



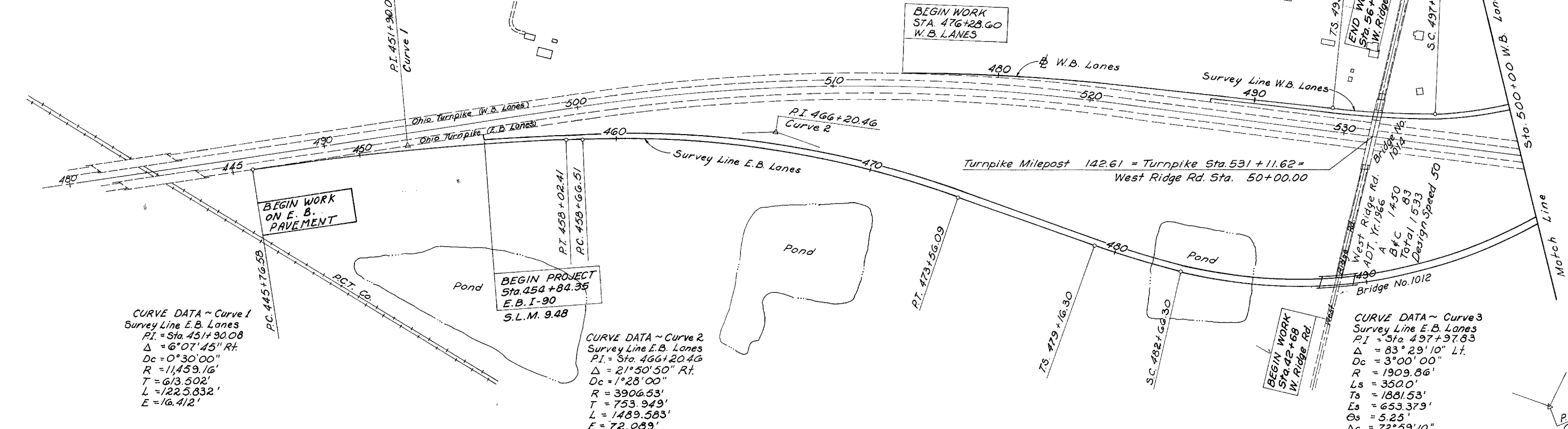
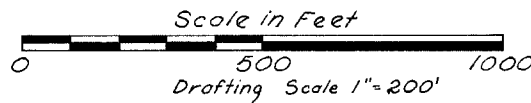
REVISIONS  
MAY 14 1989

# SCHEMATIC PLAN

LORAIN COUNTY  
LOR-90-9.48

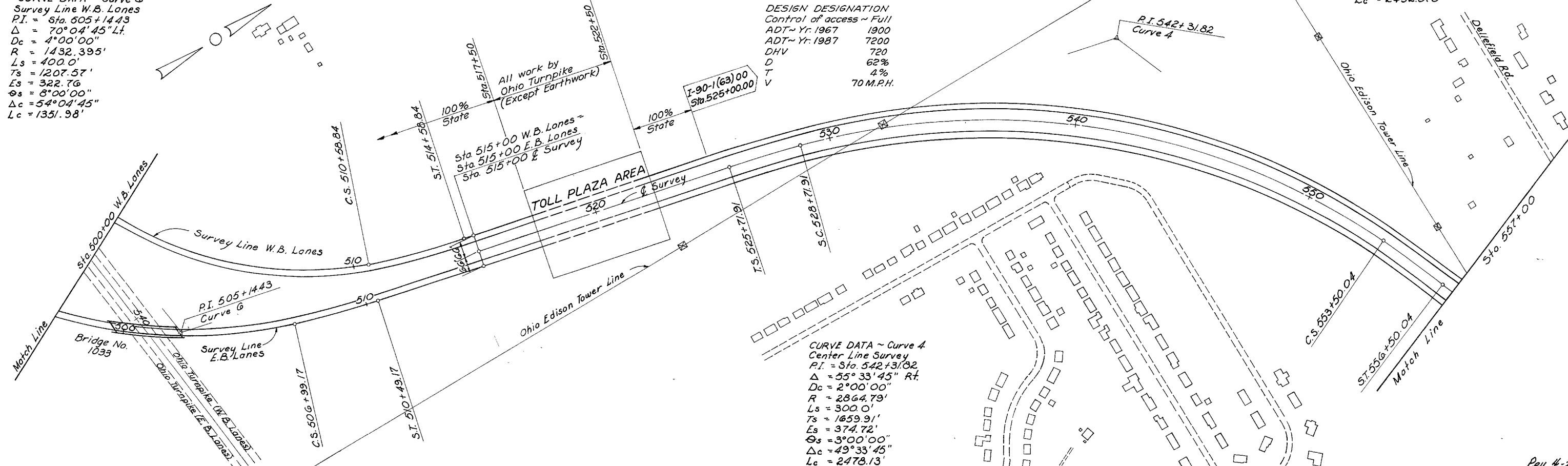
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

2  
283



**CURVE DATA ~ Curve 6**  
Survey Line W.B. Lanes  
P.I. = Sta. 505+14.43  
 $\Delta = 70^{\circ}04'45''$  Lt.  
Dc =  $4^{\circ}00'00''$   
R = 1432.395'  
Ls = 400.0'  
Ts = 1207.57'  
Es = 322.76'  
 $\Theta_s = 8^{\circ}00'00''$   
 $\Delta_c = 54^{\circ}04'45''$   
Lc = 1351.98'

DESIGN DESIGNATION  
Control of access ~ Full  
ADT ~ Yr. 1967 1900  
ADT ~ Yr. 1987 7200  
DHV 720  
D 62%  
T 4%  
V 70 M.P.H.



Rev 4-25-99

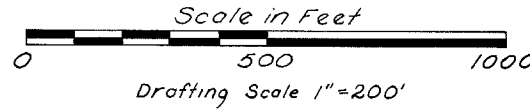
REVISIONS  
MAY 14 1983

# SCHEMATIC PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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LORAIN COUNTY  
LOR - 90 - 9.48



**CURVE DATA~Curve 7**  
Survey Line W.B. Lanes  
P.I. = Sta. 576+31.04  
 $\Delta = 25^{\circ} 40' 00''$  Rt.  
Dc =  $3^{\circ} 00' 00''$   
R = 1909.86'  
Ls = 300.0'  
Ts = 585.495'  
Es = 50.94'  
 $\phi_s = 4.5^{\circ}$   
 $\Delta_c = 16^{\circ} 40' 00''$   
Lc = 555.556'

**CURVE DATA~Curve 8**  
Survey Line W.B. Lanes  
P.I. = Sta. 592+31.18  
 $\Delta = 5^{\circ} 12' 05''$  Lt.  
Dc =  $0^{\circ} 30' 00''$   
R = 11,459.16'  
L = 520.50'  
T = 1040.28'  
E = 11.82'

**CURVE DATA~Curve 5**  
Survey Line E.B. Lanes  
P.I. = Sta. 574+74.56  
 $\Delta = 25^{\circ} 09' 35''$  Rt.  
Dc =  $1^{\circ} 28' 00''$   
R = 3906.53'  
L = 871.77'  
T = 1715.43'  
E = 96.09'

**CURVE DATA (Exist)**  
E.B. Lanes S.R.2  
P.I. = Sta. 584+08.14  
 $\Delta = 38^{\circ} 44' 37''$  Lt.  
Dc =  $2^{\circ} 30' 00''$   
R = 2291.83'  
Ls = 400.0'  
Ts = 1006.79'  
Es = 140.59'

**CURVE DATA (Exist)**  
W.B. Lanes S.R.2  
P.I. = Sta. 583+15.34  
 $\Delta = 38^{\circ} 44' 37''$  Lt.  
Dc =  $1^{\circ} 00' 00''$   
R = 5729.58'  
L = 2014.53'  
T = 3874.36'  
E = 343.84'

100% State and Turnpike  
Sign Approach Work  
Guardrail Limits of Work

	Sta.	to	Sta.	Length Lin. Ft.
Ohio Turnpike	382+30		389+25	695
Ohio Turnpike	440+55		445+80	525
<b>Total Sign Approach Work</b>				<b>1220</b>

I-90-1(63)00 See Sheet No.1 Line Data

# TYPICAL SECTIONS

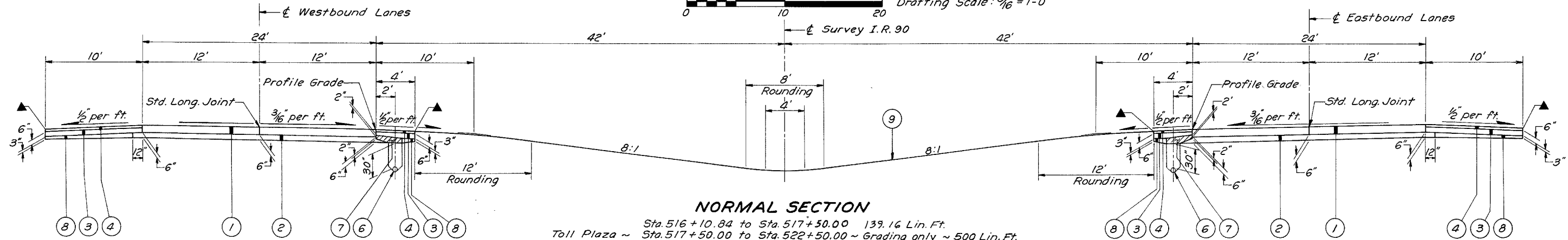
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

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283

LORAIN COUNTY  
LOR-90-9.48

## TYPE 451

Scale in Feet  
0 10 20  
Drafting Scale:  $\frac{3}{16}'' = 1'-0''$

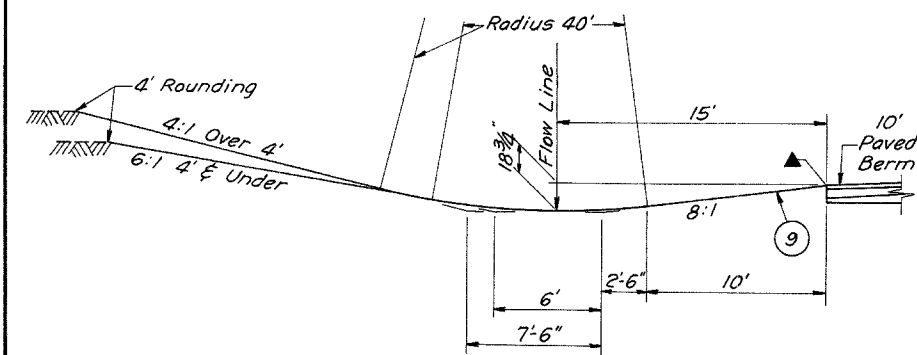


### NORMAL SECTION

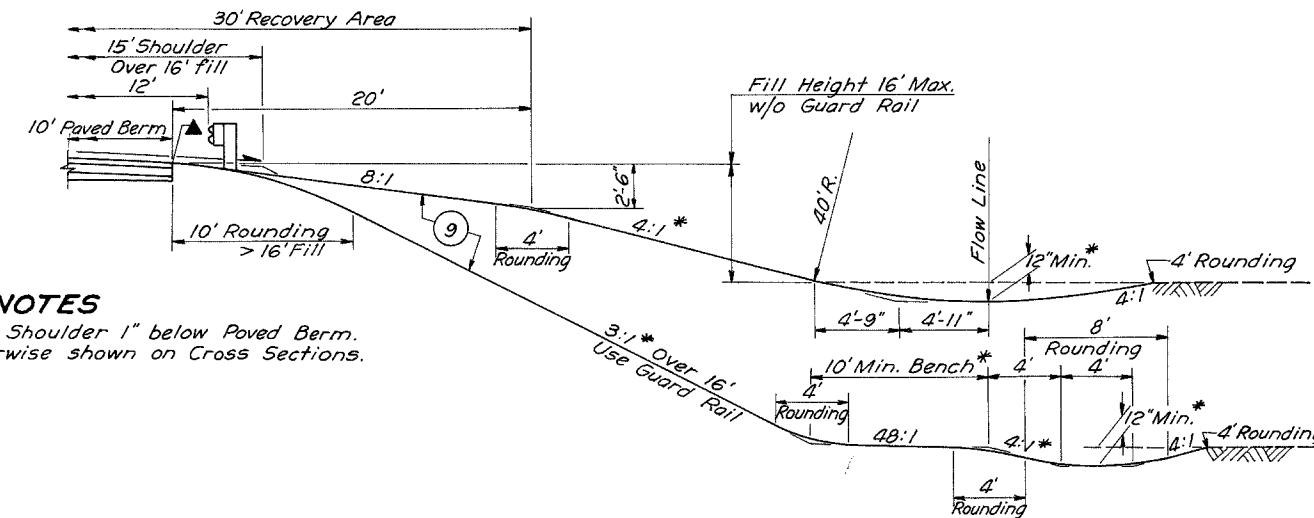
Toll Plaza ~ Sta. 516+10.84 to Sta. 517+50.00 139.16 Lin. Ft.  
Sta. 517+50.00 to Sta. 522+50.00 ~ Grading only ~ 500 Lin. Ft.  
Sta. 522+50.00 to Sta. 525+71.91 321.91 Lin. Ft.  
Total 461.07 Lin. Ft.

### LEGEND

- ① 451 9" Reinforced Portland Cement Concrete Pavement.
- ② 310 Subbase (depth as shown), Grading A as per plan (see General Note).
- ③ 304 Aggregate Base (depth as shown).
- ④ 301 3" Bituminous Aggregate Base, 702.01 (85-100 or AC-20) or 702.09, RT-11 or 12 (See Note in Proposal).
- ⑥ 605 6" Shallow Pipe Underdrains.
- ⑦ Special Drainage Connection, using No. 8 Aggregate. (see note in Proposal).
- ⑧ 310 Subbase, Regular Grading, (depth as shown).
- ⑨ 659 Seeding and Mulching. (See General Notes)



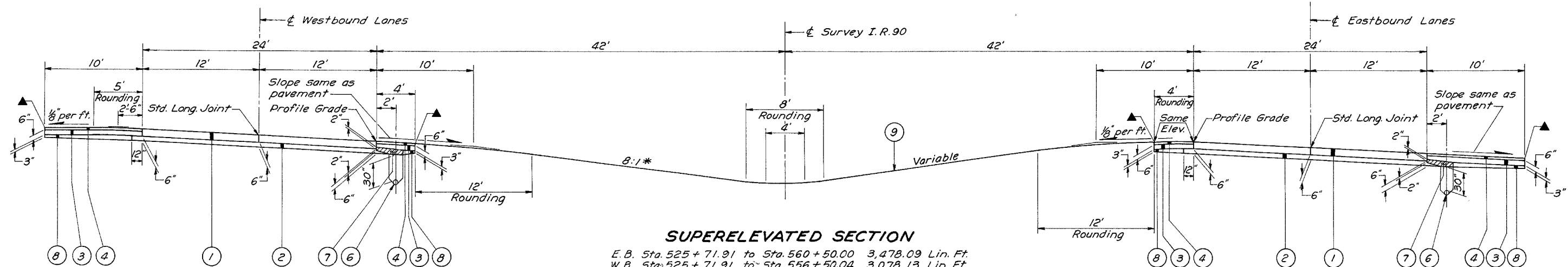
CUT SLOPE DETAIL  
WITH 10' PAVED BERM



FILL SLOPE DETAIL  
WITH 10' PAVED BERM

### NOTES

- ▲ Drop Earth Shoulder 1" below Paved Berm.
- \* Unless otherwise shown on Cross Sections.



### SUPERELEVATED SECTION

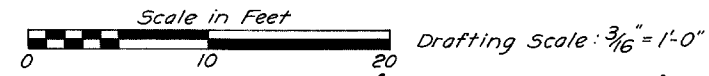
E.B. Sta. 525+71.91 to Sta. 560+50.00 3,478.09 Lin. Ft.  
W.B. Sta. 525+71.91 to Sta. 556+50.04 3,078.13 Lin. Ft.

# TYPICAL SECTIONS

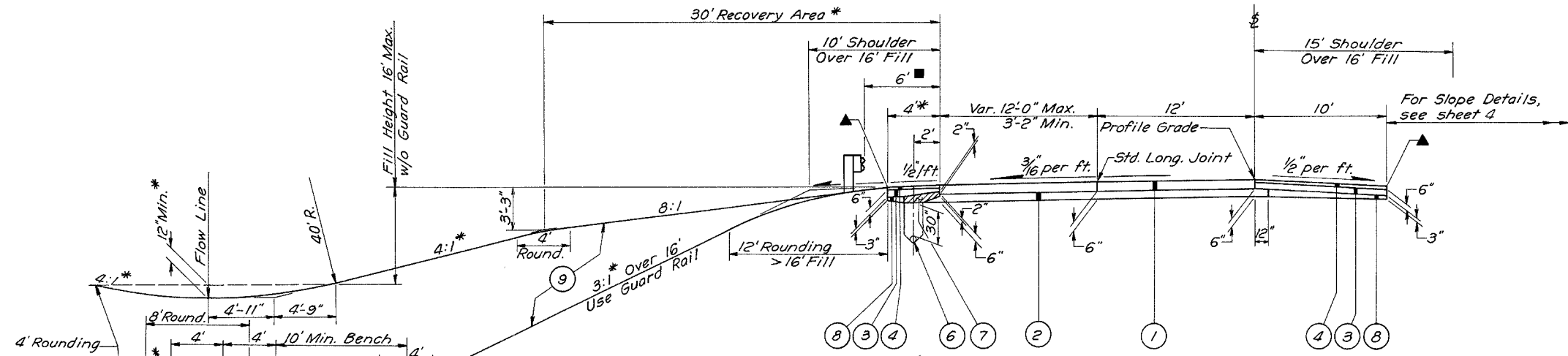
## TYPE 404 ON 305 & TYPE 451

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

LORAIN COUNTY  
LOR-90-9.48



### DIRECTIONAL ROADWAYS (EASTBOUND)



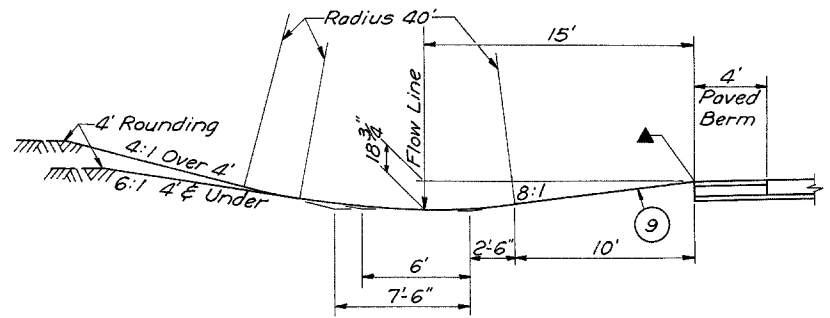
#### NORMAL SECTION EASTBOUND LANES

Sta. 474 + 68.09 to Sta. 479 + 16.30 448.21 Lin. Ft.  
 Sta. 510 + 49.17 to Sta. 516 + 10.84 561.67 Lin. Ft.  
 Sta. 584 + 30.22 to Sta. 586 + 08.00 177.78 Lin. Ft.  
 Total 1,187.66 Lin. Ft.

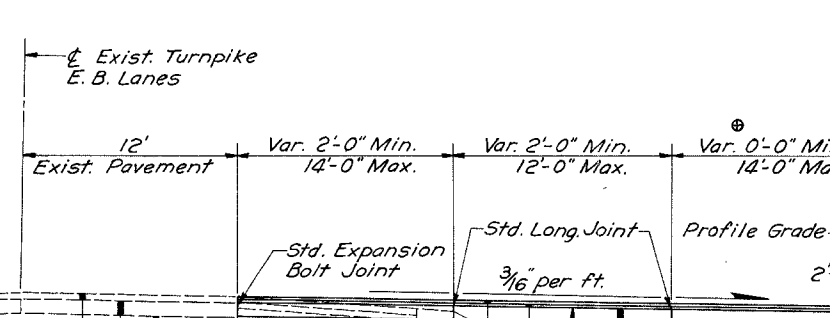
- #### LEGEND
- ① 451 9" Reinforced Portland Cement Concrete Pavement.
  - ② 310 Subbase (depth as shown) Grading A as per plan. (see General Note).
  - ③ 304 Aggregate Base (depth as shown).
  - ④ 301 3" Bituminous Aggregate Base, 702.01 (85-100 or AC-20) or 702.09 RT-11 or 12 (see General Note).
  - ⑤ 409 Seal Coat, using 0.008 cu. yd. No. 8 Aggregate per sq. yd. and 0.30 gal. bituminous material per sq. yd. (see note in Proposal).
  - ⑥ 605 6" Shallow Pipe Underdrains.
  - ⑦ Special Drainage Connection, using No. 8 Aggregate. (see note in Proposal).
  - ⑧ 310 Subbase, Regular Grading (depth as shown).
  - ⑨ 659 Seeding and Mulching.
  - ⑩ 404 1 1/2" Asphalt Concrete (70-85 or AC-20)
  - ⑪ 402 2 1/2" Asphalt Concrete (70-85 or AC-20)
  - ⑫ 407 Tack Coat, 702.04, MS-2 or RS-1, or 702.02, RC-70 or RC-250, applied at the rate of 0.10 gal. per sq. yd.
  - ⑬ 305 9" Portland Cement Concrete Base.
  - ⑭ 609 Concrete Curb, Standard Type 7.
  - ⑮ 609 Concrete Curb, Standard Type 8.

- #### EXISTING PAVEMENTS
- (A) 4"± Asphalt Concrete Resurfacing.
  - (B) 10" Reinforced Portland Cement Concrete Base.
  - (C) Var. depth Selected Subbase Material.
  - (D) 9" Reinforced Portland Cement Concrete Pavement.
  - (E) Subbase, Grading A or B.
  - (F) 6" Pipe Underdrain (Existing).

#### FILL SLOPE DETAIL WITH 4' PAVED BERM

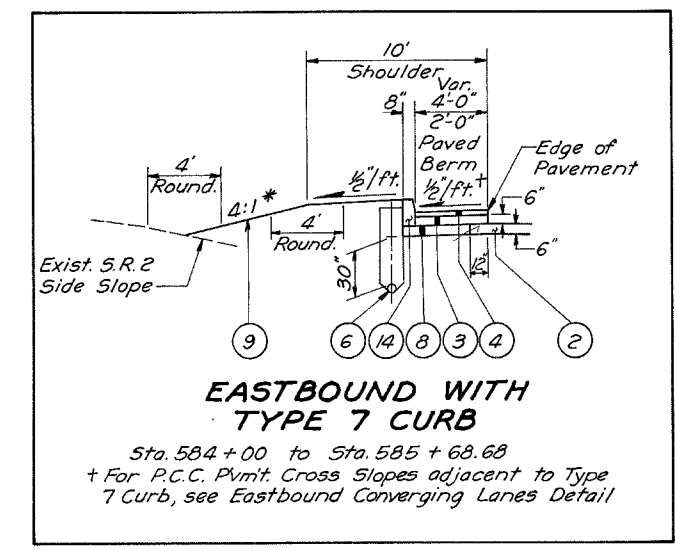


#### CUT SLOPE DETAIL WITH 4' PAVED BERM



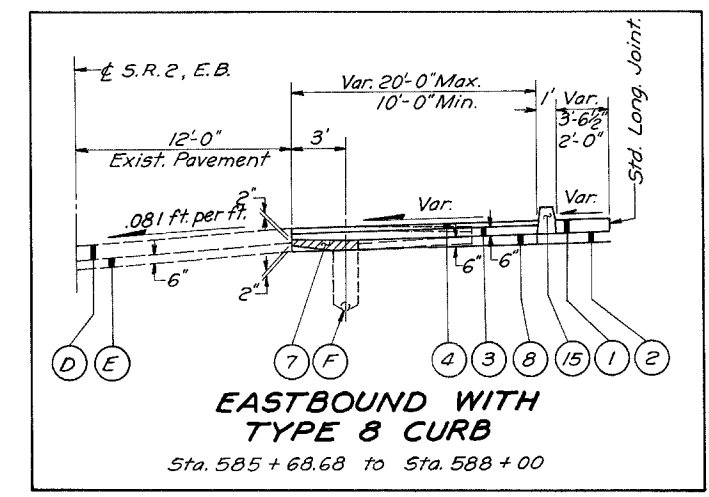
#### EASTBOUND DIVERGING TAPER LANE

Sta. 445 + 76.58 to Sta. 454 + 84.35 907.77 Lin. Ft.



#### EASTBOUND WITH TYPE 7 CURB

Sta. 584 + 00 to Sta. 585 + 68.68  
 + For P.C.C. Pymt. Cross Slopes adjacent to Type 7 Curb, see Eastbound Converging Lanes Detail



#### EASTBOUND WITH TYPE 8 CURB

Sta. 585 + 68.68 to Sta. 588 + 00

■ Guardrail to be installed exclusively for sign support protection and not otherwise needed is to be located as shown in the Traffic Control Plan.

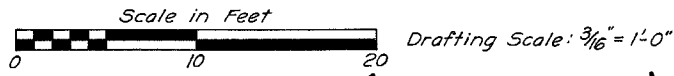
- #### NOTES
- ▲ Drop Earth Shoulder 1" below Paved Berm.
  - \* Unless otherwise shown on Cross Sections.
  - ⊙ For Taper Width 2' or less, see Detail.
- FILL SLOPE DETAIL, over 16' height:- the earth shoulder slope in superelevation is the same as the adjacent paved berm slope.  
 Rev 4-25-79

# TYPICAL SECTIONS

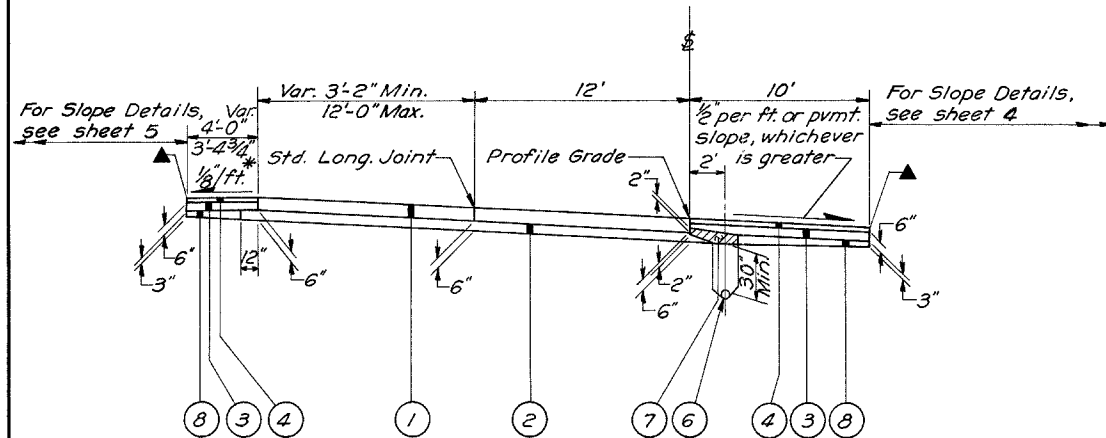
FED. RD. DIVISION	STATE	PROJECT	6 283
2	OHIO		

LORAIN COUNTY  
LOR - 90 - 9.48

## TYPE 451

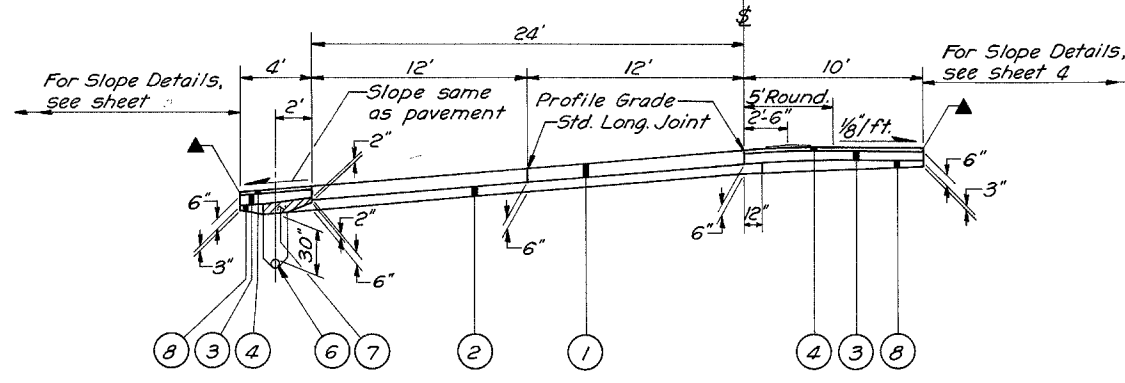


### DIRECTIONAL ROADWAYS (EASTBOUND)



#### SUPERELEVATED SECTION EASTBOUND LANES

Sta. 454 + 84.35 to Sta. 474 + 68.09	1,983.74 Lin. Ft.
Sta. 560 + 50 to Sta. 563 + 83.02 Bk.	333.02 Lin. Ft.
Sta. 566 + 02.79 to Sta. 566 + 75.81	73.02 Lin. Ft.
Bridge & Appr. Slabs ~ Sta. 566 + 75.81 to Sta. 568 + 47.94	172.13 Lin. Ft.
Sta. 568 + 47.94 to Sta. 584 + 30.22	1,582.28 Lin. Ft.
<b>Total</b>	<b>3,972.06 Lin. Ft.</b>



#### SUPERELEVATED SECTION EASTBOUND LANES

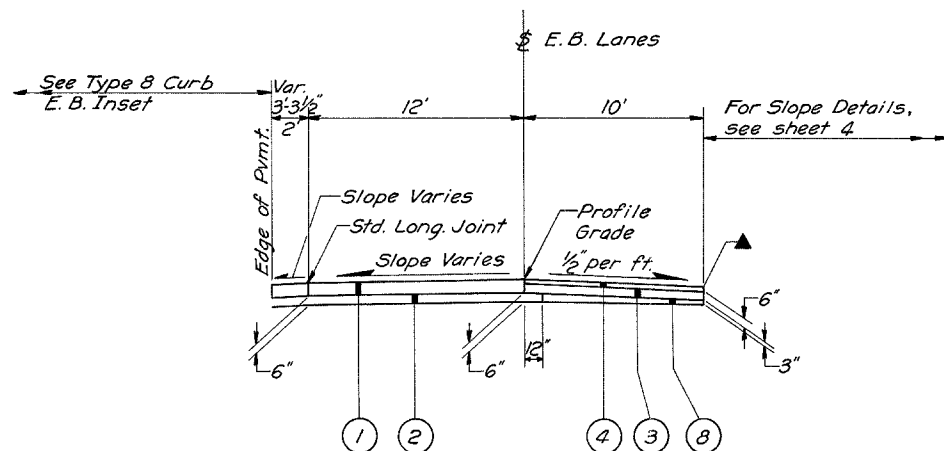
Sta. 479 + 16.30 to Sta. 487 + 65.90	849.60 Lin. Ft.
Bridge & Appr. Slabs ~ Sta. 487 + 65.90 to Sta. 489 + 86.32	220.42 Lin. Ft.
Sta. 489 + 86.32 to Sta. 499 + 19.03	932.71 Lin. Ft.
Bridge & Appr. Slabs ~ Sta. 499 + 19.03 to Sta. 502 + 83.45	364.42 Lin. Ft.
Sta. 502 + 83.45 to Sta. 510 + 49.17	765.72 Lin. Ft.
<b>Total</b>	<b>2,548.03 Lin. Ft.</b>

#### LEGEND

- ① 451 9" Reinforced Portland Cement Concrete Pavement.
  - ② 310 Subbase (depth as shown) Grading A as per plan (see General Note).
  - ③ 304 Aggregate Base (depth as shown).
  - ④ 301 3" Bituminous Aggregate Base, 702.01 (85-11 or R-20) or 702.09, RT-11 or 12 (see Note in Proposal).
  - ⑥ 605 6" Shallow Pipe Underdrains.
  - ⑦ Special Drainage Connection, using No. 8 Aggregate. (see note in Proposal).
  - ⑧ 310 Subbase, Regular Grading (depth as shown).
- #### EXISTING PAVEMENTS
- ⓓ 9" Reinforced Portland Cement Concrete Pavement.
  - ⓔ Subbase, Grading A or B.
  - ⓕ 6" Pipe Underdrain (Existing).

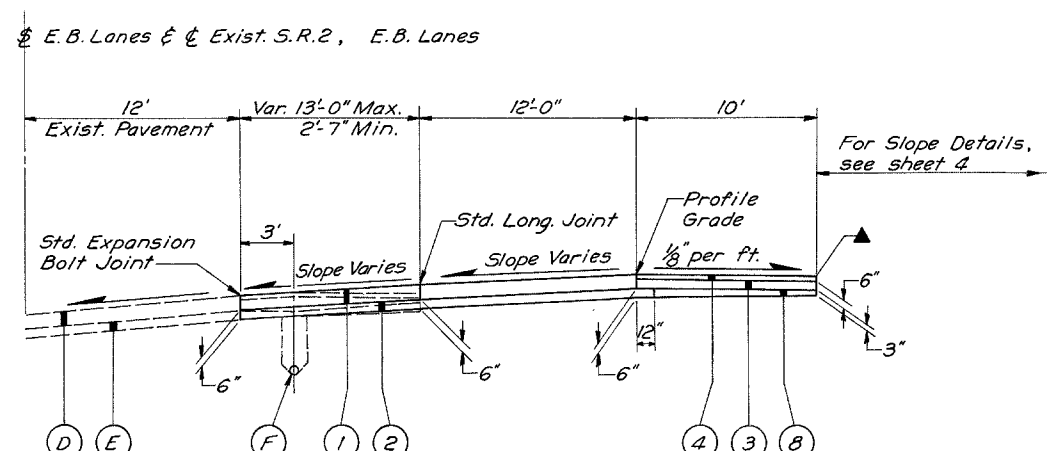
#### NOTES

- ▲ Drop Earth Shoulder 1" below Paved Berm.
- \* Unless otherwise shown on Cross Sections.
- ⊕ For Taper Width 2' or less, see Detail.



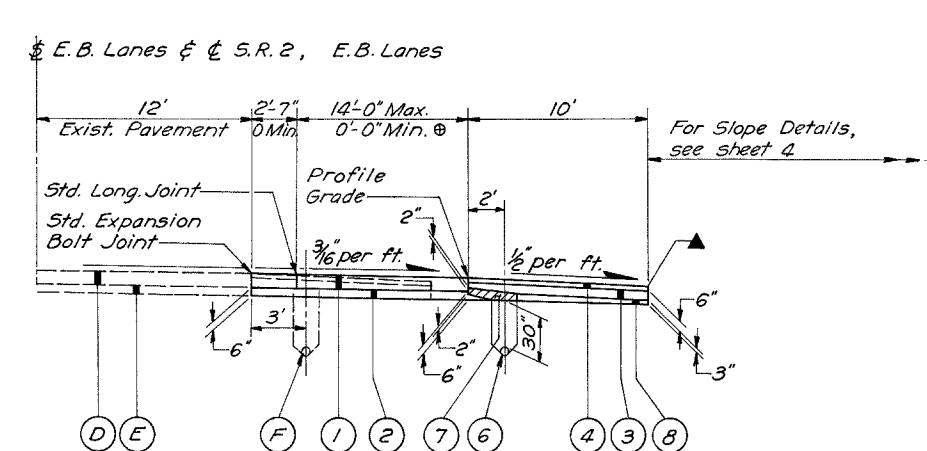
#### EASTBOUND LANES TRANSITION SECTION

Sta. 586 + 08.00 to Sta. 588 + 00 192.00 Lin. Ft.



#### EASTBOUND CONVERGING TAPER LANE

Sta. 588 + 00 to Sta. 593 + 00 500.00 Lin. Ft.



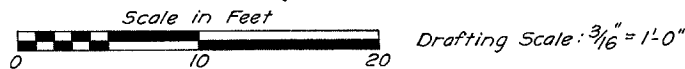
#### EASTBOUND CONVERGING TAPER LANE

Sta. 593 + 00 to Sta. 600 + 00 700.00 Lin. Ft.

# TYPICAL SECTIONS

## TYPE 404 ON 305 & TYPE 451

### DIRECTIONAL ROADWAYS (WESTBOUND)



FED. RD. DIVISION	STATE	PROJECT	7
2	OHIO		283

LORAIN COUNTY  
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#### LEGEND

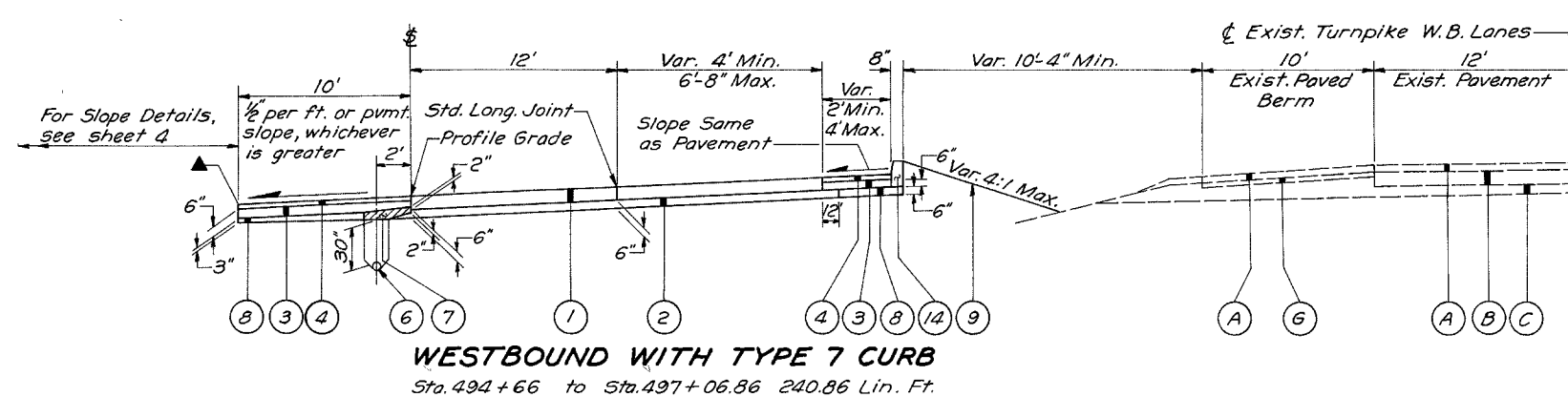
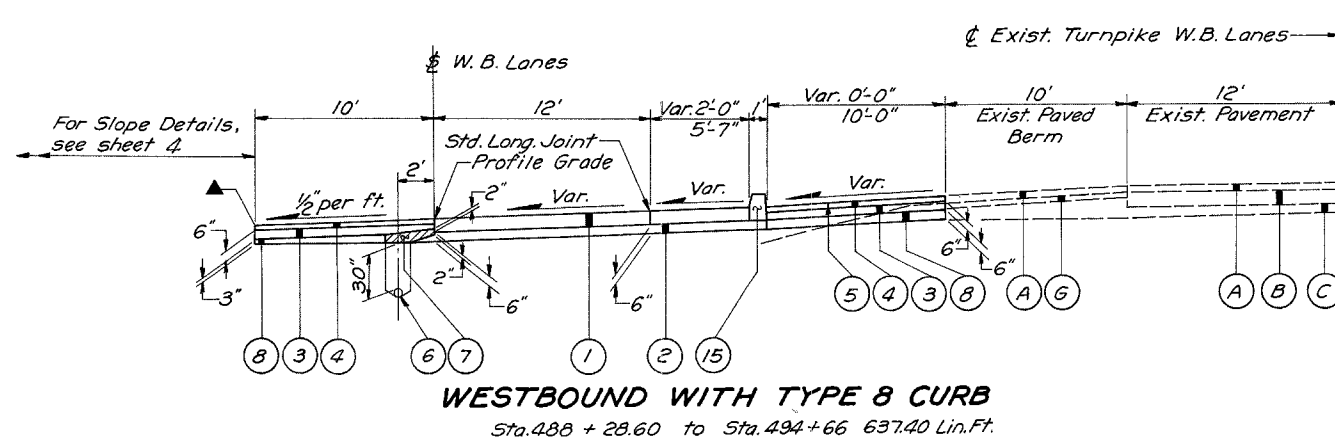
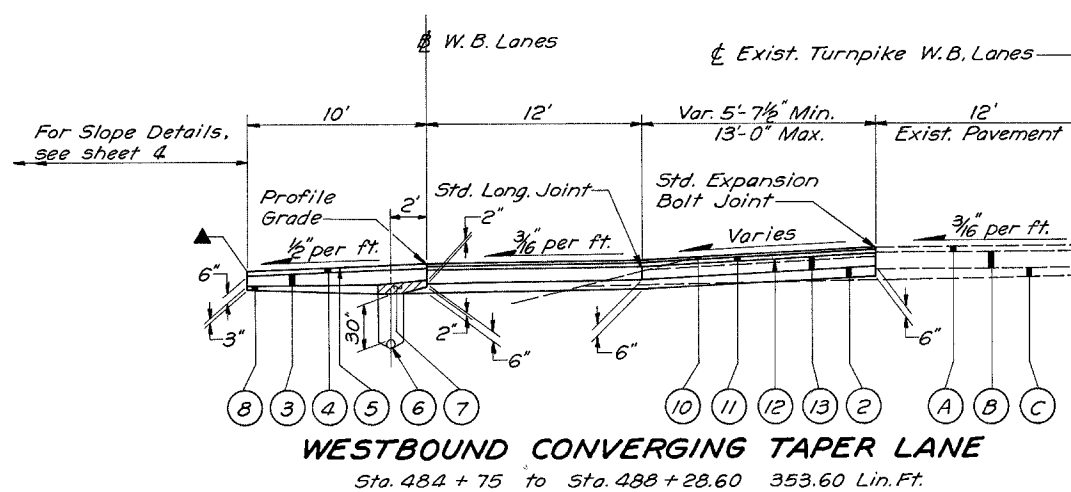
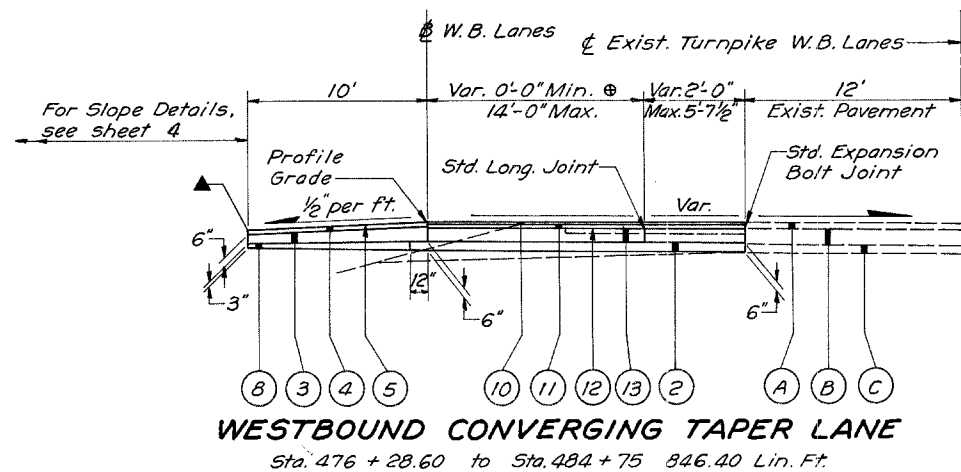
- ① 451 9" Reinforced Portland Cement Concrete Pavement.
- ② 310 Subbase (depth as shown) Grading A as per plan (see General Note).
- ③ 304 Aggregate Base (depth as shown).
- ④ 301 3" Bituminous Aggregate Base, 702.01 (85-100 or AC-10) or 702.09, RT-11 or 12 (See Note in Proposal).
- ⑤ 409 Seal Coat, using 0.008 cu. yd. No. 8 Aggregate per sq. yd. and 0.30 gal. bituminous material per sq. yd. (see note in Proposal).
- ⑥ 605 6" Shallow Pipe Underdrains.
- ⑦ Special Drainage Connection, using No. 8 Aggregate. (see note in Proposal).
- ⑧ 310 Subbase, Regular Grading (depth as shown).
- ⑨ 659 Seeding and Mulching.
- ⑩ 404 1 1/2" Asphalt Concrete (70-85 or AC-20)
- ⑪ 402 2 1/2" Asphalt Concrete (70-85 or AC-20)
- ⑫ 407 Tack Coat, 702.04, MS-2 or RS-1, or 702.02, RC-70 or RC-250, applied at the rate of 0.10 gal. per sq. yd.
- ⑬ 305 9" Portland Cement Concrete Base.
- ⑭ 609 Concrete Curb, Standard Type 7.
- ⑮ 609 Concrete Curb, Standard Type 8.

#### EXISTING PAVEMENTS

- Ⓐ 4" Asphalt Concrete Resurfacing.
- Ⓑ 10" Reinforced Portland Cement Concrete Base.
- Ⓒ Var. depth Selected Subbase Material.
- Ⓓ 3" Surfaced Shoulder.

#### NOTES

- ▲ Drop Earth Shoulder 1" below Paved Berm.
- ⊕ For Taper Width 2' or less, see Detail.



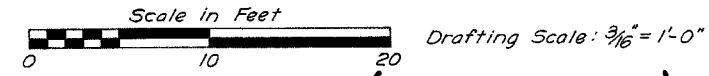
# TYPICAL SECTIONS

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

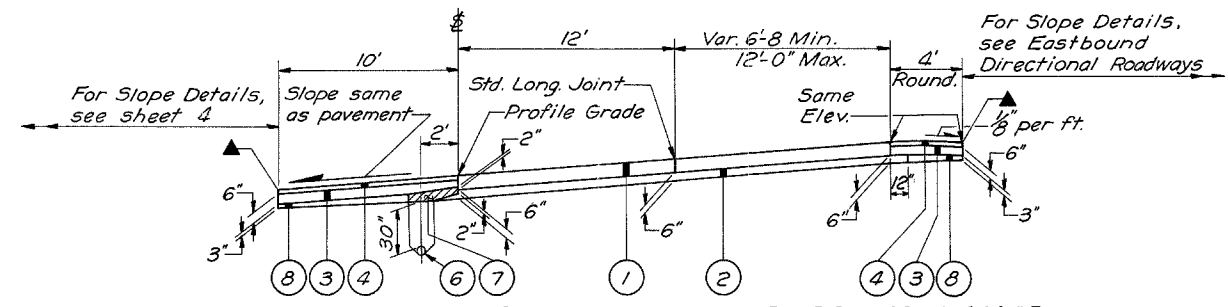
8  
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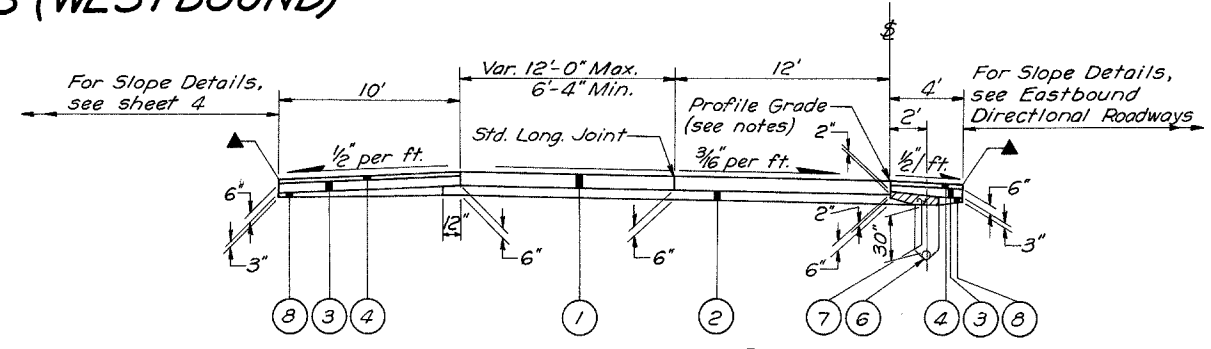
## TYPE 451



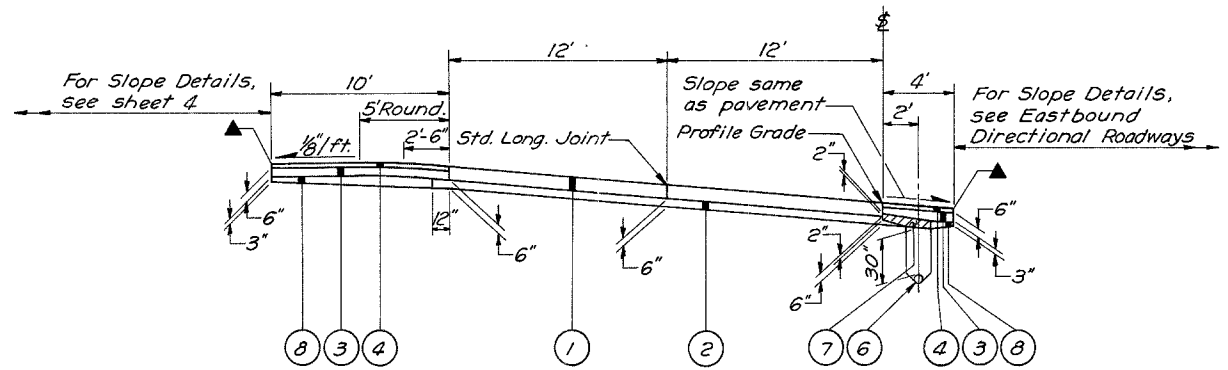
### DIRECTIONAL ROADWAYS (WESTBOUND)



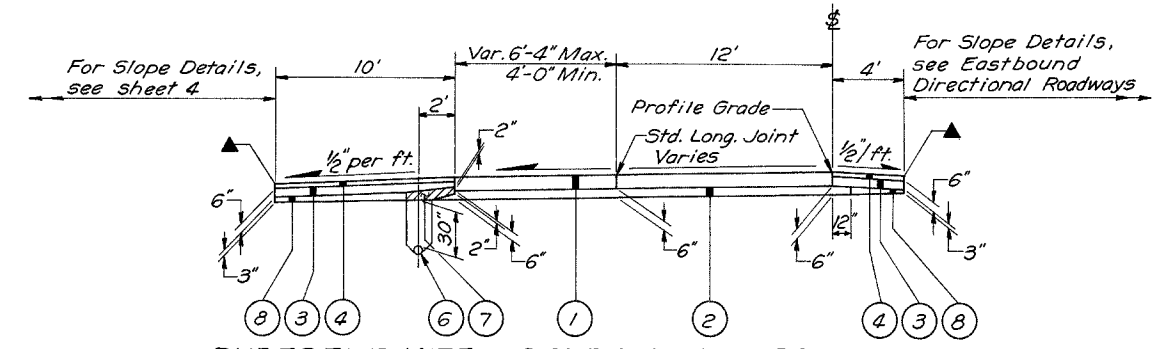
**SUPERELEVATED SECTION WESTBOUND LANES**  
Sta. 497 + 06.86 to Sta. 514 + 58.84 1,751.98 Lin. Ft.



**NORMAL SECTION WESTBOUND LANES**  
Sta. 514 + 58.84 to Sta. 516 + 10.84 152.00 Lin. Ft.  
Sta. 556 + 50.04 to Sta. 564 + 99.98 849.94 Lin. Ft.  
Bridge & Appr. Slabs ~ Sta. 564 + 99.98 to Sta. 566 + 78.82 178.84 Lin. Ft.  
Sta. 566 + 78.82 to Sta. 570 + 01.54 322.72 Lin. Ft.  
Sta. 582 + 45.10 to Sta. 585 + 58.68 313.58 Lin. Ft.  
Total 1,638.24 Lin. Ft.



**SUPERELEVATED SECTION WESTBOUND LANES**  
Sta. 570 + 01.54 to Sta. 576 + 06.12 604.58 Lin. Ft.  
Bridge & Appr. Slabs ~ Sta. 576 + 06.12 to Sta. 578 + 93.11 286.99 Lin. Ft.  
Sta. 578 + 93.11 to Sta. 582 + 45.10 351.99 Lin. Ft.  
Total 956.57 Lin. Ft.



**SUPERELEVATED SECTION WESTBOUND LANES**  
Sta. 585 + 58.68 to Sta. 587 + 75 216.32 Lin. Ft.

### LEGEND

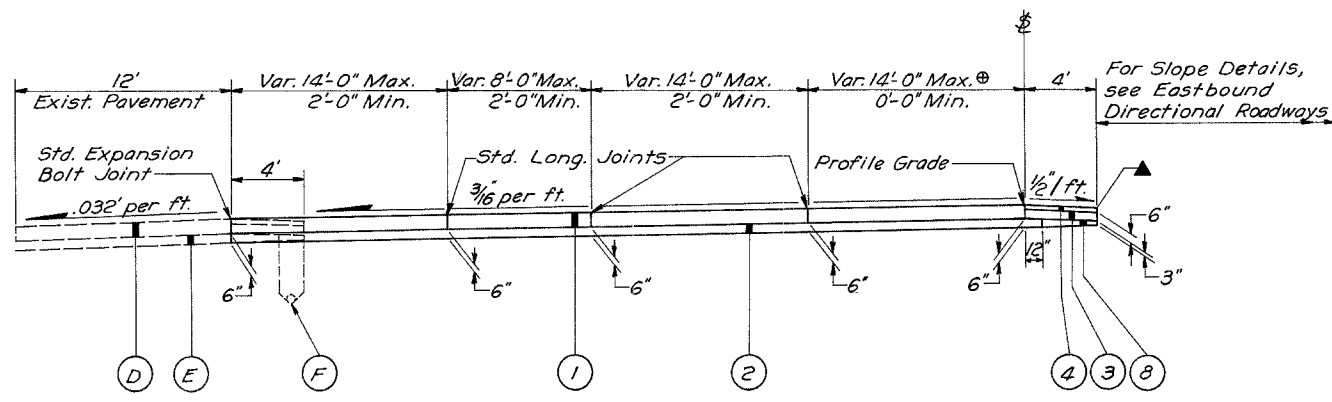
- ① 451 9" Reinforced Portland Cement Concrete Pavement.
- ② 310 Subbase (depth as shown) Grading A as per plan (see General Note).
- ③ 304 Aggregate Base (depth as shown).
- ④ 301 3" Bituminous Aggregate Base, 702.01 (85-100 or AC-20) or 702.09 RT-110/12 (See Note in Proposal).
- ⑥ 605 6" Shallow Pipe Underdrains.
- ⑦ Special Drainage Connection, using No. 8 Aggregate. (See note in Proposal).
- ⑧ 310 Subbase, Regular Grading (depth as shown).

### EXISTING PAVEMENTS

- Ⓓ 9" Reinforced Portland Cement Concrete Pavement.
- Ⓔ Subbase, Grading A or B.
- Ⓕ 6" Pipe Underdrain (Existing).

### NOTES

- ▲ Drop Earth Shoulder 1" below Paved Berm.
- ⊕ For Taper Width 2' or less, see Detail.
- Profile Grade ~ Between W.B. station limits 514 + 58.84 and 516 + 10.84 the profile is carried on the left edge of pavement.



**WESTBOUND DIVERGING TAPER LANE**  
Sta. 587 + 75 to Sta. 597 + 55 980 Lin. Ft.



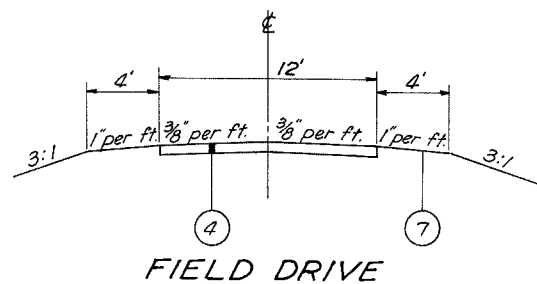
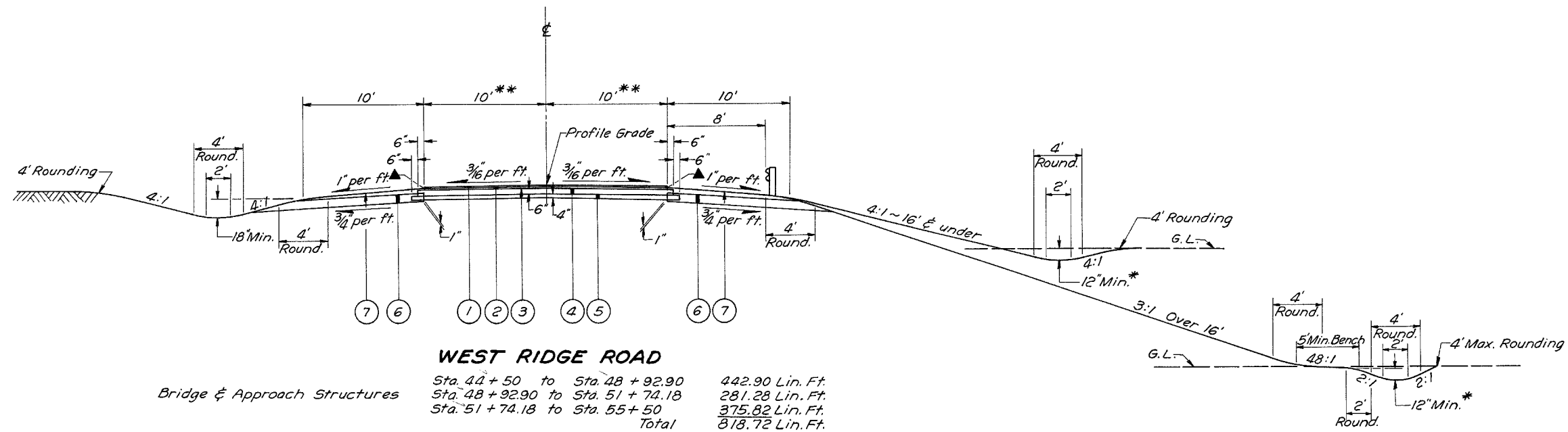
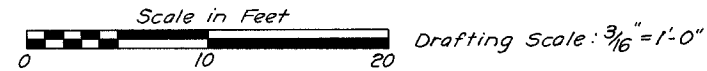
# TYPICAL SECTIONS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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283

LORAIN COUNTY  
LOR-90-9.48

## TYPE 404

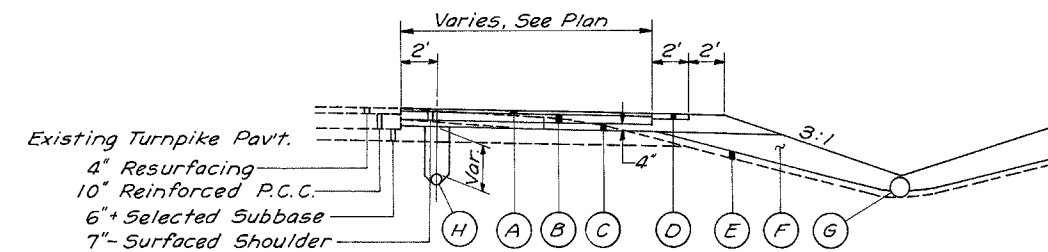


### NOTES

- ▲ Drop Earth Shoulder 1" below Pavement.
- \* Unless otherwise shown on Cross Sections.
- \*\* For pavement tapers, see sheets 45 & 47.

### LEGEND

- ① 404 1" Asphalt Concrete (70-85 or AC-20)
- ② 402 1 1/2" Asphalt Concrete (70-85 or AC-20)
- ③ 408 Prime Coat, 702.09, RT-2 or RT-3 applied at rate of 0.40 gal. per sq. yd.
- ④ 304 6" Aggregate Base.
- ⑤ 310 4" Subbase, Regular Grading.
- ⑥ 605 Aggregate Drains.
- ⑦ 659 Seeding and Mulching. (see General Notes)



- ① 404 1 1/2" Asphalt Concrete (70-85 or AC-20)
- ② 402 5 1/2" Asphalt Concrete (70-85 or AC-20) (Two Courses)
- ③ 310 VAR. Subbase using No. 9 Aggr., Depth as shown.
- ④ 402 3" Asphalt Concrete (85-100).
- ⑤ 6" Sand Blanket using 703.02.
- ⑥ 310 VAR. Subbase using No. 2 Aggregate.
- ⑦ 603 12" Conduit Type D.
- ⑧ 605 6" Shallow Pipe Underdrain.

TEMPORARY MEDIAN CROSSOVER  
OHIO TURNPIKE

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For additional notes see Sh. No. 14

## OHIO TURNPIKE TOLL PLAZA

THE OHIO TURNPIKE COMMISSION WILL AWARD CONTRACTS FOR THE CONSTRUCTION OF A TOLL PLAZA INCLUDING A UTILITY BUILDING, TOLL PLAZA PAVING, PARKING AREAS, ROADWAY LIGHTING, UTILITY LINES, BOOTHS, ISLANDS AND A SEWAGE DISPOSAL PLANT IN THE AREA DESIGNATED "TOLL PLAZA AREA" ON THESE PLANS. PLANS FOR SUCH CONSTRUCTION TO BE PERFORMED BY OTHERS ARE AVAILABLE FOR INFORMATIONAL PURPOSES FROM THE CHIEF ENGINEER OF THE OHIO TURNPIKE COMMISSION, 682 PROSPECT STREET, BEREA, OHIO.

THE PLANS FOR THIS CONTRACT (LOR-90-9.48) INCLUDE THE EARTHWORK NECESSARY TO PREPARE THE AREA FOR THE CONSTRUCTION OF THE TOLL PLAZA AND APPURTENANCES. THE CONTRACTOR WILL BE REQUIRED TO COMPLETE THIS EARTHWORK NOT LATER THAN ONE CALENDAR YEAR PRIOR TO THE COMPLETION DATE FOR THIS PROJECT IN ORDER TO PERMIT OTHER CONTRACTORS TO WORK IN THE AREA AND WILL BE REQUIRED TO COOPERATE WITH THESE OTHER CONTRACTORS WITH RESPECT TO ACCESS TO THE SITE AND PROTECTION OF THE WORK ALREADY COMPLETED.

RESPONSIBILITIES BETWEEN CONTRACTORS AND REQUIREMENTS FOR COOPERATION WITH RESPECT TO THIS WORK SHALL BE GOVERNED BY THE PROVISIONS SET FORTH IN 105.07 OF THE SPECIFICATIONS FOR THE PROJECT.

## FIELD OFFICE

THE CONTRACTOR SHALL PROVIDE A SUITABLE FIELD OFFICE HAVING A MINIMUM OF 400 SQ FT OF FLOOR SPACE. IN ADDITION TO THE REQUIREMENTS OF ITEM 619, THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SANITARY PROVISIONS AS PER 107.06. ALL THE ABOVE IS INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 619 FIELD OFFICE.

## SANITARY FLOW INTO HIGHWAY DRAINAGE SYSTEMS

THIS PLAN MAKES NO PROVISION FOR CONNECTING, NOR SHALL THE ENGINEER OR CONTRACTOR CONNECT, ANY EXISTING OR NEW DRAINAGE INTO THE HIGHWAY DRAINAGE SYSTEM WHEN SUCH DRAINS CARRY FLOW FROM ANY PLUMBING FIXTURES INCLUDING FLOOR DRAINS AND SINK DRAINS OR DRAINS FROM LIVESTOCK LOTS OR BARNES OR POLLUTED WATER OF ANY KIND.

EXISTING PIPE CARRYING FLOW WHICH COMES WITHIN THE CATEGORY OUTLINED ABOVE SHALL BE PLUGGED WITH CLASS C CONCRETE AT THE RIGHT-OF-WAY LINE. PAYMENT FOR SAID PLUGGING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 203 EXCAVATION (OR THE PERTINENT 202 ITEM).

## ROUNDING OF CORNERS SHOWN ON CROSS SECTIONS

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

## UNDERGROUND UTILITIES

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS HAVE BEEN OBTAINED BY DILIGENT FIELD CHECKS AND SEARCHES OF AVAILABLE RECORDS. IT IS BELIEVED THAT THEY ARE ESSENTIALLY CORRECT, BUT THE STATE OF OHIO DOES NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS.

## ESTIMATED QUANTITIES

SPECIFIC LOCATIONS AND USAGE OF ESTIMATED QUANTITIES SET UP ON THIS PLAN TO BE USED "AS DIRECTED BY THE ENGINEER" SHALL BE MADE A MATTER OF RECORD BY INCORPORATION INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT.

## FEDERAL AID CONSTRUCTION IDENTIFICATION SIGNS

THE CONTRACTOR SHALL FURNISH, ERECT, MAINTAIN AND SUBSEQUENTLY REMOVE FEDERAL AID CONSTRUCTION IDENTIFICATION SIGNS AT EACH OF THE FOLLOWING APPROXIMATE LOCATIONS:

1. EB S.R. 2 STA 574+00
2. WB S.R. 2 STA 598+00

SIGN DETAILS SHALL BE AS SPECIFIED ON STANDARD DRAWING FACI-1, "CODE N-55(1)-120(2).

THE SIGNS SHALL BE ERECTED IN ACCORDANCE WITH STANDARD DRAWING FACI-2. ADDITIONAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH NOTES IN THE PROPOSAL.

## 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 PRICES BID FOR THE RESPECTIVE EXCAVATION ITEMS, UNLESS OTHERWISE ITEMIZED IN THE PLANS.

## REMOVAL OF TREES AND STUMPS

ALL TREES AND STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE CONSTRUCTION LIMITS OF THIS PROJECT SHALL BE REMOVED UNDER THE LUMP SUM PRICE BID FOR ITEM 201 CLEARING AND GRUBBING, EXCEPT THAT THOSE TREES FOR WHICH PROTECTION AND PRESERVATION WORK IS INDICATED ELSEWHERE IN THESE PLANS SHALL NOT BE REMOVED.

SIZES	100% STATE				FEDERAL PARTICIPATION			
	18"	30"	48"	60"	18"	30"	48"	60"
TREES	38				120	14	2	
STUMPS	4				1			

THE ABOVE ESTIMATE IS APPROXIMATE AND THE STATE OF OHIO RESERVES THE RIGHT TO ORDER THE REMOVAL OF ADDITIONAL TREES OR STUMPS OUTSIDE OF THE LIMITS OF CONSTRUCTION BUT WITHIN THE RIGHT OF WAY AND/OR EASEMENT LINES. PAYMENT FOR THE REMOVAL OF THESE ADDITIONAL TREES OR STUMPS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201 CLEARING AND GRUBBING.

## CENTERLINE REFERENCE MONUMENTS

SEE RIGHT OF WAY PLAN SHEET NO. 1

## SEEDING AND MULCHING

1-90 EASTBOUND AND WESTBOUND

QUANTITIES FOR SEEDING AND MULCHING ARE CALCULATED FOR THE SOIL AREAS BETWEEN THE RIGHT OF WAY FENCE LINES, BETWEEN THE RIGHT OF WAY LINES IN UNFENCED AREAS, AND WITHIN THE WORK LIMITS FOR AREAS OUTSIDE THE RIGHT OF WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT.

WEST RIDGE ROAD

QUANTITIES FOR SEEDING AND MULCHING ARE CALCULATED FOR THE SOIL AREAS BETWEEN LINES 10 FT. OUTSIDE WORK LIMITS AS SHOWN ON THE CROSS SECTIONS.

## ITEM SPECIAL, DRILLED WELL ABANDONED

THE EXISTING CONCRETE OR STONE SLAB WELL COVER AND PUMPING EQUIPMENT SHALL BE REMOVED AND DISPOSED OF. THE CASING SHALL BE CUT OFF AT LEAST (2) FT. BELOW THE PROPOSED FINISHED GRADE OUTSIDE PROPOSED PAVEMENT AREAS OR AT LEAST (2) FT. BELOW THE PROPOSED SUBGRADE ELEVATION INSIDE PROPOSED PAVEMENT AREAS AND CAPPED WITH CLASS C CONCRETE OR A STANDARD THREADED PIPE CAP.

THE UNIT PRICE BID FOR EACH "DRILLED WELL ABANDONED" SHALL INCLUDE PAYMENT FOR ALL LABOR, TOOLS, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THIS ITEM.

## ITEM 203 PROOF ROLLING

AN ESTIMATED QUANTITY HAS BEEN PROVIDED IN THE GENERAL SUMMARY FOR USE IN PROOF ROLLING OF COMPACTED SUBGRADE FOR ALL MAINLINE PAVEMENT AND PAVED BERMS IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 801.

## CONNECTIONS TO EXISTING PIPE

AT PLACES WHERE THE PLANS PROVIDE FOR PROPOSED PIPE TO BE CONNECTED TO EXISTING PIPE, 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 PIPE. THE COST OF THIS OPERATION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PERTINENT 603 CONDUIT ITEM.

## FARM DRAINS

ALL FARM DRAINS WHICH ARE ENCOUNTERED DURING CONSTRUCTION SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS UNDER THE DIRECTION OF THE ENGINEER. EXISTING COLLECTORS WHICH ARE LOCATED BELOW THE ROADWAY DITCH ELEVATIONS AND WHICH CROSS THE ROADWAY SHALL BE REPLACED WITHIN THE RIGHT-OF-WAY LIMITS BY ITEM 603 CONDUIT, TYPE B, ONE COMMERCIAL SIZE LARGER THAN THE EXISTING CONDUIT.

## FARM DRAINS (CONTINUED)

EXISTING COLLECTORS AND ISOLATED FARM DRAINS WHICH ARE ENCOUNTERED ABOVE THE ELEVATION OF THE ROADWAY DITCHES SHALL BE OUTLETTED INTO THE ROADWAY DITCH BY 603 TYPE F CONDUIT. THE OPTIMUM OUTLET ELEVATION SHALL BE, IF POSSIBLE, ONE FOOT ABOVE THE FLOWLINE ELEVATION OF THE DITCH.

LATERAL TILE FIELDS WHICH CROSS THE ROADWAY SHALL BE INTERCEPTED BY 603 TYPE E CONDUIT AND CARRIED IN A LONGITUDINAL DIRECTION TO AN ADEQUATE OUTLET OR ROADWAY CROSSING. THE LOCATION, TYPE, SIZE AND GRADE OF REQUIRED REPLACEMENTS SHALL BE DETERMINED BY THE ENGINEER DURING CONSTRUCTION AND PAYMENT SHALL BE MADE ON FINAL MEASUREMENTS.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE:

	100% STATE	FEDERAL PARTICIPATION
ITEM 603 8" CONDUIT, TYPE B	100 LIN FT	150 LIN FT
ITEM 603 10" CONDUIT, TYPE B	100 LIN FT	150 LIN FT
ITEM 603 6" CONDUIT, TYPE E	25 LIN FT	75 LIN FT
ITEM 603 6" CONDUIT, TYPE F	20 LIN FT	30 LIN FT
ITEM 601 ROCK CHANNEL PROTECTION, TYPE B (18" Thick) 2 CU YDS		3 CU YDS

AND NECESSARY PIPE BENDS & BRANCHES WHICH SHALL BE INCLUDED FOR PAYMENT IN THE PERTINENT CONDUIT ITEM.

NONE OF THE ABOVE MATERIALS SHALL BE ORDERED BY THE CONTRACTOR UNTIL REQUESTED BY THE ENGINEER.

## SPRING DRAINS

REFERENCE IS MADE TO STANDARD DRAWING MC-1 SHOWING THE METHOD OF DRAINING ANY SPRING THAT MAY BE SHOWN ON THE PLAN OR ENCOUNTERED DURING CONSTRUCTION AS DETERMINED BY THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THIS PURPOSE:

	100% STATE	FEDERAL PARTICIPATION
ITEM 605 6" UNCLASS'D PIPE UNDERDRAIN, 707.01 TYPE III, OR 707.12 AS PER PLAN	25 LIN FT	50 LIN FT
ITEM 605 AGGREGATE DRAINS FOR SPRINGS, AS PER PLAN	3 LIN FT	6 LIN FT

THE CONTRACTOR SHALL NOT ORDER MATERIALS FOR "SPRING DRAINS" UNTIL AUTHORIZED BY THE ENGINEER AND IN THE EVENT NO SPRINGS ARE ENCOUNTERED, THE ITEM SHALL BE NON-PERFORMED.

## EROSION CONTROL

ITEM 601 ROCK CHANNEL PROTECTION AND 667 JUTE MATTING ARE PROVIDED IN THE PLANS FOR EROSION CONTROL. ROCK OF A STABLE NATURE WILL NOT BE REMOVED IN ORDER TO PLACE ANY OF THESE ITEMS. THE ENGINEER SHALL CHECK AND NON-PERFORM QUANTITIES OR ADJUST LOCATIONS AND QUANTITIES FOR THESE ITEMS WHERE INDICATED BY FIELD CONDITIONS DURING CONSTRUCTION.

## ITEM 603 JACKING PIPE

AS A PART OF THIS CONTRACT, IT WILL BE NECESSARY TO INSTALL A 54" CONDUIT UNDER THE EXISTING PAVEMENT AT STA. 535+82 OHIO TURNPIKE BY THE METHOD OF BORING AND JACKING.

NO TRENCH EXCAVATION OR EQUIPMENT SHALL BE CLOSER THAN 10 FT. TO THE EDGE OF PAVEMENT. TRENCHES SHALL BE ADEQUATELY SUPPORTED AND THE SPECIFICATION REQUIREMENT FOR CLASS B BEDDING SHALL BE DISREGARDED.

## ITEM 605 AGGREGATE DRAINS

AGGREGATE DRAINS SHALL BE PLACED AT 50 FT. INTERVALS ON THE LEFT SIDE OF PAVEMENT AND AT 50 FT. INTERVALS ON THE RIGHT SIDE OF PAVEMENT.

## MAINTENANCE OF SEWER FLOWS

THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS SO AS TO MAINTAIN AT ALL TIMES SEWER FLOWS THROUGH EXISTING FACILITIES TO REMAIN IN PLACE AND THROUGH EXISTING FACILITIES TO BE REPLACED UNTIL NEW FACILITIES ARE COMPLETED AND PLACED INTO USE.

PAYMENT FOR ANY ADDITIONAL COSTS INVOLVED IN MAINTAINING THESE FLOWS BY PUMPING OR BY ANY OTHER MEANS APPROVED BY THE ENGINEER SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE RESPECTIVE ITEMS OF 603 CONDUIT.

ROADWAY  
Calc. C.E.C. June, 1970  
Checked D.L.R. June, 1970

DRAINAGE  
Calc. R.D.E. June, 1970  
Checked P.M.G. June, 1970

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GENERAL NOTES

# GENERAL NOTES

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## PLUGGING OIL AND GAS WELLS

All oil and gas wells located within the limits of the right-of-way, except those which have been plugged to the satisfaction of the Department of Natural Resources, shall be plugged by the contractor before any other construction is started in the vicinity of the wells. All work shall be done in accordance with the requirements of the State of Ohio, Department of Natural Resources, Division of Oil and Gas, 1930 Belcher Dr., Columbus, Ohio 43224. All work connected with plugging of the wells must be performed under the supervision of a representative of the Division of Oil and Gas. The contractor shall notify the project engineer and the Division of Oil and Gas at least 14 days in advance of the date on which he intends to begin work.

Recorded information regarding these wells and permits to plug the wells shall be obtained by the contractor at the Division of Oil and Gas.

Payment for the work shall be made per each under "Item Special Plugging Oil and Gas Well", which price and payment shall constitute full compensation for furnishing all material, labor, tools and equipment, and all incidentals necessary to complete this item.

The following estimated quantity of "Plugging Oil and Gas Wells" was carried to the general summary in the event the Contractor encounters additional wells requiring plugging or the Engineer requires wells that were plugged prior to this project, to be replugged. All or part of this quantity may be nonperformed.

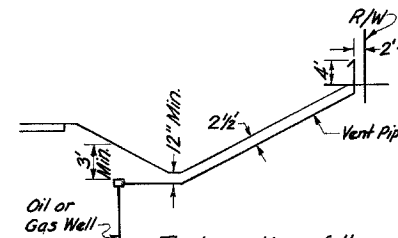
## VENTING OIL AND GAS WELLS

All oil and gas wells located within the limits of this project, whether plugged as part of this project or plugged by others, shall be vented as detailed on this sheet.

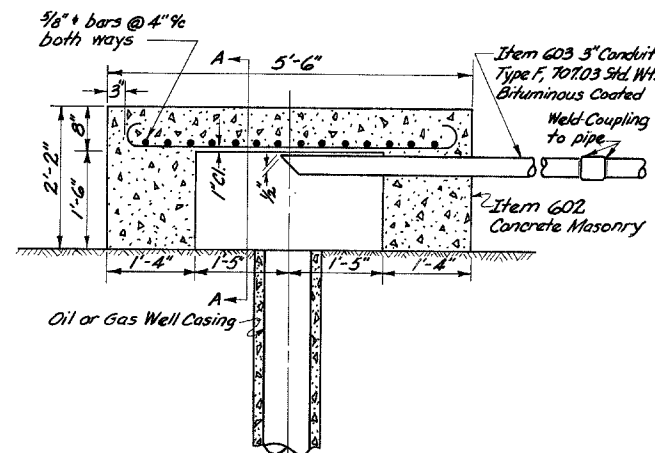
The following estimated quantities have been included in the general summary for venting these wells.

Quantities	Sta. 496+00 Lt.	Sta. 563+61	Estimated	Total
G02 Concrete Masonry, as per plan	2 cu. yd.	2 cu. yd.	2 cu. yd.	6 cu. yd.
G03 3" Conduit, Type F, 707.08 Standard Weight Bituminous Coated	7 lin. ft.	82 lin. ft.	20 lin. ft.	109 lin. ft.

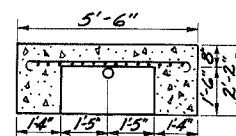
If the vent pipe is adjacent to buildings, the pipe shall extend 14' above the ground line and shall be anchored in a concrete footing 18" in diameter and 36" deep. The pipe shall have a 3/4" hole with a threaded plug 3' above ground line. Concrete shall be paid for as item G02 Concrete Masonry.



That portion of the pipe above ground shall be primed with one coat of 708.06 and painted with two coats of 708.08 in lieu of the coal tar paint. The pipe opening shall be protected with a wire screen.



The oil or gas well casing shall be cut off a minimum of 5'-2" below finish grade or bottom of subbase. Cost of this operation shall be included in the unit price bid for item G02 Concrete Masonry. The pipe shall be coated with two coats of coal tar pitch paint at 180 sq. ft./gal./coat. Coal tar paint shall be Intertol 66, Kopper Bitumastic 50 or equal.



SECTION A-A

OIL OR GAS WELL VENT DETAIL

## PAVEMENT TRANSITIONS ON BRIDGE APPROACHES

The Contractor is hereby advised that subsequent to the completion of these plans, an asphalt surface has been added to the bridge decks and approach slabs. All approach pavement elevations, shall be adjusted where necessary, at the time of construction by using a graphic grade beginning seventy five (75) feet from the approach slab and transitioning to the higher roadway profile on the bridge. He shall make reference to the bridge details to determine those structures where the profile grade was raised and make use of those elevations to work out the transitions.

All the above or any deviations therefrom shall meet the approval of the Engineer.

# GENERAL NOTES

## CONTRACTION JOINTS

ALTHOUGH SPECIFIC LOCATION OF CERTAIN CONTRACTION JOINTS HAVE BEEN DETAILED ON THIS PLAN, NO WAIVER OF THE SPECIFICATIONS IS INTENDED AND THE MAXIMUM DISTANCE BETWEEN CONTRACTION JOINTS SHALL BE IN ALL CASES IN ACCORDANCE WITH STANDARD DRAWING BP-4.

## EXPANSION JOINTS

ALTHOUGH SPECIFIC LOCATIONS OF CERTAIN EXPANSION JOINTS HAVE BEEN DETAILED ON THIS PLAN, NO WAIVER OF THE SPECIFICATIONS IS INTENDED AND EXPANSION JOINTS SHALL BE PROVIDED AT ALL MAJOR STRUCTURES AS REQUIRED.

## ITEM 310 SUBBASE, GRADING A AS PER PLAN

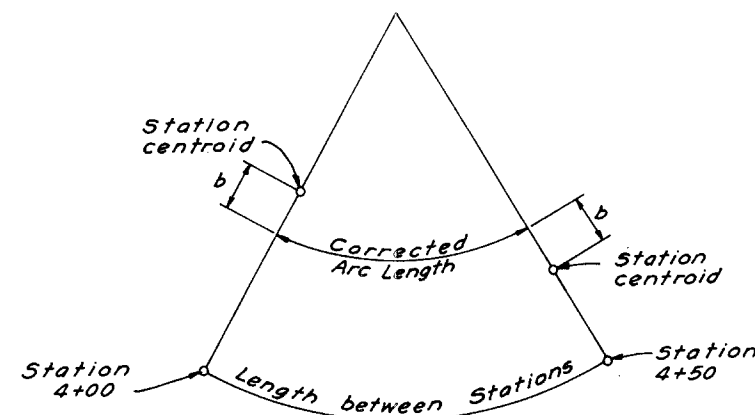
MATERIAL FOR THIS ITEM SHALL MEET THE REQUIREMENTS OF GRADING A OF 310.02 EXCEPT THAT NO MORE THAN 10% OF THE MATERIAL SHALL PASS A NO. 200 SIEVE AFTER ALL OPERATIONS OF PLACING AND COMPACTING HAVE BEEN COMPLETED.

## PAVEMENT DETAILS ADJACENT TO EXISTING PAVEMENT

THE PROPOSED ELEVATIONS APPEARING ON THE PAVEMENT DETAILS ADJACENT TO THE EXISTING OHIO TURNPIKE PAVEMENT AND EXISTING SR 2 PAVEMENT HAVE BEEN DETERMINED FROM FIELD SURVEY AND CALCULATIONS REQUIRED TO PROVIDE A SMOOTH TRANSITION BETWEEN THE EXISTING AND PROPOSED PAVEMENT. WHERE REQUIRED, THE CONTRACTOR AT THE DIRECTION OF THE ENGINEER SHALL MAKE MINOR ELEVATION ADJUSTMENTS TO MEET EXISTING FIELD CONDITIONS.

## CORRECTED ARC LENGTH

IN ORDER TO ARRIVE AT A MORE ACCURATE EARTHWORK QUANTITY, A CORRECTED ARC LENGTH IS USED ON CURVED ALIGNMENTS WHERE NECESSARY. THE FOLLOWING DIAGRAM SHOWS THE METHOD OF ARRIVING AT THE CORRECTED ARC LENGTH. THE CORRECTED ARC LENGTH APPEARS ON THE EARTHWORK TABULATIONS ON THE CROSS SECTION SHEETS.



## EXAMPLE

ASSUME A 10° CURVE, RADIUS 572.96 FEET. CENTROID AT STATION 4+00 IS FOUND TO BE 35 FEET FROM THE CENTERLINE AND CENTROID AT STA 4+50 IS FOUND TO BE 25 FEET FROM THE CENTERLINE. CORRECT RADIUS BETWEEN CENTROIDS IS THEREFORE 572.96 FEET MINUS (35+25) = 512.96 FEET. ALIGNMENT FACTOR IS THEN  $512.96 \div 572.96$  OR 0.94764 WHICH WHEN MULTIPLIED BY 50 FEET GIVES A CORRECTED ARC LENGTH BETWEEN CENTROIDS OF 47.38 FEET.

CLEAN

PRIV

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REMOVED  
LOCATED ABOVE THE FINISH

BELOW THE FINI  
FINISHED

SHALL BE REMOVED  
FINAL SH

General Notes Cont'd on Sheet 12

# MAINTENANCE OF TRAFFIC

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## OHIO TURNPIKE

### GENERAL

THE CONTRACTOR SHALL, BEFORE WORK IS STARTED ON THE PROJECT, SUBMIT TO THE DIRECTOR FOR WRITTEN APPROVAL, A SCHEDULE OF OPERATIONS.

IN NO CASE SHALL THE STIPULATION OF THIS TRAFFIC NOTE WAIVE THE REQUIREMENTS OF EITHER THE CONSTRUCTION AND MATERIAL SPECIFICATIONS OR THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, CURRENT EDITION, LATEST REVISION.

### WEST RIDGE ROAD

WEST RIDGE ROAD MAY BE CLOSED TO THROUGH TRAFFIC FOR A PERIOD NOT EXCEEDING NINE (9) CALENDAR MONTHS IN WHICH TIME THE EXISTING BRIDGE ON WEST RIDGE ROAD, OVER THE OHIO TURNPIKE, SHALL BE LENGTHENED AND RAISED ACCORDING TO THESE PLANS AND THE STRUCTURE ON EASTBOUND LOR-90 OVER WEST RIDGE ROAD COMPLETED.

### MURRAY RIDGE ROAD

TWO WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES ON MURRAY RIDGE ROAD.

### STATE ROUTE 2

TWO LANE TRAFFIC SHALL BE MAINTAINED DURING THE CONSTRUCTION OF THE STRUCTURE ON LOR-90 (WESTBOUND LANES) OVER STATE ROUTE 2. ONE LANE TRAFFIC WILL BE PERMITTED DURING THE ACTUAL CONSTRUCTION OF THE ENTRANCE AND EXIT LANES AT STATE ROUTE 2 WITHIN THE LIMITS OF SAFETY AND IN CONFORMANCE WITH PART 7, CONSTRUCTION AND MAINTENANCE OPERATIONS, OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS. NIGHT ILLUMINATION SHALL BE PROVIDED AS DIRECTED BY THE ENGINEER.

THE COST OF MAINTAINING TRAFFIC AS OUTLINED ABOVE SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614 MAINTAINING TRAFFIC.

### LIGHTS AND SIGNS AT ADJACENT ROAD INTERSECTIONS

THE CONTRACTOR SHALL, IN ADDITION TO THE GENERAL REQUIREMENTS OF ITEM 614 ON THIS PROJECT, PERFORM THE FOLLOWING:

PROVIDE, ERECT, AND MAINTAIN STANDARD 48" x 30" SIZE "ROAD CLOSED" SIGNS, SIGN SUPPORTS, AND LIGHTS AT THE FOLLOWING LOCATIONS DURING PERIODS IN WHICH THE AFFECTED ROADS ARE CLOSED TO TRAFFIC:

1. WEST RIDGE ROAD AT ITS INTERSECTION WITH STANG ROAD AND AT ITS INTERSECTION WITH S.R. 113.

SIGN SUPPORTS AND LIGHTS FOR "ROAD CLOSED" SIGNS SHALL BE AS DETAILED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS", CURRENT EDITION, LATEST REVISION.

PAYMENT FOR PROVIDING, ERECTING, MAINTAINING, AND REMOVING LIGHTS, SIGNS, AND SUPPORTS, SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR "ITEM 614, MAINTAINING TRAFFIC."

### ALTERNATE METHODS

IF THE CONTRACTOR SO ELECTS, HE MAY SUBMIT ALTERNATE METHODS FOR THE MAINTENANCE OF TRAFFIC PROVIDED THE INTENT OF THE ABOVE PROVISIONS IS FOLLOWED AND NO ADDITIONAL INCONVENIENCE TO THE TRAVELING PUBLIC RESULTS THEREFROM. NO ALTERNATE PLAN SHALL BE PLACED INTO EFFECT UNTIL APPROVAL HAS BEEN GRANTED, IN WRITING, BY THE DIRECTOR.

### GENERAL

SAFETY AND CONTINUITY OF OPERATIONS OF TRAFFIC ON THE OHIO TURNPIKE SHALL BE OF THE FIRST IMPORTANCE AND SHALL AT ALL TIMES BE PROTECTED AND SAFEGUARDED. PROTECTION OF THIS TRAFFIC WILL INCLUDE POSITIVE DUST CONTROL DURING CONSTRUCTION OPERATIONS IN THOSE AREAS ADJACENT TO THE OHIO TURNPIKE.

TRAFFIC ON THE OHIO TURNPIKE SHALL BE MAINTAINED AT ALL TIMES BY MEANS OF THE EXISTING OHIO TURNPIKE ROADWAYS AND THE TEMPORARY CROSSOVERS WITH THE FOLLOWING RESTRICTIONS:

1. PERIOD MAY 1 THROUGH SEPTEMBER 14

ALL TRAVEL LANES SHALL REMAIN OPEN AT ALL TIMES DURING THIS PERIOD. NO WORK MAY BE PERFORMED DURING THIS PERIOD CLOSER THAN 10 FEET FROM THE EDGE OF THE TURNPIKE PAVEMENT INCLUDING WORK TO BE PERFORMED ON STRUCTURES OVER THE TURNPIKE.

2. PERIOD SEPTEMBER 15 THROUGH APRIL 30

ONE PAIR OF LANES IN ONE DIRECTION OR SINGLE LANES IN EACH DIRECTION MAY BE CLOSED TO TRAFFIC DURING THE DAYLIGHT HOURS ON MONDAYS, TUESDAYS, WEDNESDAYS AND THURSDAYS AND UNTIL 2:00 P.M. ON FRIDAYS UNLESS THE OHIO TURNPIKE COMMISSION SHALL DESIGNATE OTHERWISE BECAUSE OF EXPECTED HEAVY TRAFFIC VOLUME PERIODS AS A RESULT OF A HOLIDAY, SPECIAL EVENT, OR AN EMERGENCY. ALL TRAVEL LANES SHALL REMAIN OPEN BY MEANS OF THE EXISTING ROADWAYS FROM 2:00 P.M. ON FRIDAYS TO DAYLIGHT ON MONDAYS.

THE ENGINEER SHALL GIVE WRITTEN NOTICE TO THE CHIEF ENGINEER OF THE OHIO TURNPIKE COMMISSION AT THE COMMISSION'S OFFICES, 682 PROSPECT STREET, BEREA, OHIO, AT LEAST TWO WORKING DAYS IN ADVANCE OF THE TIME THE CONTRACTOR INTENDS TO COMMENCE ANY WORK UPON OR OVER THE OHIO TURNPIKE RIGHT-OF-WAY, AND THE ENGINEER SHALL AT ALL TIMES KEEP THE CHIEF ENGINEER OF THE OHIO TURNPIKE COMMISSION INFORMED OF THE CONSTRUCTION ACTIVITIES WITHIN THE TURNPIKE RIGHT-OF-WAY, WHENEVER SUCH WORK, IN THE OPINION OF THE CHIEF ENGINEER OF THE OHIO TURNPIKE COMMISSION, MAY AFFECT THE SAFETY OF TRAFFIC ON THE OHIO TURNPIKE. THE METHOD AND SCHEDULE FOR DOING SUCH WORK SHALL BE SUBMITTED TO THE CHIEF ENGINEER OF THE OHIO TURNPIKE COMMISSION FOR HIS APPROVAL, WITHOUT WHICH IT SHALL NOT BE COMMENCED OR PROSECUTED.

ONCE STARTED, ANY WORK WHICH WILL IN ANY WAY AFFECT THE SAFETY OR CONTINUITY OF TRAFFIC ON THE OHIO TURNPIKE, SHALL BE EXPEDITED UNTIL THE HAZARD TO OR INTERFERENCE WITH TRAFFIC IS ELIMINATED. IF, IN THE JUDGEMENT OF THE CHIEF ENGINEER OF THE OHIO TURNPIKE COMMISSION, AN UNDUE HAZARD OR UNWARRANTED INTERFERENCE WITH TURNPIKE TRAFFIC SHALL EXIST AT ANY TIME, THE EXISTENCE OF SUCH HAZARD OR INTERFERENCE MAY BE CAUSE FOR SUSPENDING WORK UNTIL SUCH HAZARD OR INTERFERENCE HAS BEEN REMOVED.

### TEMPORARY CROSSOVERS

BEFORE ANY WORK SHALL BE DONE ON THE CROSSOVERS WITHIN THE RIGHT-OF-WAY OF THE OHIO TURNPIKE, THE CONTRACTOR SHALL SUBMIT, TO THE CHIEF ENGINEER OF THE OHIO TURNPIKE COMMISSION FOR HIS APPROVAL, A SEQUENCE AND TIME SCHEDULE OF PROPOSED OPERATIONS, INCLUDING THE NECESSARY DRAINAGE MODIFICATIONS. NO WORK SHALL BE PERFORMED WITHIN THE TURNPIKE RIGHT-OF-WAY UNTIL SUCH SEQUENCE AND SCHEDULE ARE APPROVED IN WRITING.

THE TWO TEMPORARY CROSSOVERS WILL BE CONSTRUCTED, UTILIZED AND REMOVED DURING THE PERIOD OF SEPTEMBER 15 TO APRIL 30.

TRAFFIC SHALL BE RESTRICTED TO ONE LANE IN EITHER OR BOTH OF THE TURNPIKE ROADWAYS AT REDUCED SPEED WHEN ANY WORK IS WITHIN TEN (10) FEET OF THE ROADWAY AND THE TEMPORARY CROSSOVERS CANNOT BE UTILIZED TO MAINTAIN TRAFFIC. THIS WORK INCLUDES CONSTRUCTION OF EXIT AND ENTRANCE LANES, MODIFICATIONS TO WEST RIDGE ROAD BRIDGE, AND CONSTRUCTION AND REMOVAL OF THE TEMPORARY CROSSOVERS. FOR SUCH WORK AS PAINTING AND MINOR FINISHING WORK ON THE SUPERSTRUCTURE OF BRIDGES, TRAFFIC MAY BE RESTRICTED TO ONE LANE IN EACH OF THE TURNPIKE ROADWAYS AT REDUCED SPEED. A MIN. FIFTEEN FOOT VERTICAL CLEARANCE OVER THE OHIO TURNPIKE SHALL BE MAINTAINED AT ALL TIMES.

# MAINTENANCE OF TRAFFIC

## OHIO TURNPIKE CONTINUED

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LORAIN COUNTY

LOR-90-9.48

CONSTRUCTION OF THE PIERS AND ABUTMENTS FOR I-90 EASTBOUND LANES AND WEST RIDGE ROAD BRIDGES OVER THE TURNPIKE AND JACKING OPERATIONS OF THE 54" PIPE AT TPK STA 535+82 MAY BE PERFORMED WITHOUT CLOSING THE ROADWAYS, BUT SHALL BE PROTECTED BY GUARD RAIL AND FENCE AS DESCRIBED UNDER THE OHIO TURNPIKE "TEMPORARY GUARD RAIL" AND "TEMPORARY FENCE" NOTES. NO EARTHWORK OTHER THAN MATERIAL EXCAVATED FROM OR REQUIRED FOR MEDIAN CONSTRUCTION SHALL BE HAULED ALONG OR ACROSS THE OHIO TURNPIKE ROADWAYS. THERE SHALL BE NO MOVEMENT AT ANY TIME OF THE CONTRACTOR'S WORKMEN, EQUIPMENT OR MATERIALS ACROSS TURNPIKE LANES THAT ARE OPEN TO TRAFFIC EXCEPT FOR WORK PERFORMED IN THOSE AREAS LISTED UNDER THE "ACCESS TO WORK" NOTES.

THE OHIO TURNPIKE COMMISSION RESERVES THE RIGHT TO LIMIT THE SIZE OF LOADS AND TO REQUIRE ANY OTHER MEANS TO MINIMIZE SPILLAGE ON THE TURNPIKE PAVEMENTS. ANY SPILLAGE OF SOIL OR MATERIALS ON THE PAVEMENTS SHALL BE REMOVED IMMEDIATELY BY THE CONTRACTOR AT HIS EXPENSE.

THE OHIO TURNPIKE ROADWAYS SHALL BE THOROUGHLY CLEANED BEFORE TRAFFIC IS RETURNED TO THEM FOLLOWING EACH CLOSURE.

UPON COMPLETION OF THE STRUCTURES OVER THE OHIO TURNPIKE AND AFTER THE CHIEF ENGINEER OF THE OHIO TURNPIKE HAS APPROVED THE WORK, THE CONTRACTOR WILL REMOVE THE TEMPORARY CROSSOVERS AND RESTORE THE DISTURBED AREAS TO THEIR ORIGINAL CONDITION. THE CONTRACTOR WILL AGAIN SUBMIT TO THE CHIEF ENGINEER A SEQUENCE AND TIME SCHEDULE OF THE OPERATIONS NECESSARY TO RESTORE THE DISTURBED AREAS. NO WORK ON THE REMOVAL OR RESTORATION SHALL COMMENCE UNTIL SUCH SEQUENCE AND SCHEDULE ARE APPROVED IN WRITING.

PAYMENT FOR CONSTRUCTING, MAINTAINING, ADJUSTING AND REMOVING THE TEMPORARY CROSSOVERS AND RESTORING THE DISTURBED AREAS TO THEIR ORIGINAL CONDITION SHALL BE IN ACCORDANCE WITH THE NOTES ON SHEET NO. 14. THE PAVING OF THE TEMPORARY CROSSOVERS AND CONNECTIONS WILL BE INCLUDED IN THE UNIT PRICE BID FOR "ITEM 615 TEMPORARY PAVEMENT, CLASS A, AS PER PLAN". SEE TURNPIKE ALIGNMENT SHEETS AND TYPICAL SECTIONS FOR DETAILS OF TEMPORARY CROSSOVERS.

### MAINTENANCE - OHIO TURNPIKE

THE OHIO TURNPIKE COMMISSION WILL FURNISH, ERECT, MAINTAIN AND REMOVE ALL BARRICADES, GATES, LIGHTS, WARNING AND REGULATORY SIGNS, DELINEATORS, EDGE LINES AND LANE LINES AS REQUIRED FOR MAINTAINING TRAFFIC ON THE OHIO TURNPIKE EXCEPT BARRICADES AND WARNING LIGHTS AND SIGNS REQUIRED FOR PIER FOOTER CONSTRUCTION AT THE EASTBOUND I-90 STRUCTURE WHICH SHALL BE FURNISHED, ERECTED, MAINTAINED AND REMOVED BY CONTRACTOR. WHEN, IN THE OPINION OF THE CHIEF ENGINEER OF THE OHIO TURNPIKE, THE CONSTRUCTION WORK CAUSES A HAZARD TO TRAFFIC ON THE OHIO TURNPIKE, THE COMMISSION MAY PLACE AT THE SITE OF THE WORK QUALIFIED WATCHMEN, FLAGMEN AND PATROLMEN TO PROTECT THE TRAVELING PUBLIC ON THE OHIO TURNPIKE. THE ENGINEER SHALL AT ALL TIMES KEEP THE CHIEF ENGINEER OF THE OHIO TURNPIKE COMMISSION INFORMED OF THE CONSTRUCTION ACTIVITIES WITHIN THE OHIO TURNPIKE RIGHT-OF-WAY. PAYMENT FOR ALL OF THE ABOVE SERVICES AND MATERIAL PROVIDED BY THE OHIO TURNPIKE COMMISSION WILL BE BY FORCE ACCOUNT WITH THE STATE OF OHIO. PAYMENT FOR BARRICADES, WARNING LIGHTS AND SIGNS REQUIRED FOR PIER FOOTER CONSTRUCTION AT THE EASTBOUND I-90 STRUCTURE SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC, AS PER PLAN.

### ACCESS TO WORK - OHIO TURNPIKE

EXCEPT AS LISTED BELOW, THE CONTRACTOR SHALL BE REQUIRED TO OBTAIN ACCESS TO THE WORK BY WAYS OTHER THAN THE USE OF THE OHIO TURNPIKE. FOR WORK IN THE FOLLOWING LOCATIONS, THE CONTRACTOR WILL BE PERMITTED TO USE THE FACILITIES OF THE OHIO TURNPIKE.

1. THE CONSTRUCTION OF THE TEMPORARY CROSSOVERS.
2. AT WEST RIDGE ROAD MEDIAN PIER TO PERMIT RAISING THE BRIDGE INCLUDING THE PROTECTION FENCE AND GUARD RAIL IN THE MEDIAN AND THE RECONSTRUCTION OF PERMANENT GUARD RAIL IN THE MEDIAN.
3. THE MEDIAN PIER CONSTRUCTION AND STEEL ERECTION OF I-90 EASTBOUND LANES BRIDGE OVER THE OHIO TURNPIKE INCLUDING THE PROTECTION FENCE AND GUARD RAIL IN THE MEDIAN AND THE PERMANENT GUARD RAIL IN THE MEDIAN.
4. REMOVAL OF DECK FORMS ON I-90 EASTBOUND LANES BRIDGE.
5. THE REMOVAL OF THE TEMPORARY CROSSOVERS AND THE RESTORATION OF THE OHIO TURNPIKE TO ORIGINAL CONDITION.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR TRANSPORTATION OF WORKMEN TO THE WORK AREA. WORKMEN EMPLOYED ON THE PROJECT WILL NOT BE PERMITTED TO PARK THEIR VEHICLES

ON THE TURNPIKE RIGHT-OF-WAY. NEITHER SHALL THE TOLL PLAZA AREA AT INTERCHANGES BE USED FOR PARKING OF WORKMEN'S VEHICLES.

SPECIAL ARRANGEMENTS FOR ACCESS TO THE WORK SITE BY USE OF THE TURNPIKE FOR DELIVERY OF CONCRETE AND STEEL FOR THE BRIDGES OVER THE OHIO TURNPIKE AND FOR PAVING MATERIAL FOR THE CROSSOVERS AND RAMP CONNECTIONS, MAY BE MADE WITH THE CHIEF ENGINEER OF THE OHIO TURNPIKE COMMISSION. HOWEVER, SUCH ARRANGEMENT WILL NOT INCLUDE U-TURNS EXCEPT THOSE POSSIBLE AT THE TOLL PLAZAS. ANY USE OF THE OHIO TURNPIKE FOR THIS PURPOSE WILL REQUIRE THE PAYMENT OF NORMAL TOLLS AND SHALL BE DONE IN ACCORDANCE WITH THE "RULES AND REGULATIONS FOR THE CONTROL AND REGULATION OF TRAFFIC" ADOPTED BY THE OHIO TURNPIKE COMMISSION.

STATE AND FEDERAL INSPECTORS AND ENGINEERS OCCUPYING A STATE OR FEDERAL VEHICLE SHALL BE AFFORDED READY ACCESS TO THE WORK SITE BY MEANS OF INTERCHANGES 7 AND 8 WITHOUT PAYMENT OF TOLLS. ALL VEHICLES GOING TO THE JOB SITE IN THE MEDIAN SHALL ENTER THE CONED-OFF WORK ZONE AS SOON AS POSSIBLE, IF A CONED AREA IS IN PLACE, AND REMAIN WITHIN THE CONED-OFF AREAS IN BOTH ROADWAYS. EXITING VEHICLES FROM THE WORK AREAS SHALL "YIELD TO" AND EXERCISE ALL NECESSARY CARE TO SAFEGUARD EXISTING TRAFFIC ON THE OPEN ROADWAYS.

### TEMPORARY GUARD RAIL - OHIO TURNPIKE

THE CONTRACTOR SHALL FURNISH, ERECT AND SUBSEQUENTLY REMOVE APPROXIMATELY 2,387.5 LINEAL FEET GUARD RAIL, TYPE 4, AS A TEMPORARY GUARD RAIL FOR PROTECTION OF HIS WORK AREA FOR I-90 EASTBOUND LANES AND WEST RIDGE ROAD BRIDGES AND JACKING OPERATIONS OF THE 54" PIPE AT TPK STA 535+82, ADJACENT TO THE TURNPIKE. THE GUARD RAIL SHALL BE POST MOUNTED, ERECTED, PER STANDARD DRAWINGS GR-1, AND GR-2A MODIFIED TO PROVIDE POST SPACING AT 12'-6" THROUGHOUT EXCEPT FOR THE THREE POSTS OF THE TERMINAL PANEL, AT LOCATIONS SHOWN ON THE PLANS. THE ENDS OF EACH RUN TOWARD APPROACHING TRAFFIC SHALL BE FLARED SO THAT THE TERMINAL POST WILL BE LOCATED APPROXIMATELY 20 FEET FROM THE EDGE OF PAVEMENT. IN THE MEDIAN, BOTH ENDS OF A RUN OF TEMPORARY GUARD RAIL SHALL BE FLARED WITH THE TERMINAL POST LOCATED APPROXIMATELY 20 FEET FROM THE EDGE OF PAVEMENT. CONSTRUCTION WILL BE SIMILAR TO THE STANDARD GUARD RAIL FLARE SHOWN ON STANDARD DRAWING GR-5. GOOD QUALITY USED GUARD RAIL MAY BE USED FOR THIS PURPOSE SUBJECT TO THE APPROVAL OF THE CHIEF ENGINEER OF THE OHIO TURNPIKE COMMISSION.

PAYMENT FOR FURNISHING, ERECTING, MAINTAINING AND REMOVING THE TEMPORARY GUARD RAIL SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR "ITEM 614, MAINTAINING TRAFFIC"

EXISTING GUARD RAIL ALONG THE TURNPIKE AT WEST RIDGE ROAD SHALL BE REMOVED TO INSTALL TEMPORARY GUARD RAIL AND REPLACED AFTER THE WORK IS COMPLETE, USING STANDARD SPACER BLOCKS IN RECONSTRUCTION. THE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR 202, "GUARD RAIL REMOVED FOR RE-USE", AND 606 "GUARD RAIL REBUILT".

### TEMPORARY FENCE - OHIO TURNPIKE

TEMPORARY FENCE SHALL BE INSTALLED BEHIND THE GUARD RAIL AT I-90 EASTBOUND LANES AND WEST RIDGE ROAD BRIDGES AND AT THE CONSTRUCTION SITE OF THE 54" PIPE AT TPK STA 535+82. CHAIN LINK FENCE MINIMUM HEIGHT 6 FEET SHALL BE USED BEHIND THE GUARD RAIL. TYPE 47 FENCE MAY BE USED BEYOND THE LIMITS OF THE CHAIN LINK FENCE RUN TO CONNECT TO TURNPIKE RIGHT-OF-WAY FENCE AS SHOWN ON THE PLANS. THE FENCE SHALL BE MAINTAINED IN GOOD CONDITION UNTIL THE CONSTRUCTION IS COMPLETED, AT WHICH TIME THE FENCE SHALL BE REMOVED AND DISPOSED OF. GOOD QUALITY USED MATERIALS MAY BE FURNISHED FOR TEMPORARY FENCING. SUCH MATERIAL SHALL BE SUBJECT TO THE APPROVAL OF THE CHIEF ENGINEER OF THE OHIO TURNPIKE COMMISSION. CUSTOMARY CONCRETE ENCASUREMENT OF FENCE POSTS WILL NOT BE REQUIRED IF SATISFACTORY STABILITY CAN OTHERWISE BE OBTAINED.

THE FENCING SHALL BE OF SUFFICIENT LENGTH TO AFFORD PROTECTION THROUGHOUT BRIDGE CONSTRUCTION AND BRIDGE RELATED EARTHWORK CONSTRUCTION OPERATIONAL AREAS, AND PREVENT PEOPLE AND ANIMALS FROM ENTERING ONTO THE TRAVELLED ROADWAY. TOTAL ESTIMATED MINIMUM TEMPORARY FENCE LENGTHS ARE 1,788 LINEAL FEET OF CHAIN LINK AND 1,100 FEET OF TYPE 47. ALL MATERIALS, TYPE OF CONSTRUCTION, LOCATIONS AND CONDITION OF MAINTENANCE SHALL BE SUBJECT TO APPROVAL OF THE CHIEF ENGINEER OF THE OHIO TURNPIKE COMMISSION.

PAYMENT FOR FURNISHING, ERECTION, MAINTENANCE AND REMOVAL OF TEMPORARY FENCE SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR "ITEM 614, MAINTAINING TRAFFIC"

### EARLY STAGE PERMANENT RIGHT OF WAY FENCE WITH TEMPORARY FENCE CONNECTION

DEPICTED IN THIS PLAN ON EASTBOUND I-90 ALIGNMENT SHEETS 21, 22 AND 23 AND ON OHIO TURNPIKE ALIGNMENT SHEETS 48 AND 49 IS PERMANENT TYPE 47 FENCE WITH TEMPORARY TYPE 47 FENCE CONNECTIONS TO EXISTING TURNPIKE RIGHT OF WAY FENCES. THIS TEMPORARY FENCE ACROSS THE PROPOSED I-90 RIGHT OF WAY SHALL BE FITTED WITH A GATE OF SUFFICIENT WIDTH TO PERMIT PASSAGE OF EQUIPMENT AND MATERIALS.

THIS ARRANGEMENT OF EARLY STAGE FENCING IS INTENDED TO AFFORD PROTECTION TO THE PATRONS OF THE TOLL ROAD FROM THE INCURSION OF UNAUTHORIZED PERSONS AND STRAY ANIMALS AND IS TO BE FULLY OPERABLE PRIOR TO THE REMOVAL OR BREACHING OF EXISTING TURNPIKE RIGHT OF WAY FENCES ENTAILED BY CONSTRUCTION OF I-90 EASTBOUND EXIT LANES AND I-90 WESTBOUND ENTRANCE LANES. THIS ARRANGEMENT OF EARLY STAGE FENCING IS TO CONTINUE AS AN EFFECTIVE BARRIER UNTIL THE REQUIRED PROTECTION HAS BEEN ACHIEVED BY OTHER MEANS AND DISCONTINUANCE SHALL BE AS DIRECTED BY THE ENGINEER.

NEITHER THE USE NOR THE DISCONTINUANCE OF USE OF EARLY STAGE FENCING HEREIN DESCRIBED SHALL IN ANY WAY RELIEVE THE CONTRACTOR OF ANY OF HIS LEGAL RESPONSIBILITIES OR LIABILITIES FOR THE SAFETY OF THE PUBLIC. THE ATTENTION OF THE CONTRACTOR IS DIRECTED TO THE PROVISIONS OF 104.04 AND 105.14 OF THE SPECIFICATIONS.

SPECIFIC CONSTRUCTION DETAILS OF PERMANENT RIGHT OF WAY FENCE REQUIRED HEREIN SHALL BE AS SHOWN IN THE RIGHT OF WAY PLAN AND NO ADDITIONAL QUANTITY OF PERMANENT RIGHT OF WAY FENCE IS HEREIN PROVIDED.

SUFFICIENT TEMPORARY FENCE WITH GATE IS PROVIDED UNDER THE SECTION OF THESE NOTES ENTITLED "TEMPORARY FENCE - OHIO TURNPIKE" TO PROVIDE FOR A SINGLE SPAN ACROSS I-90 EASTBOUND AND I-90 WESTBOUND RIGHTS OF WAY. THE STIPULATIONS OF MATERIAL, CONSTRUCTION AND MAINTENANCE CONTAINED IN SAID SECTION APPLY TO THESE TEMPORARY FENCE CONNECTIONS WITH GATES, EXCEPT THAT ALL MATERIALS, TYPE OF CONSTRUCTION, LOCATIONS, CONDITION OF MAINTENANCE AND GATE OPERATION SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

PAYMENT FOR FURNISHING, ERECTION, OPERATION, MAINTENANCE AND REMOVAL OF TEMPORARY FENCE CONNECTION WITH GATE SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC.

### OHIO TURNPIKE ALIGNMENT SHEETS

IT IS INTENDED THAT SHEETS 48, 49, 50 & 51 BE USED ONLY FOR THE CONSTRUCTION OF TEMPORARY FEATURES NECESSITATED BY PERMANENT CONSTRUCTION. PERMANENT CONSTRUCTION WILL BE FOUND IN APPROPRIATE LOCATIONS ELSEWHERE IN THESE PLANS.

### General Notes Cont'd

### TEMPORARY WATER POLLUTION, SOIL EROSION AND SILTATION CONTROL

The following estimated quantities are to be used as directed by the Engineer for temporary control measures. For details see the note in the proposal.

ITEM	Description	Quantity	Unit
ITEM 207	Temporary Seeding and Mulching	42,483	38,467 Sq. Yds.
ITEM 659	Commercial Fertilizer (12-12-12)	5	4 Tons
ITEM 207	Water	49	48 M. Gals.
ITEM 207	Temporary Slope Drains	800	800 Lin. Ft.
ITEM 207	Temporary Benches, Pikes, Dams & Sediment Basins	440	440 Cu. Yds.
ITEM 207	Mowing	480	480 M. Sq. Ft.

### GUARD RAIL, TYPE 4, AS PER PLAN

Guard Rail, Type 4, as per plan, shall meet the requirements of Guard Rail, Type 5 except that the post spacing shall be 12'-6" and the posts shall be steel. For post and spacer block details see Std. Dwg. GR-2B dated 1-1-71.

Payment for all the above shall be included in the unit price bid for Item 606, Guard Rail, Type 4, as per plan.

### ANCHOR ASSEMBLY, MODIFIED AS PER PLAN

Anchor Assembly, modified as per plan, shall conform to the Anchor Assembly detail as shown on Std. Dwg. GR-2B dated 2-15-68 except only steel posts shall be used.

Payment for the Anchor Assembly Modified As Per Plan shall include 12'-6" of guard rail element, standard terminal, posts, spacer blocks, concrete encasement, brace rod, brace rod plate, and all component parts as detailed on the Std. Dwg. complete in place.

Rev 4-25-73

## TRAFFIC NOTES

# TABULATIONS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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283

LORAIN COUNTY

LOR-90-9.48

100% STATE

ITEM 451 - 9" REINFORCED CONCRETE PAVEMENT

I-90 EASTBOUND

STA. 454+84.35 TO STA. 461+84.35	VAR. WIDTH	1,422.22 SQ. YDS.
STA. 461+84.35 TO STA. 517+50.00	24' WIDTH	13,282.16 SQ. YDS.
TAPER AT TOLL PLAZA		200.00 SQ. YDS.
STA. 522+50.00 TO STA. 525+00.00	VAR. WIDTH	849.17 SQ. YDS.

I-90 WESTBOUND

STA. 488+28.60 TO STA. 501+06.86	VAR. WIDTH	2,508.21 SQ. YDS.
STA. 501+06.86 TO STA. 517+50.00	24' WIDTH	4,381.71 SQ. YDS.
TAPER AT TOLL PLAZA		17.49 SQ. YDS.
STA. 522+50.00 TO STA. 525+00.00	VAR. WIDTH	724.37 SQ. YDS.
TOTAL		23,385.33 SQ. YDS.

ITEM 451-TO SUMMARY USE 23,386 SQ. YDS.

ITEM 404 ASPHALT CONCRETE

I-90 EASTBOUND

STA. 445+76.58 TO STA. 447+90.65	2' WIDTH	1.71 CU. YDS.
STA. 447+90.65 TO STA. 454+84.35	VAR. WIDTH	49.79 CU. YDS.

I-90 WESTBOUND

STA. 476+28.60 TO STA. 477+24.60	2' WIDTH	0.89 CU. YDS.
STA. 477+24.60 TO STA. 488+28.60	VAR. WIDTH	69.02 CU. YDS.
WEST RIDGE RD. INCLUDING FEATHERING		52.35 CU. YDS.
TOTAL		173.76 CU. YDS.

ITEM 404-TO SUMMARY USE 174 CU. YDS.

ITEM 402 ASPHALT CONCRETE

I-90 EASTBOUND

STA. 445+76.58 TO STA. 447+90.65	2' WIDTH	3.30 CU. YDS.
STA. 447+90.65 TO STA. 454+84.35	VAR. WIDTH	82.97 CU. YDS.
FEATHER OVER EXISTING PAVED BERM		0.45 CU. YDS.

I-90 WESTBOUND

STA. 476+28.60 TO STA. 477+24.60	2' WIDTH	1.21 CU. YDS.
STA. 477+24.60 TO STA. 488+28.60	VAR. WIDTH	114.98 CU. YDS.
WEST RIDGE RD.		75.58 CU. YDS.
TOTAL		278.49 CU. YDS.

ITEM 402-TO SUMMARY USE 279 CU. YDS.

ITEM 407 TACK COAT

I-90 EASTBOUND

STA. 445+76.58 TO STA. 447+90.65	2' WIDTH	4.76 GAL.
STA. 447+90.65 TO STA. 454+84.35	VAR. WIDTH	119.50 GAL.
FEATHER OVER EXISTING PAVED BERM		5.56 GAL.

I-90 WESTBOUND

STA. 476+28.60 TO STA. 477+24.60	2' WIDTH	2.13 GAL.
STA. 477+24.60 TO STA. 488+28.60	VAR. WIDTH	165.60 GAL.
WEST RIDGE ROAD FEATHERING		8.00 GAL.
TOTAL		305.55 GAL.

ITEM 407, TACK COAT-TO SUMMARY USE 306 GAL.

ITEM 407 Cover Aggregate  $\frac{7\frac{1}{2}}{\text{sq. yd}} \times 3060 \text{ sq. yd} = \frac{21420}{2000} = 10.71 \text{ TONS}$

ITEM 408 PRIME COAT

WEST RIDGE ROAD TO SUMMARY USE 728 GAL.

ITEM 305 9" PORTLAND CEMENT CONCRETE BASE

I-90 EASTBOUND

STA. 445+76.58 TO STA. 447+90.65	2' WIDTH	47.57 SQ. YDS.
STA. 447+90.65 TO STA. 454+84.35	VAR. WIDTH	1,194.95 SQ. YDS.

I-90 WESTBOUND

STA. 476+28.60 TO STA. 477+24.60	2' WIDTH	21.33 SQ. YDS.
STA. 477+24.60 TO STA. 488+28.60	VAR. WIDTH	1,656.00 SQ. YDS.
TOTAL		2,919.85 SQ. YDS.

ITEM 305-TO SUMMARY USE 2,920 SQ. YDS.

ITEM 310 SUBBASE, GRADING A, AS PER PLAN

I-90 EASTBOUND

STA. 445+76.58 TO STA. 447+90.65	2' PAV'T WIDTH	18.50 CU. YDS.
STA. 447+90.65 TO STA. 454+84.35	VAR. PAV'T WIDTH	233.42 CU. YDS.
STA. 454+84.35 TO STA. 461+84.35	VAR. PAV'T WIDTH	284.57 CU. YDS.
STA. 461+84.35 TO STA. 517+50.00	24' PAV'T WIDTH	2,603.16 CU. YDS.
TAPER AT TOLL PLAZA		33.33 CU. YDS.
STA. 522+50.00 TO STA. 525+00.00	VAR. PAV'T WIDTH	158.50 CU. YDS.

CONTINUED

100% STATE

ITEM 310 SUBBASE, GRADING A, AS PER PLAN (CONT'D)

I-90 WESTBOUND

STA. 476+28.60 TO STA. 477+24.60	2' PAV'T WIDTH	5.33 CU. YDS.
STA. 477+24.60 TO STA. 488+28.60	VAR. PAV'T WIDTH	307.35 CU. YDS.
STA. 488+28.60 TO STA. 501+06.86	VAR. PAV'T WIDTH	504.83 CU. YDS.
STA. 501+06.86 TO STA. 517+50.00	24' PAV'T WIDTH	841.86 CU. YDS.
TAPER AT TOLL PLAZA		2.91 CU. YDS.
STA. 522+50.00 TO STA. 525+00.00	VAR. PAV'T WIDTH	137.71 CU. YDS.
TOTAL		5,131.48 CU. YDS.

ITEM 310 SUBBASE, GRADING A, TO SUMMARY USE 5,132 CU. YDS.

ITEM 409 SEAL COAT (AGGREGATE)

I-90 EASTBOUND

STA. 445+76.58 TO STA. 454+84.35	8.07 CU. YDS.
FEATHER OVER EXISTING PAVED BERM	0.44 CU. YDS.

I-90 WESTBOUND

STA. 476+28.60 TO STA. 488+28.60	10.67 CU. YDS.
STA. 488+28.60 TO STA. 494+66.00 RT. ONLY	2.83 CU. YDS.
TOTAL	22.01 CU. YDS.

ITEM 409, AGGREGATE-TO SUMMARY USE 22 CU. YDS.

ITEM 409 SEAL COAT (BITUMINOUS MATERIAL)

I-90 EASTBOUND

STA. 445+76.58 TO STA. 454+84.35	302.6 GAL.
FEATHER OVER EXISTING PAVED BERM	16.7 GAL.

I-90 WESTBOUND

STA. 476+28.60 TO STA. 488+28.60	400.0 GAL.
STA. 488+28.60 TO STA. 494+66.00 RT. ONLY	106.2 GAL.
TOTAL	825.5 GAL.

ITEM 409, BITUMINOUS-TO SUMMARY USE 826 GAL.

ITEM 301-3" BITUMINOUS AGGREGATE BASE

I-90 EASTBOUND

STA. 445+76.58 TO STA. 447+90.65	17.84 CU. YDS.
STA. 447+90.65 TO STA. 454+84.35	64.23 CU. YDS.
STA. 454+84.35 TO STA. 517+50.00	749.53 CU. YDS.
STA. 522+50.00 TO STA. 525+00.00	32.57 CU. YDS.

I-90 WESTBOUND

STA. 476+28.60 TO STA. 477+24.60	8.00 CU. YDS.
STA. 477+24.60 TO STA. 488+28.60	102.22 CU. YDS.
STA. 488+28.60 TO STA. 494+66.00	88.53 CU. YDS.
STA. 494+66.00 TO STA. 495+06.86	3.78 CU. YDS.
STA. 495+06.86 TO STA. 497+06.86	24.07 CU. YDS.
STA. 497+06.86 TO STA. 517+50.00	265.04 CU. YDS.
STA. 522+50.00 TO STA. 525+00.00	32.60 CU. YDS.
TOTAL	1,388.41 CU. YDS.

ITEM 301, TO SUMMARY USE 1,389

ITEM 304 AGGREGATE BASE

I-90 EASTBOUND

STA. 445+76.58 TO STA. 447+90.65	43.23 CU. YDS.
STA. 447+90.65 TO STA. 454+84.35	159.86 CU. YDS.
STA. 454+84.35 TO STA. 517+50.00	1,438.33 CU. YDS.
STA. 522+50.00 TO STA. 525+00.00	81.42 CU. YDS.

I-90 WESTBOUND

STA. 476+28.60 TO STA. 477+24.60	20.25 CU. YDS.
STA. 477+24.60 TO STA. 488+28.60	265.50 CU. YDS.
STA. 488+28.60 TO STA. 494+66.00	164.60 CU. YDS.
STA. 494+66.00 TO STA. 495+06.86	7.16 CU. YDS.
STA. 495+06.86 TO STA. 497+06.86	46.58 CU. YDS.
STA. 497+06.86 TO STA. 517+50.00	509.60 CU. YDS.
STA. 522+50.00 TO STA. 525+00.00	61.85 CU. YDS.
WEST RIDGE ROAD	303.23 CU. YDS.
TOTAL	3,101.61 CU. YDS.

ITEM 304, TO SUMMARY USE 3,102 CU. YDS.

ITEM 310 SUBBASE, REGULAR GRADING

I-90 EASTBOUND

STA. 445+76.58 TO STA. 447+90.65	18.83 CU. YDS.
STA. 447+90.65 TO STA. 454+84.35	70.65 CU. YDS.
STA. 454+84.35 TO STA. 517+50.00	823.07 CU. YDS.
STA. 522+50.00 TO STA. 525+00.00	36.19 CU. YDS.

CONTINUED

100% STATE

ITEM 310 SUBBASE, REGULAR GRADING (CONT'D)

I-90 WESTBOUND

STA. 476+28.60 TO STA. 477+24.60	10.67 CU. YDS.
STA. 477+24.60 TO STA. 488+28.60	129.81 CU. YDS.
STA. 488+28.60 TO STA. 494+66.00	123.94 CU. YDS.
STA. 494+66.00 TO STA. 495+06.86	4.16 CU. YDS.
STA. 495+06.86 TO STA. 497+06.86	30.24 CU. YDS.
STA. 497+06.86 TO STA. 517+50.00	287.51 CU. YDS.
STA. 522+50.00 TO STA. 525+00.00	36.25 CU. YDS.
WEST RIDGE ROAD	229.15 CU. YDS.
TOTAL	1,800.47 CU. YDS.

ITEM 310, REGULAR GRADING, TO SUMMARY USE 1,801 CU. YDS.

ITEM SPECIAL DRAINAGE CONNECTION

I-90 EASTBOUND 335.73 CU. YDS.

I-90 WESTBOUND 169.88 CU. YDS.

TOTAL 505.61 CU. YDS.

ITEM SPECIAL, DRAINAGE CONN. TO SUMMARY USE 506 CU. YDS.

ITEM 605, AGGREGATE DRAINS

WEST RIDGE ROAD TO SUMMARY USE 468 LIN. FT.

ITEM 203, SUBGRADE COMPACTION

I-90 EASTBOUND 31,576.34 SQ. YDS.

I-90 WESTBOUND 18,687.70 SQ. YDS.

WEST RIDGE ROAD 1,869.38 SQ. YDS.

TOTAL 52,133.42 SQ. YDS.

ITEM 203, SUBGRADE COMPACTION, TO SUMMARY USE 52,134 SQ. YDS.

ITEM 203, PROOF ROLLING

I-90 EASTBOUND 10.53 HOURS

I-90 WESTBOUND 6.23 HOURS

TOTAL 16.76 HOURS

ITEM 203, PROOF ROLLING, TO SUMMARY USE 17 HOURS

100% STATE EARTHWORK AND SEEDING			
STATION TO STATION	ITEM 203		ITEM 659
	EXCAVATION NOT INCL. EMBANKMENT CONSTRUCTION	EMBANKMENT	SEEDING AND MULCHING
	CU. YDS.	CU. YDS.	SQ. YDS.
EB 444 + 50	1.113	12.168	11.391
EB 455 + 00	2.171	7.527	11.562
EB 465 + 00	3.742	736	11.866
EB 475 + 00	2.315	64.903	26.177
EB 485 + 00	1.773	119.260	30.077
EB 495 + 00	1.359	102.918	23.113
EB 505 + 00	1.244	34.607	15.548
WB 475 + 00	1.197	5.185	5.185
WB 485 + 00	5.553	3.587	8.547
WB 495 + 00	4.513	6.884	15.540
WB 505 + 00	2.126	14.952	15.004
WB 515 + 00	1.699	34.420	25.638
WEST RIDGE ROAD			
35 + 00	38	292	SEE MAINLINE
45 + 00	1.797	13.236	15.072
55 + 00	24	143	695
TOTAL	30.664	417.560	215.415
SEEDING DEDUCT:			
601 CHANNEL AND SLOPE PROTECTION			81
660 SODDING			1,123
667 SEEDING AND JUTE MATTING			489
AREA UNDER BRIDGES			1,307
NET, 100% STATE, TO SUMMARY USE	30,664	417,560	212,415

Calc. C.M.B. June, 1970  
Chkd. D.L.R. June, 1970

Rev. 4-25-79

# TABULATIONS

LORAIN COUNTY  
LOR-90-9.48

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

14  
283

100% STATE

ITEM 659 FERTILIZER  
APPLICATION RATE, 20LB. PER 1000 SQ. FT.  
SEEDING AREA=212,415 SQ. YDS.  
QUANTITY=212,415 X 9/1000 X 20/2000 = 19.117 TONS

ITEM 659 AGRICULTURAL LIME  
APPLICATION RATE, 100LB. PER 1000 SQ. FT.  
SEEDING AREA=212,415 SQ. YDS.  
QUANTITY=212,415 X 9/1000 X 100/2000 95.587 TONS

ITEM 615 TEMPORARY PAVEMENT, CLASS A, AS PER PLAN  
AREA OF ONE CROSSOVER, BY COMPUTER 13,002 SQ. FT.  
2 CROSSOVERS REQUIRED = 26,004 SQ. FT.  
TO SUMMARY USE 2,890 SQ. YDS.

ITEM 616 DUST CONTROL, WATER  
QUANTITY 642 M. GALS.

ITEM 616 DUST CONTROL, CALCIUM CHLORIDE  
QUANTITY 22 TONS

100% OHIO TURNPIKE

ITEM 203 EMBANKMENT - TO SUMMARY USE 6.577 CU. YDS

NORMAL PARTICIPATION

ITEM 451-9" REINFORCED CONCRETE PAVEMENT  
I-90 EASTBOUND  
STA. 525+00 TO STA. 579+00 24' WIDTH 13,354.89 SQ. YDS.  
STA. 579+00 TO STA. 588+00 VAR. WIDTH 1,766.67 SQ. YDS.  
STA. 588+00 TO STA. 599+04 VAR. WIDTH 1,656.00 SQ. YDS.  
STA. 599+04 TO STA. 600+00 2' WIDTH 21.33 SQ. YDS.

I-90 WESTBOUND  
STA. 525+00 TO STA. 582+75 24' WIDTH 14,157.79 SQ. YDS.  
STA. 582+75 TO STA. 587+75 VAR. WIDTH 1,066.67 SQ. YDS.  
STA. 587+75 TO STA. 595+62 VAR. WIDTH 1,623.42 SQ. YDS.  
STA. 595+62 TO STA. 597+55 2' WIDTH 42.88 SQ. YDS.

TOTAL 33,689.65 SQ. YDS.  
ITEM 451-TO SUMMARY USE 33,690 SQ. YDS.

ITEM 310 SUBBASE, GRADING A  
I-90 EASTBOUND  
STA. 525+00 TO STA. 579+00 24' PAV'T WIDTH 2,591.50 CU. YDS.  
STA. 579+00 TO STA. 588+00 VAR. PAV'T WIDTH 344.14 CU. YDS.  
STA. 588+00 TO STA. 599+04 VAR. PAV'T WIDTH 315.08 CU. YDS.  
STA. 599+04 TO STA. 600+00 2' PAV'T WIDTH 6.52 CU. YDS.

I-90 WESTBOUND  
STA. 525+00 TO STA. 582+75 24' PAV'T WIDTH 2,776.48 CU. YDS.  
STA. 582+75 TO STA. 587+75 VAR. PAV'T WIDTH 211.73 CU. YDS.  
STA. 587+75 TO STA. 595+62 VAR. PAV'T WIDTH 285.14 CU. YDS.  
STA. 595+62 TO STA. 597+55 2' PAV'T WIDTH 10.72 CU. YDS.

TOTAL 6,541.31 CU. YDS.  
ITEM 310, GRADING A-TO SUMMARY USE 6,541 CU. YDS.

ITEM 301, 3" BITUMINOUS AGGREGATE BASE  
I-90 EASTBOUND  
STA. 525+00 TO STA. 584+00 720.49 CU. YDS.  
STA. 584+00 TO STA. 585+00 12.04 CU. YDS.  
STA. 585+00 TO STA. 599+04 RT. SIDE 130.00 CU. YDS.  
STA. 585+68.68 TO STA. 588+00 LT. SIDE 32.13 CU. YDS.  
STA. 599+04.00 TO STA. 600+00 RT. SIDE 8.59 CU. YDS.

I-90 WESTBOUND  
STA. 525+00 TO STA. 587+75 767.29 CU. YDS.  
STA. 587+75 TO STA. 595+62 29.15 CU. YDS.  
STA. 595+62 TO STA. 597+55 6.55 CU. YDS.  
FEATHER OVER EXISTING PAVED BERM 0.09 CU. YDS.

TOTAL 1,706.33 CU. YDS.  
ITEM 301, TO SUMMARY USE 1,707 CU. YDS.

NORMAL PARTICIPATION

ITEM 304, AGGREGATE BASE  
I-90 EASTBOUND  
STA. 525+00 TO STA. 584+00 1,381.75 CU. YDS.  
STA. 584+00 TO STA. 585+00 24.15 CU. YDS.  
STA. 585+00 TO STA. 599+04 RT. SIDE 247.27 CU. YDS.  
STA. 585+68.68 TO STA. 588+00 LT. SIDE 59.38 CU. YDS.  
STA. 599+04.00 TO STA. 600+00 RT. SIDE 13.98 CU. YDS.

I-90 WESTBOUND  
STA. 525+00 TO STA. 587+75 1,473.54 CU. YDS.  
STA. 587+75 TO STA. 595+62 58.30 CU. YDS.  
STA. 595+62 TO STA. 597+55 8.73 CU. YDS.

TOTAL 3,267.10 CU. YDS.  
ITEM 304, TO SUMMARY USE 3,267 CU. YDS.

ITEM 310 SUBBASE, REGULAR GRADING  
I-90 EASTBOUND  
STA. 525+00 TO STA. 584+00 778.59 CU. YDS.  
STA. 584+00 TO STA. 585+00 16.28 CU. YDS.  
STA. 585+00 TO STA. 599+04 RT. SIDE 161.52 CU. YDS.  
STA. 585+68.68 TO STA. 588+00 LT. SIDE 48.54 CU. YDS.  
STA. 599+04.00 TO STA. 600+00 RT. SIDE 9.78 CU. YDS.

I-90 WESTBOUND  
STA. 525+00 TO STA. 587+75 848.75 CU. YDS.  
STA. 587+75 TO STA. 595+62 30.05 CU. YDS.  
STA. 595+62 TO STA. 597+55 5.36 CU. YDS.

TOTAL 1,898.87 CU. YDS.  
ITEM 310, REGULAR GRADING, TO SUMMARY USE 1,899 CU. YDS.

ITEM SPECIAL, DRAINAGE CONNECTION  
I-90 EASTBOUND 309.92 CU. YDS.  
I-90 WESTBOUND 282.42 CU. YDS.

TOTAL 592.34 CU. YDS.  
ITEM SPECIAL, DRAINAGE CONNECTION, TO SUMMARY USE 593 CU. YDS.

ITEM 203, SUBGRADE COMPACTION  
I-90 EASTBOUND 27,771.22 SQ. YDS.  
I-90 WESTBOUND 26,821.05 SQ. YDS.  
TOTAL 54,592.27 SQ. YDS.  
ITEM 203, SUBGRADE COMPACTION TO SUMMARY USE 54,593 SQ. YDS.

ITEM 203, PROOF ROLLING  
I-90 EASTBOUND 9.26 HOURS  
I-90 WESTBOUND 8.94 HOURS

TOTAL 18.20 HOURS  
ITEM 203, PROOF ROLLING, TO SUMMARY USE 19 HOURS

NORMAL PARTICIPATION EARTHWORK AND SEEDING				
		ITEM 203		ITEM 659
STATION TO STATION		EXCAVATION NOT INCL. EMBANKMENT CONSTRUCTION	EMBANKMENT	SEEDING AND MULCHING
		CU. YDS.	CU. YDS.	SQ. YDS.
E 525 + 00	E 535 + 00	2.172	34.105	25.167
E 535 + 00	E 545 + 00	2.198	27.696	25.222
E 545 + 00	E 555 + 00	2.012	16.157	23.444
E 555 + 00	E 565 + 00	3.108	61.760	24.580
E 565 + 80.23	E 575 + 00	306	70.617	14.334
EB 575 + 00	EB 585 + 00	1.852	42.043	23.891
EB 585 + 00	EB 595 + 00	1.866	3.098	8.119
EB 595 + 00	EB 604 + 11.07	664	659	2,559
WB 565 + 00	WB 575 + 00	376	137.763	22,369
WB 575 + 00	WB 585 + 00	826	53.706	17,219
WB 585 + 00	WB 595 + 00	2,242	6,231	8,499
WB 595 + 00	WB 601 + 00	54	2	389
TOTAL		17,676	453,837	195,792
DEDUCT 601 CHANNEL AND SLOPE PROTECTION				82
DEDUCT 660 SODDING				795
DEDUCT 667 SEEDING AND JUTE MATTING				1,128
DEDUCT AREA UNDER BRIDGES				1,452
NET TO SUMMARY		17,676	453,837	192,335

NORMAL PARTICIPATION

ITEM 659 FERTILIZER  
APPLICATION RATE, 20 LB. PER 1000 SQ. FT.  
SEEDING AREA = 192,335 SQ. YDS.  
QUANTITY = 192,335 X 9/1000 X 20/2000 17.31 TONS

ITEM 659 AGRICULTURAL LIME  
APPLICATION RATE, 100 LB. PER 1000 SQ. FT.  
SEEDING AREA = 192,335 SQ. YDS.  
QUANTITY=192,335 X 9/1000 X 100/2000 86.55 TONS

ITEM 616 DUST CONTROL, WATER  
QUANTITY 741 M. GALS.

ITEM 616 DUST CONTROL, CALCIUM CHLORIDE  
QUANTITY 26 TONS

TEMPORARY ROADS, AS PER PLAN

This item shall conform with the requirements of 615 except the subsequent removal of the temporary facilities and restoration of the areas shall not be a part of this item.

TEMPORARY ROAD REMOVED, AS PER PLAN

This item shall consist of the removal of the temporary road, temporary pavement and the restoration of this area to its original condition in accordance with 615.

"Temporary Road Removed, as per plan" shall be measured and paid for by the number of sq.yd. of the temporary pavement removed, but shall include all removal and restoration of the areas adjacent to the temporary pavement. Payment for the above shall include all materials, excavation, backfill, disposal of surplus materials, and incidentals necessary to complete this item.

Prior to removing any temporary road, the Contractor shall obtain the approval of the Engineer.

Calc. C.M.B. June, 1970  
Chkd. D.L.R. June, 1970

Rev. 4-25-73

# GENERAL SUMMARY

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

15  
283

LORAIN COUNTY  
LOR - 90-948

Construction Type Code 7221  
(Unless otherwise noted)

100% STATE

100% O.T.

NORMAL PARTICIPATION

ITEM	Gen. Notes	Tabulations	SHEET NUMBER																		R/W	Totals	100% State	100% O.T.	Normal Partic.	ITEM	TOTAL QUANT.	UNIT	DESCRIPTION				
			21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38										39	40	41	42
201	Lump																										Lump		Lump	201	Lump	Lump	Clearing and Grubbing
202																											Lump		Lump	202	Lump	Lump	Structures Removed
202																											Lump		Lump	202	Lump	Lump	Portions of Structures Removed
202																														202	446	Lin.Ft.	Pipe Removed, 24 inches and under
202																														202	12	Lin.Ft.	Pipe Removed, over 24 inches
202																														202	250	Lin.Ft.	Guard Rail Removed for Reuse
202																														202	2,118	Lin.Ft.	Guard Rail Removed for Storage
202																														202	348	Sq.Ft.	Sidewalk Removed
202																														202	13	Sq.Yds.	Reinforced Concrete Riprap Removed
202																														202	4	Each	Catch Basins Removed
203																														203	48,340	Cu.Yds.	Excavation not including Embankment Construction, as per plan
203																														203	877,974	Cu.Yds.	Embankment
203																														203	106,727	Sq.Yds.	Subgrade Compaction
203																														203	36	Hour	Proof Rolling
604																														604	55	Each	Centerline Reference Monuments
606																														606	6132	Lin.Ft.	Guardrail, Type 5
606																														606	5225	Lin.Ft.	Guardrail, Type 5, using Steel Posts
606																														606	75	Lin.Ft.	Guardrail, Type 5, Barrier Design
606																														606	700	Lin.Ft.	Guardrail, Type 4, Modified as per plan
606																														606	200	Lin.Ft.	Guardrail, Rebuilt as Type 4 as per plan
606																														606	1	Each	Anchor Assembly, Barrier Design
606																														606	24	Each	Anchor Assembly
606																														606	35	Each	Anchor Assembly, Modified As Per Plan
606																														606	24	Each	Bridge Terminal Assembly Type A
607																														607	25,636	Lin.Ft.	Fence, Type 47
615	Lump																										Lump		Lump	615	Lump	Lump	Temporary Roads, as per plan
615																														615	2,890	Sq.Yds.	Temporary Pavement, Class A, as per plan
615																														615	2,890	Sq.Yds.	Temporary Road Removed, as per plan
616																														616	1,383	M.Gals	Water
616																														616	48	Tons	Calcium Chloride
Spec.																														Spec.	4	Each	Drilled Well Abandoned
Spec.																														Spec.	2	Each	Plugging Oil and Gas Well
Spec.																														Spec.	4	Each	Septic Tank Removed
601																														601	172	Cu.Yds.	Rock Channel Protection, Type B
659																														659	45.43	Tons	Commercial Fertilizer (12-12-12)
659																														659	182.14	Tons	Agricultural Liming
659																														659	404,750	Sq.Yds.	Seeding and Mulching
660																														660	1,918	Sq.Yds.	Sodding for Special Berm and Slope Protection, as per plan
667																														667	1,636	Sq.Yds.	Seeding and Jute Matting
601																														601	52	Sq.Yds.	Riprap, using 6" Reinforced Concrete Slab
207																														207	80,950	Sq.Yds.	Temporary Seeding and Mulching
207																														207	97	M.Gal	Water
207																														207	1600	Lin.Ft.	Temporary Slope Drains
207																														207	880	Cu.Yds.	Temporary Benches, Dikes, Dams & Sediment Basins
207																														207	912	M.S.F.	Mowing

Calc. D.L.R. 6-19-70  
Checked R.C.B. 6-25-70

Rev. 4-25-73



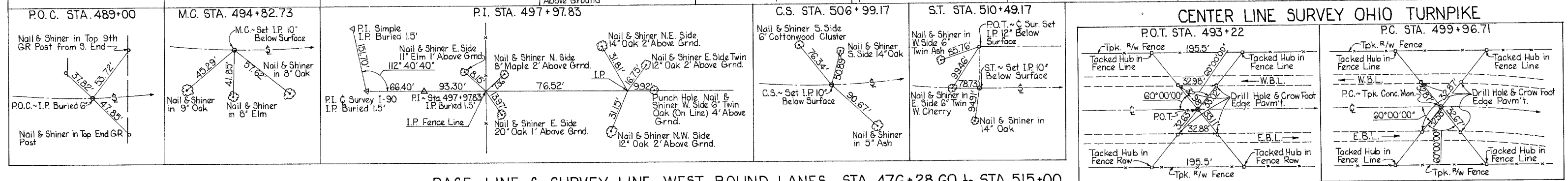
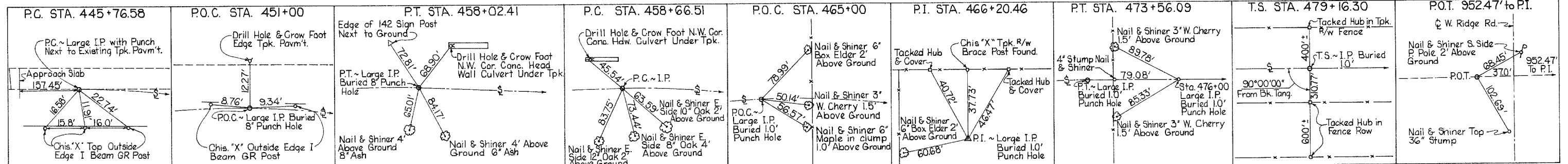




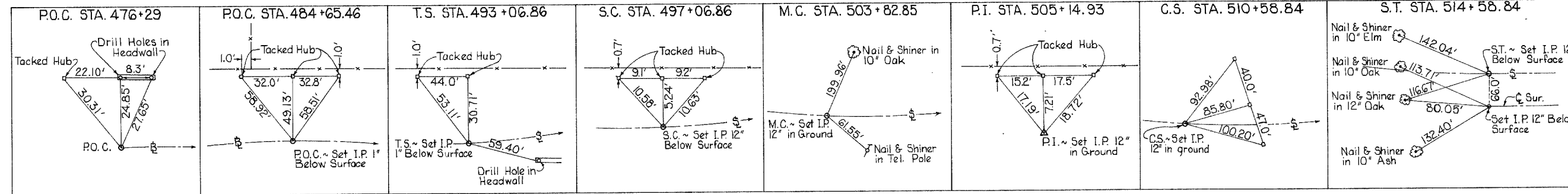
# REFERENCE POINTS

LORAIN COUNTY  
LOR - 90 - 9.48

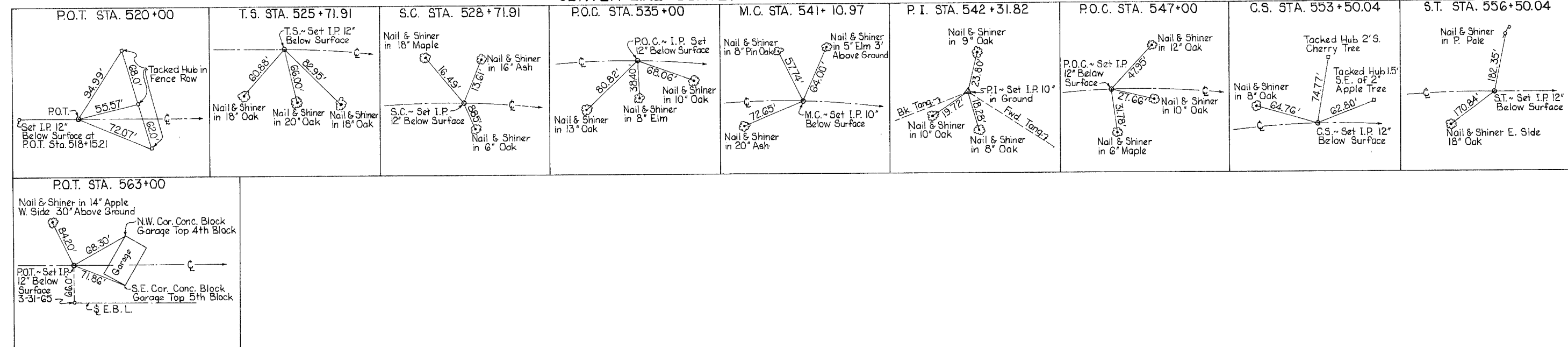
## SURVEY LINE EAST BOUND LANES STA. 445+76.58 to STA. 515+00



## BASE LINE & SURVEY LINE WEST BOUND LANES STA. 476+28.60 to STA. 515+00



## CENTER LINE SURVEY STA 515+00 to STA. 563+83.02



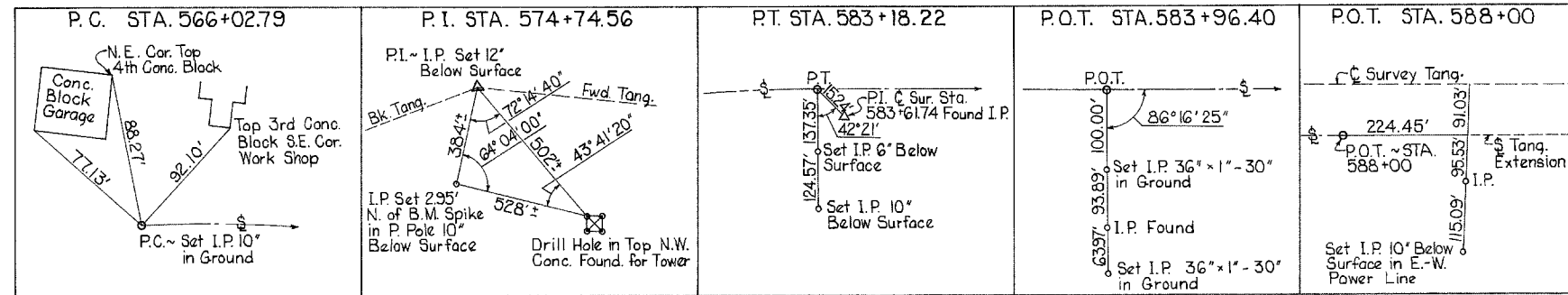
# REFERENCE POINTS

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

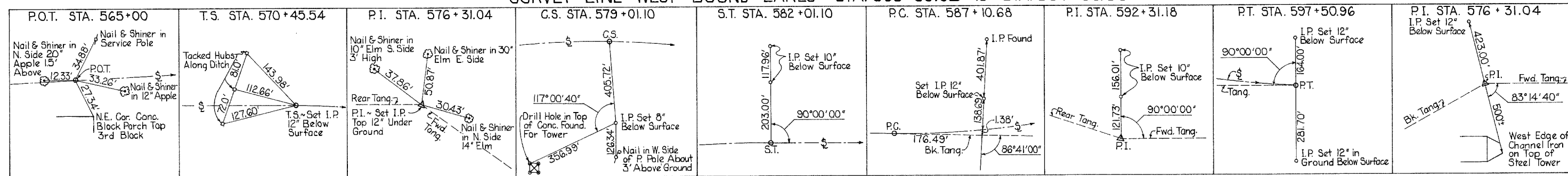
19  
283

LORAIN COUNTY  
LOR - 90 - 9.48

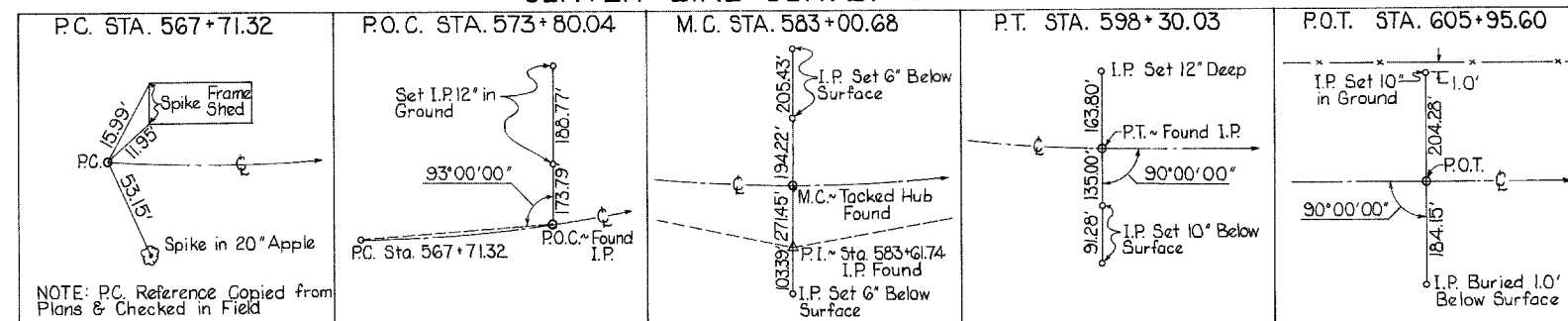
## SURVEY LINE EAST BOUND LANES STA. 566+02.79 to STA. 600+00



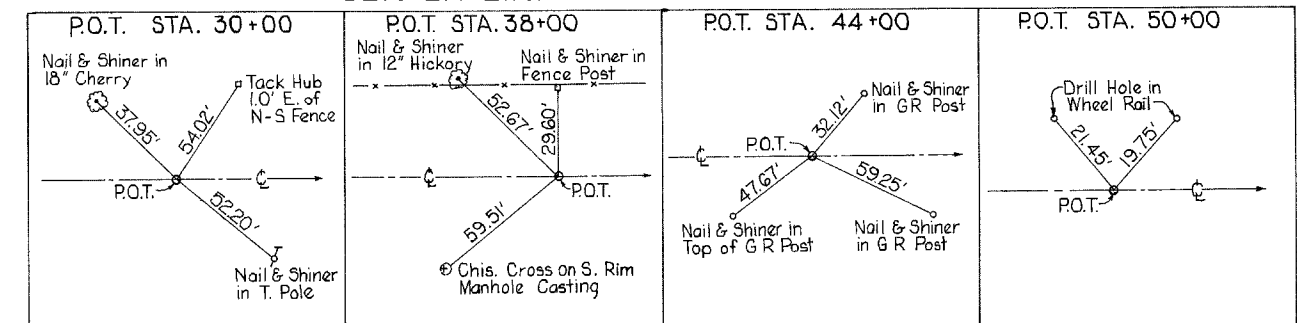
## SURVEY LINE WEST BOUND LANES STA. 563+83.02 to STA. 597+55.00



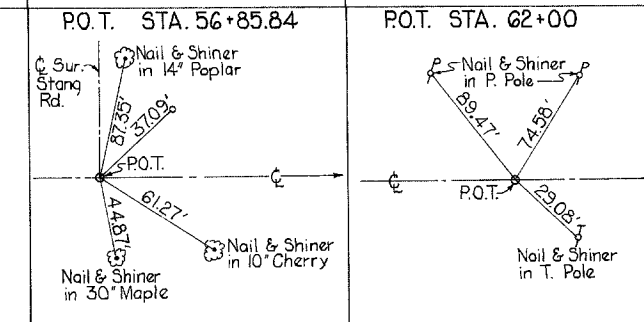
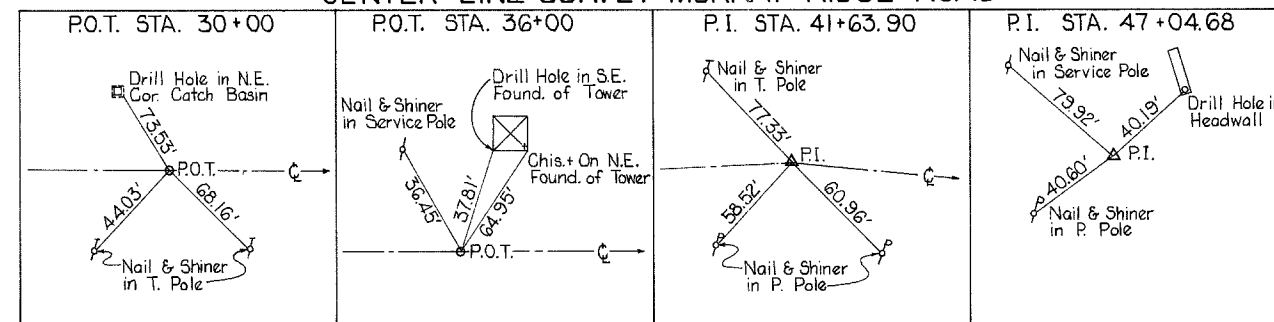
## CENTER LINE SURVEY SR 2



## CENTER LINE SURVEY WEST RIDGE ROAD

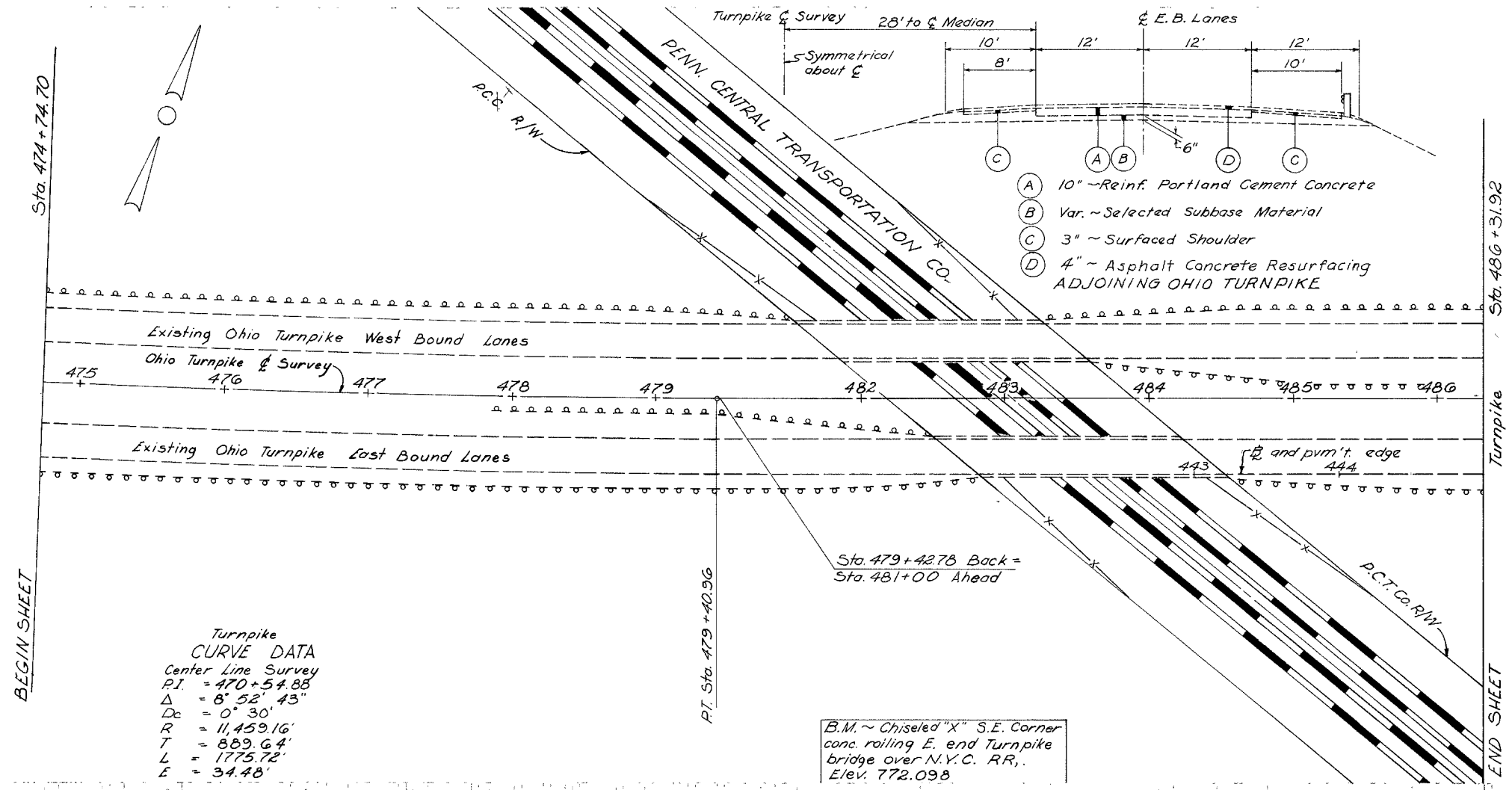


## CENTER LINE SURVEY MURRAY RIDGE ROAD



Rev. 4-25-75

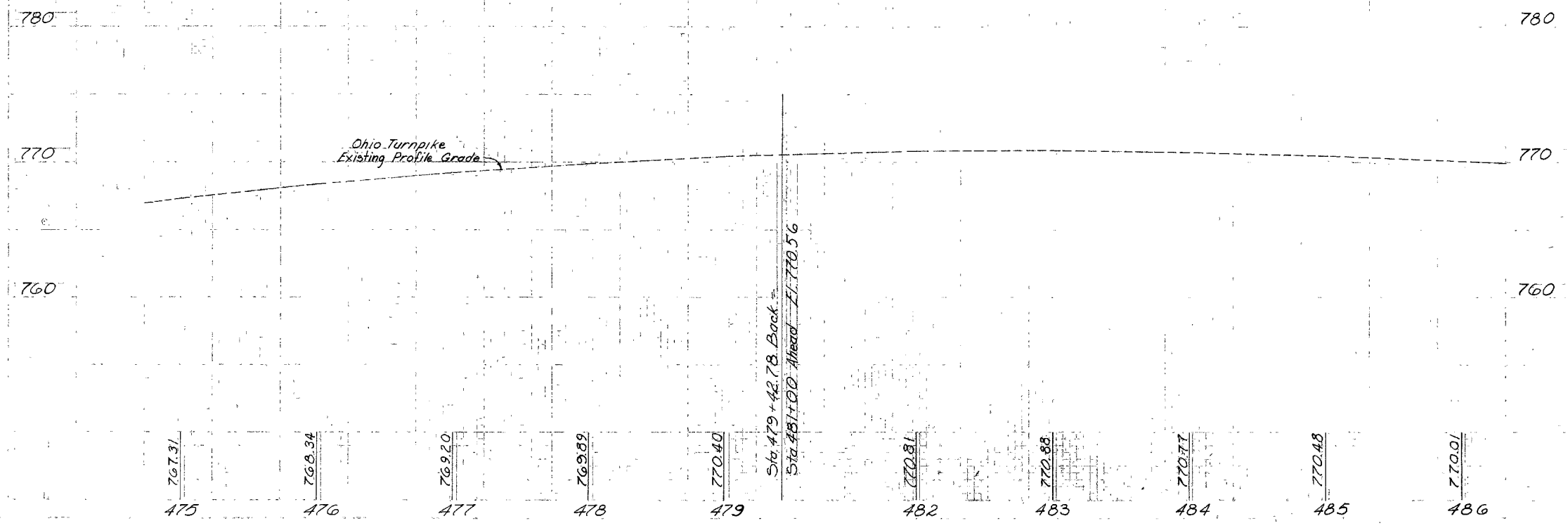
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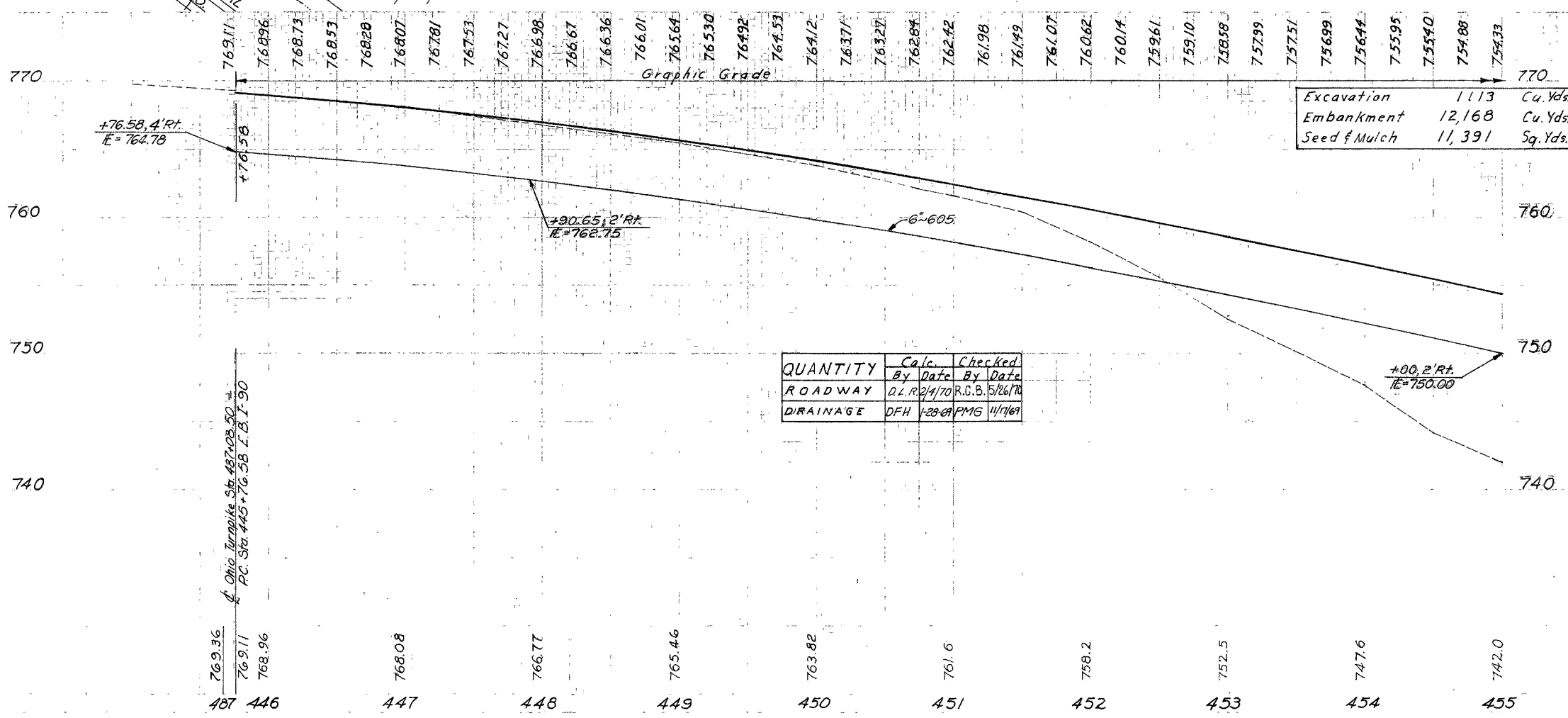
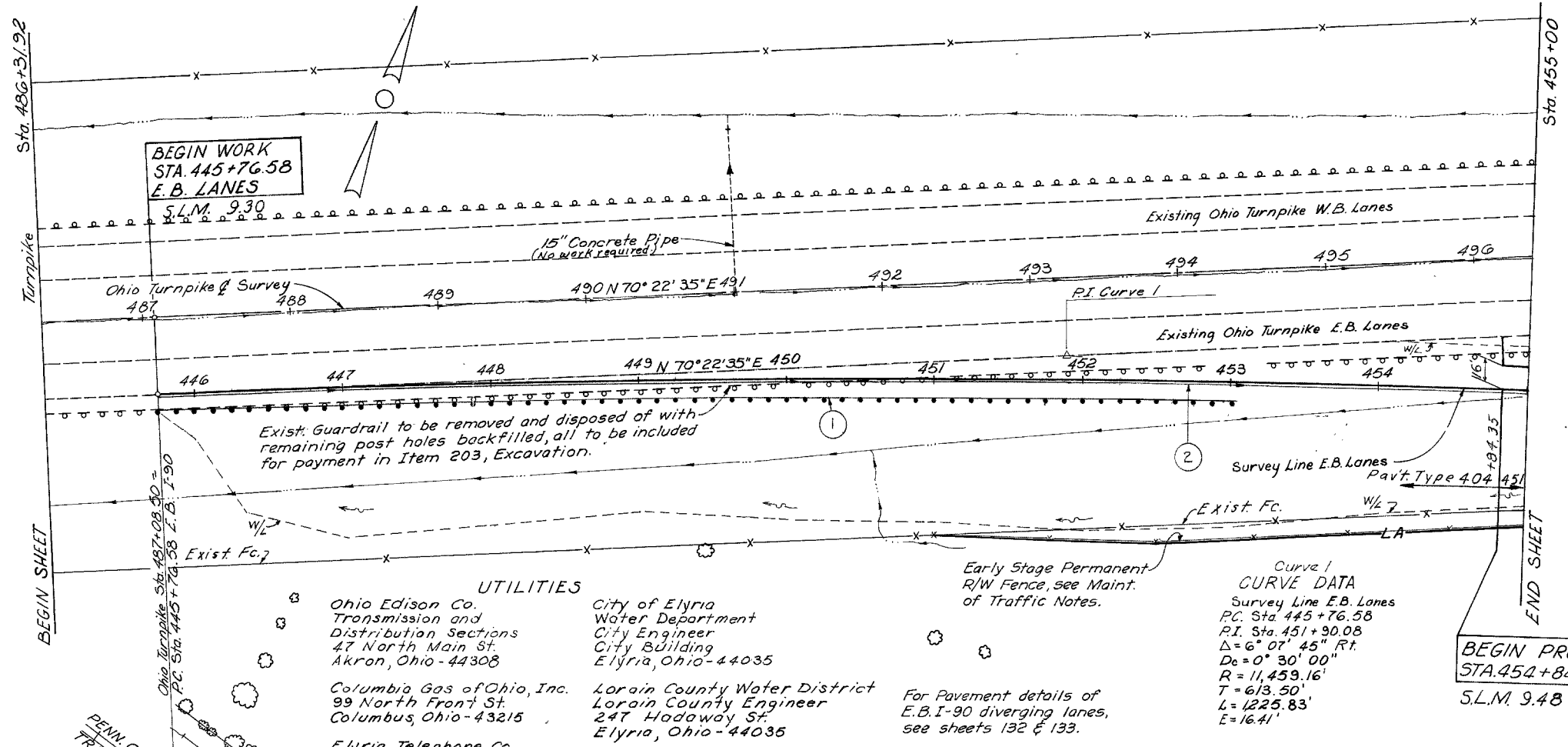


BEGIN SHEET

Sta. 486 + 31.92  
Turnpike  
END SHEET

Turnpike  
CURVE DATA  
Center Line Survey  
P.I. = 470 + 54.88  
 $\Delta$  = 8° 52' 43"  
Dc = 0° 30'  
R = 11,459.16'  
T = 889.64'  
L = 1775.72'  
E = 34.48'

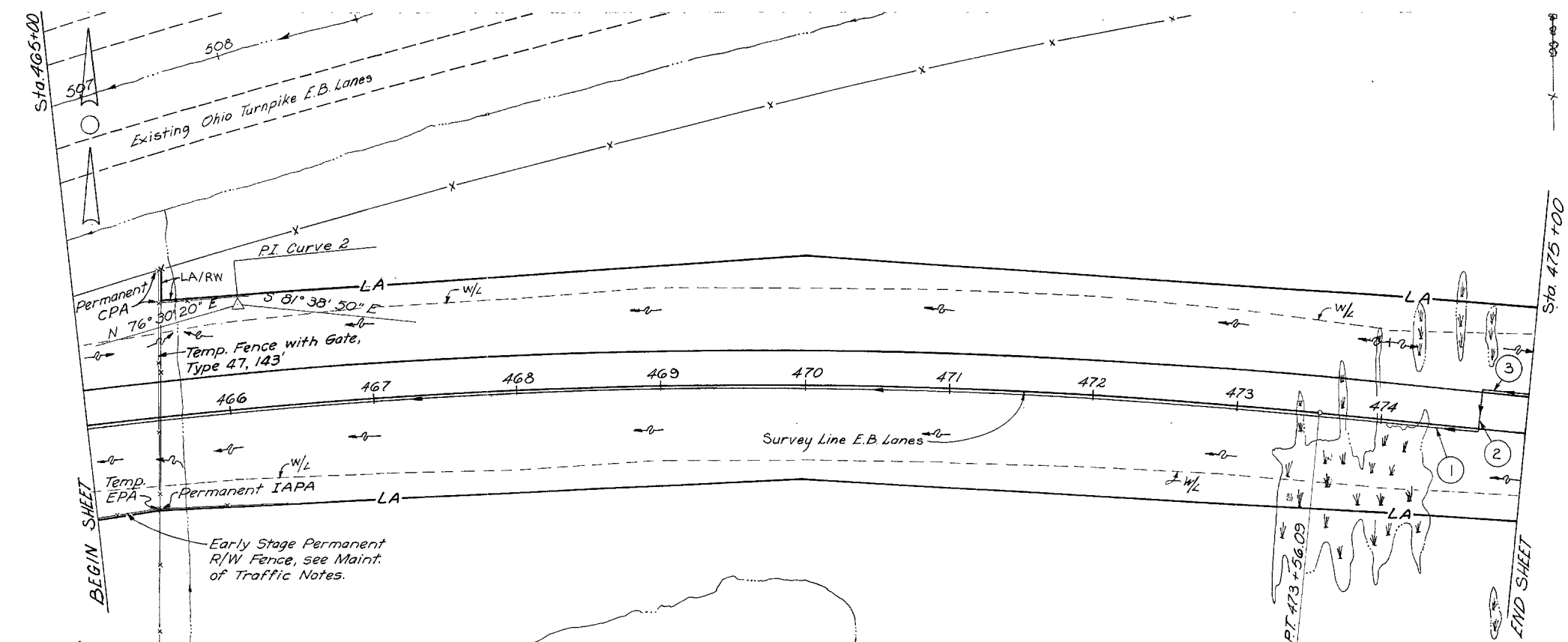




\* Using steel posts.  
\* 606 606 605  
Guard-Anchor 6" rail Assy. Shallow Type 5 Mod. Lin. Ft. Ea. 924  
712.5

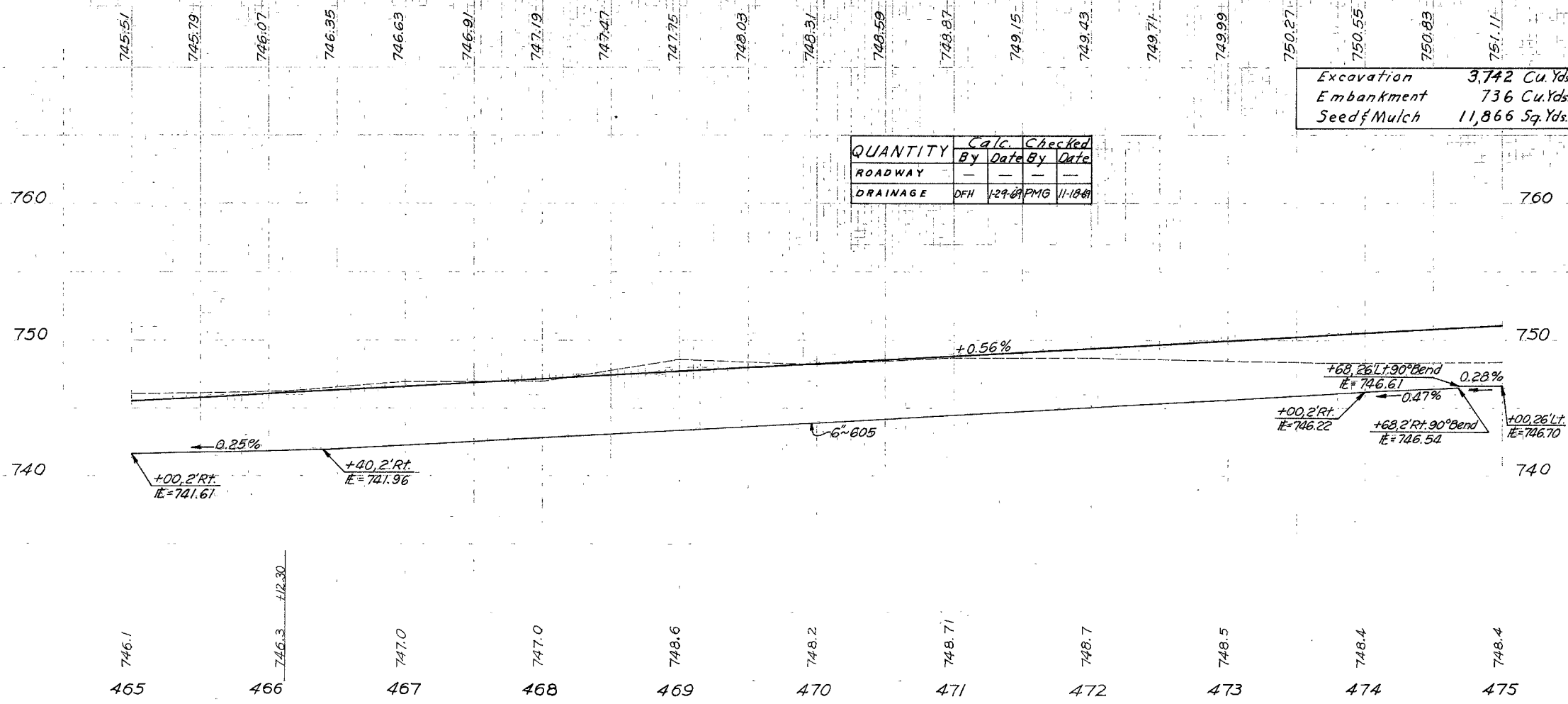
1 445+76.58-453+01.58 RT.  
2 445+76.58-455+00 RT.





CURVE DATA ~ Curve 2  
Survey Line E.B. Lanes  
PI = Sta. 466+20.46  
 $\Delta = 21^\circ 50' 50''$  Rt.  
Dc = 1° 28' 00"  
R = 3906.53'  
T = 753.95'  
L = 1489.58'  
E = 72.09'

B.M. - RR spike in N. side 6" poplar,  
in clump at fence corner, 300' Rt.  
of Sta. 465+00 E.B.L.,  
Elev. 747.862



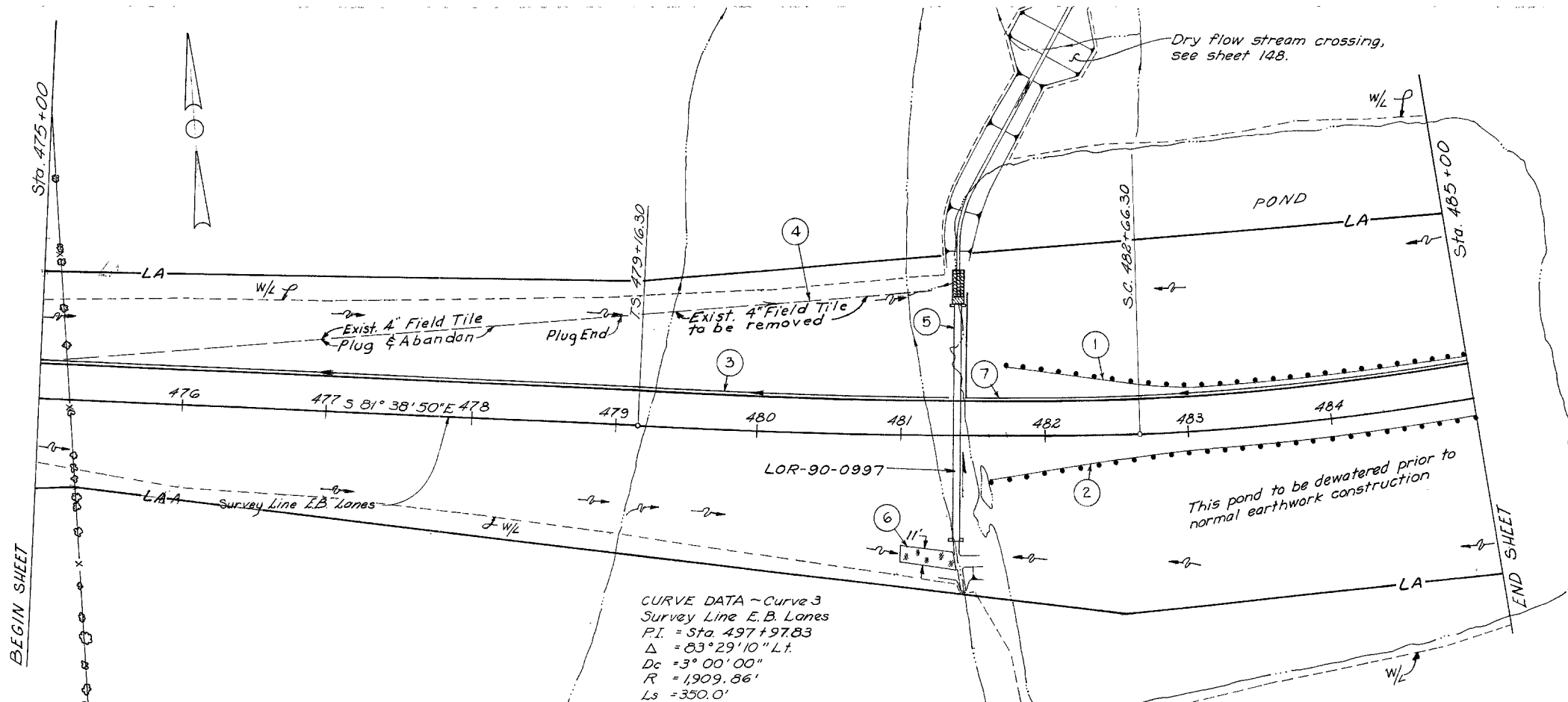
Excavation 3,742 Cu.Yds.  
Embankment 736 Cu.Yds.  
Seed & Mulch 11,866 Sq.Yds.

QUANTITY	Calc.		Checked	
	By	Date	By	Date
ROADWAY				
DRAINAGE	DFH	12-9-68	PMG	11-18-68

ESTIMATED QUANTITIES

6" Bends	142	142	142
603			
605			
Type	Shallow		
Lin. Ft.	28	968	32
Rt.			
Lt.			
1	465+00	474+68	
2		474+68	
3	474+68	475+00	

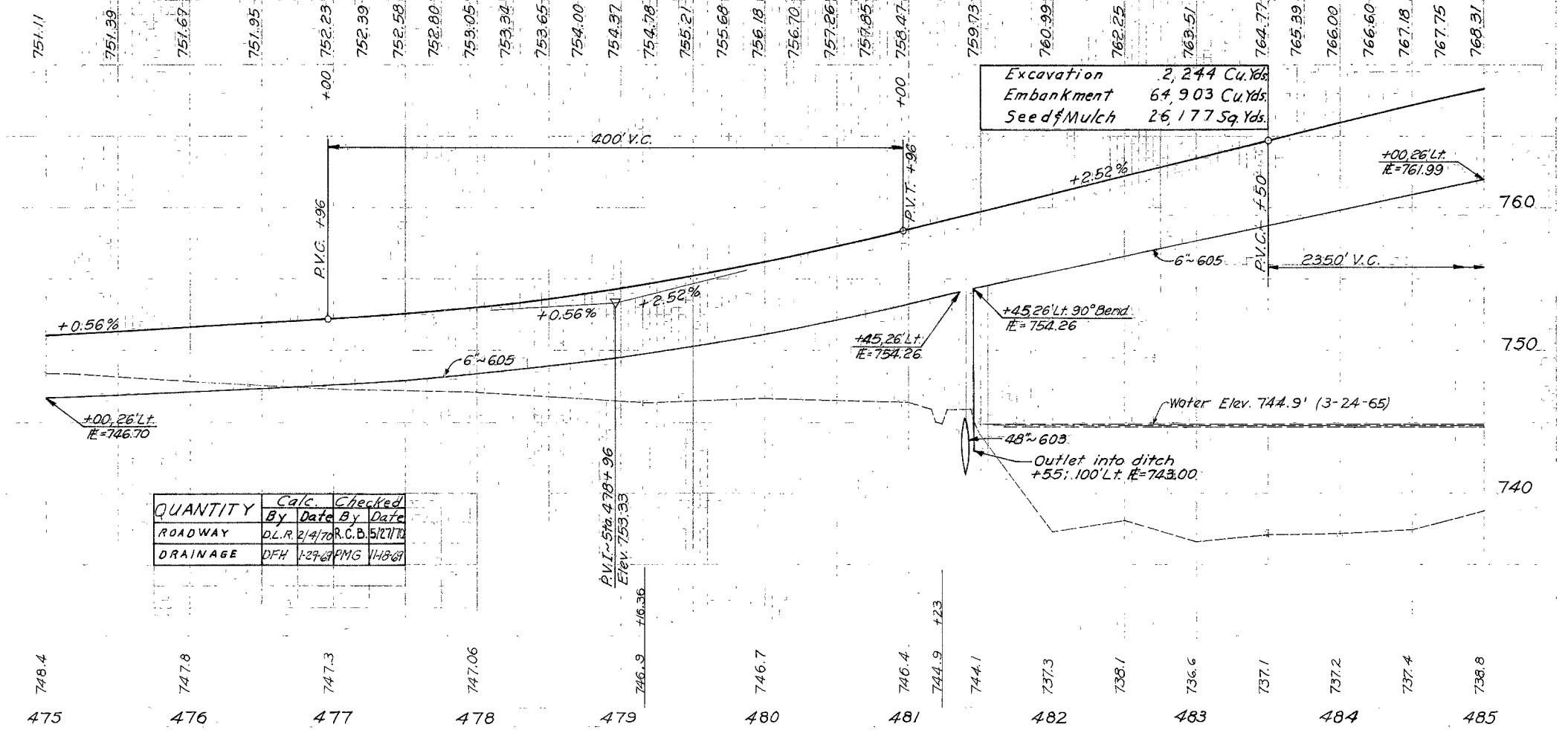




CURVE DATA - Curve 3  
Survey Line E.B. Lanes  
P.I. = Sta. 497+97.83  
 $\Delta = 83^{\circ}29'10''$  Lt.  
Dc =  $3^{\circ}00'00''$   
R = 1909.86'  
Ls = 350.0'  
Ts = 1881.53'  
Es = 653.38'  
 $\Theta_s = 5.25^{\circ}$   
 $\Delta c = 72^{\circ}59'10''$   
Lc = 2432.87'

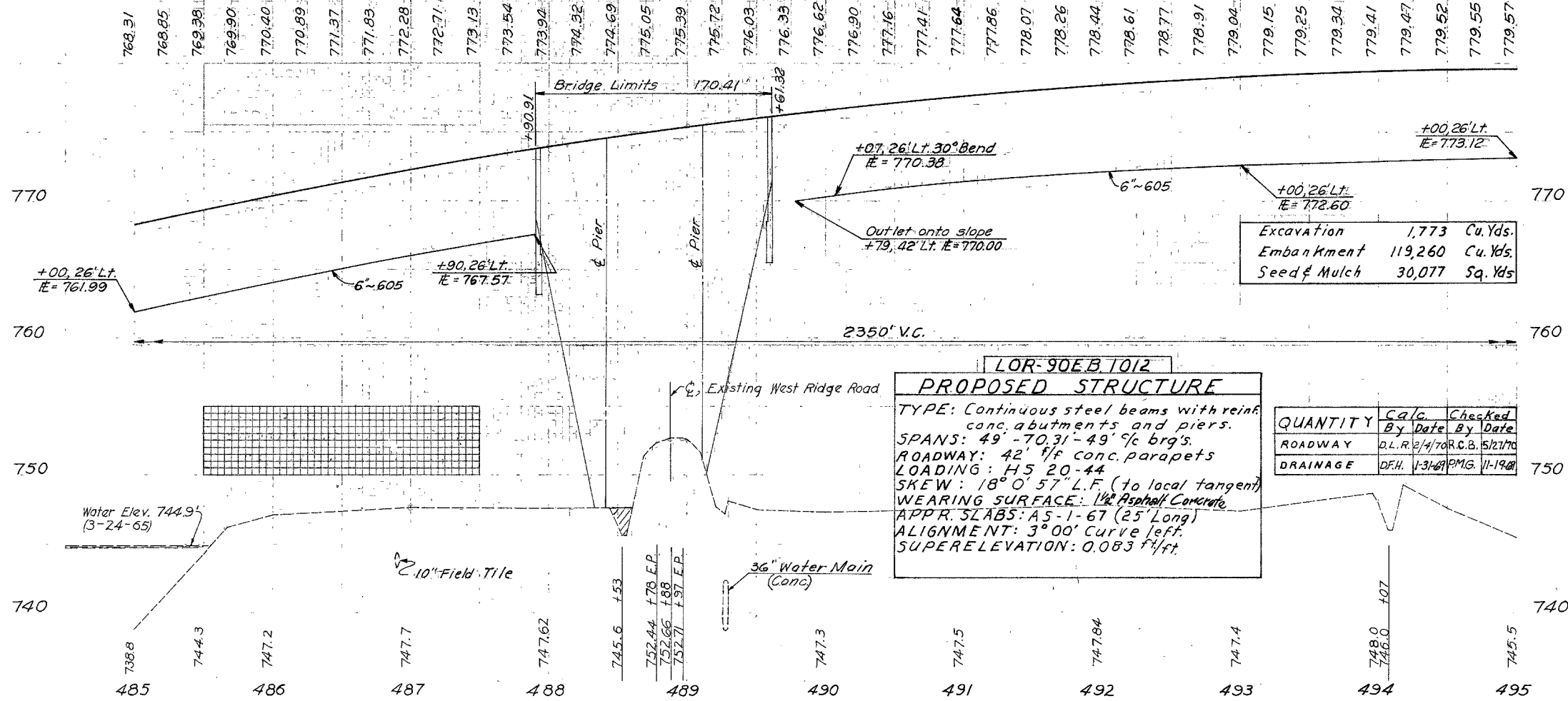
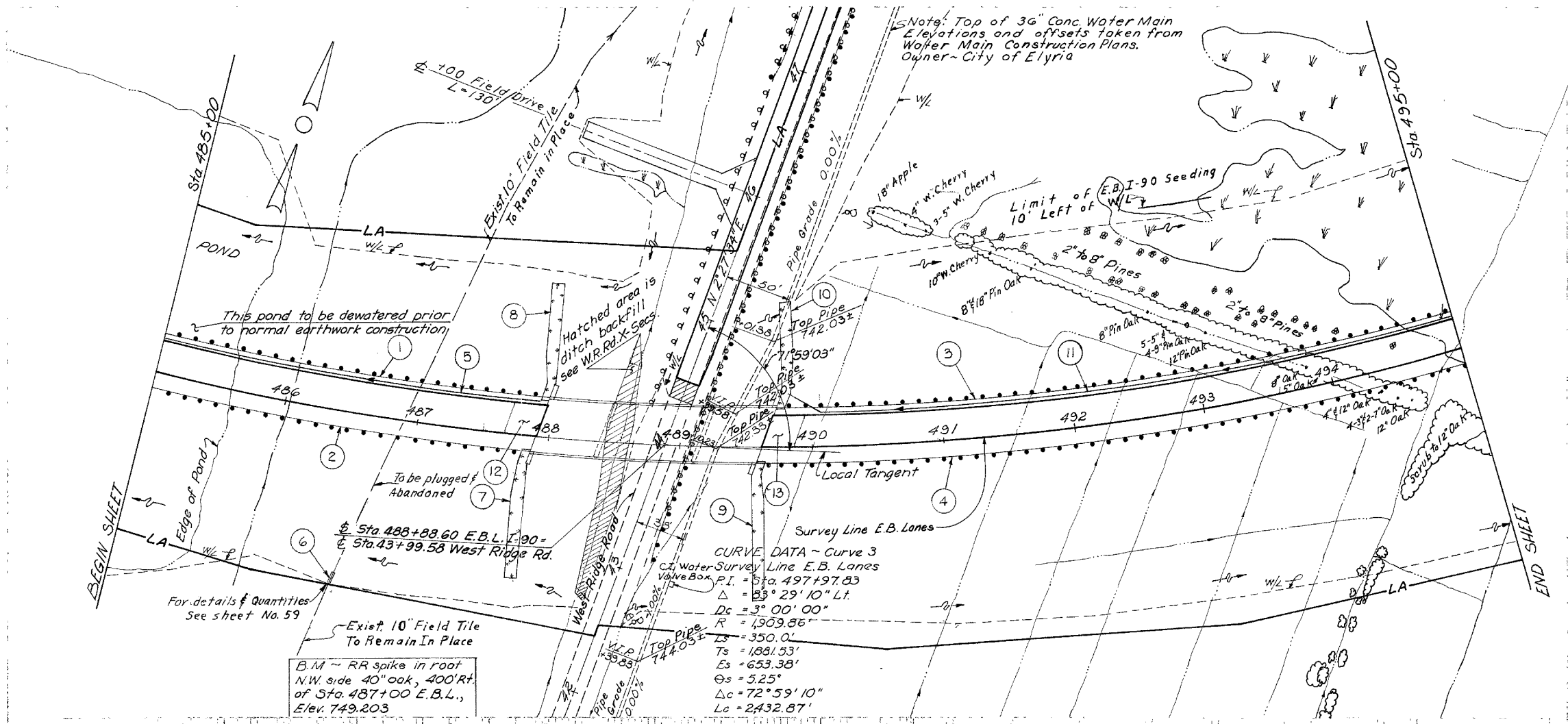
B.M. ~ RR spike in N.W. side  
12" poplar, 400' Rt. of  
Sta. 476+00 E.B.L.,  
Elev. 750.226

B.M. ~ RR spike in N.E.  
side 20" Hickory, 400' Rt.  
of Sta. 481+25 E.B.L.,  
Elev. 749.165



ESTIMATED QUANTITIES

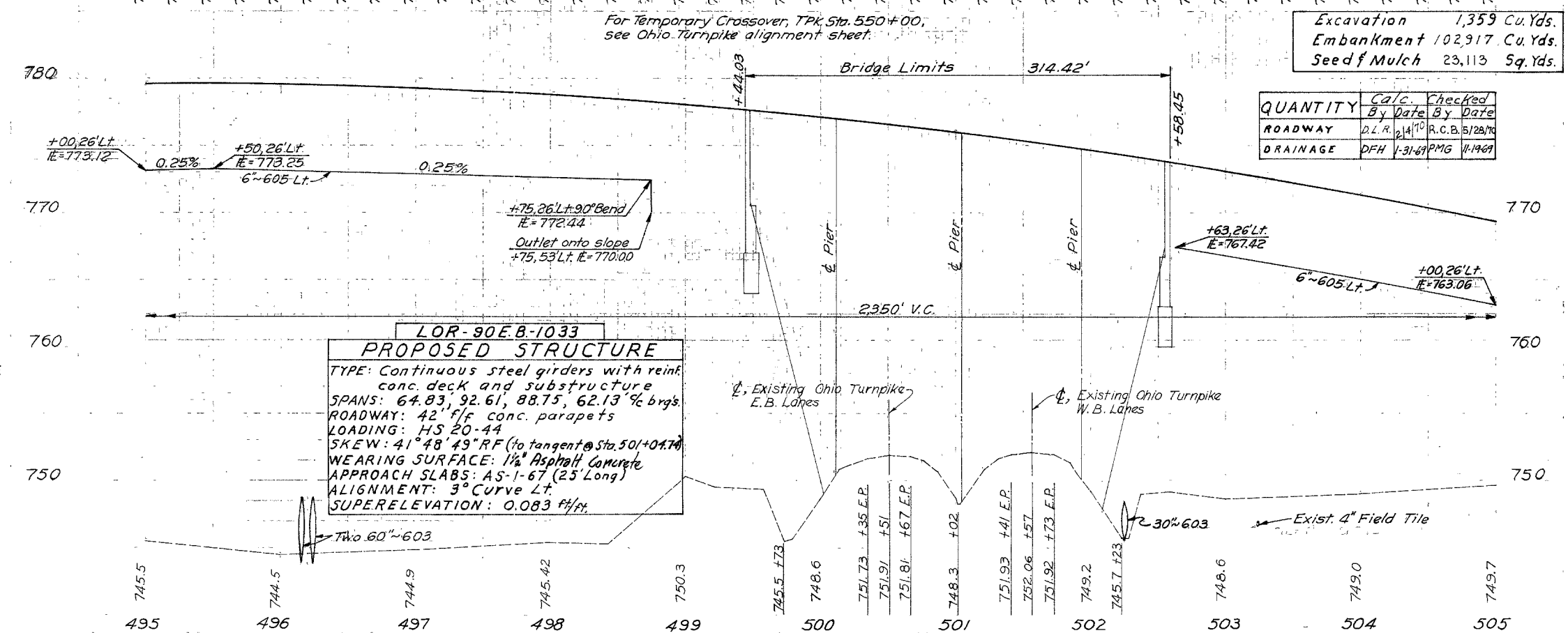
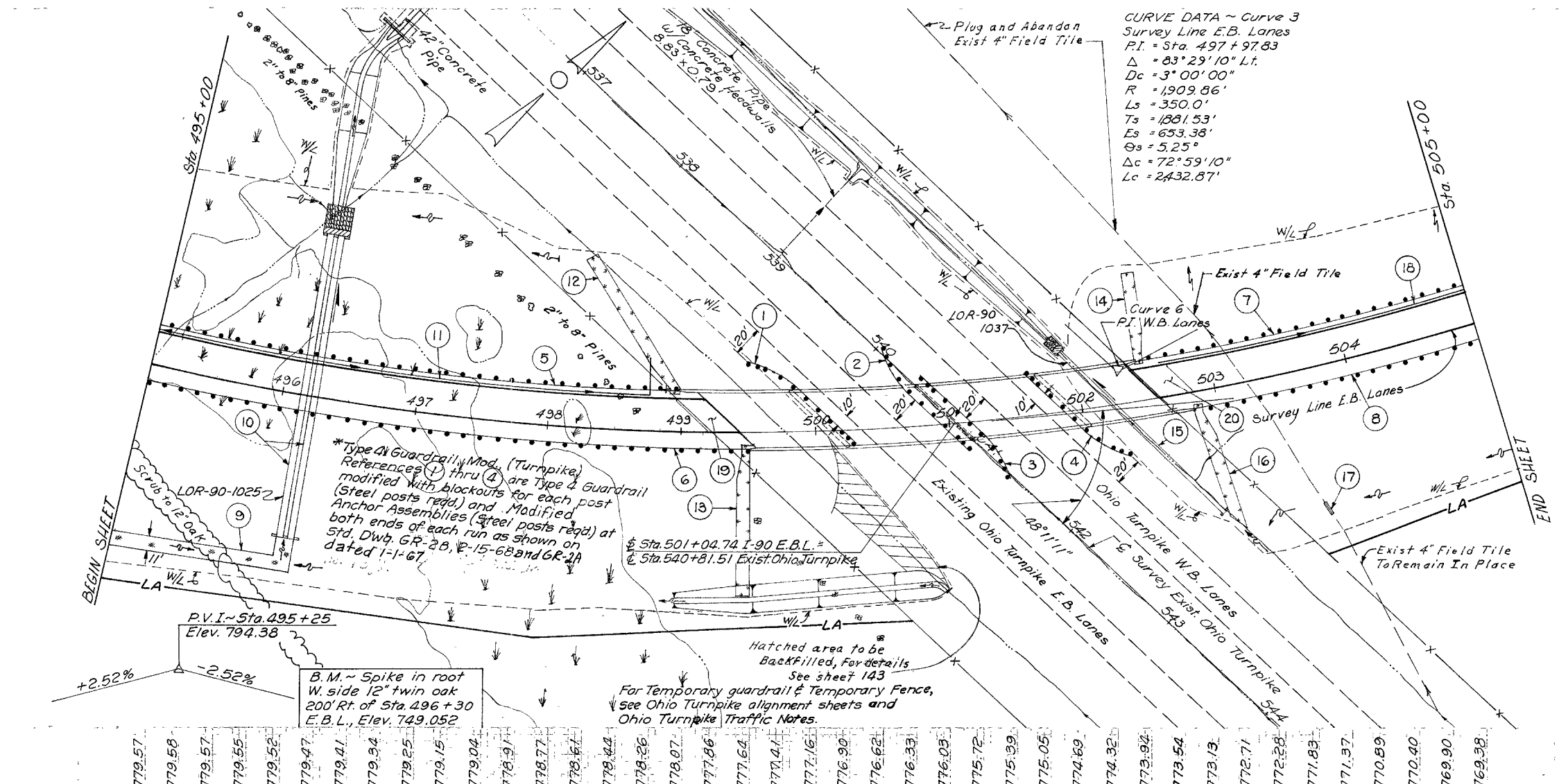
Item	Unit	Quantity
601 Rock Rip	Lin. Ft.	605
602 Concrete Masonry	Cu. Yds.	603
603 48" Jute Rip	Lin. Ft.	603
604 48" Shallow Mat	Lin. Ft.	603
605 48" Mat Rip	Lin. Ft.	603
606 48" Rip	Lin. Ft.	603
607 48" Rip	Lin. Ft.	603
608 48" Rip	Lin. Ft.	603
609 48" Rip	Lin. Ft.	603
610 48" Rip	Lin. Ft.	603
611 48" Rip	Lin. Ft.	603
612 48" Rip	Lin. Ft.	603
613 48" Rip	Lin. Ft.	603
614 48" Rip	Lin. Ft.	603
615 48" Rip	Lin. Ft.	603
616 48" Rip	Lin. Ft.	603
617 48" Rip	Lin. Ft.	603
618 48" Rip	Lin. Ft.	603
619 48" Rip	Lin. Ft.	603
620 48" Rip	Lin. Ft.	603
621 48" Rip	Lin. Ft.	603
622 48" Rip	Lin. Ft.	603
623 48" Rip	Lin. Ft.	603
624 48" Rip	Lin. Ft.	603
625 48" Rip	Lin. Ft.	603
626 48" Rip	Lin. Ft.	603
627 48" Rip	Lin. Ft.	603
628 48" Rip	Lin. Ft.	603
629 48" Rip	Lin. Ft.	603
630 48" Rip	Lin. Ft.	603
631 48" Rip	Lin. Ft.	603
632 48" Rip	Lin. Ft.	603
633 48" Rip	Lin. Ft.	603
634 48" Rip	Lin. Ft.	603
635 48" Rip	Lin. Ft.	603
636 48" Rip	Lin. Ft.	603
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644 48" Rip	Lin. Ft.	603
645 48" Rip	Lin. Ft.	603
646 48" Rip	Lin. Ft.	603
647 48" Rip	Lin. Ft.	603
648 48" Rip	Lin. Ft.	603
649 48" Rip	Lin. Ft.	603
650 48" Rip	Lin. Ft.	603



**LOR-90EB1012**  
**PROPOSED STRUCTURE**  
 TYPE: Continuous steel beams with reinf. conc. abutments and piers.  
 SPANS: 49' -70.31' -49' 1/2' brg's.  
 ROADWAY: 42' 1/2' conc. parapets  
 LOADING: H5 20-44  
 SKEW: 18° 0' 57" L.F. (to local tangent)  
 WEARING SURFACE: 1 1/2" Asphalt Concrete  
 APPR. SLABS: A5-1-67 (25' Long)  
 ALIGNMENT: 3° 00' Curve left  
 SUPERELEVATION: 0.083 ft/ft.

QUANTITY	Calc. By	Checked By
ROADWAY	D.L.R. 2/17/70	R.C.B. 5/21/70
DRAINAGE	D.F.H. 1-31-70	P.M.G. 11-19-70

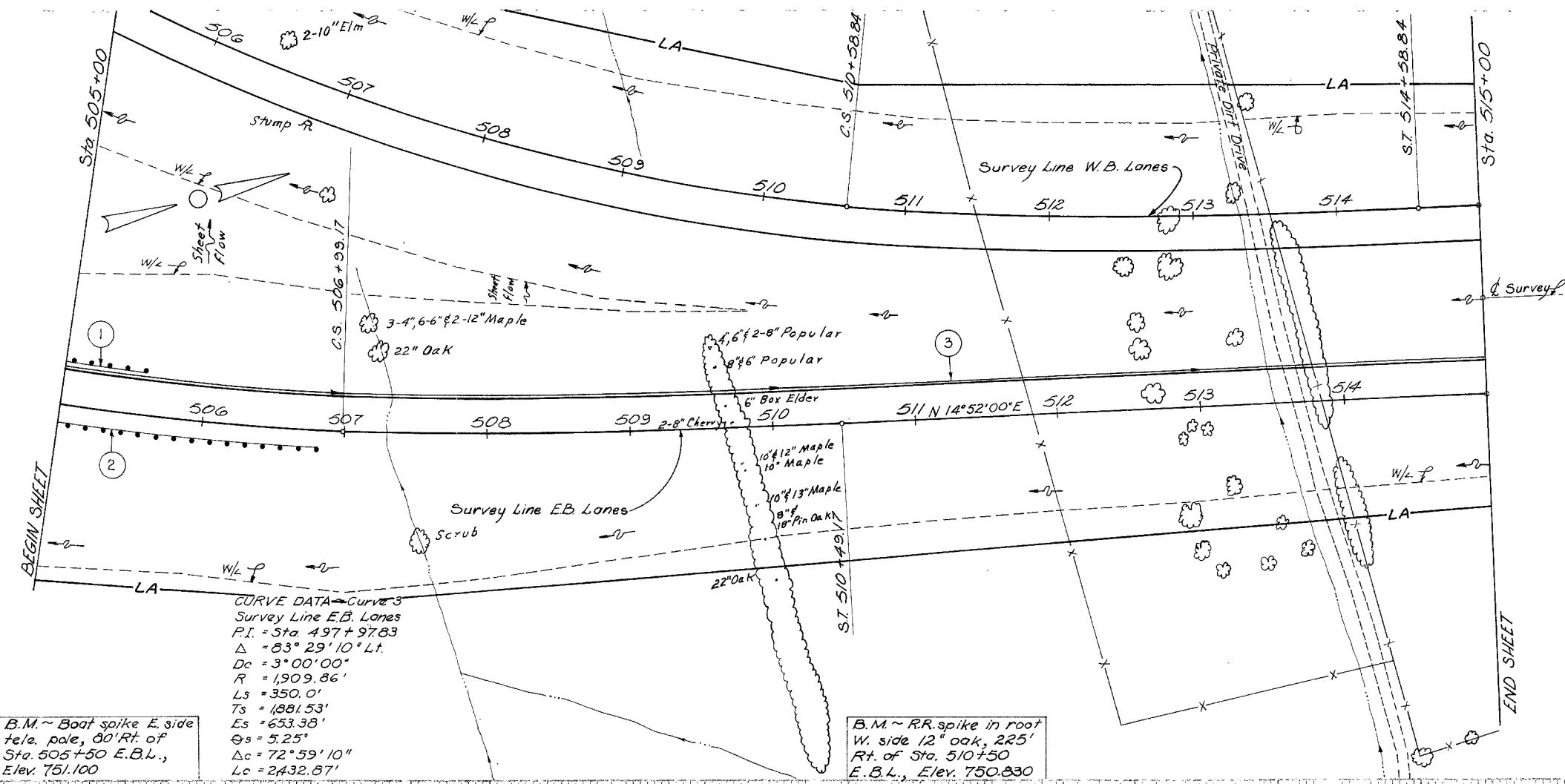
Station	Type	Lin. Ft.	Sq. Yds.	Vol. Cu. Yds.
485+00	LA	10	10	107
485+00	LA	10	10	115
485+00	LA	10	10	91
485+00	LA	10	10	290
485+00	LA	10	10	515
485+00	LA	10	10	66.67
485+00	LA	10	10	66.67



\* See note, this sheet is using steel posts.

Item	Code	Material	Type	Unit	Quantity	Notes
601	As	Per Plan				
602	Rock	Concrete	Type F	Cu. Yds.	27	
603	Channel	Protect.	Type B	Lin. Ft.	7.4	
604	Ass'y.	Each			3	
605	Shallow	Protection	ing	Sq. Yds.	104	
606	Mod.	Ass'y.			2	
607	Anchor	Ass'y.			2	
608	Mod.	Ass'y.			2	
609	Mod.	Ass'y.			2	
610	Mod.	Ass'y.			2	
611	Mod.	Ass'y.			2	
612	Mod.	Ass'y.			2	
613	Mod.	Ass'y.			2	
614	Mod.	Ass'y.			2	
615	Mod.	Ass'y.			2	
616	Mod.	Ass'y.			2	
617	Mod.	Ass'y.			2	
618	Mod.	Ass'y.			2	
619	Mod.	Ass'y.			2	
620	Mod.	Ass'y.			2	

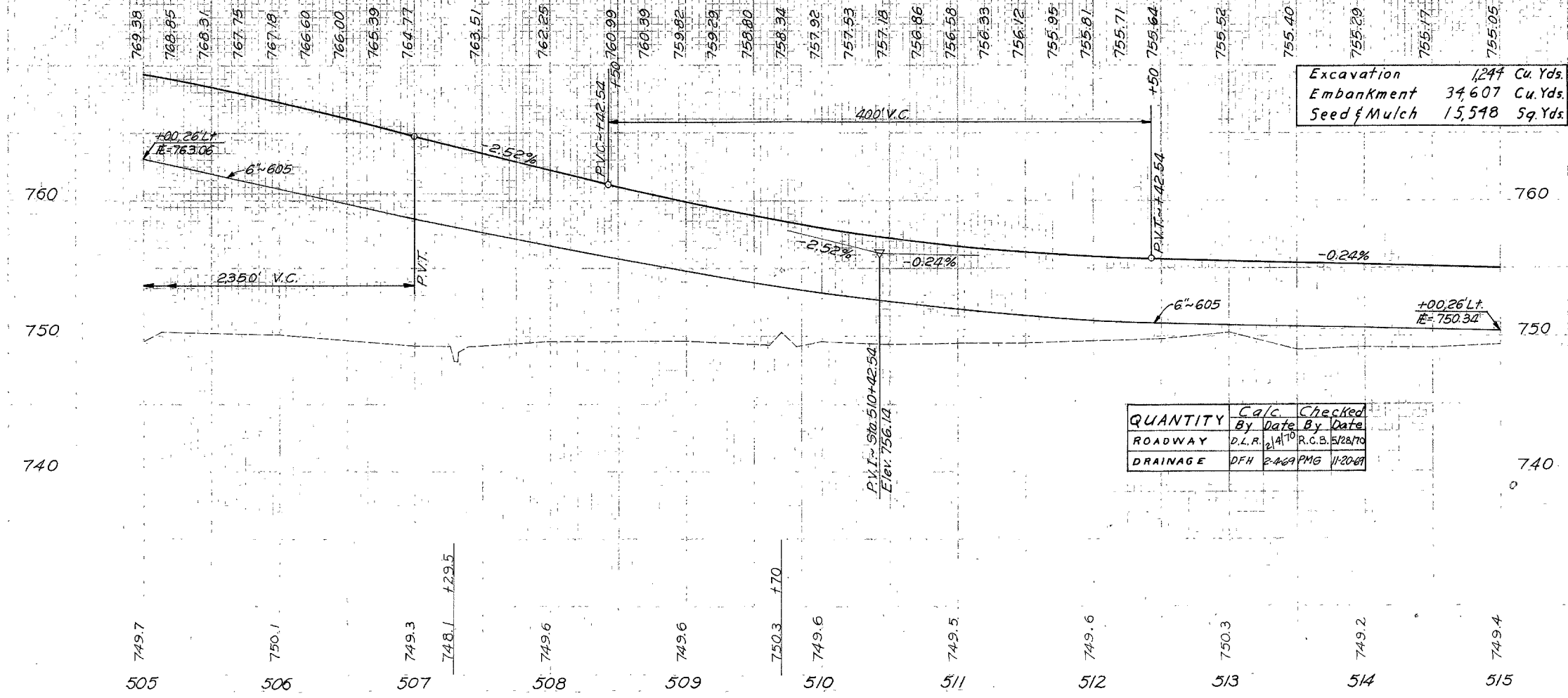
Rev. 4-25-73  
FAST BOUND LANES STA 495+00 TO STA 505+00



**CURVE DATA - Curve 3**  
Survey Line E.B. Lanes  
P.I. = Sta. 497+97.83  
 $\Delta = 83^\circ 29' 10''$  Lt.  
Dc = 3°00'00"  
R = 1,909.86'  
Ls = 350.0'  
Ts = 188.53'  
Es = 653.38'  
 $\Theta_s = 5.25^\circ$   
 $\Delta c = 72^\circ 59' 10''$   
Lc = 2,432.87'

B.M. ~ Boat spike E. side  
tele. pole, 80' Rt. of  
Sta. 505+50 E.B.L.,  
Elev. 751.100

B.M. ~ R.R. spike in roof  
W. side 12" oak, 225'  
Rt. of Sta. 510+50  
E.B.L., Elev. 750.830



Excavation	1,244 Cu. Yds.
Embankment	34,607 Cu. Yds.
Seed & Mulch	15,548 Sq. Yds.

QUANTITY	Calc. By	Checked By	Date
ROADWAY	D.L.R.	R.C.B.	5/28/70
DRAINAGE	DFH	PMG	11/20/69

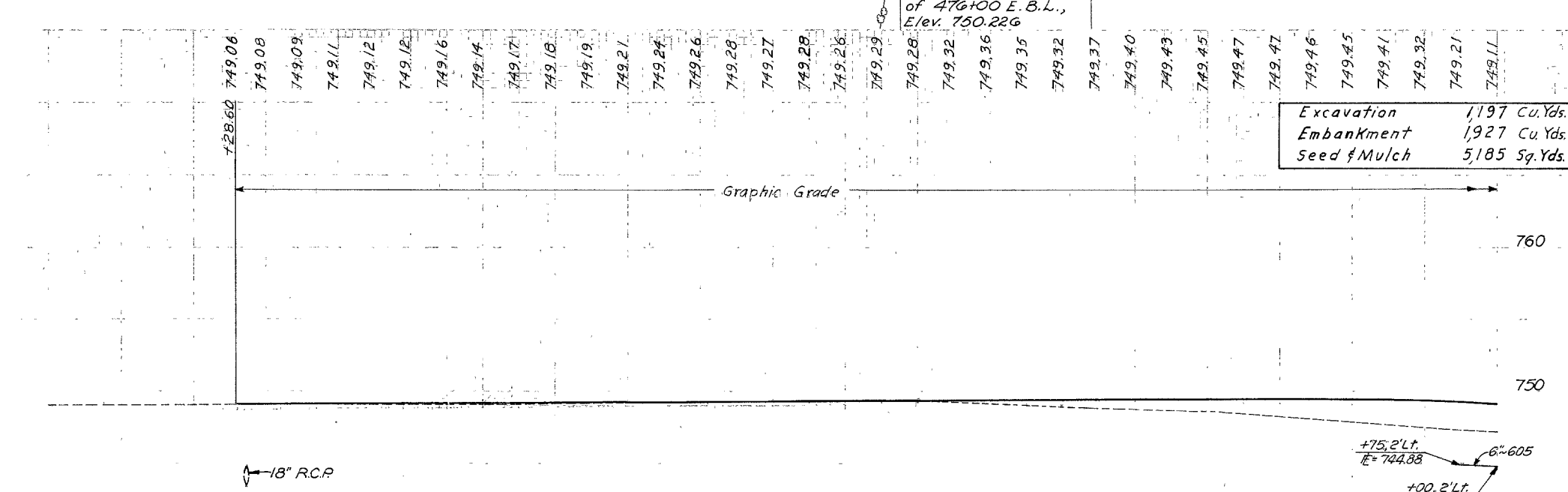
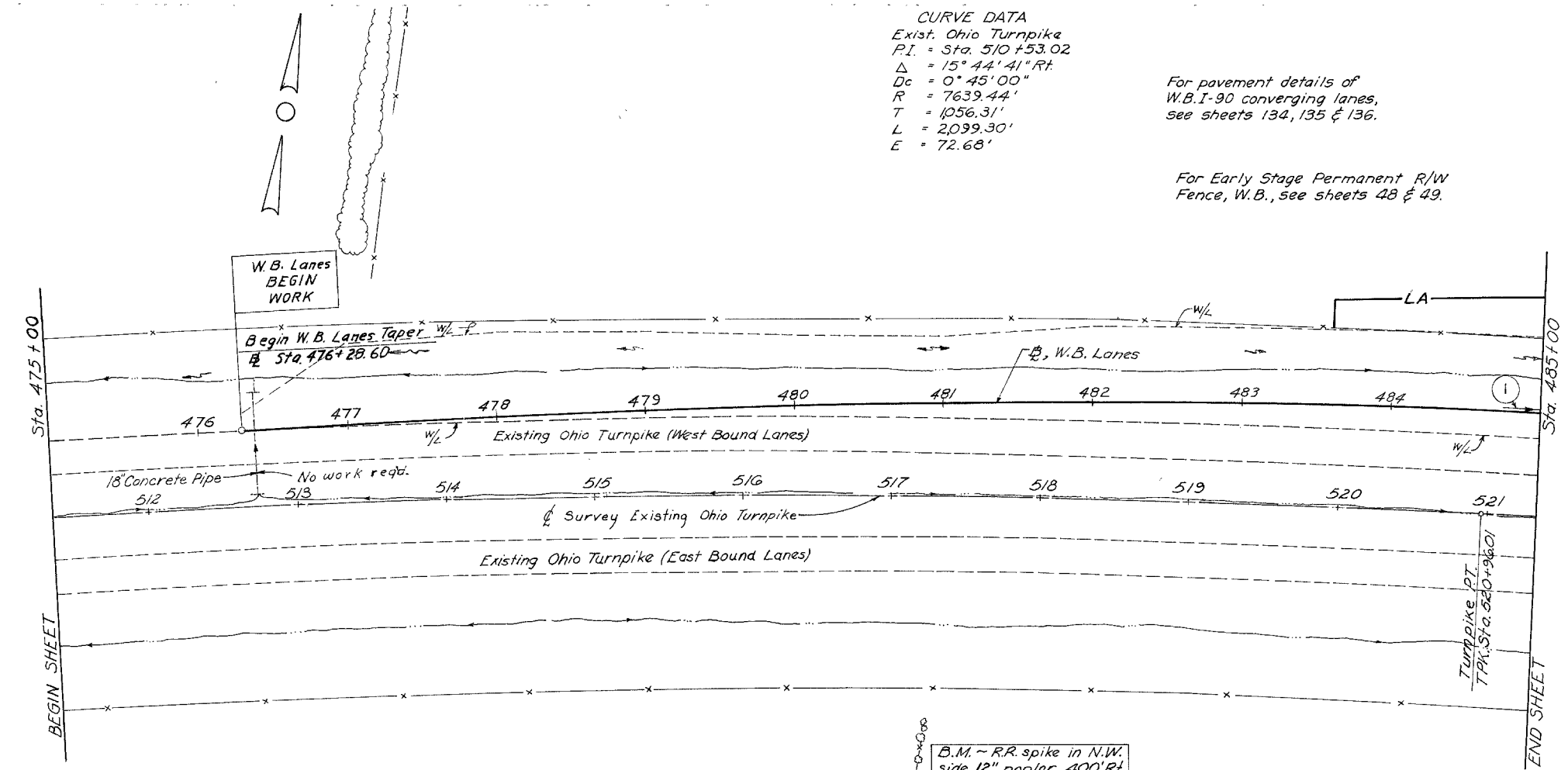
\* Using steel posts.  
\* 606 606 605  
Guard Rail  
Type 5  
Lin. Ft. Each Lin. Ft.  
1000

505+00  
505+00  
505+00  
505+56.5 Lt.  
506+81.5 Rt.  
515+00 Lt.

**CURVE DATA**  
 Exist. Ohio Turnpike  
 P.I. = Sta. 510+53.02  
 $\Delta = 15^\circ 44' 41''$  Rt.  
 $D_c = 0^\circ 45' 00''$   
 $R = 7639.44'$   
 $T = 1056.31'$   
 $L = 2099.30'$   
 $E = 72.68'$

For pavement details of  
 W.B.I-90 converging lanes,  
 see sheets 134, 135 & 136.

For Early Stage Permanent R/W  
 Fence, W.B., see sheets 48 & 49.



QUANTITY	Calc.		Checked	
	By	Date	By	Date
ROADWAY	—	—	—	—
DRAINAGE	DFH	2-4-69	PMG	11-21-69

ESTIMATED QUANTITIES

605  
Shallow  
Lin. Ft.  
25  
484+75 485+00 Lt. 25

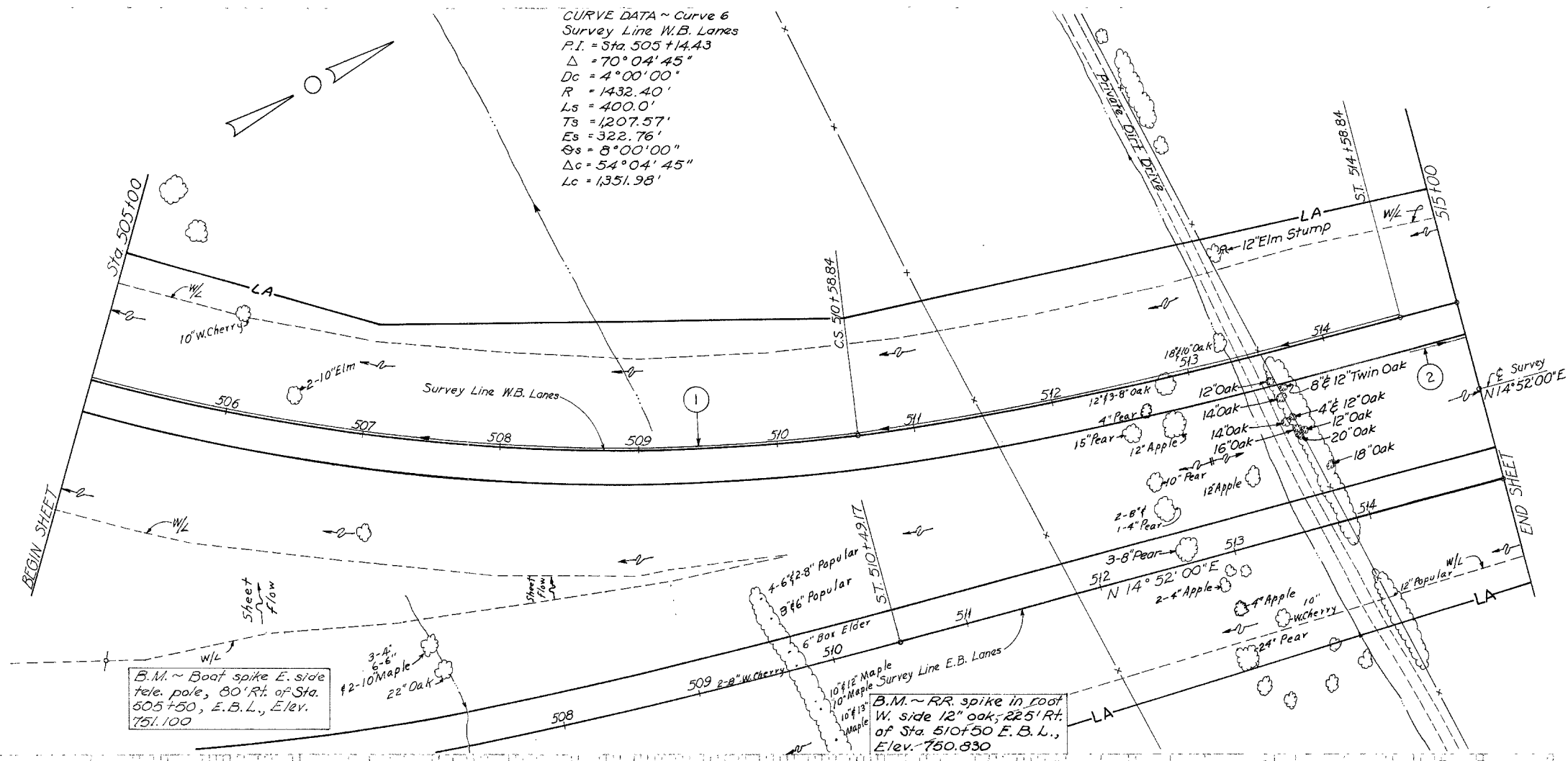
749.02 749.06 749.06 749.09 749.11 749.11 749.21 749.21 749.27 749.27 749.35 748.9 748.6 747.9 747.2

475 476 477 478 479 480 481 482 483 484 485





CURVE DATA ~ Curve 6  
Survey Line W.B. Lanes  
P.I. = Sta. 505+14.43  
 $\Delta = 70^{\circ}04'45''$   
 $Dc = 4^{\circ}00'00''$   
 $R = 1432.40'$   
 $Ls = 400.0'$   
 $Ts = 1207.57'$   
 $Es = 322.76'$   
 $\Theta s = 8^{\circ}00'00''$   
 $\Delta c = 54^{\circ}04'45''$   
 $Lc = 1351.98'$

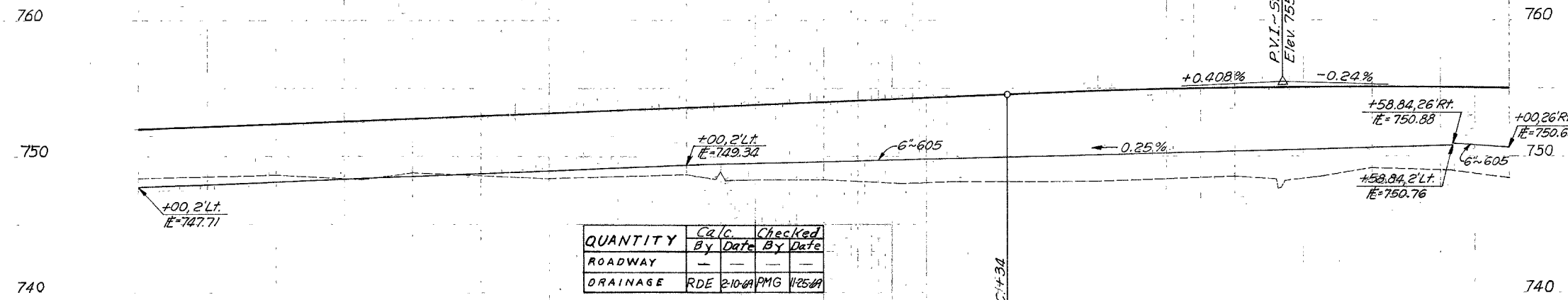


B.M. ~ Boat spike E. side tele. pole, 80' Rt. of Sta. 505+50, E.B.L., Elev. 751.100

B.M. ~ RR. spike in foot W. side 12" oak, 225' Rt. of Sta. 510+50 E.B.L., Elev. 750.830

752.04	752.24	752.44	752.65	752.85	753.06	753.26	753.46	753.67	753.87	754.08	754.28	754.48	754.62	754.69	754.79	754.86	754.93	754.99	755.04	755.08	755.11	755.13	755.14	755.13	755.12	755.10	755.07	755.04
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Excavation 2,126 Cu.Yds.  
Embankment 14,952 Cu.Yds.  
Seed & Mulch 15,004 Sq.Yds.

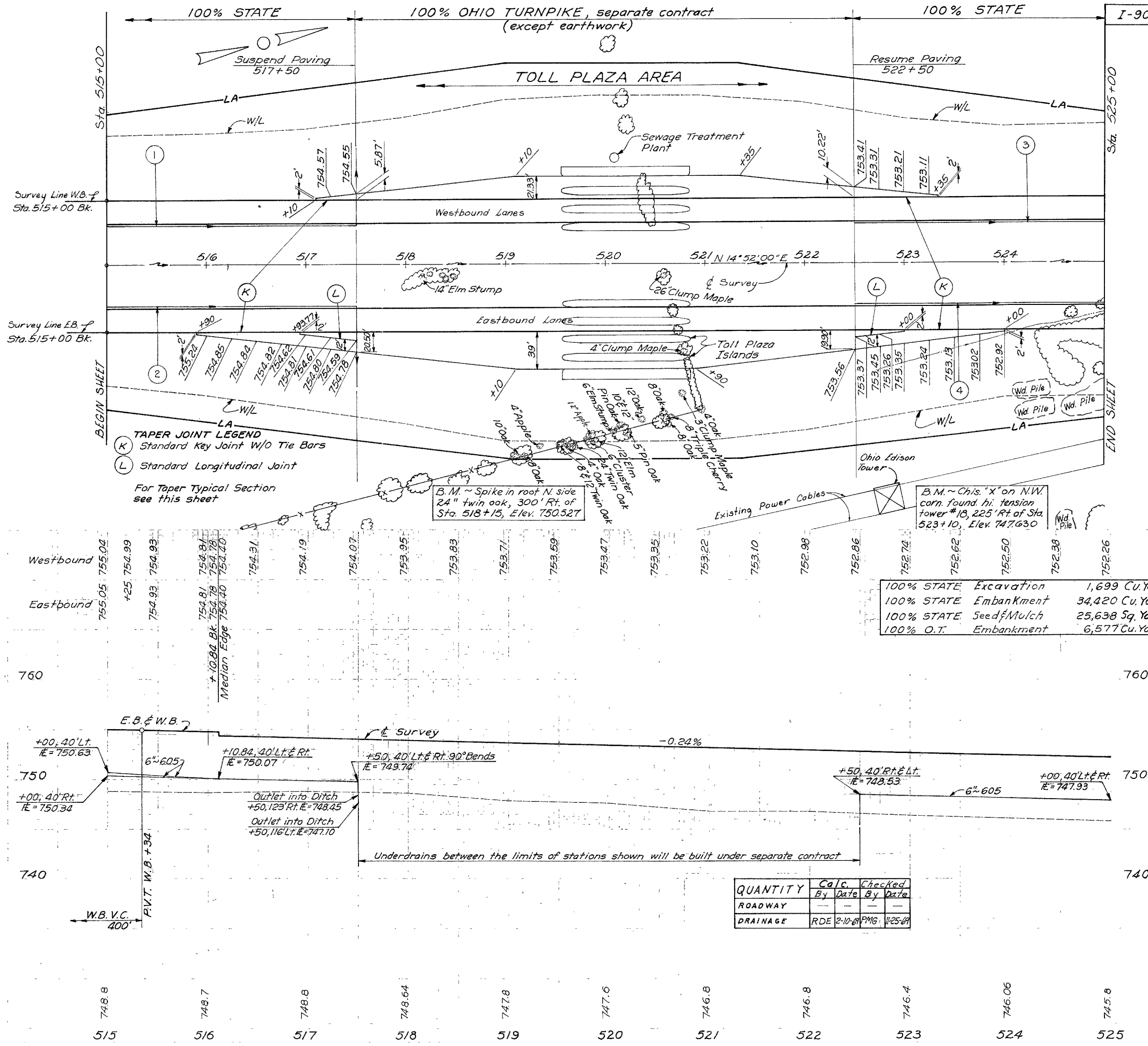


QUANTITY	Calc. By	Checked By	Date
ROADWAY	-	-	-
DRAINAGE	RDE	2-10-04 PMG	11-25-04

ESTIMATED QUANTITIES

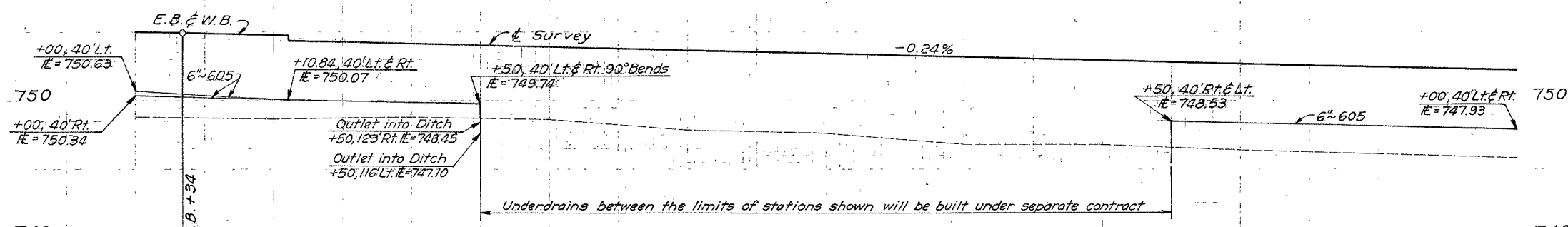
605  
6" Shallow  
Lin. Ft. 959  
Lt. Pt. 41  
1 505+00 - 514+58.84  
2 514+58.84 - 515+00





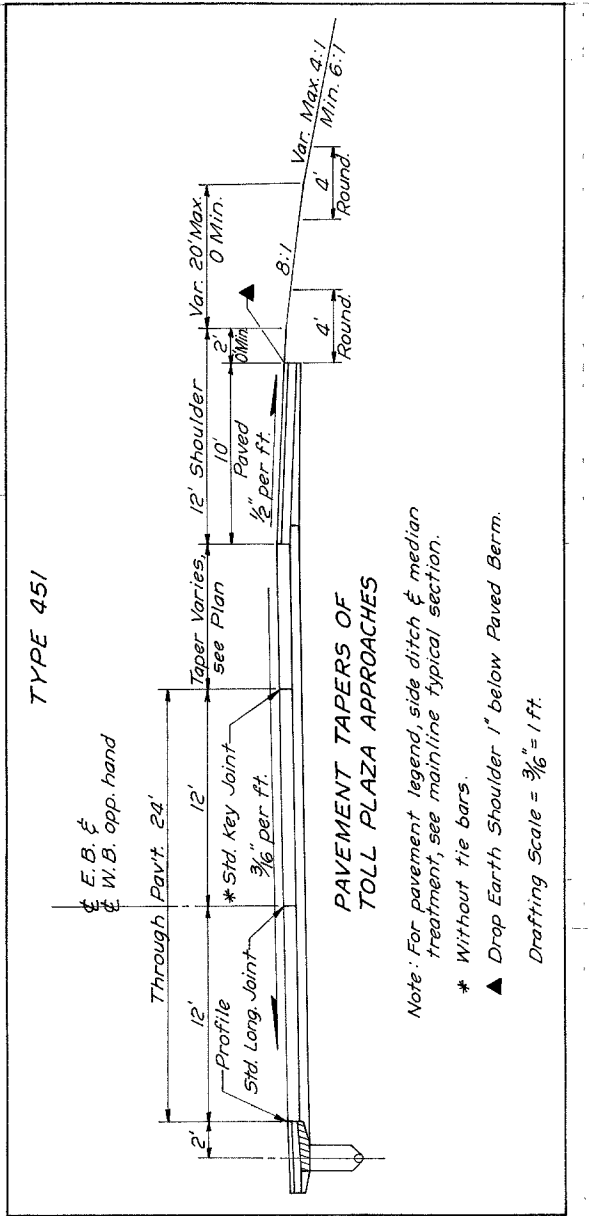
Westbound	+25.754.99	754.81	754.78	754.70	754.31	754.19	754.07	753.95	753.83	753.71	753.59	753.47	753.35	753.22	753.10	752.98	752.86	752.74	752.62	752.50	752.38	752.26	
Eastbound	755.05	754.93	754.81	754.78	754.70	754.31	754.19	754.07	753.95	753.83	753.71	753.59	753.47	753.35	753.22	753.10	752.98	752.86	752.74	752.62	752.50	752.38	752.26

100% STATE	Excavation	1,699 Cu. Yds.
100% STATE	Embankment	34,420 Cu. Yds.
100% STATE	Seed & Mulch	25,638 Sq. Yds.
100% O.T.	Embankment	6,577 Cu. Yds.



QUANTITY	Calc. By	Checked By
ROADWAY	---	---
DRAINAGE	RDE 2-10-88	PMG 1/25-89

6" Bends

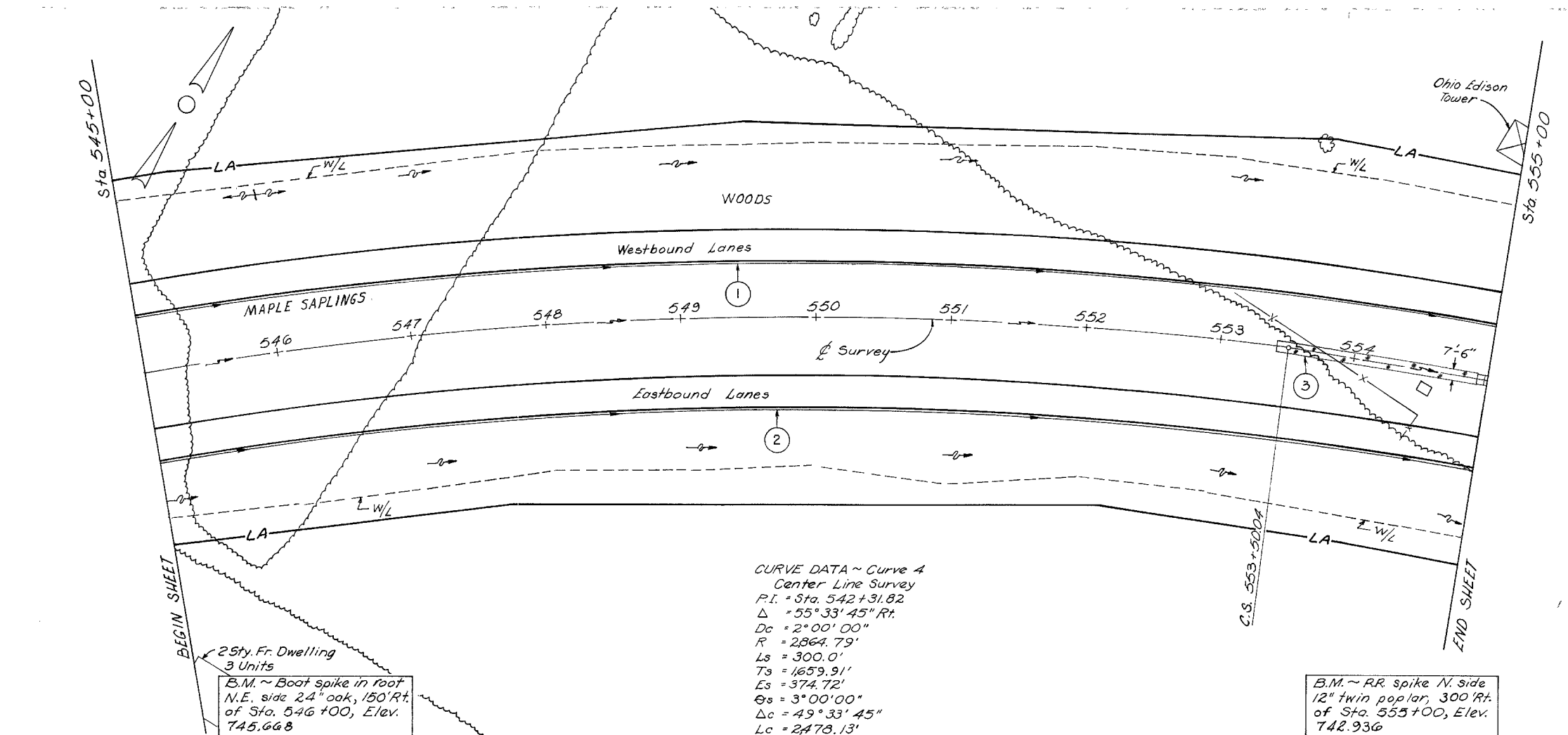


605	603	603
6" 6"	6" 6"	6" 6"
Shallow Type B Type F	Lin. Ft.	Lin. Ft.
	250	10
	66	73
	250	250
	250	250

515+00	Lt.	Rt.
517+50	10	10
522+50	73	10
525+00	250	250
525+00	250	250



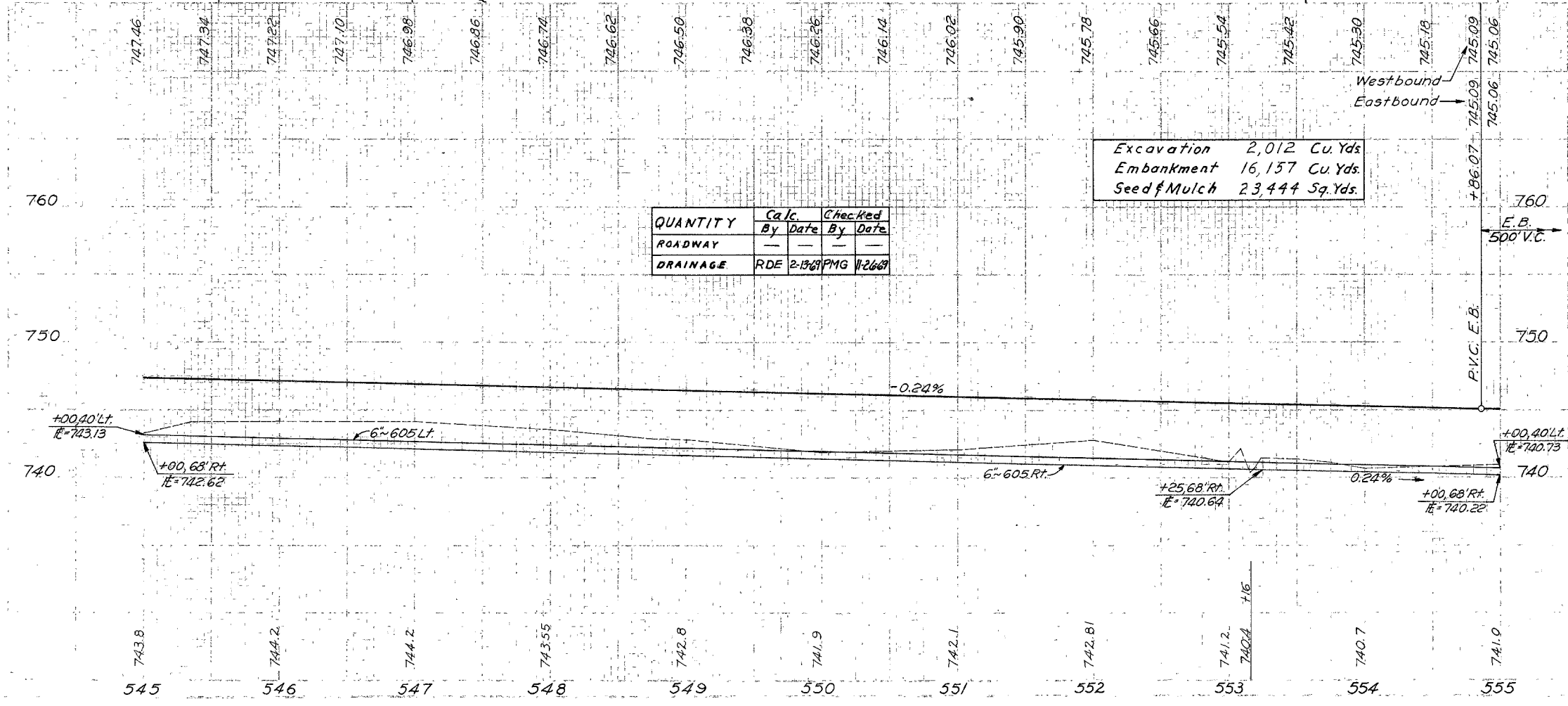




CURVE DATA ~ Curve 4  
Center Line Survey  
P.I. = Sta. 542+31.82  
 $\Delta = 55^{\circ}33'45''$  Rt.  
Dc = 2'00'00"  
R = 2864.79'  
Ls = 300.0'  
Ts = 1659.91'  
Es = 374.72'  
 $\Theta_s = 3^{\circ}00'00''$   
 $\Delta_c = 49^{\circ}33'45''$   
Lc = 2478.13'

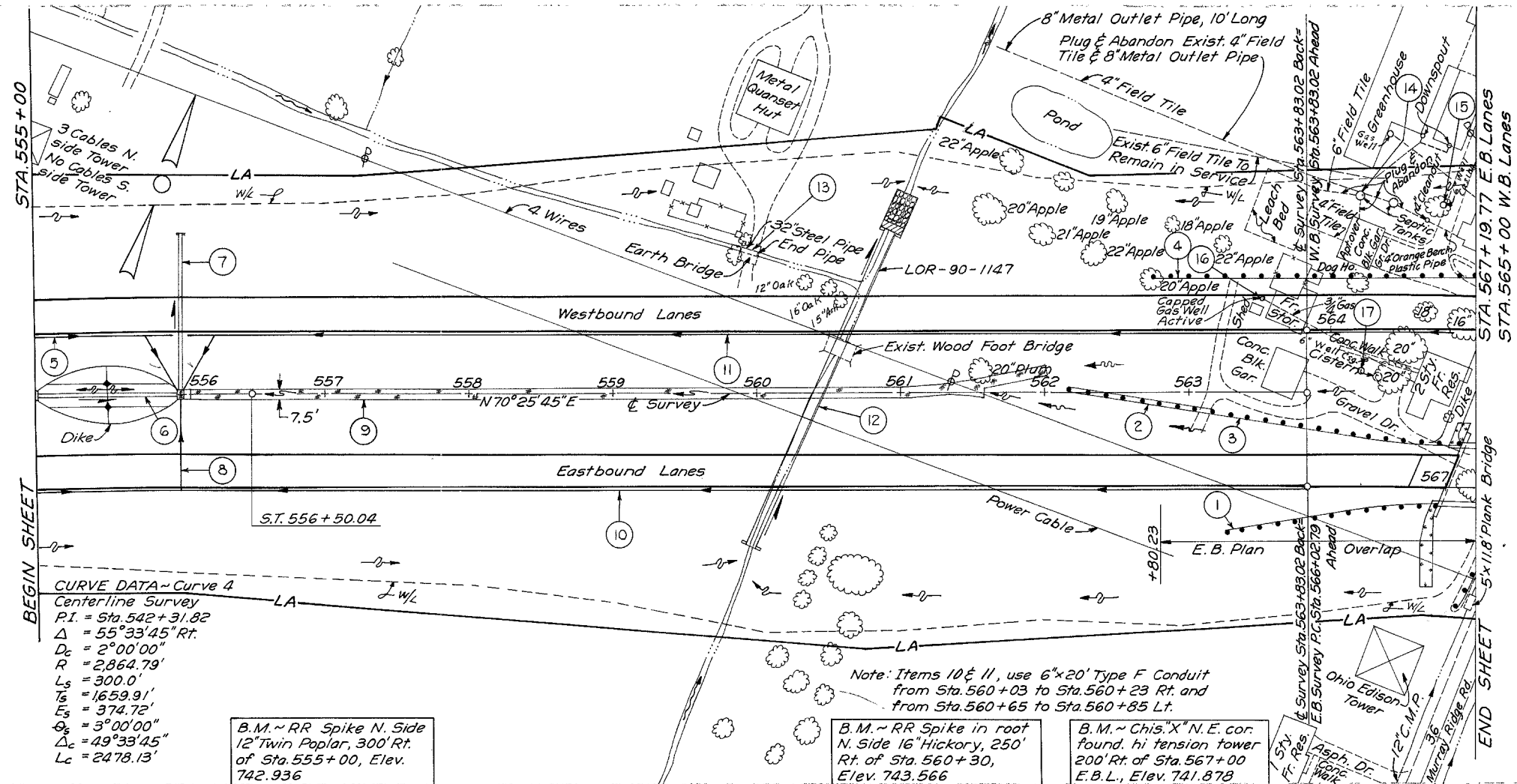
2 Sty. Fr. Dwelling  
3 Units  
B.M. ~ Boat spike in roof  
N.E. side 24" oak, 150' Rt.  
of Sta. 546+00, Elev.  
745.668

B.M. ~ RR spike N. side  
12" twin poplar, 300' Rt.  
of Sta. 555+00, Elev.  
742.936



Excavation 2,012 Cu. Yds.  
Embankment 16,157 Cu. Yds.  
Seed & Mulch 23,444 Sq. Yds.

605	667	6"	6"	6"
1	545+00	555+00	1000	125
2	545+00	555+00	1000	125
3	553+43	554+93	1000	125



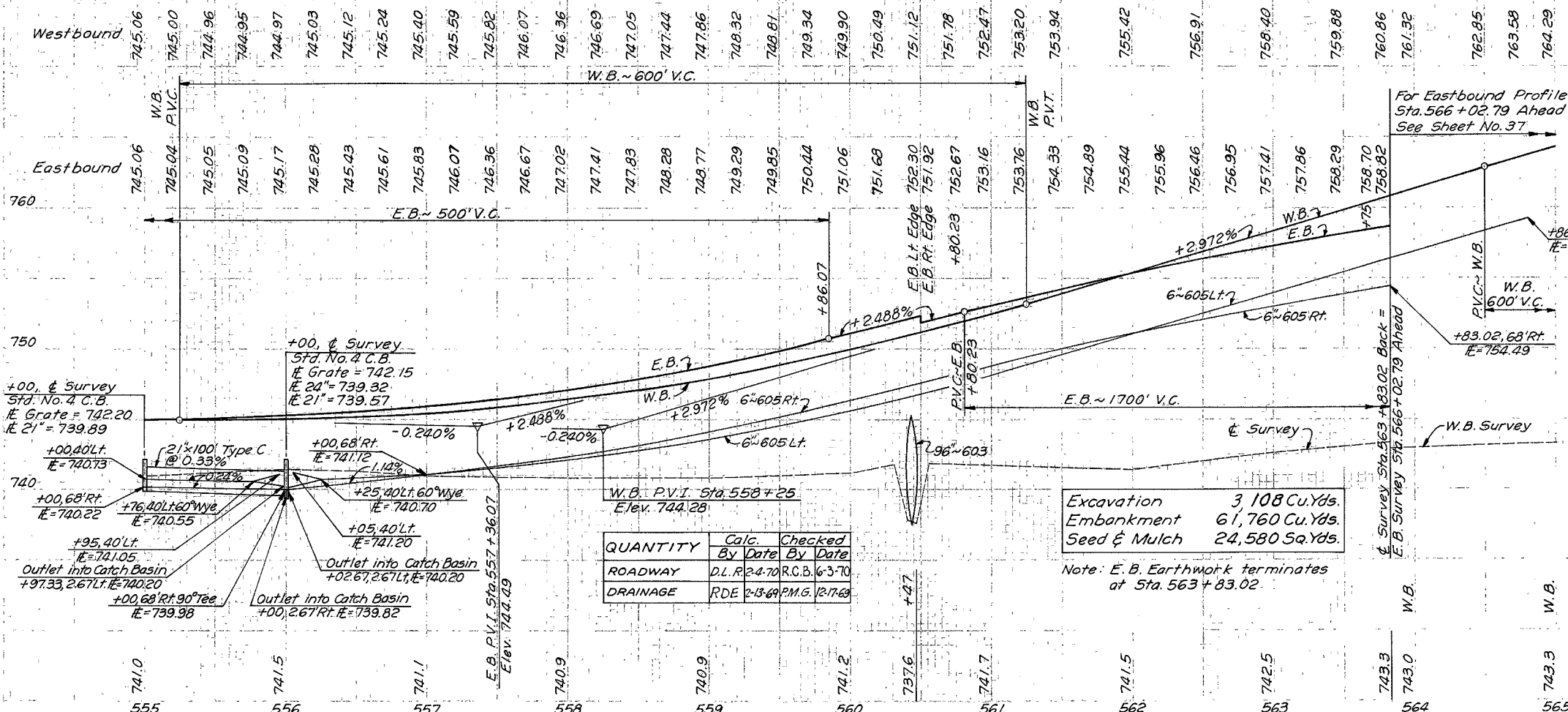
**CURVE DATA - Curve 4**  
 Centerline Survey  
 P.I. = Sta. 542+31.82  
 $\Delta = 55^{\circ}33'45''$  Rt.  
 $D_c = 2^{\circ}00'00''$   
 $R = 2,864.79'$   
 $L_s = 300.0'$   
 $T_s = 1659.91'$   
 $E_s = 374.72'$   
 $\Delta_c = 3^{\circ}00'00''$   
 $\Delta_c = 49^{\circ}33'45''$   
 $L_c = 2478.13'$

B.M. ~ RR Spike N. Side  
 12" Twin Poplar, 300' Rt.  
 of Sta. 555+00, Elev.  
 742.936

Note: Items 10 & 11, use 6"x20" Type F Conduit  
 from Sta. 560+03 to Sta. 560+23 Rt. and  
 from Sta. 560+65 to Sta. 560+85 Lt.

B.M. ~ RR Spike in root  
 N. Side 16" Hickory, 250'  
 Rt. of Sta. 560+30,  
 Elev. 743.566

B.M. ~ Chis. "X" N.E. cor.  
 found. hi tension tower  
 200' Rt. of Sta. 567+00  
 E.B.L., Elev. 741.878



QUANTITY	Calc.	Checked
	By Date	By Date
ROADWAY	D.L.R. 2-4-70	R.C.B. 6-3-70
DRAINAGE	RDE 2-15-69	P.M.G. 12-17-69

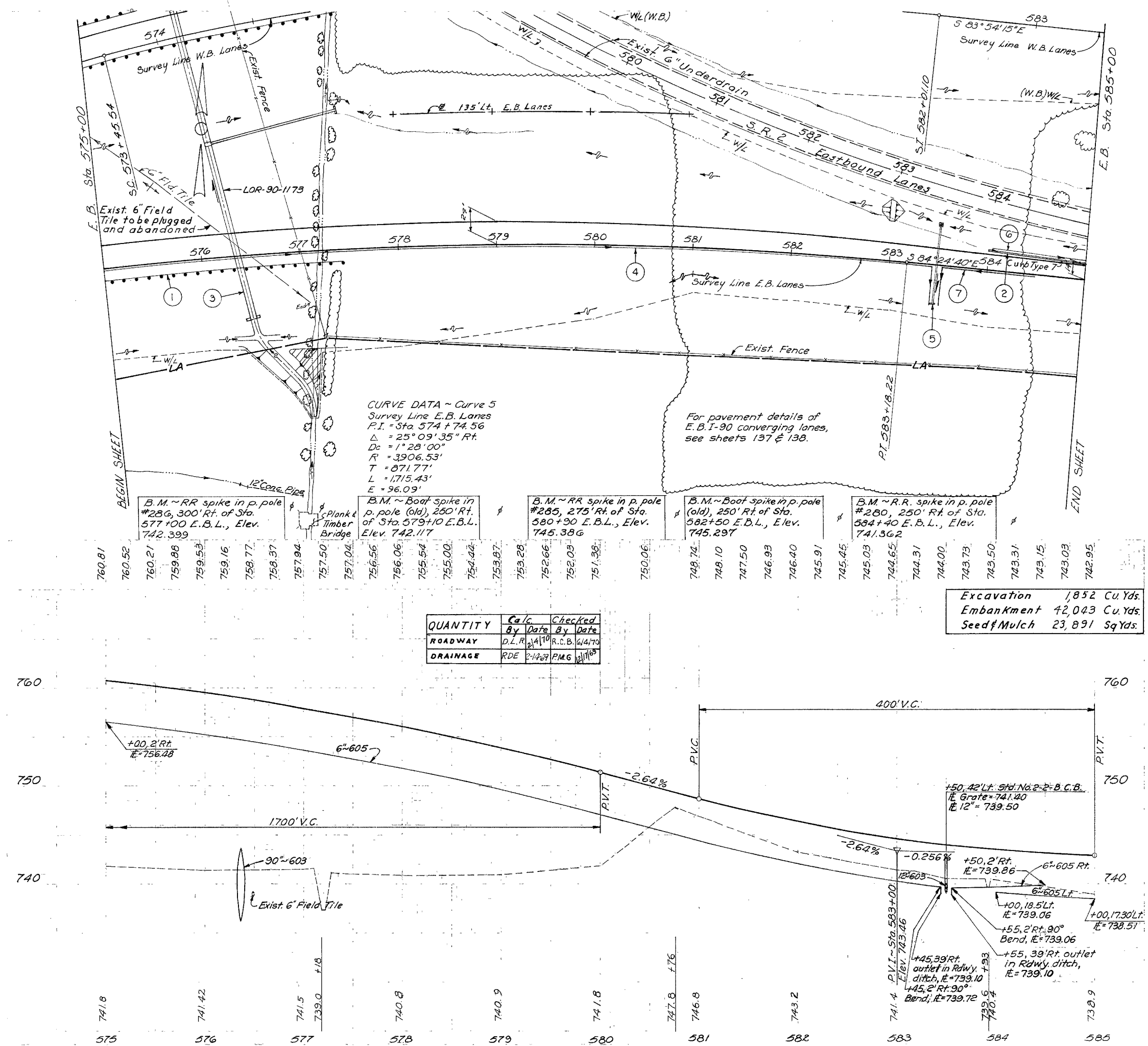
Excavation 3,108 Cu.Yds.  
 Embankment 61,760 Cu.Yds.  
 Seed & Mulch 24,580 Sq.Yds.

Note: E.B. Earthwork terminates  
 at Sta. 563+83.02

ESTIMATED QUANTITIES

Item No.	Description	Unit	Quantity	Notes
606	Guard rail Type 5	Lf. Ft.	32.04	
606	Barrier Design Assy.	Each	1	
606	Anchor Assy.	Each	1	
202	Exist. Rock Structure Removed	Cu. Yds.	43	Lump
601	Rock Channel	Lf. Ft.	0.4	
605	6" Jute Rip Mat	Sq. Yds.	129	
604	Std. No. 4 C.B.	Lf. Ft.	863	
603	21" Type C	Lf. Ft.	100	
603	24" Type B	Lf. Ft.	107	
601	6" Rip Mat	Sq. Yds.	494	
605	6" Shaw Mat	Sq. Yds.	863	
202	Pipe Removed Over 15'	Lin. Ft.	12	
202	Special Plugging of Tanks	Each	2	
202	Special Drilled Well	Each	1	
6"	Bends	Each	142	
6"	Bends	Each	98	
6"	Bends	Each	142	
6"	Bends	Each	142	
6"	Bends	Each	159	





760.81	760.52	760.21	759.88	759.53	759.16	758.77	758.37	757.94	757.50	757.04	756.56	756.06	755.54	755.00	754.44	753.87	753.28	752.66	752.03	751.38	750.06	748.74	748.10	747.50	746.93	746.40	745.91	745.45	745.03	744.65	744.31	744.00	743.73	743.50	743.31	743.15	743.03	742.95
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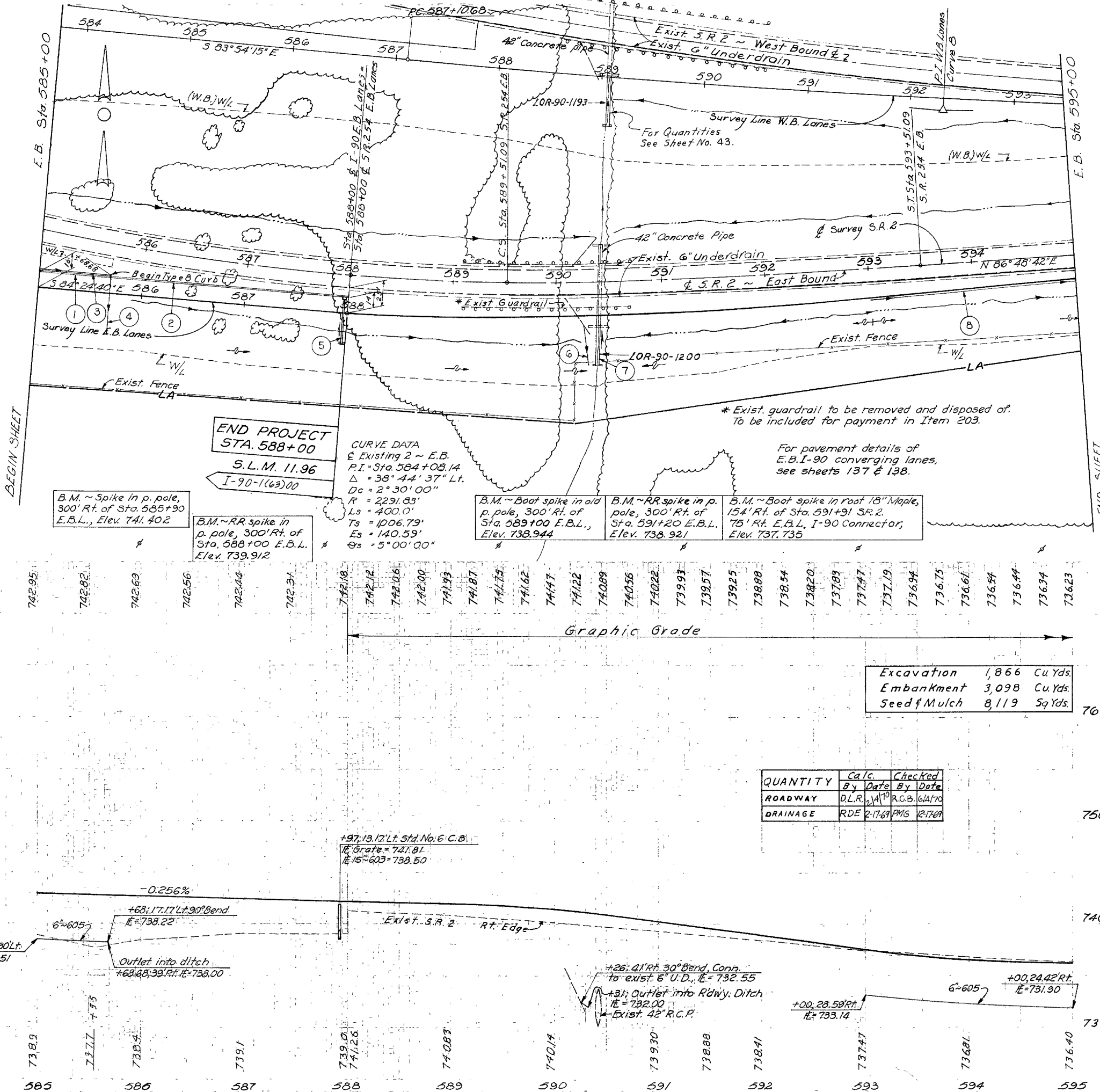
QUANTITY	Calc By	Checked By	Date
ROADWAY	D.L.R.	R.C.B.	1/10/10
DRAINAGE	RDE	PMG	2/11/10

Item No.	Description	Unit	Quantity	Notes
606	Guard Rail Type 5	Lin. Ft.	219.75	
606	Anchor Ass'y	Each	100	
609	Curb Type 7	Lin. Ft.	100	
601	Rock Channel Protection Type B	Lin. Ft.	31	
602	Concrete Masonry Type F	Lin. Ft.	9.5	
603	6" Concrete	Lin. Ft.	10	
603	15" Concrete	Lin. Ft.	132	
603	24" Concrete	Lin. Ft.	430	
604	6" Rip-Stop Concrete	Lin. Ft.	872	
605	6" Rip-Stop Concrete	Lin. Ft.	100	
605	6" Rip-Stop Concrete	Lin. Ft.	122	

90°+24' Tee Bends

606 Guard Rail Type 5  
 606 Anchor Ass'y  
 609 Curb Type 7  
 601 Rock Channel Protection Type B  
 602 Concrete Masonry Type F  
 603 6" Concrete  
 603 15" Concrete  
 603 24" Concrete  
 604 6" Rip-Stop Concrete  
 605 6" Rip-Stop Concrete

575+00	577+44.75	Rt.	
584+00	585+00	Lt.	
575+00	583+45	Rt.	
584+00	585+00	Lt.	
583+55	584+50	Rt.	



END PROJECT  
STA. 588+00  
S.L.M. 11.96  
I-90-1193

CURVE DATA  
Existing 2 ~ E.B.  
P.I. = Sta. 584+08.14  
Δ = 38° 44' 37" Lt.  
Dc = 2° 30' 00"  
R = 2291.83'  
Ls = 400.0'  
Ts = 1006.79'  
Es = 140.59'  
Os = 5° 00' 00"

B.M. ~ Spike in p. pole,  
300' Rt. of Sta. 585+90  
E.B.L., Elev. 741.402

B.M. ~ RR spike in  
p. pole, 300' Rt. of  
Sta. 588+00 E.B.L.  
Elev. 739.912

B.M. ~ Boot spike in old  
p. pole, 300' Rt. of  
Sta. 589+00 E.B.L.,  
Elev. 738.944

B.M. ~ RR spike in p.  
pole, 300' Rt. of  
Sta. 591+20 E.B.L.,  
Elev. 738.921

B.M. ~ Boot spike in root 18" Maple,  
154' Rt. of Sta. 591+91 S.R.2,  
75' Rt. E.B.L. I-90 Connector,  
Elev. 737.735

Graphic Grade

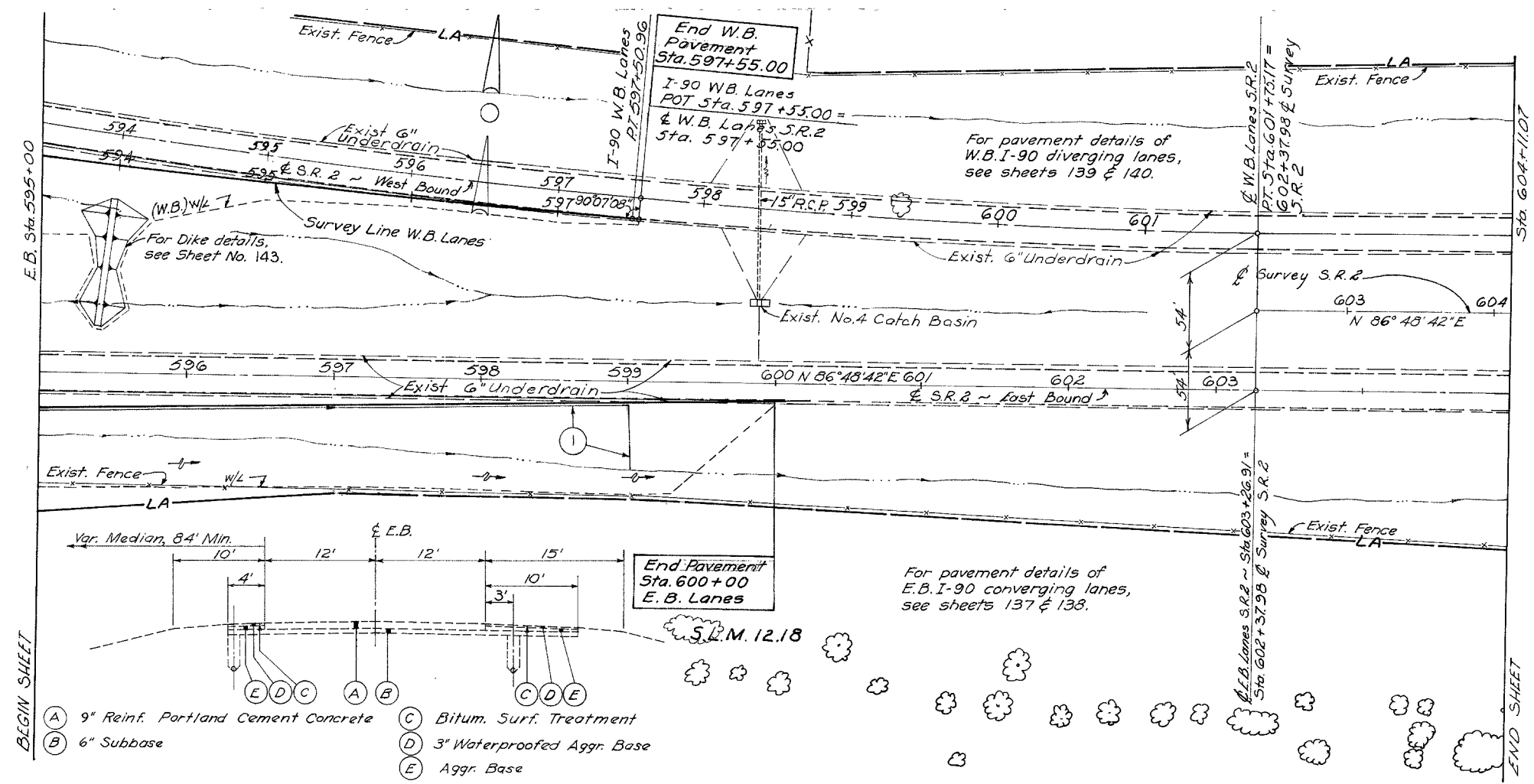
Excavation	1,866	Cu Yds.
Embankment	3,098	Cu Yds.
Seed & Mulch	8,119	Sq Yds.

QUANTITY	Calc.	Checked
	By Date	By Date
ROADWAY	D.L.R. 2/11/70	R.C.B. 6/14/70
DRAINAGE	RDE 2-17-69	PMG 12/17/69

6" Bends	604	605	603	603	603	603	603	603	603	603	603	603	603	603
Std. & Shall	Std. C.B. 15'	Std. C.B. 15'	Type A	Type B	Type B	Type B	Type B	Type B	Type B	Type B	Type B	Type B	Type B	Type B
Each Lin. Ft.	Each Lin. Ft.	Each Lin. Ft.	706.02	706.02	706.02	706.02	706.02	706.02	706.02	706.02	706.02	706.02	706.02	
142	142	142	69	27	1	29	36	49	19	10	10	0.3	0.8	
309	142	142	200	200	200	200	200	200	200	200	200	200	200	
162	162	162	36	49	36	49	36	49	36	49	36	49	36	

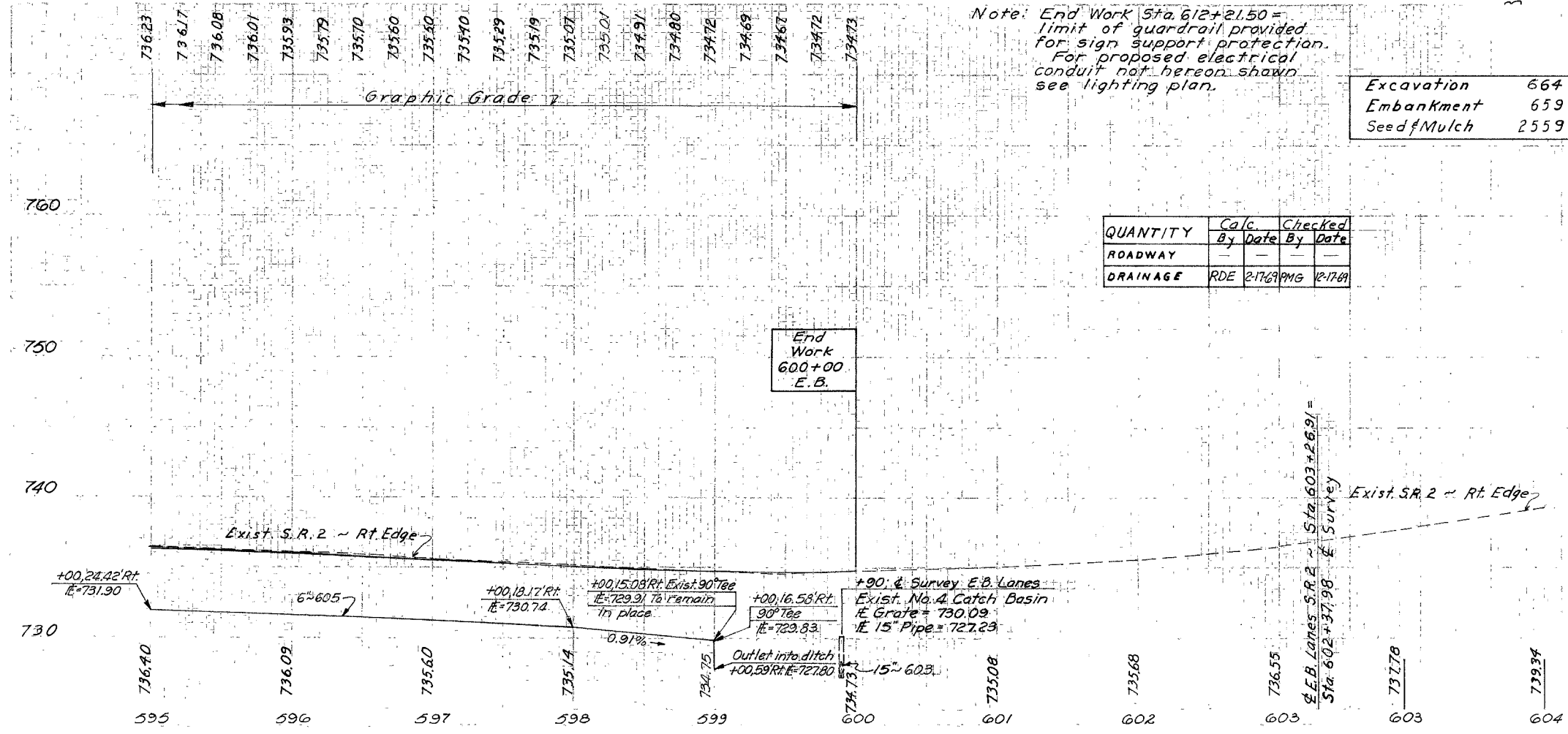
Station	Elev. at Sta.	Elev. at P.I.	Elev. at P.T.
585+00	738.91	742.06	742.06
585+68.68	738.51	742.06	742.06
585+100	738.51	742.06	742.06
585+26	738.51	742.06	742.06
585+97	738.51	742.06	742.06
590+26	738.51	742.06	742.06
590+42.45	738.51	742.06	742.06
593+00	738.51	742.06	742.06





- (A) 9" Reinf. Portland Cement Concrete
- (B) 6" Subbase
- (C) Bitum. Surf. Treatment
- (D) 3" Waterproofed Aggr. Base
- (E) Aggr. Base

ADJOINING S.R. 2 ~ (I-90)

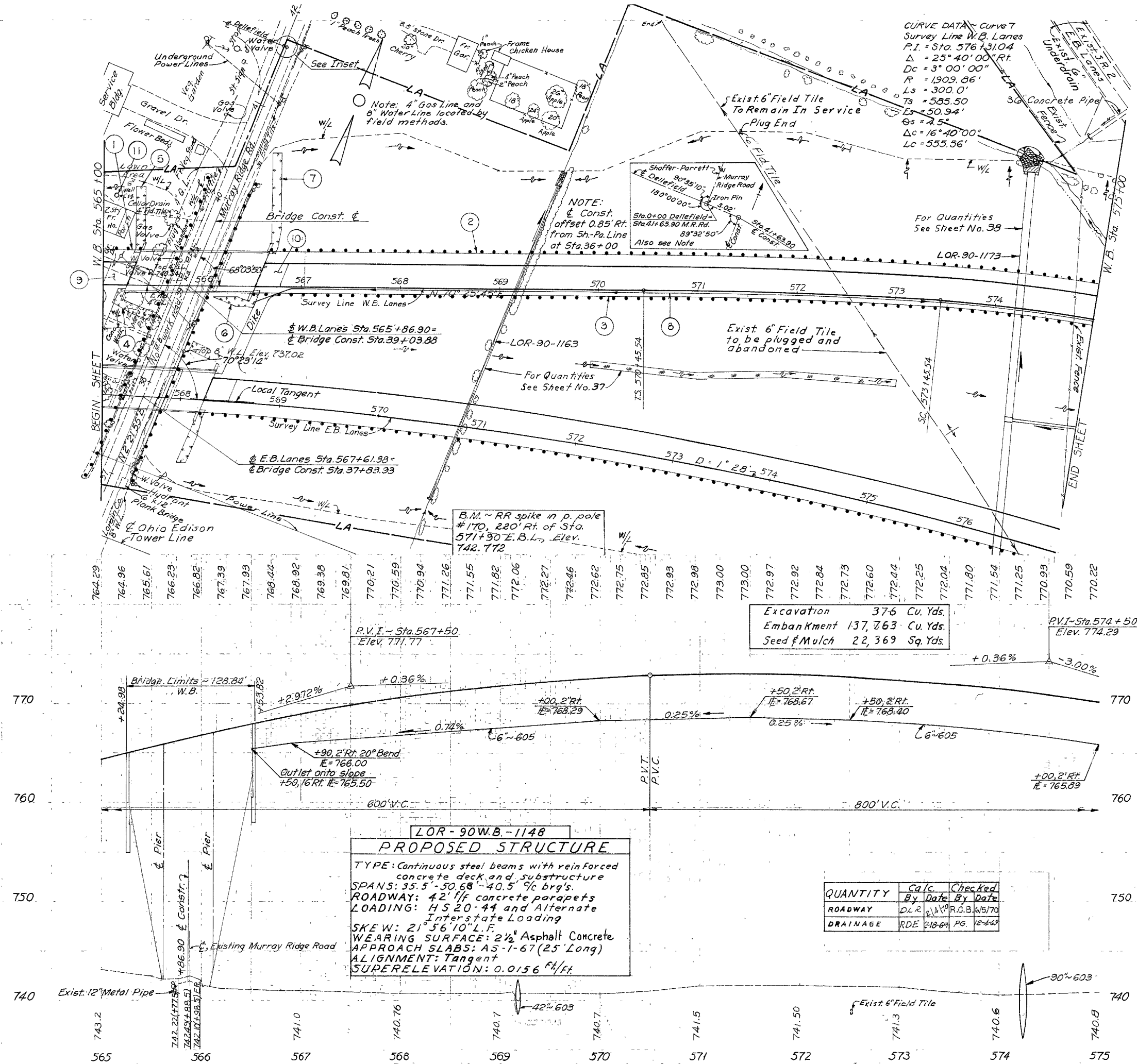


Excavation	664 Cu.Yds.
Embankment	659 Cu.Yds.
Seed & Mulch	2559 Sq.Yds.

QUANTITY	Calc.	Checked
	By Date	By Date
ROADWAY	-	-
DRAINAGE	RDE 2-17-89	PMG 12-17-89

603 605  
6" 6"  
Type F Shallow

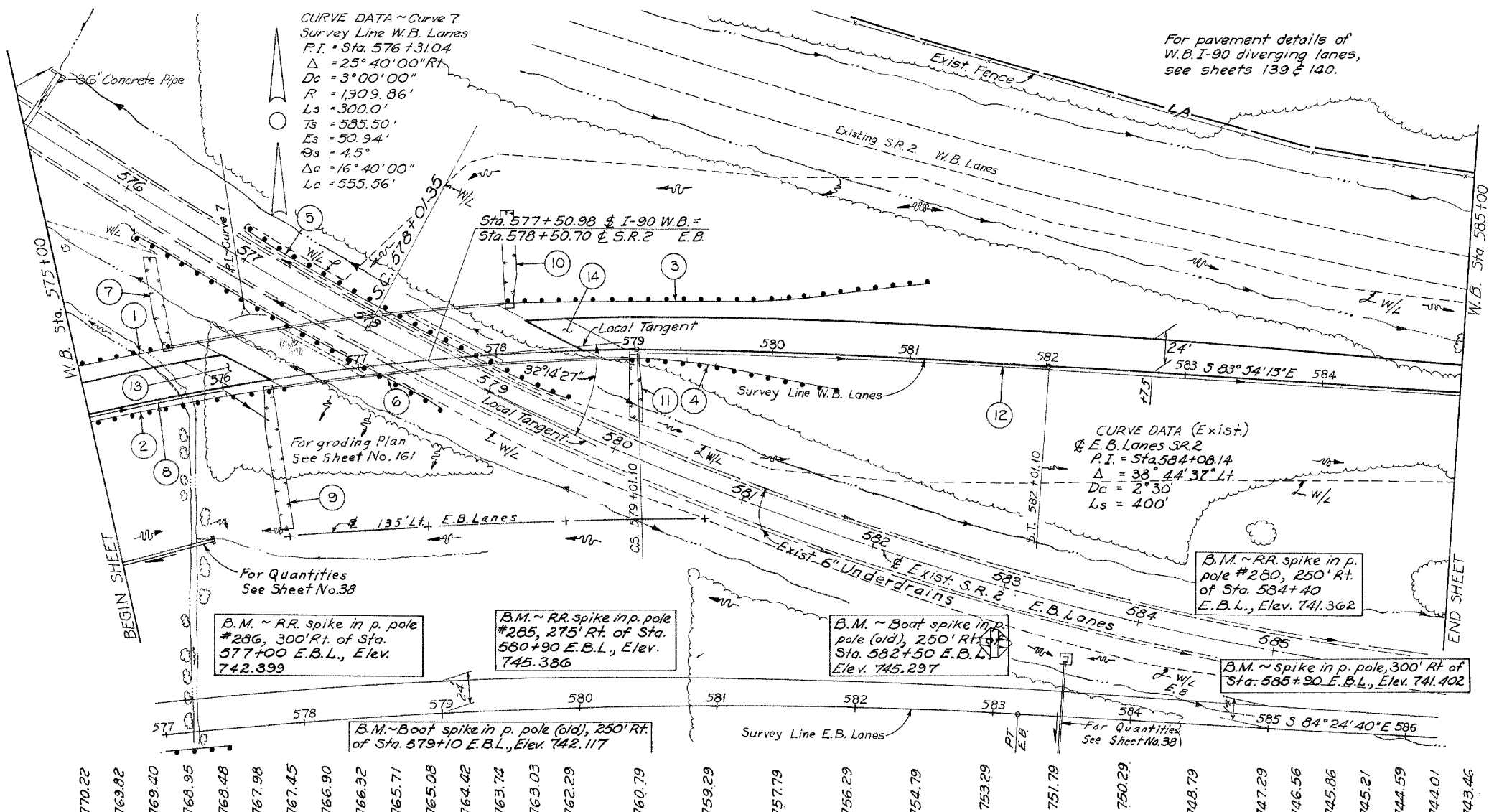
Lin. Ft. Lin. Ft.  
599+00 Rt. 10 432



As Per Plan	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620
* As Per Plan	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620
Special G	Special G	Special G	Special G	Special G	Special G	Special G	Special G	Special G	Special G	Special G	Special G	Special G	Special G	Special G	Special G
Drilled Slab	Drilled Slab	Drilled Slab	Drilled Slab	Drilled Slab	Drilled Slab	Drilled Slab	Drilled Slab	Drilled Slab	Drilled Slab	Drilled Slab	Drilled Slab	Drilled Slab	Drilled Slab	Drilled Slab	Drilled Slab
Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well
Aband.	Aband.	Aband.	Aband.	Aband.	Aband.	Aband.	Aband.	Aband.	Aband.	Aband.	Aband.	Aband.	Aband.	Aband.	Aband.
Sq. Yds. Each	Sq. Yds. Each	Sq. Yds. Each	Sq. Yds. Each	Sq. Yds. Each	Sq. Yds. Each	Sq. Yds. Each	Sq. Yds. Each	Sq. Yds. Each	Sq. Yds. Each	Sq. Yds. Each	Sq. Yds. Each	Sq. Yds. Each	Sq. Yds. Each	Sq. Yds. Each	Sq. Yds. Each
62	65	32	112	10	66.67	66.67									
840															
2.3	2.5	6.7	4.23												
2.5	2.5	6.7	4.23												

QUANTITY	Ca/c	Checked
ROADWAY	D.L.R.	R.G.B. 6/5/70
DRAINAGE	R.D.E.	P.G. 12-4-68

Lin. Ft.	565+00	565+39	575+00	575+00	575+00	575+00	575+00	575+00	575+00	575+00	575+00	575+00	575+00	575+00	575+00
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															



G.I.I. Bends

407	407	407	407
Asphalt	Asphalt	Asphalt	Asphalt
Concrete	Concrete	Concrete	Concrete
1 1/4"	1 1/4"	1 1/4"	1 1/4"
Sq. Yds.	Sq. Yds.	Sq. Yds.	Sq. Yds.
80	80	80	80
33	33	33	33
16	16	16	16
6.6	6.6	6.6	6.6
160	160	160	160
6.6	6.6	6.6	6.6
16	16	16	16
0.56	0.56	0.56	0.56

770.22	769.82	769.40	768.95	768.48	767.98	767.45	766.90	766.32	765.71	765.08	764.42	763.74	763.03	762.29	760.79	759.29	757.79	756.29	754.79	753.29	751.79	750.29	748.79	747.29	746.56	745.86	745.21	744.59	744.01	743.46
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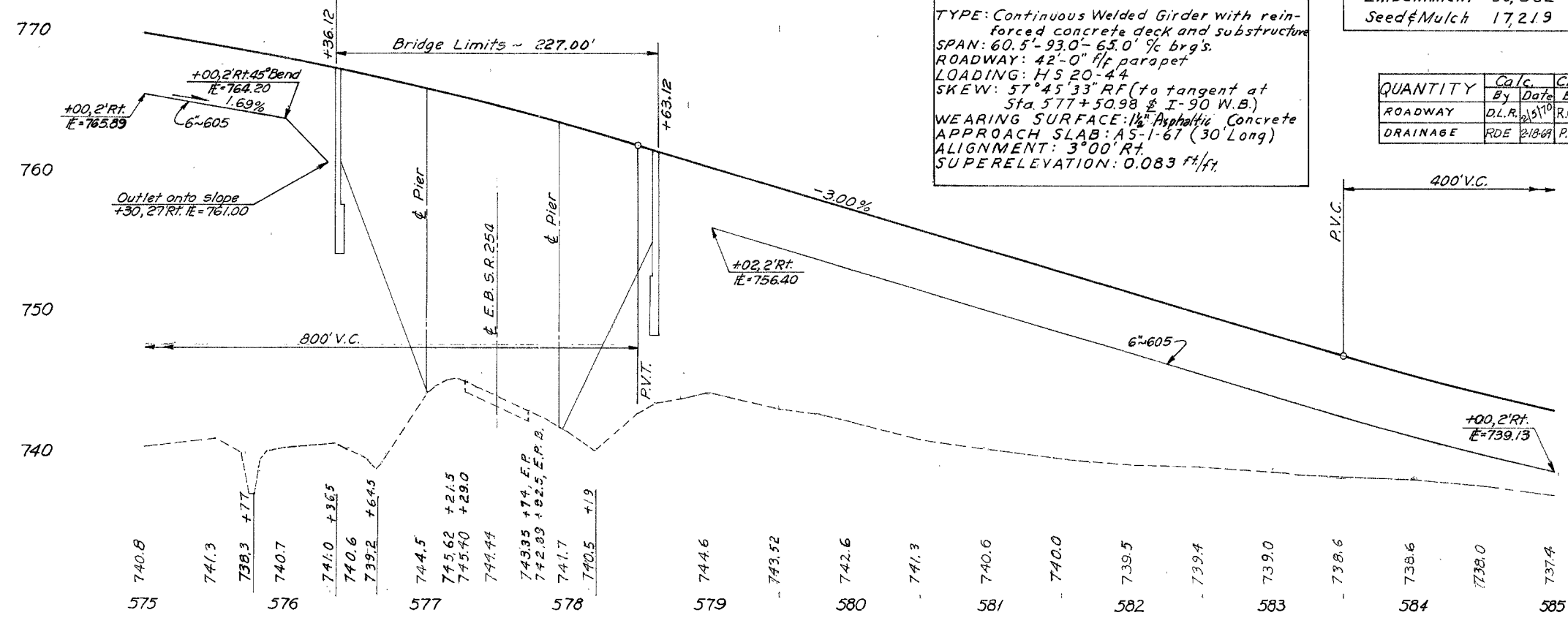
**LOR-90WB 1170**

**PROPOSED STRUCTURE**

TYPE: Continuous Welded Girder with reinforced concrete deck and substructure  
 SPAN: 60.5'-93.0'-65.0' % brg's.  
 ROADWAY: 42'-0" f/f parapet  
 LOADING: HS 20-44  
 SKEW: 57°45'33" RF (to tangent at Sta. 577+50.98 & I-90 W.B.)  
 WEARING SURFACE: 1" Asphaltic Concrete  
 APPROACH SLAB: A5-1-67 (30' Long)  
 ALIGNMENT: 3°00' RT.  
 SUPERELEVATION: 0.083 ft./ft.

Excavation 826 Cu.Yds.  
 Embankment 53,662 Cu.Yds.  
 Seed & Mulch 17,219 Sq.Yds.

QUANTITY	Calcd.		Checked	
	By	Date	By	Date
ROADWAY	D.L.R.	1/15/70	R.C.B.	6/5/70
DRAINAGE	RDE	2/18/69	P.G.	1/24/69

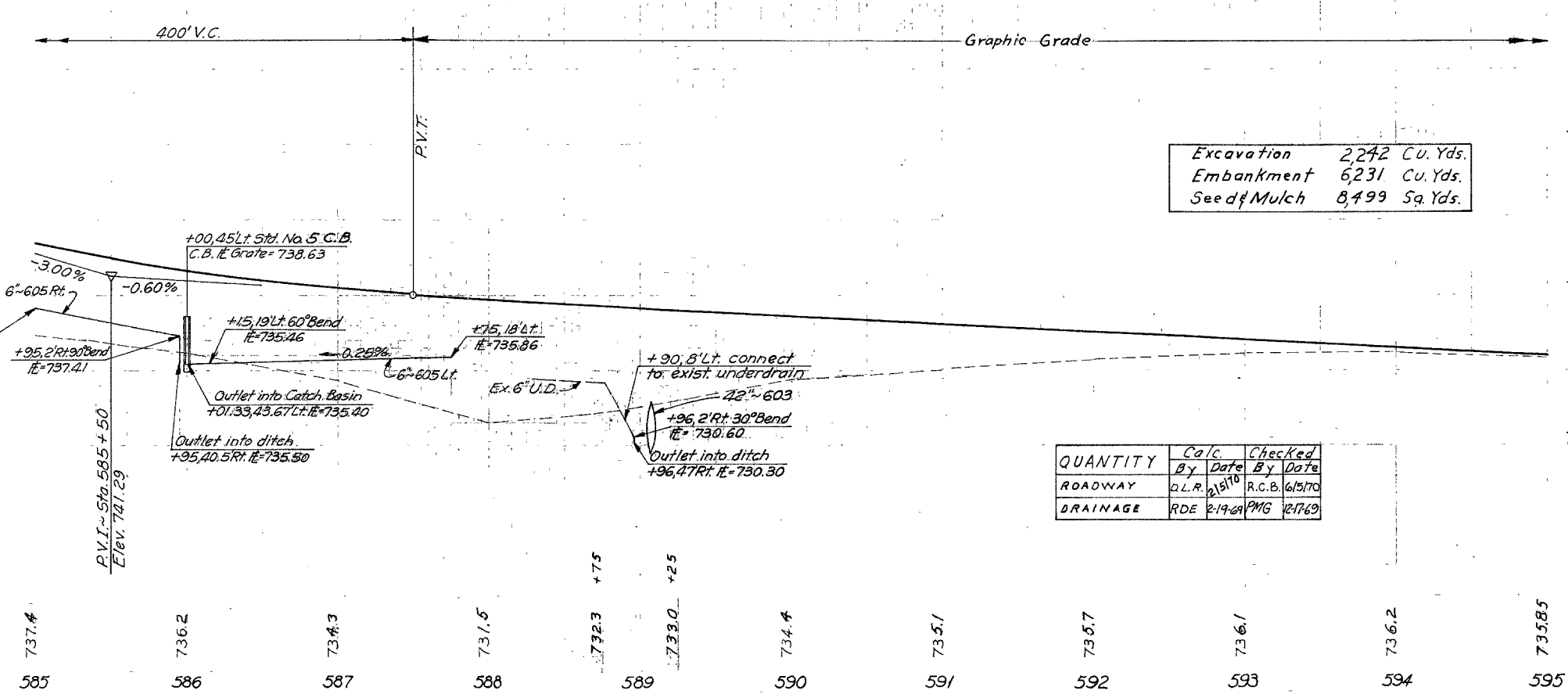
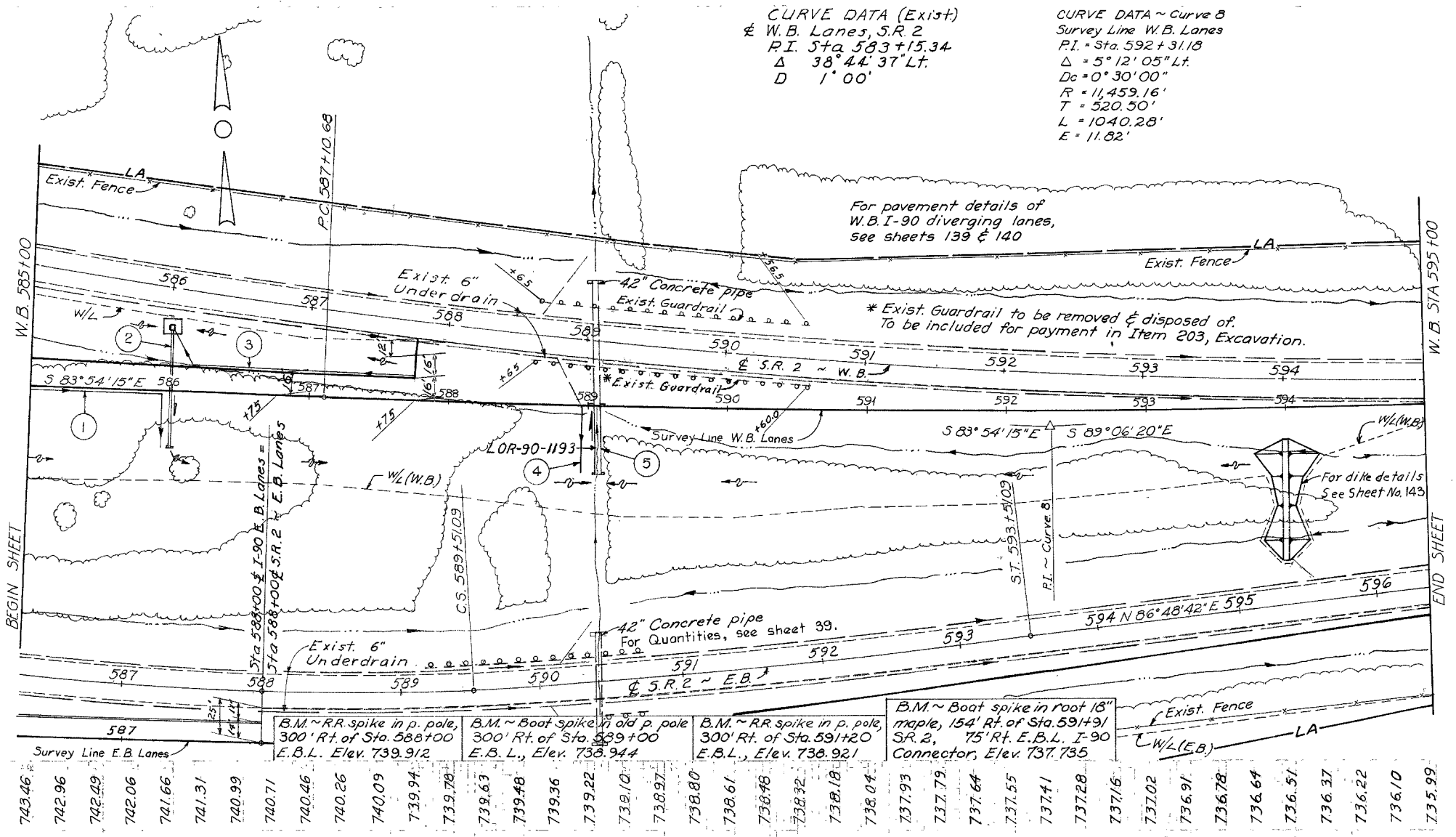


\*\* As Per Plan

Station	Item	Quantity	Unit
575+00	Excavation	826	Cu.Yds.
575+00	Embankment	53,662	Cu.Yds.
575+00	Seed & Mulch	17,219	Sq.Yds.
575+00	Guard Rail	45	Lin. Ft.
575+00	Anchor	1	Each
575+00	Special	71	Sq. Yds.
575+00	Shallow	102	Sq. Yds.
575+00	Protect.	45	Sq. Yds.
575+00	Asphy.	598	Sq. Yds.

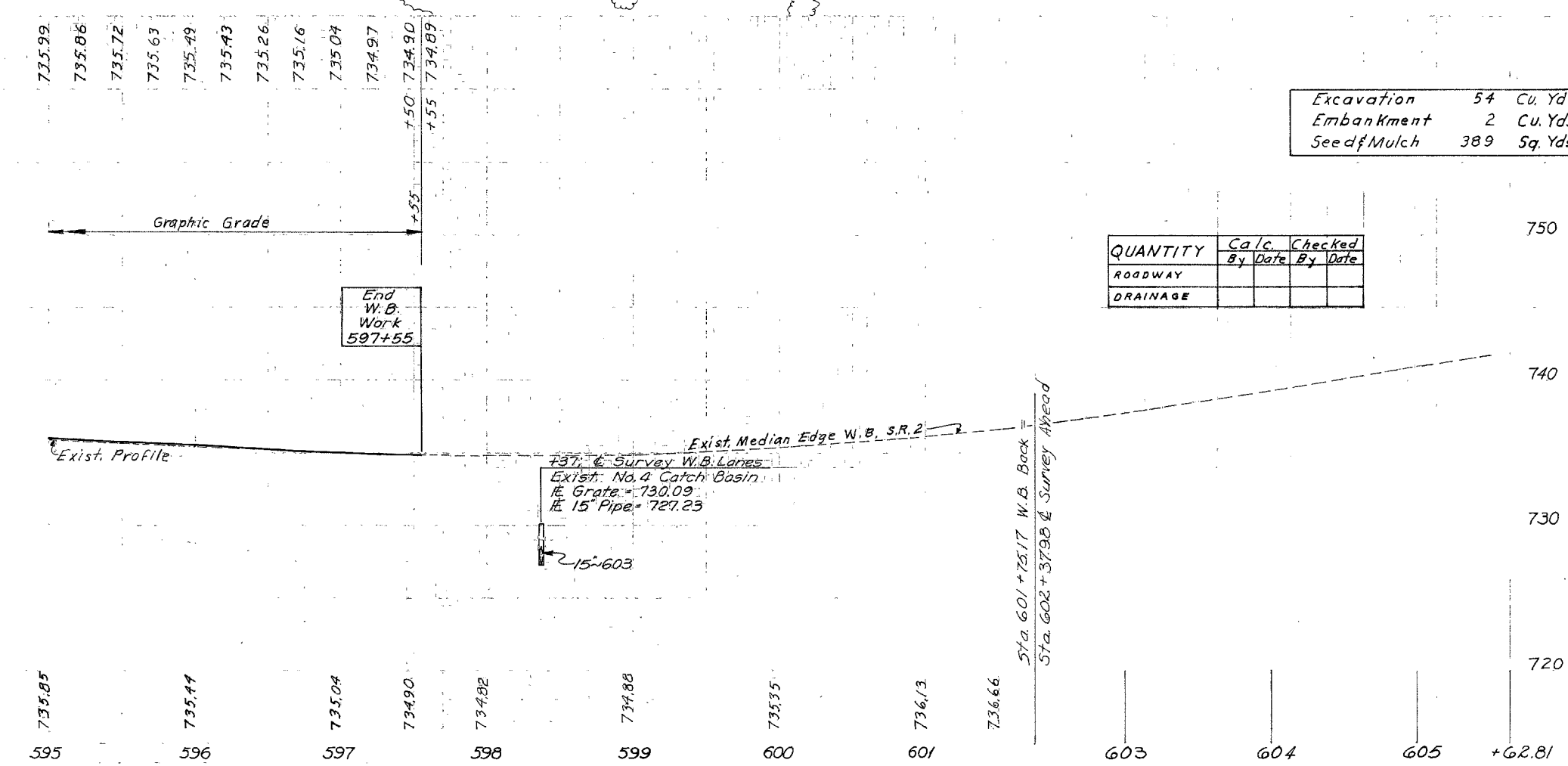
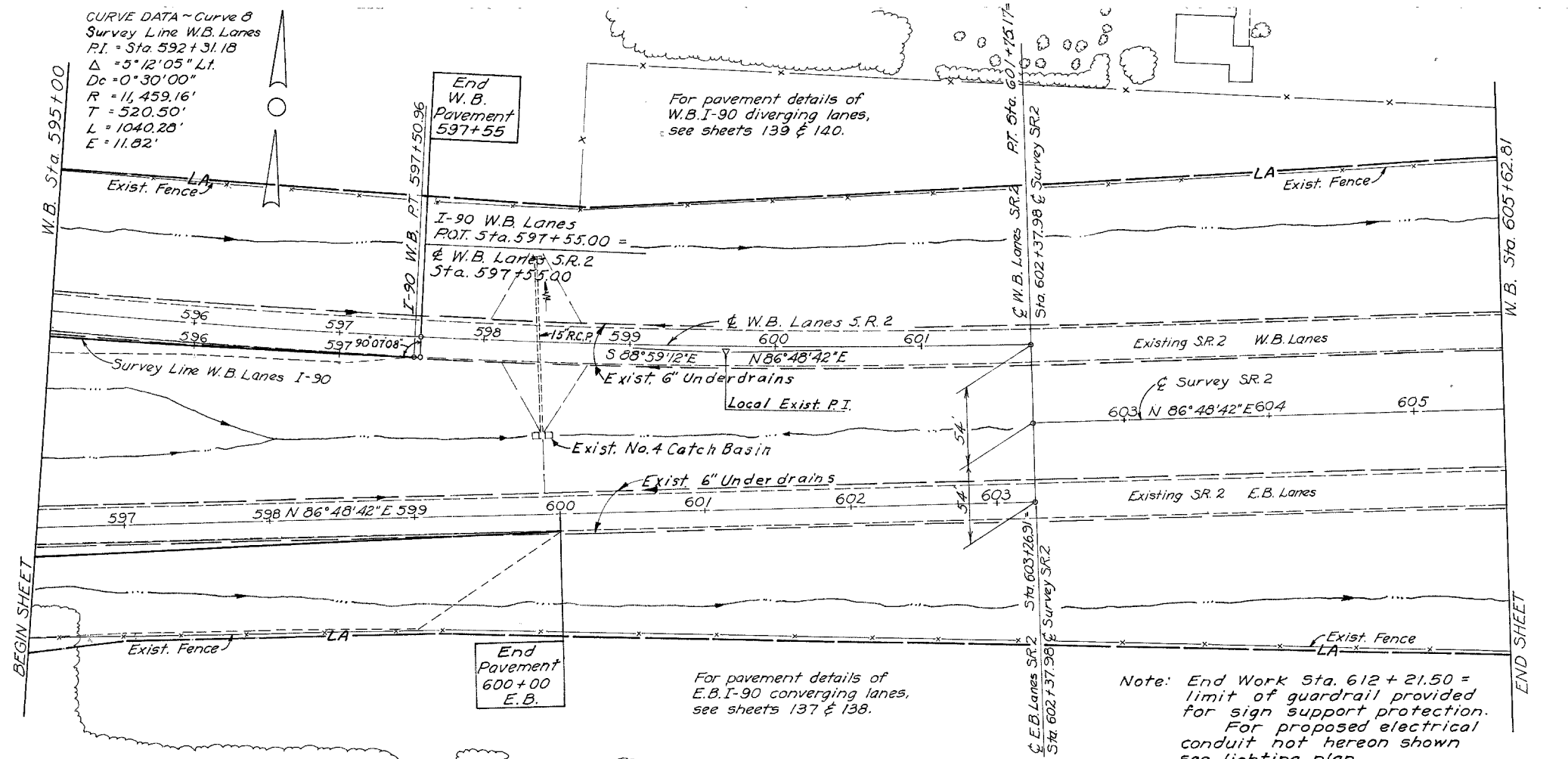
CURVE DATA (Exist)  
W.B. Lanes, S.R. 2  
P.I. Sta. 583+15.34  
Δ = 38°44'37" Lt.  
D = 1'00'

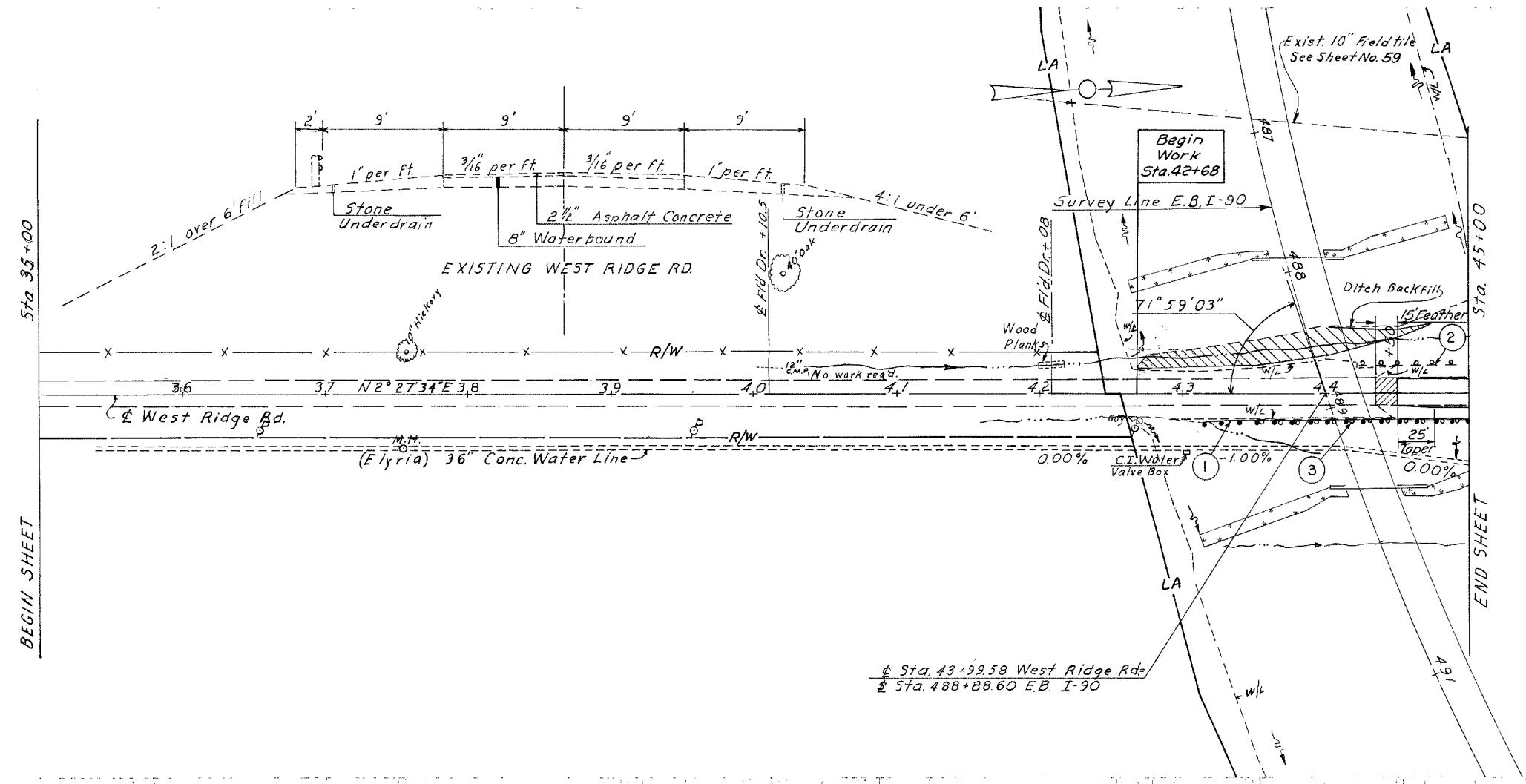
CURVE DATA ~ Curve B  
Survey Line W.B. Lanes  
P.I. = Sta. 592+31.18  
Δ = 5°12'05" Lt.  
Dc = 0°30'00"  
R = 1,459.16'  
T = 520.50'  
L = 1040.28'  
E = 11.82'



QUANTITY	Calc By	Checked By	Date
ROADWAY	D.L.R.	R.C.B.	6/9/70
DRAINAGE	RDE	PMG	12/7/69

Sta.	Concrete 6" 42" Std. Masonry, Type F	Shallow Unclassified Lin. Ft.	Each	Lin. Ft.	Each	Lin. Ft.	Each
585+00	10	10	10	10	10	10	10
586+00	0.3	0.3	0.3	0.3	0.3	0.3	0.3
587+00	10	10	10	10	10	10	10
588+00	10	10	10	10	10	10	10
589+00	10	10	10	10	10	10	10
590+00	10	10	10	10	10	10	10
591+00	10	10	10	10	10	10	10
592+00	10	10	10	10	10	10	10
593+00	10	10	10	10	10	10	10
594+00	10	10	10	10	10	10	10
595+00	10	10	10	10	10	10	10

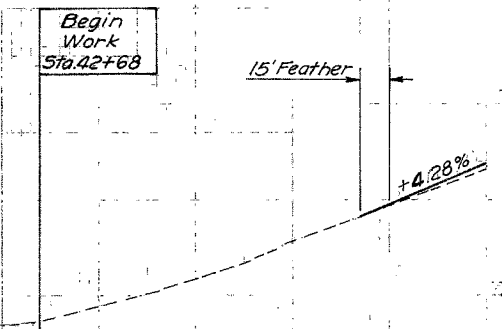




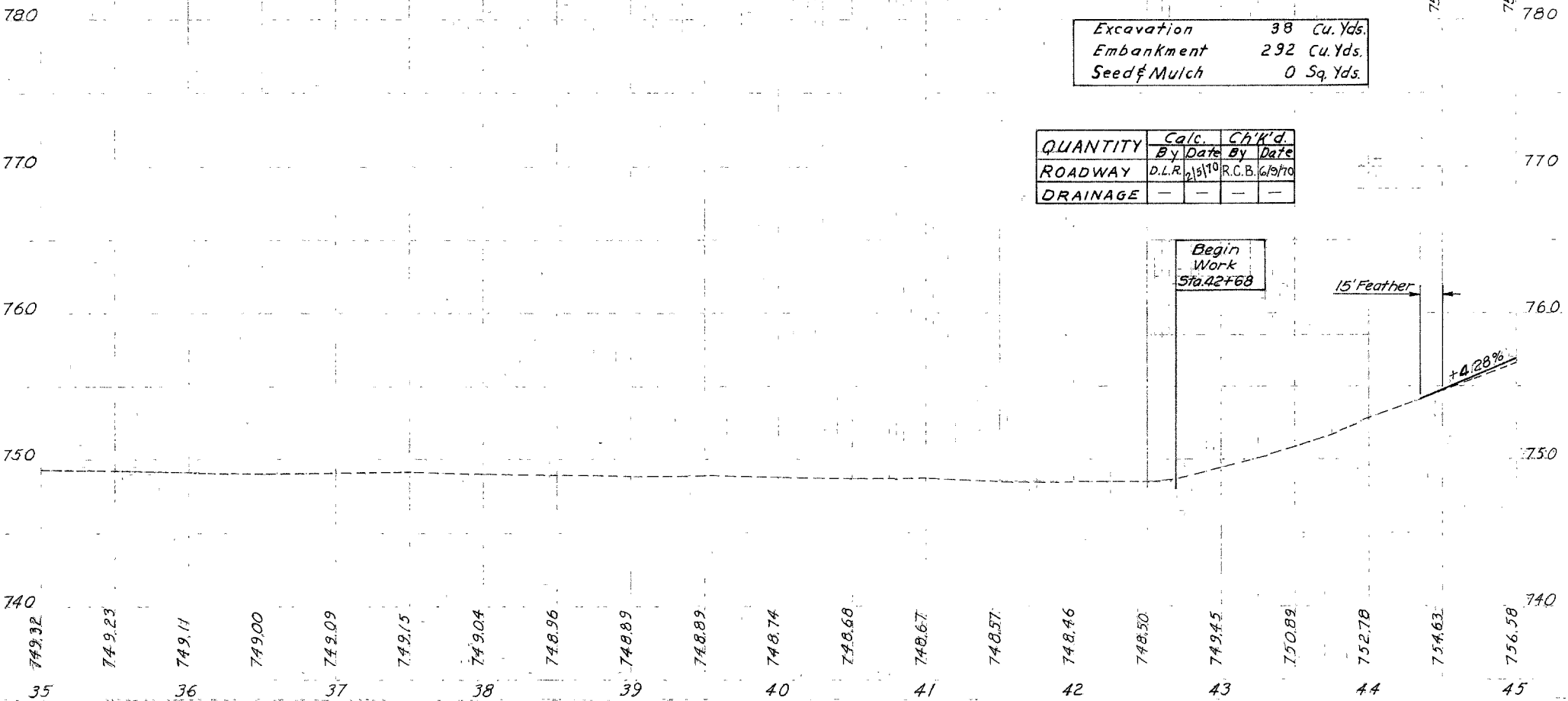
± Sta. 43+99.58 West Ridge Rd.  
± Sta. 488+88.60 E.B. I-90

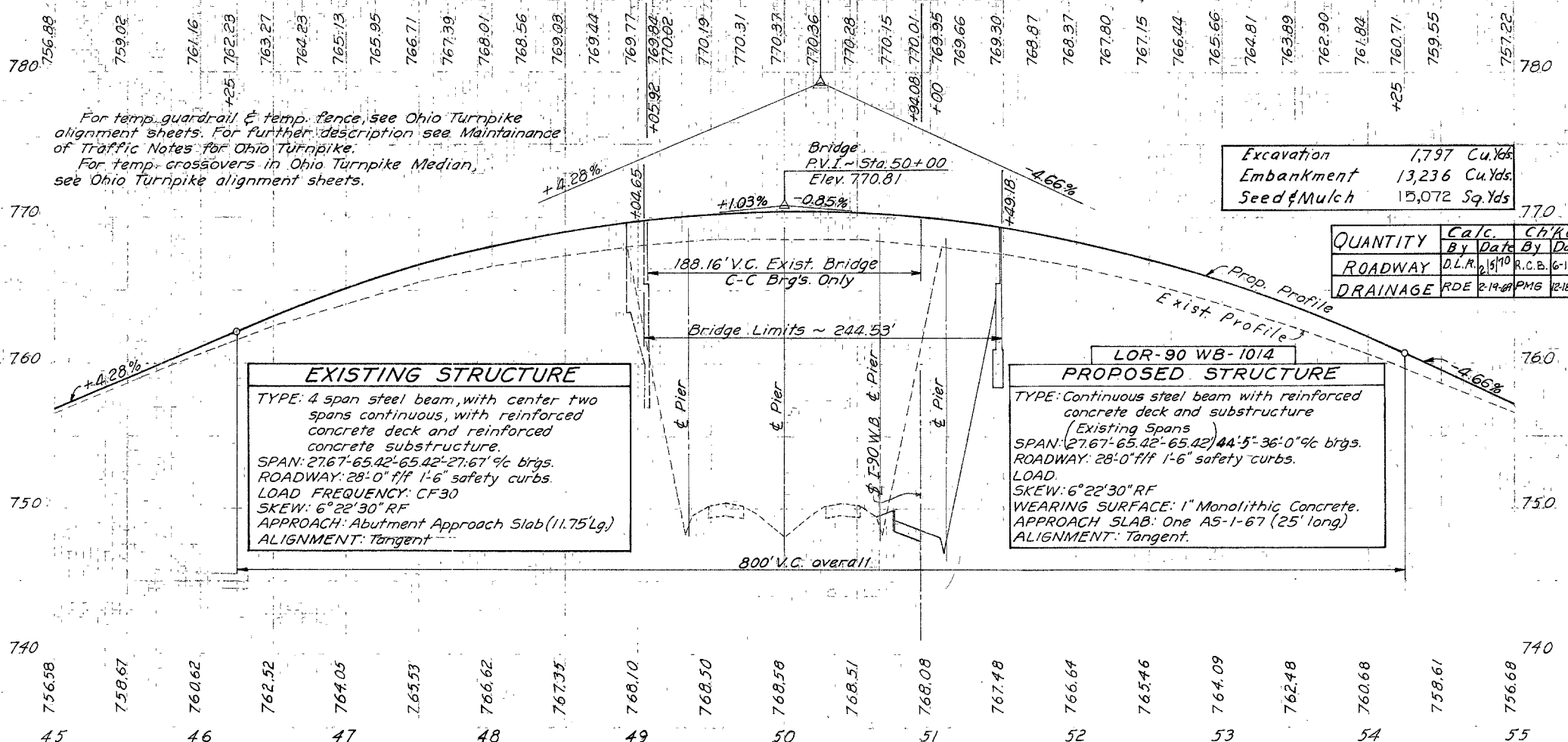
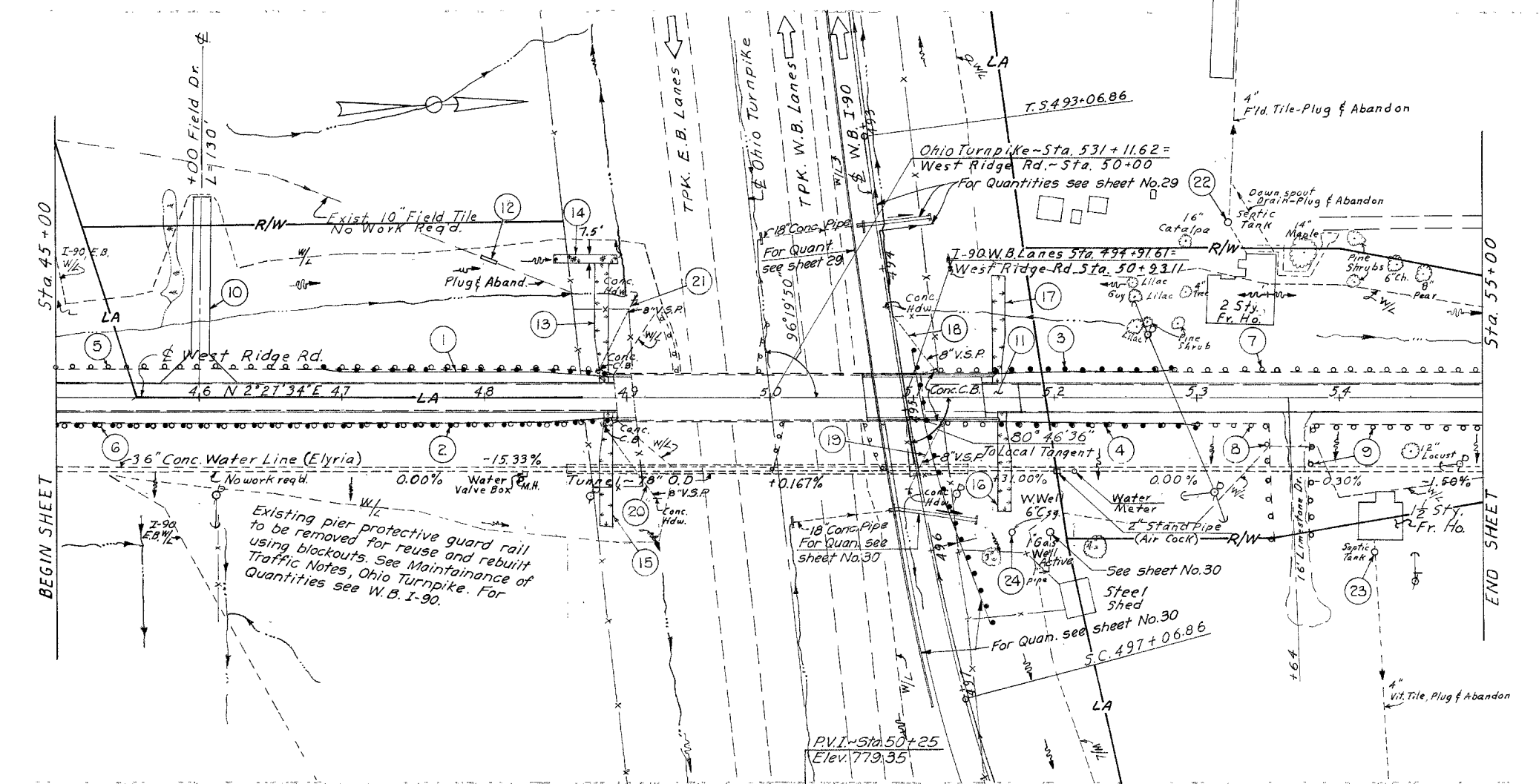
Excavation	38 Cu. Yds.
Embankment	292 Cu. Yds.
Seed & Mulch	0 Sq. Yds.

QUANTITY	Calc. By Date	Ch'kd. By Date
ROADWAY	D.L.R. 10/10/70	R.C.B. 6/19/70
DRAINAGE	-	-



606	Guard Rail	167	Rt
606	Single Rail	167	Lt
202	Guard Rail	77	Rt
202	Guard Rail	147	Lt





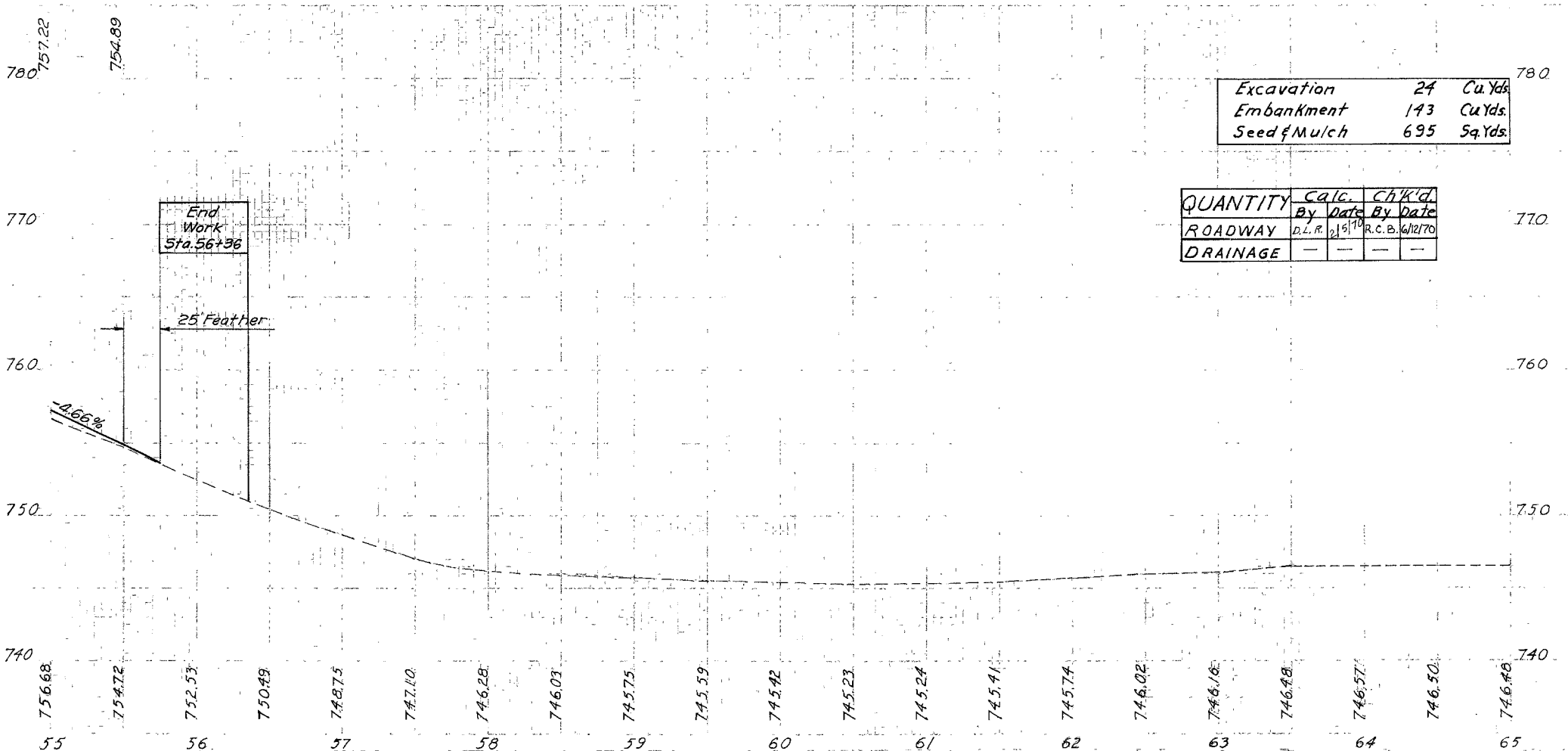
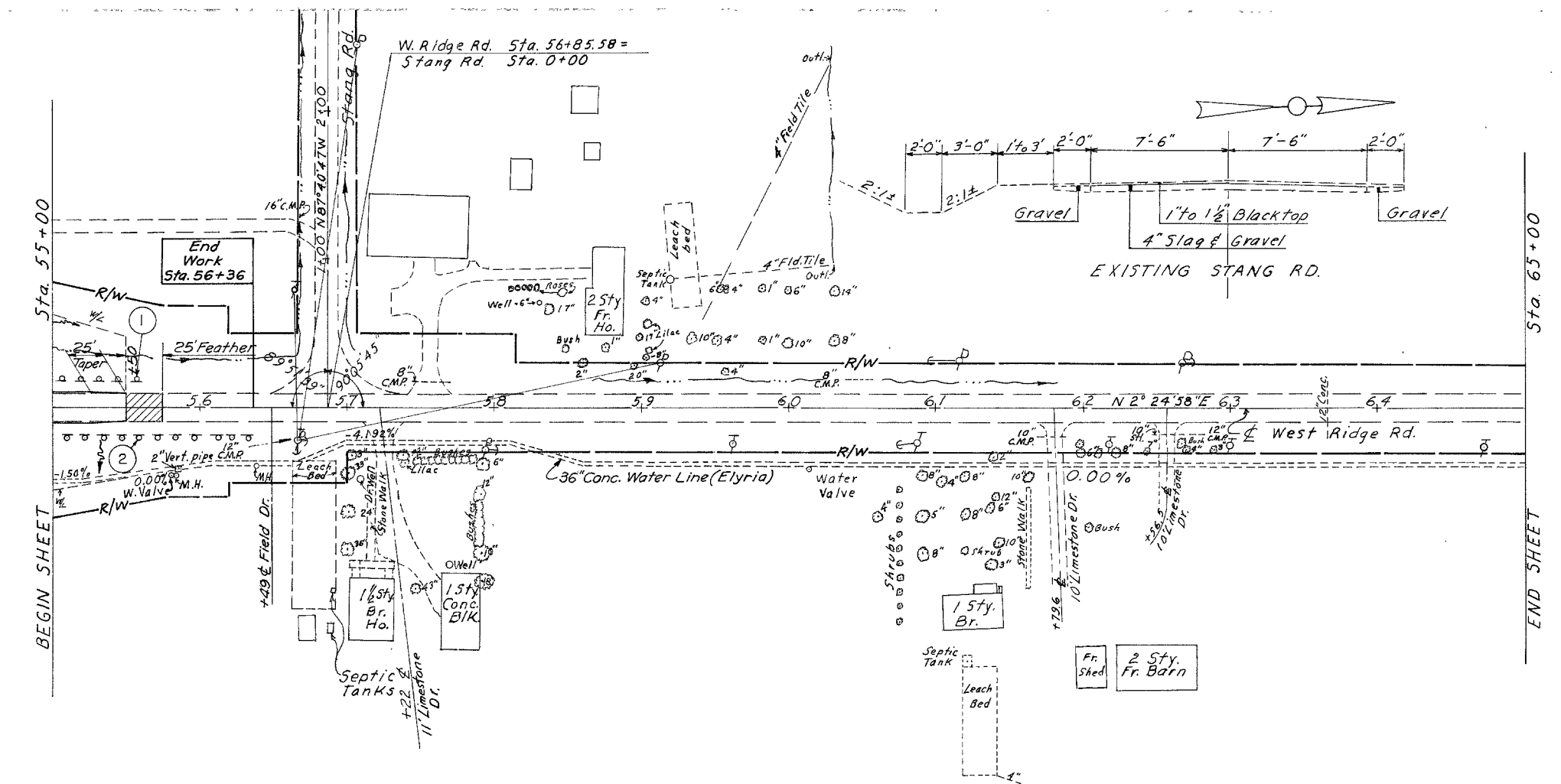
Excavation	1,797 Cu.Yds
Embankment	13,236 Cu.Yds
Seed & Mulch	15,072 Sq.Yds

QUANTITY	Calc. By	CHKD. By	Date
ROADWAY	D.L.R.	R.C.B.	6-11-70
DRAINAGE	RDE	PMS	12-18-69

**EXISTING STRUCTURE**  
 TYPE: 4 span steel beam, with center two spans continuous, with reinforced concrete deck and reinforced concrete substructure.  
 SPAN: 27.67'-65.42'-65.42'-27.67' 4/8 brigs.  
 ROADWAY: 28'-0" fl/f 1'-6" safety curbs.  
 LOAD FREQUENCY: CF30  
 SKEW: 6° 22' 30" RF  
 APPROACH: Abutment Approach Slab (11.75'Lg)  
 ALIGNMENT: Tangent

**LOR-90 WB-1014 PROPOSED STRUCTURE**  
 TYPE: Continuous steel beam with reinforced concrete deck and substructure (Existing Spans)  
 SPAN: 27.67'-65.42'-65.42'-44.5'-36.0' 4/8 brigs.  
 ROADWAY: 28'-0" fl/f 1'-6" safety curbs.  
 LOAD:  
 SKEW: 6° 22' 30" RF  
 WEARING SURFACE: 1" Monolithic Concrete.  
 APPROACH SLAB: One AS-1-67 (25' long)  
 ALIGNMENT: Tangent.

Sta	As. Per Plan	606	606	606	606	606	606	603	603	603	603	603	603	603	603	603	603	603	
		Guard	Anchor	Bridge	Term.	Assy.	Each	Lin.	Fl.	Each	Lin.	Fl.	Each	Lin.	Fl.	Each	Lin.	Fl.	
45																			
46																			
47																			
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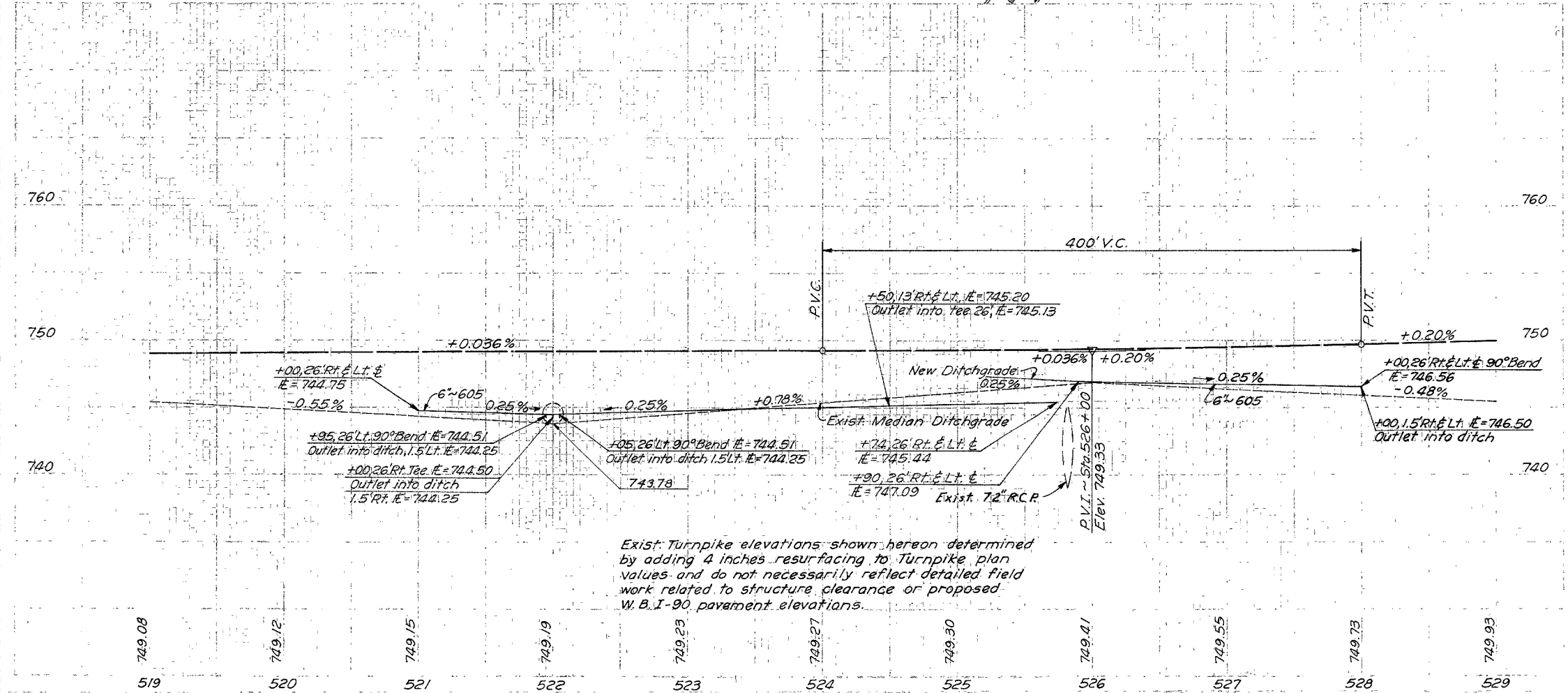
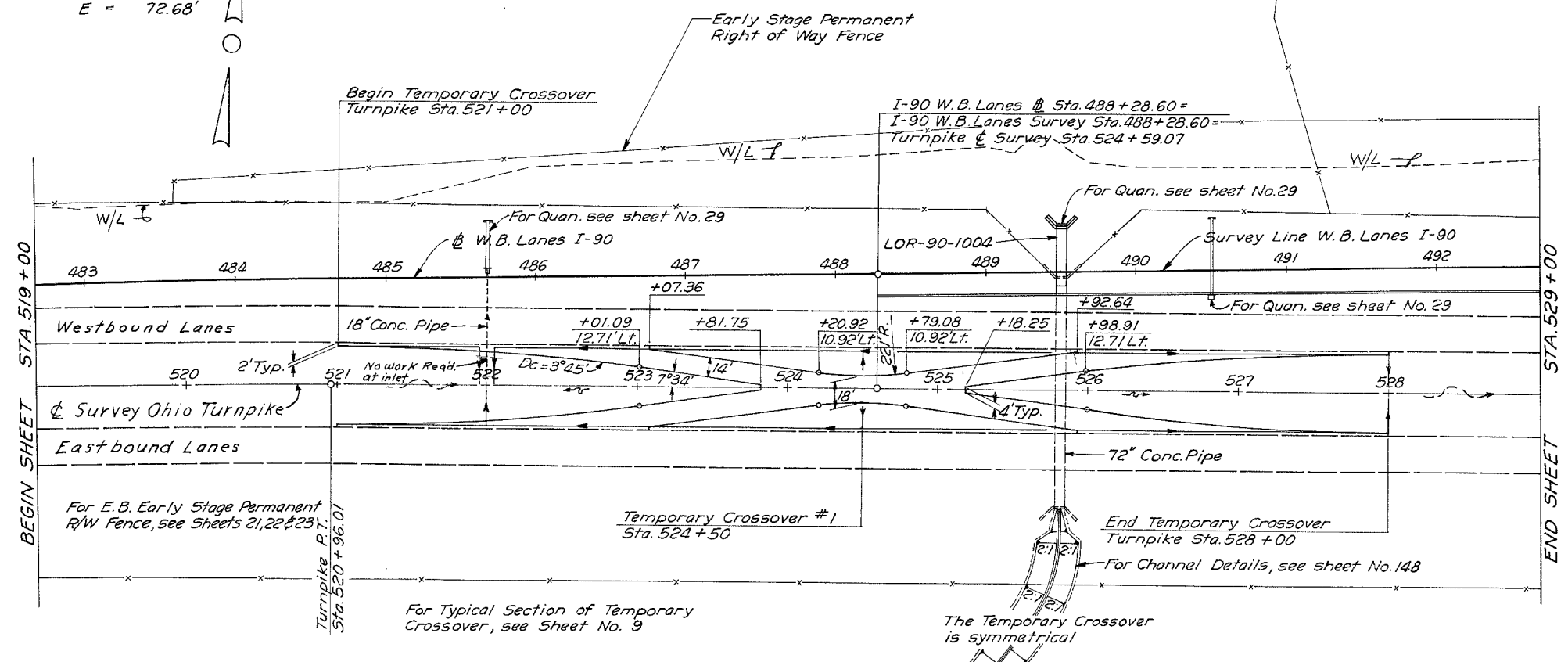
Excavation	24	Cu.Yds.
Embankment	143	Cu.Yds.
Seed & Mulch	695	Sq.Yds.

QUANTITY	Calc.	CHK'D.
	By Date	By Date
ROADWAY	D.L.R. 2/15/70	R.C.B. 6/12/70
DRAINAGE	—	—

202	G drain	
	Rem. for	
	Storage	
	Lin. Ft.	61
	Lt.	Rt.
	55+61	56+36
	55+00	56+36

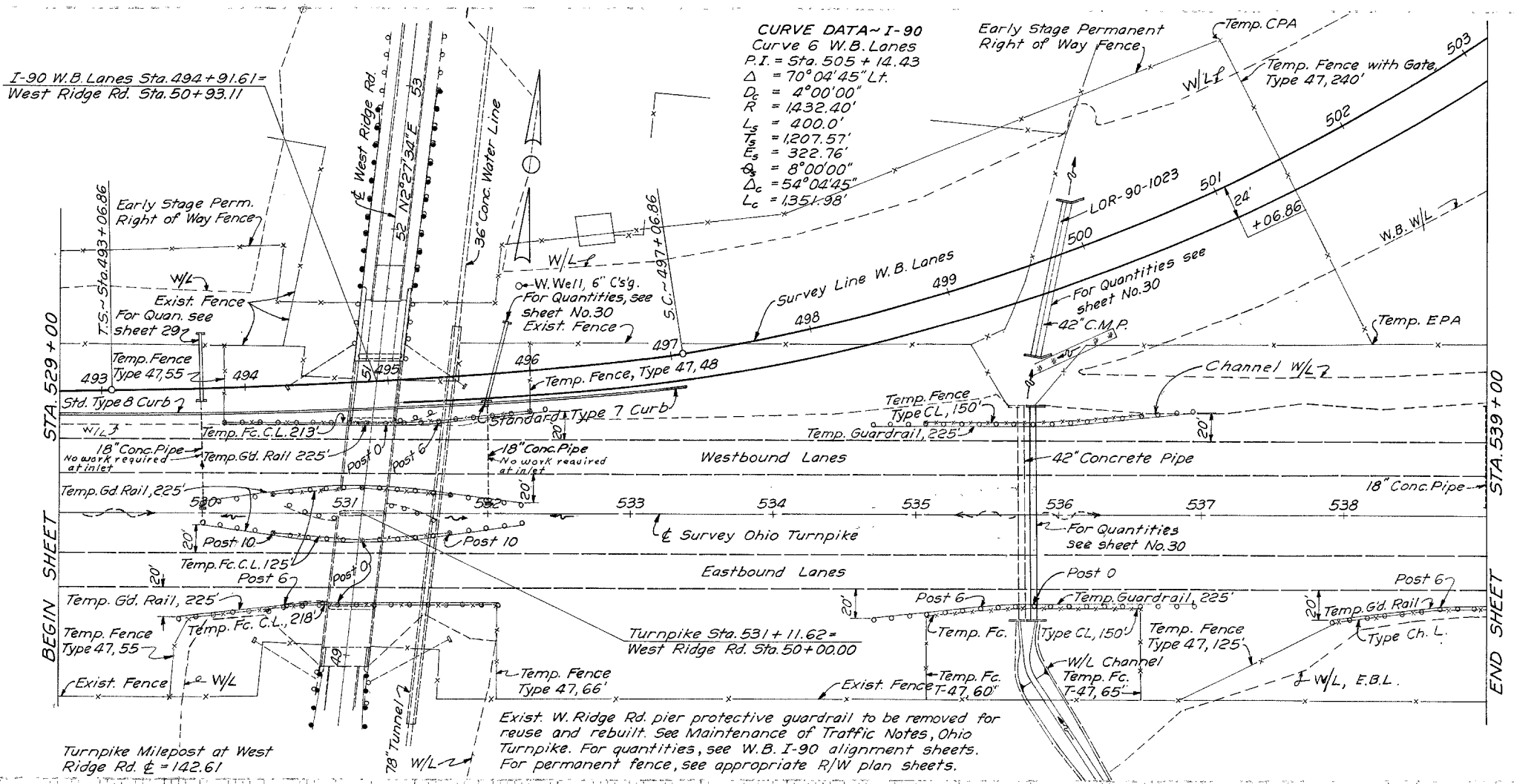


**CURVE DATA**  
 Exist. Ohio Turnpike  
 P.I. ~ Sta. 510 + 53.02  
 $\Delta = 15^\circ 44' 41''$  Rt.  
 $D_c = 0^\circ 45' 00''$   
 $R = 7639.44'$   
 $T = 1056.31'$   
 $L = 2099.30'$   
 $E = 72.68'$



I-90 W.B. Lanes Sta. 494+91.61 =  
West Ridge Rd. Sta. 50+93.11

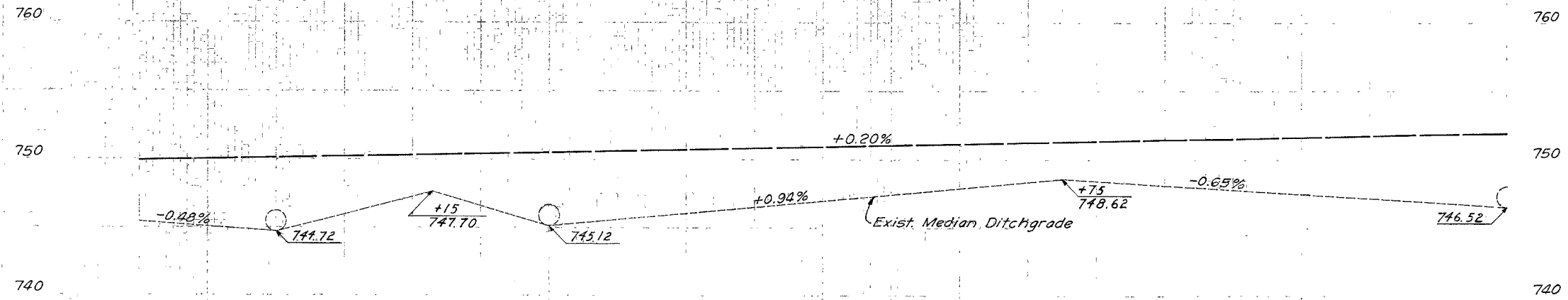
CURVE DATA ~ I-90  
Curve 6 W.B. Lanes  
P.I. = Sta. 505 + 14.43  
 $\Delta = 70^{\circ}04'45''$  Lt.  
 $D_p = 4^{\circ}00'00''$   
 $R_p = 1432.40'$   
 $L_s = 400.0'$   
 $L_t = 1207.57'$   
 $L_c = 322.76'$   
 $D_c = 8^{\circ}00'00''$   
 $D_e = 54^{\circ}04'45''$   
 $L_c = 1351.98'$



Turnpike Milepost at West Ridge Rd.  $E = 142.61$

Temporary Guardrail, Type 4, Post No's 0, 6 & 10 refer to table of offsets on Standard Drawing GR-5, 1-15-68. For further description of Temporary Guardrail and Temporary Fence, see Maintenance of Traffic Notes, Ohio Turnpike.

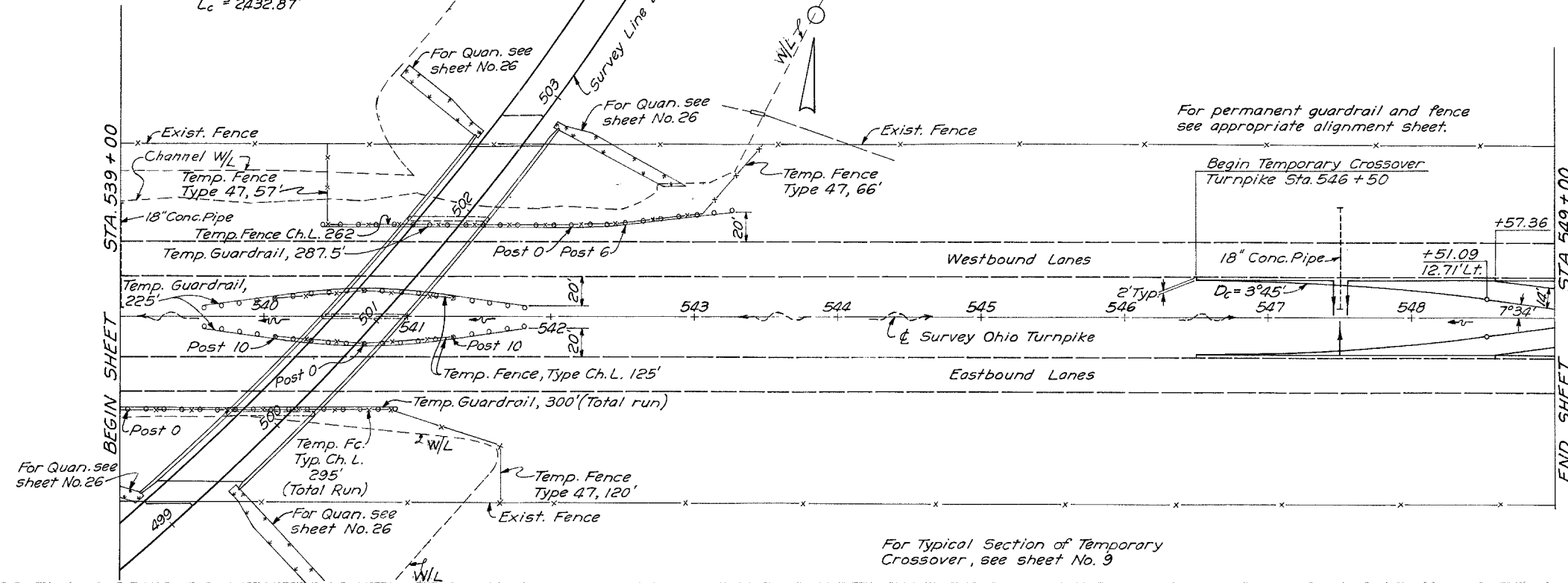
Exist. W. Ridge Rd. pier protective guardrail to be removed for reuse and rebuilt. See Maintenance of Traffic Notes, Ohio Turnpike. For quantities, see W.B. I-90 alignment sheets. For permanent fence, see appropriate R/W plan sheets.



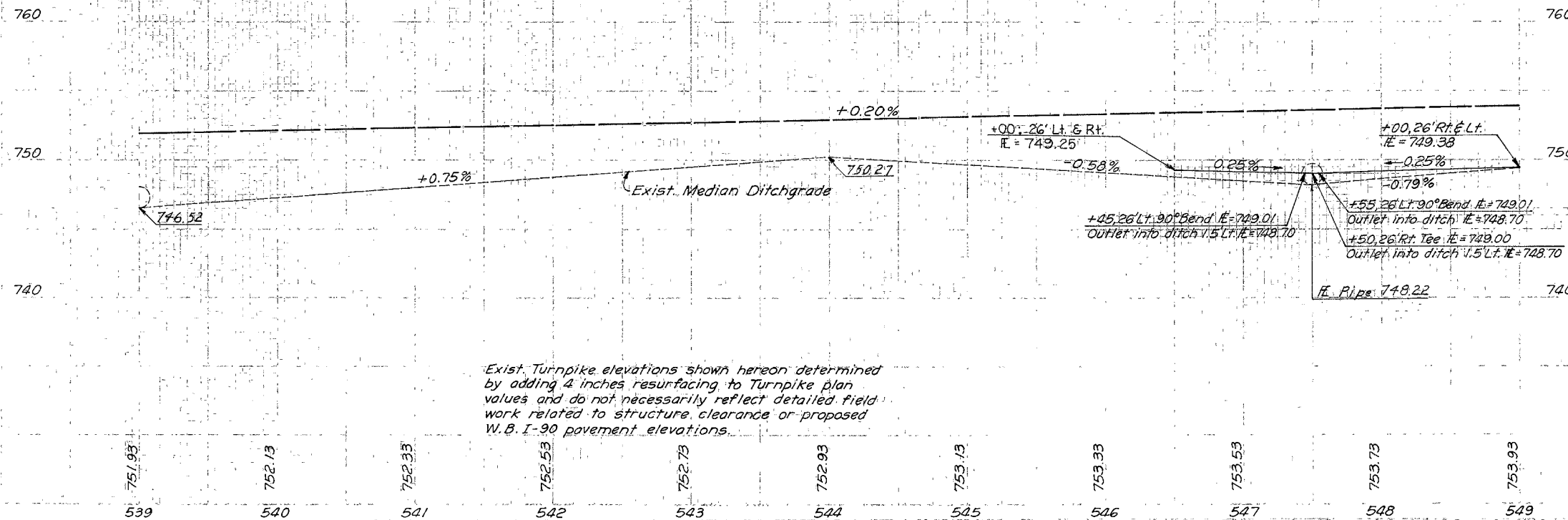
Exist. Turnpike elevations shown hereon determined by adding 4 inches resurfacing to Turnpike plan values and do not necessarily reflect detailed field work related to structure clearance or proposed W.B. I-90 pavement elevations.

749.93	750.13	750.33	750.53	750.73	750.93	751.13	751.33	751.53	751.73	751.93
529	530	531	532	533	534	535	536	537	538	539

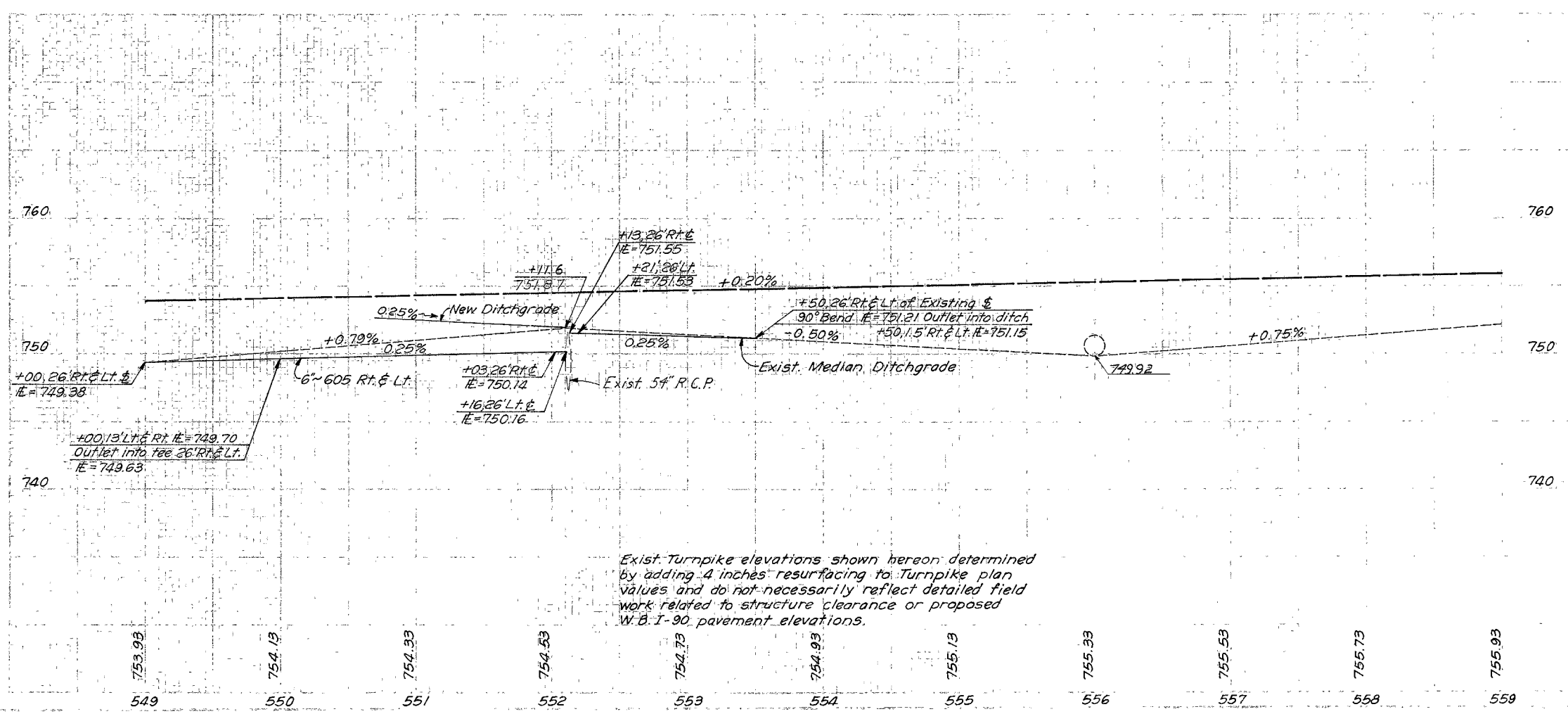
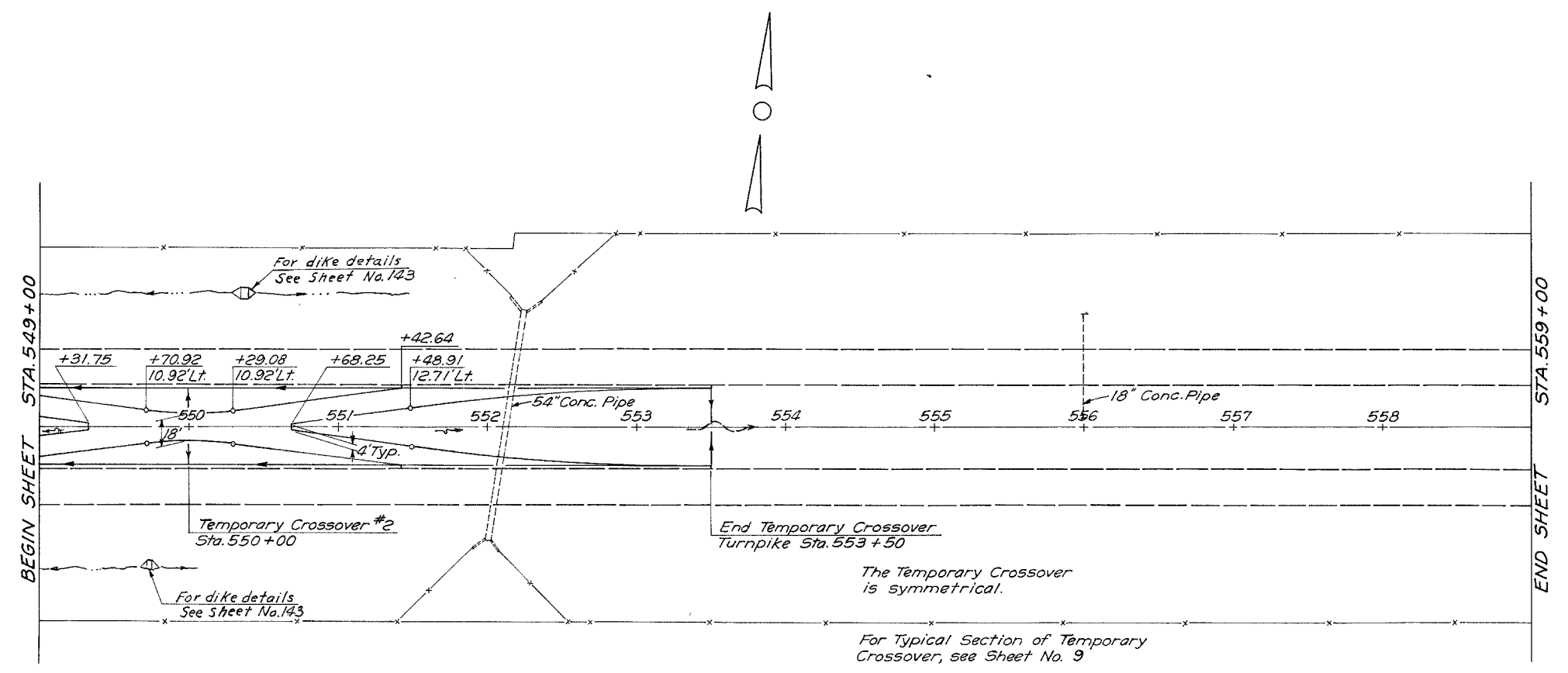
CURVE DATA ~ I-90  
Curve 3 E.B. Lanes  
P.I. ~ Sta. 497 + 97.83  
 $\Delta = 83^{\circ}29'10''$  Lt.  
 $D_c = 3^{\circ}00'00''$   
 $R = 1909.86'$   
 $L_s = 350.0'$   
 $T_s = 1881.53'$   
 $E_s = 653.38'$   
 $\theta_s = 5.25'$   
 $\Delta_c = 72^{\circ}59'10''$   
 $L_c = 2432.87'$



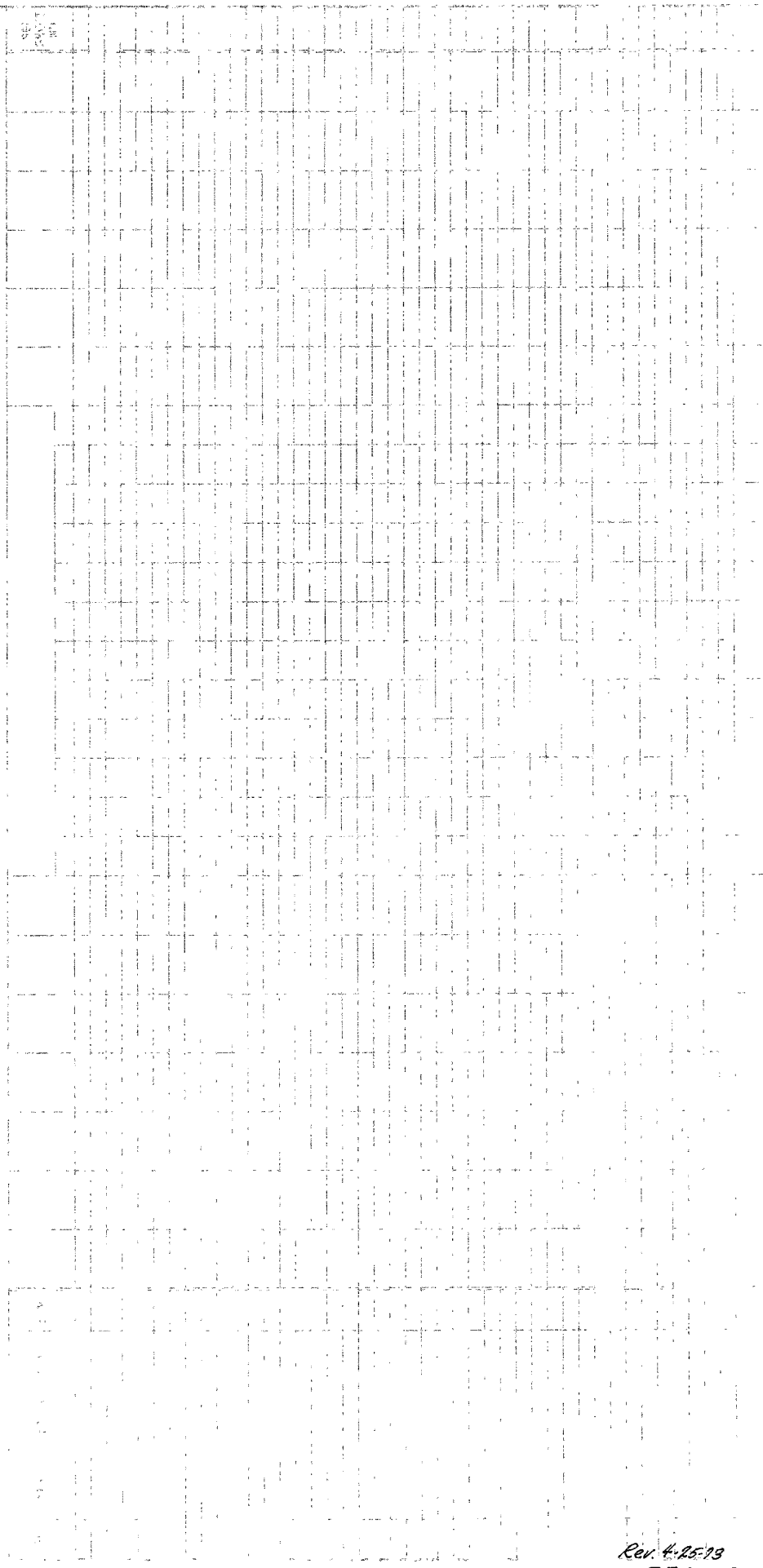
Temporary Guardrail, Type 4, Post Nos. 0, 6 & 10 refer to table of offsets on Standard Drawing GR-5. For further description of Temporary Guardrail and Temporary Fence, see Maintenance of Traffic Notes, Ohio Turnpike.



Exist. Turnpike elevations shown hereon determined by adding 4 inches resurfacing to Turnpike plan values and do not necessarily reflect detailed field work related to structure clearance or proposed W.B. I-90 pavement elevations.



Exist. Turnpike elevations shown hereon determined by adding 4 inches resurfacing to Turnpike plan values and do not necessarily reflect detailed field work related to structure clearance or proposed W.B.I-90 pavement elevations.





# SUPERELEVATION TABLES

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

53  
283

LORAIN COUNTY  
LOR - 90 - 9.48

WESTBOUND  
CENTERLINE PI STA 542+31.82 Dc=2°00' RT  
CURVE NO. 4 S = 0.064 FT/FT

STATION	LT EDGE	CENTER-LINE	PROFILE & RT EDGE
525+50	752.52	752.33	752.14
+75	752.47	752.27	752.08
526+00	752.47	752.25	752.02
+25	752.47	752.22	751.96
+50	752.48	752.19	751.90
+75	752.48	752.16	751.84
527+00	752.48	752.13	751.78
+25	752.49	752.10	751.72
+50	752.55	752.11	751.66
+75	752.62	752.11	751.60
528+00	752.68	752.11	751.54
+25	752.75	752.11	751.48
+50	752.81	752.12	751.42
+75	752.86	752.12	751.36
529+00	752.84	752.07	751.30
+25	752.78	752.01	751.24
+50	752.72	751.95	751.18
+75	752.66	751.89	751.12
530+00	752.60	751.83	751.06
+25	752.54	751.77	751.00
+50	752.48	751.71	750.94
+75	752.42	751.65	750.88
531+00	752.36	751.59	750.82
+25	752.30	751.53	750.76
+50	752.24	751.47	750.70
+75	752.18	751.41	750.64
532+00	752.12	751.35	750.58
+25	752.06	751.29	750.52
+50	752.00	751.23	750.46
+75	751.94	751.17	750.40
533+00	751.88	751.11	750.34
+25	751.82	751.05	750.28
+50	751.76	750.99	750.22
+75	751.70	750.93	750.16
534+00	751.64	750.87	750.10
+25	751.58	750.81	750.04
+50	751.52	750.75	749.98
+75	751.46	750.69	749.92
535+00	751.40	750.63	749.86
+25	751.34	750.57	749.80
+50	751.28	750.51	749.74
+75	751.22	750.45	749.68
536+00	751.16	750.39	749.62
+25	751.10	750.33	749.56
+50	751.04	750.27	749.50
+75	750.98	750.21	749.44
537+00	750.92	750.15	749.38
+25	750.86	750.09	749.32
+50	750.80	750.03	749.26
+75	750.74	749.97	749.20
538+00	750.68	749.91	749.14
+25	750.62	749.85	749.08
+50	750.56	749.79	749.02
+75	750.50	749.73	748.96
539+00	750.44	749.67	748.90
+25	750.38	749.61	748.84
+50	750.32	749.55	748.78
+75	750.26	749.49	748.72
540+00	750.20	749.43	748.66
+25	750.14	749.37	748.60
+50	750.08	749.31	748.54
+75	750.02	749.25	748.48
541+00	749.96	749.19	748.42
+25	749.90	749.13	748.36
+50	749.84	749.07	748.30
+75	749.78	749.01	748.24

542+00	749.72	748.95	748.18
+25	749.66	748.87	748.12
+50	749.60	748.83	748.06
+75	749.54	748.77	748.00
543+00	749.48	748.71	747.94
+25	749.42	748.65	747.88
+50	749.36	748.59	747.82
+75	749.30	748.53	747.76
544+00	749.24	748.47	747.70
+25	749.18	748.41	747.64
+50	749.12	748.35	747.58
+75	749.06	748.29	747.52
545+00	749.00	748.23	747.46
+25	748.94	748.17	747.40
+50	748.88	748.11	747.34
+75	748.82	748.05	747.28
546+00	748.76	747.99	747.22
+25	748.70	747.93	747.16
+50	748.64	747.87	747.10
+75	748.58	747.81	747.04
547+00	748.52	747.75	746.98
+25	748.46	747.69	746.92
+50	748.40	747.63	746.86
+75	748.34	747.57	746.80
548+00	748.28	747.51	746.74
+25	748.22	747.45	746.68
+50	748.16	747.39	746.62
+75	748.10	747.33	746.56
549+00	748.04	747.27	746.50
+25	747.98	747.21	746.44
+50	747.92	747.15	746.38
+75	747.86	747.09	746.32
550+00	747.80	747.03	746.26
+25	747.74	746.97	746.20
+50	747.68	746.91	746.14
+75	747.62	746.85	746.08
551+00	747.56	746.79	746.02
+25	747.50	746.73	745.96
+50	747.44	746.67	745.90
+75	747.38	746.61	745.84
552+00	747.32	746.55	745.78
+25	747.26	746.49	745.72
+50	747.20	746.43	745.66
+75	747.14	746.37	745.60
553+00	747.08	746.31	745.54
+25	747.02	746.25	745.48
+50	746.96	746.19	745.42
+75	746.90	746.13	745.36
554+00	746.84	746.07	745.30
+25	746.78	746.01	745.24
+50	746.72	745.95	745.18
+75	746.66	745.89	745.12
555+00	746.60	745.83	745.06
+25	746.54	745.77	745.00
+50	746.48	745.71	744.94
+75	746.42	745.65	744.88
556+00	746.36	745.59	744.82
+25	746.30	745.53	744.76
+50	746.24	745.47	744.70
+75	746.18	745.41	744.64
557+00	746.12	745.35	744.58
+25	746.06	745.29	744.52
+50	746.00	745.23	744.46
+75	745.94	745.17	744.40
558+00	745.88	745.11	744.34
+25	745.82	745.05	744.28
+50	745.76	744.99	744.22
+75	745.70	744.93	744.16
559+00	745.64	744.87	744.10
+25	745.58	744.81	744.04
+50	745.52	744.75	743.98
+75	745.46	744.69	743.92
560+00	745.40	744.63	743.86
+25	745.34	744.57	743.80
+50	745.28	744.51	743.74
+75	745.22	744.45	743.68
561+00	745.16	744.39	743.62
+25	745.10	744.33	743.56
+50	745.04	744.27	743.50
+75	744.98	744.21	743.44
562+00	744.92	744.15	743.38
+25	744.86	744.09	743.32
+50	744.80	744.03	743.26
+75	744.74	743.97	743.20
563+00	744.68	743.91	743.14
+25	744.62	743.85	743.08
+50	744.56	743.79	743.02
+75	744.50	743.73	742.96
564+00	744.44	743.67	742.90
+25	744.38	743.61	742.84
+50	744.32	743.55	742.78
+75	744.26	743.49	742.72
565+00	744.20	743.43	742.66
+25	744.14	743.37	742.60
+50	744.08	743.31	742.54
+75	744.02	743.25	742.48
566+00	743.96	743.19	742.42
+25	743.90	743.13	742.36
+50	743.84	743.07	742.30
+75	743.78	743.01	742.24

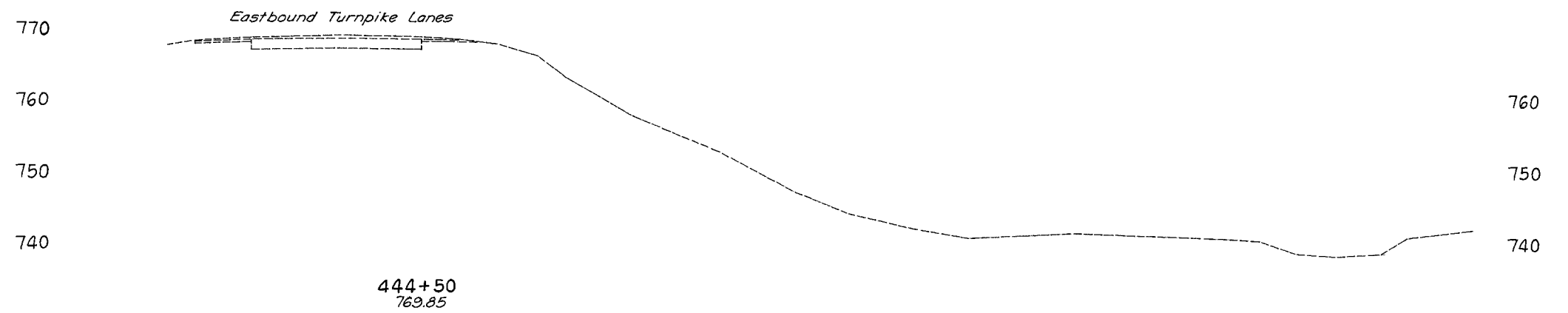
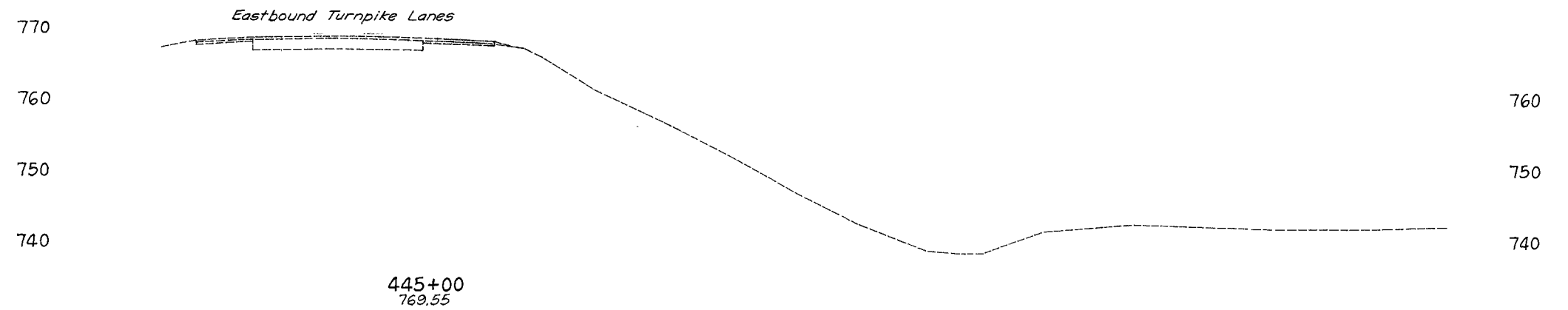
WESTBOUND  
W.B. PI STA 576+31.04 Dc=3°00' RT  
CURVE NO. 7 S = 0.083 FT/FT

STATION	LT EDGE	CENTER-LINE	PROFILE & RT EDGE
570+00	773.00	772.81	772.62
+25	773.19	772.97	772.75
+50	773.36	773.11	772.85
+75	773.57	773.25	772.93
571+00	773.74	773.36	772.98
+25	773.89	773.44	773.00
+50	774.01	773.51	773.00
+75	774.11	773.54	772.97
572+00	774.18	773.55	772.92
+25	774.23	773.53	772.84
+50	774.24	773.49	772.73
+75	774.24	773.42	772.60
573+00	774.20	773.32	772.44
+25	774.14	773.19	772.25
+50	774.03	773.03	772.04
+75	773.79	772.79	771.80
574+00	773.53	772.53	771.54
+25	773.24	772.24	771.25
+50	772.92	771.92	770.93
+75	772.58	771.58	770.59
575+00	772.21	771.21	770.22
+25	771.81	770.81	769.82
+50	771.39	770.39	769.40
+75	770.94	769.94	768.95
576+00	770.47	769.47	768.48
+25	769.97	768.97	767.98
+50	769.44	768.44	767.45
+75	768.89	767.89	766.90
577+00	768.31	767.31	766.32
+25	767.70	766.70	765.71
+50	767.07	766.07	765.08
+75	766.41	765.41	764.42
578+00	765.73	764.73	763.74
+25	765.02	764.02	763.03
+50	764.28	763.28	762.29
+75	763.53	762.53	761.54
579+00	762.78	761.78	760.79
+25	761.91	760.98	760.04
+50	761.04	760.16	759.29
+75	760.16	759.35	758.54
580+00	759.29	758.53	757.79
+25	758.41	757.73	757.04
+50	757.54	756.91	756.29
580+75	756.66	756.10	755.54
581+00	755.79	755.29	754.79
+25	754.91	754.48	754.04
+50	754.04	753.66	753.29
+75	753.16	752.85	752.54
582+00	752.29	752.04	751.79
+25	751.47	751.26	751.04
+50	750.67	750.48	750.29

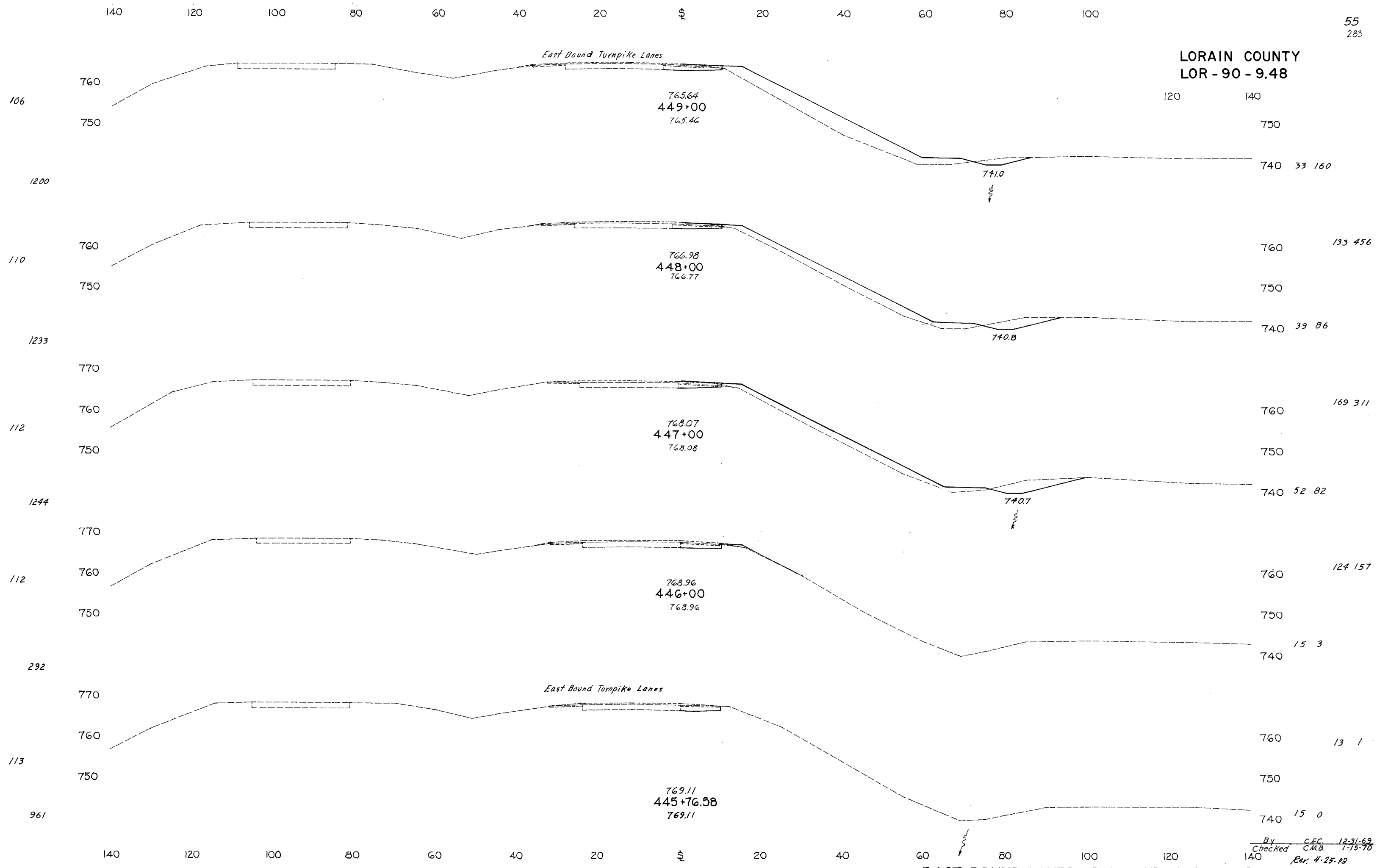
FOR ELEVATIONS AHEAD OF STA 582+50  
SEE WESTBOUND DIVERGING LANES DETAIL.

LORAIN COUNTY  
LOR - 90 - 9.48

140 150



LORAIN COUNTY  
LOR - 90 - 9.48

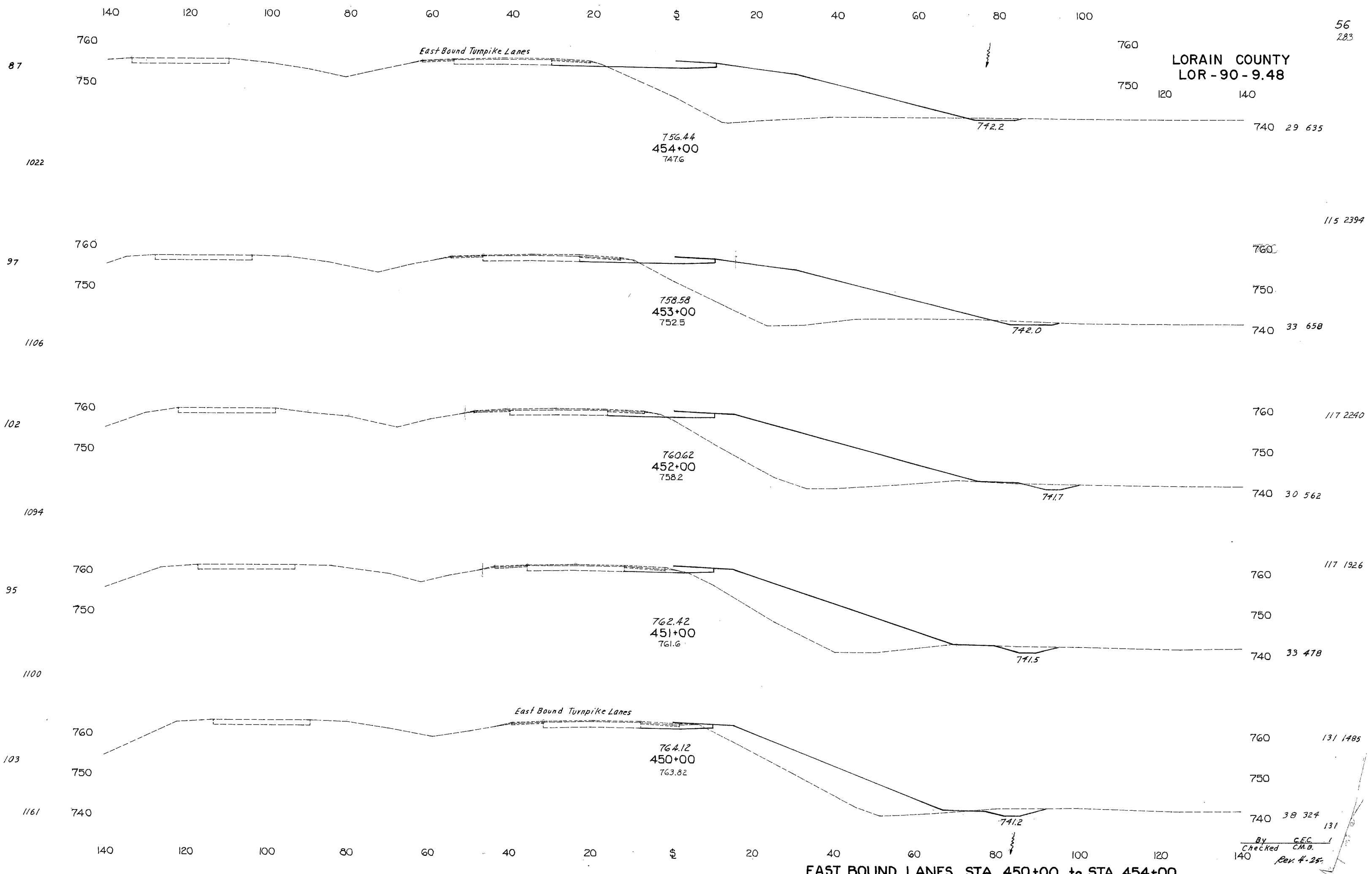


EAST BOUND LANES STA. 445+76.58 to STA. 449+00

By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-73

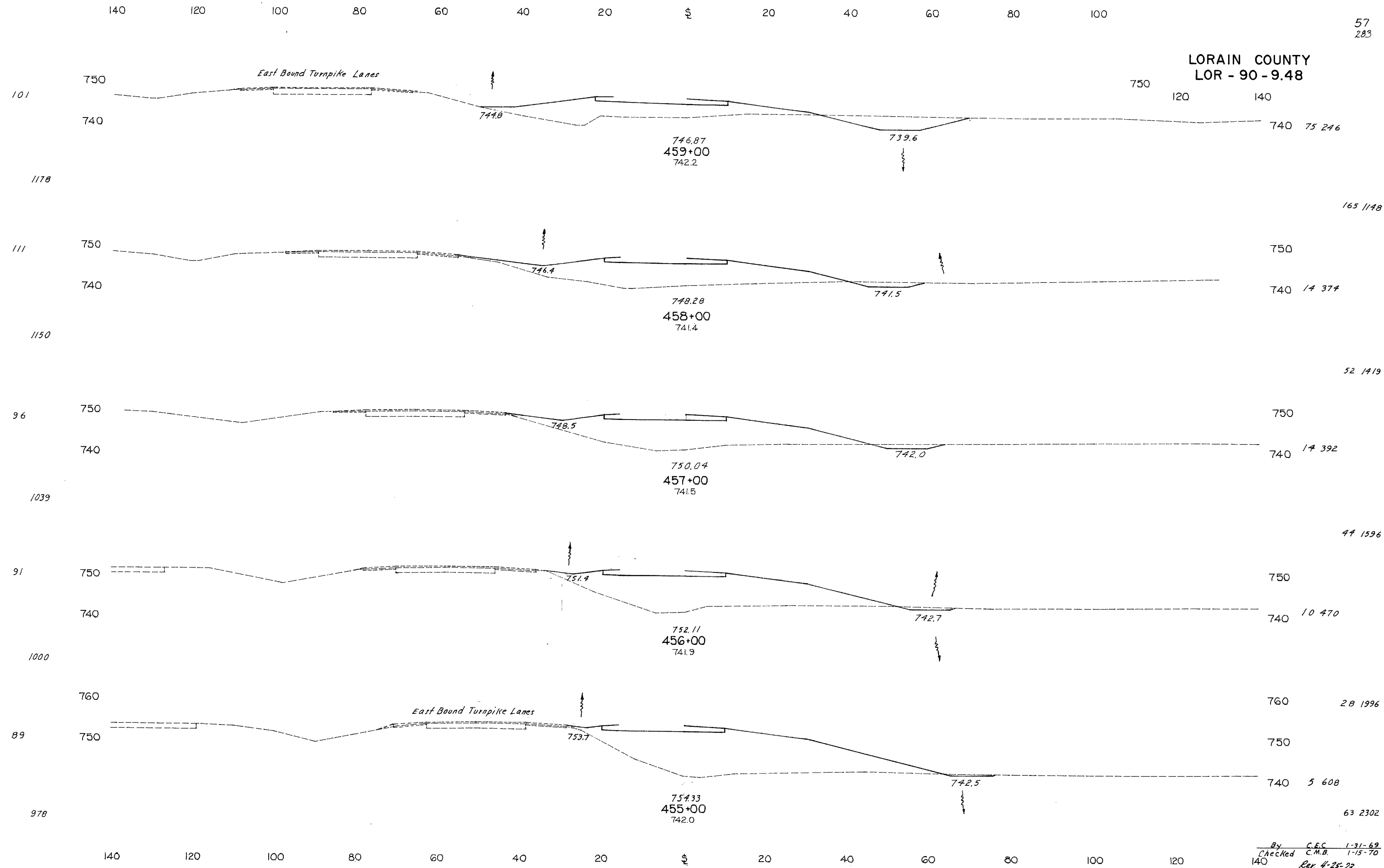


LORAIN COUNTY  
LOR-90-9.48



EAST BOUND LANES STA 450+00 to STA 454+00

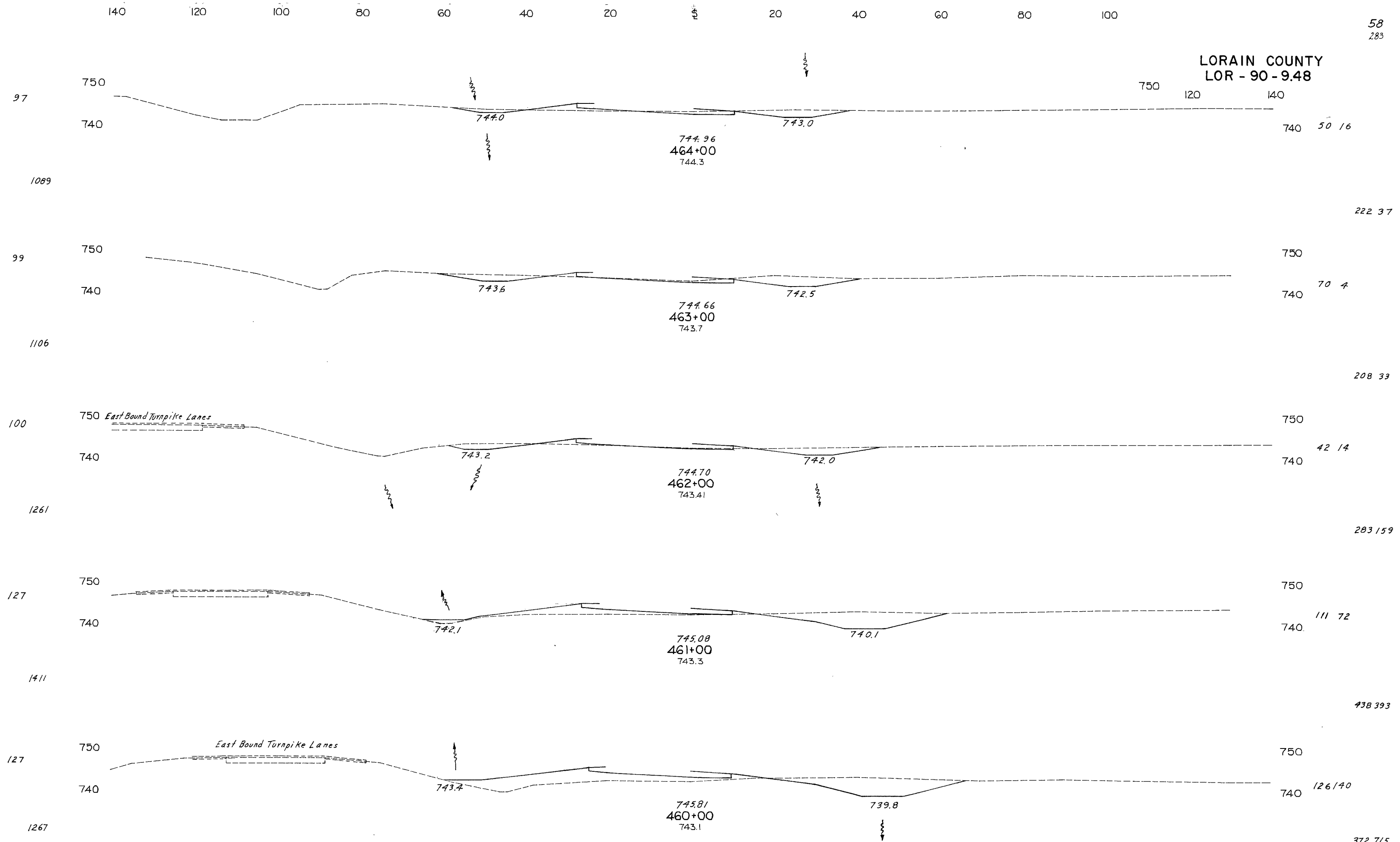
LORAIN COUNTY  
LOR - 90 - 9.48



EAST BOUND LANES STA. 455+00 to STA. 459+00

By C.E.C. 1-31-69  
 Checked C.M.B. 1-15-70  
 Rev. 4-25-73

LORAIN COUNTY  
LOR - 90 - 9.48



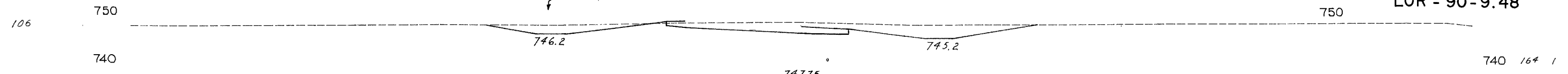
EAST BOUND LANES STA. 460+00 to STA. 464+00

By C.E.C. 12-31-69  
 Checked C.M.B. 1-15-70  
 Rev. 4-25-73

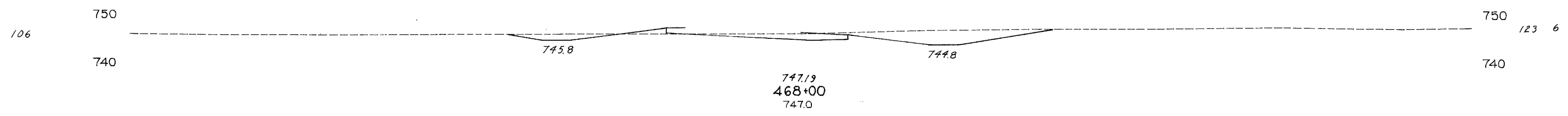
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59  
283

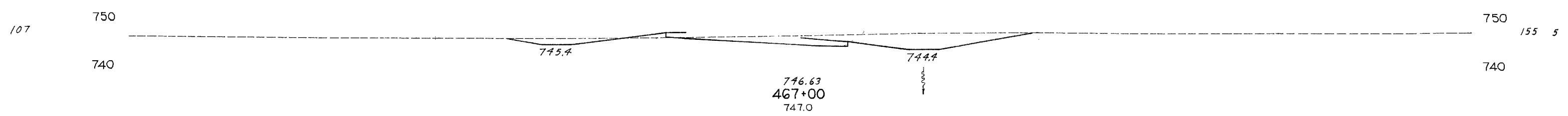
LORAIN COUNTY  
LOR - 90-9.48



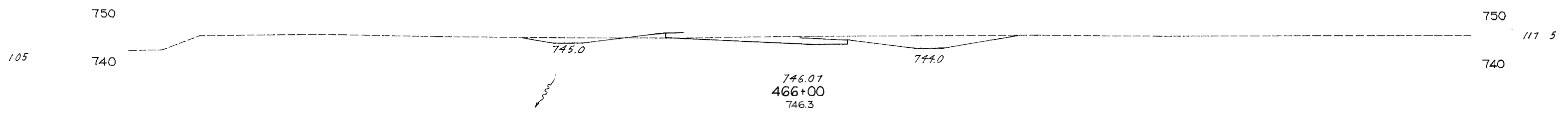
1178 531 13



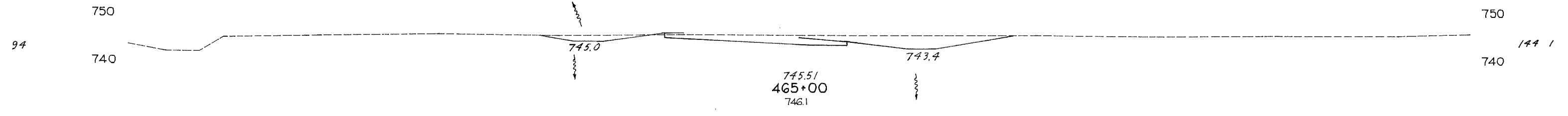
1183 515 20



1178 504 19



1144 483 11



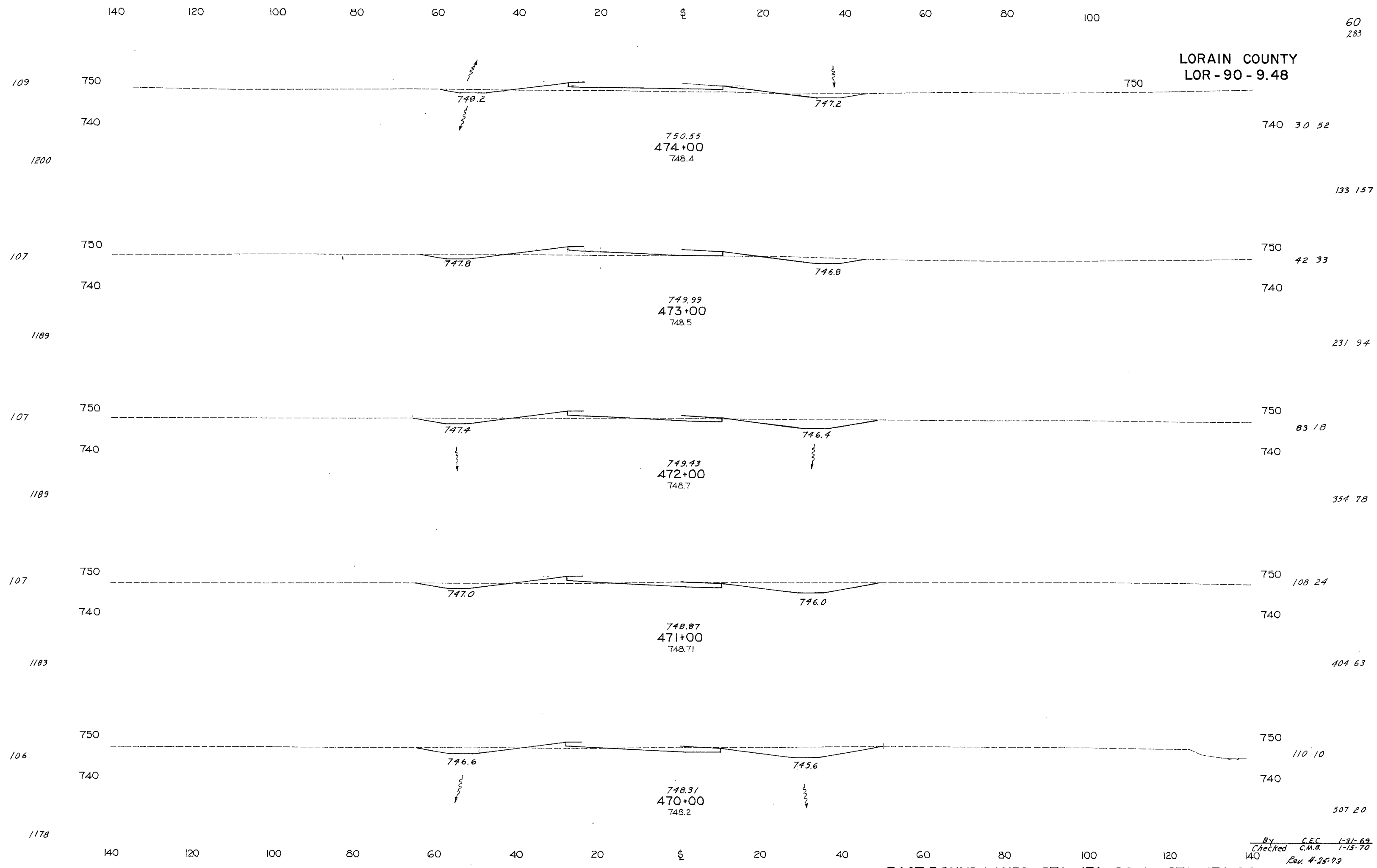
1061 359 31

140 120 100 80 60 40 20 0 20 40 60 80 100 120

EAST BOUND LANES STA. 465+00 to STA. 469+00

By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Per 4-25-70

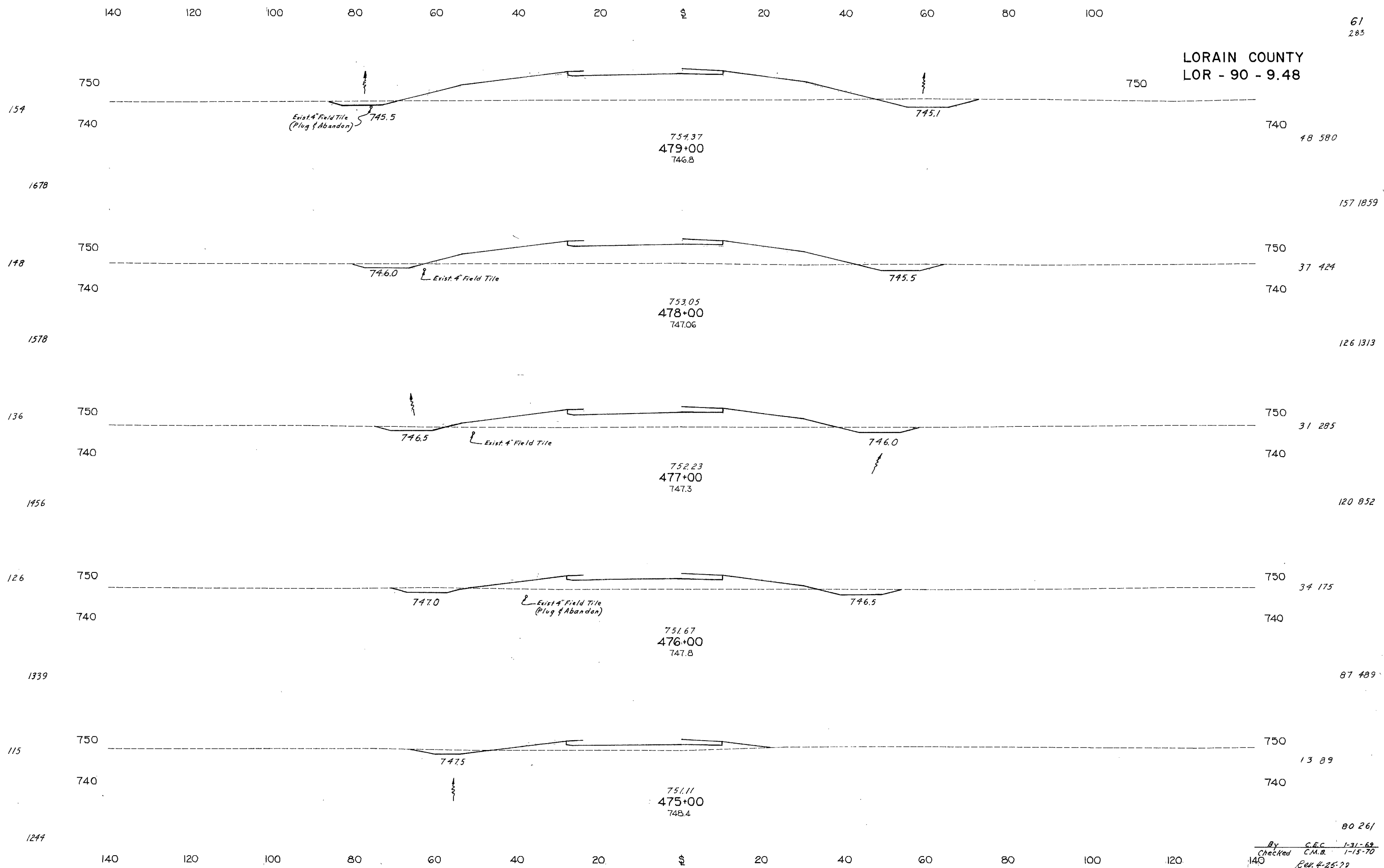
LORAIN COUNTY  
LOR-90-9.48



EAST BOUND LANES STA. 470+00 to STA. 474+00

By C.E.C. 1-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-73

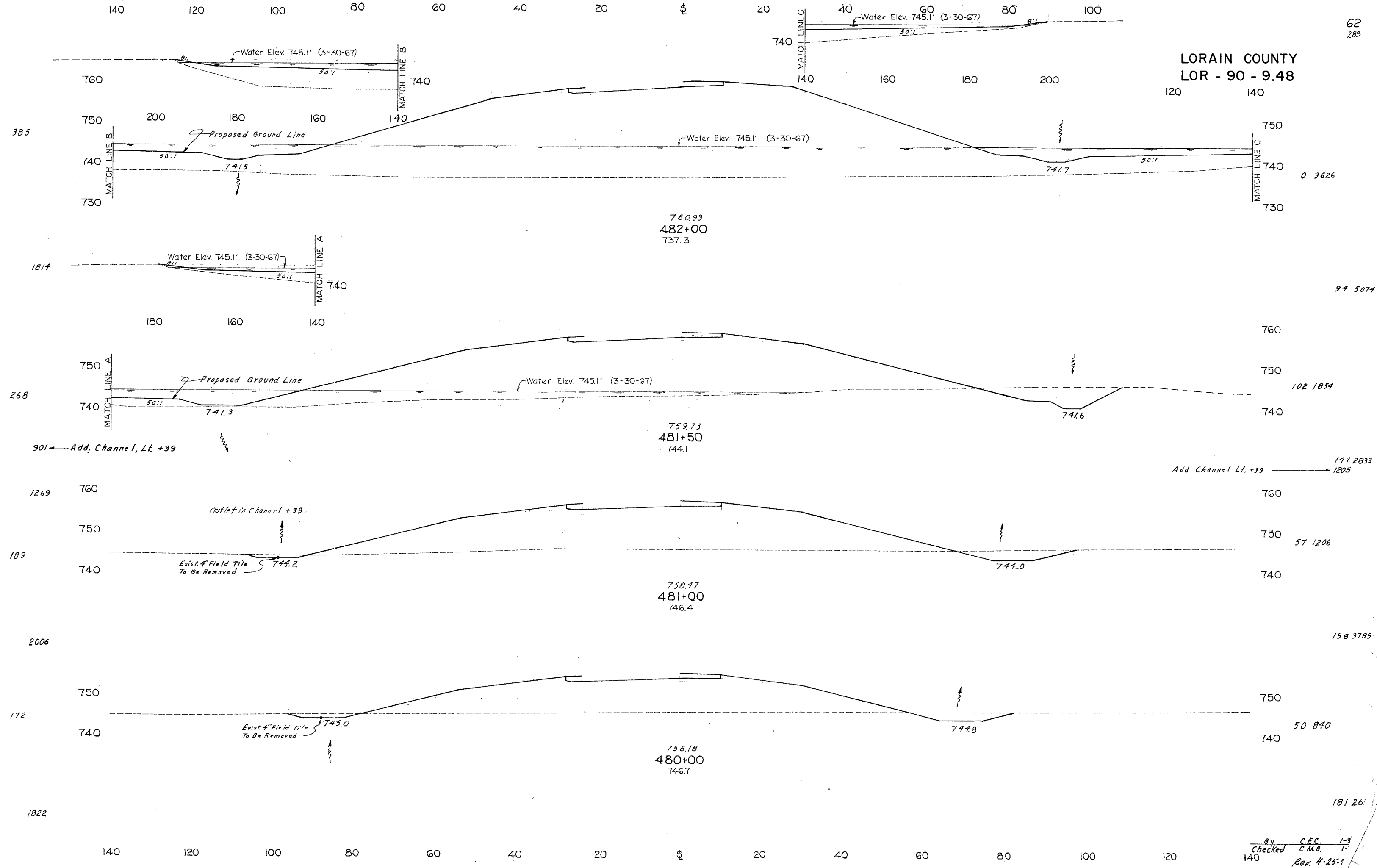
LORAIN COUNTY  
LOR - 90 - 9.48



EAST BOUND LANES STA. 475+00 to STA. 479+00

By C.E.C. 1-31-69  
 Checked C.M.B. 1-15-70  
 Rev. 4-25-79

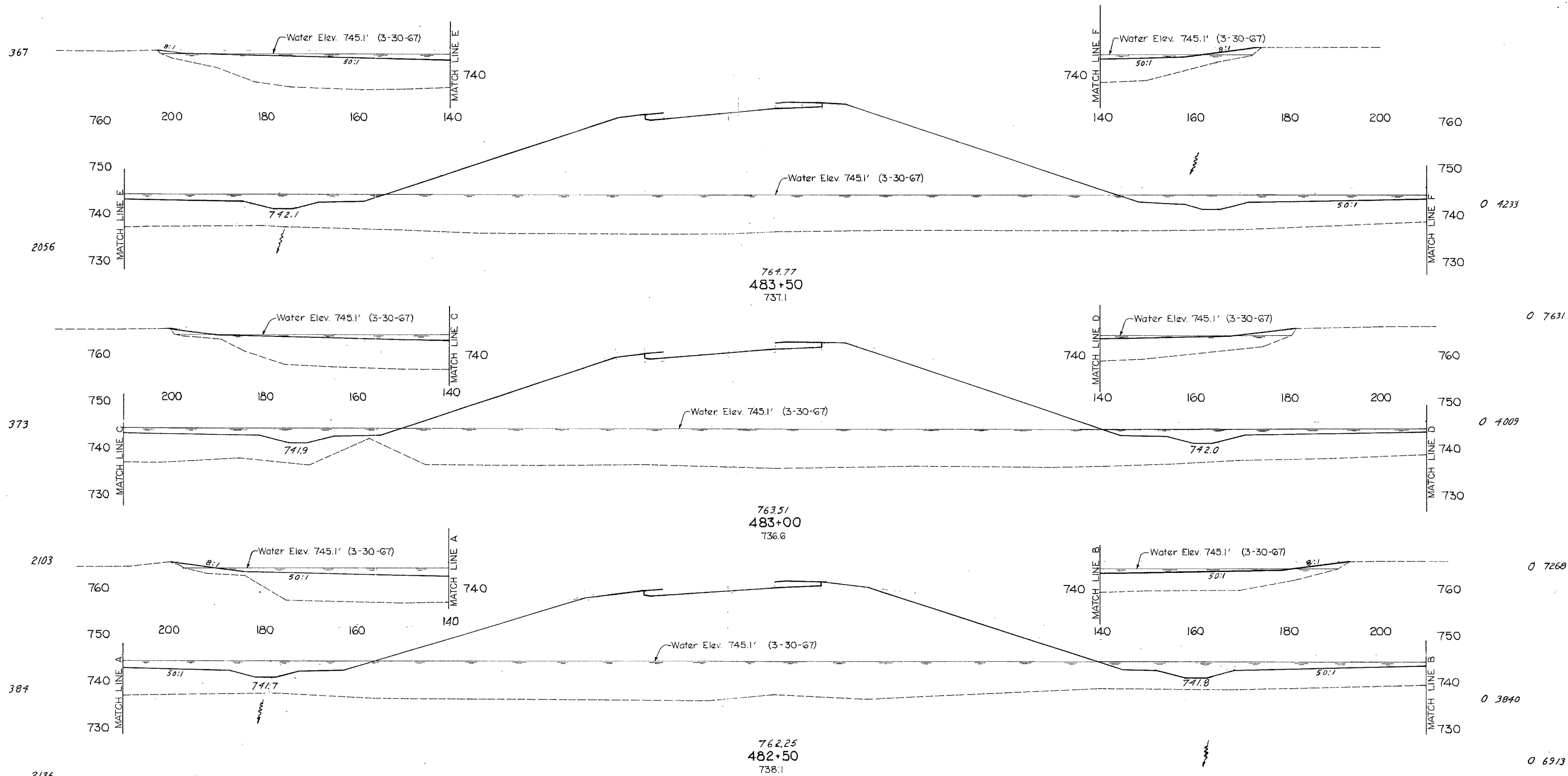
LORAIN COUNTY  
LOR - 90 - 9.48



EAST BOUND LANES STA. 480+00 to STA. 482+00

By C.F.C. 1-3  
Checked C.M.B. 1-  
Rev. 4-25-1

LORAIN COUNTY  
LOR - 90 - 9.48

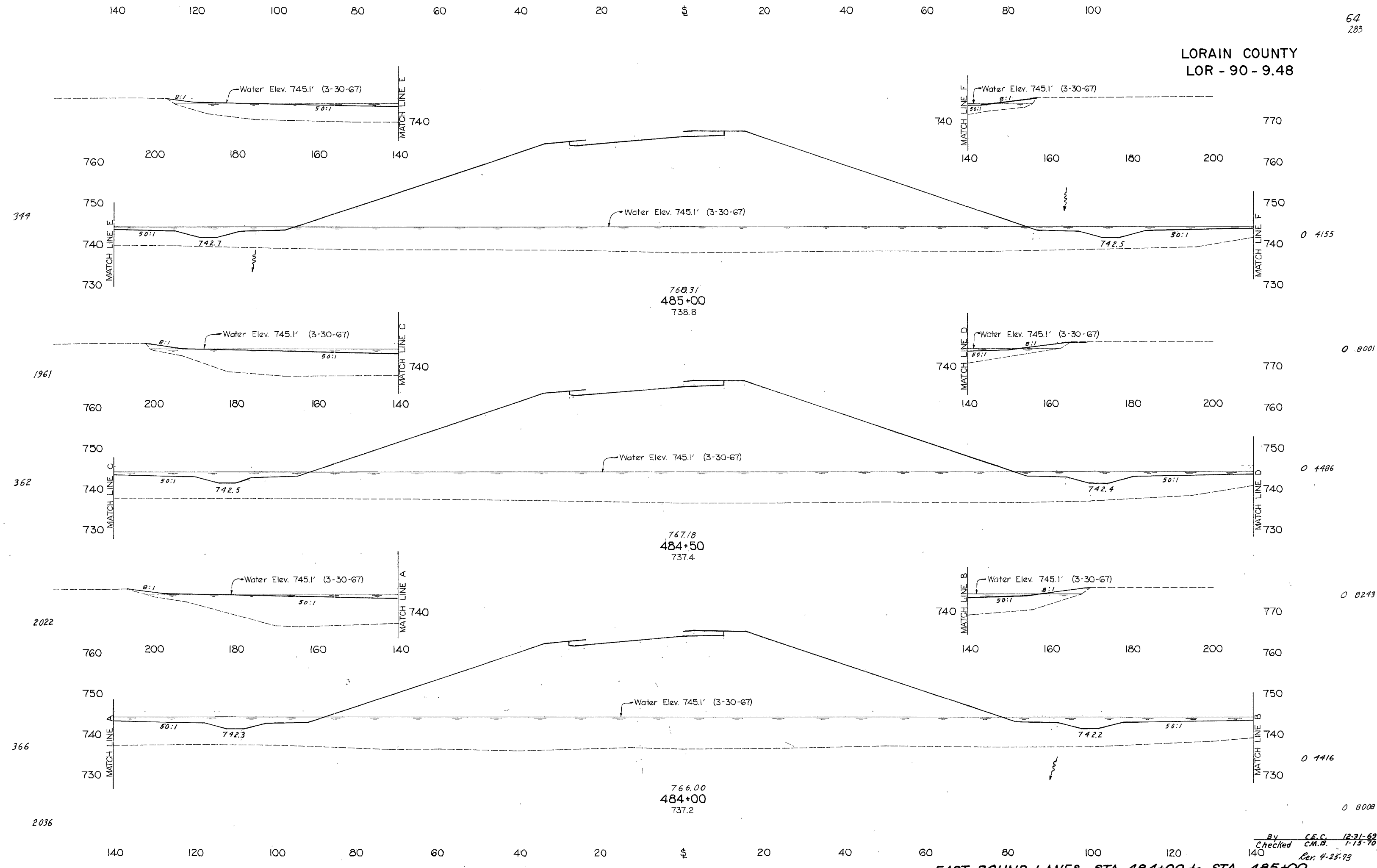


2136

By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-79

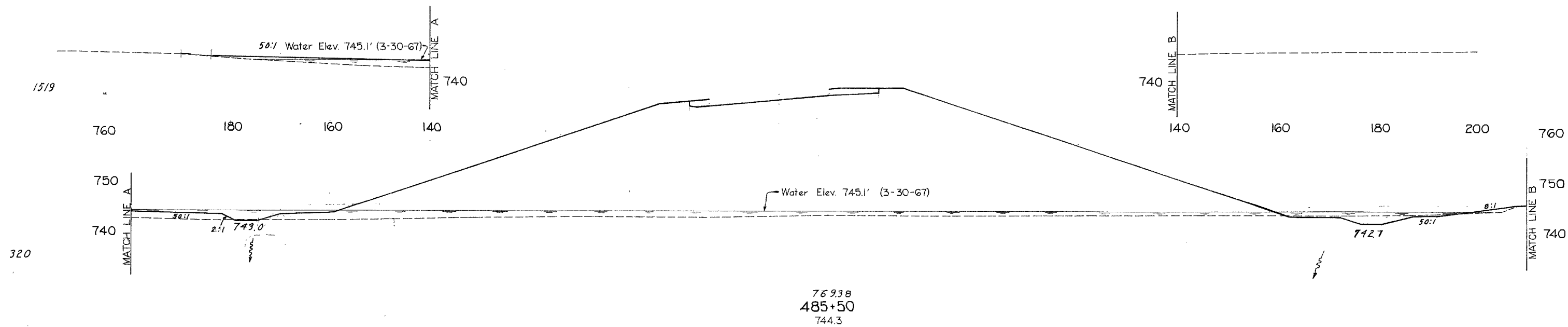
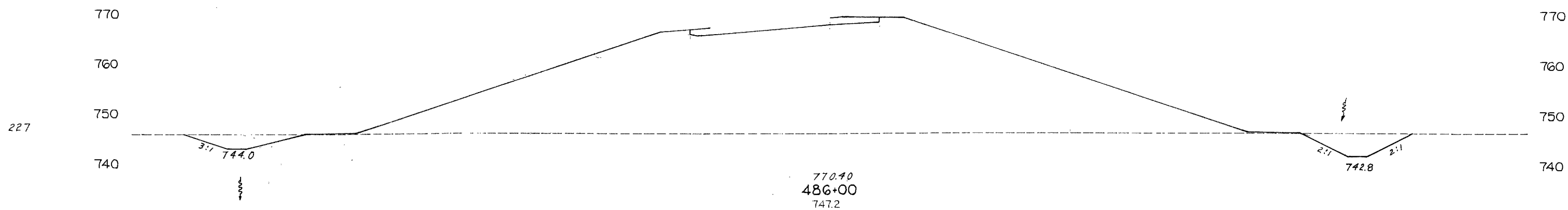


LORAIN COUNTY  
LOR - 90 - 9.48



LORAIN COUNTY  
LOR - 90 - 9.48

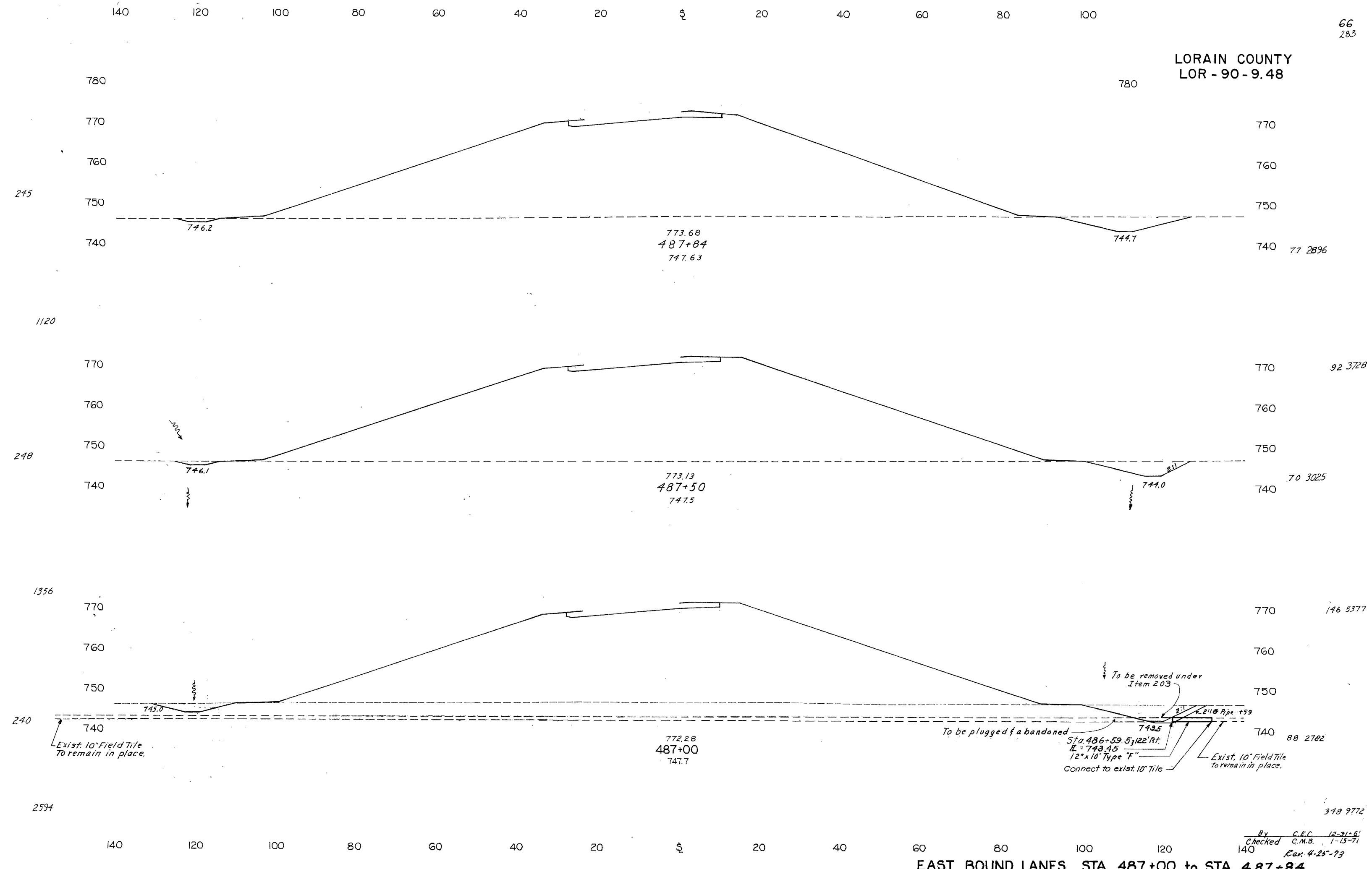
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By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-73

LORAIN COUNTY  
LOR - 90 - 9.48

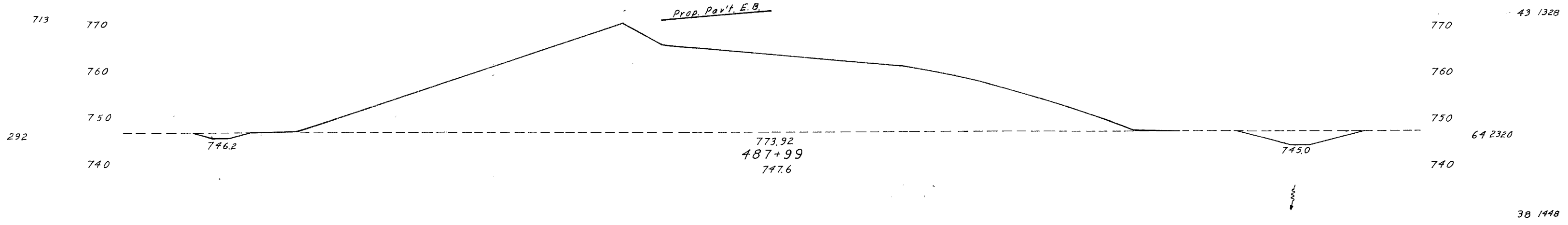
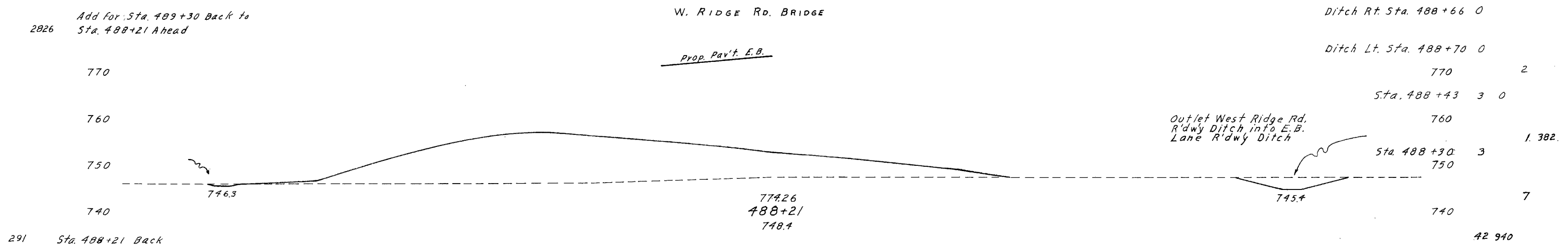
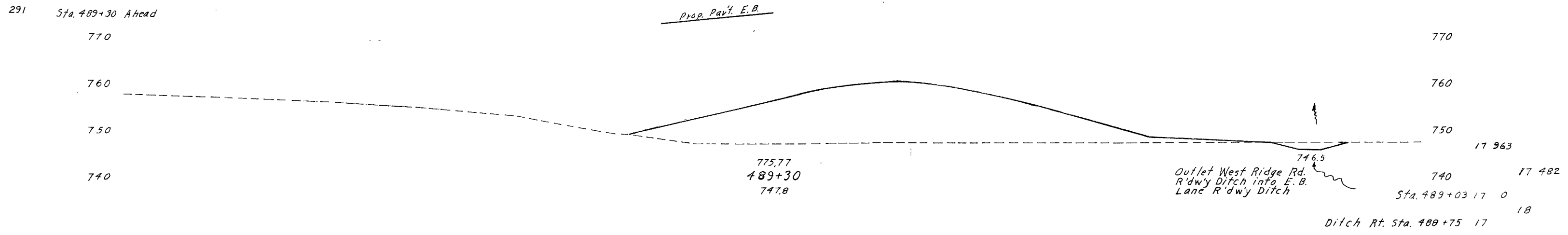


EAST BOUND LANES STA. 487+00 to STA. 487+84

By C.E.C. 12-31-61  
Checked C.M.B. 1-15-71  
Rev. 4-25-73

348 9772

LORAIN COUNTY  
LOR - 90 - 9.48

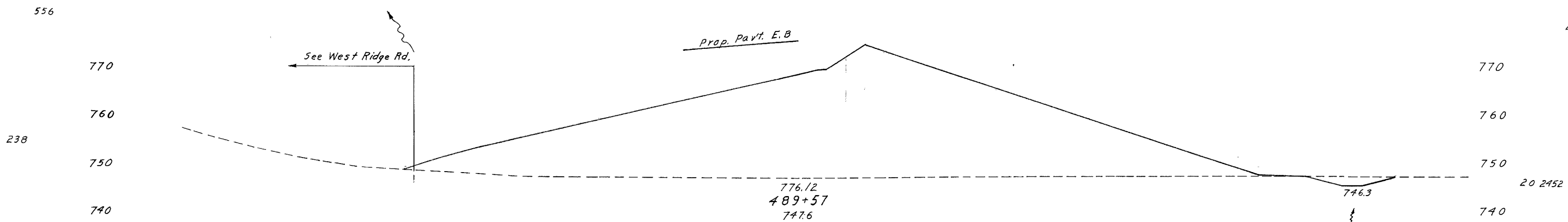
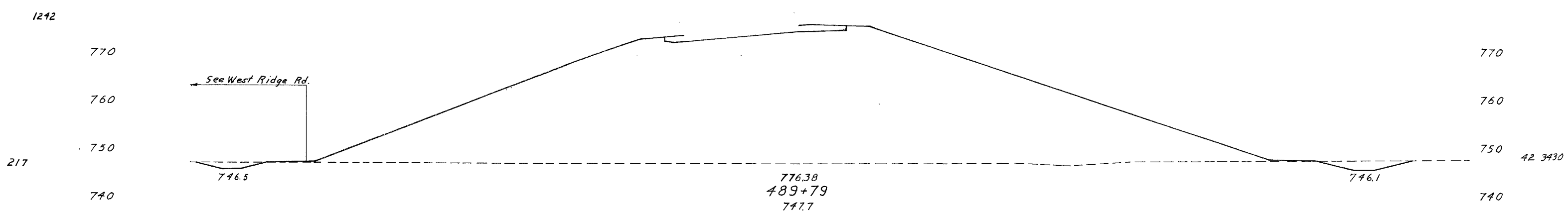
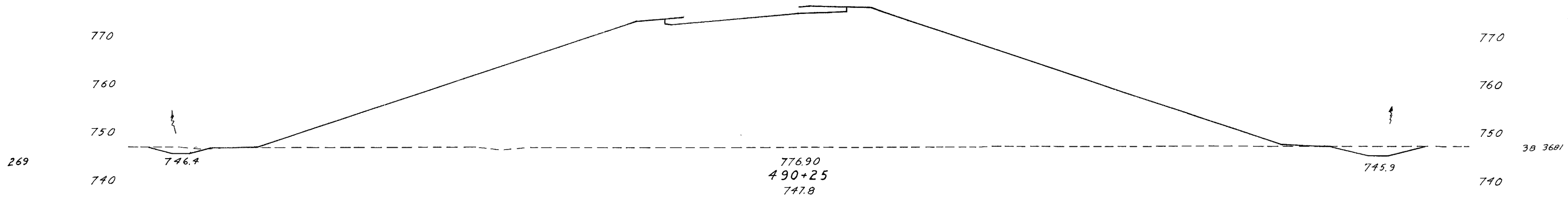


By CEC 12-31-69  
Checked CM.B. 1-15-70  
Rev. 4-25-73

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68  
283

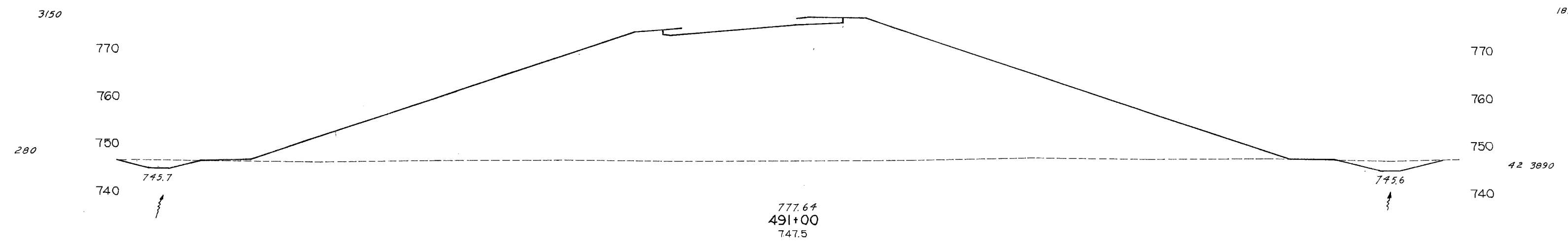
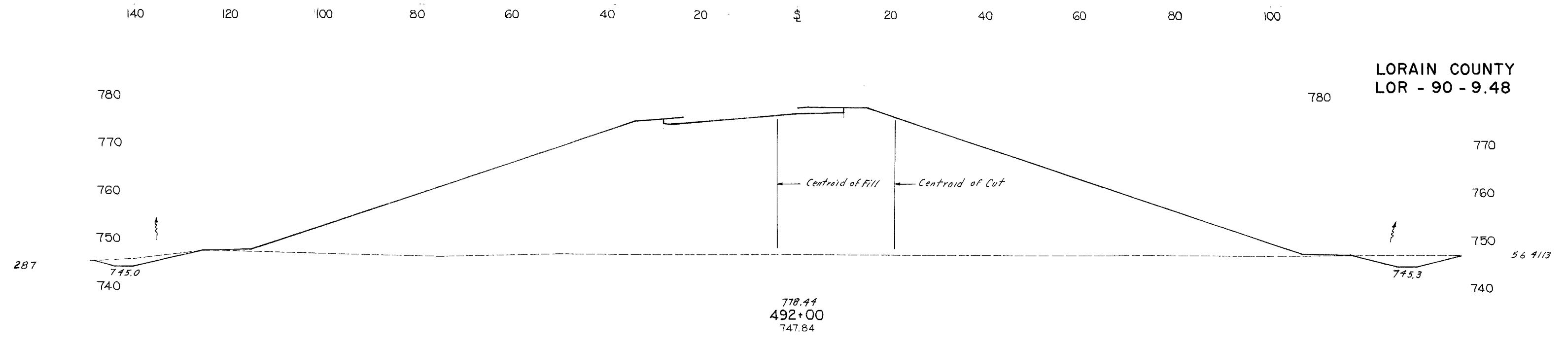
LORAIN COUNTY  
LOR -90-9.48



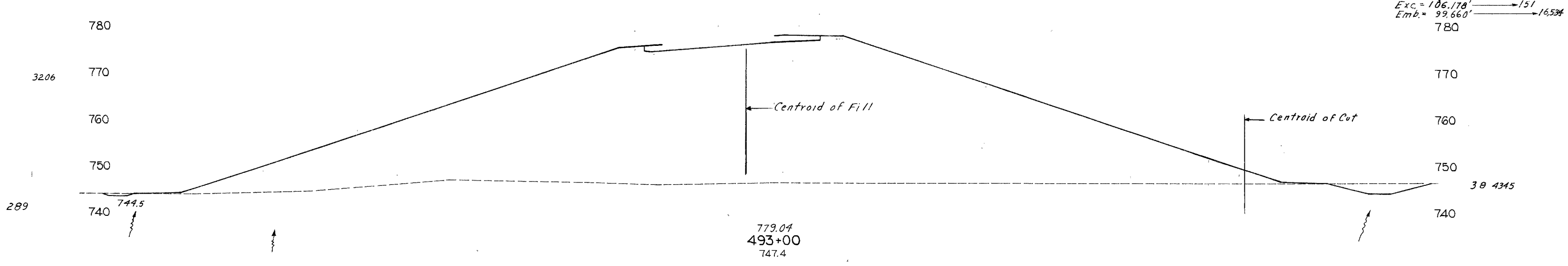
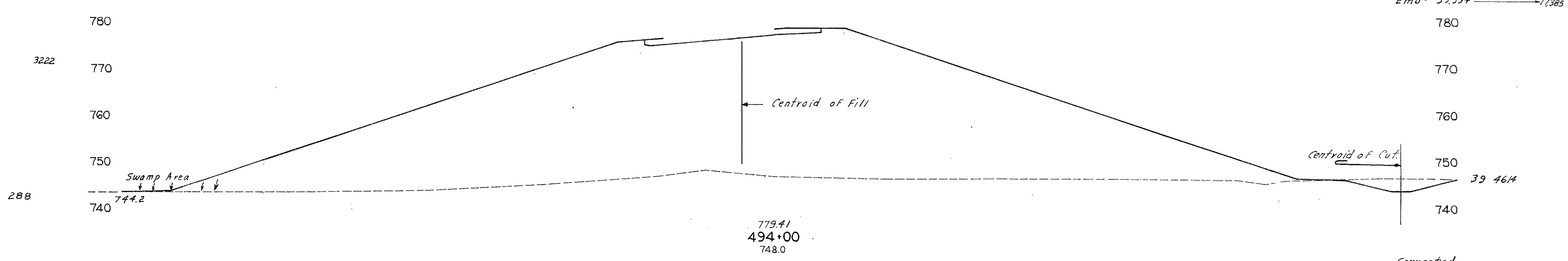
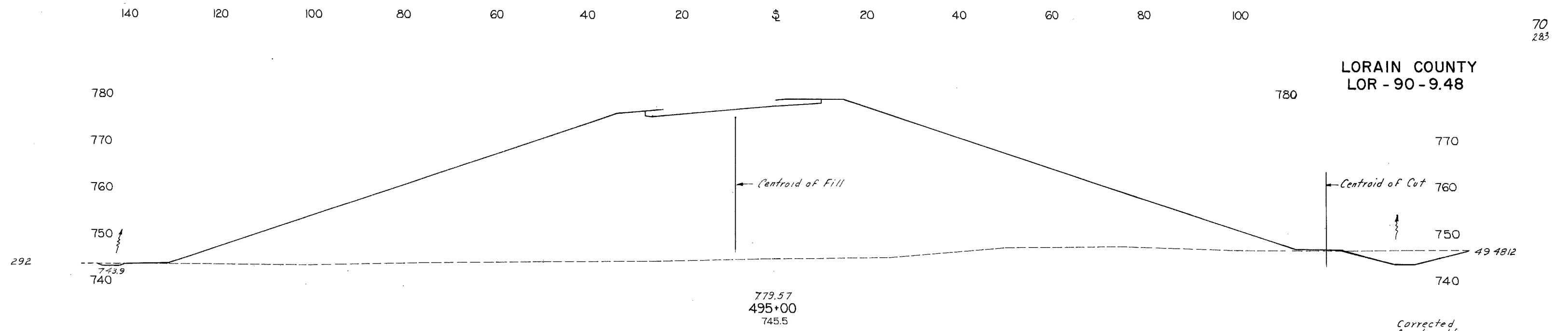
794

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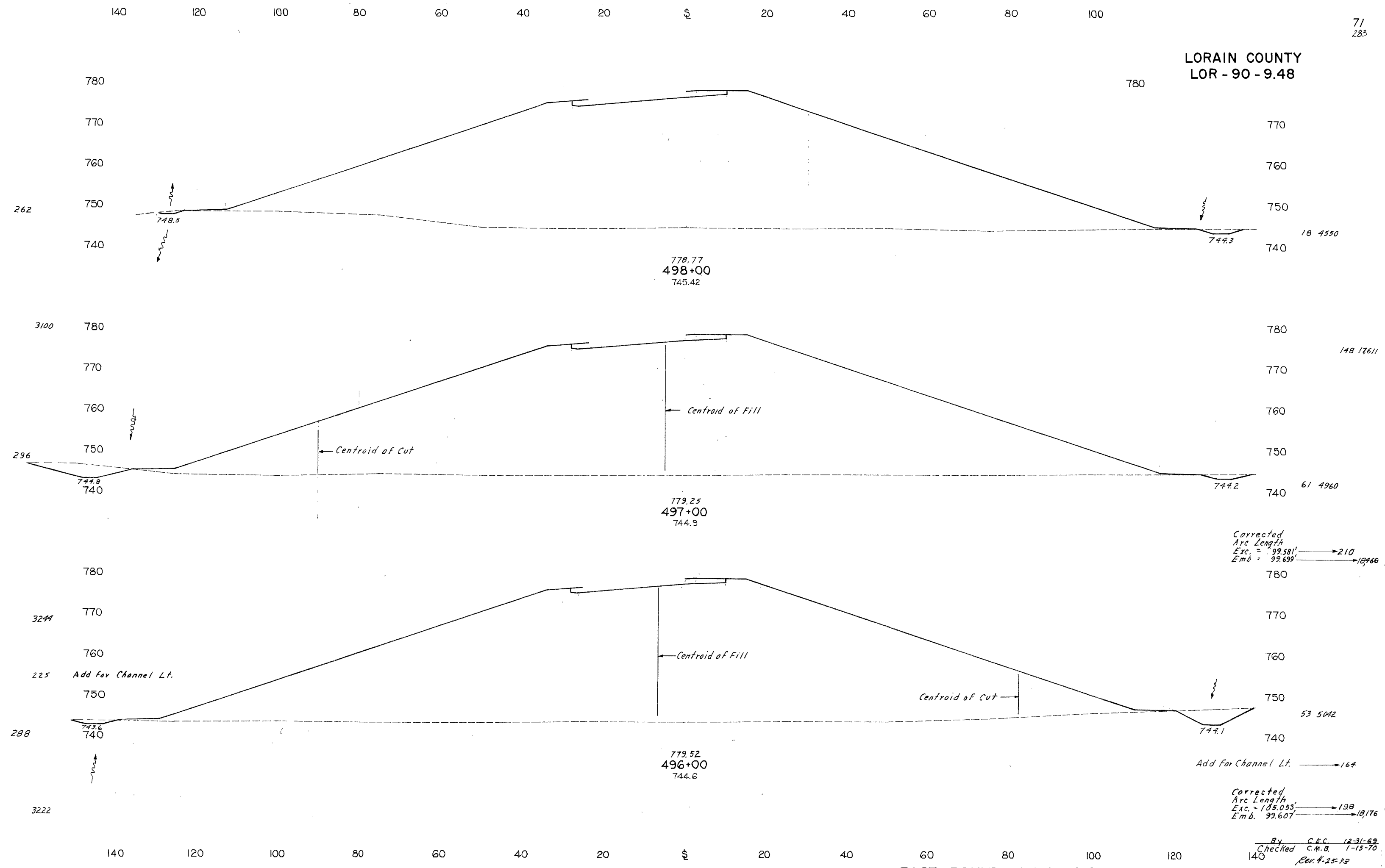
LORAIN COUNTY  
LOR - 90 - 9.48



LORAIN COUNTY  
LOR - 90 - 9.48



LORAIN COUNTY  
LOR - 90 - 9.48

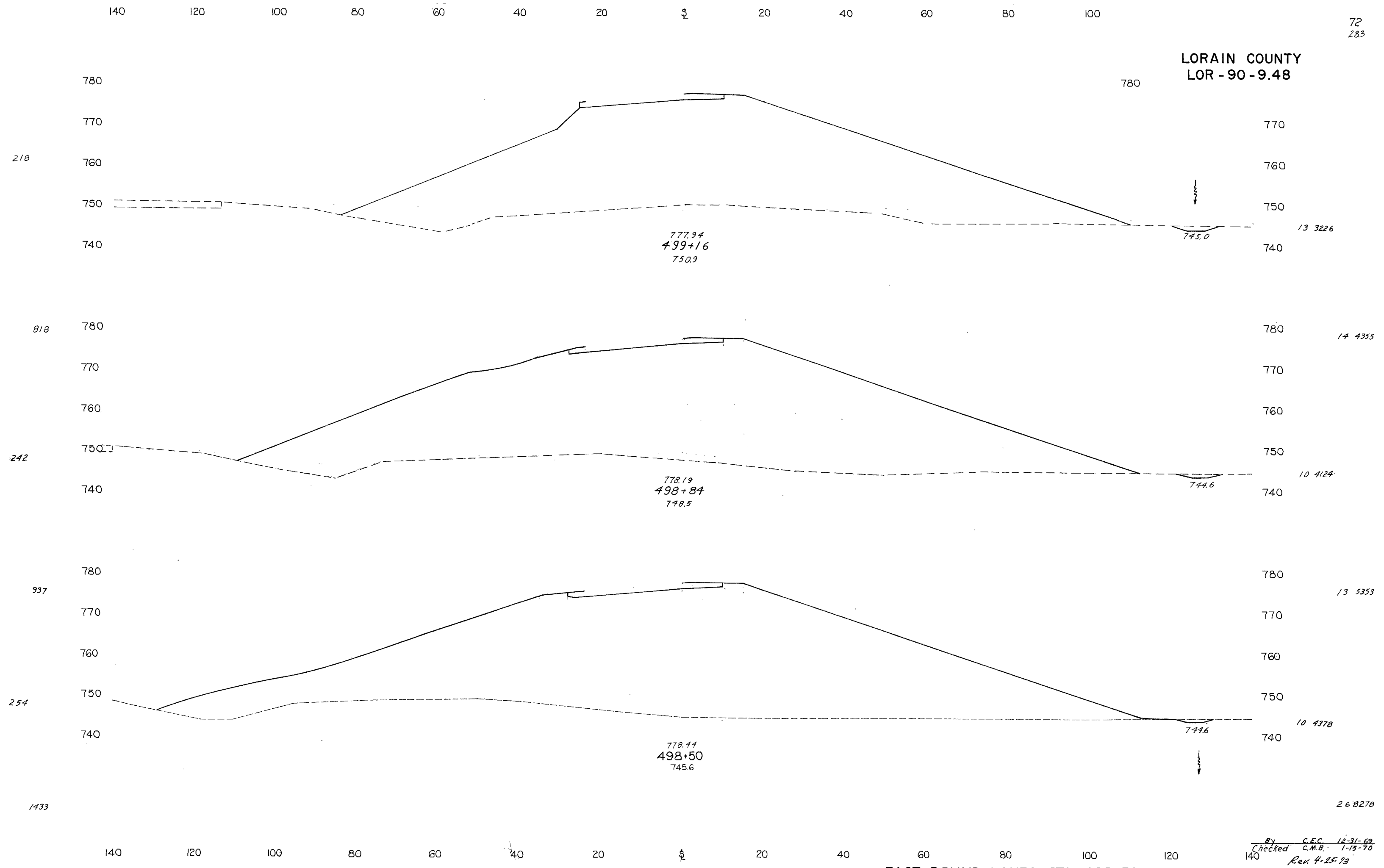


EAST BOUND LANES STA. 496+00 to STA. 498+00

By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-75



LORAIN COUNTY  
LOR - 90 - 9.48



218

818

242

937

254

1433

13 3226

14 4355

10 4124

13 5353

10 4378

26 8278

780



745.0

744.6

744.6



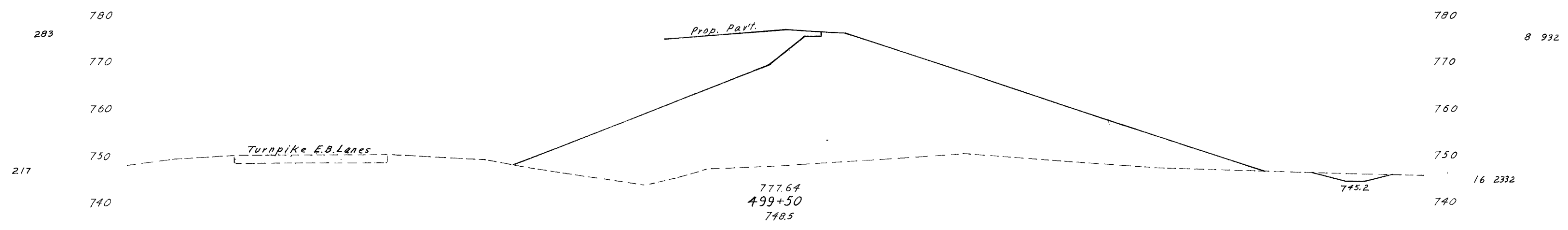
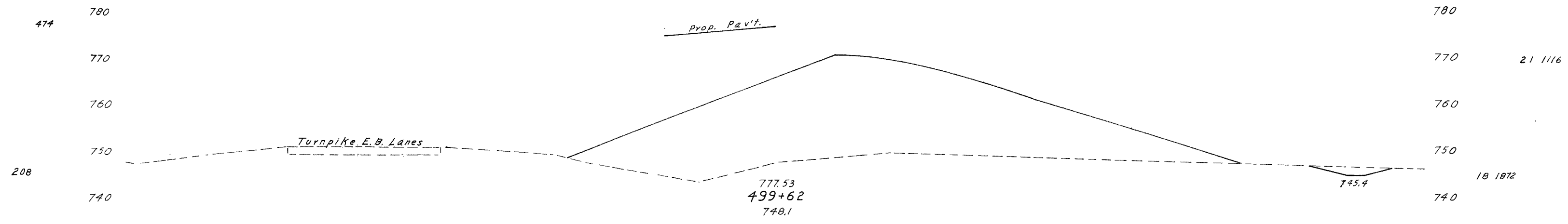
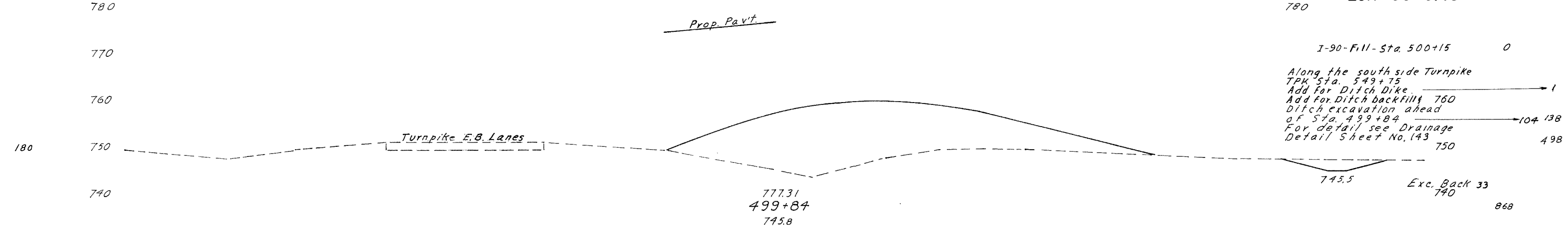
EAST BOUND LANES STA. 498+50 to STA. 499+16

By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-73

9 ← Add for Ditch Dike, Turnpike Sta. 549+75 Rt.  
9 ← Add for Ditch Dike, Turnpike Sta. 550+37 Lt.  
2529 Add For Bridge Const. Area Within Tpk. R/W

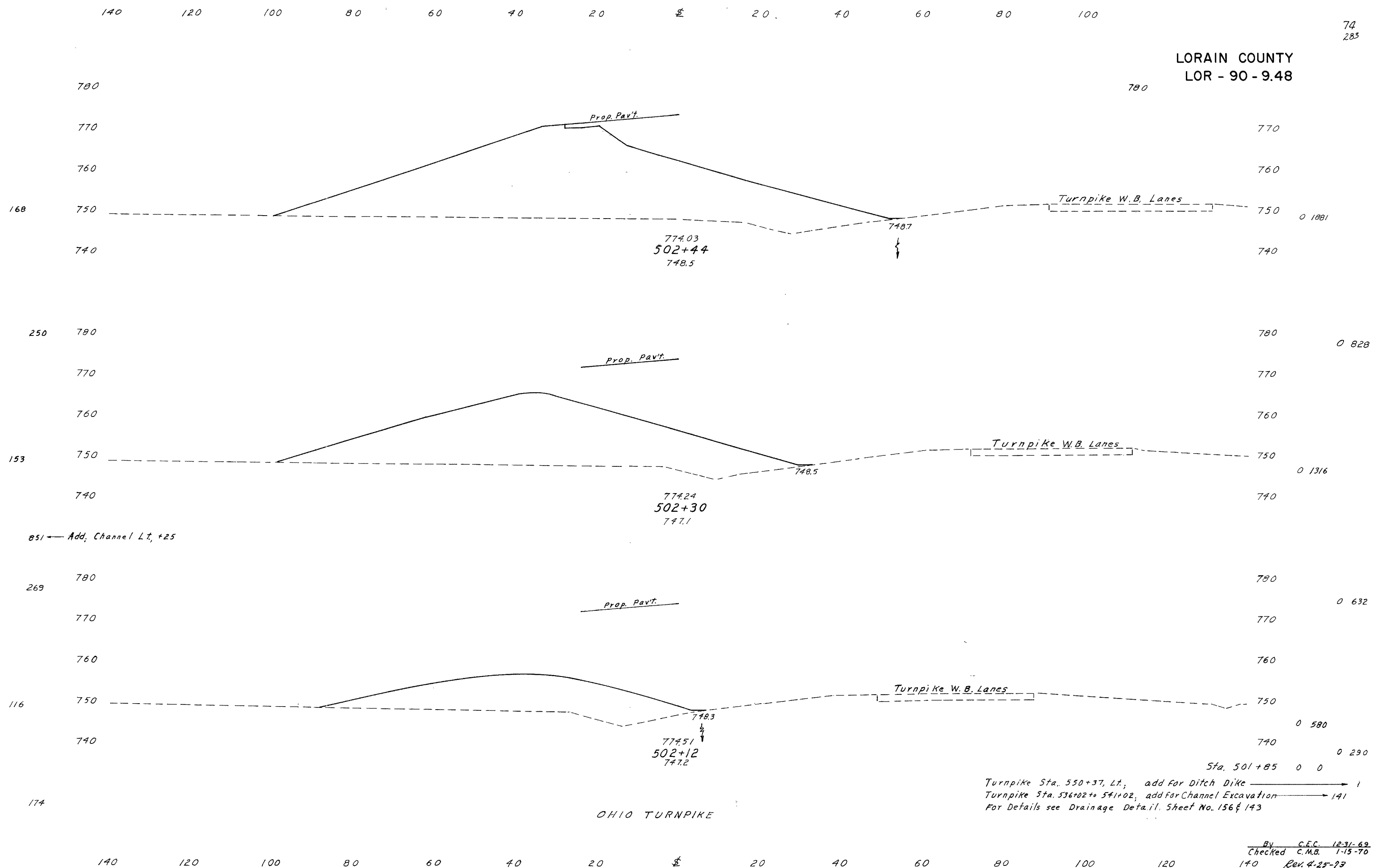
OHIO TURNPIKE

LORAIN COUNTY  
LOR-90-9.48



By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-73

LORAIN COUNTY  
LOR - 90 - 9.48



Turnpike Sta. 550+37, Lt.; add for Ditch Dike → 1  
 Turnpike Sta. 536+02 to 541+02; add for Channel Excavation → 141  
 For Details see Drainage Detail Sheet No. 156 & 143

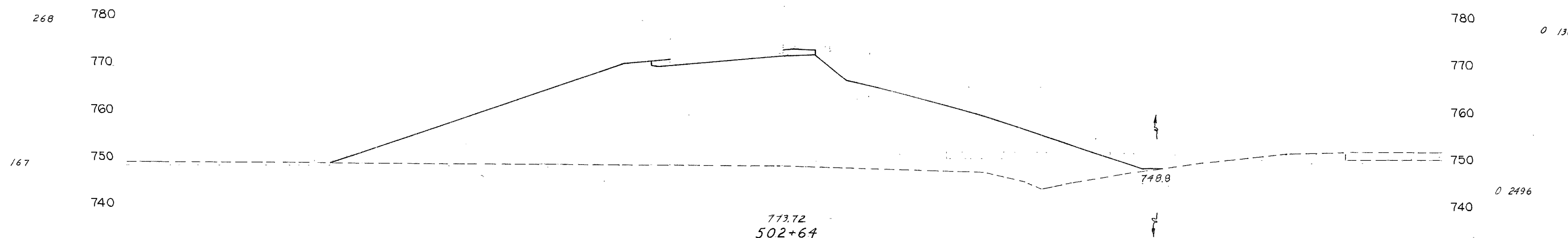
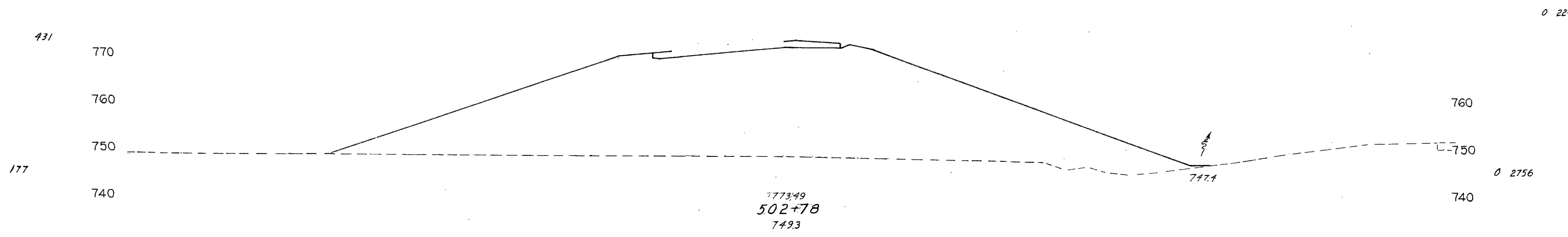
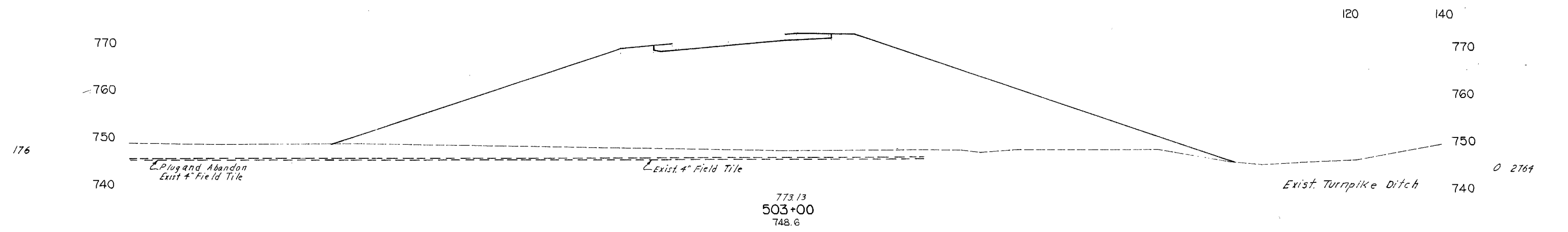
By C.E.C. 12-31-69  
 Checked C.M.B. 1-15-70  
 Rev. 4-25-73

EAST BOUND LANES STA. 502+12 to STA. 502+44

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75  
283

LORAIN COUNTY  
LOR-90-9.48



176 431 268 167 372

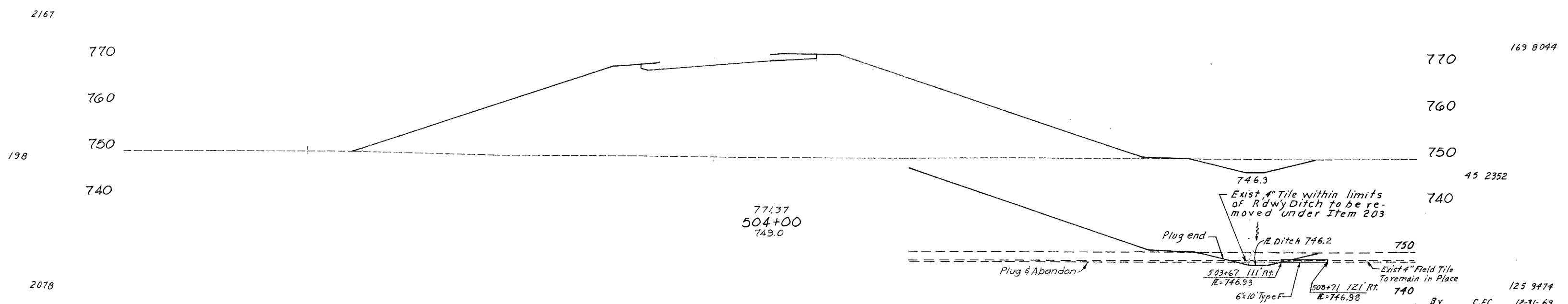
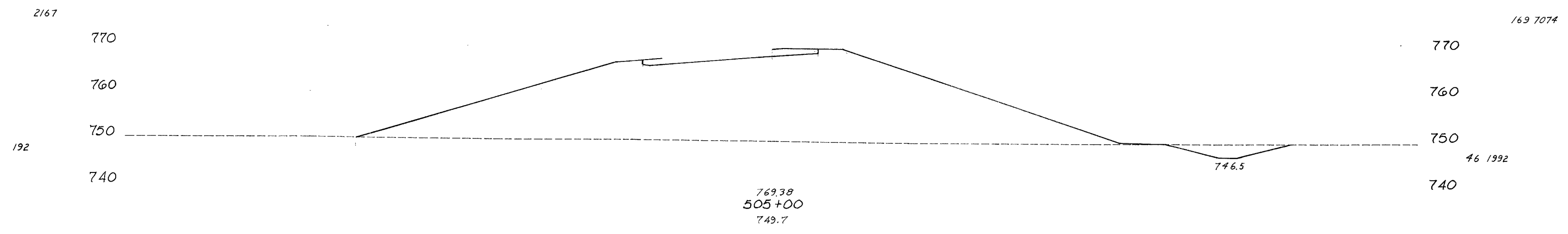
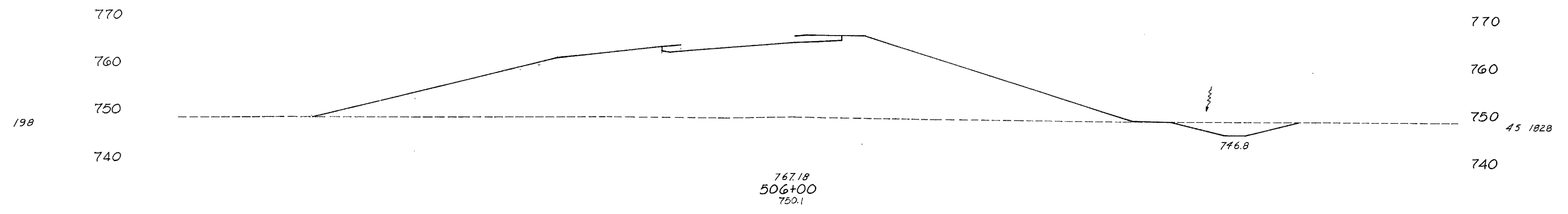
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EAST BOUND LANES STA. 502+64 to STA. 503+00

By C.F.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-72

140 120 100 80 60 40 20 0 20 40 60 80 100

LORAIN COUNTY  
LOR - 90 - 9.48



2078

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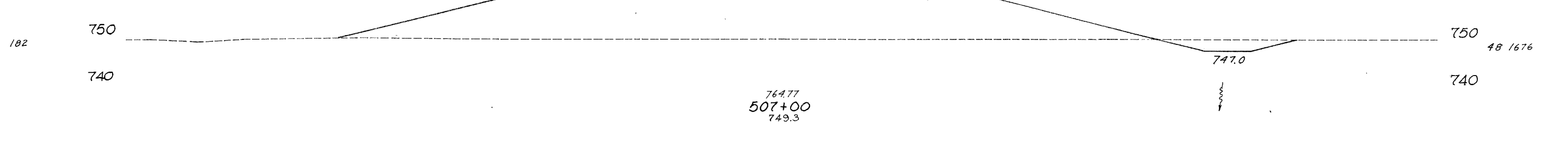
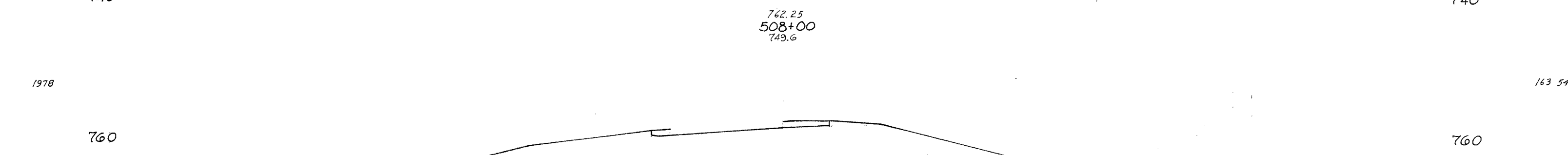
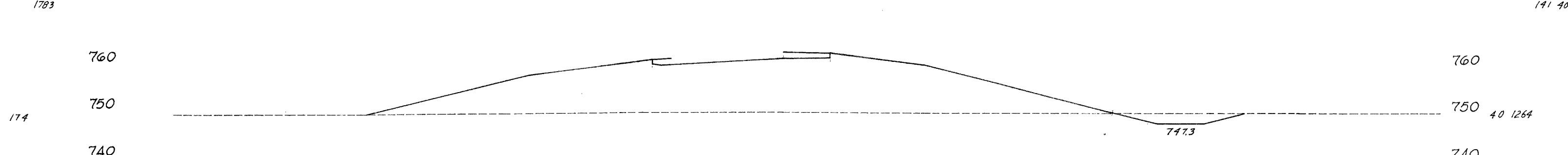
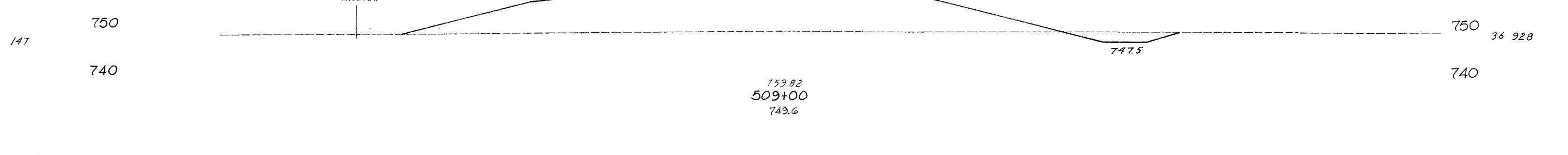
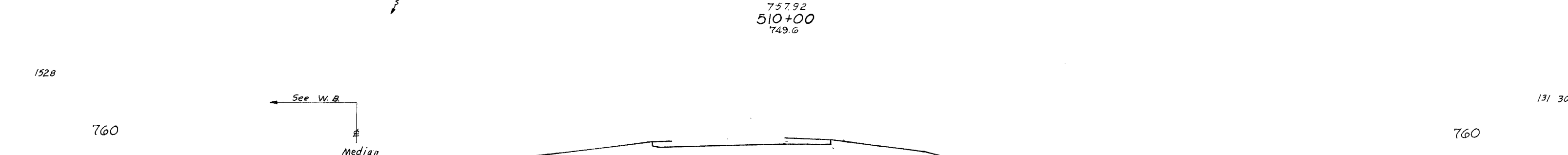
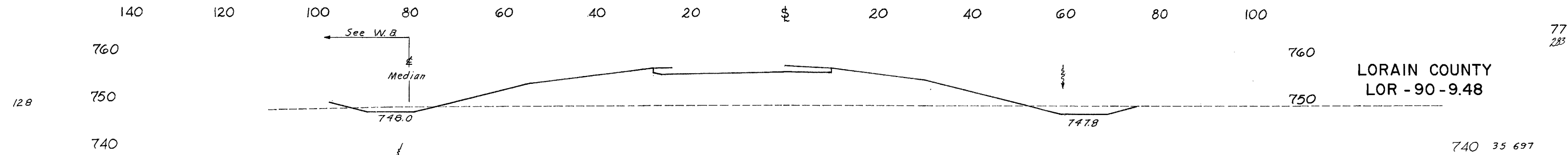
EAST BOUND LANES STA. 504+00 to STA. 506+00

125 9474

By C.E.C. 12-31-69

Checked C.M.B. 1-15-70

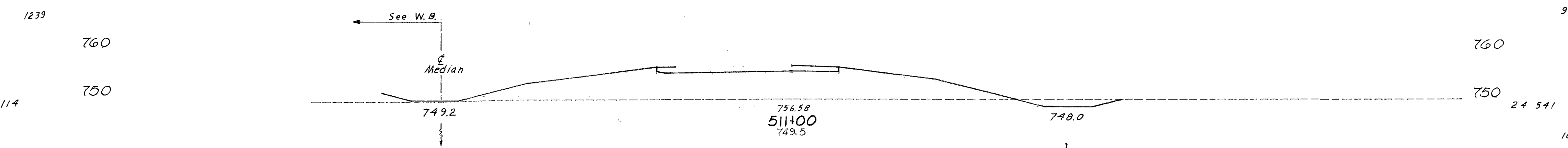
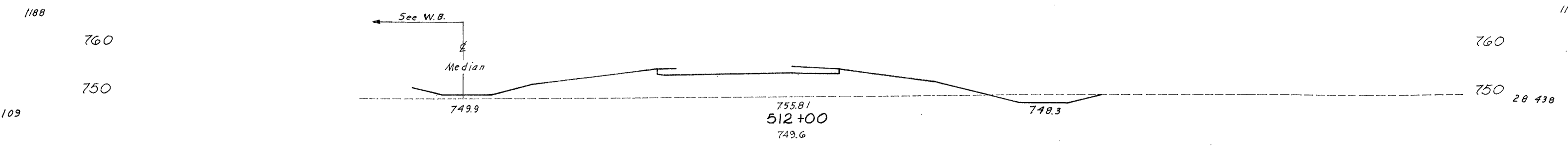
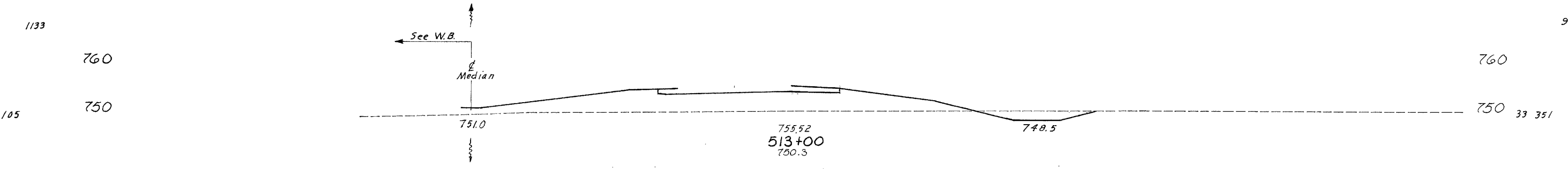
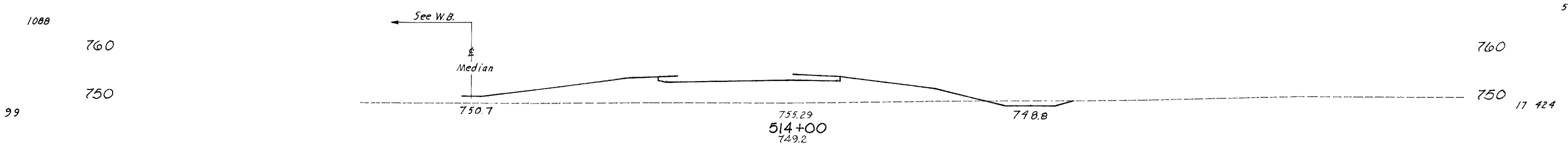
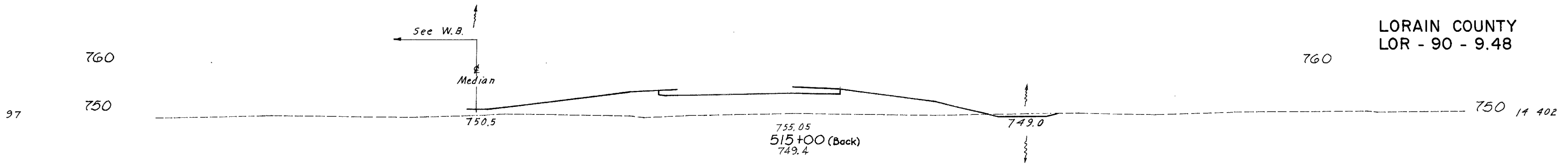
Rev. 4-25-73



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78  
283

LORAIN COUNTY  
LOR - 90 - 9.48



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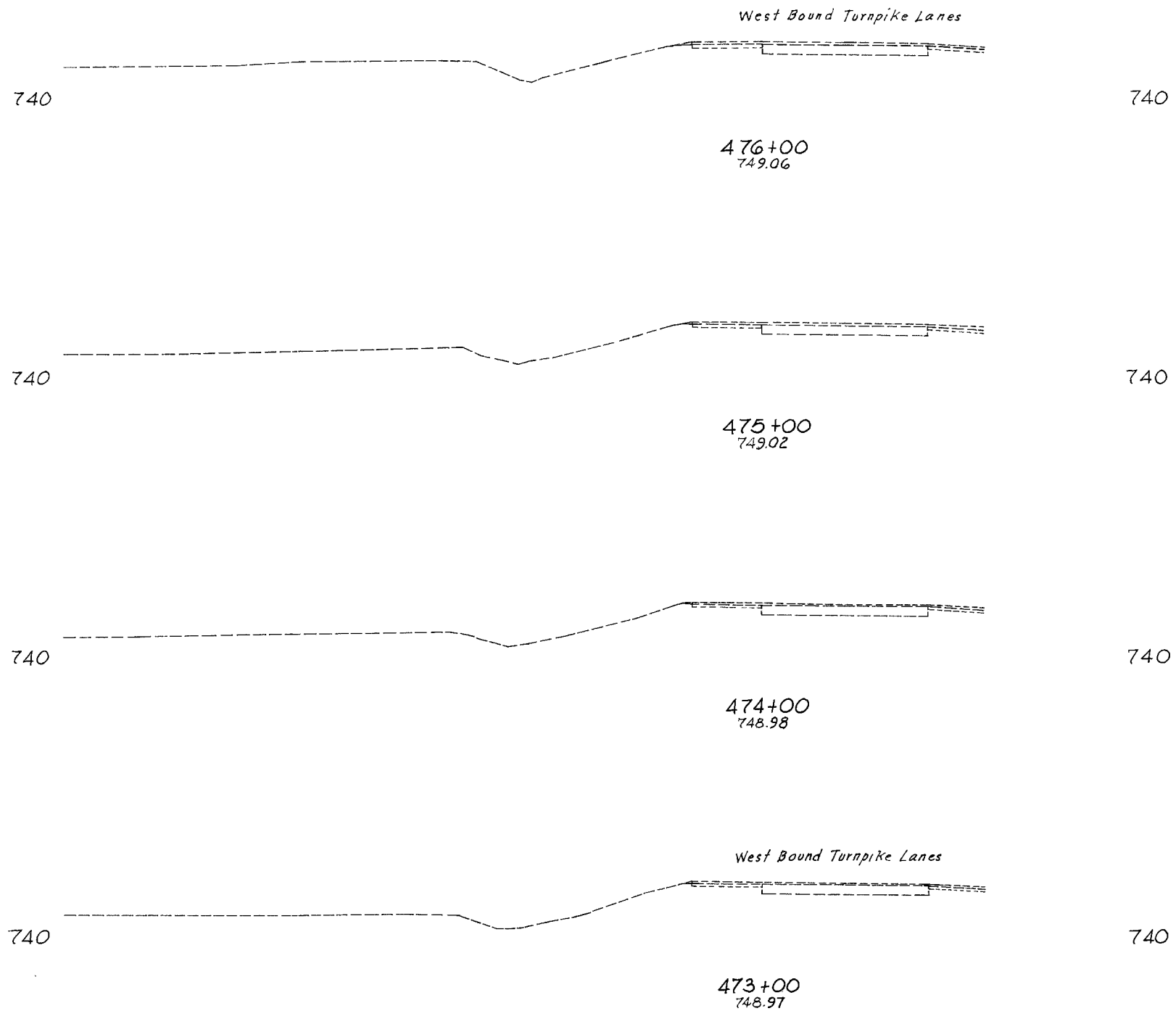
EAST BOUND LANES STA. 511+00 to STA. 515+00

By C.E.C. 1231-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-73

109 2293

100 80 60 40 20 0 20 40

LORAIN COUNTY  
LOR - 90 - 9.48



100 80 60 40 20 0 20 40

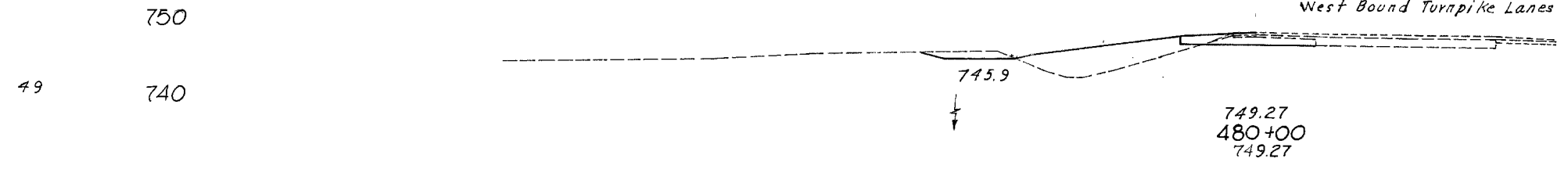


140 120 100 80 60 40 20 0 20 40 60 80 100

West Bound Turnpike Lanes

750 740 80 283

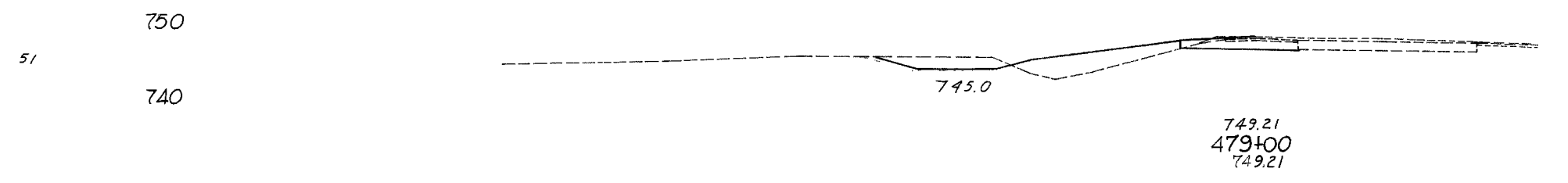
LORAIN COUNTY  
LOR - 90 - 9.48



29 64

556

131 194



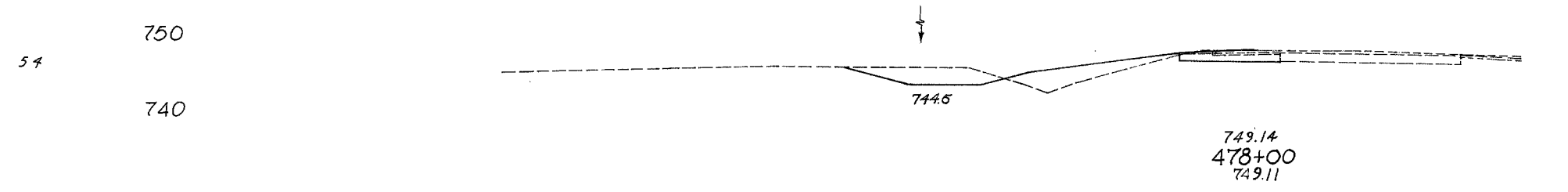
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42 41

740

583

167 143



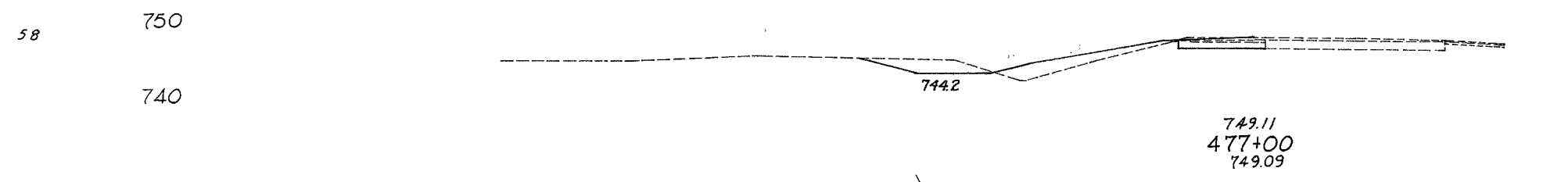
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48 36

740

622

159 113



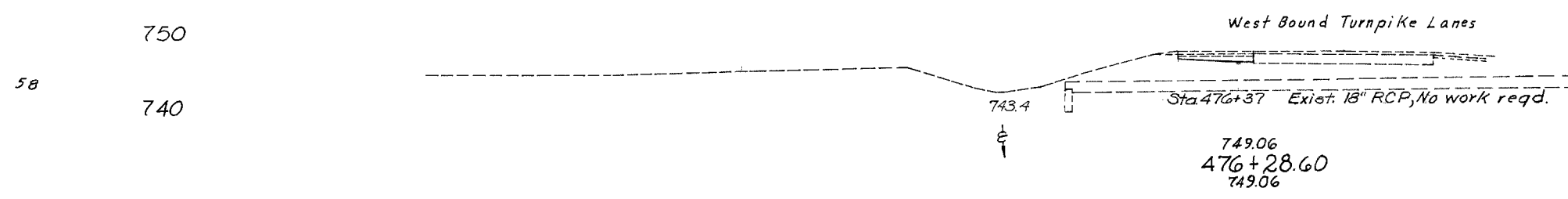
750

38 25

740

760

68 33



750

740

13 0

Ahead

0 0

Back

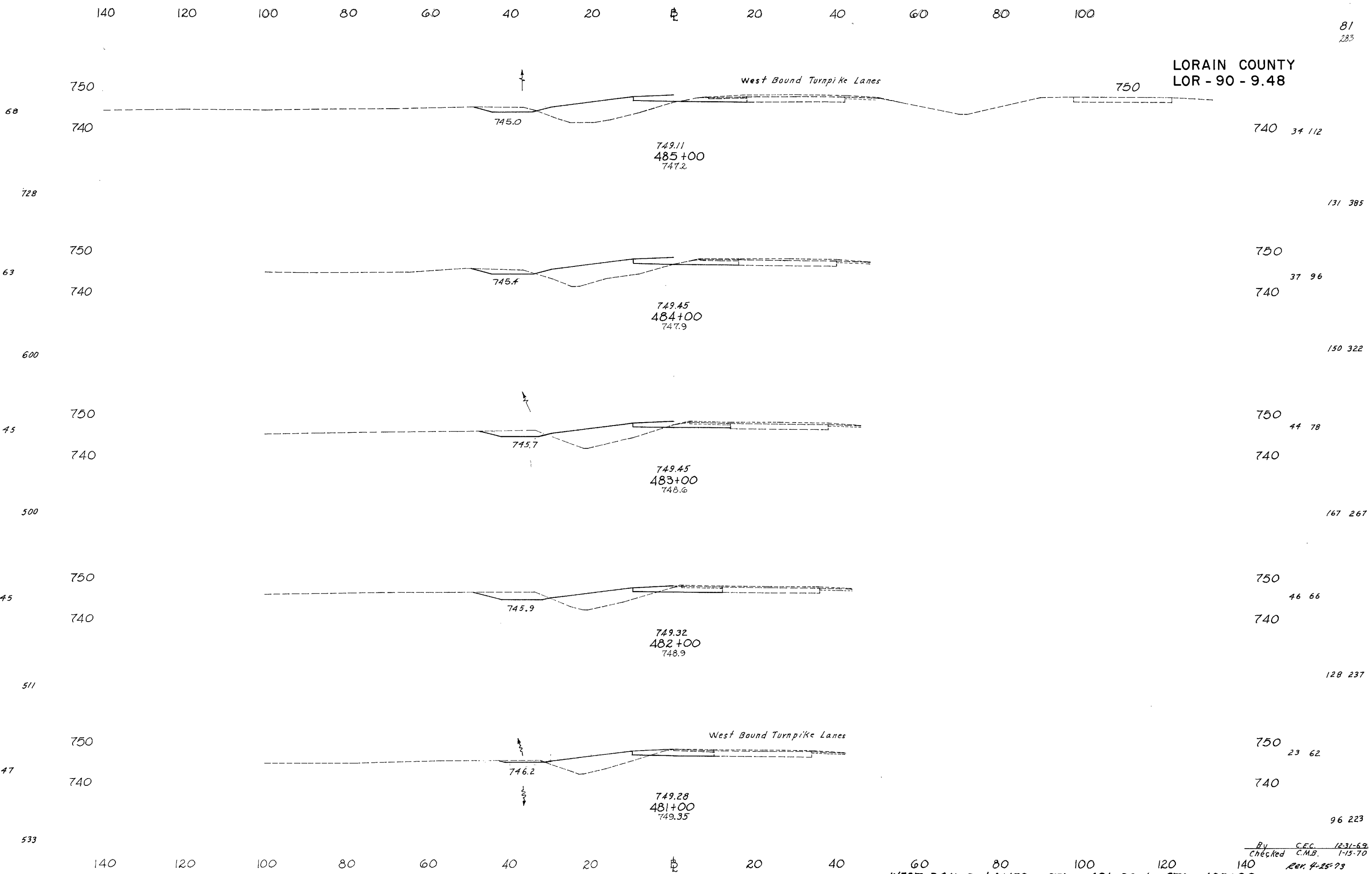
92

140 120 100 80 60 40 20 0 20 40 60 80 100

WEST BOUND LANES STA. 476+28.60 to STA. 480+00

By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-73

LORAIN COUNTY  
LOR - 90 - 9.48



By C.E.C. 12-31-69  
 Checked C.M.B. 1-15-70  
 Rev. 4-25-79

WEST BOUND LANES STA. 481+00 to STA. 485+00

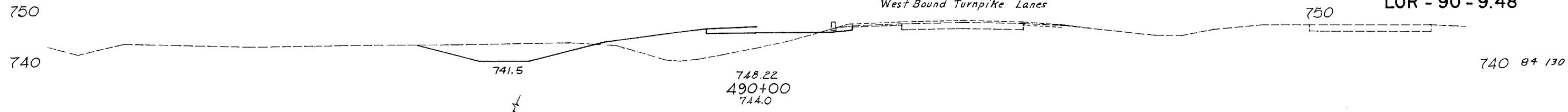
140 120 100 80 60 40 20 0 20 40 60 80 100

82  
283

LORAIN COUNTY  
LOR - 90 - 9.48

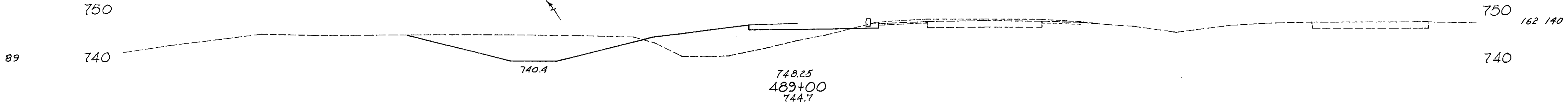
West Bound Turnpike Lanes

90



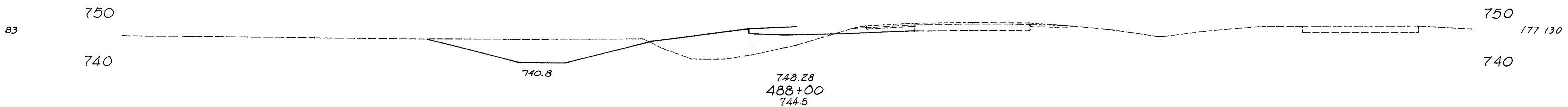
456 500

994



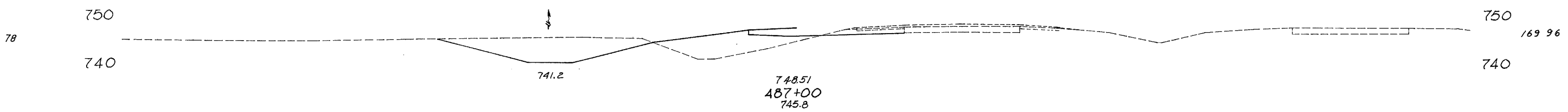
628 500

956



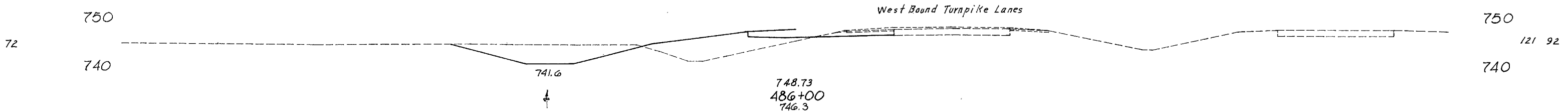
640 419

894



537 348

833



287 378

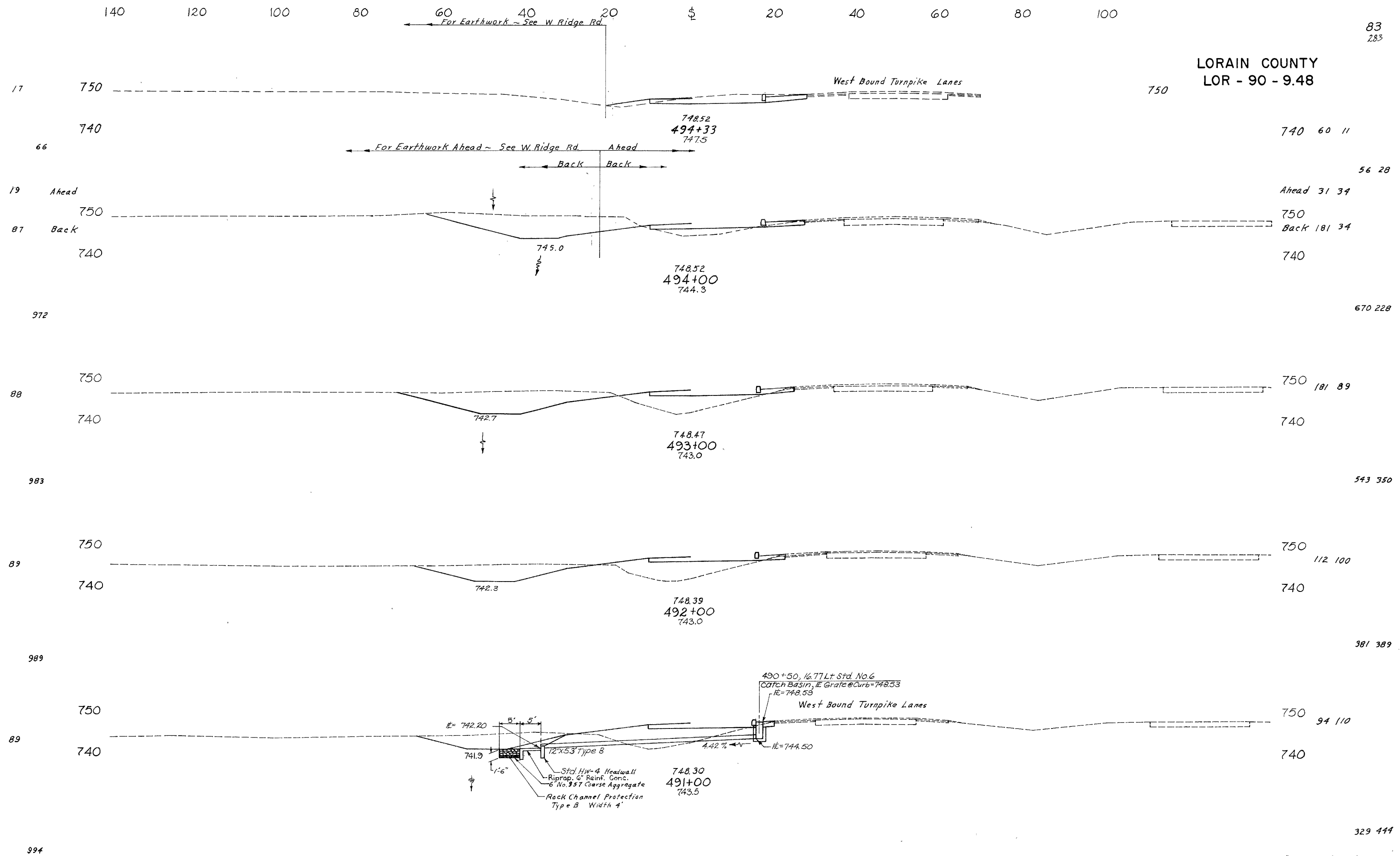
778

140 120 100 80 60 40 20 0 20 40 60 80 100 120

WEST BOUND LANES STA. 486+00 to STA. 490+00

By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Per H-25-75

LORAIN COUNTY  
LOR - 90 - 9.48



56 28

Ahead 31 34

Back 181 34

670 228

750 181 89

740

543 350

750 112 100

740

381 389

750 94 110

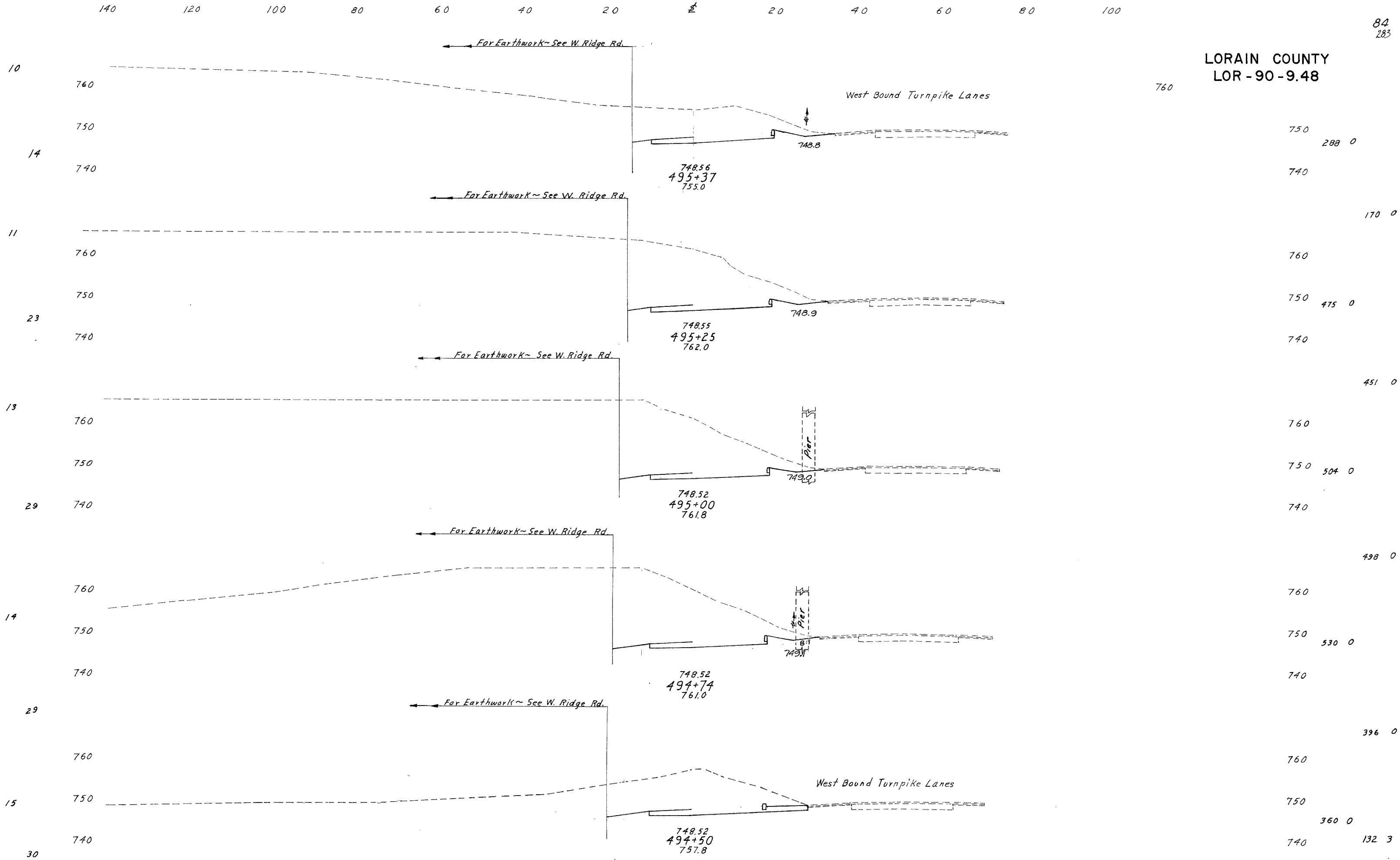
740

329 411

By C.E.C. 12-31-69  
 Checked C.M.B. 1-15-70  
 Rev. 4-25-73

WEST BOUND LANES STA. 491+00 to STA. 494+33

LORAIN COUNTY  
LOR - 90 - 9.48

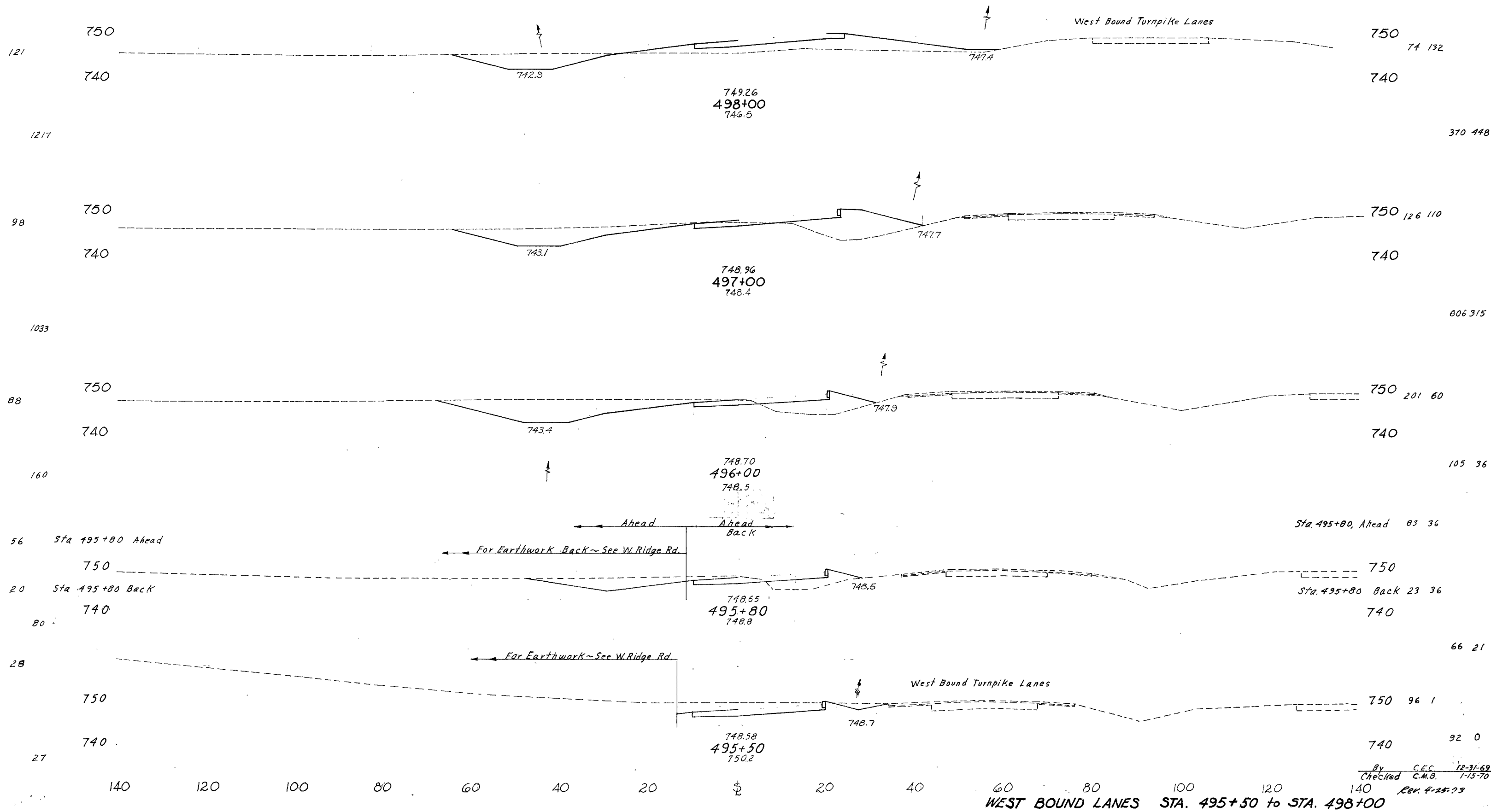


By C.E.C. 12-31-69  
 Checked C.M.B. 1-15-70  
 Rev. 4-25-73

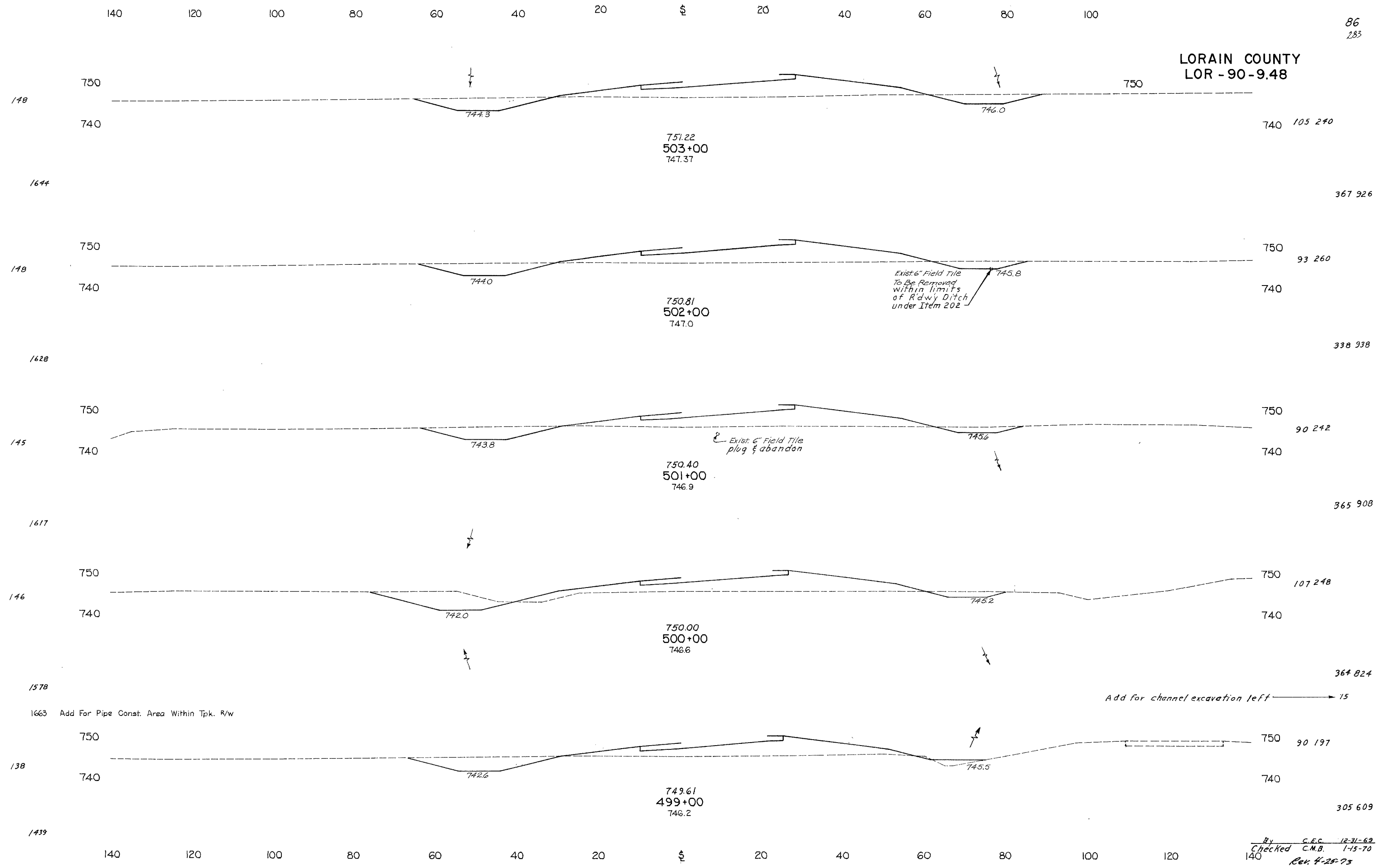
140 120 100 80 60 40 20 0 20 40 60 80 100

85  
283

LORAIN COUNTY  
LOR - 90 - 9.48



LORAIN COUNTY  
LOR - 90-9.48

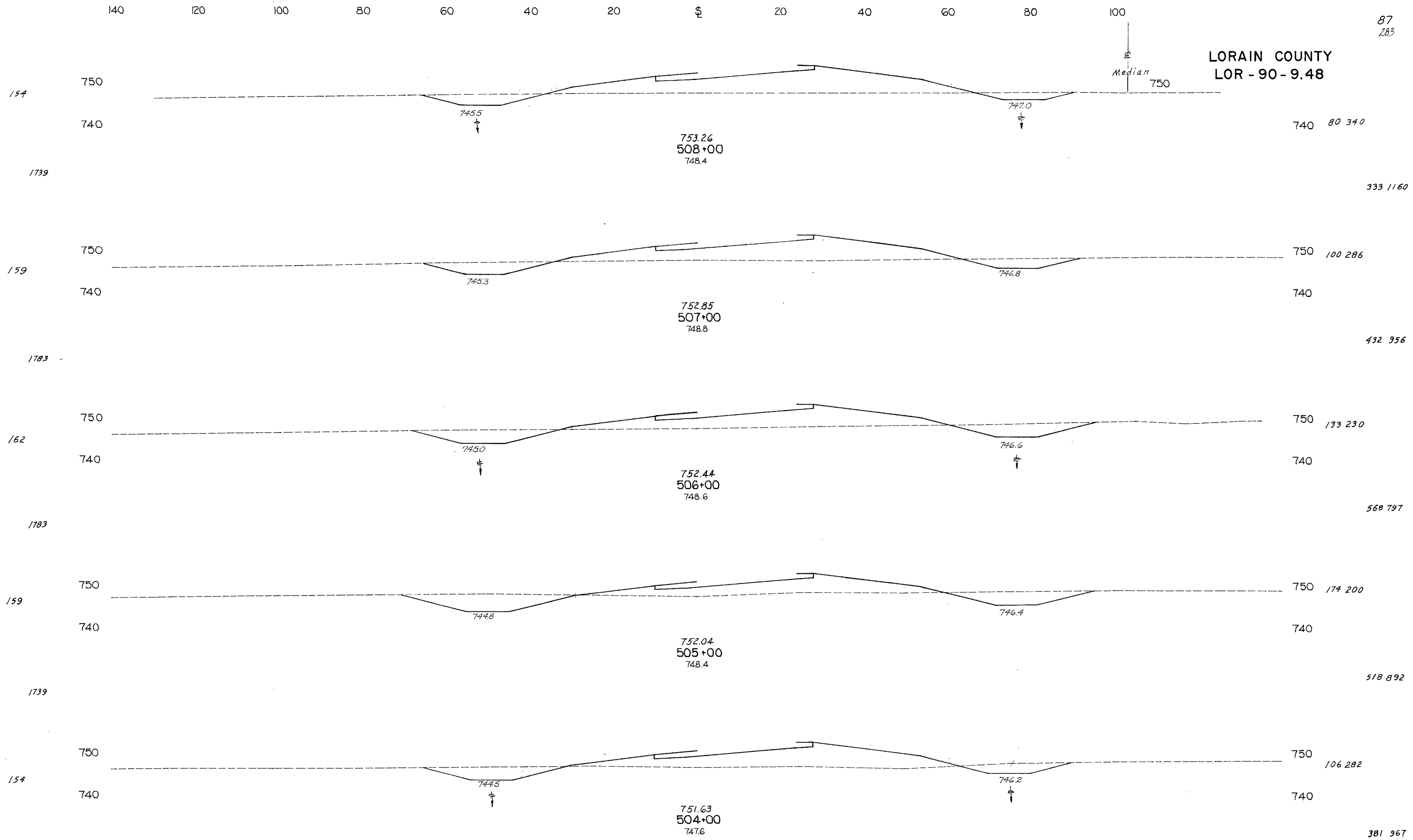


WEST BOUND LANES STA. 499+00 to STA. 503+00

By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-73

LORAIN COUNTY  
LOR - 90 - 9.48

Median  
750



740 80 340

333 1160

750 100 286

432 956

750 133 230

568 797

750 174 200

518 892

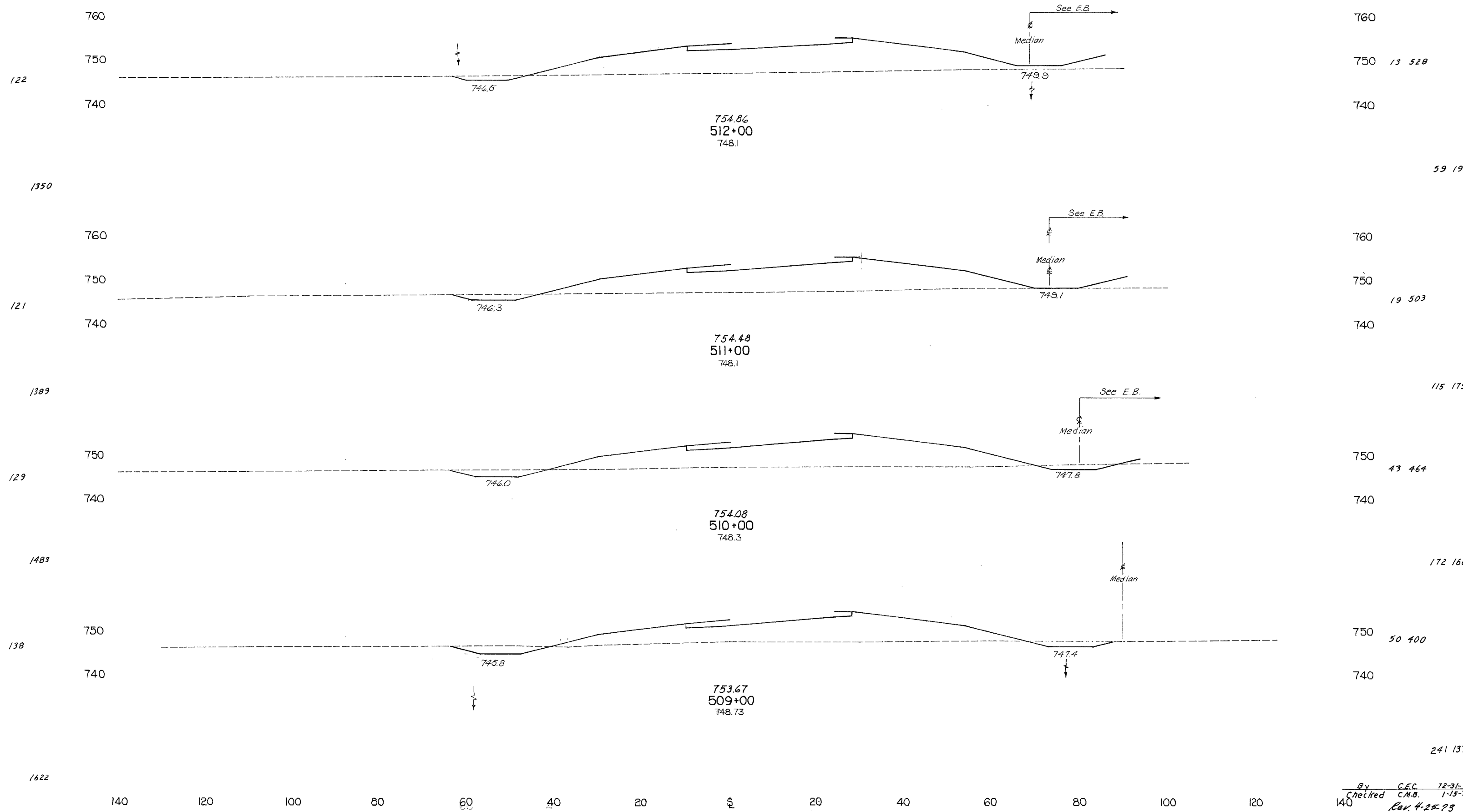
750 106 282

381 967

By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-73



LORAIN COUNTY  
LOR - 90 - 9.48

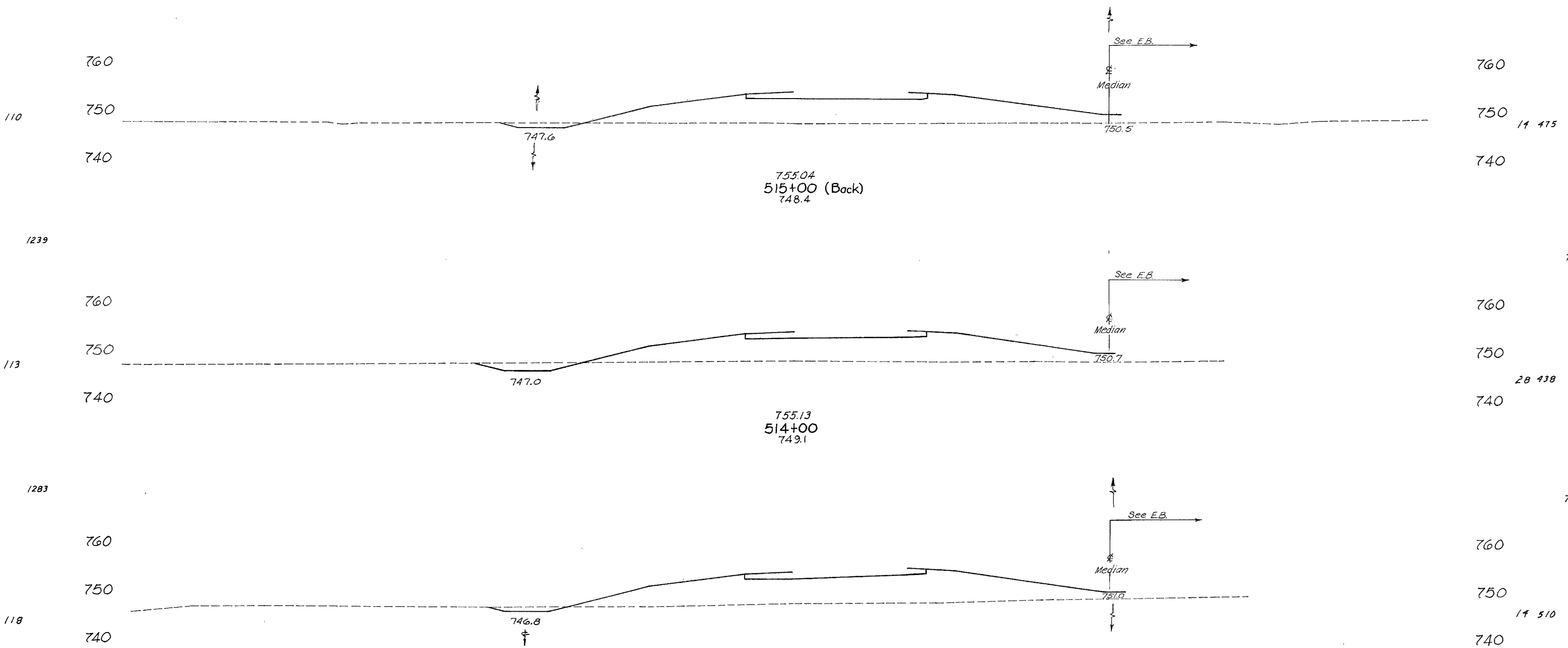


WEST BOUND LANES STA. 509+00 to STA. 512+00

By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-73

LORAIN COUNTY  
LOR - 90 - 9.48

120 140



1239

113

1283

118

1333

14 415

28 438

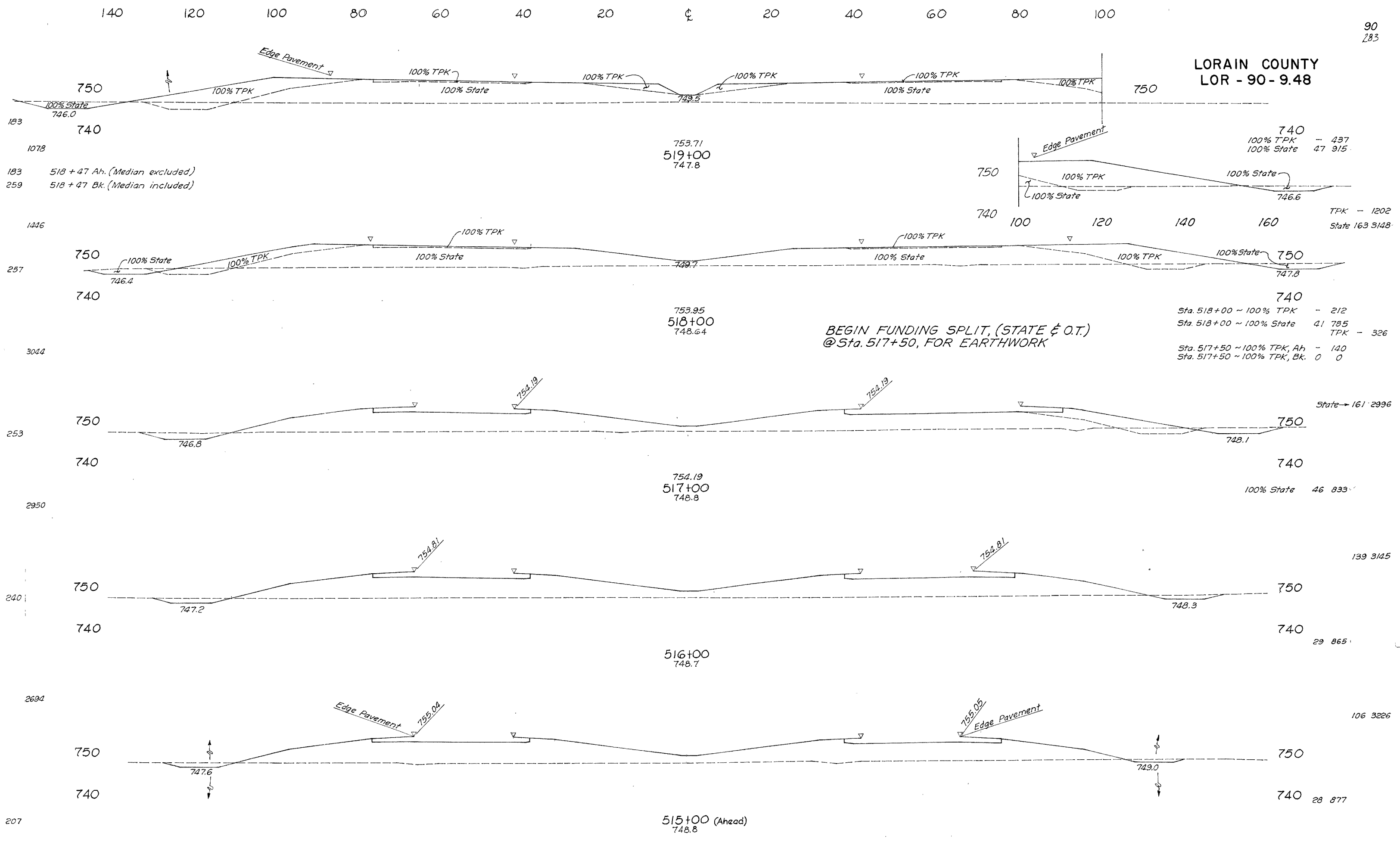
14 510

78 1691

78 1756

50 1922

LORAIN COUNTY  
LOR - 90 - 9.48



183 518 + 47 Ah. (Median excluded)  
 259 518 + 47 Bk. (Median included)

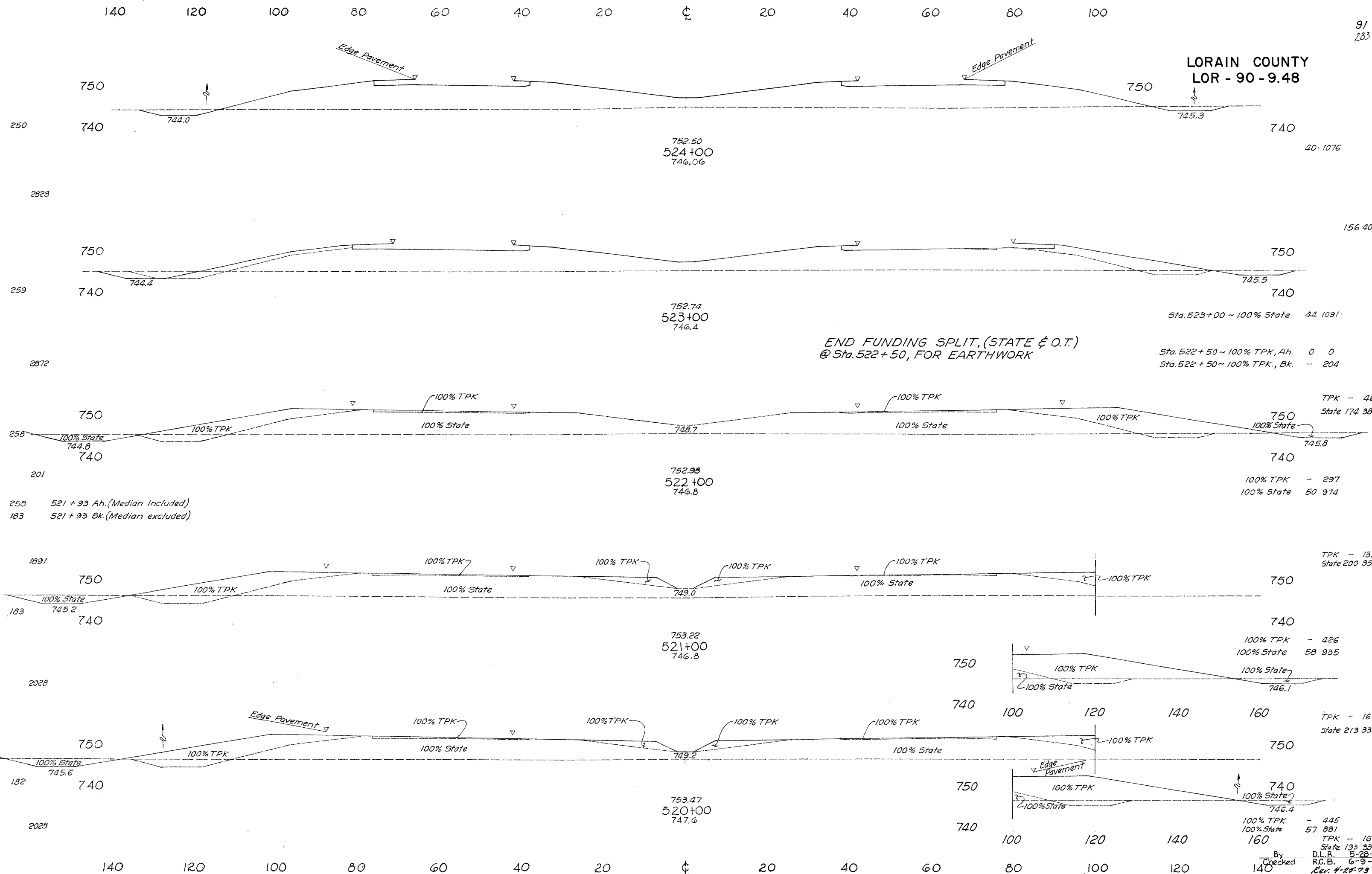
Sta. 518+00 ~ 100% TPK - 212  
 Sta. 518+00 ~ 100% State 41 785  
 TPK - 326  
 Sta. 517+50 ~ 100% TPK, Ah - 140  
 Sta. 517+50 ~ 100% TPK, Bk. 0 0

BEGIN FUNDING SPLIT, (STATE & O.T.)  
 @ Sta. 517+50, FOR EARTHWORK

By D.L.R. 5-28-70  
 Checked R.C.B. 6-9-70  
 Rev. 4-25-78

CENTER LINE SURVEY STA. 515+00 to STA. 519+00

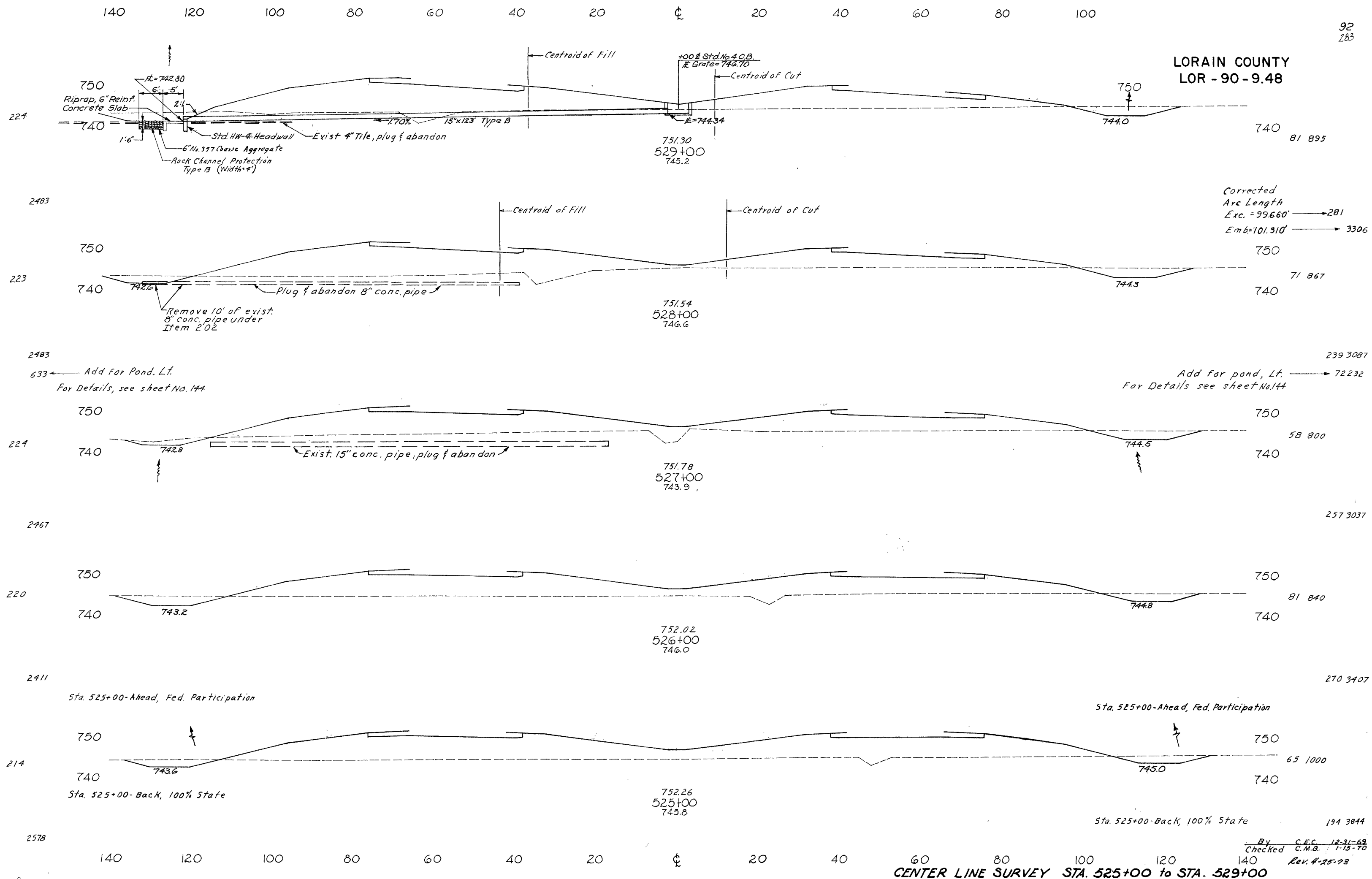
LORAIN COUNTY  
LOR - 90 - 9.48



END FUNDING SPLIT, (STATE & O.T.)  
@ Sta. 522+50, FOR EARTHWORK

258 521 + 93 Ah. (Median included)  
183 521 + 93 Bk. (Median excluded)

LORAIN COUNTY  
LOR - 90 - 9.48



140 120 100 80 60 40 20 0 20 40 60 80 100

140 120 100 80 60 40 20 0 20 40 60 80 100

750  
Riprap, 6" Reinf. Concrete Slab  
6' x 5' 2:1  
1.6'  
Std. HW-4 Headwall  
6" No. 357 Coarse Aggregate  
Rock Channel Protection Type B (Width 4')

Centroid of Fill

+00 # Std. No. 4 C.B.  
# Gate = 746.70

Centroid of Cut

750  
740  
744.0

751.30  
529+00  
745.2

750  
740  
744.3

Centroid of Fill

Centroid of Cut

750  
740  
742.6

Plug & abandon 8" conc. pipe

Remove 10' of exist. 8" conc. pipe under Item 2'02

751.54  
528+00  
746.6

633 Add for Pond. Lt.  
For Details, see sheet No. 144

750  
740  
742.8

Exist. 15" conc. pipe, plug & abandon

744.5

751.78  
527+00  
743.9

750  
740  
743.2

744.8

752.02  
526+00  
746.0

2411  
Sta. 525+00-Ahead, Fed. Participation

750  
740  
743.6

745.0

752.26  
525+00  
745.8

2411  
Sta. 525+00-Ahead, Fed. Participation

214  
Sta. 525+00-Back, 100% State

750  
740

2411  
Sta. 525+00-Back, 100% State

81 895

71 867

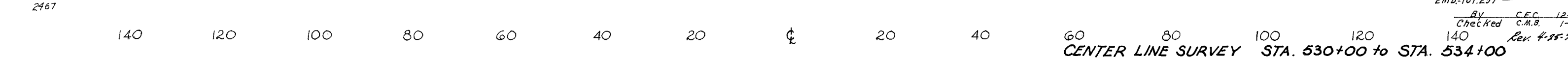
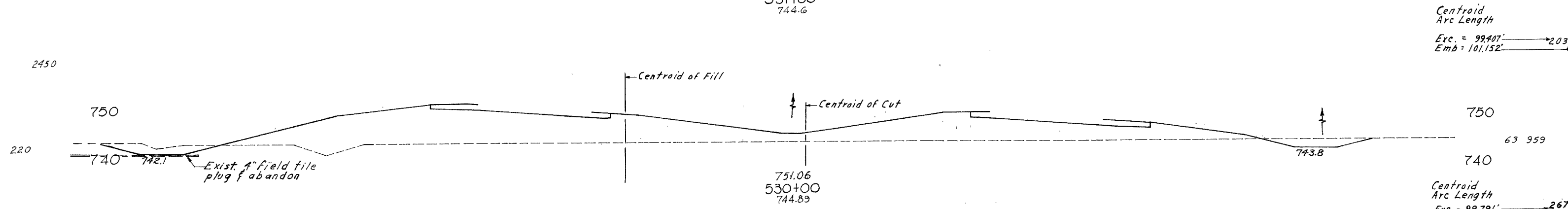
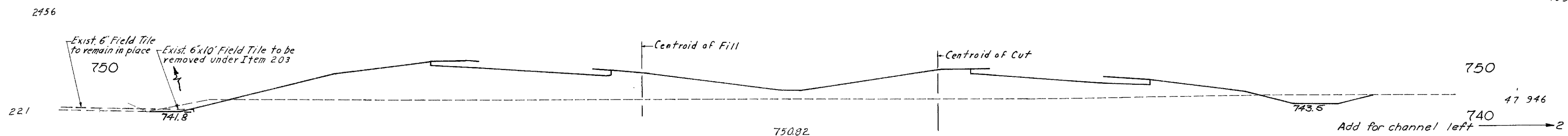
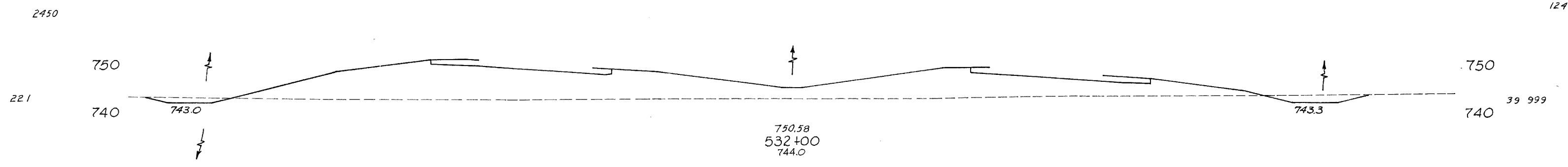
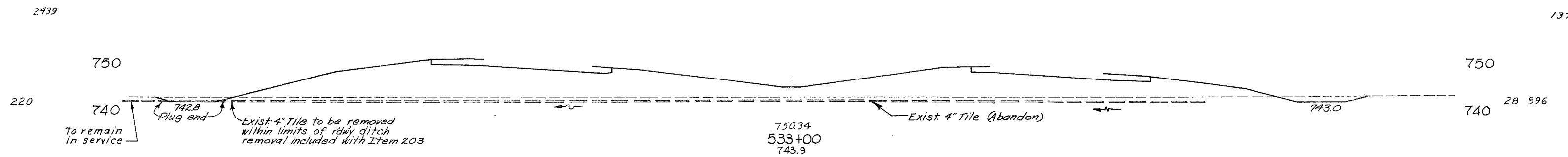
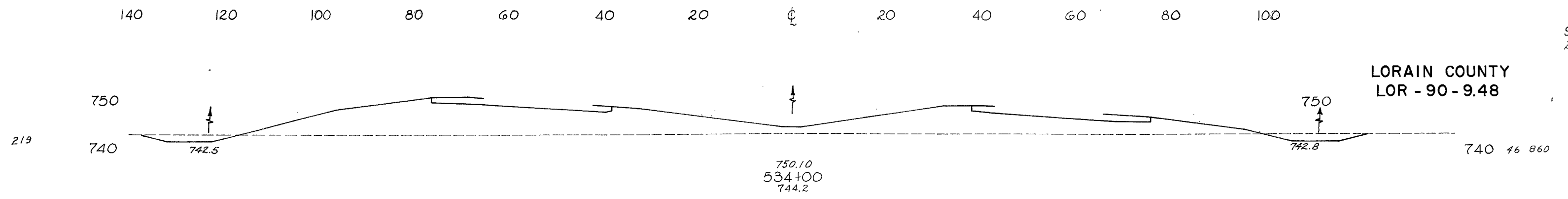
58 800

81 840

65 1000

194 3814

LORAIN COUNTY  
LOR - 90 - 9.48

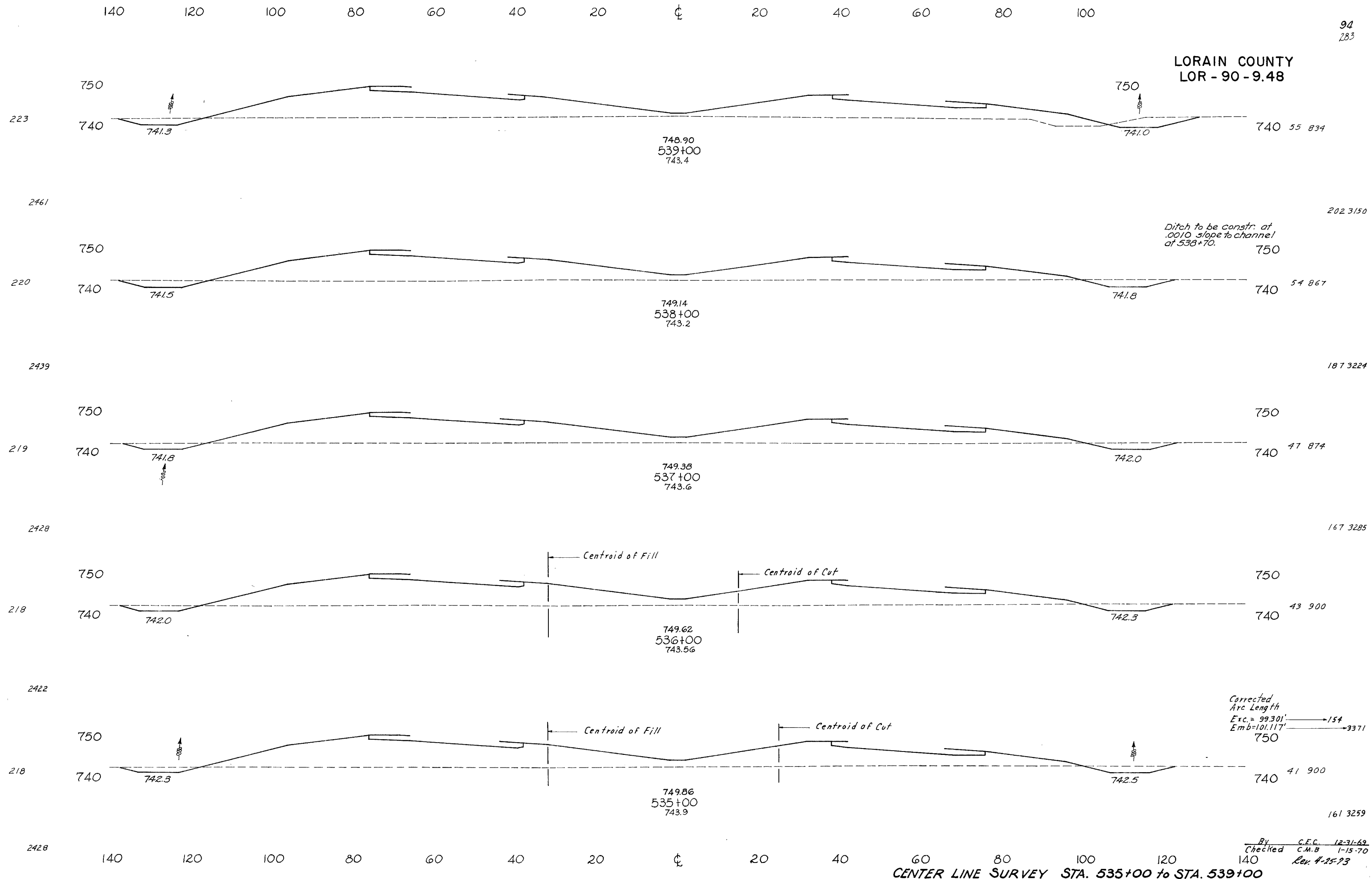


Centroid Arc Length  
Exc. = 99.407' → 203  
Emb = 101.152' → 3568

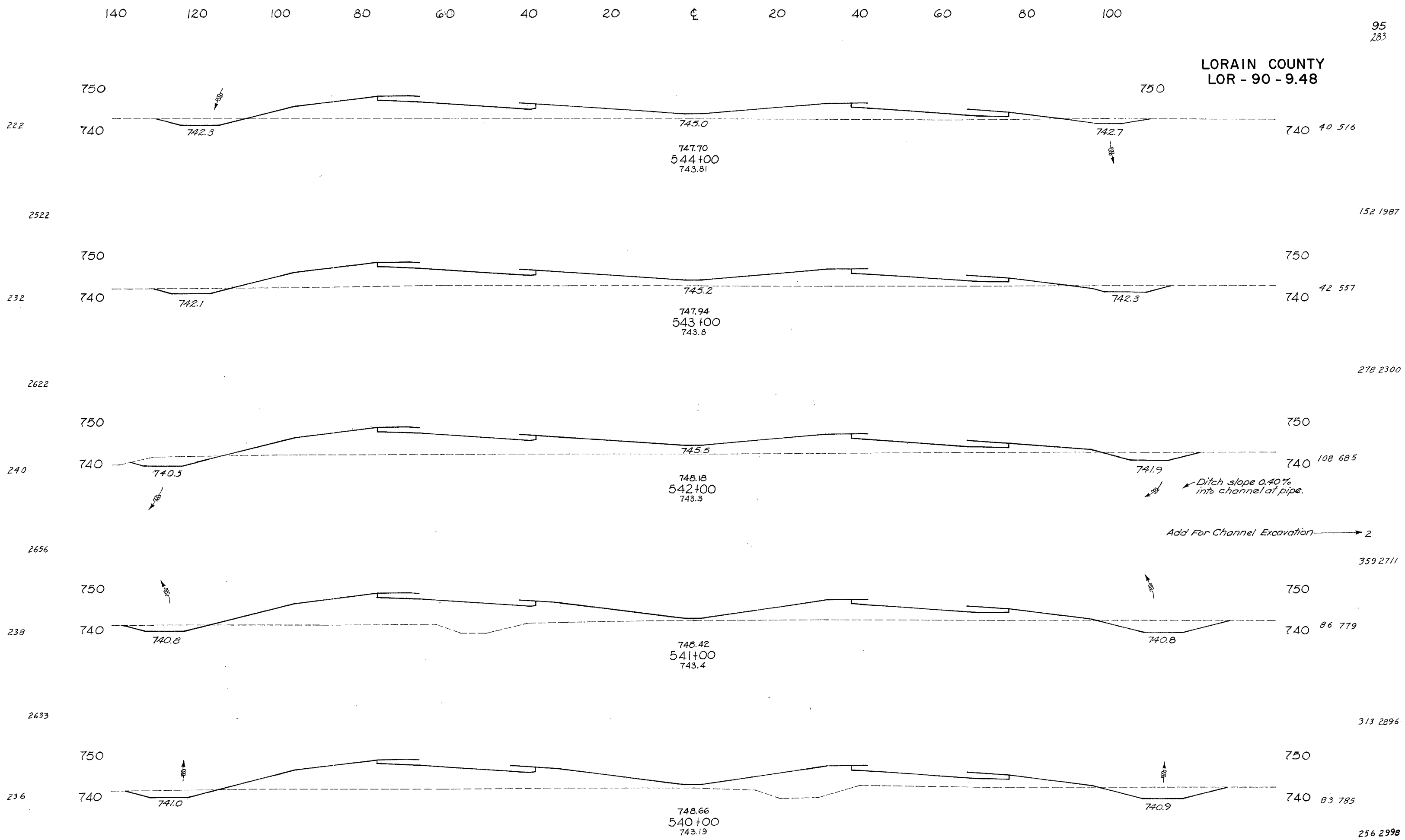
Centroid Arc Length  
Exc. = 99.791' → 267  
Emb = 101.257' → 3476

By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-73

LORAIN COUNTY  
LOR - 90 - 9.48



LORAIN COUNTY  
LOR - 90 - 9.48

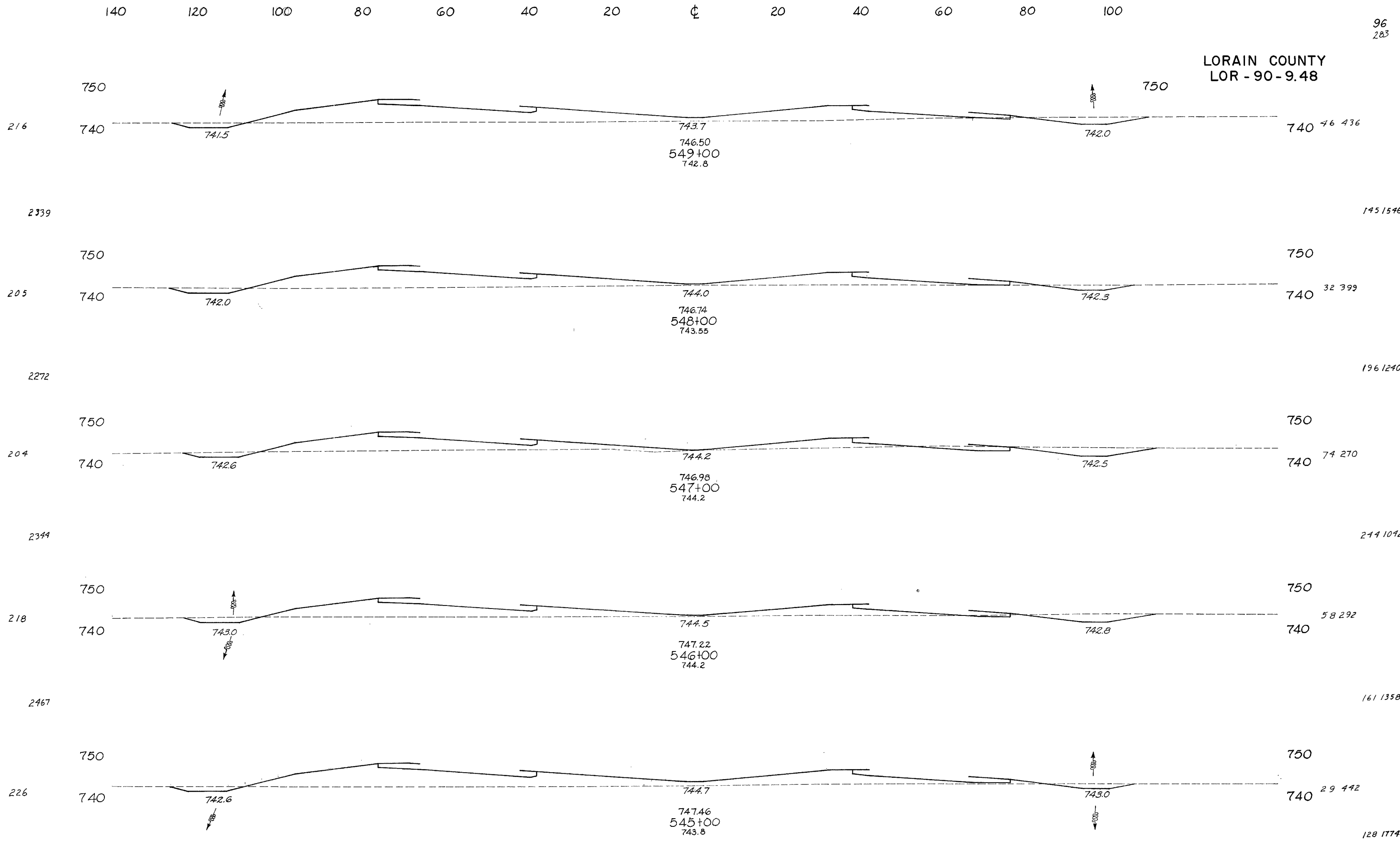


Ditch slope 0.40% into channel at pipe.

Add For Channel Excavation → 2



LORAIN COUNTY  
LOR - 90 - 9.48

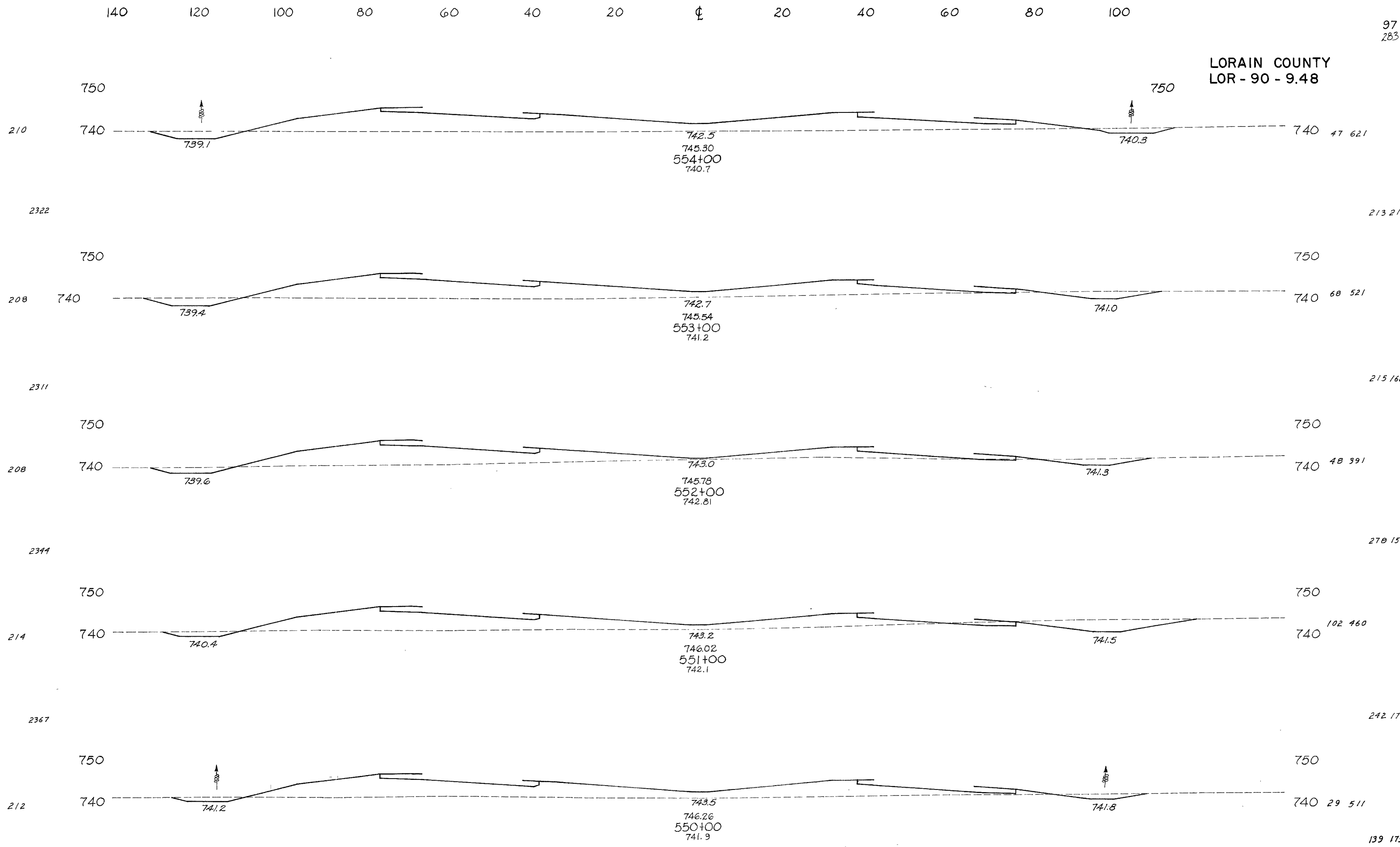


2489

By CEC. 12-31-69  
 Checked C.M.B. 1-15-70  
 Rev. 4-25-73

CENTER LINE SURVEY STA. 545+00 to STA. 549+00

LORAIN COUNTY  
LOR - 90 - 9.48



213 2115

215 1689

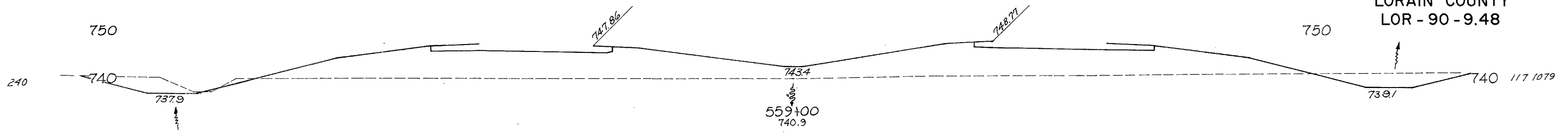
278 1575

242 1799

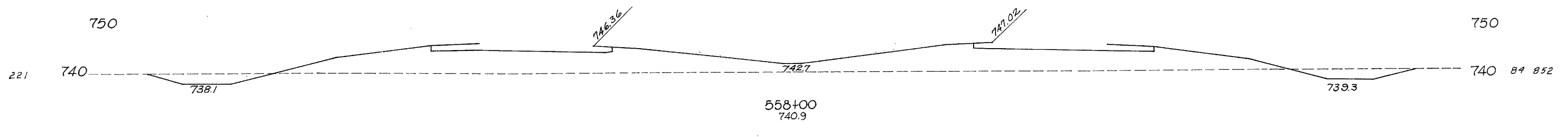
139 1754

BY C.E.C. 12-31-69  
 Checked C.M.B. 1-13-70  
 Rev. 4-25-79

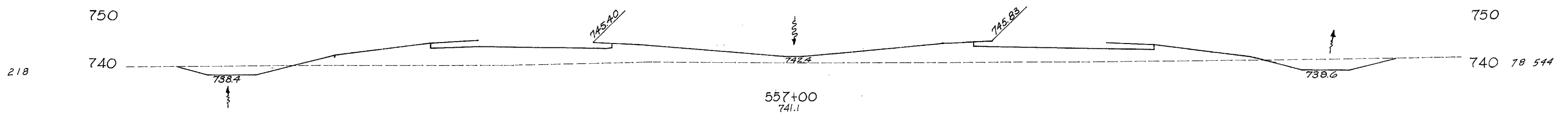
LORAIN COUNTY  
LOR - 90 - 9.48



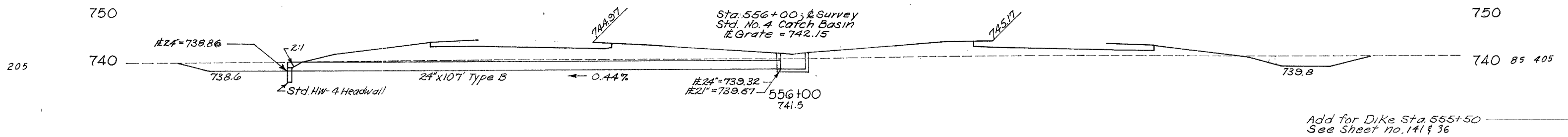
372 3576



300 2585

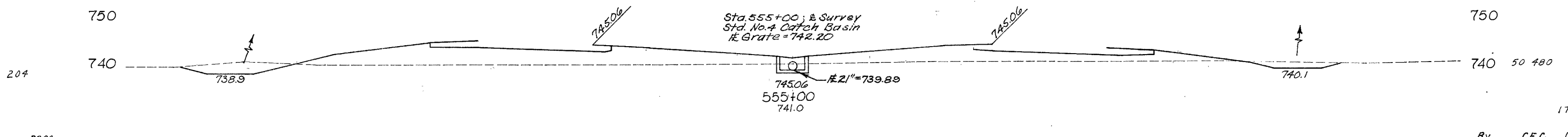


302 1754



Add for DiKe Sta 555+50 → 64  
See Sheet no. 141 & 36

250 1639

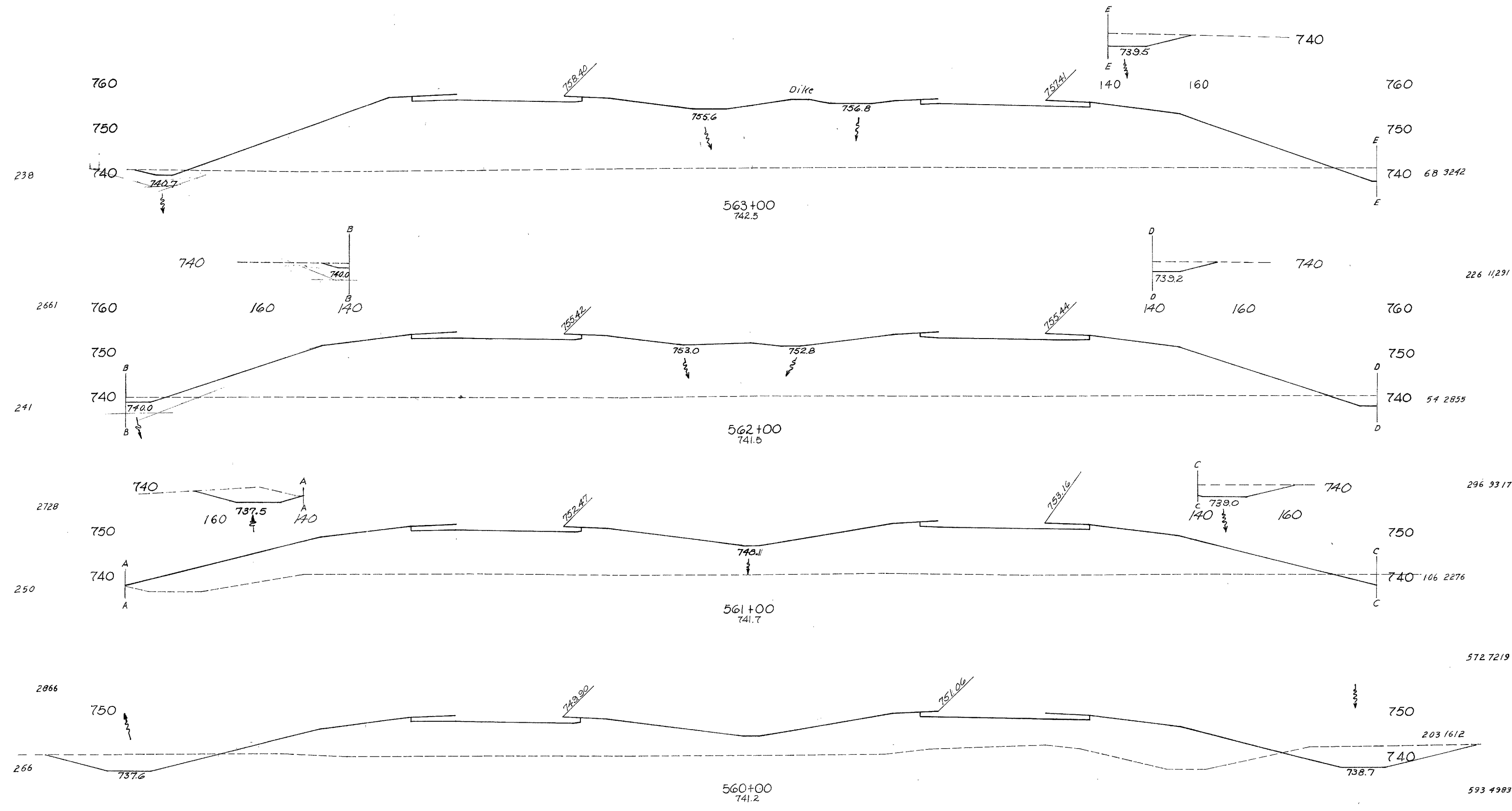


179 2039

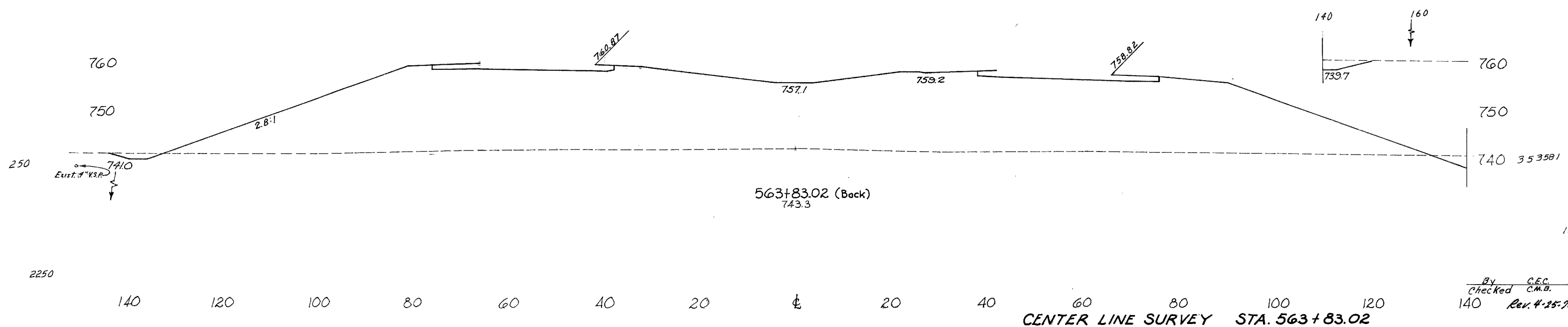
2300

By C.F.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-73

LORAIN COUNTY  
LOR - 90 - 9.48

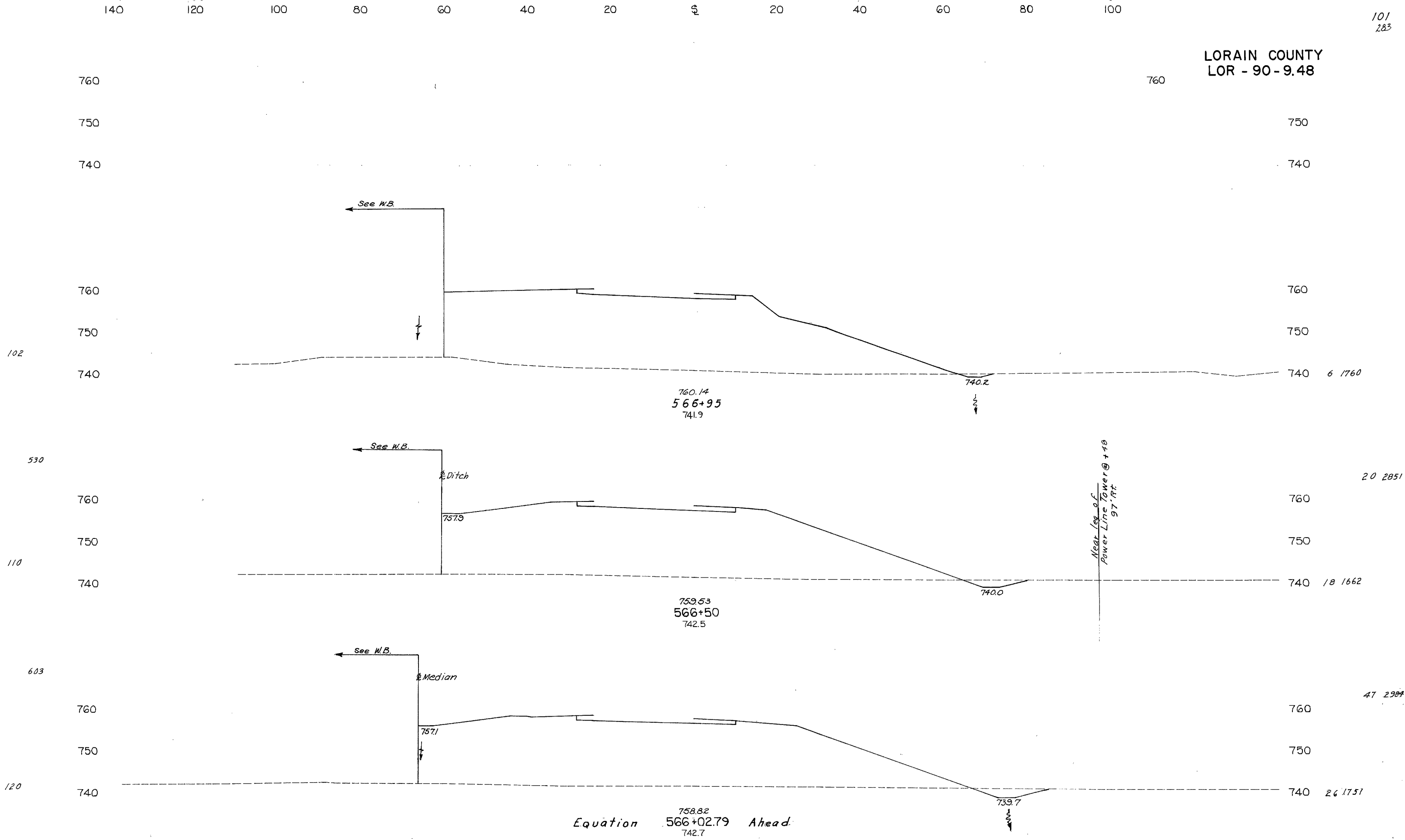


LORAIN COUNTY  
LOR - 90 - 9.48



CENTER LINE SURVEY STA. 563 + 83.02

LORAIN COUNTY  
LOR - 90 - 9.48



Equation 566+02.79 Ahead  
742.7

EAST BOUND LANES STA. 566+02.79 to STA. 566+95

By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-79

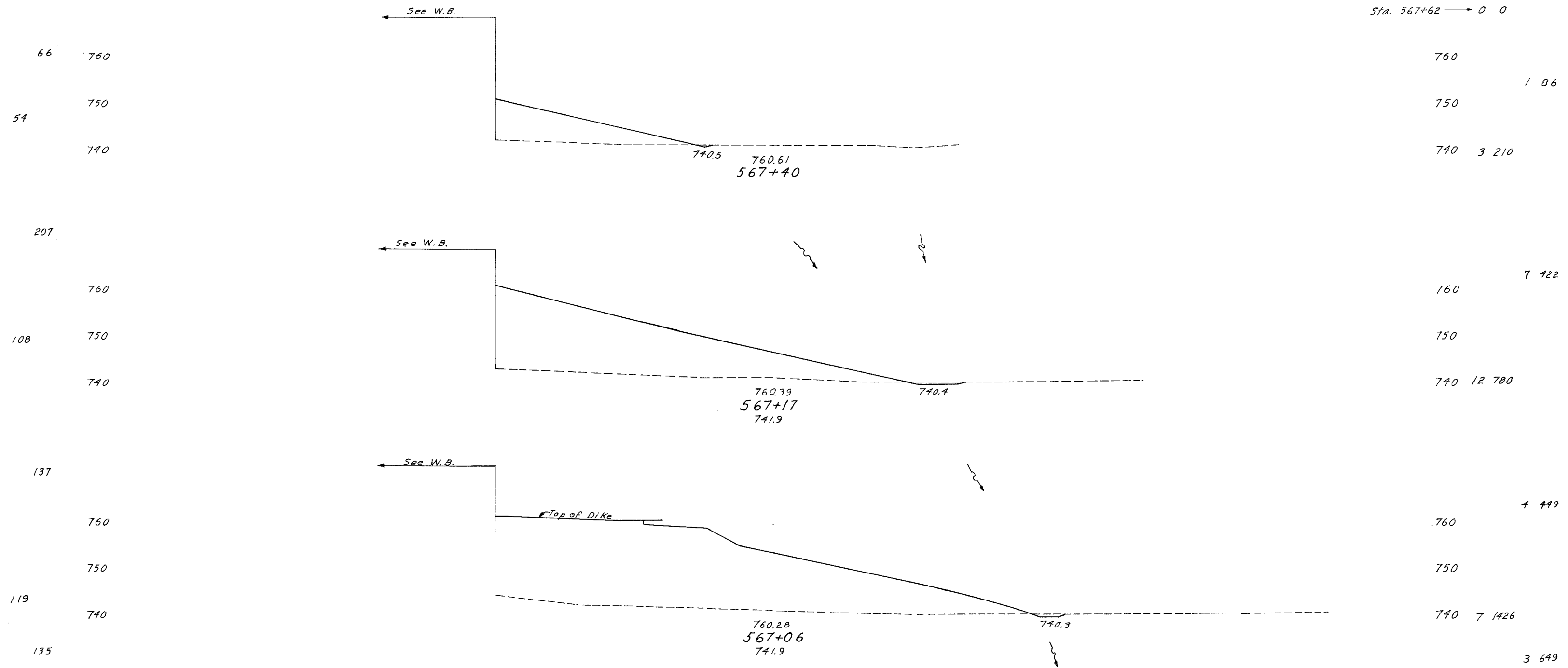
LORAIN COUNTY  
LOR - 90 - 9.48

120 140

MURRAY RIDGE RD. BRIDGE

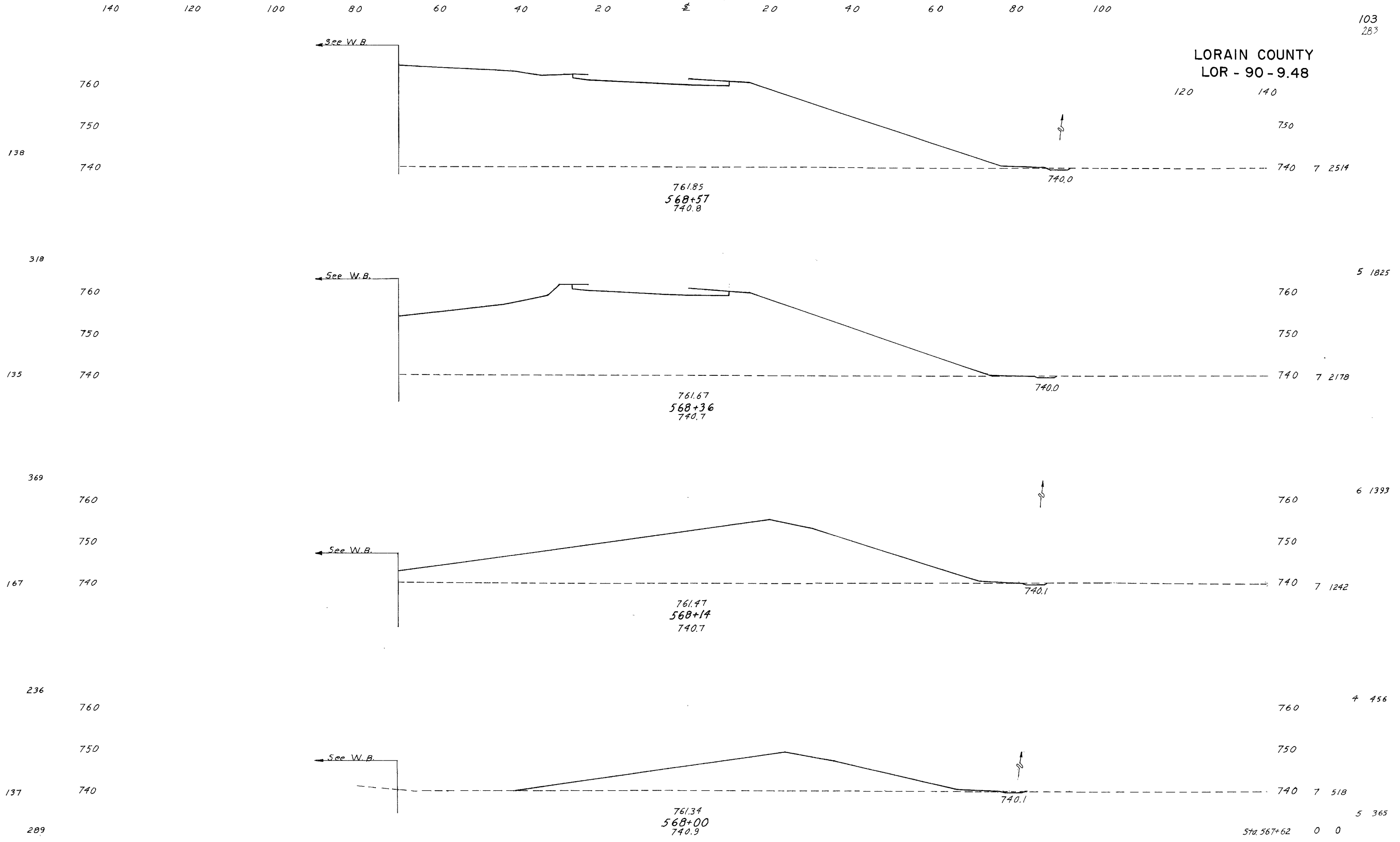
0 ← Sta. 567+62

Sta. 567+62 → 0 0



By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-28-99

LORAIN COUNTY  
LOR - 90 - 9.48



MURRAY RIDGE RD. BRIDGE

EAST BOUND LANES STA. 568+00 to STA. 568+57

By C.F.C. 12-31-69  
 Checked C.M.B. 1-15-70  
 Per. 4-25-78

Sta. 567+62 0 0

5 365

4 456

7 1242

6 1393

7 2178

5 1825

7 2514

0 ← Sta. 567+62

289

236

167

369

135

318

138

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

760

750

740

760

750

740

760

750

740

760

750

740

750

760

750

760

750

760

750

740

← See W.B.

← See W.B.

← See W.B.

← See W.B.



740.0

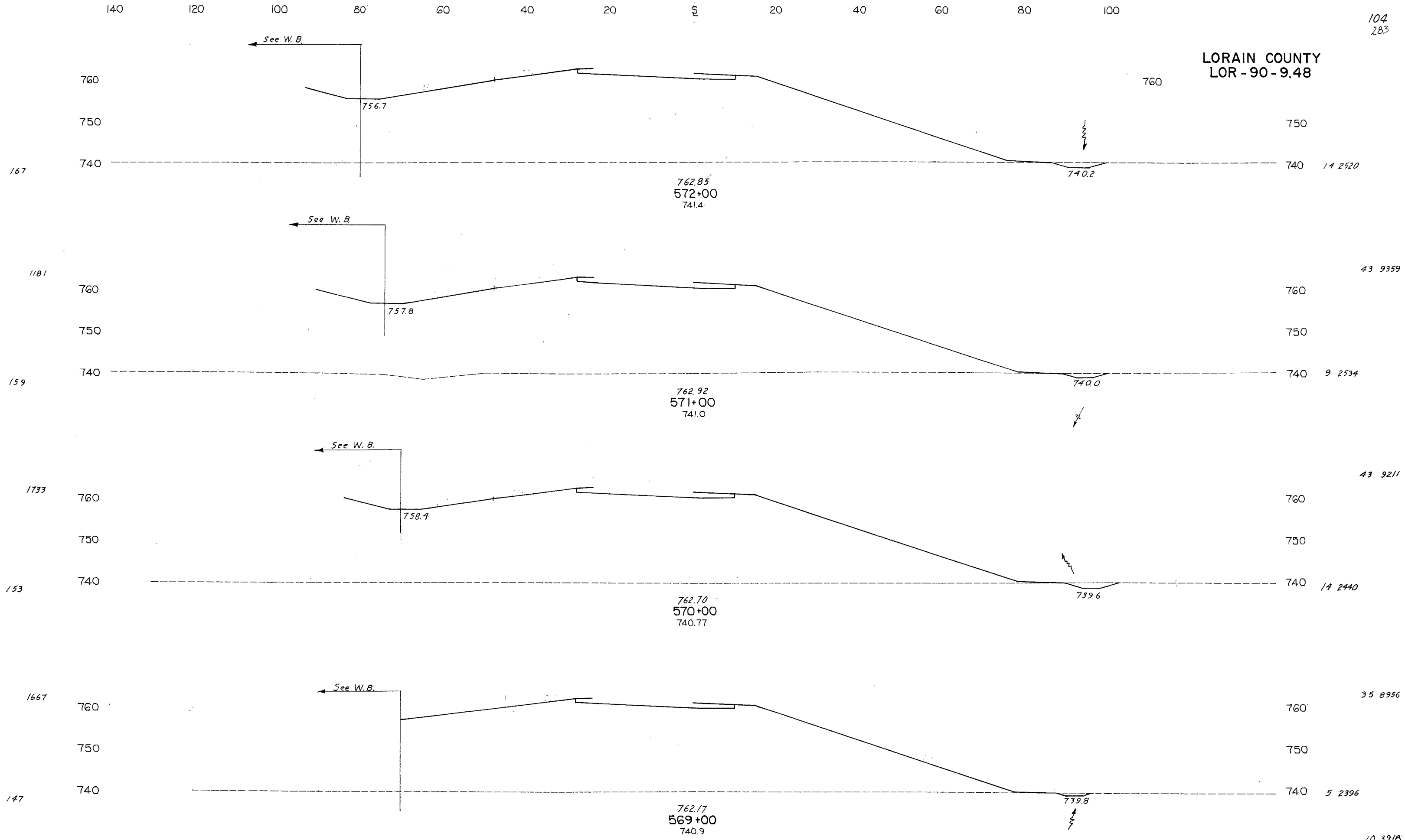
740.0

740.1

740.1



LORAIN COUNTY  
LOR-90-9.48

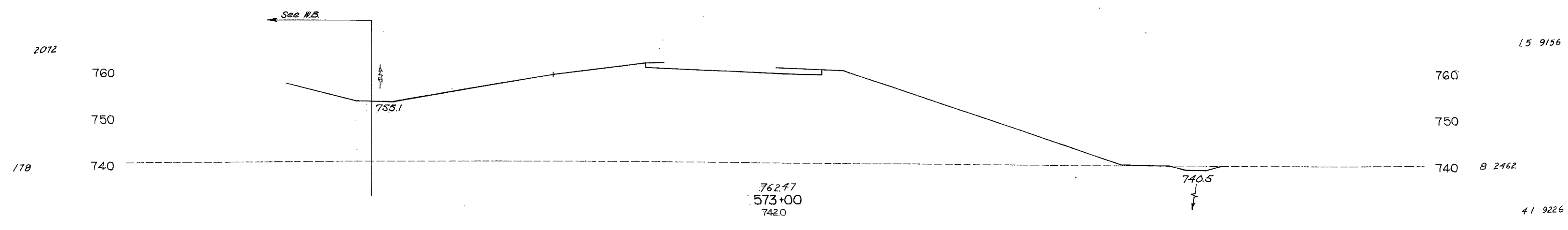
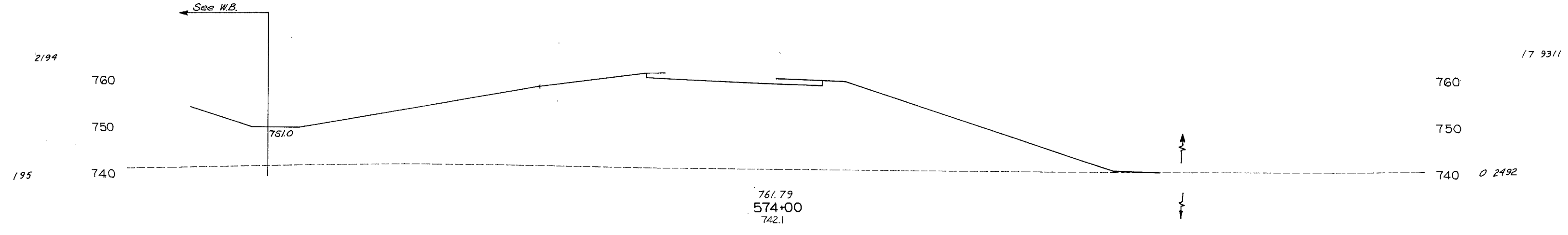
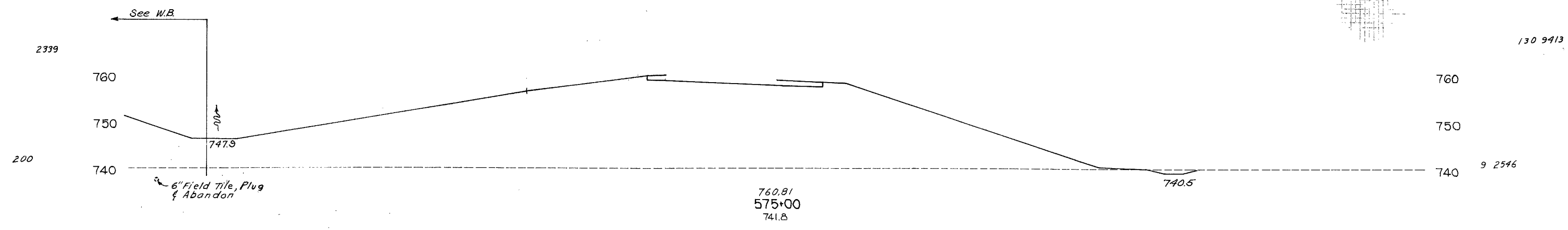
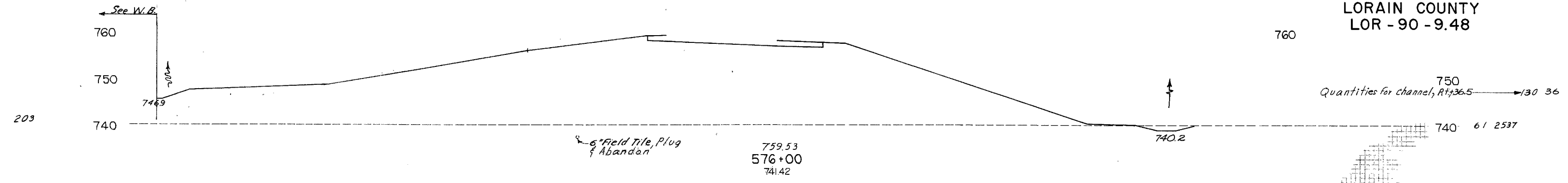


EAST BOUND LANES STA. 569+00 to STA. 572+00

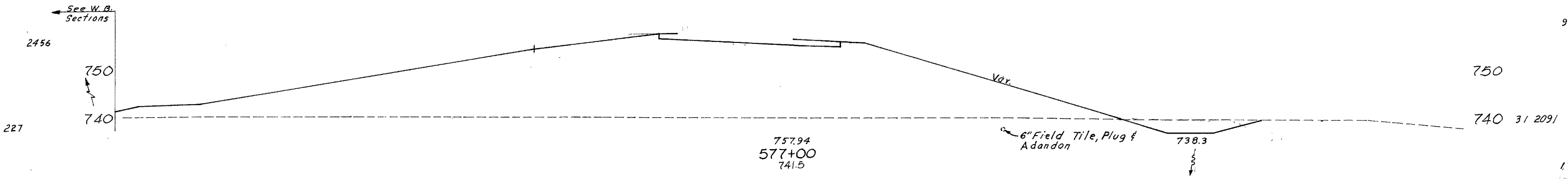
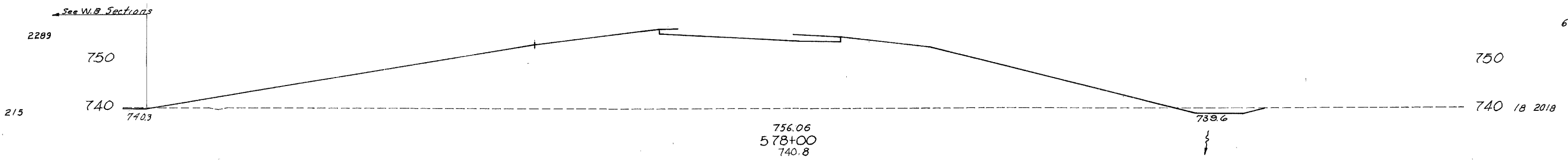
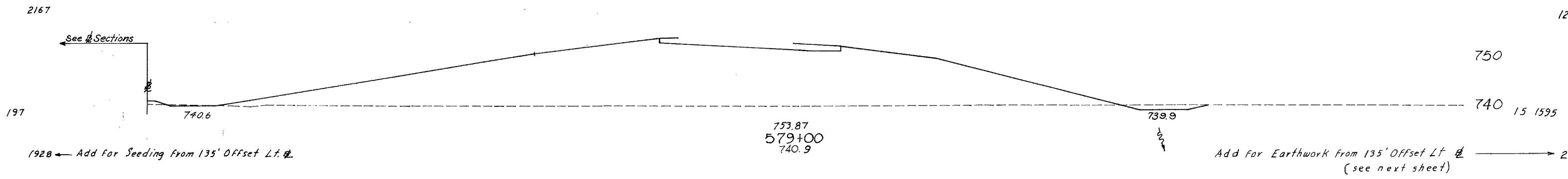
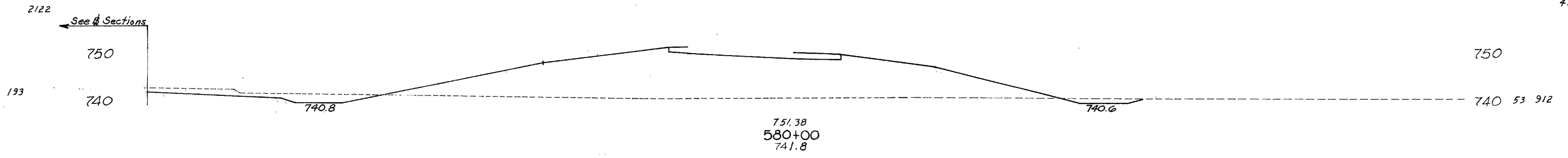
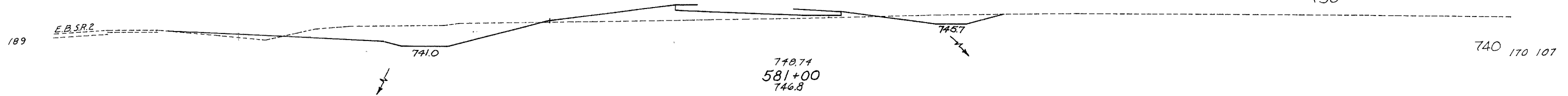
10 3918  
 By C.E.C. 12-31-69  
 Checked C.M.B. 1-15-70  
 Rev. 4-85-75

LORAIN COUNTY  
LOR - 90 - 9.48

183 Add; Channel, Rt. +10



LORAIN COUNTY  
LOR - 90 - 9.48



By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-73

180 160 140 120 100 80 60 40 20 0

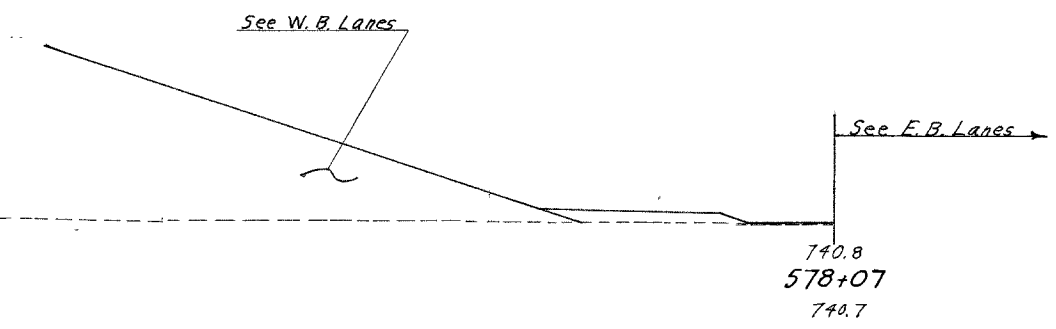
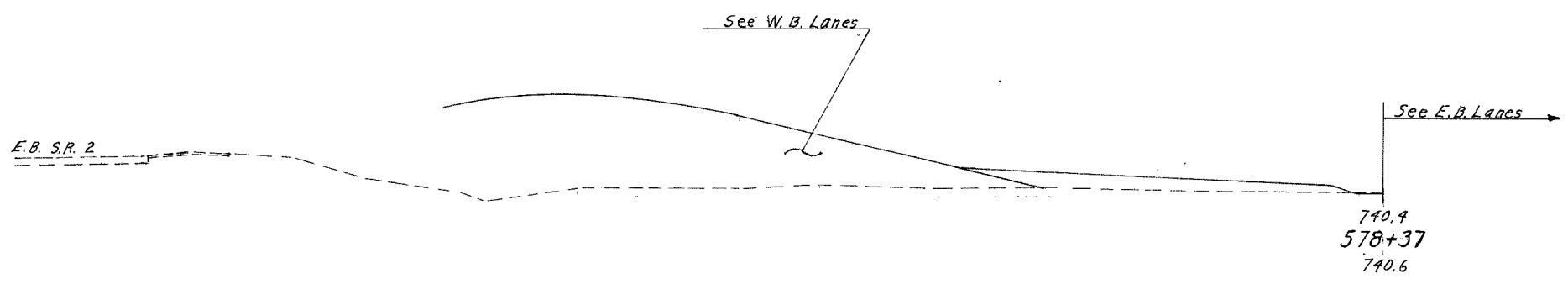
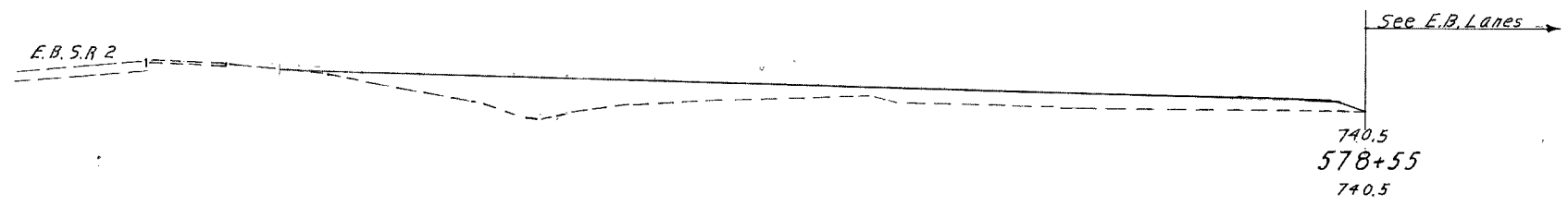
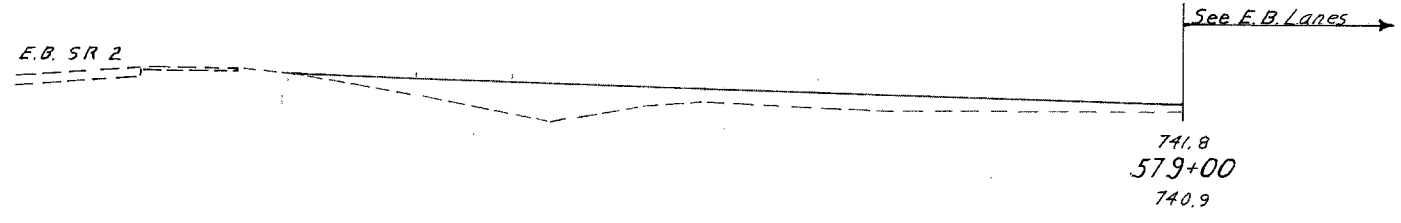
107  
283

LORAIN COUNTY  
LOR - 90 - 9.48

0 Sta. 580+98  
237  
43  
783  
98  
563  
127  
185  
58  
157  
36  
6  
0 Sta. 578+04

750

Sta. 580+98  
740 0 0  
6 17 11 31  
730  
750 11 324  
740  
730 0 158  
750 0 315  
740 0 220  
730  
750 0 96  
740 0 68  
730  
750 0 23  
740 0 1  
Sta. 578+04 0 0  
730

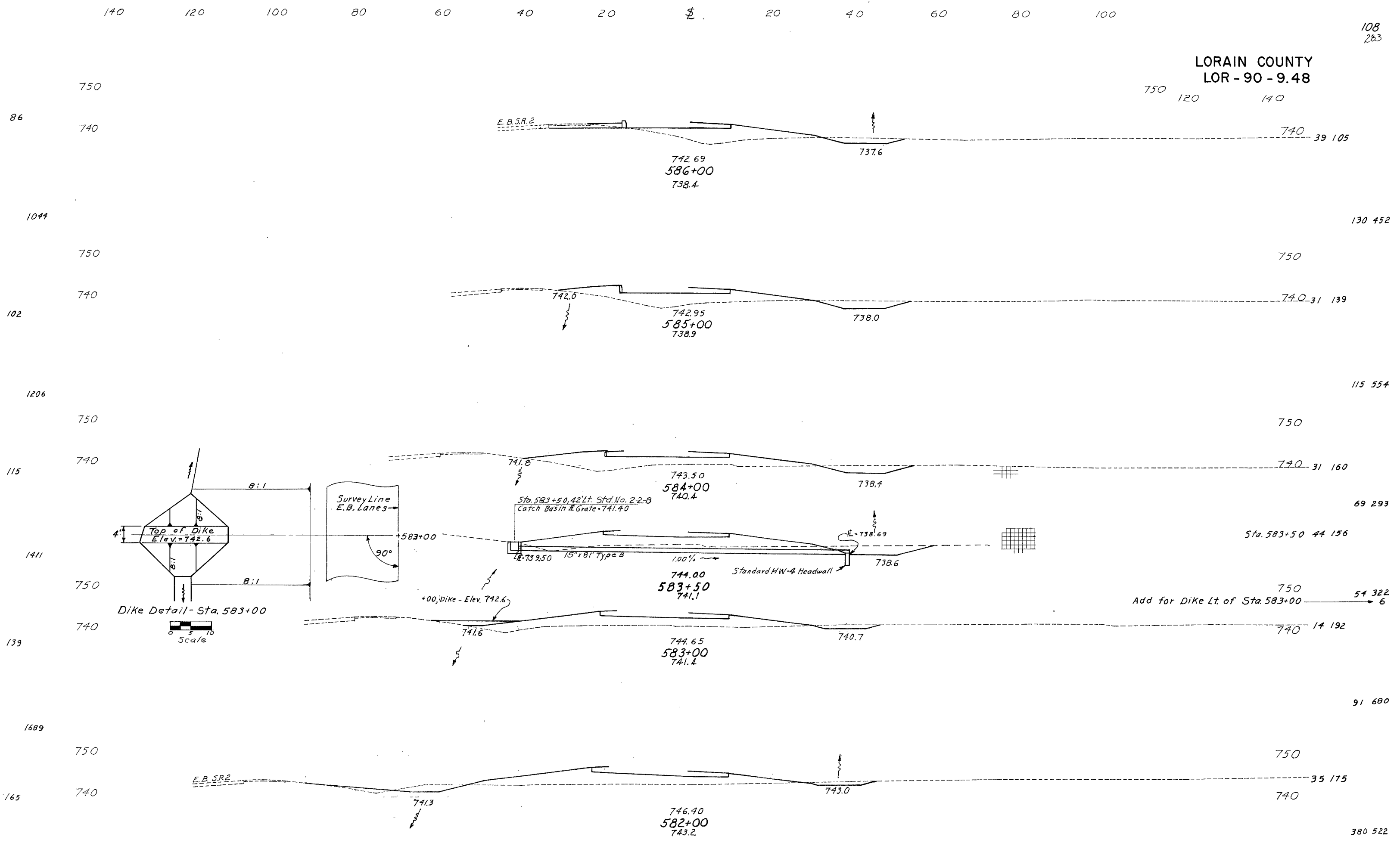


180 160 140 120 100 80 60 40 20 0

OFFSET 13.5' OF FAST ROAD LANES STA 578+07 to STA 580+00

By C.M.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-79

LORAIN COUNTY  
LOR - 90 - 9.48



140 120 100 80 60 40 20 0 20 40 60 80 100

750 120 140

86 740 740 39 105

742.69  
586+00  
738.4

737.6

1044 750 750 130 452

102 740 740 31 139

742.95  
585+00  
738.9

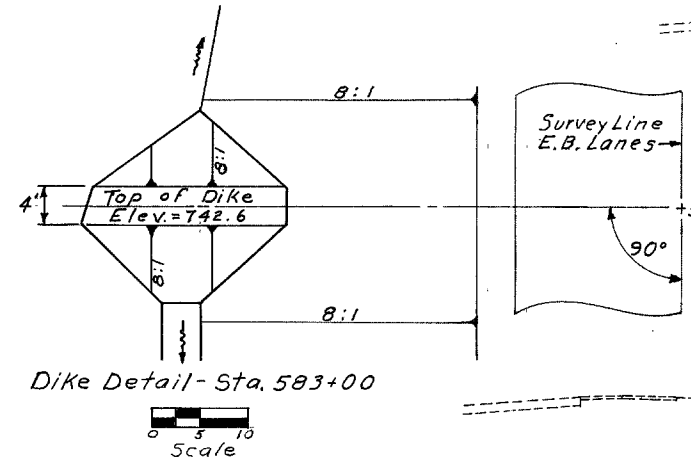
738.0

1206 750 750 115 554

115 740 740 31 160

743.50  
584+00  
740.4

738.4



Sta. 583+50, 42' Lt. Std. No. 2-2-B  
Catch Basin # Grate = 741.40

583+00

744.00  
583+50  
741.1

E. = 738.69

Standard HW-4 Headwall

Sta. 583+50 44 156

Add for Dike Lt. of Sta. 583+00 54 322 6

139 740 740 14 192

744.65  
583+00  
741.4

740.7

1689 750 750 35 175

165 740 740

746.40  
582+00  
743.2

743.0

1967 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

EAST BOUND LANES STA. 582+00 to STA. 586+00

By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-72

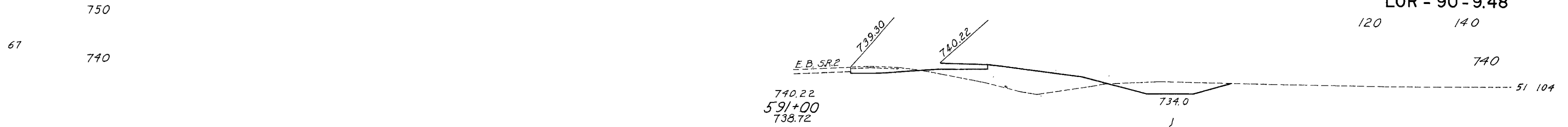
140 120 100 80 60 40 20 0 20 40 60 80 100

E.B.S.R.2

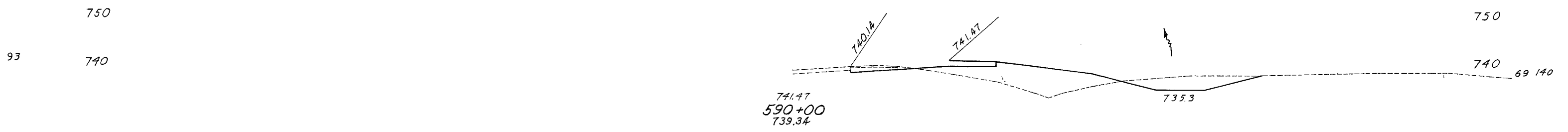
109  
283

### LORAIN COUNTY LOR - 90 - 9.48

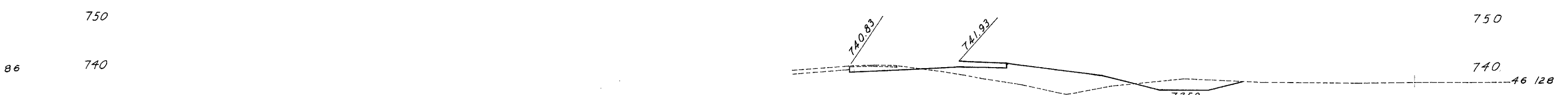
120 140



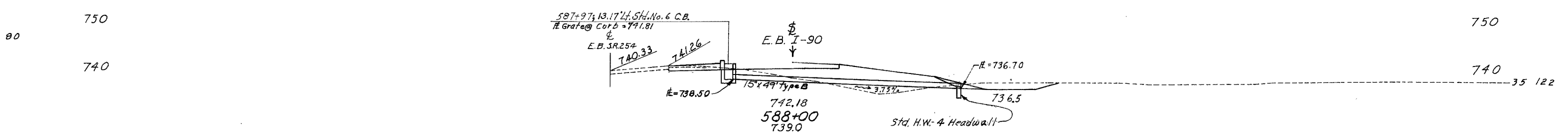
889 222 452



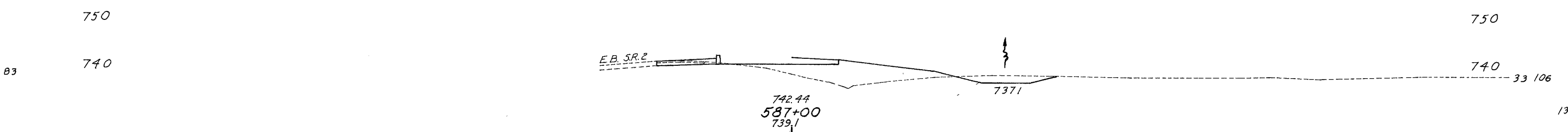
994 213 496



922 150 463



906 126 422



939 133 391

140 120 100 80 60 40 20 0 20 40 60 80 100 120

E.B.I-90

EAST BOUND LANES STA. 587+00 to STA. 591+00

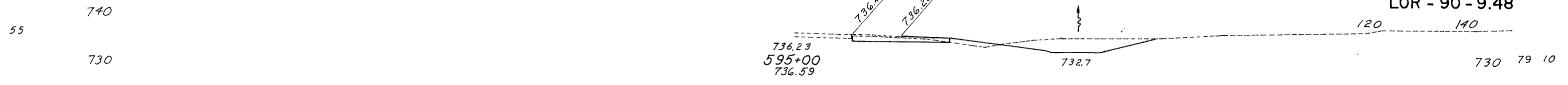
By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-72

140 120 100 80 60 40 20 0 20 40 60 80 100

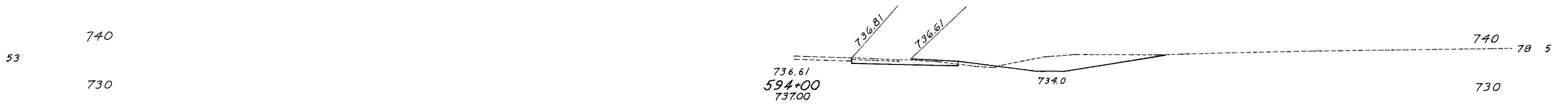
E.B. S.R.2

110  
283

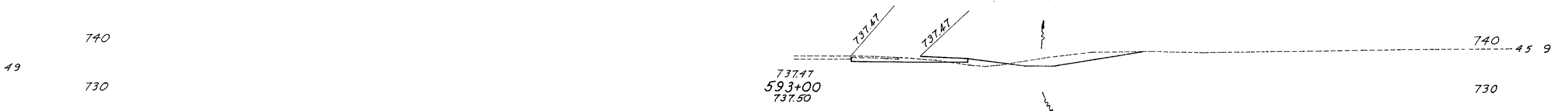
LORAIN COUNTY  
LOR - 90 - 9.48



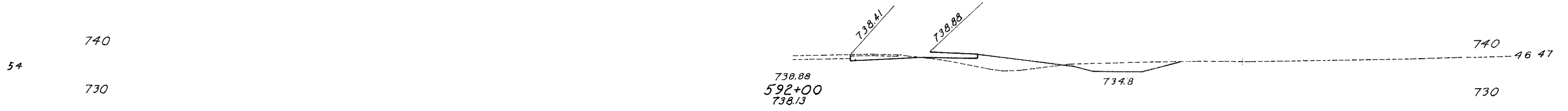
600 291 28



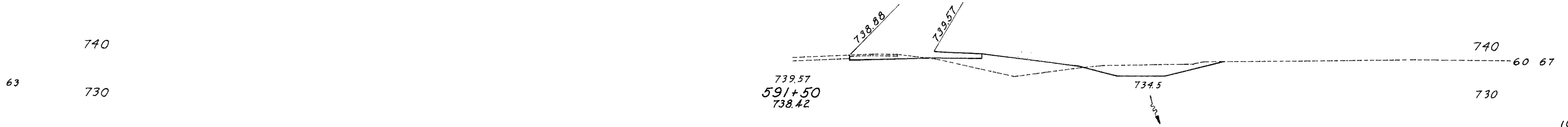
567 228 26



572 169 104



325 96 106



361 108 158

140 120 100 80 60 40 20 0 20 40 60 80 100

E.B. S.R.2

By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-78

EAST BOUND LANES STA. 591+50 to STA. 595+00

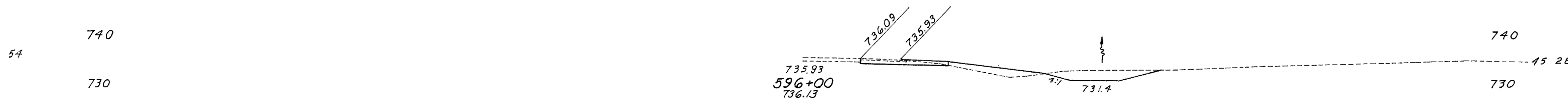
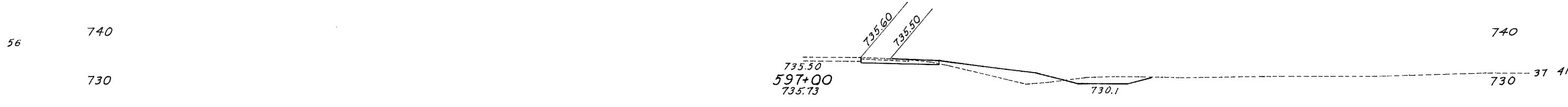
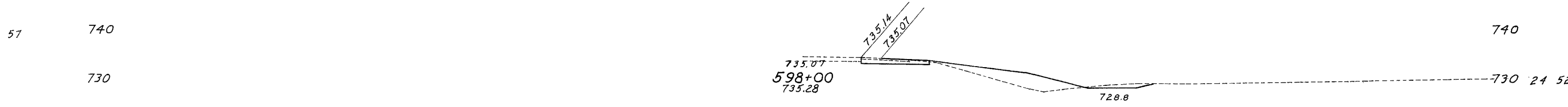
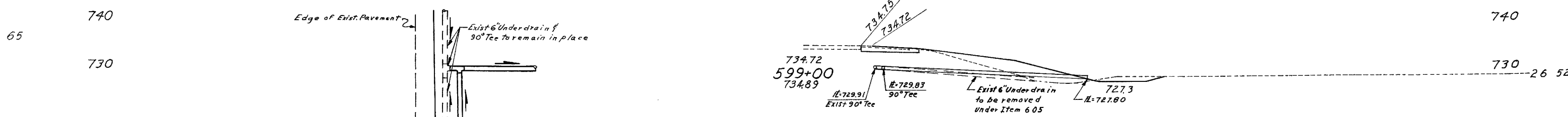
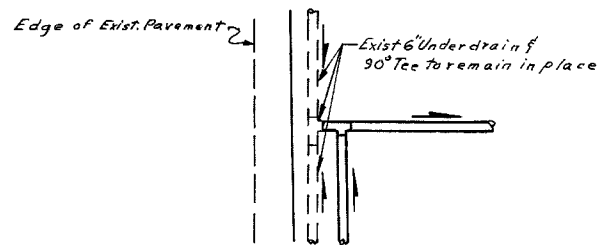
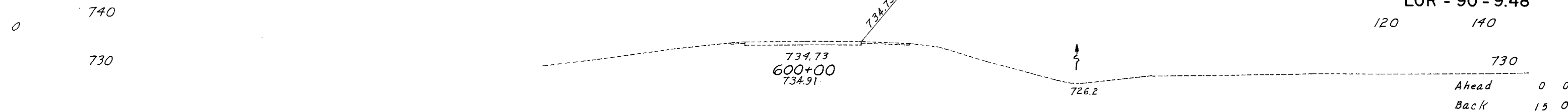
140 120 100 80 60 40 20 20 40 60 80 100

E.B.S.R.2

111  
283

LORAIN COUNTY  
LOR - 90 - 9.48

120 140



140 120 100 80 60 40 20 20 40 60 80 100 120

E.B.S.R.2

By C.F.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-73

EAST BOUND LANES STA. 596+00 to STA. 600+00

230 70

152 128

113 172

93 193

76.96



140 120 100 80 60 40 20 0 20 40 60 80 100

±  
E.B.S.R.2

112  
283

LORAIN COUNTY  
LOR - 90 - 9.48  
120 140

730

740

730

740

730

740

730

740

730

140

740

730

740

730

740

730

740

730

140

120

100

80

60

40

20

±  
E.B.S.R.2

20

40

60

80

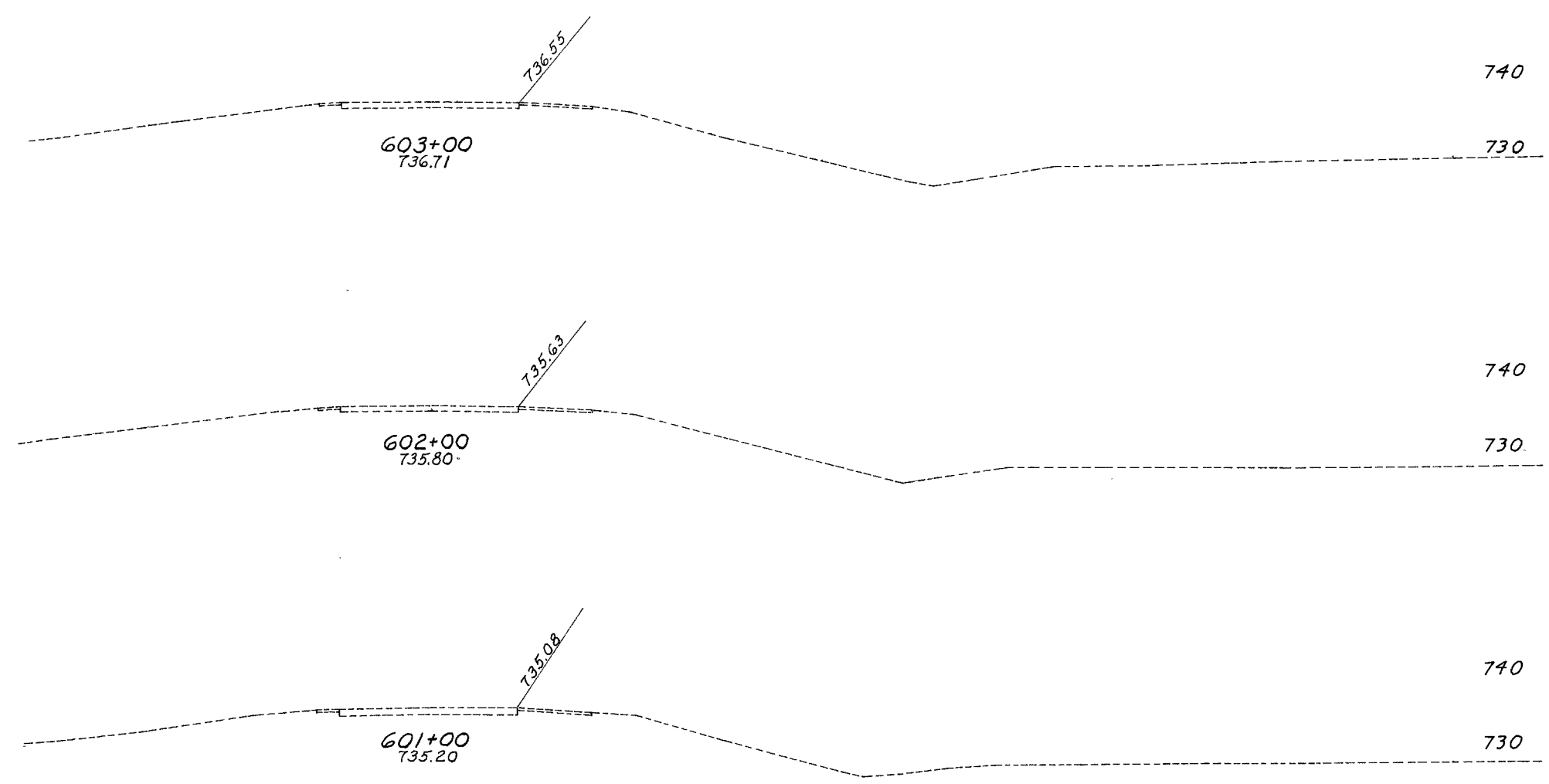
100

120

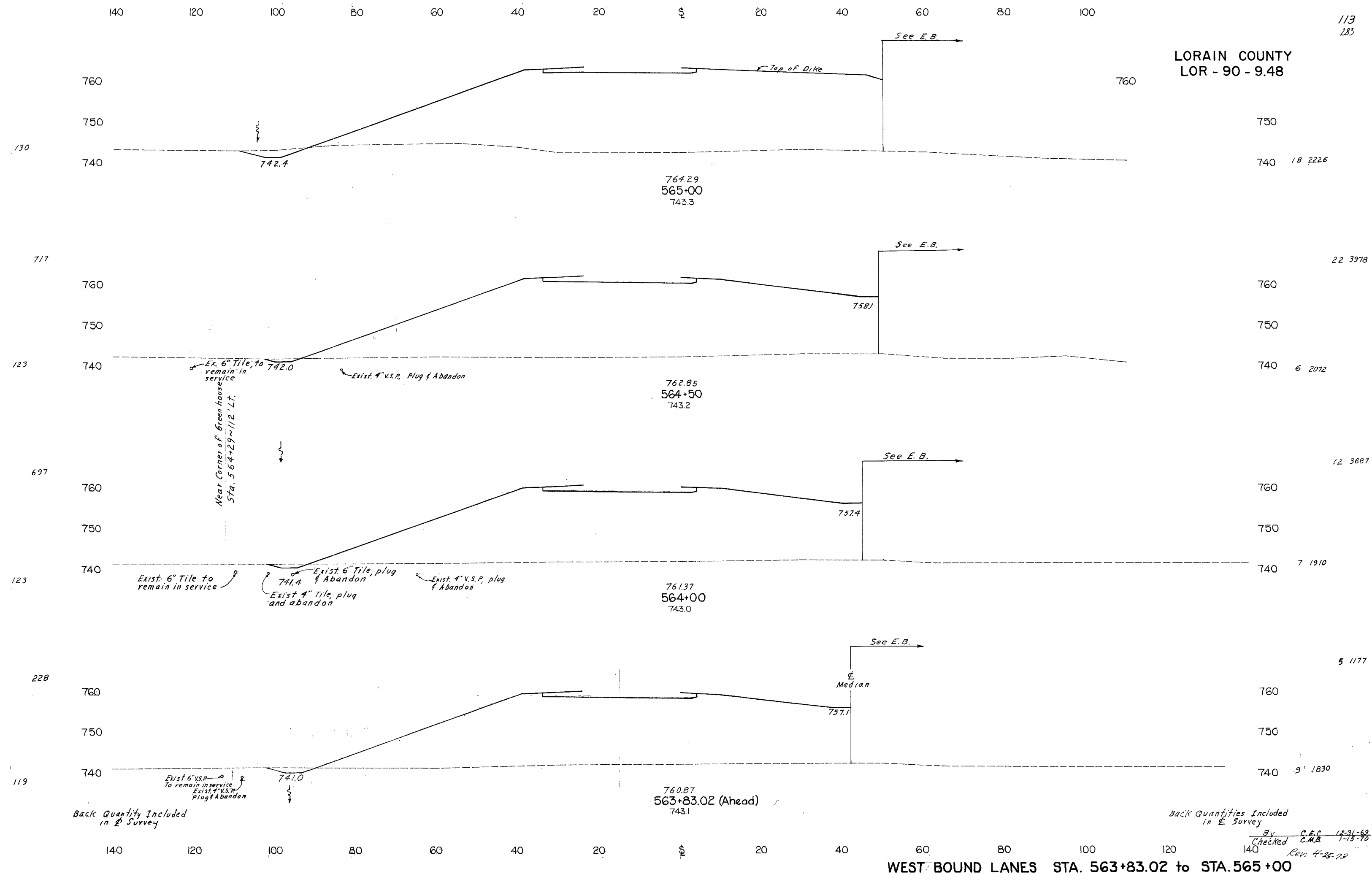
140

Rev. 4-25-79

EAST BOUND LANES STA. 601+00 to STA. 603+00



LORAIN COUNTY  
LOR - 90 - 9.48



Back Quantities Included in E Survey

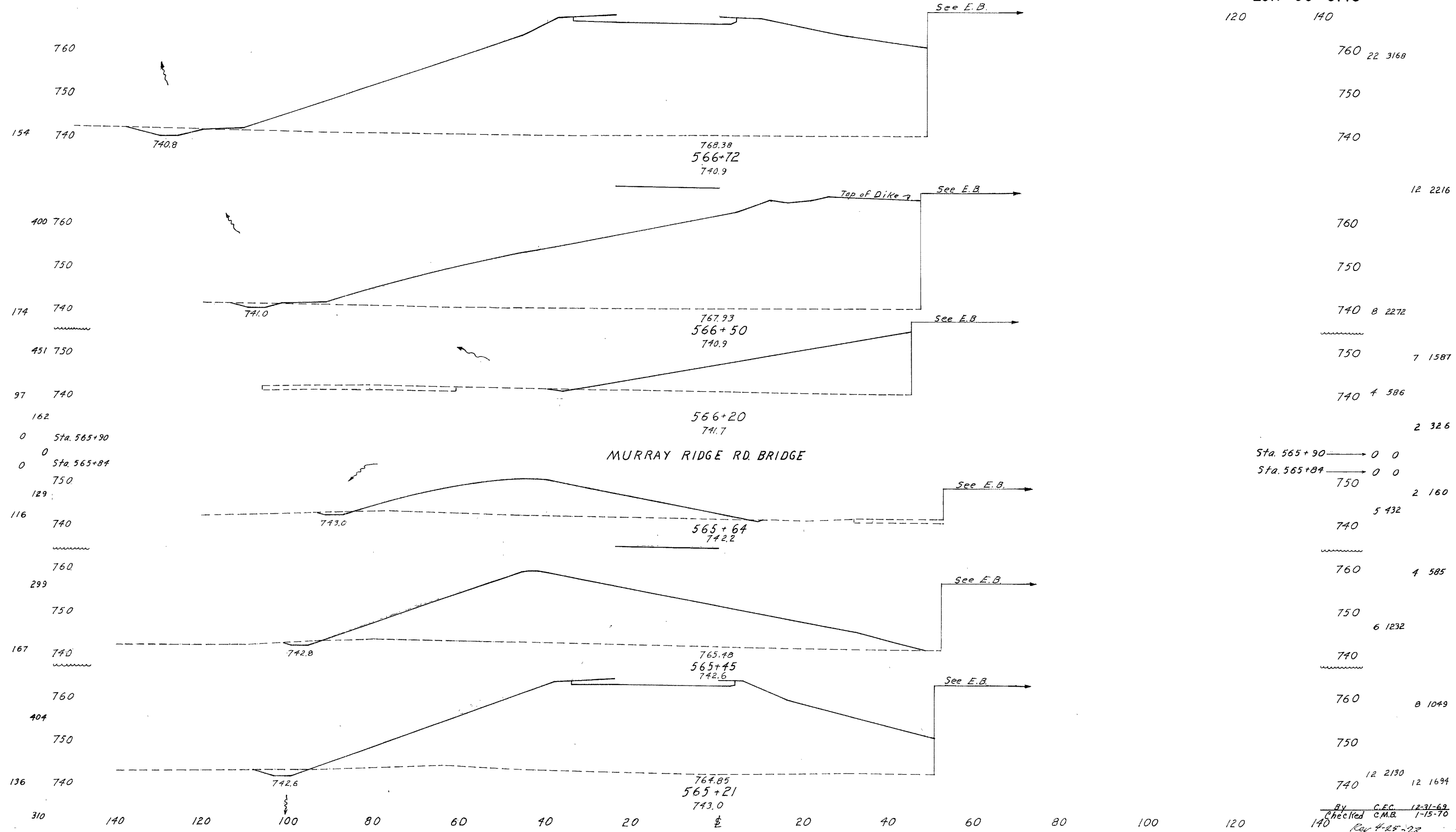
Back Quantities Included in E Survey

By C.E.C. 12-31-69  
 Checked C.M.B. 1-15-70  
 Rev. 4-25-72

140 120 100 80 60 40 20 0 20 40 60 80 100

114  
283

### LORAIN COUNTY LOR - 90 - 9.48



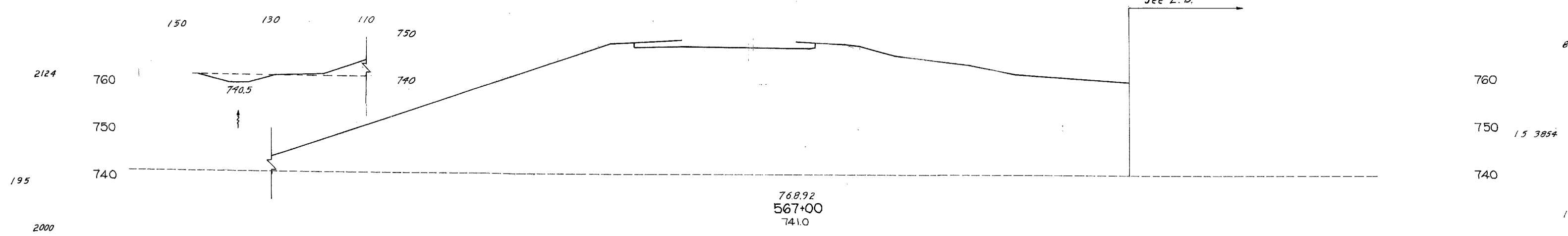
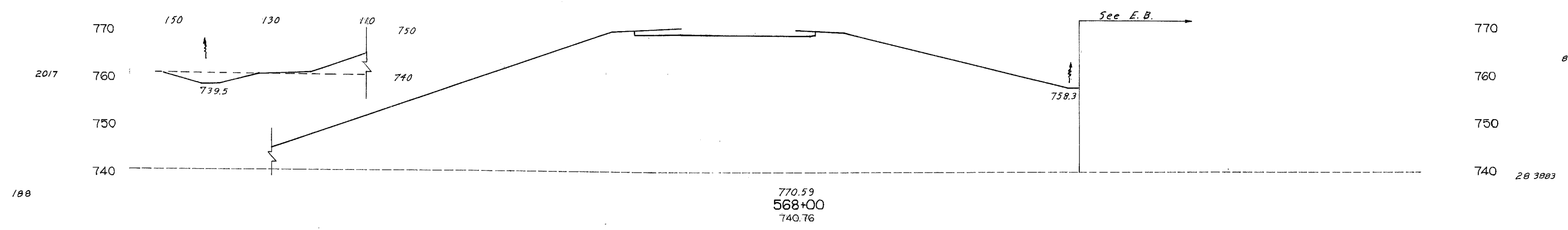
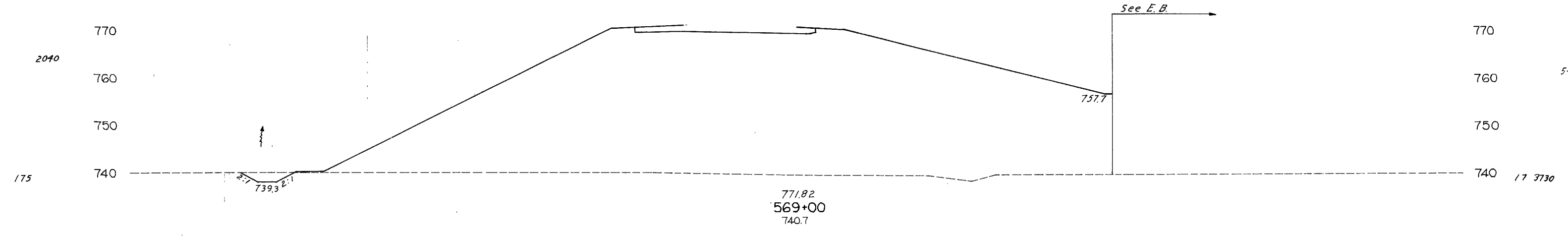
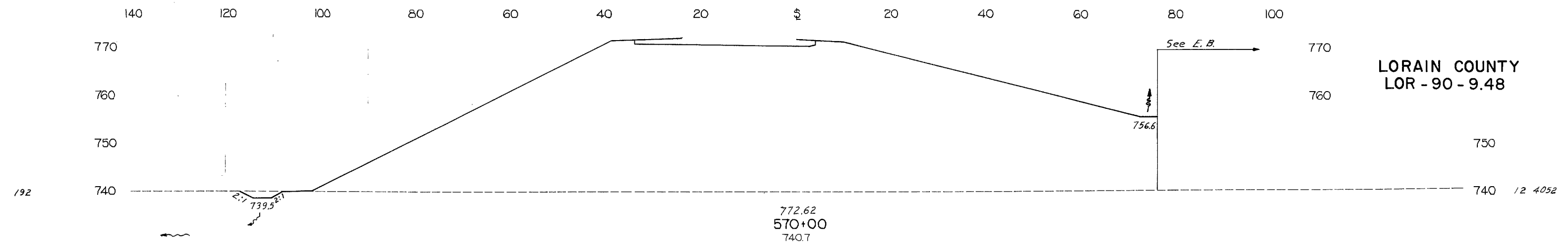
Sta. 565+90 → 0 0  
Sta. 565+84 → 0 0

By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev 4-25-73

WEST BOUND LANES STA. 565+21 to STA 566+72

115  
283

LORAIN COUNTY  
LOR - 90 - 9.48

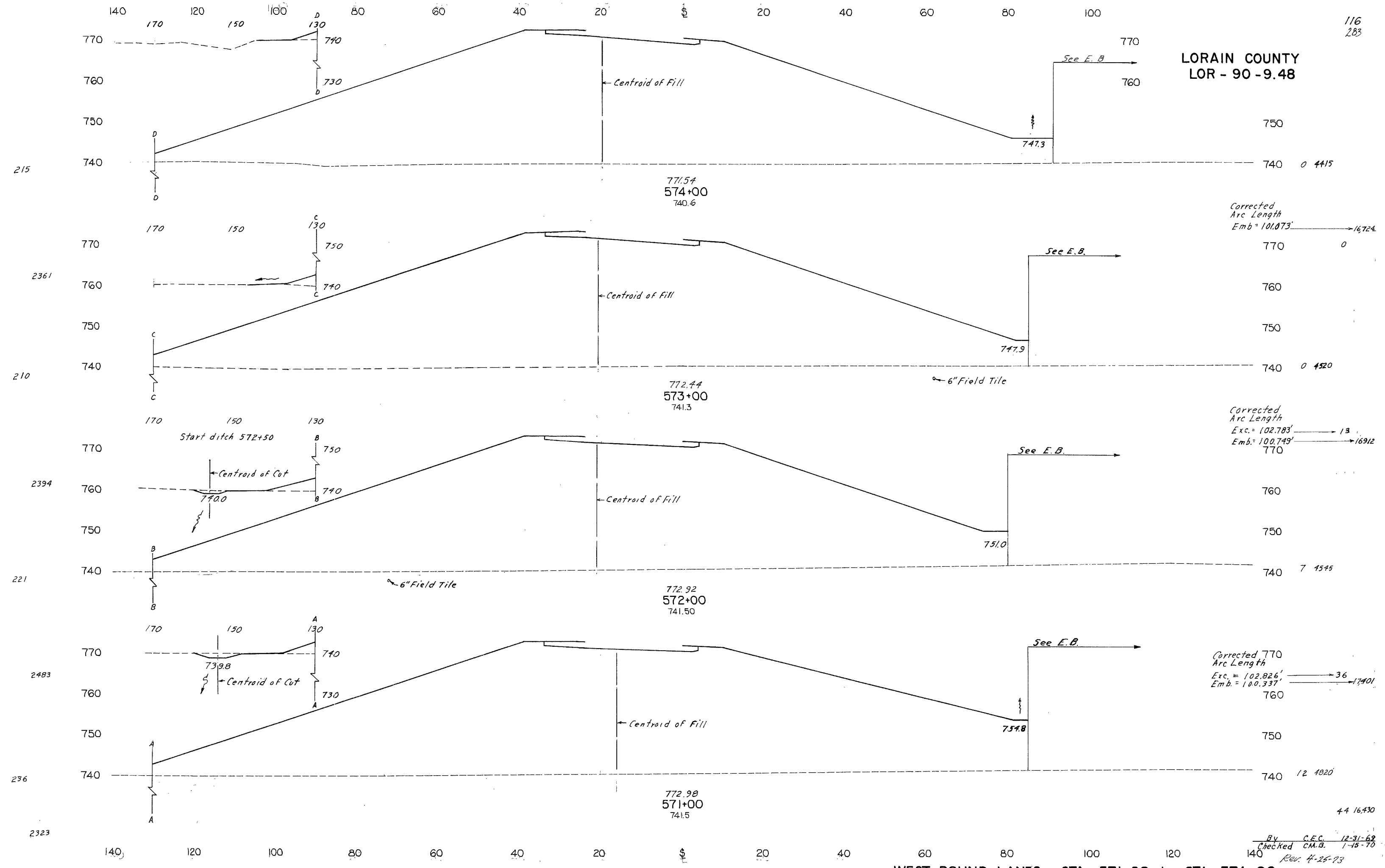


19 3621

By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-78

WEST BOUND LANES STA. 567+00 to STA. 570+00

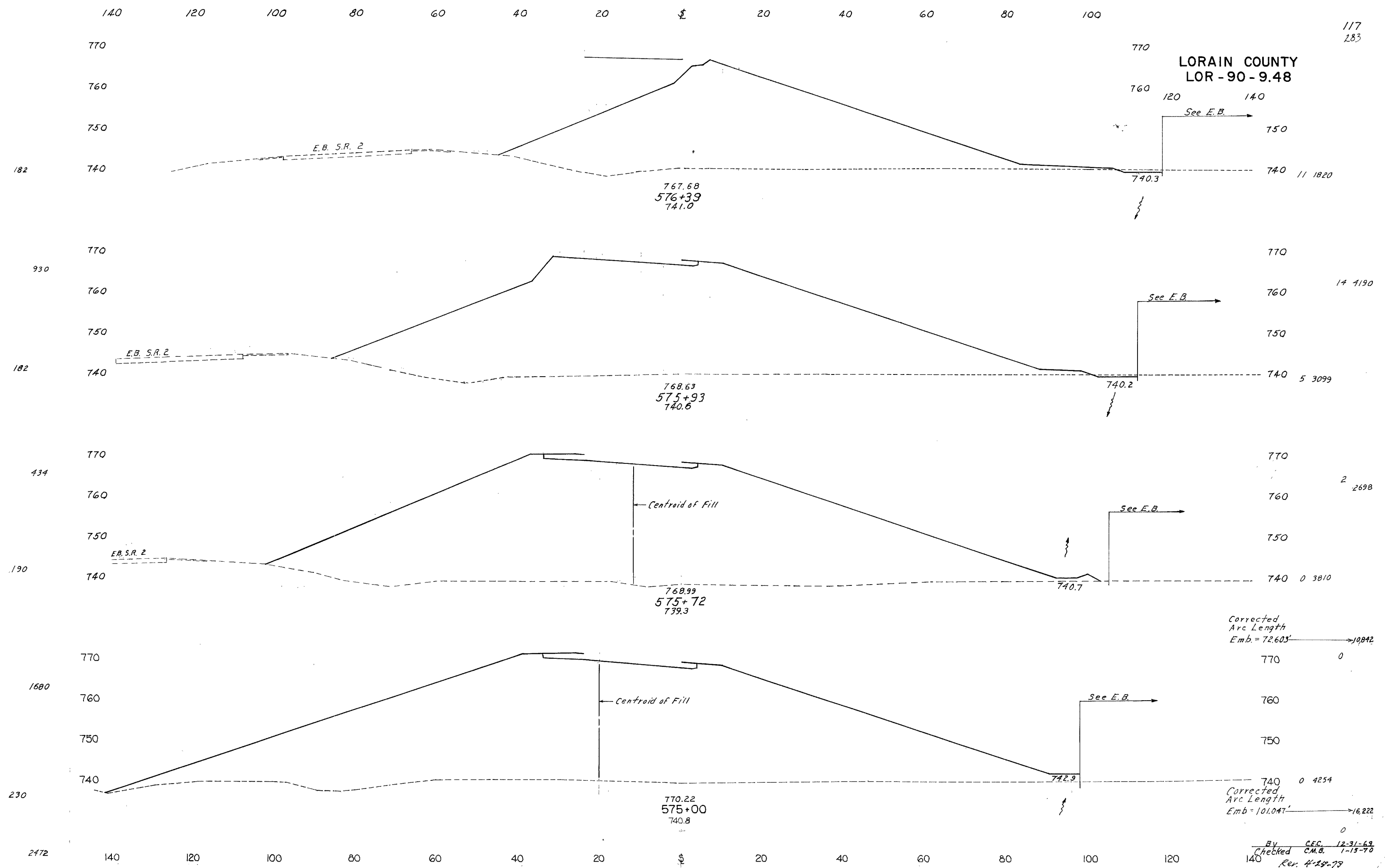
LORAIN COUNTY  
LOR - 90 - 9.48



WEST BOUND LANES STA. 571+00 to STA. 574+00

By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-26-73

LORAIN COUNTY  
LOR-90-9.48

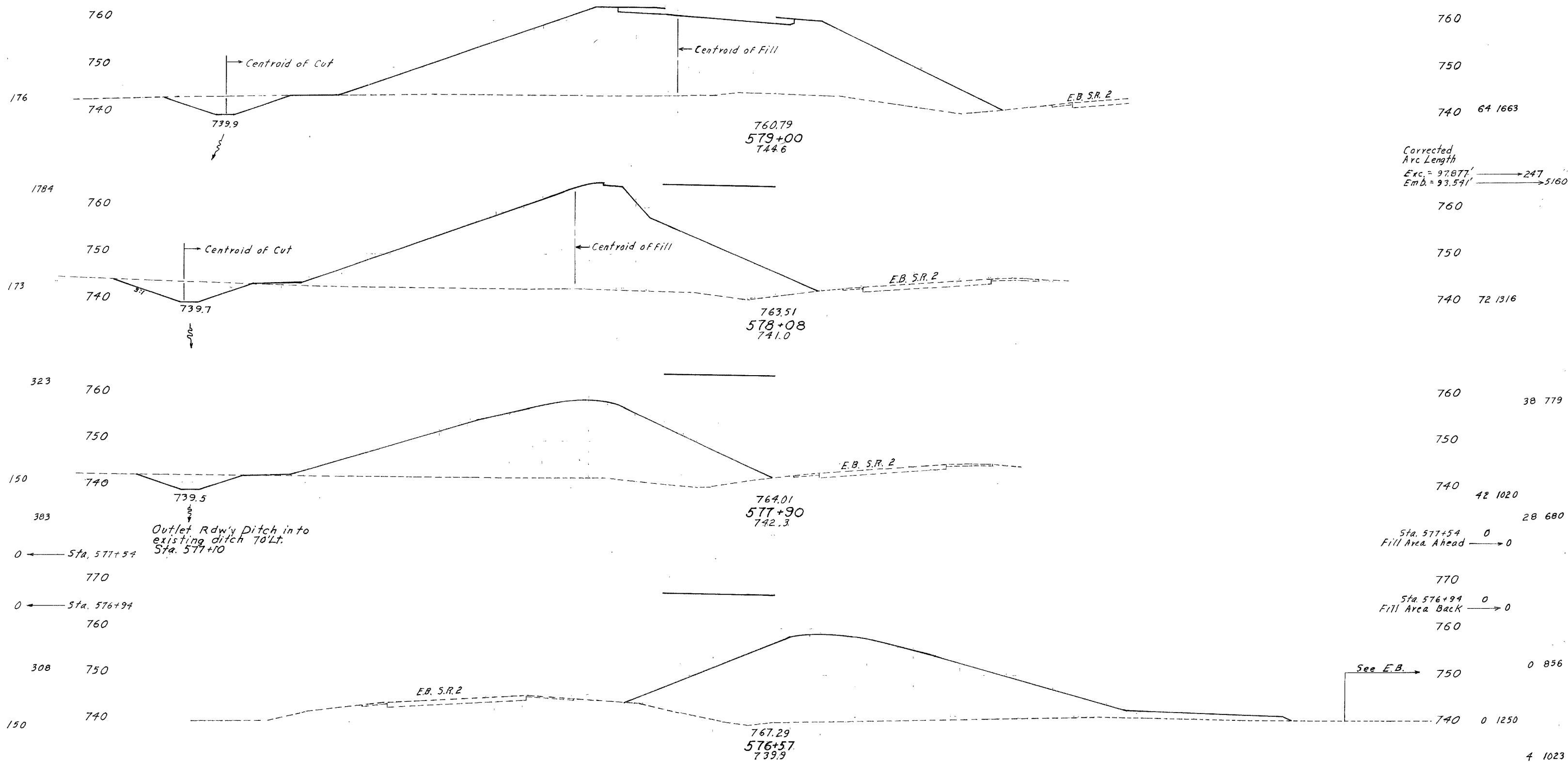


WEST BOUND LANES STA. 575+00 to STA. 576+39

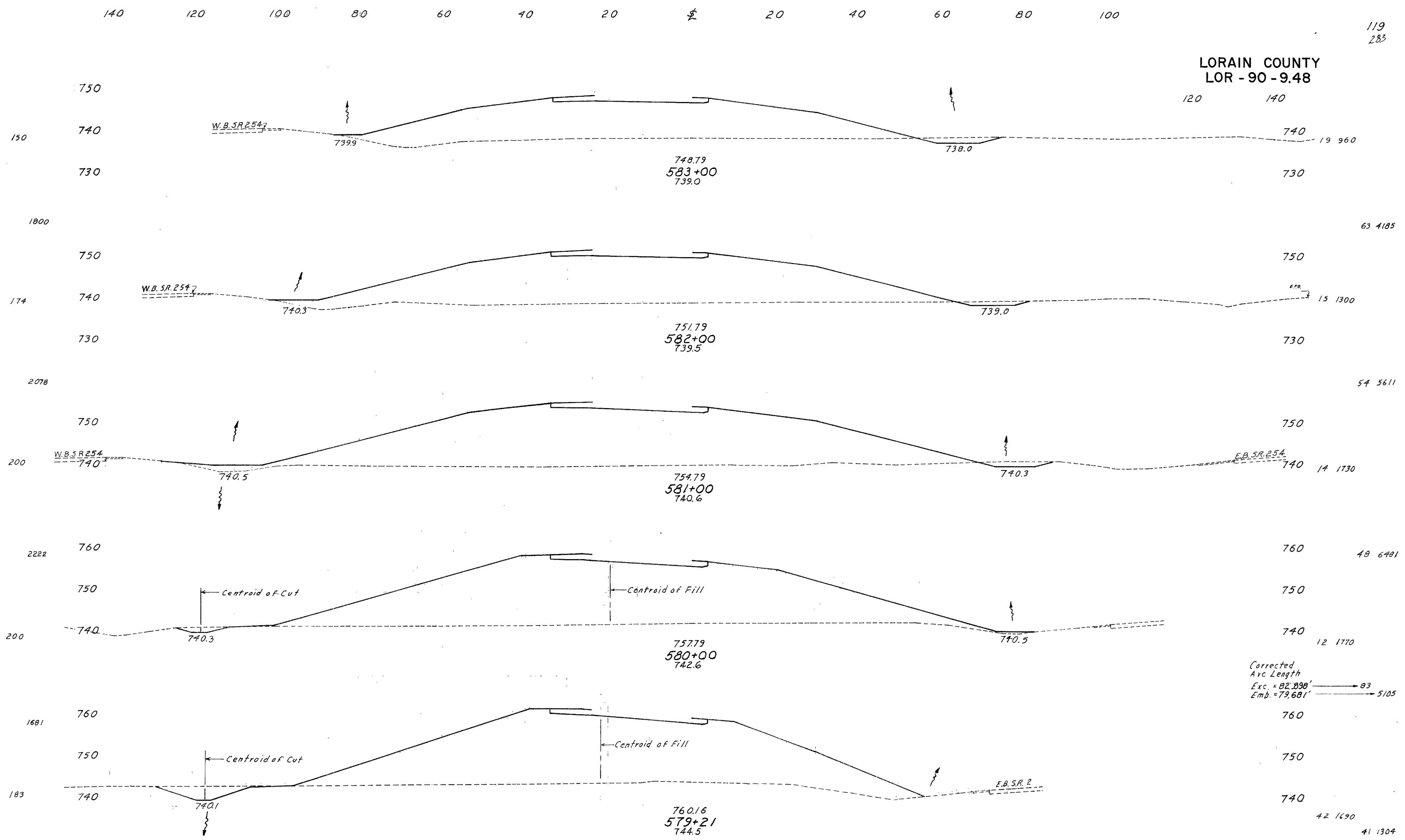
By CEC. 12-31-69  
Checked C.M.B. 1-13-70  
Rev. 4-29-79

LORAIN COUNTY  
LOR - 90 - 9.48

120 140



LORAIN COUNTY  
LOR - 90 - 9.48



Corrected  
Arc Length  
Exc. = 82.898' → 83  
Emb. = 79.681' → 5105

WEST BOUND LANES STA. 579+21 to STA. 583+00

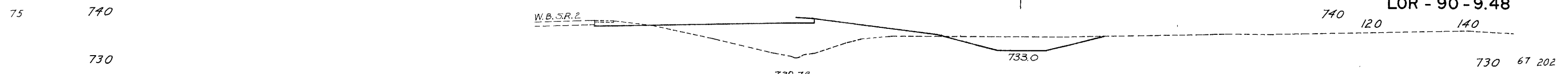
By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-93



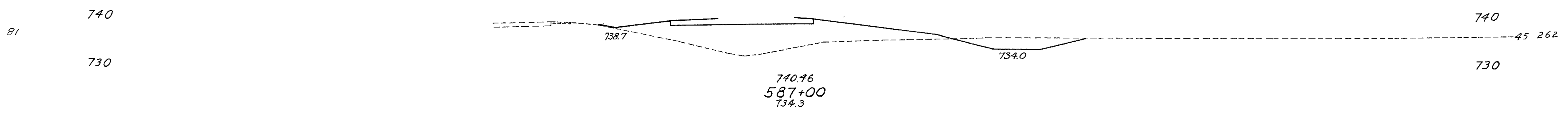
140 120 100 80 60 40 20 0 20 40 60 80 100

120  
283

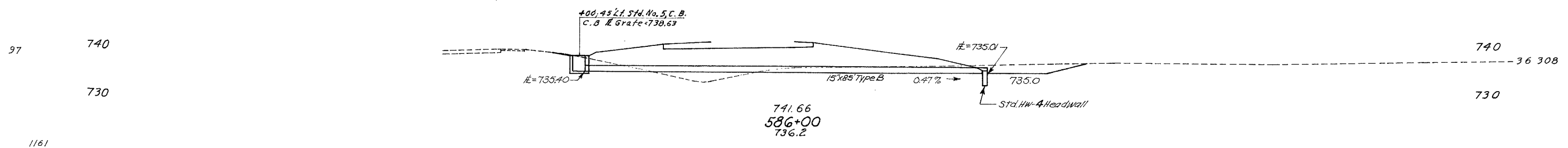
LORAIN COUNTY  
LOR - 90 - 9.48



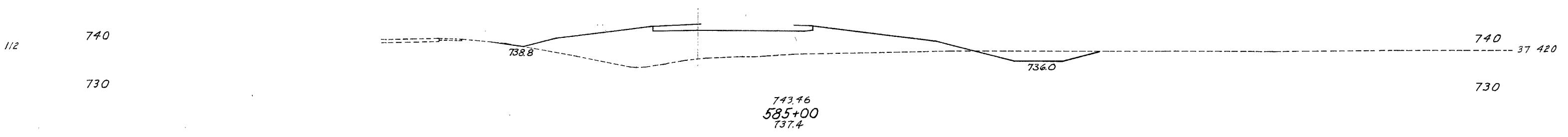
867 207 859



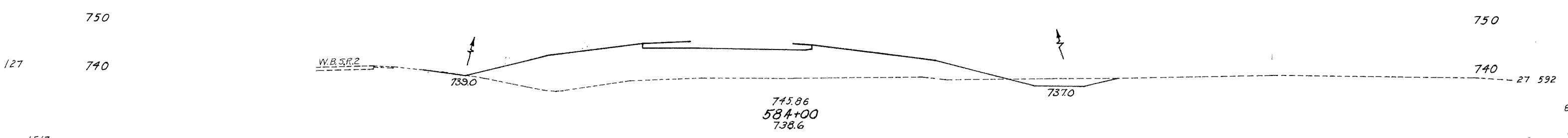
989 150 1056



1161 135 1348



1328 119 1874



1517 85 2874

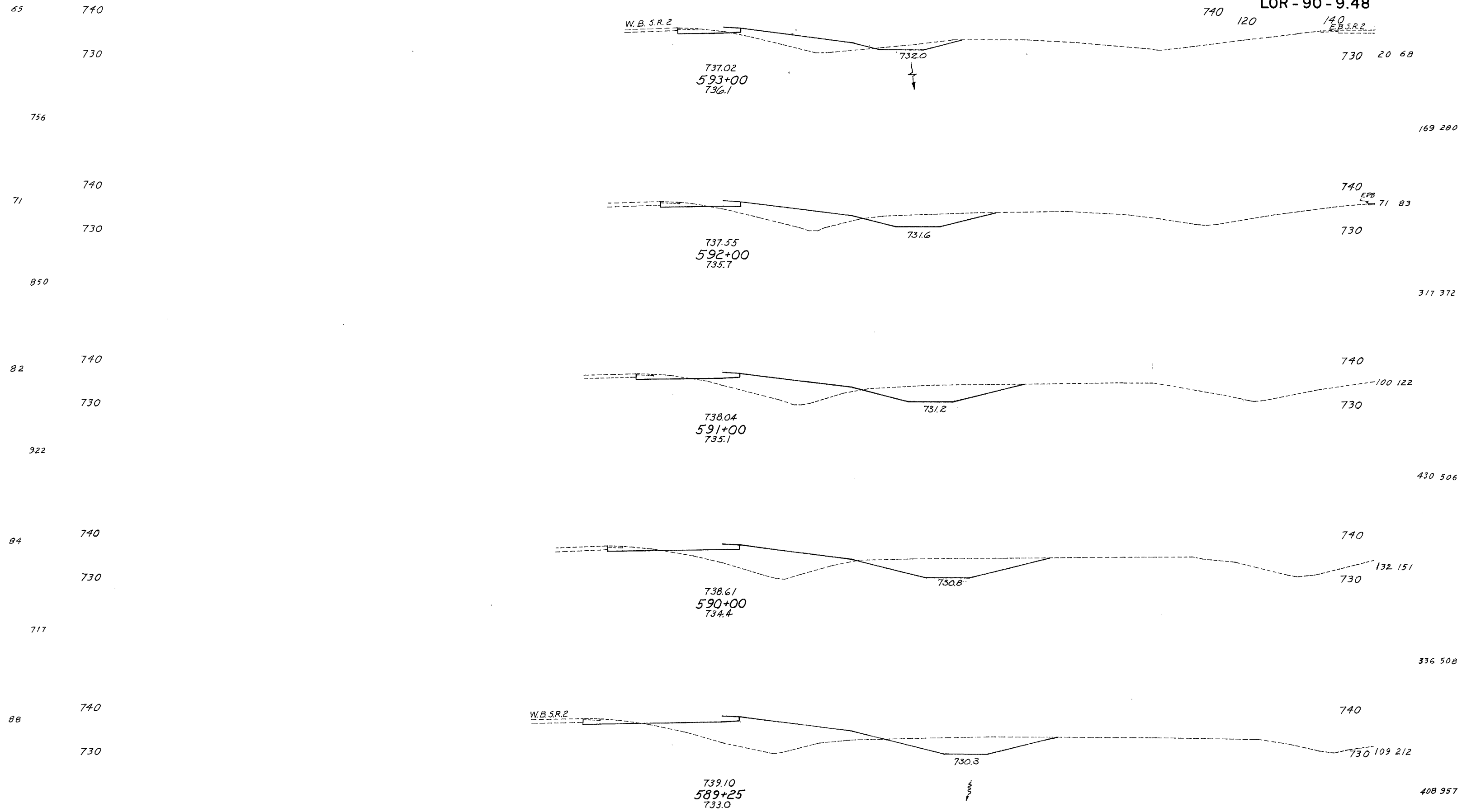
WEST BOUND LANES STA. 584+00 to STA. 588+00

BY CEC 12-31-69  
 Checked CMB. 1-15-70  
 Rev. 4-25-73

140 120 100 80 60 40 20 0 20 40 60 80 100

121  
283

### LORAIN COUNTY LOR - 90 - 9.48



169 280

317 372

430 506

336 508

408 957

140 120 100 80 60 40 20 0 20 40 60 80 100 120

By C.E.C. 12-31-69  
 Checked C.M.B. 1-15-70  
 Rev. 4-25-73

WEST BOUND LANES STA. 589+25 to Sta. 593+00

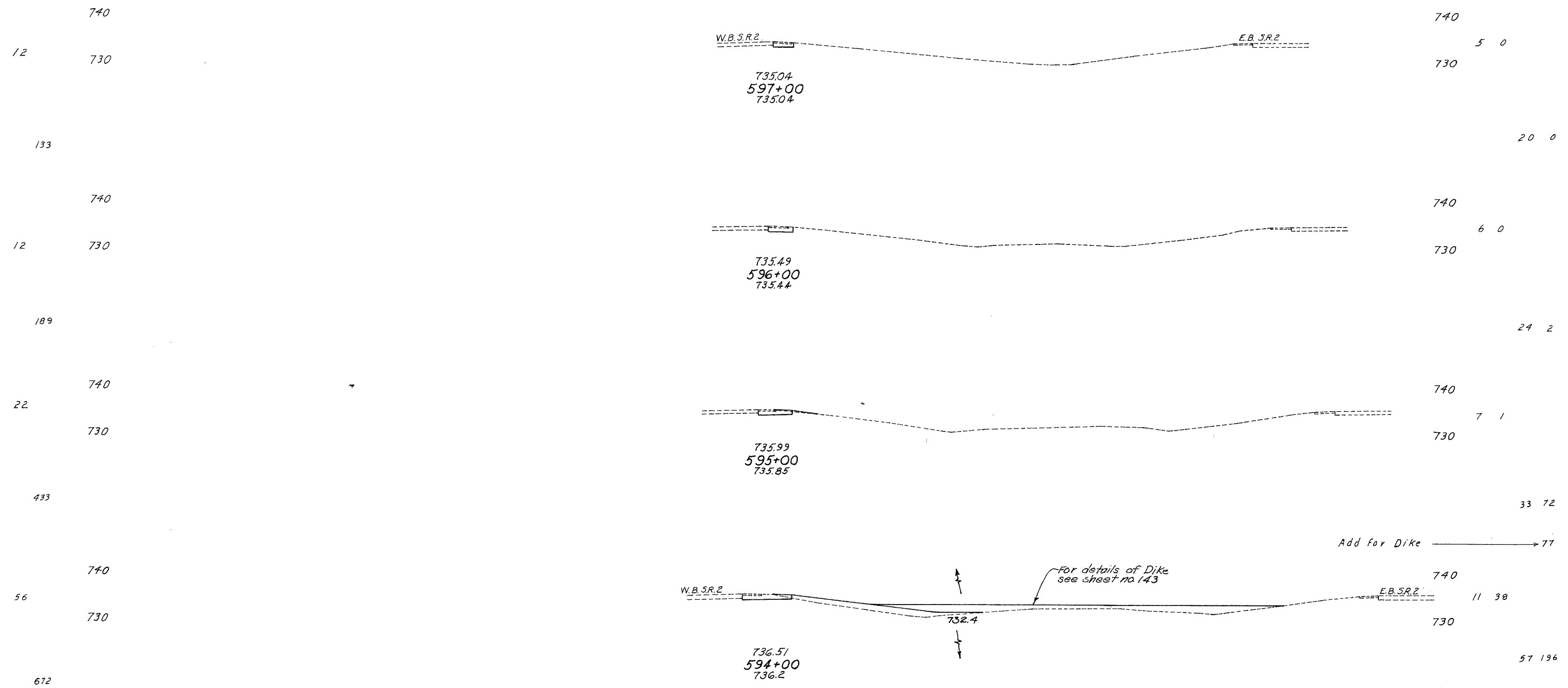
140 120 100 80 60 40 20 0 20 40 60 80 100

122  
285

### LORAIN COUNTY LOR -90 -9.48

120 140

Sta. 597+55 W.B.  
End West Bound Lanes  
Ahead 0 0 10 0  
Back 5 0



Add for Dike → 77

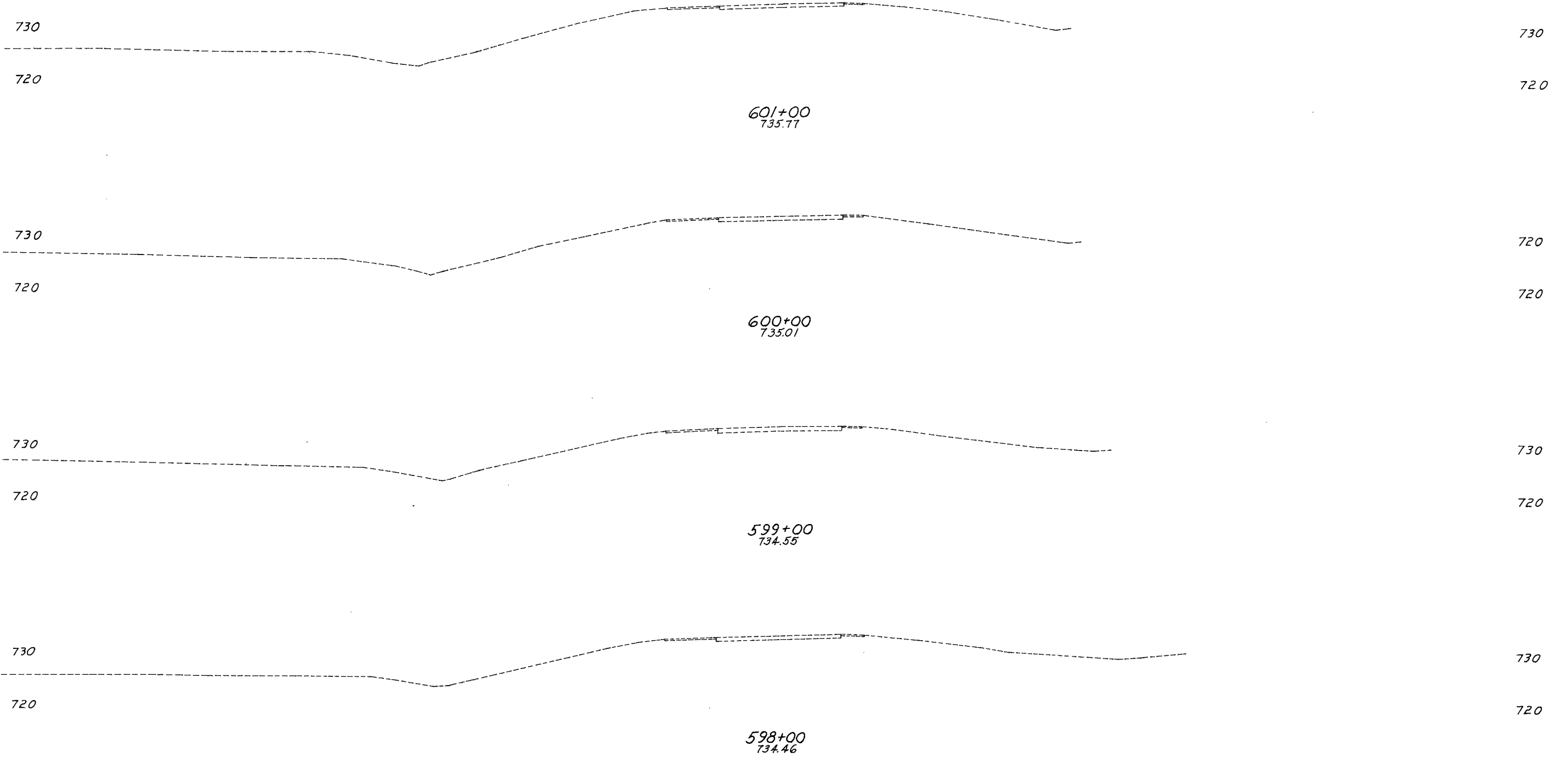
For details of Dike  
see sheet no 143

By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-73

WEST BOUND LANES STA. 594+00 to STA. 597+00

140 120 100 80 60 40 20 0 20 40 60 80 100 120 140

LORAIN COUNTY  
LOR - 90 - 9.48  
120 140



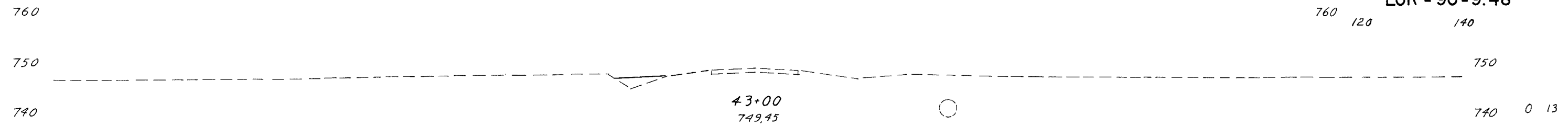
0  
67

140 120 100 80 60 40 20 0 20 40 60 80 100

124  
283

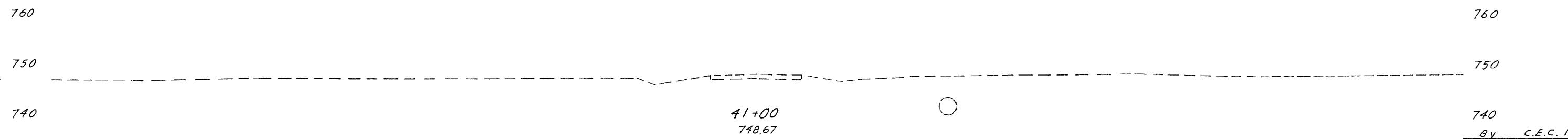
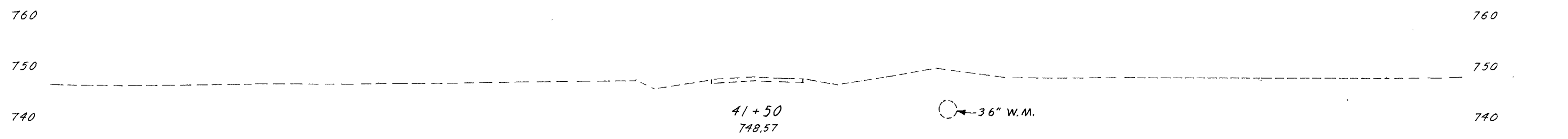
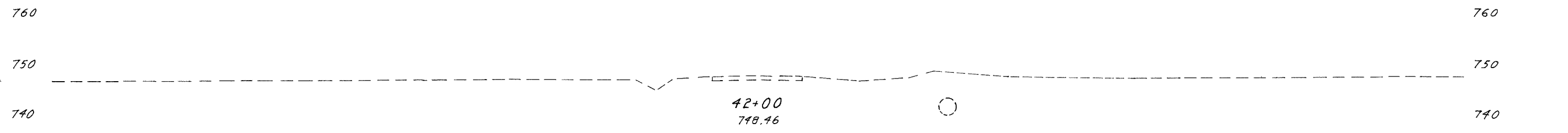
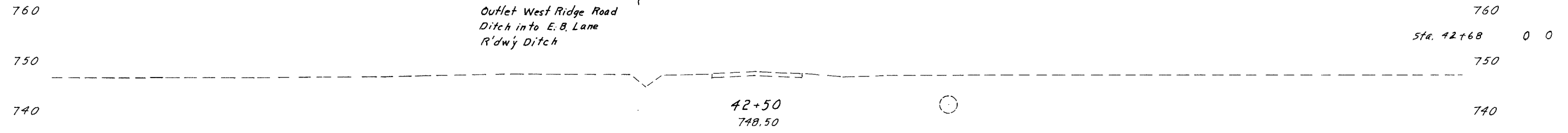
LORAIN COUNTY  
LOR - 90-9.48

760 120 140



Outlet West Ridge Road  
Ditch into E. B. Lane  
R'dwy Ditch

0 8



140 120 100 80 60 40 20 0 20 40 60 80 100

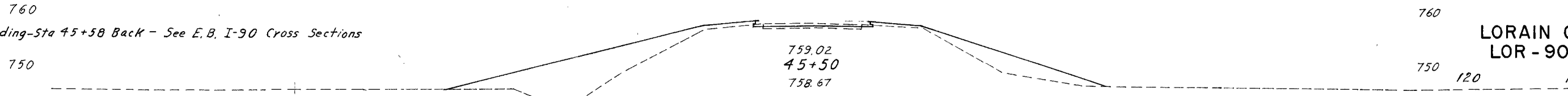
WEST RIDGE ROAD Sta 41+00 to Sta 43+00

By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-28-78.

LORAIN COUNTY  
LOR-90-9.48

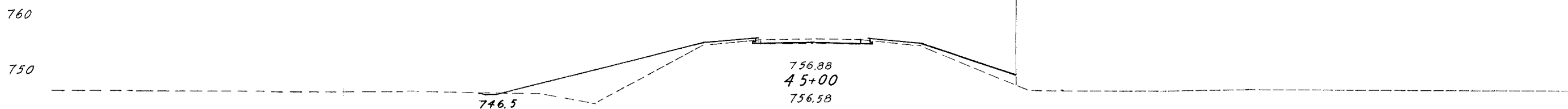
Seeding-Sta 45+58 Back - See E.B. I-90 Cross Sections

140 120 100 80 60 40 20 ± 20 40 60 80 100



15 270

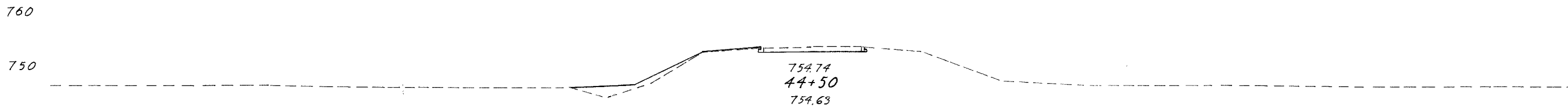
See E.B. →



33 387

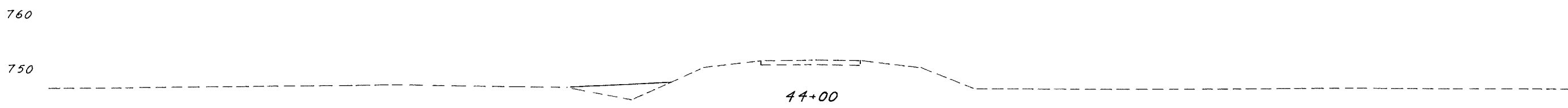
21 144

38 155



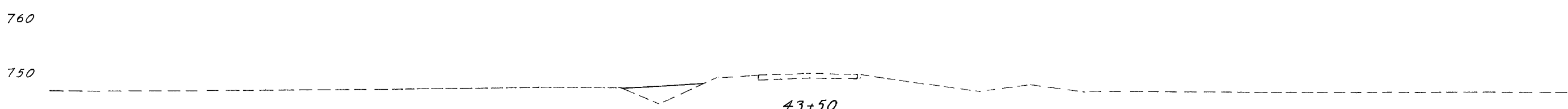
Ahead 20 23  
Back 0 23

0 47



0 28

0 48



0 24

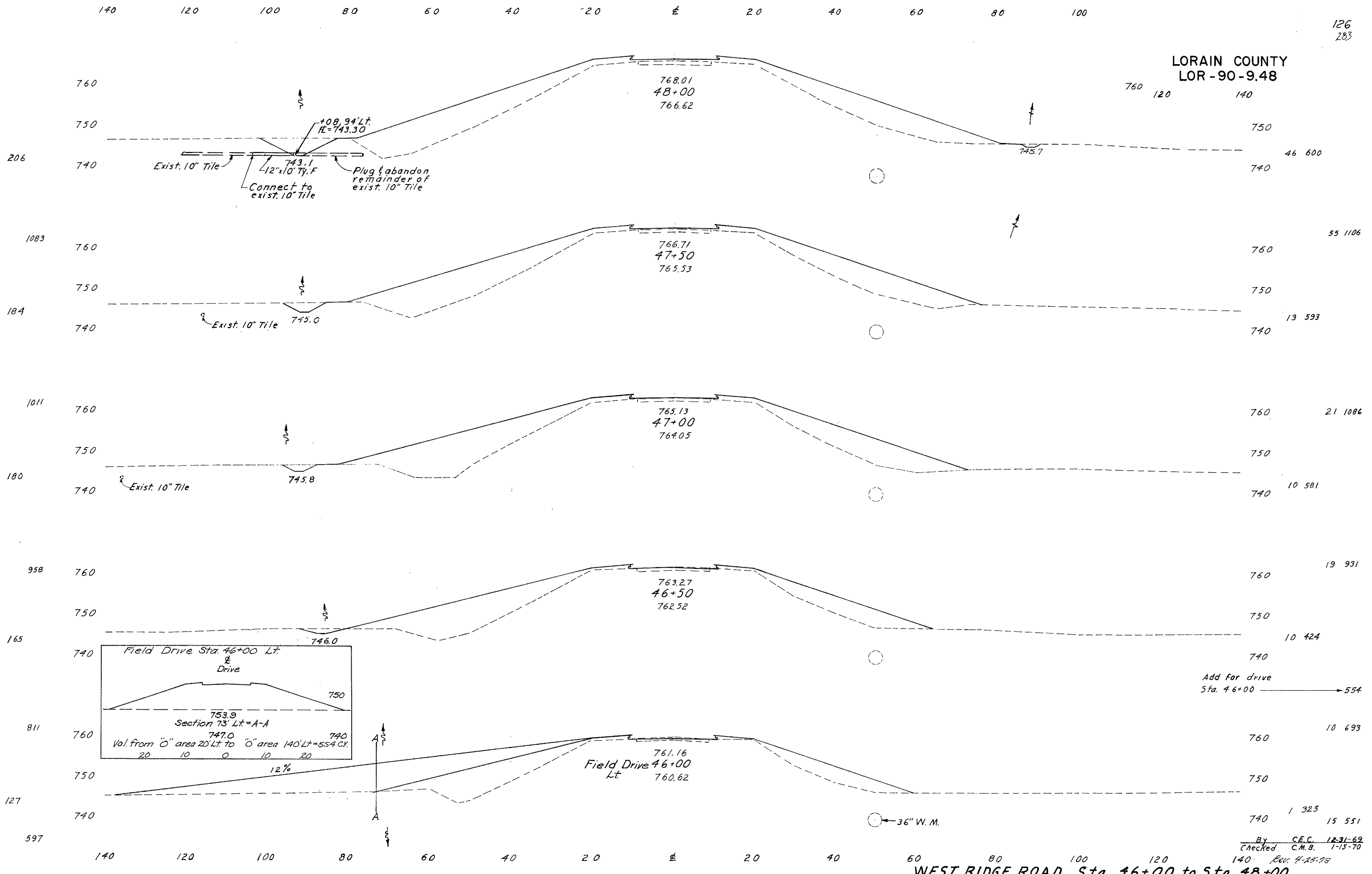
0 34

140 120 100 80 60 40 20 ± 20 40 60 80 100

WEST RIDGE ROAD Sta 43+50 to Sta 45+50

By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-79

LORAIN COUNTY  
LOR-90-9.48



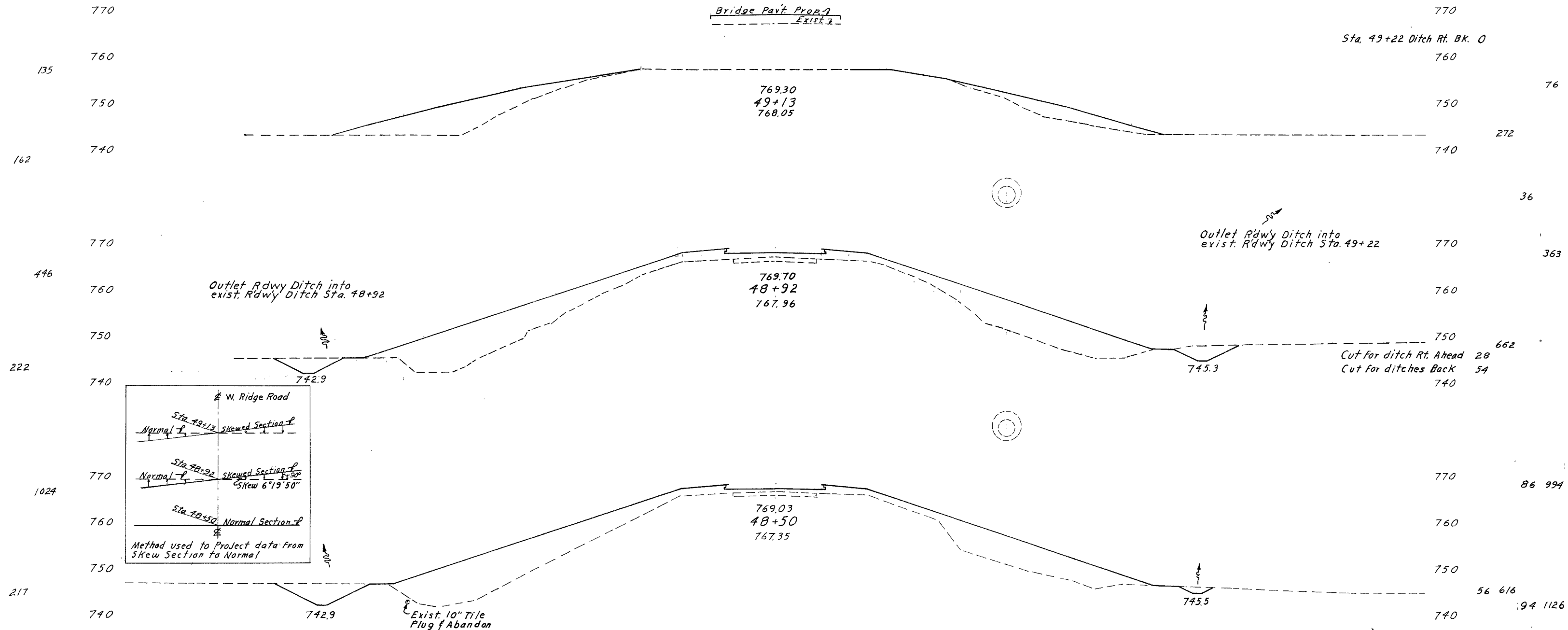
LORAIN COUNTY  
LOR - 90 - 9.48

120 140

1296 Add For Bridge Const. Area Within Tpk. R/W

0 Sta. 49+28 Back

Sta. 49+28, Fill, Back 0

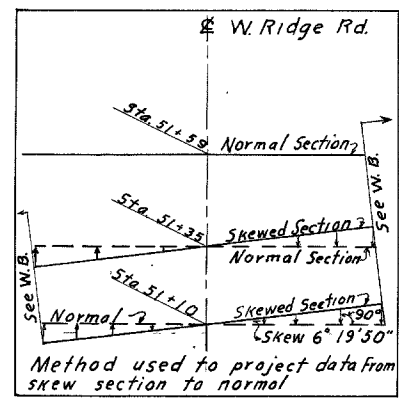
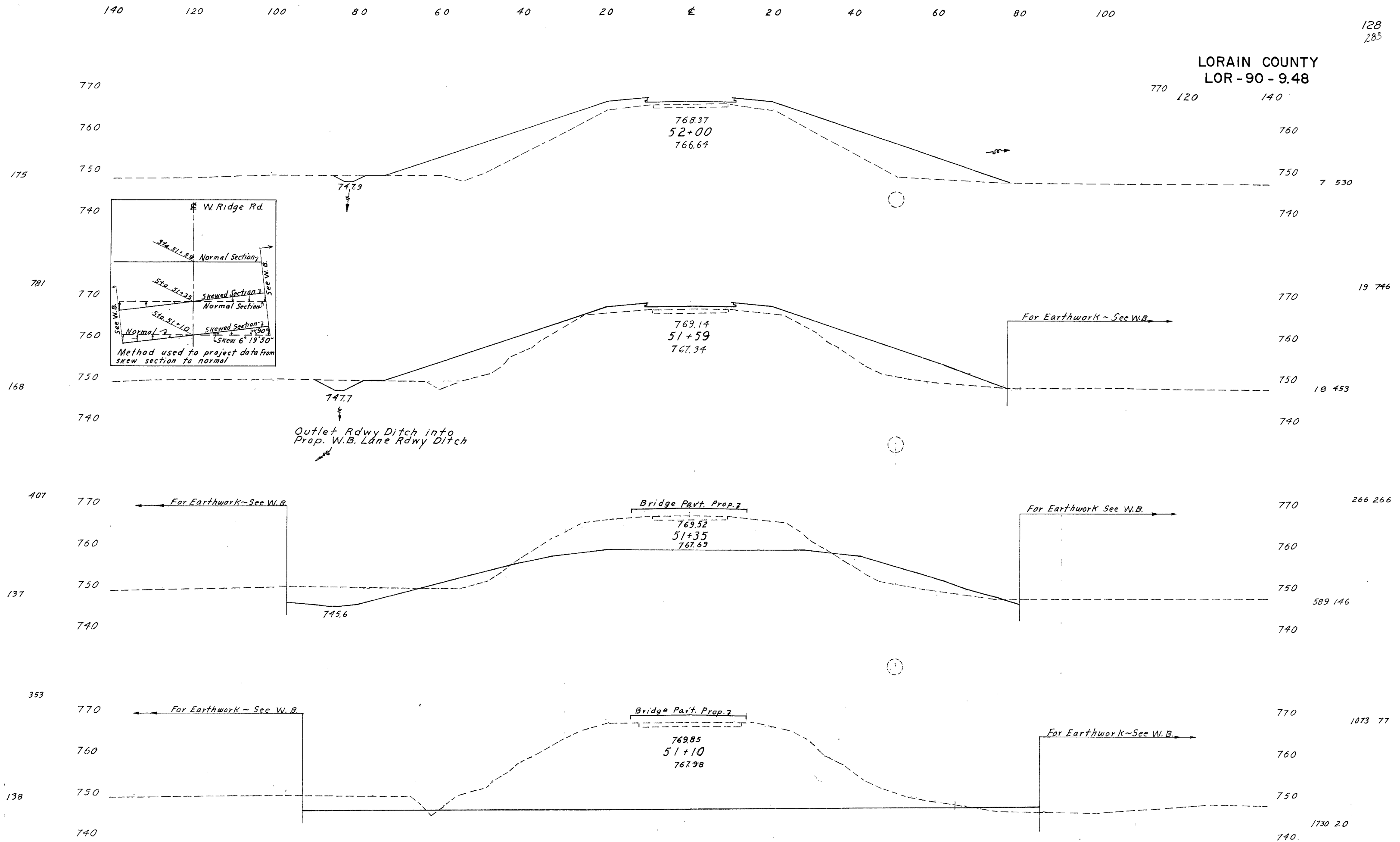


1175

By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-72



LORAIN COUNTY  
LOR-90-9.48

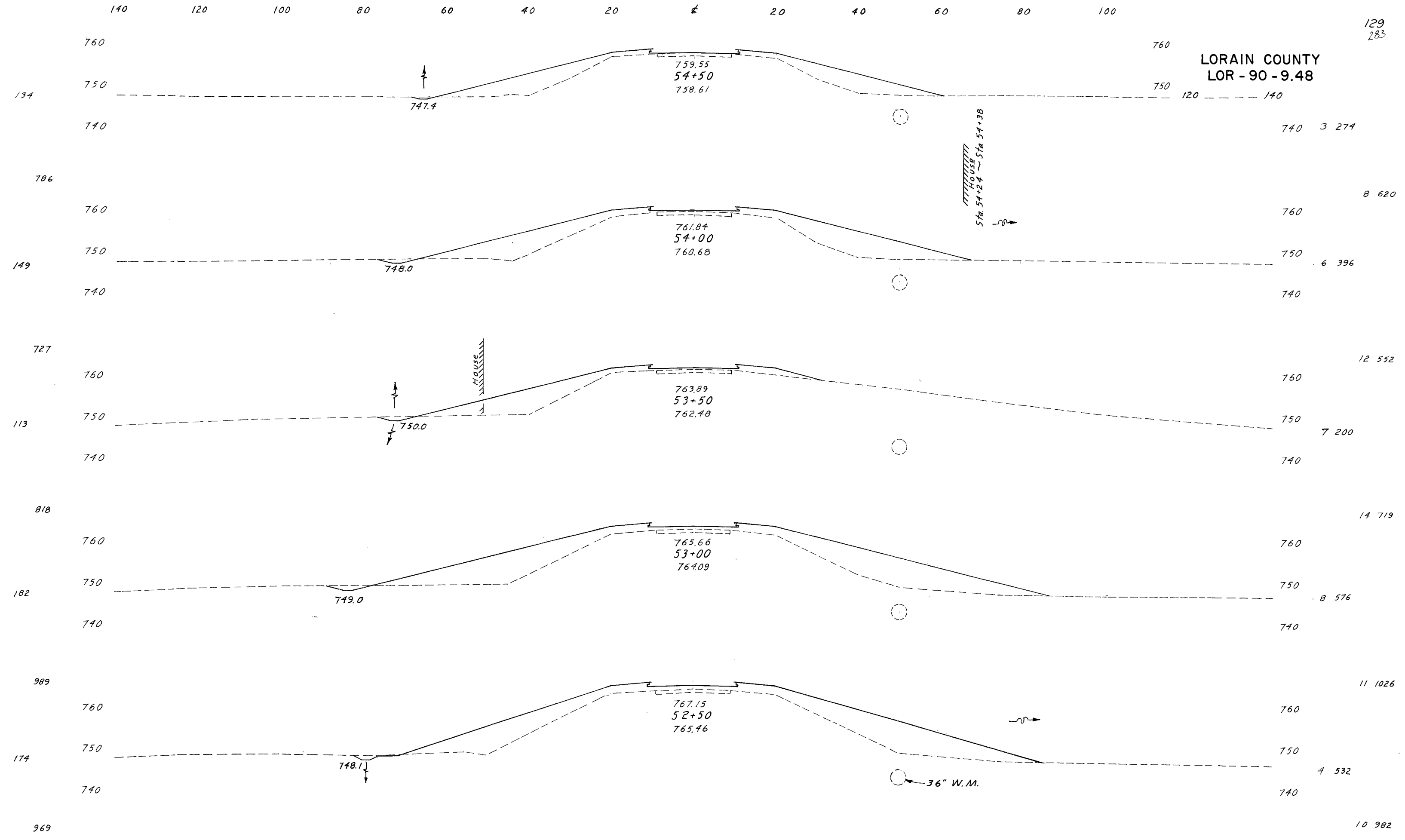


For earthwork back of Sta. 51+10 (N. side of TPK)  
See I-90 W.B. Lanes

WEST RIDGE ROAD Sta. 51+10 to Sta. 52+00

By C.E.C. 12-31-69  
Checked C.M.B. 1-15-70  
Rev. 4-25-79

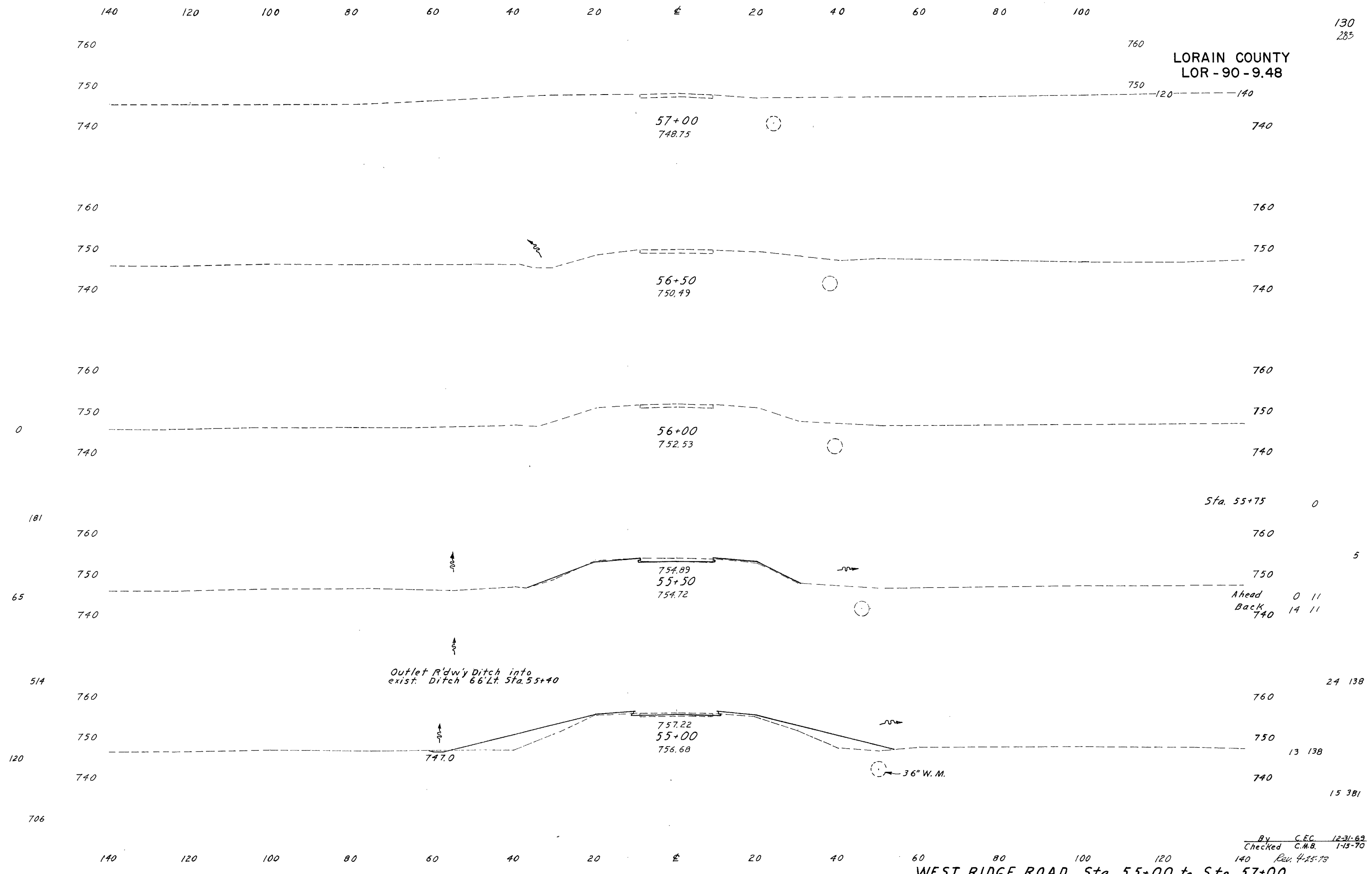
LORAIN COUNTY  
LOR - 90 - 9.48



BY C.E.C. 12-31-69  
 Checked C.M.B. 1-15-70  
 140 Rev. 4-25-75

WEST RIDGE ROAD Sta 52+50 to Sta 54+50

LORAIN COUNTY  
LOR-90-9.48

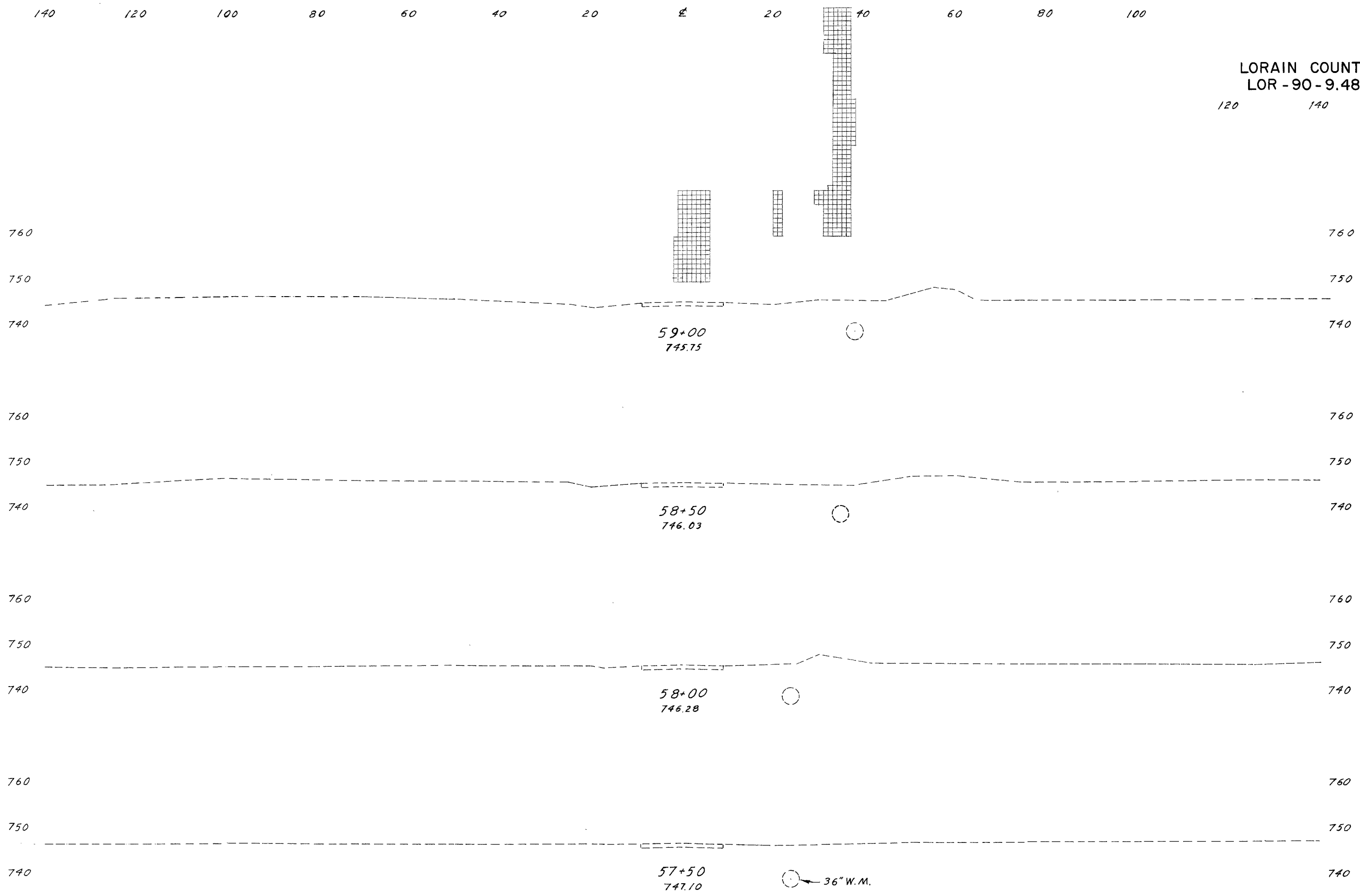


Sta. 55+75 0  
 Ahead 0 11  
 Back 14 11  
 740

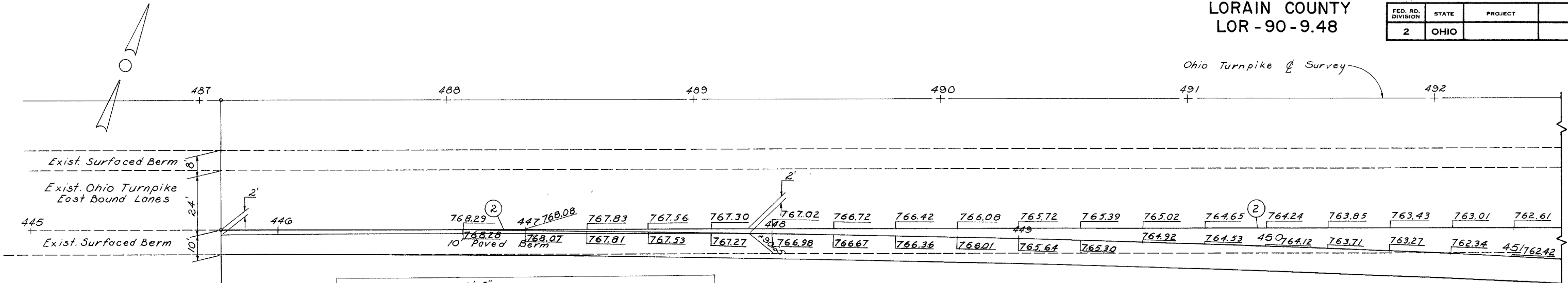
By C.E.C. 12-31-69  
 Checked C.M.B. 1-15-70  
 Rev. 4-25-73

WEST RIDGE ROAD Sta 55+00 to Sta 57+00

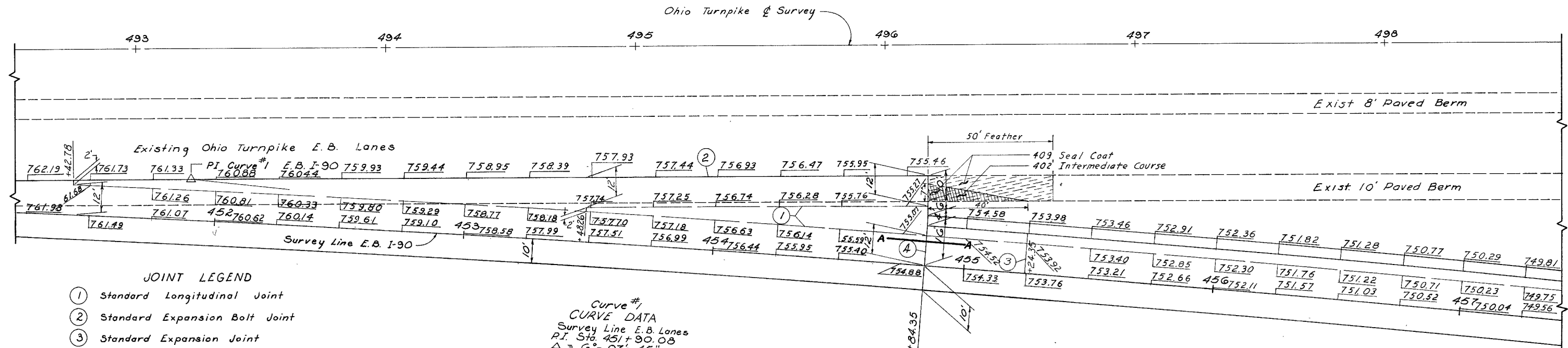
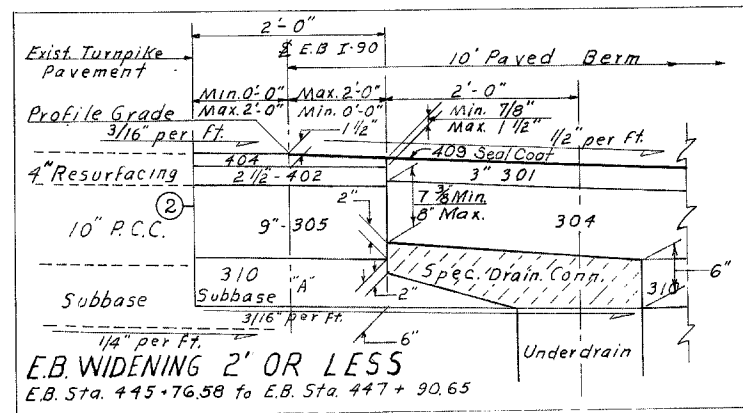
LORAIN COUNTY  
LOR - 90 - 9.48  
120 140



FED. RD. DIVISION	STATE	PROJECT
2	OHIO	



Ohio Turnpike Sta. 487+08.50 =  
P.C. Sta. 445+76.58 E.B. I-90

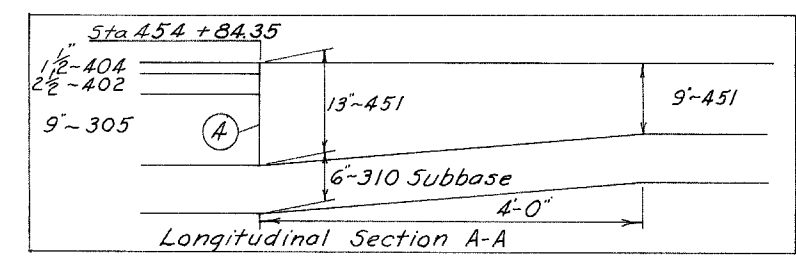


- JOINT LEGEND**
- ① Standard Longitudinal Joint
  - ② Standard Expansion Bolt Joint
  - ③ Standard Expansion Joint
  - ④ Standard Construction Joint

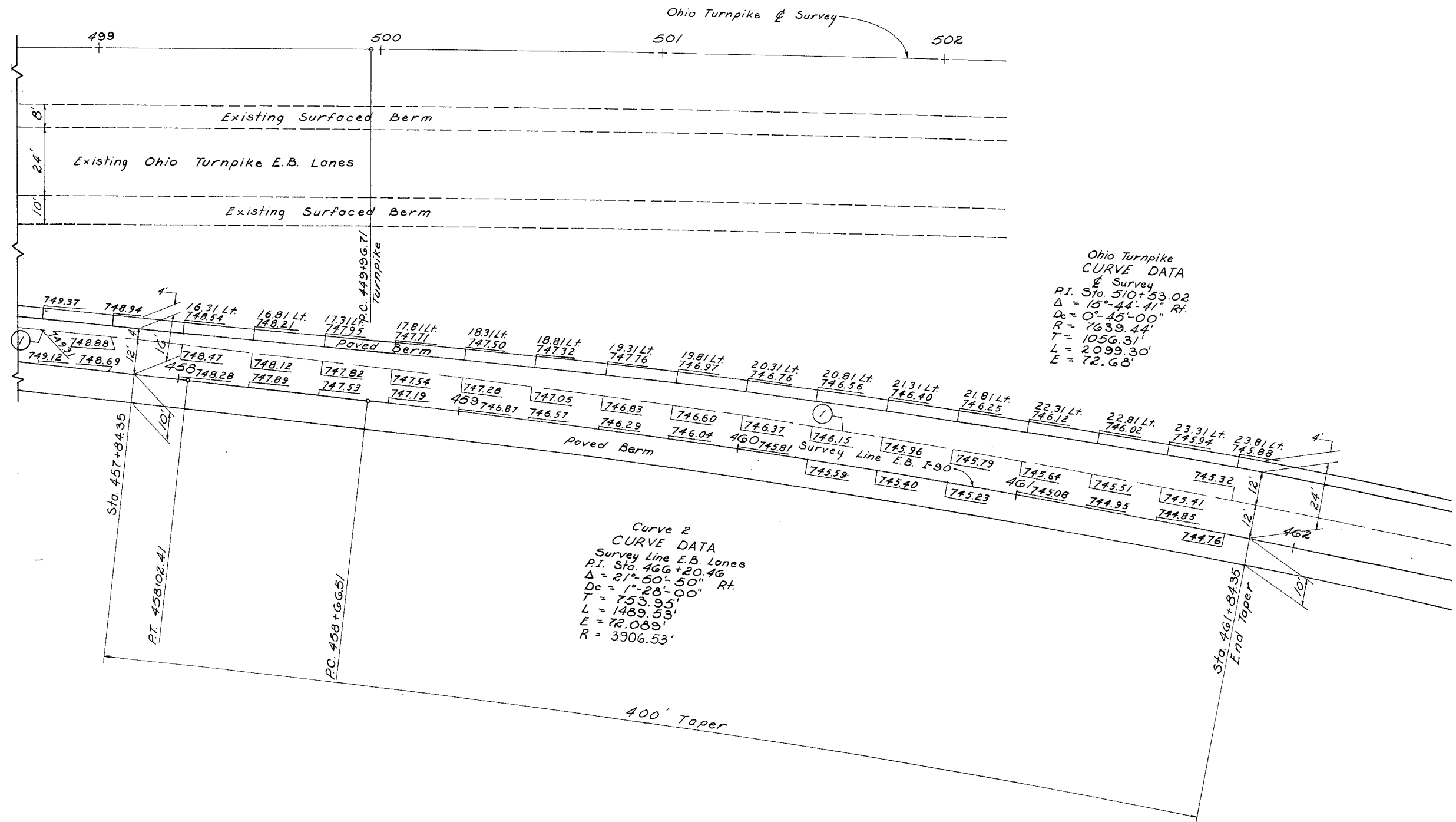
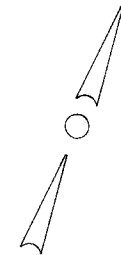
**CURVE DATA**  
Curve #1  
Survey Line E.B. Lanes  
P.I. Sta. 451+90.08  
 $\Delta = 6^\circ 07' 45''$   
 $D_c = 0^\circ 30' 00''$   
 $R = 11,459.16'$   
 $T = 613.50'$   
 $L = 1225.83'$   
 $E = 16.41'$

Pavement Type Change  
See Inset

Drafting Scale 1"=20'



LORAIN COUNTY  
LOR - 90 - 9.48

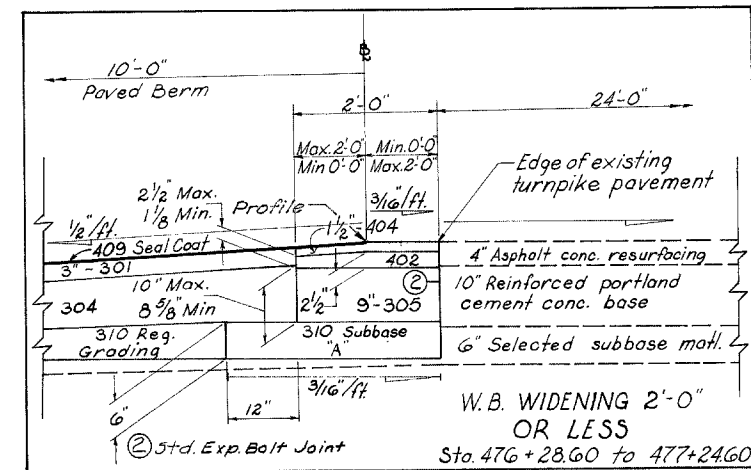
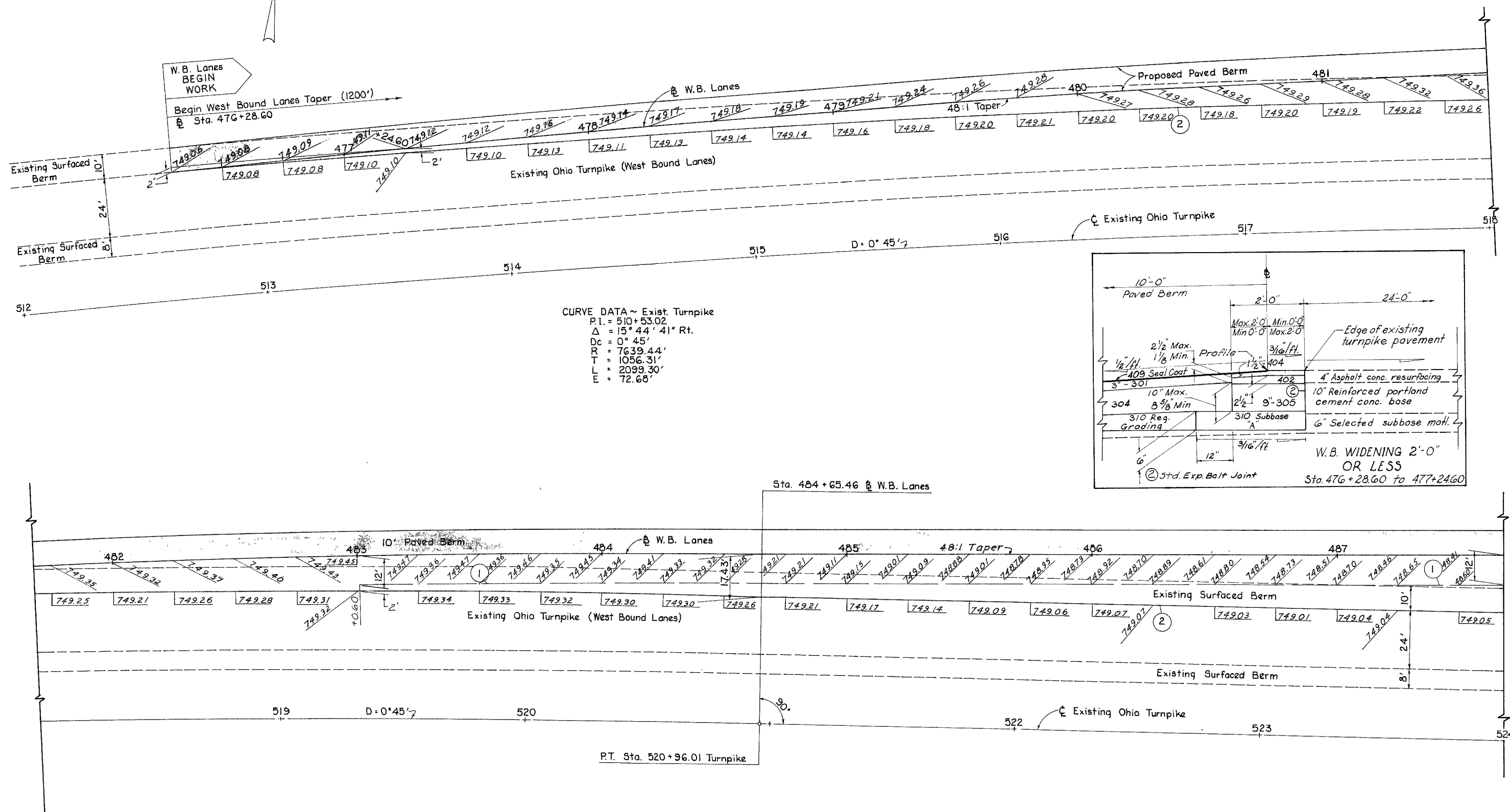


Drafting Scale: 1" = 20'

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

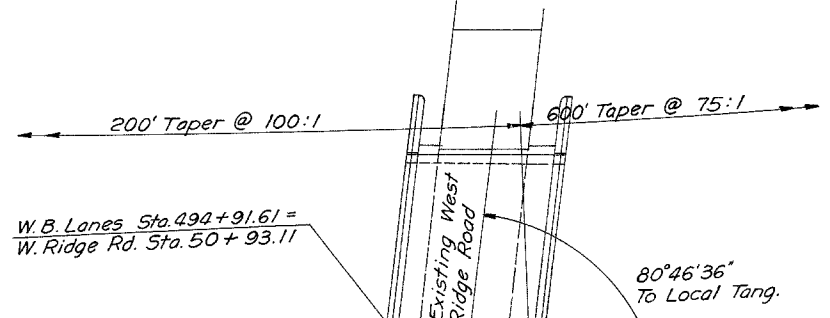
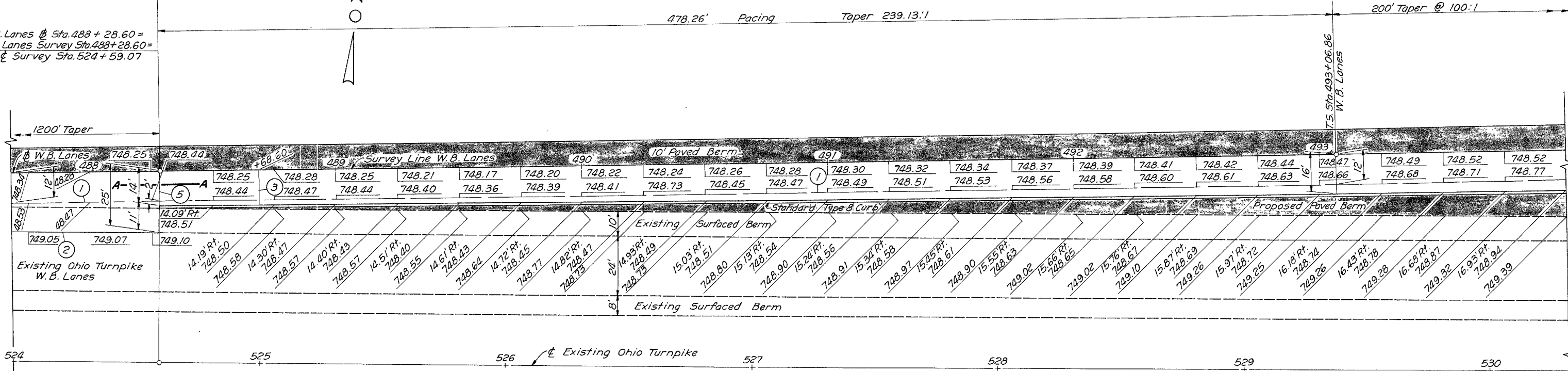
134  
283

LORAIN COUNTY  
LOR - 90 - 9.48

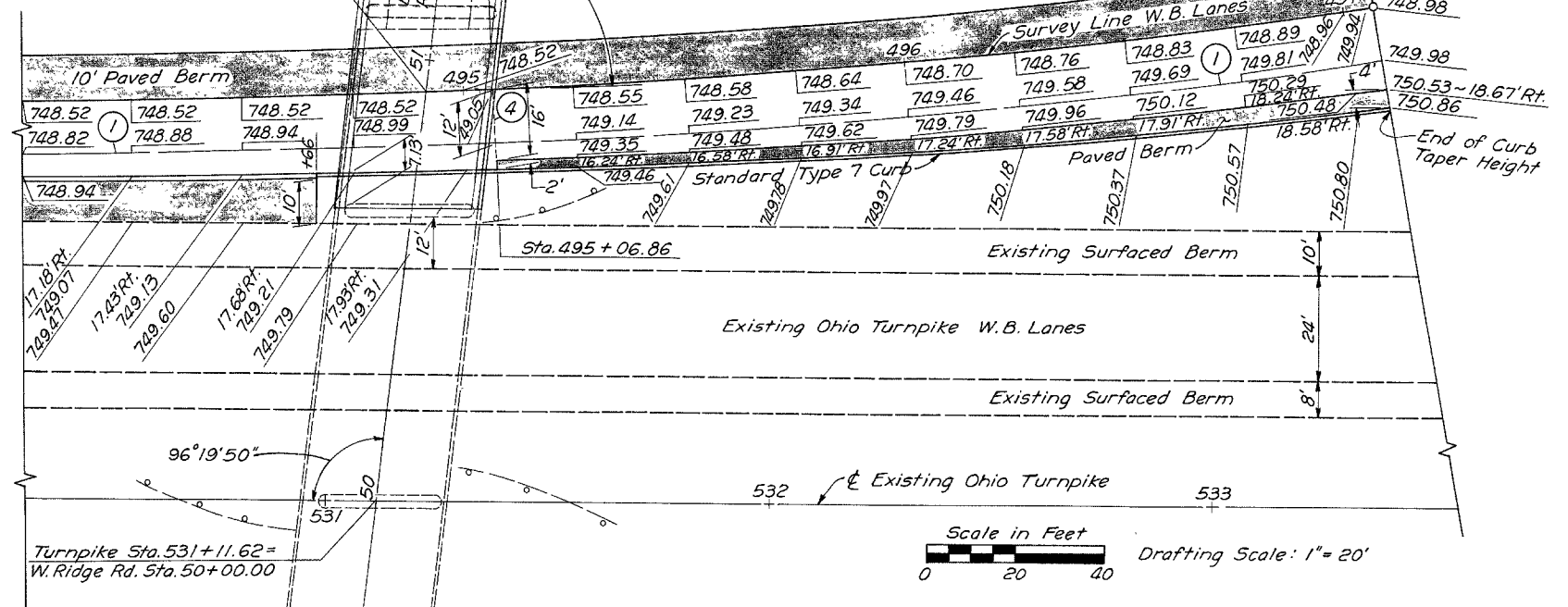
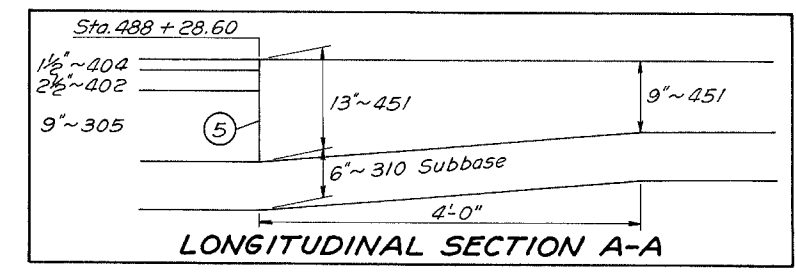
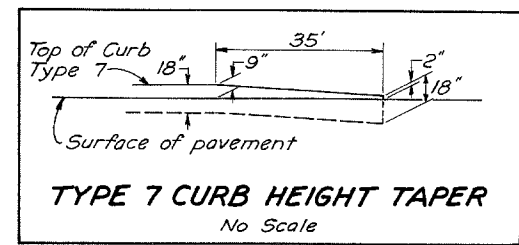


Pavement Type Change  
See Inset

I.R. 90 W.B. Lanes @ Sta. 488 + 28.60 =  
I.R. 90 W.B. Lanes Survey Sta. 488 + 28.60 =  
Turnpike @ Survey Sta. 524 + 59.07



CURVE DATA - Curve 6  
Survey Line W.B. Lanes  
P.I. = Sta. 505 + 14.43  
 $\Delta = 70^{\circ}04'45''$  Lt.  
 $D_c = 4^{\circ}00'00''$   
 $R = 1432.395'$   
 $L_s = 400.0'$   
 $T_s = 1207.57'$   
 $E_s = 322.76'$   
 $O_s = 8^{\circ}00'00''$   
 $\Delta_c = 54^{\circ}04'45''$   
 $L_c = 1351.98'$



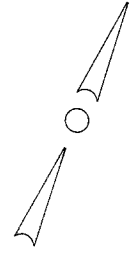
- JOINT LEGEND**
- ① Standard Longitudinal Joint.
  - ② Standard Expansion Bolt Joint.
  - ③ Standard Expansion Joint.
  - ④ Standard Contraction Joint.
  - ⑤ Standard Construction Joint.

Scale in Feet  
0 20 40

Drafting Scale: 1" = 20'



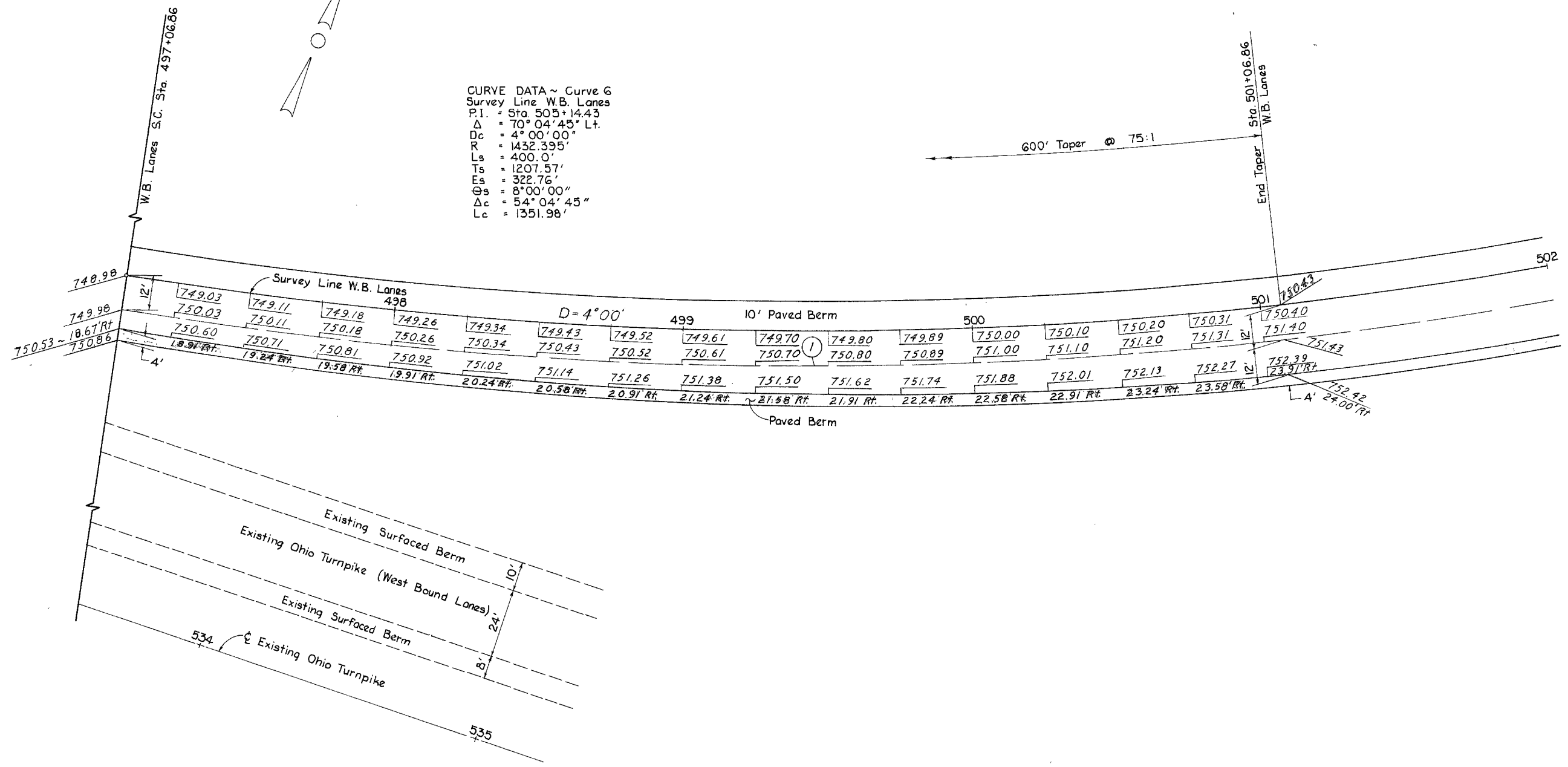
LORAIN COUNTY  
LOR-90-9.48



CURVE DATA ~ Curve 6  
Survey Line W.B. Lanes  
P.I. = Sta. 505+14.43  
 $\Delta$  = 70° 04' 45" Lt.  
Dc = 4° 00' 00"  
R = 1432.395'  
Ls = 400.0'  
Ts = 1207.57'  
Es = 322.76'  
 $\Theta$ s = 8° 00' 00"  
 $\Delta$ c = 54° 04' 45"  
Lc = 1351.98'

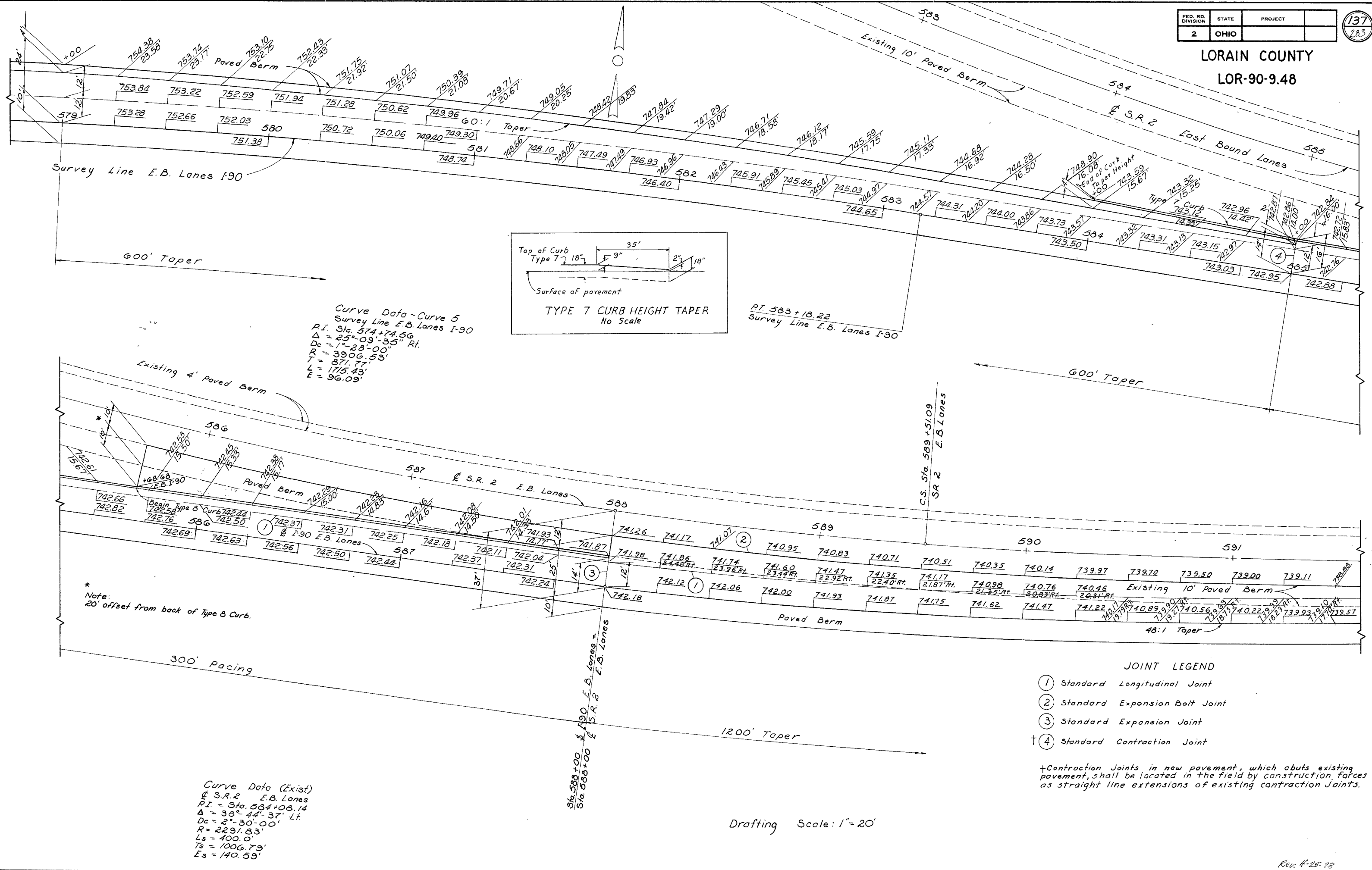
600' Taper @ 75:1

Sta. 501+06.86  
W.B. Lanes  
End Taper

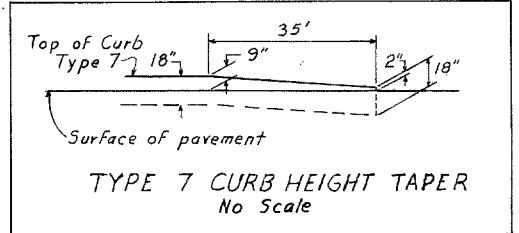


Drafting Scale 1" = 20'

LORAIN COUNTY  
LOR-90-9.48



Curve Data - Curve 5  
Survey Line E.B. Lanes I-90  
P.I. Sta. 574+74.56  
 $\Delta = 25^\circ-09'-35''$  Rt.  
 $D_c = 1^\circ-28'-00''$   
 $R = 3906.53'$   
 $T = 871.77'$   
 $L = 1715.43'$   
 $E = 96.09'$



PT. 583+18.22  
Survey Line E.B. Lanes I-90

\* Note:  
20' offset from back of Type B Curb.

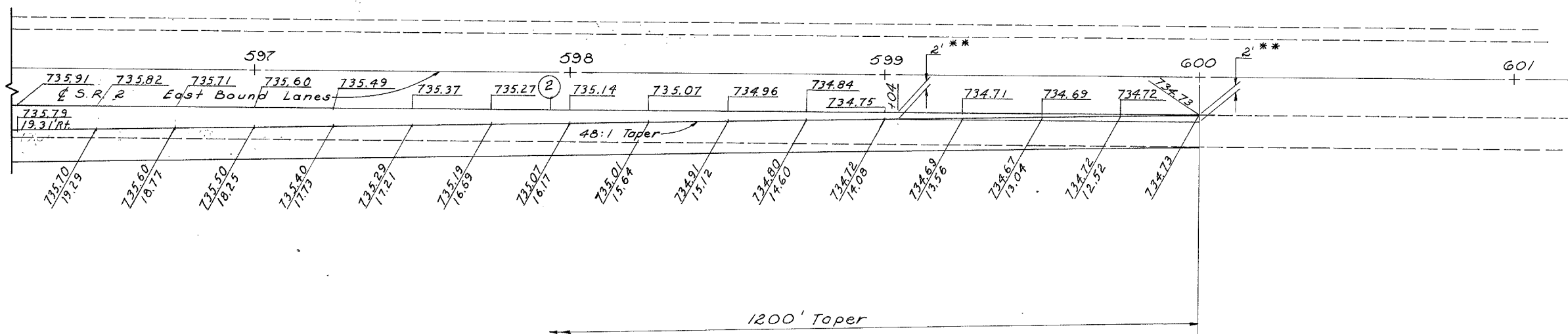
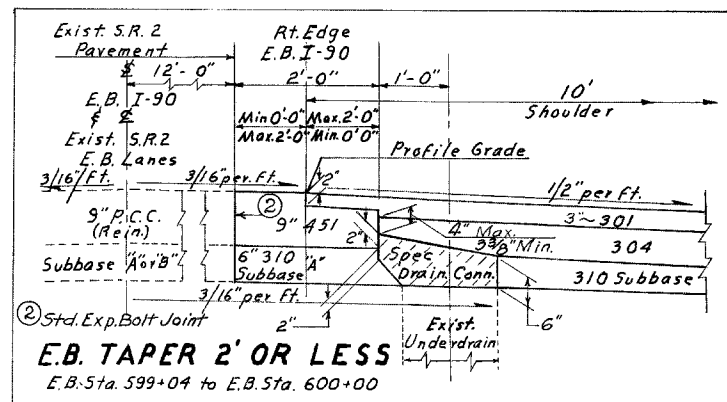
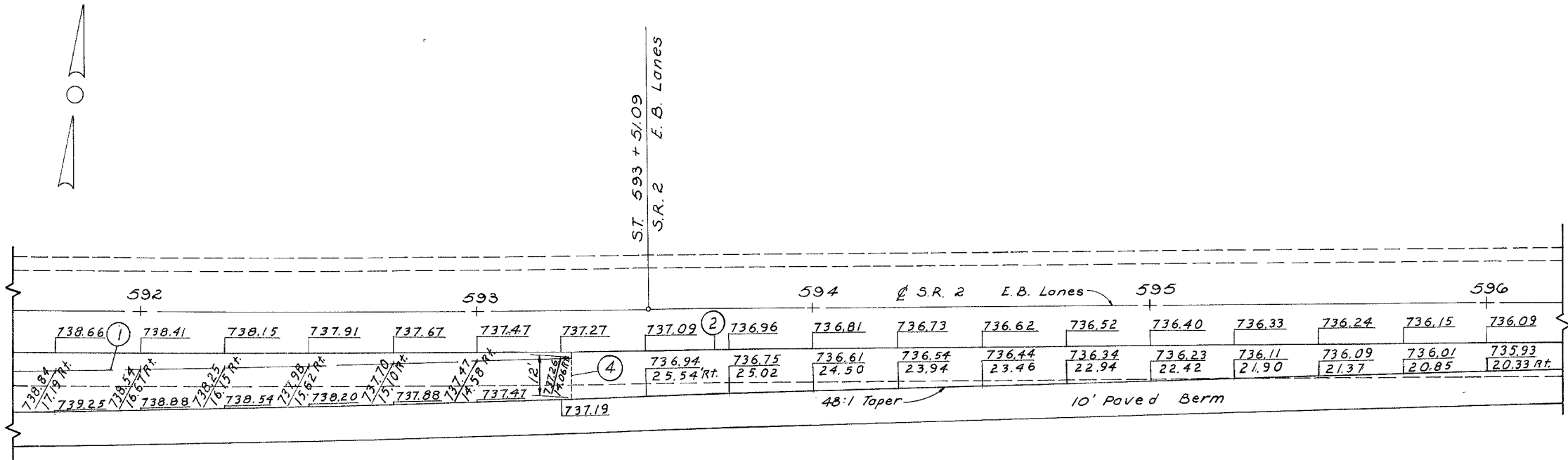
Curve Data (Exist)  
S.R. 2 E.B. Lanes  
P.I. = Sta. 584+08.14  
 $\Delta = 36^\circ-44'-37''$  Lt.  
 $D_c = 2^\circ-30'-00''$   
 $R = 2291.83'$   
 $L_s = 400.0'$   
 $T_s = 1006.79'$   
 $E_s = 140.59'$

- JOINT LEGEND
- ① Standard Longitudinal Joint
  - ② Standard Expansion Bolt Joint
  - ③ Standard Expansion Joint
  - †④ Standard Contraction Joint

† Contraction Joints in new pavement, which abuts existing pavement, shall be located in the field by construction forces as straight line extensions of existing contraction joints.

Drafting Scale: 1" = 20'

LORAIN COUNTY  
LOR-90-9.48

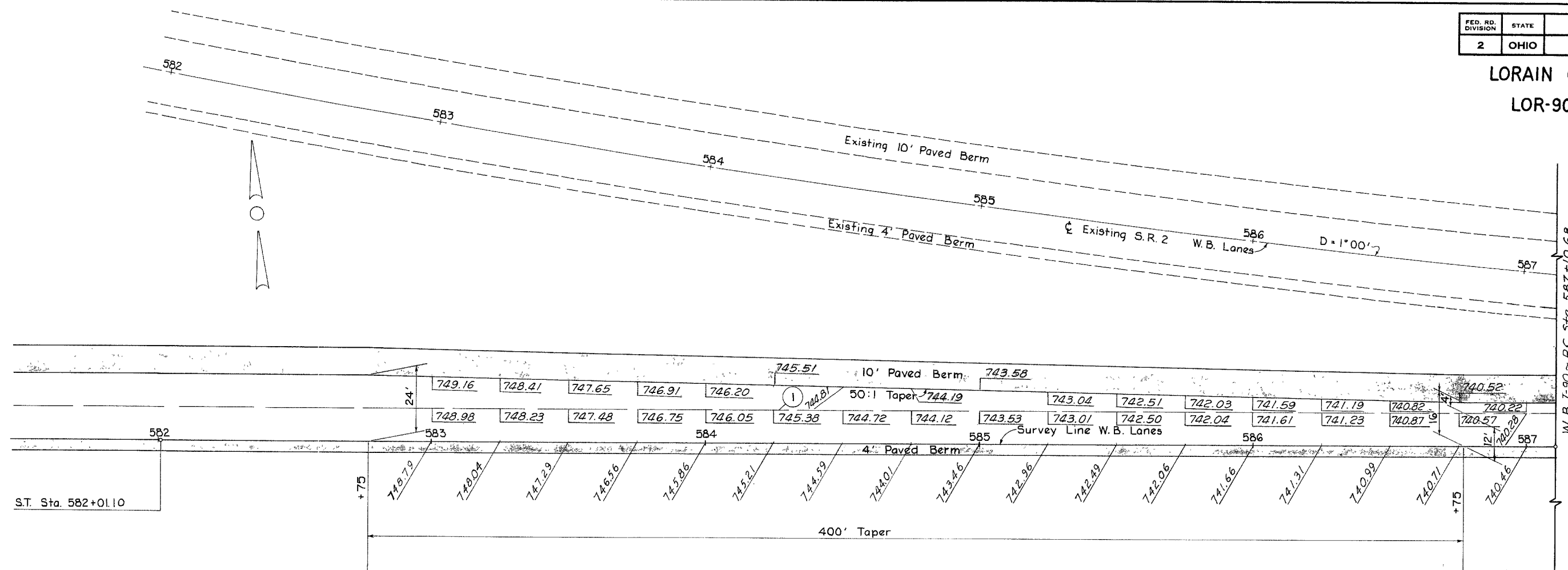


\*\* Note:  
Within the tapered area outside the normal limit of pavement, depress the Item 451 surface 2 inches and surface with 2 inches of Item 301.

End Work  
E. B. Lanes  
Sta. 600+00

Drafting Scale: 1" = 20'

LORAIN COUNTY  
LOR-90-9.48



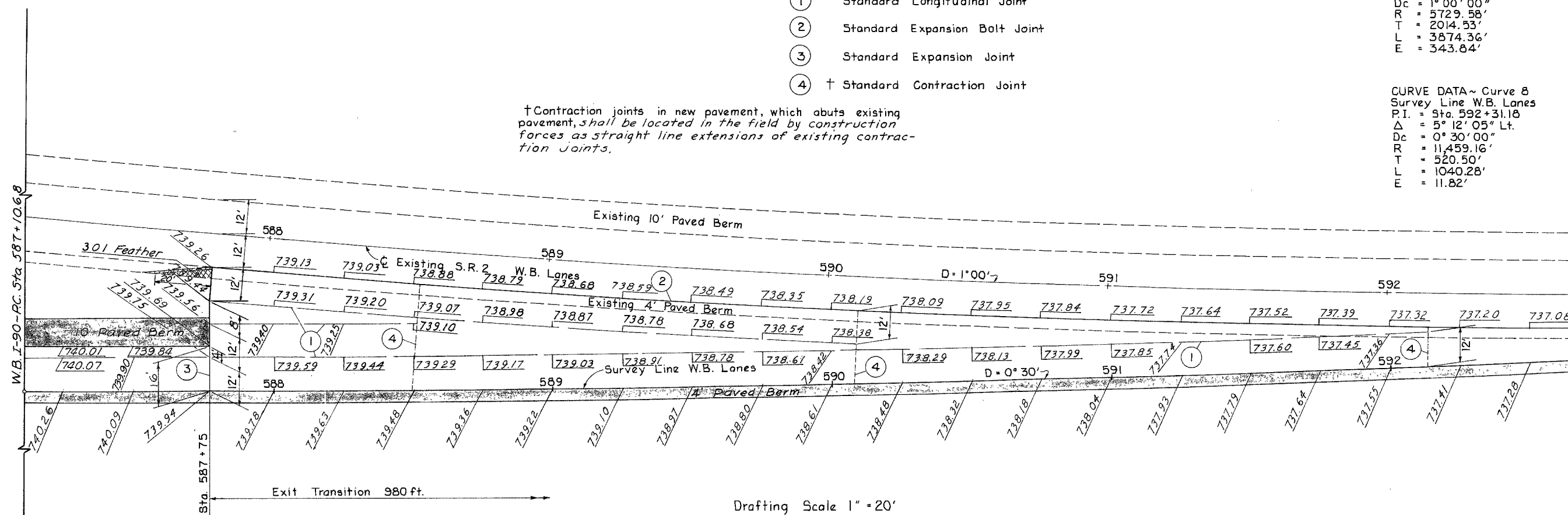
JOINT LEGEND

- ① Standard Longitudinal Joint
- ② Standard Expansion Bolt Joint
- ③ Standard Expansion Joint
- ④ † Standard Contraction Joint

CURVE DATA (Existing)  
 W.B. Lanes S.R. 2  
 P.I. = Sta. 583 + 15.34  
 $\Delta$  = 38° 44' 37" Lt.  
 $D_c$  = 1° 00' 00"  
 $R$  = 5729.58'  
 $T$  = 2014.53'  
 $L$  = 3874.36'  
 $E$  = 343.84'

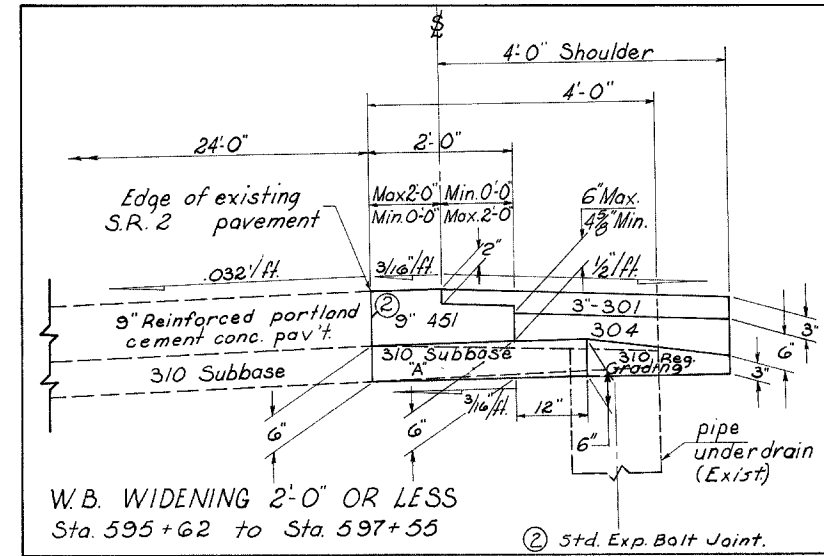
CURVE DATA ~ Curve 8  
 Survey Line W.B. Lanes  
 P.I. = Sta. 592 + 31.18  
 $\Delta$  = 5° 12' 05" Lt.  
 $D_c$  = 0° 30' 00"  
 $R$  = 11,459.16'  
 $T$  = 520.50'  
 $L$  = 1040.28'  
 $E$  = 11.82'

† Contraction joints in new pavement, which abuts existing pavement, shall be located in the field by construction forces as straight line extensions of existing contraction joints.

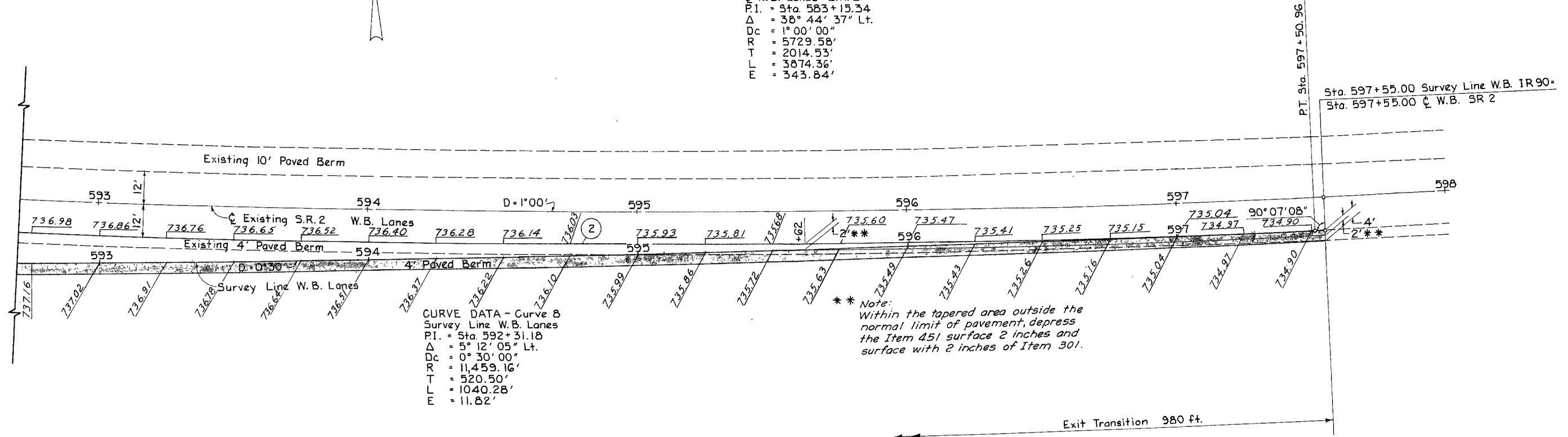


Drafting Scale 1" = 20'

LORAIN COUNTY  
LOR-90-9.48



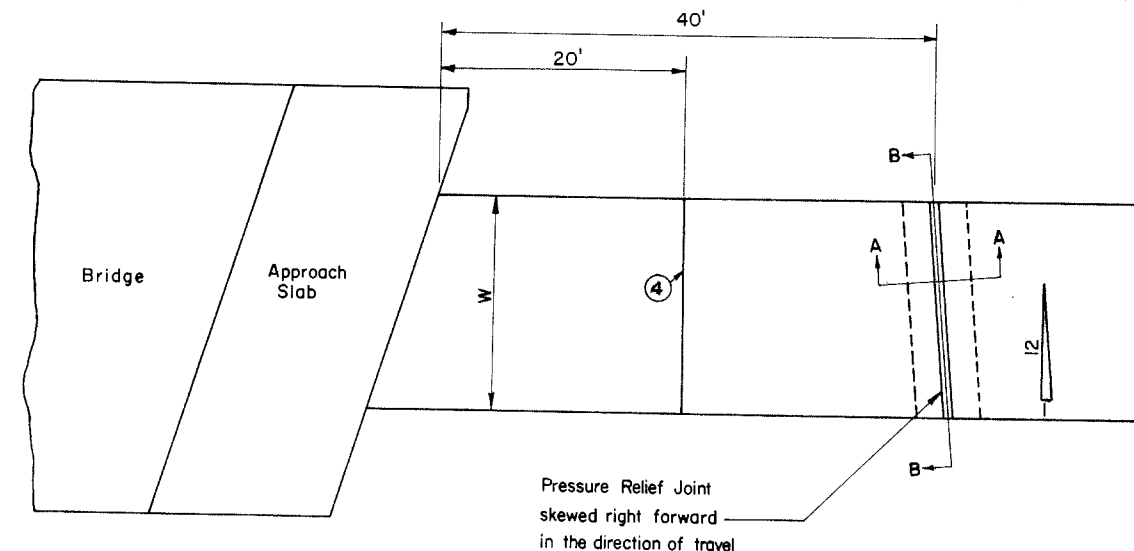
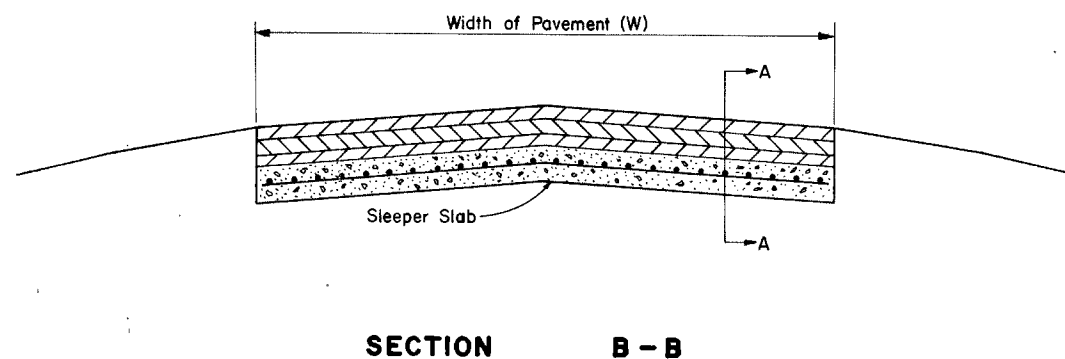
CURVE DATA (Existing)  
 C W.B. Lanes S.R. 2  
 P.I. = Sta 583+15.34  
 $\Delta$  =  $38^{\circ} 44' 37''$  Lt.  
 Dc = 1' 00' 00"  
 R = 5729.58'  
 T = 2014.53'  
 L = 3674.36'  
 E = 343.84'



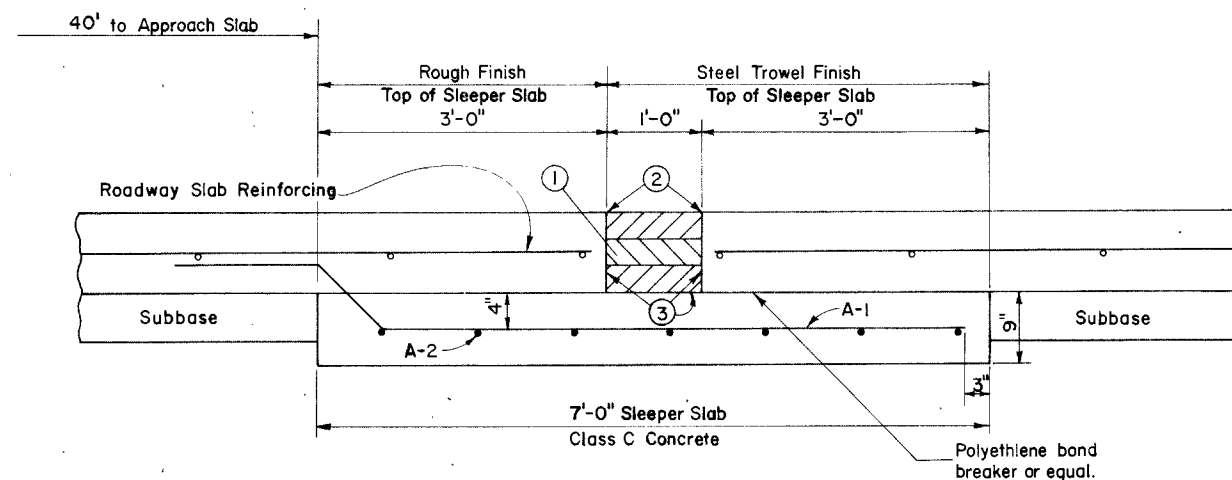
CURVE DATA - Curve B  
 Survey Line W.B. Lanes  
 P.I. = Sta 592+31.18  
 $\Delta$  =  $5^{\circ} 12' 05''$  Lt.  
 Dc = 0' 30' 00"  
 R = 11,459.16'  
 T = 520.50'  
 L = 1040.28'  
 E = 11.82'

\*\* Note:  
 Within the tapered area outside the normal limit of pavement, depress the Item 451 surface 2 inches and surface with 2 inches of Item 301.

Drafting Scale 1" = 20'



PLAN



SECTION A-A

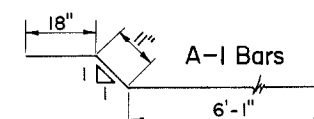
NOTES

Asphalt concrete shall be placed in the joint in three equal courses and compacted with equipment as approved by the Engineer.  
 The expansion joint approximately 60' from the bridge approach slab, as specified under 451.08 (c) shall be eliminated.  
 Barricades in accordance with 614, shall be provided during construction until the joint has been filled with asphalt.  
 Pressure Relief Joints will be measured by the linear foot along the centerline of the joint from edge to edge of pavement.  
 Payment for the work shall be made per linear foot under "Item Special, Pressure Relief Joint", which price and payment shall constitute full compensation for furnishing and placing of all concrete, asphalt, reinforcing steel, tack coat and all other materials, labor, tools and equipment, and incidentals necessary to complete this item.

LEGEND

- ① Asphalt Concrete placed in three equal courses shall be in accordance with 404
- ② The 451 pavement shall have a 1/2" rounding and the joint shall be sealed in accordance with 705.01.
- ③ Tack Coat: 702.04, MS-2 or RS-1; or 702.02, RC-70 or RC-250 in accordance with 407.
- ④ Expansion Joint

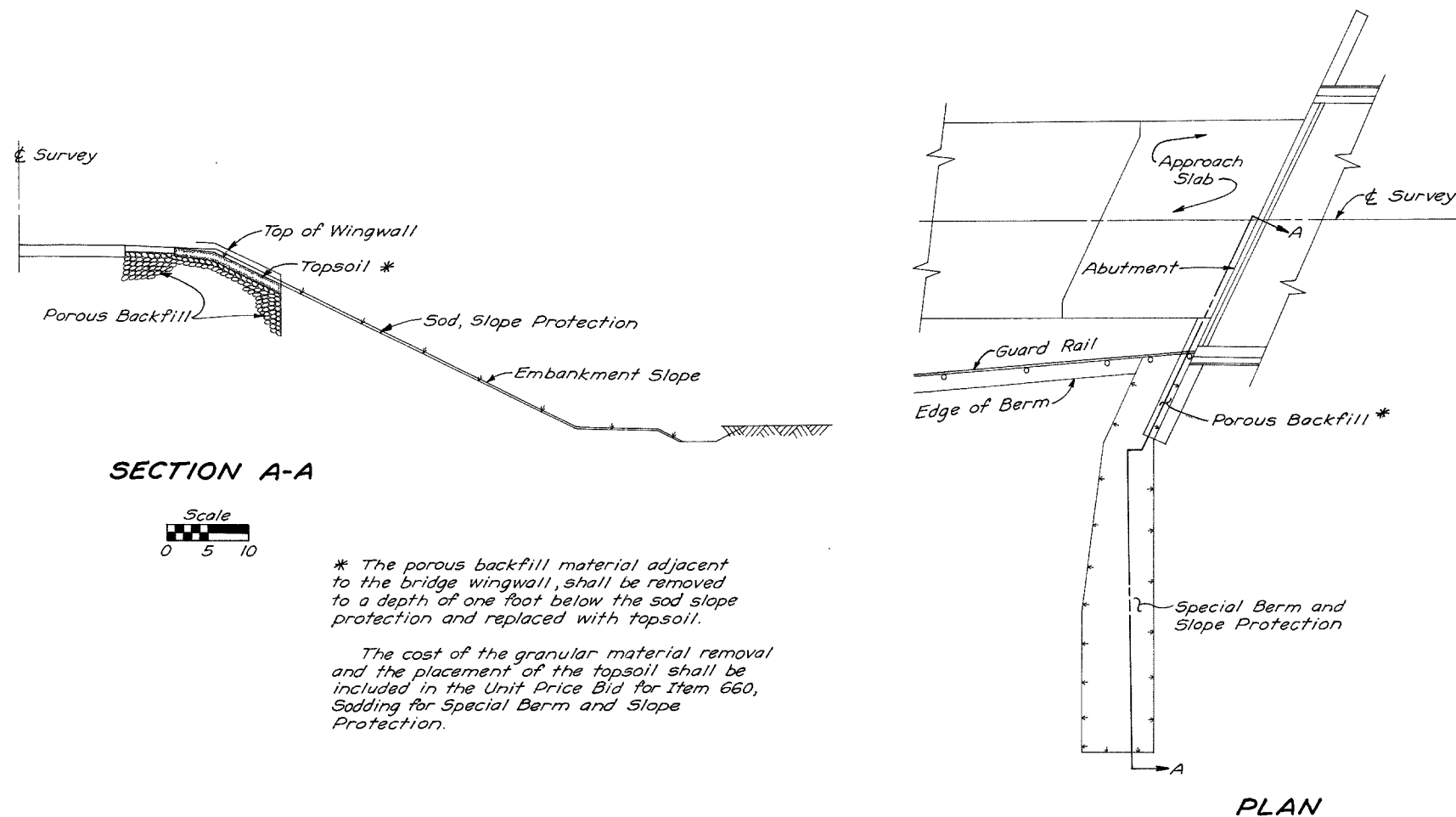
SCHEDULE OF REINFORCING STEEL					
Mark	Bar Size	Spa c/c	Length	No. Req'd.	Shape
A-1	5	12"	8'-6"	24, for 24' Pymt.	Bent
A-2	4	12"	W minus 6"	7	Straight



Estimated Quantities

- Bridge No. 1012 (over West Ridge Rd) install west of bridge 24 Lin Ft.
- Bridge No. 1033 (over Turnpike) install east of bridge 24 Lin Ft.
- Bridge No. 1148 (over Murray Ridge Rd.) install east and west 47 Lin Ft.
- Bridge No. 1157 (over Murray Ridge Rd.) install east and west 47 Lin Ft.
- Bridge No. 1170 (over S.R. 2 East bound lane) install east and west 48 Lin Ft.
- Total to General Summary 190 Lin Ft.

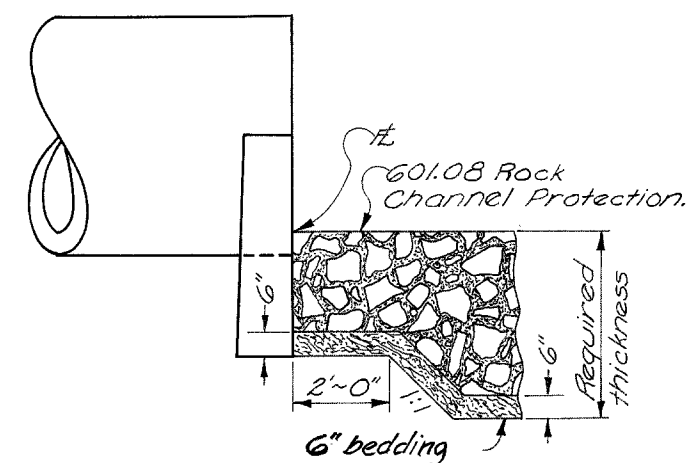
LORAIN COUNTY  
LOR-90-9.48



**POROUS BACKFILL REPLACEMENT**

\* The porous backfill material adjacent to the bridge wingwall, shall be removed to a depth of one foot below the sod slope protection and replaced with topsoil.

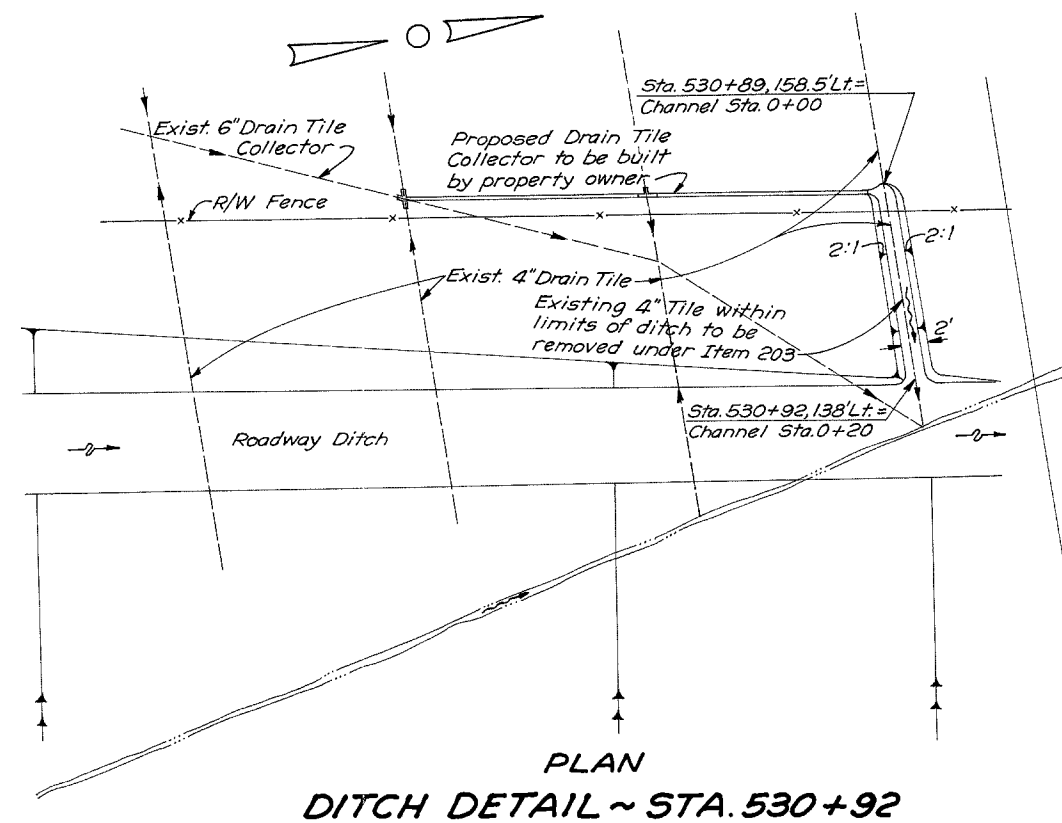
The cost of the granular material removal and the placement of the topsoil shall be included in the Unit Price Bid for Item 660, Sodding for Special Berm and Slope Protection.



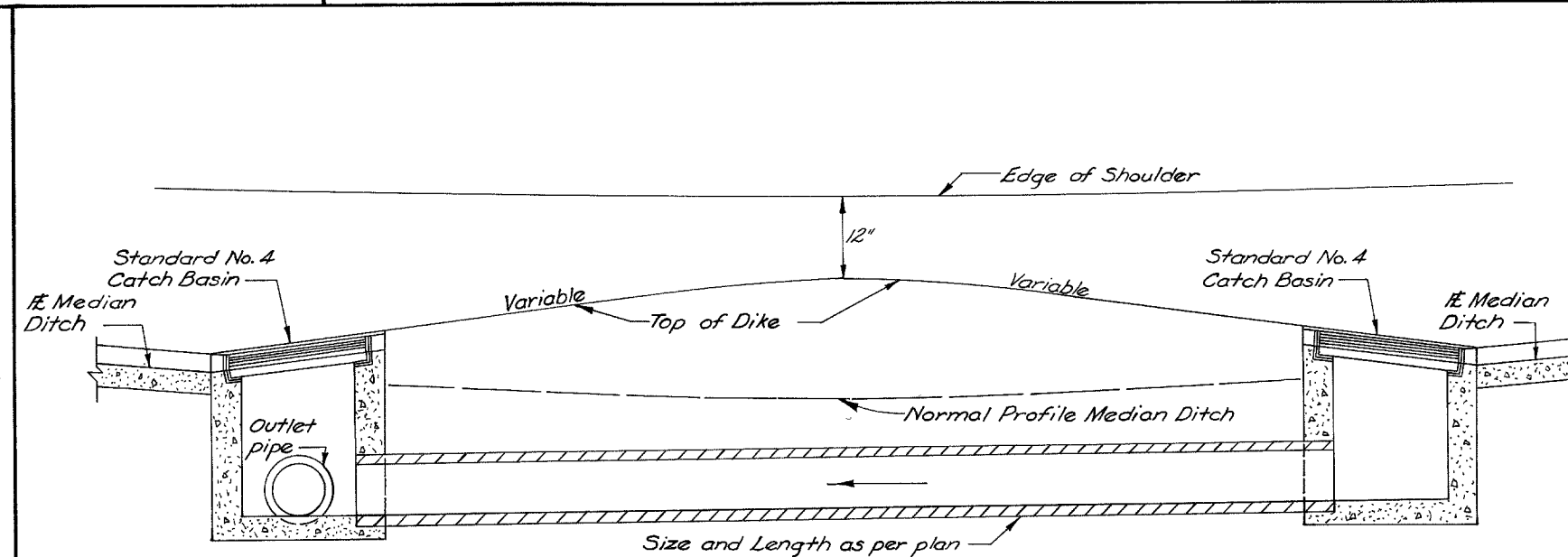
**CHANNEL PROTECTION DETAIL**  
When 601.08 exceeds depth of headwall

Channel Cross Sections	203
Sta. 0+20	F.A.C.Y.
0	0
3	3
1	1
4	4
1	1
0	0
<b>Total</b>	<b>2</b>

Quantity carried to Sheet No. 93



**DITCH DETAIL ~ STA. 530+92**

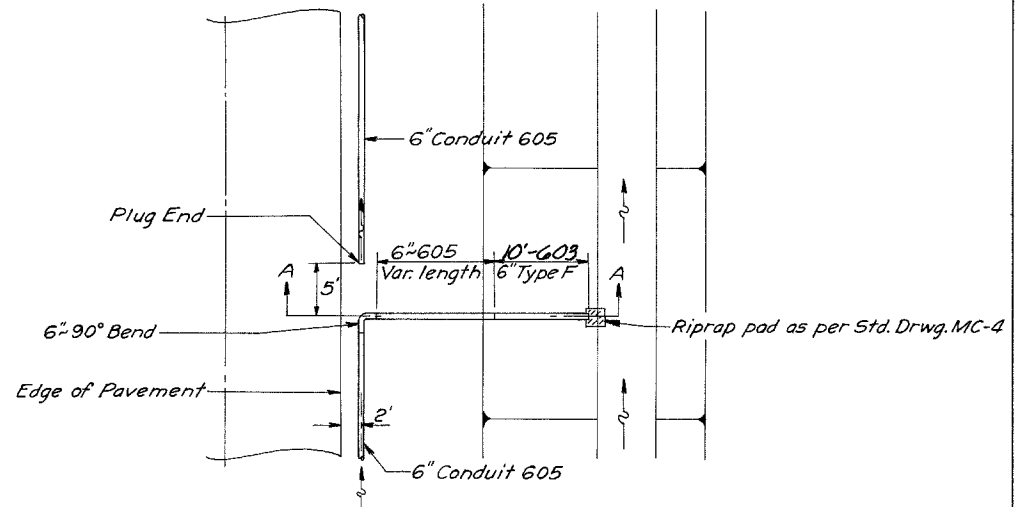


**MEDIAN CATCH BASIN IN SAG DRAINAGE DETAILS**  
Rev. 4-25-78

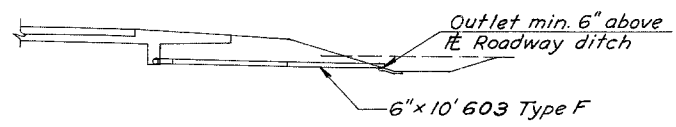
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

142  
283

LORAIN COUNTY  
LOR-90-9.48

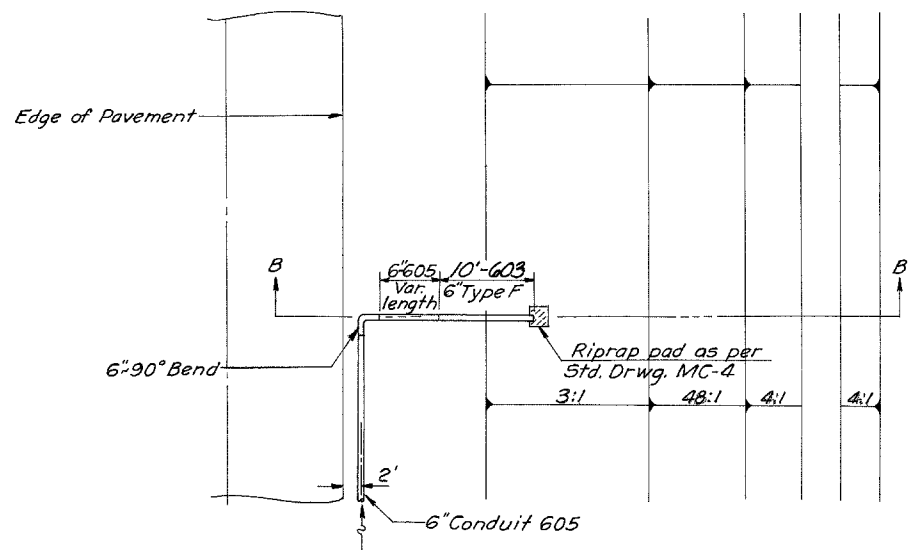


PLAN

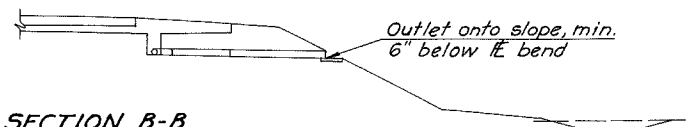


SECTION A-A

DETAIL "A"

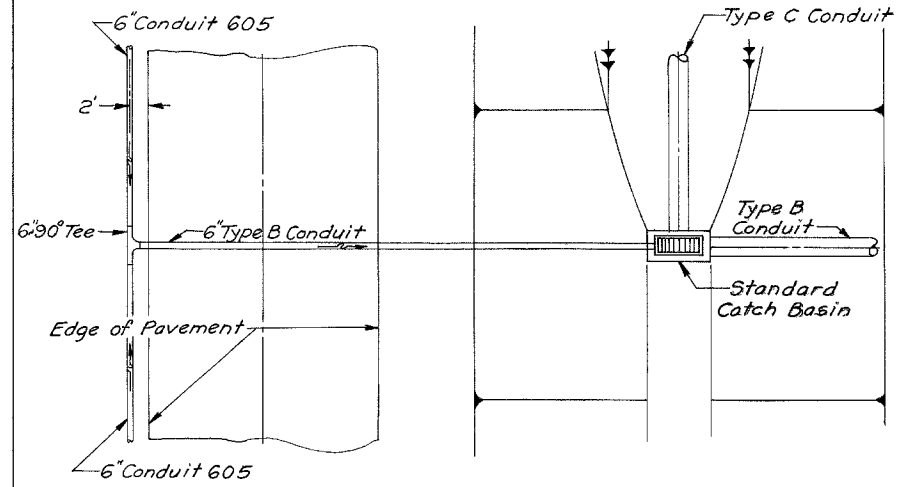


PLAN

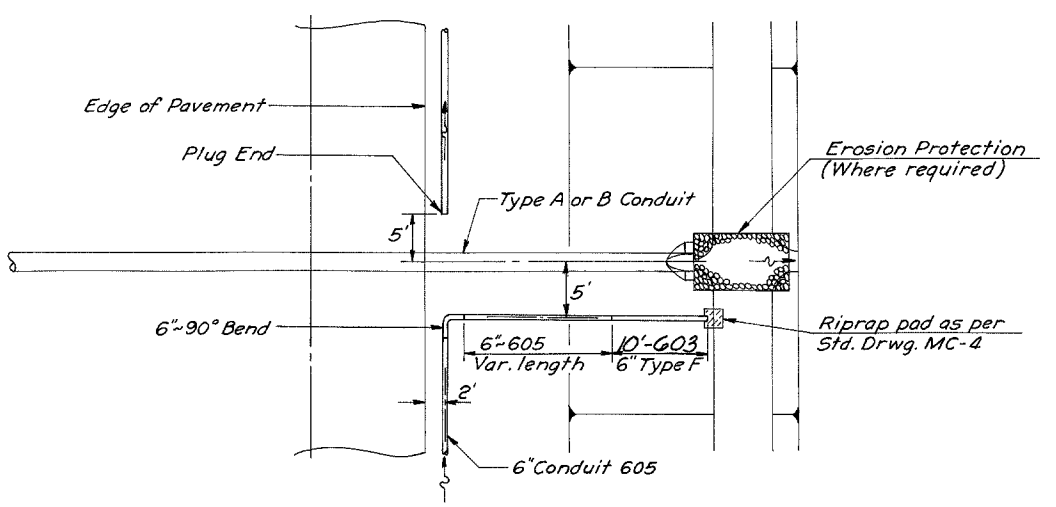


SECTION B-B

DETAIL "B"

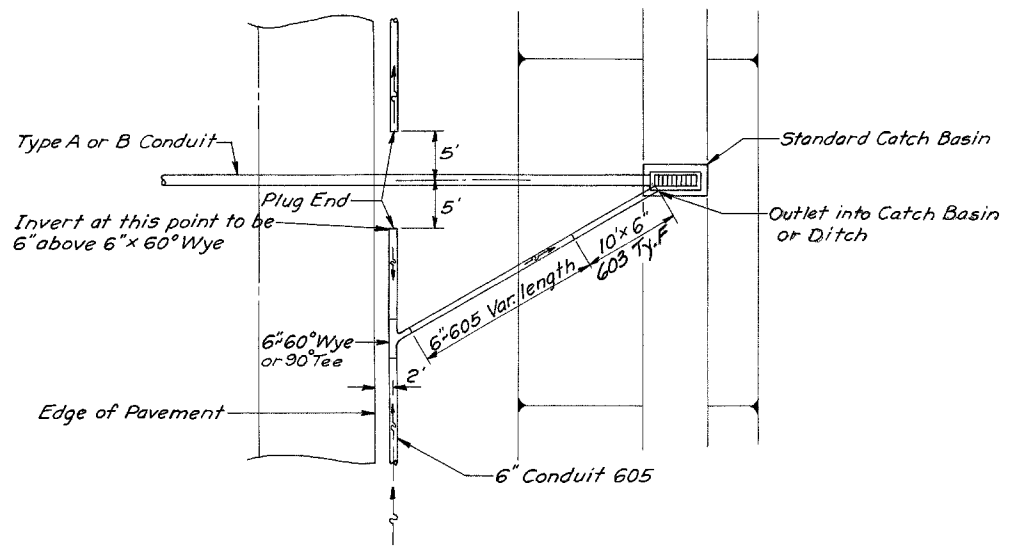


DETAIL "C"

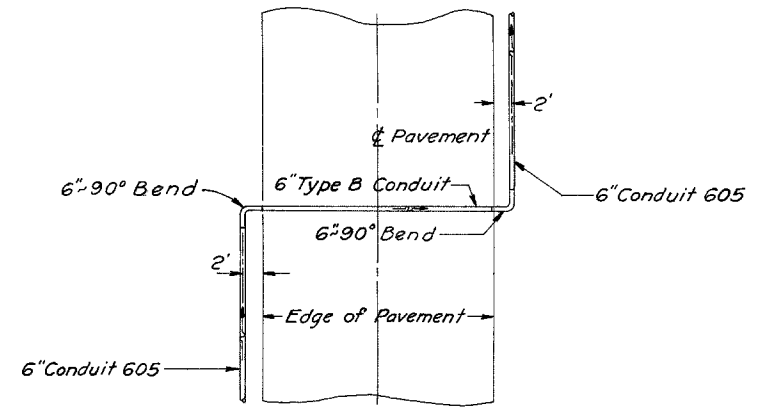


DETAIL "D"

Note: Refer to Section A-A of Underdrain Outlet Detail A for Section View of Outlet Pipe.

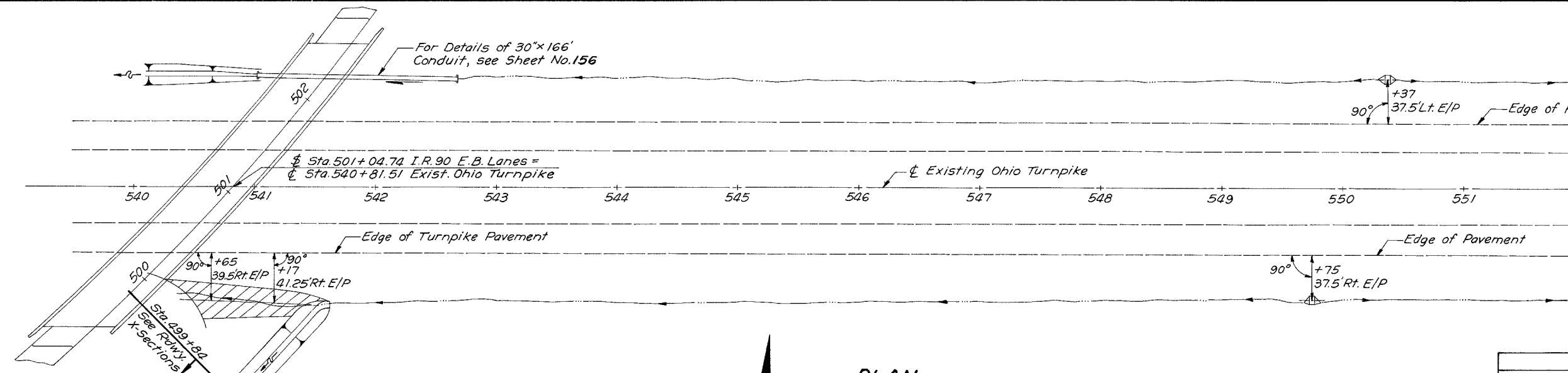


DETAIL "E"



DETAIL "F"





**EMBANKMENT CROSS SECTIONS**

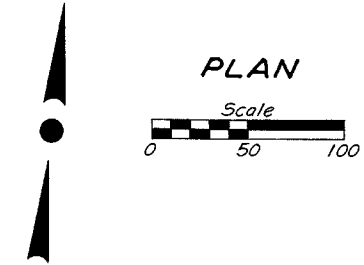
Station	Elev.	E.A.C.Y.
541+63	728.00	0
541+17	745.6	27
540+65	748.50	32
540+25	745.6	76
		47
		35
		0
<b>Total</b>		<b>138</b>

Emb. Total carried to Sheet No. 73

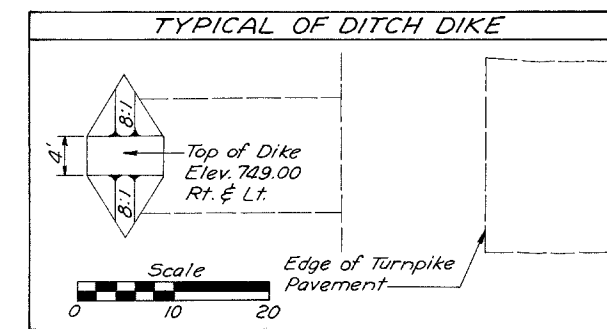
**CHANNEL CROSS SECTIONS**

Station	Elev.	E.A.C.Y.
500+91	748.0	0
500+56	745.64	21
500+20	747.9	32
499+84	745.57	43
		32
		40
		28
<b>Total</b>		<b>104</b>

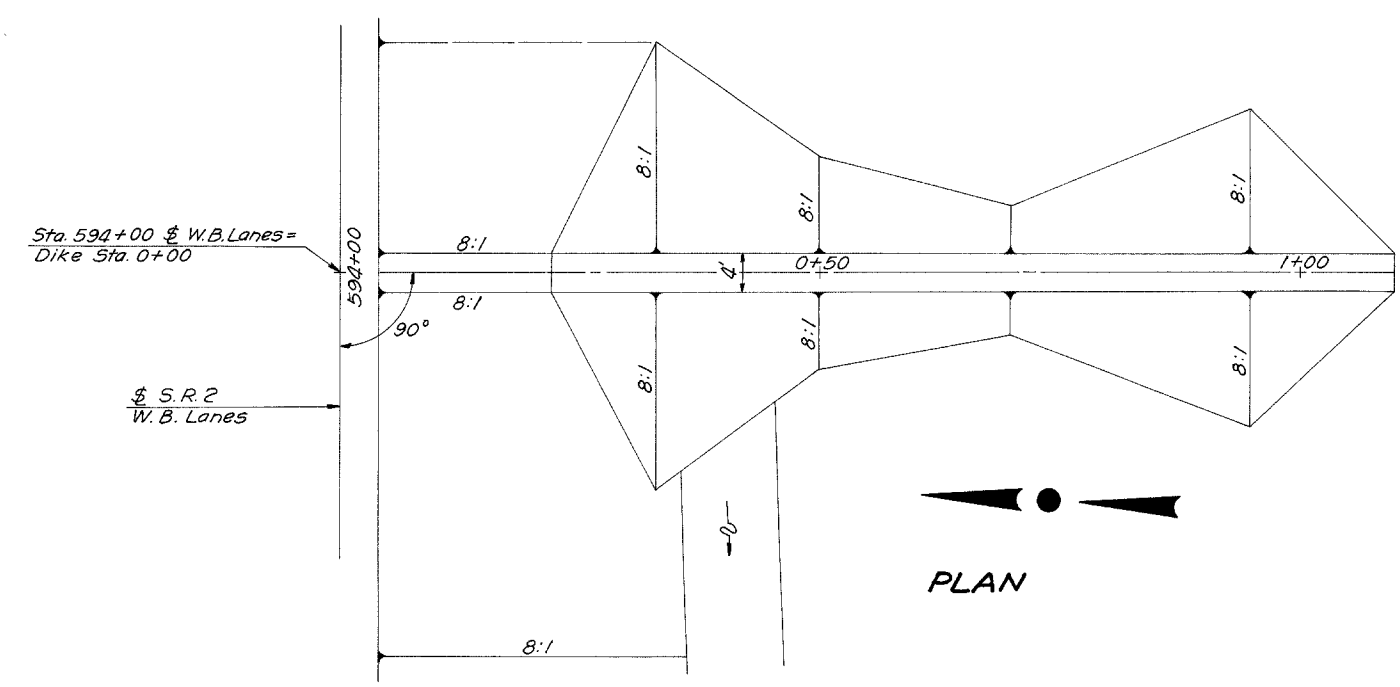
Exc. Total carried to Sheet No. 73



Designed	Checked	Inked
R. D. E.	D. F. H.	C. E. H.
5-8-69	5-12-69	5-13-69



**DITCH BACKFILL AND DIKE DETAILS**

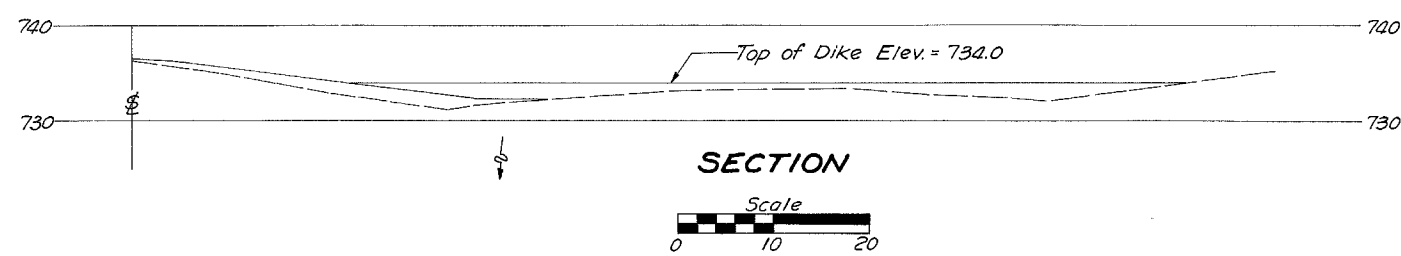


**DIKE CROSS SECTIONS**

Station	Elev.	E.A.C.Y.
734+00	732.1	0
0+95	734.00	10
0+70	733.4	35
0+50	732.9	19
0+33	734.00	5
	731.3	7
		14
		27
		68
		14
		0
<b>Total</b>		<b>122</b>

Quan. Carried to Sheet No. 122

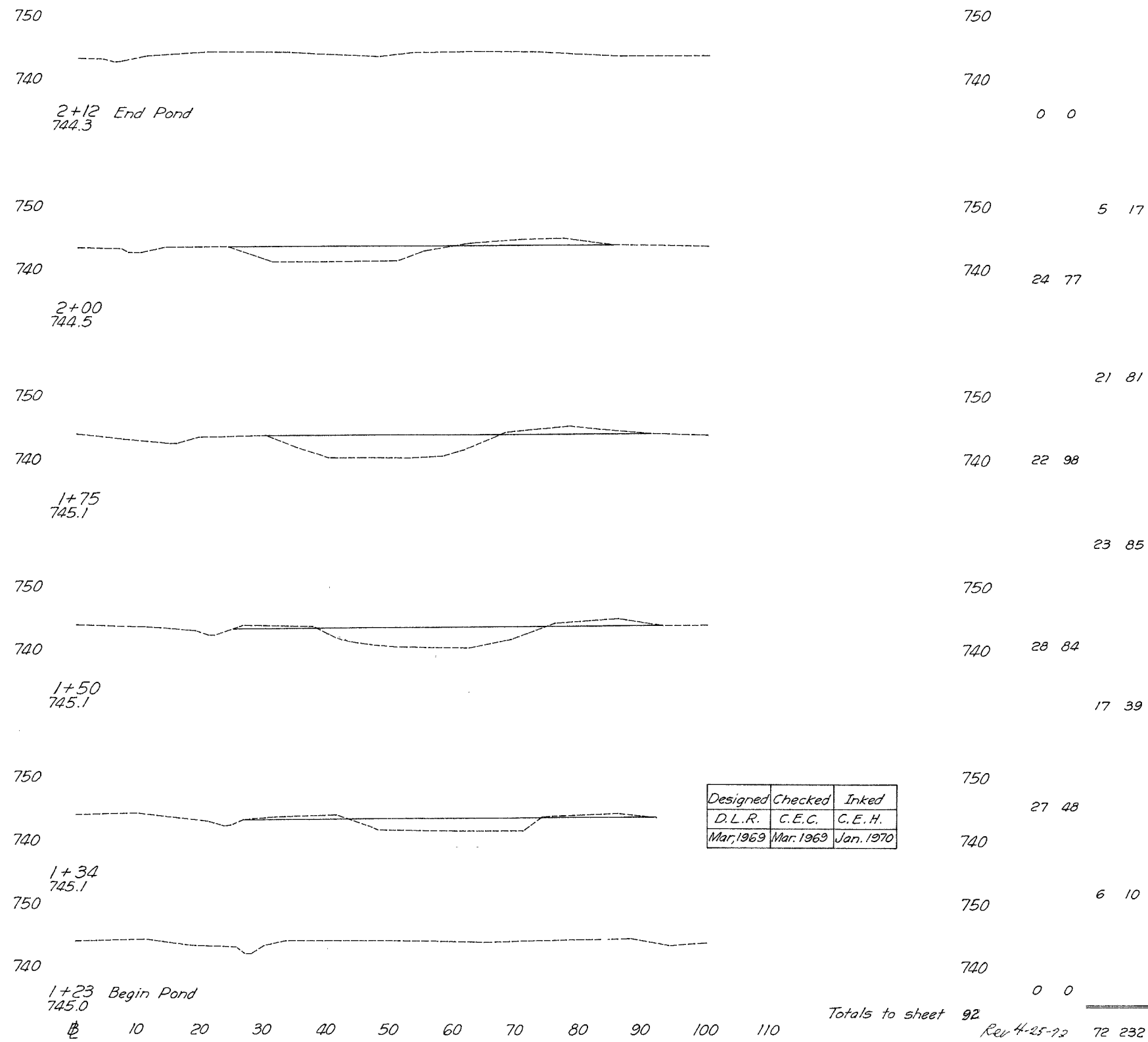
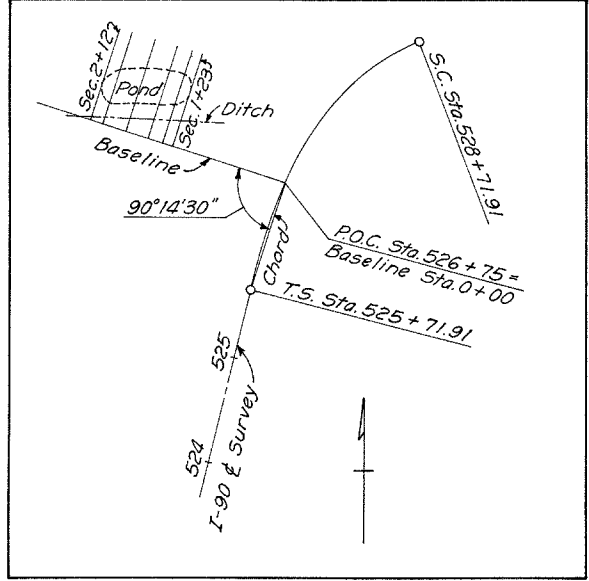
Designed	Checked	Inked
R. D. E.	D. F. H.	C. E. H.
5-9-69	5-12-69	5-13-69



**DIKE DETAIL ~ STA. 594+00 W.B. LANES**  
*Rev. 4-25-73*  
**DITCH BACKFILL AND DIKE DETAILS**

LORAIN COUNTY  
LOR-90-9.48

0  
47  
71  
197  
71  
207  
78  
136  
75  
46  
0



Totals to sheet 92

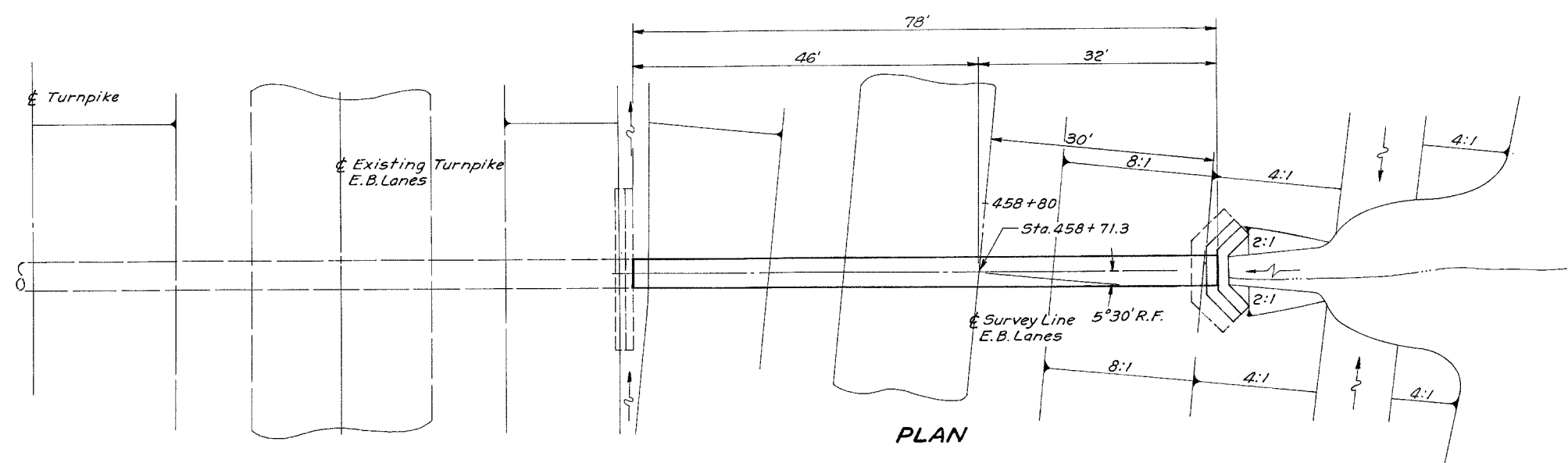
Rev 4-25-72 72 232

POND FARTHWORK BASELINE AT STA 526+75

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

145  
283

LORAIN COUNTY  
LOR-90-9.48



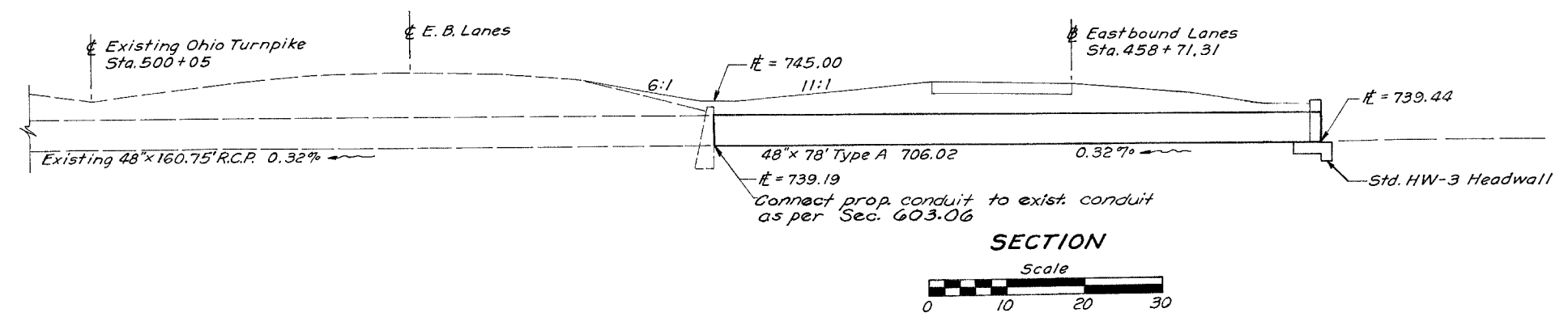
Drainage Area = 42 Acres  
Q50 = 41 c.f.s.



ESTIMATED QUANTITIES

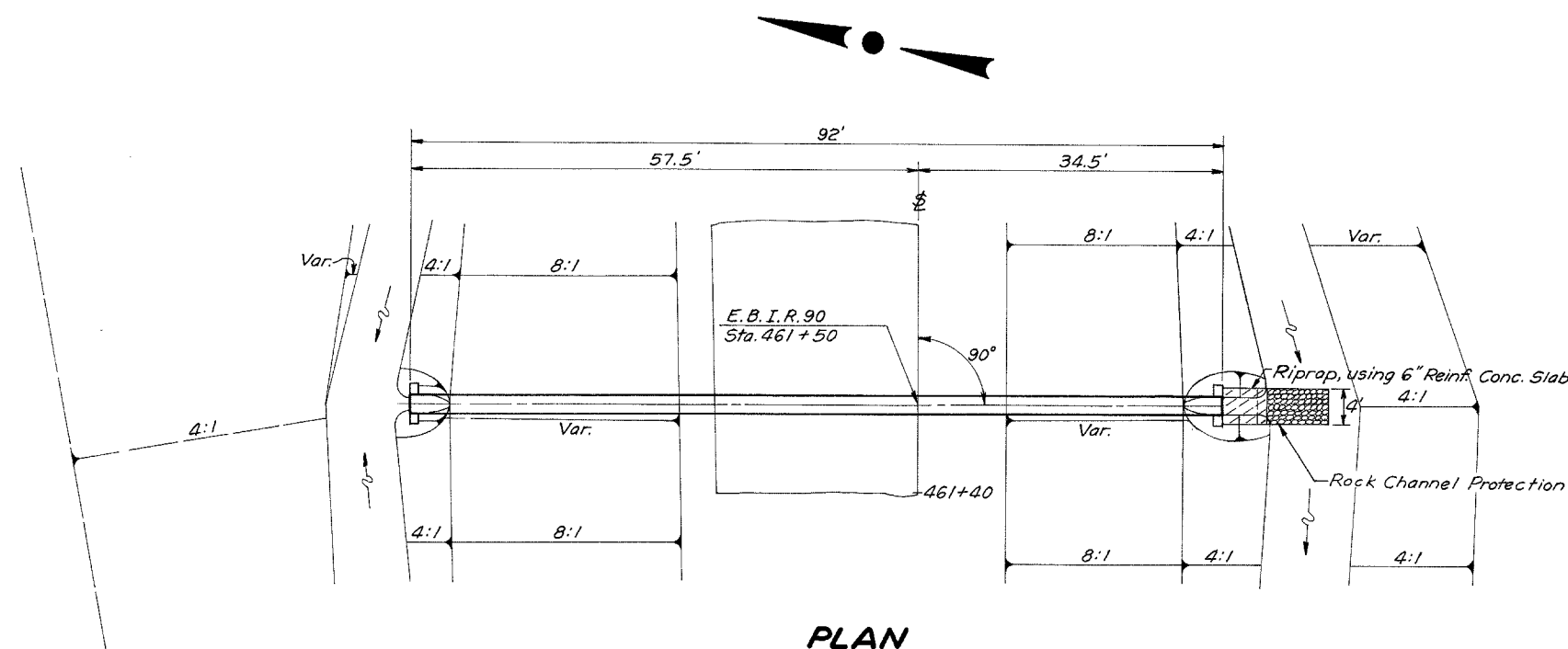
602 Concrete Masonry	8.3 Cu. Yds.
603 48" Conduit Type A 706.02	78 Lin. Ft.

Std. Drwgs.: MC-4, HW-3



Designed	Checked	Inked
D.F.H.	J.H.W.	C.E.H.
4-2-67	7-11-67	7-31-67

Rev. 4-25-78



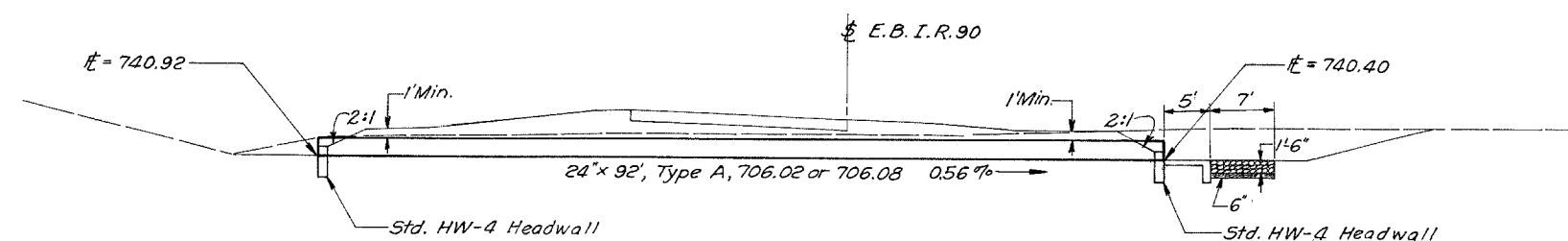
**PLAN**

Drainage Area = 9 Acres  
Q50 = 26 c.f.s.

**ESTIMATED QUANTITIES**

602	Concrete Masonry	0.9 Cu. Yds.
603	24" Conduit, Type A, 706.02, 706.08	92 Lin. Ft.
601	Rock Channel, Protection Type B	2 Cu. Yds.
601	Riprap, using 6" Reinf. Conc. Slab	2 Sq. Yds.

Std. Drwgs: MC-4, HW-4



**SECTION**

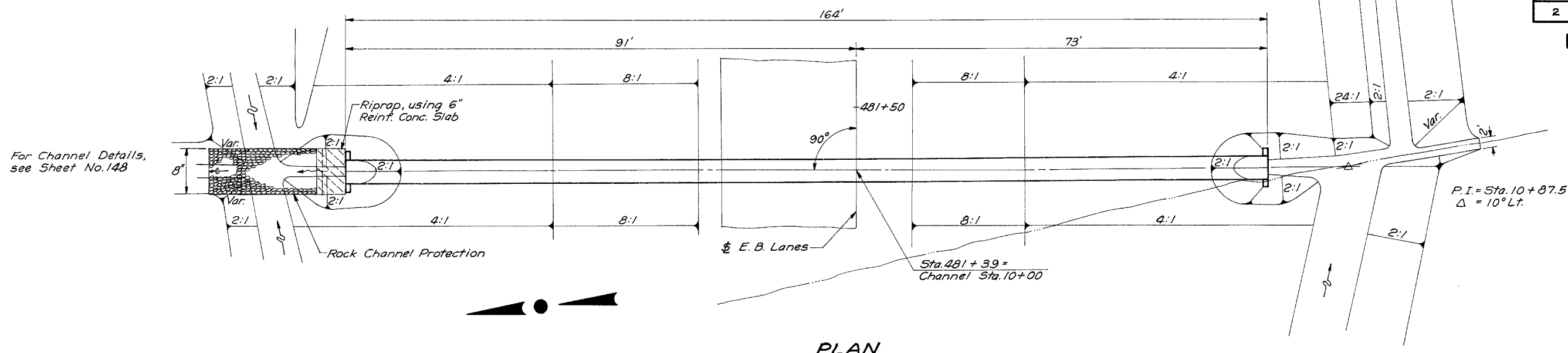
Scale  
0 10 20

Designed	Checked	Inked
D. F. H.	J. H. W.	G. E. H.
6-29-67	7-12-67	11-7-68

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

147  
283

LORAIN COUNTY  
LOR-90-9.48



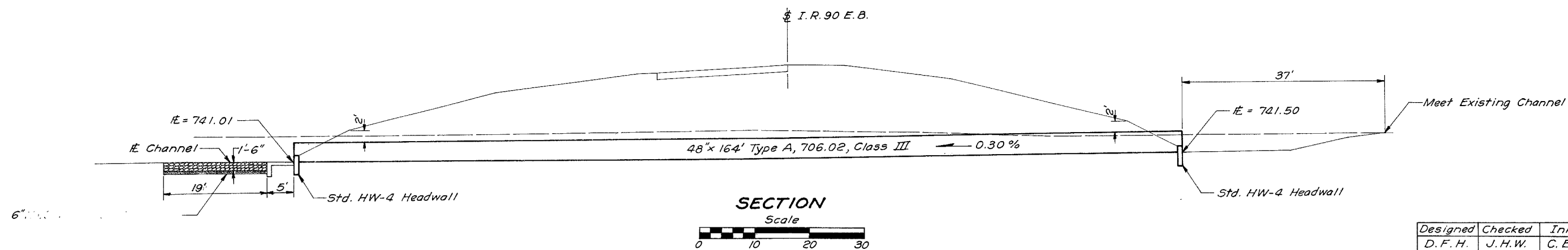
For Channel Details, see Sheet No. 148

PLAN

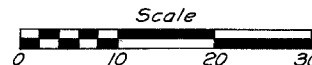
Drainage Area = 57 Acres  
Q<sub>50</sub> = 126 c.f.s.

**ESTIMATED QUANTITIES**

601	Rock Channel Protection, Type B	11 Cu. Yds.
602	Concrete Masonry	2.2 Cu. Yds.
603	48" Conduit, Type A, 706.02, Class III	164 Lin. Ft.
601	Riprap, using 6" Reinf. Conc. Slab	4 Sq. Yds.
	Std. Dwgs., MC-4, HW-4	



SECTION

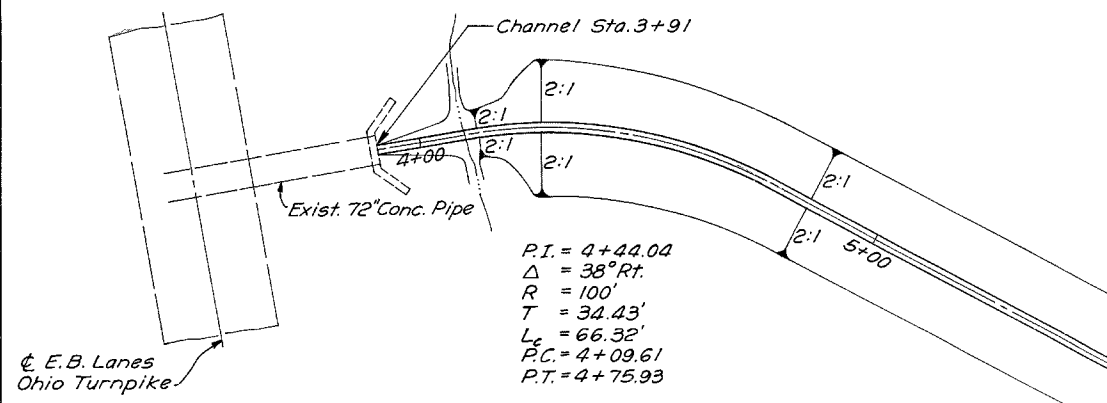


Designed	Checked	Inked
D. F. H.	J. H. W.	C. E. H.
11-25-69	11-28-69	12-3-69

Rev. 4-25-73

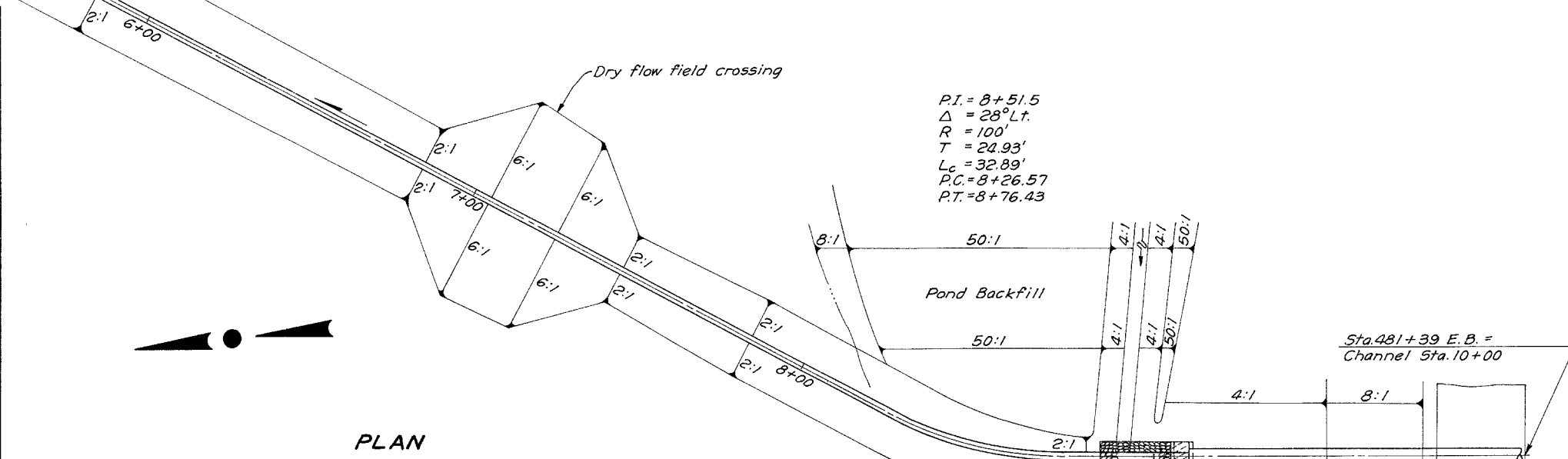
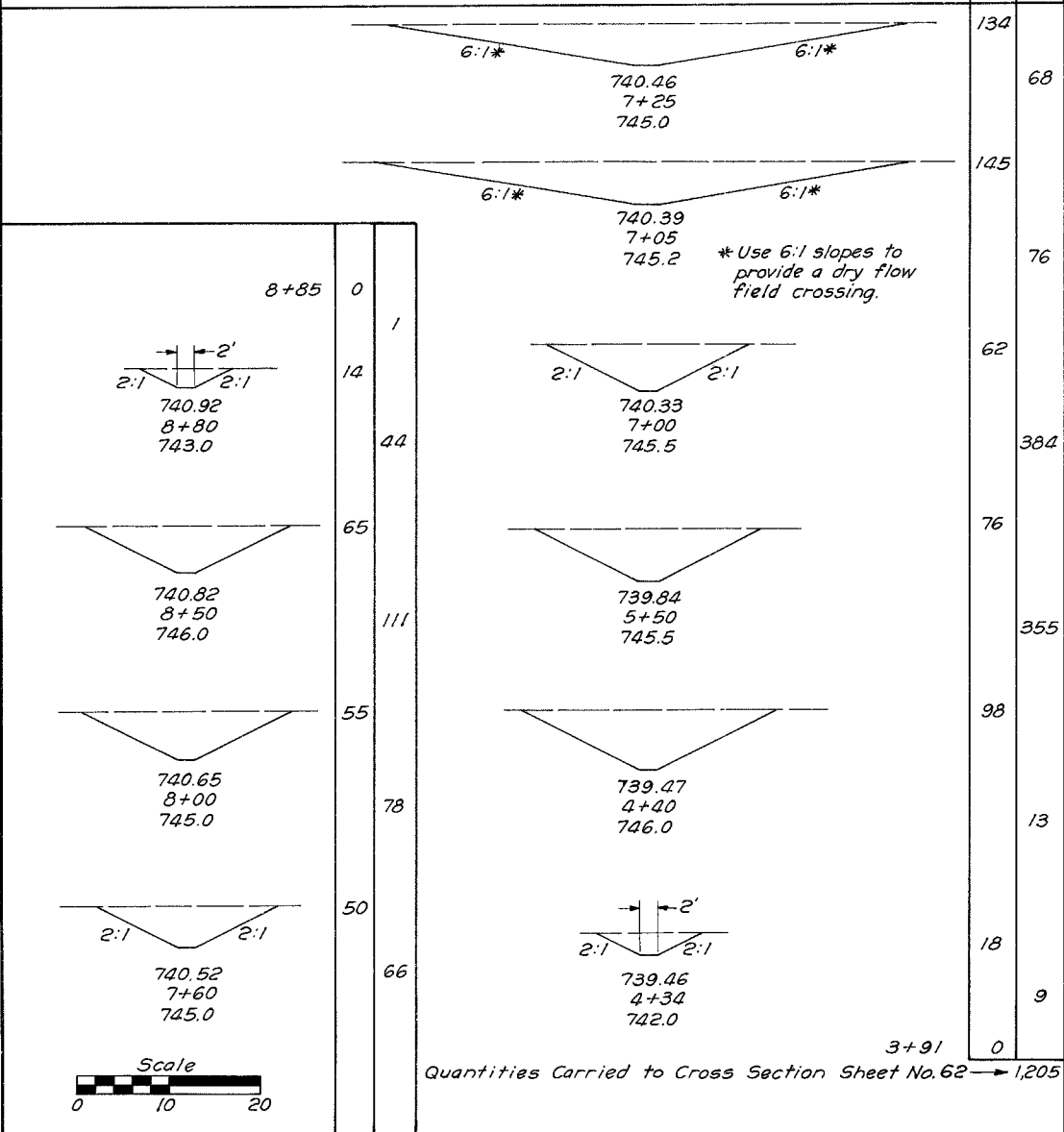
PIPE DETAIL ~ STA. 481+39 E. B.

LORAIN COUNTY  
LOR-90-9.48

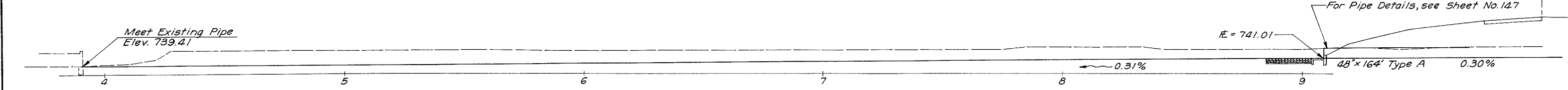


CHANNEL CROSS SECTIONS

203  
E.A.C.Y.



PLAN



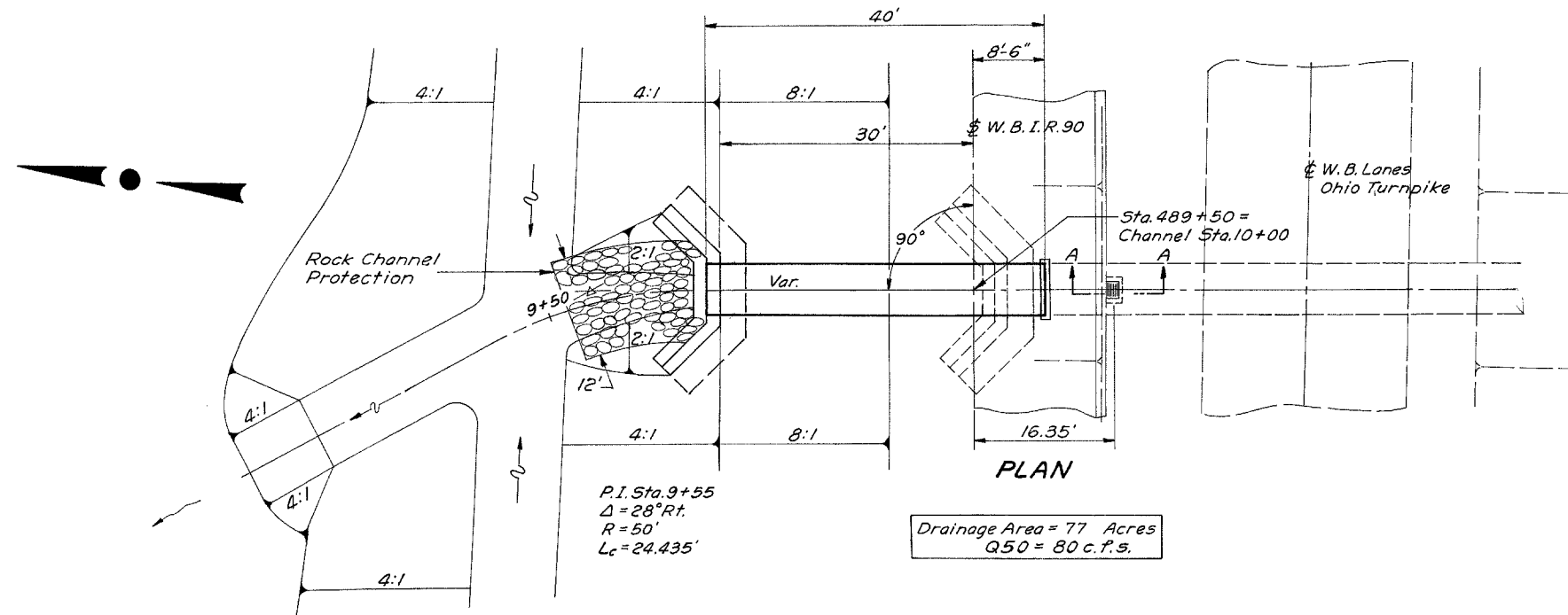
SECTION

Designed	Checked	Inked
D.F.H.	J.H.W.	C.E.H.
11-6-69	11-14-69	12-1-69

Rev. 4-25-73

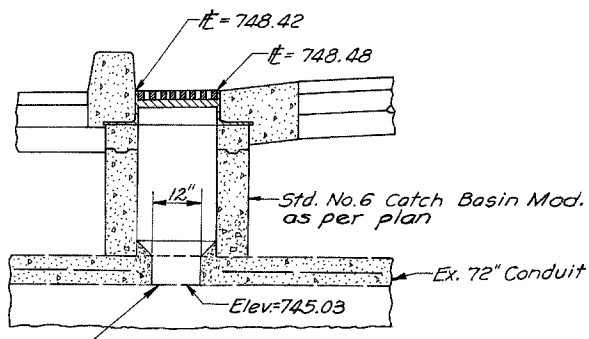
CHANNEL DETAIL ~ STA. 481 + 39

LORAIN COUNTY  
LOR-90-9.48



P.I. Sta. 9+55  
Δ = 28° Rt.  
R = 50'  
L<sub>c</sub> = 24.435'

Drainage Area = 77 Acres  
Q<sub>50</sub> = 80 c.f.s.



The opening in the existing 72" conc. pipe shall be made as directed by the Project Eng. See Note.

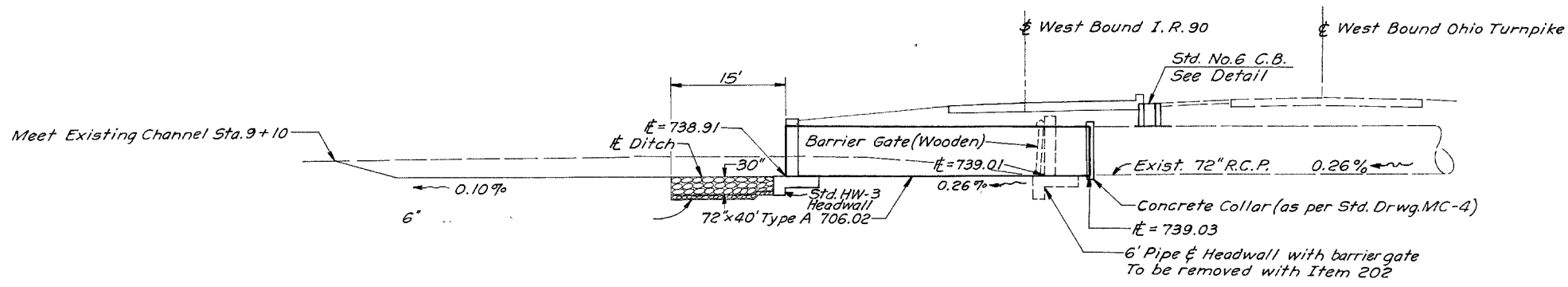
SECTION A-A  
Scale  
0 1 2 3 5

**ESTIMATED QUANTITIES**

202	Portions of Existing Structures Removed	Lump
602	Concrete Masonry	16.2 Cu.Yds.
603	72" Conduit Type A, 706.02	40 Lin.Ft.
604	Standard No. 6 Catch Basin Mod. As per Plan	1 Each
601	Rock Channel Protection, Type B	20 Cu.Yds.
	Std. Drwg's: MC-4, HW-3, CB-6	

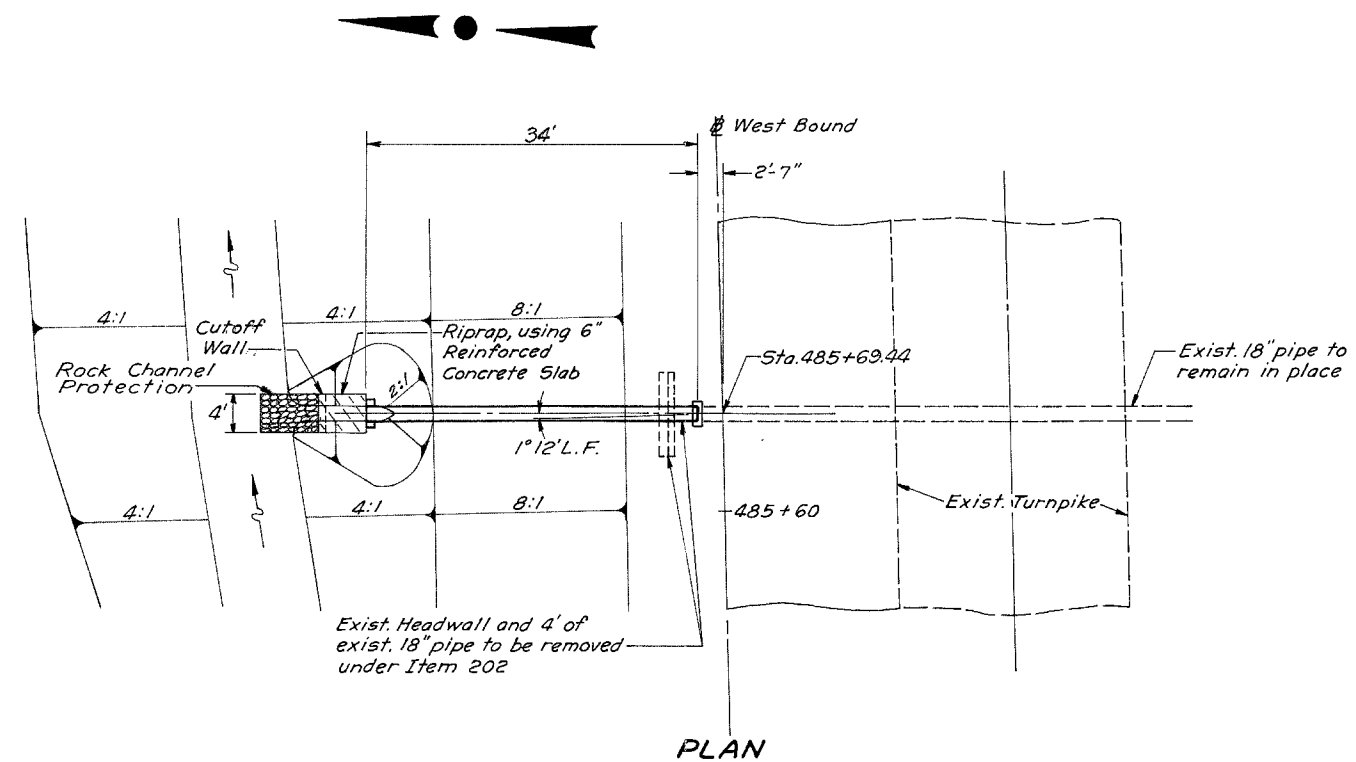
Note: The opening required in the top of the existing 72" conc. pipe shall be kept to a minimum as shown in Section A-A this sheet. The cost of making the opening and all materials required shall be included in the unit price bid for Item 604 Std. No. 6 Catch Basin Mod. as per plan.

Designed	Checked	Inked
D.F.H.	J.H.W.	C.E.H.
6-30-67	7-14-67	8-2-67



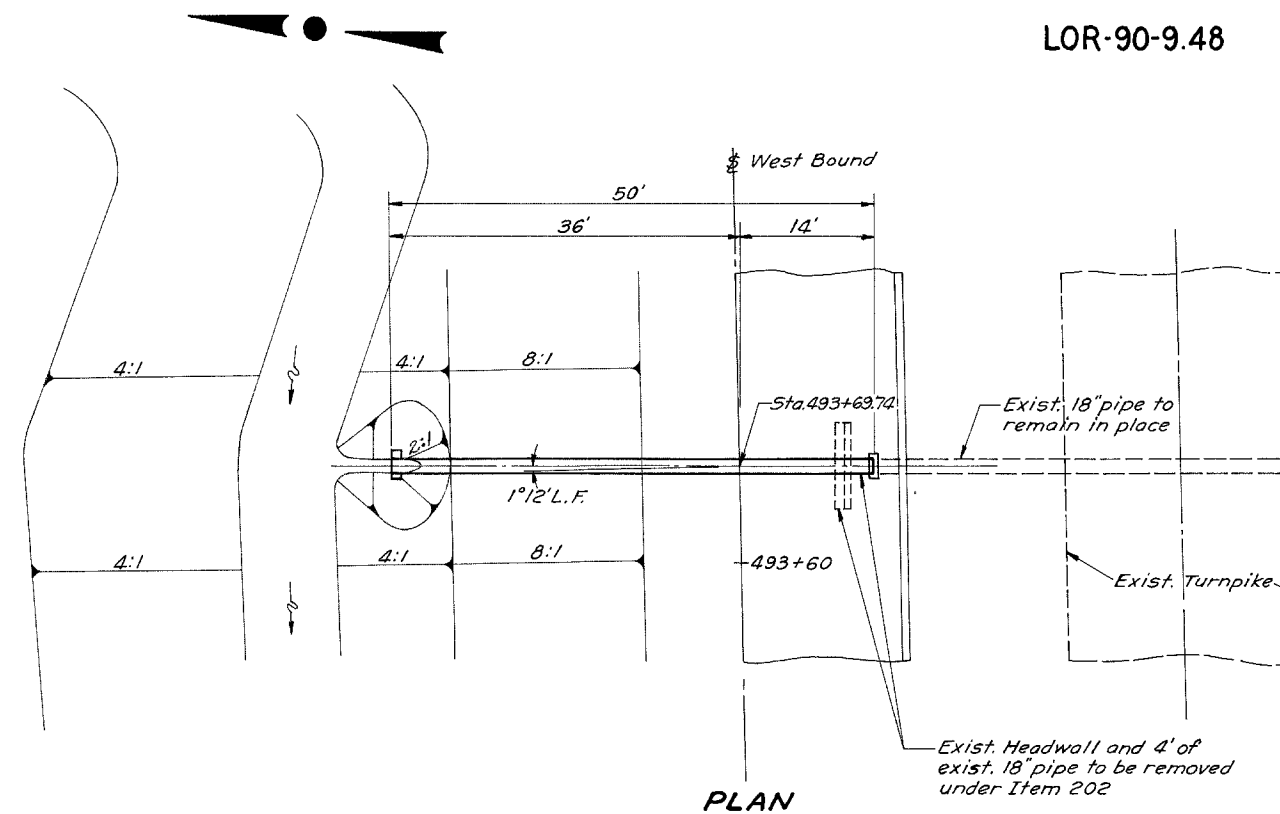
SECTION  
Scale  
0 10 20 30

LORAIN COUNTY  
LOR-90-9.48



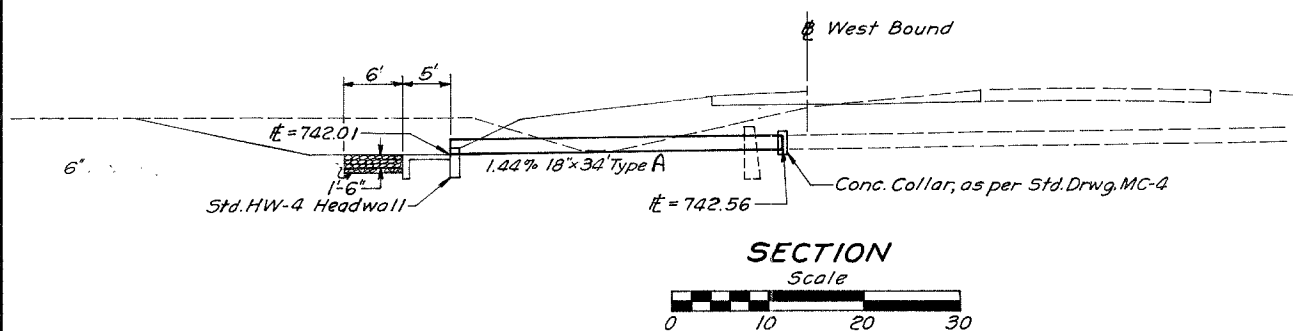
**ESTIMATED QUANTITIES**

202 Portions of Existing Structures Removed	Lump
602 Concrete Masonry	0.3 Cu.Yds.
603 18" Conduit, Type A, 706.02	34 Lin. Ft.
601 Rock Channel Protection, Type B	2 Cu. Yds.
601 Riprap, using 6" Reinforced Concrete Slab	2 Sq. Yds.
Std. Drwgs. MC-4, HW-4	



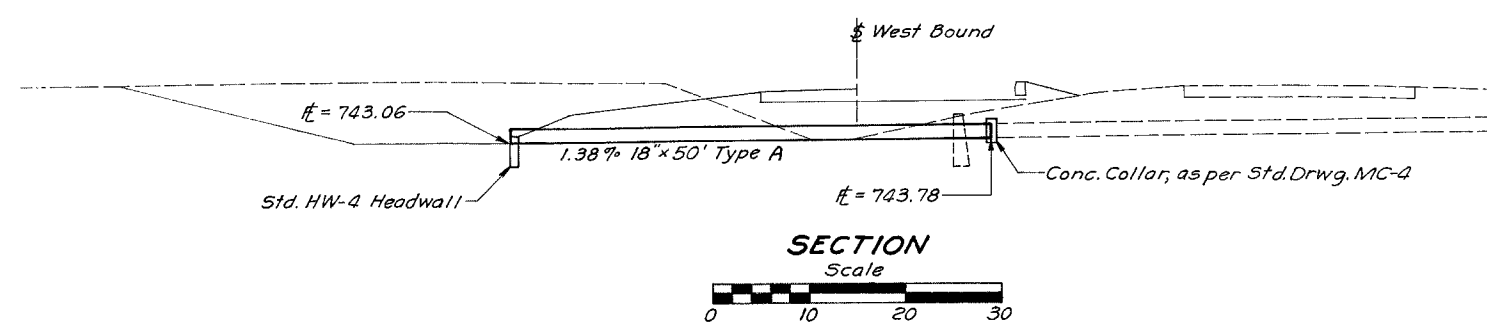
**ESTIMATED QUANTITIES**

202 Portions of Existing Structures Removed	Lump
602 Concrete Masonry	0.3 Cu.Yds.
603 18" Conduit, Type A 706.02	50 Lin. Ft.
Std. Drwgs: MC-4, HW-4	



Designed	Checked	Inked
R.D.E.	D.F.H.	C.E.H.
6-22-67	7-6-67	7-31-67

PIPE DETAIL ~ STA. 485+69.44 WEST BOUND

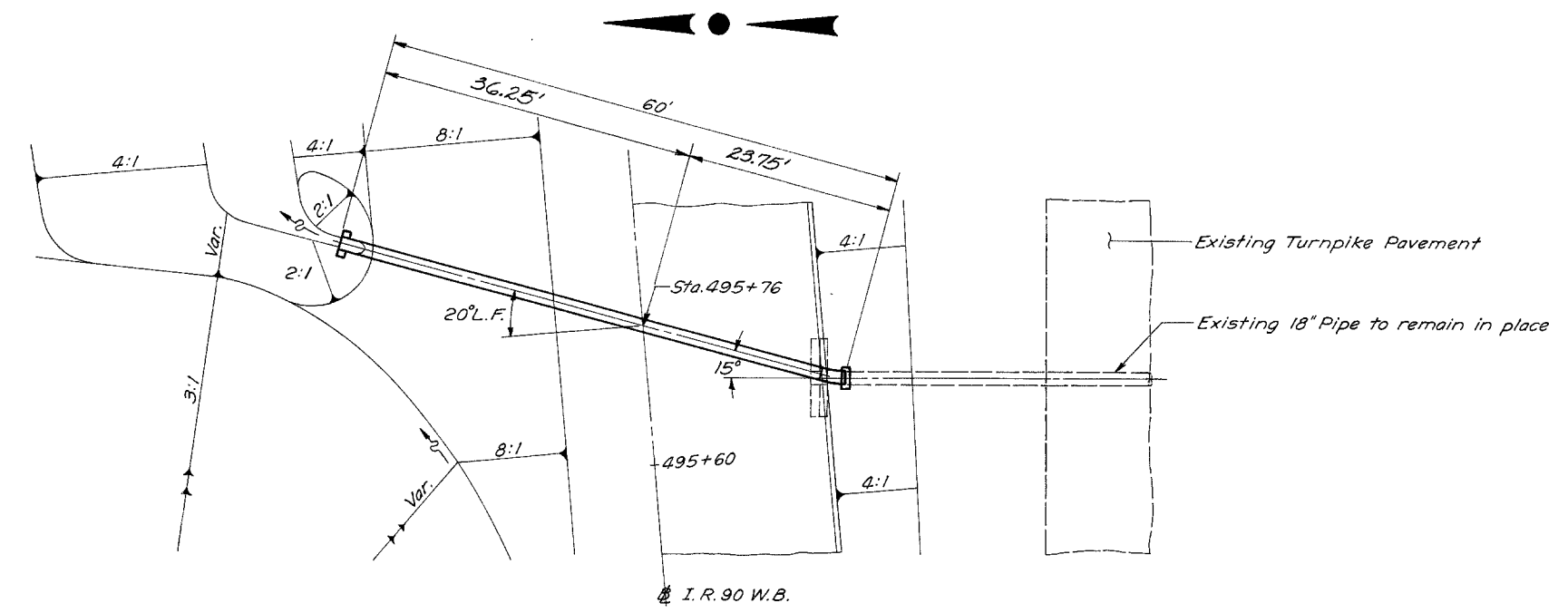


Designed	Checked	Inked
R.D.E.	D.F.H.	C.E.H.
6-22-67	7-6-67	7-31-67

PIPE DETAIL ~ STA. 493+69.74 WEST BOUND



LORAIN COUNTY  
LOR - 90 - 9.48

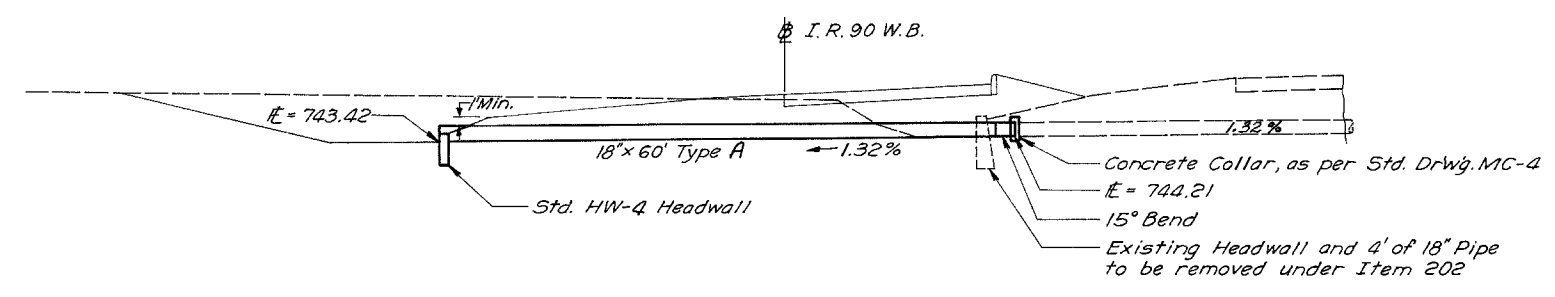


PLAN

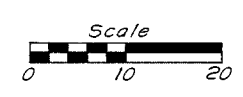
**ESTIMATED QUANTITIES**

202	Portions of Existing Structures Removed	Lump
602	Concrete Masonry	0.3 Cu. Yds.
603	18" Conduit, Type A, 706.02	60 Lin. Ft.

Std. Drwgs., HW-4, MC-4



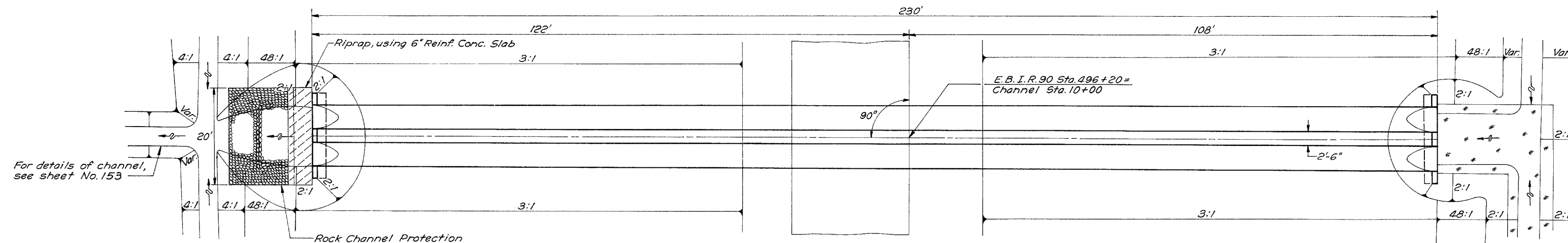
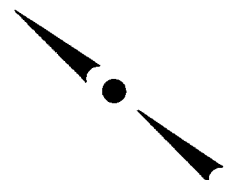
SECTION



Designed	Checked	Inked
R.D.E.	P.M.G.	C.E.H.
2-17-69	4-23-69	5-8-69

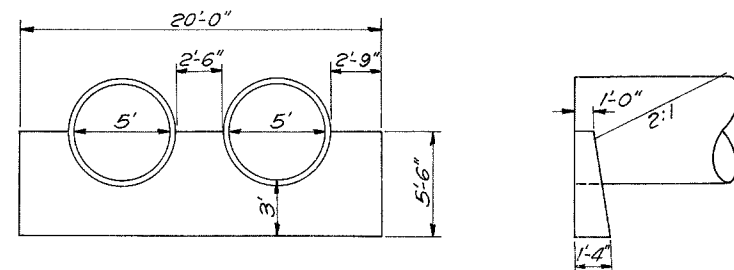
Rev. 4-25-73

LORAIN COUNTY  
LOR-90-9.48

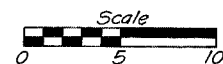


PLAN

Drainage Area = 125 Acres  
Q<sub>50</sub> = 213 c.f.s.



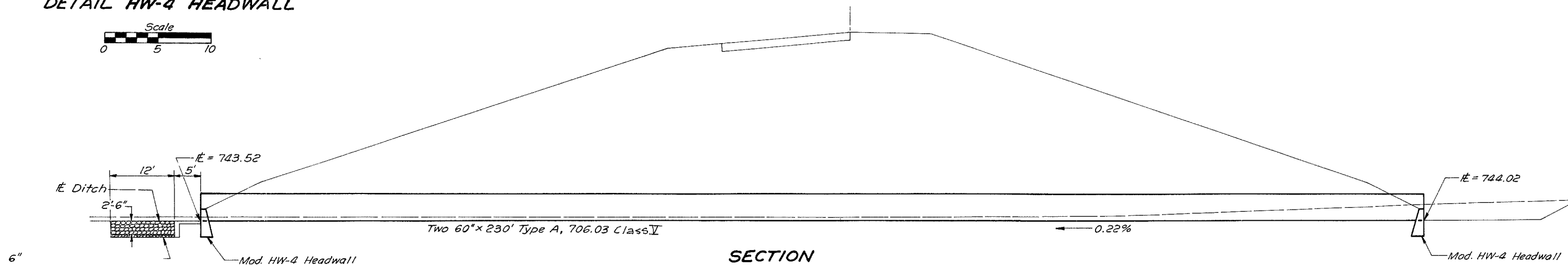
DETAIL HW-4 HEADWALL



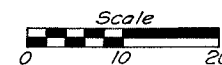
**ESTIMATED QUANTITIES**

601	Rock Channel Protection, Type B	27 Cu. Yds.
602	Concrete Masonry	7.4 Cu. Yds.
603	60" Conduit, Type A, 706.03, Class V	460 Lin. Ft.
601	Riprap, using 6" Reinf. Concrete Slab	11 Sq. Yds.

Std. Dwgs., MC-4, HW-4



SECTION

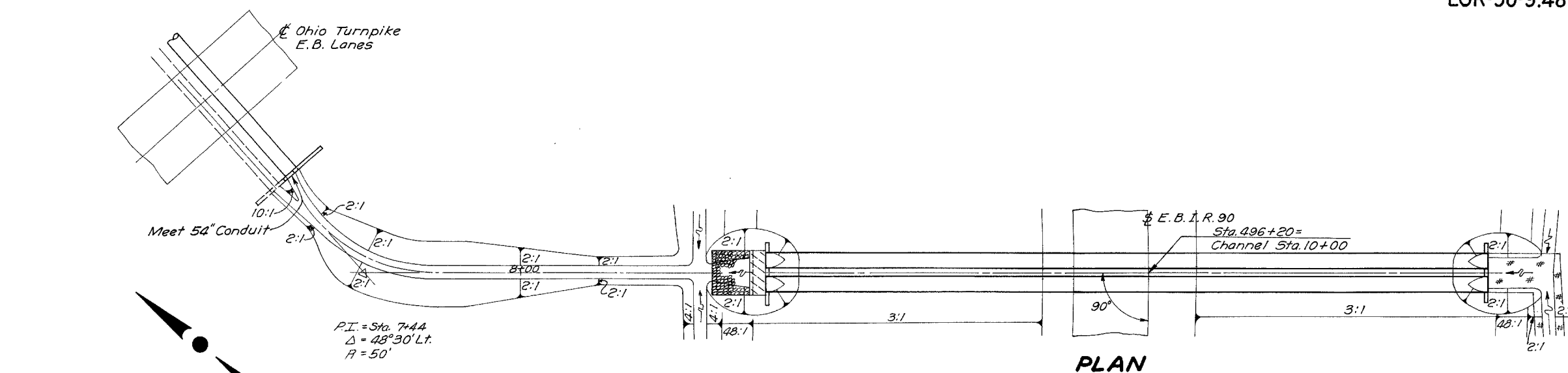


Designed	Checked	Inked
J. H. W.	D. F. H.	C. E. H.
11-22-69	12-5-69	1-13-70

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

153  
283

LORAIN COUNTY  
LOR-90-9.48



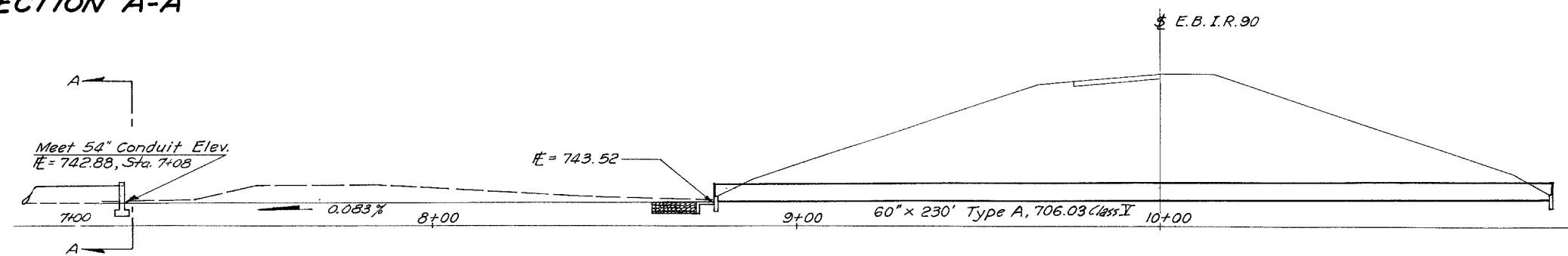
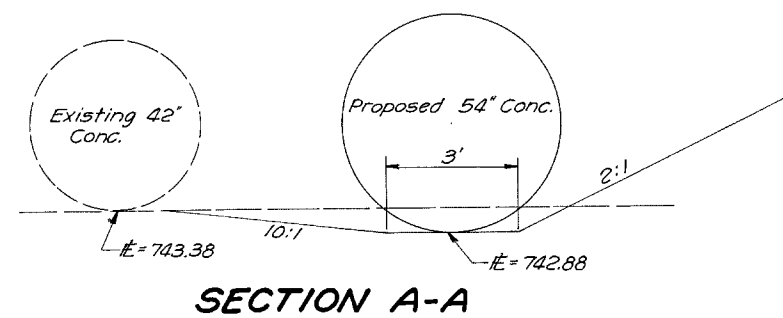
CHANNEL CROSS SECTIONS		203
		E.A.C.Y.
8+55	0	1
	7	7
	8	8
	10	52
	54	67
	55	36
	0	162

743.50 8+50 744.3
743.48 8+25 745.0
743.45 7+83 743.3
743.42 7+50 743.0

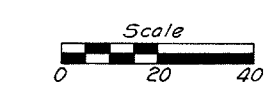
Scale  
0 10 20 Sta. 7+15

Total carried to sheet No. 71



SECTION

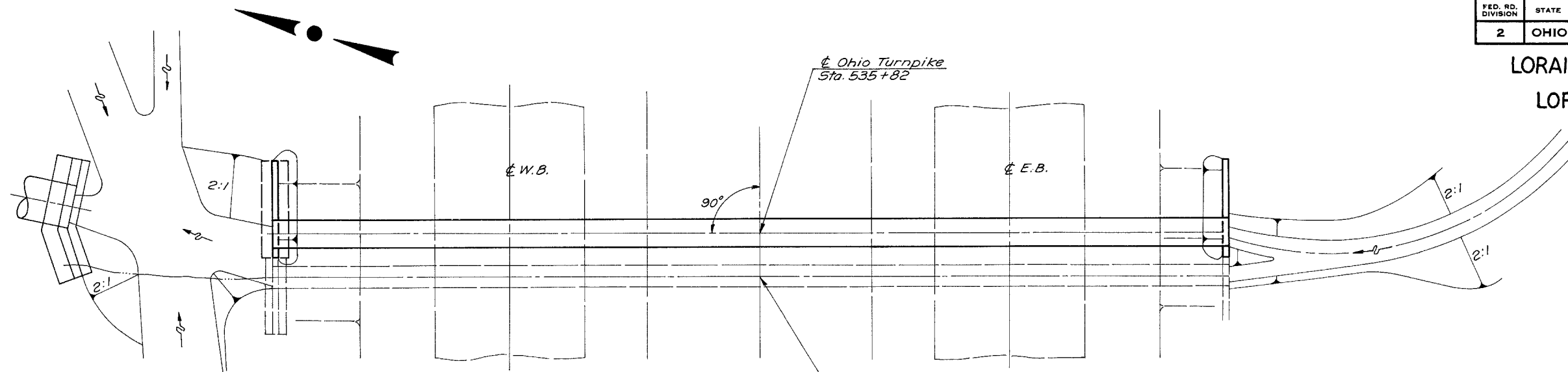
For Conduit Details, see sheet No. 152



Designed	Checked	Inked
D. F. H. 8-4-67	J. H. W. 9-18-67	C. E. H. 10-31-68

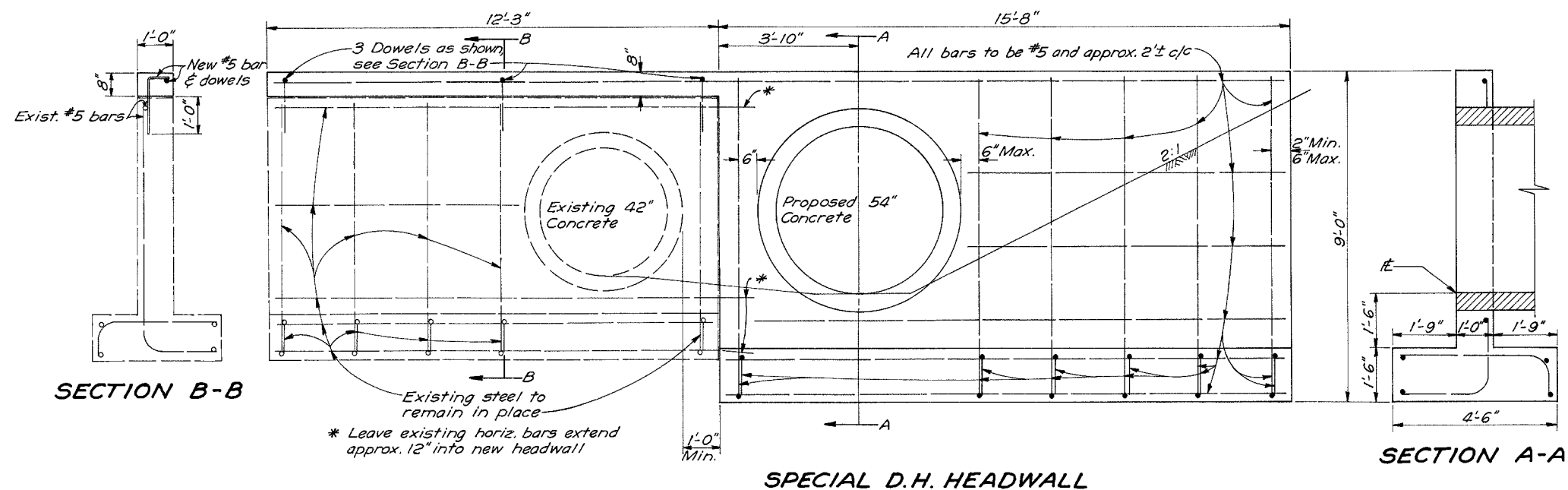
Rev. 4-25-79

LORAIN COUNTY  
LOR-90-9.48

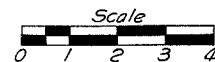


PLAN

Drainage Area = 223 Acres  
Q50 = 230 c.f.s.  
Q50 For 54" Pipe = 134 c.f.s.



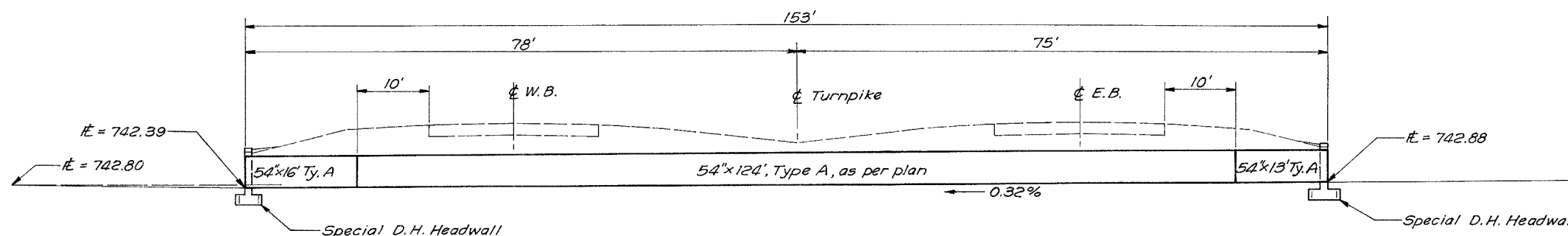
SPECIAL D.H. HEADWALL



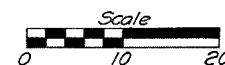
**ESTIMATED QUANTITIES**

202	Portions of Existing Structures to be removed.	Lump
602	Concrete Masonry	7.7 Cu. Yds.
603	54" Conduit, Type A, 706.02	29 Lin. Ft.
603	54" Conduit, Type A, 706.02, as per plan *124 Lin. Ft.	

\* Note: For pipe installation methods, see General Notes.



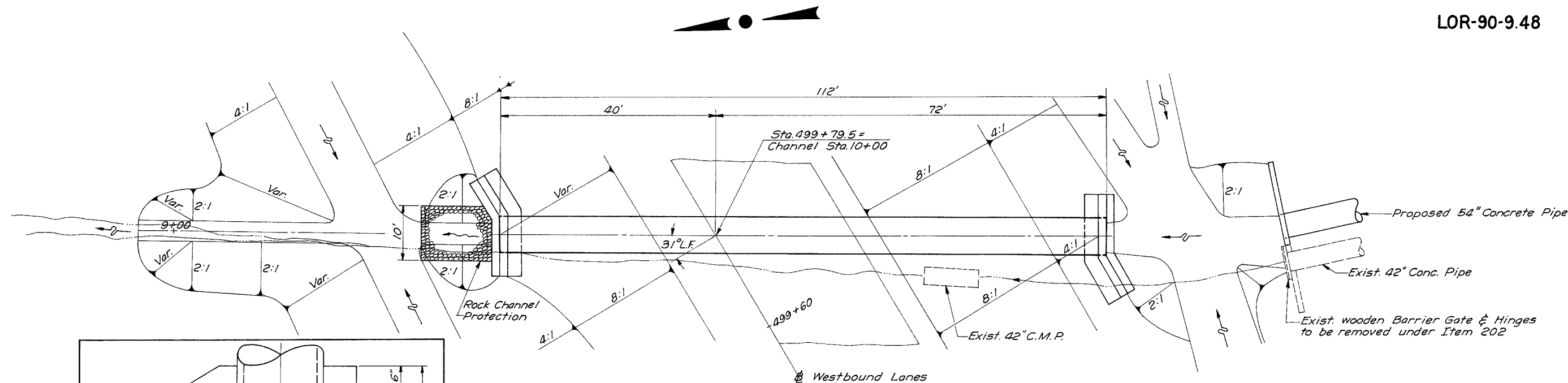
SECTION



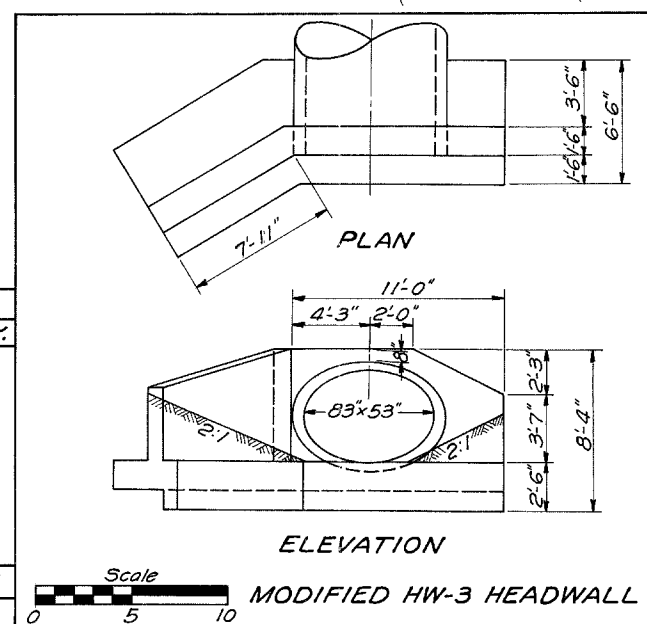
Designed	Checked	Inked
D. F. H.	P. M. G.	C. E. H.
12-4-69	1-16-70	1-19-70

Rev. 4-25-73

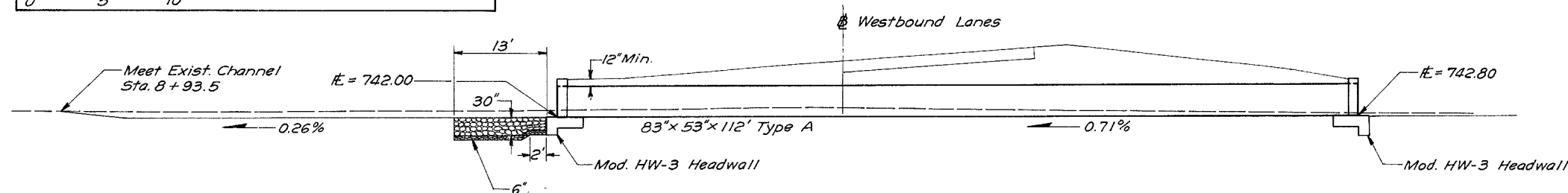
LORAIN COUNTY  
LOR-90-9.48



CHANNEL CROSS SECTION	203
	E.A. C.Y.
9+30	0
741.90	11
9+10	20
743.42	4
8+90	0
Quan. Carried to Sheet No. 86	15



- ESTIMATED QUANTITIES**
- |     |  |              |
|-----|--|--------------|
| 202 | Portions of Existing Structure removed       | Lump         |
| 601 | Rock Channel Protection, Type B              | 12 Cu.Yds.   |
| 602 | Concrete Masonry                             | 24.3 Cu.Yds. |
| 603 | 83" x 53" Elliptical Conduit, Type A, 706.04 | 112 Lin.Ft.  |
- Std. Dwg. MC-4, Mod. HW-3

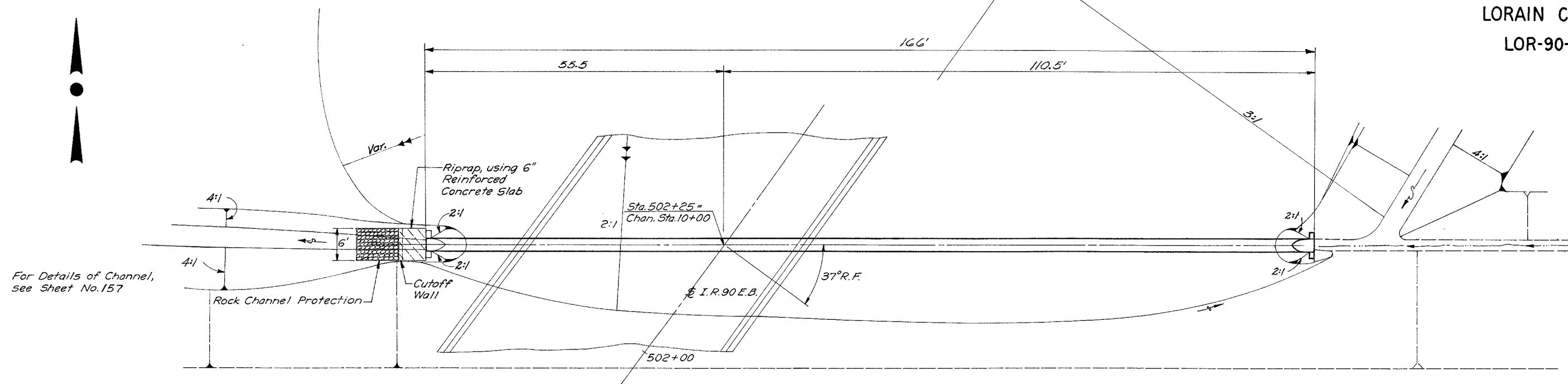


Designed	Checked	Inked
J. H. W.	D. F. H.	C. E. H.
11-12-69	12-1-69	12-10-69

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

156  
283

LORAIN COUNTY  
LOR-90-9.48



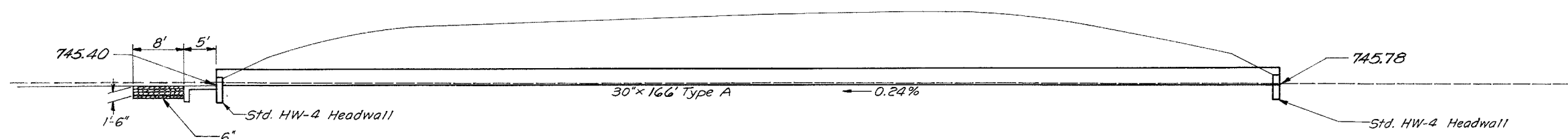
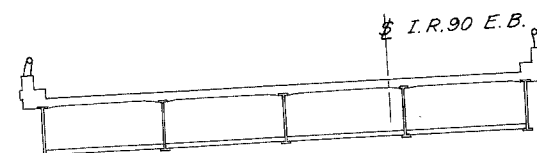
For Details of Channel, see Sheet No. 157

PLAN

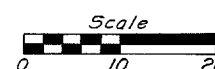
Drainage Area = 14 Acres  
Q<sub>50</sub> = 24 c. f. s.

ESTIMATED QUANTITIES

- 601 Rock Channel Protection, Type B 3 Cu. Yds.
  - 602 Concrete Masonry 1.1 Cu. Yds.
  - 603 30" Conduit, Type A, 706.02, 706.08 166 Lin. Ft.
  - 601 Riprap, using 6" Reinf. Conc. Slab 3 Sq. Yds.
- Std. Drwgs, MC-4, HW-4



SECTION

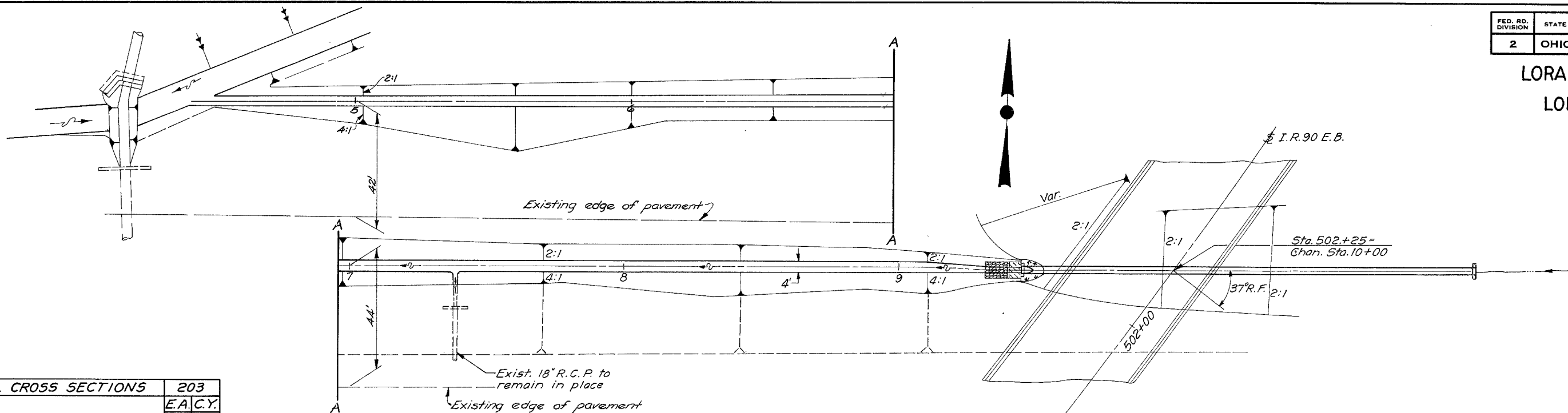


Designed	Checked	Inked
R.D.E.	D.F.H.	C.E.H.
2-4-69	2-13-69	5-12-69

Rev. 4-25-79

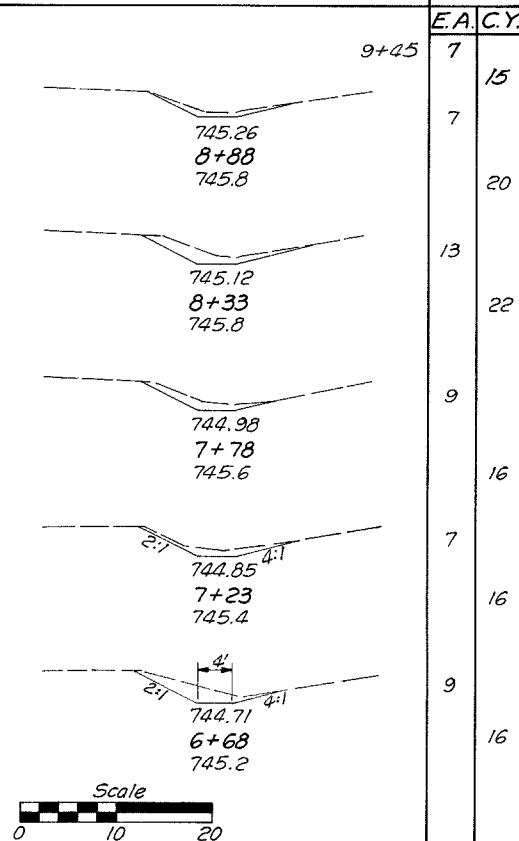
PIPE DETAIL ~ STA 502+25 F R

LORAIN COUNTY  
LOR-90-9.48

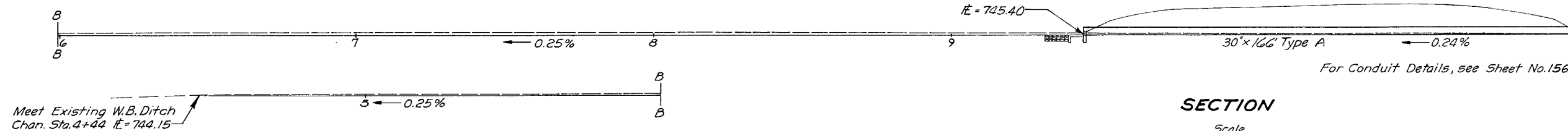
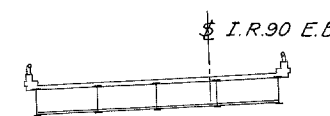
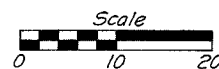
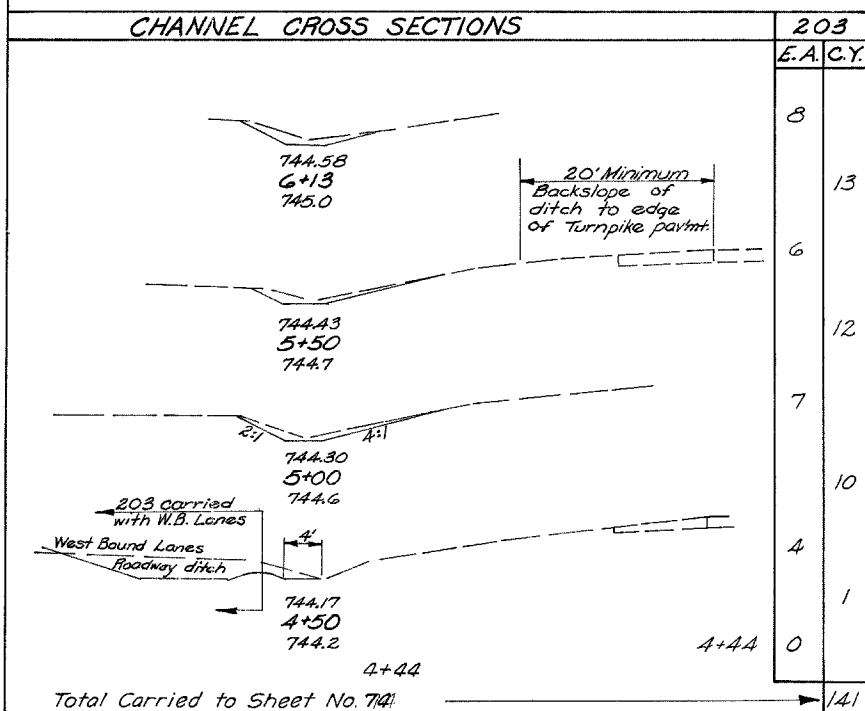


PLAN

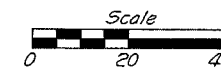
CHANNEL CROSS SECTIONS



CHANNEL CROSS SECTIONS



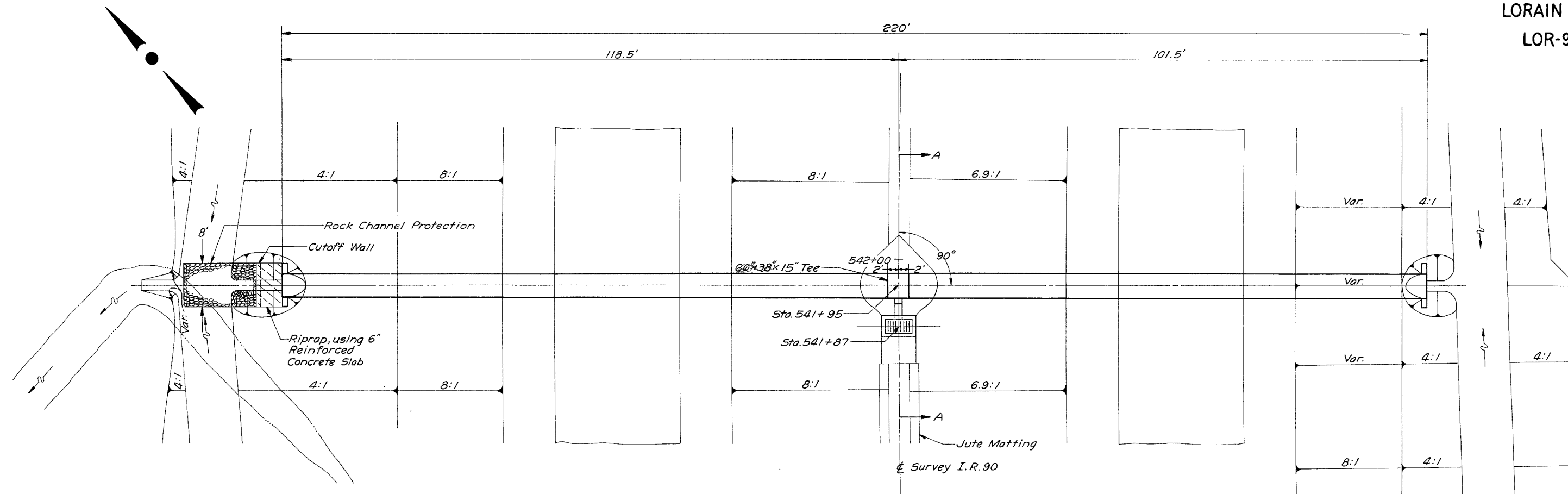
SECTION



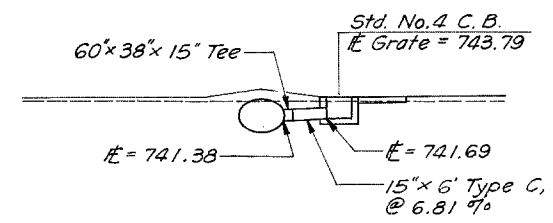
Designed	Checked	Inked
R.D.E.	D.F.H.	C.E.H.
2-4-69	2-13-69	5-14-69

Rev. 4-25-79

LORAIN COUNTY  
LOR-90-9.48



**PLAN**



**SECTION A-A**

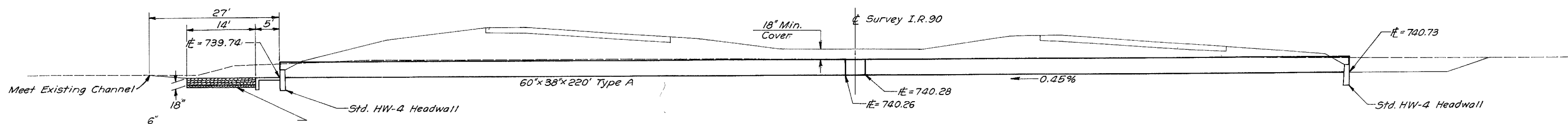


Drainage Area = 42 Acres  
Q<sub>50</sub> = 75 c.f.s.

**ESTIMATED QUANTITIES**

602 Concrete Masonry	2.0 Cu.Yds.
603 60x38" Elliptical Conduit, Type A, 706.04	220 Lin.Ft.
601 Rock Channel Protection, Type B	7 Cu.Yds.
603 15" Conduit, Type C	6 Lin.Ft.
601 Riprap, using 6" Reinf. Concrete Slab	4 Sq.Yds.
604 Std. No. 4 Catch Basin	1 Each

Std. Drwgs: MC-4, HW-4, CB-4



**SECTION**

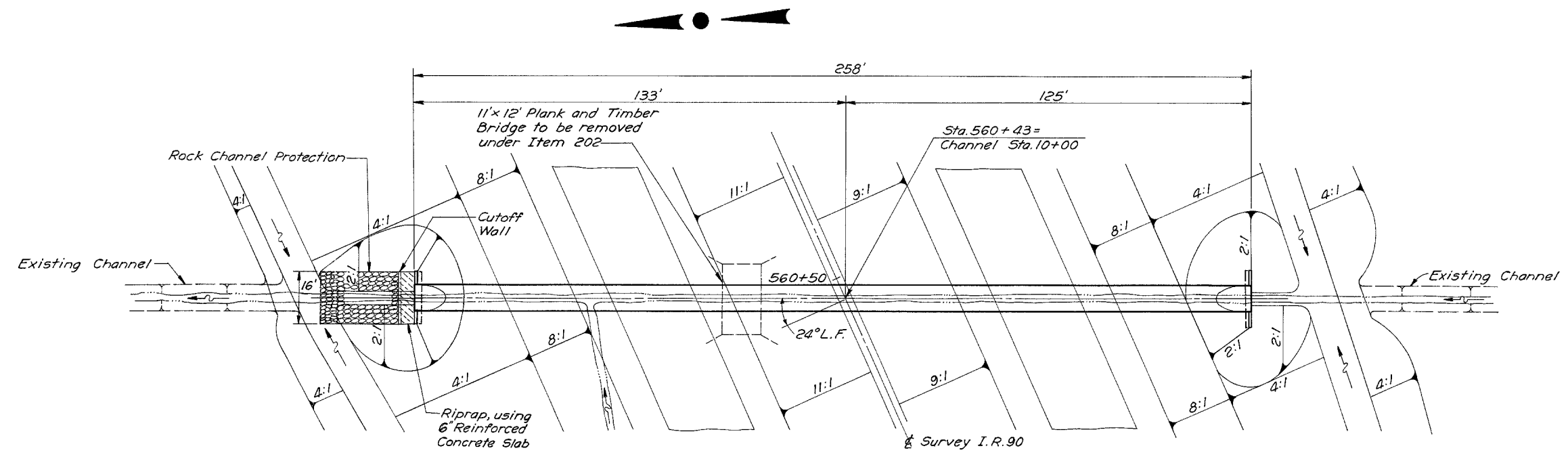


Designed	Checked	Inked
R. D. E.	D. F. H.	C. E. H.
8-23-67	8-28-67	11-12-68

Rev. 4-25-79



LORAIN COUNTY  
LOR-90-9.48

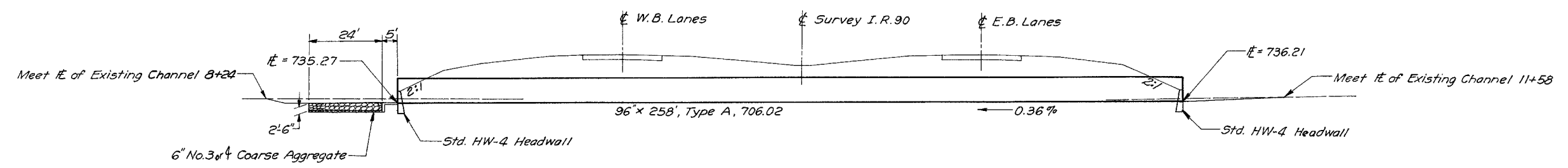


**PLAN**

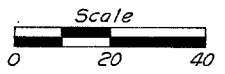
Drainage Area = 345 Acres  
Q<sub>50</sub> = 308 c.f.s.

**ESTIMATED QUANTITIES**

202	Existing Structure Removed	Lump
602	Concrete Masonry	10.6 Cu. Yds.
603	96" Conduit, Type A, 706.02	258 Lin. Ft.
601	Rack Channel Protection, Type B	4.3 Cu. Yds.
601	Riprap, using 6" Reinf. Conc. Slab	9 Sq. Yds.
Std. Drwgs: MC-4, HW-4		



**SECTION**

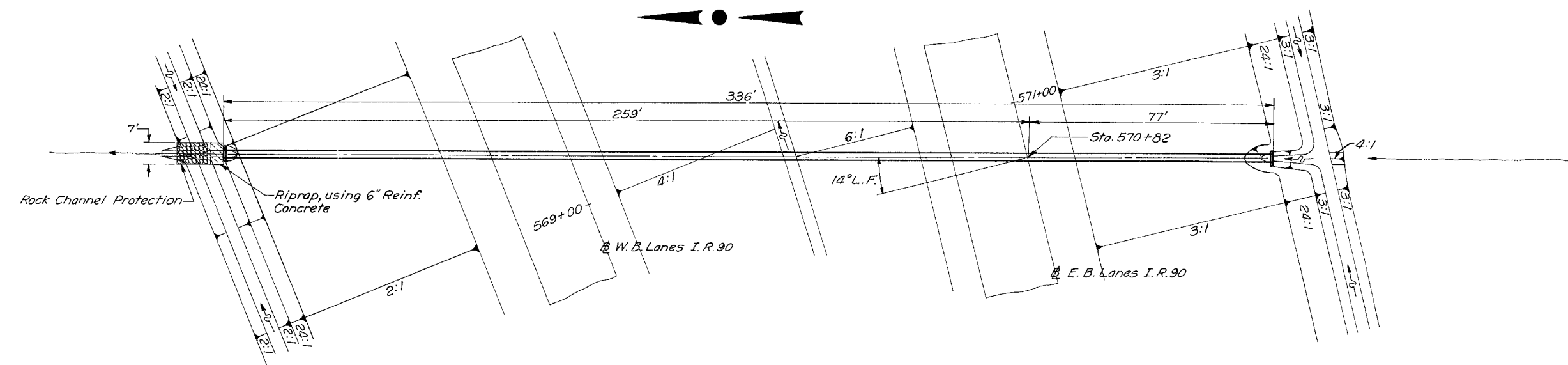


Designed	Checked	Inked
J. H. W.	D. F. H.	C. E. H.
8-16-67	8-21-67	11-6-68

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

160  
283

LORAIN COUNTY  
LOR-90-9.48

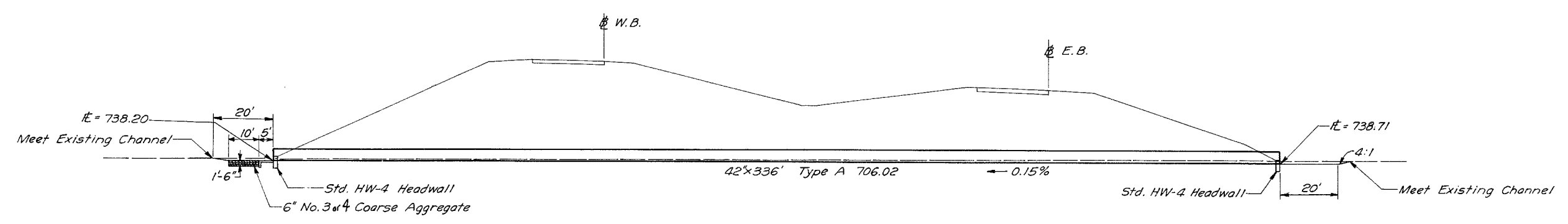


PLAN

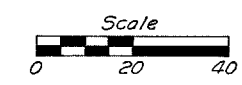
Drainage Area = 13 Acres  
Q50 = 31 c.f.s.

ESTIMATED QUANTITIES

- 601 Rock Channel Protection Type B 6 Cu. Yds.
  - 602 Concrete Masonry 1.7 Cu. Yds.
  - 603 42" Conduit, Type A, 706.02, Class V 336 Lin. Ft.
  - 601 Riprap, using 6" Reinf. Concrete 4 Sq. Yds.
- Std. Drwgs. MC-4, HW-4



SECTION

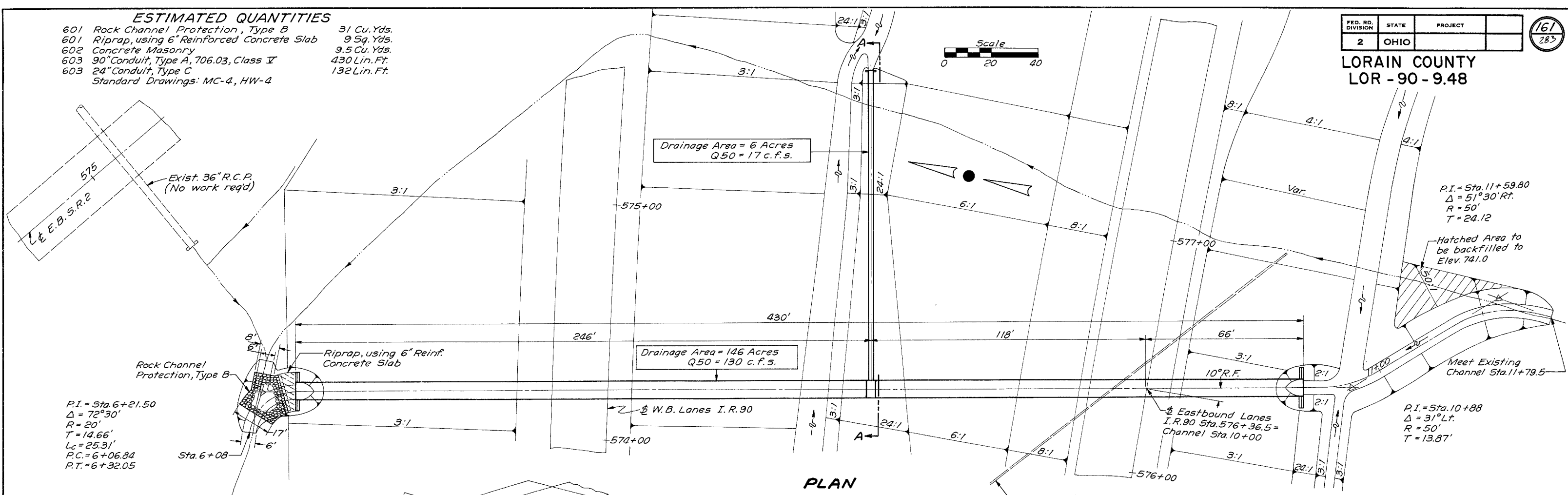


Designed	Checked	Inked
D. F. H. 2-2-69	R. D. E. 2-10-69	C. E. H. 5-6-69

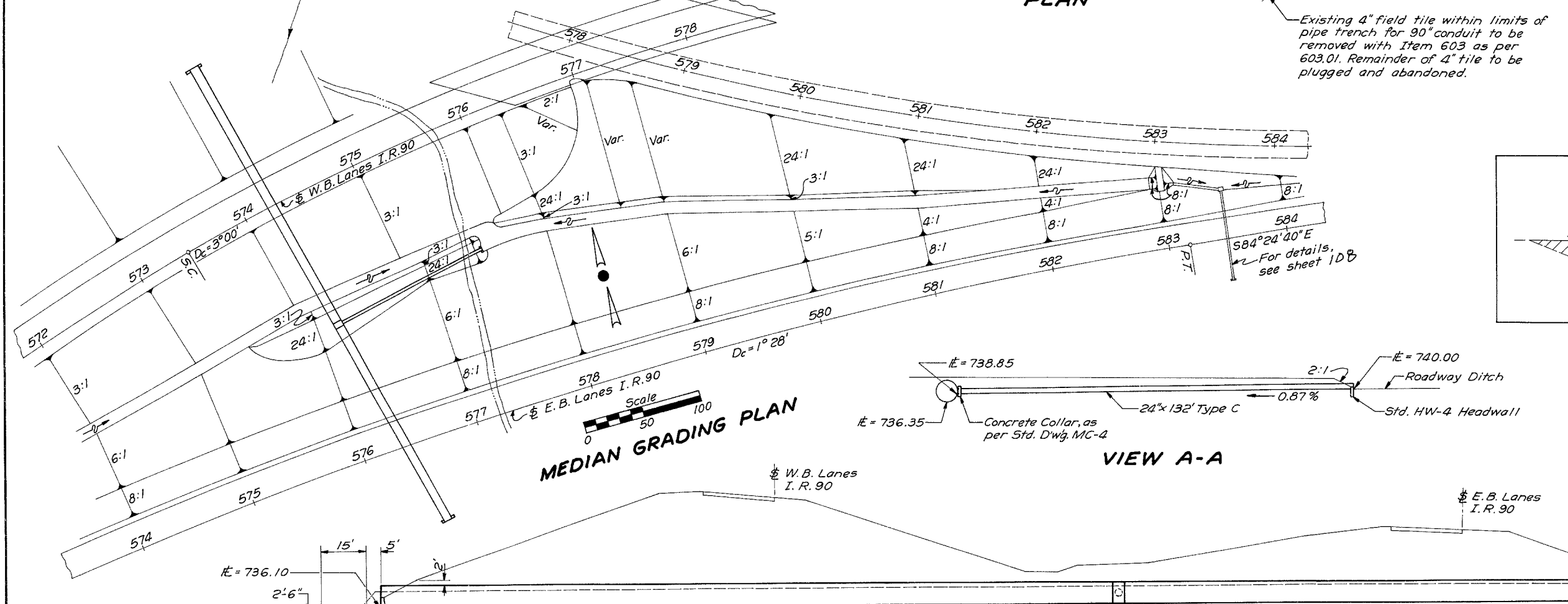
**LORAIN COUNTY**  
**LOR - 90 - 9.48**

**ESTIMATED QUANTITIES**

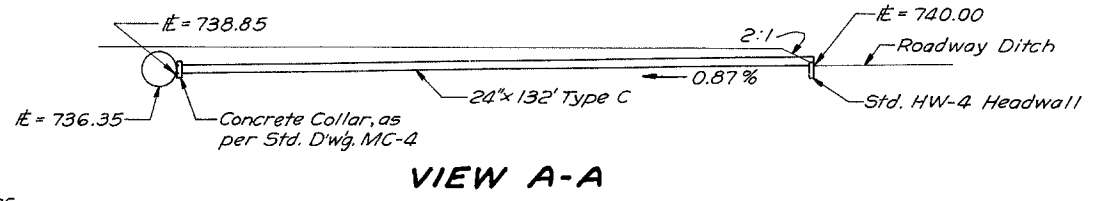
601 Rock Channel Protection, Type B	31 Cu. Yds.
601 Riprap, using 6" Reinforced Concrete Slab	9.5 Sq. Yds.
602 Concrete Masonry	9.5 Cu. Yds.
603 90" Conduit, Type A, 706.03, Class V	430 Lin. Ft.
603 24" Conduit, Type C	132 Lin. Ft.
Standard Drawings: MC-4, HW-4	



**PLAN**



**MEDIAN GRADING PLAN**



**VIEW A-A**

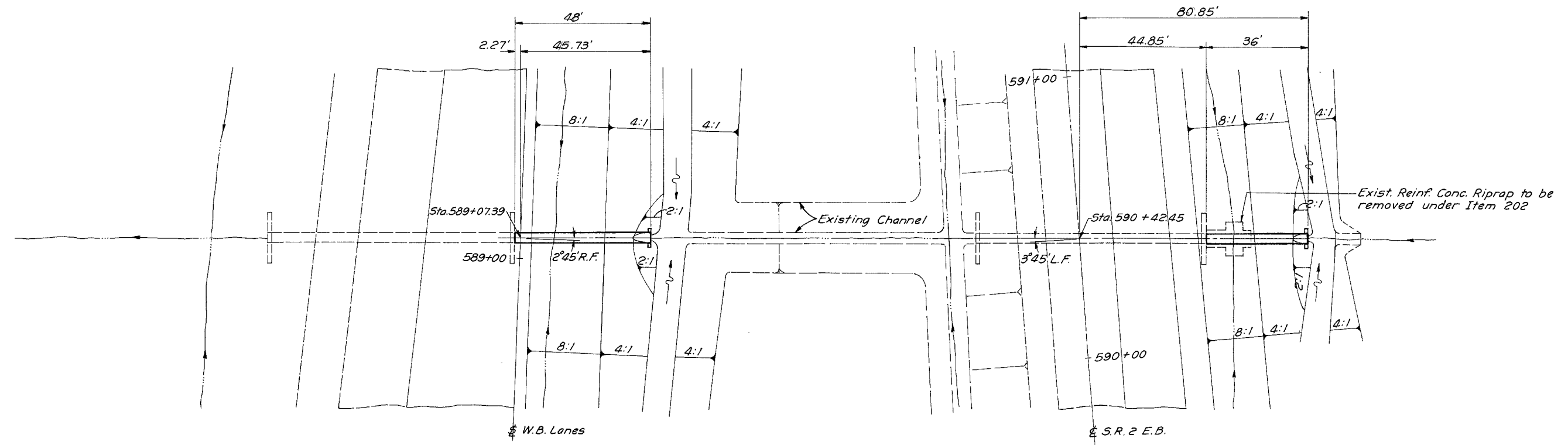
CHANNEL CROSS SECTIONS	203			
	Excavation		Embankment	
	E.A.	C.Y.	E.A.	C.Y.
Sta. 11+79.5	0	4	1	
737.70 11+60 737.8	10		2	
	23		16	
737.45 11+40 741.2	50		42	
	49		19	
737.11 11+15 741.0	56		0	
Sta. 10+90	0			
	52		27	
736.10 6+36 741.0	0		27	
Sta. 6+08	0			
Quantities Carried to sheet 105				
		130	36	

Meet Existing Channel Sta. 11+79.5, Elev. 738.9



**SECTION**

Designed	Checked	Inked
D. F. H.	R. D. E.	C. E. H.
1-29-69	2-10-69	6-10-70



Drainage Area = 62 Acres  
Q50 = 53 c. f. s.

Drainage Area = 52 Acres  
Q50 = 48 c. f. s.

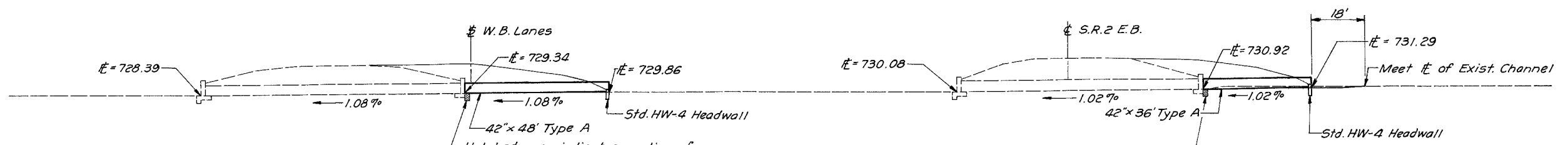
PLAN

ESTIMATED QUANTITIES

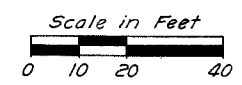
602 Concrete Masonry 0.8 Cu. Yds.  
603 42" Conduit, Type A, 706.02 48 Lin. Ft.  
Std. Drwgs: MC-4, HW-4

ESTIMATED QUANTITIES

202 Existing Reinf. Conc. Riprap Removed & Disposed Of 13 Sq. Yds.  
602 Concrete Masonry 0.8 Cu. Yds.  
603 42" Conduit, Type A, 706.02 36 Lin. Ft.  
Std. Drwgs: MC-4, HW-4



SECTION



Hatched area indicates portion of existing headwall to be removed to allow construction of the 42" extension.  
The cost of the headwall removal and any other work necessary to allow proper joining of conduit sections as specified in 603.06 shall be included in the Unit Price Bid for Item 603.

Hatched area indicates portion of existing headwall to be removed to allow construction of the 42" extension.  
The cost of the headwall removal and any other work necessary to allow proper joining of conduit sections as specified in 603.06 shall be included in the Unit Price Bid for Item 603.

Designed	Checked	Inked
R. D. E.	D. F. H.	C. E. H.
8-9-68	8-23-68	10-16-68

# LIGHTING NOTES

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

163  
283

LOR-90-9.48

## SPECIFICATIONS

THESE NOTES ARE SUPPLEMENTAL TO ITEMS 625 AND 713 OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION.

### 625.03 GENERAL

THE PROJECT HAS BEEN DESIGNED ON THE BASIS OF 5% VOLTAGE DROP PERMISSIBLE ON BRANCH CIRCUITS. THE PROJECT WILL RECEIVE 480-VOLT TWO-WIRE SECONDARY SERVICE ONE SIDE GROUNDED FROM:  
OHIO EDISON CO.  
6326 LAKE AVE.  
ELYRIA, OHIO 44035

THE PROJECT HAS BEEN DESIGNED ON THE BASIS OF PARTIAL LIGHTING WITH ULTIMATE POTENTIAL OF 1.2 FOOT CANDLE AVERAGE INITIAL, WITH A MAXIMUM UNIFORMITY RATIO OF 4.0 TO 1.

CONTRACTOR SHALL CONTACT CHIEF ENGINEER OF OHIO TURNPIKE COMMISSION BEFORE DELIVERING 6 ADDITIONAL RAMP POLES (DESIGN NUMBER 11AT15B34.2) TO THE AMHURST MAINTENANCE BUILDING, AS REQUIRED FOR PAY ITEM #6 ON GENERAL QUANTITY SHEET.

CONTRACTOR SHALL NOTIFY DIVISION 3 TRAFFIC ENGINEER 120 DAYS IN ADVANCE OF THE NEED FOR POWER REQUIRED TO CONDUCT THE 10 DAY BURNING TEST.

### 625.08 - 713.14 LAMPS

MERCURY LAMPS SHALL BE GENERAL ELECTRIC "BONUS LINE", WESTINGHOUSE "LIFEGUARD", SYLVANIA "ROUGH SERVICE", OR EQUAL APPROVED BY THE ENGINEER.

### 625.07 - 713.11 LUMINAIRES

400-WATT LUMINAIRES WITH 250-WATT DUAL RATED 240/480 VOLT INTEGRAL REGULATOR BALLASTS SHALL BE EQUIPPED WITH PORCELAIN SOCKET EXTENSION TO PROVIDE ANSI-IES TYPE III MEDIUM, CUTOFF DISTRIBUTION USING CLEAR 250-WATT MERCURY VAPOR LAMPS, LUMINAIRES SHALL BE GENERAL ELECTRIC M-400, WESTINGHOUSE OV-25, MC GRAW-EDISON UNISTYLE, OR EQUAL APPROVED BY THE ENGINEER.

700-WATT LUMINAIRES SHALL HAVE SINGLE RATED 480-VOLT 700-WATT INTEGRAL REGULATOR BALLASTS AND SHALL BE GENERAL ELECTRIC M-1000, WESTINGHOUSE OV-50, MC GRAW-EDISON UNISTYLE OR EQUAL APPROVED BY THE ENGINEER.

400-WATT LUMINAIRES WITH 400-WATT DUAL RATED 240/480 VOLT INTEGRAL REGULATOR BALLASTS SHALL BE GENERAL ELECTRIC M400, WESTINGHOUSE OV-25, MCGRAW-EDISON "UNISTYLE", OR EQUAL APPROVED BY THE ENGINEER.

## 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.

## LIGHT POLE ANCHOR BOLTS FOR BRIDGES AND RETAINING WALLS

ANCHOR BOLTS FOR MOUNTING LIGHT POLES ON BRIDGES AND RETAINING WALLS 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.

## CONDUIT ON STRUCTURES

EXPANSION FITTINGS FOR CONDUIT ON STRUCTURES SHALL BE (OZ TYPE AX, SPRING CITY TYPE AF, APPLETON TYPE XJ-4, OR EQUAL APPROVED BY THE ENGINEER).

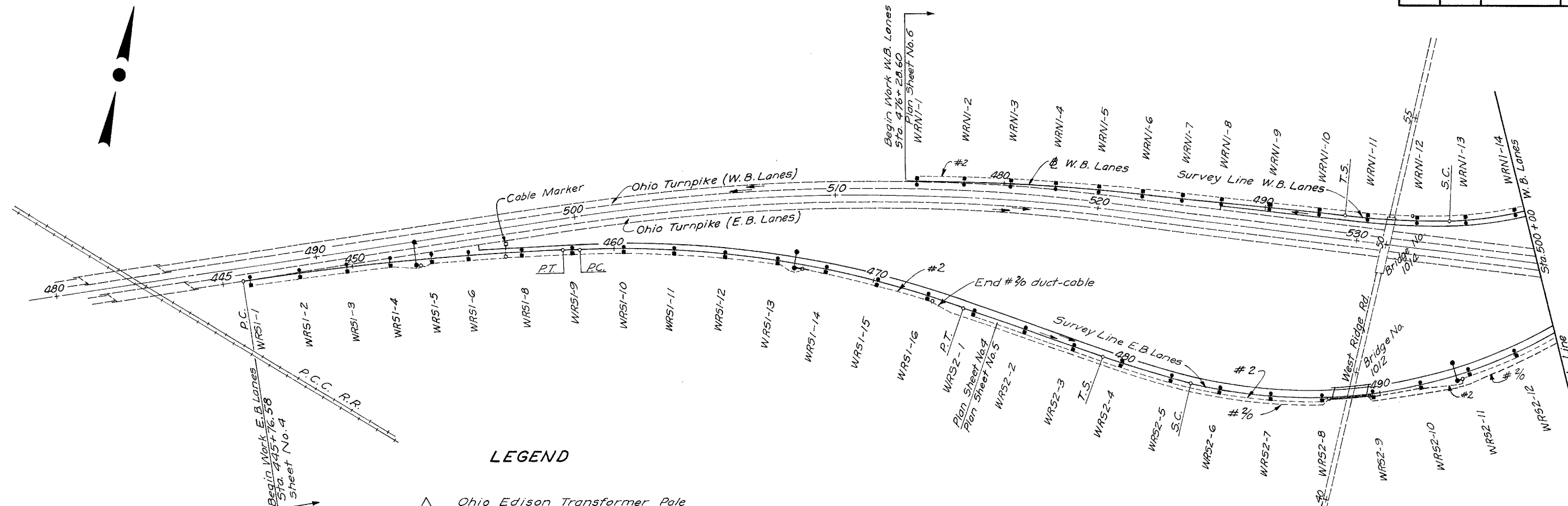
## ELECTRICAL SERVICE FOR ILLUMINATED SIGNS

THE PAY ITEMS IN THE LIGHTING GENERAL SUMMARY INCLUDE THE PULL BOX OR JUNCTION BOX ADJACENT TO EACH LIGHTED SIGN AND THE ELECTRICAL SERVICE CONNECTIONS LEADING INTO THE BOX, INCLUDING CONNECTOR KITS IN THE PULL BOX OR JUNCTION BOX. QUANTITIES FOR ELECTRICAL SERVICE FROM THE CONNECTOR KITS IN THE PULL BOX OR JUNCTION BOX TO THE SIGN ARE INCLUDED IN THE TRAFFIC CONTROL GENERAL SUMMARY.

Design Number	Style	Shaft Size	Taper Inches per Foot	Gauge	Foundation Anchor Bolts				Foundation Size
					Size Diam. x Length	Bolt Circle Diameter	Projection Above Fdn.	Transformer Base Style	
T12B34.2	II	9"x4.87"x29'-6"	0.14	7	1"x40"	15"	4 1/2"	AT-A or Steel	—
AT15B34.2	II	9"x4.87"x29'-6"	0.14	11	1"x10"	15"	4 1/2"	AT-A	2'x6'
AT20B34.2	II	8.5"x5.6"x29'-0"	0.10	11	1"x40"	15"	4 1/2"	AT-A	2'x6'
AT10B41.7	III	9"x5.65"x33'-6"	0.10	11	1"x40"	17.25"	4 1/2"	AT-C	2'x8'
AT15B41.7	III	9"x5.65"x33'-6"	0.10	11	1"x40"	17.25"	4 1/2"	AT-C	2'x8'

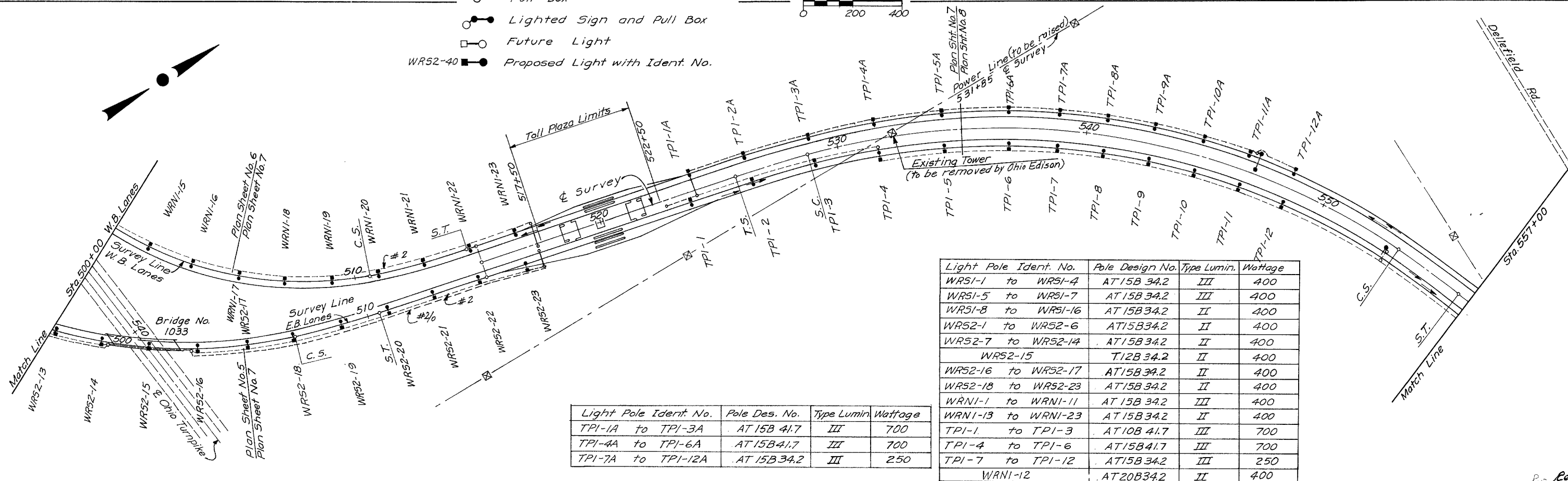
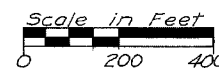
Rev 4-26-79

LIGHTING NOTES



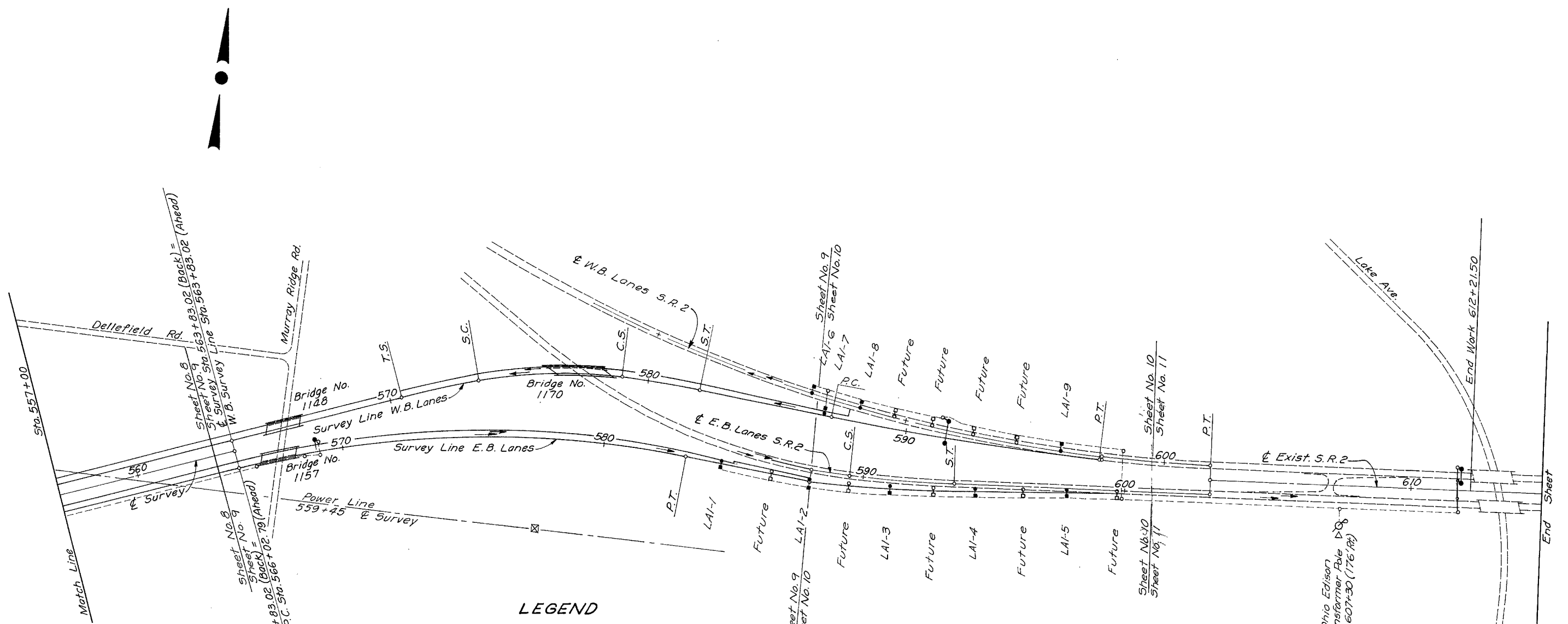
LEGEND

- △ Ohio Edison Transformer Pole
- Service Pole and Control Center
- Pull Box
- Lighted Sign and Pull Box
- Future Light
- Proposed Light with Ident. No.



Light Pole Ident. No.	Pole Des. No.	Type Lumin.	Wattage
TPI-1A to TPI-3A	AT 15B 41.7	III	700
TPI-4A to TPI-6A	AT 15B 41.7	III	700
TPI-7A to TPI-12A	AT 15B 34.2	III	250

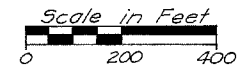
Light Pole Ident. No.	Pole Design No.	Type Lumin.	Wattage
WRSI-1 to WRSI-4	AT 15B 34.2	III	400
WRSI-5 to WRSI-7	AT 15B 34.2	III	400
WRSI-8 to WRSI-16	AT 15B 34.2	II	400
WRS2-1 to WRS2-6	AT 15B 34.2	II	400
WRS2-7 to WRS2-14	AT 15B 34.2	II	400
WRS2-15	T 12B 34.2	II	400
WRS2-16 to WRS2-17	AT 15B 34.2	II	400
WRS2-18 to WRS2-23	AT 15B 34.2	II	400
WRNI-1 to WRNI-11	AT 15B 34.2	III	400
WRNI-13 to WRNI-23	AT 15B 34.2	II	400
TPI-1 to TPI-3	AT 10B 41.7	III	700
TPI-4 to TPI-6	AT 15B 41.7	III	700
TPI-7 to TPI-12	AT 15B 34.2	III	250
WRNI-12	AT 20B 34.2	II	400

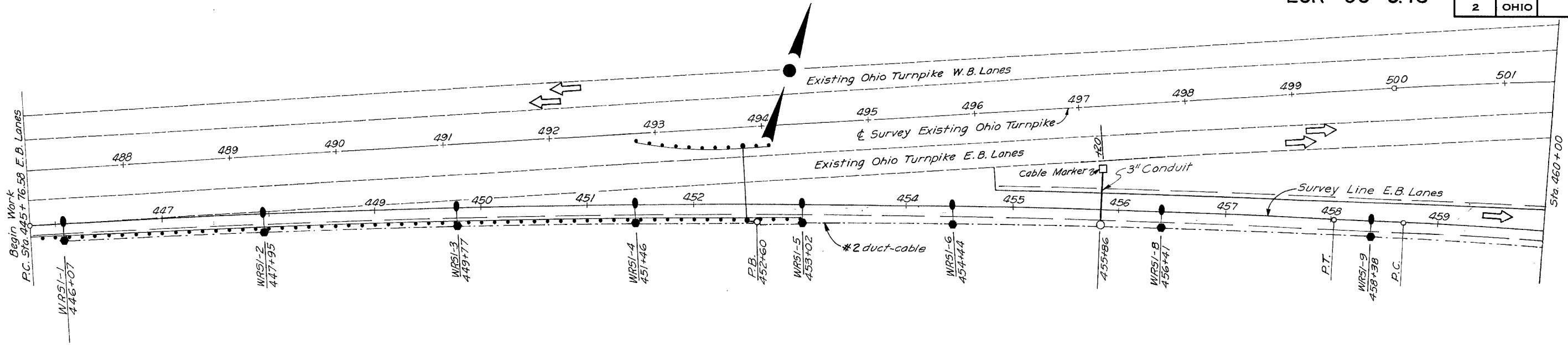


**LEGEND**

- △ Ohio Edison Transformer Pole
- Service Pole and Control Center
- Pull Box
- Lighted Sign and Pull Box
- Future Light
- WR52-40 ■ Proposed Light with Ident. No.

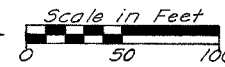
Light Pole Ident No.	Pole Design No.	Type Lumin.	Wattage
LAI-1 to LAI-7	AT15B 34.2	II	400
LAI-8 to LAI-9	AT15B 34.2	III	400



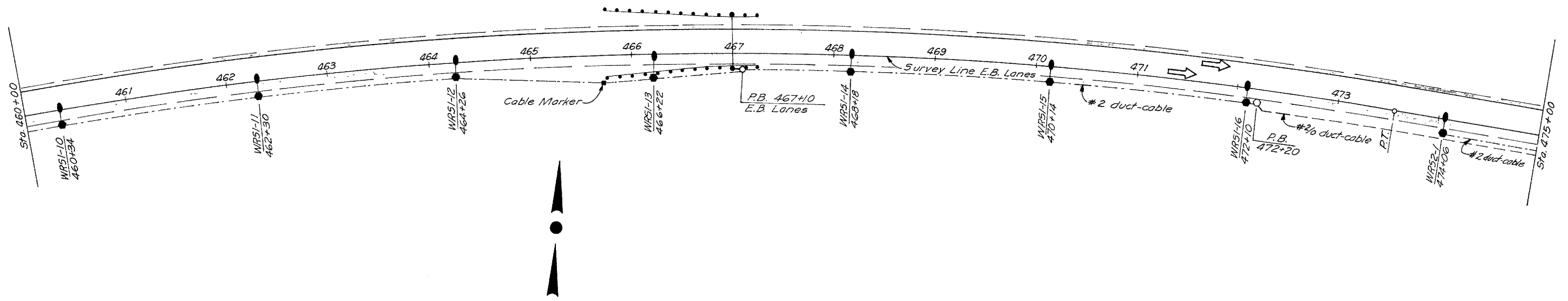


LEGEND

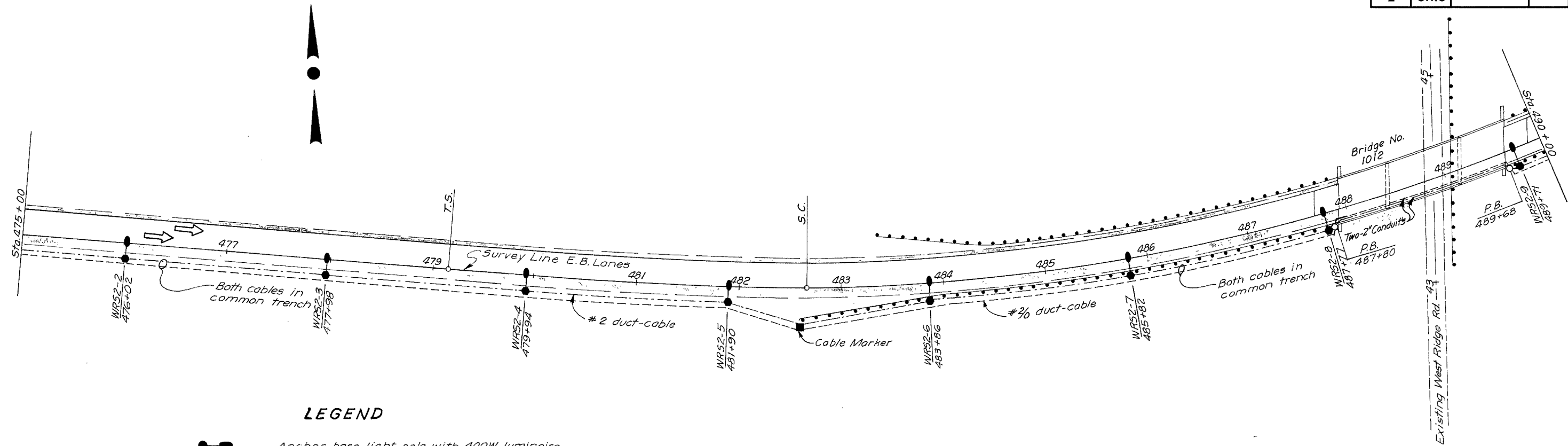
Light Pole Ident. No.	Pole Design No.	Type Lumin.	Wattage
WRSI-12	AT208 34.2	II	400
WRSI-1 to WRSI-7	AT15B 34.2	III	400
WRSI-8 Toll & 13 1/16	AT15B 34.2	II	400
WRSI-1	AT15B 34.2	II	400



- Transformer base light pole with 400W luminaire
- Pull box
- Lighted sign and pull box
- 1 1/2" Duct-cable with 2 No. 2 AWG cables
- 1 1/2" Duct-cable with 2 No. 2 1/2 AWG cables

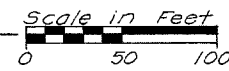




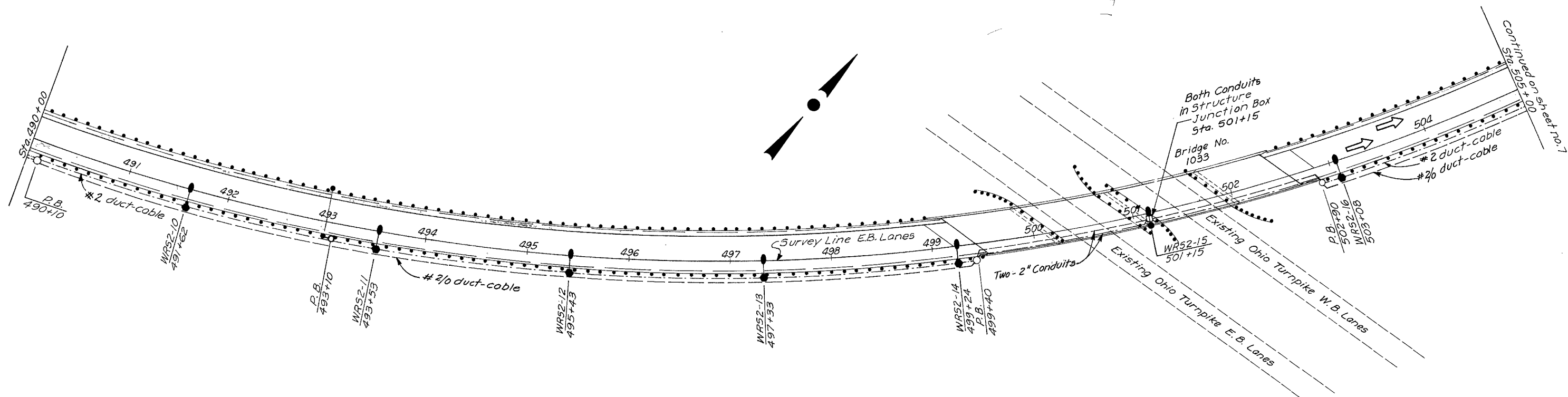


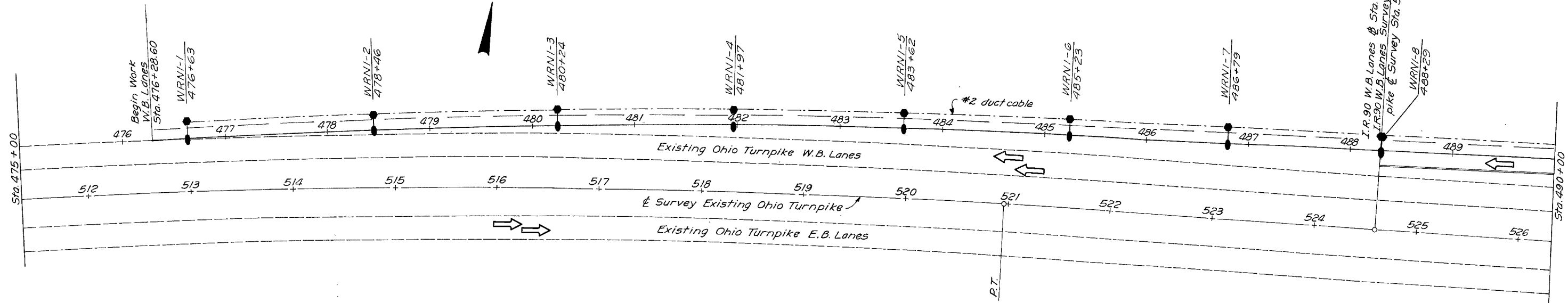
**LEGEND**

- Anchor base light pole with 400W luminaire
- Transformer base light pole with 400W luminaire
- Pull box
- Lighted sign and pull box
- 1/2" Duct-cable with 2 No. 2 AWG cables
- 1/2" Duct-cable with 2 No. 3/0 AWG cables

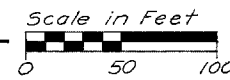


Light Pole Ident. No.	Pole Design No.	Type Lum.	Wattage
WRS2-2 to WRS2-6	AT15B34.2	II	400
WRS2-7 to WRS2-14	AT15B34.2	II	400
WRS2-15	T12B 34.2	II	400
WRS2-16	AT15B34.2	II	400



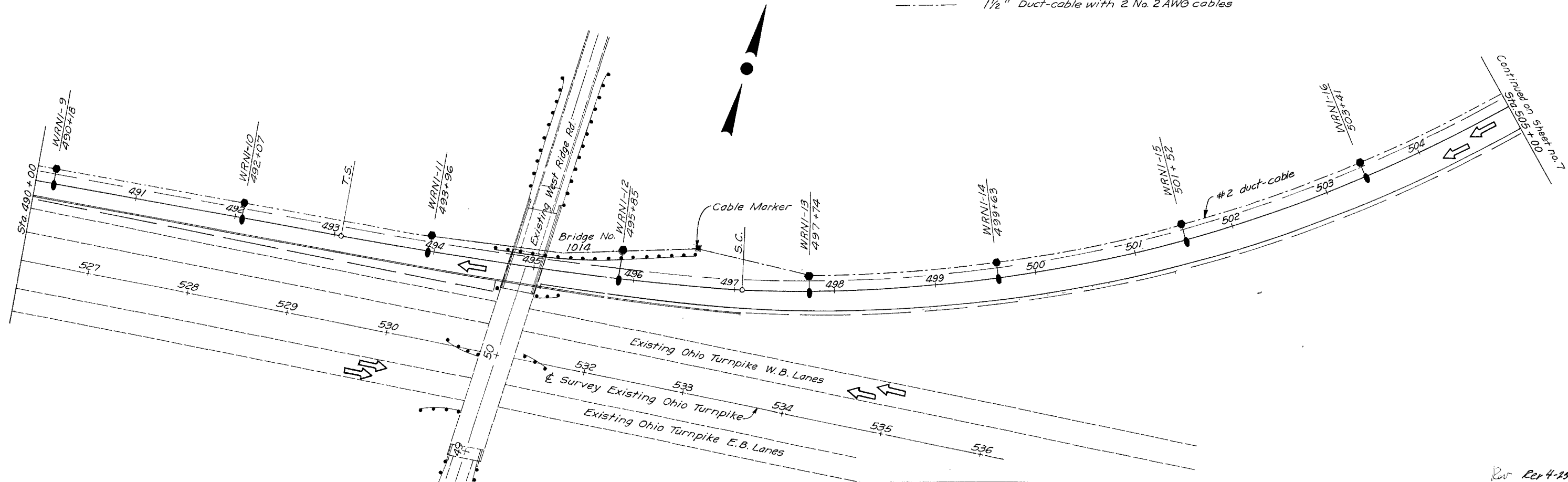


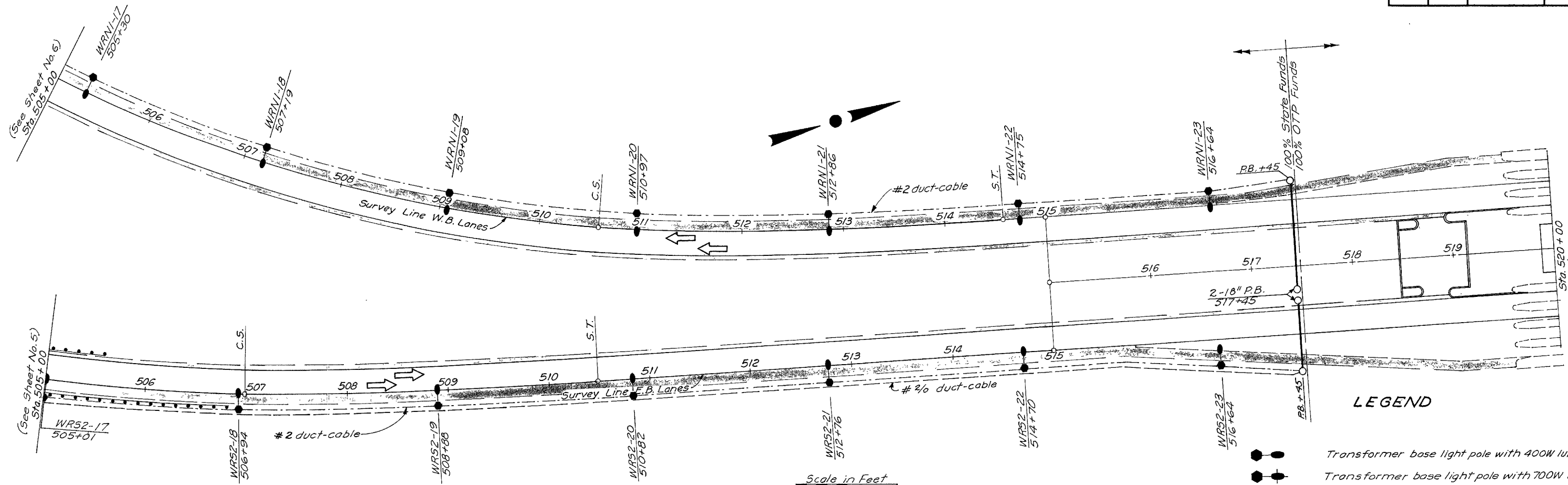
Light Pole Ident. No.	Pole Design No.	Type Lumin.	Wattage
WRNI-1 to WRNI-11	AT 15B 342	III	400
WRNI-13 to WRNI-16	AT 15B 342	II	400
WRNI-12	AT 20B 342	II	400



LEGEND

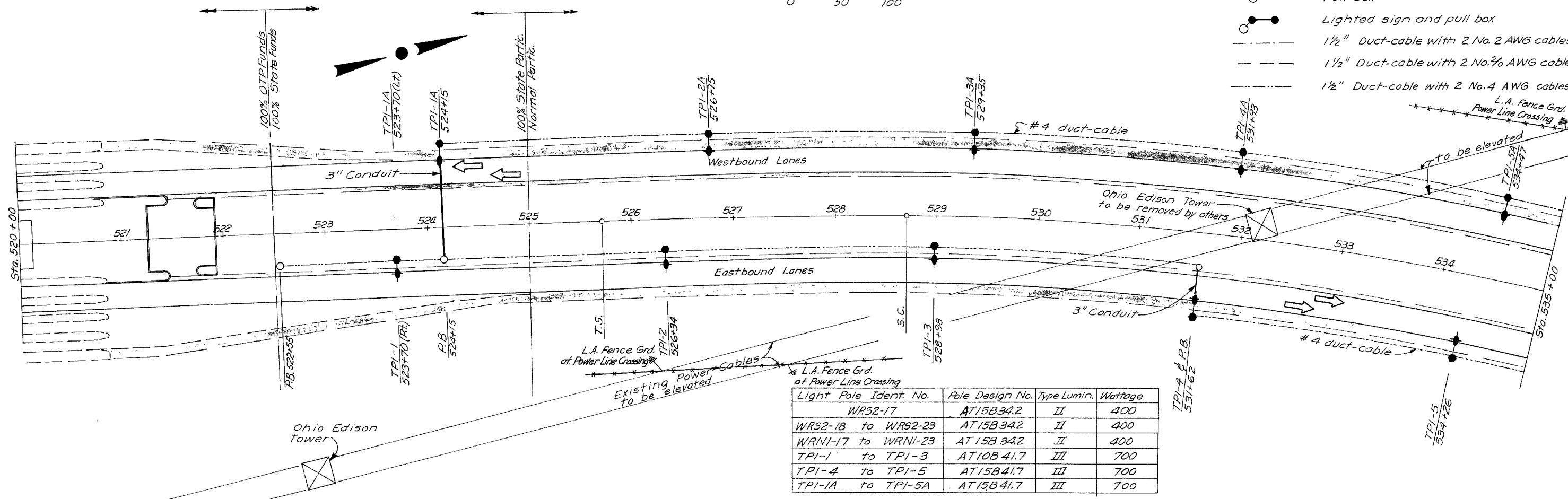
- Transformer base light pole with 400W luminaire
- Pull box
- Lighted sign and pull box
- 1/2" Duct-cable with 2 No. 2 AWG cables





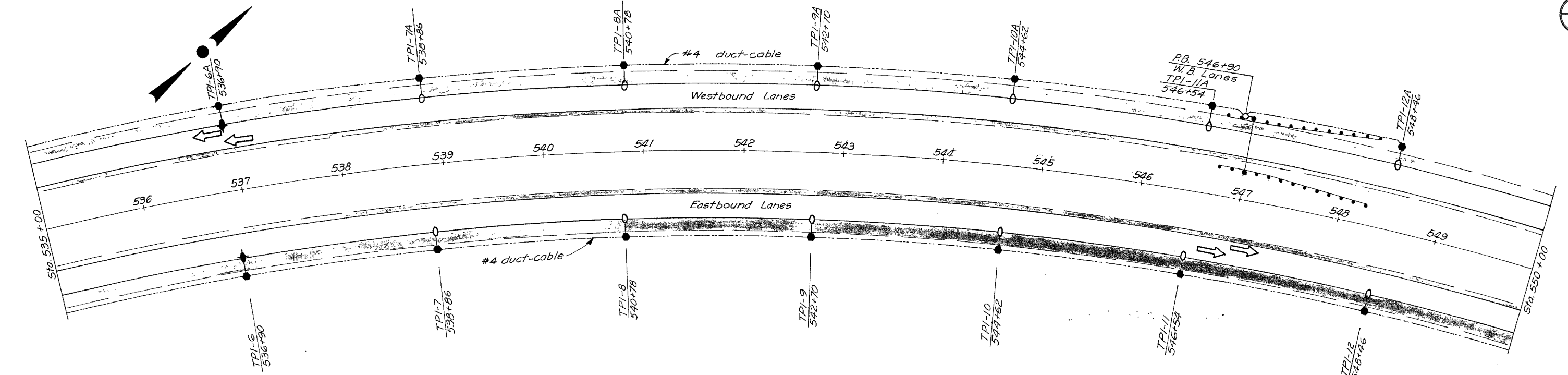
**LEGEND**

- Transformer base light pole with 400W luminaire
- Transformer base light pole with 700W luminaire
- Pull box
- Lighted sign and pull box
- 1/2" Duct-cable with 2 No. 2 AWG cables
- 1/2" Duct-cable with 2 No. 3 AWG cables
- 1/2" Duct-cable with 2 No. 4 AWG cables

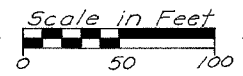


Light Pole Ident. No.	Pole Design No.	Type Lumin.	Wattage
WRS2-17	AT15B34.2	II	400
WRS2-18 to WRS2-23	AT15B34.2	II	400
WRNI-17 to WRNI-23	AT15B34.2	II	400
TPI-1 to TPI-3	AT10B41.7	III	700
TPI-4 to TPI-5	AT15B41.7	III	700
TPI-1A to TPI-5A	AT15B41.7	III	700

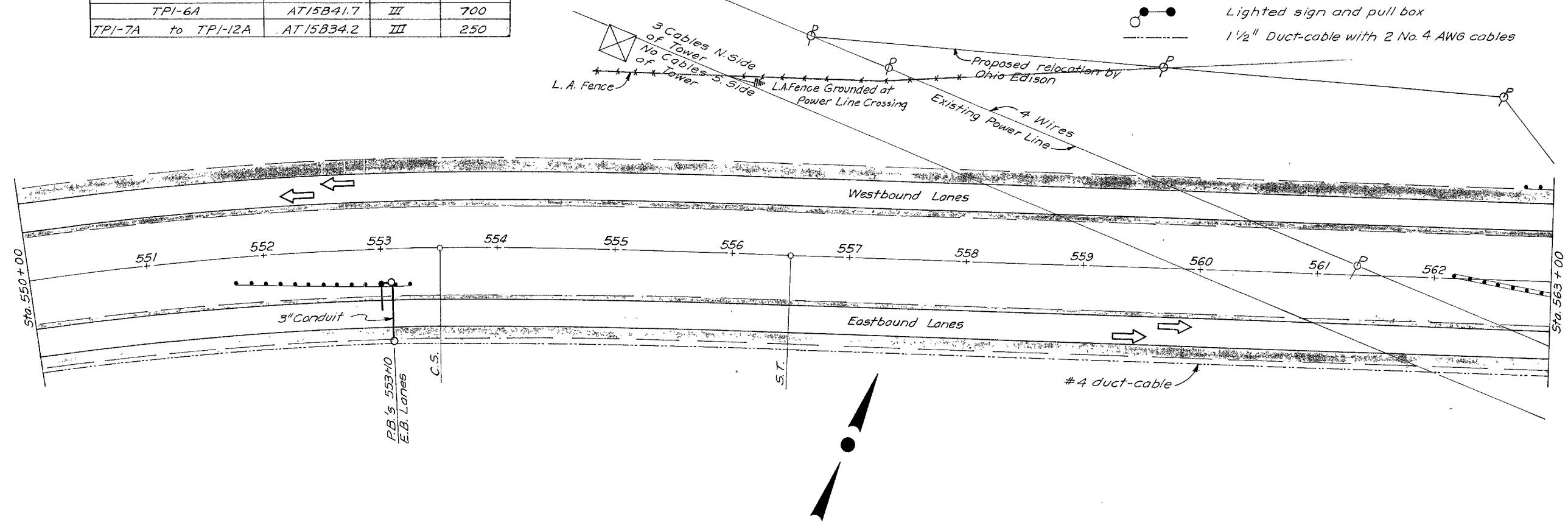
**LIGHTING PLAN STA. 505+00 to STA. 535+00**

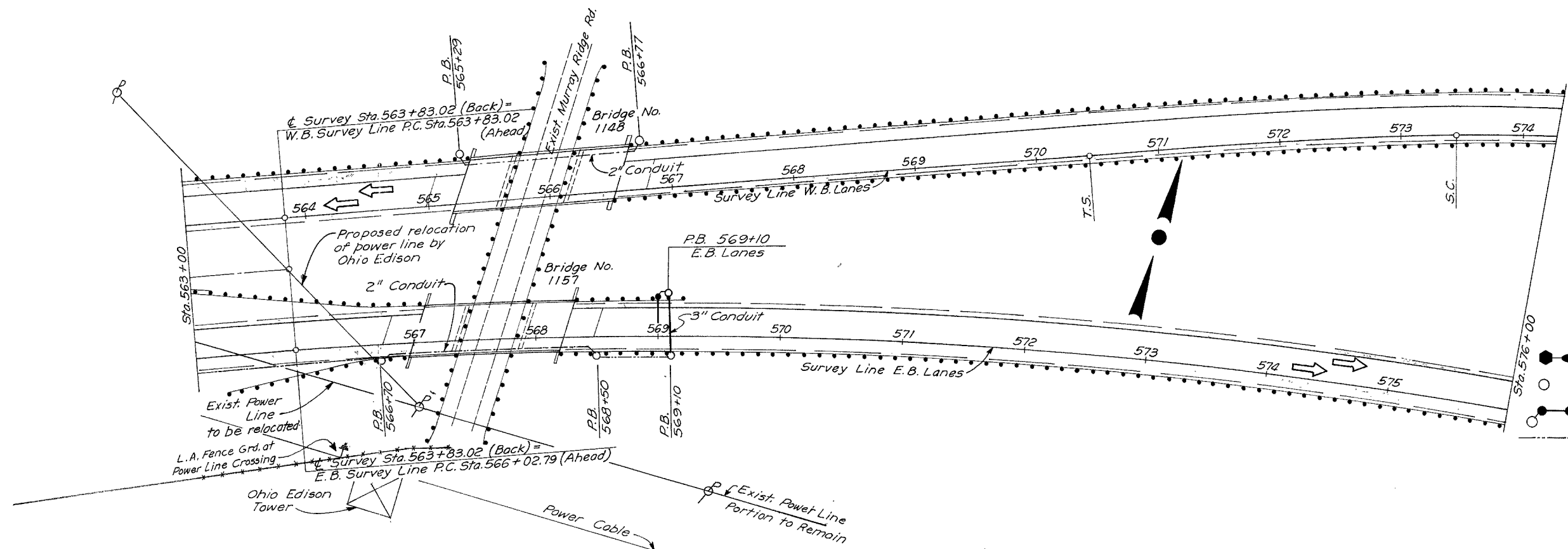


Light Pole Ident. No.	Pole Design No.	Type Lumin.	Wattage
TPI-6	AT15B41.7	III	700
TPI-7 to TPI-12	AT15B34.2	III	250
TPI-6A	AT15B41.7	III	700
TPI-7A to TPI-12A	AT15B34.2	III	250



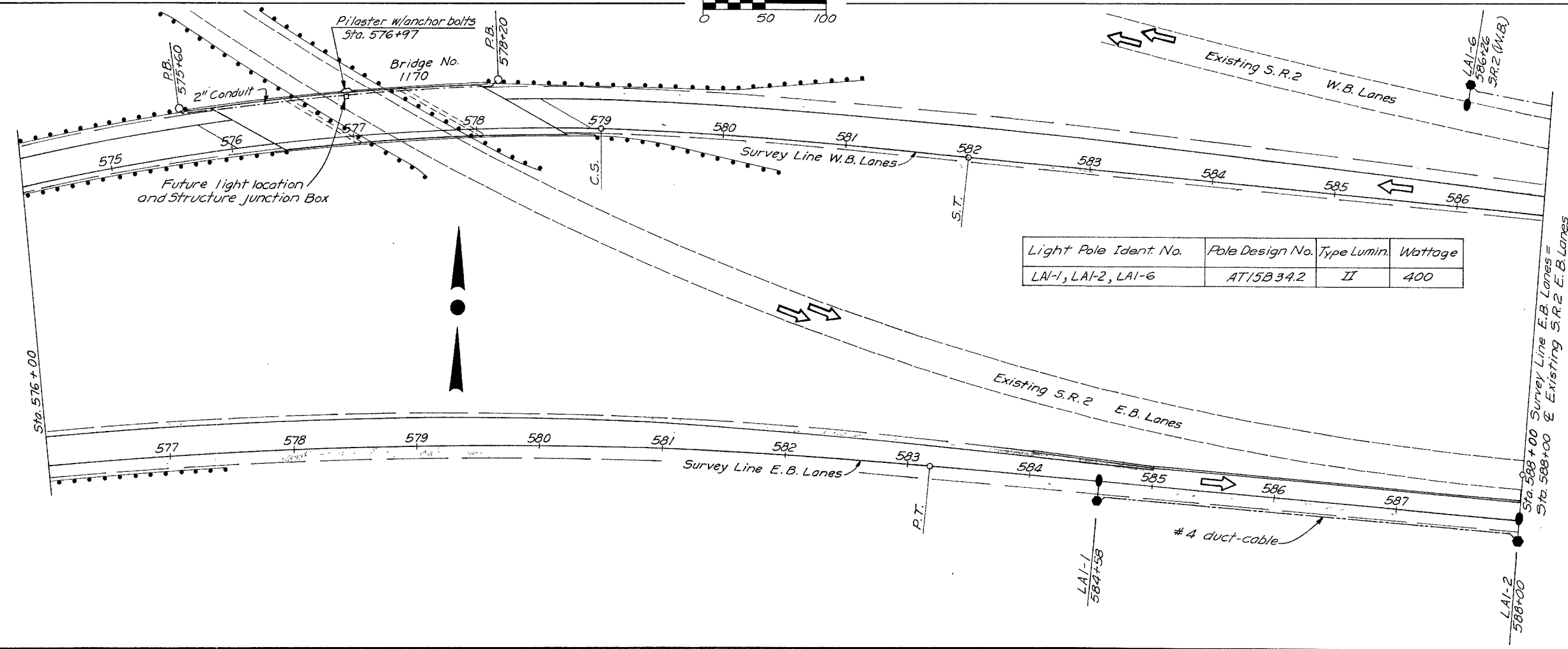
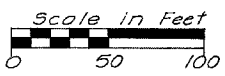
- LEGEND**
- Transformer base light pole w/ 250 W. lamp in 400W. luminaire
  - Transformer base light pole with 400W luminaire
  - Transformer base light pole with 700W luminaire
  - Pull box
  - Lighted sign and pull box
  - 1 1/2" Duct-cable with 2 No. 4 AWG cables





**LEGEND**

- Transformer base light pole with 400W luminaire
- Pull box
- Lighted sign and pull box
- 1/2" Duct-cable with 2 No. 4 AWG cables




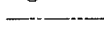


Light Pole Ident. No.	Pole Design No.	Type Lumin.	Wattage
LAI-1, LAI-2, LAI-6	AT15B34.2	II	400

**LIGHTING PLAN STA. 563+00 to STA. 588+00**

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LEGEND

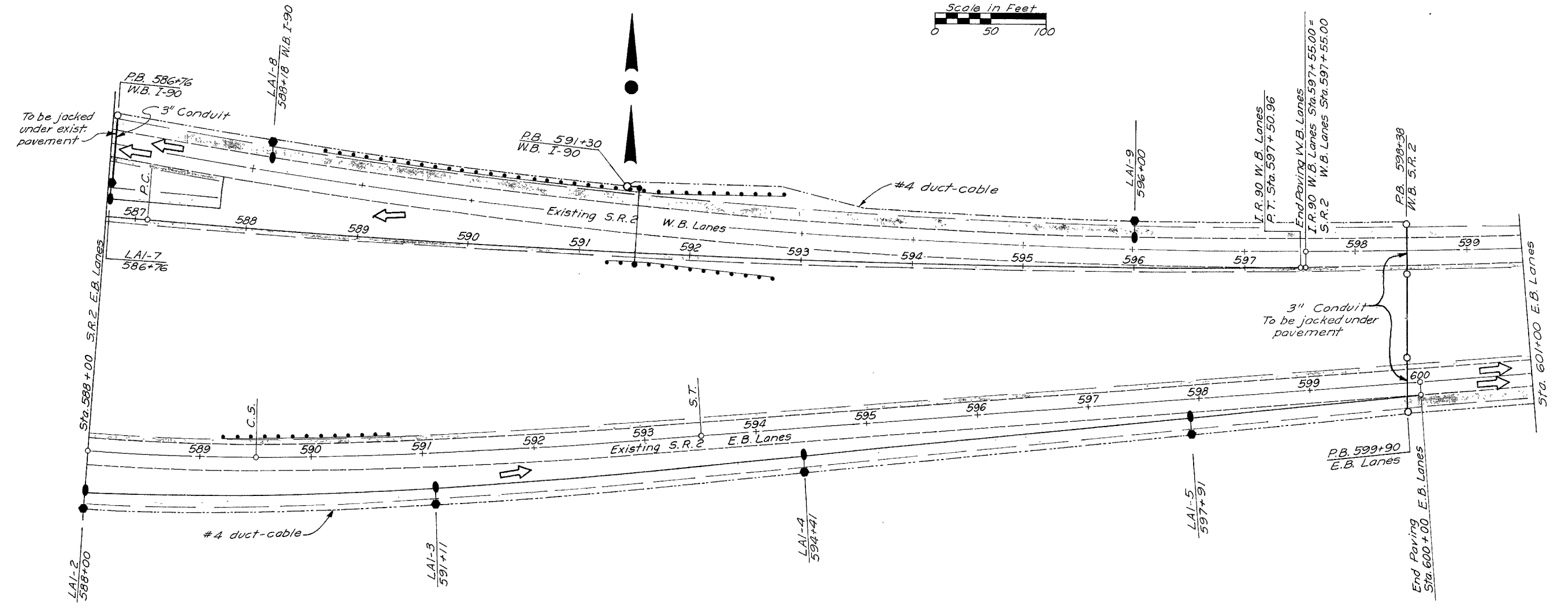
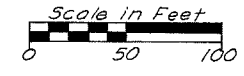
-  Transformer base light pole with 400W luminaire
-  Pull box
-  Lighted sign and pull box
-  1/2" Duct-cable with 2 No 4 AWG cables

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	




LOR-90-9.48

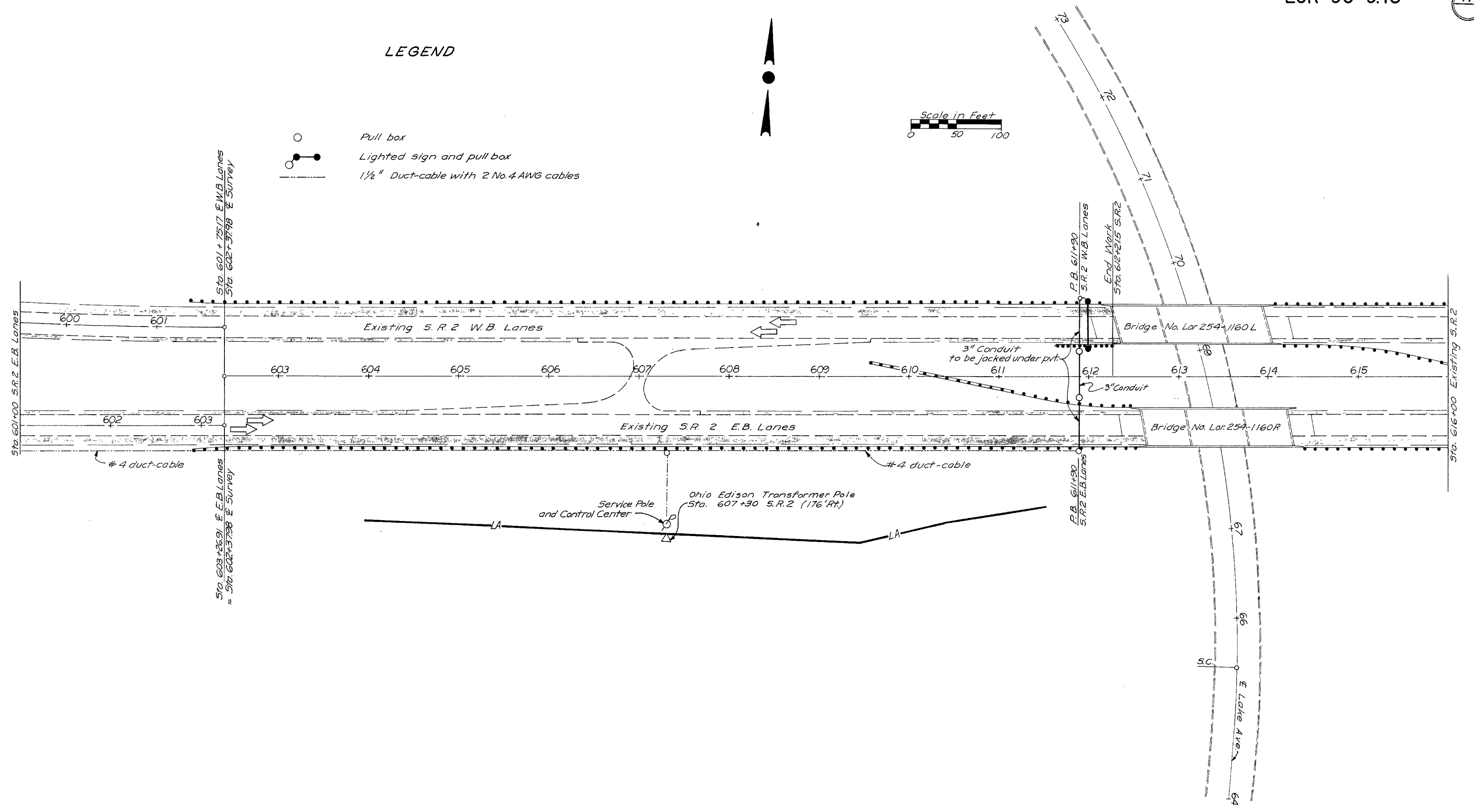
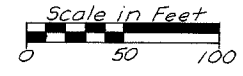
172  
283  
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Light Pole Ident. No.	Pole Design No.	Type Lumin.	Wattage
LAI-3 to LAI-5	AT15B 34.2	II	400
LAI-7	AT15B 34.2	II	400
LAI-8 to LAI-9	AT15B 34.2	III	400



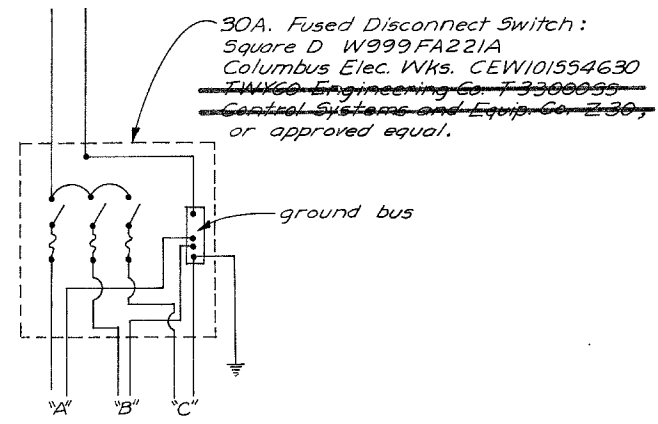
LEGEND

-  Pull box
-  Lighted sign and pull box
-  1/2" Duct-cable with 2 No.4 AWG cables



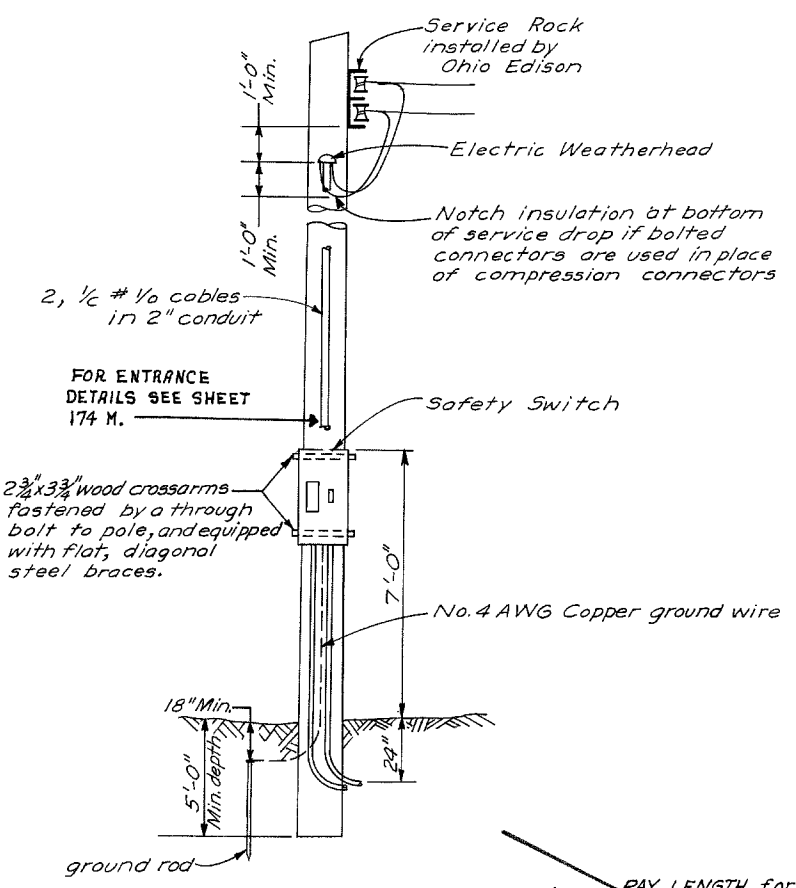
LOR-90-9.48

480 V. from Ohio Edison Co. lines

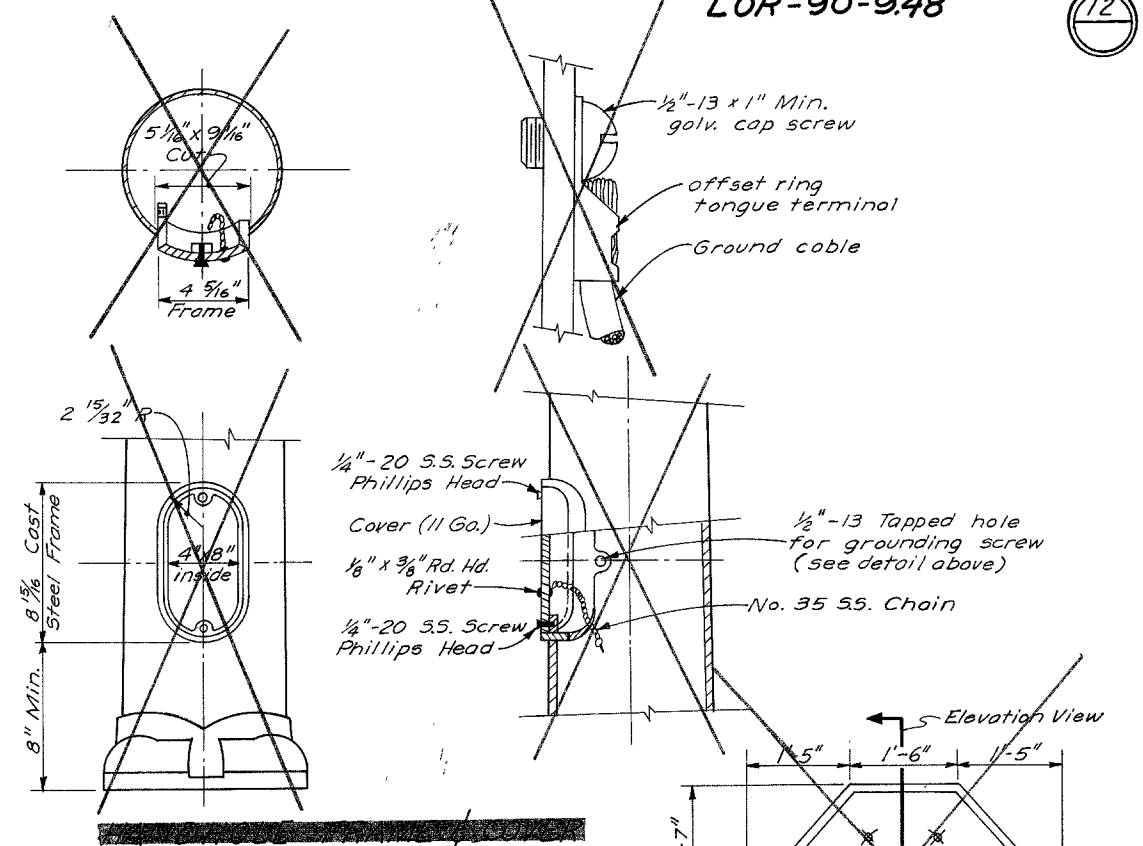


CONTROL CENTER	"A"	"B"	"C"
LA	LA1	SPARE	SPARE
TP	TP1	WRS1	WRS2

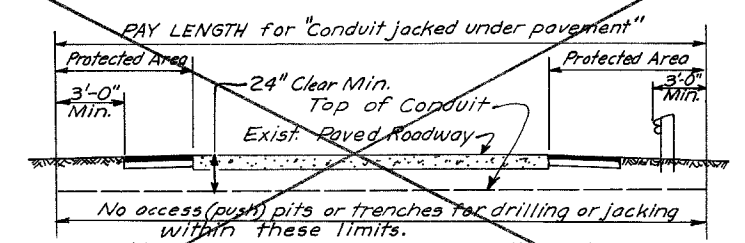
TYPICAL CONTROL CENTER WIRING



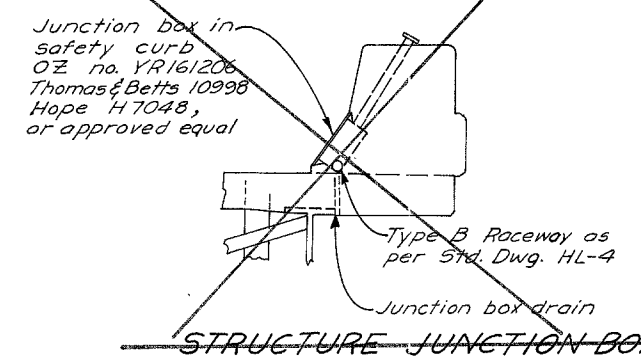
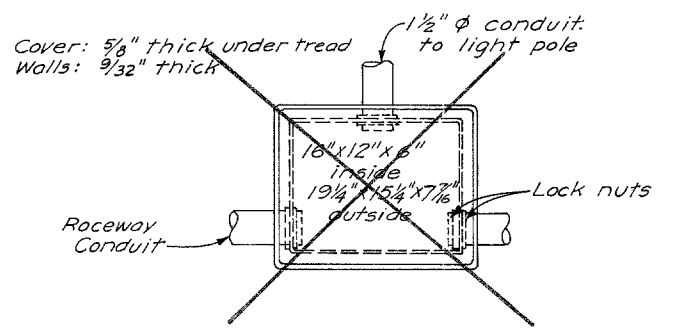
SERVICE POLE



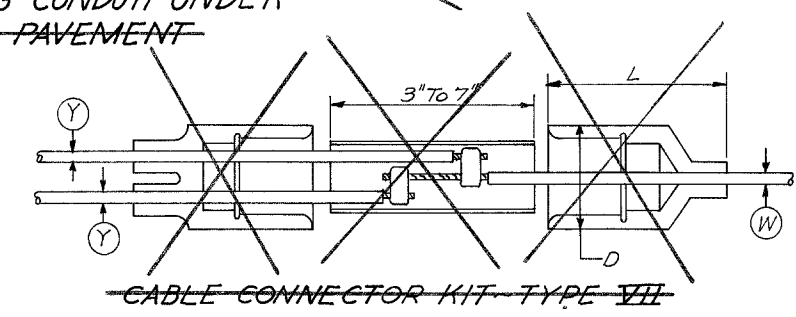
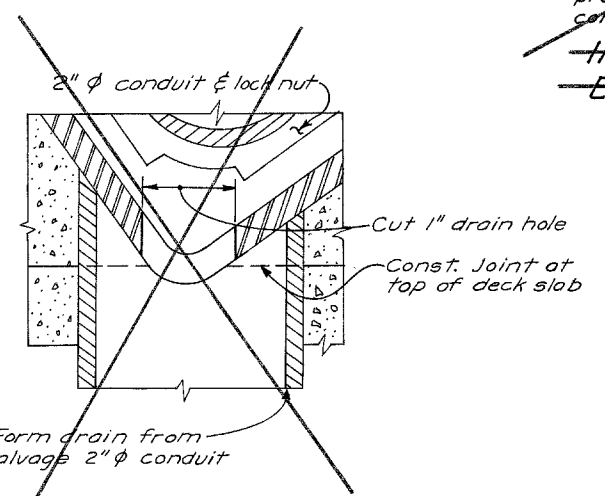
LIGHT POLE FOUNDATION FOR BRIDGE WITH SAFETY CURB



INSTALLING CONDUIT UNDER EXISTING PAVEMENT

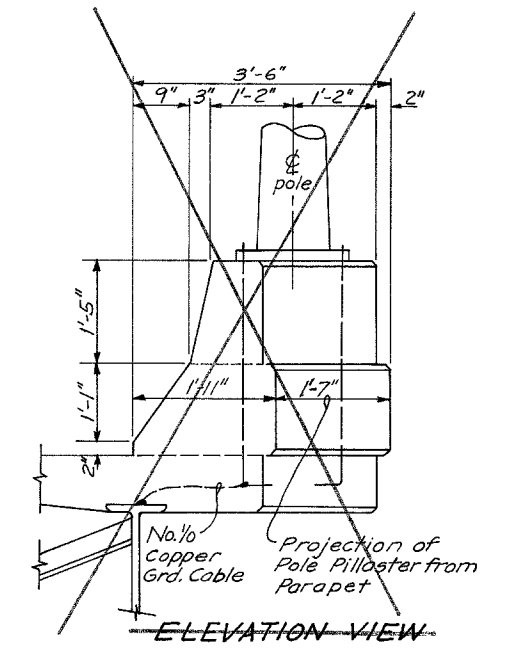


STRUCTURE JUNCTION BOX DETAILS



D	L	CABLE DIAMETER		SYMBOL FOR		AWG 600 V. CABLE PER 713.02
		Min.	Max.	Y	W	
1.29	4 1/16"	.320"	.420"	D	D	No. 6 & No. 4
1.29	4 1/16"	.420"	.585"	E	E	No. 2 & No. 3/0

Note: Kit shown is Type VII-B. Type VII-A, for in-line cable connections uses two 1/2" end housings as shown on the right side.  
Type I, II, and III connector kits shall be sized according to the wire size shown in the plans.



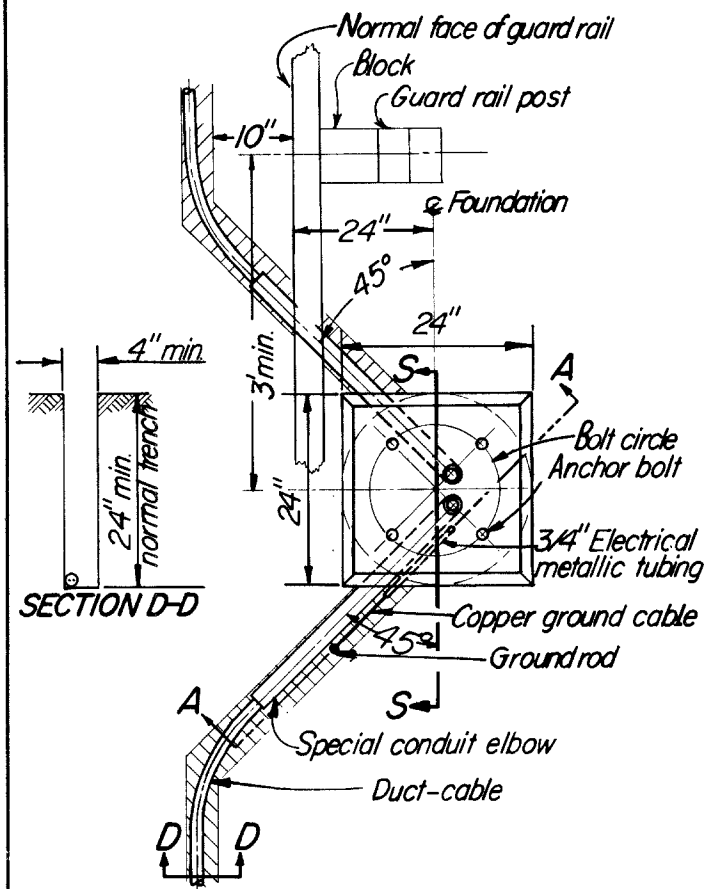


# FOUNDATION AND TRENCH DETAILS

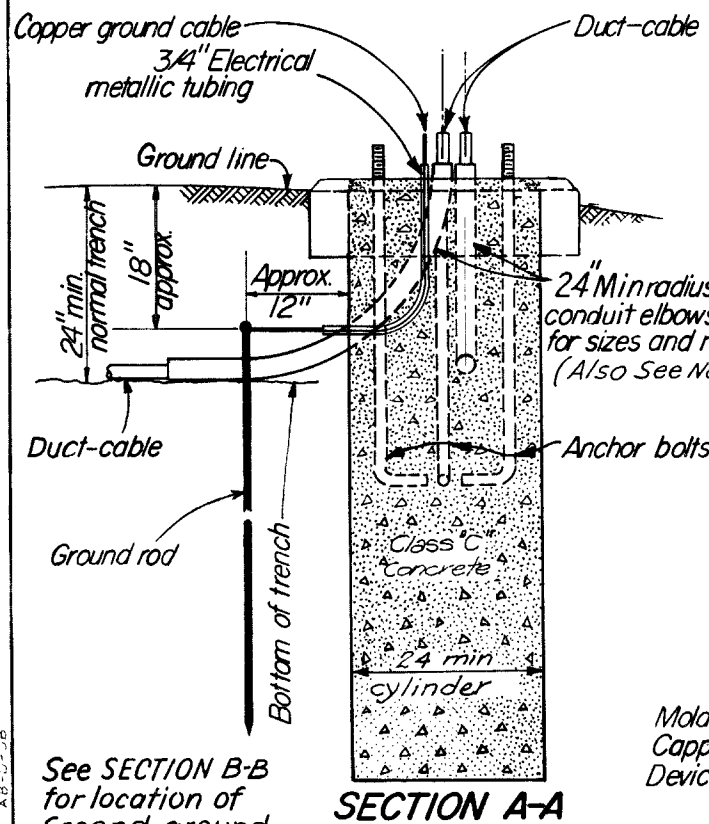
LORRAIN COUNTY  
LOR-90-948

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

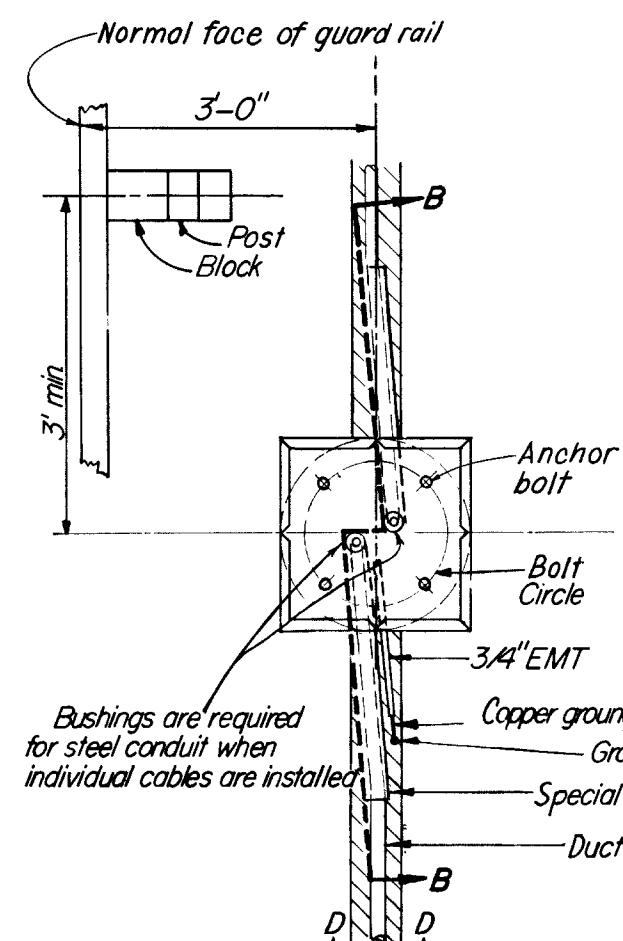
174A  
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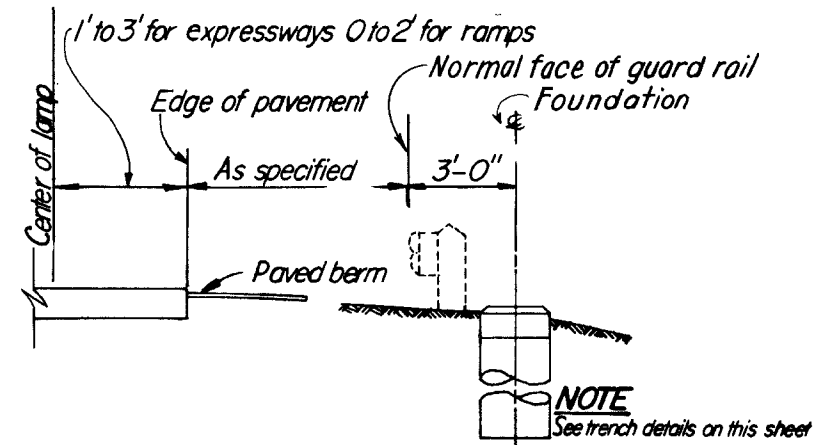
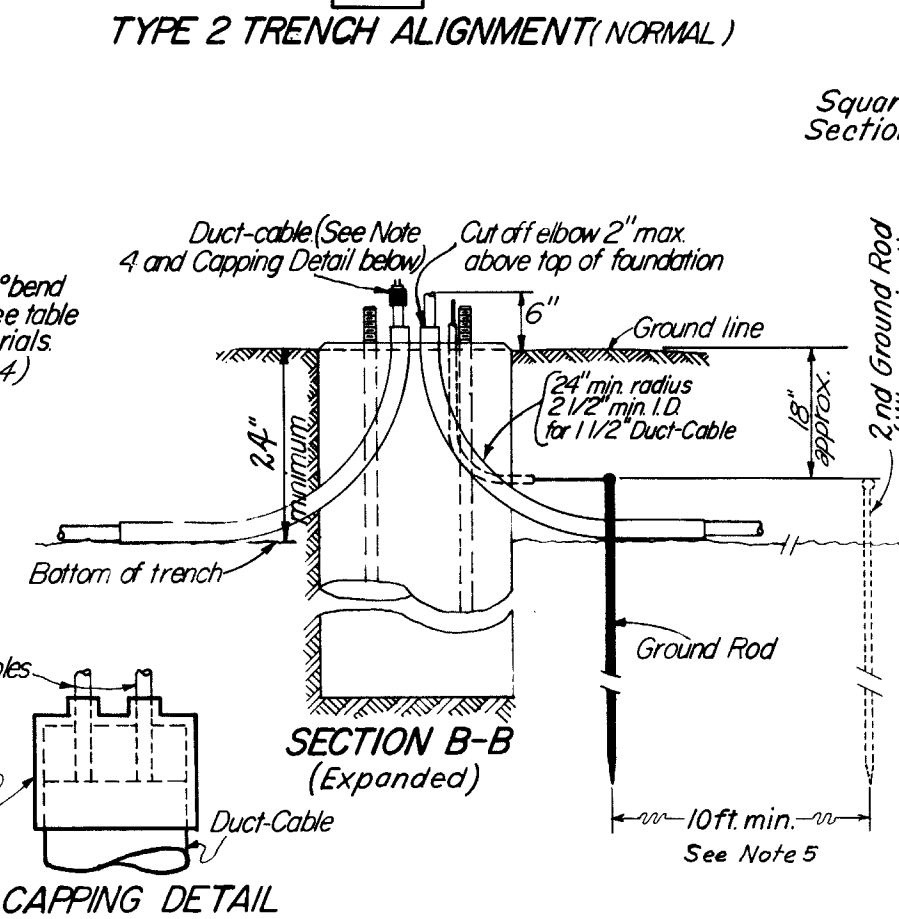
**TYPE 1 TRENCH ALIGNMENT**  
(Use when specified or directed by the Engineer)



See SECTION B-B for location of Second ground rod when required



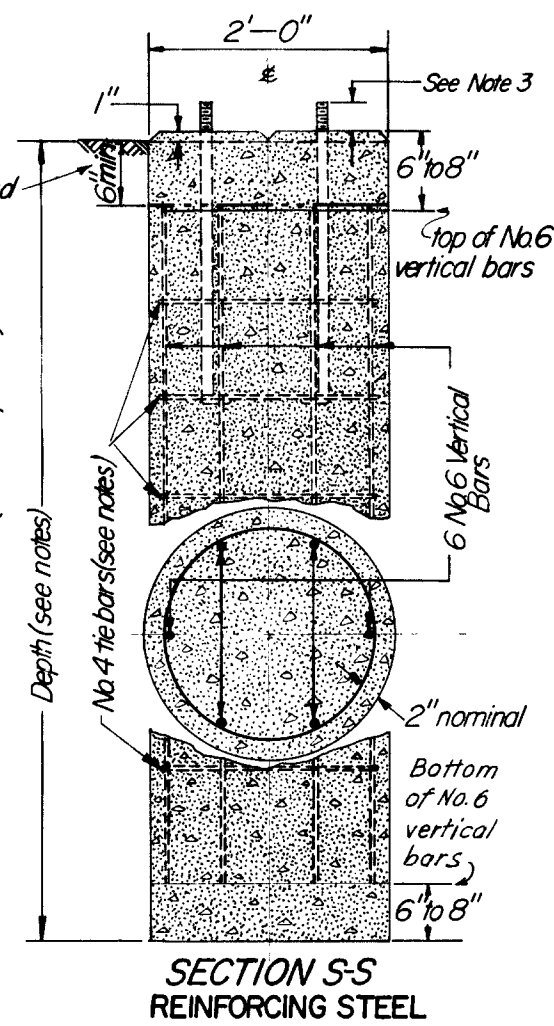
**TYPE 2 TRENCH ALIGNMENT (NORMAL)**



**NORMAL LOCATION OF LIGHT POLE FOUNDATION**  
Opposite hand for poles mounted on left side of pavement.

R = bending radius  
S = straight section  
Y = R + S

SPECIAL CONDUIT ELBOWS 90° BENDS					
2" 2 1/2" 3" 71304	3" 71305	4" 71306	R	S	Y
24"	11"	35"	24"	8"	32"
30"	11"	41"	36"	2"	38"
36"	11"	47"	42"	12"	54"
42"	12"	54"	48"	12"	60"



- NOTES**
- FOUNDATION**  
Depths to be as follows:  
6 feet for poles having a mounting height less than 40 ft.  
8 feet for poles having a mounting height 40 ft. thru 44 ft.  
9 feet for poles having a mounting height 45 ft. thru 49 ft.  
10 feet for poles having a mounting height of 50 ft. thru 55 ft.  
No. 4 Tie bars required as follows:  
4 No. 4 tie bars for 6 ft. depth  
5 No. 4 tie bars for 8 and 9 ft. depth  
6 No. 4 tie bars for 10 ft. depth  
Rotate bars to clear conduits.
  - COPPER GROUND CABLE:**  
No. 4 AWG, stranded insulated copper ground cable shall be used. Exothermically weld cable to ground rod, run free end through 3/4" EMT and connect as shown on "POLE WIRING."  
Use two coats of insulating varnish over exothermic weld and exposed conductor.
  - ANCHOR BOLT DATA:**  
For anchor bolt data see "POLE BASE DETAILS."
  - CONDUIT:**  
Where 2" or 3" diameter conduit terminates in a foundation the conduit elbows in the foundation shall be the same size as the conduit. The ends of conduit elbows containing distribution cable shall be closed as described in 625.13  
When the terminating conduit is steel the conduit elbows in the pole foundation shall also be steel.  
At the last light pole on a circuit the vacant conduit elbow in the light pole foundation shall be stubbed out and capped.
  - GROUND RODS:**  
When a second ground rod is required it shall be installed in the cable trench as shown in SECTION B-B.
  - REINFORCING STEEL:**  
Reinforcing steel may be assembled in cages by approved welding of bars.

add Rev. 4-25-73

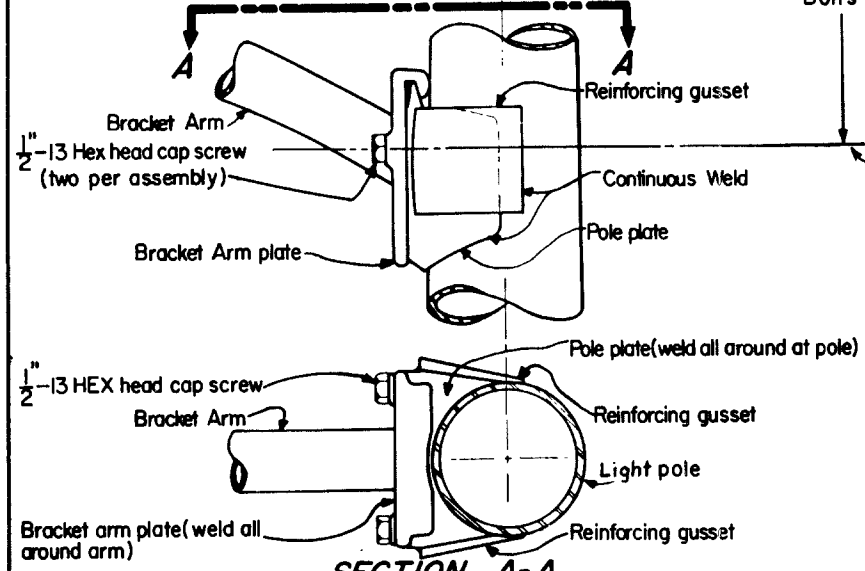
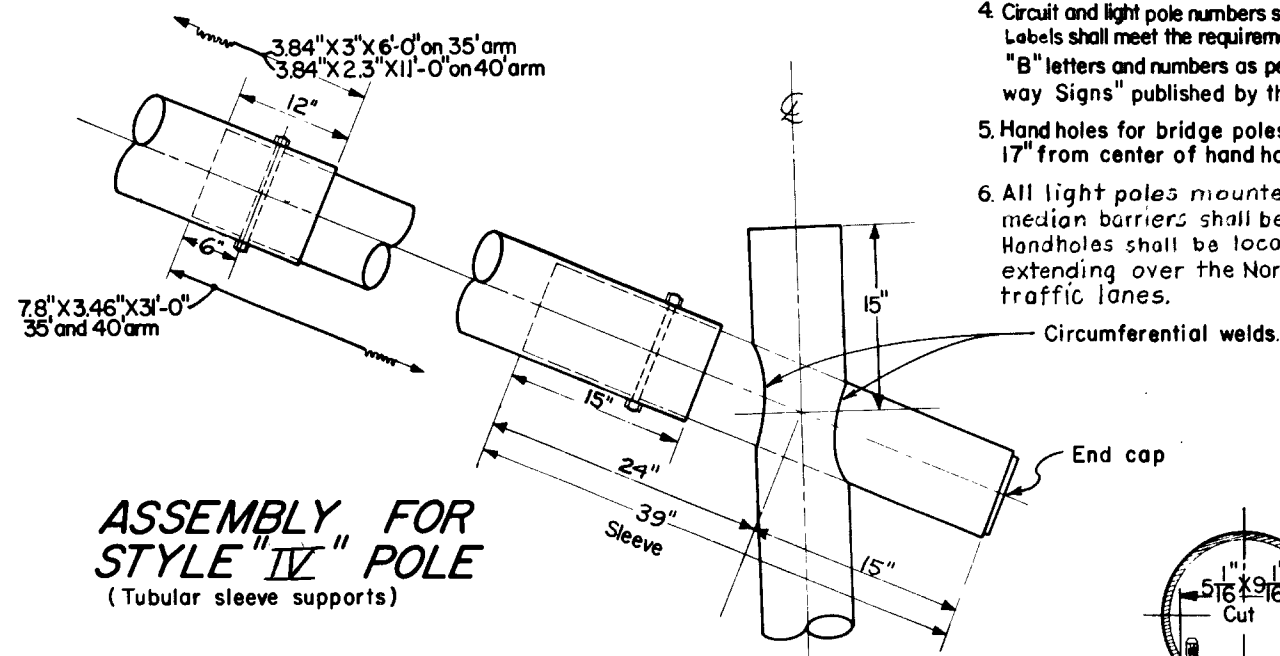
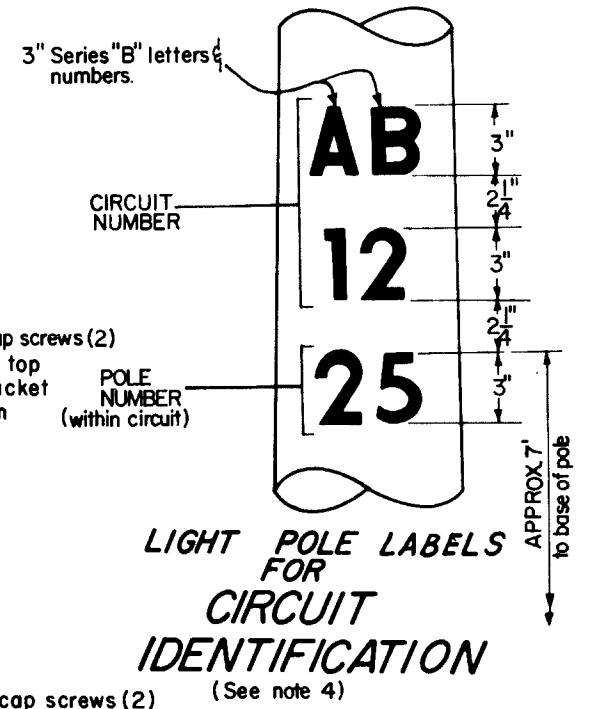
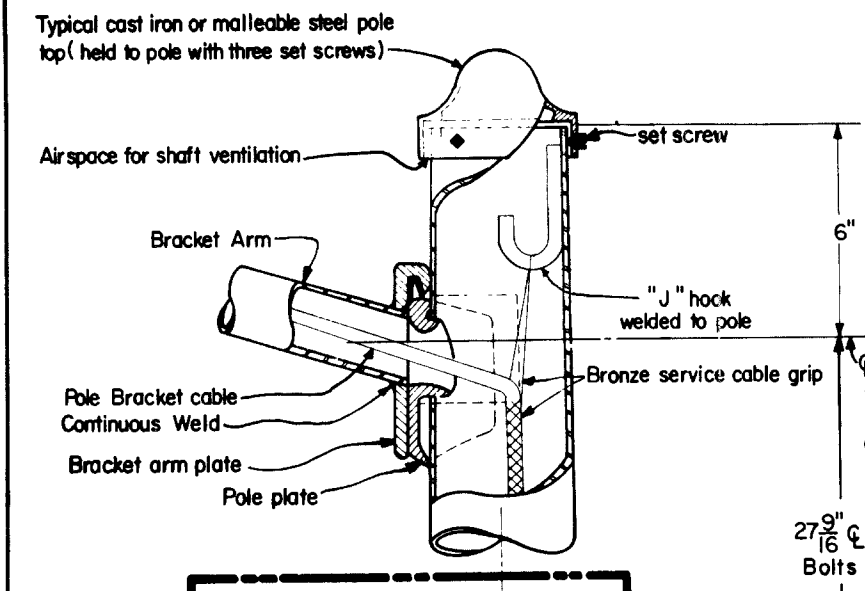
# LIGHT POLE DETAILS

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		174B 283

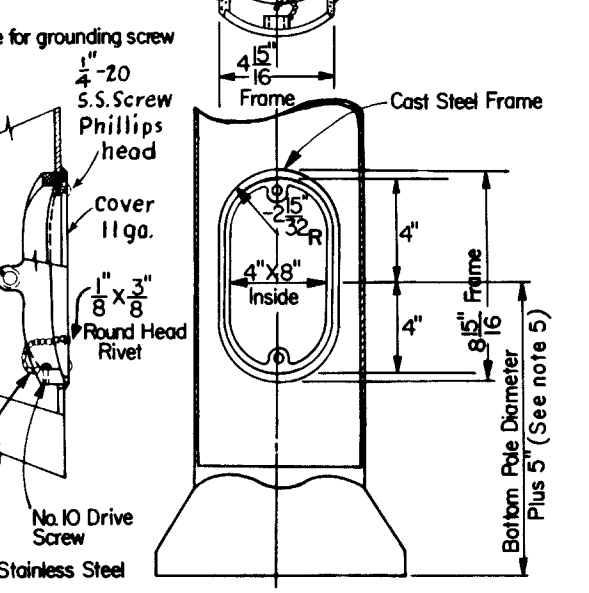
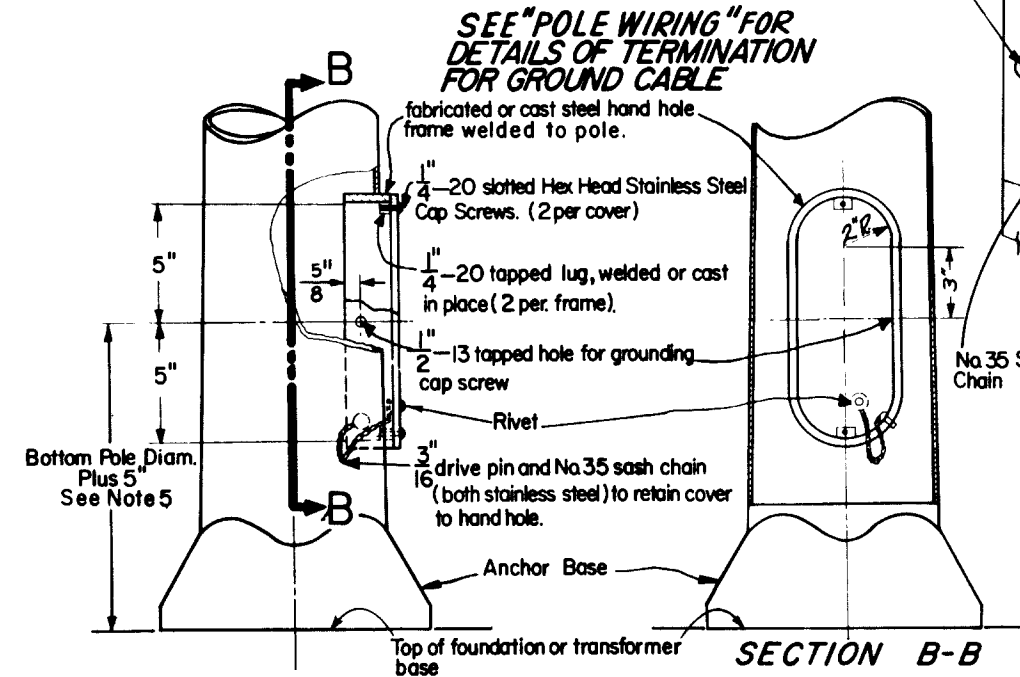
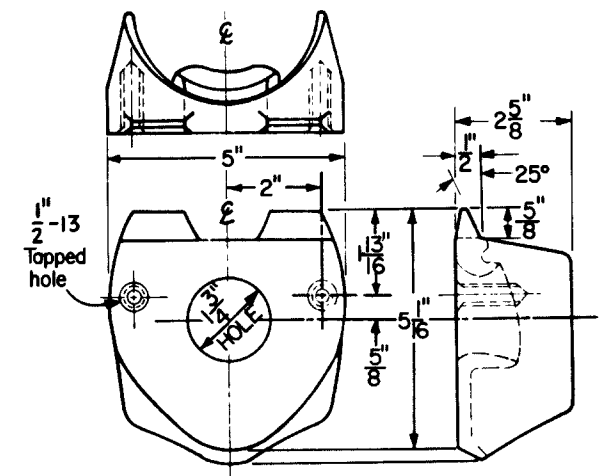
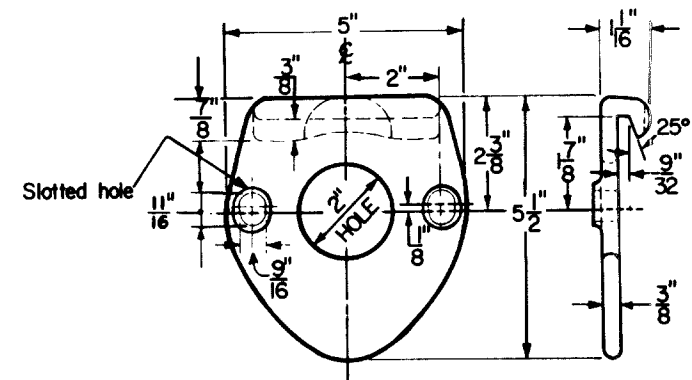
LORAIN COUNTY  
LOR-90-9.48

## NOTES

1. Hand holes shall be provided on all poles not mounted on transformer bases.
2. Hand holes shall be opposite the roadway unless such location renders them inaccessible. (See NOTE 6)
3. Use of Reinforcing gussets is optional.
4. Circuit and light pole numbers shall be as scheduled on light plan sheets. Labels shall meet the requirements of 713.18 and shall contain 3 series "B" letters and numbers as per the "Standard Alphabets for Highway Signs" published by the Bureau of Public Roads.
5. Hand holes for bridge poles shall be on roadway side and 17" from center of hand hole to bottom of base.
6. All light poles mounted on raised concrete median barriers shall be equipped with handholes. Handholes shall be located beneath the bracket arm extending over the Northbound or Westbound traffic lanes.



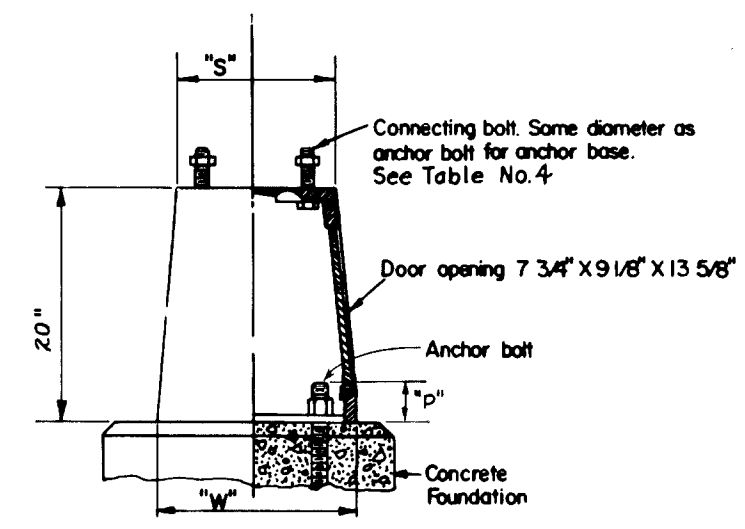
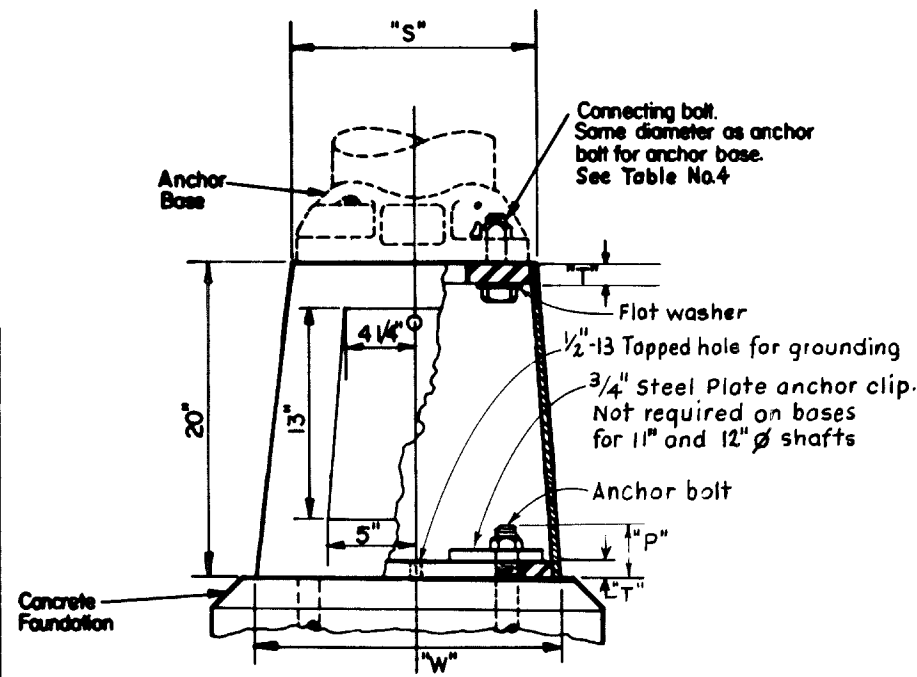
**SECTION A-A**  
**POLE TOP and BRACKET ARM ASSEMBLIES**



# POLE BASE DETAILS

## NOTES

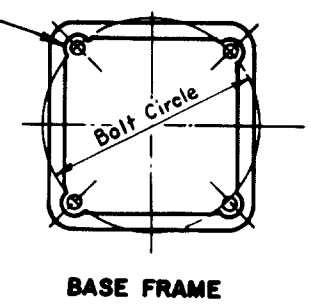
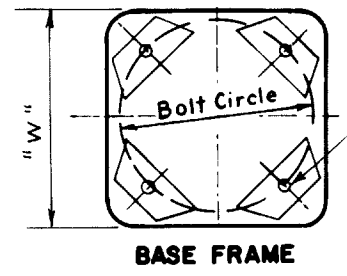
- For pole grounding details see "POLE WIRING," Sheet 174H.
- Type AT-A base shall normally be used with anchor base poles having diameters of 6 inches through 9.2, inches inclusive, and mounting heights through 41.7 feet.
- Type AT-C base must be used for anchor base poles having diameters of 9.5 inches and 10 inches and mounting heights through 51.7 except for exclusions listed below:
  - a All double-arm poles with mounting heights of 50 feet.
  - b All single-arm poles with mounting heights of 50 feet and arm lengths of 25 feet and 30 feet.
  - c All double-arm poles with mounting heights of 45 feet and arm lengths of 25 feet and 30 feet.
  - d All single-arm poles with mounting heights of 45 feet and arm length of 30 feet.
- On excepted poles above, transformer bases of material other than cast aluminum shall be used.
- U-bolt lengths shown in TABLE NO.5 are developed lengths and may vary  $\pm 1/2$ ". Lengths are for 1", 1 1/4", 1 1/2" and 1 3/4" diam. bolts. Lengths shown are for bridges with sidewalk railing. For bridges having a standard roadway railing increase these lengths by 7 inches.
- For anchor bolt data when transformer bases are to be mounted on bridge pilasters see TABLE NO.1 and TABLE NO.2.



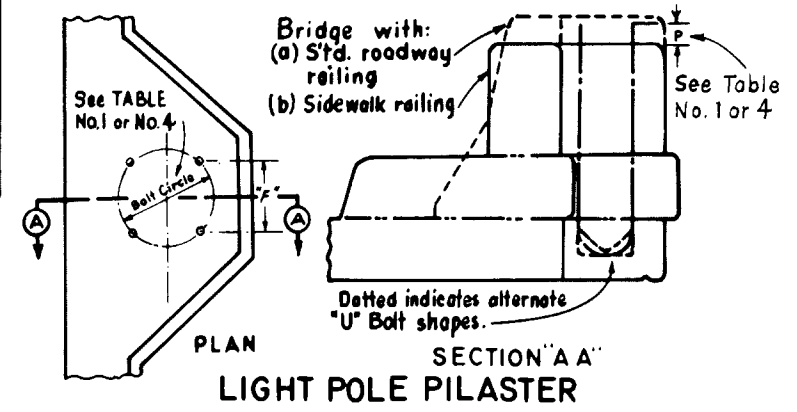
SHAFT SIZE	"T"	"S"	"W"	BOLT CIRCLE	"P"
6.0" thru 9.2"	3.4" min.	13" sq.	16" sq.	15"	4 1/2"
8.5" thru 10"	1 1/4" min.	15" sq.	18" sq.	17 1/4"	4 1/2"
11" and 12"	1 1/4"	17" sq.	25" sq.	22"	4 1/2"

SHAFT SIZE	POLE GAUGE NO.		
	11	7	3
6.5"	1" $\phi$ X 40"	1" $\phi$ X 40"	1" $\phi$ X 40"
7"			1" $\phi$ X 48"
7.5"			1" $\phi$ X 48"
8"			1" $\phi$ X 48"
8.5"	1 1/4" $\phi$ X 48"	1 1/4" $\phi$ X 48"	1 1/4" $\phi$ X 48"
9"			1 1/4" $\phi$ X 60"
9.5"	1 1/2" $\phi$ X 60"	1 1/2" $\phi$ X 60"	1 1/2" $\phi$ X 60"
10"			1 1/2" $\phi$ X 60"
11"	1 1/2" $\phi$ X 60"	1 1/2" $\phi$ X 60"	1 1/2" $\phi$ X 60"
12"			1 1/2" $\phi$ X 60"

TYPE	"P"	"S"	"W"	BOLT CIRCLE	SHAFT SIZE
AT-A	4 1/2"	13"	16 3/8"	15"	SEE NOTE (2)
AT-C	4 1/2"	14 5/8"	17 1/4"	17 1/4"	SEE NOTE (3)



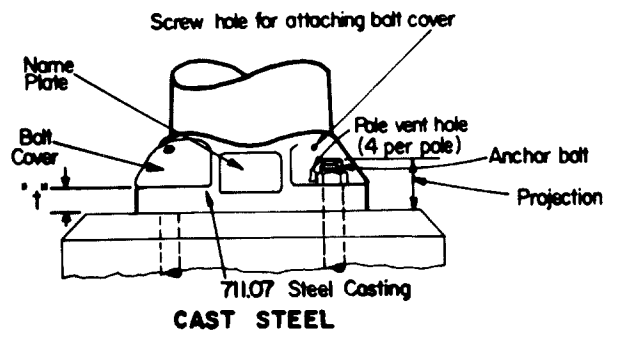
SHAFT SIZE	"F"	U-BOLT #	LENGTH
6.5"	6 3/4"	75"	
7.0"	7 1/16"	75"	
7.5"	7 7/16"	76 1/2"	
8.0"	7 3/4"	76 1/2"	
8.5"	8 1/8"	76 1/2"	
9.0"	8 3/8"	78"	
9.5"	9 3/16"	78"	
10.0"	9 9/16"	79 1/2"	
11.0"	10 3/8"	79 1/2"	
12.0"	11 1/2"	81"	



### STEEL TRANSFORMER BASES

### CAST ALUMINUM TRANSFORMER BASES SHALL NOT BE USED WHERE OVERHEAD WIRING IS REQUIRED

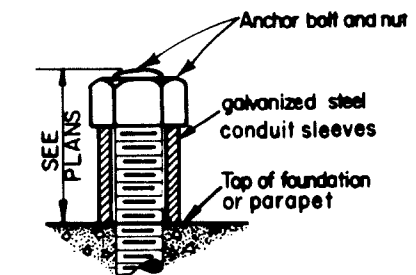
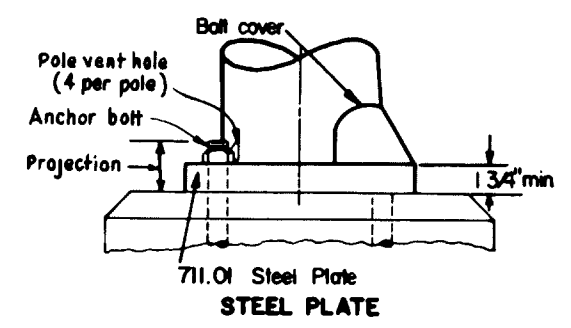
### BRIDGE MOUNTED POLES



SHAFT SIZE	BOLT CIRCLE	BOLT PROJ.	"t"	POLE GAUGE		
				NO.11	NO.7	NO.3
6.5"	9 1/2"	2 1/8"	7/8"			
7"	10"	2 1/4"	1"			
7.5"	10 1/2"	2 5/8"	1 1/8"			
8"	11"	2 5/8"	1 3/16"	1" X 40"		1 1/4" X 48"
8.5"	11 1/2"	2 3/4"	1 1/4"			
9"	12 1/2"	3"	1 5/16"			
9.5"	13"	3 1/8"	1 3/8"	1 1/4" X 48"		1 1/2" X 60"
10"	13 1/2"	3 3/8"	1 7/16"			
11"	15"	3 5/8"	1 5/8"	1 1/2" X 60"		1 3/4" X 90"
12"	16"	4"	1 1/2"			

\* Based on cast steel anchor bases only. Plate bases may deviate.

### STEEL ANCHOR BASES



**ANCHOR BOLT COVER**  
Note: To be placed on all light pole anchor bolts provided for future lighting installations.

BUREAU OF DESIGN SERVICES DIVISION OF HIGHWAYS OHIO DEPARTMENT OF TRANSPORTATION	
<b>HIGHWAY LIGHTING</b>	
POLE BASE DETAILS	
<b>HL-3</b>	
APPROVED: <i>[Signature]</i> Engineer of Design Services	

# STRUCTURE LIGHTING I

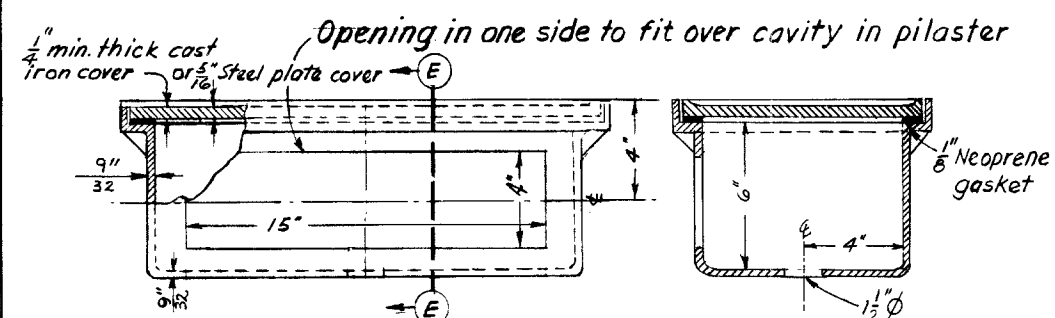
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

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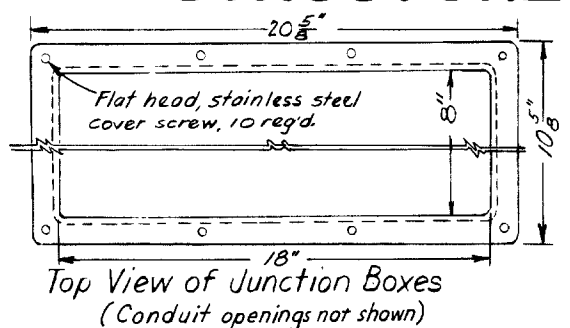
LORAIN COUNTY  
LOR-90-9.48

## NOTES

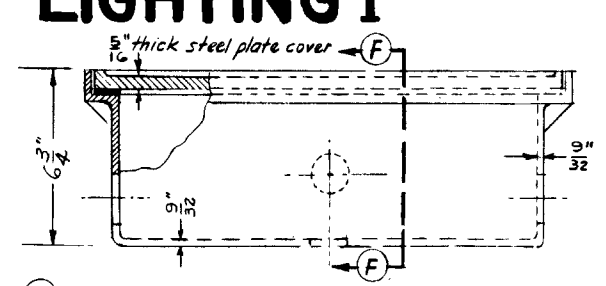
1. For grounding details see "STRUCTURE GROUNDING".
2. For anchor bolt details see "POLE BASE DETAILS".
3. Junction Boxes shall conform to 713.10, except that base material composition of galvanized steel plate covers shall conform to ASTM A-242 or A-36.
4. All conduit openings in junction boxes shall be bossed, drilled and tapped.
5. Payment for pilaster reinforcing steel and concrete shall be included in 509 and 511 items for the structure.
6. Where conduit is provided for future installation of poles the conduit shall be capped.



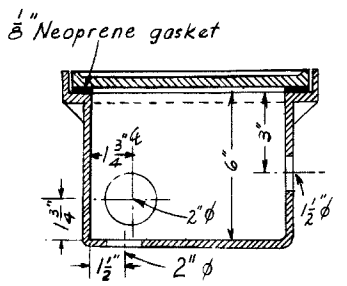
Section "E-E"



Top View of Junction Boxes  
(Conduit openings not shown)

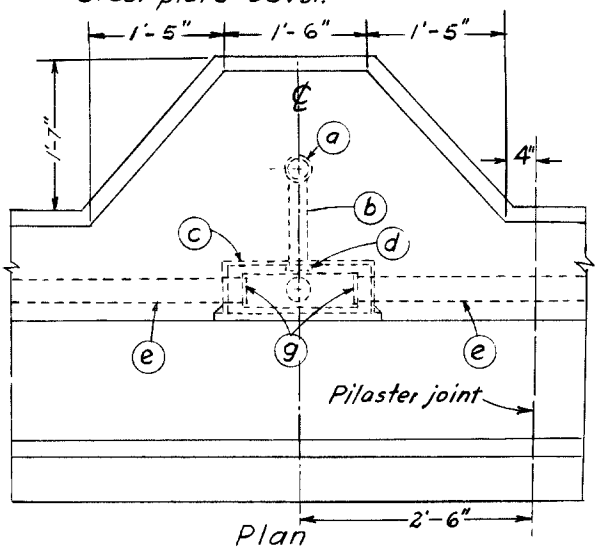


Type II Junction Box with steel plate cover only



Section "F-F"

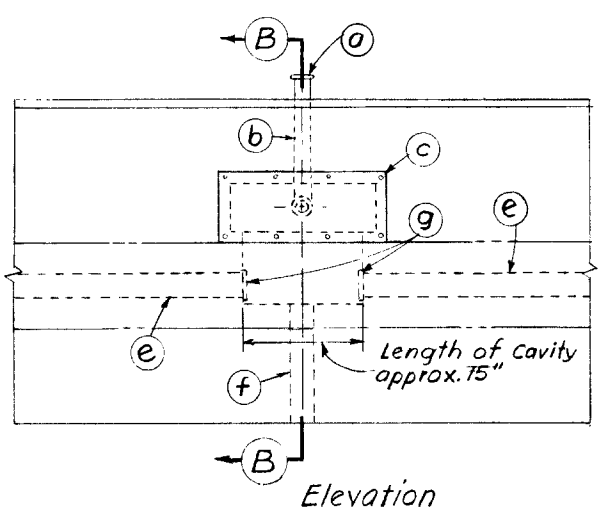
(C) Type I Junction Box with cast iron or steel plate cover.



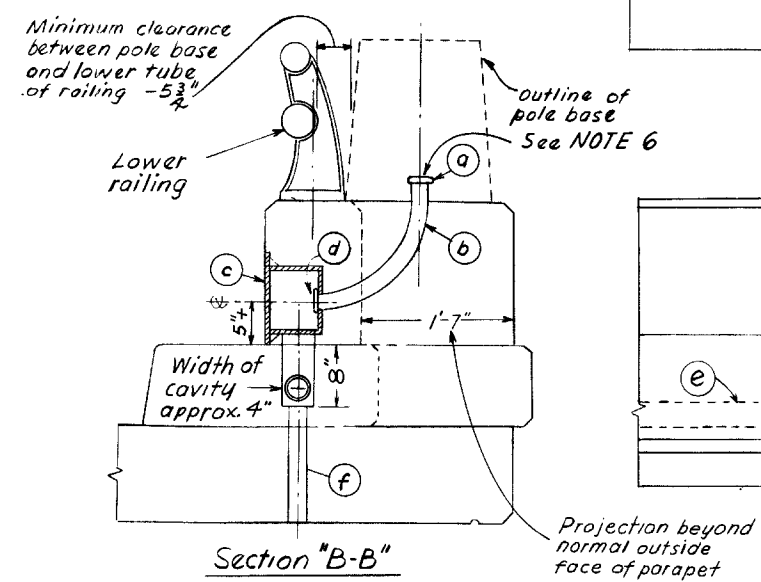
Plan

### List of Items Shown Below

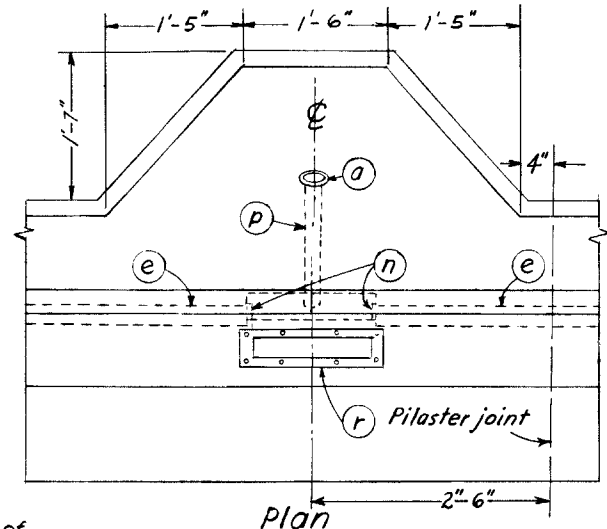
- (a) Bushing for 1 1/2 inch conduit
- (b) Modified 1 1/2 inch conduit long radius 90 degree elbow, 713.04, Type III
- (c) Type I Junction Box
- (d) Bushing and locknut for 1 1/2 inch conduit
- (e) 2 inch conduit, 713.04, Type III
- (f) 2 inch conduit drain
- (g) Bushing for 2 inch conduit



Elevation



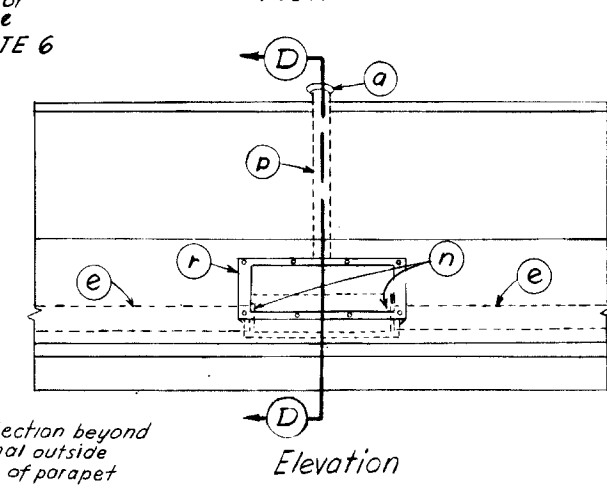
Section "B-B"



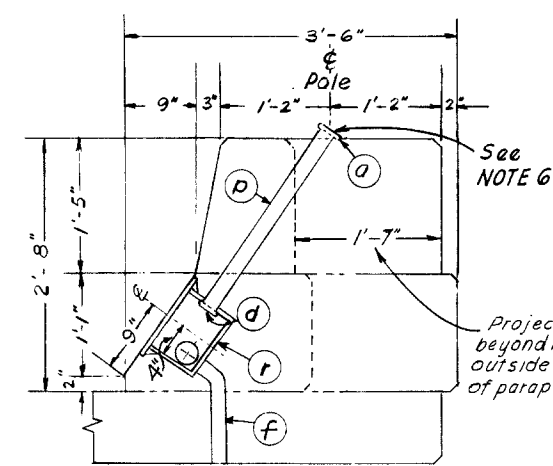
Plan

### List of Items Shown Below

- (a) Bushing for 1 1/2 inch conduit
- (d) Bushing and locknut for 1 1/2 inch conduit
- (e) 2 inch conduit, 713.04, Type III
- (f) 2 inch conduit, field bend to form drain
- (n) Bushings & locknuts for 2 inch conduit
- (p) 1 1/2 inch conduit, 713.04, Type III
- (r) Type II Junction Box



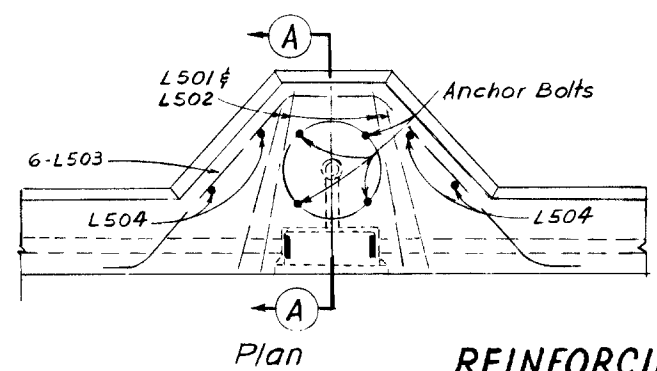
Elevation



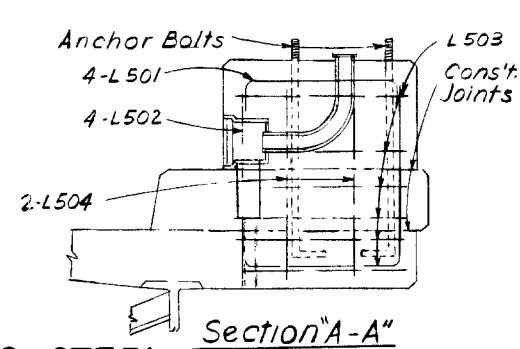
Section "D-D"

REINFORCING STEEL LIST - ONE PILASTER									
Mark	No.	Length	Weight	Shape	Type	A	B	C	D
L501	4	3'-1"	13	B	1	2'-1"	2'-9"	2'-9"	
L502	4	7'-4"	31	B	1	2'-1"	2'-9"	2'-9"	
L503	6	8'-0"	50	B	3	2'-1"	1'-4"	2'-1"	0'-6"
L504	4	2'-9"	11	S					
L505	4	2'-10"	12	B	1	1'-10"			
L506	4	8'-1"	34	B	2	2'-4"	3'-0"	3'-0"	0'-6 1/2"
L507	6	7'-3"	45	B	3	1'-10"	1'-4"	1'-10"	0'-6"
L508	4	3'-0"	13	S					

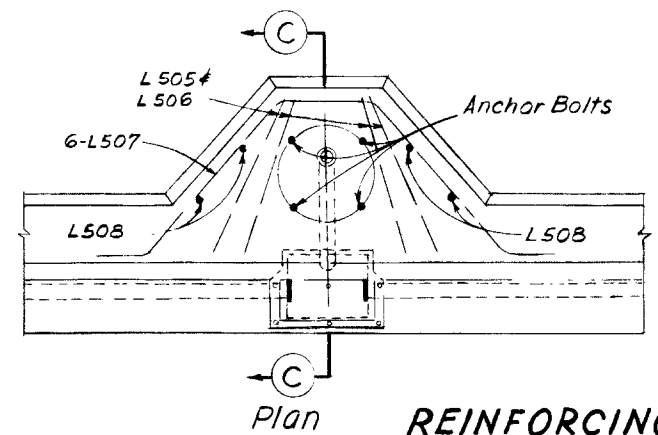
BAR SIZE is indicated in the bar mark. The first digit where three digits are used indicates the bar size number. For example: L501 is a No.5 size bar.



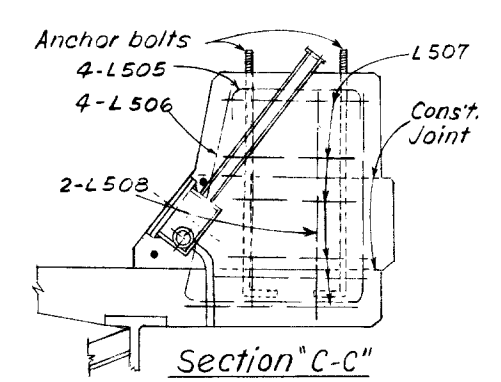
Plan



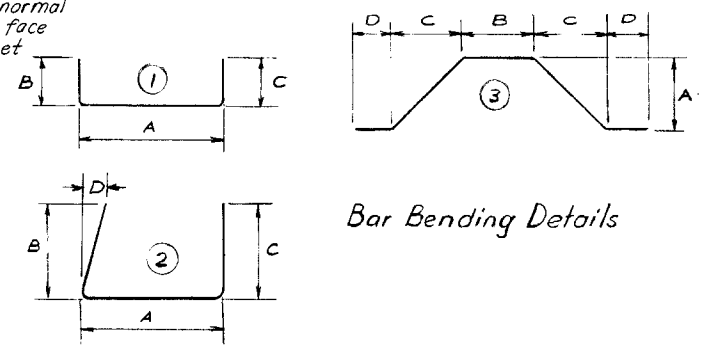
Section "A-A"



Plan



Section "C-C"



Bar Bending Details

## REINFORCING STEEL LIGHT POLE PILASTER FOR BRIDGE WITH SIDEWALK RAILING

## REINFORCING STEEL LIGHT POLE PILASTER FOR BRIDGE WITH STANDARD ROADWAY RAILING

Rev. 4-25-79

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

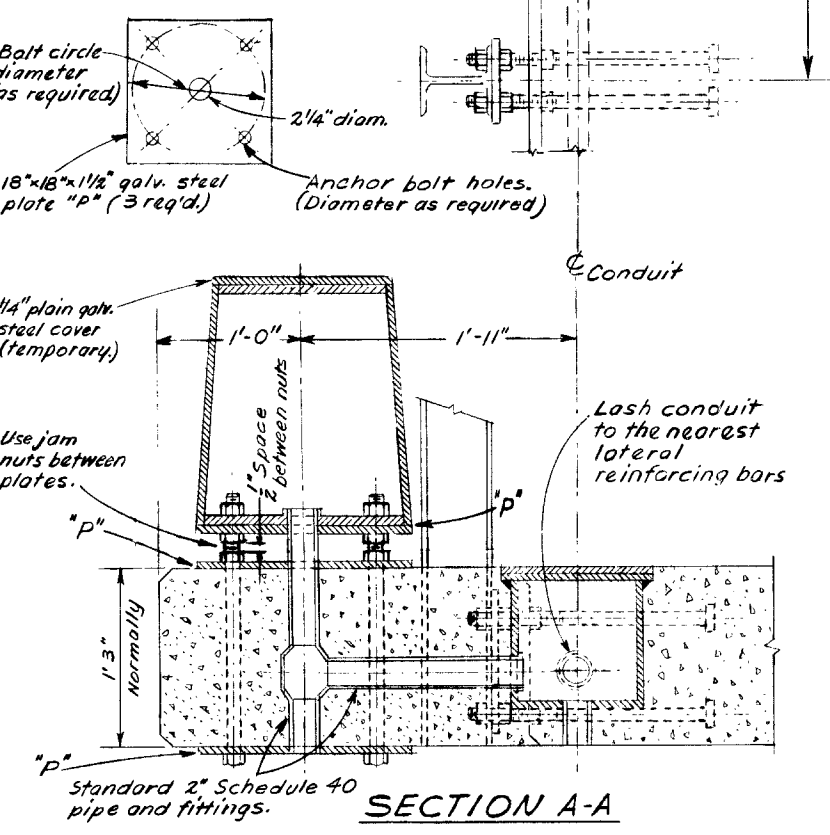
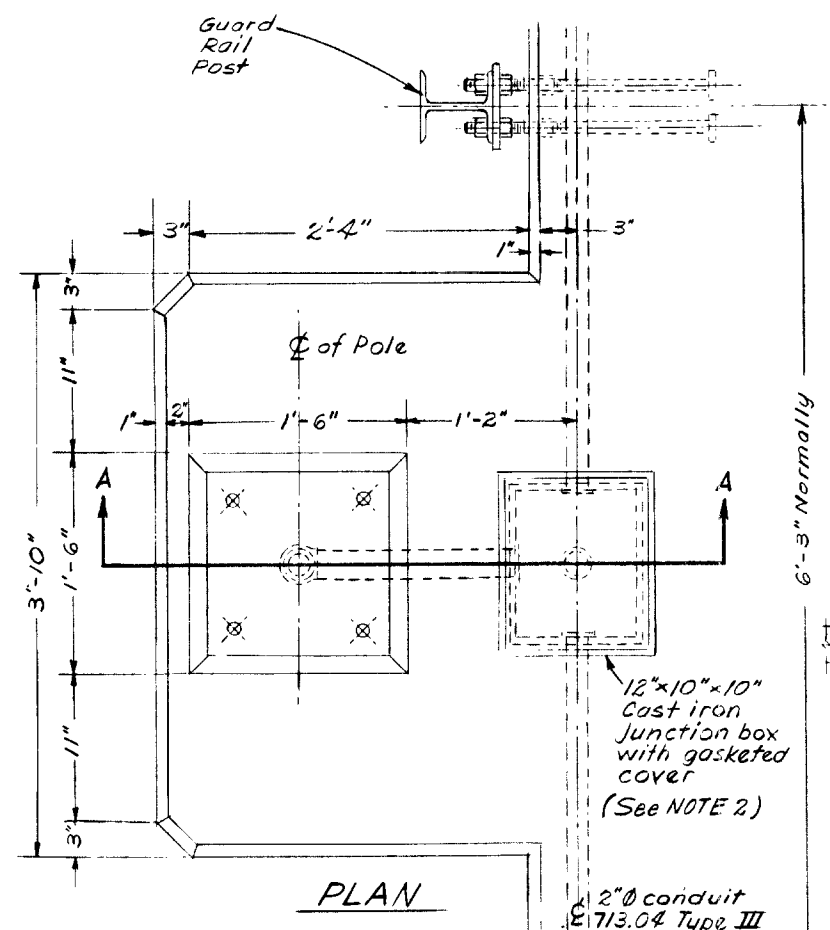
174E  
283

LORAIN COUNTY  
LOR-90-9.48

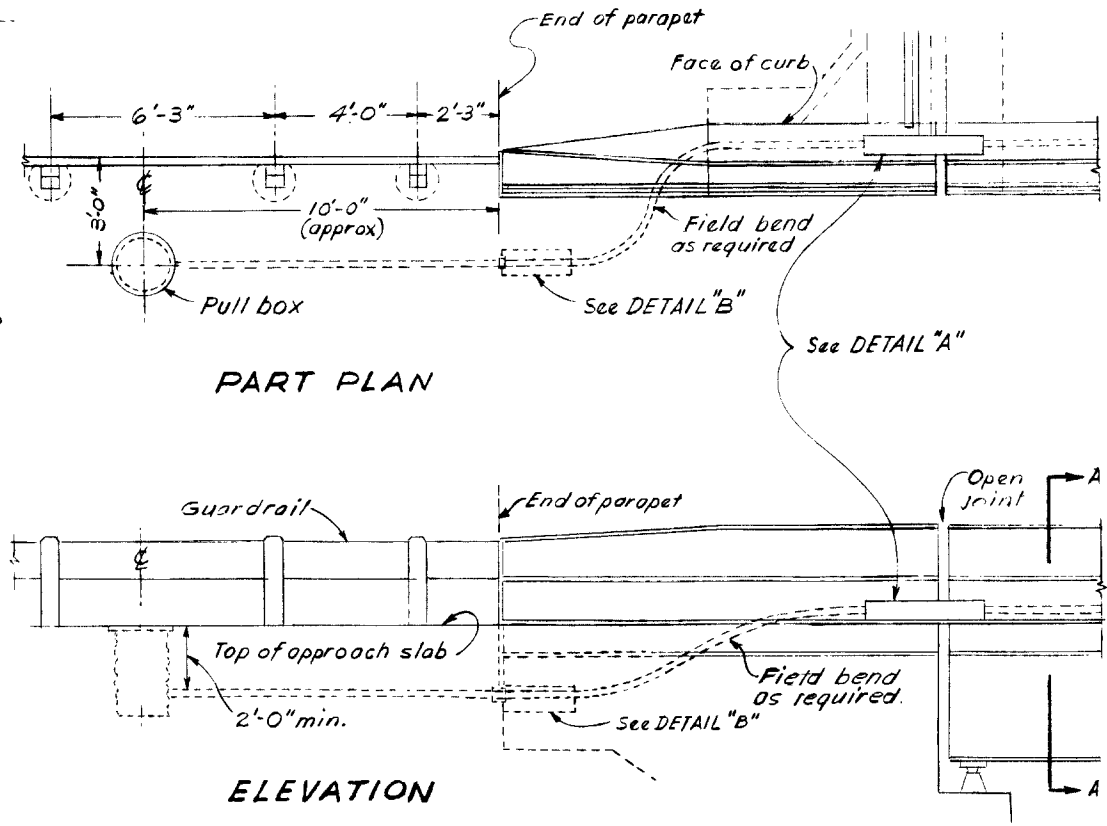
**NOTES**

1. Fill space around the conduit and/or fittings within the cavity with an approved synthetic, compressible material.
2. All conduit openings in junction boxes shall be bossed drilled and topped. Covers shall be 1/4" min. thick cast iron.

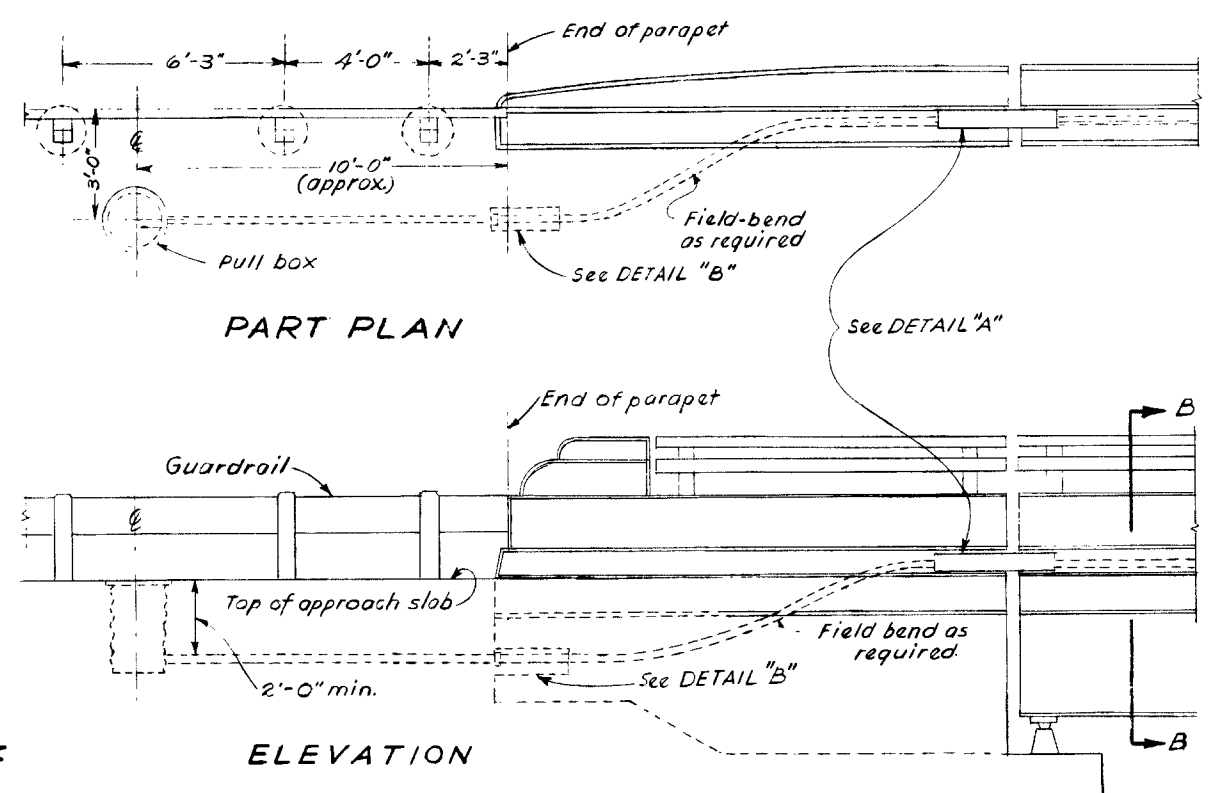
# STRUCTURE LIGHTING II



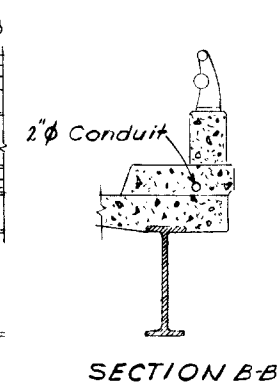
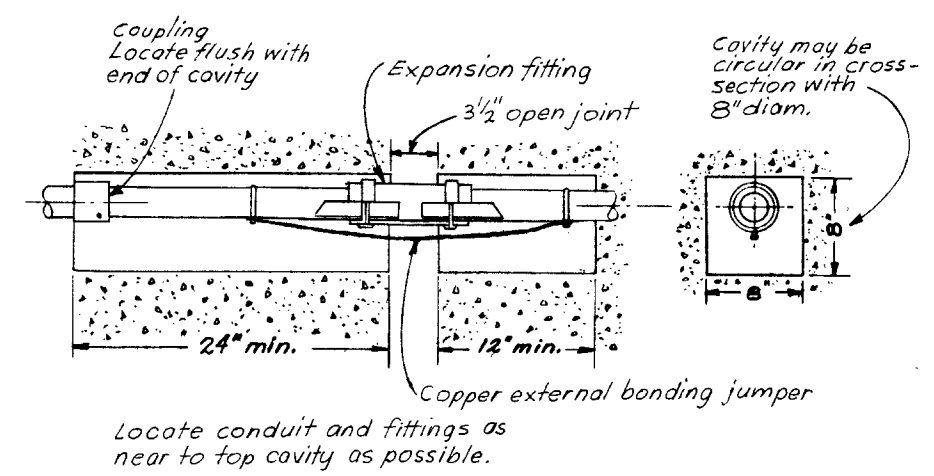
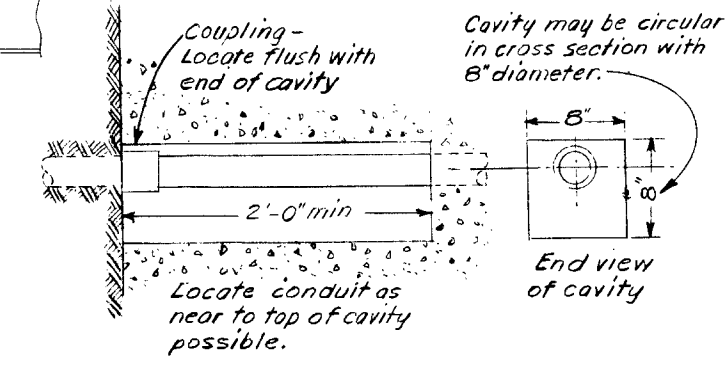
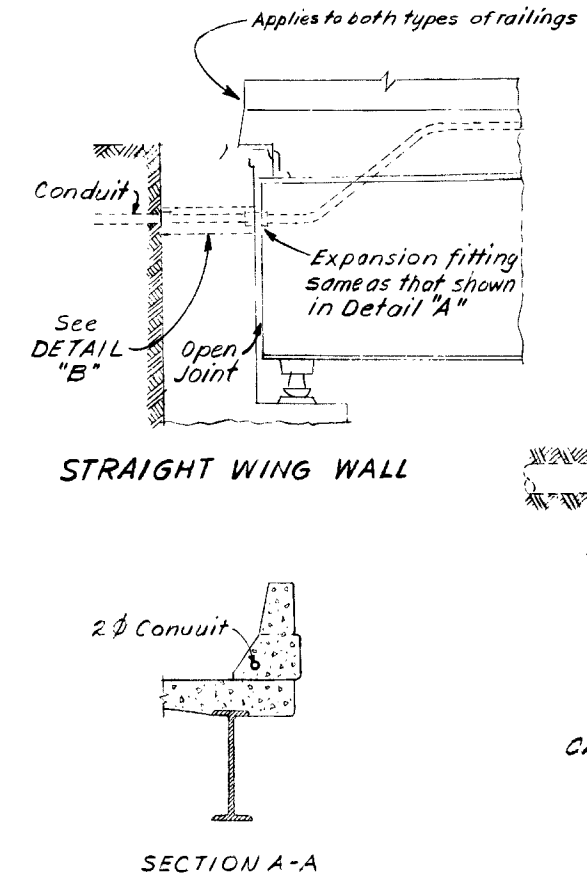
**LIGHT POLE PILASTER FOR BRIDGE WITHOUT CURBS AND WITH HIGHWAY GUARD RAIL**



**CONDUIT DETAILS FOR BRIDGE WITH STANDARD ROADWAY RAILING**



**CONDUIT DETAILS FOR BRIDGE WITH SIDEWALK RAILING**



AB-D-6B

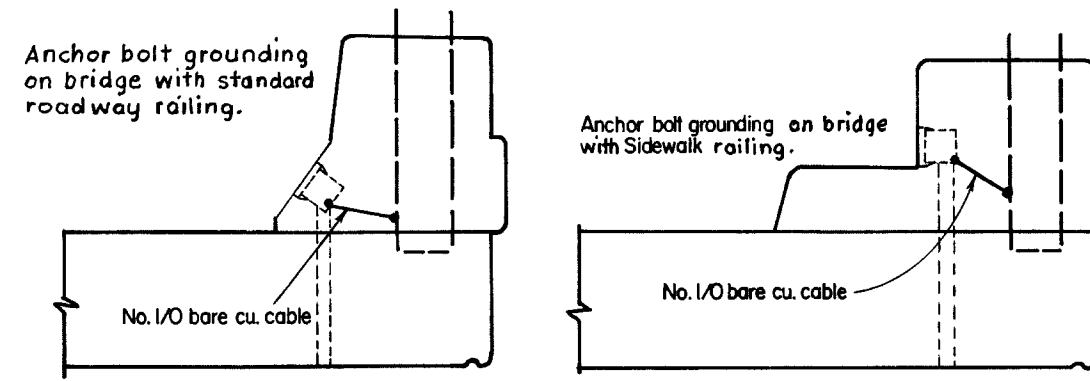
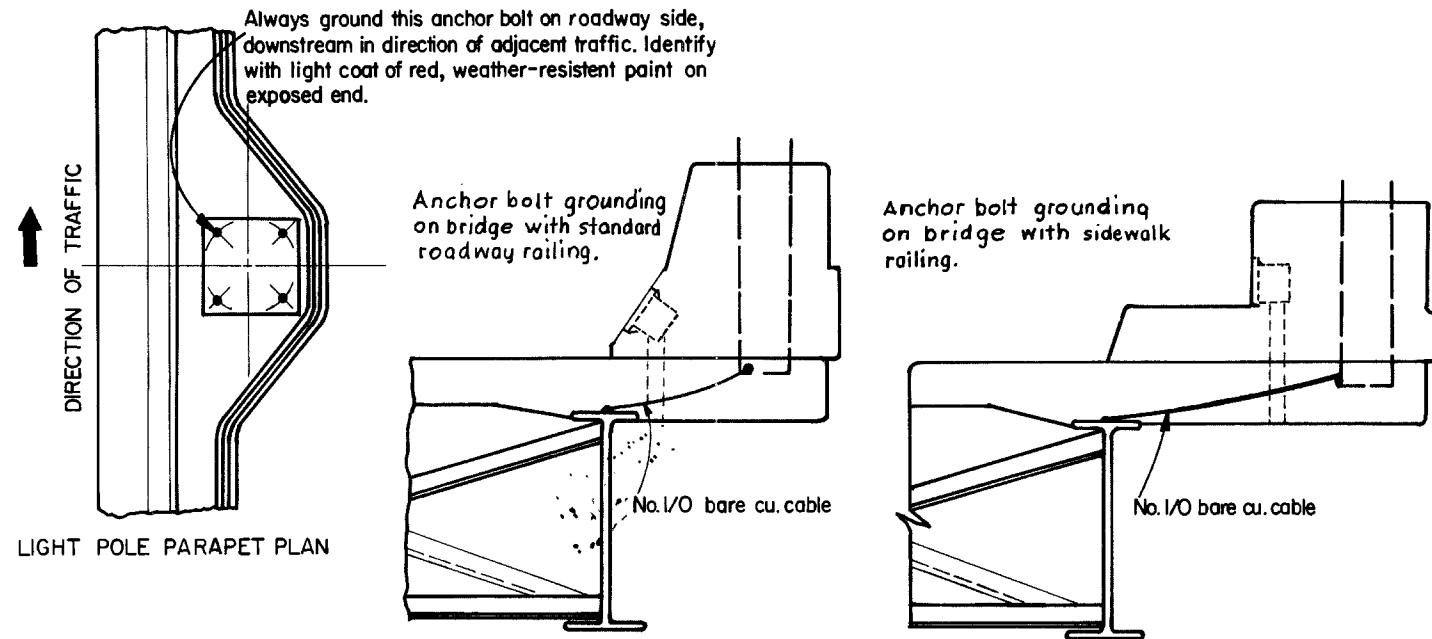
Rev. 4-25-73

# STRUCTURE GROUNDING

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

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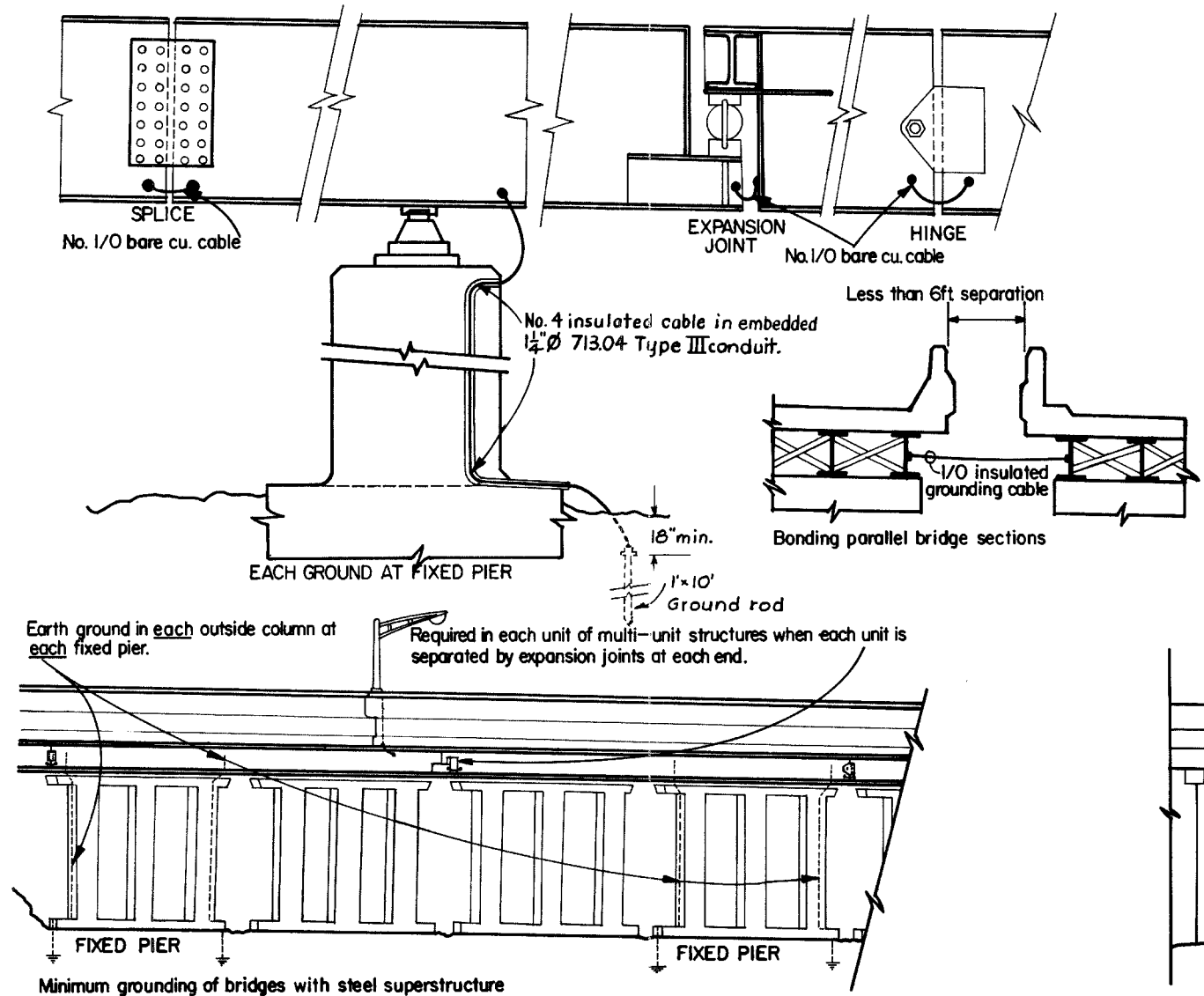
LORAIN COUNTY  
LOR-90-9,48



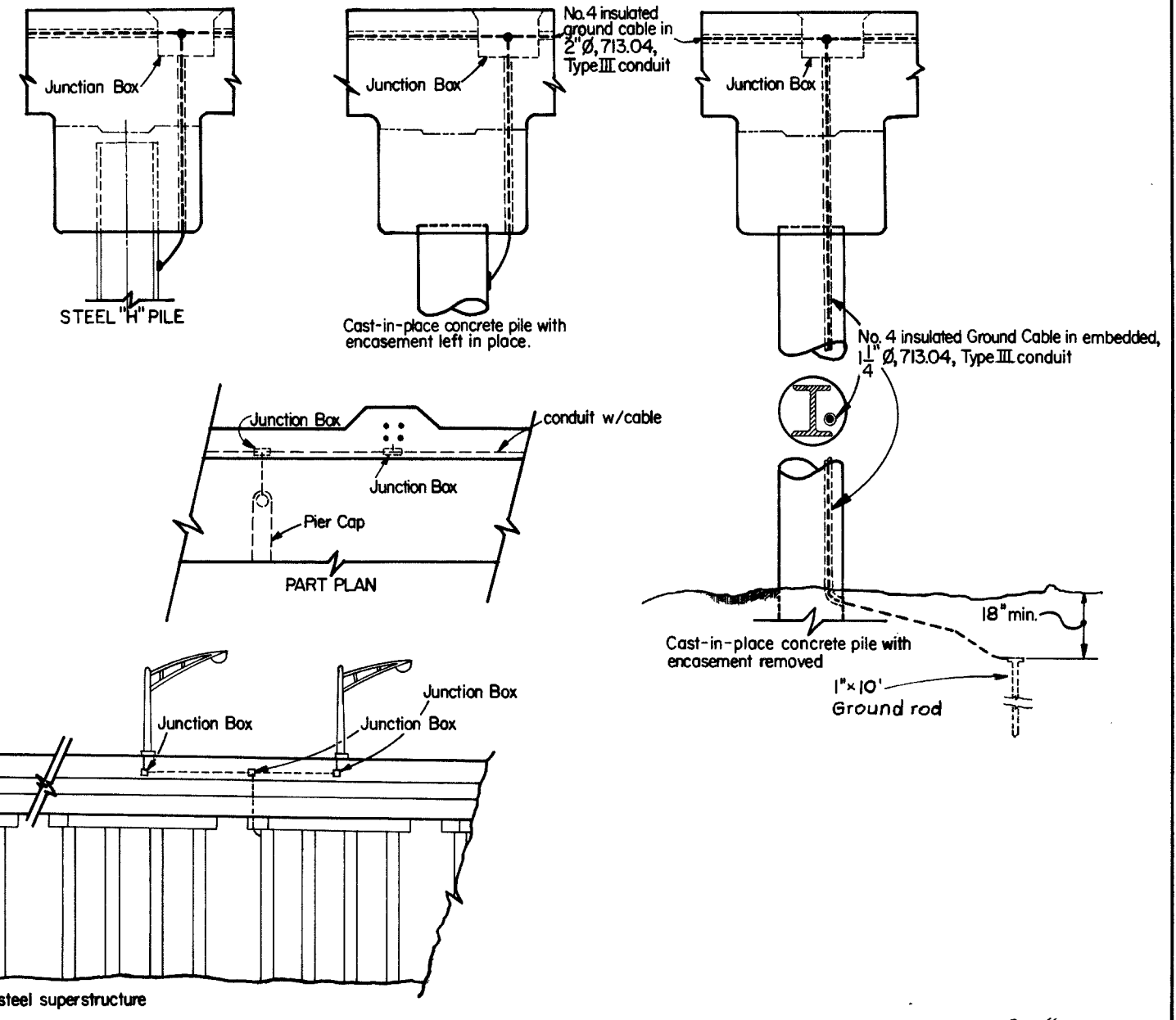
## NOTES

- Copper grounding cable shall be connected to structural steel, pile encasement, piling, ground rods and/or light pole anchor bolts by means of exothermic welding. Two coats of insulating varnish shall be applied over the exothermic weld and exposed cable.

## STEEL BEAM BRIDGES



## CONCRETE SLAB BRIDGES



AB-C-G-B  
BRUNING 44560 0943

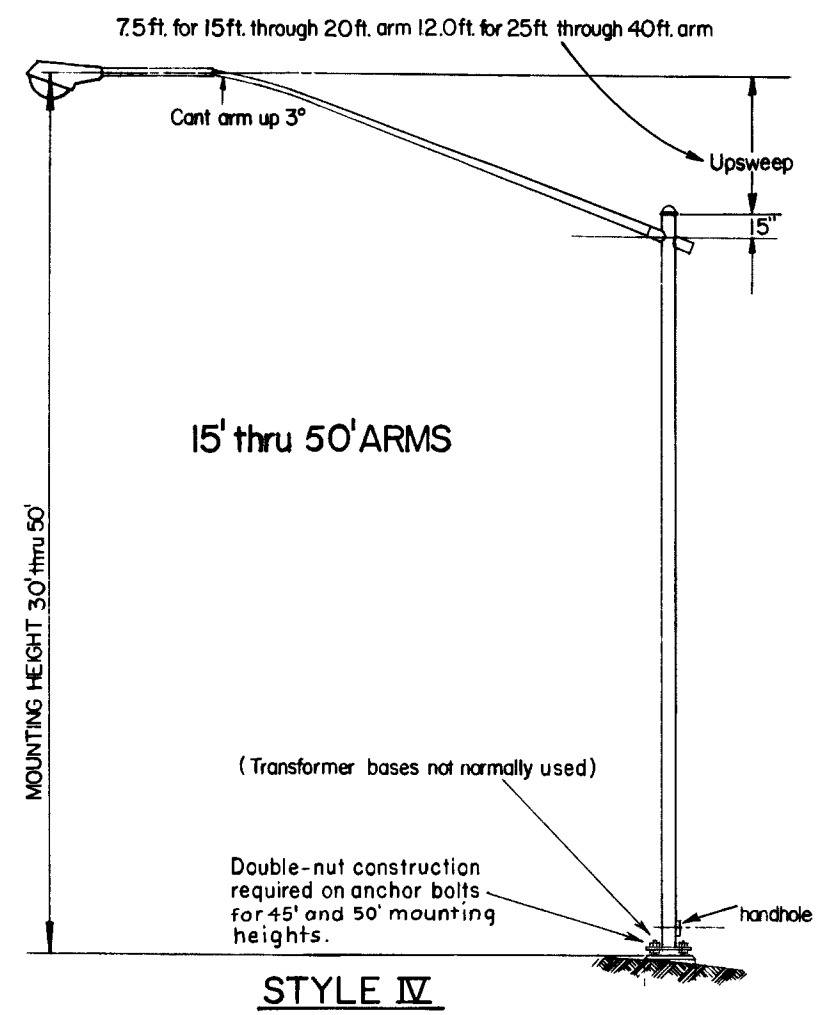
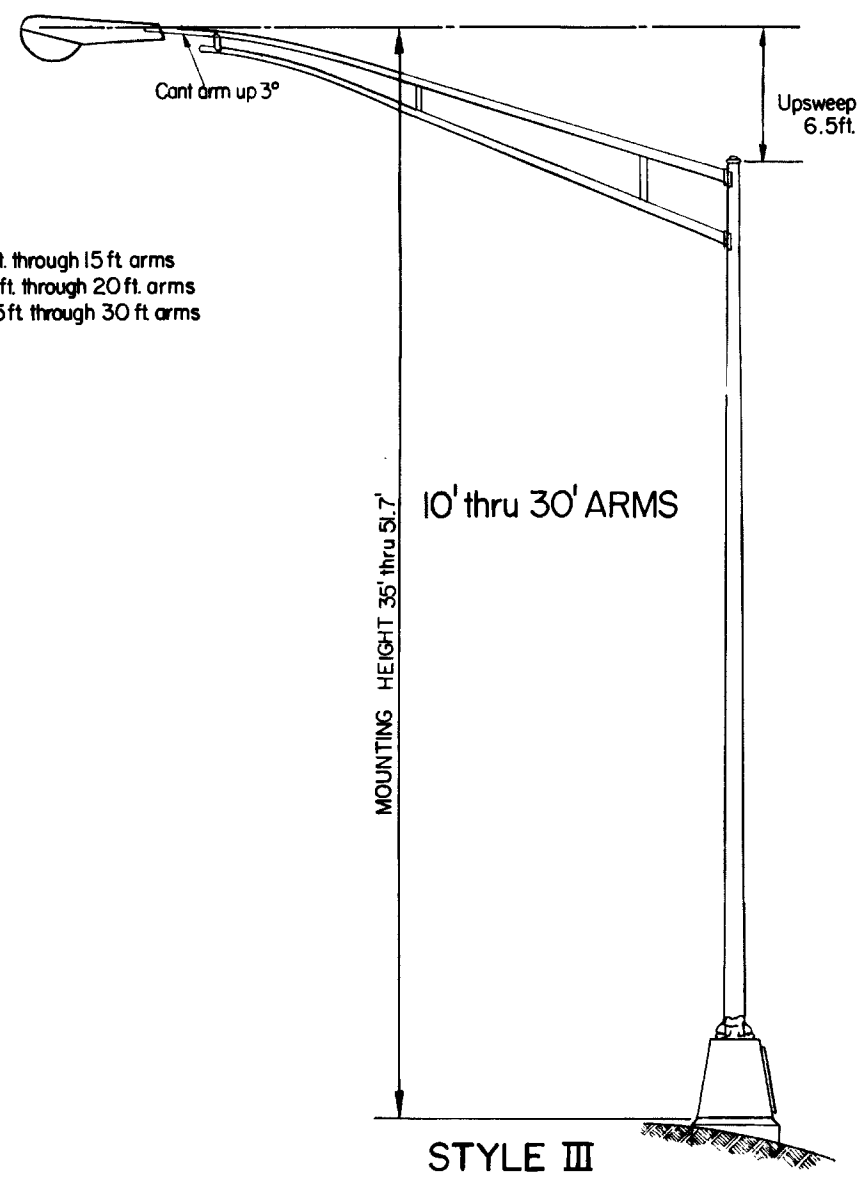
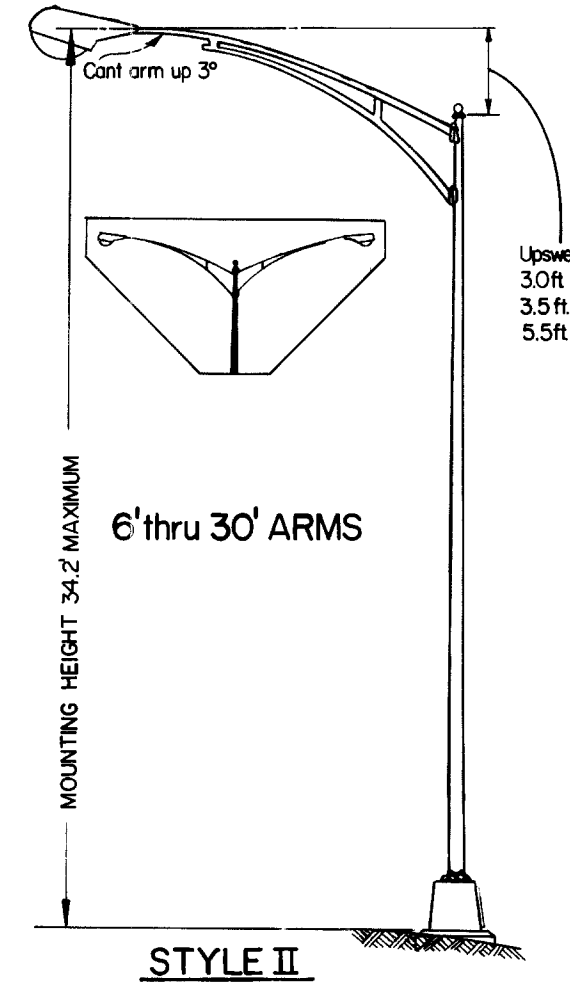
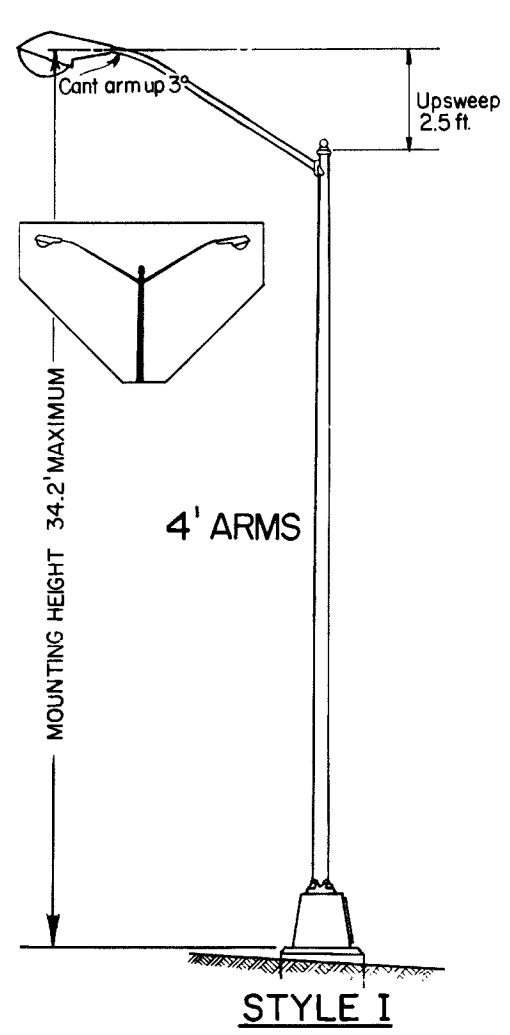
Rev 4-25-73

# LIGHT POLE STYLES

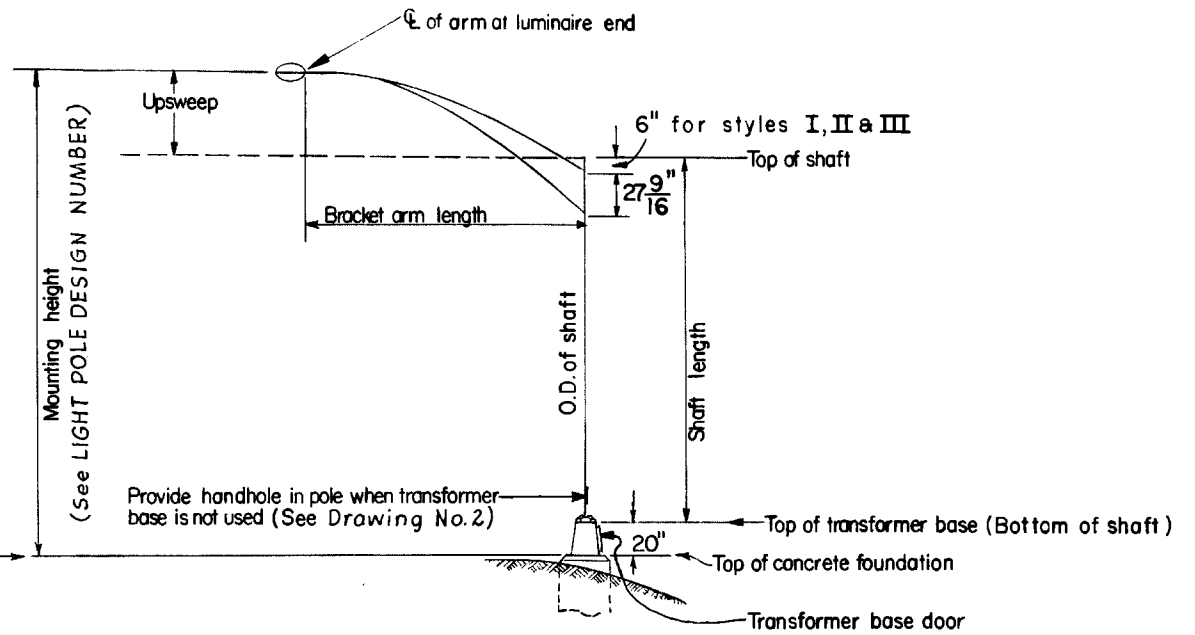
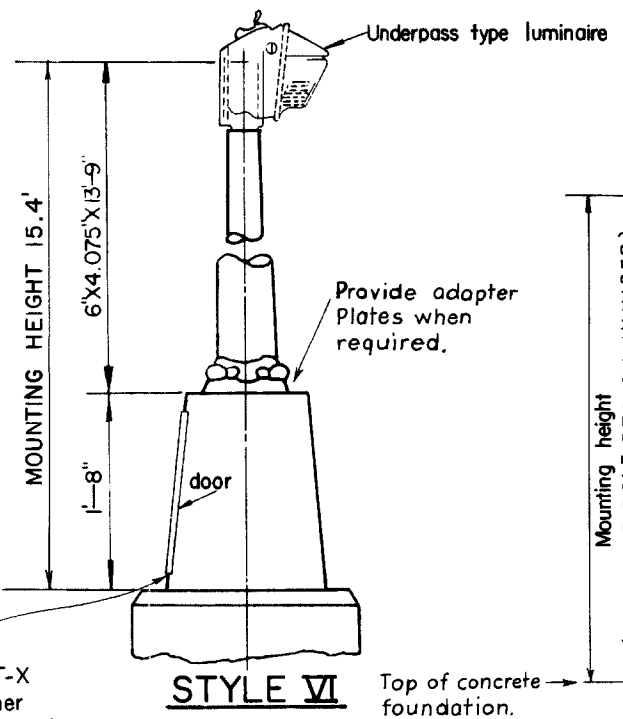
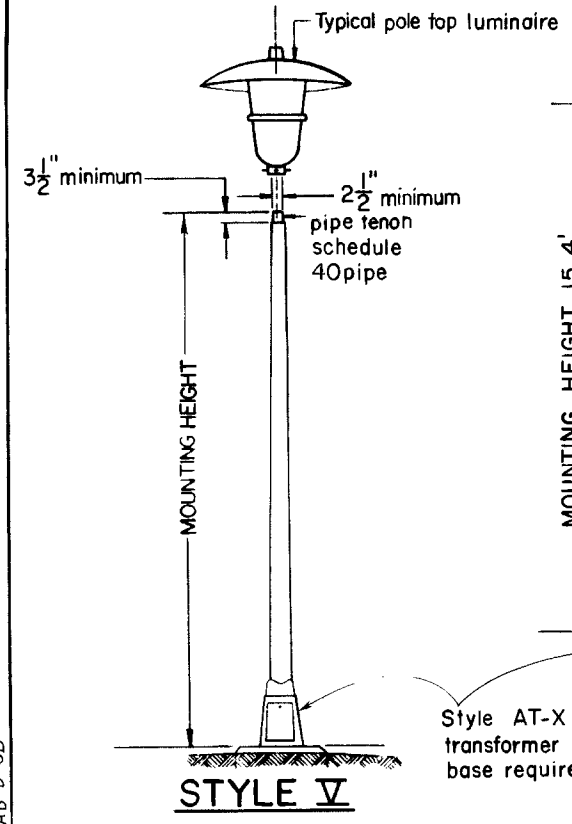
FED. NO. DIVISION	STATE	PROJECT	
2	OHIO		

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LORAIN COUNTY  
LOR-90-9.48



NOTE: Subject to the approval of the Engineer, modification of the ratio of bracket upsweep to arm length is permissible provided the basic pole proportions are maintained as shown.



Base type: A = Anchor  
AT = Aluminum Transformer  
ST = Steel Transformer  
T = Steel or Aluminum Transformer

"B" = Single arm  
"BB" = Double arm  
(If unequal arms EX. 10 B15B)  
"ON" = Post top

Arm Length. (The distance from top of foundation, retaining wall or bridge parapet to the center of the bracket arm at the luminaire end.)

**LIGHT POLE DESIGN NUMBER**

Example: A4B25T

AB-D-GB

Rev. 4-25-73

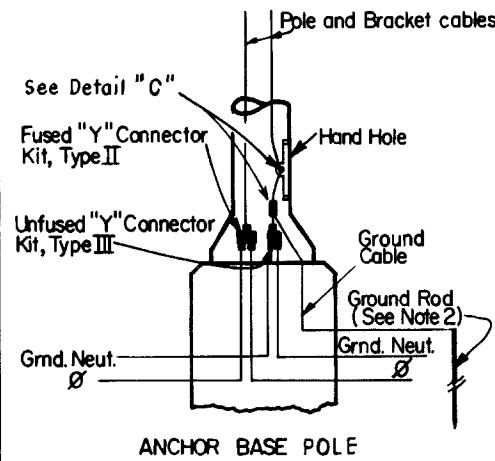
# POLE WIRING

FED. RD. DIVISION	STATE	PROJECT	174H 263
2	OHIO		

LORAIN COUNTY  
LOR-90-9.48

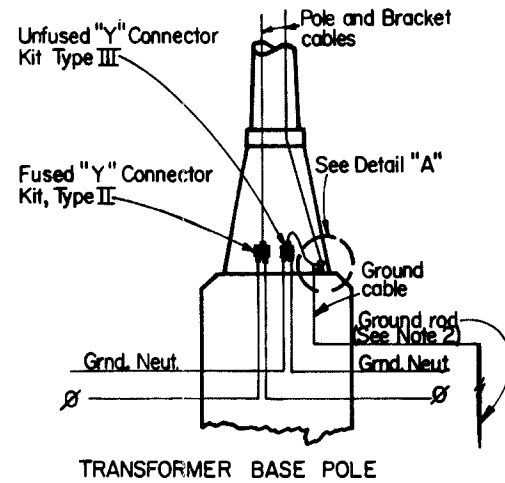
## NOTES

1. Provide sufficient slack in all cables to permit bringing Kits outside of pole base through handhole of anchor base poles or door in transformer base poles.
2. For structure-mounted poles substitute "Structure grounding system" for "ground rod."
3. See Drawing No.13 for fusing details.

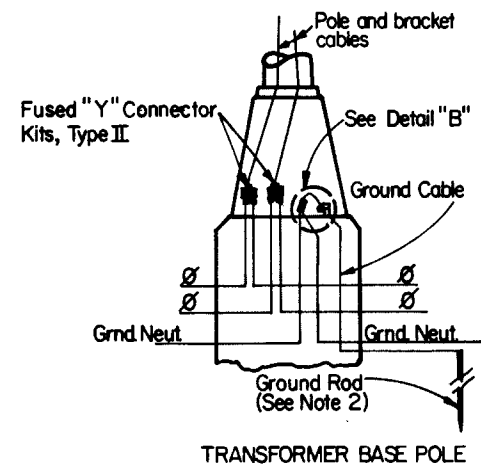


ANCHOR BASE POLE

480 VOLT, TWO-WIRE, GROUNDED NEUTRAL

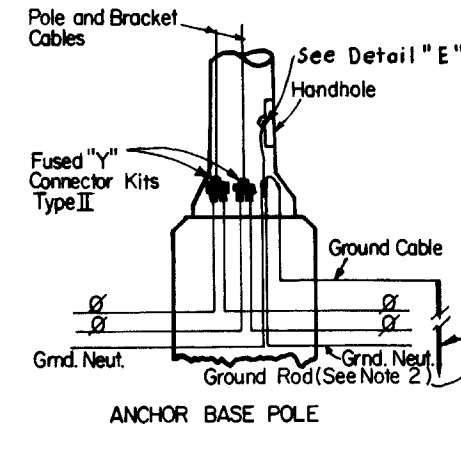


TRANSFORMER BASE POLE



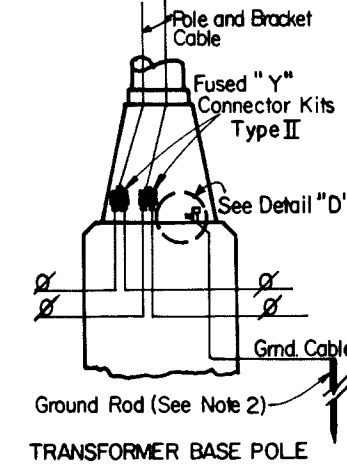
TRANSFORMER BASE POLE

120/240 VOLTS, THREE WIRE, GROUNDED NEUTRAL

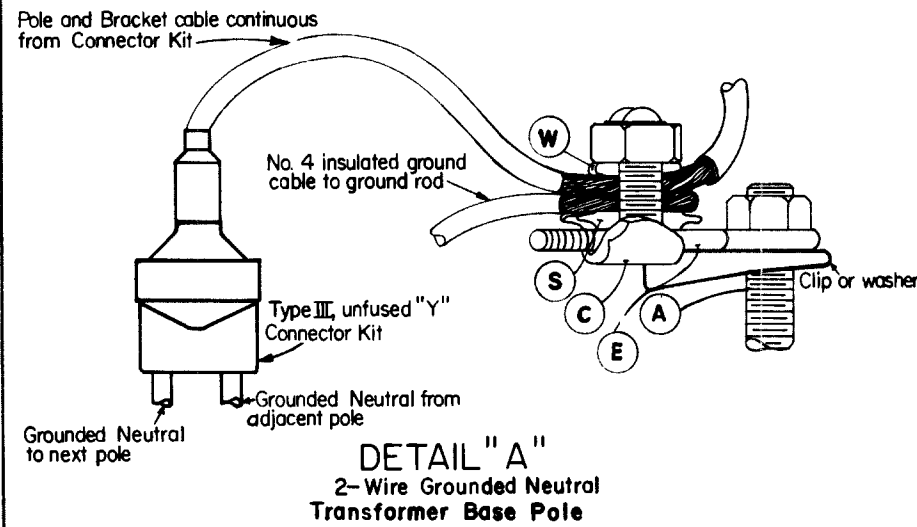


ANCHOR BASE POLE

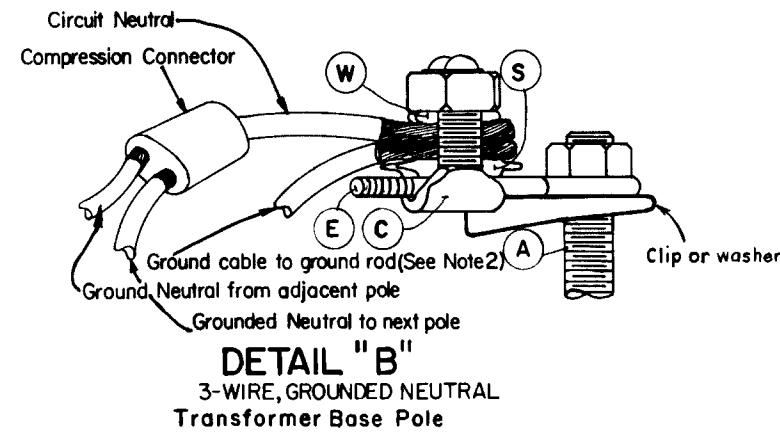
240 or 480 VOLTS, TWO-WIRE, UNGROUNDED



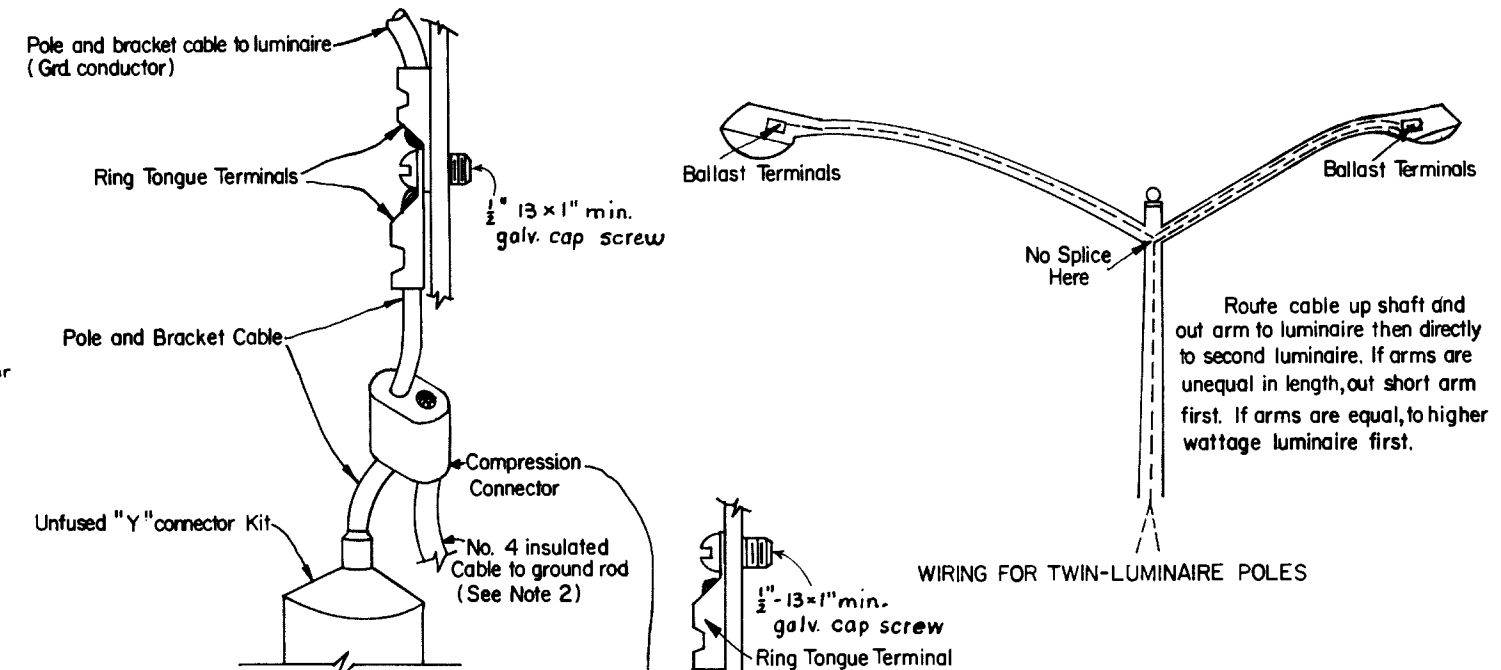
TRANSFORMER BASE POLE



DETAIL "A"  
2-Wire Grounded Neutral  
Transformer Base Pole



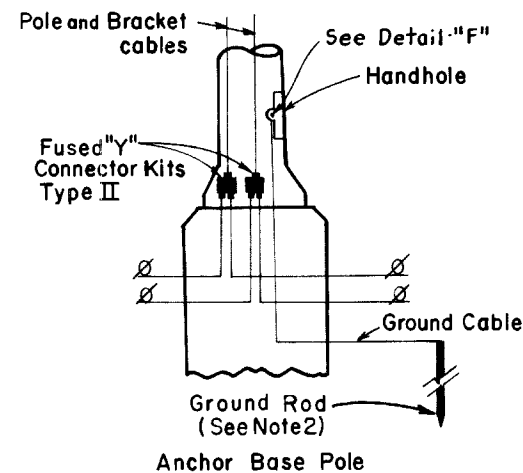
DETAIL "B"  
3-WIRE, GROUNDED NEUTRAL  
Transformer Base Pole



WIRING FOR TWIN-LUMINAIRE POLES

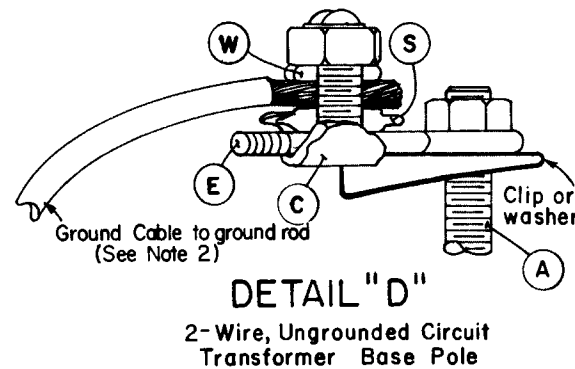
## LEGEND of ITEMS COMMON to DETAILS "A", "B", & "D"

- (A) Anchor Bolt
- (C) Tin Plated Copper Split Bolt Connector with the following components:
  - (S) Spacer (Tin plated)
  - (W) Washer
  - (E) 3/8" X 4" Galv. Steel eyebolt

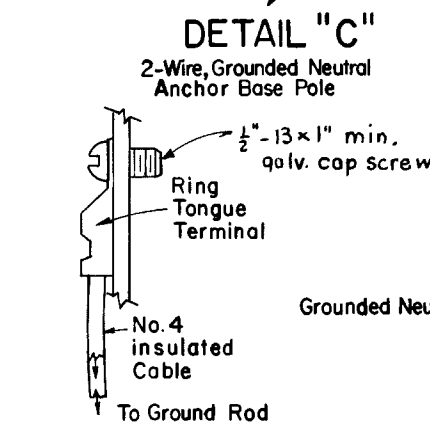


Anchor Base Pole

240 or 480 VOLTS, TWO-WIRE, UNGROUNDED

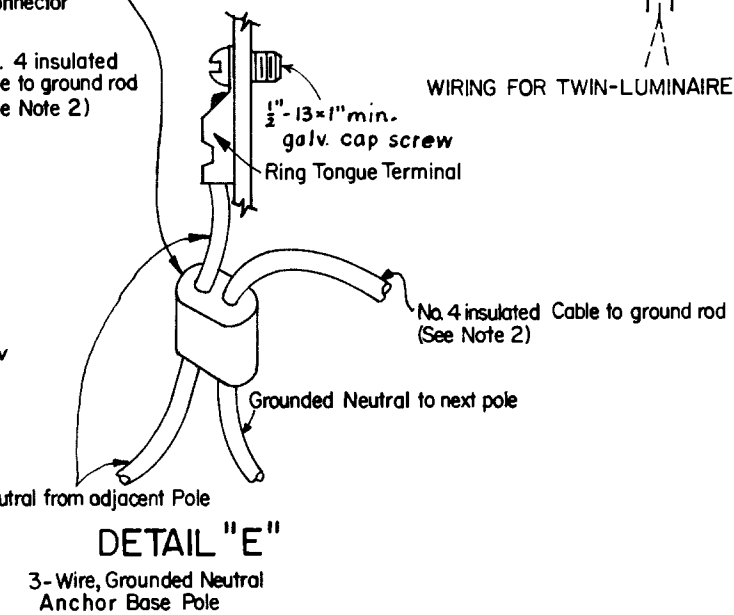


DETAIL "D"  
2-Wire, Ungrounded Circuit  
Transformer Base Pole



DETAIL "C"  
2-Wire, Grounded Neutral  
Anchor Base Pole

DETAIL "F"  
2-WIRE UNGROUNDED



DETAIL "E"  
3-Wire, Grounded Neutral  
Anchor Base Pole



# PULL BOX DETAILS

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

1741  
283

LORAIN COUNTY

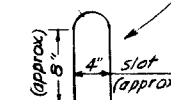
LOR-90-9.48

## NOTES

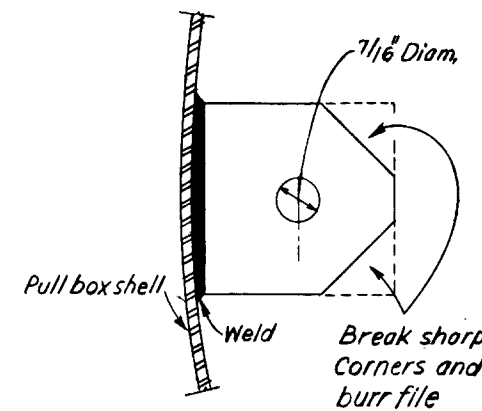
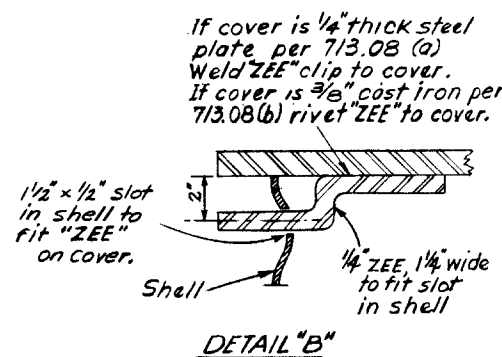
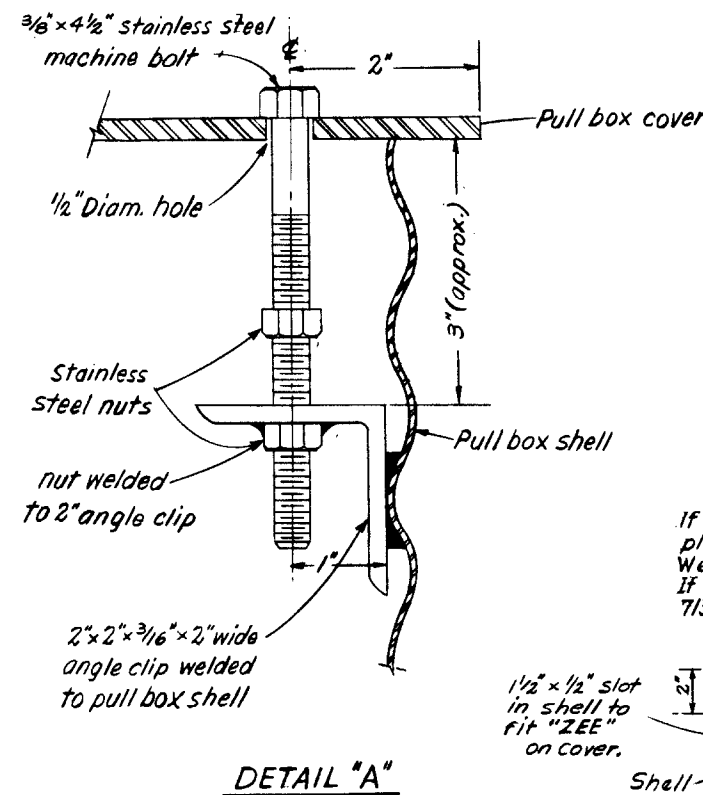
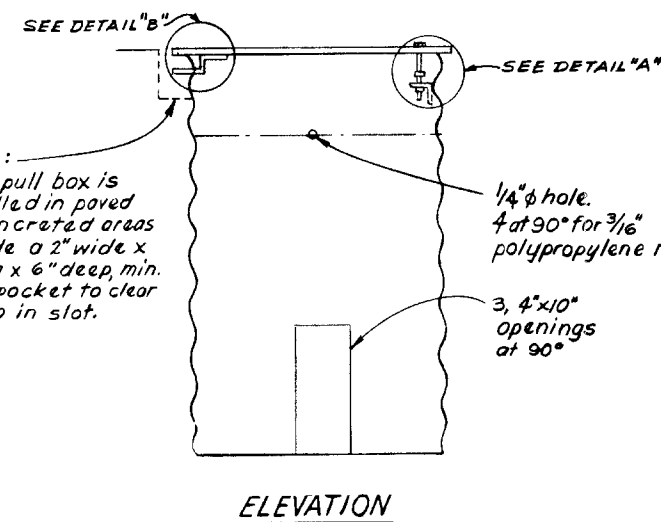
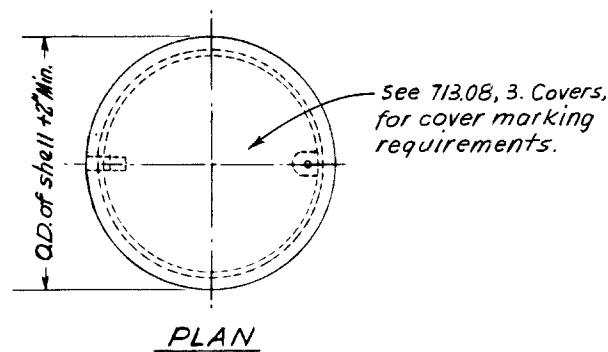
1. Approximate Air Bell sizes:

Pullbox Diameter	Air Bell Diameter	Air Bell Height
18"	16 3/4"	20 1/2"
24"	20 1/2"	28 1/2"

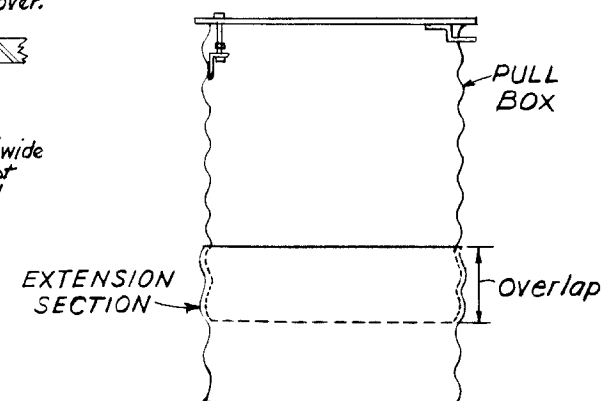
2. When required to provide a clear opening for the duct cable the air bell for the 24" diameter pullbox shall be notched as shown



3. Underdrain tile shall be installed only when specified or directed by the Engineer.

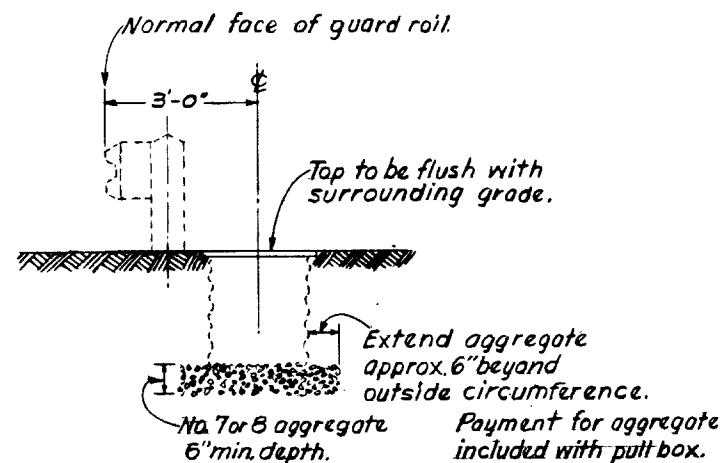


PLAN OF ANGLE CLIP

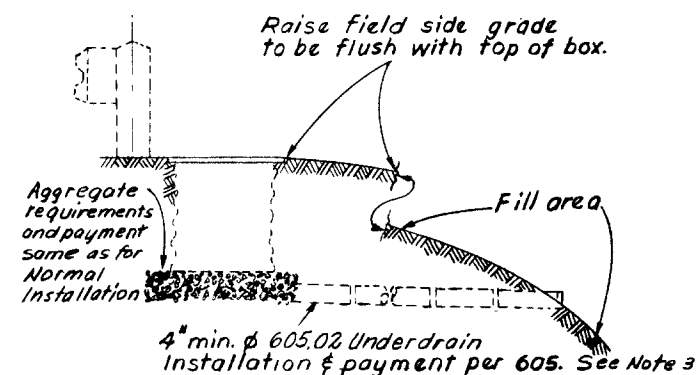


GRADE ADJUSTMENT EXTENSION SECTION

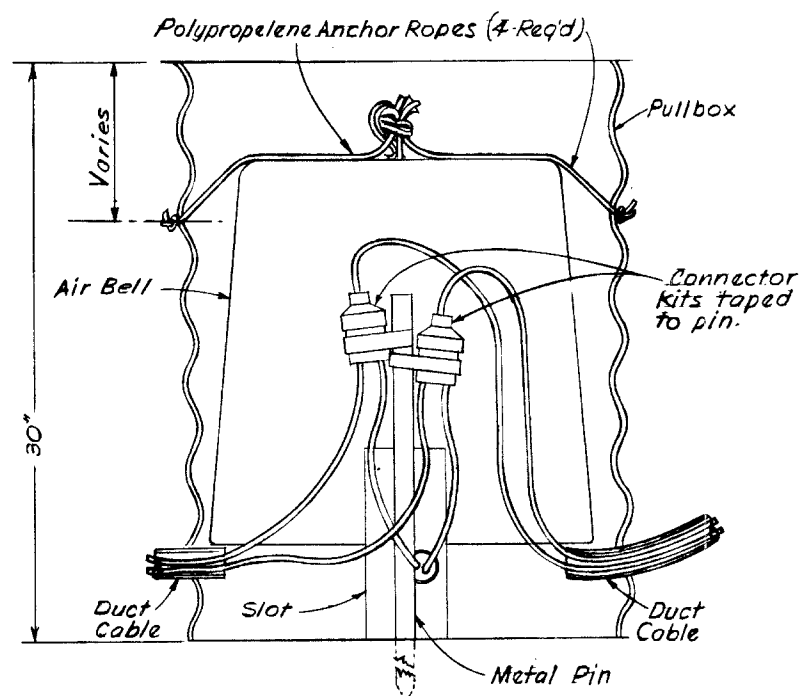
## CORRUGATED STEEL PULL BOX



NORMAL INSTALLATION



ADJACENT TO FILL AREA



INTERIOR VIEW OF PULLBOX SHOWING ANCHORED AIR BELL AND SUPPORT FOR CONNECTOR KITS.

(See Notes 1 and 2)

# MISCELLANEOUS DETAILS I

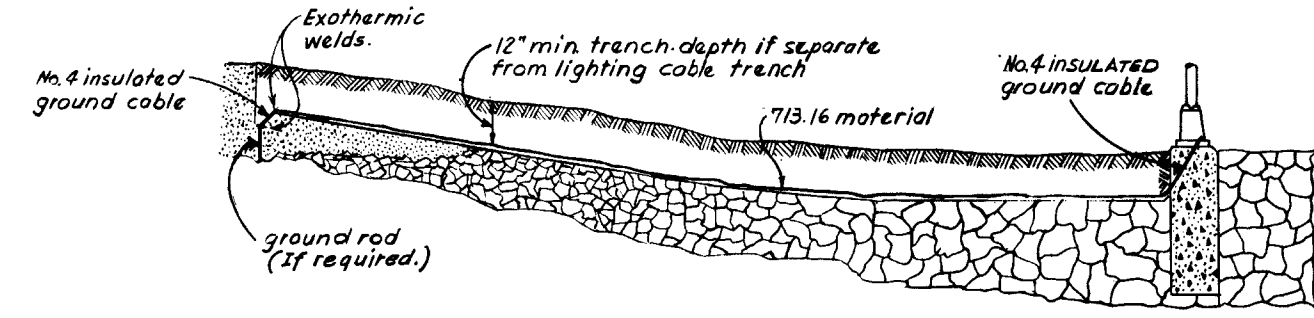
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

174J  
283

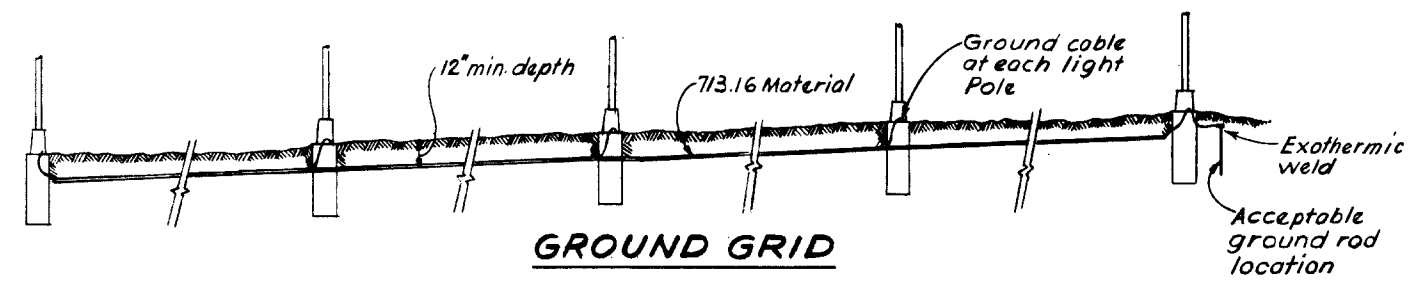
LORAIN COUNTY  
LOR-90-1.18

## NOTES FOR FENCE GROUNDING

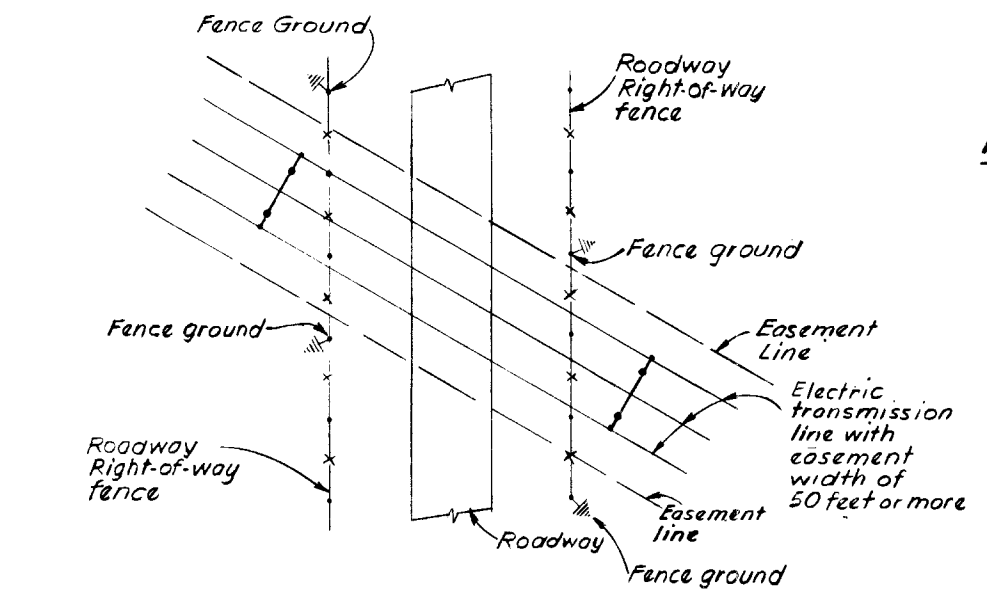
- Where overhead transmission line easements 50 feet or more in width cross a fenced roadway right-of-way, each fence shall be grounded as shown hereon.
- Where overhead electric power line easements less than 50 feet in width cross a fenced roadway right-of-way, each fence shall be grounded directly below the centerline of the power line crossing.
- Where overhead transmission lines rated 110 KV or higher are parallel to roadway fences and the transmission line easement is contiguous to the roadway right-of-way the roadway fences shall be grounded at least every 300 ft.
- Fence grounds will be paid for at unit price bid for Ground Rods, item 625.
- Apply two coats of insulating varnish over all exothermic welds and exposed cable.



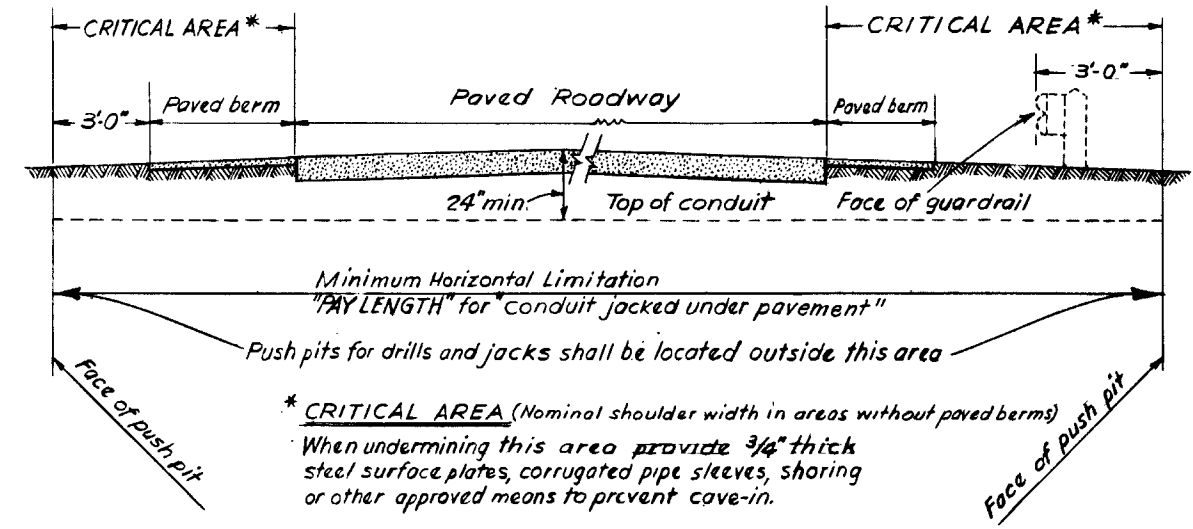
**MODIFIED GROUND GRID FOR INDIVIDUAL POLE GROUND**



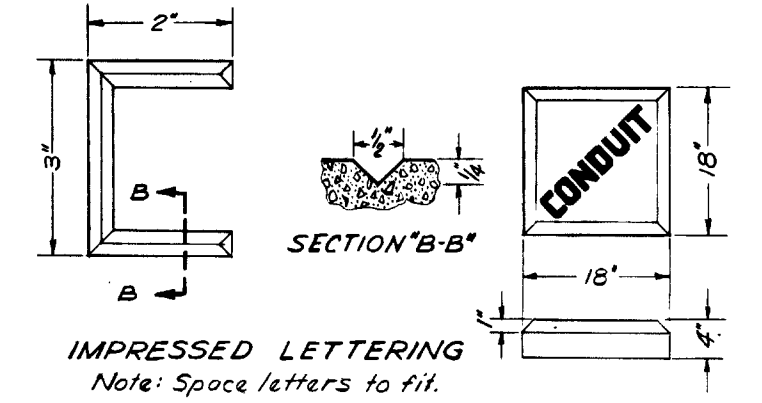
**GROUND GRID**



**CROSSING OF ROADWAY R/W & TRANSMISSION LINE EASEMENT**  
(See Note 1)



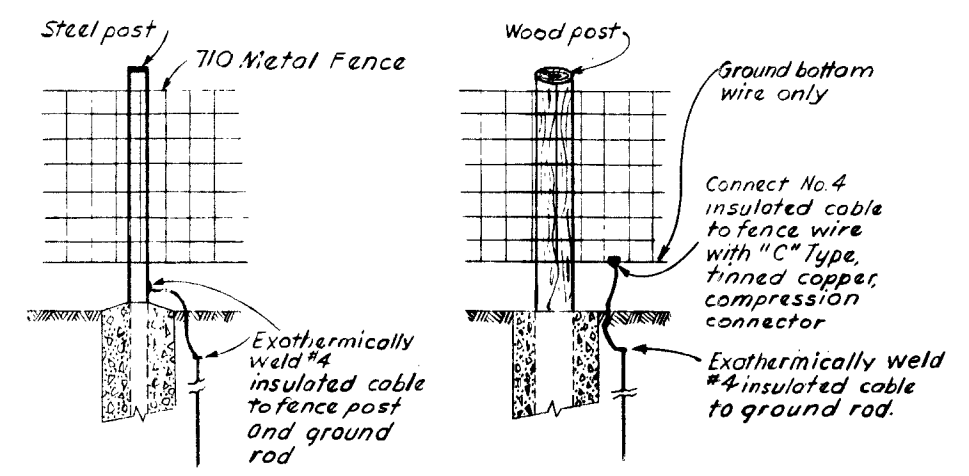
**DETAIL FOR CONDUIT JACKED UNDER PAVEMENT**



**IMPRESSED LETTERING**  
Note: Space letters to fit.

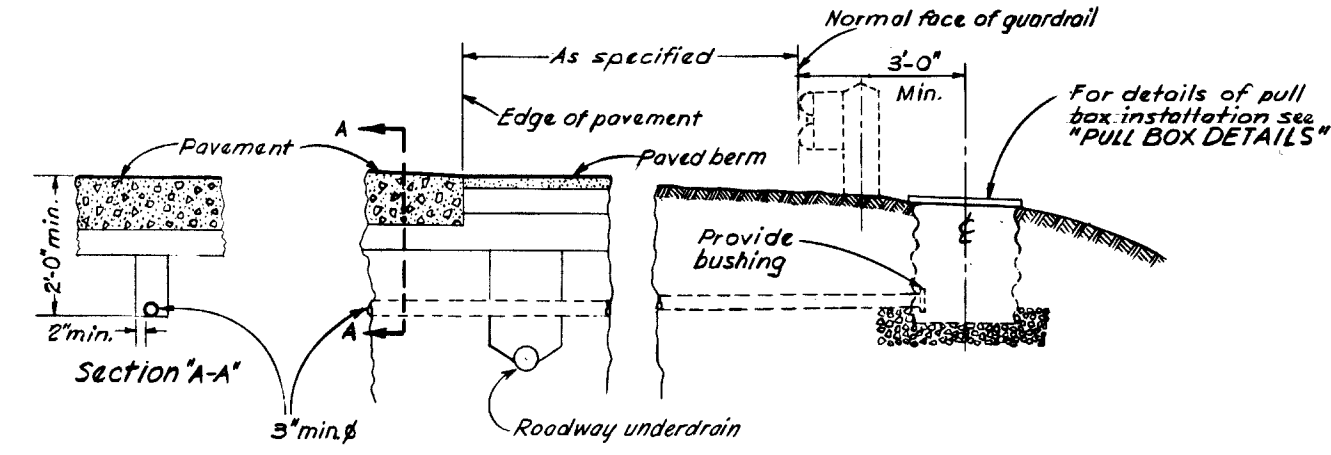
"CONDUIT"- to indicate conduit for future cable or wire.  
"CABLE"- to indicate abrupt change in direction of cable

## CONCRETE MARKER (625.16)



## FENCE GROUND DETAILS

When specified, roadway right-of-way fences shall be grounded as shown hereon. (See also, Notes 1, 2, 3, & 4)



**TYPICAL CONDUIT CROSSOVER DETAIL**

A-B-L-6B

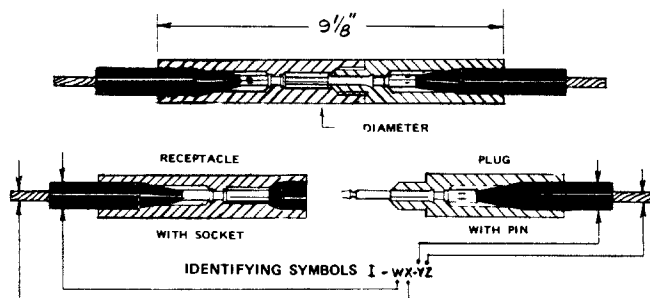
Rev. 4-25-73

# CABLE CONNECTOR KITS TYPE I THRU TYPE VI.

LORAIN COUNTY  
LOR-10-9.48

## NOTES

1. Diameters usually vary along cable lengths. Take several measurements and select the symbols for "W" and "Y" which will insure a tight fit rather than a loose fit between the cables and the openings in the housings of the connector kits.
2. Where a light is located at the end of the lighting circuit one opening of the "Y" connector kit shall be plugged. The plug shall be of insulating material and have the same overall diameter of the lighting circuit cable occupying the other opening of the "Y" connector kit.
3. If the cable has a nylon jacket the jacket shall be peeled back to a point where no part of the jacket is encased in the boot with the insulated cable.



To specify the proper kit for an installation, select from the tables below the symbols which coincide with the requirements and substitute for (W, X) and (Y, Z) respectively.

CABLE DIAMETER		Symbol for W and Y
Min.	Max.	
.195"	.260"	B*
.250"	.330"	C*
.320"	.430"	D*
.420"	.585"	E
.575"	.785"	F
.775"	.985"	G
.975"	1.125"	H

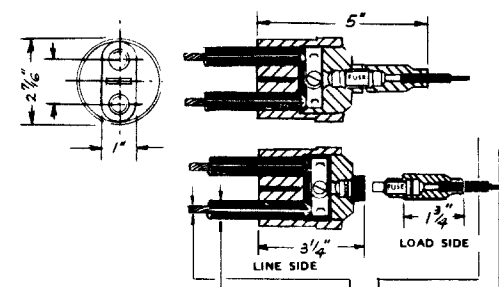
CONDUCTOR SIZE AWG		Symbol for X and Z
Concentric Stranded	Solid	
#10, #12	#8, #10	6
#8	#6	4
#6	#4	3
#4	-	2
#2	-	1

\* Molded rubber adapters are a part of these kits for small diameter cables.

### EXAMPLE

If the installation requires a receptacle for no. 6 stranded conductor and a cable diameter of .660" and a plug for no. 8 solid conductor and a cable diameter of .460", the kit required will be I - F3 - E6.

## TYPE I INLINE SELF LOCKING CONNECTOR KIT FOR PULL BOX INSTALLATION.



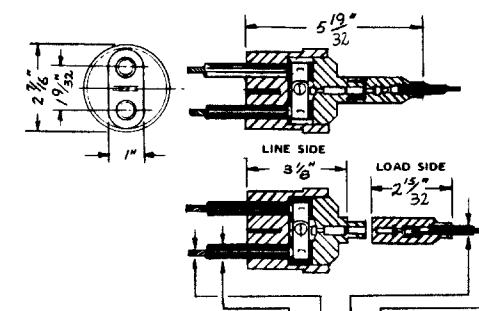
IDENTIFYING SYMBOLS I - W X Y Z

CABLE DIAMETER		Symbol for W	COPPER CONDUCTOR (AWG)		Symbol for X	CABLE DIAMETER		Symbol for Y	COPPER CONDUCTOR (AWG)		Symbol for Z
Min.	Max.		Concentric Stranded	Solid		Min.	Max.		Concentric Stranded	Solid	
.195"	.260"	B	-	#8	6	.120"	.160"	S	#14, #16	#12, #14	8
.250	.330	C	#8	#6	4	.155	.205	A	#10, #12	#8, #10	6
.320	.380	DA	#6	#4	3	.195	.260	B	#8	#6	4
.370	.430	DB	#4	-	2	.250	.330	C	#6	#4	3
.420	.505	EA	#2	-	1	.320	.430	D	-	-	-
.495	.585	EB	#1	-	0						
.575	.685	FA	#1/0	-	10						
.675	.785	FB	#2/0	-	20						

### EXAMPLE

If the line outside diameter (W) is .42" and the conductor (X) is no. 6 stranded, and the load side outside diameter (Y) is .29" and the conductor (Z) is no. 12 stranded, the kit required will be II - DB3 - C6.

## TYPE II FUSED "Y" CONNECTOR KIT FOR POLE BASE INSTALLATION.



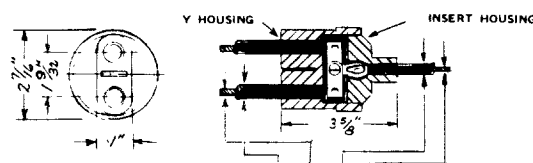
IDENTIFYING SYMBOLS III - W X Y Z

CABLE DIAMETER		Symbol for W	COPPER CONDUCTOR (AWG)		Symbol for X	CABLE DIAMETER		Symbol for Y	COPPER CONDUCTOR (AWG)		Symbol for Z
Min.	Max.		Concentric Stranded	Solid		Min.	Max.		Concentric Stranded	Solid	
.195"	.260"	B	-	#8	6	.120"	.160"	S	#14, #16	#12, #14	8
.250	.330	C	#8	#6	4	.155	.205	A	#10, #12	#8, #10	6
.320	.380	DA	#6	#4	3	.195	.260	B	#8	#6	4
.370	.430	DB	#4	-	2	.250	.330	C	#6	#4	3
.420	.505	EA	#2	-	1	.320	.430	D	-	-	-
.495	.585	EB	#1	-	0						
.575	.685	FA	#1/0	-	10						
.675	.785	FB	#2/0	-	20						

### EXAMPLE

If the line side cable outside diameter (W) is .54" and the conductor (X) is no. 2 stranded, and the load side cable outside diameter (Y) is .29" and the conductor (Z) is no. 12 stranded, the kit required will be III - EB1 - C6.

## TYPE III UNFUSED "Y" CONNECTOR KIT FOR POLE BASE INSTALLATION.



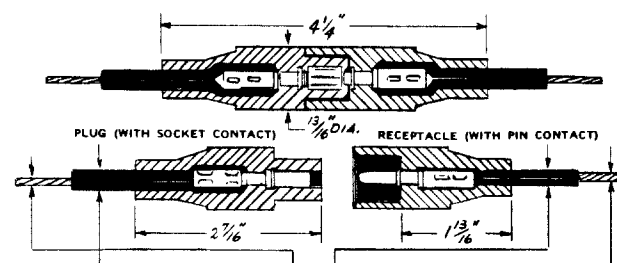
IDENTIFYING SYMBOLS IV - W X Y Z

CABLE DIAMETER		Symbol for W	COPPER CONDUCTOR (AWG)		Symbol for X	CABLE DIAMETER		Symbol for Y	COPPER CONDUCTOR (AWG)		Symbol for Z
Min.	Max.		Concentric Stranded	Solid		Min.	Max.		Concentric Stranded	Solid	
.195"	.260"	B	-	#8	6	.120"	.160"	S	#14, #16	#12, #14	8
.250	.330"	C	#8	#6	4	.155	.205"	A	#10, #12	#8, #10	6
.320	.380"	DA	#6	#4	3	.195	.260"	B	#8	#6	4
.370	.430"	DB	#4	-	2	.250	.330"	C	#6	#4	3
.420	.505"	EA	#2	-	1	.320	.430"	D	-	-	-
.495	.585"	EB	#1	-	0	.420	.585"	E	#1	-	0
.575	.685"	FA	#1/0	-	10	.575	.785"	F	#1/0	-	10
.675	.785"	FB	#2/0	-	20				#2/0	-	20

### EXAMPLE

If the twin cable outside diameter (W) is .54" and their conductor (X) is no. 2 stranded, and the single cable outside diameter (Y) is .29" and the conductor (Z) is no. 12 stranded, the kit required will be IV - EB1 - C6.

## TYPE IV UNFUSED "Y" CONNECTOR KIT FOR PULL BOX INSTALLATION.



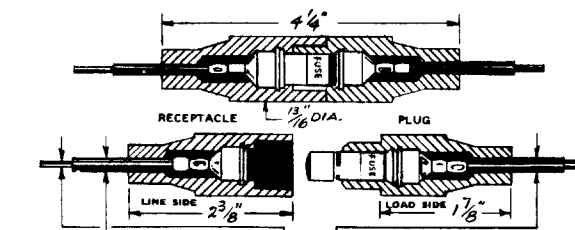
IDENTIFYING SYMBOLS V - W X Y Z

CABLE DIAMETER		Symbol for W and Y	CONDUCTOR SIZE AWG		Symbol for X and Z
Min.	Max.		Concentric Stranded	Solid	
.120"	.160"	S	#14, #16	#12, #14	8
.155"	.205"	A	#10, #12	#8, #10	6
.195"	.260"	B	#8	#6	4
.250"	.330"	C	#6	#4	3
.320"	.430"	D	-	-	-

### EXAMPLE

If the installation requires a plug for a cable diameter of .38", and a no. 8 stranded conductor, and a receptacle for a cable diameter of .27", and a no. 14 stranded conductor, the kit required will be V - D4 - C8.

## TYPE V UNFUSED INLINE CONNECTOR KIT FOR JUNCTION BOX INSTALLATION.



ORDERING SYMBOLS: 64 - W X Y Z

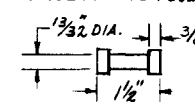
CABLE DIAMETER		Symbol for W and Y	CONDUCTOR SIZE AWG		Symbol for X and Z
Min.	Max.		Concentric Stranded	Solid	
.110"	.110"	T	-	-	-
.120	.160"	S	#14, #16	#12, #14	8
.155	.205"	A	#10, #12	#8, #10	6
.195	.260"	B	#8	#6	4
.250	.330"	C	#6	#4	3
.320	.430"	D	-	-	-

### EXAMPLE

If the line outside diameter (W) is .42" and the conductor (X) is no. 6 stranded, and the load side outside diameter (Y) is .29" and the conductor (Z) is no. 12 stranded, the kit required will be VI - D3 - C6.

## TYPE VI FUSED INLINE CONNECTOR KIT FOR JUNCTION BOX INSTALLATION.

### MIDGET TYPE FUSE



Any standard Midget, Ferrule type fuse, (except glass tube) may be used in this connector.  
Fuses rated 600 volts and 10 amperes, minimum shall be used, unless otherwise specified.

# CABLE CONNECTOR KITS TYPES VII, VIII & IX

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

1741  
283

LORAIN COUNTY  
LOR-90-9.48

## NOTES...

### FOR BREAKAWAY FUSEHOLDER KITS

1. Acceptable cable size ranges are as follows:

CABLE MATL.	LOAD SIDE	LINE SIDE
Copper	No. 14 thru No. 2	No. 12 thru No. 2
Aluminum	No. 12 thru No. 2	No. 12 thru No. 2

- See catalogs or design drawings for kit symbolization in specific combinations of load and line cable sizes.
- The fuseholder shall be capable of retaining  $0\frac{1}{32}$ " diameter by  $1\frac{1}{2}$ " long fuse rated up to 600 volts and a minimum of 10 amperes.
- To secure a satisfactory interference fit between a rubber boot and the cable, the outside diameter of the cable should be approximately  $0.0625$ " ( $1/16$ ") larger than the inside diameter of the boot.
- When a lubricant is used on the outside of the cable insulation the outside diameter of the cable may be  $0.125$ " ( $1/8$ ") larger than the inside diameter of the boot in lieu of  $1/16$ " larger without lubrication.
- Where the "L" type boot is used the maximum inside diameter of the boot shall not be more than  $0.42$ ". The upper two rings, namely  $0.47$ " and  $0.52$ " shall not be used.
- The "Y" type boot shall not be cut beyond the notch where the inside diameter of each leg is  $0.35$ ". Use of a cable of  $0.48$ " O.D. in the "Y" type boot may require the application of a lubricating compound on the cable insulation for it to slide into the boot.
- If the cable has a nylon jacket the jacket shall be peeled back to a point where no part of the jacket is encased in the boot with the insulated cable.

## TYPES VII CABLE CONNECTOR KITS SPLICE INSULATING KITS

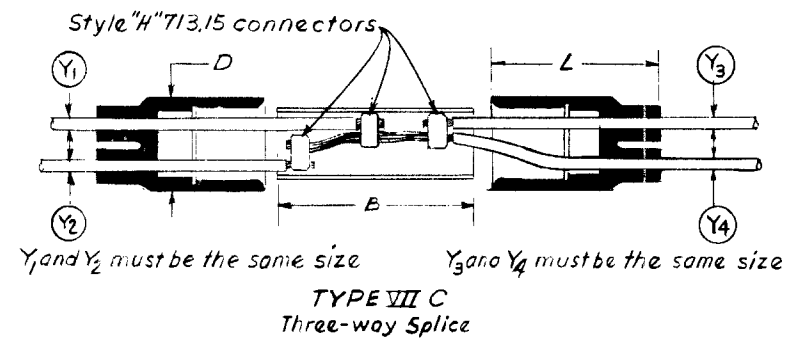
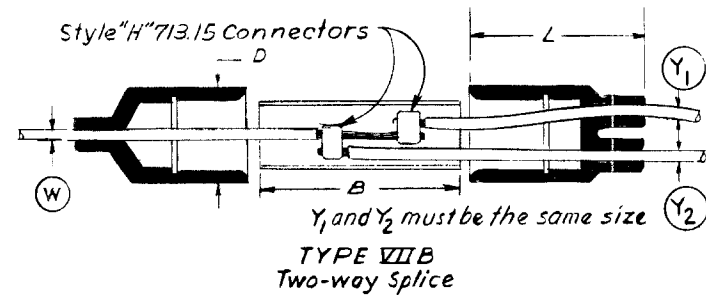
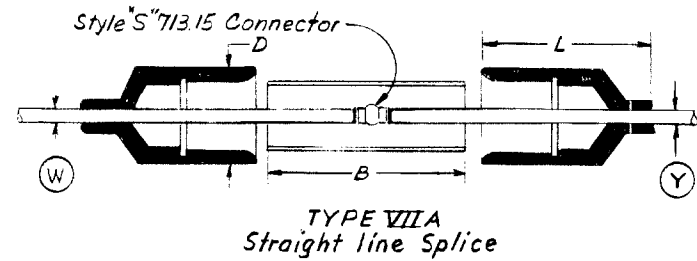
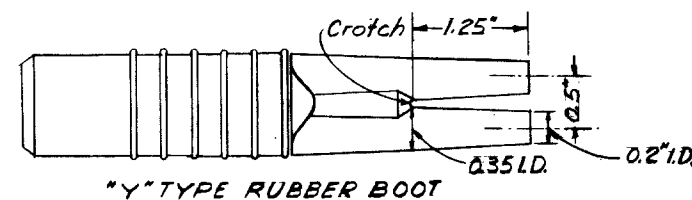
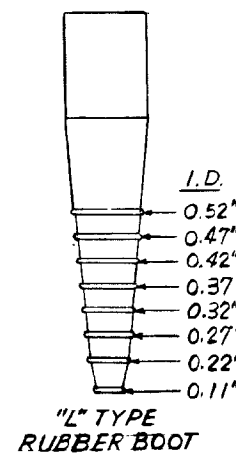
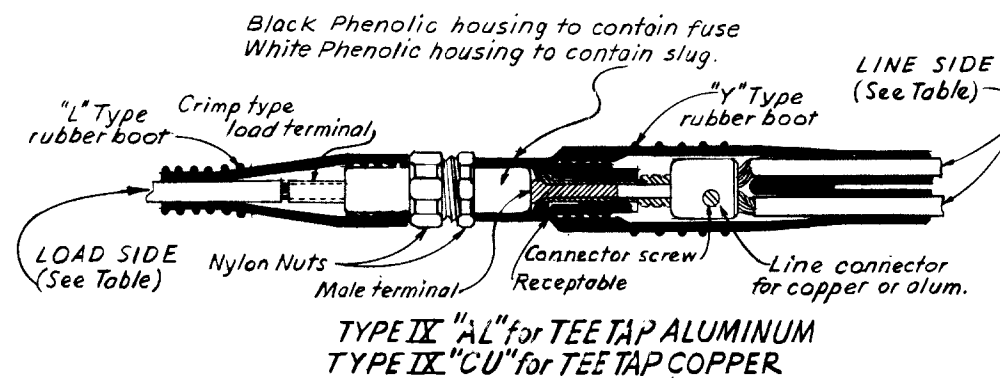
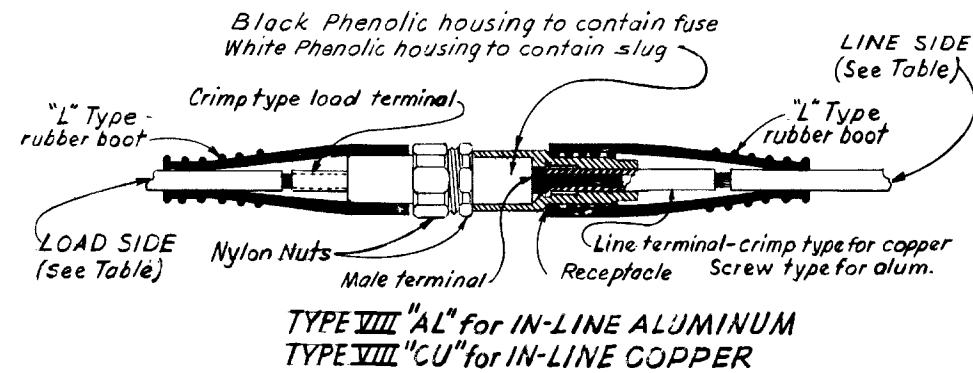


TABLE OF NOMINAL TYPE VII KIT  
STYLE VARIATIONS REQUIRED

B	D	L	Cable Diameter		AWG. 600V Cable per 713.02
			min.	max.	
3 and 7"	$1\frac{29}{32}$ "	$4\frac{1}{16}$ "	.320"	.430"	No. 6 and No. 4
	"	"	.420"	.585"	No. 2 and No. 3/0
	"	"	.575"	.785"	No. 3/0 - 250 MCM*
	"	"	.775"	.985"	300 MCM - 400 MCM
	"	$4\frac{3}{16}$ "	.975"	1.185"	500 MCM
	"	$4\frac{5}{16}$ "	1.175"	1.385"	600 MCM - 750 MCM

\*Maximum "Y" cable size. See catalogs or design drawings for specific kit symbolization required in each application.

## TYPES VIII & IX CABLE CONNECTOR KITS BREAKAWAY FUSEHOLDER KITS



# SERVICE POLES AND CONTROL CENTERS

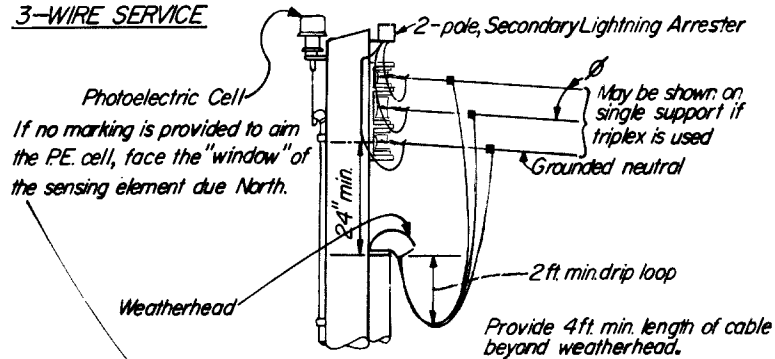
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

174M  
283

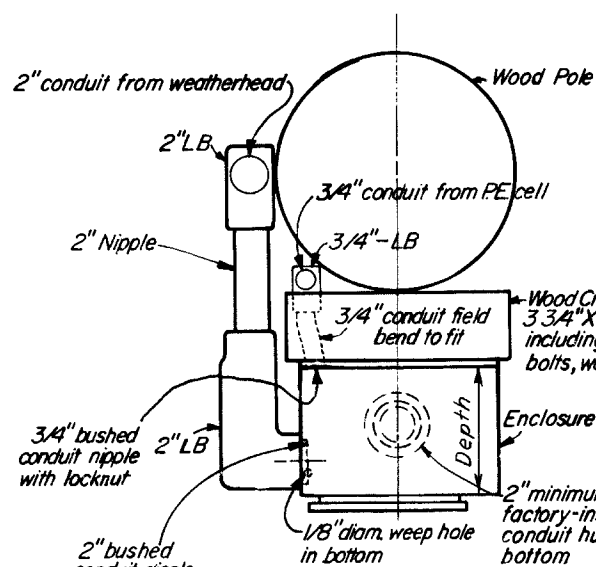
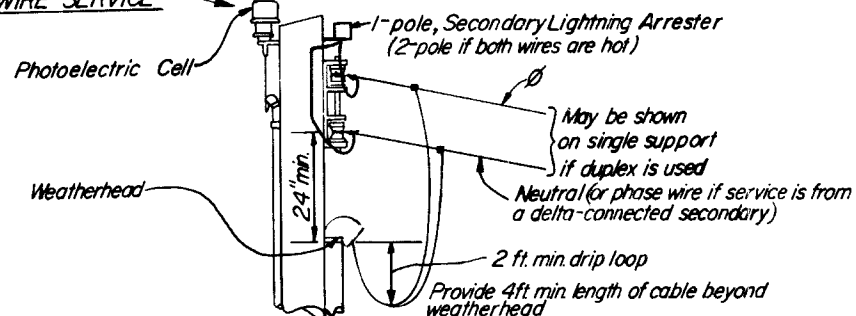
LORAIN COUNTY  
LOR-90-9.48

## TYPICAL SERVICE POLE HEADS

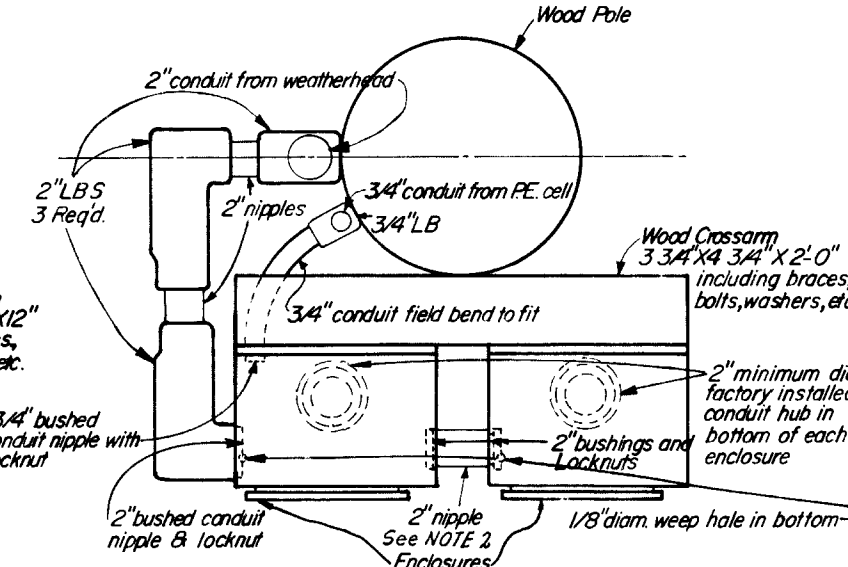
### 3-WIRE SERVICE



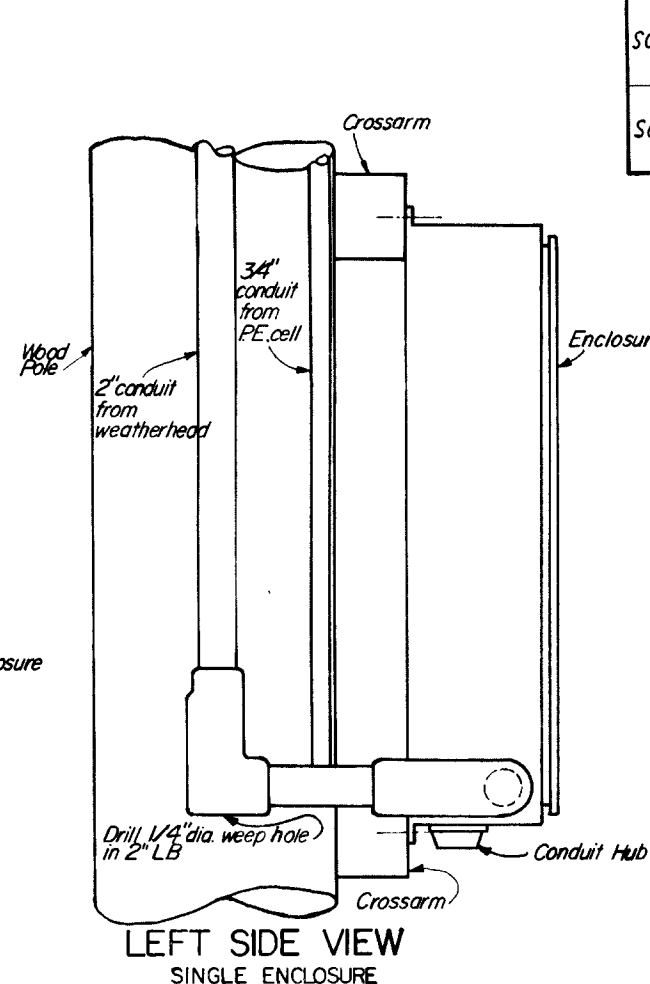
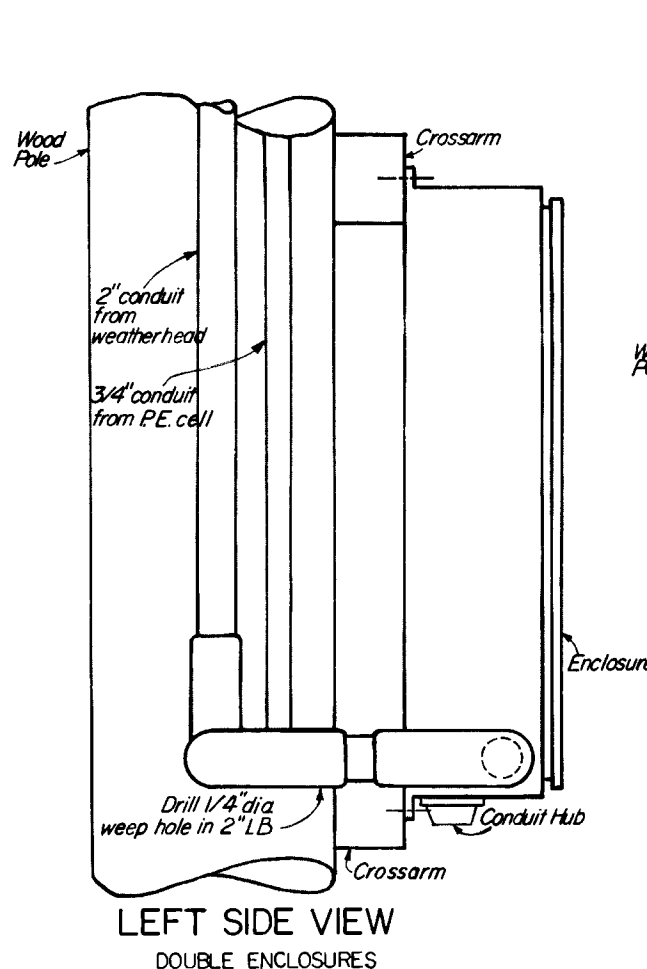
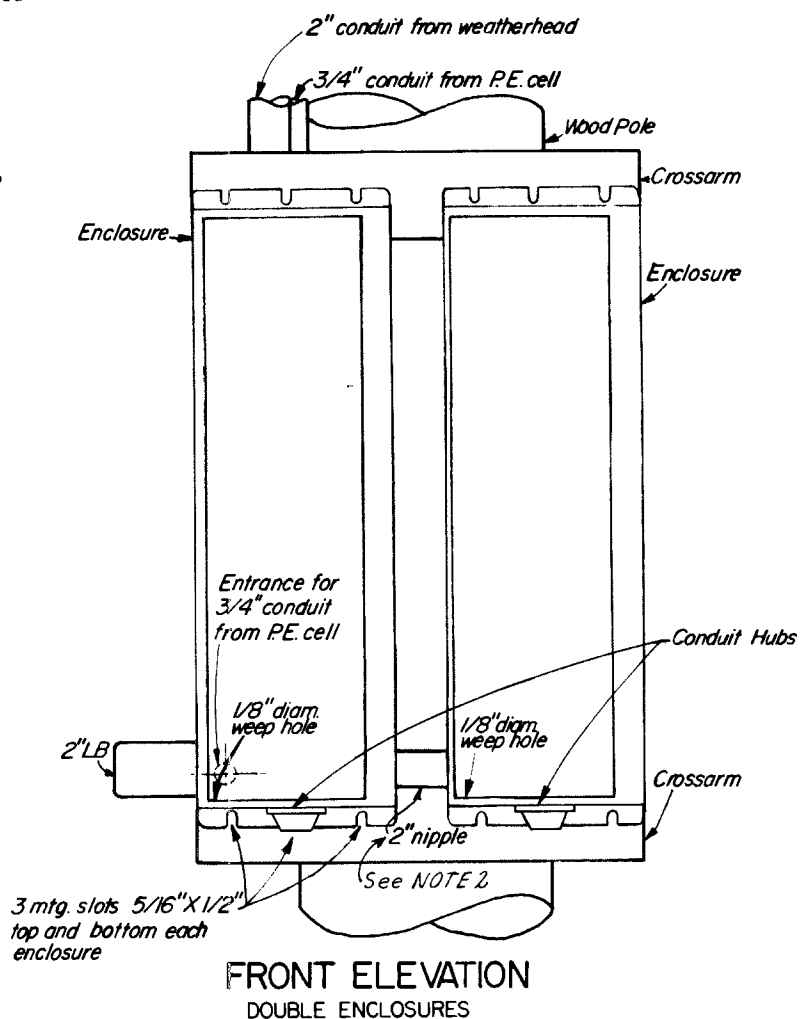
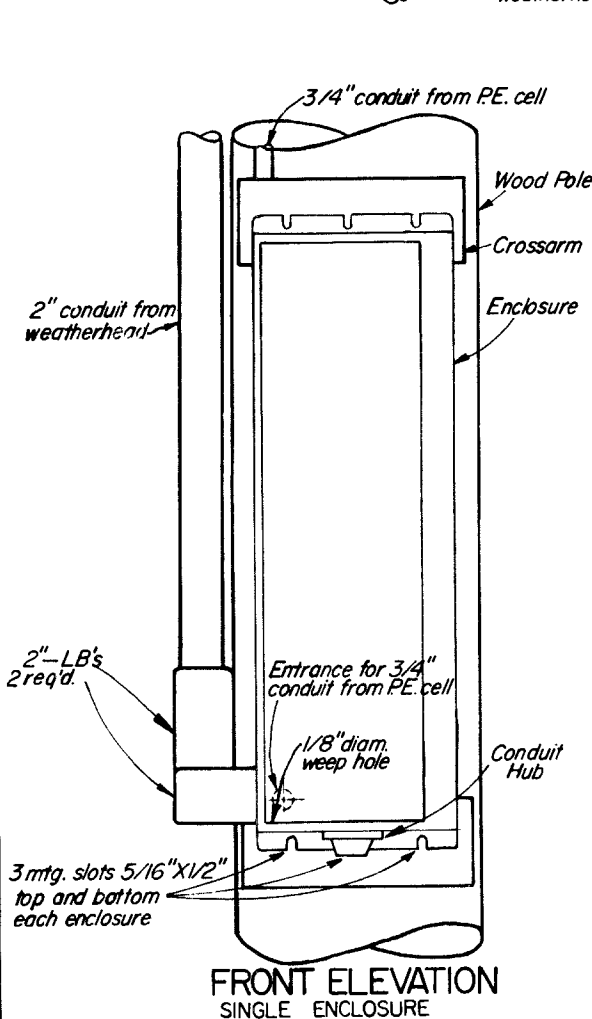
### 2-WIRE SERVICE



PLAN  
SINGLE ENCLOSURE



PLAN  
DOUBLE ENCLOSURES



## NOTES

- All openings in enclosures shall be made by fabricator.
- Two or more enclosures may be mounted with sides abutting. The 2" nipple shown shall then be replaced by the installation of 2" insulated bushings in the openings for cables.

## ENCLOSURE TYPES

MINIMUM INTERIOR DIMENSIONS				
TYPE NO.	PRINCIPLE CONTENTS	WIDTH	HEIGHT	DEPTH*
S-30/60	30 or 60 ampere fused switch.	10 1/2"	18"	6 9/16"
S-100	100 ampere fused switch.	14"	20"	8"
SC-30/60	30 or 60 ampere combination fused switch & contactor.	10 7/16"	32 7/16"	7 5/8"
SC-100	100 ampere combination fused switch & contactor.	14"	41"	8 1/8"

\*See "PLAN" view of Single Enclosure.





# LIGHTING QUANTITIES SUB-SUMMARY

LOR-90-9.48

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

177  
283

100% State Participation

SHEET NO.

Ref. No.	Station to Station	Side	LIGHT POLE DESIGN I/AT/5B3#2	LIGHT POLE DESIGN I/AT/20B3#2	LIGHT POLE DESIGN T/12B32.5	LUMINAIRE TYPE III 400 WATT	LUMINAIRE TYPE II 400 WATT	LAMP 400 WATT	LIGHT POLE FOUNDATION 24" X 6'	GROUND ROD	PULL BOX 18" CIRCULAR	TRENCH 24" DEEP	CONDUIT 2" TYPE III	CONDUIT 3" TYPE III	DISTRIBUTION CIRCUIT CABLE #4 AWG	DISTRIBUTION CIRCUIT CABLE #2 AWG	DUCT-CABLE 1/2" 600V-TWO NO. 4	DUCT-CABLE 1/2" 600V-NO. 2	CONNECTOR KIT TYPE VII-A	CONNECTOR KIT TYPE II	CONNECTOR KIT TYPE III	CONNECTOR KIT TYPE III B	STRUCTURE GROUND SYSTEM	STRUCTURE JUNCTION BOX 16" X 12" X 6"	LIGHT POLE ANCHOR U" BOLTS FOR STRUCTURE	SERVICE POLE & CONTROL CENTER	POLE & BRACKET CABLE NO. 10	3" CONDUIT JACKED UNDER PAVEMENT	SEE SHEET NO.			
			EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.		EA.	EA.	EA.
SURVEY LINE W.B.																																
1	565+29 to 566+77	Lt.									2		150										1									
2	575+60 to 578+20	Lt.									2		260										1	1	2							
3	563+05 (18' NORTH)	Lt.								*1																						
SURVEY LINE E.B.																																
1	563+00 to 566+70	Rt.										370					380															
2	566+70 to 568+50	Rt.									2		180		380				2			2	1									
3	568+50 to 569+10	Rt.										60				70																
4	569+10 to 569+10	Rt/m									2		50		50	120			4													
5	584+58 to 588+00	Rt.	2				2	2	2	2		350				360				2	2							196				
6	566+93 to (15' SOUTH)	Rt.								*1																						
7	567+73 to (20' SOUTH)	Rt.								*1																						
8	586+26 to 588+00 (WB.SR.2)	Rt.	1				1	1	1	1		174				184				1	1							98				
TOTALS SHEET 9 NORMAL			3				3	3	3	6	8	1004	590	50	500	994			6	3	3	2	3	1	2			294				
SURVEY LINE E.B.																																
1	588+00 to 599+90	Rt.	3				3	3	3	3		1190				1220				3	3							294				
2	599+90 to 598+38(WB)	Rt/m Lt.									4	80		80	400			8											90			
3	599+90 to 601+00	Rt.										110				120																
SURVEY LINE W.B.																																
1	586+76 to 586+76	Lt/m.	1				1	1	1	1	1				150				2	1	1							98	65			
2	586+76 to 598+38	Lt.	2			2		2	2	2	1	1162				1202				2	2	2						196				
TOTALS SHEET 10 NORMAL			6			2	4	6	6	6	6	2542		80	550	2542			10	6	6	2						588	155			
SURVEY LINE E.B.																																
1	601+00 to 611+90	Rt.									1	1179				1200						2										
2	607+30 to C.C.	Rt.																														
3	611+90 (E.B) to 611+90 (WB)	Rt/m Lt.									4	70		70	420				6			2						110				
TOTALS SHEET 11 NORMAL											5	1249		70	420	1200			6			4						1	110			
100% State Participation Totals																																
Normal Participation Totals			9			2	7	9	9	12	19	4765	590	200	1470	4736			22	9	9	8	3	1	2	1		882	265			
S-TOTAL																																
NTOTAL																																

\*GROUND ROD FOR FENCE  
GROUNDING SYSTEM AT  
TRANSMISSION LINE CROSSING



# TRAFFIC CONTROL NOTES

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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1  
24

## MATERIALS - GENERAL

MATERIALS TO BE FURNISHED MAY BE SPECIFIED IN THE PLANS BY A GIVEN MANUFACTURER'S CATALOG NUMBER OR TYPE. THIS IS FOR DESCRIPTIVE PURPOSES ONLY AND THE CONTRACTOR MAY ASSUME THAT APPROVED EQUAL MATERIALS MAY BE FURNISHED.

### 816 STRUCTURAL SUPPORTS, STEEL BEAM (TYPE)

THE STRUCTURAL STEEL BEAM SUPPORTS INCLUDING 8 AND 6 POUND BEAMS, 4 POUND DRIVE POST AND HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM-123 AND A-153 RESPECTIVELY.

QUANTITIES FOR ITEM 816 "STRUCTURAL SUPPORTS, STEEL BEAM (TYPE)", APPEARING IN THE QUANTITY TABLES ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING EXACT SUPPORT LENGTHS PRIOR TO FABRICATION AND GALVANIZING OF SUPPORTS. PAYMENT SHALL BE AT THE CONTRACT UNIT PRICE BID PER LIN. FT. WHICH PRICE AND PAYMENT SHALL INCLUDE ALL COSTS IN CONNECTION WITH THE EMBEDMENT OF THE SUPPORTS.

### 816 OVERHEAD SIGN SUPPORT, BY TYPE

ALL COMPONENT PARTS OF THE OVERHEAD SIGN SUPPORTS SHALL BE STEEL, EXCEPT FOR THE TRUSS AND COMPONENTS FOR THE NUMBER 7 SERIES WHICH SHALL BE ALUMINUM. FOR SPECIFIC DETAILS AND MATERIALS, SEE SHEET NUMBERS 12 THROUGH 14.

COST OF FURNISHING AND INSTALLING THE SIGN BRACKETS AND THE FIXTURE SUPPORT ARM, LENGTH "6", WITH MOUNTING HOLES AND HARDWARE SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR OVERHEAD SIGN SUPPORTS.

MODIFYING SUPPLEMENTAL SPECIFICATION 816 SWITCH ENCLOSURE MOUNTING BRACKETS INCLUDING MOUNTING BOLTS AND DRILLED HOLES SHALL BE FURNISHED AND INSTALLED UNDER PAYMENT FOR 816 OVERHEAD SIGN SUPPORT STRUCTURES AT THE CONTRACT PRICE PER OVERHEAD SIGN SUPPORT, BY TYPE.

PAYMENT FOR THIS ITEM SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR EACH OVERHEAD SIGN SUPPORT, BY TYPE, INSTALLED IN PLACE AND ACCEPTED, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL ANCHOR BOLTS, 2" GALVANIZED STEEL, AND 3/4" E.H.T. CONDUIT ELLS (FOR INSTALLATION UNDER 816 CONCRETE FOR OVERHEAD SIGN SUPPORT FOUNDATIONS), AND FOR FURNISHING AND INSTALLING EACH OVERHEAD SIGN SUPPORT STRUCTURE SHOWN ON SHEETS 9 THRU 10 INCLUDING FIXTURE SUPPORT ARMS, SWITCH ENCLOSURE MOUNTING BRACKET, SIGN BRACKETS AND 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.

ERECTION OF THESE SUPPORTS SHALL BE ACCOMPLISHED IN A MANNER MEETING THE REQUIREMENTS OF SUPPLEMENTAL SPECIFICATION 816.

### 816 CONCRETE FOUNDATIONS, FOR SIGN SUPPORTS

PAYMENT FOR THIS ITEM SHALL BE BASED ON PLAN DIMENSIONS (OR DIMENSIONS AS MODIFIED BY THE ENGINEER IN LIEU OF PLAN QUANTITIES) AS REQUIRED IN SUPPLEMENTAL SPECIFICATIONS 816

PAYMENT FOR REINFORCING STEEL AND INSTALLATION ONLY OF CONDUIT ELLS SHALL BE INCLUDED IN THE COST OF CONCRETE FOUNDATIONS FOR OVERHEAD SIGN SUPPORTS. CONCRETE SHALL BE CLASS "C".

BASIS OF PAYMENT SHALL BE AS FOLLOWS:

1. CONCRETE FOR OVERHEAD SIGN SUPPORT FOUNDATIONS, PER C.T.C. PLAN.

### 816 Structural Supports Driven Type

Driven type structural supports will be driven to a depth of five feet (5'-0") minimum below ground line in such a manner that no deformation within the length of the support, or damage to the support, will occur.

Prior to installation each support shall be significantly marked with paint at a location on the support 5'-6" from the embedded end, and approved by the Engineer.

Structural Supports Gib Beam, Driven will include the 10" x 12" x 1/4" soil plate detailed in the plans.

Payment for installation of sign supports by the above method shall be included in the cost of the various support types specified including all labor, equipment and materials required.

### 815 SIGN ERECTION, EXTRUSHEET OR FLAT SHEET TYPE

THE CONTRACTOR SHALL ERECT SIGN PANELS AS INDICATED ON THE SCHEMATIC SIGNING PLAN SHEET NUMBERS 5, 6, 7. THE PANELS WILL BE FURNISHED BY OTHERS AND SHALL BE MOUNTED ON THE BRACKETS OR BEAM SUPPORTS PROVIDED IN THE PLANS.

ALL SIGN MATERIAL AND ACCESSORIES WILL BE FURNISHED AND TRANSPORTED BY OTHERS TO A DELIVERY POINT DESIGNATED BY THE CONTRACTOR ON OR NEAR THE SUBJECT PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE HANDLING, PROTECTION AND STORAGE OF THE SIGN PANELS AND ACCESSORIES FROM THE TIME OF UNLOADING BY OTHERS AT THE DELIVERY POINT.

LARGE GUIDE SIGNS (OVER 8 FEET IN HEIGHT) MAY BE DELIVERED UNASSEMBLED. WORK SHALL ALSO CONSIST OF ASSEMBLY OF THESE PANELS INCLUDING ATTACHMENT OF DEMOUNTABLE SIGN LEGEND, WHERE NECESSARY, AND ERECTION OF SIGNS IN CONFORMANCE WITH THE SCHEMATIC SIGN PLAN.

THE CONTRACTOR SHALL SUBMIT, IN THREE COPIES, A SCHEDULE FOR SIGN ERECTION TO THE ENGINEER AT LEAST 120 CALENDAR DAYS PRIOR TO THE START OF ANY SCHEDULED ERECTION WORK. THE SCHEDULE SHALL INCLUDE PROPOSED DATES, SIGN NUMBERS, AND DELIVERY POINT. THE ENGINEER WILL FURNISH COPIES OF THE SCHEDULE TO THE DIVISION TRAFFIC ENGINEER AND TO THE ENGINEER OF DESIGN SERVICES, 25 SOUTH FRONT STREET, COLUMBUS, OHIO, 43215. THE OHIO TURNPIKE COMMISSION WILL FURNISH THOSE SIGNS WHICH ARE NECESSARY FOR THEIR PORTION OF THE PROJECT.

THE PRICE BID PER SQUARE FOOT FOR "ITEM 815, SIGN ERECTION, BY TYPE", SHALL INCLUDE PAYMENT FOR ALL NECESSARY EQUIPMENT, LABOR, AND TOOLS TO STORE, ASSEMBLE, AND ERECT THE SIGNS AS SPECIFIED.

## ELECTRICAL - GENERAL

THIS ITEM SHALL CONSIST OF FURNISHING ALL NECESSARY MATERIAL, LABOR AND FACILITIES REQUIRED TO COMPLETE THE ELECTRICAL INSTALLATION IN ACCORDANCE WITH THE DESIGNS, DIMENSIONS AND DETAILS SHOWN IN THE PLANS AND DESCRIBED IN THE SPECIFICATIONS.

ALL MATERIAL, WORKMANSHIP AND CONSTRUCTION METHODS, EXCEPT AS MODIFIED HEREIN, SHALL CONFORM TO THE GENERAL REQUIREMENTS OF THE STATE OF OHIO, DEPARTMENT OF HIGHWAYS, CONSTRUCTION AND MATERIALS SPECIFICATIONS, JANUARY 1, 1969.

### 625 SIGN SERVICE

THIS ITEM SHALL CONSIST OF THE COMPLETION OF THE ELECTRICAL SYSTEM AND COMPONENTS CONNECTING THE CONNECTORS IN THE PULL BOX (INCLUDED WITHIN THE ROADWAY LIGHTING QUANTITIES) TO THE PRIMARY SIDE OF THE DISCONNECTING SWITCH.

WORK WILL INCLUDE THE FURNISHING AND INSTALLING (INCLUDING TRENCHING AND BACKFILLING) OF THE 2 INCH GALVANIZED STEEL CONDUIT AND COUPLINGS FROM THE PULL BOX TO THE CONDUIT ELL IN THE SIGN SUPPORT FOUNDATION.

THIS ITEM WILL ALSO INCLUDE THE FURNISHING AND INSTALLING OF THE 1/C 600 VOLT SERVICE WIRE FROM THE CONNECTORS TO THE DISCONNECT SWITCH.

BASIS OF PAYMENT FOR THIS ITEM SHALL BE AT CONTRACT UNIT PRICE PER EACH, WHICH SHALL INCLUDE ALL LABOR, MATERIAL, AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM OF WORK.

### 625 DISCONNECT SWITCH WITH TYPE "Y" OR "Z" ENCLOSURE

THIS ITEM SHALL INCLUDE FURNISHING OF A 30 AMP, 600 VOLT FUSED DISCONNECT SWITCH OF TYPE AND MAKE AS INDICATED ON SHEET 21 AND SHALL BE MOUNTED IN A NEMA 4 STAINLESS STEEL ENCLOSURE TYPE "Y" OR "Z" AND ATTACHED TO EACH SIGN SUPPORT BY MEANS OF A MOUNTING BRACKET AS DESCRIBED IN DETAIL ON THE ABOVE SHEET.

EACH SWITCH ENCLOSURE SHALL BE FURNISHED WITH ONE PADLOCK. PADLOCKS SHALL HAVE A BRASS BODY AND WROUGHT IRON SHACKLE EQUAL TO MASTER NO. 3476, RUSSWIN 2882 KA, OR EQUAL, ALL OF WHICH SHOULD BE KEYPED ALIKE.

BASIS OF PAYMENT FOR THIS ITEM SHALL BE PER EACH AT CONTRACT UNIT PRICE, WHICH SHALL INCLUDE ALL LABOR, MATERIAL, AND EQUIPMENT TO COMPLETE THIS ITEM AT WORK.

### 625 TRANSFORMER, BY TYPE

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING TRANSFORMERS AS DETAILED AND SPECIFIED ON SHEET 21.

BASIS OF PAYMENT FOR THIS ITEM SHALL BE AT CONTRACT UNIT PRICE PER EACH, WHICH SHALL INCLUDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED FOR THIS COMPLETE ITEM OF WORK.

### 625 BALLAST, BY TYPE

BALLAST FOR FIXTURES SHALL BE WEATHER-PROOF OUTDOOR TYPE FOR A 120 VOLT 60 CYCLE SYSTEM AND SHALL PROVIDE LAMP STARTING AT AN AMBIENT TEMPERATURE OF -20 DEGREES F.

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING ALL BALLAST TYPES A THROUGH D AS DETAILED AND SPECIFIED ON SHEET 20.

BASIS OF PAYMENT FOR THIS ITEM SHALL BE AT CONTRACT UNIT PRICE PER EACH, FURNISHED TO THE JOB FOR INSTALLATION UNDER ITEM 625 "SIGNS WIRED, COMPLETE".

### 625 LIGHT FIXTURE WITH LAMP, BY TYPE AND SIZE

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING ALL LIGHT FIXTURES AND LAMPS, TYPES AND SIZES AS SPECIFIED ON SHEET 20.

BASIS OF PAYMENT FOR THIS ITEM SHALL BE AT CONTRACT UNIT PRICE PER EACH, FURNISHED TO THE JOB FOR INSTALLATION UNDER ITEM 625 "SIGNS WIRED, COMPLETE".

### 625 GROUND ROD

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING GROUND ROD AND CABLE AS DETAILED AND SPECIFIED ON SHEET 21.

BASIS OF PAYMENT FOR THIS ITEM SHALL BE AT CONTRACT UNIT PRICE PER EACH, WHICH SHALL INCLUDE ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM OF WORK.

### 625 SIGNS WIRED, COMPLETE

THIS ITEM SHALL CONSIST OF THE COMPLETION OF THE ELECTRICAL SIGN LIGHTING SYSTEM FOR EACH ILLUMINATED SIGN.

WORK SHALL INCLUDE INSTALLATION OF LIGHT FIXTURES AND BALLASTS, AND FURNISHING AND INSTALLATION OF ALL RIGID AND FLEXIBLE CONDUIT, CONDULETS, JUNCTION BOXES, CABLE, FASTENERS, HARDWARE, AND ALL OTHER ITEMS REQUIRED TO ENERGIZE THE SIGN LIGHTING SYSTEM. SEE DETAILS ON SHEETS NO. 19, 20, 21.

THE COST OF FURNISHING AND INSTALLING CABLE, CABLE GRIPS, CABLE SPLICE UNITS, AND NECESSARY FASTENERS FROM THE DISCONNECT SWITCH TO THE SIGNS (OR BETWEEN SIGNS) WITHIN SIGN SUPPORT MEMBERS SHALL BE INCLUDED IN THIS ITEM OF WORK.

BASIS OF PAYMENT SHALL BE AT THE CONTRACT UNIT PRICE PER EACH SIGN WIRED WHICH PRICE SHALL INCLUDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND OTHER INCIDENTALS TO PROVIDE A COMPLETE AND ACCEPTED ITEM OF WORK.

ILLUMINATED SIGNS REQUIRING TWO (2) BALLASTS SHALL BE CONSIDERED AS AN EQUIVALENT OF TWO (2) SEPARATE SIGNS FOR DETERMINATION OF PAYMENT QUANTITIES.

### 625 INSPECTION AND TESTING OF SIGN LIGHTING

THE CONTRACTOR SHALL FURNISH ALL LABOR, ELECTRICAL POWER, AND EQUIPMENT NECESSARY TO DEMONSTRATE TO THE ENGINEER THAT NO SHORT CIRCUITS AND UNSPECIFIED GROUNDS EXIST AND THAT THE SIGN CIRCUITS ARE PROPERLY CONNECTED AND OPERABLE PRIOR TO ACCEPTANCE.

THIS DEMONSTRATION SHALL INCLUDE A MEGGARING TEST TO SHOW THAT THE POWER CONDUCTORS ARE NOT GROUNDED AND THAT THE RESISTANCE TO GROUND FOR THE GROUND CONDUCTOR IS NOT MORE THAN 25 OHMS. WHERE RESISTANCE EXCEEDS 25 OHMS, ADDITIONAL LENGTH AND/OR NUMBERS OF RODS SHALL BE INSTALLED PER REQUIREMENTS OF 625.10.

A VOLTAGE AND AMPERAGE MEASUREMENT SHALL BE MADE AT THE SIGN SUPPORT SWITCH.

WHERE A LOW VOLTAGE TAP TRANSFORMER IS USED THE VOLTAGE MEASUREMENT SHALL BE USED TO DETERMINE THE APPLICABLE TAP.

AFTER THE SIGN LIGHTING SYSTEM IS COMPLETED, THE ENTIRE SYSTEM SHALL BE OPERATED CONTINUOUSLY EACH NIGHT UNTIL SEVEN (7) CONSECUTIVE DAYS ELAPSE WITHOUT FAILURE OR DEFECT. THE CONTRACTOR SHALL RECORD AND SUBSEQUENTLY CORRECT ANY DEFECTS WHICH MAY DEVELOP AT NO EXTRA COST TO THE STATE.

DURING THE TEST PERIOD, ADJUSTMENTS TO FIXTURE AIMING ANGLES SHALL BE MADE TO OBTAIN MAXIMUM UNIFORMITY AS DIRECTED BY THE ENGINEER.

THE ABOVE MEASUREMENTS, VOLTAGE TAP SELECTION NOTATIONS, AND METHODS OF DEFECT CORRECTION SHALL BE RECORDED AND DELIVERED TO THE ENGINEER FOR INCLUSION IN THE PROJECT RECORDS.

INSPECTION AND TESTING OF THE SIGN LIGHTING SYSTEM SHALL BE CONSIDERED A SUBSIDIARY WORK ITEM AND PAYMENT THEREFOR SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE RESPECTIVE ITEMS TESTED.

Rev 4-25-75

# TRAFFIC CONTROL NOTES

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## CERTIFICATION AND APPROVAL OF SIGN SUPPORT & SIGN LIGHTING ITEMS

THE CONTRACTOR SHALL SUBMIT THROUGH PROPER CHANNELS THE DRAWINGS, INFORMATION, & SAMPLES AS REQUIRED BELOW:

### A. 8 COPIES OF SHOP DRAWINGS & MATERIAL LISTS FOR APPROVAL:

- OVERHEAD SIGN SUPPORTS
- BREAKAWAY SIGN SUPPORTS
- SIGN LIGHTING LAYOUT PLAN & DETAILS FOR WIRING, CONDUIT SIZE AND PLACEMENT FROM SIGN DISCONNECT SWITCH TO FIXTURE.

### B. 8 COPIES OF CATALOG CUTS DESCRIPTIONS OF SAMPLES OF FABRICATORS STANDARD ITEMS AS SHOWN IN THE PLANS OR THEIR EQUALS FOR APPROVAL OF THEIR USE.

### C. CERTIFICATIONS AND/OR SAMPLES FOR ALL MATERIAL WHICH HAVE BEEN APPROVED ABOVE UNDER "A" AND "B".

### D. APPROVAL OF ITEMS UNDER "A" AND "B" SHALL BE IN THE HAND OF THE CONTRACTOR PRIOR TO ANY PURCHASE OR INSTALLATION.

### E. CERTIFICATIONS OF SAMPLES UNDER "C" MUST BE IN HAND AND APPROVED PRIOR TO CONTRACT COMPLETION.

## 815 INTERIM COVERING FOR SIGNS

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING AN INTERIM COVER AND ATTACHMENT MATERIALS FOR SIGNS SO INDICATED IN THE PLANS OR AS DIRECTED BY THE ENGINEER. THIS ITEM SHALL ALSO INCLUDE THE SUBSEQUENT REMOVAL OF COVERS WHEN DIRECTED BY THE ENGINEER.

MATERIAL FOR COVERING SHALL BE PLASTIC COATED BURLAP BLANKETS IN CONFORMANCE WITH 705.09.

THE ENGINEER SHALL APPROVE THE METHOD PROPOSED FOR ATTACHING INTERIM COVERS TO SIGNS PRIOR TO INSTALLATION OF COVERS.

WORK SHALL INCLUDE ALL NECESSARY MATERIAL, HARDWARE, LABOR, AND EQUIPMENT REQUIRED TO PERFORM THE REQUIRED ITEM OF WORK.

BASIS OF PAYMENT SHALL BE INTERIM COVERING FOR SIGNS, PER SQUARE FOOT.

IN ADDITION TO THE 1276 SQ. FT. REFERRED TO IN THE PLANS, AN ADDITIONAL QUANTITY OF 300 SQ. FT. FOR ITEM 815, INTERIM COVERING FOR SIGNS, HAVE BEEN INCLUDED TO COVER SIGNS AS DIRECTED BY THE ENGINEER.

## 816 ALTERNATE DESIGNS FOR OVERHEAD SIGN SUPPORTS

IF THE CONTRACTOR DESIRES TO FURNISH AN ALTERNATE DESIGN FOR OVERHEAD SIGN SUPPORTS, THE ALTERNATE DESIGNS MUST 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. ALTERNATE DESIGNS MUST UTILIZE TUBULAR STRUCTURAL MEMBERS. SUBMISSIONS SHALL BE MADE TO OHIO DEPARTMENT OF HIGHWAYS, DESIGN SERVICES, 25 SOUTH FRONT STREET, COLUMBUS, OHIO 43215

## 816 ROCK EXCAVATION

WHERE SOLID ROCK IS ENCOUNTERED IN EXCAVATION FOR SIGN SUPPORT FOUNDATIONS, THE DEPTH TO BE EXCAVATED BELOW ROCK SURFACE MAY BE DECREASED AS DIRECTED BY THE ENGINEER TO A MAXIMUM OF THIRTY-FIVE (35) PERCENT OF DEPTH SPECIFIED IN THE PLANS.

## CAPPING OF CONDUIT

ALL CONDUIT IN FOUNDATIONS WHICH WILL NOT HAVE WIRE OR CABLE PULLED INTO IT DURING CONSTRUCTION SHALL HAVE THE ENDS CLOSED WITH CAPPED BUSHINGS OR OTHERWISE SEALED IN AN APPROVED MANNER TO COMPLETELY KEEP ALL MOISTURE AND FOREIGN MATTER OUT OF THE CONDUIT.

## SIGN LOCATIONS

ALL SIGNS SHALL BE PLACED NORMAL TO THE ROADWAY ON WHICH THEY ARE STATIONED UNLESS OTHERWISE NOTED ON THE PLANS.

## ERECTION OF OVERHEAD SPAN TYPE SIGN SUPPORTS (7 SERIES)

IN ALL CASES, SPAN TYPE OVERHEAD SIGN SUPPORTS AND SIGNS SHALL BE ERECTED CONCURRENTLY. AT NO TIME SHALL THE BOX TRUSSES BE ERECTED WITHOUT THE SIGN BEING IN PLACE WITHIN EIGHT (8) HOURS.

## 620 DELINEATORS, AS PER PLAN

THE CONTRACTOR SHALL HAVE THE OPTION OF DRIVING OR CONCRETE EMBEDDING THE DELINEATOR POST IN ACCORDANCE WITH DETAILS OF SHEET 16.

POSTS MAY BE TRIMMED ON THE EMBEDDED ENDS TO ADJUST FOR GRADE AND REQUIRED DELINEATOR MOUNTING HEIGHT. CONCRETE SHALL BE CLASS "C".

IN EITHER CASE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO UNDERGROUND UTILITIES OR CABLE DURING PERFORMANCE OF THIS ITEM OF WORK.

THE QUANTITY FURNISHED AND INSTALLED SHALL BE PAID FOR AT THE PRICE BID PER EACH WHICH PRICE SHALL BE FULL COMPENSATION FOR EITHER TYPE OF INSTALLATION.

## ITEM 621 EXISTING EDGE LINES REMOVED

THIS ITEM SHALL CONSIST OF THE REMOVAL OR OBLITERATION OF PAINTED PAVEMENT MARKINGS FROM THE PAVEMENT.

THE MARKINGS MAY BE REMOVED EITHER MECHANICALLY OR BY ANY OTHER METHOD APPROVED BY THE ENGINEER EXCEPT THAT THE METHOD SHALL NOT BE INJURIOUS TO THE APPEARANCE, TEXTURE OR STRENGTH OF THE PAVEMENT.

PAYMENT FOR ITEM 621 EXISTING EDGE LINES REMOVED SHALL BE MADE AT THE CONTRACT UNIT PRICE PER LINEAR FOOT AND SHALL CONSTITUTE FULL COMPENSATION FOR ALL WORK, INCLUDING MATERIALS, EQUIPMENT, LABOR, INCIDENTALS AND DISPOSAL OF SURPLUS MATERIALS.

## REMOVAL OF EXISTING DELINEATORS

THE EXISTING DELINEATORS FROM STATION ~~588+00~~ TO STATION ~~600+00~~ <sup>E.B.</sup> (S.R. 2) SHALL BE REMOVED AND DISPOSED OF. THE COST OF THE REMOVAL AND THE DISPOSAL OF THE DELINEATORS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION.

## 816 BREAKAWAY SIGN SUPPORT CONNECTION

THIS ITEM CONSISTS OF CUTTING AND DRILLING THE STRUCTURAL SUPPORT; FURNISHING AND ATTACHING THE FUSE PLATE, AND FURNISHING AND ATTACHING THE BASE PLATES FOR EACH STRUCTURAL SIGN SUPPORT AS INDICATED ON THE PLANS.

ALL MATERIALS, LABOR AND EQUIPMENT REQUIRED TO FABRICATE AND INSTALL THIS ITEM FOR EACH SIGN SUPPORT (EXCLUSIVE OF THE STRUCTURAL SIGN SUPPORT) WILL BE MEASURED AND PAID FOR AT THE UNIT PRICE BID FOR ITEM 816 EACH BREAKAWAY SIGN SUPPORT CONNECTION.

## 623 CONSTRUCTION LAYOUT STAKES FOR SIGNS

THE CONTRACTOR SHALL STAKE OUT ALL SIGNS IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 816 PRIOR TO INSTALLATION OF ANY FOUNDATIONS OR SUPPORTS.

AFTER STAKEOUT THE CONTRACTOR SHALL NOTIFY THE ENGINEER A MINIMUM OF SEVEN (7) DAYS IN ADVANCE OF SCHEDULED WORK. SUPPORT LOCATIONS FOR EACH SUPPORT WILL BE FIELD CHECKED AND APPROVED BY THE ENGINEER WHO SHALL COORDINATE WITH THE DIVISION AND/OR CITY TRAFFIC ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION WORK REQUIRED.

IF BOTH MAJOR AND MINOR TYPE SUPPORTS ARE INCLUDED WITHIN THE PROJECT IT WILL BE PERMISSIBLE TO PERFORM THE CONSTRUCTION STAKE-OUT AND FIELD INSPECTION IN TWO (2) STAGES, ONE FOR MAJOR SUPPORTS AND ONE FOR MINOR SUPPORTS.

COST FOR THIS ITEM OF WORK WILL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 623 CONSTRUCTION LAYOUT STAKES

## RESTORATION OF DISTURBED AREAS

THE CONTRACTOR SHALL REPLACE ALL MEDIAN PAVEMENT, SEEDED AND SODDED AREAS, PAVED SHOULDERS, AND ALL OTHER DISTURBED SURFACES TO A CONDITION EQUAL TO THAT EXISTING BEFORE THE WORK WAS STARTED. ALL REPLACEMENTS SHALL BE DONE IN ACCORDANCE WITH THE PERTINENT SPECIFICATION ITEMS AND AS DIRECTED BY THE ENGINEER. PAYMENT FOR ALL RESTORATION WORK, INCLUDING MATERIALS, EQUIPMENT, LABOR, INCIDENTALS AND DISPOSAL OF ALL SURPLUS MATERIALS, SHALL BE INCLUDED IN THE UNIT PRICES BID FOR ITEMS 816.

## 816 OVERHEAD SIGN SUPPORT FABRICATION

IN LIEU OF PLAN DETAILS THE FOLLOWING ARE FABRICATION REQUIREMENTS FOR SUPPORTS IN THIS PROJECT:

ALL HANDHOLES FABRICATED FOR SUPPORTS SHALL BE 4" X 8" IN SIZE WITH FACE FLUSH WITH POLE EXTERIOR AT THE REQUIRED LOCATIONS DESCRIBED IN PLANS.

THE ELECTRICAL SERVICE ENTRY THROUGH EACH VERTICAL SIGN SUPPORT POLE SHALL BE PROVIDED BY MEANS OF A TWO INCH (2") HALF-COUPLING CENTERED AT A HEIGHT OF 5'-0" ABOVE THE BOTTOM OF THE BASE PLATE.

THE TYPE "Y" OR "Z" DISCONNECT SWITCH ENCLOSURE SHALL BE MOUNTED IN SUCH A MANNER THAT THE BOTTOM OF THE ENCLOSURE WILL BE 4'-9 1/2" (±1/4") ABOVE BOTTOM OF BASE PLATE.

PAYMENT FOR THE FABRICATION REQUIREMENT SPECIFIED ABOVE SHALL BE INCIDENTAL TO THE COST OF EACH SUPPORT STRUCTURE.

## 614 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 815. SIGN MATERIAL SHALL CONFORM WITH THE FOLLOWING SCHEDULE:

INDIVIDUAL SIGN AREA	MATERIAL
LESS THAN 10 SQ. FT.	0.060 ALUM. SHEET
10-16 SQ. FT.	0.080 ALUM. SHEET
16-20 SQ. FT.	0.100 ALUM. SHEET
OVER 20 SQ. FT.	3/4 INCH PLYWOOD

THE CONTRACTOR SHALL HAVE THE OPTION OF FURNISHING EXTRUSHEET ALUMINUM PANELS AS A SUBSTITUTE FOR PLYWOOD.

ALL SUPPORTS FOR GROUND MOUNTED SIGNS NOT ERECTED ON DRUMS OR OVERPASS MOUNTED SHALL BE STEEL CHANNEL TYPE, DRIVEN TO A MINIMUM DEPTH OF 5 FEET. SIGNS SHALL HAVE 1, 2, OR 3 SEPARATE SUPPORTS IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

TOTAL SIGN ASSEMBLY AREA (SQ. FT.)	SUPPORT TYPE	SIGN LENGTH (HORIZ.)	
10 OR LESS	4 FT. OR LESS	4-10 FT.	11 FT. OR MORE
10-20	1-4 LB. POST	2-3 LB. POST	-
21-40	1-6 LB. BEAM	2-4 LB. POST	-
41-75	-	2-6 LB. BEAM	3-6 LB. BEAM
		-	3-8 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 FIGURES S-2 AND S-3 (PAGES 14 AND 15) OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

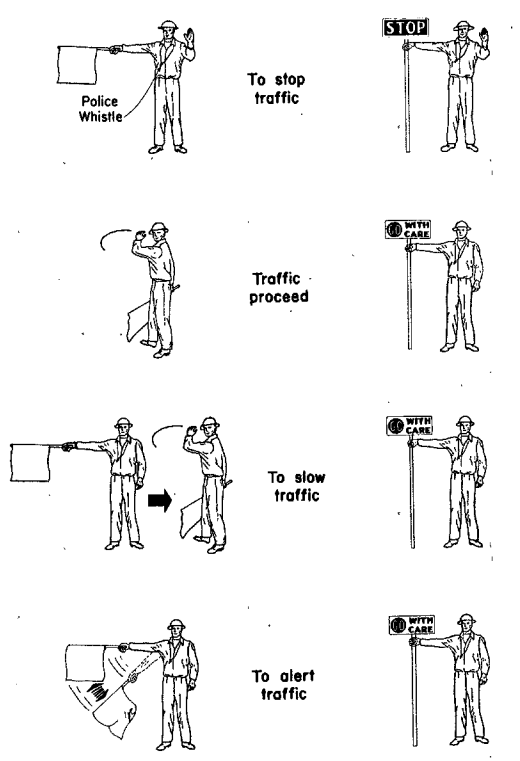
STANDARDS AND SIGN LAYOUTS FOR TEMPORARY SIGNS ARE AVAILABLE FROM THE OFFICE OF HIGHWAY DESIGN SERVICES, 25 SOUTH FRONT STREET, COLUMBUS, OHIO, 43215.

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.

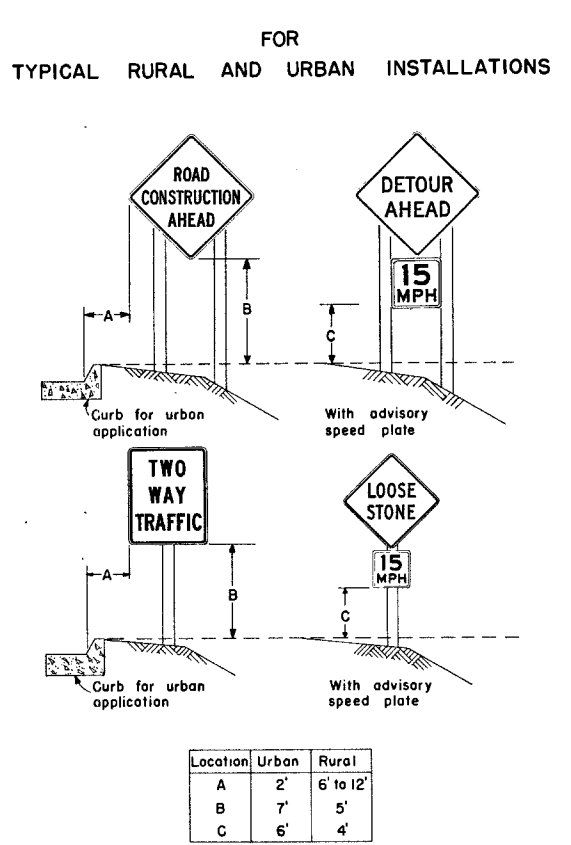
ALL SIGNS AND SUPPORTS FURNISHED, ERECTED, MAINTAINED, AND REMOVED BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

BASIS OF PAYMENT FOR THE ABOVE DESCRIBED WORK SHALL BE INCLUDED IN THE LUMP SUM ITEM OF WORK FOR ITEM 614, MAINTAINING TRAFFIC.

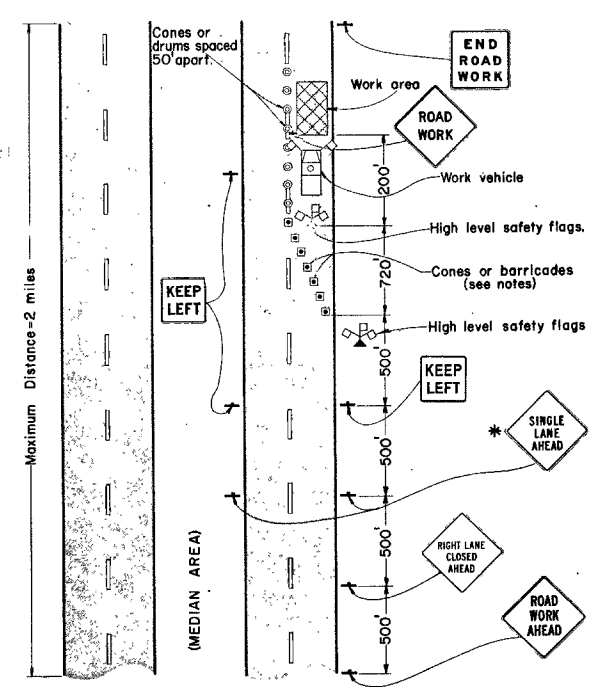
**PROCEDURES FOR FLAGMAN**



**HEIGHT AND LATERAL LOCATION OF SIGNS FOR TYPICAL RURAL AND URBAN INSTALLATIONS**

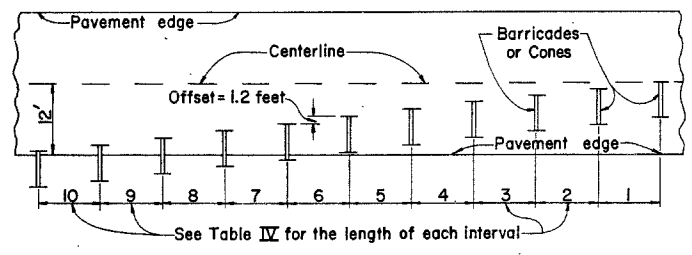


**TYPICAL APPLICATIONS OF TRAFFIC CONTROL DEVICES FOR CLOSING ONE LANE ON A MULTIPLE LANE HIGHWAY**



**NOTES:**  
 1. See Table III and Table IV for spacing and offset of cones on the taper.  
 2. Erect additional KEEP LEFT signs in the median of intervals of 1000 feet through the restricted area.

**PLACEMENT OF BARRICADES OR CONES**



**TAPER RATES AND LENGTHS**

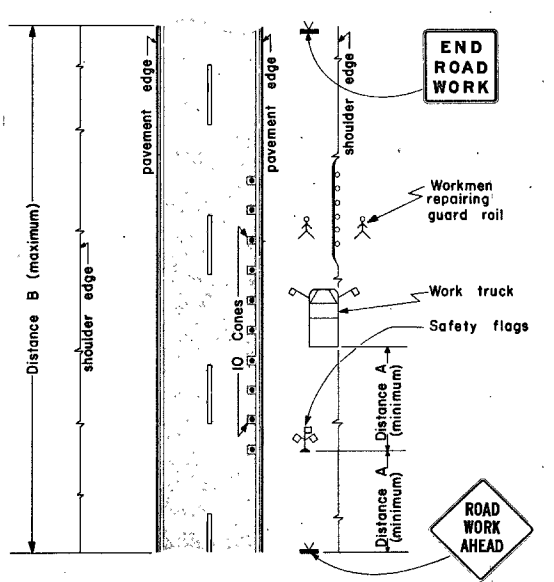
HIGHWAY DESIGN SPEED (MPH)	85% HIGHWAY SPEED (MPH)	RATIO (RATE)	TAPER LENGTHS			
			9' Lane	10' Lane	11' Lane	12' Lane
10	9	1:10	90	100	110	120
20	18	1:20	180	200	220	240
30	27	1:30	270	300	330	360
40	34	1:40	360	400	440	480
50	40	1:50	450	500	550	600
60	45	1:60	540	600	660	720
70	49	1:70	630	700	770	840

**LOCATION OF CONES OR BARRICADES**

TYPE	NUMBER CONES OR BARRICADES	INTERVALS IN FEET BETWEEN CONES OR BARRICADES									
		1	2	3	4	5	6	7	8	9	10
URBAN	9	16	24	32	40	48	56	64	68		
	10	16	24	32	40	48	56	64	68	68	
MINOR RURAL ROUTE	10	28	36	44	52	60	68	76	84	88	
	11	28	36	44	52	60	68	76	84	88	88
MAJOR RURAL ROUTE	10	38	46	54	62	70	78	86	94	98	
	11	38	46	54	62	70	78	86	94	98	98
FREEWAY	10	48	56	64	72	80	88	96	104	108	
	11	48	56	64	72	80	88	96	104	108	108

**NOTE:** Additional cones or barricades may be added to the start of the taper by maintaining the even spacing of the last distance.

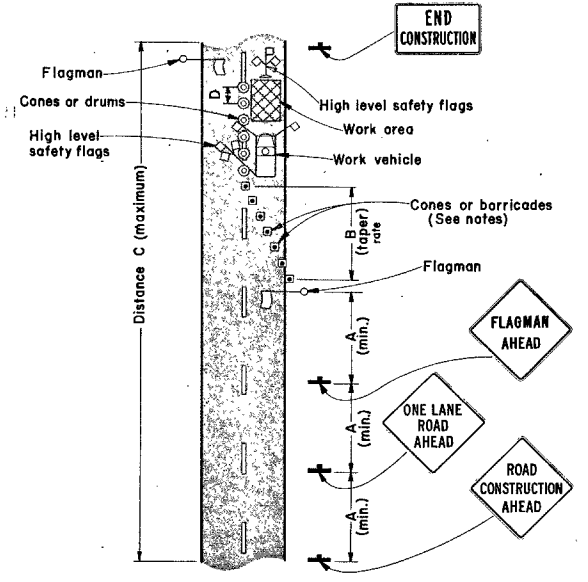
**TYPICAL APPLICATIONS OF TRAFFIC CONTROL DEVICES FOR STATIONARY OPERATIONS ON THE SHOULDER**



**NOTES:**  
 1. Space the 10 cones as shown in table IV.  
 2. For work within the median, install the same cones and signs for both directions of travel.

TYPE OF ROADWAY	DISTANCE	
	A-ft.	B-mi.
Urban	200	0.5
Rural-Minor	350	1.0
Rural-Major	500	1.0
Expressway	750	2.0

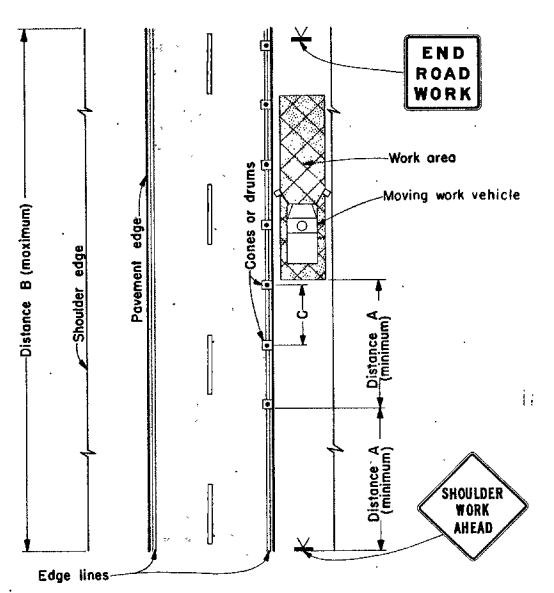
**TYPICAL APPLICATIONS OF TRAFFIC CONTROL DEVICES FOR STATIONARY OPERATIONS IN ONE LANE**



**NOTES:**  
 1. See Table III and Table IV for locating cones on the taper.  
 2. Use the same warning signs on the opposite approach.

TYPE OF ROADWAY	DISTANCE			
	A-ft.	B-rate	C-mi.	D-ft.
Urban	200	1:10	0.5	50
Rural-Minor	350	1:20	1.0	100
Rural-Major	500	1:40	1.0	100

**TYPICAL APPLICATIONS OF TRAFFIC CONTROL DEVICES FOR MOVING OPERATIONS ON THE SHOULDER**



**NOTES:**  
 1. For work within the median, use the same treatment for both directions of travel.

TYPE OF ROADWAY	DISTANCE		
	A-ft.	B-mi.	C-ft.
Urban	200	0.5	50
Rural-Minor	350	1.0	100
Rural-Major	500	1.0	200
Expressway	750	2.0	300

**- SYMBOLS -**

- Sign mounted on a post.
- Sign mounted on an easel.
- Sign on a portable barricade.
- Sign on a fixed barricade.
- Signs on a truck.
- Cone
- Drum
- Wet paint guard.
- Road edge delineator
- Safety flags
- Flagman
- Workman
- Guard rail
- Painted centerline.

**614 MAINTENANCE OF TRAFFIC**

TRAFFIC SHALL BE MAINTAINED ON THE EXISTING PAVEMENT WITHOUT INTERRUPTION DURING CONSTRUCTION OF THE WORK EXCEPT AS OTHERWISE APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL SET UP AND OPERATE HIS EQUIPMENT IN SUCH A MANNER AS TO ENCR OACH UPON THE TRAVELED WIDTH OF THE PAVEMENT TO A MINIMUM EXTENT.

ALL TRAFFIC CONTROL DEVICES REQUIRED INSIDE THE WORK LIMITS, SHALL BE FURNISHED, ERECTED AND MAINTAINED BY THE CONTRACTOR, INCLUDING THE ROAD CONSTRUCTION SIGN (C-4) AND THE END CONSTRUCTION SIGN (C-8) ERECTED ON THE WING BARRICADES IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING MC-3.

ALL WARNING, REGULATORY, AND GUIDE SIGNS REQUIRED OUTSIDE THE WORK LIMITS SHALL BE FURNISHED, ERECTED AND MAINTAINED BY THE DEPARTMENT, EXCEPT AS SPECIFIED IN THE PLANS.

ALL SIGNS, CONES, BARRICADES AND FLAGMEN SHALL BE UTILIZED IN CONFORMANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, 1963 EDITION.

LANE RESTRICTIONS ON ANY ROADWAY OR STREET SHALL OCCUR DURING HOURS OTHER THAN 7:00 A.M. TO 9:00 A.M. AND 4:00 P.M. TO 6:00 P.M. MONDAY THROUGH FRIDAY.

WHEN IT IS NECESSARY TO STOP ALL TRAFFIC FOR ERECTION OF OVERHEAD SUPPORTS, THE WORK SHALL BE SO ARRANGED THAT THE STOPPAGE IS LESS THAN TEN (10) MINUTES IN ANY ONE (1) CONSECUTIVE THIRTY (30) MINUTE PERIOD.

NO TRAFFIC STOPPAGE SHALL OCCUR FOR ERECTION OF OVERHEAD SUPPORTS WITHOUT \*\* AT EACH SITE FOR ASSISTANCE IN CONTROLLING TRAFFIC AND INFORMING DRIVERS AS TO THE NATURE OF THE DELAY.

\* SINGLE LANE AHEAD, SIGN NOT REQUIRED WHEN TWO OR MORE LANES ARE OPEN.

\*\* ONE UNIFORMED PATROLMAN WITH A MARKED PATROL CAR.

BUREAU OF TRAFFIC  
OHIO DEPARTMENT OF HIGHWAYS

MAINTENANCE of TRAFFIC DATE 5-24-68

614  
APPROVED ENGINEER OF TRAFFIC

# GENERAL SUMMARY

FED. RD DIVISION	STATE	PROJECT
2	OHIO	

LOR-90-948

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ITEM	SHEET NUMBER										ITEM	QUANT.	UNIT	DESCRIPTION				
	100% State Partic.					Normal Partic.									100% State Partic.	Normal Partic.	TYPE CODE	T221
	8	10				2	10											
																TRAFFIC CONTROL		
	1370										1370	976	815	2346	Sq. Ft.	Sign Erection, Extra Sheet Type		
											0	82	815	82	Sq. Ft.	Sign Erection, Flat Sheet Type		
	894					300	382				894	682	815	1576	Sq. Ft.	Interim Covering for Signs		
							85				0	85	816	85	Lin. Ft.	Structural Supports, 6 lb beam Driven		
	1										1	0	816	1	Each	Overhead Sign Support, 7.2 Des 1 54' Span		
	1										1	0	816	1	Each	Overhead Sign Support, 7.2 Des 1 49' Span		
	1										1	0	816	1	Each	Overhead Sign Support, 7.3 Des 1 54' Span		
	1										1	0	816	1	Each	Overhead Sign Support, 7.5 Des 2 48' Span		
	1										1	0	816	1	Each	Overhead Sign Support, 7.5 Des 2 70' Span		
							1				0	1	816	1	Each	Overhead Sign Support, 7.5 Des 2 68' Span		
							1				0	1	816	1	Each	Overhead Sign Support, 7.5 Des 2 50' Span		
							1				0	1	816	1	Each	Overhead Sign Support, 12.24 Des 7 20' Arm		
	1						1				1	0	816	1	Each	Overhead Sign Support, 12.24 Des 7 22' Arm		
							1				0	1	816	1	Each	Overhead Sign Support, 12.24 Des 7 24' Arm		
	45						28.6				45.0	28.6	816	73.6	Cu. Yd.	Concrete for Overhead Sign Supports		
	14						10				14	10	625	24	Each	72" Lighting Fixture with SHO Lamps		
	3						2				3	2	625	5	Each	96" Lighting Fixture with SHO Lamps		
	1										1	0	625	1	Each	Sign Ballasts, Type C		
	8						6				8	6	625	14	Each	Sign Ballasts, Type D		
	4						2				4	2	625	6	Each	Transformers, Type III		
	2						2				2	2	625	4	Each	Transformers, Type IV		
	2										2		625	2	Each	Photoelectric Cell		
	6						4				6	4	625	10	Each	Pull Box 713.08		
	4						2				4	2	625	6	Each	30-Amp Fusible Disconnect Switch with Enclosure Type Y		
	2						2				2	2	625	4	Each	30-Amp Fusible Disconnect Switch with Enclosure Type Z		
	4										4		625	4	Each	Connector Kits, Type I		
	6						4				6	4	625	10	Each	Ground Rod		
	1070						6				1070		625	1070	Lin. Ft.	Trench 30" deep		
	9						6				9	6	625	15	Each	Signs Wired Complete		
	6						4				6	4	625	10	Each	Sign Service		
	1090										1090		625	1090	Lin. Ft.	1 1/2" Duct-cable with 2 No. 4 AWG cables		
							0.20				0	0.20	621	0.20	Miles	4" Lane Line		
							5.27				0	5.27	621	5.27	Miles	4" Edge Line		
							0.79				0	0.79	621	0.79	Miles	6" Lane Lines		
							1057				0	1057	621	1057	Lin. Ft.	8" Channelizing Lines		
							700				0	700	621	700	Lin. Ft.	Broad Transverse Lines, 24"		
							400				0	400	621	400	Lin. Ft.	Curb Marking		
							1250				0	1250	621	1250	Lin. Ft.	Existing Edge Lines Removed		
							68				0	68	620	68	Each	Delineators, Type A', Post Mounted		
							1				0	1	620	1	Each	Delineators, Type A', Bracket Mounted		

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FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

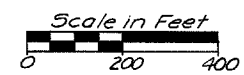
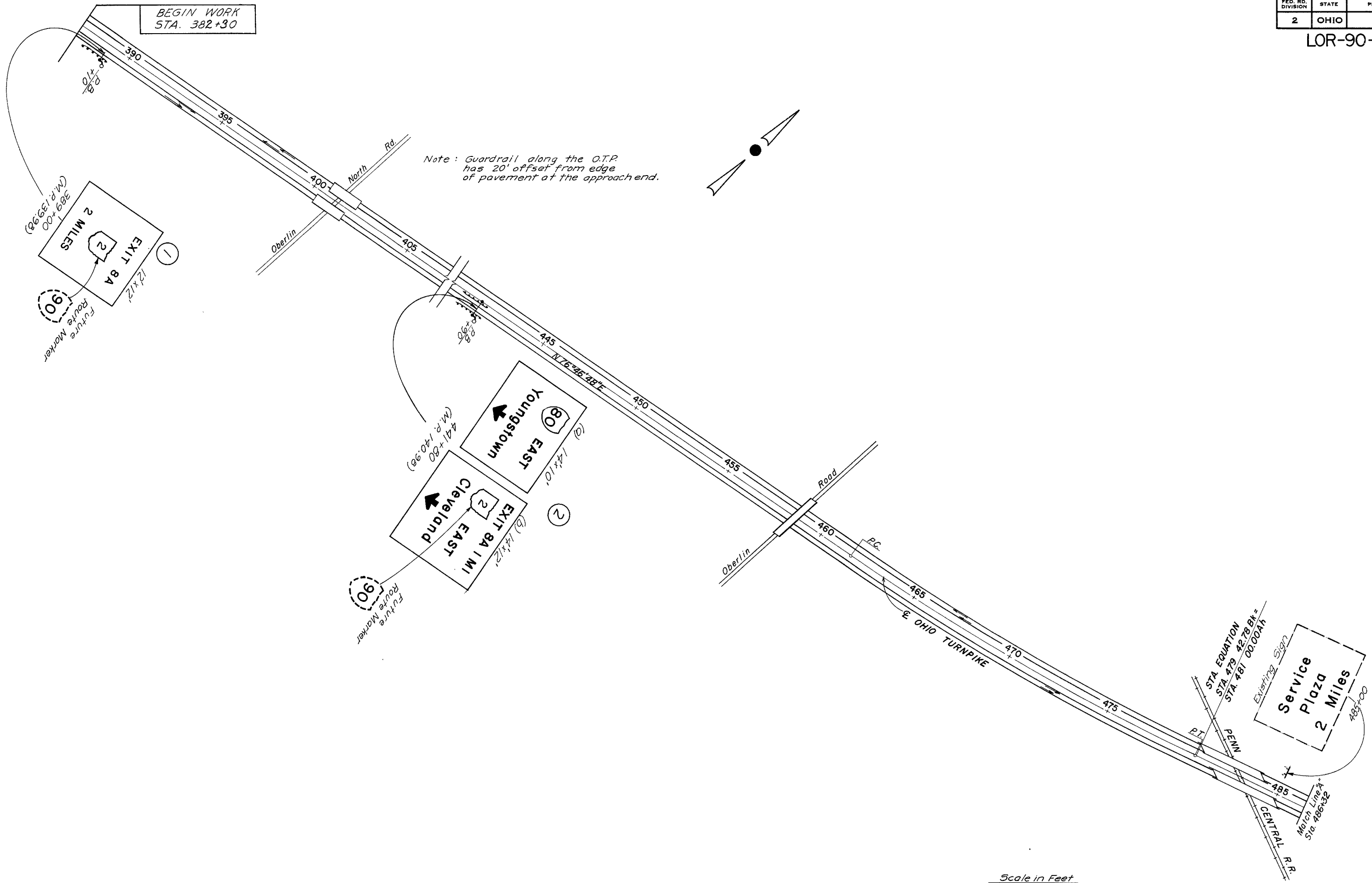
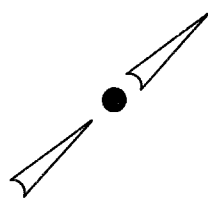
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BEGIN WORK  
STA. 382+30

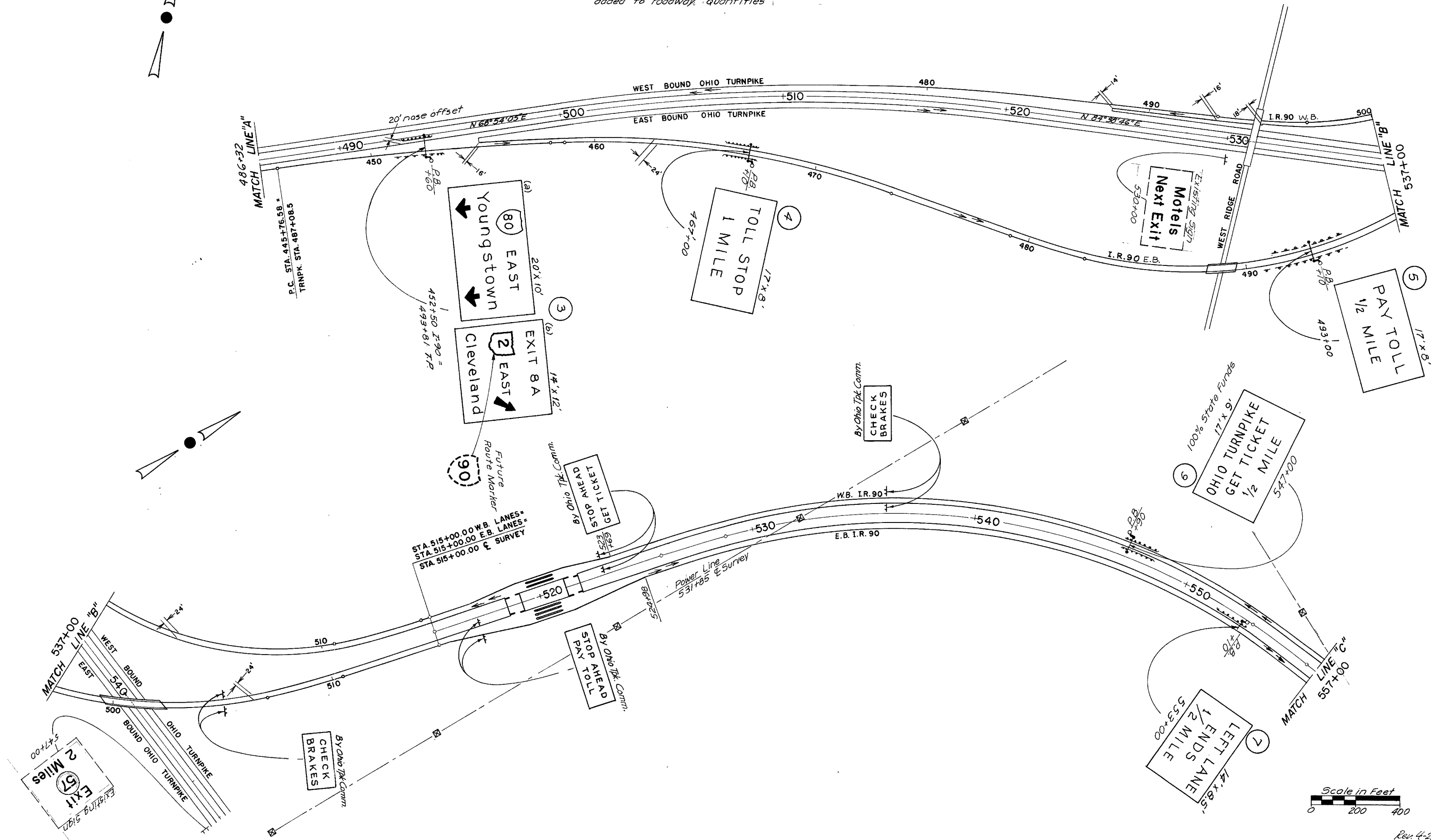
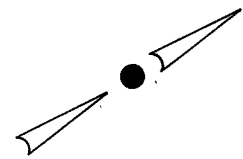
Note: Guardrail along the O.T.P.  
has 20' offset from edge  
of pavement at the approach end.



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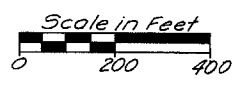
**SIGNING PLAN~ OHIO TPKE Sta 389+00 to Sta 486+32**

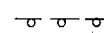
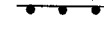
--- Roadway Guardrail  
 --- Guard Rail for sign protection to be added to roadway quantities

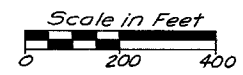
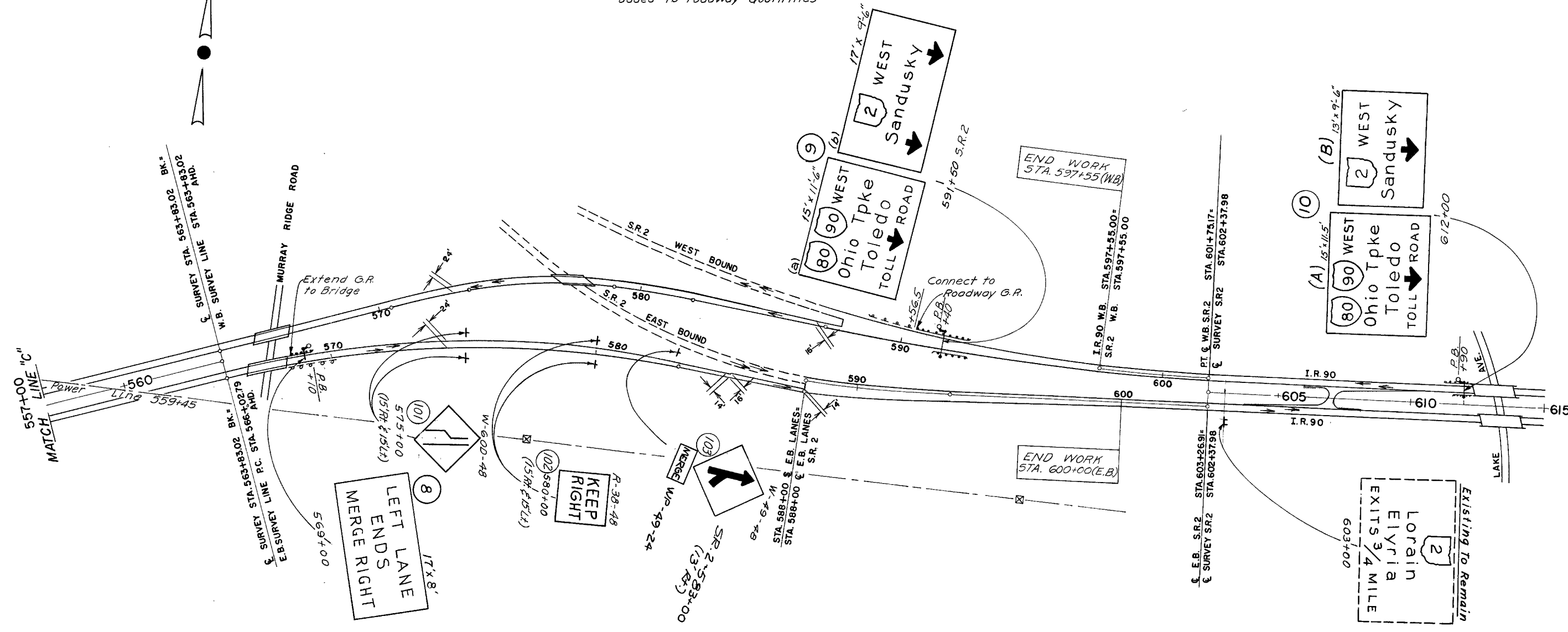


STA. 515+00.00 W.B. LANES =  
 STA. 515+00.00 E.B. LANES =  
 STA. 515+00.00 ± SURVEY

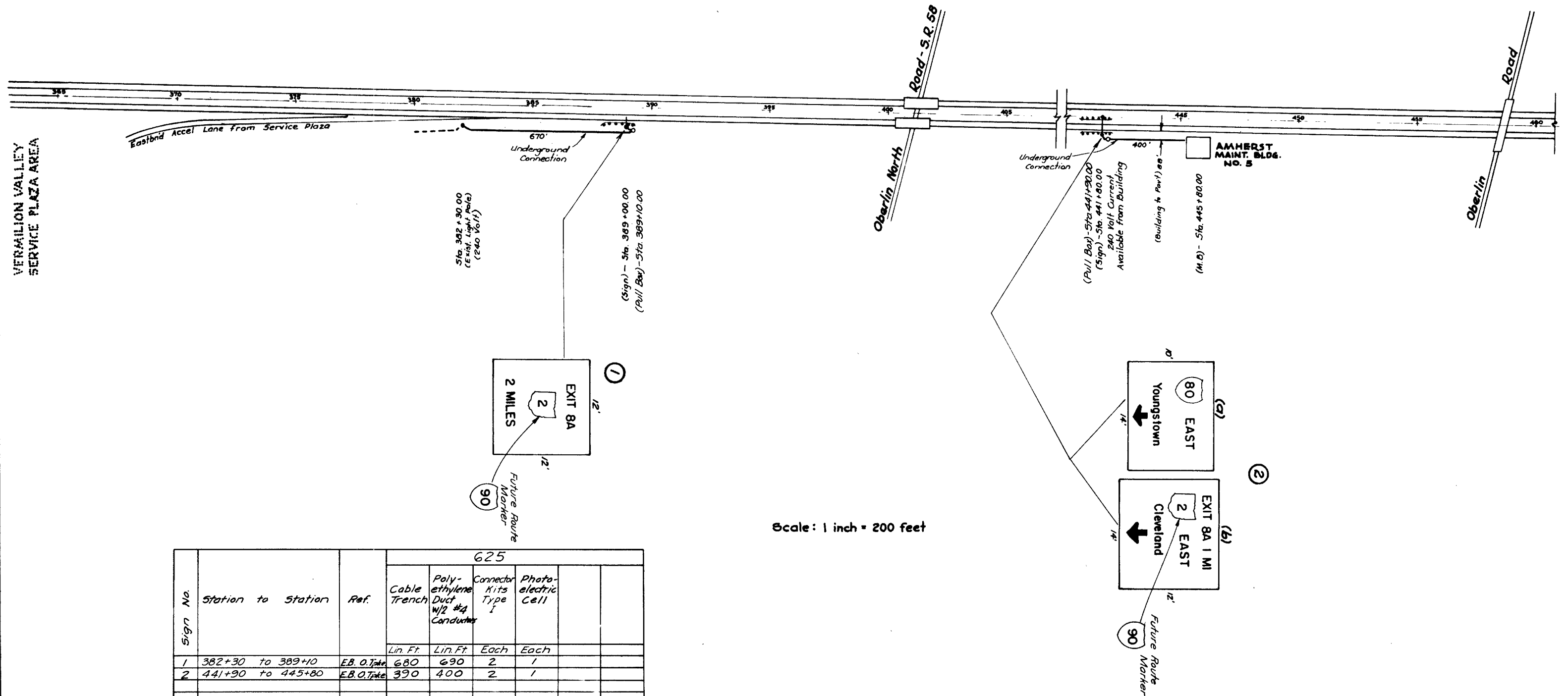
Power Line  
 531+85 ± Survey



 Roadway Guardrail  
 Guardrail for sign protection to be added to roadway quantities



# PROPOSED ELECTRICAL POWER LINES FOR SIGN LIGHTING



VERMILION VALLEY  
SERVICE PLAZA AREA

Sign No.	Station to Station	Ref.	625			
			Cable Trench	Poly-ethylene Duct w/2 #4 Conductor	Connectr Kits Type I	Photo-electric Cell
			Lin. Ft.	Lin. Ft.	Each	Each
1	382+30 to 389+10	E.B. O. Take	680	690	2	1
2	441+90 to 445+80	E.B. O. Take	390	400	2	1
100% State Totals			1070	1090	4	2

Scale: 1 inch = 200 feet

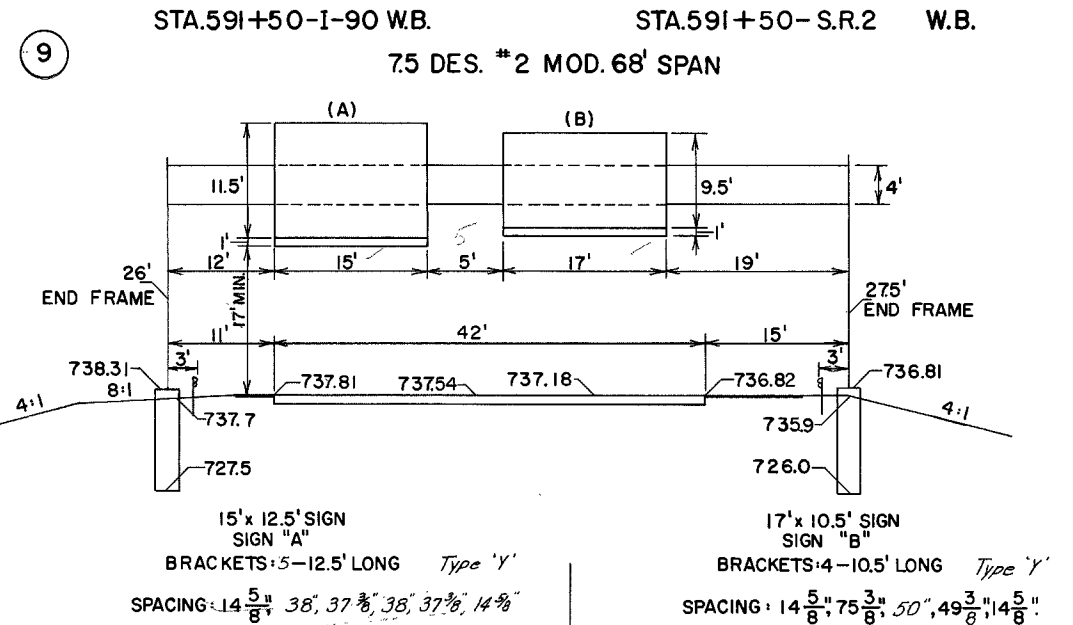
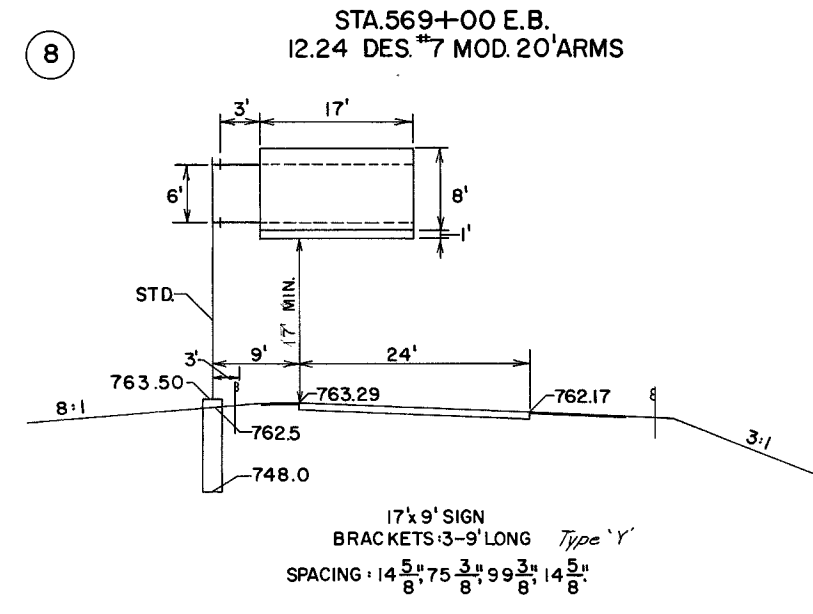
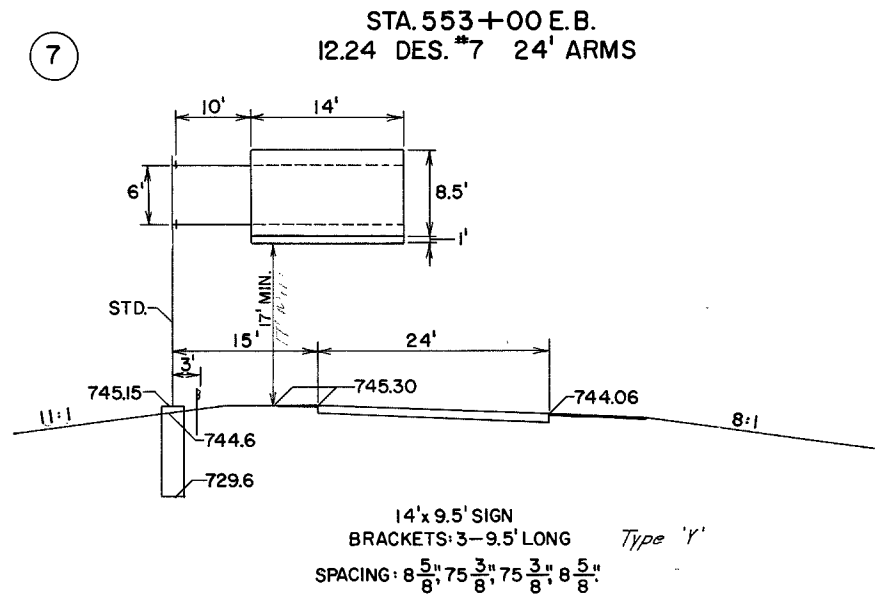
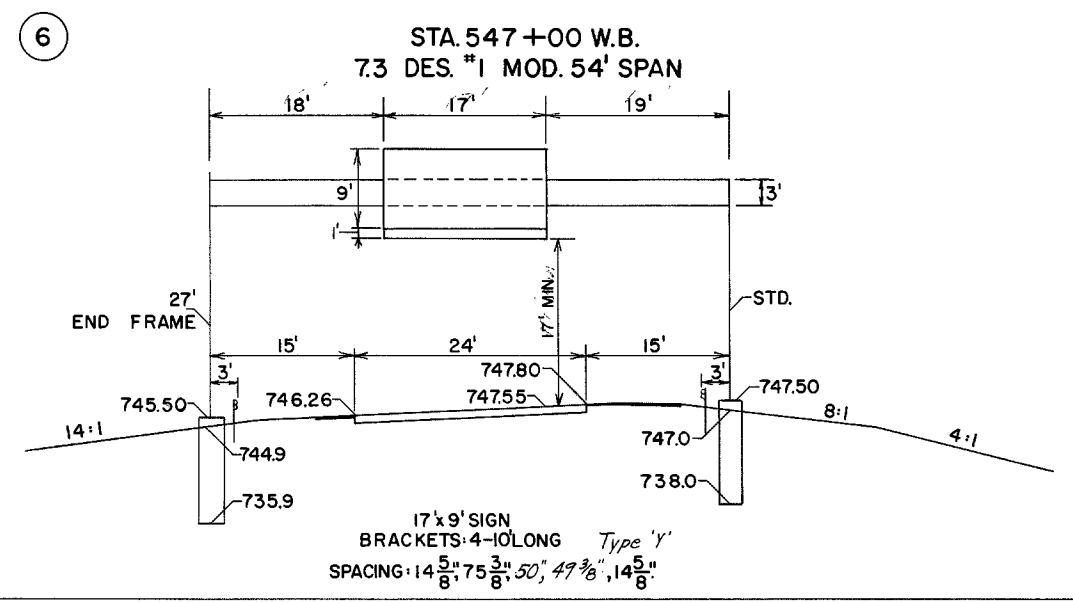
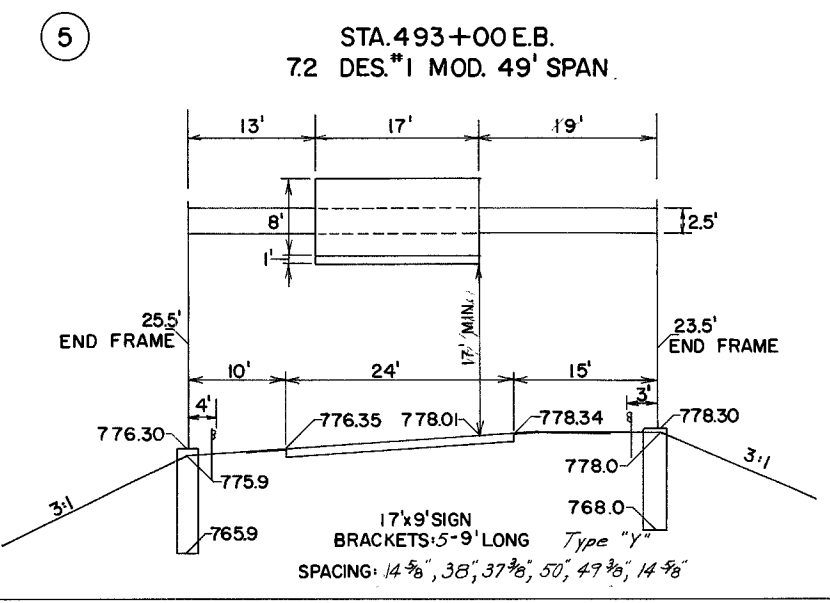
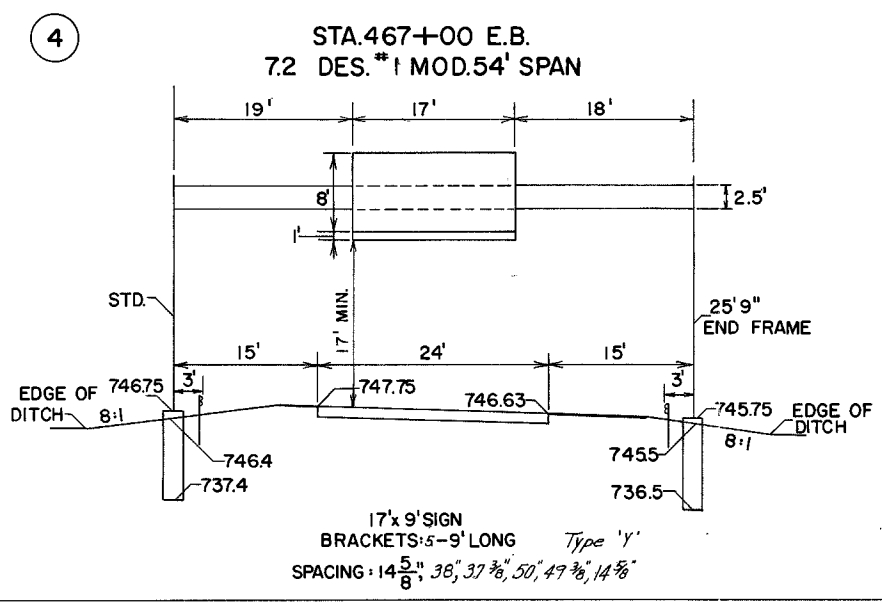
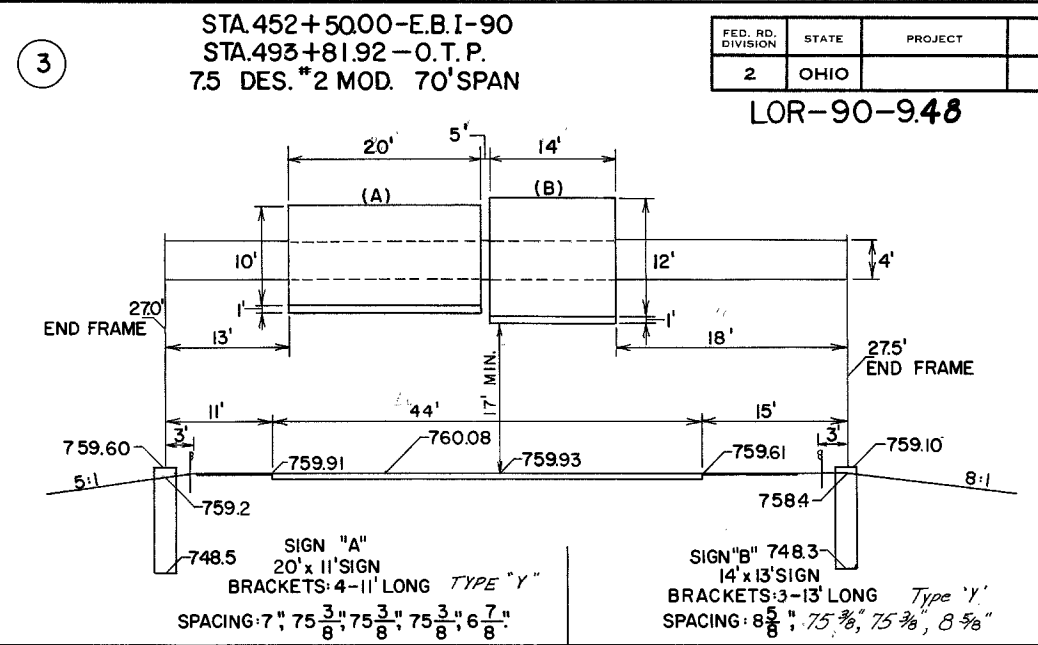
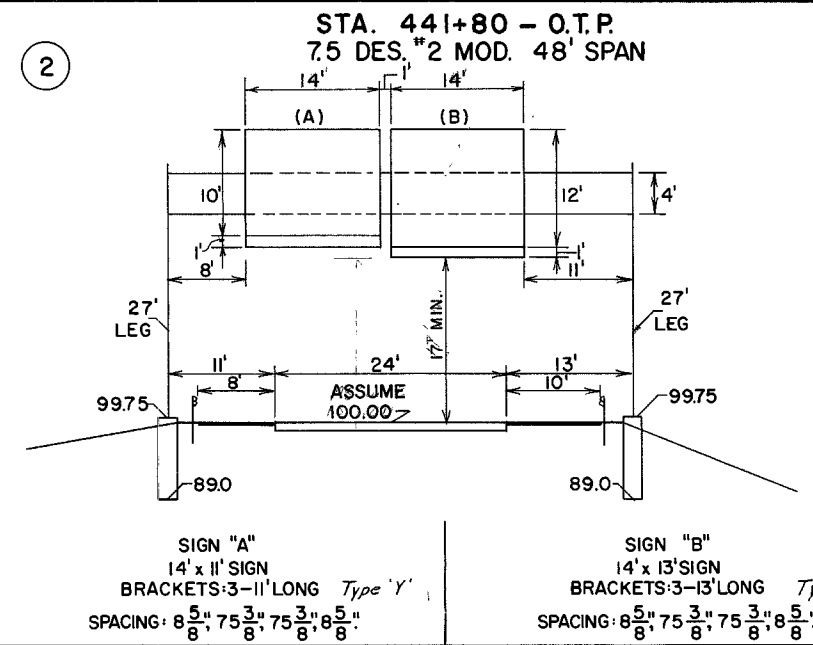
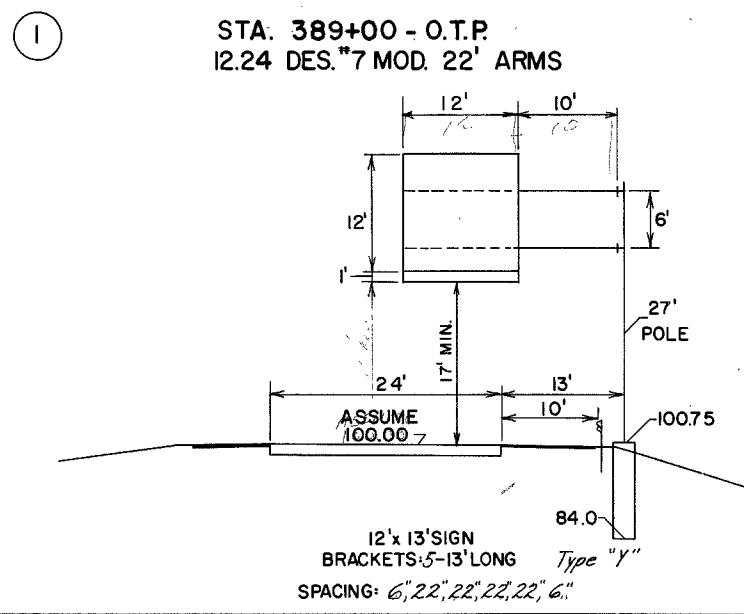


FED. RD. DIVISION	STATE	PROJECT
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ELEVATION VIEWS

# TRAFFIC CONTROL QUANTITIES

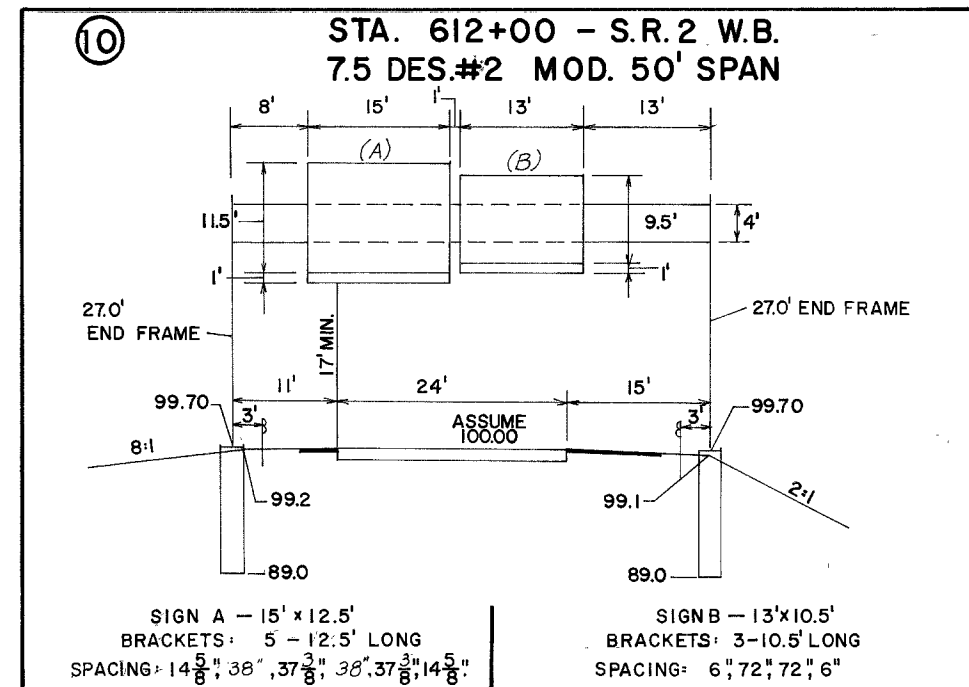
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Ref.	Station	Side	621~TRAFFIC ZONE PAINT MARKING							620~DELINEATORS							
			4" Edge Line	4" Lane Line	6" Lane Line	8" Channel Line	Broad Transverse Lines	Curb Marking	Removal of Edge Line	Side Spacing	Post Mounted Type A	Brkt. Mounted Type A					
			Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Feet	Each	Each					
E.B. I.R.90	524+98 to 600+00	Rt.	7,502														
	524+98 to 585+00	Lt.	6,002														
	590+52 to 593+25	Lt.		103													
	524+98 to 563+83	Lt.			1,457												
	566+02 to 579+00	Lt.			487												
	588+00 to 590+52	Lt.				252											
W.B. I.R.90	523+69 to 597+65	Lt.	7,386														
	523+69 to 587+75	Rt.	6,406														
	523+69 to 582+75	Lt.			2,215												
	587+75 to 591+80	Rt.				405											
	584+00 to 588+00	Rt.						400									
E.B. S.R.2	588+00 to 593+25	Rt.	525														
	593+25 to 600+00	Rt.							675								
W.B. S.R.2	587+80 to 591+80	Lt.				400											
	587+80 to 591+80	Lt.						700									
	591+80 to 597+55	Lt.							575								
E.B. I.R.90	526+00 to 562+00	Rt.									Rt.	200	19	0			
	566+00 to 600+00	Rt.									Rt.	200	17	1			
W.B. I.R.90	525+00 to 587+00	Rt.									Rt.	200	32	0			
Totals			27,821 Ft.	1,038 Ft.	4,159 Ft.	1,057	700	400	—	1250					68	1	



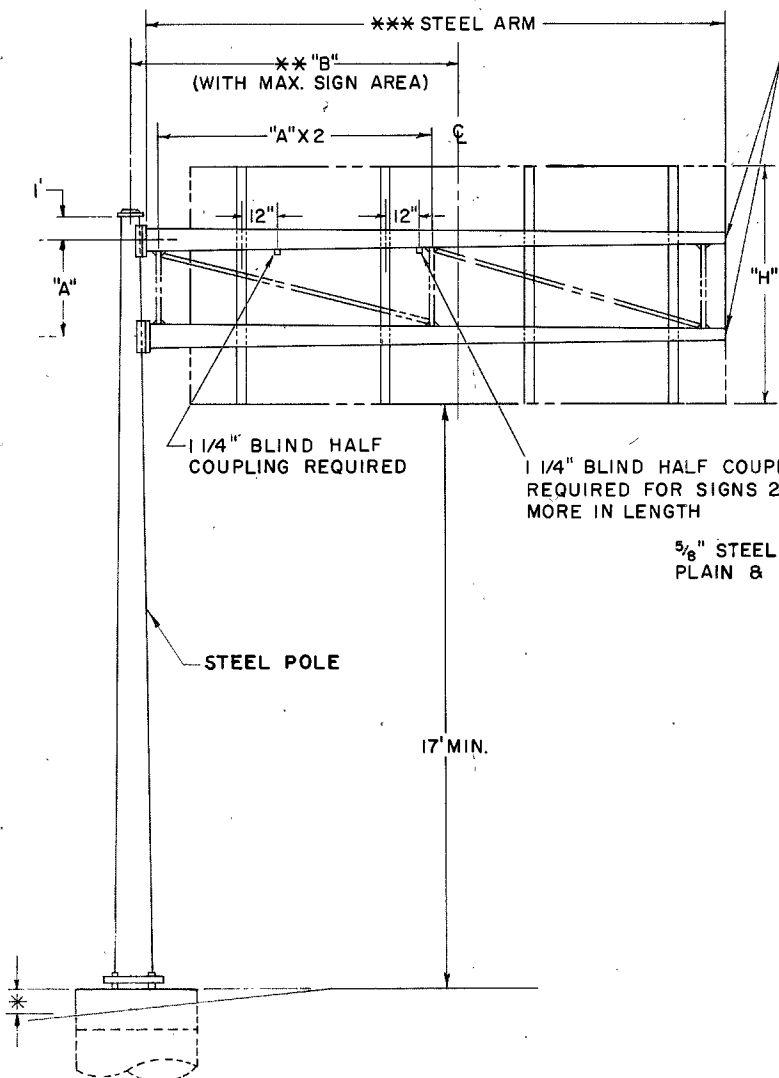
Sign No.	Station	625~SIGN BALLASTS					625~LIGHT FIXTURES					625~TRANSFORMERS				625~WIRING				
		Power Rating	Type A	Type C	Type D	Pull Boxes	72" Fixture HO Lamp	96" Fixture HO Lamp	72" Fixture SHO Lamp	96" Fixture SHO Lamp	Fixture Support Arm 4'-3" Long*	Fixture Support Arm 5'-9" Long*	KVA Rating	Type III	Type V	30A Fused Disconnect Y-Enclosure	30A Fused Disconnect Z-Enclosure	Ground Rod and Wire Connection	Signs Wired Complete	Sign Service
		Watts	Each	Each	Each	Each	Each	Each	Each	Each	Each	Each	KVA	Each	Each	Each	Each	Each	Each	Each
5	493+00 E.B. I.R.90	425				1				3		0.75	1						1	1
6	547+00 W.B. I.R.90	425				1				3		0.75	1					1	1	
1	389+00 O.T.P.	425				1				3		0.75	1					1	1	
2A	441+80 O.T.P.	425				1				3		1.5		1				1	2	
2B	--	425				1				3		1.5						1	2	
3A	493+81 O.T.P.	675				1				4		1.5						3	1	
3B	--	425				1				3		0.75	1					1	1	
4	467+00 E.B. I.R.90	425				1				3		0.75	1					1	1	
100% State Partic. Totals						8				14	3		4	2	4	2	6	9	6	
10A	612+00 W.B. S.R.2	425				1				3		1.5		1				2	1	
10B	--	425				1				3		1.5						2	1	
7	553+00 E.B. I.R.90	425				1				3		0.75	1					1	1	
8	569+00 E.B. I.R.90	425				1				3		0.75	1					1	1	
9A	591+50 W.B. I.R.90	425				1				3		1.5		1				2	1	
9B	--	425				1				3		1.5						2	1	
Federal Partic. Totals						6				10	2		2	2	2	2	4	6	4	

Ref.	Station	Side	606~GUARD RAIL #							
			Guard Rail, Type 4 Modified as per plan	Guard Rail Type 5 †	Anchor Assembly, Modified As Per Plan	Guard Rail Type 5 †	Anchor Assembly	Bridge Terminal Assembly Type A		
			Lin. Ft.	Lin. Ft.	Each	Lin. Ft.	Each	Each		
E.B. O.T.P.	388+00 to 389+25	Rt.	100							
E.B. O.T.P.	440+80 to 442+05	Rt.	100							
--	--	Lt.	100							
E.B. O.T.P.	492+81 to 494+06	Lt.	100							
E.B. I.R.90	465+75 to 467+25	Rt.		12.5						
--	--	Lt.		12.5						
W.B. I.R.90	546+75 to 548+25	Lt.		12.5						
W.B. I.R.90	546+75 to 548+25	Rt.		12.5						
100% State Partic. Totals			400	500	16					
E.B. I.R.90	551+75 to 553+25	Lt.							150	2
E.B. I.R.90	568+340 to 569+215	Lt.							87.5	1
W.B. S.R.2	590+56.5 to 592+81.5	Rt.							82.5	1
W.B. I.R.90	591+25.0 to 592+75.0	Lt.							150	2
W.B. S.R.2	611+50 to 612+25	Lt.							25	1
Federal Participation Totals									631.5	7

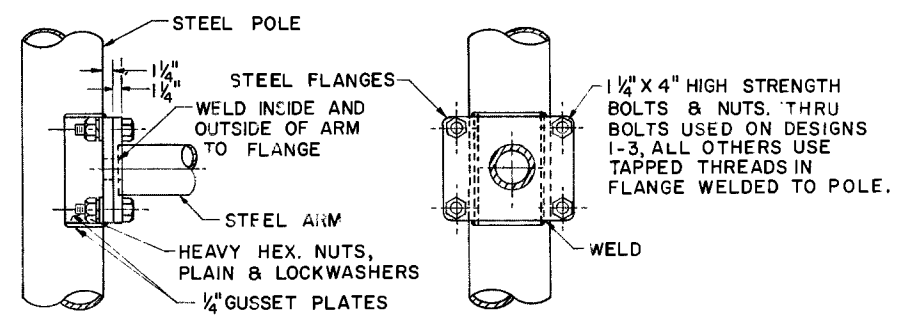
Sign No.	Station	815~SIGN ERECTION				816~OVERHEAD SIGN SUPPORTS										816~STRUC. SPTS.		816~CONCRETE			
		Actual Sign Size (L x H)	Extru-Sheet Type	Flat Sheet Type	Interim Covering for Signs as per plan	No. 7.2 Design 1 Modified Span: 54'-0"	No. 7.2 Design 1 Modified Span: 49'-0"	No. 7.3 Design 1 Modified Span: 54'-0"	No. 7.5 Design 2 Modified Span: 48'-0"	No. 7.5 Design 2 Modified Span: 70'-0"	No. 12.24 Design 7 Modified Arm: 20'-0"	No. 12.24 Design 7 Modified Arm: 22'-0"	No. 12.24 Design 7 Modified Arm: 24'-0"	No. 7.5 Design 2 Modified Span: 68'-0"	No. 7.5 Design 2 Modified Span: 50'-0"	4 lb Steel Drive Post	6 lb Beam	8 lb Beam	10 W.F.21	Ground Mounted Signs Structure	Overhead Sign Structure
		Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.	Each	Each	Each	Each	Each	Each	Each	Each	Each	Each	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Cu. Yds.	Cu. Yds.
1	389+00 O.T.P.	12'x13'	156		156																4.6
2	441+80 O.T.P.	14'x11'	154		336																9.9
3	493+81 O.T.P.	20'x11'	220		402																9.9
4	467+00 E.B. I.R.90	17'x9'	153																		6.0
5	493+00 E.B. I.R.90	17'x9'	153																		6.0
6	547+00 W.B. I.R.90	17'x10'	170																		8.6
100% State Partic. Totals			1370	0	894																45.0
7	553+00 E.B. I.R.90	14'x9.5'	133																		4.4
8	569+00 E.B. I.R.90	17'x9'	153																		4.4
9	591+50 W.B. I.R.90	15'x12.5'	187.5		178.5																9.9
10	612+00 W.B. S.R.2	13'x10.5'	136.5		187.5																9.9
W-60D-48	575+00 E.B. I.R.90	2(48"x48")		32																	
R-38-48	580+00 E.B. I.R.90	2(48"x48")		32																	
W-38-48	583+00 E.B. S.R.2	2(48"x48")		16	16																
Federal Partic. Totals			976	82	382	0	0	0	0	0	1	0	1	1	1	85					28.6

NOTE: The Ohio Turnpike Commission will furnish those signs which are necessary for their portion of the project.

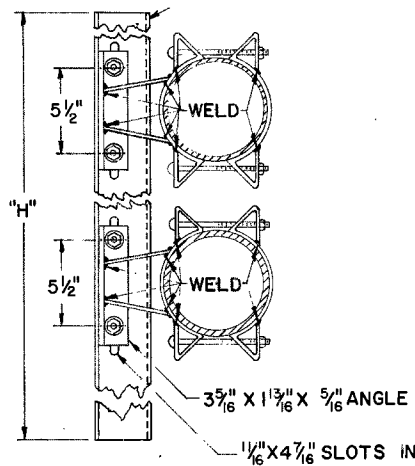
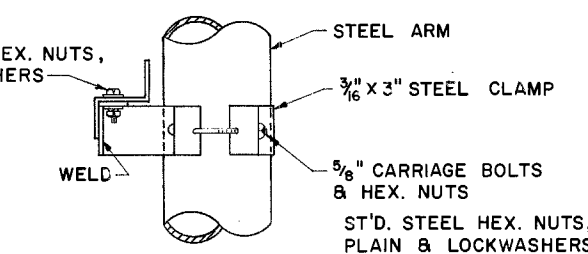
- ⊗ Type 4 guard rail shall use steel posts with black-outs and 12'-6" spacing.
- † All guard rail and anchor assemblies with 100% state participation shall use steel posts as per Ohio Tpk standards.
- \* Guard rail quantities to be carried to Roadway Summary.
- \* For Information Only



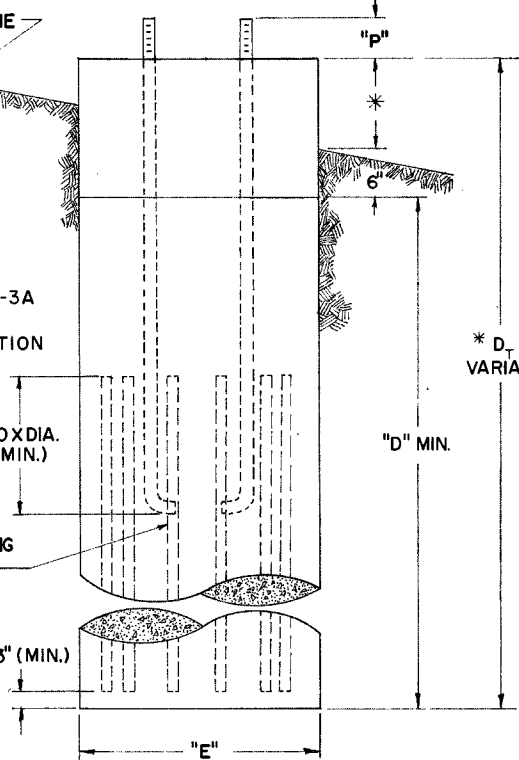
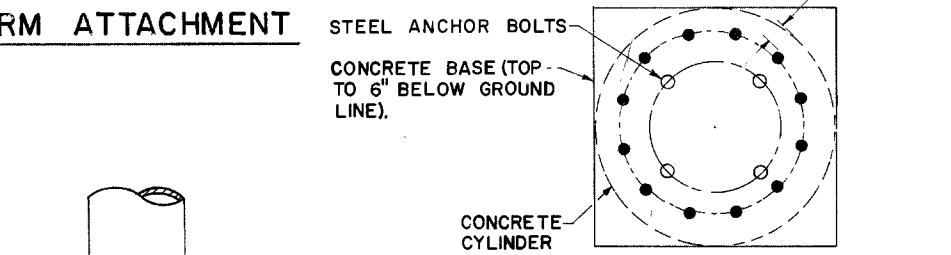
**NOTE:**  
THE 12" DIMENSION SHOWN FOR BLIND HALF COUPLINGS MAY BE INCREASED OR DECREASED WHEN NECESSARY TO PREVENT INTERFERENCE WITH OTHER MEMBERS.



**ARM ATTACHMENT**

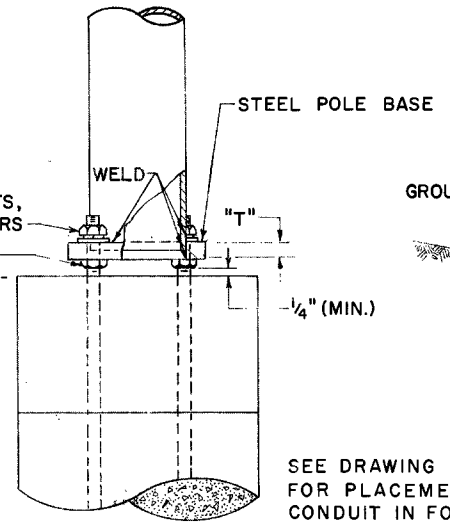


**SIGN ATTACHMENT DETAIL**



**FOUNDATION DETAIL**

**POLE BASE DETAIL**



**NOTES**

**FABRICATION**- ALL PORTIONS OF THE SIGN SUPPORT, INCLUDING SIGN ATTACHMENTS, SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH THE REQUIREMENTS OF A.S.T.M. DESIGNATIONS A-123 AND A-153. THE CONDUIT SHALL BE GALVANIZED IN ACCORDANCE WITH SEC. 625.13 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR OVERHEAD SIGN SUPPORTS FOR PAYMENT.

\* **FOUNDATION**- THE TOP ELEVATION OF FOUNDATIONS SHALL BE VARIED SO AS TO MAINTAIN A MINIMUM CLEARANCE OF 17' BETWEEN THE BOTTOM OF THE SIGN AND THE HIGHWAY CROWN.

\* \* **ERECTION**- VALUES OF "B" MAY BE EXCEEDED PROVIDED THE PRODUCT OF ACTUAL SIGN AREA TIMES THE DISTANCE FROM C OF POLE TO C OF SIGN DOES NOT EXCEED THE MAX. SIGN AREA TIMES "B".

\* \* \* **ARMS 20' LONG OR LONGER ARE TO BE TRUSS TYPE WITH 3" X 3" X 3/8" ANGLES WELDED TO GUSSET PLATES.**

**MATERIAL**- STEEL POLE BASES, FLANGES, AND END CAPS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATION A 30 GRADE B. HIGH STRENGTH STEEL BOLTS SHALL CONFORM TO ASTM SPECIFICATION A193 GRADE B7 AFTER FABRICATION TAPERED POLES AND ARMS SHALL HAVE A MINIMUM YIELD STRENGTH OF 48,000 PSI.

**SOILS**- THE FOUNDATION DETAILS SHOWN ARE FOR AVERAGE SOIL CONDITIONS (MEDIUM CLAY, CEMENTED SAND AND GRAVEL, SANDY CLAY, OR STIFF CLAY). FOR POOR SOIL CONDITIONS, INCREASE "D" MIN. BY: 50% IN DRY OR WET SAND, 60% IN SILTY CLAY, 100% IN SOFT CLAY, AND FROM 75% TO 150% IN WET SILT, DEPENDING ON QUICKSAND ACTION.

**REINFORCING STEEL**- REINFORCING STEEL AS SHOWN IN TABLE SHALL BE INSTALLED WHEN "D" EXCEEDS THE ANCHOR BOLT LENGTH BY MORE THAN 3 FT. THE COST AND PLACEMENT OF REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE FOR ITEM 816 CONCRETE FOR SIGN SUPPORT FOUNDATIONS.

**DESIGN**  
THE DESIGN OF OVERHEAD SUPPORTS IS IN ACCORDANCE WITH A.A.S.H.O. SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, ADOPTED JUNE 12, 1961.

DESIGN NO.	POLE SIZE	*** ARM SIZE	DIM A	DIM **B	DIM "D" MIN.	DIM E	DIM F	DIM P	DIM *S	DIM T	BOLT CIRCLE	ANCHOR BOLT SIZE	MAX SIGN AREA	REINF BARS SIZE	# REQ'D
1	3 Ga, 12" X 8.78" X 23'-0"	7 Ga, 6.9" X 4.66" X 16'-0"	4'	12'	9'	3'-0"	11 5/16"	7 3/4"	17"	2"	16"	1 3/4" X 90"	80	3/4"	12
2	3 Ga, 12" X 8.78" X 23'-0"	7 Ga, 8" X 5.2" X 20'-0"	4'	16'	9'	3'-0"	11 5/16"	7 3/4"	17"	2"	16"	1 3/4" X 90"	80	3/4"	12
3	3 Ga, 15" X 11.5" X 25'-0"	7 Ga, 8.3" X 6.06" X 16'-0"	4'	12'	11'	3'-0"	15 1/2"	8 3/8"	23"	2"	22"	2" X 96"	120	1"	12
4	3 Ga, 16" X 12.5" X 25'-0"	3 Ga, 9.2" X 6.40" X 20'-0"	4'	16'	11'	3'-0"	16 5/16"	8 3/8"	24 1/2"	2"	23 1/2"	2" X 96"	120	1"	12
5	0 Ga, 18" X 14.36" X 26'-0"	7 Ga, 11" X 7.92" X 22'-0"	6'	14'	13'	3'-0"	18"	9 3/8"	26 1/2"	2 1/2"	25 1/2"	2 1/4" X 120"	180	1 1/8"	12
6	0 Ga, 18" X 14.36" X 26'-0"	7 Ga, 12.5" X 8.86" X 26'-0"	6'	18'	13'	3'-0"	18"	9 3/8"	26 1/2"	2 1/2"	25 1/2"	2 1/4" X 120"	180	1 1/8"	12
7	2 PLY 7 Ga, 18" X 14.36" X 26'-0"	7 Ga, 12.5" X 9.14" X 24'-0"	6'	14'	15'	3'-0"	18"	9 3/4"	26 1/2"	2 1/2"	25 1/2"	2 1/2" X 144"	240	1 1/4"	12
8	2 PLY 1/4", 18" X 14.36" X 26'-0"	3 Ga, 12.5" X 8.58" X 28'-0"	6'	18'	15'	3'-0"	18"	11 1/4"	26 1/2"	3"	25 1/2"	3" X 144"	240	1 1/4"	12

BUREAU OF TRAFFIC  
OHIO DEPARTMENT OF HIGHWAYS

**OVERHEAD SIGN SUPPORT** **816 No. 12.24**

APPROVED *Robert E. Connor*  
ENGINEER OF TRAFFIC

DATE 8-18-61  
4-11-62  
4-18-67

LOR-90-948

**NOTES**

**MATERIALS**  
THE OVERHEAD SPAN TRUSS SHALL BE ALUMINUM AND THE END FRAMES SHALL BE STEEL. SPAN TRUSS AND END FRAMES, INCLUDING HARDWARE, SHALL BE IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 816 UNLESS OTHERWISE NOTED.  
STEEL POLE BASES AND GUSSETS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATION A-373.  
AFTER FABRICATION THE TAPERED POLES SHALL HAVE A MINIMUM YIELD STRENGTH OF 48,000 PSI.

**FABRICATION**  
THE ENTIRE STEEL END FRAME SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH SEC. M-7.4(d). MAXIMUM LENGTH OF SPAN SECTIONS IS 30 FT.

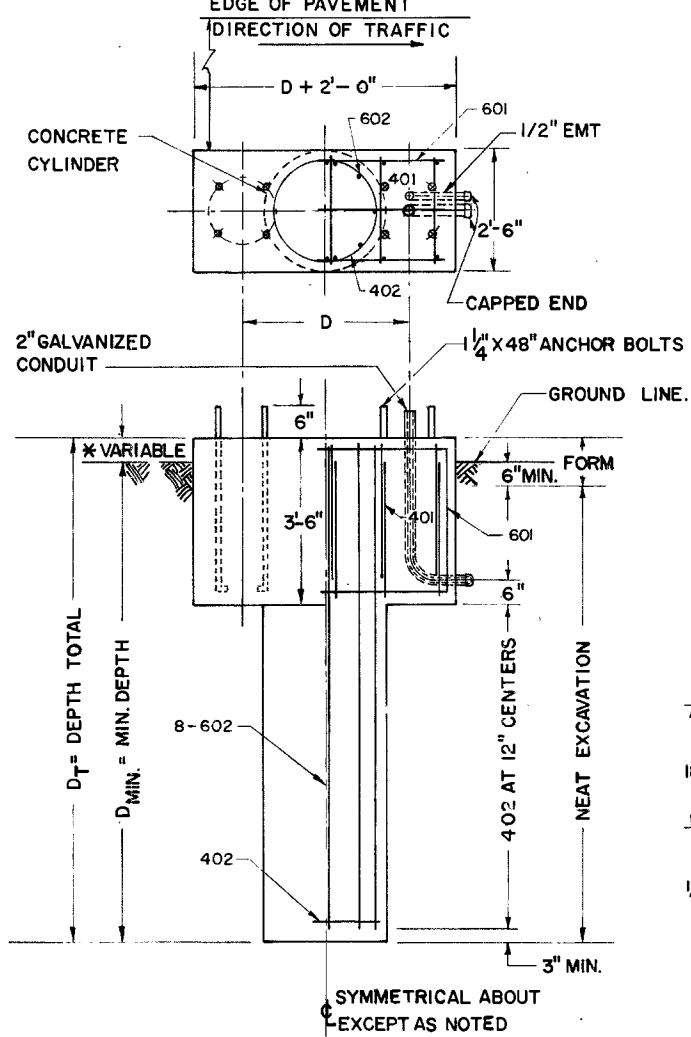
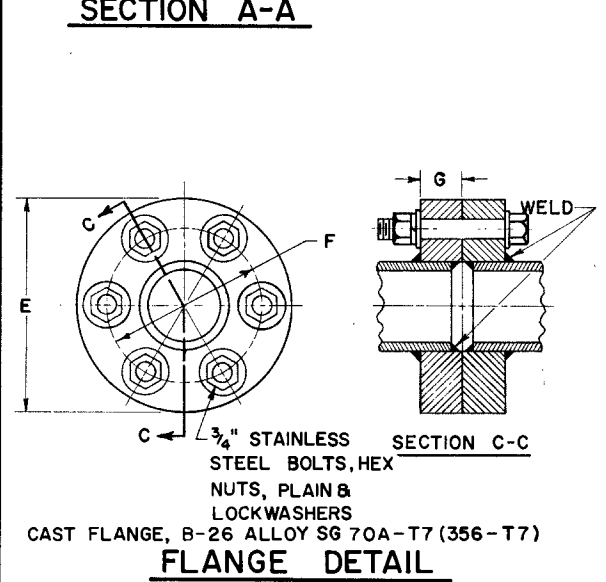
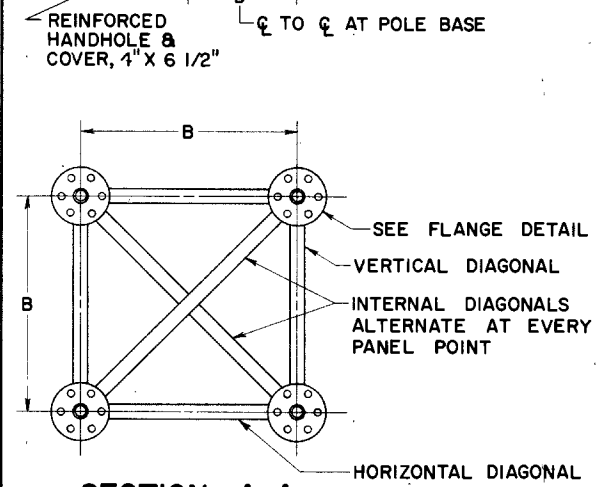
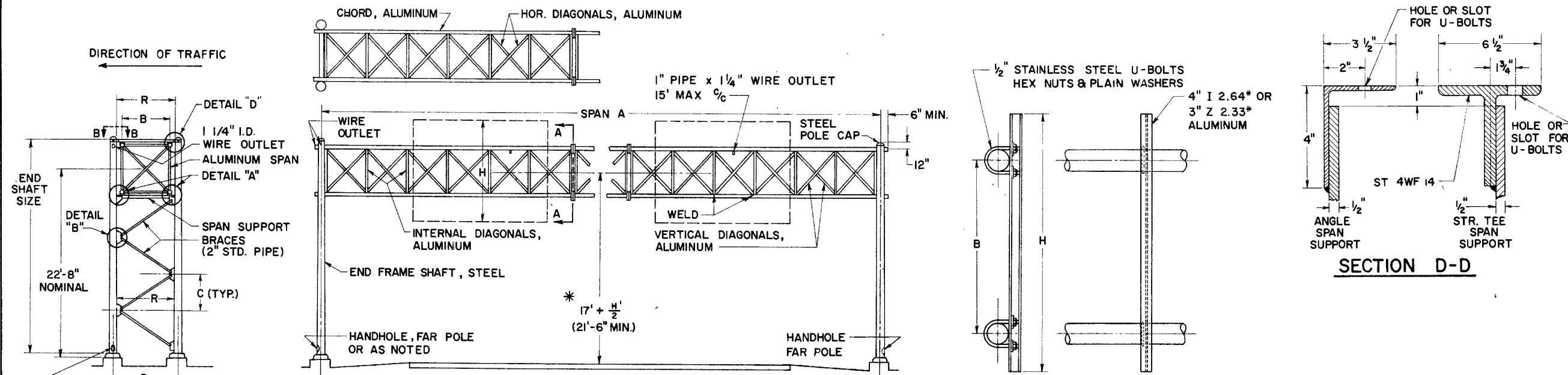
**ERECTION**  
USE A MINIMUM OF 1" CAMBER IN SPAN TRUSS MEMBER FOR A 50' SPAN; ADD 1/4" OF CAMBER FOR EACH 5' OF INCREASE IN SPAN OVER 50'.

**PAYMENT**  
PAYMENT FOR THE GALVANIZED CONDUIT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR OVERHEAD SIGN SUPPORTS.

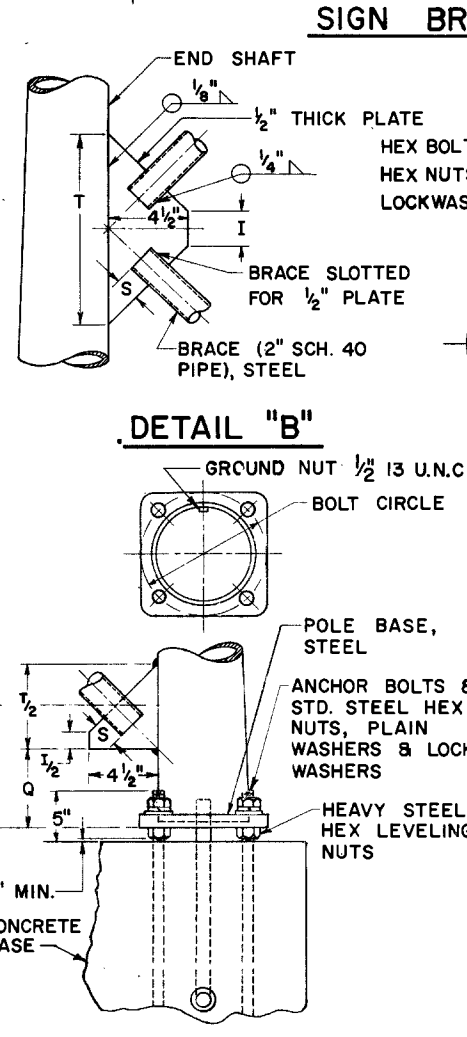
**SOILS**  
THE FOUNDATION DETAILS SHOWN ARE FOR AVERAGE SOIL CONDITIONS (MEDIUM CLAY, CEMENTED SAND AND GRAVEL, SANDY CLAY, OR STIFF CLAY). FOR POOR SOIL CONDITIONS, INCREASE "D" MIN. BY: 50% IN DRY OR WET SAND, 60% IN SILTY CLAY, 100% IN SOFT CLAY, AND FROM 75% TO 150% IN WET SILT, DEPENDING ON QUICKSAND ACTION.

**REINFORCING STEEL**  
COST OF REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE FOR ITEM 816 CONCRETE FOR SIGN SUPPORT FOUNDATIONS.  
BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE THREE DIGITS ARE USED AND THE FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATE THE BAR SIZE NUMBER.

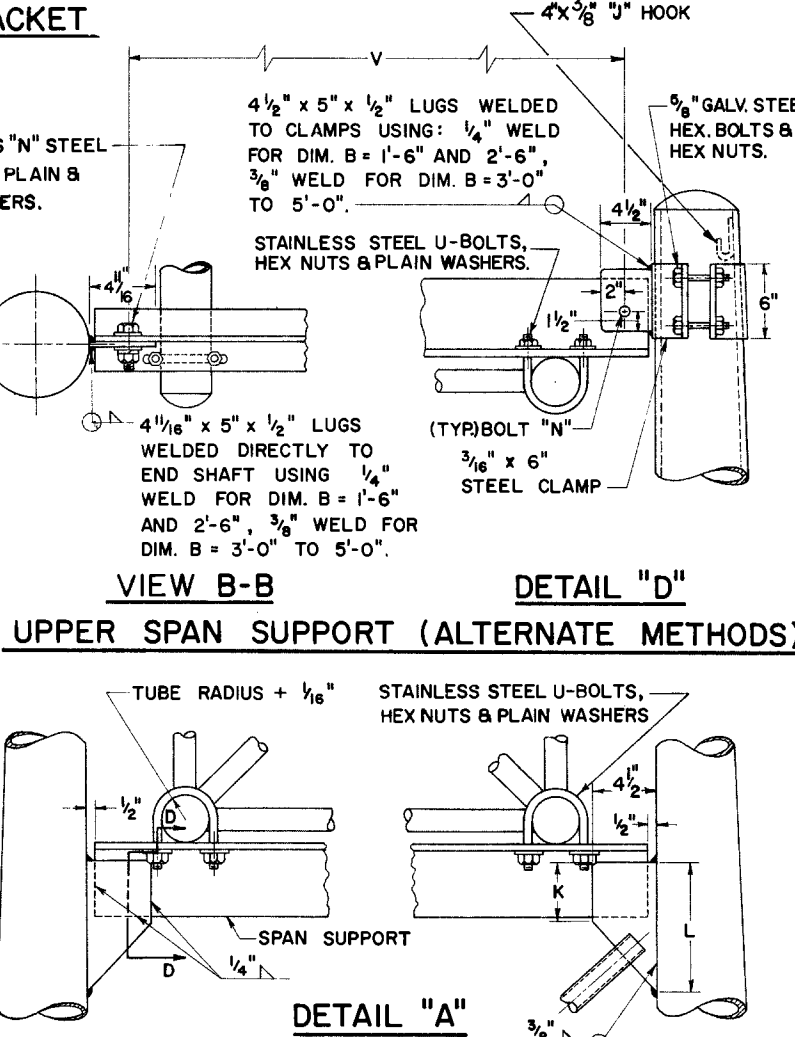
**\*FOUNDATION ELEVATION**  
ELEVATION OF TOPS OF FOUNDATIONS SHALL BE BUILT UP SO THAT 17" CLEARANCE IS MAINTAINED OVER ENTIRE WIDTH OF THE PAVEMENT AND SHOULDERS.



**FOUNDATION DETAIL**  
(RIGHT HAND SHOWN - LEFT HAND OPPOSITE)



**POLE BASE DETAIL**



**LOWER SPAN SUPPORT**

DESIGN NO.	SPAN A	B	C	D	D-MIN.	END SHAFT	BRACE LENGTH	E	F	G	I	K	L	N	P	Q	R	S	T	U BOLTS	V	BOLT CIRCLE	SPAN SUPPORT SECTION D-D	CHORDS	VERTICAL, INTERNAL & HORIZONTAL DIAGONALS	
1	50' Thru 70'	2'-6"	5'-1"	3'-10"	9'-0"	7" x 3.54" x 24'-9"	7 GA	5'-7"	7"	5 1/2"	1 1/4"	3 1/2"	4 3/4"	7 1/4"	5 1/8"	12"	5 1/4"	3'-3"	1 1/2"	9"	5 1/8"	2'-9 5/8"	10"	3/8" ANGLE x 3'-2"	3 1/2" x .188"	1.660" x .140"
2	71' Thru 85'	3'-0"	4'-11 3/4"	4'-5"	9'-0"	8" x 4.5" x 25'-0"	3GA	5'-10"	7"	5 1/2"	1 1/4"	3 1/2"	4 3/4"	8"	i"	12"	6 5/8"	3'-9"	1 1/2"	10"	5 1/8"	3'-3 5/8"	11"	SPLIT TEE 3'-8"	3 1/2" x .188"	1.660" x .140"
3	86' Thru 105'	4'-0"	4'-10 1/4"	5'-7"	9'-0"	8" x 6.22" x 25'-6"	3 GA	6'-7 1/8"	9 1/4"	7 7/16"	1 3/8"	5 1/8"	4 3/8"	7 3/4"	1"	12"	6 1/4"	4'-11"	1 1/2"	9 1/2"	5 1/8"	4'-5 5/8"	11"	SPLIT TEE 4'-10"	4 3/4" x .188"	1.900" x .145"

REINFORCEMENT SCHEDULE	
MARK	NO. LENGTH TYPE
101	12" C/C 7'-6" 101
102	12" C/C 7'-6" 103
601	6 2D + 9'-6" 102
602	16 D <sub>T</sub> - 6" STR. 103

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OHIO DEPARTMENT OF HIGHWAYS

**OVERHEAD SIGN SUPPORTS No. 7.2**

DATE: 7-25-62  
5-5-64  
6-20-66

APPROVED: \_\_\_\_\_ ENGINEER OF TRAFFIC

**NOTES**

**MATERIALS**  
 THE OVERHEAD SPAN TRUSS SHALL BE ALUMINUM AND THE END FRAMES SHALL BE STEEL.  
 SPAN TRUSS AND END FRAMES, INCLUDING HARDWARE, SHALL BE IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 816 UNLESS OTHERWISE NOTED.  
 STEEL POLE BASES AND GUSSETS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATION A-373.  
 AFTER FABRICATION THE TAPERED POLES SHALL HAVE A MINIMUM YIELD STRENGTH OF 48,000 PSI.

**FABRICATION**  
 THE ENTIRE STEEL END FRAME SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH SEC. M-7.4(d). MAXIMUM LENGTH OF SPAN SECTIONS IS 30 FT.

**ERECTION**  
 USE A MINIMUM OF 1" CAMBER IN SPAN TRUSS MEMBER FOR A 50' SPAN; ADD 1/4" OF CAMBER FOR EACH 5' OF INCREASE IN SPAN OVER 50'.

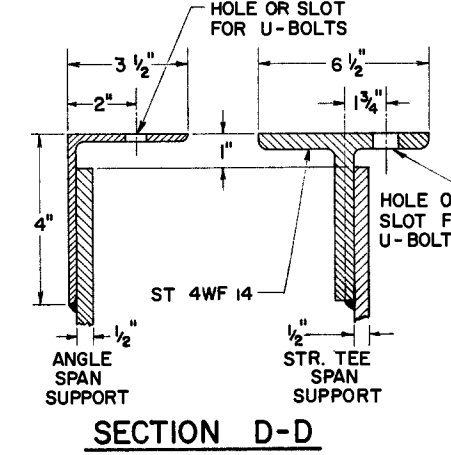
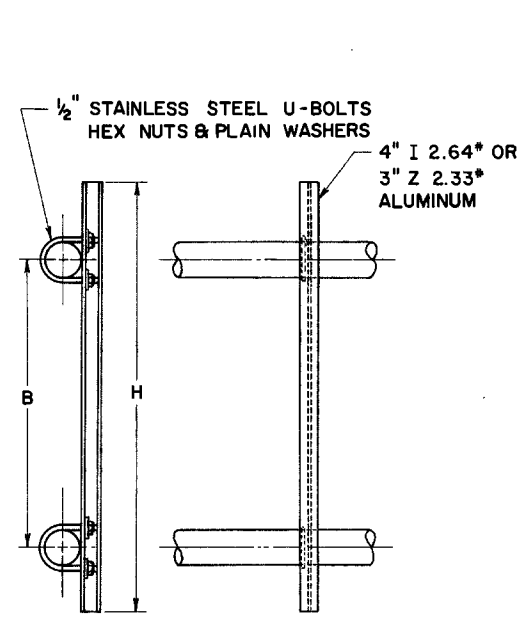
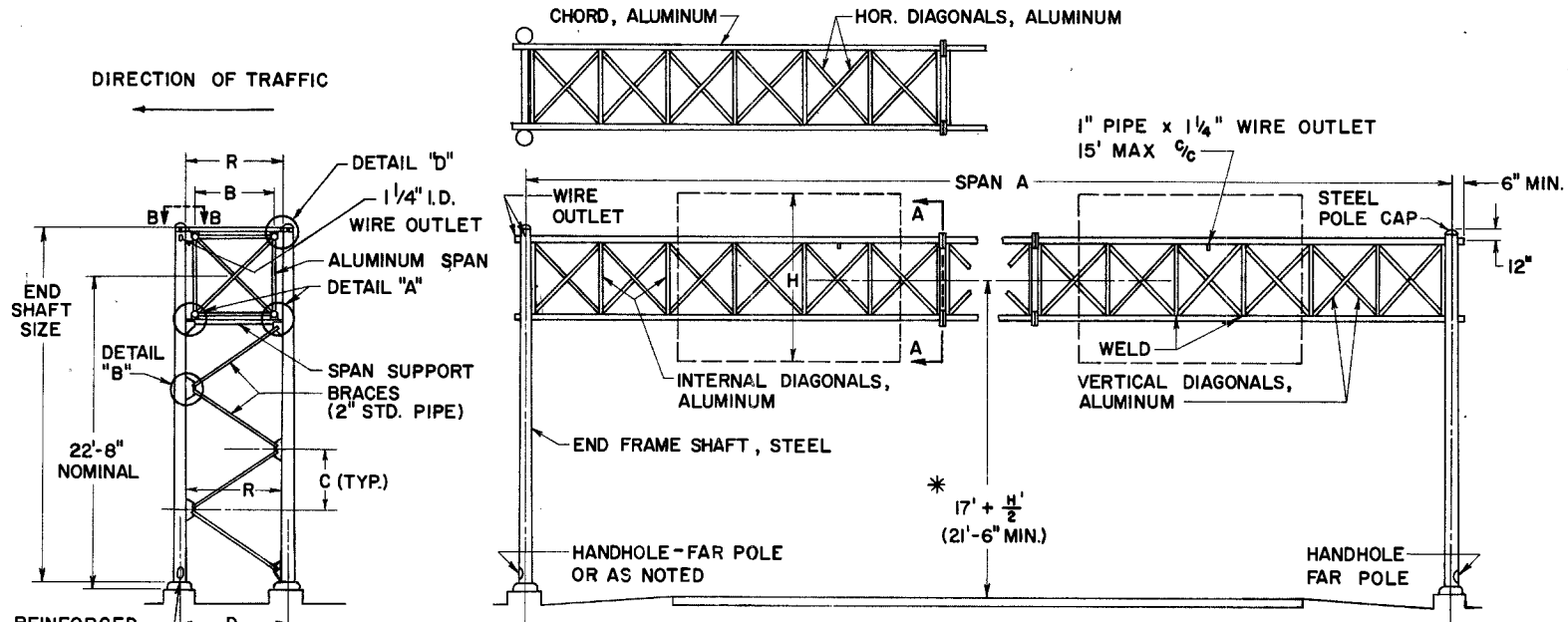
**PAYMENT**  
 PAYMENT FOR THE GALVANIZED CONDUIT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR OVERHEAD SIGN SUPPORTS.

**SOILS**  
 THE FOUNDATION DETAILS SHOWN ARE FOR AVERAGE SOIL CONDITIONS (MEDIUM CLAY, CEMENTED SAND AND GRAVEL, SANDY CLAY, OR STIFF CLAY). FOR POOR SOIL CONDITIONS, INCREASE "D" MIN. BY: 50% IN DRY OR WET SAND, 60% IN SILTY CLAY, 100% IN SOFT CLAY, AND FROM 75% TO 150% IN WET SILT, DEPENDING ON QUICKSAND ACTION.

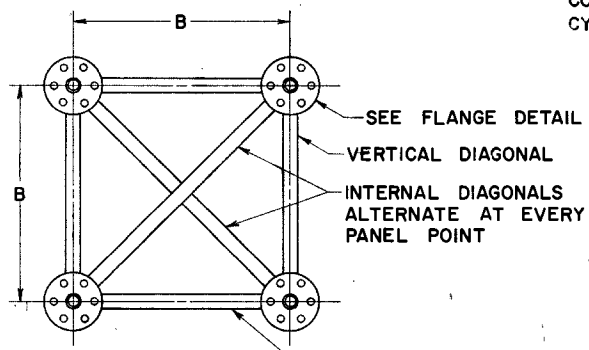
**REINFORCING STEEL**  
 COST OF REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE FOR ITEM 816 CONCRETE FOR SIGN SUPPORT FOUNDATIONS.  
 BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE THREE DIGITS ARE USED AND THE FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATE THE BAR SIZE NUMBER.

**FOUNDATION ELEVATION**  
 ELEVATION OF TOPS OF FOUNDATIONS SHALL BE BUILT UP SO THAT 17' CLEARANCE IS MAINTAINED OVER THE ENTIRE WIDTH OF THE PAVEMENT AND SHOULDERS.

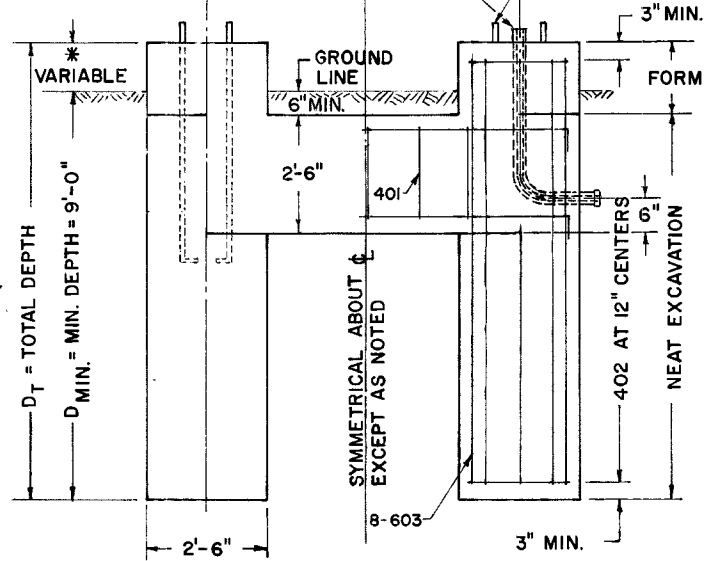
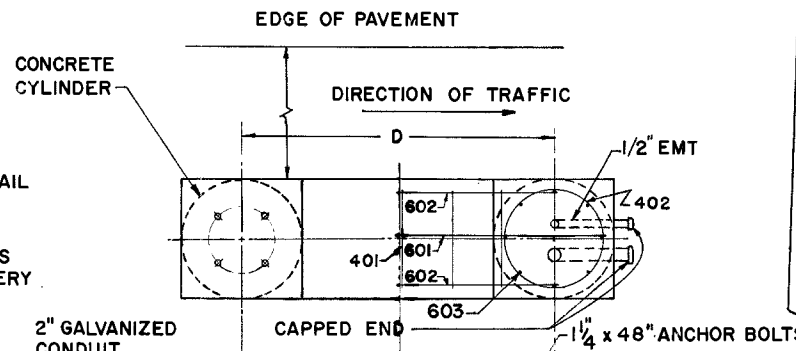
**DESIGN**  
 THE DESIGN OF OVERHEAD SUPPORTS IS IN ACCORDANCE WITH A.A.S.H.O. SPECIFICATION FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, ADOPTED JUNE 12, 1961.



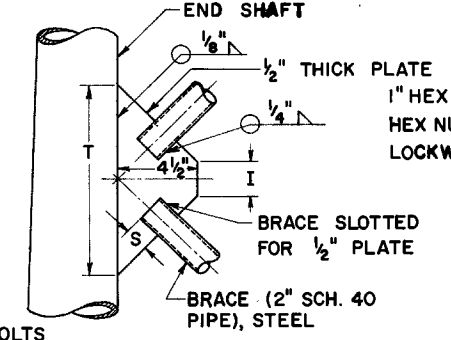
REINFORCED HANDHOLE & COVER, 4" x 6 1/2"



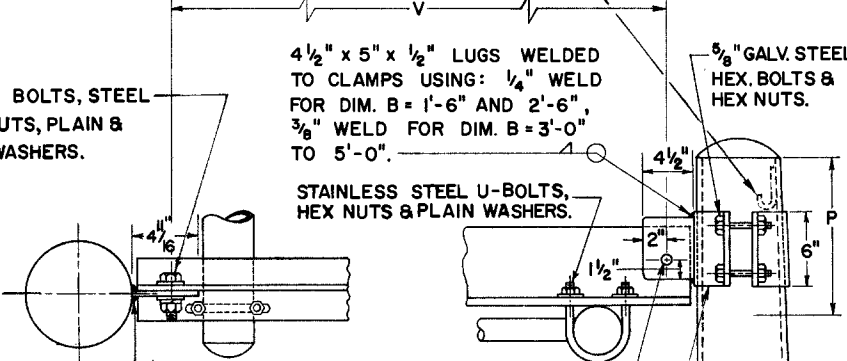
**SECTION A-A**



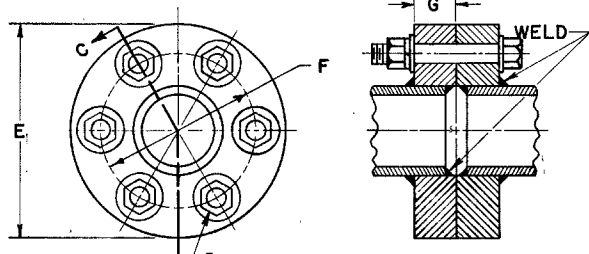
**FOUNDATION DETAIL**



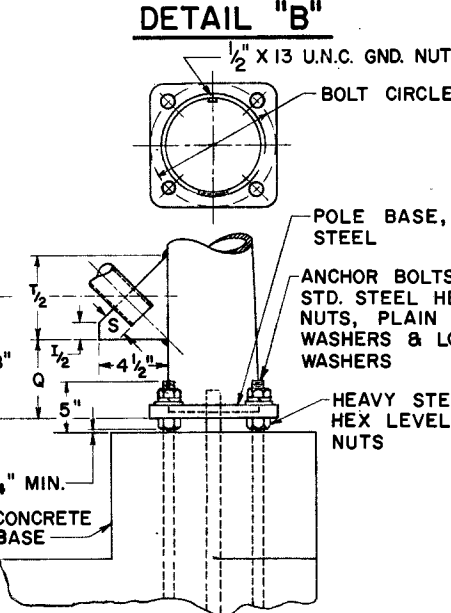
**DETAIL "B"**



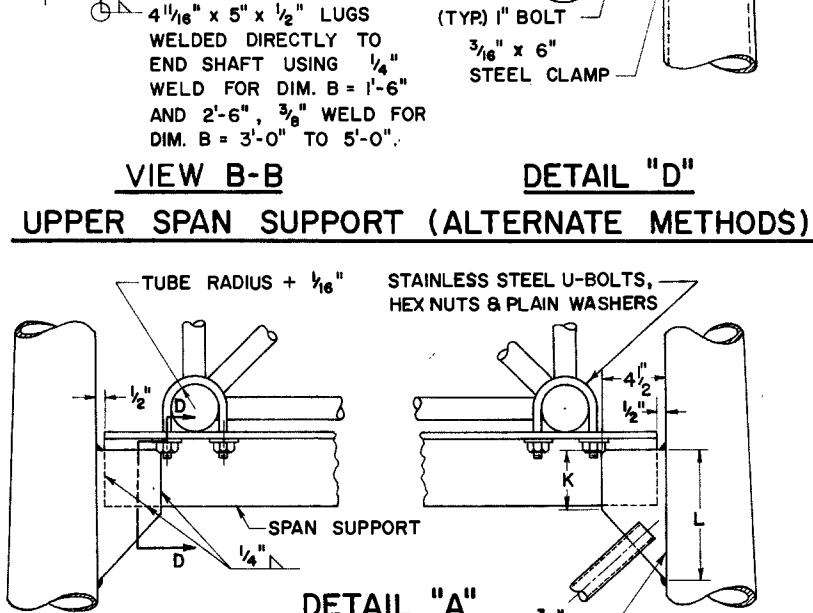
**UPPER SPAN SUPPORT (ALTERNATE METHODS)**



**FLANGE DETAIL**



**POLE BASE DETAIL**



**LOWER SPAN SUPPORT**

DESIGN NO.	SPAN A	B	C	D	E	END SHAFT	BRACE LENGTH	F	G	I	K	L	P	Q	R	S	T	U BOLTS	V	BOLT CIRCLE	SPAN SUPPORT SECTION D-D	CHORDS	HORIZONTAL AND INTERNAL DIAGONAL	VERTICAL DIAGONAL
1	50' Thru 55'	3'-0"	4'-11 3/4"	4'-5"	7"	8" x 4.5" x 25'-0", 3GA	5'-10 3/16"	5 1/2"	1 1/4"	3 1/2"	4 3/4"	8"	12"	6 5/8"	3'-9"	1 1/2"	10"	5 5/8"	3'-3 5/8"	11"	SPLIT TEE 3'-8"	3 1/2" x .188"	1.660" x .140"	1.660" x .140"
2	56' Thru 80'	3'-0"	4'-11 3/4"	4'-5"	9 1/4"	8" x 4.5" x 25'-0", 3GA	5'-10 3/16"	7 7/16"	1 3/8"	3 1/2"	4 3/4"	8"	12"	6 5/8"	3'-9"	1 1/2"	10"	5 5/8"	3'-3 5/8"	11"	SPLIT TEE 3'-8"	4 3/4" x .188"	1.900" x .145"	1.660" x .140"
3	81' Thru 90'	4'-0"	4'-10 1/4"	5'-7"	9 1/4"	8" x 6.22" x 25'-6", 3GA	6'-7 7/8"	7 7/16"	1 3/8"	5 5/8"	4 3/8"	7 3/4"	12"	6 1/4"	4'-11"	1 1/2"	9 1/2"	5 5/8"	4'-5 5/8"	11"	SPLIT TEE 4'-10"	4 3/4" x .188"	1.900" x .145"	1.900" x .145"
4	91' Thru 105'	4'-0"	4'-10 1/4"	5'-7"	9 1/4"	8" x 6.22" x 25'-6", 3GA	6'-7 7/8"	7 7/16"	1 3/8"	5 5/8"	4 3/8"	7 3/4"	12"	6 1/4"	4'-11"	1 1/2"	9 1/2"	5 5/8"	4'-5 5/8"	11"	SPLIT TEE 4'-10"	4 3/4" x .188"	2" x .188"	1.900" x .145"

REINFORCEMENT SCHEDULE			
MARK	NO.	LENGTH	TYPE
401	12" C/C	8'-6"	102
402	12" C/C	7'-6"	103
601	4	D+4'-0"	101
602	8	D+2'-0"	101
603	32	D_T-6"	STR.

BUREAU OF TRAFFIC  
 OHIO DEPARTMENT OF HIGHWAYS

**OVERHEAD SIGN SUPPORTS** 816 No. 7.3

DATE 7-25-62  
 5-5-64

APPROVED *Robert E. Linner*  
 ENGINEER OF TRAFFIC

**NOTES**

**MATERIALS**  
THE OVERHEAD SPAN TRUSS SHALL BE ALUMINUM AND THE END FRAMES SHALL BE STEEL.  
SPAN TRUSS AND END FRAMES, INCLUDING HARDWARE, SHALL BE IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 816 UNLESS OTHERWISE NOTED.  
STEEL POLE BASES AND GUSSETS SHALL CONFORM TO THE REQUIREMENTS OF ASTM SPECIFICATION A-373.  
AFTER FABRICATION THE TAPERED POLES SHALL HAVE A MINIMUM YIELD STRENGTH OF 48,000 PSI.

**FABRICATION**  
THE ENTIRE STEEL END FRAME SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH SEC. 711.02. MAXIMUM LENGTH OF SPAN SECTIONS IS 30 FT.

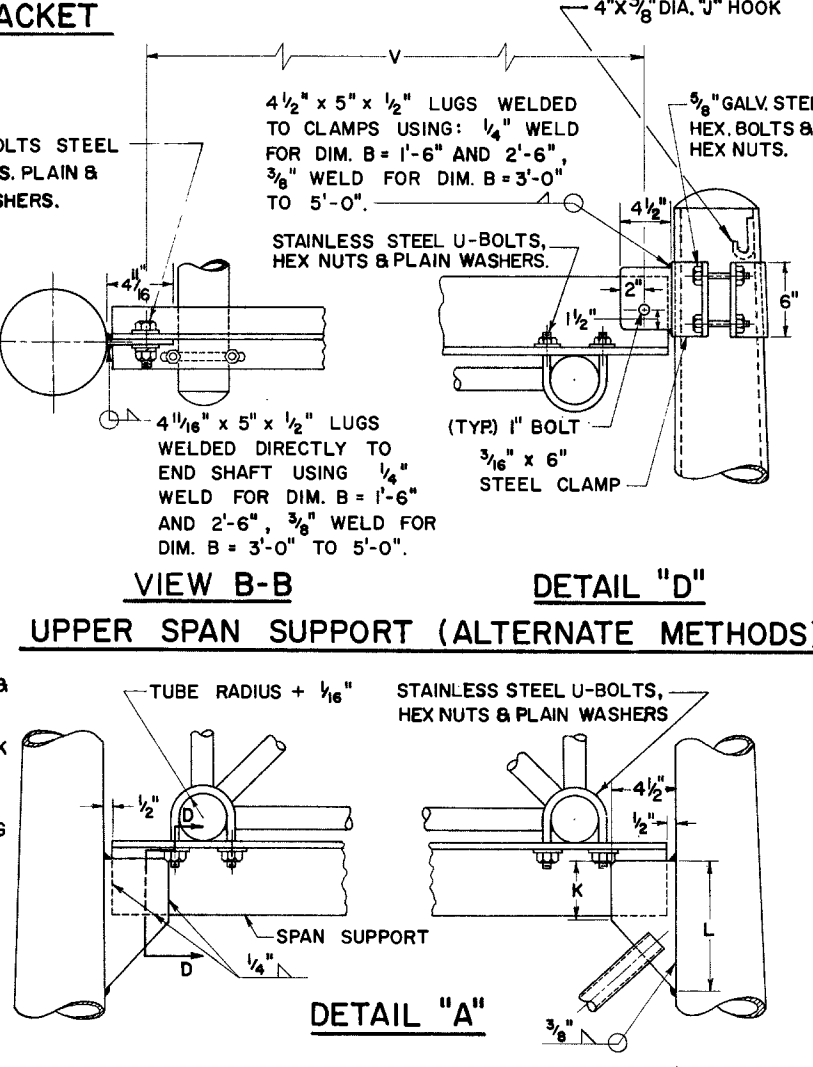
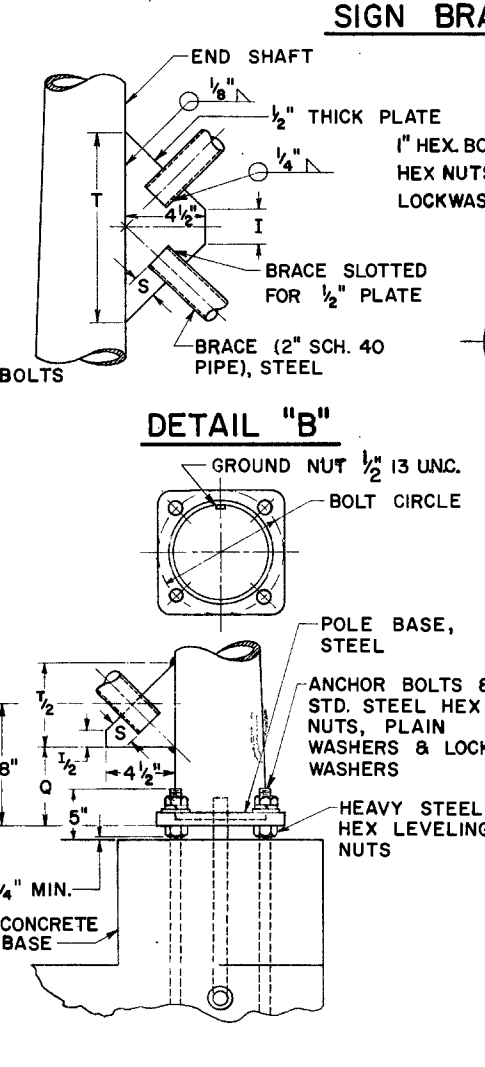
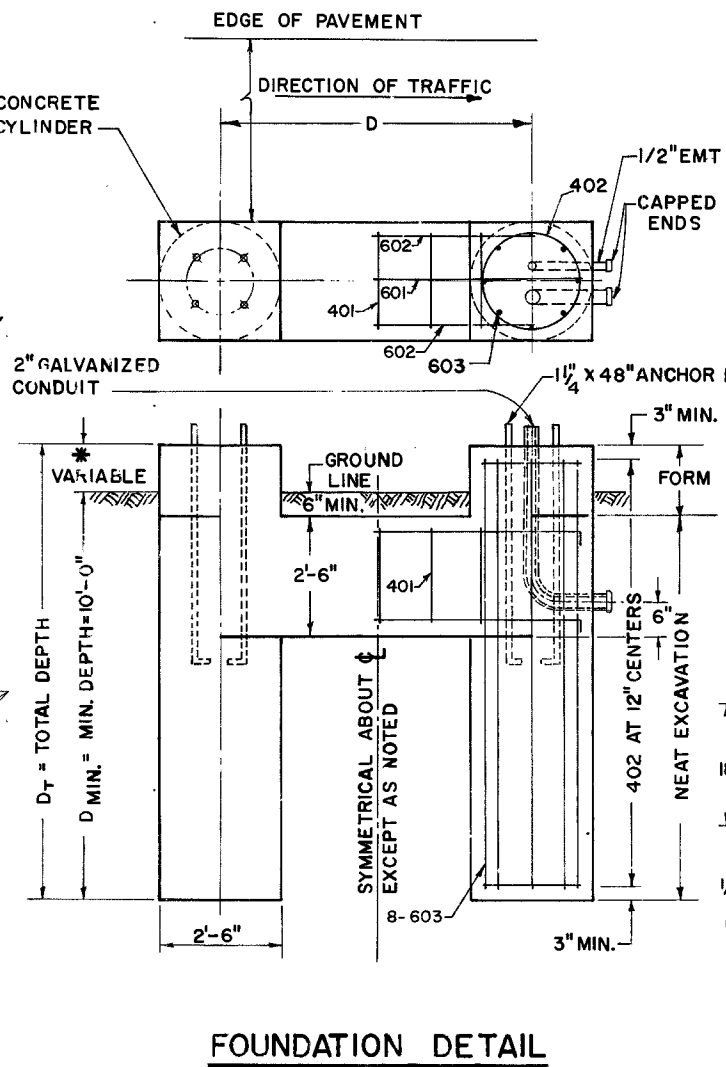
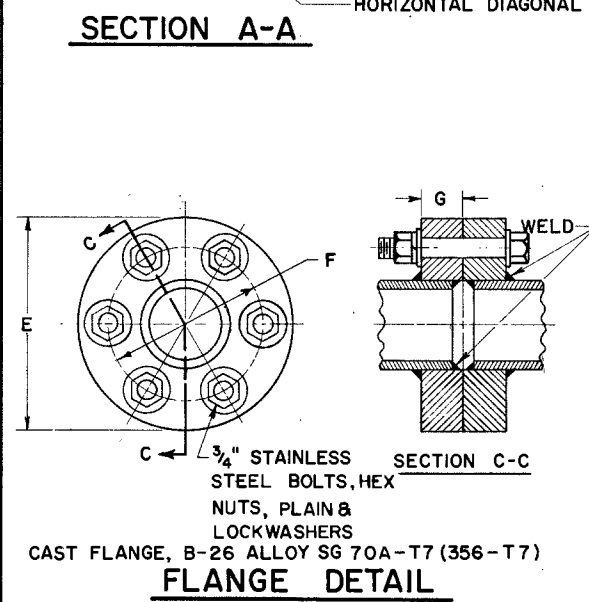
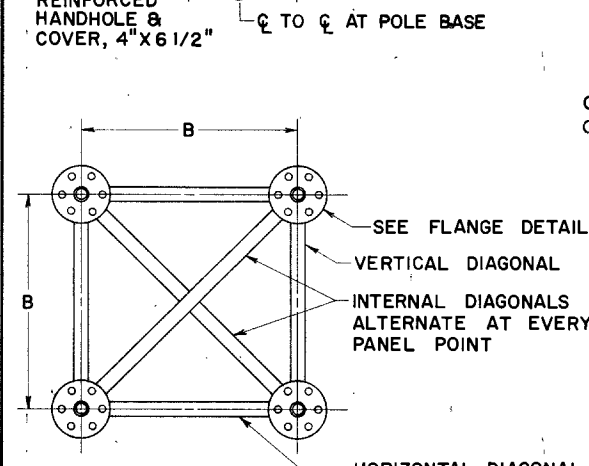
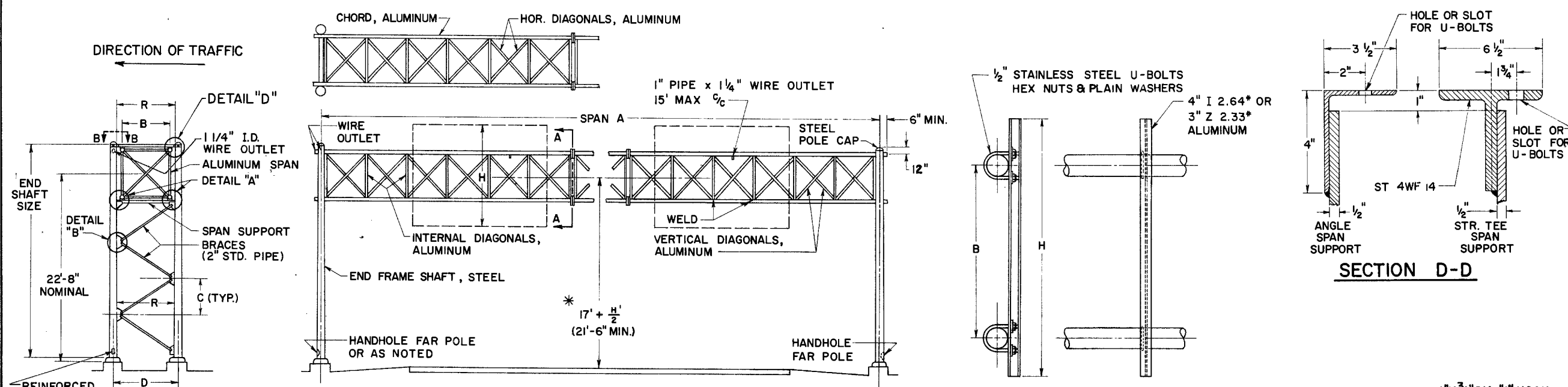
**ERECTION**  
USE A MINIMUM OF 1" CAMBER IN SPAN TRUSS MEMBER FOR A 50' SPAN; ADD 1/4" OF CAMBER FOR EACH 5' OF INCREASE IN SPAN OVER 50'.

**PAYMENT**  
PAYMENT FOR THE GALVANIZED CONDUIT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR OVERHEAD SIGN SUPPORTS.

**SOILS**  
THE FOUNDATION DETAILS SHOWN ARE FOR AVERAGE SOIL CONDITIONS (MEDIUM CLAY, CEMENTED SAND AND GRAVEL, SANDY CLAY, OR STIFF CLAY). FOR POOR SOIL CONDITIONS, INCREASE "D" MIN. BY: 50% IN DRY OR WET SAND, 60% IN SILTY CLAY, 100% IN SOFT CLAY, AND FROM 75% TO 150% IN WET SILT, DEPENDING ON QUICKSAND ACTION.

**REINFORCING STEEL**  
COST OF REINFORCING STEEL SHALL BE INCLUDED IN THE UNIT PRICE FOR ITEM 816 CONCRETE FOR SIGN SUPPORT FOUNDATIONS.

**DESIGN**  
BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE THREE DIGITS ARE USED AND THE FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATE THE BAR SIZE NUMBER.  
\*FOUNDATION ELEVATION  
ELEVATION OF TOPS OF FOUNDATIONS SHALL BE BUILT UP SO THAT 17' CLEARANCE IS MAINTAINED OVER THE ENTIRE WIDTH OF PAVEMENT AND SHOULDERS.



DESIGN NO.	SPAN A	B	C	D	E	END SHAFT	BRACE LENGTH	F	G	I	K	L	P	Q	R	S	T	U BOLTS	V	BOLT CIRCLE	SPAN SUPPORT SECTION D-D	CHORDS	HORIZONTAL AND INTERNAL DIAGONAL	VERTICAL DIAGONAL	REINFORCEMENT SCHEDULE				
																									MARK	NO.	LENGTH	TYPE	
1	50' THRU 70'	3'-0"	4'-1 3/4"	4'-5"	9 1/4"	8" X 4.5" X 25'-0", 3GA	5'-10 3/16"	7 7/16"	1 3/8"	3 1/2"	4 3/4"	8"	12"	6 5/8"	3'-9"	1 1/2"	10"	5 5/8"	3'-3 5/8"	11"	SPLIT TEE 3'-8"	4 3/4" X .188"	1.900" X .145"	1.660" X .140"	401	12" C/C	8'-6"	102	
2	71' THRU 80'	4'-0"	4'-10 1/4"	5'-7"	9 1/4"	8" X 6.22" X 25'-6", 3GA	6'-7 7/8"	7 7/16"	1 3/8"	5 5/8"	4 3/8"	7 3/4"	12"	6 1/4"	4'-11"	1 1/2"	9 1/2"	5 5/8"	4'-5 5/8"	11"	SPLIT TEE 4'-10"	4 3/4" X .188"	2" X .188"	1.900" X .145"	402	12" C/C	7'-6"	103	
3	81' THRU 86'	4'-0"	4'-10 1/4"	5'-7"	11"	8" X 6.22" X 25'-6", 3GA	6'-7 7/8"	8 1/2"	1 1/2"	5 5/8"	4 3/8"	7 3/4"	12"	6 1/4"	4'-11"	1 1/2"	9 1/2"	5 5/8"	4'-5 5/8"	11"	SPLIT TEE 4'-10"	5 1/2" X .250"	2" X .188"	1.900" X .145"	601	4	D+4'-0"	101	
4	86' THRU 110'	5'-0"	4'-8 1/2"	6'-7"	11"	8" X 6.18" X 26'-0", 3GA	7'-7 1/4"	8 1/2"	1 1/2"	-	3 1/2"	7 3/4"	12"	7 1/4"	5'-11"	1 3/4"	11 1/4"	5 5/8"	5'-5 5/8"	11"	SPLIT TEE 5'-10"	5 1/2" X .250"	2 1/2" X .188"	2 1/2" X .188"	602	8	D+2'-0"	101	
																									603	32	D+7'-6"	STR.	103

BUREAU OF TRAFFIC  
OHIO DEPARTMENT OF HIGHWAYS

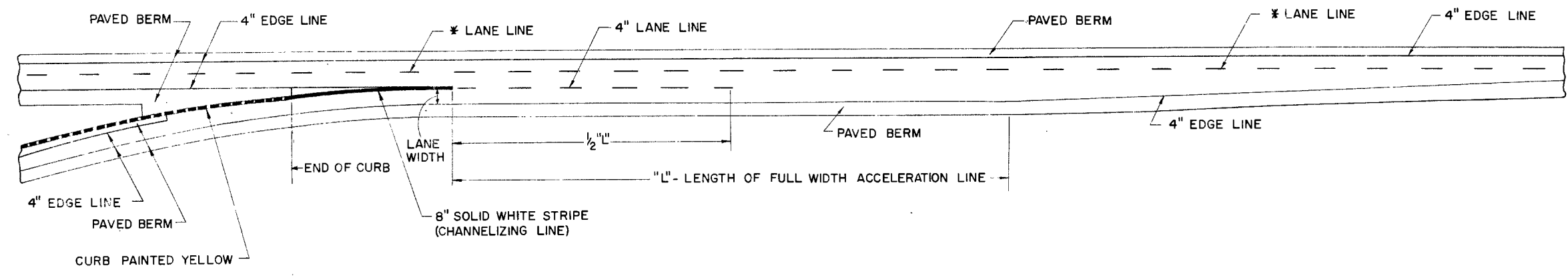
**OVERHEAD SIGN SUPPORTS No. 7.5**

DATE: 5-2-62, 7-25-62, 4-29-64, 6-20-66

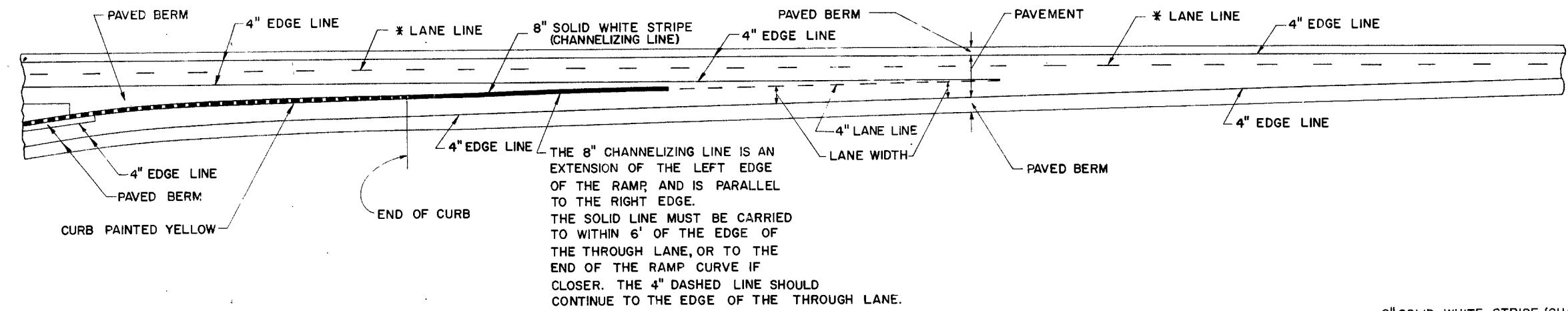
APPROVED: *Robert E. Comer*  
ENGINEER OF TRAFFIC

LOR-90-9.48

**ENTRANCE TERMINAL - PARALLEL ACCELERATION LANE**



**ENTRANCE TERMINAL - TAPERED ACCELERATION LANE**

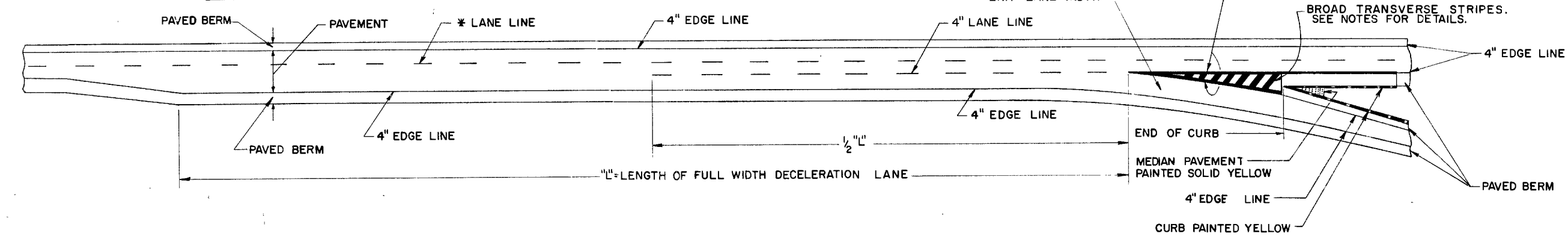


THE 8" CHANNELIZING LINE IS AN EXTENSION OF THE LEFT EDGE OF THE RAMP, AND IS PARALLEL TO THE RIGHT EDGE. THE SOLID LINE MUST BE CARRIED TO WITHIN 6' OF THE EDGE OF THE THROUGH LANE, OR TO THE END OF THE RAMP CURVE IF CLOSER. THE 4" DASHED LINE SHOULD CONTINUE TO THE EDGE OF THE THROUGH LANE.

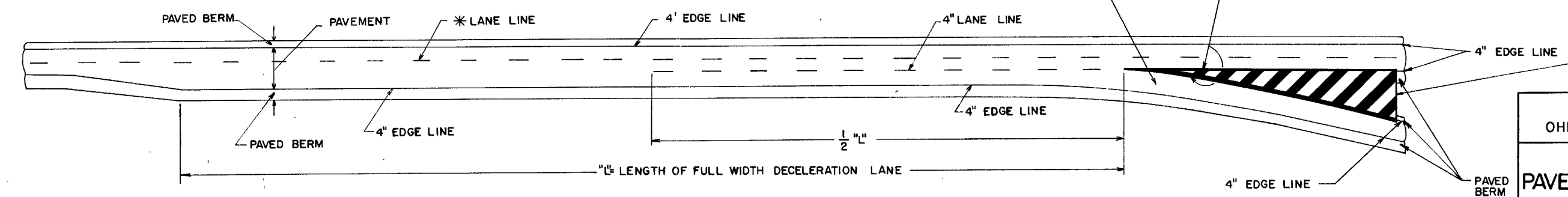
**NOTES**

DIAGONAL STRIPES AT EXIT RAMP SHALL BE 24" BROAD TRANSVERSE STRIPES, 621.11, WITH A 6' SPACE BETWEEN STRIPES.  
\* 6" LANE LINE ON INTERSTATE HIGHWAYS ONLY.  
4" LANE LINE ON ALL OTHER HIGHWAYS.

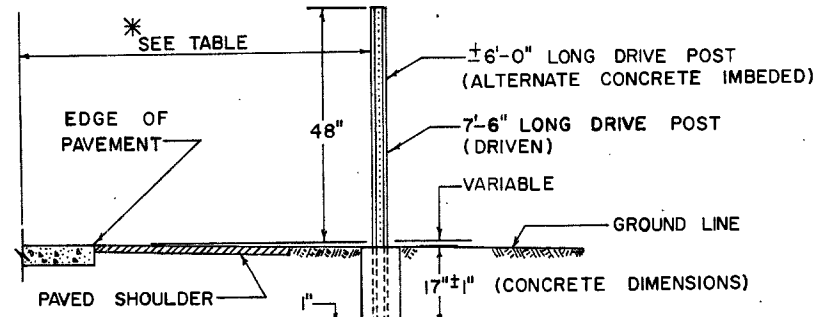
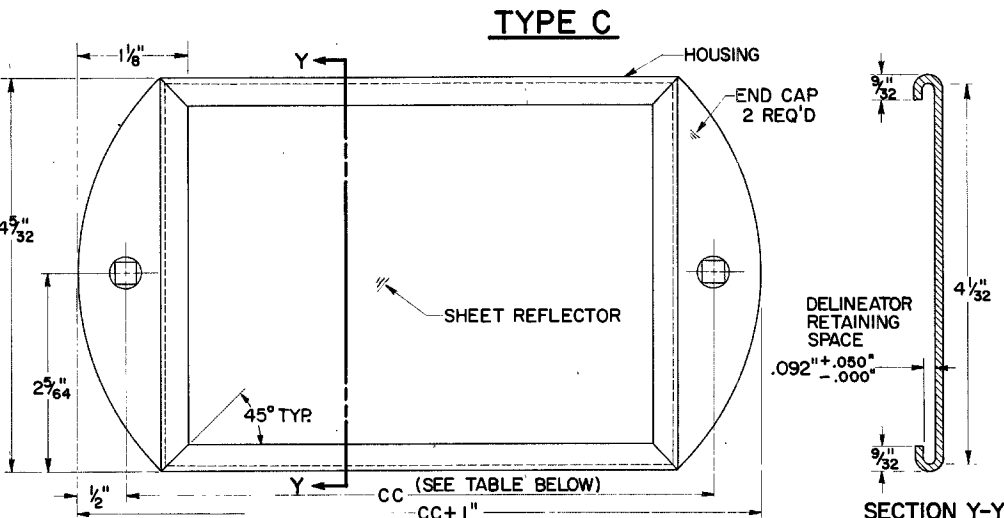
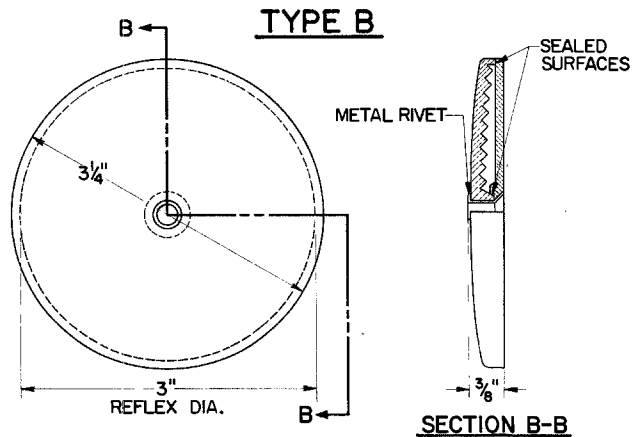
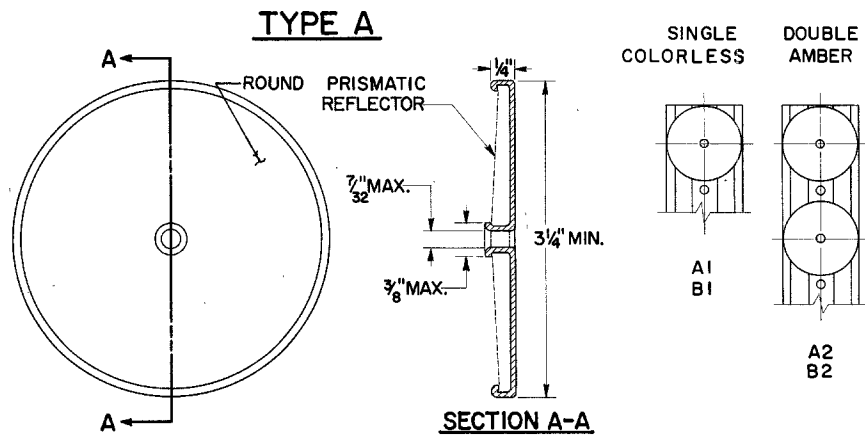
**CURBED EXIT TERMINAL - PARALLEL DECELERATION LANE**



**UNCURBED EXIT TERMINAL - PARALLEL DECELERATION LANE**



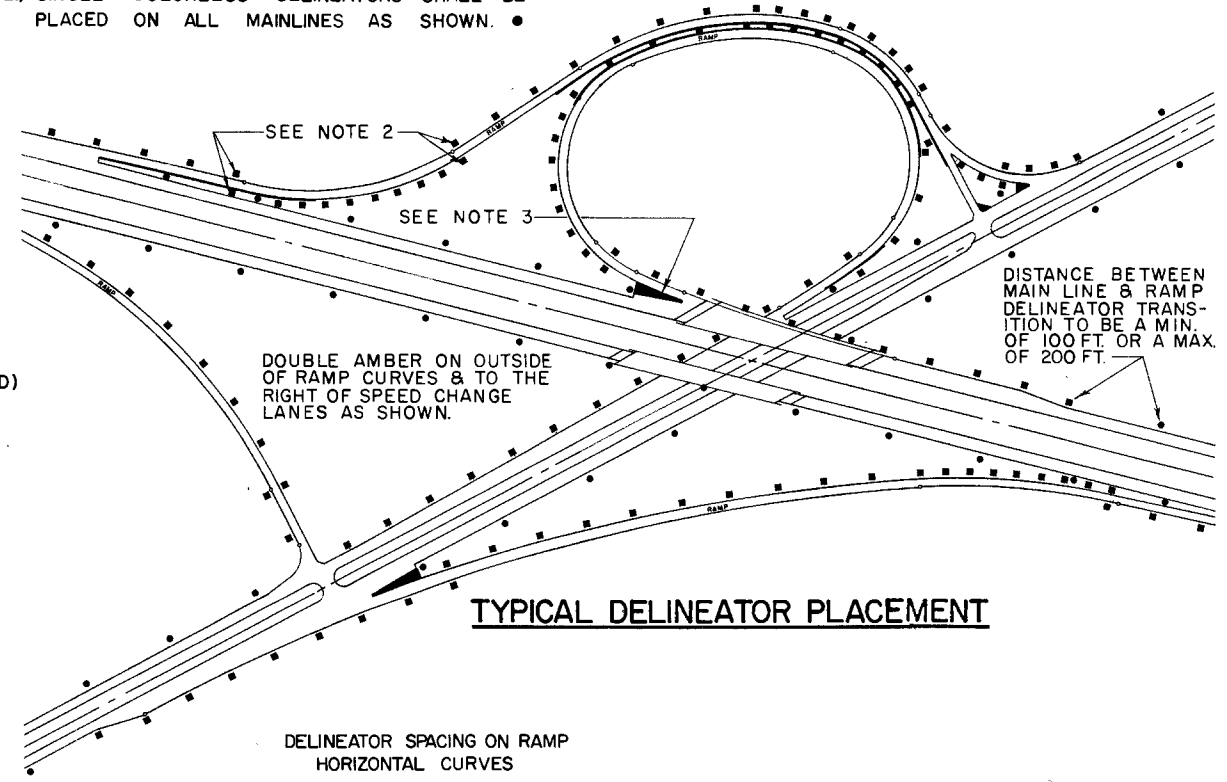
BUREAU OF TRAFFIC OHIO DEPARTMENT OF HIGHWAYS	
<b>PAVEMENT MARKING 621</b>	DATE 7-17-61 4-6-62 5-24-65 9-2-67 4-17-68
	APPROVED <i>Robert E. Lower</i> ENGINEER OF TRAFFIC



\* TABLE

TYPE DELINEATOR	NO GUARDRAIL	GUARDRAIL
SINGLE COLORLESS	12'-6"	6' OUTSIDE
DOUBLE AMBER RIGHT SIDE	** 8'-6"	6' OUTSIDE
DOUBLE AMBER LEFT SIDE	4'-6"	6' OUTSIDE

\*\* THIS DIMENSION SHALL VARY ON SPEED CHANGE LANES TO MAINTAIN MINIMUM DISTANCE OF 2'-6" FROM EDGE OF PAVED SHOULDER.



DELINEATOR SPACING ON RAMP HORIZONTAL CURVES

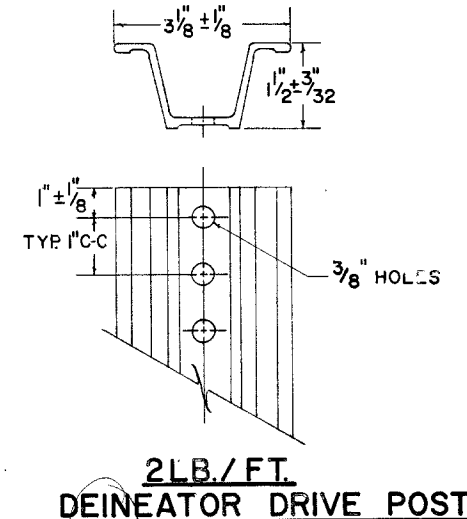
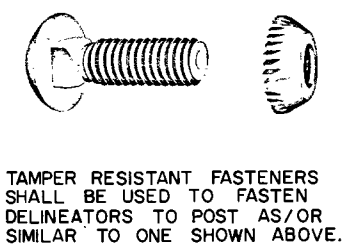
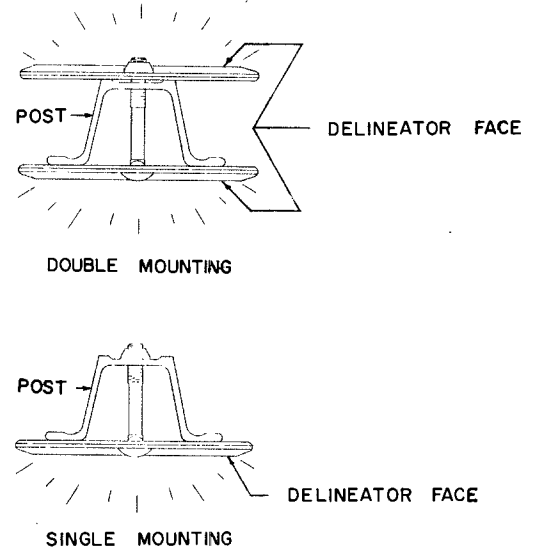
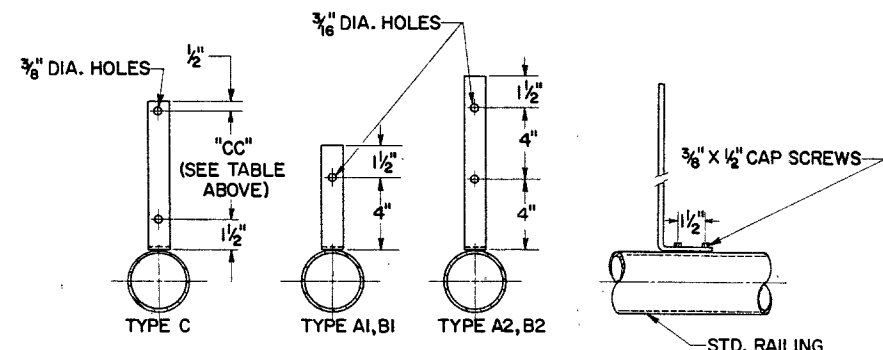
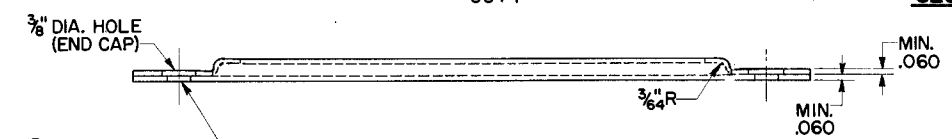
RADII, FT.	FROM	TO	SPACING ON CURVE	TRANSITION SPACING
TANGENT	1,801		100'	100'
	1,800	1,401	80'	100'
	1,400	1,001	70'	100'
	1,000	751	60'	100'
	750	551	50'	100'
	550	326	40'	100'
	325		30'	100'

\* SUCH AS 40' TO 70' TO 100' OR 100' TO 80' TO 50' OR ANY OTHER COMBINATION SHOWN ABOVE.

**NOTES**

- TYPE A1 OR B1 DELINEATORS ON THE RIGHT OF THE THROUGH ROADWAY ARE TO BE SPACED AT 200 FT. INTERVALS THROUGHOUT, REGARDLESS OF CURVES.
- WHEN CROSSING FROM LEFT TO RIGHT OR FROM RIGHT TO LEFT ON THE RAMP THE DELINEATORS AT THE POINT OF CROSSOVER ARE TO BE AT THE SAME STATION ON EACH SIDE.
- NO DELINEATORS ARE TO BE PLACED IN PAVED BERM
- WHEN RADII OF CURVE ON RAMP REQUIRE 100' SPACING THE DELINEATORS SHALL BE PLACED ON THE RIGHT IN RELATION TO THE FLOW OF TRAFFIC.

TYPE	DIM. CC
C1 - SINGLE COLORLESS	6"
C2 - DOUBLE AMBER	11"



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**DELINEATOR DETAILS**

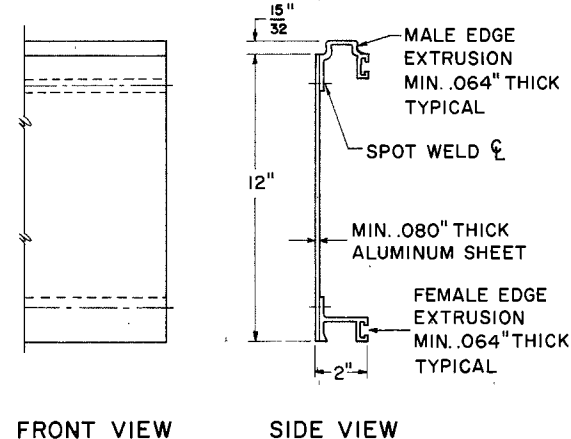
620

DATE  
9-25-62  
5-24-65  
9-12-67

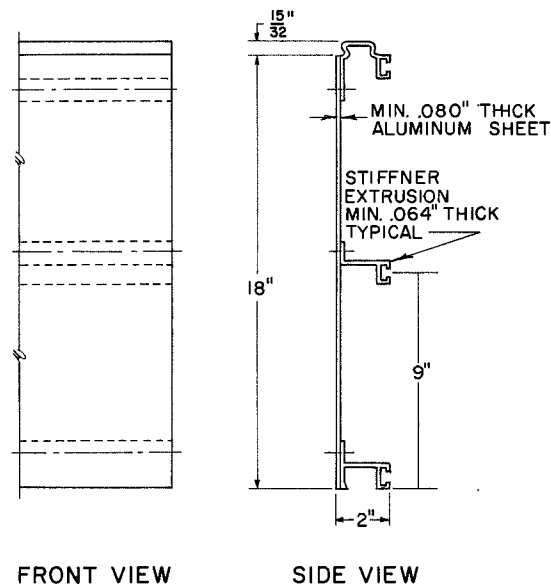
APPROVED *Robert Calmes*  
ENGINEER OF TRAFFIC



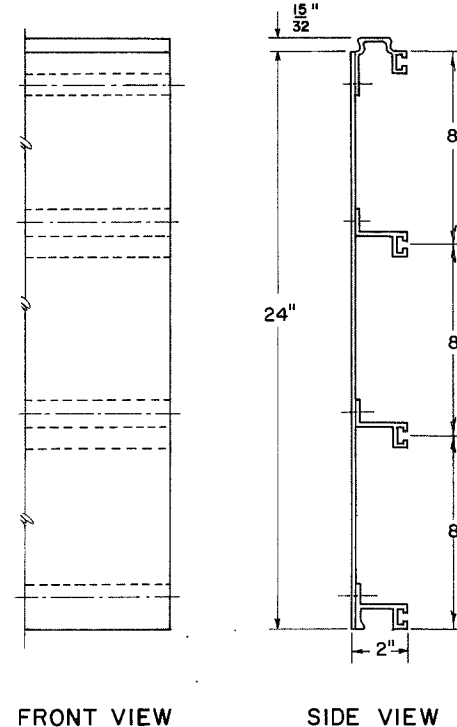
12" EXTRUSHEET PANEL



18" EXTRUSHEET PANEL



24" EXTRUSHEET PANEL



NOTES:

EXTRUSHEET PANELS SHALL BE ALUMINUM; SPOT WELDING AND ALL MATERIALS SHALL CONFORM WITH SUPPLEMENTAL SPECIFICATION

COMBINATIONS OF 12", 18", AND 24" PANELS ARE USED TO ATTAIN REQUIRED SIGN HEIGHT.

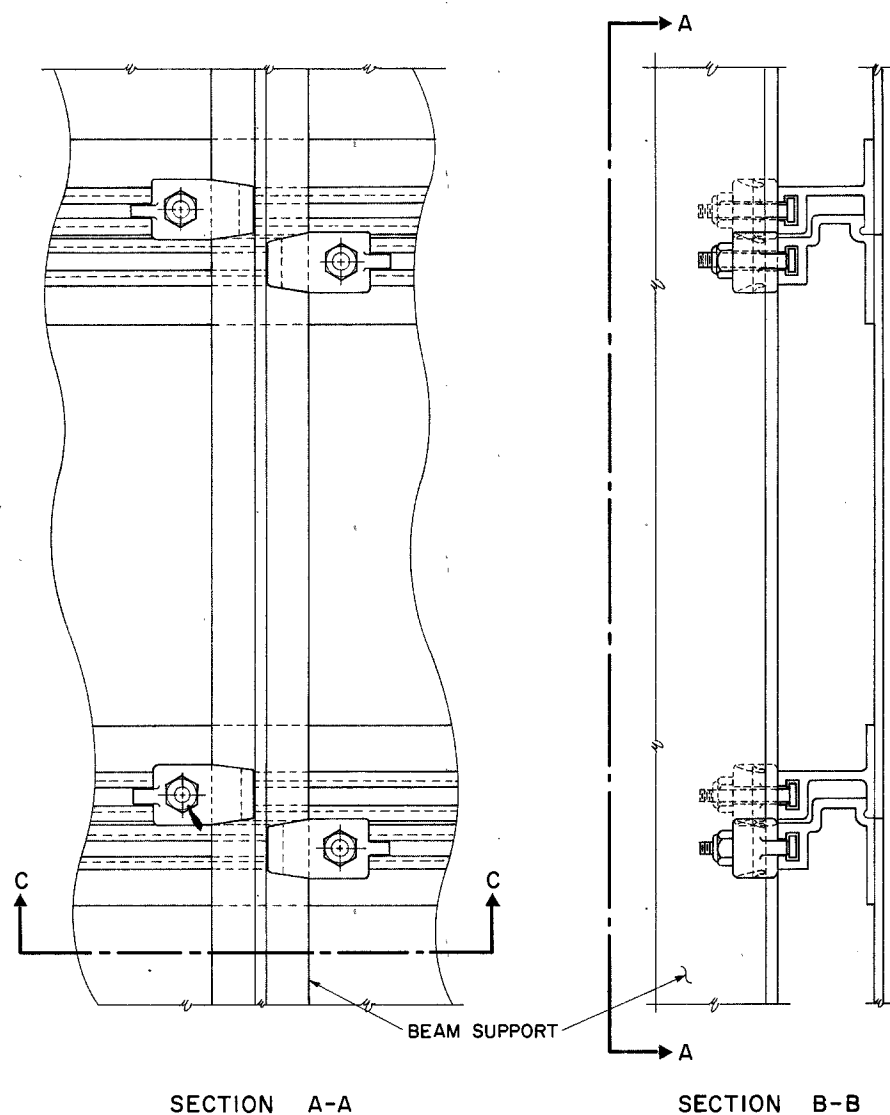
INDIVIDUAL PANELS SHALL BE THE SAME LENGTH AS THE HORIZONTAL LENGTH OF SIGN WITH NO SPLICES.

PANELS SHALL BE INTERLOCKED AND ERECTED WITH THE MALE EXTRUSION LOCATED AT THE TOP EDGE OF THE SIGN.

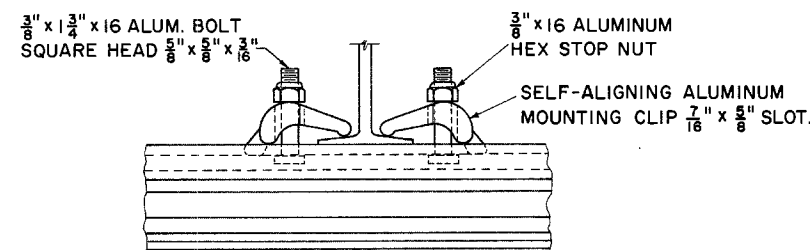
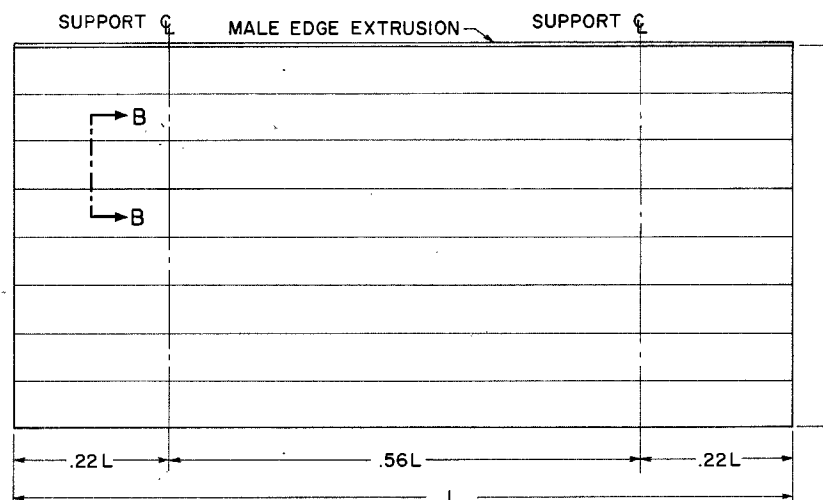
EXTRUSHEET PANELS SHALL BE FASTENED TO EACH VERTICAL SUPPORT MEMBER WITH MOUNTING CLIPS; ALTERNATELY AT EACH HORIZONTAL EXTRUSION; BOTH SIDES AT EACH JOINT, AND ON BOTH SIDES AT TOP AND BOTTOM EDGE OF SIGN.

THE PANELS SHALL BE DESIGNED TO WITHSTAND A WIND LOAD OF 35 POUNDS PER SQUARE FOOT, IN ACCORDANCE WITH THE A.A.S.H.O. SPECIFICATION FOR DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS.

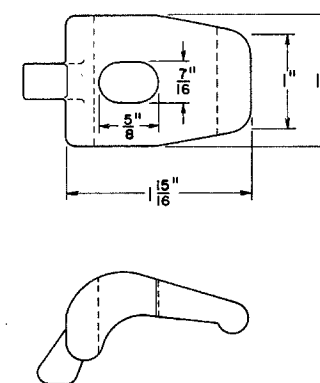
THE MAXIMUM SIGN LENGTH FOR TWO SUPPORTS IS 19'-0".  
THE MAXIMUM SIGN LENGTH FOR THREE SUPPORTS IS 29'-0".



GENERAL ARRANGEMENT



CLIP DETAIL



SPOT WELDS

PANEL SIZE	MAXIMUM SPOT WELD SPACING	
	CENTER TO CENTER	BETWN ROWS
12 INCH	4 INCH	10 INCH
18 & 24 INCH	4 INCH	8 INCH

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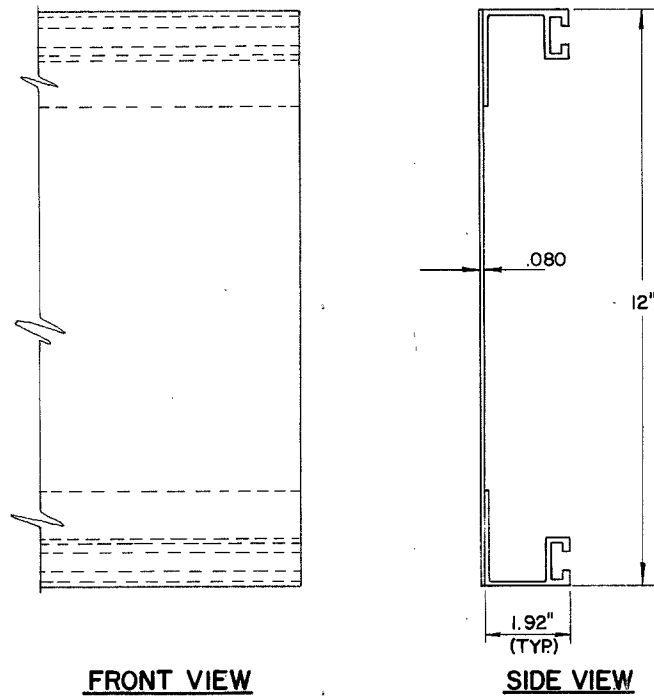
ALUMINUM  
EXTRUSHEET  
PANEL SIGN

EC D  
I

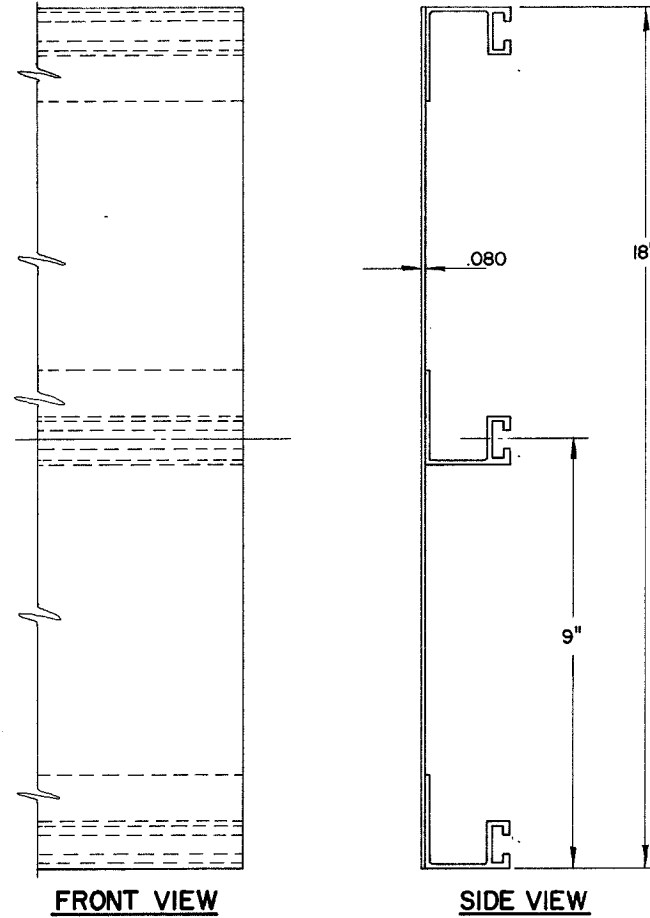
DATE  
9-25-63  
5-19-64  
10-21-65  
5-24-67

APPROVED *Fred C. Taylor*  
ENGINEER OF TRAFFIC

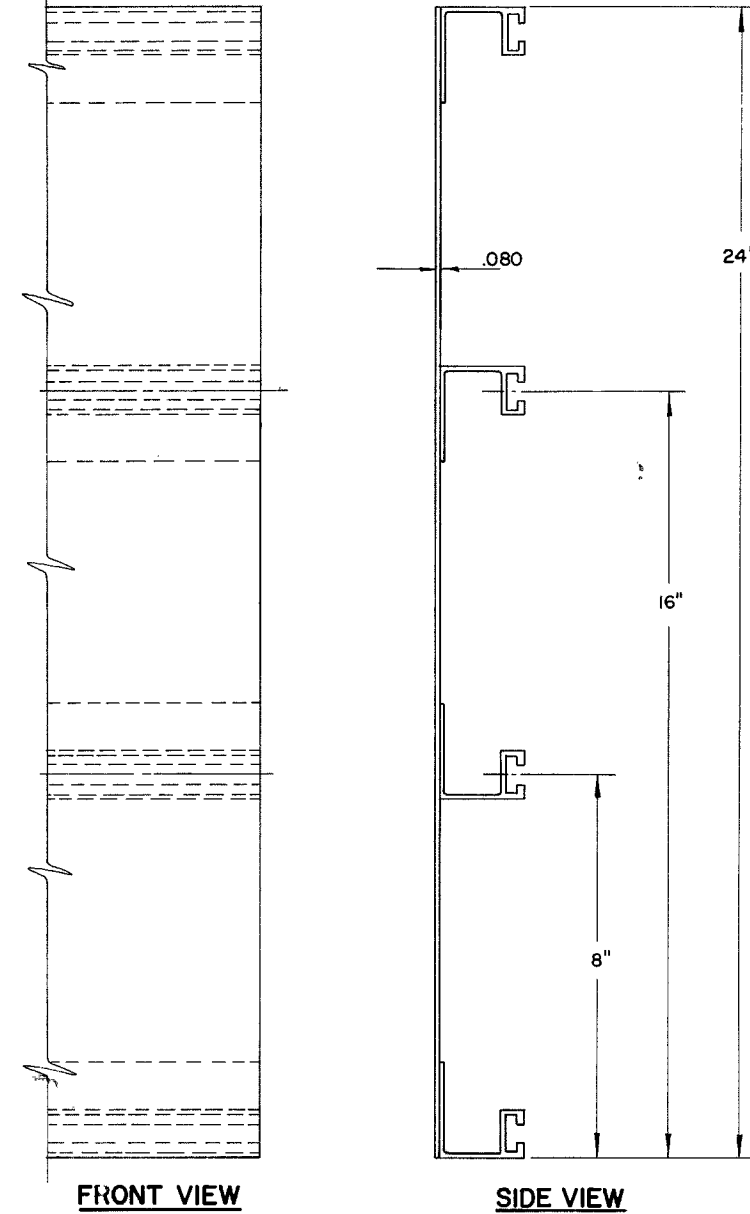
12" BOLTED-EXTRUSHEET PANEL



18" BOLTED-EXTRUSHEET PANEL



24" BOLTED-EXTRUSHEET PANEL



NOTES

EXTRU-SHEET PANELS SHALL BE ALUMINUM; SPOT WELDING, MATERIALS AND HARDWARE SHALL CONFORM WITH SPECIFICATION NO. 815

COMBINATIONS OF 12", 18" AND 24" PANELS ARE TO BE USED TO ATTAIN REQUIRED SIGN HEIGHT.

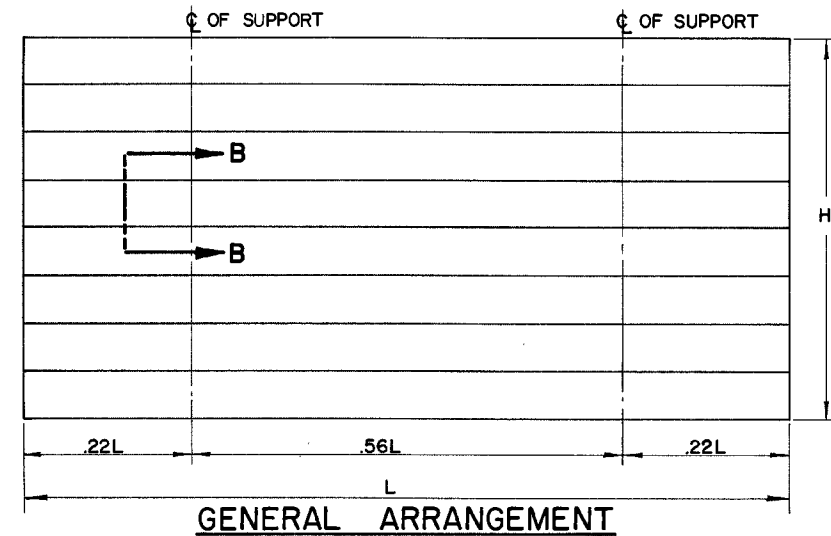
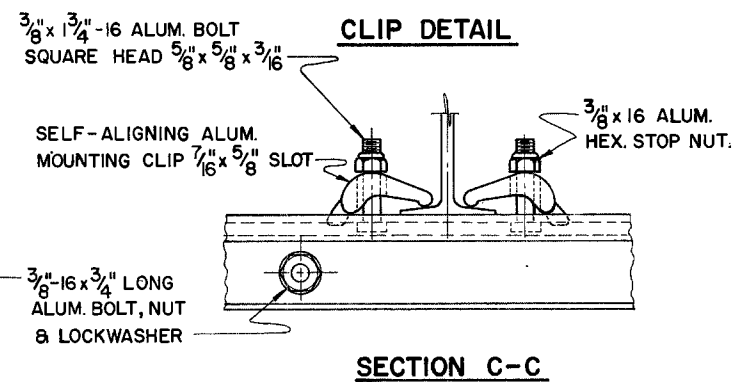
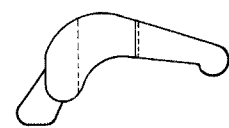
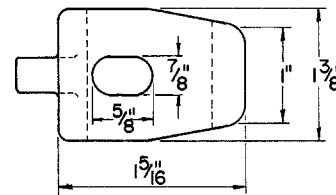
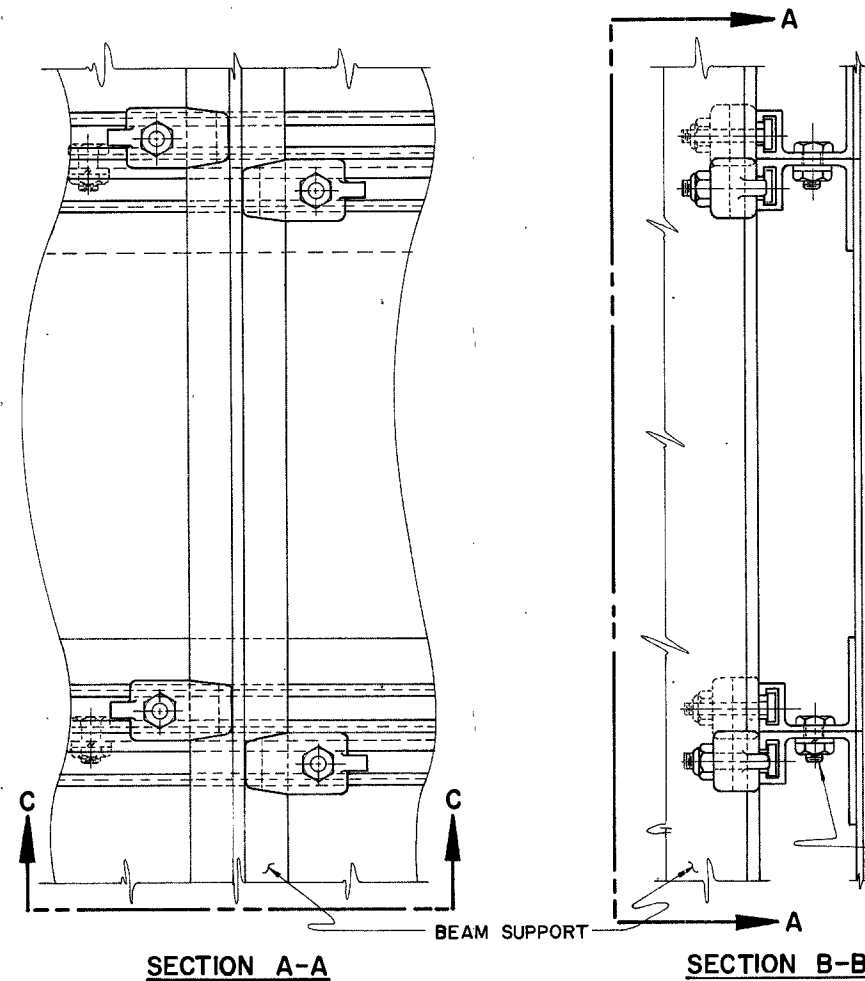
INDIVIDUAL PANELS SHALL BE THE SAME LENGTH AS THE HORIZONTAL LENGTH OF SIGN, WITH NO SPLICES.

THE PANELS SHALL BE ERECTED HORIZONTALLY AND BOLTED ON 24" CENTERS.

THE PANELS SHALL BE FASTENED TO EACH VERTICAL SUPPORT MEMBER WITH MOUNTING CLIPS; ALTERNATELY AT EACH HORIZONTAL EXTRUSION; BOTH SIDES AT EACH JOINT, AND BOTH SIDES AT TOP AND BOTTOM EDGES OF SIGN.

THE PANELS SHALL BE DESIGNED IN ACCORDANCE WITH THE A.A.S.H.O SPECIFICATION FOR THE DESIGN AND CONSTRUCTION OF STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, BASE ON A WIND LOAD OF 35#/SQ. FT.

THE MAXIMUM SIGN LENGTH FOR TWO SUPPORTS IS 19'-0". THE MAXIMUM SIGN LENGTH FOR THREE SUPPORTS IS 29'-0".



SPOT WELDS

PANEL SIZE	MAXIMUM SPOT WELD SPACING	
	CENTER TO CENTER	BETWEEN ROWS
12 INCH	4 INCH	10 INCH
18 & 24 INCH	4 INCH	8 INCH

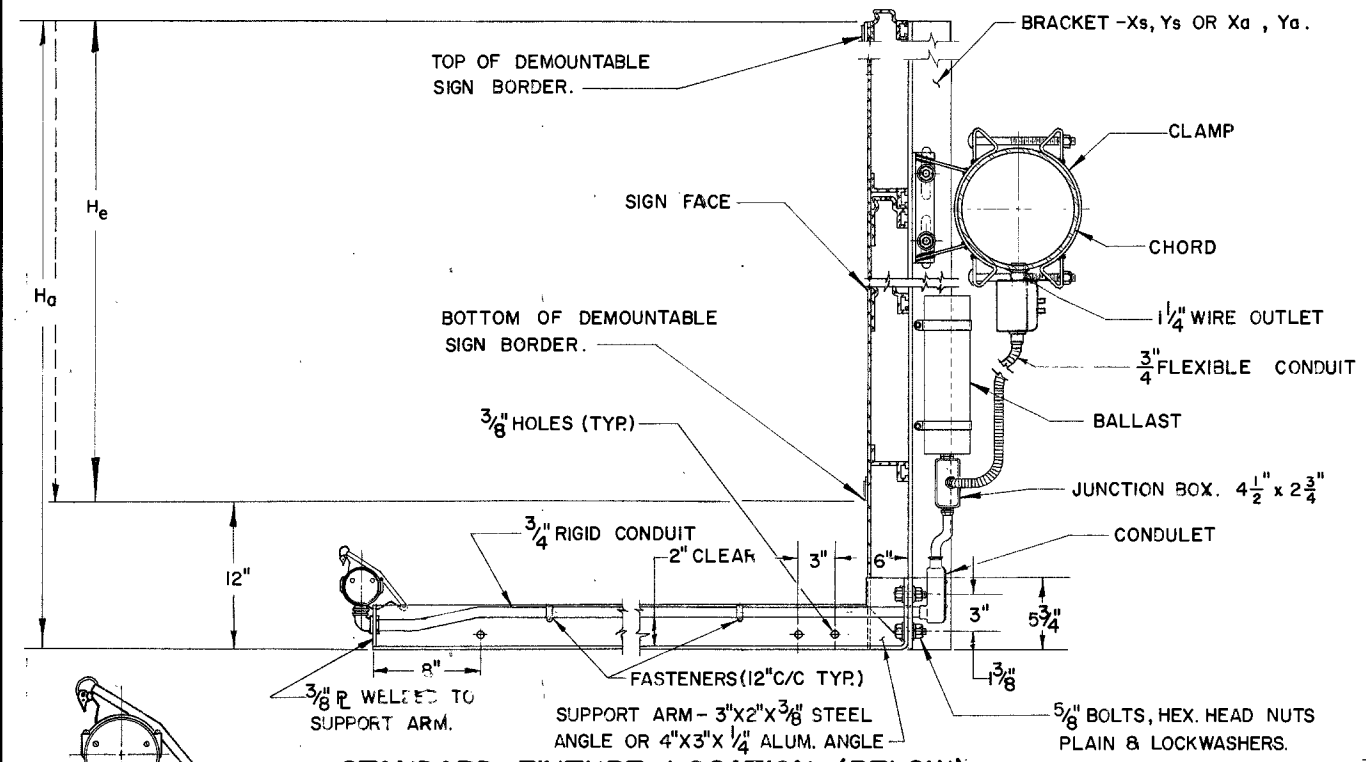
BUREAU OF TRAFFIC  
OHIO DEPARTMENT OF HIGHWAYS

**ALUMINUM BOLTED EXTRUSHEET PANEL SIGN**

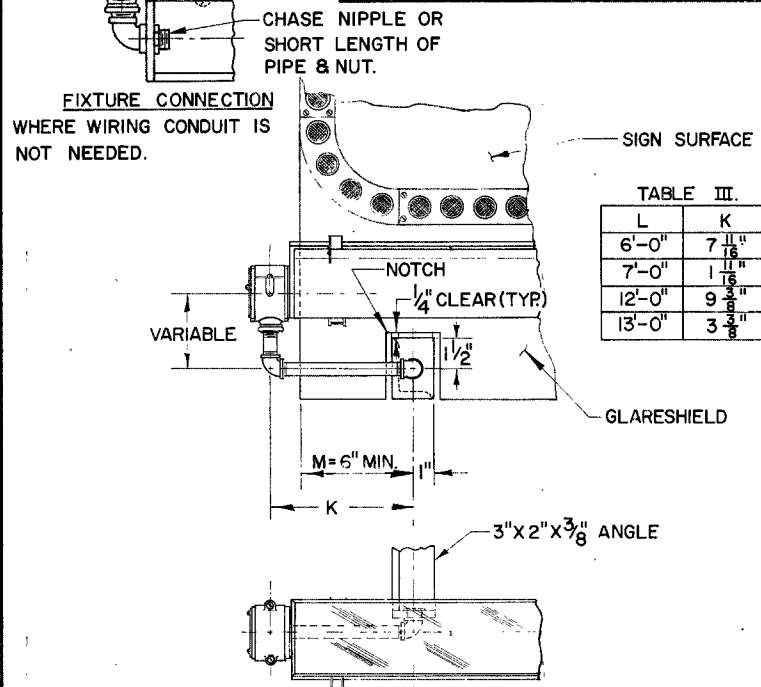
APPROVED *Fred C. Taylor*  
ENGINEER OF TRAFFIC

DATE 10-14-65

ECD  
2



**STANDARD FIXTURE LOCATION (BELOW)**

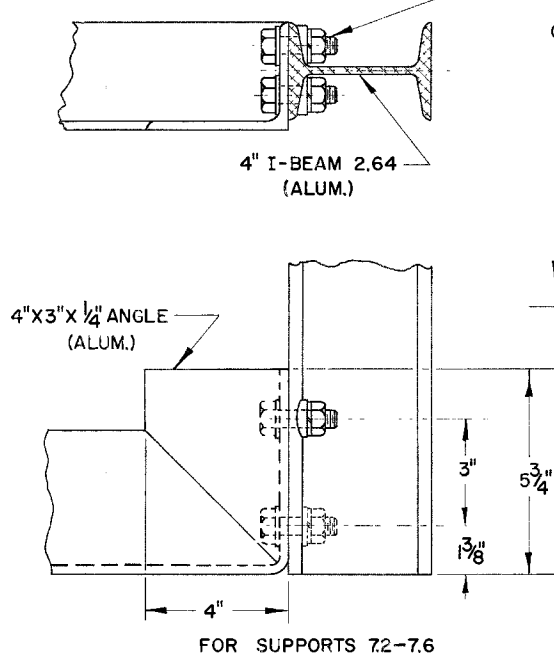


**DETAIL A.**

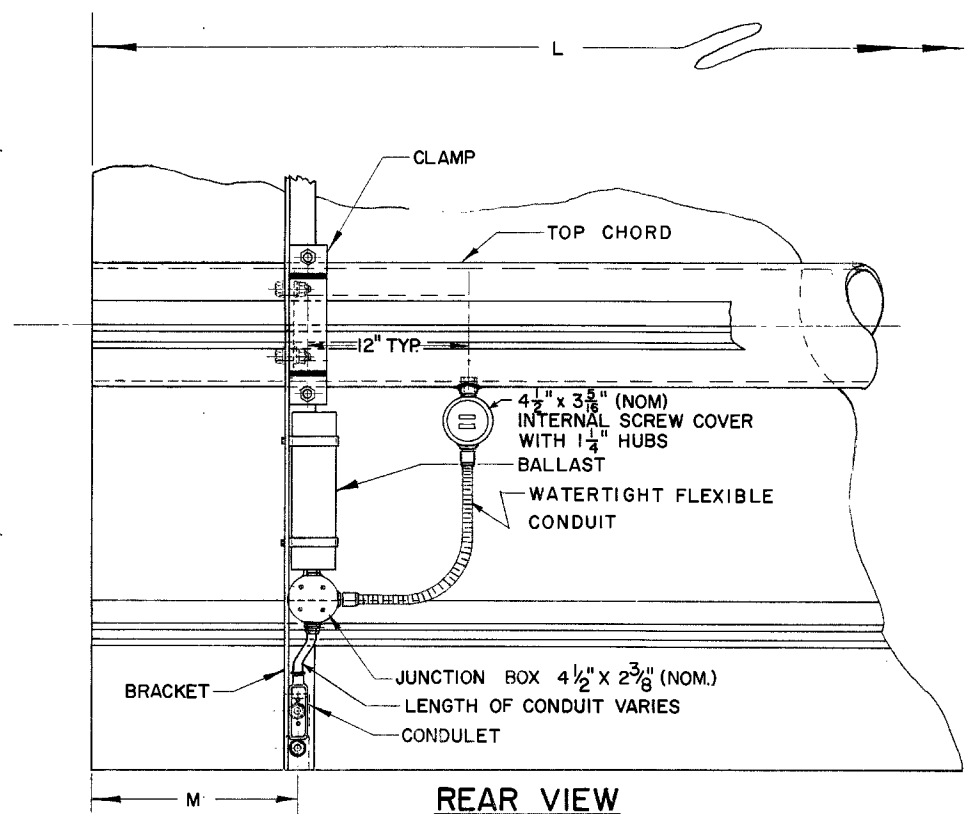
TABLE III.

L	K
6'-0"	7 1/16"
7'-0"	1 1/16"
12'-0"	9 3/8"
13'-0"	3 3/8"

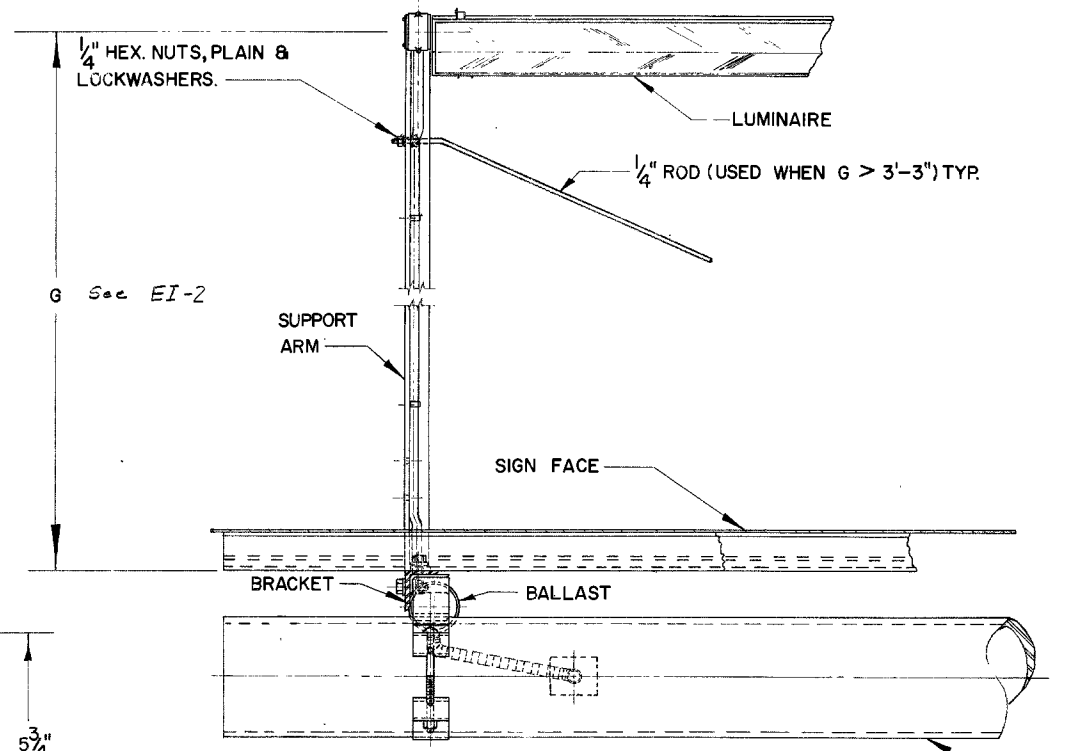
1/2" BOLT, STAINLESS STEEL, TAPERED WASHERS & LOCKWASHERS



**DETAIL B.**



**REAR VIEW**



**TOP VIEW**

**FABRICATION**— ALL STRUCTURAL COMPONENTS SHOWN ON THIS SHEET SHALL CONFORM TO SUPPLEMENT SPECIFICATIONS 816.  
**MATERIALS**— THE MATERIALS USED IN THE COMPONENTS SHOWN ON THIS SHEET SHALL BE IN CONFORMANCE WITH THE MATERIALS USED IN THE SIGN SUPPORT

TABLE I.

"L" SIGN LENGTH		FIXTURES OF NUMBER	"M" EDGE DISTANCE				NO. BALLAST
A	B		A		B		
6'-0"	7'-0"	1	6"	6"	6"	6"	1
8'-0"	9'-0"	1	10 3/8"	10 1/4"	16 3/8"	16 1/2"	1
10'-0"	11'-0"	1	10 3/8"	10 1/4"	16 3/8"	16 1/2"	1
12'-0"	13'-0"	2	6"	6"	6"	6"	1
14'-0"	15'-0"	2	8 5/8"	8 5/8"	14 5/8"	14 5/8"	1
16'-0"	17'-0"	1	8 5/8"	8 5/8"	14 5/8"	14 5/8"	1
18'-0"	19'-0"	2	8 5/8"	8 5/8"	14 5/8"	14 5/8"	1
20'-0"	21'-0"	3	7"	6 7/8"	13	12 7/8"	2
22'-0"	23'-0"	2	7"	6 7/8"	13	12 7/8"	2
24'-0"	25'-0"	1	7"	6 7/8"	13	12 7/8"	2
26'-0"	27'-0"	3	7"	6 7/8"	13	12 7/8"	2

Sn=Nominal Fixture Length, 72" & 96" respectively.  
 Sa=Actual Fixture Length, for mounting purposes, 75 3/8" and 99 3/8" respectively. (Slight variation for different manufacturers.)  
 M= Distance from edge of sign to center of notch, min. 6". When the length of the sign minus 1'-0" is less than the sum of the actual fixture lengths, an offset "K" is used. For additional details see detail A and table III.

TABLE II.

MAX. BRACKET SPACING FOR EXTERNALLY ILLUMINATED SIGNS

ACTUAL SIGN HEIGHT "Ha"	SUPPORT TYPES		
	9.12, 11.08, 13.2, 7.2	9.24, 10.48, 12.24, 14.5, 15.8, 7.2 to 7.6	DOUBLE TUBE
to 5'-0"	6'-4" with X	8'-4" with X	8'-4" with X
	8'-4" with Y	8'-4" with Y	8'-4" with Y
5'-6" to 8'-0"	6'-4" with Y	4'-2" with X	6'-4" with X
	6'-4" with X	6'-4" with Y	8'-4" with Y
8'-6" to 10'-0"	3'-2" with X	6'-4" with Y	6'-4" with Y
	4'-2" with Y	6'-4" with X	8'-4" with X
10'-6" to 12'-0"	—	4'-2" with Y	6'-4" with Y
	—	6'-4" with X	8'-4" with X
12'-6" to 14'-0"	—	3'-2" with Y	3'-2" with Y
	—	3'-2" with X	4'-2" with X

Ha= ACTUAL SIGN HEIGHT  
 He= EFFECTIVE SIGN HEIGHT  
 BRACKET SIZE: Xs= 3 1/2" X 2 1/2" X 5/16" — L @ 6.1 LB. STEEL } 9.12, 10.48, 11.08,  
 Ys= 4" X 3 1/4" X 1/4" — Z @ 8.2 LB. STEEL } 12.24, 14.5 & 15.8  
 Xa= 3" X 2 1/16" X 1/4" — Z @ 2.33 LB. ALUM. } 7.2 Thru 7.6  
 Ya= 4" X 2 3/32" X 3/16" — I @ 2.64 LB. ALUM.

WHEN MAX. ALLOWABLE SPACING IS LESS THAN ACTUAL FIXTURE LENGTHS, Sa, ADDITIONAL STANDARD BRACKETS MUST BE FURNISHED, EQUAL IN HEIGHT TO "Ha".

SUPPORTS 7.2 THROUGH 7.6 SHALL HAVE AN ALUMINUM FIXTURE ARM, 4" X 3" X 1/4" ANGLE. SEE DETAIL B. BOLTS AND ACCESSORIES SHALL BE STAINLESS STEEL.

BUREAU OF TRAFFIC  
 OHIO DEPARTMENT OF HIGHWAYS

STRUCTURAL DETAILS FOR EXTERNALLY ILLUMINATED SIGNS

APPROVED *Jack C. Taylor*  
 ENGINEER OF TRAFFIC

DATE: 10-16-68  
 10-21-68  
 10-29-68

SIGN LIGHTING NOTES

SIGN ILLUMINATION

SIGN ILLUMINATION SHALL BE BY ATTACHED FLUORESCENT FIXTURES AS SHOWN ON ILLUMINATED SIGN DETAIL SHEETS.

LAMPS

LAMPS SHALL BE TYPE F72 OR F96-T12/CW/HO AS MANUFACTURED BY WESTINGHOUSE, GENERAL ELECTRIC OR APPROVED EQUAL FOR SIGNS TO A MAXIMUM HEIGHT OF 6'-6". LAMP TYPE SHALL BE F72 OR F96-T12/CW/SO AS MANUFACTURED BY WESTINGHOUSE, F72 OR F96-PG17/CW AS MANUFACTURED BY GENERAL ELECTRIC, OR APPROVED EQUAL FOR SIGNS THAT ARE 7'-0" OR GREATER IN HEIGHT.

LAMP FIXTURES

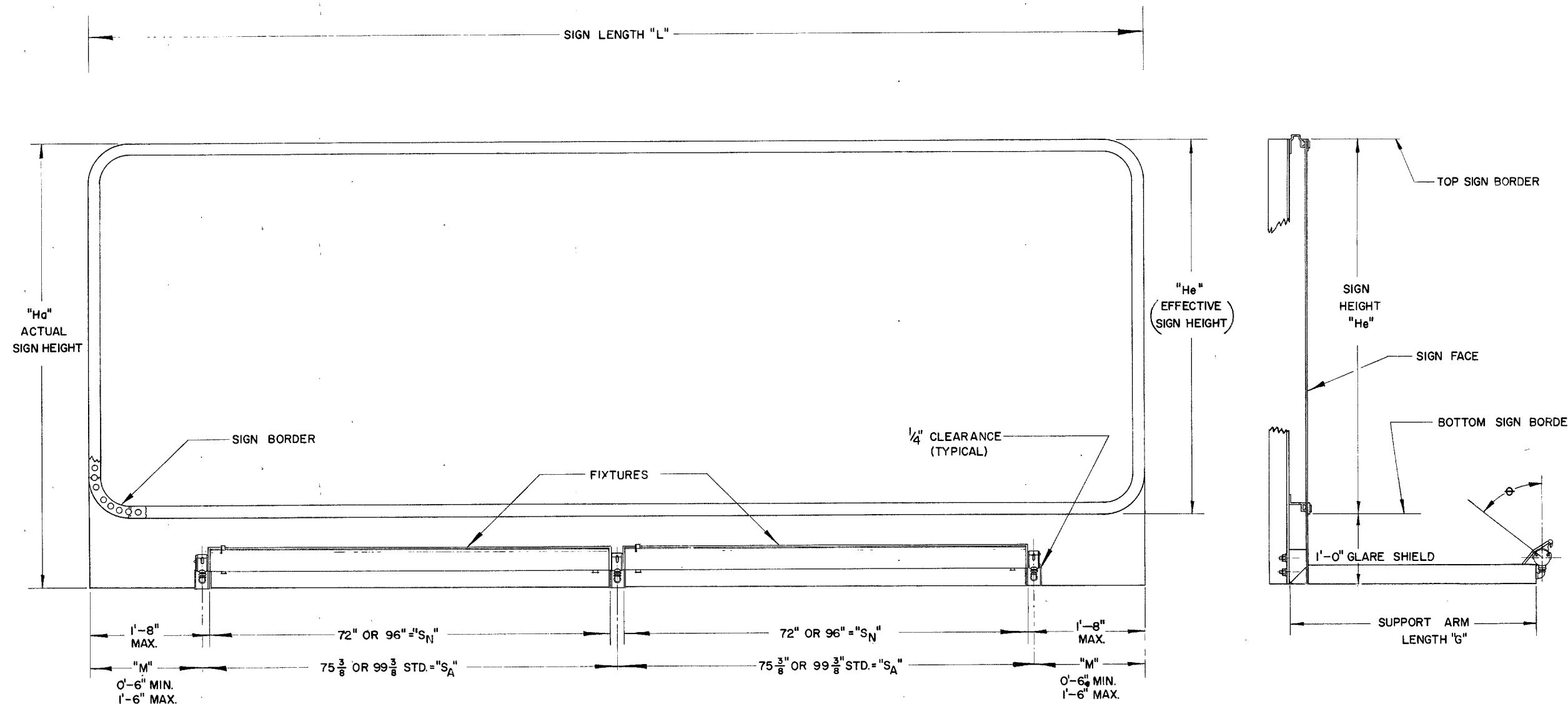
LIGHTING FIXTURES SHALL BE CONSTRUCTED OF CORROSION RESISTANT MATERIALS OR WITH HIGH QUALITY CORROSION RESISTANT FINISH. ALL FIXTURES SHALL BE SPECIFICALLY DESIGNED FOR OUTDOOR SIGN LIGHTING SERVICE. MAJOR COMPONENTS SHALL INCLUDE WEATHERPROOF CAST ALUMINUM MOUNTING HUBS DESIGNED TO SECURELY LOCK THE FIXTURES AT ANY ANGLE THROUGH 360 DEGREES. INDICATORS IN 10 DEGREE INCREMENTS SHALL BE STAMPED OR CAST INTO THE HUB TO FACILITATE PROPER AIMING OF THE FIXTURE. FINAL ADJUSTMENT OF FIXTURE SHALL BE DONE AT NIGHT UNDER THE PROJECT ENGINEER'S DIRECTION.

THE BODY DESIGN OF THE FIXTURE SHALL PROVIDE AN ASYMMETRIC SPECULAR ALZAK REFLECTOR TO GIVE A HIGH LEVEL OF UNIFORM ILLUMINATION AND SHALL PROVIDE A WIREWAY FROM END TO END. WHEN ADJACENT FIXTURES ARE WIRED TOGETHER THROUGH THE WIREWAY, WIRE BETWEEN FIXTURES SHALL BE ENTIRELY ENCLOSED.

EXTERIOR FINISH OF THE FIXTURE BODY SHALL BE INTERSTATE GREEN COLOR, HEAT RESISTANT BAKED ENAMEL AS # 8950 UNIVERSAL PAINT AND VARNISH INC., OR MIDWESTERN COLOR WORKS, OR APPROVED EQUAL. REFLECTOR, LAMP AND SOCKETS SHALL BE PROTECTED BY A HINGED DOOR OF CLEAR ACRYLIC PLASTIC WITH ALUMINUM OR STAINLESS STEEL FRAME AND NEOPRENE GASKETING.

BALLASTS

BALLASTS FOR FIXTURES SHALL BE WEATHER-PROOF OUTDOOR TYPE FOR A 120 VOLT 60 CYCLE SYSTEM AND SHALL PROVIDE LAMP STARTING AT AN AMBIENT TEMPERATURE OF -20°F. BALLASTS SHALL BE MOUNTED ON SIGN BRACKET ONLY. WIRING SHALL BE ACCOMPLISHED IN SUCH A MANNER THAT THE SIGN MAY BE REMOVED WITHOUT DISTURBING THE ELECTRICAL WIRING.



EFFECTIVE SIGN HEIGHT "H"	SUPPORT ARM LENGTH "G"	APPROX. AIMING ANGLE $\phi$
3'-0" to 5'-0"	2'-9"	25°
5'-0" to 6'-6"	3'-3"	25°
7'-0" to 10'-0"	4'-3"	17°
10'-6" to 13'-0"	5'-9"	23°

"L" SIGN LENGTH	NO. OF FIXTURES		H <sub>e</sub> =3'-0" to 6'-6" LAMP=T12/cw/ho		H <sub>e</sub> =7'-0" to 13'-0" LAMP=T12/cw/sho	
	72	96	BALLAST NO.	WATTAGE PER SIGN	BALLAST NO.	WATTAGE PER SIGN
6'-0" to 7'-0"	1		1 A	190	1 C	250
8'-0" to 9'-0"	1		1 A	190	1 C	250
10'-0" to 11'-0"		1	1 A	190	1 C	250
12'-0" to 13'-0"	2		1 B	250	1 D	425
14'-0" to 15'-0"	2		1 B	250	1 D	425
16'-0" to 17'-0"	1	1	1 B	250	1 D	425
18'-0" to 19'-0"		2	1 B	250	1 D	425
20'-0" to 21'-0"	3		2 A & B	440	2 C & D	675
22'-0" to 23'-0"	2	1	2 A & B	440	2 C & D	675
24'-0" to 25'-0"	1	2	2 A & B	440	2 C & D	675
26'-0" to 27'-0"		3	2 A & B	440	2 C & D	675

BALLASTS

TYPE	MANUFACTURERS		WATTAGE
	G.E.	JEFFERSON	
A	GG 3583	257-321	190
B	GG 3535	257-331	250
C	GG 3585	257-361	250
D	GG 3588	257-371	425

BALLASTS SHALL BE GENERAL ELECTRIC, JEFFERSON AS SPECIFIED ABOVE OR EQUAL.

BUREAU OF TRAFFIC  
OHIO DEPARTMENT OF HIGHWAYS

ELECTRICAL DETAILS FOR EXTERNALLY ILLUMINATED SIGNS

DATE  
10-31-63  
5-6-64  
10-29-64  
03-29-67

EI-2

APPROVED *Jacob Taylor*  
ENGINEER OF TRAFFIC

LOR-90-9.48

2/24

**NOTES**

**GENERAL**

DETAILS OF THIS SHEET SHALL APPLY TO EACH OVERHEAD SIGN STRUCTURE TO SUPPORT EXTERNALLY ILLUMINATED SIGNS.

**SERVICE**

ELECTRIC SERVICE SHALL ENTER THROUGH A 2" GALVANIZED RIGID STEEL CONDUIT INSTALLED IN STRUCTURE FOUNDATION AS PER DETAIL. SIGN SERVICE OR CIRCUITRY SHALL BE CONTROLLED AS REQUIRED BY THE SYSTEM DESIGN AT THE PRIMARY SOURCE.

SERVICE CONDUCTORS SHALL BE THE SIZE AND TYPE AS SPECIFIED.

**COMBINATION SWITCH AND TRANSFORMER**

(TYPE Y OR Z ENCLOSURE REQUIRED AS PER SCHEDULE ON THIS SHEET)

THIS COMBINATION SHALL BE A 30 OR 60 AMPERE 600 VOLT SWITCH WITH A .25 TO 3.0 KVA TRANSFORMER. THE COMBINATION AND ENCLOSURE SHALL BE AS SQUARE D CLASS 9421, COLUMBUS ELECTRIC WORKS CLASS 101, PANELS INCORPORATED-CLASS 9400, OR APPROVED EQUAL.

**TRANSFORMER**

THE TRANSFORMER SHALL BE DRY TYPE SINGLE PHASE 240/480 VOLT PRIMARY 120/240 VOLT SECONDARY, THE TYPE AND CAPACITY AS SPECIFIED IN DETAILED SCHEDULE ON THIS SHEET.

**ENCLOSURE**

THE ENCLOSURE SHALL BE NEMA #4 WATER TIGHT .063 GAGE STAINLESS STEEL ASTA 302-303. A DISCONNECT HANDLE SHALL BE FLANGE MOUNTED AND CAPABLE OF BEING LOCKED IN EITHER POSITION. THE ENCLOSURE SHALL BE EQUIPPED WITH A DOOR LOCKING MECHANISM WITH A DEFEATER THAT NECESSITATES TWO HANDS TO OPERATE MECHANISM WITH THE SWITCH IN OFF POSITION. SPACE FOR A 2" INSULATED CHASE NIPPLE SHALL BE PROVIDED APPROXIMATELY 2 1/4" ABOVE THE CENTER LINE OF THE LOWER MOUNTING SLOT. THIS ENCLOSURE AND STRUCTURE SHALL BE FIELD DRILLED AND TAPPED FOR THE REQUIRED NIPPLE AS SHOWN ON THE DETAIL ON THIS SHEET.

THIS ENCLOSURE SHALL BE FLANGE MOUNTED ON BRACKETS WITH 5/8"-18x3/4" HEX HEAD CADMIUM PLATED MACHINE BOLTS. ENCLOSURES SHALL BE TYPE Y OR Z AS SPECIFIED AND DIMENSIONED ON THIS SHEET.

**ENCLOSURE MOUNTING BRACKET**

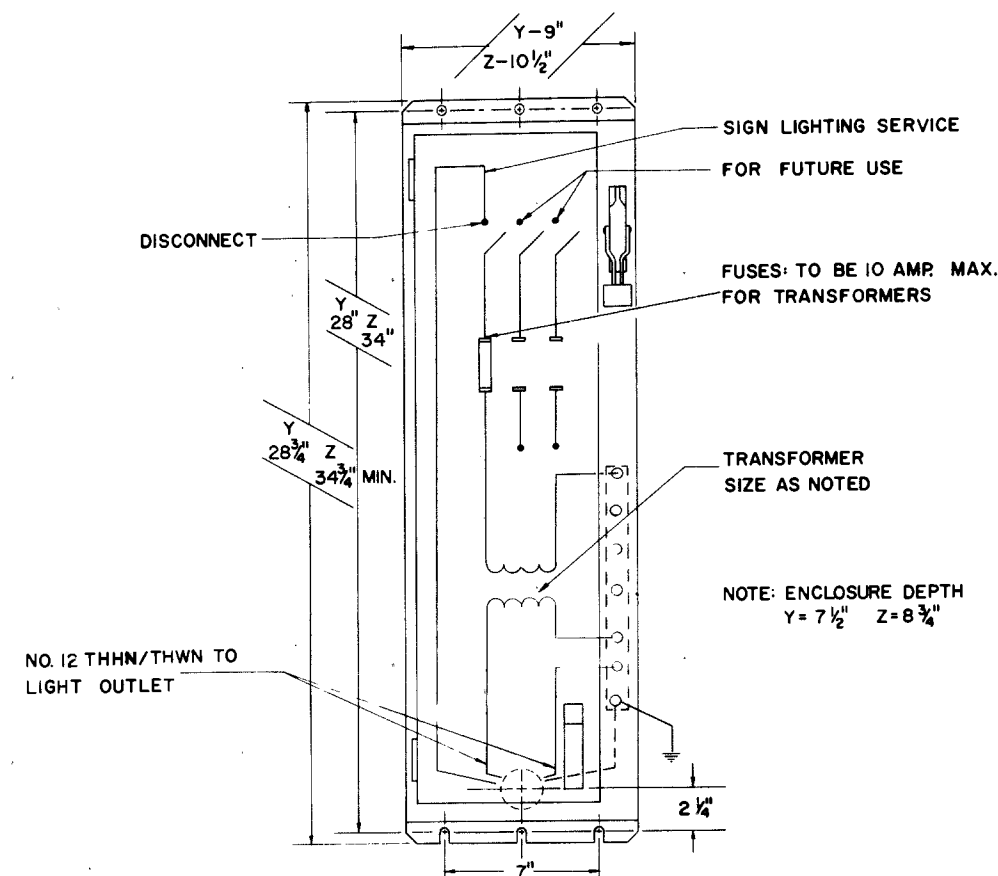
THE ENCLOSURE MOUNTING BRACKET SHALL BE FABRICATED THEN GALVANIZED BEFORE ASSEMBLY. THE BRACKET SHALL BE FIELD MOUNTED WITH 3/8" HEX HEAD SELF TAPPING CADMIUM PLATED SCREWS. THE SIGN SUPPORT SHALL BE FIELD DRILLED, AS PER DETAIL.

**WIRE AND CABLE**

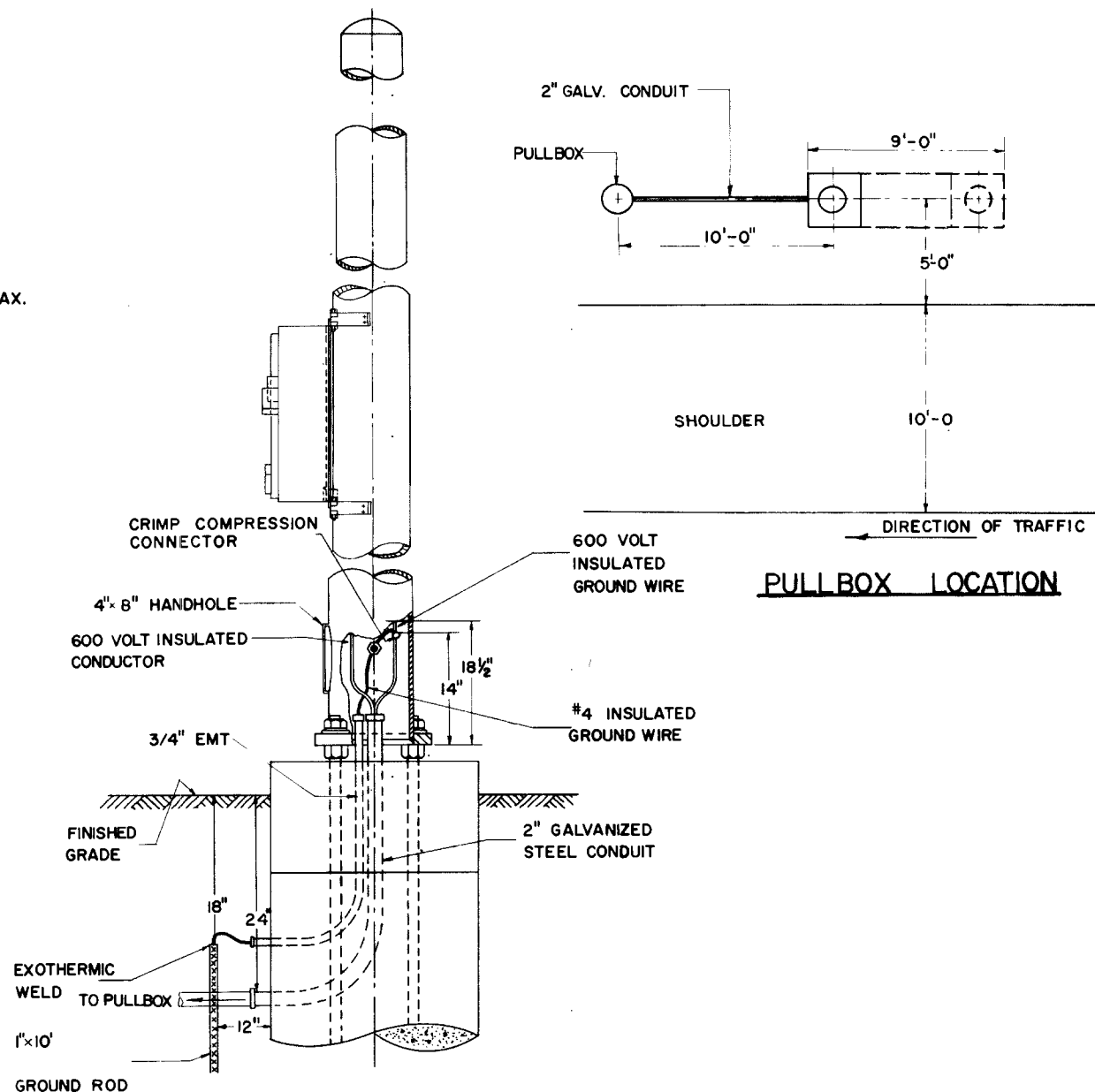
ALL WIRE AND CABLE SHALL BE 600 VOLT AND CONFORM TO SECTION 713.02

**GROUNDING**

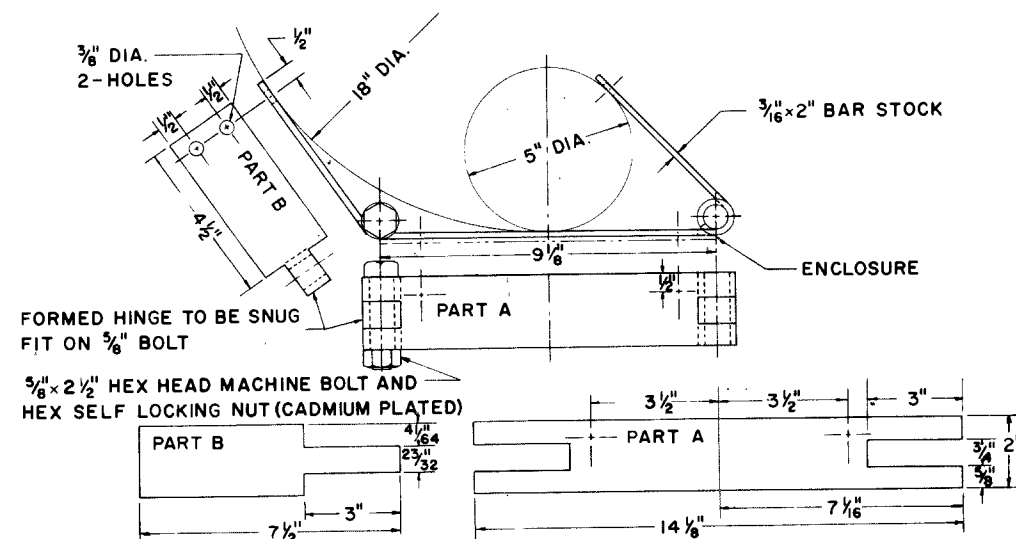
EACH SIGN SUPPORT OR STRUCTURE SHALL BE GROUNDING WITH A #4 INSULATED CONDUCTOR. THE GROUNDING CONDUCTOR SHALL BE CONNECTED TO THE SWITCH THEN TO THE COMPRESSION CONNECTOR IN THE SIGN SUPPORT THEN TO A 1"x10" GROUND ROD. GROUND CONDUCTOR SHALL BE EXOTHERMICALLY WELDED TO GROUND ROD AND THEN TAPED WITH PLASTIC ELECTRICAL TAPE AT EACH EXPOSED PORTION OF CONDUCTOR. THE WELDED CONNECTION AND TAPED PORTION SHALL BE PAINTED 2 COATS OF INSULATING ENAMEL.



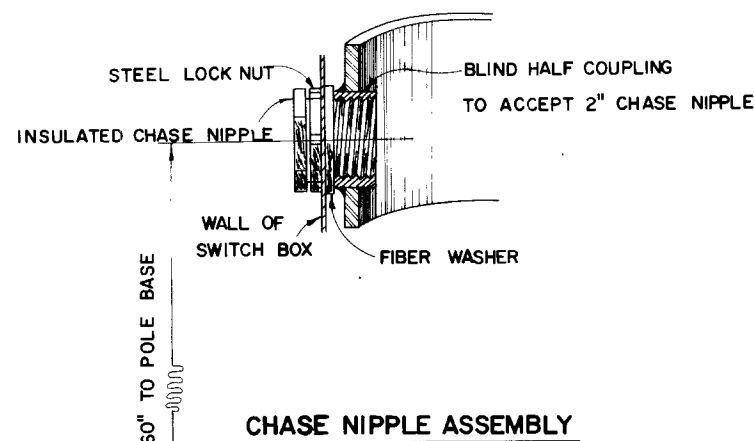
**TYPICAL ENCLOSURE DETAIL**  
480 VOLT SIGN LIGHTING SERVICE



**SIGN SUPPORT DETAIL FOR ILLUMINATED SIGNS**



**ENCLOSURE MOUNTING BRACKET**



**TRANSFORMERS**

TYPE	MANUFACTURERS	OUTPUT K.V.A.	SWITCH TRANSFORMER ENCLOSURE
I	9T51Y7 211-041	.25	Y
II	9T51Y8 211-051	.50	Y
III	9T51Y9 211-061	.75	Y
IV	9T51Y10 211-071	1.00	Z
V	9T51Y11 211-081	1.50	Z
VI	9T51Y12 211-091	2.00	Z
VII	9T51Y13 211-2102	3.00	Z

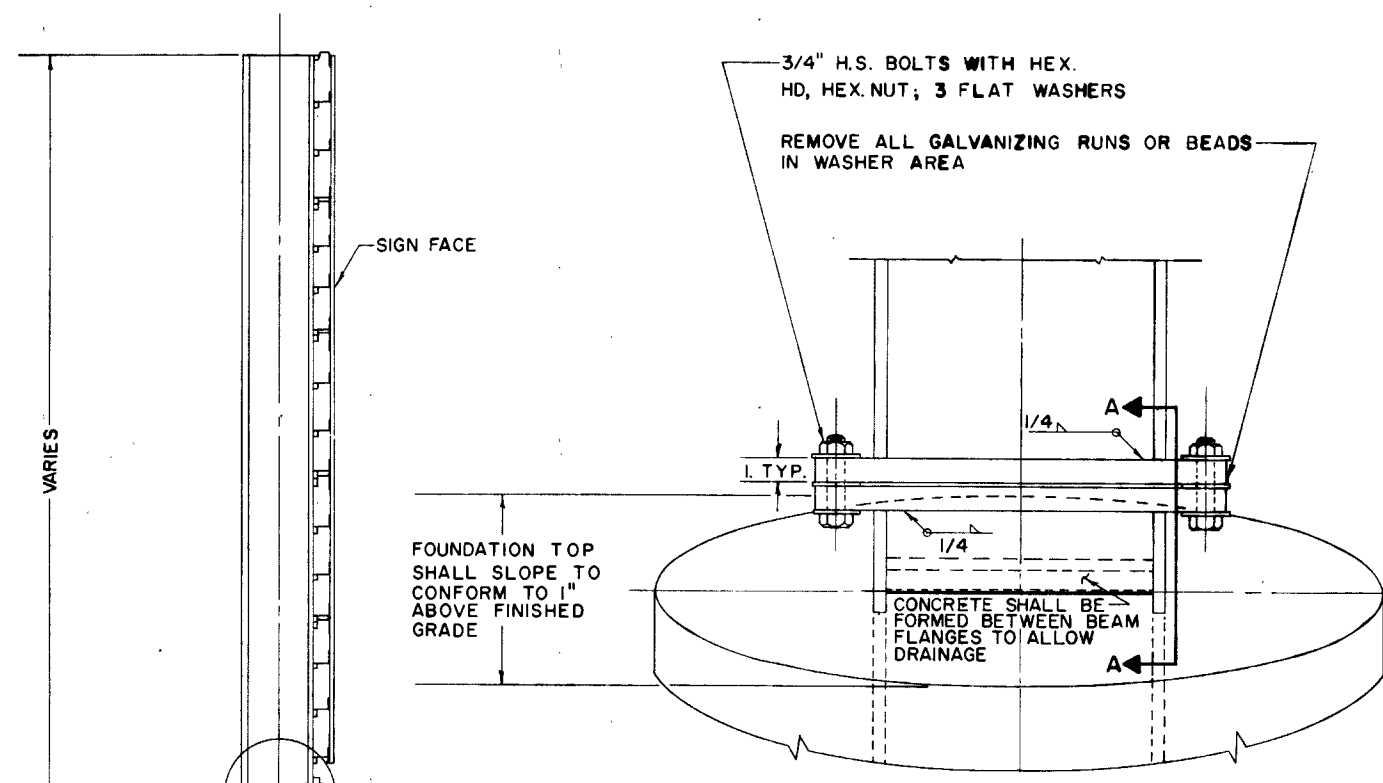
BUREAU OF TRAFFIC  
OHIO DEPARTMENT OF HIGHWAYS

ELECTRICAL SIGN  
SERVICE DETAILS  
480 VOLT SYSTEM

ES-3A

DATE  
6-18-64  
9-16  
7-31-70  
2-03-72

APPROVED \_\_\_\_\_  
ENGINEER OF TRAFFIC



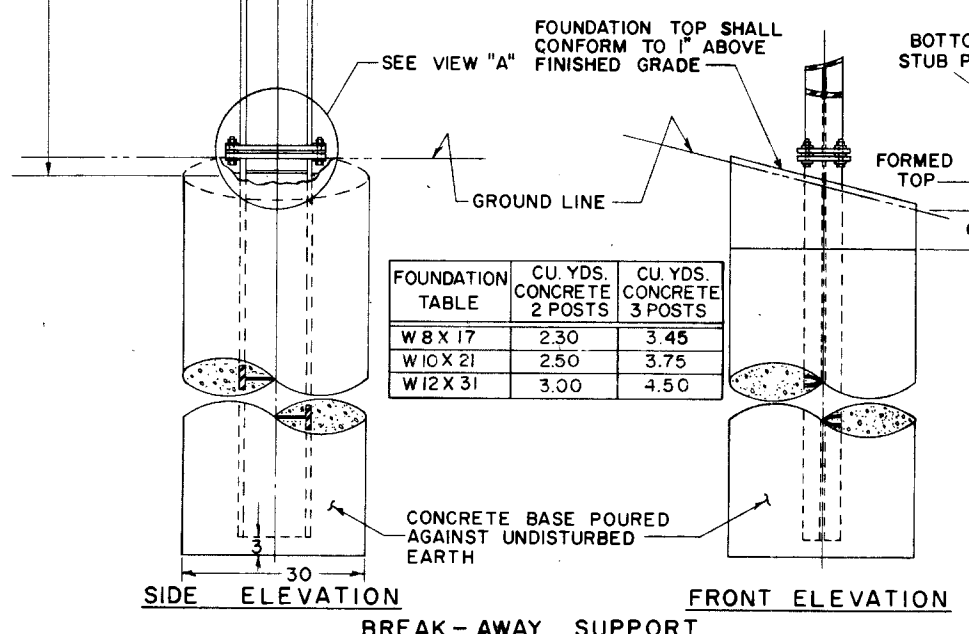
**BOLTING PROCEDURE**

1. ASSEMBLE POST TO STUB W/BOLTS & ONE FLAT WASHER ON EACH BOLT BETWEEN PLATES.
2. TIGHTEN ALL BOLTS THE MAXIMUM POSSIBLE W/12" TO 15" WRENCH TO BED & TO CLEAN BOLT THREADS. LOOSEN EACH BOLT IN TURN & RETIGHTEN BOLTS IN A SYSTEMATIC ORDER TO THE PRESCRIBED TORQUE OF 750 IN. LBS.
3. BURR THREADS AT JUNCTION W/NUT USING A CENTER PUNCH TO PREVENT NUT LOOSENING.

NOTE: TIGHTEN THE H.S. BOLTS IN THE BASE CONNECTION ONLY TO GIVEN TORQUE DO NOT OVER TIGHTEN

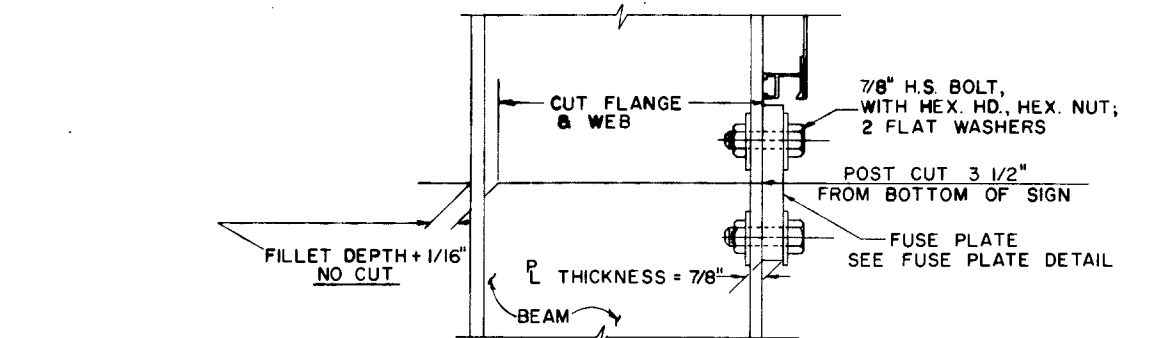
VIEW "A" ROTATED 180°

SEE DETAIL "B"



FOUNDATION TABLE	CU. YDS. CONCRETE 2 POSTS	CU. YDS. CONCRETE 3 POSTS
W 8 X 17	2.30	3.45
W 10 X 21	2.50	3.75
W 12 X 31	3.00	4.50

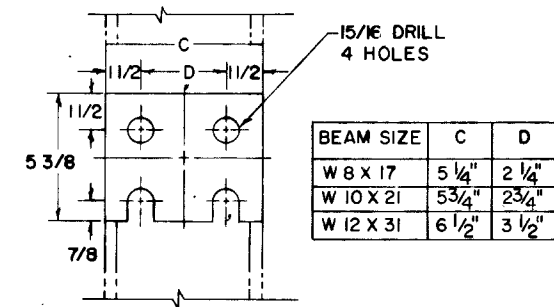
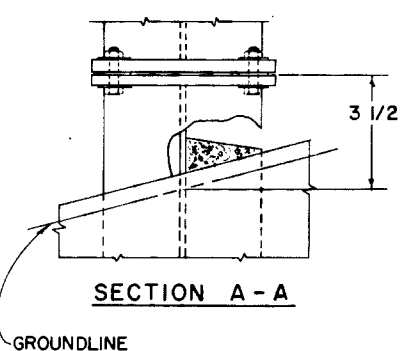
STRUCTURAL SUPPORTS



FABRICATOR NOTE: ALL FRICTION FUSE BOLTS SHALL BE TIGHTENED IN THE SHOP FOLLOWING A METHOD APPROVED BY THE ENGINEER. TIGHTENING SHALL BE TO SUCH A DEGREE AS TO OBTAIN MINIMUM RESIDUAL TENSION IN EACH BOLT OF 36,050 LBS.

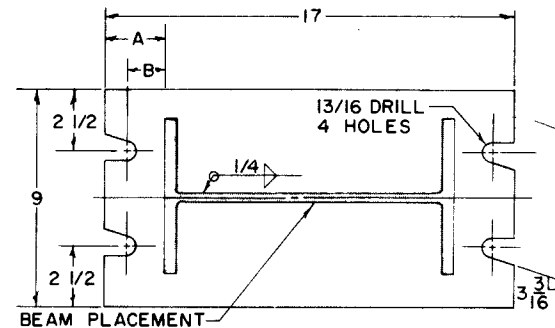
NOTE: INSTALL FUSE PLATE WITH NOTCHES TOWARD BASE

DETAIL "B"



BEAM SIZE	C	D
W 8 X 17	5 1/4"	2 1/4"
W 10 X 21	5 3/4"	2 3/4"
W 12 X 31	6 1/2"	3 1/2"

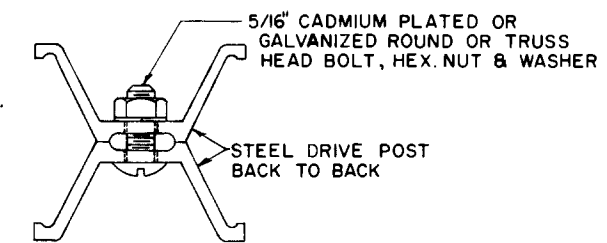
FUSE PLATE DETAIL



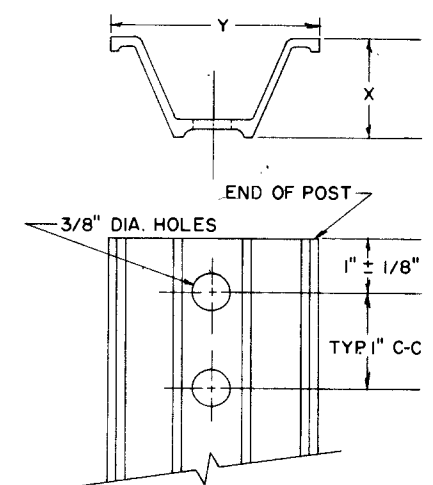
BEAM SIZE	A	B
W 8 X 17	4 1/2"	3 5/8"
W 10 X 21	3 1/2"	2 5/8"
W 12 X 31	2 1/2"	1 5/8"

BASE PLATE DETAIL

(TOP VIEW)



6# BEAM DETAIL



WEIGHT PER FOOT	X ± 3/32"	Y ± 1/8"
2.00 #	1 15/32"	3 1/16"
3.00 #	1 7/8"	3 1/2"
4.00 #	2"	3 5/8"

DRIVE POST DETAIL

SUPPLEMENTING THE DRIVE POST DETAILS SHOWN, ALTERNATE POST SECTIONS MAY BE FURNISHED ANY ALTERNATE SECTION FURNISHED SHALL MEET ALL THE MATERIAL REQUIREMENTS OF 816, HAVE A SHAPE APPROXIMATELY AS DETAILED, AND HAVE A MOMENT OF INERTIA EQUAL TO OR GREATER THAN THE SECTION DETAILED. THE REQUIREMENTS OF 712.20 RELATIVE TO MAXIMUM WEIGHT TOLERANCE ARE HEREBY WAIVED. NO ALTERNATE SECTION FURNISHED SHALL EXCEED THE WEIGHT OF THE CORRESPONDING SECTION BY MORE THAN 10 PERCENT.

NOTES: ALL MATERIALS SHALL CONFORM TO THE STATE OF OHIO, CONSTRUCTION & MATERIALS SPECIFICATIONS OR AS OTHERWISE SPECIFIED

- 1) 511 FOUNDATIONS
- 2) 711.01 STRUCTURAL STEEL SHAPES & PLATES
- 3) 711.09 H.S. STEEL BOLTS, NUTS & WASHERS

ALL DIMENSIONS IN INCHES UNLESS OTHERWISE SHOWN

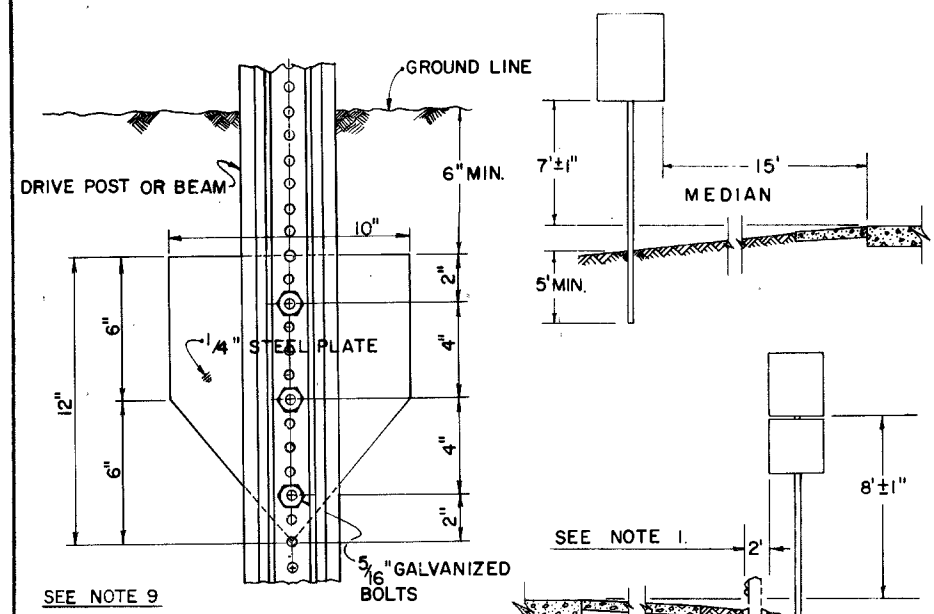
BUREAU OF TRAFFIC  
OHIO DEPARTMENT OF HIGHWAYS

GROUND MOUNTED  
SIGN SUPPORTS

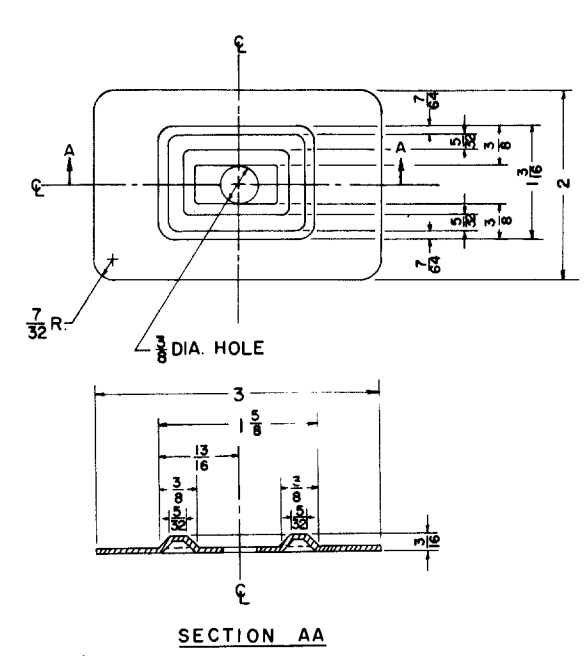
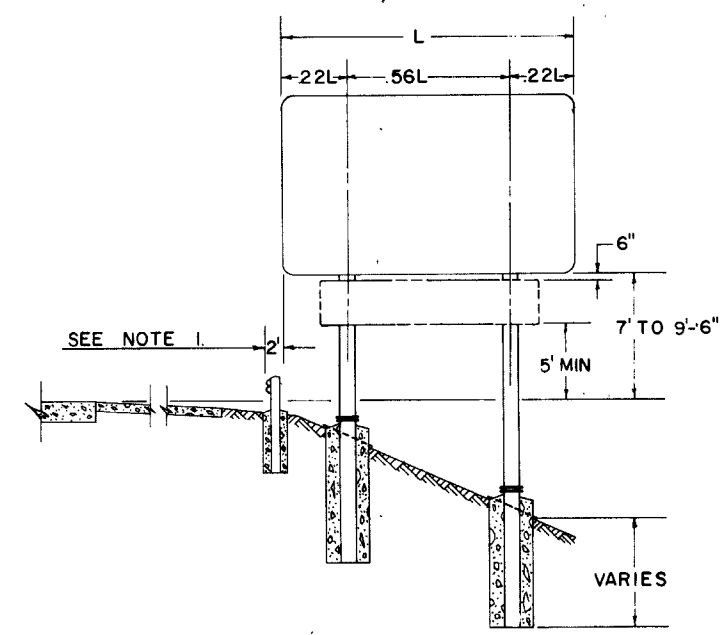
DATE  
5-10-68  
7-12-68  
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9-16-69  
12-20-71

APPROVED \_\_\_\_\_  
ENGINEER OF TRAFFIC

GMSS



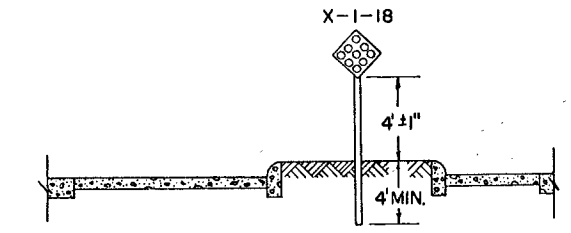
**SOIL PLATE DETAIL**



**SECTION AA**

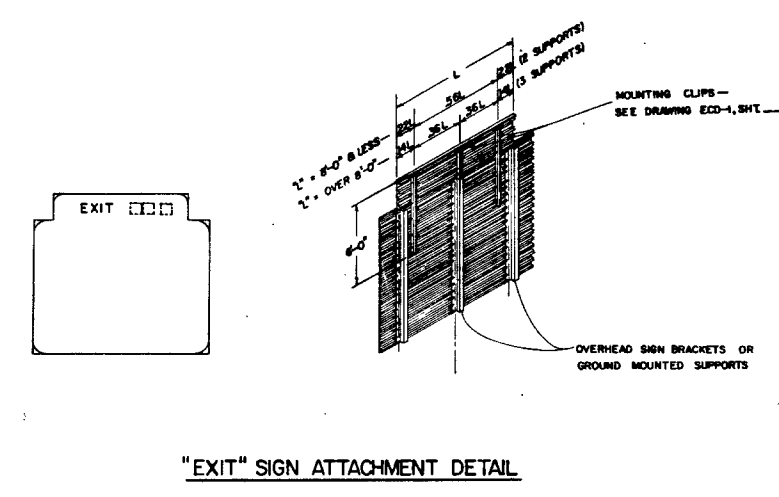
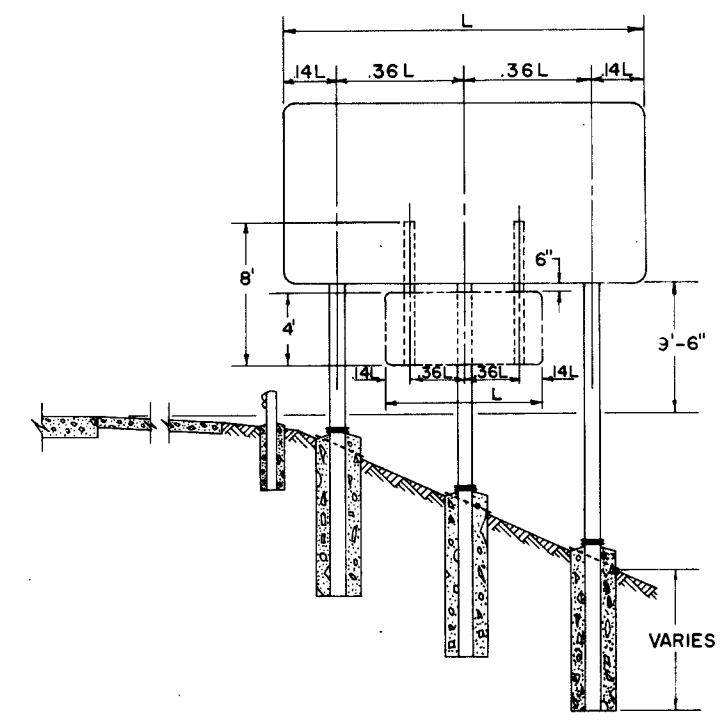
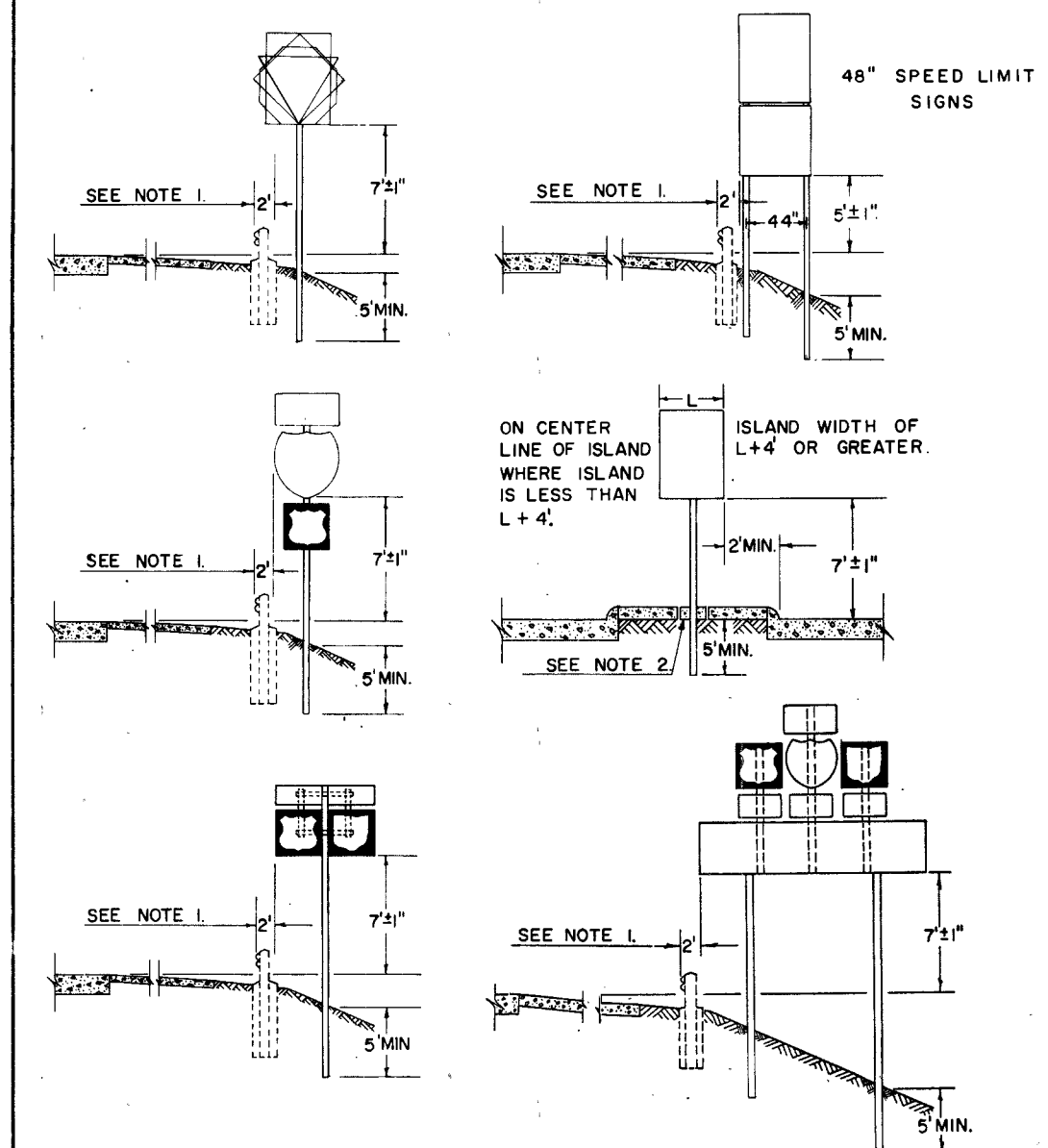
NOTE: THE PLATE IS SYMMETRICAL ABOUT EITHER CENTERLINE. METAL SHALL BE 16 GAUGE STEEL. ALL DIMENSIONS ARE IN INCHES.

**BEARING PLATE DETAIL**

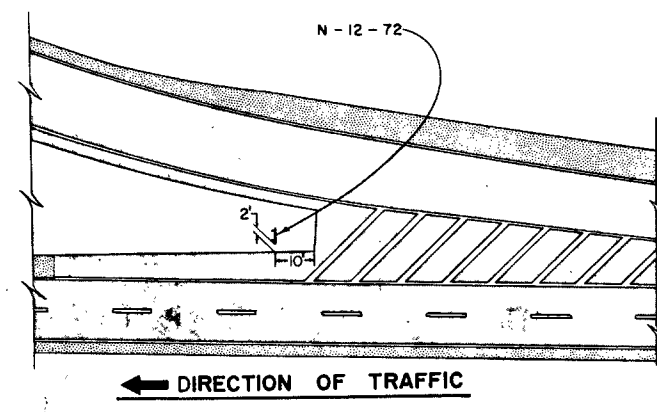


**SIGN SUPPORT SPACING**

L + FT	2 SUPPORTS				3 SUPPORTS				
	.22	.56	.14	.36	L + FT	.22	.56	.14	.36
5.0	1.10	2.80	0.70	1.80	17.0	3.74	9.52	2.38	6.12
6.0	1.32	3.36	0.84	2.16	18.0	3.96	10.08	2.52	6.48
7.0	1.54	3.92	0.98	2.52	19.0	4.18	10.64	2.66	6.84
8.0	1.76	4.48	1.12	2.88	20.0			2.80	7.20
9.0	1.98	5.04	1.26	3.24	21.0			2.94	7.56
10.0	2.20	5.60	1.40	3.60	22.0			3.08	7.92
11.0	2.42	6.16	1.54	3.96	23.0			3.22	8.28
12.0	2.64	6.72	1.68	4.32	24.0			3.36	8.64
13.0	2.86	7.28	1.82	4.68	25.0			3.50	9.00
14.0	3.08	7.84	1.96	5.04	26.0			3.64	9.36
15.0	3.30	8.40	2.10	5.40	27.0			3.78	9.72
16.0	3.52	8.96	2.24	5.76	28.0			3.92	10.08



**"EXIT" SIGN ATTACHMENT DETAIL**



**DIRECTION OF TRAFFIC**

**NOTES**

- THE NEAR EDGE OF ALL MAIN LINE SIGNS, EXCEPT GORE INSTALLATIONS, SHALL BE LOCATED TWO FEET (2') BACK OF GUARD RAIL FACE. THIS DIMENSION SHALL BE DETERMINED BY ROADWAY TYPICAL SECTION 8 AND USED WHETHER OR NOT GUARD RAIL IS PRESENT.  
ON RAMP THE NEAR EDGE OF SIGNS SHALL BE LOCATED TWO FEET (2') BACK OF GUARD RAIL FACE. THIS DIMENSION WILL BE DETERMINED AND USED AS FOR MAIN LINE ABOVE.  
ON APPROACHES THE NEAR EDGE OF SIGNS SHALL BE  
(A) TWO FEET (2') BEHIND EXISTING GUARD RAIL  
(B) TWO FEET (2') FROM THE EDGE OF PAVED OR TRAVELED SHOULDER WITH A MINIMUM OF 6' FROM EDGE OF ROADWAY PAVEMENT.
- POSTS PLACED IN CONCRETE MEDIANS SHALL BE INSTALLED BY DRIVING THROUGH A 6" SLEEVE OR CORE DRILLED HOLE. THE HOLE SHALL BE FILLED WITH ASPHALTIC CONCRETE AFTER THE POST IS IN THE PROPER POSITION.
- HORIZONTAL BACK BRACING SHALL ALWAYS BE MOUNTED ON THE FRONT FLANGE OF THE SUPPORT EXCEPT WHERE SIGNS ARE MOUNTED BACK TO BACK. BACK BRACING SHALL NEVER EXTEND ABOVE TOP EDGE OF UPPERMOST SIGN PLATE AND SHALL BE ATTACHED TO SUPPORTS USING 5/16" GALVANIZED STEEL BOLTS.
- SCREWS, NUTS, AND WASHERS FOR SIGN ERECTION SHALL BE ALUMINUM EXCEPT AS NOTED ABOVE. 5/16" TRUSS HEAD SLOTTED MACHINE SCREWS WITH HEX. NUTS PLAIN AND LOCKWASHERS SHALL BE USED. PLAIN WASHERS SHALL BE 5/16" WIDE, USED ON SIGN FACE ONLY.
- SIGN INSTALLATIONS SHALL BE PLACED SO THAT SUPPORTS ARE NOT PLACED IN DRAINAGE DITCHES.
- HORIZONTAL CLEARANCES SHOWN PERTAIN TO NON-CURBED SECTIONS. SECTIONS WITH UNMOUNTABLE CURB SHALL HAVE A HORIZONTAL CLEARANCE OF 2'-0" MINIMUM FROM THE CURB FACE TO THE SIGN EDGE.
- VERTICAL AND HORIZONTAL CLEARANCE BETWEEN SIGNS ON ONE ASSEMBLY SHALL BE A MAXIMUM OF 2" AND A MINIMUM OF 1".
- GALVANIZED STEEL BEARING PLATES SHALL BE INCLUDED BETWEEN ALL SHEET ALUMINUM SIGNS ATTACHED TO VERTICAL SUPPORTS AT EACH SIGN BOLT LOCATION.
- SOIL PLATES SHALL BE ATTACHED TO ALL 6 LB. BEAMS BETWEEN POSTS AS DETAILED ON THIS SHEET, EXCEPT WHERE BEAMS ARE PLACED IN CONCRETE MEDIANS AS COVERED IN NOTE 2.

BUREAU OF TRAFFIC  
OHIO DEPARTMENT OF HIGHWAYS

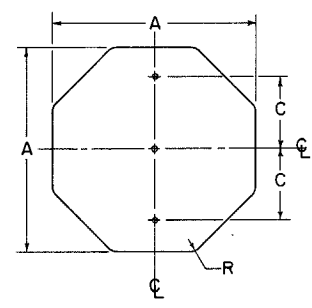
**TYPICAL PLACEMENT OF SIGNS**

TPS-1

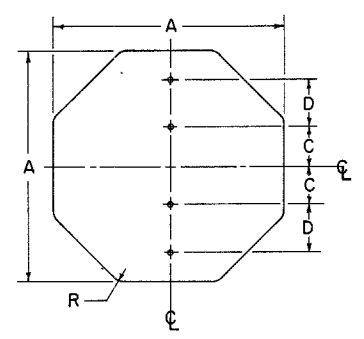
DATE  
9-27-67  
7-12-68  
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3-5-71  
12-21-71  
3-7-72

APPROVED \_\_\_\_\_  
ENGINEER OF TRAFFIC

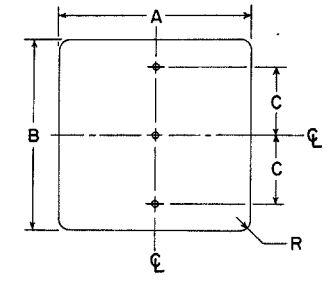
LOR-90-9.48



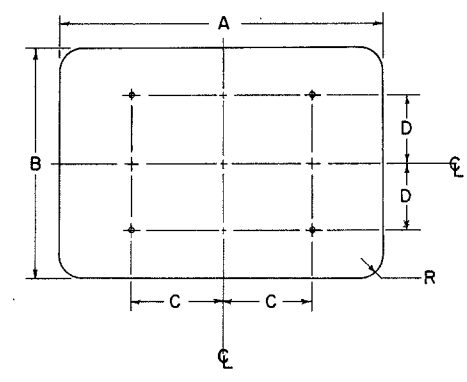
A	C	R	GAUGE
30	8	1 1/2	.080
36	8	1 1/2	.080



A	C	D	R	GAUGE
48	8	10	1 1/2	.100

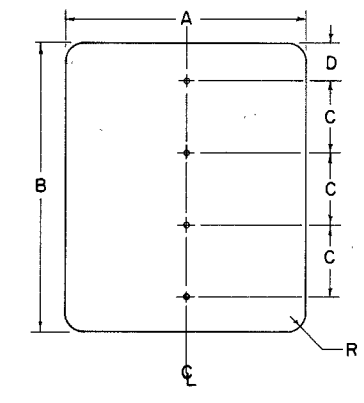


A	B	C	R	GAUGE
24	30	8	1 1/2	.063
24	48	15	1 1/2	.100
30	36	11	1 1/2	.080
30	42	12	1 1/2	.080
36	36	11	1 1/2	.080
36	42	15	1 1/2	.080
36	48	15	1 1/2	.080
48	24	10	3	.100
48	36	13	3	.100

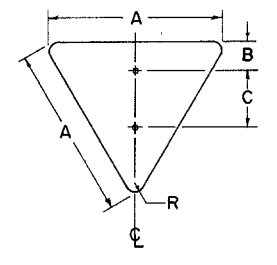


A	B	C	D	R	GAUGE
48	48	22	16	3	.100
48	60	22	22	3	.100

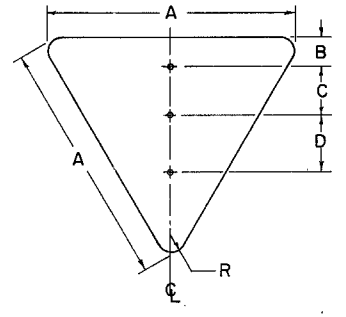
SPEED LIMIT SIGNS ON TWO SUPPORTS



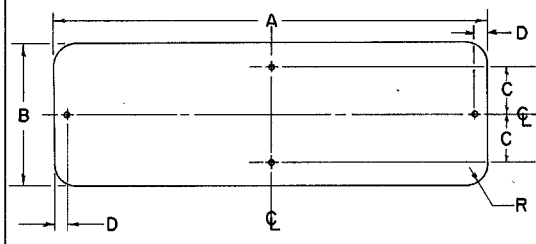
A	B	C	D	R	GAUGE
48	48	12	6	3	.100
48	60	15	7 1/2	3	.100



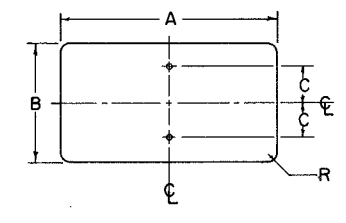
A	B	C	R	GAUGE
36	3	16	2 1/2	.080



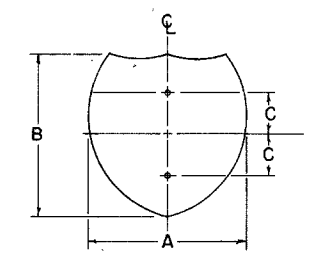
A	B	C	D	R	GAUGE
48	4	10	15	3	.100
60	5	10	15	4	.100



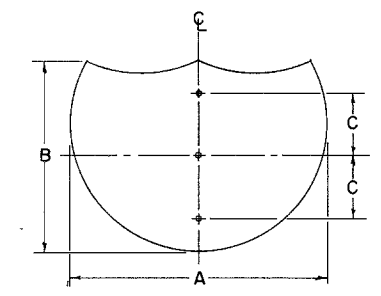
A	B	C	D	R	GAUGE
36	12	4	1	1 1/2	.080
72	12	-	16	1 1/2	.100
60	12	-	13	1 1/2	.100



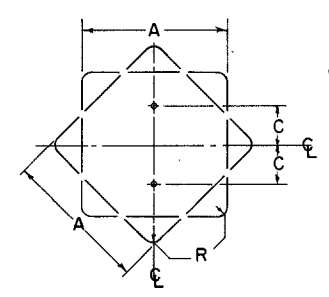
A	B	C	R	GAUGE
12	6	1 1/2	1 1/2	.063
20	15	6	1 1/2	.063
24	12	4 1/2	1 1/2	.063
24	18	7 1/2	1 1/2	.063
8	26	8	1	.063
36	18	7 1/2	1 1/2	.080



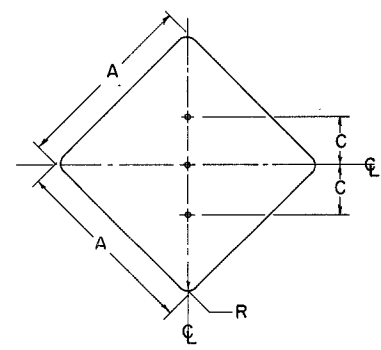
A	B	C	GAUGE
24	24	8	.063
30	24	8	.080



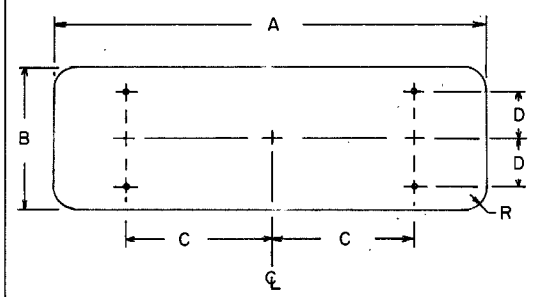
A	B	C	GAUGE
36	36	11	.080
48	36	11	.100



A	C	R	GAUGE
18	7 1/2	1 1/2	.063
24	8	1 1/2	.063
30	8	1 1/2	.080

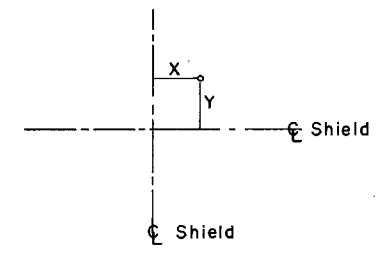


A	C	R	GAUGE
36	12	1 1/2	.080
48	14	3	.100



A	B	C	D	R	GAUGE
72	18	20	6	1 1/2	.100
72	24	20	8	1 1/2	.100
60	30	17	10	1 1/2	.100
96	18	27	6	1 1/2	.100

Location of holes on "Demountable Shields" (attached to guide signs)



SIZE	NO. HOLES	X	Y
(26) 24X24	4	7	7
30X24	4	8	8
(39) 36X36	4	10	10
		0	10
48X36	6	15	10

For notes on fastening see drawing for miscellaneous "Signing Items" sheet.

NOTES:

ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SHOWN.

**MATERIAL**

FLAT SIGN BLANKS SHALL BE FURNISHED IN ALUMINUM ALLOY 6061-T6, (ASTM-B209, GS11A-T6) WITH MILL FINISH.

**BOLT HOLES**

THE BOLT HOLES SHALL BE 3/8" IN DIAMETER, AND MAY BE DRILLED, BLANKED OR PUNCHED TO FINISHED SIZE.

BUREAU OF TRAFFIC  
OHIO DEPARTMENT OF HIGHWAYS

SIGN BLANK DETAILS SBD

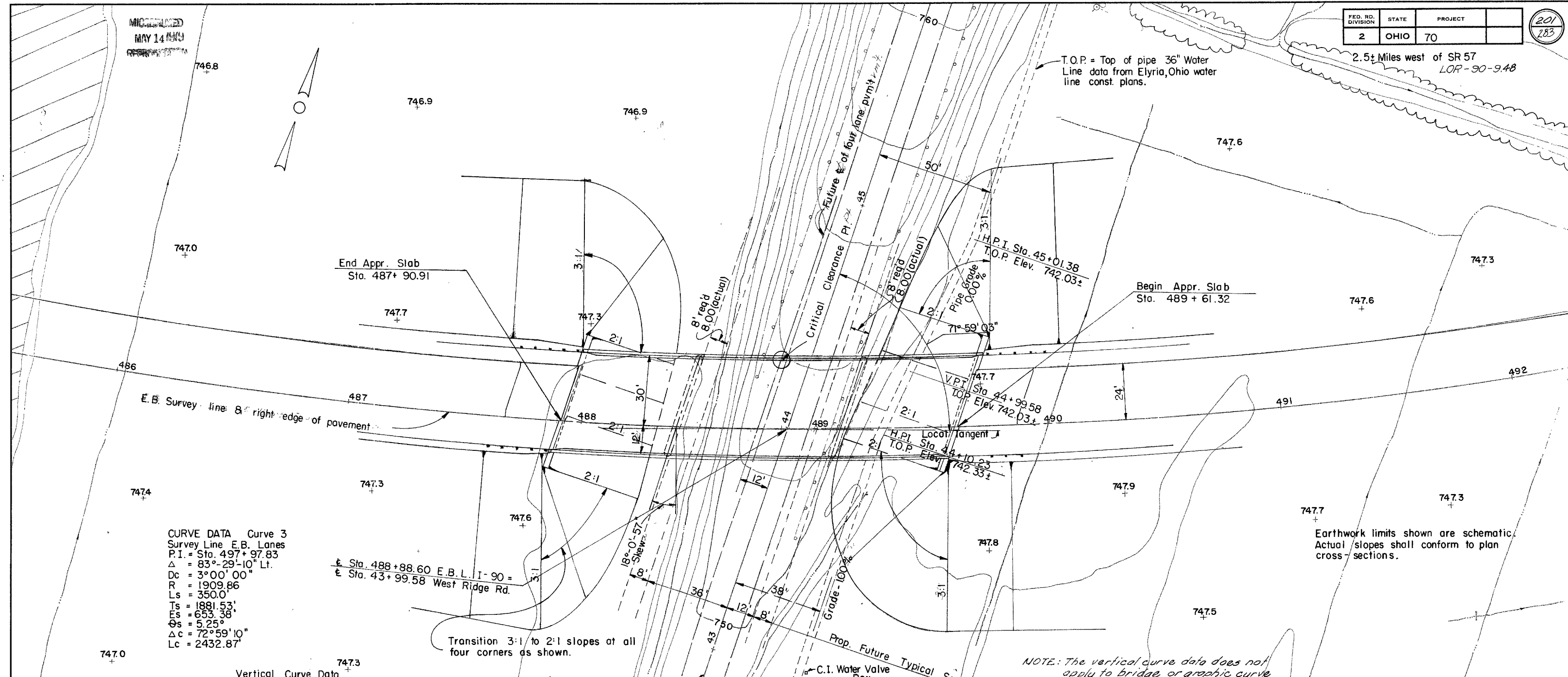
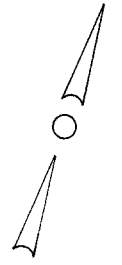
APPROVED \_\_\_\_\_  
ENGINEER OF TRAFFIC

DATE  
4-14-67  
5-10-68  
10-1-68  
5-27-69  
6-18-69



2.5 Miles west of SR 57  
LOR-90-9.48

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**CURVE DATA Curve 3**  
Survey Line E.B. Lanes  
P.I. = Sta. 497+97.83  
 $\Delta = 83^\circ-29'-10''$  Lt.  
Dc =  $3^\circ00'00''$   
R = 1909.86  
Ls = 350.0  
Ts = 1881.53'  
Es = 653.38'  
 $\Theta_s = 5.25^\circ$   
 $\Delta c = 72^\circ59'10''$   
Lc = 2432.87'

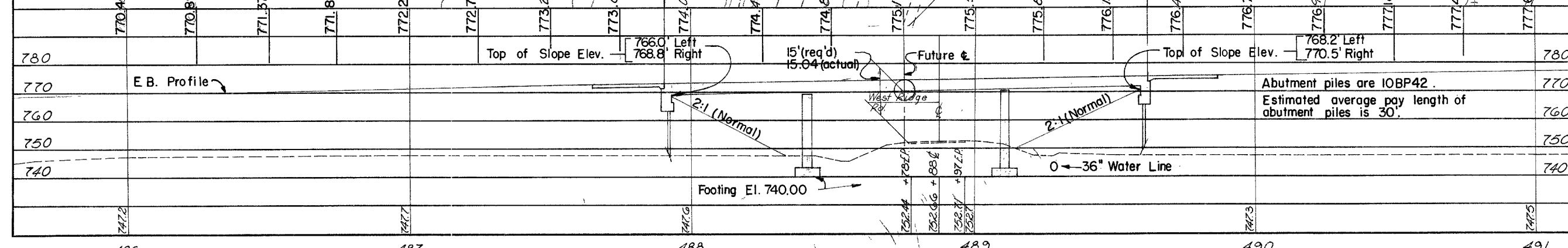
**Vertical Curve Data**  
PV1 Sta. 495+25.00  
Elev. 794.38  
 $g_1 = +2.52\%$   $g_2 = -2.52\%$   
L = 2350'

B.M. ~ RR spike in roof  
N.W. side 40' oak, 400'  
Pt. of Sta. 487+00 E.B.L.,  
Elev. 749.203

Transition 3:1 to 2:1 slopes at all four corners as shown.

NOTE: The vertical curve data does not apply to bridge or graphic curve elevations. The bridge elevations were obtained by adding 1/2" to elevations obtained from vertical curve data.

**PROPOSED STRUCTURE**  
TYPE: Continuous steel beams with reinf. conc. abutments and piers.  
SPANS: 49'-70.31' - 49' 1/2' brgs.  
ROADWAY: 42' 1/2' conc. parapets  
LOADING: HS 20-44  
SKEW:  $18^\circ-00' - 57''$  L.F. (to Local Tangent)  
SURFACE COURSE: 1/2" Asphalt Concrete  
APPR. SLABS: AS-1-67 (25' long)  
ALIGNMENT:  $3^\circ-00'$  Curve left.  
SUPERELEVATION: 0.083 1/4"



STATE OF OHIO DEPARTMENT OF HIGHWAYS BUREAU OF BRIDGES		1 / 10
<b>SITE PLAN</b>		
BRIDGE NO.	LOR - 90EB 1012	
IR - 90 East Bound over West Ridge Rd.		
LORAIN CO	IR - 90	
SEC.	STA. 487+90.90	
SCALE	1" = 20'	
SEC.	STA. 489+61.32	
PRESENT TOPOGRAPHY	PROPOSED WORK	
SURVEYED AERIAL SURVEY	DRAWN B.D.H.	CHECKED D.H.S.
DESIGNED B.D.H.	DESIGNED B.D.H.	REVIEWED P. E. S.

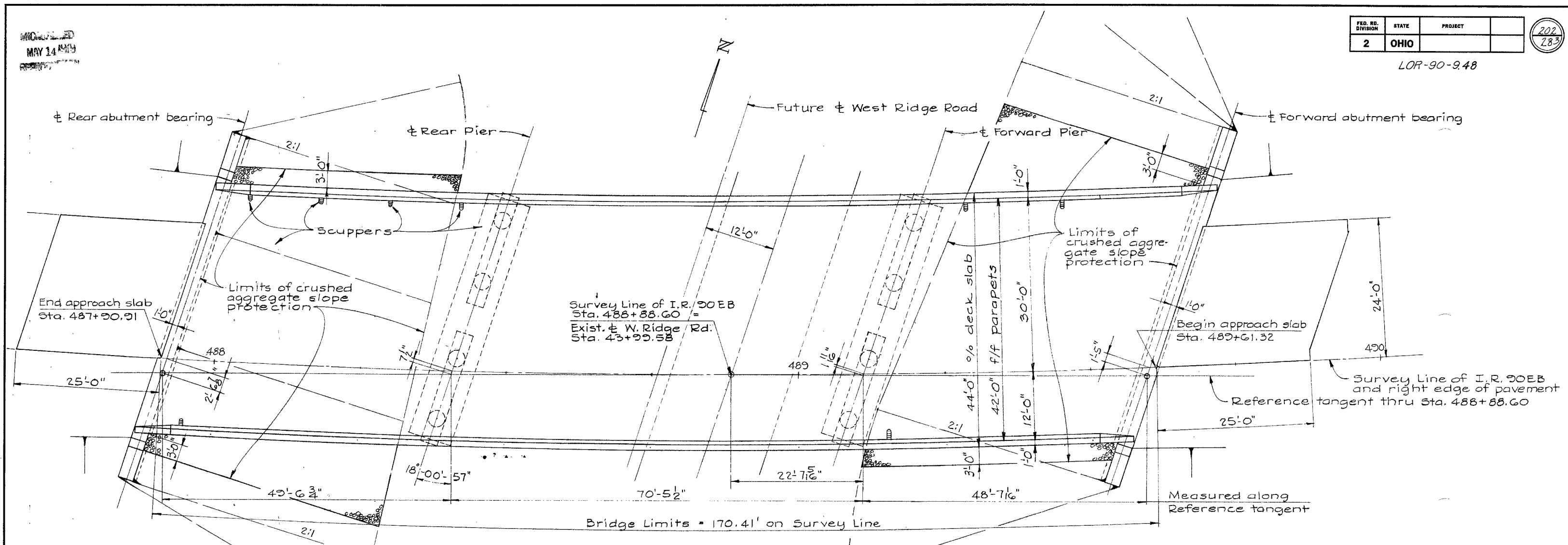
Rev 4-14-78 BFG 4-14-70

MAY 14 1970

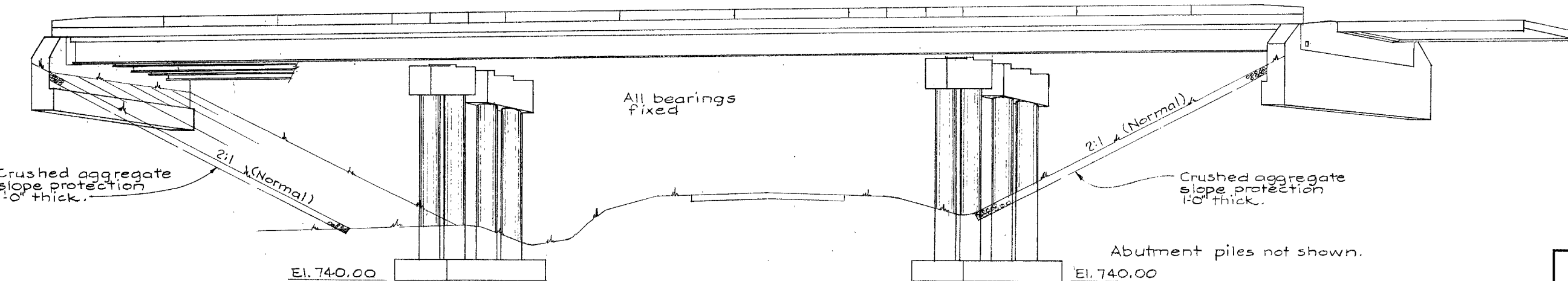
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

LOR-90-9.48

202  
283



GENERAL PLAN



ELEVATION

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						2/10
GENERAL PLAN AND ELEVATION						
BRIDGE No LOR-90EB-1012 OVER WEST RIDGE ROAD						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
INNES	INNES		FPR	BFG	4-14-70	

Rev. 4-25-79

RECEIVED  
MAY 14 1970

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

203  
283

LOR-90-9.48

100% State			ESTIMATED QUANTITIES					
Item	Total	Unit	Description	Super.	Abuts	Piers	Gen'l	As-Built
503	Lump	Sum	Cofferdams, cribs and sheeting				Lump	
503	455	Cu. yd.	Unclassified excavation		135	320		
505	Lump	Sum	Test pile				Lump	
507	540	Lin. ft.	Steel piles HP 10X42 *		540			
509	104246	Lb.	Reinforcing steel	72361	8410	23475		
511	116	Cu. yd.	Class C concrete, footings		43	73		
511	55	Cu. yd.	Class C concrete, abutments above footings		55			
511	84	Cu. yd.	Class C concrete, pier caps and columns			84		
511	265	Cu. yd.	Class C concrete, superstructure	265				
512	113	Lin. ft.	Premolded sealing strip		113			
513	187300	Lb.	Structural steel	187300				
514	187300	Lb.	Field painting of structural steel	187300				
516	88	Sq. ft.	1" preformed expansion joint filler		88			
516	92	Sq. ft.	1/2" preformed expansion joint filler		92			
518	71	Cu. yd.	Porous backfill		71			
518	120	Lin. ft.	6" perforated, helical corrugated metal pipe, including specials, 707.01		120			
518	24	Lin. ft.	6" non-perforated, helical corrugated metal pipe 707.01		24			
518	8	Each	Scuppers including supports	8				
601	600	Sq. yd.	Crushed aggregate slope protection				600	
625			See sheet 175 for lighting summary					
808	265	Units	Chemical admixture for concrete, Type A, B or D	265				
404	21	Cu. Yd.	Asphalt concrete (70-85 or AC 20), as per plan	21				
Special	11	Cu. Yd.	Sand asphalt (see proposal note)	11				
Special	767	Sq. Yd.	Membrane waterproofing (see proposal note)	767				

\* HP 10x42 Piles formerly designated 10BP42

### GENERAL NOTES

REFERENCE shall be made to:  
Standard Drawings BR-1-67, sheet 1 of 3, revised 1-1-71, and SD-1-69 sheets 3 and 4 of 4, dated 6-12-69 and to Supplemental Specifications 808, dated 1-1-71, 836, dated 1-1-71

DESIGN SPECIFICATIONS: This structure conforms to "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway Officials, 1969 including the Ohio "Supplement" to these specifications.

#### DESIGN DATA:

Design Loading - HS 20-44 and the Interstate Alternate Loading.

Concrete Class C - unit stress 1200 p.s.i. for superstructure  
unit stress 1333 p.s.i. for substructure

Structural Steel - ASTM A36 - unit stress 20,000 p.s.i.  
Reinforcing Steel - ASTM A615, A616 or A617 - unit stress 20,000 p.s.i.  
Spiral reinforcement may be plain bars ASTM A82, A306, A499 or A615

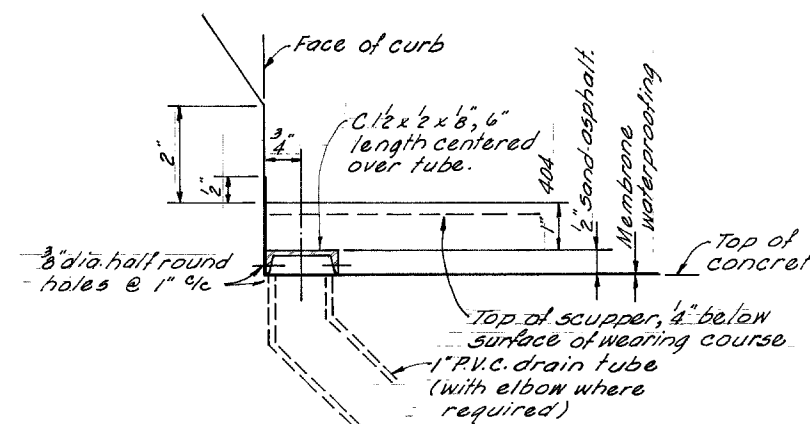
EMBANKMENT CONSTRUCTION: The embankments shall be constructed to the level of the subgrade for a minimum distance of 200 feet back of the abutments. Excavation shall then be made for the abutments and for the piers.

FOUNDATION BEARING PRESSURE: Pier footings are designed for a maximum bearing pressure of 2 tons per sq. ft.

PILES shall be driven to firm contact with bedrock. If the length of penetration is approximately equal to the depth to bedrock according to the bridge foundation investigation report, the firm contact shall be considered as attained when the capacity according to the formula in 507.05 is not less than the following value for a pile hammer of the indicated energy rating:

- 35 tons per pile using a 7000 ft. lb. hammer
- 35 tons per pile using an 11000 ft. lb. hammer
- 35 tons per pile using a 15000 ft. lb. or greater hammer

The design load is 35 tons per pile.



#### SUB DRAINAGE AND SURFACE COURSE DETAILS

In addition to the location and spacing provisions of 510.07, PVC subdrainage tubes shall be located so that discharge from them will clear all structural members, such as crossbracing, conduit support angles and diaphragms, by at least 6". Place the top of the tube flush with the concrete surface. Place membrane over tube, puncturing if membrane is a sheet type, with hole sealed around the tube. Include subdrainage with Item 404, Asphalt Concrete, for payment.

STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
DIVISION OF DESIGN AND CONSTRUCTION  
BUREAU OF BRIDGES

3/10

### GENERAL NOTES & ESTIMATED QUANTITIES

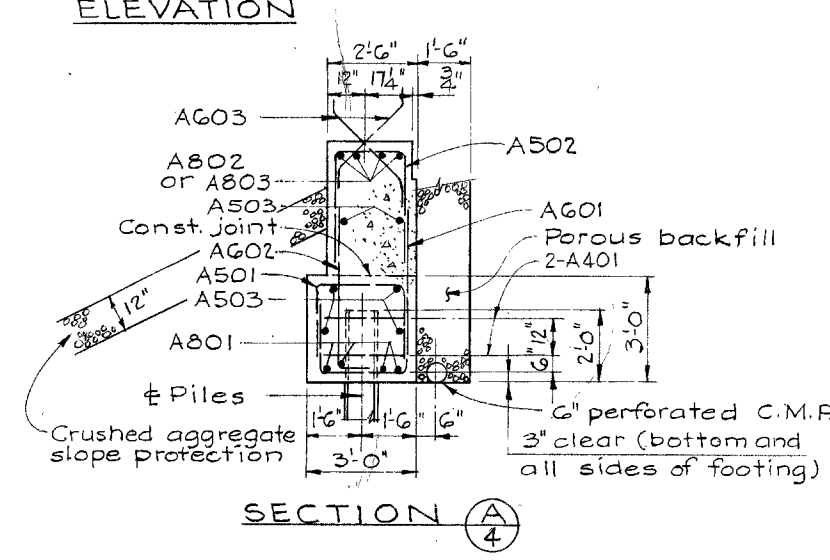
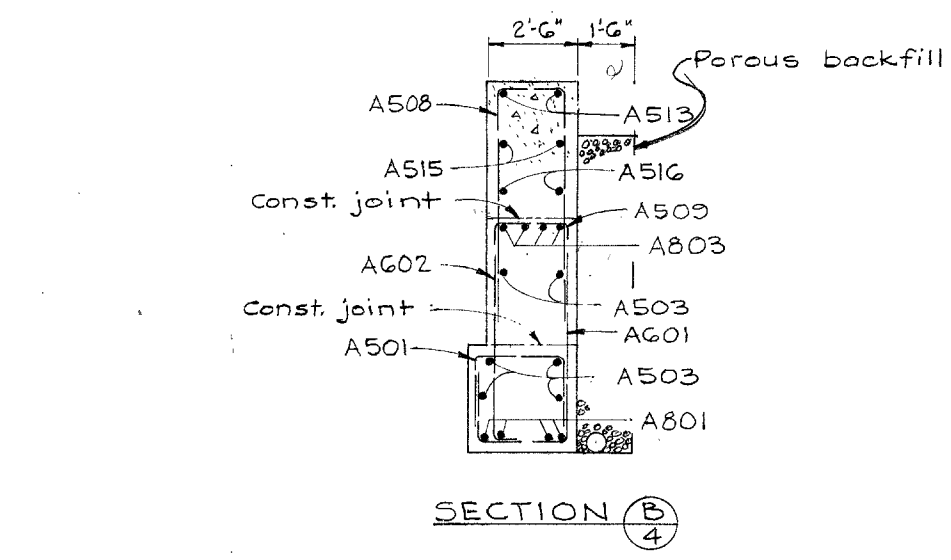
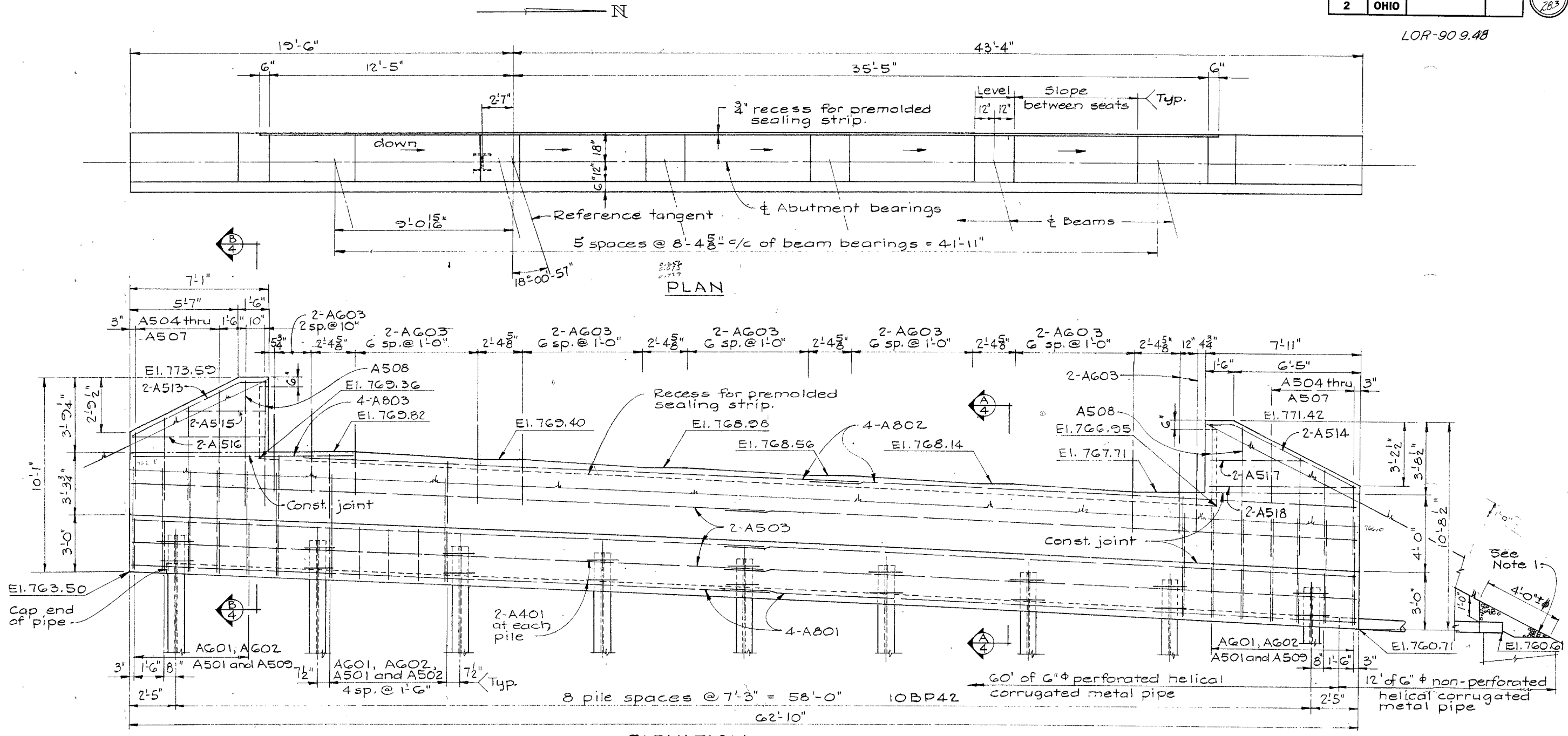
BRIDGE NO. LOR-90EB-1012  
Over West Ridge Road

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
Innes		T.G.C.	FPK	BFG	4-14-70	4-25-70

MAY 14 1990

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

LOR-90 9.48



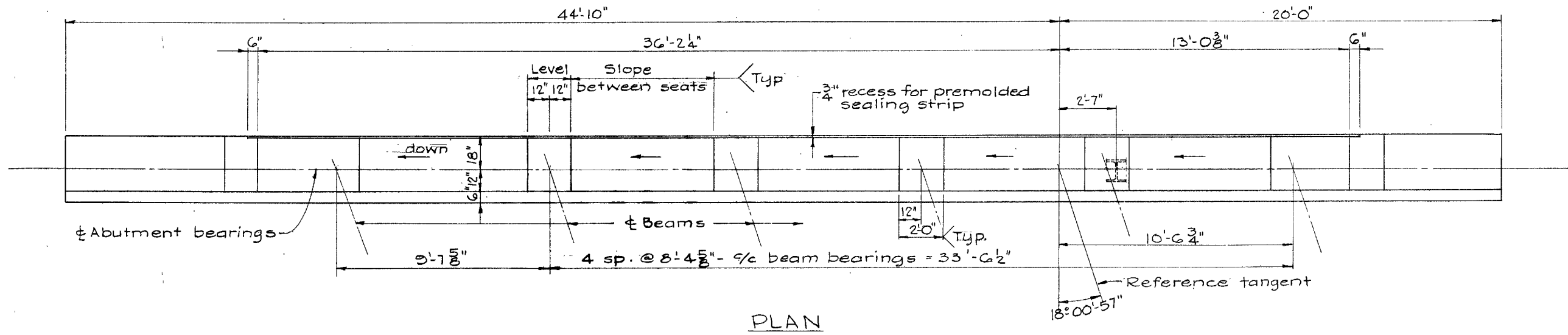
NOTE 1:  
Crushed aggregate slope protection material at end of pipe. Included with slope protection for payment.

POROUS BACKFILL shall extend from the bottom of the abutment footing up to the plane of the subgrade and laterally to the ends of the wingwalls.

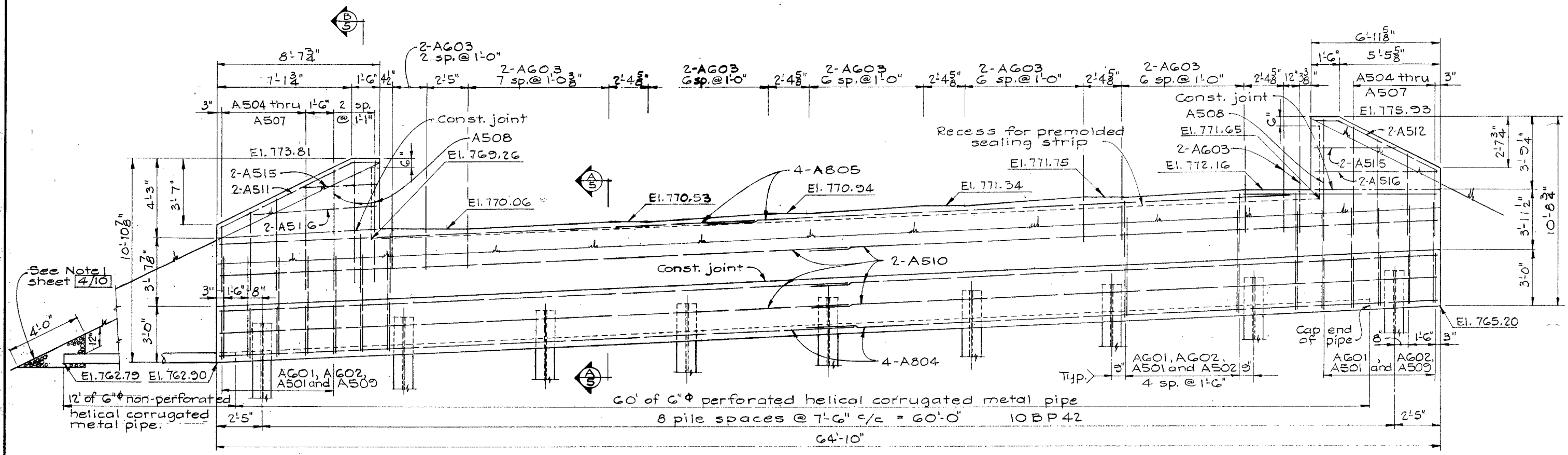
Excavation for porous backfill in excess of that required for the construction of the abutments shall be included with porous backfill for payment.

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						4/10
REAR ABUTMENT DETAILS						
BRIDGE No LOR-90EB-1012 OVER WEST RIDGE ROAD						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
INNES	INNES		FPK	BFG	4-14-70	

MAY 24 1970



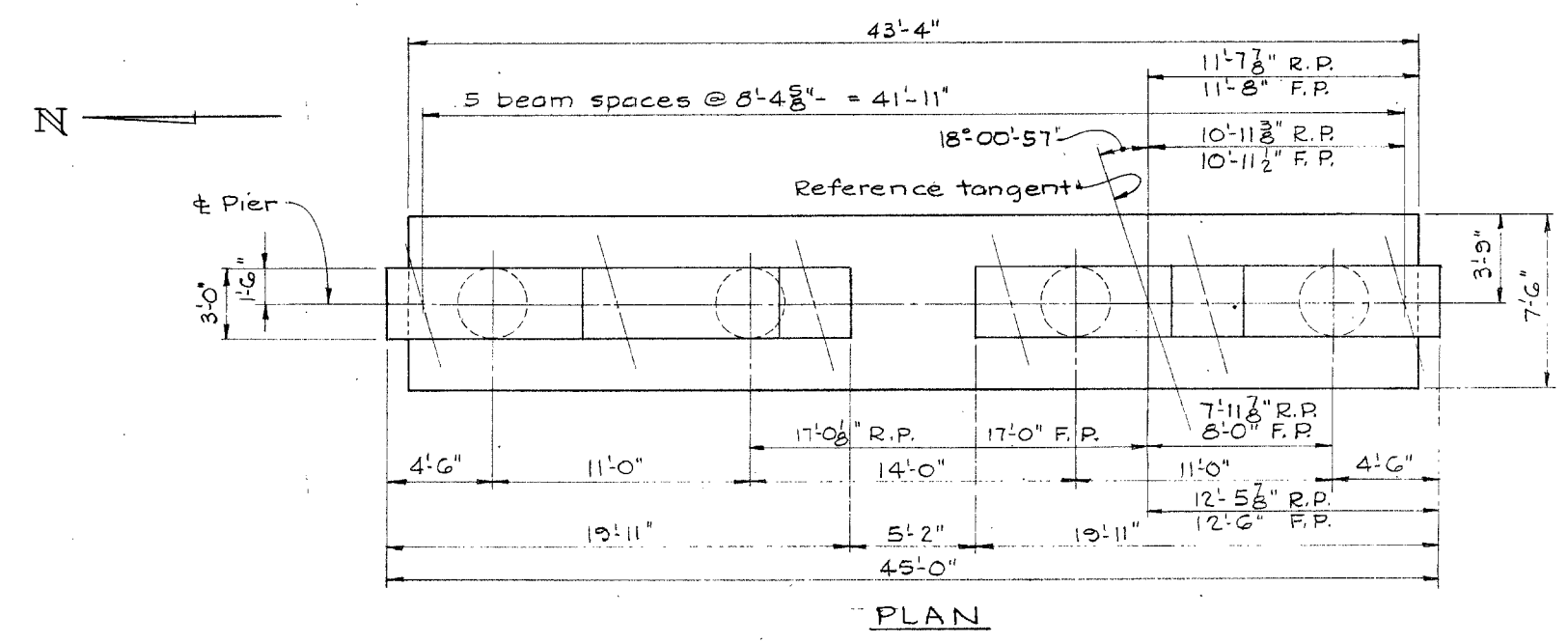
PLAN



ELEVATION

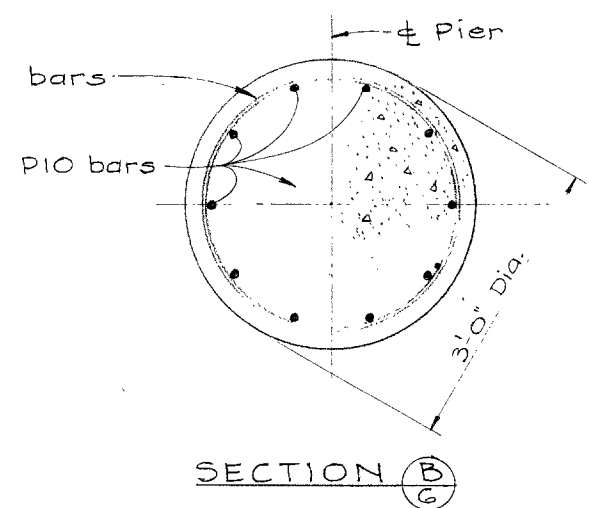
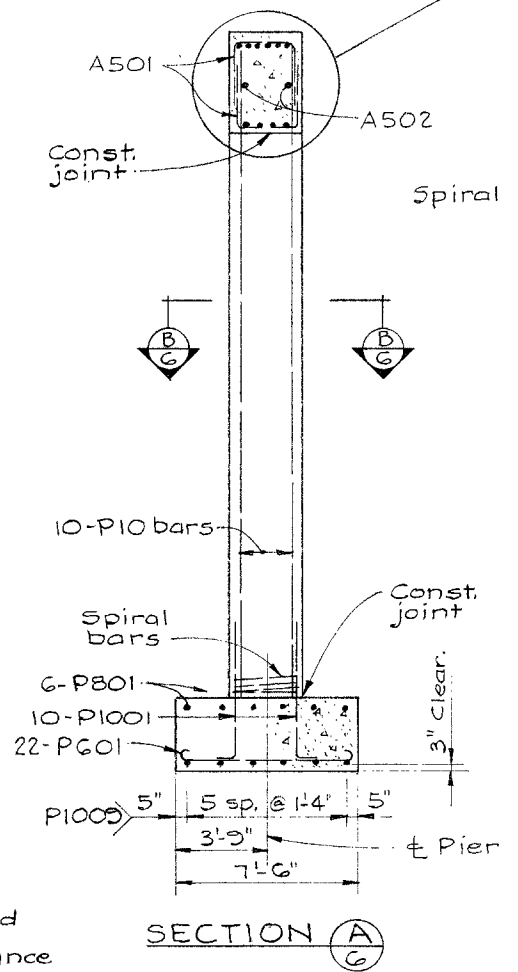
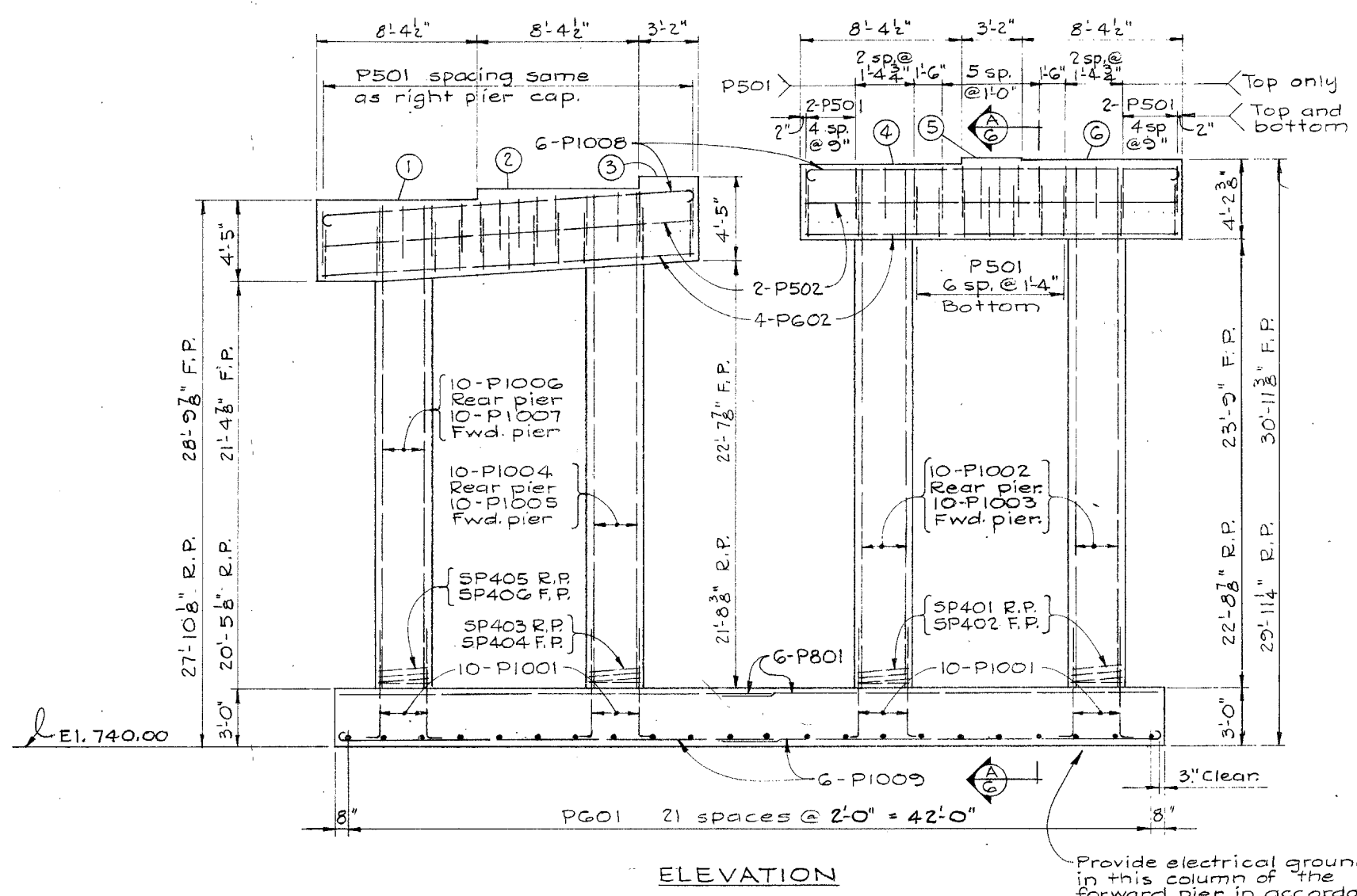
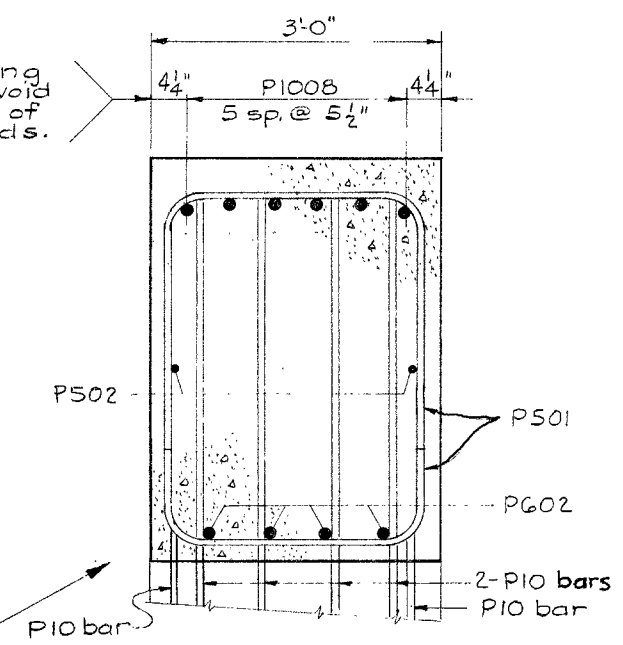
FOR NOTES see sheet 4/10.  
SECTION A similar to A.  
SECTION B similar to B.

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						5/10
FORWARD ABUTMENT DETAILS						
BRIDGE No LOR-90EB-1012 OVER WEST RIDGE ROAD						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
INNES	INNES	FPR	BFG	4-14-70		4-28-70



Care shall be taken in placing the P1008 bars so as to avoid interference with the drilling of the holes for the anchor rods.

ELEVATION		
	R.P.	F.P.
①	767.85	768.82
②	768.48	769.44
③	769.11	770.07
④	769.75	770.70
⑤	770.27	771.24
⑥	769.94	770.95



R.P. indicates rear pier  
F.P. indicates forward pier.

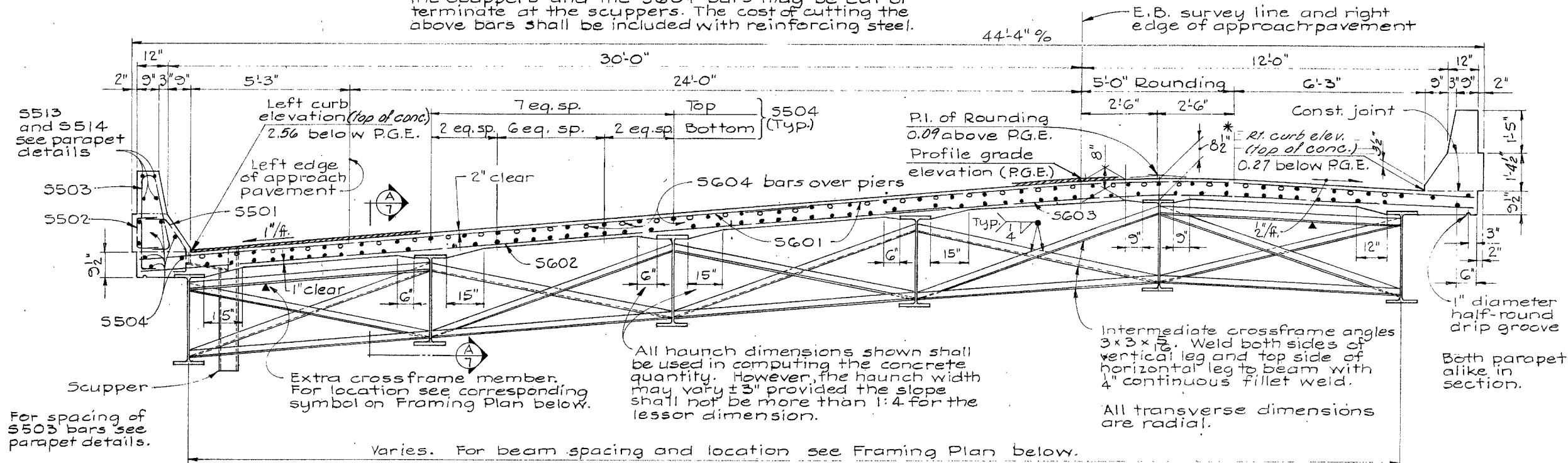
Provide electrical ground in this column of the forward pier in accordance with the lighting details. Payment for electrical ground is included with Item 625, Lighting.

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES					G/10
PIER DETAILS					
BRIDGE NO LOR-90EB-1012 OVER WEST RIDGE ROAD					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
INNES	INNES		FPK	BFG	4-14-70
					REVISED

Each longitudinal line of S504 bars consists of 6 bars. Lap S504 bars 1-7" minimum. Where interference exists between reinforcing bars and scuppers the S504 bars may be cut to clear the scuppers and the S604 bars may be cut or terminate at the scuppers. The cost of cutting the above bars shall be included with reinforcing steel.

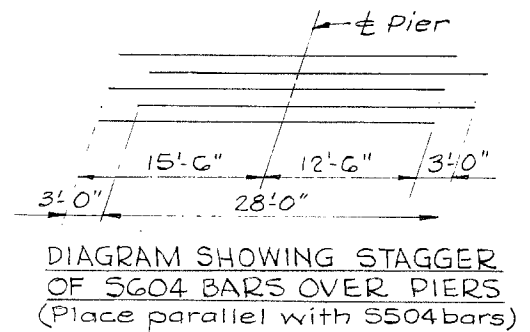
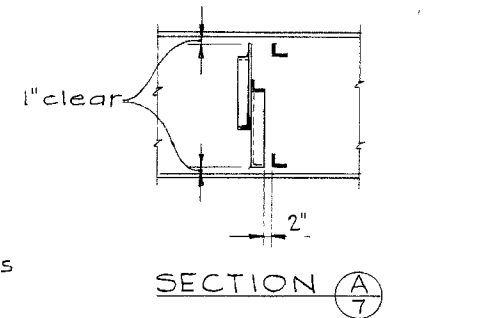
Field bend S601, S603, S606 series and S608 series bars as necessary to conform to the 5'-0" deck rounding. The cost of field bending shall be included with reinforcing steel for payment.

For sub drainage and surface course details see sheet 310

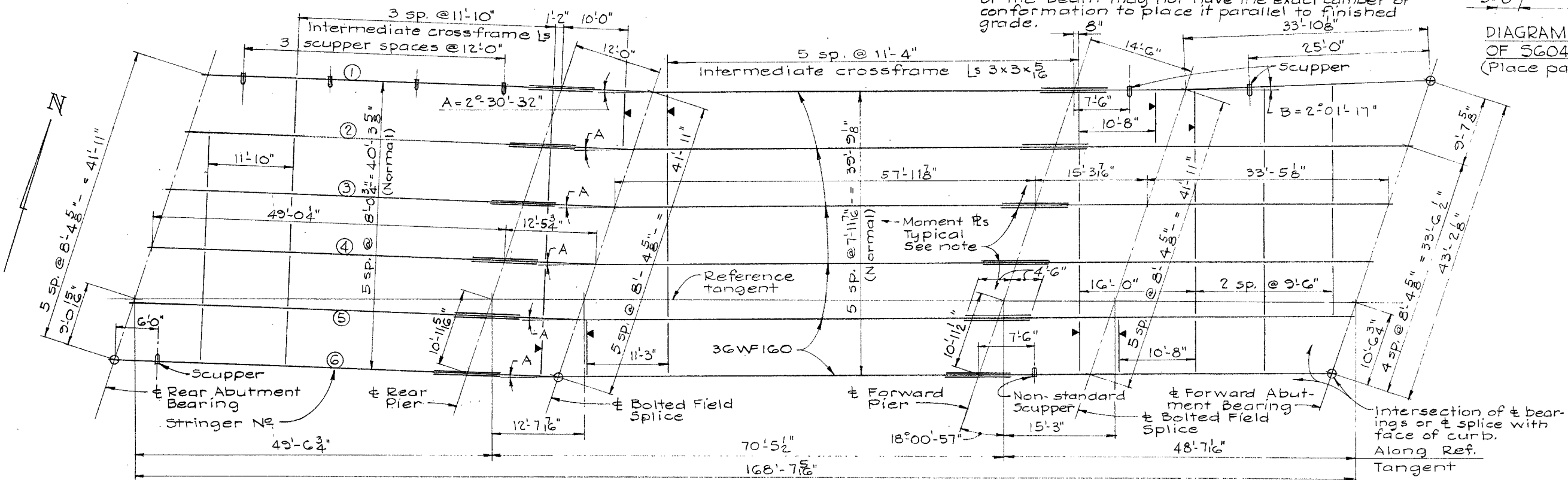


TYPICAL TRANSVERSE SECTION

\* The distance shown from the top of the deck to the top of the steel beam is the design dimension. The quantity of deck concrete to be paid for shall be based on this dimension, even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or conformation to place it parallel to finished grade.



MOMENT PLATE DETAILS:  
 See Standard Drawing SD-1-69, sheet 3 of 4.  
 Top R 10 1/2 x 16 x 9'-0"  
 Bottom R 13 1/2 x 2 x 9'-0"



FRAMING PLAN

For details of non-standard scupper see 310.

All splice centerlines and substructure elements are parallel.

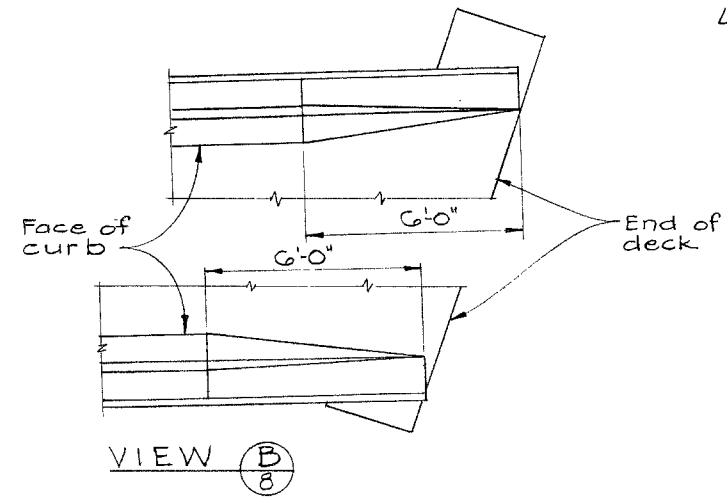
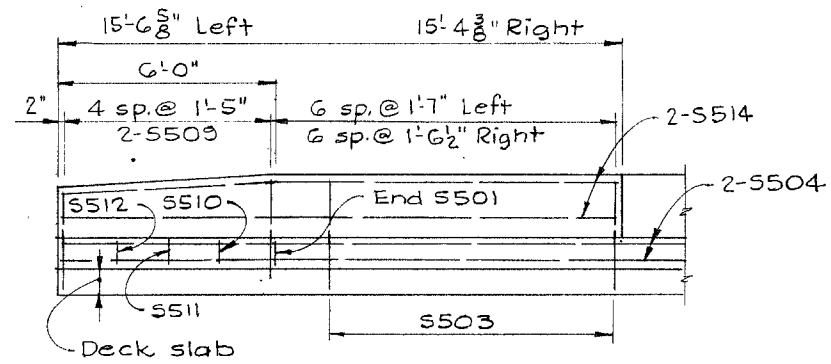
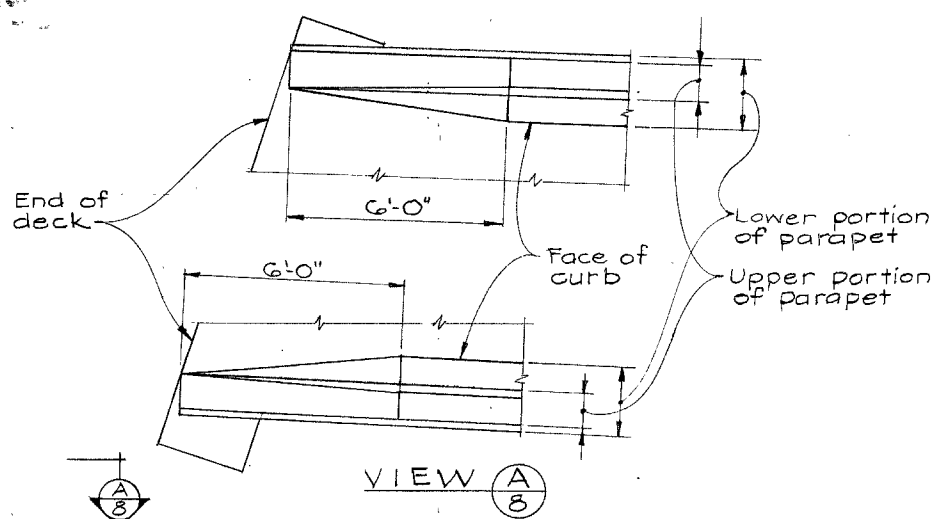
STATE OF OHIO  
 DEPARTMENT OF HIGHWAYS  
 DIVISION OF DESIGN AND CONSTRUCTION  
 BUREAU OF BRIDGES

7/10

**SUPERSTRUCTURE DETAILS**

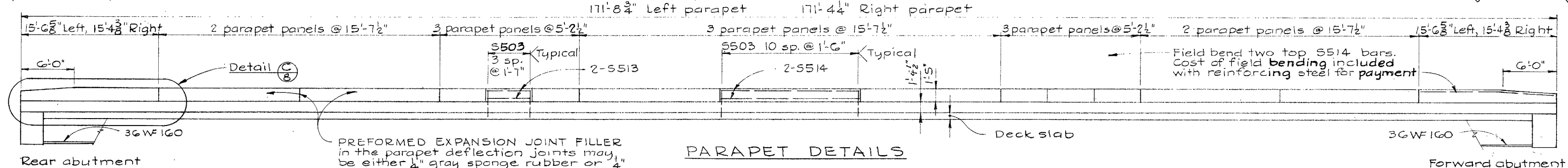
BRIDGE No LOR-90EB-1012  
 OVER WEST RIDGE ROAD

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JINNES	JINNES		FPK	BFG	4-14-70	4-25-70



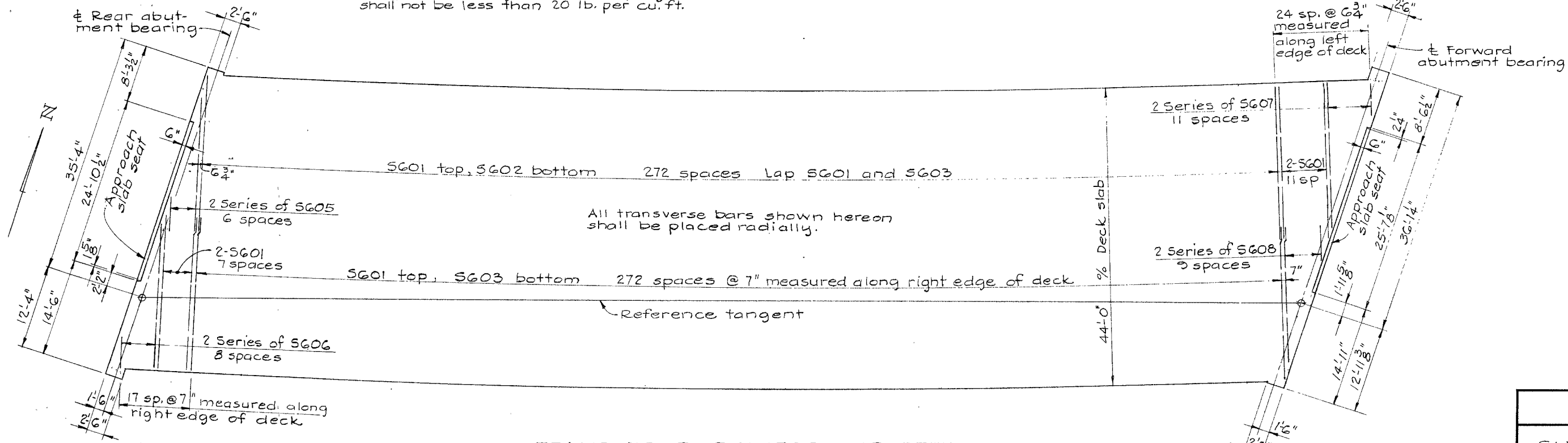
DETAIL C

For additional parapet details see BR-1-67, sheet 1 of 3 revised 1-1-71. Reinforcing steel shall be field bent or cut to fit the revised shape.



PARAPET DETAILS

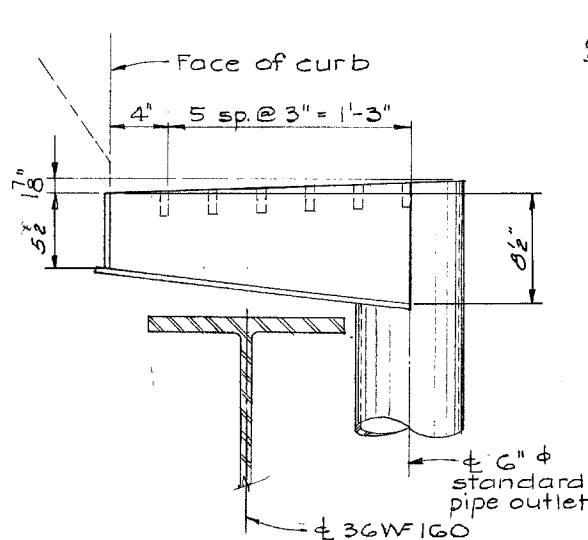
PREFORMED EXPANSION JOINT FILLER in the parapet deflection joints may be either 1/4" gray sponge rubber or 1/4" gray cellular polyvinyl chloride (PVC) sponge. Either material shall meet the requirements of AASHTO M-153, Type I, except the density of the PVC sponge shall not be less than 20 lb. per cu. ft.



TRANSVERSE REINFORCING STEEL AND DECK SLAB DETAILS

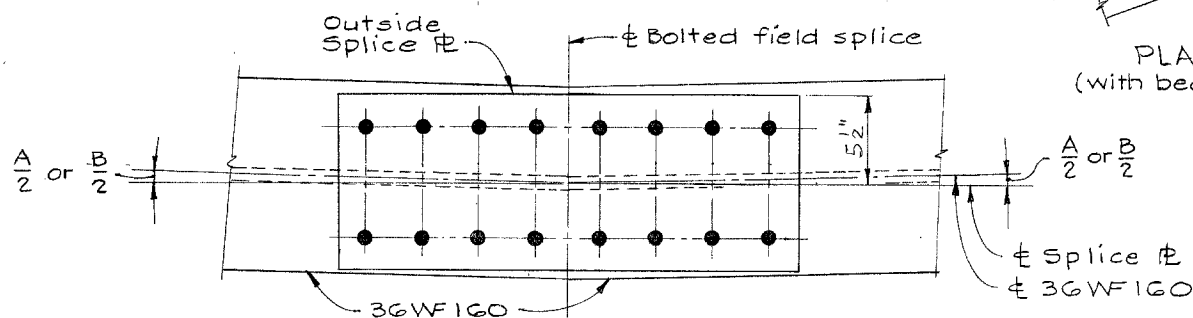
STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES							8/10
SUPERSTRUCTURE DETAILS							
BRIDGE No LOR-90EB-1012 OVER WEST RIDGE ROAD							
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED	
INNES	INNES		FPK	BFG	4-14-70	4-15-70	





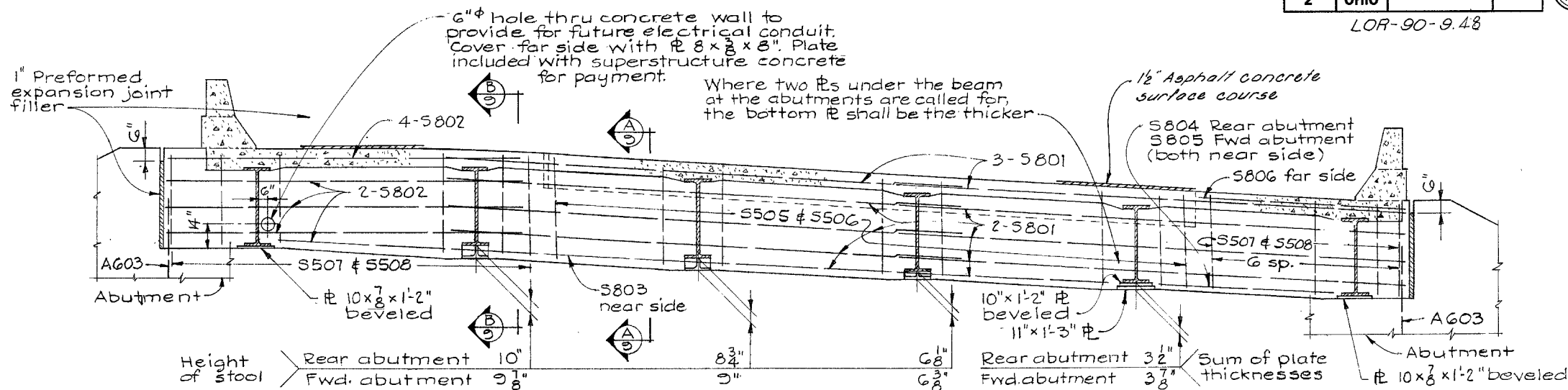
**NON-STANDARD SCUPPER**

For additional details see SD-1-G9, sheet 3 of 4. Set scupper 1/4" below roadway surface.



**BOLTED FIELD SPLICE DETAILS AT BEAM DEFLECTION POINTS**

All beam field splice details are as shown on SD-1-G9, sheet 4 of 4, except as noted above.



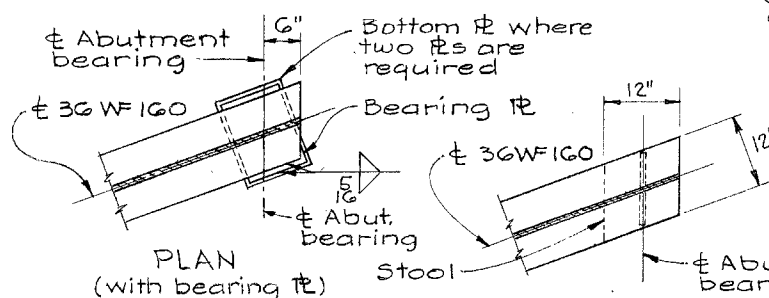
**SECTION THRU SUPERSTRUCTURE @ ABUTMENTS**

(Rear abutment shown, Forward abutment similar and opposite hand)

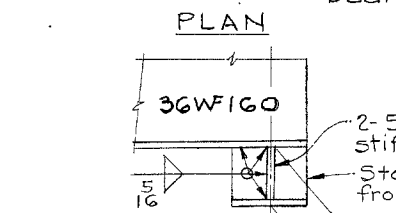
Stool heights and plate thicknesses shown are given for the points of intersection of the  $\epsilon$  of abutment bearings and  $\epsilon$  of beams. The tops of the stools shall be sloped and the plates so noted shall be beveled to match the slope of the beams.

Height of stool  
Rear abutment 10"  
Fwd. abutment 9 1/8"

Slope of beams at  
Rear abutment = 3/16" / ft.  
Forward abutment = 5/32" / ft.

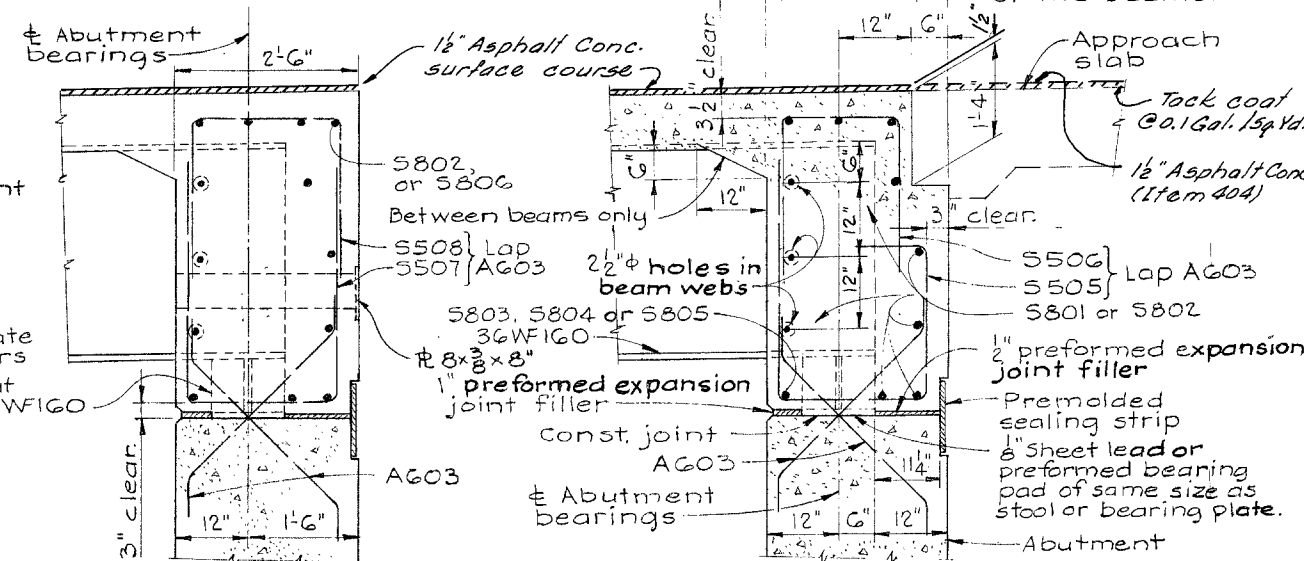


PLAN (with bearing  $\epsilon$ )



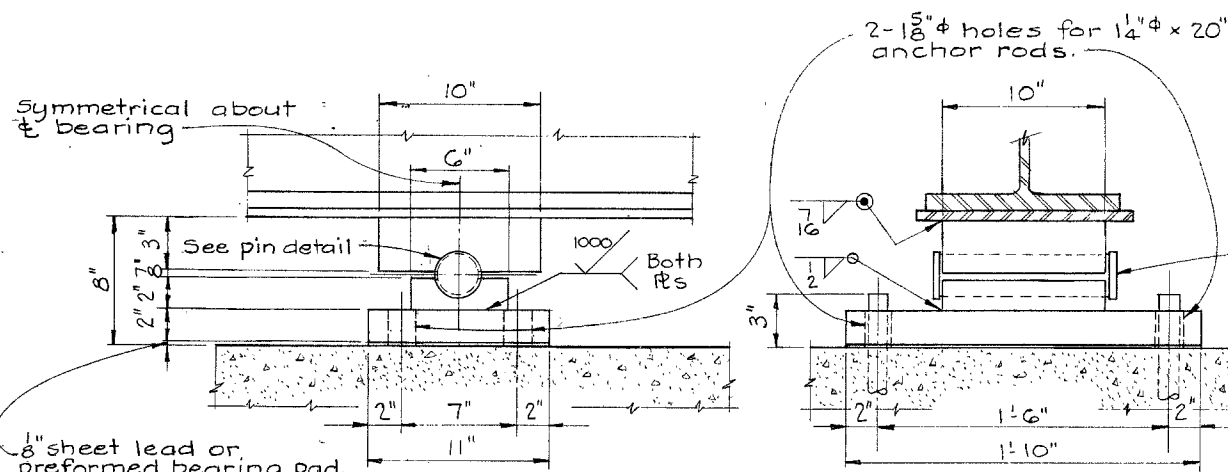
ELEVATION

**STOOL DETAIL**

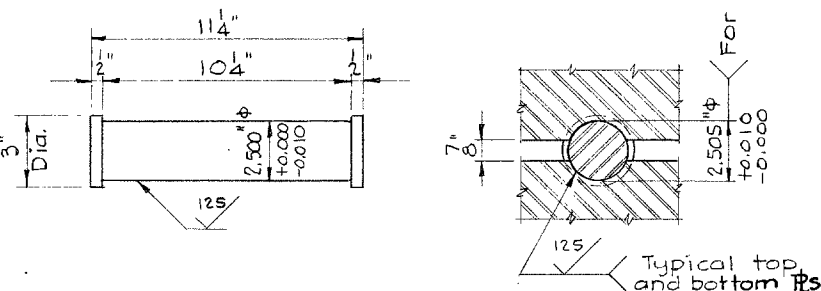


**SECTION B-B**

**SECTION A-A**



**PIER BEARING DETAILS (FIXED)**

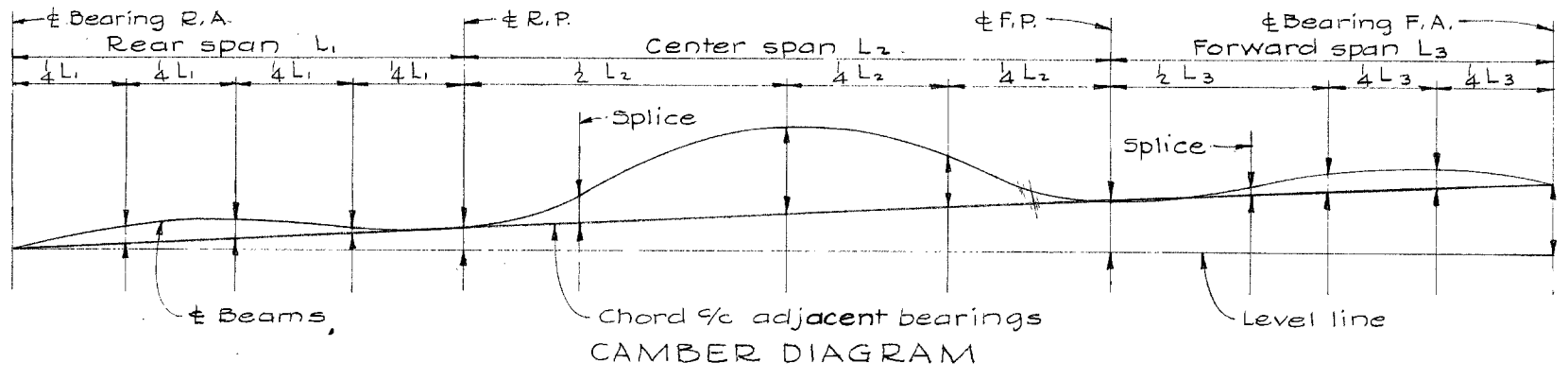


**BEARING PIN DETAIL**

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						9/10
<b>SUPERSTRUCTURE DETAILS</b>						
BRIDGE No LOR-90EB-1012 OVER WEST RIDGE ROAD						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
INNES	INNES		FPK	BFG	4-14-70	14-25-73

### REINFORCING STEEL LIST

Mark	No	Length	Weight	Sh	Bending Diagrams				Mark	No	Length	Weight	Sh
<b>SUPERSTRUCTURE</b>									<b>PIERS (CONTINUED)</b>				
S801	44	20'-2"	2369	S					SP401	2	22'-9"	848	B
S802	24	13'-6"	865	S					SP402	2	23'-9"	884	B
S803	2	31'-6"	168	S					SP403	1	21'-3"	397	B
S804	1	6'-3"	17	S					SP404	1	22'-3"	415	B
S805	1	7'-6"	20	S					SP405	1	20'-5"	382	B
S806	2	7'-11"	42	S					SP406	1	21'-4"	399	B
SG01	586	23'-0"	20244	S					<b>ABUTMENTS</b>				
SG02	273	26'-0"	10661	S					A801	8	32'-5"	692	S
SG03	273	20'-0"	8201	S					A802	8	27'-9"	593	S
SG04	70	28'-0"	2944	S					A803	4	12'-0"	128	S
SG05	Series of 7	20'-0"		S					A804	8	33'-5"	714	S
SG06	Series of 3	5'-0"	263	S					A805	8	28'-6"	609	S
SG07	Series of 12	21'-0"	351	S					A806	4	12'-6"	134	S
SG08	Series of 10	5'-0"	478	S					AG01	88	9'-6"	1256	B
S501	295	3'-3"	1000	B					AG02	88	5'-11"	782	B
S502	295	1'-11"	590	B					AG03	162	4'-3"	1034	B
S503	226	6'-5"	1513	B					A501	88	6'-3"	574	B
S504	624	30'-0"	19525	S					A502	67	6'-10"	477	B
S505	42	7'-11"	347	B					A503	6	32'-0"	200	S
S506	42	6'-3"	274	B					A504	4	8'-10"	37	B
S507	39	7'-10"	319	B					A505	4	10'-4"	43	B
S508	39	6'-4"	258	B					A506	4	11'-10"	49	B
S509	40	3'-0"	125	B					A507	4	13'-4"	56	B
S510	4	2'-11"	12	B					A508	8	14'-10"	124	B
S511	4	2'-10"	12	B					A509	21	3'-1"	68	B
S512	4	2'-10"	12	B					A510	12	33'-6"	419	S
S513	48	4'-10"	242	S					A511	2	9'-2"	19	B
S514	72	15'-1"	1133	S					A512	2	7'-2"	15	B
<b>PIERS</b>									A513	2	7'-4"	15	B
P1001	80	7'-2"	2467	B					A514	2	8'-4"	17	B
P1002	20	26'-6"	2281	S					A515	6	4'-0"	25	S
P1003	20	27'-6"	2367	S					A516	6	6'-7"	41	S
P1004	10	25'-3"	1087	S					A517	2	5'-9"	12	S
P1005	10	26'-2"	1126	S					A518	2	7'-7"	16	S
P1006	10	24'-6"	1054	S					A401	72	5'-5"	261	B
P1007	10	25'-6"	1097	S					<b>REPLACEMENT BARS</b>				
P1008	24	22'-5"	2315	B					RE1000	1	8'-2"		S
P1009	24	24'-5"	2522	B					RE800	1	7'-6"		S
P801	24	22'-8"	1453	S					RE600	3	6'-11"		S
P601	44	8'-4"	551	B					RE500	2	6'-7"		S
P602	16	19'-7"	471	S					RE400	1	5'-5"		B
P501	48	7'-9"	1196	B					RE401	1	6'-3"		B
P502	8	24'-5"	163	S									



Distance from level line to ends of chords at  $\phi$ s of substructure bearings

Stringer No	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	0	0	0	0	+9/8"	+5/16"	+8/8"	0	+1'-8 11/16"	+5/16"	+3/16"	+1/16"	2'-4 1/8"			
2	0	-1/16"	-1/16"	-1/16"	+9/16"	+5/16"	+8/8"	0	+1'-8 5/8"	-1/16"	-1/16"	-1/16"	2'-5"			
3	0	-1/16"	-1/16"	-1/16"	+9/8"	+5/16"	+8/8"	0	+1'-8 7/16"	-1/16"	-1/16"	-1/16"	2'-4 3/4"			
4	0	-1/16"	-1/16"	-1/16"	+8 7/8"	+5/16"	+8/8"	0	+1'-8 4"	-1/16"	-1/16"	-1/16"	2'-4 1/2"			
5	0	+1/16"	+1/16"	+1/16"	+8 15/16"	+1/16"	+8/8"	+1/16"	+1'-8 5/8"	+1/16"	+1/16"	+1/16"	2'-4 1/8"			
6	0	+8/8"	+3/16"	+8/8"	+9/8"	-1/16"	+3/16"	+3/16"	+1'-9 1/16"	+8/8"	+1/4"	+8/8"	2'-4 1/16"			

Adjustment required for vertical and horizontal curves

Deflection due to weight of steel

Stringer No	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	0	0	0	0	0	0	0	0	+1/16"	+1/16"	0	0	0	0	0	0

Deflection due to remaining dead load

Stringer No	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	0	+8/8"	+8/8"	0	0	+3/16"	+1/2"	+5/16"	0	+1/16"	+8/8"	+8/8"	0			

Required shop camber

Stringer No	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	0	+8/8"	+8/8"	0	0	+1/2"	+1/16"	+3/8"	0	+3/8"	+5/16"	+3/16"	0			
2	0	+1/16"	+1/16"	-1/16"	0	+1/2"	+1/16"	+3/8"	0	0	+1/16"	+1/16"	0			
3	0	+1/16"	+1/16"	-1/16"	0	+1/2"	+1/16"	+3/8"	0	0	+1/16"	+1/16"	0			
4	0	+1/16"	+1/16"	-1/16"	0	+1/2"	+1/16"	+3/8"	0	0	+1/16"	+1/16"	0			
5	0	+3/16"	+3/16"	+1/16"	0	+1/4"	+1/16"	+7/16"	0	+8/8"	+3/16"	+3/16"	0			
6	0	+1/4"	+5/16"	+8/8"	0	+8/8"	+3/4"	+9/16"	0	+3/16"	+3/8"	+1/4"	0			

Screed Elevations (Top of Reinf. Conc.)

Point in span	Left curb *		Right curb *	
	Station	Elev.	Station	Elev.
R.A.	487+09.97	771.50	487+88.02	773.61
1/4 L1	488+12.43	771.70	488+01.10	773.81
1/2 L1	488+24.88	771.89	488+13.27	774.00
3/4 L1	488+37.34	772.07	488+25.44	774.17
R.P.	488+49.80	772.25	488+37.61	774.35
1/4 L2	488+67.67	772.53	488+55.08	774.63
1/2 L2	488+85.55	772.79	488+72.54	774.90
3/4 L2	488+93.43	773.02	488+80.01	775.12
F.P.	488+21.31	773.23	488+07.47	775.33
1/4 L3	488+33.78	773.39	488+19.64	775.49
1/2 L3	488+46.24	773.56	488+31.81	775.66
3/4 L3	488+58.71	773.71	488+43.98	775.81
F.A.	488+71.17	773.85	488+56.15	775.95

\* In all cases the left curb shall be considered as 29'-3" from survey line and the right curb as 11'-3" from the survey line.

R.A. indicates rear abutment.  
R.P. indicates rear pier.  
F.P. indicates forward pier.  
F.A. indicates forward abutment.

BAR SIZE is indicated in the bar mark. The first digit where three digits are used and the first two digits where four digits are used, indicate the bar size number. For example: A801 is a No. 8 size bar and P1006 is a No. 10 size bar.

STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
DIVISION OF DESIGN AND CONSTRUCTION  
BUREAU OF BRIDGES

10/10

**SUPERSTRUCTURE DETAILS AND REINFORCING STEEL LIST**

BRIDGE NO LOR-90EB-1012  
OVER WEST RIDGE ROAD

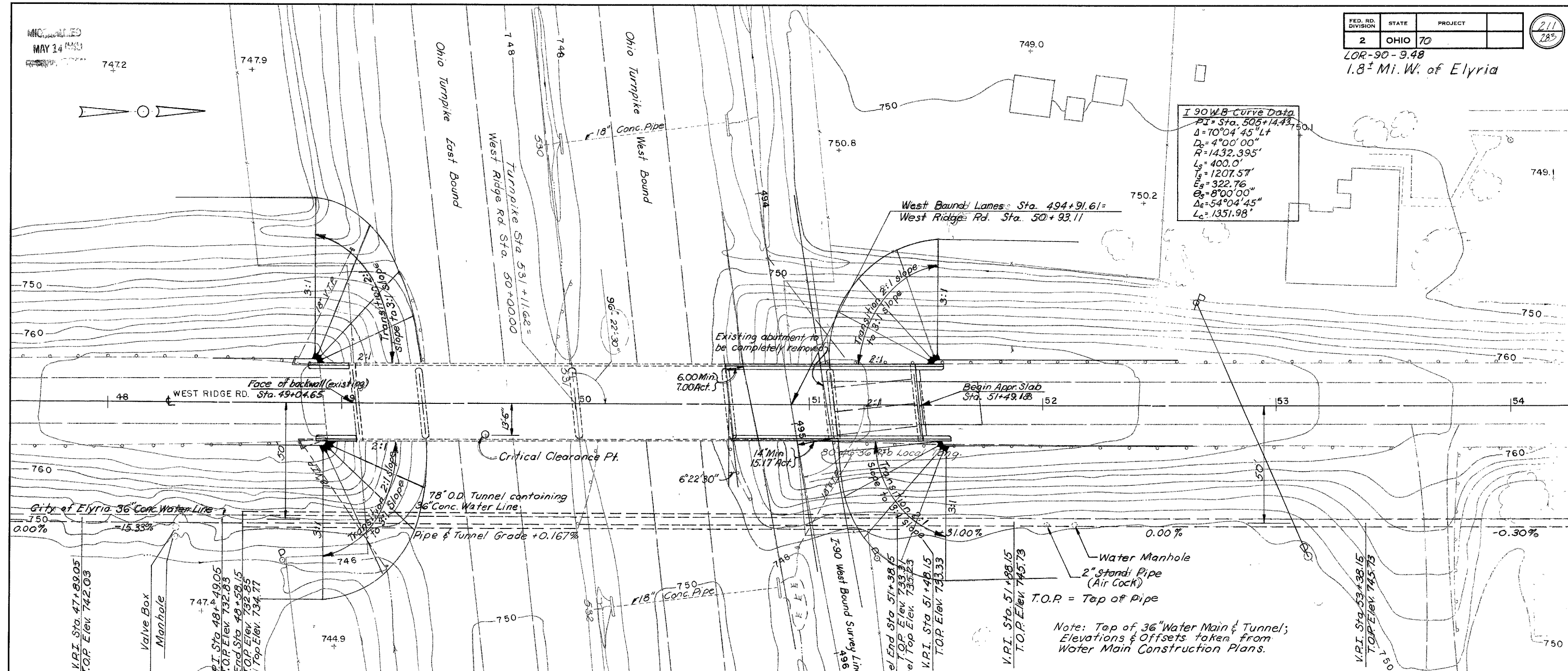
DESIGNED INNES  
DRAWN INNES  
TRACED  
CHECKED FPK  
REVIEWED BFG  
DATE 4-14-70  
REVISED 4-25-70

NOT RECORDED  
MAY 24 1948

FED. RD. DIVISION	STATE	PROJECT	211 283
2	OHIO	70	

LOR-90-9.48  
1.8<sup>±</sup> Mi. W. of Elyria

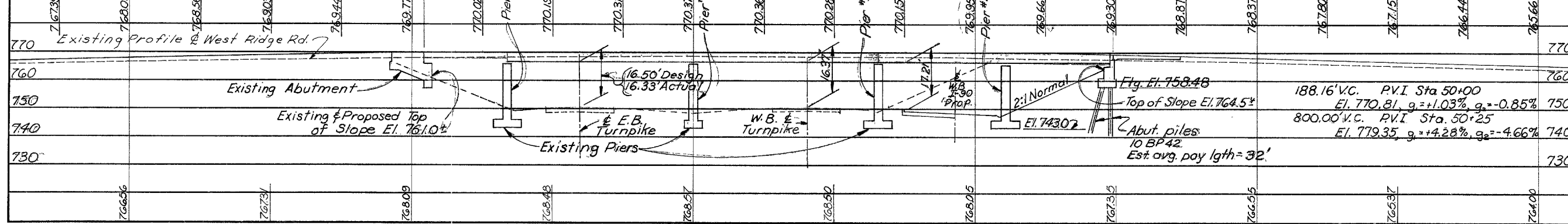
**I 90WB Curve Data**  
 PI = Sta. 505+14.43  
 Δ = 70°04'45" Lt  
 D<sub>s</sub> = 4°00'00"  
 R = 1432.395'  
 L<sub>s</sub> = 400.0'  
 T<sub>s</sub> = 1207.57'  
 E<sub>s</sub> = 322.76'  
 Θ<sub>s</sub> = 8°00'00"  
 Δ<sub>e</sub> = 54°04'45"  
 L<sub>e</sub> = 1351.98'



Note: Top of 36" Water Main & Tunnel; Elevations & Offsets taken from Water Main Construction Plans.

EXISTING STRUCTURE	PROPOSED STRUCTURE
TYPE: 4-span steel beam, with center two spans continuous, with reinforced concrete deck and reinforced concrete substructure. SPAN: 27.67'-65.42'-65.42'-27.67' % brgs ROADWAY: 28'-0" w/ 1'-6" safety curbs LOAD FREQUENCY: CF 30	TYPE: Continuous steel beam with reinforced concrete deck and substructure SPAN: 27.67'-65.42'-65.42'-44.5'-36.0' % brgs ROADWAY: 28'-0" w/ 1'-6" safety curbs LOAD FREQUENCY: CF 30
SKEW: 6°22'30" RF WEARING SURFACE: 1" Monolithic Concrete APPROACH: Abutment Approach Slab (11.75' long) ALIGNMENT: Tangent	SKEW: 6°22'30" RF WEARING SURFACE: 1" Monolithic Concrete APPROACH SLAB: One AS-1-67 (25' long) ALIGNMENT: Tangent

B.M. ~ Top of bronze tablet in conc. Mon. 24" E. of & in line with center pier of W. Ridge Rd. over Turnpike bridge, El. 747.960



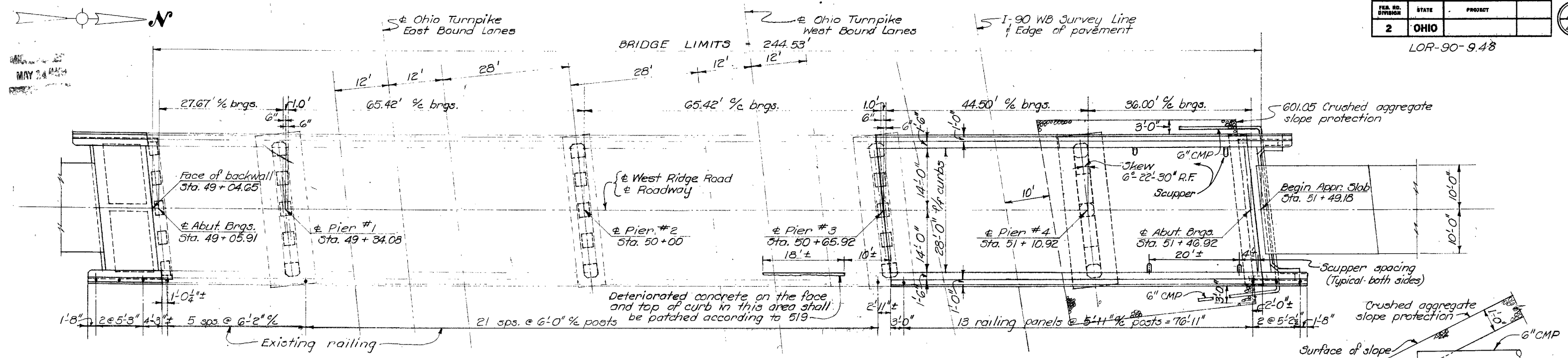
STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
BUREAU OF BRIDGES

**SITE PLAN**

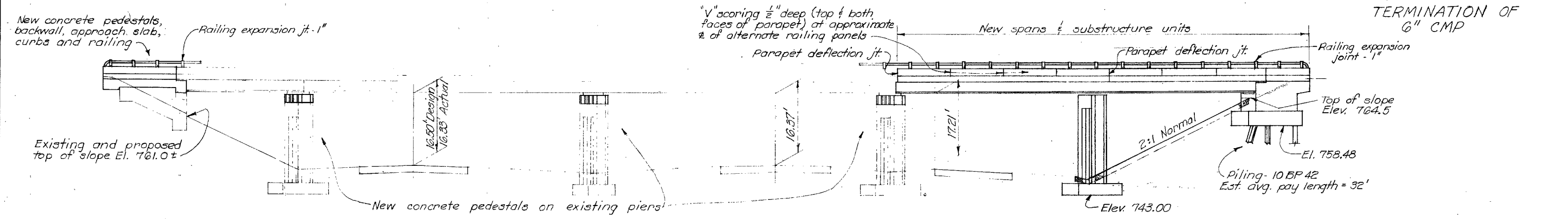
BRIDGE NO. LOR - 90WB-1014  
 Ohio Turnpike & W.B. I.R90 under West Ridge Rd.  
 LORAIN CO IR - 90  
 STA. 494+91.61

SCALE 1" = 20'

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
AERIAL SURVEY	AERIAL SURVEY	R.D.M.	R.D.M.	D.H.S.	G.E.S.



GENERAL PLAN



ELEVATION

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						
GENERAL PLAN & ELEVATION						
BRIDGE NO. LOR-90WB-1014 UNDER WEST RIDGE ROAD						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
NAA	NAA		Innes	BFG	3-24-70	11-25-78

MAY 14 1970

LOR-90-9.48

213  
283

GENERAL NOTES

REFERENCE shall be made to Standard Drawing SD-1-69, Shs. No. 3&4, dated 6-12-69 and to Supplemental Specifications 808 dated 1-1-71 and 836 dated 1-1-71.

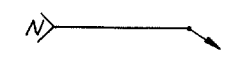
DESIGN SPECIFICATIONS: The additions to the existing structure conform to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated 10-1-51.

DESIGN DATA:  
Concrete Class C - Basic unit stress 1333 p.s.i.  
Structural Steel - ASTM A36 - unit stress 20,000 p.s.i.  
Reinforcing Steel - ASTM A615, A616 or A617 - unit stress 20,000 p.s.i.

ABUTMENT PILES shall be driven to a minimum bearing capacity of 40 tons per pile.

FOUNDATION BEARING PRESSURE: Pier footings are designed for a maximum bearing pressure of 2 1/2 tons per sq. ft.

WELDS on non-stress-carrying members are shown thus:



ADJUSTABLE TYPE ELBOWS meeting specification requirements for gage and coating are acceptable for making bends in corrugated metal pipe.

PLANS OF THE EXISTING BRIDGE may be examined in the Bureau of Bridges in Columbus, Ohio, or the office of The Ohio Turnpike Commission.

EXISTING STRUCTURE DIMENSIONS affecting new work shall be verified by the Contractor in the field.

- PROPOSED WORK:
1. Remove portions of existing south abutment.
  2. Place and compact the new embankment.
  3. Excavate behind and beyond the existing south abutment.
  4. Remove the superstructure from the existing north end span.
  5. Jack the existing superstructure to an elevation high enough to permit the new work to be performed on the existing piers and the bridge seat of the south abutment.
  6. Make modifications at piers and place pedestals at south abutment.
  7. Jack superstructure down to final position.
  8. Complete modifications to the south abutment. Backfill around abutment.
  9. Make modifications to parapets and railings at the south abutment.
  10. Remove existing north abutment. Construct new Pier No. 4 and new North Abutment. Construct new 44'-6" and 36' spans at north end of bridge as per plans.

JACKING: Jacking at piers may be done from falsework adjacent to the piers with supports in direct contact with the existing concrete footings, or from the piers. In either case the jacking shall be done in such a way as to maintain axial loading at the piers. Jacking at all piers will have to be done so that both spans are raised simultaneously. In order to prevent cracking of the concrete deck during jacking, there shall be no transverse differential at any substructure unit and the differential between adjacent substructure units shall not exceed 1". No construction equipment will be allowed on the superstructure while there is any such differential.

Approximate Loads {  
South Abutment 35 Tons  
Pier No. 1 100 Tons  
Pier No. 2 200 Tons  
Pier No. 3 65 Tons

Details of the jacking procedure (5 sets) shall be submitted to the Director 30 days prior to jacking operations, and work shall not commence before the approval of the Director and the Ohio Turnpike Commission is given.

PRESERVATION OF REINFORCING BARS: Special care shall be taken in removing existing concrete to avoid damage to reinforcing bars which are to be incorporated into new work. Any such bars which are made unusable by removal operations shall be replaced by dowel bars of the same size set 1'-0" into the existing concrete according to Sec. 510.02 at the expense of the Contractor.

PLACING OF NEW CONCRETE IN CONTACT WITH EXISTING CONCRETE shall be done in accordance with the applicable parts of Sec. 519.04.

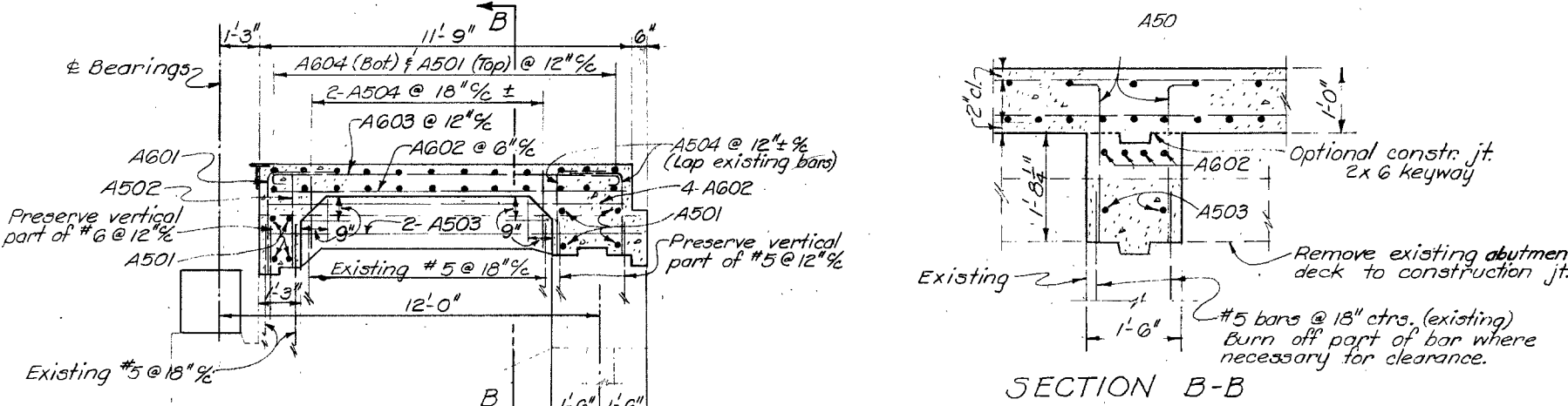
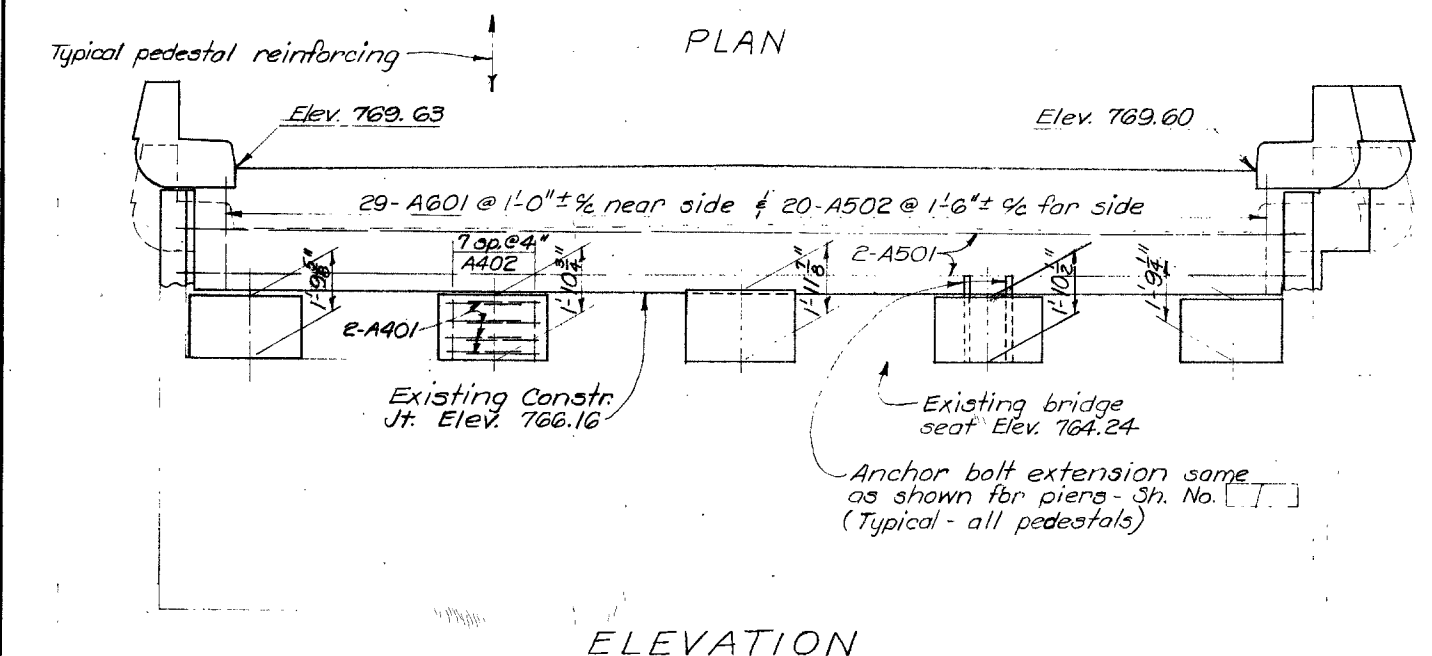
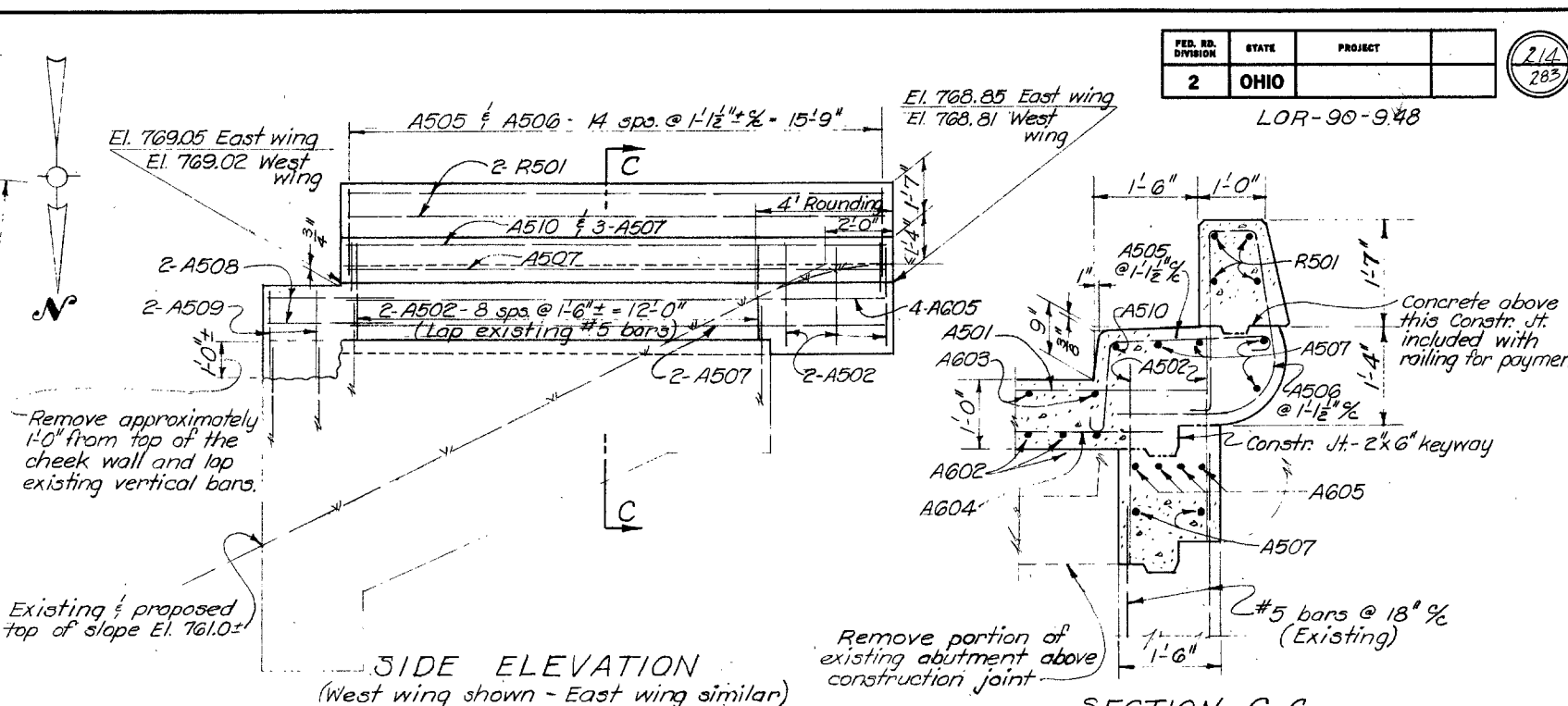
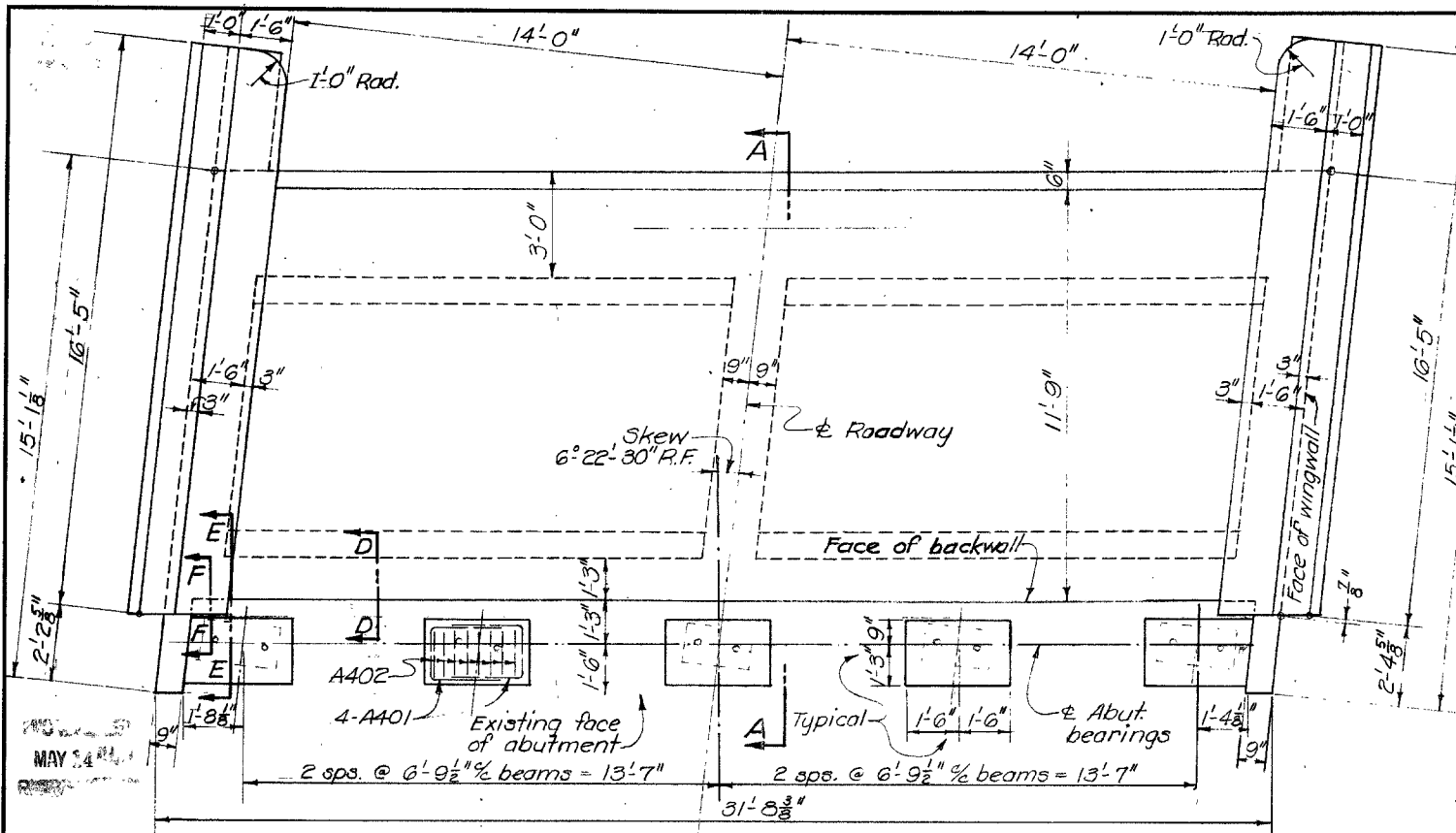
MAINTENANCE OF TRAFFIC ON OHIO TURNPIKE: See Sheet No.

PAINTING OF NEW STRUCTURAL STEEL: The finish coat of field paint shall be Gray-Green Structural Green Finish, as described in the Proposal, to match the existing structural steel.

100% State			ESTIMATED QUANTITIES							
Item	Total	Unit	Description	S. Abut.	N. Abut.	Pier 2,3	Pier 4	Super	Gen.	As-Built
202	Lump	Sum	Portions of existing structure removed						Lump	
503	Lump	Sum	Cofferdams, cribs and sheeting						Lump	
503	185	Cu. Yd.	Unclassified Excavation	2	97		86			
505	Lump	Sum	Test pile		Lump					
507	320	Lin. ft.	Steel piles HP10x42 *		320					
509	34,978	Lb.	Reinforcing steel	4606	4449	996	7392	17535		
511	70	Cu. Yd.	Class C Concrete, superstructure					70		
511	34	Cu. Yd.	Class C Concrete, south abutment	34						
511	62	Cu. Yd.	Class C Concrete, north abutment		62					
511	9	Cu. Yd.	Class C Concrete, pier pedestals			9				
511	60	Cu. Yd.	Class C Concrete, pier no. 4				60			
513	55,800	Lb.	Structural Steel (new)					55,800		
513	Lump	Sum	Dismantle, recondition, & erect re-used structural steel					Lump		
514	55,800	Lb.	Field painting of new structural steel					55,800		
514	Lump	Sum	Cleaning & painting re-used structural steel (one prime spot coat & two complete field coats)					Lump		
516	34	Lin. ft.	Joint sealer 705.02					34		
517	217	Lin. ft.	Railing (concrete parapet with pipe rail)	33	20			164		
518	19	Cu. Yd.	Porous Backfill		19					
518	26	Lin. ft.	6" perforated, helical corrugated metal pipe, 707.01		26					
518	44	Lin. ft.	6" non-perforated helical corrugated metal pipe, including specials, 707.01		44					
518	4	Ea.	Scuppers including supports					4		
518	2	Ea.	Special collectors & supports					2		
519	18	Sq. ft.	Patching concrete structures					18		
513	Lump	Sum	Jacking and repositioning bridge deck					Lump		
601	220	Sq. Yd.	Crushed aggregate slope protection					220		
808	70	Units	Chemical admixture for concrete, Type A, B, or D					70		

\* HP 10x42 piles formerly designated 10BP42

STATE OF OHIO					3/10
DEPARTMENT OF HIGHWAYS					
DIVISION OF DESIGN AND CONSTRUCTION					
BUREAU OF BRIDGES					
GENERAL NOTES, & ESTIMATED QUANTITIES					
BRIDGE NO. LOR-90WB-1014 UNDER WEST RIDGE ROAD					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
NAA	BEB		Innes	BFG	3-24-70
					4-25-70

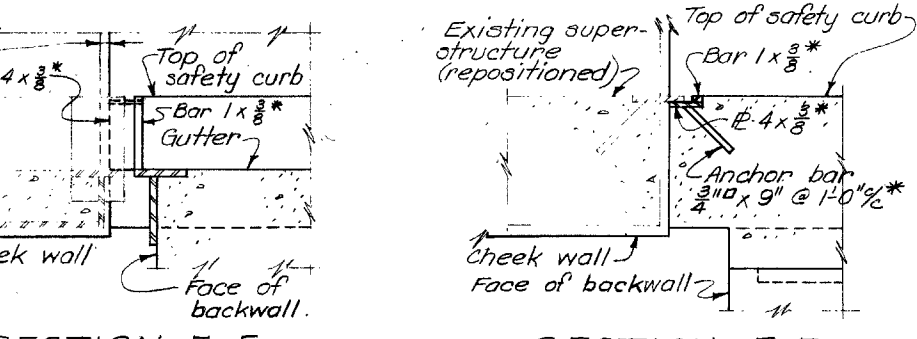
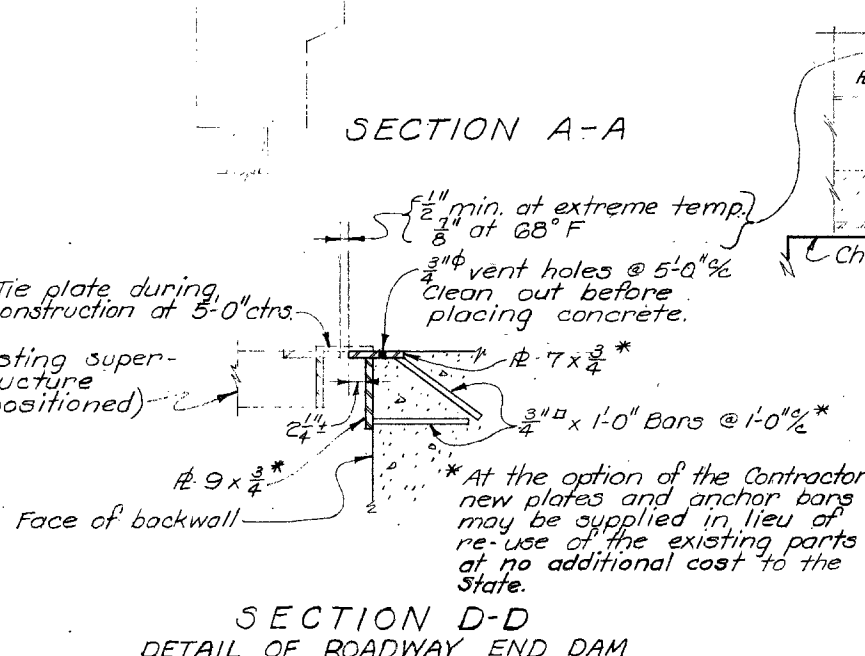


**SOUTH ABUTMENT MODIFICATION PROCEDURE**

- Remove existing abutment deck, curbs and parapets above construction joints as shown.
- Place and compact earth fill.
- Excavate beyond and behind abutment to permit new construction.
- Jack the bridge.
- Install anchor bar extensions and place pedestals.
- Apply Item 836 to all exposed surfaces of pedestals.
- Position the new lead plates and masonry plates on the anchor bolt extensions.
- Install new collectors under existing scuppers.
- Jack bridge down to final position.
- Clean existing abutment portions of

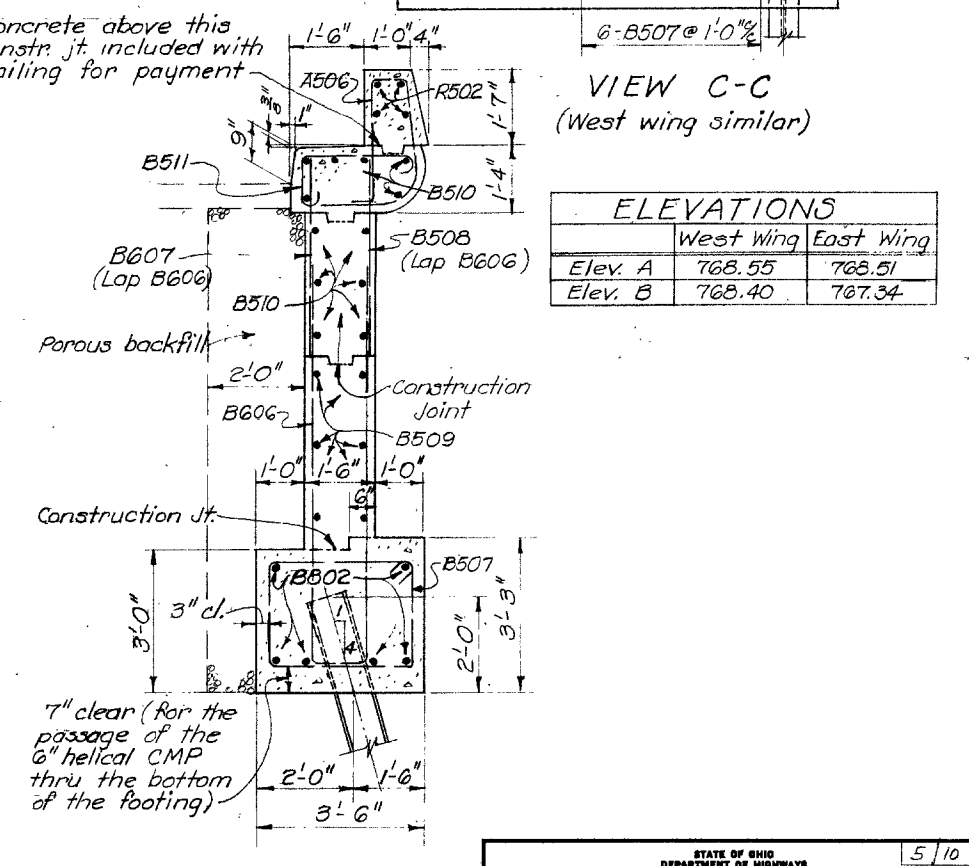
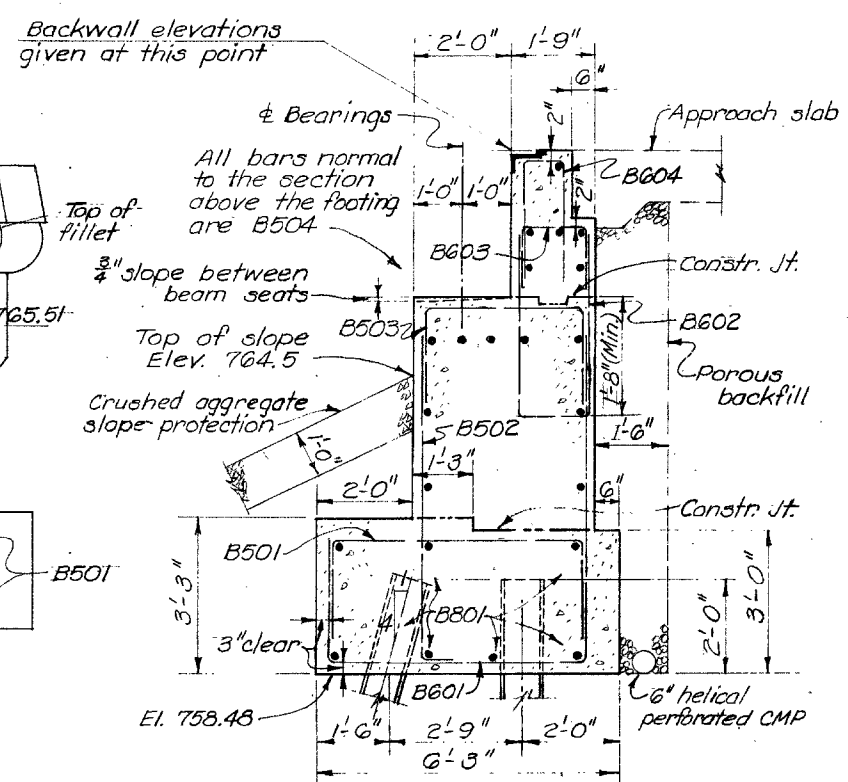
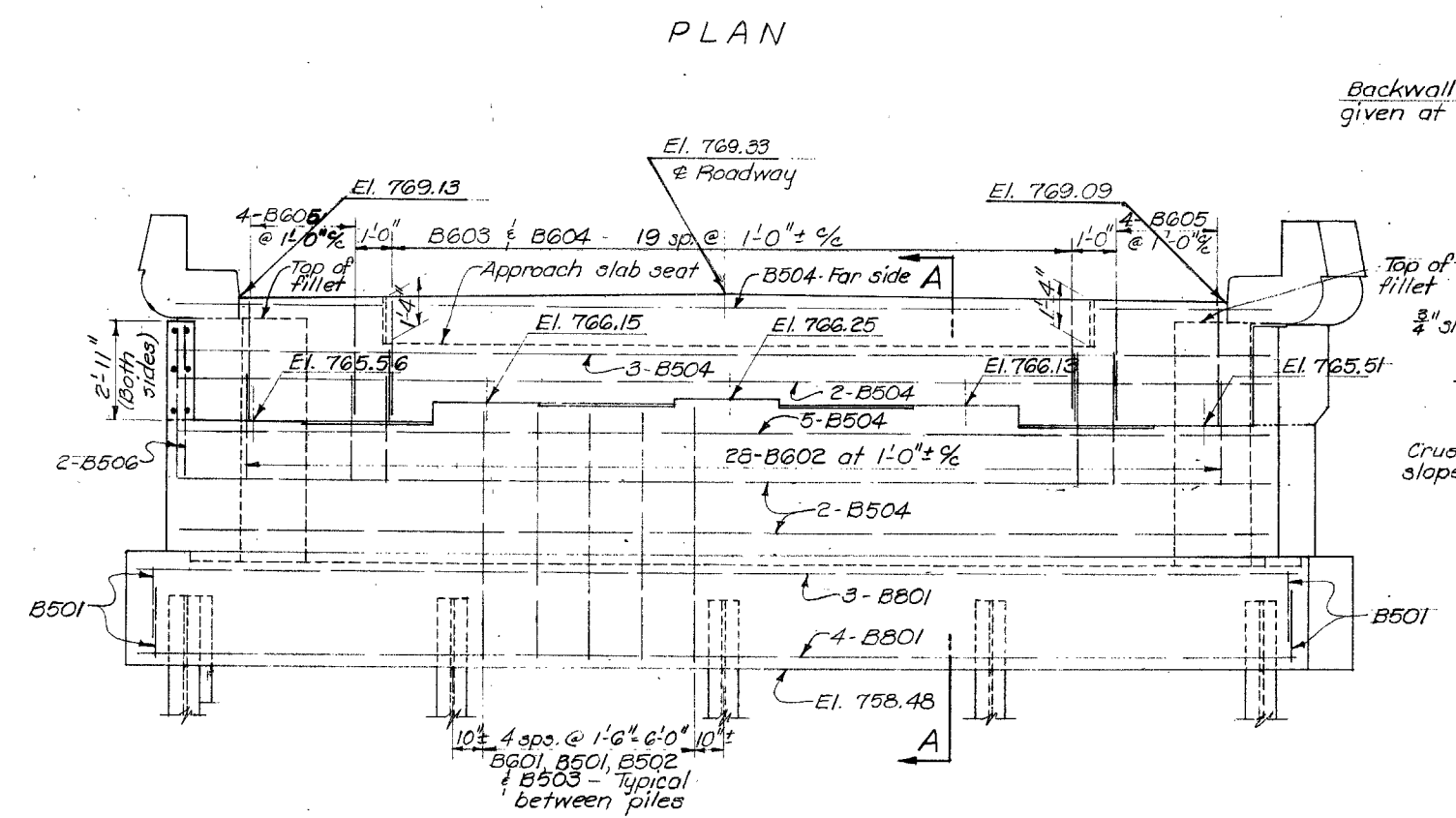
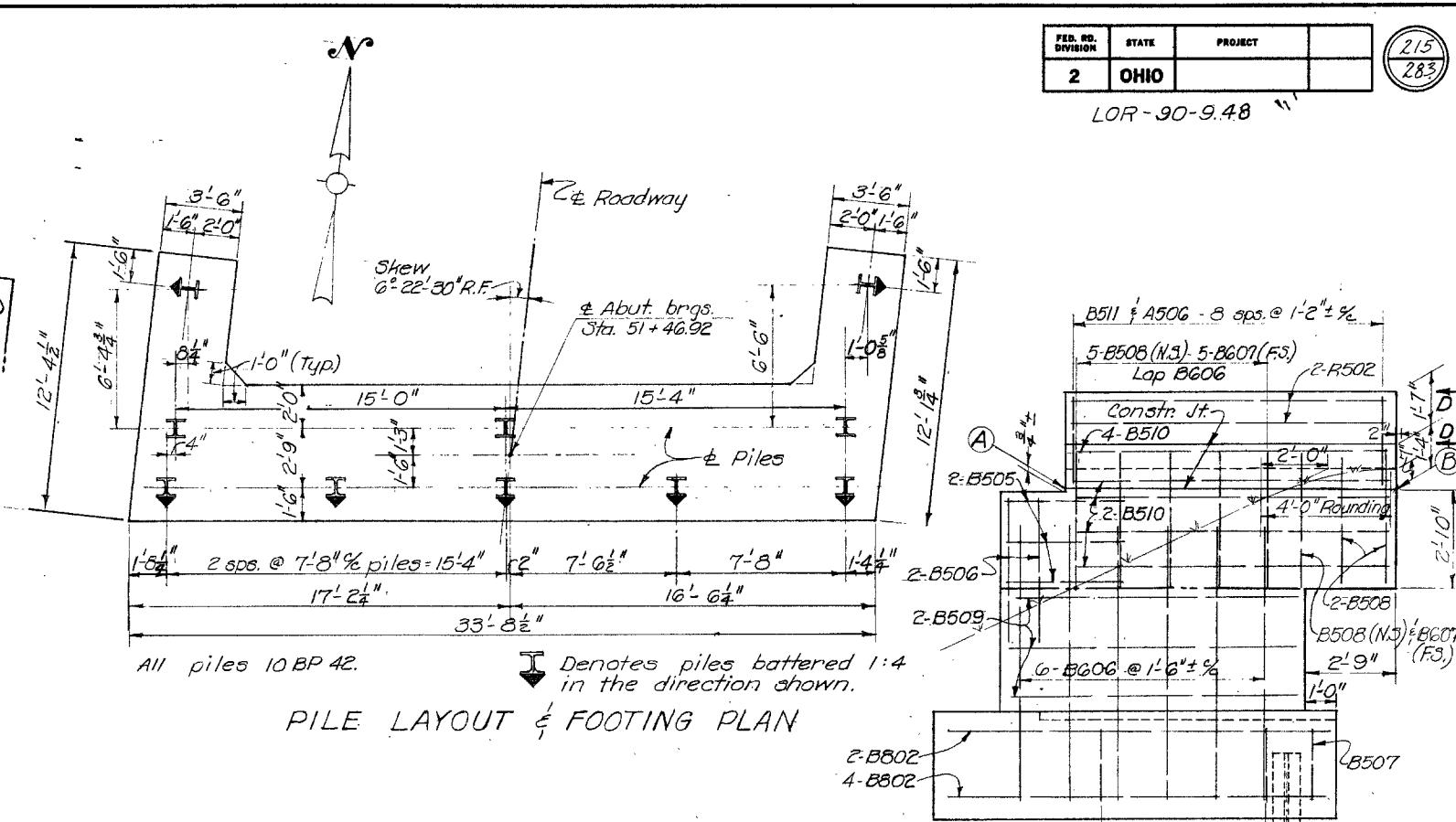
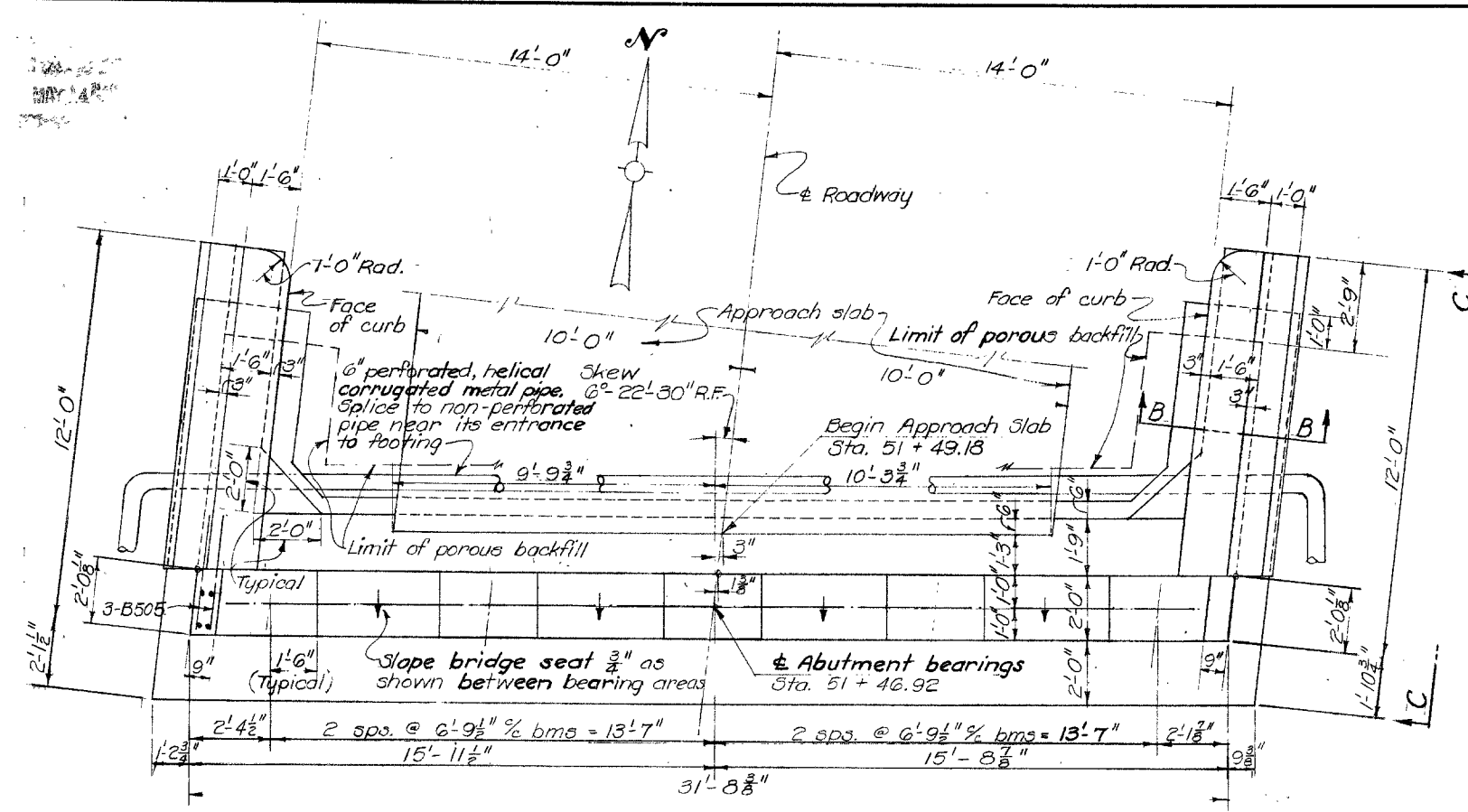
end dams for re-use in new abutments. Attach abutment portions of end dams to superstructure portions. Place new interior strut and wing wall extensions. Fill cells of abutment with subbase material, Item 310, to level of bottom of abutment deck. Place new abutment deck and safety curbs. Apply Item 836 to new face of backwall and top and bridge seat side of curtain walls. Place new parapets & install metal hand railing. Backfill.

**PAYMENT** for all items required for the modification of the South Abutment shall be included in Item 511, Class C concrete, South Abutment for payment unless otherwise specified. This includes Item 836, Item 310, anchor bar extension studs, sleeve nuts, new anchor nuts and lock washers.



**PAYMENT** for all work and materials necessary for the complete renovation of the existing end dams shall be included in Item 513, Dismantle, Recondition, and Erect Re-used Structural Steel End Dams.

LOR-90-9.48 "



	ELEVATIONS	
	West Wing	East Wing
Elev. A	768.55	768.51
Elev. B	768.40	767.34

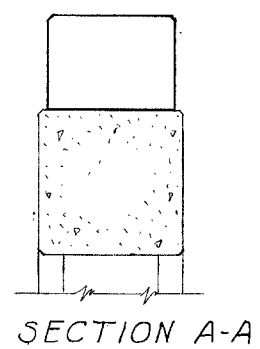
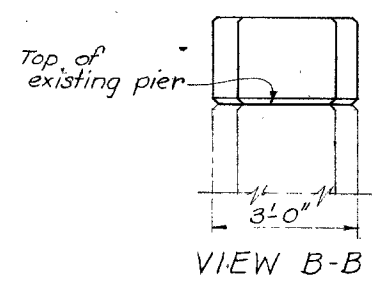
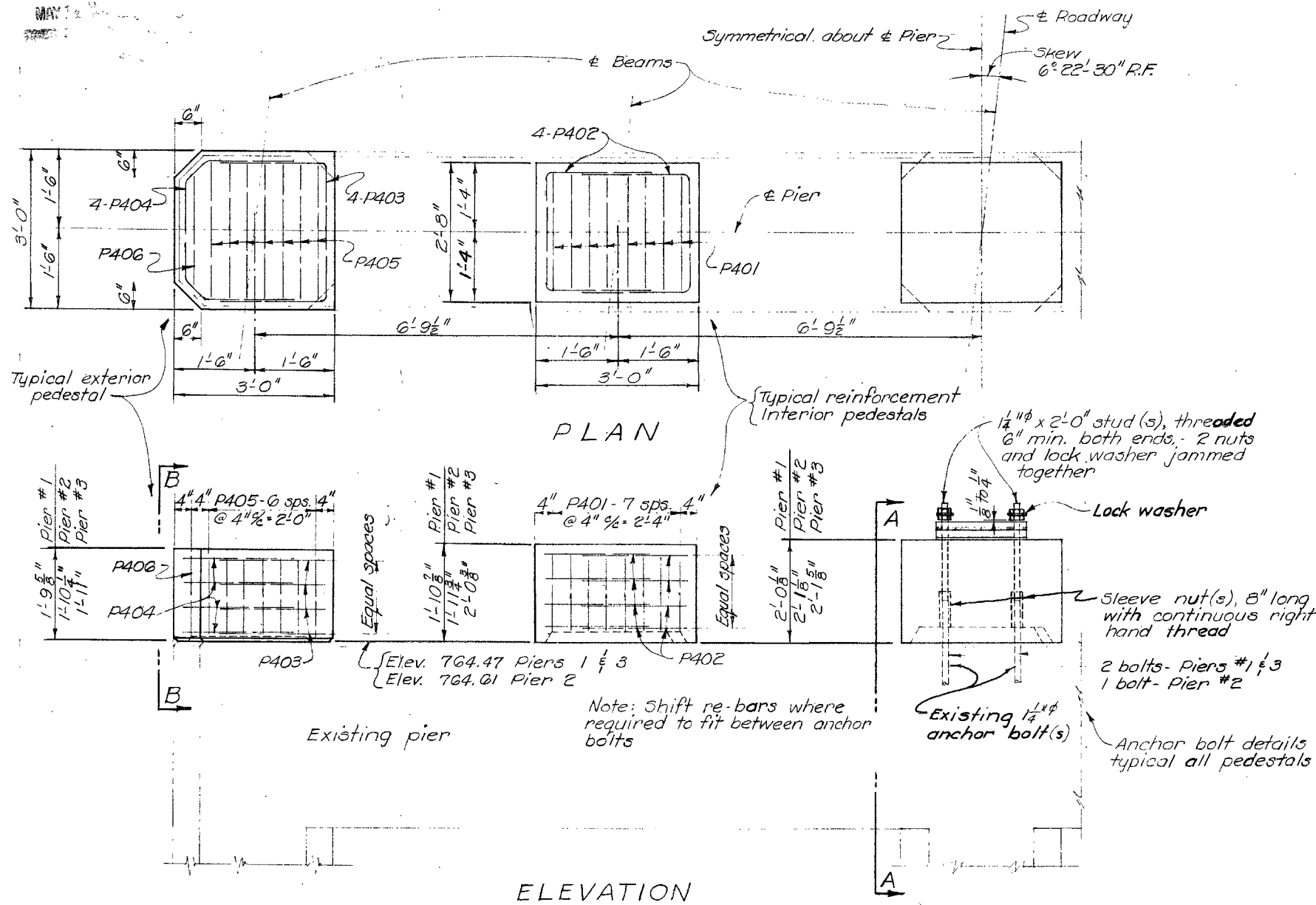
BRIDGE SEAT REINFORCING: Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat so as to avoid interference with the drilling of anchor bolt holes.

STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
DIVISION OF DESIGN AND CONSTRUCTION  
BUREAU OF BRIDGES

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**NORTH ABUTMENT DETAILS**  
BRIDGE NO. LOR-90WB-1014  
UNDER WEST RIDGE ROAD

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
NAA	NAA		Innes	BFG	3-24-70	4-25-75



TOP SURFACE OF EXISTING PIERS in the area under the new pedestals (including top of existing concrete bearing pads) shall be cleaned and roughened by bush-hammering before placing the pedestals. Existing anchor bolts shall be extended in the manner shown.

EXISTING BEARING PLATES shall be repositioned on the new pedestals. New sheet lead plates or preformed bearing pads, 3/8" x 20" x 1'-8" for Piers No. 1 & No 3 and 3/8" x 12" x 1'-8" for Pier No. 2, shall be placed under all existing bearings. Nuts shall be reinstalled and tightened.

ITEM 836 shall be applied to top and side surfaces of all pedestals on Pier #3.

PAYMENT for all items required for the modification of existing piers, including anchor bar extension studs, sleeve nuts, new anchor nuts, lock washers and Item 836 shall be included in Item 51, Class C concrete, pier pedestals.

REINFORCING STEEL LIST															
Mark	No.	Length	Weight	Shp	Bending Diagrams					Mark	No.	Length	Weight	Shp	
<b>South Abutment</b>					<b>Pier No. 4</b>										
A601	29	4'-9"	207	B	A401	1'-8"					P801	11	33'-8"	989	S
A602	63	11'-4"	1072	S	A402	1'-7"					P802	48	5'-7"	716	B
A603	29	12'-8"	552	B	B604	11"					P803	48	20'-0"	2563	S
A604	12	30'-0"	547	S	B606	1'-2"					PT01	14	18'-8"	534	B
A605	8	16'-0"	192	S	B501	5'-4"					PT02	7	27'-2"	389	S
A501	20	31'-0"	647	S	B504	3'-5"					P601	11	33'-8"	556	S
A502	68	3'-0"	213	S	P504	2'-8"					P602	49	9'-6"	699	S
A503	2	12'-0"	25	S	A504	2'-4"					P501	6	27'-2"	170	S
A504	70	2'-10"	207	B	B502	6'-6"					P502	24	9'-3"	232	B
A505	30	4'-7"	143	B	P802	4'-8"					P503	10	7'-5"	77	B
A506	30	8'-1"	253	B	A601	3'-0"					P504	15	5'-5"	85	B
A507	12	16'-0"	200	S	PT01	16'-0"					P407	54	10'-7"	382	B
A508	8	3'-8"	31	S	B602	3'-9"					<b>Superstructure</b>				
A509	8	2'-6"	21	S	B603	1'-5"					S501	122	32'-6"	4135	S
A510	2	15'-7"	33	S	B605	3'-5"					S502	163	31'-4"	5327	S
A401	40	5'-7"	149	B	A506	2'-7"					S503	130	30'-0"	4068	S
A402	40	4'-6"	120	B	S507	2'-7"					S504	65	24'-9"	1678	S
<b>Railing Bars</b>					A603	11'-4"					S505	26	18'-0"	488	S
R501	8	16'-0"		S	B601	6'-6"					S506	142	4'-4"	642	B
R502	8	9'-6"		S	B511	2'-3"					S507	142	8'-1"	1197	B
R503	24	24'-4"		S	<b>Piers No. 1, 2, &amp; 3</b>										
R504	24	17'-11"		S	P401	72	5'-10"	281	B						
<b>North Abutment</b>					P402	72	6'-5"	309	B						
B801	7	33'-2"	620	S	P403	24	6'-9"	108	B						
B802	12	11'-6"	368	S	P404	24	6'-4"	102	B						
B601	20	14'-0"	421	B	P405	42	6'-2"	173	B						
B602	28	8'-7"	361	B	P406	6	5'-8"	23	B						
B603	20	3'-11"	118	B	<b>Replacement Steel</b>										
B604	20	5'-7"	168	B	RE801	1	7'-6"	-	S						
B605	8	7'-11"	95	B	RE701	1	7'-2"	-	S						
B606	12	17'-8"	318	B	RE601	1	6'-11"	-	S						
B607	12	4'-0"	72	S	RE501	2	6'-7"	-	S						
B501	24	9'-1"	227	B	RE401	1	6'-5"	-	B						
B502	20	7'-0"	146	B											
B503	20	7'-2"	149	B											
B504	15	31'-0"	485	S											
B505	12	3'-6"	44	S											
B506	8	4'-4"	36	S											
B507	14	11'-1"	162	B											
B508	20	4'-0"	83	S											
B509	12	8'-6"	106	S											
B510	24	9'-6"	238	S											
B511	18	4'-3"	80	B											
A506	18	8'-1"	152	B											

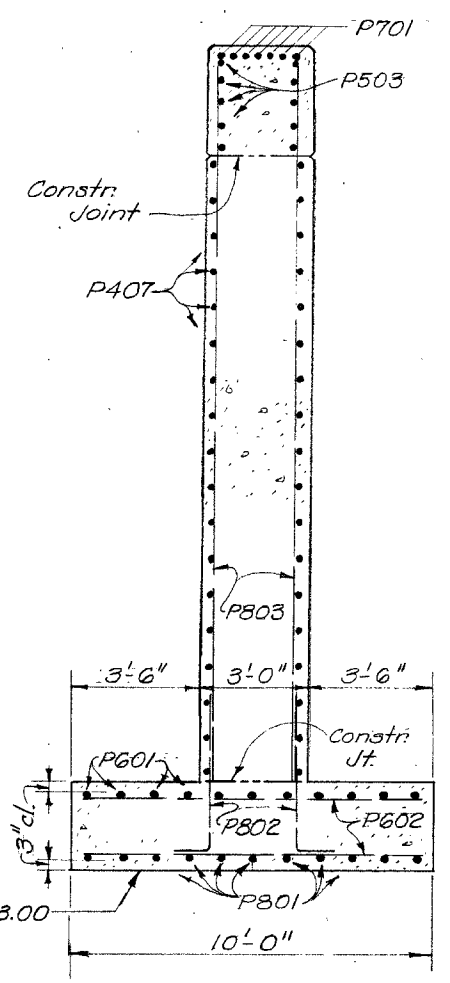
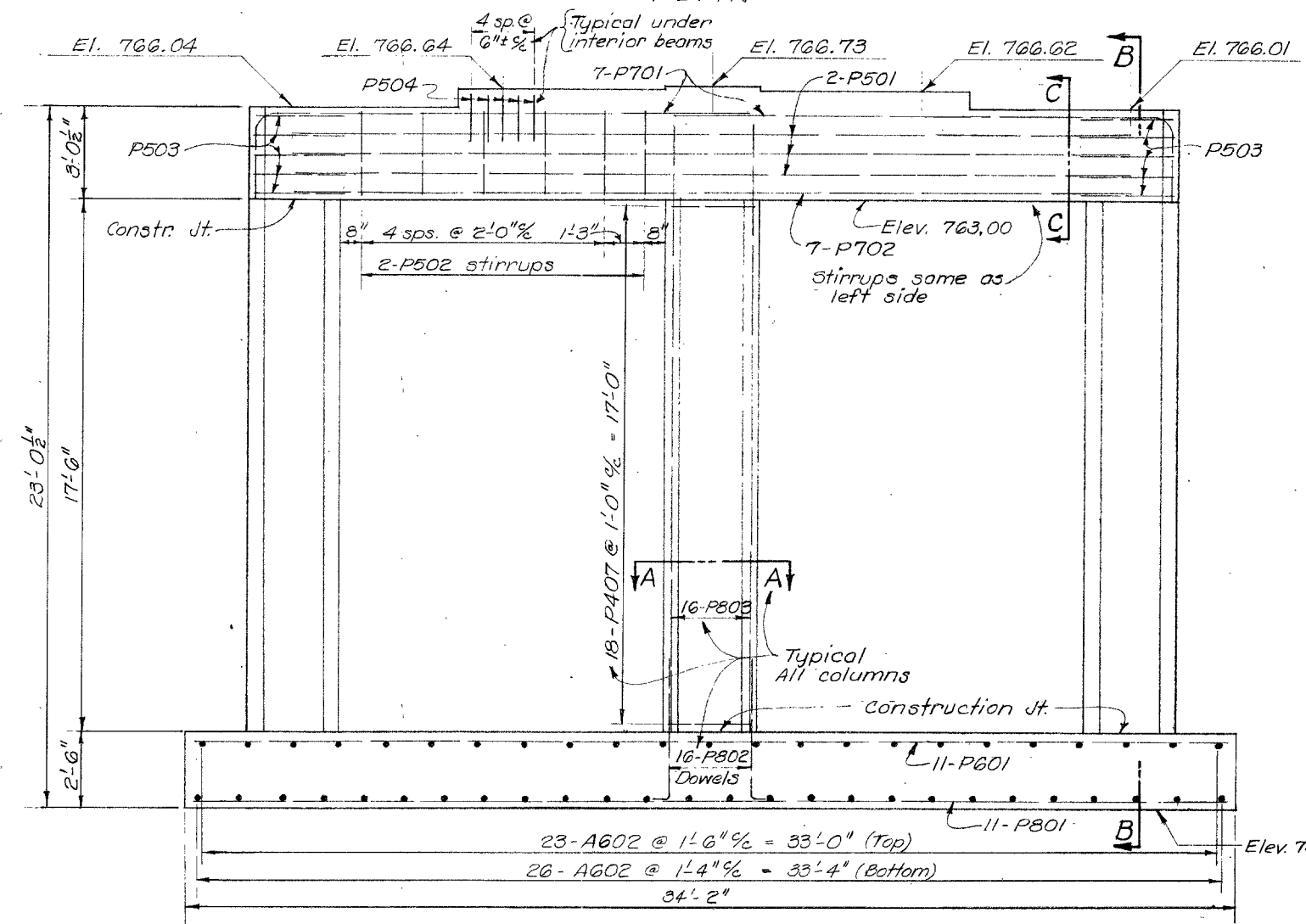
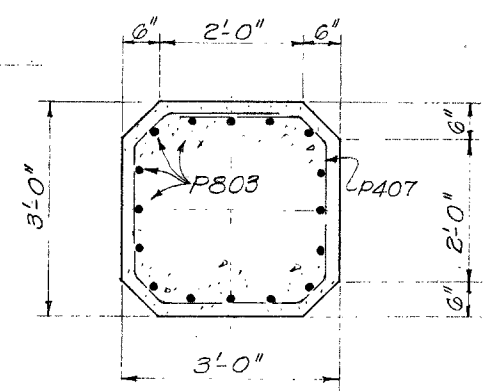
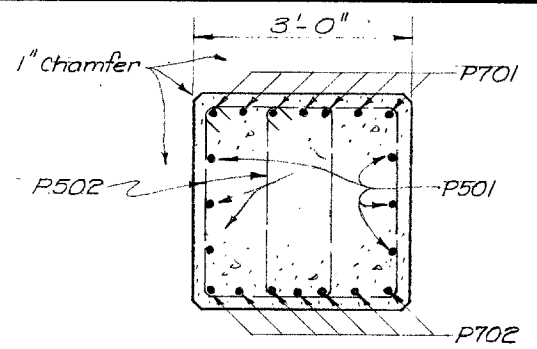
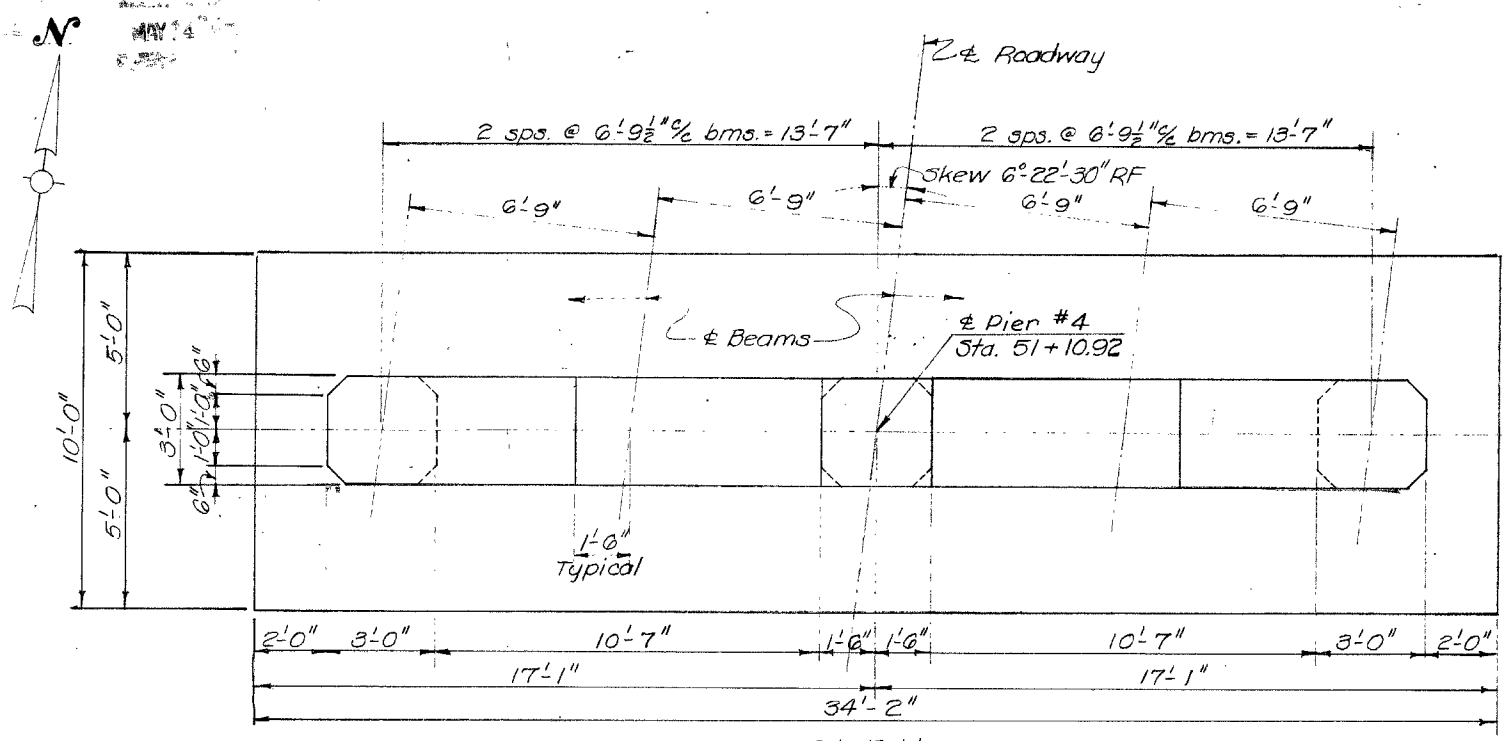
STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
DIVISION OF DESIGN AND CONSTRUCTION  
BUREAU OF BRIDGES

6/10

**MODIFICATION OF PIERS  
REINFORCING STEEL LIST  
BRIDGE NO. LOR-90WB-1014  
UNDER WEST RIDGE ROAD**

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
NAA	NAA		Innes	BFG	3-24-70	*25-73





BRIDGE SEAT REINFORCING: Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat so as to avoid interference with the drilling of anchor bar holes.

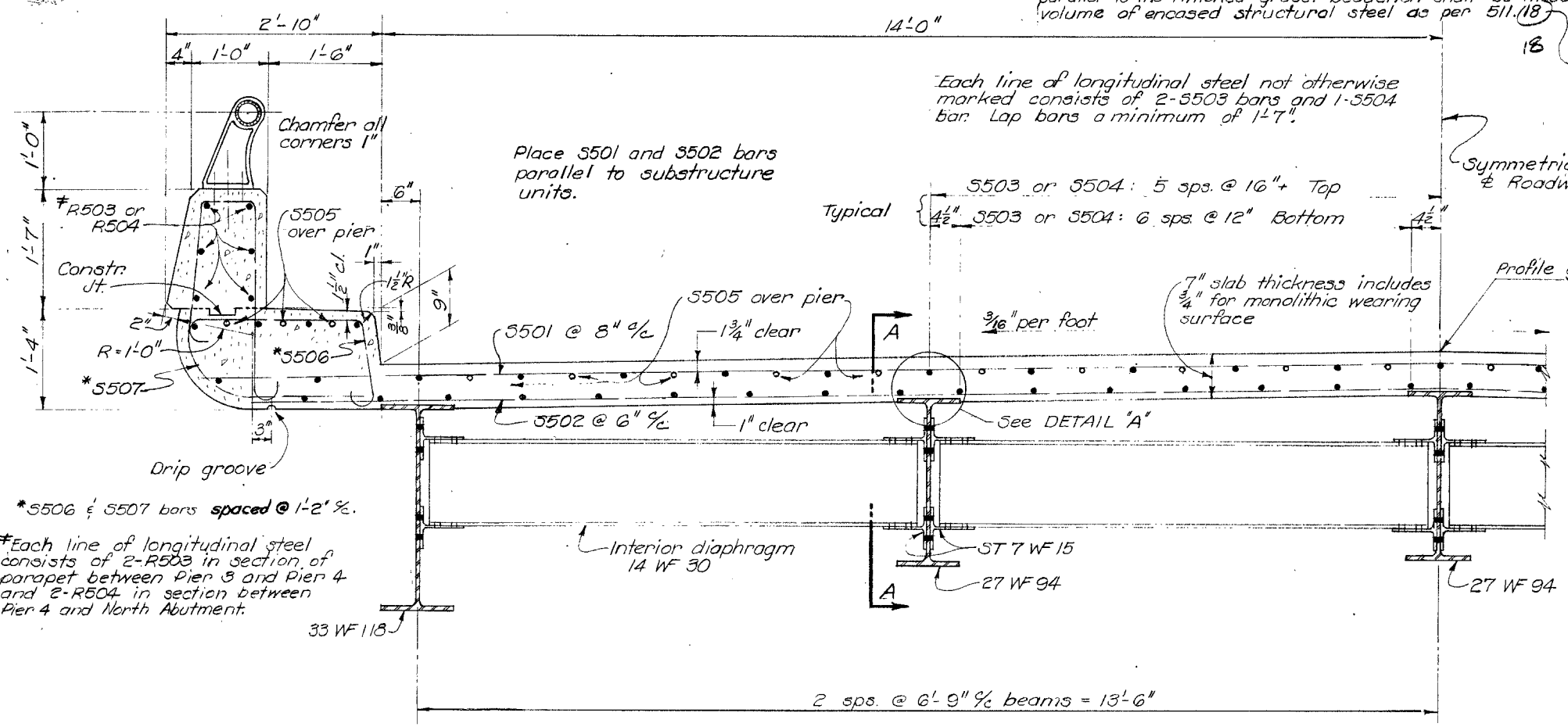
STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES							7/10
DETAILS OF PIER NO. 4							
BRIDGE NO. LOR-90WB-1014 UNDER WEST RIDGE ROAD							
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED	
NAA	NAA		Innes	BFG	3-24-72	K-2872	

LOR-90-9.48

This is the design dimension. The quantity of deck concrete to be paid for shall be based upon this dimension, even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or conformation required to place it parallel to the finished grade. Deduction shall be made for volume of encased structural steel as per 511.118.

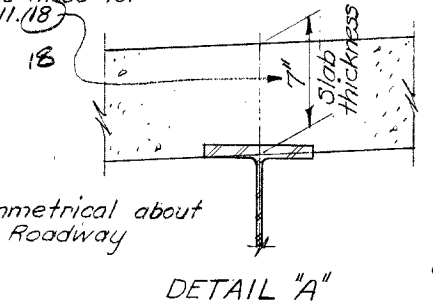
Each line of longitudinal steel not otherwise marked consists of 2-3503 bars and 1-5504 bar. Lap bars a minimum of 1'-7".

Place 5501 and 5502 bars parallel to substructure units.

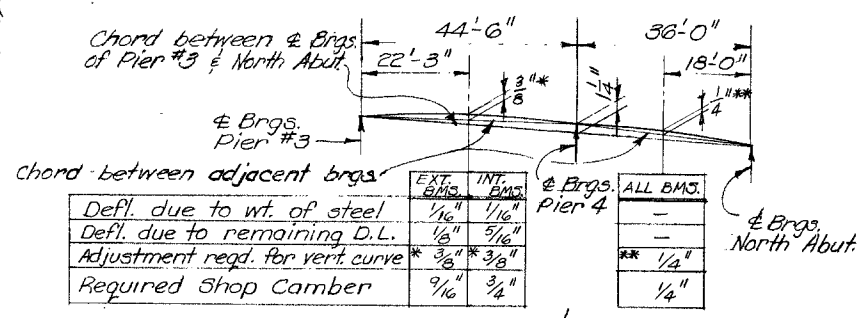


HALF TRANSVERSE SECTION

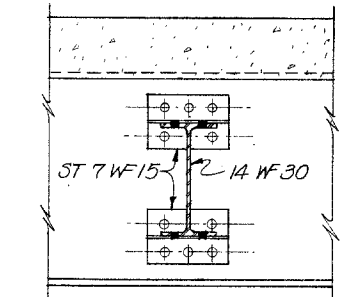
\*5506 & 5507 bars spaced @ 1'-2" o.c.  
\*Each line of longitudinal steel consists of 2-R503 in section of parapet between Pier 3 and Pier 4 and 2-R504 in section between Pier 4 and North Abutment.



DETAIL "A"



DEFLECTION & CAMBER



SECTION A-A

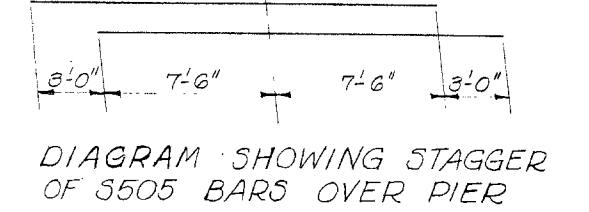
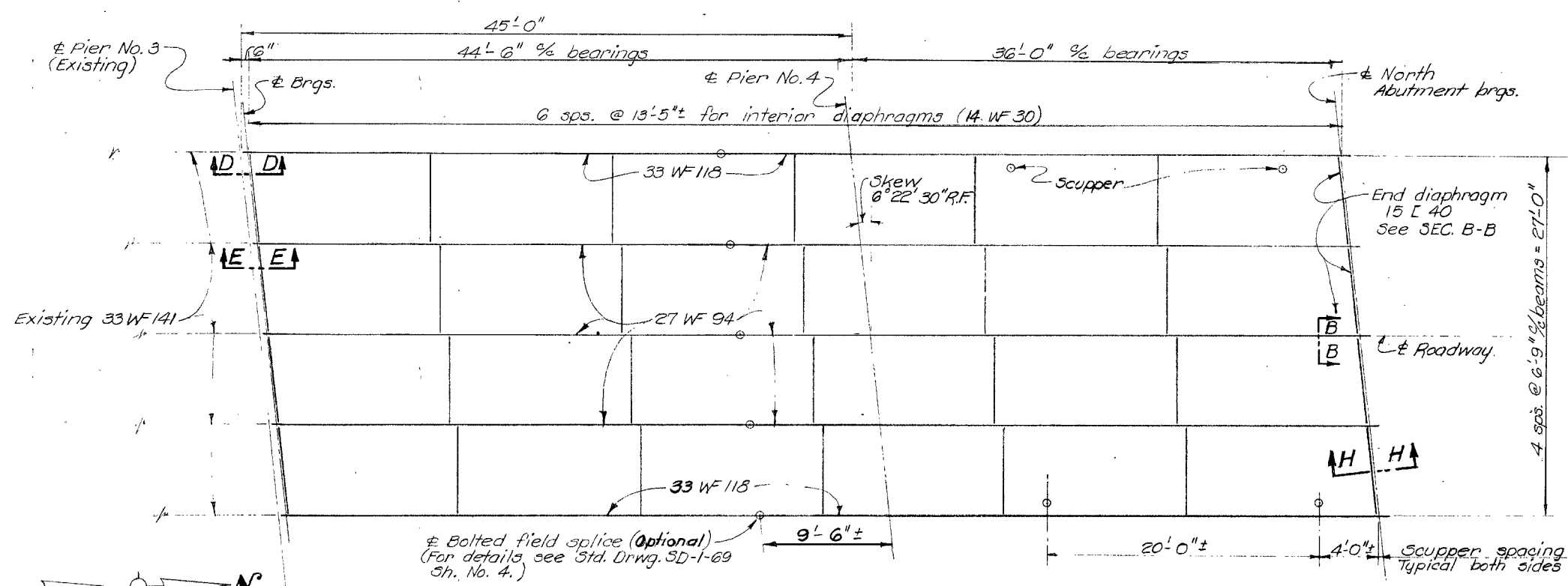
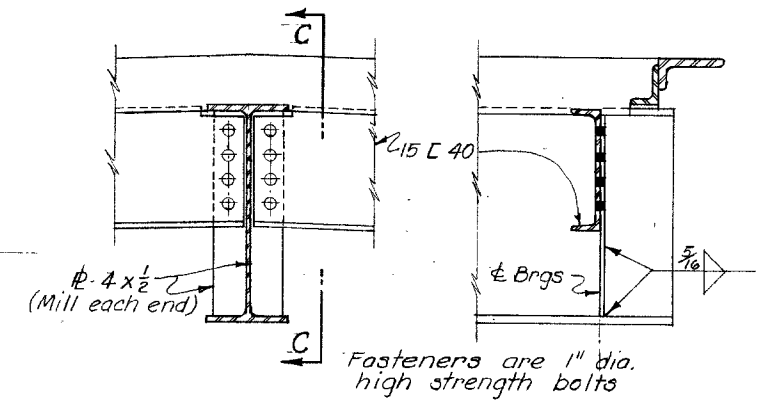


DIAGRAM SHOWING STAGGER OF 5505 BARS OVER PIER



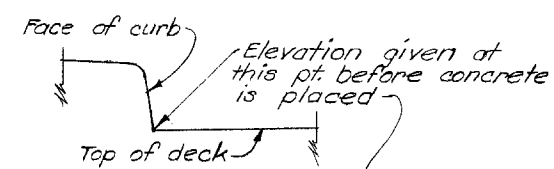
PLAN OF STEEL FRAMING

For SECS. D-D, E-E, & H-H see Sh. No. [ ]



SECTION B-B

SECTION C-C



LOCATION	WEST GUTTER	EAST GUTTER
± Brgs. Pier #3	770.00	769.98
± 44'-6" Span	769.86	769.83
± Brgs. Pier #4	769.63	769.60
± 36" Span	769.41	769.37
± Brgs. N. Abut.	769.15	769.10

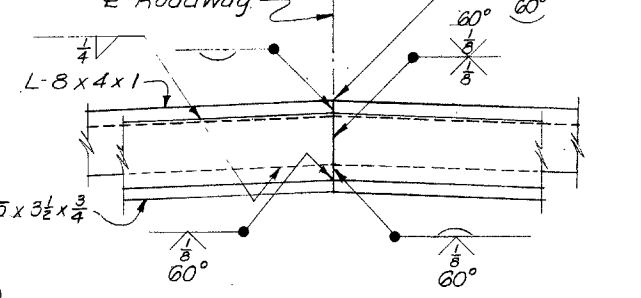
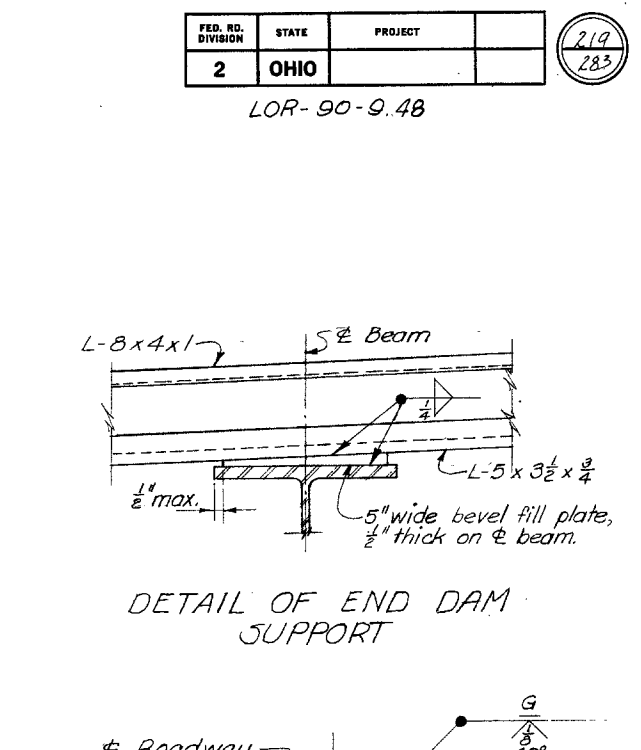
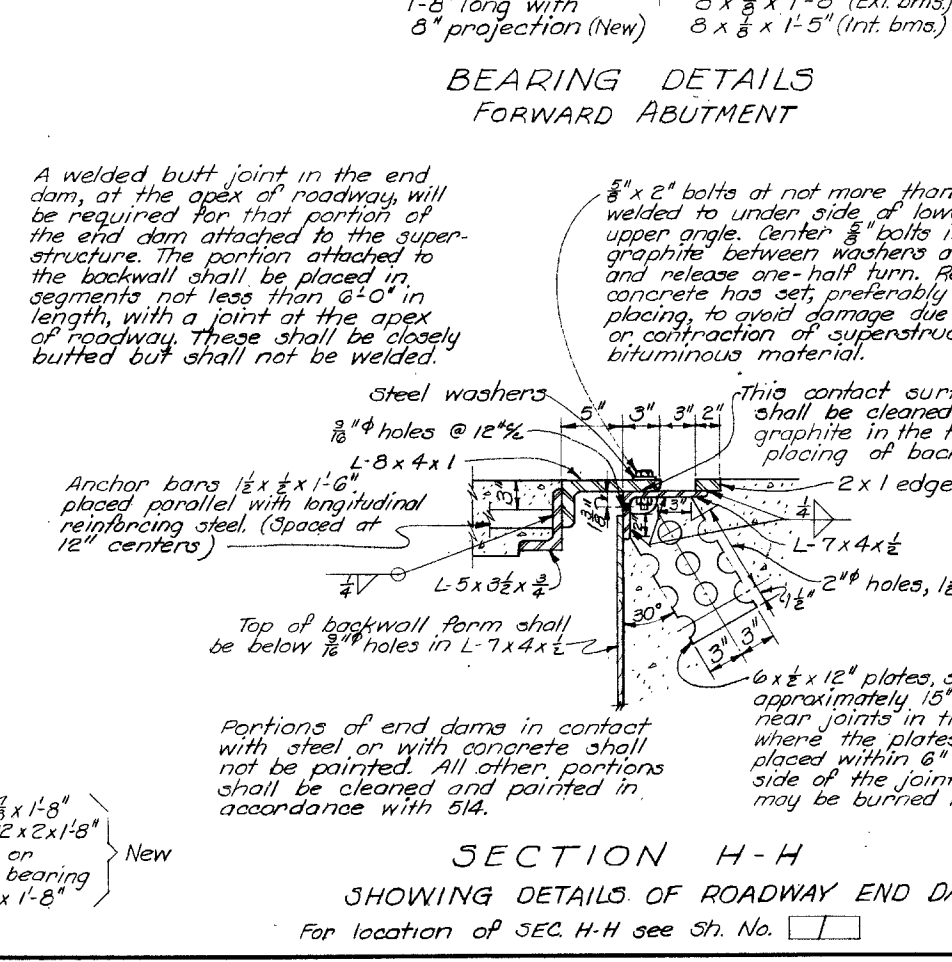
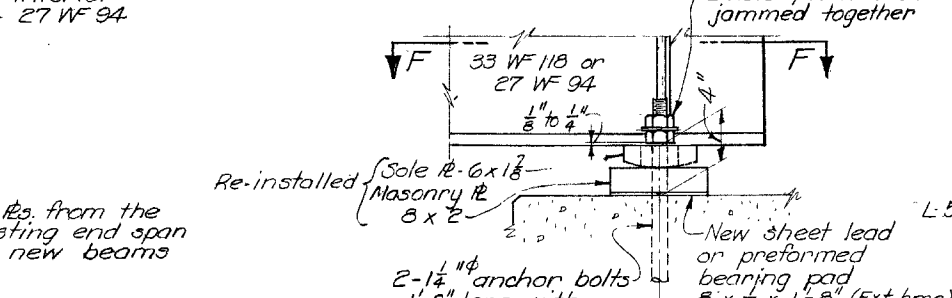
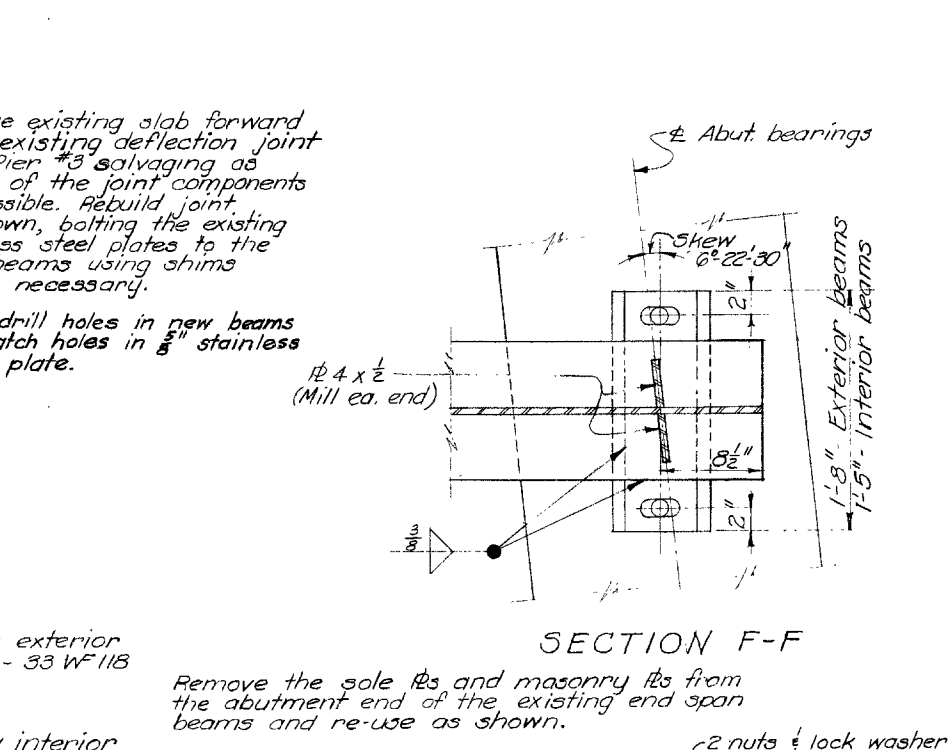
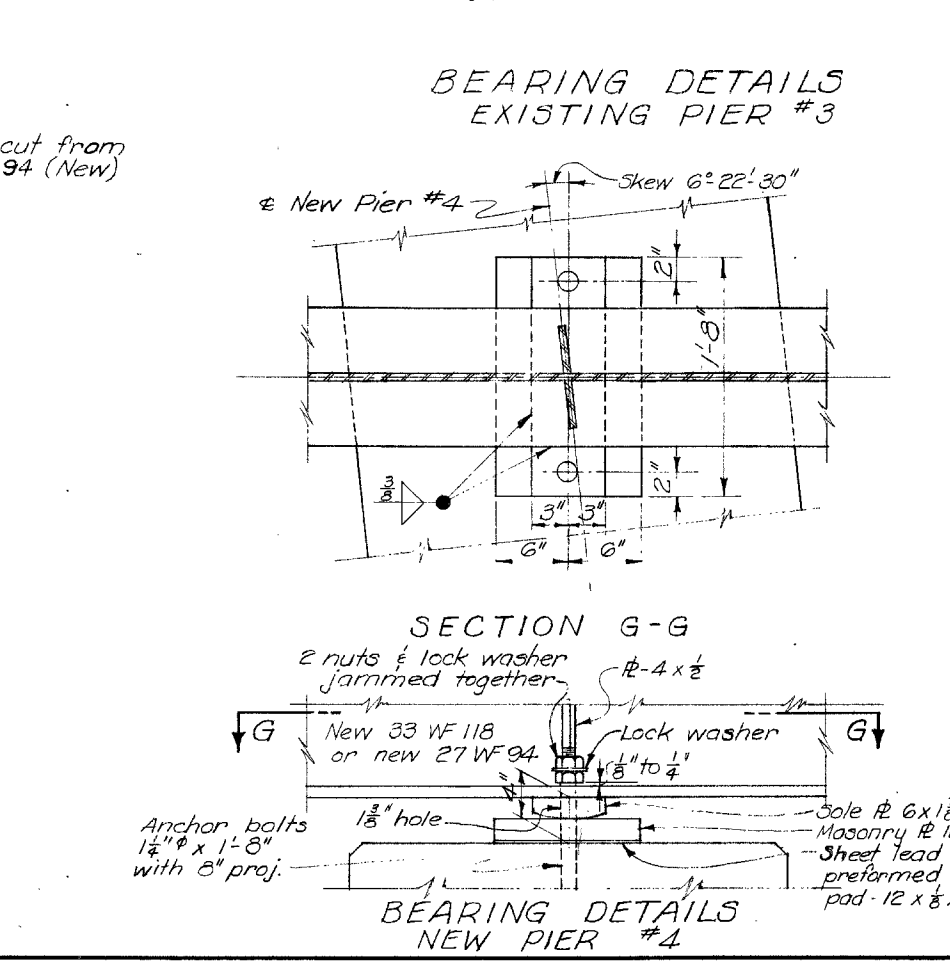
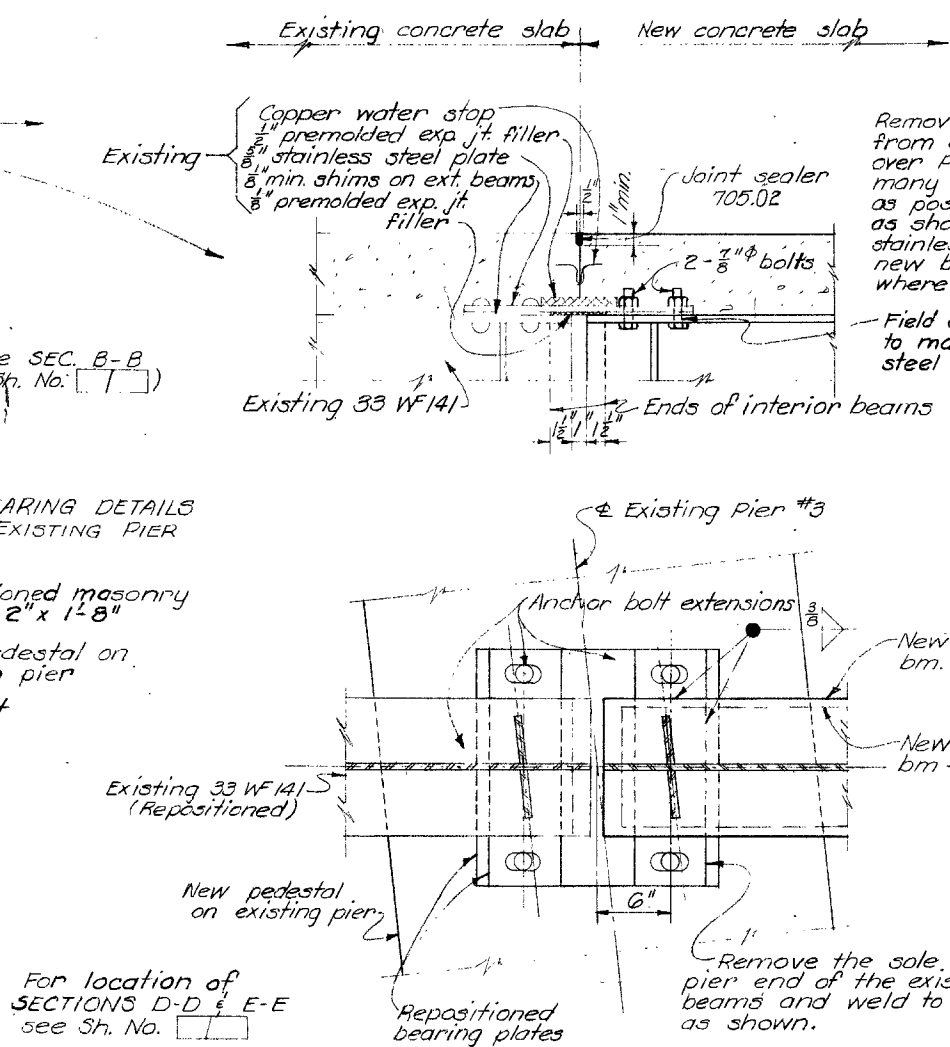
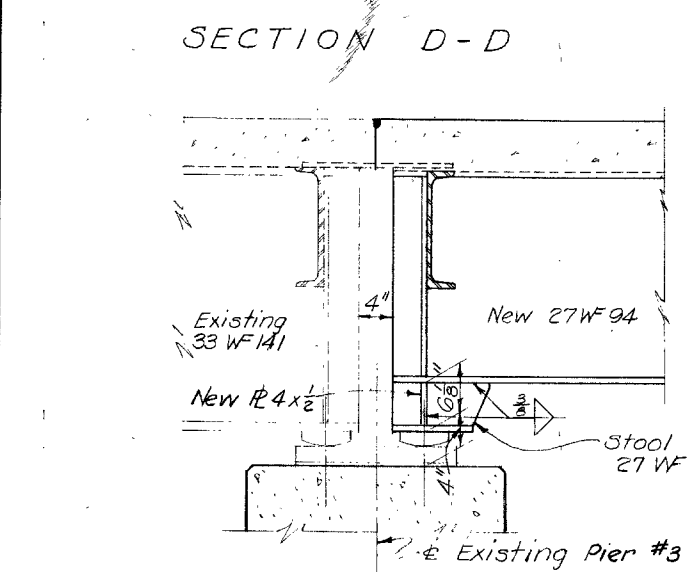
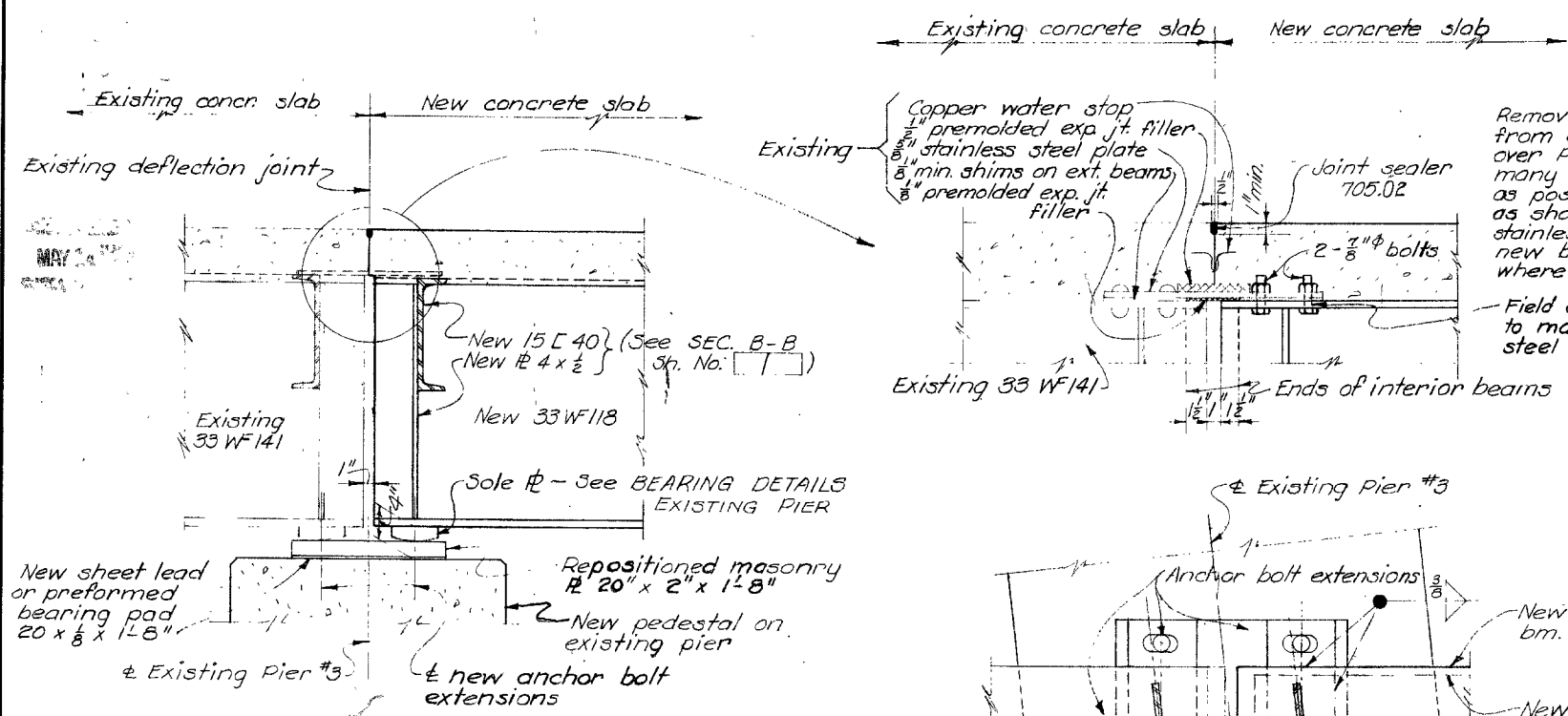
GUTTER ELEVATIONS

STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
DIVISION OF DESIGN AND CONSTRUCTION  
BUREAU OF BRIDGES

8/10

**SUPERSTRUCTURE DETAILS**  
BRIDGE NO. LOR-90WB-1014  
UNDER WEST RIDGE ROAD

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
NAA	NAA		Innes	BFG	3-24-70	8/10

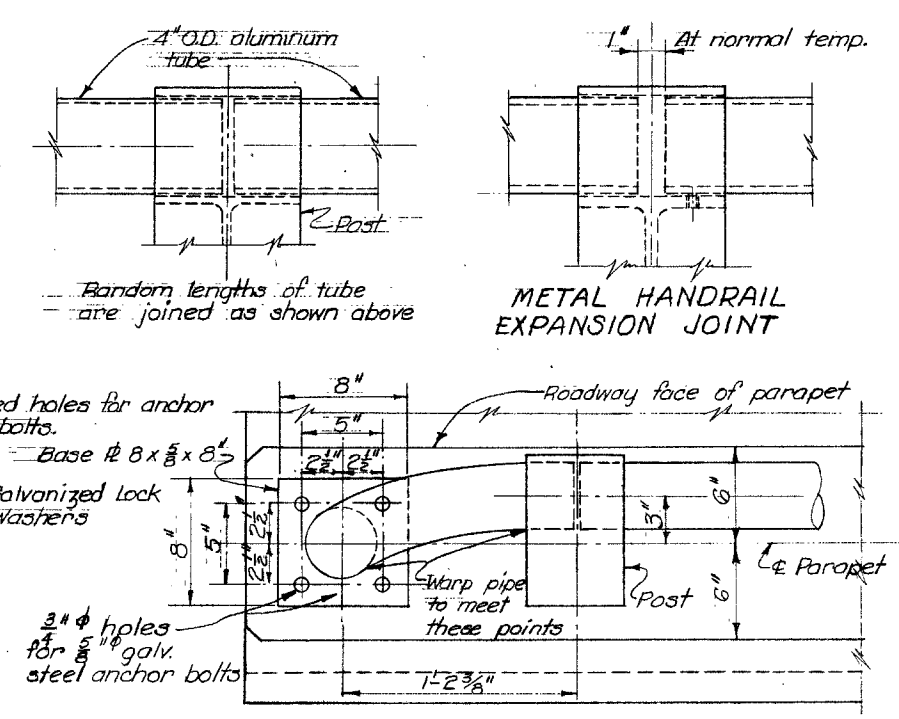
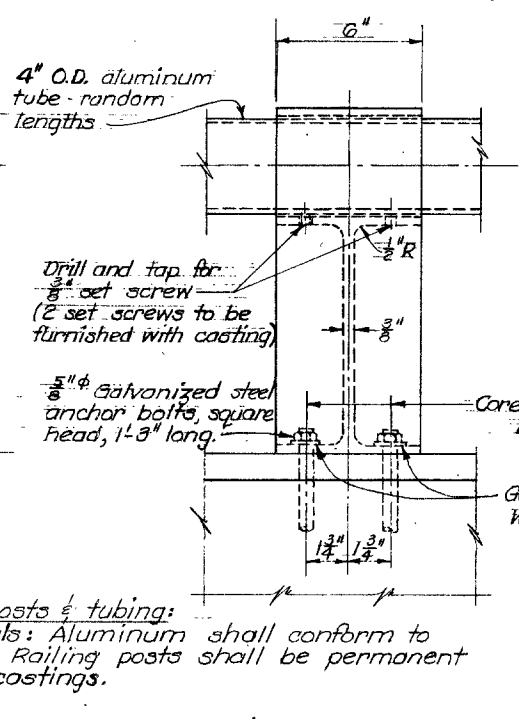
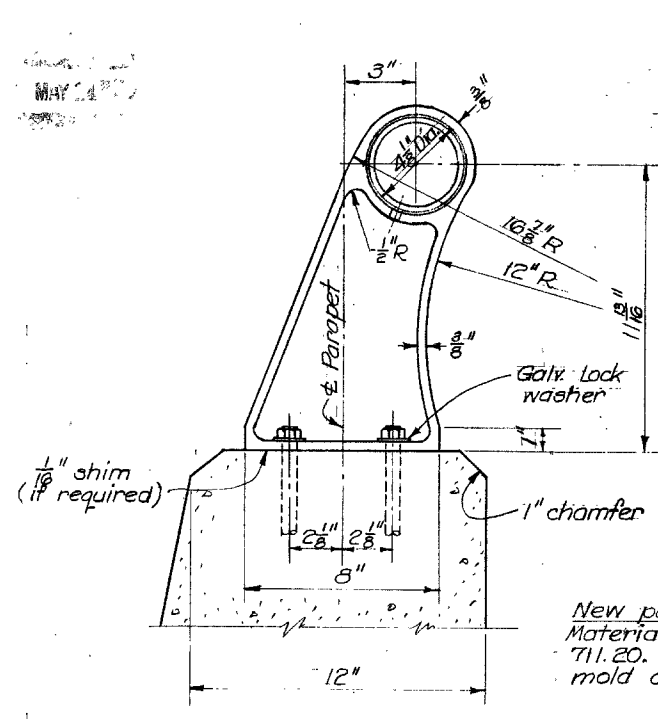


STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
DIVISION OF DESIGN AND CONSTRUCTION  
BUREAU OF BRIDGES

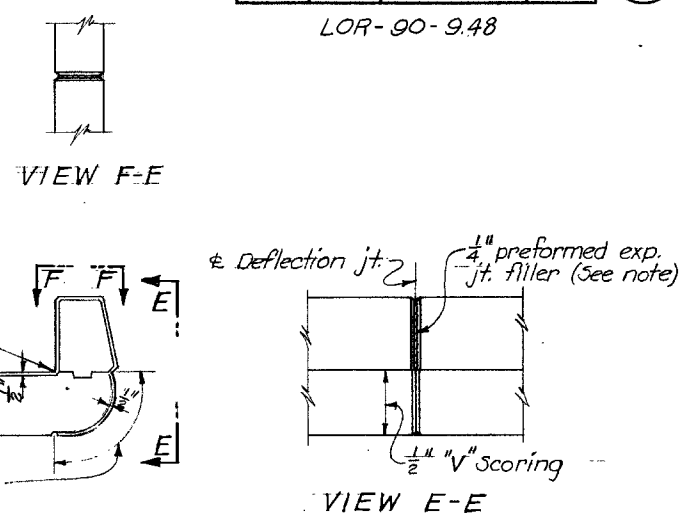
9/10

**SUPERSTRUCTURE DETAILS**  
BRIDGE NO. LOR-90WB-104  
UNDER WEST RIDGE ROAD

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
NAA	NAA		Innes	BFG	3-24-70	



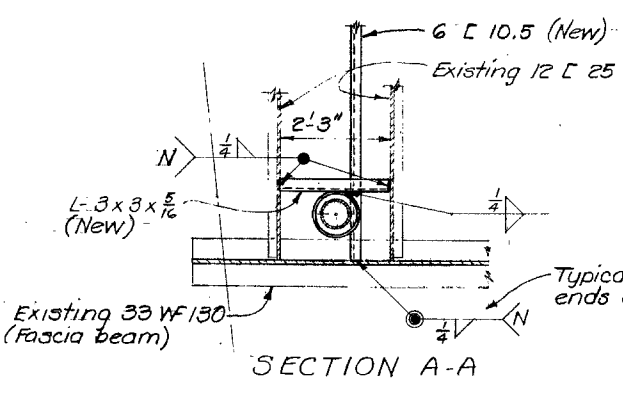
PREFORMED EXPANSION JOINT FILLER in the railing parapet deflection joints may be either 1/4" gray sponge rubber or 1/4" gray cellular polyvinyl chloride (PVC) sponge. Either material shall meet the requirements of AASHTO M-153, Type I, except the density of the PVC sponge shall be not less than 20 lb. per cu. ft.



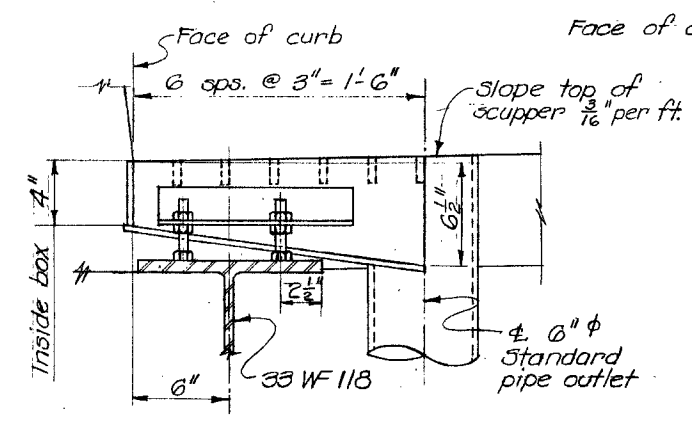
**DETAILS OF ALUMINUM RAILING**  
The posts, tubes, warped end tubes, end base plates & anchor bolts may be salvaged from the end parapets and the removed bridge span, cleaned and re-used where possible.

New posts & tubing:  
Materials: Aluminum shall conform to T11.20. Railing posts shall be permanent mold castings.

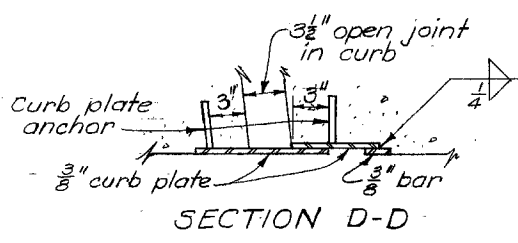
PLAN OF END DETAIL



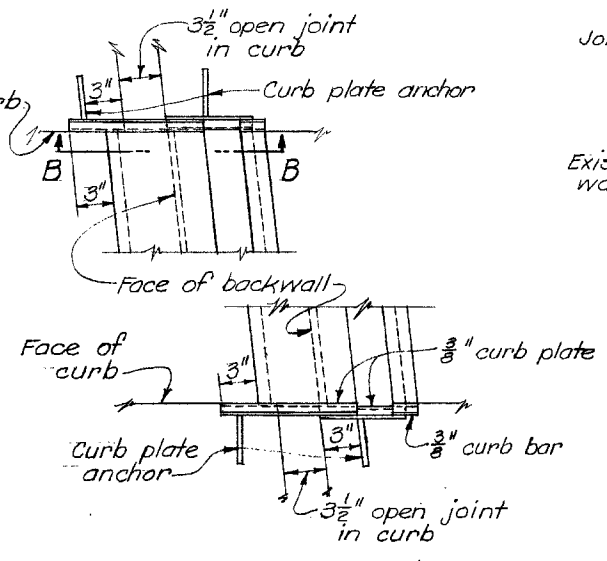
SECTION A-A



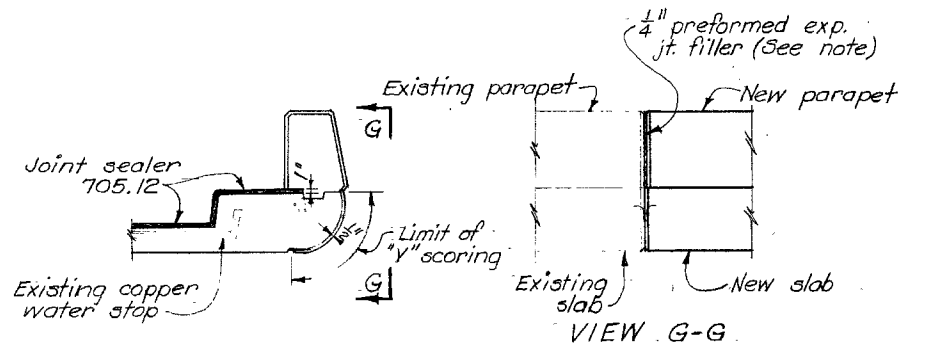
For details not shown see Std. Drwg. SD-1-69, Sh. No. 3.  
For scupper spacing see Sh. No. [ ]  
**SCUPPER DETAIL**  
(Scuppers in forward end span)



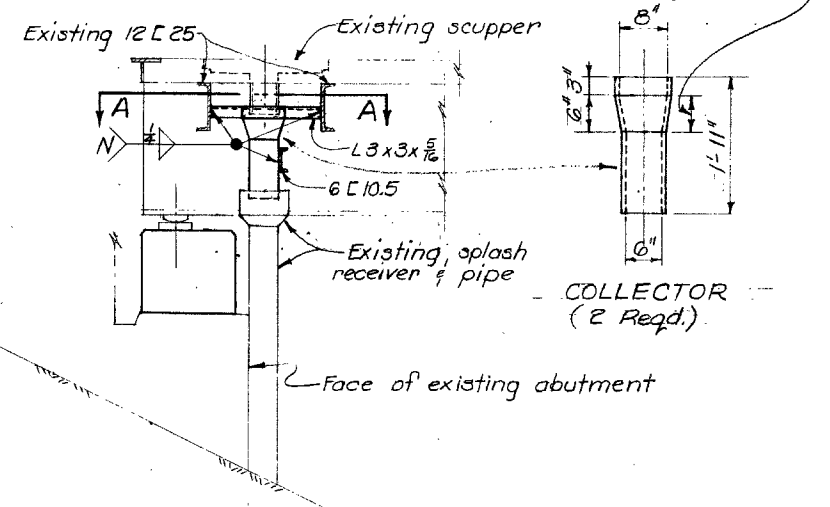
SECTION D-D



PART DECK PLAN  
(At Forward Abutment)

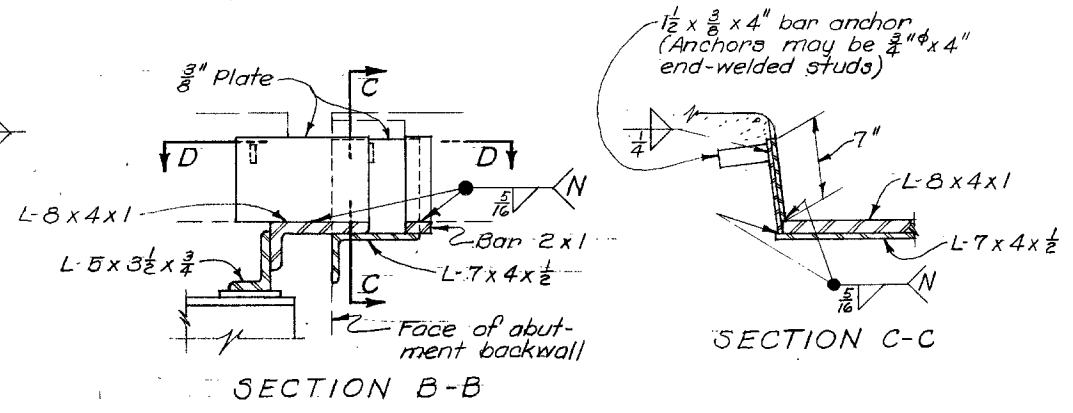


VIEW G-G  
PARAPET DEFLECTION JOINT  
(OVER PIER #3)



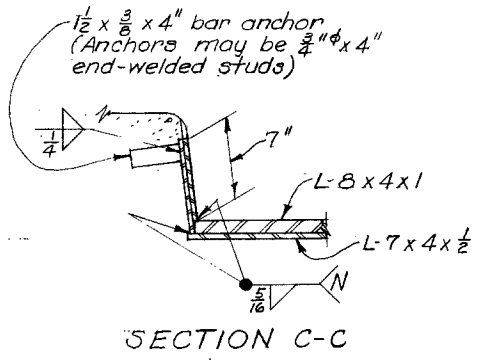
ELEVATION

DRAINAGE MODIFICATION  
SOUTH ABUTMENT  
(East side shown - West side similar)



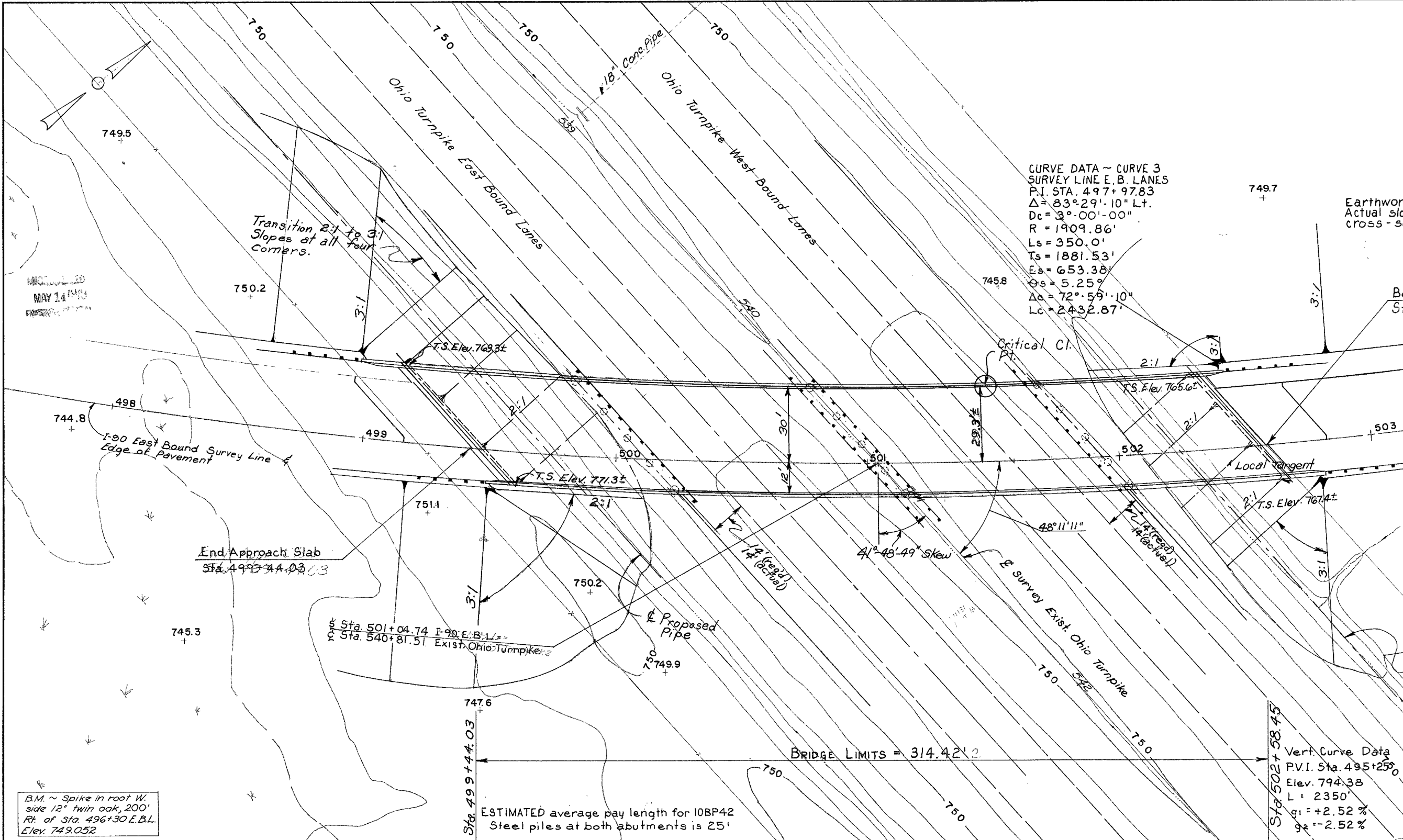
SECTION B-B

CURB PLATE DETAILS  
(Forward End of Bridge)



SECTION C-C

1.6 ± Mi. W. of Elyria  
LOR-90-9.48



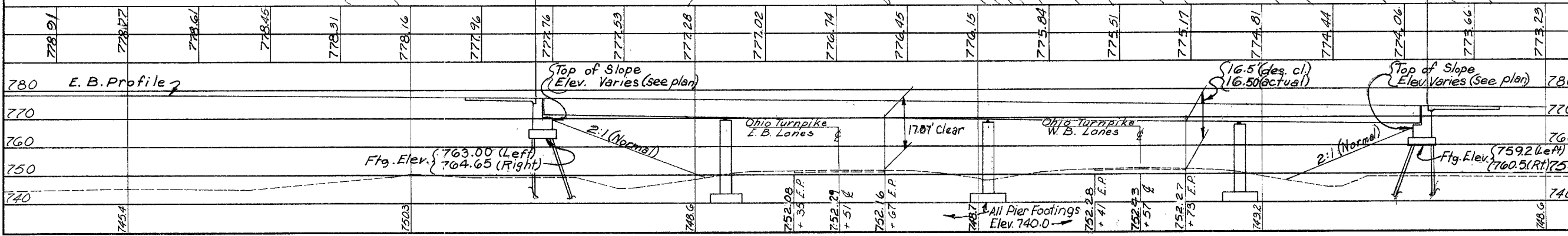
CURVE DATA - CURVE 3  
SURVEY LINE E.B. LANES  
P.I. STA. 497+97.83  
 $\Delta = 83^{\circ}29'10''$  Lt.  
 $D_c = 3^{\circ}00'00''$   
 $R = 1909.86'$   
 $L_s = 350.0'$   
 $T_s = 1881.53'$   
 $E_s = 653.38'$   
 $G_s = 5.25\%$   
 $\Delta_c = 72^{\circ}59'10''$   
 $L_c = 2432.87'$

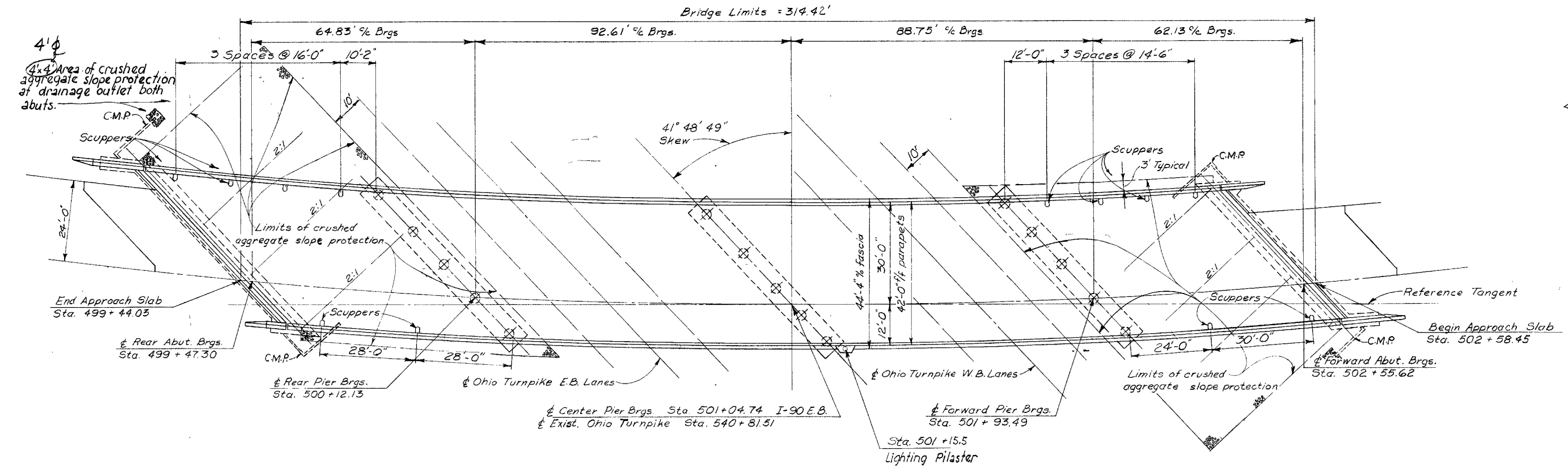
Earthwork limits shown are schematic. Actual slopes shall conform to plan cross-sections.

NOTE: The vertical curve data does not apply to bridge or graphic curve elevations. The bridge elevations were obtained by adding 12" to the elevations obtained from vertical curve data.

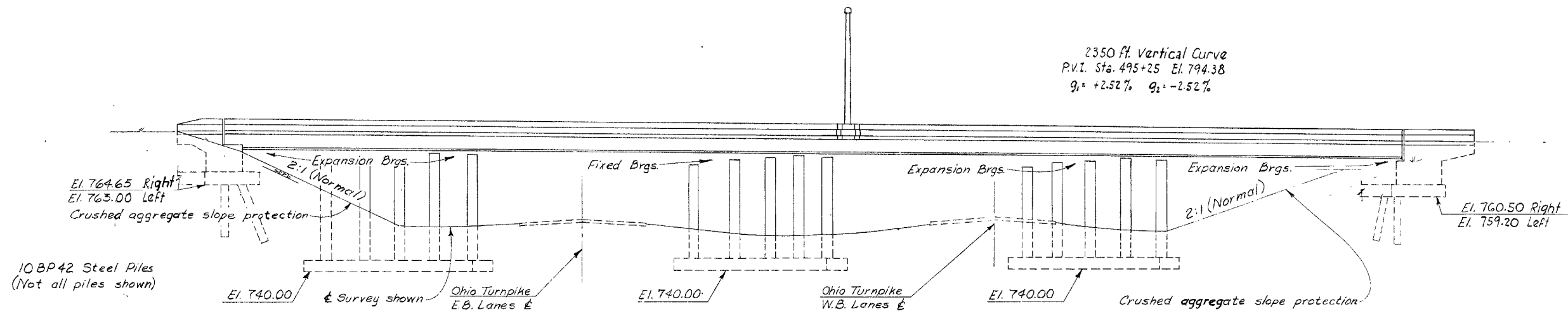
**PROPOSED STRUCTURE**  
Type: Continuous steel girders with reinforced concrete deck and substructure  
Spans: 64.83' - 92.61' - 88.75' - 62.13' % brgs.  
Roadway: 42' concrete parapets.  
Loading: HS-20-44  
Skew: 41°-48'-49" RF (To Tan. @ Sta. 501+04.74)  
Surface Course: 1/2" Asphalt Concrete  
Approach Slabs: AS-1.67 (25' long)  
Alignment: 3° Curve left  
Superelevation 0.083%

STATE OF OHIO DEPARTMENT OF HIGHWAYS BUREAU OF BRIDGES				
<b>SITE PLAN</b>				
BRIDGE NO.	LOR - 90 EB-1033			
I.R.	I.R. - 90 East Bound over Ohio Turnpike			
LORAIN CO	IR - 90			
SEC.	STA. 499+44.03 502+58.45			
SCALE	1" = 20'			
PRESENT TOPOGRAPHY		PROPOSED WORK		
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED
AERIAL SURVEY	AERIAL SURVEY	B.D.H.	B.D.H.	D.H.S.
				P. E. S.





GENERAL PLAN



ELEVATION

GENERAL PLAN & ELEVATION

BRIDGE NO. LOR-90EB-1033  
OVER OHIO TURNPIKE

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.D.R.	B.E.B.		W.C.K.	BFG	4-10-70	2/16

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

223  
283

LOR-90-9.48

**GENERAL NOTES**

REFERENCE shall be made to Standard Drawing SD-1-69 Sheets 1, 2 and 3 dated 6-12-69, RB-1-55 revised 2-2-59 and to Supplemental Specifications 808 dated 1-1-71, and 836 dated 1-1-71.

EMBANKMENT CONSTRUCTION: Prior to beginning construction for either Abutment or the Rear or Forward Pier the embankment shall be placed and compacted for a distance of 200 ft. beyond the Abutments to the elevation of the Subgrade.

DESIGN SPECIFICATIONS: This structure conforms to "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway Officials, 1969 including the Ohio "Supplement" to these specifications.

PILES for the abutments shall be driven to a minimum bearing capacity of 35 tons per pile.

**DESIGN DATA:**

Design Loading HS 20-44 (Interstate Alternate Loading)

FOUNDATION BEARING PRESSURE: Pier footings are designed for a maximum bearing pressure of 2 tons per square foot.

Concrete Class C - unit stress 1200 p.s.i. for superstructure  
unit stress 1333 p.s.i. for substructure

MAINTENANCE OF TRAFFIC: See Roadway Plans Sheet \_\_\_\_\_ for details of maintaining traffic on the Ohio Turnpike.

Structural Steel - ASTM A36-unit stress 20,000 psi

THE FINISH COAT OF FIELD PAINT shall be Gray-Green Structural Green Finish as described in the proposal.

Reinforcing Steel - ASTM A615, A616 or A617-unit stress 20,000 p.s.i. Spiral reinforcement may be plain bars ASTM A82, A306, A499 or A615

For Lighting Details, see sheets 174D and 174E

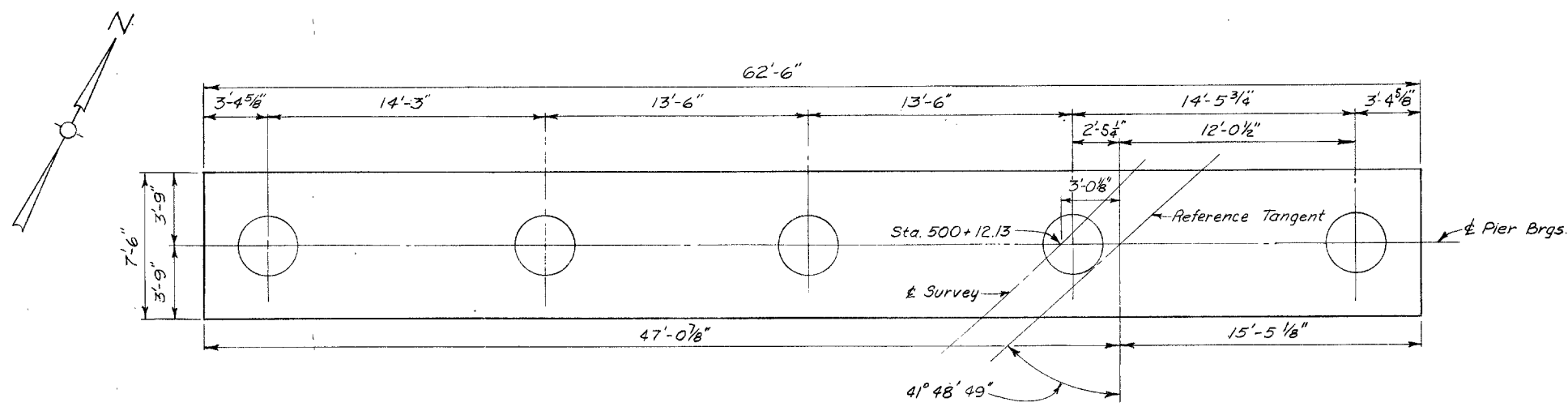
RECEIVED  
MAY 14 1970

100% State			ESTIMATED QUANTITIES				
Item	Total	Unit	Description	Super	Piers	Abuts	Gen'l.
503	Lump	Sum	Cofferdams, cribs, and sheeting				Lump
503	970	Cu.Yd.	Unclassified excavation		640	330	
505	Lump	Sum	Test pile				Lump
507	750	Lin.Ft.	HP10x42 Steel piles *			750	
509	186,197	Lb.	Reinforcing steel	136,742	34,856	14,599	
511	469	Cu.Yd.	Class C concrete, superstructure	469			
511	151	Cu.Yd.	Class C concrete, pier footings		151		
511	103	Cu.Yd.	Class C concrete, pier Columns		103		
511	246	Cu.Yd.	Class C concrete, abutments			246	
513	380,000	Lb.	Structural Steel	380,000			
514	380,000	Lb.	Field painting of Structural Steel	380,000			
518	63	Cu.Yd.	Porous backfill			63	
518	108	Lin.ft.	6" Non-perforated helical corrugated metal pipe, 707.01, including specials.			108	
518	106	Lin.ft.	6" Perforated, helical corrugated metal pipe, 707.01			106	
518	12	Each	Scuppers, including supports	12			
601	1121	Sq.Yd.	Crushed aggregate slope protection Maintaining traffic, as per plan (See Rdwy. Summary)				1121
625			See Sheet 175 for lighting summary				
808	469	Units	Chemical admixture for concrete Type A, B or Type D	469			
404	39	Cu.Yd.	Asphalt concrete (70-85 or AC20), as per plan	39			
Special	20	Cu.Yd.	Sand asphalt (see proposal note)	20			
Special	1415	Sq.Yd.	Membrane Waterproofing (see proposal note)	1415			

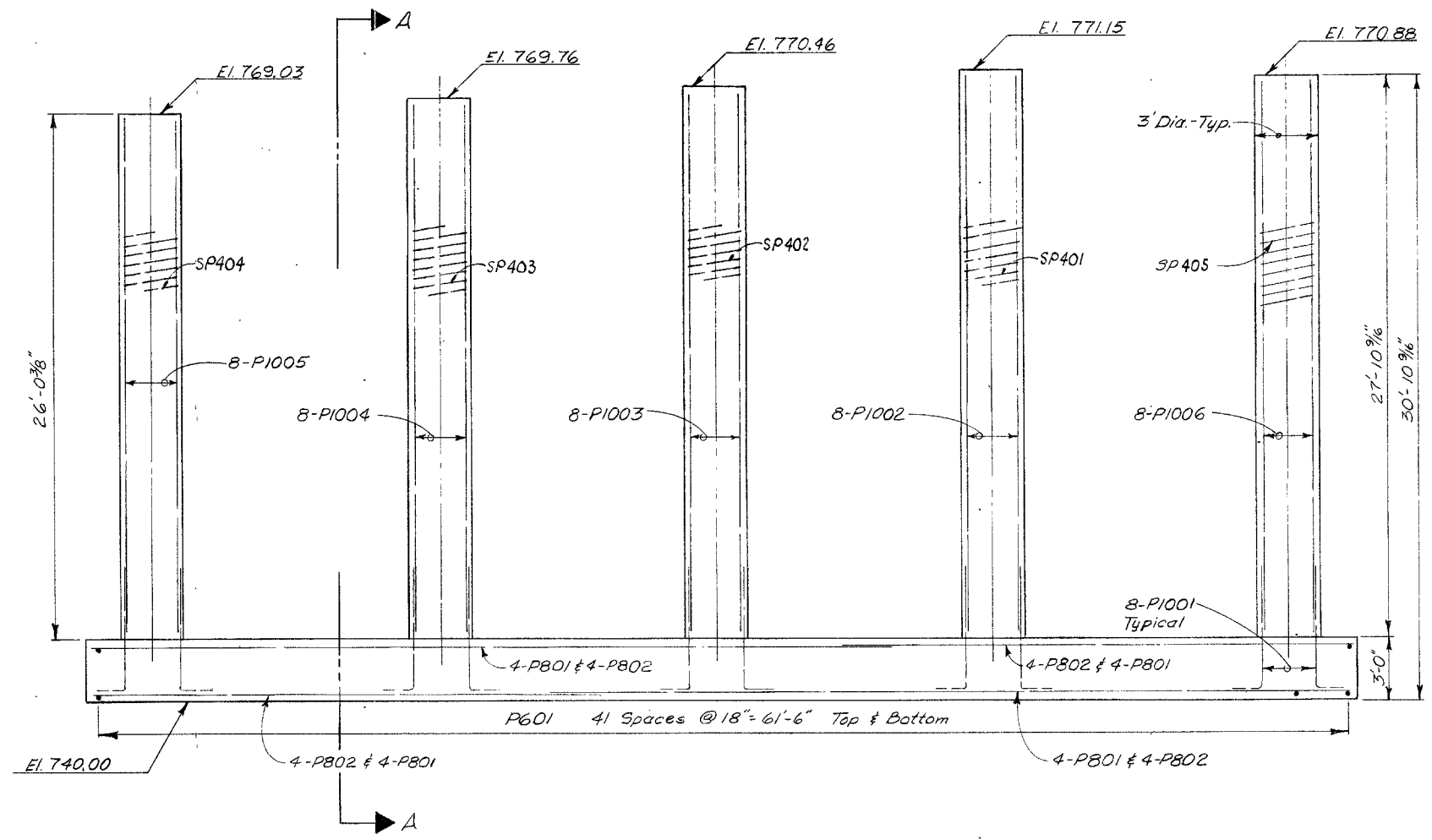
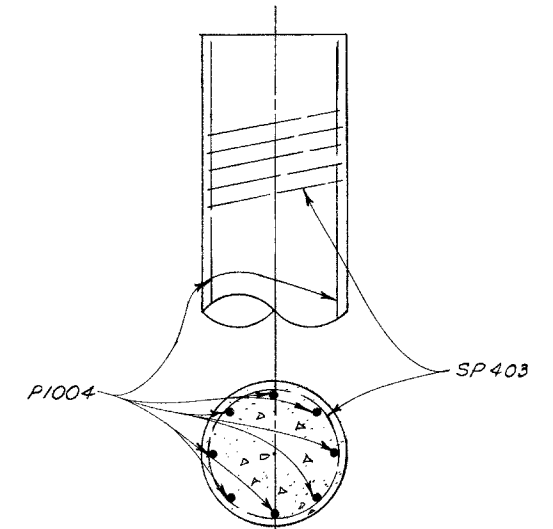
\* HP 10x42 piles formerly designated 10BP42

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						3/16
ESTIMATED QUANTITIES & GENERAL NOTES						
BRIDGE No LOR-90EB-1033 OVER OHIO TURNPIKE						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.D.R.		G.F.J.	W.C.K.	BFG	4-10-70	4-25-70

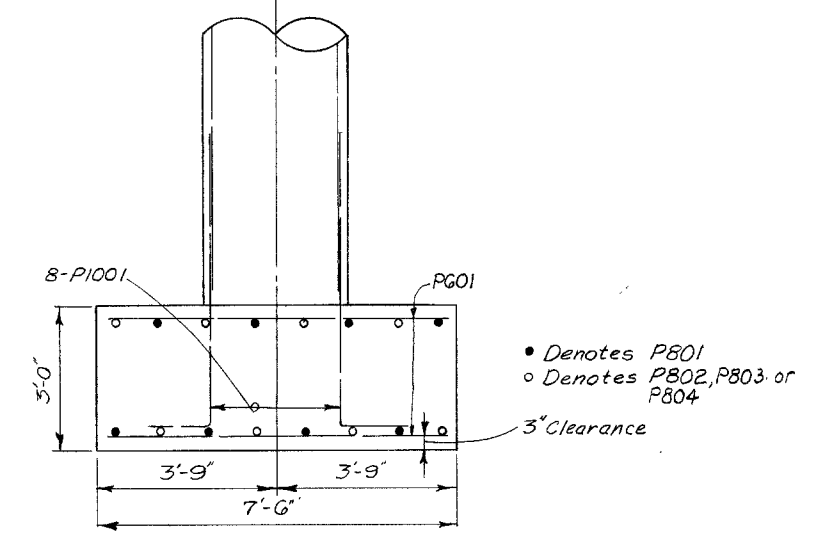
MAY 14 1948



PLAN



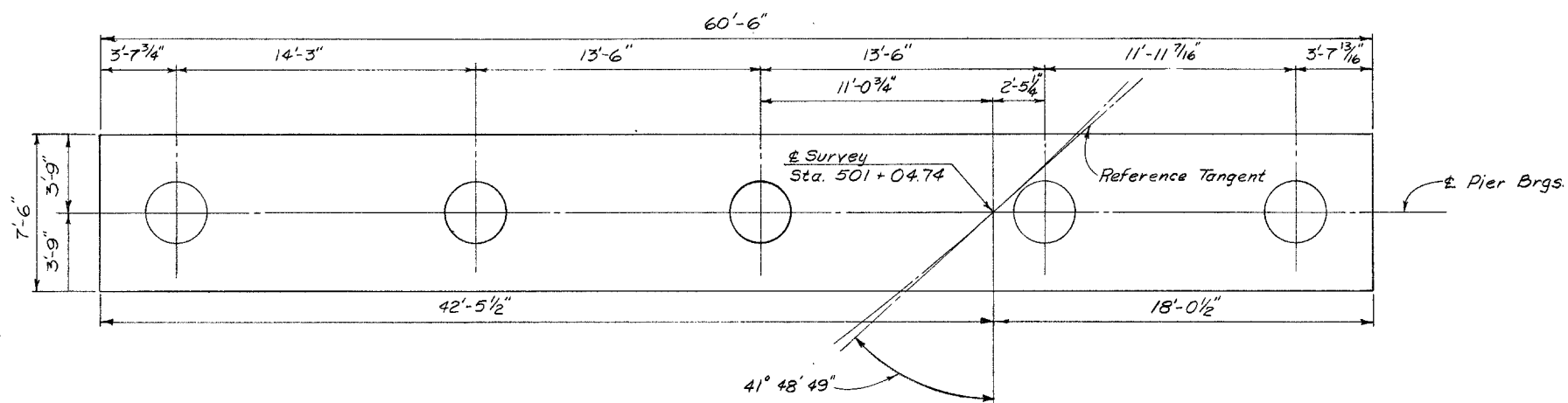
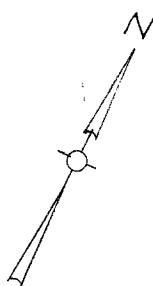
ELEVATION



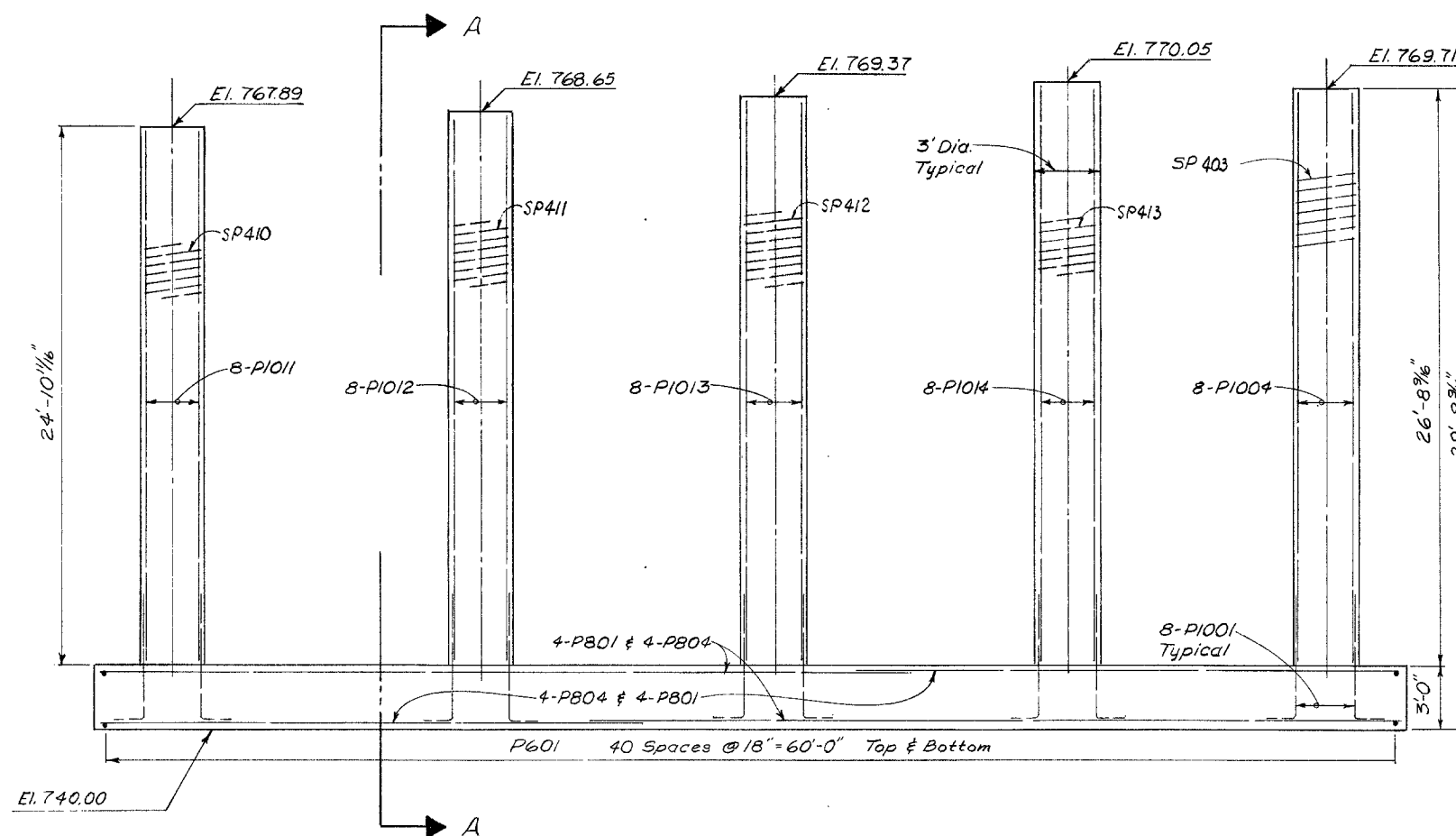
SECTION A-A

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						4 / 16
<b>REAR PIER DETAILS</b>						
BRIDGE NO. LOR-90EB-1033 OVER OHIO TURNPIKE						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.D.R.	B.E.B.		W.C.K.	BFG	4-10-70	4-25-73





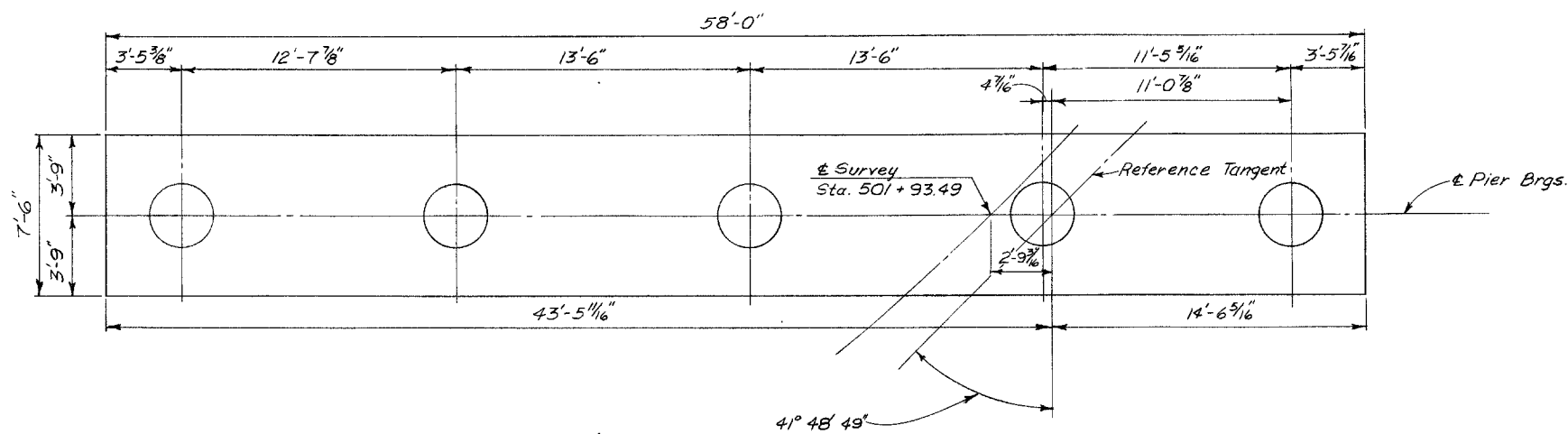
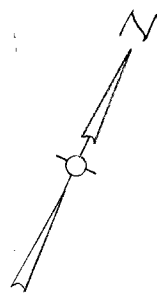
PLAN



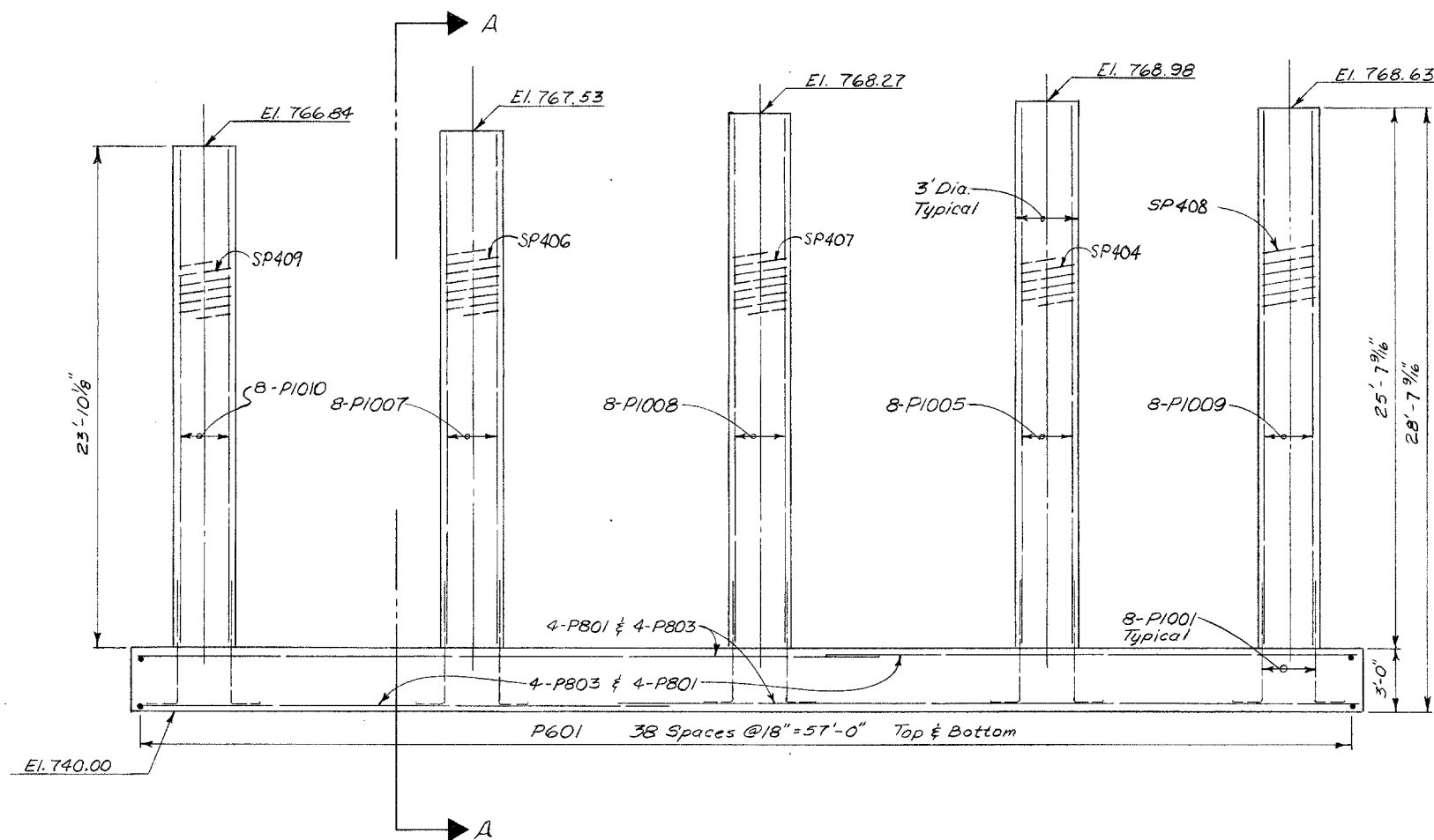
ELEVATION

For Section A-A,  
See Sheet 4/16

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES					5/16
<b>CENTER PIER DETAILS</b>					
BRIDGE NO. LOR-90EB-1033 OVER OHIO TURNPIKE					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
J.D.R.	B.E.B.		W.C.K.	BFG	4-10-70
					REVISED
					5-25-70



PLAN

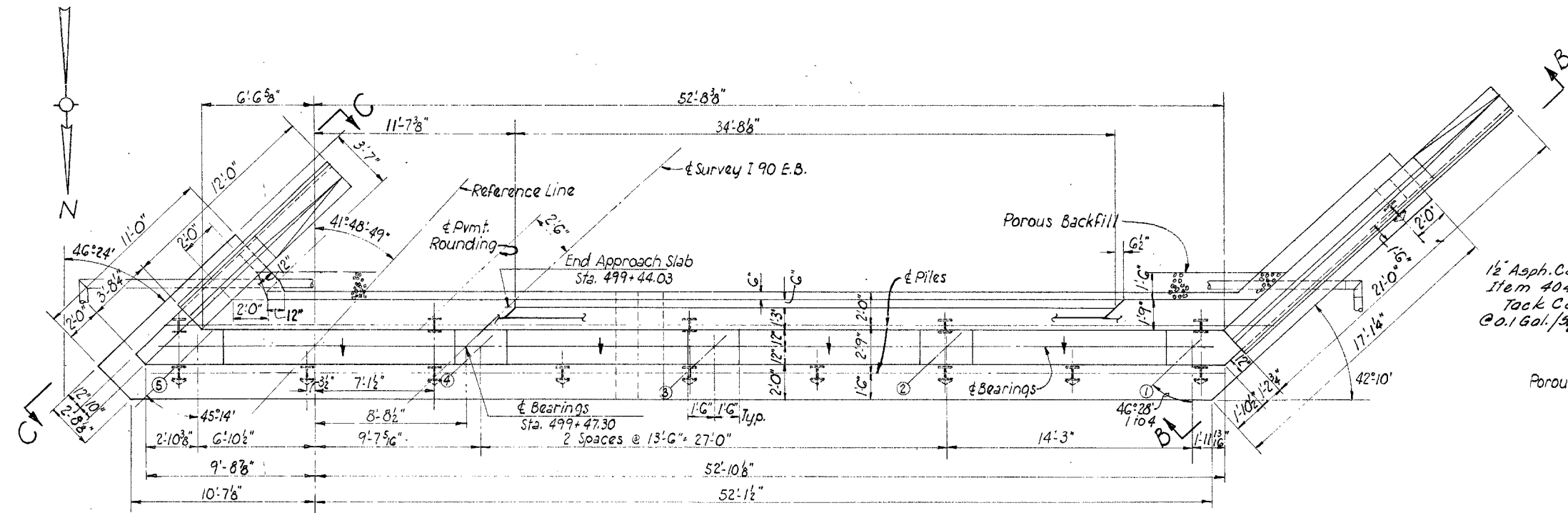


ELEVATION

For SECTION A-A,  
see Sheet 4/16

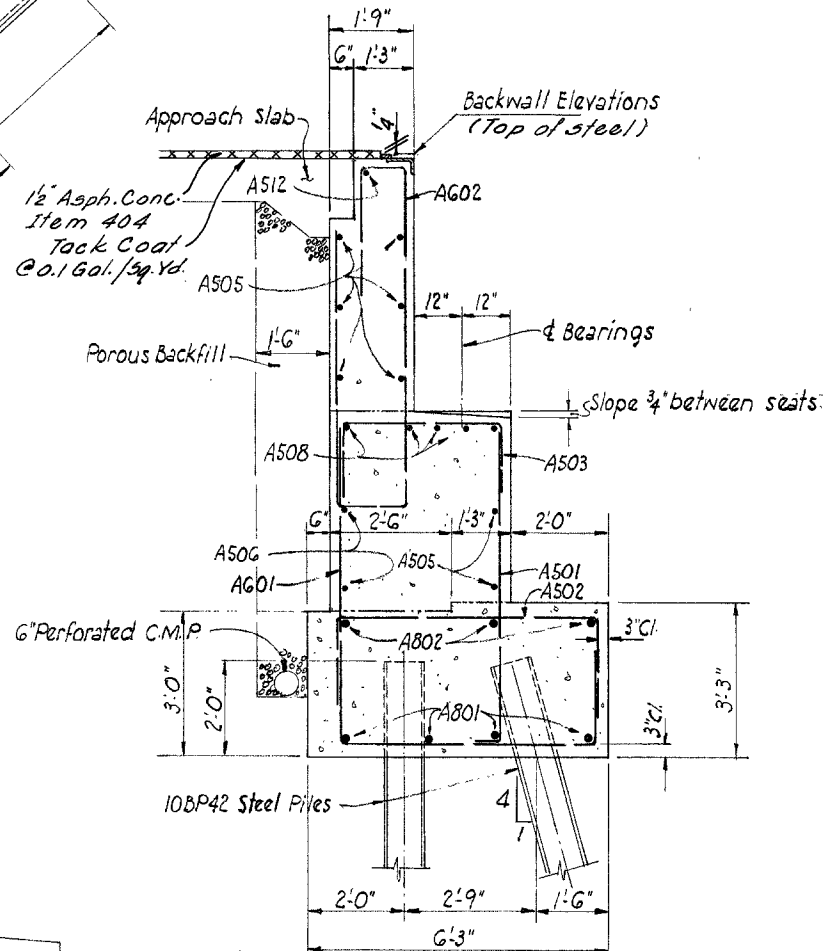
STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						6/16
FORWARD PIER DETAILS						
BRIDGE NO. LOR-90E B-1033 OVER OHIO TURNPIKE						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.D.R.	B.E.B.		W.C.K.	BFG	4-10-70	7-28-70

Adjustable type elbows meeting the requirements for gage and coating are acceptable for making bands in the corrugated metal pipe. Elbows shall not be perforated.



PLAN

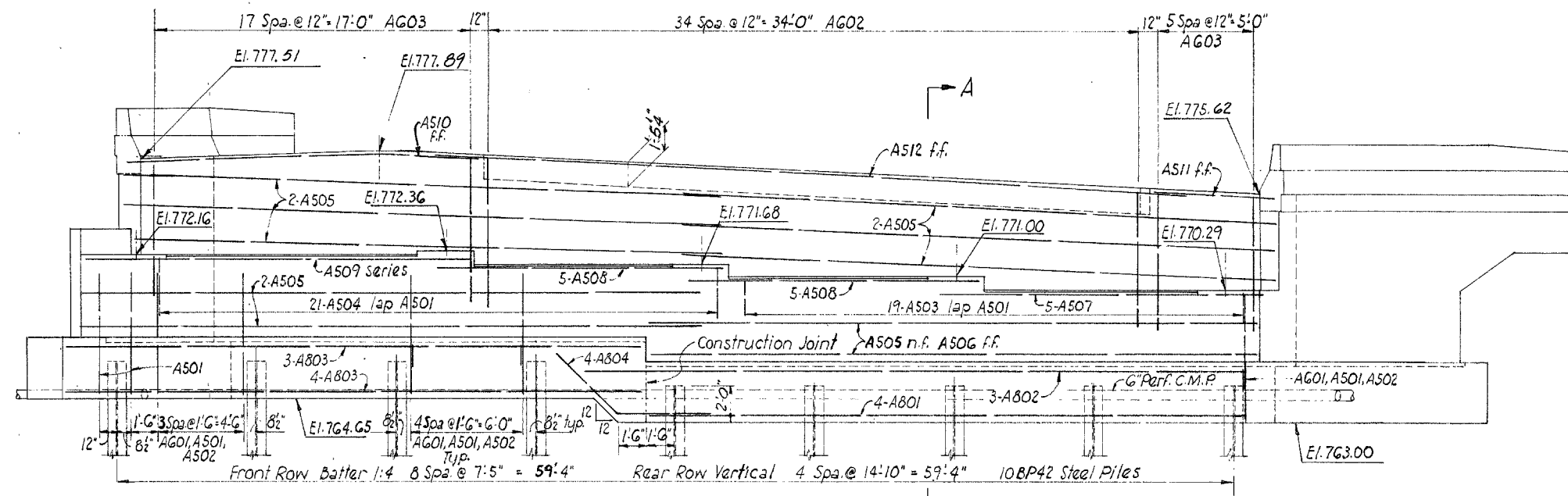
NOTE: Abutment footings and walls are to be straight, the curb and parapet curved parallel to the survey.



SECTION A-A

n.f. Denotes near face, f.f. Denotes far face

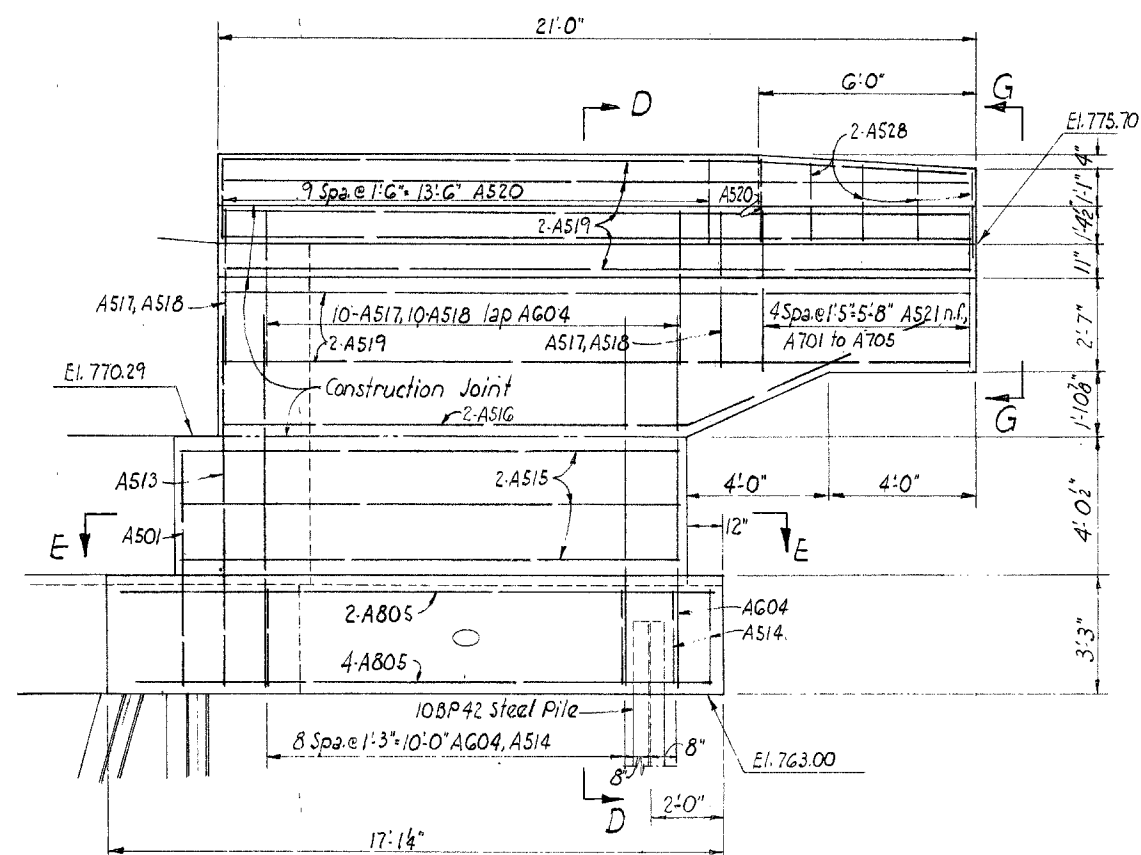
POROUS BACKFILL shall extend from wing to wing, from the bottom of the 6" Perforated pipe up to the subgrade.



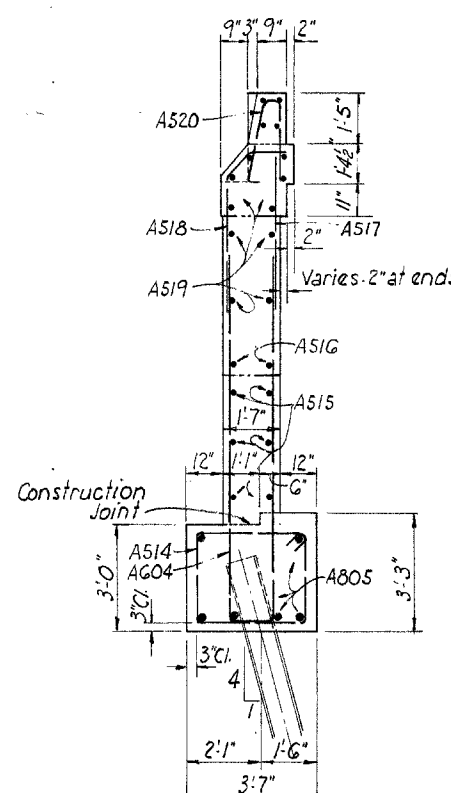
ELEVATION

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						7 / 16
<p>REAR ABUTMENT BRIDGE NO. LOR-90 EB-1033 I-90 Over OHIO TURNPIKE</p>						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.D.R.	J.D.R.		W.C.K.	BFG	4-10-70	4-25-79

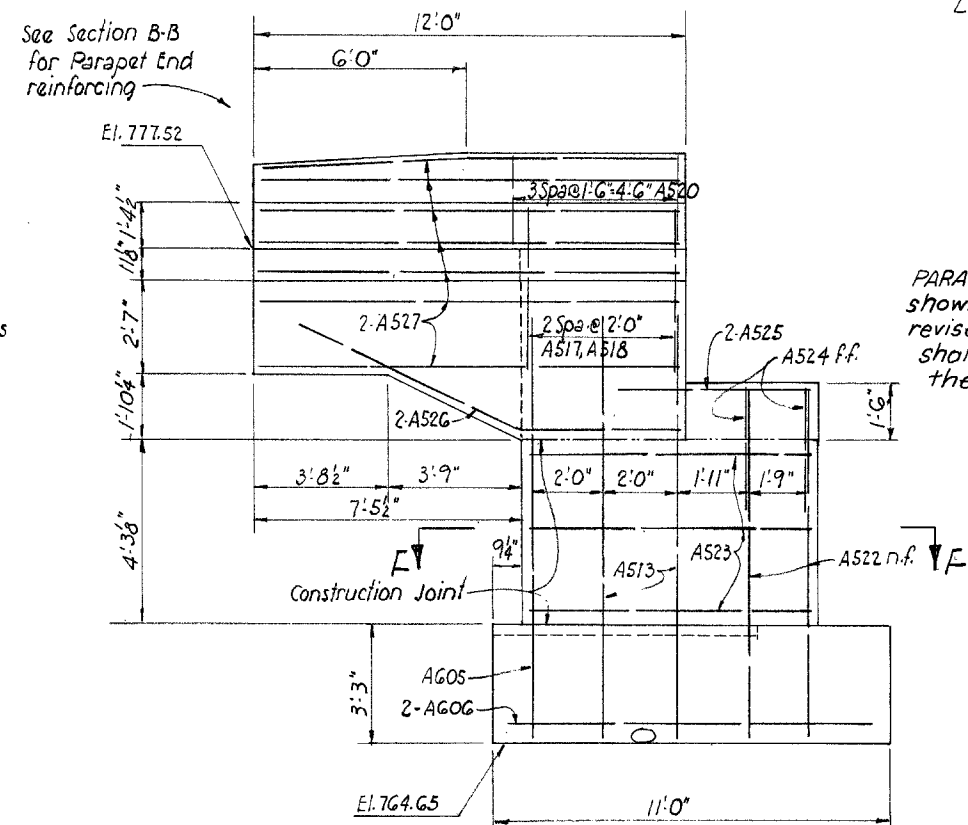
LOR-90-9.48



VIEW B-B

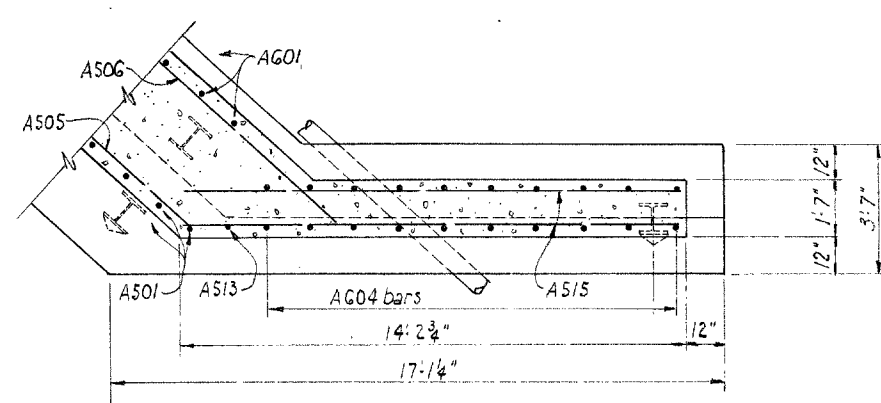


SECTION D-D

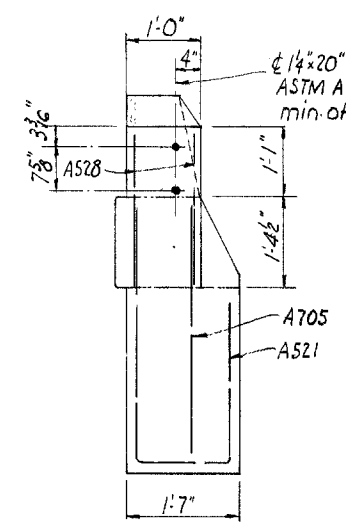


VIEW C-C

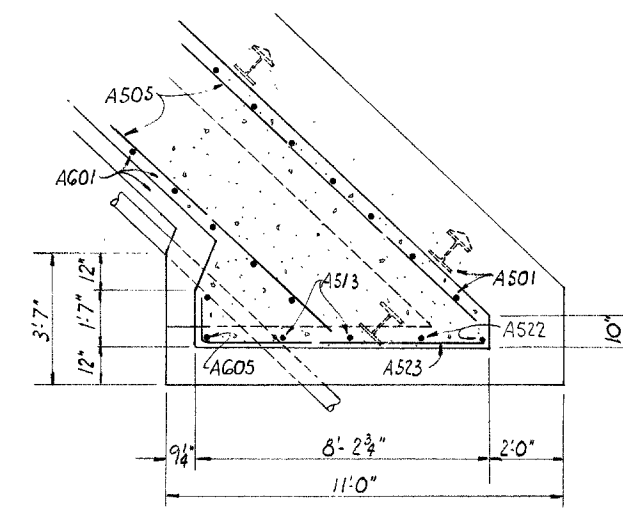
PARAPET TRANSITIONS shall be as shown on Std. Drwg. BR-1-67 revised 1-1-71. Reinforcing steel shall be field bent or cut to fit the revised shape.



SECTION E-E

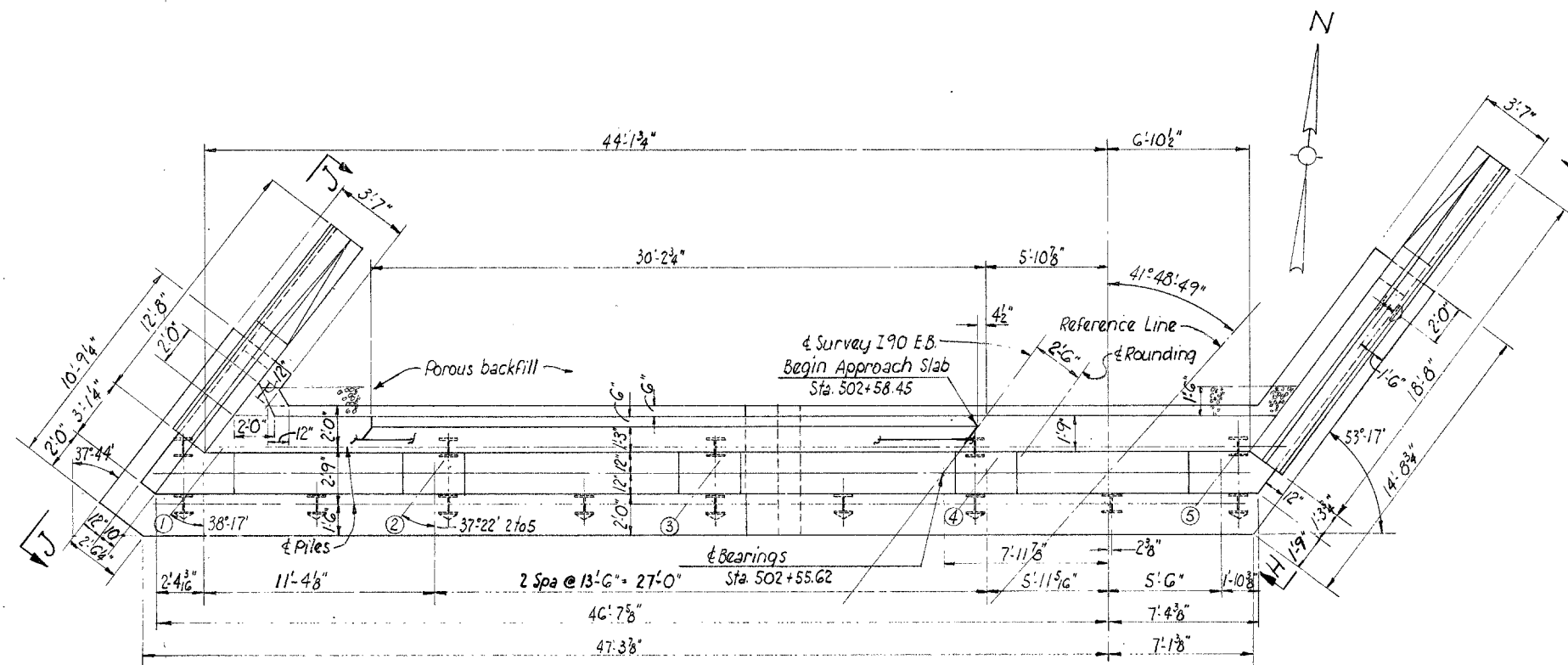


VIEW G-G



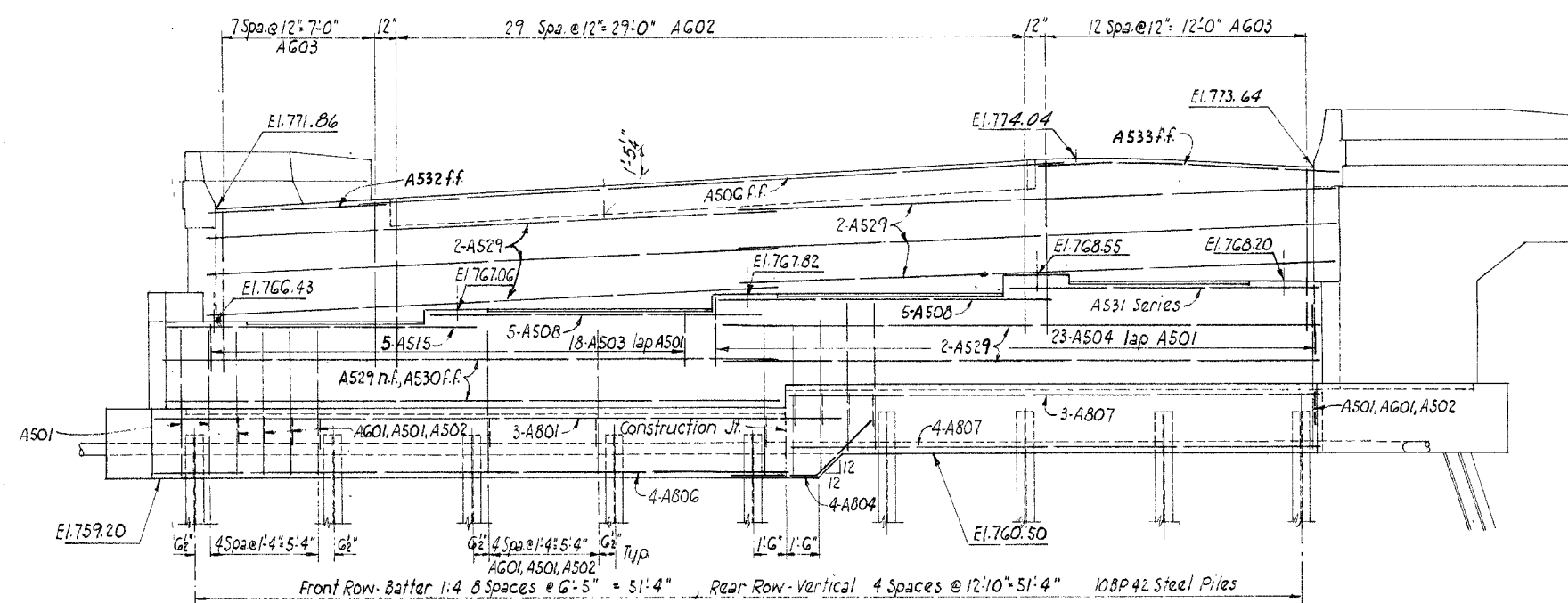
SECTION F-F

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						8 / 16
REAR ABUTMENT DETAILS						
BRIDGE NO. LOR-90EB-1033						
I 90 Over OHIO TURNPIKE						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.D.R.	J.D.R.		W.C.K.	BFG	4-10-70	4-25-78



NOTE: Abutment footings and walls are to be straight, the curb and parapet curved parallel to the  $\Delta$  Survey.

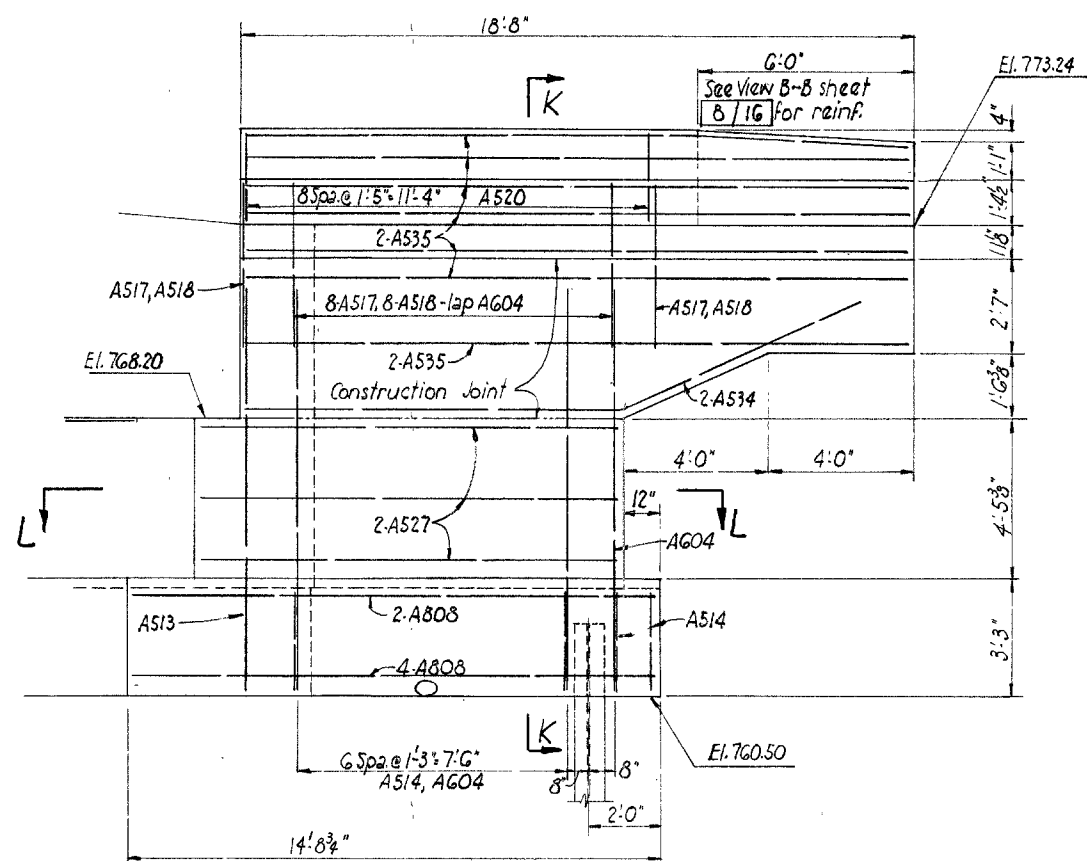
PLAN



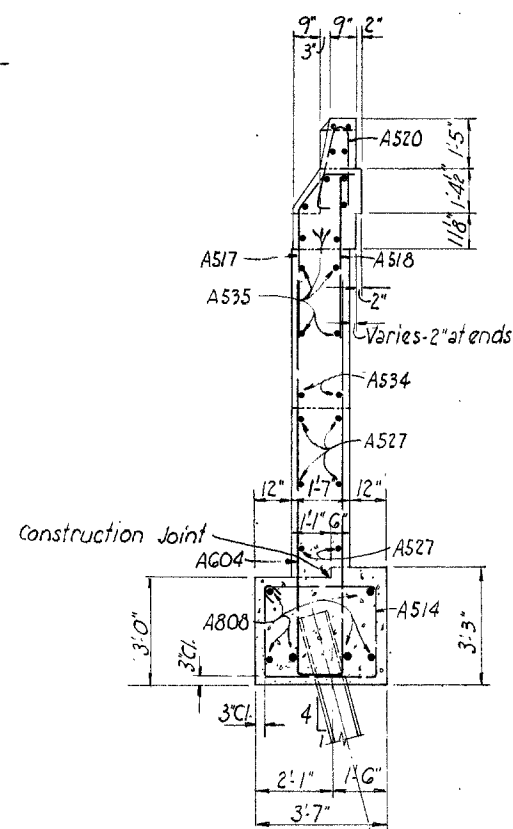
FOR GENERAL DETAILS of abutment crosssection see SECTION A-A sheet 7/16

ELEVATION

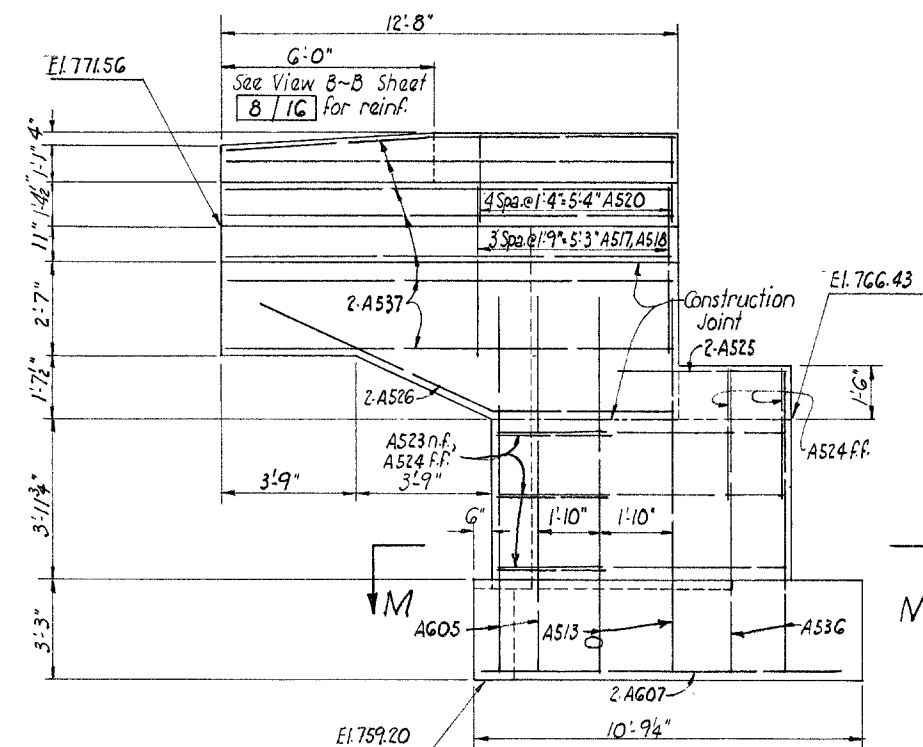
STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						9/16
FORWARD ABUTMENT BRIDGE NO. LOR-90EB-1033 I-90 Over OHIO TURNPIKE						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.D.R.	J.D.R.		W.C.K.	BFG	4-10-70	4-25-75



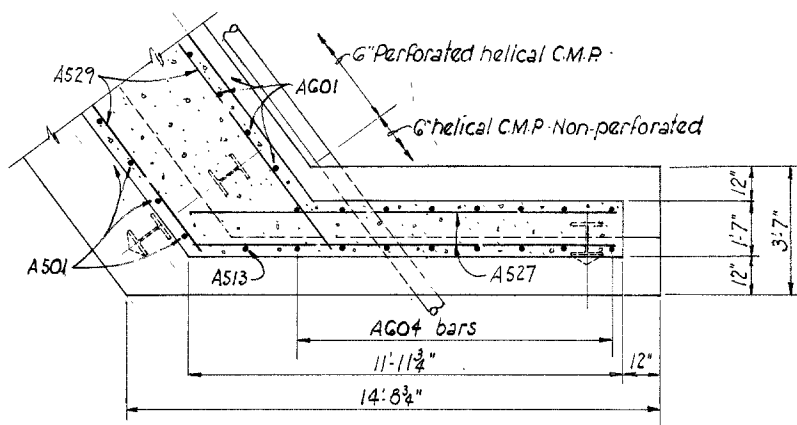
VIEW H~H



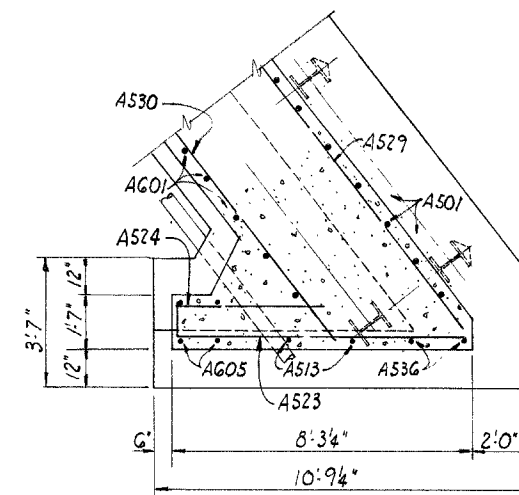
SECTION K~K



VIEW J~J



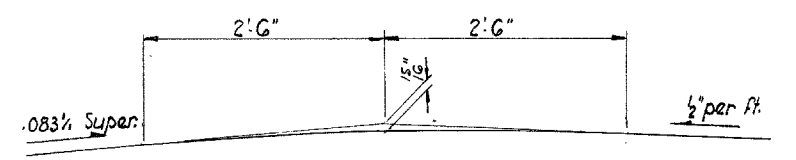
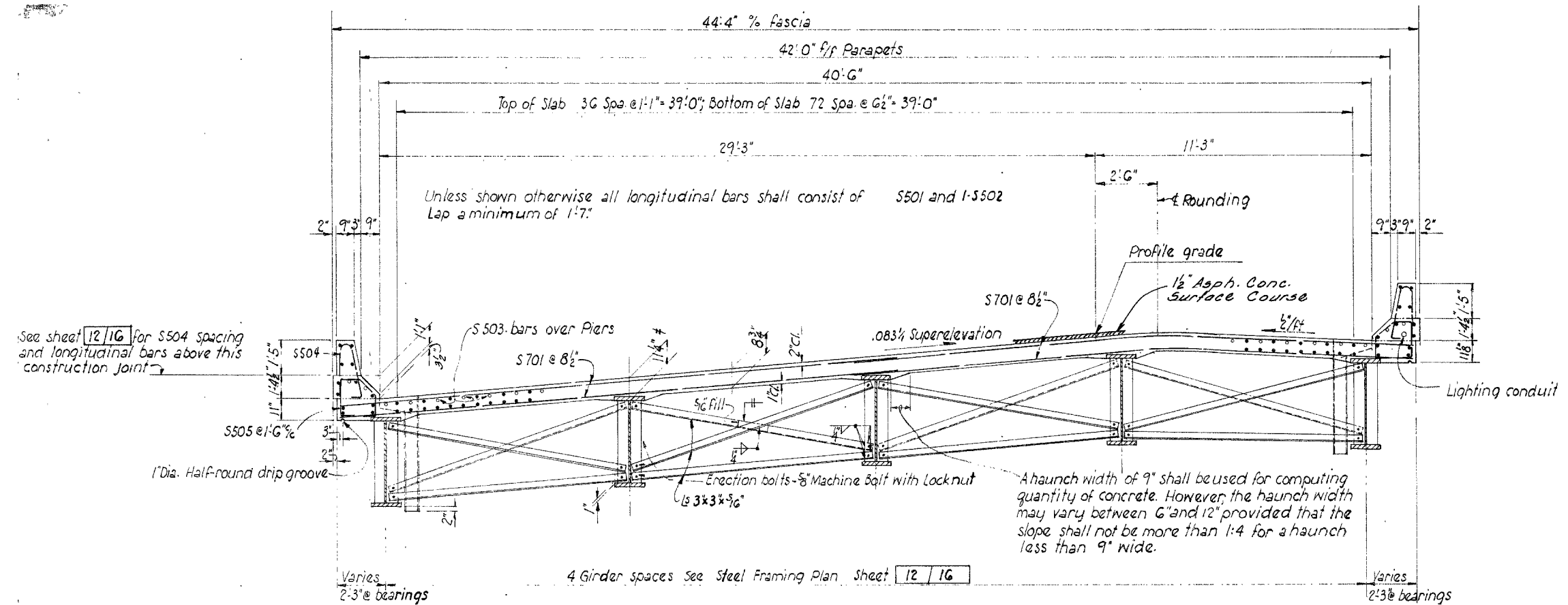
SECTION L~L



SECTION M~M

See Sheet B/16 for Parapet Transition note.

FORWARD ABUTMENT DETAILS  
BRIDGE NO. LOR-90 E B-1033  
I-90 Over OHIO TURNPIKE



ROUNDING DETAIL

For Subdrainage and Surface Course  
Details see sheet 3710 Bridge No. LOR-90EB-1012

See sheet 12116 for S504 spacing and longitudinal bars above this construction joint

Varies 2'-3" @ bearings

4 Girder spaces See Steel Framing Plan Sheet 12116

Varies 2'-3" @ bearings

† This is the design dimension. The quantity of concrete to be paid for shall be based on this dimension even though deviation from it may be necessary because the top flange of the girder may not have the exact camber or conformation required to place it parallel to the finished grade. Deduction shall be made for the volume of encased steel plates as per 511.18.

TRANSVERSE SECTION

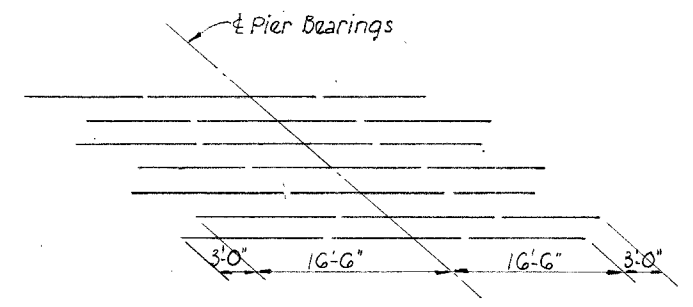
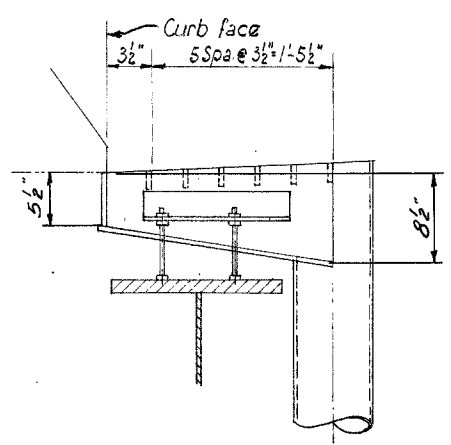
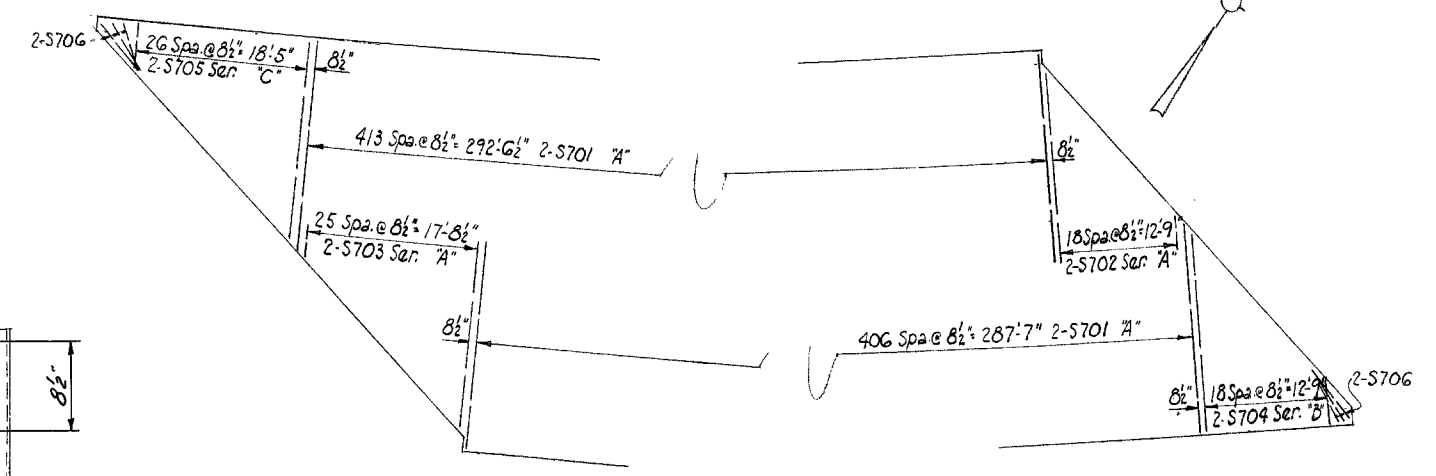


DIAGRAM SHOWING STAGGER OF S503 BARS

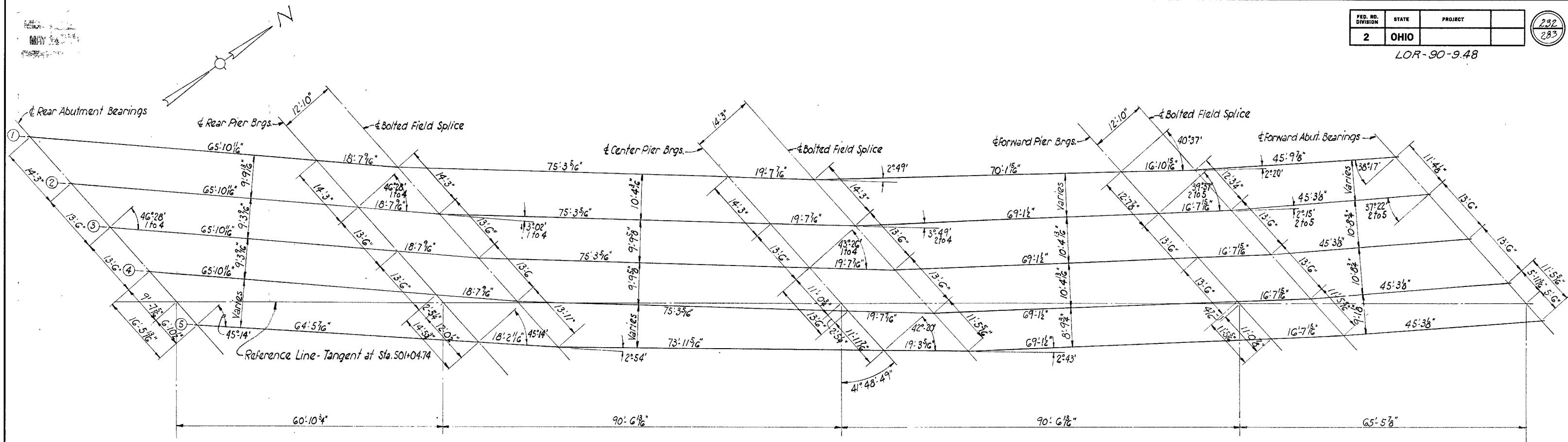


SCUPPER DETAIL  
For details not shown see Std. Dwg. SD-1-G9 sheet 3. set scupper 1/4 below roadway surface.

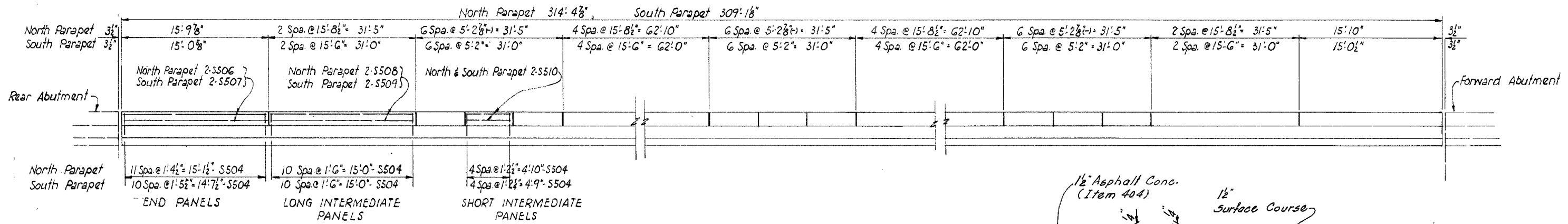


DECK PLAN SHOWING TRANSVERSE REINFORCING  
"A" Measured along  $\epsilon$  of deck  
"B" Measured along outside of deck  
"C" Measured along inside of deck

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						11/16
SUPERSTRUCTURE DETAILS						
BRIDGE NO. LOR-90EB-1033 Over OHIO TURNPIKE						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.D.R.	J.D.R.		W.C.K.	B.F.G.	4-10-70	4-65-73

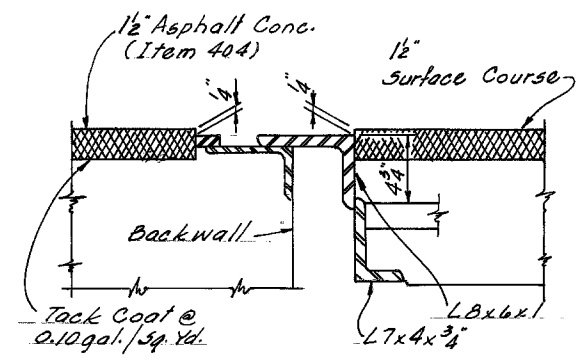


SUPERSTRUCTURE STEEL PLAN



PARAPET ELEVATION

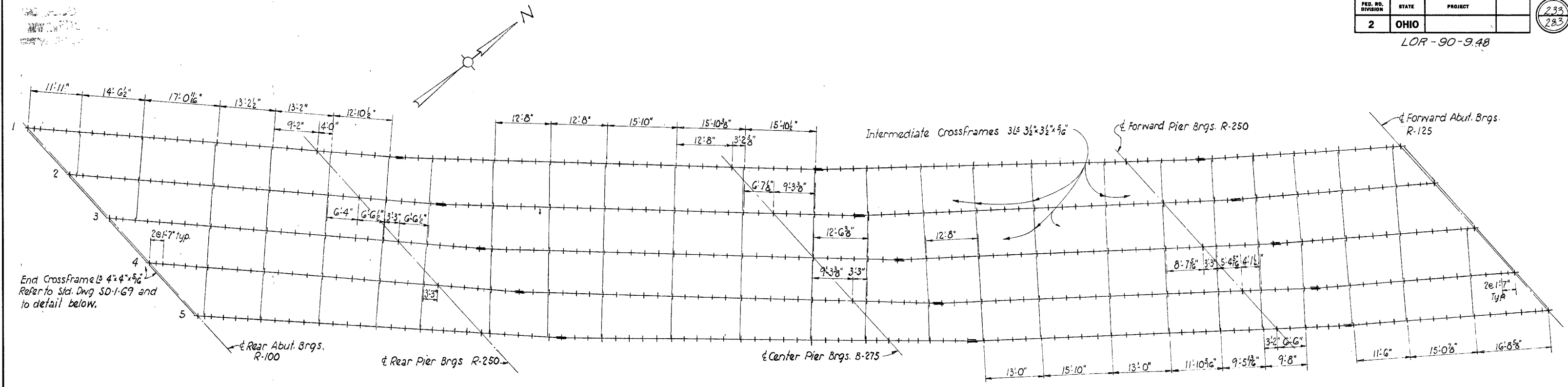
PREFORMED EXPANSION JOINT FILLER in the parapet deflection joints may be either 4" gray sponge rubber or 4" gray cellular polyvinyl chloride (PVC) sponge. Either material shall meet the requirements of AASHTO M-153, type I, except the density of the PVC sponge shall be not less than 20 lb. per cu. ft.



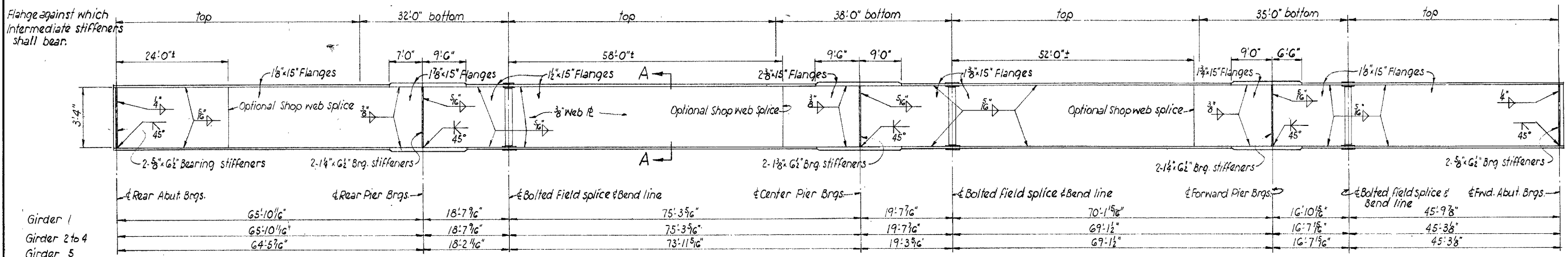
For additional details see SD-1-69, sheet 1  
END DAM DETAIL

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						12 / 16
SUPERSTRUCTURE DETAILS GEOMETRICS BRIDGE NO. LOR-90EB-1033 Over OHIO TURNPIKE						
DESIGNED J.D.R.	DRAWN J.D.R.	TRACED	CHECKED W.C.R.	REVIEWED BFG	DATE 4-10-70	REVISED 4-25-70

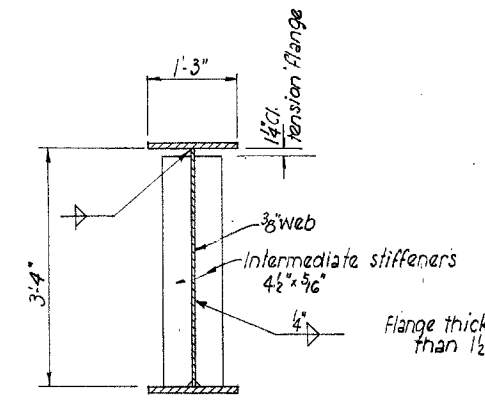




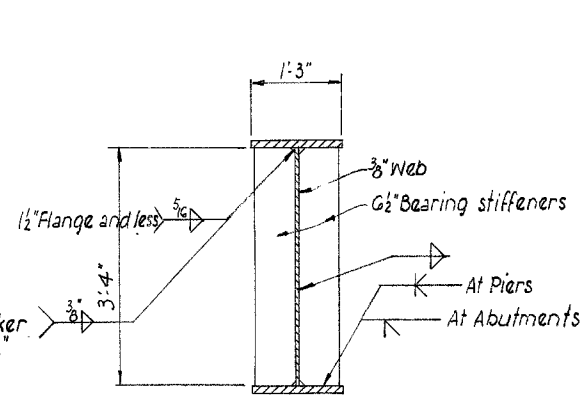
**STEEL FRAMING PLAN**  
For dimensions and geometrics see sheet 12 / 16



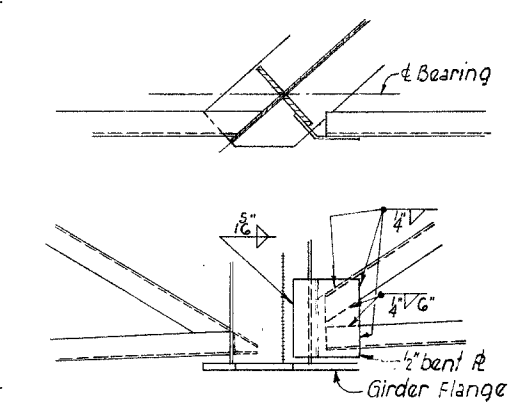
**GIRDER ELEVATION**



**SECTION A-A**  
For weld size see GIRDER ELEVATION

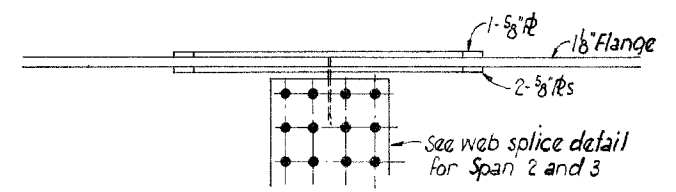
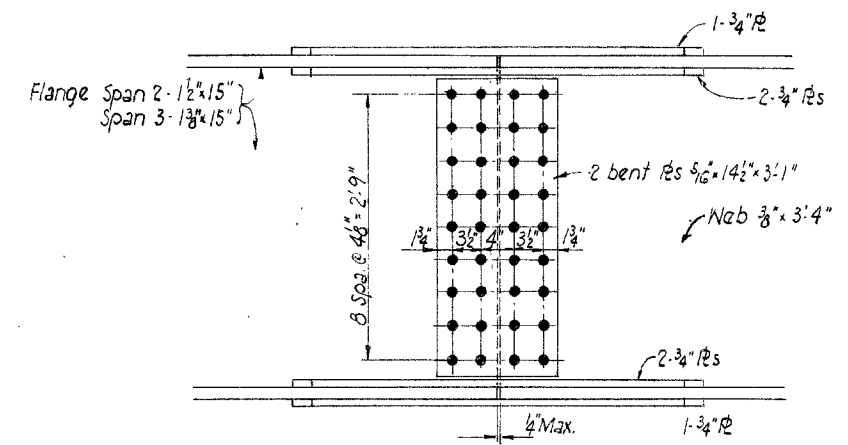
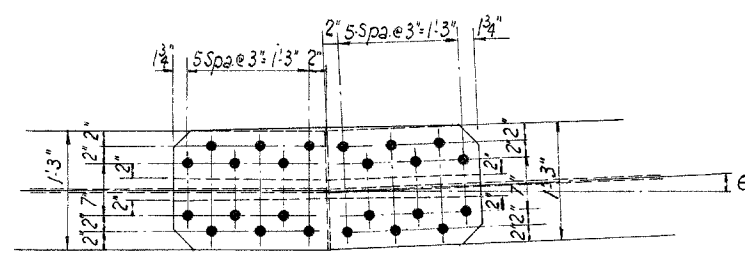
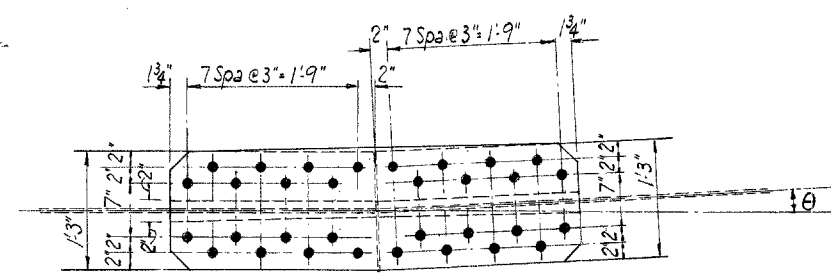


**GIRDER SECTION AT BEARINGS**  
For stiffener thickness and weld sizes see GIRDER ELEVATION



**END FRAME CONNECTION DETAIL**  
For additional details see Std. Dwg. SD-1-69 sheet 1.

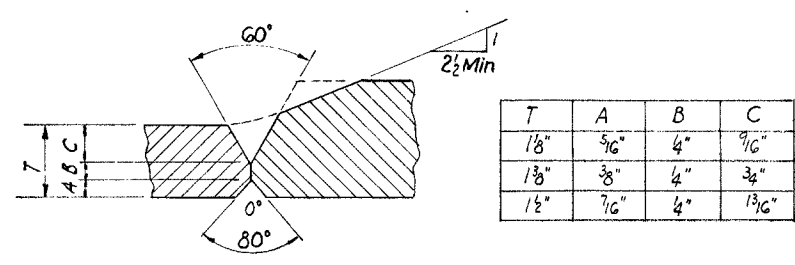
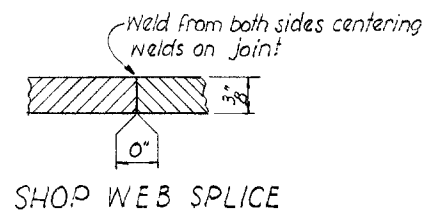
STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						13 / 16
<b>SUPERSTRUCTURE DETAILS</b> <b>GIRDERS AND CROSSFRAMES</b> <b>BRIDGE NO. LOR-90EB-1033</b> <b>Over OHIO TURNPIKE</b>						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
JDR	JDR		W.C.K.	BFG	4-10-70	283



FIELD SPLICE SPAN 4  
All bolts 1" High Strength

FIELD SPLICE SPAN 2 & 3  
All bolts 1" High Strength

FIELD SPLICE DEFLECTION ANGLE $\theta$			
Girder Line	Span 2	Span 3	Span 4
1	3° 02'	2° 49'	2° 20'
2 to 4	3° 02'	3° 49'	2° 15'
5	2° 54'	2° 43'	2° 15'



SHOP FLANGE SPLICE

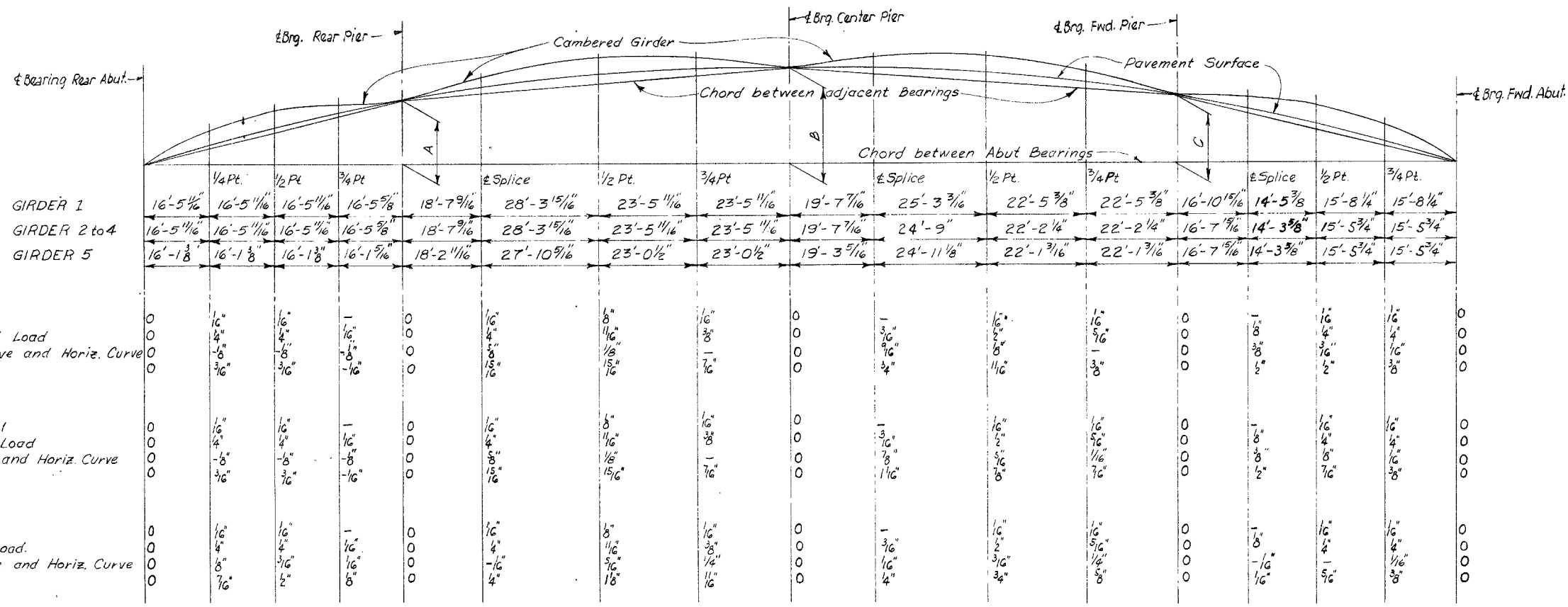
The above full penetration welds shall be back-gouged and welded after welding far side.  
Butt welds on girder flanges shall be ground flush, the finish grinding being parallel to the direction of stress.

JOINT PREPARATION FOR SUBMERGED ARC WELDMENTS

14 / 16  
SUPERSTRUCTURE DETAILS  
GIRDER SPLICES  
BRIDGE NO. LOR-90EB-1033  
Over OHIO TURNPIKE

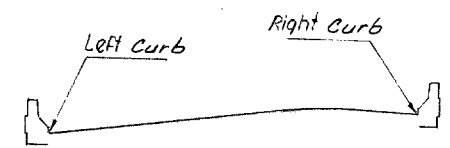
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.D.R.	J.D.R.		W.C.K.	BFG	4-10-70	4-15-70

CHORD OFFSET DIMENSIONS			
GIRDER LINE	A	B	C
1	2 1/8"	3 1/4"	2 8"
2	2 5/8"	4 3/8"	2 3/8"
3	2 5/8"	4 3/8"	2 3/8"
4	2 5/8"	4 3/8"	2 3/8"
5	2"	3"	1 5/16"



**\* SCREED ELEVATIONS**

Station	Left Curb	Right Curb
499+25	775.44	
+50	775.23	
+75	774.98	777.27
500+00	774.75	777.01
+25	774.52	776.74
+50	774.22	776.49
+75	773.90	776.22
501+00	773.63	775.89
+25	773.33	775.57
+50	772.98	775.27
+75	772.62	774.92
502+00	772.29	774.54
+25	771.90	774.18
+50		773.80



\* Top of reinforced concrete deck.  
(Includes an allowance for deflection due to weight of deck concrete.)

15 / 16

STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
DIVISION OF DESIGN AND CONSTRUCTION  
BUREAU OF BRIDGES

**DEFLECTION & CAMBER**  
BRIDGE NO. LOR-90EB-1033  
Over OHIO TURNPIKE

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.D.R.	B.E.B.		W.C.K.	BFG	4-10-70	4-25-75

**REINFORCING STEEL LIST**

Bending Diagrams

Mark No. Length Weight lbs

Superstructure

S701	1642	23'-0"	77,194 S	
S702	Series of 2 to 19	20'-4" to 3'-10"	939 S	Vary each by 0'-11"
S703	Series of 2 to 26	20'-7" to 3'-11"	1,302 S	Vary each by 0'-8"
S704	Series of 2 to 19	22'-0" to 5'-6"	1,068 S	Vary each by 0'-11"
S705	Series of 2 to 27	22'-4" to 5'-0"	1,508 S	Vary each by 0'-8"
S706	12	6'-0"	147 S	

S501	1260	30'-0"	39,425 S	
S502	Series of 3 to 42	19'-6" to 24'-0"	2,858 S	Vary each by 1" (+)
S503	126	36'-0"	4,731 S	
S504	490	5'-4"	2,726 B	
S505	415	5'-2"	2,236 B	
S506	8	15'-5"	129 S	
S507	8	14'-8"	122 S	
S508	48	15'-4"	768 S	
S509	48	15'-2"	759 S	
S510	144	4'-10"	726 S	
L505	4	2'-10"	12 *	
L506	4	8'-2"	34 *	
L507	6	7'-3"	45 *	
L508	4	3'-0"	13 S	

Piers

P1001	120	7'-0"	3,615 B	
P1002	8	27'-11"	961 S	
P1003	8	27'-3"	938 S	
P1004	16	26'-6"	1824 S	
P1005	16	25'-10"	1779 S	
P1006	8	27'-8"	952 S	
P1007	8	24'-4"	838 S	
P1008	8	25'-1"	863 S	
P1009	8	25'-5"	875 S	
P1010	8	23'-8"	815 S	
P1011	8	24'-8"	849 S	
P1012	8	25'-5"	875 S	
P1013	8	26'-1"	898 S	
P1014	8	26'-10"	924 S	
P801	48	25'-0"	3,204 S	
P802	16	39'-8"	1695 S	
P803	16	35'-2"	1502 S	
P804	16	37'-8"	1609 S	
P601	244	7'-2"	2,627 S	

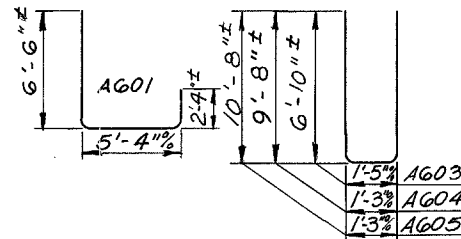
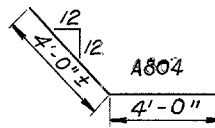
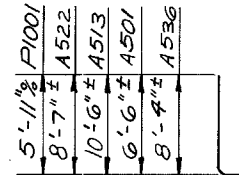
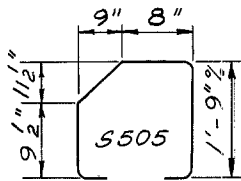
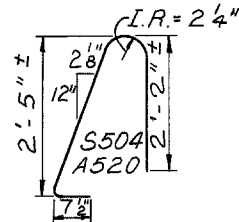
Spiral Reinforcing

O.D.=32", Pitch=4" For  
Other Details See CRSI  
Standard's.

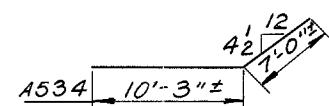
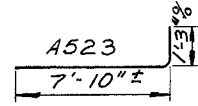
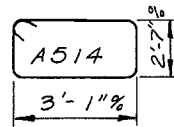
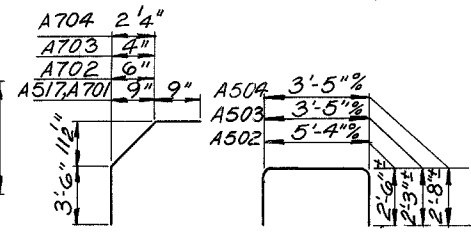
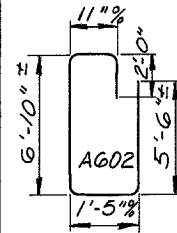
SP401	1	27'-11"	516 B	
SP402	1	27'-3"	504 B	
SP403	2	26'-6"	982 B	
SP404	2	25'-10"	958 B	
SP405	1	27'-8"	512 B	
SP406	1	24'-4"	452 B	
SP407	1	25'-1"	466 B	
SP408	1	25'-5"	472 B	
SP409	1	23'-8"	440 B	
SP410	1	24'-8"	458 B	
SP411	1	25'-5"	472 B	
SP412	1	26'-1"	484 B	
SP413	1	26'-10"	497 B	

BAR SIZE is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example, A701 is a No. 7 size bar and A1014 is a No. 10 size.  
\* For bar bending diagrams, see sheet 174D and 174E

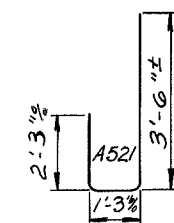
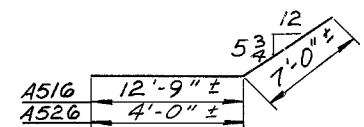
APPROVED  
MAY 21 1970



Vary each by 0'-9 1/2"



Vary each by 0'-7 1/2"



Mark No. Length Weight lbs

Abutments

A801	7	31'-6"	589 S	
A802	3	35'-0"	280 S	
A803	7	30'-10"	576 S	
A804	8	7'-11"	169 S	
A805	6	16'-6"	264 S	
A806	4	29'-6"	315 S	
A807	7	24'-6"	458 S	
A808	6	14'-4"	230 S	
A701	4	5'-4"	44 B	
A702	4	5'-3"	43 B	
A703	4	5'-2"	42 B	
A704	4	5'-1"	42 B	
A705	4	4'-6"	37 S	
A601	80	13'-10"	1663 B	
A602	65	16'-0"	1563 B	
A603	45	14'-9"	998 B	
A604	18	20'-6"	555 B	
A605	3	22'-3"	100 B	
A606	2	10'-6"	32 S	
A607	2	10'-3"	31 S	
A501	85	7'-0"	621 B	
A502	81	10'-1"	852 B	
A503	37	7'-8"	296 B	
A504	46	8'-6"	408 B	
A505	18	32'-3"	605 S	
A506	3	32'-6"	102 S	
A507	5	20'-0"	104 S	
A508	20	15'-6"	323 S	
A509	Series of 1 to 5	20'-8" to 17'-6"	100 S	
A510	1	18'-0"	19 S	
A511	1	9'-0"	9 S	
A512	1	37'-6"	39 S	
A513	6	11'-0"	69 B	
A514	20	12'-4"	257 B	
A515	11	13'-6"	155 S	
A516	2	19'-9"	41 B	
A517	29	5'-4"	161 B	
A518	29	4'-5"	134 S	
A519	14	20'-6"	299 S	
A520	29	5'-4"	161 B	
A521	20	6'-9"	141 B	
A522	2	9'-1"	19 B	
A523	6	8'-11"	56 B	
A524	7	3'-2"	23 S	
A525	4	5'-4"	22 S	
A526	4	11'-0"	46 B	
A527	20	11'-6"	240 S	
A528	32	2'-2"	72 S	
A529	18	28'-6"	535 S	
A530	2	27'-0"	56 S	
A531	Series of 1 to 5	14'-6" to 17'-0"	82 S	
A532	1	8'-0"	8 S	
A533	1	15'-0"	16 S	
A534	2	17'-3"	36 B	
A535	14	18'-2"	265 S	
A536	2	8'-10"	18 B	
A537	14	12'-2"	178 S	
Replacement Bars				
RE1001	1	8'-2"	- S	
RE801	1	7'-6"	- S	
RE701	5	7'-2"	- S	
RE601	1	6'-11"	- S	
RE501	4	6'-7"	- S	
RE401	1	6'-3"	- B	

FED. RD. DIVISION	STATE	PROJECT
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STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
DIVISION OF DESIGN AND CONSTRUCTION  
BUREAU OF BRIDGES

**REINFORCING STEEL LIST**

BRIDGE No. LOR-90E.B.1033  
Over OHIO TURNPIKE

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
J.D.R.	GFJ.	W.C.K.	BFG	4-10-70		4.25.78

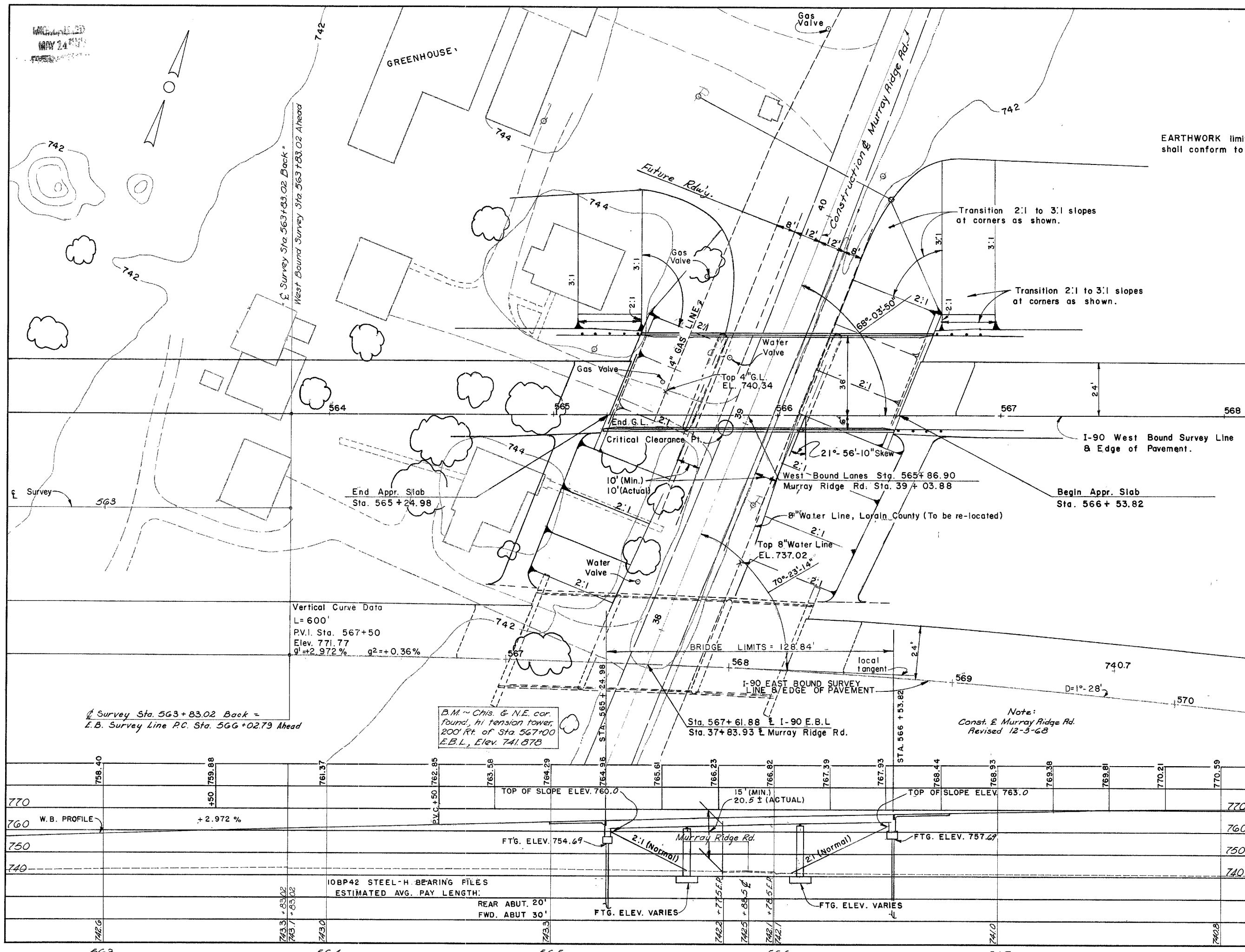
16/16

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	70 I-90

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1.0± Mi. N.W. of Elyria  
LOR-90-9.48

EARTHWORK limits shown are schematic. Actual slopes shall conform to plan cross-sections.



Vertical Curve Data  
L = 600'  
P.V.I. Sta. 567+50  
Elev. 771.77  
g<sup>1</sup> = +2.972%    g<sup>2</sup> = +0.36%

Survey Sta. 563+83.02 Back =  
E.B. Survey Line P.C. Sta. 566+02.79 Ahead

B.M. ~ Chis. & N.E. cor.  
found, hi tension tower,  
200' Rt. of Sta. 567+00  
E.B.L., Elev. 741.878

Note:  
Const. & Murray Ridge Rd.  
Revised 12-5-68

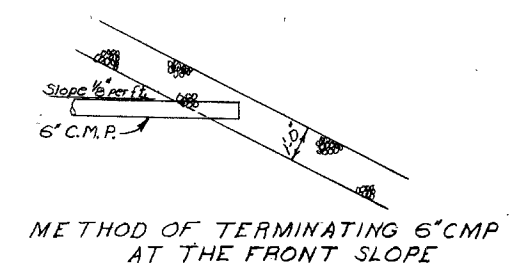
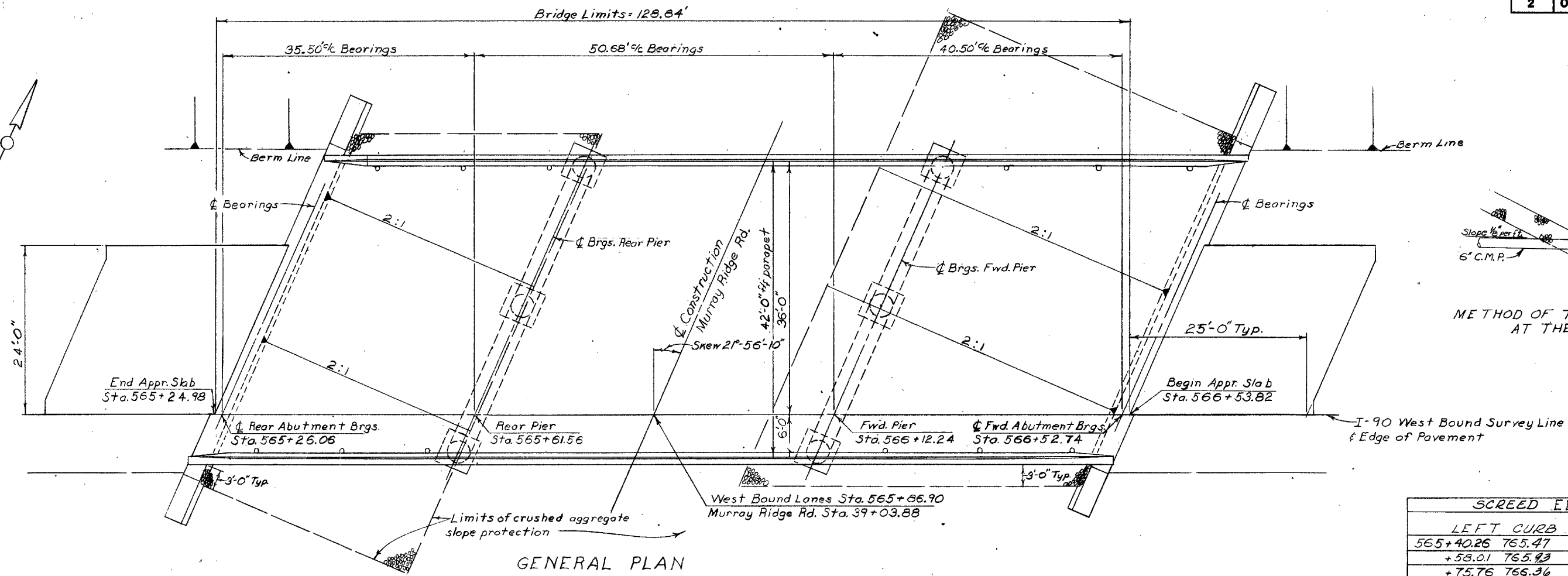
**PROPOSED STRUCTURE**  
TYPE: Continuous steel beams with reinforced conc. deck and substructure.  
SPANS: 35.5'-50.68'-40.5' % brgs.  
ROADWAY: 42' t/f concrete parapets  
LOADING: HS 20-44 and Alternate Interstate Loading  
SKEW: 21°-56'-10" L.F.  
SURFACE COURSE: 2" Asphalt concrete  
APPROACH SLABS: AS-1-67 (25' long)  
ALIGNMENT: Tangent  
SUPERELEVATION: 0.0156 %

STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
BUREAU OF BRIDGES

**SITE PLAN**

BRIDGE NO. LOR-90WB-1148  
I.R.-90 West Bound over Murray Ridge Rd.  
LORAIN CO I.R.-90  
SEC. STA. 565+24.98  
SCALE 1" = 20'  
PRESENT TOPOGRAPHY PROPOSED WORK

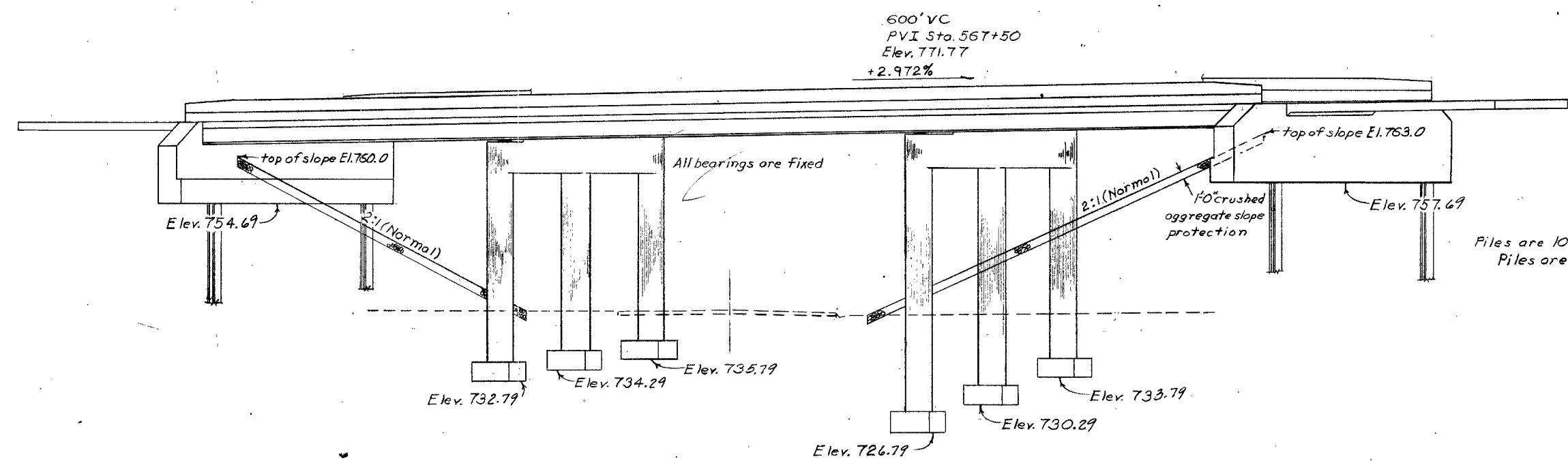
DESIGNED	DRAWN	CHECKED	REVIEWED
B.D.H.	B.D.H.	R.D.M.	P.E.S.



SCREED ELEVATIONS\*

LEFT CURB		RIGHT CURB	
565+40.26	765.47	565+29.95	764.64
+58.01	765.48	+41.70	765.11
+75.76	766.36	+59.45	765.56
566+01.10	766.98	+84.79	766.18
+26.44	767.84	566+10.13	766.77
+46.69	767.98	+30.38	767.23
+66.94	768.39	+50.63	767.65

\*Elevations required before concrete is placed which include an allowance for deflection due to wt. of deck concrete. (Elevations at top of reinforced concrete slab.)



Files are 10BP42.  
Piles are not all shown.

ELEVATION

STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
DIVISION OF DESIGN AND CONSTRUCTION  
BUREAU OF BRIDGES

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GENERAL PLAN & ELEVATION

Bridge No. LOR-90WB-1148  
JR 90 WB over Murray Ridge Road

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WTL	WTL		HEN	BFG	6-16-70	4/80

MICROFILMED  
MAY 19 1979

GENERAL NOTES

REFERENCE shall be made to Standard Drawings BR-1-67, Sht. 1 revised 1-1-71, SD-1-69 Shts. 3 & 4 dated 6-12-69, and to Supplemental Specifications 808 dated 1-1-71, 836 dated 1-1-71.

DESIGN SPECIFICATIONS: This structure conforms to "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway Officials, 1969, including the Ohio "Supplement" to these specifications.

DESIGN DATA

Design Loading - HS 20-44

Concrete Class C - unit stress 1200 p.s.i. for superstructure

unit stress 1333 p.s.i for substructure

Structural Steel - ASTM A36 - unit stress 20,000 p.s.i.

Reinforcing Steel - ASTM A615, A616 or A617 - unit stress 20,000 ps.i. Spiral reinforcement may be plain bars ASTM A82, A306, A499 or A615

EMBANKMENT CONSTRUCTION: The embankments shall be constructed to the level of the subgrade for a minimum distance of 200 feet back of the abutments. Excavation shall then be made for the abutments and piers.

PILES shall be driven to firm contact with bedrock. If the length of penetration is approximately equal to the depth to bedrock according to the bridge foundation investigation report, the firm contact shall be considered as attained when the capacity according to the formula in 507.05 is not less than the following value for a pile hammer of the indicated energy rating:

GENERAL NOTES (Cont)

For the abutment piles

42 tons per pile using a 7,000 ft. lb. hammer  
32 tons per pile using an 11,000 ft. lb. hammer  
28 tons per pile using a 15,000 ft. lb. or greater hammer

If the energy rating of the hammer is between the ratings as shown above, the required formula capacity shall be determined by interpolation. The design load is 35 tons per pile.

FOUNDATION BEARING PRESSURE: Pier footings are designed for a maximum bearing pressure of 9 tons per sq. ft.

FOOTINGS shall extend a minimum of 3 inches into bedrock or to the elevation shown, whichever is lower.

UTILITY LINES: All expense involved in relocating the affected utility lines shall be borne by the Owner. The Contractor and Owner are requested to cooperate by arranging their work in such a manner that inconvenience to either would be held to a minimum.

MAINTENANCE OF TRAFFIC: Two lanes of traffic with a minimum horizontal width of 26'-0" and a minimum vertical clearance of 13'-6" shall be maintained on Murray Ridge Road at all times.

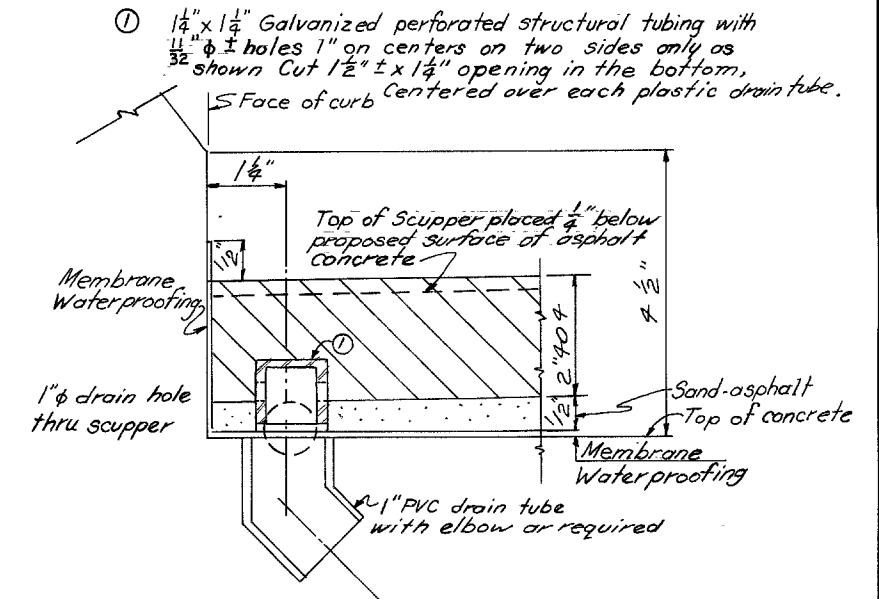
PREFORMED EXPANSION JOINT FILLER

in the railing parapet deflection joints may be either 1/4" gray sponge rubber or 1/4" gray cellular polyvinyl chloride (PVC) sponge. Either material shall meet the requirements of AASHTO M-153, Type I, except the density of the PVC sponge shall be not less than 20 lb. per cu. ft.

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SUB DRAINAGE SURFACE COURSE DETAIL

In addition to location and spacing provisions of 518.07, the PVC duct drain tubes shall be located so that discharge from them will clear all structural members, including crossbracing, by at least 6" (Use tubes with elbows if required). Place the top of the tube flush with the concrete surface, position accurately to match the 1/2" x 1 1/4" openings in perforated tubing. Holes in tubing may be cut in the field to match plastic drain tube as placed. Place membrane over tube, puncturing if membrane is a sheet type, with the hole sealed around the lip of the tube. Include subdrainage with Item 404, Asphalt Concrete, for payment.

ESTIMATED QUANTITIES

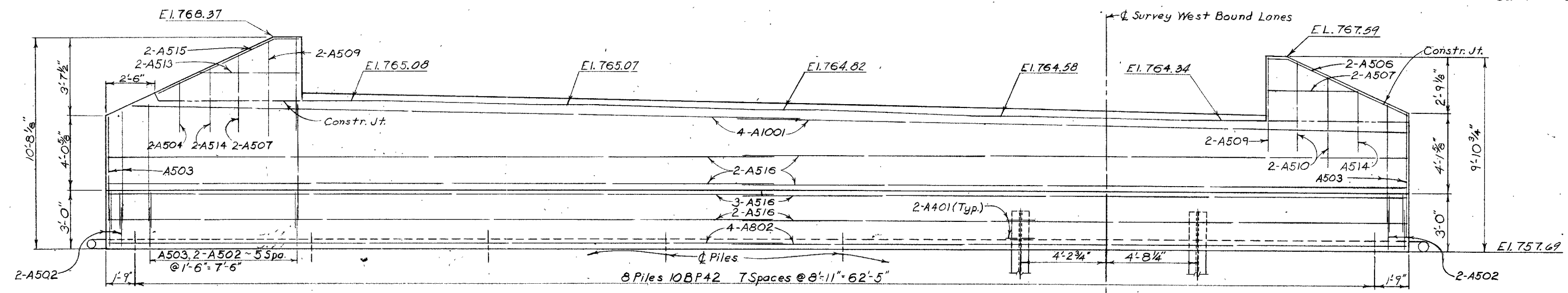
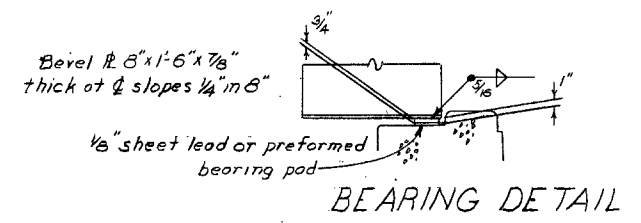
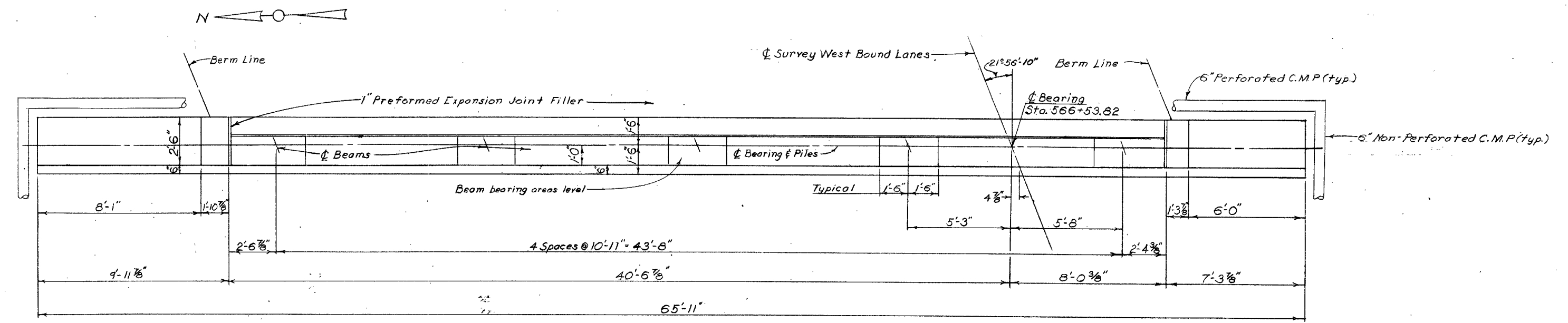
Item	Total	Unit	Description	Super	Abuts	Piers	Gen'l	As-Built
404	32	Cu.Yd.	Asphalt concrete (70-85 or AC 20), as per plan	32				
Special	8	Cu.Yd.	Sand-Asphalt (See proposal note)	8				
Special	580	Sq.Yd.	Membrane waterproofing (See proposal note)	580				
503	280	Cu.Yd.	Unclassified excavation, including Rock		145	135		
505	Lump	Sum	Test pile				Lump	
507	400	Lin.Ft.	Steel piles, HP10x42 *		400			
509	85,338	Lbs.	Reinforcing steel	56,546	9,590	19,202		
511	209	Cu.Yd.	Class-C concrete, superstructure	209				
511	80	Cu.Yd.	Class-C concrete, pier caps and columns			80		
511	56	Cu.Yd.	Class-C concrete, abutments above footings		56			
512	98	Lin.Ft.	Premolded sealing strip	98				
513	98,194	Lbs.	Structural steel	98,194				
514	98,194	Lbs.	Field painting of structural steel	98,194				
516	98	Sq.Ft.	1" preformed expansion joint filler	98				
516	90	Sq.Ft.	1/4" preformed expansion joint filler	90				
518	62	Cu.Yd.	Porous backfill		62			
518	134	Lin.Ft.	6" perforated helical corrugated metal pipe, including specials 707.01		134			
518	55	Lin.Ft.	6" non-perforated helical corrugated metal pipe, 707.01		55			
518	12	Each	Scuppers including supports	12				
503	Lump	Sum	Cofferdams, Cribbs and Sheeting				Lump	
601	604	Sq.Yd.	Crushed aggregate slope protection		604			
808	209	Units	Chemical admixture for concrete, Type A,B,D	209				
511	64	Cu.Yd.	Class-C concrete, footings		44	20		

\* HP10x42 piles formerly designated 10BP42.

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						3/8
GENERAL NOTES & ESTIMATED QUANTITY						
Bridge No LOR-90WB 1148 Over Murray Ridge Road						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
		G.F.J.		BFG	6-16-70	4-28-79

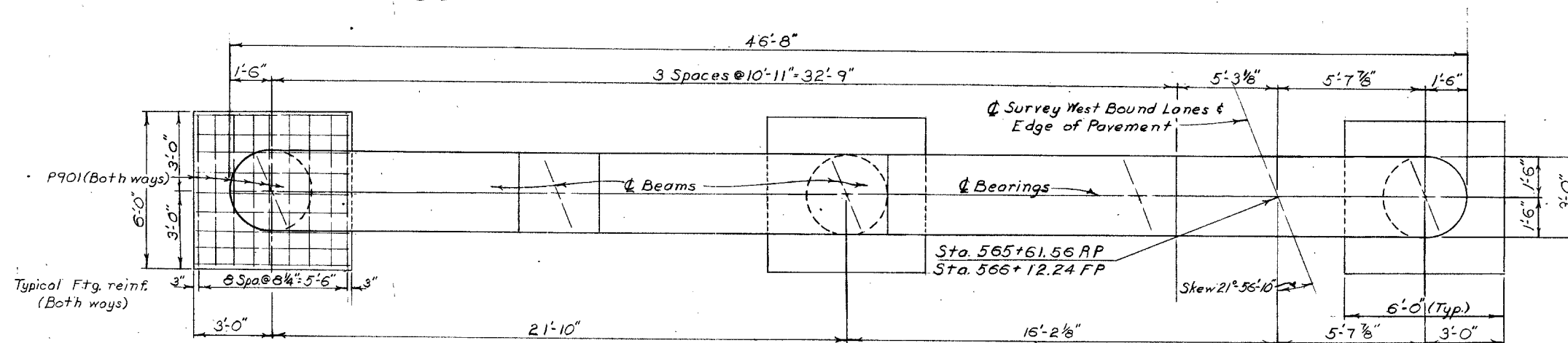
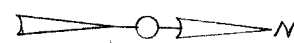






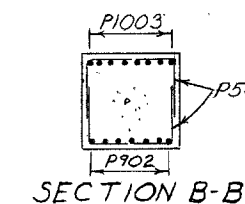
For additional details see Rear Abutment Details sheet 4/B

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						5/8
<b>FORWARD ABUTMENT DETAILS</b>						
Bridge No. LOR-90WB-1148 IR 90 WB over Murray Ridge Road						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WTL	WTL		HEN	BFG	6-16-70	4/28/82

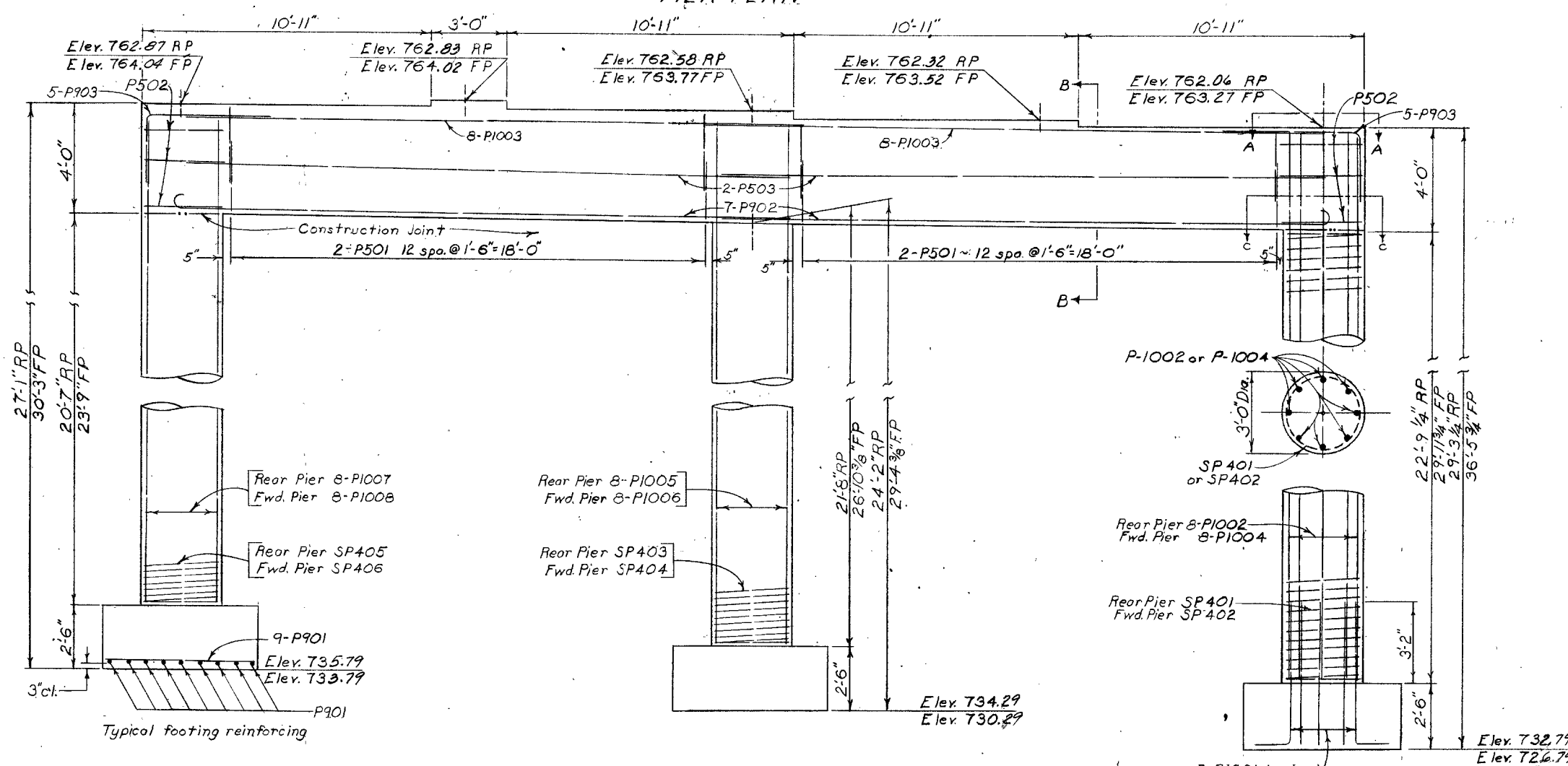


PIER PLAN

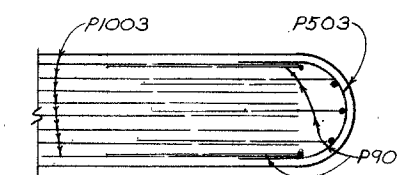
BRIDGE SEAT REINFORCING: Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat so as to avoid interference with the drilling of anchor bar holes.



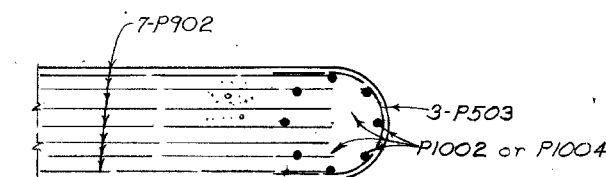
SECTION B-B



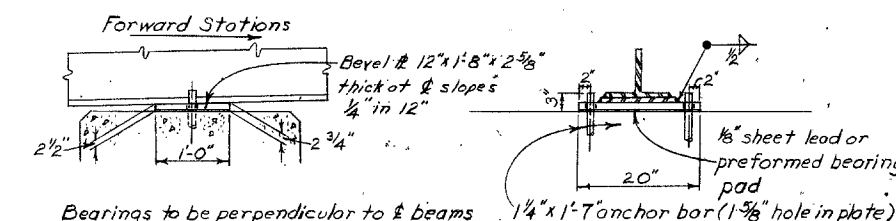
PIER ELEVATION



VIEW A-A



SECTION C-C



Bearings to be perpendicular to beams

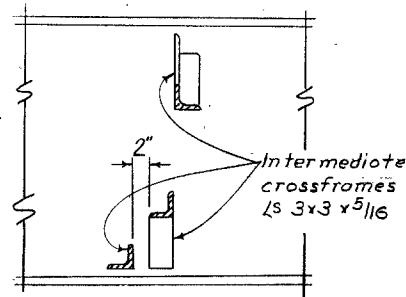
PIER BEARINGS

PIER DETAILS

Bridge No. LOR-90WB-1148  
IR 90 WB over Murray Ridge Road

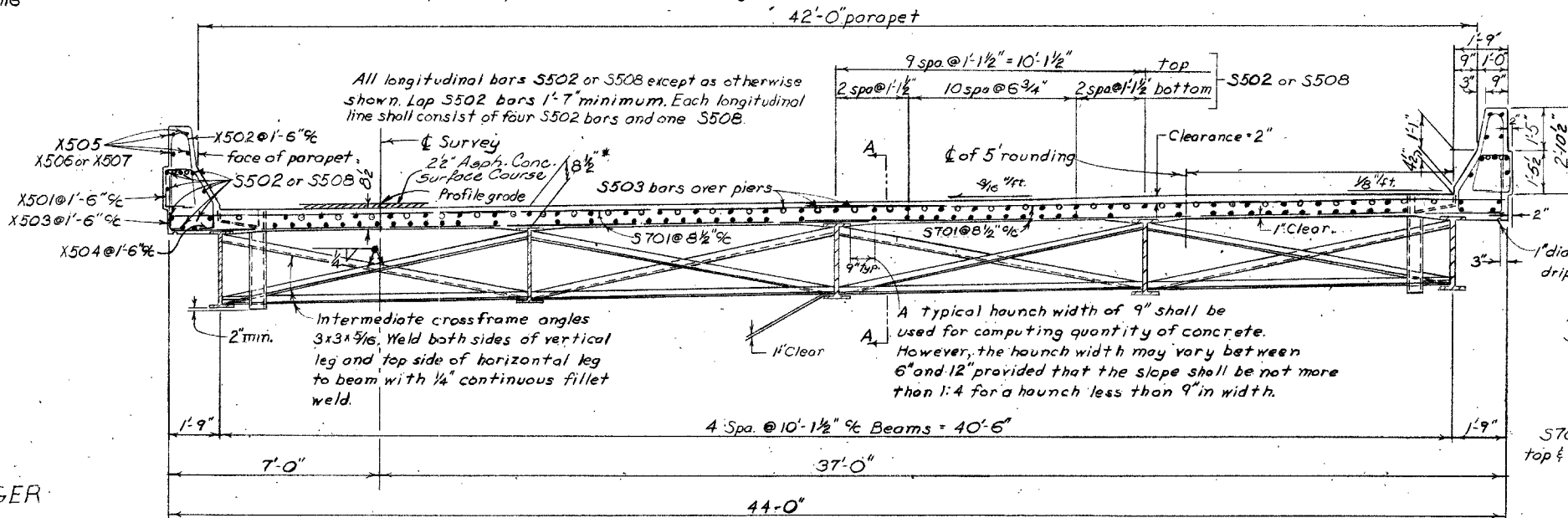
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WTL	WTL		HEN	BFG	6-16-70	4-25-72

LOR-90-9.48



\*DECK SLAB DEPTH: The distance shown from top of deck slab to top of steel beam is the design dimension. The quantity of deck concrete to be paid for shall be based on this dimension even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or conformation required to place it parallel to the finished grade.

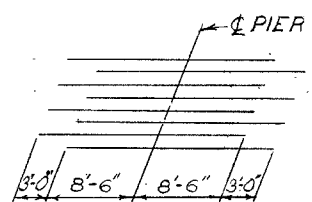
SECTION A-A



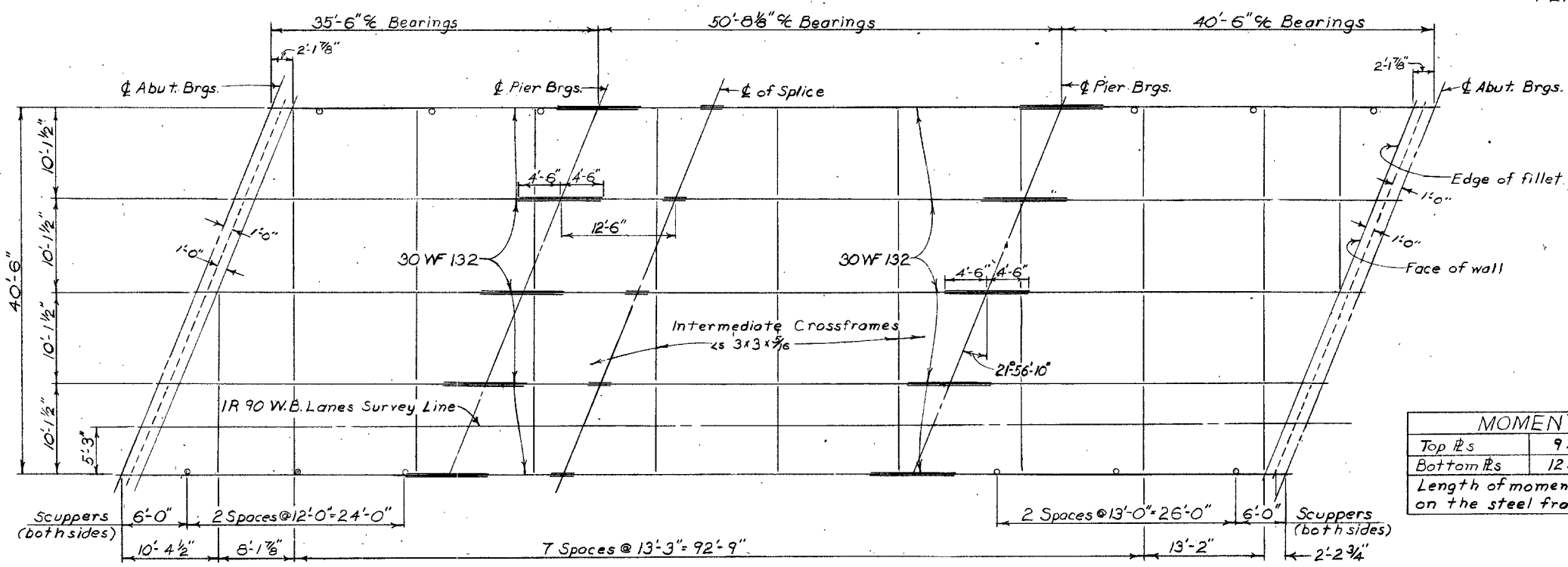
TRANSVERSE SECTION (LOOKING BACK STATION)

PLAN OF TRANSVERSE REINFORCING STEEL

DIAGRAM SHOWING STAGGER OF S503 BARS OVER PIERS



NOTE  
For Subdrainage and Surface Course Details see Std. 378



STEEL FRAMING PLAN AND SCUPPER SPACING

SCUPPER DETAIL  
For details not shown see Std. Dwg SD-1-69, sheet 3.  
Set scupper 1/4" below roadway surface

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WTL	WTL		HEN	BFG	6-16-70	4-25-70

STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
DIVISION OF DESIGN AND CONSTRUCTION  
BUREAU OF BRIDGES

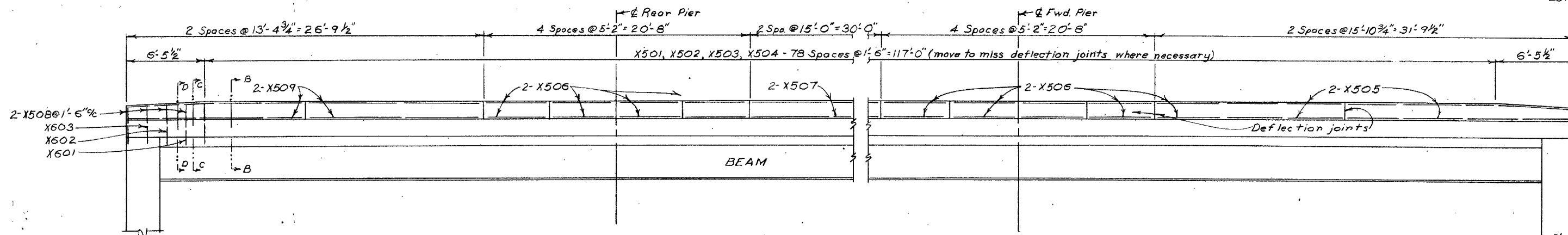
7/8

**SUPERSTRUCTURE DETAILS**

Bridge No. LOR-90WB-1148  
IR 90 WB over Murray Ridge Road

MOMENT PLATES	
Top IIs	9 x 3/16 both piers
Bottom IIs	12 x 7/16 both piers
Length of moment plates is as shown on the steel framing plan	

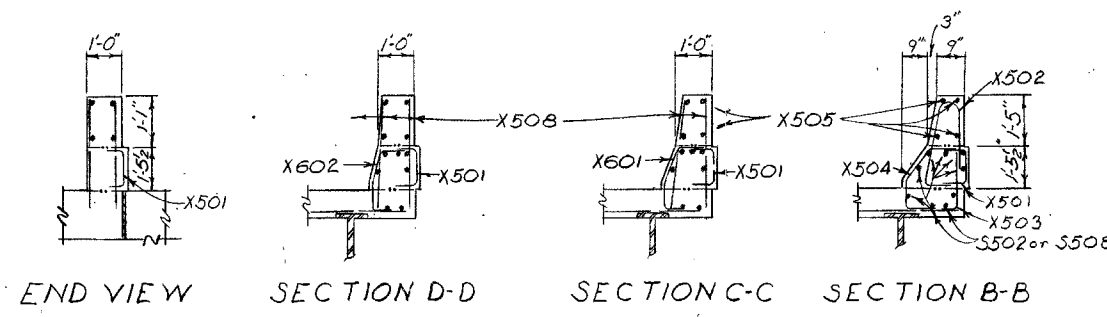
Refer to Std. Dwgs. SD-1-69 for:  
1. Scupper Details  
2. Additional Moment Plate Details  
3. Beam Splice Details



PAPAPET TRANSITIONS shall be as shown on Std. Dwg. BR-1-67 revised 1-1-71. Reinforcing steel shall be field cut or bent to fit the revised shape.

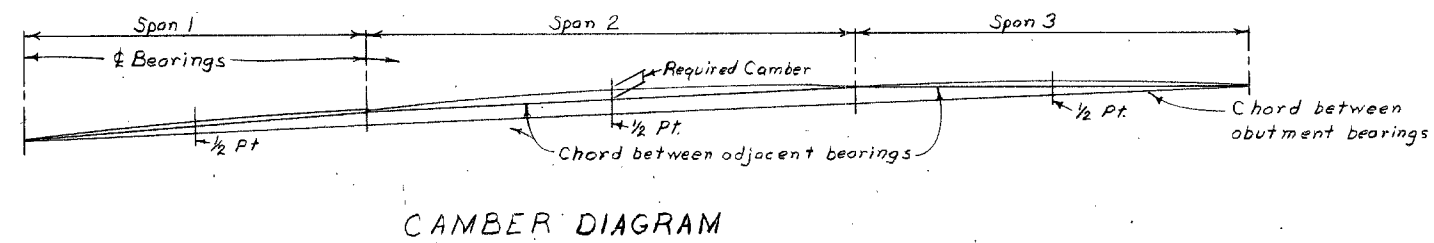
PARAPET

For details not shown, refer to Std. Dwg. BR-1-67 sheet 1



END VIEW SECTION D-D SECTION C-C SECTION B-B  
Guardrail anchors not shown

DEFLECTION AND CAMBER			
Span	Span 1	Span 2	Span 3
Deflection due to weight of steel	-	-	-
Deflection due to remaining dead load	+1/16	+1/4	+1/8
Vertical curve adjustment	+1/16	+3/16	+1/8
Required camber	+1/8	+7/16	+1/4



CAMBER DIAGRAM

REINFORCING STEEL LIST

Mark	No.	Length	Weight	Sp	Bending Diagrams	Mark	No.	Length	Weight	Sp	
Abutments					Bending Diagrams						
A1001	16	33'-9"	2,324	S		X506	64	4'-10"	323	S	
A801	8	33'-6"	716	S		X507	16	14'-8"	245	S	
A802	8	34'-1"	728	S		X508	32	2'-10"	95	S	
A601	88	11'-0"	1,454	B		X509	16	15'-6"	259	S	
A501	18	33'-0"	620	S		X601	4	3'-2"	19	B	
A502	198	6'-5"	1,325	B		X602	4	3'-1"	19	B	
A503	99	12'-7"	1,299	B		X603	4	3'-0"	18	B	
A504	6	2'-8"	17	S		Piers					
A505	4	4'-4"	18	S		P1001	48	7'-7"	1,566	B	
A506	2	7'-10"	16	B		P1002	8	25'-7"	881	S	
A507	6	4'-5"	28	S		P1003	32	23'-8"	3,259	S	
A508	2	8'-6"	18	B		P1004	8	31'-10"	1,096	S	
A509	10	4'-9"	50	S		P1005	8	24'-6"	843	S	
A510	8	4'-4"	36	S		P1006	8	29'-9"	1,024	S	
A511	4	2'-0"	8	S		P1007	8	23'-5"	806	S	
A512	2	8'-4"	17	S		P1008	8	26'-7"	915	S	
A513	4	5'-4"	21	S	P901	108	5'-6"	2,020	S		
A514	4	3'-3"	14	S	P902	28	24'-11"	2,372	B		
A515	2	10'-10"	23	B	P903	20	8'-1"	550	B		
A516	18	33'-7"	630	S	P501	112	7'-9"	905	B		
A401	64	5'-4"	228	B	P502	12	7'-3"	91	B		
Superstructure					Piers (Cont.)						
S701	648	22'-11"	30,384	S	P503	8	22'-8"	189	S		
Vary by 1'-9 1/8" +	S702	4 Series of 7	12'-4" to 22'-11"	1,009	S	Spirals-core Dia. 32" -Pitch 4 1/2"-%-Other details in accordance with CRSI standard practice					
Vary by 1'-9 1/8" +	S703	4 Series of 11	4'-3" to 21'-10 1/4"	1,174	S	SP401	1	22'-7"	421	B	
S704	16	12'-4"	403	S	SP402	1	29'-8"	548	B		
S801	40	25'-4"	2,706	S	SP403	1	21'-6"	401	B		
S501	48	6'-9"	338	B	SP404	1	26'-8"	494	B		
S502	412	30'-0"	12,891	S	SP405	1	20'-5"	382	B		
S503	80	20'-0"	1,669	S	SP406	1	23'-7"	439	B		
S504	48	6'-7"	330	B	Replacement Bars						
S505	80	7'-2"	598	B	RE1001	1	8'-2"	-	S		
S506	2	7'-3"	15	S	RE901	1	7'-10"	-	S		
S507	2	13'-4"	28	S	RE801	1	7'-6"	-	S		
S508	103	15'-9"	1,692	S	RE701	2	7'-2"	-	S		
X501	158	2'-0"	330	B	RE601	1	6'-11"	-	S		
X502	158	5'-4"	879	B	RE501	2	6'-7"	-	S		
X503	158	2'-3"	371	B	RE401	1	6'-3"	-	S		
X504	158	3'-2"	522	B	STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						
X505	16	15'-6"	259	S	PARAPET DETAILS & REINFORCING STEEL LIST						

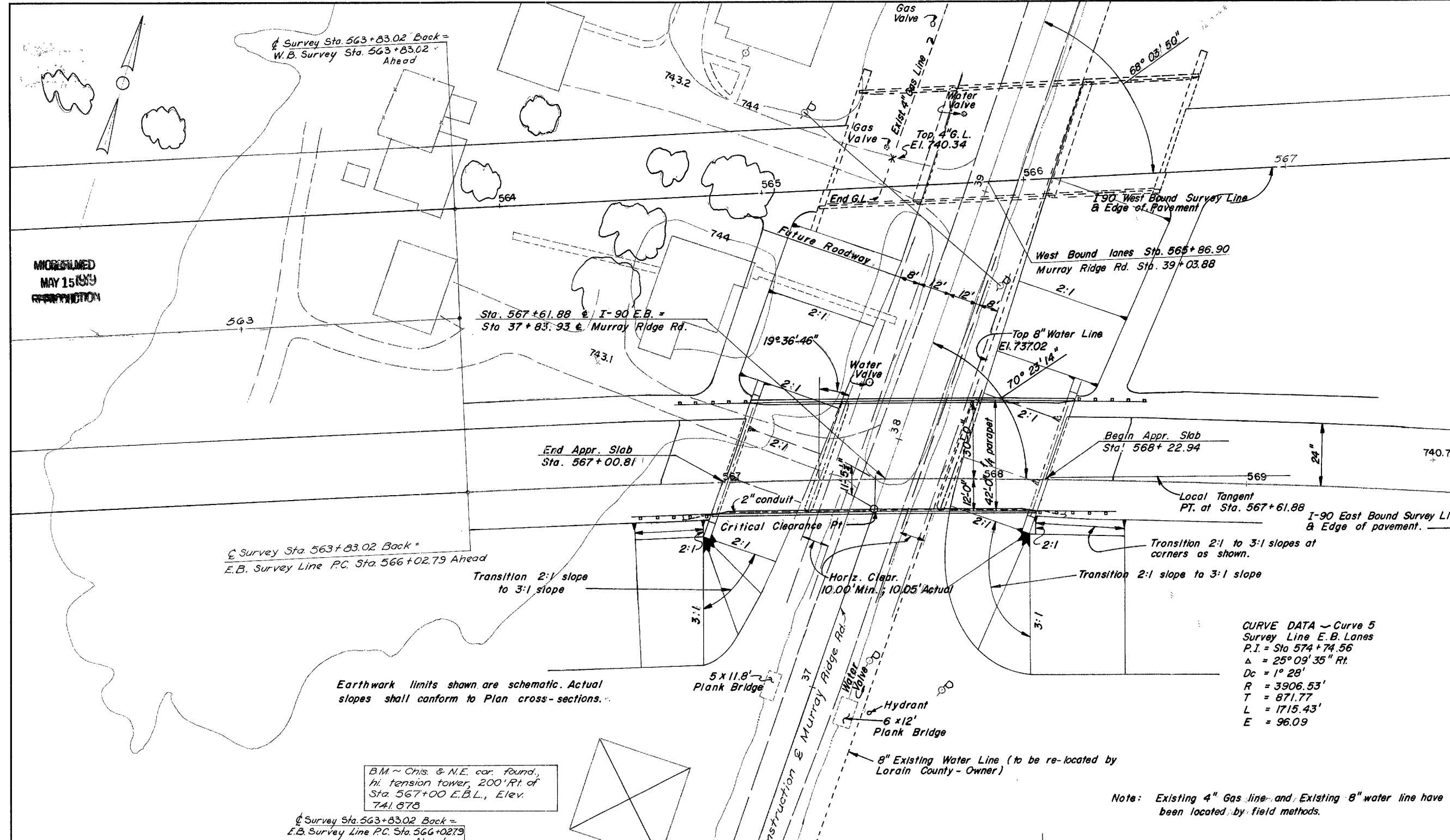
BAR SIZE is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example, P901 is a No 9 size bar and P1001 is a No 10 size

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
WTL	WTL	GFJ	HEN	BFG	6-16-70	4-8-78

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	70 I-	

245  
283

1.0±mi. N.W. Elyria  
LOR-90-948



MICROFILMED  
MAY 15 1989  
REPRODUCTION

Survey Sta. 563+83.02 Back =  
E.B. Survey Line P.C. Sta. 566+02.79 Ahead

Earthwork limits shown are schematic. Actual slopes shall conform to Plan cross-sections.

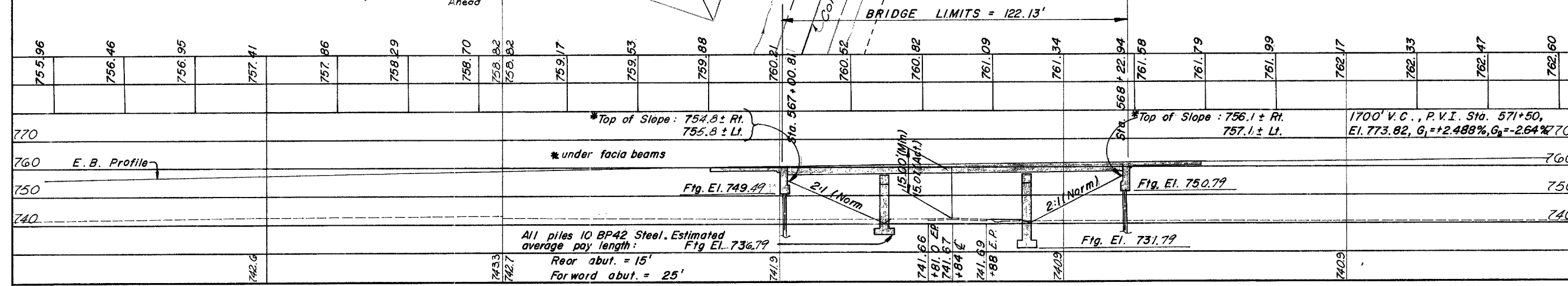
B.M. ~ Chis. & N.E. cor. found, hi. tension tower, 200' Rt. of Sta. 567+00 E.B.L., Elev. 741.878

Survey Sta. 563+83.02 Back =  
E.B. Survey Line P.C. Sta. 566+02.79 Ahead

**CURVE DATA - Curve 5**  
Survey Line E.B. Lanes  
P.I. = Sta 574 + 74.56  
Δ = 25° 09' 35" Rt.  
Dc = 1° 28'  
R = 3906.53'  
T = 871.77  
L = 1715.43'  
E = 96.09

Note: Existing 4" Gas line and Existing 8" water line have been located by field methods.

PROPOSED STRUCTURE	
TYPE:	Continuous Steel Beam with Reinforced Concrete Deck & Substructure
SPAN:	35.0'-50.0'-35.0' % brg.
ROADWAY:	42'-0" 1/4 parapet
LOADING:	HS20-44 and the Interstate Alternate Loading
SKIEW:	19°-36'-46" L.F. to local tangent
SURFACE COURSE:	2" Asphalt Concrete.
APPROACH SLAB:	AS-1-67 (25' long)
ALIGNMENT:	1°-28' Curve Rt.
SUPERELEVATION:	.047 1/4



STATE OF OHIO DEPARTMENT OF HIGHWAYS BUREAU OF BRIDGES			
SITE PLAN			
BRIDGE NO.	LOR - 90EB-1157		
I.R.-90 East Bound over Murray Ridge Rd.			
LORAIN CO	IR - 90		
SEC.	STA. 567 + 00.81		
SCALE	1" = 20'		
PRESENT TOPOGRAPHY		PROPOSED WORK	
SURVEYED	DRAWN	DESIGNED	CHECKED
AERIAL SURVEY	AERIAL SURVEY	R.D.M.	R.D.M. BDH. P.E.S.
REVIEWED			
BFG 4-17-70 R.O.H.-25-79			

563

567

568

569

03654

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

246  
283

LOR-90-9.48

**GENERAL NOTES**

REFERENCE shall be made to Standard Drawings BR-1-67 Sheet 1 revised 1-1-71 and SD-1-69 Sheets 3 & 4 dated 6-12-69, and to Supplemental Specifications 808 dated 1-1-71 and 836 dated 1-1-71.

DESIGN SPECIFICATIONS: This structure conforms to "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway Officials, 1969, including the Ohio "Supplement" to these specifications.

**DESIGN DATA:**

Design Loading - HS 20-44 and the Interstate Alternate Loading.

Concrete Class C - Unit stress 1200 p.s.i. for superstructure.  
Unit stress 1333 p.s.i. for substructure.

Structural Steel - ASTM A36 - unit stress 20,000 p.s.i.

Reinforcing Steel - ASTM A615, A616 or A617 - unit stress 20,000 psi.  
Spiral reinforcement may be plain bars ASTM A62, A306, A432, A615.

EMBANKMENT CONSTRUCTION: The embankments shall be constructed to the level of the subgrade for a minimum distance of 200 feet back of the abutments. Excavation shall then be made for the abutments and piers.

PILES shall be driven to firm contact with bedrock. If the length of penetration is approximately equal to the depth to bedrock according to the bridge foundation investigation report, the firm contact shall be considered as attained when the capacity according to the formula in 507.05 is not less than the following value for a pile hammer of the indicated energy rating: 55 tons per pile using a 7000 ft. lb. hammer, 50 tons per pile using an 11000 ft. lb. hammer, and 45 tons per pile using a 15,000 ft. lb. or greater hammer.  
If the energy rating of the hammer is between the ratings as shown above, the required Capacity shall be determined by interpolation. The design load is 35 tons per pile.

FOUNDATION BEARING PRESSURE: Pier footings are designed for a maximum bearing pressure of 7 tons per sq. ft.

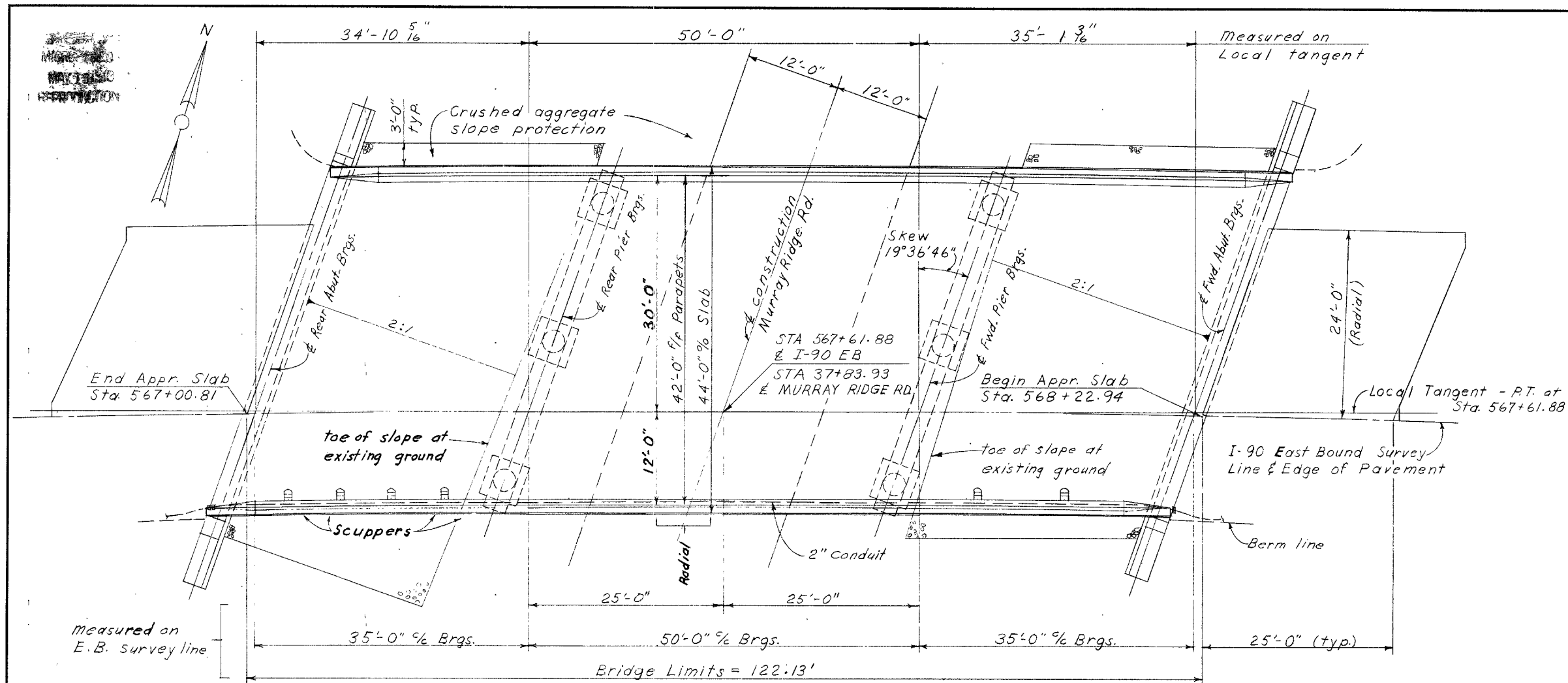
PIER FOOTINGS shall extend a minimum of 3 inches into bedrock or to the elevation shown, whichever is lower.

UTILITY LINES: All expense involved in relocating the affected utility lines shall be borne by the Owners. The Contractor and Owners are requested to cooperate by arranging their work in such a manner that inconvenience to either would be held to a minimum.

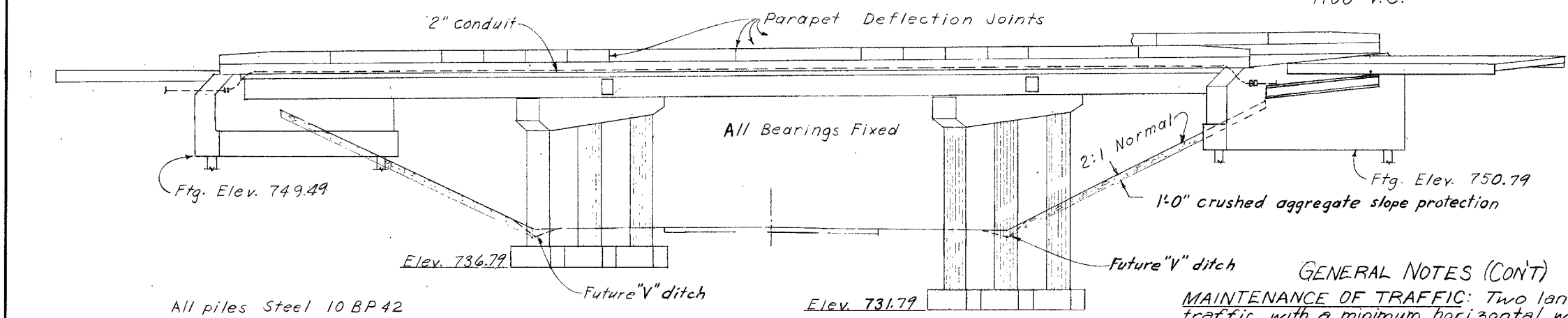
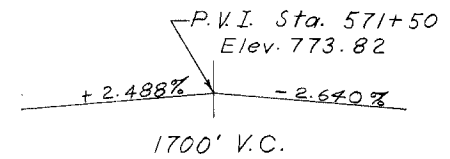
**GENERAL NOTES (CONT)**  
MAINTENANCE OF TRAFFIC: Two lanes of traffic with a minimum horizontal width of 24'-0" and a minimum vertical clearance of 12'-9" shall be maintained on Murray Ridge Rd. at all times.

PREFORMED EXPANSION JOINT FILLER in the railing parapet deflection joints may be either 1" gray sponge rubber or 1/2" gray cellular polyvinyl chloride (PVC) sponge. Either material shall meet the requirements of AASHTO M-153, Type I, except the density of the PVC sponge shall be not less than 20 lb. per cu. ft.

For Estimated Quantities See Sht. 878



GENERAL PLAN

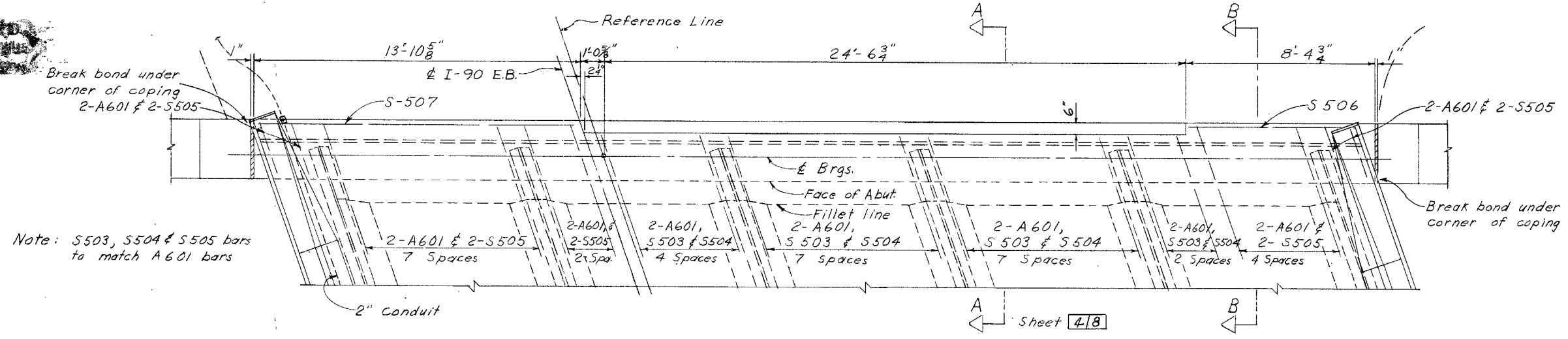


ELEVATION

All piles Steel 10 BP42 (Piles not all shown)

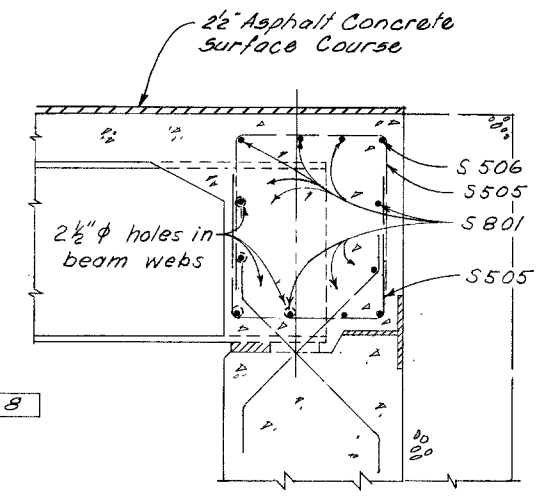
STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES		2/8
<b>GENERAL PLAN, ELEVATION &amp; NOTES</b>		
Bridge No. LOR-90EB-1157 over MURRAY RIDGE ROAD		
DESIGNED	DRAWN	TRACED
GEA	GEA	WTF
CHECKED	REVIEWED	DATE
WTF	BFG	4-17-70
REVISED	DATE	REVISED
		4-25-78

LOR-90-9.48

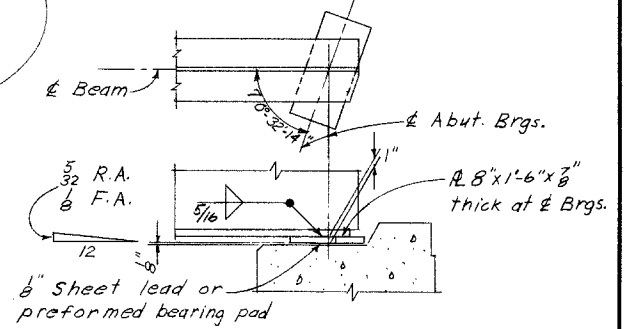


SUPERSTRUCTURE PART PLAN AT REAR ABUTMENT

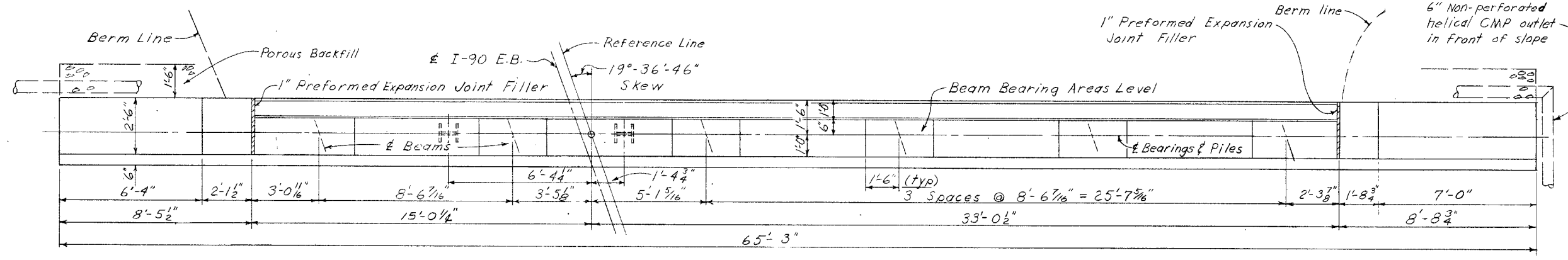
For additional details see Forward Abutment details, Sheet 4/8



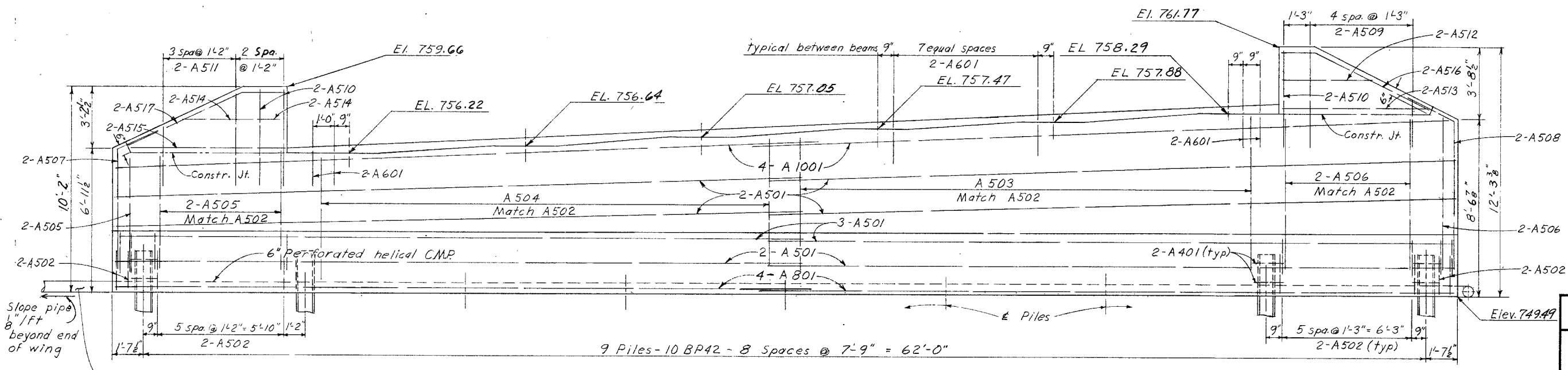
SECTION B-B



BEARING DETAIL



REAR ABUTMENT PLAN



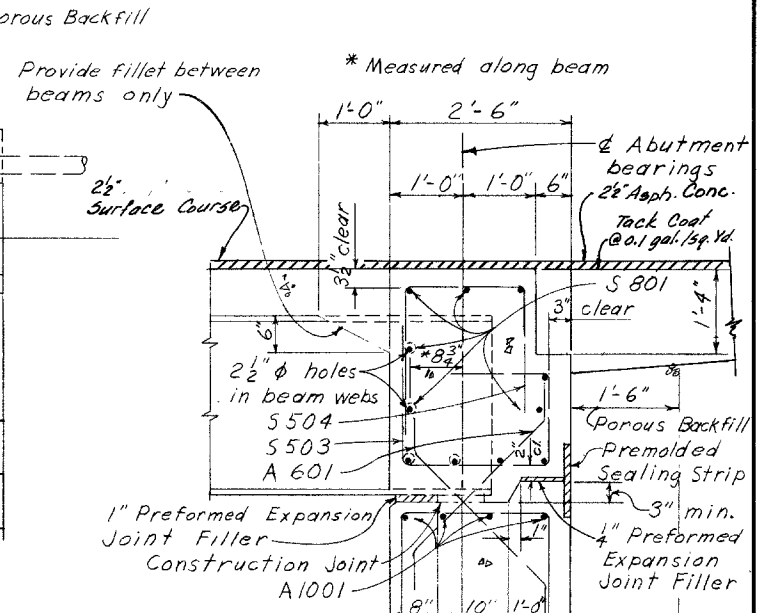
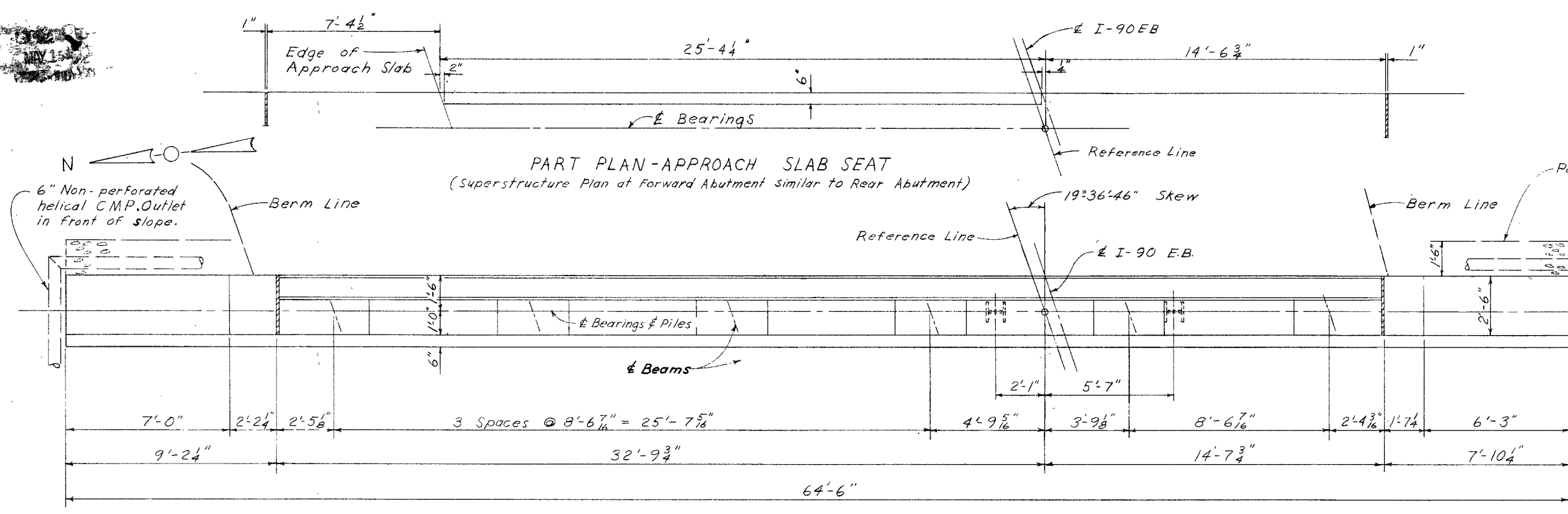
ELEVATION

POROUS BACKFILL, 1.5 Ft. thick Full length of abutment and wings, shall extend up to the subgrade and laterally to the surface of the embankment slopes.

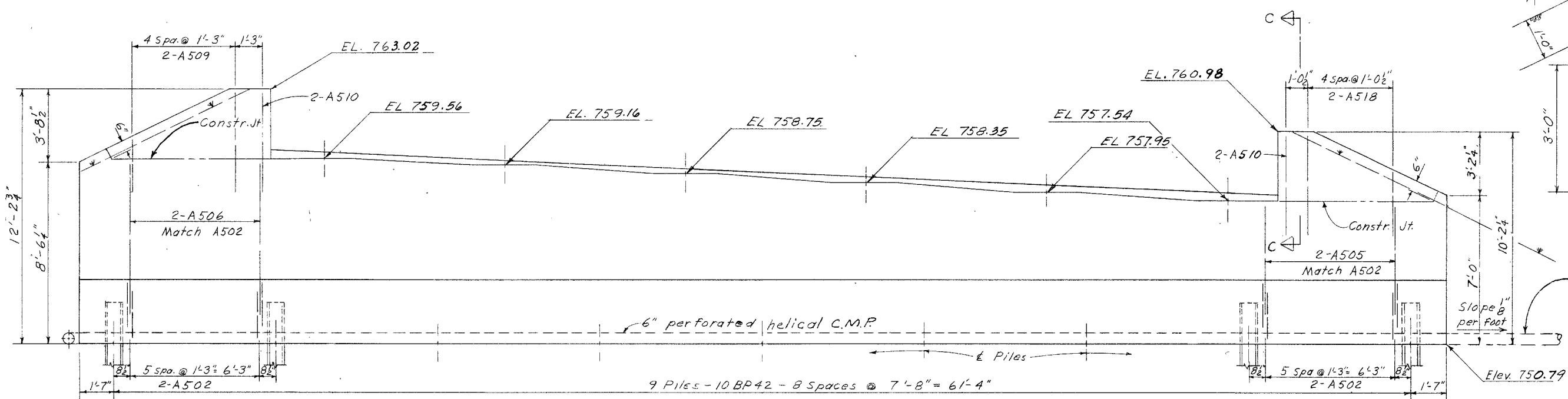
ADJUSTABLE TYPE ELBOWS meeting specification requirements for gage and coating are acceptable for making bends in corrugated metal pipe. Elbows need not be perforated.

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES					
SUPERSTRUCTURE & REAR ABUTMENT DETAILS Bridge No. LOR-90EB-1157 over MURRAY RIDGE ROAD					
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
GEA	GEA		WTF	BFG	4-17-70

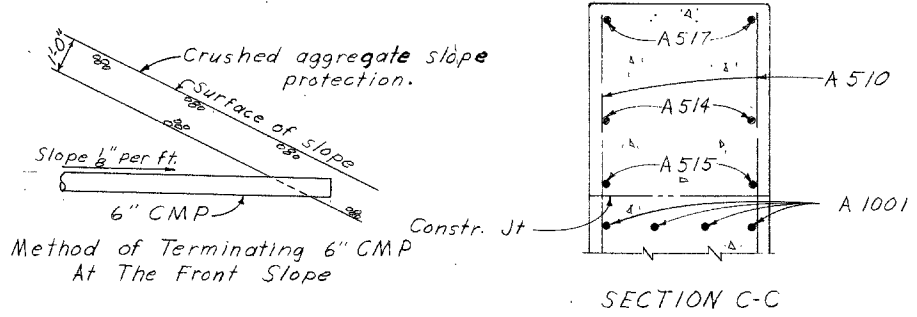
3	8
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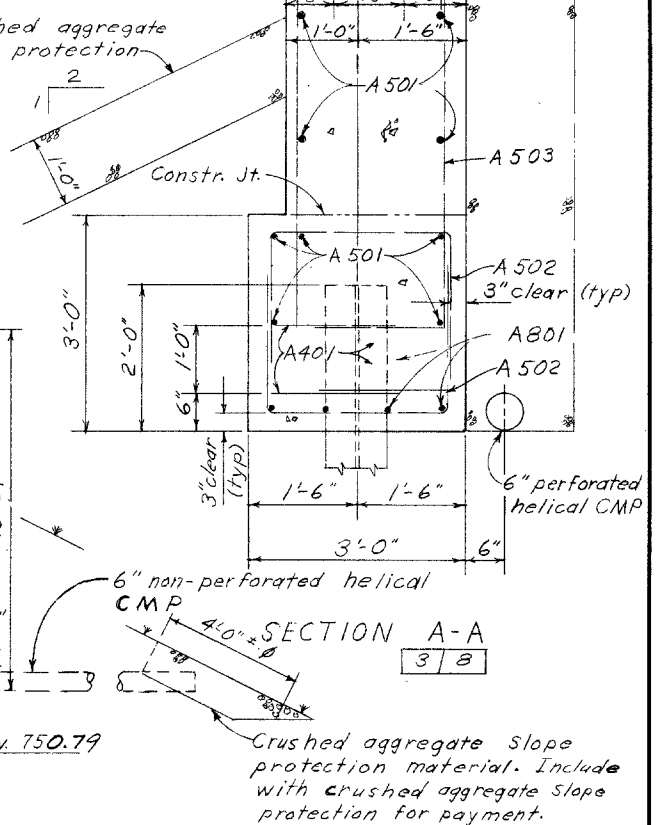
FORWARD ABUTMENT PLAN



ELEVATION



SECTION C-C



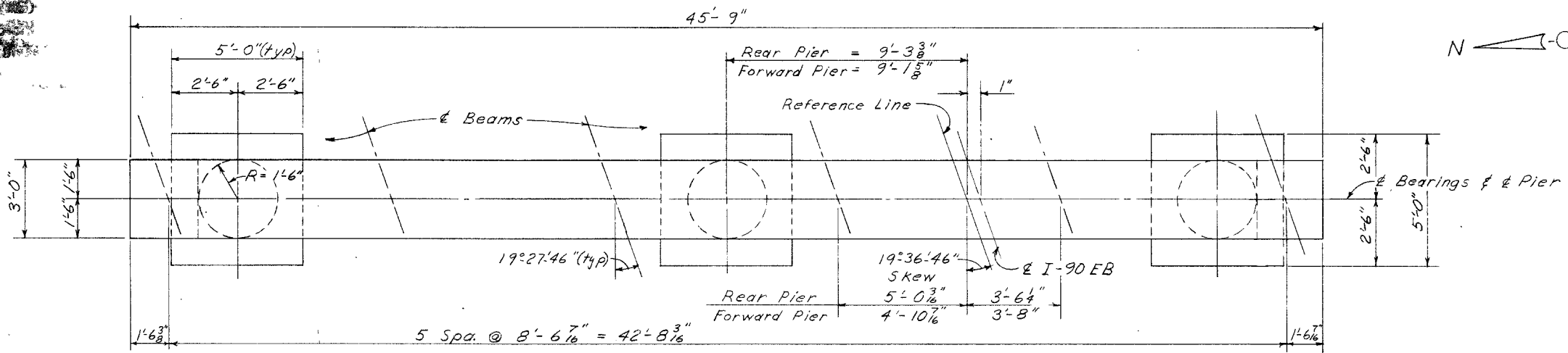
FORWARD ABUTMENT DETAILS

Bridge No. LOR-90EB-1157  
over MURRAY RIDGE ROAD

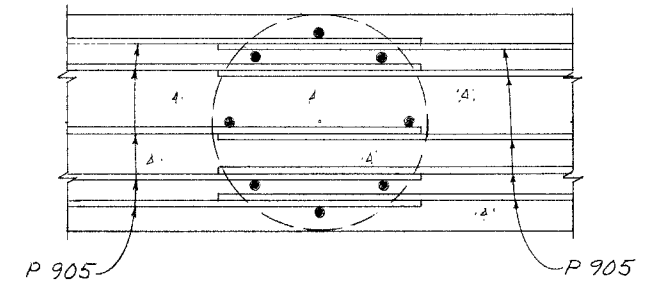
For notes and additional details See  
Rear Abutment Details sheet 3/8

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
GEA	GEA		WTF	BFG	4-17-70	4/83

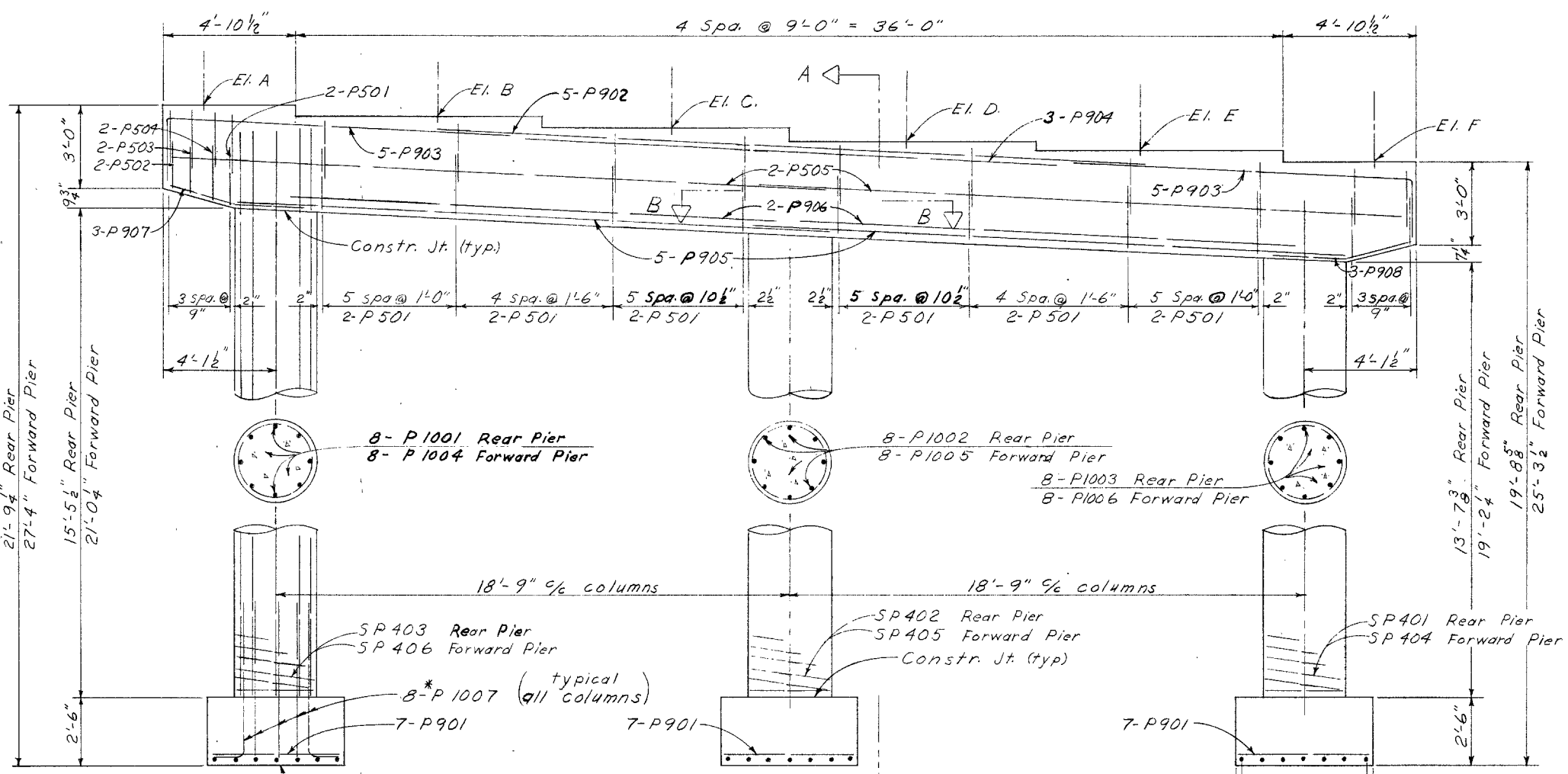




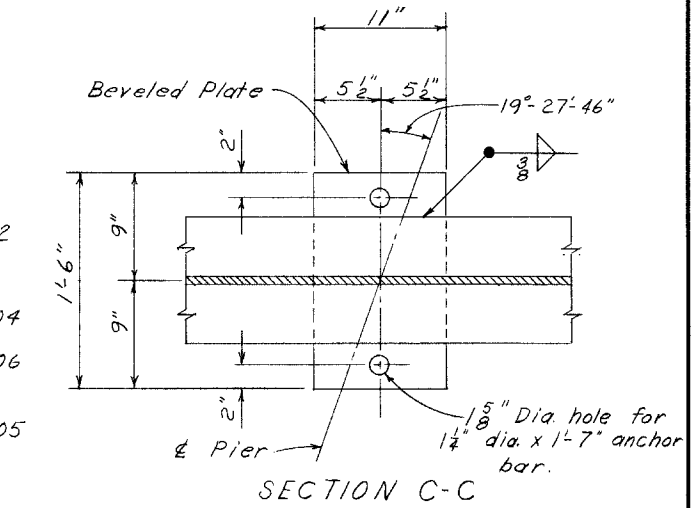
PLAN



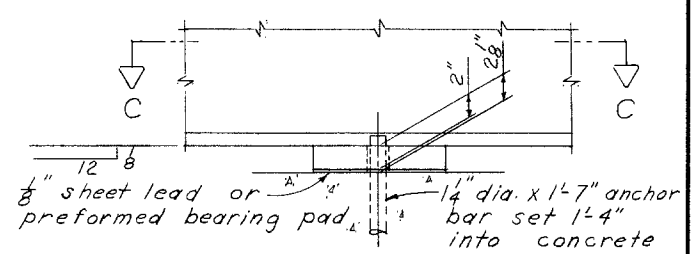
SECTION B-B



ELEVATION

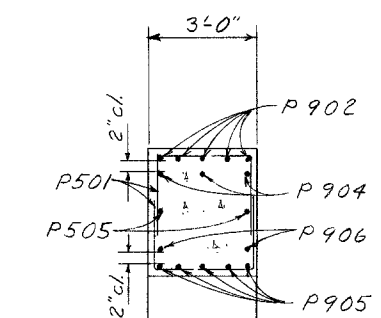


SECTION C-C



PIER BEARING

BRIDGE SEAT REINFORCING: Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seat so as to avoid interference with the drilling of anchor bar holes.

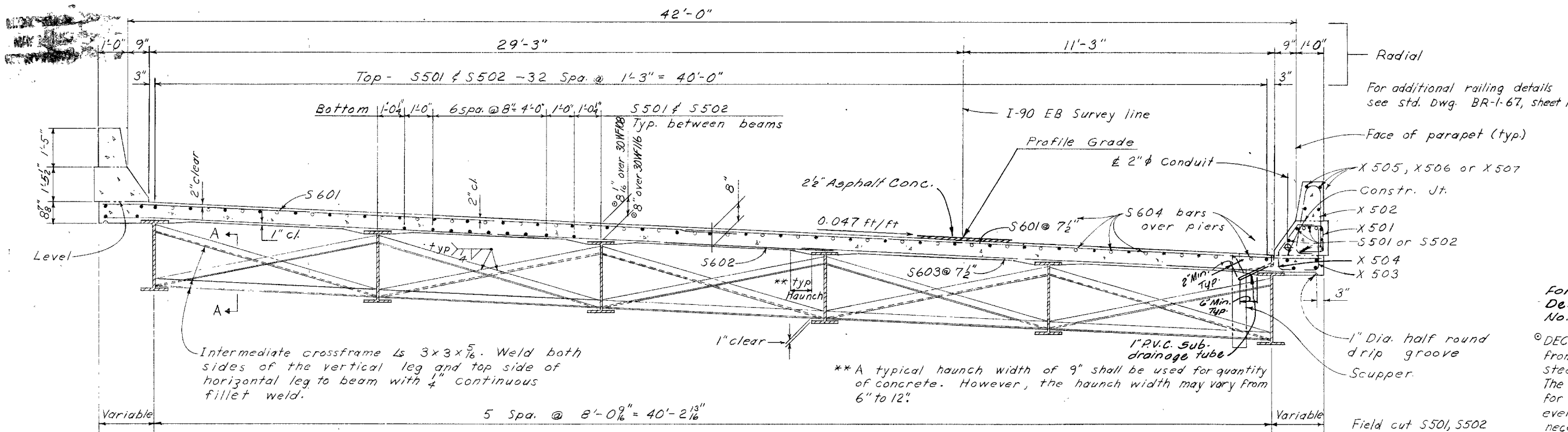


SECTION A-A

Superstructure shall be grounded at either of the piers.

PIER DATA							
ELEVATIONS							
LOCATION	A	B	C	D	E	F	G
REAR PIER	758.56	758.15	757.74	757.33	756.92	756.51	736.79
FORWARD PIER	759.12	758.70	758.30	757.90	757.49	757.08	731.79

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						5/8
PIER DETAILS						
Bridge No. LOR-90EB-1157 over MURRAY RIDGE RD.						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
GEA	GEA		WTF	BFG	4-17-70	4/23



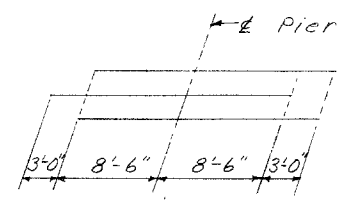
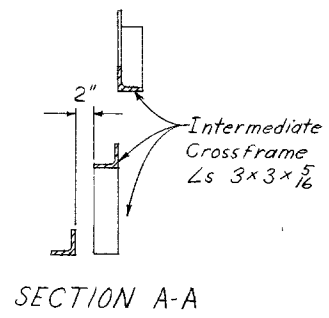
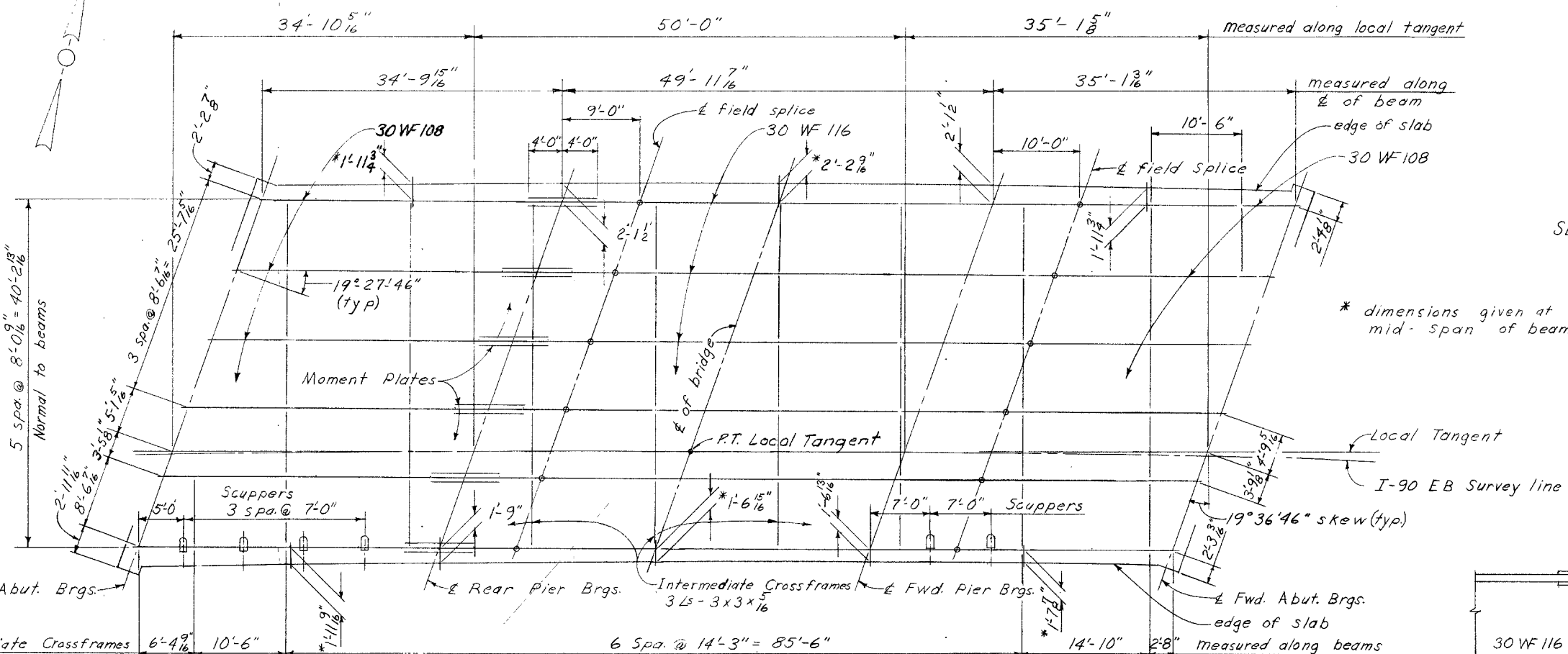
For Subdrainage and Surface Course Details, see sheet 3/B, Bridge No. LOR-90-WB-1148

DECK SLAB DEPTH: The distance shown from top of deck slab to top of steel beam is the design dimension. The quantity of deck concrete to be paid for shall be based on this dimension, even though deviation from it may be necessary because the top flange of the beam may not have the exact camber or conformation required to place it parallel to the finished grade.

See Standard Drawing SD-1-69, sheet 4 for details of Moment Pl.

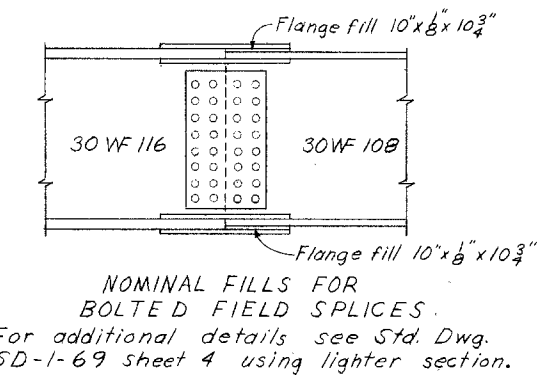
For Scupper Details see sheet 7/B

TRANSVERSE SECTION

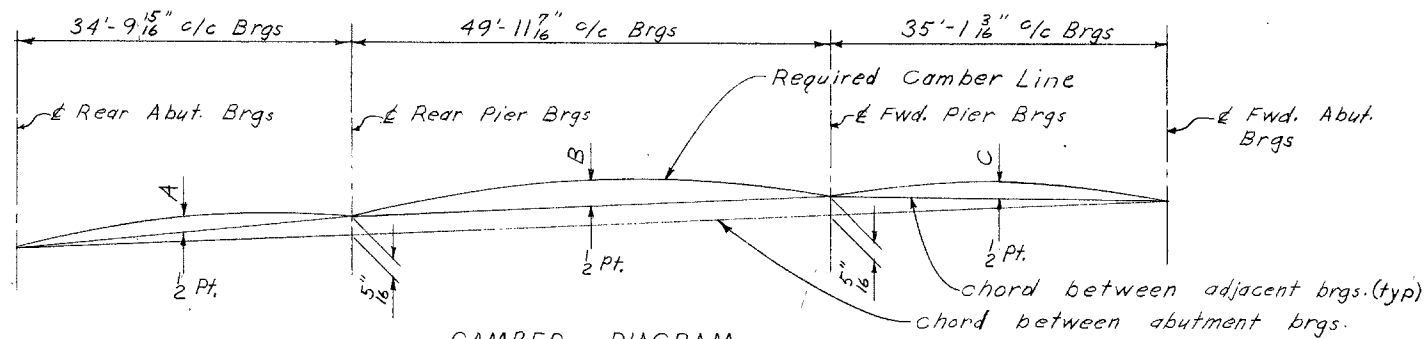


Refer to Std. Dwg. HL-4 for Electrical Details ELECTRICAL QUANTITIES including superstructure grounding shall be included with Item 625 for payment.

STEEL FRAMING PLAN



STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						G/B
SUPERSTRUCTURE DETAILS						
Bridge No. LOR-90EB-1157						
over MURRAY RIDGE ROAD						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
GEA	GEA		WTF	BFG	4-17-70	4/23/79



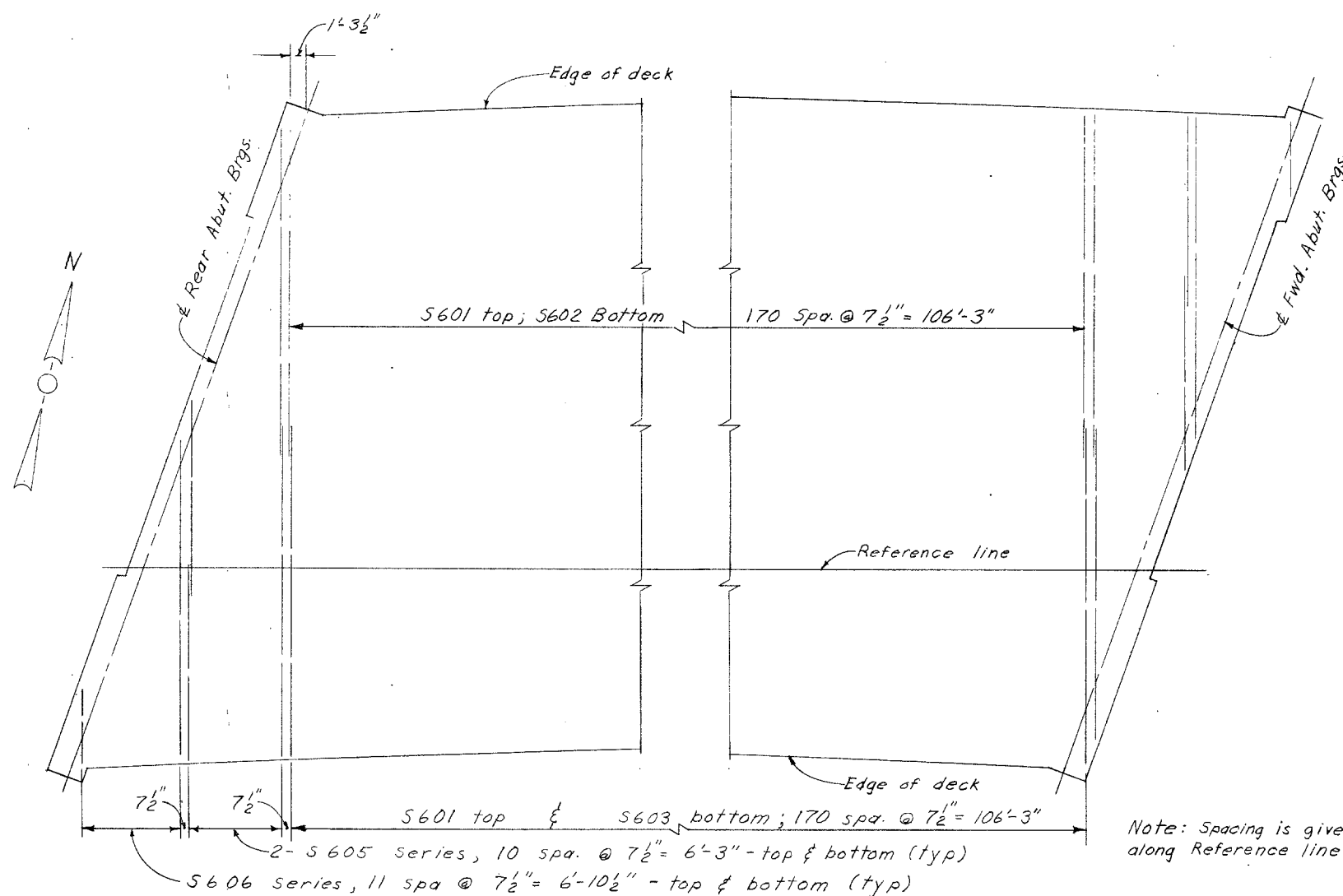
CAMBER DIAGRAM

DEFLECTION AND CAMBER	A B C		
	Deflection due to weight of steel	-	1/16"
Deflection due to remaining dead load	1/16"	1/4"	1/16"
Adjustment req'd. for vertical curve	1/16"	0	1/16"
Adjustment req'd. for horizontal curve	-	-	-
Required Shop Camber	1/8"	5/16"	1/8"

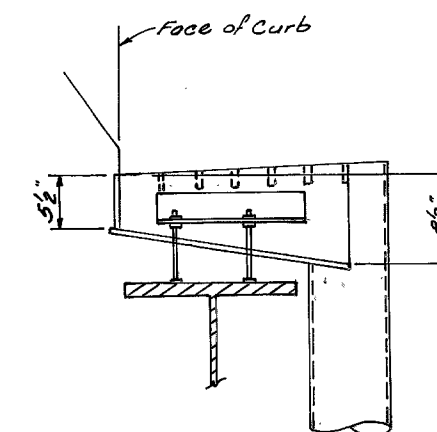
SCREED ELEVATIONS													
Location	Brig. R.A.	Rear Span			Center Span				Forward Span				
		1/4 Pt	1/2 Pt	3/4 Pt	Brig. Pier	splice	1/2 Pt	3/4 Pt	Brig. Pier	splice	1/2 Pt	1/4 Pt	Brig. F.A.
Left side	761.75	761.86	761.97	762.06	762.16	762.27	762.46	762.58	762.69	762.79	762.86	762.94	763.02
Right side	759.65	759.77	759.88	759.99	760.09	760.24	760.40	760.53	760.64	760.75	760.83	760.91	760.99

R.A. denotes Rear Abutment  
F.A. denotes Forward Abutment

Screed elevations at the curb line are those which are required before the concrete deck is placed. They include an allowance for deflection due to the weight of remaining dead load.



PLAN OF TRANSVERSE REINFORCEMENT

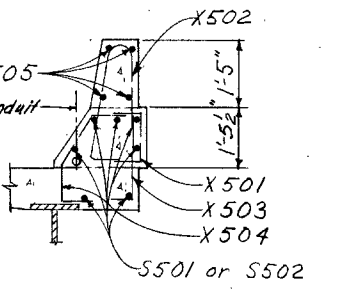
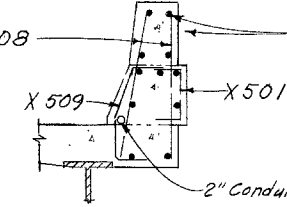
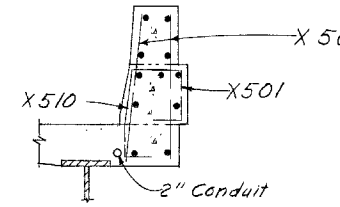
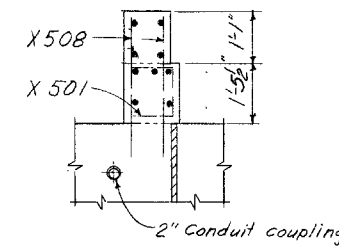
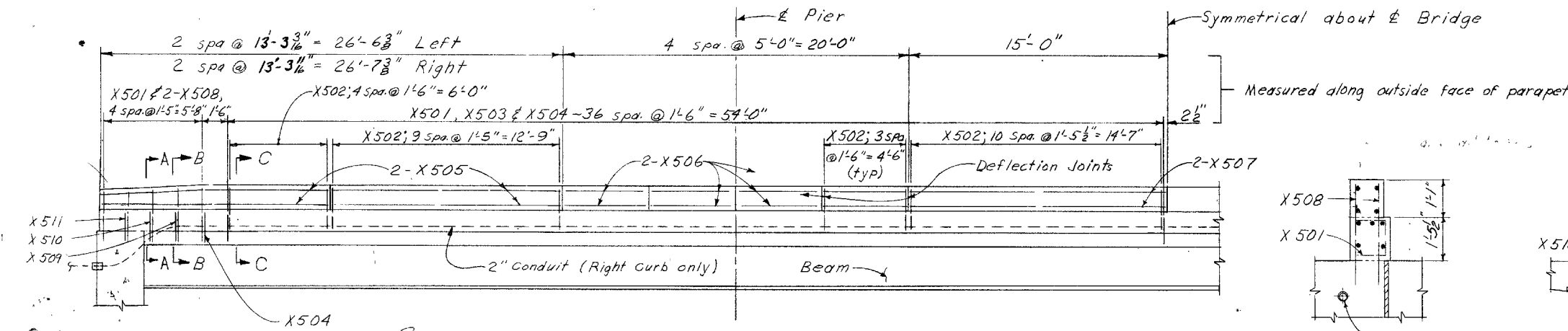


SCUPPER DETAIL

For details not shown see  
Std. Dwg. SD-1-69, Sheet 3  
Set scupper 1/4" below roadway  
surface.

Note: Spacing is given along Reference line

SUPERSTRUCTURE DETAILS  
Bridge No. LOR-90EB-1157  
over MURRAY RIDGE ROAD



PARAPET RAILING ELEVATION

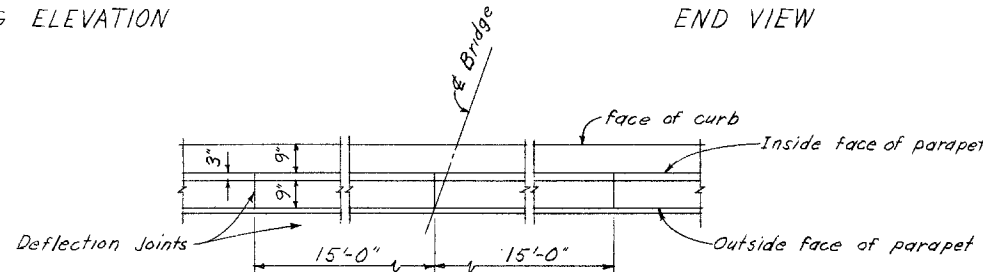
END VIEW

SECTION A-A

SECTION B-B

SECTION C-C

For Railing notes and additional details, see Std. Dwg BR-1-67, sheet 1. Refer to Std. Dwg. HL-4 for electrical details.



PART PLAN OF PARAPET AND CURB AT & OF BRIDGE

PARAPET TRANSITIONS shall be as shown on Std. Dwg. BR-1-67 revised 1-1-71. Reinforcing steel shall be field bent or cut to fit the revised shape.

Mark No.	Length	Weight	Spd	Bending Diagrams	Mark No.	Length	Weight	Spd	Bending Diagrams		
<b>Abutments</b>					<b>Superstructure (cont)</b>						
A1001	16	34'-0"	2341		S	<b>Piers (Cont)</b>					
A801	16	33'-8"	1438		S	P908	6	5'-4"		109	B
A601	176	4'-7"	1212		B	P501	128	7'-3"		968	B
A501	36	33'-2"	1245		S	P502	8	6'-9"		56	B
A502	208	6'-5"	1392		B	P503	8	6'-11"		58	B
A503	36	16'-4"	613		B	P504	8	7'-1"		59	B
A504	36	14'-4"	538		B	P505	8	23'-6"		196	S
A505	28	5'-6"	161		S	<b>Spiral Bars - Core Dia.</b>					
A506	28	7'-3"	212		S	S501	384	30'-0"		12015	S
A507	4	7'-9"	32		B	S502	96	8'-2"		818	S
A508	4	10'-3"	43		B	S503	48	6'-9"		338	B
A509	4	4'-9"	73		S	S504	48	5'-10"		292	B
A510	10	4'-9"	50		S	S505	80	6'-3"		522	B
A511	2	4'-6"	30		S	S506	2	8'-0"		17	S
A512	4	4'-4"	18		S	S507	2	13'-6"		28	S
A513	4	6'-9"	28		S	<b>Replacement Bars</b>					
A514	4	4'-10"	20		S	X501	168	2'-0"		350	B
A515	4	7'-6"	31	S	X502	168	5'-4"	934	B		
A516	4	7'-9"	32	B	X503	148	2'-2"	334	B		
A517	4	7'-7"	32	B	X504	152	3'-0"	476	B		
A518	2	4'-6"	37	S	X505	32	12'-11"	431	S		
A401	72	5'-4"	256	S	X506	64	4'-8"	312	S		
<b>Superstructure</b>					<b>Piers</b>						
S801	44	25'-0"	2937		S	P1001	8	18'-6"		637	S
S601	342	22'-9"	11686		S	P1002	8	17'-8"		608	S
S602	171	26'-9"	6871		S	P1003	8	16'-10"		579	S
S603	171	18'-9"	4816		S	P1004	8	24'-0"		826	S
S604	72	20'-0"	2163		S	P1005	8	23'-2"		797	S
						P1006	8	22'-4"		769	S
						P1007	48	6'-5"		1325	B
						P901	84	4'-6"		1285	S
						P902	10	26'-0"		884	S

Item	Total	Unit	Description	Abut.	Piers	Super.	Gen'l.	As Built
404	31	Cu. Yd.	Asphalt Concrete (70-85 or AC20), as per plan			31		
Special	8	Cu. Yd.	Sand Asphalt (see proposal note)			8		
Special	550	Sq. Yd.	Membrane Waterproofing (see proposal note)			550		
503	Lump	Sum	Cofferdams, cribs and sheeting					Lump
503	231	Cu. Yd.	Unclassified excavation, including rock	157	74			
505	Lump	Sum	Test pile					Lump
507	360	Lin. Ft.	Steel Piles HP10x42 *		360			
509	73515	Lb.	Reinforcing Steel	9834	14,594	49087		
511	191	Cu. Yd.	Class C concrete, superstructure				191	
511	64	Cu. Yd.	Class C concrete, pier caps and columns		64			
511	64	Cu. Yd.	Class C concrete, abutments above					
			footings	64				
511	57	Cu. Yd.	Class C concrete, footings		43	14		
512	96	Lin. Ft.	Premolded sealing strip		96			
513	93/100	Lb.	Structural Steel				93/100	
514	93/100	Lb.	Field Painting of Structural Steel				93/100	
516	90	Sq. Ft.	1" preformed expansion joint filler		90			
516	82	Sq. Ft.	1/2" preformed expansion joint filler		82			
518	73	Cu. Yd.	Porous backfill		73			
518	130	Lin. Yd.	6" perforated helical corrugated metal pipe, 707.01		130			
518	70	Lin. Ft.	6" non-perforated helical corrugated metal pipe, including specials, 707.01		70			
518	6	each	Scuppers including supports			6		
601	422	Sq. Yd.	Crushed aggregate slope protection				422	
625			See Sheet [75] for Lighting Summary					
808	191	Units	Chemical admixture for concrete - Type A, B, or D				191	

\* HP10x42 piles formerly 10BP42.

Bar Size is indicated in the bar mark. The first digit where three are used, and the first two digits where four are used, indicate the bar size number. For example, A700 is a No. 7 size bar and A1014 is a No. 10 size.

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STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
DIVISION OF DESIGN AND CONSTRUCTION  
BUREAU OF BRIDGES

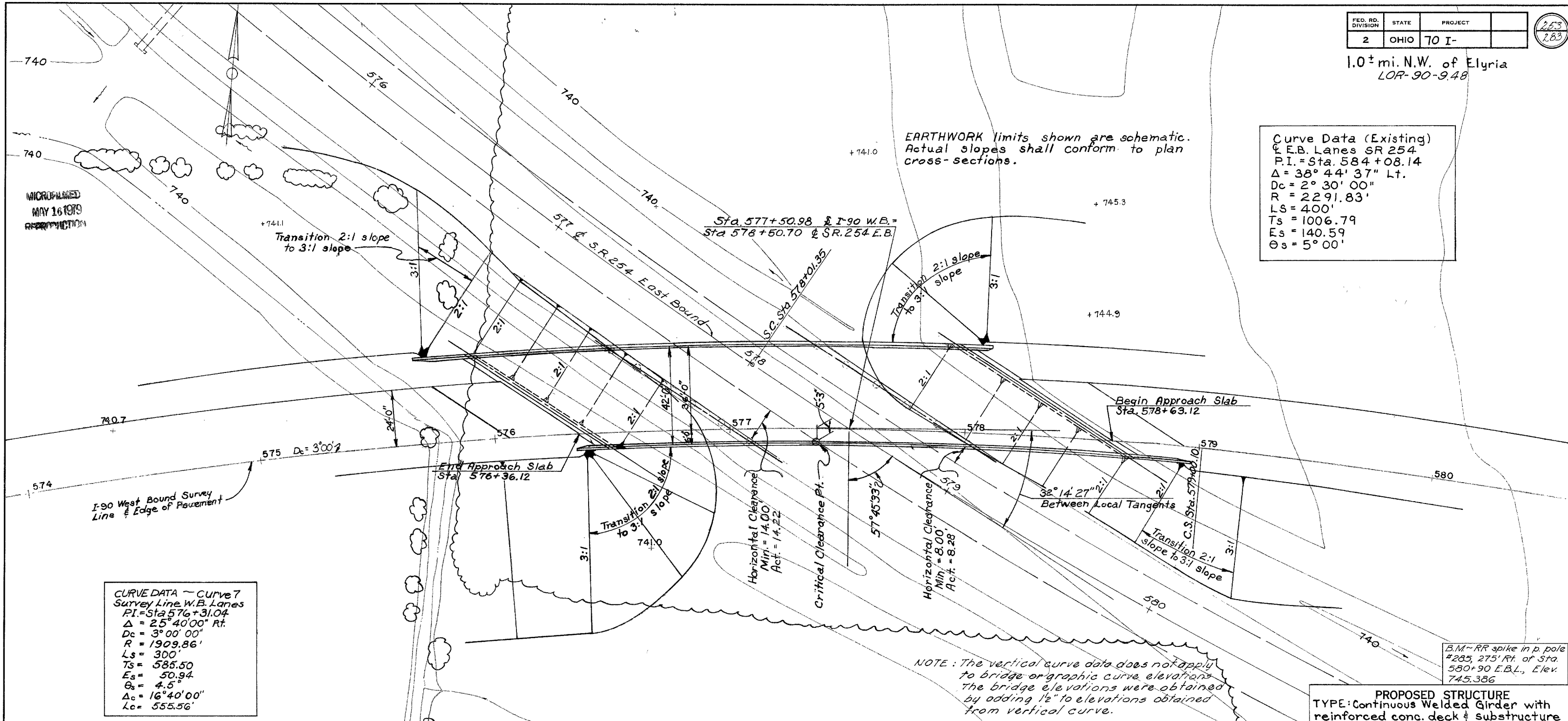
SUPERSTRUCTURE DETAILS,  
REINFORCING STEEL LIST AND  
ESTIMATED QUANTITIES  
Bridge No. LOR-90EB-1157  
over MURRAY RIDGE ROAD

DESIGNED	DRAWN	TRACED	CHECKED	APPROVED	DATE	REVISED
GEA	GEA		WTF	BFG	4-17-70	4-25-70

1.0± mi. N.W. of Elyria  
LOR-90-9.48

Curve Data (Existing)  
 E.B. Lanes SR 254  
 P.I. = Sta. 584+08.14  
 $\Delta = 38^\circ 44' 37''$  Lt.  
 $D_c = 2^\circ 30' 00''$   
 $R = 2291.83'$   
 $L_s = 400'$   
 $T_s = 1006.79$   
 $E_s = 140.59$   
 $G_s = 5^\circ 00'$

EARTHWORK limits shown are schematic.  
 Actual slopes shall conform to plan  
 cross-sections.



CURVE DATA - Curve 7  
 Survey Line W.B. Lanes  
 P.I. = Sta. 576+31.04  
 $\Delta = 25^\circ 40' 00''$  Rt.  
 $D_c = 3^\circ 00' 00''$   
 $R = 1909.86'$   
 $L_s = 300'$   
 $T_s = 585.50$   
 $E_s = 50.94$   
 $G_s = 4.5^\circ$   
 $\Delta_c = 16^\circ 40' 00''$   
 $L_c = 555.56'$

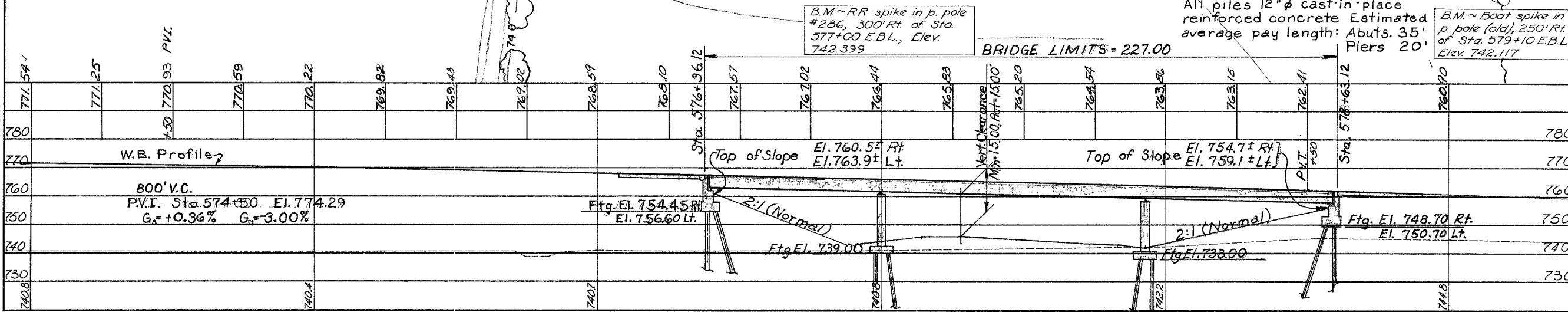
NOTE: The vertical curve data does not apply  
 to bridge or graphic curve elevations.  
 The bridge elevations were obtained  
 by adding 1/2" to elevations obtained  
 from vertical curve.

B.M. - RR spike in p. pole  
 #283, 275' Rt. of Sta.  
 580+90 E.B.L., Elev.  
 745.386

B.M. - RR spike in p. pole  
 #286, 300' Rt. of Sta.  
 577+00 E.B.L., Elev.  
 742.399

All piles 12"  $\phi$  cast-in-place  
 reinforced concrete. Estimated  
 average pay length: Abuts. 35'  
 Piers 20'

B.M. - Boat spike in  
 p. pole (old), 250' Rt.  
 of Sta. 579+10 E.B.L.,  
 Elev. 742.117



PROPOSED STRUCTURE  
 TYPE: Continuous Welded Girder with  
 reinforced conc. deck & substructure  
 SPAN: 60.5' - 93.0' - 65.0' c/c brgs.  
 ROADWAY: 42'-0" f/f parapet  
 LOADING: HS 20 - 44 (Interstate Alternate)  
 SKEW: 57° 45' 33" RF. (to tangent at  
 Sta. 577 + 50.98 & I-90 W.B.)  
 SURFACE COURSE: 1/2" Asphalt Concrete  
 APPROACH SLAB: AS-1-G7 (30' long)  
 ALIGNMENT: 3° 00' Rt.  
 SUPERELEVATION: 0.08 3/4 ft

STATE OF OHIO DEPARTMENT OF HIGHWAYS BUREAU OF BRIDGES					
SITE PLAN					
BRIDGE NO. LOR - 90 W.B. 1170			IR - 90 West Bound over East Bound S.R. 254		
LORAIN CO			IR - 90		
SEC. STA. 576+36.12			578+63.12		
SCALE 1" = 20'					
PRESENT TOPOGRAPHY			PROPOSED WORK		
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
AERIAL	Rev. Plan Prep	R.D.M.	R.D.M.	D.H.S.	P.E.S.
SURVEY	D.F.H. 9-3-68				

GENERAL NOTES

REFERENCE shall be made to Standard Drawing SD-1-69 dated 6-12-69, sheets 1, 2, 3, and 4; BR-1-67 revised 1-1-71 sheet 1; RB-1-55 revised 2-2-59; and to Supplemental Specifications 808 dated 1-1-71; and 836 dated 1-1-71.

DESIGN SPECIFICATIONS: This structure conforms to "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway Officials, 1969 including the Ohio "Supplement" to these specifications.

DESIGN DATA

Design Loading - HS20-44 and the Interstate Alternate Loading

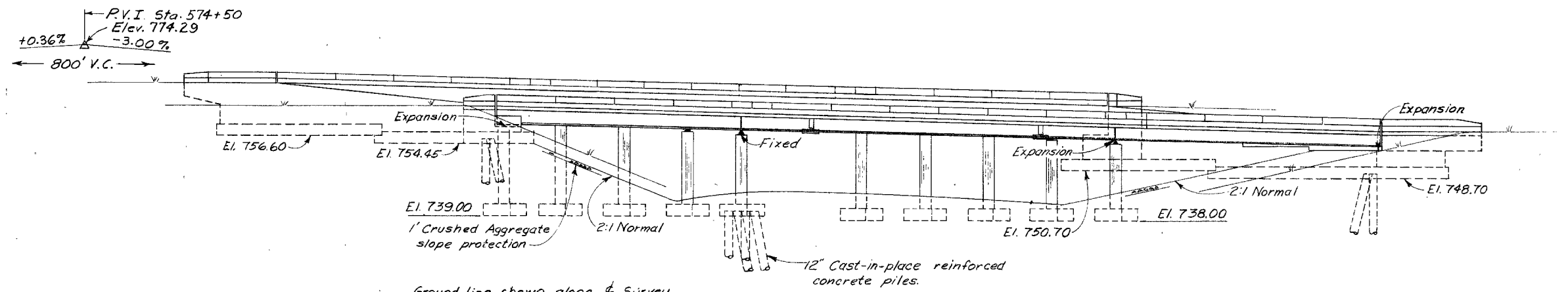
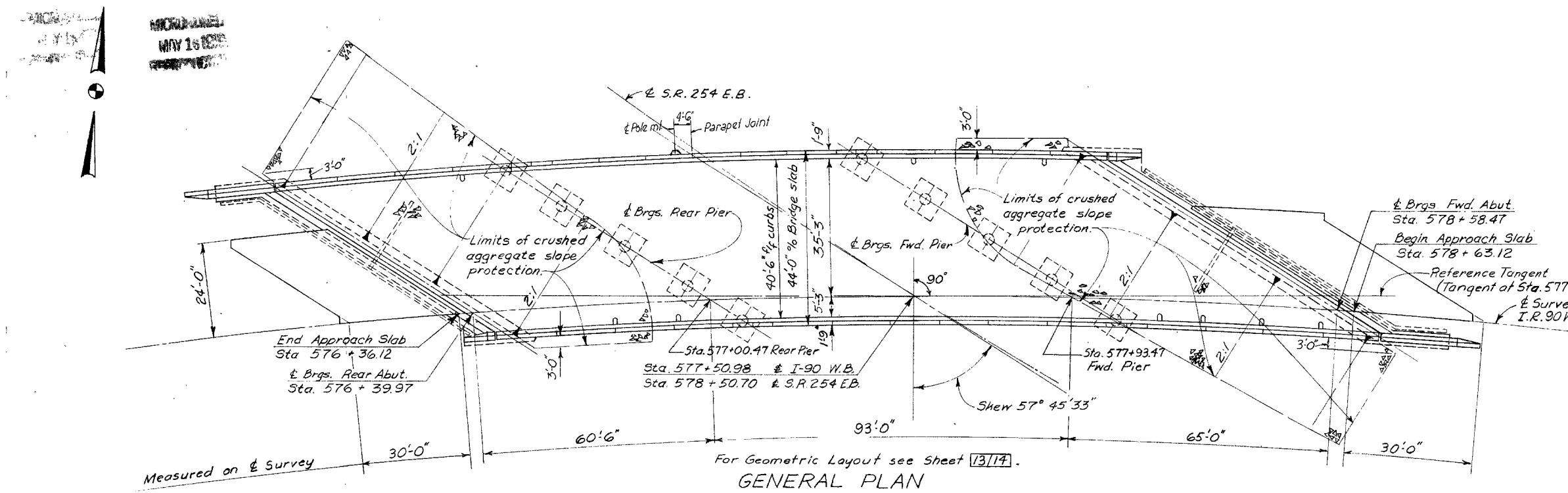
Concrete Class C - unit stress 1200 p.s.i. for superstructure.  
unit stress 1333 p.s.i. for substructure

Structural Steel - ASTM A36 - unit stress 20,000 p.s.i.  
Reinforcing Steel - ASTM A615, A616 or A617 - unit stress 20,000 p.s.i. Spiral reinforcement may be plain bars ASTM A82, A306, A455, A615.

EMBANKMENT CONSTRUCTION: The embankments shall be constructed to the level of the subgrade for a minimum distance of 200 feet back of the abutments. Excavation shall then be made for the abutments and for both Piers.

PILES shall be driven to a minimum bearing capacity of 40 tons per pile for the abutments and 35 tons per pile for the piers.

For Lighting Details, see sheets 174D and 174E



ESTIMATED QUANTITIES

Item	Total	Unit	Description	Super.	Abut.	Piers	Gen'l.	As Built.
404	28	Cu. Yd.	Asphalt concrete (70-85 for AC20), as per plan	28				
Special	14	Cu. Yd.	Sand asphalt (see proposal note)	14				
Special	1021	Sq. Yd.	Membrane waterproofing (see proposal note)	1021				
503	485	Cu. yd.	Unclassified excavation		350	135		
505	Lump	Sum.	Test pile				Lump	
507	2030	Lin. ft.	12" cast-in-place reinforced concrete piles		1230	800		
509	132,902	Lb.	Reinforcing steel	95,070	22,576	15,256		
511	326	Cu. yd.	Class C concrete, superstructure	326				
511	50	Cu. yd.	Class C concrete, pier columns			50		
511	343	Cu. yd.	Class C concrete, abutments		343			
511	69	Cu. yd.	Class C concrete, pier footings			69		
512	41	Lin. ft.	Premolded sealing strip		41			
513	259,700	Lb.	Structural steel	259,700				
514	259,700	Lb.	Field painting of structural steel	259,700				
518	102	Cu. yd.	Porous backfill		102			
518	137	Lin. ft.	6" perforated, helical corrugated metal pipe including specials 707.01			137		
518	35	Lin. ft.	6" non-perforated helical corrugated metal pipe, 707.01			35		
518	9	Each	Scuppers, including supports	9				
601	886	Sq. yd.	Crushed aggregate slope protection				886	
625			See Sheet for Lighting Summary					
808	326	Units	Chemical admixture for concrete, Type A, Bor D	326				
			See sheet 175 for lighting summary					

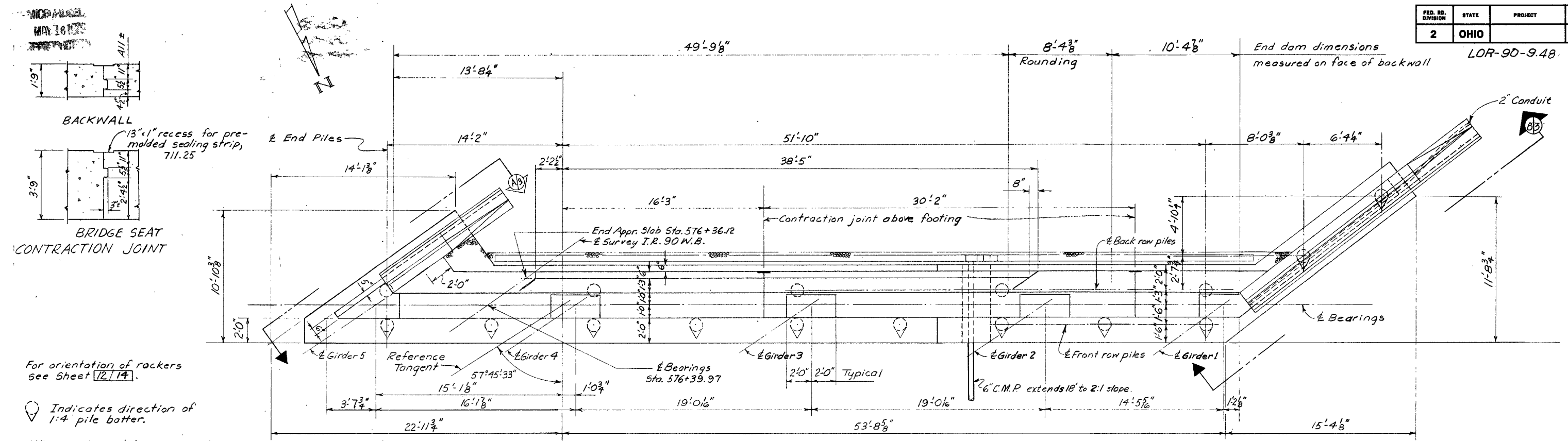
STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
DIVISION OF DESIGN AND CONSTRUCTION  
BUREAU OF BRIDGES

2/14

GENERAL PLAN, ELEVATION,  
NOTES, & ESTIMATED QUANTITIES

BRIDGE NO. LOR-90WB-1170  
OVER E.B. S.R. 254

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
wjg	B.E.B.		J.D.R.	BFG	5-6-70	4-2-73

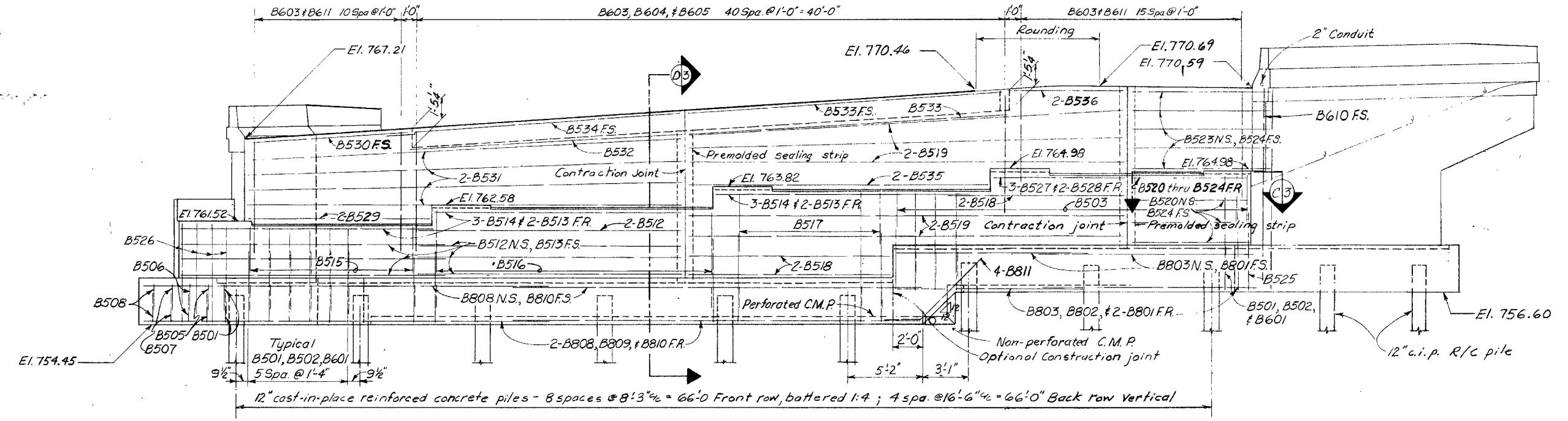


For orientation of rockers see Sheet 12/14.

Indicates direction of 1:4 pile batter.

Wing walls and footings are to be straight, parapets curved parallel to survey.

REAR ABUTMENT PLAN



REAR ABUTMENT ELEVATION

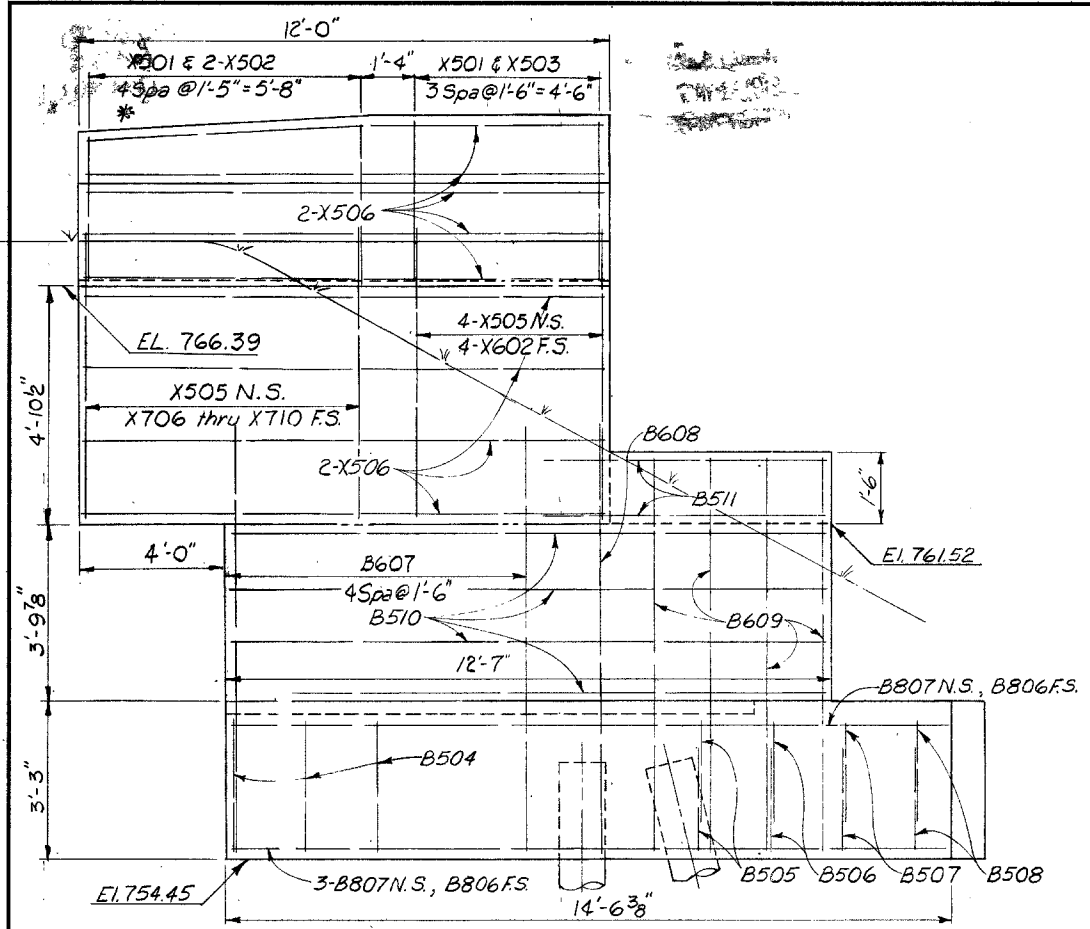
ADJUSTABLE TYPE ELBOWS meeting specification requirements for gage and coating are acceptable for making bends in perforated corrugated metal pipe. Elbows and the stem of tees need not be perforated.

N.S. Denotes Near Side  
F.S. Denotes Far Side  
F.R. Denotes Front to Rear

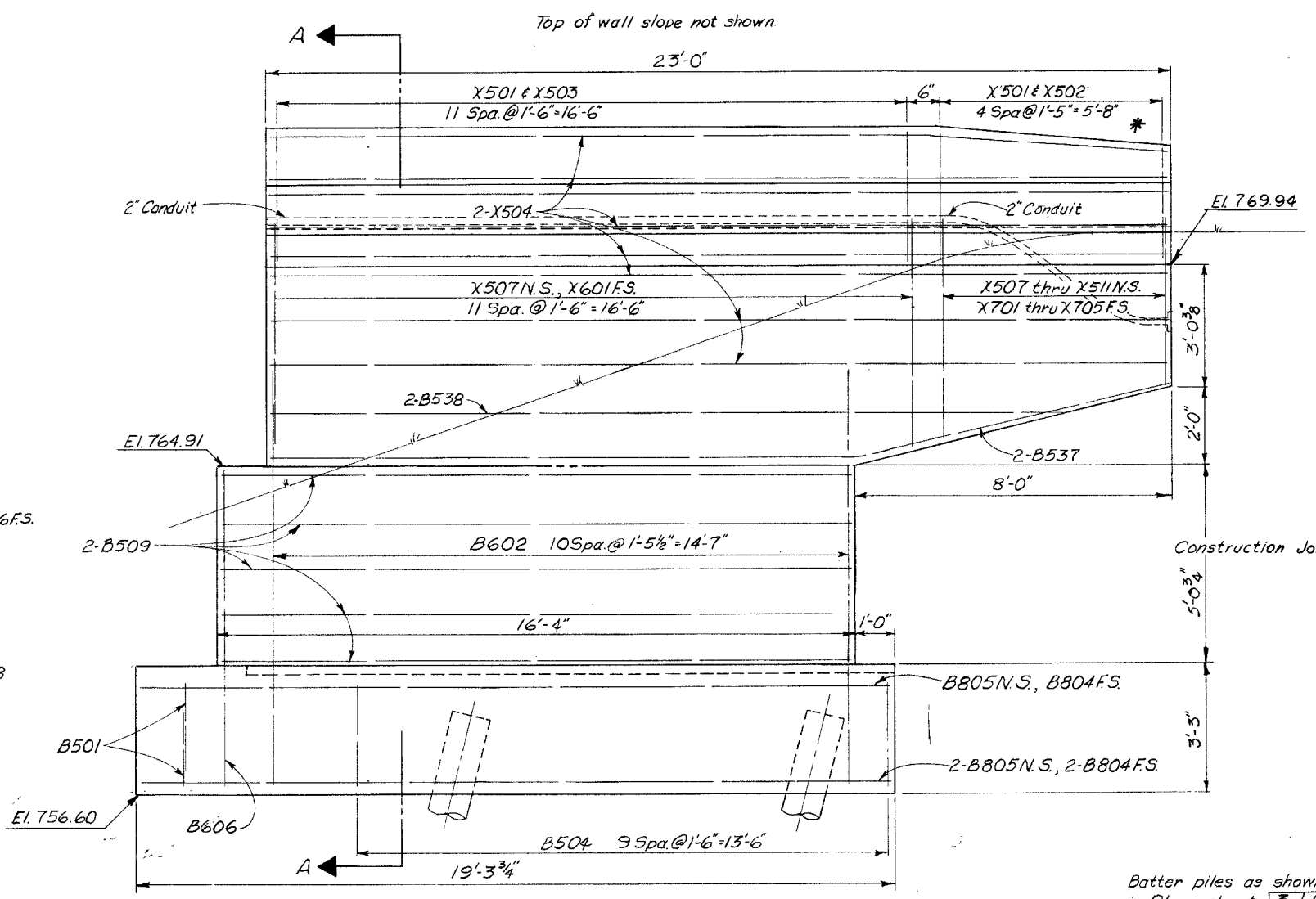
STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						3/14
<b>REAR ABUTMENT DETAILS</b>						
BRIDGE NO. LOR-90WB-1170 OVER E.B. S.R. 254						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	B.E.B.		J.D.R.	BFG	5-6-70	4-25-78

LOR-90-9.48

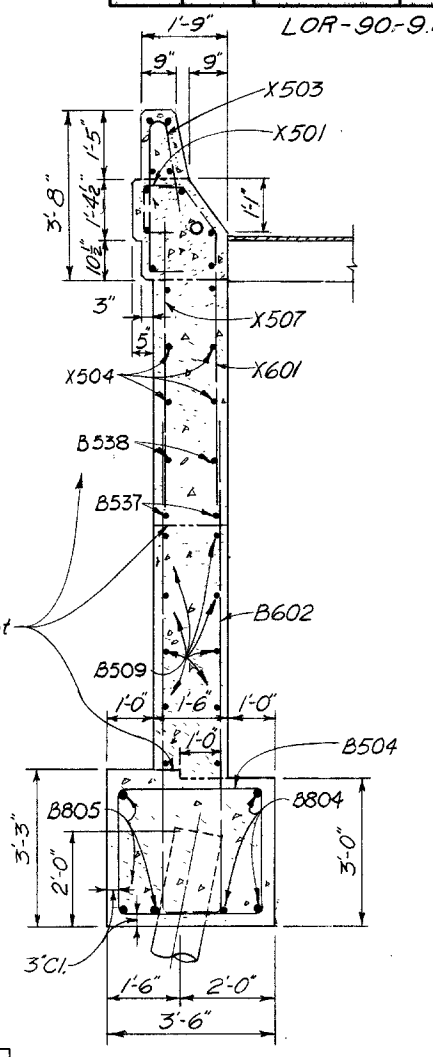
256  
283



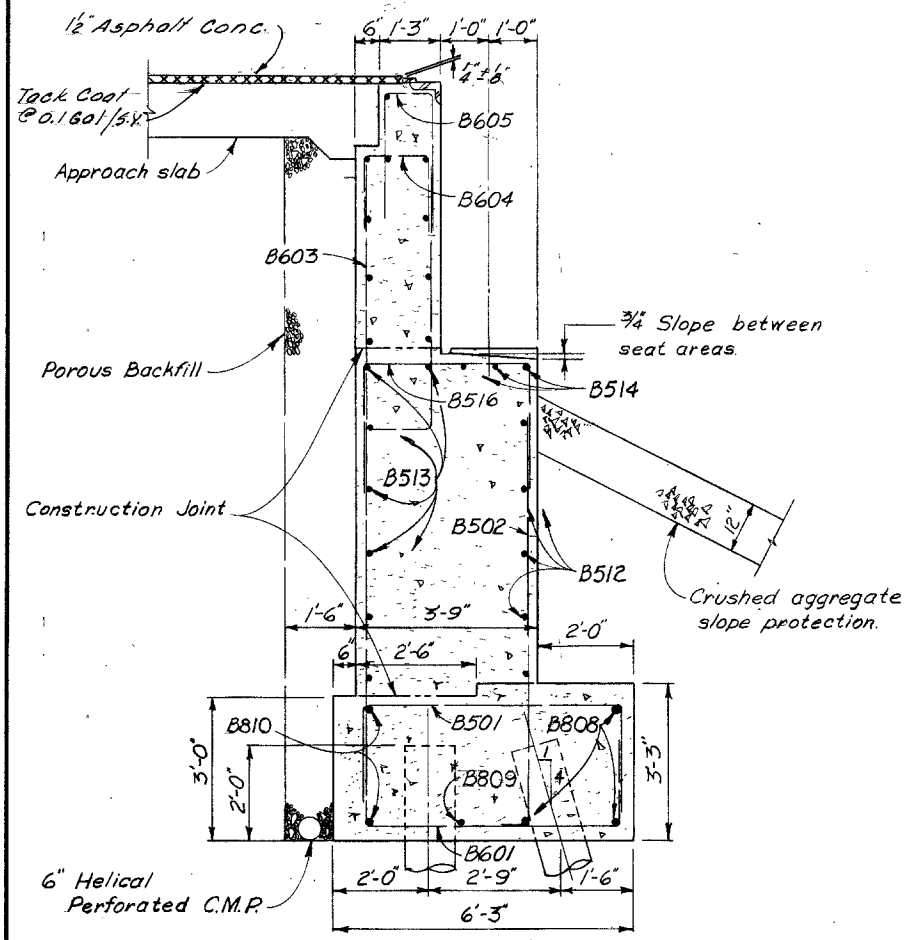
VIEW A-3



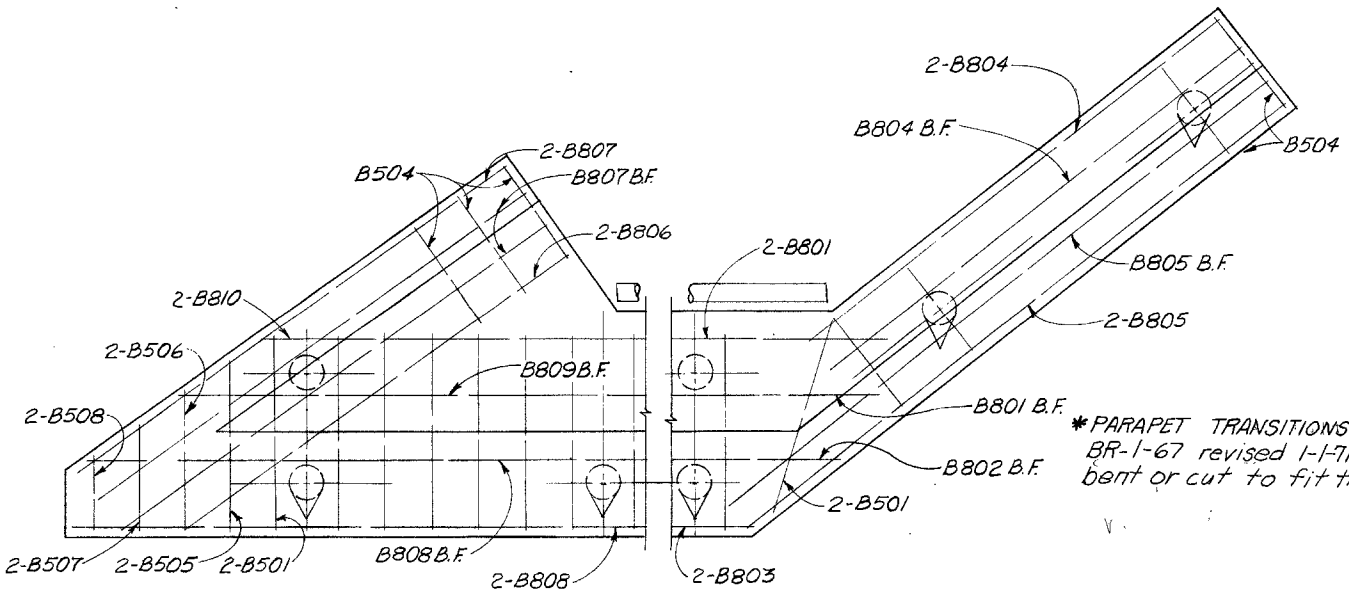
VIEW B-3



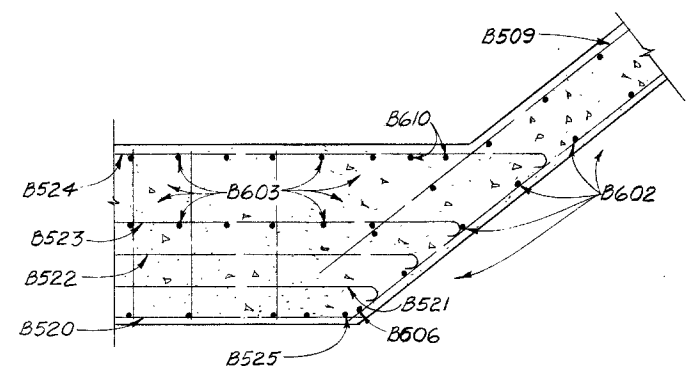
SECTION A-A



SECTION D-3



FOOTING DETAIL



SECTION C-3

\*PARAPET TRANSITIONS shall be as shown on Std. Drwg. BR-1-67 revised 1-1-71. Reinforcing steel shall be field bent or cut to fit the revised shape.

F.S. Denotes Far Side  
N.S. Denotes Near Side  
B.F. Denotes Bottom of Footing

Butter piles as shown in Plan, sheet 3/14

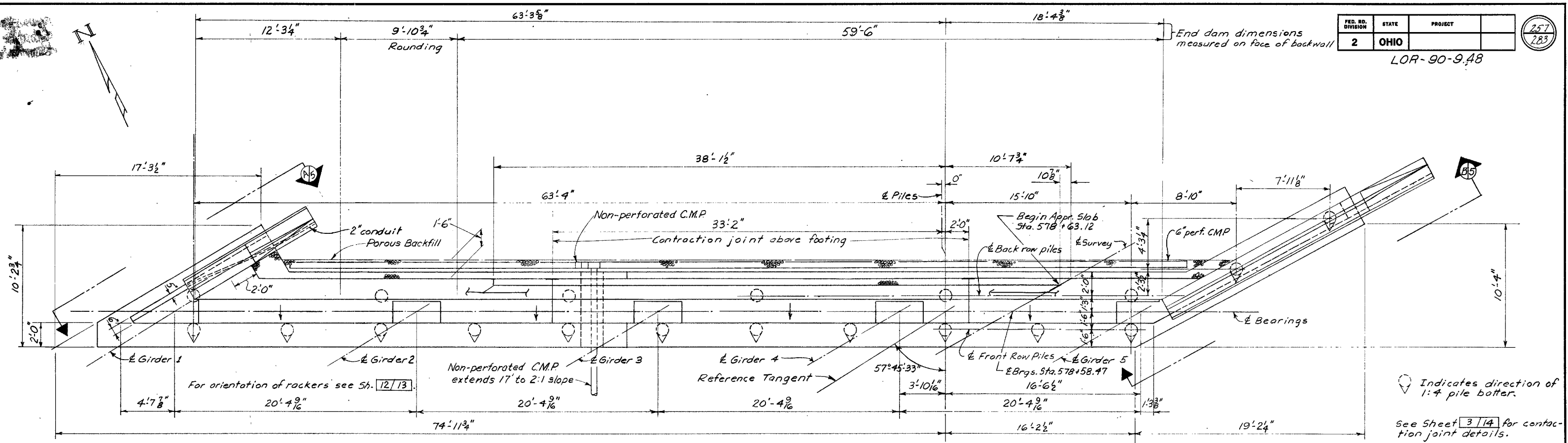
STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						4/14
REAR ABUTMENT DETAILS						
BRIDGE NO. LOR-90WB-1170 OVER E.B.S.R. 254						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
wjg	B.E.B.		J.D.R.	BFG	5-6-70	4-16-79



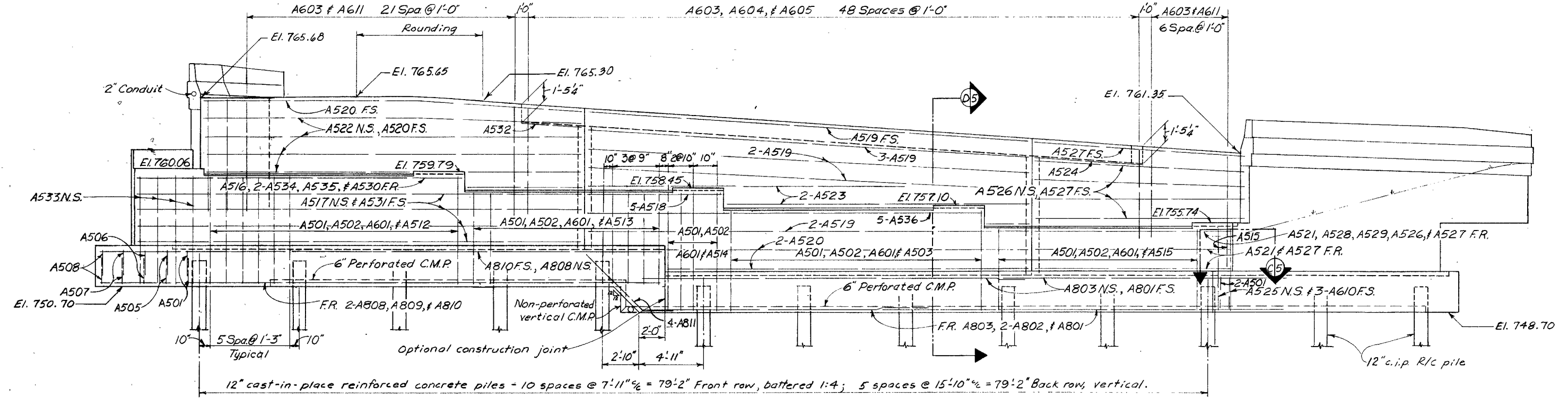
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

257  
283

LOR-90-9.48



FORWARD ABUTMENT PLAN



FORWARD ABUTMENT ELEVATION

N.S. denotes Near Side  
F.S. denotes Far Side  
F.R. denotes Front to Rear

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
			J.D.R.	BFG	5-6-70	4-25-73

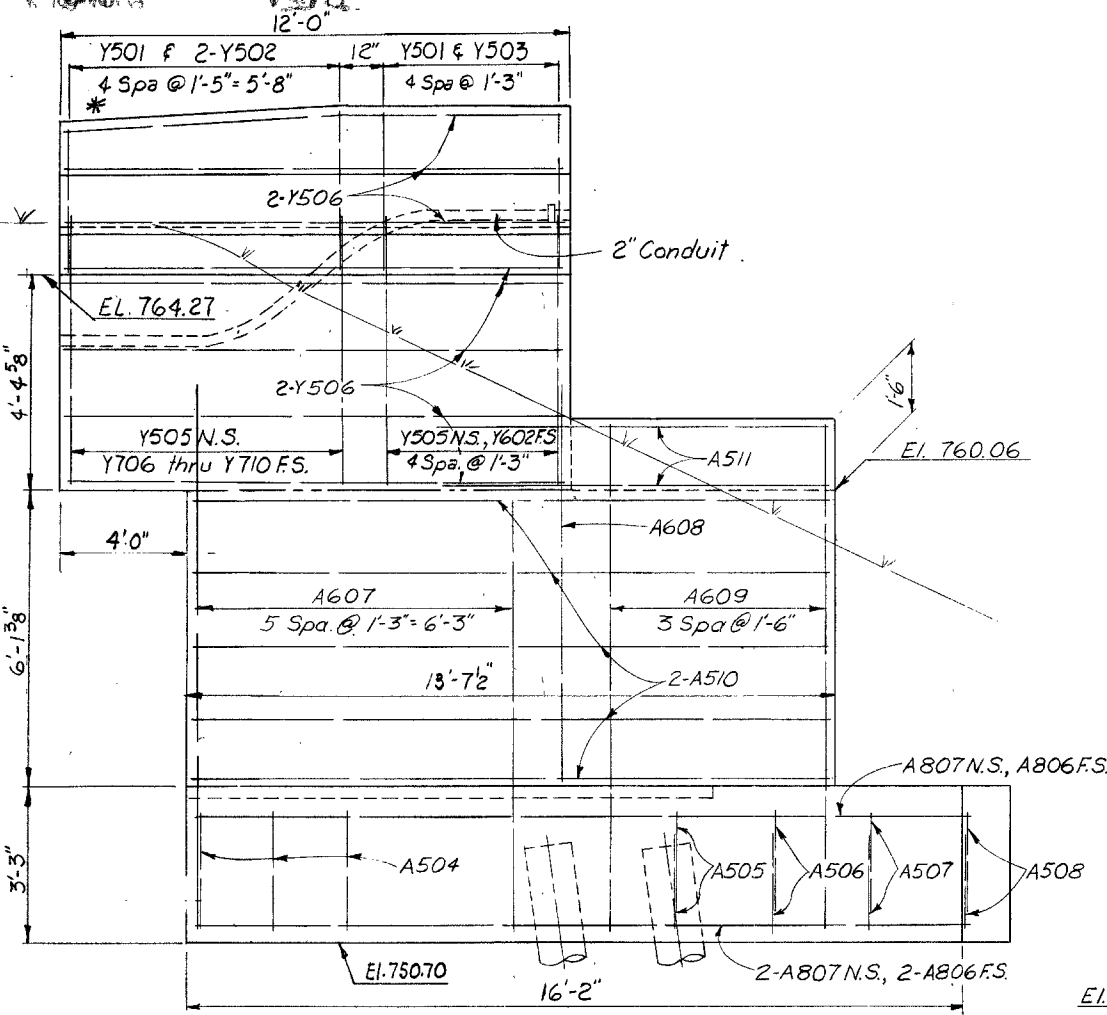
STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
DIVISION OF DESIGN AND CONSTRUCTION  
BUREAU OF BRIDGES

5/14

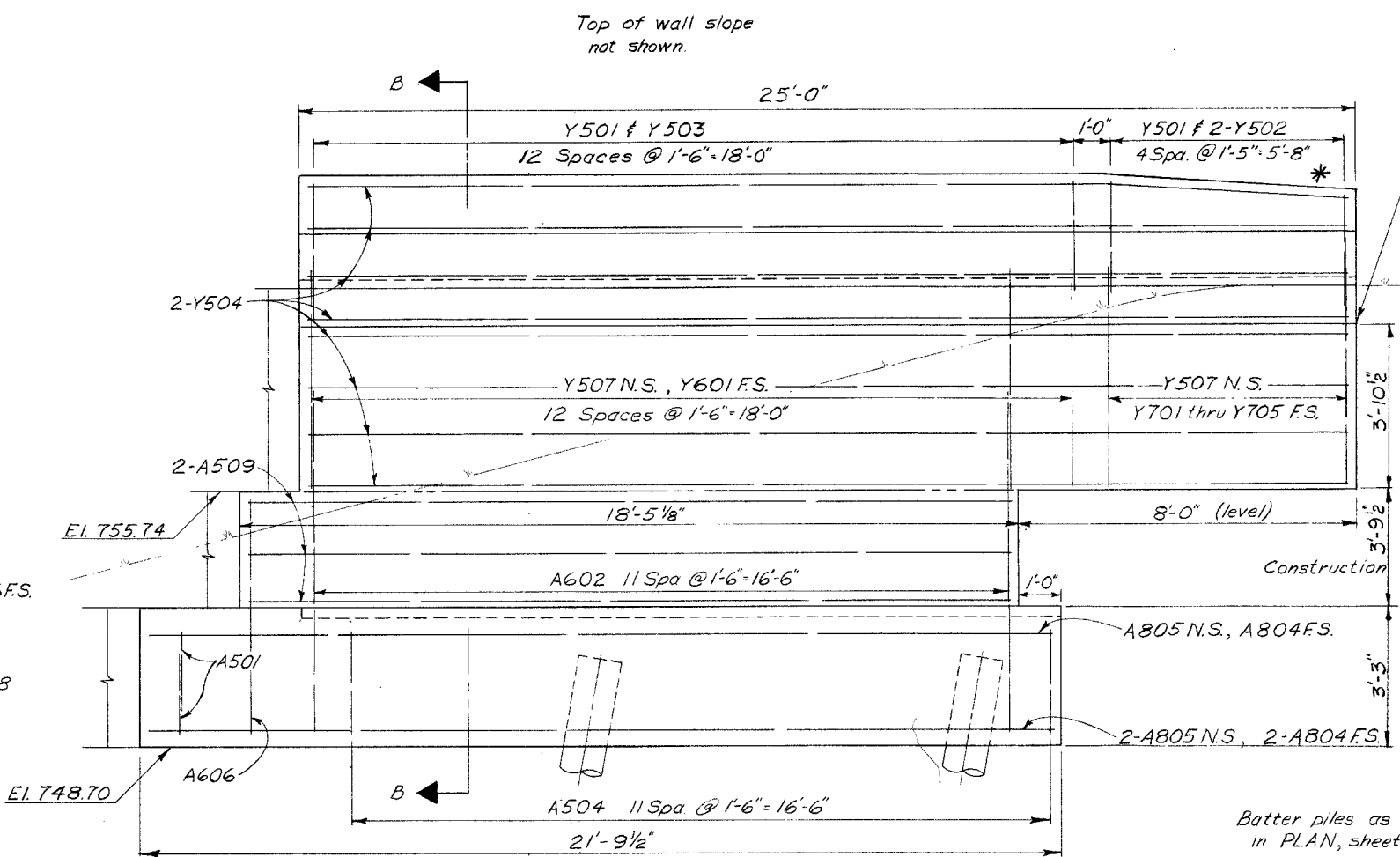
FORWARD ABUTMENT DETAILS

BRIDGE NO. LOR-90WB-1170  
OVER E.B. S.R. 254

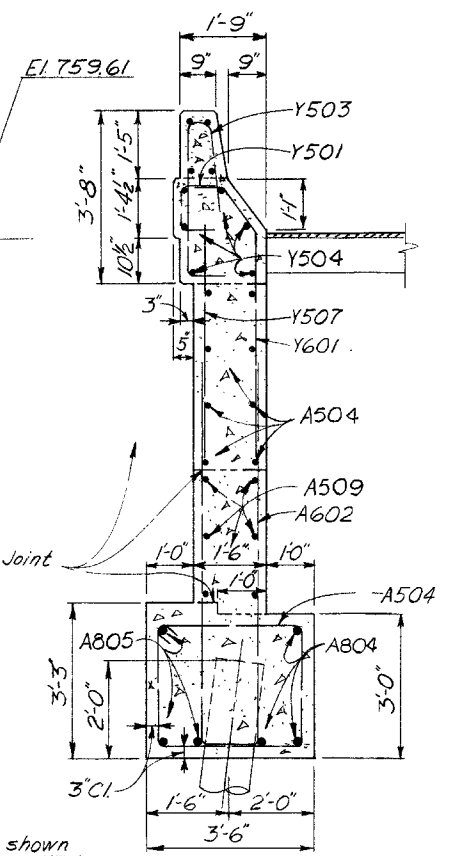
B.E.B.



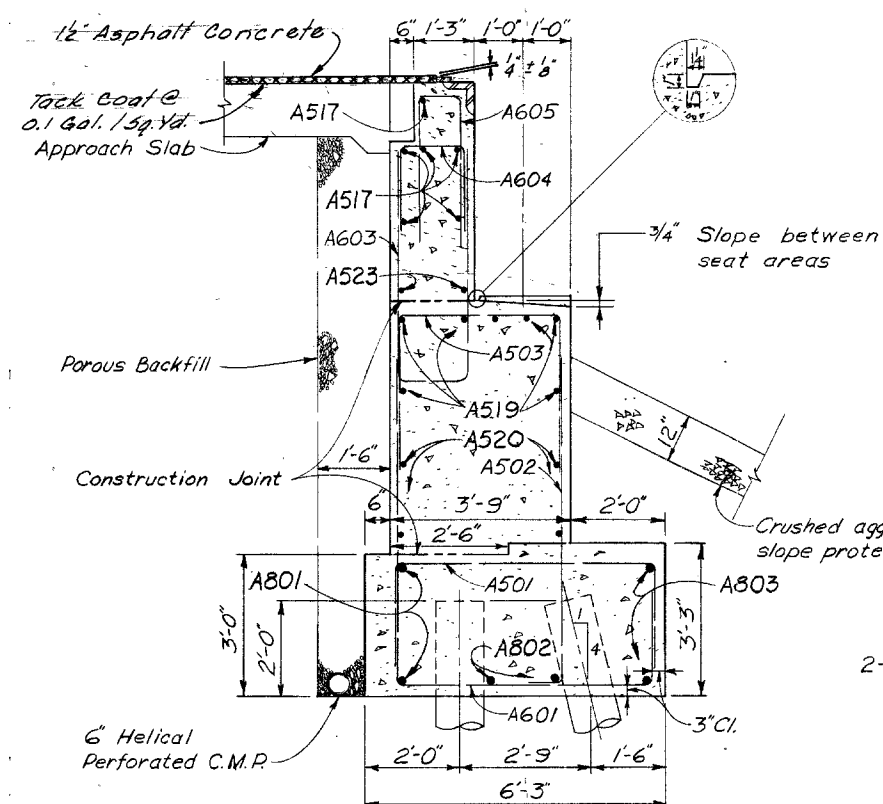
VIEW A-5



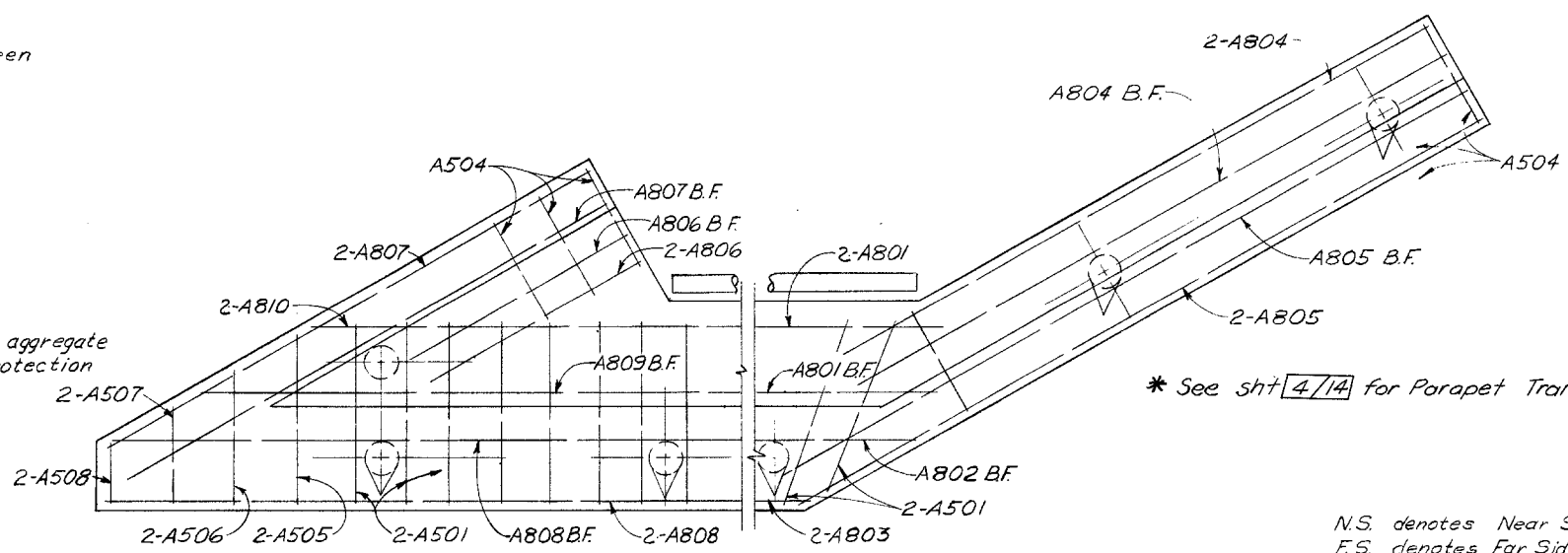
VIEW B-5



SECTION B-B



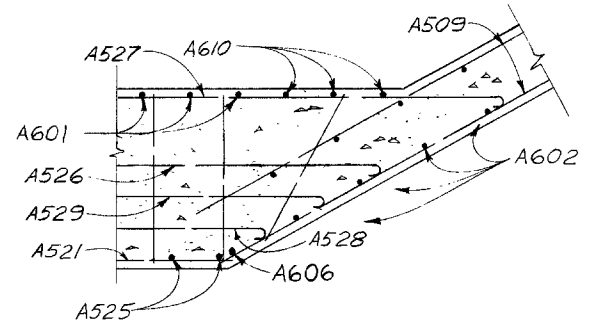
SECTION D-5



FOOTING DETAIL

Batter piles as shown in PLAN, sheet 5/14

\* See sht 4/14 for Parapet Transition note.



SECTION C-5

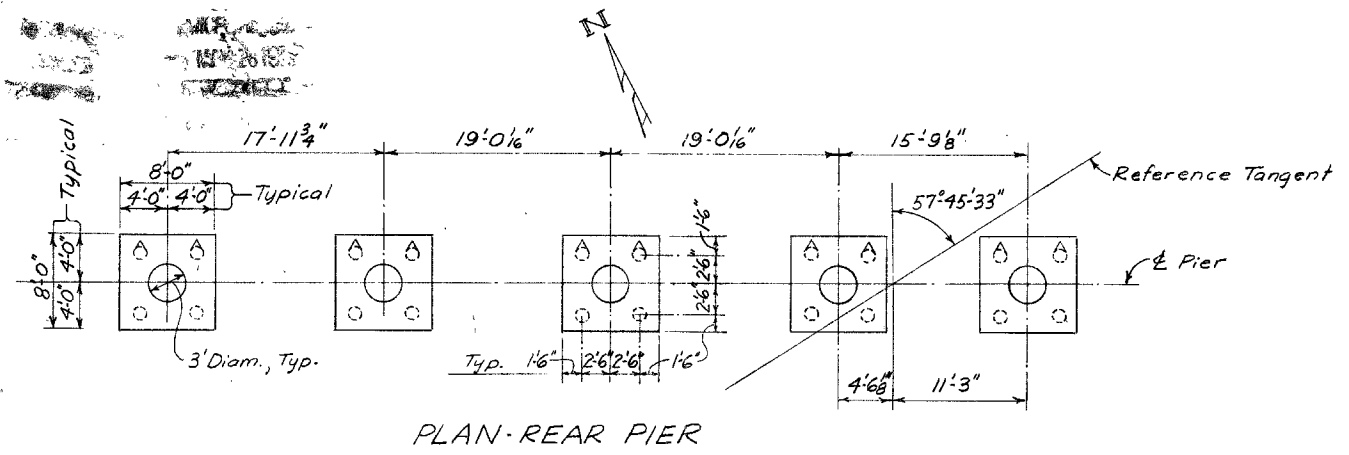
N.S. denotes Near Side  
F.S. denotes Far Side  
B.F. denotes Bottom of Footing

STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
DIVISION OF DESIGN AND CONSTRUCTION  
BUREAU OF BRIDGES

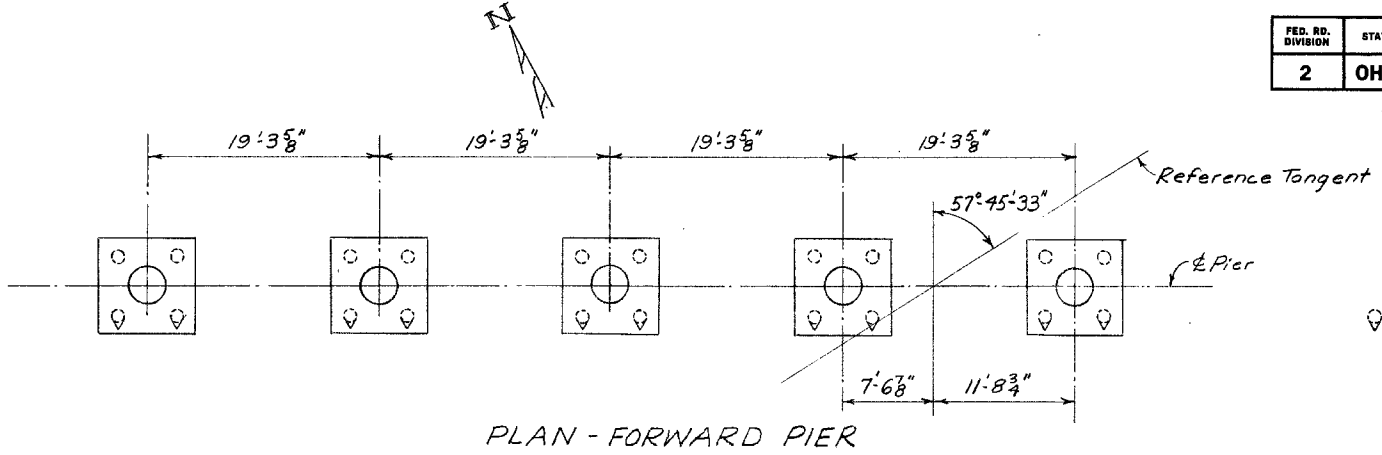
FORWARD ABUTMENT DETAILS

BRIDGE NO. LOR-90WB-1170  
OVER E.B.S.R. 254

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	BEB		JDR.	BFG	5-6-70	4-25-73

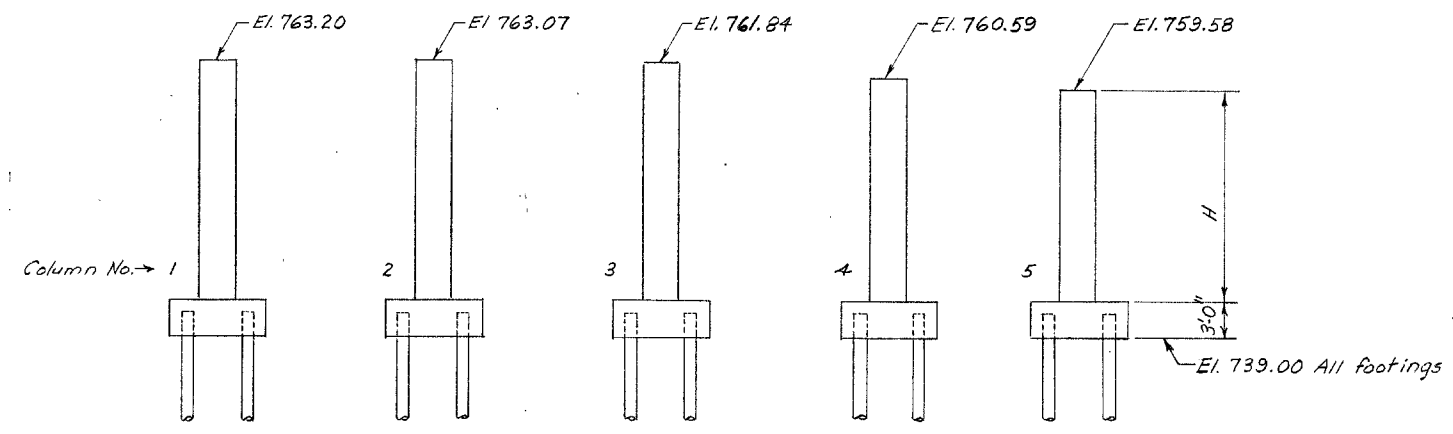


PLAN-REAR PIER

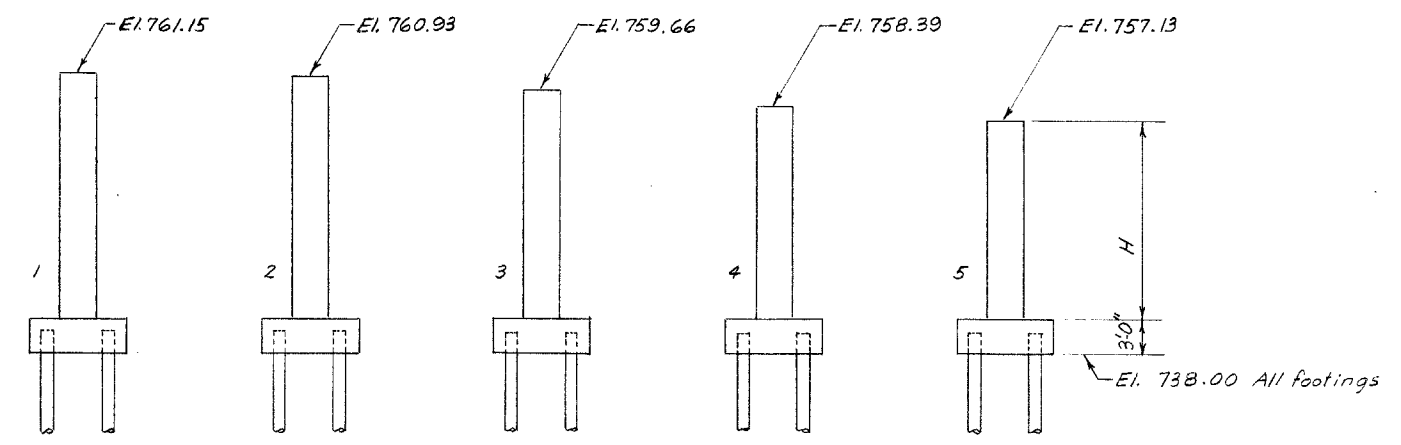


PLAN-FORWARD PIER

Indicates direction of 1:4 pile batter



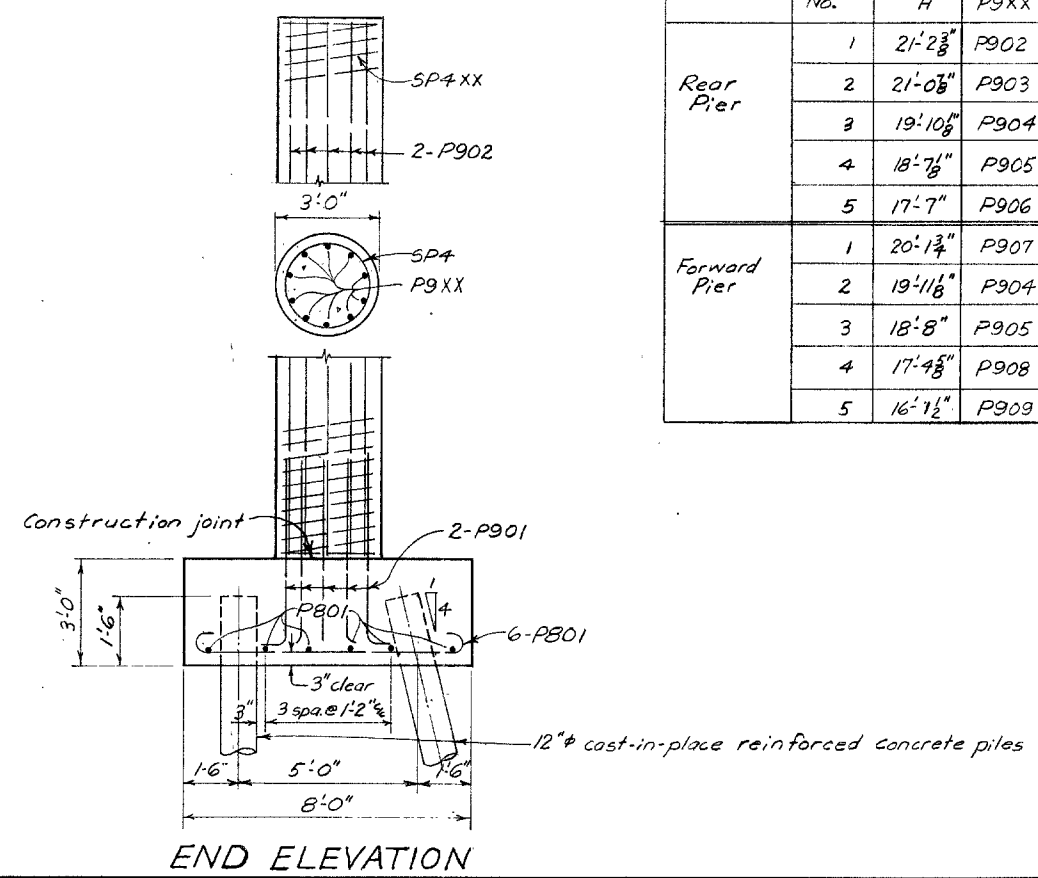
ELEVATION-REAR PIER



ELEVATION-FORWARD PIER

Provide SUPERSTRUCTURE GROUND at Column 1 or 5, Rear Pier, according to Std. Drwg. HL-4.

	Column No.	H	P9XX	SP4XX
Rear Pier	1	21'-2 3/8"	P902	SP401
	2	21'-0 5/8"	P903	SP402
	3	19'-10 5/8"	P904	SP403
	4	18'-7 1/8"	P905	SP404
	5	17'-7"	P906	SP405
Forward Pier	1	20'-1 3/4"	P907	SP406
	2	19'-11 1/8"	P904	SP403
	3	18'-8"	P905	SP404
	4	17'-4 5/8"	P908	SP407
	5	16'-1 1/2"	P909	SP408



END ELEVATION

STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
DIVISION OF DESIGN AND CONSTRUCTION  
BUREAU OF BRIDGES

PIER DETAILS  
BRIDGE NO. LOR-90WB-1170  
OVER E. B. S.R. 254

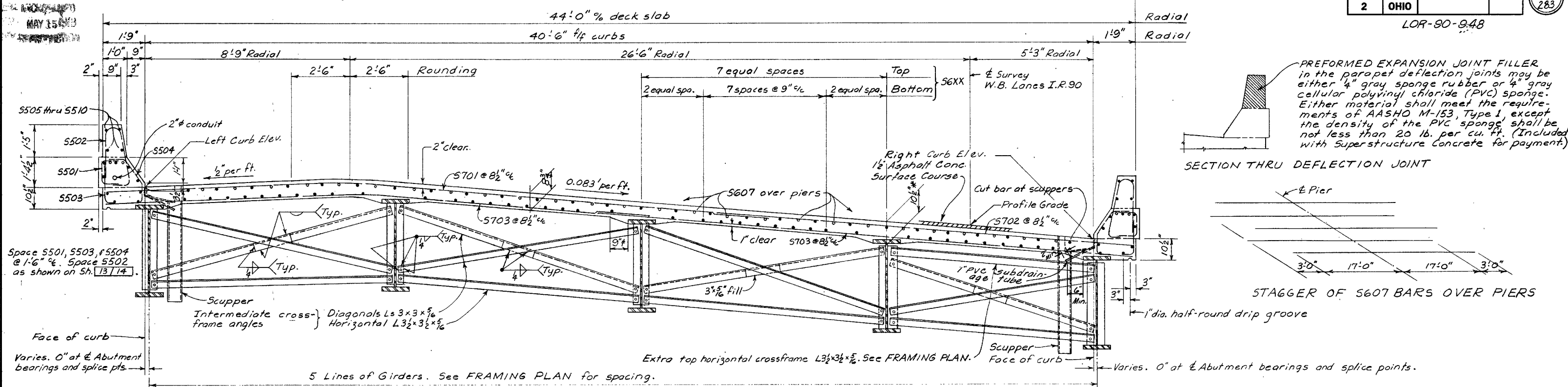
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
			JDR	BFG	5-6-70	

All longitudinal bars are S6XX unless otherwise shown. Lap S6XX bars 1'-11" minimum.

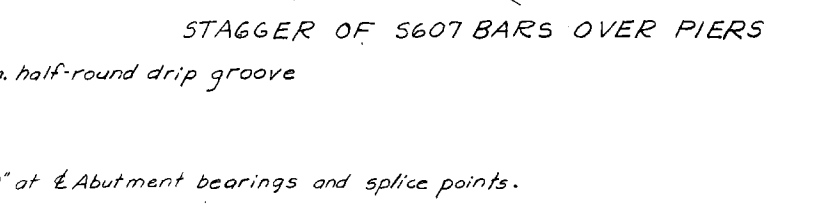
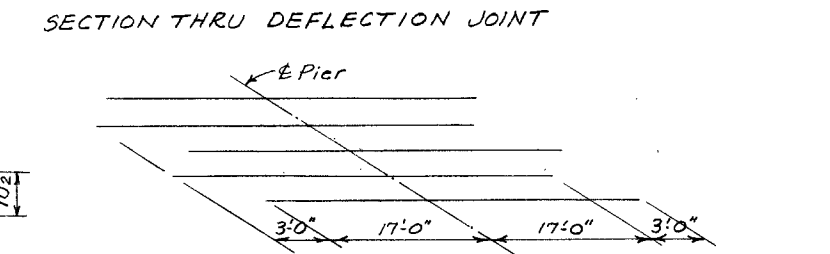
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

260  
283

LOR-90-948



PREFORMED EXPANSION JOINT FILLER in the parapet deflection joints may be either 1/4" gray sponge rubber or 1/4" gray cellular polyvinyl chloride (PVC) sponge. Either material shall meet the requirements of AASHTO M-153, Type 1, except the density of the PVC sponge shall be not less than 20 lb. per cu. ft. (Included with Superstructure Concrete for payment)



TRANSVERSE SECTION THRU DECK

S6XX bars consist of lines of 7-S601 and 1 terminal bar S602, S603, S604, S605 or S606. The latter bars shall be placed in the slab as follows from left to right, starting in the slab overhang:  
 Top - 7-S602, 6-S603, 6-S604, 6-S605, and 6-S606.  
 Bottom - 9-S602, 9-S603, 8-S604, 9-S605, and 9-S606.  
 Terminal bars in the curbs shall be S602 left and S606 right.

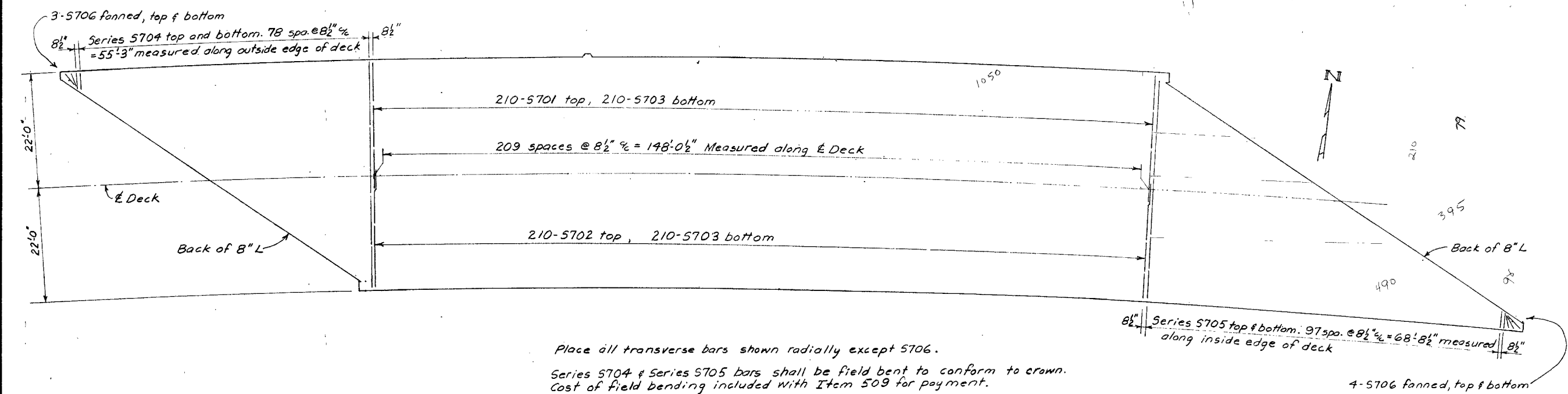
A HAUNCH WIDTH of 9" shall be used for computing the quantity of concrete. However, the haunch width may vary between 6" and 12" provided that the slope shall be not more than 1:4 for a haunch less than 9" in width.

This is the design dimension. The quantity of deck concrete to be paid for shall be based upon this dimension, even though deviation from it may be necessary because the girder may not have the exact camber or conformation required to place it parallel to the finished grade. Deduction shall be made for the volume of encased steel plates as per 511.18.

For curb elevations prior to placing deck concrete see Sheet 11174.

For Lighting Details, see sheets 174D and 174E

For Subdrainage and Surface Course details, see sheet 3710, Bridge No. LOR-90EB-1012



Place all transverse bars shown radially except 5706.  
 Series 5704 & Series 5705 bars shall be field bent to conform to crown. Cost of field bending included with Item 509 for payment.

TRANSVERSE DECK SLAB REINFORCING

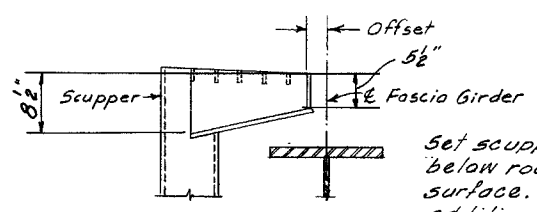
STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES							8/14
SUPERSTRUCTURE DETAILS							
BRIDGE NO. LOR-90WB-1170 OVER E. B. S.R. 254							
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED	
			J.D.R.	BFG	5-6-70	4-25-78	

\* Indicates crossframe with extra top horizontal angle.

⊥ Indicates crossframe is at right angle to girder.

‡ Indicates bearing stiffener not normal to girder web.

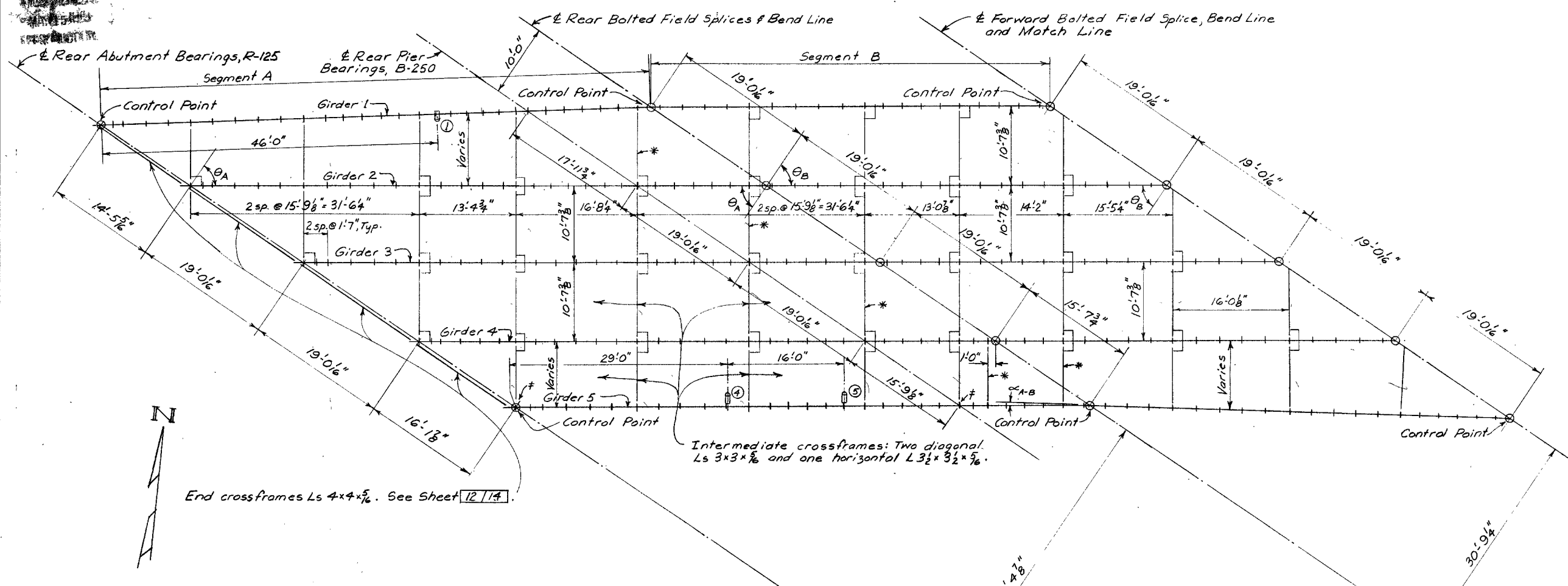
Space intermediate stiffeners equally between stiffeners to which crossframes are attached. Provide the number of stiffeners shown.



Set scupper 1/4" below roadway surface. For additional details see SD-1-69, sheet 3.

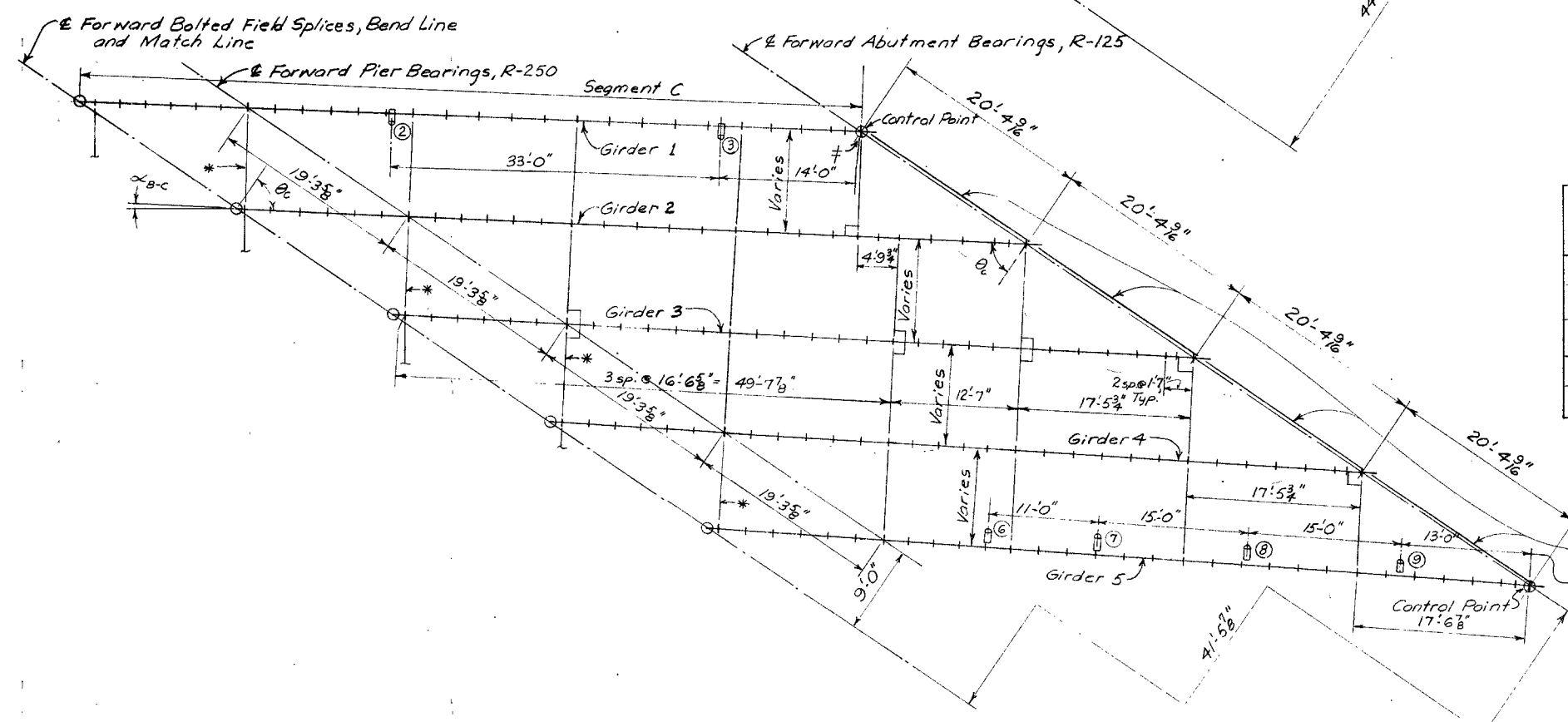
Scupper Number	Offset
1	- 4 1/4"
2	- 3 3/8"
3	- 2 5/8"
4	+ 4 1/2"
5	+ 4 7/8"
6	+ 4 7/8"
7	+ 5 3/8"
8	+ 4 7/8"
9	+ 2 7/8"

Negative offset indicates scupper is shifted toward outside.



End crossframes Ls 4x4x5/8. See Sheet 12/14.

Intermediate crossframes: Two diagonal Ls 3x3x5/8 and one horizontal L 3 1/2 x 3 1/2 x 5/8.



Girder Number	Horizontal Lengths			Angles				
	Segment A	Segment B	Segment C	θ <sub>A</sub>	θ <sub>B</sub>	θ <sub>C</sub>	α <sub>A-B</sub>	α <sub>B-C</sub>
1	75'-9 3/8"	55'-1 1/8"	78'-3 1/8"	54°-07'-04"	56°-02'-42"	58°-00'-37"	1°-55'-38"	1°-57'-55"
2	79'-6 1/8"	55'-1 1/8"	79'-5 7/8"	56°-02'-42"	56°-02'-42"	58°-32'-06"	0°-00'-00"	2°-29'-24"
3	79'-6 1/8"	55'-1 1/8"	80'-7 1/8"	56°-02'-42"	56°-02'-42"	59°-02'-42"	0°-00'-00"	3°-00'-00"
4	79'-6 1/8"	55'-1 1/8"	81'-10 1/8"	56°-02'-42"	56°-02'-42"	59°-32'-24"	0°-00'-00"	3°-29'-42"
5	79'-1 1/8"	57'-10 1/8"	83'-0 3/8"	55°-50'-24"	57°-54'-03"	60°-01'-15"	2°-03'-39"	2°-07'-12"

For additional Girder Dimensions see Sheet 10/14.

End crossframes Ls 4x4x5/8. See Sheet 12/14.

Control points are intersections of 1/2 of Abutment Bearings and Bolted Field Splices with Face of Curb.

STEEL FRAMING PLAN

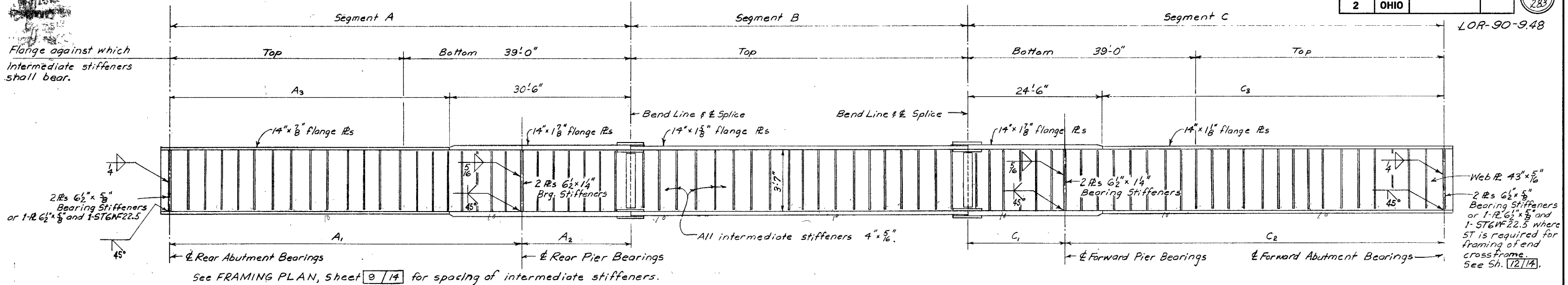
STEEL FRAMING PLAN

BRIDGE NO. LOR-90WB-1170  
OVER E.B. S.R. 254

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
wjg	wjg		J.D.R.	BFG	5-6-70	4-25-73

See Sheet 9/14 for lengths of girder segments.

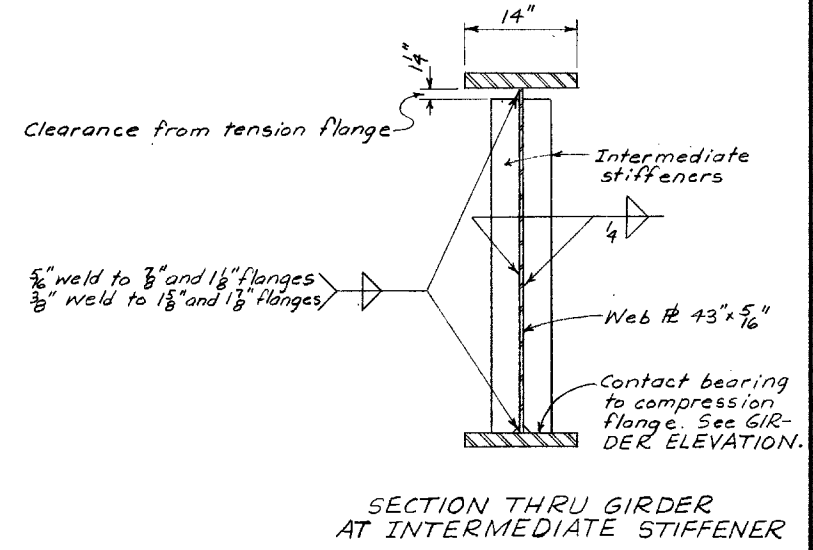
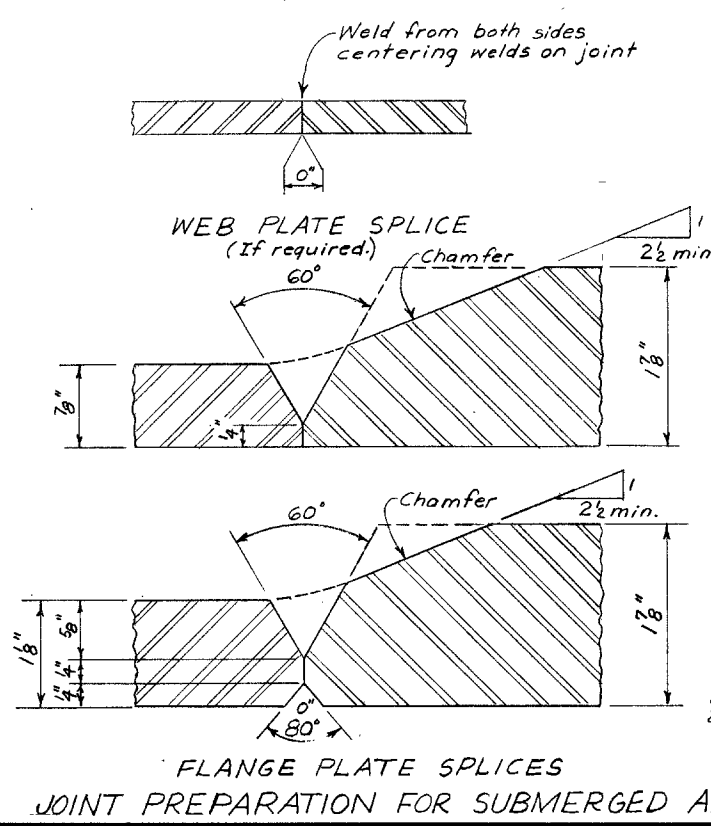
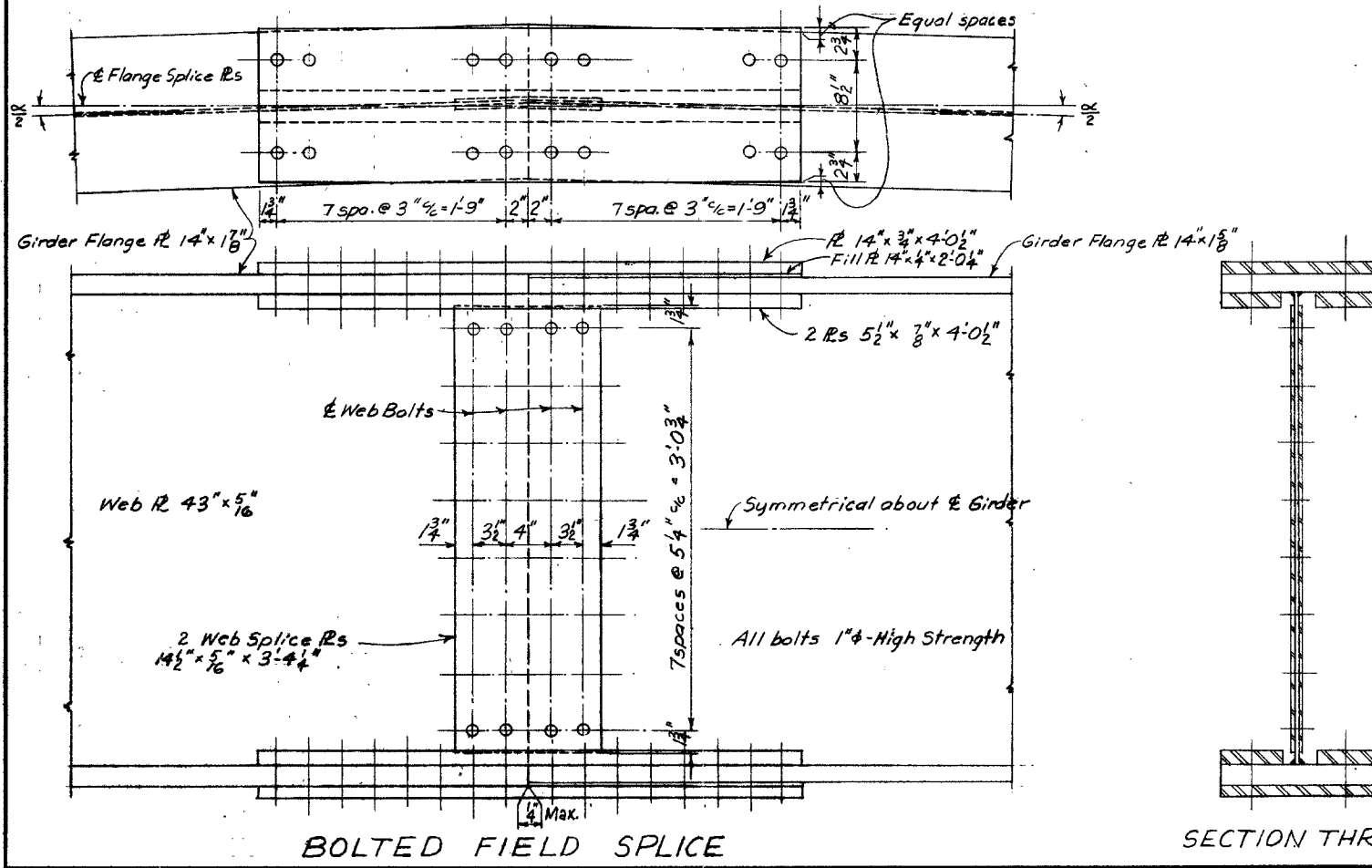
LOR-90-9.48



GIRDER ELEVATION

HORIZONTAL GIRDER DIMENSIONS						
Girder No.	A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>
1	58'-8 1/2"	17'-0 3/4"	45'-3 3/8"	16'-11 1/8"	61'-3 1/8"	53'-9 1/8"
2	61'-7 1/4"	17'-10 1/8"	49'-0 1/8"	17'-2 3/8"	62'-3"	54'-11 1/8"
3	61'-7 1/4"	17'-10 1/8"	49'-0 1/8"	17'-5 1/8"	63'-2"	56'-1 1/8"
4	61'-7 1/4"	17'-10 1/8"	49'-0 1/8"	17'-9 1/8"	64'-1 1/8"	57'-4 1/8"
5	61'-3 3/8"	17'-9 1/8"	48'-7 1/8"	18'-0 1/8"	65'-0 1/4"	58'-6 3/8"

For values of ∞ see Sh. 9/14



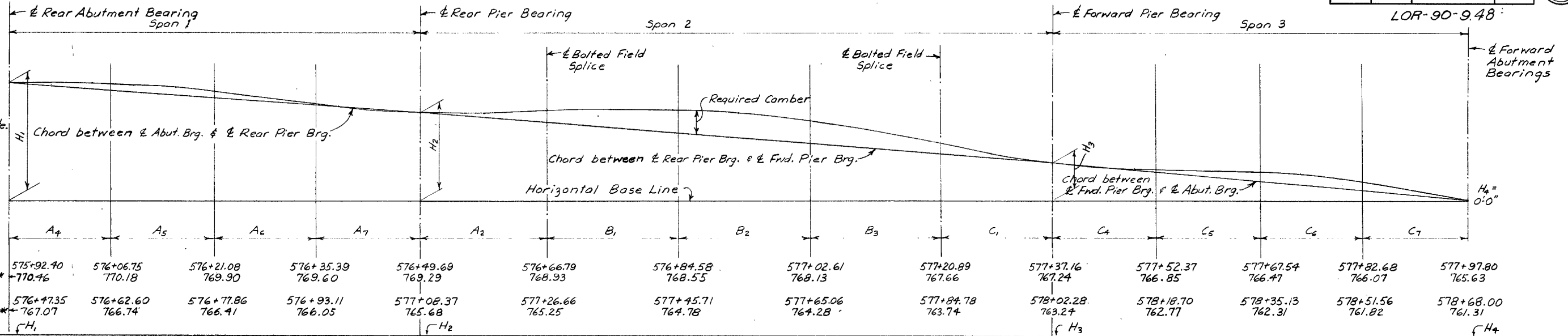
All of the full penetration welds shown shall be back-gouged and welded after welding for side.

Butt welds on flange plates shall be ground flush, the finish grinding being parallel to the direction of stress.

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						10/14
GIRDER DETAILS						
BRIDGE NO. LOR-90WB-1170 OVER E.B. S.R. 254						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
wjg	wjg		J.D.R.	BFG	5-6-70	253

LOR-90-948

\* These are the elevations required before the deck slab is placed. They include an allowance for deflection due to the weight of the concrete.

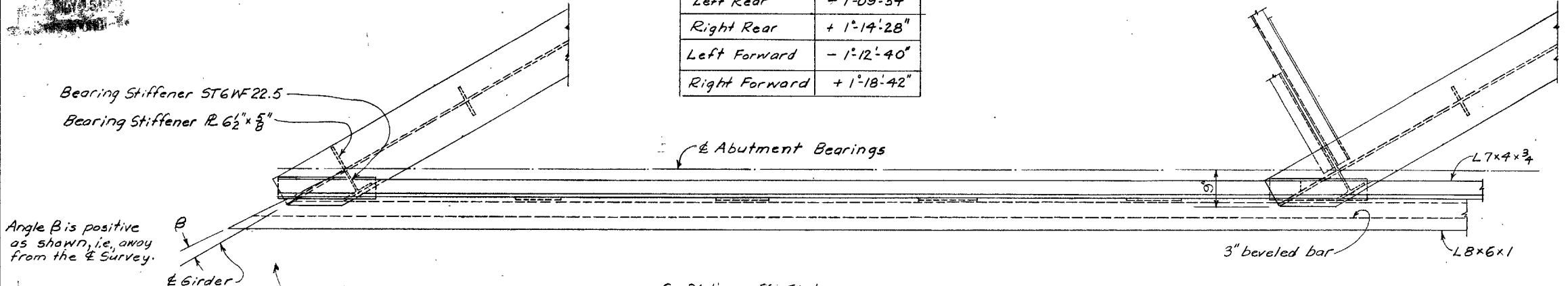


Girder 1	(Heights) & Sub-lengths (4'-9 1/2")	14'-11 1/8"	14'-9 3/8"	14'-7 1/8"	14'-5 1/8"	(3'-7 1/8")	17'-0 3/4"	18'-4 3/8"	18'-4 3/8"	18'-4 3/8"	16'-11 7/8"	(1'-7 3/8")	15'-8 1/8"	15'-5 5/8"	15'-2 5/8"	14'-11 1/8"	(0'-0")
	Δ <sub>1</sub>	0"	1/16"	3/16"	1/16"	0"	0"	3/16"	1/16"	1/16"	1/16"	0"	0"	3/16"	1/16"	3/16"	0"
Girder 2	(Heights) & Sub-lengths (5'-1 1/8")	15'-8"	15'-5 3/8"	15'-3 3/4"	15'-1 5/8"	(3'-9 3/8")	17'-10 13/16"	18'-4 3/8"	18'-4 3/8"	18'-4 3/8"	17'-2 7/8"	(1'-7 7/8")	15'-10 13/16"	15'-8 3/8"	15'-5 3/8"	15'-2 7/8"	(0'-0")
	Δ <sub>1</sub>	0"	1/8"	3/16"	1/16"	0"	0"	1/16"	1/16"	1/16"	1/16"	0"	0"	1/16"	1/8"	1/8"	0"
Girder 3	(Heights) & Sub-lengths (5'-4 1/4")	15'-8"	15'-5 3/8"	15'-3 3/4"	15'-1 5/8"	(3'-10 3/8")	17'-10 13/16"	18'-4 3/8"	18'-4 3/8"	18'-4 3/8"	17'-5 5/8"	(1'-8 13/16")	16'-1 1/8"	15'-10 7/8"	15'-8 3/8"	15'-5 3/4"	(0'-0")
	Δ <sub>1</sub>	0"	1/8"	3/16"	1/16"	0"	0"	1/16"	1/16"	1/16"	1/16"	0"	0"	1/16"	1/8"	1/8"	0"
Girder 4	(Heights) & Sub-lengths (5'-5 1/2")	15'-8"	15'-5 3/8"	15'-3 3/4"	15'-1 5/8"	(4'-0 3/8")	17'-10 13/16"	18'-4 3/8"	18'-4 3/8"	18'-4 3/8"	17'-9 1/16"	(1'-9 3/8")	16'-4 1/2"	16'-1 1/8"	15'-10 7/8"	15'-8"	(0'-0")
	Δ <sub>1</sub>	0"	1/8"	3/16"	1/16"	0"	0"	1/16"	1/16"	1/16"	1/16"	0"	0"	1/16"	1/8"	1/8"	0"
Girder 5	(Heights) & Sub-lengths (5'-9 1/8")	15'-7"	15'-4 3/8"	15'-2 1/16"	15'-1/16"	(4'-4 7/8")	17'-9 1/16"	19'-3 3/8"	19'-3 1/16"	19'-3 5/8"	18'-0 3/8"	(1'-10 3/8")	16'-7 3/8"	16'-4 2"	16'-1 5/8"	15'-10 3/4"	(0'-0")
	Δ <sub>1</sub>	0"	1/16"	3/16"	1/16"	0"	0"	1/16"	1/16"	1/16"	1/16"	0"	0"	1/16"	3/16"	3/16"	0"

Δ<sub>1</sub> = Camber for deflection due to weight of steel.  
 Δ<sub>2</sub> = Camber for deflection due to remaining dead load.  
 Δ<sub>3</sub> = Camber required for vertical and horizontal curvature.

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES							11/14
GIRDER CAMBER & DEFLECTIONS, CURB ELEVATIONS							
BRIDGE NO. LOR-90WB-1170 OVER E. B. S.R. 254							
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED	
			J.D.R.	BFG	5-6-70	4-25-78	

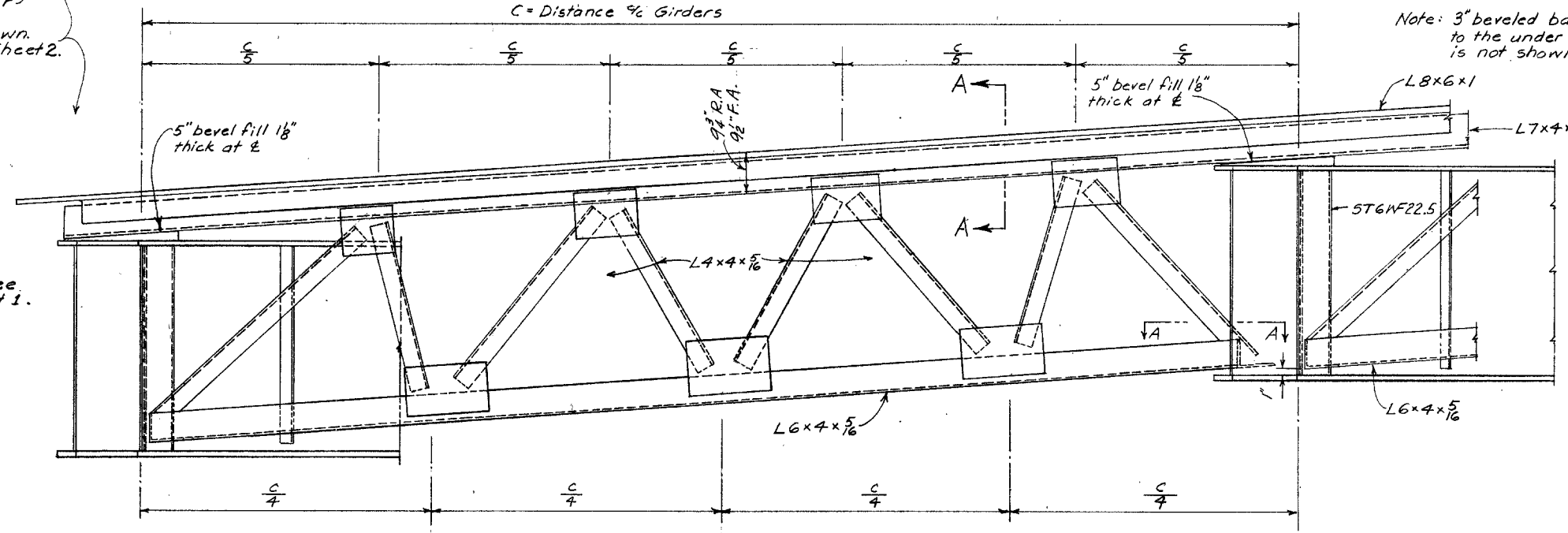
Corner	$\beta$
Left Rear	-1°-09'-54"
Right Rear	+1°-14'-28"
Left Forward	-1°-12'-40"
Right Forward	+1°-18'-42"



Angle  $\beta$  is positive as shown, i.e., away from the  $\epsilon$  Survey.

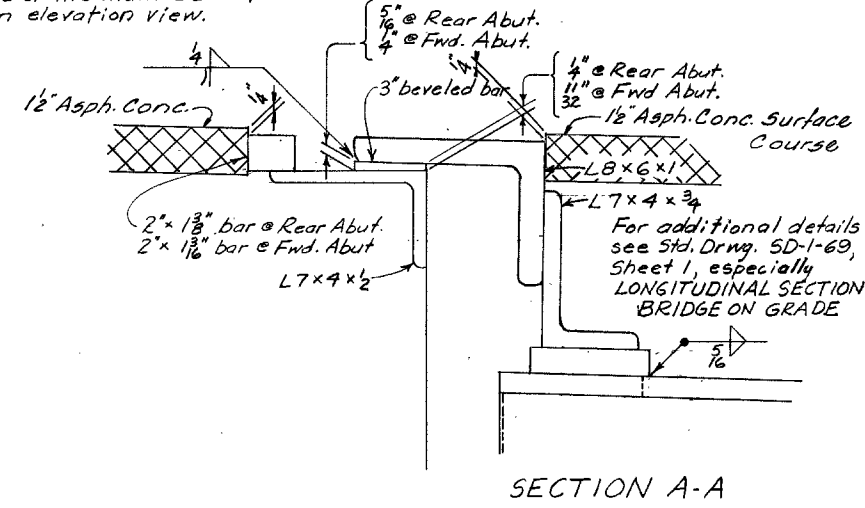
Curb plate details not shown. See Std. Drwg. SD-1-69, Sheet 2.

For details not shown see Std. Drwg. SD-1-69, Sheet 1.

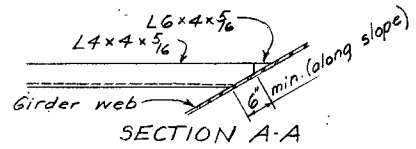


Panel shown is at right forward corner of bridge.  
**END CROSSFRAME**

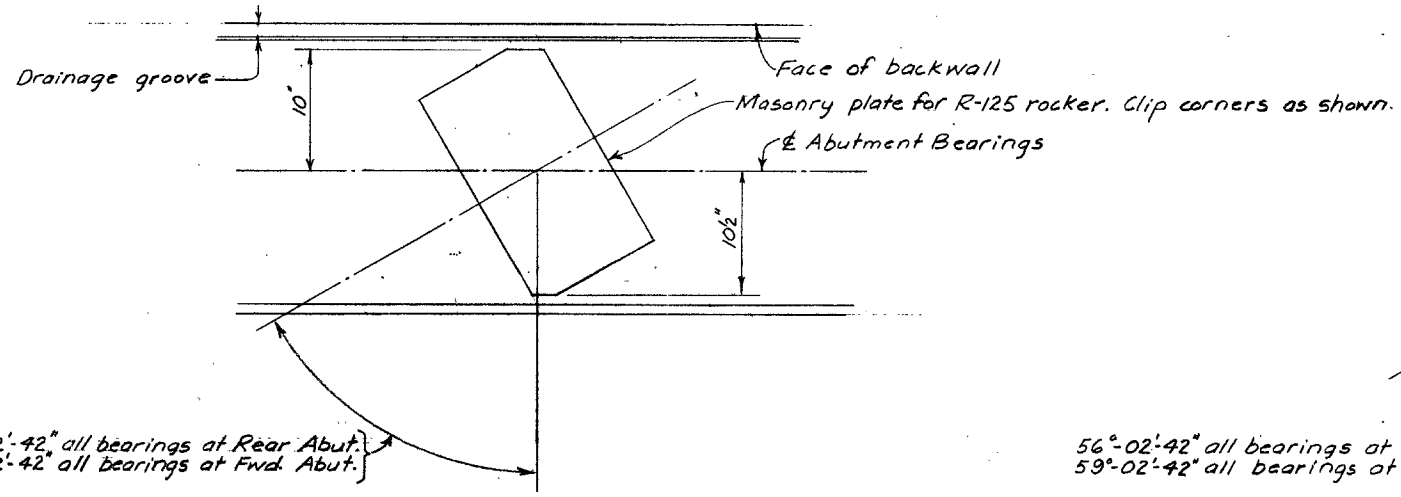
Note: 3" beveled bar which is to be welded to the under side of the main L8x6x1 is not shown in elevation view.



**SECTION A-A**

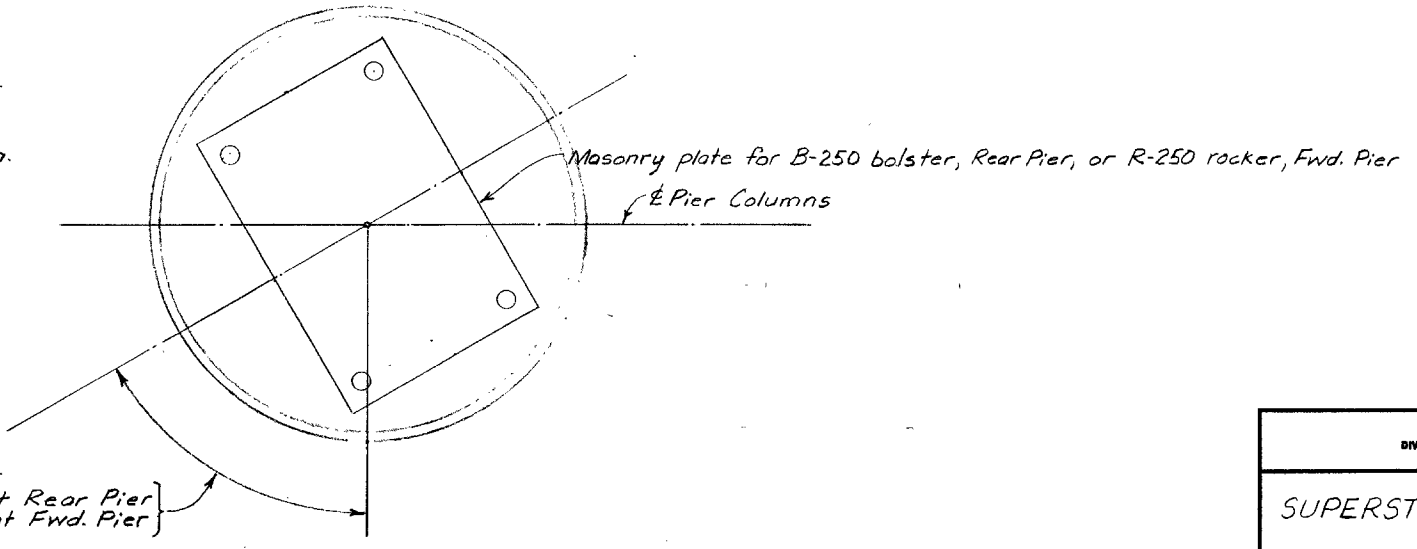


**SECTION A-A**



56°-02'-42" all bearings at Rear Abut.  
59°-02'-42" all bearings at Fwd. Abut.

**AT ABUTMENTS**  
**ORIENTATION OF BEARINGS**



56°-02'-42" all bearings at Rear Pier  
59°-02'-42" all bearings at Fwd. Pier

**AT PIERS**

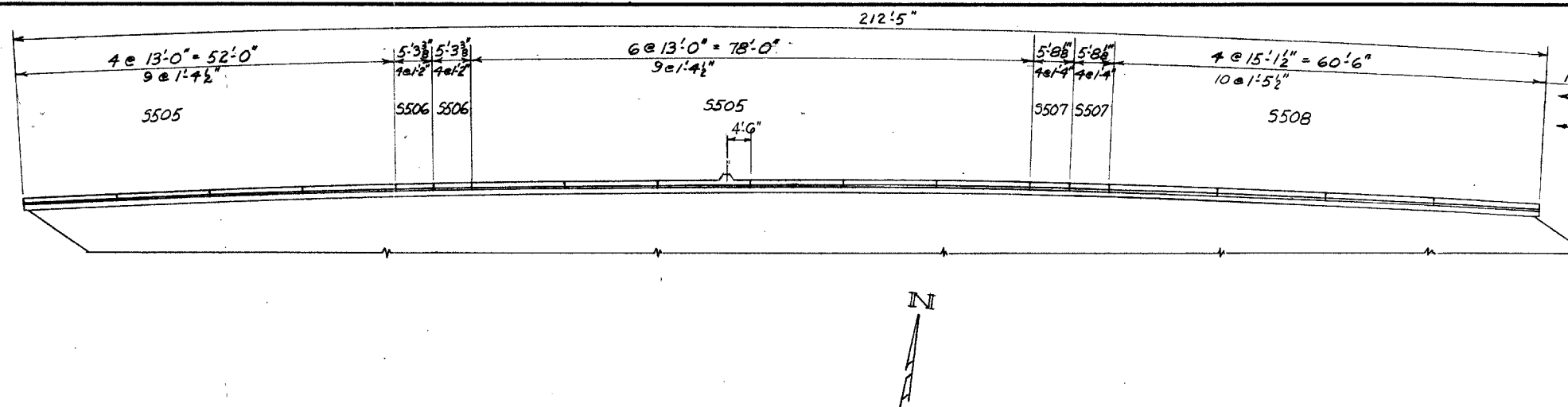
STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES							12/14
<b>SUPERSTRUCTURE DETAILS</b>							
BRIDGE NO. LOR-90WB-1170 OVER E.B. SR.254							
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED	
wjg	wjg		J.D.R.	BFG	5-6-70	4-26-73	



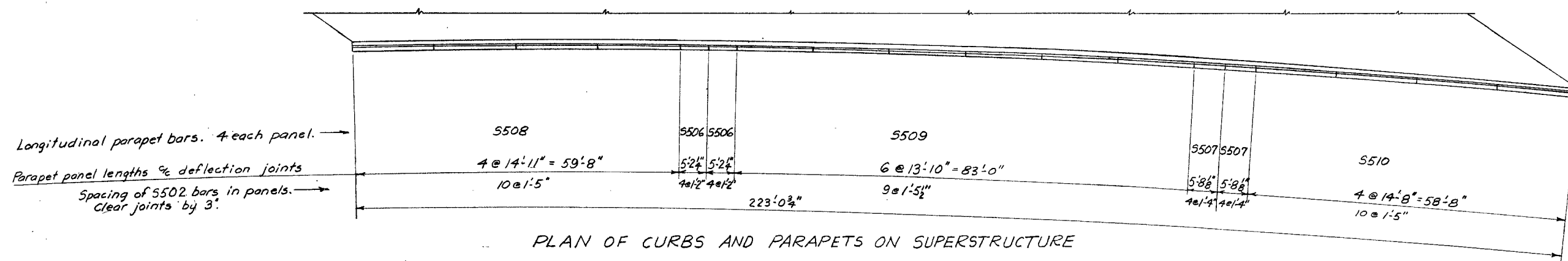
FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

265  
283

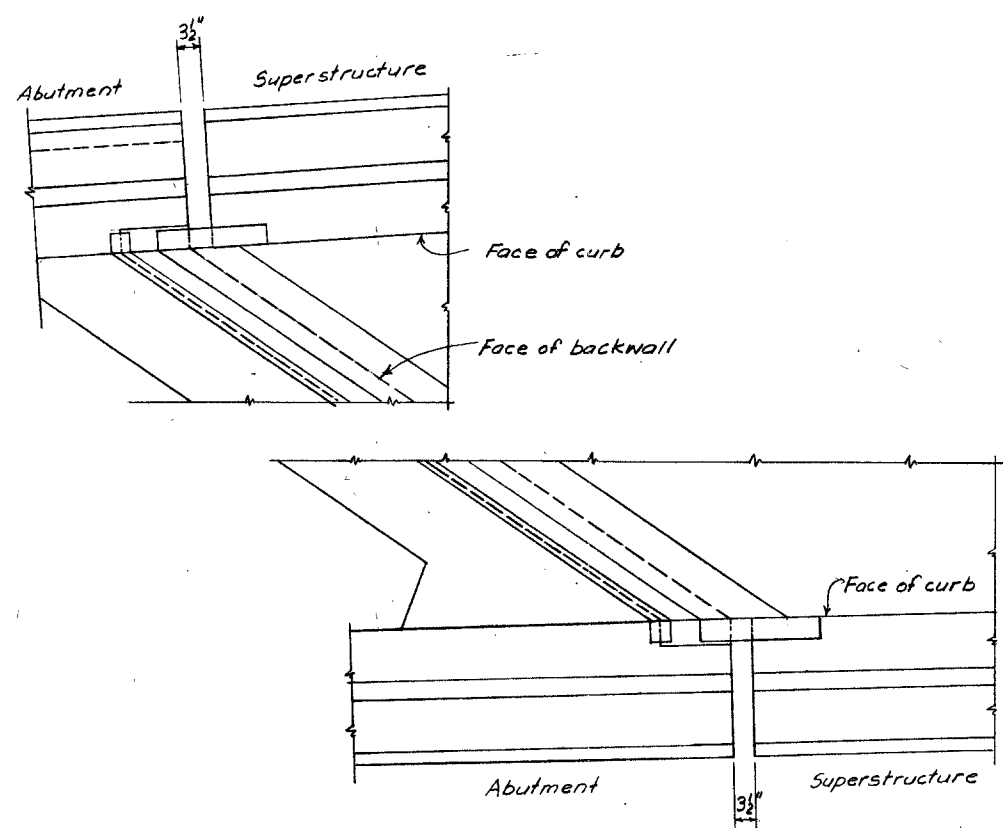
LOR-90-9.48



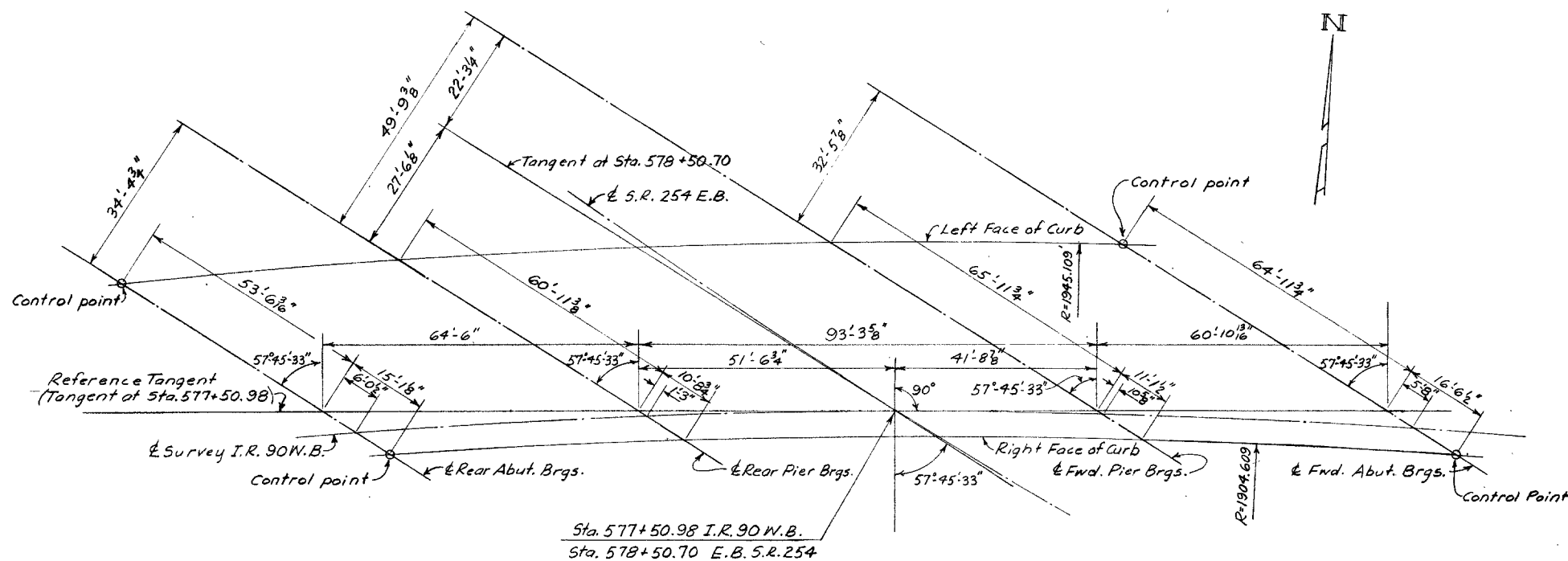
Parapet panel lengths % deflection joints.  
 ← Spacing of 5502 bars in panels. Clear joints by 3" min.  
 ← Longitudinal parapet bars. 4 each panel.



PLAN OF CURBS AND PARAPETS ON SUPERSTRUCTURE



Corners at Rear Abutment shown. Forward corners similar.  
 DETAILS OF CORNERS OF SUPERSTRUCTURE



GEOMETRIC LAYOUT

STATE OF OHIO  
 DEPARTMENT OF HIGHWAYS  
 DIVISION OF DESIGN AND CONSTRUCTION  
 BUREAU OF BRIDGES

13/14

GEOMETRIC LAYOUT  
 & SUPERSTRUCTURE DETAILS  
 BRIDGE NO. LOR-90WB-1170  
 OVER E.B. S.R. 254

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	DESIGNED
wjg	wjg		J.D.R.	BFG	5-6-70	H-25-20



# CENTER LINE SURVEY PLAT I.R 90 SECTION 9.48

AMHERST TWP, T6N R18W  
ELYRIA TWP, T6N, R17 W  
CONNECTICUT WESTERN RESERVE

SCALE IN FEET 0 400 800 1200

LOR-90-9.48  
R/W PLAN-LOR-90-931  
LIMITED ACCESS

R/W JOB NO.	FED. RD. DIVISION	STATE	PROJECT
03654	2	OHIO	I-90-1(63)00

267  
283

R/W CURVE DATA  
EAST BOUND LANES

**CURVE 1**  
PI = Sta. 451+90.08  
 $\Delta = 6^{\circ}07'45''$  Rt.  
Dc =  $0^{\circ}30'00''$   
R = 11,459.16'  
T = 613.50'  
L = 1,225.83'

**CURVE 2**  
PI = Sta. 466+20.46  
 $\Delta = 21^{\circ}50'50''$  Rt.  
Dc =  $1^{\circ}28'00''$   
R = 3,906.53'  
T = 753.95'  
L = 1,489.58'

**CURVE 3**  
PI = Sta. 481+49.74  
 $\Delta = 5^{\circ}15'14''$   
Dc =  $2^{\circ}14'59''$   
R = 2,546.73'  
T = 116.76'  
L = 233.36'

**CURVE 4**  
PI = Sta. 496+79.16  
 $\Delta = 72^{\circ}59'10''$  Lt.  
Dc =  $3^{\circ}00''$   
R = 1909.86'  
T = 1412.86'  
L = 2432.87'

**CURVE 5**  
PI = Sta. 508+15.93  
 $\Delta = 5^{\circ}15'14''$   
Dc =  $2^{\circ}14'59''$   
R = 2,546.73'  
T = 116.76'  
L = 233.36'

**CURVE 6**  
PI = Sta. 574+74.56  
 $\Delta = 25^{\circ}09'35''$  Rt.  
Dc =  $1^{\circ}28'00''$   
R = 3,906.53'  
T = 753.95'  
L = 1,489.58'

R/W CURVE DATA  
WEST BOUND LANES

**CURVE 7**  
PI = Sta. 495+73.80  
 $\Delta = 8^{\circ}00'14''$   
Dc =  $2.9934^{\circ}$   
R = 1910.28'  
T = 133.58'  
L = 266.73'

**CURVE 8**  
PI = Sta. 504+37.95  
 $\Delta = 54^{\circ}04'45''$  Lt.  
Dc =  $4^{\circ}00''$   
R = 1432.395'  
T = 731.09'  
L = 1351.98'

**CURVE 9**  
PI = Sta. 511+92.42  
 $\Delta = 8^{\circ}00'14''$   
Dc =  $2.9934^{\circ}$   
R = 1910.28'  
T = 133.58'  
L = 266.73'

R/W CURVE DATA  
E.B. & W.B. LANES

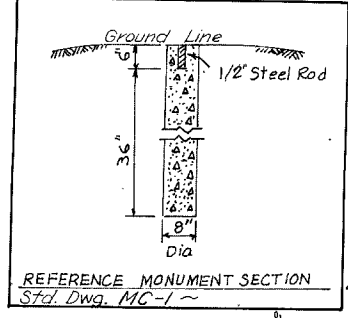
**CURVE**  
PI = Sta. 527+71.94  
 $\Delta = 3^{\circ}00'$  Rt.  
Dc =  $1.49989^{\circ}$   
R = 5819.99'  
T = 100.03'  
L = 200.01'

**CURVE**  
PI = Sta. 571+94.49  
 $\Delta = 49^{\circ}33'45''$  Rt.  
Dc =  $2^{\circ}00''$   
R = 2864.79'  
T = 1322.58'  
L = 2478.13'

**CURVE**  
PI = Sta. 554+50.07  
 $\Delta = 3^{\circ}00'$  Rt.  
Dc =  $1.49989^{\circ}$   
R = 5819.99'  
T = 100.03'  
L = 200.01'

CONSTRUCTION CURVE DATA  
E.B. & W.B. LANES

PI = Sta. 542+31.82  
 $\Delta = 55^{\circ}33'45''$  Rt.  
Dc =  $2^{\circ}00'00''$   
R = 2864.79'  
Ls = 300.0'  
Ts = 1659.91'  
Es = 374.71'  
 $\theta_s = 3^{\circ}00'00''$   
Dc =  $49^{\circ}33'45''$  Rt.  
Lc = 2478.13'



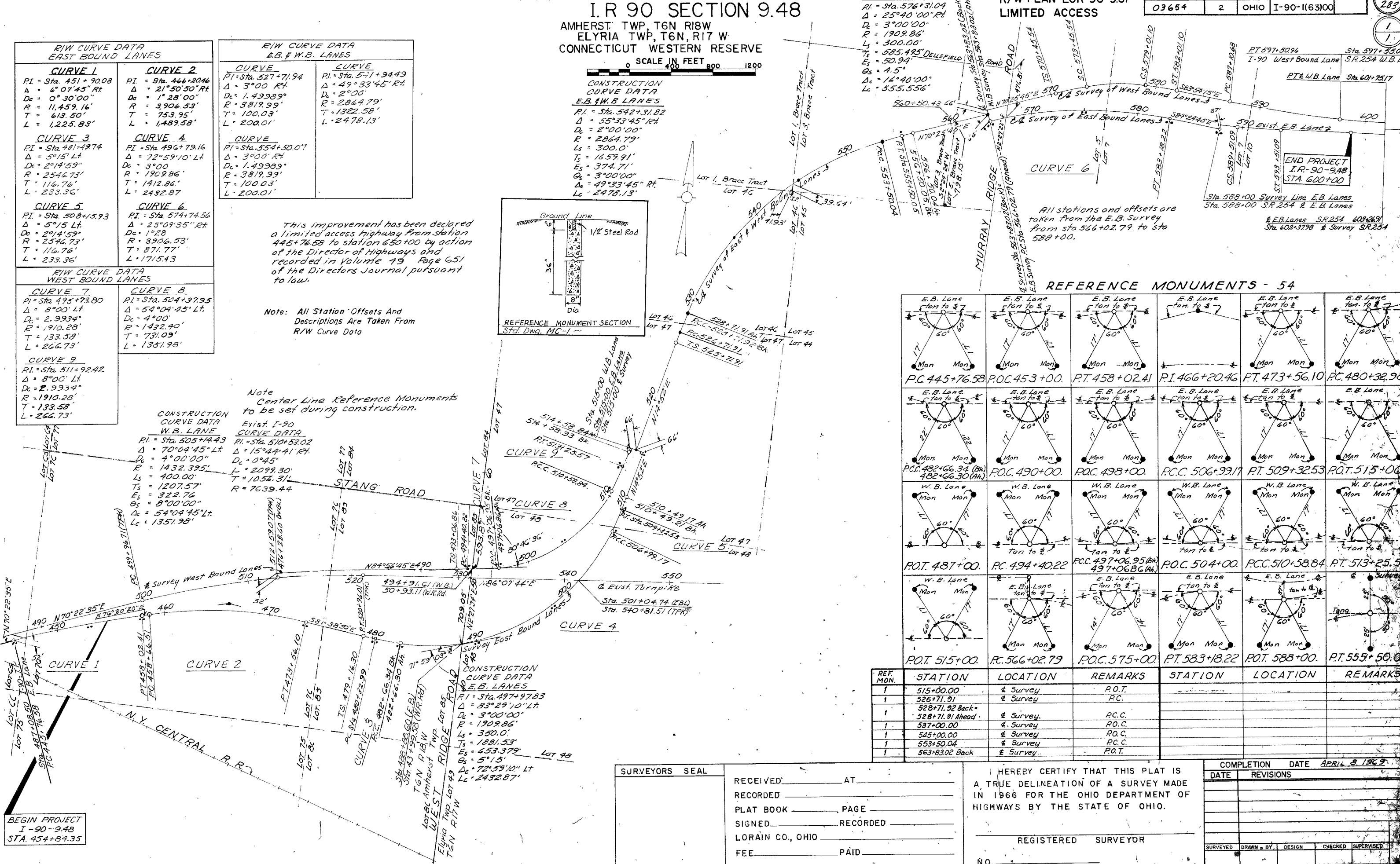
This improvement has been declared a limited access highway from station 445+76.58 to station 650+00 by action of the Director of Highways and recorded in Volume 49 Page 651 of the Directors Journal pursuant to law.

Note: All Station Offsets And Descriptions Are Taken From R/W Curve Data

Note  
Center Line Reference Monuments to be set during construction.

CONSTRUCTION CURVE DATA  
W.B. LANE  
PI = Sta. 505+14.43  
 $\Delta = 70^{\circ}04'45''$  Lt.  
Dc =  $4^{\circ}00'00''$   
R = 1432.395'  
Ls = 400.00'  
Ts = 1207.57'  
Es = 322.76'  
 $\theta_s = 8^{\circ}00'00''$   
Dc =  $54^{\circ}04'45''$  Lt.  
Lc = 1351.98'

EXIST. I-90 CURVE DATA  
PI = Sta. 510+93.02  
 $\Delta = 15^{\circ}44'41''$  Rt.  
Dc =  $0^{\circ}45''$   
R = 2099.30'  
T = 1058.31'  
L = 7639.44'



STATION	LOCATION	REMARKS	STATION	LOCATION	REMARKS
P.C. 445+76.58	E.B. Lane	tan to E	P.T. 458+02.41	E.B. Lane	tan to E
P.C. 453+00	E.B. Lane	tan to E	P.T. 473+56.10	E.B. Lane	tan to E
P.C. 482+66.34 (Bk)	E.B. Lane	tan to E	P.T. 487+00	E.B. Lane	tan to E
P.C. 482+66.30 (Aft)	E.B. Lane	tan to E	P.C. 494+40.22	E.B. Lane	tan to E
P.C. 498+00	E.B. Lane	tan to E	P.C. 497+06.95 (Bk)	E.B. Lane	tan to E
P.C. 498+00	E.B. Lane	tan to E	P.C. 497+06.95 (Aft)	E.B. Lane	tan to E
P.C. 506+99.17	E.B. Lane	tan to E	P.C. 504+00	E.B. Lane	tan to E
P.T. 509+32.53	E.B. Lane	tan to E	P.C. 510+58.84	E.B. Lane	tan to E
P.T. 515+00	E.B. Lane	tan to E	P.T. 513+25.57	E.B. Lane	tan to E
P.T. 515+00	E.B. Lane	tan to E	P.C. 515+00	E.B. Lane	tan to E
P.C. 515+00	E.B. Lane	tan to E	P.T. 583+18.22	E.B. Lane	tan to E
P.C. 566+02.79	E.B. Lane	tan to E	P.T. 588+00	E.B. Lane	tan to E
P.C. 575+00	E.B. Lane	tan to E	P.T. 559+50.05	E.B. Lane	tan to E

REF. MON.	STATION	LOCATION	REMARKS
1	515+00.00	E Survey	R.O.T.
1	526+71.91	E Survey	P.C.
1	528+71.92 Back = 528+71.91 Ahead	E Survey	P.C.C.
1	537+00.00	E Survey	P.O.C.
1	545+00.00	E Survey	P.O.C.
1	553+50.04	E Survey	P.C.C.
1	563+83.02 Back	E Survey	P.O.T.

BEGIN PROJECT  
I-90-9.48  
STA. 454+84.35

SURVEYORS SEAL

RECEIVED \_\_\_\_\_ AT \_\_\_\_\_

RECORDED \_\_\_\_\_

PLAT BOOK \_\_\_\_\_ PAGE \_\_\_\_\_

SIGNED \_\_\_\_\_ RECORDED \_\_\_\_\_

LORAIN CO., OHIO

FEE \_\_\_\_\_ PAID \_\_\_\_\_

HEREBY CERTIFY THAT THIS PLAT IS A TRUE DELINEATION OF A SURVEY MADE IN 1966 FOR THE OHIO DEPARTMENT OF HIGHWAYS BY THE STATE OF OHIO.

REGISTERED SURVEYOR

NO. \_\_\_\_\_

COMPLETION DATE APRIL 8, 1969

DATE	REVISIONS

SURVEYED \_\_\_\_\_ DRAWN BY \_\_\_\_\_ DESIGN \_\_\_\_\_ CHECKED \_\_\_\_\_ SUPERVISED \_\_\_\_\_

# SUMMARY OF ADDITIONAL RIGHT OF WAY REQUIRED

TOTAL NO. OWNERS- 32

TOTAL NO. COMPLETE TAKES- 1

TOTAL OWNERS WITH STRUCTURES INVOLVED- 5

PARCEL NO.	OWNER	DEED RECORD			DEED AREA	TOTAL PRO	TOTAL TAKE	PRO IN TAKE	NET TAKE	NET RES. LT.	NET RES. RT.	BLDG'S TO BE ACQ'D	SHEET NO.	
		BOOK	PAGE	DATE										
1 WL	Victor A. Keiffer and Victoria Keiffer	482	343	Feb. 20, 1950	*14.83 Ac.		0.53 Ac.	None	0.53 Ac.		14.30 Ac.	None	4 & 5	*Landlock
		982	8-41		*13.14						11.83			
2 WL	Oliver E. Shubert <i>Oliver E. Shubert</i>	983	841	3-15-1969	*13.14 Ac.		1.31 Ac.	None	1.31 Ac.		11.83 Ac.	None	5	*Landlock
3	Elma Miller													No Easen
4 WL	Oliver E. Shubert	873	379	3-6-64	*38.04 Ac.	None	3.36 Ac.	None	3.36 Ac.	2.90 Ac. (L)	31.78 Ac.	None	5 & 6	*Landlock
5	Oliver Edwin Shubert and Shirley Shubert													No Easen
6 WL	Marie Stang and Emma Telzerow	803 603	725 126	8-17-61 7-15-54	69.68 Ac.	2.21 Ac.	7.15 Ac.	0.39 Ac.	6.76 Ac.	9.56 Ac.	50.77 Ac.	None	6 & 7	
6 T	" " " " "	658	17						0.62 Ac.					
6 T-1	" " " " "								0.67 Ac.					
6 X	" " " " "								0.69 Ac.					
6 WD	" " " " "						0.89 Ac.	0.51 Ac.	0.38 Ac. ✓					
6 T-2	" " " " "								0.05 Ac. ✓					
7	Franklin D. & Linda Thompson													No Easen
8	Lloyd J. & Esther P. Runkle													No Easen
9	Thomas J. Collins and Marilyn A. Collins													No Easen
10 WL	Merlin G. Butler and Patricia Butler	829	569	Aug. 31, 1962	1.17 Ac.	0.04 Ac.	0.04 Ac.	None	0.04 Ac.	1.09 Ac.	None	None	8	
11 WL	Ronald C. Newman and Elsie Newman	867	8	10-8-63	1.16 Ac.	0.08 Ac.	0.11 Ac.	None	0.11 Ac.	2.11 Ac.	None	None	8	
		758	528	9-21-59	1.14 Ac.									
12	Combined with Par. 11													
13 WL	Walter Hunter and Josephine Hunter	891	314	9-4-1964	1.13 Ac.	0.04 Ac.	0.07 Ac.	None	0.07 Ac.	1.02 Ac.	None	None	8	
14 WL	Carl M. Jesse and Mabel V. Jesse	740	365	2-11-1959	1.12 Ac.	0.04 Ac.	0.08 Ac.	None	0.08 Ac.	1.00 Ac.	None	None	8	
15 WL	Frank Echko	822	663	7-30-60	1.24 Ac.	0.05 Ac.	0.10 Ac.	None	0.10 Ac.	1.09 Ac.	None	None	8	
16 WL	Henry L. Strickler and Jennie L. Strickler	885	500	Aug. 14, 1964	1.22 Ac.	0.05 Ac.	0.11 Ac.	None	0.11 Ac.	1.06 Ac.	None	None	8	
17 A	Lon Edward Blackburn													No Easen
17 WL	Sherwood Blackburn et al	731	655	10-18-58	1.89 Ac.	0.06 Ac.	0.29 Ac.	None	0.29 Ac.	1.54 Ac.	None	None	8	
18 WL	Thomas E. Maple and Helen L. Maple	917	367	10-13-65	5.27 Ac.	1.05 Ac.	0.58 Ac.	0.11 Ac.	0.47 Ac.	3.47 Ac.	None	Yes	8	
18 WD	" " " " "						0.86 Ac.	0.58 Ac.	0.28 Ac.					

# SUMMARY OF ADDITIONAL RIGHT OF WAY REQUIRED

TOTAL NO. OWNERS- 32

TOTAL NO. COMPLETE TAKES- 1

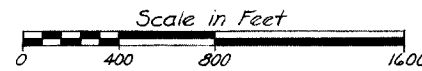
TOTAL OWNERS WITH STRUCTURES INVOLVED- 5

PARCEL NO.	OWNER	DEED RECORD			DEED AREA	TOTAL PRO	TOTAL TAKE	PRO IN TAKE	NET TAKE	NET RES. LT.	NET RES. RT.	BLDG'S TO BE ACQ'D	SHEET NO.	
		BOOK	PAGE	DATE										
21 WL	Leroy Collins and Ruth M. Collins	597	286	2-9-54	*13.46 Ac.	0.52 Ac.	5.30 Ac.	0.12 Ac.	5.18 Ac.	1.86 Ac.	3.06 Ac (L)	Yes	8 & 9	* Computed L
21 WD	" " " "						0.56 Ac.	0.40 Ac.	0.16 Ac.					3.06 Acres
21 T	" " " "								0.04 Ac.					from Com.
21 T-1	" " " "								0.02 Ac.					
22 WL	Julius Woudacz and Margaret M. Woudacz	572	496	5-2-53	40.00 Ac.	0.57 Ac.	8.05 Ac.	None	8.05 Ac.	18.08 Ac.	13.67 Ac (L)	None	8, 9 & 10	13.67 Ac. L
22 WD	" " " "						0.20 Ac.	0.17 Ac.	0.03 Ac.					Approx. 5.3
23 WL	Norman L. Groner and Leona C. Groner	439	307	4-7-48	40.08 Ac.	0.57 Ac.	6.88 Ac.	None	6.88 Ac.	22.58 Ac.	10.05 Ac (L)	None	10	10.05 Acres
24	(This Parcel Number not used)													
25 WL	Wagner Sign Company	1143	941	8-18-70	45.10 Ac.	0.63 Ac.	6.79 Ac.	None	6.79 Ac.	29.73 Ac.	7.95 Ac. (L)	None	10 & 11	7.95 Acres L
25 T	" "								0.18 Ac.					in Lot 47.
25 T-1	" "								0.04 Ac.					
26 AWL	Robert E. & Lorraine R. Gaw	878	356	6-9-64	14865 S.F.		4685 S.F.		4685 S.F.		10180 S.F.		11	Sublot 1
26 WL	J.S.M. Limited	993	313	9-30-69	46.55 Ac.	0.64 Ac.	5.92 Ac.	None	5.92 Ac.	38.34 Ac.	1.65 Ac (L)	None	11 & 12	1.65 Acr
28, 29	(These Parcel Numbers not used.)													
30 WL	Russel H. Stang	<del>684</del> 718	<del>591</del> 717	10-26-50 4-22-58	13 Lots & Pt of Pt. Lot 31	0.63 Ac.	2.17 Ac.	0.63 Ac.	1.54 Ac.	None	7 Lots & Pt. Lots 32, 33, 34 & Pt. of Pt. Lot 31	None	11 & 12	Approx. 2.13 are in Lot 45 are in 69-00 and 33-002 0.63 acres in
31 WL	Clara C. Schubert	938	407	12-20-66	50.00 Ac.	0.61 Ac.	0.72 Ac.	None	0.72 Ac.	48.67 Ac.	None	None	12	
32 WL	John A. Szabo Inc.	938	553	12-29-66	5.73 Ac.	0.87 Ac.	2.54 Ac.	0.47 Ac.	2.07 Ac.	2.47 Ac. (L)	0.32 Ac.	None	12	2.84 acres L dedicated stre are in land in the Resi
33 WL	Alois (Loris) Weigl and Julia Weigl	407	243	12-26-46	10.29 Ac.	0.26 Ac.	2.77 Ac.	None	2.77 Ac.	4.99 Ac.	2.27 Ac. (L)	None	12	2.27 ac
34 WL	Rocckind Del Grosso	619	107	1-17-55	5.00 Ac.	0.10 Ac.	1.21 Ac.	None	1.21 Ac.	2.14 Ac.	1.55 Ac. (L)	None	12 & 13	1.55 ac
35 WL	Albert J. Katricak	366	403	7-9-47	5.13 Ac.	0.13 Ac.	1.23 Ac.	None	1.23 Ac.	1.88 Ac.	*1.89 Ac.	None	13	* 1.89 acres
36 WL	Florence H. Baxter	908	941	5-29-65	*11.64 Ac.	0.35 Ac.	2.89 Ac.	None	2.89 Ac.	2.35 Ac.	6.05 Ac.	Yes	13	* Deed Area
37 WL	Hazel M. Stiefel	<del>328</del> 393	<del>80</del> 244	6-22-43 10-21-64	4.12 Ac.	0.20 Ac.	3.49 Ac.	0.20 Ac.	3.29 Ac.			Yes	13	
37 EL	" " " "						0.63 Ac.	0	0.63 Ac.				13	
38 WL	Andrew T. Trimmel and Phyllis G. Trimmel	<del>594</del> 827	<del>319</del> 173	2-14-54 7-20-62	2.03 Ac.	0.35 Ac.	0.70 Ac.	0.10 Ac.	0.60 Ac.	1.08 Ac.	None	Yes	13	
127 X	John Frank & Priscilla Phillips	640	381	9-9-55	4.03 Ac.		0.03 Ac.		0.03 Ac.				14	Parcel 127 LOR-254
128 X	Alfred W, Helen E, and Susan Lehman	139 712	417 652	2-6-59 1-14-58	25.76 Ac.	0.93 Ac.	0.11 Ac.	None	0.11 Ac.	None	24.80 Ac.	None	14 & 15	Parcel 128 LOR-254-
128A WL	" " " "						0.03 Ac.	0	0.03 Ac.					

Royal M. Stang  
1972

# PROPERTY MAP

CONNECTICUT WESTERN RESERVE  
AMHERST TWP. T6N,R18W  
ELYRIA TWP. T6N,R17W



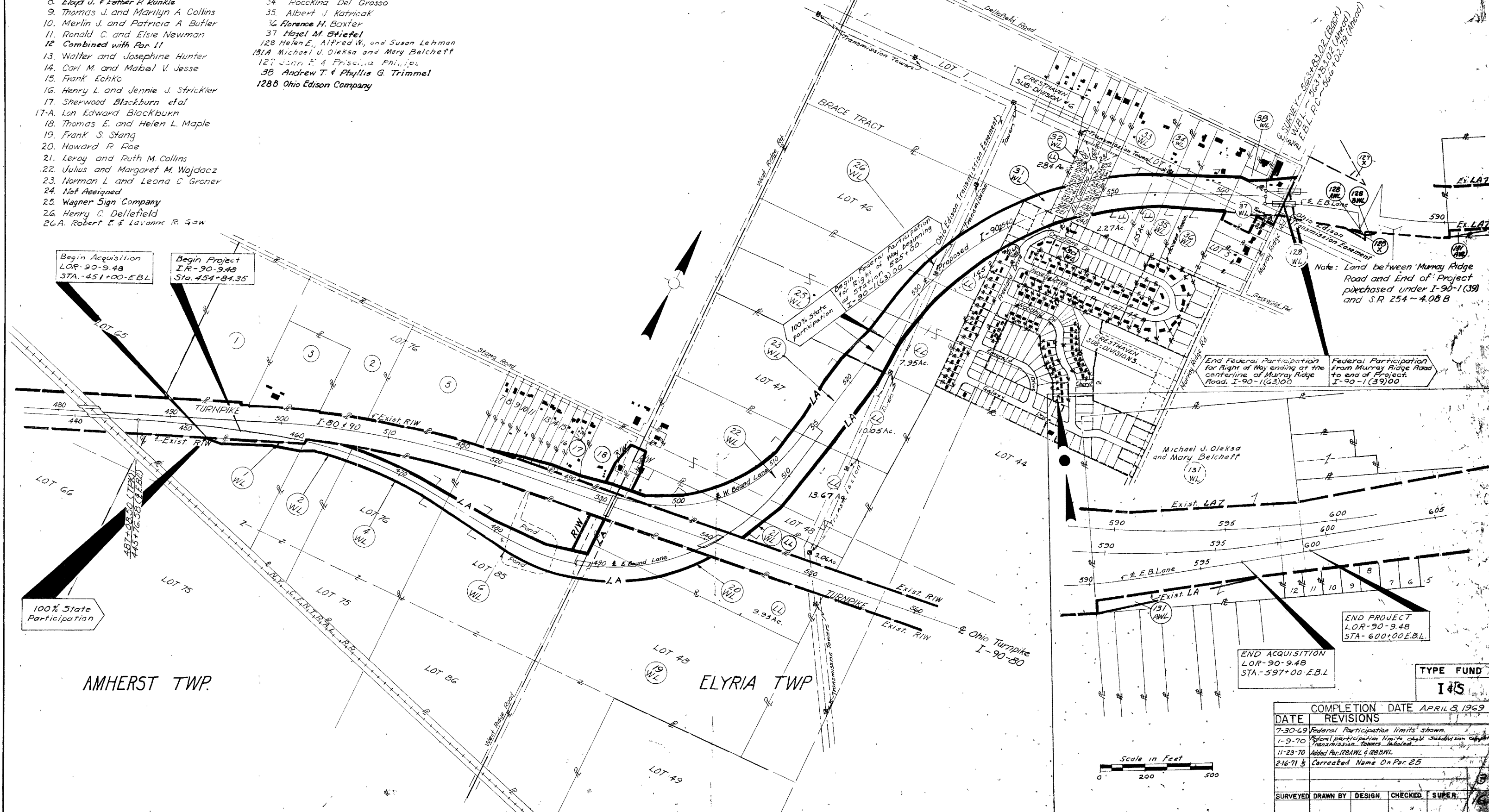
R/W Job No.	FED. RD. DIVISION	STATE	PROJECT
03654	2	OHIO	I-90-1(63)00

LOR-90-9.48  
R/W PLAN  
LIMITED ACCESS

270  
283

3  
16

- |            |                                       |
|------------|---------------------------------------|
| Parcel No. | Owner                                 |
| 1.         | Victor A. and Victoria Keiffer        |
| 2.         | Oliver E. Shubert                     |
| 3.         | Elma Miller                           |
| 4.         | Oliver E. Shubert                     |
| 5.         | Oliver E. Shubert                     |
| 6.         | Marie Stang and Emma Telzerow         |
| 7.         | Franklin D. & Linda Thompson          |
| 8.         | Lloyd J. & Esther R. Runkle           |
| 9.         | Thomas J. and Marilyn A. Collins      |
| 10.        | Merlin J. and Patricia A. Butler      |
| 11.        | Ronald C. and Elsie Newman            |
| 12.        | Combined with Par. 11                 |
| 13.        | Walter and Josephine Hunter           |
| 14.        | Carl M. and Mabel V. Jesse            |
| 15.        | Frank Eckko                           |
| 16.        | Henry L. and Jennie J. Strickler      |
| 17.        | Sherwood Blackburn et al              |
| 17-A.      | Lon Edward Blackburn                  |
| 18.        | Thomas E. and Helen L. Maple          |
| 19.        | Frank S. Stang                        |
| 20.        | Howard R. Roe                         |
| 21.        | Leroy and Ruth M. Collins             |
| 22.        | Julius and Margaret M. Wajdacz        |
| 23.        | Norman L. and Leona C. Groner         |
| 24.        | Not Assigned                          |
| 25.        | Wagner Sign Company                   |
| 26.        | Henry C. Dellefield                   |
| 26A.       | Robert E. & Lavonne R. Gow            |
| 27.        | Not Assigned                          |
| 28.        | "                                     |
| 29.        | "                                     |
| 30.        | Russel H. Stang                       |
| 31.        | Clara C. Shubert                      |
| 32.        | John A. Szabo Inc.                    |
| 33.        | Alois (Louis) and Julia Weigl         |
| 34.        | Rocckina Del Grosso                   |
| 35.        | Albert J. Katwack                     |
| 36.        | Florence H. Baxter                    |
| 37.        | Hazel M. Stiefel                      |
| 128.       | Helen E., Alfred W., and Susan Lehman |
| 131A.      | Michael J. Oleksa and Mary Belcheff   |
| 127.       | Jean F. & Priscilla Phillips          |
| 38.        | Andrew T. & Phyllis G. Trimmel        |
| 128B.      | Ohio Edison Company                   |



Begin Acquisition  
LOR-90-9.48  
STA. 451+00-E.B.L.

Begin Project  
I.R.-90-9.48  
Sta. 454+84.35

100% State Participation

End Federal Participation for Right of Way ending at the centerline of Murray Ridge Road. I-90-1(63)00

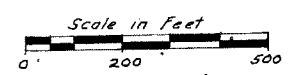
Federal Participation from Murray Ridge Road to end of Project. I-90-1(39)00

END ACQUISITION  
LOR-90-9.48  
STA-597+00-E.B.L.

END PROJECT  
LOR-90-9.48  
STA-600+00-E.B.L.

TYPE FUND  
I45

COMPLETION DATE APRIL 5, 1969	
DATE	REVISIONS
7-30-69	Federal Participation Limits Shown
1-9-70	Federal Participation Limits and Right of Way Shown
11-23-70	Added Par. 128AWL & 128BWL
2-16-71	Corrected Name On Par. 25
SURVEYED	DRAWN BY
DESIGN	CHECKED
SUPER	



R/W Job No.	FED. RD. DIVISION	STATE	PROJECT
03654	2	OHIO	

271  
283

LOR-90-9.48  
R/W PLAN-LOR-90-9.31  
LIMITED ACCESS

4  
16

**Utilities**

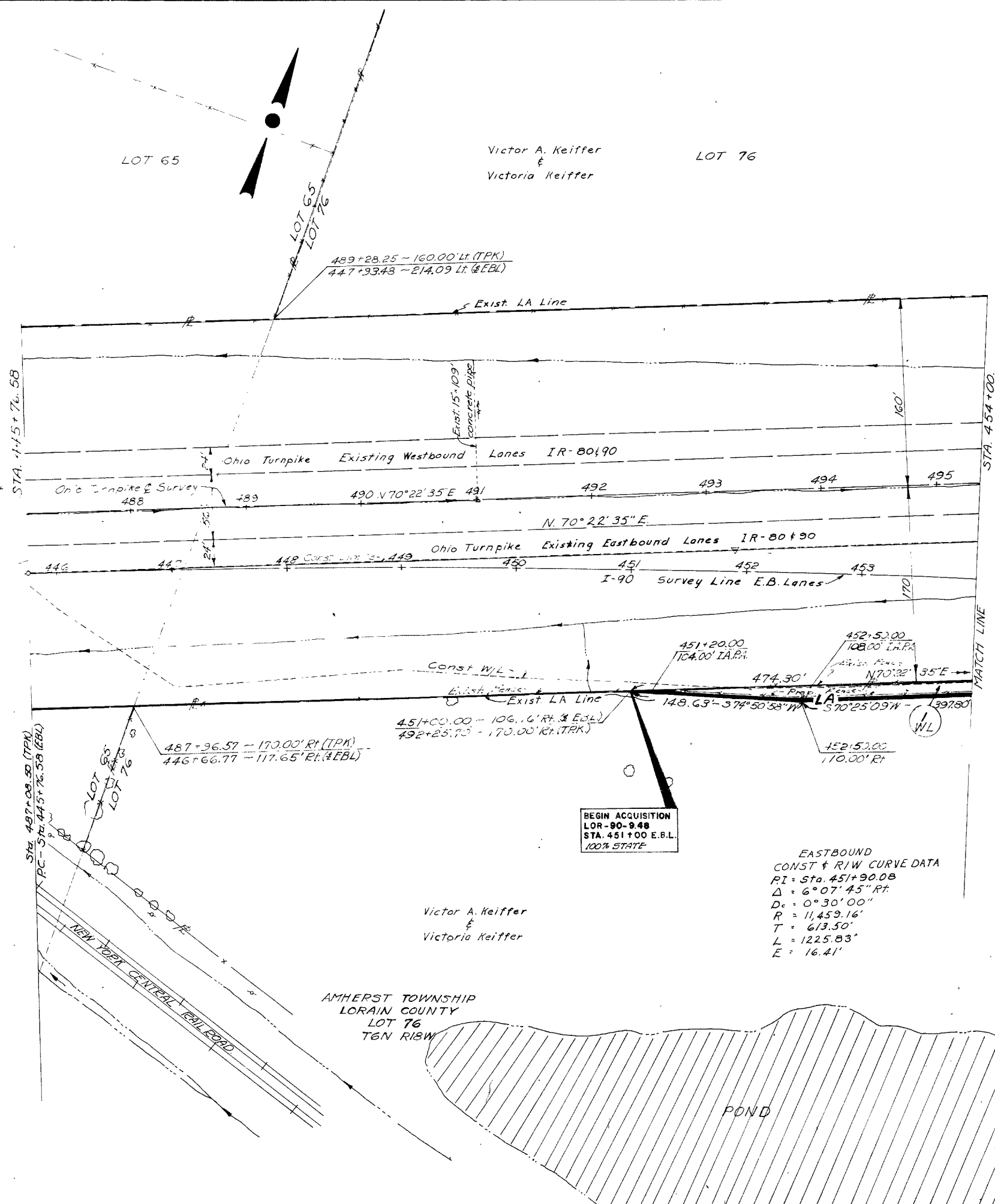
Ohio Edison Company, Transmission and Distribution Sections, 47 North Main St, Akron, Ohio 44308

City of Elyria Water Department, City Engineer, City Building, Elyria, Ohio 44035

Columbia Gas of Ohio, 99 North Front St, Columbus, Ohio 43215

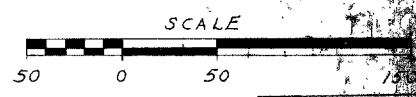
Lorain County Water District, Lorain County Engineer, 247 Hadaway St., Elyria, Ohio 44035

Elyria Telephone Co., 363 Third St, Elyria, Ohio 44035



BEGIN ACQUISITION  
LOR-90-9.48  
STA. 451+00 E.B.L.  
100% STATE

EASTBOUND  
CONST & R/W CURVE DATA  
PI = Sta. 451+90.08  
Δ = 6° 07' 45" RT  
Dc = 0° 30' 00"  
R = 11,459.16'  
T = 613.50'  
L = 1225.83'  
E = 16.41'



TYPE FUND  
S

FENCE QUANTITIES  
Type 47 Fence 297 Lin. Ft.  
I.A.P.A. 2

COMPLETION DATE APRIL 8, 1969		
DATE	REVISIONS	DESCRIPTION
7-30-69		Type of Fund chgd. Parcel IWL LA Line chgd.
1-9-70		Type of Fund chgd.
SURVEYED	DRAWN BY	DESIGN
CHECKED	SUPERVISOR	

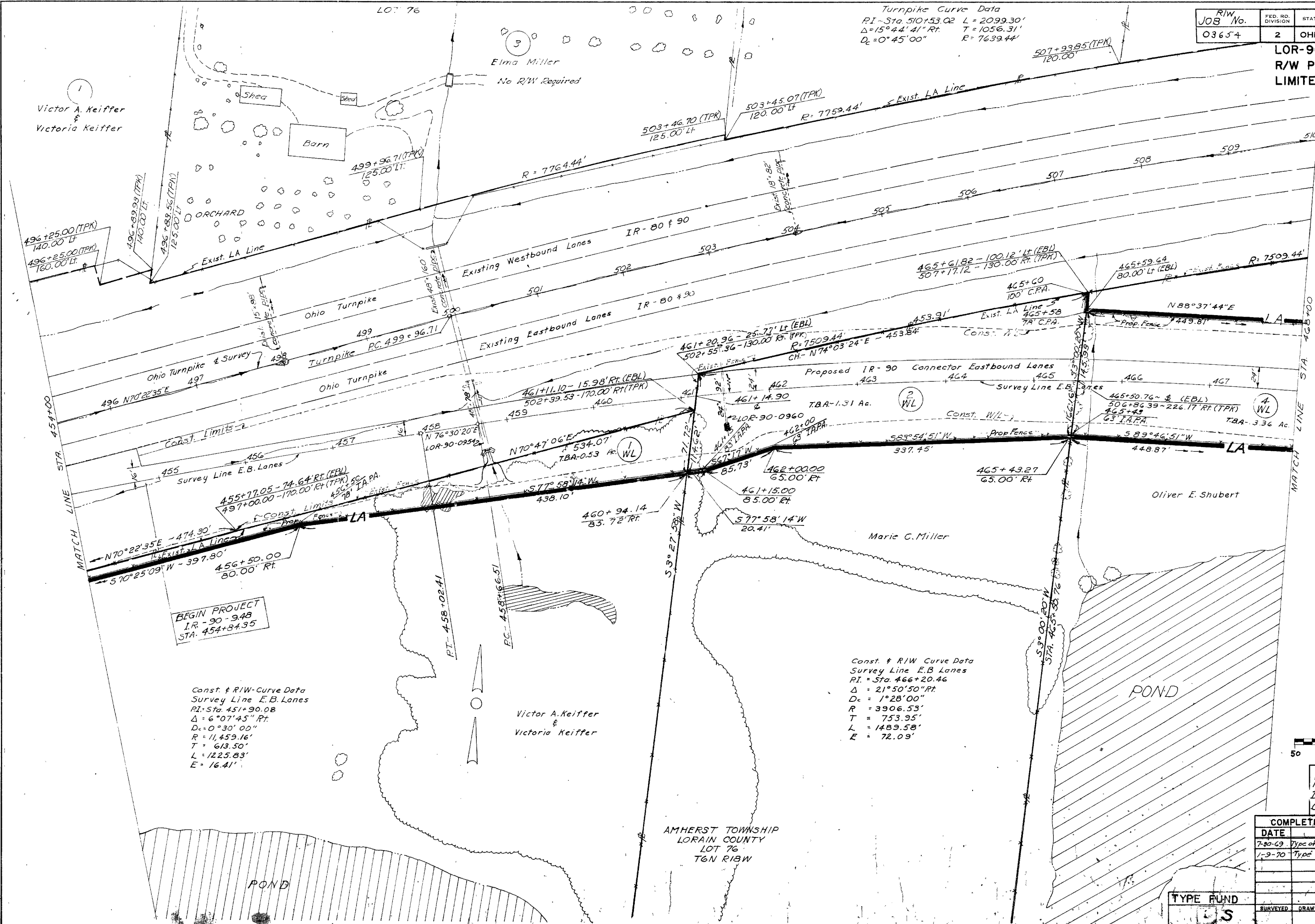
R/W JOB No.	FED. RD. DIVISION	STATE	PROJECT
03654	2	OHIO	

272  
283

LOR-90-948  
R/W PLAN-LOR-90-931  
LIMITED ACCESS

5  
16

Turnpike Curve Data  
PI - Sta. 510+53.02 L = 2099.30'  
Δ = 15°44'41" Rt. T = 1056.31'  
Dc = 0°45'00" R = 7639.44'



BEGIN PROJECT  
IR-90-948  
STA. 454+84.35

Const. & R/W Curve Data  
Survey Line E.B. Lanes  
PI: Sta. 451+90.08  
Δ = 6°07'45" Rt.  
Dc = 0°30'00"  
R = 11,459.16'  
T = 613.50'  
L = 1225.83'  
E = 16.41'

Const. & R/W Curve Data  
Survey Line E.B. Lanes  
PI: Sta. 466+20.46  
Δ = 21°50'50" Rt.  
Dc = 1°28'00"  
R = 3906.53'  
T = 753.95'  
L = 1489.58'  
E = 72.09'



FENCE QUANTITIES  
Type 47 Fence 1657 Lin. Ft.  
I.A.P.A. 4  
C.P.A. 2

COMPLETION DATE	REVISIONS	DESCRIPTION
APRIL 9, 1990		
7-90-69	Type of Fund chgd.	Final I.M. acreage
1-9-70	Type of Fund chgd.	

TYPE FUND	SURVEYED	DRAWN BY	DESIGN	CHECKED
S				

AMHERST TOWNSHIP  
LORAIN COUNTY  
LOT 76  
T&N R1B/W



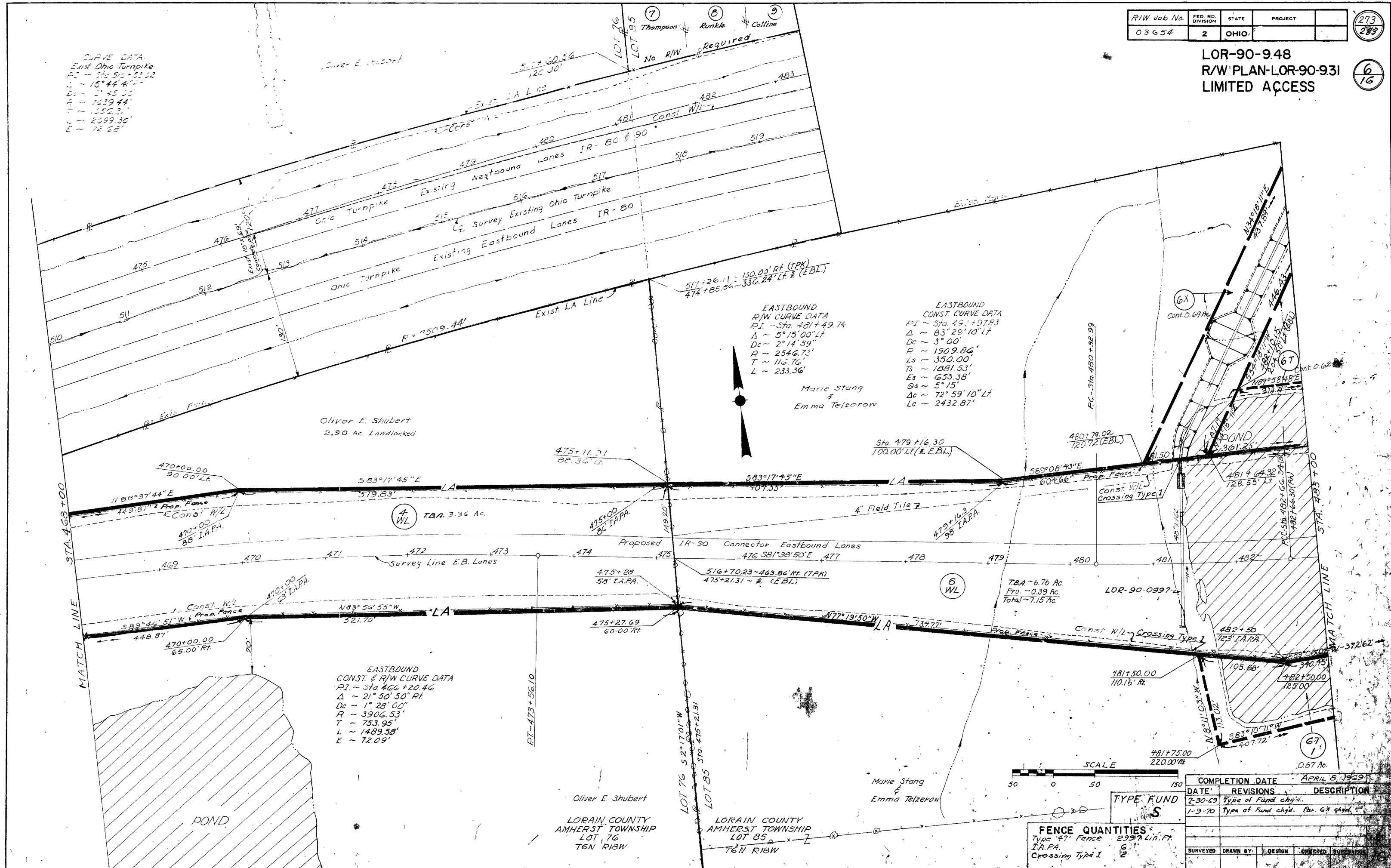
R/W Job No.	FED. RD. DIVISION	STATE	PROJECT
03654	2	OHIO	

273  
283

LOR-90-948  
R/W PLAN-LOR-90-931  
LIMITED ACCESS

6  
16

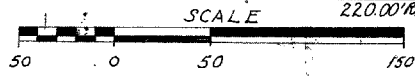
CURVE DATA  
Exist Ohio Turnpike  
PI ~ Sta 510+52.22  
L ~ 15°44'41"  
Dc ~ 1'45.00'  
R ~ 7639.44'  
T ~ 1556.3'  
E ~ 2099.30'  
L ~ 72.68'



EASTBOUND  
R/W CURVE DATA  
PI ~ Sta. 481+49.74  
Δ ~ 5°15'00" Lt  
Dc ~ 2°14'59"  
R ~ 2546.73'  
T ~ 116.76'  
L ~ 233.36'

EASTBOUND  
CONST. CURVE DATA  
PI ~ Sta. 491+97.83  
Δ ~ 83°29'10" Lt  
Dc ~ 3°00'  
R ~ 1909.86'  
Ls ~ 350.00'  
Ts ~ 1881.53'  
Es ~ 653.38'  
Gs ~ 5°15'  
Δc ~ 72°59'10" Lt  
Lc ~ 2432.87'

EASTBOUND  
CONST. & R/W CURVE DATA  
PI ~ Sta 466+20.46  
Δ ~ 21°50'50" Rt  
Dc ~ 1°28'00"  
R ~ 3906.53'  
T ~ 753.95'  
L ~ 1489.58'  
E ~ 72.09'



FENCE QUANTITIES

Type 47' Fence	2997 Lin. Ft.
I.A.P.A.	6
Crossing Type 1	2

COMPLETION DATE			APRIL 8, 1969
DATE	REVISIONS	DESCRIPTION	
7-30-69	1	Type of Fund chgd.	
1-9-70	2	Type of Fund chgd. Par. 6X chgd.	
SURVEYED	DRAWN BY	DESIGN	CHECKED

R/W Job No.	FED. RD. DIVISION	STATE	PROJECT
03654	2	OHIO	

274  
285

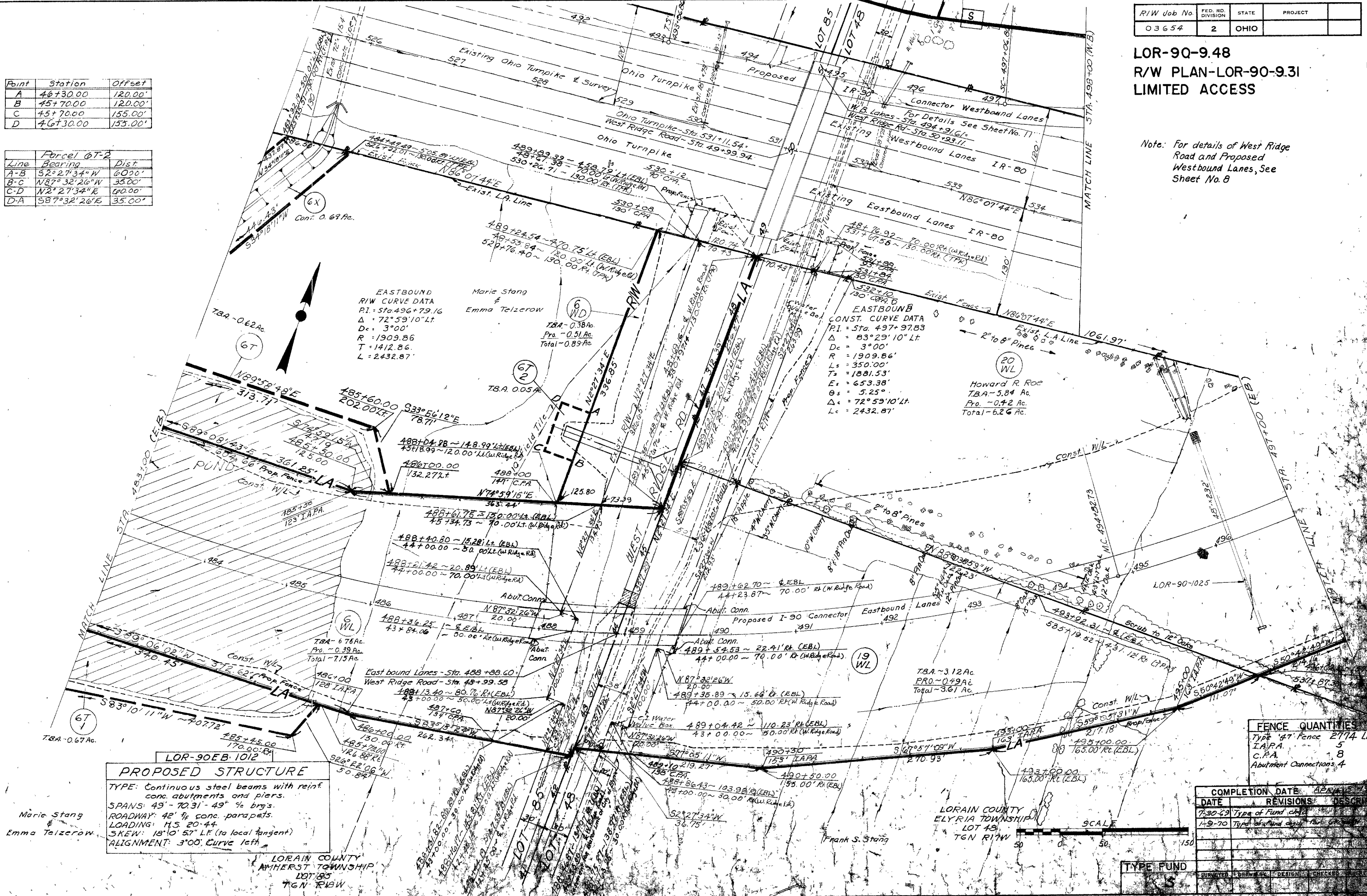
**LOR-90-9.48**  
**R/W PLAN-LOR-90-9.31**  
**LIMITED ACCESS**

7  
16

Note: For details of West Ridge Road and Proposed Westbound Lanes, See Sheet No. 8

Point	Station	Offset
A	46+30.00	120.00'
B	45+70.00	120.00'
C	45+70.00	155.00'
D	46+30.00	155.00'

Line	Bearing	Dist.
A-B	S2°27'34"W	60.00'
B-C	N87°32'26"W	35.00'
C-D	N2°27'34"E	40.00'
D-A	S87°32'26"E	35.00'



**PROPOSED STRUCTURE**  
 TYPE: Continuous steel beams with reinf. conc. abutments and piers.  
 SPANS: 49'-70.31'-49' % brgs.  
 ROADWAY: 42' 1/2 conc. parapets.  
 LOADING: HS 20-44.  
 SKEW: 18°10' 57" L.F. (to local tangent)  
 ALIGNMENT: 3°00' Curve left

Marie Stang & Emma Teizerow

LORAIN COUNTY  
 AMHERST TOWNSHIP  
 LOT 85  
 TGN R/W

LORAIN COUNTY  
 ELYRIA TOWNSHIP  
 LOT 43  
 TGN R/W

**FENCE QUANTITIES**

TYPE '47' Fence	2774 Lin. Ft.
I.A.P.A.	5
C.P.A.	8
Abutment Connections	4

DATE	REVISIONS	DESCRIPTION
7-30-69	1	Type of Fund chg.
1-9-70	2	Type of Fund chg.

LOR-90-948  
R/W PLAN-LOR-90-931  
LIMITED ACCESS

Point	Station	Offset
A	496+36.66 (WBL)	92.53
B	521+02.19 (W.Ridge Rd)	181.00
C	521+37.73 (W.Ridge Rd)	118.92
D	496+78.99 (WBL)	92.00
E	521+19.43 (W.Ridge Rd)	168.63
F	547+00.00 (W.Ridge Rd)	94.11
G	547+53.36 (W.Ridge Rd)	81.52
H	571+00.00 (W.Ridge Rd)	175.00

Line	Bearing	Distance
A-B	N 3° 52' 16" W	24.59
B-C	N 86° 07' 47" E	70.00
C-D	S 3° 52' 16" E	19.55
D-A	S 78° 12' 45" W	4.52

WESTBOUND R/W CURVE DATA  
 PI = Sta. 495+93.80  
 $\Delta = 8^{\circ}00'45''$  LT  
 $D_c = 2^{\circ}59'57''$   
 $R = 1910.28'$   
 $T = 133.58'$   
 $L = 266.73'$

WESTBOUND CONST. CURVE DATA  
 PI = Sta. 505+14.43  
 $\Delta = 70^{\circ}04'45''$  LT  
 $D_c = 4^{\circ}00'$   
 $R = 1432.40'$   
 $L_s = 400.00'$  TBA 0.28 Ac.  
 $L_c = 322.76'$  PRO 0.58 Ac.  
 $\theta = 8^{\circ}00'$  Total 0.86 Ac.  
 $\Delta_c = 54^{\circ}04'45''$  LT  
 $L_c = 1351.98'$   
 $T_s = 1207.57'$



**EXISTING STRUCTURE**  
 TYPE: 4 span steel beam with center two spans continuous, with reinforced concrete deck and reinforced concrete substructure  
 SPAN: 27.67'-65.42'-65.42'-27.67' 1/4 bry's.  
 ROADWAY: 28'-0" 1/4 1'-6" safety curbs  
 LOAD FREQUENCY: CF 30  
 SKEW: 6° 22' 30" RF  
 APPROACH: Abutment Approach Slab (11.75' Lg)  
 ALIGNMENT: Tangent.

**PROPOSED STRUCTURE**  
 TYPE: Continuous steel beam with reinforced concrete deck and substructure.  
 SPAN: 27.67'-65.42'-65.42'-45.0'-36.0' 1/4 bry's.  
 ROADWAY: 28'-0" 1/4 1'-6" safety curbs.  
 LOADING: H 520-44  
 SKEW: 6° 22' 30" RF  
 WEARING SURFACE: Monolithic Concrete  
 APPROACH SLAB: One AS-1-G7 (25' Long)  
 ALIGNMENT: Tangent.

Note: For details of West Ridge Road and proposed Eastbound Lanes, See Sheet No. 7

**FENCE QUANTITIES**

Type '47' Fence	1496 Lin. Ft.
IAPA	1
CPA	6
Abutment Connections	2
Crossing Type 1	1

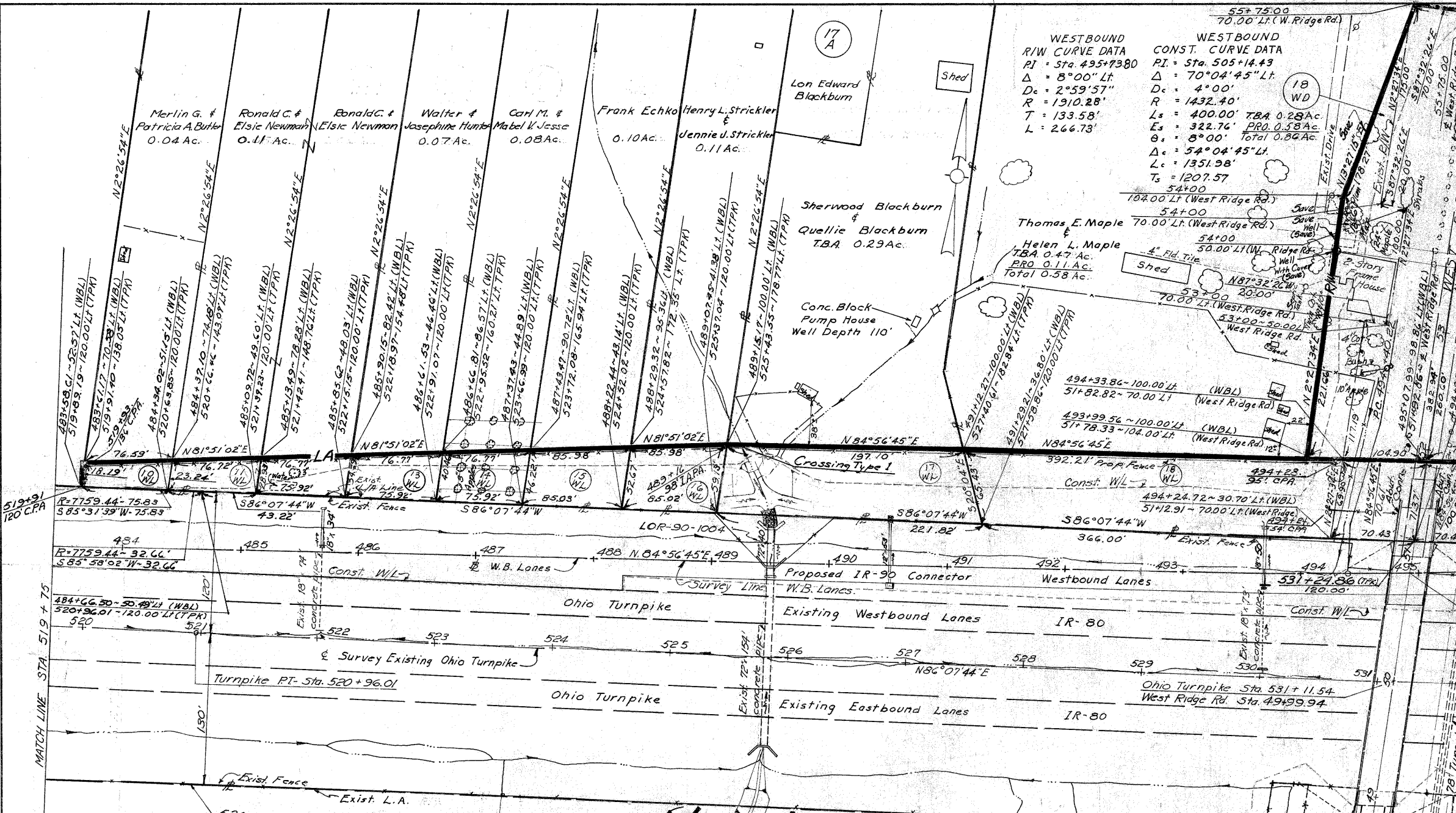
**COMPLETION DATE**

DATE	REVISIONS	DESCRIPTION
8-30-69	1	Issue of final plan
1-8-70	2	Change of boundary
10-26-70	3	Added walls to Par. 1

TYPE FUND: 15  
 DRAWN BY: [Name]  
 CHECKED BY: [Name]

WESTBOUND R/W CURVE DATA  
 PI = Sta. 495+73.80  
 $\Delta = 8^{\circ}00'14.43''$   
 $D_c = 2^{\circ}59'57''$   
 $R = 1310.28'$   
 $T = 133.58'$   
 $L = 266.73'$

WESTBOUND CONST. CURVE DATA  
 PI = Sta. 505+14.43  
 $\Delta = 70^{\circ}04'45''$   
 $D_c = 4^{\circ}00'$   
 $R = 1432.40'$   
 $L_s = 400.00'$  TBA 0.28Ac.  
 $L_c = 322.76'$  PRO 0.58Ac.  
 $\theta_s = 8^{\circ}00'$  Total 0.86Ac.  
 $\Delta_c = 54^{\circ}04'45''$   
 $L_c = 1351.98'$   
 $T_s = 1207.57'$

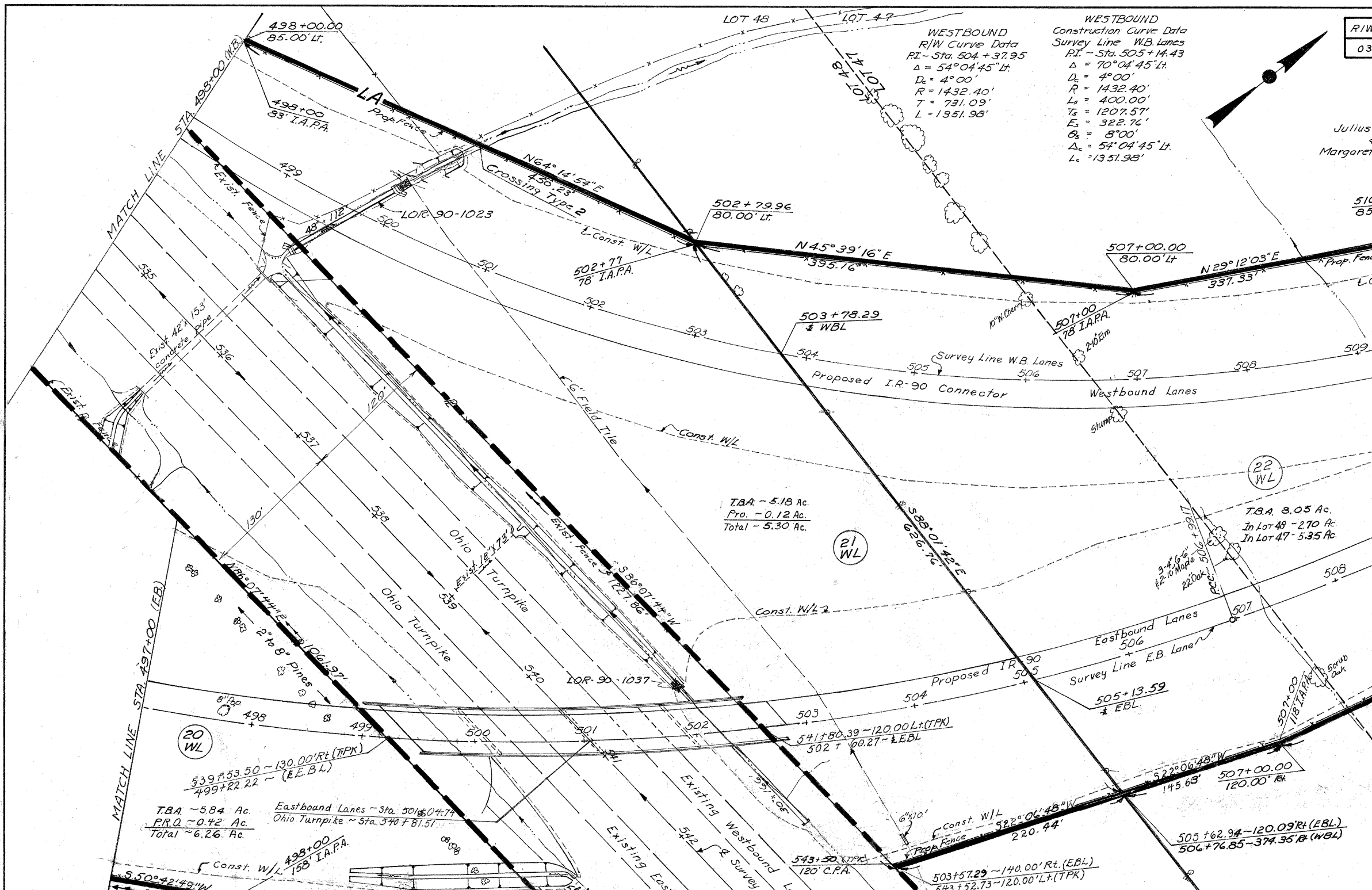


**EXISTING STRUCTURE**  
 TYPE: 4 span steel beam, with center two spans continuous, with reinforced concrete deck and reinforced concrete substructure  
 SPAN: 27.67'-65.42'-65.42'-27.67' 1/4 brgs.  
 ROADWAY: 28'-0" 1/4 1'-6" safety curbs  
 LOAD FREQUENCY: CF 30  
 SKEW: 6° 22' 30" RF

**PROPOSED STRUCTURE**  
 TYPE: Continuous steel beam with reinforced concrete deck and substructure  
 SPAN: 27.67'-65.42'-65.42'-45.0'-36.0' 1/4 brgs.  
 ROADWAY: 28'-0" 1/4 1'-6" safety curbs  
 LOADING: H 520-44  
 SKEW: 6° 22' 30" RF

MATCH LINE STA. 519+75

781 Turnpike



WESTBOUND  
R/W Curve Data  
PI - Sta. 504 + 37.95  
 $\Delta = 54^{\circ}04'45''$  Lt.  
 $D_c = 4^{\circ}00'$   
 $R = 1432.40'$   
 $T = 731.09'$   
 $L = 1351.98'$

WESTBOUND  
Construction Curve Data  
Survey Line W.B. Lanes  
PI - Sta. 505 + 14.43  
 $\Delta = 70^{\circ}04'45''$  Lt.  
 $D_c = 4^{\circ}00'$   
 $R = 1432.40'$   
 $L_s = 400.00'$   
 $T_s = 1207.57'$   
 $E_s = 322.76'$   
 $\theta_s = 8^{\circ}00'$   
 $\Delta_c = 54^{\circ}04'45''$  Lt.  
 $L_c = 1351.98'$

R/W  
036

Julius  
Margaret

510  
85.0

T.B.A. - 5.18 Ac.  
Pro. - 0.12 Ac.  
Total - 5.30 Ac.

T.B.A. 8.05 Ac.  
In Lot 48 - 2.70 Ac.  
In Lot 47 - 5.35 Ac.

T.B.A. - 5.84 Ac.  
P.R.O. - 0.42 Ac.  
Total - 6.26 Ac.

Eastbound Lanes - Sta. 501 + 04.74  
Ohio Turnpike - Sta. 540 + 81.51

MATCH LINE STA 497+00 (EB)

20 WL

21 WL

22 WL

498+00.00  
85.00' Lt.  
498+00  
83' I.A.P.A.

502+79.96  
80.00' Lt.

503+78.29  
WBL

507+00  
78' I.A.P.A.

507+00.00  
80.00' Lt.

505+13.59  
EBL

507+00.00  
120.00' Rk.

505+62.94 - 120.09' Rt. (EBL)  
506+76.85 - 374.35' R. (WBL)

503+57.29 - 140.00' Rt. (EBL)  
543+52.73 - 120.00' Lt. (TPK)

539+53.50 - 130.00' Rt. (TPK)  
499+22.22 - (E.E.B.L.)

498+00  
158' I.A.P.A.

MATCH LINE STA 498+00 (WB)

498

499

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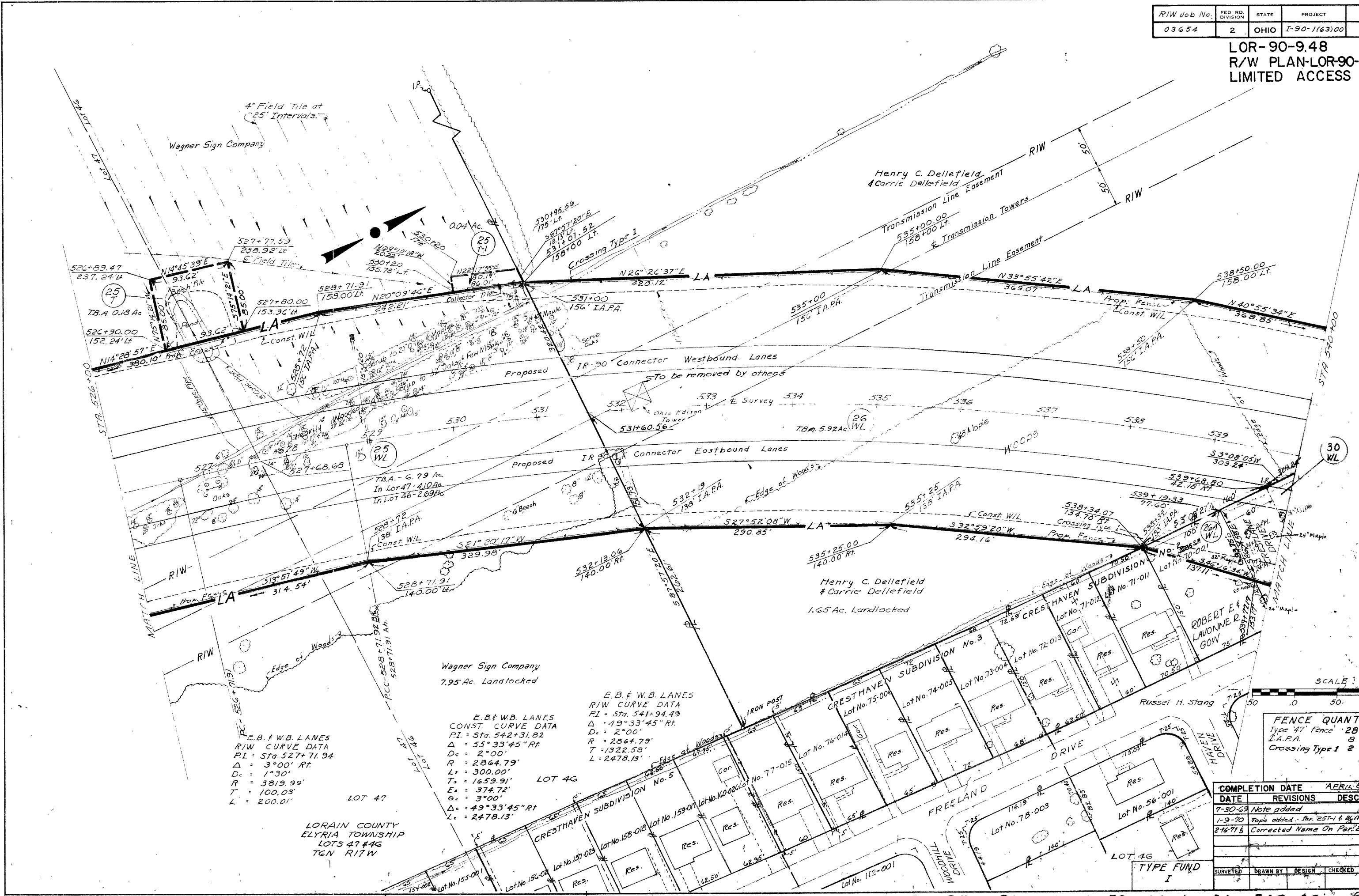
545

546

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548

LOR-90-9.48  
R/W PLAN-LOR-90-931  
LIMITED ACCESS



E.B. & W.B. LANES  
CONST. CURVE DATA  
P.I. = Sta. 542+31.82  
Δ = 55°33'45" Rt.  
Dc = 2'00"  
R = 2864.79'  
L = 300.00'  
Ts = 1659.91'  
E = 374.72'  
θ = 3'00"  
Δ = 49°33'45" Rt.  
Lc = 2478.13'

E.B. & W.B. LANES  
RIW CURVE DATA  
P.I. = Sta. 541+94.49  
Δ = 49°33'45" Rt.  
Dc = 2'00"  
R = 2864.79'  
L = 322.58'  
L = 2478.13'

FENCE QUANTITIES  
Type 47 Fence 2811 Lin. Ft.  
I.A.P.A. 8  
Crossing Type 1 2

DATE	REVISIONS	DESCRIPTION
7-30-69	Note added	
1-9-70	Topo added - Par. 25-1 & 26A added	
2-16-71	Corrected Name On Par. 25	

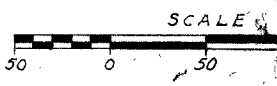
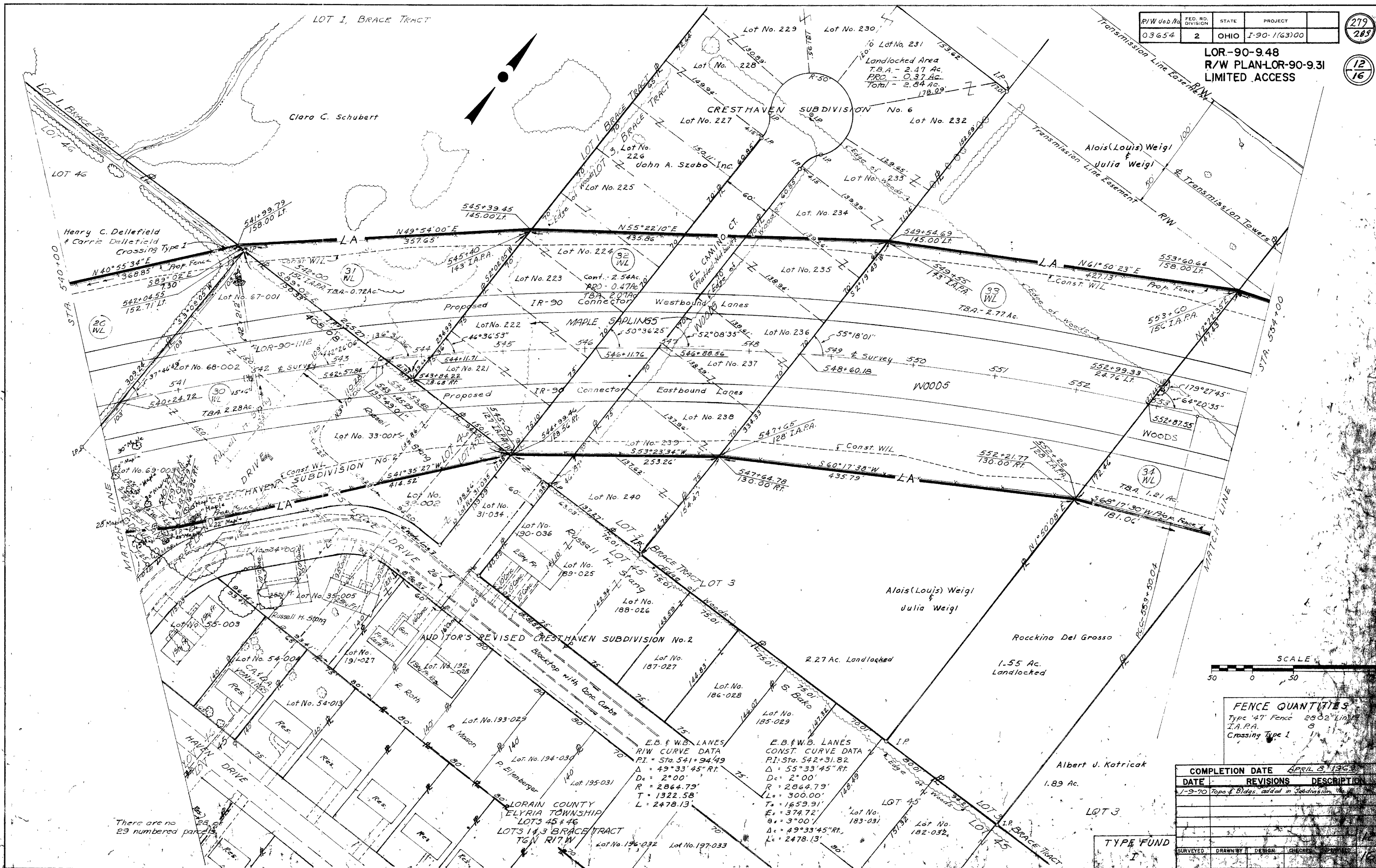
SURVEYED	DRAWN BY	DESIGN	CHECKED	SUPERVISOR

R/W Sub No.	FED. RD. DIVISION	STATE	PROJECT
03654	2	OHIO	I-90-1(63)00

279  
283

LOR-90-9.48  
R/W PLAN-LOR-90-9.31  
LIMITED ACCESS

12  
16



**FENCE QUANTITIES**

Type 47 Fence 2802' Lin.  
I.A.P.A. 8  
Crossing Type 1 1

COMPLETION DATE	APRIL 3, 1963
DATE	1-9-70
REVISIONS	Topo & Bldgs. added in Subdivision No. 2
DESCRIPTION	
TYPE FUND	I
SURVEYED	DRAWN BY
DESIGN	CHECKED
APPROVED	

There are no 29 numbered parcels

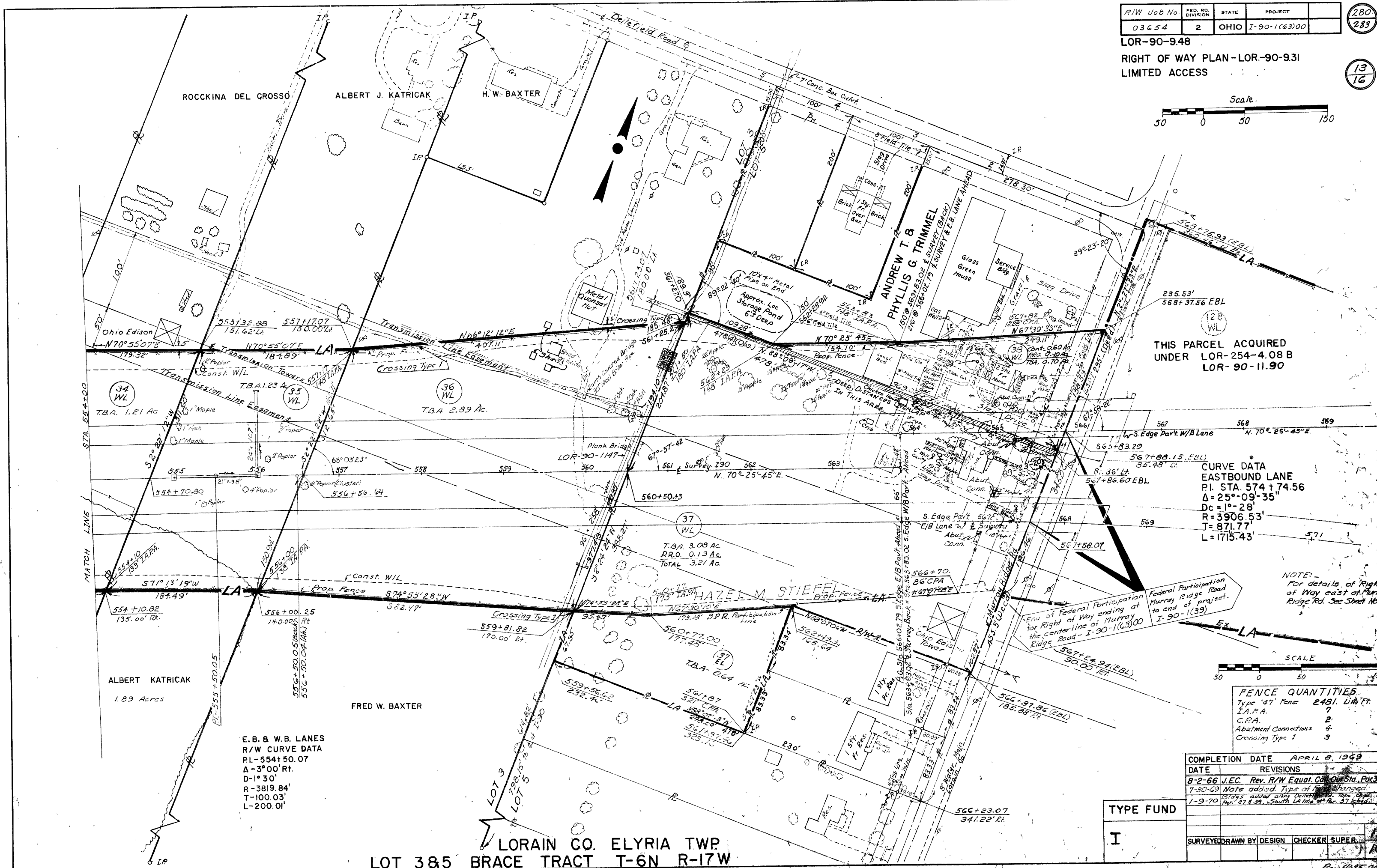
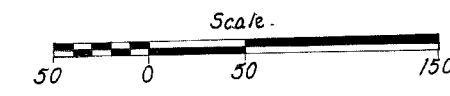
R/W Plan Sta 540+00 to Sta 554+00

R/W Job No.	FED. RD. DIVISION	STATE	PROJECT
03654	2	OHIO	I-90-1(63)00

280  
283

LOR-90-948  
RIGHT OF WAY PLAN - LOR-90-931  
LIMITED ACCESS

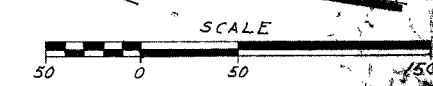
13  
16



THIS PARCEL ACQUIRED UNDER LOR-254-4.08 B LOR-90-11.90

CURVE DATA  
EASTBOUND LANE  
P.I. STA. 574+74.56  
 $\Delta = 25^{\circ}09'35''$   
Dc = 1'-28"  
R = 3906.53'  
T = 871.77'  
L = 1715.43'

NOTE:  
For details of Right of Way east of Murray Ridge Rd. See Sheet No. 14



FENCE QUANTITIES

Type '47' Fence	2481.14 L.F.
I.A.P.A.	7
C.P.A.	2
Abutment Connections	4
Crossing Type 1	3

COMPLETION DATE APRIL 8, 1969

DATE	REVISIONS
8-2-66	J.E.C. Rev. R/W Equat. Calc. On Sta. Par. 38W
7-30-69	Note added. Type of fence changed.
1-9-70	310's added along Dellefield Rd. topo sheet. Par. 37 & 38. South LA line of Par. 37 changed.

TYPE FUND

I
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SURVEYED	DRAWN BY	DESIGN	CHECKER	SUPER

E.B. & W.B. LANES  
R/W CURVE DATA  
P.I. - 554+50.07  
 $\Delta - 3^{\circ}00' R.$   
D - 1' 30"  
R - 3819.84'  
T - 100.03'  
L - 200.01'

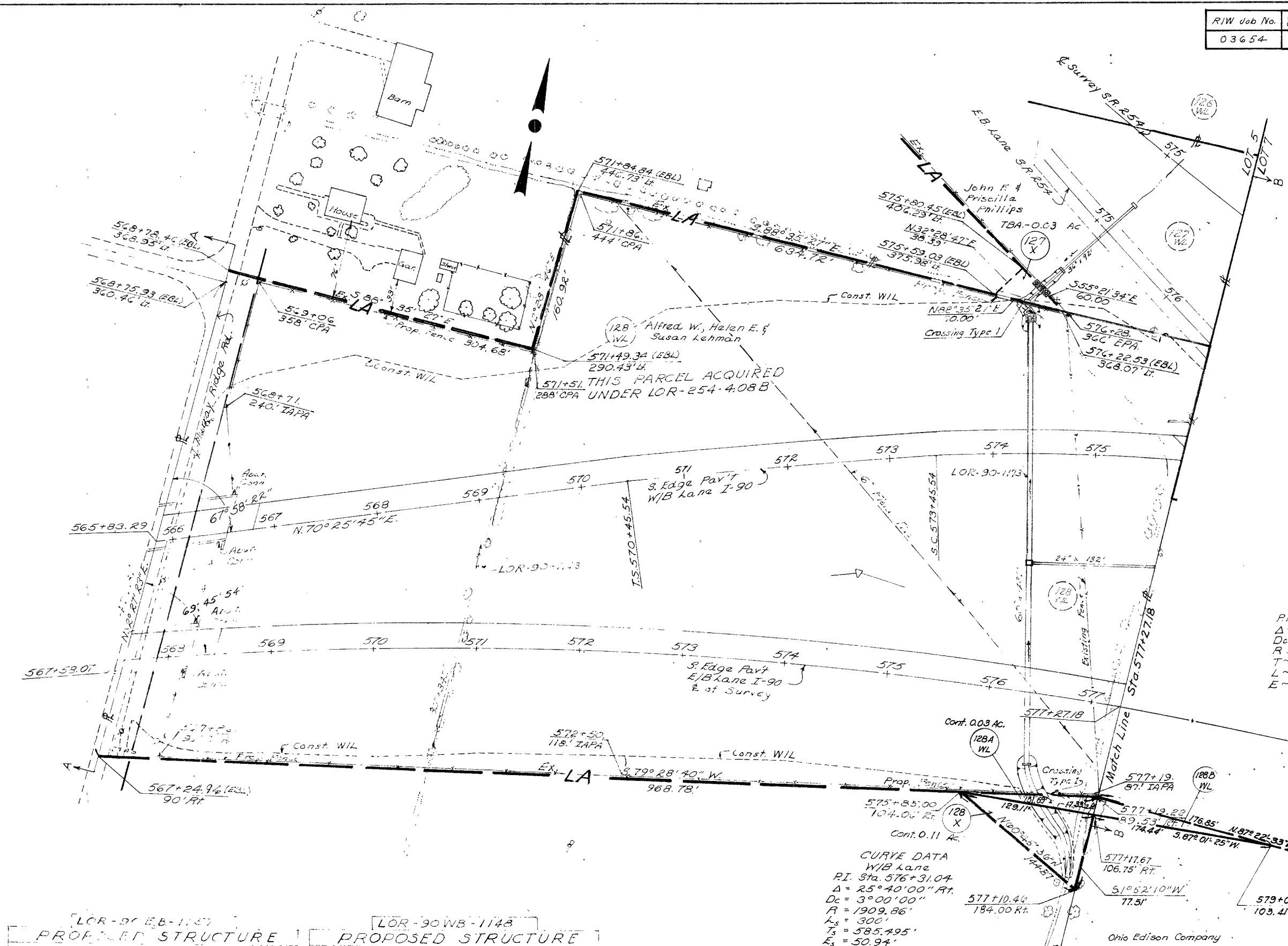
LORAIN CO. ELYRIA TWP.  
LOT 385 BRACE TRACT T-6N R-17W  
R/W PLAN STA 554+00 to 567+58.07



R/W Job No.	FED. RD. DIVISION	STATE	PROJECT
03654	2	OHIO	I-90-1(39)00

281  
283  
12  
16

LOR-90-9.48  
LOR-254-4.08  
R/W PLAN-LOR-90-931  
LIMITED ACCESS

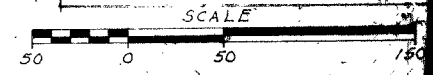


CURVE DATA  
E/B LANE  
P.I. Sta. 574+74.50  
 $\Delta = 25^{\circ}09'35''$  Rt.  
Dc = 128'  
R = 3900.53  
T = 871.77  
L = 1715.43  
E = 90.09'

CURVE DATA  
W/B Lane  
P.I. Sta. 576+31.04  
 $\Delta = 25^{\circ}40'00''$  Rt.  
Dc = 300'00"  
R = 1909.86'  
T<sub>s</sub> = 300'  
T<sub>s</sub> = 585.495'  
E<sub>s</sub> = 50.94'  
O<sub>s</sub> = 4.5'  
 $\Delta_c = 16^{\circ}40'00''$   
L<sub>c</sub> = 555.556'

FENCE QUANTITIES

Type 47 Fence	2236 Lin. Ft.
I.A.P.A.	3
C.P.A.	4
Attachment Connections	4
Crossing Type 1	2
E.P.A.	1



LOR-90 EB-1157  
**PROPOSED STRUCTURE**  
TYPE: Continuous steel beams with reinforced concrete deck and substructure.  
SPANS: 35.5'-50.08' - 35.0' bays.  
ROADWAY: 42' concrete parapets.  
LOADING: HS 20-44 and Alternate Intersate Loading.  
SKEW: 13°36'42" LF to local tangent.  
ALIGNMENT: 1°35'21"

LOR-90 WB-1148  
**PROPOSED STRUCTURE**  
TYPE: Continuous steel beams with reinforced concrete deck and substructure.  
SPANS: 35.5'-50.08' - 40.5' bays.  
ROADWAY: 42' concrete parapets.  
LOADING: HS 20-44 and Alternate Intersate Loading.  
SKEW: 21°56'10" LF  
ALIGNMENT: Tangent.

ELYRIA TWP  
T-6N R-17W

COMPLETION DATE: APRIL 8, 1969

DATE	REVISIONS
7-30-69	Type of Fund changed
1-3-70	Par. 1287 changed, Par. 121X added, Prop. Fence added, Federal Number added
11-23-70	Added Par. 128A WL

TYPE FUND	SURVEYED	DRAWN BY	DESIGN	CHECKED	SUPERVISOR
I		Bill B.	Bill B.		

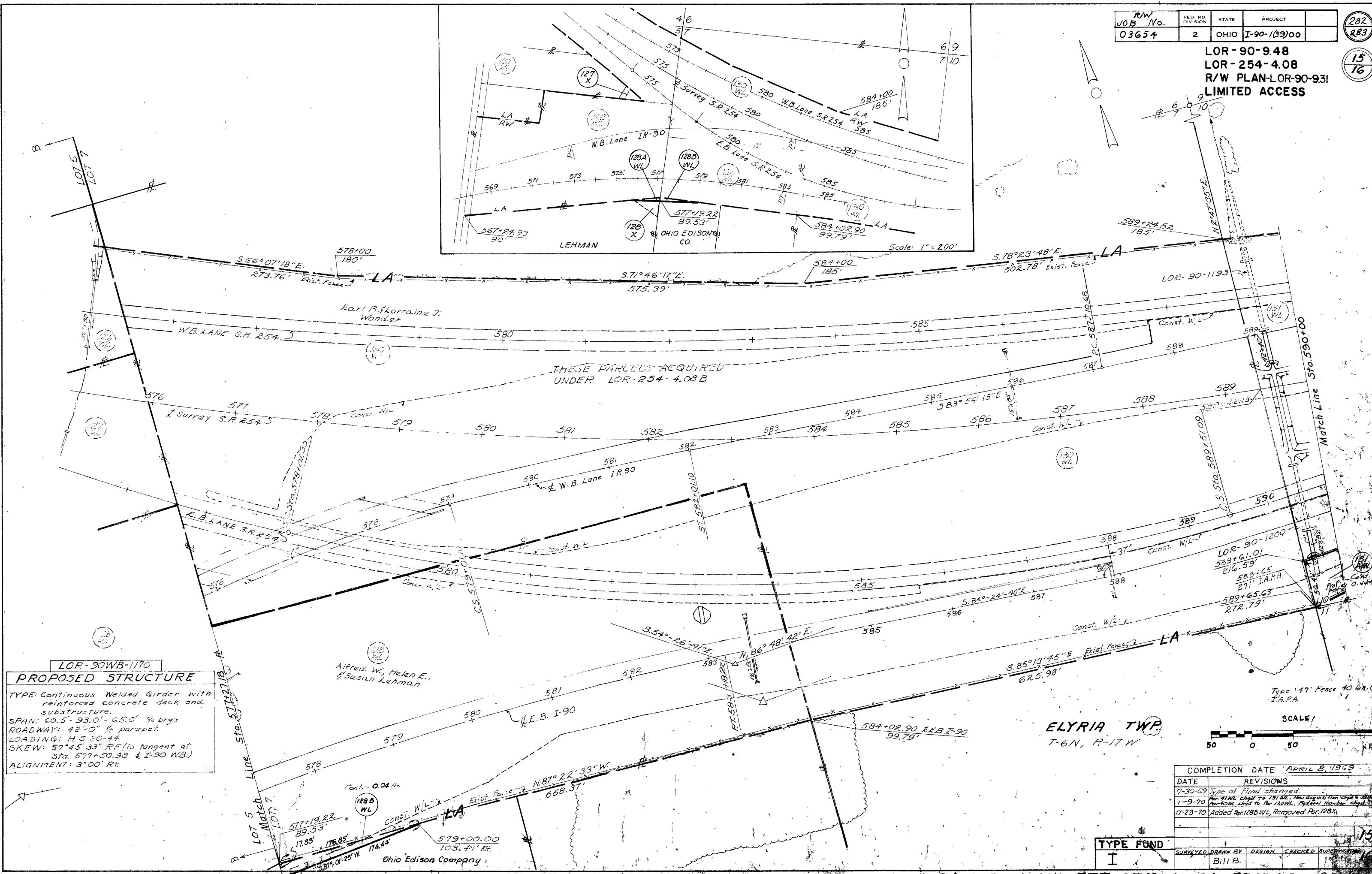
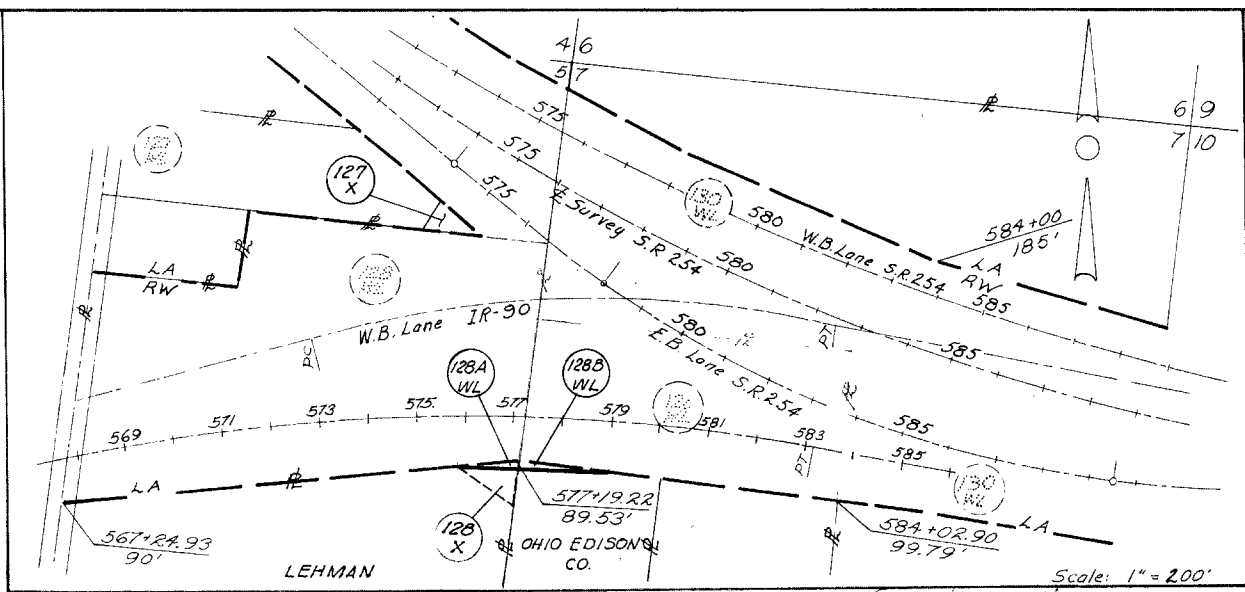
R/W Plan Sta. 567+53.07 to Sta. 577+27.18 Rev. 4-15-71

R/W JOB No.	FED. RD. DIVISION	STATE	PROJECT
03654	2	OHIO	I-90-1(39)00

282  
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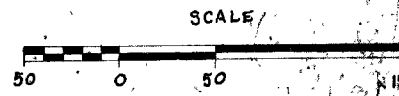
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LOR-90-9.48  
LOR-254-4.08  
R/W PLAN-LOR-90-931  
LIMITED ACCESS



**LOR-90WB-1170**  
**PROPOSED STRUCTURE**  
TYPE: Continuous Welded Girder with reinforced concrete deck and substructure.  
SPAN: 60.5' - 93.0' - 65.0' % bry's  
ROADWAY: 42'0" 1/4 parasp. 1/4  
LOADING: HS 20-44  
SKEW: 57°45'33" RF (to tangent at Sta. 577+50.98 & I-90 WB.)  
ALIGNMENT: 3'00' Rt.

**ELYRIA TWP**  
T-6N, R-17W



COMPLETION DATE		APRIL 8, 1969	
DATE	REVISIONS		
7-30-69	Type of Fund changed.		
1-9-70	Par. 11 WL chgd to Par. 13 WL; New acquisition chgd to 130 WL; Par. 10 WL chgd to Par. 130 WL; Par. 10 WL chgd to 130 WL.		
11-23-70	Added Par. 128B WL, Removed Par. 128X.		

<b>TYPE FUND</b>	SURVEYED	DRAWN BY	DESIGN	CHECKED	SUPERVISOR
I		Bill B.			

R/W Plan. Sta. 577+271.8 to Sta. 590+00

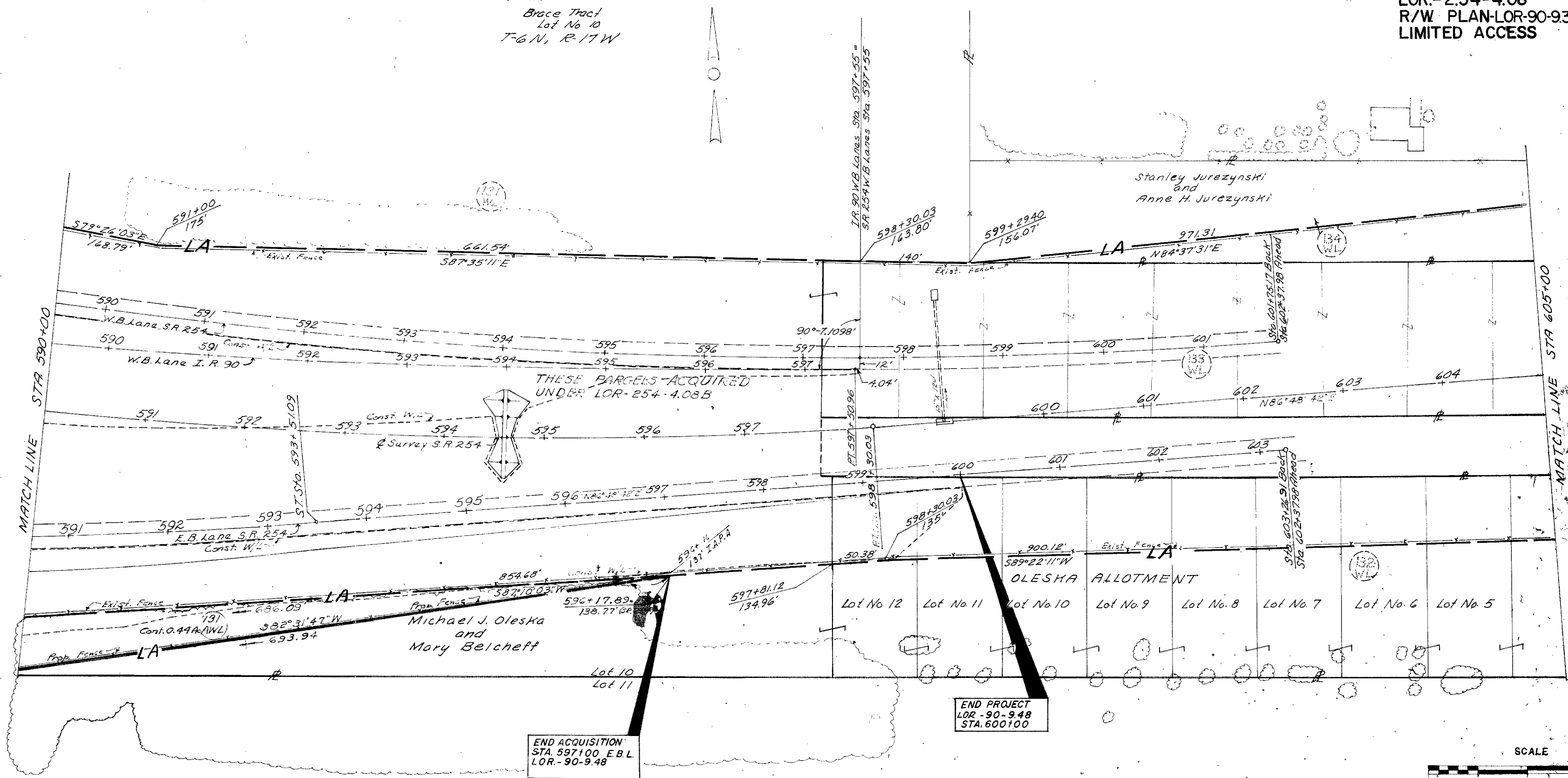
Curve Data  
 P.I. Sta. 583+61.74  
 $\Delta = 38^{\circ}44'37''$  Lt  
 $D = 1716'$   
 $R = 4523.35'$   
 $T = 1590.42'$   
 $E = 271.45'$   
 $L = 3058.71'$

ELYRIA TOWNSHIP  
 Brace Tract  
 Lot No 10  
 T-6 N, R-17 W

R/W JOB NO.	FED. RD. DIVISION	STATE	PROJECT
03654	2	OHIO	I-90-1(3900)

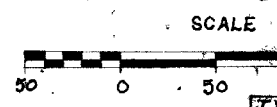
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LORAIN COUNTY  
 LOR.-90-948  
 LOR.-2.54-4.08  
 R/W PLAN-LOR-90-931  
 LIMITED ACCESS



END PROJECT  
 LOR-90-948  
 STA. 600+00

END ACQUISITION  
 STA. 597+00 E.B.L.  
 LOR.-90-948



TYPE FUND  
 I

COMPLETION DATE APRIL 8, 1969	
DATE	REVISIONS
7-30-69	Type of Fund changed
1-9-70	Per R/W change to Plan 131 WL, New City to the State's Federal Number 50
SURVEYED	DRAWN BY DESIGN
CHECKED	DESIGNED

ELYRIA TOWNSHIP  
 Brace Tract  
 T-6 N, R-17 W

Type '47' Fence 655 Lin. Ft.  
 I.A.P.A.

GENERAL INFORMATION

INTRODUCTION

THE PROJECT CONSISTS OF THE CONSTRUCTION OF 2.9 MILES OF I.R. 90, BEGINNING AT THE OHIO TURNPIKE, 400 FEET EAST OF THE NEW YORK CENTRAL RAILROAD, EXTENDING NORTHEASTWARD, AND TERMINATING AT SR 254, 0.4 MILE WEST OF THE BALTIMORE AND OHIO RAILROAD.

PROPOSED GRADE INDICATES MAXIMUM 2-FOOT CUTS AND 35-FOOT FILLS.

GEOLOGY AND OBSERVATIONS OF THE PROJECT

THE ALIGNMENT TRAVERSES A FLAT PORTION OF THE GLACIATED LAKE PLAIN, IN AN AREA WHERE SHALLOW TO MODERATELY DEEP DRIFT OVERLIES SHALES AND SANDSTONES, OF LOWER MISSISSIPPIAN AGE. A POND AND A SWAMPY AREA WERE NOTED IN THE VICINITIES OF EASTBOUND I.R. 90 STATIONS 48+00 TO 485+00 AND STATIONS 494+00 TO 500+00, RESPECTIVELY.

EXPLORATION

BORINGS WERE MADE BY MEANS OF TRUCK-MOUNTED MECHANICAL SOIL AUGER AND HAND AUGER (IN AREAS OF DIFFICULT ACCESS), BETWEEN JUNE 15 AND 21, 1967. INCLUDED IN THIS REPORT ARE SEVERAL LOGS OF BORINGS FROM THE EASTERLY PROJECT LOR-254-4.08 B.

INVESTIGATIONAL FINDINGS

MATERIALS OCCURRING IMMEDIATELY BELOW PROPOSED GRADE CONSIST PREDOMINANTLY OF SILT CLAYS (A-6) HAVING MOISTURE CONTENTS GENERALLY BELOW THE PLASTIC RANGE.

EMBANKMENT FOUNDATION MATERIALS COMPRISE PREDOMINANTLY SANDY SILTS (A-4a) AND SILT CLAYS (A-6a), WITH OCCASIONAL SILTS (A-4b), HAVING MOISTURE CONTENTS GENERALLY BELOW THE PLASTIC RANGE. WET MATERIALS WERE ENCOUNTERED AT EASTBOUND I.R. 90 STATIONS 571+00 AND 583+00.

LEGEND FOR PROJECT AVERAGE RESULTS OF TESTS— 145 SAMPLES TESTED

DESCRIPTION	H. & B. CLASS	U. S. CLASS	% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	LIQUID LIMIT	PLASTICITY INDEX	WATER CONTENT	SAMPLES TESTED
GRAVEL OR STONE FRAGMENTS WITH SAND AND SILT	A-2-4(0)	A-2-4	42	10	10	17	12	16	4	8	3
SANDY SILT	A-4(4)	A-4a	12	6	20	37	25	27	5	12	62
SILT	A-4(8)	A-4b	4	3	9	57	27	27	5	10	15
SILT AND CLAY	A-6(8)	A-6a	11	5	11	34	39	31	12	14	50
SILTY CLAY	A-6(11)	A-6b	14	3	9	28	46	39	17	21	3
CLAY	A-7-6(12)	A-7-6	8	2	8	31	51	44	19	20	5
BOULDERY ZONE											VISUAL CLASSIFICATION
WEATHERED SANDSTONE											VISUAL CLASSIFICATION
SHALE											VISUAL CLASSIFICATION
SANDSTONE											VISUAL CLASSIFICATION
VARIOUS OTHER MATERIALS											VISUAL CLASSIFICATION
TOP SOIL=X' APPROXIMATE DEPTH.											
AUGER BORING-PLAN VIEW.											
AUGER BORING PLOTTED TO VERTICAL SCALE ONLY.											
INDICATES A NON-PLASTIC MATERIAL WITH A HIGH WATER CONTENT.											
INDICATES A NON-PLASTIC MATERIAL WITH A HIGH WATER CONTENT.											Water content nearly equal to or greater than liquid limit.
FREE WATER.											
INDICATES BROKEN ROCK INTERVAL.											
NOTE: FIGURES BESIDE BORINGS INDICATE WATER CONTENT IN PERCENT. E.G. 15											

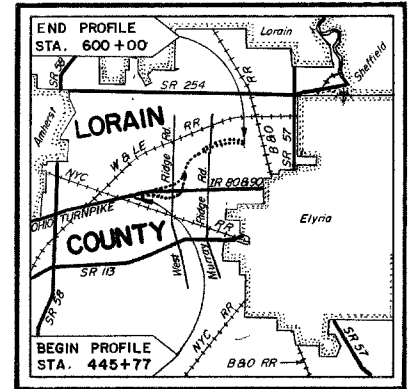
SOIL PROFILE

LORAIN COUNTY  
LOR-90-9.48

OHIO STATE HIGHWAY TESTING LABORATORY  
1620 W. BROAD ST. COLUMBUS 23, OHIO

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

Fed. No. I-90-1(63)00



LOCATION MAP

Recon - J.S.M., J.F.S. 2/17/67  
Drilling - T.R.S., F.J.R. 6/15/67 to 6/21/67  
Drafting - A.F., R.G.M., C.L.I. 7/21/67



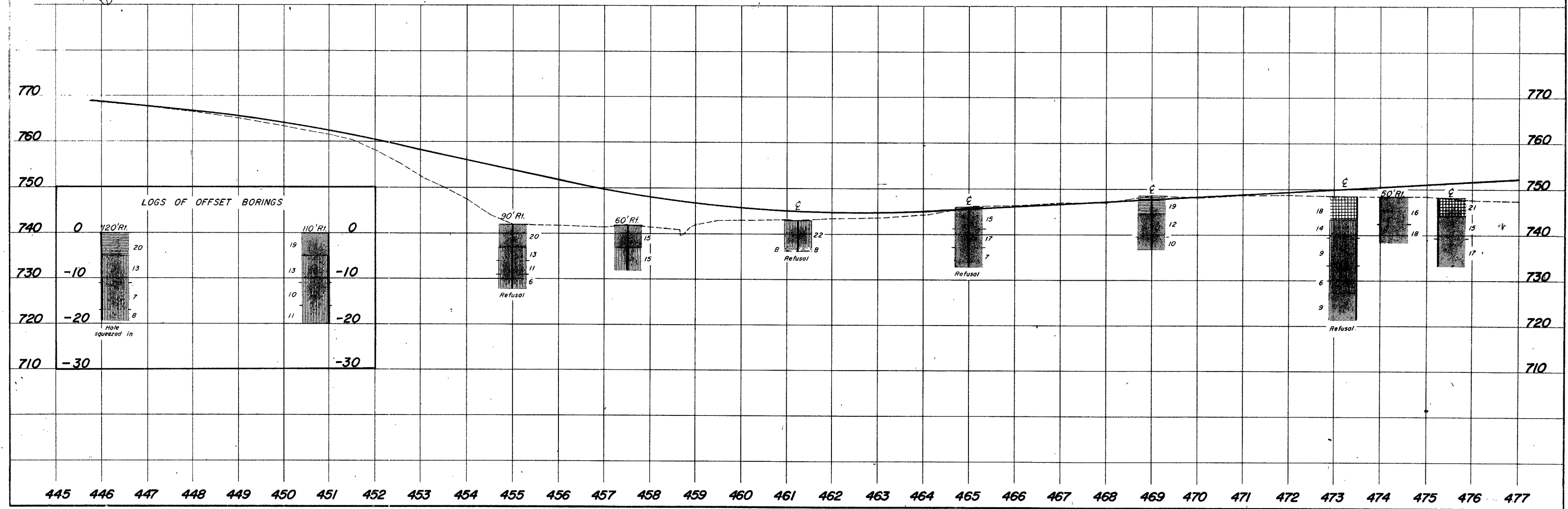
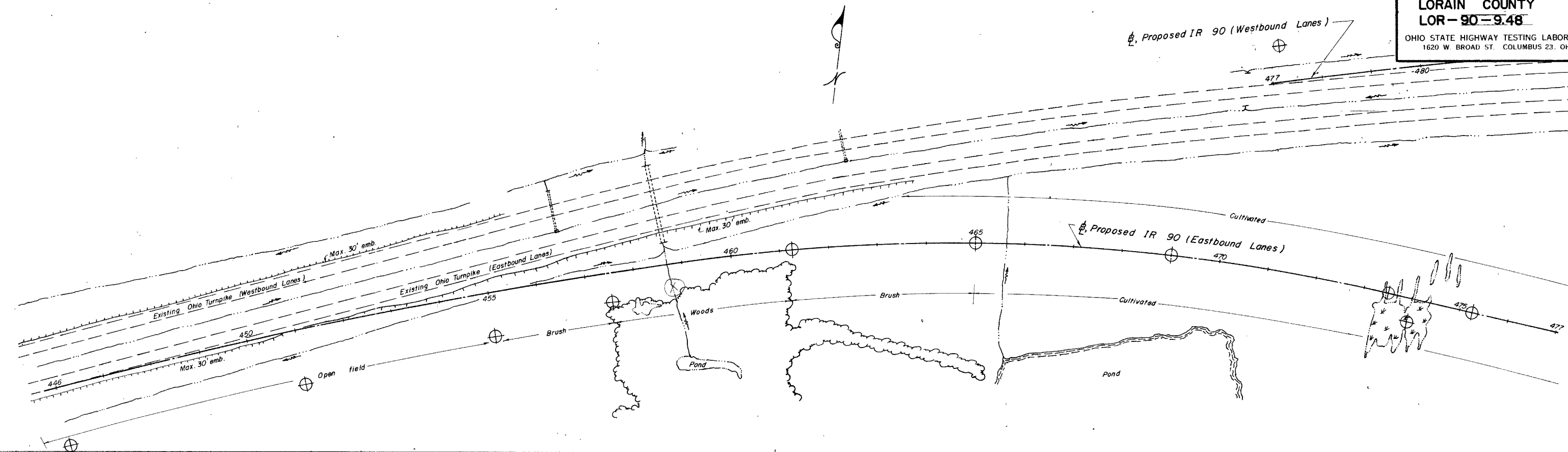
SOIL PROFILE

LORAIN COUNTY  
LOR-90-9.48

OHIO STATE HIGHWAY TESTING LABORATORY  
1620 W. BROAD ST. COLUMBUS 23, OHIO

3/25

3/10



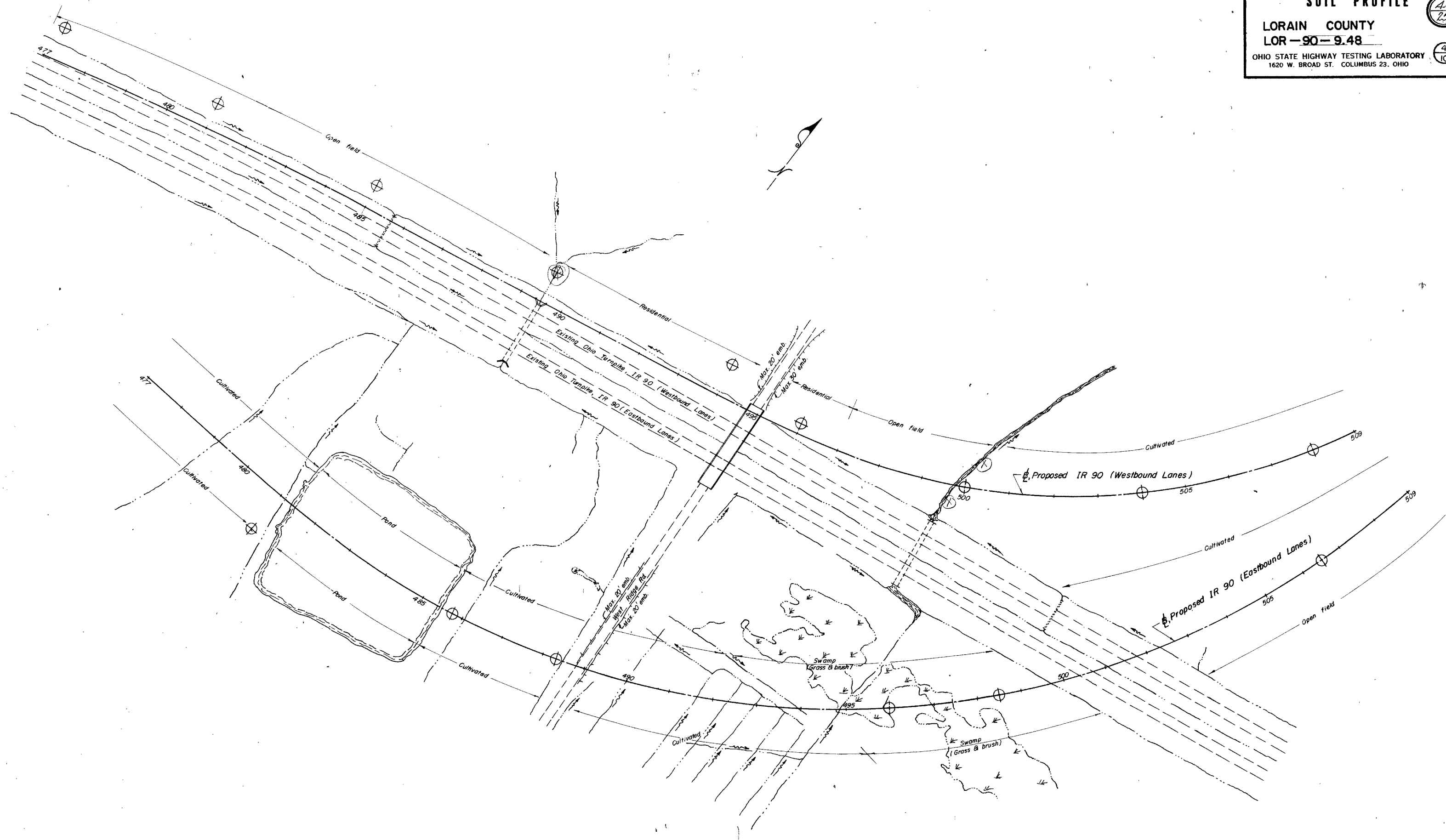
SOIL PROFILE

LORAIN COUNTY  
LOR-90-9.48

OHIO STATE HIGHWAY TESTING LABORATORY  
1620 W. BROAD ST. COLUMBUS 23, OHIO

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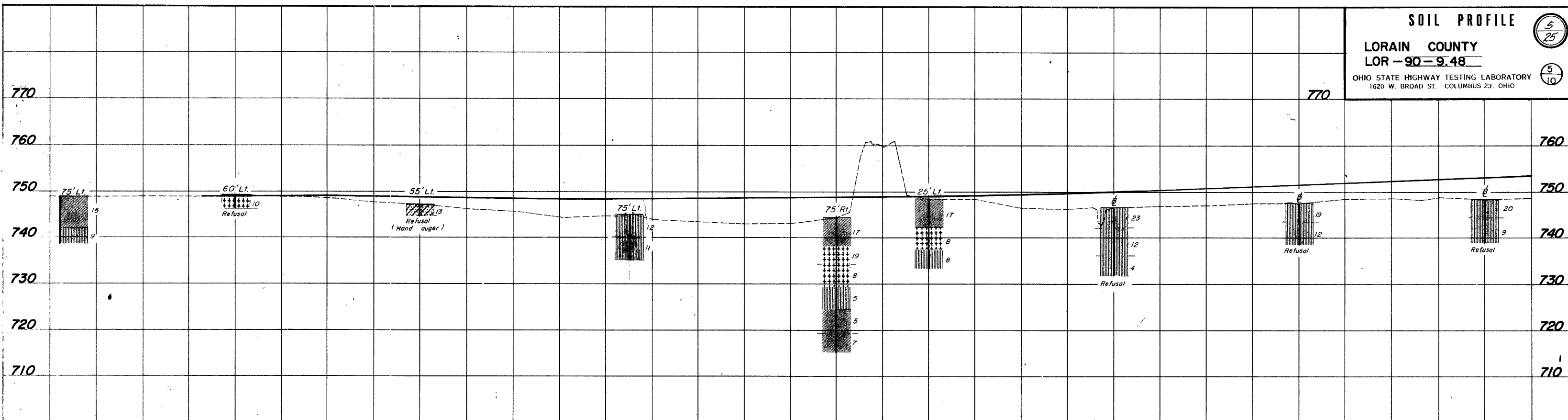
SOIL PROFILE

LORAIN COUNTY  
LOR-90-9.48

OHIO STATE HIGHWAY TESTING LABORATORY  
1620 W. BROAD ST. COLUMBUS 23, OHIO

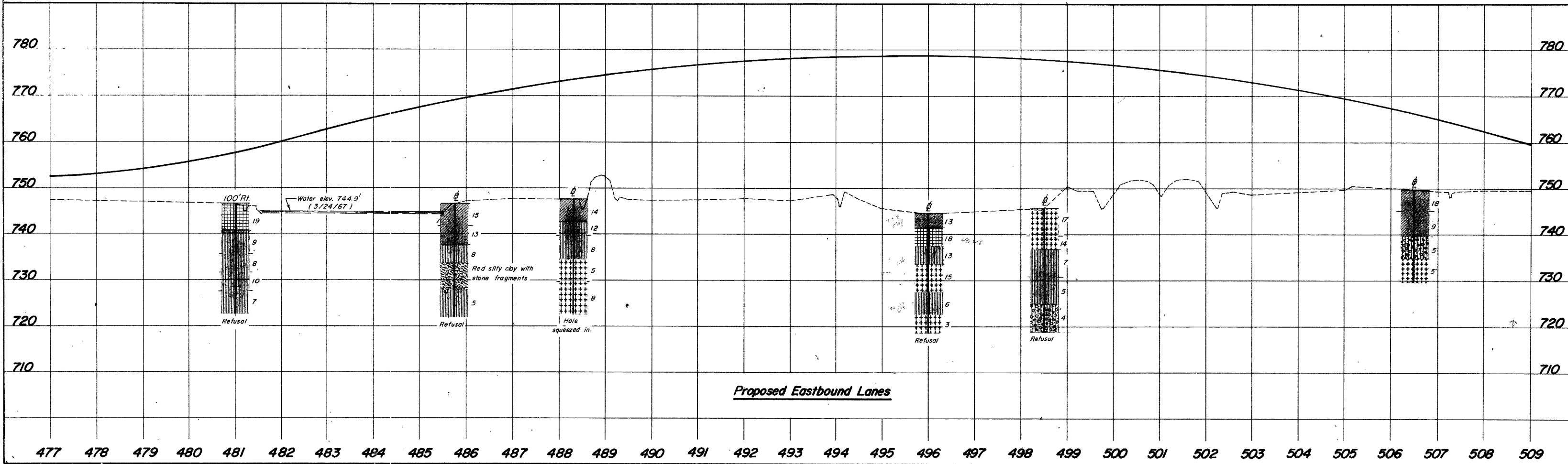
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Proposed Westbound Lanes

477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509



Proposed Eastbound Lanes

477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509



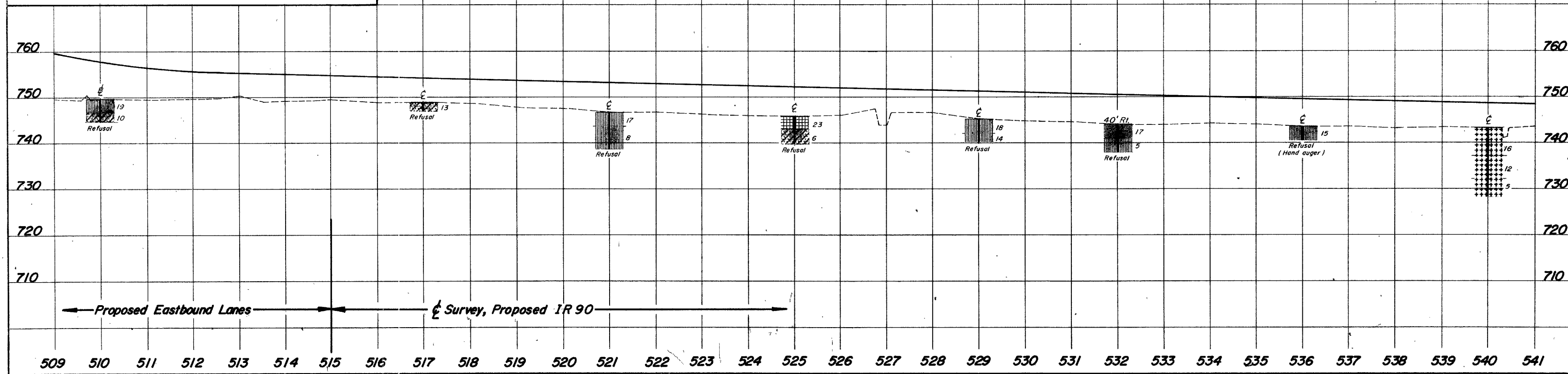
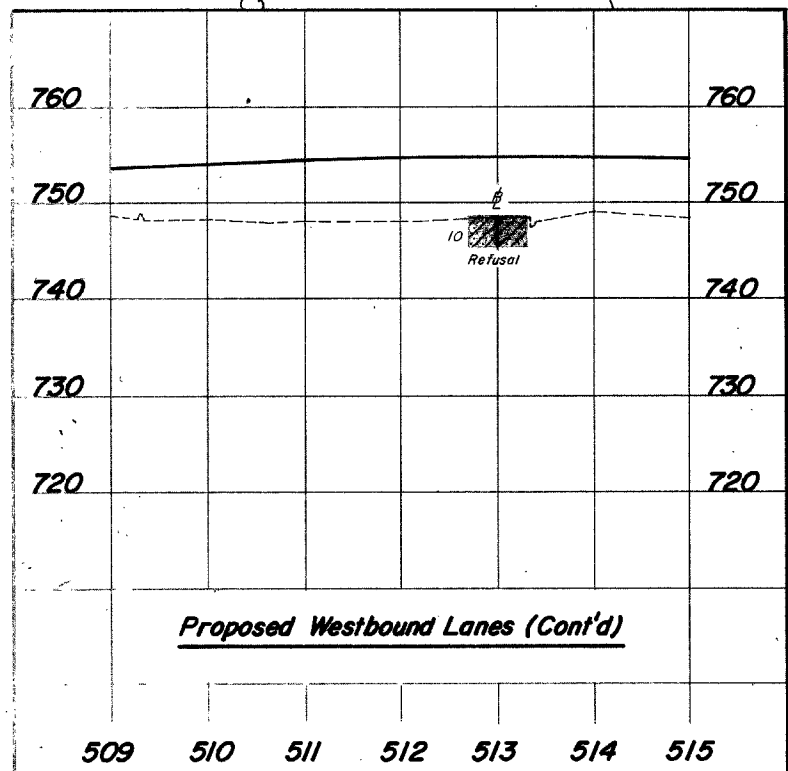
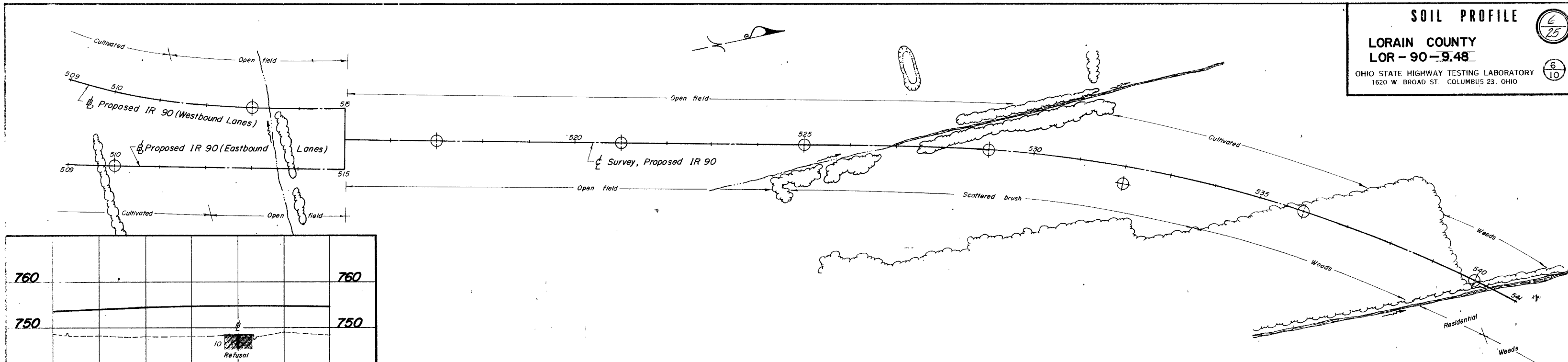
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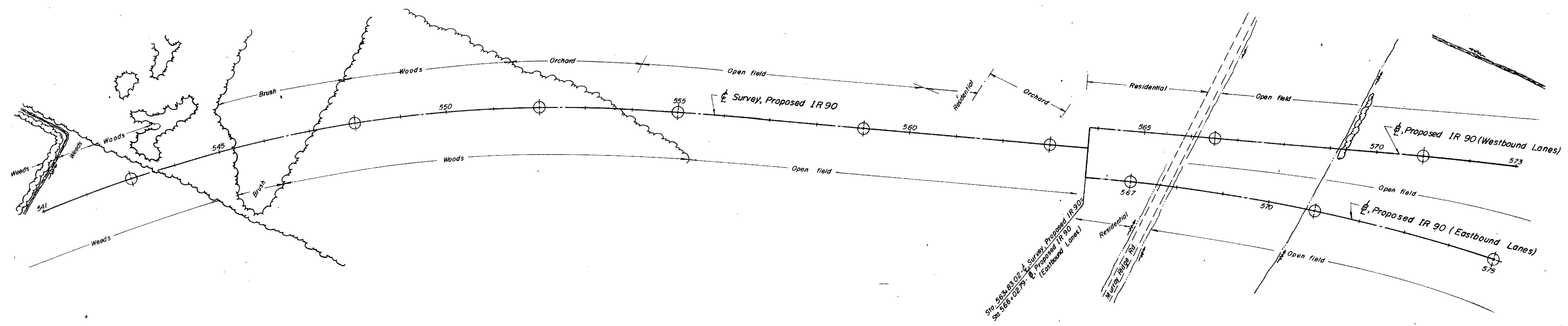
LORAIN COUNTY  
LOR-90-9.48

OHIO STATE HIGHWAY TESTING LABORATORY  
1620 W. BROAD ST. COLUMBUS 23, OHIO

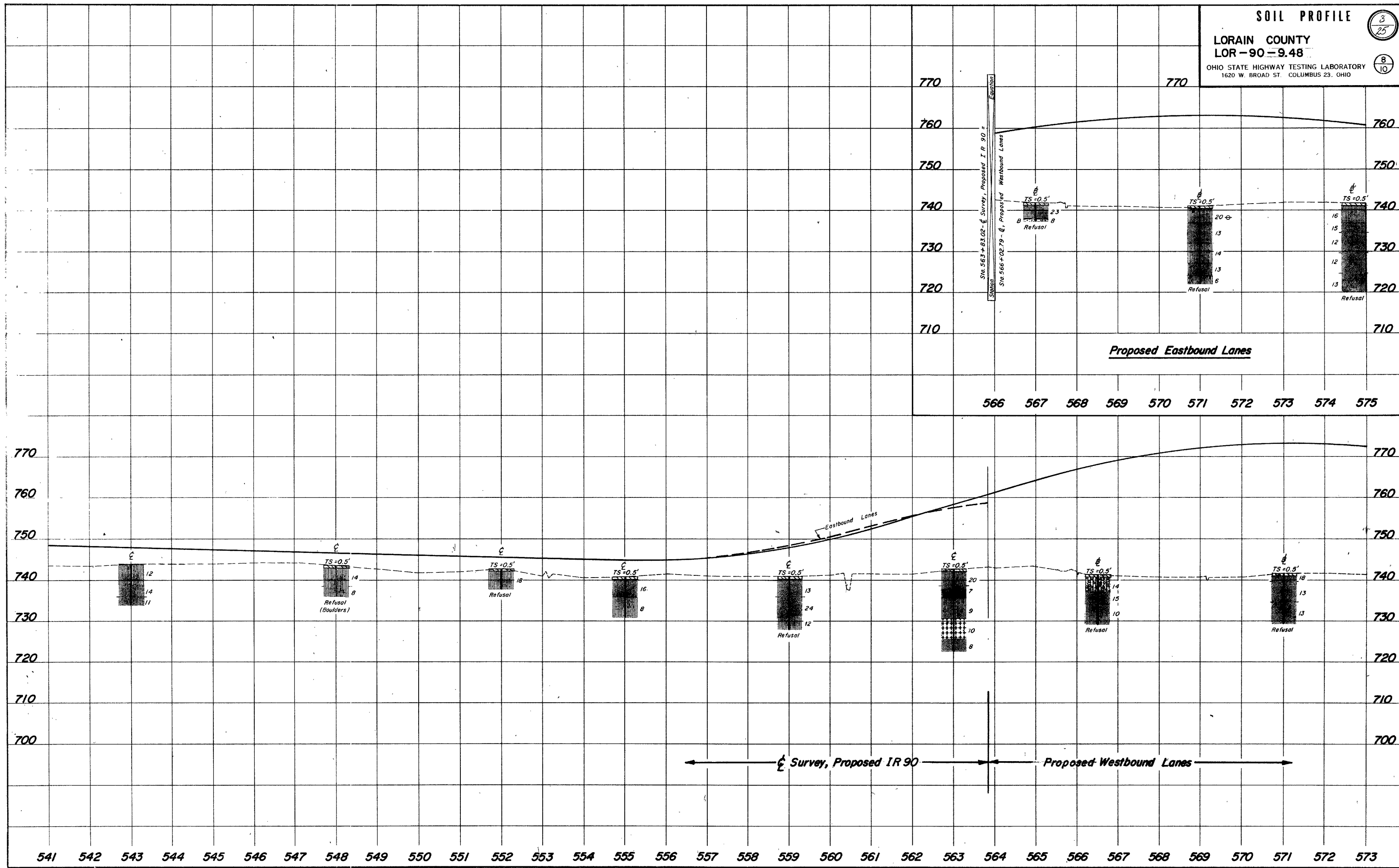
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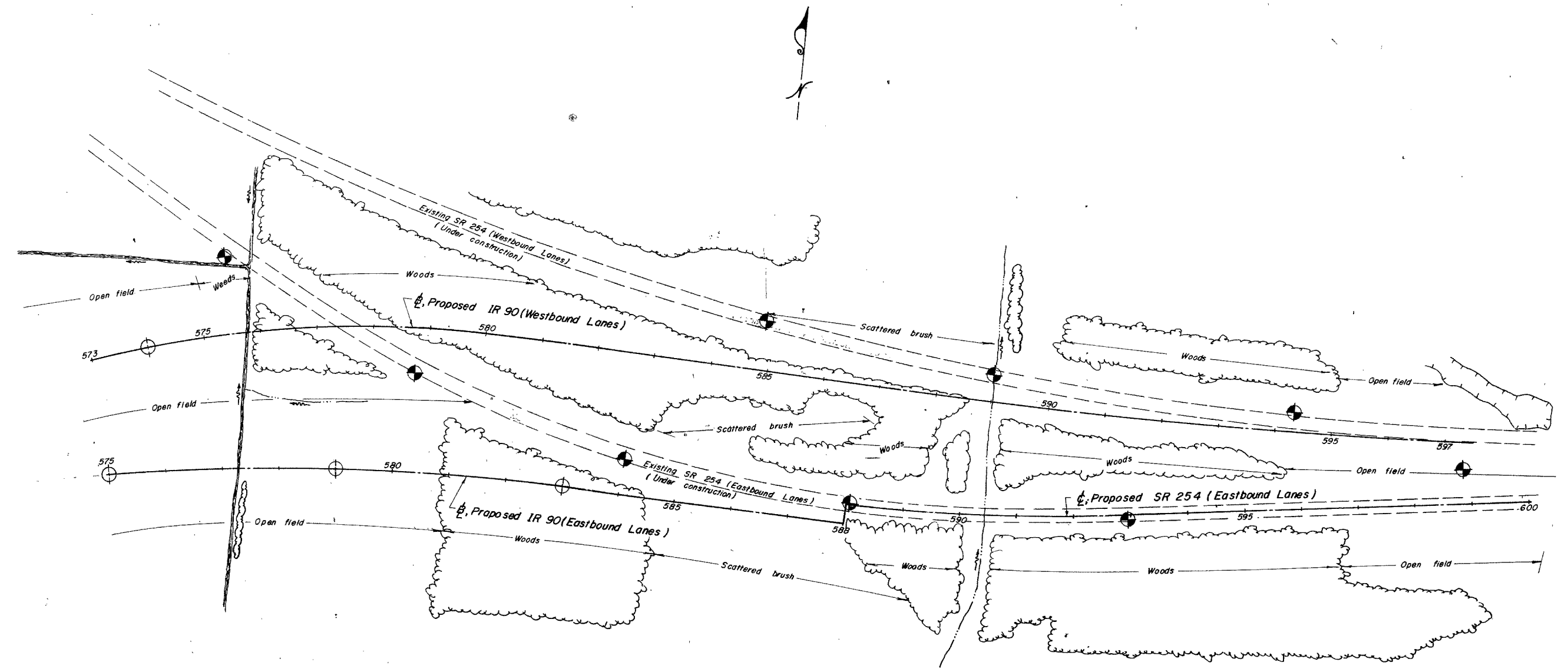
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516-563-83-02 Survey, Proposed IR 90  
 90-566-02-79 Survey, Proposed IR 90  
 (Eastbound Lanes)





● - Borings drilled for LOR-254-408B, dated 10/15/62

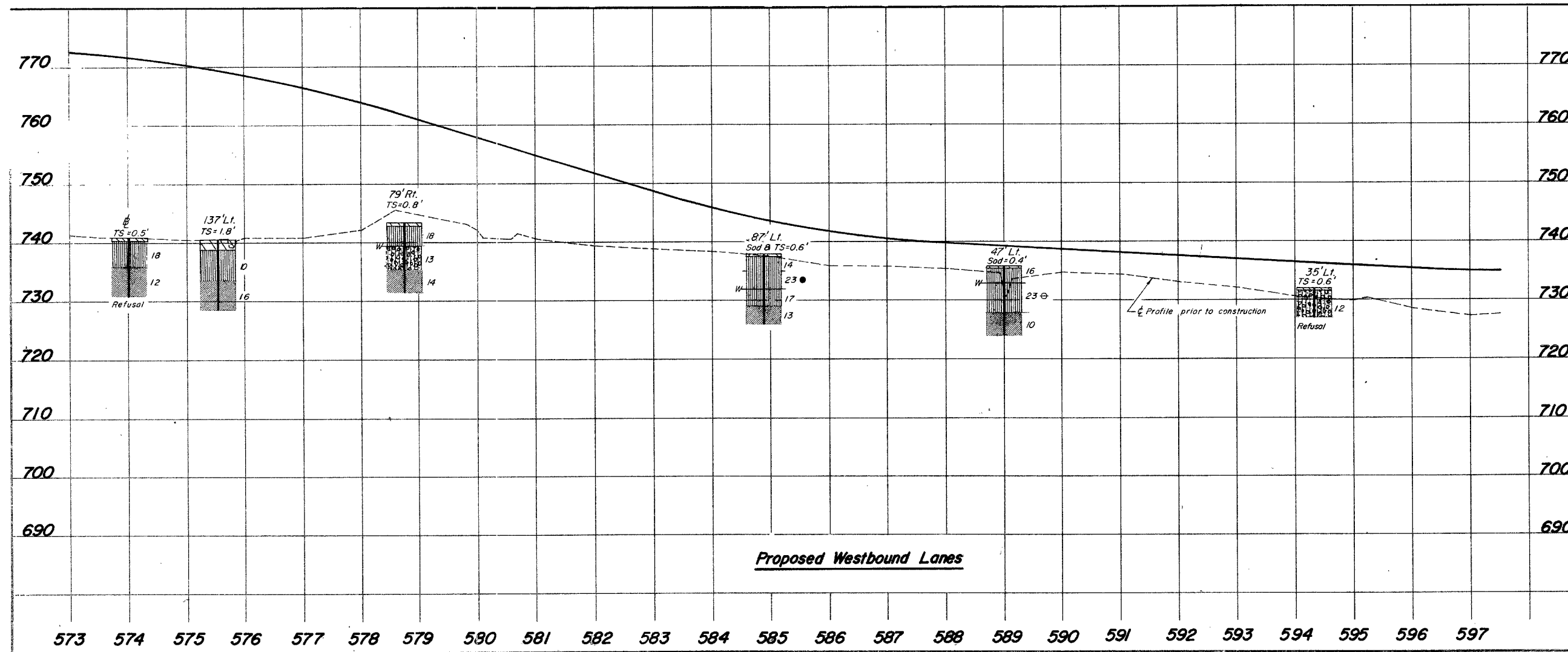
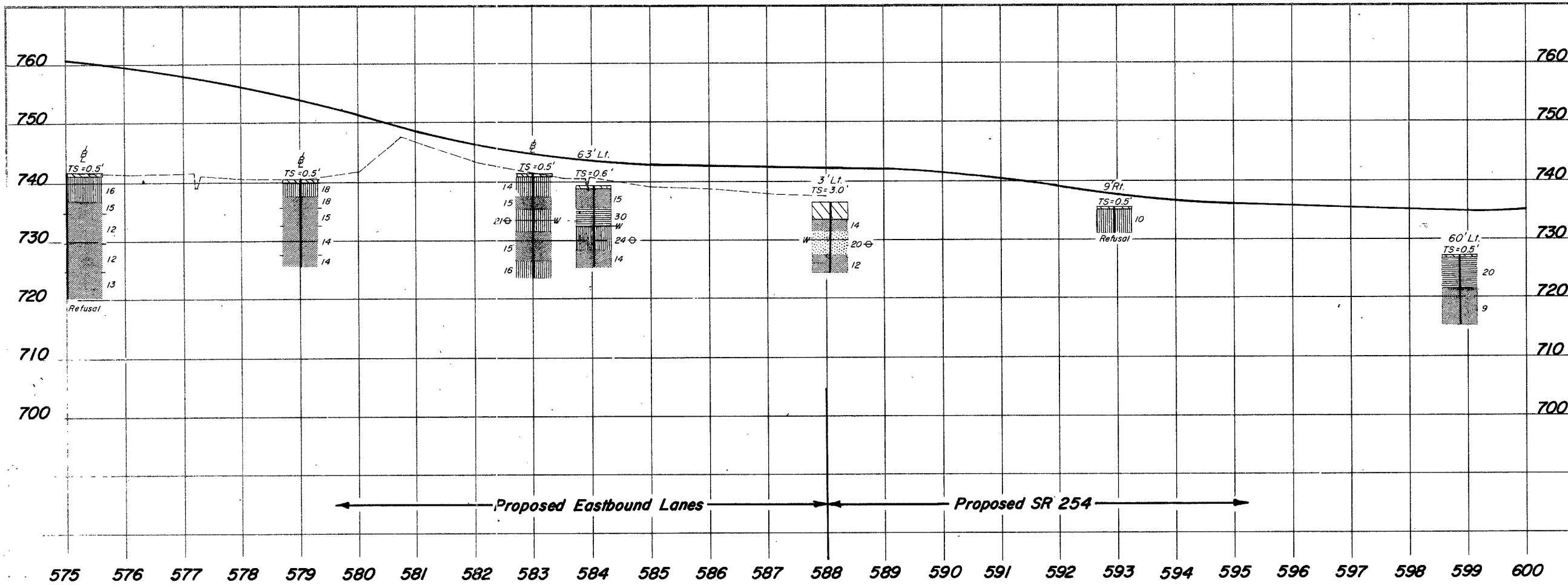
SOIL PROFILE

LORAIN COUNTY  
LOR-90-9.48

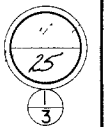
OHIO STATE HIGHWAY TESTING LABORATORY  
1620 W BROAD ST COLUMBUS 23, OHIO

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MICROFILMED  
MAY 15 1969



**GEOLOGY AND OBSERVATIONS OF THE SITE**

THE STRUCTURE SITE IS LOCATED ON THE RELATIVELY FLAT GLACIATED LAKE PLAIN, IN AN AREA WHERE LACUSTRINE AND BEACH DEPOSITS OVERLIE SHALE BEDROCK, OF LOWER MISSISSIPPIAN AND UPPER DEVONIAN AGE.

**EXPLORATION**

THE EXPLORATION CONSISTED OF TWO DRIVE SAMPLE-CORE BORINGS, MADE ON JUNE 29 AND 30, 1967, AND FOUR DRIVE ROD PENETRATION TESTS, MADE ON AUGUST 23 AND 24, 1967.

**INVESTIGATIONAL FINDINGS**

THE BORINGS DISCLOSED THAT RELATIVELY FLAT-LYING SHALE BEDROCK SURFACE, ENCOUNTERED AT 13 AND 15-FOOT DEPTHS, ELEVATIONS 734 AND 732 FEET, IS OVERLAIN BY DENSE TO VERY DENSE GRAVELLY SANDY SILT. THE BORINGS WERE TERMINATED 2 AND 10 FEET BELOW BEDROCK SURFACE, AT ELEVATIONS 732 AND 723 FEET.

ROD SOUNDINGS MET RAPID INCREASE IN PENETRATION RESISTANCE WITH INCREASE IN DEPTH AND WERE TERMINATED UPON ENCOUNTER WITH REFUSAL TO PENETRATION AT 10 AND 14-FOOT DEPTHS, ELEVATIONS 738 AND 732 FEET, CONSIDERED TO BE ON OR SLIGHTLY ABOVE BEDROCK SURFACE, AS REVEALED BY THE BORINGS.

NO FREE WATER WAS OBSERVED IN ANY OF THE ROD SOUNDING HOLES.

- Auger Boring Location - Plan View.
- Press and/or Drive Sample and/or Core Boring Location - Plan View.
- Drive Rod Penetration Resistance Sounding Location - Plan View.
- Capped Pile
- Footing
- Footing on Pile
- Top of Rock

**LEGEND**

- Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
- Figures Beside the Boring Log in Profile Indicate the Number of Blows for Standard Penetration Test.  
X = Number of Blows for First 6 inches.  
Y = Number of Blows for Second 6 inches.
- Drive Rod Penetration Resistance Sounding Log - Profile
- Resistance "R" < 10,000 lbs.
- Resistance "R" > 10,000 lbs.
- Z Indicates Final Measurement of Penetration, in Inches.
- W Indicates Free Water Elevation.
- V Indicates Static Water Elevation.

**SYMBOLS OF ROCK TYPES**

- Coal
- Weathered Indurated Clay
- Indurated Clay
- Weathered Shale
- Shale
- Weathered Sandstone
- Sandstone
- Leached Dolomite
- Dolomite
- Leached Limestone
- Limestone

**GENERAL INFORMATION**

**Drive Rod Penetration Sounding Tests**

Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine the amount of penetration achieved in three hammer drops. This reading is converted to an empirical value for capacity "R", in thousands of pounds (which is a measure of both the point resistance and frictional resistance on the rod), by using charts prepared by the Ohio Department of Highways, Bureau of Bridges, on the basis of correlation study of rod penetration with past performance of pile driving. For interpretation, a graph is prepared by plotting the value "R" against the depth at which the reading was taken, and connecting the plotted points. The curve so obtained reflects the density of subsurface materials in a manner that can be readily compared with data from similar tests at other locations on the structure site. From this comparison, the overall uniformity of subsurface condition may be evaluated.

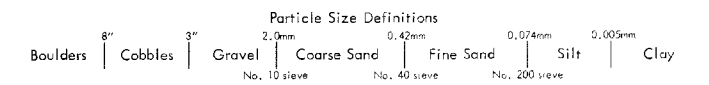
**Drive Sample Borings - Drive-Press Sample Borings**

Drive sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. sampler, at 2-1/2 and/or 5-foot depth intervals, driven by means of a 140-pound drop-hammer with a free fall of 30 inches. The number of blows required to drive the sampler 12 inches is considered the standard penetration test.

Drive-press sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. drive sampler, and 3" O.D. thin-wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drill rig.

The boring log sheets show a graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the standard penetration tests in two 6-inch increments, depth of press samples, field sample number, sample description - based on laboratory tests and the Casagrande AC classification system - and gradation, plasticity, and moisture content determinations. Results of strength and consolidation testing, if performed, appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.



**LOG OF BORING**  
 Date Started 6-29-67 Sampler Type SS Dia 1 3/8"  
 Date Completed 6-29-67 Casing Length 10' Dia 3 1/2"  
 Boring No. B-1 Station & Offset 487+89, 10' Rt. (Rear Abutment) Surface Elev. 747.6'  
 Water Elev. \_\_\_\_\_

Elev.	Depth	Std. Pen (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics							SHTL Class.	
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	LL	PI		W.C.
747.6	0														
	2														
	4														
742.6	6	14/20			Brownish-Gray Sandy Clay	1	11	3	9	35	42	33	13	18	A-6a
740.1	8	16/23			Brownish-Gray Sandy Gravelly Silt	2	29	6	17	29	24	23	6	14	A-4a
737.6	10	21/16			Brownish-Gray Gravelly Silt	3	32	1	8	38	21	21	4	14	A-4a
735.1	12	18/20			Brownish-Gray Sandy Gravelly Silt	4	28	4	11	37	20	22	5	14	A-4a
732.6	14	50/*			Brown Silt with Stone Fragments	5	29	0	1	40	30	29	8	7	A-4a
	16				TOP OF ROCK										
	18		3.9	0.6	Shale, reddish-brown, medium-firm, fissile, with clay seams, very badly broken and jointed. **Core Loss 22%.										
	20														
	22														
	24		3.5	1.5											
722.6					BOTTOM OF BORING										

\*Refusal  
 \*\*Core loss due in part to mechanical difficulties.

**LOG OF BORING**  
 Date Started 6-29-67 Sampler Type SS Dia 1 3/8"  
 Date Completed 6-30-67 Casing Length None Dia \_\_\_\_\_  
 Boring No. B-8 Station & Offset 489+98, 30' Lt. (Forward Abutment) Surface Elev. 747.4'  
 Water Elev. \_\_\_\_\_

Elev.	Depth	Std. Pen (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics							SHTL Class.	
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	LL	PI		W.C.
747.4	0														
	2														
	4														
742.4	6	14/17			Brown Sandy Silt	1	0	6	15	36	43	29	10	15	A-4a
739.9	8	16/16			Brown Gravelly Sandy Silt	2	18	6	14	29	33	29	10	13	A-4a
737.4	10	24/24			Brown Clayey Silt	3	0	1	3	59	37	27	9	10	A-4b
734.9	12	50/*			Brown Clayey Silt	4	0	1	2	63	34	27	8	8	A-4b
732.4	14		2.0	0.0	Shale, reddish-brown, medium-firm, fissile, very badly broken and jointed. No Core Loss. *Refusal										

\*Refusal  
 BOTTOM OF BORING

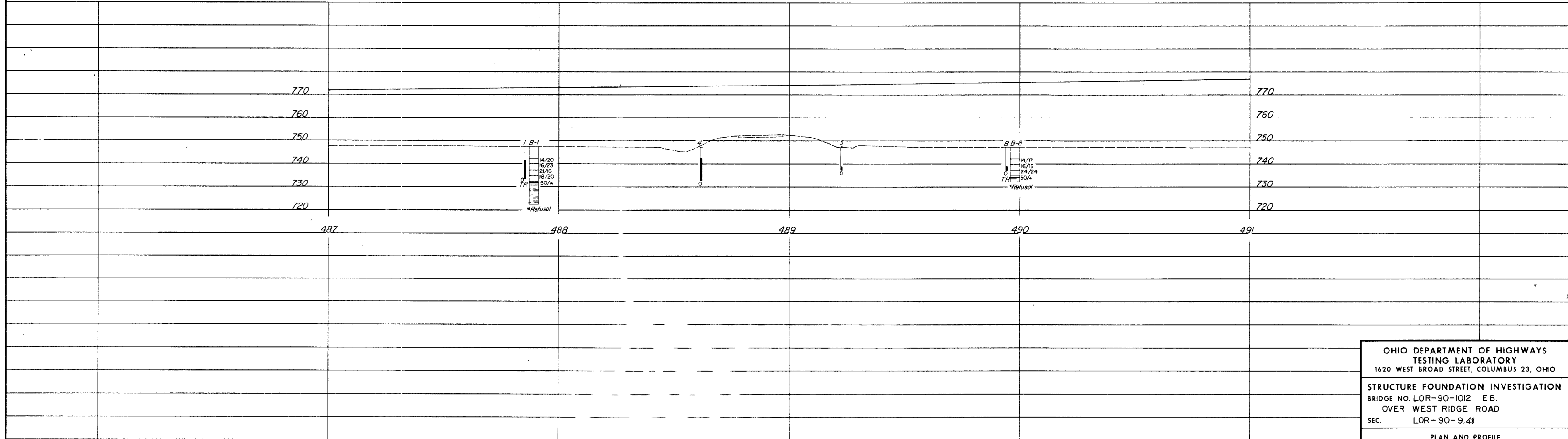
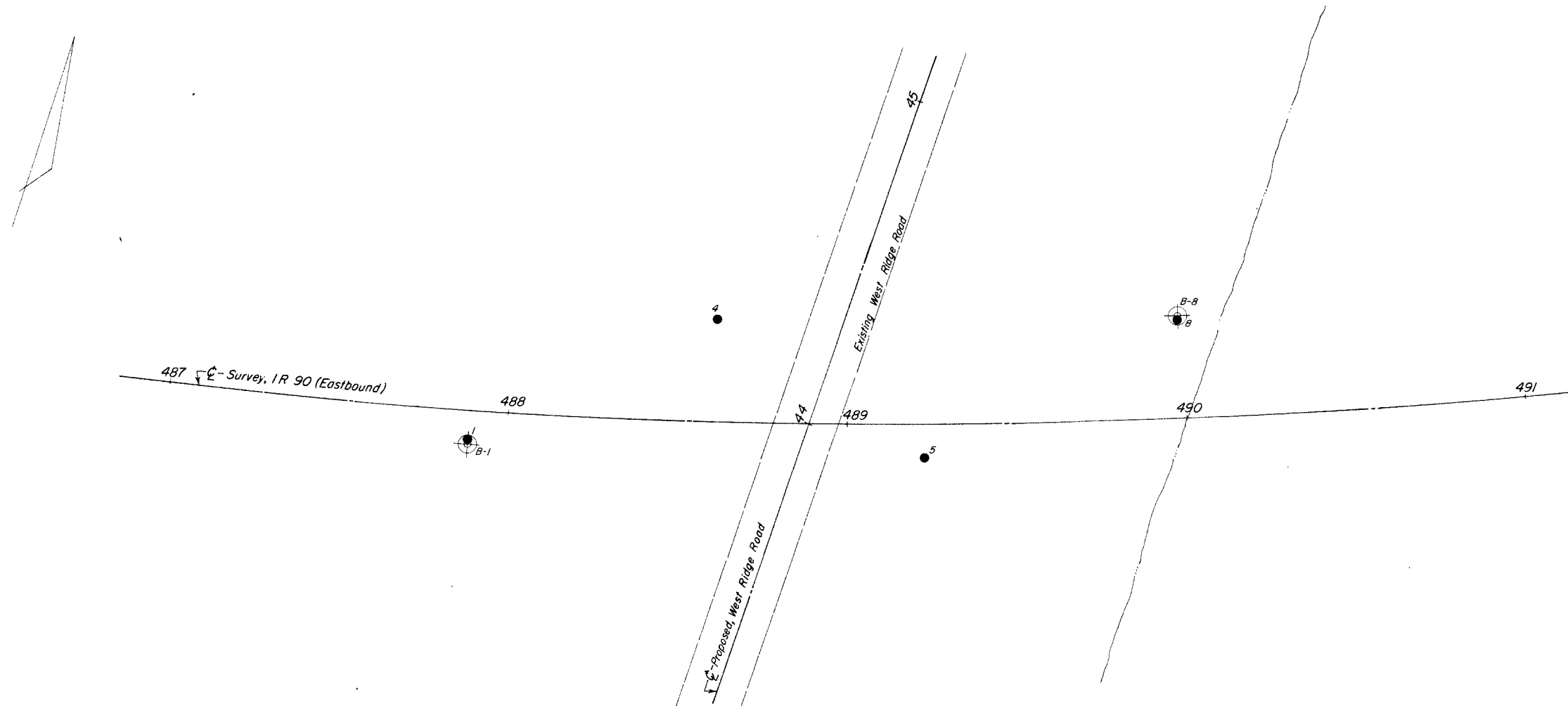
NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

OHIO DEPARTMENT OF HIGHWAYS  
 TESTING LABORATORY  
 1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION  
 BRIDGE NO. LOR-90-1012 E.B.  
 OVER WEST RIDGE ROAD  
 SEC. LOR-90-948

CHECKED BY L.N.L. REVIEWED BY R.D.R. DATE 9/7/67

MODIFIED  
MAY 15 1968  
REVISION



OHIO DEPARTMENT OF HIGHWAYS  
TESTING LABORATORY  
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION  
BRIDGE NO. LOR-90-1012 E.B.  
OVER WEST RIDGE ROAD  
SEC. LOR-90-9.48

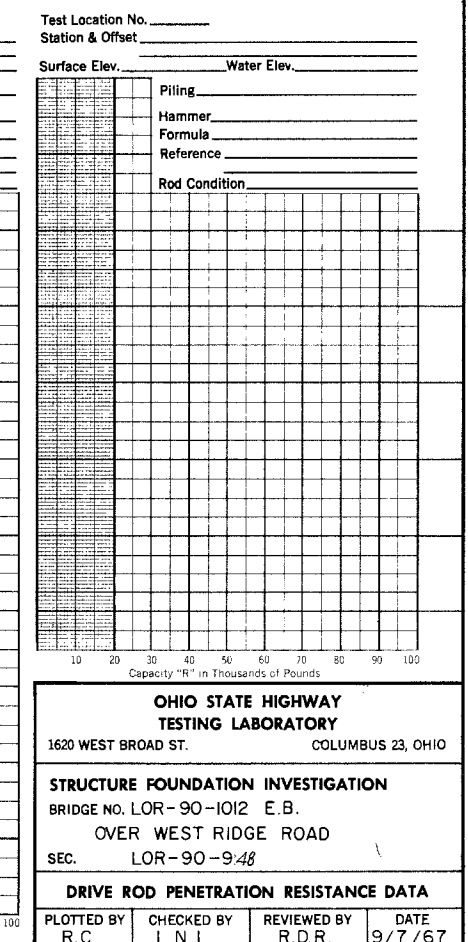
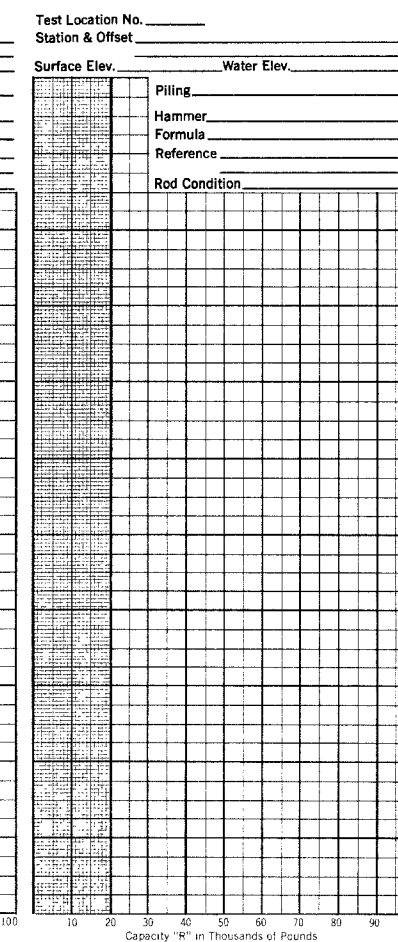
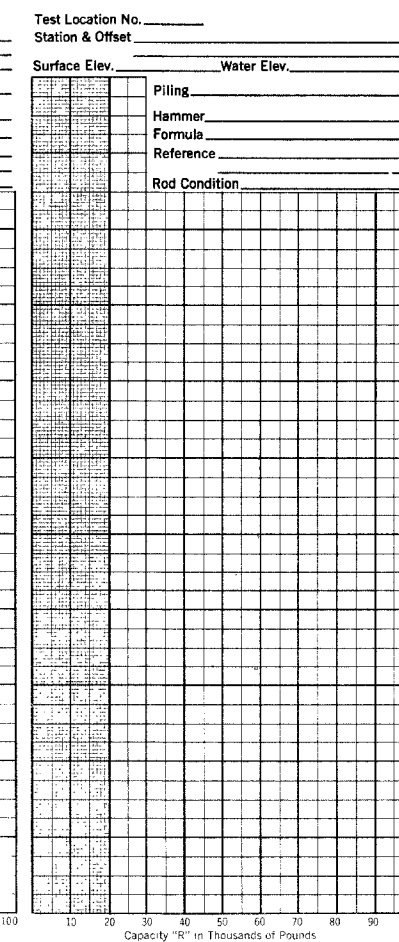
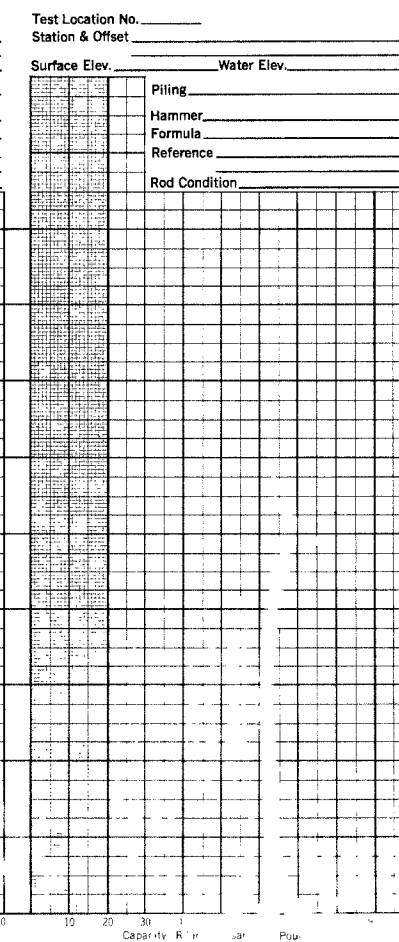
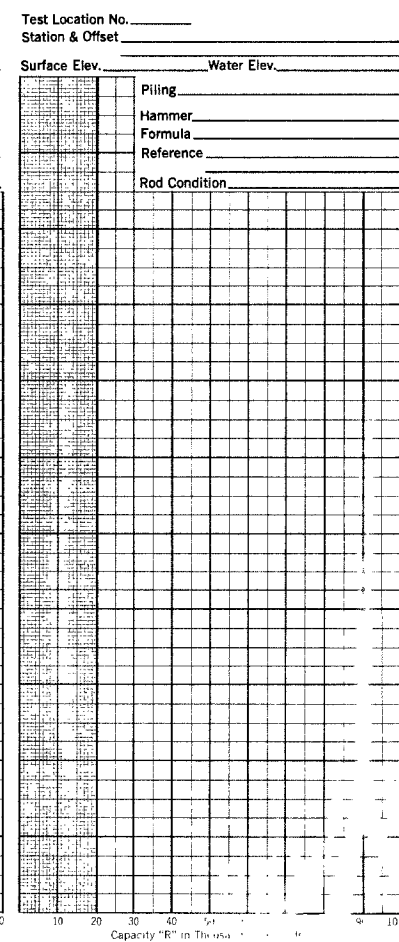
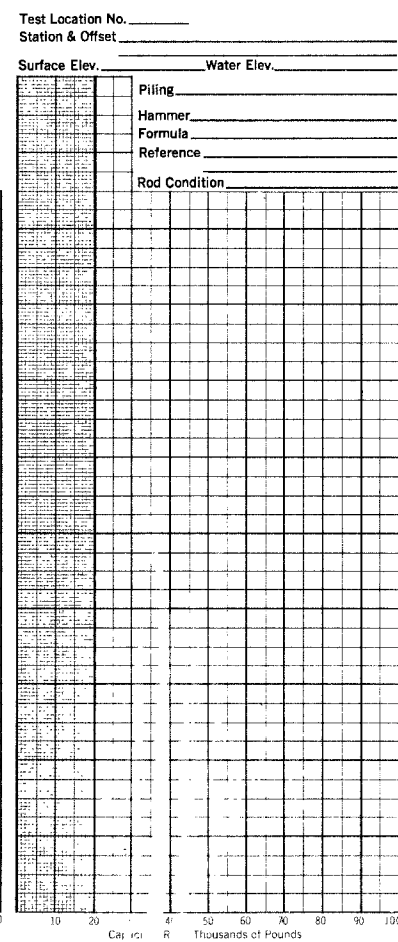
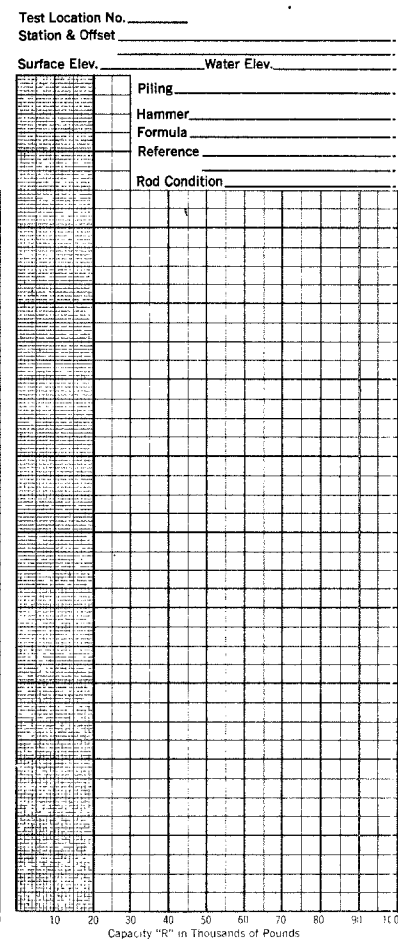
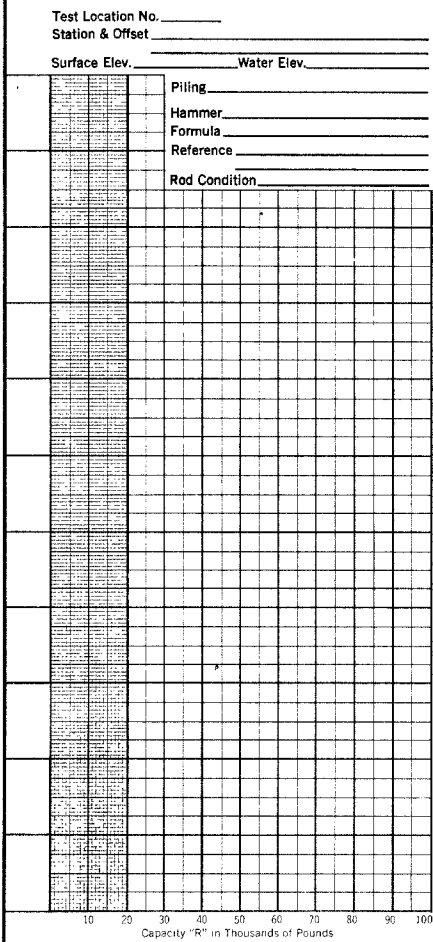
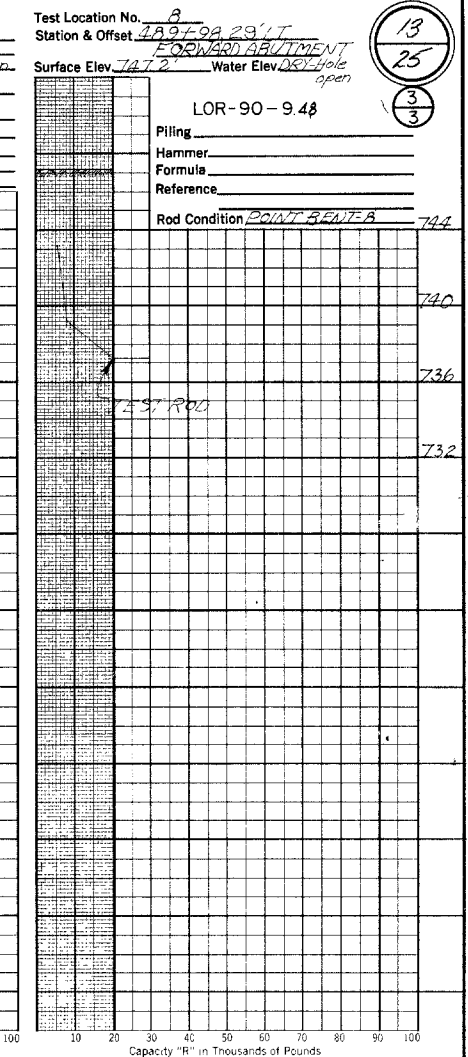
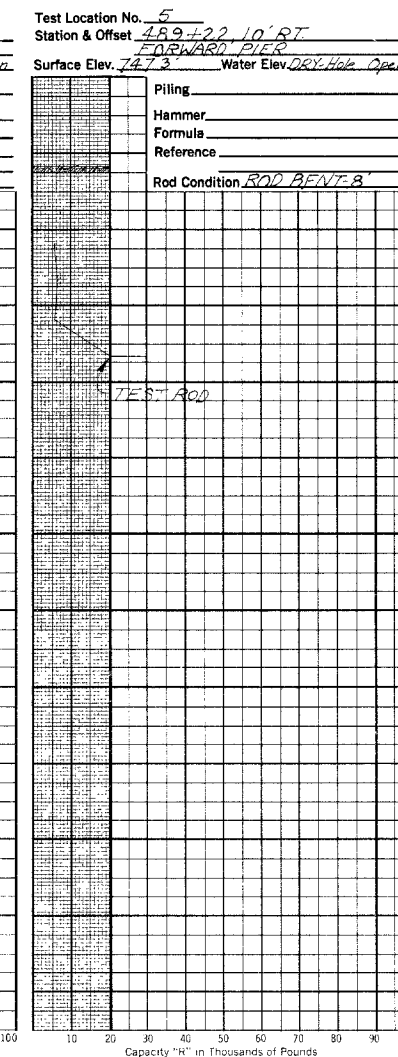
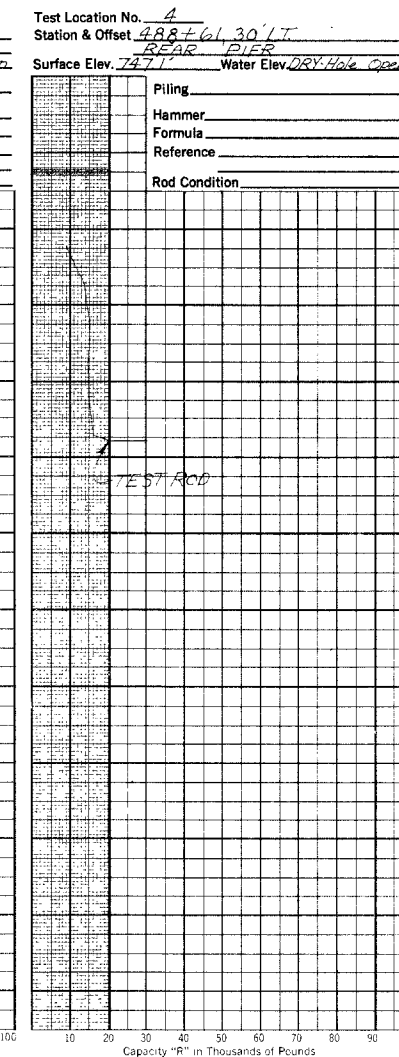
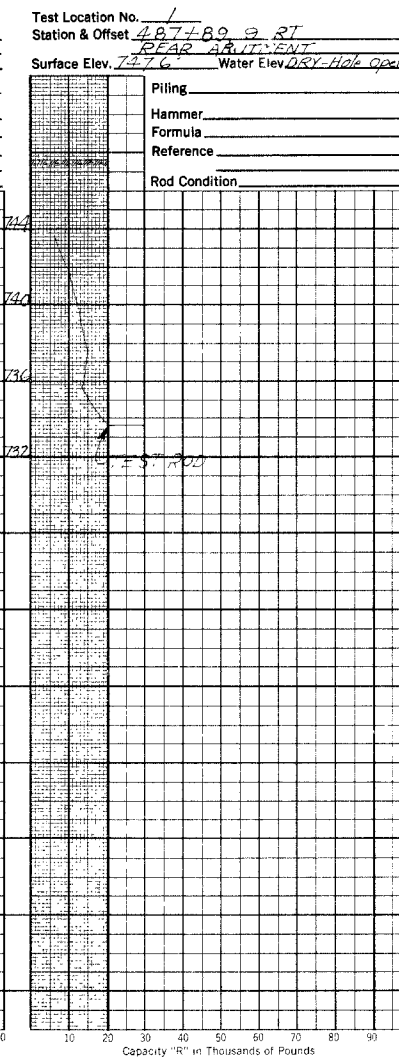
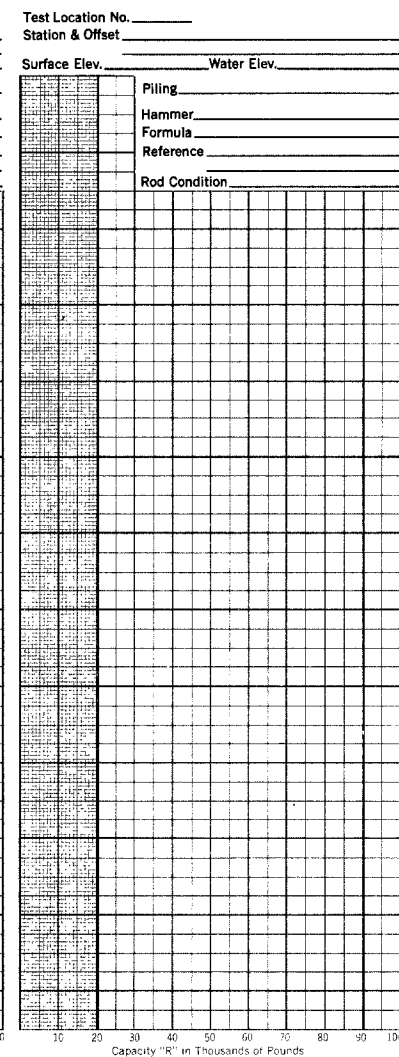
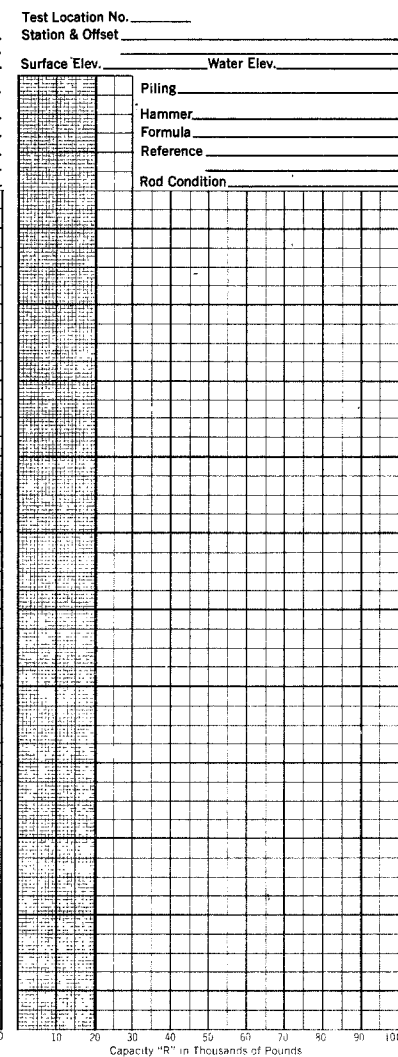
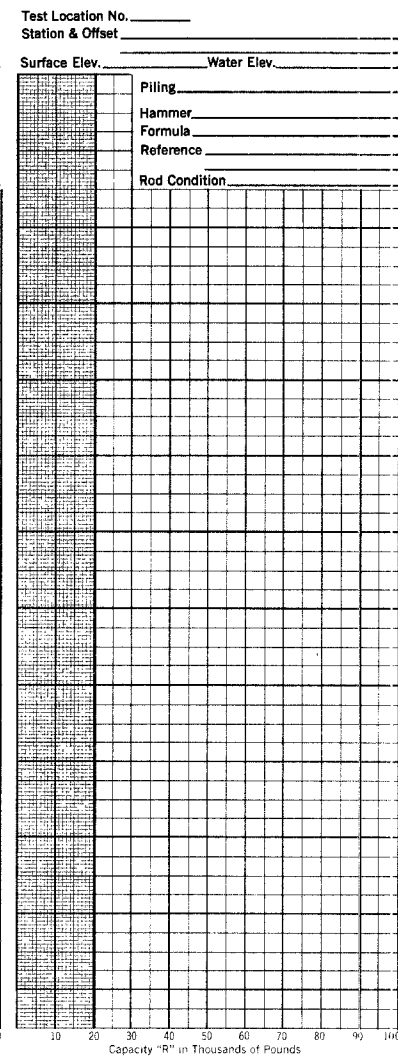
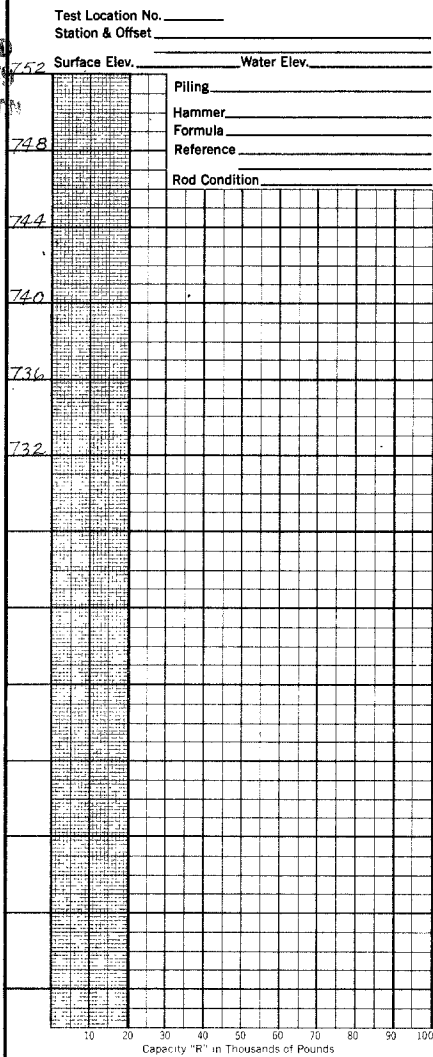
PLAN AND PROFILE

DRAWN BY J.E.C.	CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 9/7/67
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SCALE: 1" = 20'

Rev. 4-25-73

MICROALIGNED  
MAY 15 1984  
CORRECTED



**OHIO STATE HIGHWAY TESTING LABORATORY**  
1620 WEST BROAD ST. COLUMBUS 23, OHIO

**STRUCTURE FOUNDATION INVESTIGATION**  
BRIDGE NO. LOR-90-1012 E.B.  
OVER WEST RIDGE ROAD  
SEC. LOR-90-948

**DRIVE ROD PENETRATION RESISTANCE DATA**

PLOTTED BY R.C.	CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 9/7/67
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Rev. 4-25-73



MICROFILMED  
MAY 15 1969

LORAIN COUNTY  
LOR-90-9.48

14  
25  
1  
3

**GEOLOGY AND OBSERVATIONS OF THE SITE**

THE STRUCTURE SITE IS LOCATED ON THE RELATIVELY FLAT GLACIATED LAKE PLAIN, IN AN AREA WHERE LACUSTRINE AND BEACH DEPOSITS OVERLIE SHALE BEDROCK, OF LOWER MISSISSIPPIAN AND UPPER DEVONIAN AGE.

**EXPLORATION**

THE EXPLORATION CONSISTED OF TWO DRIVE SAMPLE-CORE BORINGS, MADE BETWEEN AUGUST 17 AND 22, 1967, AND FIVE DRIVE ROD PENETRATION TESTS, MADE ON AUGUST 17 AND 18, 1967.

**INVESTIGATIONAL FINDINGS**

THE BORINGS DISCLOSED THAT SLOPING SHALE BEDROCK SURFACE, ENCOUNTERED AT 17-FOOT DEPTH, ELEVATION 734 FEET IN THE REAR PORTION OF THE STRUCTURE SITE, AND 17-FOOT DEPTH, ELEVATION 728 FEET IN THE FORWARD PORTION, IS OVERLAIN BY DENSE TO VERY DENSE GRAVELLY SANDY SILTS. THE BORINGS WERE TERMINATED AT 33 AND 35-FOOT DEPTHS, ELEVATIONS 718 AND 711 FEET, 16 AND 18 FEET BELOW BEDROCK SURFACE.

ROD SOUNDINGS MET RAPID INCREASE IN PENETRATION RESISTANCE WITH INCREASE IN DEPTH AND WERE TERMINATED UPON ENCOUNTER WITH REFUSAL TO PENETRATION AT 12 TO 13-FOOT DEPTHS, ELEVATIONS 737 AND 736 FEET, CONSIDERED TO BE IN VERY DENSE SILTS, AS REVEALED BY THE BORINGS.

NO FREE WATER WAS ENCOUNTERED IN ANY OF THE ROD SOUNDING HOLES.

- Auger Boring Location - Plan View.
- Press and/or Drive Sample and/or Core Boring Location - Plan View.
- Drive Rod Penetration Resistance Sounding Location - Plan View.
- Capped Pile
- Footing
- Footing on Pile
- Top of Rock

- Coal
- Weathered Indurated Clay
- Indurated Clay
- Weathered Shale
- Shale
- Boulders

**LEGEND**

- Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
- Figures Beside the Boring Log in Profile Indicate the Number of Blows for Standard Penetration Test.  
X = Number of Blows for First 6 inches.  
Y = Number of Blows for Second 6 inches.
- Drive Rod Penetration Resistance Sounding Log - Profile
- Casing
- Resistance "R" < 10,000 lbs.
- Resistance "R" > 10,000 lbs.
- Indicates Final Measurement of Penetration, in Inches.
- Indicates Free Water Elevation.
- Indicates Static Water Elevation.

**SYMBOLS OF ROCK TYPES**

- Weathered Sandstone
- Sandstone
- Leached Dolomite
- Dolomite
- Leached Limestone
- Limestone

**GENERAL INFORMATION**

**Drive Rod Penetration Sounding Tests**

Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine the amount of penetration achieved in three hammer drops. This reading is converted to an empirical value for capacity "R", in thousands of pounds (which is a measure of both the point resistance and frictional resistance on the rod), by using charts prepared by the Ohio Department of Highways, Bureau of Bridges, on the basis of correlation study of rod penetration with past performance of pile driving. For interpretation, a graph is prepared by plotting the value "R" against the depth at which the reading was taken, and connecting the plotted points. The curve so obtained reflects the density of subsurface materials in a manner that can be readily compared with data from similar tests at other locations on the structure site. From this comparison, the overall uniformity of subsurface condition may be evaluated.

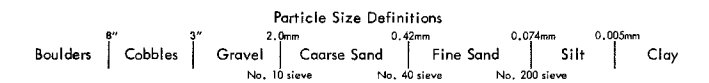
**Drive Sample Borings - Drive-Press Sample Borings**

Drive sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. sampler, at 2-1/2 and/or 5-foot depth intervals, driven by means of a 140-pound drop-hammer with a free fall of 30 inches. The number of blows required to drive the sampler 12 inches is considered the standard penetration test.

Drive-press sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. drive sampler, and 3" O.D. thin-wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drill rig.

The boring log sheets show a graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the standard penetration tests in two 6-inch increments, depth of press samples, field sample number, sample description - based on laboratory tests and the Casagrande AC classification system - and gradation, plasticity, and moisture content determinations. Results of strength and consolidation testing, if performed, appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.



**LOG OF BORING**

Date Started 8-22-67 Sampler Type SS Dia. 1 3/8" Water Elev. \_\_\_\_\_  
 Date Completed 8-22-67 Casing Length \_\_\_\_\_ Dia. \_\_\_\_\_  
 Boring No. B-3 Station & Offset 499+76.30' Lt. (Rear Pier) Surface Elev. 750.7'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics										SHTL. Class.	
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	Clas.			
750.7	0																	
745.7	6	19/37			Brownish-Gray Sandy Gravelly Silt	1	20	5	12	36	27	24	6	11				A-4a
743.2	8	25/26			Brownish-Gray Sandy Gravelly Silt	2	22	6	14	27	31	23	5	7				A-4a
740.7	10	19/40			Red Silt with Stone Fragments and Boulders	3	21	1	4	40	34	25	7	10				A-4a
739.7	14																	
734.0	16				TOP OF ROCK													
	18		3.6	1.4														
	22		0.8	4.2	Shale, red, generally firm, with clay seams, fissile in part, extremely broken and jointed. Core Loss 36%.													
	24																	
	26																	
	28		4.8	0.2														
	30																	
	32		1.5	1.5														
717.7	32				BOTTOM OF BORING													

**LOG OF BORING**

Date Started 8-17-67 Sampler Type SS Dia. 1 3/8" Water Elev. \_\_\_\_\_  
 Date Completed 8-18-67 Casing Length \_\_\_\_\_ Dia. \_\_\_\_\_  
 Boring No. B-8 Station & Offset 502+12.10' Rt. (Forward Pier) Surface Elev. 746.3'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics										SHTL. Class.		
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	Clas.				
746.3	0																		
	2																		
	4																		
741.3	6	7/10			Brownish-Gray Sandy Silt	1	14	15	12	29	30	26	8	14					A-4a
738.8	8	14/21			Brownish-Gray Sandy Silt	2	14	7	10	45	24	23	6	12					A-4a
736.3	10	50* (0.8)			Gray Sandy Silt	3	15	6	13	47	19	20	4	10					A-4a
733.8	12	18/36			Red Clayey Silt	4	13	1	4	59	23	24	7	11					A-4b
731.3	14	24/40			Gray Clayey Silt	5	11	1	4	60	24	30	8	5					A-4b
728.8	16				TOP OF WEATHERED ROCK														
726.3	18				TOP OF ROCK														
	20		1.0	1.0															
	22																		
	24		3.4	1.6															
	26																		
	28		3.6	1.4	Shale, red, firm, fissile, broken and jointed. Core Loss 24%.														
	30																		
	32																		
	34		5.0	0.0															
711.3	34				BOTTOM OF BORING														

NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

OHIO DEPARTMENT OF HIGHWAYS  
TESTING LABORATORY  
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION  
BRIDGE NO. LOR-90-1033 E.B.  
OVER OHIO TURNPIKE  
SEC. LOR-90-9.48

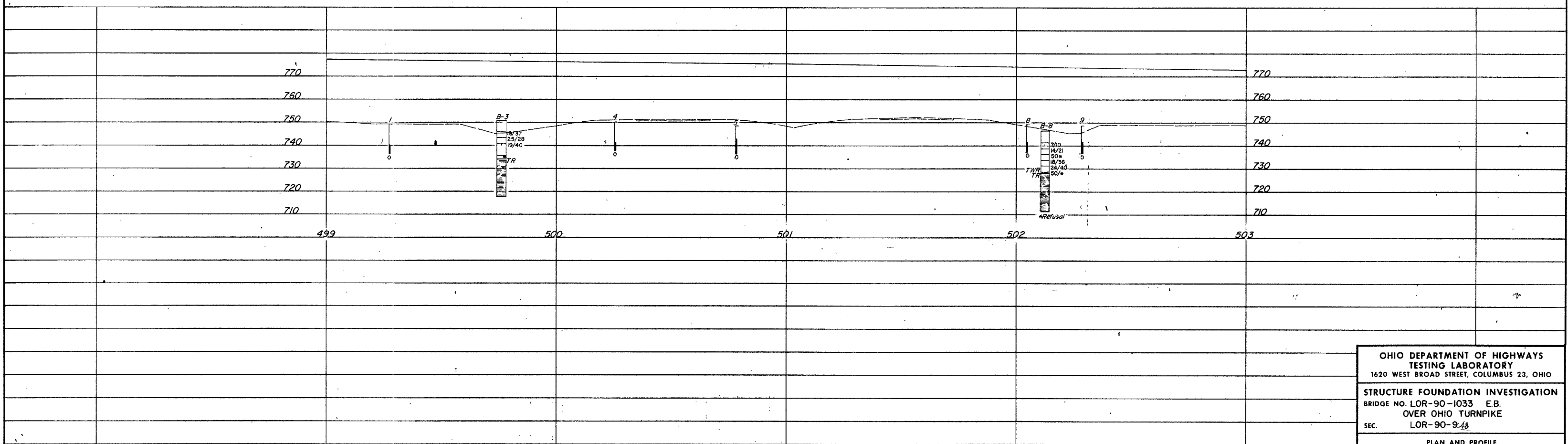
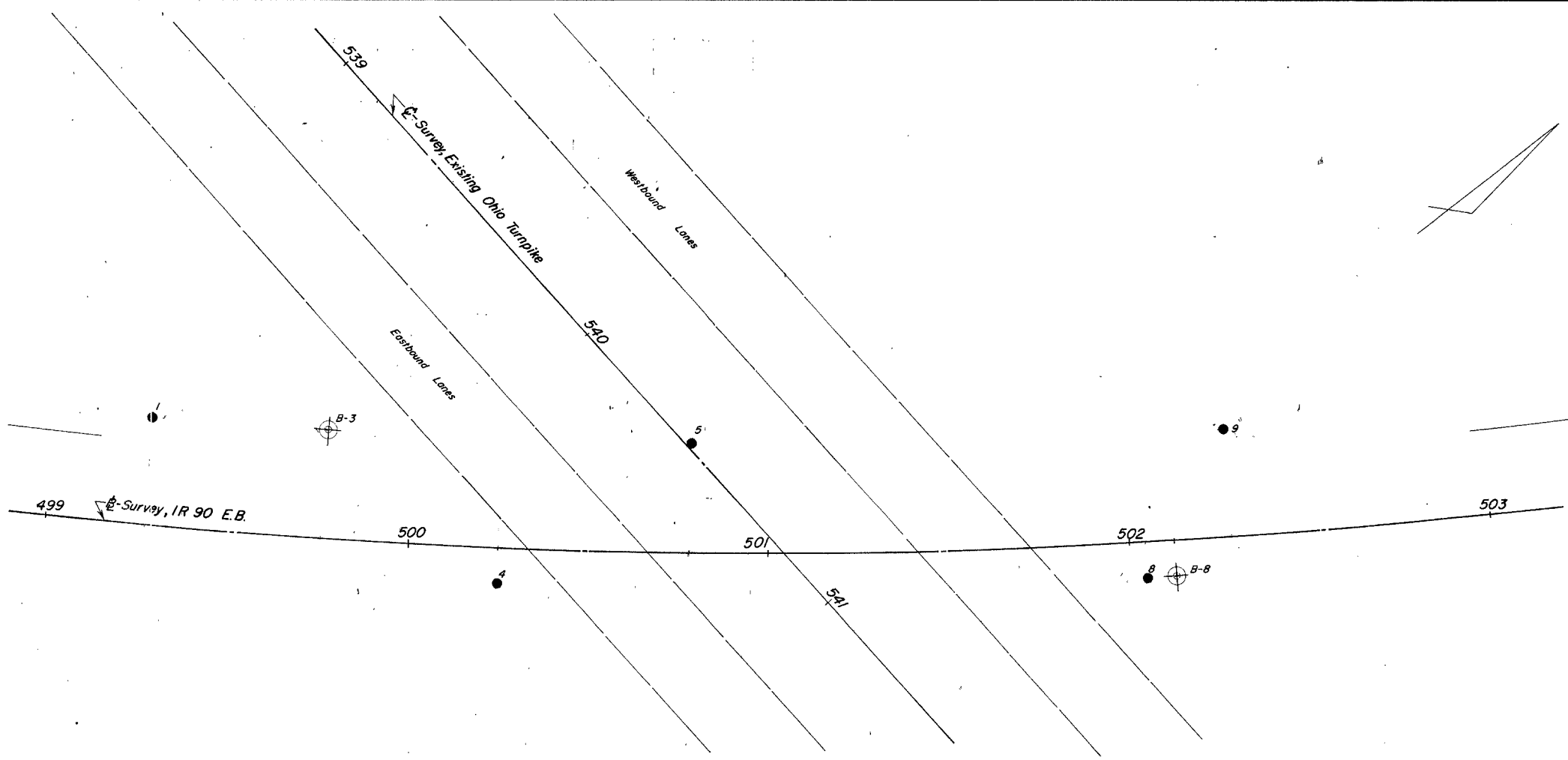
CHECKED BY L.N.L. REVIEWED BY R.D.R. DATE 10/10/67

REV 4-30-79

MICROFILMED  
MAY 15 1969  
REPRODUCTION

LOR-90-9.48

15  
25  
3



OHIO DEPARTMENT OF HIGHWAYS  
TESTING LABORATORY  
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION  
BRIDGE NO. LOR-90-1033 E.B.  
OVER OHIO TURNPIKE  
SEC. LOR-90-9.48

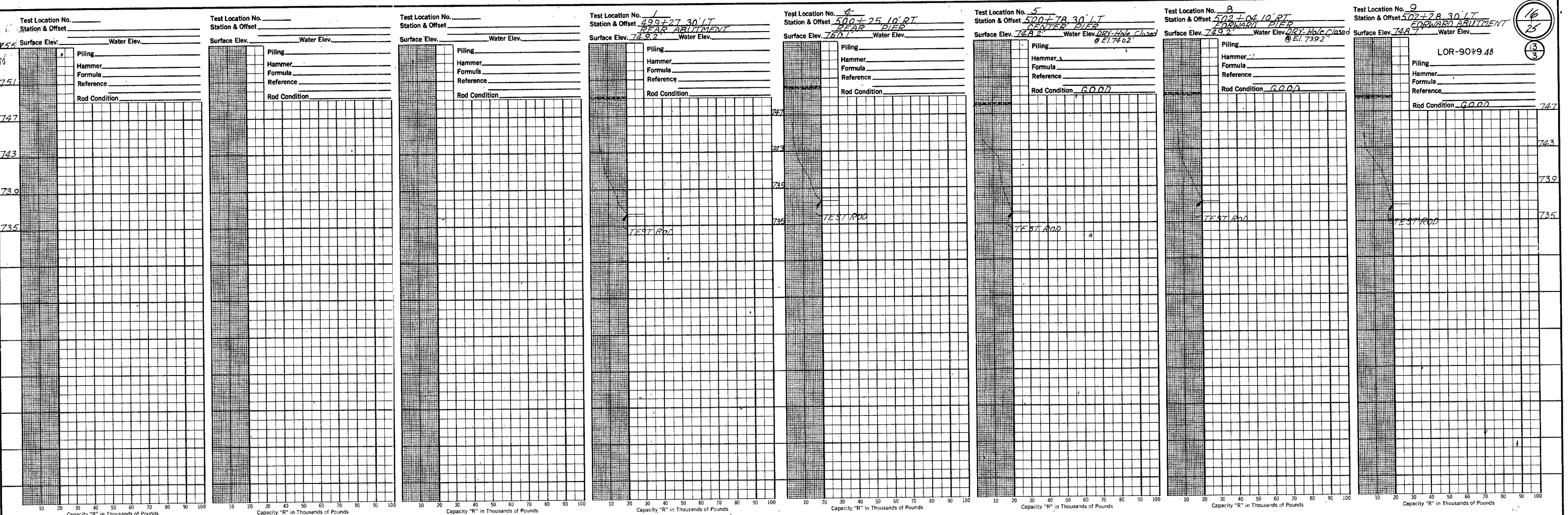
PLAN AND PROFILE

DRAWN BY J.E.C.	CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 10/10/67
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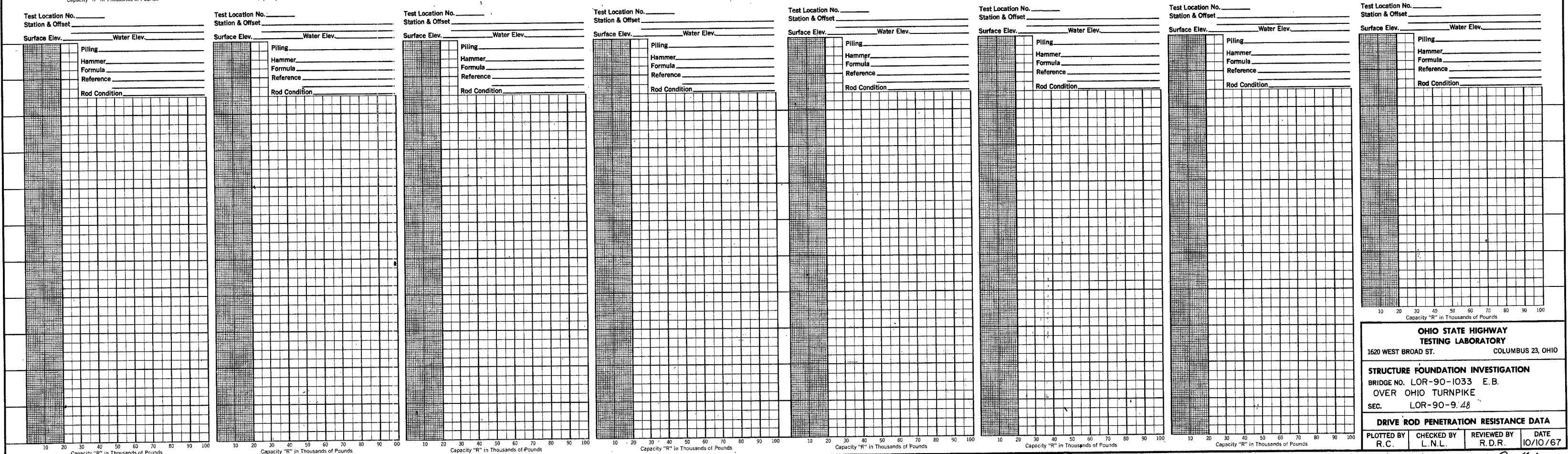
SCALE: 1" = 20'

Rev. 4-1573

MAY 15 1967



16  
25  
13  
3



**OHIO STATE HIGHWAY TESTING LABORATORY**  
1620 WEST BROAD ST. COLUMBUS 23, OHIO

**STRUCTURE FOUNDATION INVESTIGATION**  
BRIDGE NO. LOR-90-1033 E.B.  
OVER OHIO TURNPIKE  
SEC. LOR-90-9-48

**DRIVE ROD PENETRATION RESISTANCE DATA**

PLOTTED BY R.C.	CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 10/10/67
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Rev. 4-25-79

MICROFILMED  
MAY 15 1989  
REFLECTION

GENERAL INFORMATION

Drive Rod Penetration Sounding Tests

Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine the amount of penetration achieved in three hammer drops. This reading is converted to an empirical value for capacity "R", in thousands of pounds (which is a measure of both the point resistance and frictional resistance on the rod), by using charts prepared by the Ohio Department of Highways, Bureau of Bridges, on the basis of correlation study of rod penetration with past performance of pile driving. For interpretation, a graph is prepared by plotting the value "R" against the depth at which the reading was taken, and connecting the plotted points. The curve so obtained reflects the density of subsurface materials in a manner that can be readily compared with data from similar tests at other locations on the structure site. From this comparison, the overall uniformity of subsurface condition may be evaluated.

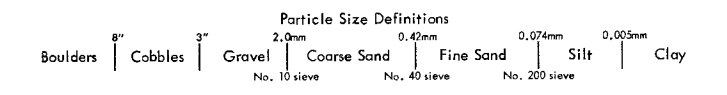
Drive Sample Borings - Drive-Press Sample Borings

Drive sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. sampler, at 2-1/2 and/or 5-foot depth intervals, driven by means of a 140-pound drop-hammer with a free fall of 30 inches. The number of blows required to drive the sampler 12 inches is considered the standard penetration test.

Drive-press sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. drive sampler, and 3" O.D. thin-wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drill rig.

The boring log sheets show a graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the standard penetration tests in two 6-inch increments, depth of press samples, field sample number, sample description - based on laboratory tests and the Casagrande AC classification system - and gradation, plasticity, and moisture content determinations. Results of strength and consolidation testing, if performed, appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.



LEGEND

- Auger Boring Location - Plan View.
- Press and/or Drive Sample and/or Core Boring Location - Plan View.
- Drive Rod Penetration Resistance Sounding Location - Plan View.
- Capped Pile
- Footing
- Footing on Pile
- Top of Rock
- Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
- Figures Beside the Boring Log in Profile Indicate the Number of Blows for Standard Penetration Test.  
 X = Number of Blows for First 6 inches.  
 Y = Number of Blows for Second 6 inches.
- Drive Rod Penetration Resistance Sounding Log - Profile
- Casing
- Resistance "R" < 10,000 lbs.
- Resistance "R" > 10,000 lbs.
- Z Indicates Final Measurement of Penetration, in Inches.
- W Indicates Free Water Elevation.
- Indicates Static Water Elevation.

SYMBOLS OF ROCK TYPES

- Coal
- Weathered Indurated Clay
- Indurated Clay
- Weathered Shale
- Shale
- Weathered Sandstone
- Sandstone
- Leached Dolomite
- Dolomite
- Leached Limestone
- Limestone

GEOLOGY AND OBSERVATIONS OF THE SITE

THE STRUCTURE SITE IS LOCATED ON THE RELATIVELY FLAT GLACIATED LAND PLAIN, IN AN AREA WHERE LACUSTRINE AND BEACH DEPOSITS OVERLIE SHALE BEDROCK, OF LOWER MISSISSIPPIAN AND UPPER DEVONIAN AGE.

EXPLORATION

THE EXPLORATION CONSISTED OF TWO DRIVE SAMPLE-CORE BORINGS, MADE ON AUGUST 7 AND 8, 1967, AND FOUR DRIVE ROD PENETRATION TESTS, MADE BETWEEN AUGUST 21 AND 27, 1967.

INVESTIGATIONAL FINDINGS

THE BORINGS DISCLOSED THAT SLOPING BEDROCK SURFACE, ENCOUNTERED AT 5-FOOT DEPTH, ELEVATION 738 FEET, IN THE REAR PORTION OF THE STRUCTURE SITE, AND 10-FOOT DEPTH, ELEVATION 732 FEET, IN THE FORWARD PORTION, IS OVERLAIN BY DENSE TO VERY DENSE SANDY SILTS AND CLAYS. THE BORINGS WERE TERMINATED AT 20 AND 25-FOOT DEPTHS, ELEVATIONS 623 AND 617 FEET, 15 FEET BELOW BEDROCK SURFACE.

ROD SOUNDINGS MET RAPID INCREASE IN PENETRATION RESISTANCE WITH INCREASE IN DEPTH AND WERE TERMINATED UPON ENCOUNTER WITH REFUSAL TO PENETRATION AT 4 AND 14-FOOT DEPTHS, ELEVATIONS 738 TO 725 FEET, CONSIDERED TO BE ON OR BELOW BEDROCK SURFACE, AS REVEALED BY THE BORINGS.

NO FREE WATER WAS OBSERVED IN ANY OF THE ROD SOUNDING HOLES.

**LOG OF BORING**

Date Started 8-8-67 Sampler Type SS Dia. 1 3/8" Water Elev. \_\_\_\_\_  
 Date Completed 8-8-67 Casing Length 5' Dia. 3 1/2"  
 Boring No. B-1 Station & Offset 565+22, 5' Rt. (Rear Abutment) Surface Elev. 742.9'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Physical Characteristics										SHTL Class.			
						Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	LL	PI	W.C.					
742.9	0				Brown Silty Clay														
	2																		
	4																		
737.9	6																		
	8		4.7	0.3	TOP OF ROCK														
	10																		
	12		5.0	0.0		Sandstone; brownish-gray, weathered and soft in top 3.0'; gray, fine, fine-grained, cross-bedded in part, and broken in remainder. Core Loss 45.													
	14																		
	16				TOP OF ROCK														
	18		4.7	0.3															
	20																		
722.9	20																		

**LOG OF BORING**

Date Started 8-7-67 Sampler Type SS Dia. 1 3/8" Water Elev. \_\_\_\_\_  
 Date Completed 8-8-67 Casing Length 10' Dia. 3 1/2"  
 Boring No. B-8 Station & Offset 566+66, 30' Lt. (Forward Abutment) Surface Elev. 741.8'

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Physical Characteristics										SHTL Class.			
						Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	LL	PI	W.C.					
741.8	0				Brown Silty Clay														
	2																		
	4																		
736.8	6	12/20				Gray Sandy Clay	1	8	7	14	36	35	34	17	12			A-6b	
734.3	8	28/32			Gray Sandy Silt	2	6	7	14	38	35	22	5	11			A-6a		
731.8	10				TOP OF ROCK														
	12		4.8	0.2		Sandstone, gray, fine, fine-grained, massive, cross-bedded in part, broken. Core Loss 15.													
	14																		
	16					TOP OF ROCK													
	18		5.0	0.0															
	20																		
716.8	24																		

NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

OHIO DEPARTMENT OF HIGHWAYS  
TESTING LABORATORY  
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

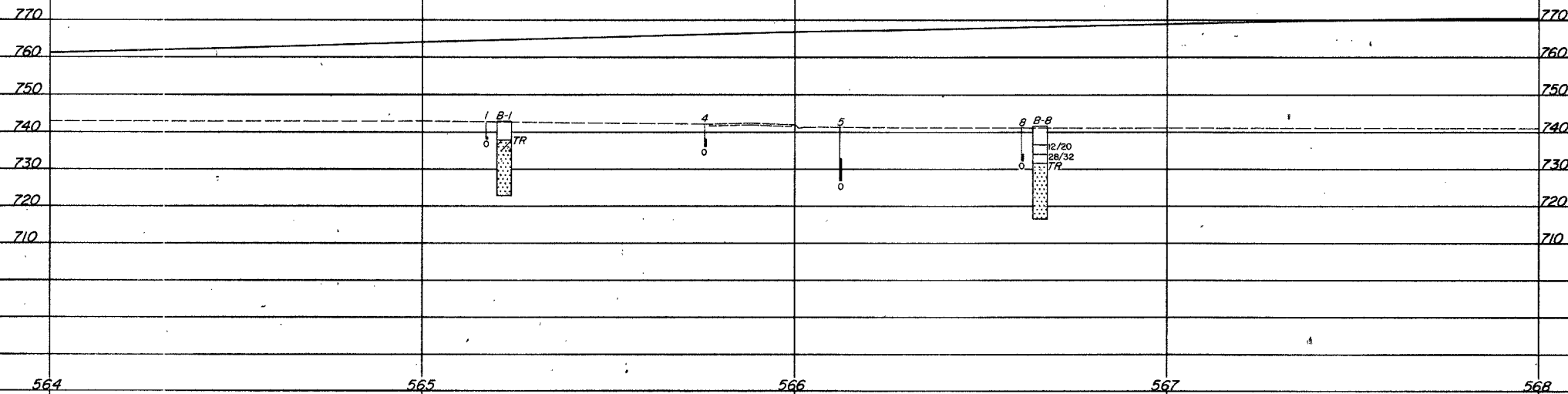
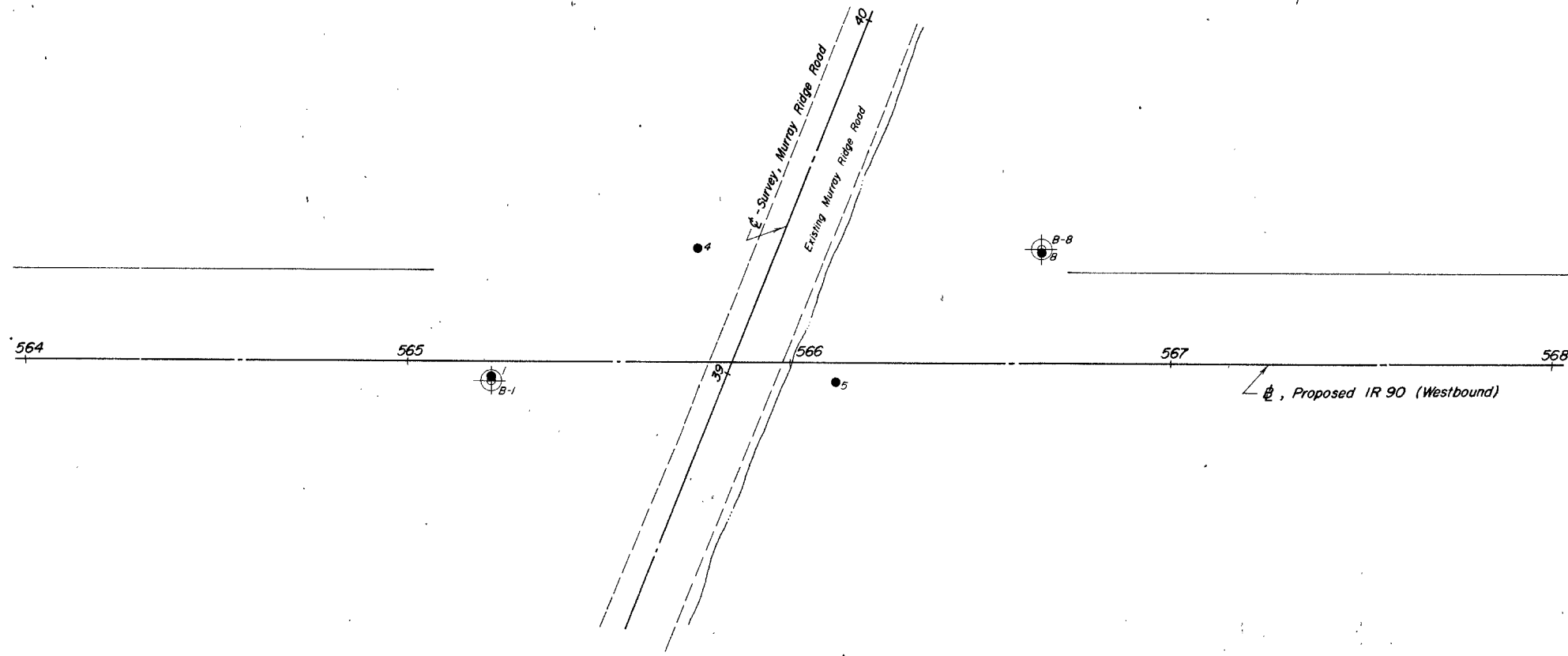
STRUCTURE FOUNDATION INVESTIGATION  
BRIDGE NO. LOR-90-1148 (WESTBOUND)  
OVER MURRAY RIDGE ROAD  
SEC. LOR-90-9.48

CHECKED BY L.N.L. REVIEWED BY R.D.R. DATE 9/20/67

MICROFILMED  
MAY 15 1989  
REPRODUCTION

LOR-90-9.48

18  
25  
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OHIO DEPARTMENT OF HIGHWAYS  
TESTING LABORATORY  
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION  
BRIDGE NO. LOR-90-1148 (WESTBOUND)  
OVER MURRAY RIDGE ROAD  
SEC. LOR-90-9.48

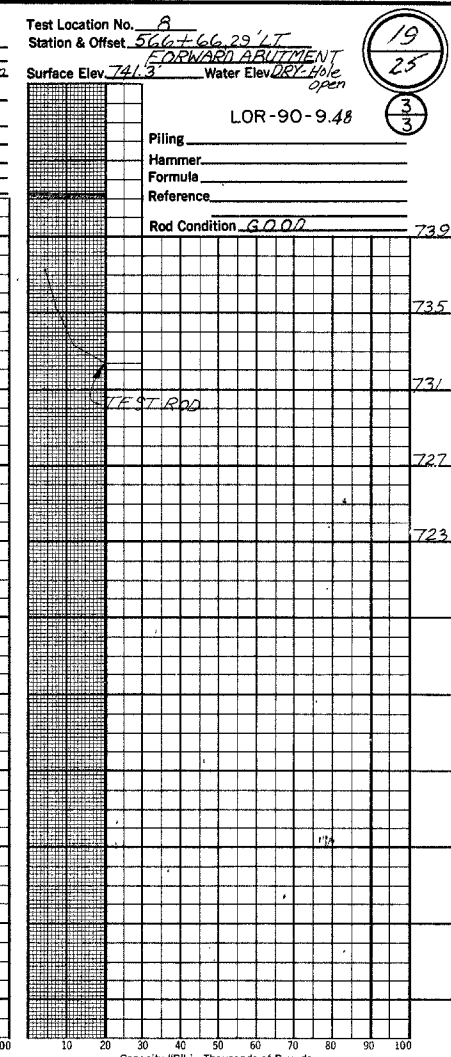
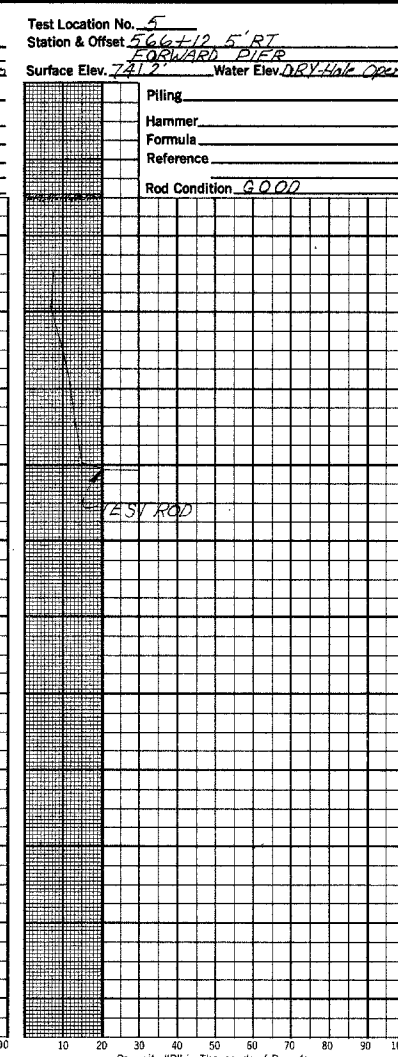
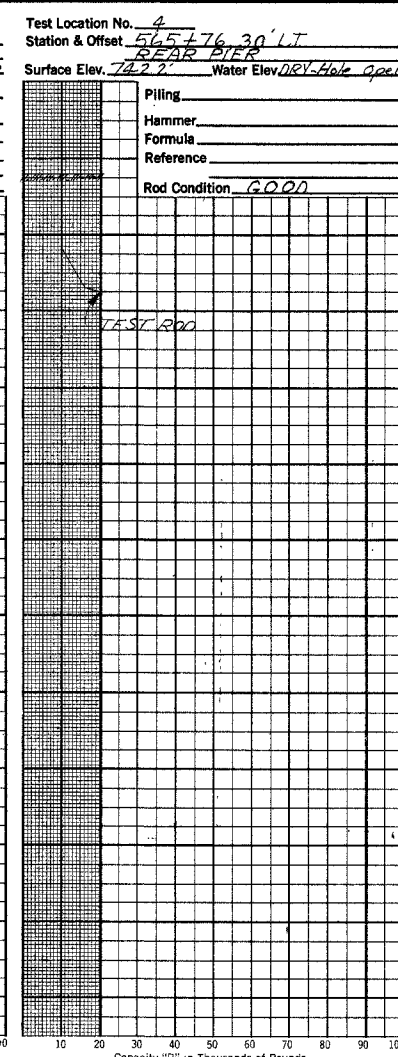
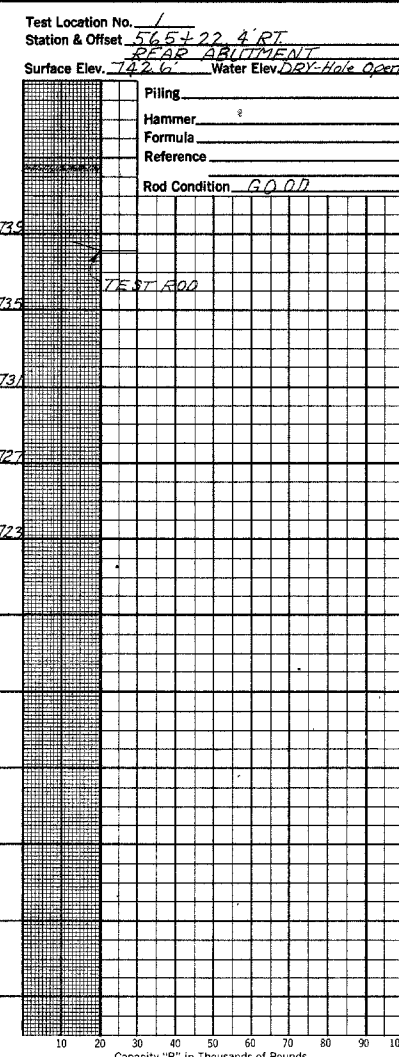
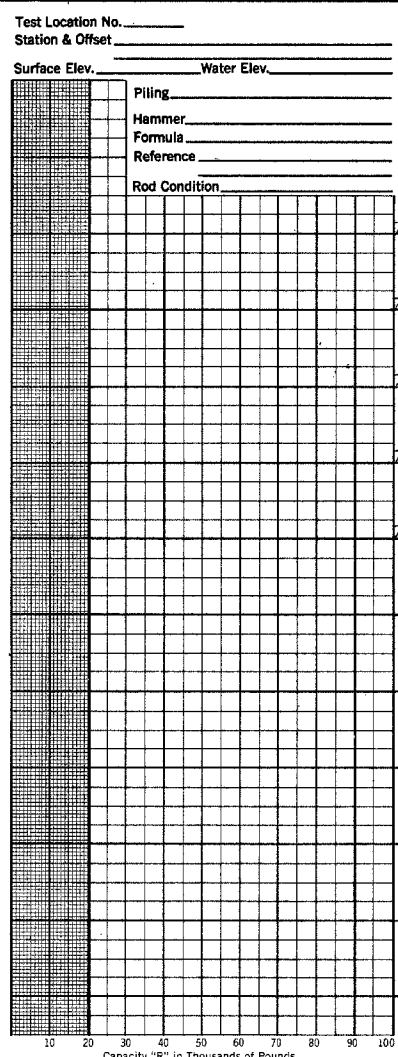
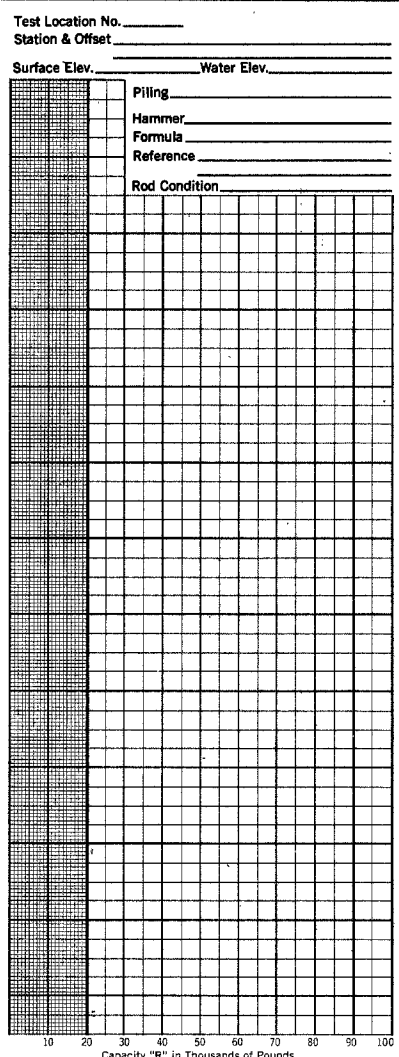
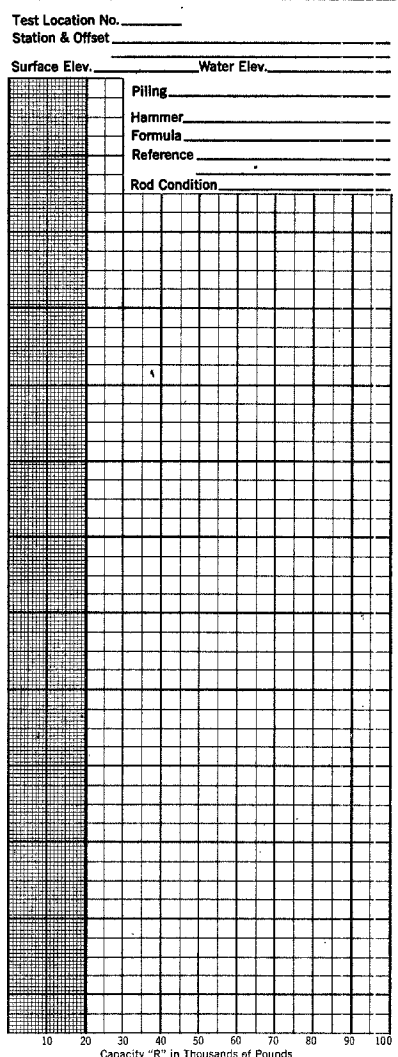
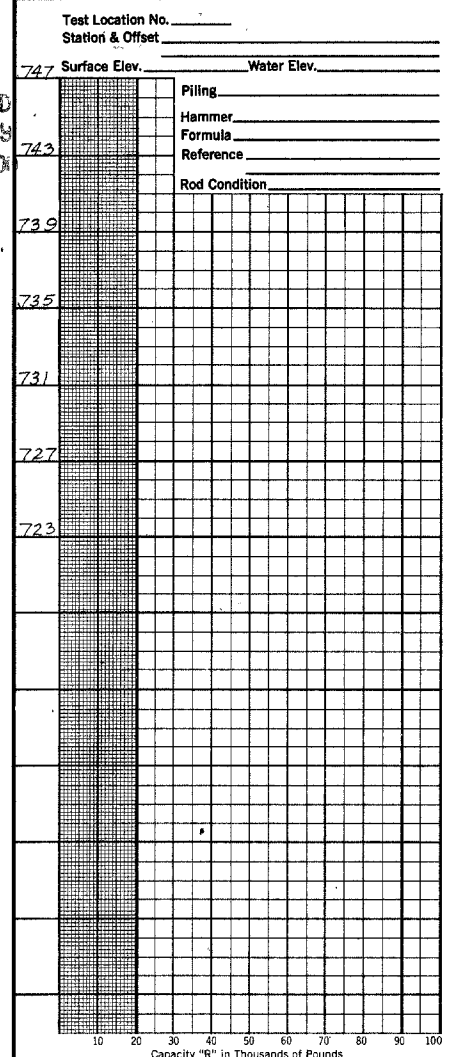
PLAN AND PROFILE

DRAWN BY L.N.L.	CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 9/20/67
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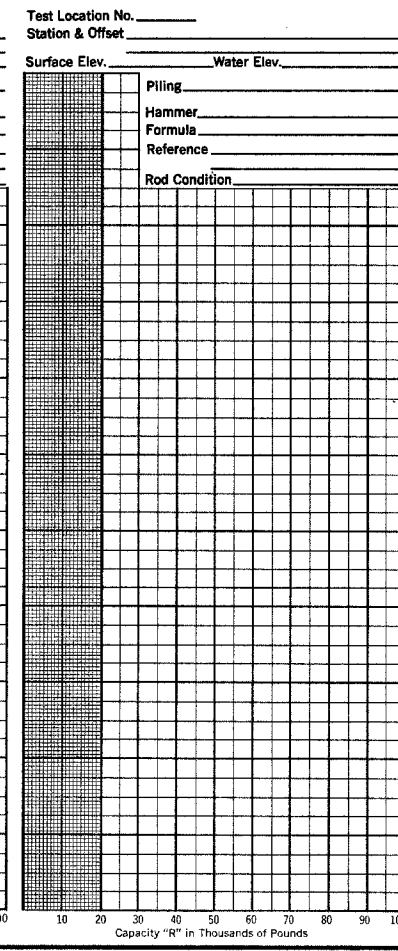
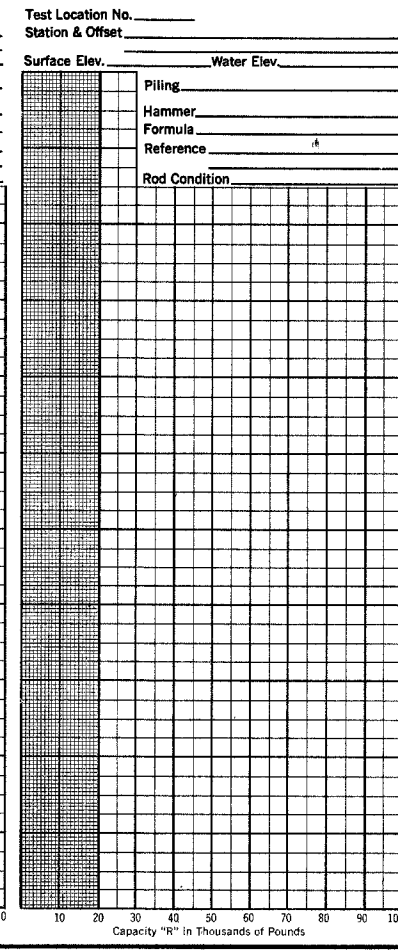
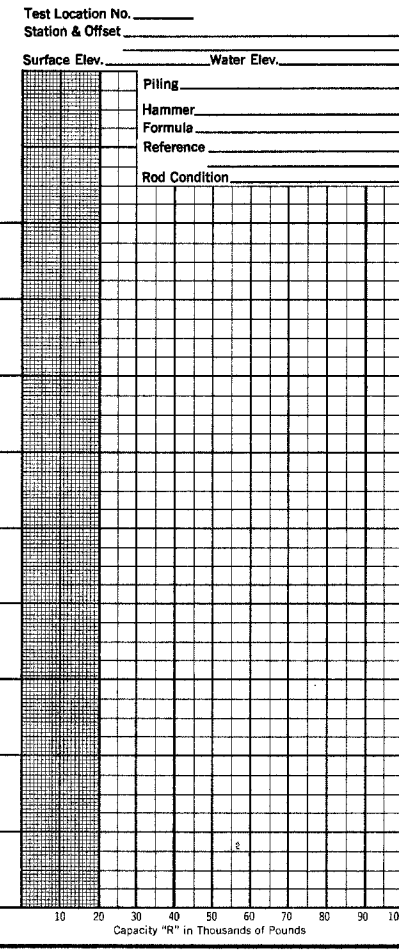
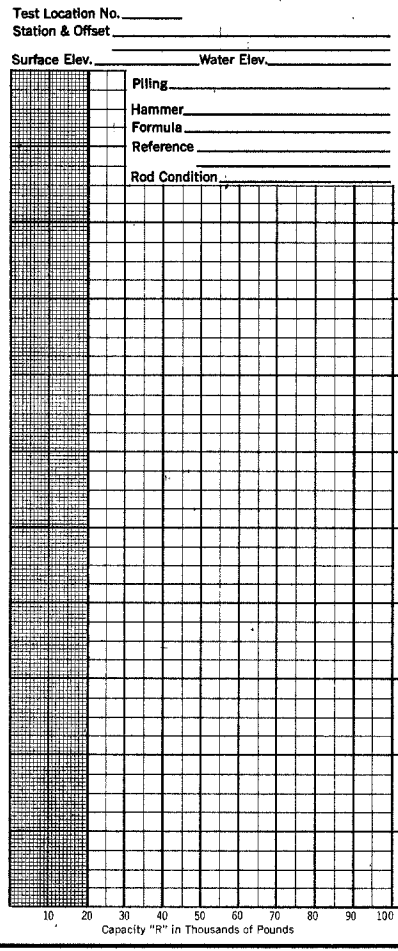
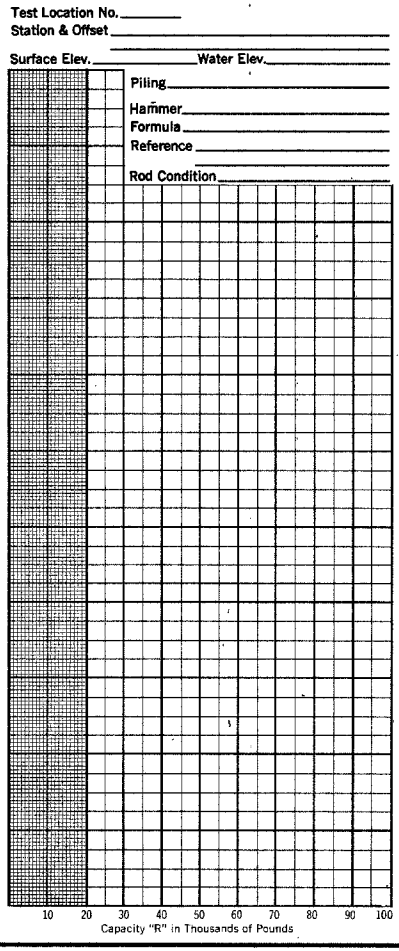
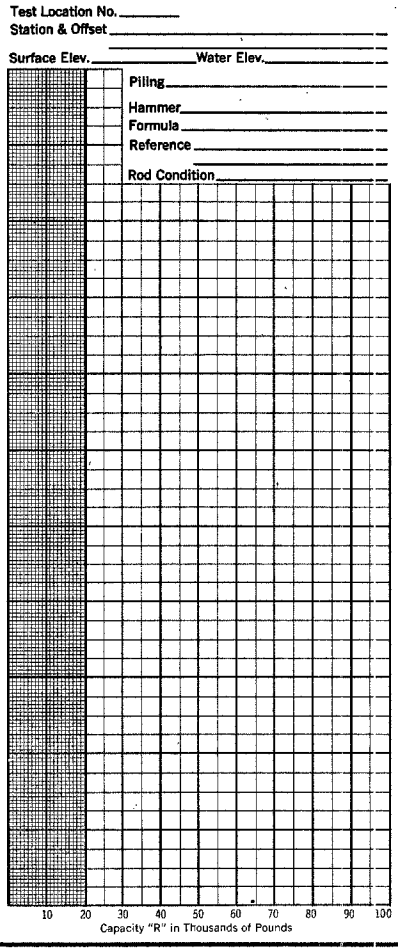
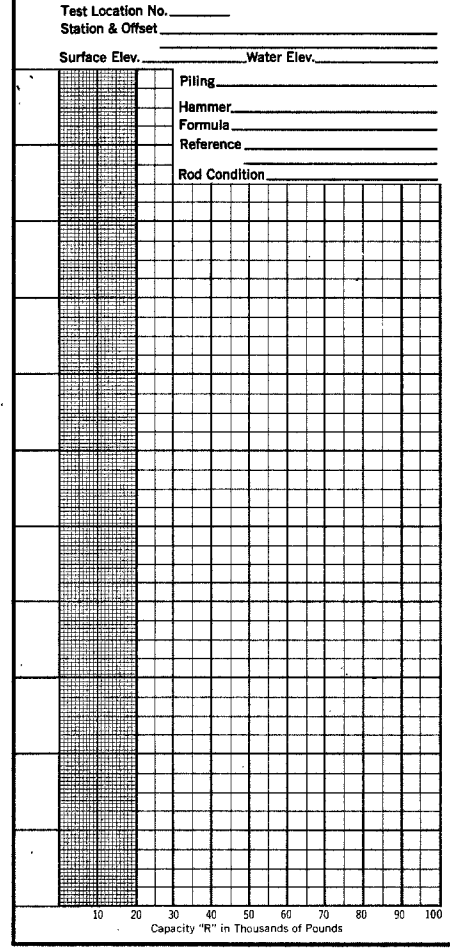
SCALE: 1" = 20'

Rev. 4-25-73

72115  
200-154  
MICROFILMED  
MAY 15 1969  
CONSTRUCTION



19  
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Test Location No. \_\_\_\_\_  
Station & Offset \_\_\_\_\_  
Surface Elev. \_\_\_\_\_ Water Elev. \_\_\_\_\_

Piling \_\_\_\_\_  
Hammer \_\_\_\_\_  
Formula \_\_\_\_\_  
Reference \_\_\_\_\_  
Rod Condition \_\_\_\_\_

**OHIO STATE HIGHWAY TESTING LABORATORY**  
1620 WEST BROAD ST. COLUMBUS 23, OHIO

**STRUCTURE FOUNDATION INVESTIGATION**  
BRIDGE NO. LOR-90-1148 (WESTBOUND)  
OVER MURRAY RIDGE ROAD  
SEC. LOR-90-9.48

**DRIVE ROD PENETRATION RESISTANCE DATA**

PLOTTED BY R.C.	CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 9/20/67
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Rev. 4-25-73

MICROFILMED  
MAY 15 1968  
REF ID: A67107

LORAIN COUNTY  
LOR-90-9.48

20  
25  
3

**GEOLOGY AND OBSERVATIONS OF THE SITE**  
THE STRUCTURE SITE IS LOCATED ON THE RELATIVELY FLAT GLACIATED LAKE FLAIN, IN AN AREA WHERE LACUSTRINE AND BEACH DEPOSITS OVERLIE SANDSTONE BEDROCK, OF LOWER MISSISSIPPIAN AND UPPER DEVONIAN AGE.

**EXPLORATION**  
THE EXPLORATION CONSISTED OF ONE CORE BORING AND ONE DRIVE SAMPLE-CORE BORING, MADE ON AUGUST 3 AND 4, 1967, AND FOUR DRIVE ROD PENETRATION TESTS, MADE ON AUGUST 22, 1967.

**INVESTIGATIONAL FINDINGS**  
THE BORINGS DISCLOSED THAT SLOPING BEDROCK SURFACE, ENCOUNTERED AT 5-FOOT DEPTH, ELEVATION 738 FEET, IN THE REAR PORTION OF THE STRUCTURE SITE, AND 15-FOOT DEPTH, ELEVATION 726 FEET, IN THE FORWARD PORTION OF THE STRUCTURE SITE, IS OVERLAIN BY VERY DENSE SANDY SILT AND STIFF SILTY CLAYS. THE BORINGS WERE TERMINATED 10 AND 16 FEET BELOW BEDROCK SURFACE, AT ELEVATIONS 722 AND 716 FEET.

ROD SOUNDINGS MET RAPID INCREASE IN PENETRATION RESISTANCE WITH INCREASE IN DEPTH AND WERE TERMINATED UPON ENCOUNTER WITH REFUSAL TO PENETRATION AT 4 TO 14-FOOT DEPTHS, ELEVATIONS 738 TO 726 FEET, CONSIDERED TO BE ON OR SLIGHTLY ABOVE BEDROCK SURFACE, AS REVEALED BY THE BORINGS.

NO FREE WATER WAS OBSERVED IN ANY OF THE ROD SOUNDING HOLES.

- Auger Boring Location - Plan View.
- Press and/or Drive Sample and/or Core Boring Location - Plan View.
- Drive Rod Penetration Resistance Sounding Location - Plan View.
- Capped Pile
- Footing
- Footing on Pile
- Top of Rock

- Coal
- Weathered Indurated Clay
- Indurated Clay
- Weathered Shale
- Shale

**LEGEND**

- Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
- Figures Beside the Boring Log in Profile Indicate the Number of Blows for Standard Penetration Test.  
X = Number of Blows for First 6 inches.  
Y = Number of Blows for Second 6 inches.
- Drive Rod Penetration Resistance Sounding Log - Profile
- Casing
- Resistance "R" < 10,000 lbs.
- Resistance "R" > 10,000 lbs.
- Z Indicates Final Measurement of Penetration, in Inches.
- W Indicates Free Water Elevation.
- Indicates Static Water Elevation.

**SYMBOLS OF ROCK TYPES**

- Weathered Sandstone
- Sandstone
- Leached Dolomite
- Dolomite
- Leached Limestone
- Limestone

**GENERAL INFORMATION**

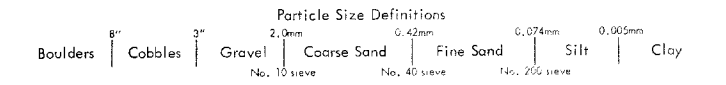
**Drive Rod Penetration Sounding Tests**  
Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine the amount of penetration achieved in three hammer drops. This reading is converted to an empirical value for capacity "R", in thousands of pounds (which is a measure of both the point resistance and frictional resistance on the rod), by using charts prepared by the Ohio Department of Highways, Bureau of Bridges, on the basis of correlation study of rod penetration with past performance of pile driving. For interpretation, a graph is prepared by plotting the value "R" against the depth at which the reading was taken, and connecting the plotted points. The curve so obtained reflects the density of subsurface materials in a manner that can be readily compared with data from similar tests at other locations on the structure site. From this comparison, the overall uniformity of subsurface condition may be evaluated.

**Drive Sample Borings - Drive-Press Sample Borings**  
Drive sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. sampler, at 2-1/2 and/or 5-foot depth intervals, driven by means of a 140-pound drop-hammer with a free fall of 30 inches. The number of blows required to drive the sampler 12 inches is considered the standard penetration test.

Drive-press sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. drive sampler, and 3" O.D. thin-wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drill rig.

The boring log sheets show a graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the standard penetration tests in two 6-inch increments, depth of press samples, field sample number, sample description - based on laboratory tests and the Casagrande AC classification system - and gradation, plasticity, and moisture content determinations. Results of strength and consolidation testing, if performed, appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.



LOG OF BORING

Date Started 8-3-67 Date Completed 8-3-67 Boring No. B-1  
 Sampler Type SS Dia. 1 3/8" Casing Length 5' Dia. 3 1/2" Station & Offset 566+94, 10' Rt. (Rear Abutment) Surface Elev. 741.7'  
 Water Elev. \_\_\_\_\_

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics										SHTL Class.		
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	LL	Pl.	W.C.					
741.7	0				Brown Silty Clay														
	2																		
737.7	4		1.0	0.0	TOP OF ROCK														
	6				Sandstone, brownish-gray and gray, firm, fine-grained, cross-bedded in part, broken and jointed. Core Loss 5%.														
	8		4.5	0.5															
	10																		
	12																		
	14		4.7	0.3															
	16																		
	18				BOTTOM OF BORING														
721.7	20		5.0	0.0															

LOG OF BORING

Date Started 8-4-67 Date Completed 8-4-67 Boring No. B-8  
 Sampler Type SS Dia. 1 3/8" Casing Length 15' Dia. 3 1/2" Station & Offset 568+37, 25' Lt. (Forward Abutment) Surface Elev. 740.8'  
 Water Elev. \_\_\_\_\_

Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics										SHTL Class.	
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	LL	Pl.	W.C.				
740.8	0																	
	2																	
	4				Gray Sandy Silt													
735.8	6	21/22				1	14	5	10	33	38	28	9	13	A-4			
733.3	8	22/23				2	9	8	13	36	34	23	7	11	A-4			
730.8	10	20/21				3	7	8	12	42	31	22	5	12	A-4			
728.3	12				Gray Sandy Silt													
725.8	14	41*				4	12	6	13	41	28	22	5	12	A-4			
	16				TOP OF ROCK													
	18				Sandstone, gray, firm, fine-grained, cross-bedded, broken and jointed. Core Loss 2%.													
	20		5.0	0.0														
	22																	
	24		4.7	0.3														
715.8					BOTTOM OF BORING													

NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

**OHIO DEPARTMENT OF HIGHWAYS  
TESTING LABORATORY**  
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

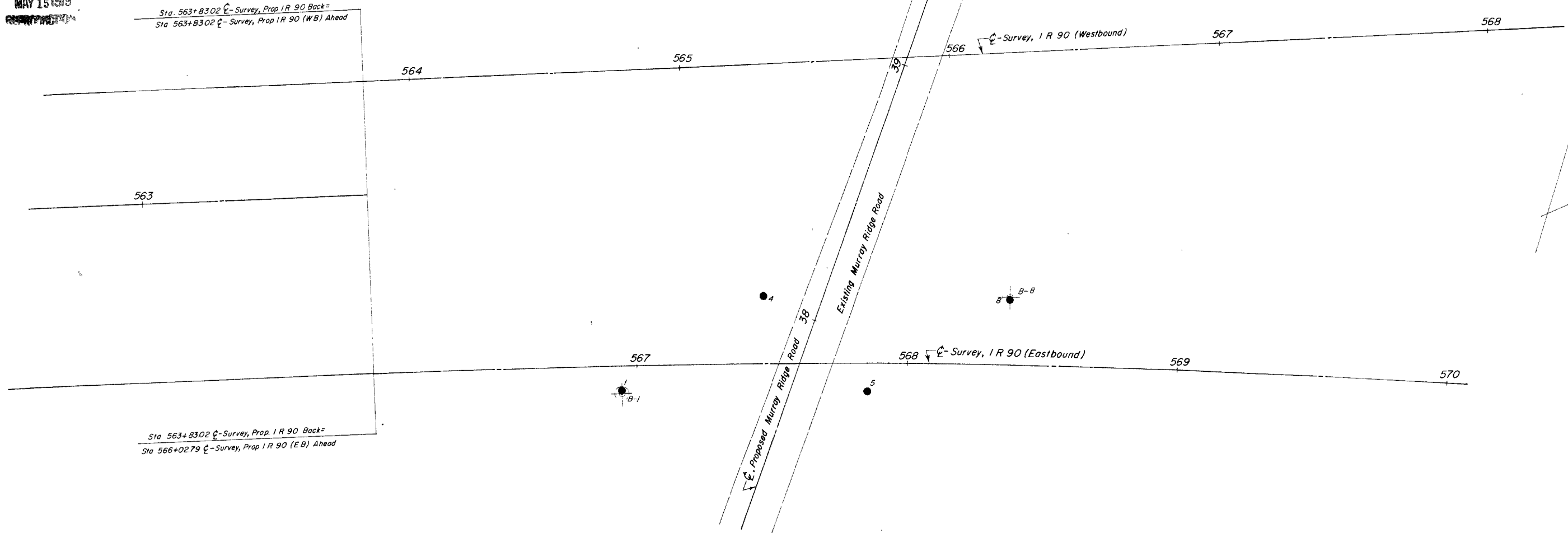
**STRUCTURE FOUNDATION INVESTIGATION**  
BRIDGE NO. LOR-90-1157 E.B.  
OVER MURRAY RIDGE ROAD  
SEC. LOR-90-9.48

CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 9/7/67
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MICROFILMED  
MAY 15 1989

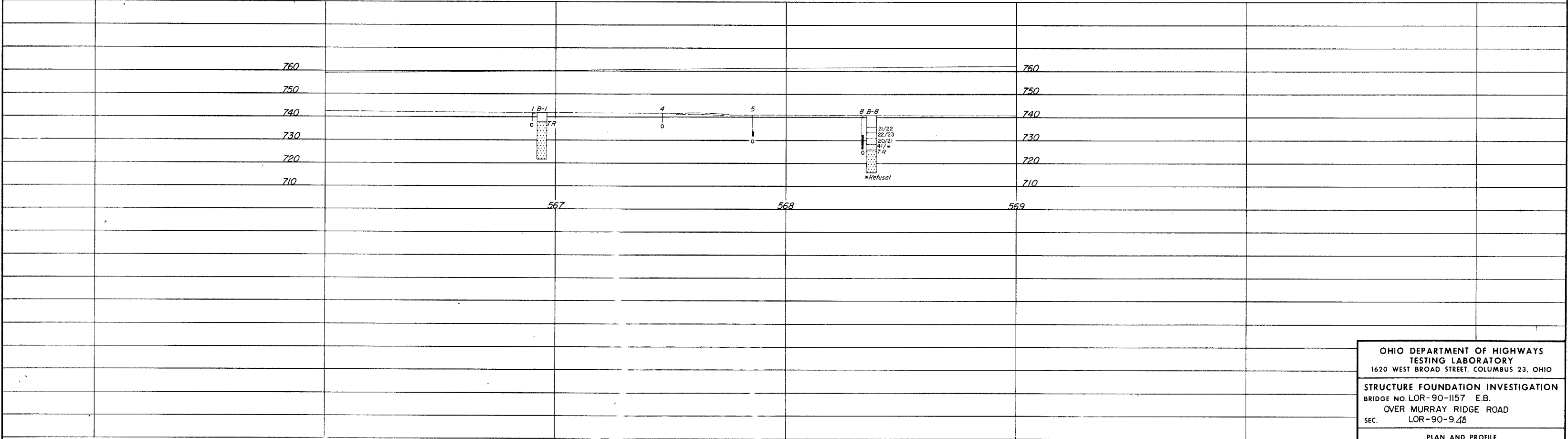
LOR-90-9.48

21  
25  
2  
3



Sta. 563+83.02 C-Survey, Prop. I R 90 Back=  
Sta. 563+83.02 C-Survey, Prop. I R 90 (WB) Ahead

Sta. 563+83.02 C-Survey, Prop. I R 90 Back=  
Sta. 566+02.79 C-Survey, Prop. I R 90 (EB) Ahead



OHIO DEPARTMENT OF HIGHWAYS  
TESTING LABORATORY  
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION  
BRIDGE NO. LOR-90-1157 E.B.  
OVER MURRAY RIDGE ROAD  
SEC. LOR-90-9.48

PLAN AND PROFILE

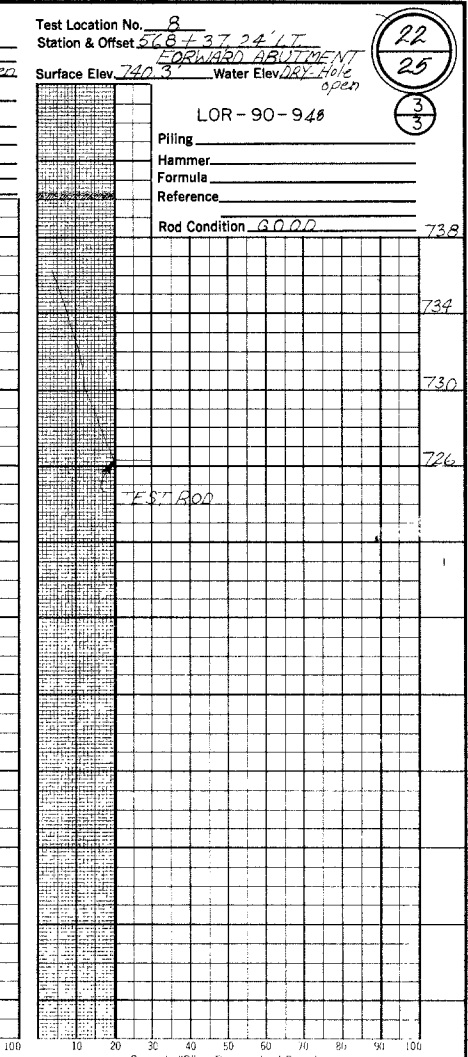
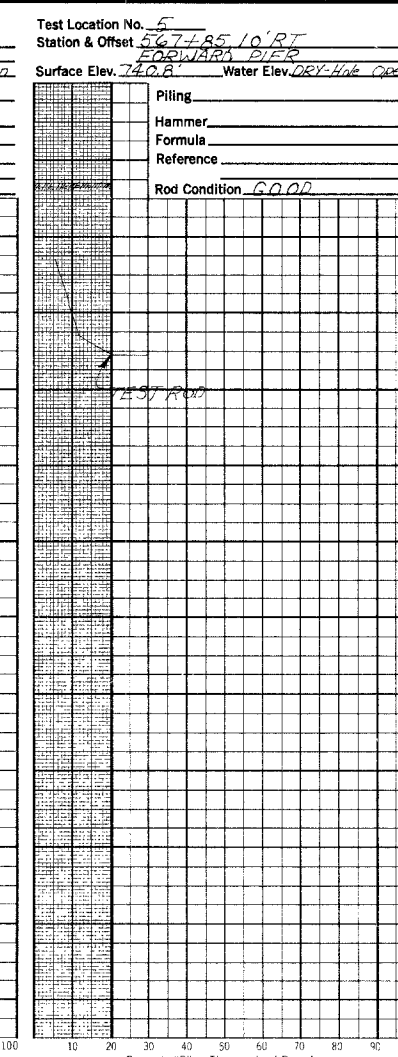
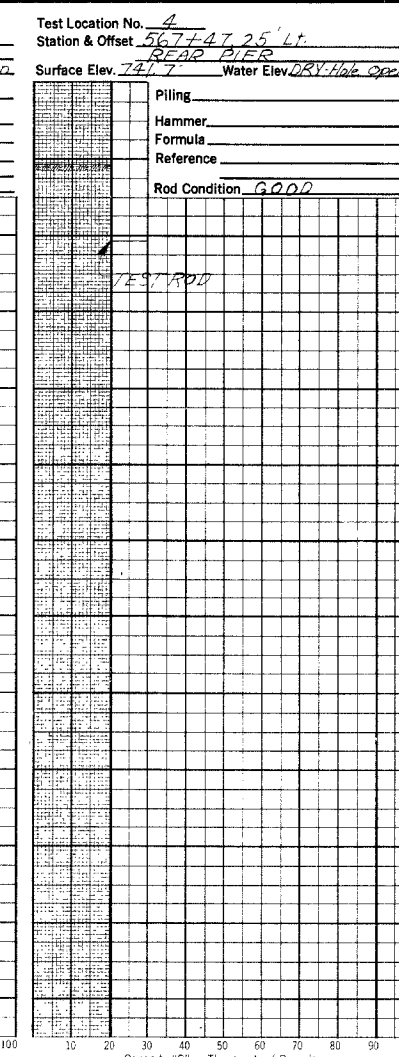
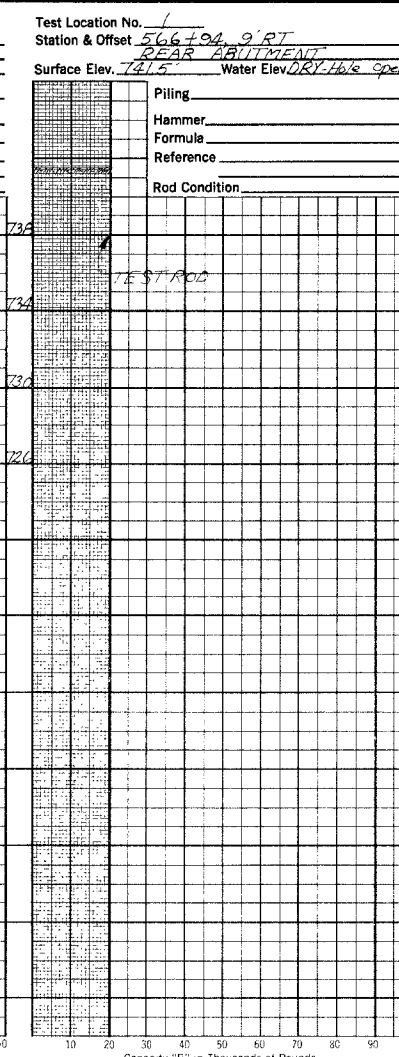
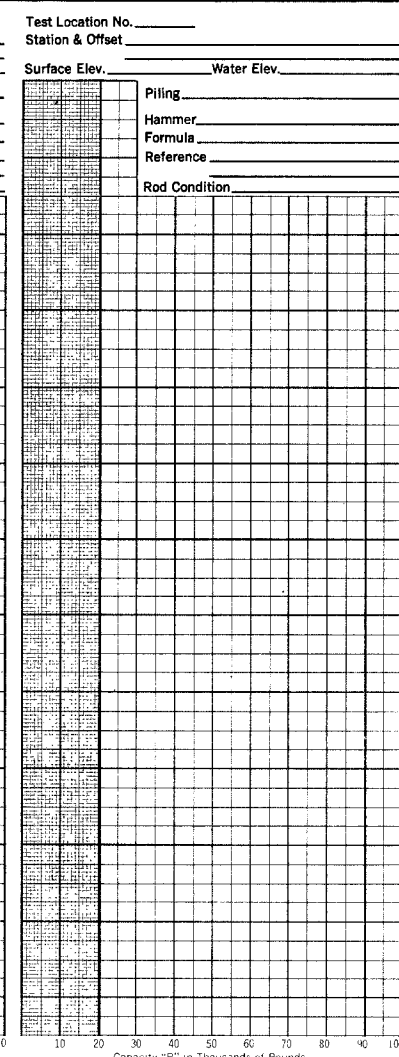
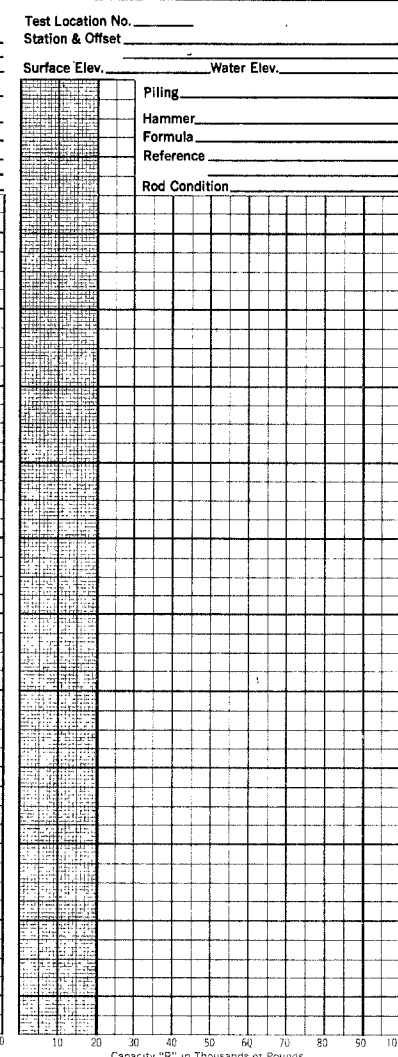
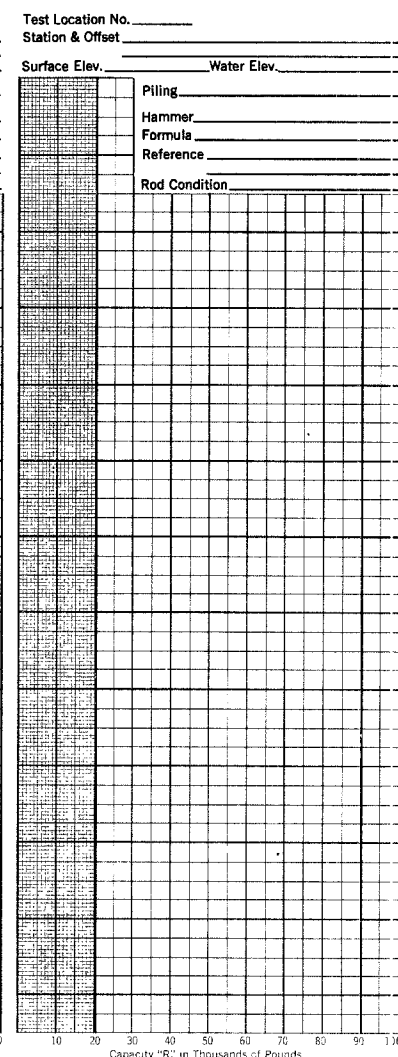
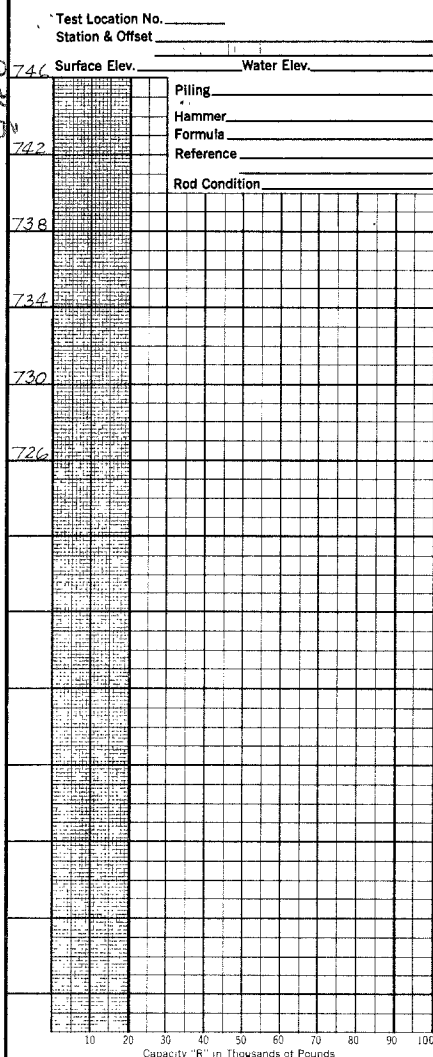
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SCALE: 1" = 20'

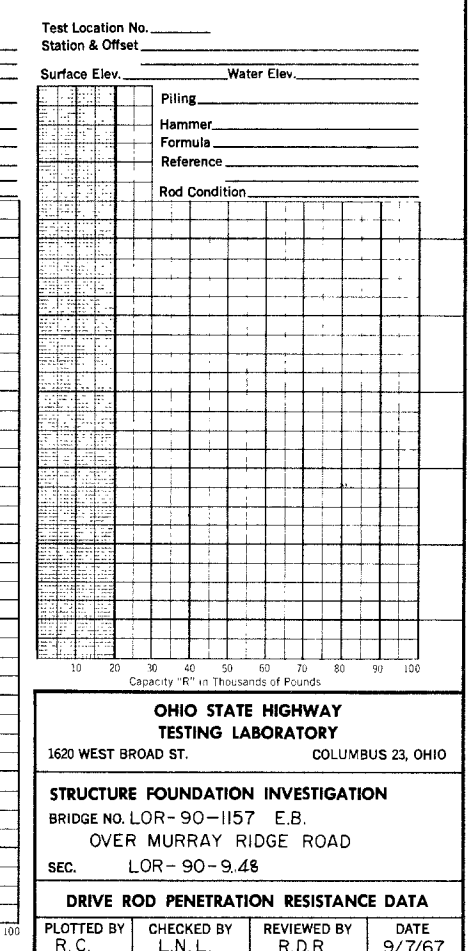
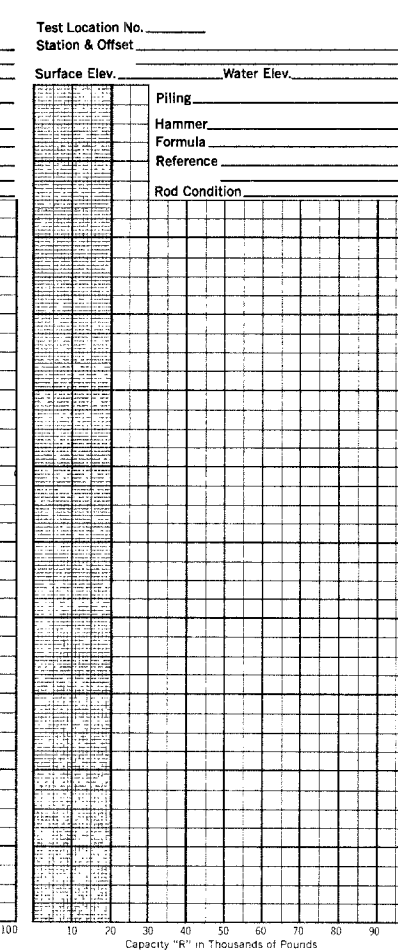
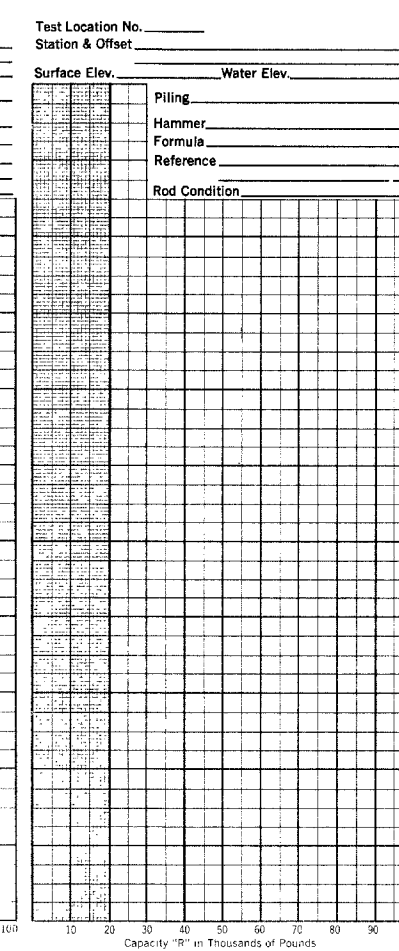
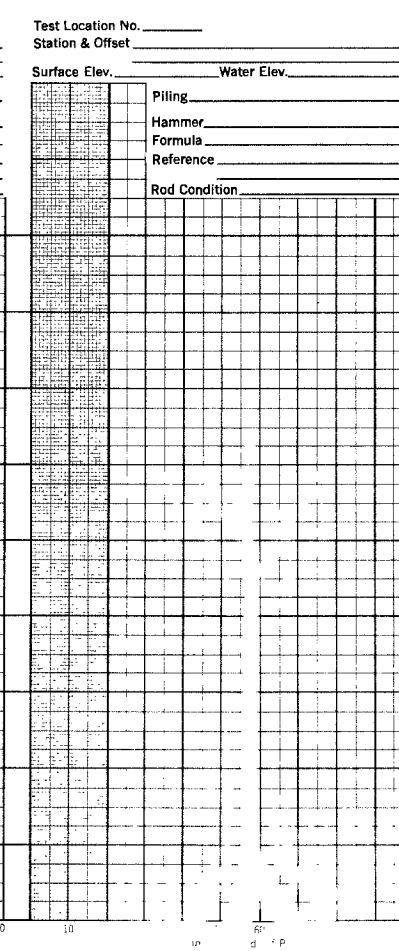
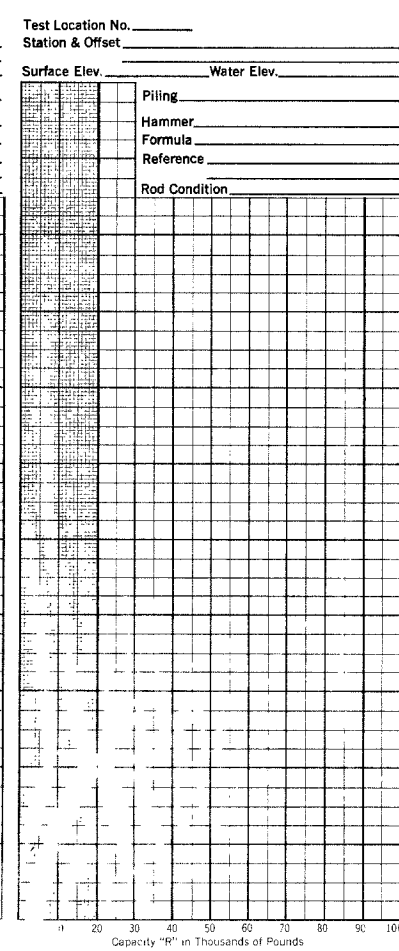
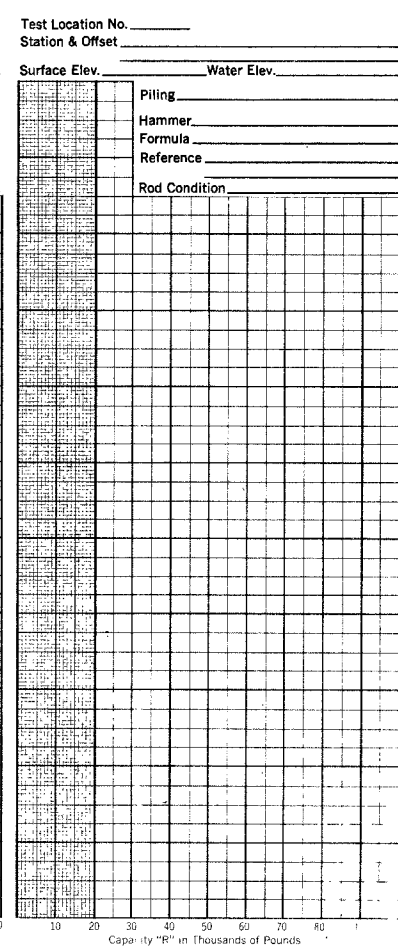
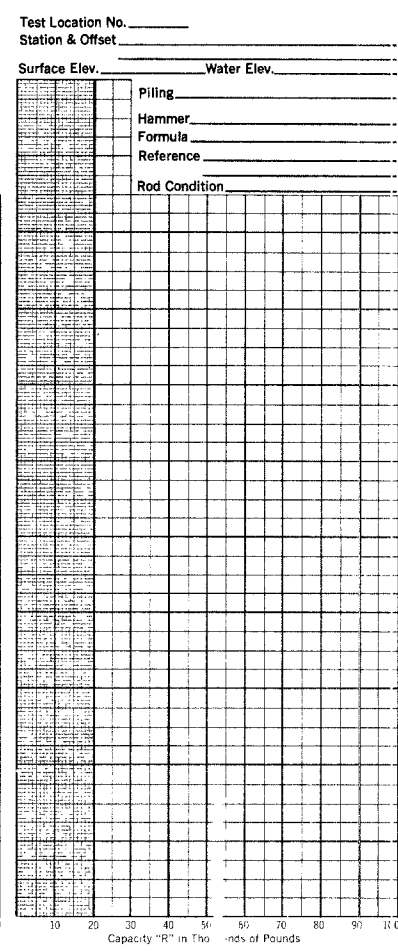
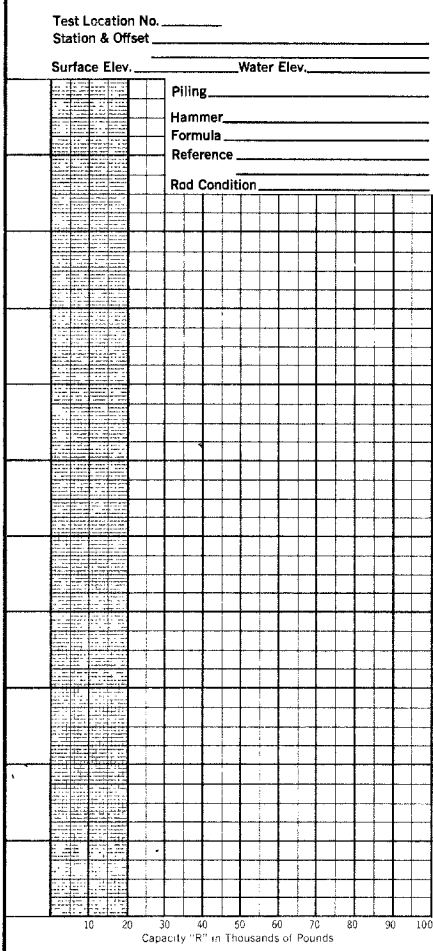
Rev. 4-25-79



MODIFIED  
MAY 15 1964  
REPRINTED



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OHIO STATE HIGHWAY  
TESTING LABORATORY  
1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION  
BRIDGE NO. LOR-90-1157 E.B.  
OVER MURRAY RIDGE ROAD  
SEC. LOR-90-9.48

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY R. C.	CHECKED BY L. N. L.	REVIEWED BY R. D. R.	DATE 9/7/67
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Rev. 4-25-59

MICROFILMED  
MAY 15 1989  
REPRODUCTION

**GEOLOGY AND OBSERVATIONS OF THE SITE**  
THE STRUCTURE SITE IS LOCATED ON THE RELATIVELY FLAT GLACIATED LAKE PLAIN, IN AN AREA WHERE LACUSTRINE AND BEACH DEPOSITS OVERLIE SHALE BEDROCK, OF LOWER MISSISSIPPIAN AND UPPER DEVONIAN AGE.

**EXPLORATION**  
THE EXPLORATION CONSISTED OF TWO DRIVE SAMPLE-CORE BORINGS, MADE BETWEEN AUGUST 9 AND 11, 1967, AND FOUR DRIVE ROD PENETRATION TESTS, MADE ON AUGUST 22 AND 23, 1967.

**INVESTIGATIONAL FINDINGS**  
THE BORINGS DISCLOSED THAT RELATIVELY FLAT-LYING SHALE BEDROCK SURFACE, ENCOUNTERED AT 30 AND 32-FOOT DEPTHS, ELEVATIONS 711 AND 713 FEET, IS OVERLAIN BY DEEPER TO VERY DEEPER GRAVELLY SANDY SILTS AND CLAYS. THE BORINGS WERE TERMINATED AT 40 AND 45-FOOT DEPTHS, ELEVATIONS 701 AND 700 FEET, 10 AND 13 FEET BELOW BEDROCK SURFACE.

ROD SOUNDINGS MET RAPID INCREASE IN PENETRATION RESISTANCE WITH INCREASE IN DEPTH AND WERE TERMINATED UPON ENCOUNTER WITH REFUSAL TO PENETRATION AT 20 AND 27-FOOT DEPTHS, ELEVATIONS 721 AND 718 FEET, CONSIDERED TO BE IN VERY STIFF CLAYS, AS REVEALED BY THE BORINGS.

FREE WATER WAS ENCOUNTERED IN THE ROD SOUNDING HOLES, BETWEEN ELEVATIONS 735 AND 732 FEET.

- LEGEND**
- ⊕ Auger Boring Location - Plan View.
  - ⊙ Press and / or Drive Sample and / or Core Boring Location - Plan View.
  - Drive Rod Penetration Resistance Sounding Location - Plan View.
  - ▬ Capped Pile
  - ⊥ Footing
  - ⊥ Footing on Pile
  - TR Top of Rock

- H Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
- X/Y Figures Beside the Boring Log in Profile Indicate the Number of Blows for Standard Penetration Test.  
X = Number of Blows for First 6 inches.  
Y = Number of Blows for Second 6 inches.
- Drive Rod Penetration Resistance Sounding Log - Profile
- Casing
- Resistance "R" < 10,000 lbs.
- Resistance "R" > 10,000 lbs.
- Z Indicates Final Measurement of Penetration, in Inches.
- W Indicates Free Water Elevation.
- V Indicates Static Water Elevation.

**SYMBOLS OF ROCK TYPES**

- Coal
- ▨ Weathered Indurated Clay
- ▧ Indurated Clay
- ▩ Weathered Shale
- Shale
- Boulders
- ▨ Weathered Sandstone
- ▩ Sandstone
- ▧ Leached Dolomite
- Dolomite
- ▩ Leached Limestone
- ▨ Limestone

**GENERAL INFORMATION**

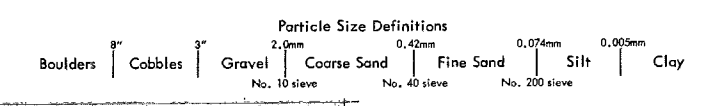
**Drive Rod Penetration Sounding Tests**  
Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine the amount of penetration achieved in three hammer drops. This reading is converted to an empirical value for capacity "R", in thousands of pounds (which is a measure of both the point resistance and frictional resistance on the rod), by using charts prepared by the Ohio Department of Highways, Bureau of Bridges, on the basis of correlation study of rod penetration with past performance of pile driving. For interpretation, a graph is prepared by plotting the value "R" against the depth at which the reading was taken, and connecting the plotted points. The curve so obtained reflects the density of subsurface materials in a manner that can be readily compared with data from similar tests at other locations on the structure site. From this comparison, the overall uniformity of subsurface condition may be evaluated.

**Drive Sample Borings - Drive-Press Sample Borings**  
Drive sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. sampler, at 2-1/2 and / or 5-foot depth intervals, driven by means of a 140-pound drop-hammer with a free fall of 30 inches. The number of blows required to drive the sampler 12 inches is considered the standard penetration test.

Drive-press sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. drive sampler, and 3" O.D. thin-wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drill rig.

The boring log sheets show a graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the standard penetration tests in two 6-inch increments, depth of press samples, field sample number, sample description - based on laboratory tests and the Casagrande AC classification system - and gradation, plasticity, and moisture content determinations. Results of strength and consolidation testing, if performed, appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.



**LOG OF BORING**

Date Started 8-10-67    Sampler Type SS    Dia. 1 3/8"    Water Elev. \_\_\_\_\_  
 Date Completed 8-11-67    Casing Length 15'    Dia. 3 1/2"    \_\_\_\_\_  
 Boring No. B-3    Station & Offset 576+69, 20' E. (Rear Pier)    Surface Elev. 745.4'

Elev.	Depth	Std. Pen. (N)	Rec. Ft.	Loss Ft.	Description	Sample No.	Physical Characteristics							SHTL Class.			
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.		W.C.		
745.4	0																
740.4	5	5/6			Gray Sandy Silt	1	9	2	21	42	26	NP	NP	16	A-4a		
737.9	8	4/6			Gray Sandy Silt	2	1	3	26	51	19	NP	NP	22	A-4b		
735.4	10	5/5			Gray Sandy Silt	3	14	7	34	17	28	18	5	18	A-4a		
732.9	14	7/9			Gray Sandy Silt	4	7	6	10	33	44	27	10	14	A-4a		
730.4	16	6/9			Gray Gravely Clay	5	15	5	10	30	40	28	11	14	A-6a		
727.9	18	11/12			Gray Sandy Gravely Clay	6	24	8	8	25	35	17	PL	11			
725.4	20	10/11			Gray Sandy Clay	7	8	11	13	27	41	18	PL	16			
722.9	24	10/12			Gray Sandy Clay with Boulders	8	4	9	10	28	49	17	PL	16			
720.4	28	12/23			Gray Silty Sandy Gravel	9	48	8	9	12	23	NP	NP	18	A-6a		
715.4	30	27/31			Red Silt	10	5	0	1	50	44	NP	NP	22	A-6b		
713.4	32				TOP OF ROCK												
711.4	34		2.9	0.1	Shale, red, firm, fissile in part, broken and jointed. Core Long 25'												
709.4	36																
707.4	38		4.9	0.1													
705.4	40																
703.4	42																
701.4	44		5.0	0.0													

**LOG OF BORING**

Date Started 8-9-67    Sampler Type SS    Dia. 1 3/8"    Water Elev. \_\_\_\_\_  
 Date Completed 8-10-67    Casing Length 15'    Dia. 3 1/2"    \_\_\_\_\_  
 Boring No. B-6    Station & Offset 578+27, 5' E. (Forward Pier)    Surface Elev. 740.9'

Elev.	Depth	Std. Pen. (N)	Rec. Ft.	Loss Ft.	Description	Sample No.	Physical Characteristics							SHTL Class.			
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.		W.C.		
740.9	0																
735.9	5	6/4			Brown Silty Sand	1	8	11	45	20	16	NP	NP	22	A-4a		
733.9	8	13/14			Gray Sandy Silt	2	5	4	11	42	38	23	5	15	A-4a		
730.9	10	6/6			Gray Sandy Silt with Boulders	3	12	5	11	31	41	25	8	15	A-4a		
728.4	14	11/14			Gray Gravely Clay	4	22	5	8	31	34	30	11	17	A-6a		
725.9	16	8/14			Gray Sandy Clay	5	8	5	10	27	50	30	12	15	A-6a		
723.4	18	10/15			Gray Gravely Clay	6	12	4	8	36	40	30	12	15	A-6a		
720.9	20	12/17			Gray Gravely Clay	7	14	3	9	23	51	28	11	13	A-6a		
715.9	24	18/23			Red Silt with Shale Fragments	8	40	2	5	28	25	23	7	12	A-6a		
713.9	26				TOP OF ROCK												
711.9	28		4.5	0.5	Shale, red, firm, fissile in part, broken and jointed. Core Long 5'												
709.9	30																
707.9	32		5.0	0.0													

NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

**OHIO DEPARTMENT OF HIGHWAYS  
TESTING LABORATORY**  
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

**STRUCTURE FOUNDATION INVESTIGATION**  
BRIDGE NO. LOR-90-1170 (WESTBOUND)  
OVER SR 254 (EASTBOUND)  
SEC. LOR-90-9.48

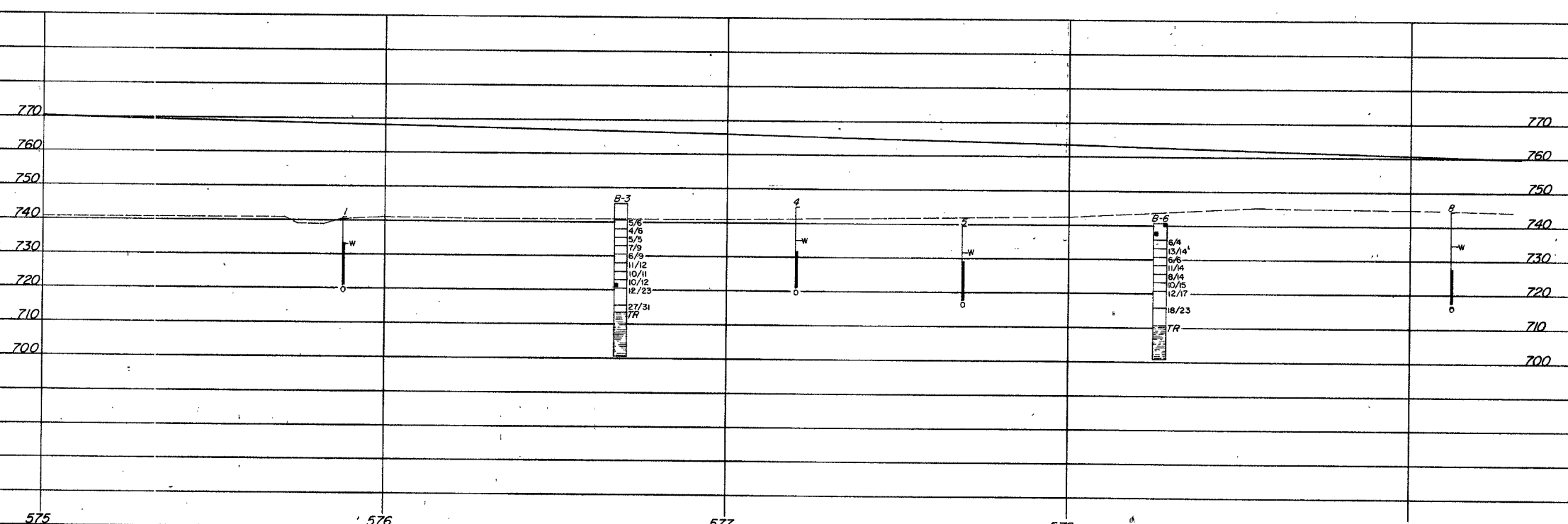
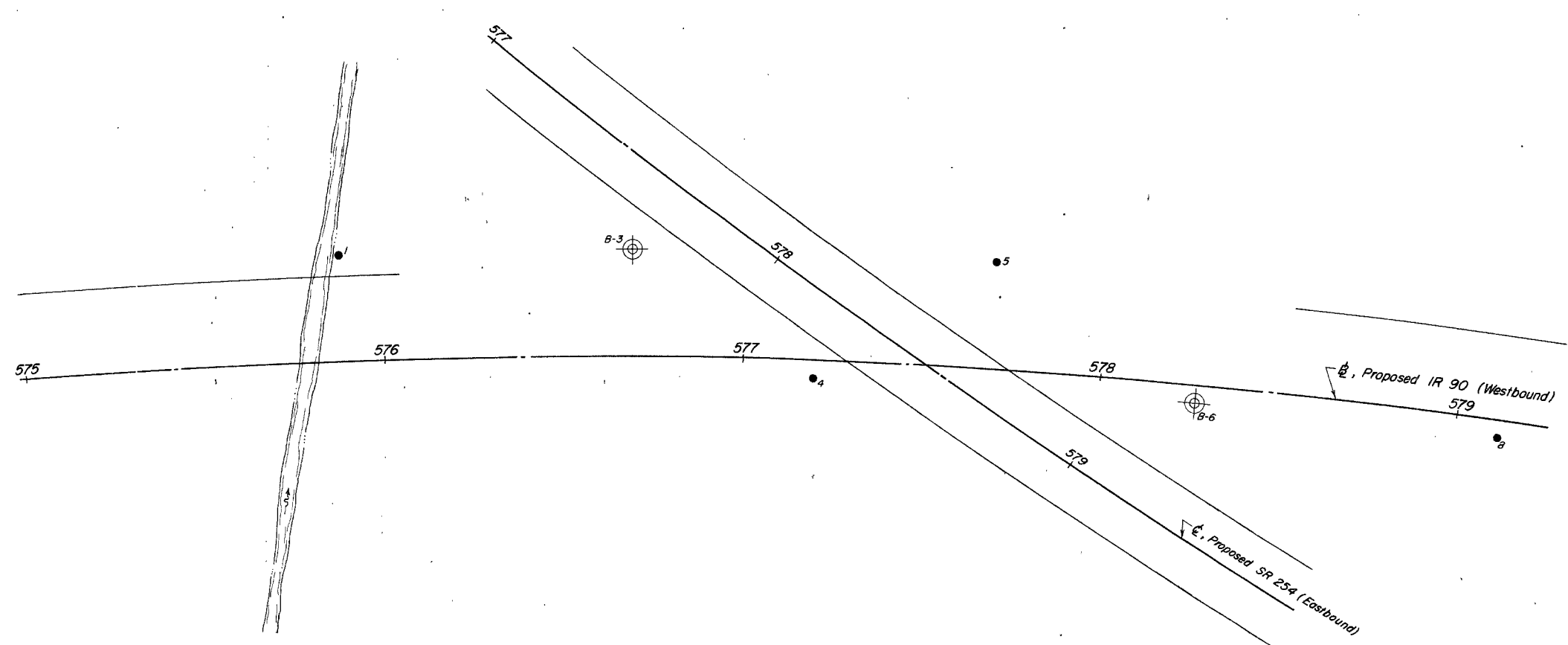
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Rev 4.15.75

MICROFILMED  
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SERIALS SECTION

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OHIO DEPARTMENT OF HIGHWAYS  
TESTING LABORATORY  
1620 WEST BROAD STREET, COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION  
BRIDGE NO. LOR-90-1170 (WESTBOUND)  
OVER SR 254 (EASTBOUND)  
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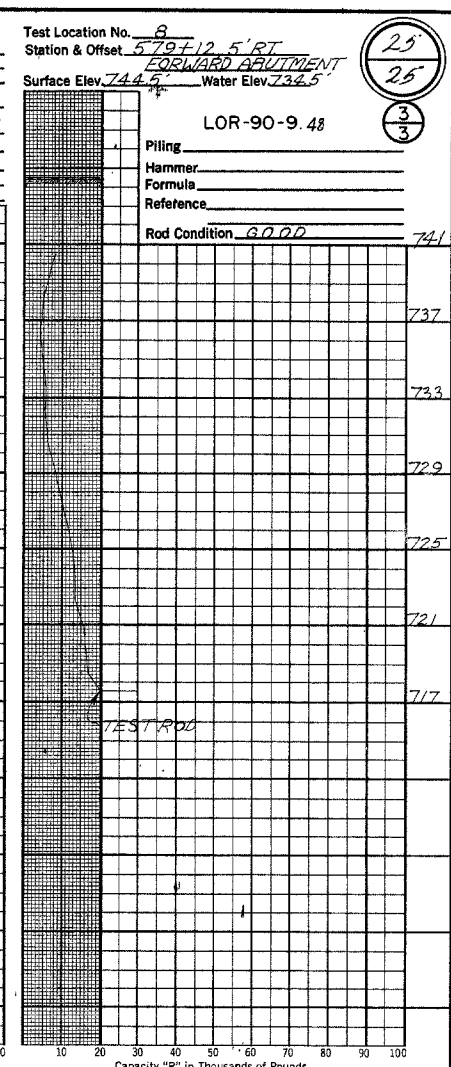
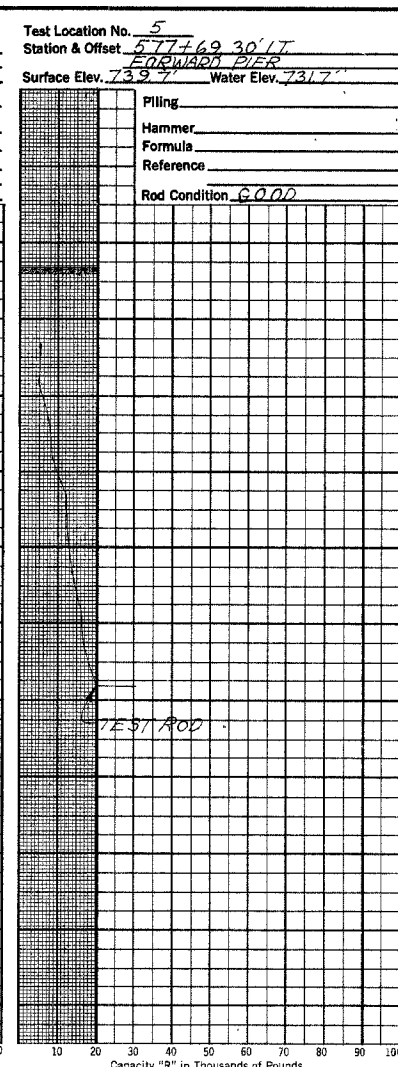
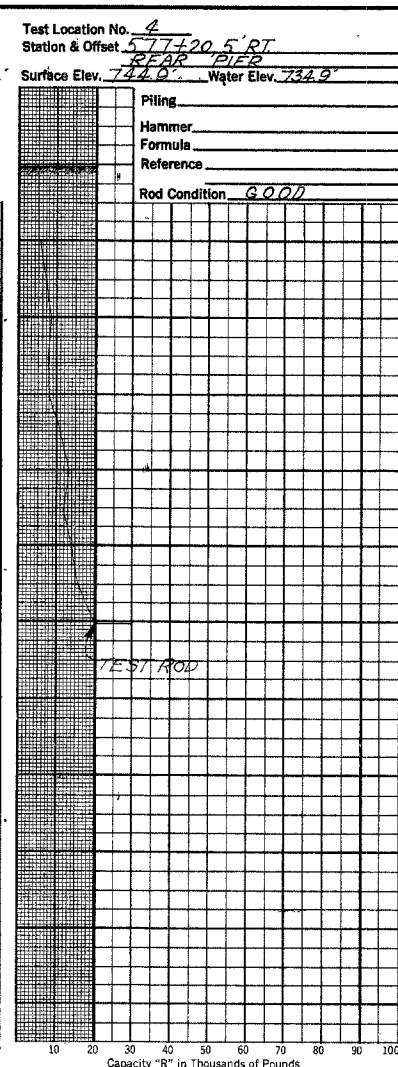
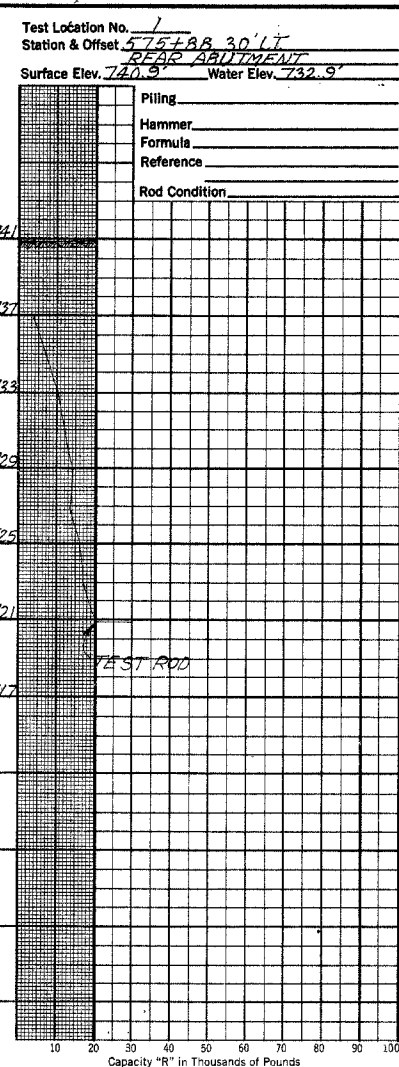
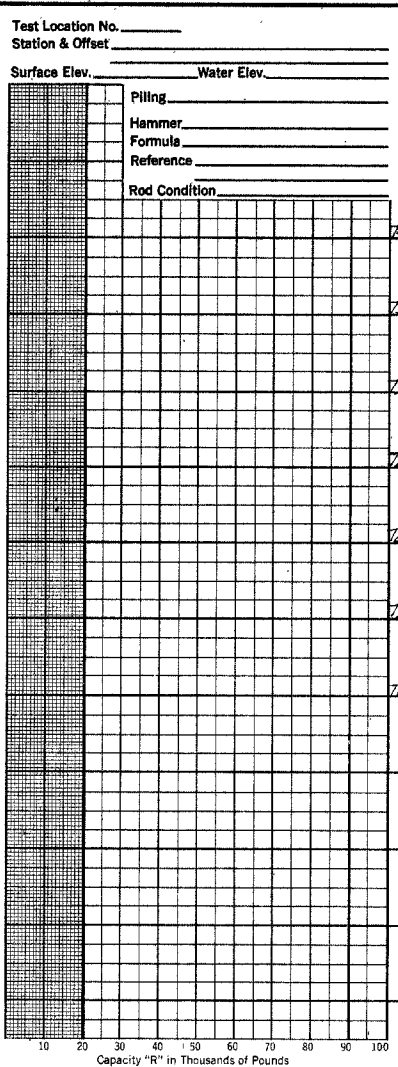
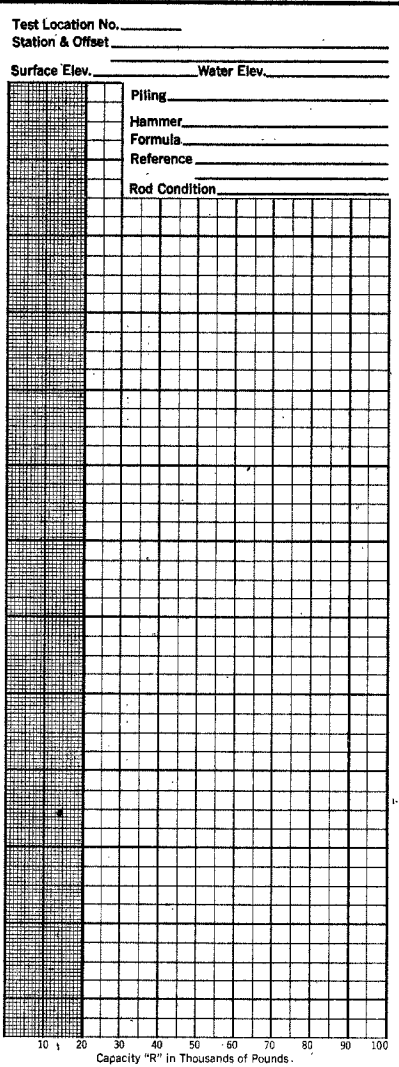
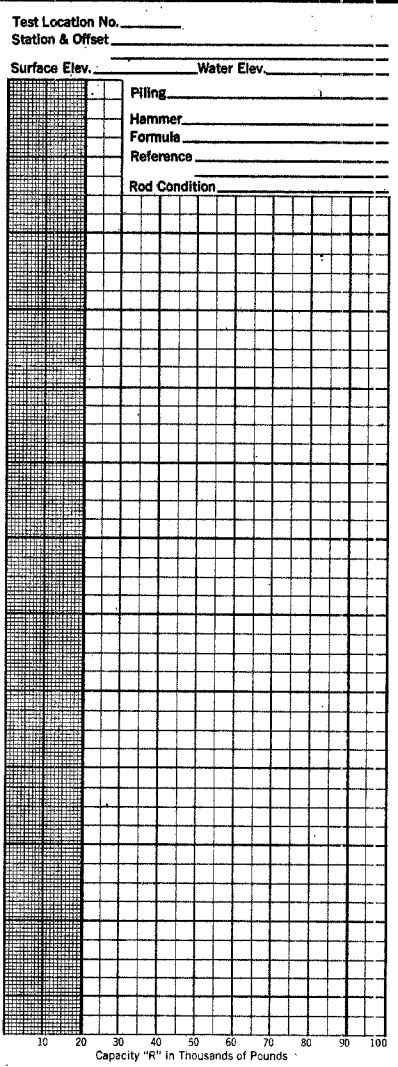
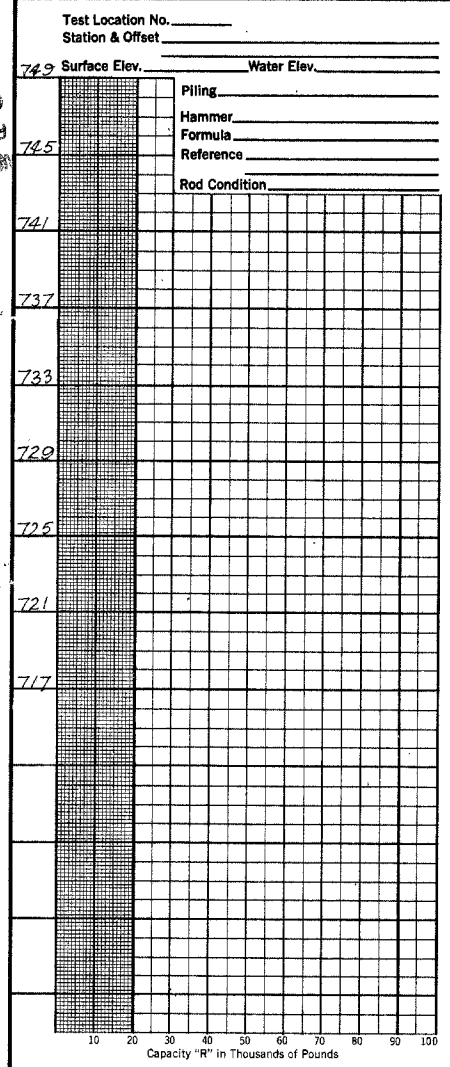
PLAN AND PROFILE

DRAWN BY	CHECKED BY	REVIEWED BY	DATE
L.N.L.	L.N.L.	R.D.R.	9/20/67

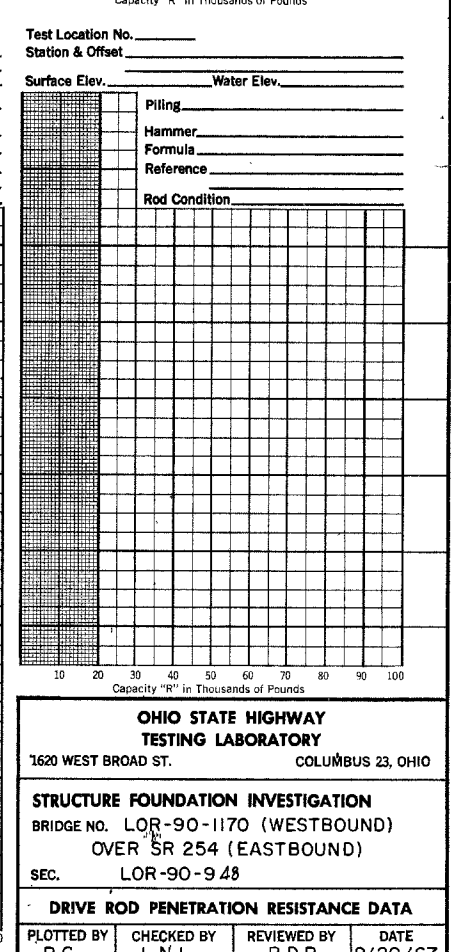
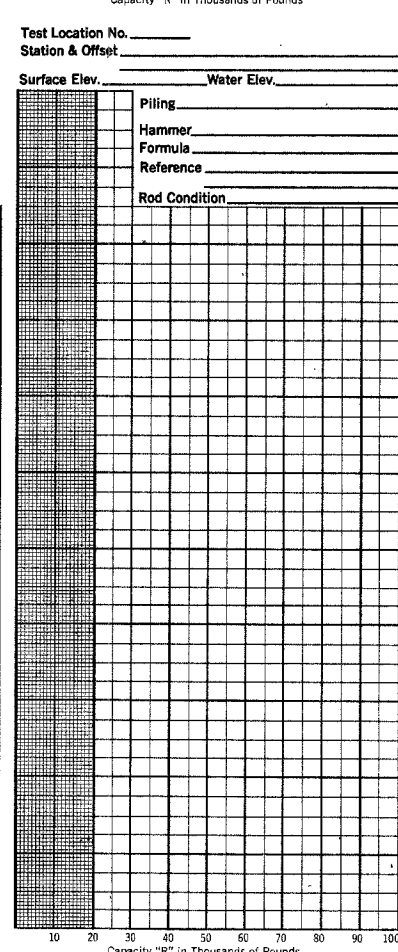
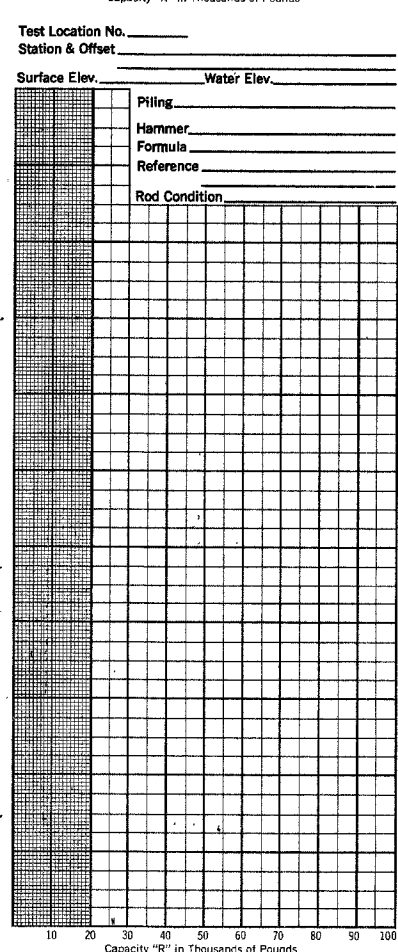
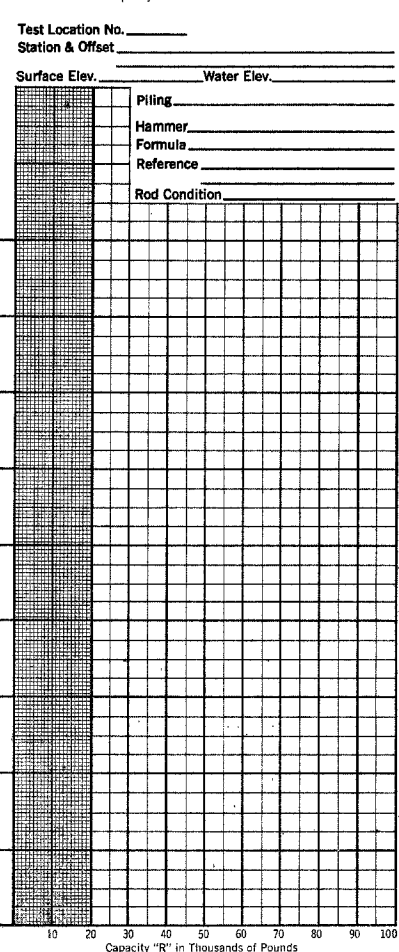
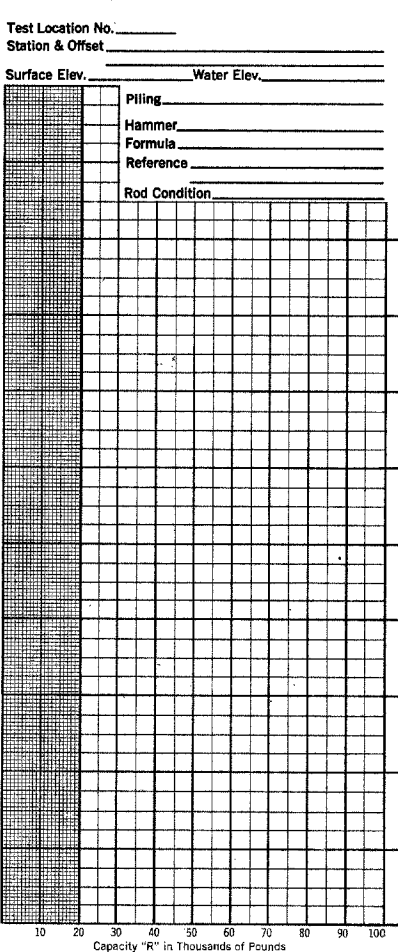
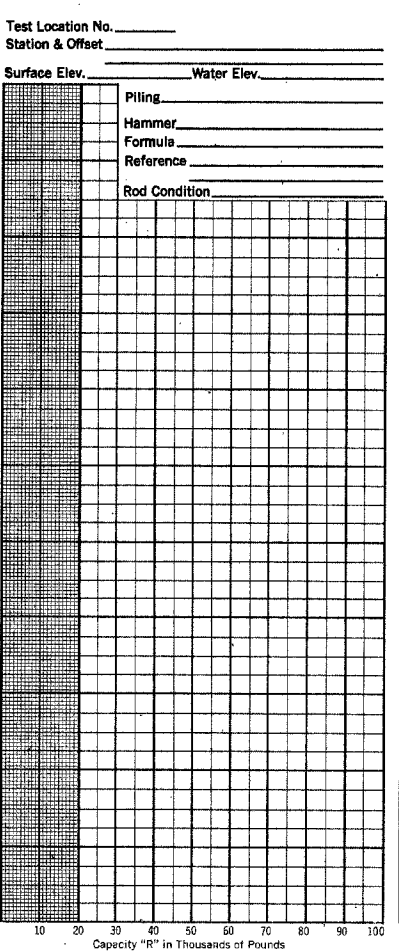
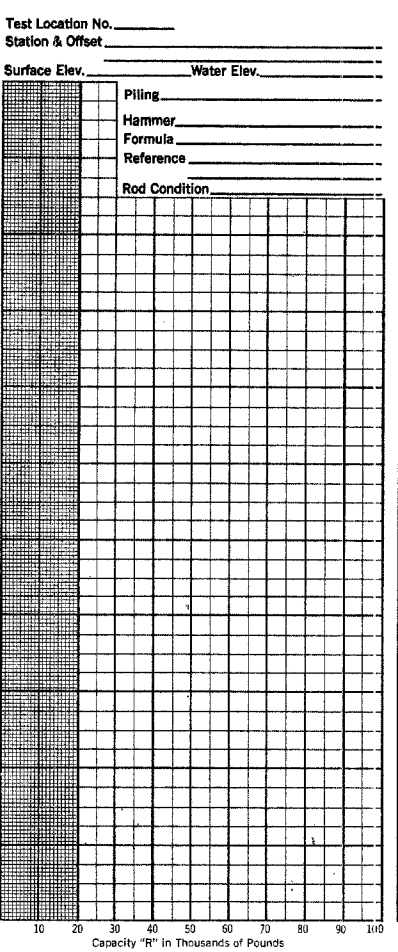
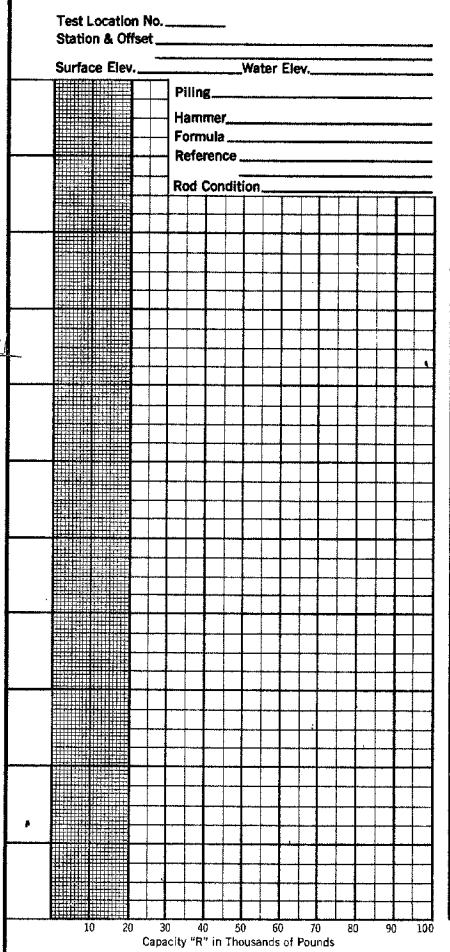
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MAY 15 1968



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OHIO STATE HIGHWAY  
TESTING LABORATORY  
1620 WEST BROAD ST. COLUMBUS 23, OHIO

STRUCTURE FOUNDATION INVESTIGATION  
BRIDGE NO. LOR-90-1170 (WESTBOUND)  
OVER SR 254 (EASTBOUND)  
SEC. LOR-90-9.48

DRIVE ROD PENETRATION RESISTANCE DATA

PLOTTED BY R.C.	CHECKED BY L.N.L.	REVIEWED BY R.D.R.	DATE 9/20/67
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Rev 4-25-73