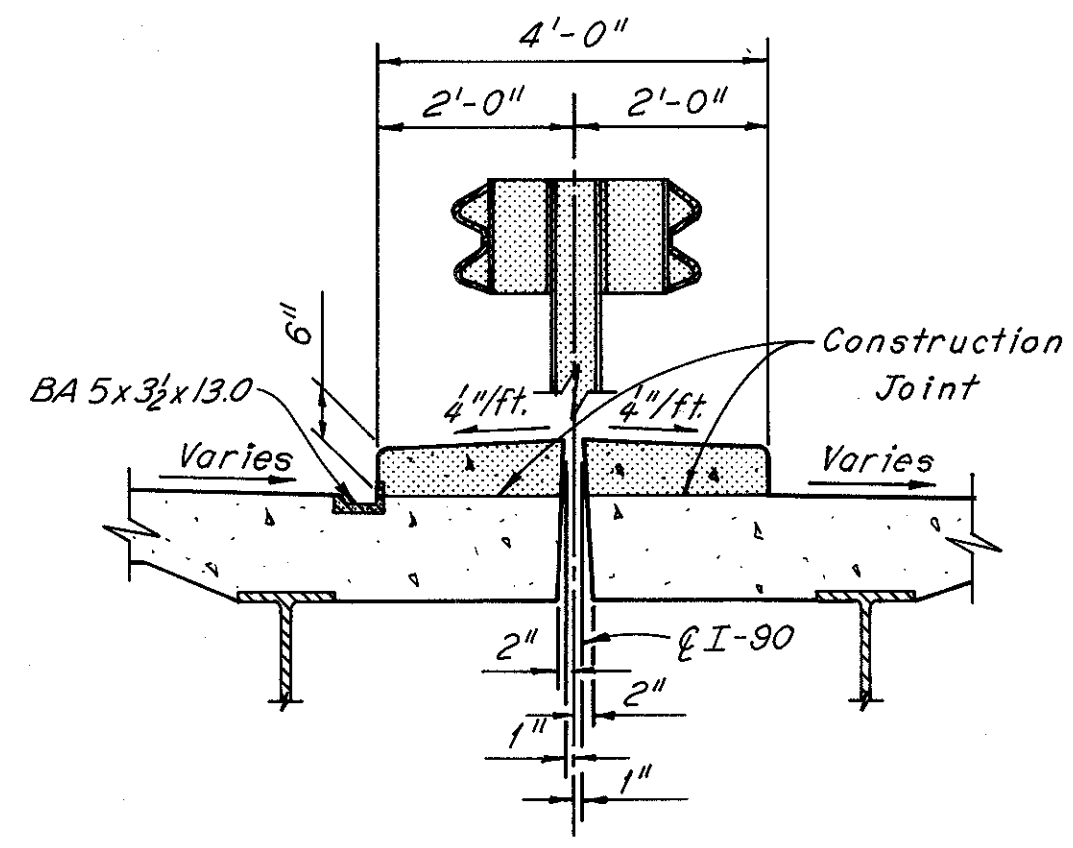
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CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

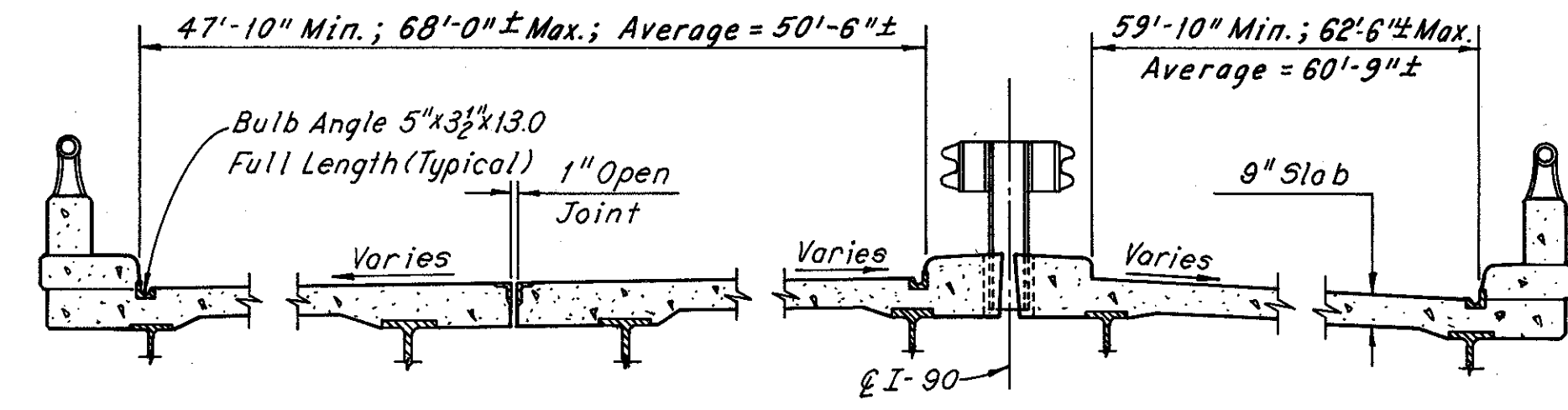


EXISTING AND MODIFIED PLAN
 Indicates removal

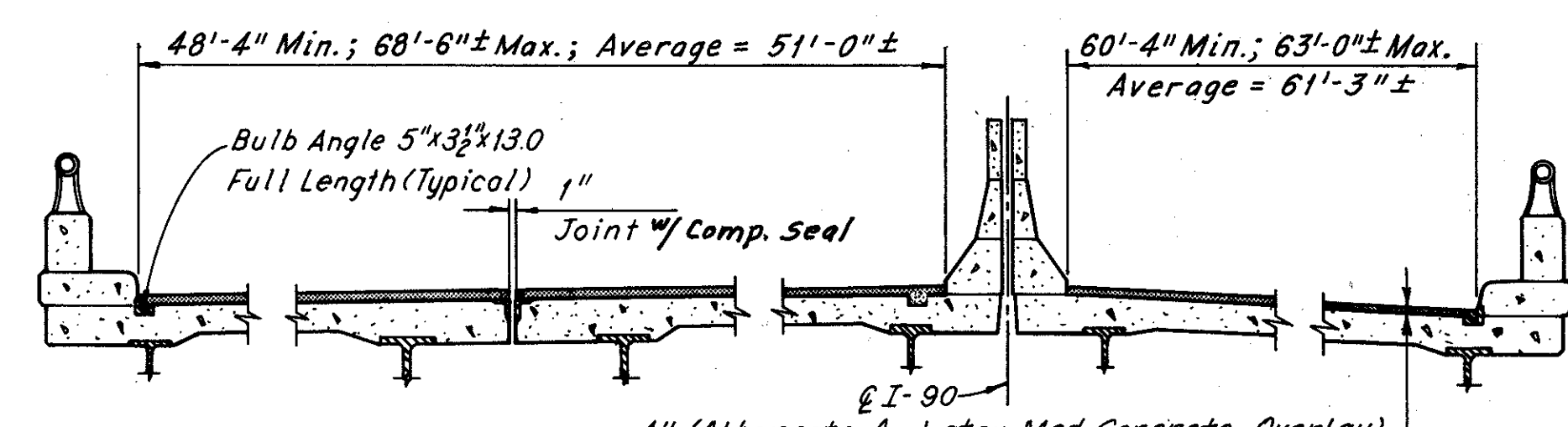
- Remove guardrails, posts, nuts, plates and anchor plates above the construction joint. Include with Item 202, Portions of Structures Removed, for payment.
- Remove existing median above the construction joint. Include with Item 202, Portions of Structures Removed, for payment.
- Remove bulb angle gutter. Include with Item 202, Portions of Structures Removed, for payment.
- Remove Portion Of Median Separating Ramp E-5 And I-90 W.B. As Shown Above. Removal and dressing finished face included with Item 202, portions of structures removed, for payment.



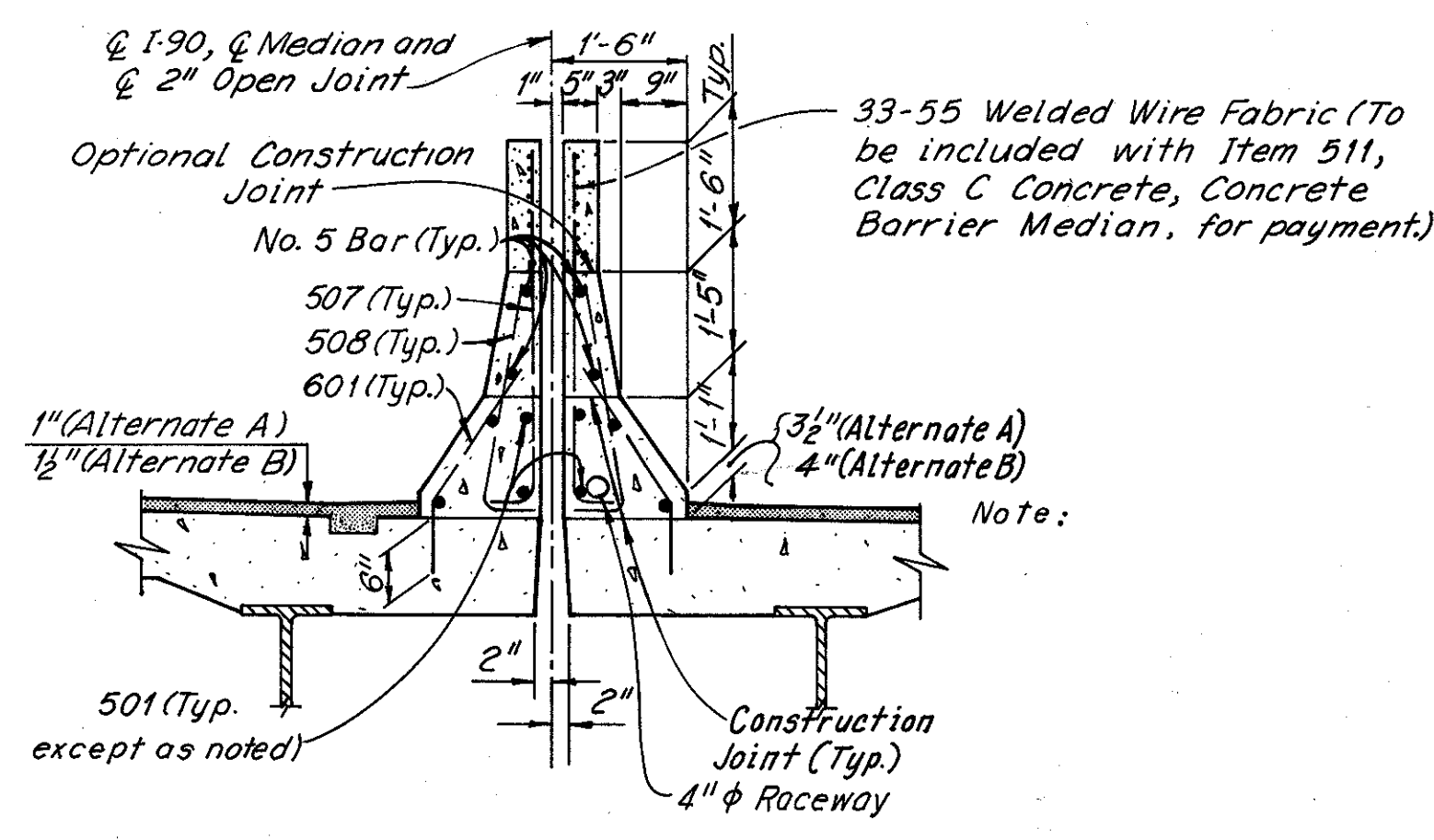
TYPICAL EXISTING MEDIAN CROSS SECTION
 Indicates removal
 (For Post Anchor Detail, see Sheet CD-6)



EXISTING SECTION A-A



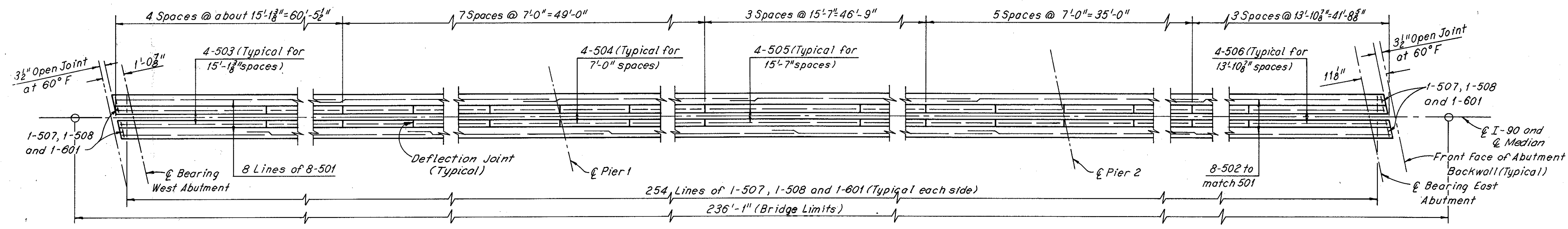
MODIFIED SECTION A-A



TYPICAL MODIFIED MEDIAN CROSS SECTION

Note: All reinforcing bar marks shall be prefixed GM.

- Notes:
- For schematic plan and bridge locations, see Sheet 122.
 - For expansion joint modification at the median, see Sheets CD-1 and CD-2.
 - For details of raising existing end dams, see Sheet CD-6.
 - For details of resurfacing, see Sheets CD-5 and CD-8.
 - For details of deflection joints in the concrete barrier median, see Sheet CD-6.
 - For details of raising longitudinal deck joint, see Sheet CD-7.
 - For spacing of dowel holes for 601 bars and concrete barrier median reinforcement, see Sheet CD-6.
 - For details of raising existing scuppers, see Sheet CD-8.
 - For reinforcement schedule, see Sheet CD-10.
- The following abbreviation is used:
 Typ. = Typical



DEVELOPED CONCRETE BARRIER MEDIAN PLAN

For details of Compression Seal see sheet CD-7.

| | | |
|---|-----------------------------------|---------------------------------------|
| HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND | | HNTB |
| EXISTING AND MODIFIED DECK PLAN AND MEDIAN I-90 OVER EAST 9th STREET | | |
| BR. NO. CUY - 90-1628 | STA. 58+79.98 | STA. 61+16.05 |
| CUYAHOGA COUNTY OHIO | | |
| DRAWN J.A.B. DATE 11-15-74 | TRACED R.C.K. DATE 11-17-74 | CHECKED A.N.D.H.S. DATE 2-10-77 |
| | | REVIEWED REVISOR DATE |
| | | DATE |
| | | SHEET 4 / 5 |

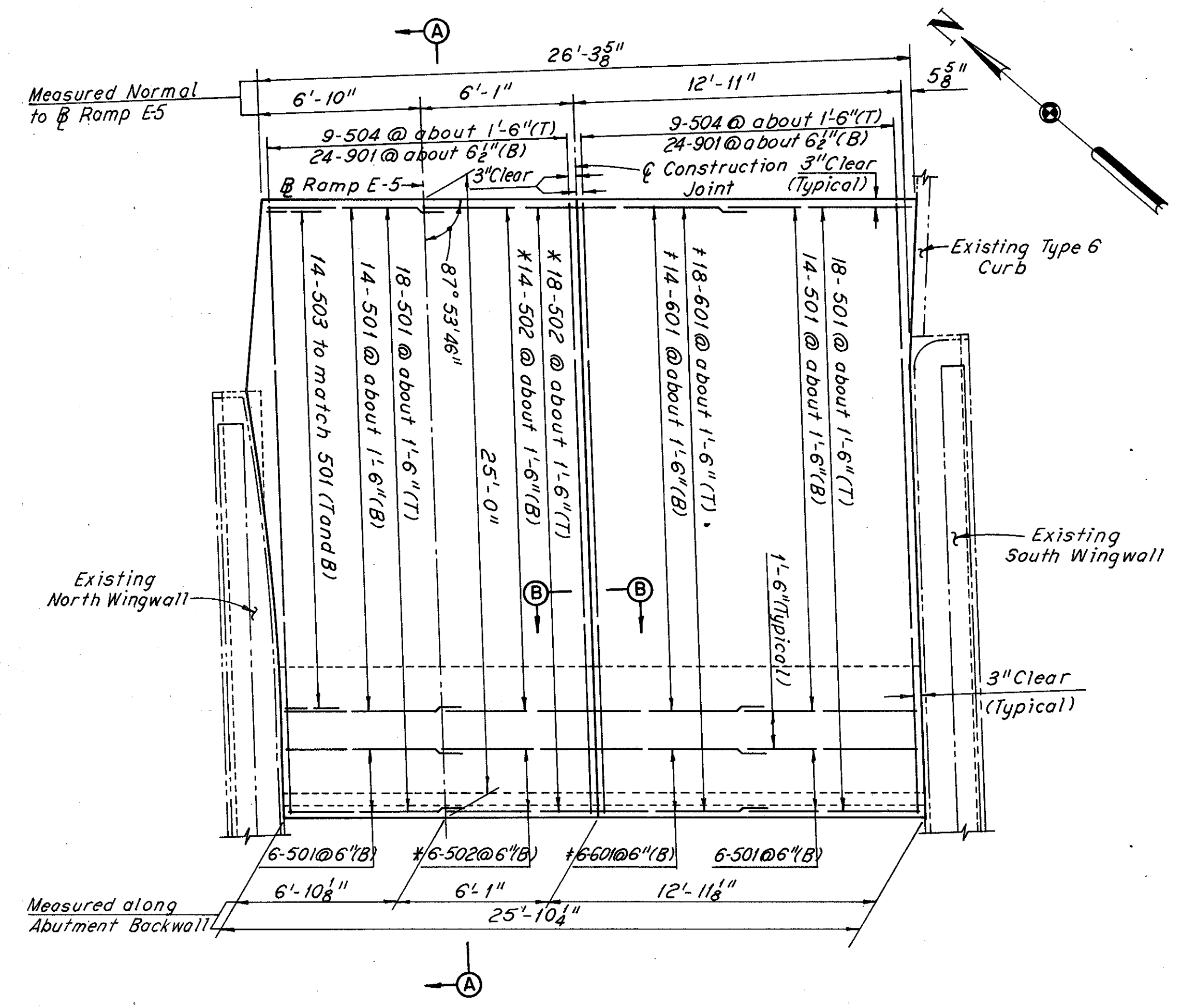
Rev. 10-26-78

RECORDED
MICROFILMED
JUN 14 1980

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|-------------------|-------|---------|
| FED. RD. DIVISION | STATE | PROJECT |
| 5 | OHIO | |

151
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21

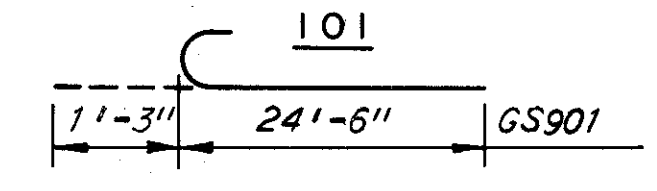


* Weld to threaded insert.
Thread one end for connection to threaded insert.

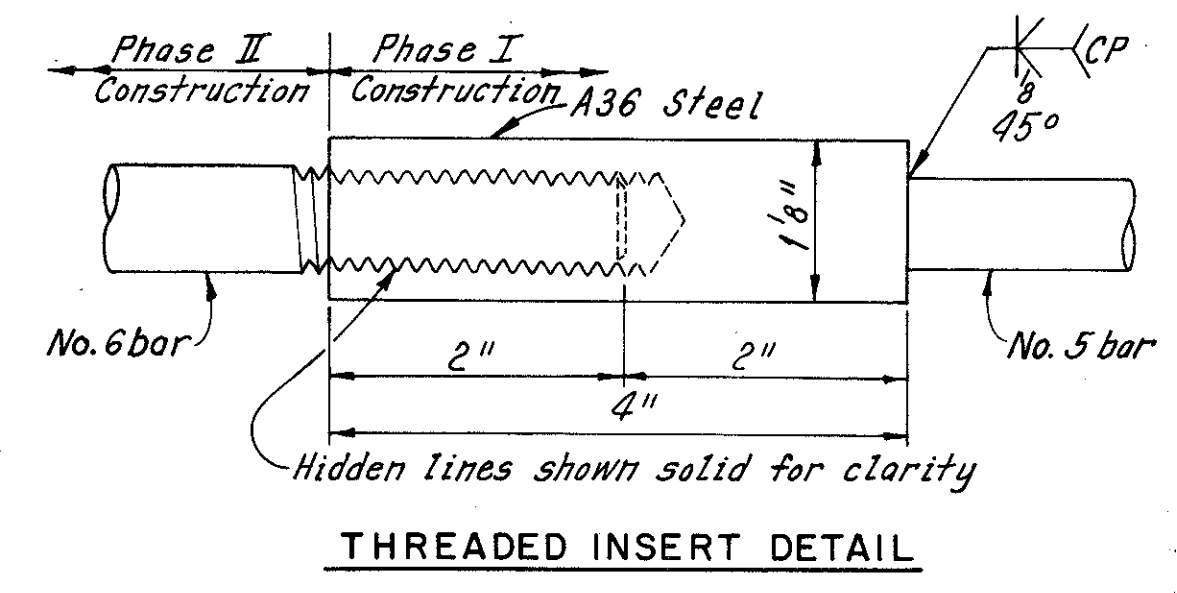
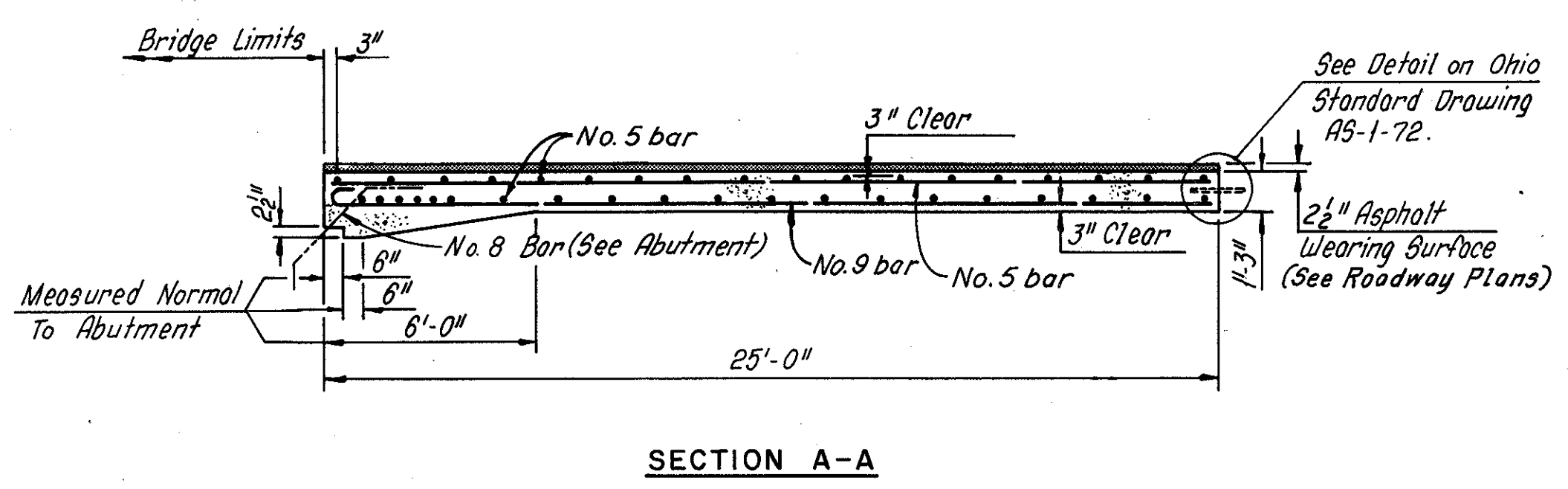
Note: All reinforcing bar marks shall be prefixed G5.

| REINFORCEMENT SCHEDULE | | | | |
|------------------------|-----|--------|------|------------|
| MARK | NO. | LENGTH | TYPE | SER. INCR. |
| G5501 | 76 | 7'-0" | Str. | |
| G5502 | 38 | 6'-6" | Str. | |
| G5503 | 28 | 2'-6" | Str. | |
| G5504 | 18 | 24'-6" | Str. | |
| G5801 | 38 | 7'-6" | Str. | |
| G5901 | 48 | 25'-9" | 101 | |

Note:
The jacking holes as called for on Ohio Standard Drawing AS-1-72 are not required.



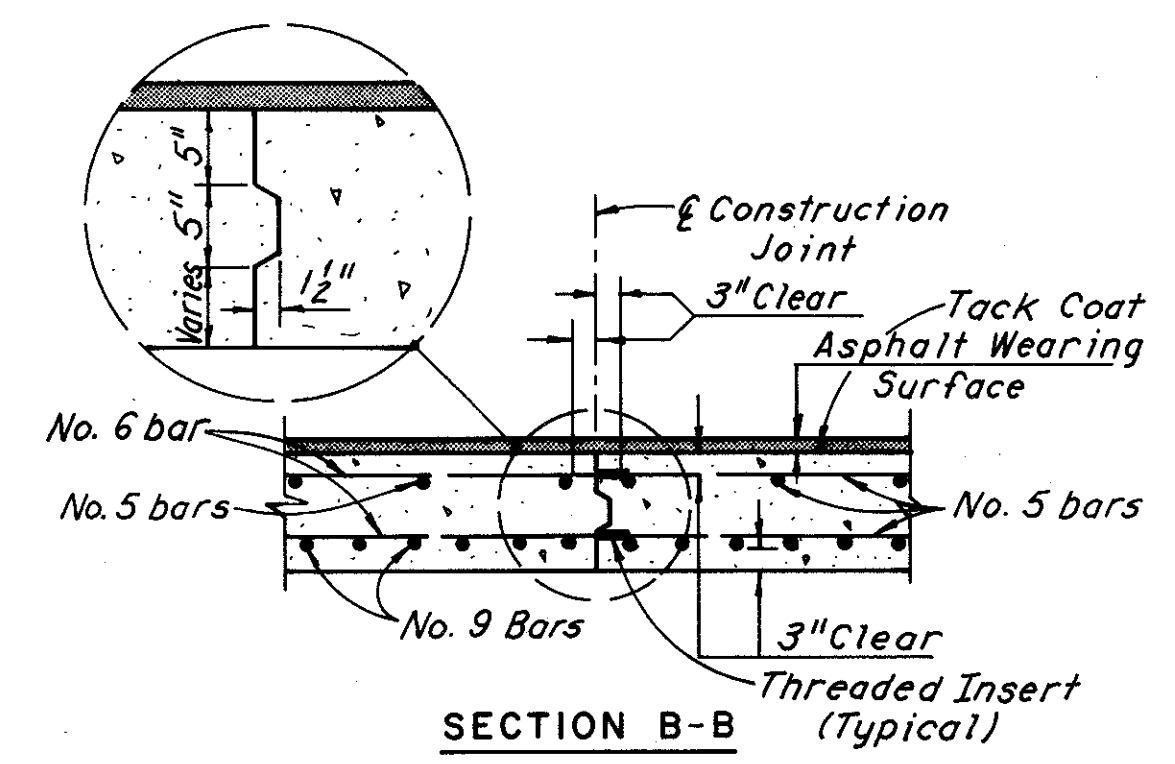
REINFORCING STEEL SAMPLES
Refer to CMS Sections 106.03, 700, 709.01 through 709.05 and 709.08. Sufficient additional reinforcing steel shall be provided for sampling. Random samples shall be replaced in the structure by the additional steel, spliced in accordance with 509.08.



Notes:
For phase construction sequence, see Maintenance Of Traffic, Sheet 2/5.
The following abbreviations are used:
T = Top
B = Bottom
Typ. = Typical
For additional notes and details, see Ohio Standard Drawing AS-1-72.

Note:
Recess Plugs shall be provided in the threaded inserts during Phase I Construction.

(Threads are to be Unified Standard Series for Basic Major Diameter of 3/4".)



Note:
Both the welded and threaded connection shall be capable of developing 125 per cent of the yield strength of the smaller bar connected. Random samples to be submitted for testing.

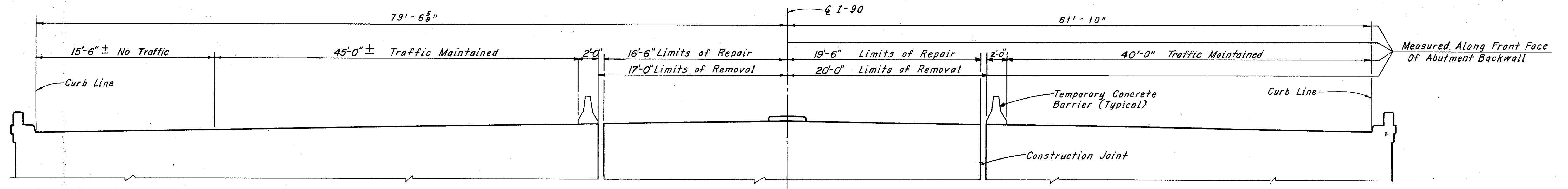
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|---|------------------|-------------------|--------------------------------|-------------|-----------|
| HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND | | | | HNTB | |
| APPROACH SLAB ABUTMENT E-5 I-90 OVER EAST 9th STREET | | | | | |
| BR. NO. CUY - 90-1628 | | | STA. 58+79.98 STA. 61+16.05 | | |
| CUYAHOGA COUNTY OHIO | | | | | |
| DRAWN P.C.K. | TRACED P.A.S. | CHECKED P.A.S. | REVIEWED P.C.K. | REVISED | |
| DATE 5-27-76 | DATE 5-28-76 | DATE 6-11-76 | DATE | | SHEET 5/5 |

REVISIONS
 JUN 14 1980

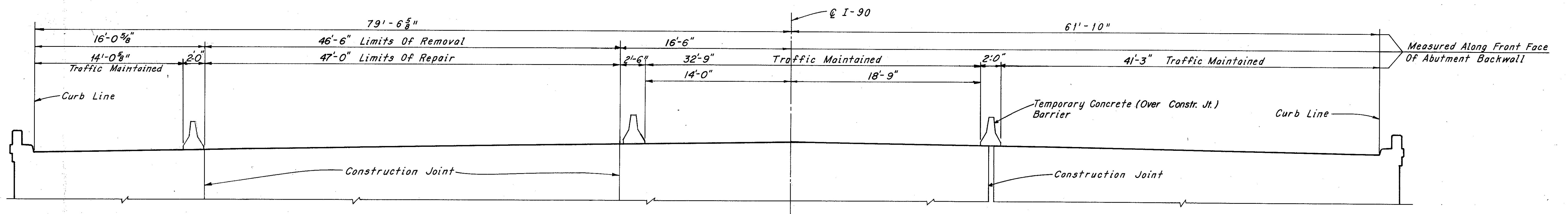
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|-------------|-------|---------|
| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

153
169

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21



PHASE IB CONSTRUCTION
 (Looking East at East Abutment)



PHASE II CONSTRUCTION
 (Looking East at East Abutment)

Notes:

The phase construction views apply within the bridge and approach slab limits. All repair work shall be co-ordinated with the phase construction as shown.

The maintenance of traffic as shown is for the backwall and approach slab replacement only. For traffic maintenance during installation of the permanent concrete barrier at ⊕ I-90, and trimming of the end dams, see Roadway Plans.

For maintenance of traffic notes, see Roadway Plans.

For shoring at approach slabs, see Sheet 4/8.

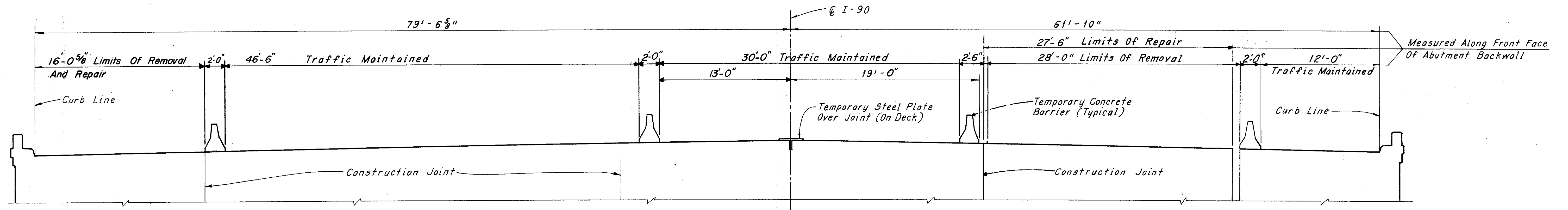
| | | | | |
|---|--------------------------------|-----------------------------------|----------|-----------|
| HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND | | | | HNTB |
| MAINTENANCE OF TRAFFIC PHASES IB AND II CONSTRUCTION I-90 OVER EAST 14th STREET | | | | |
| BR. NO. CUY - 90-1651 | | STA. 70+89.23 STA. 73+96.25 | | |
| CUYAHOGA COUNTY OHIO | | | | |
| DRAWN R.A.S. DATE 6-7-76 | TRACED C.P. DATE 6-17-76 | CHECKED C.N.B. DATE 3-14-77 | REVIEWED | REVISED |
| | | | | SHEET 2/8 |

NOT FOR CONSTRUCTION
JUN 14 1976

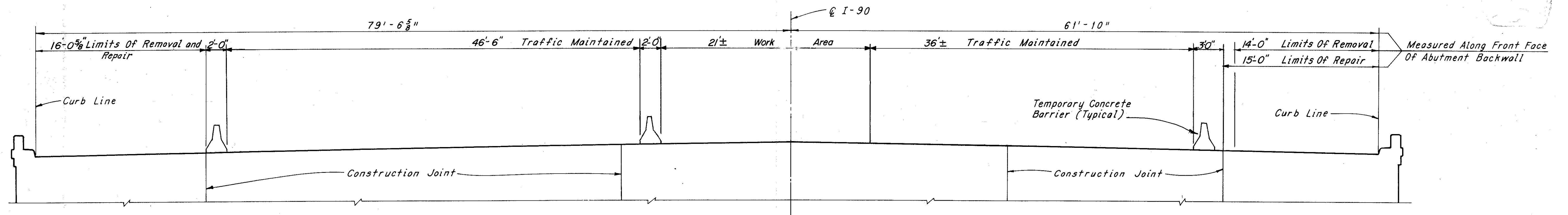
| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

154
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



PHASE III CONSTRUCTION
(Looking East at East Abutment)



PHASE IV CONSTRUCTION
(Looking East at East Abutment)

Note:
For notes, see Sheet 2/8.

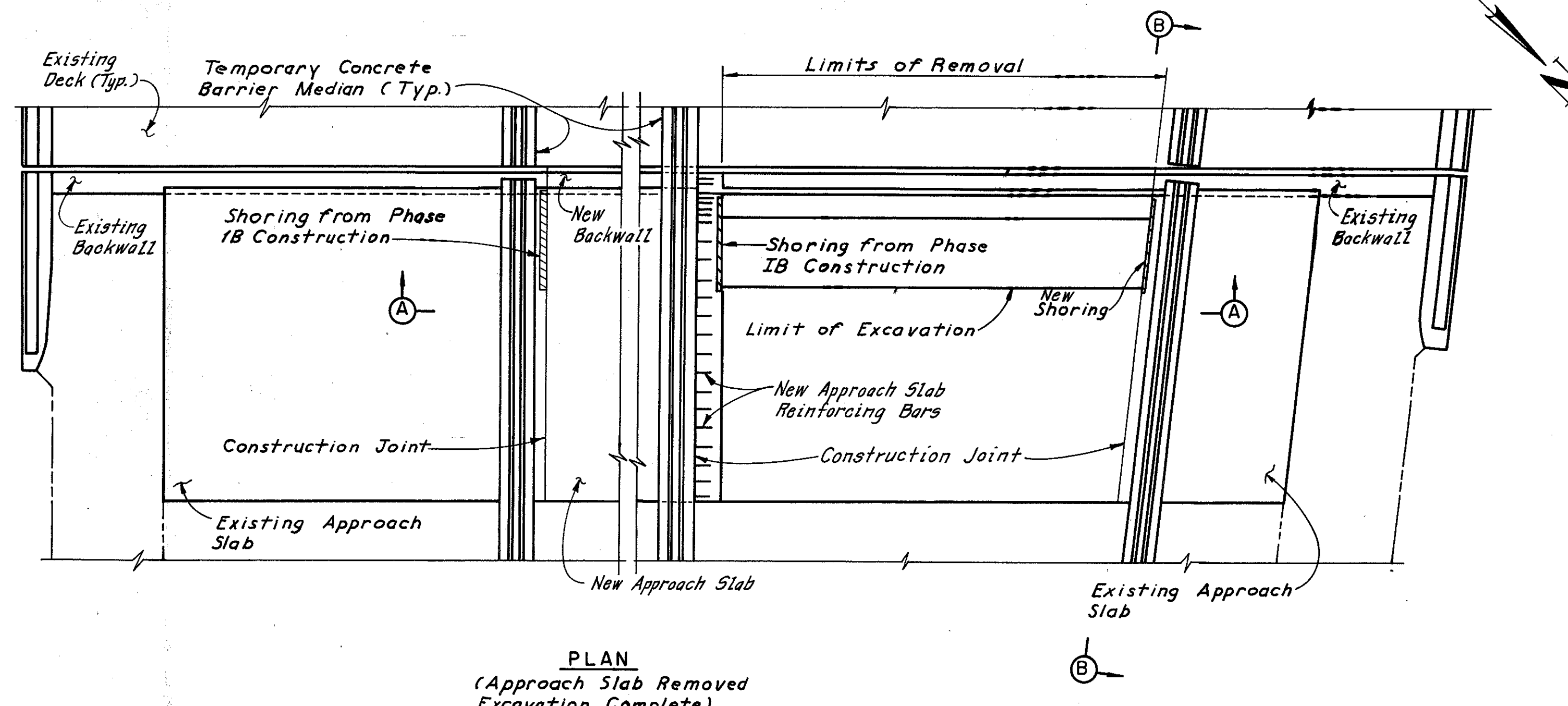
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|---|--------------------------------|-----------------------------------|--------------------------------|---------|-------------|
| HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND | | | | | HNTB |
| MAINTENANCE OF TRAFFIC PHASES III AND IV CONSTRUCTION I-90 OVER EAST 14th STREET | | | | | |
| BR. NO. CUY - 90-1651 | | | STA. 70+89.23 STA. 73+96.25 | | |
| CUYAHOGA COUNTY OHIO | | | | | |
| DRAWN R.A.S. DATE 6-8-76 | TRACED C.P. DATE 6-18-76 | CHECKED C.K.B. DATE 3-14-77 | REVIEWED | REVISOR | SHEET 3/8 |

NOT TO SCALE
JUN 14 1968

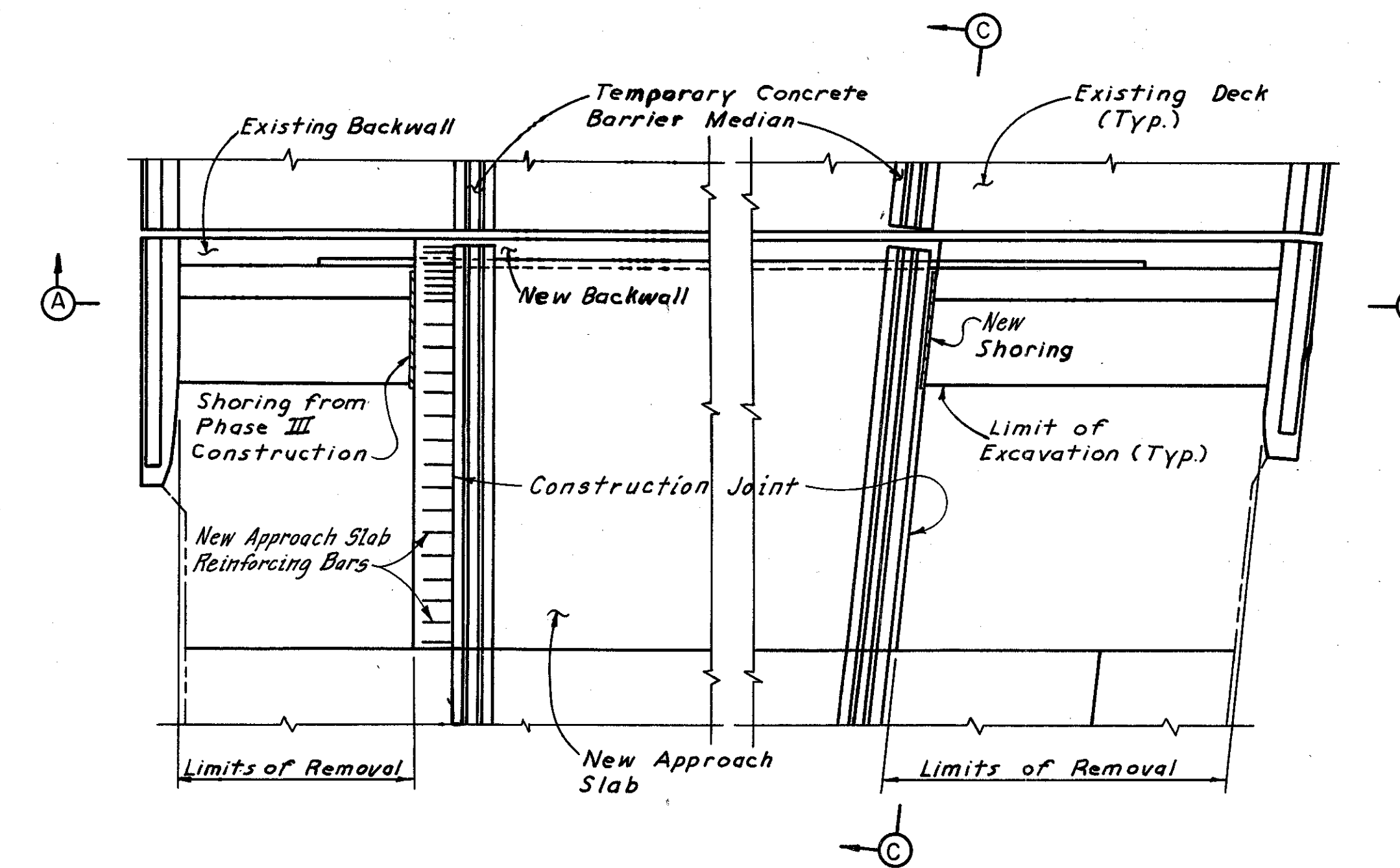
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|-------------|-------|---------|
| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

155
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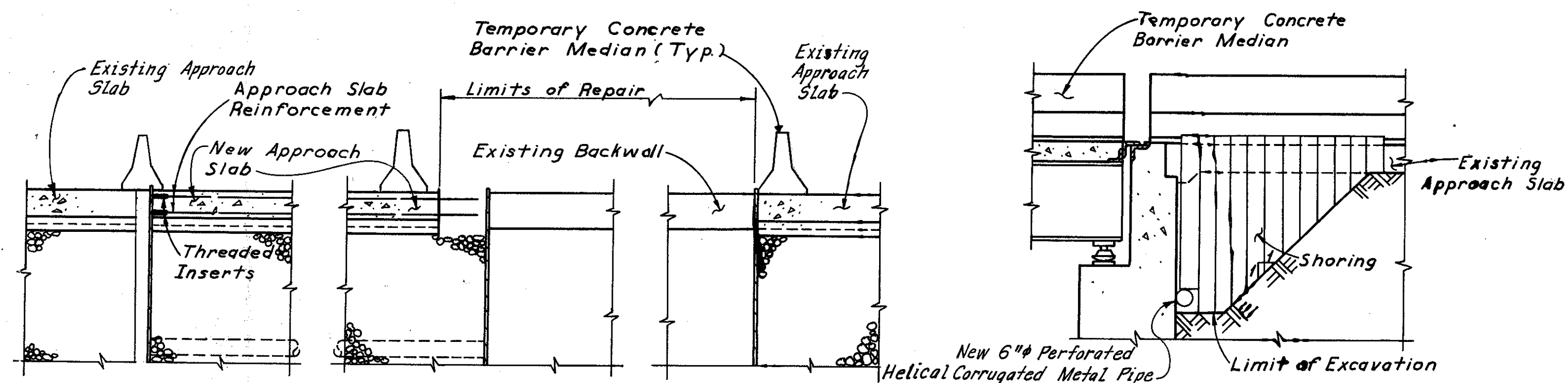
CUYAHOGA COUNTY
CUY - 77-14.12
CUY - 90-16.21



PLAN
(Approach Slab Removed
Excavation Complete)

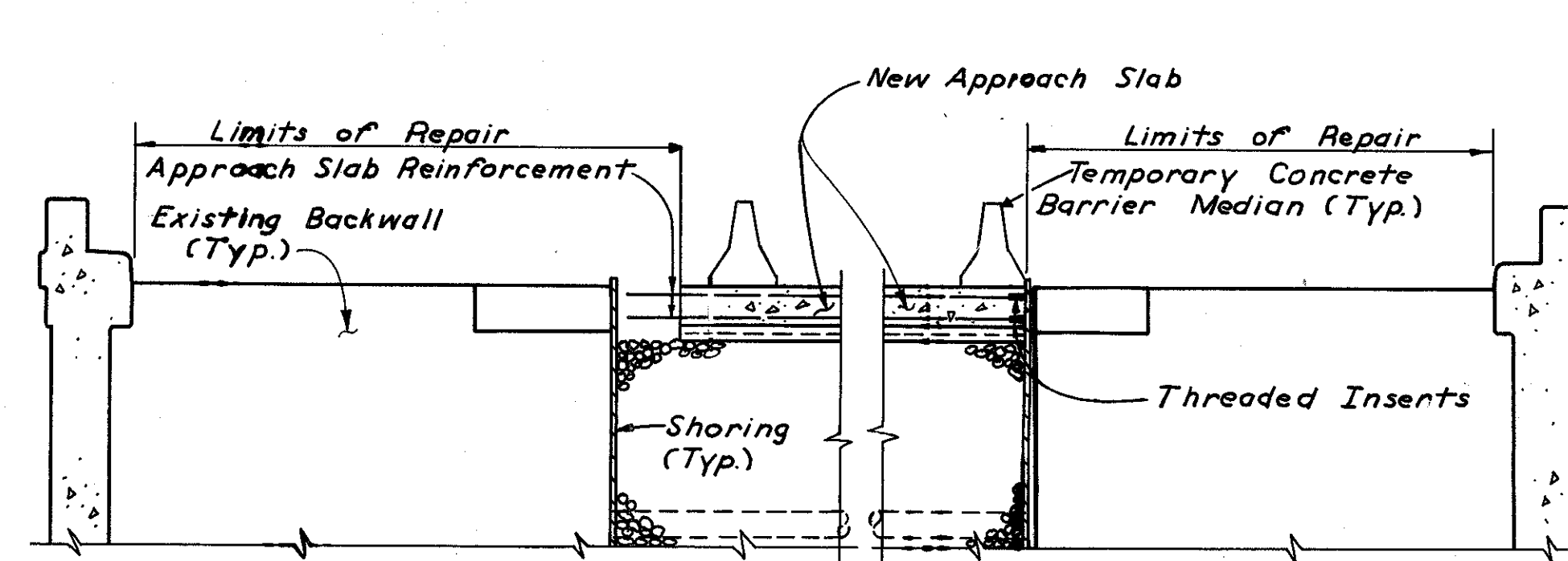


PLAN
(Approach Slab Removed
Excavation Complete)

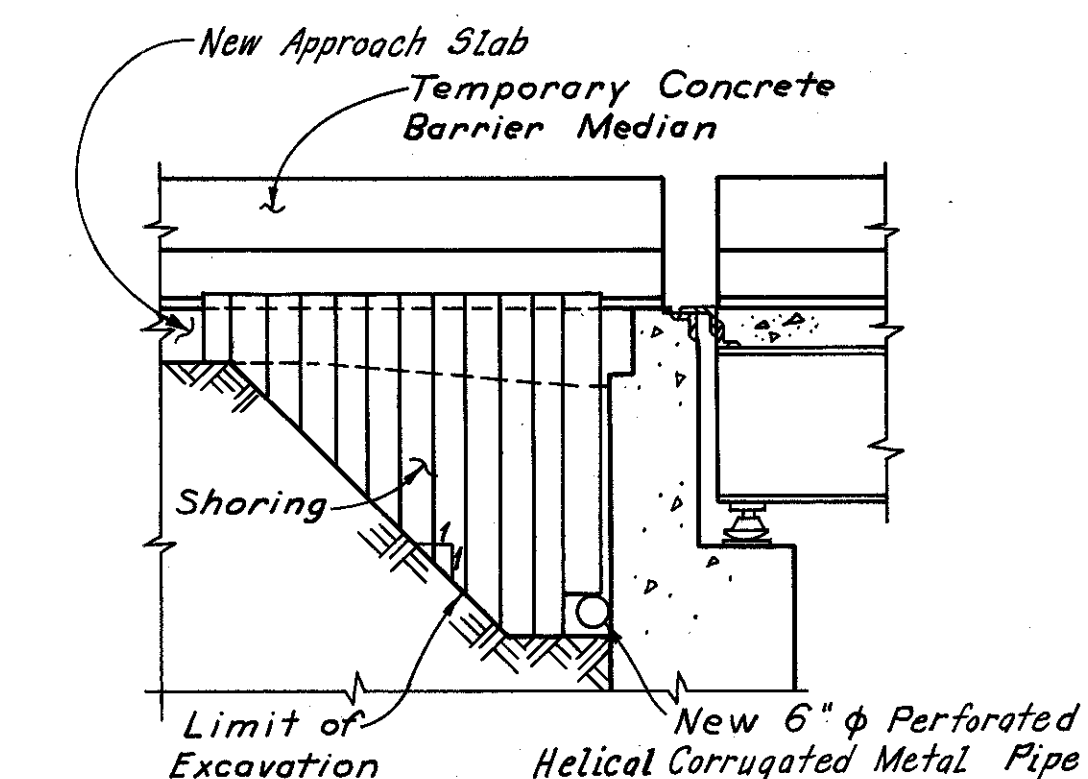


SECTION A-A

SECTION B-B
(Reinforcement not shown)



SECTION A-A



SECTION C-C
(Reinforcement not shown)

PHASE II CONSTRUCTION

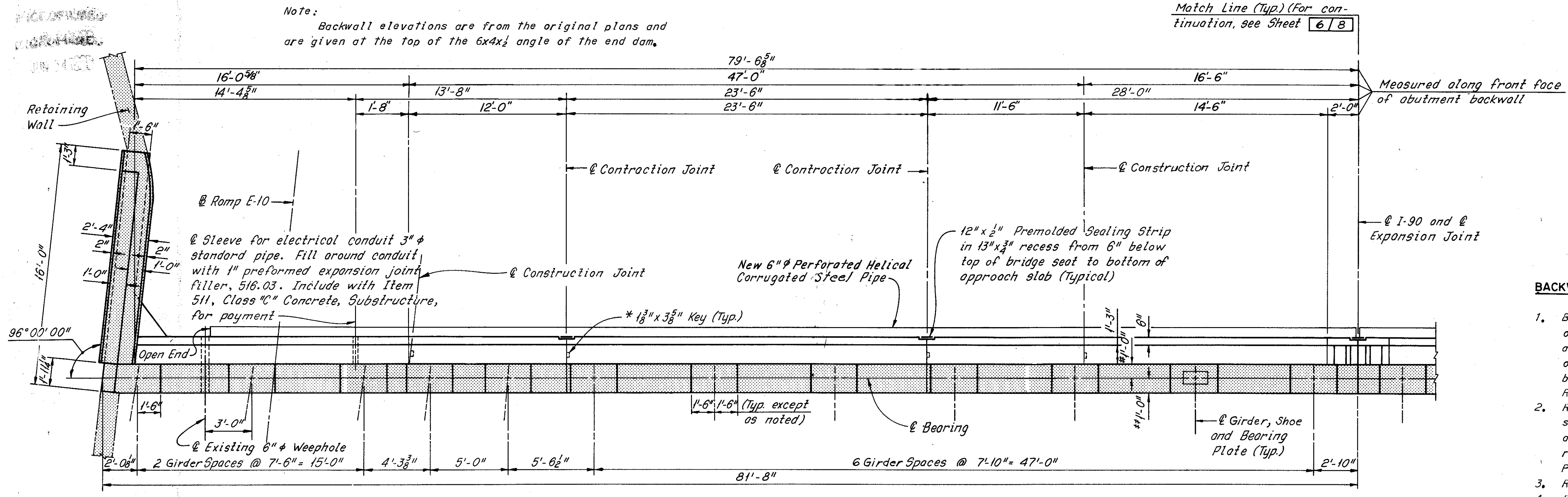
PHASE IV CONSTRUCTION

| | | | | | |
|---|-----------------------------------|----------------------------------|--------------------------------|---------|-------------|
| HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND | | | | | HNTB |
| SUGGESTED SHORING AT EAST APPROACH SLAB I-90 OVER EAST 14th STREET | | | | | |
| BR. NO. CUY - 90-1651 | | | STA. 70+89.23 STA. 73+96.25 | | |
| CUYAHOGA COUNTY | | | | | OHIO |
| DRAWN R.A.S. DATE: 6-10-76 | TRACED R.A.S. DATE: 6-14-76 | CHECKED C.P. DATE: 6-18-76 | REVIEWED | REVISED | SHEET 4 / 8 |

| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

156
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



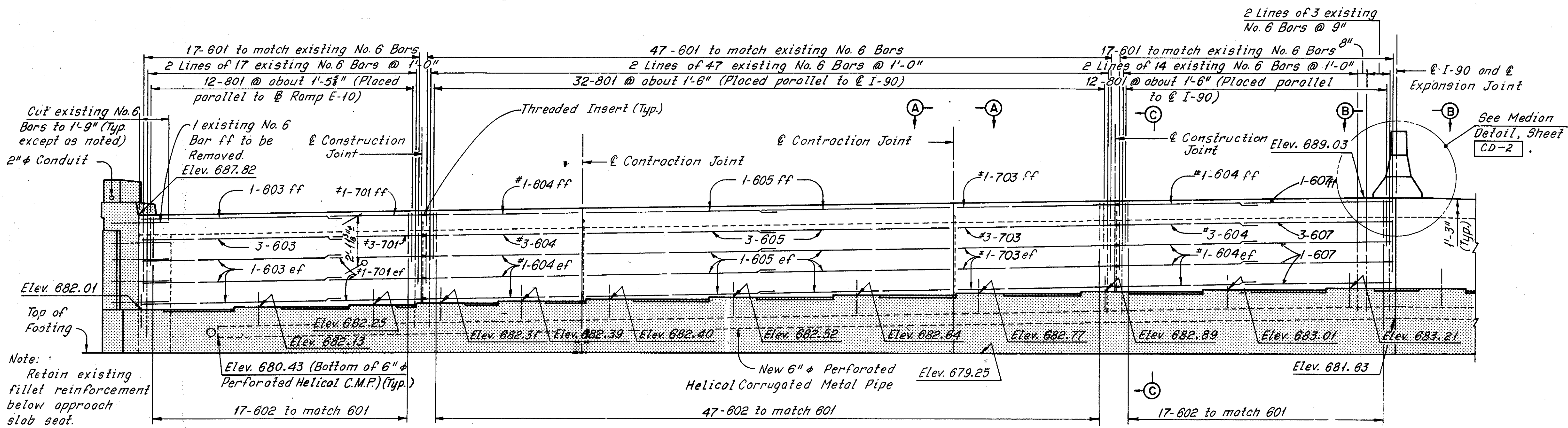
BACKWALL REPLACEMENT PROCEDURE:

1. Bridge the backwall with an adequate steel plate within the area of maintained traffic. Provide bituminous wearing surface cover, as directed by the Engineer, to permit and maintain safe passage of vehicular traffic. The steel plate and bituminous cover shall be included with Item 614, Maintaining Traffic, for payment (see Roadway Plans).
2. Raise the entire superstructure at the abutment (all girders simultaneously) until there is no contact between the superstructure and backwall end dam angles. All material, labor and equipment required to accomplish the above shall be included with Item 202, Portions of Structures Removed, for payment.
3. Remove approximately 1 foot of the top of the backwall.
4. Reset bearings (See Sheet CD-7).
5. Release jacks.
6. Remove the remaining portions of the backwall, including reinforcement, except as noted, within the limits of phase construction.
7. Replace the backwall within the limits of the phase construction using the existing superstructure end dam angle to set the new backwall. In setting the top of backwall end dam angle, care shall be exercised to insure proper seating of the superstructure and expansion joint.

Note: All reinforcing bar marks shall be prefixed JA.

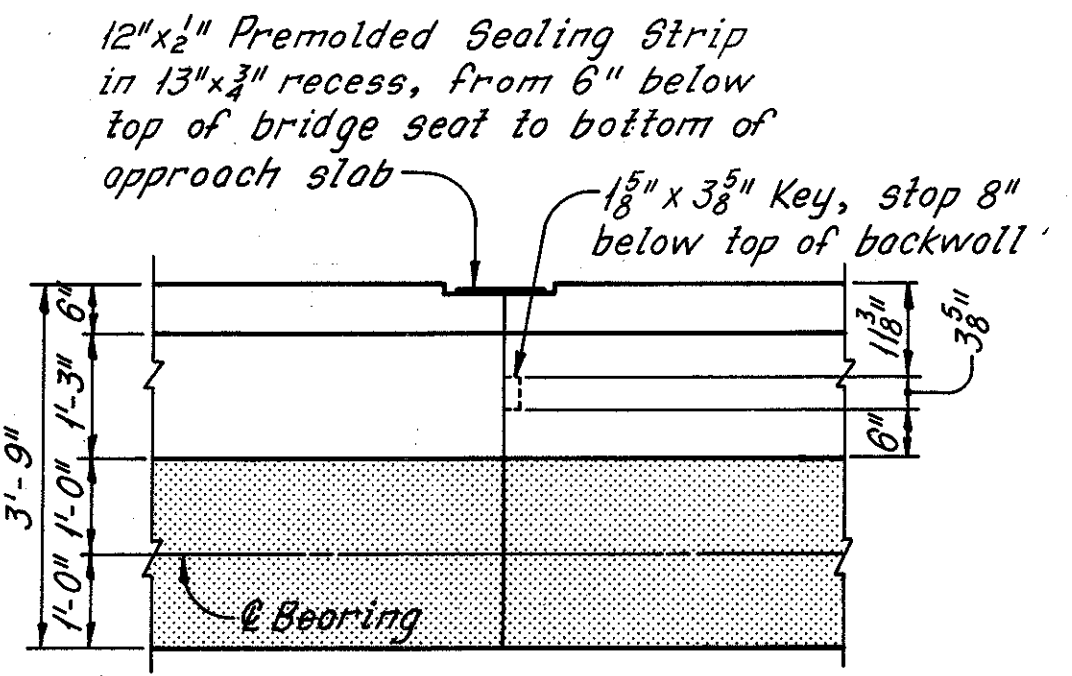
MODIFIED PART PLAN

- * Stop 8" below top of backwall.
- # Weld to threaded insert.
- † Thread one end for connection to threaded insert.
- ** Original plan dimension, the actual dimensions shall be those which result when the bearings are set in their final position.

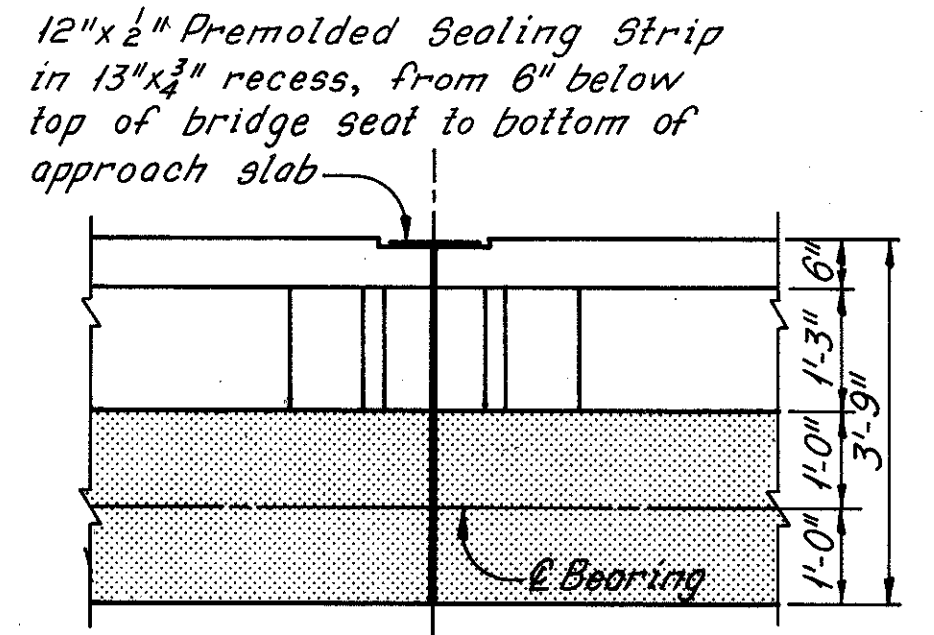


Note: Retain existing fillet reinforcement below approach slab seat.

- Notes:
- Indicates existing portions of abutment to remain.
 - For Existing and Modified Section C-C, see Sheet 6/B.
 - For phase construction sequence, see Maintenance of Traffic, Sheets 2/B and 3/B.
 - For suggested shoring required at approach slabs, see Sheet 4/B.
 - For expansion joint modification at the median, see Sheets CD-1 and CD-2.
 - For modification of curb plates, see Sheet CD-9.
 - For Reinforcement Schedule, see Sheet CD-10.
 - For Threaded Insert Detail, see Sheet CD-10.
- The following abbreviations are used:
- ef = each face
 - ff = far face
 - Typ. = Typical
 - Elev. = Elevation



VIEW A-A



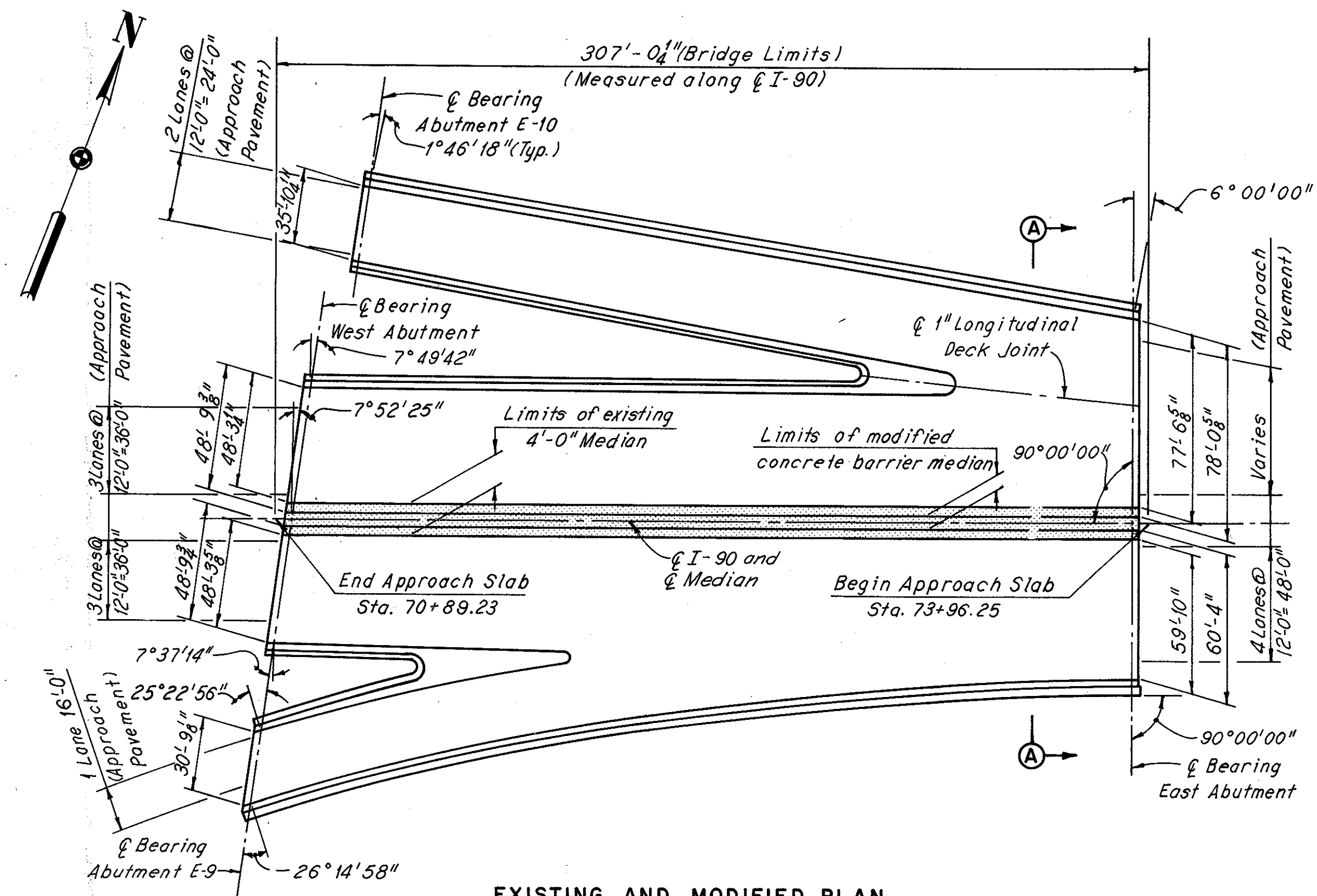
VIEW B-B

| | | | |
|---|----------------|-------------------|------------------|
| HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND | | HNTB | |
| EAST ABUTMENT | | | |
| I-90 OVER EAST 14th STREET | | | |
| BR. NO. CUY-90-1651 | | STA. 70+89.23 | |
| | | STA. 73+96.25 | |
| CUYAHOGA COUNTY | | OHIO | |
| DRAWN B.P. | TRACED B.P. | CHECKED R.C.K. | REVIEWED DATE |
| DATE 5/28/76 | DATE 6/1/76 | DATE 6/15/76 | DATE |
| | | | SHEET 5/8 |

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|-------------|-------|---------|--|
| FHWA REGION | STATE | PROJECT | |
| 5 | OHIO | | |

158
169

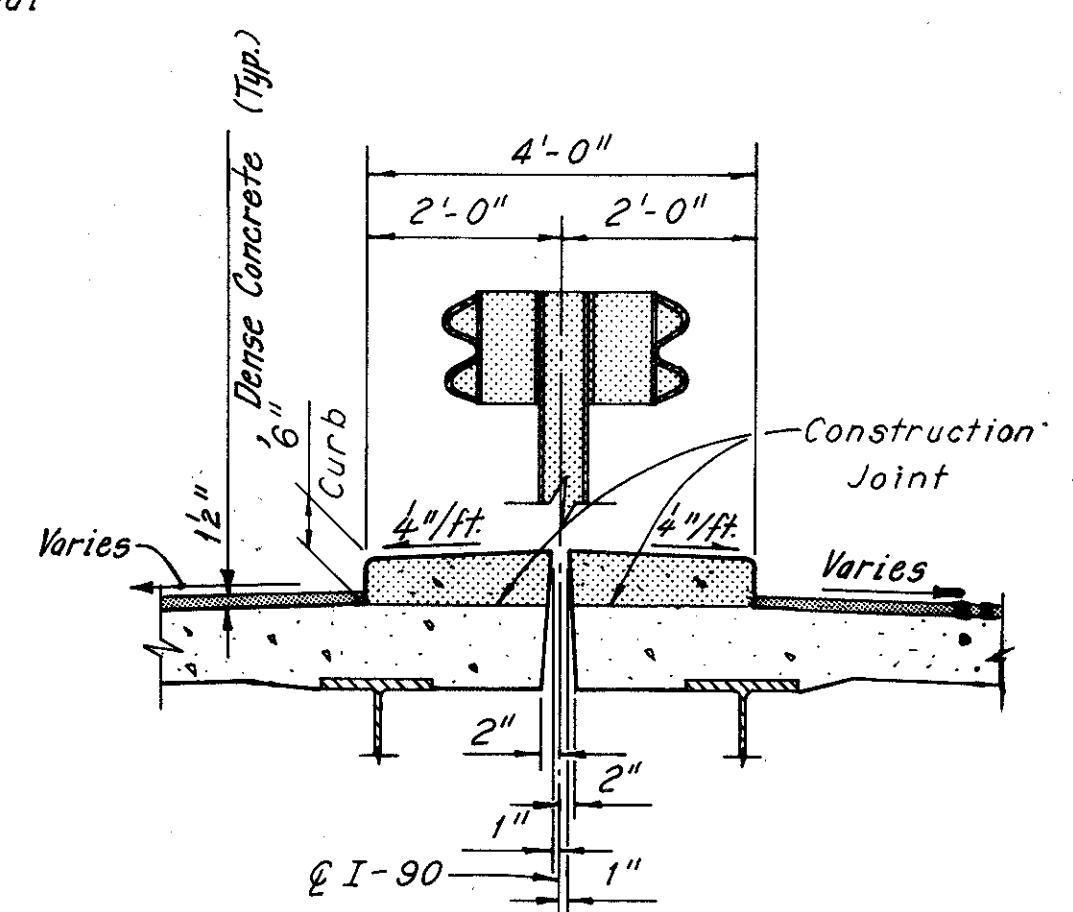
CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



EXISTING AND MODIFIED PLAN

Indicates removal
(Scuppers not shown)

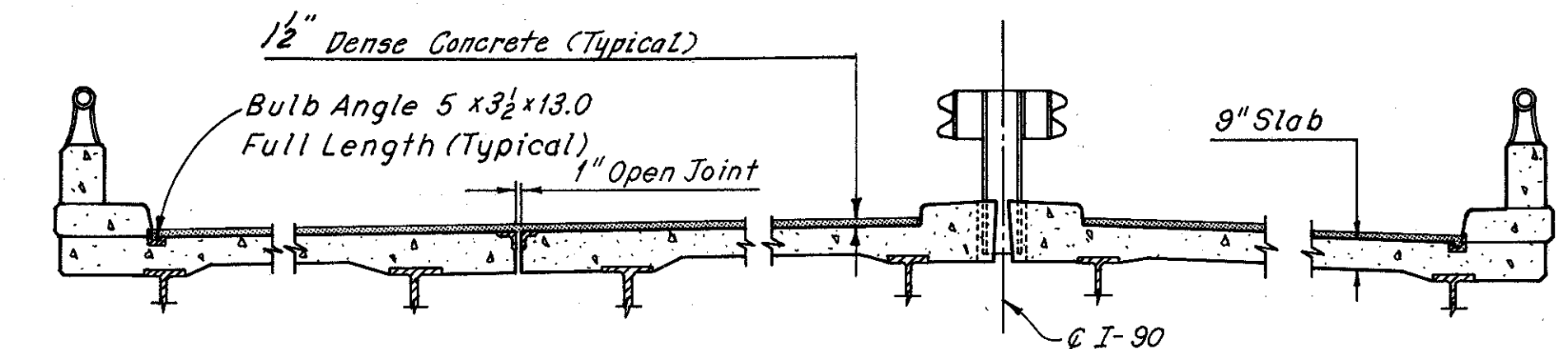
- Remove guardrails, posts, nuts, plates and anchor plates above the construction joint. Include with Item 202, Portions of Structures Removed, for payment.
- Remove existing median above the construction joint. Include with Item 202, Portions of Structures Removed, for payment.
- Remove Existing Bulb Angle Gutter At Median And Approximately Six Inches Of The Adjacent Wearing Course. Include With Item 202, Portions Of Structures Removed, For Payment.



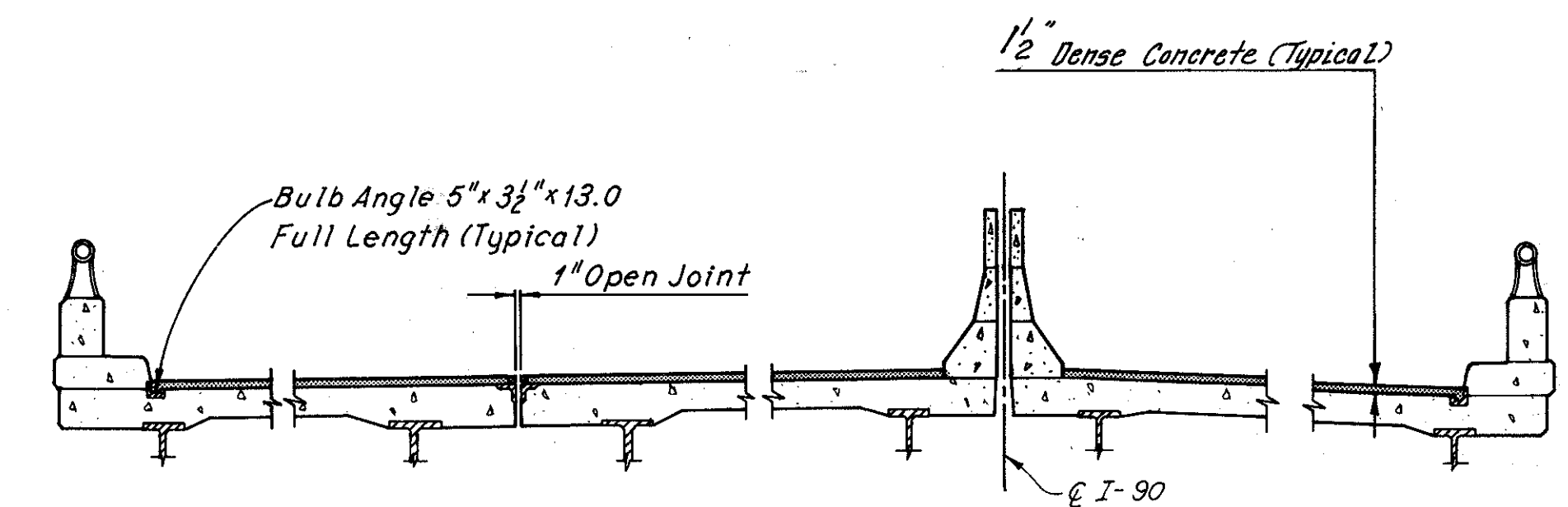
TYPICAL EXISTING MEDIAN CROSS SECTION

Indicates removal

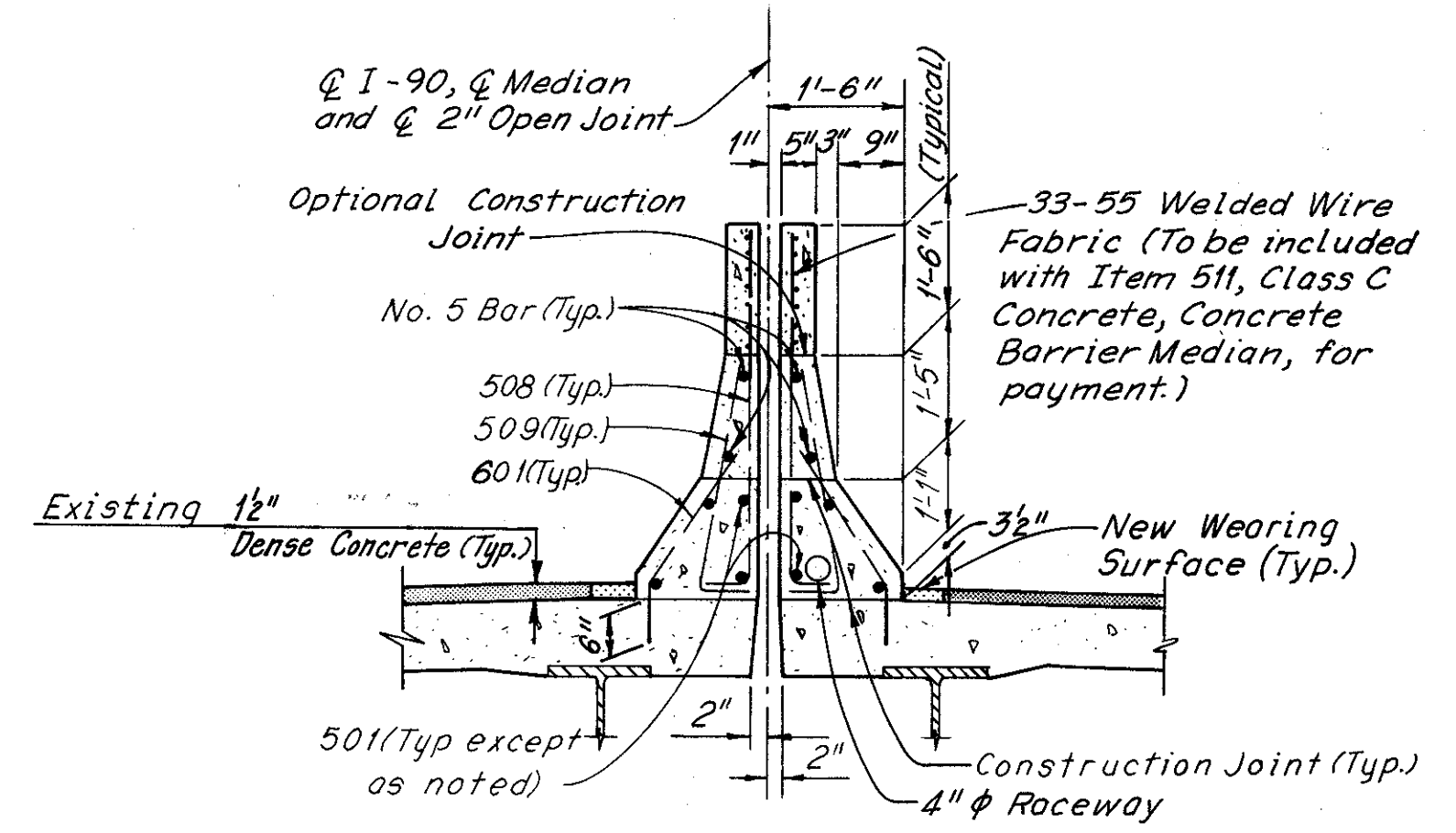
(For post anchor details, see Sheet CD-6.)



EXISTING SECTION A-A



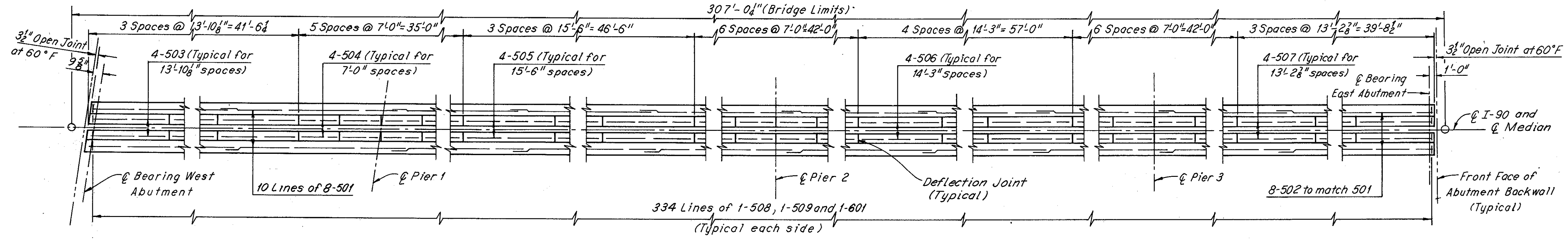
MODIFIED SECTION A-A



TYPICAL MODIFIED MEDIAN CROSS SECTION

Note: All reinforcing bar marks shall be prefixed JM.

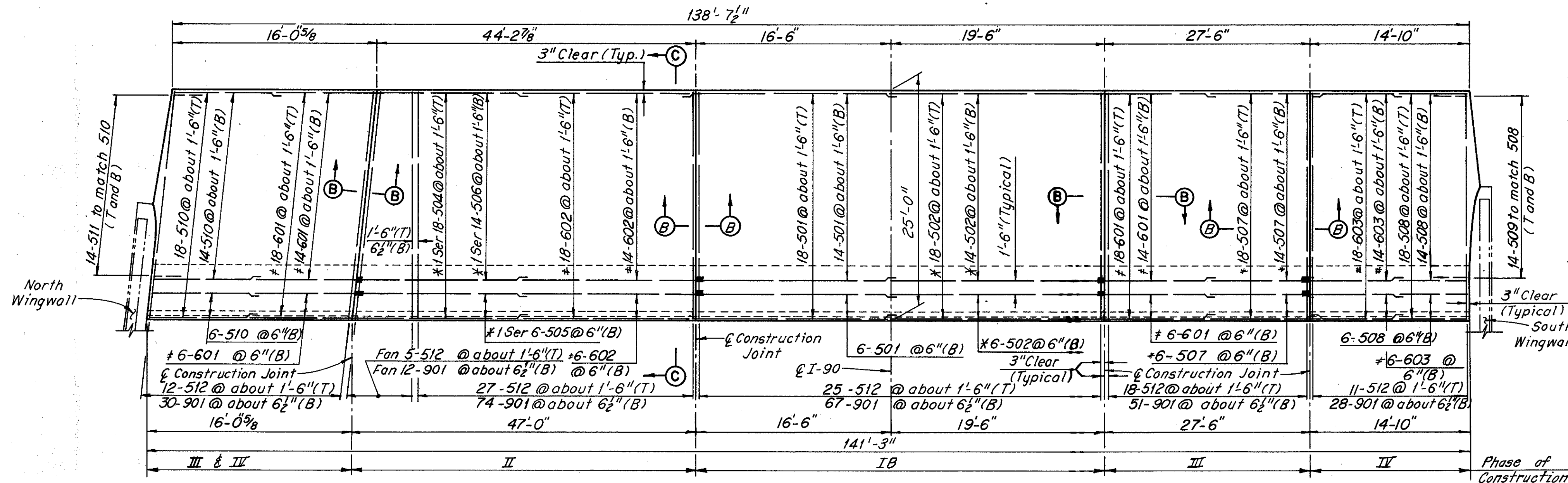
- Notes:
- For schematic plan and bridge locations, see Sheet 122.
 - For expansion joint modification of the median, see Sheets CD-1 and CD-2.
 - For details of resurfacing, see Sheet CD-5.
 - For details of deflection joints in the concrete barrier median, see Sheet CD-6.
 - For spacing of dowel holes for 601 bars and concrete barrier median reinforcement, see Sheet CD-6.
 - For reinforcement schedule, see Sheet CD-10.
- The following abbreviation is used:
Typ. = Typical



DEVELOPED CONCRETE BARRIER MEDIAN PLAN

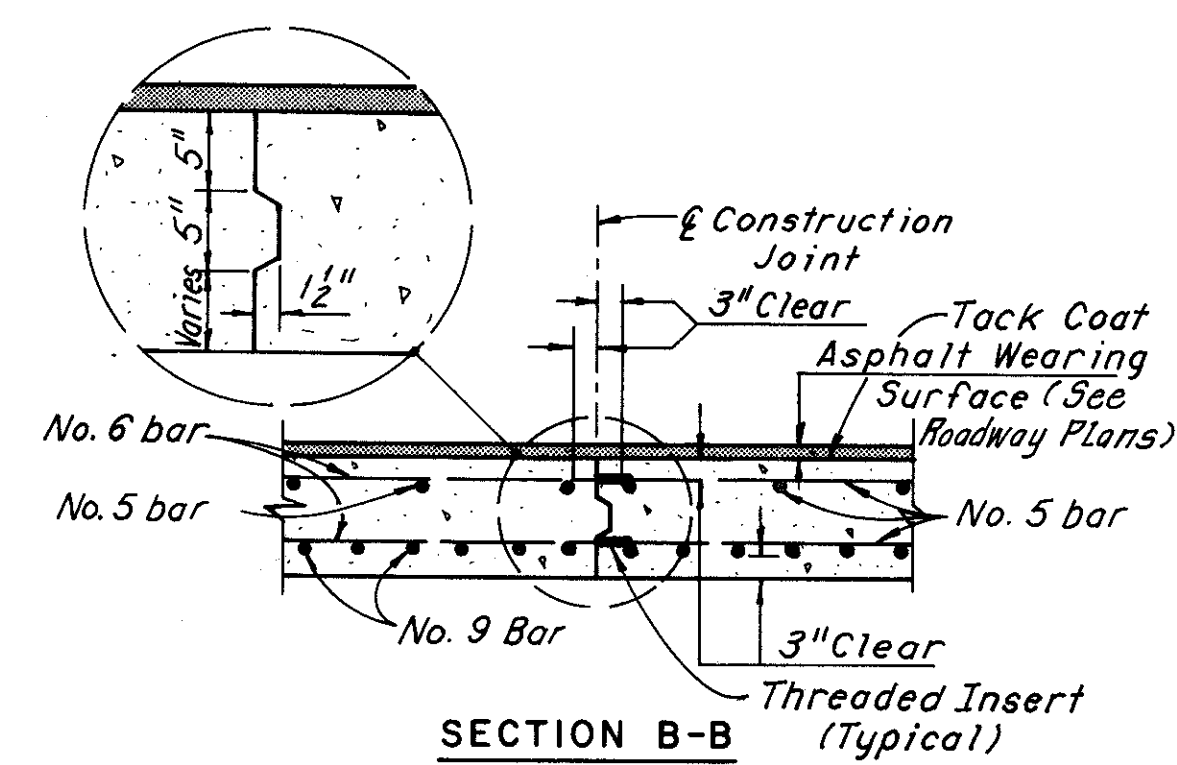
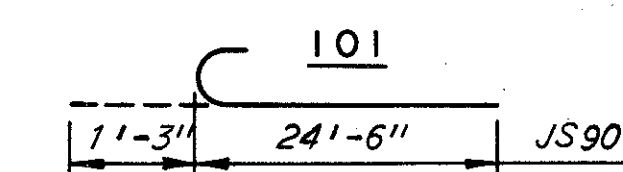
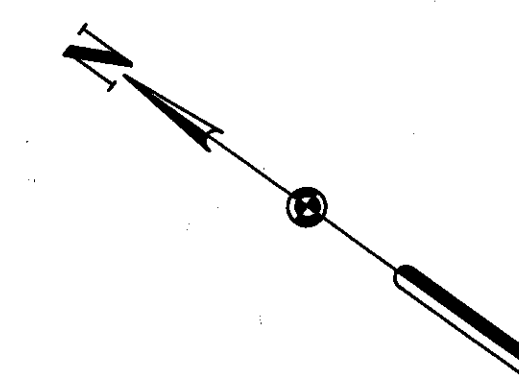
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|--|------------------|--------------------------------|------------------|-----------------|
| HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND | | | | HNTB |
| EXISTING AND MODIFIED DECK PLAN AND MEDIAN I-90 OVER EAST 14th STREET | | | | |
| BR. NO. CUY - 90-1651 | | STA. 70+89.23 STA. 73+96.25 | | |
| CUYAHOGA COUNTY OHIO | | | | |
| DRAWN W.H.L. | TRACED R.C.K. | CHECKED J.A.B./K.A.B. | REVIEWED DATE | REVISED DATE |
| DATE: 1-6-75 | DATE: 1-8-75 | DATE: 2-3-75 | DATE | DATE |
| | | | | SHEET 7 / 8 |

CUYAHOGA COUNTY
CUY - 77-14.12
CUY - 90-16.21

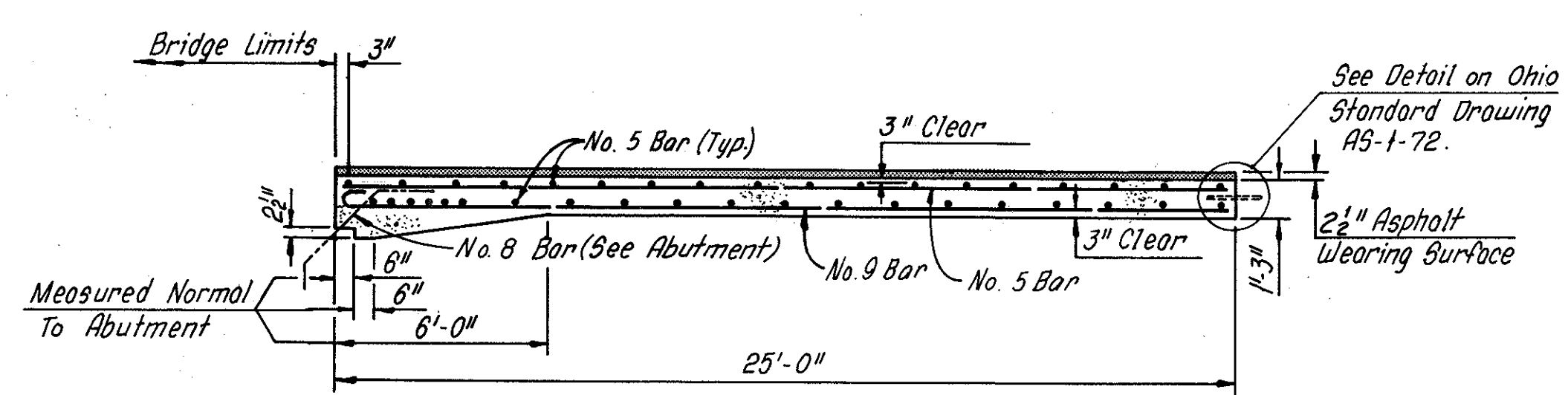


APPROACH SLAB PLAN

| REINFORCEMENT SCHEDULE | | | | |
|------------------------|----------|--------|------|------------|
| MARK | NO. | LENGTH | TYPE | SER. INCR. |
| *JS501 | 38 | 17'-0" | Str. | |
| *JS502 | 38 | 20'-0" | Str. | |
| *JS504 | 1 Ser 18 | 26'-3" | Str. | 1 1/2" |
| *JS505 | 1 Ser 6 | 26'-3" | Str. | 1/2" |
| *JS506 | 1 Ser 14 | 25'-9" | Str. | 1 1/2" |
| *JS507 | 38 | 17'-3" | Str. | |
| JS508 | 38 | 9'-3" | Str. | |
| JS509 | 28 | 2'-3" | Str. | |
| JS510 | 38 | 6'-0" | Str. | |
| JS511 | 28 | 2'-0" | Str. | |
| JS512 | 98 | 24'-6" | Str. | |
| *JS601 | 76 | 11'-9" | Str. | |
| *JS602 | 38 | 22'-3" | Str. | |
| *JS603 | 38 | 7'-0" | Str. | |
| JS901 | 262 | 25'-9" | IOI | |



SECTION B-B (Typical)



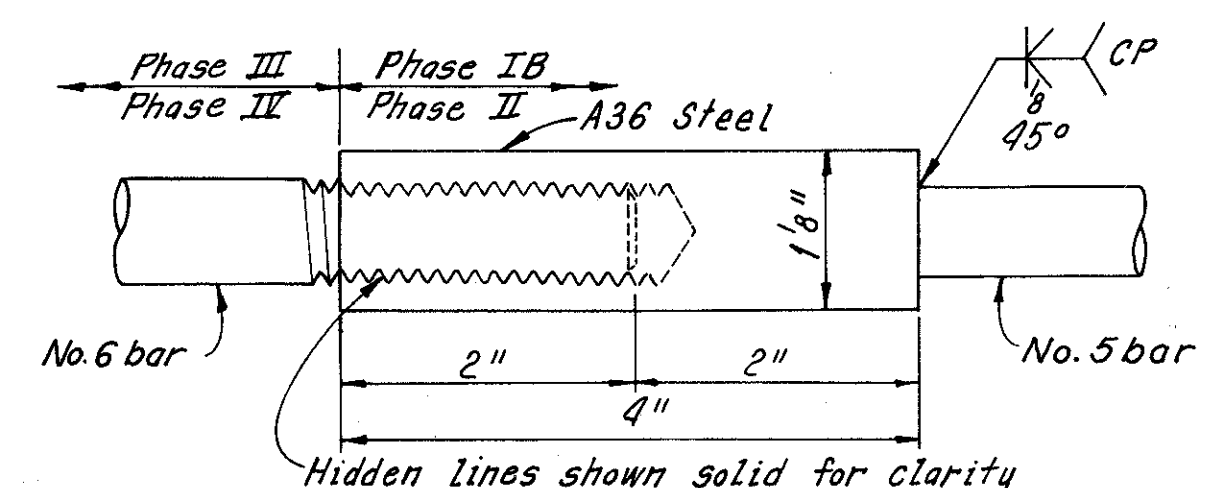
SECTION C-C

* Weld to threaded insert.
Thread one end for connection to threaded insert.

Note: All reinforcing bar marks shall be prefixed JS.

Note: The jacking holes as called for on Ohio Standard Drawing AS-1-72 are not required.

Note: Recess plugs shall be provided in the threaded inserts during Phase IB and Phase II Construction.



THREADED INSERT DETAIL

(Threads are to be Unified Standard Series for Basic Major Diameter of 3/4".)

Note: Both the welded and threaded connection shall be capable of developing 125 per cent of the yield strength of the smaller bar connected. Random samples to be submitted for testing.

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 structure by the additional steel, spliced in accordance with 509.08.

Notes:

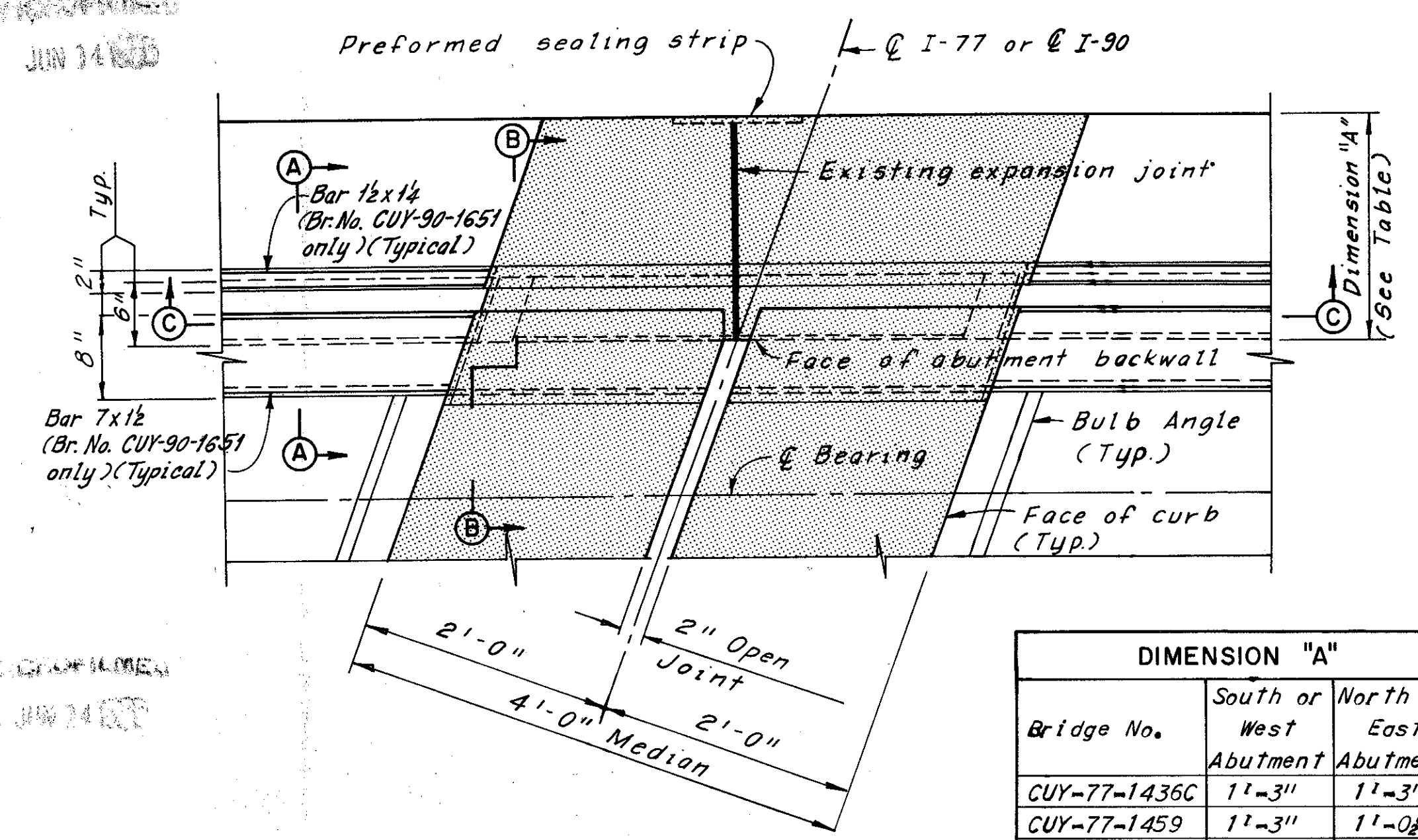
For phase construction sequence, see Maintenance of Traffic, Sheets 2/B and 3/B.
For details of median barrier transition, see Roadway Plans.
The following abbreviations are used:
T = Top
B = Bottom
Typ. = Typical
For additional notes and details, see Ohio Standard Drawing AS-1-72.

| | | | |
|---|---------------------------------|--|-----------------------------|
| HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND | | HNTB | |
| APPROACH SLAB EAST ABUTMENT | | | |
| I-90 OVER EAST 14th STREET | | | |
| BR. NO. CUY - 90-1651 | | STA. 70+89.23 STA. 73+96.25 | |
| CUYAHOGA COUNTY OHIO | | | |
| DRAWN R.C.K. DATE 6-3-76 | TRACED R.C.K. DATE 6-7-76 | CHECKED B.P. & D.H.S. DATE 6-11-76 | REVIEWED REVISOR DATE |
| | | | SHEET 8 / 8 |

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| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

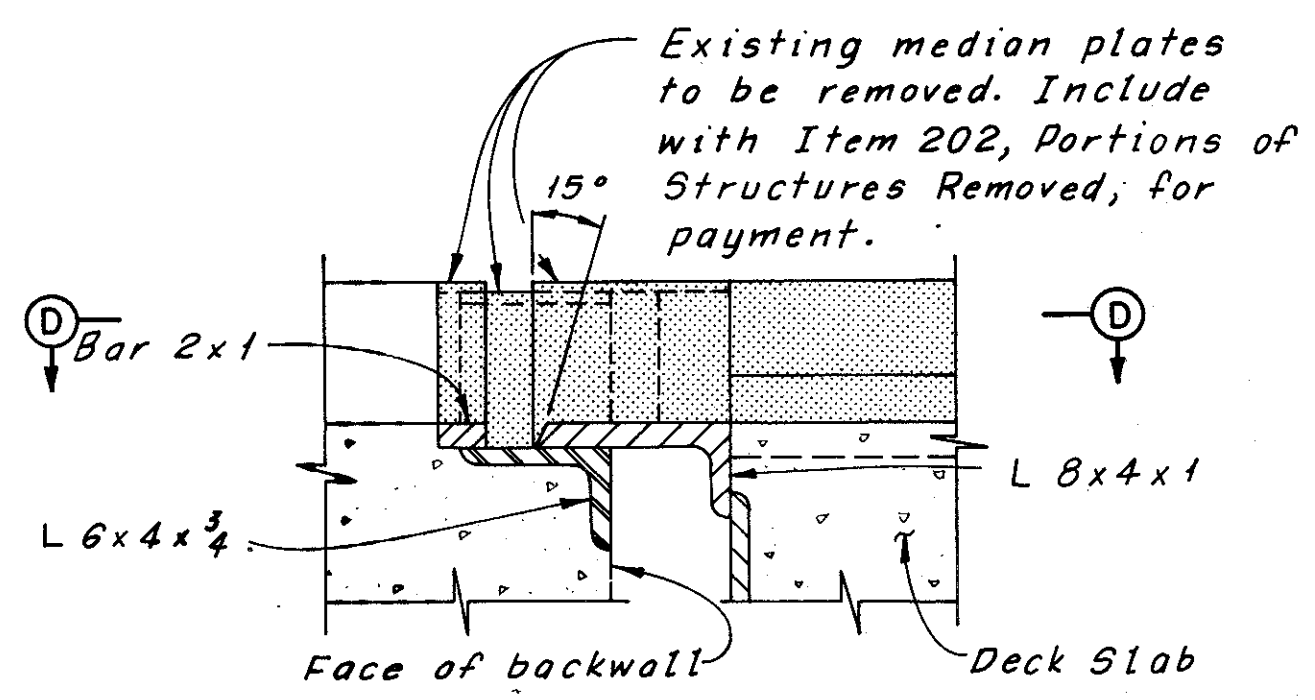
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CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



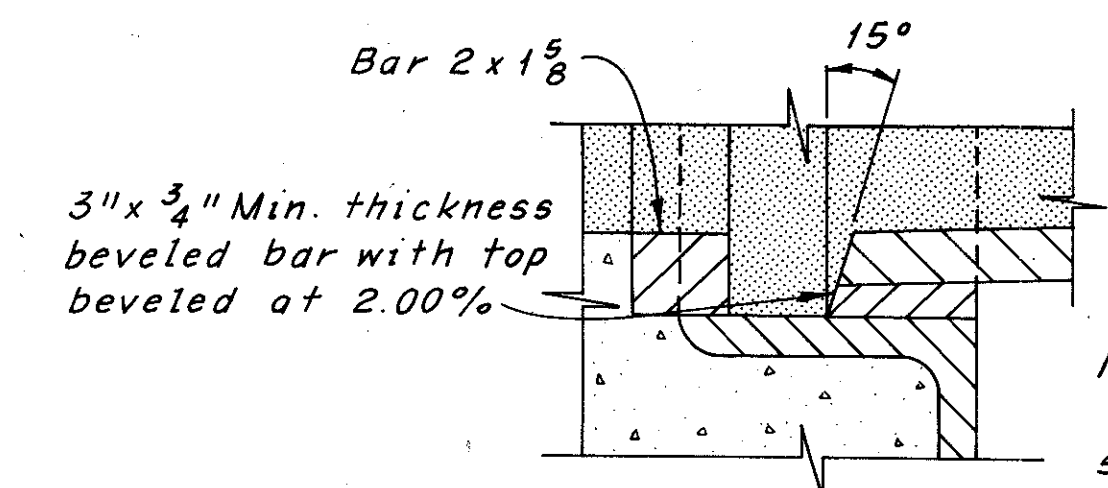
| DIMENSION "A" | | |
|---------------|------------------------|------------------------|
| Bridge No. | South or West Abutment | North or East Abutment |
| CUY-77-1436C | 1'-3" | 1'-3" |
| CUY-77-1459 | 1'-3" | 1'-0 1/2" |
| CUY-77-1519 | 1'-2 3/8" | 1'-2 3/8" |
| CUY-90-1628 | 1'-8 1/2" | 1'-9 1/2" |
| CUY-90-1640 | 1'-7 5/8" | 1'-9" |
| CUY-90-1651 | 1'-11 3/8" | 1'-9" |

PLAN



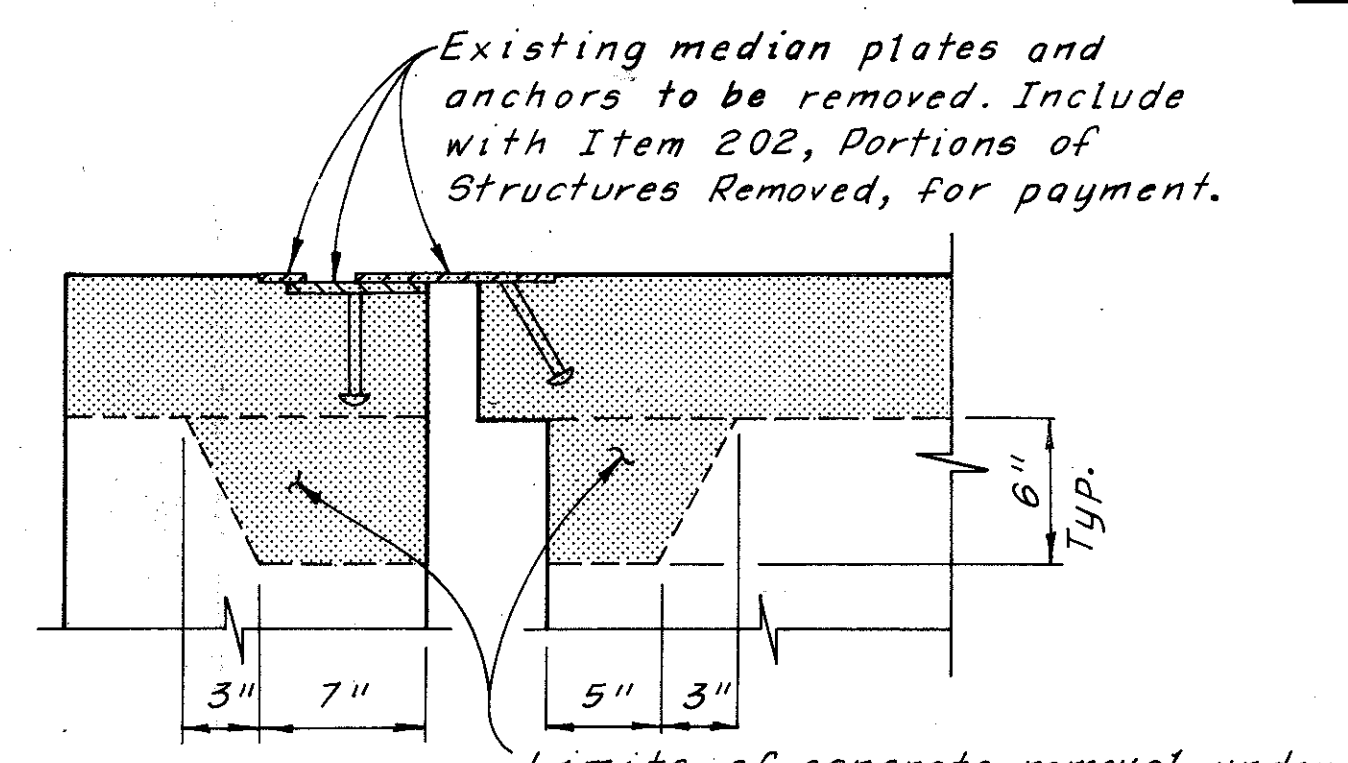
SECTION A-A

BR. NO. CUY-77-1436C, NORTH ABUTMENT
BR. NO. CUY-77-1459
BR. NO. CUY-77-1519



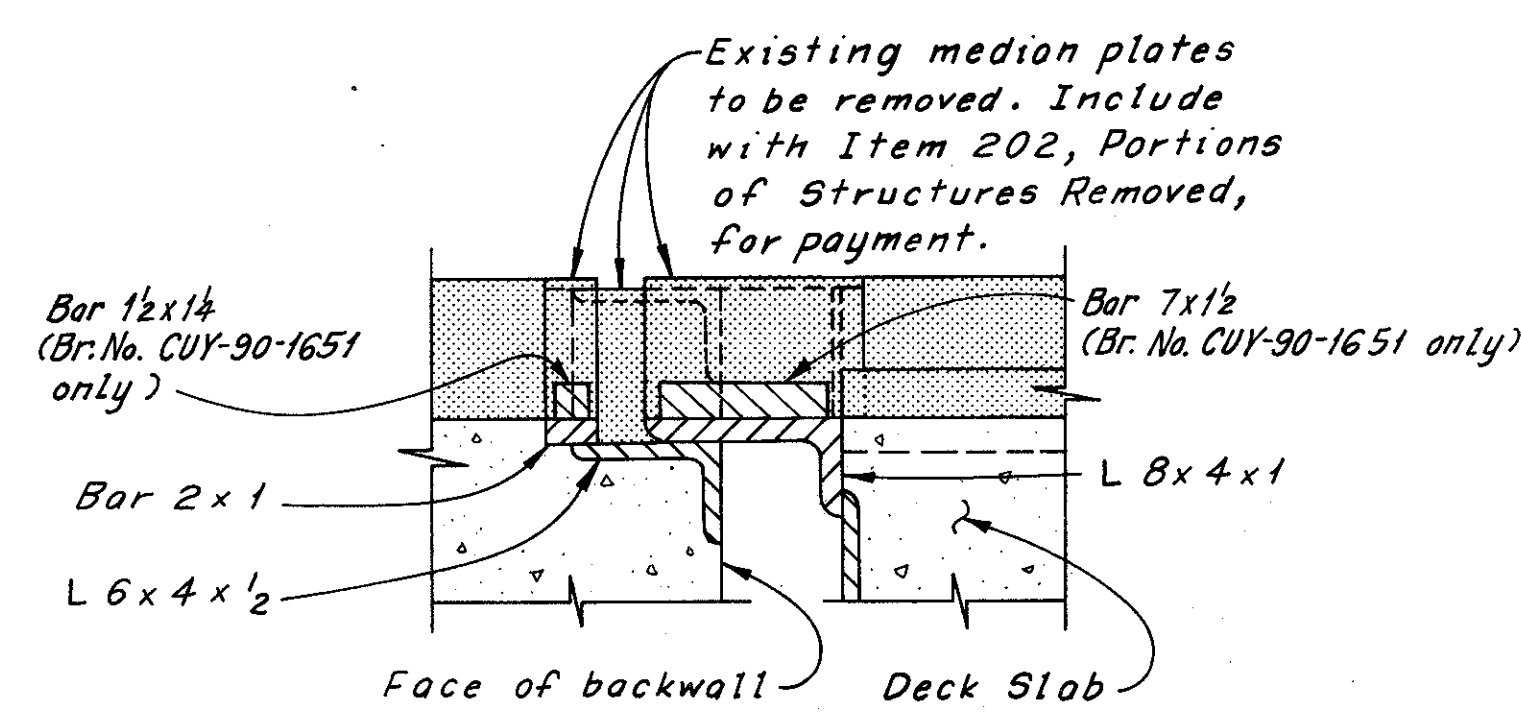
PART SECTION A-A

BR. NO. CUY-77-1436C, SOUTH ABUTMENT



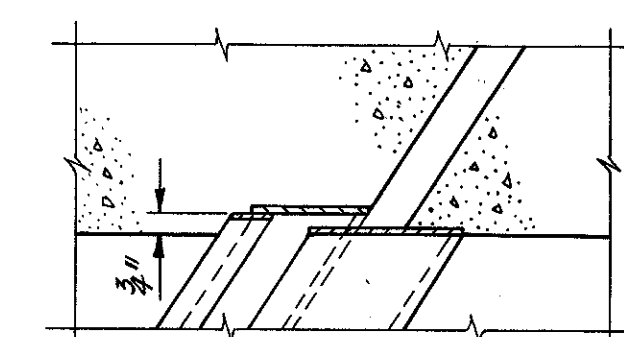
SECTION B-B

BR. NO. CUY-77-1436C
BR. NO. CUY-77-1459
BR. NO. CUY-77-1519



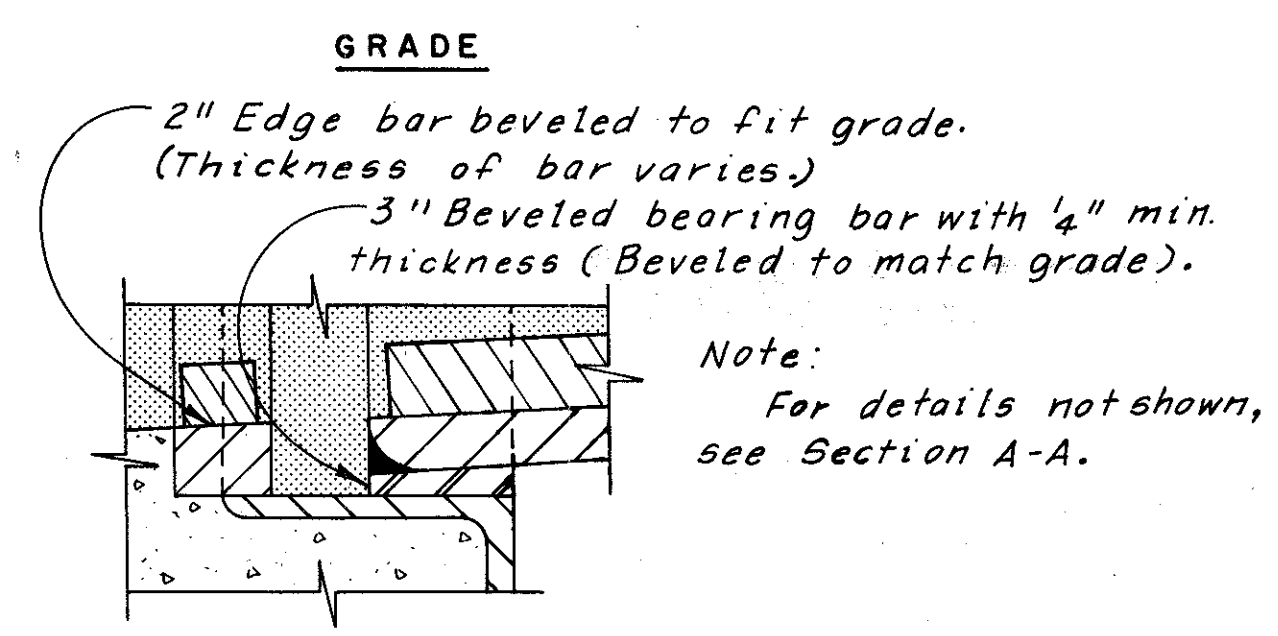
SECTION A-A

BR. NO. CUY-90-1628
BR. NO. CUY-90-1640



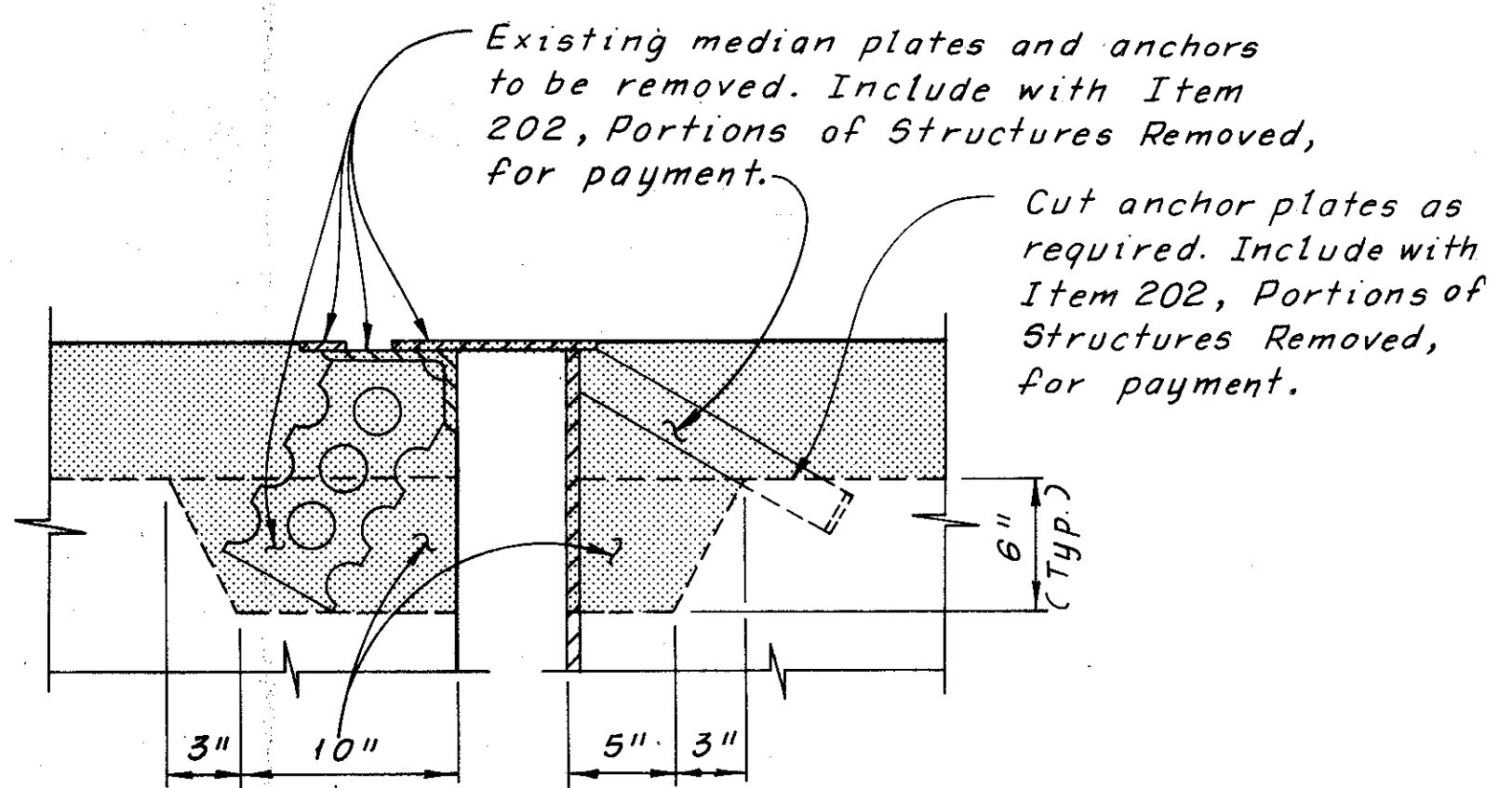
SECTION D-D
BR. NO. CUY-77-1519

(For Section D-D at other bridges, see Plan, this Sheet)



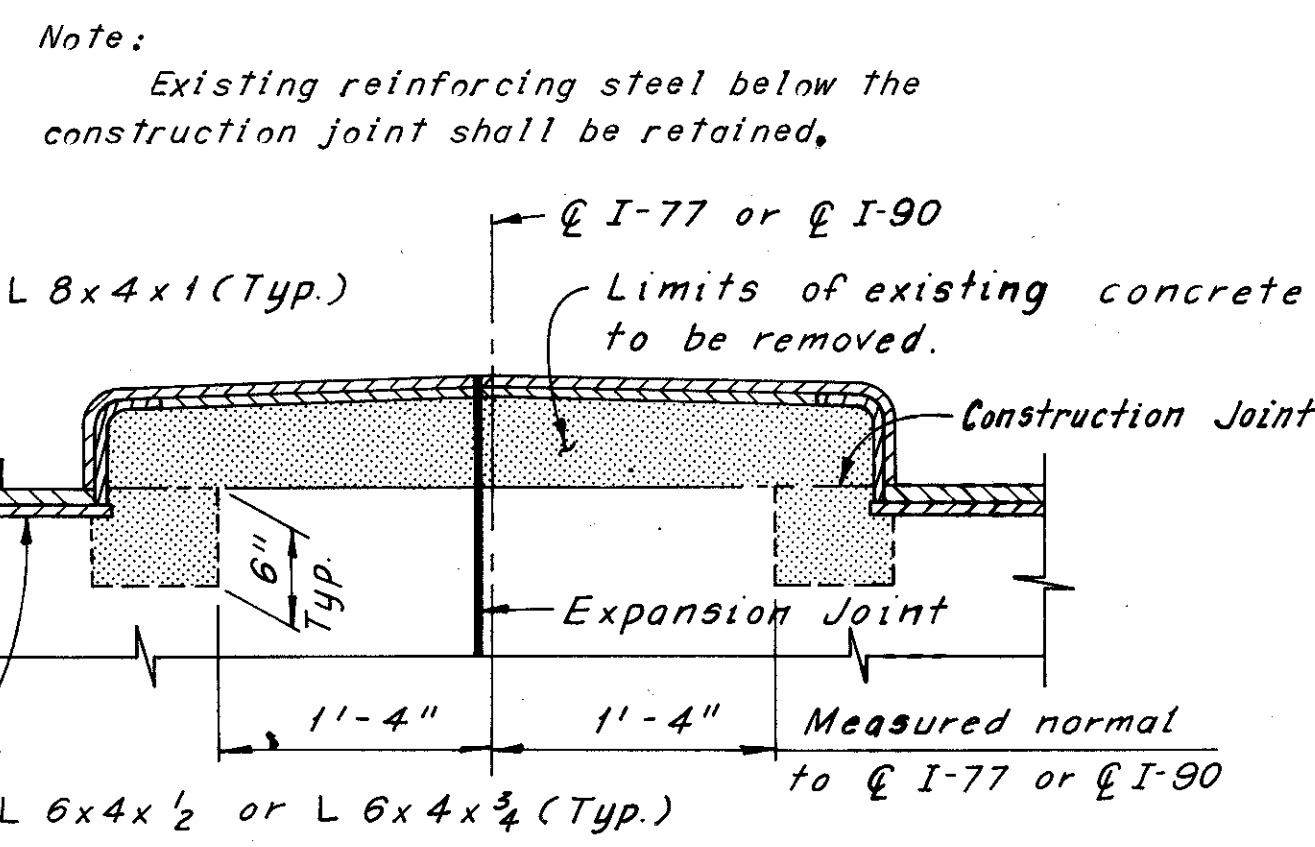
PART SECTION A-A

BR. NO. CUY-90-1651



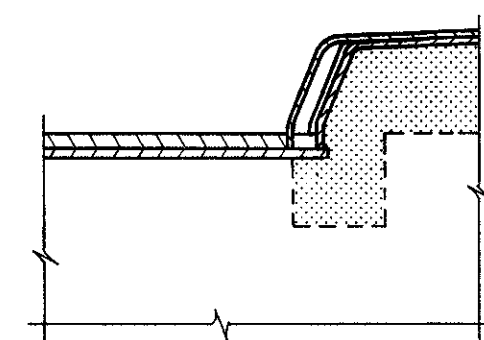
SECTION B-B

BR. NO. CUY-90-1628
BR. NO. CUY-90-1640
BR. NO. CUY-90-1651



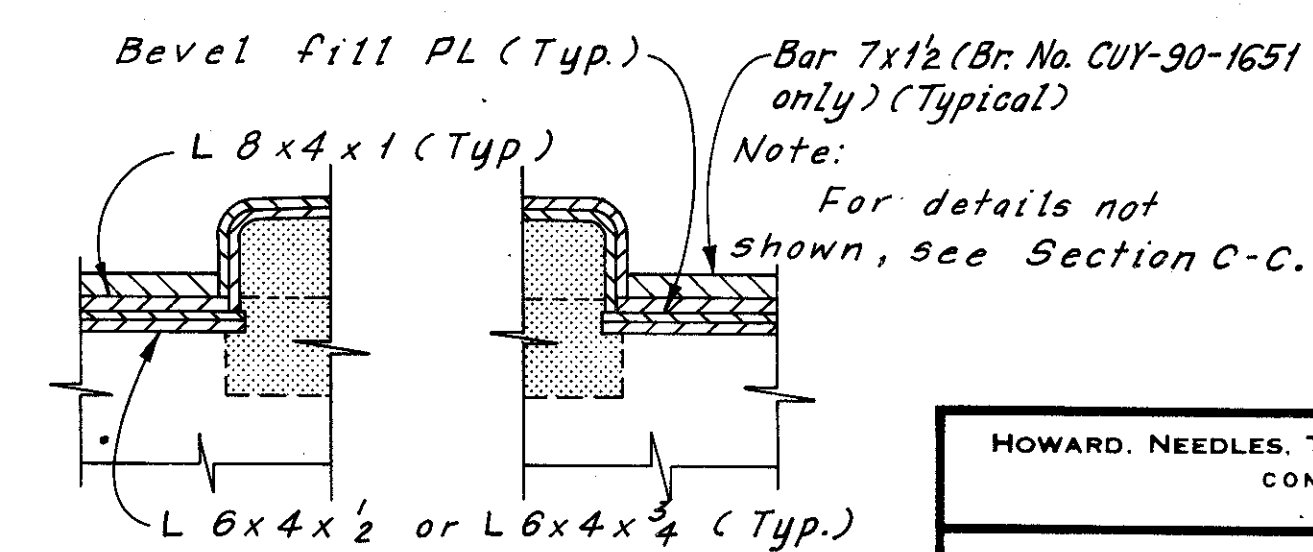
SECTION C-C

(All bridges except Brs. Nos. CUY-77-1519, CUY-90-1651 and at the South Abutment of CUY-77-1436C, see Part Section C-C, this Sheet)



PART SECTION C-C

BR. NO. CUY-77-1519
(For details not shown see Section C-C)



PART SECTION C-C

BR. NO. CUY-77-1436C,
SOUTH ABUTMENT AND
BR. NO. CUY-90-1651

EXISTING PLAN AND CROSS SECTIONS AT MEDIAN

Indicates Removal

| | | | | |
|---|-------------|---------------------|----------|------------|
| HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND | | | | HNTB |
| EXPANSION JOINT DETAILS AT MEDIAN (EXISTING) | | | | |
| BR. NO. CUY-77-1436C | | BR. NO. CUY-90-1628 | | |
| BR. NO. CUY-77-1459 | | BR. NO. CUY-90-1640 | | |
| BR. NO. CUY-77-1519 | | BR. NO. CUY-90-1651 | | |
| CUYAHOGA COUNTY OHIO | | | | |
| DRAWN | TRACED | CHECKED | REVIEWED | REVISED |
| DATE 2-6-75 | DATE 2-7-75 | DATE 2-14-75 | DATE | DATE |
| | | | | SHEET CD-1 |

*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.

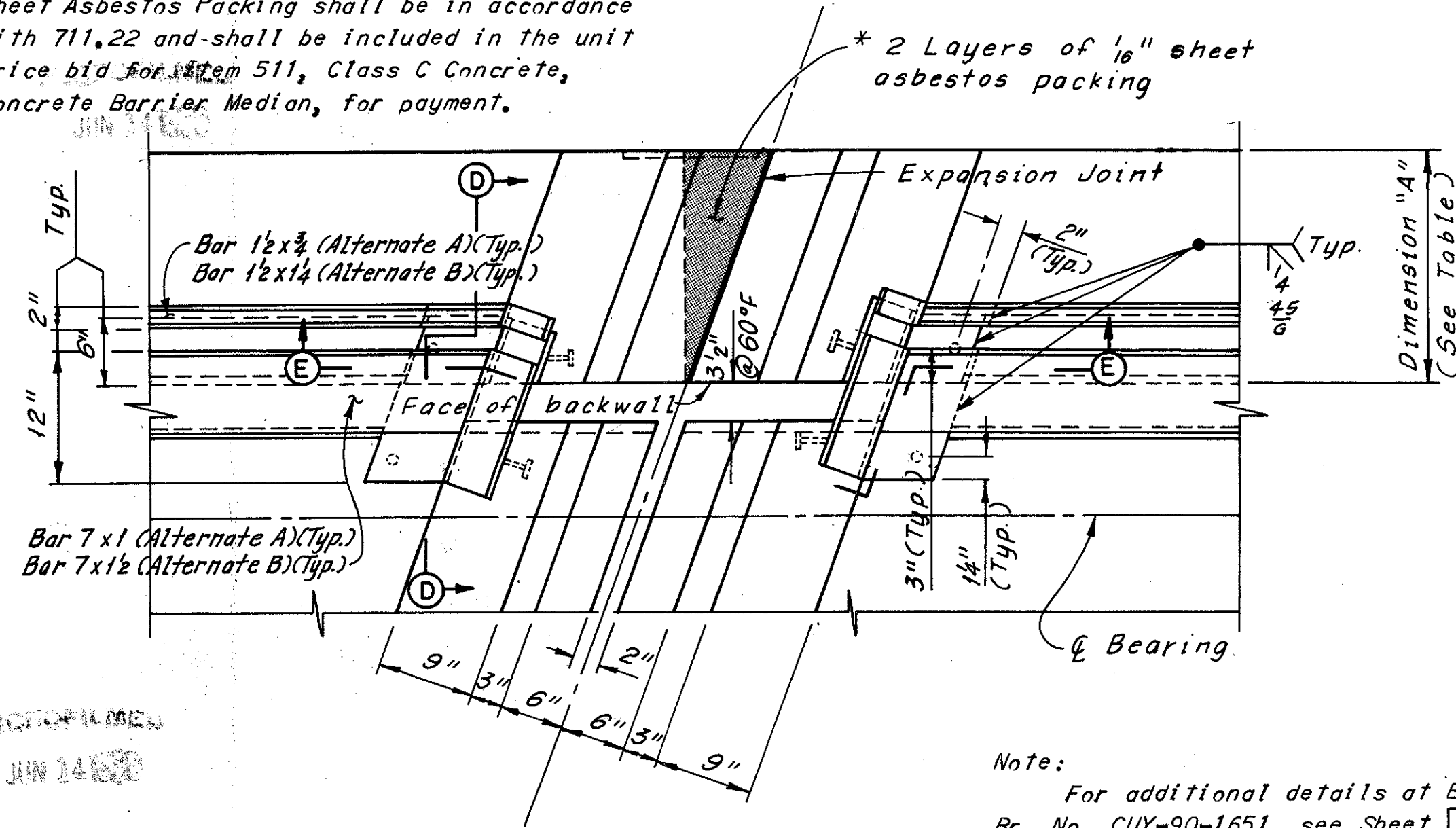
| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

161
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21

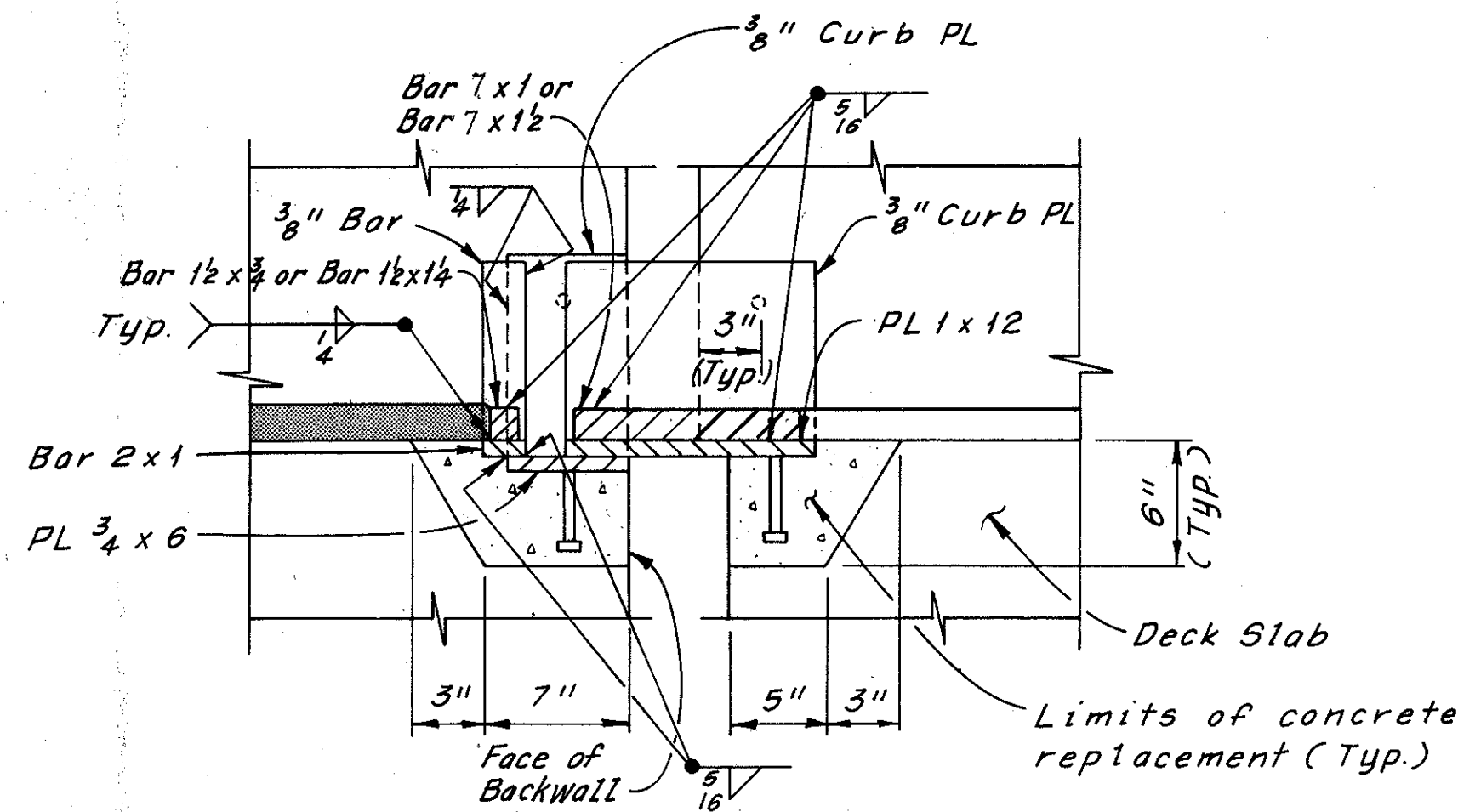
| DIMENSION "A" | | |
|---------------|------------------------|------------------------|
| Bridge No. | South or West Abutment | North or East Abutment |
| CUY-77-1436C | 11'-3" | 11'-3" |
| CUY-77-1459 | 11'-3" | 11'-0 1/2" |
| CUY-77-1519 | 11'-2 3/4" | 11'-2 3/8" |
| CUY-90-1628 | 11'-8 1/2" | 11'-9 7/8" |
| CUY-90-1640 | 11'-7 3/8" | 11'-9" |
| CUY-90-1651 | 11'-11 3/8" | 11'-3" |

| MEDIAN REINFORCEMENT | | | |
|----------------------|--------|--------|--------|
| BR. NO. | A Bars | B Bars | C Bars |
| CUY-77-1436C | AM506 | AM507 | AM602 |
| CUY-77-1459 | BM502 | BM501 | BM602 |
| CUY-77-1519 | CM510 | CM511 | CM602 |
| CUY-90-1628 | GM507 | GM508 | GM602 |
| CUY-90-1640 | HM508 | HM509 | HM602 |
| CUY-90-1651 | JM508 | JM509 | JM602 |



PLAN

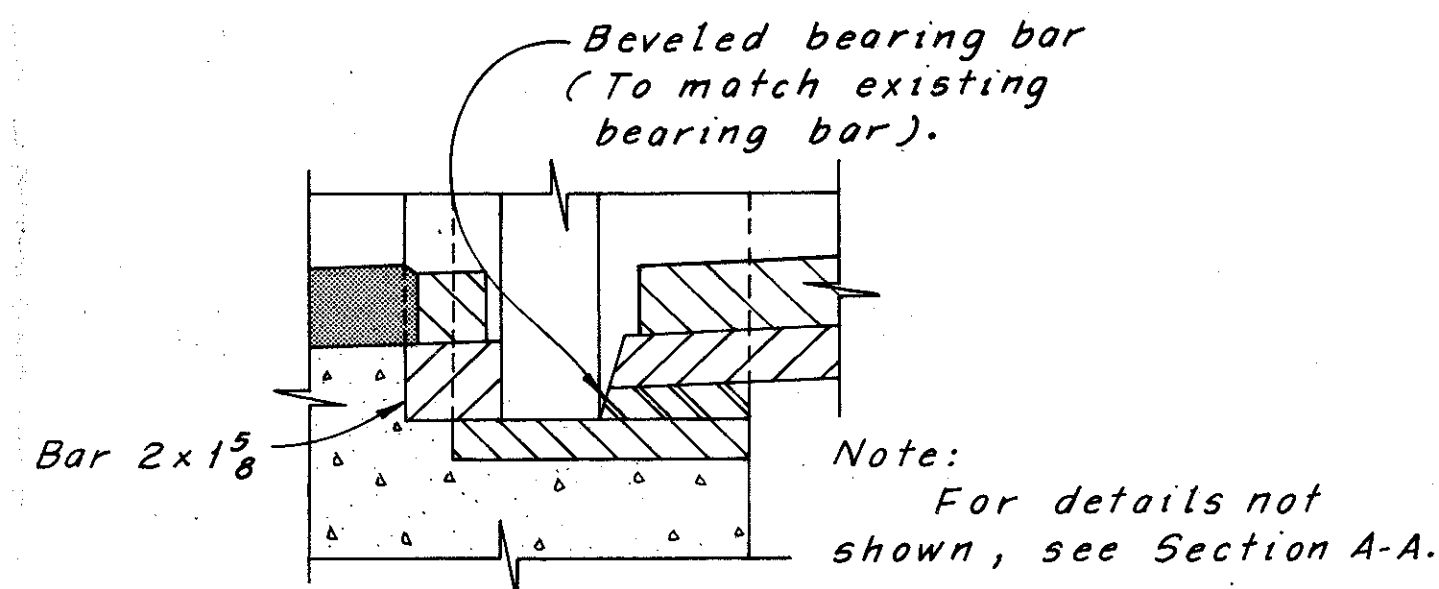
Indicates sheet asbestos packing.



SECTION D-D

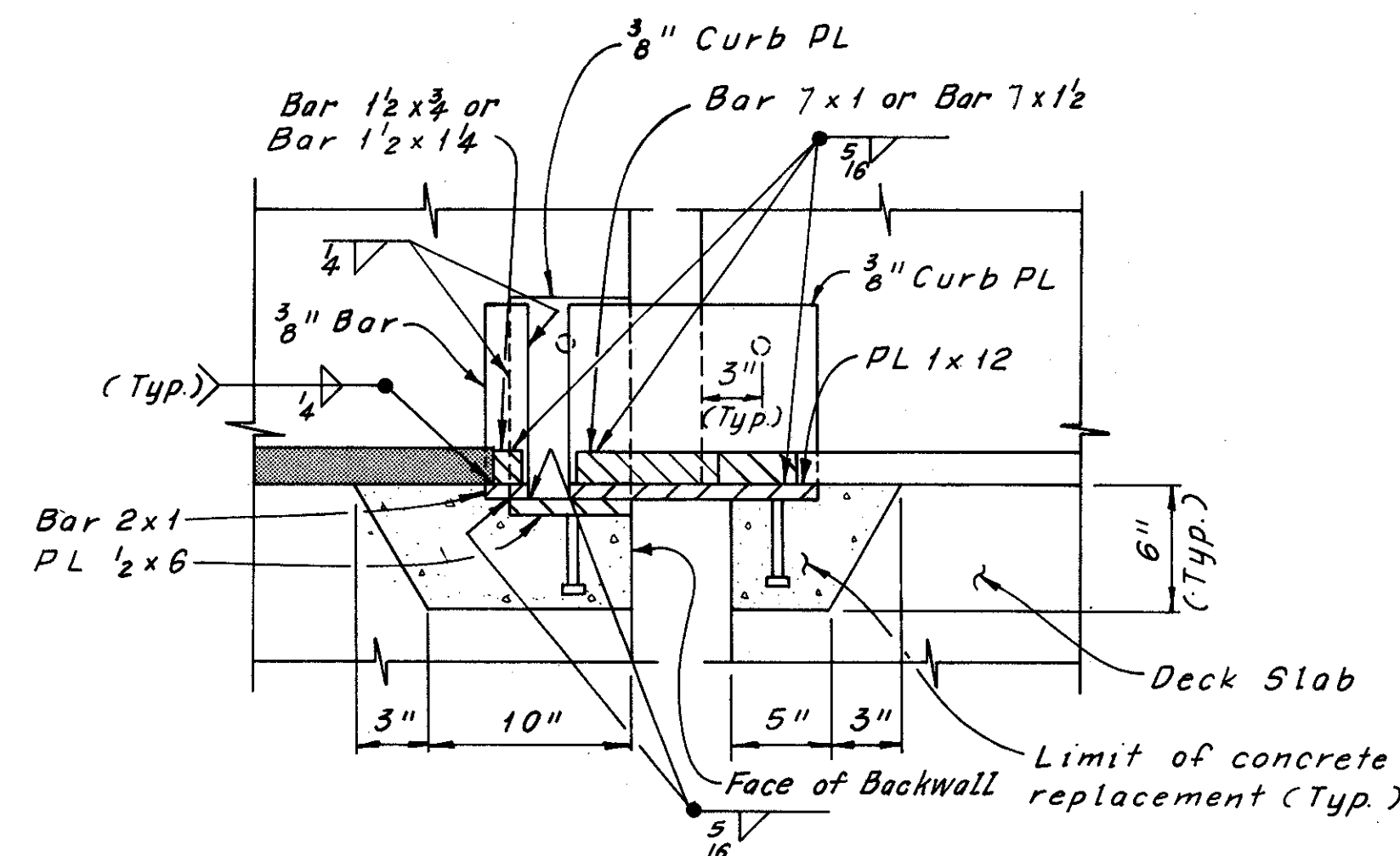
Indicates asphalt wearing surface.

BR.NO. CUY-77-1436C, NORTH ABUTMENT
BR.NO. CUY-77-1459
BR.NO. CUY-77-1519



PART SECTION D-D

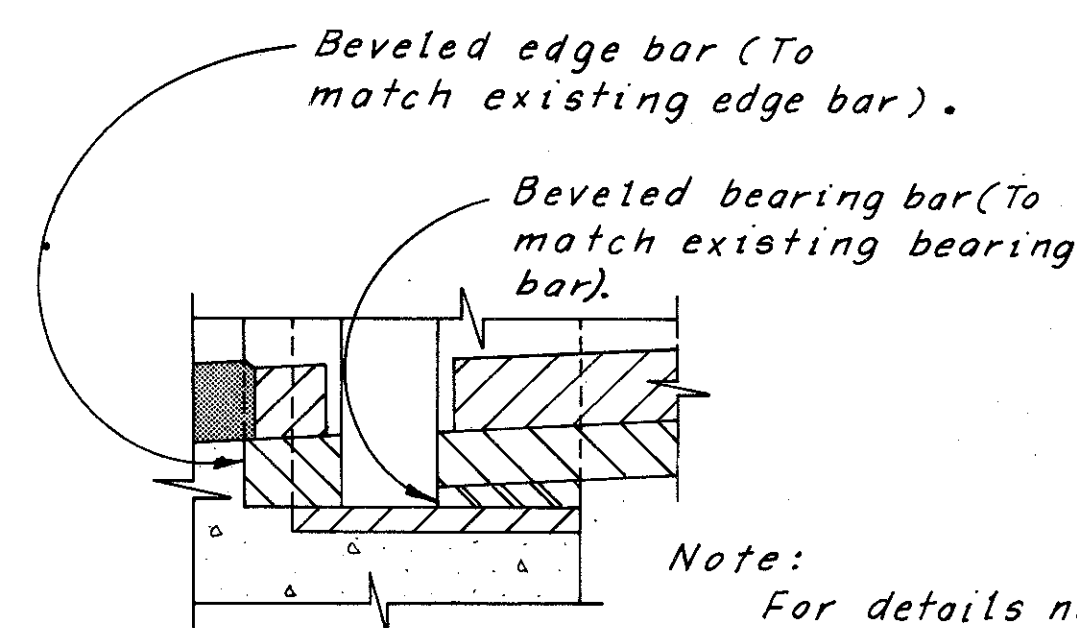
BR.NO. CUY-77-1436C
SOUTH ABUTMENT



SECTION D-D

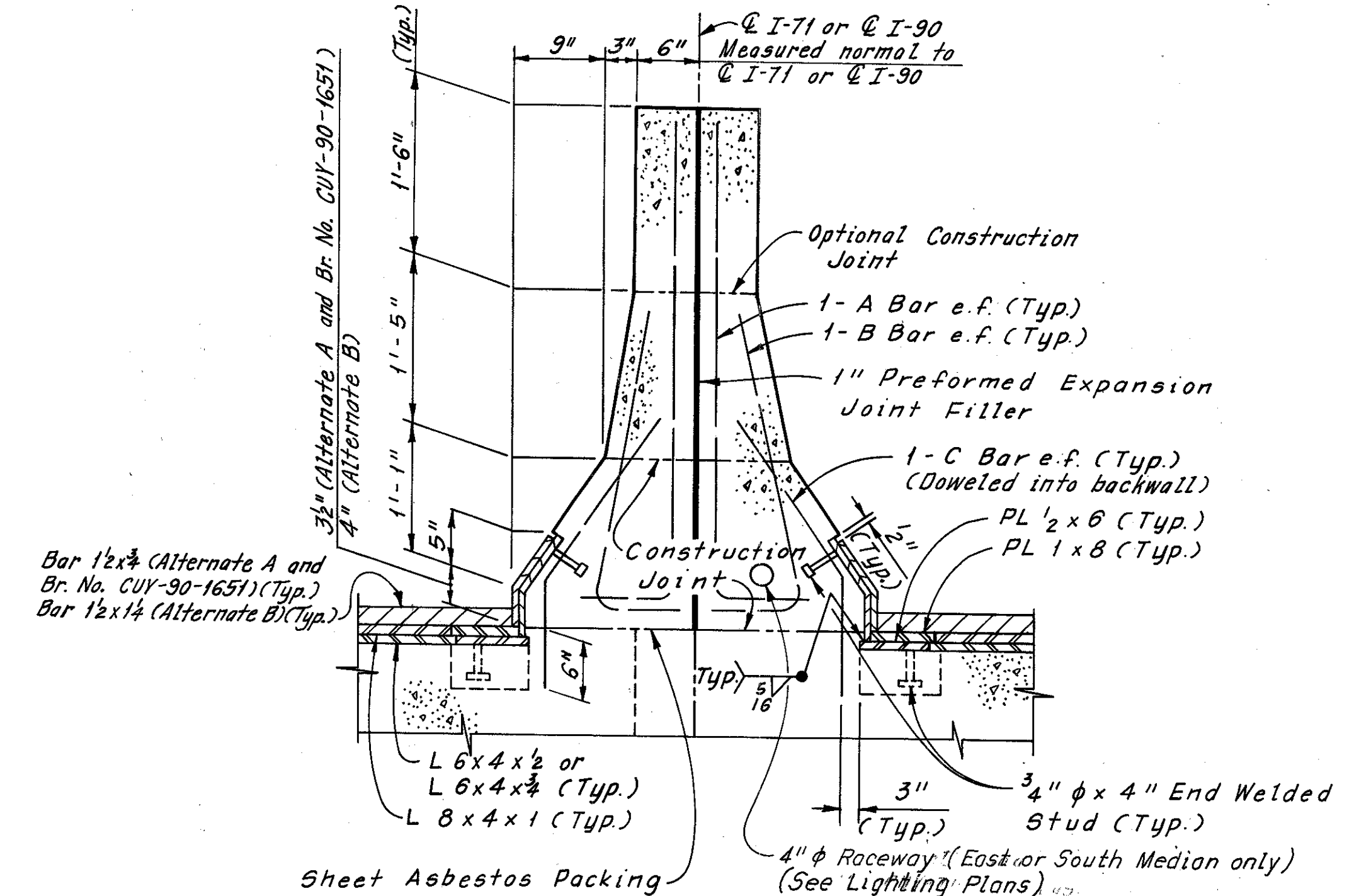
Indicates asphalt wearing surface.

BR.NO. CUY-90-1628
BR.NO. CUY-90-1640



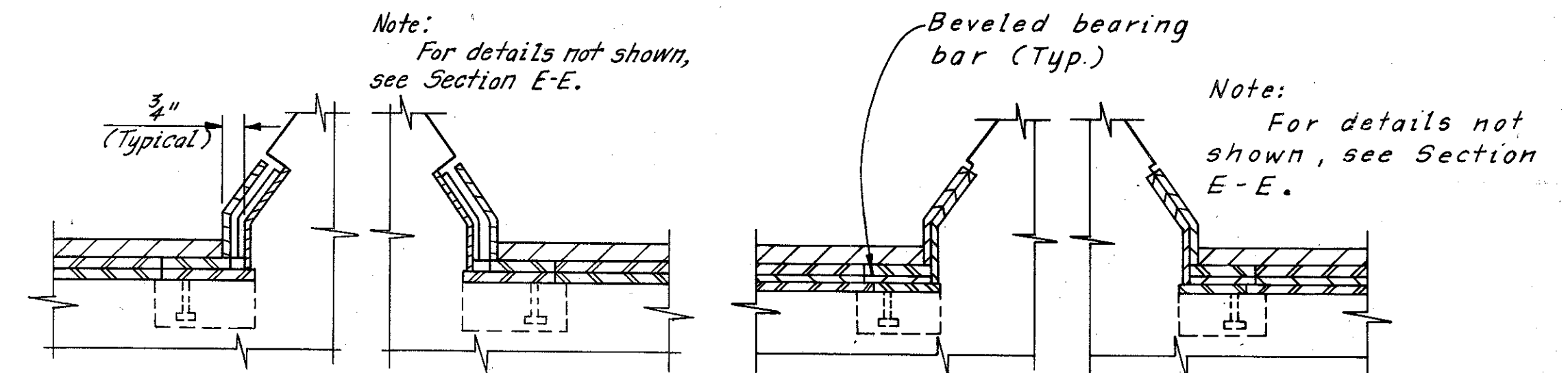
PART SECTION D-D

BR.NO. CUY-90-1651
(Except East Abutment)



SECTION E-E

(ALL bridges except as noted)



PART SECTION E-E

BR.NO. CUY-77-1519

PART SECTION E-E

BR.NO. CUY-77-1436C
SOUTH ABUTMENT AND
BR.NO. CUY-90-1651

Notes:
For angles and dimensions, see Sheets 2/22, 5/22, 14/22, 22/22, 4/5 and 7/8.
For reinforcement schedule and bar bending diagrams, see Sheet CD-10.
The following abbreviations are used:
Typ. = Typical
e.f. = each Face

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND HNTB

EXPANSION JOINT DETAILS AT MEDIAN (MODIFIED)

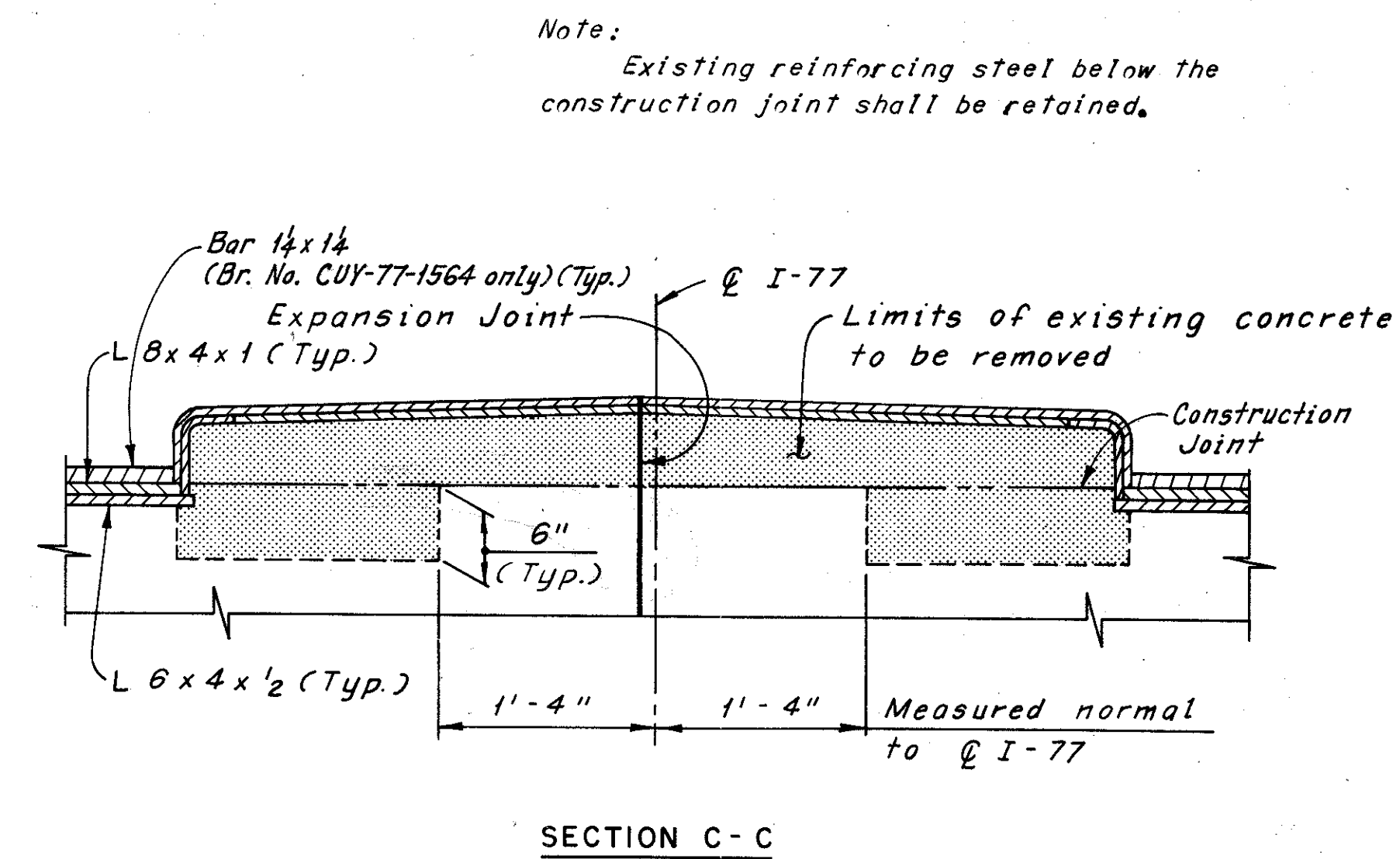
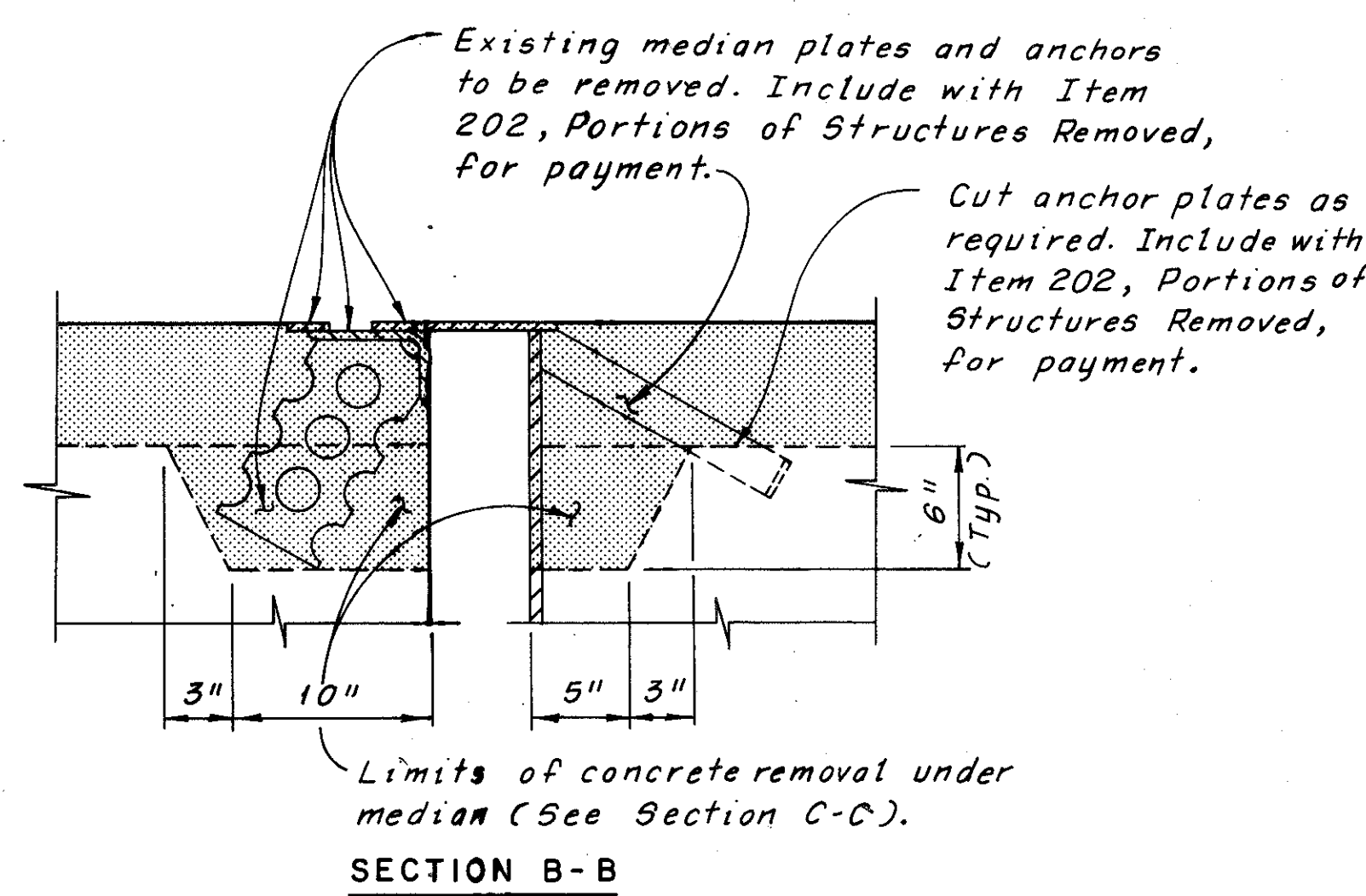
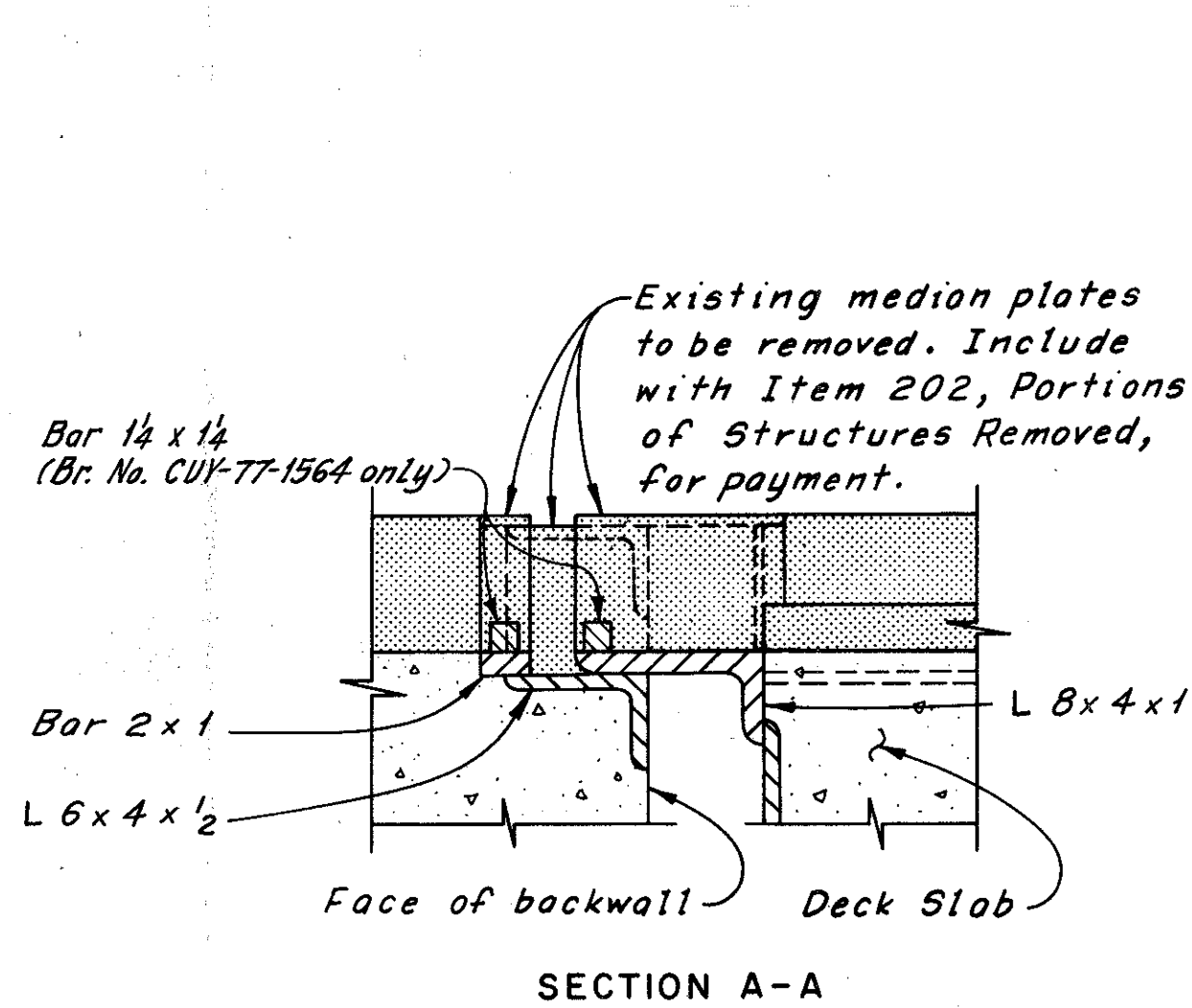
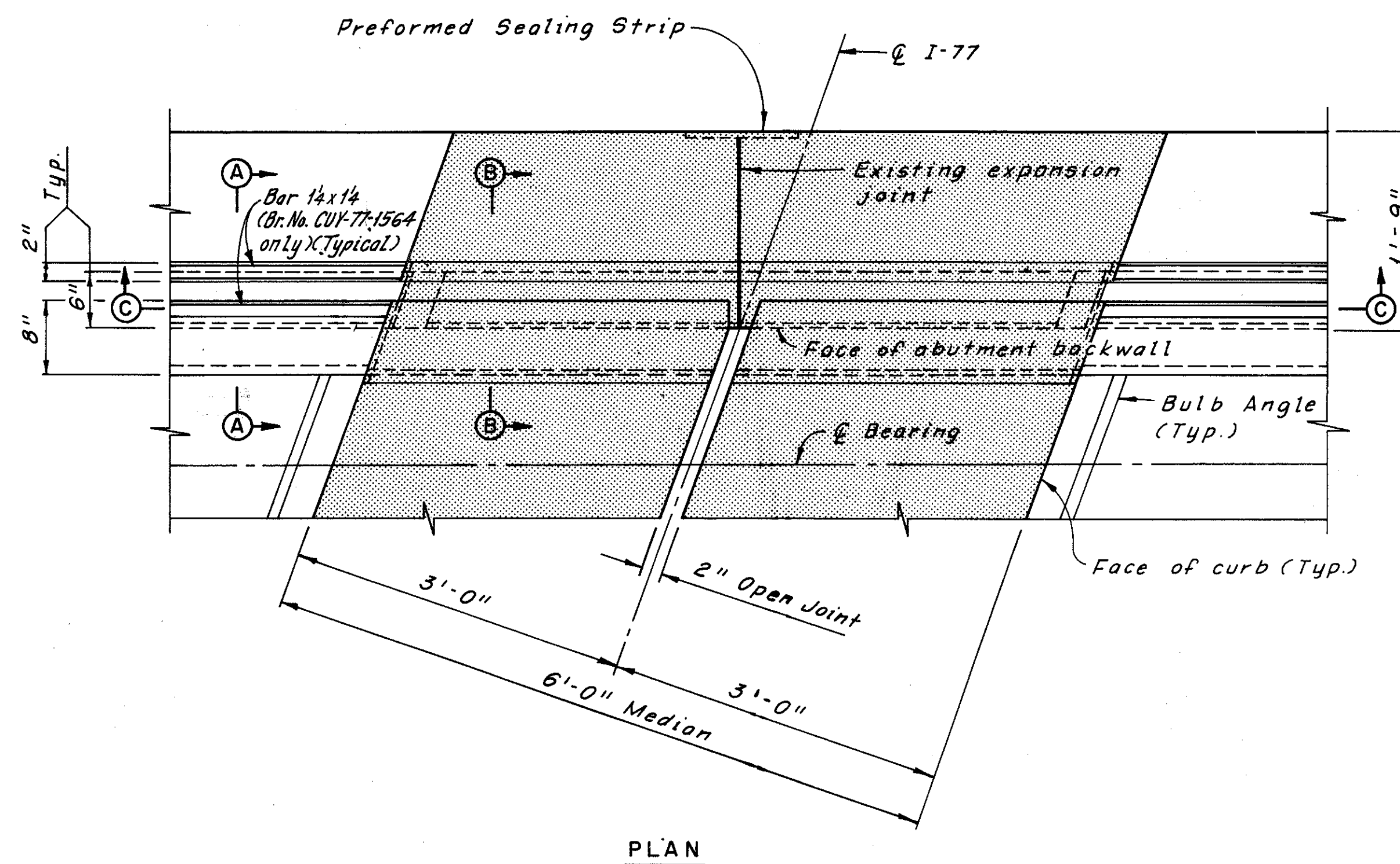
BR.NO. CUY-77-1436C BR.NO. CUY-90-1628
BR.NO. CUY-77-1459 BR.NO. CUY-90-1640
BR.NO. CUY-77-1519 BR.NO. CUY-90-1651
CUYAHOGA COUNTY OHIO

DRAWN BY TRACED BY CHECKED BY
DATE 2-9-75 DATE 2-10-75 DATE 2-14-75 DATE
SHEET CD-2

| | | | |
|-------------|-------|---------|--|
| FHWA REGION | STATE | PROJECT | |
| 5 | OHIO | | |

162
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



EXISTING PLAN AND CROSS SECTIONS AT MEDIAN

Indicates Removal

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
CLEVELAND

HNTB

EXPANSION JOINT DETAILS
AT MEDIAN (EXISTING)

BR. NO. CUY - 77 - 1548
BR. NO. CUY - 77 - 1564
BR. NO. CUY - 77 - 1576A & B

CUYAHOGA COUNTY OHIO

| | | | | |
|-------------|-------------|--------------|----------|---------|
| DRAWN | TRACED | CHECKED | REVIEWED | REVISED |
| C.H.B. | A.J. | J.A.B. | | |
| DATE 2-4-75 | DATE 2-5-75 | DATE 2-12-75 | DATE | DATE |

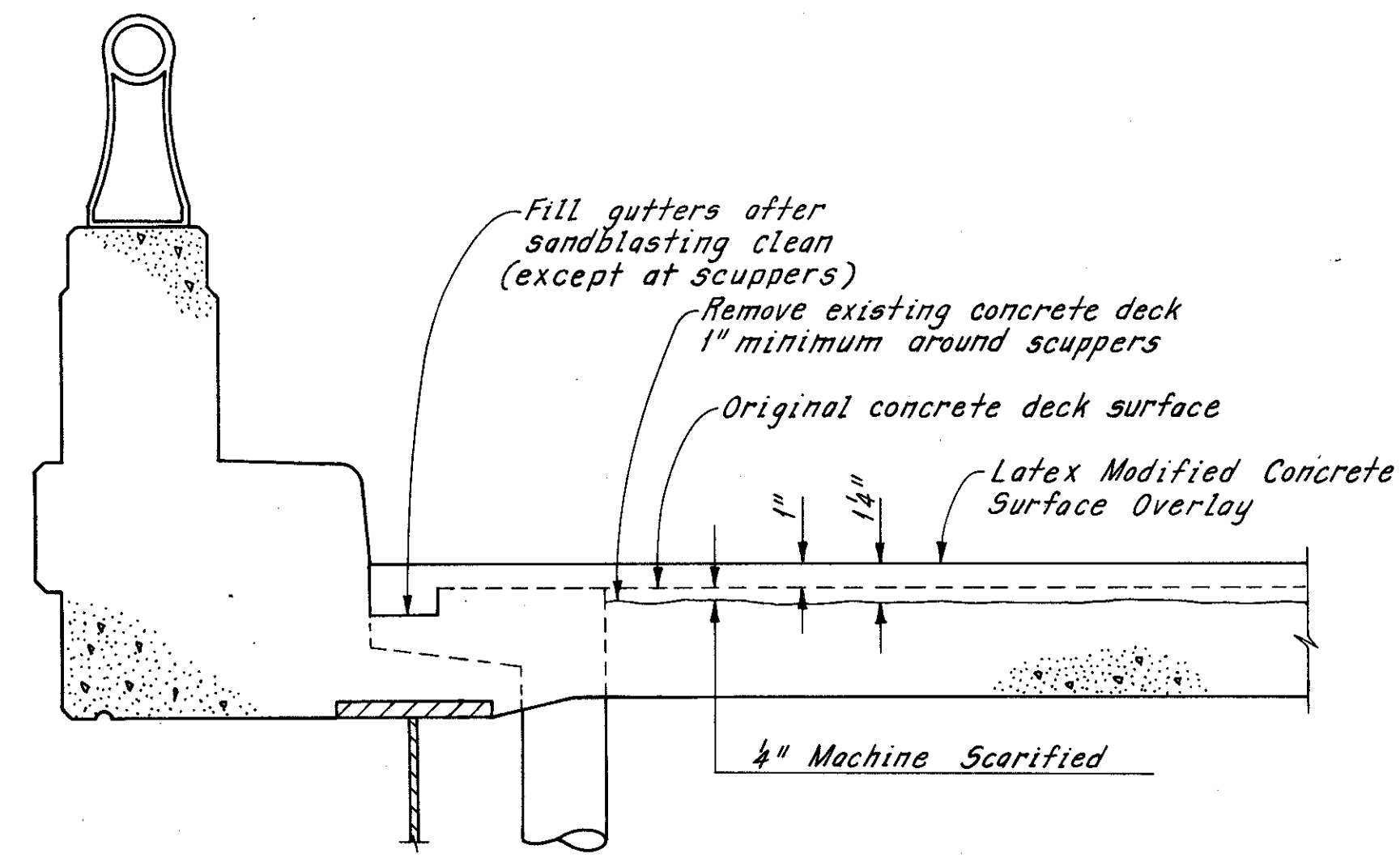
SHEET CD-3

TOP OF MEDIAN
 JUN 14 1977
 JUN 14 1977

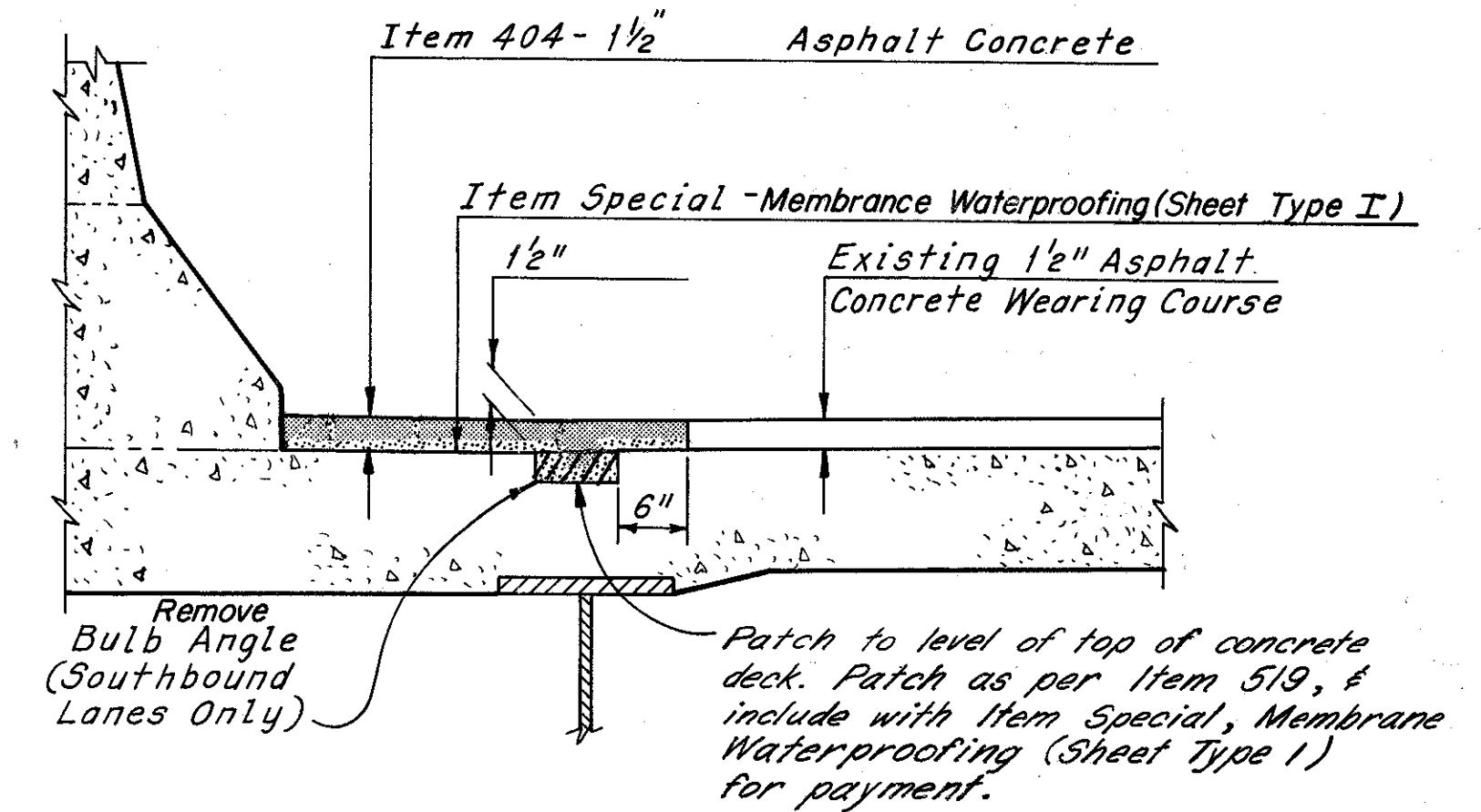
| | | | |
|-------------|-------|---------|--|
| FHWA REGION | STATE | PROJECT | |
| 5 | OHIO | | |

164
169

CUYAHOGA COUNTY
 CUY-77-14.12
 CUY-90-16.21

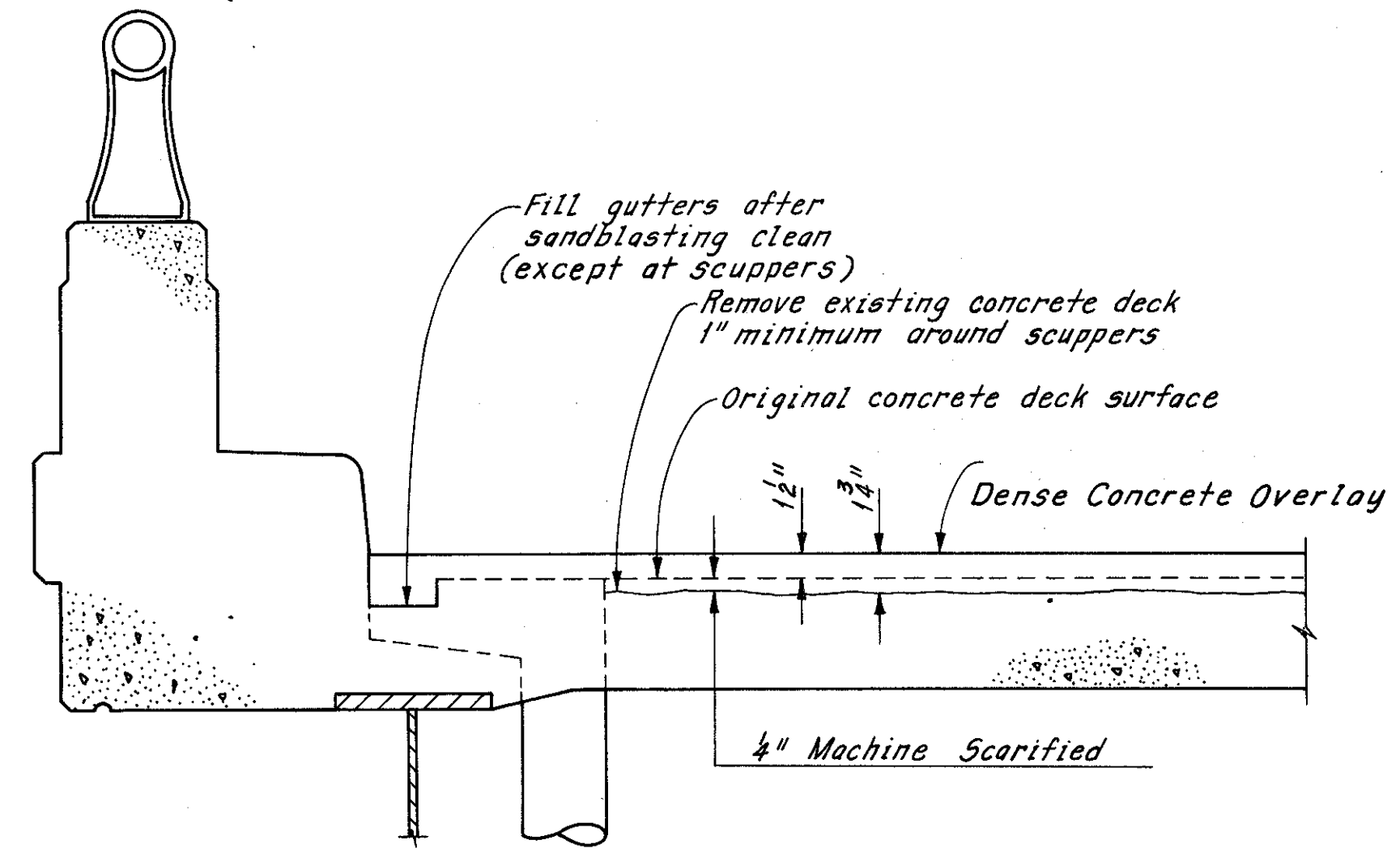


TYPICAL SECTION - ALTERNATE A
 LATEX MODIFIED CONCRETE

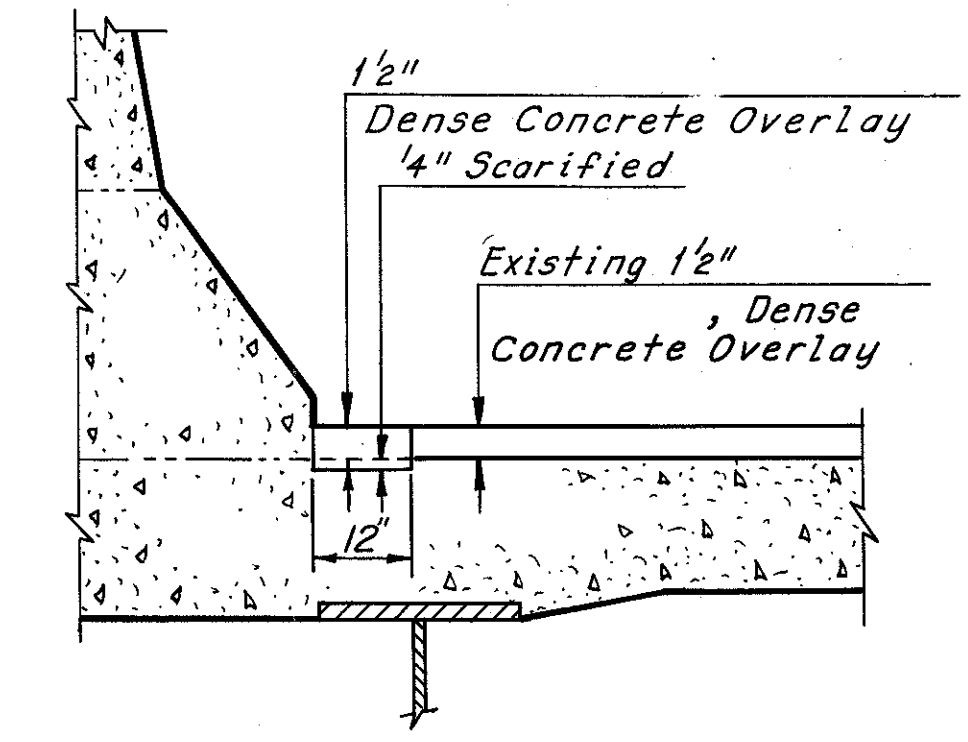


WEARING SURFACE TREATMENT

BR. NO. CUY-77-1564
 (Southbound Lanes Shown, Northbound Lanes Similar, except as noted)



TYPICAL SECTION - ALTERNATE B
 DENSE CONCRETE



RESURFACING DETAILS AT MEDIAN

BR. NO. CUY-90-1651

RESURFACING DETAILS

Note:
 Sandblasting gutters and removal of existing concrete around scuppers shall be included with Item 845, Latex Modified Concrete Overlay 1/4" Thick Or Item 850, Dense Concrete Overlay 1 3/4" Thick Payment.

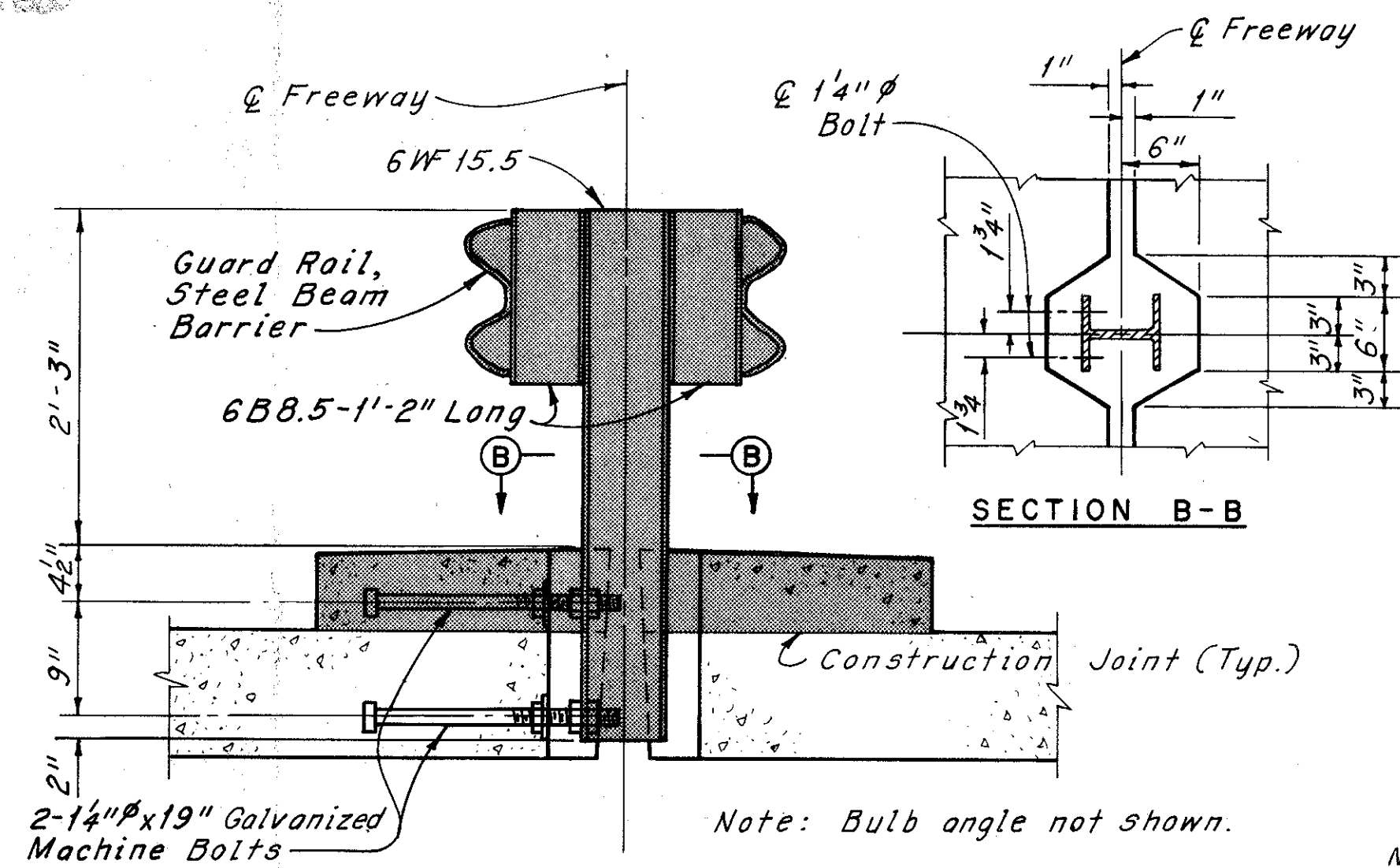
| | | | |
|---|--------------|--------------|-----------------|
| HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND | | | HNTB |
| WEARING SURFACE TREATMENT AND RESURFACING DETAILS | | | |
| CUYAHOGA COUNTY | | | OHIO |
| DRAWN: CKB | TRACED: C.P. | CHECKED: DHS | REVIEWED: _____ |
| DATE: 6-7-77 | DATE: 7-1-77 | DATE: 7-7-77 | DATE: _____ |
| | | | SHEET CD-5 |

MICROFILMED
JUN 24 1980

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| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

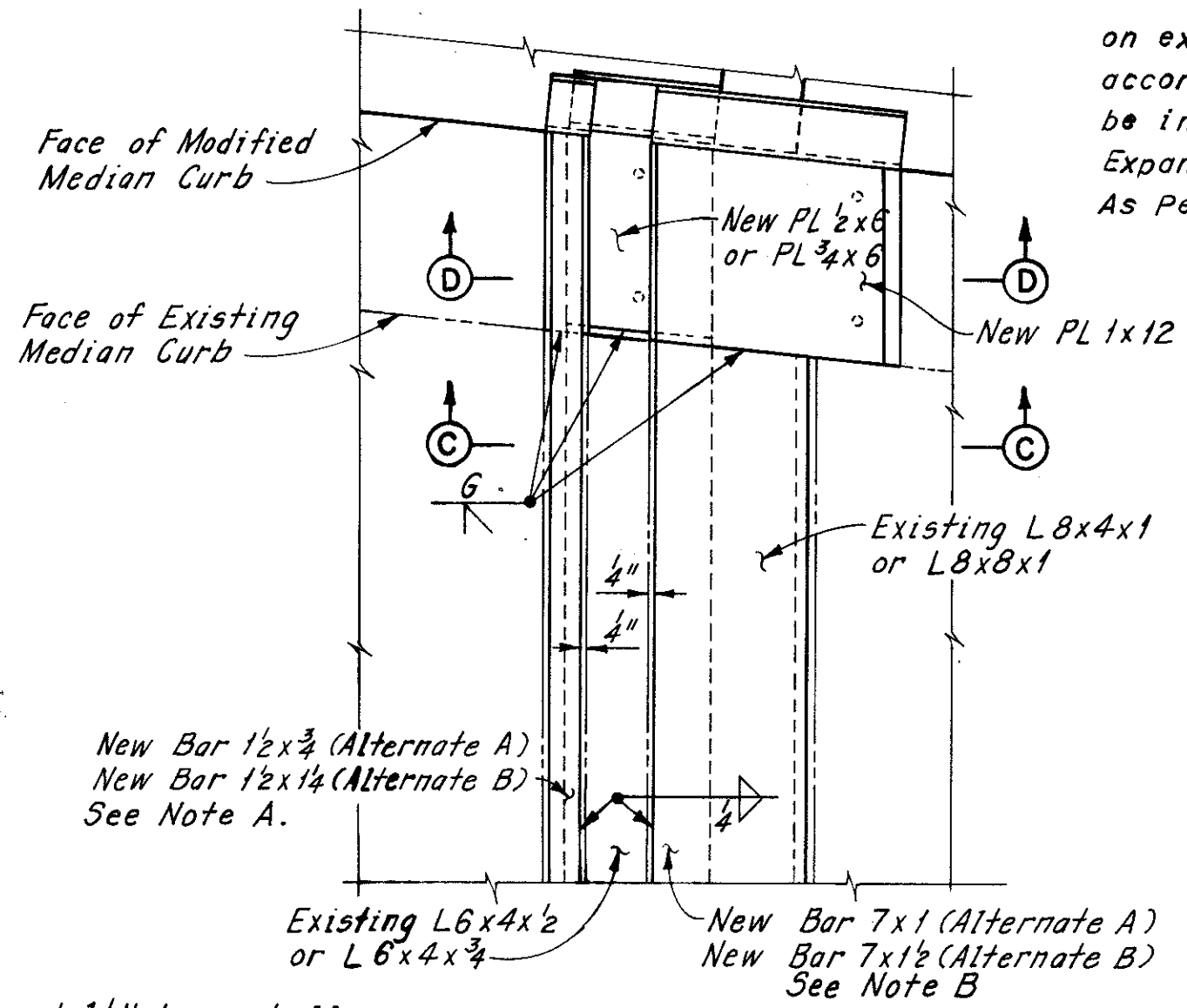
165
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



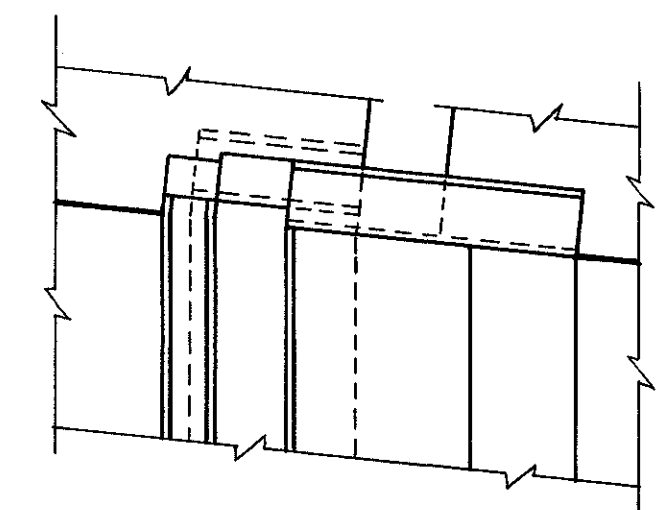
EXISTING MEDIAN AT POST ANCHOR
(Br. No. CUY-77-1548, Br. No. CUY-77-1564, Br. No. CUY-77-1576A and B, Br. No. CUY-90-1628, Br. No. CUY-90-1640 and Br. No. CUY-90-1651)

Note: New 7" bars and 1 1/2" bars shall be included with Item 516, Vertical Extension of Structural Expansion Joints (End Dams and Longitudinal Deck Joints), for payment.



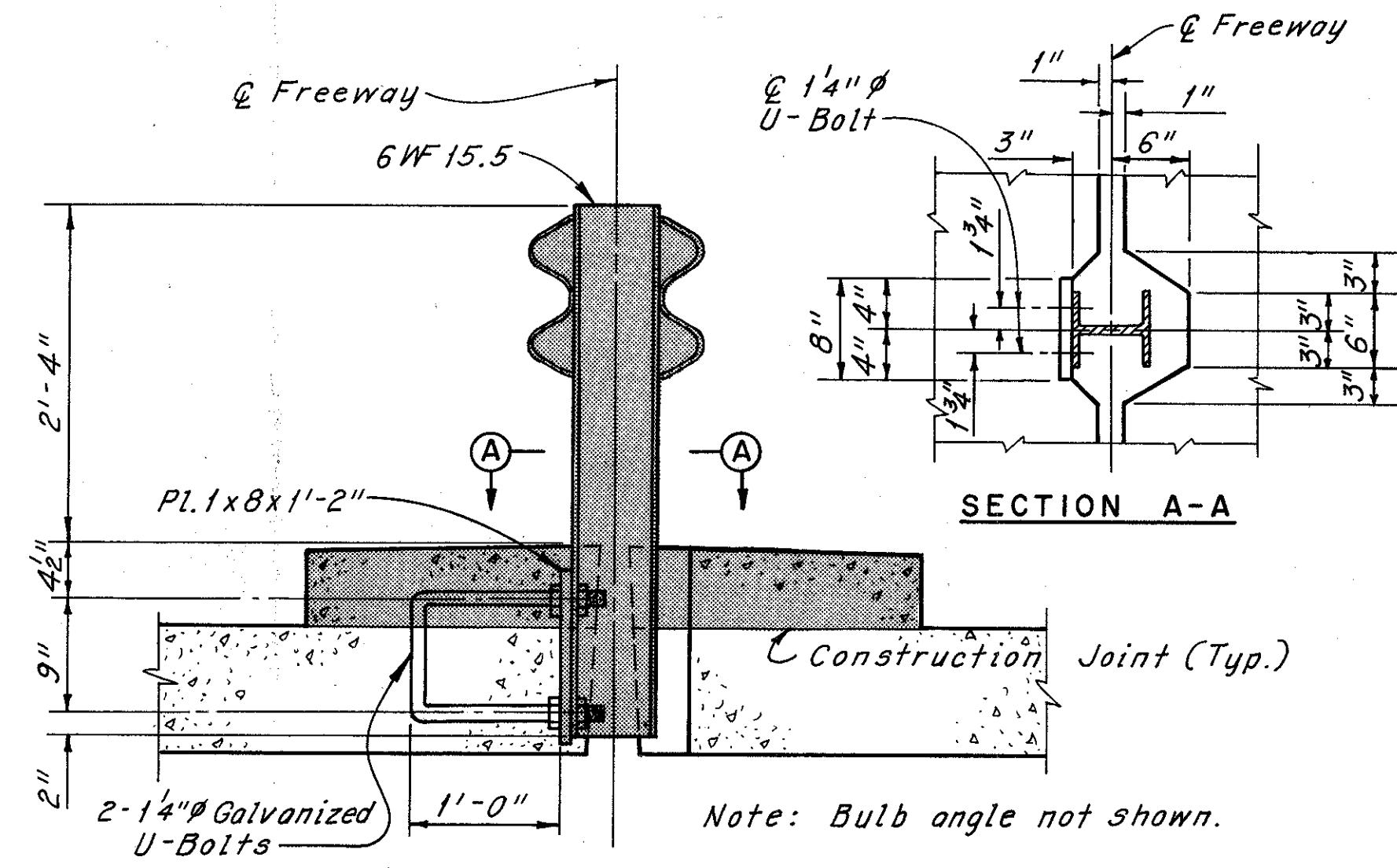
PART PLAN
(Existing structural steel shown in phantom)

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 (End Dams and Longitudinal Deck Joints), As Per Plan.



PART PLAN
BR. NO. CUY-77-1519
(For Details Not Shown, See Part Plan)

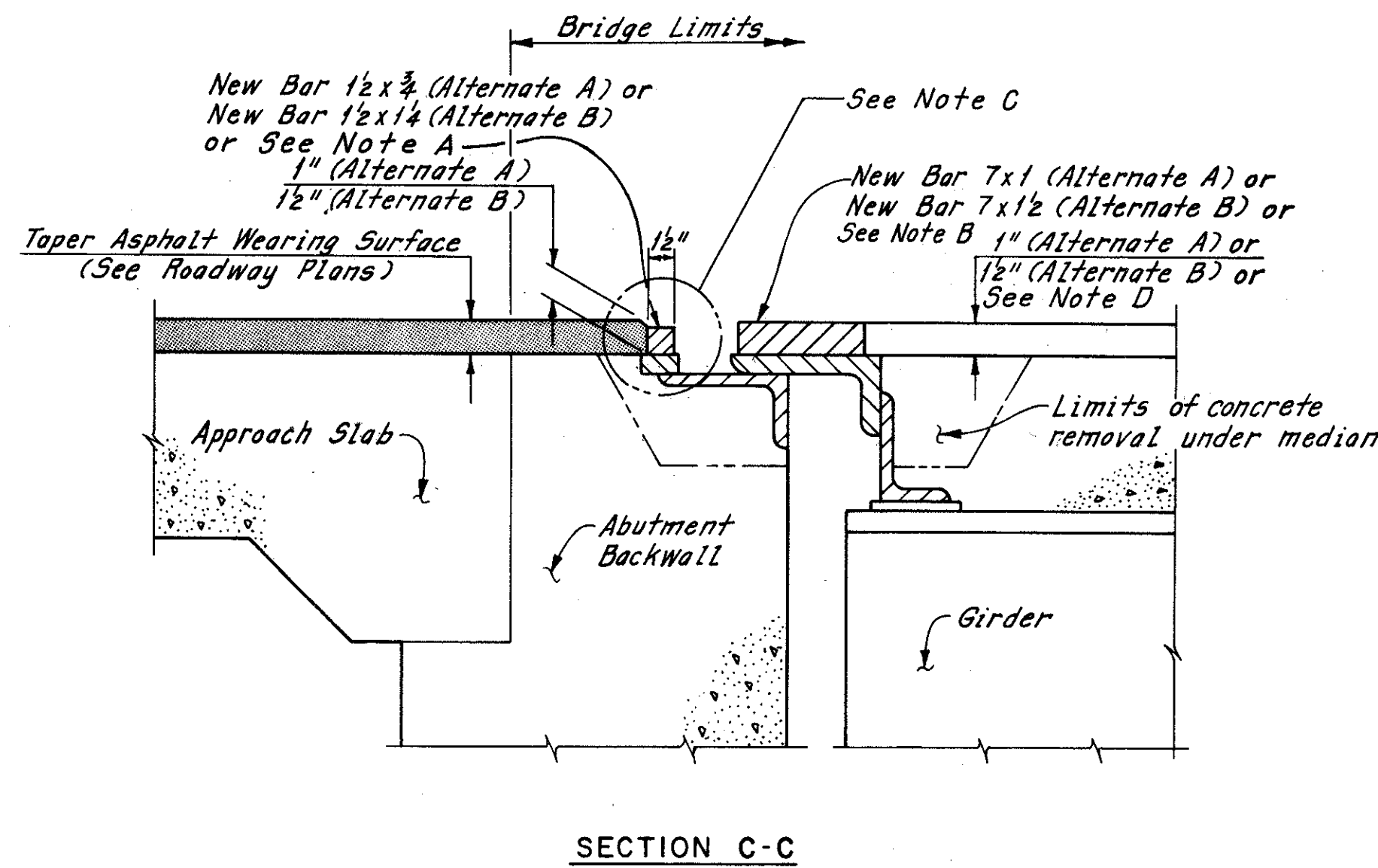
Note: The deflection joints in the new concrete barrier median shall be 1/4" gray cellular polyvinyl chloride (PVC) sponge or 1/4" gray sponge rubber. If rubber is used, it shall meet the requirements of AASHTO M-153. The deflection joint shall extend from the top of parapet to Construction Joint (A) 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.



EXISTING MEDIAN AT POST ANCHOR
(Br. No. CUY-77-1436C, Br. No. CUY-77-1459 and Br. No. CUY-77-1519)

MEDIAN POST ANCHOR DETAILS

Indicates Removal

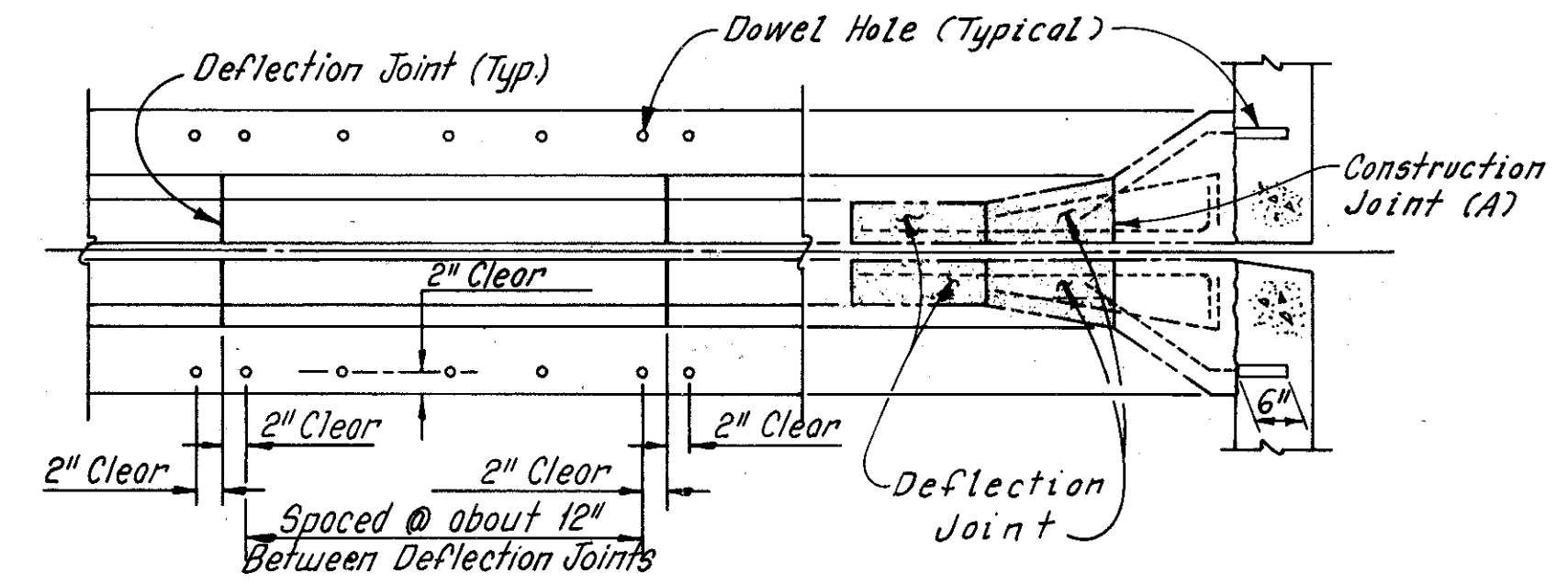


Note A: Existing Bar 1 1/4x1 1/4, Br. No. CUY-77-1564.
Existing Bar 1 1/2x1 1/4, Br. No. CUY-90-1651.

Note B: Existing Bar 1 1/4x1 1/4, Br. No. CUY-77-1564.
Existing Bar 7x1 1/2, Br. No. CUY-90-1651.

Note C: For detail at Abutment E-5, Br. No. CUY-90-1628, see Sheet 3/5.
For detail at East Abutment, Br. No. CUY-90-1651, see Sheet 6/8.

Note D: Existing 1 1/2" Asphalt Concrete, Br. No. CUY-77-1564.
Existing 1 1/2" Dense Concrete, Br. No. CUY-90-1651.



DOWEL HOLE SPACING FOR 60I BARS

Note: For Section D-D and additional details, see Sheets CD-2 and CD-4.

RAISING EXPANSION JOINT
(At Brs. Nos. CUY-77-1564 and CUY-90-1651 the Expansion Joints shall be raised only adjacent to the median)

| | | | | |
|--|----------------|--------------------------|----------|-------------|
| HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND | | | | HNTB |
| MEDIAN POST ANCHOR, RAISING EXPANSION JOINT AND DOWEL HOLE SPACING FOR 60I BARS DETAILS | | | | |
| CUYAHOGA COUNTY | | | | OHIO |
| DRAWN C.K.B. | TRACED C.P. | CHECKED D.H.S./C.K.B. | REVIEWED | REVISED |
| DATE 7-7-77 | DATE 7-8-77 | DATE 7-12-77 | DATE | SHEET CD-6 |

| | | |
|-------------|-------|---------|
| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

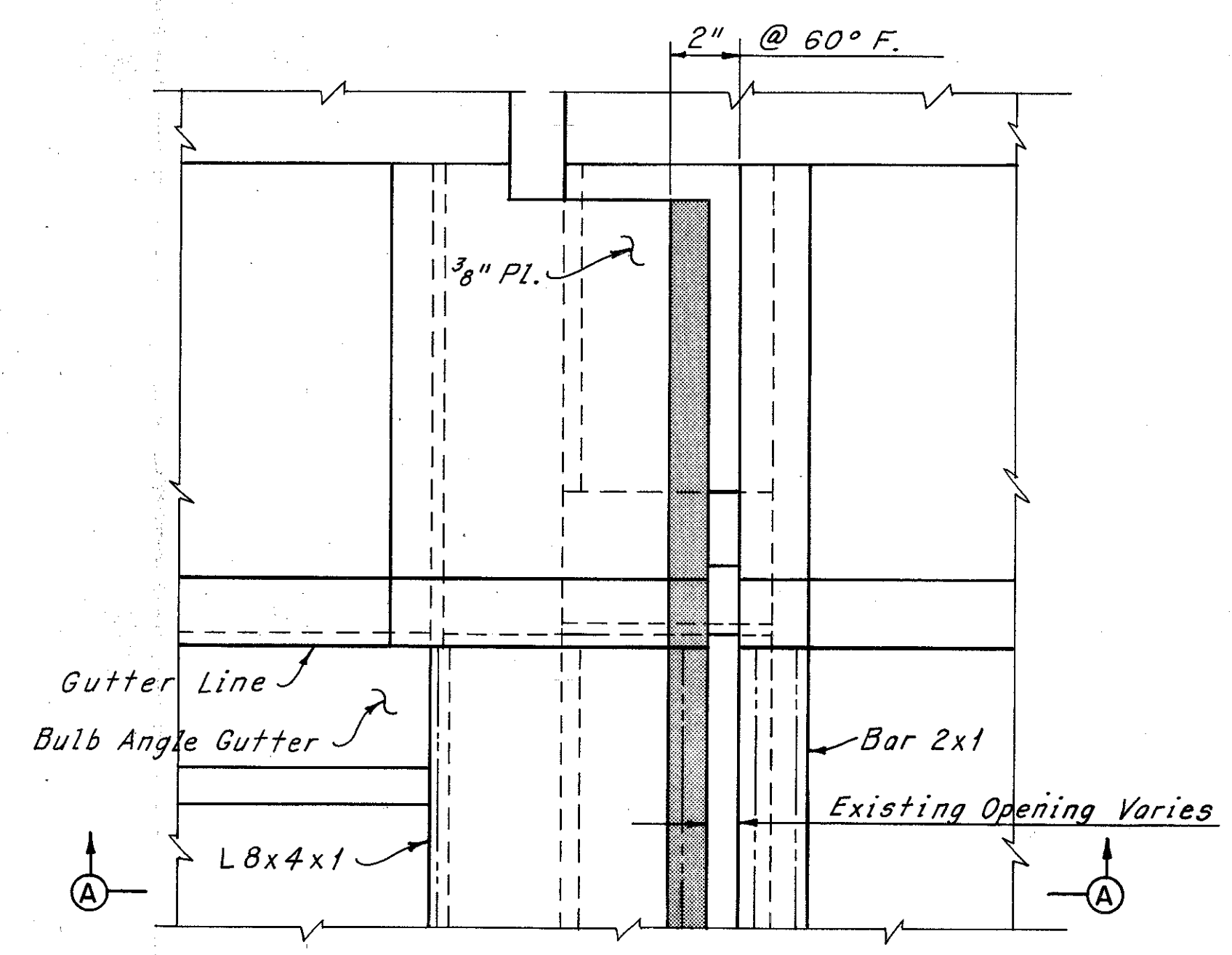
166
169

CUYAHOGA COUNTY
CUI-77-14.12
CUI-90-16.21

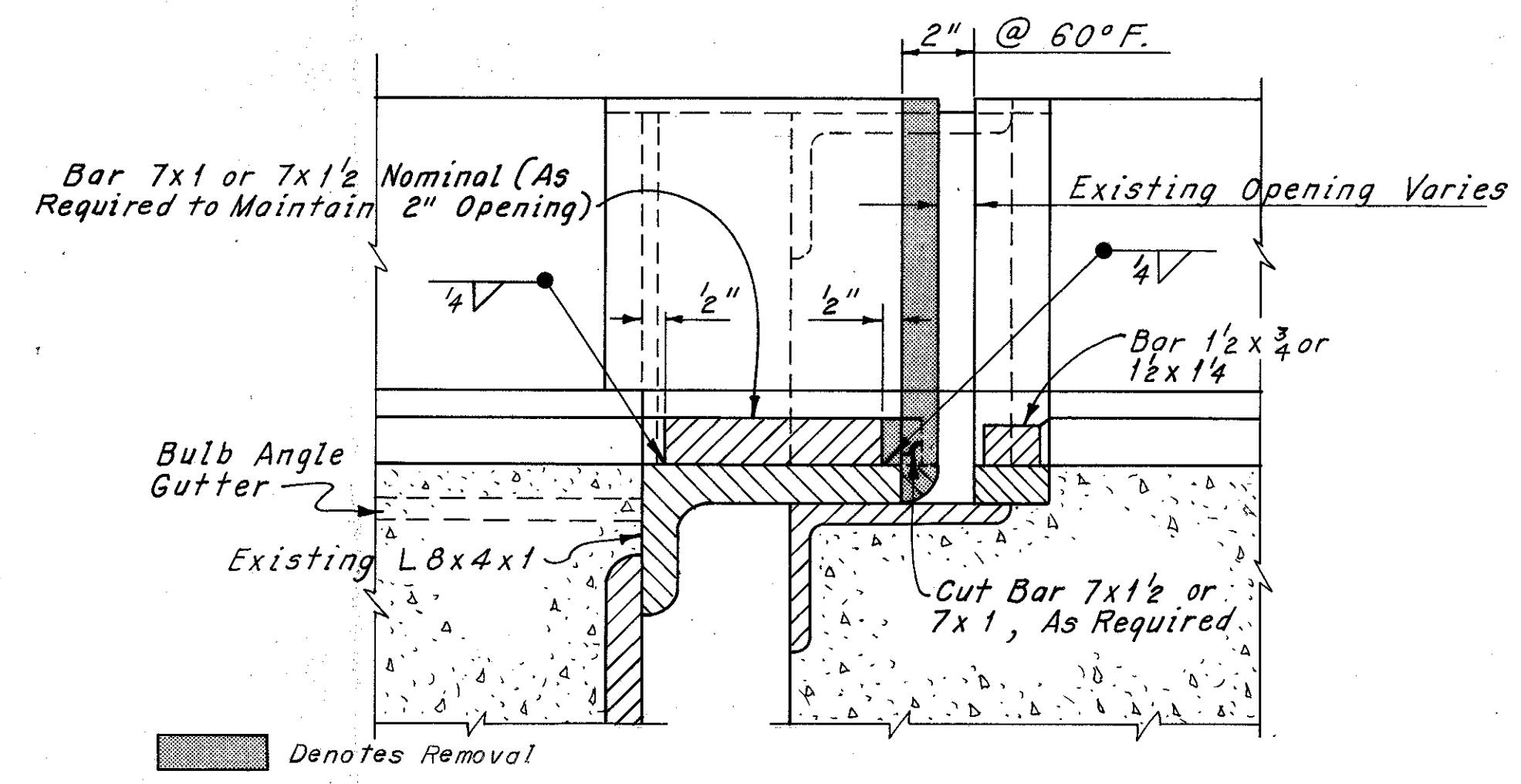
INSTALLATION: Immediately prior to adhesive application, bonding surfaces shall be clean, dry and warmer than 45°F, & they shall be maintained at or above this temperature until the adhesive is cured. Adhesive shall be applied liberally to both steel & elastomeric bonding surfaces using a stiff brush if necessary to achieve a complete and relatively uniform coating. Then the elastomeric seal shall be compressed sufficiently so that it can be inserted & allowed to expand within the joint. After installation, excess adhesive (except for the 1/4 inch beads) shall be removed from the exposed seal surfaces.

PROCEDURE FOR TRIMMING EXPANSION JOINTS

1. Install pressure relief joints prior to performing this work.
2. Trim superstructure angle and curb plate maintaining a 2" nominal dimension between the backwall edge bar and modified angle or plate (See Detail). Special care shall be taken by the Contractor so as not to damage any portion of the end dam members.
3. Where surface roughness results from trimming, the Contractor shall grind those areas as directed by the Engineer.



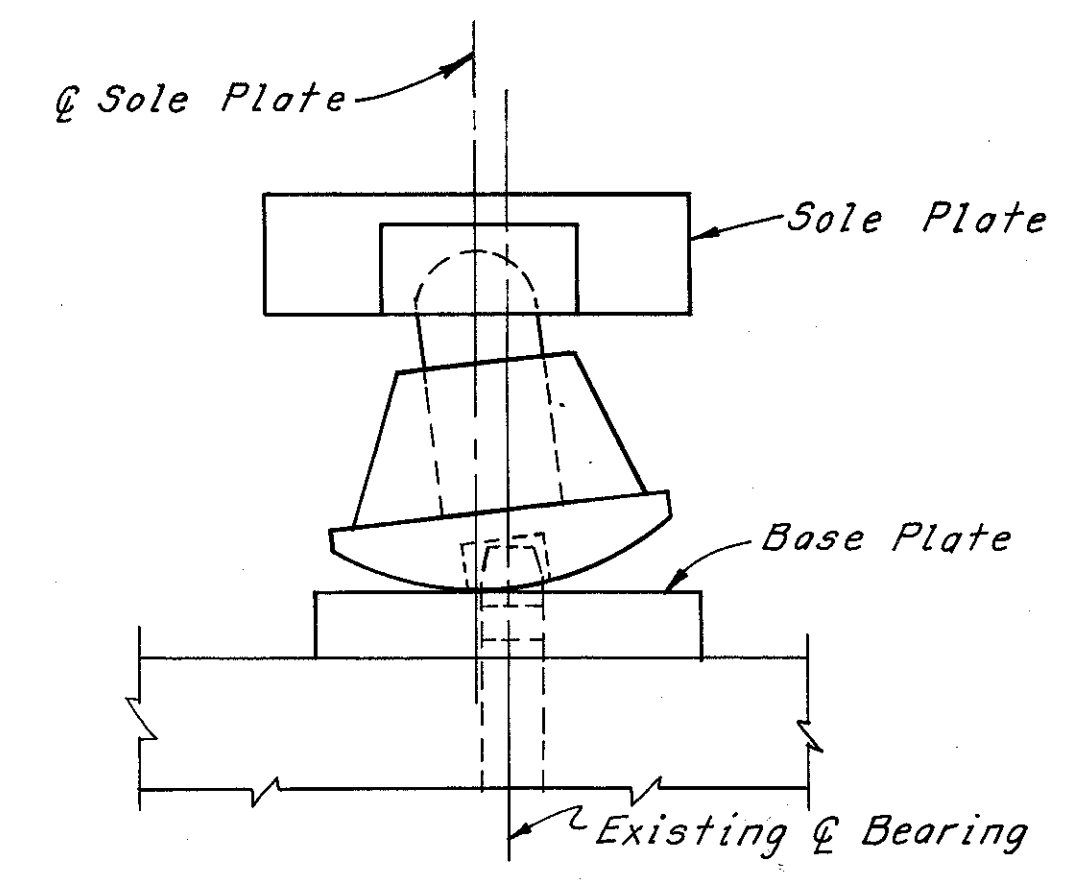
EXISTING PLAN



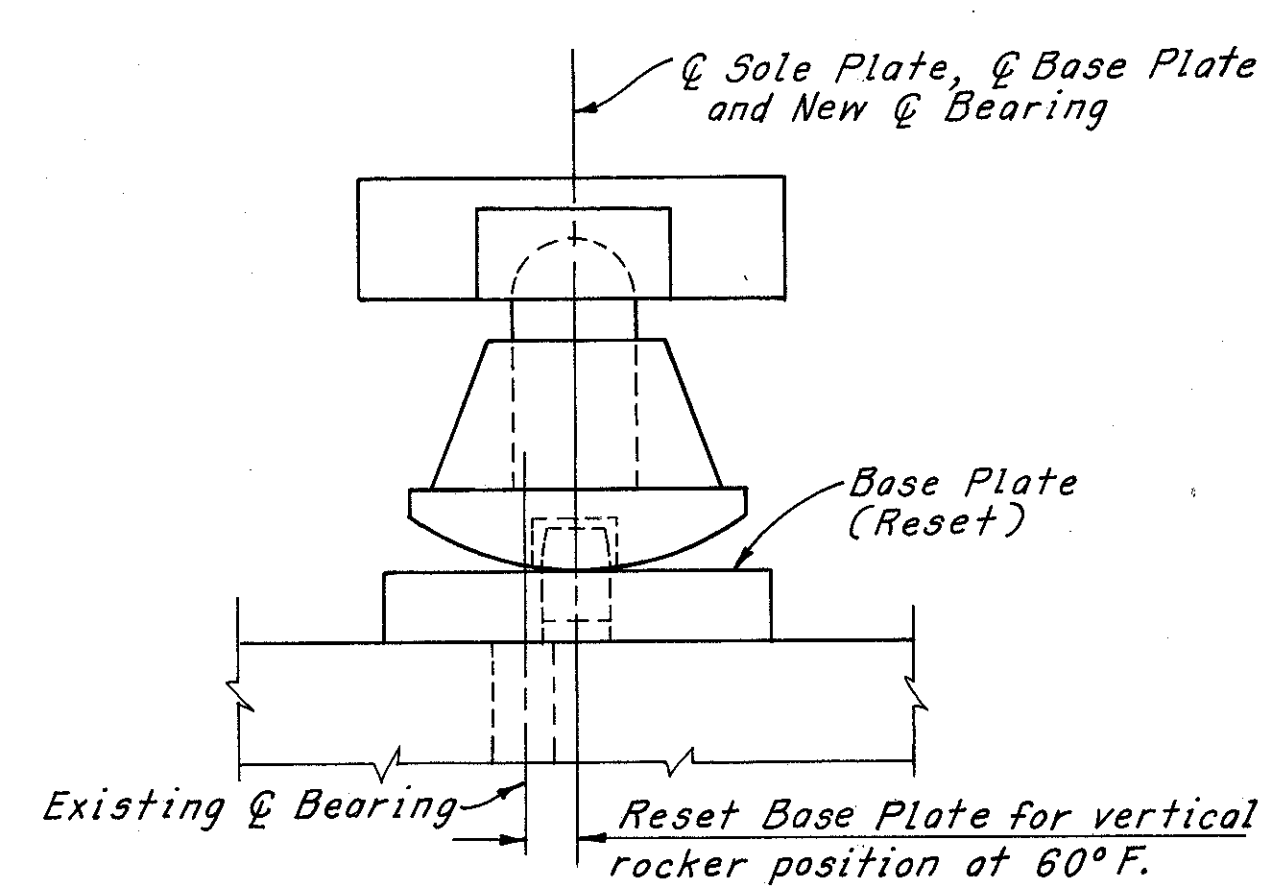
EXISTING AND MODIFIED SECTION A-A

TRIM EXPANSION JOINT

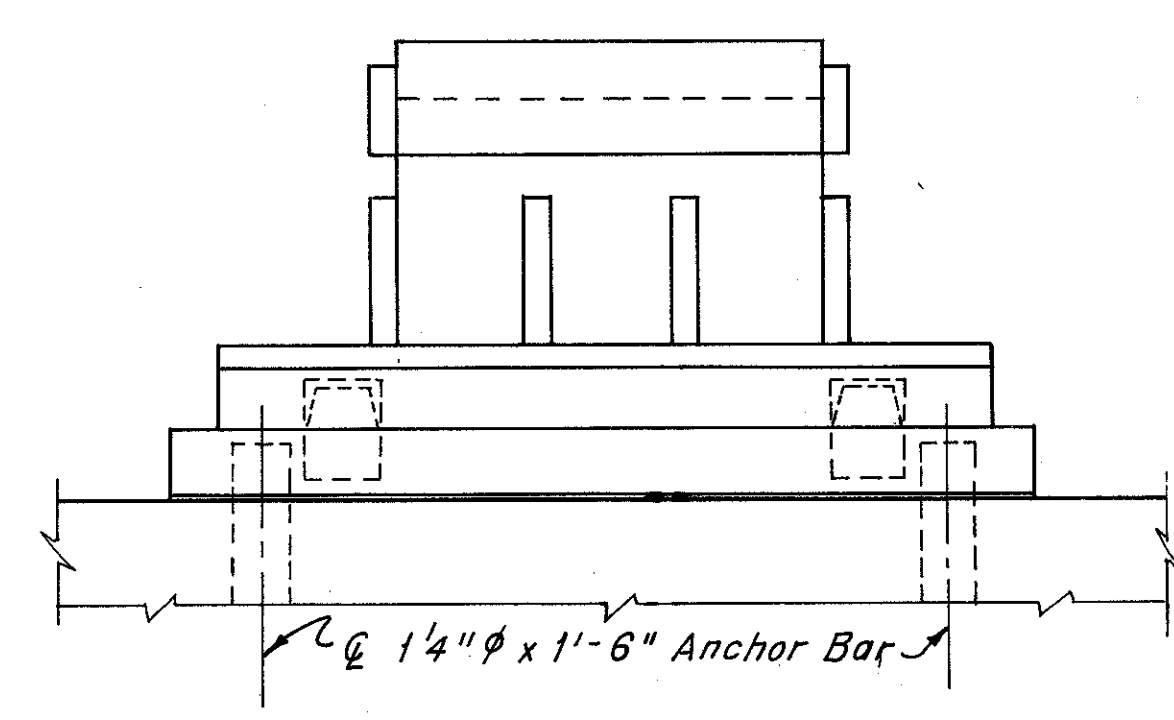
(Steel removal required for this repair including surface grinding and welding required, shall be included with Item 202, Portions of Structures Removed, for payment)



EXISTING SIDE ELEVATION



MODIFIED SIDE ELEVATION



FRONT ELEVATION

RESET BEARINGS

PROCEDURE FOR RESETTING BEARING

1. Raise the entire superstructure at the abutment (all girders or beams simultaneously) until there is no contact between the sole plate and the bearing.
2. Remove anchor bars to top of masonry.
3. Reset the rocker and base plate in final position by centering the base plate under the sole plate both in the longitudinal and transverse direction.

Note:

Backwall replacement shall be accomplished in connection with the raising of the superstructure for the resetting of the bearings.

ELASTOMERIC COMPRESSION SEALS FOR STRUCTURAL STL. JOINTS

DESCRIPTION: This item shall conform to Supplemental Specification 849 except as follows:

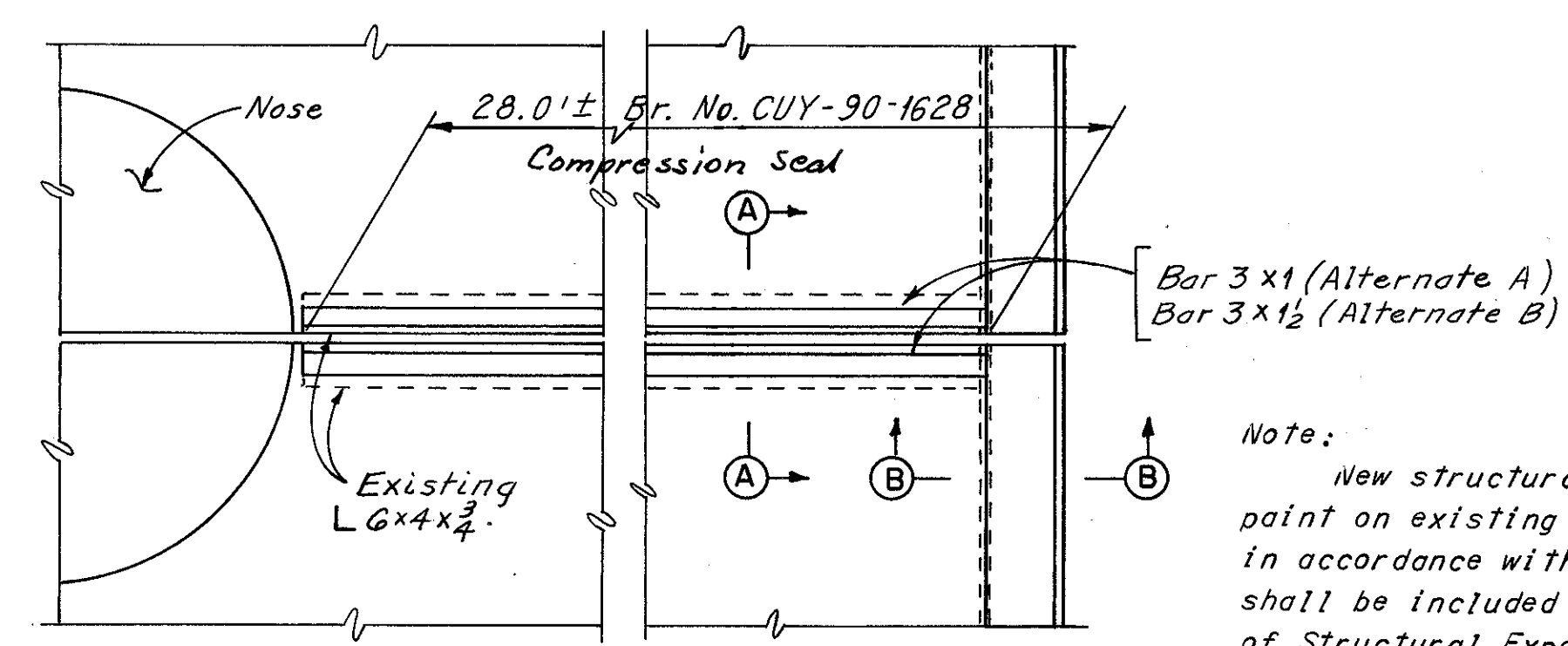
MATERIALS: Adhesives shall be Sikastix 360, Fel-Poxy EP101 or approved alternate. Metal surface primers are not required.

PREPARATION FOR INSTALLATION: Elastomeric surfaces shall be cleaned with MEK, T or other approved solvent using clean disposable cloths. Then not more than 7 days prior to seal installation, a thin coating of cyclizing paste* shall be applied to the elastomeric bonding surfaces only. After from 25 to 40 minutes, the paste shall be washed from the surfaces with clean water.

The preparation of the steel surfaces shall be accomplished not more than 24 hours prior to adhesive bonding.

*Cyclizing Paste is a mixture of 1 pound of Hilsil and 6 pounds of concentrated sulfuric acid (18 molar). To mix the paste, add Hilsil to acid slowly while stirring mixture to achieve a smooth, viscous paste. NOTE: Since concentrated sulfuric acid is very corrosive & Hilsil is an extremely fine, non-toxic powder, rubber gloves & glasses should be used by those using the paste while gloves, glasses & respirator should be used by those mixing the paste.

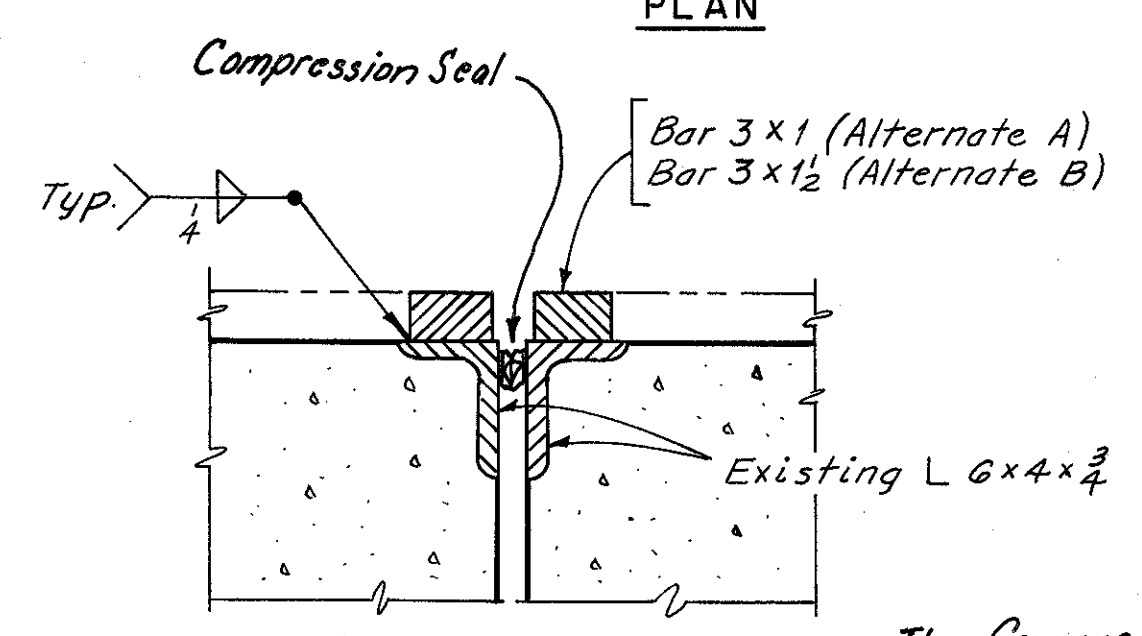
(For INSTALLATION procedure see Note at top of Sheet.)



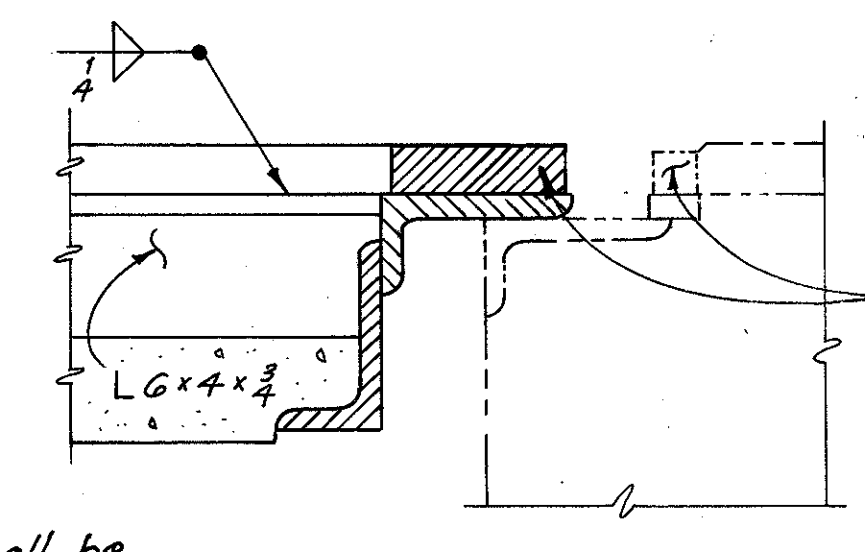
PLAN

Note:

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 516, Vertical Extension of Structural Expansion Joints (End Dams and Longitudinal Deck Joints), As Per Plan.



SECTION A-A



SECTION B-B

The Compression Seal shall be J-125, Acme Highway Products Corp or E-1250, D.S. Brown Co or equal.

RAISING LONGITUDINAL DECK JOINT

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND HNTB

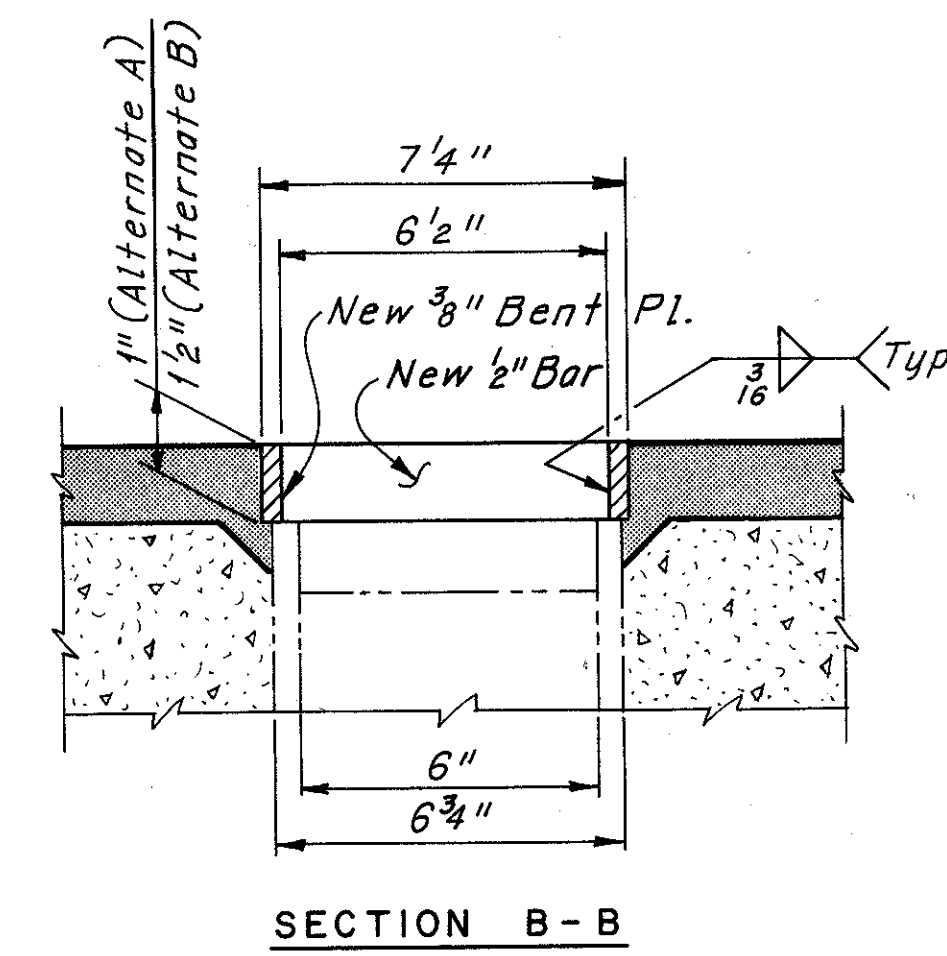
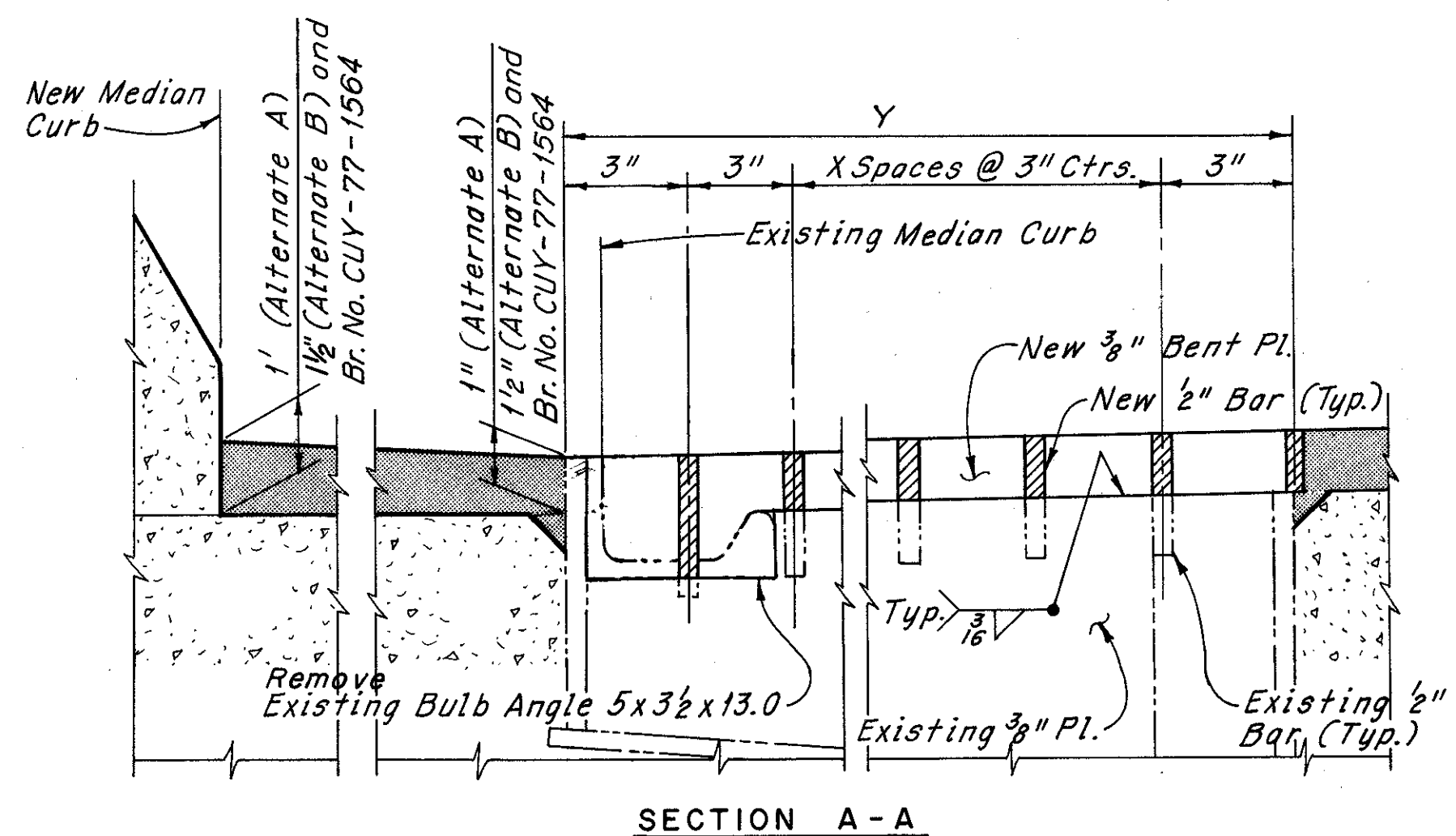
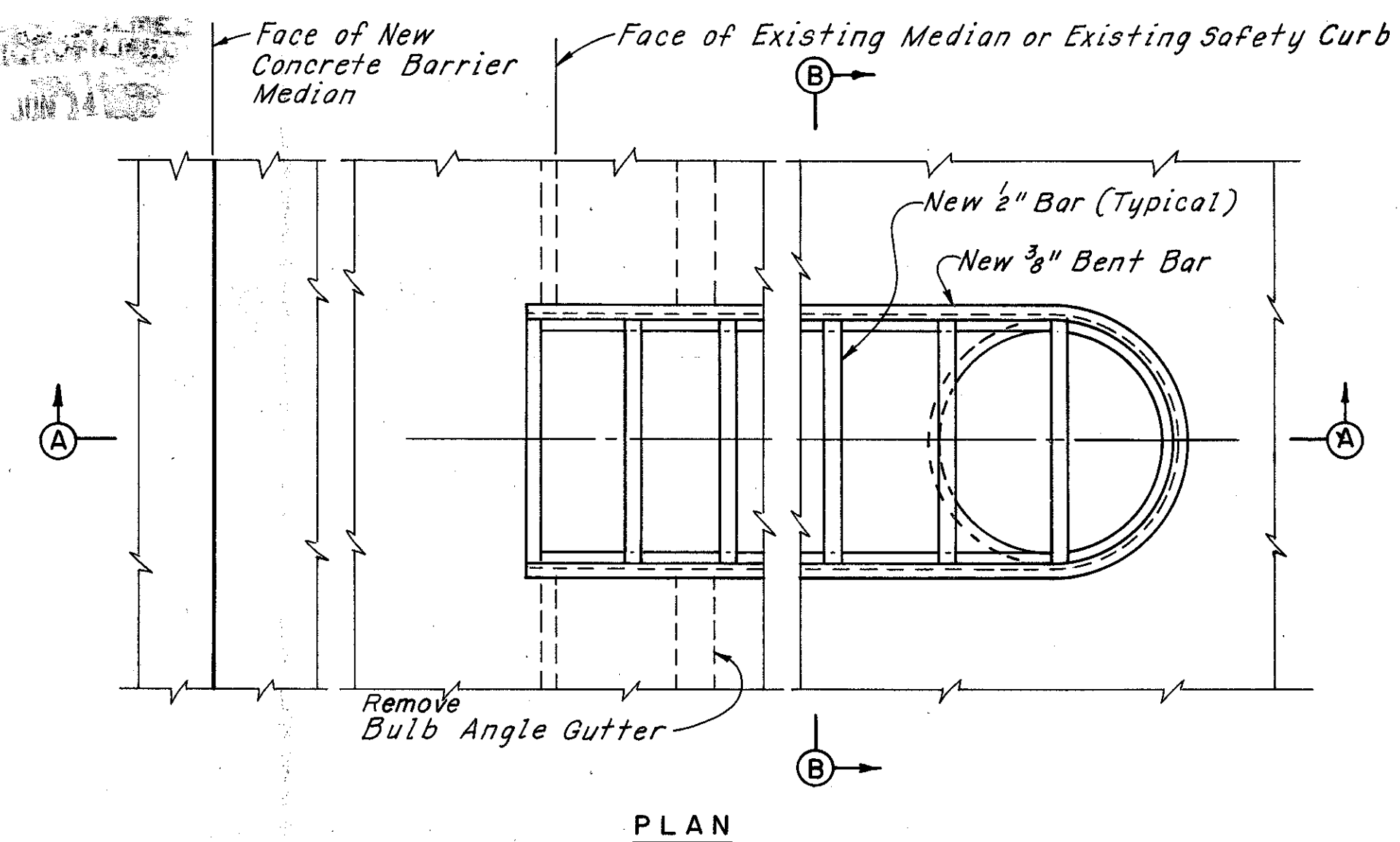
TRIM EXPANSION JOINT, RESET BEARINGS AND RAISING LONGITUDINAL DECK JOINT

CUYAHOGA COUNTY OHIO

| | | | | |
|-------------|--------------|--------------|----------|------------|
| DRAWN | TRACED | CHECKED | REVIEWED | REVISED |
| CKB | D.H.S. | G.P. | D.H.S. | 10-26-78 |
| DATE 7-9-77 | DATE 7-11-77 | DATE 7-12-77 | DATE | SHEET CD-7 |

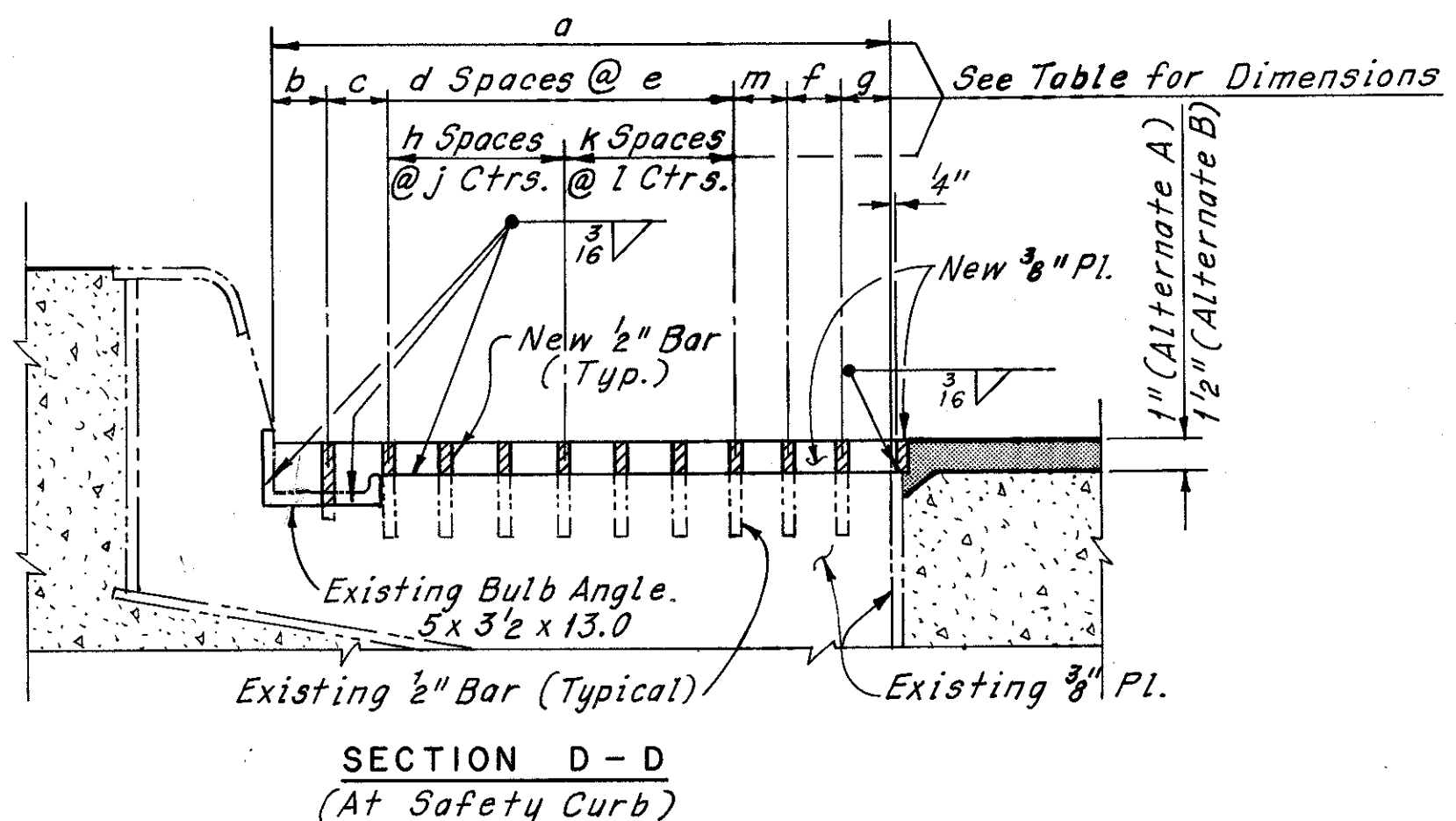
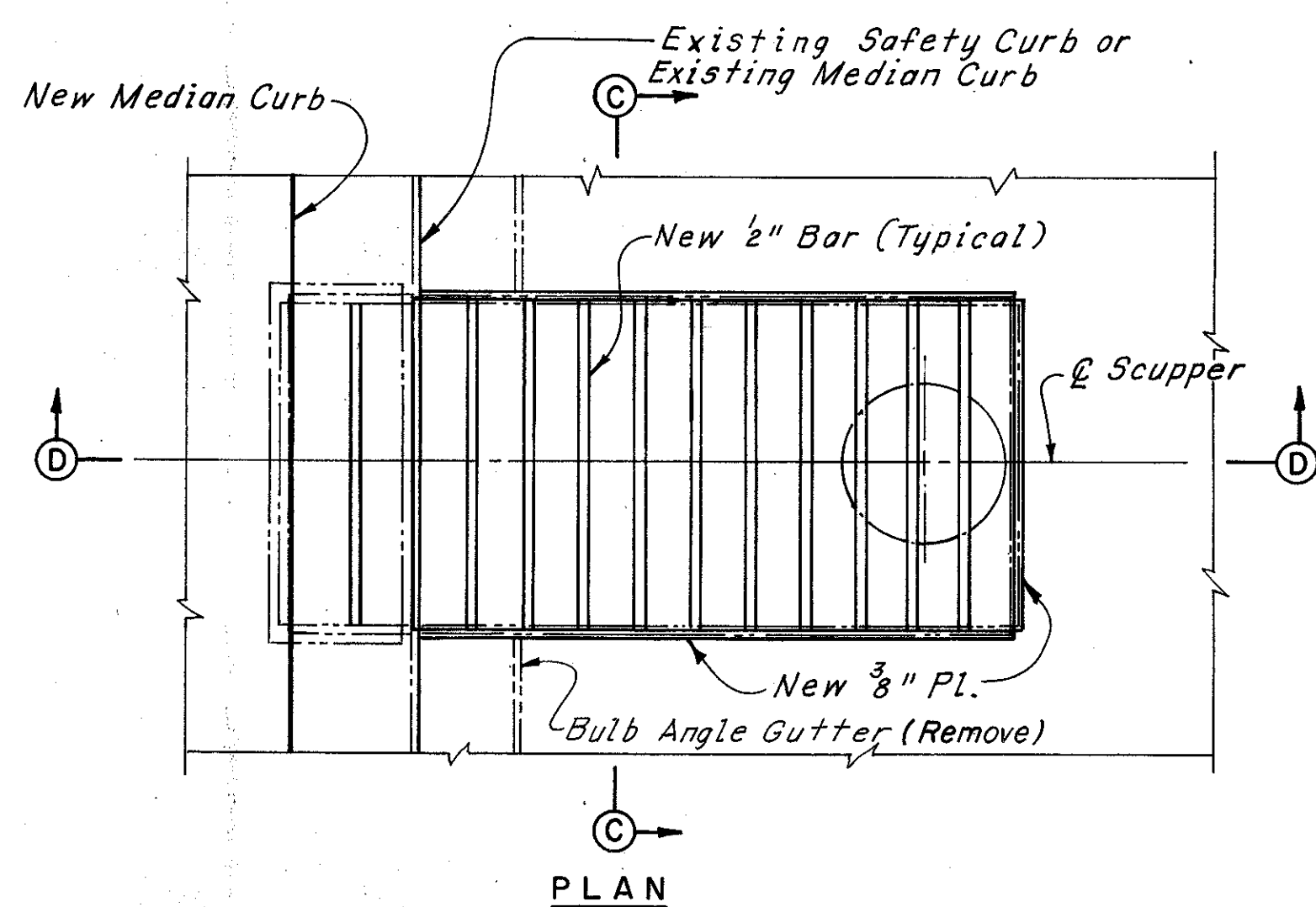
Rev. 10-26-78

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



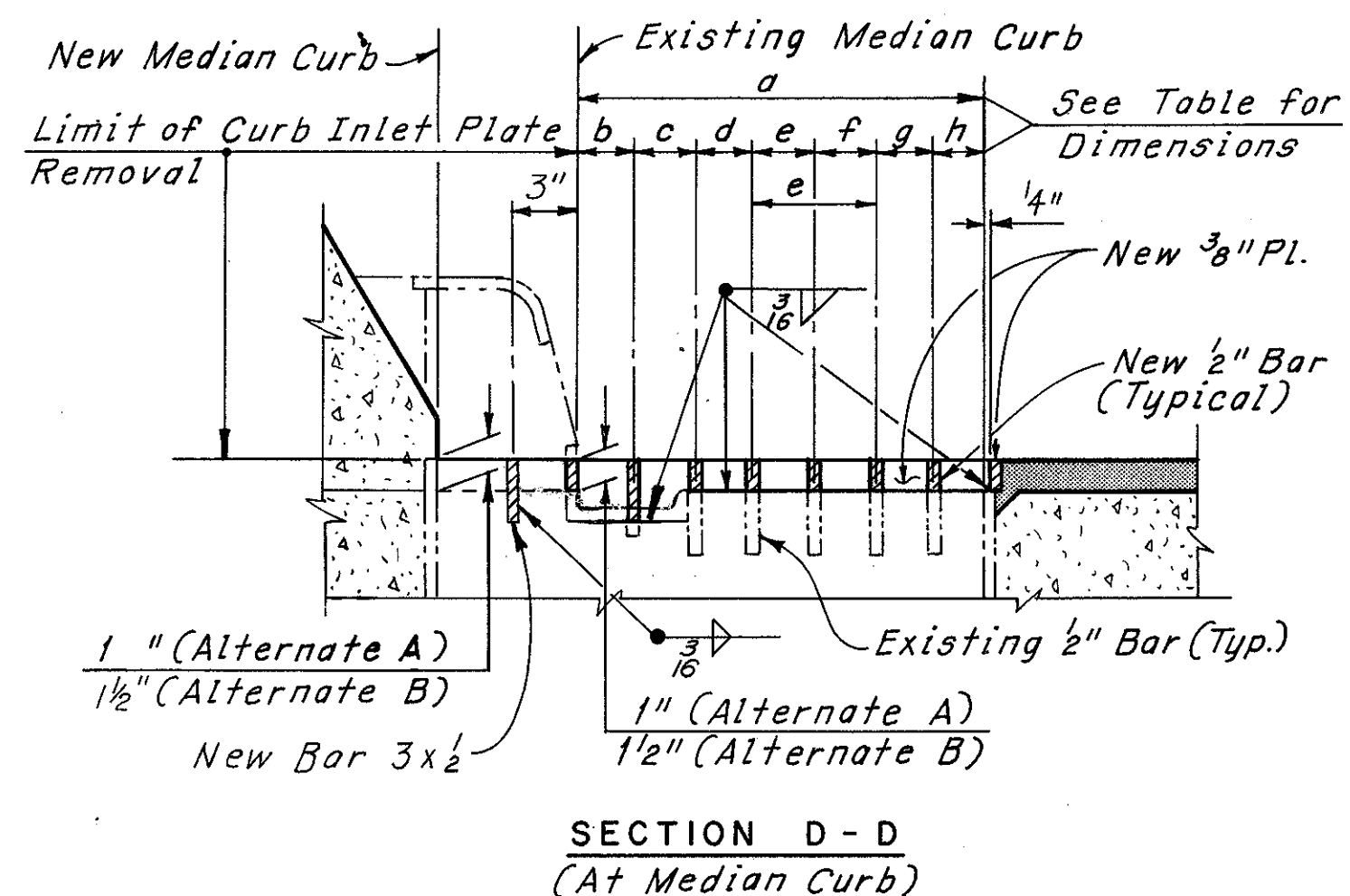
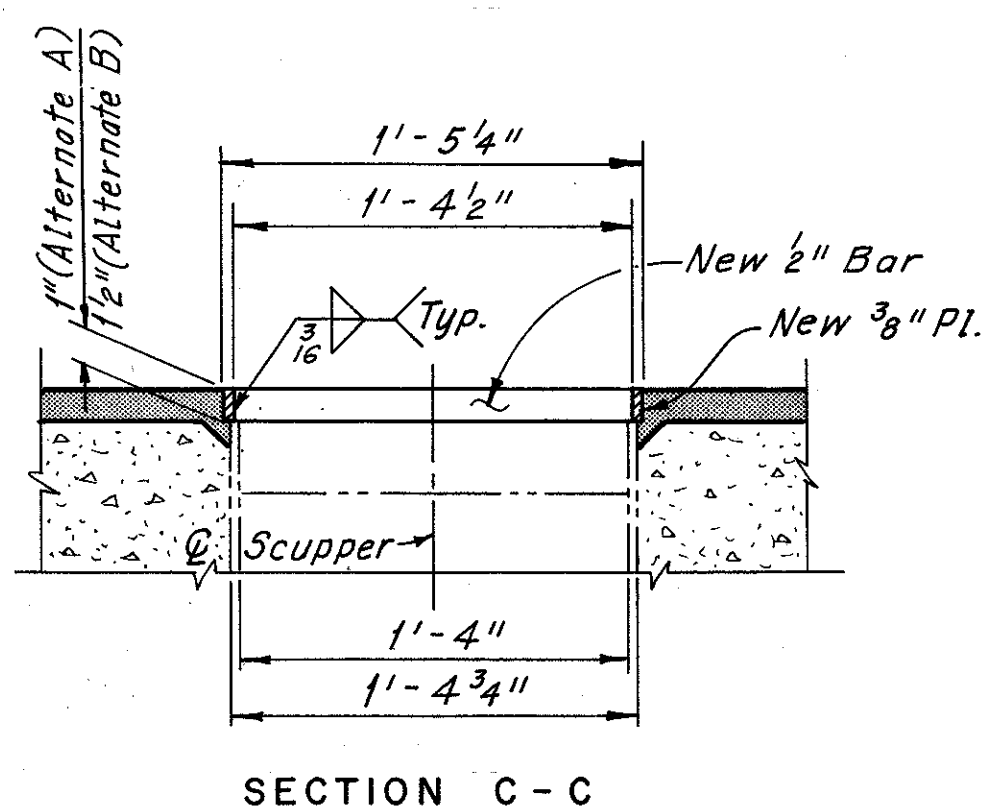
| SCUPPER TYPE | DIMENSIONS | |
|--------------|------------|-------|
| | X | Y |
| A | 2 | 1'-3" |
| B | 3 | 1'-6" |
| C | 5 | 2'-0" |
| D | 7 | 2'-6" |

BR. NO. CUY-77-1548, BR. NO. CUY-77-1564, BR. NO. CUY-77-1576A AND B, BR. NO. CUY-77-1593L, BR. NO. CUY-90-1628, BR. NO. CUY-90-1640,
RAMPS E-15 AND E-18 OVER EAST 9th ST. AND RAMP E-15 OVER W.B. BROADWAY AVENUE



| BRIDGE NO. CUY-77- | DIMENSIONS (AT SAFETY CURB) | | | | | | | | | | | |
|--------------------|-----------------------------|--------|--------|---|--------|--------|--------|---|--------|---|--------|--------|
| | a | b | c | d | e | f | g | h | j | k | l | m |
| 1436C | 2'-5 3/8" | 2 3/8" | 2 7/8" | 6 | 2 3/4" | 2 1/2" | 2 1/4" | - | - | - | - | 2 5/8" |
| 1438B | 2'-5" | 2 3/8" | 2 7/8" | - | - | 2 1/2" | 2 1/4" | 3 | 2 3/4" | 3 | 2 3/8" | 2 3/8" |
| 1439B | | | | | | | | | | | | |
| 1440A | 1'-6" | 2 3/8" | 2 3/8" | 2 | 2 5/8" | 2 3/8" | 2 1/2" | - | - | - | - | 2 5/8" |
| 1441A | | | | | | | | | | | | |
| 1459 | 1'-6" | 2 3/8" | 2 3/8" | 2 | 2 5/8" | 2 3/8" | 2 1/2" | - | - | - | - | 2 3/8" |
| 1519 | 1'-4 1/4" | 2" | 2 3/8" | 1 | 2 7/8" | 2 3/8" | 2 3/4" | - | - | - | - | 2 7/8" |

Note: 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 Modifications, As Per Plan, for payment.



| BRIDGE NO. CUY-77- | DIMENSIONS (AT MEDIAN CURB) | | | | | | | |
|----------------------|-----------------------------|--------|--------|--------|--------|--------|--------|--------|
| | a | b | c | d | e | f | g | h |
| 1436C | 1'-6" | 2 5/8" | 2 7/8" | 2 5/8" | 2 5/8" | 2 1/2" | 2 1/2" | 2 1/4" |
| 1459 | 1'-6" | 2 3/8" | 2 3/8" | 2 1/2" | 2 1/2" | 2 3/4" | 2 3/4" | 2 1/2" |
| 1519 (At East Abut.) | 1'-4 1/4" | 2 3/8" | 2 3/8" | 2 3/8" | 2 3/8" | - | 2 7/8" | 2 3/4" |
| 1519 (At West Abut.) | 1'-9 1/4" | 2 3/8" | 2 3/8" | 3 3/8" | 3 3/8" | 3 3/8" | 3 3/8" | 2 3/4" |

Note: For additional deck resurfacing details, see Sheet CD-5.

BR. NO. CUY-77-1436C, BR. NO. CUY-77-1438B, BR. NO. CUY-77-1439B, BR. NO. CUY-77-1440A,
BR. NO. CUY-77-1441A, BR. NO. CUY-77-1459 AND BR. NO. CUY-77-1519

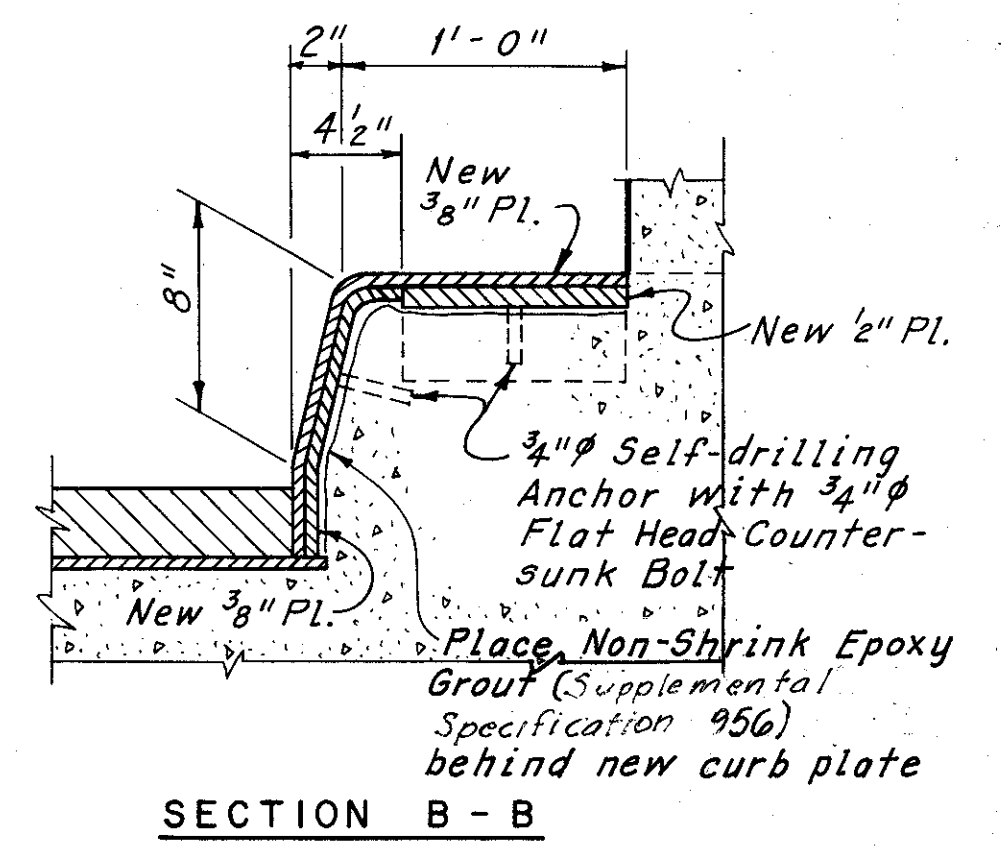
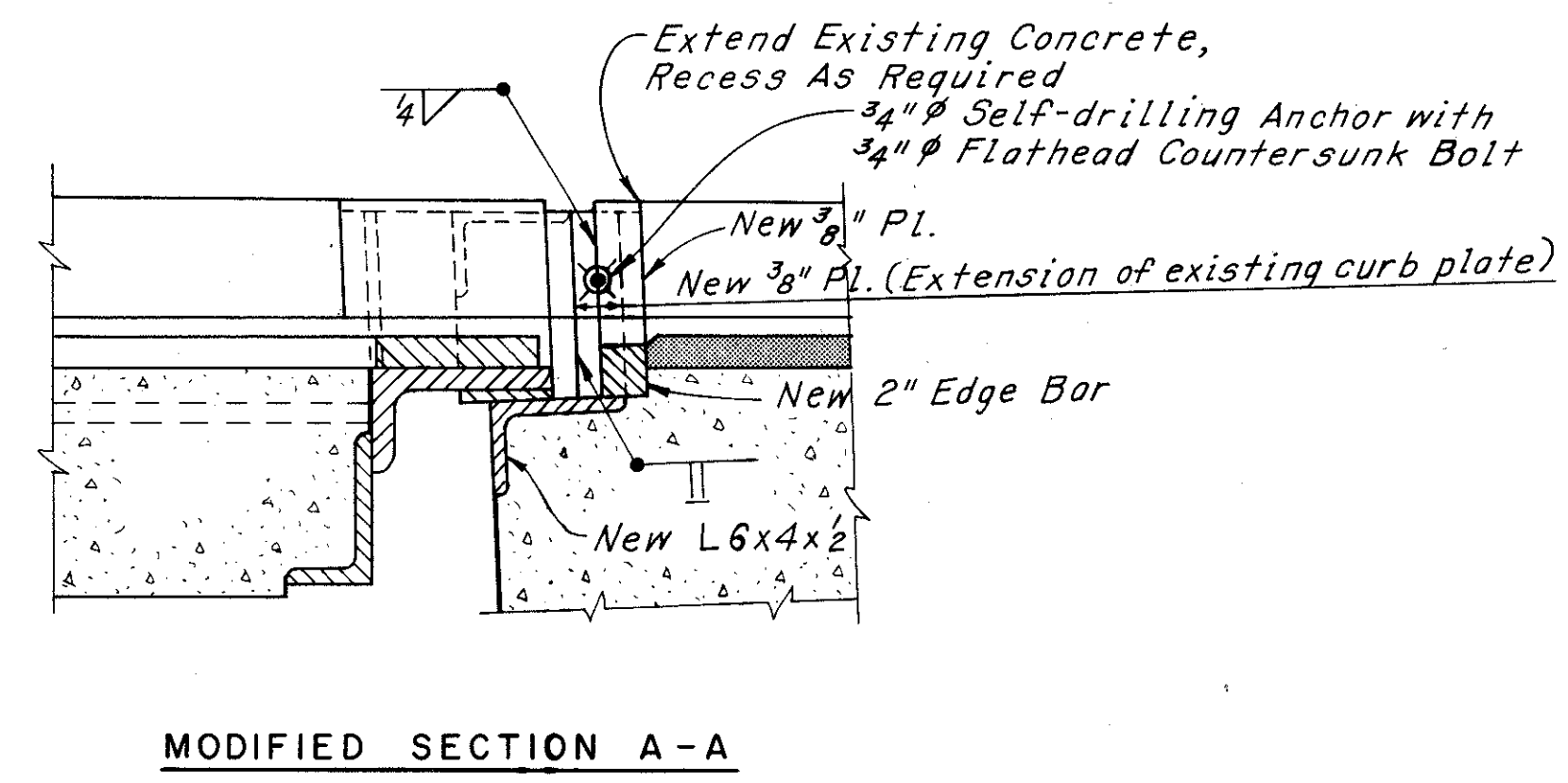
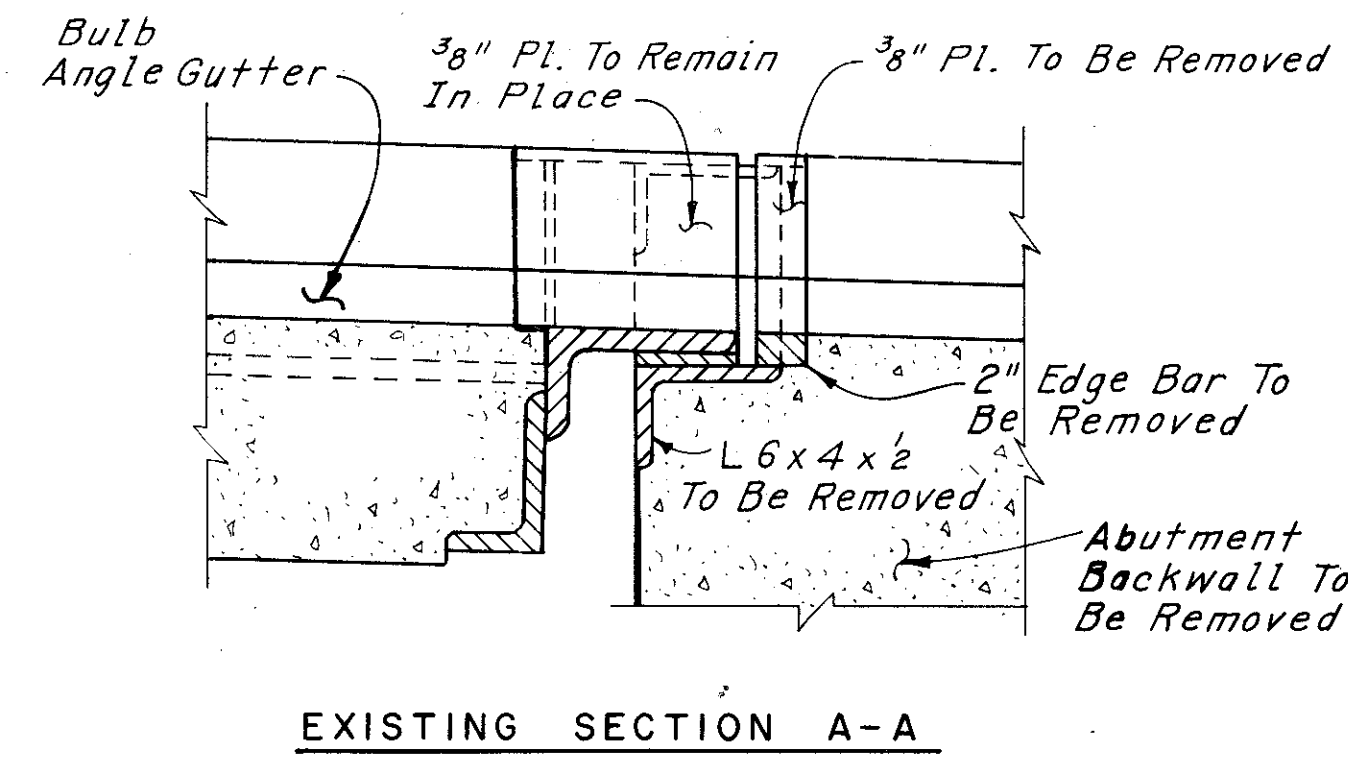
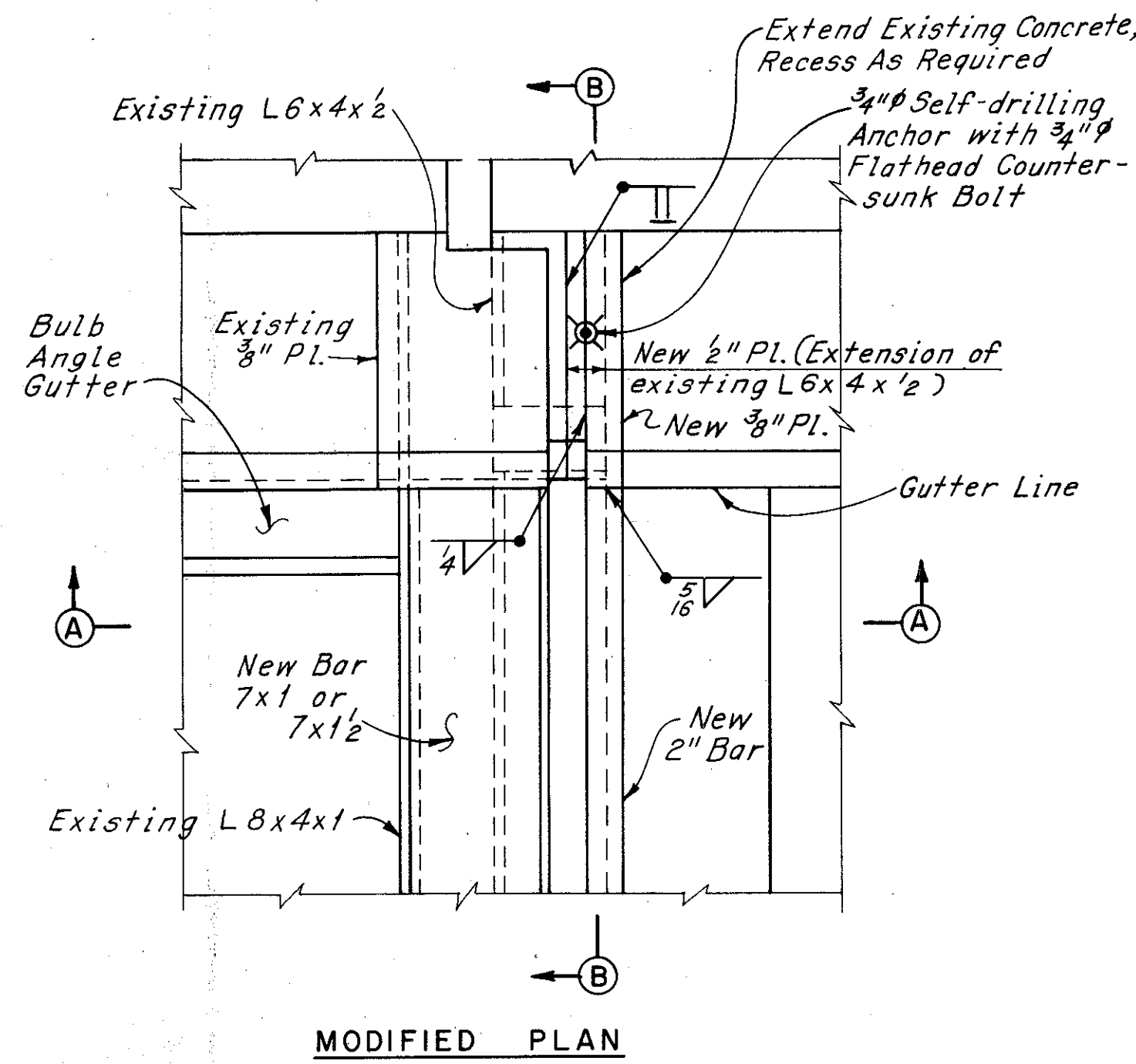
HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND HNTB

DETAILS OF RAISING EXISTING SCUPPERS

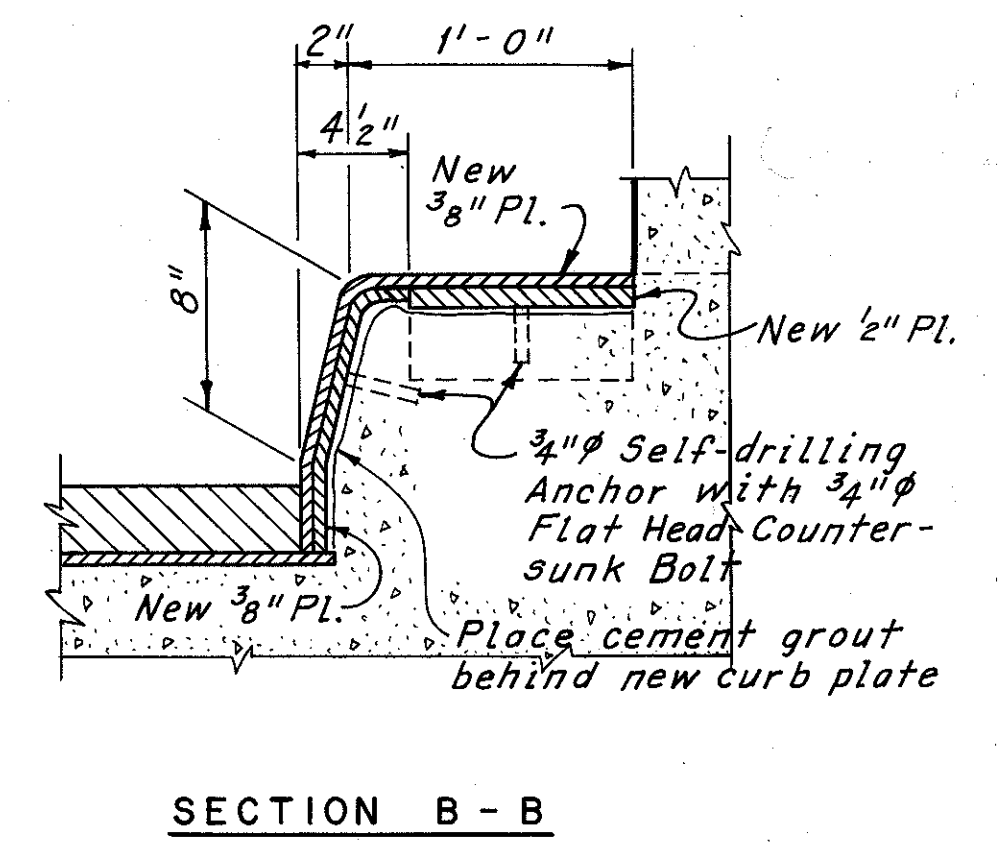
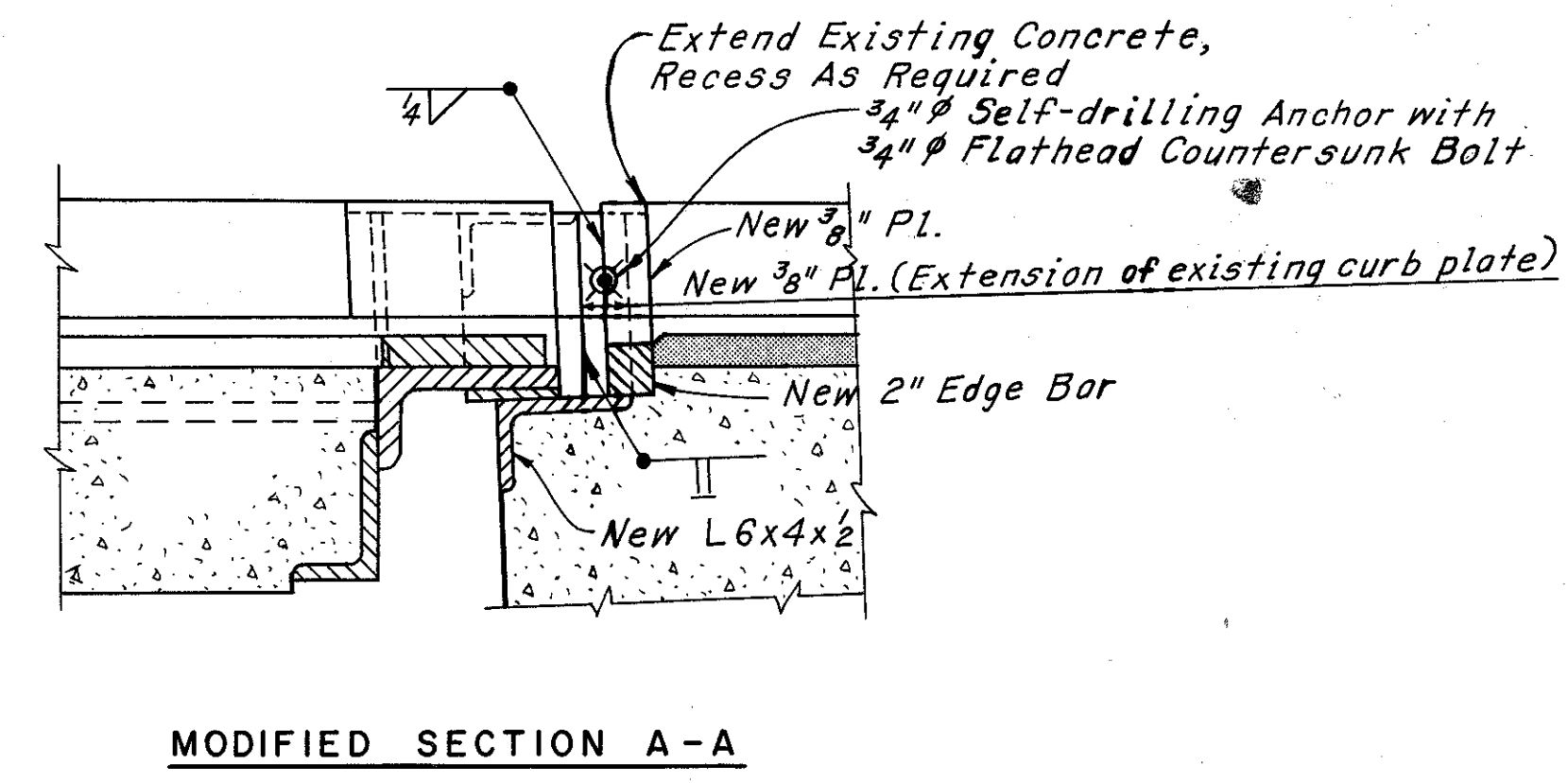
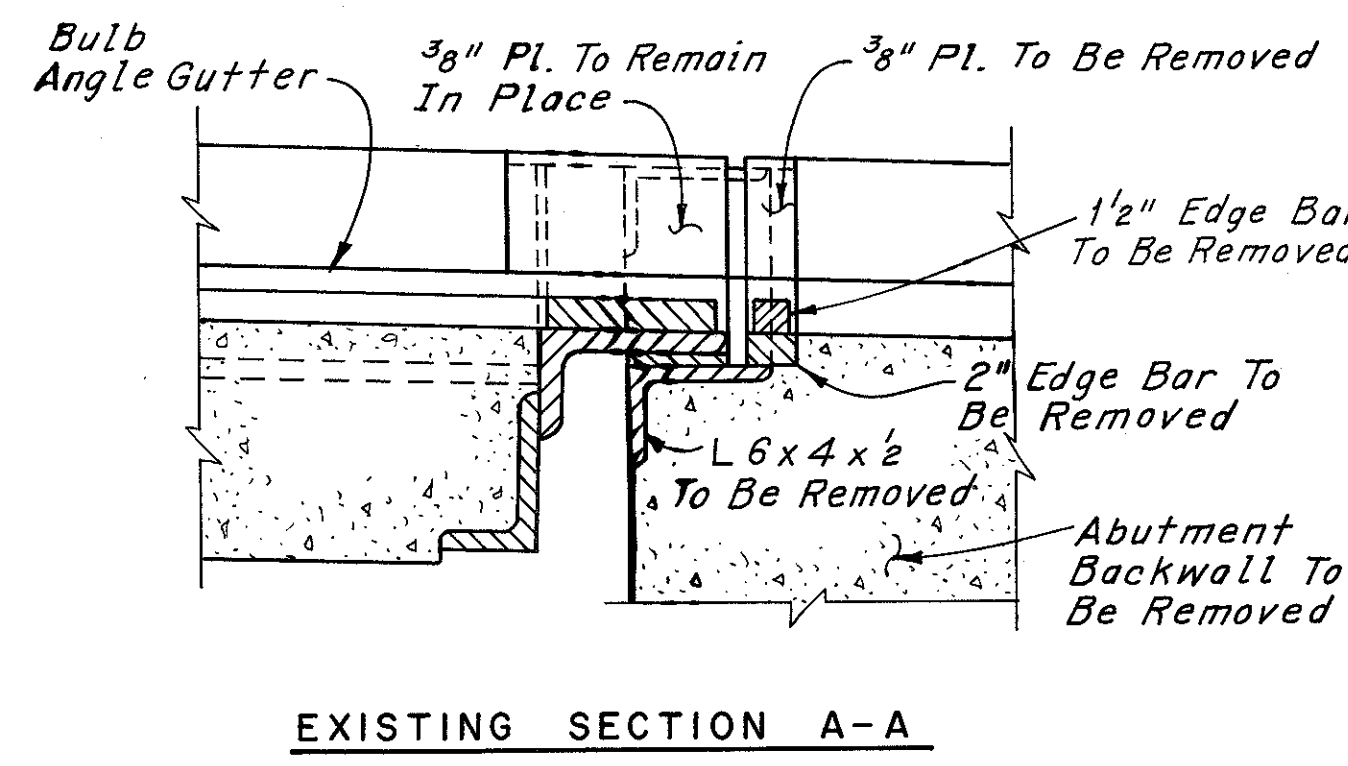
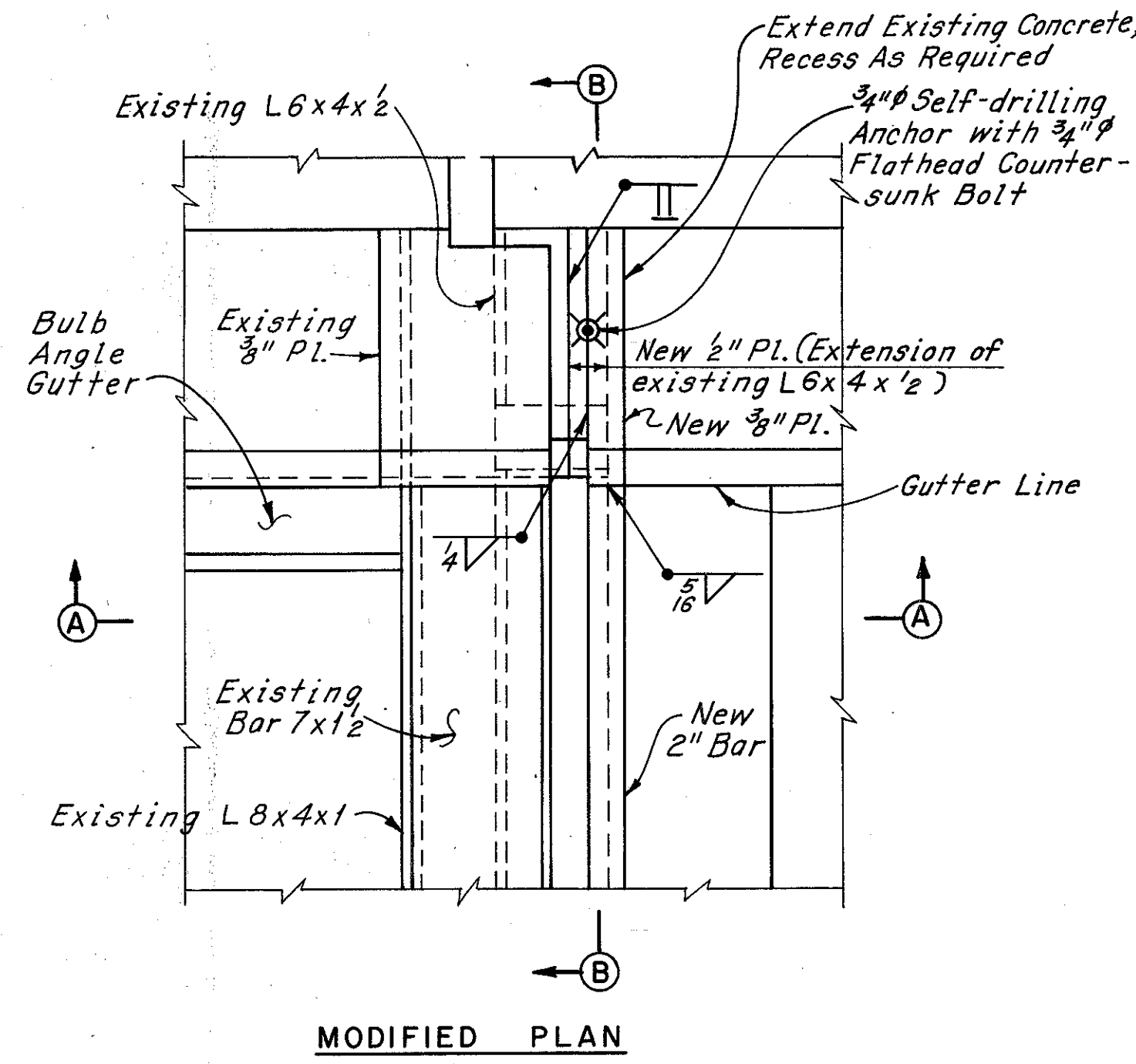
| | | |
|-------------|-------|---------|
| FHWA REGION | STATE | PROJECT |
| 5 | OHIO | |

168
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21



DETAILS AT ABUTMENT E-5, BR. NO. CUY-90-1628



DETAILS AT EAST ABUTMENT, BR. NO. CUY-90-1651

Notes:
 Concrete and steel removal for these repairs shall be included with Item 202, Portions of Structures Removed, for payment.
 Non-Shrink Epoxy grout required for these repairs shall be included with Item 513, Structural Steel, for payment.

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND HNTB

CURB PLATE MODIFICATIONS

| | | | |
|-----------------|--------------|----------------|------------|
| CUYAHOGA COUNTY | | OHIO | |
| DRAWN C.K.B. | TRACED C.P. | CHECKED D.H.S. | REVIEWED |
| DATE 6-7-77 | DATE 6-24-77 | DATE 6-8-77 | DATE |
| | | | SHEET CD-9 |

| FHWA REGION | STATE | PROJECT |
|-------------|-------|---------|
| 5 | OHIO | |

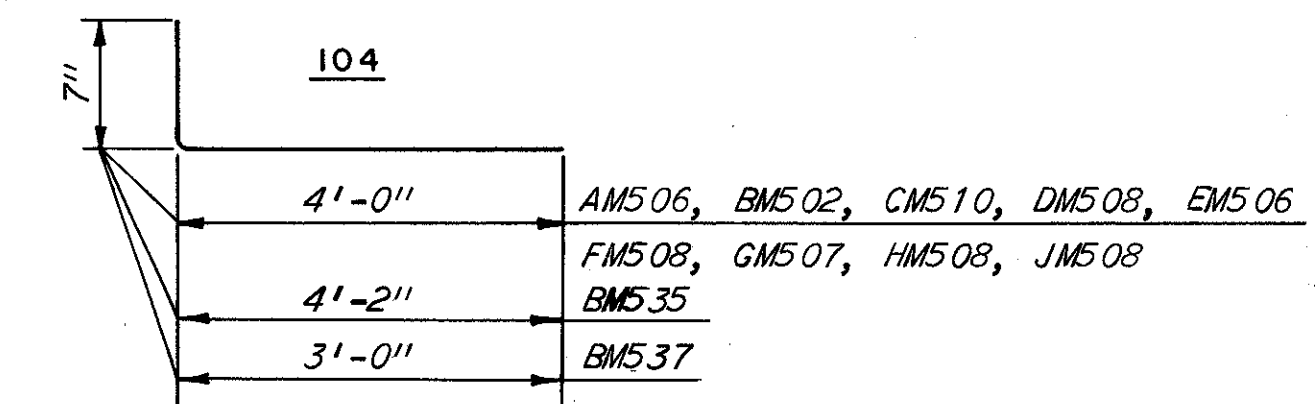
169
169

CUYAHOGA COUNTY
CUY-77-14.12
CUY-90-16.21

| MARK | NO. | LENGTH | TYPE | SER. INCR. | WEIGHT (LBS.) |
|-----------------------|-------|--------|------|------------|---------------|
| BR. NO. CUY-77-1436C | | | | | |
| MEDIAN | | | | | |
| AM501 | 112 | 30'-0" | Str. | | 3,504 |
| AM502 | 8 | 24'-6" | Str. | | 204 |
| AM503 | 48 | 13'-6" | Str. | | 676 |
| AM504 | 88 | 6'-3" | Str. | | 574 |
| AM505 | 32 | 13'-9" | Str. | | 459 |
| AM506 | 722 | 4'-5" | 104 | | 3,328 |
| AM507 | 722 | 3'-0" | 148 | | 2,259 |
| AM501 | 714 | 2'-7" | 108 | | 2,370 |
| AM502 | 8 | 2'-7" | 108 | | 31 |
| TOTAL WEIGHT = 13,805 | | | | | |
| BR. NO. CUY-77-1459 | | | | | |
| MEDIAN | | | | | |
| BM501 | 4,393 | 3'-1" | 148 | | 14,126 |
| BM502 | 4,393 | 4'-6" | 104 | | 20,619 |
| BM503 | 534 | 30'-0" | Str. | | 16,709 |
| BM504 | 58 | 14'-3" | Str. | | 862 |
| BM505 | 72 | 15'-0" | Str. | | 1,126 |
| BM506 | 2 | 10'-0" | Str. | | 21 |
| BM507 | 2 | 30'-3" | Str. | | 63 |
| BM508 | 4 | 18'-3" | Str. | | 76 |
| BM509 | 60 | 14'-9" | Str. | | 923 |
| BM510 | 88 | 6'-3" | Str. | | 574 |
| BM511 | 6 | 24'-9" | Str. | | 155 |
| BM512 | 118 | 6'-9" | Str. | | 831 |
| BM513 | 44 | 15'-6" | Str. | | 711 |
| BM514 | 44 | 15'-3" | Str. | | 700 |
| BM515 | 2 | 7'-6" | Str. | | 16 |
| BM516 | 2 | 26'-9" | Str. | | 56 |
| BM517 | 4 | 21'-6" | Str. | | 90 |
| BM518 | 40 | 7'-3" | Str. | | 302 |
| BM519 | 10 | 5'-0" | Str. | | 52 |
| BM520 | 64 | 14'-6" | Str. | | 968 |
| BM521 | 10 | 13'-3" | Str. | | 138 |
| BM522 | 4 | 28'-3" | Str. | | 118 |
| BM523 | 2 | 27'-3" | Str. | | 57 |
| BM524 | 2 | 13'-6" | Str. | | 28 |
| BM525 | 16 | 12'-6" | Str. | | 209 |
| BM526 | 2 | 25'-0" | Str. | | 52 |
| BM527 | 2 | 31'-6" | Str. | | 66 |
| BM528 | 14 | 5'-6" | Str. | | 80 |
| BM529 | 14 | 12'-9" | Str. | | 186 |
| BM530 | 32 | 6'-0" | Str. | | 200 |
| BM531 | 2 | 8'-0" | Str. | | 17 |
| BM532 | 2 | 12'-0" | Str. | | 25 |
| BM533 | 14 | 14'-0" | Str. | | 204 |
| BM534 | 28 | 7'-0" | Str. | | 204 |
| BM535 | 16 | 4'-8" | 104 | | 78 |
| BM536 | 16 | 3'-3" | 148 | | 54 |
| BM537 | 8 | 3'-6" | 104 | | 29 |
| BM538 | 8 | 2'-7" | Str. | | 22 |
| BM539 | 16 | 3'-0" | Str. | | 50 |
| BM601 | 4,401 | 2'-7" | 108 | | 17,074 |
| BM602 | 8 | 2'-7" | 108 | | 31 |
| BM603 | 16 | 2'-8" | 108 | | 64 |
| LIGHT POLE SUPPORTS: | | | | | |
| | 9 | | | | 1,242 |
| TOTAL WEIGHT = 79,208 | | | | | |
| BR. NO. CUY-77-1519 | | | | | |
| MEDIAN | | | | | |
| CM501 | 144 | 30'-0" | Str. | | 4,506 |
| CM502 | 8 | 7'-6" | Str. | | 63 |
| CM503 | 8 | 12'-6" | Str. | | 104 |
| CM504 | 160 | 5'-0" | Str. | | 834 |
| CM505 | 24 | 15'-3" | Str. | | 382 |
| CM506 | 36 | 15'-0" | Str. | | 563 |
| CM507 | 12 | 12'-6" | Str. | | 156 |
| CM508 | 2 | 12'-9" | Str. | | 27 |
| CM509 | 2 | 12'-0" | Str. | | 25 |
| CM510 | 1,167 | 4'-5" | 104 | | 5,376 |
| CM511 | 1,167 | 3'-0" | 148 | | 3,652 |

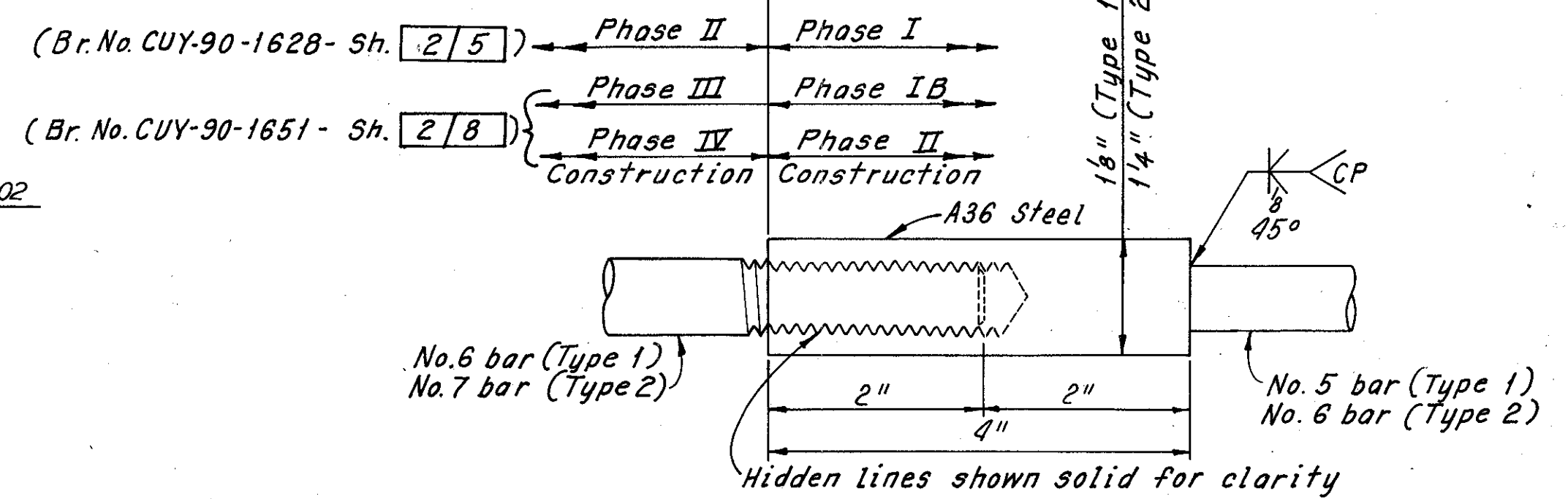
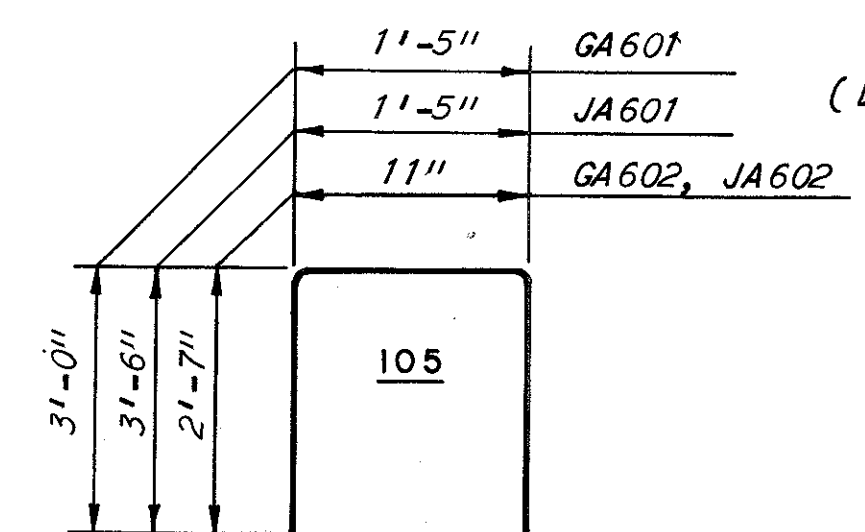
| MARK | NO. | LENGTH | TYPE | SER. INCR. | WEIGHT (LBS.) |
|--------------------------|-------|--------|-------|------------|---------------|
| CM601 | 1,159 | 2'-7" | 108 | | 4,497 |
| CM602 | 8 | 2'-7" | 108 | | 31 |
| TOTAL WEIGHT = 20,216 | | | | | |
| BR. NO. CUY-77-1548 | | | | | |
| MEDIAN | | | | | |
| DM501 | 56 | 30'-0" | Str. | | 1,752 |
| DM502 | 8 | 9'-3" | Str. | | 77 |
| DM503 | 16 | 14'-0" | Str. | | 234 |
| DM504 | 4 | 13'-3" | Str. | | 55 |
| DM505 | 4 | 14'-9" | Str. | | 62 |
| DM506 | 40 | 7'-0" | Str. | | 292 |
| DM507 | 16 | 12'-0" | Str. | | 200 |
| DM508 | 478 | 4'-5" | 104 | | 2,202 |
| DM509 | 478 | 3'-0" | 148 | | 1,496 |
| DM601 | 470 | 2'-7" | 108 | | 1,824 |
| DM602 | 8 | 2'-7" | 108 | | 31 |
| TOTAL WEIGHT = 8,225 | | | | | |
| BR. NO. CUY-77-1564 | | | | | |
| MEDIAN | | | | | |
| EM501 | 56 | 30'-0" | Str. | | 1,752 |
| EM502 | 8 | 7'-6" | Str. | | 63 |
| EM503 | 24 | 11'-6" | Str. | | 288 |
| EM504 | 48 | 6'-6" | Str. | | 326 |
| EM505 | 16 | 12'-3" | Str. | | 204 |
| EM506 | 468 | 4'-5" | 104 | | 2,156 |
| EM507 | 468 | 3'-0" | 148 | | 1,464 |
| EM601 | 460 | 2'-7" | 108 | | 1,785 |
| EM602 | 8 | 2'-7" | 108 | | 31 |
| TOTAL WEIGHT = 8,069 | | | | | |
| BR. NO. CUY-77-1576A & B | | | | | |
| MEDIAN | | | | | |
| FM501 | 48 | 30'-0" | Str. | | 1,502 |
| FM502 | 8 | 3'-0" | Str. | | 25 |
| FM503 | 8 | 13'-9" | Str. | | 115 |
| FM504 | 56 | 5'-0" | Str. | | 292 |
| FM505 | 8 | 10'-6" | Str. | | 87 |
| FM506 | 8 | 11'-0" | Str. | | 92 |
| FM507 | 8 | 11'-6" | Str. | | 96 |
| FM508 | 416 | 4'-5" | 104 | | 1,916 |
| FM509 | 416 | 3'-0" | 148 | | 1,302 |
| FM601 | 408 | 2'-7" | 108 | | 1,583 |
| FM602 | 8 | 2'-7" | 108 | | 31 |
| TOTAL WEIGHT = 7,041 | | | | | |
| BR. NO. CUY-90-1628 | | | | | |
| ABUTMENT E-5 | | | | | |
| GA601 | 26 | 7'-1" | 105 | | 277 |
| GA602 | 26 | 5'-9" | 105 | | 225 |
| GA603 | 8 | 12'-3" | Str.# | | 147 |
| GA604 | 8 | 8'-3" | Str. | | 99 |
| GA701 | 8 | 6'-0" | Str.# | | 98 |
| GA801 | 18 | 5'-7" | 147 | | 268 |
| THREADED INSERTS: | | | | | |
| | 8 | | | | 9 |
| TOTAL WEIGHT = 1,123 | | | | | |
| MEDIAN | | | | | |
| GM501 | 64 | 30'-0" | Str. | | 2,003 |
| GM502 | 8 | 5'-3" | Str. | | 44 |
| GM503 | 16 | 14'-9" | Str. | | 246 |

| MARK | NO. | LENGTH | TYPE | SER. INCR. | WEIGHT (LBS.) |
|-----------------------|-----|--------|-------|------------|---------------|
| GM504 | 48 | 6'-6" | Str. | | 325 |
| GM505 | 12 | 15'-3" | Str. | | 191 |
| GM506 | 12 | 13'-6" | Str. | | 169 |
| GM507 | 520 | 4'-5" | 104 | | 2,396 |
| GM508 | 520 | 3'-0" | 148 | | 1,627 |
| GM601 | 512 | 2'-7" | 108 | | 1,986 |
| GM602 | 8 | 2'-7" | 108 | | 31 |
| TOTAL WEIGHT = 9,018 | | | | | |
| BR. NO. CUY-90-1640 | | | | | |
| MEDIAN | | | | | |
| HM501 | 80 | 30'-0" | Str. | | 2,503 |
| HM502 | 8 | 22'-0" | Str. | | 184 |
| HM503 | 28 | 15'-3" | Str. | | 445 |
| HM504 | 64 | 6'-6" | Str. | | 434 |
| HM505 | 20 | 13'-0" | Str. | | 271 |
| HM506 | 2 | 15'-6" | Str. | | 32 |
| HM507 | 2 | 15'-0" | Str. | | 31 |
| HM508 | 687 | 4'-5" | 104 | | 3,165 |
| HM509 | 687 | 3'-0" | 148 | | 2,150 |
| HM601 | 679 | 2'-7" | 108 | | 2,635 |
| HM602 | 8 | 2'-7" | 108 | | 31 |
| TOTAL WEIGHT = 11,881 | | | | | |
| BR. NO. CUY-90-1651 | | | | | |
| EAST ABUTMENT | | | | | |
| JA601 | 144 | 8'-1" | 105 | | 1,748 |
| JA602 | 144 | 5'-9" | 105 | | 1,244 |
| JA603 | 10 | 12'-0" | Str. | | 180 |
| JA604 | 20 | 11'-6" | Str.# | | 345 |
| JA605 | 20 | 12'-6" | Str. | | 376 |
| JA607 | 10 | 6'-6" | Str. | | 98 |
| JA608 | 20 | 10'-0" | Str.# | | 300 |
| JA609 | 10 | 9'-6" | Str. | | 143 |
| JA610 | 10 | 10'-9" | Str. | | 161 |
| JA611 | 10 | 11'-0" | Str. | | 165 |
| JA701 | 20 | 6'-0" | Str.# | | 245 |
| JA702 | 10 | 9'-6" | Str.# | | 194 |
| JA703 | 10 | 11'-6" | Str.# | | 235 |
| JA801 | 98 | 5'-7" | 147 | | 1,461 |
| THREADED INSERTS: | | | | | |
| | 40 | | | | 44 |
| TOTAL WEIGHT = 6,939 | | | | | |
| MEDIAN | | | | | |
| JM501 | 80 | 30'-0" | Str. | | 2,503 |
| JM502 | 8 | 19'-0" | Str. | | 159 |
| JM503 | 12 | 13'-6" | Str. | | 169 |
| JM504 | 68 | 6'-9" | Str. | | 479 |
| JM505 | 12 | 15'-3" | Str. | | 191 |
| JM506 | 16 | 14'-0" | Str. | | 234 |
| JM507 | 12 | 13'-0" | Str. | | 163 |
| JM508 | 676 | 4'-5" | 104 | | 3,114 |
| JM509 | 676 | 3'-0" | 148 | | 2,115 |
| JM601 | 668 | 2'-7" | 108 | | 2,592 |
| JM602 | 8 | 2'-7" | 108 | | 31 |
| TOTAL WEIGHT = 11,750 | | | | | |

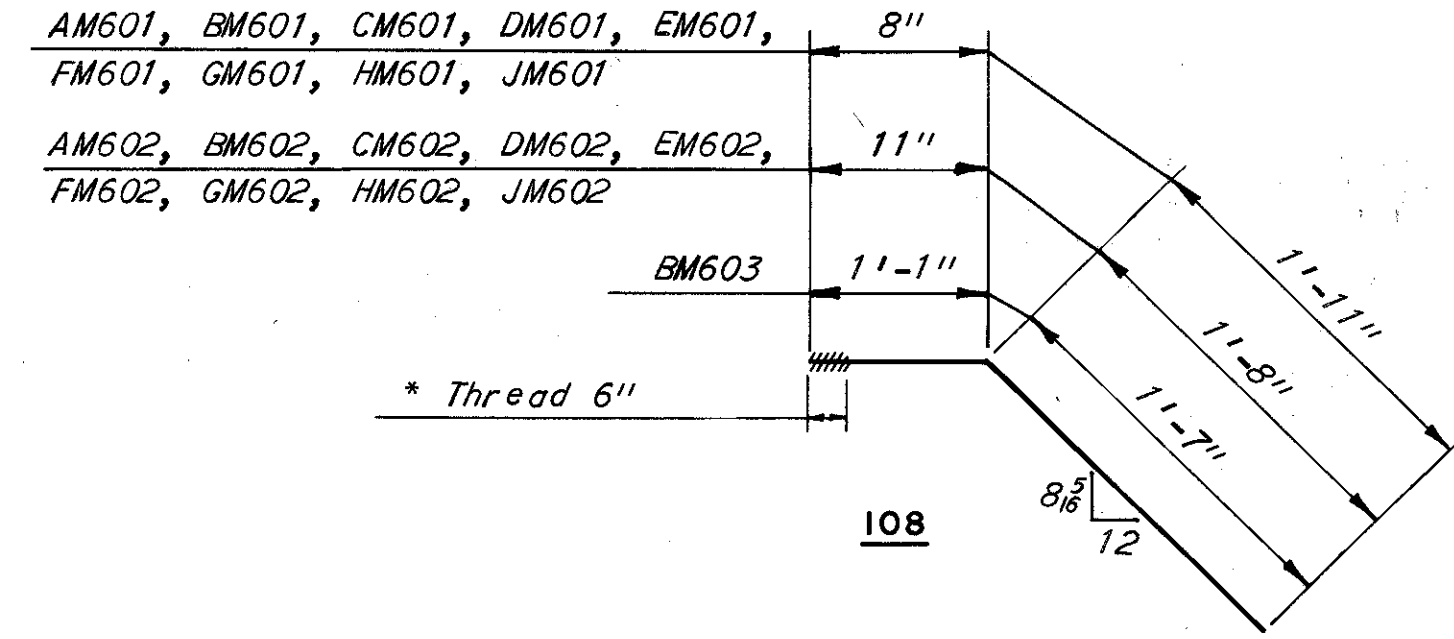


Weld to threaded insert.
Thread one end for connection to threaded insert.

Note: Recess Plugs shall be provided in the threaded insert during Phase I, IB and II Construction.

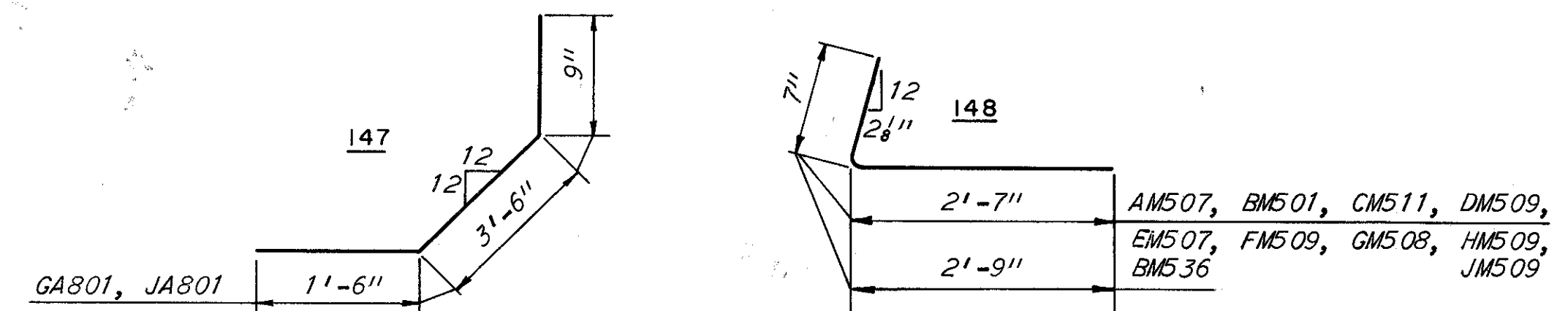


(Threads are to be Unified Standard Series for Basic Major Diameter of 3/4" for Type 1 and 7/8" for Type 2)



Note: Both the welded and threaded connection shall be capable of developing 125 per cent of the yield strength of the smaller bar connected. Random samples to be submitted for testing.

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 structure by the additional steel, spliced in accordance with 509.08.



BENDING DIAGRAMS

HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS CLEVELAND HNTB

REINFORCEMENT SCHEDULES

CUYAHOGA COUNTY OHIO
DRAWN C.K.B. TRACED C.P. CHECKED D.H.S. REVIEWED REVISOR
DATE 6-8-77 DATE 7-7-77 DATE 7-12-77 DATE
SHEET CD-10