

STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
MUS-22-0.28

| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|-------------------|-------|---------|------------|
| 2                 | OHIO  | STATE   |            |

MUS-22-0.28

PART-1  
For PART-2 See MUS-345-2.34

GRADE SEPARATION WITH THE NEW YORK CENTRAL RAILROAD  
NEWTON TOWNSHIP  
MUSKINGUM COUNTY LIMITED ACCESS

CONVENTIONAL SIGNS

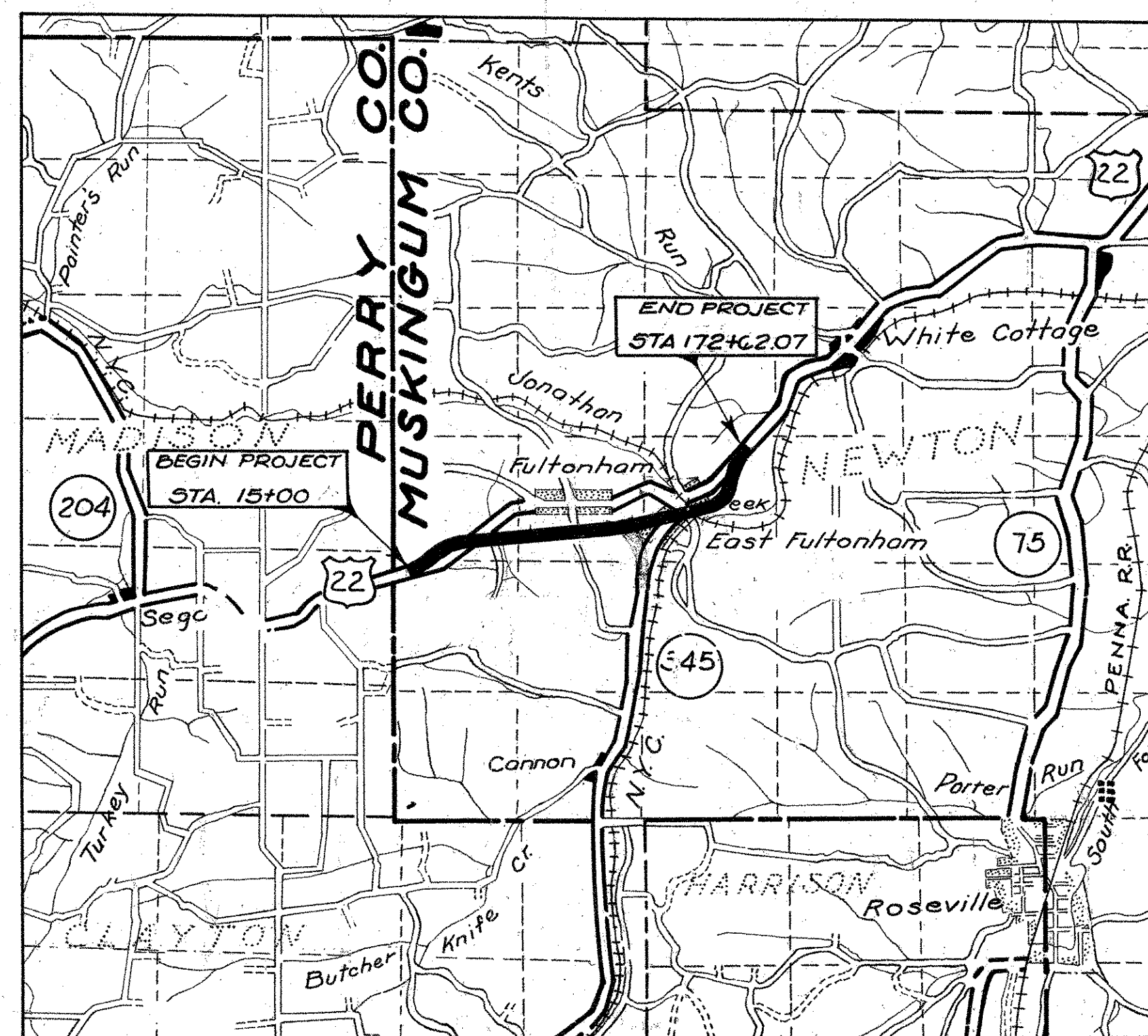
|                      |       |
|----------------------|-------|
| County Line          | ----- |
| Township Line        | ----- |
| Section Line         | ----- |
| City or Village Line | ----- |
| Center Line          | ----- |
| Property Line        | ----- |
| Fence Line           | ----- |
| Guard Rail           | ----- |
| Pole Lines           | ----- |
| Steam Railroads      | ----- |
| Drainage Pipe        | ----- |
| Construction Limits  | ----- |

INDEX OF SHEETS

|                                 |          |
|---------------------------------|----------|
| Title Sheet                     | 1        |
| Typical Sections                | 2-3      |
| General Notes & Special Details | 4-5 & 5A |
| General Location Plan           | 6        |
| Table Summary & Calculations    | 7        |
| General Summary                 | 8        |
| Plan and Profile                | 9-20     |
| Transition Details              | 21-22    |
| Superelevation Tables           | 23       |
| Drives and Approaches           | 24-35    |
| Cross Sections                  | 36-40    |
| Structures 20' Span and Under   | 91-104   |
| Structure over 20' Span         | 105-112  |
| Right of Way                    | 113-118  |
| Railroad Force Account          | 119-120  |

LINE DATA

MUS-22-0.28 (PART-1)  
Begin Project: 15+00  
End Project: 172+62.07  
Net Length of Project = 15762.07 Lin.Ft. or 2.985 Miles.  
Net Length of Work (13+50-177+00) = 16350.00 Lin.Ft. or 3.036 Miles.



Delivery Point ~ Fultonham Average Haul 1.0 Mile

~ LOCATION PLAN ~

SCALE OF MILES

Portion to be Improved  
State Roads  
Other Roads

SCALES

Plan  
Profile ~ Horizontal  
Profile ~ Vertical  
Cross Sections

1" = 50'  
1" = 50'  
1" = 10'  
1" = 10'

X-SECTIONS  
TO GARAGE

| STANDARD CONSTRUCTION DRAWINGS |         |                     |              |
|--------------------------------|---------|---------------------|--------------|
| G-707                          | 1-2-53  | I-14G               | 1-22-52      |
| RI-1                           | 6-1-53  | I-15 NB.1           | 2-2-53       |
| T-35                           | 10-1-52 | I-15 NB.2           | 2-2-53       |
| L-1                            | 4-1-50  | I-12                | 1-25-52      |
| L-2                            | 4-1-50  | B-7-50-70-71E NB.1  | 10-1-47      |
| L-3-4                          | 4-1-50  | B-7-71E             | 3-2-53       |
| S-27 RC.3                      | 2-20-45 | L.U. No.1           | 3-2-53       |
| S-27 RC.4                      | 1-4-54  | T.U. No.1           | 3-2-53       |
| I-1,3,3,4,4,5                  | 2-20-45 | T.U. No.2           | 3-2-53       |
| I-3 CB NB.7                    | 5-1-52  | T.U. No.3           | 3-2-53       |
| I-4 CB NB.1-2A&B               | 5-1-52  | RA-1-47             | Rev. 7-27-49 |
| I-4 CB NB.1-2A&B               | 5-1-52  |                     |              |
| I-4 CB NB.3A                   | 5-1-52  | SBC-45 (Sheets 1&2) | 2-18-47      |
|                                |         | AS-1-47, AS-2-47    | 7-27-49      |

| SUPPLEMENTAL SPECIFICATIONS |              |
|-----------------------------|--------------|
| 10                          | Rev. 7-6-53  |
| CE-107                      | 5-21-53      |
| T-17.19                     | Rev. 3-19-53 |
| M-101.7                     | 1-24-53      |

The Standard Specifications of the State of Ohio Department of Highways including changes and supplemental specifications listed in the proposal shall govern this improvement.

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

The Right of Way necessary for this improvement will be provided by the State of Ohio.

Approved David F. Schilling  
Date 1-11-54 Division Deputy Director

Approved John J. Newell  
Date 4/3/54 Deputy Director of Planning and Programming

Approved Richard Orick  
Date 4-2-54 Engineer of Bridges

Approved N. L. McManis  
Date 4/2/54 Engineer of Location & Design

Approved W. J. Gandy  
Date 4-12-54 Deputy Director of Design and Construction

Approved W. J. Gandy  
Date 4-13-54 First Assistant Director

Approved S. O. Vinsel  
Date 4-15-54 Director of Highways

Print Approved By F. H. Simpson  
Date 4/15/54 Chief Engineer, New York Central Railroad.

Added Sheet 106A 5-13-54 H.A.D.

CONSTRUCTION  
BUREAU  
FEB 26 1957  
GROUND PHOTOLAB

E-14

File MUSKINGUM COUNTY  
No. SEC. MUS-22-0.28  
of Letting  
Contract No.

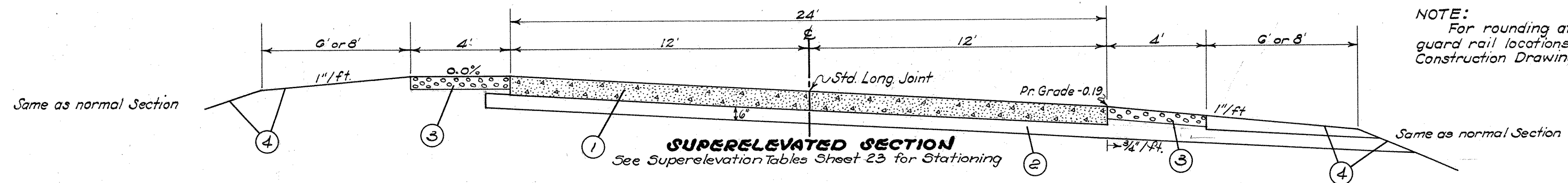
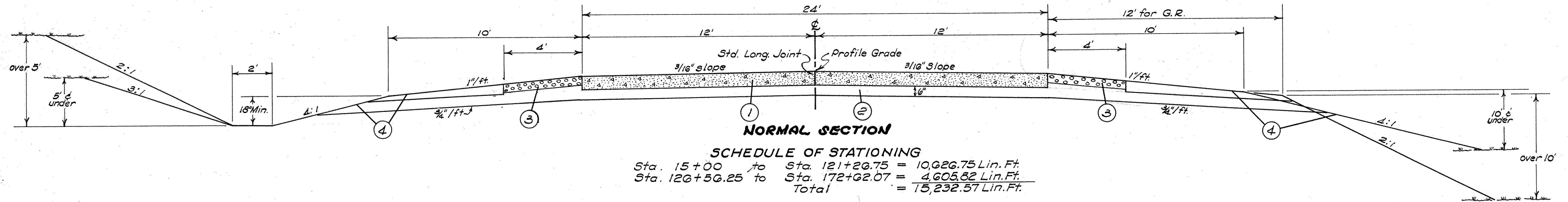
# TYPICAL SECTIONS

## TYPE T-71 ON I-22

| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|-------------------|-------|---------|------------|
| 2                 | OHIO  |         |            |

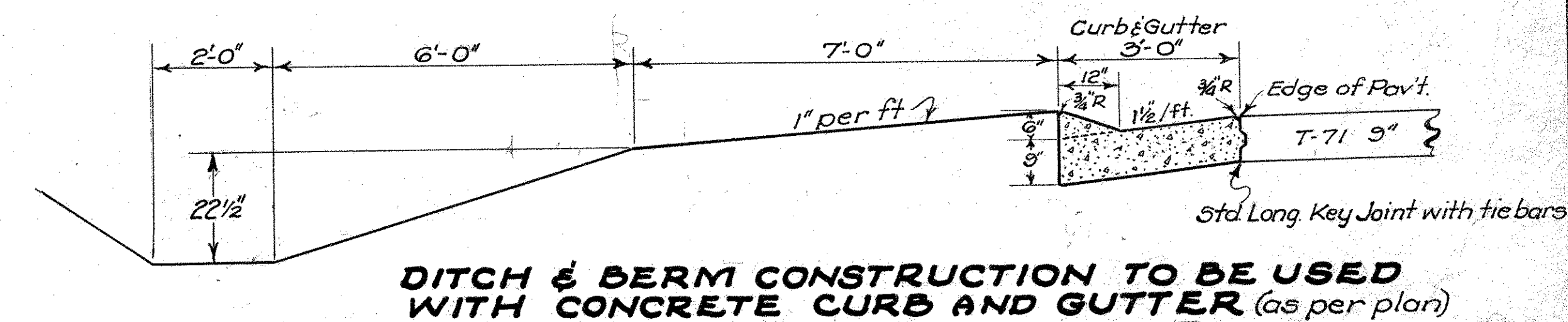
MUS-22-0.28

2  
118



**NOTE:**  
For rounding at angles of slope changes, drive details, guard rail locations, and Mail Box Turnouts, See Standard Construction Drawing No. RI-1.

- ① T-71 9" Reinforced Portland Cement Concrete Pavement.
- ② I-22 Subbase, Grading 'A' or 'B'
- ③ SS-10 6" Stabilized Shoulder
- ④ L-9 Seeding and Protecting, Type 'A'



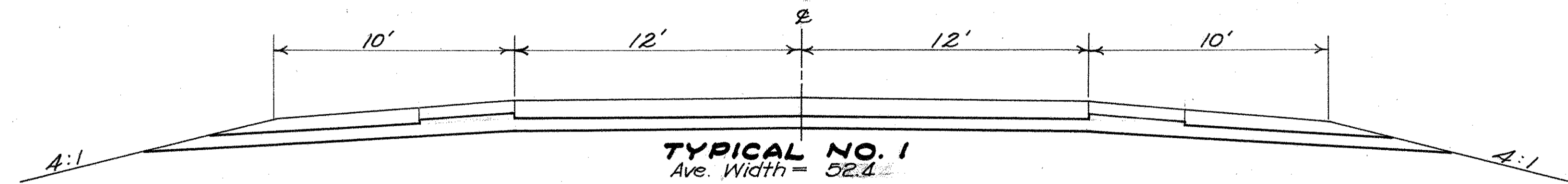


# TYPICAL SECTIONS I- 22

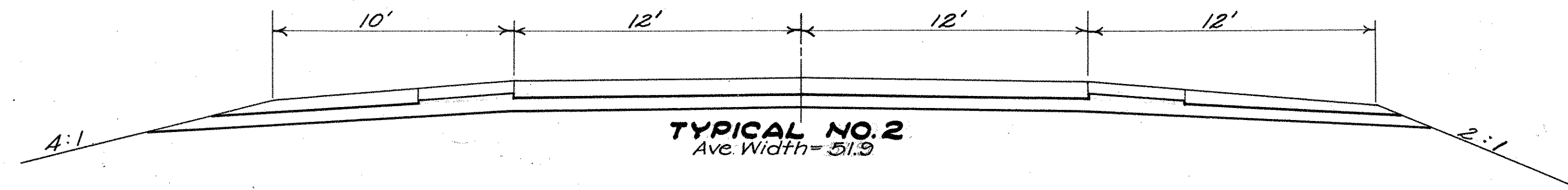
| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|-------------------|-------|---------|------------|
| 2                 | OHIO  |         |            |

MUS-22-0.28

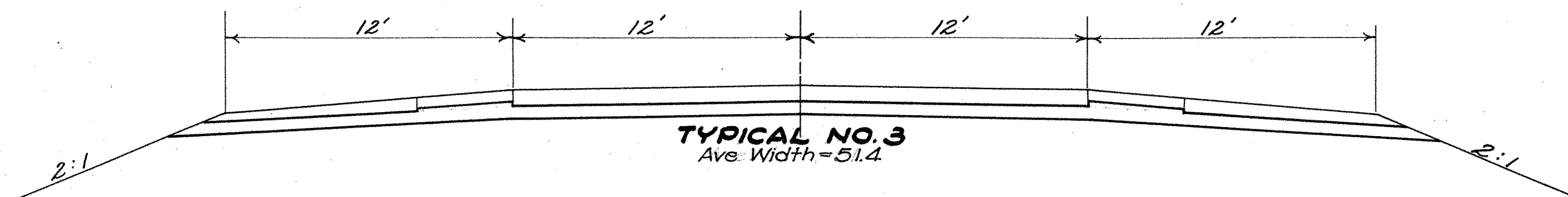
3  
118



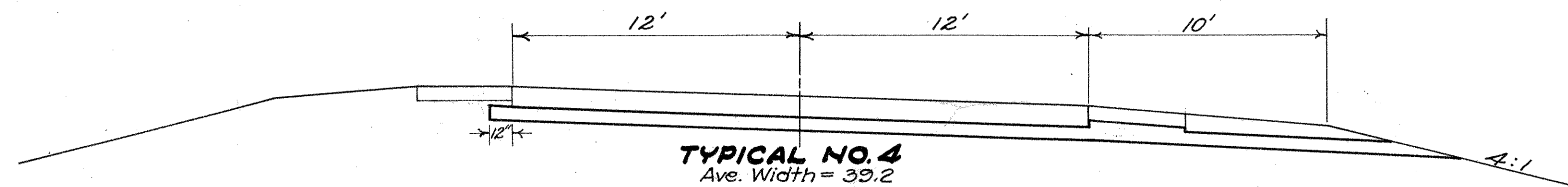
|        |    |        |   |  |          |
|--------|----|--------|---|--|----------|
| 15+00  | to | 16+75  | = | 175.   | Lin. Ft. |
| 30+50  | to | 33+25  | = | 275.   | Lin. Ft. |
| 63+75  | to | 70+75  | = | 700.   | Lin. Ft. |
| 72+25  | to | 74+25  | = | 200.   | Lin. Ft. |
| 76+75  | to | 79+25  | = | 250.   | Lin. Ft. |
| 83+25  | to | 110+25 | = | 2700.  | Lin. Ft. |
| 150+00 | to | 162+25 | = | 1225.  | Lin. Ft. |
| 164+25 | to | 165+50 | = | 125.   | Lin. Ft. |
| Total  |    |        |   | 5650   | Lin. Ft. |
|        |    |        |   | $5650 \text{ Lin. Ft.} \times 52.4 \times .5 \div 27 = 5483 \text{ Cu.Yds.}$ |          |
|        |    |        |   | $11,300 \text{ Lin. Ft.} \times 4 \times .208 \div 27 = 348 \text{ Cu.Yds.}$ |          |



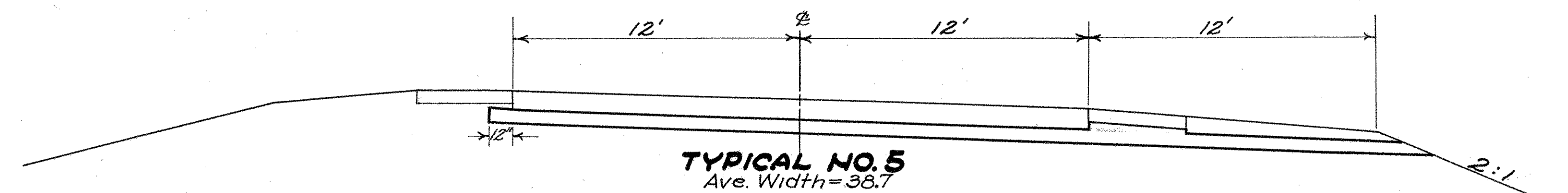
|        |    |        |   |  |          |
|--------|----|--------|---|--|----------|
| 17+75  | to | 19+75  | = | 200.   | Lin. Ft. |
| 33+25  | to | 34+25  | = | 100.   | Lin. Ft. |
| 74+25  | to | 75+25  | = | 100.   | Lin. Ft. |
| 79+25  | to | 80+25  | = | 100.   | Lin. Ft. |
| 162+25 | to | 164+25 | = | 200.   | Lin. Ft. |
| Total  |    |        |   | 700.   | Lin. Ft. |
|        |    |        |   | $700 \text{ Lin. Ft.} \times 51.9 \times .5 \div 27 = 673 \text{ Cu.Yds.}$ |          |
|        |    |        |   | $1400 \text{ Lin. Ft.} \times 4 \times .208 \div 27 = 43 \text{ Cu.Yds.}$  |          |



|           |    |           |   |  |          |
|-----------|----|-----------|---|--|----------|
| 16+75     | to | 17+75     | = | 100.   | Lin. Ft. |
| 70+75     | to | 72+25     | = | 150.   | Lin. Ft. |
| 75+25     | to | 76+75     | = | 150.   | Lin. Ft. |
| 80+25     | to | 83+25     | = | 300.   | Lin. Ft. |
| 120+75    | to | 121+41.75 | = | 66.75  | Lin. Ft. |
| 126+41.75 | to | 137+50    | = | 1108.75  | Lin. Ft. |
| Total     |    |           |   | 1875.5   | Lin. Ft. |
|           |    |           |   | $1875.5 \text{ Lin. Ft.} \times 51.4 \times .5 \div 27 = 1785 \text{ Cu.Yds.}$ |          |
|           |    |           |   | $3751.0 \text{ Lin. Ft.} \times 4 \times .208 \div 27 = 116 \text{ Cu.Yds.}$   |          |



|        |    |           |   |   |          |
|--------|----|-----------|---|---|----------|
| 19+75  | to | 30+50     | = | 1075.   | Lin. Ft. |
| 39+75  | to | 48+50     | = | 875.  | Lin. Ft. |
| 53+25  | to | 56+25     | = | 300.  | Lin. Ft. |
| 61+75  | to | 63+75     | = | 200.  | Lin. Ft. |
| 110+25 | to | 118+75    | = | 850.  | Lin. Ft. |
| 137+50 | to | 150+00    | = | 1250.   | Lin. Ft. |
| 165+50 | to | 172+62.07 | = | 712.07  | Lin. Ft. |
| Total  |    |           |   | 5262.07   | Lin. Ft. |
|        |    |           |   | $5262.07 \text{ Lin. Ft.} \times 33.2 \times .5 \div 27 = 3820 \text{ Cu.Yds.}$ |          |
|        |    |           |   | $5262.07 \text{ Lin. Ft.} \times 4 \times .208 \div 27 = 162 \text{ Cu.Yds.}$   |          |



|        |    |        |   |  |          |
|--------|----|--------|---|--|----------|
| 34+25  | to | 39+75  | = | 550.   | Lin. Ft. |
| 48+50  | to | 53+25  | = | 475.   | Lin. Ft. |
| 56+25  | to | 61+75  | = | 550.   | Lin. Ft. |
| 118+75 | to | 120+75 | = | 200.   | Lin. Ft. |
| Total  |    |        |   | 1775   | Lin. Ft. |
|        |    |        |   | $1775 \text{ Lin. Ft.} \times 38.7 \times .5 \div 27 = 1272 \text{ Cu.Yds.}$ |          |
|        |    |        |   | $1775 \text{ Lin. Ft.} \times 4 \times .208 \div 27 = 55 \text{ Cu.Yds.}$    |          |

Total From Table 1 Sheet 7 (Drives & Appro.) 580 Cu.Yds.

172+62.07 to 172+62.07 = 350.75 Lin. Ft. **GRAND TOTAL = 14,337 Cu.Yds.**

DESIGN SPEED :

Design Speed is 60 M.P.H.

LIMITED ACCESS :

This improvement between Station 15+00 and Station 172+62.07 has been declared a limited access highway or freeway by action of the Director of Highways, recorded in Volume 39 Page 147 of the Director's Journal in accordance with the provisions of Section 5511.02, Revised Code of Ohio.

TRAFFIC :

Two-way traffic shall be maintained at all times. Maximum use shall be made of the existing facility to carry traffic and no work shall be permitted which would cause it to become unfit for carrying traffic until either an adequate temporary run-around has been completed or until the new pavement can be opened to traffic.

The temporary traffic lanes shall have a minimum width of 24 feet for roadway and 20 feet for traffic compacted surface course. Temporary guard rail, drainage facilities, and embankment shall be placed at locations designated by the Engineer. The cost of placement and the removal to plan lines of temporary facilities including guard rail, drainage structures and earthwork shall be included in the lump sum bid for the item of "Maintaining Traffic, including lights, signs, barricades and watchmen for 24 hour service". Between stations 13+50 and 24+00, Temporary lanes shall be constructed on the right and traffic compacted surface course placed thereon as shown on the cross sections. Traffic shall be carried on the temporary run-around until the left lane of the pavement is completed. T-10 shall then be placed on the left berm and traffic shall be carried on the left half of the new pavement and berm while the right half is being completed.

The existing pavement shall not be disturbed between Station 47+25 and 48+30 until the right lane of the new pavement has been completed to Station 47+25,

the left lane completed to 47+50 and the temporary traffic lanes on the left between Station 46+50 and opposite Centerline Station 49+00 in the existing road have been built as shown on the cross sections. Traffic may then be placed on the new pavement between the beginning of project and Station 46+50. Access to the existing pavement shall be via the temporary lanes noted above.

Between Station 167+39 and 173+50, temporary traffic lanes shall be constructed on the left as shown on cross sections and traffic maintained thereon until new pavement is completed in the area. The widening in the transition may be placed while traffic is using the existing pavement and portions of the right berm.

The above methods of maintaining traffic may be varied at the direction of the Engineer provided there is no additional cost to the State and that there is no additional inconvenience to the traveling public.

Estimated Quantities of Materials for Maintaining Traffic are as follows:

|  |               |
|--|---------------|
| T-10 Traffic Compacted Surface Course              | 1500 Cu. Yds. |
| T-10 Traffic Compacted Surface Course, as per plan | 1500 Cu. Yds. |
| M-10 Calcium Chloride                              | 60 Tons       |

T-10 MODIFIED:

T-10 Traffic Compacted Surface Course, as per plan, shall be N<sup>o</sup>. 3 or N<sup>o</sup>. 34 Aggregate.

EMBANKMENT:

In lieu of the requirements for full width construction under E-1.08, the embankment may be placed in part width construction where necessary because of traffic maintenance.

SEEDING AND PROTECTING ROADWAY AREAS:

Quantities for seeding are calculated for the soil areas between lines 10 ft. outside the construction limits as shown on the cross sections or to the right of way line if such line is less than 10 ft. from the construction limits.

GENERAL NOTES

SEEDING AND PROTECTING, CONT'D.:

All areas outside these limits where the vegetative growth has been injuriously disturbed or destroyed by the contractor shall be restored and seeded in conformance with the provisions of Item L-9 by the contractor at his own expense.

See note in proposal for rate of seeding and seed mixture.

L-10 PREPARATION OF AREAS TO BE SODDED:

The sod bed shall have two inches of loose soil on which sod is laid after excavation for sod thickness as per item L-10.05. In addition to these requirements, Commercial Fertilizer, 10-6-4, shall be applied at the rate of 20 lbs. per 1000 sq. ft. of area. Agricultural Ground Limestone shall be applied at the rate of 100 lbs. per 1000 sq. ft. of area. Both shall be worked into the loose soil prior to laying the sod.

RIPRAP, PAVED DITCHES AND SODDED DITCHES

Riprap, and paved or sodded ditches have been provided for in areas in which erosion may occur. If rock or hard shale is encountered in the areas during construction, the riprap, paved or sodded ditch may be non-performed at the direction of the Engineer. Minor relocation of sodded ditches and paved gutters may be made by the Engineer to fit conditions found in the field during construction. Payment to be made on final measurement.

E-9 TREE AND STUMP REMOVAL:

Payment for the removal of trees and stumps shall be by lump sum for all trees and stumps designated for removal by the Engineer within the areas required by these plans and no additional compensation will be allowed.

The estimated number of trees and stumps to be removed, listed below, was arrived at by diligent effort but the State does not guarantee the accuracy thereof.

| Sizes  | 12"-18" | 18"-24" | 24"-30" | 30"-36" | 36"-42" | 42"-48" |
|--------|---------|---------|---------|---------|---------|---------|
| Trees  | 114     | 18      | 19      | 15      | 8       | 2       |
| Stumps | 2       |         |         |         |         |         |

UTILITIES:

All work required for public or private utilities will be done by and at the expense of their respective owners unless otherwise noted in these plans.

South Central Rural Electric - Lancaster O. Ohio Fuel Gas - Crooksville O.  
Ohio Power Company - Zanesville O.  
Ohio Bell Telephone Co. - Zanesville O.  
Water & Sewer (Pittsburgh Plate Glass) East Fultonham O.

FIELD OFFICE:

The Contractor shall provide a suitable field office in accordance with Sec. 5501(b) having a minimum floor area of 250 sq. ft. The contractor shall have a telephone installed and maintained in this field office during construction of this project.

REMOVALS:

All items marked for removal shall become the property of the contractor and shall be disposed of by him. Where pipe are marked for removal and a headwall is involved, the cost of the headwall removal shall be included in the unit price bid for Item E-12, "Pipe Removed."

SUPERELEVATION:

Superelevated curves shall be built without crown. The crown shall be worked out of the pavement in that portion between the beginning of the transition and the point where the the superelevation equals twice the crown.

COMPACTED SUBGRADE:

In lieu of the requirements of Sec. E-1.09 (a) the subgrade under the widening in transition areas at each end of the project shall be compacted for a depth of six (6) inches to the density requirements in Table III, Item E-1. Payment for subgrade compaction under widening as specified above shall be included in the unit price bid for Item E-1, Roadway Excavation.

In addition to the requirements of Section E-1.09, the subgrade shall be compacted for the full width of the combination curb and gutter to the density requirements of Section E-1.09.

EXCAVATION:

A portion of the excavation in Part 1 shall be used to complete the embankment on Part 2.

PAVEMENT REMOVAL (FLEXIBLE):

Removal and disposal of the existing Macadam and Asphaltic Concrete pavement between Sta. 164+50 and 172+62.27 shall be measured and paid for as Item E-1, Roadway Excavation.

FERTILIZING TREES:

Pinus nigra to receive 1/2 lb. 10-6-4 Commercial Fertilizer, to be incorporated with topsoil, back-fill beneath, and around tree ball in each hole during planting, to be included in bid price per tree.

REMOVAL OF UNCOMPACTED MATERIAL:

After clearing and grubbing has been accomplished as per E-1.03, any uncompact material shall be removed to the elevation of adjacent compacted material as determined by the Engineer. Excavation necessary to accomplish this shall be paid for at the unit price bid for Item E-1, Roadway Excavation. Back-fill shall be placed in accordance with E-1.03.

BORROW:

"Item E-4, Borrow, will not be used until all suitable materials from all types of excavation have been incorporated into the embankment."

JOINT LEGEND

"Types of joints to be used are specified by the following legend,"

|      |  |
|------|--|
| (LJ) | = Standard Longitudinal Joint.         |
| (KJ) | = Standard Key Joint without Tie Bars. |
| (EJ) | = Expansion Joint without Dowels.      |

DUMPED ROCK FILL

All Dumped Rock, Item I-10, used at the outlet of culverts shall be uniformly placed. At least 50 percent of the volume shall consist of pieces weighing at least 75 pounds each.

SUBBASE COURSE

In the final finishing of slopes & ditches, care shall be exercised to assure that the exposed edge of the subbase course will be left free of earth cover that would impede free drainage.

ASPHALTIC CONCRETE BASE COURSE

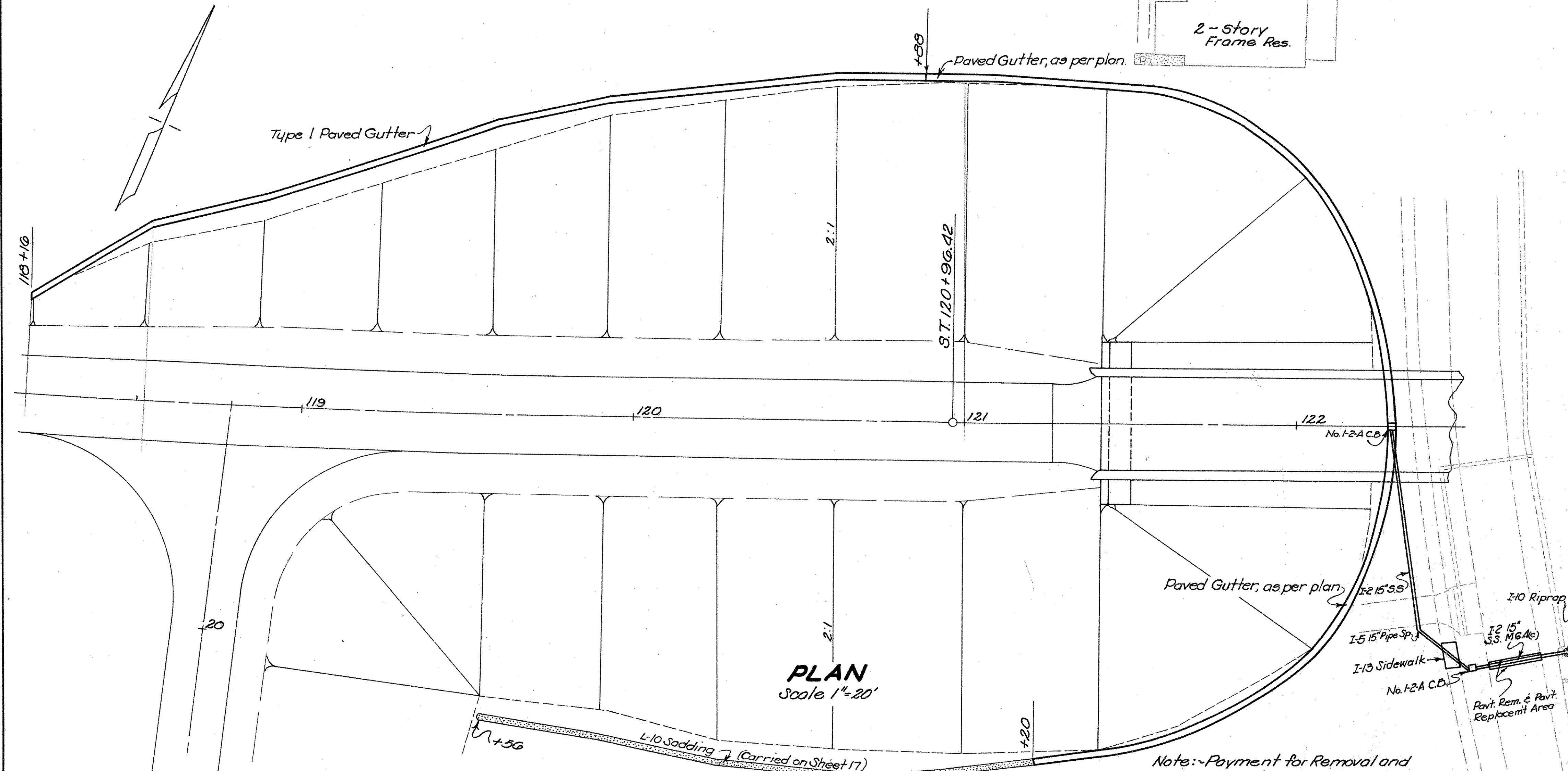
Type "A" surface course composition may be used in the construction of the asphaltic concrete base course on this project.



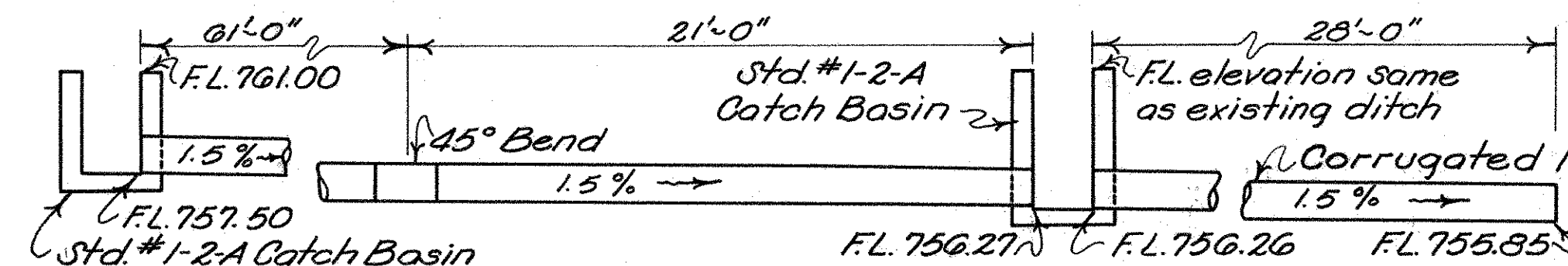
## TYPICAL DETAILS



2-story  
Frame Res.



2-story  
Frame  
Res.



The diagram illustrates a retaining wall cross-section. The main section is a T-shaped wall with a base width of 6" and a top width of 2'-0". The wall height is 1'-0". The base is 1'-0" thick. The wall is shown on a 2:1 slope. A side elevation shows the wall's profile with a 1'-0" base and a 6" top width. The wall is labeled "Cutoff Wall" and "Ground".

### ESTIMATED QUANTITIES

\* Carried to Summary of Quantities (Sheet 8)

**DRAINAGE DETAIL STA. 118+16 ~ STA. 123+00**



# STANDARD No. 9-A CATCH BASIN MODIFIED

| FED. NO. | STATE | PROJECT | TYPE |
|----------|-------|---------|------|
| 2        | OHIO  |         | 112  |

MUS-22-0.28

## ~ NOTES ~

**CASTINGS** shall be of cast iron in accordance with Material Details. The design shall be essentially the same and equally as strong as those shown hereon and shall be given one coat of asphaltum paint as per specifications.

**WEIGHTS** approximately are :-  
 GRATE 302 lbs. each  
 FRAME (Right or Left) 160 lbs. each

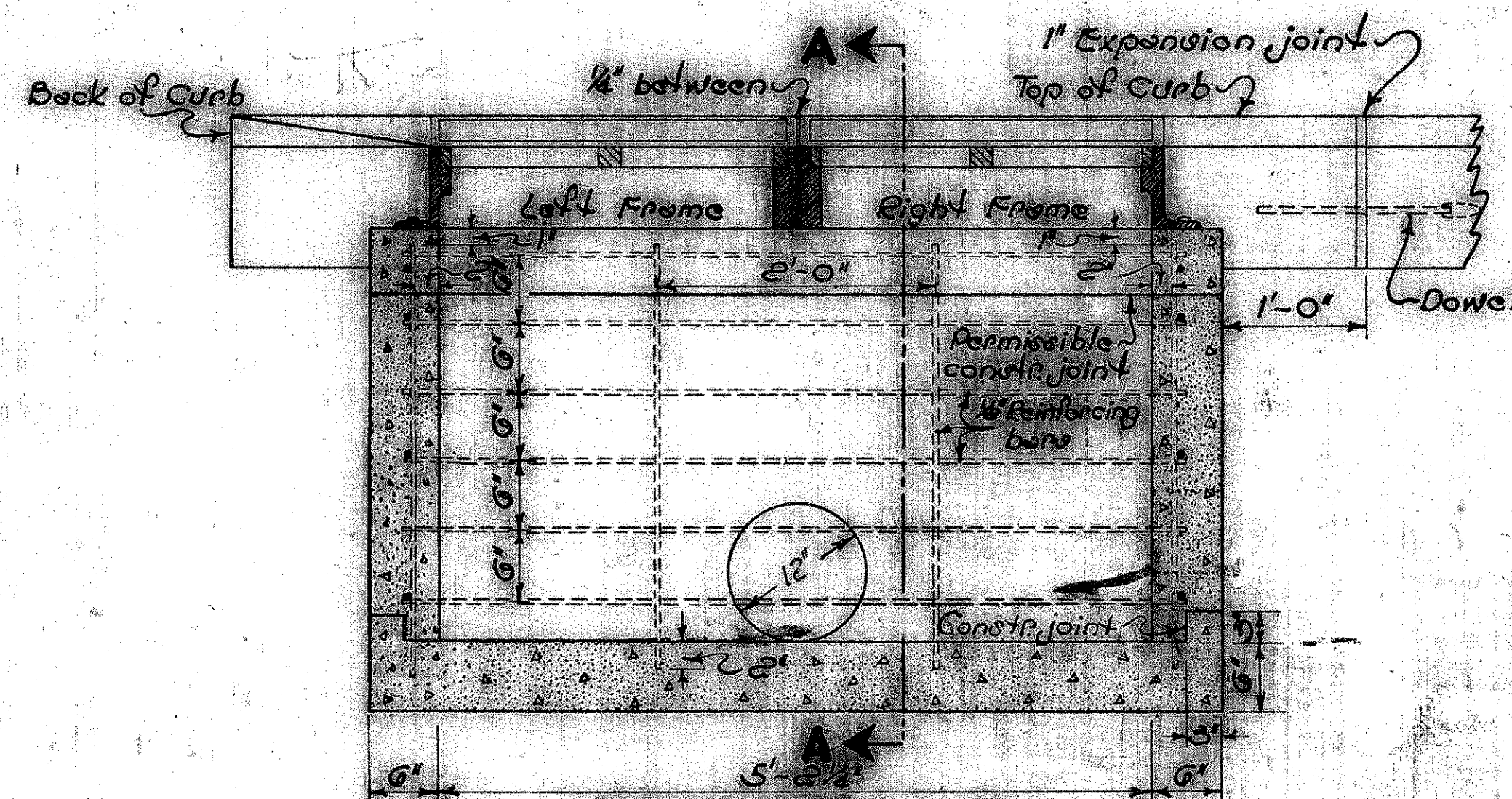
**BEARING AREAS** of frame and grate shall be so fitted and finished as to provide a firm and even seat for all portions of the grate in the frame. No projections shall exist on bearing areas of either castings and each grate shall seat in its frame without rocking. Frames and grates shall be fitted, matched, and marked before delivery to the project.

**REINFORCE** side walls with deformed bars vertical in each corner. Other bars, horizontal and vertical, to be placed as shown hereon.

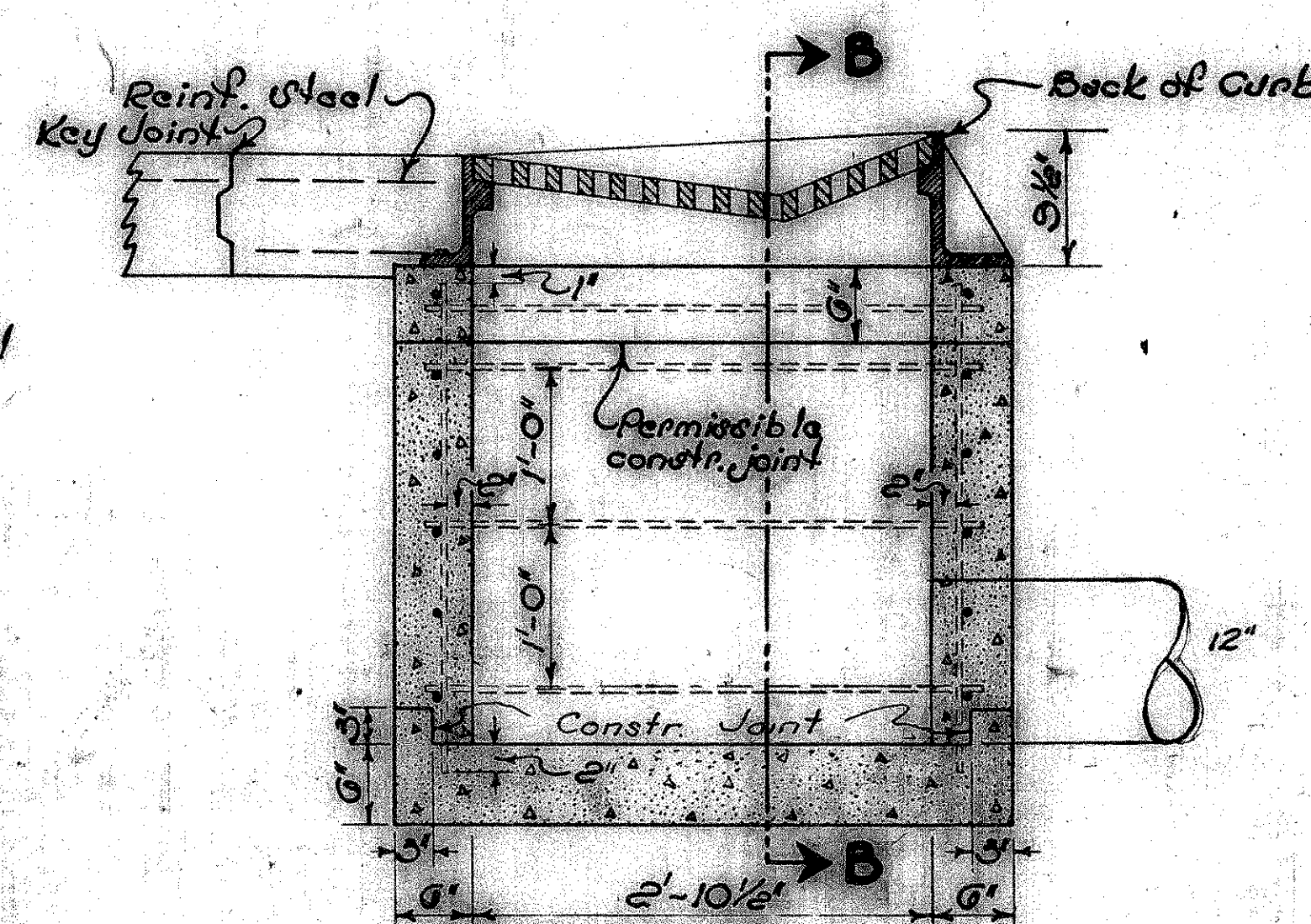
**DOWELS** to be 3/4" inch round, smooth, bars 15 inches long spaced as shown hereon and grouted.

**CONCRETE** to be Class "C"

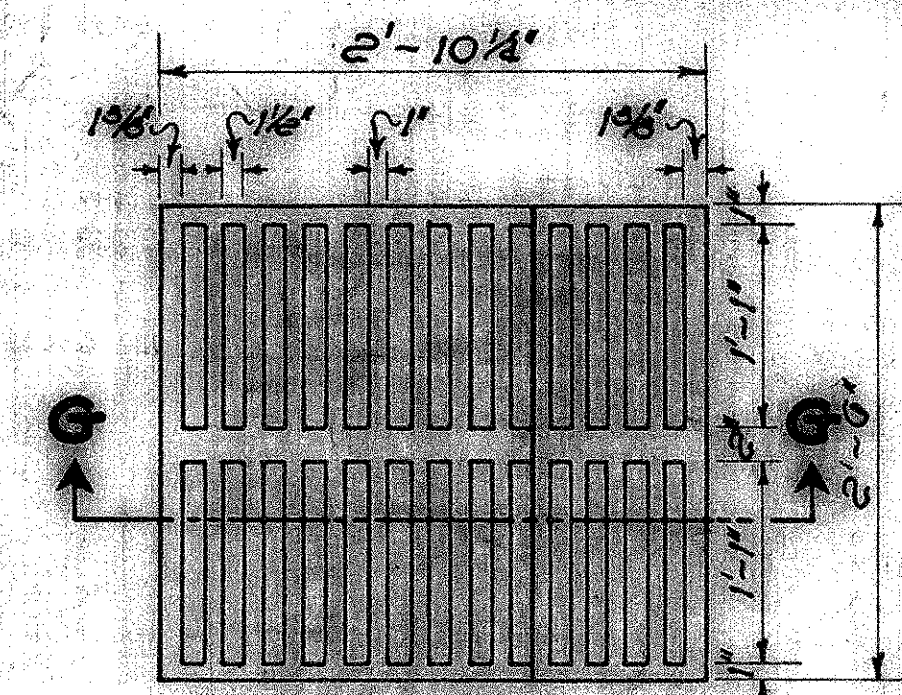
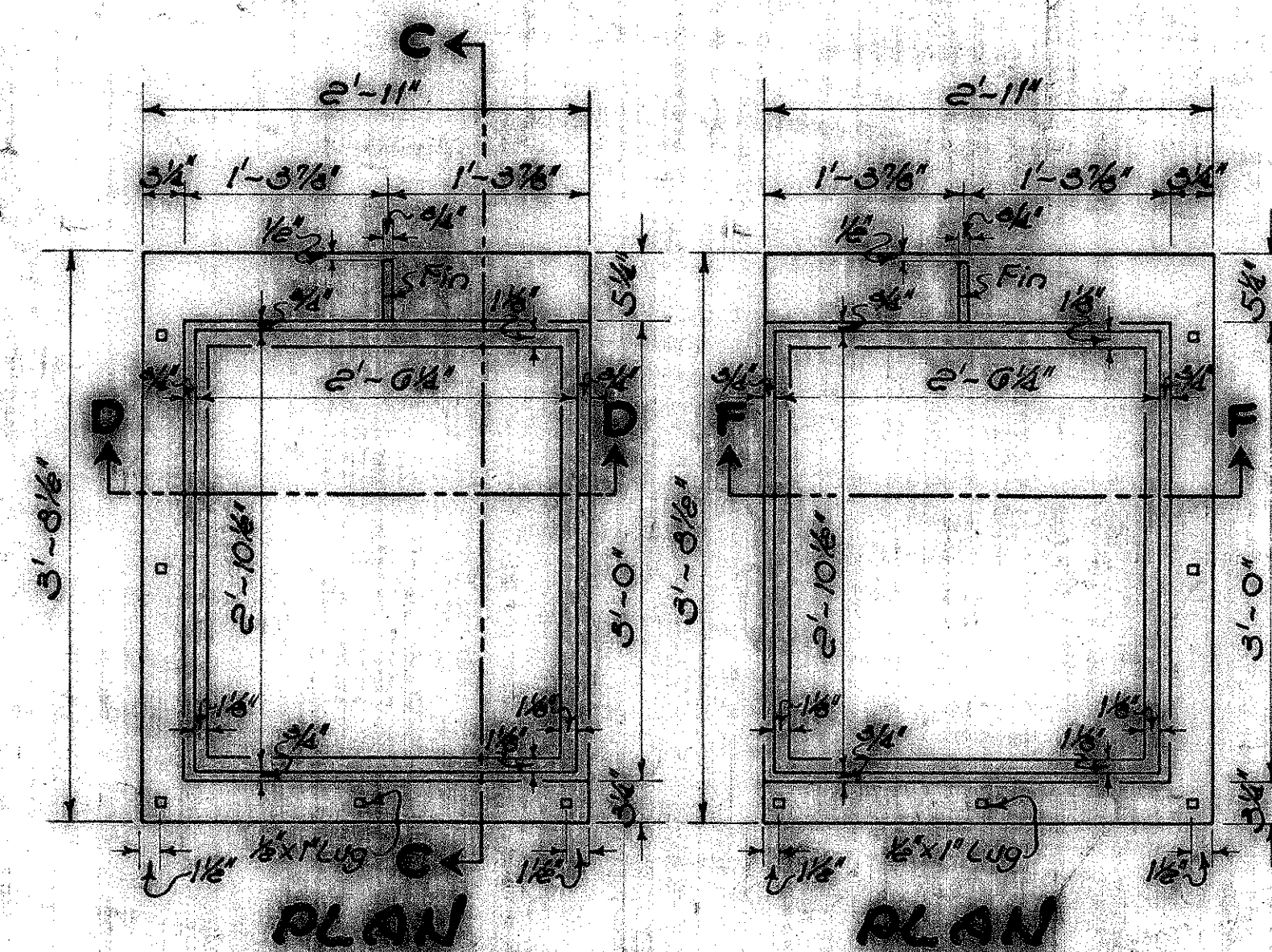
**BRICK** side walls, when used in place of reinforced concrete, shall be 8 inches in thickness.



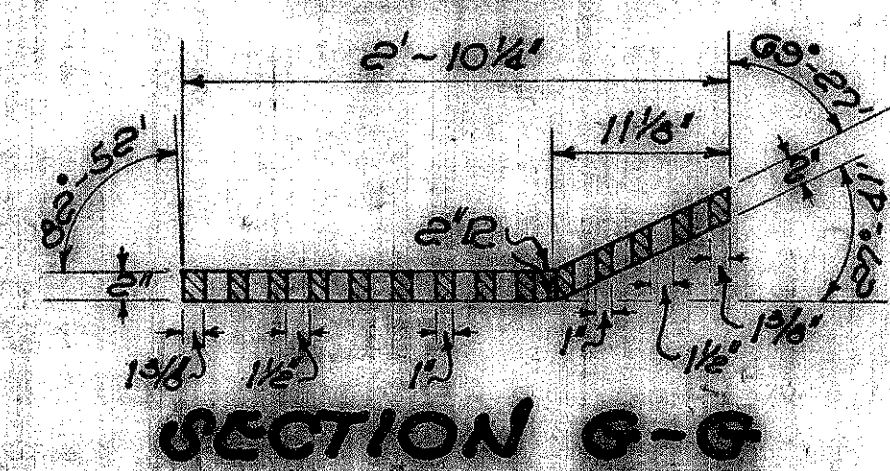
SECTION B-B



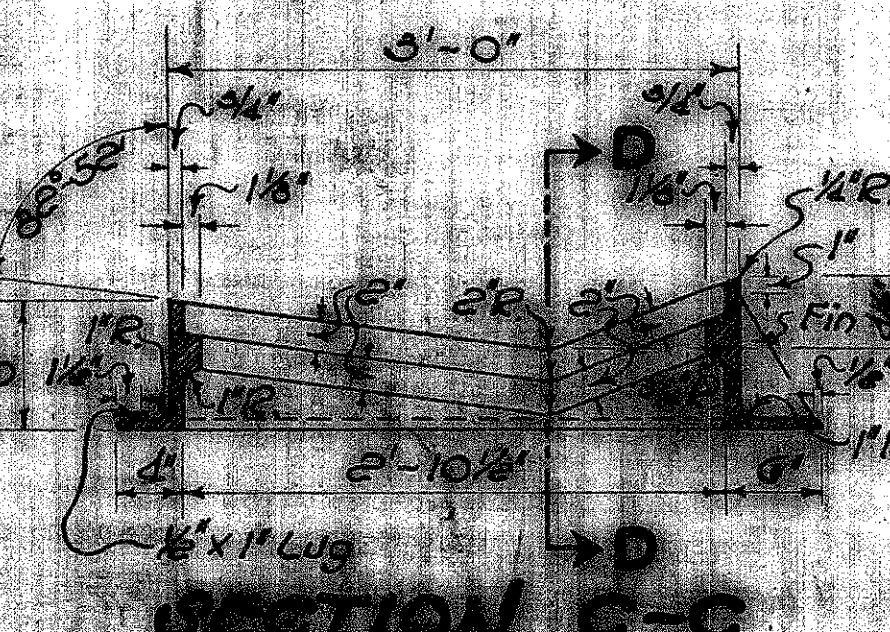
SECTION A-A



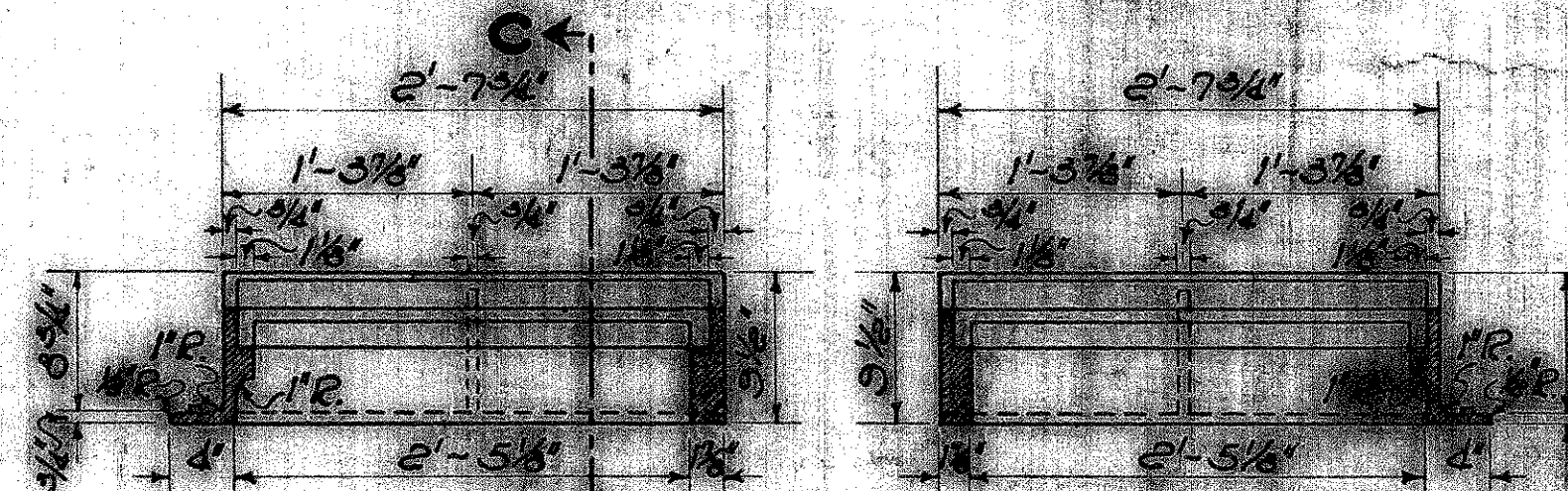
PLAN



SECTION G-G



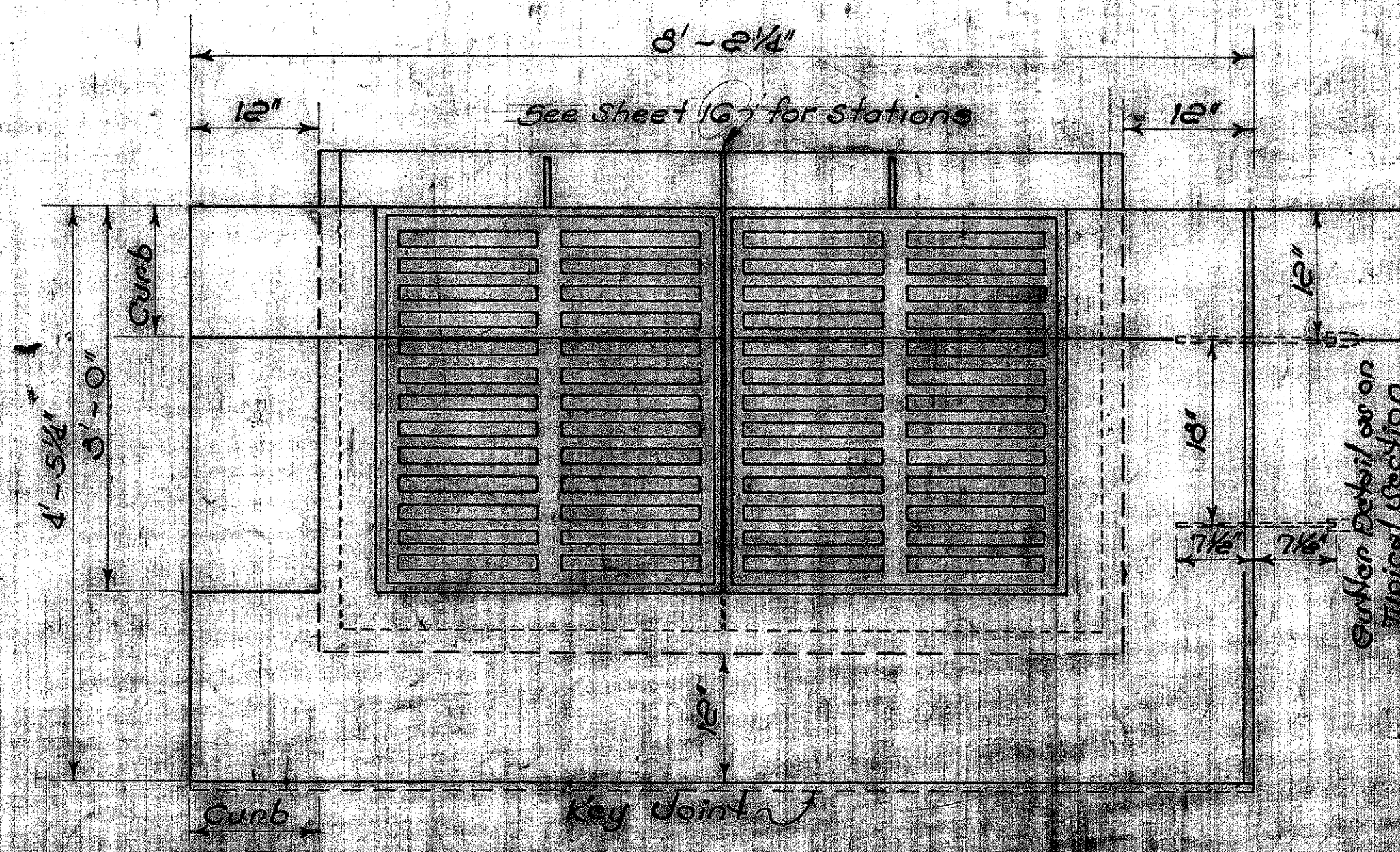
SECTION C-C



SECTION D-D  
LEFT FRAME

SECTION E-E  
RIGHT FRAME

## ~ FRAMES ~

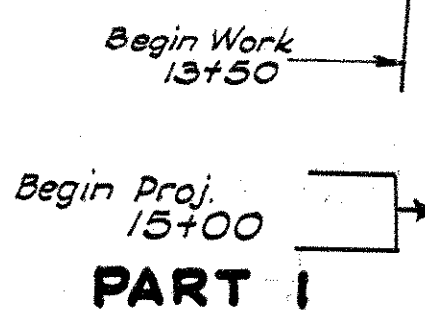


PLAN OF CATCH BASIN AND PAVEMENT JOINTS



**PERRY CO.**  
**MUSKINGUM CO.**

SCALE 1"=500'



## LOCATION PLAN



# TABLE SUMMARY & CALCULATIONS

| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|-------------------|-------|---------|------------|
| 2                 | OHIO  |         |            |

7  
118

## ① DRIVES AND APPROACHES

| Appr. No. | Station  | Side | Type        | Details on Sheet | 7-71 9" Rein. P.C. Conc. Pavem't Sq.Yds. | SS-10 6" Stab. Crushed Aggreg. Cu.Yds. | I-22 6" Subbase Cu.Yds. | E-1 Compact Subgrade Sq.Yds. | 7-70 7" P.C. Conc. Pavt. Sq.Yds. | Pipe for Driveways Lin. Ft. | 12" | 15" | 24" |
|-----------|----------|------|-------------|------------------|--|--|-------------------------|------------------------------|----------------------------------|-----------------------------|-----|-----|-----|
| 1-A       | 16+00    | Rt.  | Resid. Dr.  | 36               |  |  |                         | 73                           | 72.9                             |                             |     |     |     |
| 2-A       | 25+16    | Lt.  | Resid. Dr.  | 24               |  | 28                                     |                         | 80                           | 79.6                             |                             |     |     |     |
| 3-A       | 25+16    | Rt.  | Field Dr.   | 39               |  | 54                                     |                         |                              |                                  | 48                          |     |     |     |
| 4-A       | 32+00    | Lt.  | Field Dr.   | 25               |  | 21                                     |                         |                              |                                  |                             |     |     |     |
| 5-A       | 32+00    | Rt.  | Resid. Dr.  | 25               |  |  |                         | 128                          | 128.1                            | 28                          |     |     |     |
| 6-A       | 41+50    | Lt.  | Field Dr.   | 25               |  | 17                                     |                         |                              |                                  | 28                          |     |     |     |
| 7-A       | 41+50    | Rt.  | Resid. Dr.  | 25               |  |  |                         | 109                          | 108.6                            | 28                          |     |     |     |
| 8-A       | 48+97.48 | Rt.  | Twp. Rd.    | 26               | 173.0                                    | 65                                     | 15                      | 173                          |                                  |                             |     |     |     |
| 9-A       | 48+97.48 | Lt.  | Access Rd.  | 27               | 724.3                                    |  | 130                     | 724                          |                                  |                             |     |     |     |
| 10-A      | 62+81    | Lt.  | Field Dr.   | 28               |  | 31                                     |                         |                              |                                  |                             |     |     | 24  |
| 11-A      | 62+81    | Rt.  | Resid. Dr.  | 28               |  | 19                                     |                         | 53                           | 52.9                             |                             |     |     | 38  |
| 12-A      | 77+25    | Lt.  | Field Dr.   | 28               |  | 12                                     |                         |                              |                                  | 24                          |     |     |     |
| 13-A      | 77+25    | Rt.  | Field Dr.   | 28               |  | 8                                      |                         |                              |                                  | 24                          |     |     |     |
| 14-A      | 83+31.41 | Lt.  | Twp. Road   | 29 & 30          | 291.3                                    | 40                                     | 20                      | 231                          |                                  | 118                         |     |     |     |
| 15-A      | 83+31.41 | Rt.  | Twp. Road   | 29 & 30          | 121.2                                    | 66                                     | 10                      | 121                          |                                  | 24                          |     |     |     |
| 16-A      | 88+20    | Lt.  | Field Dr.   | 60               |  | 24                                     |                         |                              |                                  |                             |     |     |     |
| 17-A      | 88+20    | Rt.  | Field Dr.   | 60               |  | 6                                      |                         |                              |                                  |                             |     |     |     |
| 18-A      | 100+00   | Lt.  | Resid. Dr.  | 31 & 32          |  | 52                                     |                         | 93                           | 92.9                             | 48                          |     |     |     |
| 19-A      | 100+00   | Rt.  | Field Dr.   | 31 & 32          |  | 27                                     |                         |                              |                                  | 28                          |     |     |     |
| 20-A      | 104+00   | Rt.  | Deleted     |                  |  |  |                         |                              |                                  |                             |     |     |     |
| 21-A      | 138+64   | Lt.  | Field Dr.   | 33               |  | 17                                     |                         |                              |                                  | 32                          |     |     |     |
| 22-A      | 138+64   | Rt.  | Field Dr.   | 33               |  | 11                                     |                         |                              |                                  | 32                          |     |     |     |
| 23-A      | 167+50   | Lt.  | Access Rd.  | 34 & 35          | 1279.6                                   |  | 327                     | 1280                         |                                  |                             |     |     |     |
| 24-A      | 167+50   | Rt.  | Business    | 34 & 35          | 469.3                                    |  | 18                      | 469                          |                                  |                             |     |     |     |
| 25-A      | 70+00    | Lt.  | Field Dr.   | 33               |  | 15                                     |                         |                              |                                  |                             |     |     |     |
| 26-A      | 70+00    | Rt.  | Field Dr.   | 33               |  | 19                                     |                         |                              |                                  |                             |     |     |     |
|           |          |      | No Turnouts | 5                |  |  |                         |                              |                                  | 121.8                       |     |     |     |
| Totals    |          |      |             |                  | 3088.7                                   | 532                                    | 580*                    | 3624                         | 656.8                            | 430                         | 60  | 62  |     |

## ③ GUARD RAIL

| Carried From Sheet | I-15 Guard Rail Lin.Ft. | I-15 G.R. Removed & Dispos. of Lin.Ft. |
|--------------------|-------------------------|--|
| 10                 | 800                     | 542                                    |
| 11                 | 1400                    |  |
| 12                 | 1400                    | 270                                    |
| 13                 | 675                     |  |
| 14                 | 1200                    |  |
| 17                 | 2050                    |  |
| 18                 | 775                     |  |
| 19                 | 225                     |  |
| Totals             | 8525                    | 812                                    |

## ④ DITCHES

| Carried From Sheet | L-10 Sodding Sq.Yds. | I-14 Type I Pav. Gutter Lin.Ft. |
|--------------------|----------------------|---------------------------------|
| 10                 | 637                  | 66                              |
| 11                 | 665                  | 305                             |
| 12                 | 100                  |                                 |
| 13                 | 276                  | 156                             |
| 14                 | 442                  | 122                             |
| 15                 | 914                  |                                 |
| 16                 | 343                  |                                 |
| 17                 | 582                  | 128                             |
| 18                 | 150                  | 312                             |
| 5                  |                      | 285                             |
| Totals             | 4709                 | 1374                            |

## ⑤ EARTHWORK & SEEDING

| Carried From Sheet | E-1 Excav. Cu.Yds. | Embank. + 10% Cu.Yds. | Embank. + 10% Cu.Yds. | L-9 Seeding Sq.Yds. |
|--------------------|--------------------|-----------------------|-----------------------|---------------------|
| 10                 | 20213              | 4774                  | 5538                  | 17093               |
| 11                 | 19134              | 58162                 | 67468                 | 21036               |
| 12                 | 19850              | 46746                 | 54225                 | 21731               |
| 13                 | 39296              | 10223                 | 11859                 | 17382               |
| 14                 | 23797              | 37827                 | 43679                 | 19856               |
| 15                 | 73117              | 536                   | 624                   | 20538               |
| 16                 | 50292              | 3426                  | 3974                  | 17372               |
| 17                 | 635                | 112031                | 129356                | 21060               |
| 18                 | 86302              | 21568                 | 25019                 | 23363               |
| 19                 | 23793              | 3384                  | 3925                  | 14285               |
| 20                 | 7639               | 2245                  | 2628                  | 10614               |
| 66                 | 2100               | 2100                  | 2436                  | -                   |
| Totals             | 366288             | 303,044               | 351,531               | 204335              |

## ⑥ PAVEMENT REMOVAL

| Carried From Sheet | E-8 Removal & Disposal of Ex. Rigid Pav't. Sq.Yds. |
|--------------------|--|
| 10                 | 2964   |
| 11                 | 588  |
| 12                 | 1511   |
| 5                  | 7  |
| Totals             | 5070   |

## ⑦ PIPE REMOVAL

| Carried From Sheet | E-12 Pipe Removed Lin.Ft. | E-12 Pipe Rem. for Storage Lin.Ft. |
|--------------------|---------------------------|------------------------------------|
| 20                 | 150                       | 100                                |
| Totals             | 150                       | 100                                |

## ⑧ CURB & GUTTER

| Carried From Sheet | I-12 Curb & Gutter as per plan Lin.Ft. | I-2 12" Pipe for Storm Sewers Lin.Ft. | I-8 No. 3-A Catch Basins Each |
|--------------------|--|---------------------------------------|-------------------------------|
| 16                 | 1348                                   | 36                                    | 3                             |
| Totals             | 1348                                   | 36                                    | 3                             |

## ⑨ APPROACH SLABS

| Carried From Sheet | I-7 Rein. Conc. Appro. Slab Top Coat Sq.Yds. | I-30 Bituminous Surf. Crse. Gals. | I-35 Asphalt Conc. Surf. Crse. Cu.Yds. |
|--------------------|--|-----------------------------------|--|
| 17                 | 87   | 9                                 | 6.0*                                   |

## ⑩ TRANSITIONS

| Carried From Sheet | T-35 Surface 1/4 Level. Course Cu.Yds. | B-35 3" Base Course Cu.Yds. | B-35 6" Subbase Course Cu.Yds. | I-22 6" Subbase Cor'd Ver. Face Lin.Ft. | B-35 Sealing Ver. Face Lin.Ft. |
|--------------------|--|-----------------------------|--------------------------------|---|--------------------------------|
| 21                 | 2.2                                    | 2.2                         | 6.0                            | 6.7                                     | 16                             |
| 22                 | 20.1                                   | 21.8                        | 21.7                           | 20.8                                    | 43                             |
| 5                  | 0.3                                    | 0.3                         | 0.6                            | 0.6                                     | 2                              |
| Table 9            | 6.0                                    |                             |                                |   |                                |
| Totals             | 28.6                                   | 24.3                        | 28.3                           | 28.1                                    | 61                             |

## ② STRUCTURES 20' SPAN AND UNDER

| STRUCTURES 20 SPAN AND UNDER |           |             |                  |                                  |                            |                                  |           |                          |  |                          | 5-27                                  |                                    |     |     |       |          |          |          | I-8 Catch Basins Each |      | I-10 Grouted Riprap A |        | I-10 Dumped Rock Fill |          |          |          |          |
|------------------------------|-----------|-------------|------------------|----------------------------------|----------------------------|----------------------------------|-----------|--------------------------|--|--------------------------|---------------------------------------|------------------------------------|-----|-----|-------|----------|----------|----------|-----------------------|------|-----------------------|--------|-----------------------|----------|----------|----------|----------|
| Struc. No.                   | Station   | Type        | Details on Sheet | E-2 Excav'th for Struct. Cu.Yds. | E-3 Channel Excav. Cu.Yds. | S-1 Concrete for Struct. Cu.Yds. |           | S-4 Reinforc. Steel Lbs. | S-22 Removal of Portals of Ex.Str. Cu.Yds. | S-23 Dowel Holes Lin.Ft. | S-24 Removal of Exist. Structure Lump | Pipe for Roadway Culverts Lin. Ft. |     |     |       |          |          |          |                       | S.D. | Sq.Yds                | Cu.Yds |                       |          |          |          |          |
|                              |           |             |                  |                                  |                            | Class 'C'                        | Class 'E' |                          |  |                          |                                       | 15"                                | 18" | 36" | 4'x6' | 24" Modd | 30" Modd | 36" Modd | 48" Modd              |      |                       |        | 54" Modd              | 60" Modd | 72" Modd | 84" Modd | 96" Modd |
| 1                            | 17+20.76  | S.B.C. Ext. | 91               | 55                               | 30                         | 24.3                             |           | 2973                     | 0.3  | 40                       |                                       |                                    |     |     |       |          |          |          |                       |      |                       |        |                       |          |          |          |          |
| 2                            | 23+84     | Pipe        | 92               | 88                               |                            |                                  | 2.7       |                          |  |                          |                                       |                                    |     |     |       |          |          |          |                       |      |                       |        |                       |          |          |          |          |
| 3                            | 36+05.41  | S.B.C. Ext. | 93 & 94          | 115                              |                            | 121.8                            |           | 19503                    | 0.2  | 20                       | Lump                                  |                                    | 100 |     |       |          |          |          |                       |      |                       |        |                       |          |          |          |          |
| 4                            | 48+97     | Removal     | Not Detailed     |                                  |                            |                                  |           |                          |  |                          | Lump                                  |                                    |     |     |       |          |          |          |                       |      |                       |        |                       |          |          |          |          |
| 5                            | 50+20     | Pipe        | 95               | 400                              | 4                          |                                  | 1.2       |                          |  |                          | Lump                                  |                                    |     |     |       |          |          |          |                       |      |                       |        |                       |          |          |          |          |
| 6                            | 51+23     | Pipe        | 96               | 35                               |                            |                                  | 1.0       |                          |  |                          |                                       |                                    |     |     |       |          |          |          |                       |      |                       |        |                       |          |          |          |          |
| 7                            | 59+41     | Pipe        | 97               | 105                              |                            |                                  |           | 2.9                      |  |                          |                                       |                                    |     |     |       |          |          |          |                       |      |                       |        |                       |          |          |          |          |
| 8                            | 71+54     | 2 Pipes     | 98               | 45                               | 3                          |                                  | 13.2      |                          |  |                          |                                       |                                    | 118 |     |       |          |          |          |                       |      |                       |        |                       |          | 28       |          |          |
| 9                            | 75+84     | Pipe        | 99               | 38                               | 1                          |                                  | 1.8       |                          |  |                          |                                       |                                    |     | 72  |       |          |          |          |                       |      |                       |        |                       | 18       | 15       |          |          |
| 10                           | 81+34     | Pipe        | 100              | 30                               |                            |                                  |           | 0.8                      |  |                          |                                       |                                    |     |     |       |          |          |          |                       |      |                       |        |                       | 3        | 14       |          |          |
| 11                           | 88+00     | Pipe        | 101              | 25                               | 1                          |                                  |           | 2.6                      |  |                          |                                       |                                    |     |     |       |          |          |          |                       |      |                       |        |                       |          |          | 6        |          |
| 12                           | 97+11     | Pipe        | 101              | 15                               | 1                          |                                  |           | 2.6                      |  |                          |                                       | 64                                 | 68  |     |       |          |          |          |                       |      |                       |        |                       |          |          |          |          |
| 13                           | 106+00    | Pipe        | 102              | 20                               | 55                         |                                  |           | 2.6                      |  |                          |                                       | 64                                 |     |     |       |          |          |          |                       |      |                       |        |                       |          |          |          |          |
| 14                           | 113+67.85 | Pipe        | 102              | 40                               | 25                         |                                  |           | 3.3                      |  |                          |                                       |                                    | 78  |     |       |          |          |          |                       |      |                       |        |                       |          |          |          |          |
| 15                           | 117+81.45 | Pipe        | 103              | 25                               | 1                          |                                  |           | 2.8                      |  |                          |                                       | 78                                 |     |     |       |          |          |          |                       |      |                       |        |                       |          |          |          |          |
| 16                           | 152+50    | Pipe        | 103              | 25                               | 45                         |                                  |           | 3.0                      |  |                          |                                       |                                    |     |     |       |          |          |          |                       |      |                       |        |                       |          |          |          |          |
| 17                           | 159+50    | Pipe        | 104              | 25                               | 1                          |                                  |           | 3.0                      |  |                          |                                       |                                    | 66  |     |       |          |          |          |                       |      |                       |        |                       |          |          |          |          |
| 18                           | 164+00    | Pipe        | 104              | 20                               |                            |                                  |           | 1.6                      |  |                          |                                       |                                    | 68  |     |       |          |          |          |                       |      |                       |        |                       |          |          |          |          |
| 5-27                         |           |             |                  |                                  |                            |                                  |           |                          |  |                          |                                       |                                    | 92  |     |       |          |          |          |                       |      |                       |        |                       | 1        | 11       |          |          |
| Totals                       |           |             |                  | 1106                             | 167                        | 146.1                            | 45.1      | 22476                    | 0.5  | 60                       | Lump                                  | 274                                | 404 | 118 | 72    | 184      | 220      | 320      | 128                   | 148  | 1                     |        | 24                    | 143      |          |          |          |

## CALCULATIONS

| LINE |   |                                 |   |          | QUANTITY | UNIT             |
|------|---|---------------------------------|---|----------|----------|------------------|
| 1    | T-71 9" REINFORCED P.C. CONCRETE PAVEMENT                                     |                                 |   |          |          |                  |
| 2    | From Sheet 2, (15232.57)  | 15,232.57 X 24 ÷ 9              | = | 40620.19 | Sq.Yds.  |                  |
| 3    | From Table 1 (Drives and Approaches)  |                                 | = | 3088.7   | Sq.Yds.  |                  |
| 4    |   | Total T-71                      |   | 43708.89 | Sq.Yds.  | 43709 Sq.Yds.    |
| 5    |   |                                 |   |          |          |                  |
| 6    |   |                                 |   |          |          |                  |
| 7    | E-1 COMPACTED SUBGRADE  |                                 |   |          |          |                  |
| 8    | From Line 2   |                                 | = | 40620.   | Sq.Yds.  |                  |
| 9    | From Table 1 (Drives and Approaches) (3089 + 657)                             |                                 | = | 3746     | Sq.Yds.  |                  |
| 10   | From Table 9 (Approach Slabs)   |                                 | = | 87.      | Sq.Yds.  |                  |
| 11   | From Table 8 (Curb & Gutter) 1348 x 3 ÷ 9 =                                   |                                 | = | 449      | Sq.Yds.  |                  |
| 12   |   | Total                           |   | 44,902   | Sq.Yds.  | 44902 Sq.Yds.    |
| 13   |   |                                 |   |          |          |                  |
| 14   | SS-10 STABILIZED CRUSHED AGGREGATE SHOULDERS AND APPROACHES                   |                                 |   |          |          |                  |
| 15   | From Line 2 (15,232.57x2) - (762 Apprs + 1348 Curb & Gutter) x 4' X 0.5' ÷ 27 |                                 | = | 2099     | Cu.Yds.  |                  |
| 16   | From Table 1 (Drives and Approaches)  |                                 | = | 532      | Cu.Yds.  |                  |
| 17   | From Sheet 5 (Mail Box Approaches)  |                                 | = | 12       | Cu.Yds.  |                  |
| 18   |   | Total SS-10                     |   | 2643     | Cu.Yds.  | 2643 Cu.Yds.     |
| 19   |   |                                 |   |          |          |                  |
| 20   |   |                                 |   |          |          |                  |
| 21   | E-11 WATER  |                                 |   |          |          |                  |
| 22   | From Table 5, Embankment  | 303,044 X 5 ÷ 1000              | = | 1515.2   | M.Gals.  |                  |
| 23   | From Line 18 SS-10  | 2643 X 5 ÷ 1000                 | = | 13.2     | M.Gals.  |                  |
| 24   | From Sheet 3 I-22 6" Subbase (A & B)  | 14,337 X 5 ÷ 1000               | = | 71.7     | M.Gals.  |                  |
| 25   |   | Total E-11 Water                |   | 1600.1   | M.Gals.  | use 1600 M.Gals. |
| 26   |   |                                 |   |          |          |                  |
| 27   |   |                                 |   |          |          |                  |
| 28   | L-9 COMMERCIAL FERTILIZER 10-6-4  |                                 |   |          |          |                  |
| 29   | From Table 5 Seeding  | 204,335 X 20 X 9 ÷ 1000 ÷ 2000  | = | 18.39    | Tons     |                  |
| 30   | From Table 4 Sodding  | 4709 X 20 X 9 ÷ 1000 ÷ 2000     | = | 0.42     | Tons     | 18.81 Tons       |
| 31   |   | Total                           |   | 18.81    | Tons     |                  |
| 32   | L-9 AGRICULTURAL GROUND LIMESTONE   |                                 |   |          |          |                  |
| 33   | From Table 5 Seeding  | 204,335 X 100 X 9 ÷ 1000 ÷ 2000 | = | 91.95    | Tons     |                  |
| 34   |   | 4709 X 100 X 9 ÷ 1000 ÷ 2000    | = | 2.12     | Tons     | 94.07 Tons       |
| 35   |   | Total                           |   | 94.07    | Tons     |                  |
| 36   | E-4 BORROW  |                                 |   |          |          |                  |
| 37   | Excavation Table 5  | 366,288                         |   |          |          |                  |
| 38   | Emb. +16% Table 5   | = 351,531                       |   |          |          |                  |
| 39   | Embank. to be placed in Part 2 (See Sheet 3, Part 2)                          | = 15,653                        |   |          |          |                  |
| 40   |   | Total Embank. +16%              | = | 367,184  |          |                  |
| 41   | Line 40 minus Line 37   | 367,184 - 366,288               | = | 896      | Cu.Yds.  |                  |
| 42   | Estimated quantity of Excavation unsuitable for embankment                    |                                 | = | 4104     | Cu.Yds.  |                  |
| 43   |   | Total E-4 Borrow                |   | 5000     | Cu.Yds.  | 5000 Cu.Yds.     |
| 44   |   |                                 |   |          |          |                  |
| 45   |   |                                 |   |          |          |                  |
| 46   |   |                                 |   |          |          |                  |
| 47   |   |                                 |   |          |          |                  |
| 48   |   |                                 |   |          |          |                  |
| 49   |   |                                 |   |          |          |                  |
| 50   |   |                                 |   |          |          |                  |
| 51   |   |                                 |   |          |          |                  |
| 52   |   |                                 |   |          |          |                  |
| 53   |   |                                 |   |          |          |                  |
| 54   |   |                                 |   |          |          |                  |
| 55   |   |                                 |   |          |          |                  |
| 56   |   |                                 |   |          |          |                  |
| 57   |   |                                 |   |          |          |                  |
| 58   |   |                                 |   |          |          |                  |
| 59   |   |                                 |   |          |          |                  |
| 60   |   |                                 |   |          |          |                  |



GENERAL SUMMARY

|                   |       |         |            |
|-------------------|-------|---------|------------|
| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
| 2                 | OHIO  |         |            |

MUS-22-0.28

| ITEM     | QUANTITY | UNIT   |  | CARRIED FROM |
|----------|----------|--------|--|--------------|
| ROADWAY  |          |        |  |              |
| E-1      | 366,285  | Cu.Yds | Roadway Excavation, as per plan  | Table 5      |
| E-1      | 44,902   | Sq.Yds | Compacted Subgrade   | Line 12      |
| E-4      | 5000     | Cu.Yds | Borrow, as per plan  | Line 43      |
| E-8      | 5070     | Sq.Yds | Removal and Disposal of Existing Rigid Pavement                            | Table 6      |
| E-9      | Lump     | Lump   | Removal of Trees and Stumps  | Sheet 4      |
| E-11     | 1600     | M.Gal  | Water  | Line 25      |
| I-13     | 40       | Sq.Ft  | 4" Concrete Sidewalks, as per plan   | Sheet 5      |
| I-15     | 8525     | Lin.Ft | Guard Rail, Steel Beam Type (Deep)   | Table 3      |
| I-15     | 812      | Lin.Ft | Guard Rail Removed and Disposed of   | Table 3      |
| L-9      | 204,335  | Sq.Yds | Seeding and Protecting, Type "A", as per plan                              | Table 5      |
| L-9      | 18.81    | Tons   | Commercial Fertilizer (10-6-4)   | Line 29      |
| L-9      | 94.07    | Tons   | Agricultural Ground Limestone  | Line 33      |
| L-10     | 4709     | Sq.Yds | Sodding, as per plan   | Table 4      |
| L-14     | 10       | Each   | Pinus Nigra - Austrian Pine, 4' to 5', D & D, 20" Ball, as per plan        | Sheet 34     |
| T-10     | 1500     | Cu.Yds | Traffic Compacted Surface Course for Temporary Traffic Lanes               | Sheet 4      |
| T-10     | 1500     | Cu.Yds | Traffic Compacted Surface Course, as per plan, for Temporary Traffic Lanes | Sheet 4      |
| M-10     | 60       | Tons   | Calcium Chloride Furnished and Applied for Temporary Traffic Lanes         | Sheet 4      |
| SS-10    | 2643     | Cu.Yds | Stabilized Crushed Aggregate Shoulders and Approaches                      | Line 18      |
| DRAINAGE |          |        |  |              |
| I-1      | 430      | Lin.Ft | 12" Pipe for Driveways   | Table 1      |
| I-1      | 60       | Lin.Ft | 15" Pipe for Driveways   | Table 1      |
| I-1      | 62       | Lin.Ft | 24" Pipe for Driveways   | Table 1      |
| I-2      | 36       | Lin.Ft | 12" Pipe for Storm Sewers  | Table 8      |
| I-2      | 80       | Lin.Ft | 15" Pipe for Storm Sewers  | Sheet 5      |
| I-2      | 28       | Lin.Ft | 15" Pipe for Storm Sewers, Sec. M-6.4(c)                                   | Sheet 5      |
| I-5      | 1        | Each   | 15" Pipe Special for Storm Sewers  | Sheet 5      |
| I-8      | 1        | Each   | Standard No.7 Side Ditch Catch Basin, as per plan                          | Table 2      |
| I-8      | 2        | Each   | Standard No.12-A Catch Basins  | Sheet 5      |
| I-8      | 3        | Each   | Standard No.9-A Catch Basins, as per plan.                                 | Table 8      |
| I-10     | 24       | Sq.Yds | Riprap, Type A, Grout Filled   | Table 2      |
| I-10     | 143      | Cu.Yds | Dumped Rock Fill, as per plan  | Table 2      |
| I-14     | 1374     | Lin.Ft | Standard Type 1 Paved Gutter   | Table 4      |
| I-14     | 370      | Lin.Ft | Paved Gutter, as per plan  | Sheet 5      |
| E-2      | 1106     | Cu.Yds | Excavation for Structures  | Table 2      |
| E-3      | 167      | Cu.Yds | Channel Excavation   | Table 2      |
| E-12     | 180      | Lin.Ft | Pipe Removed (over 15"), as per plan                                       | Table 7      |
| E-12     | 100      | Lin.Ft | Pipe Removed for Storage (15" and Under)                                   | Table 7      |
| S-1      | 146.1    | Cu.Yds | Concrete for Structures, Class "C"   | Table 2      |
| S-1      | 45.1     | Cu.Yds | Concrete for Structures, Class "E"   | Table 2      |
| S-4      | 22476    | Lbs.   | Reinforcing Steel  | Table 2      |
| S-22     | 0.5      | Cu.Yds | Removal of Portions of Existing Structures                                 | Table 2      |
| S-23     | 60       | Lin.Ft | Dowel Holes, as per plan   | Table 2      |
| S-24     | Lump     | Lump   | Removal of Existing Structures   | Table 2      |
| S-27     | 274      | Lin.Ft | 15" Pipe for Roadway Culverts  | Table 2      |
| S-27     | 404      | Lin.Ft | 18" Pipe for Roadway Culverts  | Table 2      |
| S-27     | 118      | Lin.Ft | 30" Pipe for Roadway Culverts  | Table 2      |
| S-27     | 128      | Lin.Ft | 18" Pipe for Roadway Culverts, Sec. M-6.4(d) or Sec. M-6.6(c)              | Table 2      |
| S-27     | 148      | Lin.Ft | 21" Pipe for Roadway Culverts, Sec. M-6.4(d) or Sec. M-6.6(c)              | Table 2      |
| S-27     | 184      | Lin.Ft | 24" Pipe for Roadway Culverts, Sec. M-6.4(d)                               | Table 2      |
| S-27     | 220      | Lin.Ft | 30" Pipe for Roadway Culverts, Sec. M-6.4(d), 12 gage                      | Table 2      |
| S-27     | 320      | Lin.Ft | 36" Pipe for Roadway Culverts, Sec. M-6.4(d), 10 gage                      | Table 2      |
| S-27     | 72       | Lin.Ft | 4' x 6' Reinforced Concrete Pipe for Roadway Culverts, as per plan.        | Table 2      |

| ITEM   | QUANTITY | UNIT   |   | CARRIED FROM |
|--|----------|--------|---|--------------|
| PAVEMENT   |          |        |   |              |
| T-71   | 43,709   | Sq.Yds | 3" Reinforced Portland Cement Concrete Pavement.                            | Line 4       |
| T-30   | 9        | Gals   | Bituminous Tack Coat: Sec. M-5.5, MS-2 or SS-1; or Sec. M-5.2, RC-1 or RC-2 | Table 9      |
| T-35   | 29       | Cu.Yds | Asphaltic Concrete Surface Course, Type A (70-80)                           | Table 10     |
| B-35   | 53       | Cu.Yds | Asphaltic Concrete Leveling Course (70-80)                                  | Table 10     |
| B-35   | 28       | Cu.Yds | Asphaltic Concrete Base Course (70-80), as per plan                         | Table 10     |
| B-35   | 770      | Lin.Ft | Sealing Vertical Face of Existing Pavement.                                 | Table 10     |
| I-7  | 87       | Sq.Yds | Reinforced Concrete Approach Slabs  | Table 9      |
| I-12   | 1348     | Lin.Ft | Combination Curb and Gutter, as per plan                                    | Table 8      |
| I-22   | 14,337   | Cu.Yds | Subbase, Grading "A" or "B"   | Sheet 3      |
| I-22   | 61       | Cu.Yds | Subbase, Grading "C" or "D"   | Table 10     |
| T-70   | 657      | Sq.Yds | 7" Portland Cement Concrete Pavement  | Table 1      |
| STRUCTURE OVER 20' SPAN  |          |        |   |              |
| For estimated quantities, Bridge No. MU-22-23, see Sheet No. 107 |          |        |   |              |



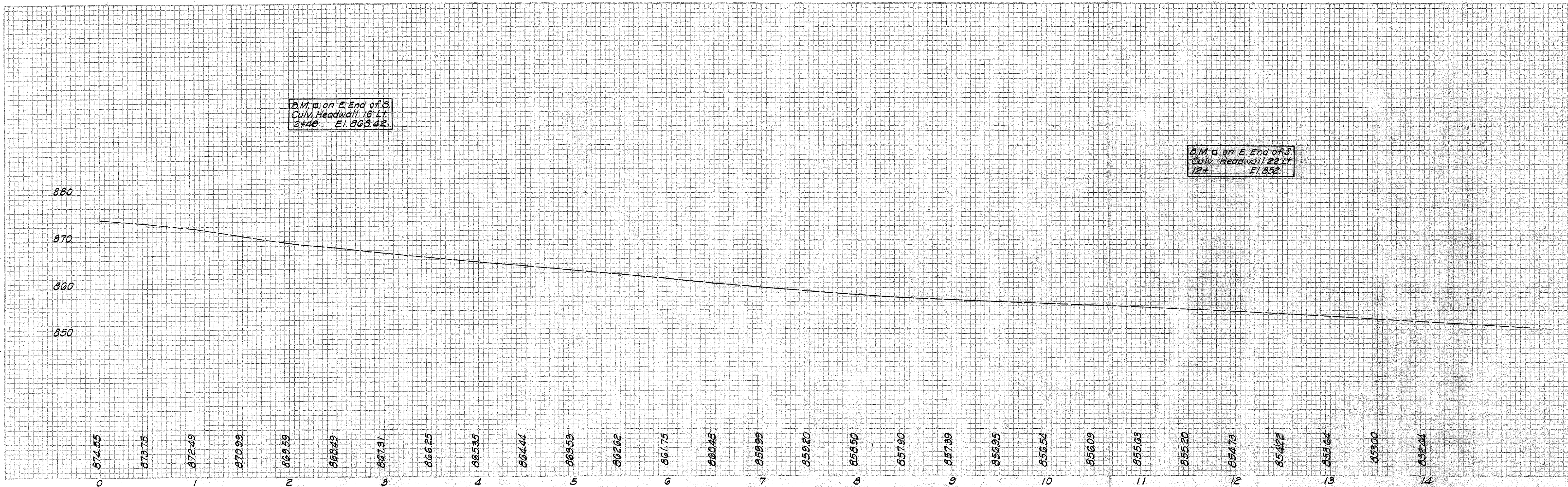
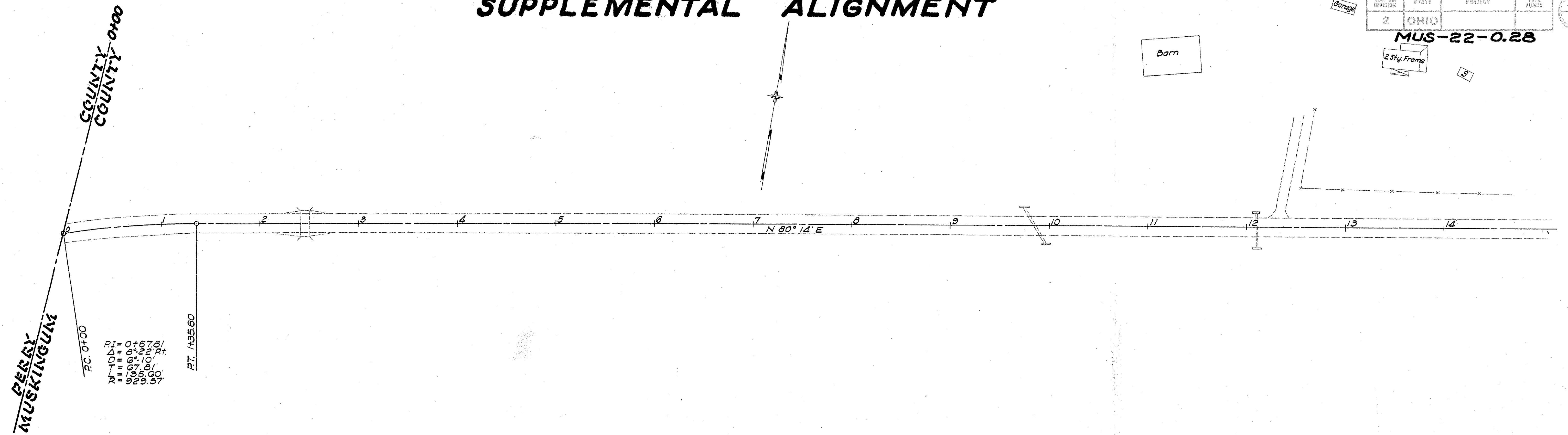
# SUPPLEMENTAL ALIGNMENT

| PER. NO.<br>DIVISION | STATE | PROJECT | TYPE<br>FUND |
|----------------------|-------|---------|--------------|
| 2                    | OHIO  |         |              |

MUS-22-0.28

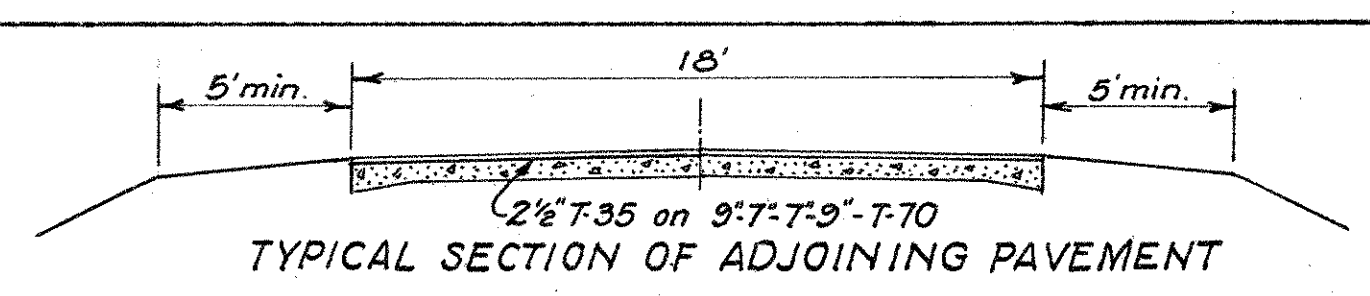
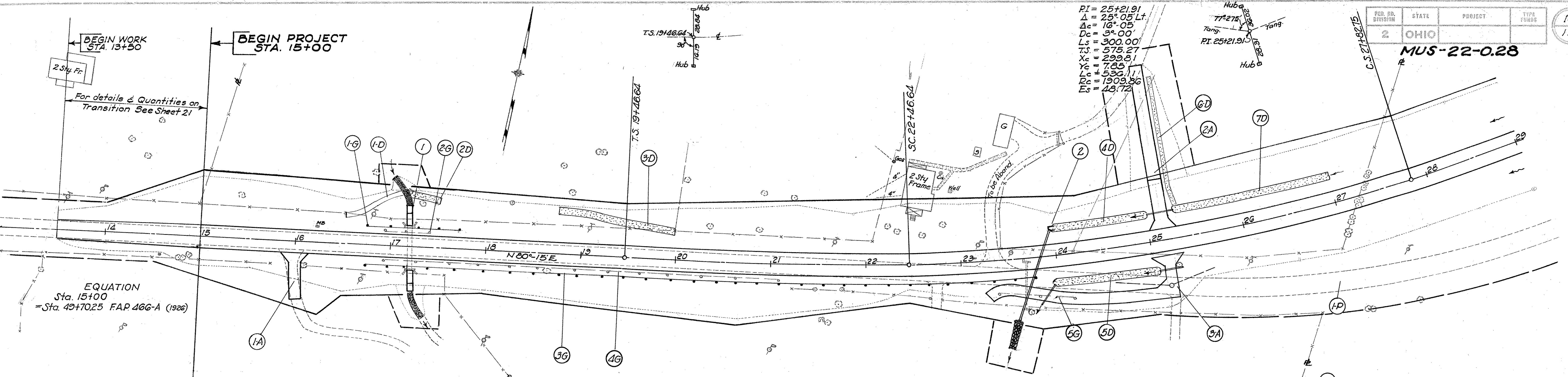
2 Sty. Frame

9  
118





MUS-22-0.28



**(A) DRIVES & APPROACHES**

| Mark | Station | Side | Type      | Details on Sheet |
|------|---------|------|-----------|------------------|
| 1-A  | 16+00   | Rt.  | Residence | 36               |
| 2-A  | 25+16   | Lt.  | Residence | 24               |
| 3-A  | 25+16   | Rt.  | Field     | 39               |

**STRUCTURES 20' SPAN AND UNDER**

| Struc. No. | Station  | Existing        | Proposed      | Details on Sheet |
|------------|----------|-----------------|---------------|------------------|
| 1          | 17+20.76 | S.B.C. Gx4 4741 | Gx4 43.83     | 31               |
| 2          | 23+84    | Pipe 18" 48"    | Pipe 18" 100" | 32               |

**(G) GUARD RAIL**

| Mark   | Station | Side | I-15 Guard Rail Lin. Ft. | I-15 G.R. Rem. & Disp. of Lin. Ft. |
|--------|---------|------|--------------------------|------------------------------------|
| 1-G    | 16+75   | Lt.  | 100                      | 49                                 |
| 2-G    | 16+93   | Lt.  | 700                      |                                    |
| 3-G    | 16+75   | Rt.  |                          | 417                                |
| 4-G    | 16+93   | Rt.  |                          | 76                                 |
| 5-G    | 23+38   | Rt.  |                          |                                    |
| Totals |         |      | 800                      | 542                                |

**(P) PAVEMENT REMOVAL**

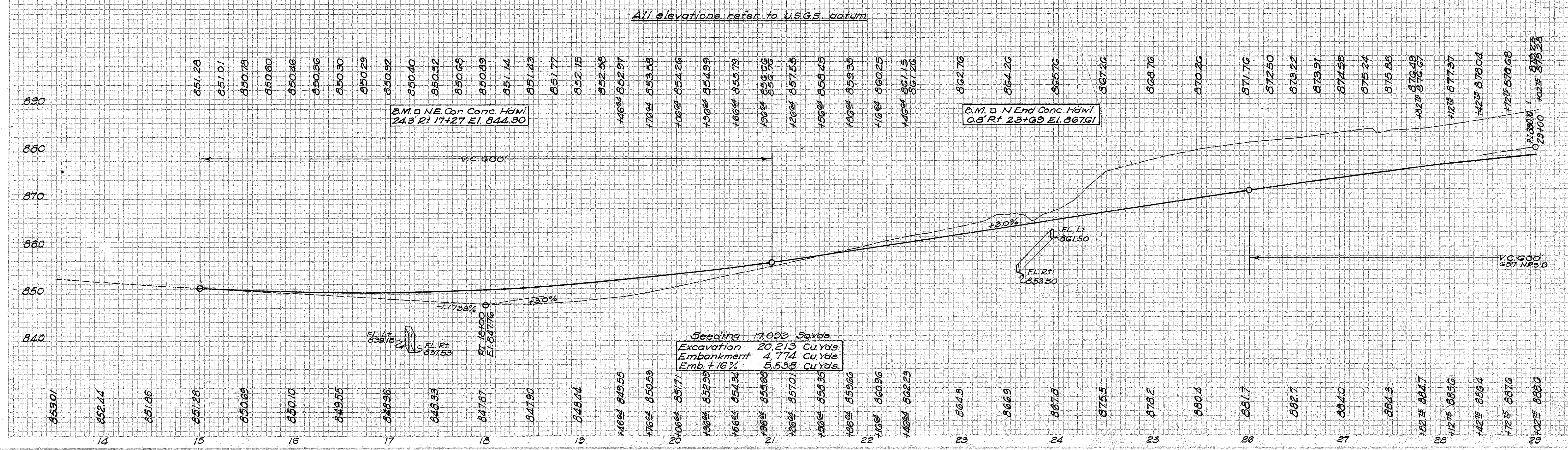
| Mark  | Station | Length | E-8 Pavem't Removal Sq. Yds. |
|-------|---------|--------|------------------------------|
| 1-P   | 15+00   | 29+00  | 1427                         |
| Total |         |        | 2964*                        |

\*Includes 110 Sq. Yds. Widening for Curve

**(D) DITCHES**

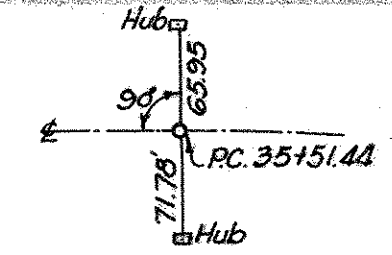
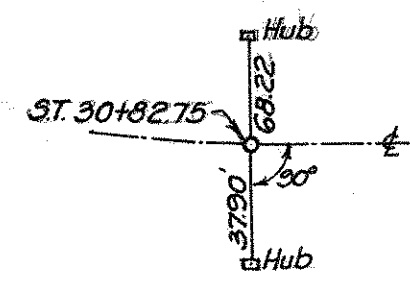
| Mark   | Station        | Side | L-10 Sodding Sq. Yds. | I-14 Type 1 Paved Gutter Lin. Ft. |
|--------|----------------|------|-----------------------|-----------------------------------|
| 1-D    | 16+50          | Lt.  |                       |                                   |
| 2-D    | 17+20          | Lt.  | 32                    |                                   |
| 3-D    | 18+75          | Lt.  | 126                   |                                   |
| 4-D    | 23+90          | Lt.  | 106                   |                                   |
| 5-D    | 23+96          | Rt.  | 108                   |                                   |
| 6-D    | Dr. Sta. 0+133 | Lt.  | 95*                   |                                   |
| 7-D    | 25+30          | Lt.  | 170                   |                                   |
| Totals |                |      | 637                   | GG                                |

\*G'width

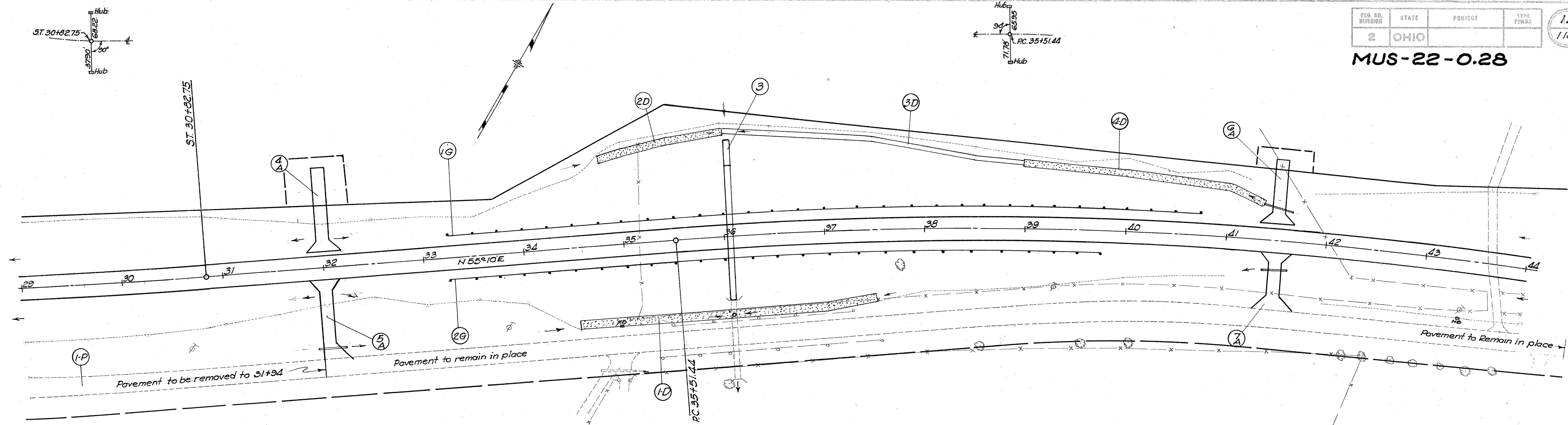


Seeding 17,023 Sq. Yds.  
Excavation 20,213 Cu. Yds.  
Embankment 4,774 Cu. Yds.  
Emb + 16% 5,533 Cu. Yds.





MUS-22-0.28



A DRIVES & APPROACHES

| Mark | Station | Side | Type      | Details on Sheet |
|------|---------|------|-----------|------------------|
| 4-A  | 32+00   | Lt.  | Field     | 25               |
| 5-A  | 32+00   | Rt.  | Residence | 25               |
| 6-A  | 41+50   | Lt.  | Field     | 25               |
| 7-A  | 41+50   | Rt.  | Residence | 25               |

STRUCTURES 20' SPAN AND UNDER

| Struc. | Station  | Existing |       |       | Proposed   |       |        | Details on Sheet |
|--------|----------|----------|-------|-------|------------|-------|--------|------------------|
|        |          | TYPE     | SIZE  | LENG. | TYPE       | SIZE  | LENG.  |                  |
| 3      | 36+05.41 | Box      | 6'x4' | 78'   | 25' C. Box | 6'x4' | 158.5' | 33 & 34          |

G GUARD RAIL

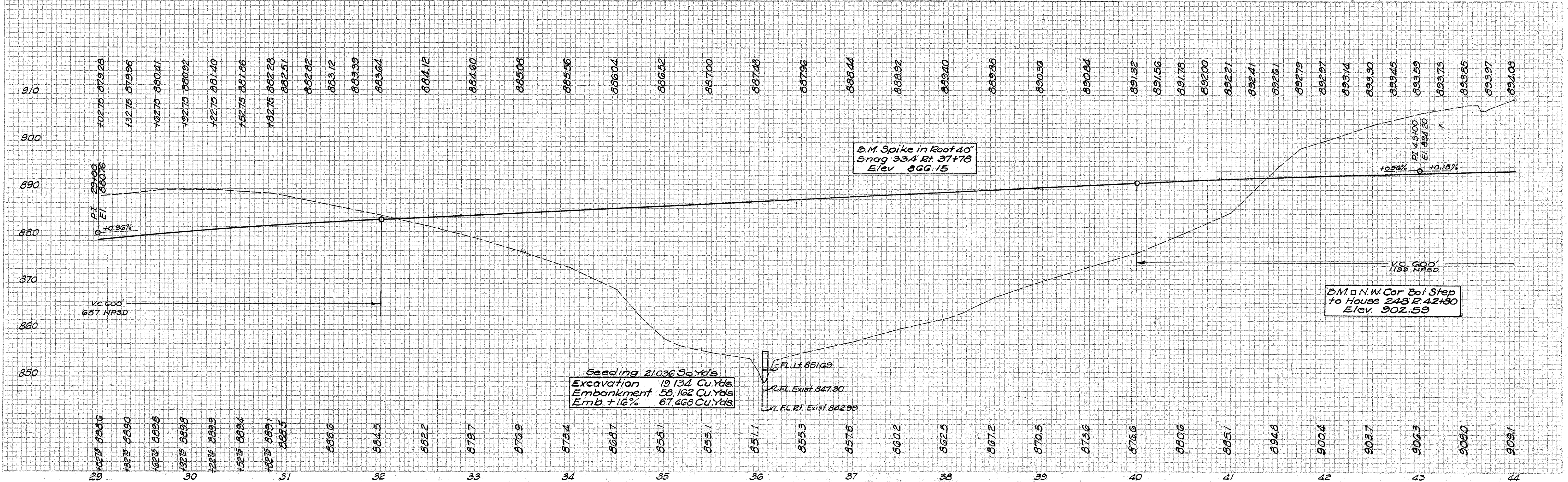
| Mark  | Station |       | Side | T-15 Guard Rail Lin. Ft. |
|-------|---------|-------|------|--------------------------|
|       | From    | To    |      |                          |
| 1-G   | 33+25   | 40+75 | Lt.  | 750                      |
| 2-G   | 33+25   | 39+75 | Rt.  | 650                      |
| Total |         |       |      | 1400                     |

P PAVEMENT REMOVAL

| Mark  | Station |       | Length | E-8 Pavement Removal Sq. Yds. |
|-------|---------|-------|--------|-------------------------------|
|       | From    | To    |        |                               |
| 1-P   | 29+00   | 31+94 | 294    | 588                           |
| Total |         |       |        | 588                           |

D DITCHES

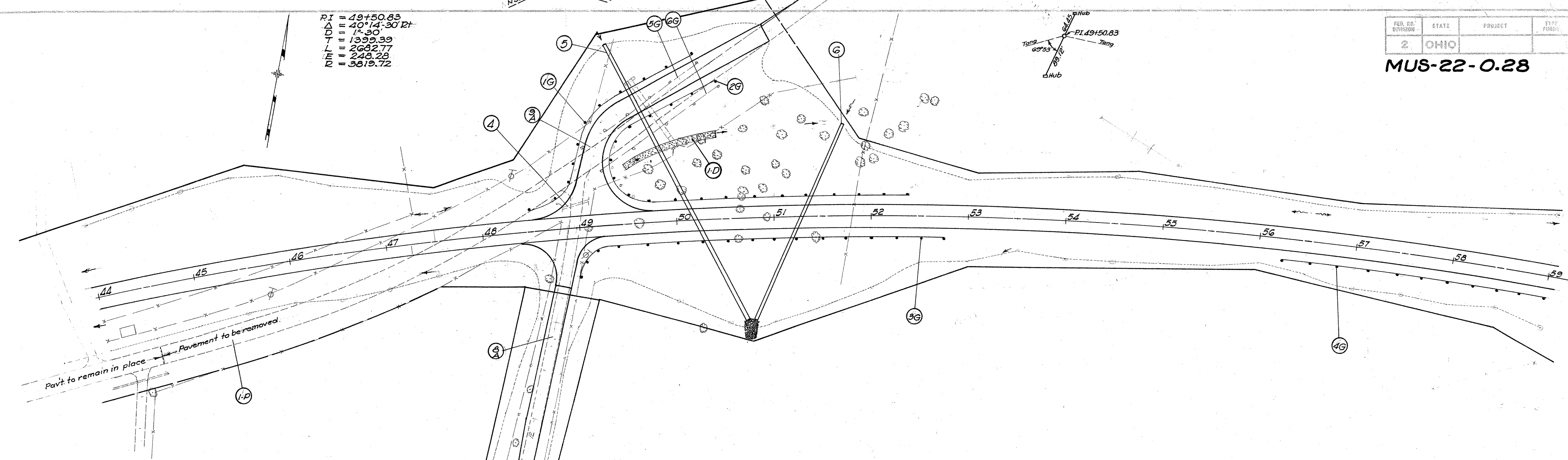
| Mark   | Station |       | Side | L-10 Sodding Sq. Yds. | T-12 Type 1 Pav. Gutter Lin. Ft. |
|--------|---------|-------|------|-----------------------|----------------------------------|
|        | From    | To    |      |                       |                                  |
| 1-D    | 34+50   | 37+50 | Rt.  | 300                   |                                  |
| 2-D    | 34+80   | 36+00 | Lt.  | 125                   |                                  |
| 3-D    | 36+00   | 39+00 | Lt.  |                       | 305                              |
| 4-D    | 39+00   | 41+36 | Lt.  | 240                   |                                  |
| Totals |         |       |      | 665                   | 305                              |





PI = 49+50.83  
 Δ = 40°14'30" Rt.  
 D = 1" 30'  
 T = 1339.39  
 L = 2682.77  
 E = 243.23  
 R = 3819.72

MUS-22-0.28



(A) DRIVES AND APPROACHES

| Mark | Station  | Side | Type          | Details on Sheet |
|------|----------|------|---------------|------------------|
| 8-A  | 48+97.48 | Rt.  | Twp. Rd. App. | 2G               |
| 9-A  | 48+97.48 | Lt.  | Access Rd.    | 27               |

STRUCTURES 20' SPAN AND UNDER

| Struc. | Station  | Existing |       |       | Proposed |      |      | Details on Sheet |
|--------|----------|----------|-------|-------|----------|------|------|------------------|
|        |          | TYPE     | SIZE  | LENG  | TYPE     | SIZE | LENG |                  |
| 4      | 48+97.48 | Pipe     | 12"   | 28'   | Removal  |      |      | Not Detailed     |
| 5      | 50+20    | Box      | 24x4' | 82.3' | Pipe     | 36"  | 320' | 95               |
| 6      | 51+28    | No       |       |       | Pipe     | 30"  | 220' | 96               |

(G) GUARD RAIL

| Mark   | Station |         | Side | I-15 Guard Rail Lin. Ft. | I-15 G.D. Removed & Disposed of Lin. Ft. |
|--------|---------|---------|------|--------------------------|--|
|        | From    | To      |      |                          |  |
| 1-G    | 48+49.5 | 48+51.5 | Lt.  | 250                      |  |
| 2-G    | 48+51.5 | 52+37.5 | Lt.  | 475                      |  |
| 3-G    | 52+37.5 | 52+75   | Rt.  | 400                      |  |
| 4-G    | 52+75   | 59+00   | Rt.  | 275                      |  |
| 5-G    | 59+00   | 59+25   | Lt.  |                          | 120                                      |
| GG     | 59+25   | 59+50   | Lt.  |                          | 150                                      |
| Totals |         |         |      | 1400                     | 270                                      |

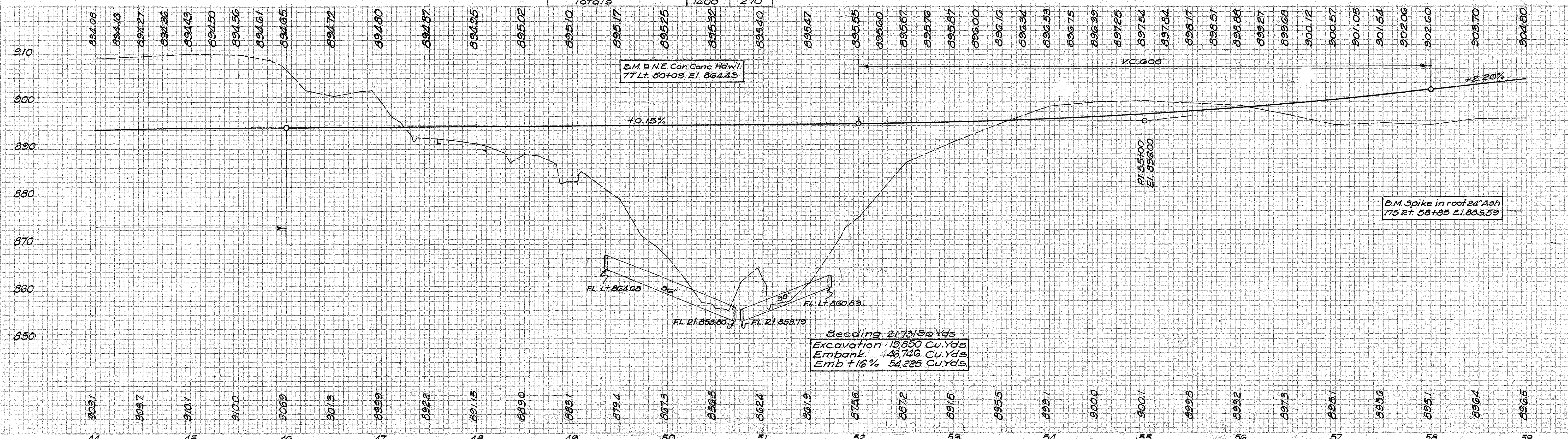
(P) PAVEMENT REMOVAL

| Mark  | Station |       | Length | E-B Pavement Removal Sq. Yds. |
|-------|---------|-------|--------|-------------------------------|
|       | From    | To    |        |                               |
| I-P   | 44+50   | 50+30 | 710    | 1511 *                        |
| Total |         |       |        | 1511                          |

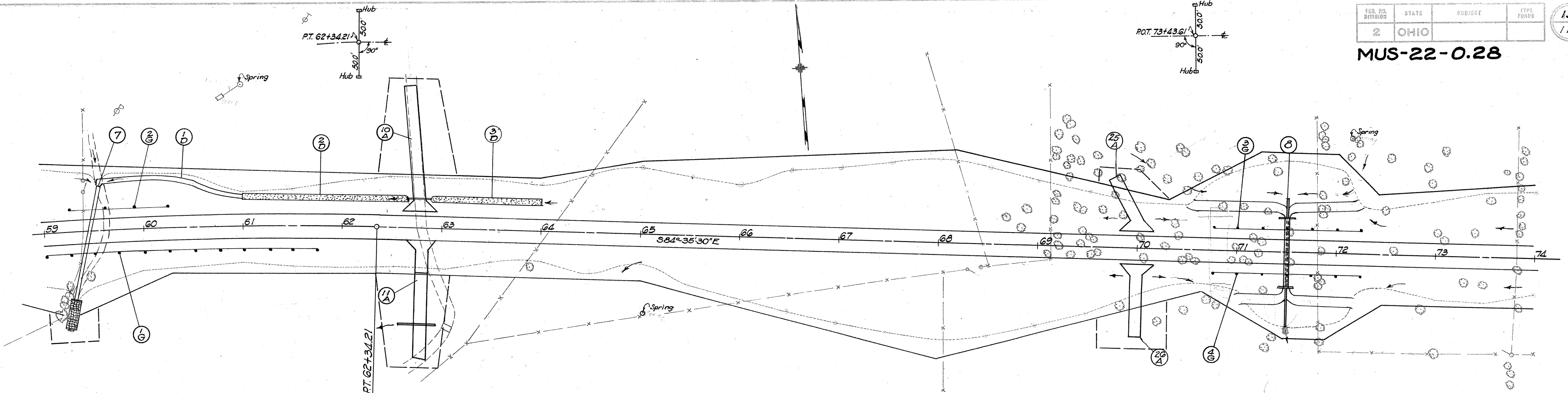
\*Includes 91 Sq. Yds. Existing Curve Widening

(D) DITCHES

| Mark  | Station |       | Side | L-10 Sodding Sq. Yds. | I-14 Type 1 Pav. Gutter Lin. Ft. |
|-------|---------|-------|------|-----------------------|----------------------------------|
|       | From    | To    |      |                       |                                  |
| I-D   | 49+50   | 50+45 | Lt.  | 100                   |                                  |
| Total |         |       |      | 100                   |                                  |







**(A) DRIVES AND APPROACHES**

| Mark | Station | Side | Type       | Details on Sheet |
|------|---------|------|------------|------------------|
| 10-A | 62+81   | Lt.  | Field Dr.  | 28               |
| 11-A | 62+81   | Rt.  | Resid. Dr. | 28               |
| 25-A | 70+00   | Lt.  | Field Dr.  | 33               |
| 26-A | 70+00   | Rt.  | Field Dr.  | 33               |

**STRUCTURES 20' SPAN AND UNDER**

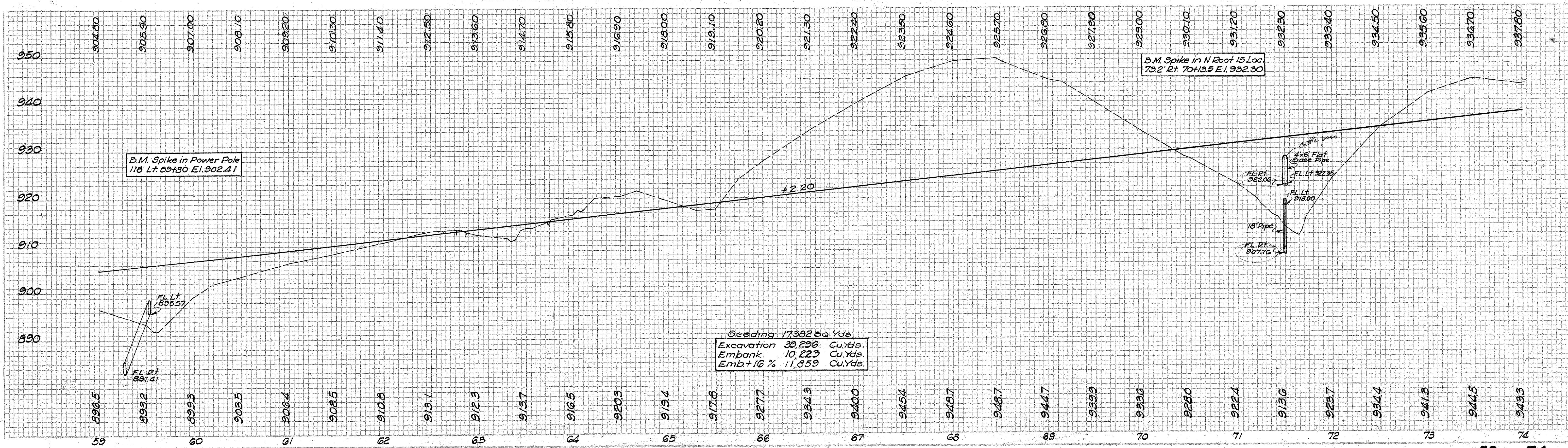
| Struc | Station | Existing       | Proposed       | Details on Sheet |
|-------|---------|----------------|----------------|------------------|
|       |         | TYPE SIZE LENG | TYPE SIZE LENG |                  |
| 7     | 59+41   | None           | Pipe 36" 118'  | 27               |
| 8     | 71+54   | None           | Pipe 48" 128'  | 28               |

**(C) GUARD RAIL**

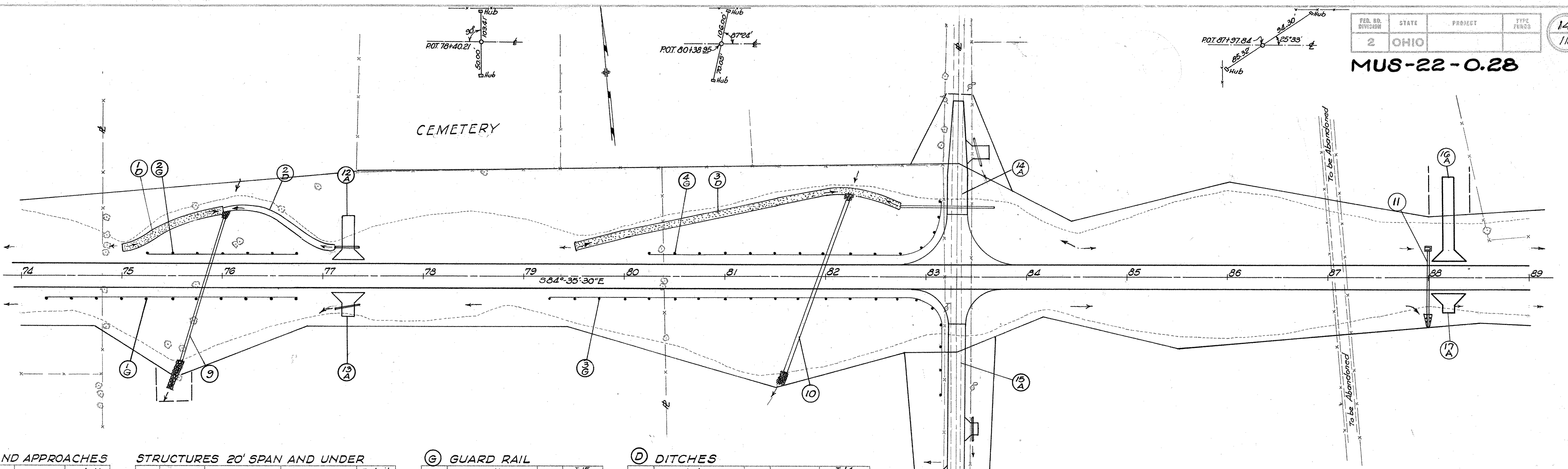
| Mark  | Station | Side  | I-15 Guard Rail Lin. Ft. |
|-------|---------|-------|--------------------------|
|       | From    | To    |                          |
| 1-G   | 59+00   | 61+75 | 275                      |
| 2-G   | 59+25   | 60+25 | 100                      |
| 3-G   | 70+75   | 72+25 | 150                      |
| 4-G   | 70+75   | 72+25 | 150                      |
| Total |         |       | 675                      |

**(D) DITCHES**

| Mark   | Station | Side  | L-10 Sodding Sq. Yds. | I-14 Type 1 Port Gutter Lin. Ft. |
|--------|---------|-------|-----------------------|----------------------------------|
|        | From    | To    |                       |                                  |
| 1-D    | 59+50   | 61+00 | Lt.                   | 156                              |
| 2-D    | 61+00   | 62+69 | Lt.                   | 169                              |
| 3-D    | 62+93   | 64+00 | Lt.                   | 107                              |
| Totals |         |       | 276                   | 156                              |







(A) DRIVES AND APPROACHES

| Mark | Station  | Side | Type      | Details on Sheet |
|------|----------|------|-----------|------------------|
| 12-A | 77+25    | Lt.  | Field     | 28               |
| 13-A | 77+25    | Rt.  | Field     | 28               |
| 14-A | 83+31.41 | Lt.  | Twp. Road | 29 & 30          |
| 15-A | 83+31.41 | Rt.  | Twp. Road | 29 & 30          |
| 16-A | 86+20    | Lt.  | Field     | 60               |
| 17-A | 86+20    | Rt.  | Field     | 60               |

STRUCTURES 20' SPAN AND UNDER

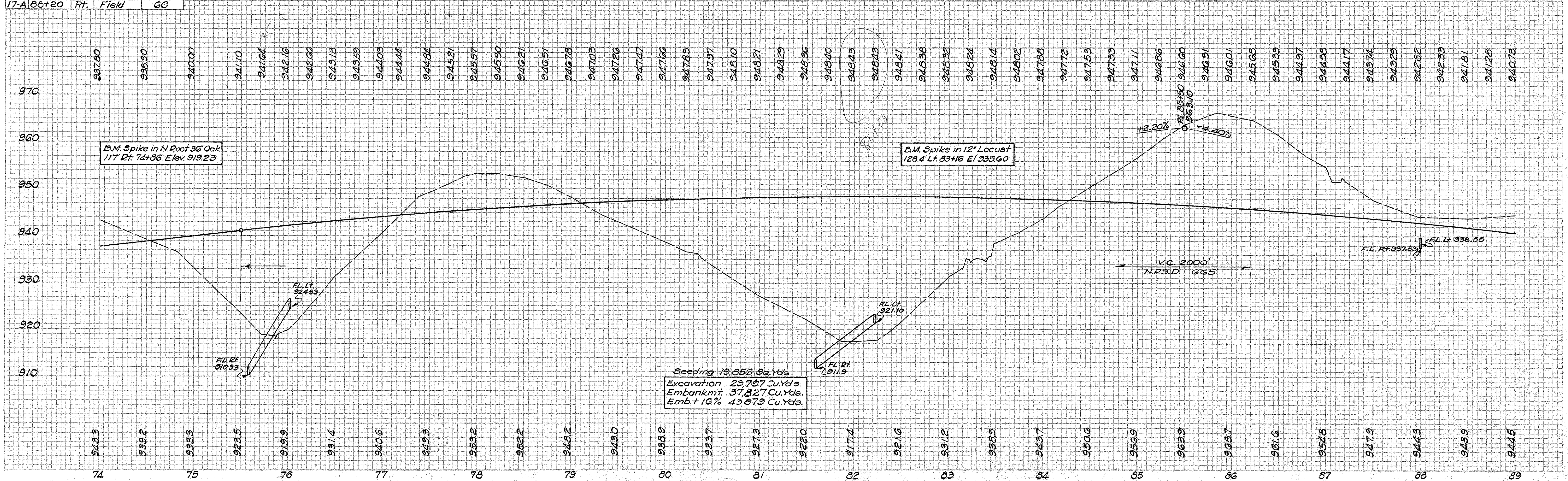
| Struc | Station | Existing |      |       | Proposed |      |       | Details on Sheet |
|-------|---------|----------|------|-------|----------|------|-------|------------------|
|       |         | TYPE     | SIZE | LENG. | TYPE     | SIZE | LENG. |                  |
| 9     | 75+84   | No       |      |       | Pipe     | 21"  | 148   | 99               |
| 10    | 81+94   | No       |      |       | Pipe     | 24"  | 184   | 100              |
| 11    | 88+00   | No       |      |       | Pipe     | 15"  | 64    | 101              |

(G) GUARD RAIL

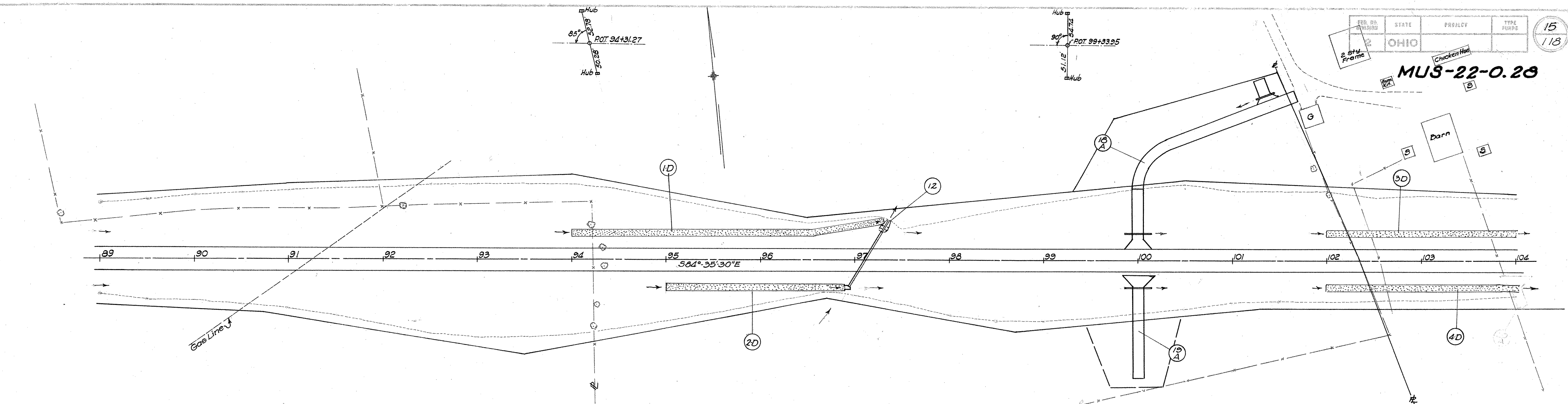
| Mark  | Station |               | Side | 1-15                |
|-------|---------|---------------|------|---------------------|
|       | From    | To            |      | Guard Rail Lin. Ft. |
| 1-G   | 74+25   | 76+75         | Rt.  | 250                 |
| 2-G   | 75+25   | 76+75         | Lt.  | 150                 |
| 3-G   | 79+25   | Drive 1+20 Rt | Rt   | 475                 |
| 4-G   | 80+25   | Drive 0+76 Lt | Lt   | 325                 |
| Total |         |               |      | 1200                |

(D) DITCHES

| Mark   | Station |       | Side | L-10 Sodding Sq.Yds | T-14 Type 1 Pav. Gutter Lin.Ft. |
|--------|---------|-------|------|---------------------|---------------------------------|
|        | From    | To    |      |                     |                                 |
| 1-D    | 75+00   | 76+00 | Lt.  | 109                 |                                 |
| 2-D    | 76+00   | 77+13 | Lt.  |                     | 122                             |
| 3-D    | 79+50   | 82+75 | Lt.  | 333                 |                                 |
| Totals |         |       |      | 442                 | 122                             |







**(A) DRIVES & APPROACHES**

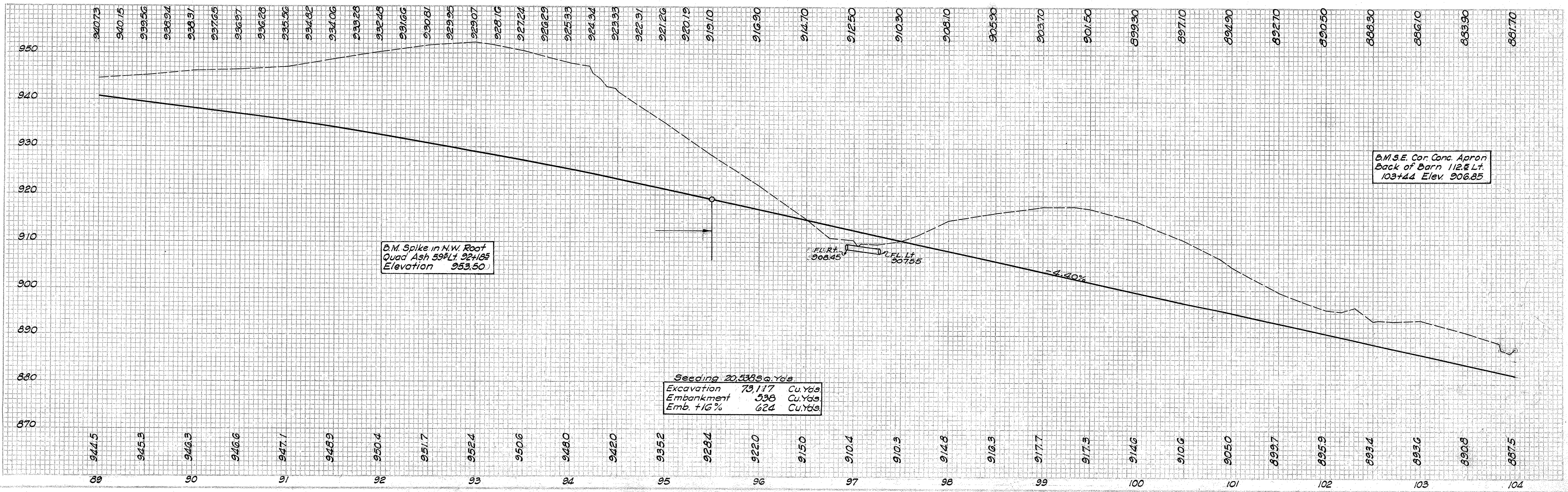
| Mark | Station | Side | Type          | Details on Sheet |
|------|---------|------|---------------|------------------|
| 18A  | 100+00  | Lt   | Resid. Dr.    | 31 & 32          |
| 19A  | 100+00  | Rt   | Field Dr.     | 31 & 32          |
| 20A  | 104+00  | Rt   | Drive deleted |                  |

**STRUCTURES 20' SPAN AND UNDER**

| Stru. | Station | Existing |      |      | Proposed |      |      | Details on Sheet |
|-------|---------|----------|------|------|----------|------|------|------------------|
|       |         | TYPE     | SIZE | LENG | TYPE     | SIZE | LENG |                  |
| 12    | 97+11   |          | No   |      | Pipe     | 15"  | 63   | 10/1             |

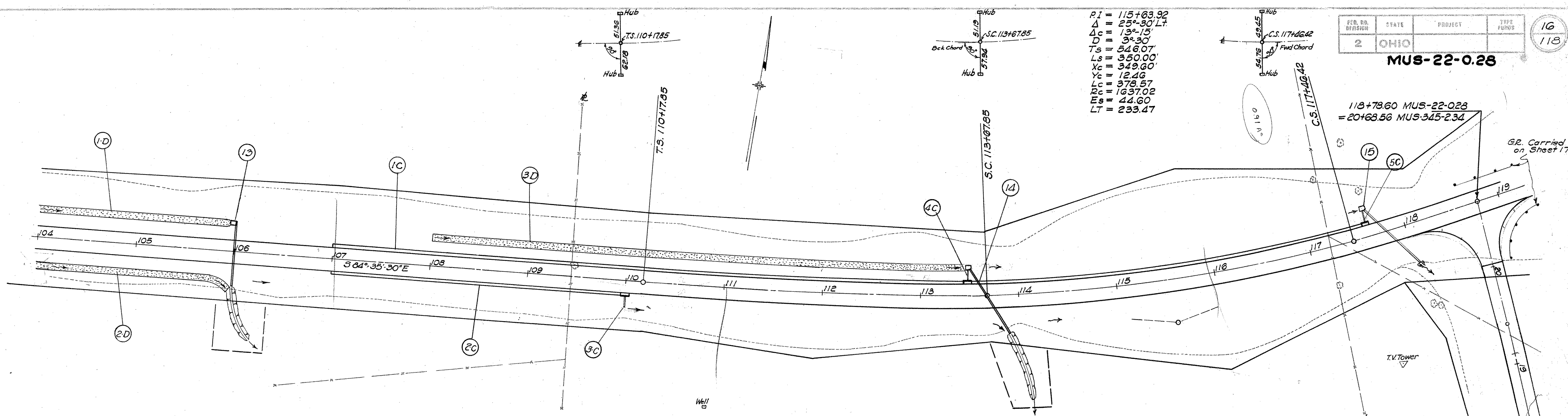
**(D) DITCHES**

| Mark  | Station |        | Side | L-10 Sodding Sq. Yds. |
|-------|---------|--------|------|-----------------------|
|       | From    | To     |      |                       |
| 1-D   | 94+00   | 97+32  | Lt.  | 333                   |
| 2-D   | 95+00   | 96+81  | Rt.  | 181                   |
| 3-D   | 102+00  | 104+00 | Lt.  | 200                   |
| 4-D   | 102+00  | 104+00 | Rt.  | 200                   |
| Total |         |        |      | 914                   |





$P1 = 115+63.92$   
 $\Delta = 25^{\circ}30'Lt$   
 $\Delta c = 13^{\circ}15'$   
 $D = 3^{\circ}30'$   
 $Ts = 546.07'$   
 $Ls = 350.00'$   
 $Xc = 349.60'$   
 $Yc = 12.46'$   
 $Lc = 378.57'$   
 $Rc = 1637.02'$   
 $Eg = 44.60'$   
 $Lt = 233.47'$



STRUCTURES 20' SPAN & UNDER

| Stru. | Station   | Existing |      |       | Proposed |      |       | Details on Sheet |
|-------|-----------|----------|------|-------|----------|------|-------|------------------|
|       |           | TYPE     | SIZE | LENG. | TYPE     | SIZE | LENG. |                  |
| 13    | 106+00    | No       |      |       | Pipe     | 15"  | 64'   | 102              |
| 14    | 113+67.85 | No       |      |       | Pipe     | 18"  | 73'   | 102              |
| 15    | 117+81.42 | No       |      |       | Pipe     | 18"  | 78'   | 103              |

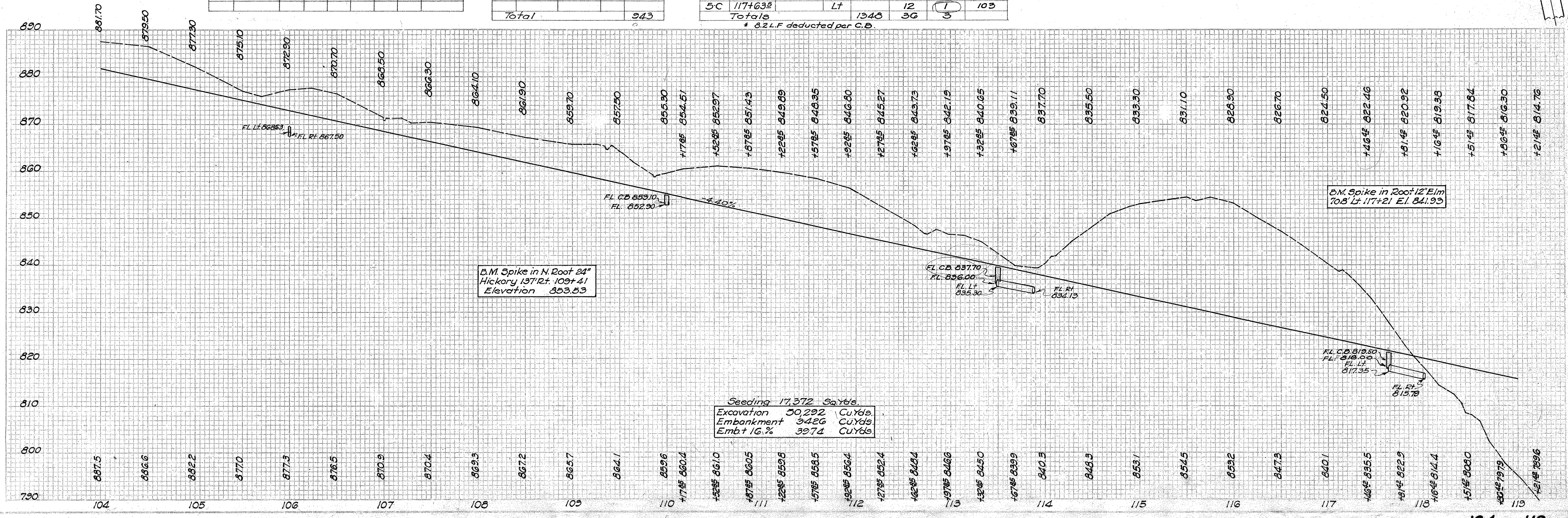
D DITCHES

| Mark  | Station |        | Side | L-10 Sodding Sa. Yds. |
|-------|---------|--------|------|-----------------------|
|       | From    | To     |      |                       |
| 1-D   | 104+00  | 105+96 | Lt   | 196                   |
| 2-D   | 104+00  | 106+00 | Rt   | 202                   |
| 3-D   | 108+00  | 113+45 | Lt   | 525                   |
| Total |         |        |      | 943                   |

C CURB & GUTTER

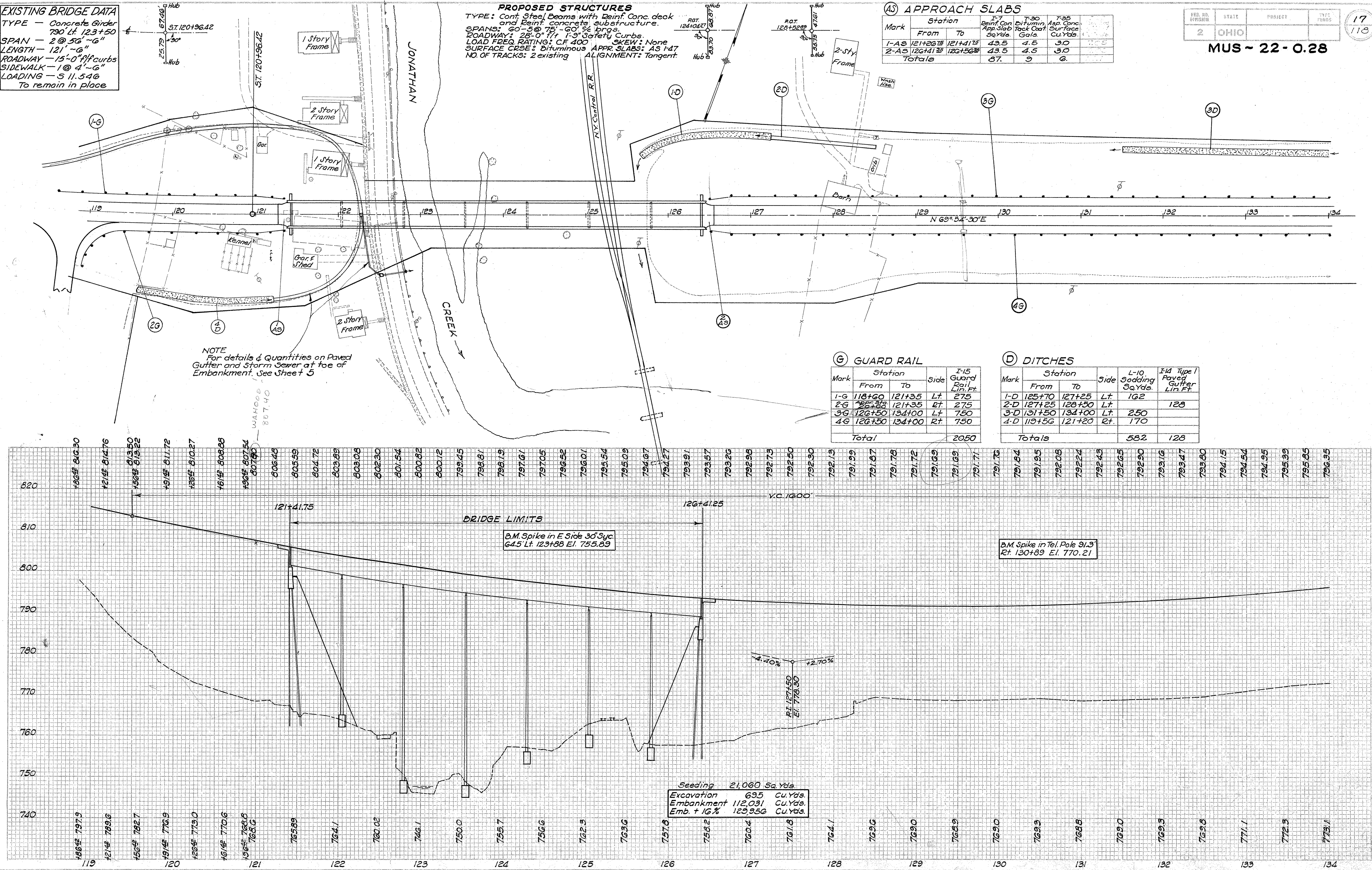
| Mark   | Station  |           | Side | I-12 Curb & Gutter for St. Lin. Ft. | I-2 12" Pipe for St. Sewer Lin. Ft. | I-8 N° 9-A Cul. Basin as per Plan Each | Details on Sheet |
|--------|----------|-----------|------|-------------------------------------|-------------------------------------|--|------------------|
|        | From     | To        |      |                                     |                                     |  |                  |
| 1-C    | 107+00   | 117+67.85 | Lt   | 1052*                               |                                     |  |                  |
| 2-C    | 107+00   | 110+04.18 | Rt   | 296*                                |                                     |  |                  |
| 3-C    | 110+00   |           | Rt   |                                     | 12                                  | 1                                      | 67               |
| 4-C    | 113+50   |           | Lt   |                                     | 12                                  | 1                                      | 102              |
| 5-C    | 117+63.5 |           | Lt   |                                     | 12                                  | 1                                      | 103              |
| Totals |          |           |      | 1348                                | 36                                  | 3                                      |                  |

\* 8.2 L.F. deducted per C.D.



Seeding 17,372 Sa. Yds.  
 Excavation 50,292 Cu. Yds.  
 Embankment 3426 Cu. Yds.  
 Embt 16.2% 39.74 Cu. Yds.





**EXISTING BRIDGE DATA**  
TYPE - Concrete Girder  
SPAN - 2 @ 56'-6"  
LENGTH - 121'-6"  
ROADWAY - 15'-0" w/ curbs  
SIDEWALK - 1 @ 4'-6"  
LOADING - S 11.546  
To remain in place

**PROPOSED STRUCTURES**  
TYPE: Cont. Steel Beams with Rein. Conc. deck and Rein. concrete substructure.  
SPANS: 60'-5" @ 75'-6" brgs.  
ROADWAY: 28'-0" w/ 1'-3" Safety Curbs.  
LOAD FREQ. RATING: C.F. 400  
SURFACE CRSE: Bituminous APPR. SLABS: AS 1-47  
NO. OF TRACKS: 2 existing ALIGNMENT: Tangent

**AS APPROACH SLABS**

| Mark  | Station   |           | I-7 Rein. Conc. App. Slab Sq. Yds. | T-30 Bitumin. Tack Coat Gals. | F-25 Asp. Conc. Surface Cu. Yds. |
|-------|-----------|-----------|------------------------------------|-------------------------------|----------------------------------|
|       | From      | To        |                                    |                               |                                  |
| 1-AS  | 121+20.75 | 121+41.75 | 43.5                               | 4.5                           | 3.0                              |
| 2-AS  | 126+41.75 | 126+56.25 | 43.5                               | 4.5                           | 3.0                              |
| Total |           |           | 87.                                | 9                             | 6.                               |

NOTE  
For details & Quantities on Paved Gutter and Storm Sewer at toe of Embankment. See Sheet 5

**G GUARD RAIL**

| Mark  | Station |        | Side | I-15 Guard Rail Lin. Ft. |
|-------|---------|--------|------|--------------------------|
|       | From    | To     |      |                          |
| 1-G   | 118+60  | 121+35 | Lt.  | 275                      |
| 2-G   | 121+35  | 121+35 | Rt.  | 275                      |
| 3-G   | 126+50  | 134+00 | Lt.  | 750                      |
| 4-G   | 126+50  | 134+00 | Rt.  | 750                      |
| Total |         |        |      | 2050                     |

**D DITCHES**

| Mark   | Station |        | Side | L-10 Sodding Sq. Yds. | I-14 Type I Paved Gutter Lin. Ft. |
|--------|---------|--------|------|-----------------------|-----------------------------------|
|        | From    | To     |      |                       |                                   |
| 1-D    | 125+70  | 127+25 | Lt.  | 162                   |                                   |
| 2-D    | 127+25  | 128+50 | Lt.  |                       | 128                               |
| 3-D    | 131+50  | 134+00 | Lt.  | 250                   |                                   |
| 4-D    | 119+56  | 121+20 | Rt.  | 170                   |                                   |
| Totals |         |        |      | 582                   | 128                               |

Seeding 21,060 Sq. Yds.  
Excavation 695 Cu. Yds.  
Embankment 112,031 Cu. Yds.  
Emb. + 16% 123,950 Cu. Yds.



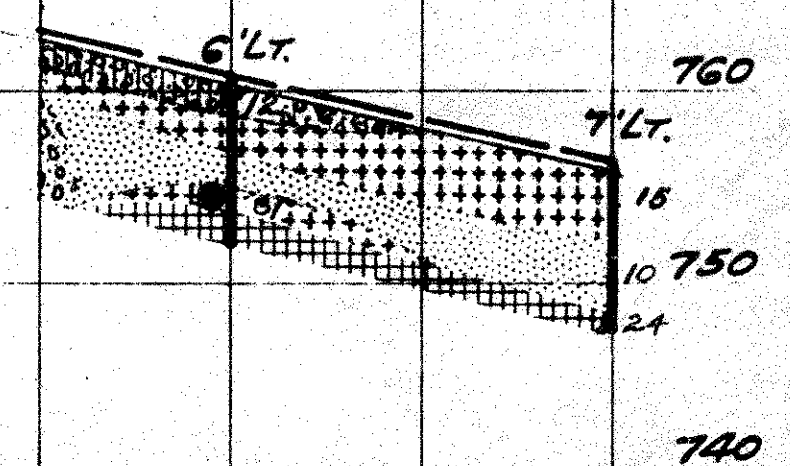
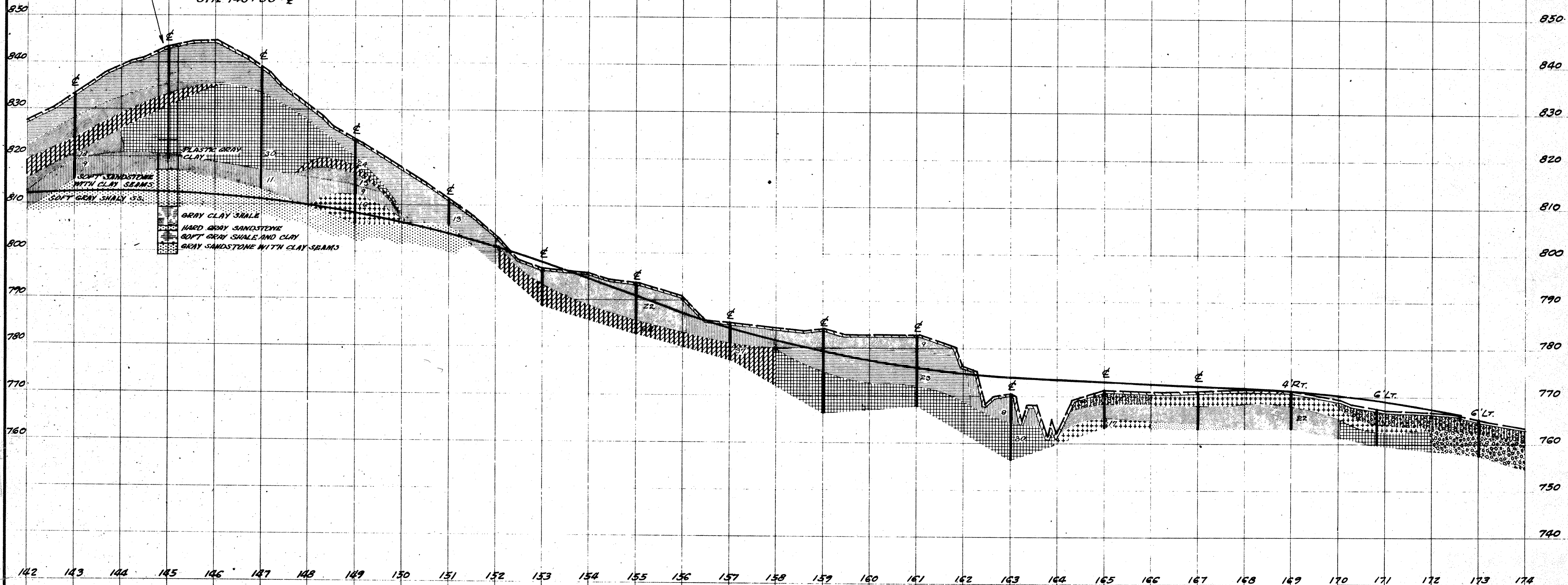
# SOIL PROFILE

MUSKINGUM COUNTY  
MUS-22-0.28

STATE HIGHWAY TESTING AND  
RESEARCH LABORATORY  
O. S. U. CAMPUS, COLUMBUS, OHIO

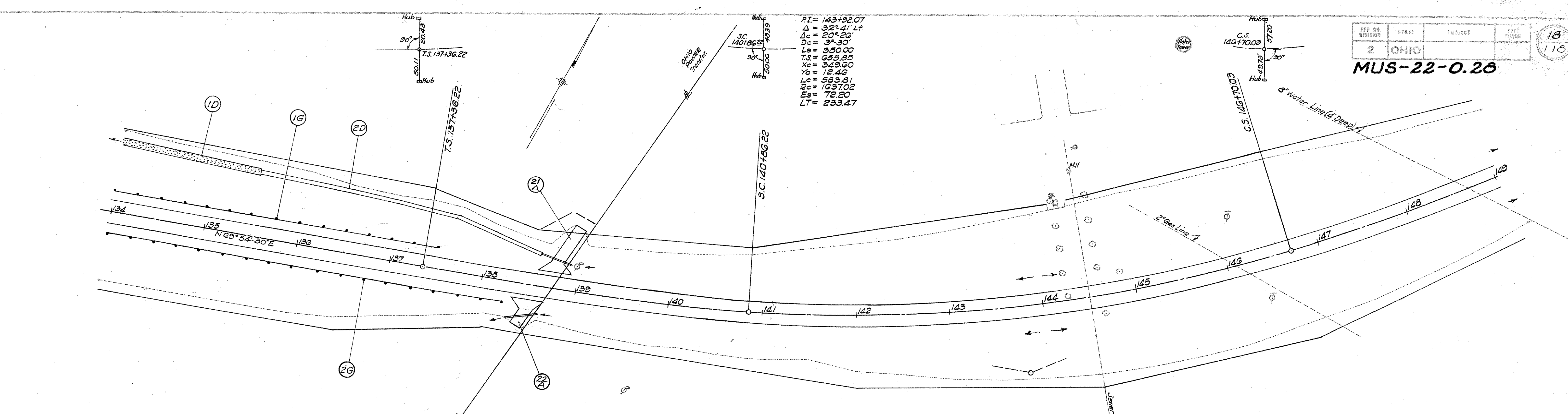
5  
5

LOG OF CORE BORING  
STA. 143+00-E





$PI = 143+92.07$   
 $\Delta = 32^\circ 41' Lt.$   
 $\Delta c = 20^\circ 20'$   
 $Dc = 3^\circ 30'$   
 $Ls = 350.00$   
 $Ts = 655.85$   
 $Xc = 349.60$   
 $Yc = 12.48$   
 $Lc = 583.81$   
 $Es = 1637.02$   
 $Ea = 72.20$   
 $Lt = 233.47$



**(A) DRIVES & APPROACHES**

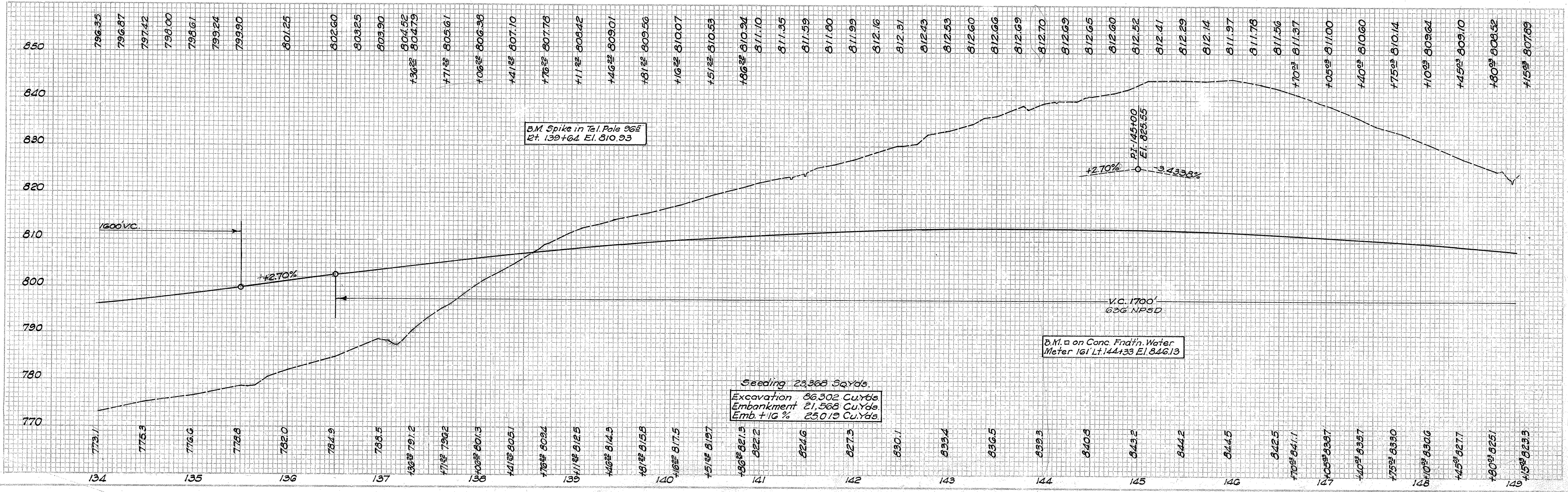
| Mark | Station | Side | Type     | Details on Sheet |
|------|---------|------|----------|------------------|
| 21A  | 138+64  | Lt.  | Field Dr | 33               |
| 22A  | 138+64  | Rt.  | Field Dr | 33               |

**(G) GUARD RAIL**

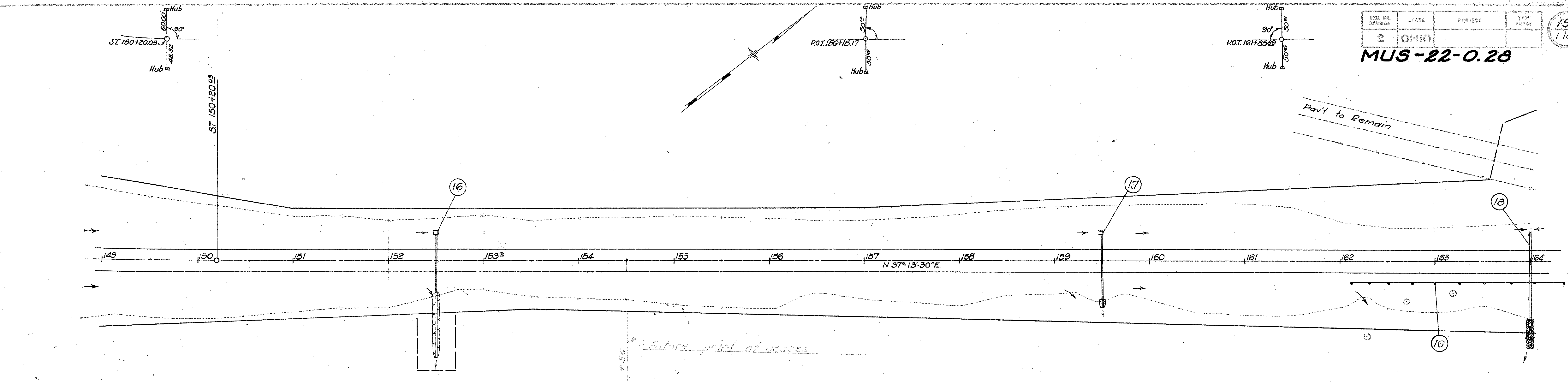
| Mark  | Station |        | Side | I-15 Guard Rail Lin. Ft. |
|-------|---------|--------|------|--------------------------|
|       | From    | To     |      |                          |
| 1-G   | 134+00  | 137+50 | Lt.  | 350                      |
| 2-G   | 134+00  | 138+25 | Rt.  | 425                      |
| Total |         |        |      | 775                      |

**(D) DITCHES**

| Mark   | Station |        | Side | L-10 Sodding Sq Yds. | I-14 Type 1 Paved Gutters Lin. Ft. |
|--------|---------|--------|------|----------------------|------------------------------------|
|        | From    | To     |      |                      |                                    |
| 1-D    | 134+00  | 135+50 | Lt.  | 150                  |                                    |
| 2-D    | 135+50  | 138+59 | Lt.  |                      | 312                                |
| Totals |         |        |      | 150                  | 312                                |







# A DRIVES & APPROACHES

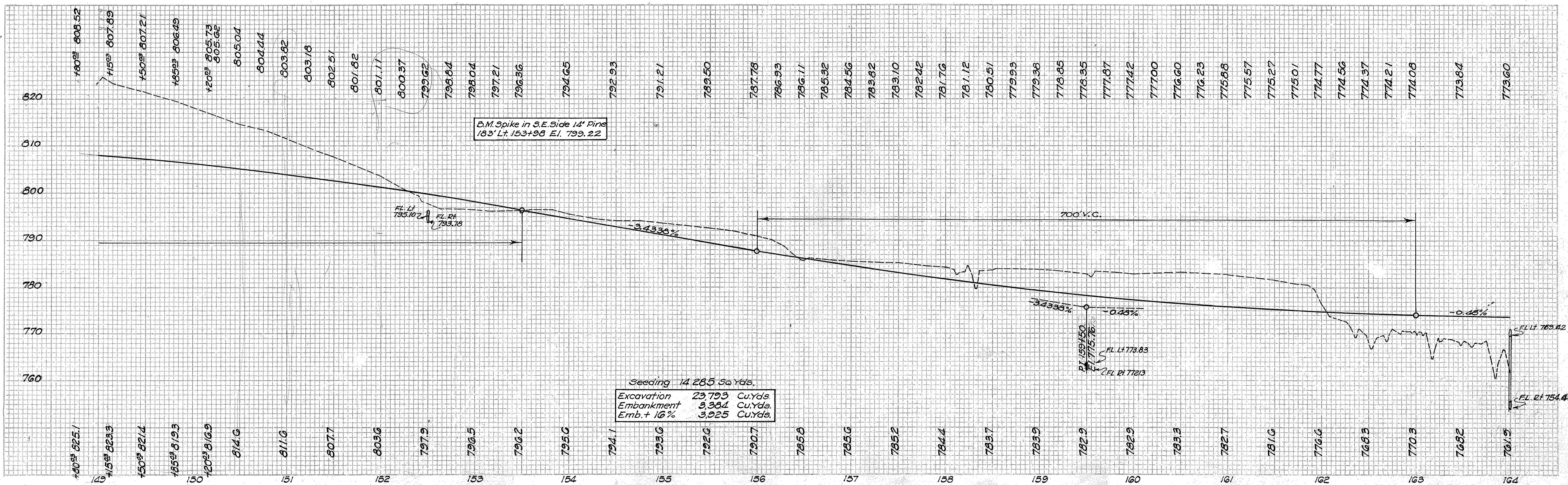
| Mark | Station | Side | Type | Details on Sheet |
|------|---------|------|------|------------------|
|      |         |      |      |                  |
|      |         |      |      |                  |
|      |         |      |      |                  |

# STRUCTURES 20' SPAN AND UNDER

| Struc | Station | Existing |      |      | Proposed |      |      | Details<br>on<br>Sheet |
|-------|---------|----------|------|------|----------|------|------|------------------------|
|       |         | TYPE     | SIZE | LENG | TYPE     | SIZE | LENG |                        |
| 16    | 152+50  | No       |      |      | Pipe     | 18"  | 66   | 103                    |
| 17    | 159+50  | No       |      |      | Pipe     | 18"  | 68   | 104                    |
| 18    | 164+00  | No       |      |      | Pipe     | 18"  | 22'  | 104                    |

# G GUARD RAIL

| Mark  | Station |        | Side | I-15 Guard Rail Lin. Ft. |
|-------|---------|--------|------|--------------------------|
|       | From    | To     |      |                          |
| 1-G   | 162+10  | 164+35 | Rt.  | 225                      |
| Total |         |        |      | 225                      |





**END PROJECT**  
**STA. 172+62.07**

**END WORK  
STA. 177+00**

*For Details & Quantities on Transition See Sheet 22*

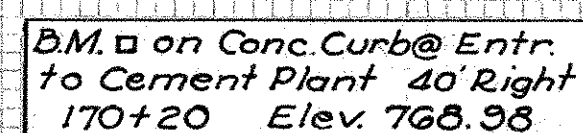
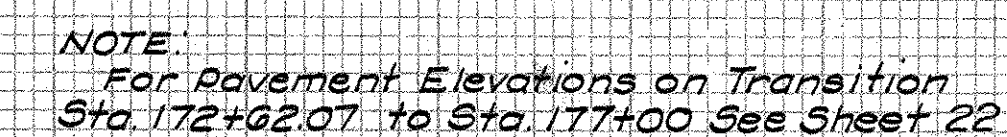
Tunnel under Highway  
Width (var.) 16' to 21'  
Length 153.35 2

NOTE:  
Existing G.R. and Cyclone  
Fence to remain in place.

Three 6" Water Lines

Value B =

### 3" Water Lines

[illegible]

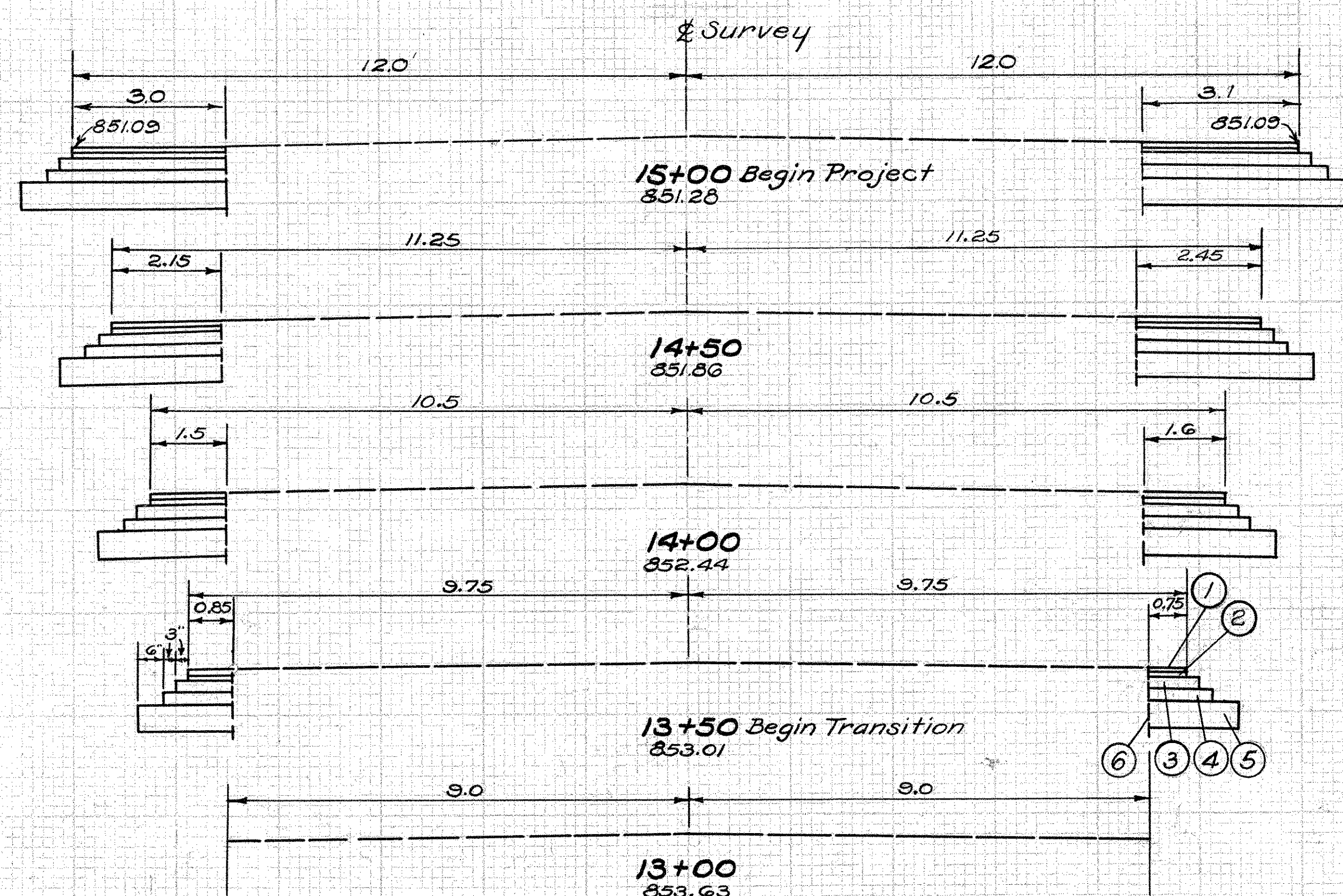
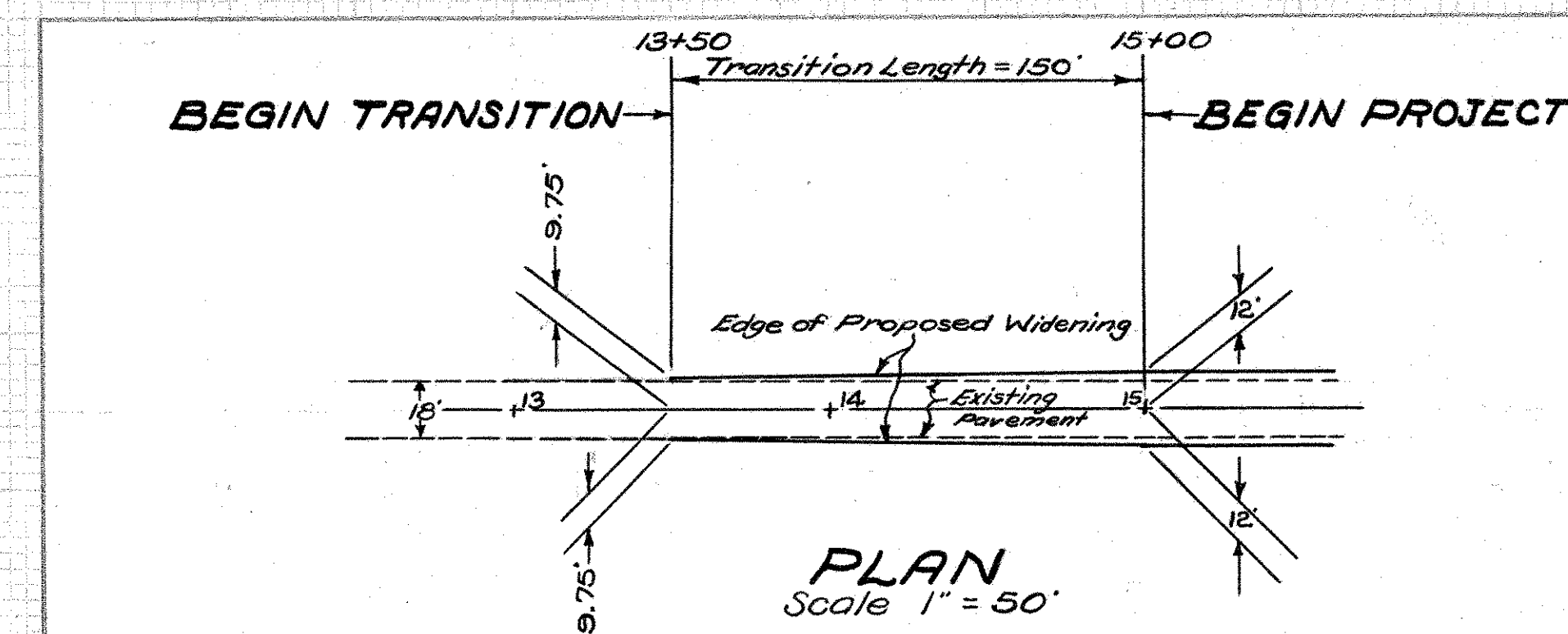
|             |       |         |
|-------------|-------|---------|
| Seeding     | 10614 | Sq.Yds. |
| Excavation  | 7699  | Cu.Yds. |
| Embankment  | 2265  | Cu.Yds. |
| Emb. + 16 % | 2628  | Cu.Yds. |

Top of Tunnel under Roadway  
Elev. 724.0

Elev. Top Rail 706.0



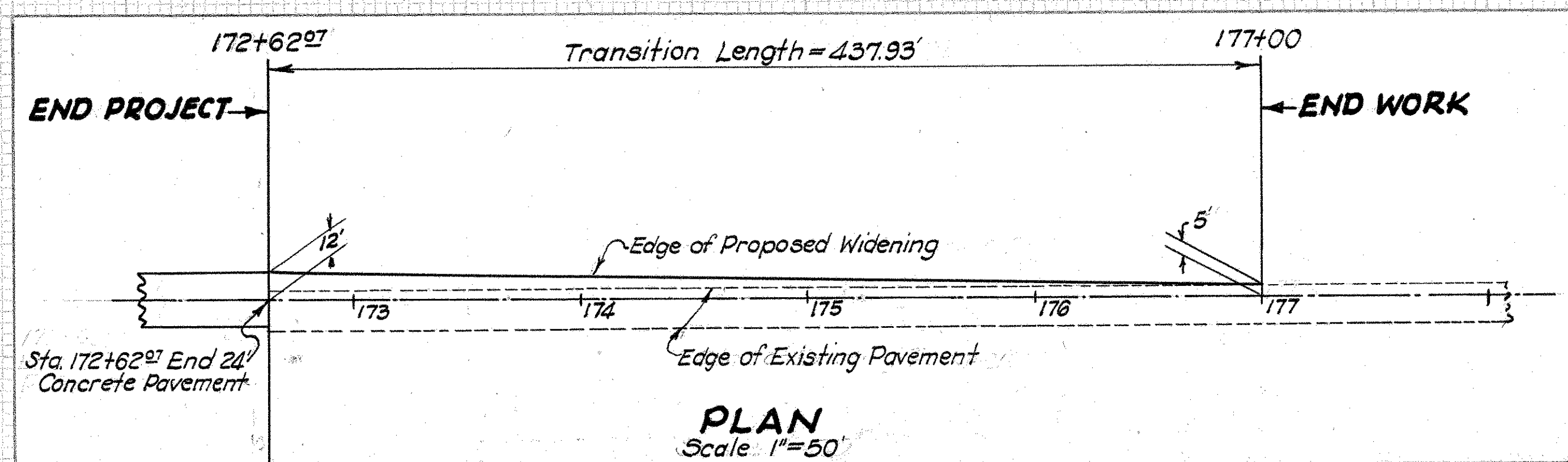
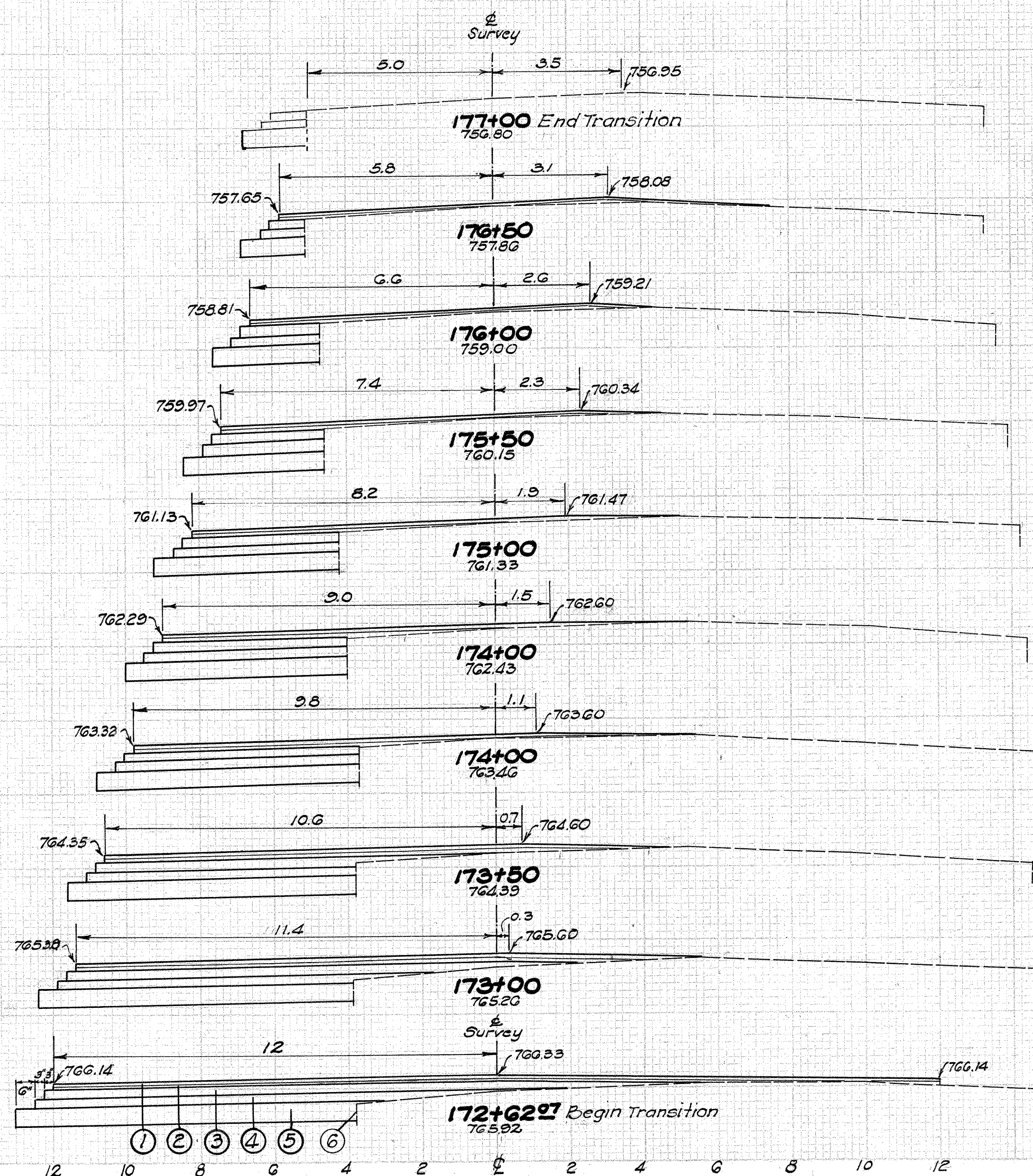
MUS-22-0.28



# ESTIMATED QUANTITIES

|   |      |   |     |          |
|---|------|---|-----|----------|
| ① | T-35 | 1 1/4" Asphaltic Concrete Surface Course  | 2.2 | Cu. Yds. |
| ② | B-35 | 1 1/4" Asphaltic Concrete Leveling Course | 2.2 | Cu. Yds. |
| ③ | B-35 | 3" Asphaltic Concrete Leveling Course     | 6.0 | Cu. Yds. |
| ④ | B-35 | 3" Asphaltic Concrete Base Course         | 6.7 | Cu. Yds. |
| ⑤ | I-22 | 6" Subbase Grading 'C' or 'D'             | 16. | Cu. Yds. |
| ⑥ | B-35 | Sealing Vertical Face of Existing Pav't.  | 300 | Lin. Ft. |





### ESTIMATED QUANTITIES

|   |  |               |
|---|--|---------------|
| ① | T-35 1 1/4" Asphaltic Concrete Surface Course (Type A)       | 20.1 Cu. Yds. |
| ② | B-35 1 1/4" Asphaltic Concrete Leveling Course (+1/2" Extra) | 21.8 Cu. Yds. |
| ③ | B-35 3" Asphaltic Concrete Leveling Course                   | 21.7 Cu. Yds. |
| ④ | B-35 3" Asphaltic Concrete Base Course                       | 20.8 Cu. Yds. |
| ⑤ | I-22 6" Subbase, Grading 'C' or 'D'                          | 43. Cu. Yds.  |
| ⑥ | B-35 Sealing Vertical Face of Existing Pav't.                | 438 Lin. Ft.  |



# SUPERELEVATION TABLE

MUS-22-0.28

T.S. 19+46.44 SC. 22+46.44 D=3°00' Lt. Rate=.071 L=300 C.S. 27+82.75 ST. 30+82.75

| LEFT          |                      | CENTER   | RIGHT         |               |
|---------------|----------------------|----------|---------------|---------------|
| Edge of Pavt. | Deduct From Pr. Grd. | Station  | Profile Grade | Edge of Pavt. |
| 851.86        | -0.19                | 19       | 852.15        | 851.86        |
| 852.39        |                      | +25      | 852.38        | 852.39        |
| 852.78        |                      | +46.44   | 852.97        | 852.82        |
| 853.39        |                      | +76.44   | 853.58        | 853.56        |
| 854.07        |                      | 20+06.44 | 854.26        | 854.41        |
| 854.80        |                      | +36.44   | 854.99        | 855.31        |
| 855.60        |                      | +66.44   | 855.79        | 856.28        |
| 856.47        |                      | +96.44   | 856.66        | 857.29        |
| 857.36        |                      | 21+26.44 | 857.55        | 858.38        |
| 858.26        |                      | +56.44   | 858.45        | 859.45        |
| 859.16        |                      | +86.44   | 859.35        | 860.52        |
| 860.06        |                      | 22+16.44 | 860.25        | 861.59        |
| 860.96        |                      | +46.44   | 861.15        | 862.61        |
| 861.07        |                      | +50      | 861.26        | 862.74        |
| 861.82        |                      | +75      | 862.01        | 863.52        |
| 862.57        |                      | 23       | 862.76        | 864.27        |
| 863.32        |                      | +25      | 863.51        | 865.02        |
| 864.07        |                      | +50      | 864.26        | 865.77        |
| 864.82        |                      | +75      | 865.01        | 866.52        |
| 865.57        |                      | 24       | 865.76        | 867.27        |
| 866.32        |                      | +25      | 866.51        | 868.02        |
| 867.07        |                      | +50      | 867.26        | 868.77        |
| 867.82        |                      | +75      | 868.01        | 869.52        |
| 868.57        |                      | 25       | 868.76        | 870.27        |
| 869.32        |                      | +25      | 869.51        | 871.02        |
| 870.07        |                      | +50      | 870.26        | 871.77        |
| 870.82        |                      | +75      | 871.01        | 872.52        |
| 871.57        |                      | 26       | 871.76        | 873.27        |
| 872.31        |                      | +25      | 872.50        | 874.01        |
| 873.03        |                      | +50      | 873.22        | 874.73        |
| 873.72        |                      | +75      | 873.91        | 875.42        |
| 874.40        |                      | 27       | 874.59        | 876.10        |
| 875.05        |                      | +25      | 875.24        | 876.75        |
| 875.69        |                      | +50      | 875.88        | 877.39        |
| 876.30        |                      | +75      | 876.49        | 877.99        |
| 876.48        |                      | +82.75   | 876.67        | 878.15        |
| 877.18        |                      | 28+12.75 | 877.37        | 878.71        |
| 877.85        |                      | +42.75   | 878.04        | 879.21        |
| 878.49        |                      | +72.75   | 878.68        | 879.68        |
| 879.09        |                      | 29+02.75 | 879.28        | 880.11        |
| 879.77        |                      | +32.75   | 879.96        | 880.62        |
| 880.22        |                      | +62.75   | 880.41        | 880.90        |
| 880.73        |                      | +92.75   | 880.92        | 881.24        |
| 881.21        |                      | 30+22.75 | 881.40        | 881.55        |
| 881.67        |                      | +52.75   | 881.86        | 881.84        |
| 882.09        |                      | +82.75   | 882.28        | 882.14        |
| 882.32        |                      | 31       | 882.51        | 882.32        |
| 882.63        | -0.19                | +25      | 882.82        | 882.63        |

P.C. 35+51.44 D=1°30' Rt. Rate=.036 L=200 P.T. 62+34.21

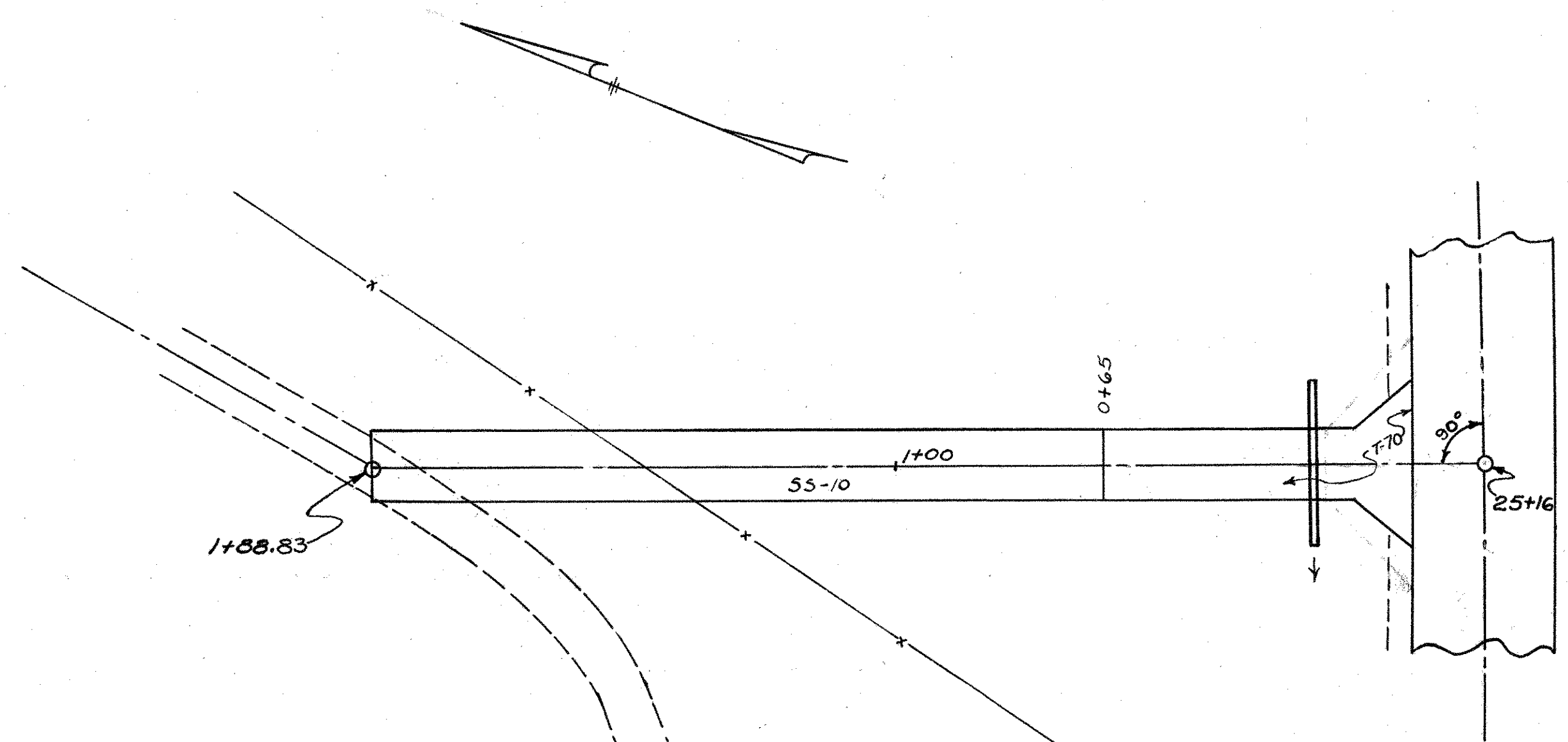
| LEFT          |                 | CENTER  | RIGHT         |               |
|---------------|-----------------|---------|---------------|---------------|
| Edge of Pavt. | Add to Pr. Grd. | Station | Profile Grade | Edge of Pavt. |
| 884.89        | +0.00           | 33+50   | 885.08        | 884.89        |
| 885.13        | +0.00           | +75     | 885.32        | 885.13        |
| 885.39        | +0.02           | 34      | 885.56        | 885.37        |
| 885.41        | +0.03           | +01.44  | 885.57        | 885.38        |
| 885.71        | +0.10           | +25     | 885.80        | 885.61        |
| 886.06        | +0.21           | +50     | 886.04        | 885.85        |
| 886.41        | +0.32           | +75     | 886.28        | 886.09        |
| 886.75        | +0.42           | 35      | 886.52        | 886.33        |
| 887.10        | +0.53           | +25     | 886.76        | 886.57        |
| 887.45        | +0.64           | +50     | 887.00        | 886.81        |
| 887.77        | +0.75           | +75     | 887.24        | 887.05        |
| 888.11        | +0.82           | 36      | 887.48        | 887.29        |
| 888.13        | +0.83           | +01.44  | 887.49        | 887.30        |
| 888.39        | +0.86           | +25     | 887.72        | 887.53        |
| 888.63        | +0.88           | +50     | 887.96        | 887.77        |
| 888.87        |                 | +75     | 888.20        | 888.01        |
| 889.11        |                 | 37      | 888.44        | 888.25        |
| 889.35        |                 | +25     | 888.68        | 888.49        |
| 889.59        |                 | +50     | 888.92        | 888.73        |
| 889.83        |                 | +75     | 889.16        | 888.97        |
| 889.07        |                 | 38      | 889.40        | 889.21        |
| 890.31        |                 | +25     | 889.64        | 889.45        |
| 890.55        |                 | +50     | 889.88        | 889.69        |
| 890.79        |                 | +75     | 890.12        | 889.93        |
| 891.03        |                 | 39      | 890.36        | 890.17        |
| 891.27        |                 | +25     | 890.60        | 890.41        |
| 891.51        |                 | +50     | 890.84        | 890.65        |
| 891.75        |                 | +75     | 891.08        | 890.89        |
| 891.99        |                 | 40      | 891.32        | 891.13        |
| 892.23        |                 | +25     | 891.56        | 891.37        |
| 892.45        |                 | +50     | 891.78        | 891.59        |
| 892.67        |                 | +75     | 892.00        | 891.81        |
| 892.88        |                 | 41      | 892.21        | 892.02        |
| 893.08        |                 | +25     | 892.41        | 892.22        |
| 893.28        |                 | +50     | 892.61        | 892.42        |
| 893.48        |                 | +75     | 892.79        | 892.60        |
| 893.64        |                 | 42      | 892.97        | 892.78        |
| 893.81        |                 | +25     | 893.12        | 892.95        |
| 893.97        |                 | +50     | 893.30        | 893.11        |
| 894.12        |                 | +75     | 893.45        | 893.26        |
| 894.26        |                 | 43      | 893.59        | 893.40        |
| 894.42        |                 | +25     | 893.73        | 893.54        |
| 894.52        |                 | +50     | 893.85        | 893.66        |
| 894.64        |                 | +75     | 893.97        | 893.78        |
| 894.75        |                 | 44      | 894.08        | 893.89        |
| 894.85        |                 | +25     | 894.18        | 893.99        |
| 894.94        |                 | +50     | 894.27        | 894.08        |
| 895.03        |                 | +75     | 894.36        | 894.17        |
| 895.10        |                 | 45      | 894.43        | 894.24        |
| 895.17        |                 | +25     | 894.50        | 894.31        |
| 895.23        |                 | +50     | 894.56        | 894.37        |
| 895.28        |                 | +75     | 894.61        | 894.42        |
| 895.32        |                 | 46      | 894.65        | 894.46        |
| 895.36        |                 | +25     | 894.69        | 894.50        |
| 895.40        |                 | +50     | 894.73        | 894.54        |
| 895.43        |                 | +75     | 894.76        | 894.57        |
| 895.47        |                 | 47      | 894.80        | 894.61        |
| 895.51        |                 | +25     | 894.84        | 894.65        |
| 895.55        |                 | +50     | 894.88        | 894.69        |
| 895.58        |                 | +75     | 894.91        | 894.72        |
| 895.62        |                 | 48      | 894.95        | 894.76        |
| 895.66        |                 | +25     | 894.99        | 894.80        |
| 895.70        |                 | +50     | 895.03        | 894.84        |
| 895.73        |                 | +75     | 895.06        | 894.87        |
| 895.77        |                 | 49      | 895.10        | 894.91        |
| 895.81        |                 | +25     | 895.14        | 894.95        |
| 895.85        |                 | +50     | 895.18        | 894.99        |
| 895.88        |                 | +75     | 895.21        | 895.02        |
| 895.92        |                 | 50      | 895.25        | 895.06        |
| 895.96        |                 | +25     | 895.29        | 895.10        |
| 896.00        |                 | +50     | 895.33        | 895.14        |
| 896.03        |                 | +75     | 895.36        | 895.17        |
| 896.07        |                 | 51      | 895.40        | 895.21        |
| 896.11        |                 | +25     | 895.44        | 895.25        |
| 896.15        |                 | +50     | 895.48        | 895.29        |
| 896.18        |                 | +75     | 895.51        | 895.32        |
| 896.22        |                 | 52      | 895.55        | 895.36        |
| 896.27        |                 | +25     | 895.60        | 895.41        |
| 896.34        |                 | +50     | 895.67        | 895.48        |
| 896.43        |                 | +75     | 895.76        | 895.57        |
| 896.54        |                 | 53      | 895.87        | 895.68        |
| 896.67        |                 | +25     | 896.00        | 895.81        |
| 896.83        |                 | +50     | 896.16        | 895.97        |
| 897.01        |                 | +75     | 896.34        | 896.15        |
| 897.20        |                 | 54      | 896.53        | 896.34        |
| 897.42        |                 | +25     | 896.75        | 896.56        |
| 897.66        |                 | +50     | 896.99        | 896.80        |
| 897.92        |                 | +75     | 897.25        | 897.06        |
| 898.21        | +0.86           | 55      | 897.54        | 897.35        |

D=1°30' Rt. Continued

| LEFT          |                 | CENTER  | RIGHT         |               |
|---------------|-----------------|---------|---------------|---------------|
| Edge of Pavt. | Add to Pr. Grd. | Station | Profile Grade | Edge of Pavt. |
| 898.51        | +0.86           | 55+25   | 897.84        | 897.65        |
| 898.84        |                 | +50     | 898.17        | 897.98        |
| 899.18        |                 | +75     | 898.51        | 898.32        |
| 899.55        |                 | 56      | 898.88        | 898.69        |
| 899.94        |                 | +25     | 899.27        | 899.08        |
| 900.35        |                 | +50     | 899.68        | 899.49        |
| 900.79        |                 | +75     | 900.12        | 899.93        |
| 901.24        |                 | 57      | 900.57        | 900.38        |
| 901.72        |                 | +25     | 901.05        | 900.86        |
| 902.21        |                 | +50     | 901.54        | 901.35        |
| 902.73        |                 | +75     | 902.06        | 901.87        |
| 903.27        |                 | 58      | 902.60        | 902.41        |
| 903.82        |                 | +25     | 903.15        | 902.96        |
| 904.37        |                 | +50     | 903.70        | 903.51        |
| 904.92        |                 | +75     | 904.25        | 904.06        |
| 905.47        |                 | 59      | 904.80        | 904.61        |
| 906.02        |                 | +25     | 905.35        | 905.16        |
| 906.57        |                 | +50     | 905.90        | 905.71        |
| 907.12        |                 | +75     | 906.45        | 906.26        |
| 907.67        |                 | 60      | 907.00        | 906.81        |
| 908.22        |                 | +25     | 907.55        | 907.36        |
| 908.77        |                 | +50     | 908.10        | 907.91        |
| 909.32        |                 | +75     | 908.65        | 908.46        |
| 909.87        |                 | 61      | 909.20        | 909.01        |
| 910.42        |                 | +25     | 909.75        | 909.56        |
| 910.97        | +0.86           | +50     | 910.30        | 910.11        |
| 911.52        | +0.86           | +75     | 910.85        | 910.66        |
| 911.71        | +0.85           | +84.21  | 911.05        | 910.86        |
| 912.00        | +0.79           | 62      | 911.40        | 911.21        |
| 912.44        | +0.68           | +25     | 911.95        | 911.76        |
| 912.61        | +0.65           | +34.21  | 912.15        | 911.96        |
| 912.89        | +0.58           | +50     | 912.50        | 912.31        |
| 913.33        | +0.47           | +75     | 913.05        | 912.86        |
| 913.77        | +0.36           | 63      | 913.60        | 913.41        |
| 914.21        | +0.25           | +25     | 914.15        | 913.96        |
| 914.66        | +0.15           | +50     | 914.70        | 914.51        |
| 915.10        | +0.04           | +75     | 915.25        | 915.06        |
| 915.27        | +0.01           | +84.21  | 915.45        | 915.26        |
| 915.61        | +0.00           | 64      | 915.80        | 915.61        |

| T.S. 110+17.85<br>SC. 113+67.85 |                     | D=3°30' Lt.<br>Rate=.083 L=350 |               | C.S. 117+46.42<br>ST. 120+96.42 |  |
|---------------------------------|---------------------|--------------------------------|---------------|---------------------------------|--|
| LEFT                            |                     | CENTER                         | RIGHT         |                                 |  |
| Edge of Pavt.                   | Deduct From Pr. Grd | Station                        | Profile Grade | Edge of Pavt.                   |  |
| 855.11                          | -0.19               | 110                            | 855.30        | 855.11                          |  |
| 854.32                          |                     | +17.85                         | 854.51        | 854.35                          |  |
| 852.70                          |                     | +52.85                         | 852.97        | 852.98                          |  |
| 851.24                          |                     | +87.85                         | 851.43        | 851.64                          |  |
| 849.70                          |                     | 111                            | 849.89        | 849.90                          |  |
| 848.16                          |                     | +57.85                         | 848.35        | 848.96                          |  |
| 846.62                          |                     | +92.85                         | 846.81        | 847.62                          |  |
| 845.08                          |                     | 112                            | 845.27        | 846.28                          |  |
| 843.54                          |                     | +62.85                         | 843.73        | 844.94                          |  |
| 842.00                          |                     | +97.85                         | 842.19        | 843.60                          |  |
| 840.46                          |                     | 113                            | 840.65        | 842.26                          |  |
| 838.92                          |                     | +67.85                         | 839.11        | 840.91                          |  |
| 836.61                          |                     | +75                            | 838.80        | 840.61                          |  |
| 837.51                          |                     | 114                            | 837.70        | 839.51                          |  |
| 836.41                          |                     | +25                            | 836.60        | 838.41                          |  |
| 835.31                          |                     | +50                            | 835.50        | 837.31                          |  |
| 834.21                          |                     | +75                            | 834.40        | 836.21                          |  |
| 833.11                          |                     | 115                            | 833.30        | 835.11                          |  |
| 832.01                          |                     | +25                            | 832.20        | 834.01                          |  |
| 830.91                          |                     | +50                            | 831.10        | 832.91                          |  |
| 829.81                          |                     | +75                            | 830.00        | 831.81                          |  |
| 828.71                          |                     | 116                            | 828.90        | 830.71                          |  |
| 827.61                          |                     | +25                            | 827.80        | 829.61                          |  |
| 826.51                          |                     | +50                            | 826.70        | 828.51                          |  |
| 825.41                          |                     | +75                            | 825.60        | 827.41                          |  |
| 824.31                          |                     | 117                            | 824.50        | 826.31                          |  |
| 823.21                          |                     | +25                            | 823.40        | 825.21                          |  |
| 822.17                          |                     | +50.42                         | 822.46        | 824.24                          |  |
| 820.73                          |                     | +51.42                         | 820.92        | 822.53                          |  |
| 819.19                          |                     | 118                            | 819.38        | 820.79                          |  |
| 817.65                          |                     | +51.42                         | 817.84        | 819.05                          |  |
| 816.11                          |                     | +86.42                         | 816.30        | 817.31                          |  |
| 814.57                          |                     | 119                            | 814.76        | 815.57                          |  |
| 813.03                          |                     | +56.42                         | 813.22        | 813.83                          |  |
| 811.53                          |                     | +91.42                         | 811.72        | 812.13                          |  |
| 810.03                          |                     | 120                            | 810.27        | 810.48                          |  |
| 808.69                          |                     | +61.42                         | 808.80        | 808.89                          |  |
| 807.35                          |                     | +96.42                         | 807.54        | 807.35                          |  |
| 807.21                          | -0.19               | 121                            | 807.40        | 807.21                          |  |

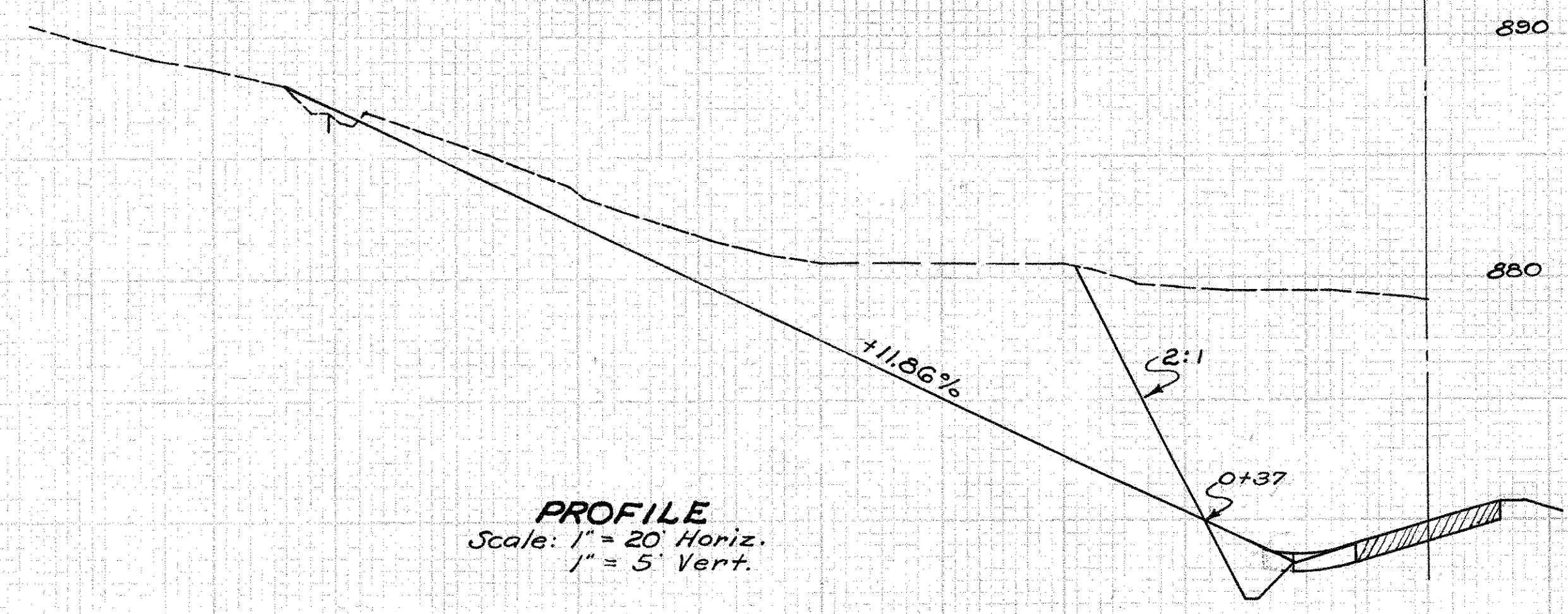




PLAN  
Scale 1" = 20'

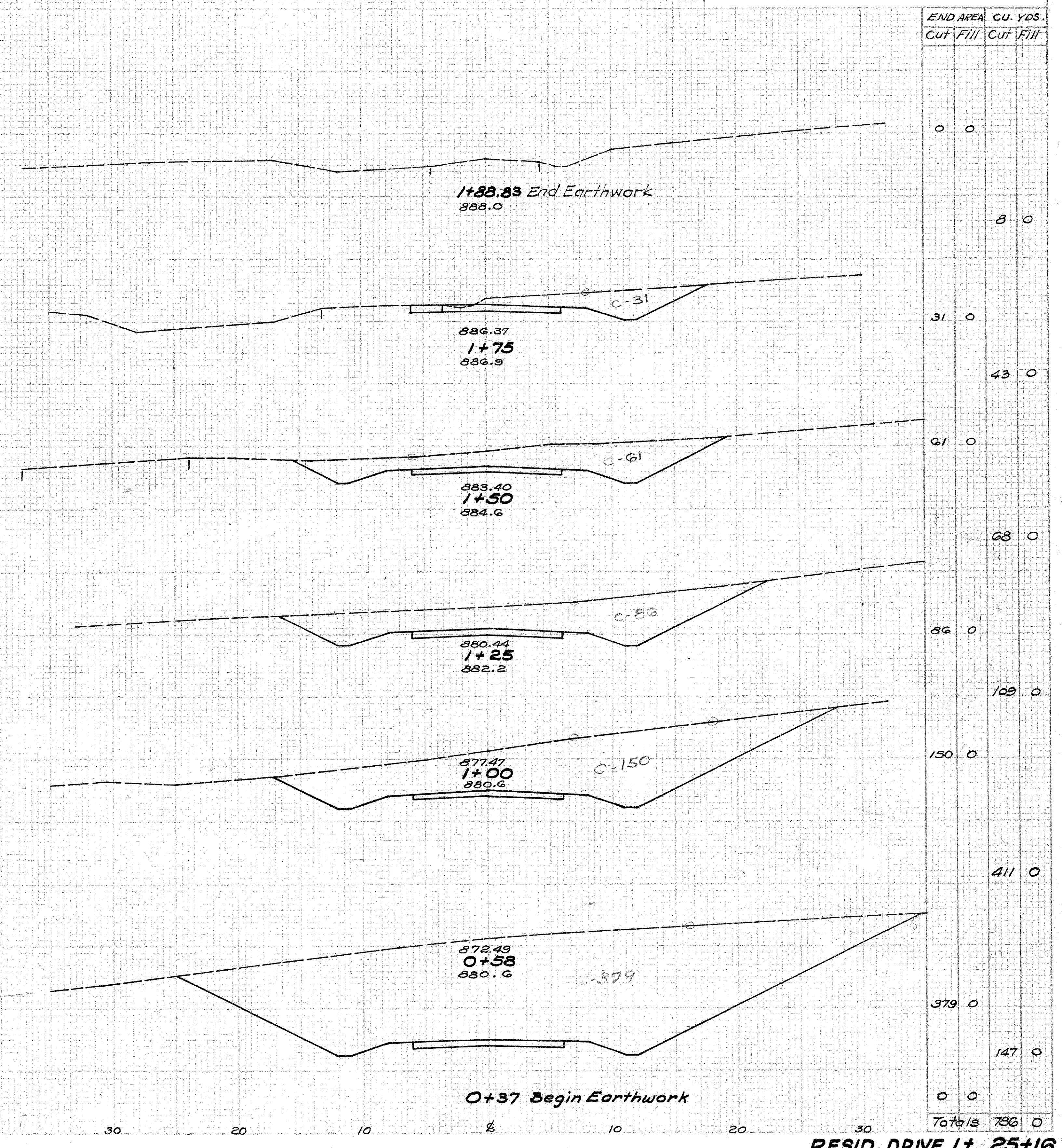
**ESTIMATED QUANTITIES**  
 S.S.-10 G" Stab. Crus. Aggr. 28 Cu.Yds.  
 T-1 18" Pipe for Drives 28 Lin.Ft.  
 Excavation (to X-sec's) 786 Cu.Yds.  
 T-70 7" Conc. Pavt 79.6 Sq.Yds.

|         |        |      |        |      |        |      |        |      |        |      |        |      |        |      |        |
|---------|--------|------|--------|------|--------|------|--------|------|--------|------|--------|------|--------|------|--------|
| 1+68.83 | 887.98 | 1+50 | 883.40 | 1+25 | 880.44 | 1+00 | 877.47 | 0+75 | 874.51 | 0+58 | 872.49 | 0+22 | 868.22 | 0+12 | 869.05 |
| 1+75    | 886.37 |      |        |      |        |      |        |      |        |      |        |      |        |      |        |



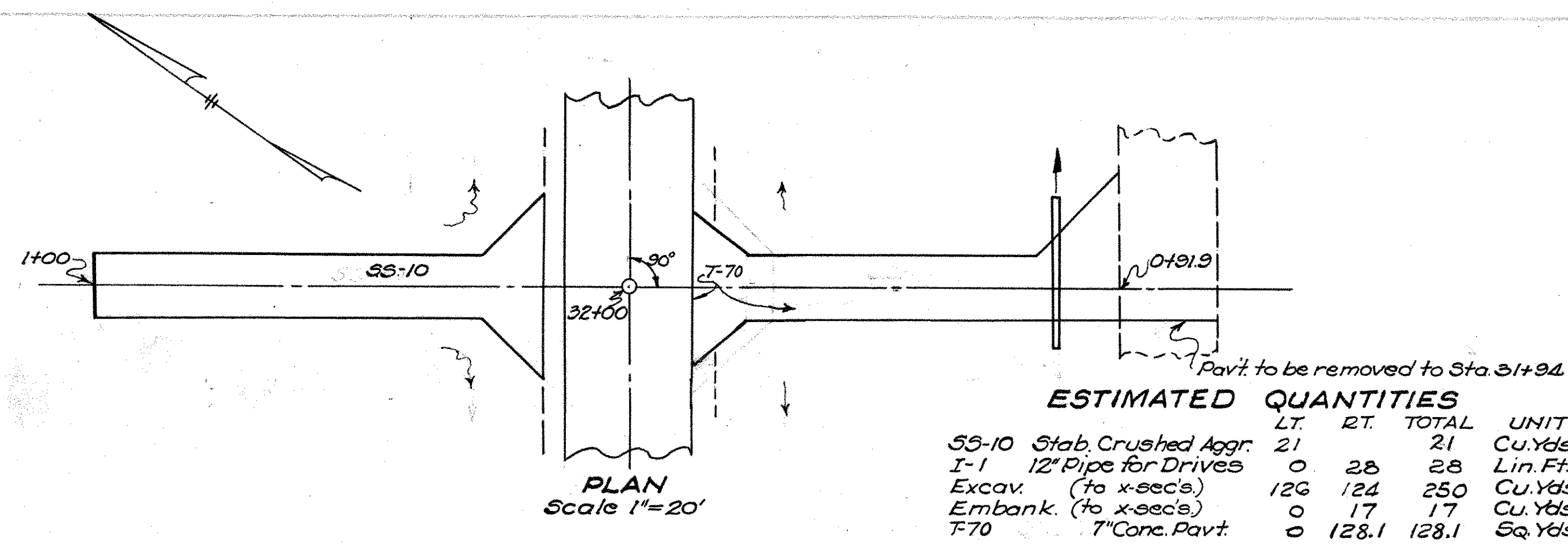
PROFILE  
Scale: 1" = 20' Horiz.  
1" = 5' Vert.

2+20 2+00 1+80 1+60 1+40 1+20 1+00 0+80 0+60 0+40 0+20 0



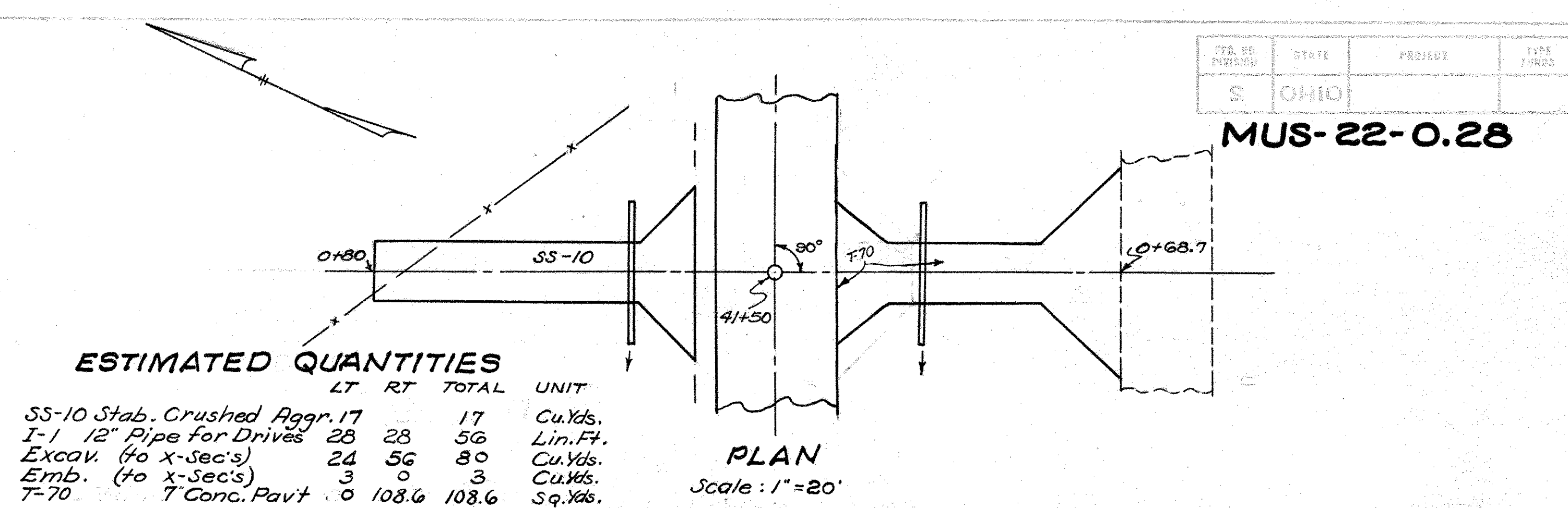
| END AREA |      | CU. YDS. |      |
|----------|------|----------|------|
| Cut      | Fill | Cut      | Fill |
| 0        | 0    |          |      |
|          |      | 8        | 0    |
| 31       | 0    |          |      |
|          |      | 43       | 0    |
| 61       | 0    |          |      |
|          |      | 68       | 0    |
| 86       | 0    |          |      |
|          |      | 109      | 0    |
| 150      | 0    |          |      |
|          |      | 411      | 0    |
| 379      | 0    |          |      |
|          |      | 147      | 0    |
| 0        | 0    |          |      |
| Totals   |      | 786      | 0    |





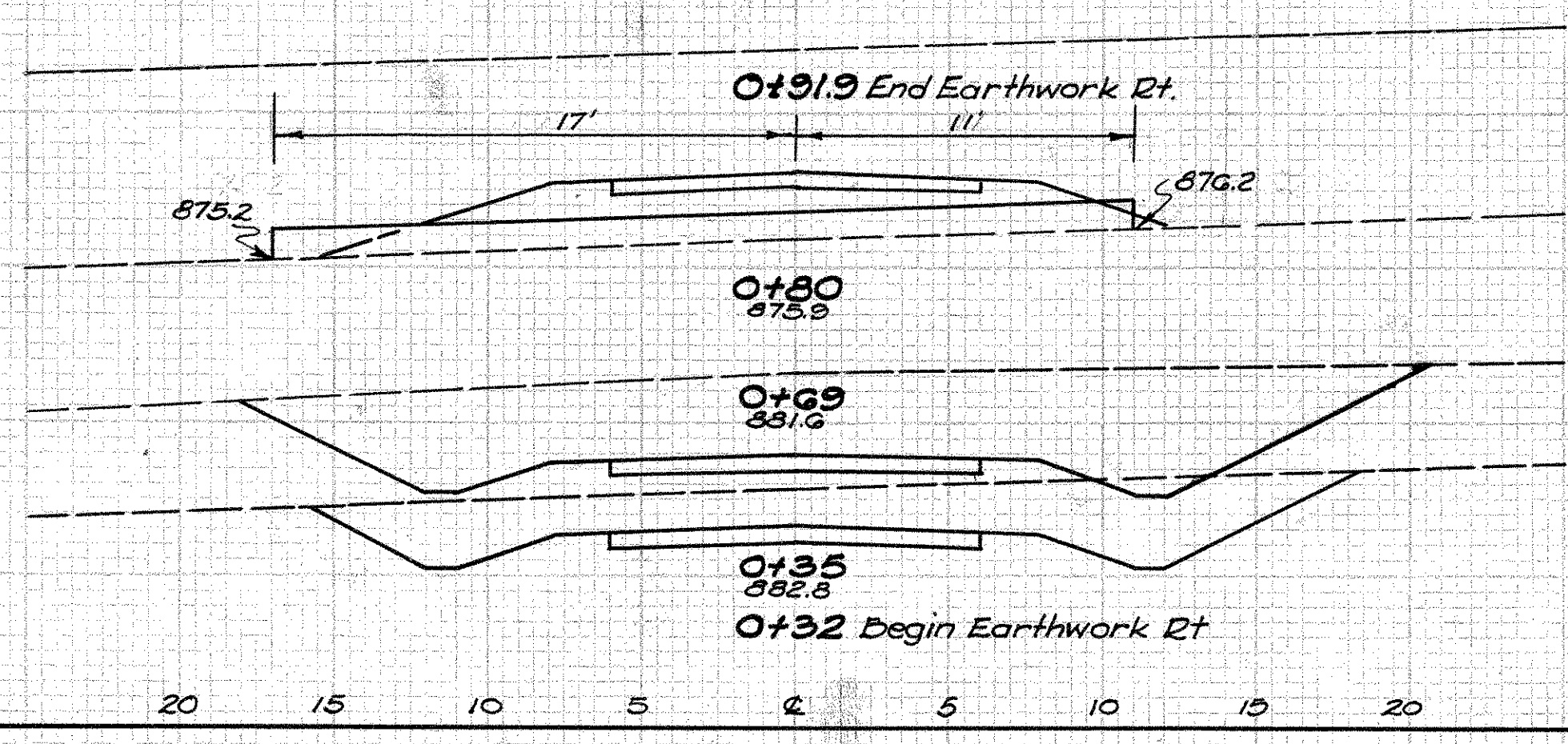
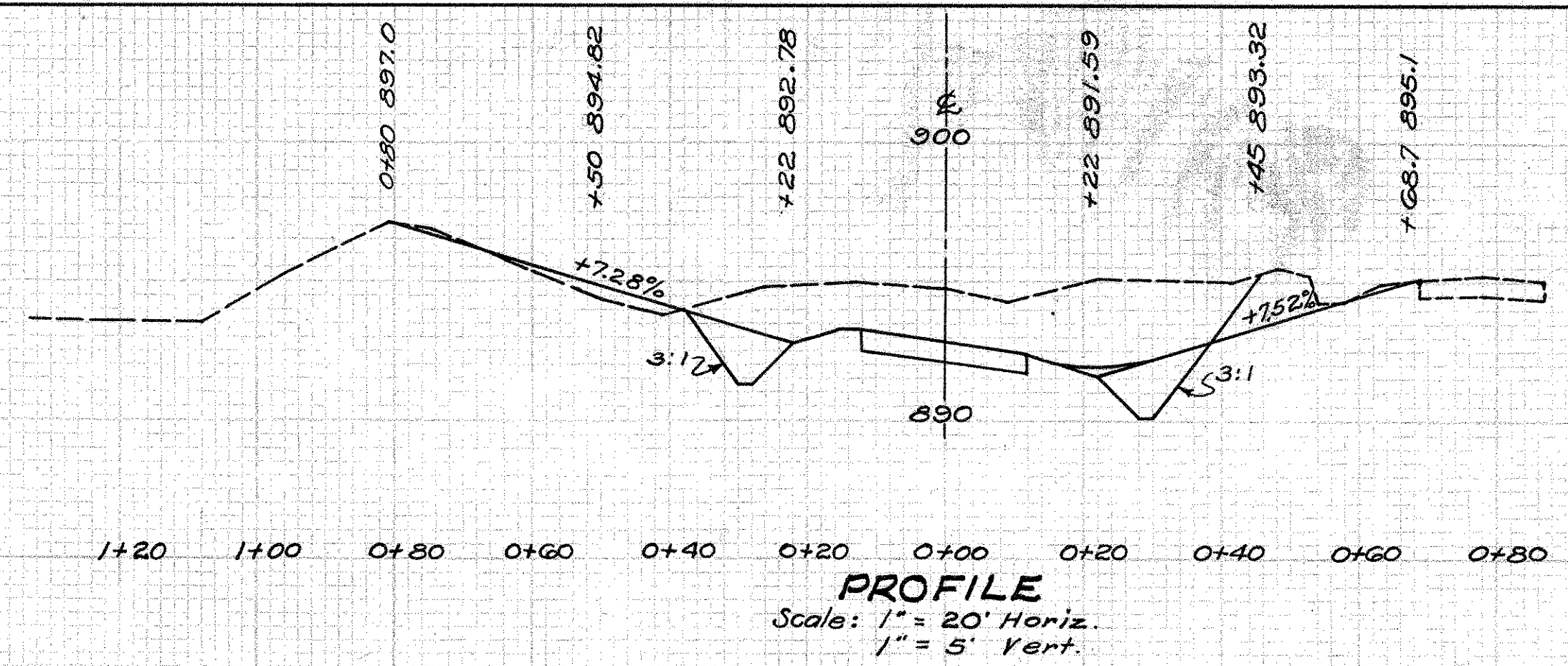
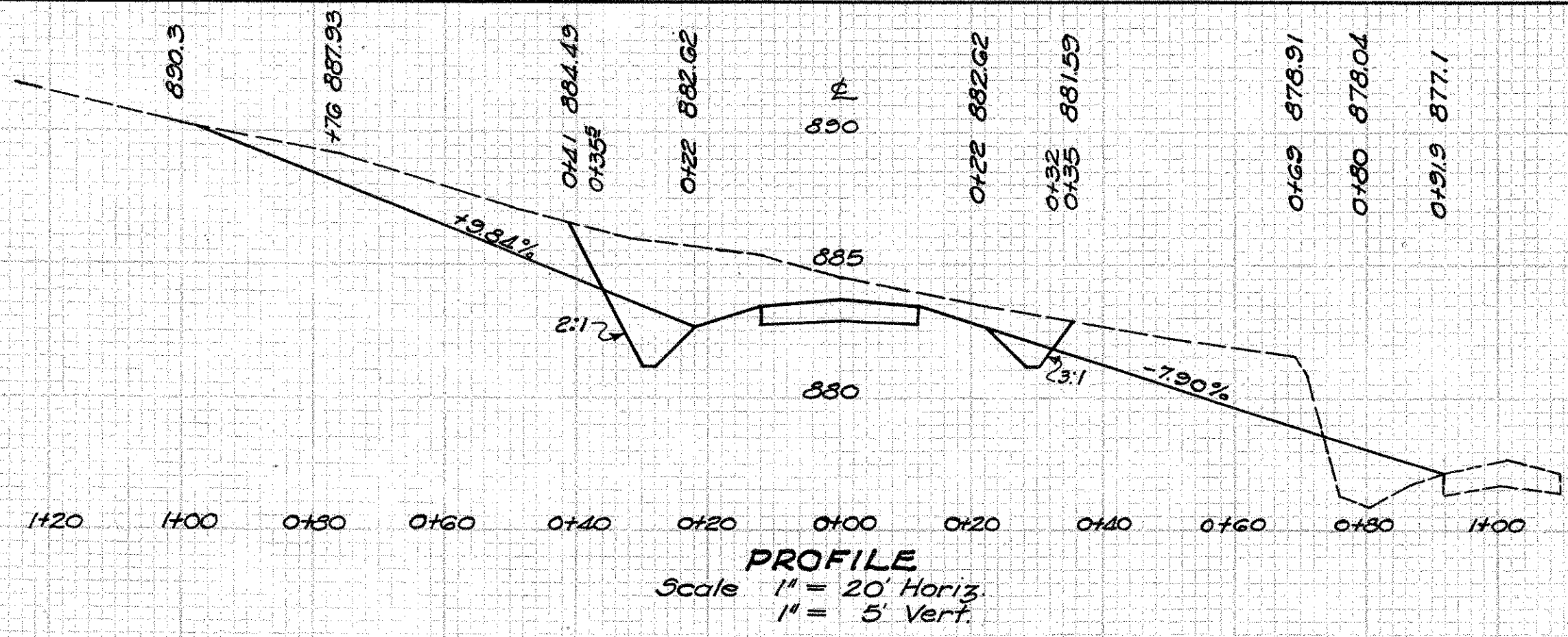
**ESTIMATED QUANTITIES**

|                           | LT  | RT    | TOTAL | UNIT    |
|---------------------------|-----|-------|-------|---------|
| SS-10 Stab. Crushed Aggr. | 21  |       | 21    | Cu.Yds. |
| I-1 12" Pipe for Drives   | 0   | 28    | 28    | Lin.Ft. |
| Excav. (to x-sec's)       | 126 | 124   | 250   | Cu.Yds. |
| Embank. (to x-sec's)      | 0   | 17    | 17    | Cu.Yds. |
| F-70 7" Conc. Pavt.       | 0   | 128.1 | 128.1 | Sq.Yds. |

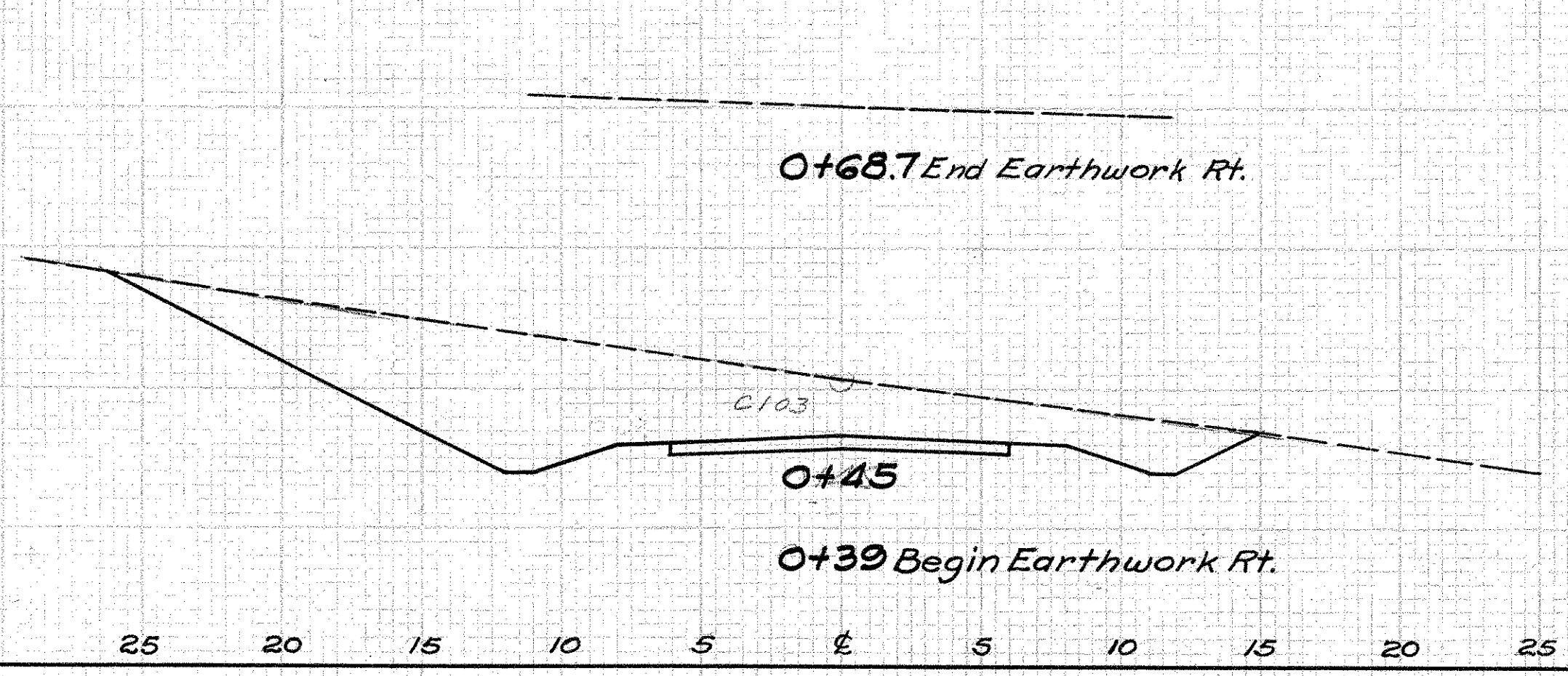


**ESTIMATED QUANTITIES**

|                           | LT | RT    | TOTAL | UNIT    |
|---------------------------|----|-------|-------|---------|
| SS-10 Stab. Crushed Aggr. | 17 |       | 17    | Cu.Yds. |
| I-1 12" Pipe for Drives   | 28 | 28    | 56    | Lin.Ft. |
| Excav. (to x-sec's)       | 24 | 56    | 80    | Cu.Yds. |
| Emb. (to x-sec's)         | 3  | 0     | 3     | Cu.Yds. |
| F-70 7" Conc. Pavt.       | 0  | 108.6 | 108.6 | Sq.Yds. |



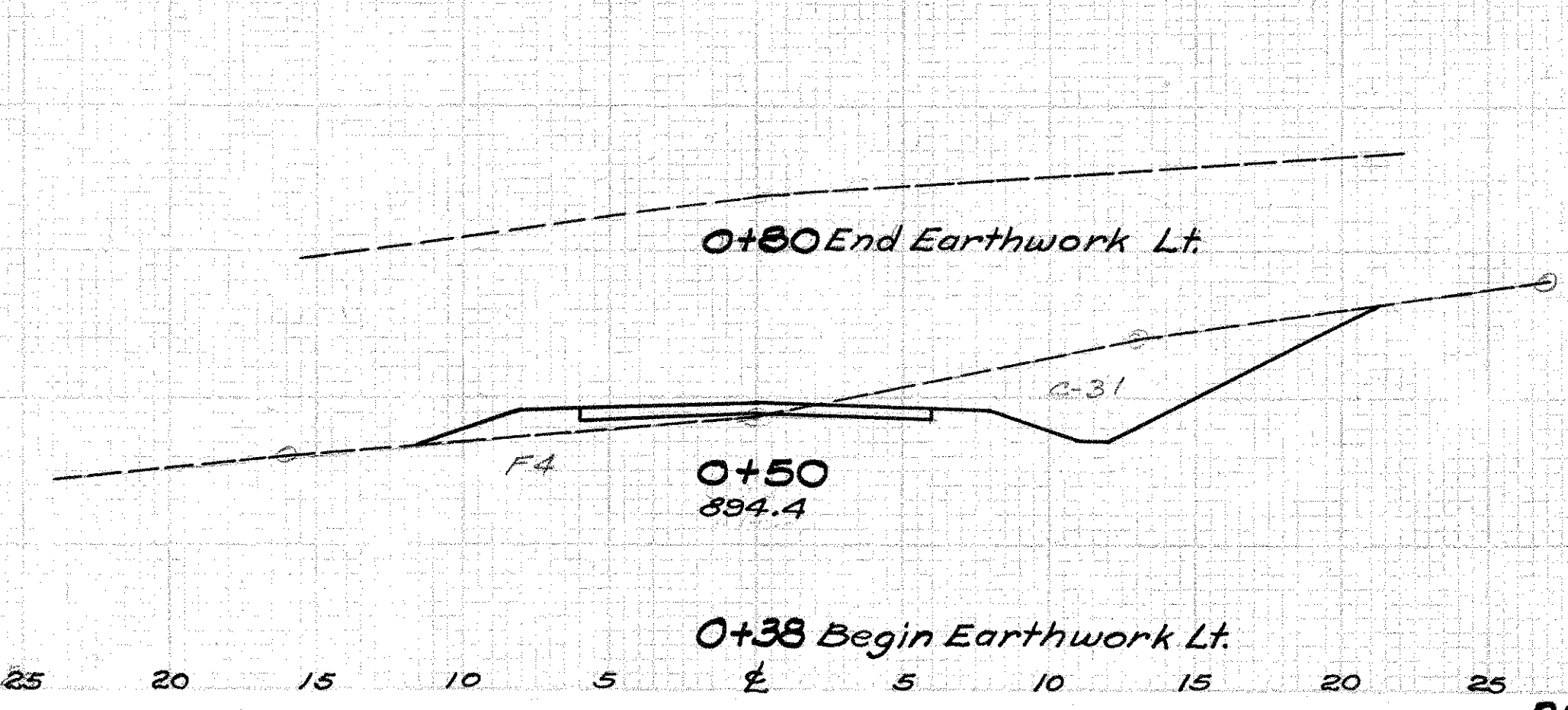
| END AREA | CUT | FILL | CUT | FILL |
|----------|-----|------|-----|------|
| 0        | 0   | 0    | 9   |      |
| 0        | 41  | 21   | 8   |      |
| 101      | 0   | 100  | 0   |      |
| 57       | 0   | 3    | 0   |      |
| 0        | 0   |      |     |      |
| TOTALS   | 124 | 17   |     |      |



| END AREA | CUT | FILL | CUT | FILL |
|----------|-----|------|-----|------|
| 0        | 0   | 45   | 0   |      |
| 103      | 0   | 11   | 0   |      |
| 0        | 0   |      |     |      |
| TOTALS   | 56  | 0    |     |      |



| END AREA | CUT | FILL | CUT | FILL |
|----------|-----|------|-----|------|
| 0        | 0   | 25   | 0   |      |
| 57       | 0   | 96   | 0   |      |
| 91       | 0   | 9    | 0   |      |
| 0        | 0   |      |     |      |
| TOTALS   | 126 | 0    |     |      |



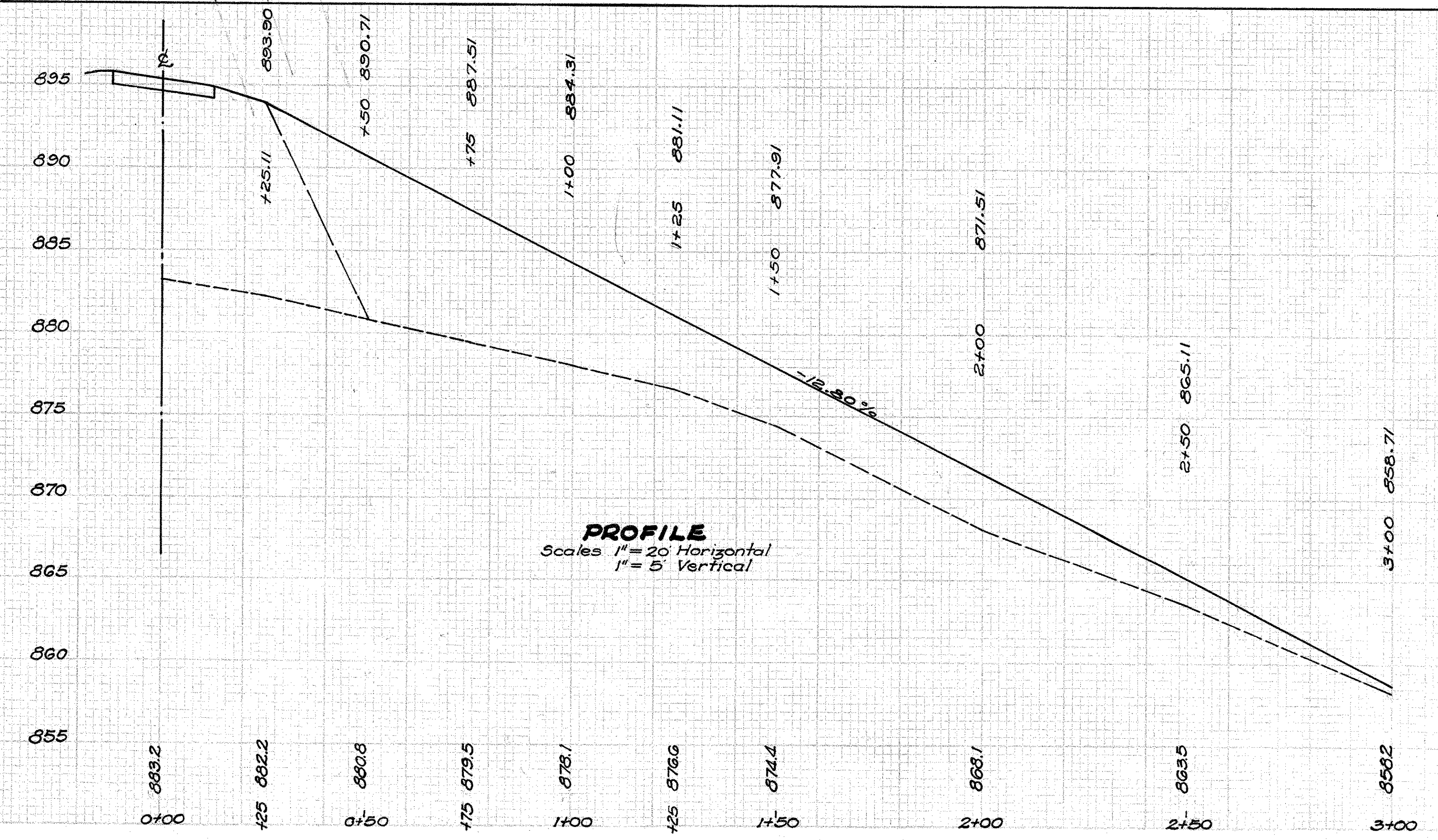
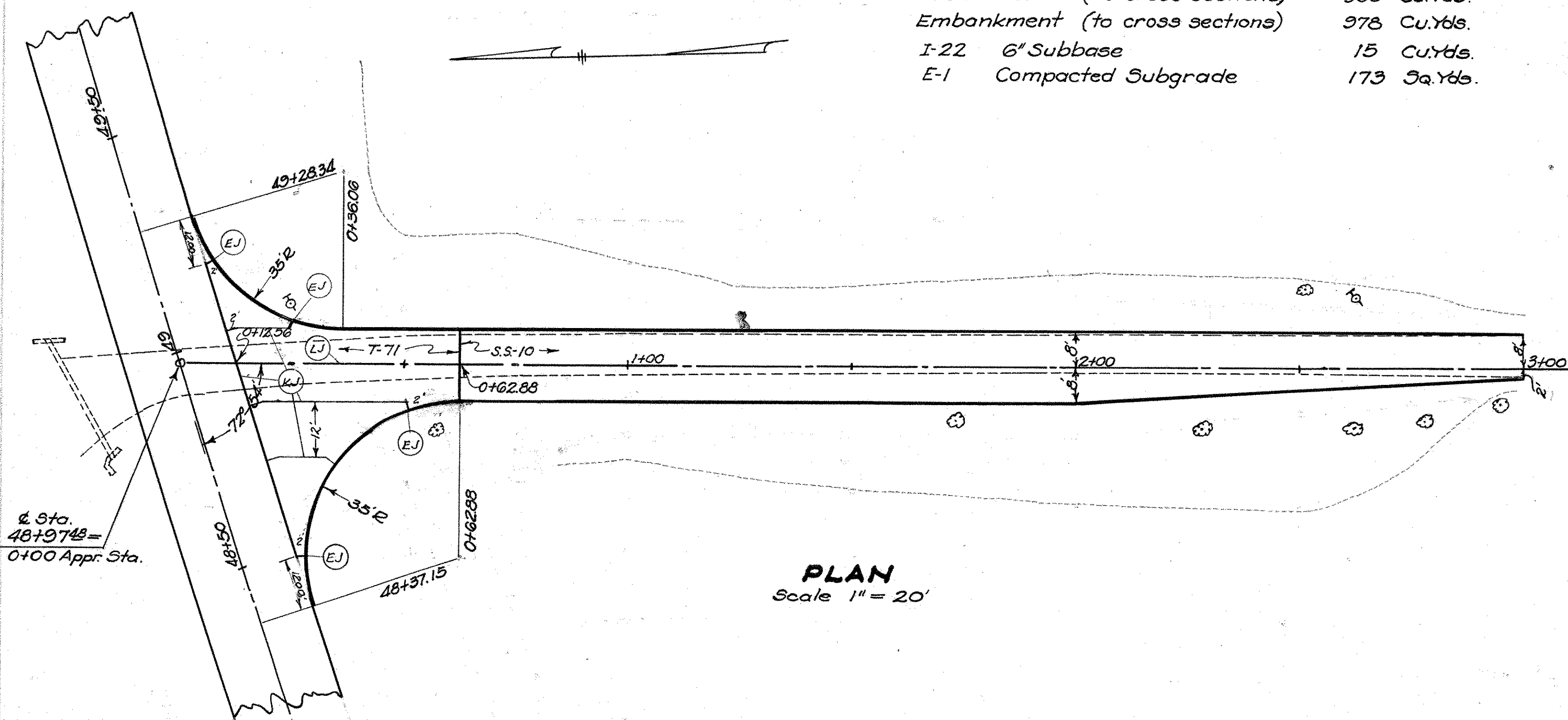
| END AREA | CUT | FILL | CUT | FILL |
|----------|-----|------|-----|------|
| 0        | 0   | 17   | 2   |      |
| 31       | 4   | 7    | 1   |      |
| 0        | 0   |      |     |      |
| TOTALS   | 24  | 3    |     |      |

DR. Lt. & Rt. 32+00  
DR. Lt. & Rt. 41+50

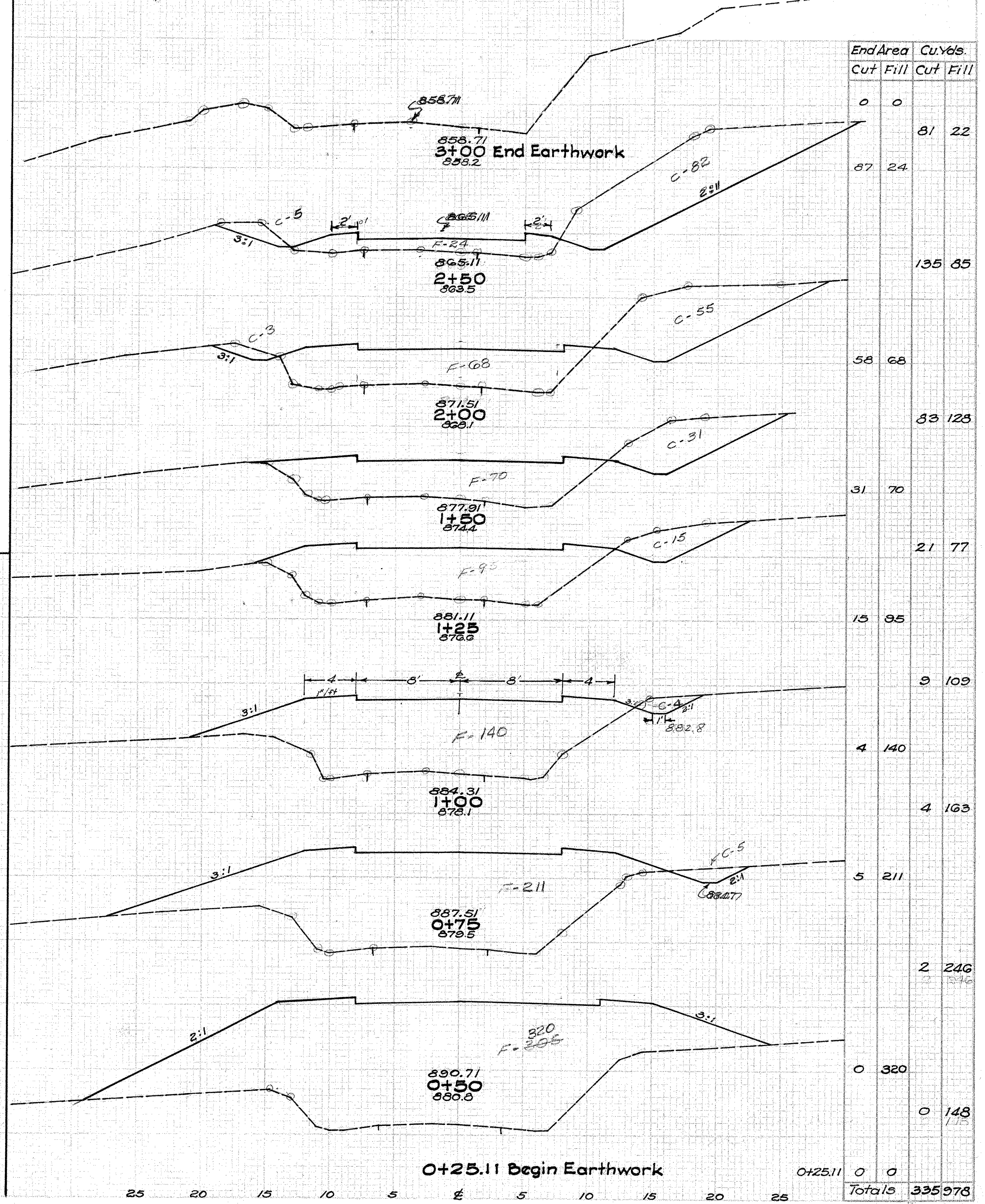


### ESTIMATED QUANTITIES

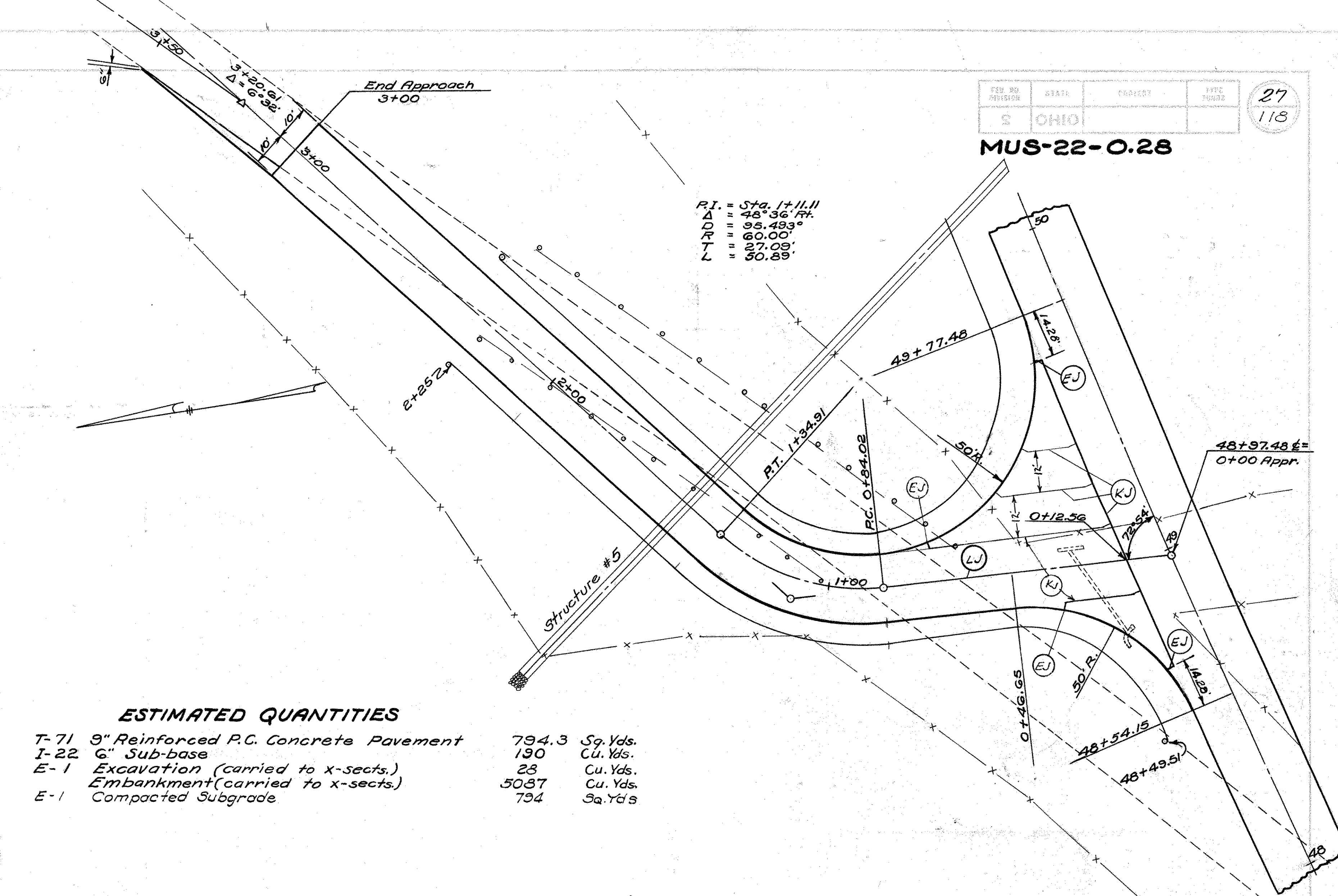
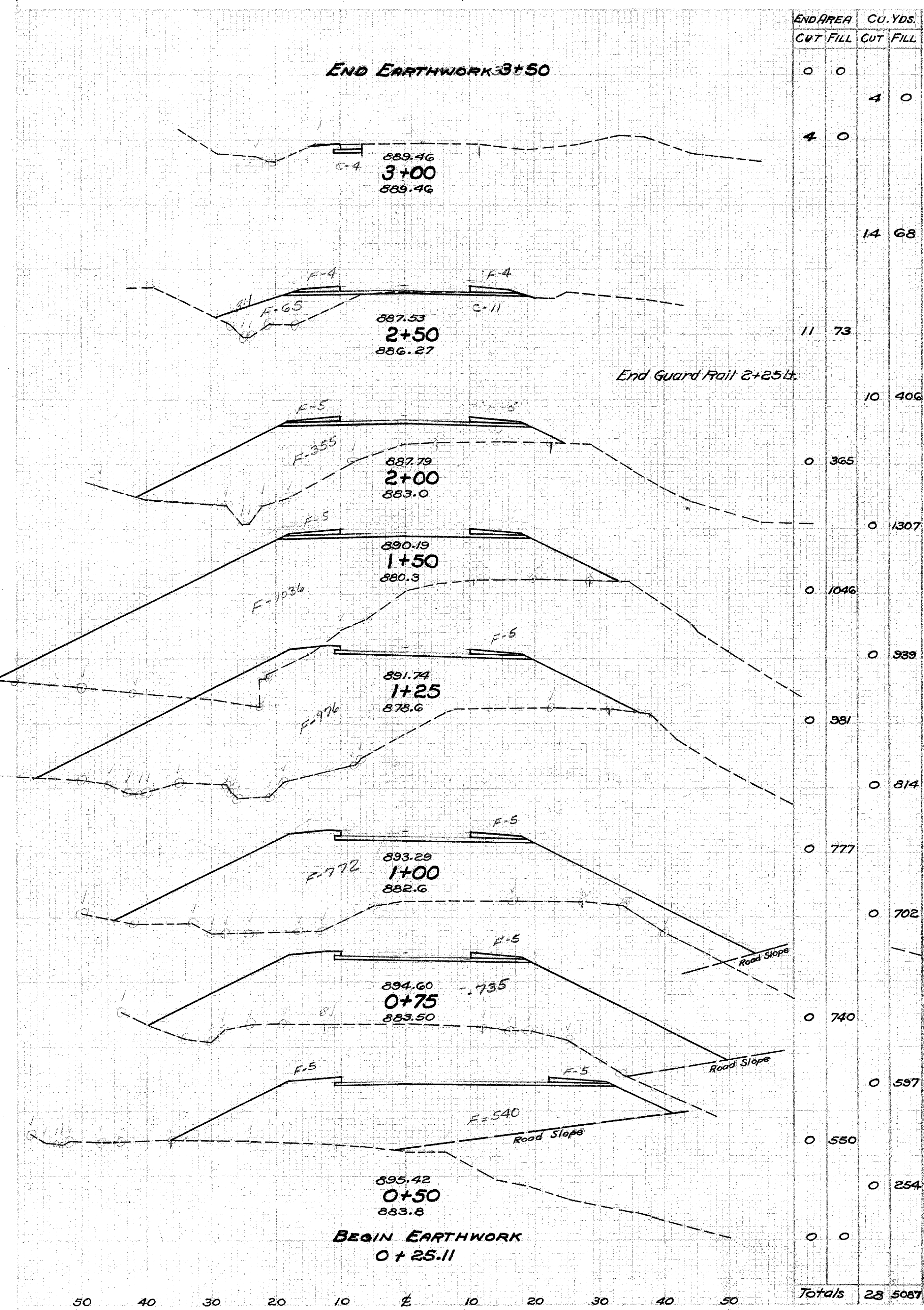
|            |                                 |             |
|------------|---------------------------------|-------------|
| S.S.-10    | 6" Stabilized Crushed Aggregate | 65 Cu.Yds.  |
| T-71       | 9" Reinforced Concrete Pav't    | 173 Sq.Yds. |
| Excavation | (to cross-sections)             | 335 Cu.Yds. |
| Embankment | (to cross sections)             | 978 Cu.Yds. |
| I-22       | 6" Subbase                      | 15 Cu.Yds.  |
| E-1        | Compacted Subgrade              | 173 Sq.Yds. |



### MUS-22-O.28

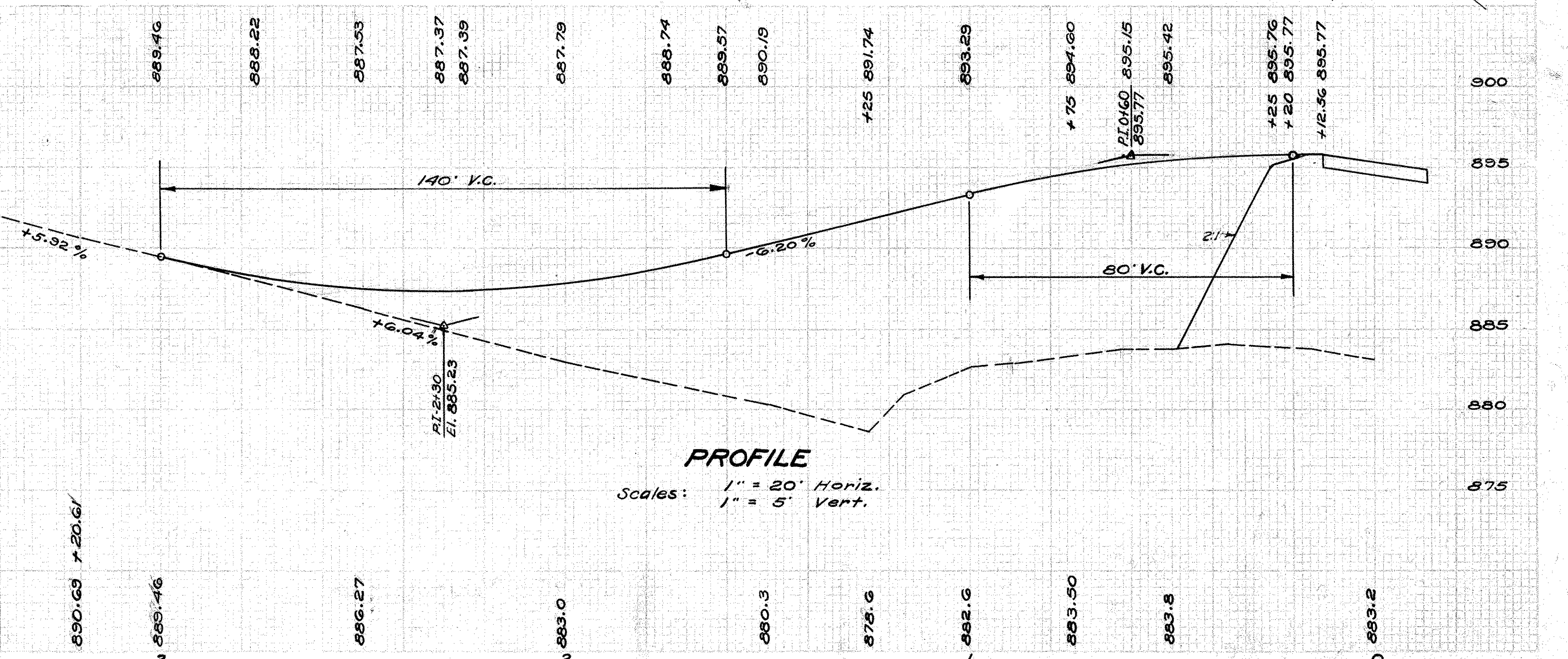






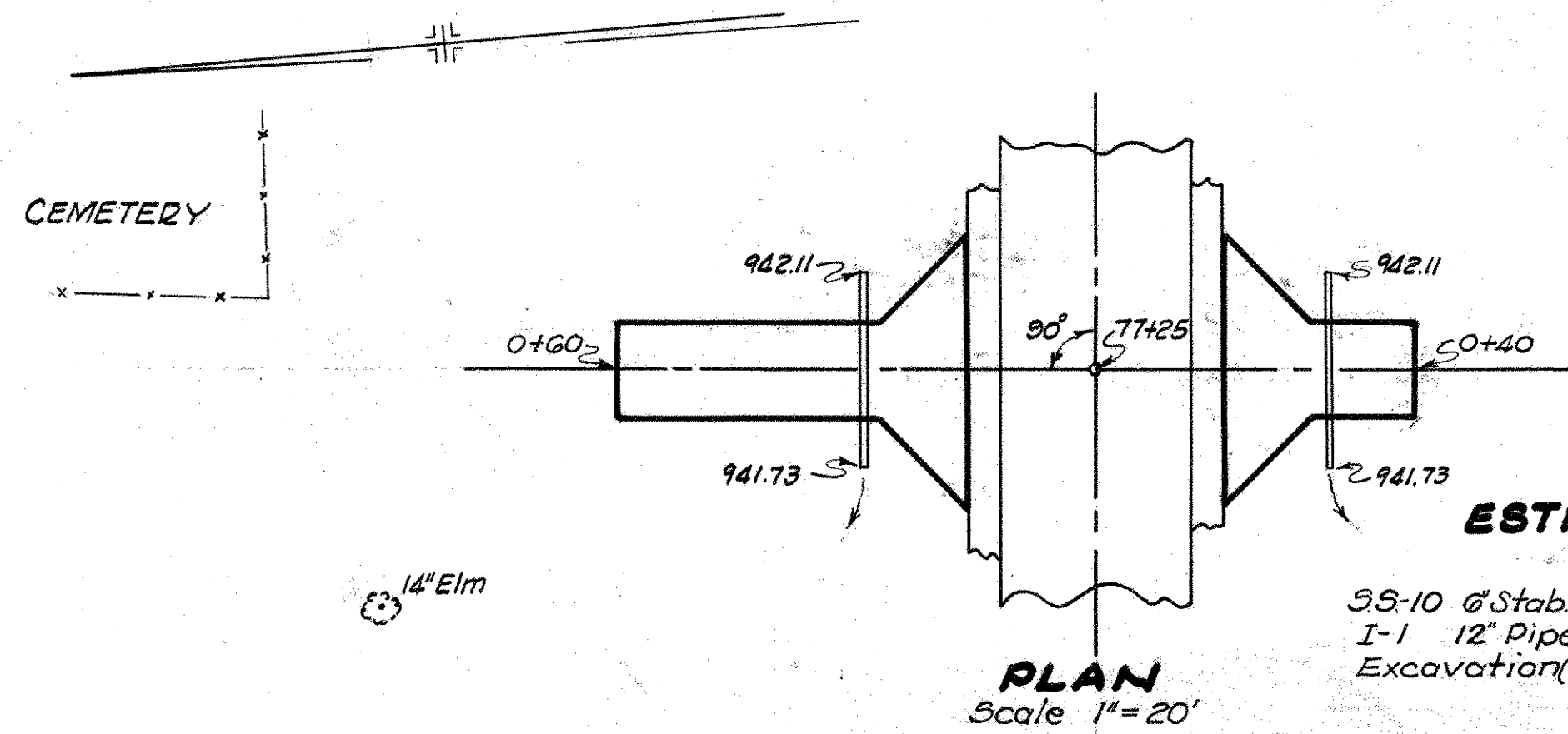
**ESTIMATED QUANTITIES**

|      |                                      |
|------|--------------------------------------|
| T-71 | 9" Reinforced P.C. Concrete Pavement |
| J-22 | 6" Sub-base                          |
| E-1  | Excavation (carried to x-sects.)     |
|      | Embankment (carried to x-sects.)     |
| E-1  | Compacted Subgrade                   |



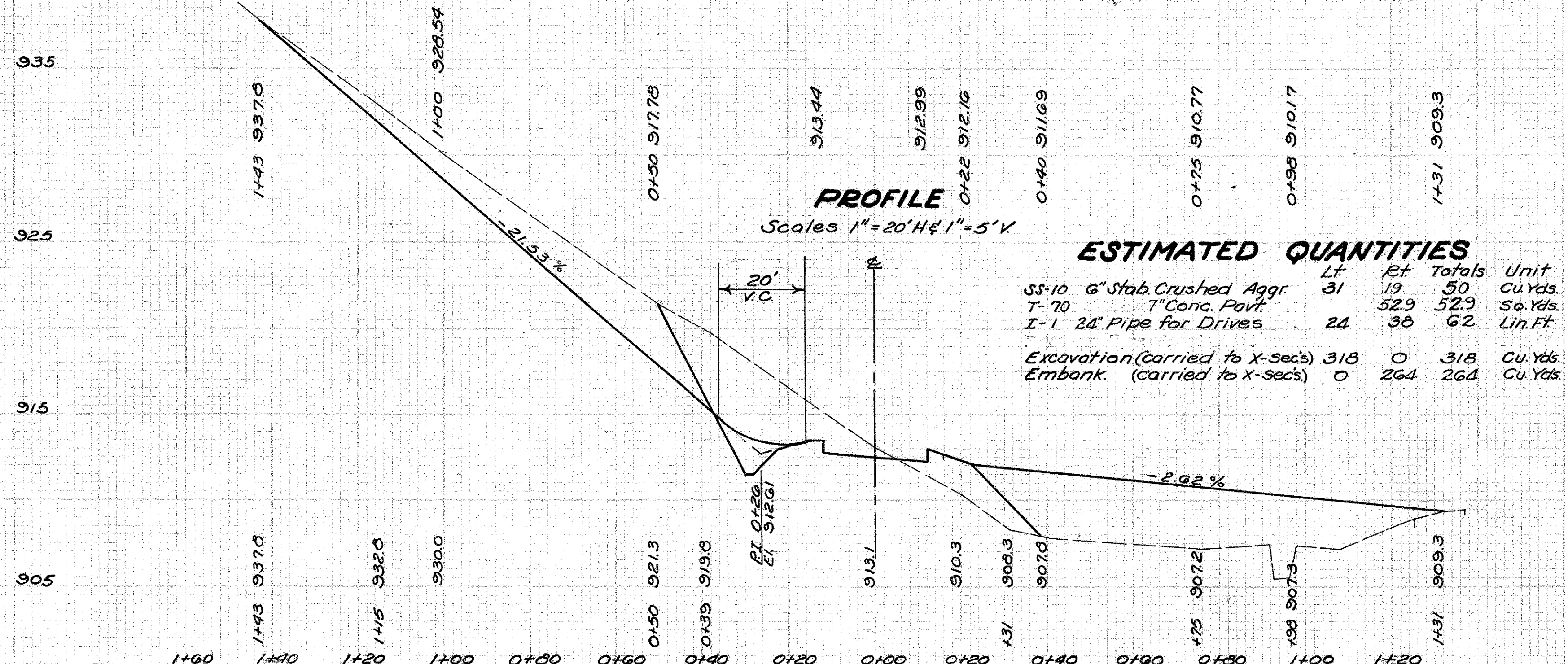
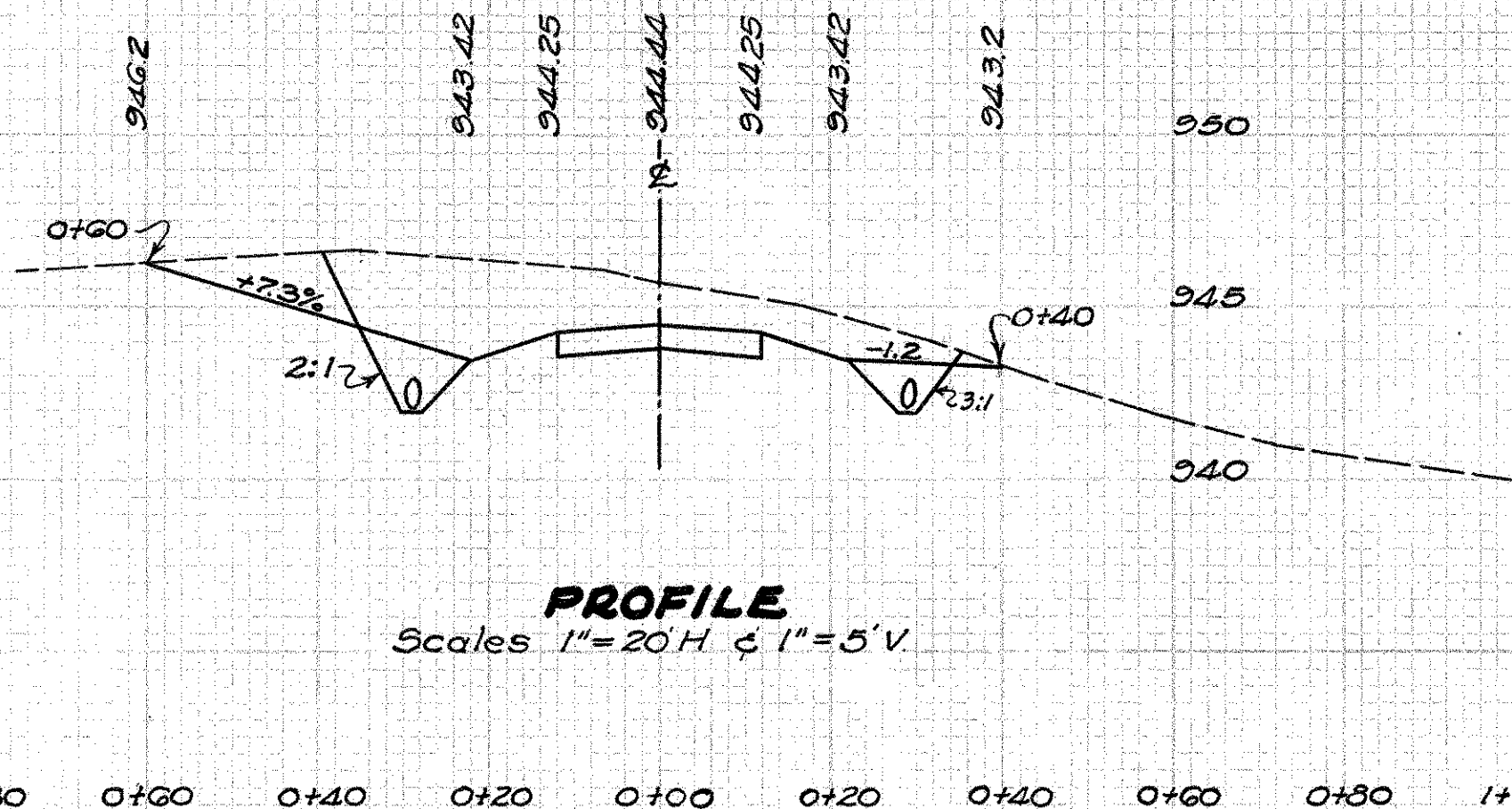
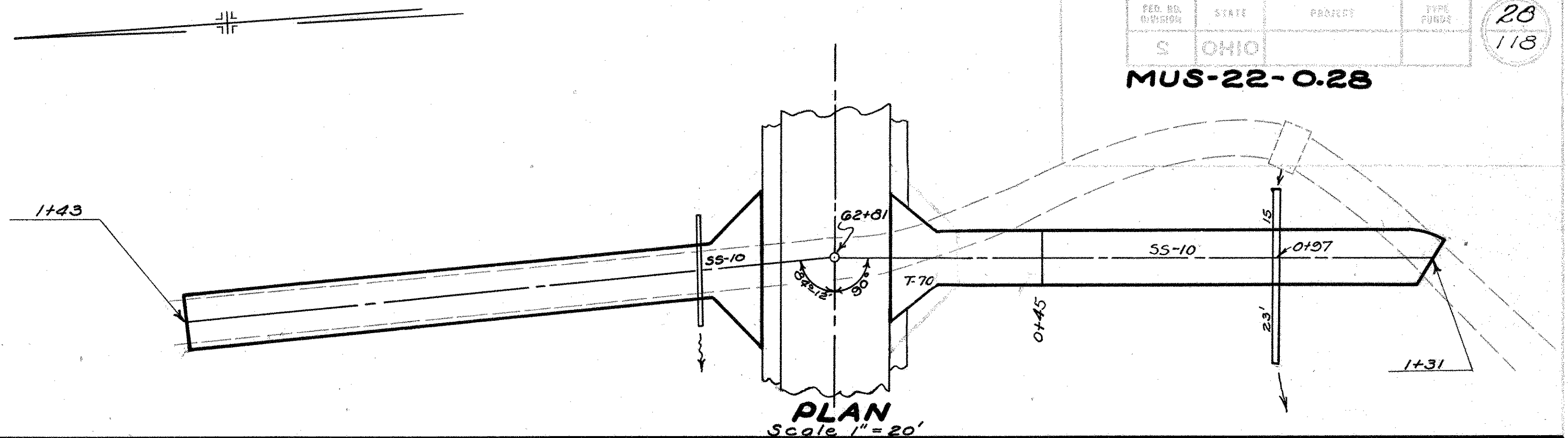
ACCESS ROAD Lt. Sta. 48+97.48





**ESTIMATED QUANTITIES**

|                                | Lt. | Rt. | Totals | Unit    |
|--------------------------------|-----|-----|--------|---------|
| SS-10 6" Stab. Crush. Aggr.    | 12  | 8   | 20     | Cu.Yds. |
| I-1 12" Pipe for Drives        | 24  | 24  | 48     | Lin.Ft. |
| Excavation (carried to x-sect) | 50  | 4   | 54     | Cu.Yds. |



**ESTIMATED QUANTITIES**

|                                | Lt. | Rt. | Totals | Unit    |
|--------------------------------|-----|-----|--------|---------|
| SS-10 6" Stab. Crushed Aggr.   | 31  | 19  | 50     | Cu.Yds. |
| T-70 7" Conc. Pavt.            |     |     | 52.9   | Sq.Yds. |
| I-1 24" Pipe for Drives        | 24  | 38  | 62     | Lin.Ft. |
| Excavation (carried to X-secs) | 318 | 0   | 318    | Cu.Yds. |
| Embank. (carried to X-secs)    | 0   | 264 | 264    | Cu.Yds. |

0+00 End Earthwork Lt.  
946.2

0+35 Begin Earthwork

| Excavation | End Cu. Area Yds. | Cu. Yds. |
|------------|-------------------|----------|
| 0          | 41                | 108      |
| 0          | 0                 | 0        |
| Total      | 50                | 108      |

1+43 End Earthwork

0+37.5 Begin Earthwork

| Excavation | End Cu. Area Yds. | Cu. Yds. |
|------------|-------------------|----------|
| 6          | 68                | 215      |
| 0          | 152               | 35       |
| 0          | 0                 | 0        |
| Total      | 130               | 250      |

1+31 End Earthwork

0+22 Begin Earthwork

| Excavation | End Cu. Area Yds. | Cu. Yds. |
|------------|-------------------|----------|
| 0          | 50                | 71       |
| 0          | 85                | 113      |
| 0          | 30                | 30       |
| Total      | 165               | 214      |

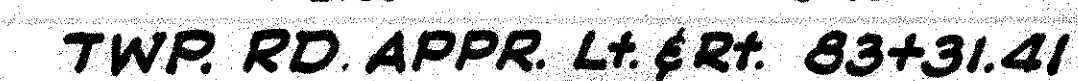
DRIVE Lt. & Rt. 62+81  
DRIVE Lt. & Rt. 77+25



10-9-68



|  | APPROACH LT. | APPROACH RT | TOTAL | UNIT     |
|--|--------------|-------------|-------|----------|
| T-7: 9" Reinforced PC Concrete Pavements | 231.3        | 121.2       | 353.5 | Sq.Yds.  |
| Ss-10 G" Stabilized Crushed Aggregate    | 40           | GG          | 106   | Cu.Yds   |
| I-22 G" Subbase                          | 20           | 10          | 30    | Cu.Yds   |
| I-1 12" Pipe for Driveways               | 118          | 24          | 142   | Lin. Ft. |
| Excavation (carried to x-secs.)          | 58           | 59          | 117   | Cu.Yds   |
| Embankment ( " " )                       | 1160         | 1587        | 2747  | Cu.Yds.  |
| E-1 Compacted Subgrade                   | 231          | 121         | 353   | Sq.Yds.  |

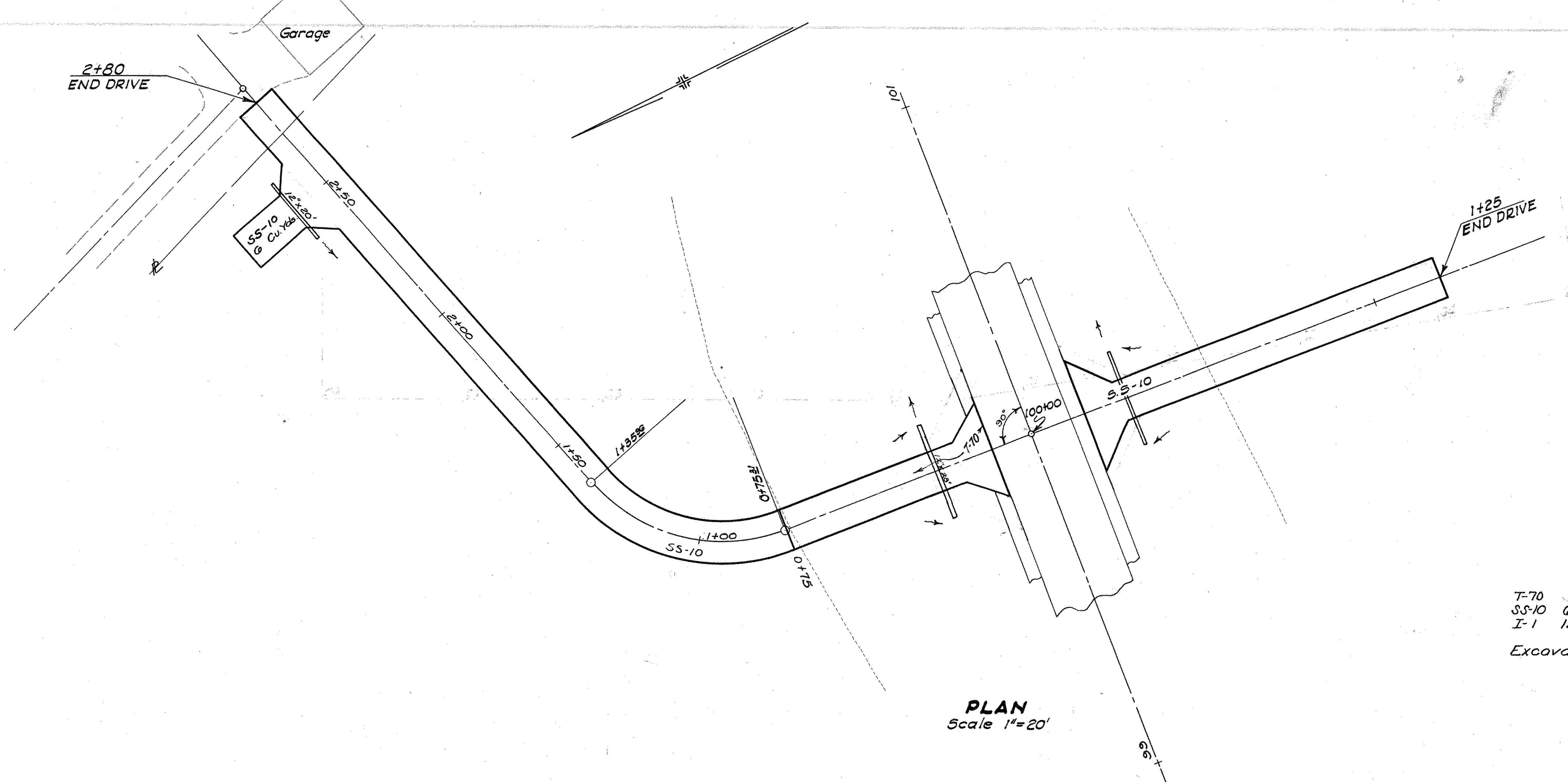




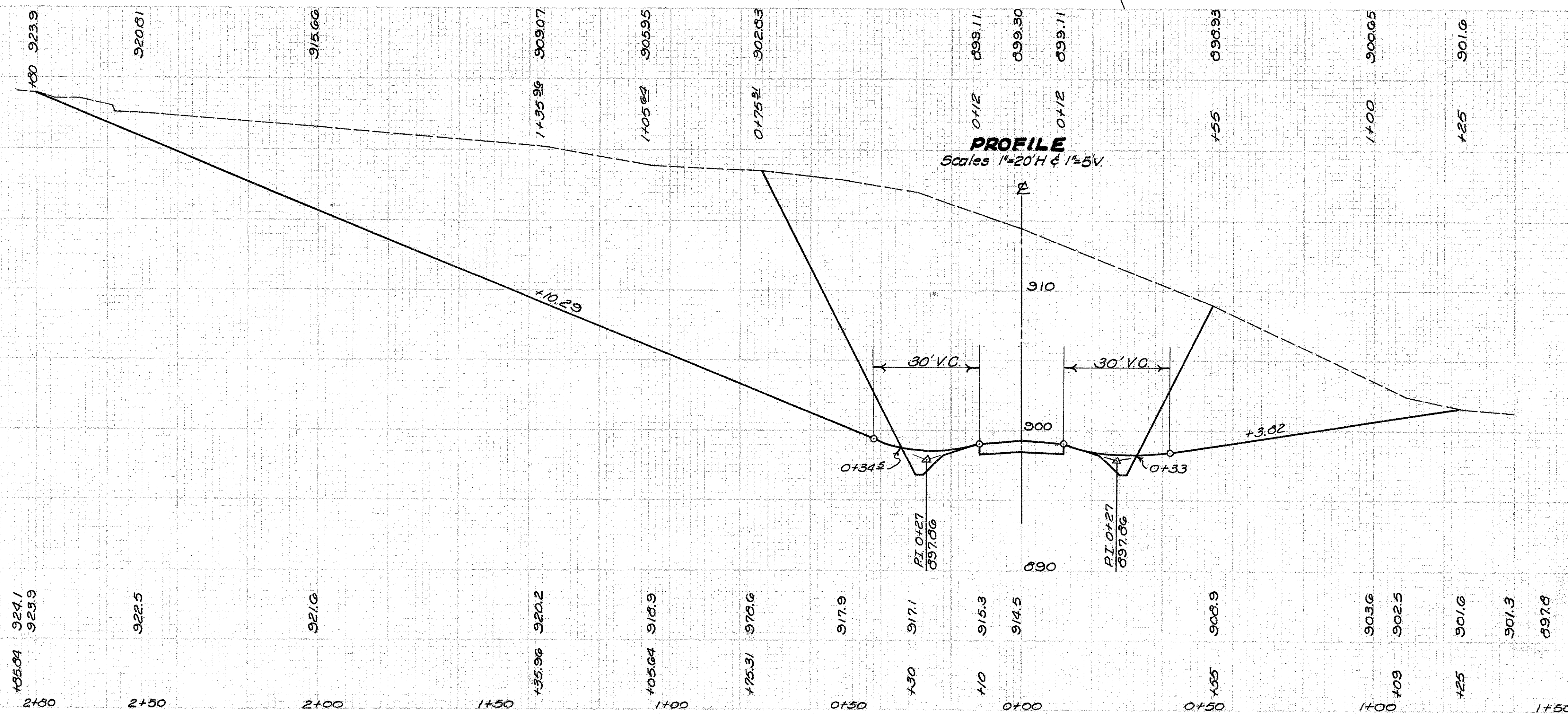




MUS-22-0.28

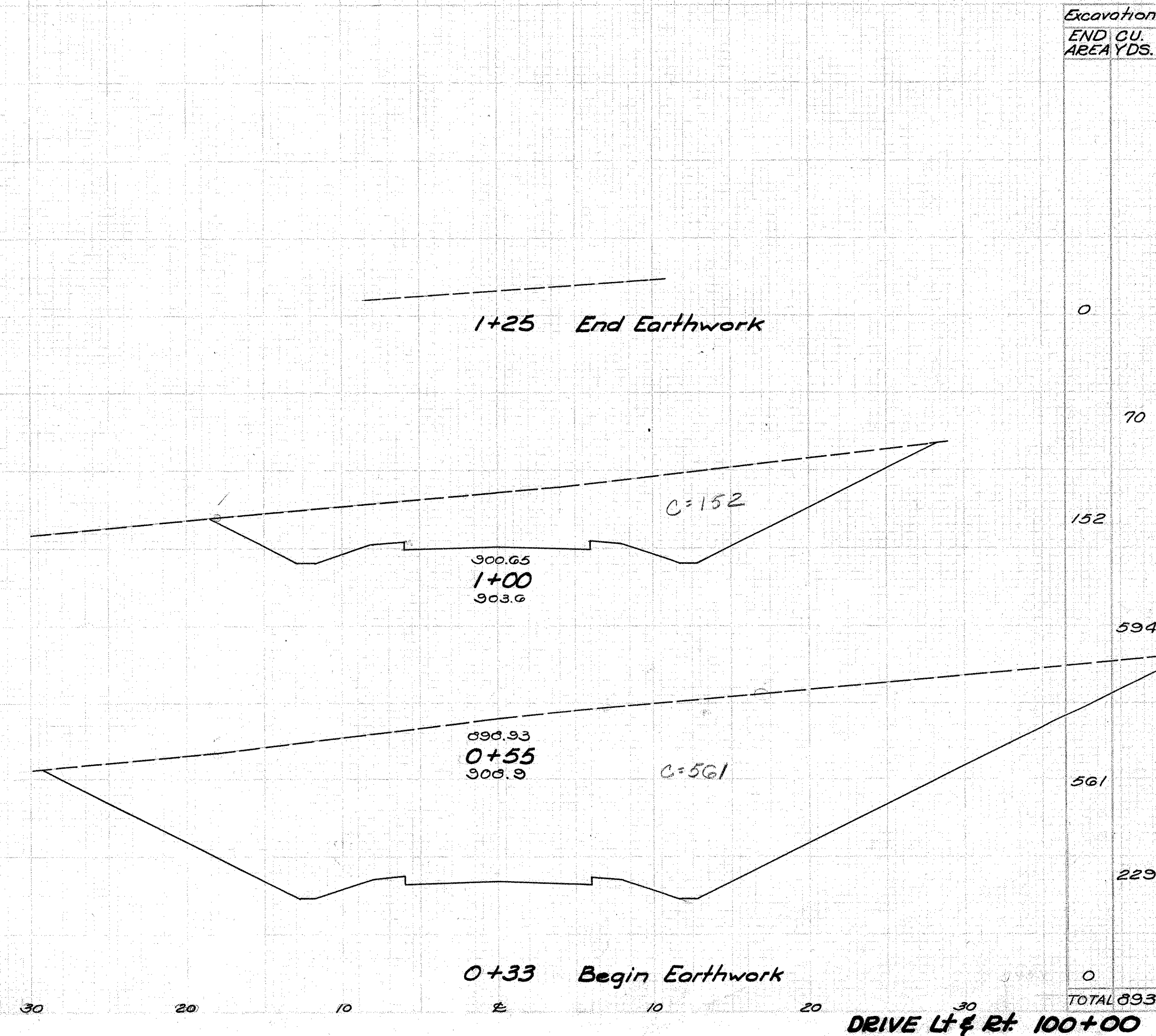
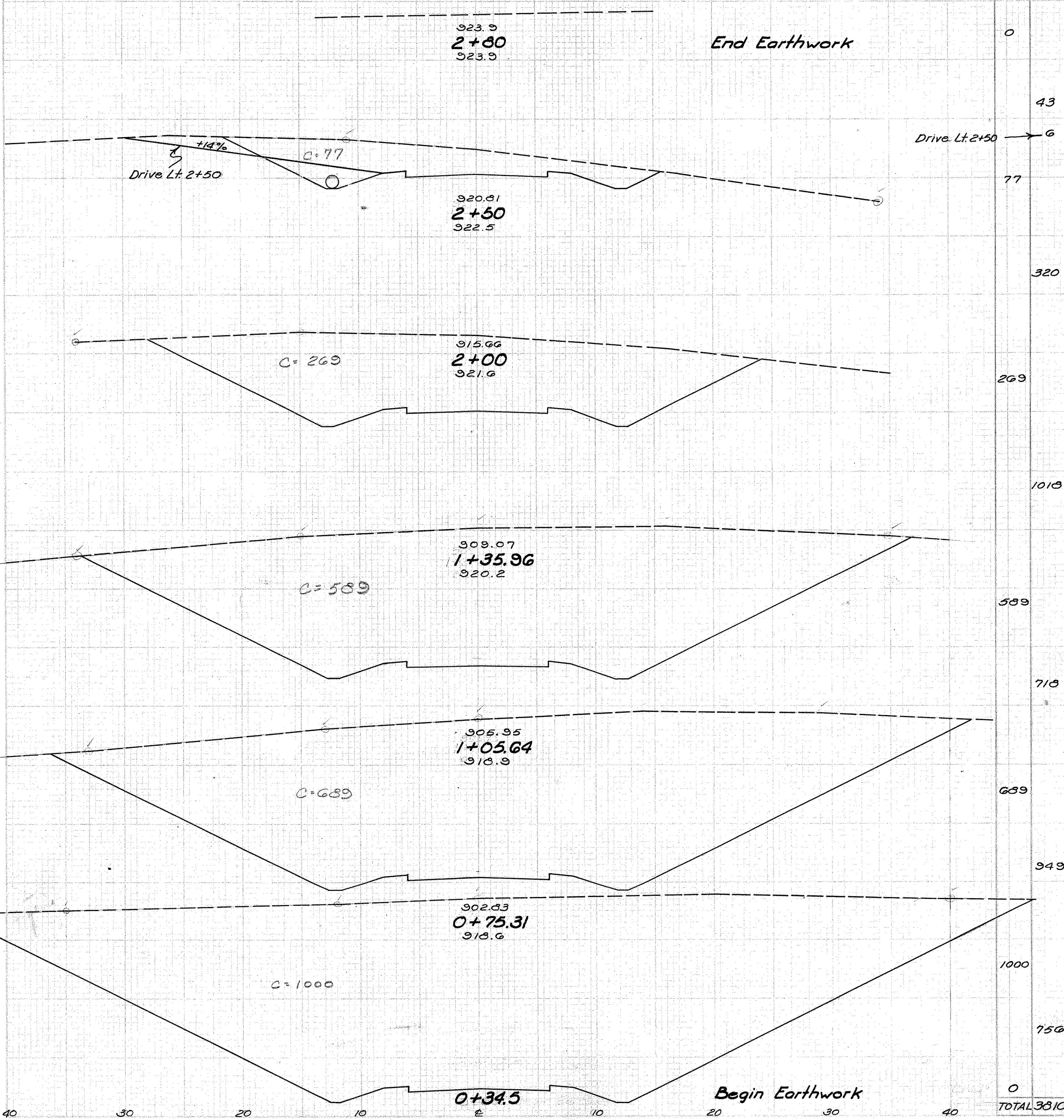


| ESTIMATED QUANTITIES             |      |     |       |          |
|----------------------------------|------|-----|-------|----------|
|                                  | Lt.  | Rt. | Total |          |
| T-70 7" P.C. Conc. Pavt.         | 92.9 |     | 92.9  | Sq. Yds. |
| SS-10 6" Stab. Crushed Aggregate | 52   | 27  | 79    | Cu. Yds. |
| I-1 12" Pipe for Drives          | 40   | 20  | 70    | Lin. Ft. |
| Excavation (Carried to X-Secs.)  | 3810 | 893 | 4703  | Cu. Yds. |





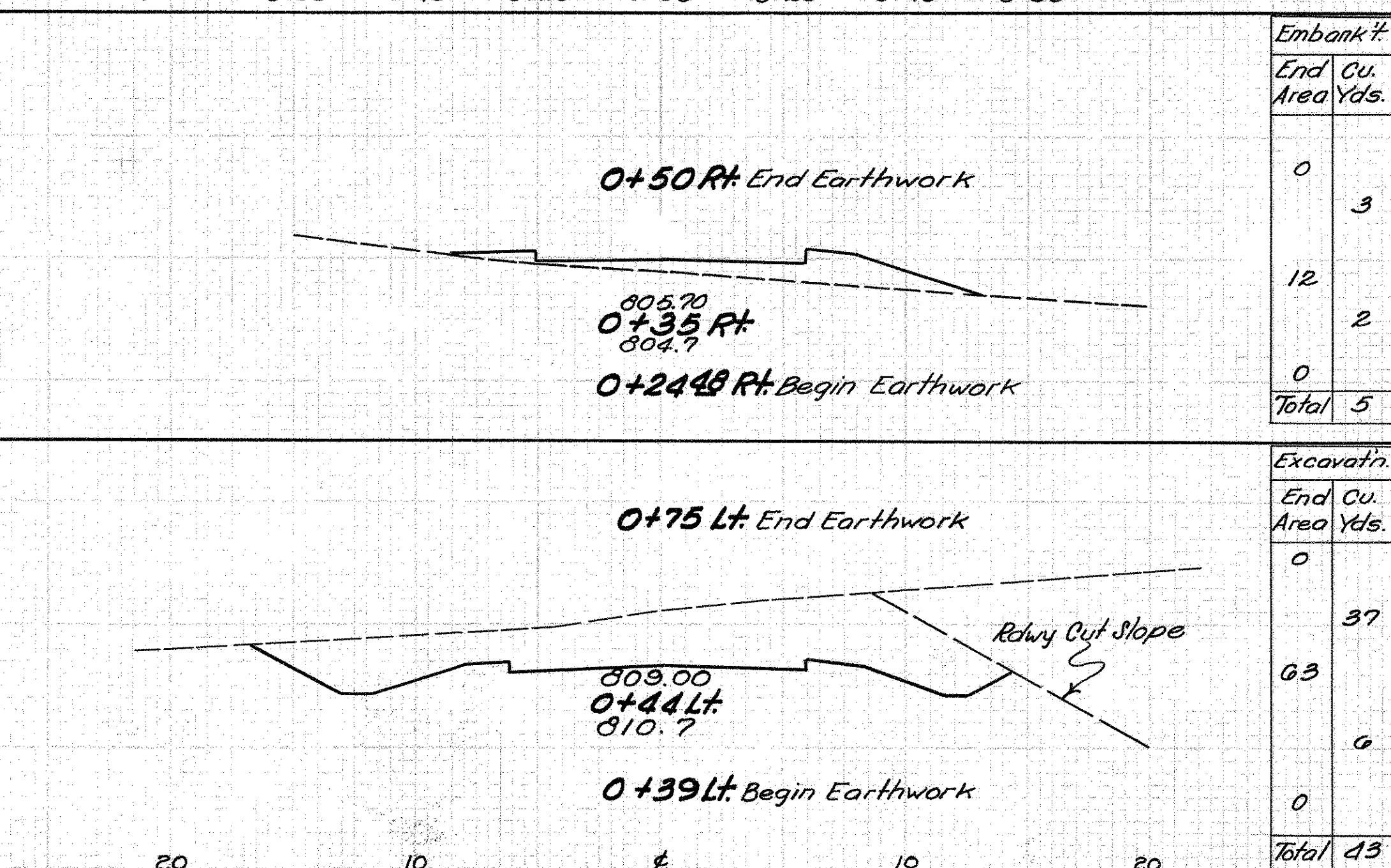
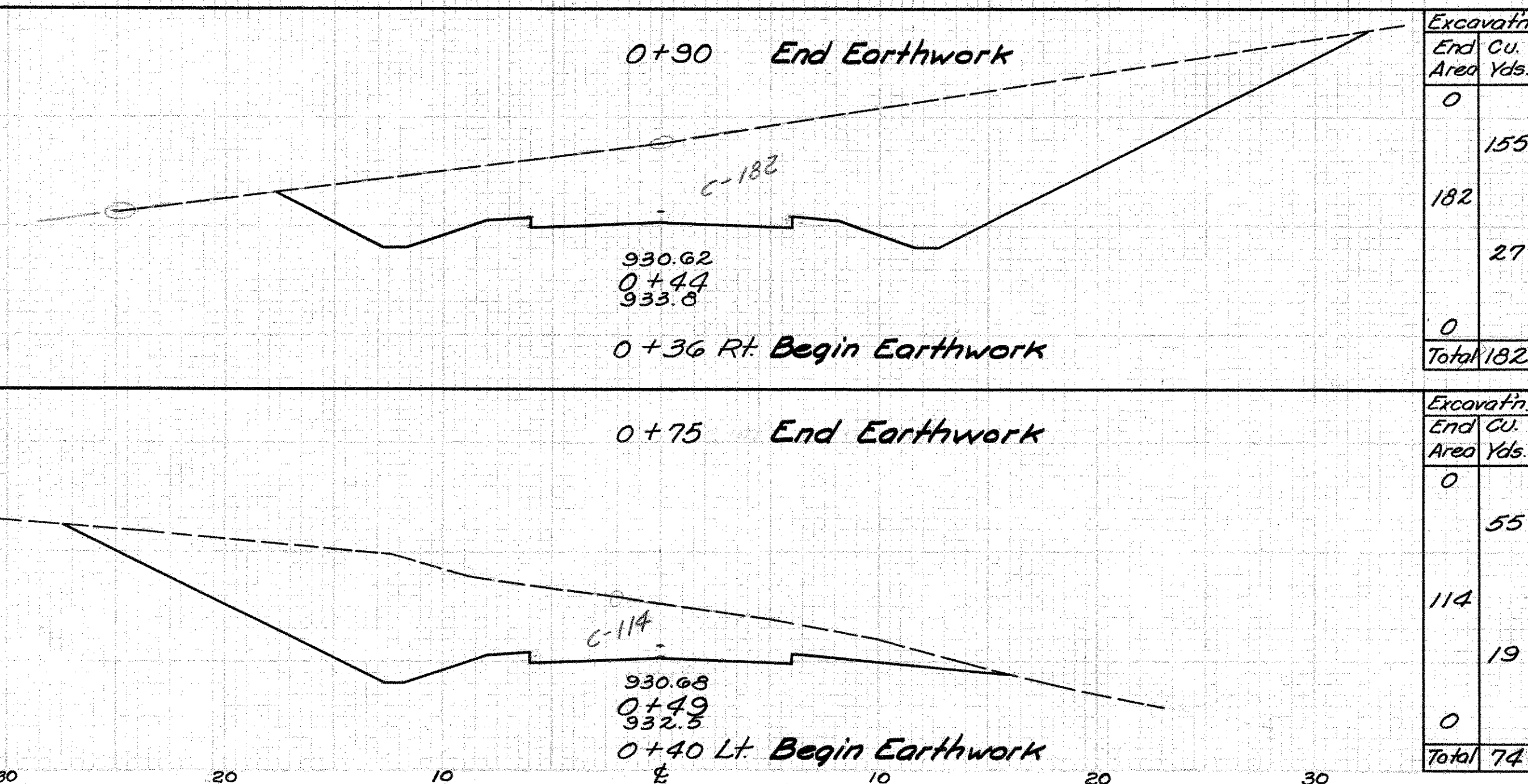
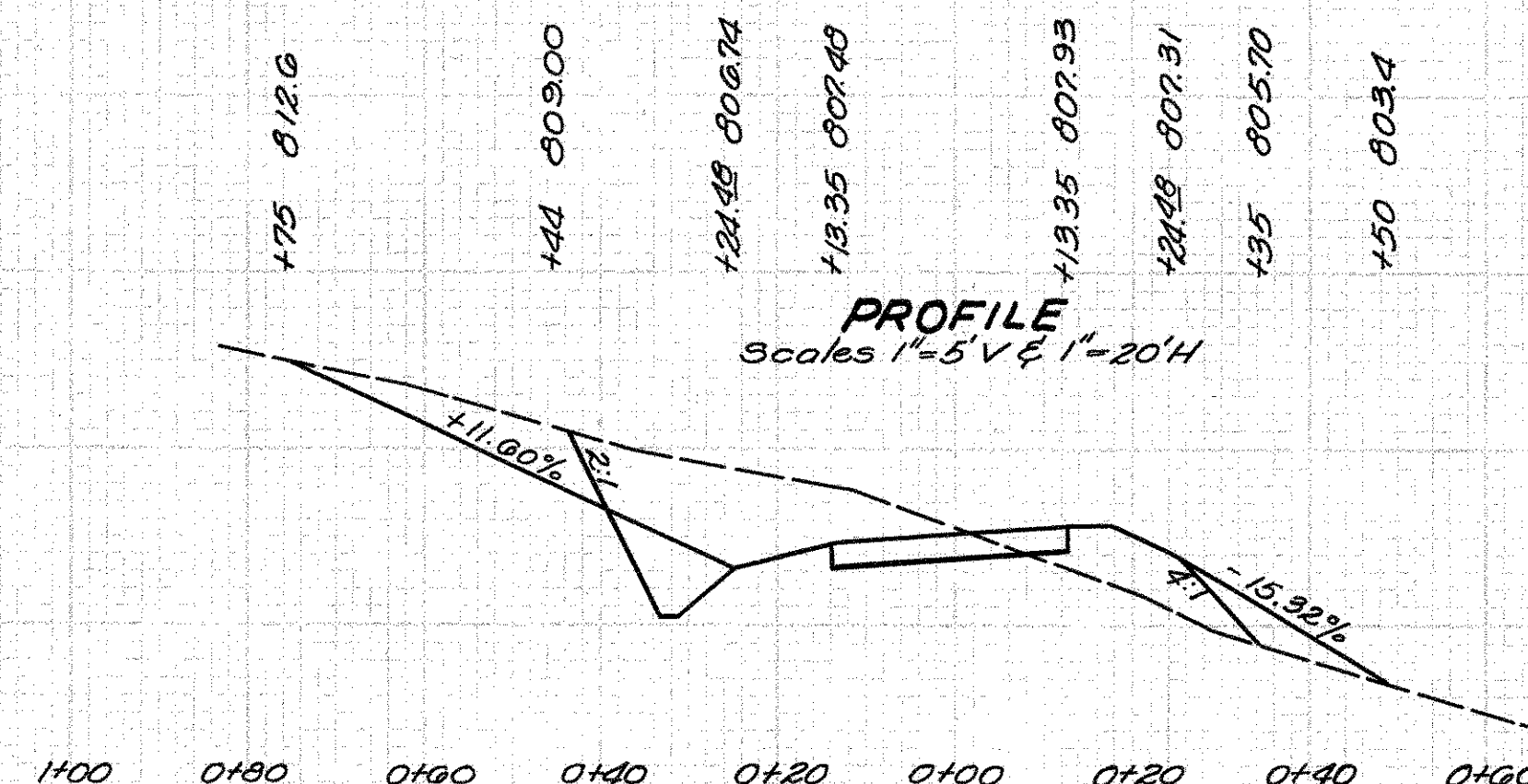
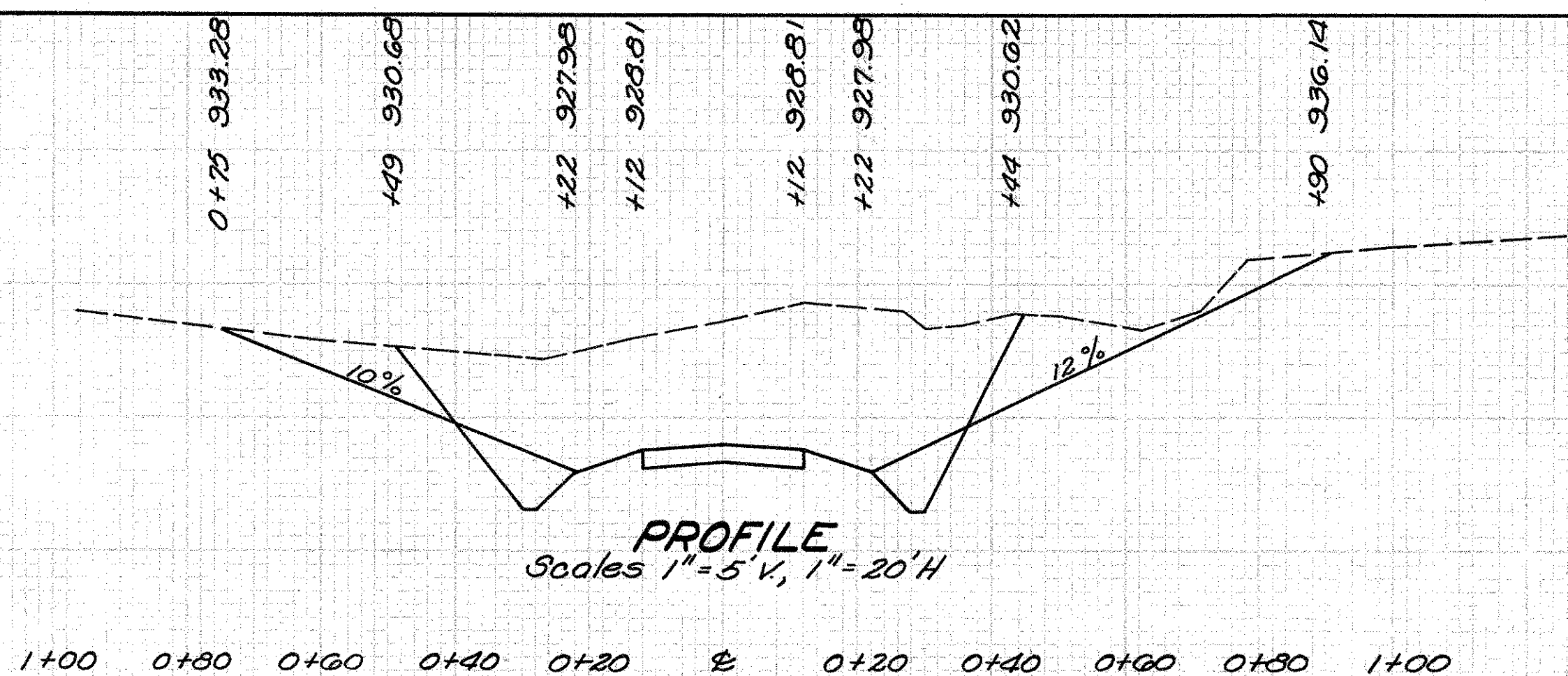
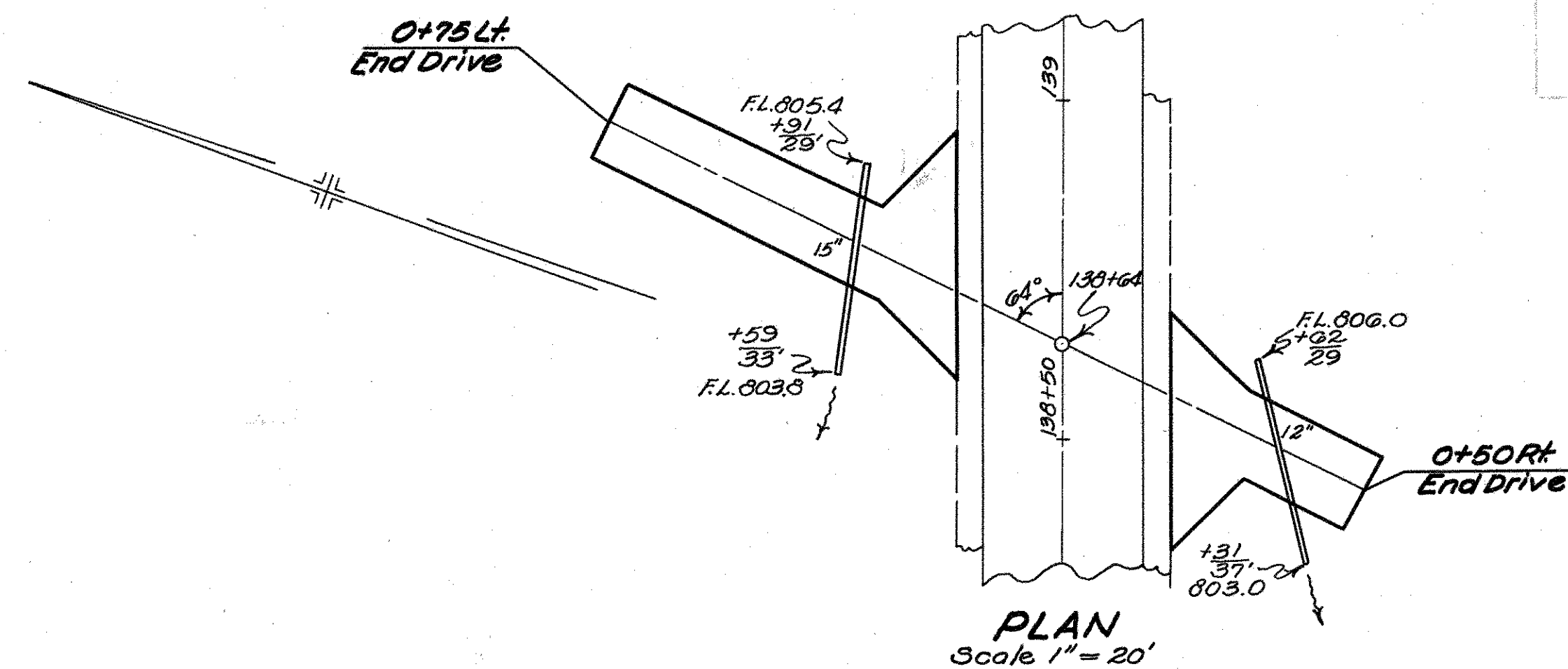
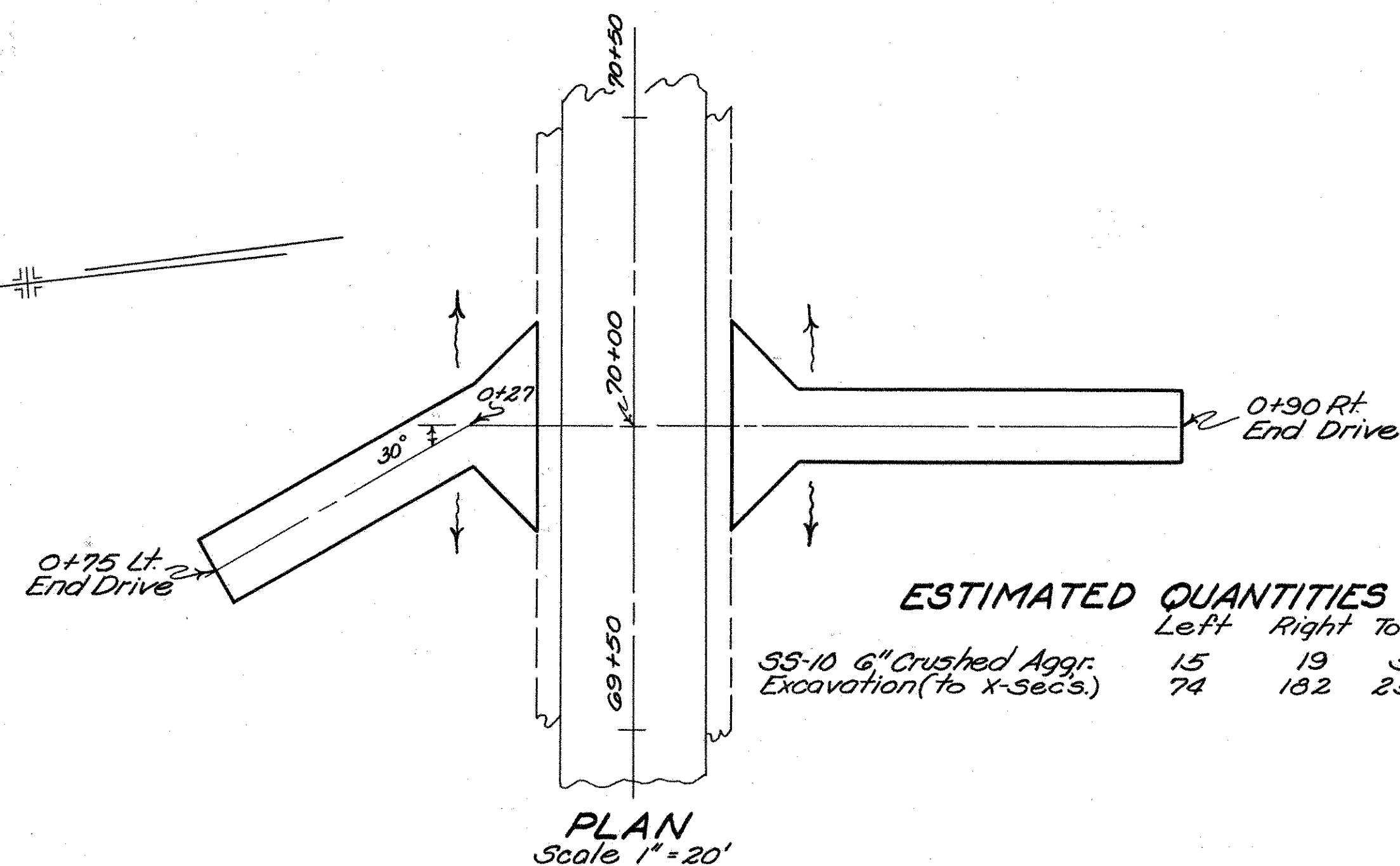
MUS-22-0.28



DRIVE Lt & Rt 100+00



MUS-22-0.28



DR. Lt. & Rt. 70+00  
DR. Lt. & Rt. 138+04



P.I. = 3+97  
 Δ = 11° 22' 24"  
 T = 50.0  
 L = 39.71  
 R = 502.42'

P.I. = 1+12  
 Δ = 6° 10'  
 T = 26.86  
 L = 39.71  
 R = 502.42'

| FED. RD. DIVISION | STATE | PROJECT | TYPE |
|-------------------|-------|---------|------|
| 2                 | OHIO  |         | PURB |

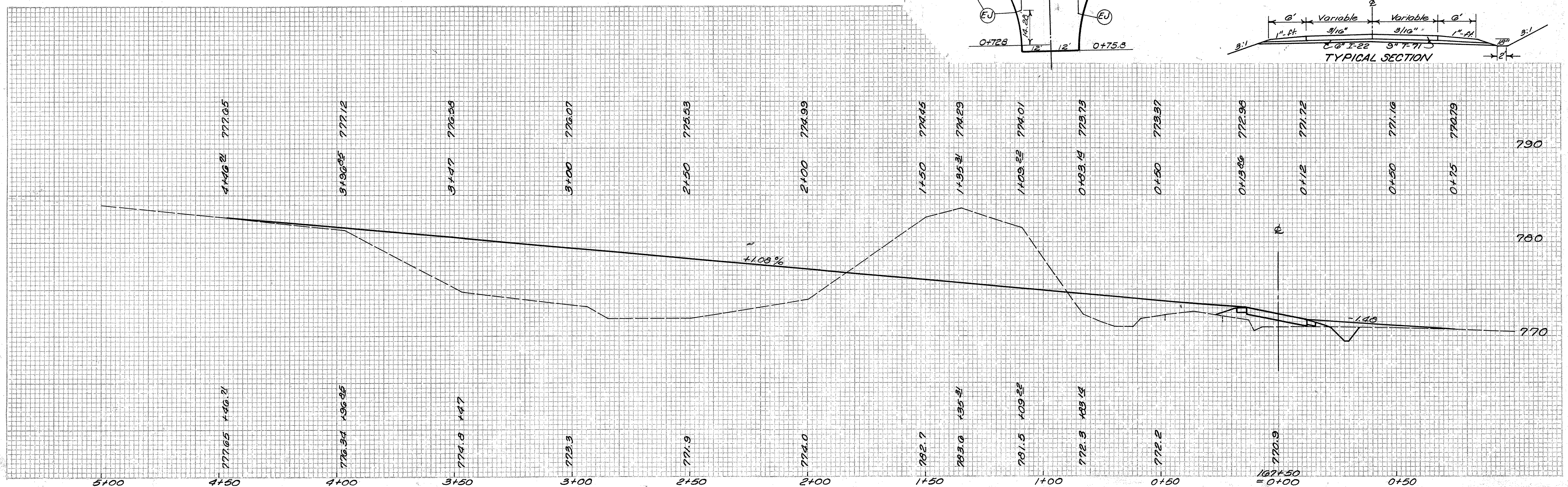
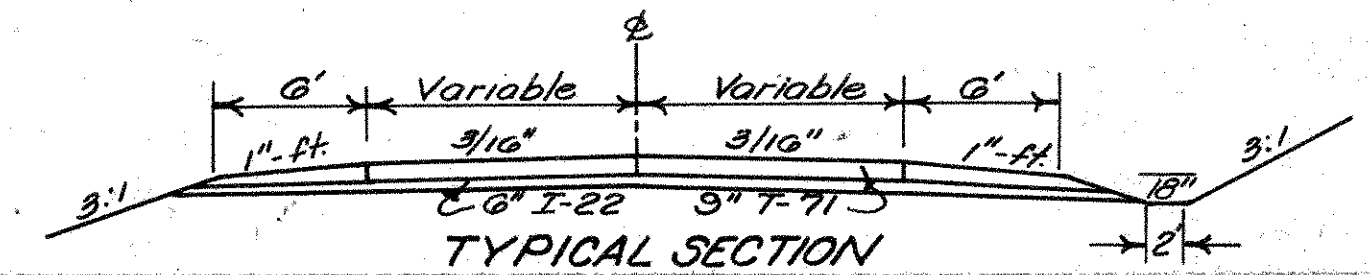
34  
118

MUS-22-0.28

### ESTIMATED QUANTITIES

|   | APPR. LT. | APPR. RT. | TOTAL  | UNIT     |
|---|-----------|-----------|--------|----------|
| T-71 9" Reinf. PC Concrete Pavt.                      | 1279.6    | 489.3     | 1768.9 | Sq. Yds. |
| I-22 6" Subbase                                       | 327       | 18        | 345    | Cu. Yds. |
| E-1 Compacted Subgrade                                | 1280      | 489       | 1769   | Sq. Yds. |
| Excavation (carried to x-secs)                        | 6043      | 20        | 6069   | Cu. Yds. |
| Embankment (carried to x-secs)                        | 569       | 0         | 569    | Cu. Yds. |
| L-14 Pinus Nigra-Austrian Pine 4' to 5' B&B, 20" Ball | 10        |           | 10     | Each     |

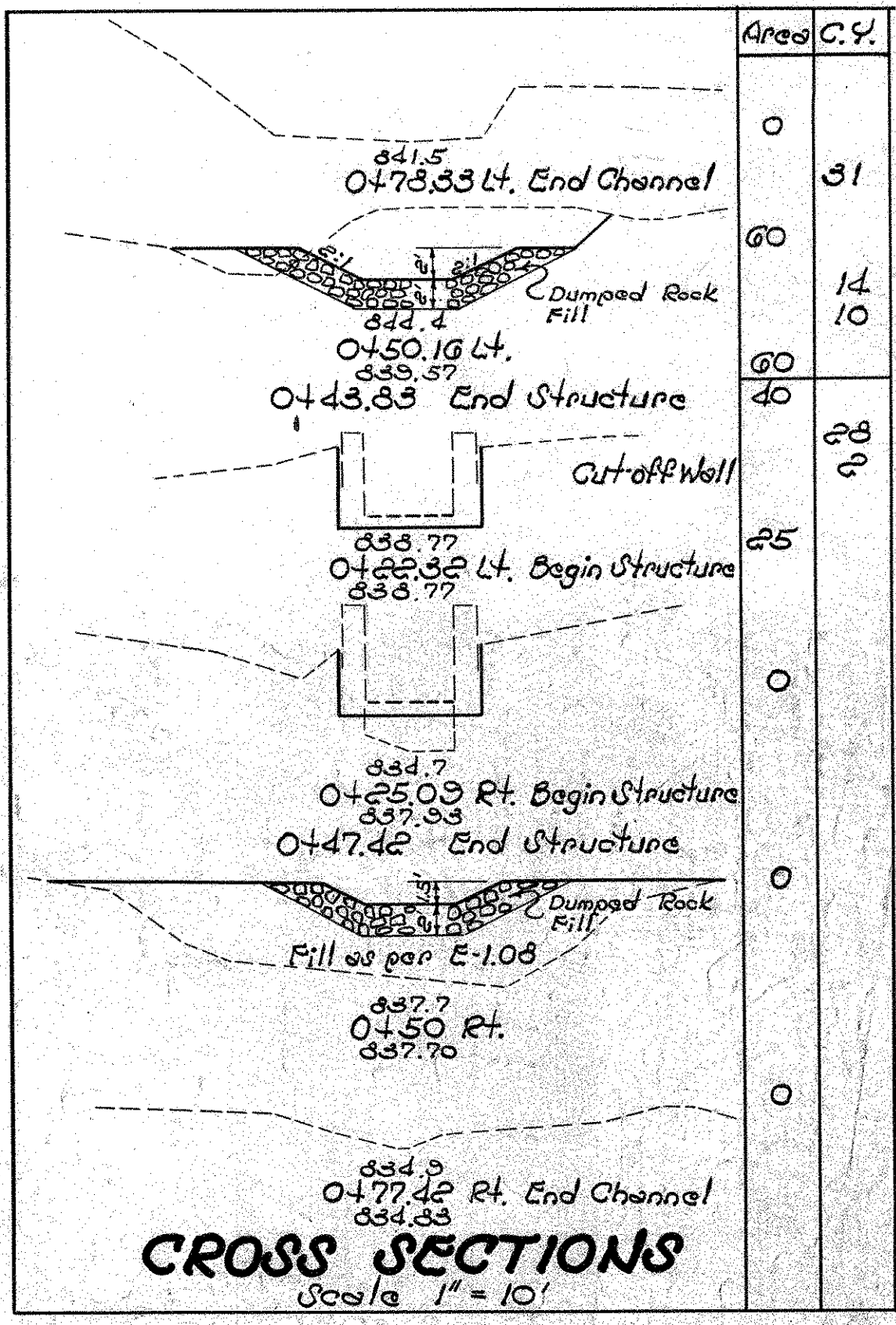
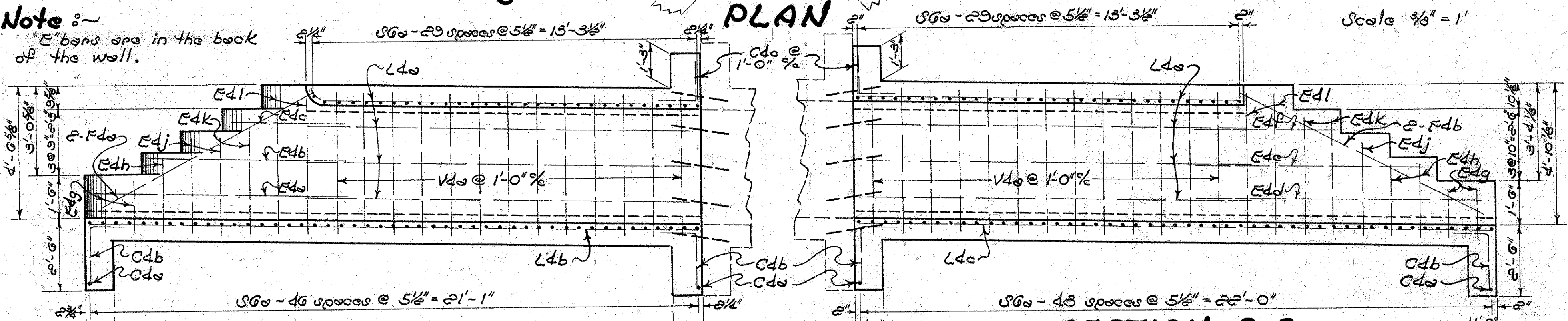
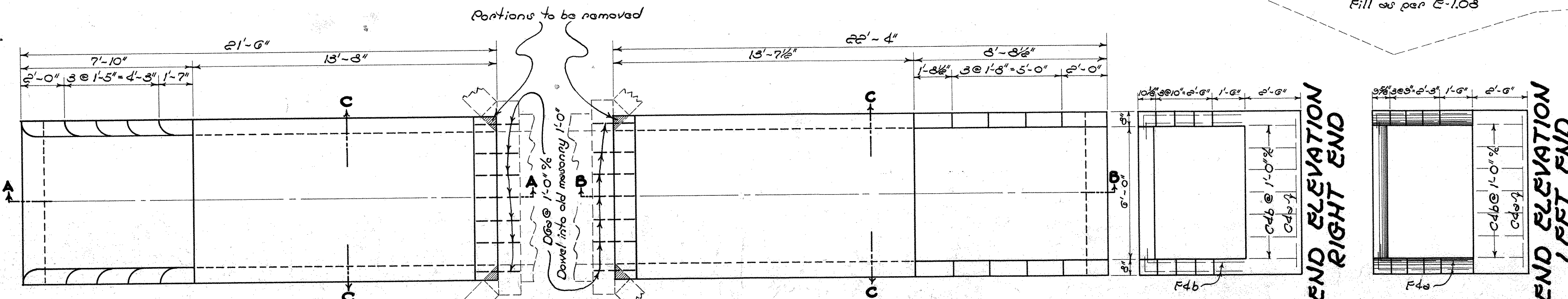
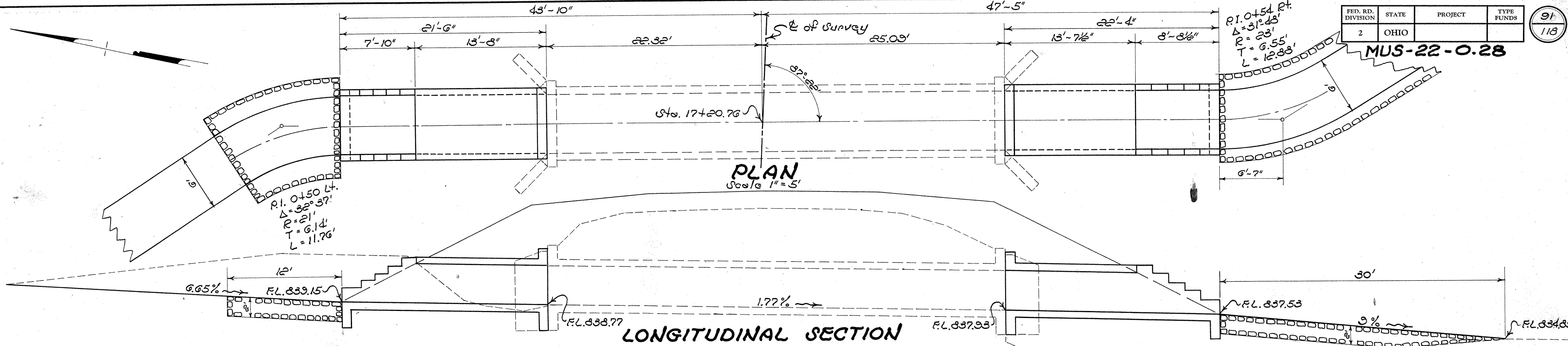
Existing Pavement to be removed 350 Lin. Ft. incl. in E-1 Excav. for Payment.



APPRS. Lt & Rt. 167+50



MUS-22-O.28



SECTION A-A  
DETAIL OF EXTENSION TO THE LEFT

SECTION B-B  
DETAIL OF EXTENSION TO THE RIGHT

| Mark | Shape | NS  | Length | Wt.  | BENDING DIAGRAMS | Mark  | Shape | NS | Length | Wt.  |
|------|-------|-----|--------|------|------------------|-------|-------|----|--------|------|
| U6a  | Bent  | 156 | 3'-2"  | 1314 |                  | Eda   | Start | 2  | 3'-0"  | 11   |
| U6b  | Start | 40  | 2'-0"  | 120  |                  | Edb   | Start | 2  | 5'-0"  | 7    |
| U6c  | Bent  | 52  | 6'-0"  | 210  |                  | Edc   | Bent  | 3  | 2'-4"  | 12   |
| U6d  | Start | 20  | 13'-4" | 232  |                  | Edh   | Bent  | 6  | 3'-1"  | 12   |
| U6e  | Start | 7   | 2'-0"  | 38   |                  | Edj   | Bent  | 6  | 3'-10" | 15   |
| U6f  | Start | 7   | 2'-0"  | 103  |                  | Edk   | Bent  | 6  | 4'-7"  | 13   |
| U6g  | Start | 4   | 6'-6"  | 17   |                  | Edl   | Bent  | 3  | 5'-7"  | 30   |
| U6h  | Bent  | 28  | 3'-2"  | 59   |                  | F4a   | Bent  | 4  | 8'-0"  | 24   |
| U6i  | Start | 2   | 3'-0"  | 12   |                  | F4b   | Bent  | 4  | 10'-0" | 27   |
| U6j  | Start | 2   | 7'-0"  | 9    |                  | U6a   | Bent  | 14 | 2'-8"  | 25   |
| U6k  | Start | 2   | 4'-0"  | 5    |                  | Total |       |    |        | 2973 |
| U6l  | Start | 2   | 10'-0" | 13   |                  |       |       |    |        |      |

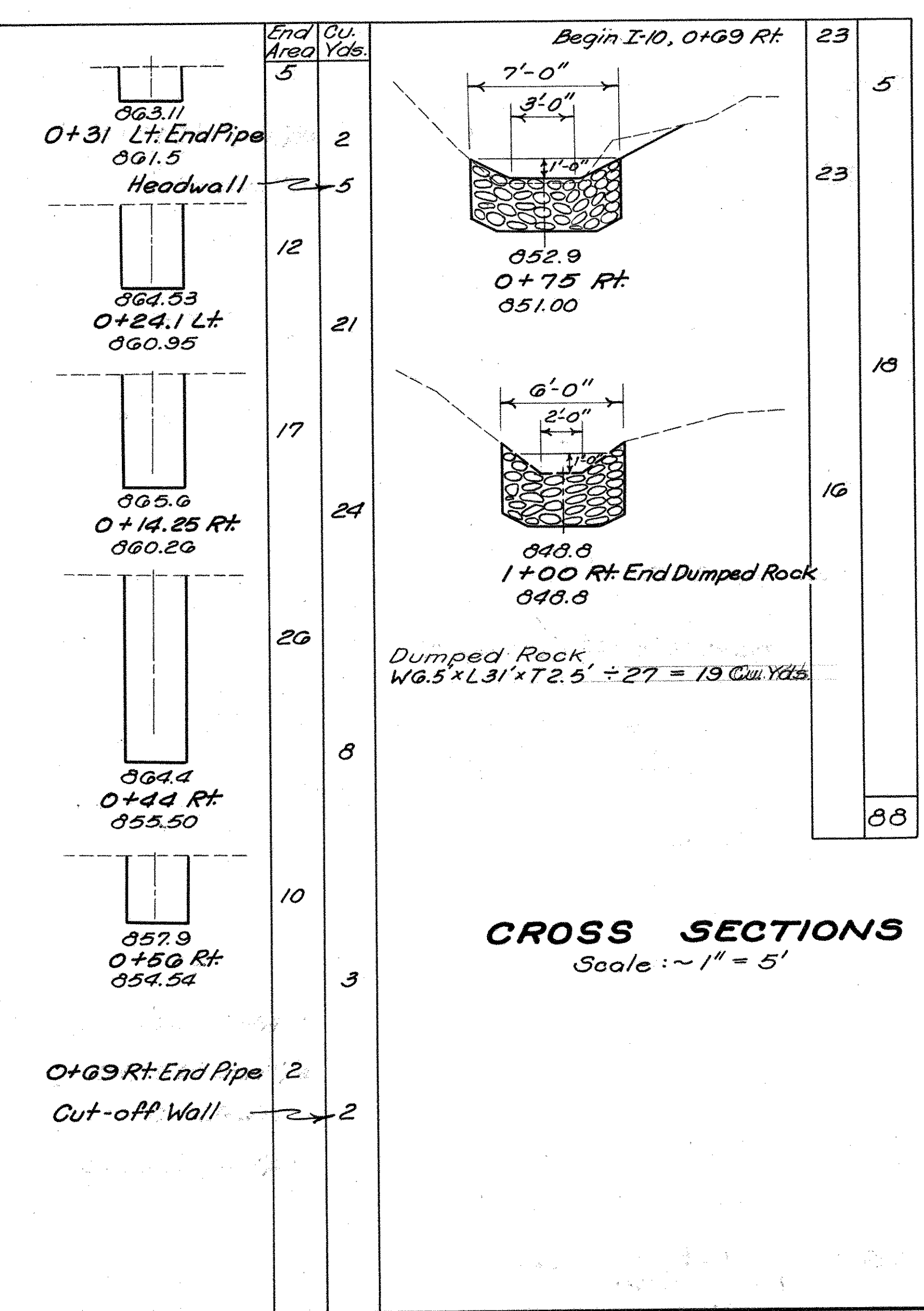
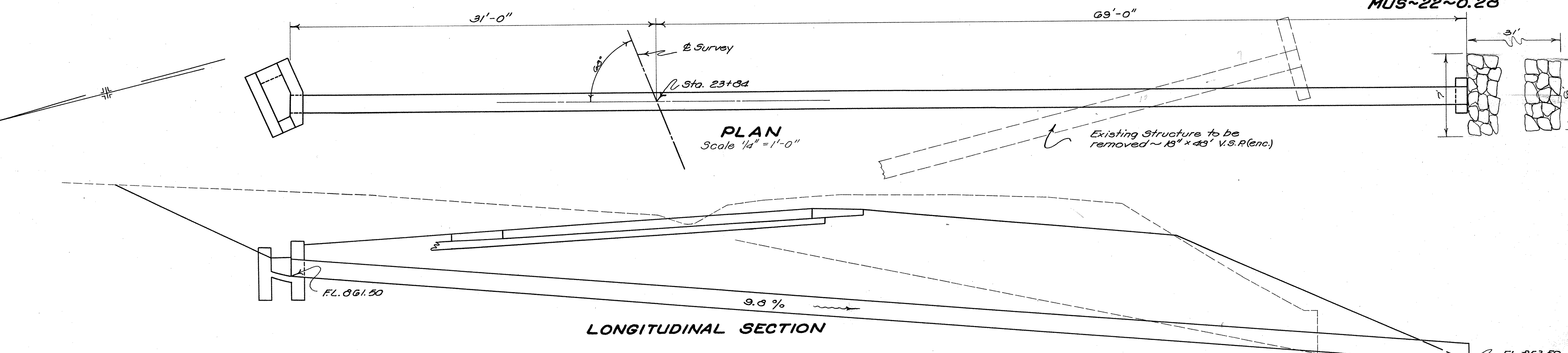
**CULVERT DATA**  
 TYPE: ~ Small Box Culvert Std. Drwg. No. S.B.C. - 45  
 SIZE: ~ 6' x 4' x 31'-3" Drainage Area 230 A.C. 200 cfs. 25 yr.  
 WORK REQUIRED: ~ Extend Existing Structure. Excavate channel and place dumped rock fill as per plan.

| Item | Quantity | Unit    | Description                               |
|------|----------|---------|---|
| E-2  | 55       | Cu.Yd.  | Excavation for Structure                  |
| E-3  | 30       | Cu.Yd.  | Channel Excavation                        |
| S-1  | 24.3     | Cu.Yd.  | Concrete for Structure Class "C"          |
| S-4  | 29.73    | Lb.     | Reinforcing Steel                         |
| S-22 | 0.3      | Cu.Yd.  | Removal of Portions of Existing Structure |
| S-23 | 40       | Lin.Ft. | Dowel Holes                               |
| I-10 | 30       | Cu.Yd.  | Dumped Rock Fill                          |

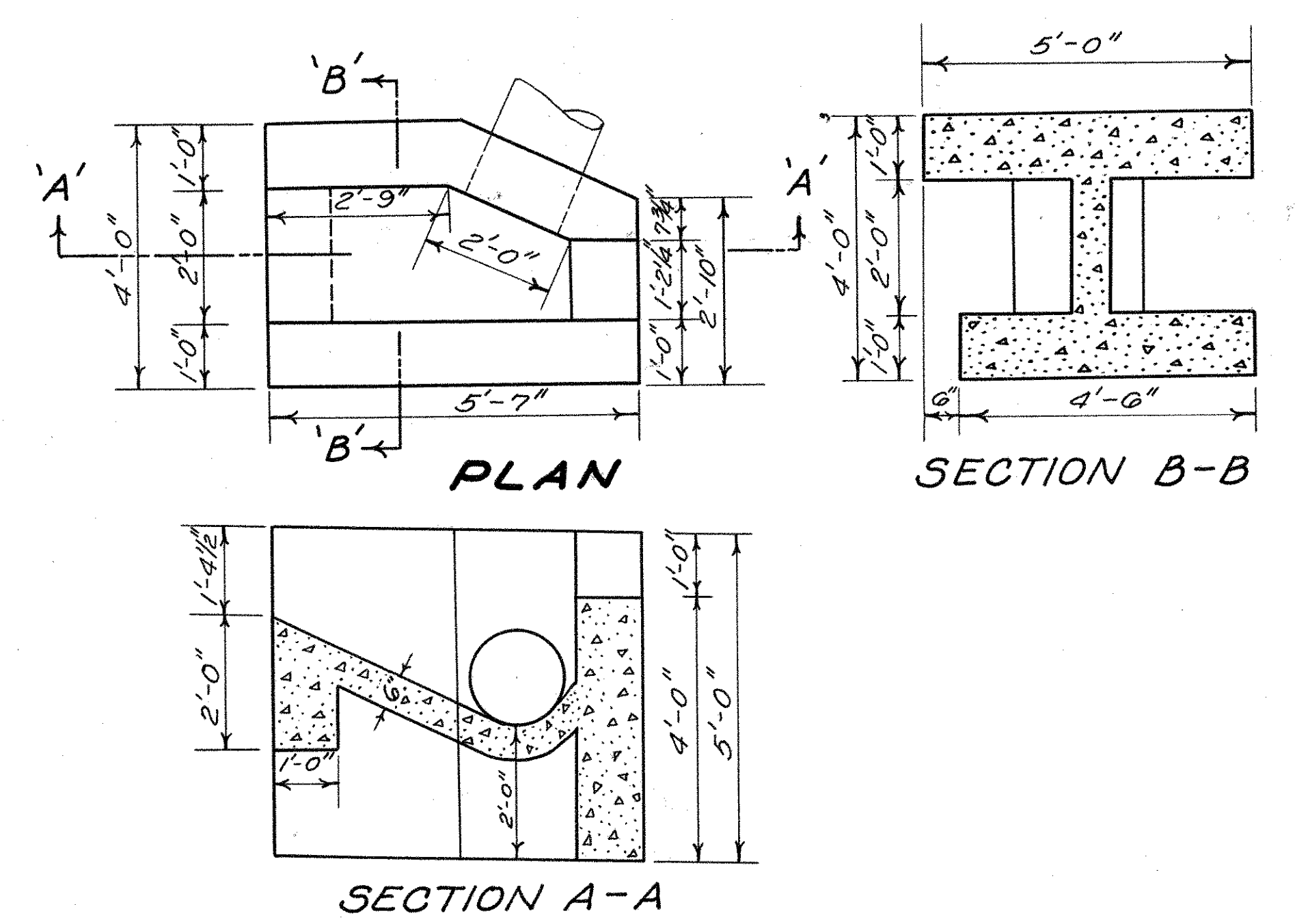
Design: Henry  
 Traced: Williams  
 Checked: Baker



MUS-22~0.28



**CROSS SECTIONS**  
Scale: ~ 1" = 5'



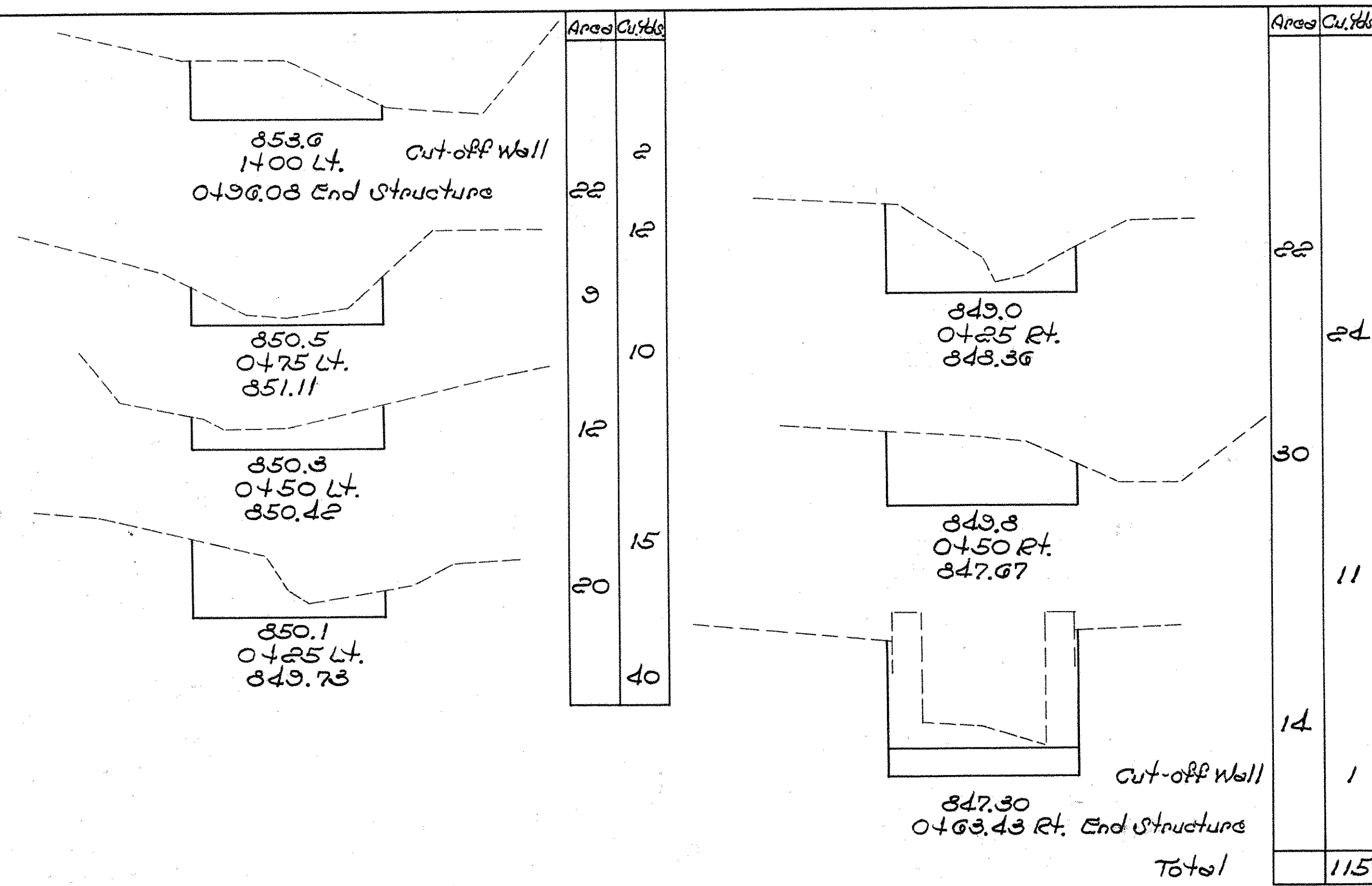
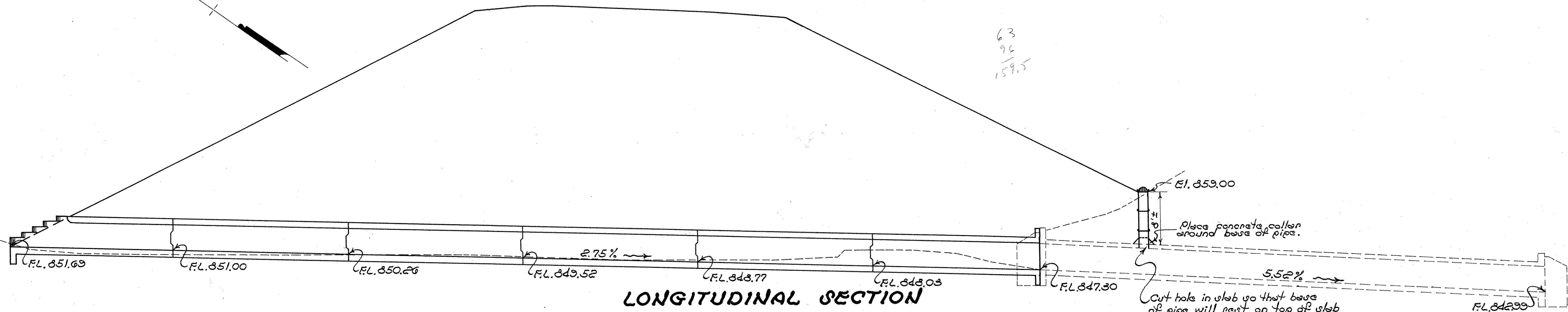
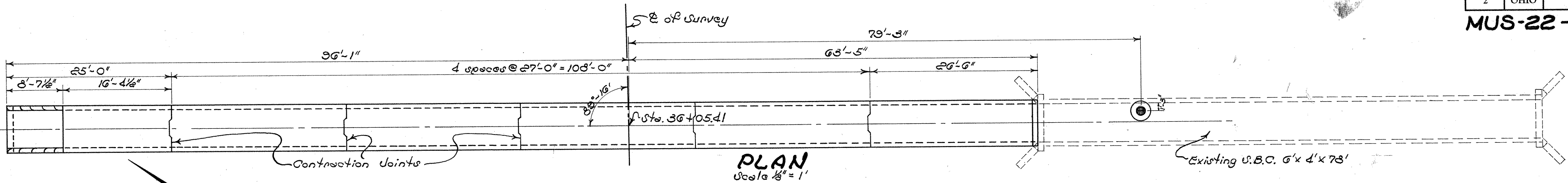
**DETAIL OF HEADWALL ON LEFT**  
Scale 1/2" = 1'-0"

**CULVERT DATA**

TYPE: ~ Pipe Culvert STD. Drwg. No S-27, P.C. 3&4  
 SIZE: ~ 18" x 100' Drainage Area=4ac. 10 cfs 25 yr.  
 WORK REQUIRED: ~ Install new pipe culvert as per plan. Place dumped rock fill at outlet end. Omit reinforcing steel in Headwall on left.

| ESTIMATED QUANTITIES |          |         |  |  |
|----------------------|----------|---------|--|--|
| Item                 | Quantity | Unit    | Description                              |  |
| E-2                  | 8.8      | Cu.Yds  | Excavation for Structure                 |  |
| S-1                  | 2.7      | Cu.Yds  | Conc. for Headwall & Cut-off Wall, Ol. E |  |
| S-24                 | Lump     | Sum     | Removal of Existing Structure            |  |
| S-27                 | 100      | Lin.Ft. | 18" Pipe for Roadway Culvert             |  |
| I-10                 | 19       | Cu.Yds  | Dumped Rock Fill                         |  |
|                      |          |         |  |  |
|                      |          |         |  |  |
|                      |          |         |  |  |





**CULVERT DATA**

TYPE: ~ Small Box Culvert Std. Dring. N2-V.B.C. 45 I-B C.B. N2-7

SIZE: ~ 6'x4' x 237.5' Drainage Area 180 AC. 150 cfs. 25 ypr.

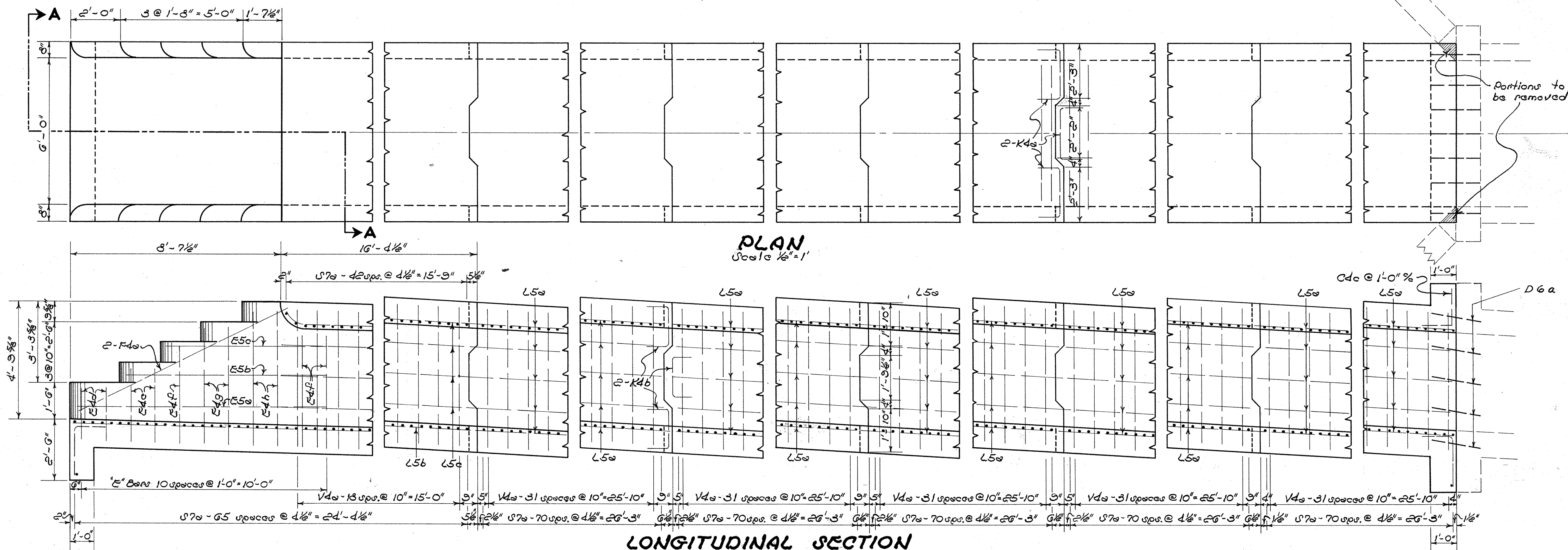
WORK REQUIRED: ~ Extend existing structure as per plan.

The Standard N2-7 Catch Basin is modified in that the base of the pipe is to rest on the top of the existing slab through which a hole, the size of the pipe, is to be cut. A concrete collar is to be placed around the base of the pipe.

| ESTIMATED QUANTITIES |          |         |   |  |
|----------------------|----------|---------|---|--|
| Item                 | Quantity | Unit    | Description                               |  |
| E-2                  | 115      | Cu.Yd.  | Excavation for Structure                  |  |
| S-1                  | 121.8    | Cu.Yd.  | Concrete for Structure Class "C"          |  |
| S-4                  | 13503    | Lb.     | Reinforcing Steel                         |  |
| S-22                 | 0.2      | Cu.Yd.  | Removal of Portions of Existing Structure |  |
| S-23                 | 20       | Lin.Ft. | Dowel Holes                               |  |
| I-3                  | 1        | Only    | N2-7 Catch Basin, Modified                |  |
|                      |          |         |   |  |
|                      |          |         |   |  |



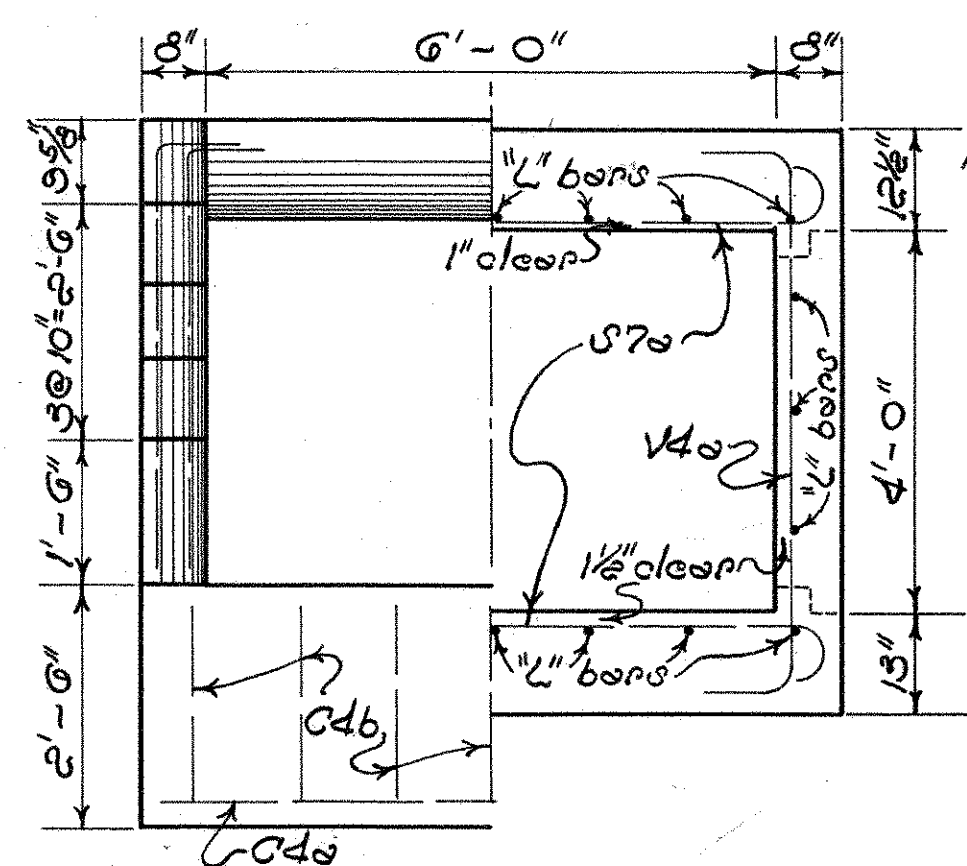
MUS-22-0.28



NOTE: Depth and spacing of dowel holes shall be similar to that detailed on Sheet 91.

# REINFORCING STEEL LIST

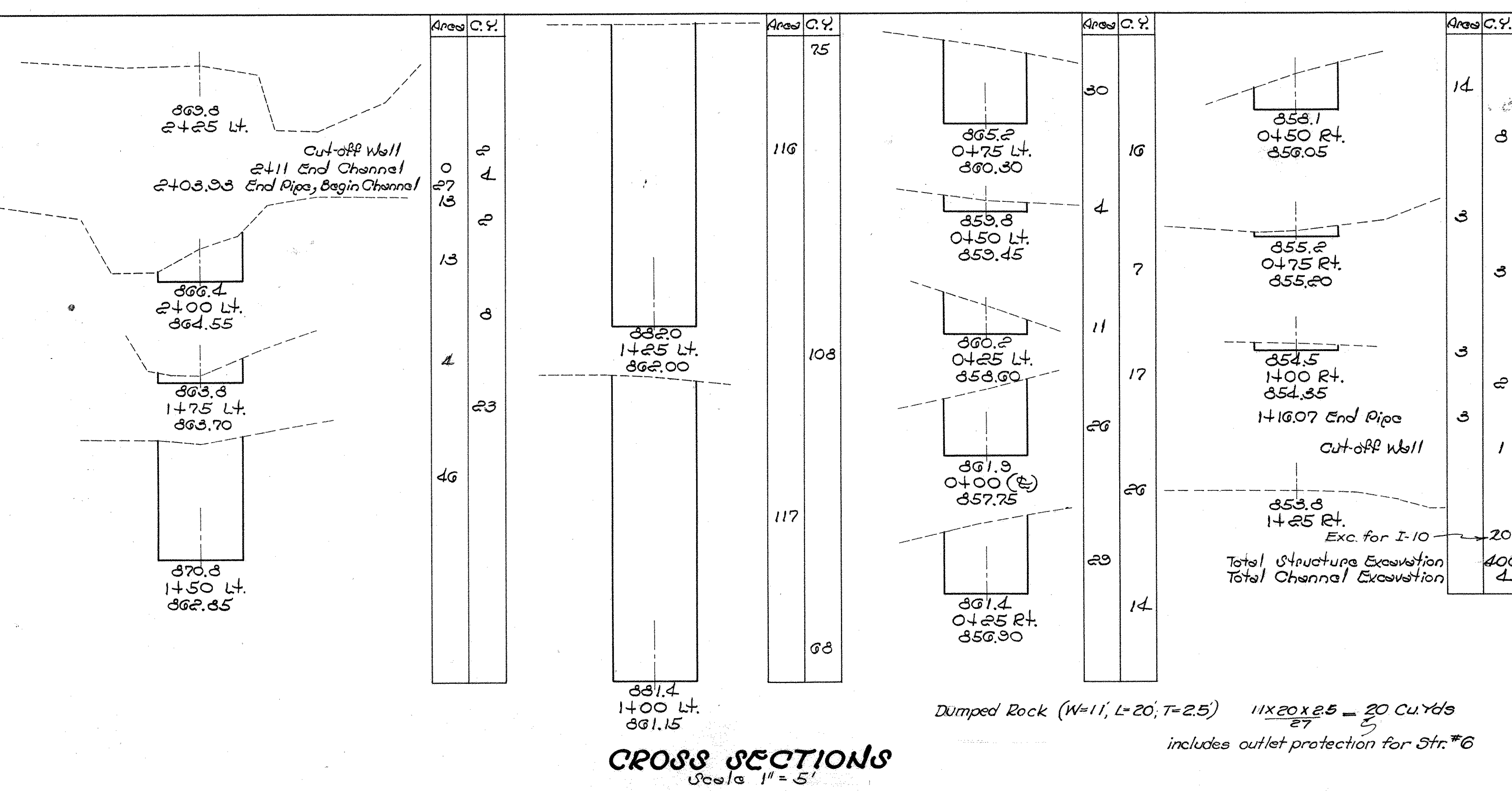
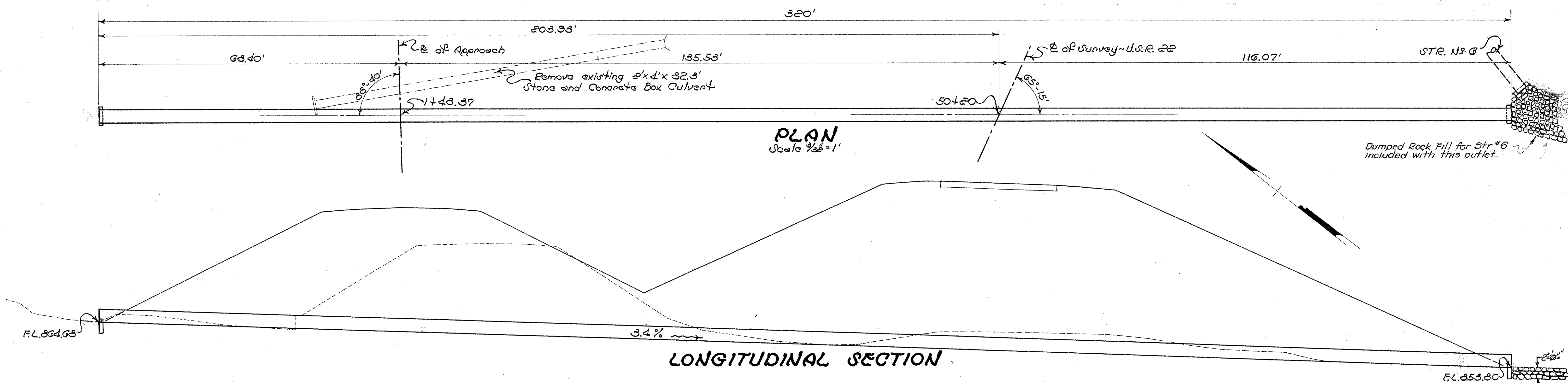
| Mark             | Shape | N <sup>o</sup> | Length     | Wt.   |
|------------------|-------|----------------|------------|-------|
| Bending Diagrams |       |                |            |       |
| U7a              | Bent  | 819            | 8'-6"      | 14223 |
| D6a              | Stn.  | 20             | 2'-0"      | 60    |
| L5a              | Stn.  | 100            | 26'-3"     | 2738  |
| L5b              | Stn.  | 7              | 24'-6"     | 179   |
| L5c              | Stn.  | 13             | 10'-0"     | 217   |
| V4a              | Bent  | 353            | 6'-10 1/2" | 1044  |
| E5a              | Stn.  | 2              | 10'-6"     | 22    |
| E5b              | Stn.  | 2              | 8'-6"      | 18    |
| E5c              | Stn.  | 2              | 6'-6"      | 12    |
| E4d              | Bent  | 4              | 2'-3"      | 7     |
| E4e              | Bent  | 4              | 3'-7"      | 10    |
| E4f              | Bent  | 6              | 4'-5 1/2"  | 18    |
| E4g              | Bent  | 4              | 5'-4"      | 14    |
| E4h              | Bent  | 4              | 6'-3"      | 17    |
| F4a              | Bent  | 4              | 10'-3"     | 27    |
| R4a              | Bent  | 60             | 3'-2"      | 127   |
| K4b              | Bent  | 60             | 2'-9 1/2"  | 112   |
| C4a              | Stn.  | 2              | 7'-0"      | 9     |
| C4b              | Bent  | 14             | 3'-1 1/2"  | 29    |
| C4c              | Bent  | 7              | 2'-7 1/2"  | 12    |
| Total            |       |                |            | 13503 |



VIEW A-A



MUS-22-0.28

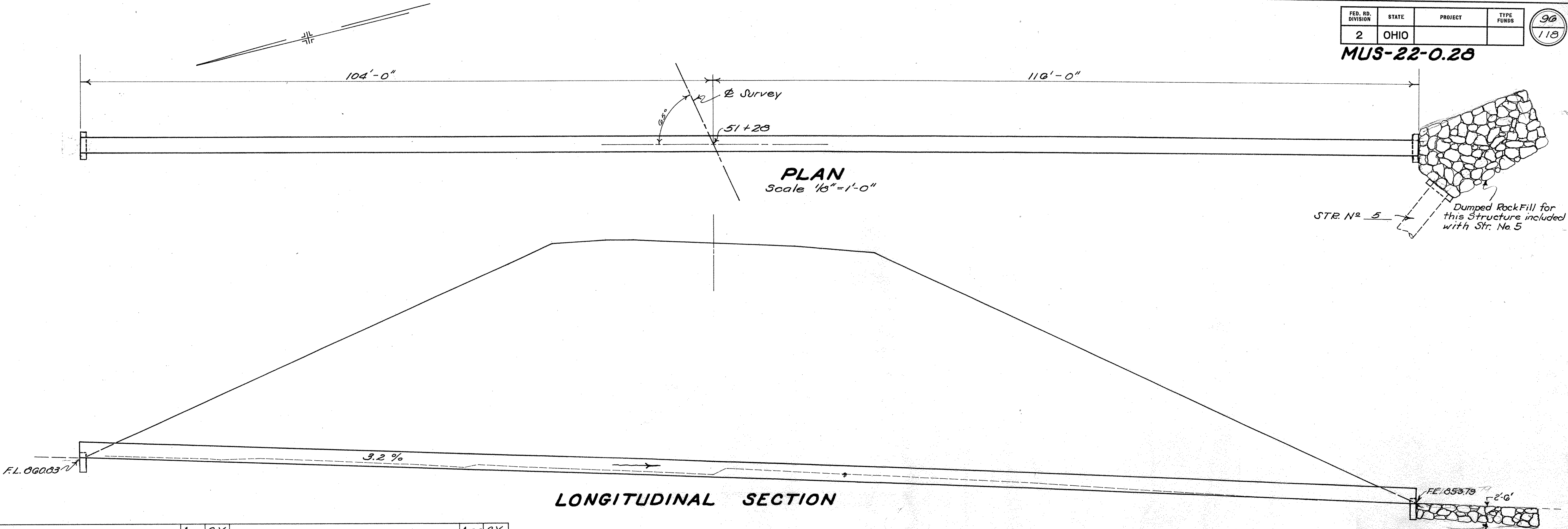


**CULVERT DATA**  
 TYPE: ~ Pipe Culvert Std. Drwg. N2-S-27 P.C. 3 & 4  
 SIZE: ~ 36" x 320' Drainage Area 64.42-65 c.f.s. 25 yps.  
 WORK REQUIRED: ~ Remove existing structure. Install new pipe culvert as per plan.

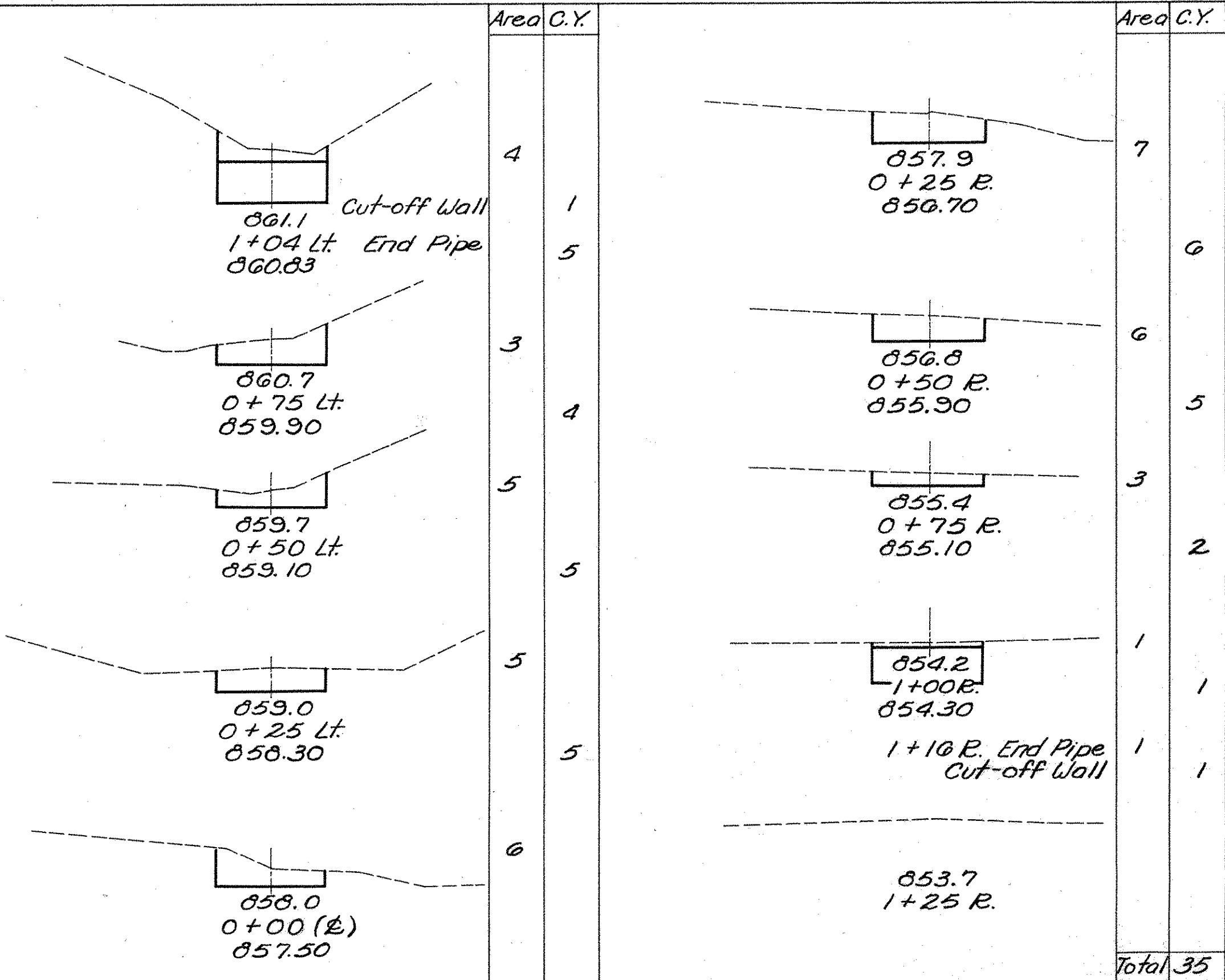
| ESTIMATED QUANTITIES |          |         |                                      |              |
|----------------------|----------|---------|--------------------------------------|--------------|
| Item                 | Quantity | Unit    | Description                          |              |
| E-2                  | 100      | Cu.Yd.  | Excavation for structure             |              |
| E-3                  | 4        | Cu.Yd.  | Channel Excavation                   |              |
| S-1                  | 1.2      | Cu.Yd.  | Concrete for Cut-off Walls Class "C" |              |
| S-24                 | Lump Sum |         | Removal of Existing Structure        |              |
| S-27                 | 320      | Lin.Ft. | 36" Pipe for Roadway Culvert         | M-Gad 109090 |
| I-10                 | 20       | Cu.Yd.  | Dumped Rock fill.                    |              |
|                      |          |         |                                      |              |
|                      |          |         |                                      |              |
|                      |          |         |                                      |              |
|                      |          |         |                                      |              |
|                      |          |         |                                      |              |
|                      |          |         |                                      |              |



MUS-22-0.28



LONGITUDINAL SECTION

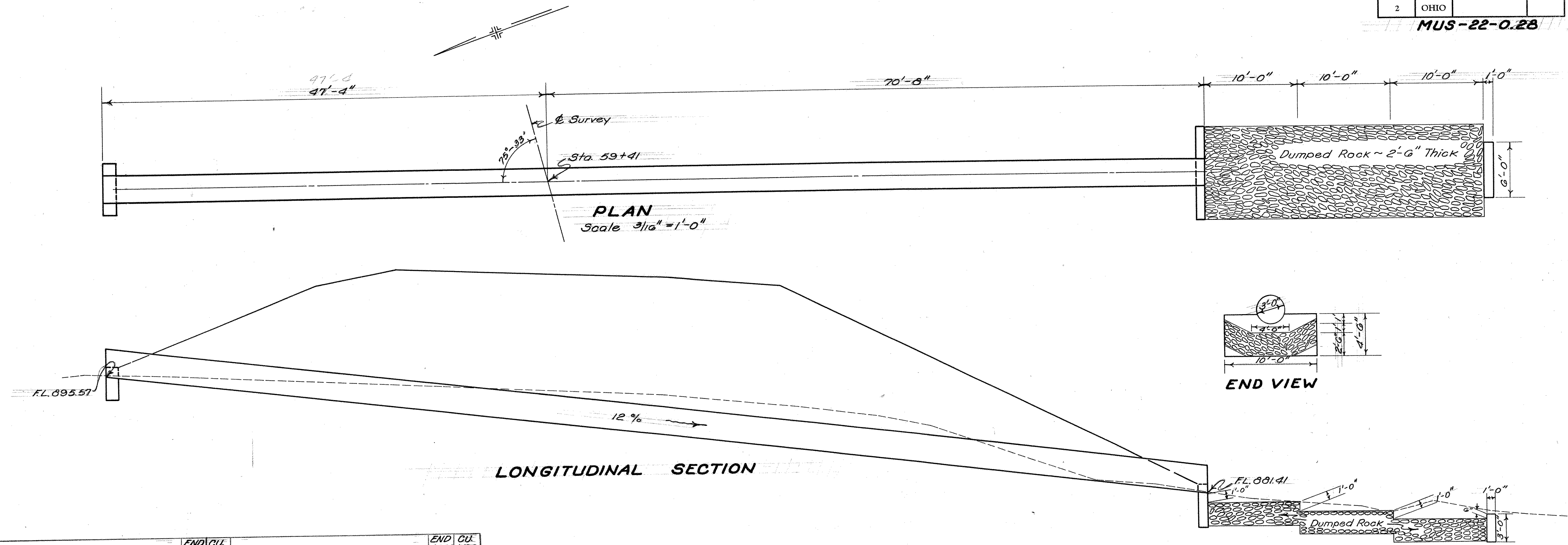


CROSS SECTIONS  
Scale 1" = 5'

**CULVERT DATA**  
TYPE : Pipe Culvert STD. DWG. No. S-27 P.C. 3 & 4  
SIZE : 30" x 220" Drainage Area 20 A<sup>2</sup>, 35' cfs, 25 Yr.  
WORK REQUIRED : Install new pipe culvert as per plan.

| ESTIMATED QUANTITIES |          |         |                                  |                 |
|----------------------|----------|---------|----------------------------------|-----------------|
| Item                 | Quantity | Unit    | Description                      |                 |
| E-2                  | 35       | Cu.Yd.  | Excavation for Structure         |                 |
| S-1                  | 1.0      | Cu.Yd.  | Conc. for Cut-off Walls, cl. "E" |                 |
| S-27                 | 220      | Lin.Ft. | 30" Pipe for Roadway Culvert     | M6.4(d) 12 gage |



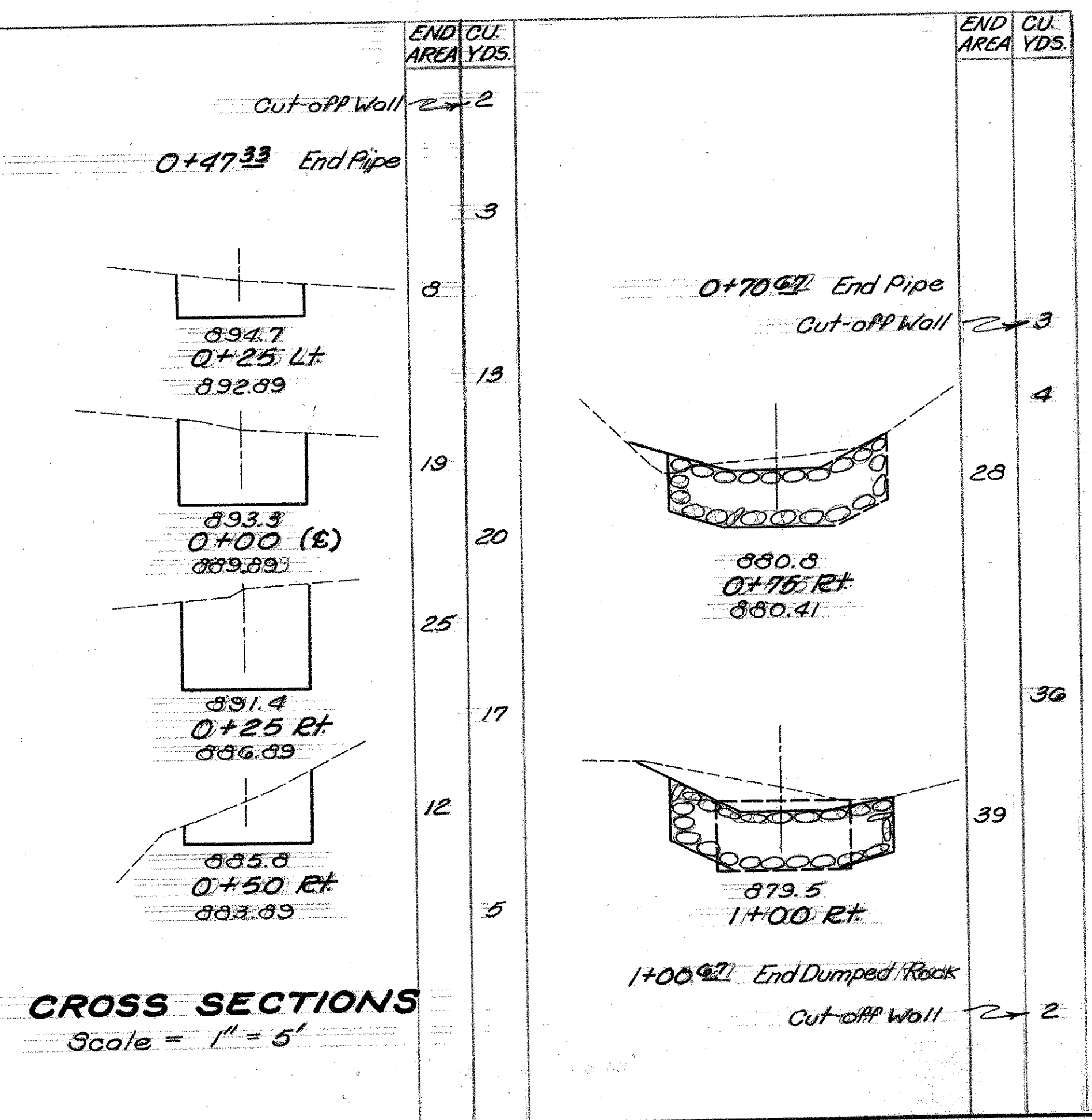


### CULVERT DATA

TYPE: ~ Pipe Culv. STD. Drwg. N<sup>o</sup> S-27 P.C. 3 & 4  
 SIZE: ~ 36" x 118' Drainage Area 32.48 47 c.f.s. 25 yr.  
 WORK REQUIRED: ~ Install new pipe culvert as per plan.

### ESTIMATED QUANTITIES

| Item | Quantity | Unit    | Description                        |  |  |
|------|----------|---------|------------------------------------|--|--|
| E-2  | 105      | Cu.Yds. | Excavation for Structure           |  |  |
| S-1  | 2.9      | Cu.Yds. | Conc. for Cut-off Walls, Class 'E' |  |  |
| S-27 | 118      | Lin.Ft. | 36" Pipe for Roadway Culvert       |  |  |
| I-10 | 28       | Cu.Yds. | Dumped Rock                        |  |  |

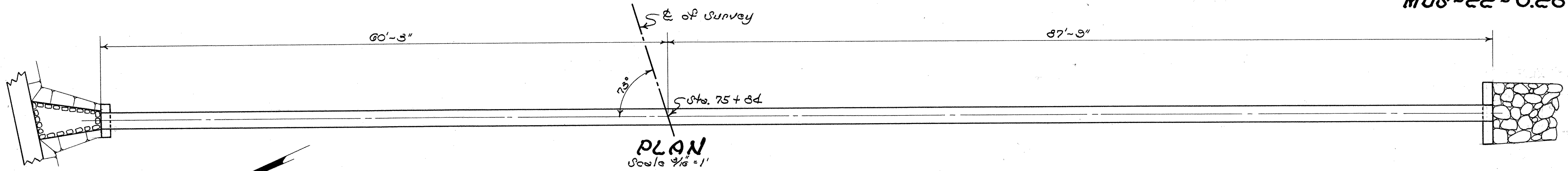




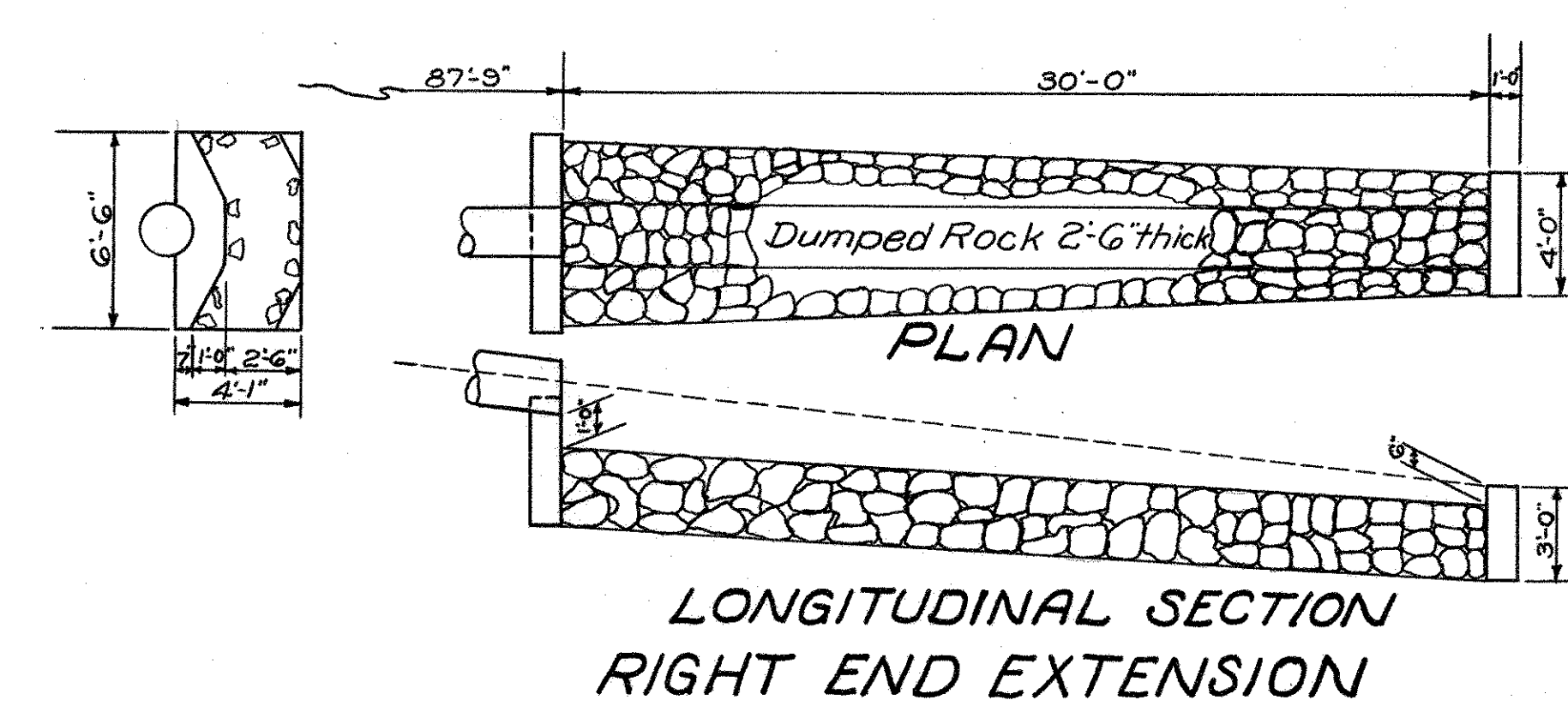
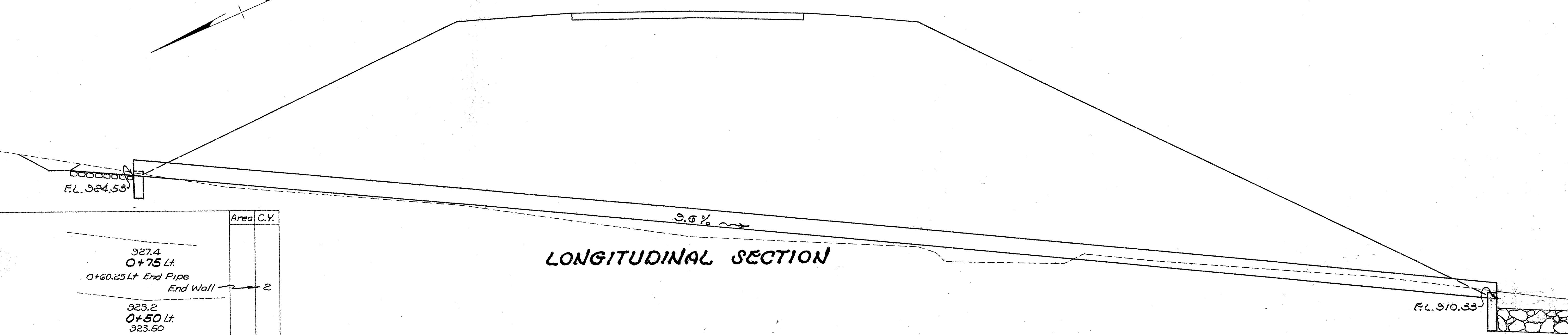




MUS-22-0.28

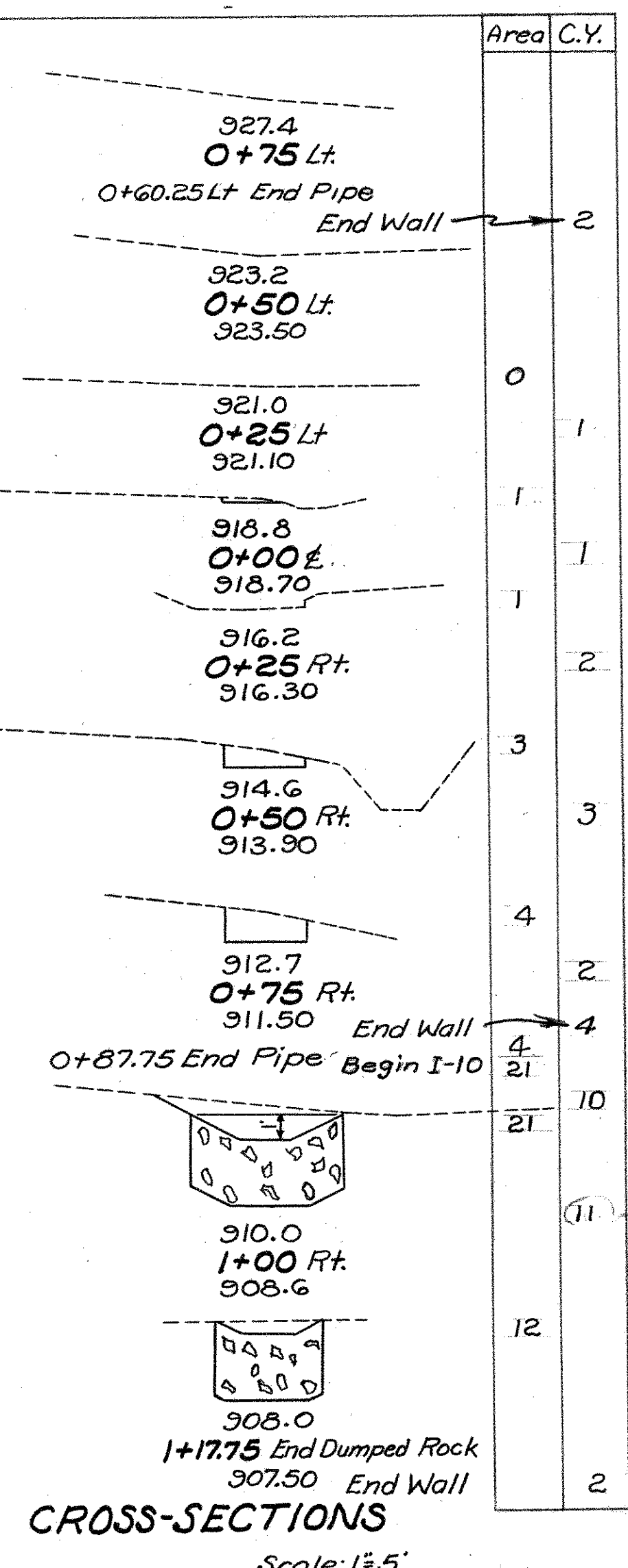


LONGITUDINAL SECTION



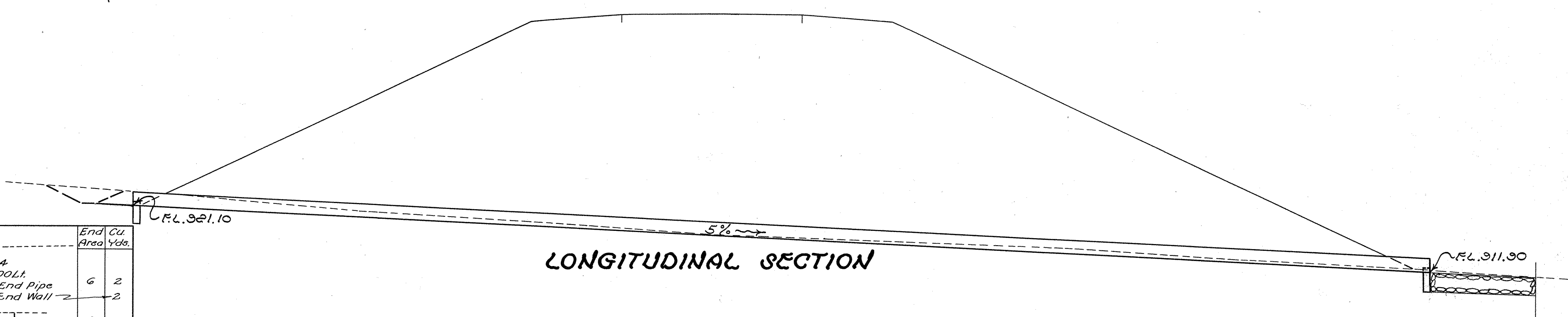
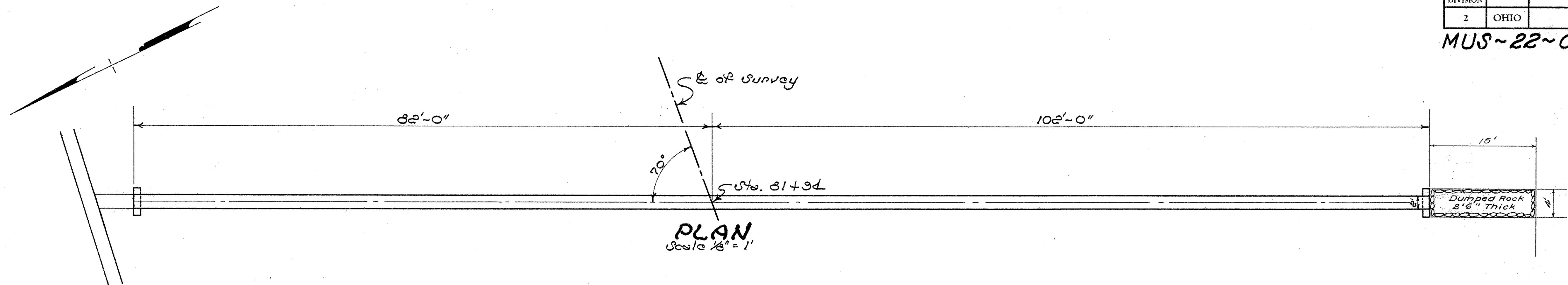
**CULVERT DATA**  
TYPE: ~ Pipe Culvert Std. Drawg. No. C-27 R.C. 3 & 4  
SIZE: ~ 21" x 143' Drainage Area 14.92. 20 cfs. 25 yr.  
WORK REQUIRED: ~ Build new pipe culvert as per plan.  
Place riprap paving on left and dumped rock fill on right as detailed.

| ESTIMATED QUANTITIES |          |         |   |       |
|----------------------|----------|---------|---|-------|
| Item                 | Quantity | Unit    | Description                                       |       |
| E-2                  | 38       | Cu.Yd.  | Excavation for Structure                          |       |
| E-3                  | 1        | Cu.Yd.  | Channel Excavation                                |       |
| S-1                  | 1.8      | Cu.Yd.  | Concrete for Out-off Wall                         | 01.25 |
| S-27                 | 143      | Lin.Ft. | 21" Pipe for Roadway Culvert M-6.4(d) or M-6.6(c) |       |
| I-10                 | 3        | Sq.Yd.  | Type "A" Riprap                                   |       |
| I-10                 | 14       | Cu.Yds  | Dumped Rock Fill                                  |       |





MUS-22~0.28



|  | End Area | Cu. Yds. |
|--|----------|----------|
| 924.4<br>1+00 Lt.<br>0+02 End Pipe<br>End Wall           | 6        | 2        |
| 922.6<br>0+75 Lt.<br>920.75                              | 6        | 5        |
| 920.5<br>0+50 Lt.<br>919.5                               | 4        | 3        |
| 919.0<br>0+25 Lt.<br>918.25                              | 3        | 2        |
| 917.4<br>0+0 (E)<br>917.00                               | 1        | 2        |
| 916.3<br>0+25 Rt.<br>915.75                              | 2        | 2        |
| 915.3<br>0+50 Rt.<br>914.50                              | 3        | 2        |
| 913.7<br>0+75 Rt.<br>913.25                              | 2        | 2        |
| 912.50<br>1+0 Rt.<br>912.00<br>1+02 End Pipe<br>End Wall | 2        | 1        |
| 1+17 End Dumped Rock                                     | 10       | 6        |
| Total  | 30       |          |

CROSS SECTIONS  
Scale - 1" = 5'

LONGITUDINAL SECTION

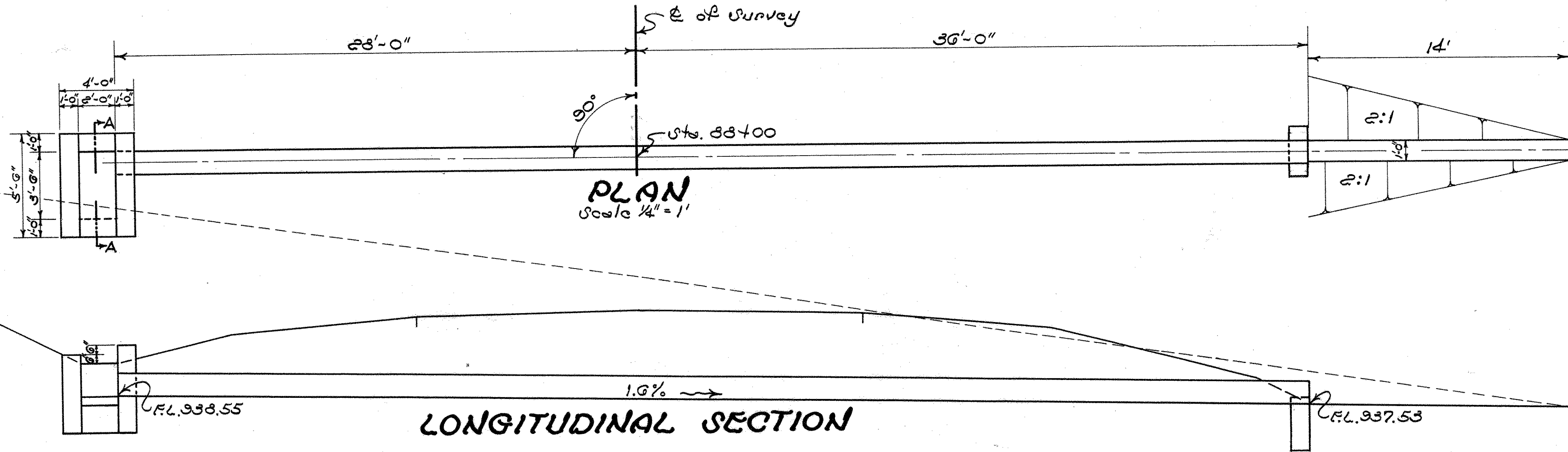
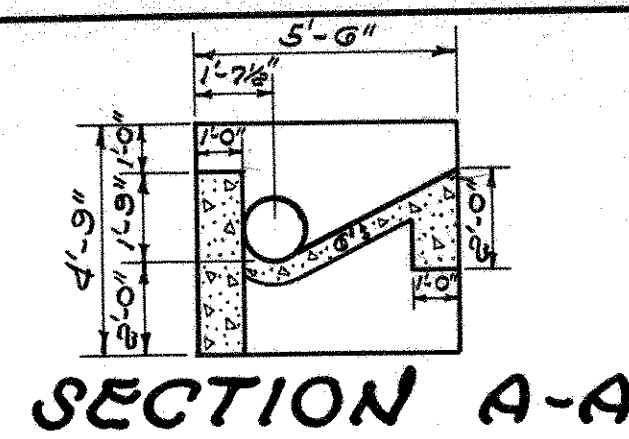
CULVERT DATA

TYPE :- Pipe Culvert Std. Drwg. No. S-27 RC. 3 & 4  
SIZE :- 24" x 134' Drainage Area 13 AS. 24 cfs. 25 yr.  
WORK REQUIRED :- Install new pipe culvert as per  
plan. Place dumped rock at right end of  
pipe.

| ESTIMATED QUANTITIES |          |         |                                      |  |
|----------------------|----------|---------|--------------------------------------|--|
| Item                 | Quantity | Unit    | Description                          |  |
| E-2                  | 30       | Cu.Yd.  | Excavation for Structure             |  |
| S-1                  | 0.8      | Cu.Yd.  | Concrete for Cut-off Walls Class "C" |  |
| S-27                 | 134      | Lin.Ft. | 24" Pipe for Roadway Culvert MG.d(c) |  |
| I-10                 | 6        | Cu.Yd.  | Dumped Rock Fill                     |  |
|                      |          |         |                                      |  |
|                      |          |         |                                      |  |
|                      |          |         |                                      |  |



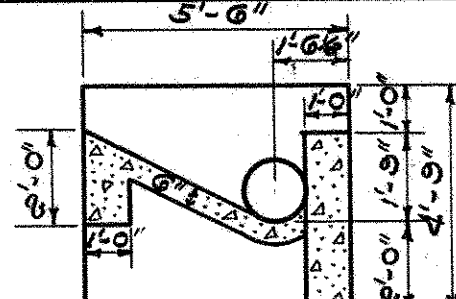
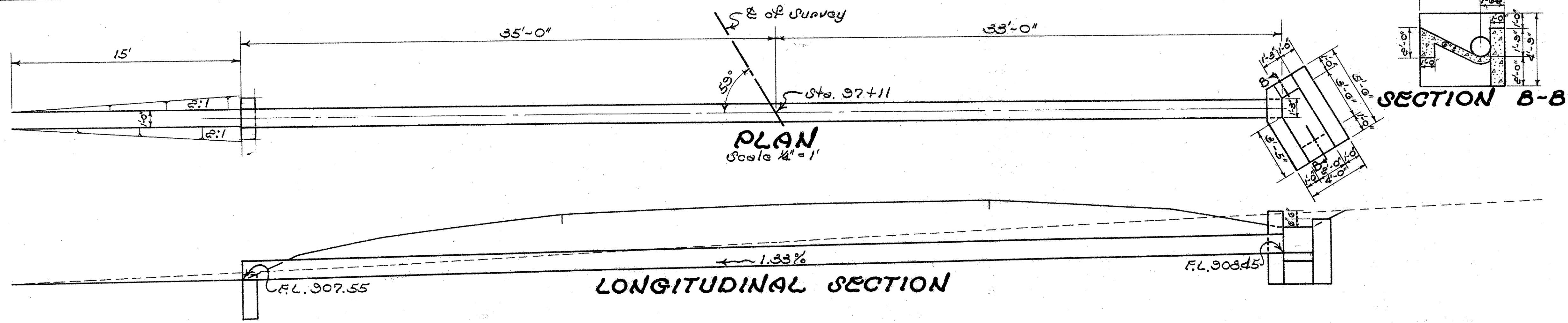
MUS-22- 0.28



**CULVERT DATA**  
 TYPE :- Pipe Culvert Std. Drawg. No. U-27 P.O. 3 & 4  
 SIZE :- 15" x 64" Drainage Area @ 42.5 cfs. 25 yr.  
 WORK REQUIRED :- Install new pipe culvert as per plan. Excavate outlet channel.  
 Omit reinforcing steel in Hdwl. on Lt.

| ESTIMATED QUANTITIES |          |         |  |  |
|----------------------|----------|---------|--|--|
| Item                 | Quantity | Unit    | Description                                    |  |
| E-2                  | 25       | Cu.Yd.  | Excavation for Structure                       |  |
| E-3                  | 1        | Cu.Yd.  | Channel Excavation                             |  |
| U-1                  | 2.6      | Cu.Yd.  | Concrete for Headwall and Cut-off Wall, Cl."E" |  |
| U-27                 | 64       | Lin.Ft. | 15" Pipe for Roadway Culvert                   |  |

11 Sta. 83+00 P.O. 15" x 64' MU-22



**CULVERT DATA**  
 TYPE :- Pipe Culvert Std. Drawg. No. U-27 P.O. 3 & 4  
 SIZE :- 15" x 63" Drainage Area @ 42.5 cfs. 10 yr.  
 WORK REQUIRED :- Install new pipe culvert as per plan. Excavate outlet channel.  
 Omit reinforcing steel in Hdwl. on Rt.

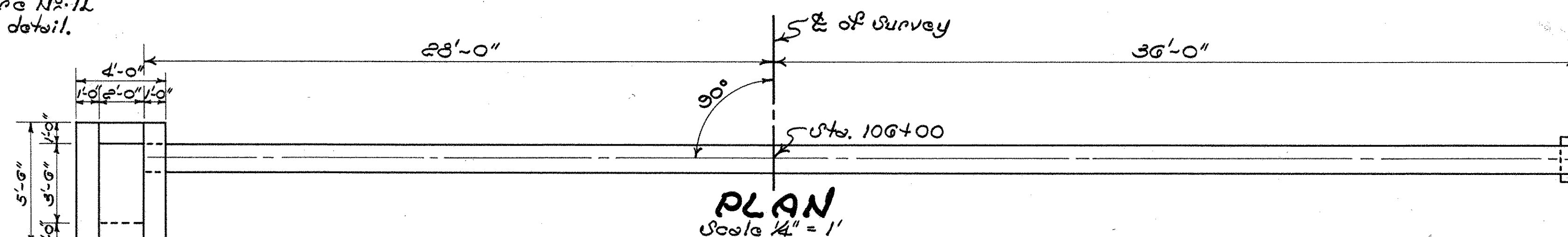
| ESTIMATED QUANTITIES |          |         |  |  |
|----------------------|----------|---------|--|--|
| Item                 | Quantity | Unit    | Description                                    |  |
| E-2                  | 15       | Cu.Yd.  | Excavation for Structure                       |  |
| E-3                  | 1        | Cu.Yd.  | Channel Excavation                             |  |
| U-1                  | 2.6      | Cu.Yd.  | Concrete for Headwall and Cut-off Wall, Cl."E" |  |
| U-27                 | 63       | Lin.Ft. | 15" Pipe for Roadway Culvert                   |  |

12 Sta. 97+11 P.O. 15" x 63' MU-22

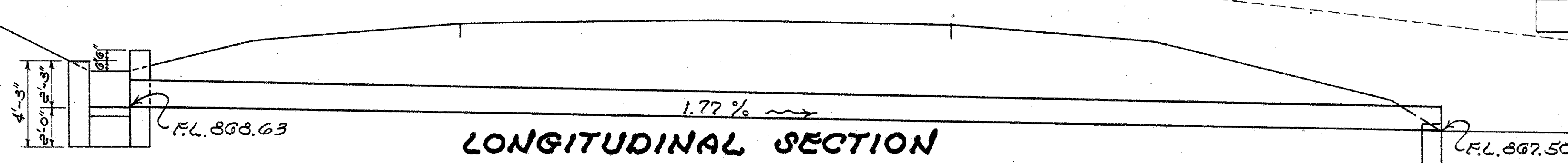


MUS-22-0.28

See Structure N2-12 for Headwall detail.



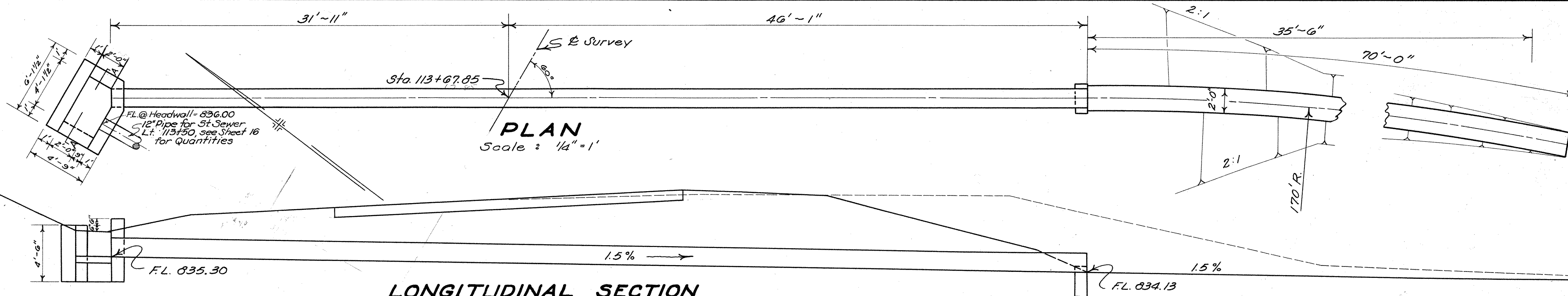
| ESTIMATED QUANTITIES |          |         |  |  |
|----------------------|----------|---------|--|--|
| Item                 | Quantity | Unit    | Description                                  |  |
| E-2                  | 20       | Cu.Yd.  | Excavation for Structure                     |  |
| E-3                  | 55       | Cu.Yd.  | Channel Excavation                           |  |
| S-1                  | 2.6      | Cu.Yd.  | Concrete for Headwall & Cut-off Wall Cl. "E" |  |
| S-27                 | 64       | Lin.Ft. | 15" Pipe for Roadway Culvert                 |  |



### CULVERT DATA

TYPE: ~ Pipe Culvert Std. Drwg. N2-S-27 P.C. 3 & 4  
 SIZE: ~ 15" x 64' Drainage Area 2 A2: 5 c.f.s. 25 yr.  
 WORK REQUIRED: ~ Install new pipe culvert as per plan. Excavate outlet channel.  
 Omit Reinforcing Steel in Hdwl. on Lt.  
 See Structure N2-12 for Headwall detail. Sheet 101

13 Sta. 106+00 P.C. 15" x 64' MU-22-

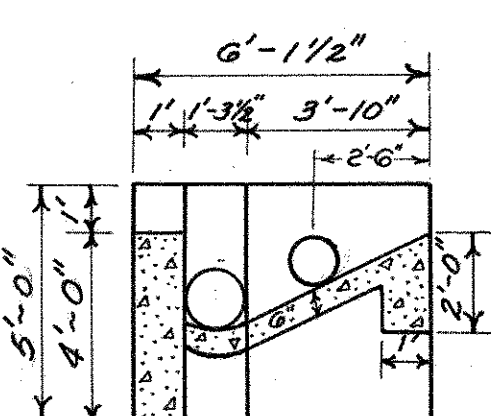


### CULVERT DATA

TYPE: ~ Pipe Culvert Std. Drwg. N2-S-27 P.C. 3 & 4  
 SIZE: ~ 18" x 78' Drainage Area 5 A2: 10 c.f.s. 25 yr.  
 WORK REQUIRED: ~ Install new pipe culvert as per plan. Excavate outlet channel.  
 Omit Reinforcing Steel in Headwall on Lt.

| ESTIMATED QUANTITIES |          |         |   |  |
|----------------------|----------|---------|---|--|
| Item                 | Quantity | Unit    | Description                                   |  |
| E-2                  | 40       | Cu.Yds  | Excavation for Structure                      |  |
| E-3                  | 25       | Cu.Yds  | Channel Excavation                            |  |
| S-1                  | 3.3      | Cu.Yds  | Concrete for Headwall & Cut-off Wall, Cl. "E" |  |
| S-27                 | 78       | Lin.Ft. | 18" Pipe for Roadway Culvert                  |  |

14 Sta. 113+67.85 P.C. 18" x 78' MU-22-



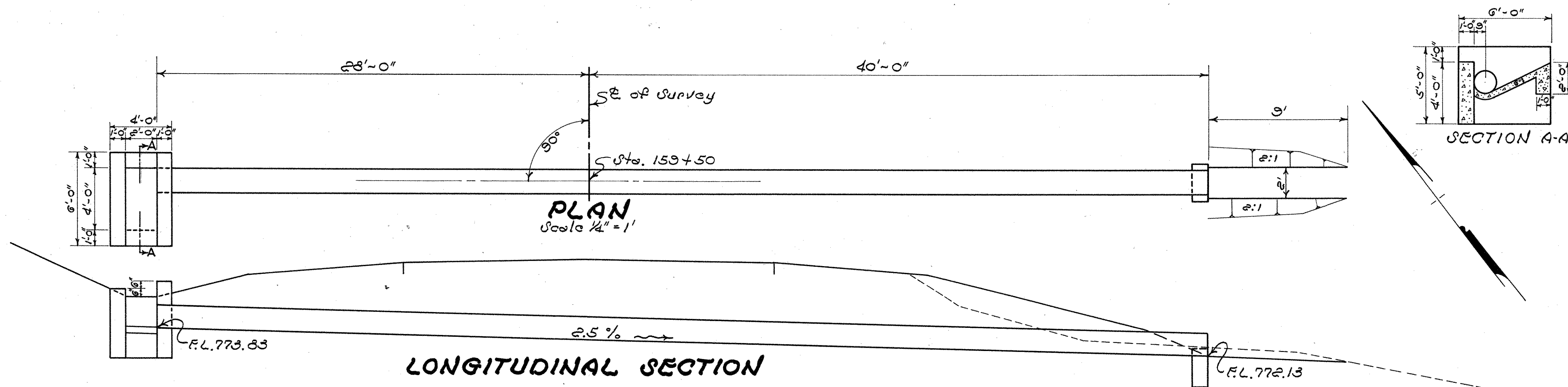
### SECTION A-A







MUS-22-0.28



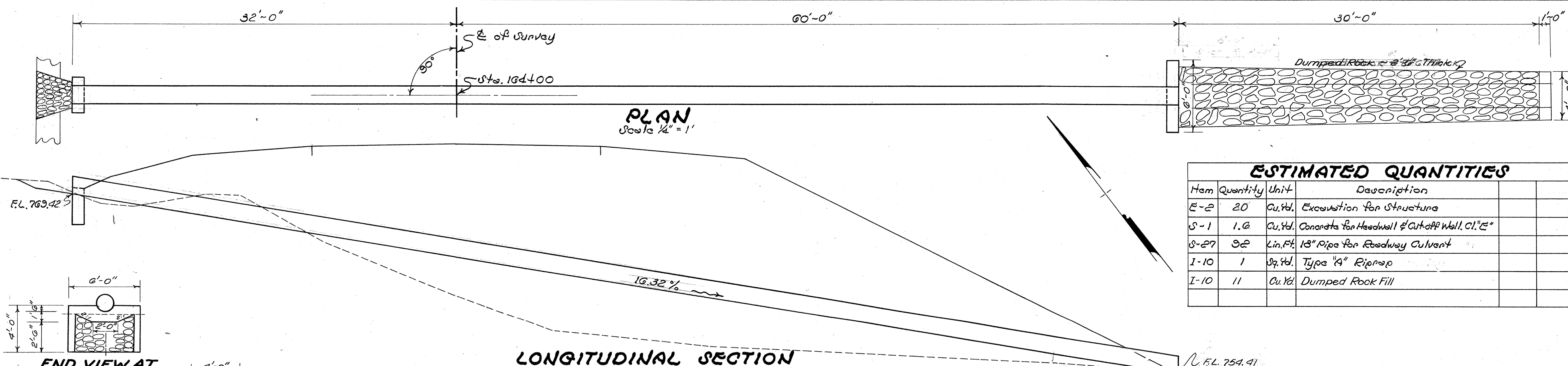
### CULVERT DATA

TYPE: ~ Pipe Culvert Std. Drawg. N2-S-27 P.C. 3 & 4  
 SIZE: ~ 18" x 63' Drainage Area 6 A2. 10 c.f.s. 25 yr.  
 WORK REQUIRED: ~ Install new pipe culvert as per plan. Construct headwall on left. Excavate outlet channel on right.  
 Omit reinforcing steel in headwall on Lt.

### ESTIMATED QUANTITIES

| Item | Quantity | Unit    | Description                                   |  |  |
|------|----------|---------|---|--|--|
| E-2  | 25       | Cu.Yd.  | Excavation for Structure                      |  |  |
| E-3  | 1        | Cu.Yd.  | Channel Excavation                            |  |  |
| S-1  | 3.0      | Cu.Yd.  | Concrete for Headwall & Cut-off Wall, C.I."E" |  |  |
| S-27 | 63       | Lin.Ft. | 18" Pipe for Roadway Culvert                  |  |  |

17 Sta. 153+50 P.C. 18" x 63' MU-22



### ESTIMATED QUANTITIES

| Item | Quantity | Unit    | Description                                   |  |  |
|------|----------|---------|---|--|--|
| E-2  | 20       | Cu.Yd.  | Excavation for Structure                      |  |  |
| S-1  | 1.6      | Cu.Yd.  | Concrete for Headwall & Cut-off Wall, C.I."E" |  |  |
| S-27 | 32       | Lin.Ft. | 18" Pipe for Roadway Culvert                  |  |  |
| I-10 | 1        | Sq.Yd.  | Type "A" Riprap                               |  |  |
| I-10 | 11       | Cu.Yd.  | Dumped Rock Fill                              |  |  |

18 Sta. 164+00 P.C. 18" x 32' MU-22

### CULVERT DATA

TYPE: ~ Pipe Culvert Std. Drawg. N2-S-27 P.C. 3 & 4  
 SIZE: ~ 18" x 32' Drainage Area 6 A2. 10 c.f.s. 25 yr. (V=14)  
 WORK REQUIRED: ~ Install new pipe culvert as per plan. Construct Dumped Rock Fill on right, and place riprap on left.

END VIEW AT  
END OF PIPE

END VIEW AT  
END OF DUMPED ROCK



| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|-------------------|-------|---------|------------|
| 2                 | OHIO  | State   |            |

105  
118

MUS-22-0.28

EAST FULTONHAM

DRAINAGE AREA = 126 SQ. MI.  
of which 48 Sq. Mi. is in Buckeye Lake Basin

#### EXISTING BRIDGE DATA

TYPE - Concrete Girder  
SPAN - 2 @ 56'-6"  
LENGTH - 121'-6"  
ROADWAY - 15'-0" w/ 1'-6" curbs  
SIDEWALK - 1 @ 4'-6"  
LOADING - S 11.54G  
To remain in place

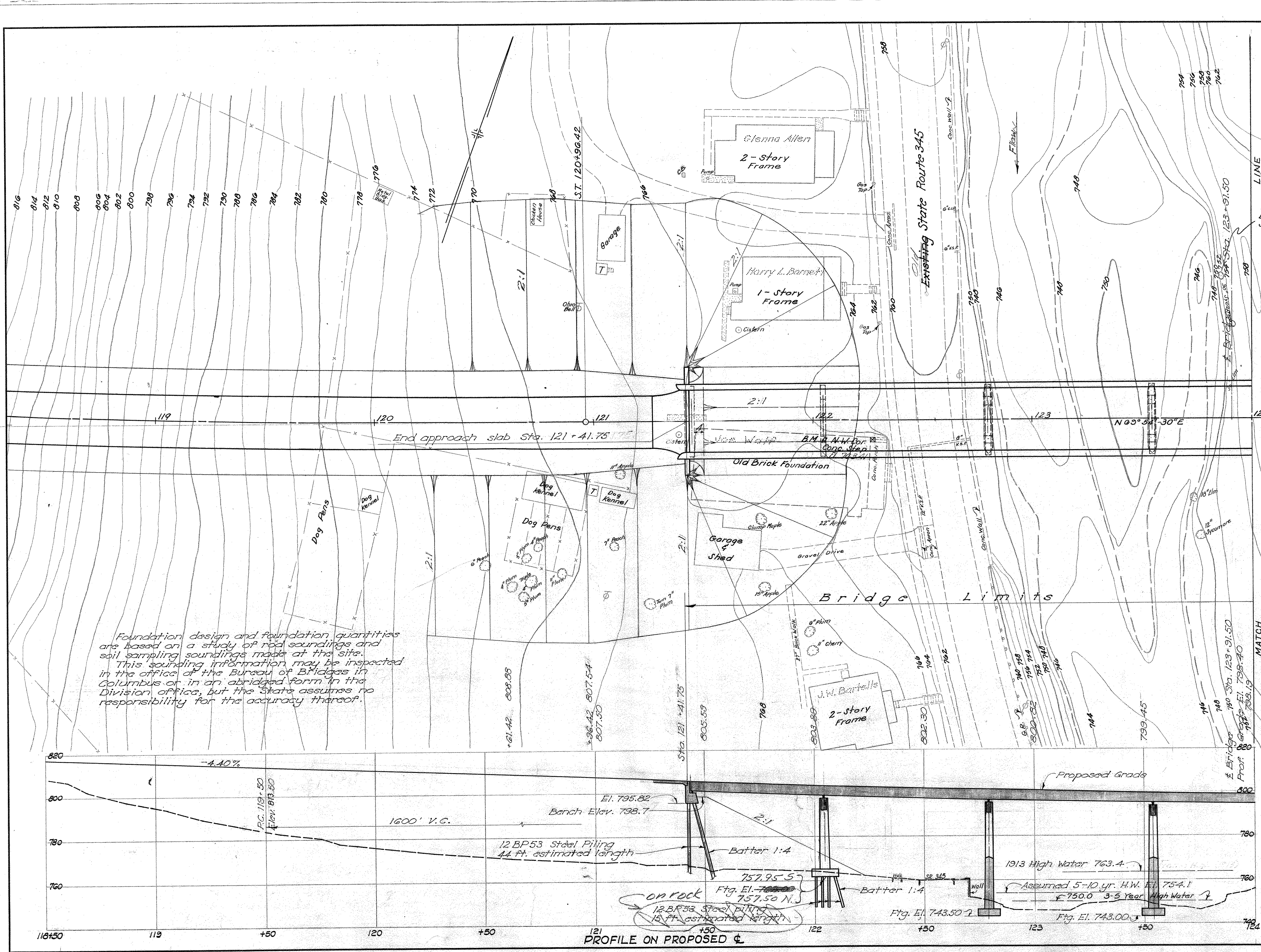
**PROPOSED STRUCTURE**  
TYPE: Cont. steel beams with  
reinf. conc. deck and  
reinf. conc. substructure.  
SPANS: 60'-5" @ 75'-6" % brgs.  
ROADWAY: 28'-0" w/ 1'-9" safety curbs  
LOAD FREQ. RATING: GF-400.  
SKEW: None.  
SURF. COURSE: Bituminous.  
APPR. SLABS: AS-1-47.  
NO. OF TRACKS: Two existing.  
ALIGNMENT: Tangent.

Pencil Revision  
Pier 1.  
dated 8-24-54

STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
BUREAU OF BRIDGES  
**SITE PLAN**  
**BRIDGE NO MU-22-23**  
OVER  
**JONATHAN CREEK & NYC R.R.**  
MUSKINGUM COUNTY  
SEC. MUS-22-0.28 STA. 123+91.50  
SCALE 1"=20'

PRESENT TOPO. PROPOSED WORK  
SURVEYED DRAWN DESIGNED DRAWN CHECKED REVIEW  
R. Beck J. Deck J. H. V. J. H. V. J. H. V. J. H. V.

BFG 9/29/54



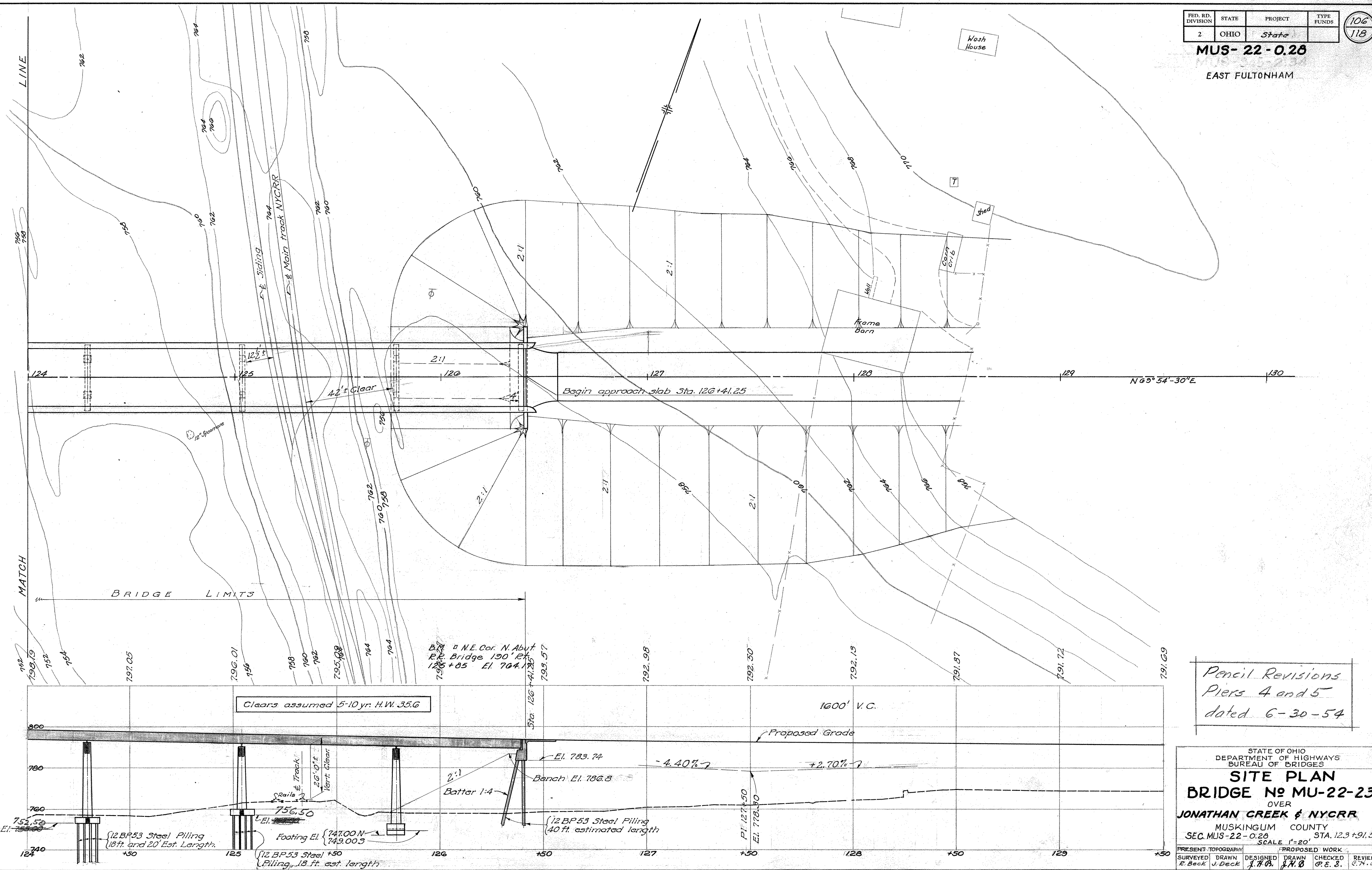


| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|-------------------|-------|---------|------------|
| 2                 | OHIO  | State   |            |

106  
118

MUS- 22 - 0.28

EAST FULTONHAM



Pencil Revisions  
Piers 4 and 5  
dated 6-30-54

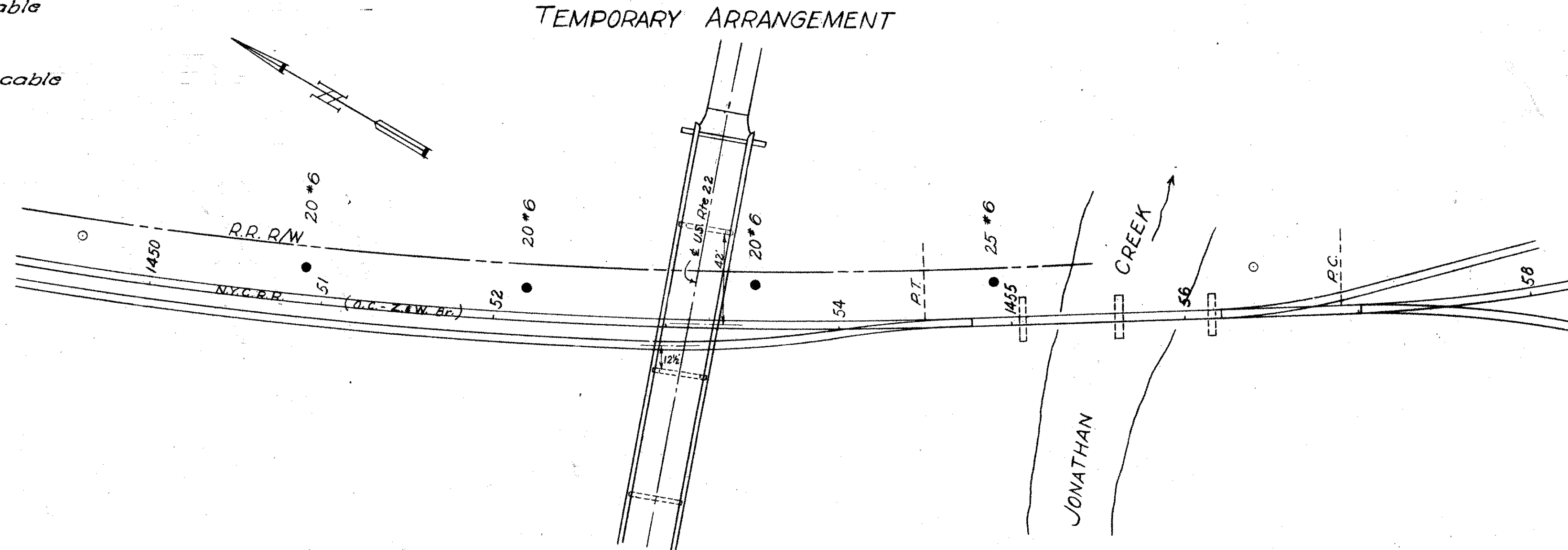
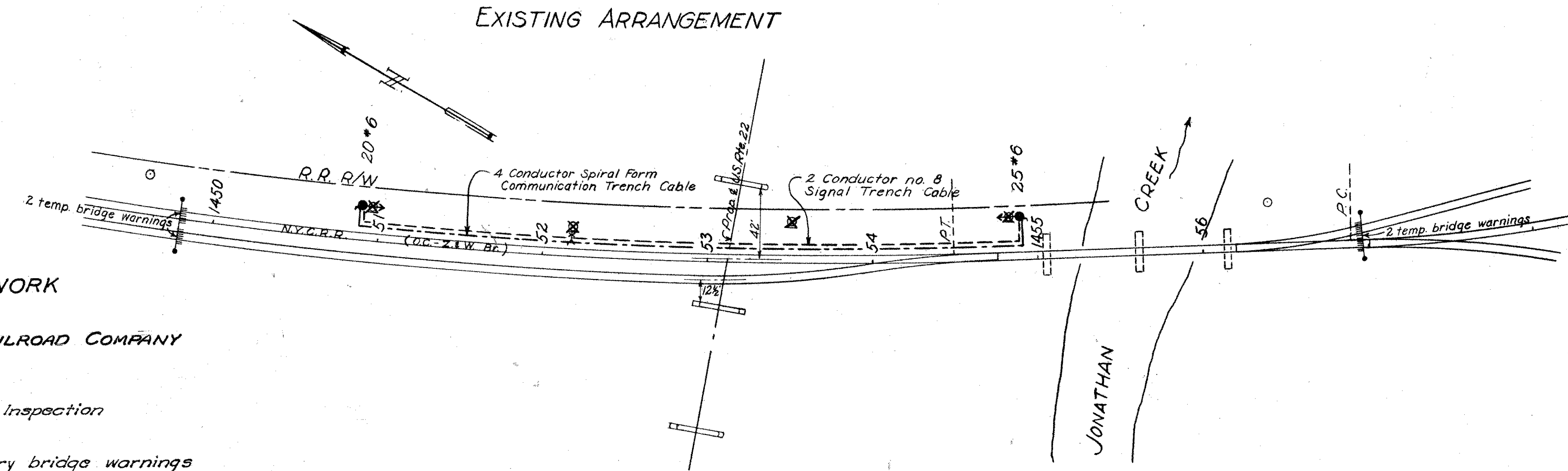
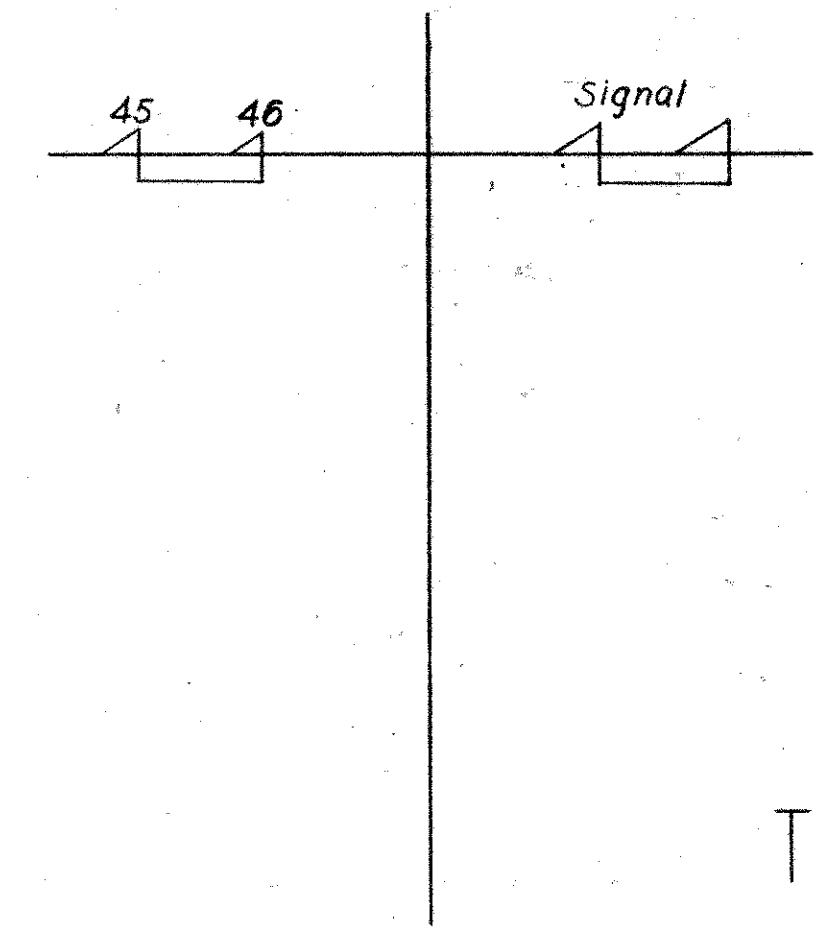
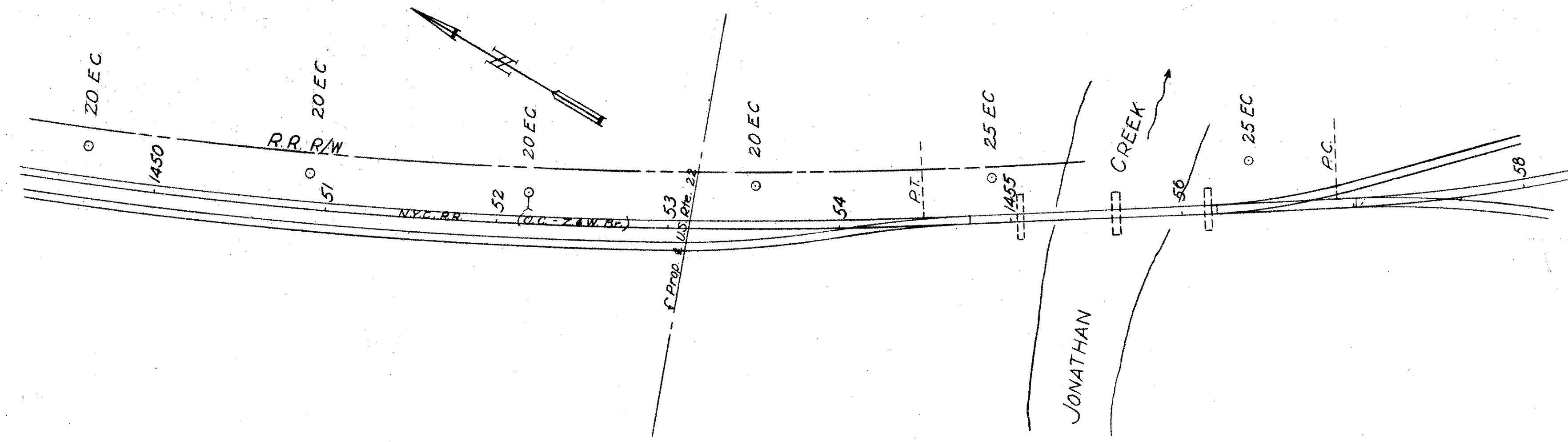
| STATE OF OHIO<br>DEPARTMENT OF HIGHWAYS<br>BUREAU OF BRIDGES  |                      |                   |                     |                      |
|---|----------------------|-------------------|---------------------|----------------------|
| SITE PLAN<br>BRIDGE No MU-22-23<br>OVER<br>JONATHAN CREEK & NYCRR<br>MUSKINGUM COUNTY<br>SEC. MUS-22-0.28 STA. 12.3+91.50<br>SCALE 1"=20' |                      |                   |                     |                      |
| PRES. TOPOGRAPHY  | DESIGNED             | DRAWN             | CHECKED             | REVIEWED             |
| SURVEYED<br>R. Beck   | DESIGNED<br>J. H. B. | DRAWN<br>J. H. B. | CHECKED<br>G. E. S. | REVIEWED<br>C. H. A. |

BF6 987 3/29/54

2



SUPPLEMENTAL SHEET  
RAILROAD FORCE ACCOUNT



FORCE ACCOUNT WORK  
BY

THE NEW YORK CENTRAL RAILROAD COMPANY

Preliminary Engineering

Construction Engineering and Inspection

Track Department  
Install and remove temporary bridge warnings

Signal Line Changes  
Remove and restore open wire line  
Install and remove temporary trench cable

Communication Line Changes  
Remove and restore open wire line  
Install and remove temporary trench cable

Protection of Railroad Traffic

Accounting

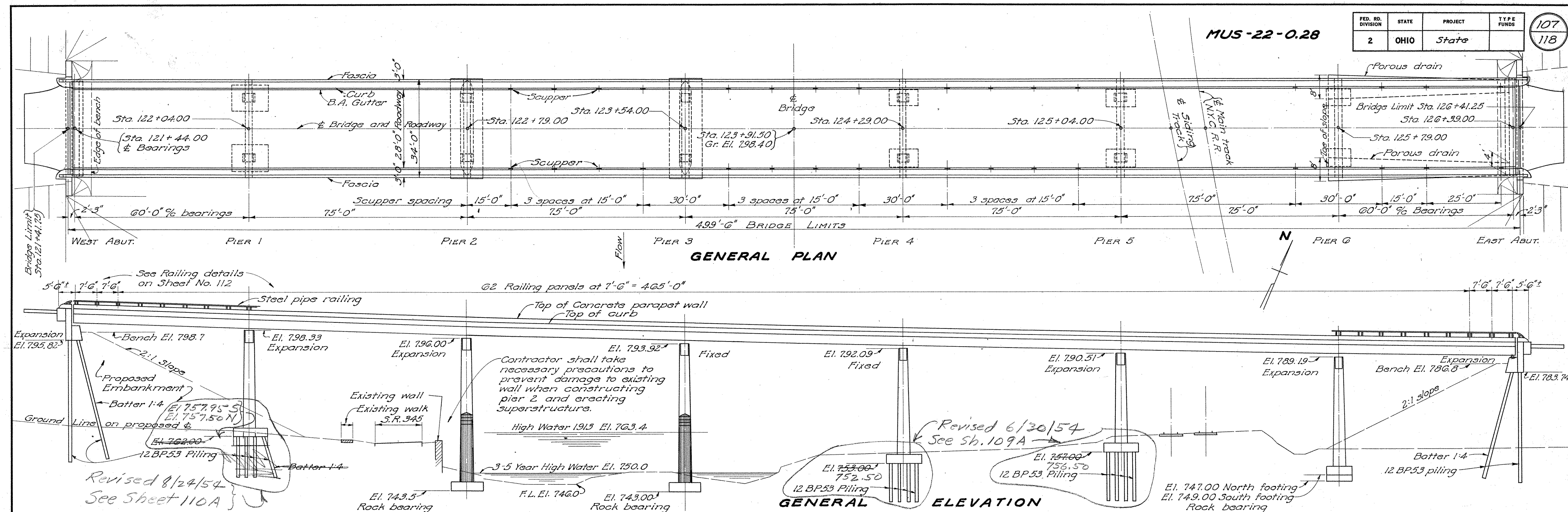
Insurance

- LEGEND:
- Existing Poles
  - ⊗ Poles to be removed (by cutting)
  - New Poles

NOTE:  
All labor and the furnishing of all material in connection with changes as shown on this sheet and called for in the estimate will be performed by the NYCRR force account.

|  |  |                                  |
|--|--|----------------------------------|
| NYC System   | Office of Chief Engineer                 | Chicago, Ill.                    |
| PROPOSED OVERHEAD GRADE SEPARATION<br>U.S. ROUTE 22 - RELOCATED<br>PROPOSED COMMUNICATION AND SIGNAL LINE CHANGES<br>FULTONHAM, OHIO |  |                                  |
| NYCRR  | T. & O.C. Division - Z. & W. Subdivision | Plan No. 6120                    |
| Scale: 1"=50'  | April 20, '54                            | Val. Section 305 File No. 201-33 |





## ESTIMATED QUANTITIES

| ITEM | TOTAL   | UNIT     | DESCRIPTION  | ABUTMENTS |      | PIERS   |        |        |         |         |        | SUPER-STRUCTURE | GENERAL |
|------|---------|----------|--|-----------|------|---------|--------|--------|---------|---------|--------|-----------------|---------|
|      |         |          |  | WEST      | EAST | 1       | 2      | 3      | 4       | 5       | 6      |                 |         |
| E-2  | Lump    | Sum      | Cofferdams, cribs and sheeting                             |           |      |         |        |        |         |         |        |                 | Lump    |
| E-2  | (418)   | Cu. Yd.  | Unclassified excavation                                    | 35        | 36   | (21)    | 80     | 90     | (33)    | (60)    | 63     |                 |         |
| E-2  | (38)    | Cu. Yd.  | Rock excavation  |           |      | (3)     | 33     | 4      |         |         | 1      |                 |         |
| S-1  | 495     | Cu. Yd.  | Class "C" concrete, superstructure                         |           |      |         |        |        |         |         |        | 495             |         |
| S-1  | 108     | Cu. Yd.  | Class "C" concrete, abutments                              | 54        | 54   |         |        |        |         |         |        |                 |         |
| S-1  | (393)   | Cu. Yd.  | Class "C" concrete, pier concrete above footings           |           |      | (35)    | 124    | 123    | 38      | 33      | 40     |                 |         |
| S-1  | (154)   | Cu. Yd.  | Class "E" concrete, pier footings                          |           |      | (24)    | 40     | 40     | (19)    | (19)    | 12     |                 |         |
| S-3  | 1530    | Sq. Yd.  | Type "C" waterproofing                                     |           |      |         |        |        |         |         |        | 1530            |         |
| S-4  | 206,060 | Lb.      | Reinforcing steel  | 2572      | 2572 | (0,500) | 11,320 | 11,100 | (1,100) | (0,240) | 10,760 | 135,670         | 227     |
| S-7  | 548,000 | Lb.      | Structural steel   |           |      |         |        |        |         |         |        | 548,000         |         |
| S-8  | 548,000 | Lb.      | Field painting of structural steel, as per plan            |           |      |         |        |        |         |         |        | 548,000         |         |
| S-14 | 1012    | Lin. Ft. | Railing (concrete and steel)                               |           |      |         |        |        |         |         |        | 1012            |         |
| S-16 | Lump    | Sum      | First test pile  |           |      |         |        |        |         |         |        |                 | Lump    |
| S-18 | (1624)  | Lin. Ft. | Steel piling, 12 BP53                                      | 352       | 320  | (360)   |        |        | 304     | 288     |        |                 |         |
| S-29 | 992     | Lin. Ft. | Subdrainage for wearing surface course                     |           |      |         |        |        |         |         |        | 992             |         |
| S-29 | 32      | Cu. Yd.  | Porous drains on embankment slopes                         |           |      |         |        |        |         |         |        |                 | 32      |
| T-35 | 105     | Cu. Yd.  | Asphaltic concrete surface course, Type "A" or "C" (70-80) |           |      |         |        |        |         |         |        | 105             |         |

REFERENCE shall be made to Standard Drawing RB-1-47, revised 7-27-49.

R.R. CONSTRUCTION CLEARANCES: The Contractor shall provide and maintain at all times a minimum vertical clearance of 21'-0" above top of rail and a minimum horizontal clearance of 8'-0" from centerline of nearest track.

SHEETING AND BRACING: Before construction is begun, plans of sheeting and bracing to be used adjacent to tracks for pier excavation shall be submitted to the Director of Highways for approval by the Department of Highways and the N.Y.C. R.R. Company.

SPECIAL PROVISION is hereby made as follows: After the Contractor has completed all excavation and backfill adjacent to the railroad track in compliance with Sections E-204 and E-208 of the Construction and Material Specifications, subject to the inspection of the railroad company, nothing in Sections E-204, E-208 or G-807 of the Specifications shall be construed to hold the Contractor liable for aligning and resurfacing the tracks.

MAINTENANCE OF TRAFFIC: The Contractor shall plan and conduct construction operations so as to provide a 20 ft. minimum width of roadway for maintenance of two lanes of traffic at all times on existing state route S.R. 345. A minimum vertical clearance

of 13'-6" above the roadway surface shall be maintained for both traffic lanes and the Contractor shall safeguard the traveling public on S.R. 345 by providing platforms, nets or other suitable protection above the traveled lanes.

EXCAVATION QUANTITY includes the removal of fill material between top of earth bench and bottom of abutment.

PILES shall be driven with a steam hammer of not less than 15,000 ft.-lb. energy per blow, to firm contact with rock which shall be considered as attained when the capacity according to the formula in Sec. 5-18.05 is at least 50 tons and if the length of penetration is approximately equal to the

depth of rock according to the bridge foundation investigation report. (The design load is 25 tons for the piles in the abutments and Pier 1 and 30 tons for the piles in Piers 4 and 5.)

FOOTINGS for Piers 2, 3, and 6 shall extend a minimum of 3' into rock or to the elevations shown, whichever is lower.

GRAVEL, if used as the coarse aggregate, shall be according to Sec. M-3.93 instead of M-3.91 for Class "C" concrete superstructure and the same kind may be used for other concrete in this structure.

POROUS DRAINS extending from face of abutment to bottom of slopes shall be placed on and flush with embankment slope at east abutment as shown on the "General Plan." The drains shall be of the width shown and one foot thick. They shall be centered under the scuppers and shall be composed of No. 1 or No. 12 gravel, stone or slag. Construction procedure shall conform essentially to Item 1-9. Trench excavation shall be included for payment with price per cu. yd. bid for "Porous drains on embankment slopes."

MILL TEST REPORTS shall include tests of drillings from metal more than 1" thick. For these test specimens the carbon and manganese content, as well as the phosphorous and sulfur content, shall be reported in order to permit determination of the need for preheating in connection with welding as per Art. 105 (Method 2) and Art. 604 (f) of the American Welding Society specifications.

## GENERAL NOTES

WELDING of structural steel shall be Class "A" except as otherwise shown. Any welds shown as field welds may, at the option of the Contractor, be made in the shop. Class "B" welds are shown thus: B

PAINTING, both shop and field, shall be according to Item 5-8 except that the paint shall be applied by brushing. Spray application will not be permitted. One additional field coat of paint, of the same kind as the shop coat, shall be applied as the first field coat to all structural steel in the track span.

SURFACE FINISH: Abutment wings, concrete railing parapet wall, faces of curbs and fascia of deck shall receive a rubbed surface finish. Bottom of deck slab shall be governed by the provisions of Item 5-1. All other exposed surfaces shall be grout cleaned as per Sec. 5-1.22. Form liner shall be used for all surfaces to be grout cleaned.

Pencil Revisions  
6-30-54  
and 8-24-54

| STATE OF OHIO<br>DEPARTMENT OF HIGHWAYS<br>BUREAU OF BRIDGES AND RAILROAD CROSSINGS |       |        |         |          |         |         |  |
|---|-------|--------|---------|----------|---------|---------|--|
| <b>GENERAL PLAN &amp; ELEVATION,<br/>NOTES &amp; ESTIMATED QUANTITIES</b>           |       |        |         |          |         |         |  |
| <b>BRIDGE No. MU-22-23<br/>OVER JONATHAN CR. &amp; N.Y.C.R.R.</b>                   |       |        |         |          |         |         |  |
| MUSKINGUM COUNTY STA. 123 + 91.50<br>SEC. MUS-22-0.28                               |       |        |         |          |         |         |  |
| DESIGNED  | DRAWN | TRACED | CHECKED | REVIEWED | DATE    | REVISED |  |
| KED.  | KED.  | JDJ    | QFB     | QFB      | 3/24/54 |         |  |





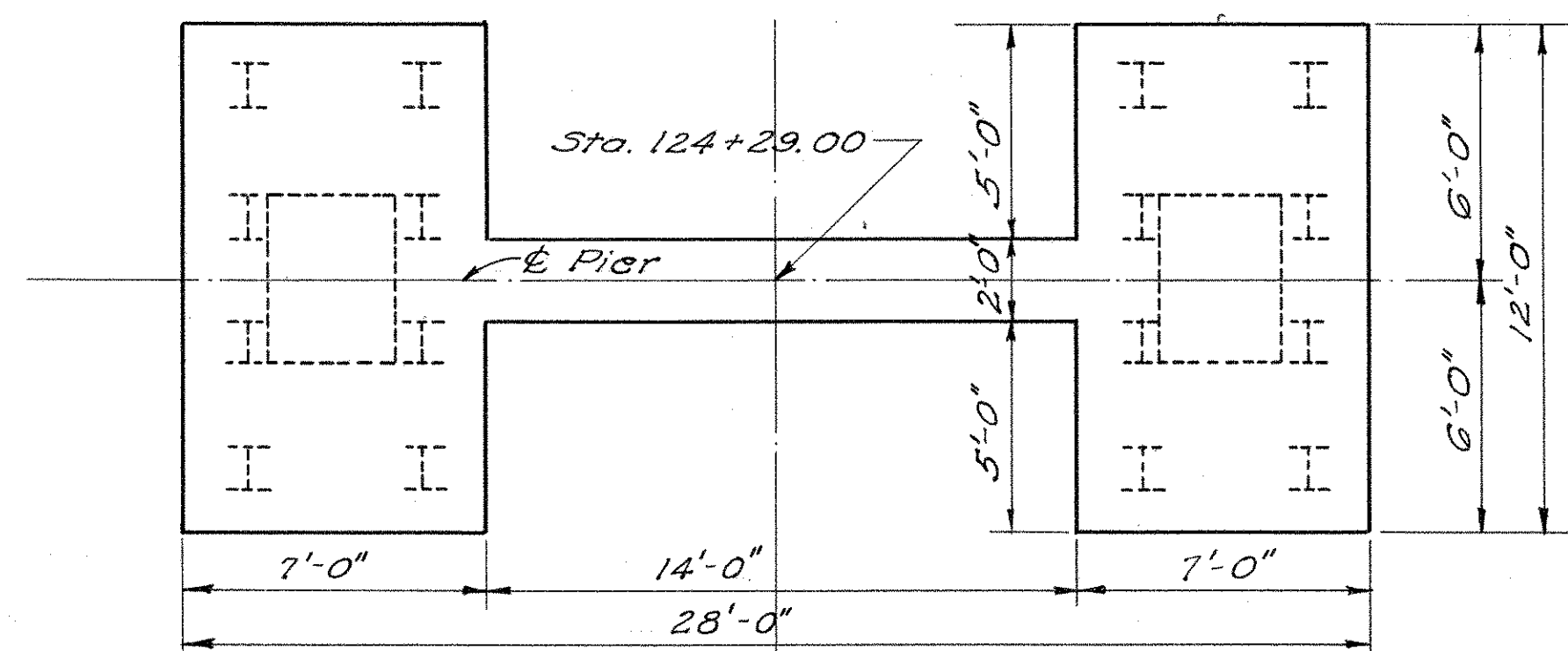




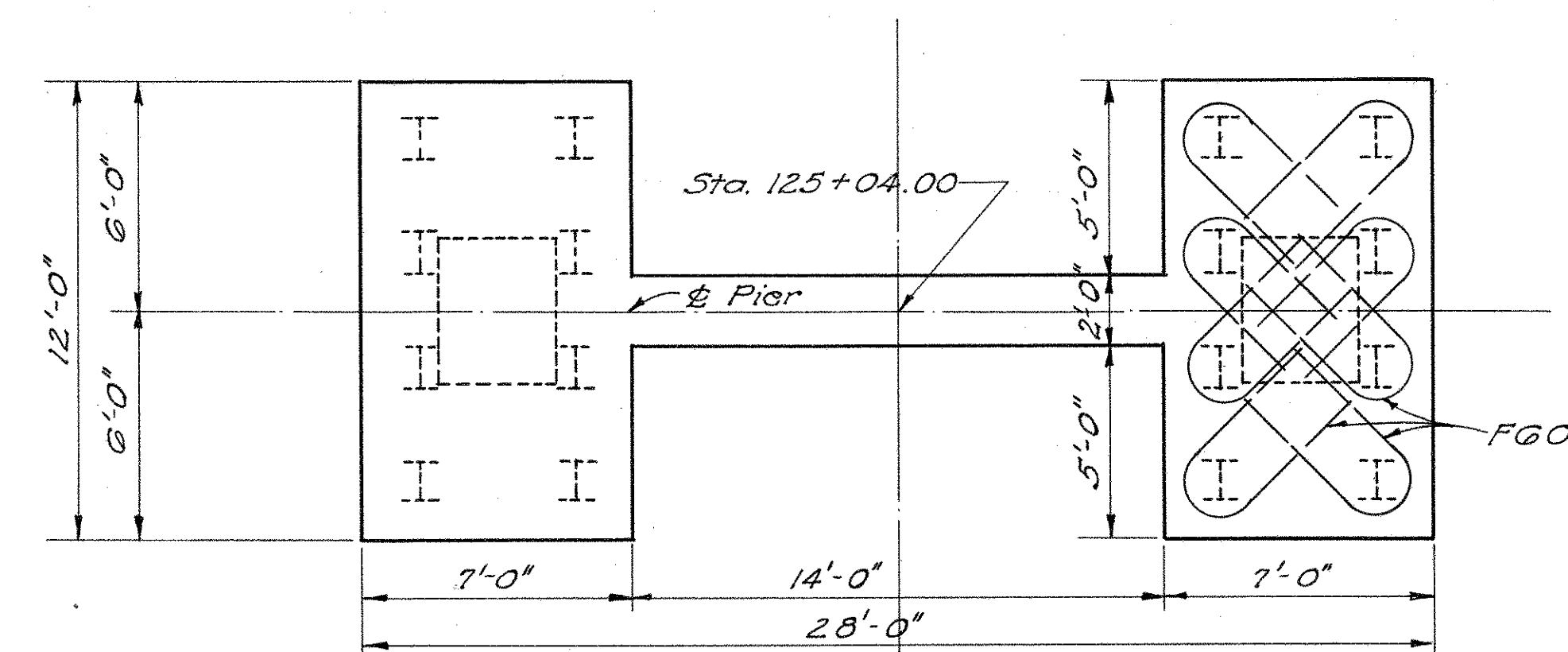


MUS-22-0.28

| ADDITIONAL FOOTING REINFORCING STEEL FOR PIERS 4 AND 5 |     |        |        |       |                  |
|--|-----|--------|--------|-------|------------------|
| Mark   | No. | Length | Weight | Shape | Bending Diagrams |
| F903   | 12  | 27'-6" | 1122   | S     |                  |
| F602   | 32  | 10'-0" | 480    | B     |                  |
| F501   | 36  | 7'-0"  | 262    | B     |                  |
|  |     |        |        |       |                  |



PIER 4 FOOTING PLAN

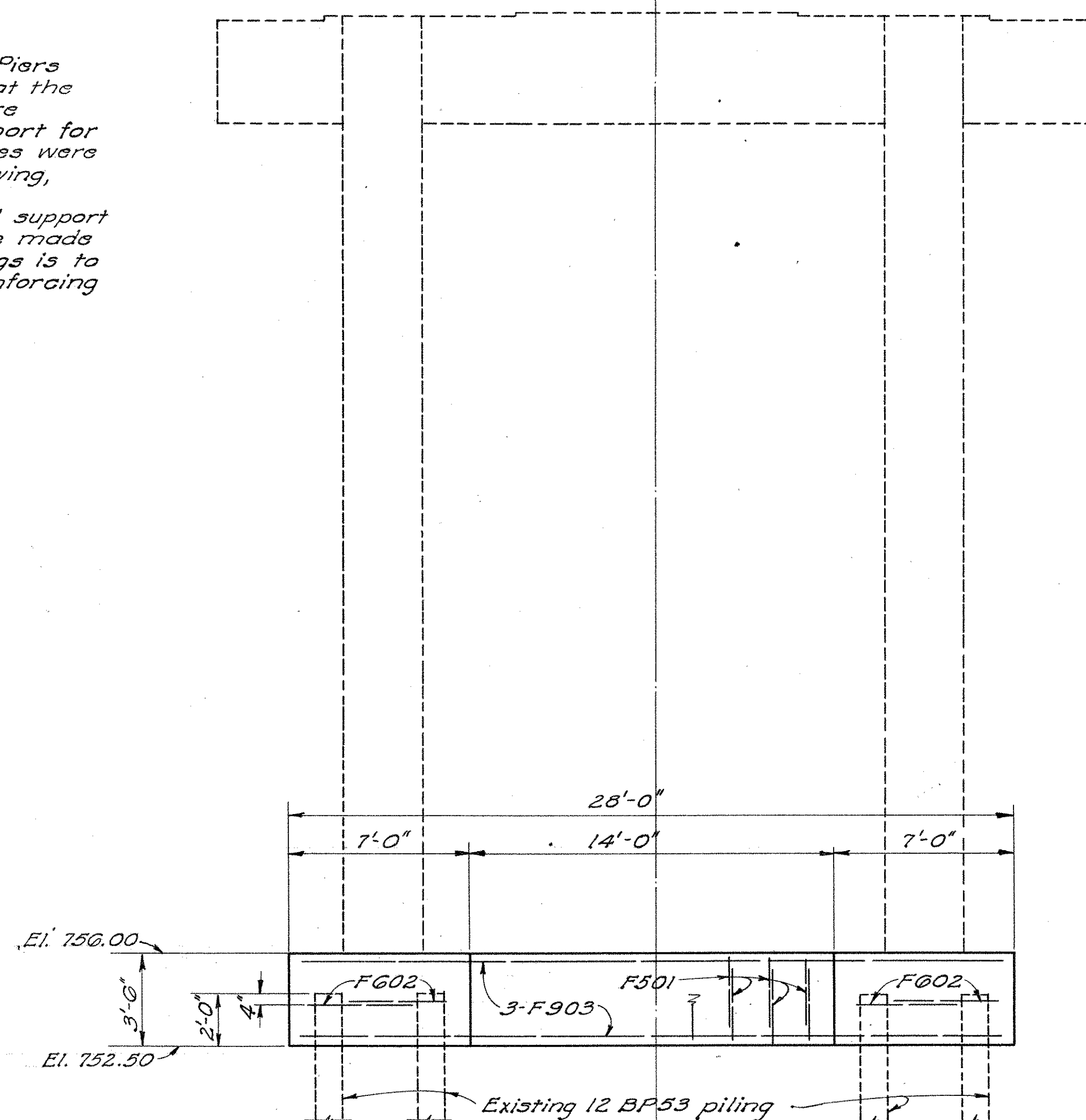


PIER 5 FOOTING PLAN

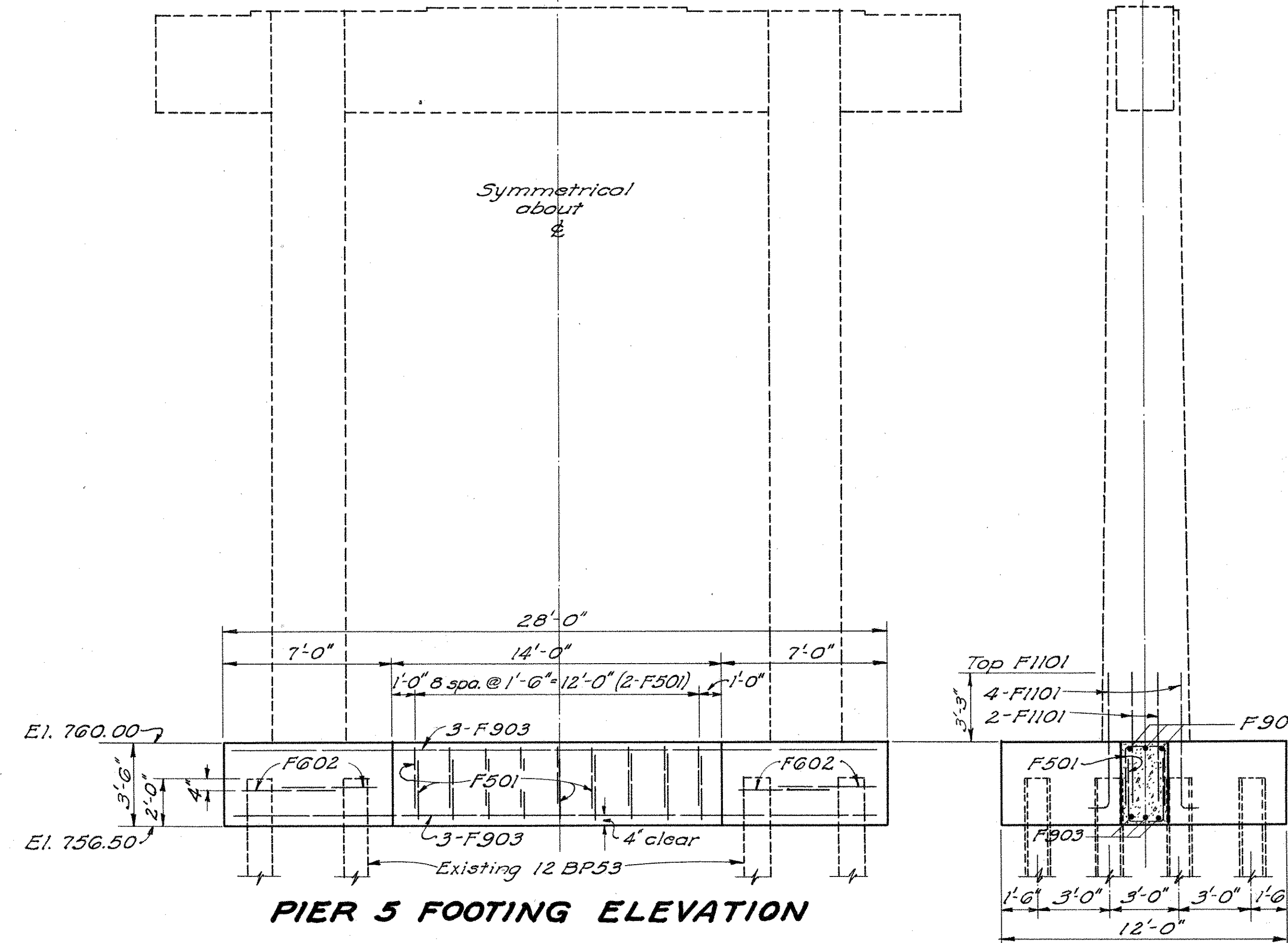
# EXPLANATORY NOTE

During the driving of piles for Piers No. 4 and No. 5 it was observed that the earth through which the piles were driven provided poor lateral support for the piles, and that some of the piles were deflected out of line during the driving, apparently by boulders.

In order to provide better lateral support for the piles the footings are to be made 6" thicker, a strut between footings is to be constructed and additional reinforcing steel is to be placed as shown.



PIER 4 FOOTING ELEVATION



PIER 5 FOOTING ELEVATION

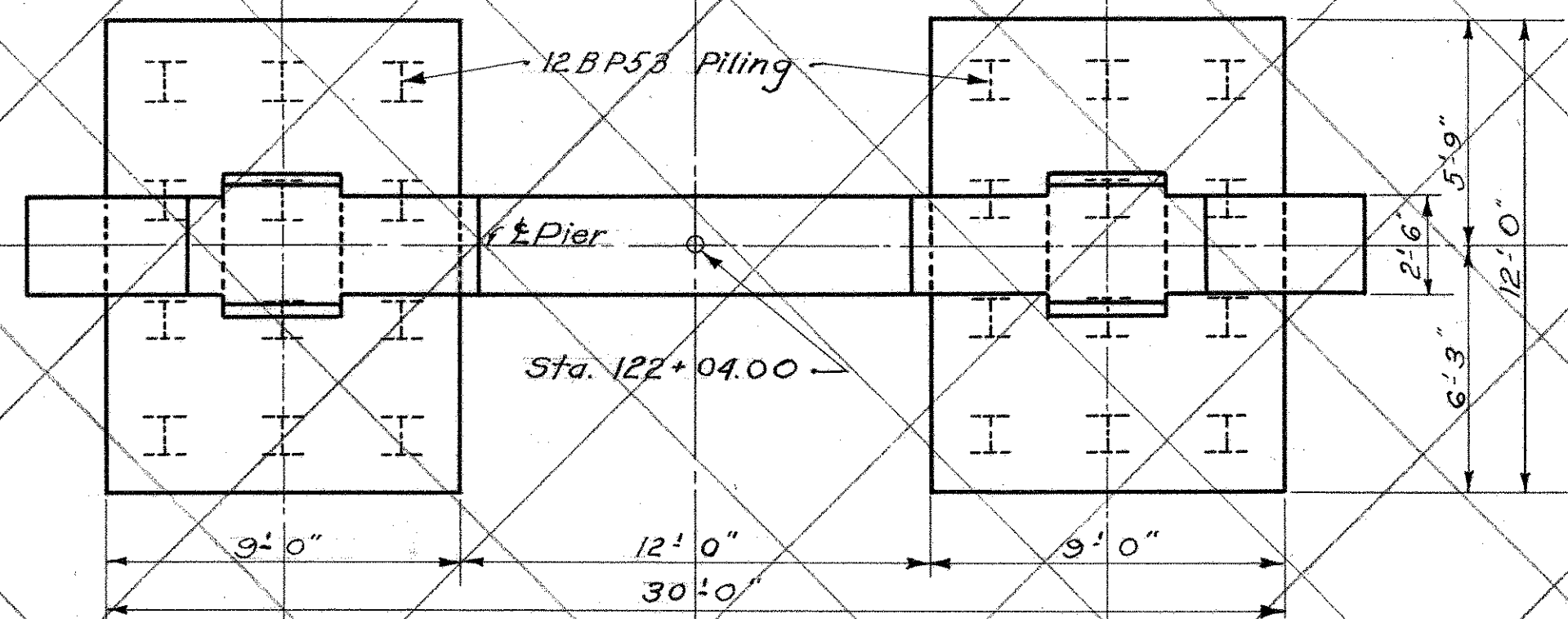
SECTION ON E

| ADDITIONAL ESTIMATED QUANTITIES |       |        |                                   |        |        |  |
|---------------------------------|-------|--------|-----------------------------------|--------|--------|--|
| ITEM                            | TOTAL | UNIT   | DESCRIPTION                       | PIER 4 | PIER 5 |  |
| E-2                             | 28    | Cu.Yd. | Unclassified excavation           | 13     | 15     |  |
| S-1                             | 14    | Cu.Yd. | Glass "E" concrete, pier footings | 7      | 7      |  |
| S-4                             | 1864  | Lb.    | Reinforcing steel                 | 932    | 932    |  |
|                                 |       |        |                                   |        |        |  |

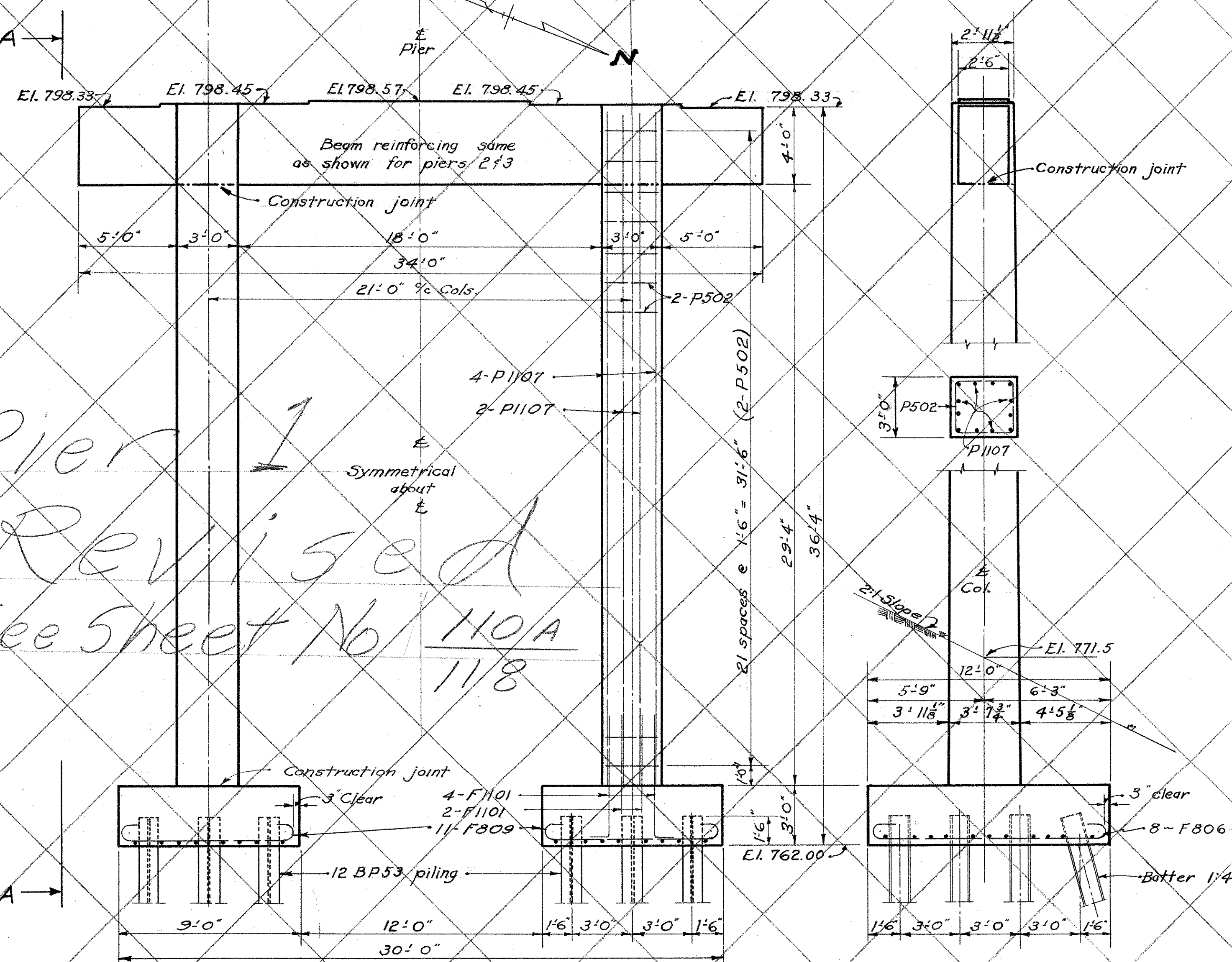
| STATE OF OHIO<br>DEPARTMENT OF HIGHWAYS<br>BUREAU OF BRIDGES AND RAILROAD CROSSINGS |        |        |         |          |         |         |
|---|--------|--------|---------|----------|---------|---------|
| FOOTING REVISIONS<br>FOR PIERS 4 AND 5  |        |        |         |          |         |         |
| BRIDGE NO. MU-22-23 over<br>JONATHAN CR. AND N.Y.C. R.R.                            |        |        |         |          |         |         |
| MUSKINGUM COUNTY STA. 123+91.50<br>SEC. MUS-22-0.28                                 |        |        |         |          |         |         |
| DESIGNED  | DRAWN  | TRACED | CHECKED | REVIEWED | DATE    | REVISED |
| K.E.D.  | K.E.D. | J.D.J. | C.H.F.  | 9.9.7    | 6/30/54 |         |



MUS-22-0.28

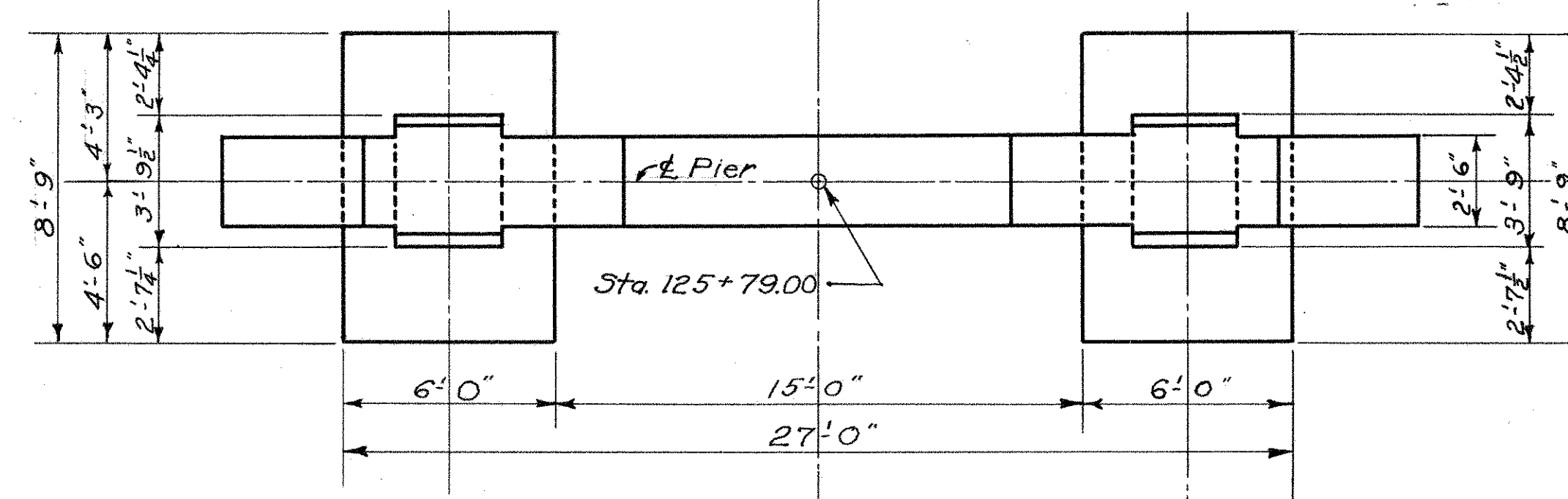


PLAN OF PIER 1

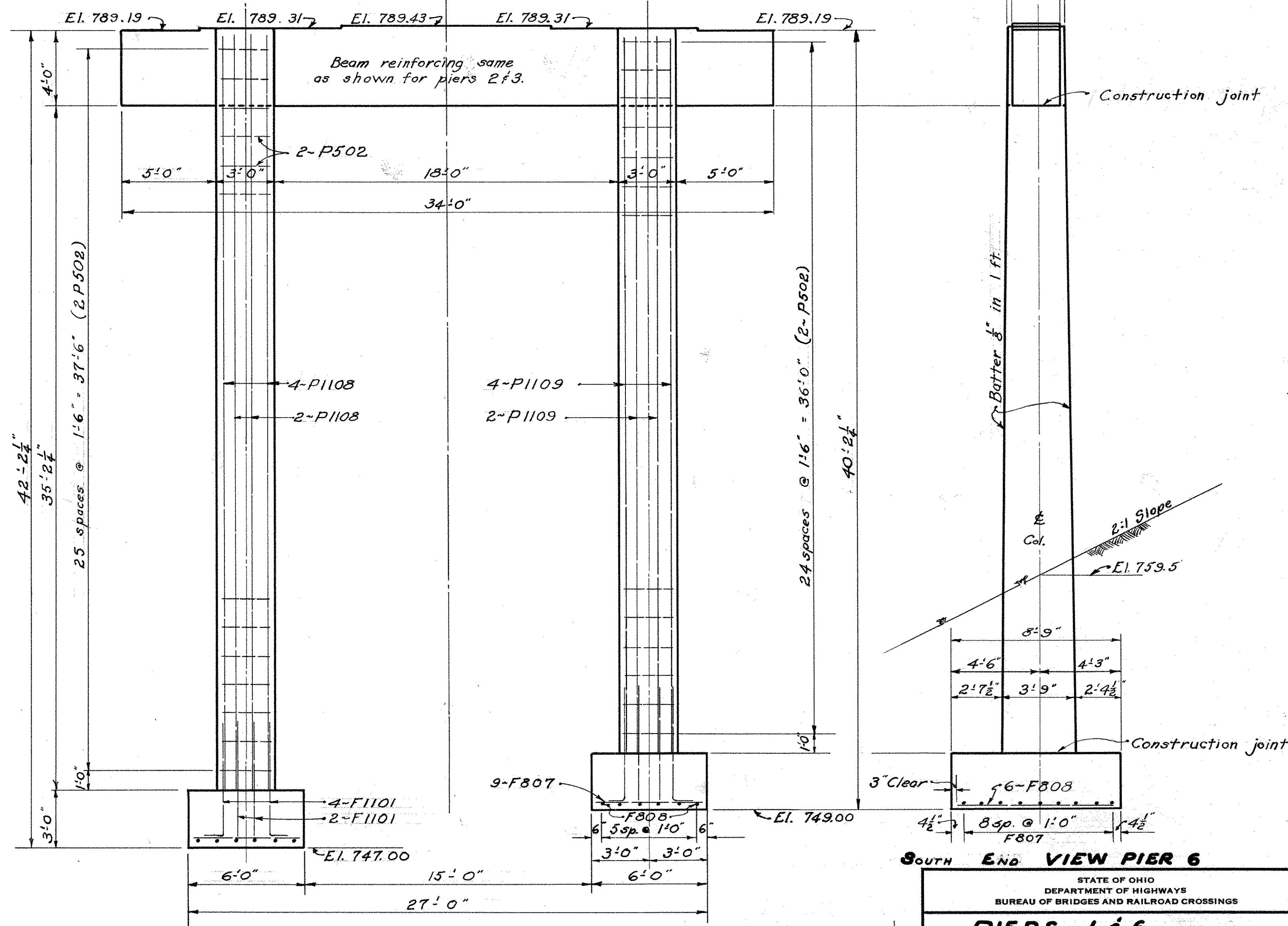


ELEVATION OF PIER 1

SOUTH END VIEW A-A



PLAN OF PIER 6



ELEVATION OF PIER 6

See Sheet 110 A  
for Pencil Revisions  
to Pier One  
dated 8-24-54

SOUTH END VIEW PIER 6

|   |              |                |                              |
|---|--------------|----------------|------------------------------|
| STATE OF OHIO<br>DEPARTMENT OF HIGHWAYS<br>BUREAU OF BRIDGES AND RAILROAD CROSSINGS |              |                |                              |
| PIERS 1 & 6   |              |                |                              |
| BRIDGE No. MU-22-23<br>OVER JONATHAN CR & N.Y.C. R.R.                               |              |                |                              |
| MUSKINGUM COUNTY<br>Sec. Mus-22-0.28 STA. 123+91.50                                 |              |                |                              |
| DESIGNED<br>KED   | DRAWN<br>KED | TRACED<br>DCH. | CHECKED<br>BFG               |
| DATE<br>8/24/54   |              |                | REVIEWED<br>A. J. H. 3/29/54 |

Reinforcing steel shall clear surface of concrete 2" unless otherwise noted.







MUS-22-0.28

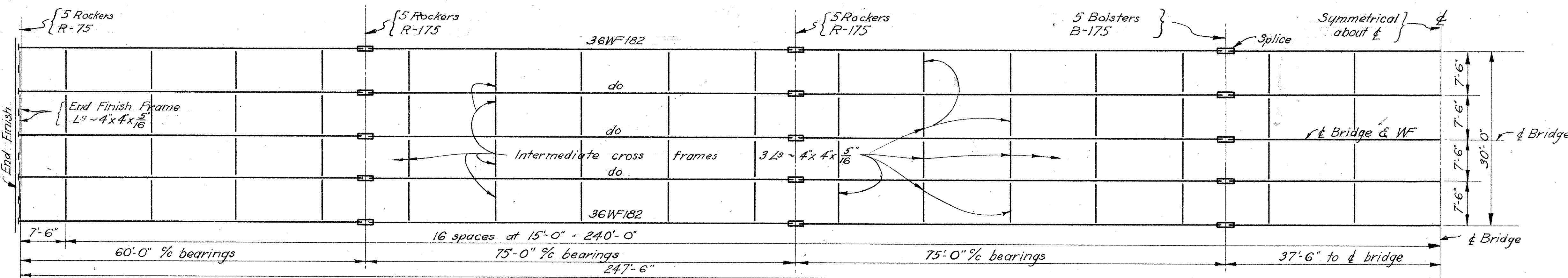
## WF GIRDER SPLICE WELDING PROCEDURE

1. At first pier, weld bottom flange splice plate to girder on end span side of joint only.
2. Raise end of girder at second pier 2".
3. Weld girder flanges and web at first pier.
4. Weld top flange splice plate at first pier (both sides of joint).
5. Complete welding of bottom flange splice plate at first pier.
6. Lower end of girder, second pier.
7. Repeat steps 1 to 6 at second pier raising end of girder at third pier 2" and then lowering end girder at third pier after completing welding.
8. Repeat steps 1 to 6 at 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup>, and 6<sup>th</sup> piers, raising end of girder at second abutment 1".

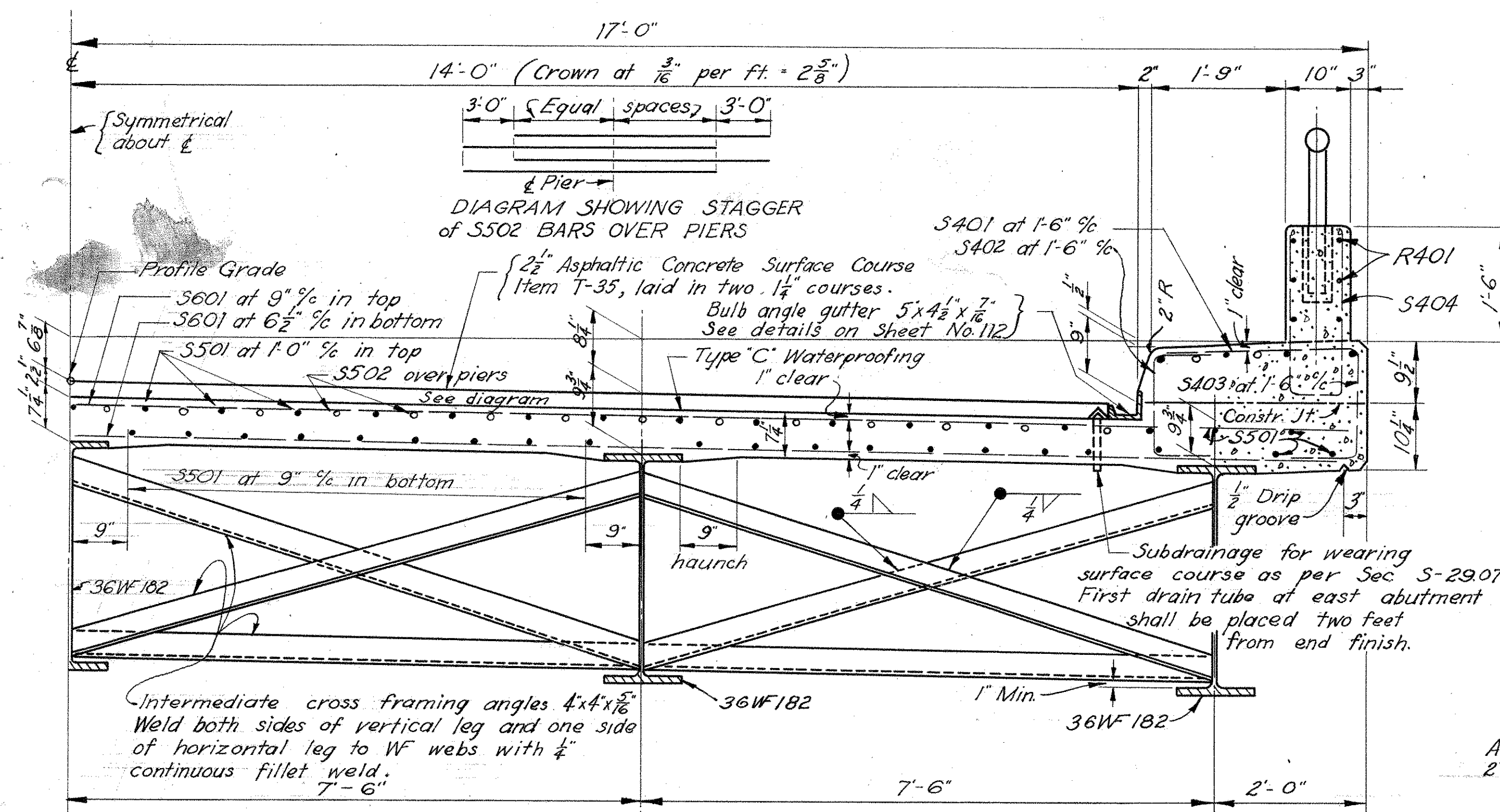
## DEFLECTION AND CAMBER

| Location                               | End Span       | Interior Span  |
|--|----------------|----------------|
| Deflection due to weight of steel.     | $\frac{1}{16}$ | $\frac{1}{16}$ |
| Deflection due to remaining dead load. | $\frac{3}{8}$  | $\frac{1}{16}$ |
| Camber required for vertical curve.    | $-\frac{1}{4}$ | $-\frac{3}{8}$ |
| Sum of deflection and camber.          | $\frac{3}{16}$ | 0              |
| Required Camber                        | None           | None           |

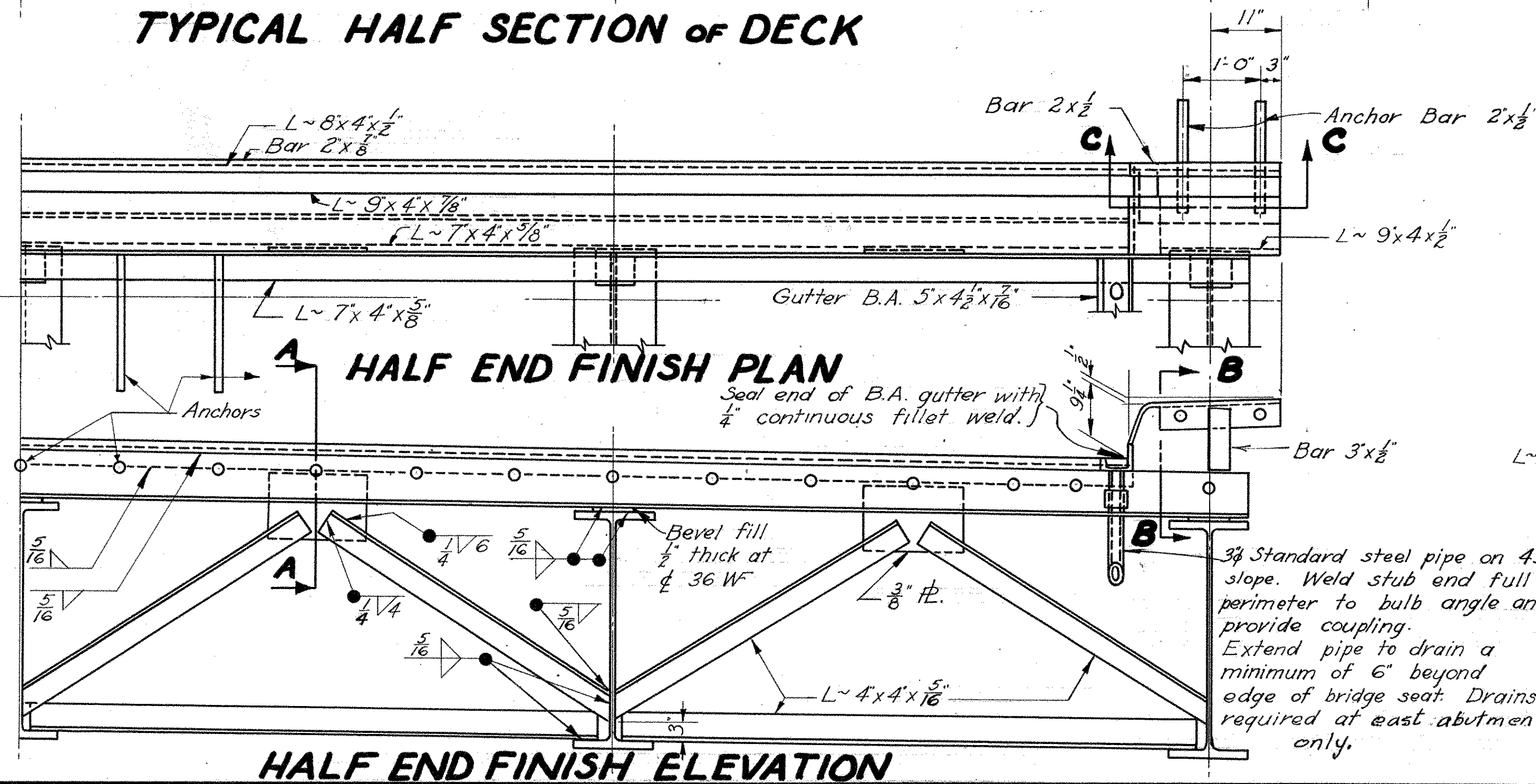
CAMBER: No cambering of girders is required but the girders shall be so fabricated that any curved beams will be placed with the convex flange up.



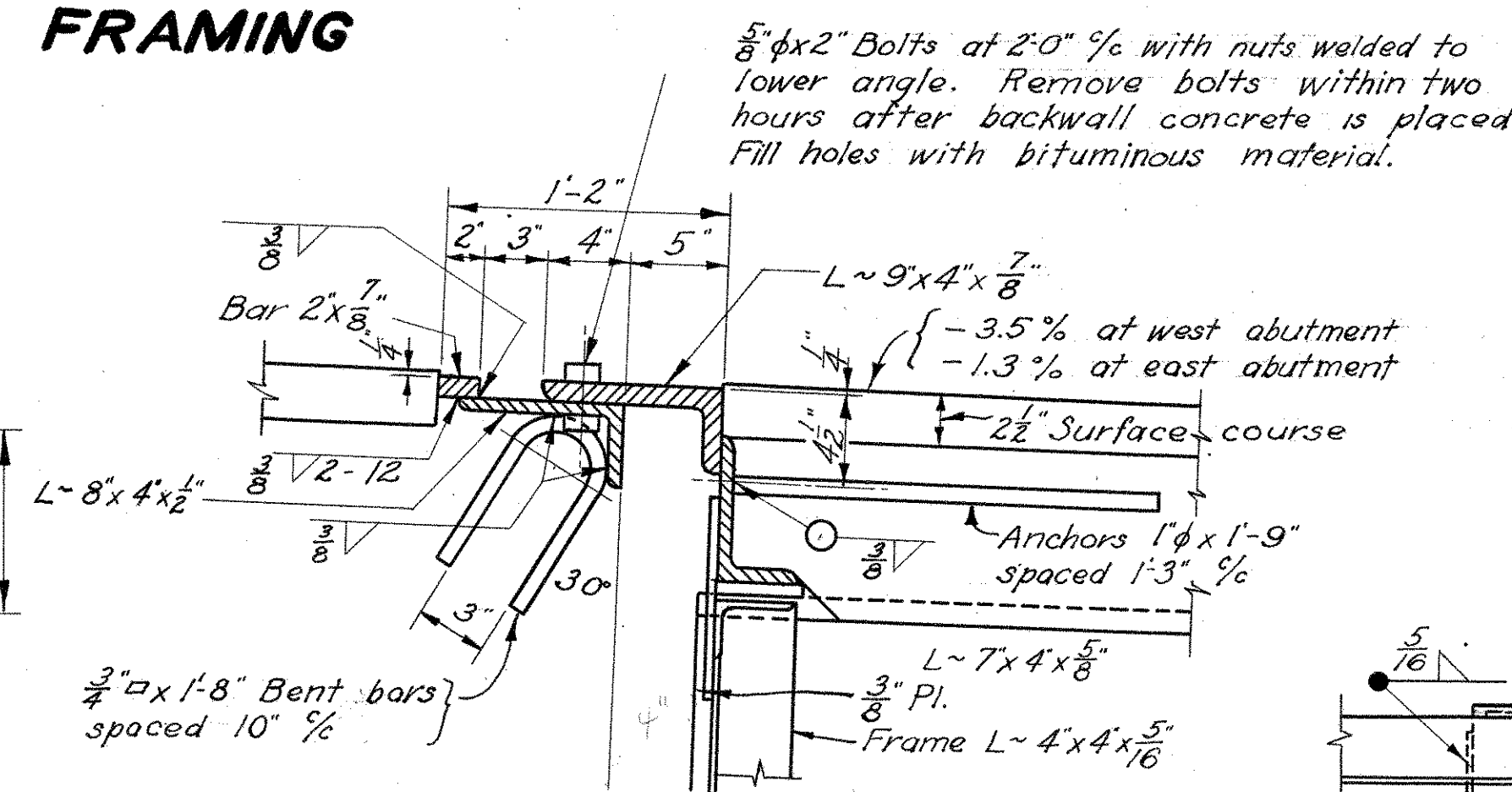
## HALF PLAN OF STRUCTURAL STEEL FRAMING



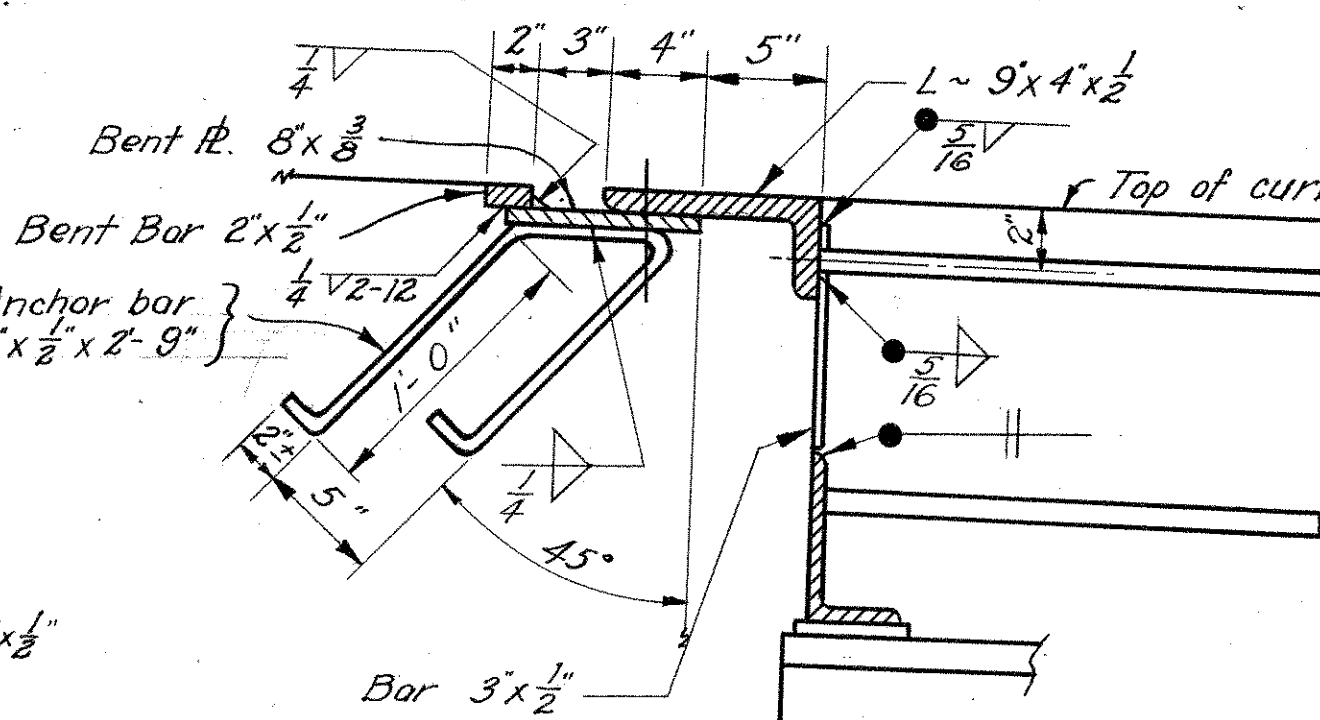
## TYPICAL HALF SECTION OF DECK



## HALF END FINISH ELEVATION

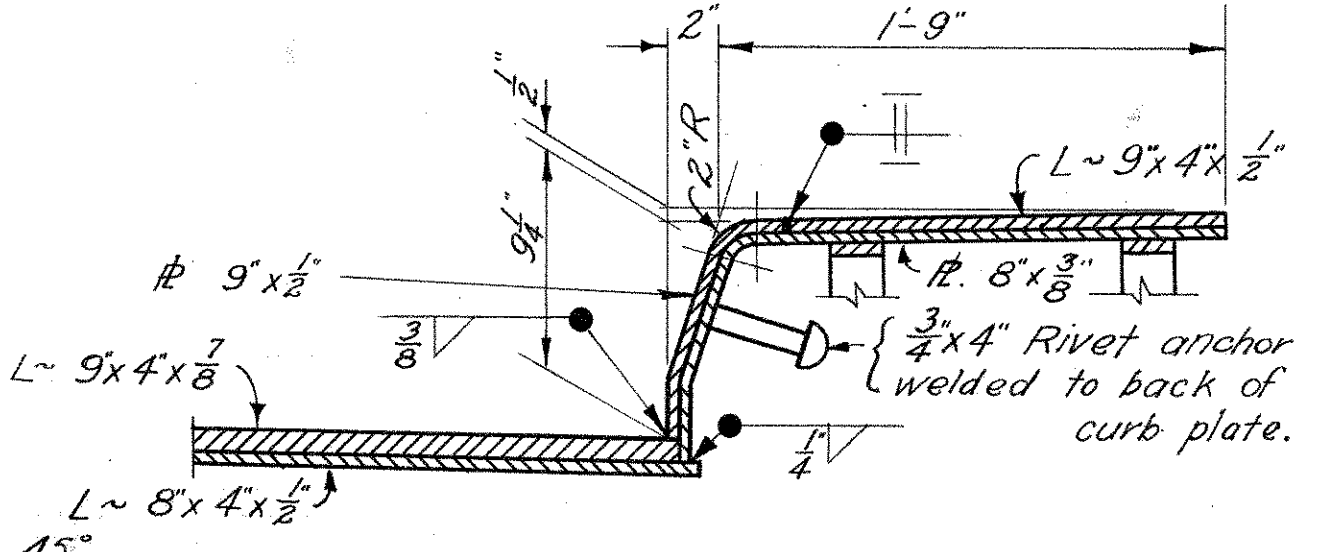


## SECTION A-A

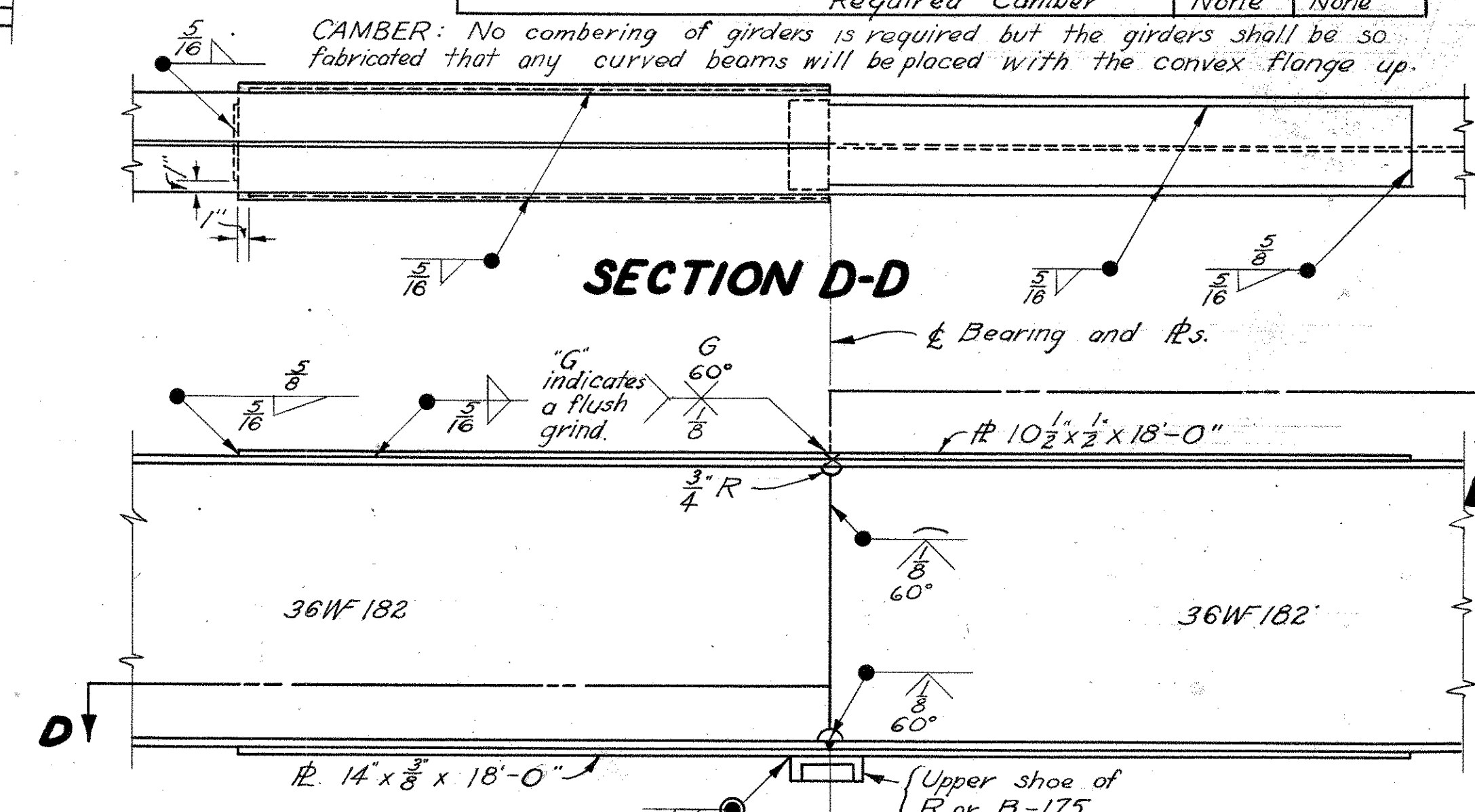


## SECTION B-B

Details not shown same as SECTION A-A

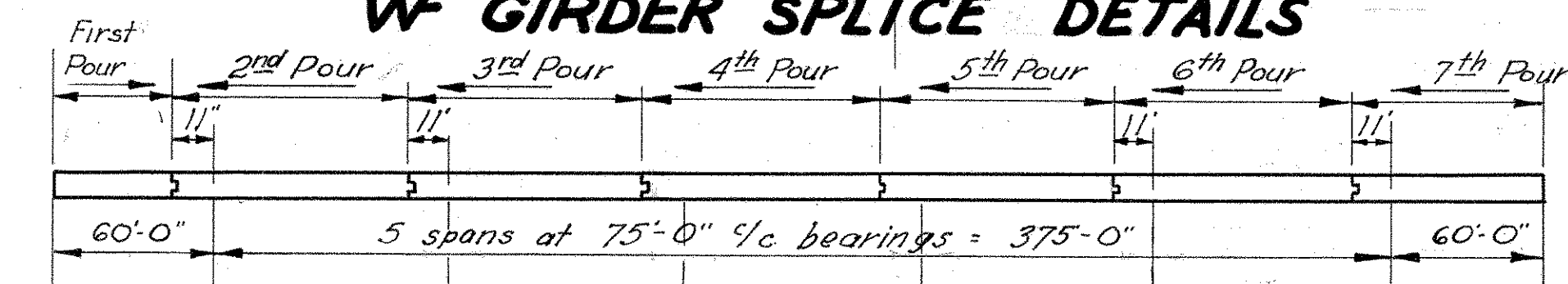


## SECTION C-C END FINISH DETAILS



## SECTION D-D

## WF GIRDER SPLICE DETAILS



## SLAB POURING SEQUENCE DIAGRAM

## DECK CONSTRUCTION PROCEDURE

Deck slab shall be poured in sections, between transverse construction joints, in the numerical order and in the direction indicated on the diagram above, in order that the major portion of dead load deflection may occur prior to placing concrete over each pier. This pouring procedure may start at either end.

| STATE OF OHIO<br>DEPARTMENT OF HIGHWAYS<br>BUREAU OF BRIDGES AND RAILROAD CROSSINGS |       |        |         |          |             |
|---|-------|--------|---------|----------|-------------|
| SUPERSTRUCTURE  |       |        |         |          |             |
| BRIDGE No. MU-22-23   |       |        |         |          |             |
| OVER JONATHAN CR. AND NYC R.R.  |       |        |         |          |             |
| MUSKINGUM COUNTY STA. 123 + 91.50   |       |        |         |          |             |
| SEC. MUS-22-0.28  |       |        |         |          |             |
| DESIGNED  | DRAWN | TRACED | CHECKED | REVIEWED | DATE        |
| KED   | KED   | AJC    | CWP     | BFG      | 9.8.3/29/50 |







| FILE NO. | STATE | PROJECT | YEAR |
|----------|-------|---------|------|
| 2        | OHIO  |         | 1928 |

113  
118

**MUS-22-0.28  
RIW PLAN  
LIMITED ACCESS**

W.H. Ford  
Cont. 1.95 Ac.  
31A PRO 1.62 Ac.  
3Y Cont. 0.03 Ac.  
3Y Cont. 0.04 Ac.  
3Z Cont. 0.03 Ac.

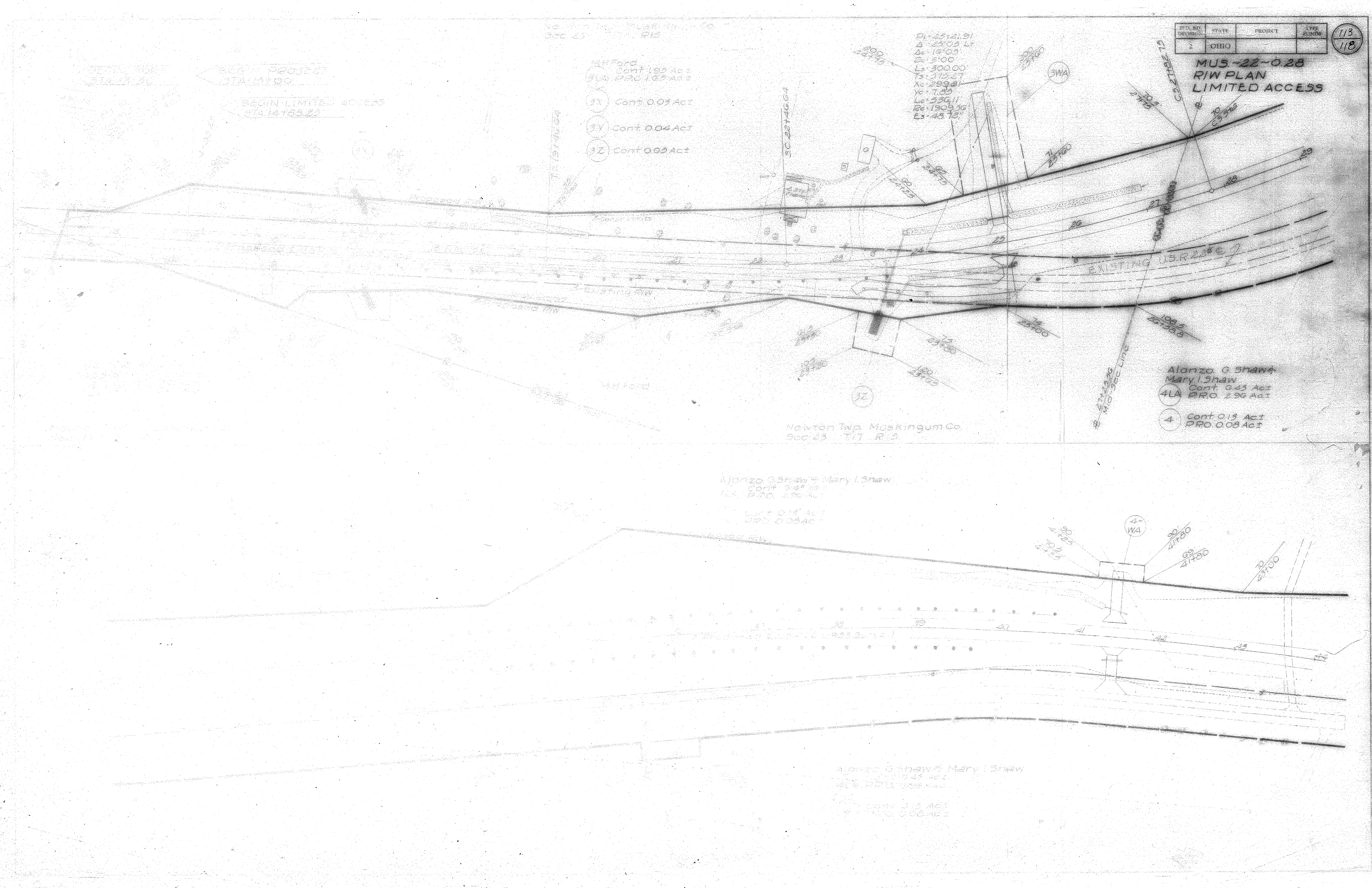
D1-25121.91  
Δ-23'03" LT  
Δc-13'03"  
Δc-5'00"  
Ls-300.00  
Ts-315.27  
Xc-299.61  
Yc-7.85  
Lc-336.11  
Rc-1908.56  
Es-43.12

Alonzo G. Shaw &  
Mary I. Shaw  
Cont. 0.53 Ac.  
4LA PRO 2.96 Ac.  
4 Cont. 0.13 Ac.  
PRO 0.08 Ac.

Newton Twp. Muskingum Co.  
Sec. 23 T. 17 R. 5

Alonzo G. Shaw & Mary I. Shaw  
Cont. 0.48 Ac.  
4LA PRO 2.80 Ac.  
4 Cont. 0.13 Ac.  
PRO 0.08 Ac.

Alonzo G. Shaw & Mary I. Shaw  
Cont. 0.43 Ac.  
4LA PRO 2.74 Ac.  
4 Cont. 0.13 Ac.  
PRO 0.08 Ac.

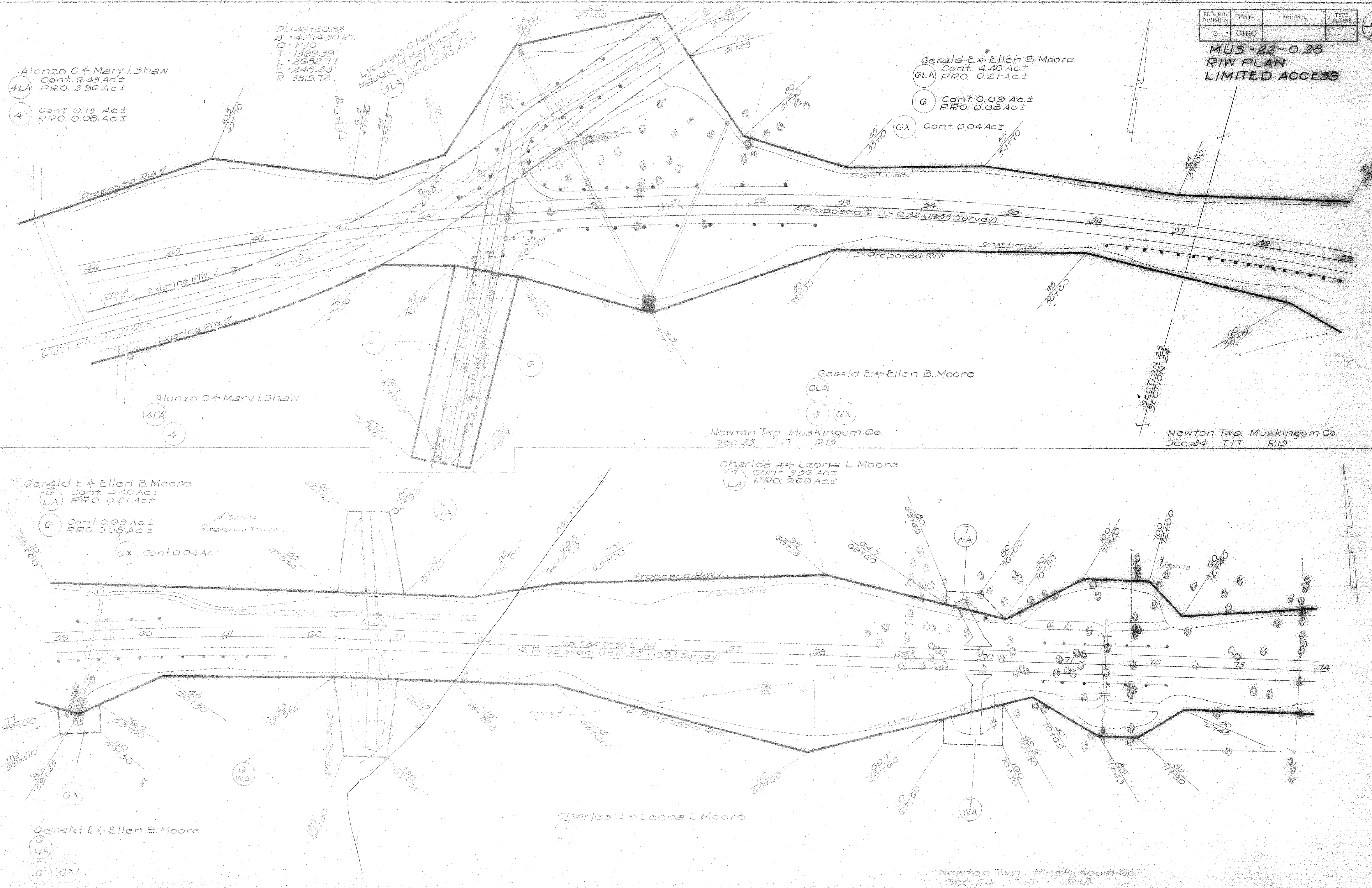




| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|-------------------|-------|---------|------------|
| 2                 | OHIO  |         |            |

114  
118

MUS-22-0.28  
RIW PLAN  
LIMITED ACCESS



SECTION 23  
SECTION 24

Newton Twp. Muskingum Co.  
Sec 24 T.17 R.15

Newton Twp. Muskingum Co.  
Sec 24 T.17 R.15



| FED. RD. DIVISION | STATE | PROJECT | TYPE FUNDS |
|-------------------|-------|---------|------------|
| 2                 | OHIO  |         |            |

115  
118

MUS-22-0.28  
RIW PLAN  
LIMITED ACCESS

Charles A. & Leona L. Moore

Mary Georgianna Rutledge

Mary Georgianna Rutledge

Edith R. Foster

Newton Twp. Muskingum Co.  
Sec. 24 T17 R15

Albert R. Pherson  
Cont. 209 Ac±  
PRO. 0.00 Ac±  
8 LA  
8X Cont. 0.02 Ac±  
Newton Twp. Muskingum Co.  
Sec. 24 T17 R15

Gordon D. & Donna  
Bowden  
Cont. 132 Ac±  
PRO. 0.00 Ac±  
9 LA  
9 Cont. 0.13 Ac±  
PRO. 0.00 Ac±

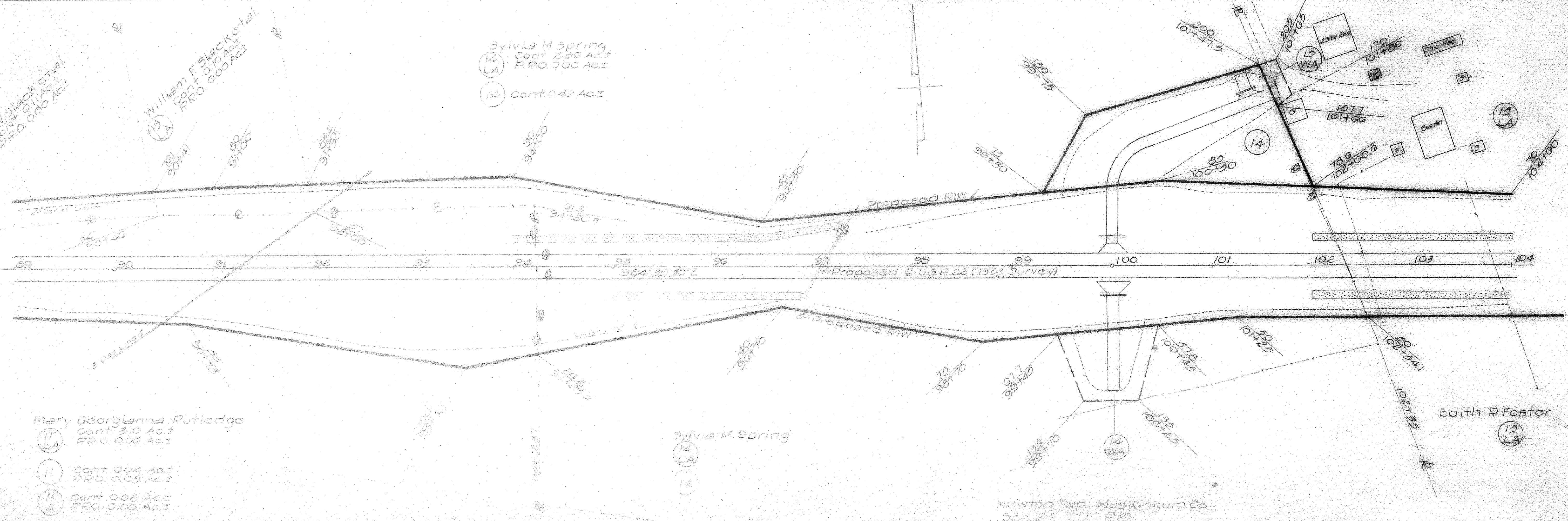
Mary Georgianna Rutledge  
Cont. 310 Ac±  
PRO. 0.00 Ac±  
11 LA  
11 Cont. 0.04 Ac±  
PRO. 0.03 Ac±  
11 A Cont. 0.08 Ac±  
PRO. 0.06 Ac±

Sylvia M. Spring  
Cont. 256 Ac±  
PRO. 0.00 Ac±  
14 LA  
12 Cont. 0.49 Ac±

William F. Black et al.  
Cont. 0.10 Ac±  
PRO. 0.00 Ac±  
13 LA

Mary Georgianna Rutledge  
Cont. 310 Ac±  
PRO. 0.00 Ac±  
11 LA  
11 Cont. 0.04 Ac±  
PRO. 0.03 Ac±  
11 Cont. 0.06 Ac±  
PRO. 0.03 Ac±  
A

Sylvia M. Spring  
14 LA  
14





MUS-22-0.28  
RIW PLAN  
LIMITED ACCESS

Edith R Foster  
15 LA Cont. 2.04 Ac.±  
PRO. 0.00 Ac.±  
15X Cont. 0.06 Ac.±

Pittsburgh Plate Glass Co.  
16 LA Cont. 2.59 Ac.±  
PRO. 0.00 Ac.±  
16X Cont. 0.07 Ac.±

PL=115+63.92  
Δ=25°30' LT.  
Ac=15°15'  
D=3°30'  
Ts=546.07'  
Ls=350.00'  
Xc=349.60'  
Yc=12.46'  
Lc=378.57'  
Rc=1637.02'  
Es=44.60'  
LT=233.47'

Louis P Cassidy  
17 LA Cont. 0.88 Ac.±  
PRO. 0.00 Ac.±

Newton Twp. Muskingum Co.  
Sec. 24 T.17 R.15

Newton Twp. Muskingum Co.  
Sec. 19 T.15 R.14

Ref.-  
RIW Plan of Mus-345-  
234 Sheet N°1

Glenna Allen  
18 LA Cont. 0.08 Ac.±  
PRO. 0.00 Ac.±

Holbein Coal Co.  
22 LA Cont. 0.38 Ac.±  
PRO. 0.00 Ac.±

NYCRR  
23 LA Cont. 0.10 Ac.±  
PRO. 0.00 Ac.±

Lewis S. Mauk  
24 LA Cont. 5.31 Ac.±  
PRO. 0.00 Ac.±

Louis P Cassidy  
17 LA Cont. 0.88 Ac.±  
PRO. 0.00 Ac.±

Harry L Barnett  
19 LA Cont. 0.33 Ac.±

Joseph W & Mary Lou Wolf  
20 LA Cont. 0.39 Ac.±  
John Wesley Bartels  
21 LA Cont. 0.48 Ac.±  
PRO. 0.05 Ac.±

Lewis S. Mauk  
24 LA

Newton Twp. Muskingum Co.  
Sec. 19 T.15 R.14





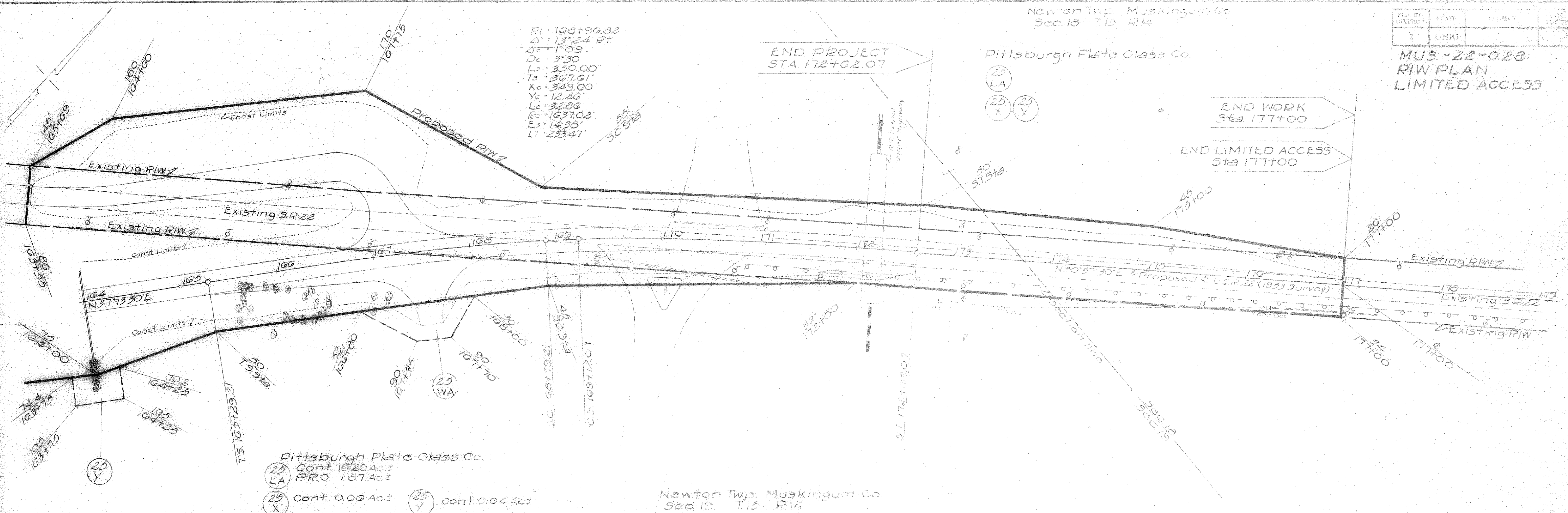


Newton Twp. Muskingum Co.  
Sec. 15 T.15 R.14

| FILE NO. | STATE | PROJECT | DATE |
|----------|-------|---------|------|
| 2        | OHIO  |         |      |

118  
118

MUS.-22-028  
RIW PLAN  
LIMITED ACCESS





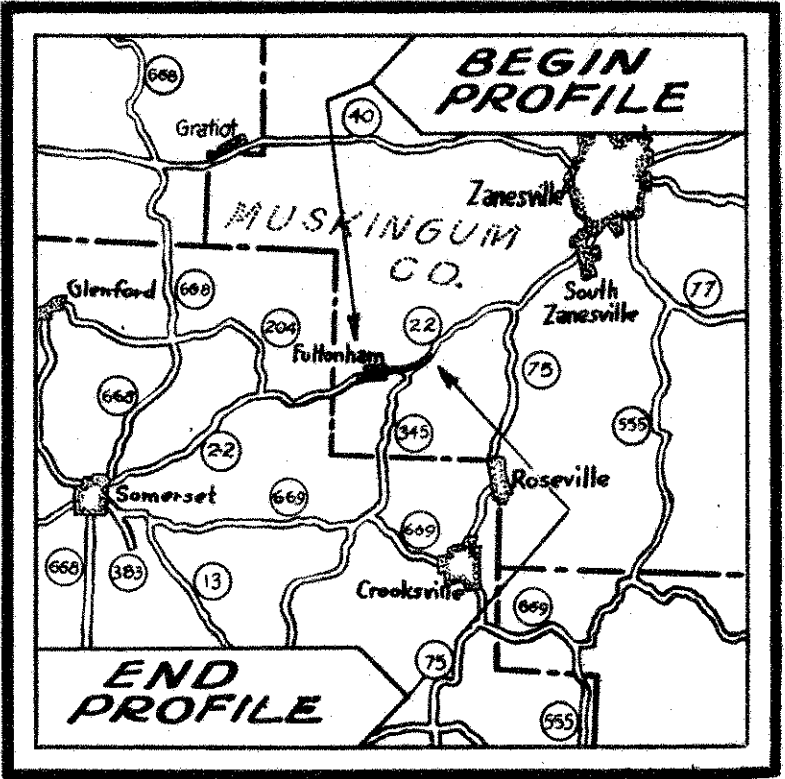
SOIL PROFILE

MUSKINGUM COUNTY  
MUS-22-0.28

STATE HIGHWAY TESTING AND  
RESEARCH LABORATORY  
O. S. U. CAMPUS, COLUMBUS, OHIO



NOTE: The information shown by this subgrade profile was secured for the use of the State of Ohio and is not to be construed as a part of the plans governing the construction of the project.



LOCATION MAP

LEGEND FOR PROJECT-AVERAGE RESULTS OF TESTS- 65 SAMPLES TESTED

| DESCRIPTION                                    | H. R. B. CLASS        | OHIO CLASS | % AGG. | % C. SAND | % F. SAND | % SILT | % CLAY | LIQUID LIMIT | PLASTICITY INDEX | WATER CONTENT | SAMPLES TESTED |
|--|-----------------------|------------|--------|-----------|-----------|--------|--------|--------------|------------------|---------------|----------------|
| GRAVEL WITH SAND                               | A-1-b <sub>(9)</sub>  | A-1-b      | 43     | 36        | 11        | 2      | 8      | N.R.         | N.R.             | 8             | 1              |
| COARSE AND FINE SAND                           |                       | A-3a       | 1      | 46        | 29        | 11     | 13     | N.R.         | N.R.             | 10            | 1              |
| GRAVEL AND/OR STONE FRAGMENTS WITH SAND & SILT | A-2-a <sub>(10)</sub> | A-2-a      | 35     | 20        | 11        | 22     | 12     | 26           | 6                | 12            | 2              |
| GRAVEL WITH SAND, SILT & CLAY                  | A-2-b <sub>(10)</sub> | A-2-b      | 32     | 20        | 14        | 14     | 20     | 33           | 11               | 8             | 1              |
| SANDY SILT                                     | A-4 <sub>(13)</sub>   | A-4a       | 14     | 15        | 20        | 31     | 20     | 25           | 8                | 9             | 8              |
| SILT   | A-4 <sub>(8)</sub>    | A-4b       | 2      | 6         | 7         | 60     | 25     | 28           | 8                | 19            | 7              |
| SILT & CLAY                                    | A-6 <sub>(9)</sub>    | A-6a       | 13     | 7         | 9         | 40     | 31     | 33           | 14               | 17            | 14             |
| CLAY   | A-6 <sub>(9)</sub>    | A-6b       | 17     | 8         | 7         | 37     | 31     | 37           | 17               | 18            | 9              |
| ELASTIC CLAY                                   | A-7-5 <sub>(11)</sub> | A-7-5      | 0      | 1         | 0         | 31     | 68     | 55           | 26               | 33            | 2              |
| CLAY   | A-7-6 <sub>(16)</sub> | A-7-6a     | 8      | 3         | 4         | 30     | 55     | 50           | 25               | 14            | 20             |
| TOP SOIL                                       |                       |            |        |           |           |        |        |              |                  |               |                |
| COAL BLOSSOM                                   |                       |            |        |           |           |        |        |              |                  |               |                |
| SANDSTONE                                      |                       |            |        |           |           |        |        |              |                  |               |                |
| BERM MATERIAL                                  |                       |            |        |           |           |        |        |              |                  |               |                |
| LIMESTONE                                      |                       |            |        |           |           |        |        |              |                  |               |                |
| SHALE  |                       |            |        |           |           |        |        |              |                  |               |                |

EXISTING PAVEMENT

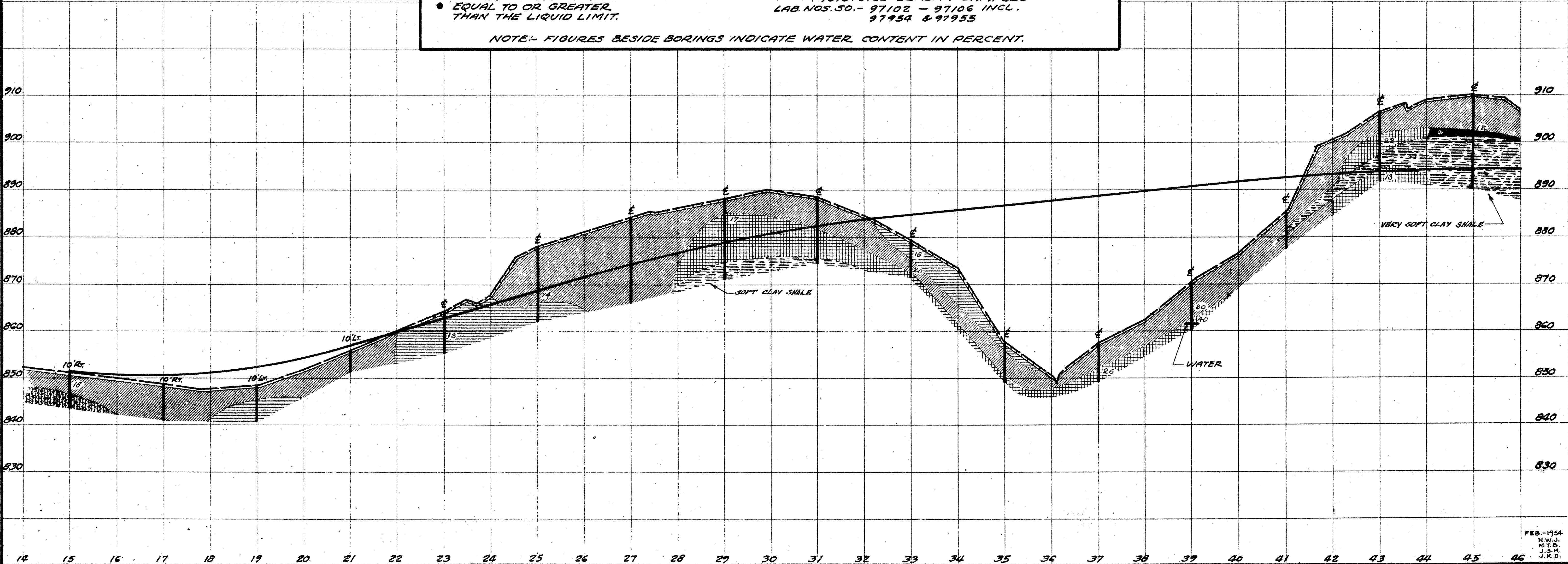
AUGER BORINGS PLOTTED TO VERTICAL SCALE ONLY.

WATER CONTENT NEARLY EQUAL TO OR GREATER THAN THE LIQUID LIMIT.

SAMPLES TESTED—  
LAB. NOS. 50.- 96029 - 96955 INCL.  
97068 - 97085 INCL.  
97087 - 97106 INCL.

MOISTURE DENSITY SAMPLES—  
LAB. NOS. 50.- 97102 - 97106 INCL.  
97954 & 97955

NOTE: FIGURES BESIDE BORINGS INDICATE WATER CONTENT IN PERCENT.



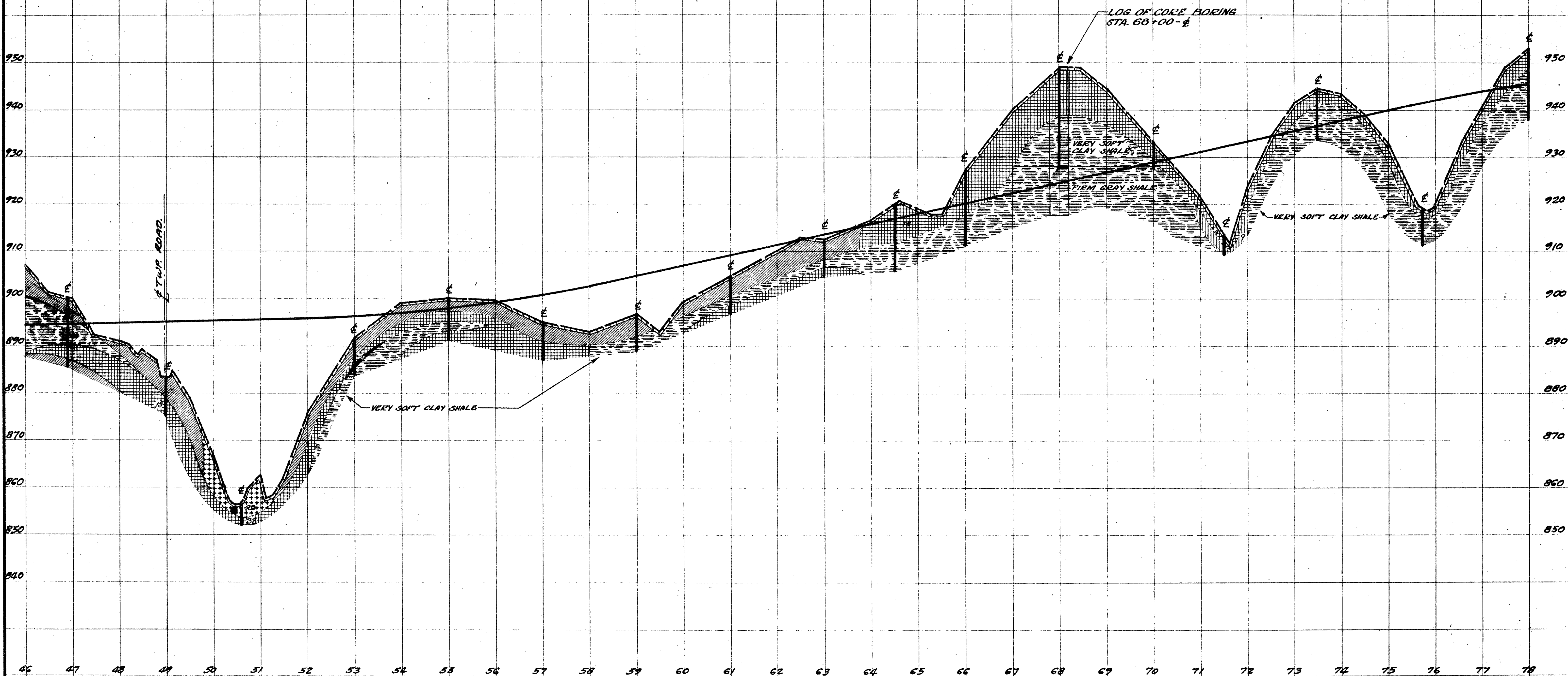


SOIL PROFILE

MUSKINGUM COUNTY  
MUS-22-0.28

STATE HIGHWAY TESTING AND  
RESEARCH LABORATORY  
O. S. U. CAMPUS, COLUMBUS, OHIO

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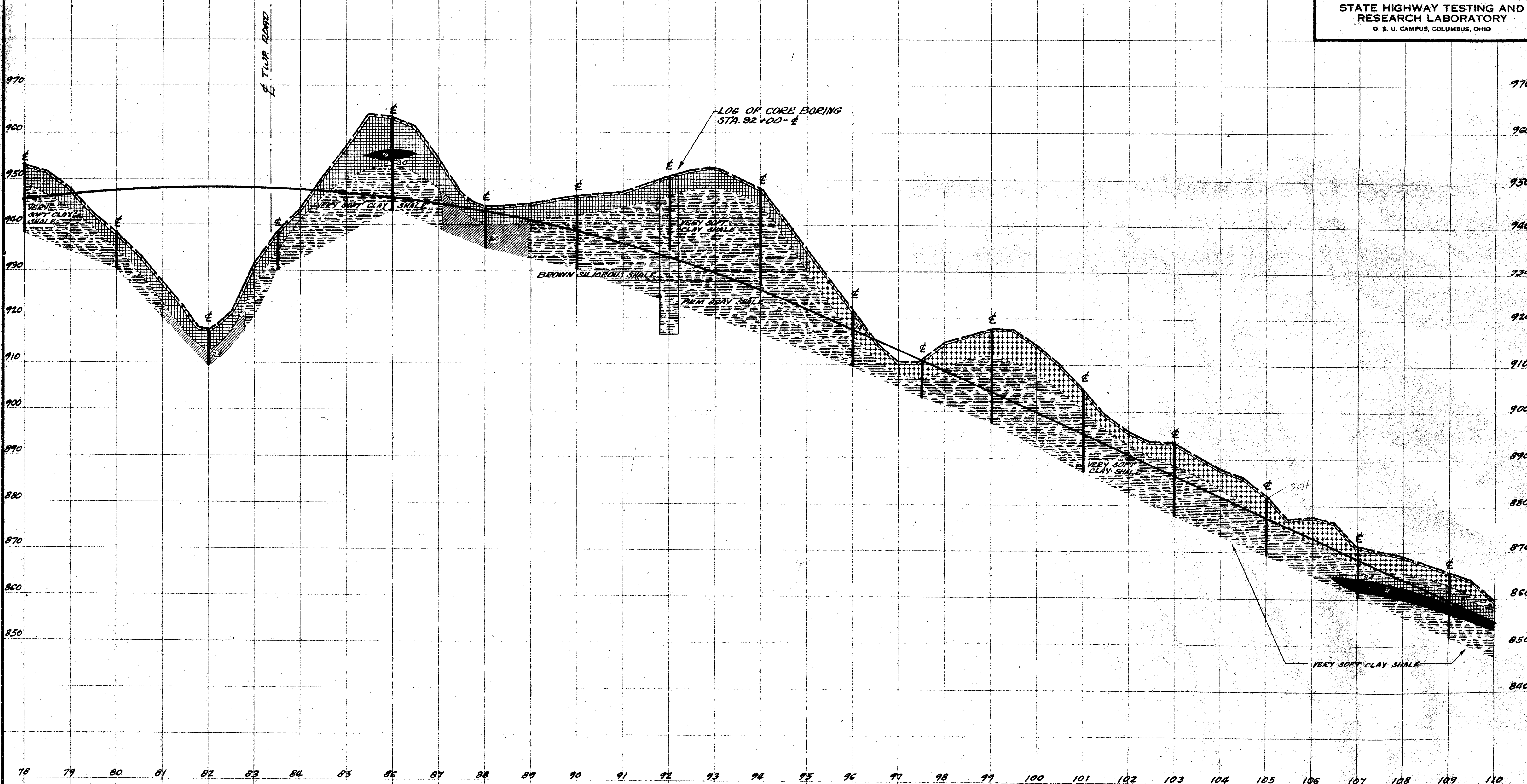


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3  
5





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