

MICROFILMED
JUN 6 1985

MICROFILMED
SEP 8 1994
ON
ROLL FILM

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
MUS-146-6.09
MUSKINGUM COUNTY
MUSKINGUM TOWNSHIP &
FALLS TOWNSHIP

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

1
92

MUSKINGUM COUNTY
MUS-146-6.09

CONVENTIONAL SIGNS

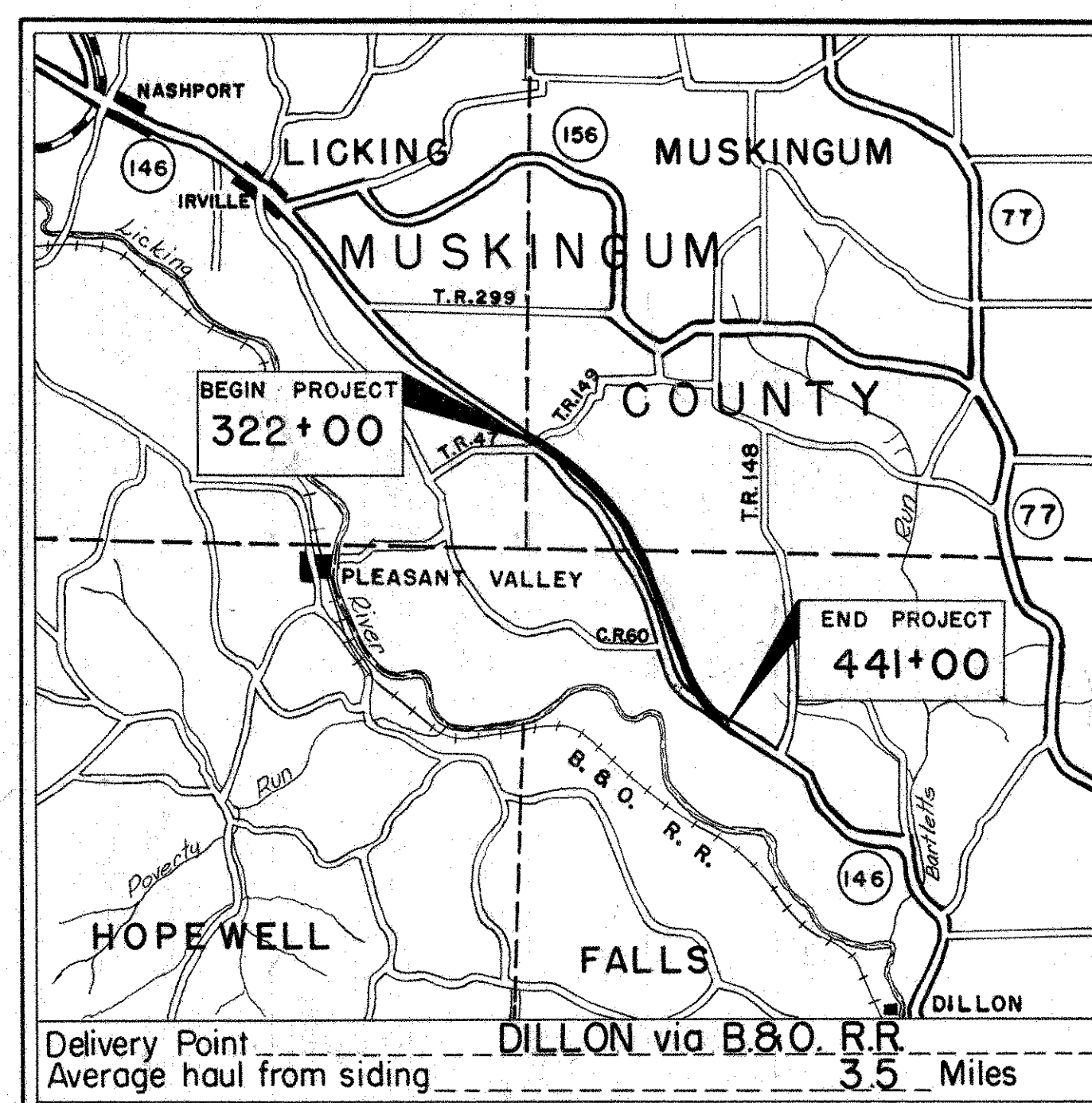
State Line	
County Line	
Township Line	
Section Line	
Center Line	
Corporation Line	
Fence Line	
Guard Rail (existing)	
Guard Rail (proposed)	
Steam Railroad	
Power Poles	
Telephone Poles	
Trees & Stumps (existing)	
Trees & Stumps (to be removed)	

INDEX OF SHEETS

Title Sheet	1
Schematic	2
Typical Sections	3
Typical Details	4
Notes	5
Superelevation Tables	6
Summary of Quantities	7
General Summary	8
Plan & Profile	9
Cross Sections	10
Approach Details Rt. 327+00	11
Field Drive Rt. 352+00	12
Field Drive Rt. 375+69.38	13
Approach Details Rt. 428+30	14
Channel Sections	15
Pipe Culvert Details	16
Structures over 20' Span	17
Right of Way Plan	18

LINE DATA

Begin Project	Sta. 322+00.00
End Project	Sta. 441+00.00
Net Length of Project	11,900.00 Lin. Ft. or 2.253 Miles
Add For Approaches:	
320+00 to 322+00	200.00 Lin. Ft.
441+00 to 444+00	300.00 Lin. Ft.
Rt. @ Sta. 327+00 (0+12.00 to 3+86.19)	374.19 Lin. Ft.
Rt. @ Sta. 428+30 (0+12.00 to 4+04.56)	392.56 Lin. Ft.
Net Length of Approaches	1,266.75 Lin. Ft. or 0.240 Miles
Net Length of Work	13,166.75 Lin. Ft. or 2.493 Miles



LOCATION MAP

SCALE OF MILES



Portion to be improved
Federal Roads
State Roads
Other Roads

SCALE

Plan	1" = 50'
Profile: Horizontal	1" = 50'
Profile: Vertical	1" = 10'
Cross Sections	1" = 10'

Reviewed & Approved:
Date: _____ Engineer of Traffic

File No.	MUSKINGUM COUNTY	MU-146-6.09
Date of Letting	195	
Contract No.		

Supplemental Prints of Standard Construction Drawings			
I-15 No. 1	5-21-59	AS-1-54	12-1-54
I-15 No. 2-A	6-1-57		
L-3	4-1-50		
L-3-A	4-1-50		
S-27 PC-3	2-20-45		
G-707	6-1-56		
RB-1-55	2-2-59		

Supplemental Specifications	
B-219	3-12-59

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

The right of way necessary for this improvement will be provided by the United States of America.

I hereby approve these plans and declare that the making of this improvement will not require the closing to traffic of the highway.

Provision for the maintenance and safety of traffic will be as set forth on the plans and estimates.

Approved: L. H. Bannan
Date: 17 Nov 59 Division Deputy Director

Approved: Gay E. Neff
Date: 11-17-59 Deputy Director of Planning & Programming

Approved: M. Corman
Date: 11-17-59 Engineer of Bridges

Approved: W. L. Lamm
Date: 11-17-59 Engineer of Location & Design

Approved: C. W. McCaughey
Date: 11-17-59 Deputy Director of Design & Construction

Approved: G. Berry
Date: 11-17-59 First Ass't Director

Approved: E. L. Preston
Date: 11-17-59 Director of Highways

3/22/62	AS CONSTRUCTED	H.F.K.
REVISION	DATE	DESCRIPTION
		U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.
DRAWN BY:		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)
TRACED BY:		
CHECKED BY:		
SUBMITTED BY:		
RECOMMENDED BY:		
APPROVED:		NOV. 1959
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		
SCALE:		SPEC. NO.
		DRAWING NUMBER
		0 27 f-UD 7-68/1
		SHEET 1 OF 92

WORK AS CONSTRUCTED

60-472

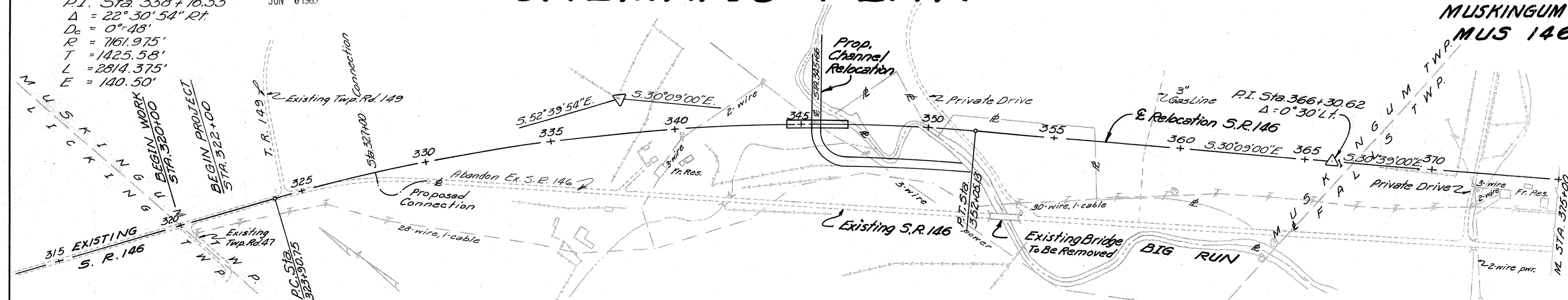
SCHEMATIC PLAN

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		2 92

MUSKINGUM COUNTY
MUS 146 - 6.09

CURVE DATA
P.I. Sta. 338+16.33
 $\Delta = 22^\circ 30' 54''$ Rt.
 $D_c = 0^\circ 48'$
 $R = 1161.975'$
 $T = 1425.58'$
 $L = 2814.375'$
 $E = 140.50'$

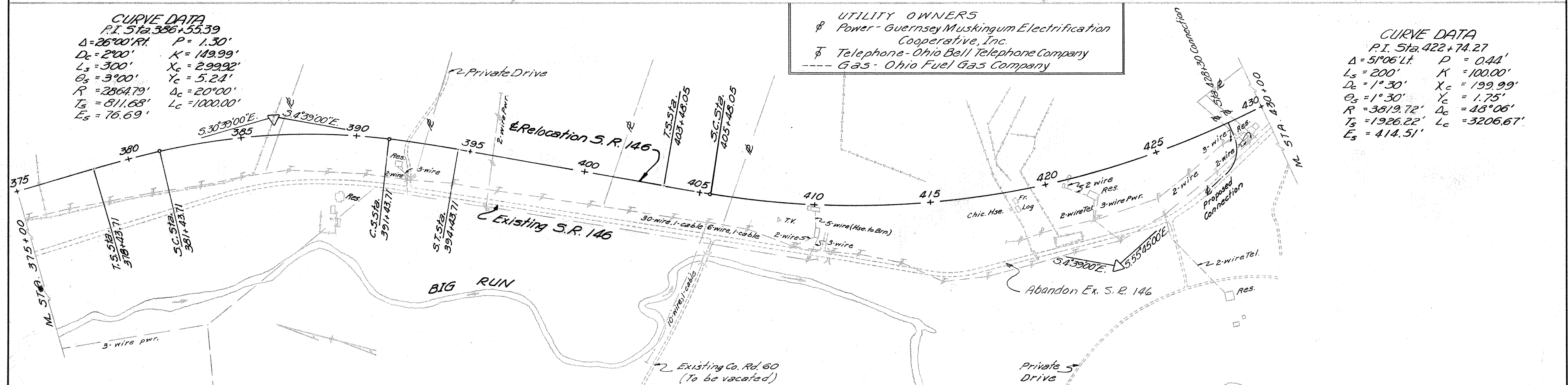
MICROFILMED
JUN 6 1985



CURVE DATA
P.I. Sta. 356+55.39
 $\Delta = 26^\circ 00'$ Rt. $P = 1.30'$
 $D_c = 2^\circ 00'$ $K = 149.99'$
 $L_s = 300'$ $X_c = 299.92'$
 $O_s = 3^\circ 00'$ $Y_c = 5.24'$
 $R = 2864.79'$ $\Delta_c = 20^\circ 00'$
 $T_s = 811.68'$ $L_c = 1000.00'$
 $E_s = 76.69'$

UTILITY OWNERS
 ♂ Power - Guernsey Muskingum Electrification Cooperative, Inc.
 ♂ Telephone - Ohio Bell Telephone Company
 --- Gas - Ohio Fuel Gas Company

CURVE DATA
P.I. Sta. 422+74.27
 $\Delta = 51^\circ 06'$ Lt. $P = 0.44'$
 $L_s = 200'$ $K = 100.00'$
 $D_c = 1^\circ 30'$ $X_c = 199.99'$
 $O_s = 1^\circ 30'$ $Y_c = 1.75'$
 $R = 3819.72'$ $\Delta_c = 48^\circ 06'$
 $T_s = 1926.22'$ $L_c = 3206.67'$
 $E_s = 414.51'$



Note: Except as otherwise indicated on drawing No. 68/54 the Contractor shall leave Existing S.R. 146 to be abandoned in the same condition as now exists, since a portion thereof will become a part of the County Highway System, except that bridge shall be removed.

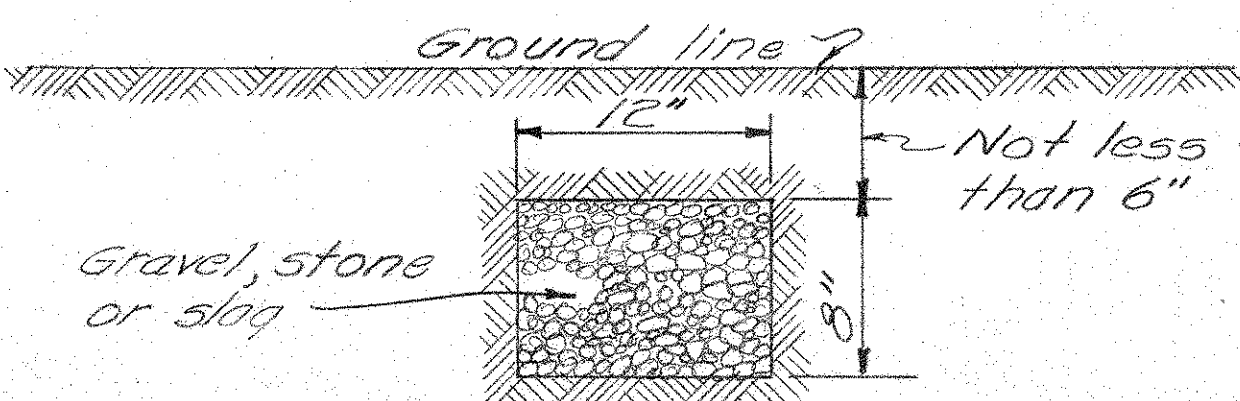
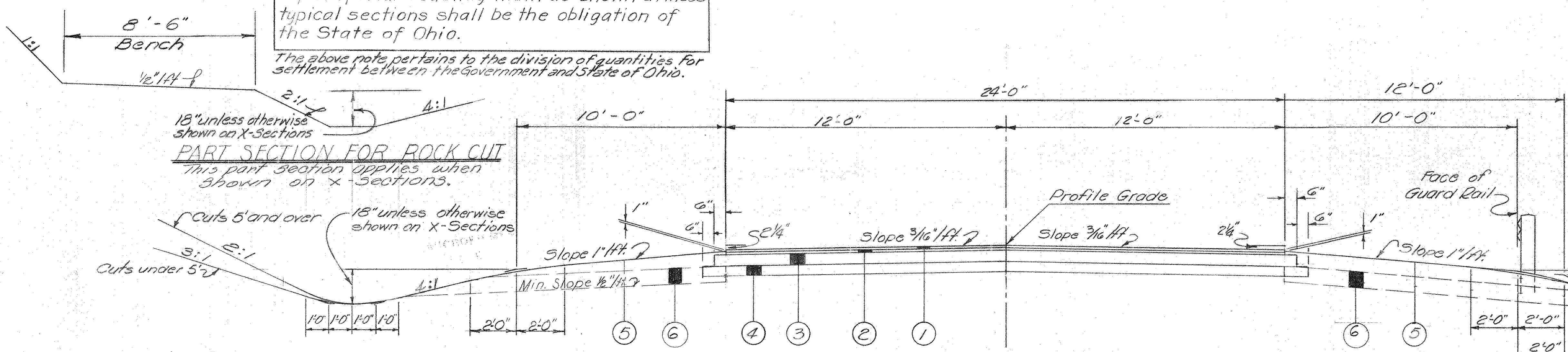
3/22/62	AS CONSTRUCTED	H.F.K.
12-21-59	REVISED IN ACCORDANCE WITH ADDENDUM NO. 1	N.J. B.
REVISION	DATE	DESCRIPTION
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.		
DRAWN BY: TRACED BY: CHECKED BY: SUBMITTED BY: ELMER S. BARRETT ASSOCIATES		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)
RECOMMENDED BY: Dan B. Johnson CHIEF ENG. DIV.		
APPROVED: Steven Malerich COL. C.E. DISTRICT ENGINEER		DATE: NOV. 1959
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: 1"=200' SPEC. NO. DRAWING NUMBER 0271-UD7-68/2 SHEET 2 OF 92

WORK AS CONSTRUCTED SCHEMATIC PLAN

MUSKINGUM COUNTY
MUS-146-6.09

NOTE
The United States of America will participate to the extent of 20 feet of pavement width and a 32 foot clear roadway width.
The additional 4 feet of pavement width and 12 feet of clear roadway width as shown on these typical sections shall be the obligation of the State of Ohio.
The above note pertains to the division of quantities for settlement between the Government and State of Ohio.

TYPICAL SECTION TYPE T-35

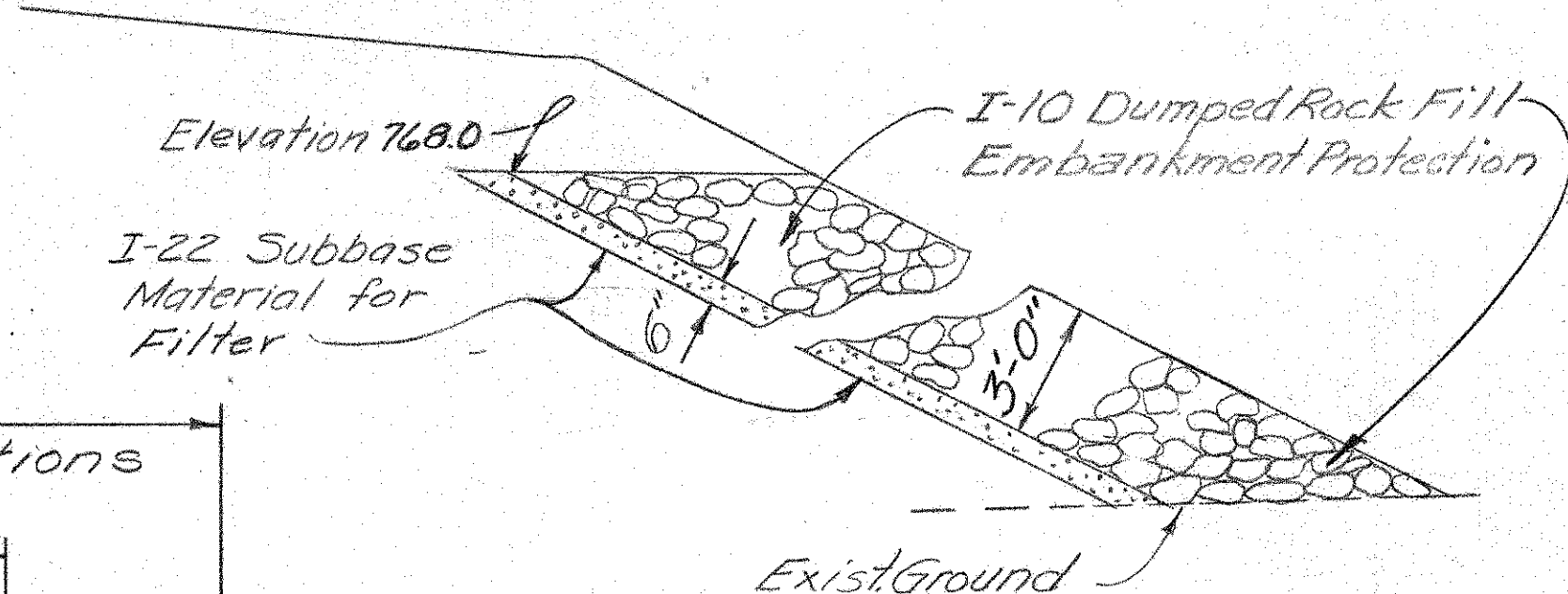


Underdrains to be placed as directed on Sheet No. 6
I-9 STONE UNDERDRAIN, NO. 2

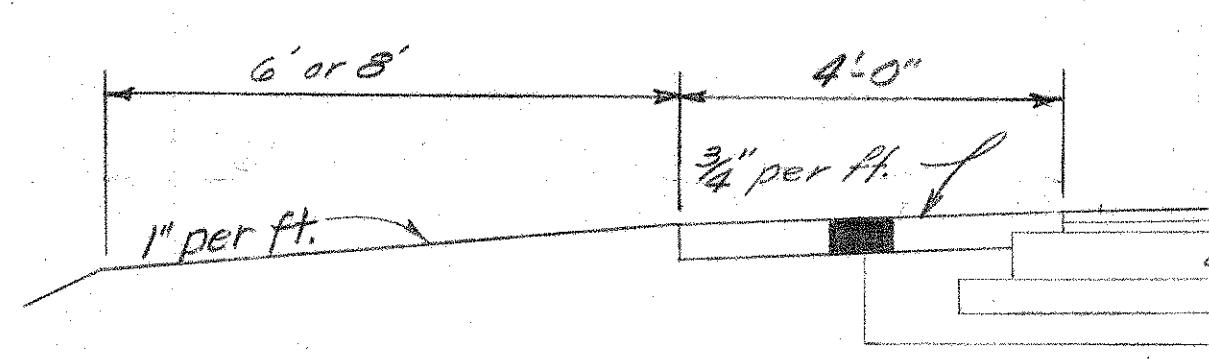
LEGEND

- ① T-35 1 1/4" Asphaltic Concrete Surface Course Type "C" (70-85)
- ② B-35 1 1/4" Asphaltic Concrete Leveling Course.
- ③ B-219 6" Waterproofed Aggregate Base Course.
- ④ I-22 5" Subbase.
- ⑤ L-9 Seeding & Protecting.
- ⑥ I-9 Stone Underdrains No. 2

TYPICAL SECTION
The above typical section applies between the following stations:
Sta. 322+00.00 to Sta. 344+16.07 = 2,216.07 Lin. Ft.
Sta. 347+14.59 to Sta. 441+00.00 = 9,385.41 Lin. Ft.
Net Length of Typical Section 11,601.48 Lin. Ft.

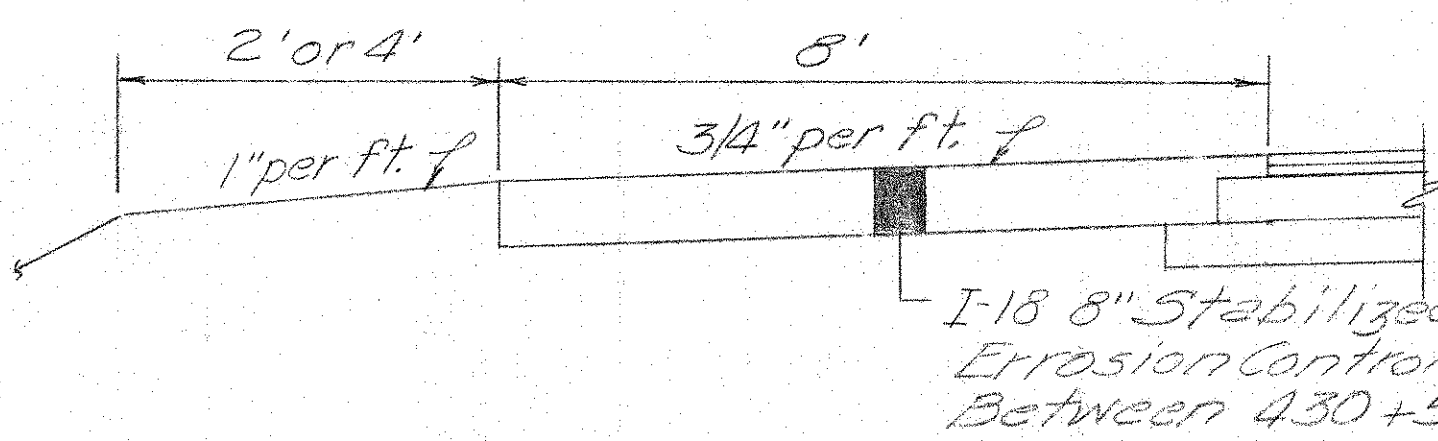


DETAIL OF ROCK EMBANKMENT
Note - See cross sections for location.

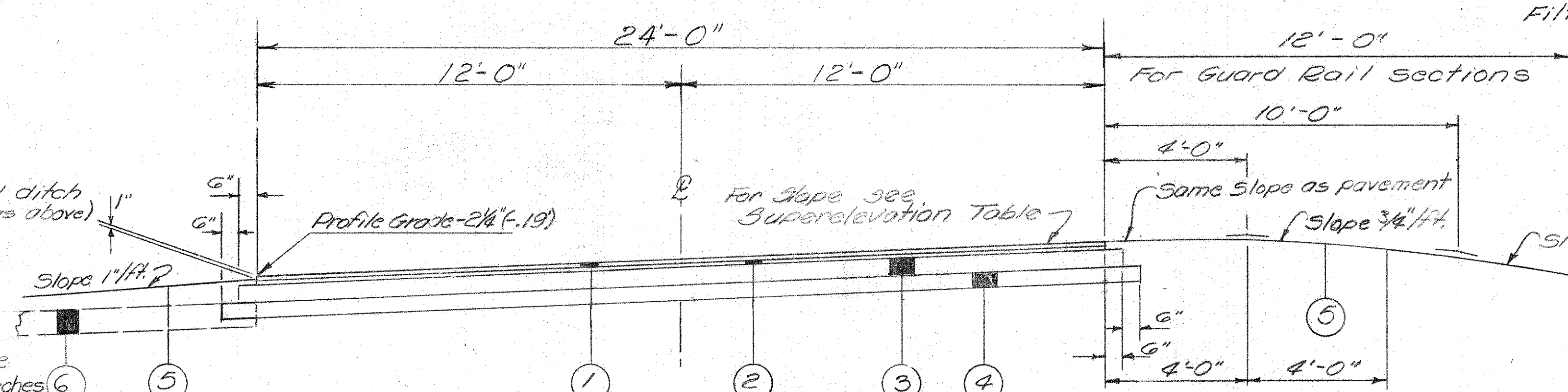


PART TYPICAL SECTION

The above part typical section applies between the following stations,
Rt. & Sta. 326+00 and Sta. 339+00
Rt. & Sta. 439+00 and Sta. 443+00



PART TYPICAL SECTION

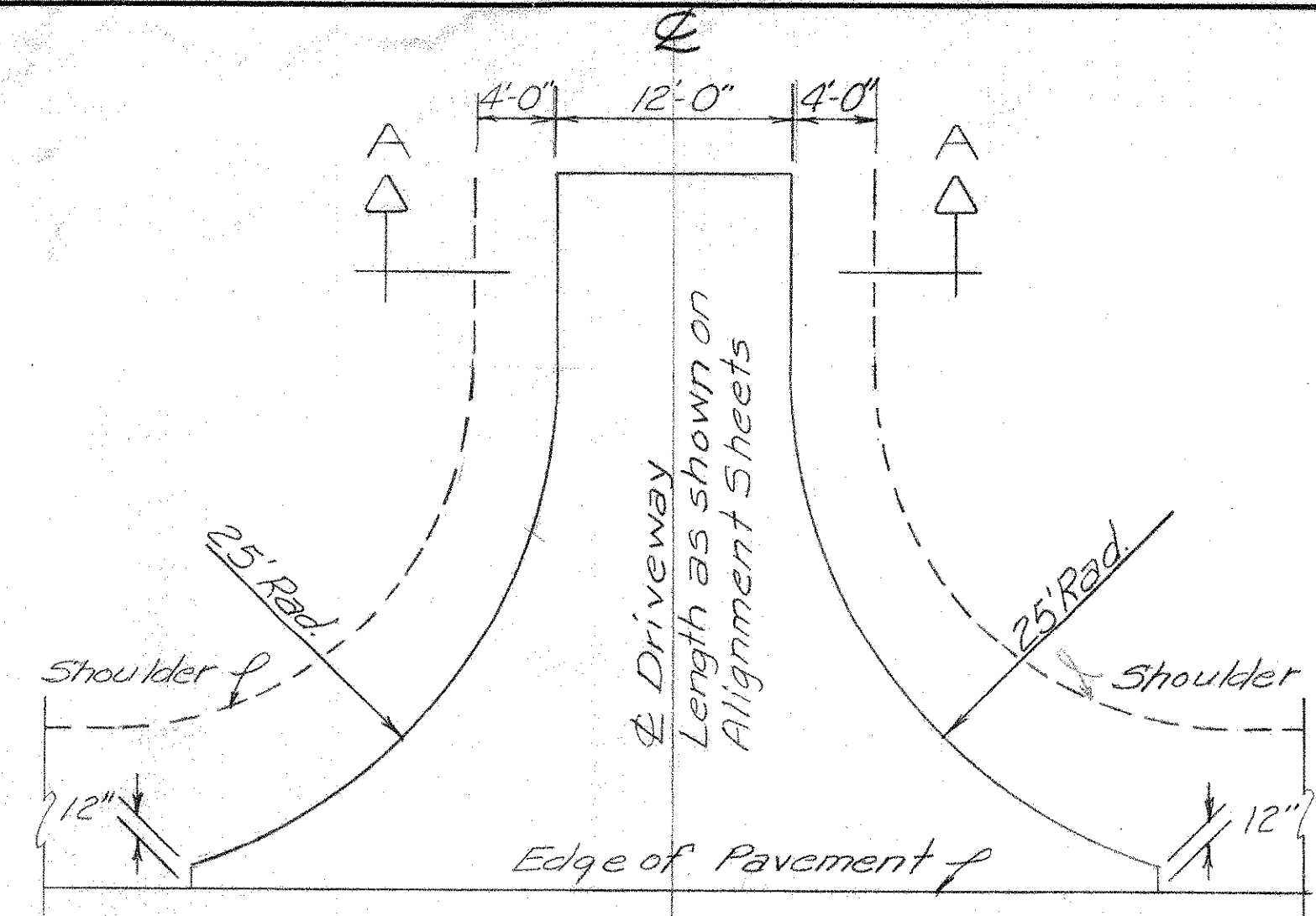


TYPICAL SUPERELEVATED SECTION (See super-elevation tables for location)

TYPICAL SECTION SCHEDULE			
Sta. 320+00.00	to	Sta. 321+00.00	Work only
321+00.00	to	322+00.00	Flare (20' to 24')
322+00.00	to	344+16.07	Typical Section
344+16.07	to	344+41.07	Approach Slab
344+41.07	to	346+89.59	Bridge Limits
346+89.59	to	347+14.59	Approach Slab
347+14.59	to	441+00.00	Typical Section
441+00.00	to	443+00.00	Taper (24' to 18')
443+00.00	to	444+00.00	Work only

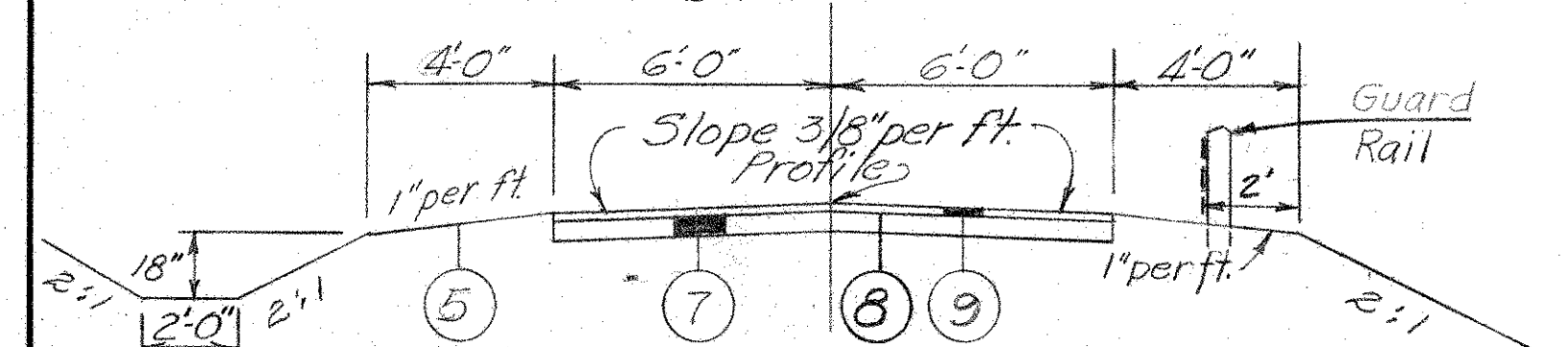
REVISION	DATE	DESCRIPTION	BY
	3/22/62	AS CONSTRUCTED	H.F.K.
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: J.C.E.		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
TRACED BY: J.C.E.			
CHECKED BY: [Signature]			
SUBMITTED BY: [Signature]			
RECOMMENDED BY: [Signature]			
APPROVED: [Signature]		DATE: NOV. 1959	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: SPEC. NO. DRAWING NUMBER 027 f - UD7-68/3 SHEET 3 of 92	

MUSKINGUM COUNTY
MUS-146-6.09



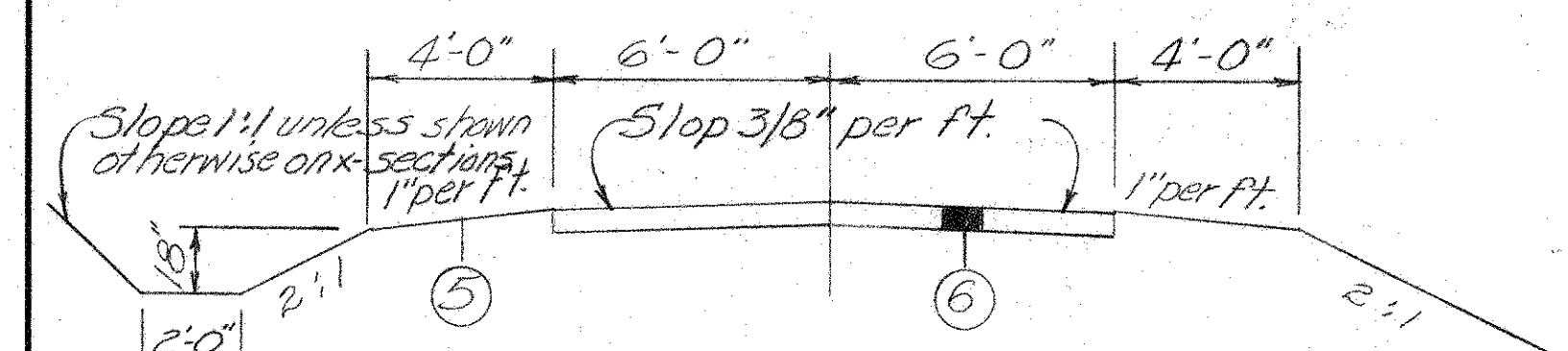
TYPICAL DRIVEWAY PLAN

For typical driveway sections, see below



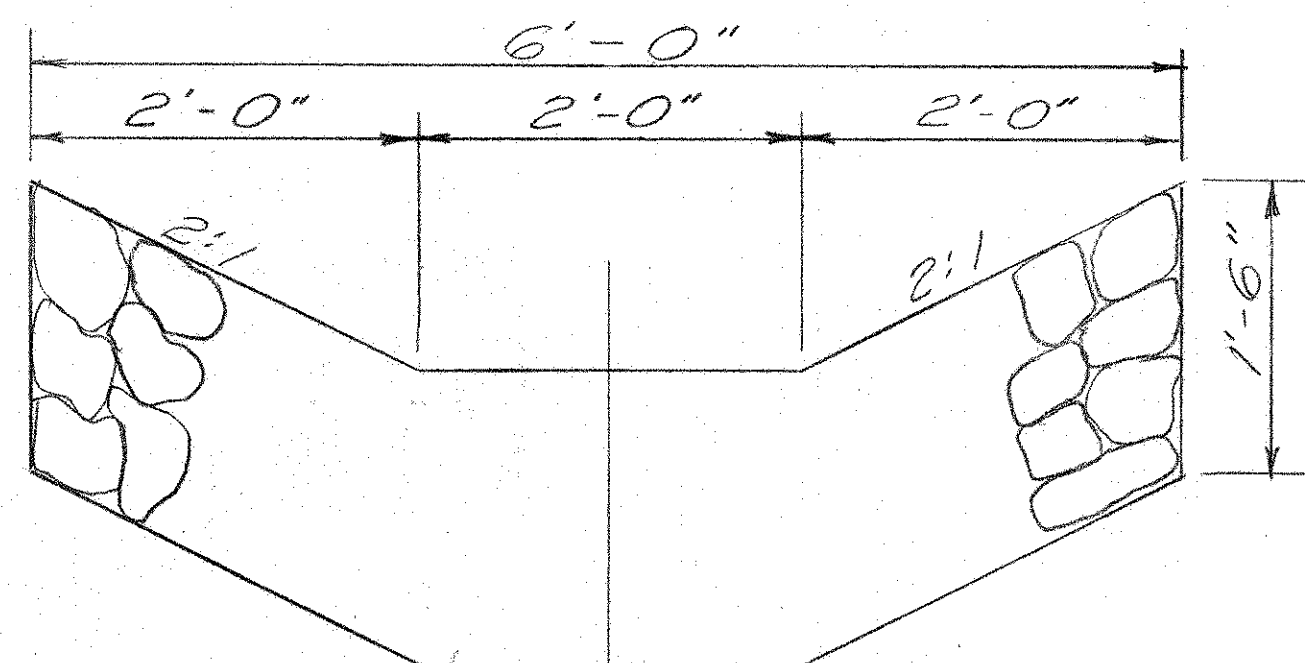
- ⑨ 2" T-35 Asphaltic Concrete Surface Course
- ⑧ - T-30 Bituminous Prime Coat, Sec. M-5.7, RT-2 or RT-3 applied at the rate of 0.4 Gal. per square yard.
- ⑦ 5" I-18 Stabilized Crushed Aggregate
- ⑤ L-9 Seeding and Protecting

SECTION "A-A" (Residence Drives)

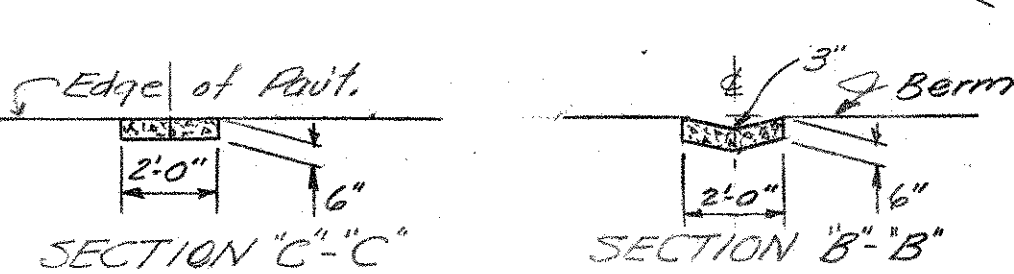
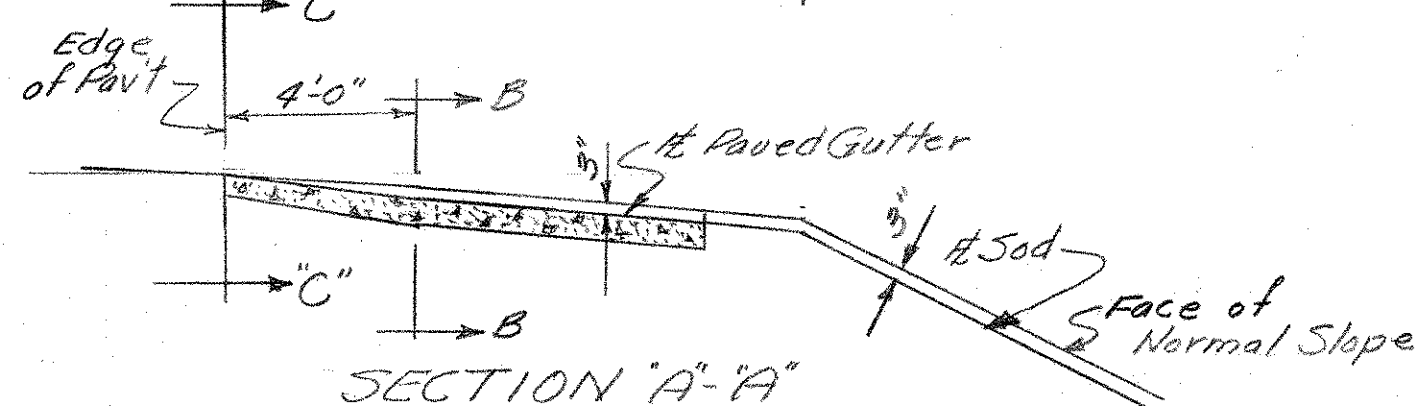
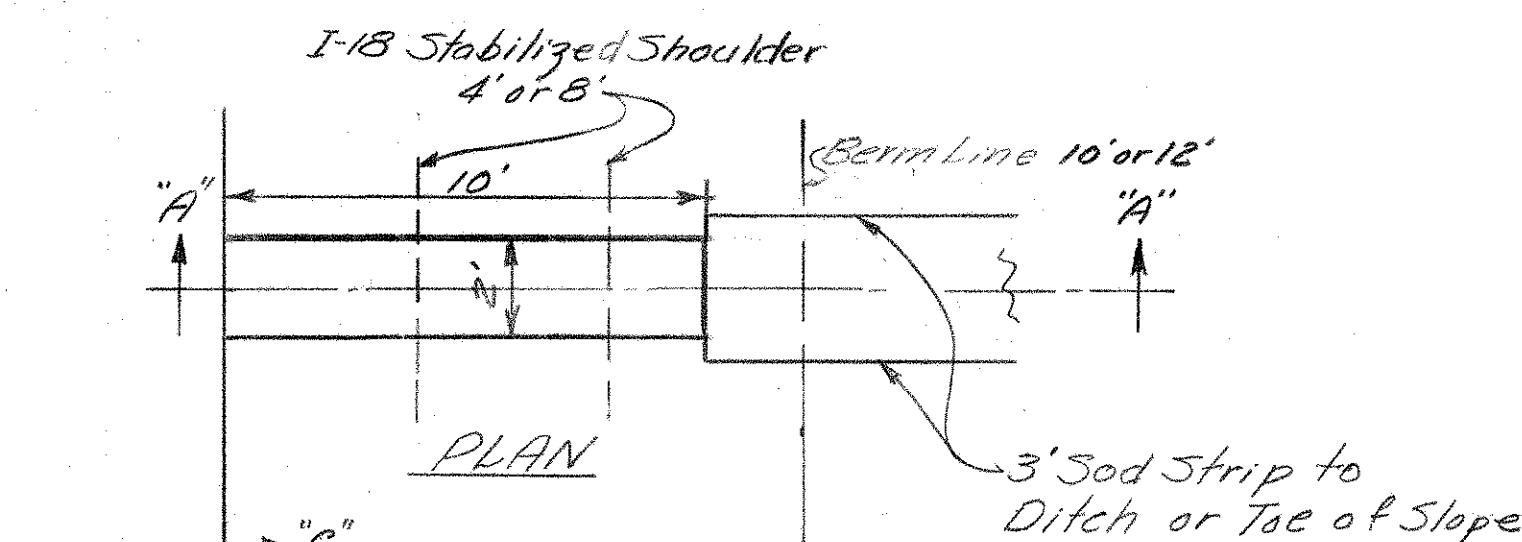


- ⑥ Item I-18 6" Stabilized Crushed Aggregate
- ⑤ Item L-9 Seeding and Protecting

SECTION "A-A" (Field Drives)

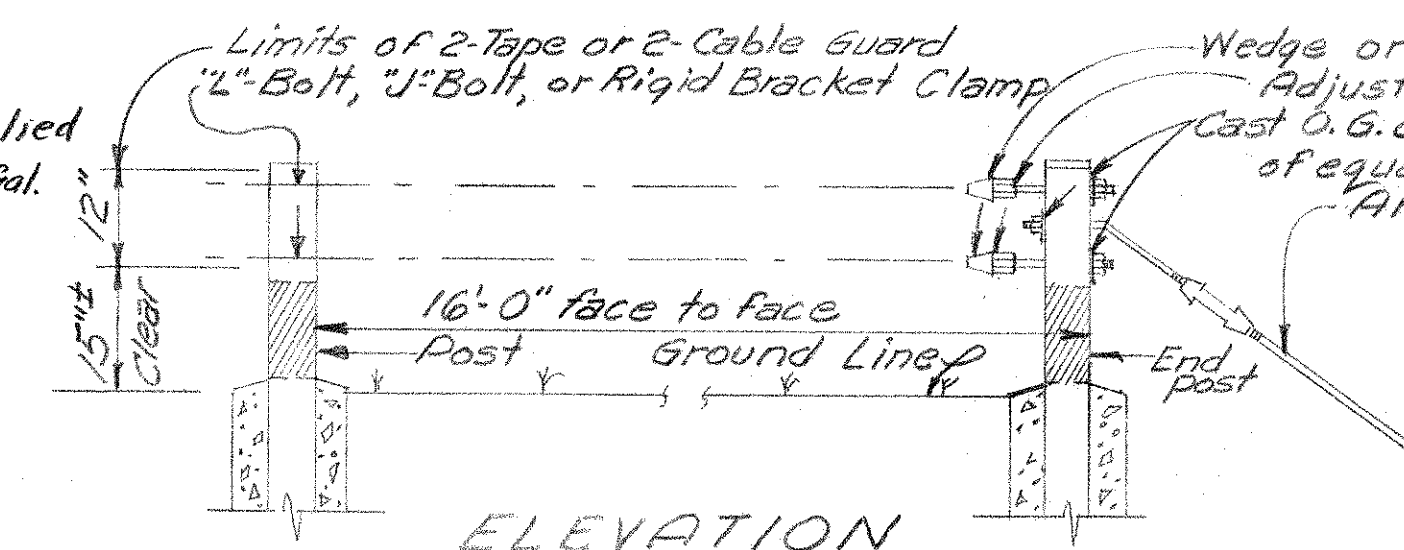


DETAIL OF DUMPED ROCK CHANNEL PROTECTION FOR ROADWAY DITCHES

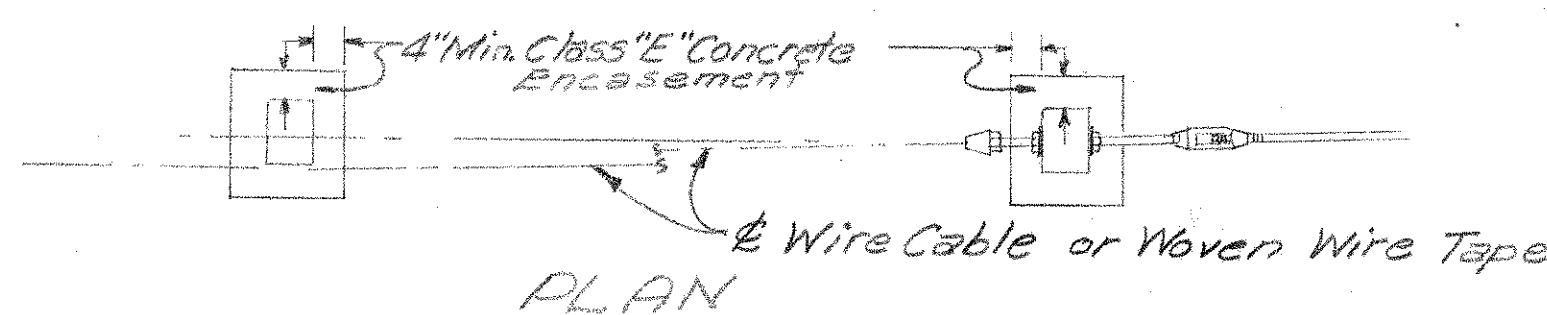


DETAIL TYPE 2 PAVED GUTTER

Note - Locations have been indicated on alignment sheets, but may be adjusted during construction to avoid guard rail posts.

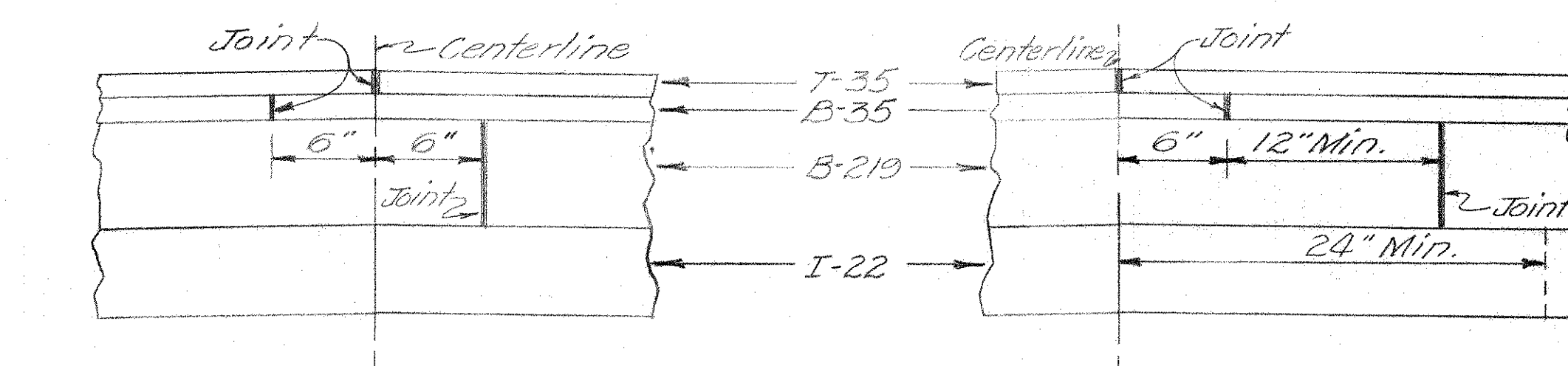


ELEVATION



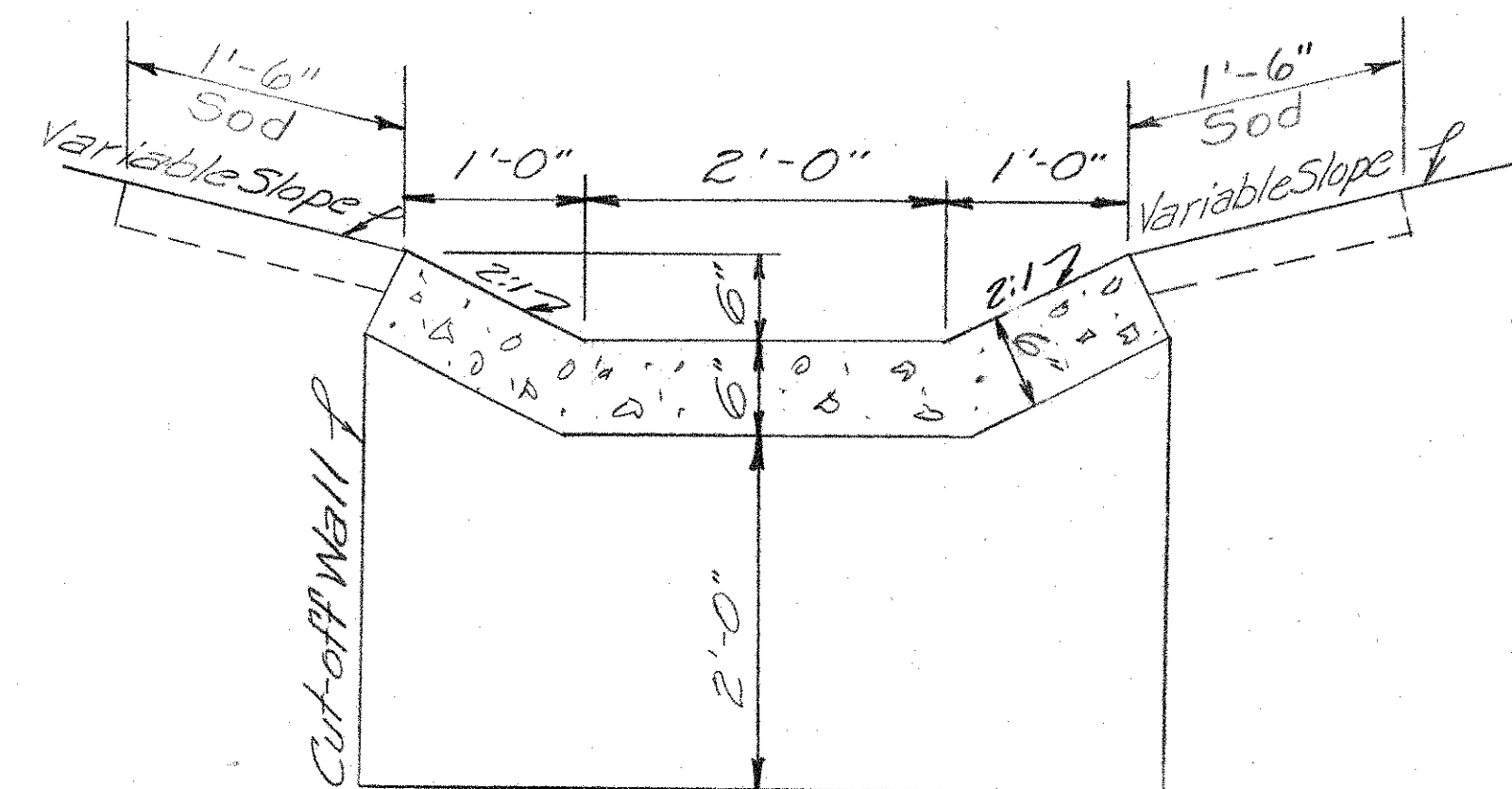
PLAN

DETAIL OF WOVEN WIRE TAPE OR WIRE CABLE TYPE GUARD RAIL

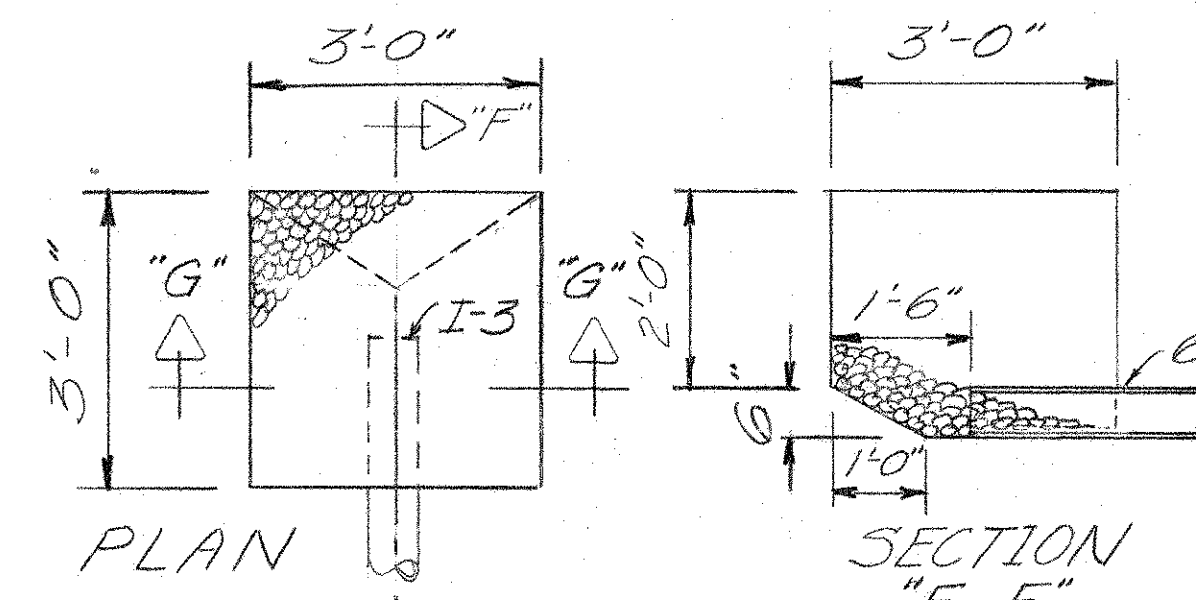


LAPPING LONGITUDINAL JOINTS FULL WIDTH CONSTRUCTION

LAPPING LONGITUDINAL JOINTS PART WIDTH CONSTRUCTION



DETAIL TYPE 1 PAVED GUTTER



Note - Spring drains have been located on the alignment sheets as accurately as field information permits. The Contracting Officer may make such adjustments in location as he deems necessary during construction.

TYPICAL DETAIL OF SPRING DRAINS

NOTES

PAVED GUTTER CONSTRUCTION: Gutters shall be constructed of Class "E" concrete.

Concrete gutters shall have impressed contraction joints spaced at intervals of 10 feet unless otherwise noted on the plan.

Concrete Cut-off walls shall be constructed at the beginning and end of each run of gutter. The cost of the cut-off walls shall be included in the unit price bid for gutter.

3/22/62	AS CONSTRUCTED	H.F.K.
REVISION	DATE	DESCRIPTION
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.		
DRAWN BY:	W.H.D.	
TRACED BY:	W.L.E.D.K., R.W.N.	
CHECKED BY:	gsw	
SUBMITTED BY:	Elmer S. Barrett	
RECOMMENDED:	Stan B. Johnson	
APPROVED:	Steven Malerich	NOV. 1959
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLCOTHE, OHIO		SCALE: 1" = 10' SPEC. NO. 0 27f-UD7-68/4
SHEET 4 OF 92		

N O T E S

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		5 92

MUSKINGUM COUNTY
MUS-146-6.09

DESIGN SPEED:

The geometrics of this project have been planned for a design speed of 60 miles per hour.

REFERENCE DATUM:

All elevations shown on these plans are in reference to North American Datum (U.S.G.S.).

TRAFFIC:

Two-way traffic shall be maintained at all times during the construction of the project.

The Contractor's attention is directed to the following sections of the Construction and Materials Specifications: G-4.05 Maintenance of Local Traffic, G-7.06 Public Convenience and Safety, G-7.07 Barricade, Danger and Warning Signs, and T-35.23 Protection of Wearing Course.

Two-way traffic shall be maintained on the existing pavement from Station 327+10 to Station 426+00. Temporary roadway shall be constructed from Station 320+00 to Station 327+10 as indicated on the cross-sections for maintenance of traffic. From Station 426+00 to Station 440+00 the sequence of construction shall be as follows:

1. Install Pipe Culvert at Station 431+75.50
 - (a) A temporary roadway will be required around culvert area due to the fact that culvert lies on top of existing pavement.
2. Excavate ditch left of centerline from Station 432+00 to Station 438+00.
3. Construct two temporary lanes around connection at Station 428+30.
4. Construct temporary road and ditch as shown on cross sections, from Station 430+50 to end work.
5. Place full width embankment and pavement from Station 428+00 to Station 430+50. Place embankment for left lane and shoulder from Station 430+50 to end of project. Place left lane of permanent pavement and stabilized shoulder from Station 430+50 to end of project.
6. Construct permanent connection between existing road and proposed road at Station 428+30.
7. Reroute traffic over connection, left lane and stabilized shoulder. Construct right lane. From Station 430+50 to end work, the temporary lane to left of permanent left lane will be constructed of I-18 material. The I-18 material will remain in place and serve as erosion control at pavement edge. Estimated quantities of T-10 Traffic Compacted Surface Course and M-10 Calcium Chloride have been included in the General Summary for the maintenance of traffic. A quantity for I-18 is included in pavement calculations.

The Contractor shall expedite the work in the areas of temporary roadways, such that the temporary roadways will be in use a minimum period of time.

Payment for construction, maintenance, and subsequent removal, wherever required, of temporary roadways, except for Item T-10 & M-10 shall be included in the lump sum price bid for Item Special, "Maintaining Traffic".

(Continued)

TRAFFIC (Continued)

The method for handling traffic described herein may be varied, subject to written approval by the Contracting Officer, provided there is no additional inconvenience to the traveling public, and no additional cost to the government.

E-9 TREE AND STUMP REMOVAL:

All trees and stumps lying within the construction limits of this project shall be removed under the lump sum bid for Removal of Trees and Stumps, Item E-9, unless work is indicated in these plans to preserve same. The following is an approximate estimate of the number of trees & stumps to be removed.

SIZES	12"-18"	18"-24"	24"-30"	30"-36"	36"-42"	42"-48"	over 48"
TREES	643	165	57	32	20	9	1
STUMPS	228	60	12	2	0	0	0

SEEDING AND PROTECTING:

Quantities for seeding, Item L-9, are calculated for the soil areas between the work limits, and payment shall not be made for seeding beyond these limits. Slopes in shale or rock shall not be seeded.

Rate of sowing and seed mixture shall conform to requirements of Sec. L-9.11. Quantity of payment shall be on final measurement after Item L-9 is completed. Channel areas and slopes in rock or shale shall not be seeded.

PREPARATION OF AREAS TO BE SODDED:

The cost of earth work necessary to accomplish the preparation of areas to be sodded shall be included in the unit price bid per sq. yd. for Item L-10 Sodding. Commercial Fertilizer shall be applied at the rate of 20 lbs per 1000 sq. ft. of area and agricultural liming materials shall be applied at the rate of 100 lbs. per 1000 sq. ft. of area. Both shall be worked into the soil prior to laying the sod. The sod bed shall have two inches of loose soil on which sod is laid after excavation for sod thickness.

PLACING SOD IN DITCHES:

All sod placed in ditches shall be laid with the long edges of the strips perpendicular to the flow line of the ditch. Successive strips shall be neatly matched and all joints staggered or broken. The sod shall be staked securely with stakes placed on a maximum two (2) ft. centers in rows not more than two (2) ft. apart. Stakes in adjacent rows shall be staggered. The stakes shall be wood from $\frac{1}{2}$ " x $\frac{3}{4}$ " x 12" to 1" x 1" x 24", as required to hold the sod and shall be driven flush with the top of the sod.

PAVED OR SODDED DITCHES:

Paved or sodded ditches have been provided for all waterways where erosion may occur. The Contracting Officer may make minor relocations or he may omit paving or sodding if conditions encountered during construction warrant such action.

NORMAL SHOULDERS AND DITCH CONSTRUCTION:

All angles of change of slope shall be rounded as shown on typical sections.

AGRICULTURAL LIMING MATERIALS

The location and need for agricultural liming materials will be determined by

laboratory tests, after rough grading operations have been performed. Quantities of agricultural liming material, as shown on the plans, are sufficient for the entire project, but will be non-performed for the areas where tests show that the liming material is not needed.

PRESERVATION AND RESTORATION OF CORNERSTONES, MONUMENTS & LAND MARKS:

Existing cornerstones, monuments and landmarks within the Right of Way of the proposed highway shall be protected, referenced and preserved or replaced as outlined in Sec. G-7.09 of the Construction and Material Specifications except that payment to the Contractor for work incidental to the installation of cornerstones, monuments, and landmarks shall be included in unit price bid for Item E-1, "Roadway Excavation, Method A, Unclassified".

REPLACEMENT:

The Contractor will be required to replace in kind, at his own expense, any sidewalk, pavement, walls, castings or similar item outside the work limits shown on the plans that may be damaged by his operations or equipment during construction of this project.

REMOVALS:

All items marked for removal shall become the property of the Contractor, unless otherwise noted, and shall be disposed of by him.

SCARIFICATION OF EXISTING FLEXIBLE PAVEMENT:

Within the limits of construction where the flexible pavement will have less than six (6) inches of fill placed upon it, the pavement shall be thoroughly scarified for its full depth, mixed with sufficient soil and properly recompact to insure elimination of any planes of separation between it and the embankment placed thereon. Payment for scarification as described above shall be included in the unit price bid for Item E-1, "Roadway Excavation, Method A, Unclassified".

FENCES:

The Contractor shall notify the affected owners at least 7 days prior to the removal of any fences within the construction limits.

UTILITIES:

Existing telephone facilities located within the proposed Right of Way are to be relocated or adjusted as a part of this contract. Existing power facilities located within the proposed Right of Way are to be relocated or adjusted as a part of this contract. Existing gas lines located within the proposed Right of Way shall be removed, relocated or adjusted as a part of this contract.

Utilities owners:

Ohio Bell Telephone Co., Ohio Fuel Gas Co., Guernsey-Muskingum Elec. Co.

	3/22/62	AS CONSTRUCTED	H.F.K.
REVISION	DATE	DESCRIPTION	BY
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY:		LICKING RIVER DILLON RESERVOIR PROJECT	
TRACED BY: <i>ELMER</i>		RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
CHECKED BY: <i>ELMER</i>		DATE: NOV. 1959	
SUBMITTED BY: <i>Elmer S. Barrett</i>		APPROVED: <i>Steven Malenich</i>	
ELMER S. BARRETT ASSOCIATES		COL. C.E. DISTRICT ENGINEER	
RECOMMENDED: <i>Don L. Johnson</i>		SPEC. NO.	
for CHIEF ENG. DIV.		DRAWING NUMBER	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		0 27f-UD 7-68/5	
SCALE:		SHEET 5 of 92	

WORK AS CONSTRUCTED NOTES

N O T E S

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

6
92

MUSKINGUM COUNTY
MUS-146-6.09

UTILITIES (Continued)

The Contractor shall notify, at least 96 hours before breaking ground, all public service corporations having wires, poles, pipes, conduits, man-holes or other structures that may be affected by this operation.

UNDERGROUND UTILITIES:

The location of the underground utilities shown on these plans have been obtained by a diligent field check and a search of available records. It is believed that they are essentially correct, but the United States of America makes no guarantees as to their accuracy or completeness.

* GAS LINE ENCASEMENT

Where Item Special, Pipe for Encasement, is called for on these plans, the operations for the completion of this Item shall be performed in accordance with the following sections of the State of Ohio Department of Highways, Construction and Material Specifications:

- Excavation shall conform to Sec. E-2
- Field joints shall be specified in Sec. M-6.4(a) 9.
- Backfilling shall conform to Sec. E-2

This Item shall be paid for at the unit price bid per linear foot, measured in place, of each size of pipe for "Item Special, Pipe for Encasement" which price shall constitute full compensation for furnishing, preparing and placing all materials and for all labor, equipment, tools, and incidentals necessary to complete this Item.

Payment for adjusting the existing gas line to be encased shall be included in the lump sum bid for "Item Special, Gas Line Removed, Relocated or Adjusted."

DRIVEWAYS:

The number and location of driveways shown on these plans are according to the needs at the time the plans were being prepared.

The Contracting Officer may adjust, relocate, or non-perform driveway construction, dependent upon the needs as determined by the Contracting Officer at the time the work is being performed.

I-9 STONE UNDERDRAINS NO. 2:

Stone underdrains No. 2 have been provided to drain the base of all sections of pavement.

These stone underdrains shall be placed at intervals of 50 ft. on each side of the pavement and staggered, except in superelevated sections where they shall be placed at intervals of 25 feet on the low side only. Extreme care shall be exercised to secure adequate outlets for the stone underdrains. Outlets must be free of straw or earth after seeding operation. Cost of cleaning straw or earth from the outlets shall be included in the unit price bid per square yard for Item L-9, Seeding and Protecting.

SUBBASE DRAINAGE IN ROCK OR SHALE:

In lieu of the provisions of Sec. E-1.05(b) the subbase shall be extended only 6 inches beyond the edges of B-219 Base in areas where rock, shale or coal is encountered in the subgrade.

Drainage for the I-22 Subbase shall be provided using I-9 Stone Underdrains as indicated on the typical sections.

ITEM I-22 SUBBASE MATERIAL FOR FILTER:

In the event that the full width of embankment is made of rock in lieu of only facing the embankment with rock as shown on the cross-sections, that portion of I-22 - Subbase Material for Filter, as shown near the outer surface of such full width rock embankment, shall be non-performed.

ITEM I-10 DUMPED ROCK FILL EMBANKMENT PROTECTION

Rock shall be placed on the fill slopes as shown on the drawings. Such rock shall consist of sound and durable rock and shall be carefully dumped in place with the larger rock at the outer face and the smaller rock and spalls near the face of the slope. Care should be exercised in dumping the rock to insure a reasonably smooth and continuous surface and to conform to the slope lines indicated on the drawings.

At least 50 % of the pieces of rock shall weigh at least 75 pounds.

ROCK SUBGRADE:

The Contractor will be paid for the thickness shown on the typical sections of I-22 material in rock excavation areas. All irregularities in the rock below the subbase shall be filled with I-22 material at no additional cost to the United States of America. The Contractor shall drain all pockets in the subgrade either longitudinally or laterally.

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 super-elevation equals twice the crown.

HEAVY EQUIPMENT:

The Contractor shall exercise care in the use of heavy equipment over finished work and will be required to remove and replace any completed work destroyed thereby.

Culverts shall be back filled to a height of four feet before loaded earth-moving equipment is permitted to cross the trench. Any additional fill and subsequent excavation required to provide this minimum cover shall be made at no additional cost to the government.

Heavy equipment shall not be operated over any completed layer of embankment, compacted subgrade, or subbase if such operation tends to destroy the soil structure or pipe underdrains; however, if such operation can not be avoided, the Contractor shall be required to reduce the size of loads to the extent that damage does not occur.

BORROW AREAS

All borrow areas shall be provided by, and at the expense of, the Contractor.

NON-RIGID PAVEMENT REMOVAL:

Removal and Disposal of existing non-rigid pavement will be measured and paid for as Item E-1 "Roadway Excavation, Method A, Unclassified."

ROCK EXCAVATION:

The Contractor's attention is directed to Sec. E-1.05(b) & E-1.05(c) of the Construction & Material Specifications.

PART-WIDTH CONSTRUCTION:

Because of the necessity of building this project under traffic & constructing the pavement part at a time, at certain locations, extreme care shall be taken to prevent the construction of a butt joint on the centerline.

This shall be accomplished as per detail for lapping longitudinal joints as shown on Sheet No. 4 of these plans. When the second portion of the pavement is built, care shall be exercised to insure that the projecting courses are broken down and thoroughly keyed in with the newly placed corresponding courses in the second portion of the pavement built.

Payment for this operation shall be included in the unit price bid for the pertinent pavement items.

BUILDING REMOVAL

The Contractor shall be responsible for the removal of all buildings located within the right-of-way.

3/22/62		AS CONSTRUCTED		H.F.K.	
REVISION	DATE	DESCRIPTION			BY
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.					
DRAWN BY:		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)			
TRACED BY: <i>RWR.</i>					
CHECKED BY: <i>AW</i>					
SUBMITTED BY: <i>Elmer S. Barrett</i>					
RECOMMENDED: <i>Ray E. Johnson</i>		APPROVED: <i>Steven Malovich</i>		DATE: NOV. 1959	
CHIEF ENG. DIV.		COL. C.E. DISTRICT ENGINEER			
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO				SCALE:	SPEC. NO. DRAWING NUMBER 0 27f-UD 7-68/6
				SHEET	6 of 92

SUPERELEVATION TABLES

MUSKINGUM COUNTY
MUS-1.46 - G.09

STATION	PROFILE GRADE	12' LEFT	Q	12' RIGHT
323+00	862.44	862.25	862.44	862.25
323+25	861.96	861.85	861.96	861.77
+50	861.45	861.43	861.45	861.26
+75	860.89	860.95	860.89	860.70
P.C. 323+90.75	860.52	860.63	860.52	860.33
324+00	860.30	860.45	860.30	860.11
+25	859.66	859.93	859.70	859.47
+50	858.98	859.25	859.02	858.79
+75	858.27	858.54	858.31	858.08
325+00	857.52	857.79	857.56	857.33
+25	856.72	856.99	856.76	856.53
+50	855.89	856.16	855.93	855.70
+75	855.01	855.28	855.05	854.82
326+00	854.10	854.37	854.14	853.91
+25	853.15	853.42	853.19	852.96
+50	852.16	852.43	852.20	851.97
+75	851.12	851.39	851.16	850.93
327+00	850.05	850.32	850.09	849.86
+25	848.94	849.21	848.98	848.75
+50	847.79	848.06	847.83	847.60
+75	846.60	846.87	846.64	846.41
328+00	845.37	845.64	845.41	845.18
+25	844.12	844.39	844.16	843.93
+50	842.87	844.14	843.91	842.68
+75	841.62	841.89	841.66	841.43
329+00	840.37	840.64	840.41	840.18
+25	839.12	839.39	839.16	838.93
+50	837.87	838.14	837.91	837.68
+75	836.62	836.89	836.66	836.43
330+00	835.37	835.64	835.41	835.18
+25	834.12	834.39	834.16	833.93
+50	832.87	833.14	832.91	832.68
+75	831.62	831.89	831.66	831.43
331+00	830.37	830.64	830.41	830.18
+25	829.12	829.39	829.16	828.93
+50	827.87	828.14	827.91	827.68
+75	826.62	826.89	826.66	826.43
332+00	825.37	825.64	825.41	825.18
+25	824.12	824.39	824.16	823.93
+50	822.87	823.14	822.91	822.68
+75	821.62	821.89	821.66	821.43
333+00	820.37	820.64	820.41	820.18
+25	819.12	819.39	819.16	818.93
+50	817.87	818.14	817.91	817.68
+75	816.62	816.89	816.66	816.43
334+00	815.37	815.64	815.41	815.18
+25	814.12	814.39	814.16	813.93
+50	812.87	813.14	812.91	812.68
+75	811.62	811.89	811.66	811.43
335+00	810.37	810.64	810.41	810.18
+25	809.12	809.39	809.16	808.93
+50	807.87	808.14	807.91	807.68
+75	806.62	806.89	806.66	806.43
336+00	805.37	805.64	805.41	805.18
+25	804.12	804.39	804.16	803.93
+50	802.87	803.14	802.91	802.68
+75	801.62	801.89	801.66	801.43
337+00	800.37	800.64	800.41	800.18
+25	799.12	799.39	799.16	798.93
+50	797.87	798.14	797.91	797.68
+75	796.62	796.89	796.66	796.43
338+00	795.37	795.64	795.41	795.18
+25	794.12	794.39	794.16	793.93
+50	792.87	793.14	792.91	792.68
+75	791.62	791.89	791.66	791.43
339+00	790.37	790.64	790.41	790.18
+25	789.12	789.39	789.16	788.93
+50	787.87	788.14	787.91	787.68
+75	786.62	786.89	786.66	786.43
340+00	785.37	785.64	785.41	785.18

STATION	PROFILE GRADE	12' LEFT	Q	12' RIGHT
340+25	792.82	793.09	792.86	792.63
+50	792.55	792.82	792.59	792.36
+75	792.35	792.62	792.39	792.16
341+00	792.20	792.47	792.24	792.01
+25	792.10	792.37	792.14	791.91
+50	792.04	792.30	792.07	791.84
+75	791.96	792.23	792.00	791.77
342+00	791.89	792.16	791.93	791.70
+25	791.82	792.09	791.86	791.63
+50	791.75	792.02	791.79	791.56
+75	791.68	791.95	791.72	791.49
343+00	791.61	791.88	791.65	791.42
+25	791.54	791.81	791.58	791.35
+50	791.47	791.74	791.51	791.28
+75	791.40	791.67	791.44	791.21
344+00	791.33	791.60	791.37	791.14
+25	791.26	791.53	791.30	791.07
+50	791.19	791.46	791.23	791.00
+75	791.12	791.39	791.16	790.93
345+00	791.05	791.32	791.09	790.86
+25	790.98	791.25	791.02	790.79
+50	790.91	791.18	790.95	790.72
+75	790.84	791.11	790.88	790.65
346+00	790.77	791.04	790.81	790.58
+25	790.70	790.97	790.74	790.51
+50	790.63	790.90	790.67	790.44
+75	790.56	790.83	790.60	790.37
347+00	790.49	790.76	790.53	790.30
+25	790.43	790.70	790.47	790.24
+50	790.37	790.64	790.41	790.18
+75	790.32	790.59	790.36	790.13
348+00	790.26	790.53	790.30	790.07
+25	790.22	790.49	790.26	790.03
+50	790.18	790.45	790.22	789.99
+75	790.14	790.41	790.18	789.95
349+00	790.11	790.38	790.15	789.92
+25	790.08	790.35	790.12	789.89
+50	790.05	790.32	790.09	789.86
+75	790.04	790.31	790.08	789.85
350+00	790.02	790.29	790.06	789.83
+25	790.01	790.28	790.05	789.82
+50	790.00	790.27	790.04	789.81
+75				
351+00				
+25				
+50		790.27	790.04	
+75		790.21	790.01	
352+00		790.16	790.00	
P.T. +05.13				
+25		790.10	790.00	
+50		790.04		
+75		789.98		
353+00		789.93		
+25		789.87		
+50		789.81		
+75	790.00	789.81	790.00	789.81

STATION	PROFILE GRADE	12' LEFT	Q	12' RIGHT
377+50	790.80	790.61	790.80	790.61
+75	790.90	790.76	790.90	790.71
378+00	791.00	790.91	791.00	790.81
+25	791.00	791.06	791.10	790.91
T.S. +43.71	791.17	791.17	791.17	790.98
+58.71	791.23	791.27	791.23	791.04
+73.71	791.29	791.38	791.29	791.10
+88.71	791.35	791.49	791.35	791.16
379+03.71	791.41	791.60	791.41	791.22
+18.71	791.47	791.70	791.49	791.28
+33.71	791.53	791.81	791.57	791.34
+48.71	791.59	791.92	791.66	791.40
+63.71	791.65	792.03	791.74	791.46
+78.71	791.71	792.13	791.83	791.52
+93.71	791.77	792.24	791.91	791.58
380+08.71	791.83	792.35	792.00	791.64
+23.71	791.89	792.46	792.08	791.70
+38.71	791.95	792.56	792.16	791.76
+53.71	792.01	792.67	792.25	791.82
+68.71	792.07	792.78	792.33	791.88
+83.71	792.12	792.88	792.41	791.93
+98.71	792.18	792.98	792.49	791.99
381+13.71	792.24	793.09	792.58	792.05
+28.71	792.28	793.18	792.64	792.09
50 +43.71	792.32	793.26	792.70	792.13
+50	792.34	793.29	792.72	792.15
+75	792.40	793.35	792.78	792.21
382+00	792.44	793.39	792.82	792.25
+25	792.47	793.42	792.85	792.28
+50	792.49	793.44	792.87	792.30
+75	792.50	793.45	792.88	792.31
383+00	792.49	793.44	792.87	792.30
+25	792.47	793.42	792.85	792.28
+50	792.44	793.39	792.82	792.25
+75	792.40	793.35	792.78	792.21
384+00	792.34	793.29	792.72	792.15
+25	792.27	793.22	792.65	792.08
+50	792.19	793.14	792.57	792.00
+75	792.10	793.05	792.48	791.91
385+00	792.00	792.95	792.38	791.81
+25	791.90	792.85	792.28	791.71
+50	791.80	792.75	792.18	791.61
+75	791.70	792.65	792.08	791.51
386+00	791.60	792.55	791.98	791.41
+25	791.50	792.45	791.88	791.31
+50	791.40	792.35	791.78	791.21
+75	791.30	792.25	791.68	791.11
387+00	791.20	792.15	791.58	791.01
+25	791.10	792.05	791.48	790.91
+50	791.00	791.95	791.38	790.81
+75	790.90	791.85	791.28	790.71
388+00	790.80	791.75	791.18	790.61
+25	790.70	791.65	791.08	790.51
+50	790.60	791.55	790.98	790.41
+75	790.50	791.45	790.88	790.31
389+00	790.42	791.37	790.80	790.23
+25	790.34	791.29	790.72	790.15
+50	790.27	791.22	790.65	790.08
+75	790.20	791.15	790.58	790.01
390+00	790.15	791.10	790.53	789.96
+25	790.10	791.05	790.48	789.91
+50	790.07	791.02	790.45	789.88
+75	790.04	790.99	790.42	789.85
391+00	790.02	790.97	790.40	789.83
+25	790.00	790.95	790.38	789.81
G.S. +43.71	790.00	790.95	790.38	789.81
+58.71	790.00	790.96	790.36	789.81
+73.71	790.00	790.85	790.33	789.81
+88.71	790.01	790.81	790.32	789.82
392+03.71	790.01	790.77	790.30	789.82

STATION	PROFILE GRADE	12' LEFT ℄	℄	12' RIGHT ℄
392+18.71	790.03	790.74	790.29	789.84
+33.71	790.04	790.70	790.28	789.85
+48.71	790.06	790.67	790.27	789.87
+63.71	790.08	790.65	790.27	789.89
+78.71	790.11	790.63	790.28	789.92
+93.71	790.13	790.60	790.27	789.94
393+08.71	790.16	790.58	790.28	789.97
+23.71	790.20	790.58	790.29	790.01
+38.71	790.23	790.56	790.30	790.04
+53.71	790.27	790.55	790.31	790.08
+68.71	790.31	790.54	790.33	790.12
+83.71	790.36	790.55	790.36	790.17
+98.71	790.41	790.55	790.41	790.22
394+13.71	790.46	790.55	790.46	790.27
+28.71	790.51	790.55	790.51	790.32
S.T. +43.71	790.57	790.57	790.57	790.38
+50	790.60	790.58	790.60	790.41
+75	790.70	790.63	790.70	790.51
395+00	790.80	790.67	790.80	790.61
+25	790.90	790.71	790.90	790.71

MUSKINGUM COUNTY
MUS-146-6.09

SUPERELEVATION TABLES

STATION	PROFILE GRADE	12' LEFT	12' RIGHT
402+50	792.39	792.20	792.39
+75	792.30	792.11	792.30
403+00	792.20	792.01	792.20
+25	792.10	791.91	792.10
403+48.05	792.01	791.82	792.01
+68.05	791.93	791.74	791.93
+88.05	791.85	791.66	791.85
404+08.05	791.77	791.58	791.77
+28.05	791.69	791.50	791.69
+48.05	791.61	791.42	791.61
+68.05	791.53	791.34	791.53
+88.05	791.45	791.26	791.45
405+08.05	791.37	791.18	791.37
+28.05	791.29	791.10	791.29
405+48.05	791.21	791.02	791.21
+50	791.10	790.91	791.10
+75	791.00	790.81	791.00
406+00	790.90	790.71	790.90
+25	790.80	790.61	790.80
+50	790.70	790.51	790.70
407+00	790.61	790.42	790.61
+25	790.53	790.34	790.53
+50	790.45	790.26	790.45
+75	790.38	790.19	790.38
408+00	790.31	790.12	790.31
+25	790.25	790.06	790.25
+50	790.20	790.01	790.20
+75	790.15	789.96	790.15
409+00	790.11	789.92	790.11
+25	790.08	789.89	790.08
+50	790.05	789.86	790.05
+75	790.03	789.84	790.03
410+00	790.01	789.82	790.01
+25	790.00	789.81	790.00
+50			
+75			
411+00			
+25			
+50			
+75			
412+00			
+25			
+50			
+75			
413+00			
+25			
+50			
+75			
414+00			
+25			
+50			
+75			
415+00			
+25			
+50			
+75			
416+00			
+25			
+50			
+75			
417+00			
+25			
+50			
+75			
418+00			
+25			
+50			
+75			
419+00	790.00	789.81	790.00

STATION	PROFILE GRADE	12' LEFT	12' RIGHT
419+25	790.01	789.82	790.01
+50	790.03	789.84	790.03
+75	790.05	789.86	790.05
420+00	790.08	789.89	790.08
+25	790.11	789.92	790.11
+50	790.15	789.96	790.15
+75	790.20	790.01	790.20
421+00	790.25	790.06	790.25
+25	790.31	790.12	790.31
+50	790.38	790.19	790.38
+75	790.45	790.26	790.45
422+00	790.53	790.34	790.53
+25	790.61	790.42	790.61
+50	790.70	790.51	790.70
+75	790.80	790.61	790.80
423+00	790.90	790.71	790.90
+25	791.00	790.81	791.00
+50	791.10	790.91	791.10
+75	791.20	791.01	791.20
424+00	791.30	791.11	791.30
+25	791.40	791.21	791.40
+50	791.50	791.31	791.50
+75	791.60	791.41	791.60
425+00	791.70	791.51	791.70
+25	791.80	791.61	791.80
+50	791.90	791.71	791.90
+75	792.00	791.81	792.00
426+00	792.10	791.91	792.10
+25	792.20	792.01	792.20
+50	792.30	792.11	792.30
+75	792.40	792.21	792.40
427+00	792.50	792.31	792.50
+25	792.60	792.41	792.60
+50	792.70	792.51	792.70
+75	792.80	792.61	792.80
428+00	792.90	792.71	792.90
+25	793.00	792.81	793.00
+50	793.10	792.91	793.10
+75	793.20	793.01	793.20
429+00	793.30	793.11	793.30
+25	793.40	793.21	793.40
+50	793.50	793.31	793.50
+75	793.60	793.41	793.60
430+00	793.70	793.51	793.70
+25	793.80	793.61	793.80
+50	793.90	793.71	793.90
+75	794.00	793.81	794.00
431+00	794.10	793.91	794.10
+25	794.20	794.01	794.20
+50	794.30	794.11	794.30
+75	794.40	794.21	794.40
432+00	794.50	794.31	794.50
+25	794.60	794.41	794.60
+50	794.73	794.54	794.73
+75	794.92	794.73	794.92
433+00	795.16	794.97	795.16
+25	795.46	795.27	795.46
+50	795.82	795.63	795.82
+75	796.24	796.05	796.24
434+00	796.71	796.52	796.71
+25	797.24	797.05	797.24
+50	797.83	797.64	797.83
+75	798.48	798.29	798.48
435+00	799.18	798.99	799.18
+25	799.94	799.75	799.94
+50	800.76	800.57	800.76
+75	801.64	801.45	801.64
436+00	802.57	802.38	802.57
+25	803.56	803.37	803.56
+50	804.61	804.42	804.61

STATION	PROFILE GRADE	12' LEFT	12' RIGHT
436+75	805.72	805.53	805.72
437+00	806.88	806.69	806.88
+25	808.10	807.91	808.10
+50	809.35	809.16	809.35
438+75	809.59	809.40	809.59
+74.72	810.59	810.40	810.59
+94.72	811.59	811.40	811.59
438+14.72	812.59	812.40	812.59
+34.72	813.59	813.40	813.59
+54.72	814.59	814.40	814.59
+74.72	815.59	815.40	815.59
+94.72	816.59	816.40	816.59
439+14.72	817.59	817.40	817.59
+34.72	818.59	818.40	818.59
ST. +54.72	819.59	819.40	819.59
+75	820.66	820.47	820.66
440+00	822.09	821.90	822.09
+25	823.63	823.44	823.63
+50	825.30	825.11	825.30

3/22/62		AS CONSTRUCTED	H.F.K.
REVISION	DATE	DESCRIPTION	BY
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: EK		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO.146 (Section 3)	
TRACED BY: EK			
CHECKED BY: <i>sfw</i>			
SUBMITTED BY: <i>Elmer S. Barrett</i>			
RECOMMENDED BY: <i>Don S. Johnson</i>		APPROVED: <i>Steven Malovich</i>	
CHIEF ENG. DW		COL. C. E. DISTRICT ENGINEER	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: SPEC. NO. DRAWING NUMBER 027f - UD7 - 68/8 SHEET 8 OF 92	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

MUSKINGUM COUNTY
MUS-146- 6.09

9
92

*Quantities carried to Sh.No. 10

The award of the contract will be for Total Project (Schedules "A" & "B")

	3/22/62	AS CONSTRUCTED	H.F.
REVISION	DATE	DESCRIPTION	BY
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: <i>SPW</i> TRACED BY: <i>SPW</i> CHECKED BY: <i>F.H.S.</i> SUBMITTED BY: <i>Elmer S. Barrett</i> ELMER S. BARRETT ASSOCIATES	LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO.146 (Section 3)		
RECOMMENDED: <i>Don Johnson</i> CHIEF ENG. DIV.	APPROVED: <i>Steven Malerich</i> COL. C.E. DISTRICT ENGINEER	DATE: NOV. 1959	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE:	SPEC. NO. DRAWING NUMBER 027f-UD 7-68/9 SHEET 9 OF 92

SUMMARY OF QUANTITIES

	Item T-35	Item T-35	Item B-35	Item B-219	Item I-22	Item I-18	Item I-18	Item I-18	Item I-9		Item T-35	Item T-35	Item B-35	Item B-219	Item I-22	Item I-18	Item I-18	Item I-18	Item I-9
	1 1/2" Asphaltic Concrete Surface Course	2" Asphaltic Concrete Surface Course	1 1/2" Asphaltic Concrete Leveling Course	6" Water-Prooved Aggregate Base Course	5" Subbase	5" Stabilized Crushed Aggregate for Shoulders & Approaches	6" Stabilized Crushed Aggregate for Shoulders & Approaches	8" Stabilized Crushed Aggregate for Shoulders & Approaches	Stone Under-Drains No. 2		1 1/2" Asphaltic Concrete Surface Course	2" Asphaltic Concrete Surface Course	1 1/2" Asphaltic Concrete Leveling Course	6" Water-Prooved Aggregate Base Course	5" Subbase	5" Stabilized Crushed Aggregate for Shoulders & Approaches	6" Stabilized Crushed Aggregate for Shoulders & Approaches	8" Stabilized Crushed Aggregate for Shoulders & Approaches	Stone Under-Drains No. 2
	S. Y.	S. Y.	S. Y.	S. Y.	S. Y.	S. Y.	S. Y.	S. Y.	L. F.		S. Y.	S. Y.	S. Y.	S. Y.	S. Y.	S. Y.	S. Y.	S. Y.	L. F.
SCHEDULE "A" (UNITED STATES OF AMERICA)										SCHEDULE "A" + "B" (TOTAL PROJECT)									
STA. 323+00 TO STA. 344+16.07 = 2,116.07 L.F.										STA. 321+00 TO STA. 322+00 = 100.00 L.F.									
STA. 347+14.59 TO STA. 441+00.00 = 9,355.41 L.F.										100.00 x (20+24) ÷ 9	244.44		244.44						
11,501.48 x 20 ÷ 9	25,558.84		25,558.84							100.00 x (21+25) ÷ 9				255.55					
11,501.48 x 21 ÷ 9				26,836.78						100.00 x (22+26) ÷ 9					266.66				
11,501.48 x 22 ÷ 9					28,114.73				4,371	100.00 x 13.5 ÷ 25									54
11,501.48 x 9.5 ÷ 25										STA. 322+00 TO STA. 344+16.07 = 2,216.07 L.F.									
STA. 441+00 TO STA. 442+00 = 100.00 L.F.										STA. 347+14.59 TO STA. 441+00 = 9,355.41 L.F.									
100.00 x 20 ÷ 9	222.22		222.22							11,601.48 L.F.									
100.00 x 21 ÷ 9				233.33						11,601.48 x 24 ÷ 9	30,937.28		30,937.28						
100.00 x 22 ÷ 9					244.44					11,601.48 x 25 ÷ 9				32,226.33					
100.00 x 9.5 ÷ 25									38	11,601.48 x 26 ÷ 9					33,515.39				
STA. 442+00 TO STA. 443+00 = 100.00 L.F.										11,601.48 x 13.5 ÷ 25									6,265
100.00 x 19.5 (AVG) ÷ 9	216.67		216.67							STA. 441+00 TO STA. 442+00 = 100.00 L.F.									
100.00 x 20.5 (AVG) ÷ 9				227.78						100.00 x (24+28.5) ÷ 9	258.33		258.33						
100.00 x 21.5 (AVG) ÷ 9					238.89					100.00 x (25+29.5) ÷ 9				269.44					
100.00 x 9.5 ÷ 25									38	100.00 x (26+24.5) ÷ 9					280.55				
FEATHER AREA STA. 443+00 TO STA. 443+20	40.00									100.00 x 13.5 ÷ 25									54
CARRIED FROM SHEET NO. 9	2,336.45		2,336.45	2,414.17	2,625.12	152.00	2,689.00	1,111.11		STA. 442+00 TO STA. 443+00 = 100.00 L.F.									
STABILIZED SHOULDERS (Carried from table A)							755.55			100.00 x (23.5+18) ÷ 9	225.00		225.00						
										100.00 x (23.5+18) ÷ 9				236.11					
SUB-TOTAL	28,374.18		28,334.18	29,712.06	31,223.18	152.00	3,444.55	1,111.11	4,447	100.00 x (24.5+20) ÷ 9					247.22				
CONVERSION TO CU. YDS., GALS., ETC.	985.22 C.Y.		983.83 C.Y.	4,952.01 C.Y.	4,336.55 C.Y.	21.11 C.Y.	574.09 C.Y.	246.91 C.Y.	4,447 L.F.	100.00 x 13.5 ÷ 25									54
SCHEDULE "A" TOTAL	985.22 C.Y.		983.83 C.Y.	4,952.01 C.Y.	4,336.55 C.Y.		842.11 C.Y.		4,447 L.F.	STA. 443+00 TO STA. 443+20 = 100.00 L.F.									
										RT. & STA. 326+00 TO STA. 339+00 = 1,300.00 L.F.									
SCHEDULE "B" (STATE OF OHIO)										RT. & STA. 439+00 TO STA. 443+00 = 400.00 L.F.									
STA. 321+00 TO STA. 322+00 = 100.00 L.F.										1,700.00 L.F.									
100.00 x (20+24) ÷ 9	244.44		244.44							1,700.00 x 4 ÷ 9									
100.00 x (21+25) ÷ 9				255.55						LT. & STA. 430+50 TO STA. 443+00 = 1,250.00 L.F.									
100.00 x (22+26) ÷ 9					266.66				54	1,250.00 x 6 ÷ 9									
100.00 x 13.5 ÷ 25										FEATHER AREA STA. 443+00 TO 443+20	40.00								
STA. 322+00 TO STA. 323+00 = 100.00 L.F.										CARRIED FROM SHEET NO. 9	2,336.45	151.57	2,336.45	2,414.17	2,625.12	152.00	2,689.00		
100.00 x 24 ÷ 9	266.67		266.67							SUB-TOTAL	34,041.50	151.57	34,001.50	35,401.60	36,934.34	152.00	3,444.55	1,111.11	6,427
100.00 x 25 ÷ 9				277.78						CONVERSION TO CU. YDS., GALS., ETC.	1,182.00 C.Y.	8.42 C.Y.	1,180.61 C.Y.	5,900.27 C.Y.	5,129.85 C.Y.	21.11 C.Y.	574.09 C.Y.	246.91 C.Y.	6,427 L.F.
100.00 x 26 ÷ 9					288.89					SCHEDULE "A" + "B" TOTALS	— 1,190.42 C.Y. —	1,180.61 C.Y.	5,900.27 C.Y.	5,129.85 C.Y.	— 842.11 C.Y. —				6,427 L.F.
100.00 x 13.5 ÷ 25																			
STA. 323+00 TO STA. 344+16.07 = 2,116.07 L.F.																			
STA. 347+14.59 TO STA. 441+00 = 9,355.41 L.F.																			
11,501.48 L.F.																			
11,501.48 x 4 ÷ 9	5,111.77		5,111.77	5,111.77	5,111.77														
11,501.48 x 4 ÷ 25									1,840										
STA. 441+00 TO STA. 442+00 = 100.00 L.F.																			
LT. & 100.00 x 2.00 ÷ 9	22.22		22.22	22.22	22.22														
RT. & 100.00 x (20+20.5) ÷ 9	13.89		13.89	13.89	13.89														
100.00 x 4 ÷ 25									16										
STA. 442+00 TO STA. 443+00 = 100.00 L.F.																			
LT. & 66.67 x (2+2) ÷ 9	7.41		7.41	7.41	7.41														
RT. & 33.33 x (2.5+2.0) ÷ 9	0.92		0.92	0.92	0.92														
100.00 x 4 ÷ 25									16										
CARRIED FROM SHEET NO. 9		151.57																	
SUB-TOTAL	5,667.32	151.57	5,667.32	5,689.54	5,711.76				1,980										
CONVERSION TO CU. YDS., GALS., ETC.	196.78 C.Y.	8.42 C.Y.	196.78 C.Y.	948.26 C.Y.	793.30 C.Y.				1,980 L.F.										
SCHEDULE "B" TOTAL	— 205.20 C.Y. —		196.78 C.Y.	948.26 C.Y.	793.30 C.Y.				1,980 L.F.										

REVISION	DATE	DESCRIPTION	BY
	3/22/62	AS CONSTRUCTED	H.F.K.
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: <i>guy</i>			
TRACED BY: <i>run</i>			
CHECKED BY: <i>FH8</i>			
SUBMITTED BY: <i>Elmer S. Barrett</i>			
RECOMMENDED: <i>John E. Johnson</i>			
APPROVED: <i>Steven Malovich</i>			
DATE: NOV. 1959			
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO			
SCALE: SPEC. NO. DRAWING NUMBER 0 27 f-UD 7-68/10 SHEET 10 OF 92			

MUSKINGUM COUNTY
MUS-146- 6.09

SUMMARY OF QUANTITIES

EXCAVATION and EMBANKMENT

Sheet Number Reference	Station to Station	E-1	E-1
		Excavation Method "B" Unless specified	Embankment Method "A"
		C. Y.	C. Y.
SCHEDULE "A" (United States of America)			
27	STA. 320+00 TO 345+23.5	14,930	120,531
32	STA. 345+15 TO 444+00	405,107	476,375
60	DRIVE LT. & STA. 352+00	4,601	5,287
63	DRIVE LT. & STA. 375+69+	5,478	1,673
67	CONNECTION RTE 428+30	269	10,776
68	CHANNEL SECTIONS		106
	SCHEDULE "A" TOTAL	430,385	614,748
SCHEDULE "B" (State of Ohio)			
27	STA. 320+00 TO 345+30	763	38,186
32	STA. 345+35 TO 444+00	47,681	76,240
	SCHEDULE "B" TOTAL	48,444	114,426
	TOTALS - SCHEDULE "A" & "B"	478,829	729,174

EROSION PROTECTION

Sheet Number Reference	Station to Station	L-9	L-9	L-9
		Seeding and Protecting	Commercial Fertilizer	Agricultural Liming Materials
		S. Y.	Tons	Tons
SCHEDULE "A" (United States of America)				
27	STA. 320+00 TO 444+00	131, 078	11.80	59.00
60	DRIVE LT. & STA. 352+00	5, 296	0.48	2.40
63	DRIVE LT. & STA. 375+69"	4, 660	0.42	2.10
67	CONNECTION RT. & 428+30	3, 906	0.35	1.75
	SCHEDULE "A" TOTAL	144, 940	13.05	65.25
SCHEDULE "B" (State of Ohio)				
27	STA. 320+00 TO 444+00	16, 533	1.48	7.40
	SCHEDULE "B" TOTAL	16, 533	1.48	7.40
TOTALS - SCHEDULE "A" & "B"				
		161, 473	14.53	72.65

Items T-10 & SPECIAL FOR MAINTAINING TRAFFIC

Sheet Number Reference	Station to Station	L.F.		C. Y.	Tons
		Item T-10 Traffic Compacted Surface Course Ap- plied @ the rate of 75 C.Y. per 100 L.F. of Temporary Roadway	Item SPECIAL Calcium Chloride Furnished & Applied for Maintaining Traffic Applied @ the rate of 1 ton for ea. 50 C.Y. of T-10		
SCHEDULE "A" (United States of America)					
Note: See Cross Sections for Locations	STA. 320+00 TO 327+10	710	20	532.5	10.65
	STA. 430+00 TO 444+00	1400	20	1,050.0	21.00
	CONNECTION RT. E 428+30 1+00 TO 4+75	450	20	337.5	6.75
	TOTAL			1,920.0 Cu.Yds.	38.40 Cu.Yds.

Item E-9 REMOVAL of TREES & STUMPS

Sheet Number Reference	Station	E-9
	to	Removal of Trees
	Station	and Stumps
		Lump
SCHEDULE "A" (United States of America)		
5	STA. 321+00 TO 443+00	Lump
	TOTAL	Lump

Item E-3 CHANNEL EXCAVATION,
UNCLASSIFIED

Sheet Number Reference	Station to Station	E-3 Channel Excavation Unclassified
Schedule "A" (United States of America)		Ex. Vds
68	Channel Sections	3242
	Total	3242

Item I-22 SUBBASE MATERIAL for FILTER

Sheet Number Reference	Station		Side	I-22 6" Subbase Material for Filter C. Y.	
SCHEDULE "A" (United States of America)					
30-32	340+00	to 344+12	L.T.	243	
30-32	340+55	to 344+12	R.T.	262	
32-34	347+20	to 350+50	L.T.	227	
32-37	347+20	to 358+00	R.T.	808	
39-41	363+70	to 376+75	R.T.	688	
40-41	370+75	to 374+75	L.T.	289	
43-45	390+25	to 392+50	R.T.	136	
44	391+25	to 392+15	L.T.	23	
43-49	408+50	to 411+90	R.T.	272	
49	409+25	to 411+00	L.T.	93	
50-52	415+65	to 420+25	R.T.	340	
50-51	415+65	to 418+95	L.T.	146	
54	430+10	to 433+00	R.T.	39	
67	CONNECTION RT. & 428+30 1+00 to 4+00		L.T.	87	
TOTAL			-	3653	

Item E-1 COMPACTED SUBGRADE

Number of Square Yards of T-35 Surface Supported	
Participation by the United States of America (SCHEDULE "A")	28,374 Sq.Yds.
Participation by the State of Ohio (SCHEDULE "B")	5,819 Sq.Yds.
SCHEDULE "A" & "B" TOTALS	34,193 Sq.Yds.

Item E-11 WATER

Sheet Number	Reference	For Item	Calculation	E-11
				Water
				M-Gals.
SCHEDULE "A" (United States of America)				
10	I-18		84211 C.Y. @ 8 Gal. per Cu. Yd.	6.8
10	I-22		433655 C.Y. @ 8 Gal. per Cu. Yd.	34.7
11	E-1		614,749 C.Y. @ 5 Gal. per Cu. Yd.	3073.7
			SCHEDULE "A" TOTAL	3,115.2
SCHEDULE "B" (State of Ohio)				
10	I-22		703,300 C.Y. @ 5 Gal. per Cu. Yd.	6.4
11	E-1		114,426 C.Y. @ 5 Gal. per Cu. Yd.	572.1
			SCHEDULE "B" TOTAL	578.5
SCHEDULE "A" & "B" TOTALS				3,693.7

Item I-10 DUMPED ROCK FILL
EMBANKMENT PROTECTION

Sheet Number Reference	Station to Station	Side	I-10 Dumped Rock Fill Embankment Protection	
			Cu. Yds	
Schedule "A" (United States of America)				
30-32	340+00 to 345+30	R/L	6363	
32-37	345+85 to 358+00	R/L	12,075	
39-41	369+70 to 376+75	R/L	5,951	
43-45	390+25 to 392+85	R/L	976	
48-49	408+50 to 411+90	R/L	2,301	
50-52	415+65 to 420+25	R/L	3,031	
54	430+10 to 433+00	R	223	
67	Connection R/L 428+30 1400 to 4+00	L	565	
	TOTAL		31,485	

	3/22/62	AS CONSTRUCTED	H.F.K.
REVISION	DATE	DESCRIPTION	BY
<p>U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.</p>			
<p>DRAWN BY: <i>EWJ</i></p>		<p>LICKING RIVER DILLON RESERVOIR PROJECT</p>	
<p>TRACED BY: <i>RWR</i></p>		<p>RELOCATION OF OHIO STATE ROUTE NO.146 (Section 3)</p>	
<p>CHECKED BY: <i>F.H.S.</i></p>			
<p>SUBMITTED BY: <i>Elmer S. Barrett</i> ELMER S. BARRETT ASSOCIATES</p>			
<p>RECOMMENDED: <i>Don B. Johnson</i> CHIEF ENG. DIST.</p>		<p>APPROVED: <i>Steven Malewich</i> DATE: NOV. 1959 COL. C.E. DISTRICT ENGINEER</p>	
<p>ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO</p>		<p>SCALE: DRAWING NUMBER 0 27 f-UD 7-68/11 SHEET 11 OF 92</p>	

GENERAL SUMMARY

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		12 92

MUSKINGUM COUNTY
MUS-146- 6.09

ITEM NO.	QUANTITIES			UNITS	DESCRIPTION
	SCHEDULE "A" Participation By The United States of America	SCHEDULE "B" Participation By The State of Ohio	SCHEDULE "A" & "B" Total for Project		
					ROADWAY
E-1	430,385	48,442	478,827	CU. YDS.	Roadway Excavation, Method "A" Unclassified
E-1	614,748	114,426	729,174	CU. YDS.	Embankment, Method "A"
E-1	28,374	5,819	34,193	SQ. YDS.	Compacted Subgrade
E-9	LUMP	-	LUMP	LUMP	Removal of Trees and Stumps
E-11	3,115	579	3,694	M-GALS.	Water
E-12	24	-	24	LIN. FT.	Pipe Removed, 15-inch and Under
E-12	178	-	178	LIN. FT.	Pipe Removed, Over 15-inch
I-8	58	-	58	EACH	Monument Assemblies
I-10	31,485	-	31,485	CU. YDS.	Dumped Rock Fill Embankment Protection
I-15	14,612.5	-	14,612.5	LIN. FT.	Guard Rail, Steel Beam Type (Deep)
I-15	1,632	-	1,632	LIN. FT.	Guard Rail, Woven Wire Type (2-Tape) or Wire Cable Type (2-Cable)
I-22	3,653	-	3,653	CU. YDS.	Subbase Material for Filter
L-9	144,940	16,533	161,473	SQ. YDS.	Seeding and Protecting
L-9	13.1	1.5	14.6	TONS	Commercial Fertilizer
L-9	65.3	7.4	72.7	TONS	Agricultural Liming Materials
S-24	LUMP	-	LUMP	LUMP	Removal of Existing Structures
T-10	1,920	-	1,920	CU. YDS.	Traffic Compacted Surface Course
SPECIAL	38.4	-	38.4	TONS	Calcium Chloride, Furnished and Applied for Maintaining Traffic
SPECIAL	LUMP	-	LUMP	LUMP	Relocating Existing Telephone Lines
SPECIAL	LUMP	-	LUMP	LUMP	Relocating Existing Power Lines
SPECIAL	LUMP	-	LUMP	LUMP	Existing Gas Line Removed, Relocated, or Adjusted
SPECIAL	LUMP	-	LUMP	LUMP	Maintaining Traffic
SPECIAL	175	-	175	LIN. FT.	12-inch Pipe for Encasement
					DRAINAGE
E-2	91	-	91	CU. YDS.	Excavation for Structures, Unclassified
E-3	3,242	-	3,242	CU. YDS.	Channel Excavation, Unclassified
I-1	36	-	36	LIN. FT.	18-inch Pipe for Driveways
I-1	42	-	42	LIN. FT.	21-inch Pipe for Driveways
I-1	126	-	126	LIN. FT.	24-inch Pipe for Driveways
I-3	299	-	299	LIN. FT.	6 inch Roadway Drainage under Pavement, with Porous Backfill.
I-9	4,447	1,980	6,427	LIN. FT.	Stone Underdrains, No. 2
I-10	54	-	54	SQ. YDS.	Hand Placed Rip Rap, Grout Filled
I-10	242	-	242	CU. YDS.	Dumped Rock Channel Protection
I-14	-	3,019	3,019	LIN. FT.	Paved Gutter, Type 1
I-14	50	-	50	LIN. FT.	Paved Gutter, Type 2
L-10	2,833	-	2,833	SQ. YDS.	Sodding

ITEM NO.	QUANTITIES			UNITS	DESCRIPTION
	SCHEDULE "A" Participation By The United States of America	SCHEDULE "B" Participation By The State of Ohio	SCHEDULE "A" & "B" Total for Project		
DRAINAGE - Continued					
S - 1	4	-	4	CU. YDS.	Concrete for Structures, Class "E"
S - 27	208	24	232	LIN. FT.	24-inch Pipe for Roadway Culverts, Sec. M-6.4(d) 14 Gage
S - 27	228	12	240	LIN. FT.	36-inch Pipe for Roadway Culverts, Sec. M-6.4(d) 8 Gage
S - 27	212	12	224	LIN. FT.	42-inch Pipe for Roadway Culverts, Sec. M-6.4(d) 8 Gage, Shop Elongated
S - 27	148	12	160	LIN. FT.	42-inch Pipe for Roadway Culverts, Sec. M-6.4(d) 10 Gage
S - 27	186	12	198	LIN. FT.	48-inch Pipe for Roadway Culverts, Sec. M-6.4(d) 8 Gage, Shop Elongated
S - 27	214	12	226	LIN. FT.	54-inch Pipe for Roadway Culverts, Sec. M-6.4(d) 8 Gage, Strutted
S - 29	5	-	5	CU. YDS.	Porous Backfill for Spring Drains, Using No. 6 Aggregate.
PAVEMENT					
B - 35	984	197	1,181	CU. YDS.	Asphaltic Concrete Leveling Course
B - 219	4,952	949	5,901	CU. YDS.	Waterproofed Aggregate Base Course
I - 18	843	-	843	CU. YDS.	Stabilized Crushed Aggregate for Shoulders and Approaches
I - 22	4,337	793	5,130	CU. YDS.	Subbase
T - 30	-	61	61	Gallons	Bituminous Prime Coat, Sec. M-5.7, RT-2 or RT-3
T - 35	986	205	1,191	CU. YDS.	Asphaltic Concrete Surface Course
BRIDGE (See Sheet Number 77 for Estimated Quantities)					

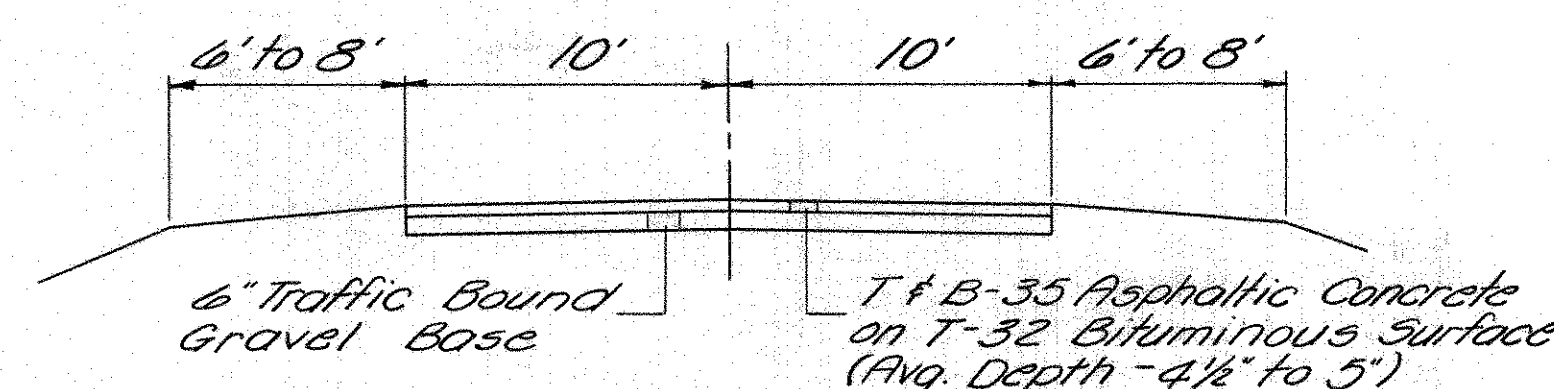
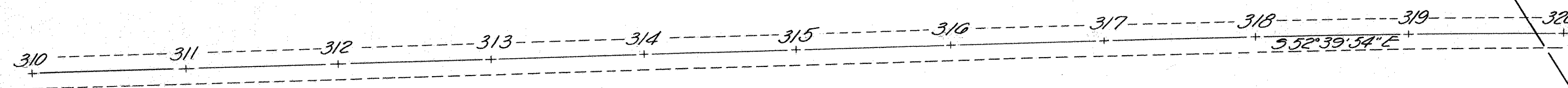
REVISION	DATE	DESCRIPTION	H.F.K.
	3/22/62	AS CONSTRUCTED	
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: <i>SW</i>		LICKING RIVER DILLON RESERVOIR PROJECT	
TRACED BY: <i>FWP</i>		RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
CHECKED BY: <i>FWP</i>		ELMER S. BARRETT ASSOCIATES	
SUBMITTED BY: <i>Edmund S. Barrett</i>		APPROVED: <i>Steven M. Malovich</i> DATE: NOV. 1959	
RECOMMENDED BY: <i>Don S. Johnson</i>		COL. C. E. DISTRICT ENGINEER	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: SPEC. NO. DRAWING NUMBER 027f-UD 7-68/12 SHEET 12 OF 92	

MUSKINGUM COUNTY
MUS-146-6.09

QR. TP-4, T-2N, R-9W

QR. TP-3, T-2N, R-8W

MUSKINGUM TWP.
LICKING TWP.



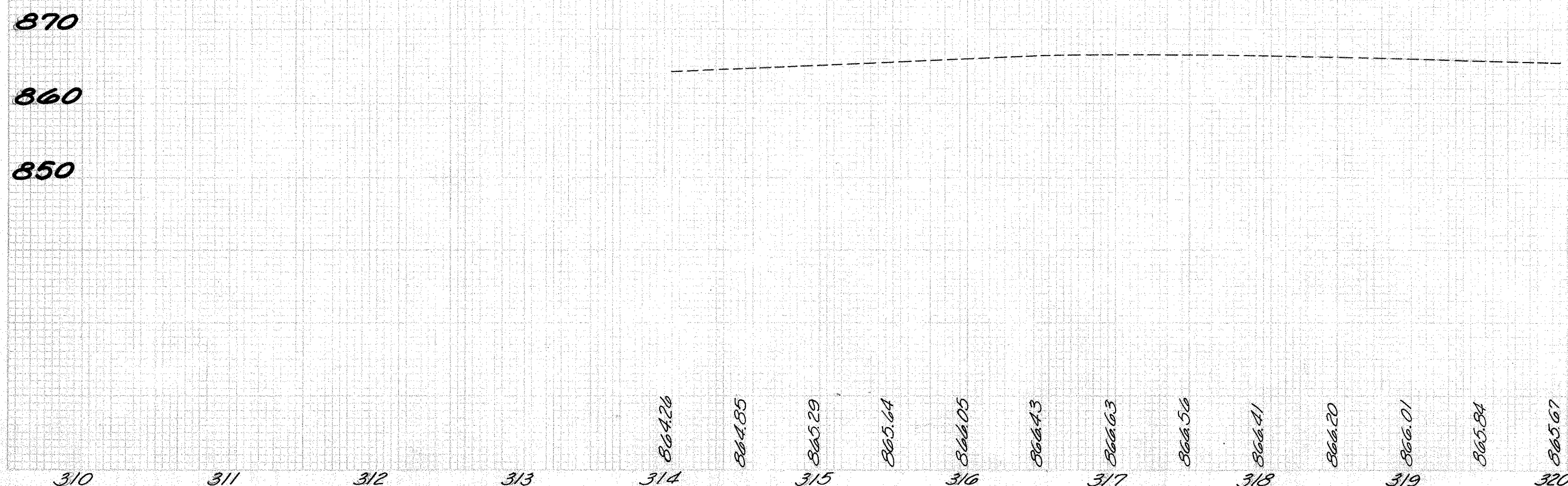
**TYPICAL SECTION OF ADJOINING
PAVEMENT AT BEGIN PROJECT**

1957 Average Daily Traffic - 1160 v.p.d.
1977 Design Volume - 2275 e.p.v.
Design Speed - 60 m.p.h.

UTILITY OWNERS:

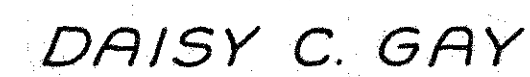
- ☐ Ohio Bell Telephone
- ☐ Guernsey Muskingum Electrification Cooperative, Inc.
- Gas Ohio Fuel Gas Company

NOTE: All elevations are in
reference to North American
Datum (U.S.G.S.)



3/22/62		AS CONSTRUCTED	H.F.K.
REVISION	DATE	DESCRIPTION	BY
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: WHD		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
TRACED BY: gdw			
CHECKED BY: Elmer S. Barrett			
SUBMITTED BY: Elmer S. Barrett			
RECOMMENDED: Dan Johnson		APPROVED: Steven Malenich	
CHIEF ENG. DIST.		COL. C.E., DISTRICT ENGINEER	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: Horiz. 1" = 30' Vert. 1" = 5' DRAWING NUMBER 027f-UD7-68/13 SHEET 13 of 92	

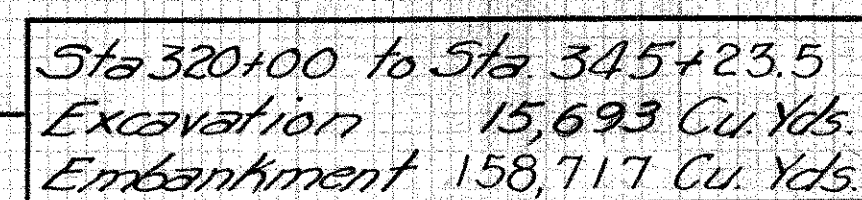
LAWRENCE E. & MAY TANNEHILL



BENCH MARK <i>Cut in End of Conc. Pipe</i> <i>Near Int. 5R146 & TR149</i> <i>22° Rt. & Sta. 323+88</i> <i>Elevation 859.91</i>	BENCH MARK <i>Spike in Power Pole</i> <i>NW Cor. 5R146 & TR149</i> <i>59.5° Lt. & Sta. 323+69</i> <i>Elevation 856.62</i>
---	--

550.03
548.94
547.79
546.60
545.37
540.37
536.30

V.P.I. Sta. 324+50
Elev. 862.87



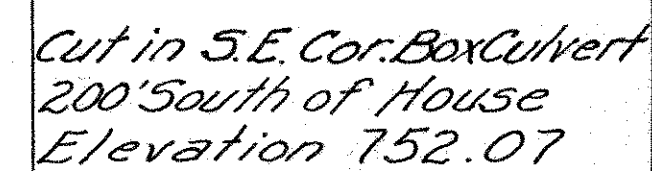
WORK AS CONSTRUCTED **PLAN & PROFILE**

[illegible]

	3/23/62	AS CONSTRUCTED	H.F.K.
REVISION	DATE	DESCRIPTION	BY
<p align="center">U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.</p>			
DRAWN BY: <i>WHD</i>		LICKING RIVER	
TRACED BY:		DILLON RESERVOIR PROJECT	
CHECKED BY: <i>gwy</i>		RELOCATION OF	
SUBMITTED BY: <i>Elmer S. Barrett</i>		OHIO STATE ROUTE NO. 146	
ELMER S. BARRETT ASSOCIATES		(Section 3)	
RECOMMENDED: <i>Stan S. Johnson</i>		APPROVED: <i>Steven Malachuk</i>	DATE: NOV. 1959
CHIEF ENG. DIV.		COL. C. E., DISTRICT ENGINEER	
ELMER S. BARRETT ASSOCIATES		SCALE: <i>Horz. 1" = 50'</i> <i>Vert. 1" = 70'</i>	SPEC. NO.
CONSULTING ENGINEERS		DRAWING NUMBER	
CHILLICOTHE, OHIO		027f-UD7-68/14	
		SHEET 14 OF 92	

DAISY C. GAY

Spike in Cluster of Elms
139' Lt. & Sta. 337+70
Elevation 779.60



Reference Number	Station to Station	Side	I-15	Special					I-14	I-14	L-10
			Guard Rail Steel Beam Type (Deep) Relocating Existing Power Lines				Paved Gutter Type 1	Paved Gutter Type 2	Sodding		
			Lin.Ft.	Lump					Lin.Ft.	Lin.Ft.	Sq.Yds
1-D	330+00 to 332+00	Lt.									134
2-D	330+50 to 332+50	Rt.									101
3-D	332+00 to 340+00	Lt.						805			268
4-D	339+00 to 340+00	Rt.									50
5-D	332+00	Rt.							10		19
6-D	337+00	Rt.							10		19
1-R	332+91.80 to 340+00	Lt.	710.38								
2-R	330+00 to 340+00	Rt.	996.93								
3-R	339+00 to 340+00	Rt.		Lump							
	TOTAL		1,107.31	Lump				805	20		591

[illegible]

DAISY C. GAY

CHARLES L. ARMINE

PROPOSED BRIDGE DATA
Type: Continuous steel beam w/ reinforced concrete deck and superstructure
Span: 75'-0" - 94'-0" - 75'-0"
Roadway: 30'-0" f-f of 2'-3" Safety Curbs
Load Frequency: C.F. 130 (57)
Skew: 0°-00'
Wearing Surface: 3/4" Monolithic Concrete
Approach Slabs: A-5-1-54 (25'-0" Long)
Railing: I-15.13
Alignment: 0°-48' Curve Rt.
Superelevation: 0.23" per Ft.

MUSKINGUM COUNTY
MUS-146-6.09

EXISTING BRIDGE DATA
Bridge Number: MU-146-0667.
Type: Steel Beam W/ Plank Floor and Rail.
Span: 42'-0" - 42'-0" - 42'-0".
Roadway: 24'-0" f-f of Curbs.
Disposition: To be Removed & Approaches Barricaded

ESTIMATED QUANTITIES

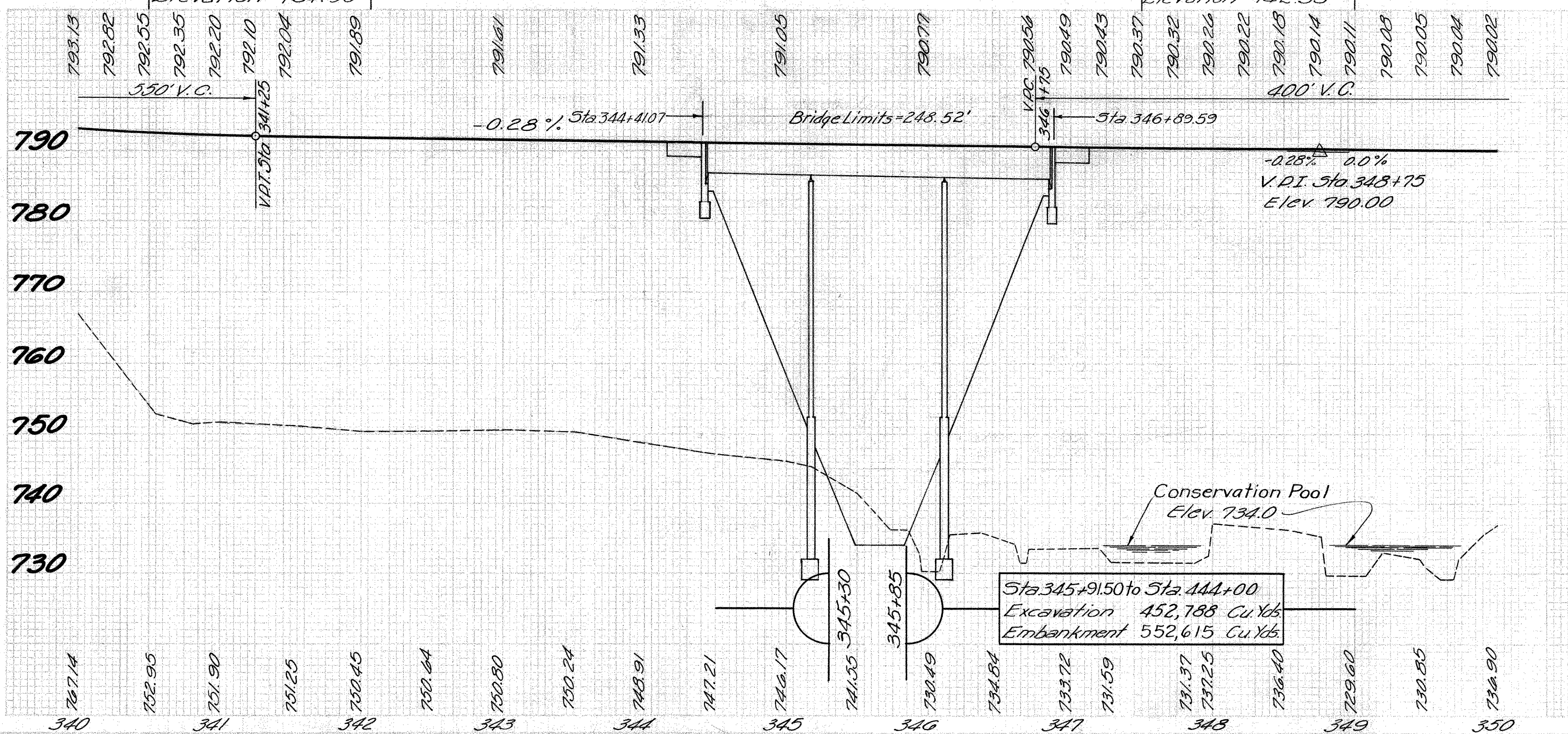
ESTIMATED QUANTITIES										
Reference Number	Station to Station	Side	I-15	I-7	Special	I-22		L-10	I-10	I-14
			Guard Rail Steel Beam Type (Deep) Reinforced Concrete Approach Slabs Relocating Existing Power Lines 5" Subbase						Sodding Dumped Rock Channel Protection Paved Gutter Type-1	
			Lin.Ft.	Sq.Yds.	Lump	Sq.Yds.		Sq.Yds.	Cu.Yds.	Lin.Ft.
1-D	340+00 to 341+42	Lt.						52	8.33	155
2-D	340+00 to 342+25	Rt.						85	8.33	104
3-D	349+00 to 350+00	Lt.						28	8.33	84
1-R	340+00 to 344+37.66	Lt.	439.62							
2-R	340+00 to 344+37.04	Rt.	436.32							
3-R	344+16.07 to 344+41.07	L&R		66.67		66.66				
4-R	346+89.59 to 347+14.59	L&R		66.67		66.66				
5-R	346+93.29 to 350+00	Lt.	308.27							
6-R	346+93.91 to 350+00	Rt.	305.77							
7-R	340+00 to 348+00	L&R			Lump					
TOTAL			1489.98	*133.34	Lump	133.32		165	25	343

*Carried to Bridge Quantities
See Sheet No 77

PROPOSED CURVE DATA
P.I. Sta 338+16.33
 $\Delta = 22^\circ 30' 54" \text{ Rt.}$
 $D_c = 0^\circ 48'$
 $R = 7161.975'$
 $L = 2814.375'$
 $T = 1425.58'$
 $E = 140.50'$

BENCH MARK
Cor. Angle Iron, S.E. Corner
Br. No. MU-146-0667
Elevation 712.33

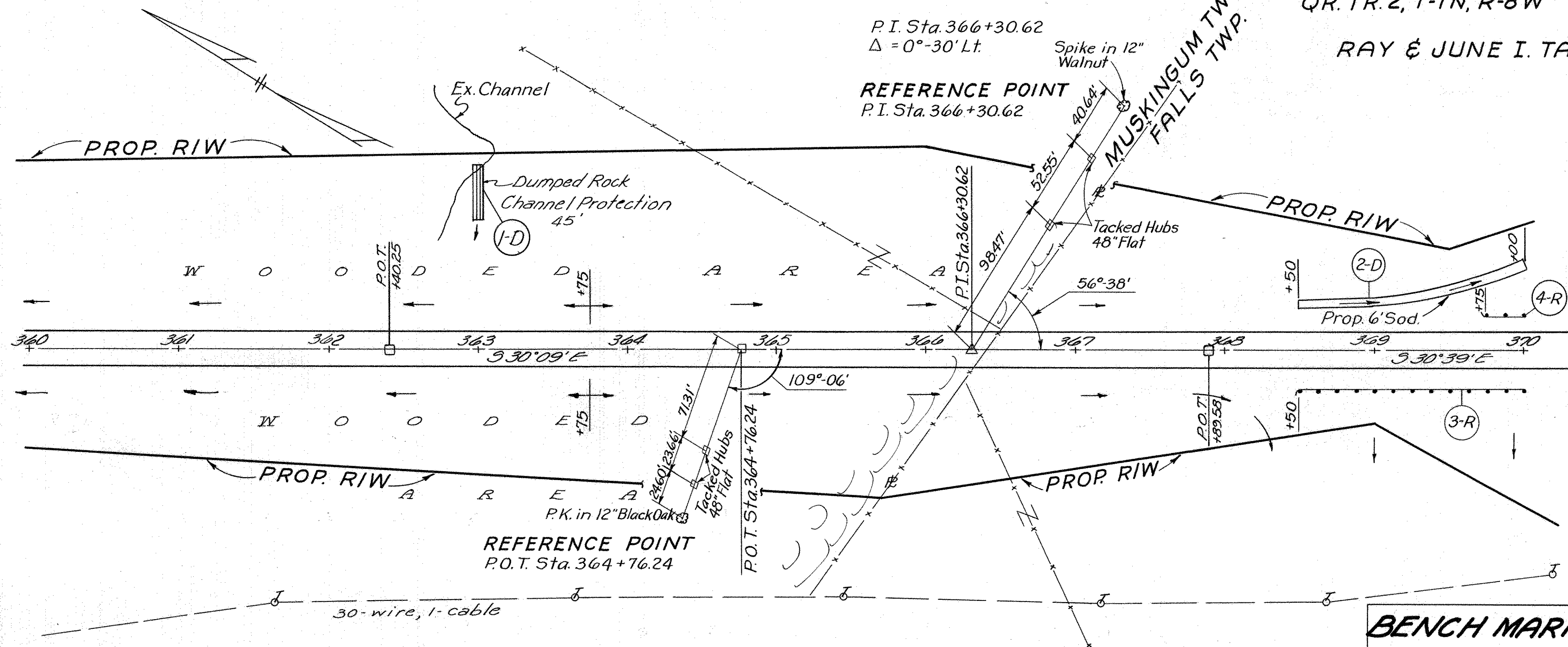
BENCH MARK
Spike in 24" Locust
92' Rt. & Sta 341+37.5
Elevation 754.96



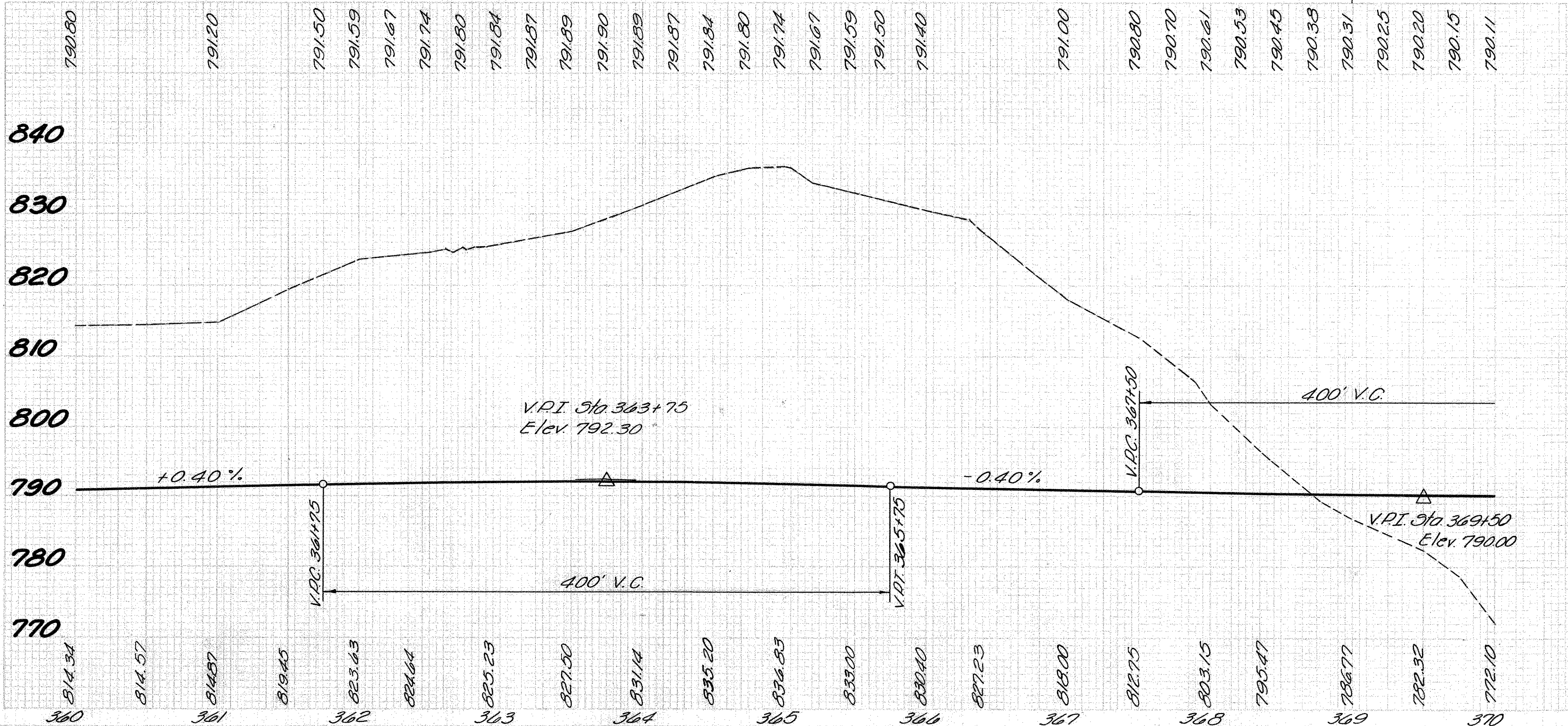
REVISION	DATE	DESCRIPTION	BY
	3/22/62	AS CONSTRUCTED	H.F.K.
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: WHD		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
TRACED BY:		DATE: NOV. 1959	
CHECKED BY: [Signature]		RECOMMENDED: [Signature]	
SUBMITTED BY: [Signature]		ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO	
SCALE: Horiz. 1"=50'		SPEC. NO. 0271-UD7-68/16 SHEET 16 of 92	

MUSKINGUM COUNTY
MUS-146-6.09

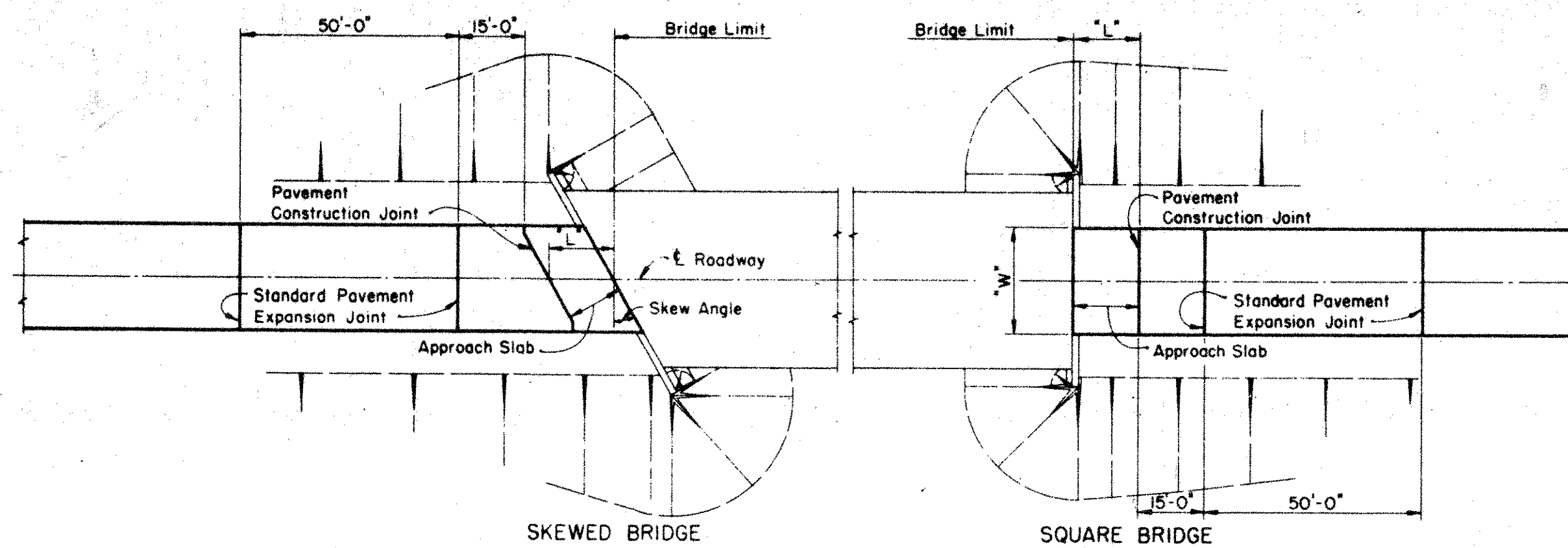
CHARLES L. ARMINE
QR. TP. 3, T-2N, R-8W
P.I. Sta. 366+30.62
 $\Delta = 0^\circ-30' Lt.$
REFERENCE POINT
P.I. Sta. 366+30.62
RAY & JUNE I. TALLEY
QR. TR. 2, T-1N, R-8W



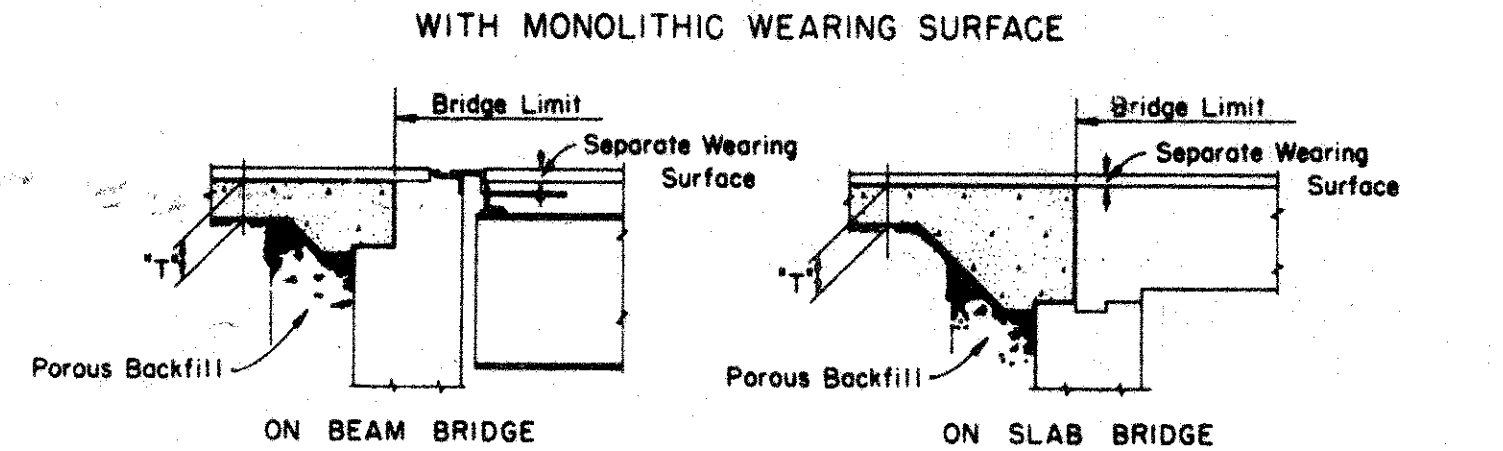
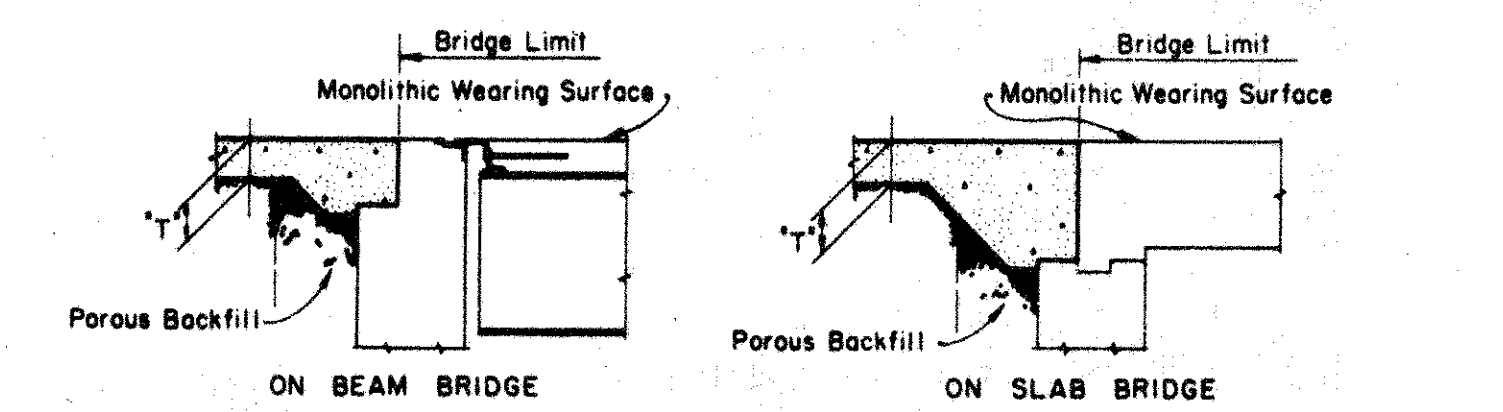
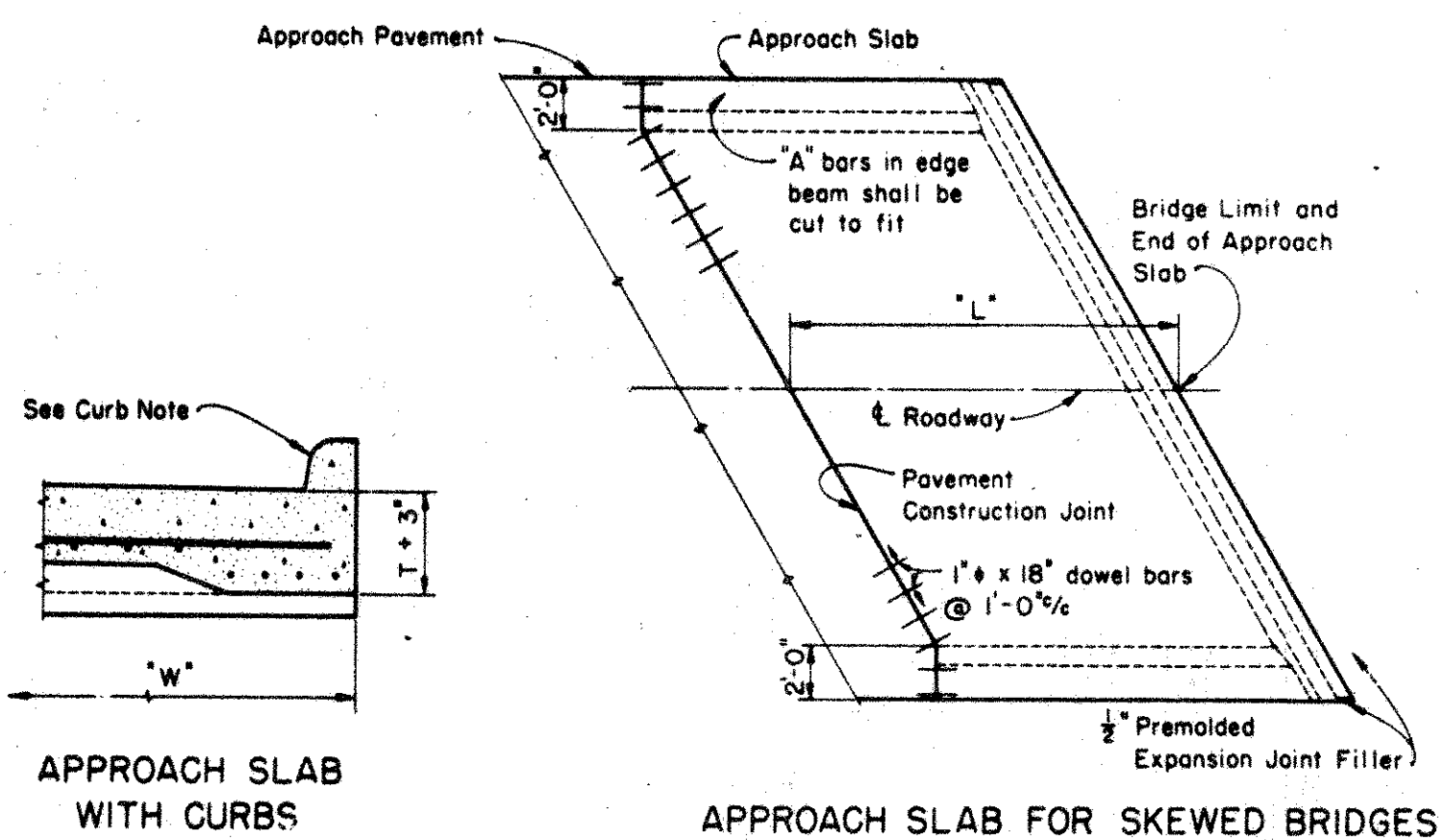
ESTIMATED QUANTITIES									
Reference Number	Station to Station	Side	Guard Rail Steel Beam Type (Deep)	I-15	L-10	I-10	Sodding	Dumped Rock Channel Protection	
				Lin.Ft.	Sq.Yds.	Cu.Yds.			
I-D	363+00	Lt.				15			
2-D	368+50 to 370+00	Lt.			104				
3-R	368+50 to 370+00	Rt.	1500						
4-R	369+75 to 370+00	Lt.	250						
TOTAL				1750	104	15			



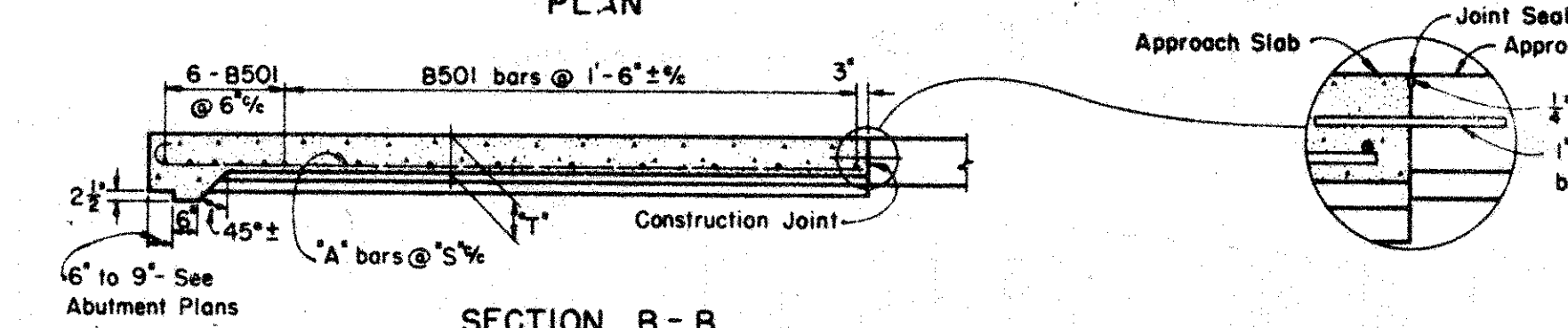
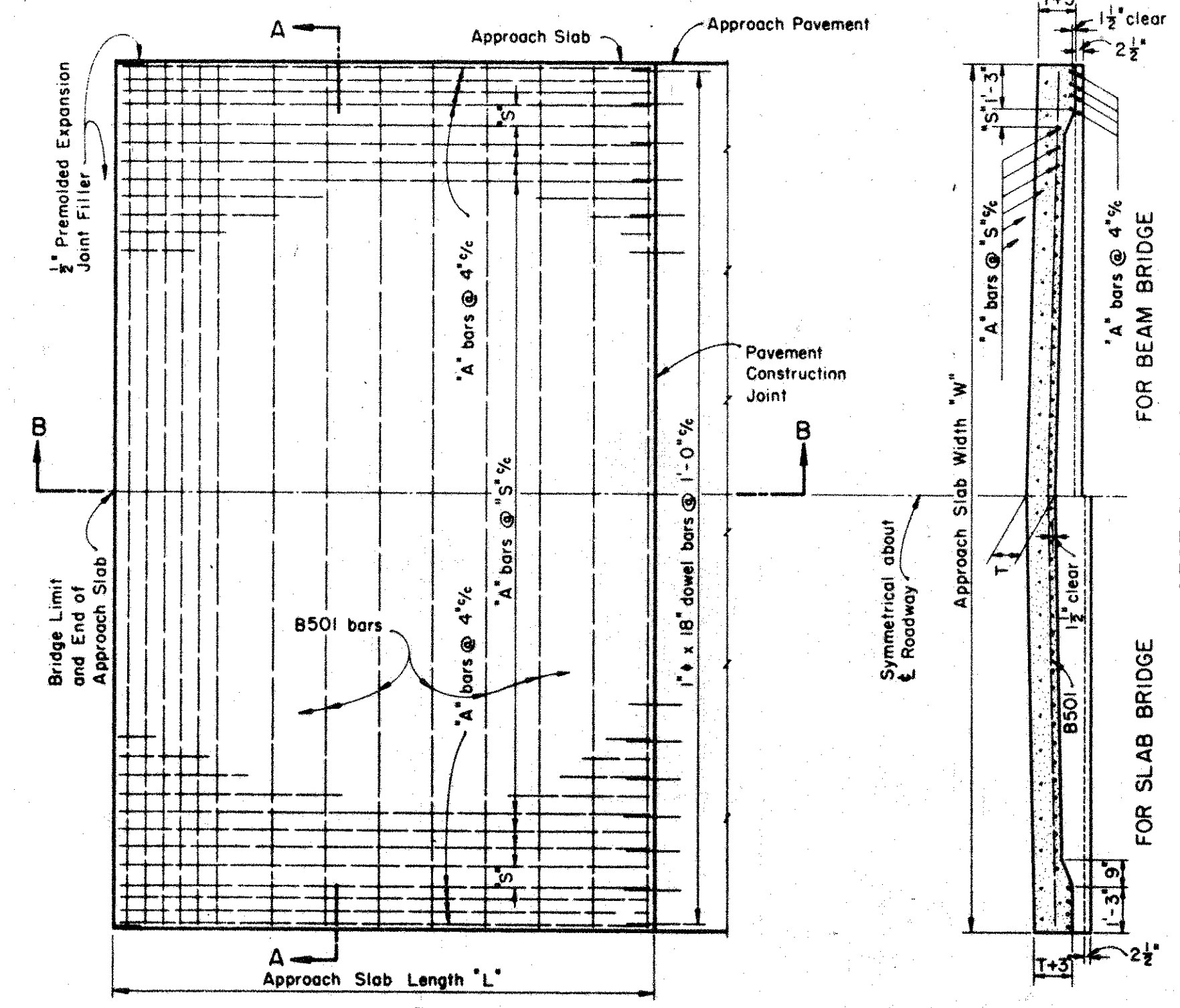
REVISION	DATE	DESCRIPTION	BY
	3/23/62	AS CONSTRUCTED	H.F.K.
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: WHD		LICKING RIVER DILLON RESERVOIR PROJECT	
TRACED BY:		RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
CHECKED BY: gpd		APPROVED: Steven Malench	
SUBMITTED BY: Elmer S. Barrett Associates		DATE: NOV. 1959	
RECOMMENDED: Ken L. Johnson		COL. C.E., DISTRICT ENGINEER	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: Horz 1"=50' SPEC. NO. Vert 1"=10' DRAWING NUMBER 027f-UD7-68/18 SHEET 18 OF 92	



GENERAL PLAN
Showing Skewed and Square Approach Slabs



TYPICAL SECTIONS SHOWING JUNCTION OF APPROACH SLAB WITH BRIDGE



SECTION B - B

GENERAL: This drawing provides design and general construction details. The project plans will show length, skew, curbs (if any), estimated quantity (sq. yds.), and special notes and details where necessary. For conditions other than those indicated hereon, the approach slab shall be adapted to fit the ends of the bridge and the approach pavement.

WIDTH of approach slabs shall be the same as the width of the approach pavement unless otherwise indicated on the project plans.

LENGTH of approach slabs shall be 15 ft., 20 ft., or 25 ft., as called for on the project plans. The length specified will depend upon the height of abutments, the height of embankment at the ends of the bridge, and the angle of skew.

CROWN shall conform to the rate of crown of the approach pavement and bridge deck. If the rate of crown of the bridge deck differs from that of approach pavement, a smooth transition shall be provided within the limits of the approach slab.

CONCRETE shall be Class "C" or Class "D".

REINFORCING STEEL: For skewed bridges the "A" bars shall be placed parallel to the centerline of roadway and the "B" bars shall be placed parallel to the abutments.

BAR SIZE is indicated in the bar mark. The first digit indicates the bar size number. For example, A801 is a No. 8 size bar.

PREMOULDED EXPANSION JOINT FILLER at the edges of the approach slab shall be included with the approach slab for payment.

CURBS: If raised curbs on approach slab are called for on the project plans, they shall be of the same shape and height as the curbs on the approach pavement unless otherwise shown on such plans.

CONSTRUCTION JOINT details shown hereon (at the approach pavement end of the approach slab) apply only in case of concrete approach pavement or concrete base course. Payment for the construction joints, including dowel bars, is included in the price per sq. yd. bid for the approach pavement.

WEARING SURFACE: If a bituminous wearing surface is specified for the bridge, it also shall be used on the approach slabs.

EXPANSION JOINTS shall be provided in concrete approach pavement or concrete base course at the locations shown on this drawing.

REINFORCING STEEL (FOR ONE APPROACH SLAB)									
Length "L"	Thick- ness "T"	Spec. "S"	Mark	Length "A"	Dimension "A"	No. req'd	Length "A"	No. req'd	
15'-0"	10"	8"	A801	15'-7"	14'-6"	17	14'-6"	14	
20'-0"	11 1/2"	7"	A802	20'-7"	19'-6"	17	19'-6"	17	
25'-0"	13"	6"	A803	25'-7"	24'-6"	20	24'-6"	20	

* W = Approach Slab Width, out-to-out, in feet
 θ = Angle of Skew
 S = "A" bar spacing in inches

12 - 1 - 54

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

STANDARD
REINFORCED CONCRETE
APPROACH SLABS
LENGTHS - 15'-0", 20'-0" AND 25'-0"

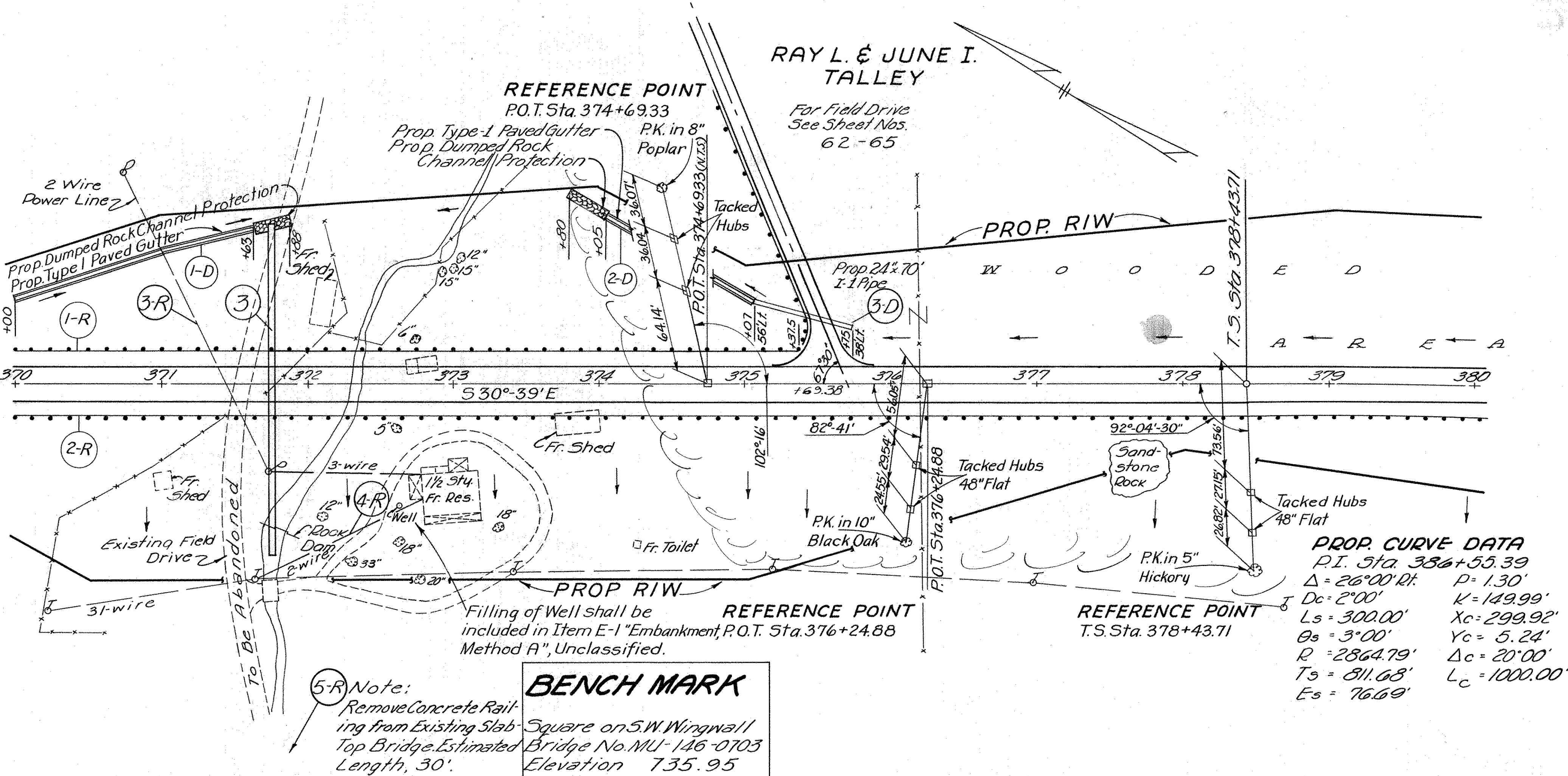
APPROVED: *Richard D. Smith*
 DATE: 7-1-54
 PREPARED BY: JCB, WMS
 TRACED: CEJ
 CHECKED: OGB
 REVIEWED: SPS, CHA, AJP, DND

DRAWING NUMBER
AS-1-54

For Reference Only

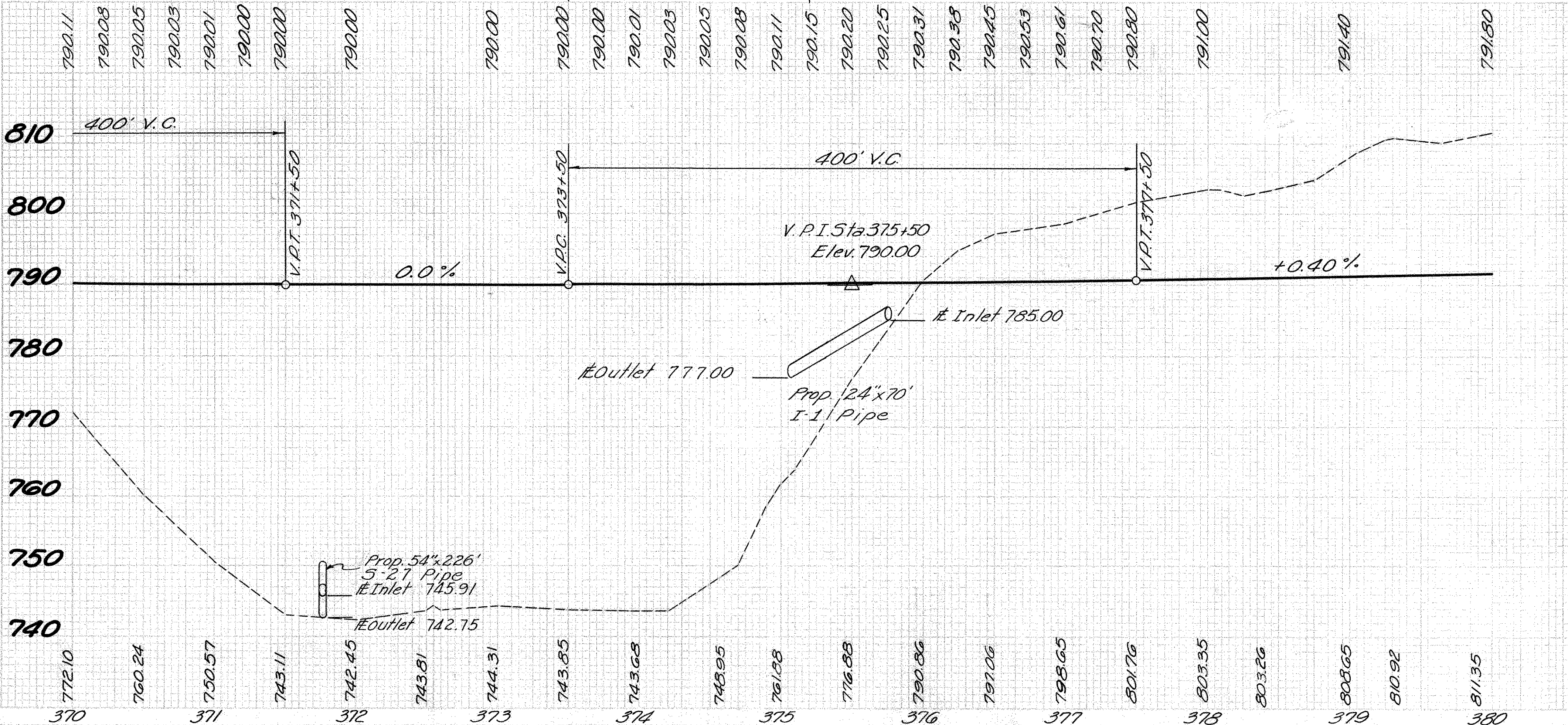
3/27/62	AS CONSTRUCTED	H.F.K.
REVISION	DATE	DESCRIPTION
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.		
DRAWN BY:		
TRACED BY:		
CHECKED BY:		
SUBMITTED BY:		
ELMER S. BARNETT ASSOCIATES		
RECOMMENDED:		
H. S. Johnson CHIEF ENG. DIV.		
APPROVED: <i>Steven Malenick</i> COL.		
DATE: NOV 1959		

MUSKINGUM COUNTY
MUS-146 - 6.09



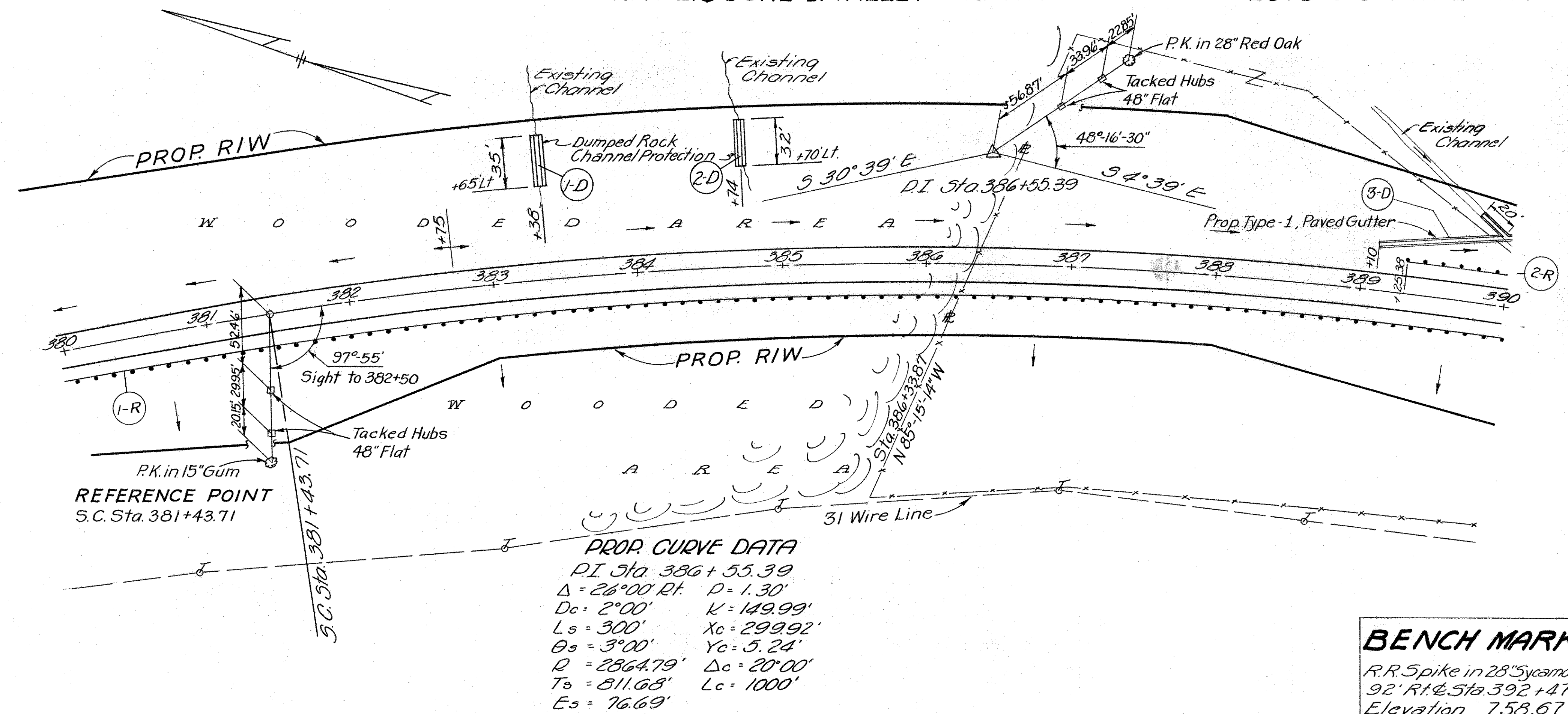
ESTIMATED QUANTITIES

Reference Number	Station to Station	Side	I-15 Special Special 5-24				L-10	I-1	I-10	I-14
			Guard Rail	Steel Beam Type (Deep)	Relocating Power Lines	Relocating Existing Telephone Lines				
			Lin.Ft	Lump	Lump	Lump	Sq.Yds	Lin.Ft	Cu.Yds	Lin.Ft
1-D	370+00 to 371+88	Lt.					59		9	175
2-D	373+80 to 375+07	Lt.					49		9	120
3-D	375+07 to 375+75	Lt.						70		
1-R	370+00 to 375+37.5	Lt.	5375							
2-R	370+00 to 380+00	Rt.	10000							
3-R	370+00 to 373+00	L&R		Lump						
4-R	370+00 to 380+00	Rt.			Lump					
5-R	371+75	Rt.				Lump				
See Sheet No. 71										
TOTAL			15375	Lump	Lump	Lump	108	70	18	295



3/23/62	AS CONSTRUCTED	H.F.K.
REVISION	DATE	DESCRIPTION
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.		
DRAWN BY: WHD		
TRACED BY:		
CHECKED BY:		
SUBMITTED BY: Elmer S. Barrett		
ELMER S. BARRETT ASSOCIATES		
RECOMMENDED: [Signature]		
APPROVED: [Signature] DATE: NOV. 1959		
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		
SCALE: Horz. 1"=50' Vert. 1"=5'		
SPEC. NO. 027f-UD7-68/19		
SHEET 19 OF 92		

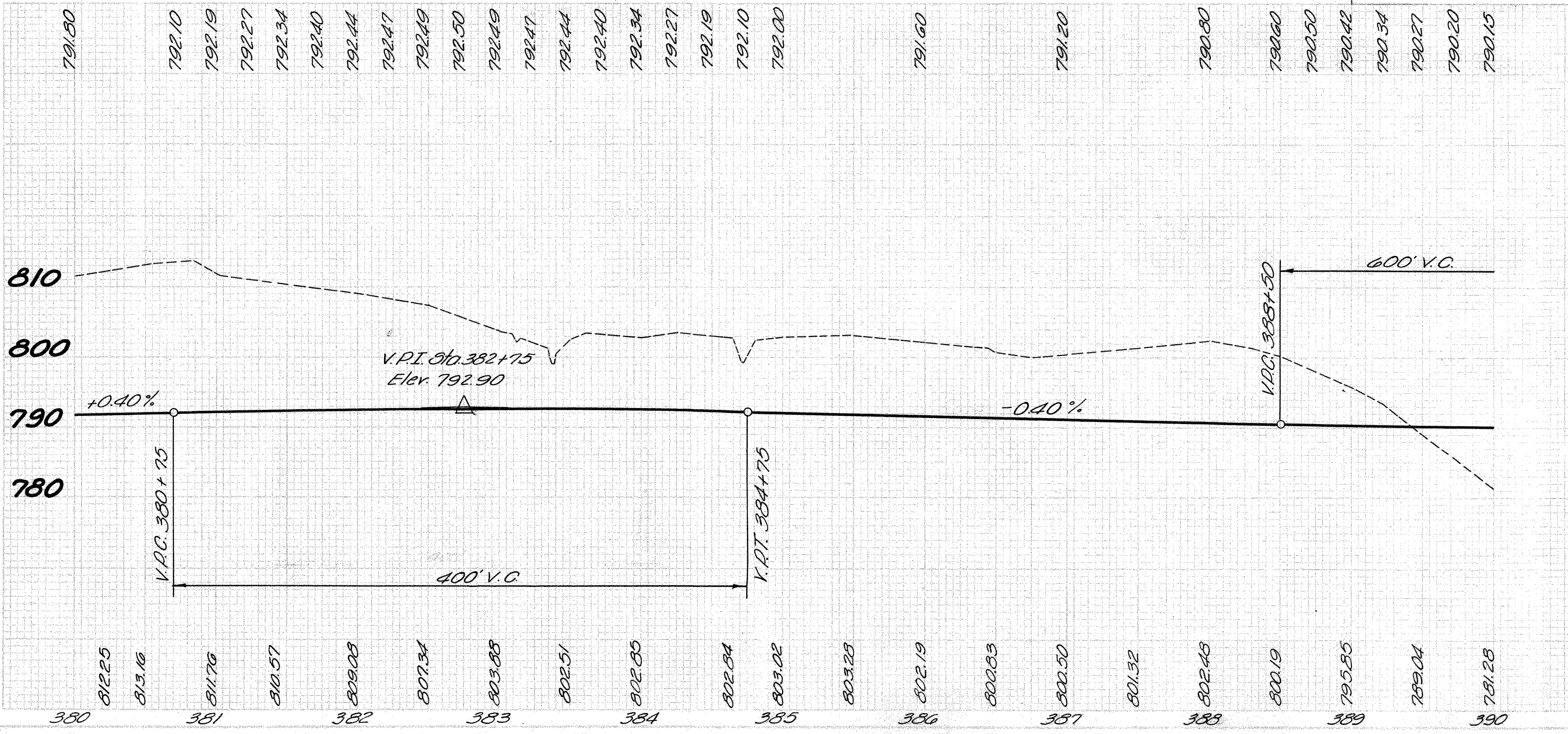
MUSKINGUM COUNTY MUS-146-6.09



BENCH MARK
R.R. Spike in 28" Sycamore
92' Rt. & Sta. 392+47
Elevation 758.67

ESTIMATED QUANTITIES

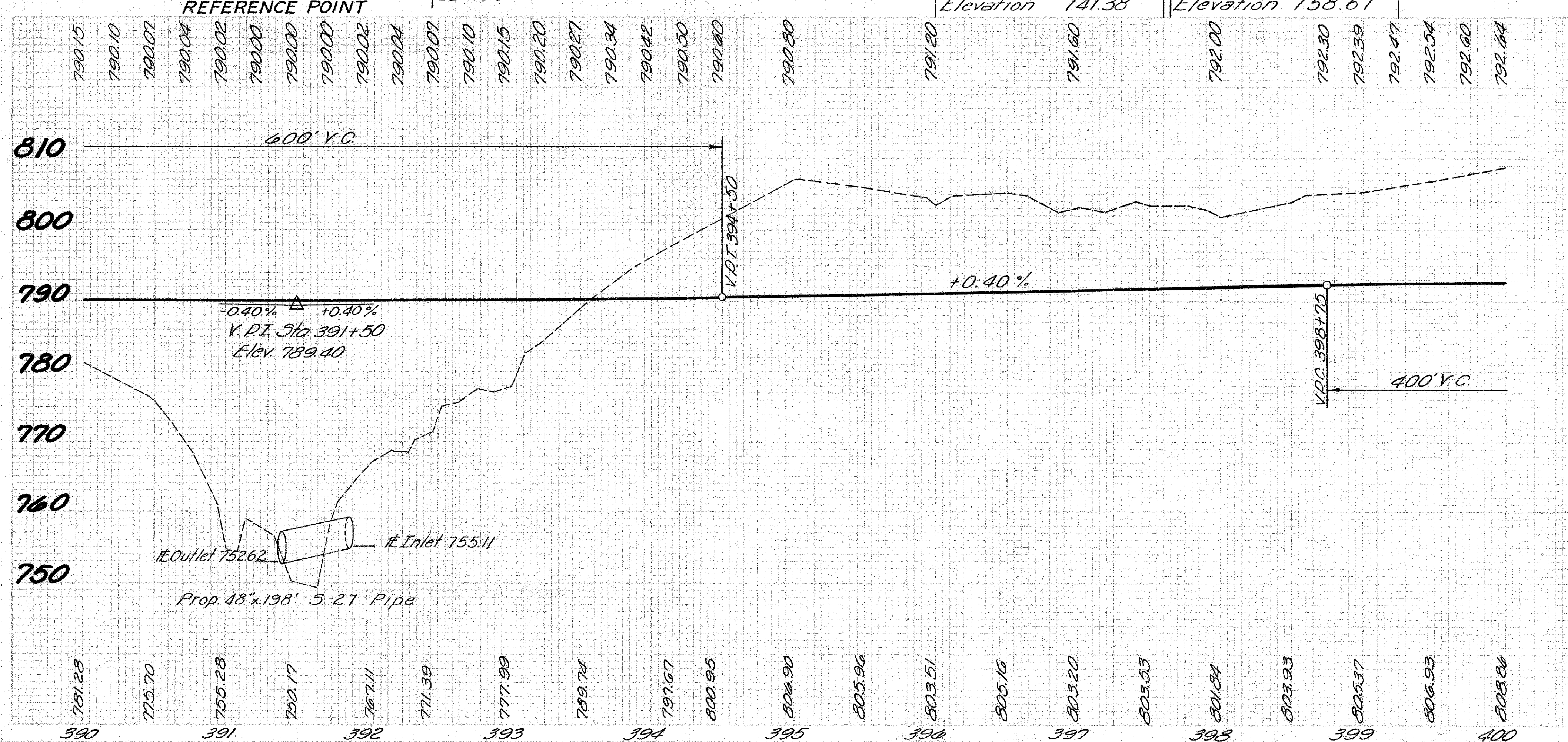
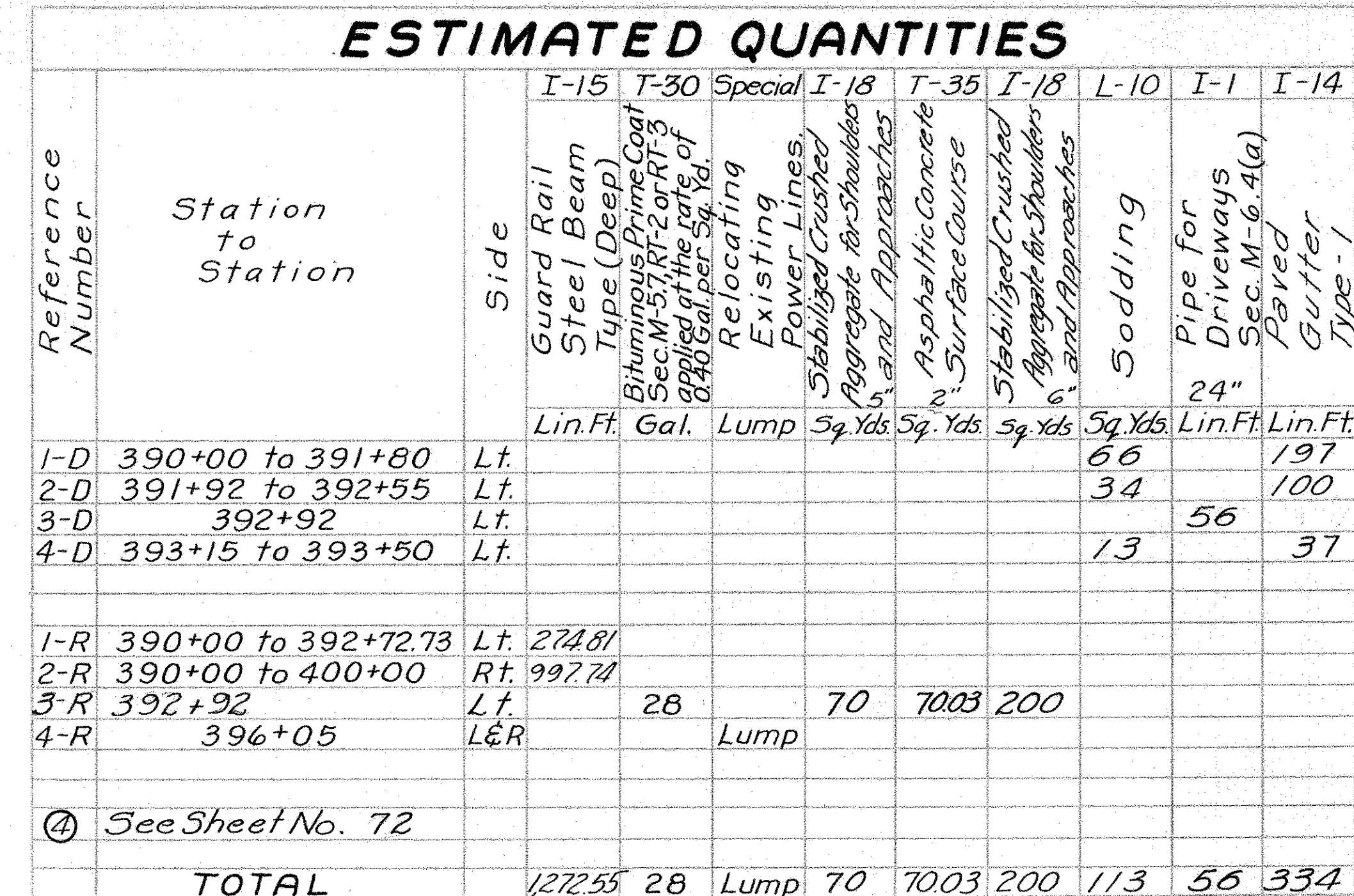
Reference Number	Station to Station	Side	Guard Rail Steel Beam Type (Deep)	Lin. Ft.	Sodding Sq. Yds	Dumped Rock Channel Protection Cu. Yds	Paved Gutter Type-1 Lin. Ft.
1-D	383+38	Lt.	I-15				
2-D	384+74	Lt.	I-15				
3-D	389+10 to 390+00	Lt.	I-15		37	11	111
1-R	380+00 to 390+00	Rt.	I-15	992.32			
2-R	389+25.38 to 390+00	Lt.	I-15	75.19			
TOTAL					1067.51	37	23 111



REVISION	DATE	DESCRIPTION	H.F.K. BY
	3/23/62	AS CONSTRUCTED	
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: WHO		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
TRACED BY:		ELMER S. BARRETT ASSOCIATES	
CHECKED BY:		RECOMMENDED: <i>Van S. Johnson</i>	
SUBMITTED BY:		APPROVED: <i>Steven Malerich</i> DATE: NOV. 1959	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: Horiz. 1"=50' SPEC. NO. VERT. 1"=5' DRAWING NUMBER 027f-UD7-68/20 SHEET 20 OF 92	

*THE MUSKINGUM VALLEY
FISHERMAN'S ASSOCIATION*

MUSKINGUM COUNTY
MUS - 146 - 6.09

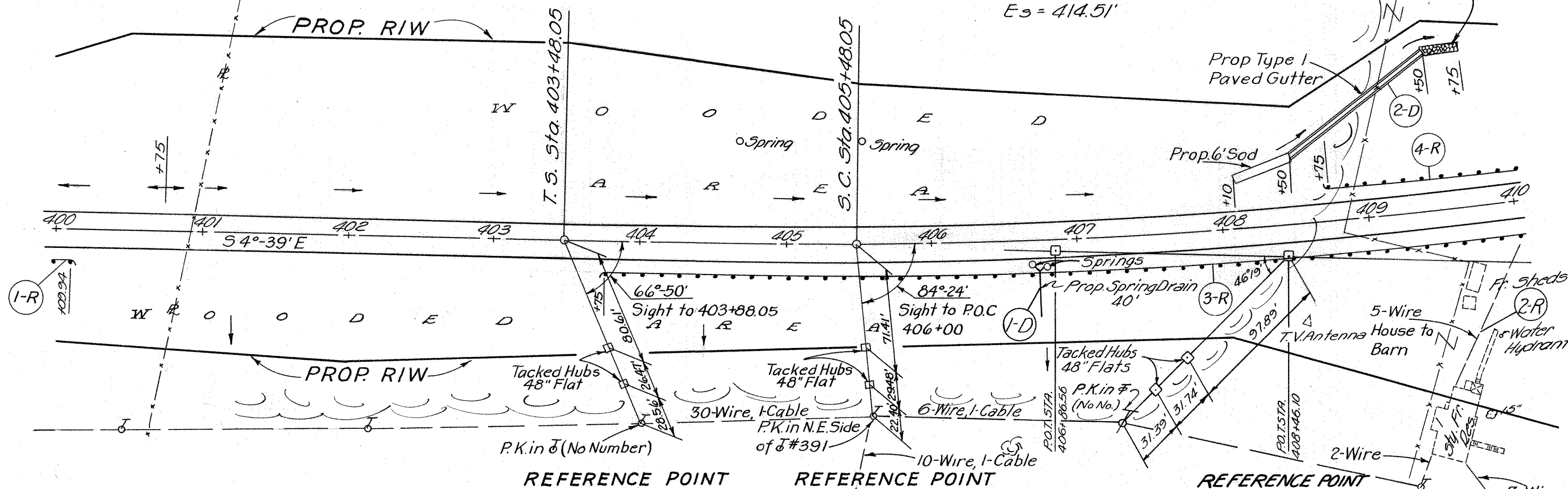
[illegible]

THE
MUSKINGUM
VALLEY
FISHERMANS
ASSOCIATION

JOSEPHINE U. OWENS

PROP. CURVE DATA

P.I. Sta. 422+74.27
 $\Delta = 51^{\circ}06'Lt.$ $P = 0.44'$
 $L_s = 200'$ $K = 100'$
 $D_c = 1^{\circ}30'$ $X_c = 199.99'$
 $\theta_s = 1^{\circ}30'$ $Y_c = 1.75'$
 $R = 3819.72'$ $\Delta c = 48^{\circ}06'$
 $T_s = 1926.22'$ $L_c = 3206.67'$
 $E_s = 414.51'$



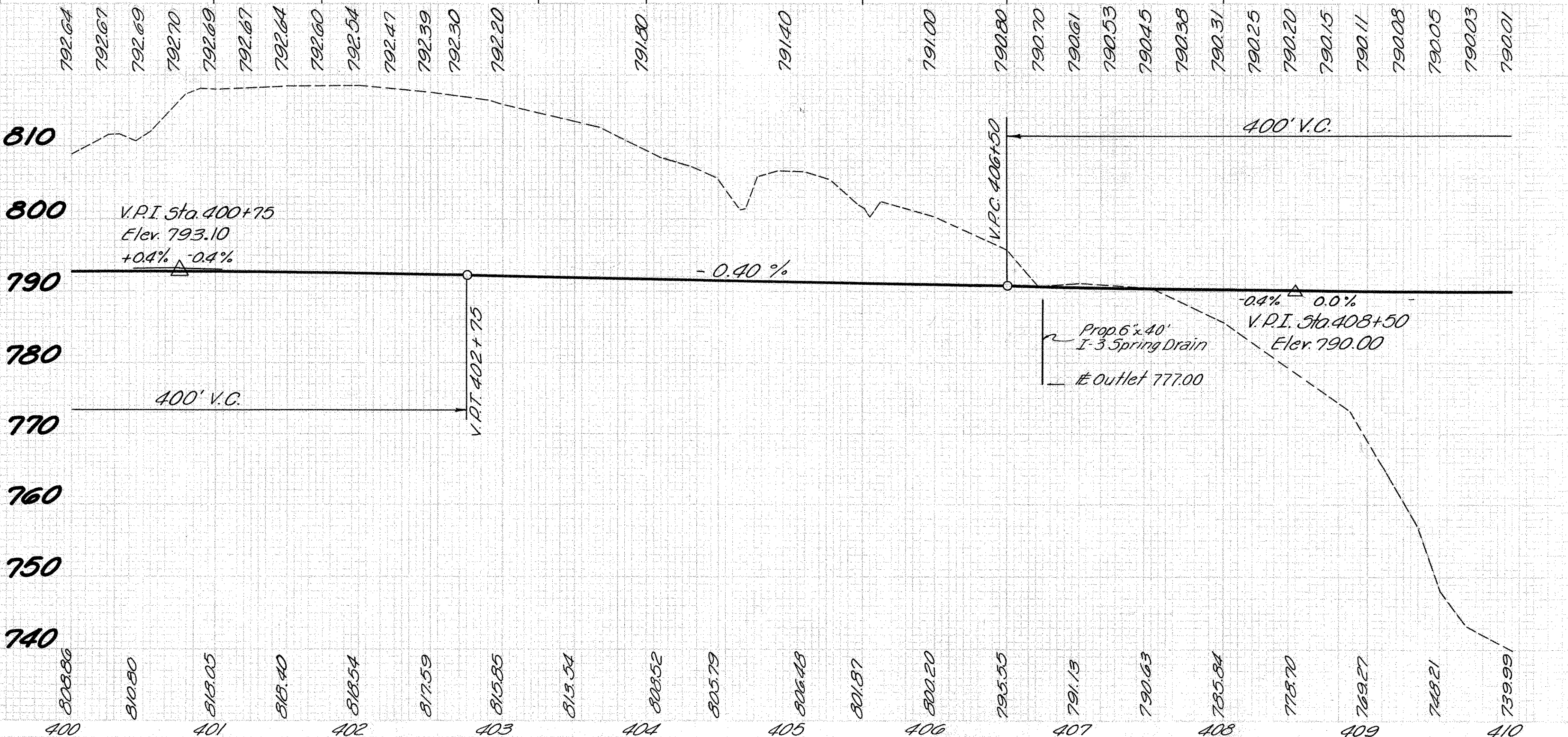
ESTIMATED QUANTITIES												
Reference Number	Station to Station	Side	I-15 Special		L-10		I-3	I-10	I-14	5-29		
			Guard Rail	Steel Beam Tube (Deep) Relocating Existing Power Lines	Sodding	Roadway Drainage Under Pavement with 6" Porous Backfill	Dumped Rock Channel Protection	Paved Gutter Type - 1	Porous Backfill for Spring Drains using 96% Aggregate			
			Lin.Ft.	Lump	Sq.Yds		Lin.Ft.	Cu.Yds	Lin.Ft.	Cu.Yds		
1-D	406+75	Rt.					400			1.5		
2-D	408+10 to 409+75	Lt.			70			9	1200			
1-R	400+00 to 400+09.94	Rt.	394									
2-R	409+00 to 410+00	Rt.		Lump								
3-R	403+75 to 410+00	Rt.	628.18									
4-R	408+75 to 410+00	Lt.	12428									
TOTAL			76240	Lump	70		400	9	1200	1.5		

BENCH MARK
Spike in 16" Maple
91.5' Rt. of Sta. 399+00
Elevation 775.62

BENCH MARK
Spike in Power Pole No. 5
South Side S.R. 146
Elevation 736.61

BENCH MARK
Spike in Power Pole No. 8
South Side S.R. 146
Elevation 731.38

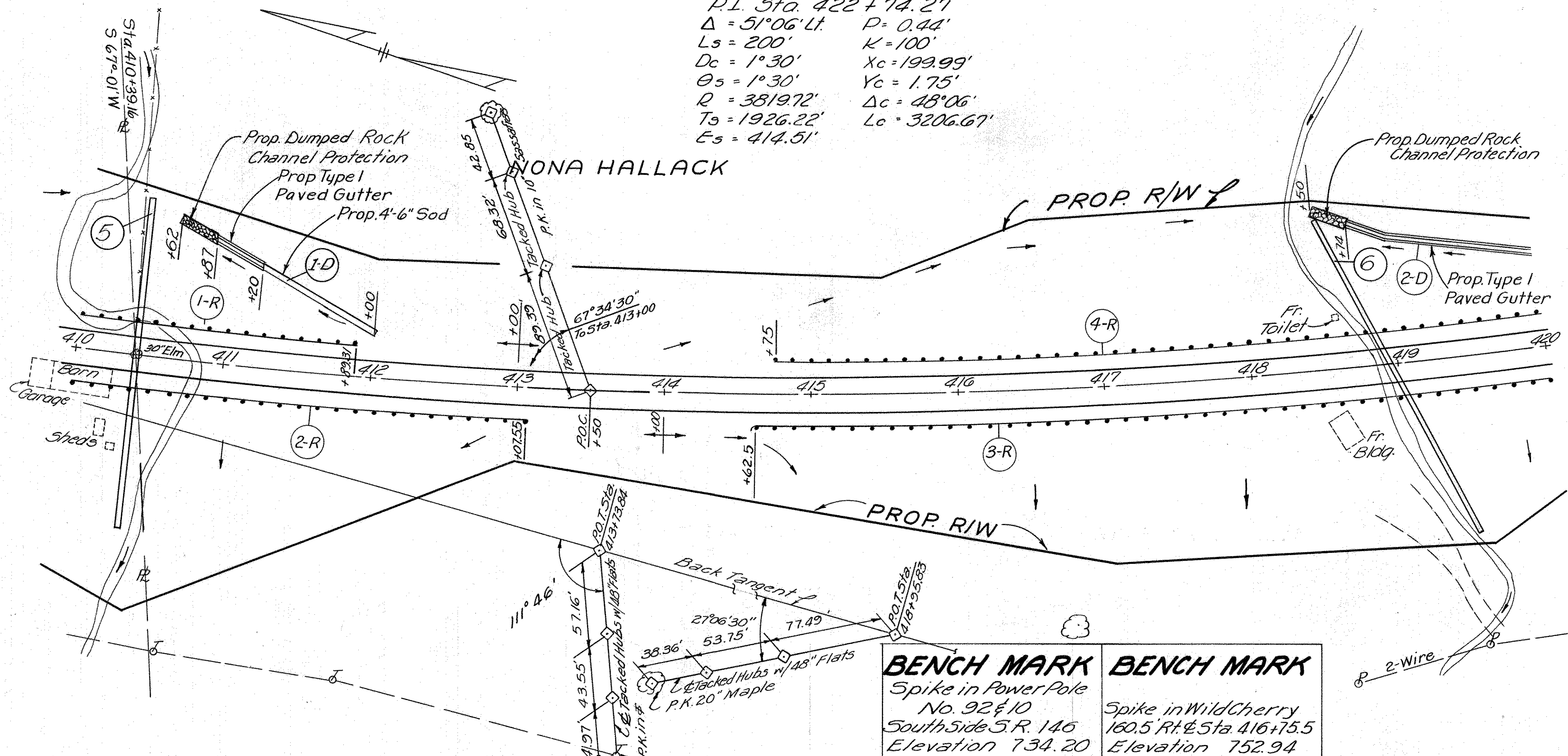
BENCH MARK
Spike in 15" Oak
147' Rt. of Sta. 406+50
Elevation 757.75



3/23/62	AS CONSTRUCTED	H.F.K.
REVISION	DATE	DESCRIPTION
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.		
DRAWN BY: WHD		
TRACED BY:		
CHECKED BY:		
SUBMITTED BY: Elmer S. Barrett		
ELMER S. BARRETT ASSOCIATES		
RECOMMENDED BY: Dan E. Johnson		
APPROVED: Steven Malench		
DATE: NOV. 1959		
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		
SCALE: Horz. 1"=50' Vert. 1"=5' SPEC. NO. DRAWING NUMBER 027f-UD7-68/22 SHEET 22 OF 92		

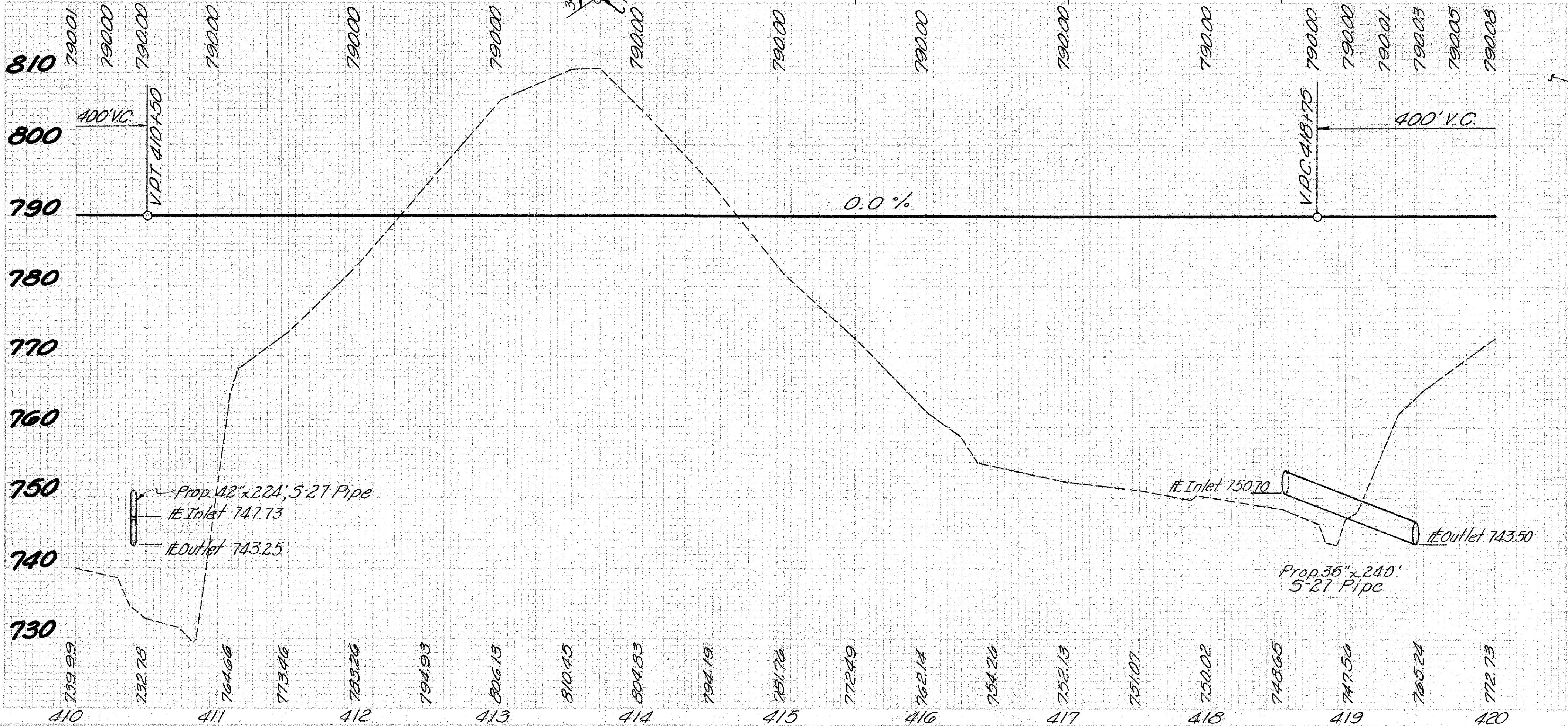
MUSKINGUM COUNTY
MUS-146- 6.09

PROP. CURVE DATA
 P.I. Sta. 422 + 74.27
 $\Delta = 51^{\circ}06' Lt.$ $P = 0.44'$
 $L_s = 200'$ $K = 100'$
 $D_c = 1^{\circ}30'$ $X_c = 199.99'$
 $\theta_s = 1^{\circ}30'$ $Y_c = 1.75'$
 $R = 3819.72'$ $\Delta c = 48^{\circ}06'$
 $T_s = 1926.22'$ $L_c = 3206.67'$
 $E_s = 414.51'$



ESTIMATED QUANTITIES

Reference Number	Station to Station	Side	Guard Rail Steel Beam Type (Deep)	I-15			L-10			I-10			I-14		
				Lin.Ft.	Sq.Yds.	Cu.Yds.	Lin.Ft.	Sq.Yds.	Cu.Yds.	Lin.Ft.	Sq.Yds.	Cu.Yds.	Lin.Ft.	Sq.Yds.	Cu.Yds.
1-D	410+62 to 412+00	Lt.													
2-D	418+50 to 420+00	Lt.													
1-R	410+00 to 411+89.31	Lt.		188.22											
2-R	410+00 to 413+07.55	Rt.		309.32											
3-R	414+62.5 to 420+00	Rt.		540.60											
4-R	414+75 to 420+00	Lt.		521.98											
5	See Sheet No. 73														
6	See Sheet No. 74														
TOTAL				1560.12			103	18	168						

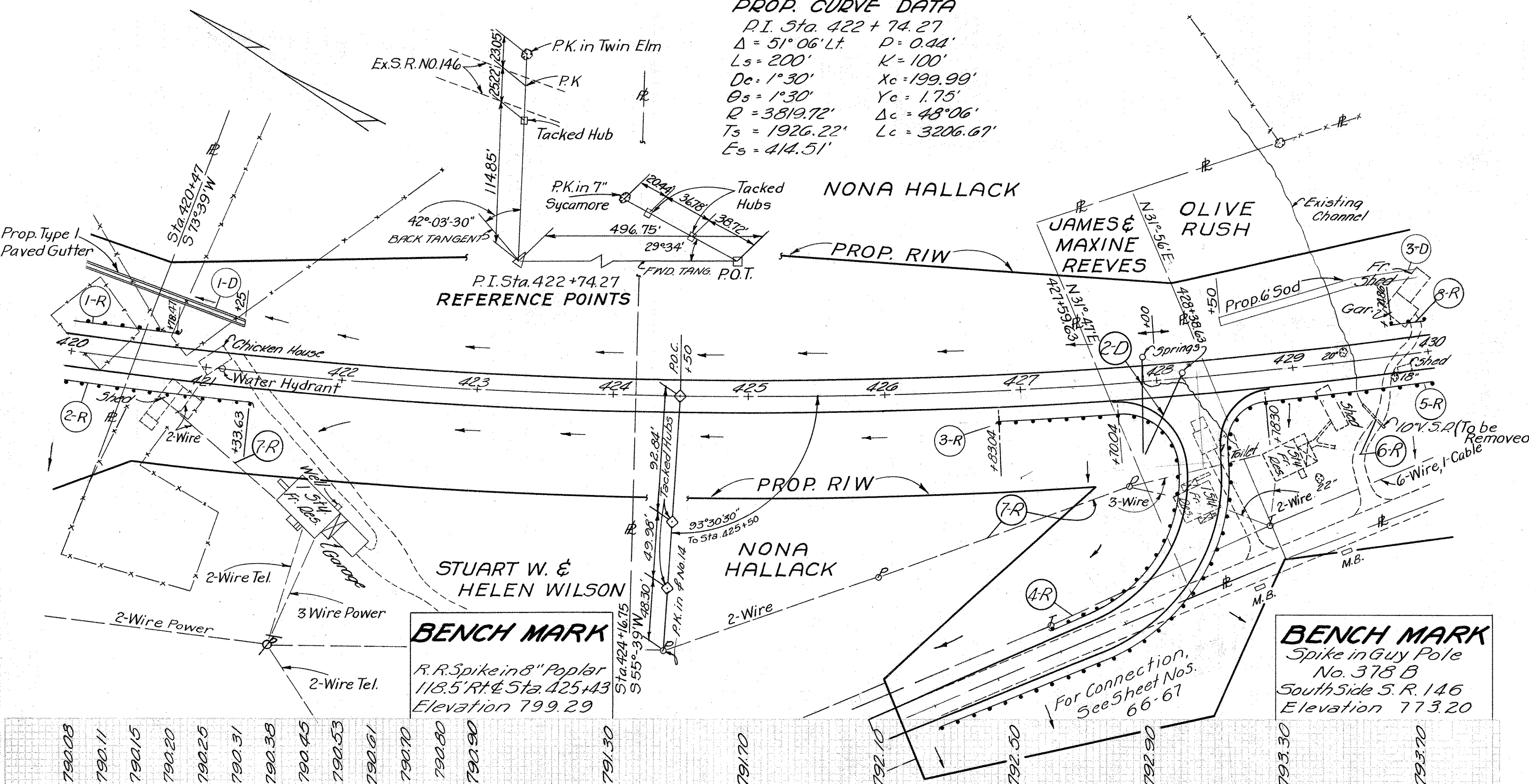


Back Tangent
 Forward Tangent
 P.I. Sta. 422 + 74.27

REVISION	DATE	DESCRIPTION	BY
	3/22/62	AS CONSTRUCTED	H.F.K.
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: WHD		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
CHECKED BY: [Signature]		APPROVED: [Signature] COL. C. E. DISTRICT ENGINEER	
SUBMITTED BY: [Signature]		DATE: NOV. 1959	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: Horiz. 1" = 50' SPEC. NO. DRAWING NUMBER 027f-UD7-68/23 SHEET 23 of 92	

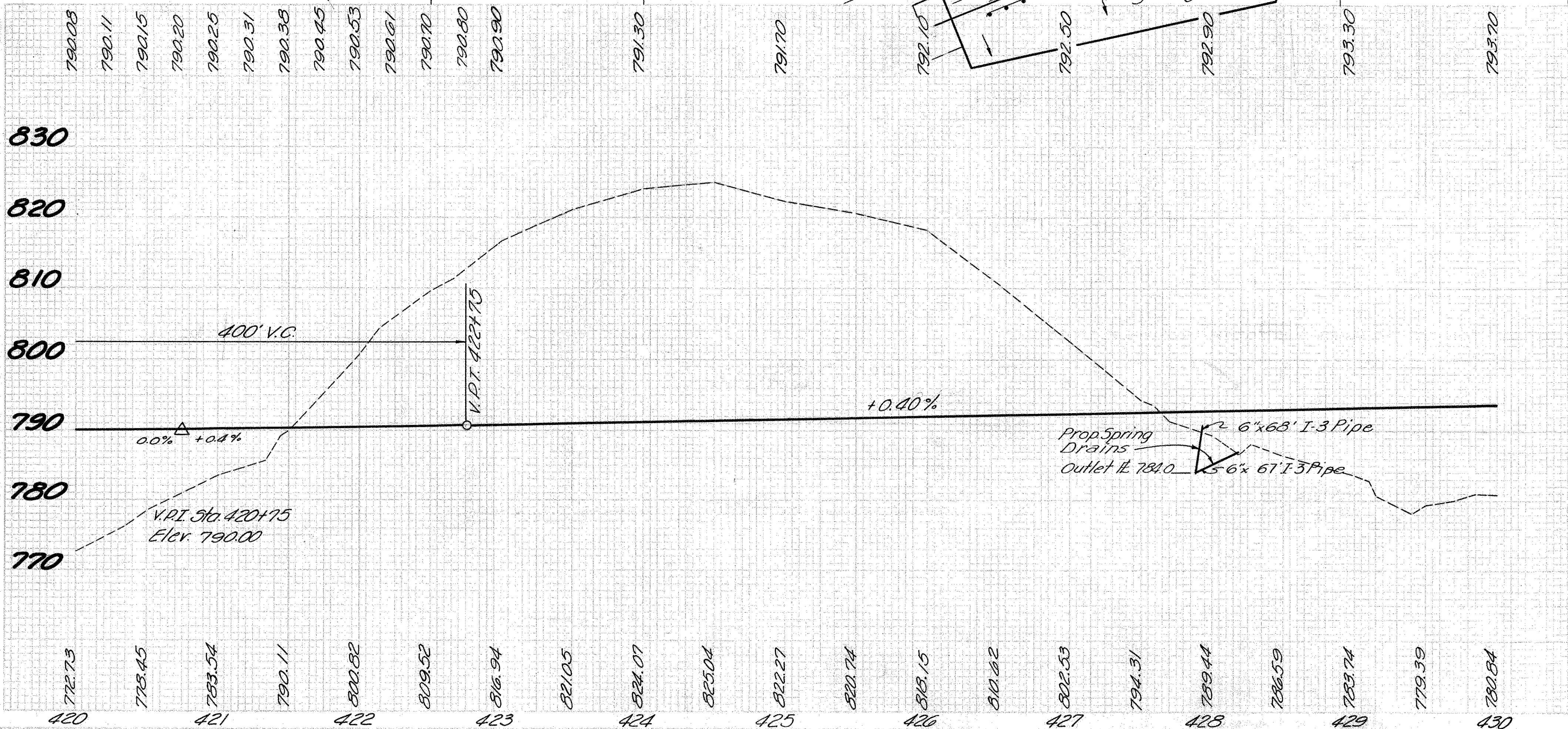
MUSKINGUM COUNTY
MUS-146-6.09

PROP. CURVE DATA
P.I. Sta. 422+74.27
 $\Delta = 51^\circ 06' Lf.$ $D = 0.44'$
 $L_s = 200'$ $K = 100'$
 $D_c = 1^\circ 30'$ $X_c = 199.99'$
 $\theta_s = 1^\circ 30'$ $Y_c = 1.75'$
 $R = 3819.72'$ $\Delta_c = 48^\circ 06'$
 $T_s = 1926.22'$ $L_c = 3206.67'$
 $E_s = 414.51'$



ESTIMATED QUANTITIES

Reference Number	Station to Station	Side	E-12	I-15	Special	Special	L-10	I-3	I-14	S-29
			Pipe Removed 15 inch and under 10"	Guard Rail Steel Beam Type (Deep)	Relocating Existing Telephone Lines	Relocating Existing Power Lines	Sodding	Roadway Drainage Under Pavement 6"	Porous Backfill Paved Gutter Type-1	Porous Backfill for Spring Drains using No. 6 Aggregate
1-D	420+00 to 421+25	Lt.								
2-D	427+90 to 428+20	L&R						135		1.5
3-D	428+50 to 430+00	Lt.					100			
1-R	420+00 to 420+78.47	Lt.		78.02						
2-R	420+00 to 421+33.63	Rt.		134.40						
3-R	426+83.04 to 427+70.04	Rt.		87.50						
4-R	426+00 to 430+00	Rt.			Lump					
5-R	428+78.30 to 430+00	Rt.		122.40						
6-R	429+50	Rt.	24.0							
7-R	421 to 422 & 427 to 429	Rt.			Lump					
8-R	429+74.86 to 430+00	Lt.		25.00						
TOTAL			240	447.32	Lump	Lump	143	135	128	1.5



REVISION	DATE	DESCRIPTION	BY
	3/23/62	AS CONSTRUCTED	H.F.K.
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: WHD			
TRACED BY:			
CHECKED BY:			
SUBMITTED BY:			
ELMER S. BARRETT ASSOCIATES			
RECOMMENDED: <i>John S. Johnson</i>			
APPROVED: <i>Steven Malenich</i>			
DATE: NOV. 1959			
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO			
SCALE: Horiz. 1"=50' SPEC. NO. VERT. 1"=10' DRAWING NUMBER 027f-UD7-68/24 SHEET 24 OF 92			

NONA HALLACK

PROP. CURVE DATA

PI Sta 422+74.27
 $\Delta = 51^{\circ}06' \text{ Lt}$ $P = 0.44'$
 $L_s = 200'$ $K = 100'$
 $D_c = 1^{\circ}30'$ $X_c = 199.99'$
 $\theta_s = 1^{\circ}30'$ $Y_c = 1.75'$
 $R = 3819.72'$ $\Delta c = 48^{\circ}06'$
 $T_s = 1926.22'$ $L_c = 3206.67'$
 $E_s = 414.51'$

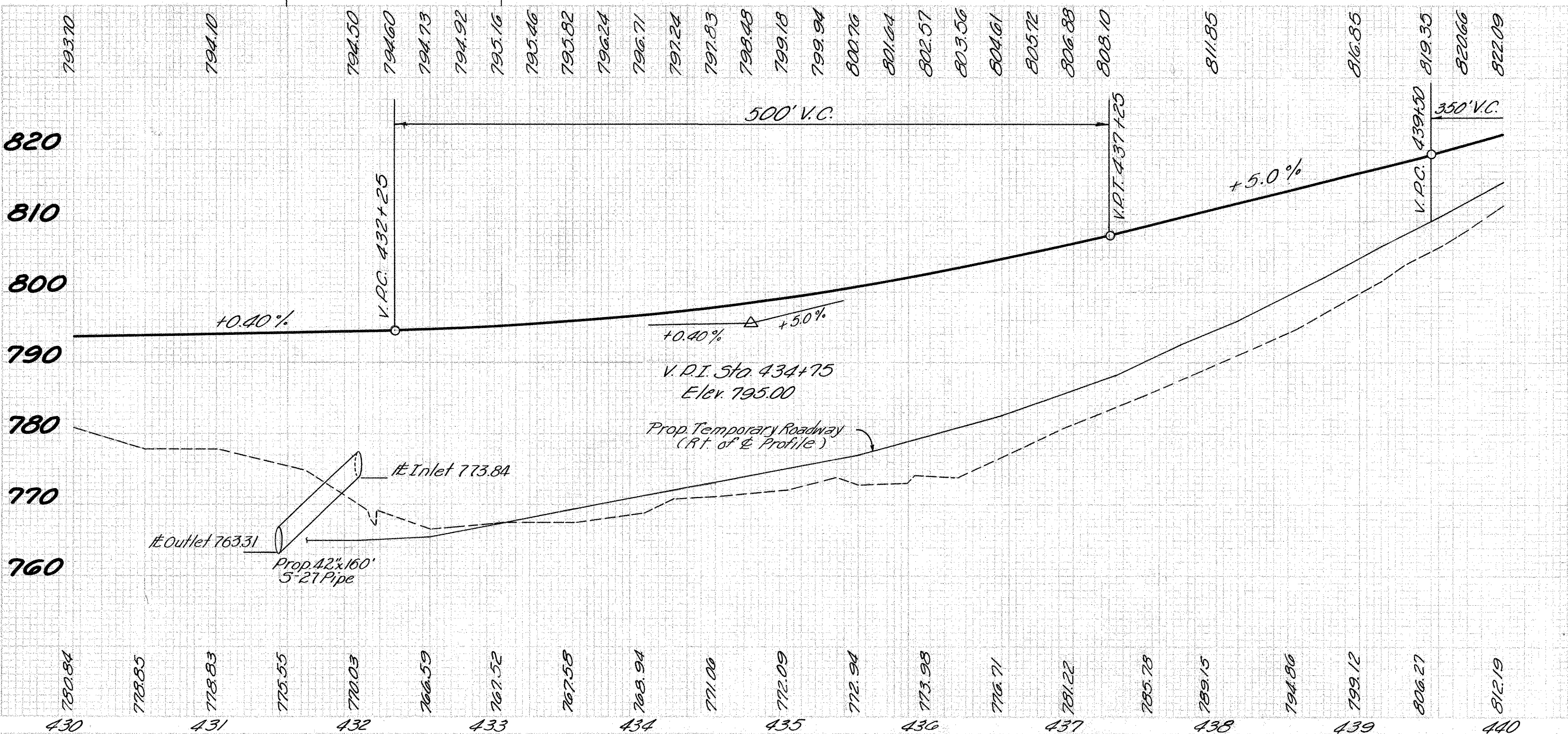
ALICE MARSHALL ET AL.

MUSKINGUM COUNTY
MUS-146-6.09

ESTIMATED QUANTITIES

Reference Number	Station to Station	Side	Pipe Removed over 15 inch	Pipe Removed over 15 inch	Guard Rail Steel Beam Type (Deep)	Relocating Existing Telephone Lines	Dumped Rock Channel Protection	Sodding	Paved Gutter Type 1	Paved Gutter Type 2
			18" Lin.Ft.	36" Lin.Ft.	Lin.Ft.	Lump	Cu.Yds	Sq.Yds	Lin.Ft.	Lin.Ft.
1-D	430+00 to 432+00	Lt.						135		
2-D	431+55 to 438+57	Rt.						238	7150	
3-D	437+00	Lt.						22		10
4-D	439+75 to 440+00	Rt.						17		
5-D	437+10 to 438+25	Lt.					115			
1-R	430+00 to 440+00	Lt.			99508					
2-R	430+00 to 439+84.43	Rt.			99010					
3-R	431+80	Rt.	360							
4-R	430+00 to 440+00	Rt.				Lump				
5-R	436+95	Rt.		760						
⑦	See Sheet No. 75									
TOTAL			360	760	99518	Lump	115	412	715	10

BENCH MARK
Spike in Telephone Pole
No. 368
26' Lt. Sta 439+35
Elevation 801.89

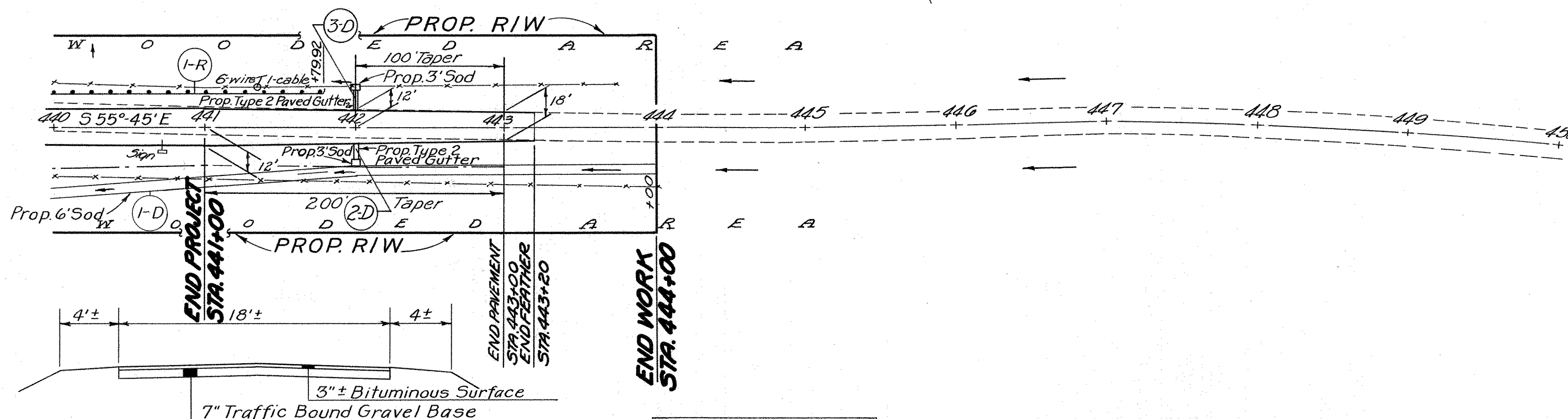


WORK AS CONSTRUCTED PLAN & PROFILE STA. 430+00 TO STA. 440+00

REVISION	DATE	DESCRIPTION	BY
	3/23/62	AS CONSTRUCTED	H.F.K.
U.S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: WHD		LICKING RIVER DILLON RESERVOIR PROJECT	
TRACED BY:		RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
CHECKED BY:		APPROVED: Steven Malench	
SUBMITTED BY:		DATE: NOV. 1959	
RECOMMENDED: Elmer S. Barrett Associates		COL. C.E., DISTRICT ENGINEER	
CHIEF ENG. DIV.		ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO	
SCALE: Horiz. 1" = 50'		SHEET 25 OF 92	

ALICE MARSHALL ET.AL.

MUSKINGUM COUNTY
MUS-146-6.09



TYPICAL SECTION OF ADJOINING
PAVEMENT AT END OF PROJECT

BENCH MARK

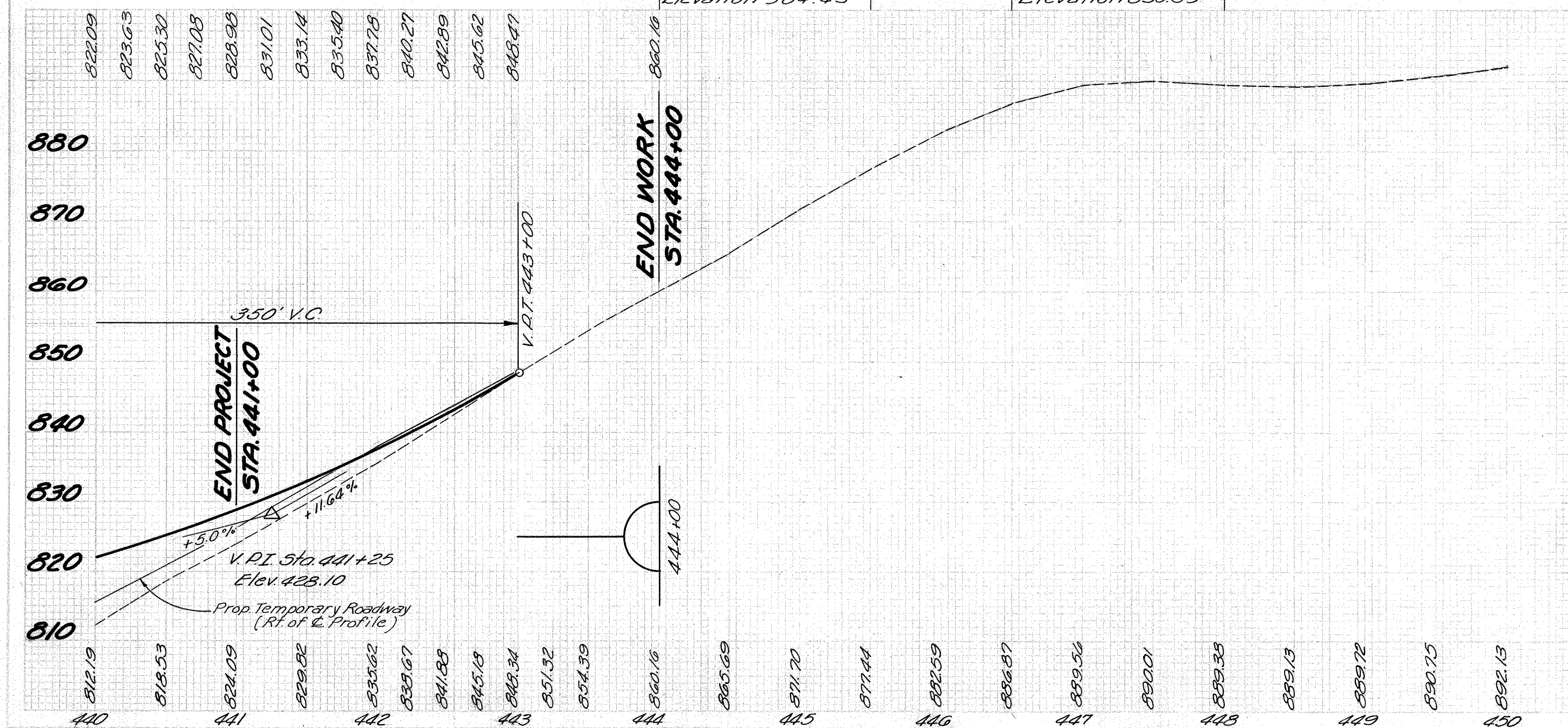
R.R. Spike in 16" Walnut
14' Rt. Approx. Sta 450+
Elevation 904.45

BENCH MARK

On Concrete Base
of Flag Pole at
U.S.C.E. Office
Elevation 830.59

ESTIMATED QUANTITIES

Reference Number	Station to Station	Side	Guard Rail Steel Beam Type (Deep)	I-15 Lin. Ft.	I-10 Sodding Sq. Yds.	I-14 Paved Gutter Type-2 Lin. Ft.
I-D	440+00 to 444+00	Lt.			268	
2-D	442+00	Lt.			3	10
3-D	442+00	Rt.			2	10
I-R	440+00 to 441+79.92	Lt.	17992			
TOTAL				17992	273	20



WORK AS CONSTRUCTED **PLAN & PROFILE** STA. 440+00 TO STA. 450+00

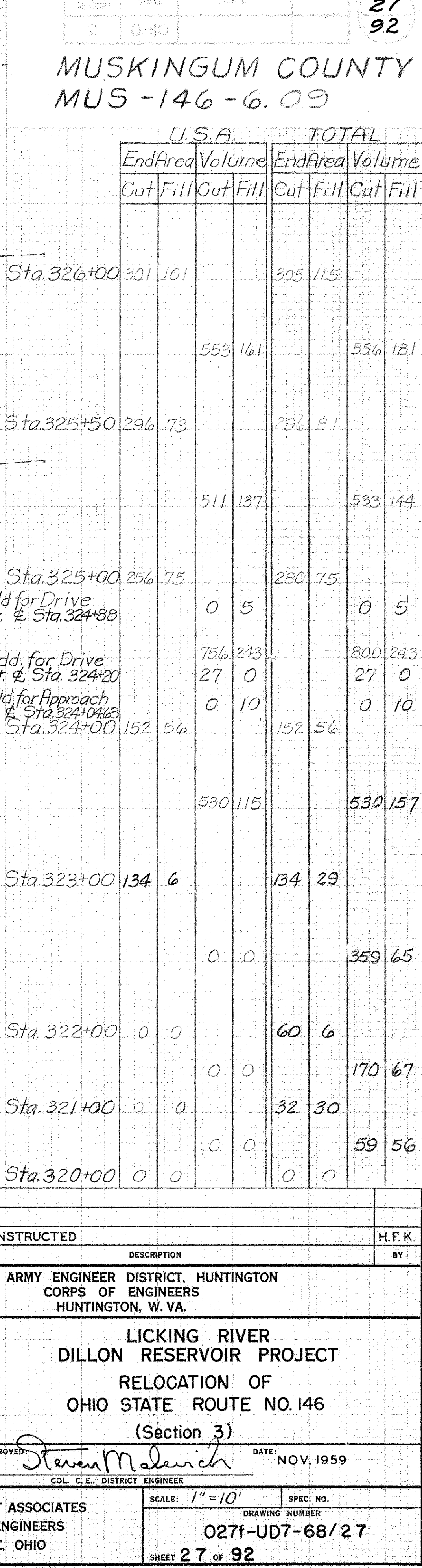
REVISION	DATE	DESCRIPTION	BY
	3/23/62	AS CONSTRUCTED	H.F.K.
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: WHD		LICKING RIVER DILLON RESERVOIR PROJECT	
TRACED BY:		RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
CHECKED BY:		APPROVED: <i>Steven Malenich</i> DATE: NOV. 1959	
SUBMITTED BY: <i>Elmer S. Barrett</i> ELMER S. BARRETT ASSOCIATES		COL. C.E., DISTRICT ENGINEER	
RECOMMENDED BY: <i>Gen. B. Johnson</i> CHIEF ENG. DIST.			
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: <i>Vert. 1" = 50'</i> SPEC. NO. DRAWING NUMBER 027f-UD7-68/26 SHEET 26 OF 92	

Yds.

L-9	L-9	L-9
Seeding and	Commercial Fertilizer (100 lb)	Agricultural Liming (100 lb)

the first of the two groups. The second group, which was the control group, was the group of patients who were not treated with the new drug. The results of the study showed that the new drug was effective in treating the disease, and that the control group did not show any improvement. The study was conducted over a period of six months, and the results were published in a journal of medicine. The study was a double-blind, randomized controlled trial, which is the gold standard for clinical research. The results of the study were statistically significant, and the new drug was found to be superior to the control group. The study was funded by the National Institutes of Health, and the results were used to inform the development of new drugs for the treatment of the disease. The study was a landmark study in the field of medicine, and it led to the widespread use of the new drug. The study was a testament to the power of clinical research, and it showed that the new drug was a safe and effective treatment for the disease. The study was a landmark study in the field of medicine, and it led to the widespread use of the new drug. The study was a testament to the power of clinical research, and it showed that the new drug was a safe and effective treatment for the disease.

ed Construction
its of The
America
fference between
ates the
The State of Ohio.
ches at the toe
e a part of the
f America
s to be used
tion to
c.
Line



0	301	101			305	115		
				553	161			554 181
	296	73				296	81	
				511	137			533 144
0	256	75				280	75	
3				0	5			0 5
				756	243			800 243
0				27	0			27 0
3				0	10			0 10
	152	56				152	56	
				530	115			530 157
	134	6				134	29	
				0	0			359 65
0	0	0				60	6	
				0	0			170 67
0	0	0				32	30	
				0	0			59 56
0	0	0				0	0	

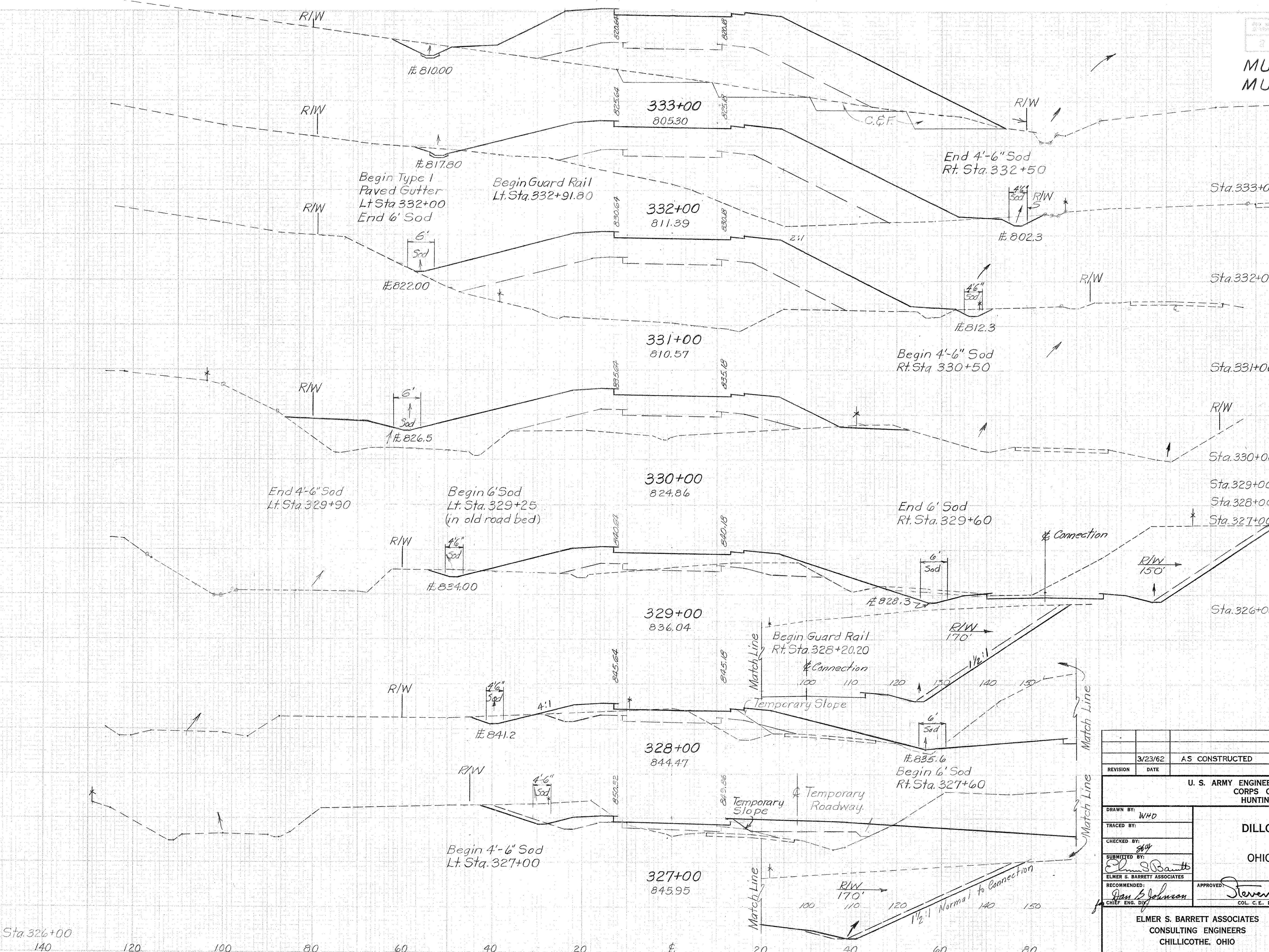
Sta. 325+00	256	75	280	75
Add for Drive Lt. & Sta. 324+88	0	5	0	5
Add. for Drive Rt. & Sta. 324+20	756	243	800	243
Add for Approach Lt. & Sta. 324+0463	27	0	27	0
Sta. 324+00	0	10	0	10
	152	56	152	56
	530	115	530	157
Sta. 323+00	134	6	134	29
	0	0	359	65
Sta. 322+00	0	0	60	6
	0	0	170	67
Sta. 321+00	0	0	32	30
	0	0	59	56
Sta. 320+00	0	0	0	0

[illegible]

Seeding	End Width	Sq. Yds.
120		
1350		
123		
1322		
115		
1306		
120		
1517		
153		
1794		
170		
1922		
176		
1583		
109		

U.S.A.				TOTAL			
End	Area	Volume		End	Area	Volume	
Cut	Fill	Cut	Fill	Cut	Fill	Cut	Fill
Sta. 333+00	127.503			179	1245		
		278	1894			374	4596
Sta. 332+00	23.520			23	1237		
		59	2531			59	5057
Sta. 331+00	9.847			9	1494		
		17	1974			30	4415
Sta. 330+00	0.219			7	890		
		370	467			931	2126
Sta. 329+00	524.33			496	258	3202	850
Sta. 328+00	1261.46			1233	201	3981	778
Sta. 327+00	893.28			917	219		
		2211	239			2263	619
Sta. 326+00	301.101			305	115		

3/23/62	AS CONSTRUCTED	H.F.K.
REVISION	DATE	DESCRIPTION
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.		
DRAWN BY: WHD TRACED BY: CHECKED BY: <i>SKH</i> SUBMITTED BY: <i>Elmer S. Barrett</i> ELMER S. BARRETT ASSOCIATES RECOMMENDED: <i>Don L. Johnson</i> CHIEF ENG. DIV.		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3) APPROVED: <i>Steven Malenich</i> COL. C.E. DISTRICT ENGINEER DATE: NOV. 1959
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: 1" = 10' SPEC. NO. DRAWING NUMBER 027f-UD7-68/28 SHEET 28 OF 92



WORK AS CONSTRUCTED CROSS SECTIONS STA. 327+00 TO STA. 333+00

	3/23/62	AS CONSTRUCTED	H.F.K.
REVISION	DATE	DESCRIPTION	BY
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: <i>WHD</i>		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
TRACED BY:			
CHECKED BY: <i>SBH</i>			
SUBMITTED BY: <i>Elmer S. Barrett</i>			
ELMER S. BARRETT ASSOCIATES			
RECOMMENDED: <i>Sam S. Johnson</i>		APPROVED: <i>Steven Malachuk</i>	DATE: NOV. 1959
CHIEF ENG. DIV.		COL. C.E. DISTRICT ENGINEER	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: 1" = 10'	SPEC. NO. DRAWING NUMBER 027f-UD7-68/ 29
		SHEET 29 OF 92	

WORK AS CONSTRUCTED CROSS SECTIONS STA 334+00 TO STA 337+97.94

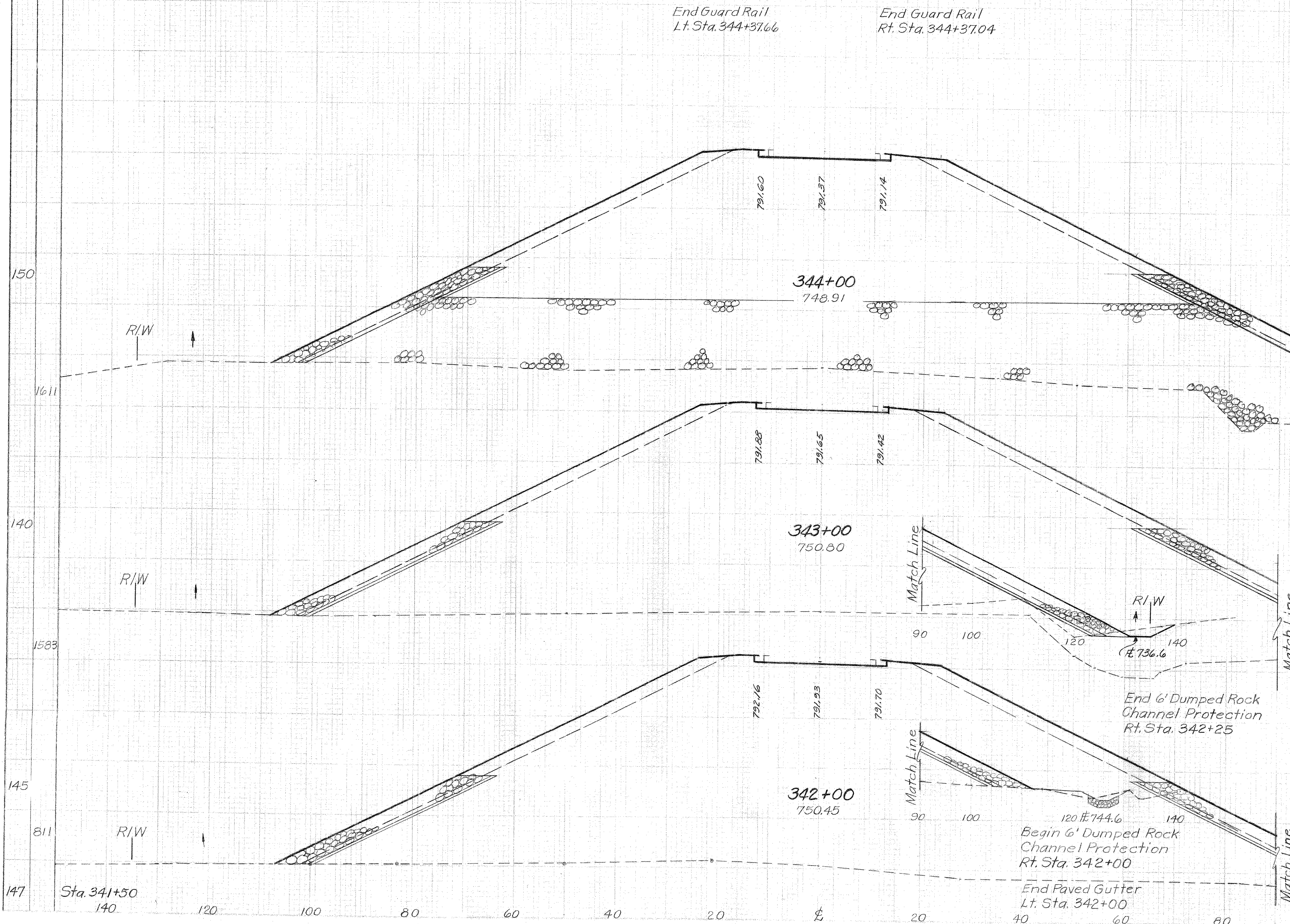
Seeding
End Sq.
Width Yds.

FED. RD. DIST. NO.	STATE	PROJECT
2	OHIO	

31
92

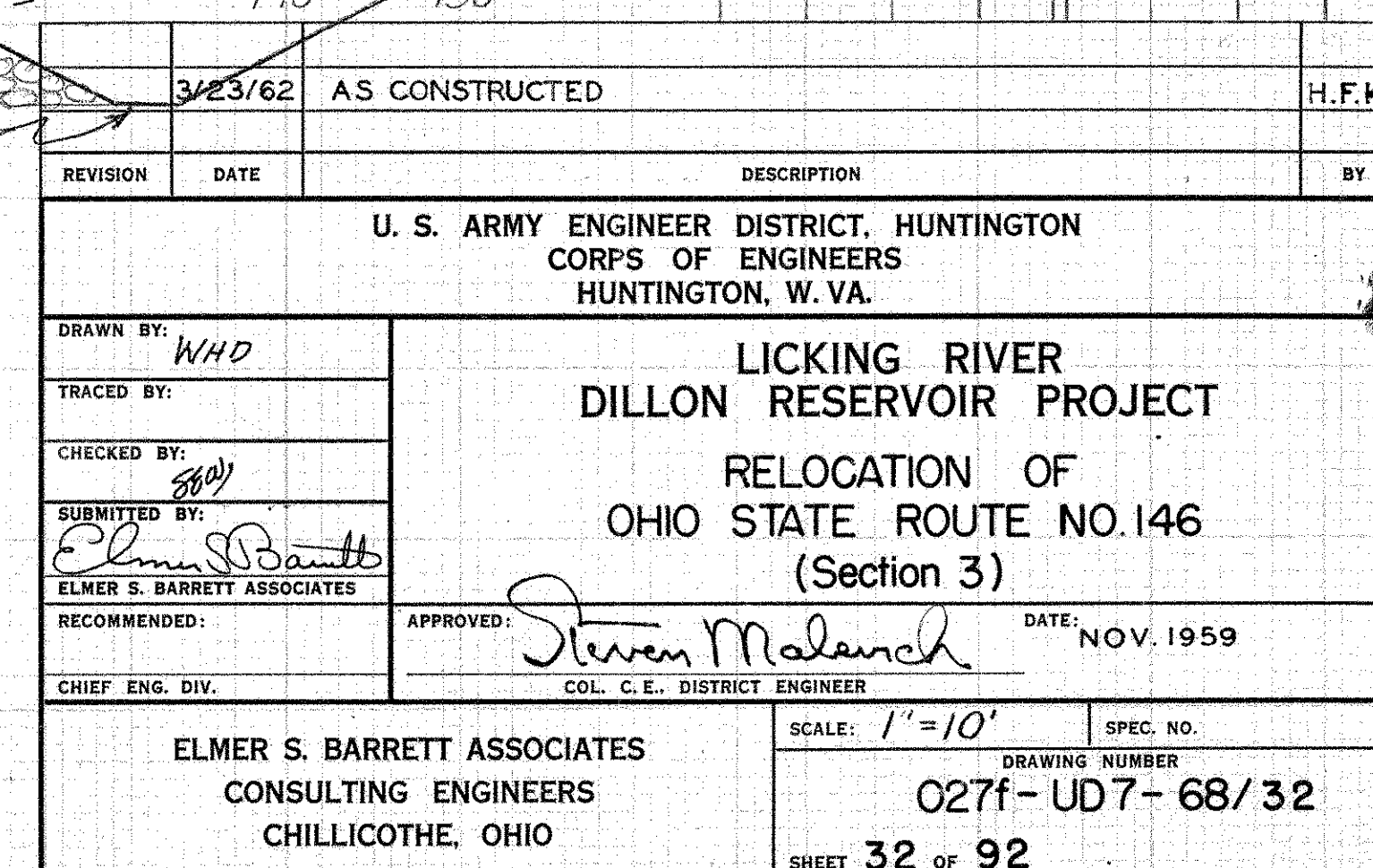
MUSKINGUM COUNTY
MUS-146-6.09

U.S.A.				TOTAL			
End	Area	Volume		End	Area	Volume	
Cut	Fill	Cut	Fill	Cut	Fill	Cut	Fill
Sta. 344+00	102	5274		102	5274		
Sta. 343+00	20	5119		20	5596		
Sta. 342+00	4	4789		4	5225		
Sta. 341+50	6	4652		6	5079		



REVISION	DATE	DESCRIPTION	BY
3/23/62	AS CONSTRUCTED		H.R.K.
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: WHD		LICKING RIVER DILLON RESERVOIR PROJECT	
TRACED BY:		RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
CHECKED BY: SBA		APPROVED: Steven Malerich COL. C.E. DISTRICT ENGINEER	
SUBMITTED BY: Elmer S. Barrett ELMER S. BARRETT ASSOCIATES		DATE: NOV. 1959	
RECOMMENDED: Dan Johnson CHIEF ENG. DIV.		SCALE: 1"=10'	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SPEC. NO. DRAWING NUMBER 0271-UD7-68/31	
SHEET 31 OF 92			

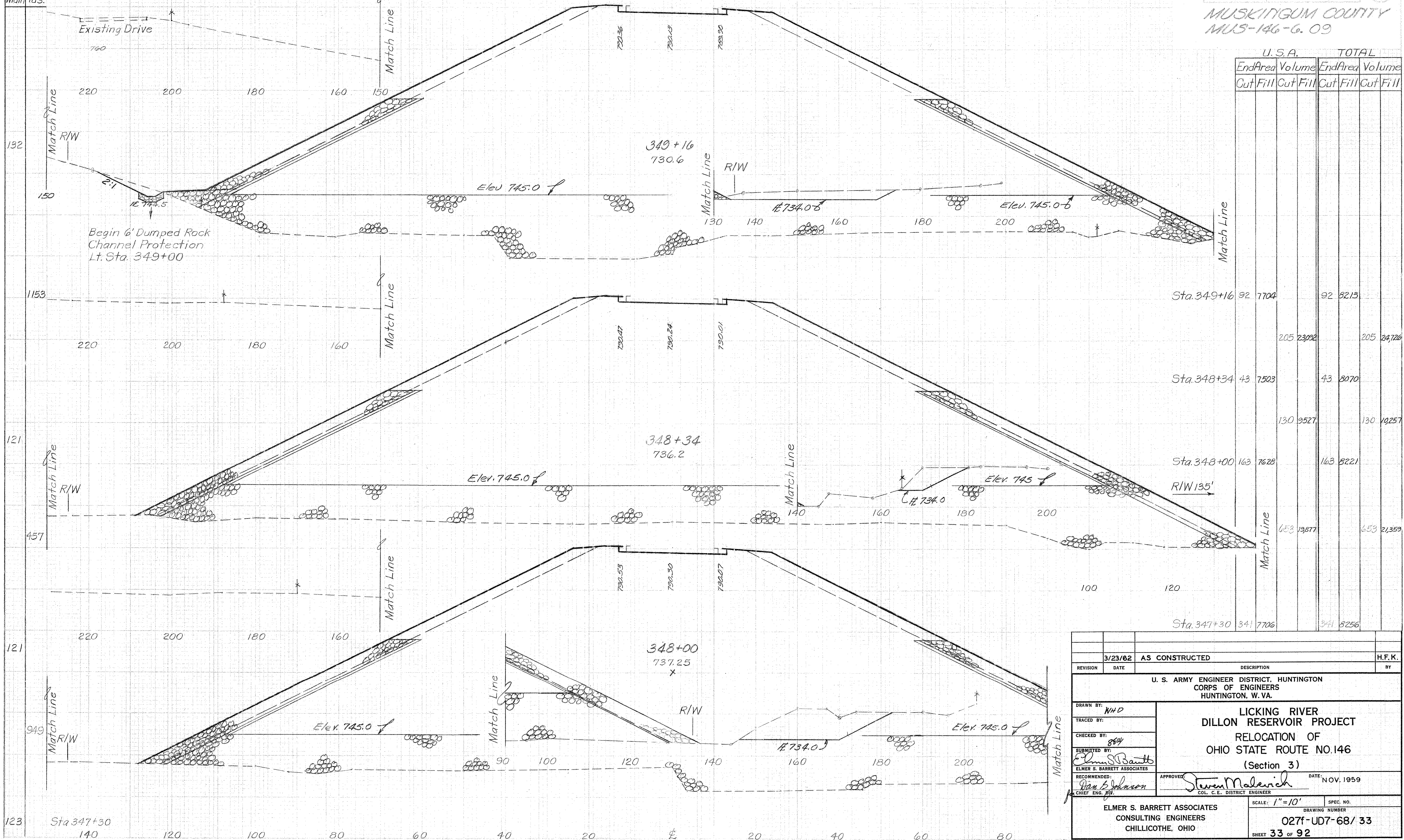
From Sta 345+91.50 to Sta. 444 +00	Excavation	Embankment
Total	452,188 C.Y.	552,615 C.Y.
Participation By The United States of America	405,107 C.Y.	476,375 C.Y.
Participation By The State of Nevada	47,081 C.Y.	76,240 C.Y.



Seeding
End Width
Sq. Yds.

33
92

MUSKINGUM COUNTY
MUS-146-6.09



U.S.A.				TOTAL			
End Area	Volume	End Area	Volume	End Area	Volume	End Area	Volume
Cut	Fill	Cut	Fill	Cut	Fill	Cut	Fill
Sta. 349+16	92	7704		92	8213		
			205	23092		205	24726
Sta. 348+34	43	7503		43	8070		
			130	9527		130	10257
Sta. 348+00	163	7628		163	8221		
			653	19877		653	21353
Sta. 347+30	341	7706		341	8256		

REVISION	DATE	DESCRIPTION	BY
	3/23/62	AS CONSTRUCTED	H.F.K.
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: WHD		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
TRACED BY:		DATE: NOV. 1959	
CHECKED BY: 864		APPROVED: Steven Malevich COL. C. E. DISTRICT ENGINEER	
SUBMITTED BY: Elmer S. Barrett Associates		ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO	
RECOMMENDED: Dan B. Johnson CHIEF ENG. DIV.		SCALE: 1"=10' DRAWING NUMBER 027f-UD7-68/ 33 SHEET 33 of 92	

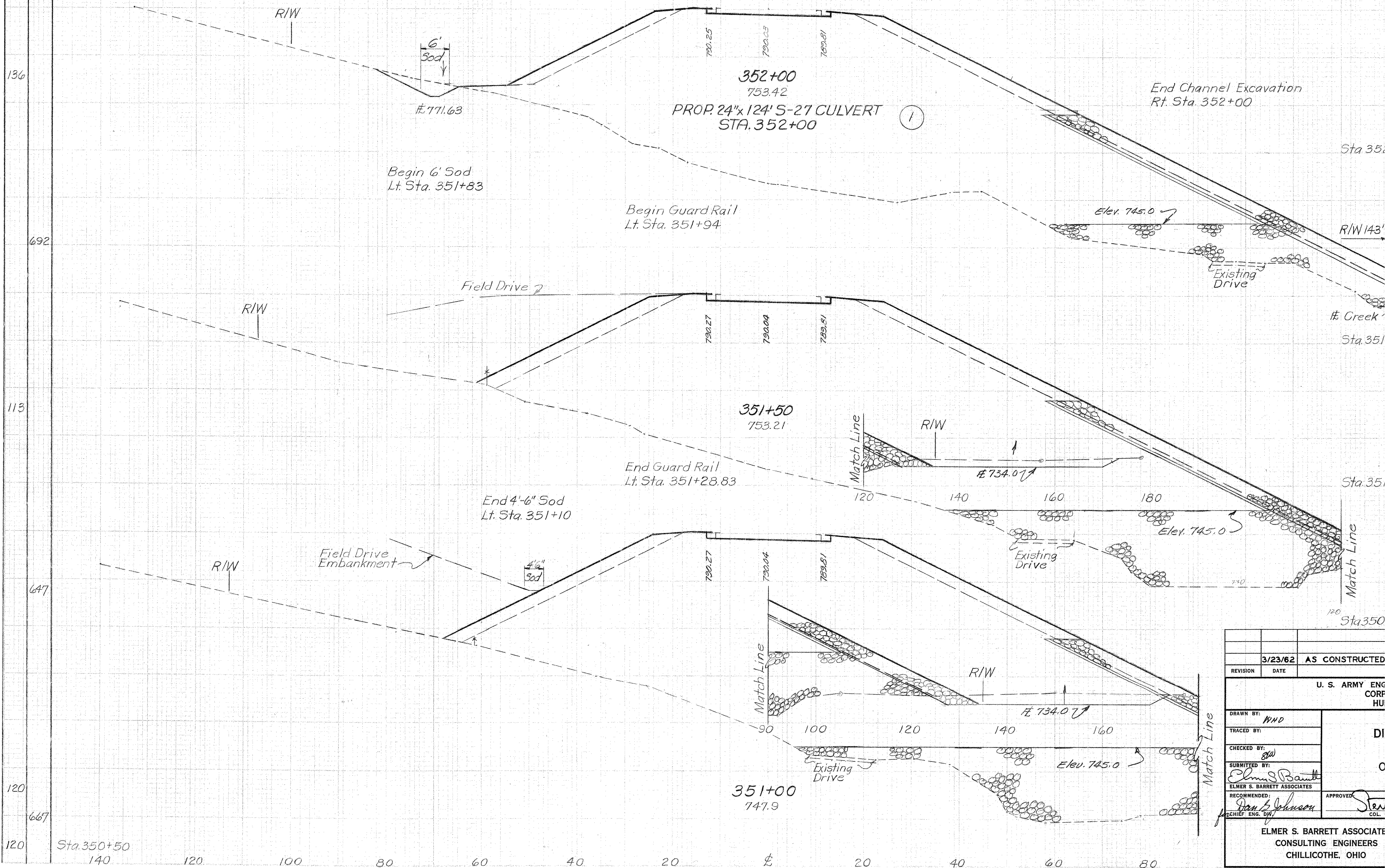
WORK AS CONSTRUCTED CROSS SECTIONS STA. 348+00 TO STA. 349+16

Seeding
End Sta.
Width Yds.

35
92

MUSKINGUM COUNTY
MUS-146-G.09

U.S. A.		TOTAL	
End Area	Volume	End Area	Volume
Cut	Fill	Cut	Fill
Sta 352+00	31 3754	31 4144	
		81 7587	81 8318
Sta 351+50	57 4440	57 4840	
		133 8778	133 9549
Sta 351+00	87 5040	87 5473	
		156 9901	156 10667
Sta 350+50	81 5653	81 6027	



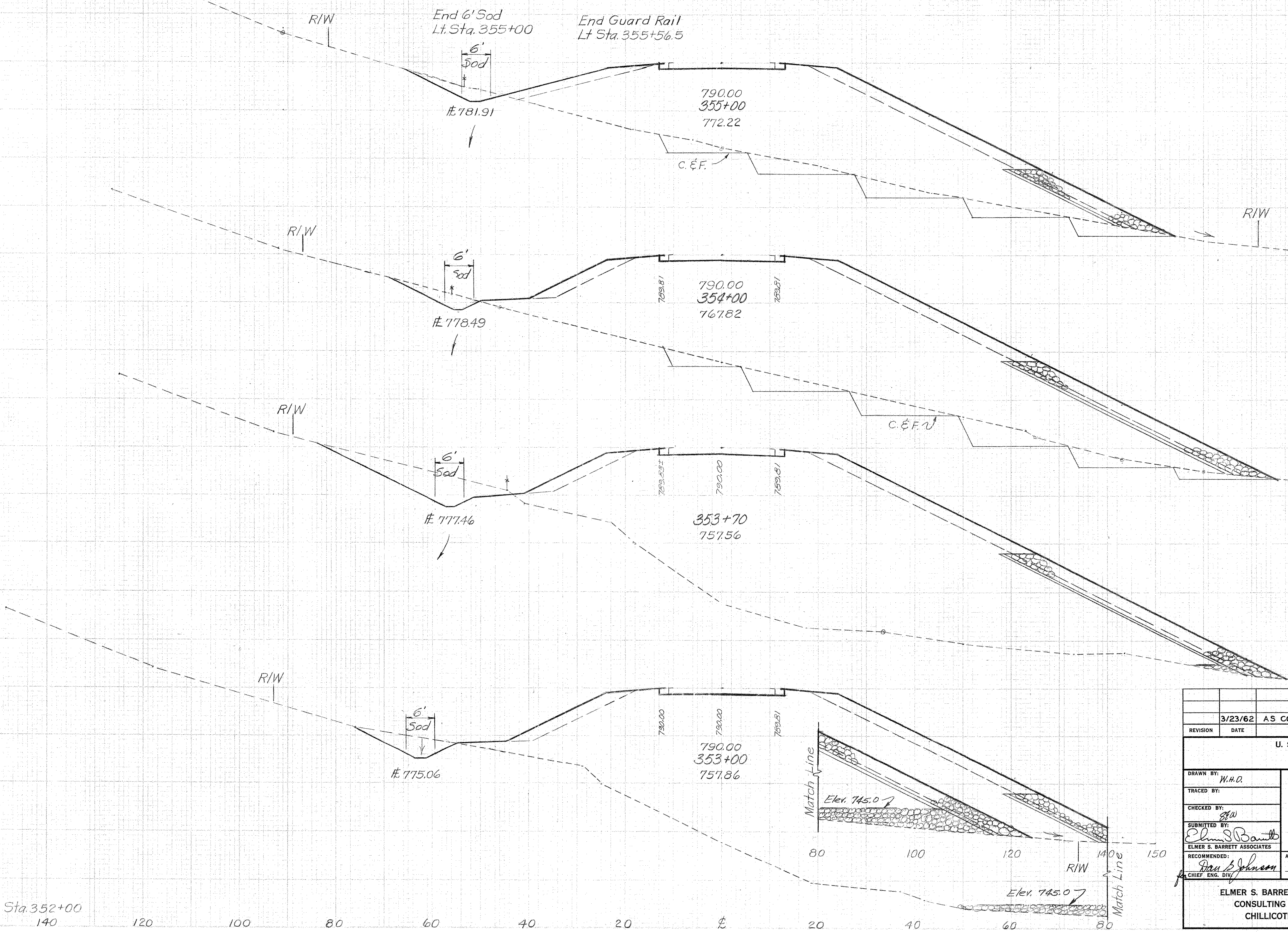
3/23/62	AS CONSTRUCTED	H.F.K.
REVISION	DATE	DESCRIPTION
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.		
DRAWN BY: <i>WHD</i>		
TRACED BY: <i>SW</i>		
CHECKED BY: <i>SW</i>		
SUBMITTED BY: <i>Elmer S. Barrett</i>		
RECOMMENDED: <i>Elmer S. Barrett Associates</i>		
APPROVED: <i>Steven Malenich</i>		
DATE: NOV. 1959		
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		
SCALE: 1"=10'		
DRAWING NUMBER 027f-UD7-68/ 35		
SHEET 35 OF 92		

WORK AS CONSTRUCTED CROSS SECTIONS STA. 351+00 TO STA. 352+00

Seeding	End Sq. Width
	Yds.
118	
1333	
122	
433	
138	
1038	
129	
1472	
136	

U.S.A.				TOTAL			
End Area	Volume	End Area	Volume	End Area	Volume	End Area	Volume
Cut	Fill	Cut	Fill	Cut	Fill	Cut	Fill
Sta. 355+00	243.1615			243.1812			
		1009.7307		1009.8172			
Sta. 354+00	302.2331			302.2601			
		244.2805		244.3120			
Sta. 353+70	137.2718			137.3014			
		235.7810		235.8590			
Sta. 353+00	44.3307			44.3613			
		139.13076		139.14365			
Sta. 352+00	31.3754			31.4144			

3/23/62		AS CONSTRUCTED		H.F.K.	
REVISION	DATE	DESCRIPTION			BY
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.					
DRAWN BY: W.H.D. TRACED BY: CHECKED BY: JFW SUBMITTED BY: Elmer S. Barrett ELMER S. BARRETT ASSOCIATES RECOMMENDED: Dan S. Johnson CHIEF ENG. DIV.		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO.146 (Section 3) DATE: NOV. 1959 APPROVED: Steven Malench COL. C.E. DISTRICT ENGINEER			
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: 1"=10' DRAWING NUMBER 0 27f-UD7-68/36 SHEET 36 OF 92			

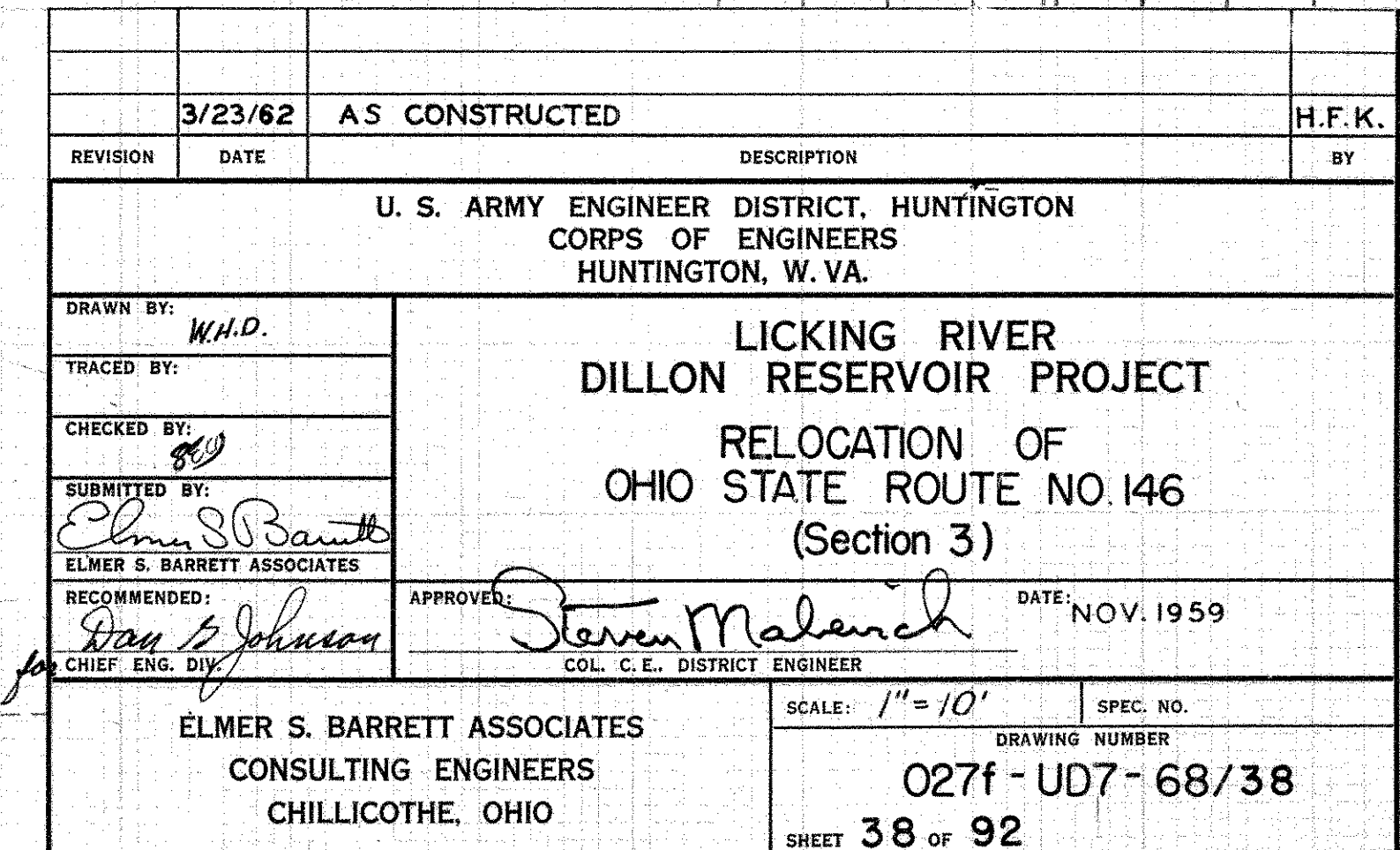


WORK AS CONSTRUCTED CROSS SECTIONS STA. 353+00 TO STA. 355+00

U. S. A.				TOTAL			
End Area		Volume		End Area		Volume	
Cut	Fill	Cut	Fill	Cut	Fill	Cut	Fill
0	2883	0		3159	0		
			3523	15		3935	28
50	922	16		1095	30		
			1743	167		2073	246
00	960	164		1144	236		
			2583	2011		2924	2372
00	435	922		435	1045		
			425	1007		425	1147
75	483	1253		483	1432		
			623	2239		623	2601
9	248	1375		248	1622		
			531	4629		531	5268
0	115	1789		115	1979		
			465	4346		465	4870
33	168	858		168	987		
			467	2209		467	3179
0	243	1615		243	1812		

WORK AS CONSTRUCTED CROSS SECTIONS STA.355+61.33 TO STA.360+00

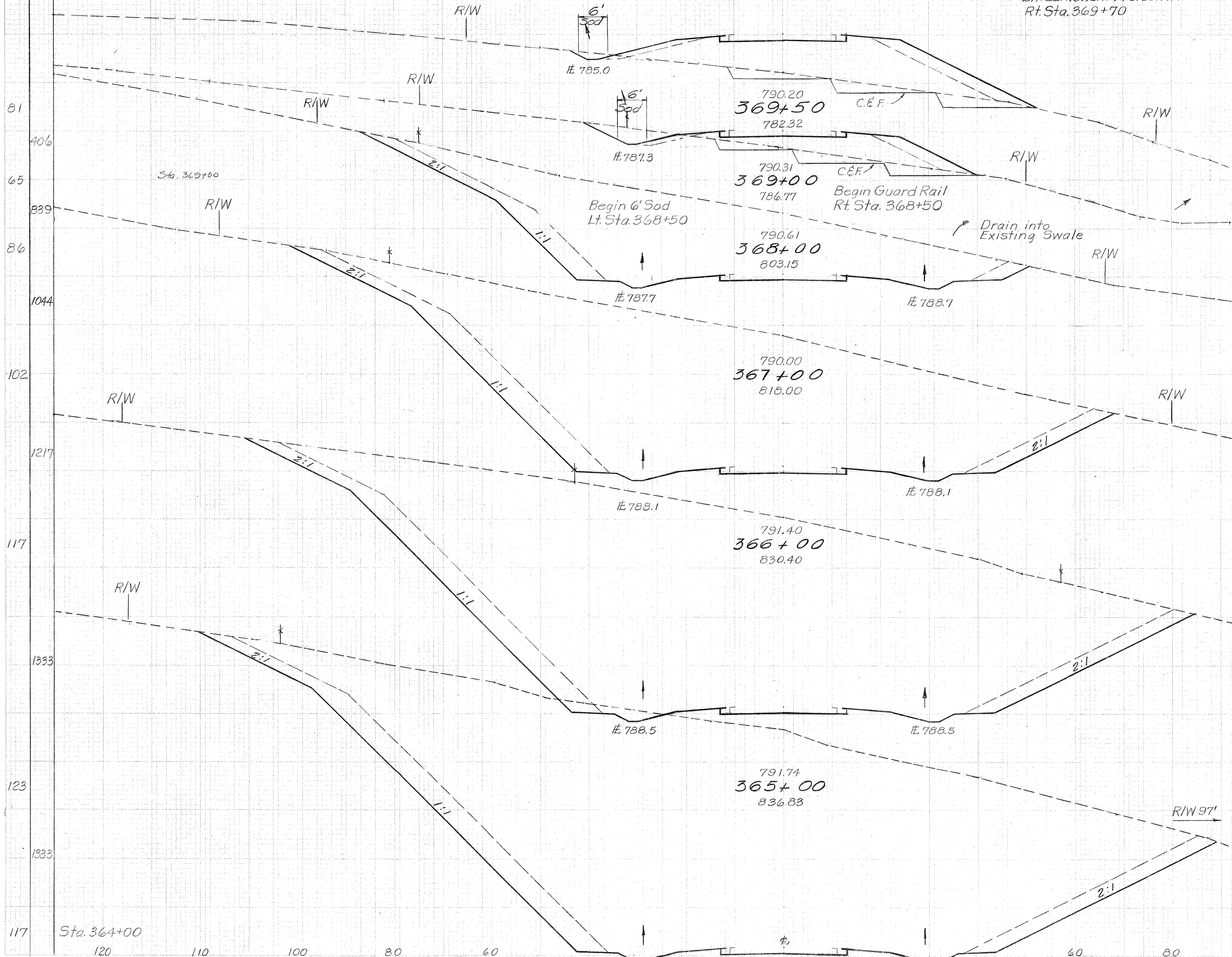
U.S.A.				TOTAL			
EndArea		Volume		EndArea		Volume	
Cut	Fill	Cut	Fill	Cut	Fill	Cut	Fill
00	5032	0		5539	0		
			16853	0		18580	0
00	4085	0		4494	0		
			14639	0		16141	0
00	3820	0		4222	0		
			12554	0		13922	0
0	2959	0		3296	0		
			10819	0		11954	0
0	2883	0		3159	0		



Seeding
End Width
Sq. Yds.

MUSKINGUM COUNTY
MUS-146-6.09

U. S. A.				TOTAL			
End Area		Volume		End Area		Volume	
Cut	Fill	Cut	Fill	Cut	Fill	Cut	Fill
Sta. 369+50	108	516		108	593		
		187	460			187	757
Sta. 369+00	94	197		94	225		
		2672	365			2996	417
Sta. 368+00	1349	0		1524	0		
		3191	0			9176	0
Sta. 367+00	3074	0		3431	0		
		15004	0			16459	0
Sta. 366+00	5028	0		5457	0		
		20202	0			21983	0
Sta. 365+00	5881	0		6414	0		
		20209	0			2235	0
Sta. 364+00	5032	0		5539	0		



DATE	3/23/62	DESCRIPTION	AS CONSTRUCTED	BY	H.F.K.
REVISION					
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.					
DRAWN BY: WHO		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)			
TRACED BY:					
CHECKED BY: EWB					
SUBMITTED BY: Elmer S. Barrett					
RECOMMENDED: Dan Johnson		APPROVED: Steven Malenchuk		DATE: NOV. 1959	
CHIEF ENG. DIST.		COL. C.E. DISTRICT ENGINEER		SPEC. NO. DRAWING NUMBER 0271-UD7- 68/39 SHEET 39 OF 92	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO					

Seeding
End Width
Sq. Yds.

2 OHIO 40 92

MUSKINGUM COUNTY
MUS-146-6.09

118
1311
118
1411
136
1367
110
531
81

Begin 6' Dumped Rock
Channel Protection
Lt. Sta. 373+80

790.00
373+00
744.31

R/W 136'

Sta. 373+00 0 5636

0 6119

790.00
372+00
742.45

PROP. 54"x226' S-27 CULVERT
STA. 371+76 (3)

Sta. 372+00 0 5860

0 6350

End 6' Dumped Rock
Channel Protection
Lt. Sta. 371+88

Begin 6' Dumped Rock
Channel Protection
Lt. Sta. 371+63

End Type I
Paved Gutter
Lt. Sta. 371+63

Sta. 371+00 10 4396

10 4793

Sta. 370+00 197 1568

197 1792

Begin 10' Dumped Rock Fill
Embankment Protection
Lt. Sta. 370+75

790.01
371+00
750.57

R/W 136'

Sta. 369+50 108 516

108 593

Begin Type I
Paved Gutter
Lt. Sta. 370+00
End 6' Sod

Begin Guard Rail
Lt. Sta. 369+75

790.11
370+00
772.10

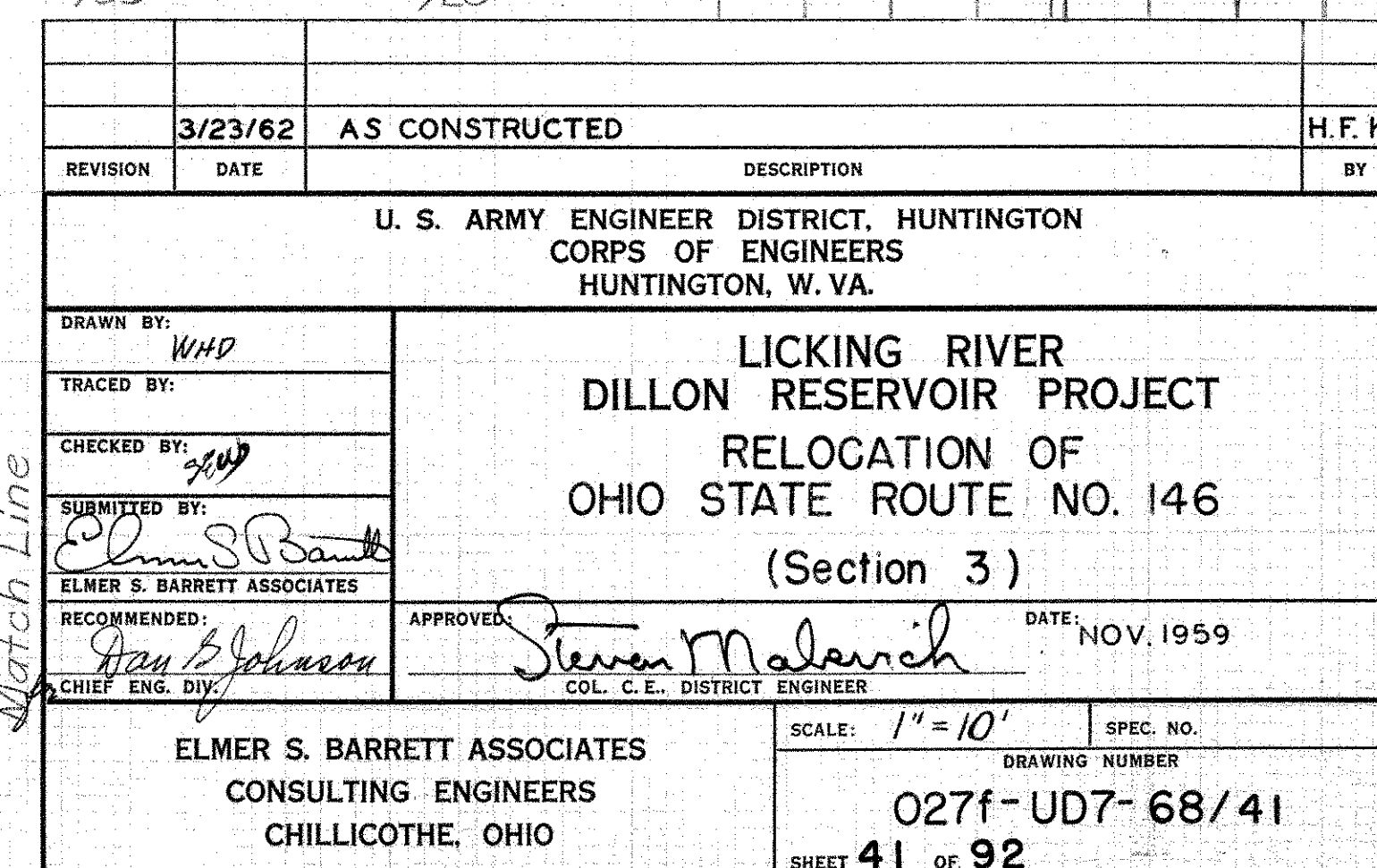
R/W 106.5'

Sta. 369+50

3/23/62	AS CONSTRUCTED	H.F.K.
REVISION	DATE	DESCRIPTION
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.		
DRAWN BY: W.H.D. TRACED BY: CHECKED BY: E.S.B. SUBMITTED BY: ELMER S. BARRETT ASSOCIATES RECOMMENDED: E.S.B. APPROVED: Steven Malerich COL. C.E. DISTRICT ENGINEER		
LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3) DATE: NOV. 1959		
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: 1"=10' DRAWING NUMBER 027f-UD7-68/40 SHEET 40 OF 92

WORK AS CONSTRUCTED CROSS SECTIONS STA. 370+00 TO STA. 373+00

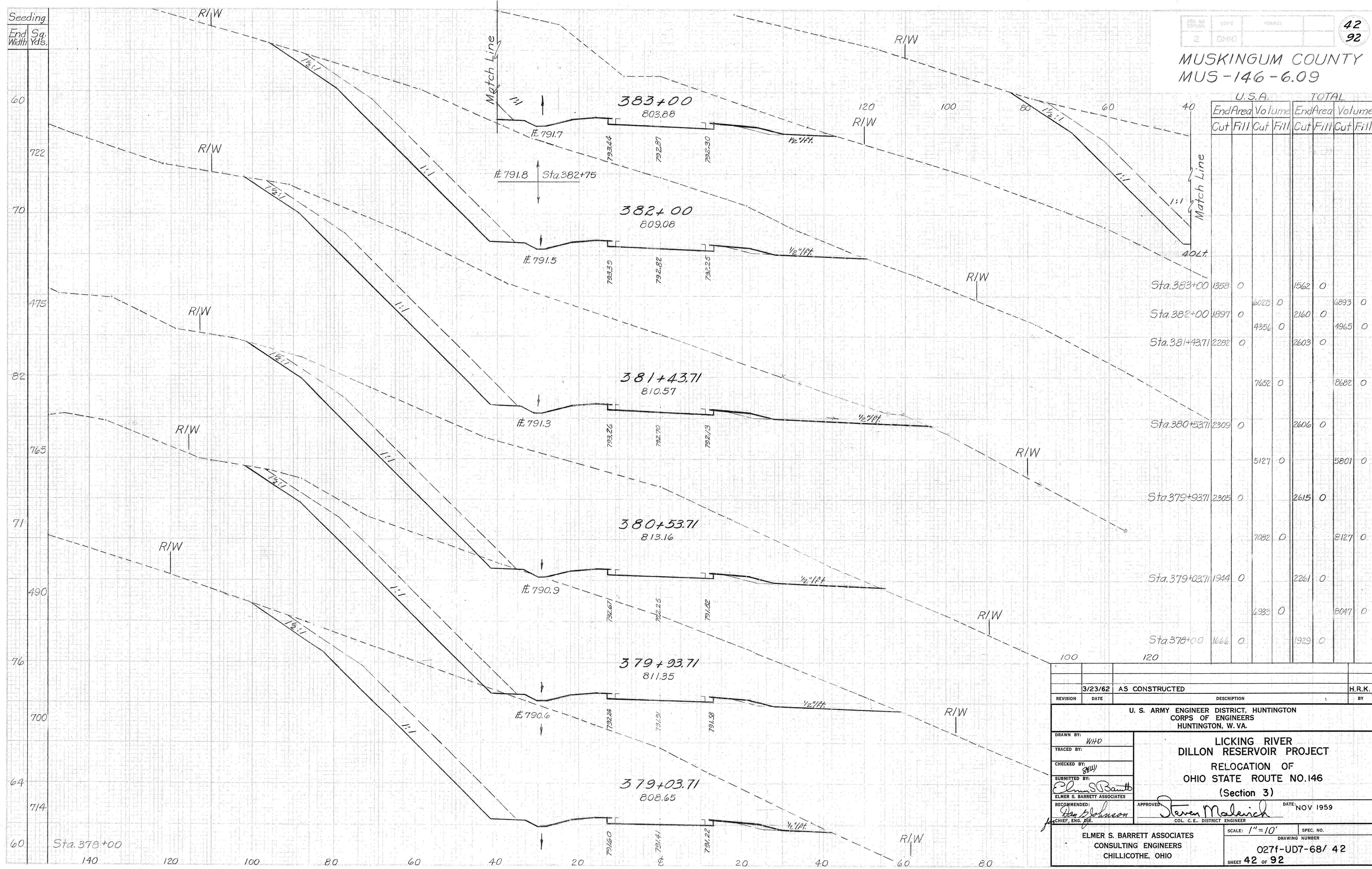
U.S.A.				TOTAL			
EndArea		Volume		EndArea		Volume	
Cut	Fill	Cut	Fill	Cut	Fill	Cut	Fill



WORK AS CONSTRUCTED CROSS SECTIONS STA. 374+00 TO STA. 378+00

Seeding
End Width
Sq. Yds.

MUSKINGUM COUNTY
MUS-146-6.09



3/23/62		AS CONSTRUCTED		H.R.K.
REVISION	DATE	DESCRIPTION		BY
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.				
DRAWN BY: WHD		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)		
TRACED BY:				
CHECKED BY: EMB				
SUBMITTED BY: Elmer S. Barrett				
RECOMMENDED: Dan Johnson		APPROVED: Steven Maleich		DATE: NOV 1959
CHIEF, ENG. DIV.		COL. C.E. DISTRICT ENGINEER		
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: 1"=10'		SPEC. NO. DRAWING NUMBER 027f-UD7-68/ 42 SHEET 42 of 92

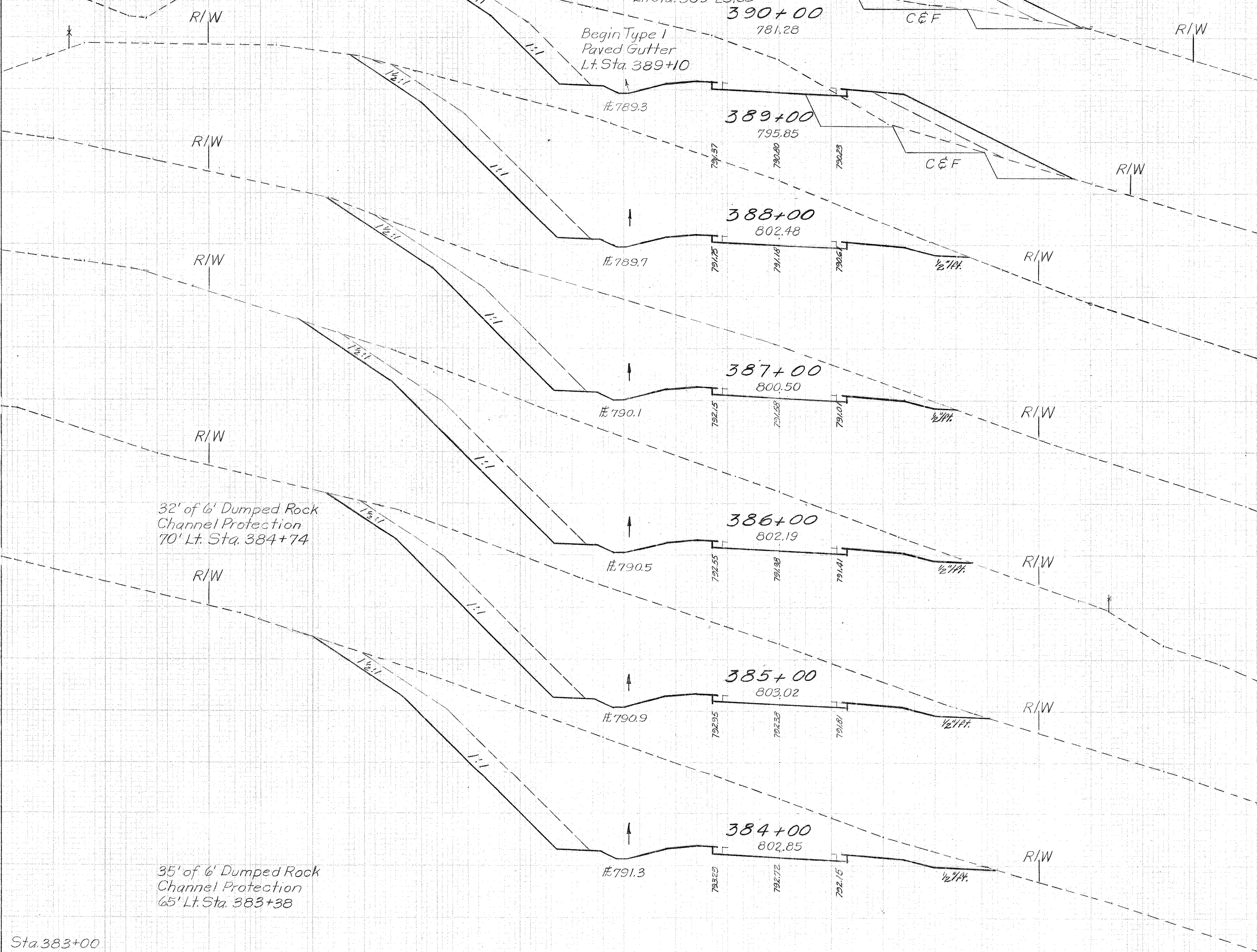
WORK AS CONSTRUCTED CROSS SECTIONS STA. 379+03.71 TO STA. 383+00

Seeding
End Sq.
Width Yds.

2 OHIO 43
92

MUSKINGUM COUNTY
MUS-146-6.09

35
75
54
60
60
58
65
60



U.S.A.		TOTAL	
EndArea	Volume	EndArea	Volume
Cut	Fill	Cut	Fill
Sta. 390+00	123 463	123 771	
	1519 1649	1772 1972	
Sta. 389+00	697 224	894 294	
	3439 415	4291 544	
Sta. 388+00	1268 0	1483 0	
	4233 0	5041 0	
Sta. 387+00	1018 0	1239 0	
	4337 0	5187 0	
Sta. 386+00	1324 0	1562 0	
	4885 0	5717 0	
Sta. 385+00	1314 0	1525 0	
	4794 0	5615 0	
Sta. 384+00	1275 0	1507 0	
	4876 0	5683 0	
Sta. 383+00	1358 0	1562 0	

REVISION	DATE	DESCRIPTION	BY
	3/26/62	AS CONSTRUCTED	H.F.K.
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: WHD		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
TRACED BY:			
CHECKED BY: 86W			
SUBMITTED BY: Elmer S. Barrett			
RECOMMENDED BY: Dan S. Johnson		APPROVED: Steven Malench COL. C.E., DISTRICT ENGINEER	
DATE: NOV. 1959			
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: 1" = 10' DRAWING NUMBER 027f-UD7-68/ 43 SHEET 43 OF 92	

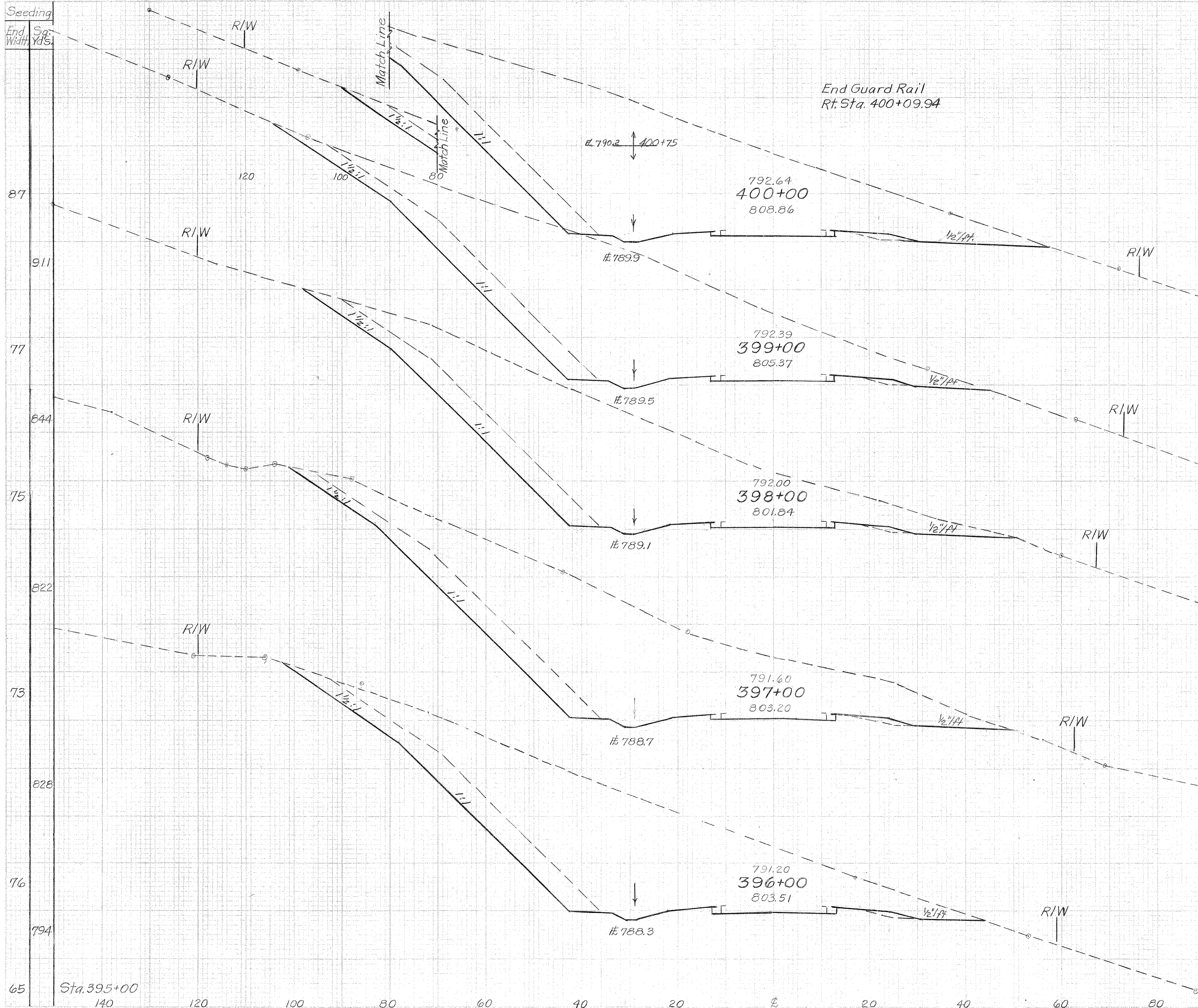
WORK AS CONSTRUCTED CROSS SECTIONS STA. 384+00 TO STA. 390+00

100		120	
3/26/62		A5 CONSTRUCTED	
REVISION	DATE	DESCRIPTION	H.F.K. BY
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, VA. VA.			
DRAWN BY: <i>WHO</i>		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
TRACED BY:			
CHECKED BY: <i>gwh</i>			
SUBMITTED BY: <i>Elmer S. Barrett</i>			
ELMER S. BARRETT ASSOCIATES			
RECOMMENDED BY: <i>Don S. Johnson</i>		APPROVED: <i>Steven Malenchuk</i> DATE: NOV. 1959	
CHIEF ENG. DIV.		COL. C.E. DISTRICT ENGINEER	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: 1" = 10' DRAWING NUMBER 027f-UD7-68/44 SHEET 44 OF 92	

WORK AS CONSTRUCTED CROSS SECTIONS STA. 390+50 TO STA. 391+88.7

Seeding
End Sta.
Width Yds.

MUSKINGUM COUNTY
MUS-146-6.09



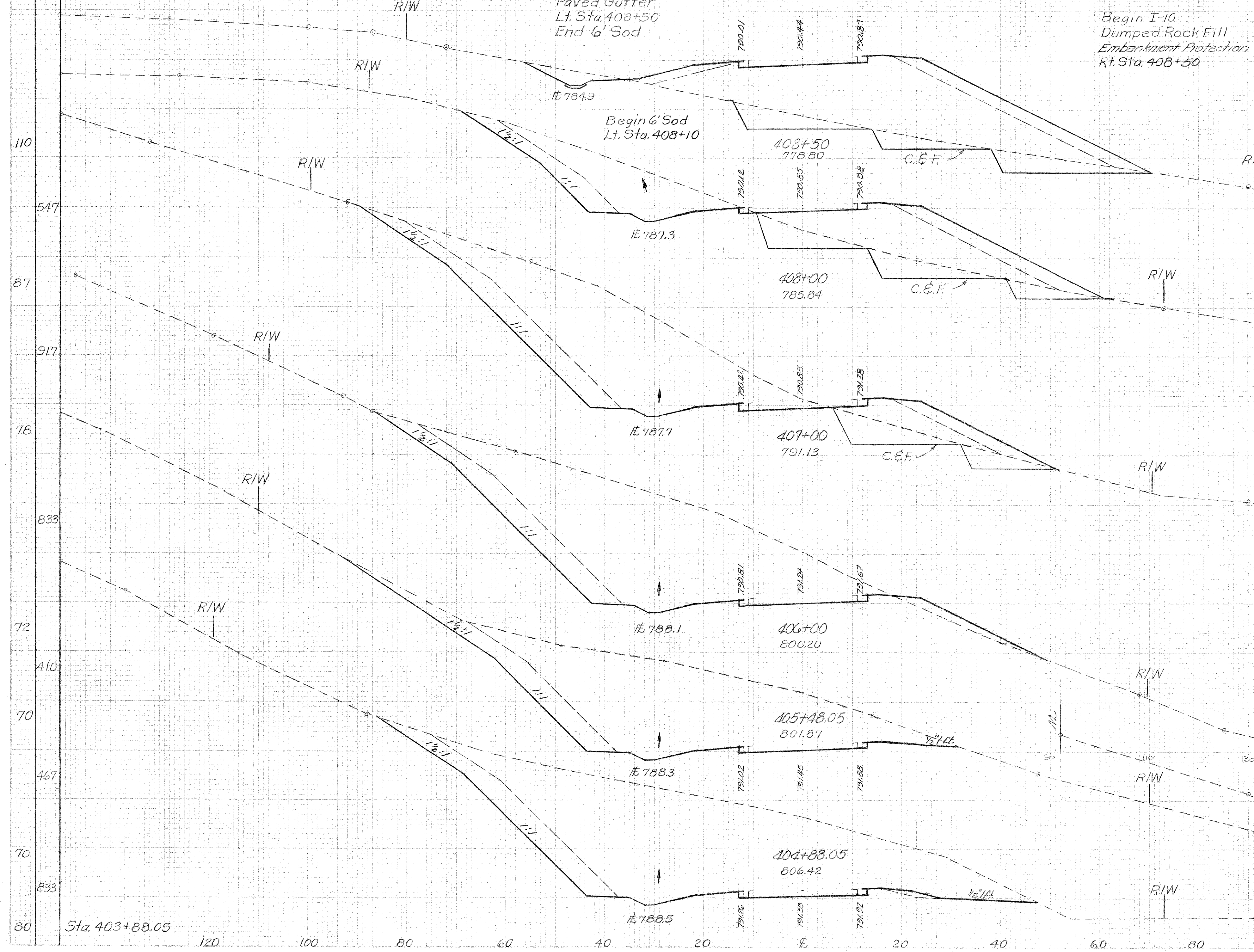
U.S.A.				TOTAL			
End Area	Volume	End Area	Volume	End Area	Volume	End Area	Volume
Cut	Fill	Cut	Fill	Cut	Fill	Cut	Fill
Sta. 400+00	2040.0			2310.0			
	7026.0			8083.0			
Sta. 399+00	1754.0			2055.0			
	6181.0			7267.0			
Sta. 398+00	1584.0			1869.0			
	6176.0			7194.0			
Sta. 397+00	1731.0			2016.0			
	6376.0			7417.0			
Sta. 396+00	1692.0			1989.0			
	6683.0			7659.0			
Sta. 395+00	1917.0			2147.0			

REVISION	DATE	DESCRIPTION	BY
3/26/62	AS CONSTRUCTED		H.F.K.
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: WHD		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
TRACED BY:			
CHECKED BY: SPN			
SUBMITTED BY: Elmer S. Barrett			
RECOMMENDED BY: Dan B. Johnson		APPROVED BY: Steven Malenchuk	DATE: NOV. 1959
CHIEF ENGINEER, DIV.		COL. C. E. DISTRICT ENGINEER	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: 1"=10' DRAWING NUMBER 027f-UD7-68/46 SHEET 46 OF 92	

WORK AS CONSTRUCTED CROSS SECTIONS STA. 396+00 TO STA. 400+00

Seeding
End
Width
Sq.
Yds.

MUSKIEGUM COUNTY
MUS-146-609



U.S.A.		TOTAL	
End Area	Volume	End Area	Volume
Cut	Fill	Cut	Fill
Sta. 408+50	223 993	223 1122	
	573 1394	709 1601	
Sta. 408+00	396 513	543 607	
	2439 1359	3335 1657	
Sta. 407+00	1029 221	1258 288	
	4131 480	4969 604	
Sta. 406+00	1202 38	1425 38	
	2154 37	2539 37	
Sta. 405+48.05	1037 0	1214 0	
	2886 0	3313 0	
Sta. 404+88.05	1560 0	1768 0	
	6426 0	7209 0	
Sta. 403+88.05	1910 0	2125 0	

REVISION	DATE	DESCRIPTION	BY
	3/26/62	AS CONSTRUCTED	H. F. K.
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: WHD		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
TRACED BY:		APPROVED: Steven Malenich COL. C.E., DISTRICT ENGINEER	
CHECKED BY: ESW		DATE: NOV. 1959	
SUBMITTED BY: Elmer S. Barrett Associates		SCALE: 1" = 10'	
RECOMMENDED BY: Dan S. Johnson CHIEF ENG. ADV.		DRAWING NUMBER 027f-UD7-68/ 48	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SHEET 48 OF 92	

WORK AS CONSTRUCTED CROSS SECTIONS STA. 404+88.05 TO STA. 408+50

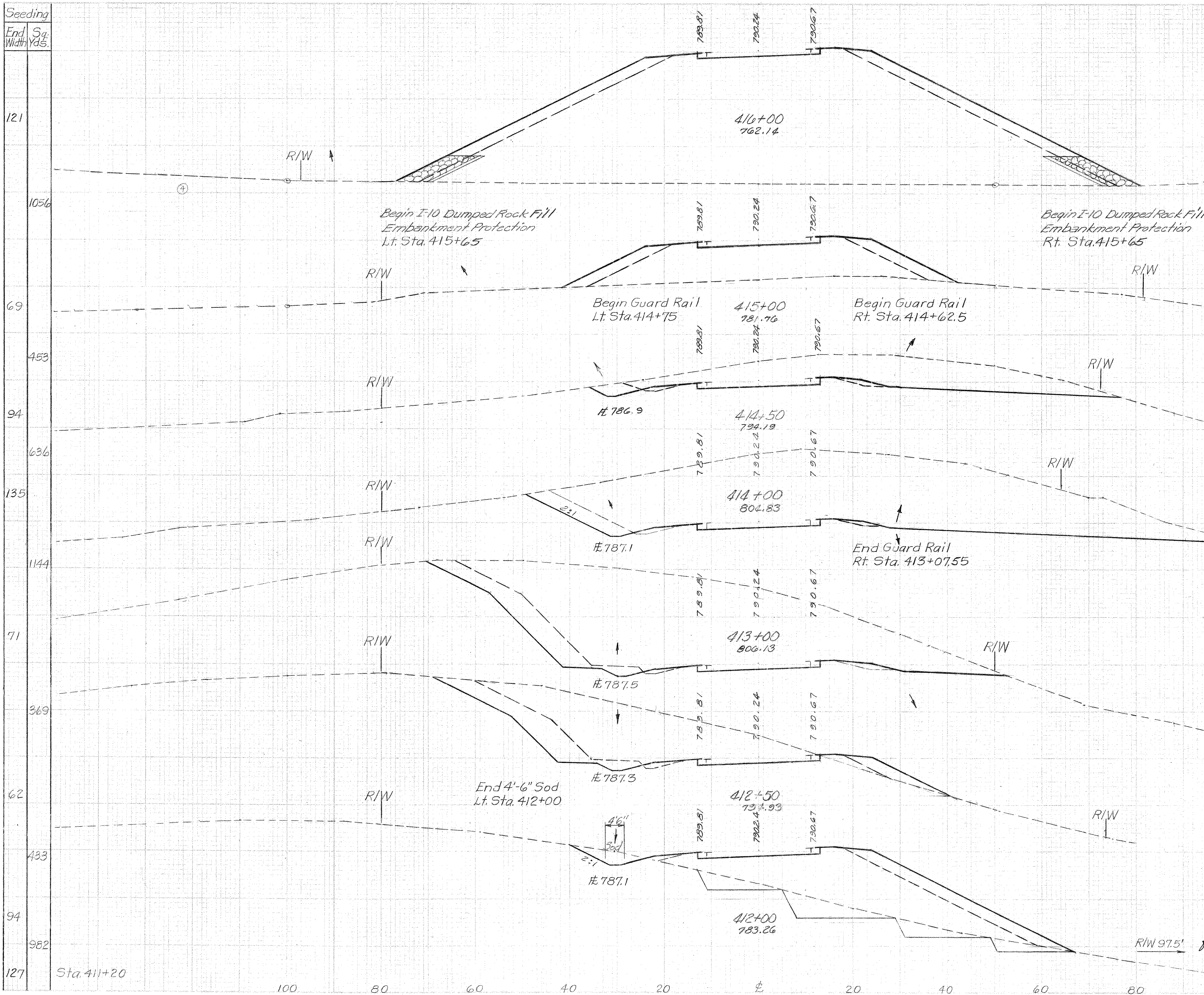
U.S.A.				TOTAL			
EndArea		Volume		EndArea		Volume	
Cut	Fill	Cut	Fill	Cut	Fill	Cut	Fill



MUSKINGUM COUNTY
MUS-146-6.09

U.S.A.		TOTAL	
End Area	Volume	End Area	Volume
Cut	Fill	Cut	Fill
Sta. 416+00	0 2484	0 2757	
		0 5419	0 6094
Sta. 415+00	0 442	0 534	
	430 409	444 494	
Sta. 414+50	464 0	479 0	
	1883 0	1944 0	
Sta. 414+00	1570 0	1621 0	
	5513 0	5874 0	
Sta. 413+00	1407 0	1551 0	
	1807 13	2086 43	
Sta. 412+50	545 14	702 46	
	669 621	814 747	
Sta. 412+00	177 657	177 761	
	283 3432	283 3883	
Sta. 411+20	14 1660	14 1860	

3/26/62		AS CONSTRUCTED		H.F.K.
REVISION	DATE	DESCRIPTION		BY
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.				
DRAWN BY: WHD		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)		
TRACED BY:				
CHECKED BY: 8304				
SUBMITTED BY: Elmer S. Barrett ELMER S. BARRETT ASSOCIATES				
RECOMMENDED BY: Gary S. Johnson		APPROVED: Steven Malerich COL. C.E. DISTRICT ENGINEER		DATE: NOV. 1959
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: 1" = 10'		SPEC. NO.
		DRAWING NUMBER 027f-UD7-68/50		
		SHEET 50 OF 92		



WORK AS CONSTRUCTED CROSS SECTIONS STA. 412+00 TO STA. 416+00

Seeding
End Sq.
Width Yds.

2 0.10 51
92

MUSKINGUM COUNTY
MUS-146-6.09

152
756
120
1333
120
1461
143
733
121

R/W
Begin Type 1
Paved Gutter
Lt. Sta. 418+74

£ 763.0

End I-10 Dumped Rock Fill
Embankment Protection
Sta. 418+95

End 6' Dumped Rock
Channel Protection
Lt. Sta. 418+74

R/W

Begin 6' Dumped Rock
Channel Protection
Lt. Sta. 418+50

R/W

R/W

£ 757.0

PROP. 36"x240' S-27 CULVERT (6)
STA. 418+94.50

419+00
747.36

418+50
748.65

417+50
751.07

416+50
752.26

759.81
750.24
750.67

759.81
750.24
750.67

759.81
750.24
750.67

Match Line

R/W

Match Line

Sta. 419+00

Sta. 418+50

Sta. 417+50

Sta. 416+50

Sta. 416+00

U.S.A.				TOTAL			
End Area		Volume		End Area		Volume	
Cut	Fill	Cut	Fill	Cut	Fill	Cut	Fill
50	4538			50	4914		
		46	8517			46	9395
0	4660			0	5232		
		0	16348			0	18295
0	4276			0	4647		
		33	14744			33	16035
18	3686			18	4012		
		17	5713			17	6268
0	2484			0	2757		

3/26/62	AS CONSTRUCTED	H. F. K.
REVISION	DATE	DESCRIPTION
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.		
DRAWN BY: <i>WHD</i>		
TRACED BY:		
CHECKED BY: <i>BW</i>		
SUBMITTED BY: <i>Elmer S. Barrett</i>		
RECOMMENDED: <i>John E. Johnson</i>		
APPROVED: <i>Steven Malench</i>		
DATE: NOV. 1959		
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		
SCALE: 1" = 10'		
SPEC. NO.		
DRAWING NUMBER		
027f-UD7-68/ 51		
SHEET 51 OF 92		

WORK AS CONSTRUCTED CROSS SECTIONS STA. 416+50 TO STA. 419+00

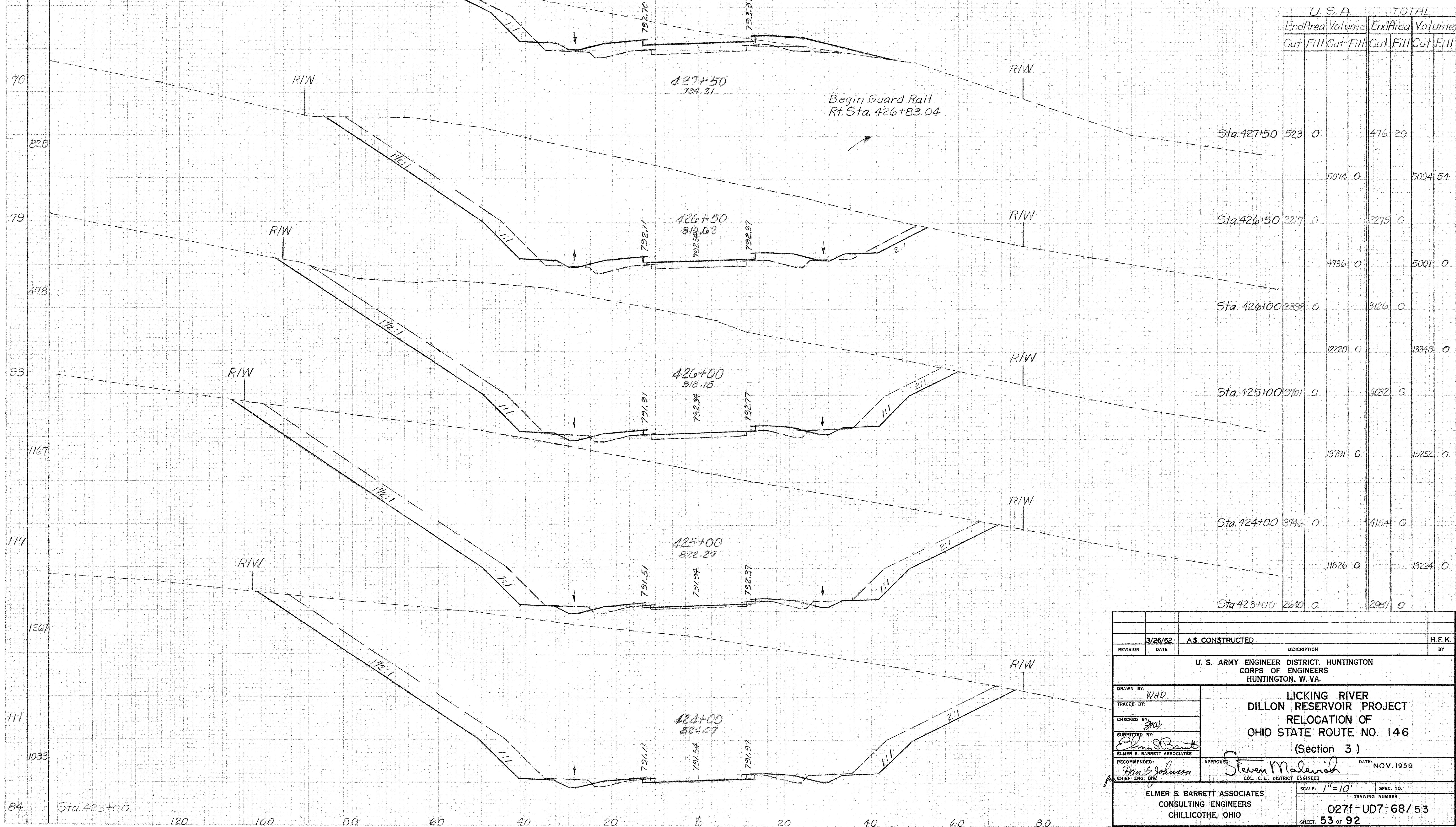
MUSKINGUM COUNTY
MUS-146-6.09

	3/26/62	AS CONSTRUCTED	H. F. K
REVISION	DATE	DESCRIPTION	BY
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: <i>WHD</i>		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO.146 (Section 3)	
TRACED BY:			
CHECKED BY: <i>gfw</i>			
SUBMITTED BY: <i>Elmer S. Barrett</i>			
ELMER S. BARRETT ASSOCIATES			
RECOMMENDED: <i>Don B. Johnson</i>		APPROVED: <i>Steven Malarch</i> COL. C. E. DISTRICT ENGINEER	DATE: NOV. 1959
CHIEF ENG. DWG			
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: 1" = 10' DRAWING NUMBER 027f-UD7-68/ 52 SHEET 52 OF 92	

WORK AS CONSTRUCTED CROSS SECTIONS STA. 419+50 TO STA. 423+00

Seeding
End Sq.
Width Yds.

MUSKINGUM COUNTY
MUS-146-6.09

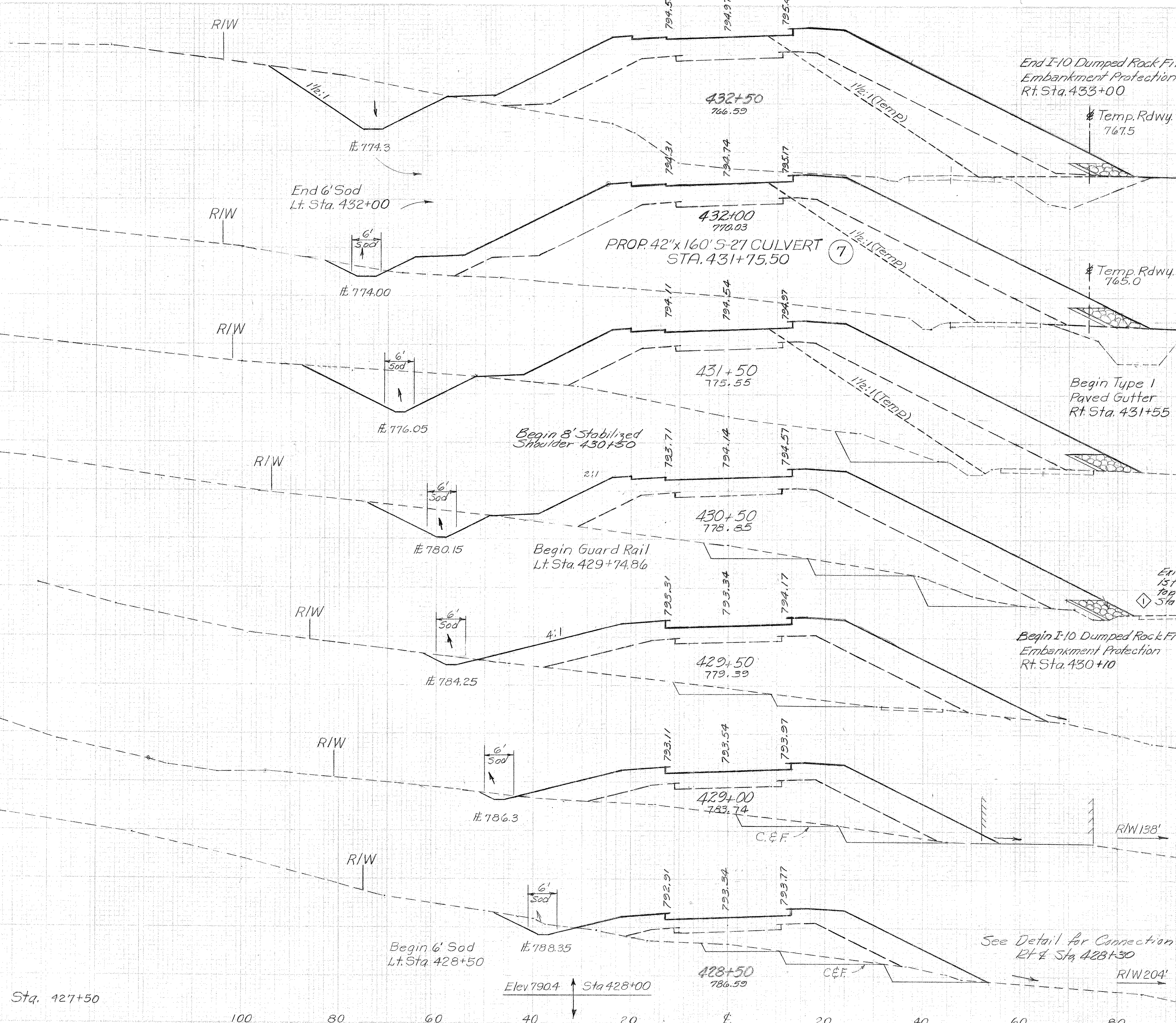


3/26/62		AS CONSTRUCTED		H. F. K.	
REVISION	DATE	DESCRIPTION			BY
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.					
DRAWN BY: WHD		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)			
TRACED BY:					
CHECKED BY:					
SUBMITTED BY:					
ELMER S. BARRETT ASSOCIATES		APPROVED: Steven Malovich		DATE: NOV. 1959	
RECOMMENDED: Dan S. Johnson		COL. C. E. DISTRICT ENGINEER			
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: 1" = 10'		SPEC. NO. DRAWING NUMBER 027f-UD7-68/53 SHEET 53 of 92	

WORK AS CONSTRUCTED CROSS SECTIONS STA. 424+00 TO STA. 427+50

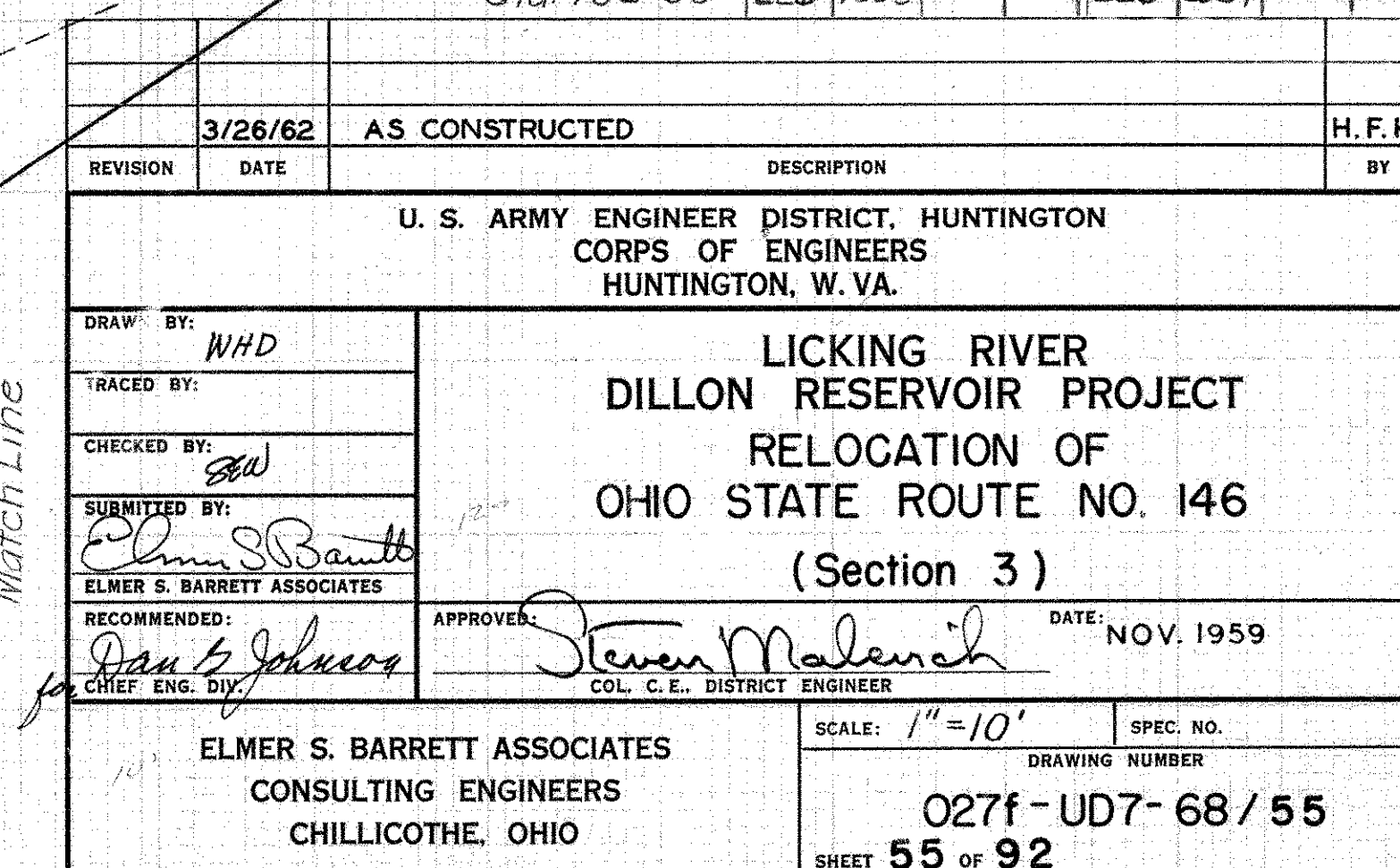
Seeding
End Sq.
Width Yds.

188
994
170
903
155
1639
140
1417
115
575
92
497
87
872
70



U.S.A.				TOTAL			
End Area	Volume	End Area	Volume	End Area	Volume	End Area	Volume
Cut	Fill	Cut	Fill	Cut	Fill	Cut	Fill
Sta. 432+50	226 1853			226 2367			
	240 3200			240 4601			
Sta. 432+00	33 1603			33 2602			
	252 2553			252 4109			
Sta. 431+50	239 1154			239 1835			
	813 3798			813 6267			
Sta. 430+50	200 897			200 1549			
	500 2968			500 5085			
Sta. 429+50	70 706			70 1197			
	128 1025			128 1818			
Sta. 429+00	68 401			68 766			
	160 616			160 1221			
Sta. 428+50	105 264			105 553			
	1163 489			1076 1078			
Sta. 427+50	523 0			476 29			

3/26/62	AS CONSTRUCTED	H.F.K.
12-21-59	REVISED IN ACCORDANCE WITH ADDENDUM NO. 1	N.J.B.
REVISION	DATE	DESCRIPTION
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.		
DRAWN BY: WHD		
TRACED BY:		
CHECKED BY: [Signature]		
SUBMITTED BY: Elmer S. Barrett Associates		
RECOMMENDED: [Signature]		
APPROVED: Steven Malench		
DATE: NOV. 1959		
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		
SCALE: 1" = 10'		
SPEC. NO.		
DRAWING NUMBER		
027f-UD7-68/54		
SHEET 54 OF 92		

[illegible]

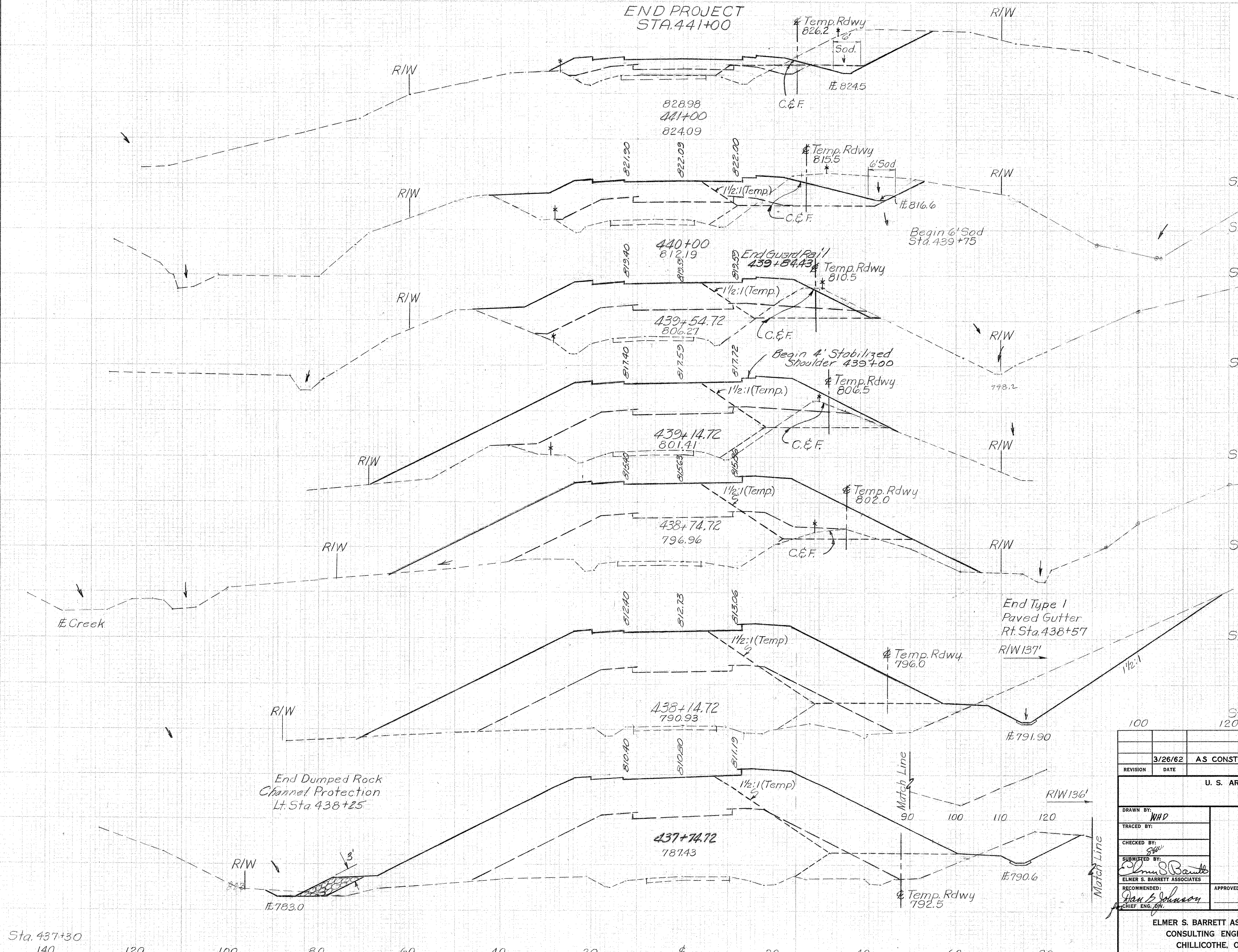
WORK AS CONSTRUCTED CROSS SECTIONS STA. 433+50 TO STA. 437+30

Seeding	End Width	Sq. Yds.
66		
794		
77		
375		
72		
387		
102		
491		
119		
1013		
185		
749		
152		
815		
176		

END PROJECT
STA. 441+00

MUSKINGUM COUNTY
MUS-146-6.09

U.S.A.		TOTAL	
End Area	Volume	End Area	Volume
Cut	Fill	Cut	Fill
Sta. 441+00	164 91	164 210	
	659 517	659 1450	
Sta. 440+00	192 188	192 573	
	257 455	257 1146	
Sta. 439+54.72	115 355	115 794	
	141 626	141 1416	
Sta. 439+14.72	75 490	75 1117	
	73 777	73 1836	
Sta. 438+74.72	23 559	23 1361	
	321 1564	321 3746	
Sta. 438+14.72	266 849	266 2010	
	256 1318	256 3090	
Sta. 437+74.72	80 930	80 2161	
	193 1731	193 3893	
Sta. 437+30	153 1160	153 2540	

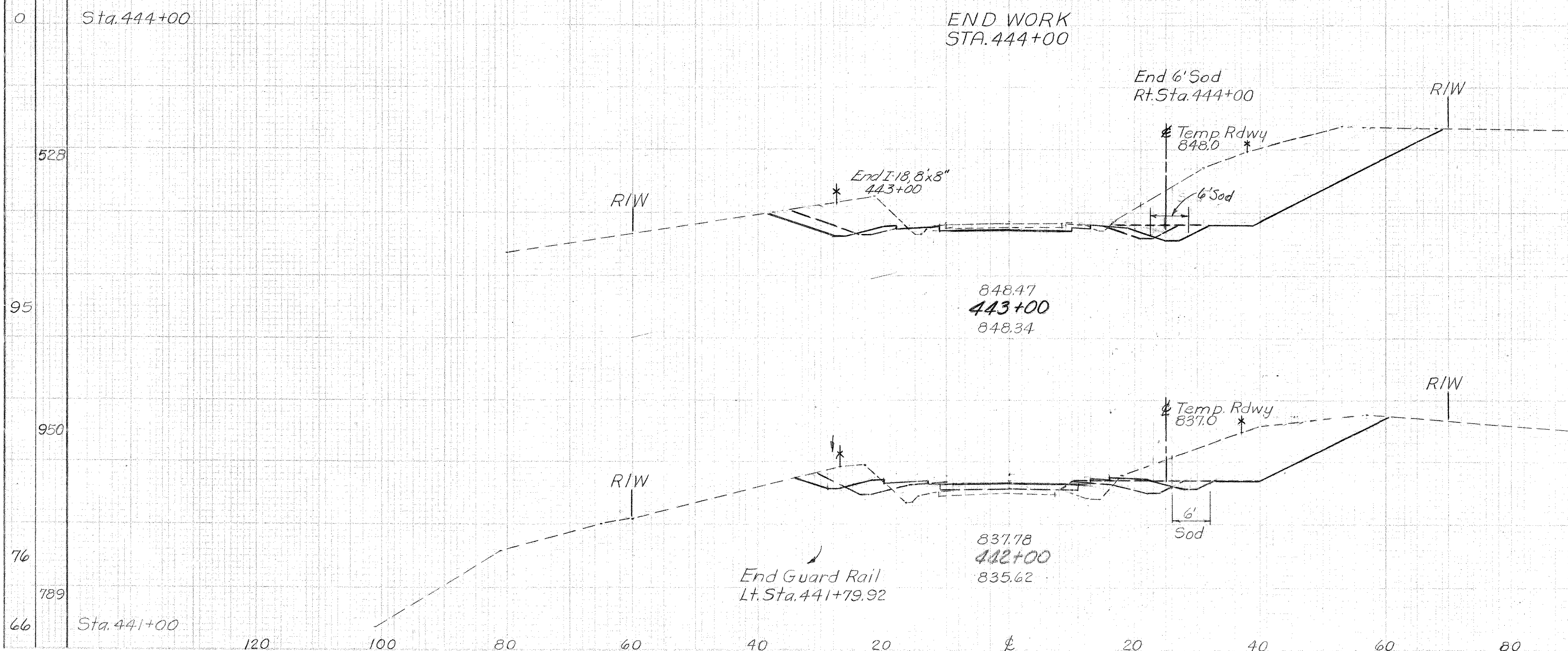


REVISION	DATE	DESCRIPTION	BY
	3/26/62	AS CONSTRUCTED	H. F. K.
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: WHD		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
TRACED BY:		APPROVED: Steven Malovich COL. C.E., DISTRICT ENGINEER	
CHECKED BY: SW		DATE: NOV. 1959	
SUBMITTED BY: Elmer S. Barrett		RECOMMENDED: Dan Johnson CHIEF ENG. DIV.	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: 1" = 10' SPEC. NO. DRAWING NUMBER 027f-UD7-68/56 SHEET 56 of 92	

WORK AS CONSTRUCTED CROSS SECTIONS STA 437+74.72 TO STA 441+00

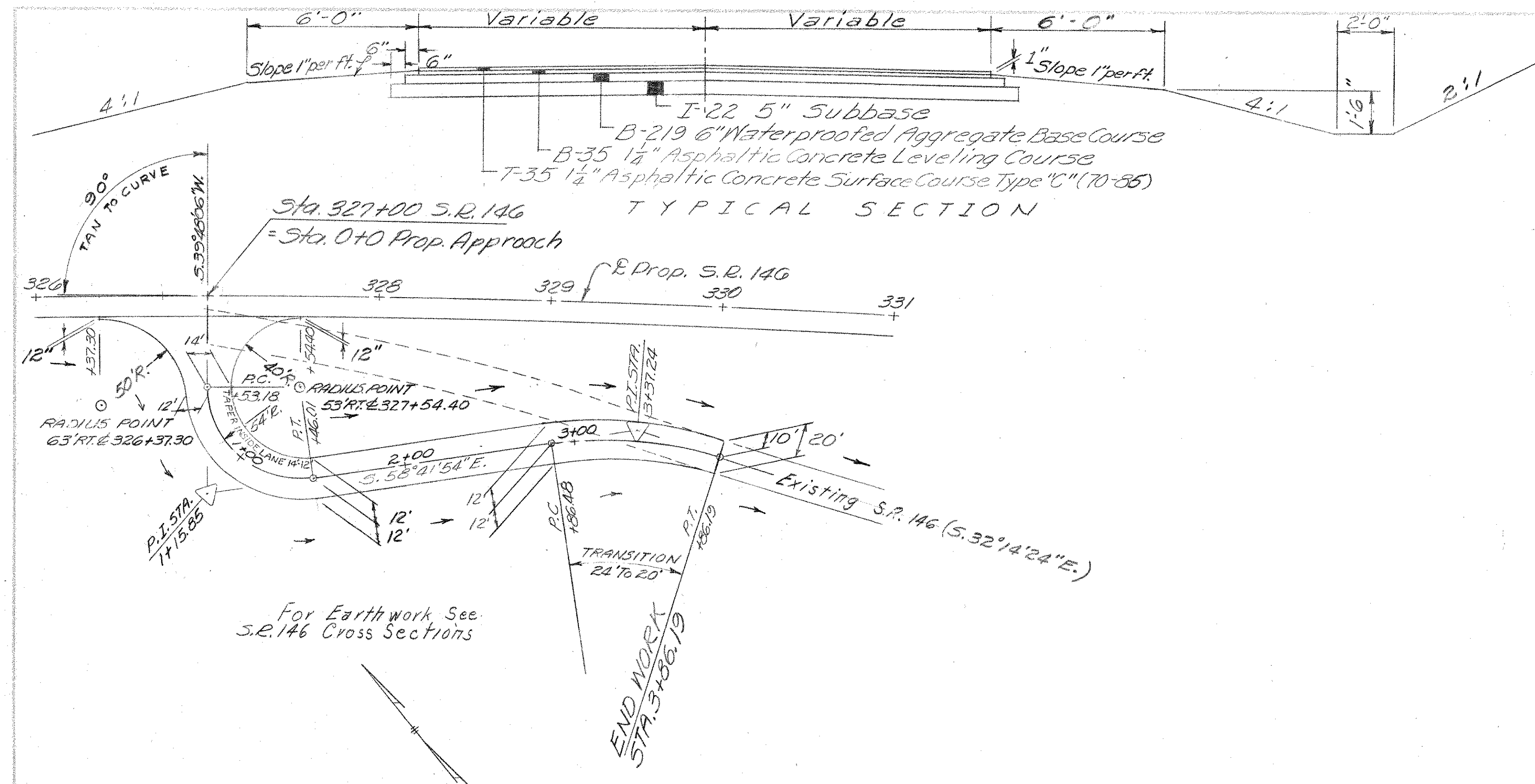
MUSKINGUM COUNTY
MUS-146-6.09

U.S.A.				TOTAL			
EndArea		Volume		EndArea		Volume	
Cut	Fill	Cut	Fill	Cut	Fill	Cut	Fill
00	0	0		0	0		
		478	67			887	78
00	258	36		479	42		
		722	194			1357	180
0	132	69		254	55		
		548	296			774	491
0	164	91		164	210		

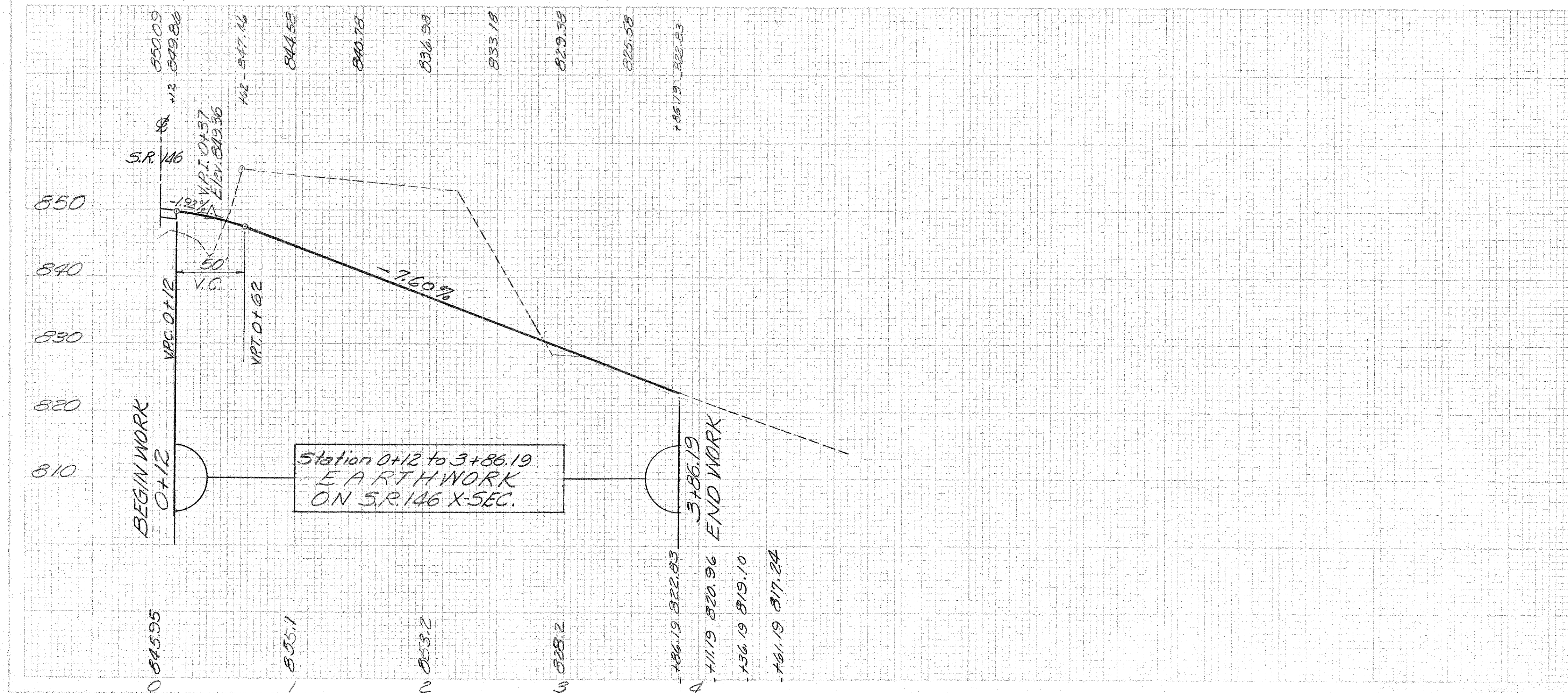


3/26/62		AS CONSTRUCTED		H. F. M	
REVISION	DATE	BY			
<p align="center">U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.</p>					
DRAWN BY: <i>WHO</i>		<p align="center">LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)</p>			
TRACED BY:					
CHECKED BY:					
SUBMITTED BY: <i>Elmer S. Barrett</i>					
ELMER S. BARRETT ASSOCIATES					
RECOMMENDED: <i>Don S. Johnson</i>		APPROVED: <i>Steven M. Leinich</i>		DATE: NOV. 1959	
CHIEF ENG. DIV.		COL. C. E. DISTRICT ENGINEER			
<p align="center">ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO</p>				<p>SCALE: 1" = 10'</p> <p align="center">DRAWING NUMBER</p> <p align="center">027f-UD7-68/57</p> <p>SHEET 57 OF 92</p>	

WORK AS CONSTRUCTED CROSS SECTIONS STA. 442+00 TO STA. 444+00

MUSKINGUM COUNTY
MUS-146-6.09


P.I. STA. 1+15.85 CURVE DATA P.I. STA. 3+37.24
 $\Delta = 98^\circ 30' 41''$ $\Delta = 26^\circ 27' 30''$ R.T.; $D_c = 26^\circ 30'$
 $R = 54.00'$ $R = 215.94'$
 $L = 92.83'$ $L = 99.71'$
 $T = 62.67'$ $T = 50.76'$



ESTIMATED QUANTITIES
 Item T-35 1 1/4" Asphaltic Concrete Surface Course, Type "C" (70-85) 1,213.33 sy.
 Item B-35 1 1/4" Asphaltic Concrete Leveling Course 1,213.33 sy.
 Item B-219 6" Waterproofed Aggregate Base Course 1,251.11 sy.
 Item I-22 5" Subbase 1,288.88 sy.

REVISION	DATE	DESCRIPTION	BY
	3/26/62	AS CONSTRUCTED	H. F. K.
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: WHD		LICKING RIVER DILLON RESERVOIR PROJECT	
TRACED BY:		RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
CHECKED BY: JH		APPROVED: Steven Malevich COL. C. E., DISTRICT ENGINEER	
SUBMITTED BY: Elmer S. Barrett Associates		DATE: NOV. 1959	
RECOMMENDED BY: John E. Johnson CHIEF ENG. DIV.		SCALE: Horiz. 1"=50' Vert. 1"=10'	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SPEC. NO. 027f-UD7-68/ 58 SHEET 58 OF 92	

WORK AS CONSTRUCTED PLAN & PROFILE-APPROACH RT STA 327+00

MUSKINGUM COUNTY

MUS-146-6.09

BASE LINE STATION	OFFSET FROM B. TO C.	CENTER LINE STATION
10+00	56.5'	0+67
10+50	64.5'	1+18.5
11+00	72.5'	1+69
11+50	81.0'	2+20
12+00	85.5'	2+31.5
12+50	92.0'	2+83.5
13+00	99.0'	3+36
13+50	97.0'	3+86
14+00	61.0'	4+12
14+50	64.5'	4+63.5
15+00	73.5'	4+78
15+50	71.0'	5+28
16+00	70.0'	5+77.5
16+50	68.5'	6+28
17+00	48.5'	6+38
17+50	12.5'	7+01
18+00	0.0'	7+51

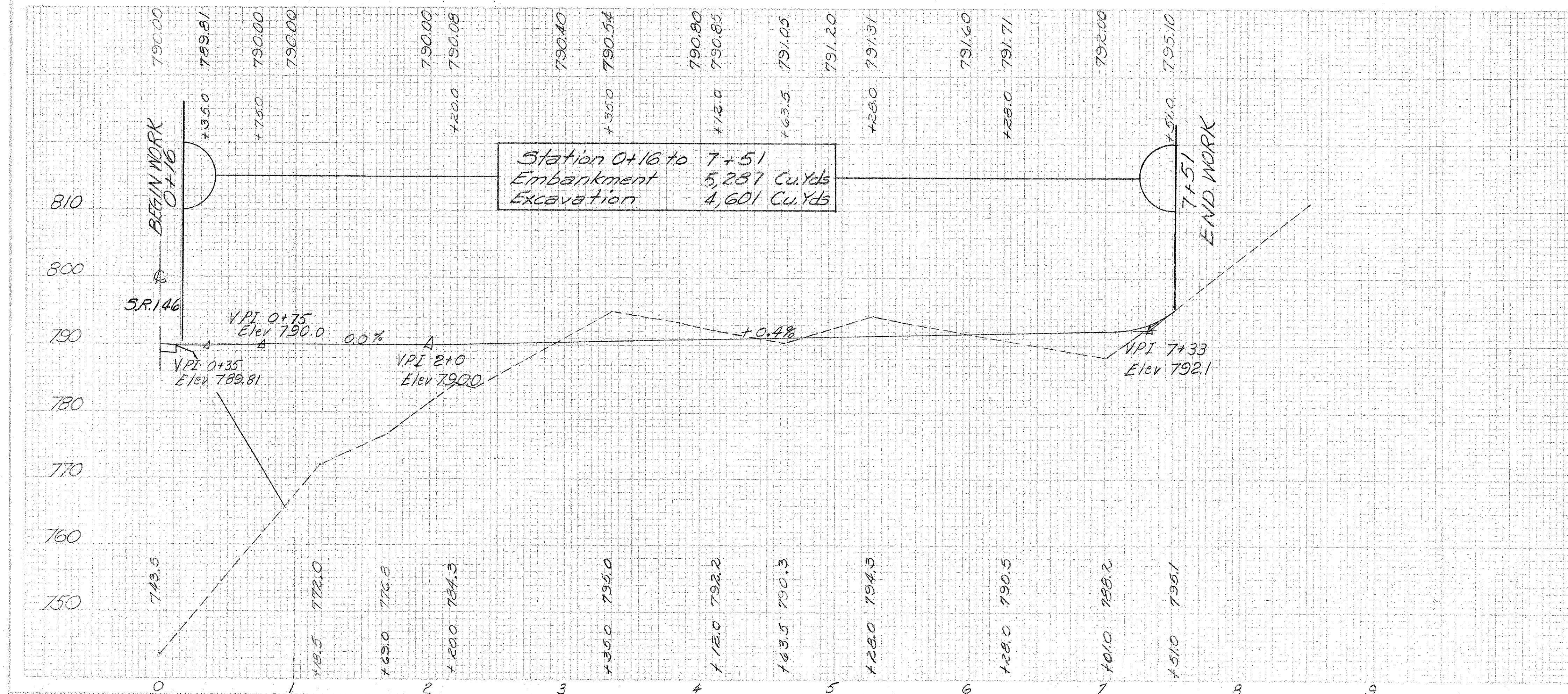
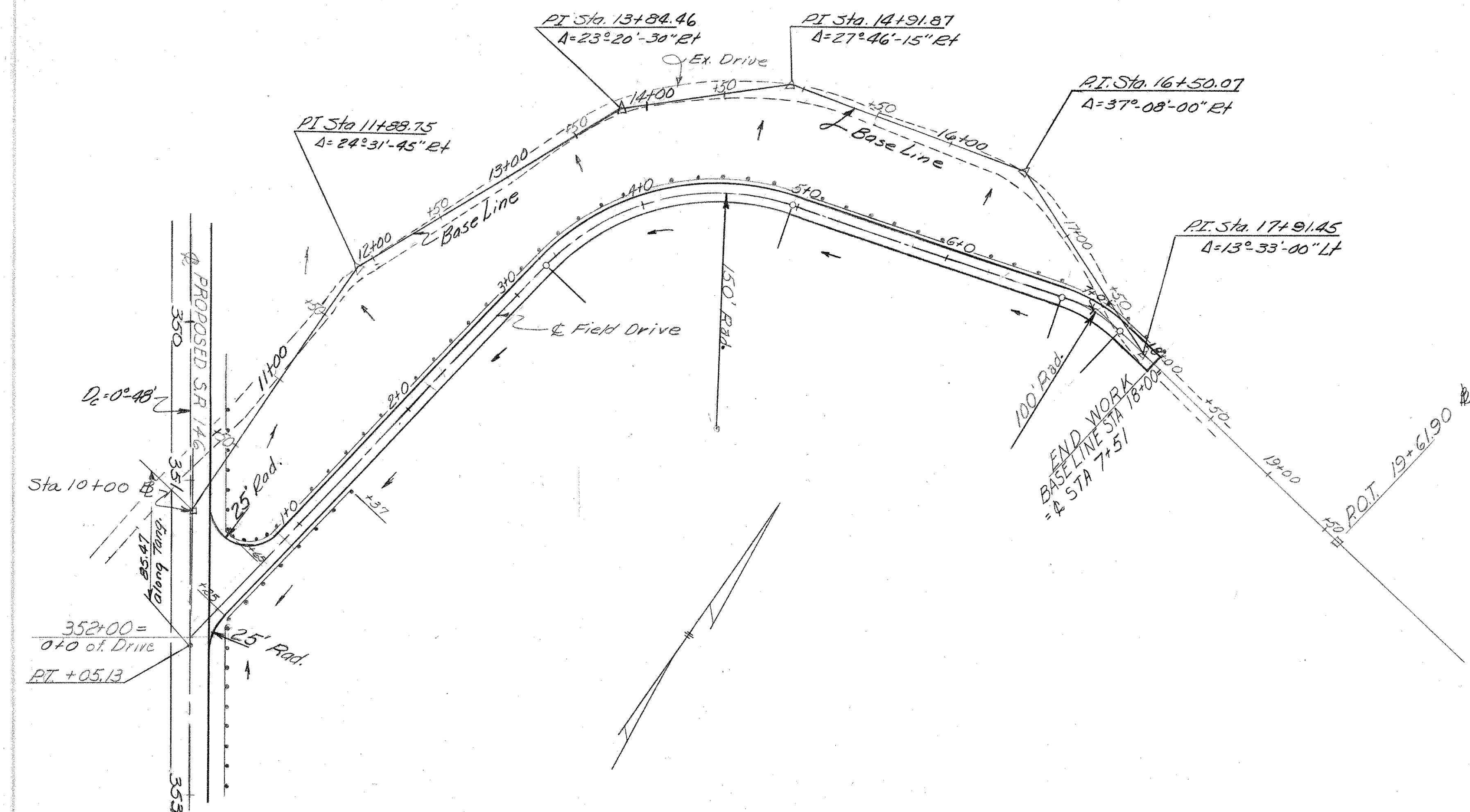
ESTIMATED QUANTITIES

- I-18 6" Stabilized Crushed Aggregate for Shoulders and Approaches — 1067 S.Y.
- I-15 Guard Rail, Woven Wire Type (2-Tape) or Wire Cable Type (2-Cable) — 816 L.F.

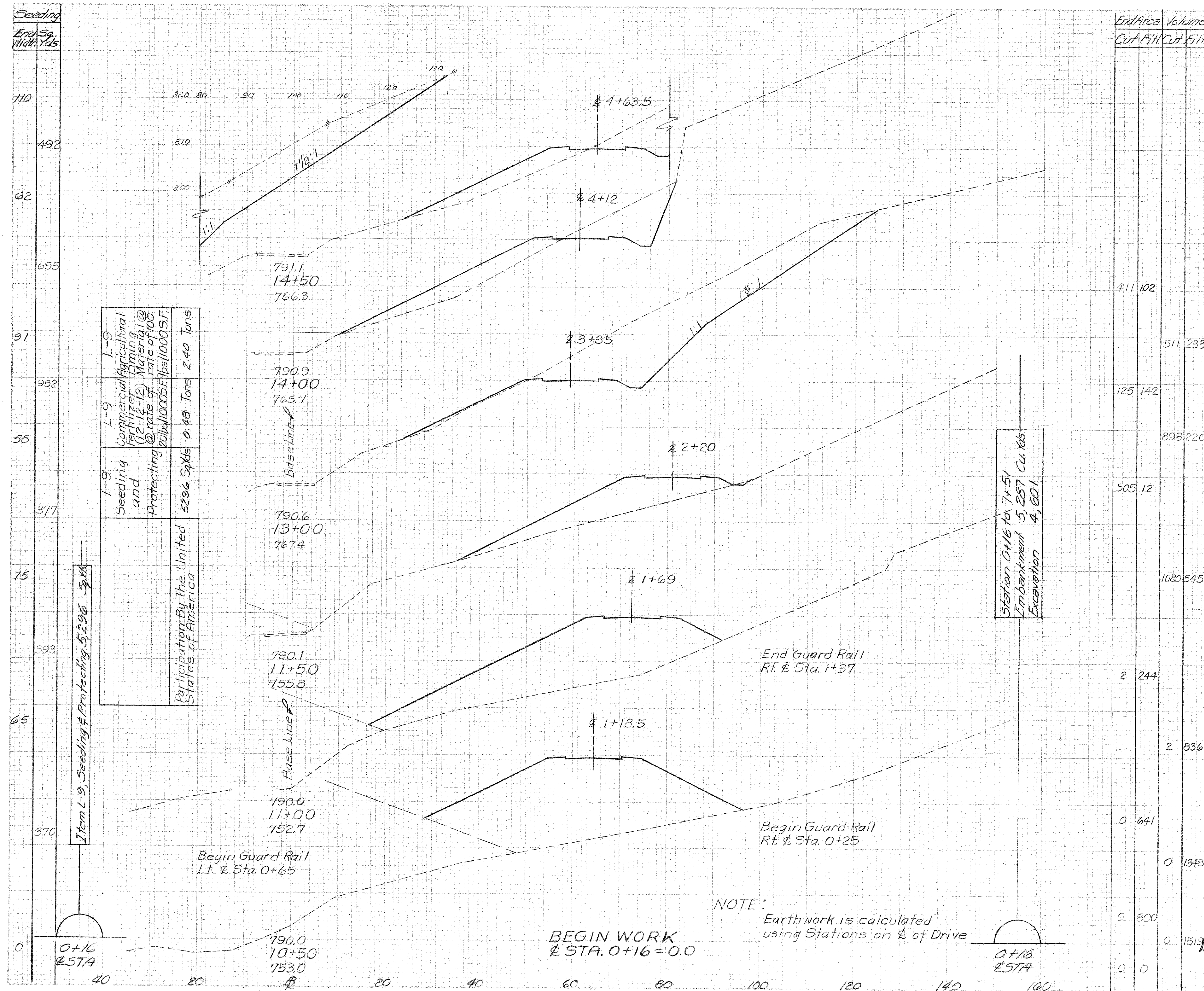
3/26/62		AS CONSTRUCTED	H.F. K.
REVISION	DATE	DESCRIPTION	BY
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: WHD		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
TRACED BY:			
CHECKED BY:			
SUBMITTED BY:			
RECOMMENDED BY: Dan Johnson		APPROVED: Steven Malovich	DATE: NOV. 1959
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: Horz. 1"=20' Vert. 1"=20' DRAWING NUMBER 027f-UD7-68/ 59 SHEET 59 OF 92	

WORK AS CONSTRUCTED

PLAN & PROFILE - FIELD DRIVE + STA 352+00



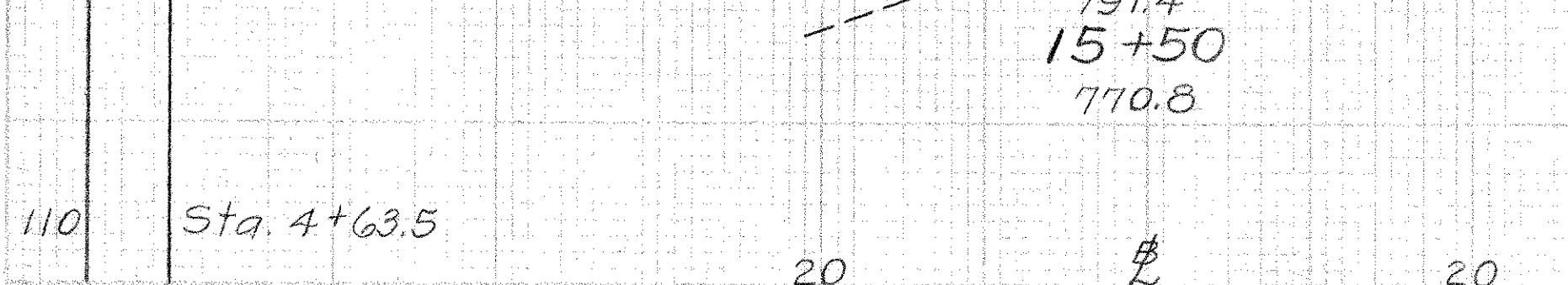
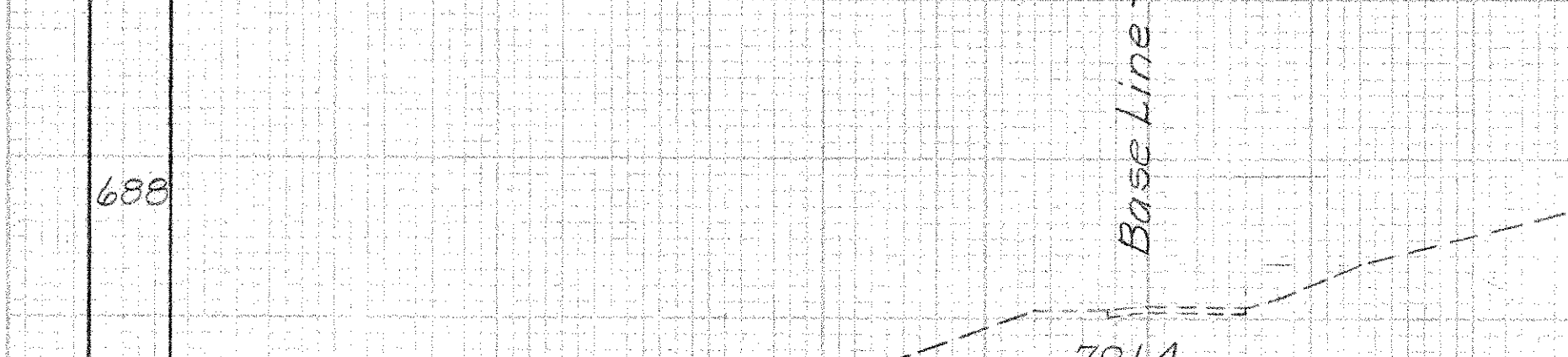
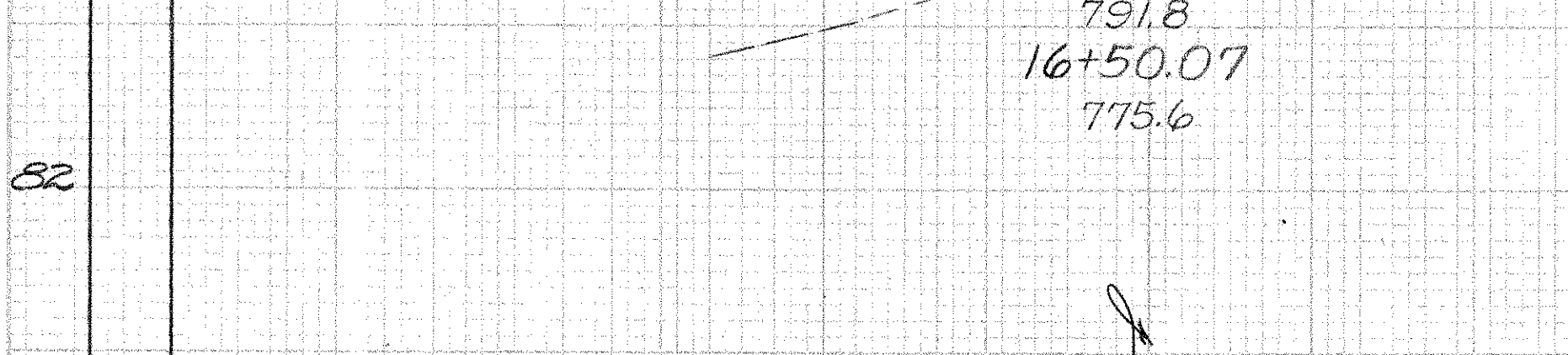
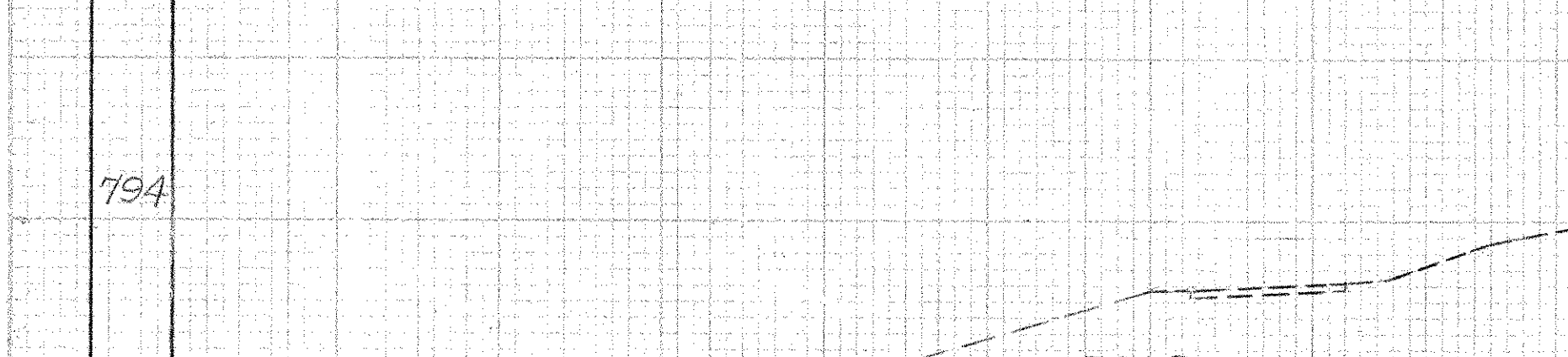
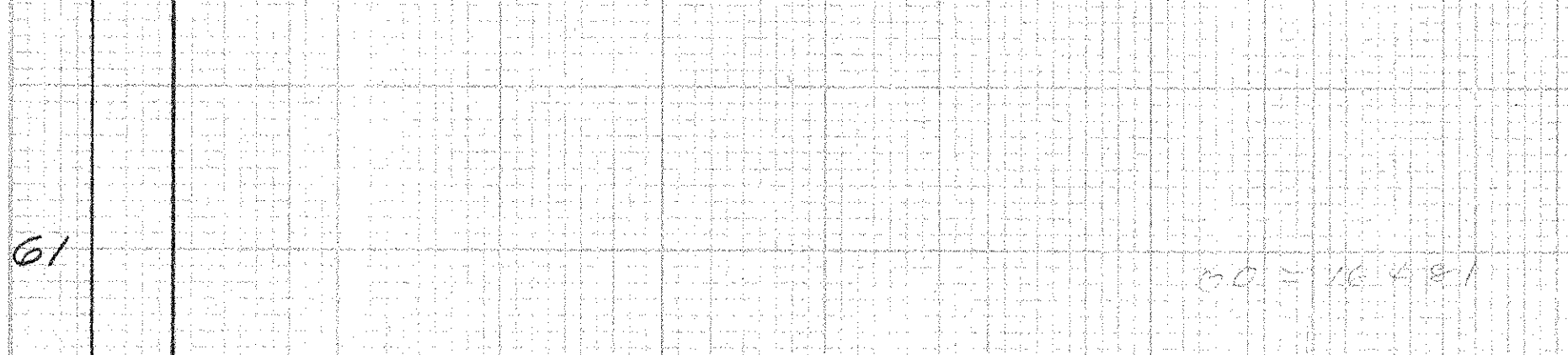
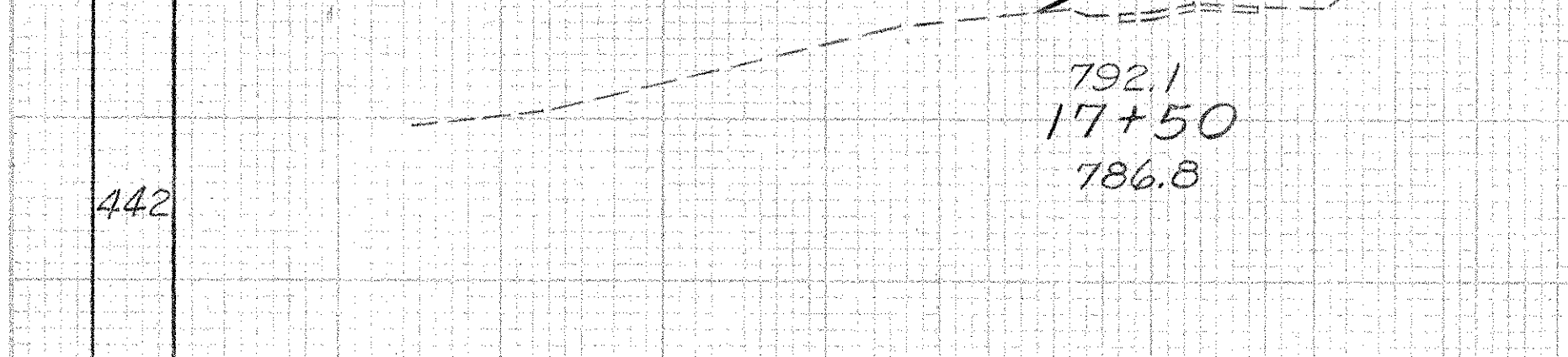
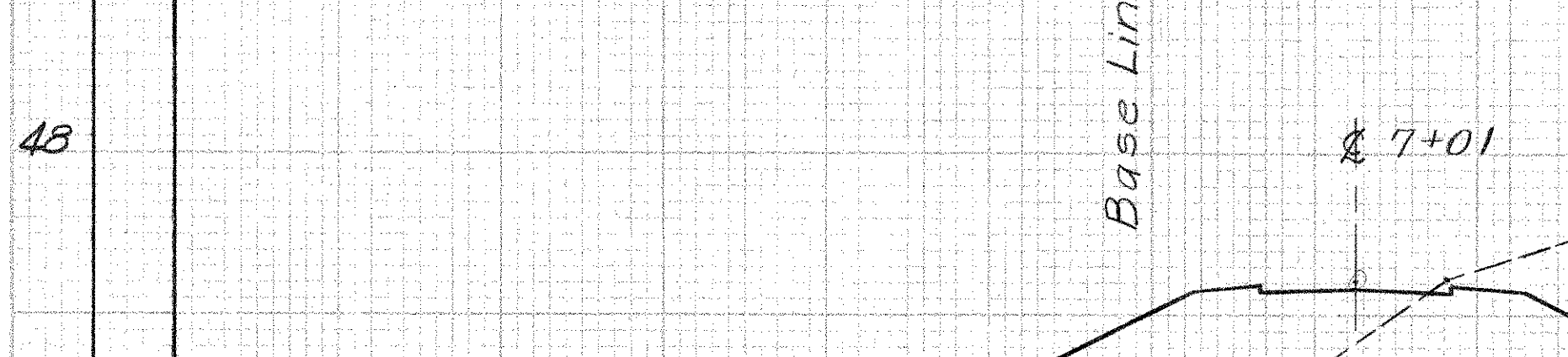
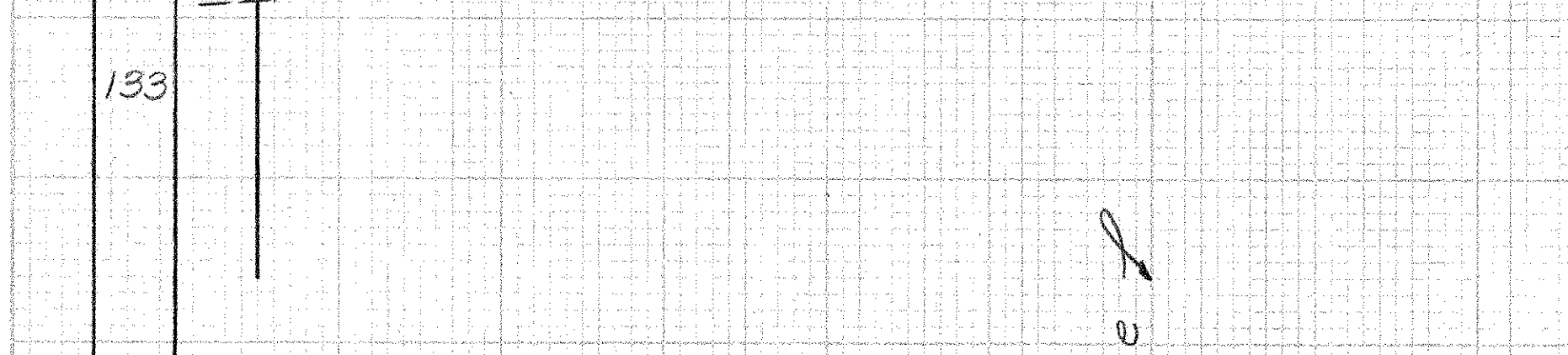
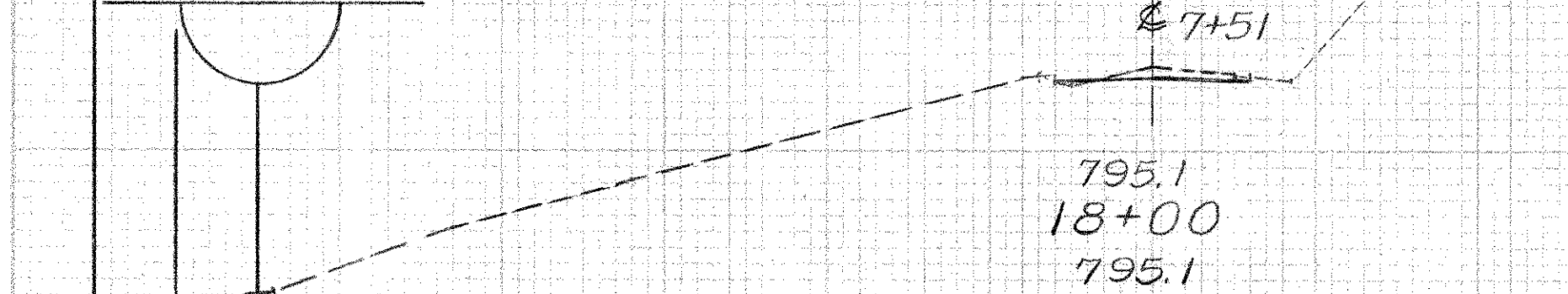
MUSKINGUM COUNTY
MUS-146- 6.09



	3/26/62	A5 CONSTRUCTED	H. F. K.
REVISION	DATE	DESCRIPTION	BY
<p>U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.</p>			
<p>DRAWN BY: <i>WHD</i></p>		<p>LICKING RIVER DILLON RESERVOIR PROJECT</p>	
<p>TRACED BY:</p>		<p>RELOCATION OF</p>	
<p>CHECKED BY: <i>sw</i></p>		<p>OHIO STATE ROUTE NO. 146 (Section 3)</p>	
<p>SUBMITTED BY: <i>Elmer S. Barrett</i> ELMER S. BARRETT ASSOCIATES</p>		<p>DATE: NOV. 1959</p>	
<p>RECOMMENDED: <i>Stan B. Johnson</i> CHIEF ENG. DIV.</p>		<p>APPROVED: <i>Steven Malenich</i> COL. C.E. DISTRICT ENGINEER</p>	
<p>ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO</p>		<p>SCALE: 1" = 10'</p>	
		<p>SPEC. NO.</p>	
		<p>DRAWING NUMBER</p>	
		<p>027f-UD7-68/ 60</p>	
		<p>SHEET 60 OF 92</p>	

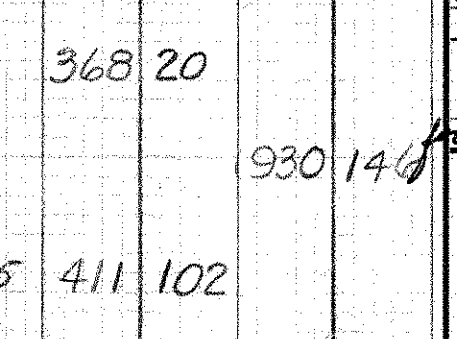
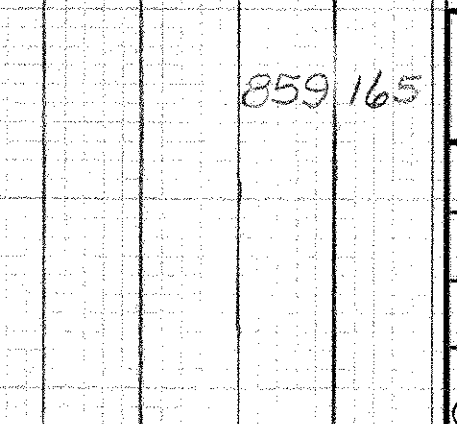
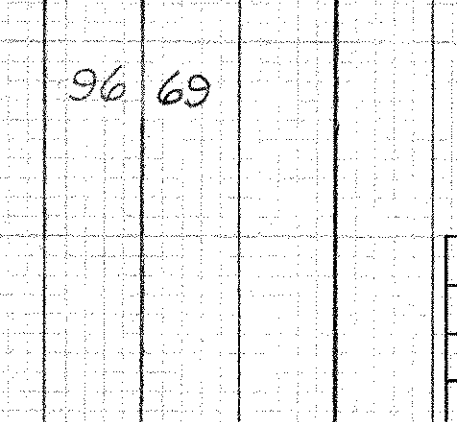
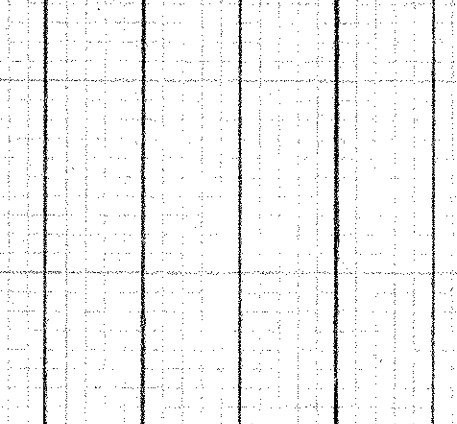
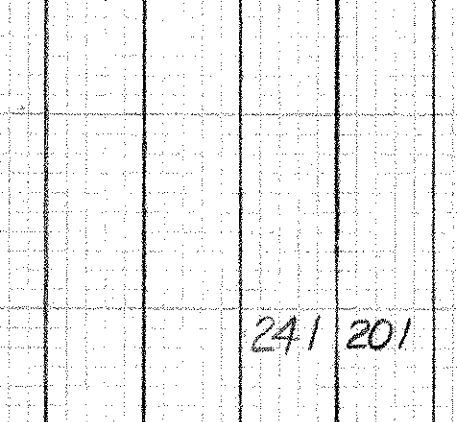
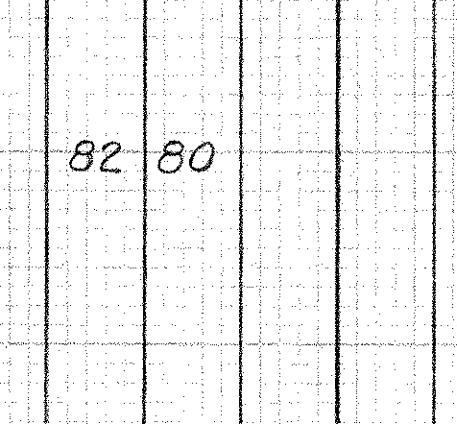
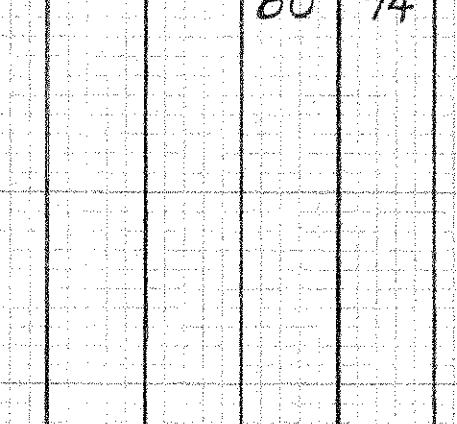
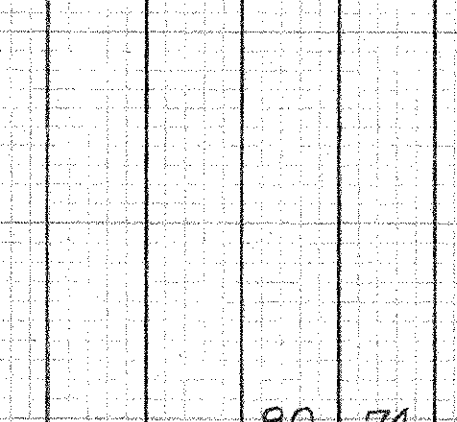
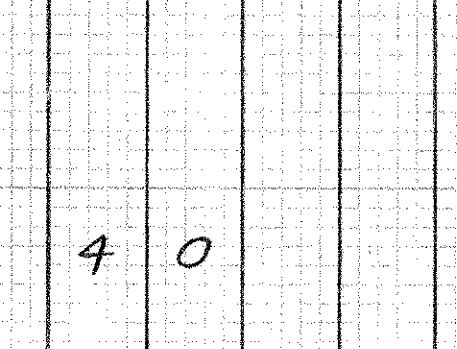
Seeding
End Sta.
Width Yds.

0 STA 7+51
End Guard Rail Lt Sta. 7+51
END WORK STA. 18+00 = STA. 7+51

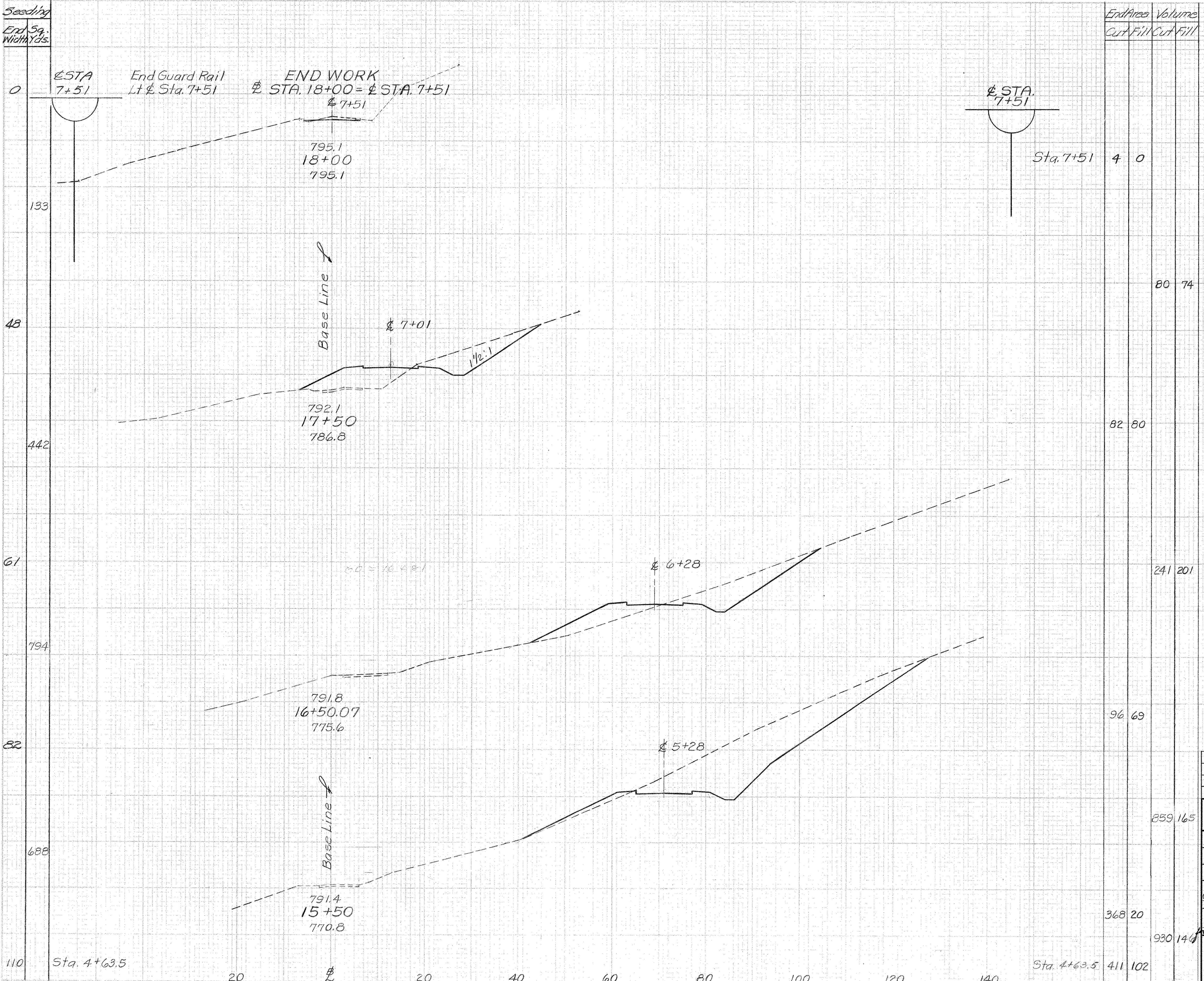


End Area Volume
Cut Fill Cut Fill

Sta. 7+51 4 0



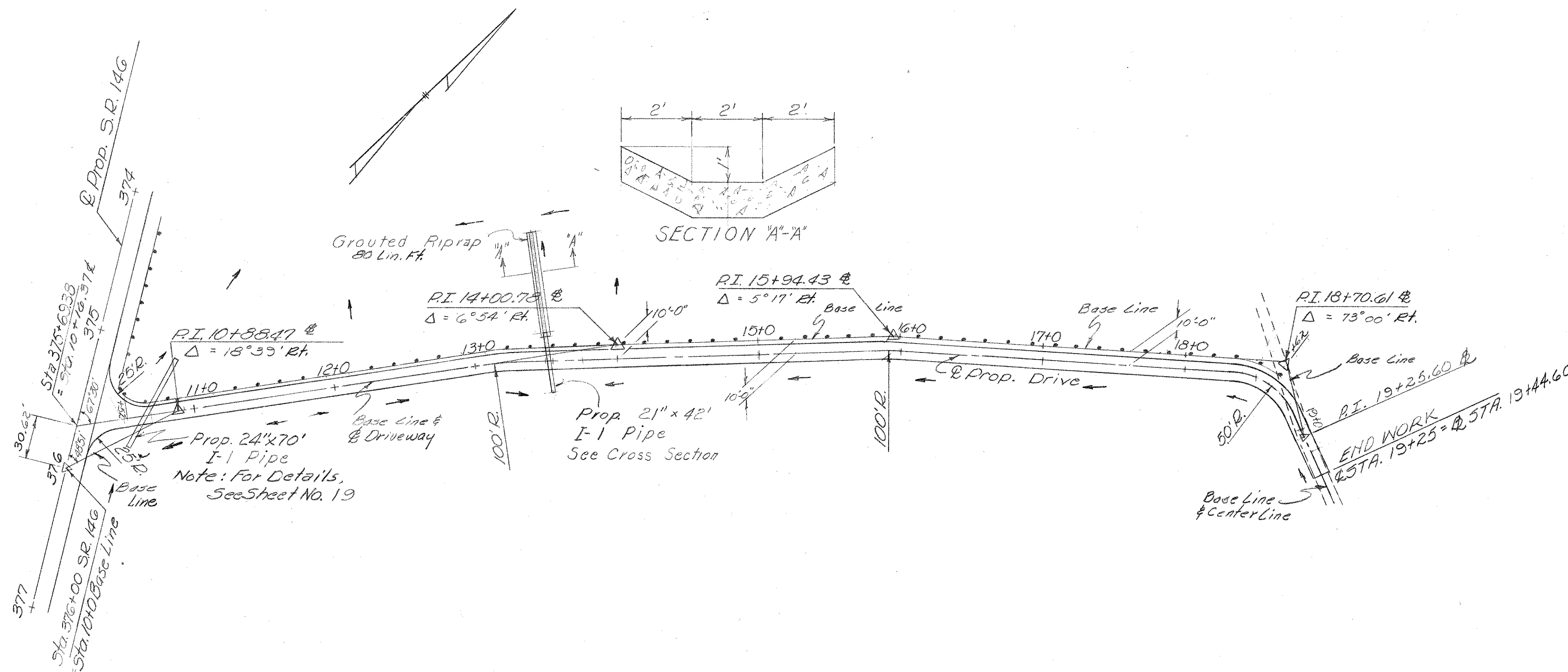
MUSKINGUM COUNTY
MUS-146- 6.09



3/26/62		AS CONSTRUCTED		H. F. K.	
REVISION	DATE	DESCRIPTION			BY
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.					
DRAWN BY: WHD		LICKING RIVER DILLON RESERVOIR PROJECT			
TRACED BY:		RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)			
CHECKED BY: ESW		APPROVED: Steven Malerich COL. C.E. DISTRICT ENGINEER			
SUBMITTED BY: ELMER S. BARRETT ASSOCIATES		DATE: NOV. 1959			
RECOMMENDED BY: Dan S. Johnson		SCALE: 1" = 10'			
CHIEF ENG. DIV.		SPEC. NO.			
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		DRAWING NUMBER 027f-UD7-68/61			
		SHEET 61 OF 92			

WORK AS CONSTRUCTED CROSS SECTIONS - FIELD DR 1 + STA 352+00

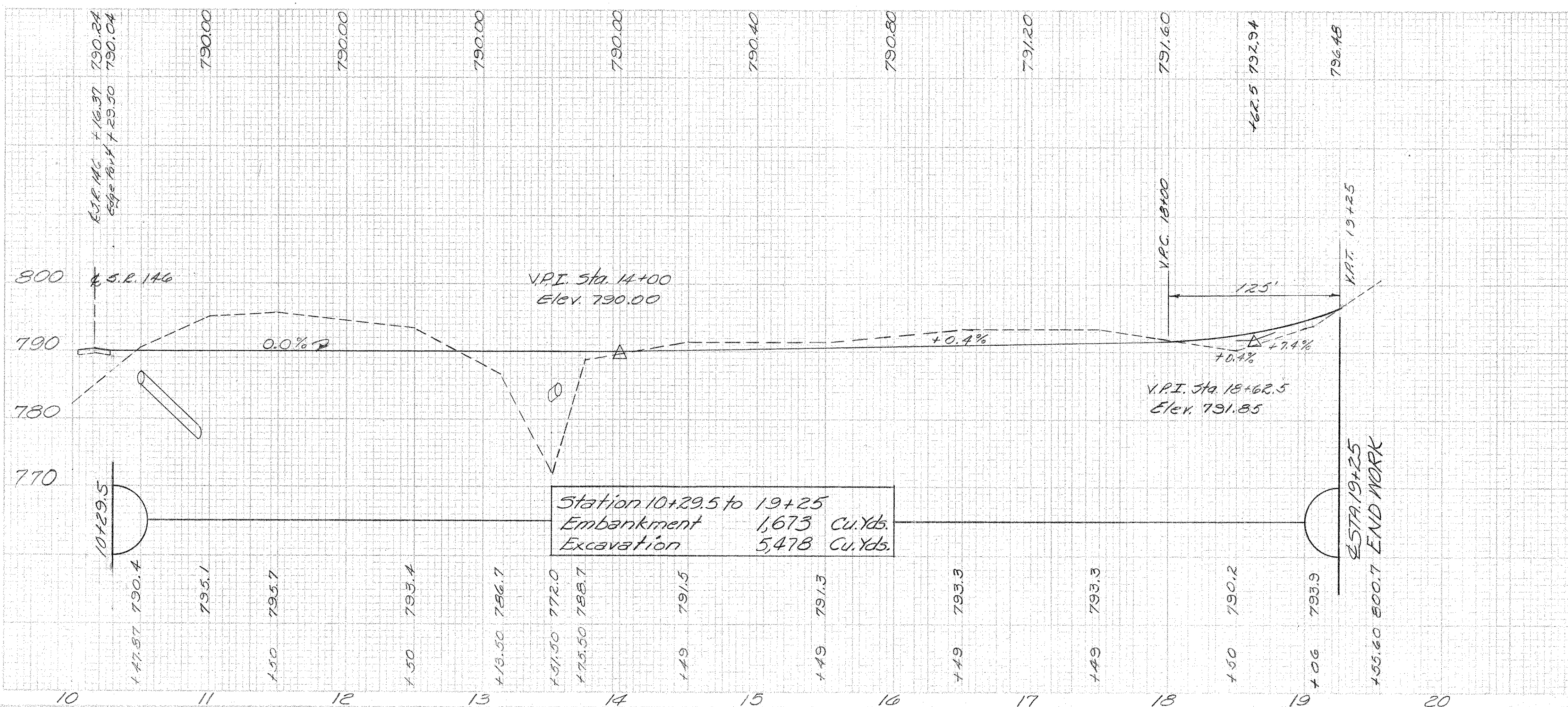
MUSKINGUM COUNTY
MUS-146-6.09



BASE LINE STATION	OFFSET FROM & TO	CENTER LINE STATION
10+20.15	23.06'	10+16.37
10+50	12.98'	10+47.87
10+88.47	0.0'	10+88.47
11+00		11+00
12+00		12+00
13+00	0.0'	13+00
13+50	4.0'	13+50
14+00.78	10.0'	14+00
15+00		14+99
16+00		15+99
17+00		16+99
18+00	10.0'	17+99
18+50	12.0'	18+50
19+00	5.5'	18+81
19+25.60	0.0'	19+06
19+44.60	0.0'	19+25

ESTIMATED QUANTITIES

Item I-10 Hand-placed Riprap, Grout-filled	54 S.Y.
Item I-1 21" Pipe for Driveway	42 L.F.
Item I-15 Guard Rail, Woven Wire Type (2-Tape) or Wire Cable Type (2-Cable)	816 L.F.
Item I-18 6" Stabilized Crushed Aggregate for Shoulders and Approaches	1242 S.Y.



3/26/62		AS CONSTRUCTED		H. F. K.
REVISION	DATE	DESCRIPTION		BY
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.				
DRAWN BY: WHD		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)		
TRACED BY:				
CHECKED BY: ELMER S. BARRETT ASSOCIATES				
SUBMITTED BY: ELMER S. BARRETT ASSOCIATES				
RECOMMENDED BY: Dan S. Johnson		APPROVED: Steven Malerich		DATE: NOV. 1959
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: Horz. 1"=50' Vert. 1"=10' SPEC. NO. 027f-UD7-68/62 SHEET 62 of 92		

Seeding
End Sq.
With Yds.

L-9	L-9	L-9
Commercial Agricultural	Commercial Agricultural	Commercial Agricultural
Fertilizer	Fertilizer	Fertilizer
(12-12-12)	(12-12-12)	(12-12-12)
Material @	Material @	Material @
rate of 100	rate of 100	rate of 100
lbs/1000 S.F.	lbs/1000 S.F.	lbs/1000 S.F.
4660 Sqds	0.42 Tons	2.10 Tons
Seeding and		
Protecting		
Participation By The United		
States of America.		

39

307

47

533

49

281

52

295

50

51

0

Item L-9 Seeding & Protecting 4,660 Sqds

10+29.5
L STA.

Drive & 13+13.50

1 1/2:1

2:1

790.00
13+13.50
786.7
Base Line

Drive & 12+50

1 1/2:1

#787.6

790.00
12+50
793.4
Base Line

Drive & 11+50

1 1/2:1

1:1

790.00
11+50
795.7
Base Line

Drive & 11+00

1 1/2:1

1:1

790.00
11+50
795.05
Base Line

Begin Guard Rail
Lt & Sta. 10+52

Drive & 10+47.87

1 1/2:1

1:1

790.00
10+50
795.45
Base Line

L STA. 10+29.5 = 0:0
BEGIN WORK

NOTE:
Earthwork is calculated
using Stations on & of Drive

Note: Total Excavation & Em-
bankment Carried to Sheet
Station 10+29.5 to 19+25.0
Embankment 1,673 Cu. Yds.
Excavation 5,478 Cu. Yds

End Area
Cut Fill

12 96

282 113

228 0

1021 0

356 0

709 0

410 0

725 0

341 0

116 0

0 0

MUSKINGUM COUNTY
MUS-146- 6.09

REVISION	DATE	DESCRIPTION	BY
	3/26/62	AS CONSTRUCTED	H. F. K.
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: WHD		LICKING RIVER DILLON RESERVOIR PROJECT	
TRACED BY:		RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
CHECKED BY: 864		DATE: NOV. 1959	
SUBMITTED BY: Elmer S. Barrett Associates		APPROVED: Steven Malenich	
RECOMMENDED BY: Dan Johnson		COL. C. E. DISTRICT ENGINEER	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: 1" = 10' DRAWING NUMBER 027f-UD7-68/63 SHEET 63 OF 92	

WORK AS CONSTRUCTED

CROSS SECTIONS - FIELD DR. Lt. Sta. 375+69.38

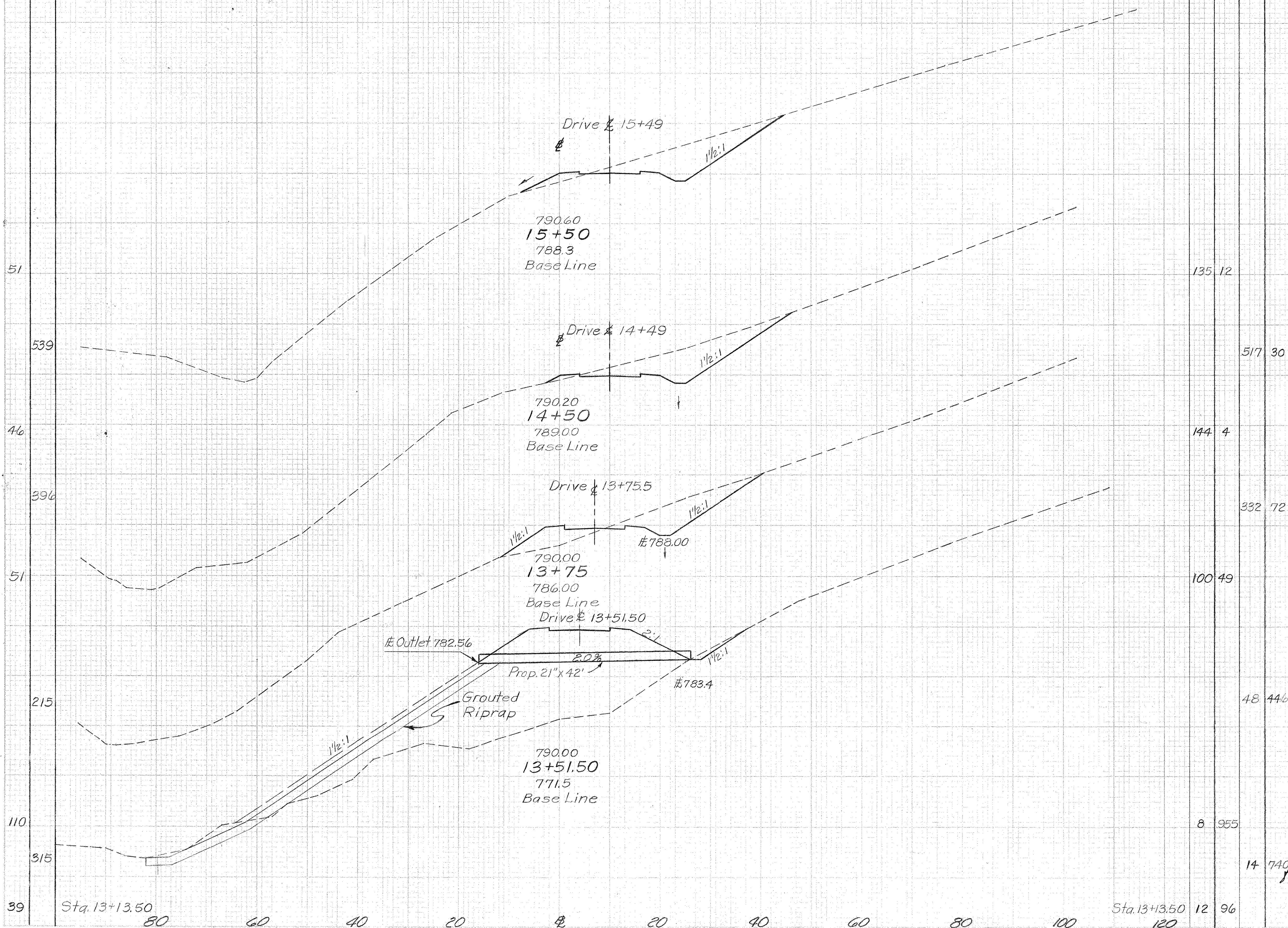
Seeding
End Sq.
Widths.

End Area Volume
Cut Fill Cut Fill

FED. RD DISTRICT	STATE	PROJECT	
2	OHIO		

64
92

MUSKINGUM COUNTY
MUS-146 - 6.09



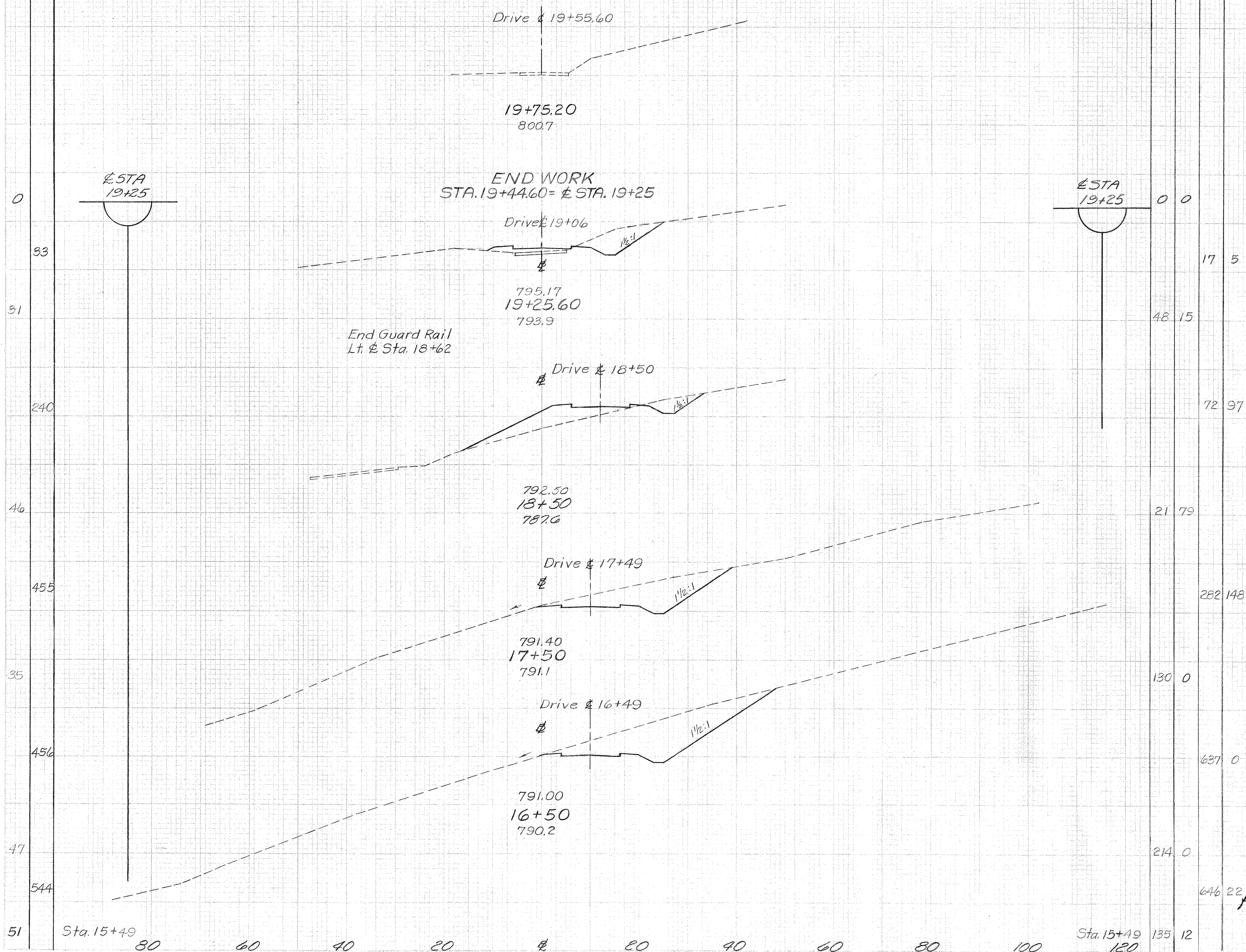
REVISION	DATE	DESCRIPTION	BY
	3/26/62	AS CONSTRUCTION	H. F. K.
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: WHD		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
TRACED BY:		DATE: NOV. 1959	
CHECKED BY: JH		APPROVED: Steven Malench	
SUBMITTED BY: Elmer S. Barrett Associates		COL. C. E. DISTRICT ENGINEER	
RECOMMENDED BY: Dan S. Johnson		CHIEF ENG. DIV.	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: 1"=10' DRAWING NUMBER 027f-UD7-68/64 SHEET 64 OF 92	

Seeding
Erod. 5g.
Width 125.

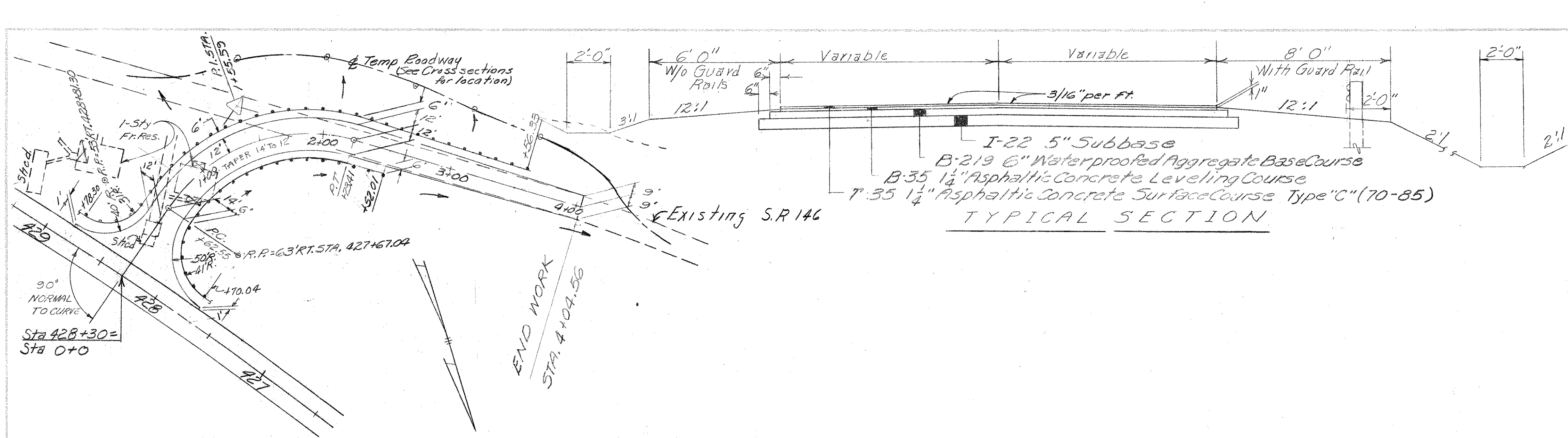
End Area Volume
Cut Fill Cut Fill

2 OHIO 65
92

MUSKINGUM COUNTY
MUS-146- 6.09

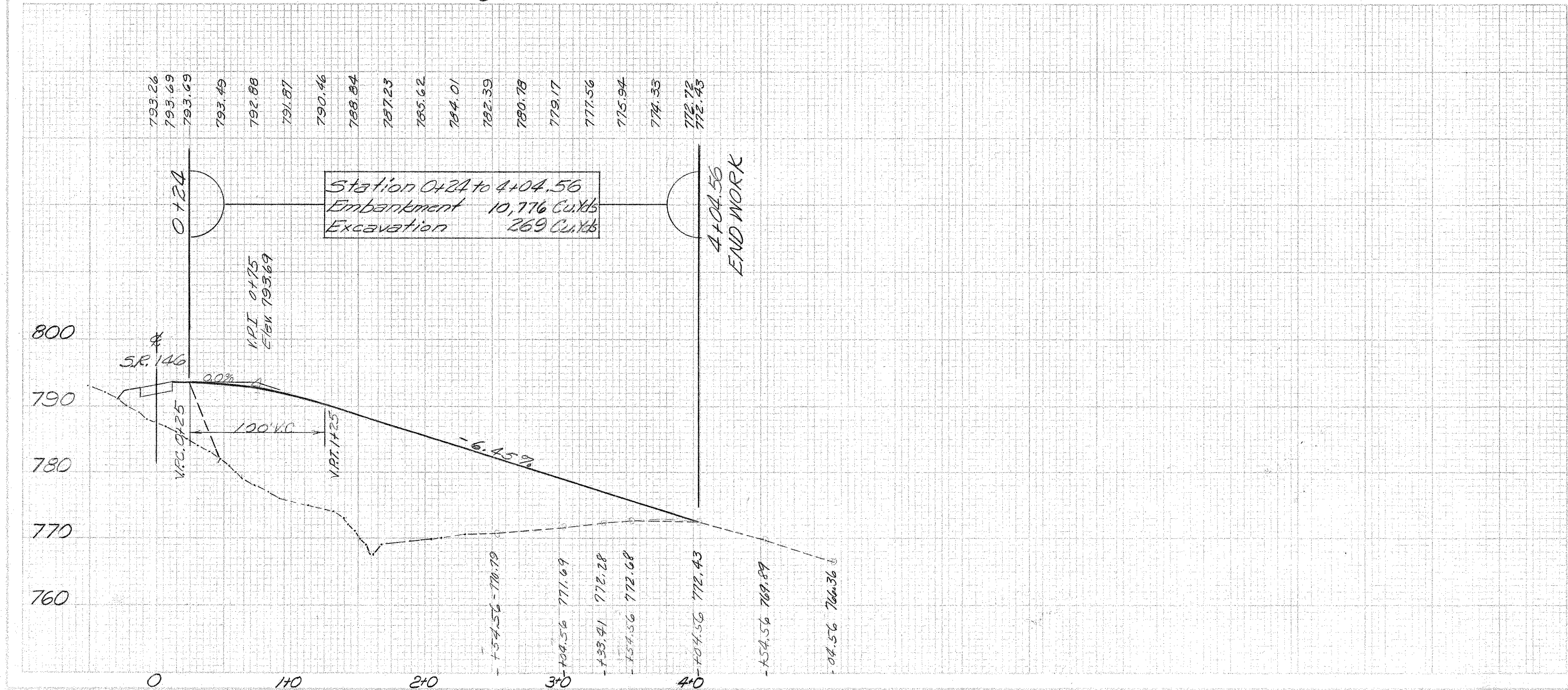


3/26/62		AS CONSTRUCTED	H. F. K.
REVISION	DATE	DESCRIPTION	BY
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: WHD		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
TRACED BY:		DATE: NOV. 1959	
CHECKED BY:		APPROVED: Steven Malerich COL. C. E. DISTRICT ENGINEER	
SUBMITTED BY: Elmer S. Barrett Associates		RECOMMENDED: Don E. Johnson CHIEF ENG. DIST.	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: 1" = 10' SPEC. NO. 027f-UD7-68/65 SHEET 65 OF 92	



Note:—
For Continuation
Of Guard Rail
See S.R. 146 Plans

CURVE DATA
P.I. STA. 1+55.59
Δ = 72°05' RT.
R = 127.86'
L = 160.86'
T = 93.04'
Dc = 44°45'40"



ESTIMATED QUANTITIES

Item T-35	1 1/2" Asphaltic Concrete Surface Course Type "C" (70-85)	1,123.12 SY.
Item B-35	1 1/2" Asphaltic Concrete Leveling Course	1,123.12 SY.
Item B-219	6" Waterproofed Aggregate Base Course	1,163.06 SY.
Item I-22	5" Subbase	1,202.92 SY.
Item I-15	Guard Rail, Steel Beam Type (Deep)	612.50 L.F.

3/26/62		AS CONSTRUCTED		H.F.K.
REVISION	DATE	DESCRIPTION		BY
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.				
DRAWN BY: WHO		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)		
TRACED BY:				
CHECKED BY: [Signature]				
SUBMITTED BY: [Signature]				
RECOMMENDED: [Signature]		APPROVED: [Signature]		DATE: NOV. 1959
ELMER S. BARRETT ASSOCIATES CHILLICOTHE, OHIO		COL. C.E. DISTRICT ENGINEER		SCALE: Horiz - 1"=50' Vert - 1"=10' SPEC. NO. DRAWING NUMBER 027f-UD7-68/66 SHEET 66 OF 92

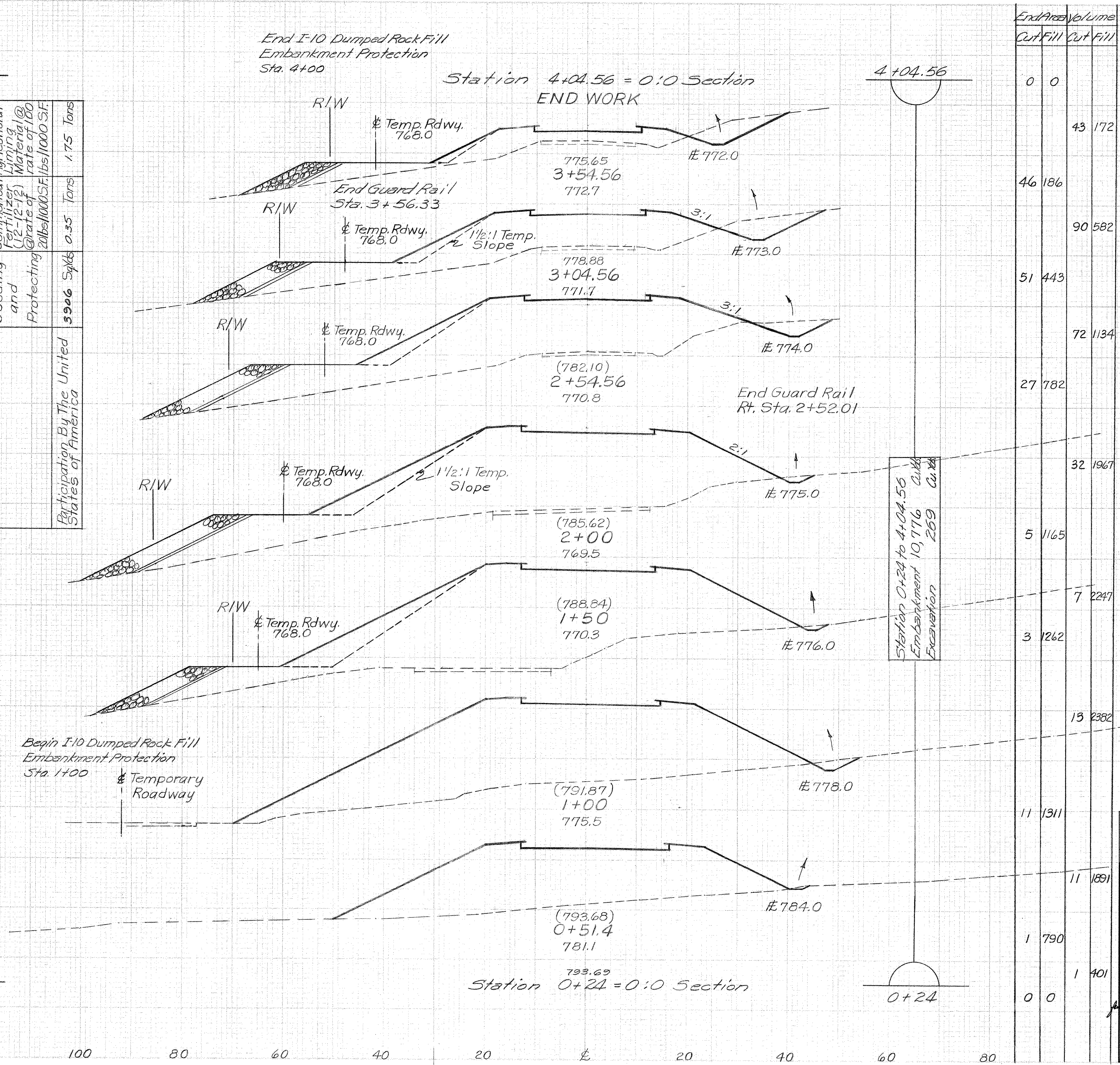
Seeding
End Sq.
Width X Ls.

0
219
79
494
99
581
110
685
116
650
118
642
113
516
78
119
0

4+04.56
0+24

L-9	Agricultural Liming Material @ rate of 100	175	Tons
L-9	Commercial Fertilizer (12-12-12) @ rate of 100	0.35	Tons
L-9	Seeding and Protecting	3906	Sq. Yds.
Participation By The United States of America			

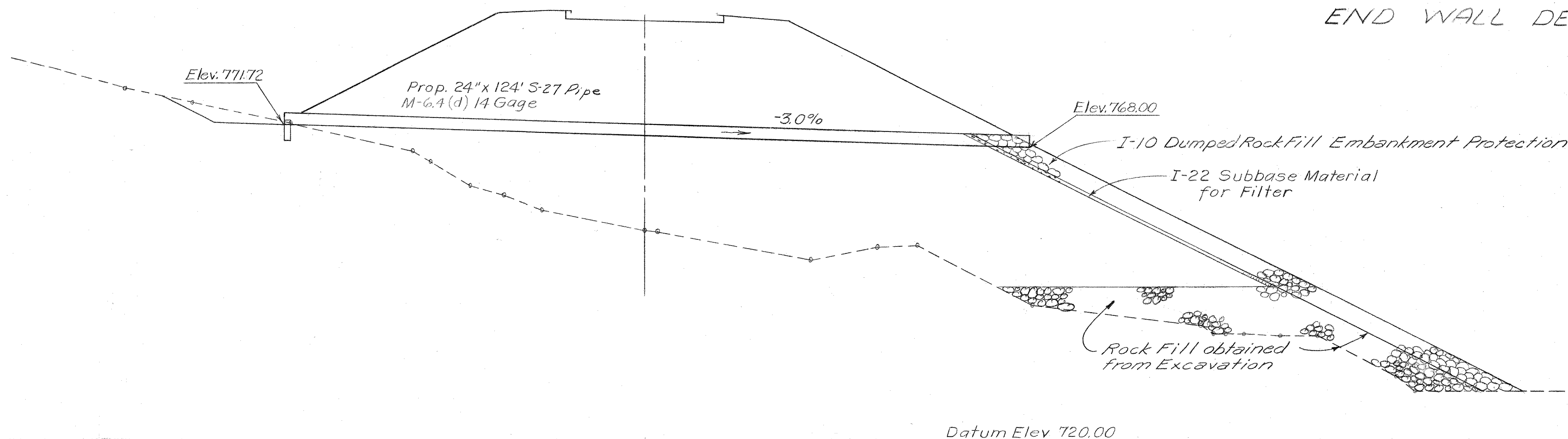
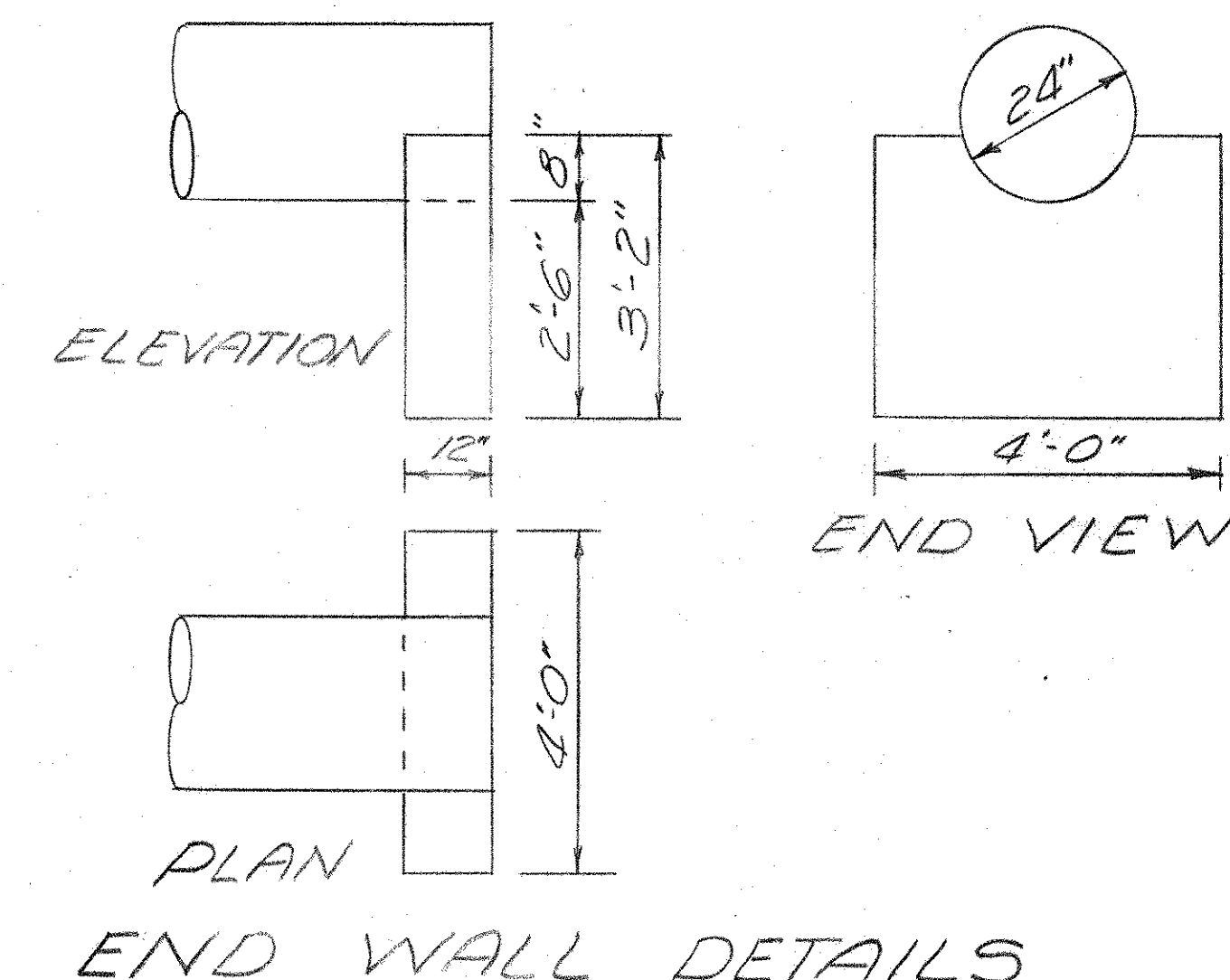
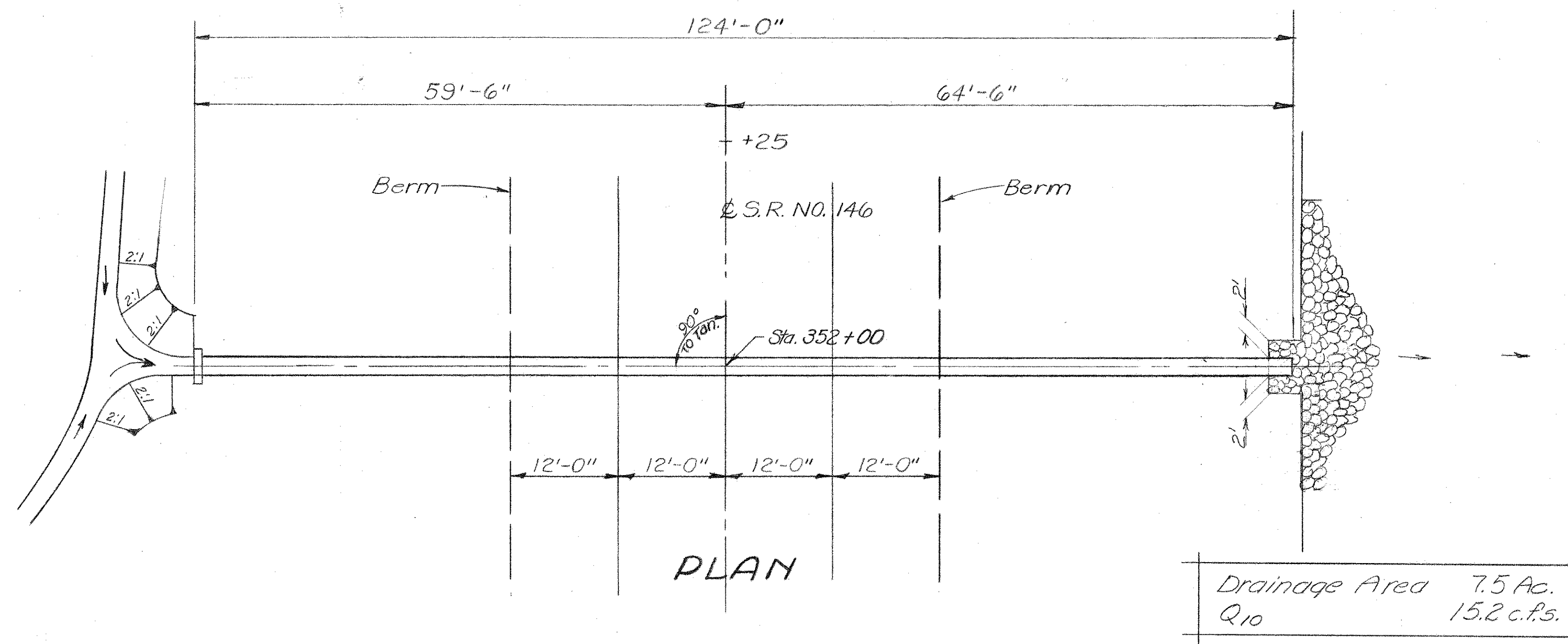
Item L-9, Seeding & Protecting 3906 Sq. Yds.



End Area		Volume	
Cut	Fill	Cut	Fill
0	0	43	172
46	186	90	582
51	443	72	1134
27	782	32	1967
5	1165	7	2247
3	1262	13	2382
11	1311	11	1891
1	790	1	401
0	0		

REVISION	DATE	DESCRIPTION	BY
	3/26/62	AS CONSTRUCTED	H. F. K.
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: WHD		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
TRACED BY:			
CHECKED BY: [Signature]			
SUBMITTED BY: [Signature]			
RECOMMENDED: [Signature]		APPROVED: [Signature]	DATE: NOV. 1959
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: 1"=10' DRAWING NUMBER 027f-UD7-68/67 SHEET 67 OF 92	

MUSKINGUM COUNTY
MUS-146-6.09



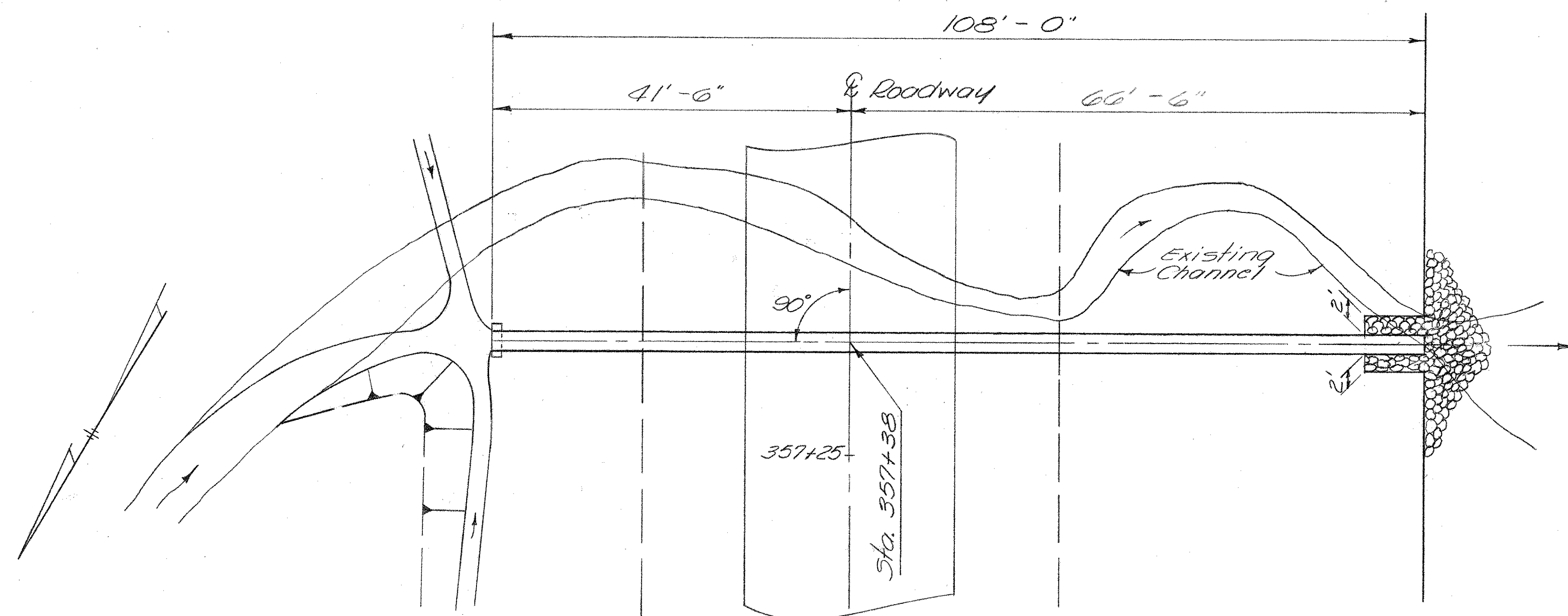
ESTIMATED QUANTITIES

Item E-2 Excavation for Structures, Unclassified 2 cu. yds.
Item S-1 Concrete for Structure, Class "E" 0.41 cu. yds.
Item S-27 24 inch Pipe for Roadway Culvert 124 Lin. Ft.

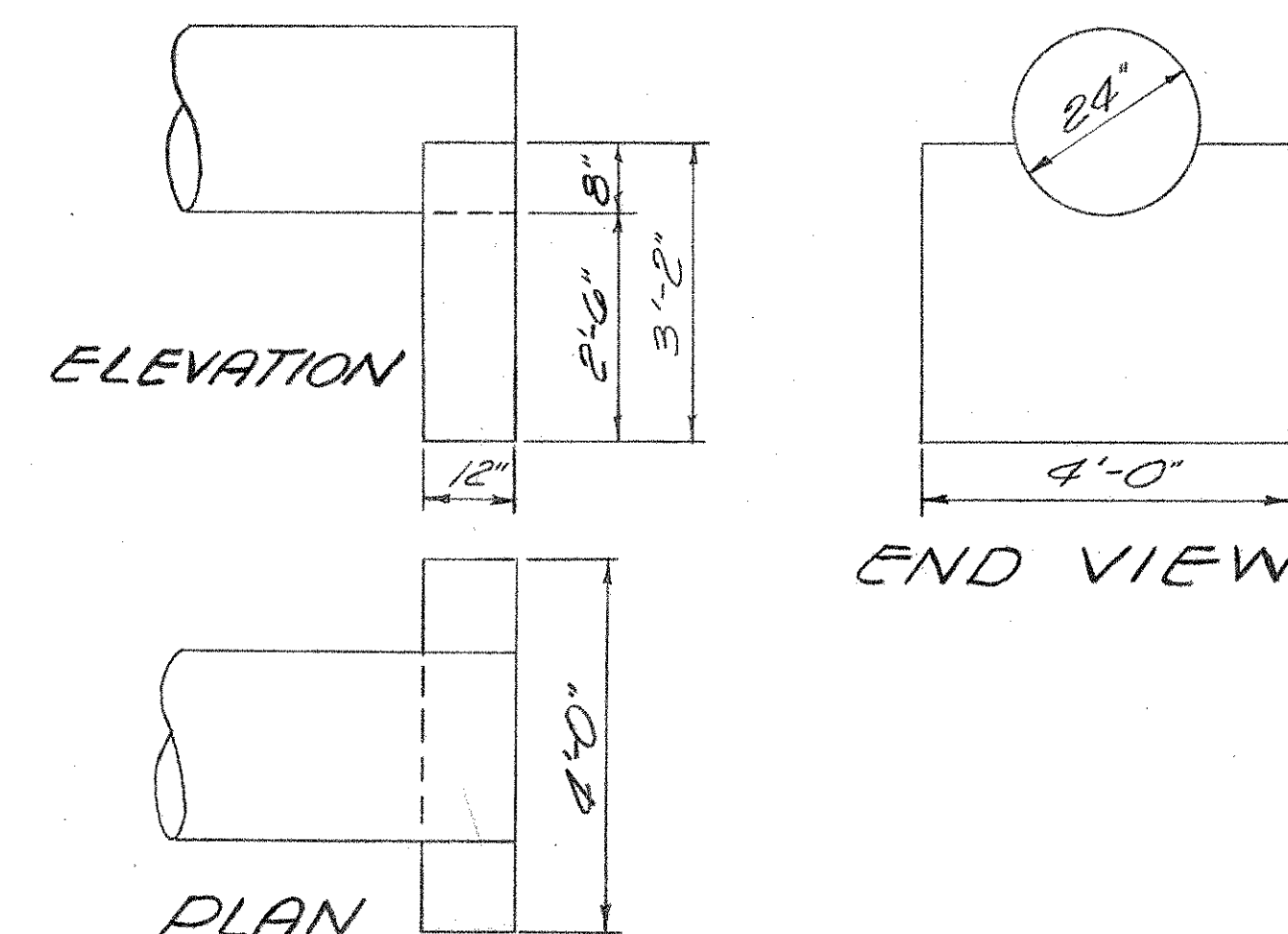
PARTICIPATION BY THE STATE OF OHIO		PARTICIPATION BY THE UNITED STATES OF AMERICA	
ITEM SIZE	QUANTITY	ITEM SIZE	QUANTITY
S-27 24"	12 Lin. Ft.	S-27 24"	112 Lin. Ft.

REVISION	DATE	DESCRIPTION	BY
	3/26/62	AS CONSTRUCTED	H.F.K.
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: WHD		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
TRACED BY:			
CHECKED BY: [Signature]			
SUBMITTED BY: [Signature]			
RECOMMENDED BY: [Signature]		APPROVED: [Signature] COL. C.E. DISTRICT ENGINEER	
ELMER S. BARRETT ASSOCIATES CHILLICOTHE, OHIO		SCALE: 1"=10' DRAWING NUMBER: 027f-UD7-68/69 SHEET 69 OF 92	

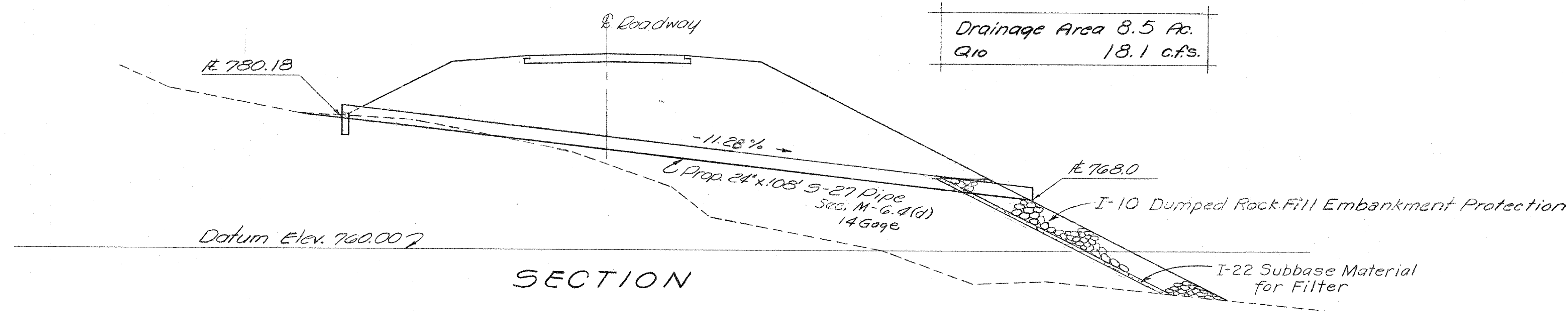
MUSKINGUM COUNTY
MUS - 146-6.09



PLAN



END WALL DETAILS



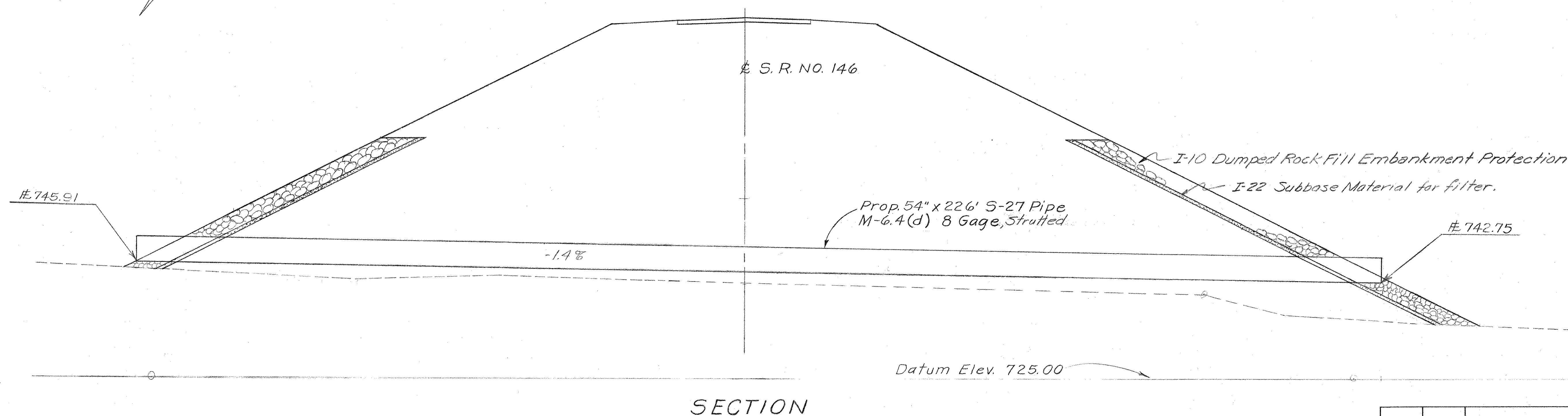
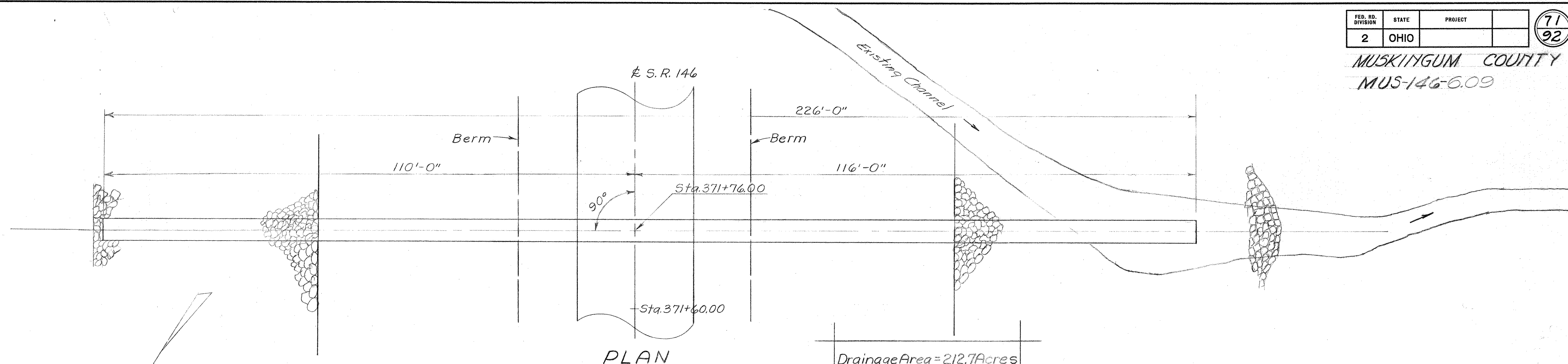
SECTION

ESTIMATED QUANTITIES

Item E-2 Excavation for Structure, Unclassified 7 cu. yds.
Item S-1 Concrete for Structure, Class "E" 0.41 cu. yds.
Item S-27 24 inch Pipe for Roadway Culvert 108 Lin. Ft.

PARTICIPATION BY THE STATE OF OHIO			PARTICIPATION BY THE UNITED STATES OF AMERICA		
ITEM	SIZE	QUANTITY	ITEM	SIZE	QUANTITY
S-27	24"	12 Lin. Ft.	S-27	24"	96 Lin. Ft.

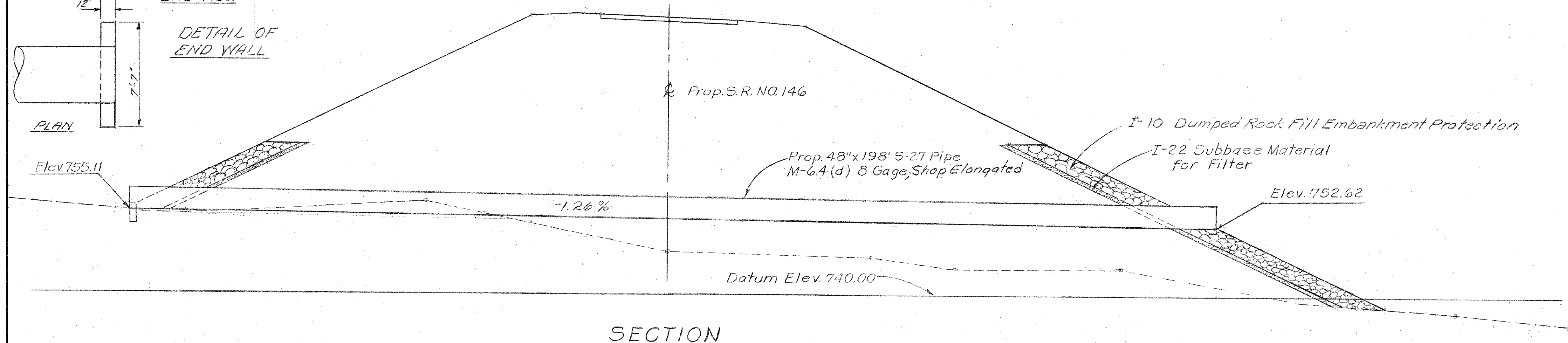
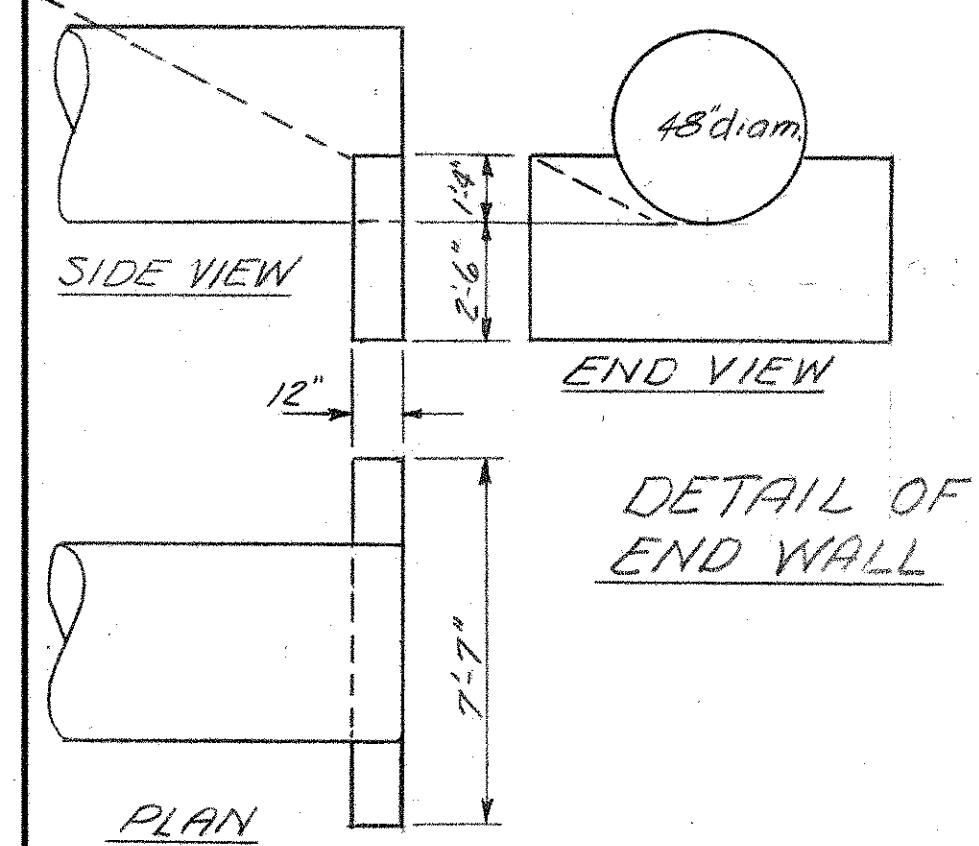
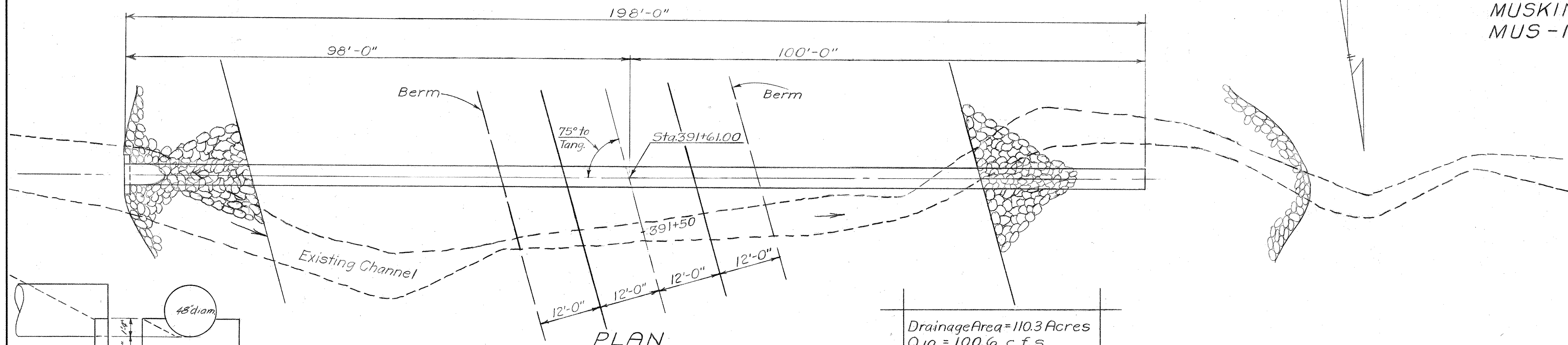
REVISION	DATE	DESCRIPTION	BY
	3/26/62	AS CONSTRUCTED	H.F.K.
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: WHD		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
TRACED BY: J.C.E.			
CHECKED BY: [Signature]			
SUBMITTED BY: [Signature]			
RECOMMENDED: [Signature]		APPROVED: [Signature]	DATE: NOV. 1959
ELMER S. BARRETT ASSOCIATES		COL. C.E. DISTRICT ENGINEER	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: 1"=10' DRAWING NUMBER 027f-UD7-68/70 SHEET 70 OF 92	



ESTIMATED QUANTITIES
Item S-27 54" Pipe for Roadway Culvert 226 Lin. Ft.

PARTICIPATION BY THE STATE OF OHIO		PARTICIPATION BY THE UNITED STATES OF AMERICA	
ITEM	SIZE QUANTITY	ITEM	SIZE QUANTITY
S-27	54" 12 Lin. Ft.	S-27	54" 214 Lin. Ft.

REVISION	DATE	DESCRIPTION	BY
	3/26/62	AS CONSTRUCTED	H.F.K.
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: W.H.D.		LICKING RIVER DILLON RESERVOIR PROJECT	
TRACED BY: W.F.I.		RELOCATION OF OHIO STATE ROUTE NO. 146	
CHECKED BY: SPW		(Section 3)	
SUBMITTED BY: Elmer S. Barrett ELMER S. BARRETT ASSOCIATES		APPROVED: Steven Malovich COL. C. E. DISTRICT ENGINEER	
RECOMMENDED: Dan Johnson CHIEF ENG. DIV.		DATE: NOV. 1959	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: 1" = 10' DRAWING NUMBER 027f-UD7-68/71 SHEET 71 OF 92	



ESTIMATED QUANTITIES

Item E-2 Excavation for Structure, Unclassified	22 Cu. Yds.
Item S-27 48 inch Pipe for Roadway Culvert	198 Lin. Ft.
Item S-1 Concrete for Structure, Class "E"	0.86 Cu. Yds.

PARTICIPATION BY THE STATE OF OHIO		PARTICIPATION BY THE UNITED STATES OF AMERICA	
ITEM	QUANTITY	ITEM	QUANTITY
S-27 48"	12 Lin. Ft.	S-27 48"	186 Lin. Ft.

REVISION	DATE	DESCRIPTION	BY
	3/26/62	AS CONSTRUCTED	H.F.K.

U. S. ARMY ENGINEER DISTRICT, HUNTINGTON
CORPS OF ENGINEERS
HUNTINGTON, W. VA.

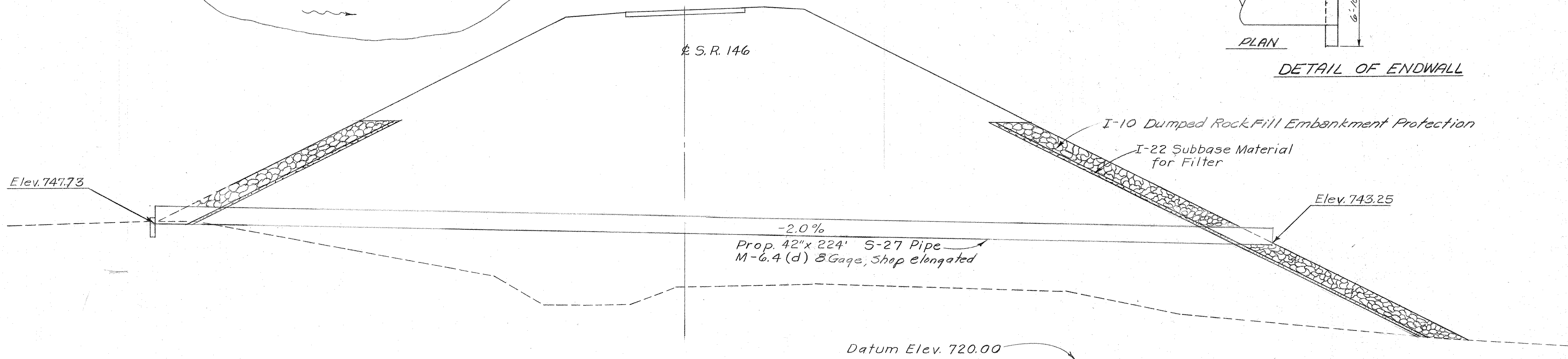
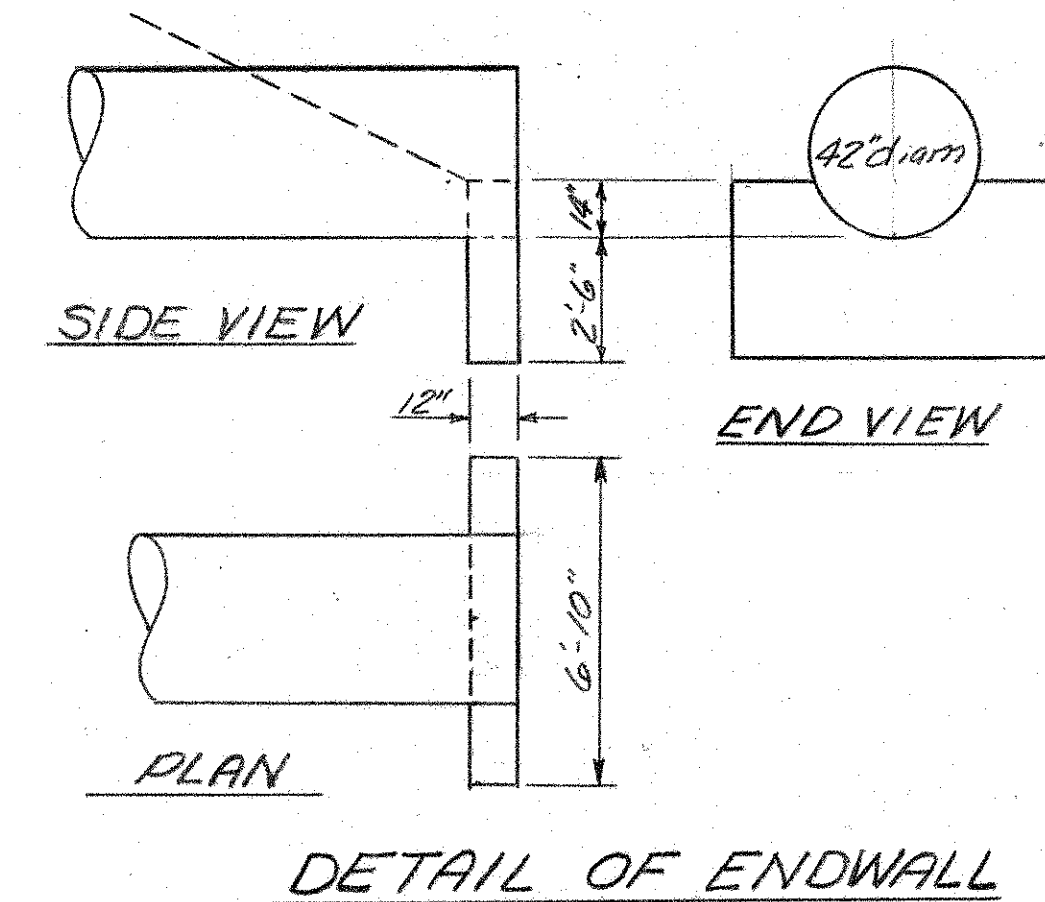
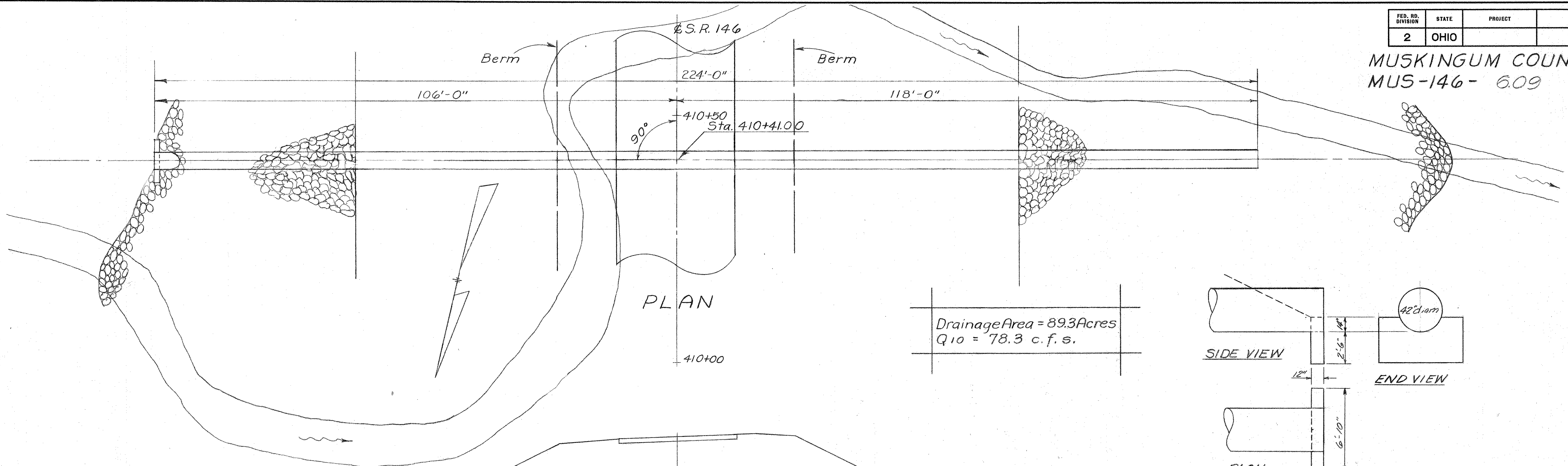
DRAWN BY: WHD
TRACED BY:
CHECKED BY: EBA
SUBMITTED BY: Elmer S. Barrett Associates
RECOMMENDED: Dan P. Johnson
APPROVED: Steven Malench
DATE: NOV. 1959

ELMER S. BARRETT ASSOCIATES
CONSULTING ENGINEERS
CHILLICOTHE, OHIO

LICKING RIVER
DILLON RESERVOIR PROJECT
RELOCATION OF
OHIO STATE ROUTE NO. 146
(Section 3)

SCALE: 1" = 10'
DRAWING NUMBER: 027f-UD7-68/72
SHEET 72 OF 92

MUSKINGUM COUNTY
MUS-146- 6.09



SECTION

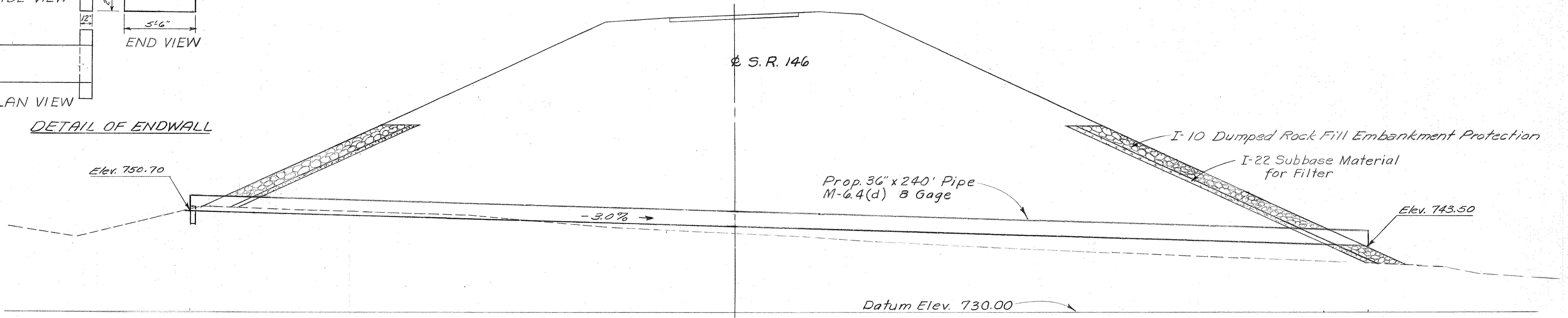
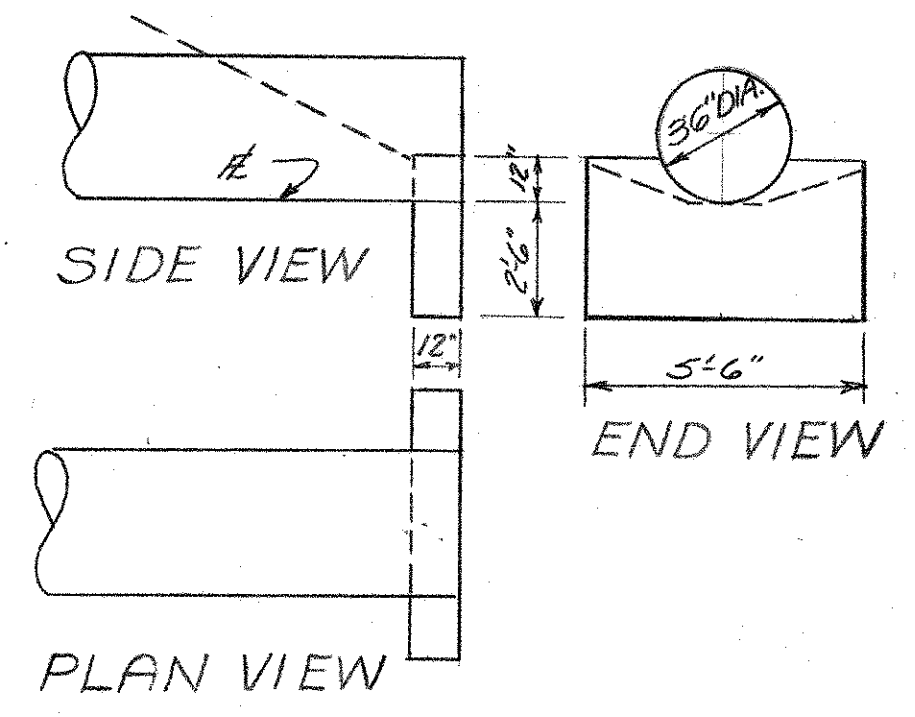
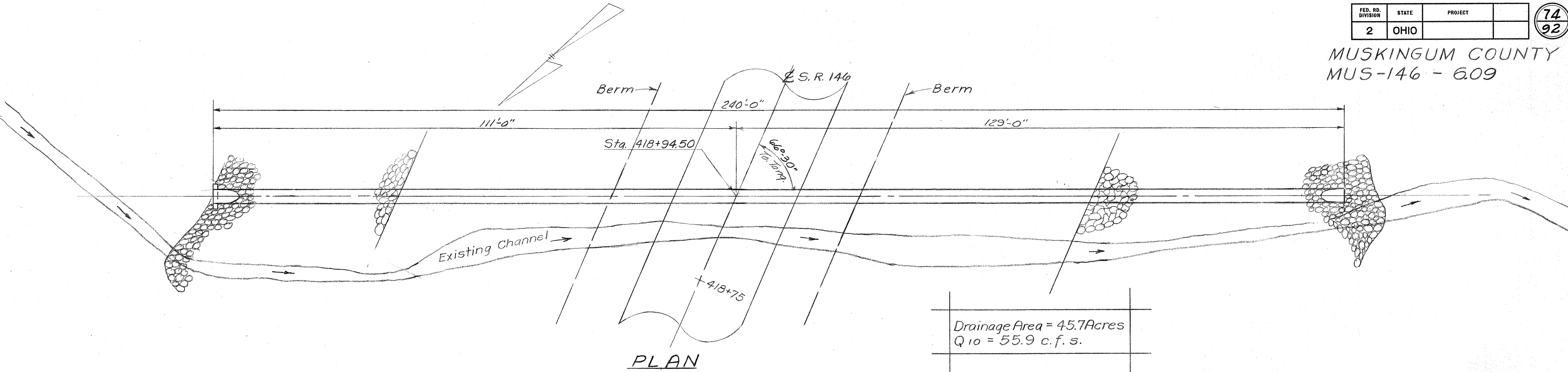
ESTIMATED QUANTITIES
 Item S-27 42 inch Pipe for Roadway Culvert ----- 224 Lin. Ft.
 Item S-1 Concrete for Structures, Class "E" - 0.76 Cu. Yds.
 Item E-2 Excavation for Structures, Unclassified - 8 Cu. Yds.

PARTICIPATION BY THE STATE OF OHIO		PARTICIPATION BY THE UNITED STATES OF AMERICA	
ITEM	QUANTITY	ITEM	QUANTITY
S-27 42"	12 Lin. Ft.	S-27 42"	212 Lin. Ft.

REVISION	DATE	DESCRIPTION	BY
3/22/62	AS CONSTRUCTED		H.F.K.
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: W.H.D.		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
TRACED BY: W.F.I.			
CHECKED BY: gbl			
SUBMITTED BY: Elmer S. Barrett			
ELMER S. BARRETT ASSOCIATES			
RECOMMENDED: Dan Johnson		APPROVED: Steven Malovich	
CHIEF ENG. DIV.		COL. C.E. DISTRICT ENGINEER	
DATE: NOV. 1959			
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: 1"=10' DRAWING NUMBER 027 f-UD7-68/73 SHEET 73 OF 92	

WORK AS CONSTRUCTED PIPE CULVERT STA. 410+41.00

MUSKINGUM COUNTY
MUS-146 - 6.09



ESTIMATED QUANTITIES

Item S-27 36inch Pipe for Roadway Culvert 240 Lin. Ft.

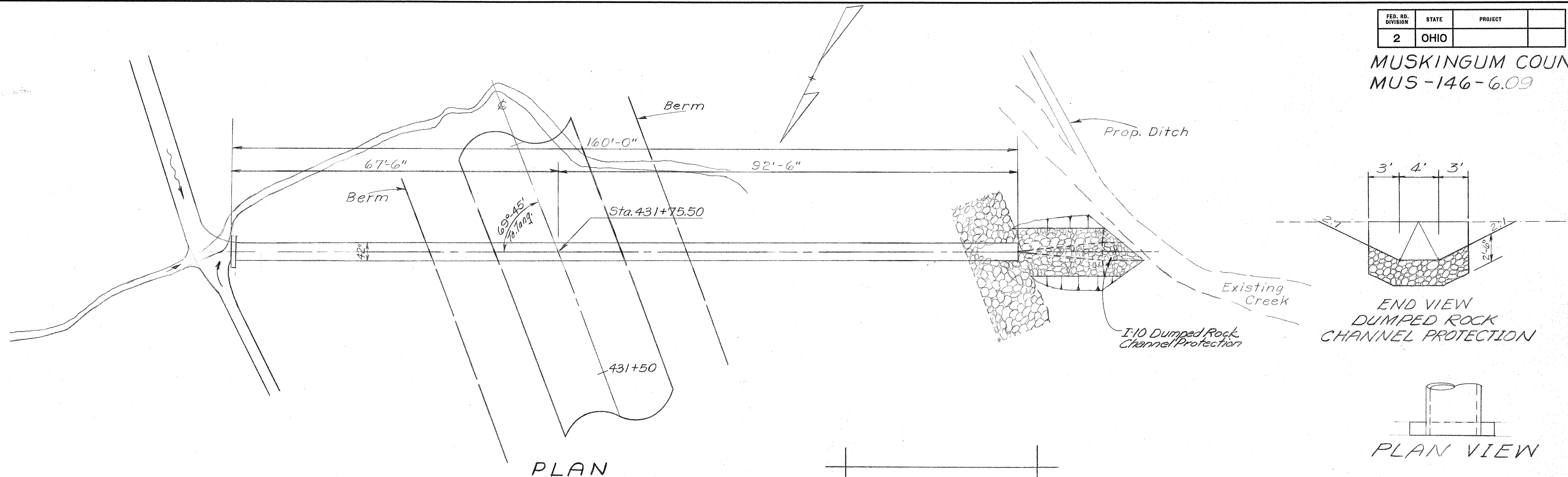
Item S-1 Concrete for Structure, Class "E" 0.59 Cu. Yds.

Item E-2 Excavation for Structure, Unclassified, 21 Cu. Yds.

PARTICIPATION BY THE STATE OF OHIO			PARTICIPATION BY THE UNITED STATES OF AMERICA		
ITEM	SIZE	QUANTITY	ITEM	SIZE	QUANTITY
S-27	36"	12 Lin. Ft.	S-27	36"	228 Lin. Ft.

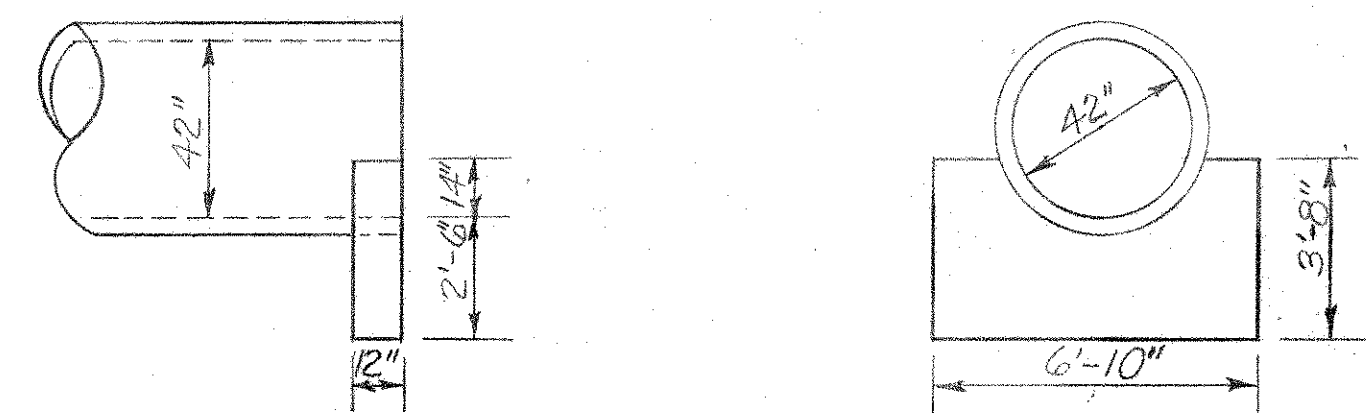
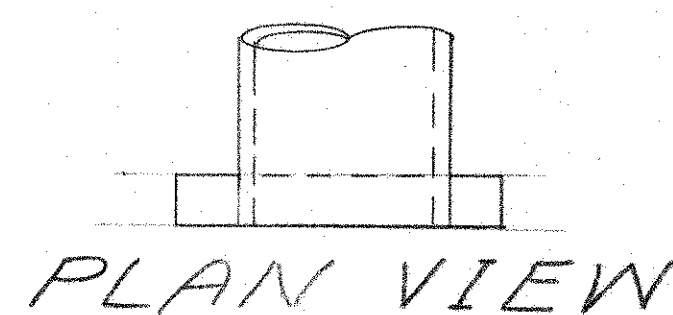
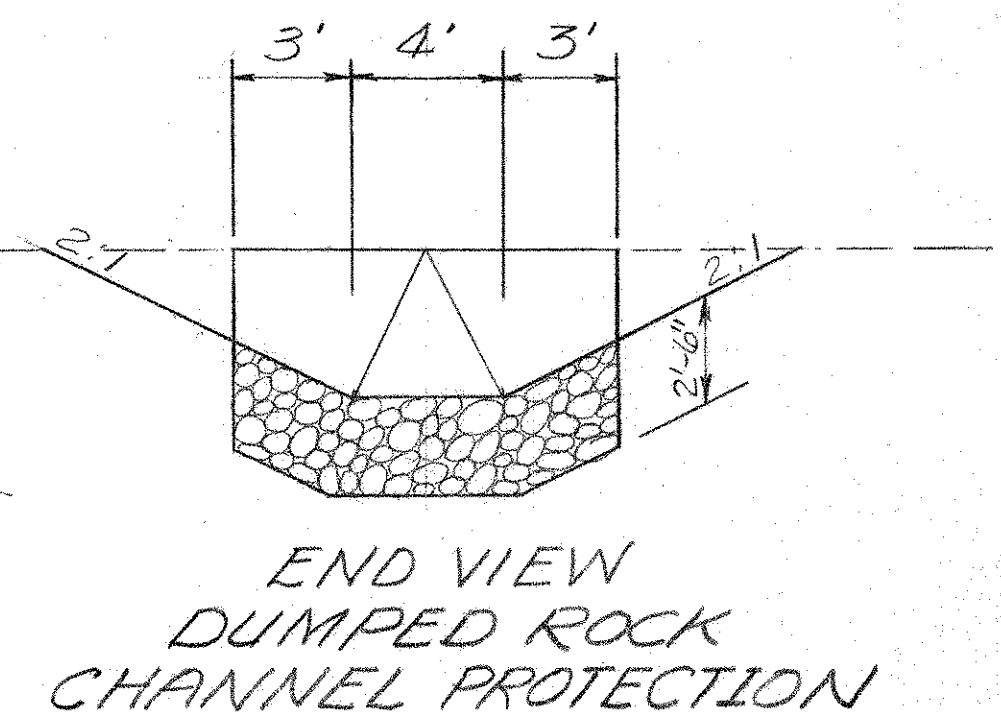
REVISION	DATE	DESCRIPTION	BY
	3/23/62	AS CONSTRUCTED	H.F.K.
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: WHO		LICKING RIVER DILLON RESERVOIR PROJECT	
TRACED BY: W.F.I.		RELOCATION OF OHIO STATE ROUTE NO. 146	
CHECKED BY: [Signature]		(Section 3)	
SUBMITTED BY: [Signature]		DATE: NOV. 1959	
RECOMMENDED BY: [Signature]		APPROVED: [Signature] COL. C. E. DISTRICT ENGINEER	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: 1" = 10' DRAWING NUMBER 027f-UD7-68/74 SHEET 74 of 92	

MUSKINGUM COUNTY
MUS-146-6.09

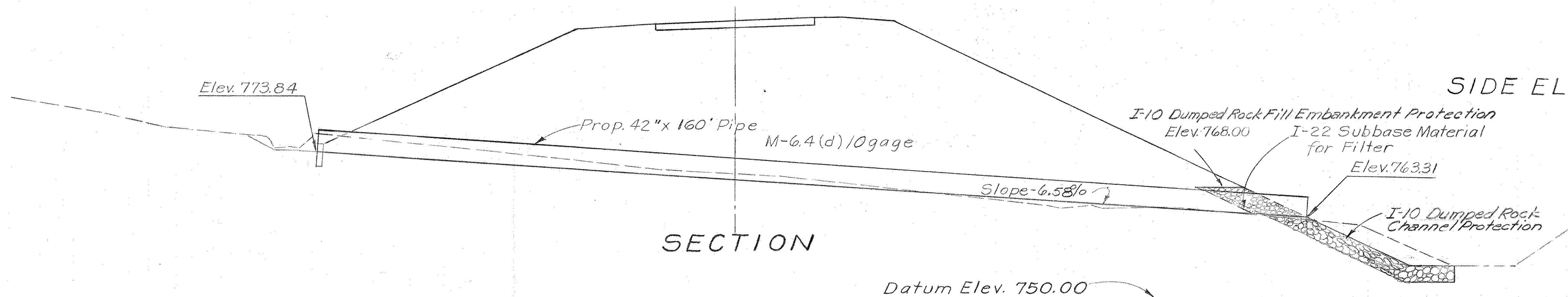


PLAN

Drainage Area = 88.2 Acres
Q₁₀ = 83.1 c.f.s.



ENDWALL DETAILS



SECTION

ESTIMATED QUANTITIES

Item E-2 Excavation for Structures, Unclassified 31 Cu. Yds.
Item I-10 Dumped Rock Channel Protection 19 Cu. Yds.
Item S-1 Concrete for Structure, Class "E" 0.76 Cu. Yds.
Item S-27 42 inch Pipe for Roadway Culvert 160 Lin. Ft.

PARTICIPATION BY THE STATE OF OHIO			PARTICIPATION BY THE UNITED STATES OF AMERICA		
ITEM	SIZE	QUANTITY	ITEM	SIZE	QUANTITY
S-27	42"	12 Lin. Ft.	S-27	42"	148 Lin. Ft.

REVISION	DATE	DESCRIPTION	BY
	3/23/62	AS CONSTRUCTED	H.F.K.
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: W.H.D.		LICKING RIVER DILLON RESERVOIR PROJECT	
TRACED BY: W.F.I.		RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
CHECKED BY: S.H.		APPROVED: Steven Maleirich COL. C.E. DISTRICT ENGINEER	
SUBMITTED BY: Elmer S. Barrett Associates		DATE: NOV. 1959	
RECOMMENDED BY: Dan S. Johnson ASST. CHIEF ENG. DIV.		ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO	
SCALE: 1"=10'		SPEC. NO. DRAWING NUMBER 027-UD7-68/75	
SHEET 75 OF 92			

WORK AS CONSTRUCTED PIPE CULVERT STA. 431+75.50

MICROFILMED
JUN 6 1985

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

76
92

MUSKINGUM COUNTY MUS-146-6.09

PROPOSED BRIDGE DATA

Type: Continuous Steel Beam with Reinforced Concrete Deck and Substructure
Span: 75'-0" - 94'-0" - 75'-0"
Roadway: 30'-0" P.F. of 2'-3" Safety Curbs.
Load Frequency: C.F. 130 (57)
Skew: 0° 00'
Wearing Surface: $\frac{3}{4}$ " Monolithic Concrete.
Approach Slabs: 45'-54" (25'-0" long)
Railing: I-15.13
Alignment: 0° 48' Curve Rt.
Superelevation: 0.23' per ft.

EXISTING BRIDGE DATA

BRIDGE NO. MU-146-0667
Type: Steel Beam with plank floor and rail.
Span: 42'-0" - 42'-0" - 42'-0"
Roadway: 24' f/f of curbs
Disposition: To be removed.

FOUNDATION SOUNDINGS

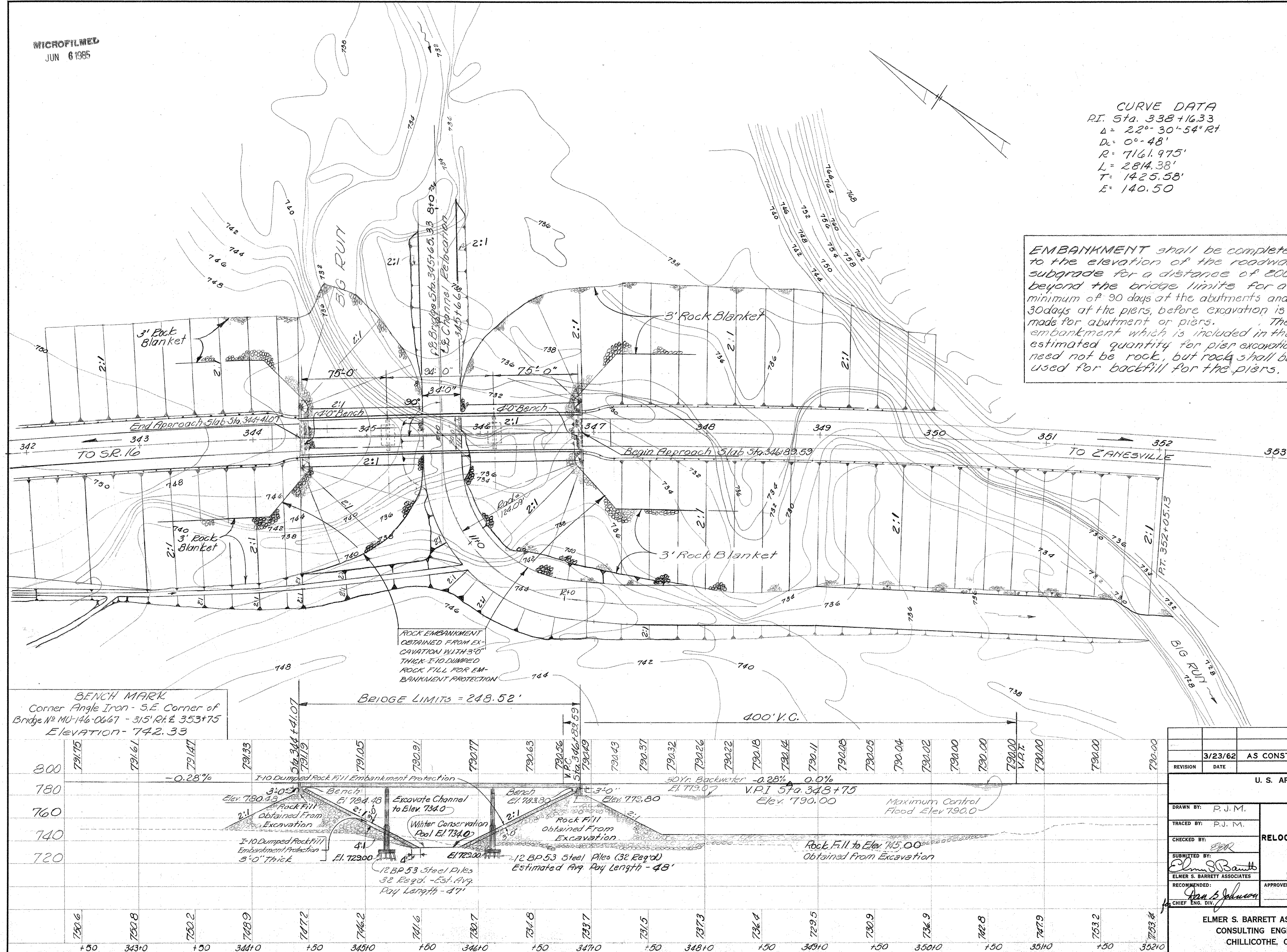
Foundation design and foundation quantities are based on a study of soil-samplings soundings made at the site. This sounding information may be inspected in the office of
The District Engineer
U.S. Army Engineer District, Huntington
Huntington, W. Va.
but the
Corps of Engineers does not
guarantee the accuracy thereof.

DRAINAGE AREA

23.0 Square Miles

CURVE DATA
P.I. Sta. 338+16.33
 $\Delta = 22^\circ 30' 54''$ Rt
 $D = 0^\circ 48'$
 $R = 7161.975'$
 $L = 2814.38'$
 $T = 1425.58'$
 $E = 140.50'$

EMBANKMENT shall be completed to the elevation of the roadway subgrade for a distance of 200' beyond the bridge limits for a minimum of 90 days at the abutments and 30 days at the piers, before excavation is made for abutment or piers. The embankment which is included in the estimated quantity for pier excavation need not be rock, but rock shall be used for backfill for the piers.



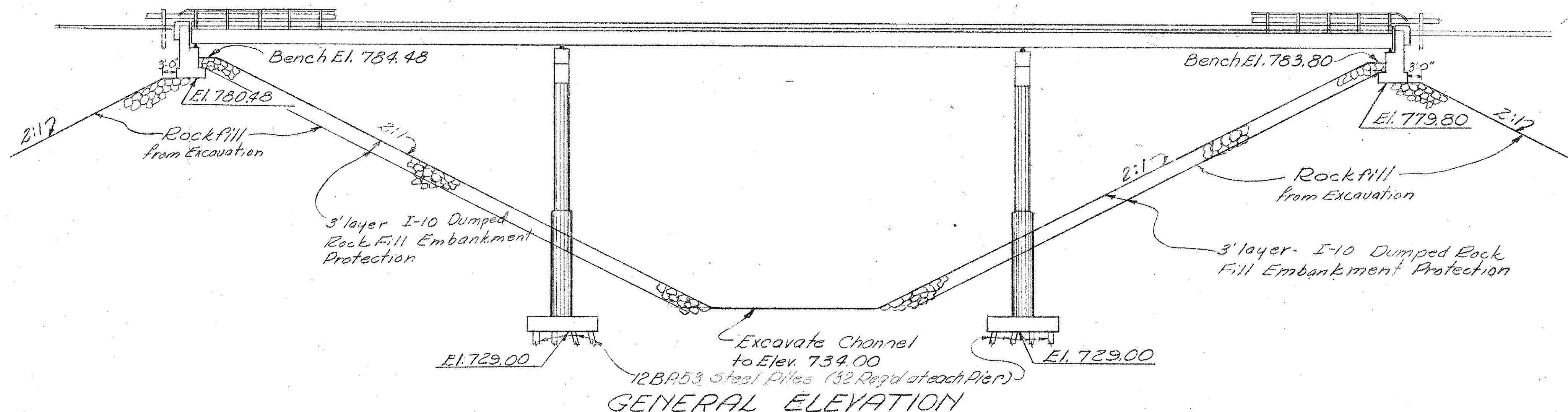
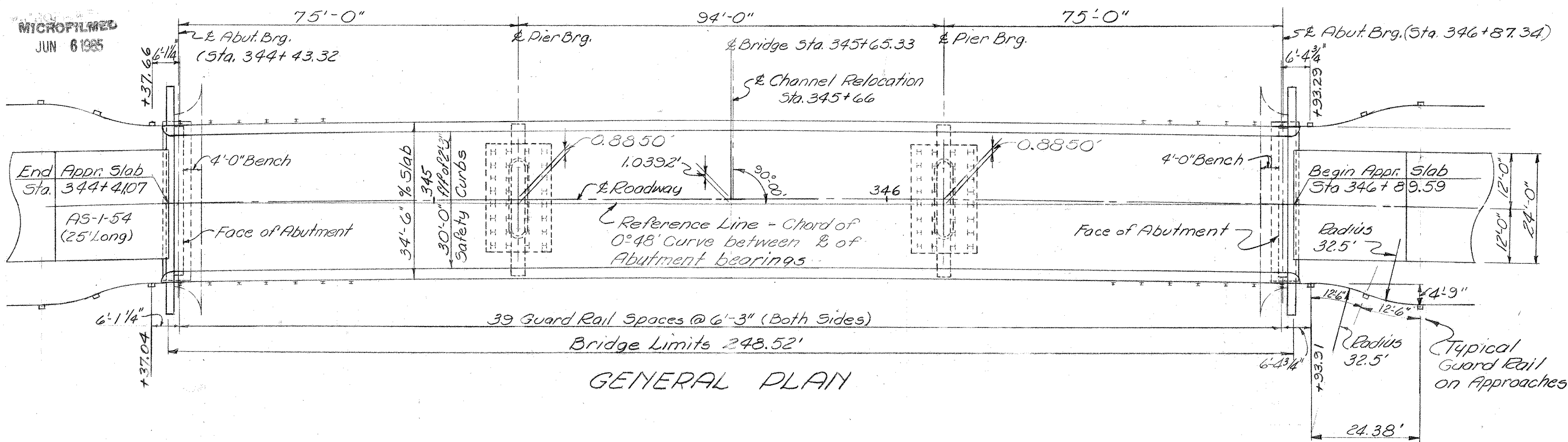
REVISION	DATE	DESCRIPTION	BY
3/23/62	AS CONSTRUCTED		H.F.K.

U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.	
LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (SECTION 3) SITE PLAN BRIDGE NO. MUS-146-0652 STATE ROUTE NO. 146 over BIG RUN	
DRAWN BY: P.J.M. TRACED BY: P.J.M. CHECKED BY: EBR SUBMITTED BY: Elmer S. Barrett RECOMMENDED BY: Ann S. Johnson CHIEF ENG. DIV.	APPROVED: Steven Malevich COL. C. E. DISTRICT ENGINEER DATE: NOV. 1959

ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO	SCALE: 1" = 40' DRAWING NUMBER 027f - UD 7 - 68/76 SHEET 76 OF 92
--	--

WORK AS CONSTRUCTED

MICROFILMED
JUN 6 1985



ESTIMATED QUANTITIES

ITEM	QUANTITY	UNIT	DESCRIPTION	ABUT'S	PIERS	SUPER	GENERAL	AS BUILT
E-2	Lump Sum	Lump	Cofferdams, Cribbs and Sheeting		Lump			
E-2	830	Cu. Yds.	Excavation, Unclassified	190	640			
I-7	134	Sq. Yds.	Reinforced Concrete Approach Slabs				134	
S-1	228	Cu. Yds.	Class "C" Concrete, Superstructure			228		
S-1	241	Cu. Yds.	Class "E" Concrete, Pier Caps and Pier Walls		241			
S-1	113	Cu. Yds.	Class "E" Concrete, Abutments	113				
S-1	77	Cu. Yds.	Class "E" Concrete, Pier Footing		77			
S-4	88,733	Lbs.	Reinforcing Steel	4,640	22,026	62,067		
S-7	324,000	Lbs.	Structural Steel			324,000		
S-8	Lump Sum	Lump	Field Painting of Structural Steel as per plan			Lump		
S-14	497.04	Lin. Ft.	Bridge Railing			497.04		
S-18	3040	Lin. Ft.	Steel Bearing Piles		3040			
S-29	42	Cu. Yds.	Porous Backfill	42				

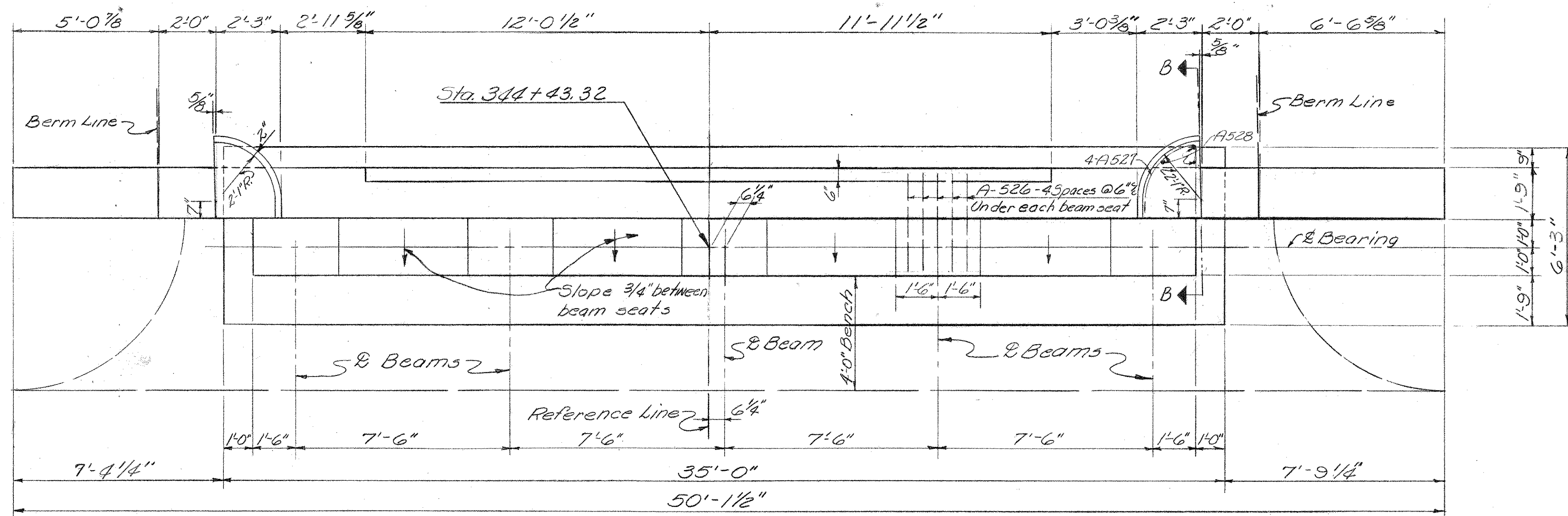
The construction contract for work provided by these plans will be made and paid for by the United States of America. The division of quantities for settlement between the Government and the State is as follows:
1/5 Total cost of Bridge - Participation by the State of Ohio
4/5 Total cost of Bridge - Participation by the United States of America.

REMOVAL OF EXISTING STRUCTURE: When no longer need to maintain traffic, the superstructure of the existing bridge on S.R. 146 over Big Run, shall be removed and shall become the property of the contractor.

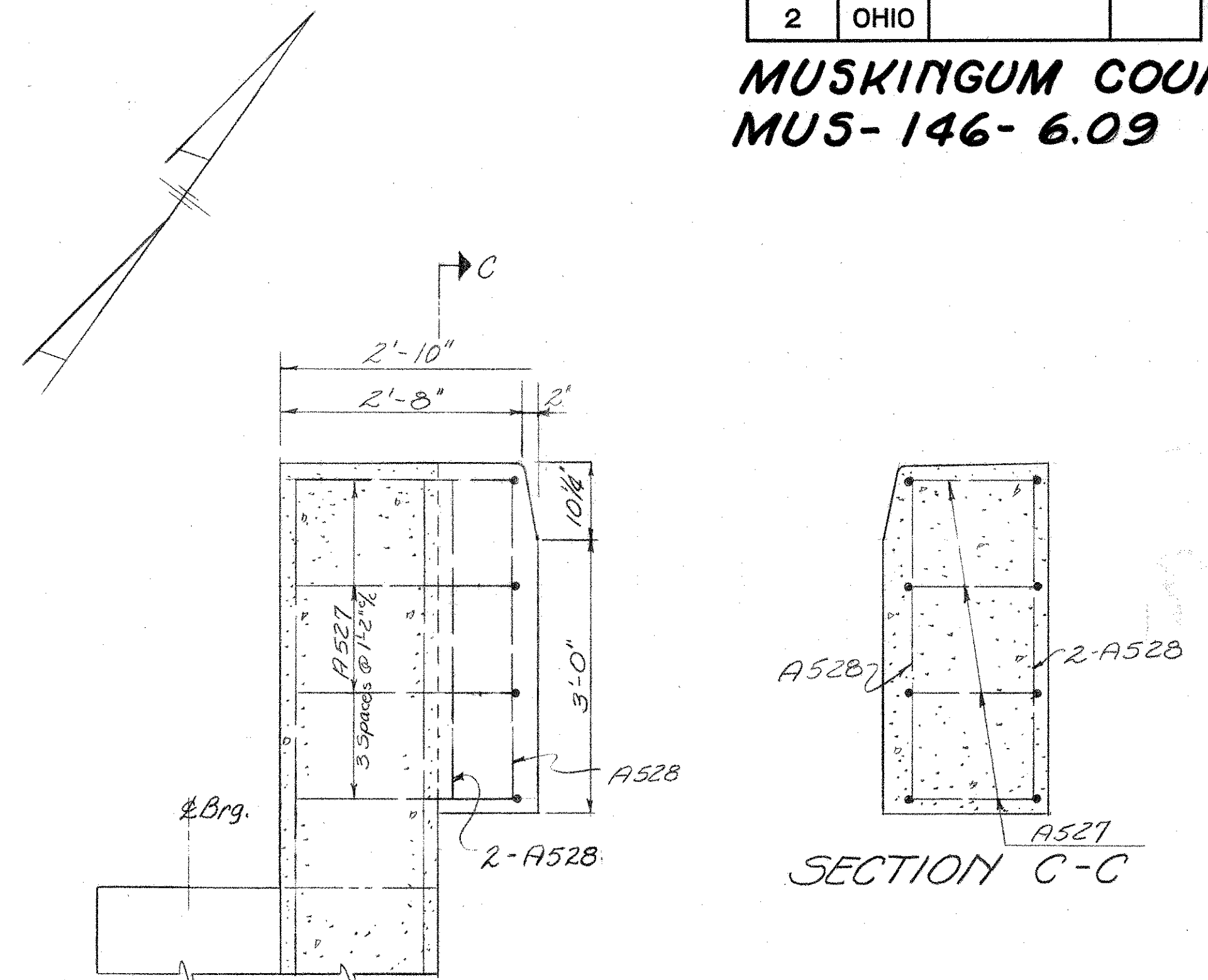
REVISION	DATE	DESCRIPTION	H.F.K.	BY
	3/23/62	AS CONSTRUCTED		
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.				
DRAWN BY: W.D.J. R.J.M.		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (SECTION 3) GENERAL PLAN-EST. QUANTITIES & GEN. NOTES BRIDGE NO. MUS-146-0652 STATE ROUTE NO. 146 OVER BIG RUN		
CHECKED BY: EPR		DATE: NOV. 1959		
SUBMITTED BY: Elmer S. Barrett Associates		APPROVED: Steven Malerich COL. C.E. DISTRICT ENGINEER		
RECOMMENDED BY: Dan Johnson CHIEF ENG. DIV.		ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		
SCALE: 1"=15'-0"		SPEC. NO. DRAWING NUMBER 027f-UD7-68/77 SHEET 77 OF 92		

WORK AS CONSTRUCTED

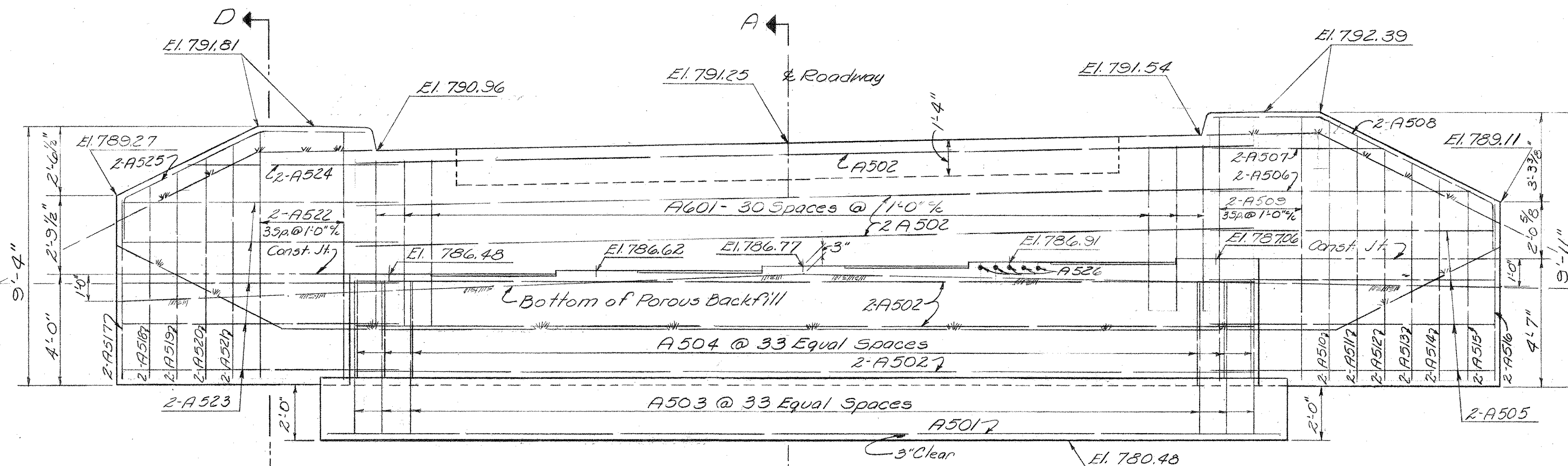
MUSKINGUM COUNTY
MUS-146-6.09



PLAN
WEST ABUTMENT



SECTION B-B

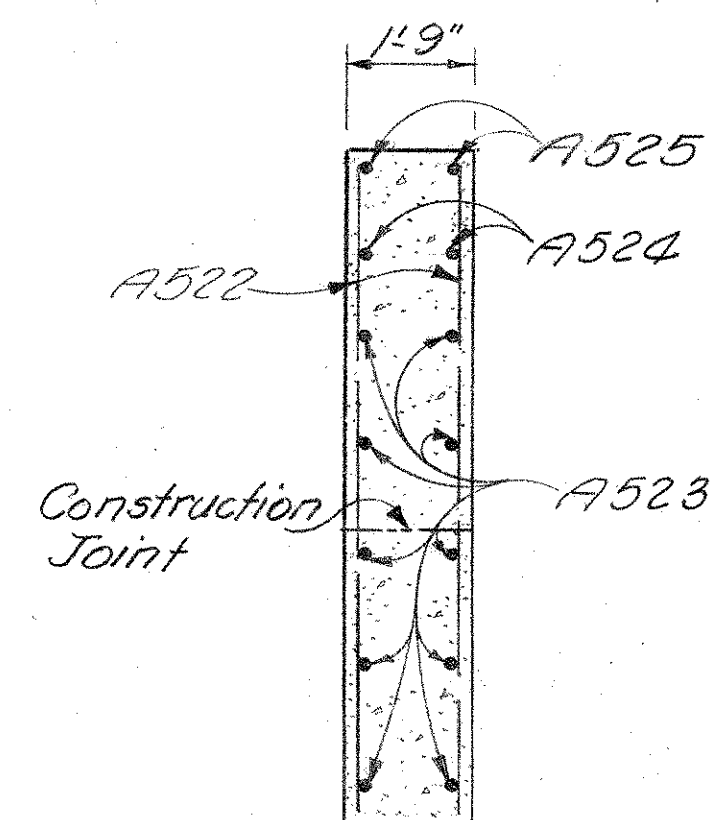


ELEVATION
WEST ABUTMENT

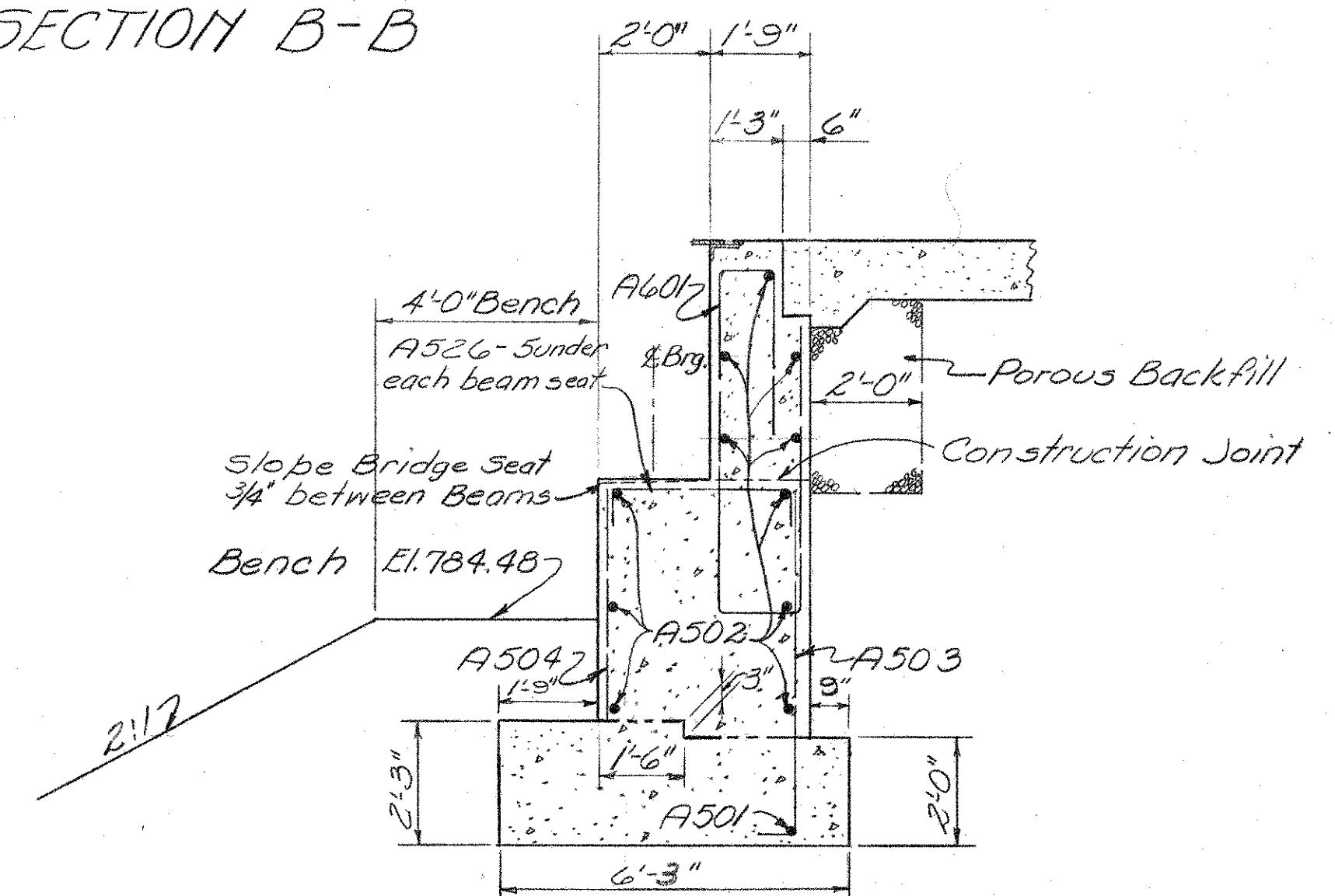
~NOTES~

POROUS BACKFILL, 2'-0" thick shall extend up to the underside of the approach slab and to the finished ground surface and outward to the surface of the embankment slopes. Excavation therefor in excess of that required for construction of the abutment, shall be considered as paid for in the bid price per cubic yard paid for porous backfill.

CONCRETE shall be Class "E" and payment will be made on this basis but Class "C" concrete may be used for any and all parts of the abutment.



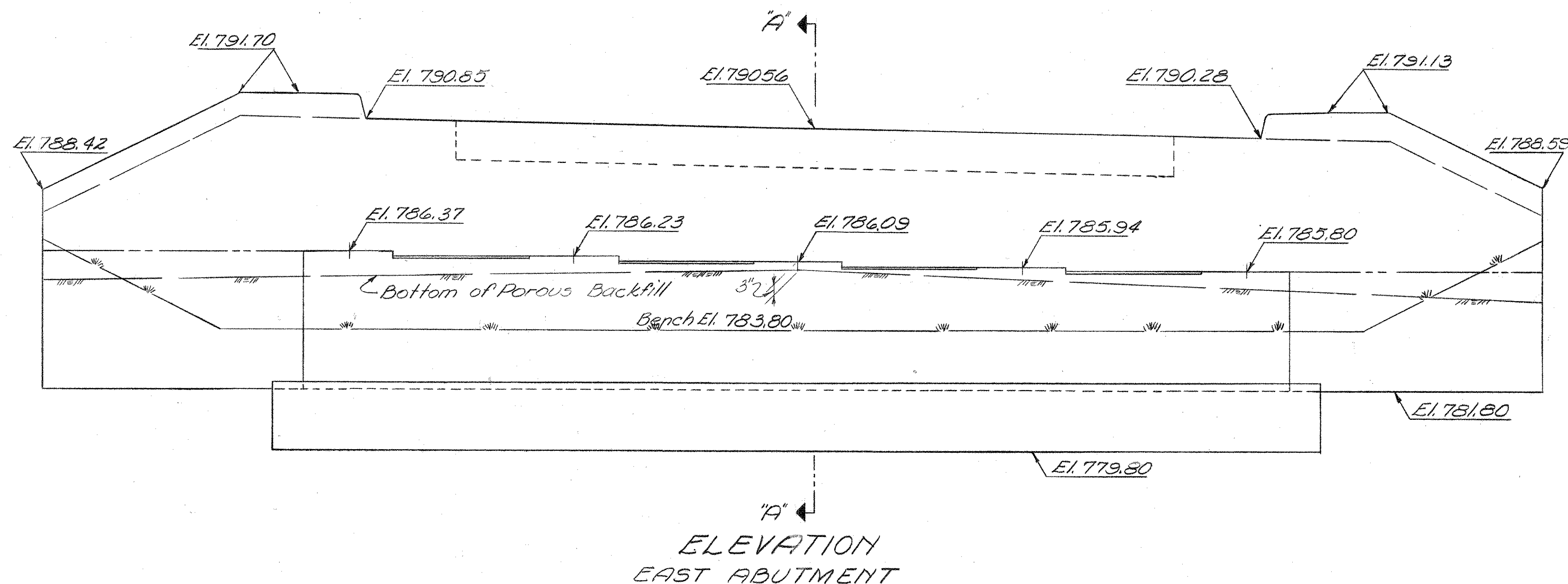
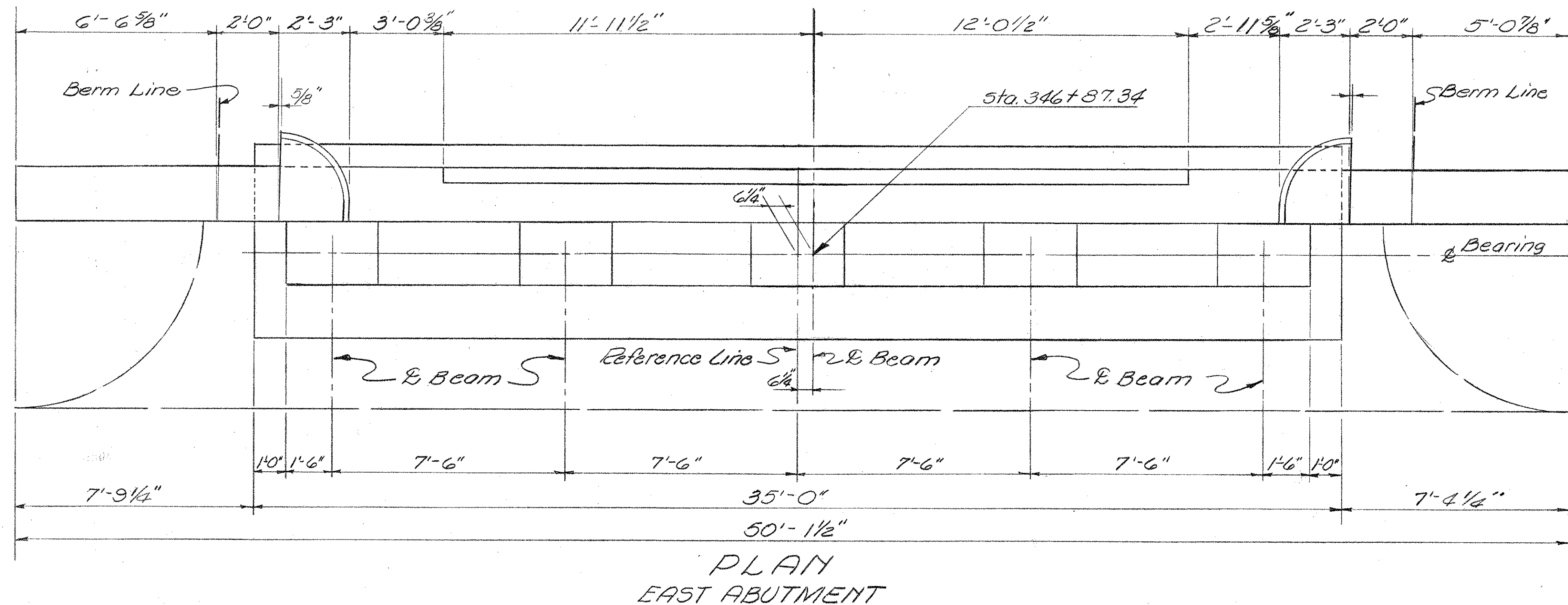
SECTION D-D



SECTION A-A


	3/26/62	AS CONSTRUCTED	H. F. K
REVISION	DATE	DESCRIPTION	BY
<p align="center">U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.</p>			
DRAWN BY: <i>F.H.S.</i> TRACED BY: <i>W.D.J.</i> CHECKED BY: <i>EGR</i> SUBMITTED BY: <i>Elmer S. Barrett</i> ELMER S. BARRETT ASSOCIATES RECOMMENDED BY: <i>Don S. Johnson</i> CHIEF ENG. DIV.		<p align="center">LICKING RIVER DILLON RESERVOIR PROJECT</p> <p align="center">RELOCATION OF OHIO STATE ROUTE NO. 146 (SECTION 3) ABUTMENT DETAILS BRIDGE NO. MUS-146-0652 STATE ROUTE NO. 146 OVER BIG RUN</p> <p>APPROVED: <i>Steven Malewich</i> DATE: NOV. 1959 COL. C. E. DISTRICT ENGINEER</p>	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: 3/8" = 1' - 0" DRAWING NUMBER 027f-UD7-68/78 SHEET 78 OF 92	

MUSKINGUM COUNTY
MUS-146-6.09



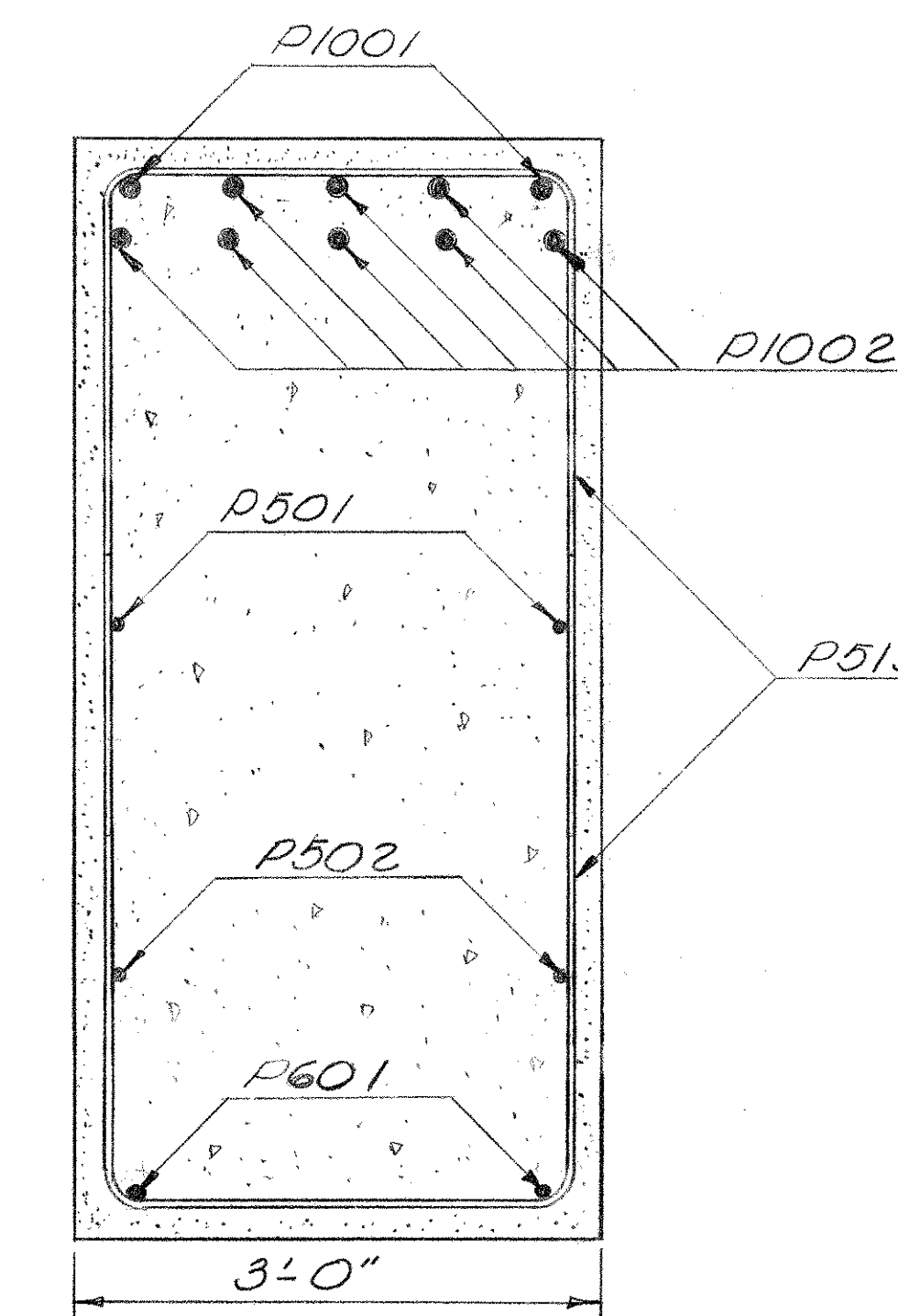
Notes:
 Reinforcing steel not shown, same as West Abutment
 Details not shown same as West Abutment.

3/26/62		AS CONSTRUCTED	H. F. K.
REVISION	DATE	DESCRIPTION	BY
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: F.H.S.		LICKING RIVER DILLON RESERVOIR PROJECT	
TRACED BY: W.D.J.		RELOCATION OF OHIO STATE ROUTE NO. 146 (SECTION 3)	
CHECKED BY: Ego		ABUTMENT DETAILS	
SUBMITTED BY: Elmer S. Barrett Associates		BRIDGE NO. MUS-146-0652	
RECOMMENDED BY: Dan S. Johnson		STATE ROUTE NO. 146 OVER BIG RUN	
APPROVED: Steven Malenich		DATE: NOV. 1959	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: 3/8" = 1'-0" DRAWING NUMBER 027f-UD7-68/79 SHEET 79 OF 92	

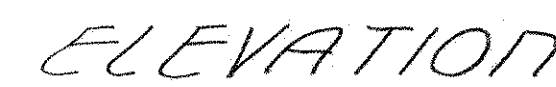


~NOTES~

CONCRETE shall be Class "E"



SECTION B~B



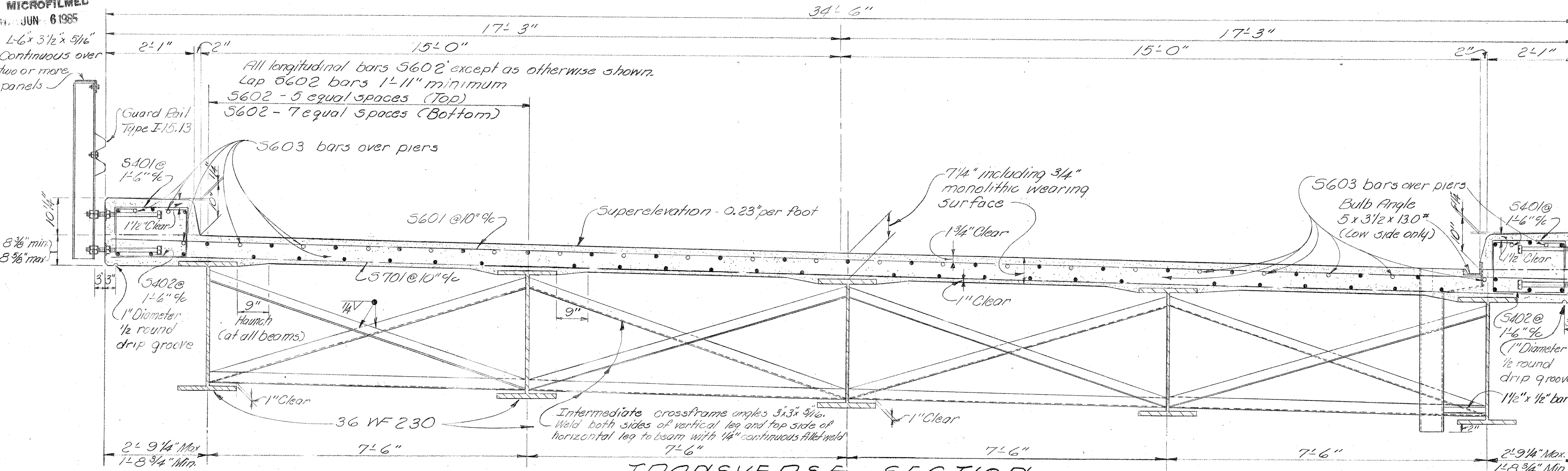
ELMER S. BAR
CONSULTIN
CHILLIC

WORK AS CONSTRUCTED

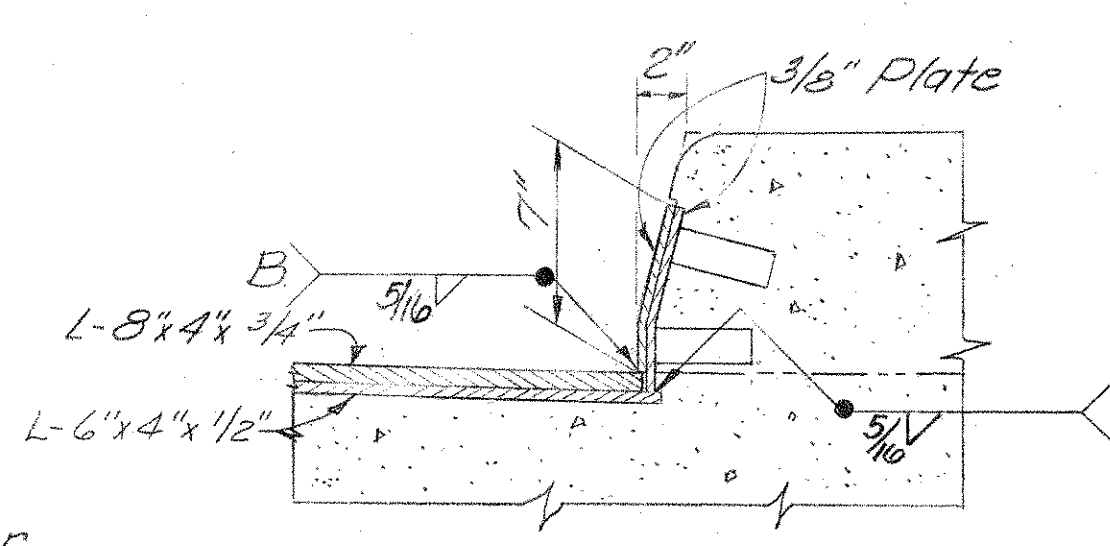
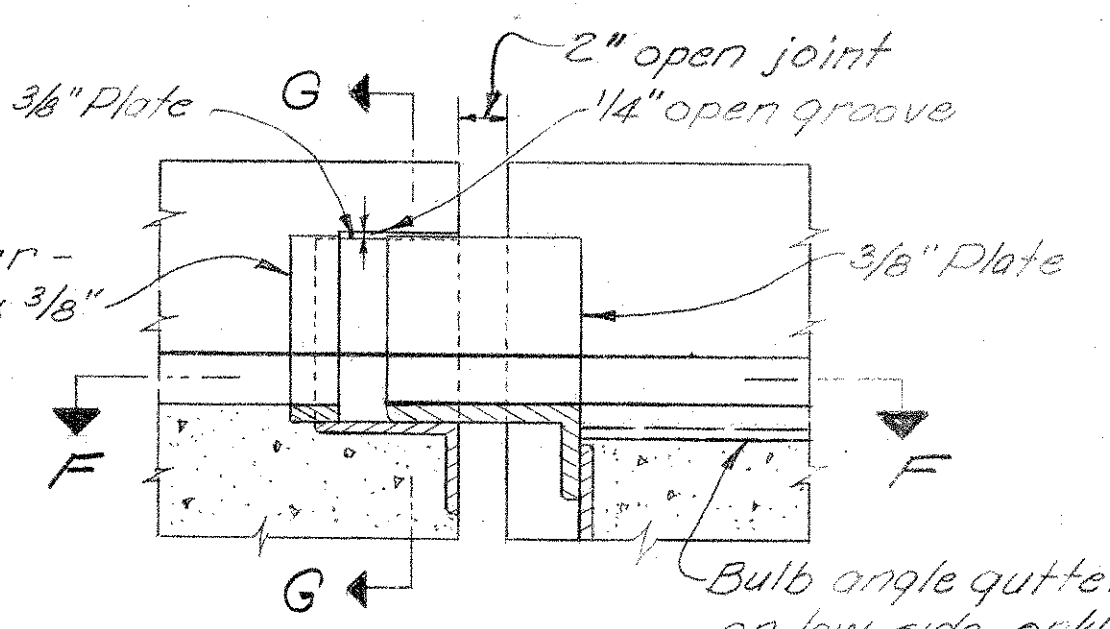
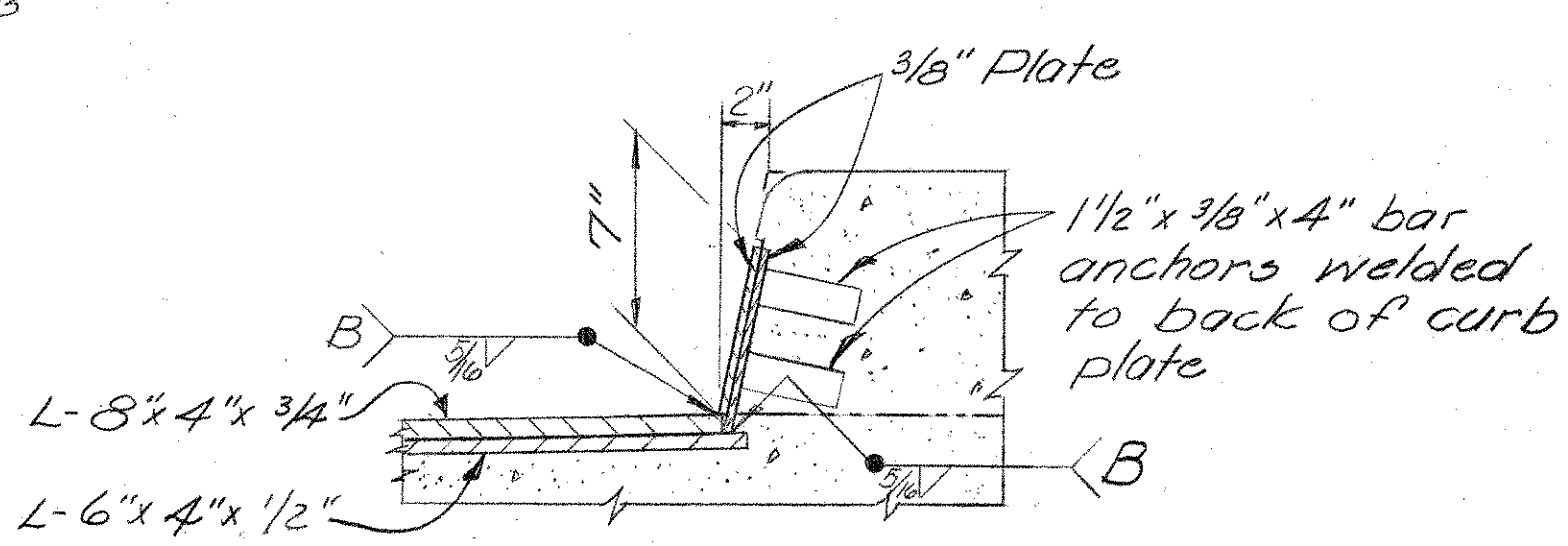
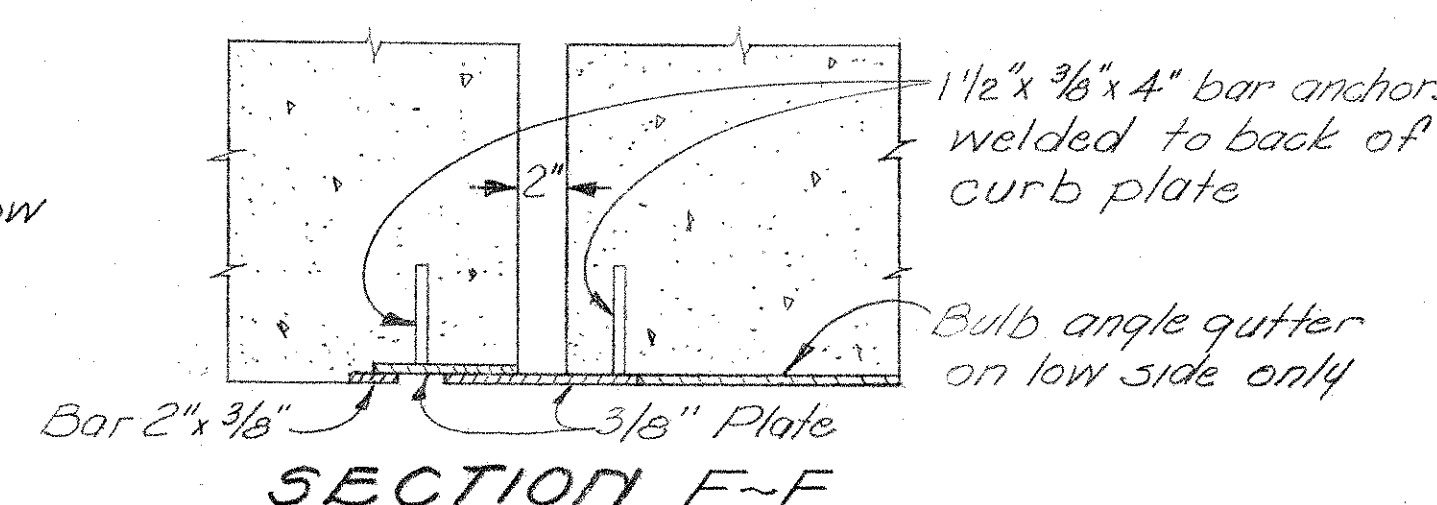
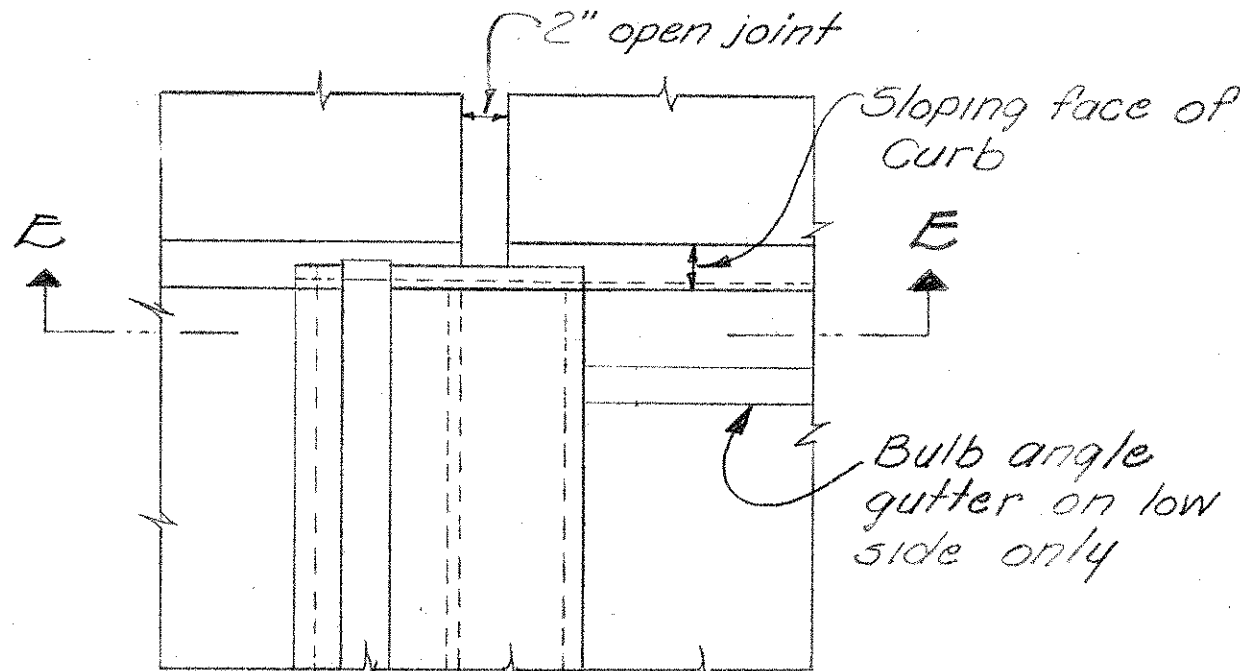
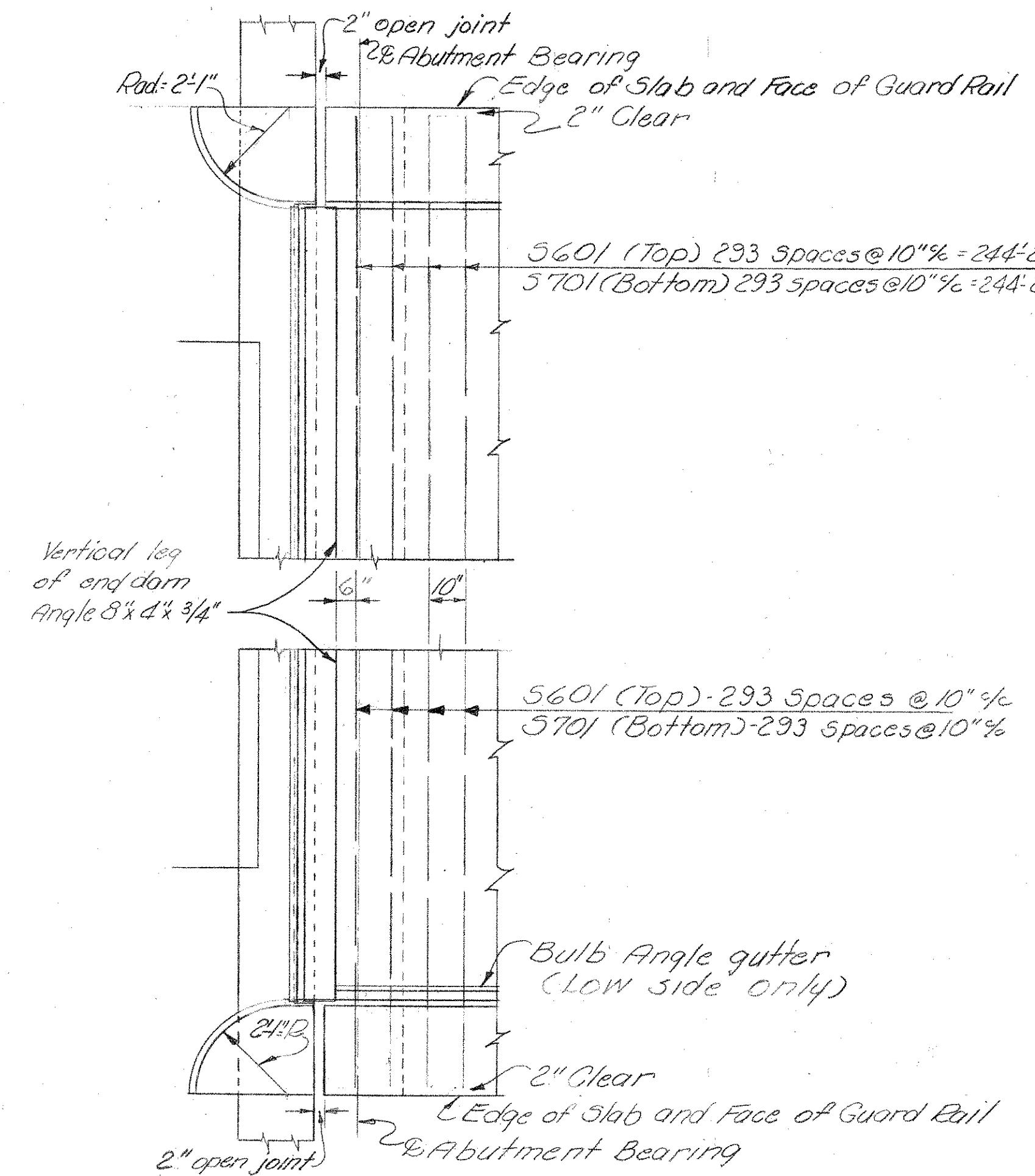
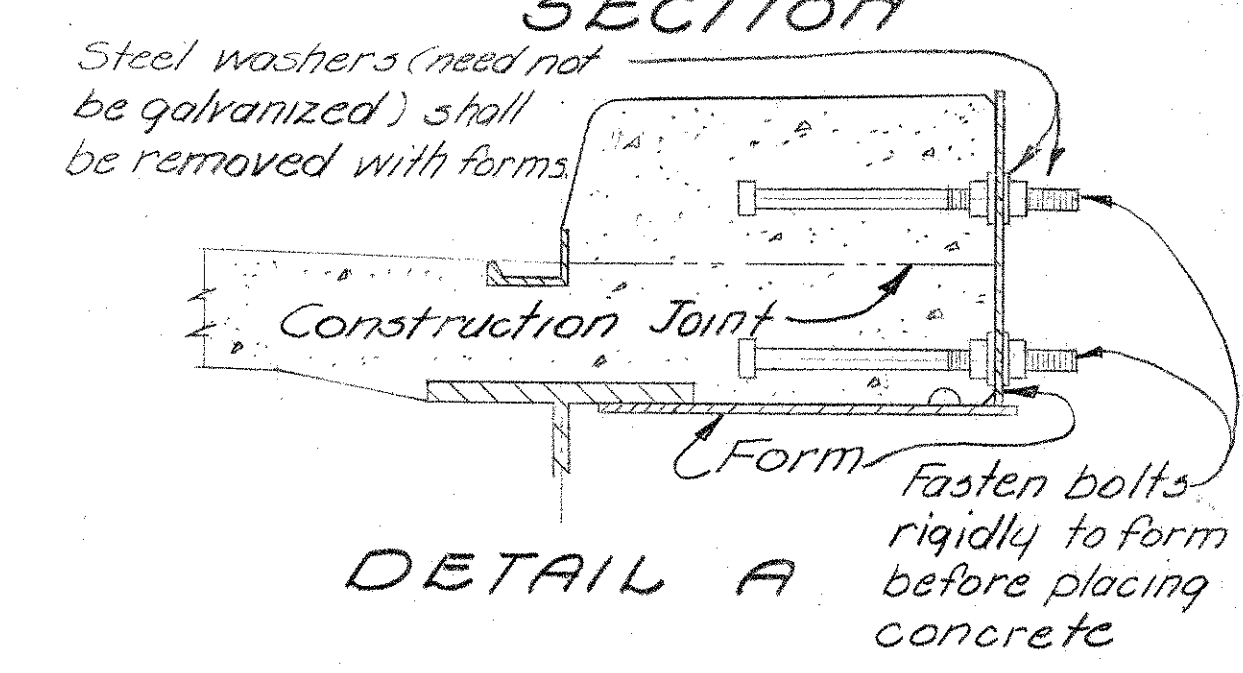
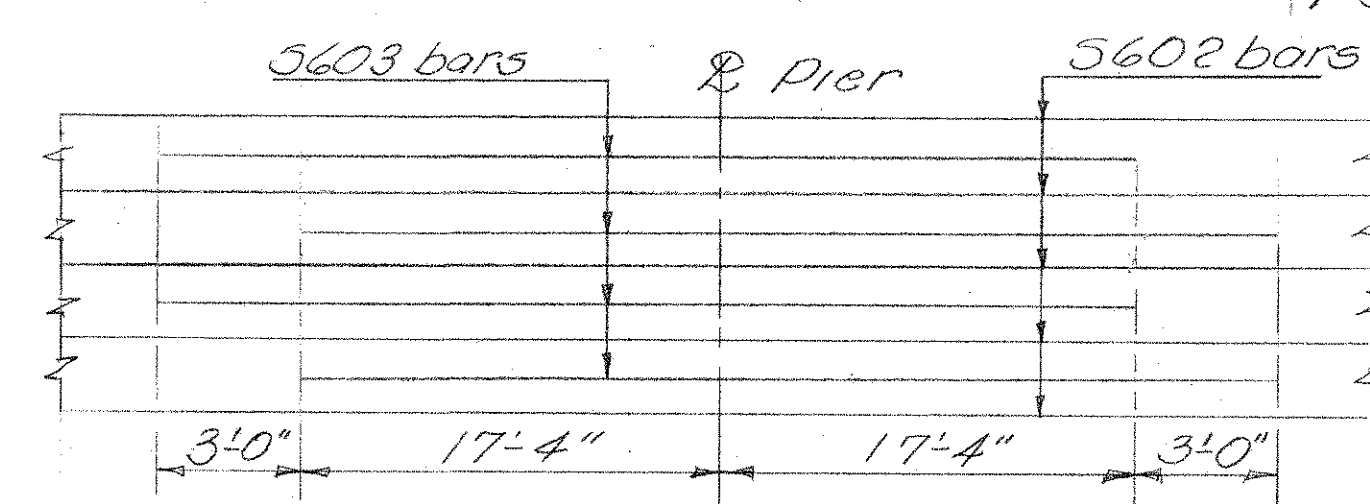
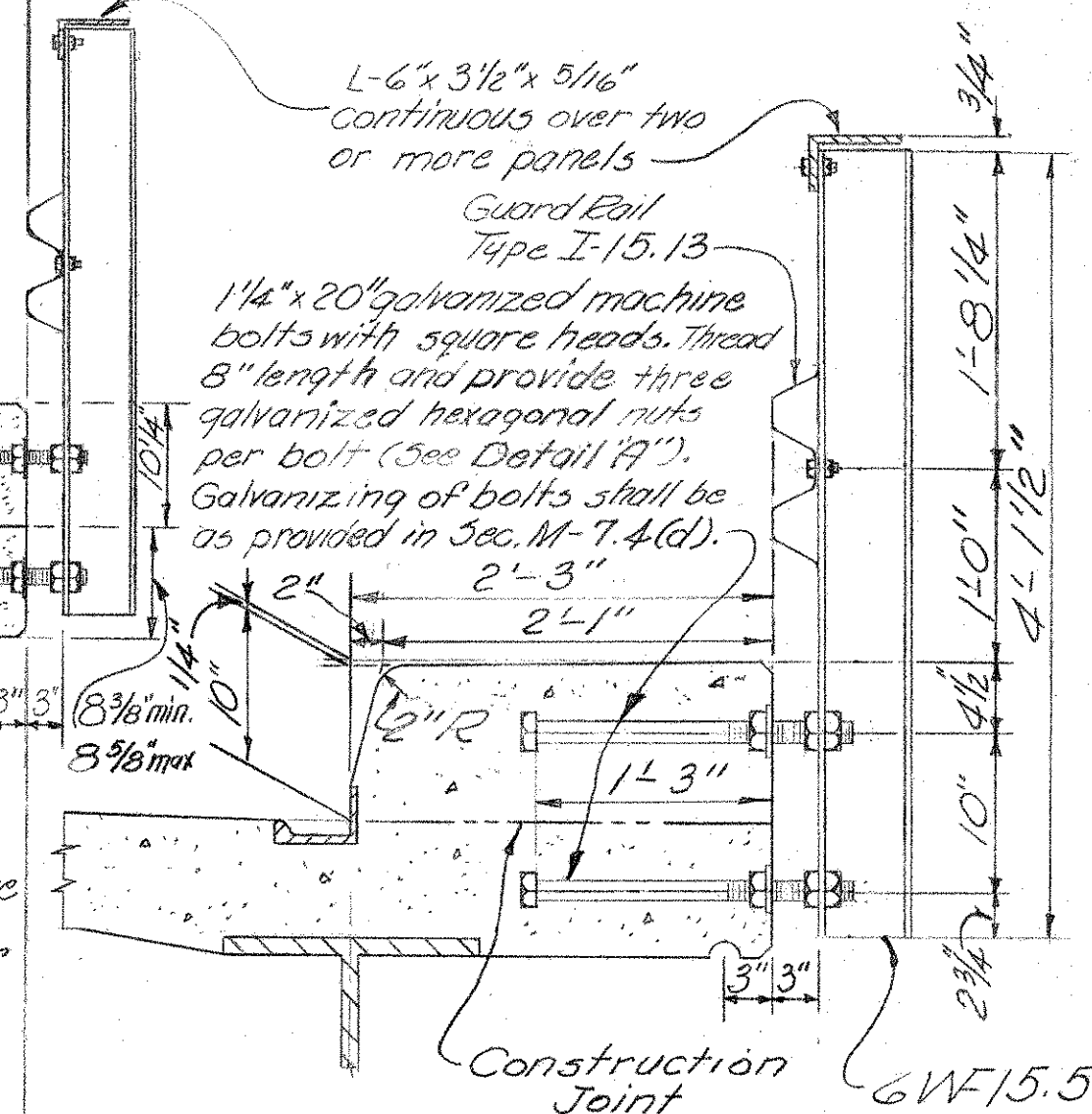
MICROFILMED
JUN 6 1985

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		81 92

MUSKINGUM COUNTY
MU5-146-6.09



Note: All chamfers shown are 3/4"

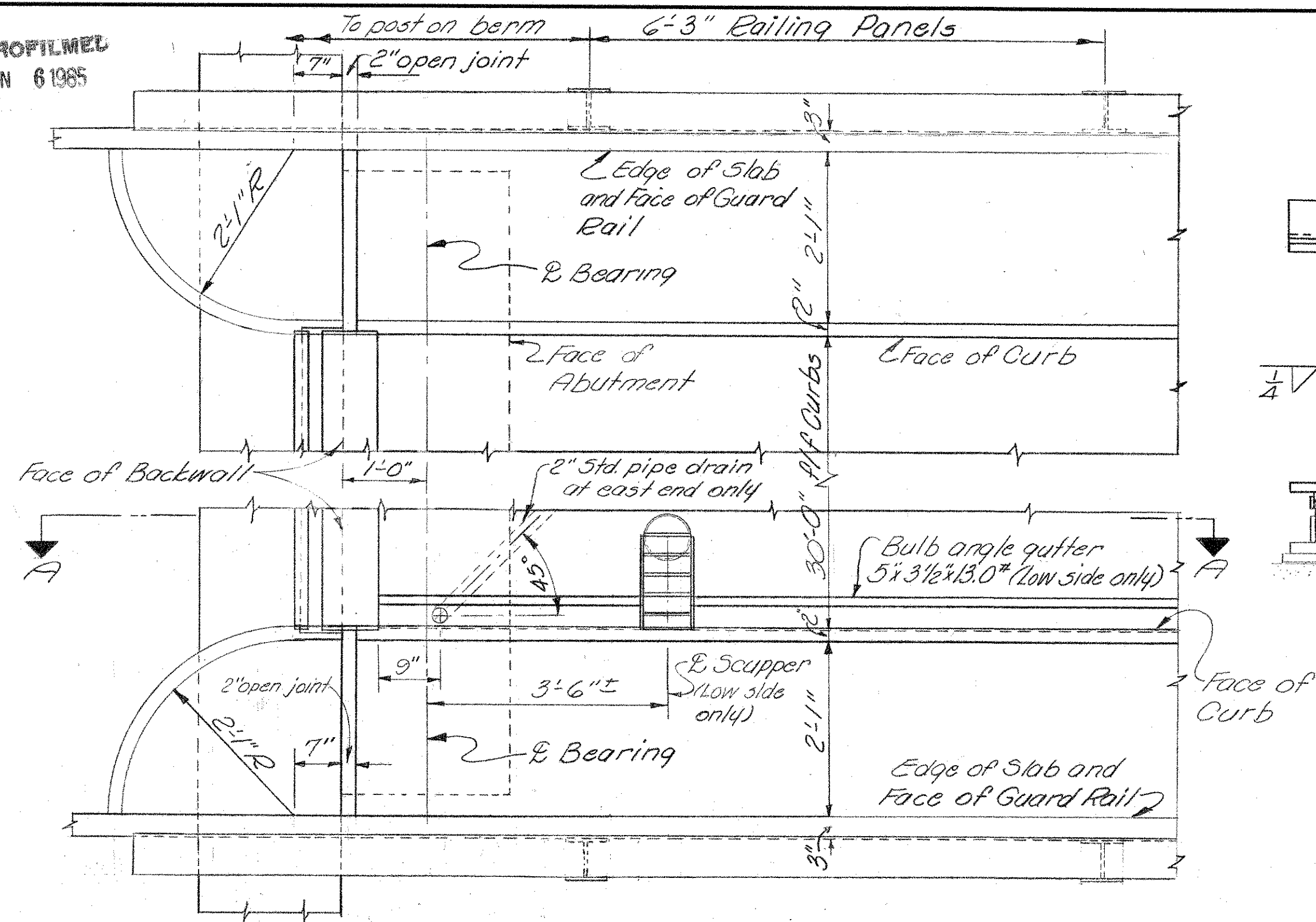


CURB PLATE DETAILS

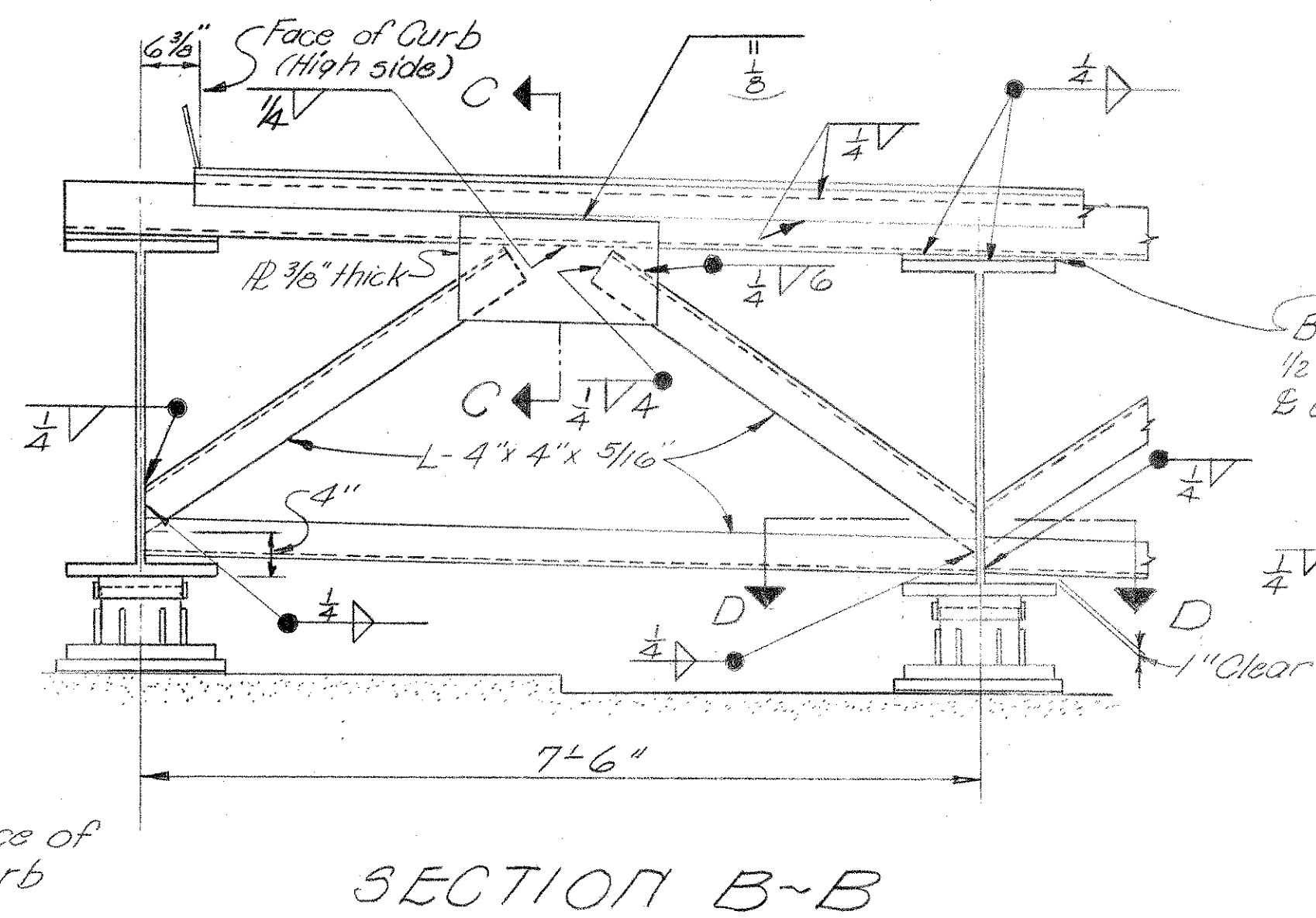
REVISION	DATE	DESCRIPTION	BY
3/26/62	AS CONSTRUCTED		H.F.K.
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: P.J.M.			
TRACED BY:			
CHECKED BY: EGR			
SUBMITTED BY: Elmer S. Barrett			
ELMER S. BARRETT ASSOCIATES			
RECOMMENDED BY: Stan S. Johnson			
APPROVED: Steven Malerich			
COL. C.E. DISTRICT ENGINEER			
NOV. 1959			
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO			
SCALE: SPEC. NO. DRAWING NUMBER 027f-UD7-68/81 SHEET 81 of 92			

WORK AS CONSTRUCTED

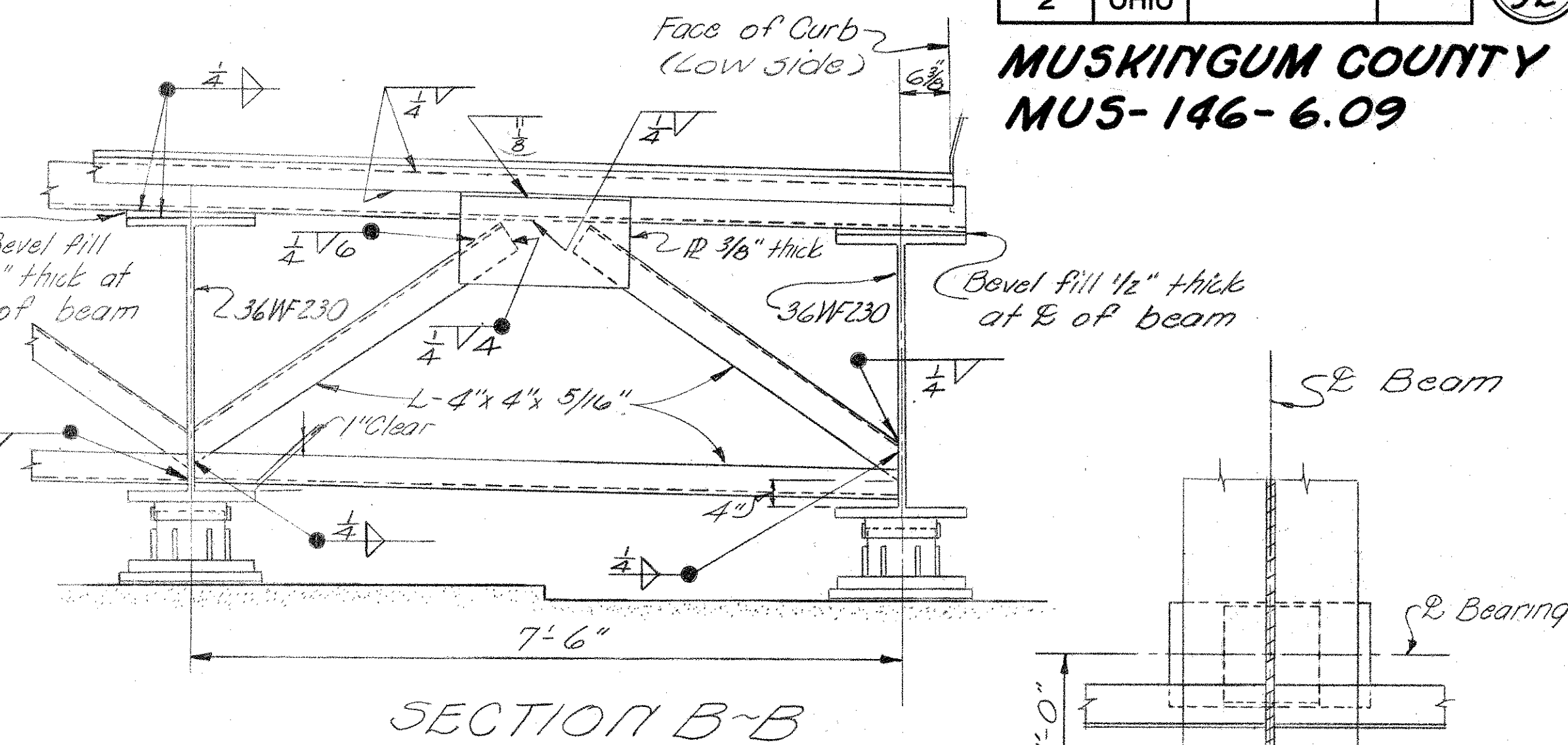
MUSKINGUM COUNTY
MUS-146-6.09



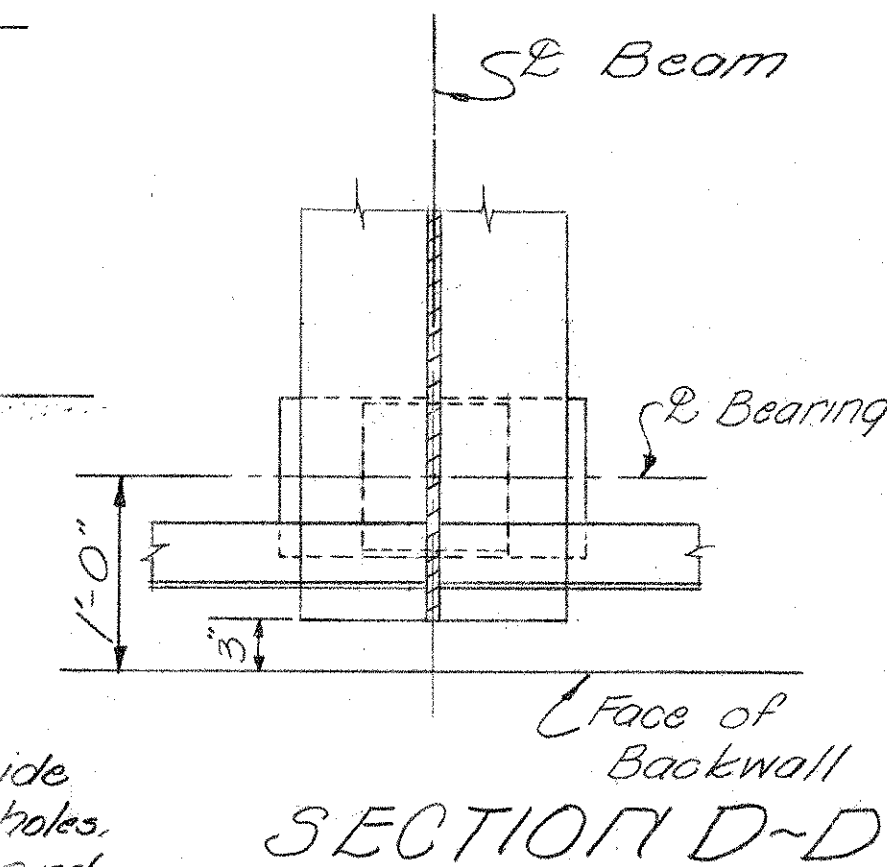
PART PLAN AT WEST ABUTMENT



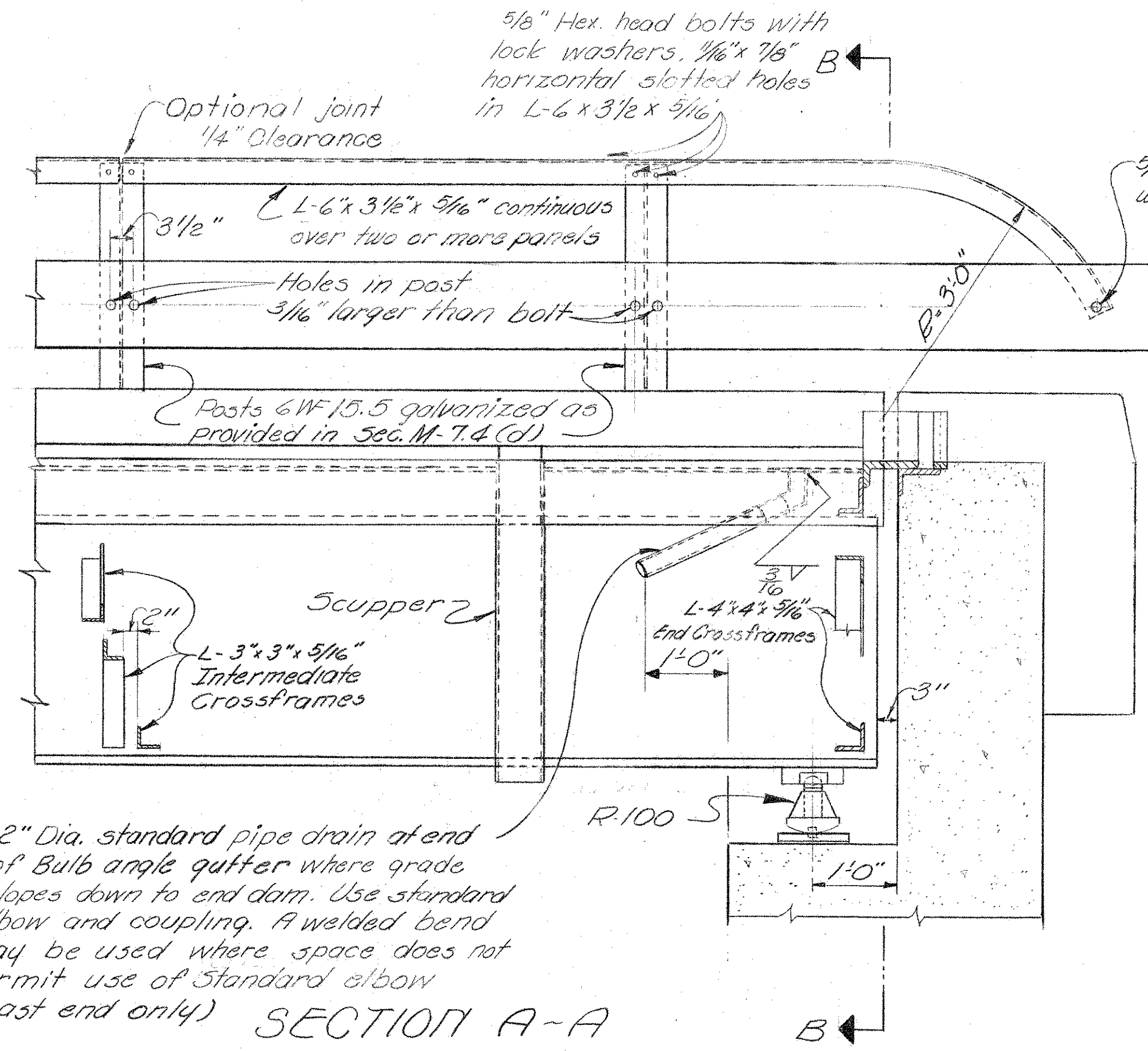
SECTION B-B



SECTION B-B



SECTION D-D

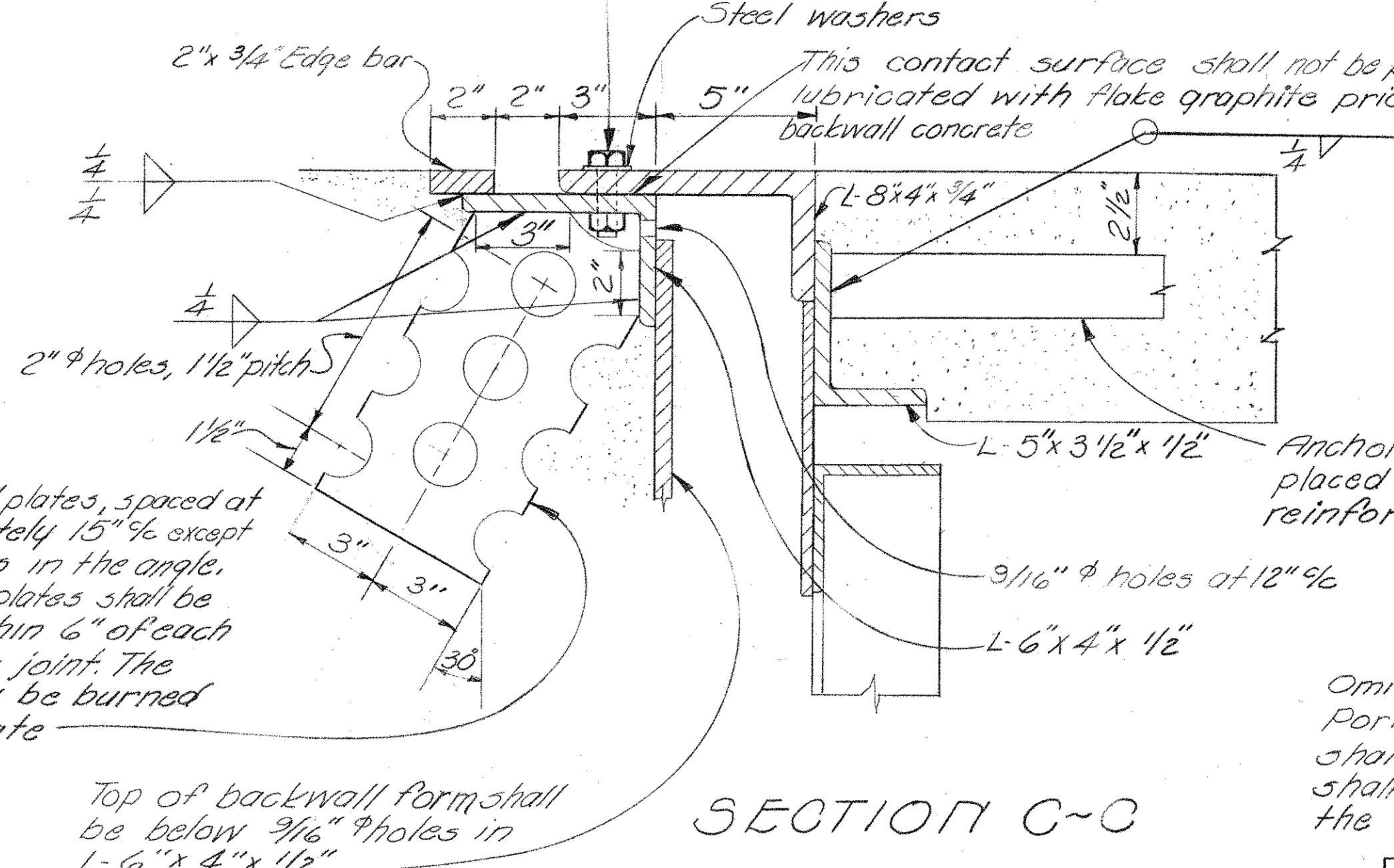


SECTION A-A

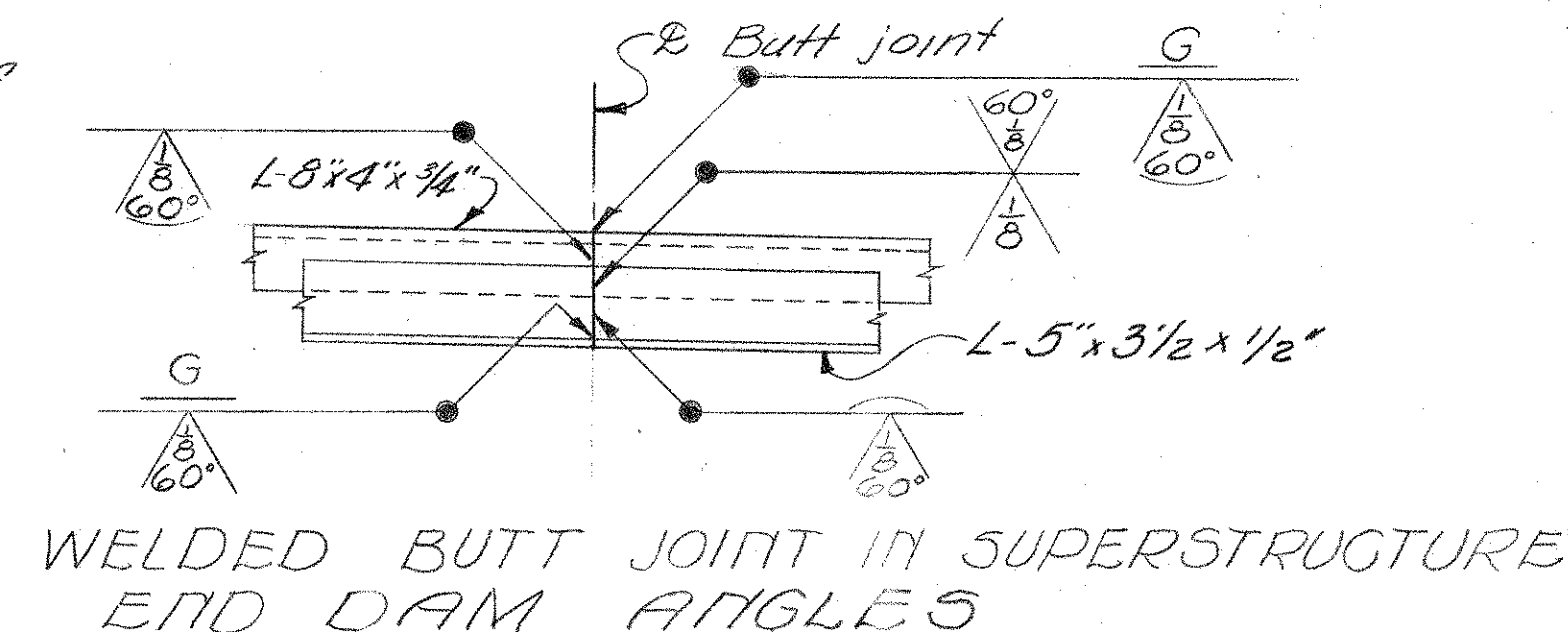
2" Dia. standard pipe drain at end of Bulb angle gutter where grade slopes down to end dam. Use standard elbow and coupling. A welded bend may be used where space does not permit use of standard elbow (East end only)

6" x 1/2" x 12" plates, spaced at approximately 15" except near joints in the angle, where the plates shall be placed within 6" of each side of the joint. The holes may be burned in the plate

Top of backwall form shall be below 3/16" holes in L-6" x 4" x 1/2"



SECTION C-C



A welded butt joint in the end dam along the centerline of roadway, will be permitted for that portion of the end dam attached to the superstructure. The portion attached to the backwall shall be placed in segments not less than 6'-0" in length. These joints shall be closely butted but shall not be welded

5/8" x 2" bolts at not more than 2'-0" with nuts tack-welded to under side of lower angle. 1 1/16" holes in upper angle. Center 5/8" bolts in 1 1/16" holes. Apply flake graphite between washers and angle. Turn bolt tight and release one-half turn. Remove bolts as soon as concrete has set, preferably within two hours after placing, to avoid damage due to temperature expansion or contraction of superstructure. Fill holes with bituminous material.

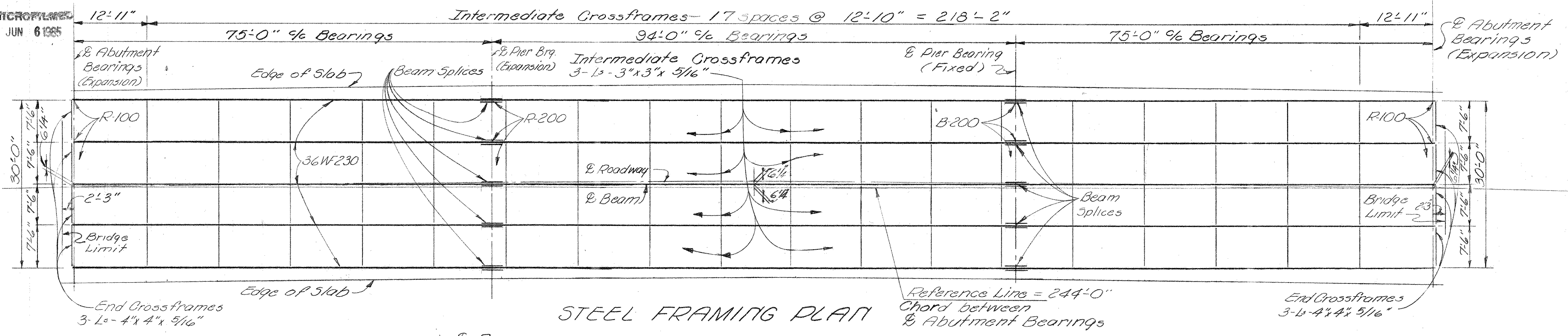
This contact surface shall not be painted and shall be lubricated with flake graphite prior to placing of backwall concrete

Anchor bars 2" x 1/2" x 1'-6" @ 18" c/c placed parallel to longitudinal reinforcing steel.

Omit shop coat on all portions of end dam. Portions in contact with steel or concrete shall not be painted. All other portions shall be cleaned and given the shop coat in the field as well as the two field coats.

REVISION	DATE	DESCRIPTION	BY
	3/26/62	AS CONSTRUCTED	H.F.K.
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: P.J.M.		LICKING RIVER DILLON RESERVOIR PROJECT	
CHECKED BY: ESR		RELOCATION OF OHIO STATE ROUTE NO. 146 (SECTION 3)	
SUBMITTED BY: Elmer S. Barrett		SUPERSTRUCTURE DETAILS	
ELMER S. BARRETT ASSOCIATES		BRIDGE NO. MUS-146-0652	
RECOMMENDED BY: Dan B. Johnson		STATE ROUTE NO. 146 OVER BIG RUN	
APPROVED BY: Steven Malenich		DATE: NOV. 1959	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: DRAWING NUMBER 027f-UD7-68/82	
		SHEET 82 OF 92	

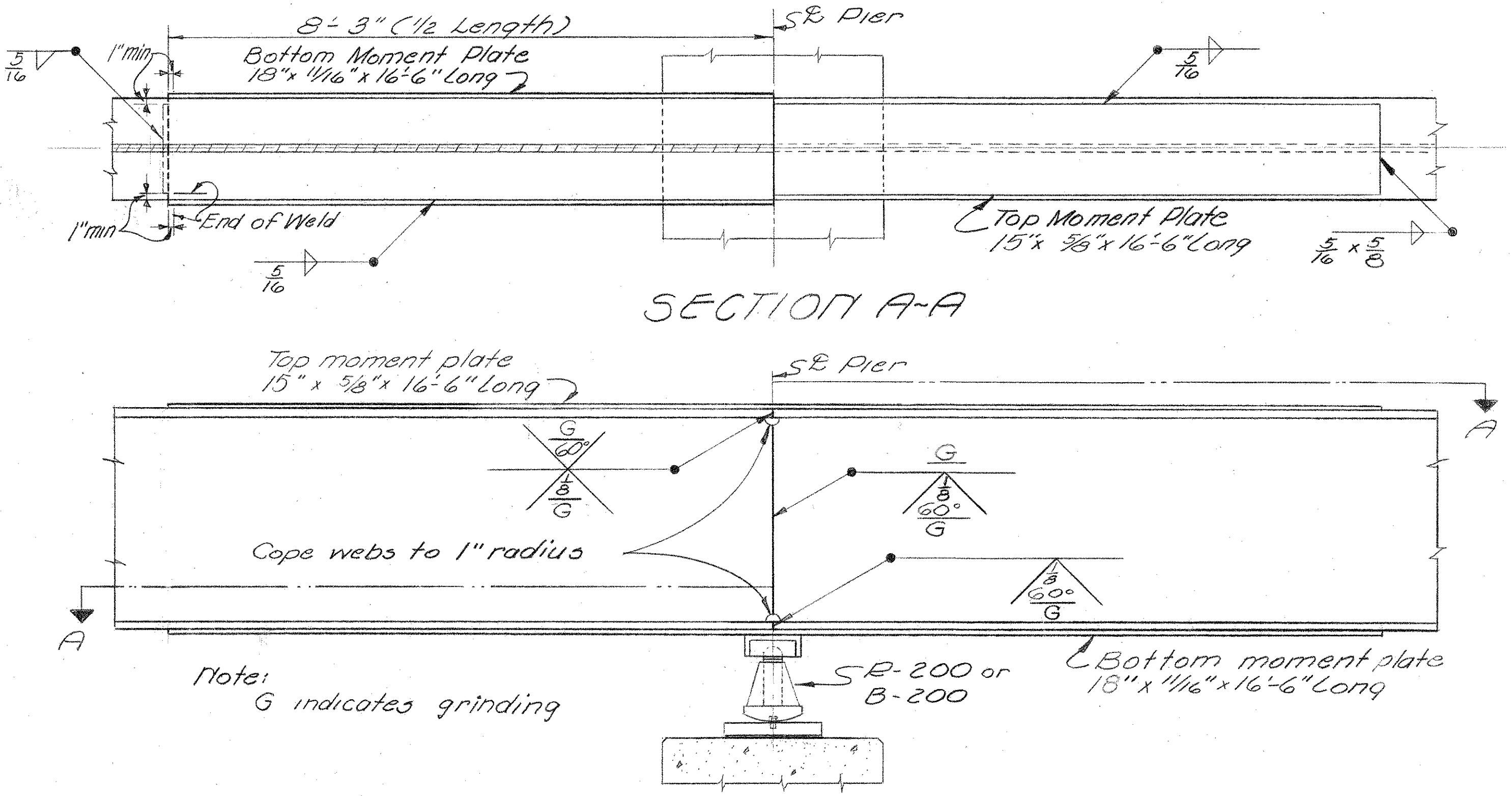
MICROFILMED
JUN 6 1985



FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

MUSKINGUM COUNTY
MUS-146-6.09

83
92

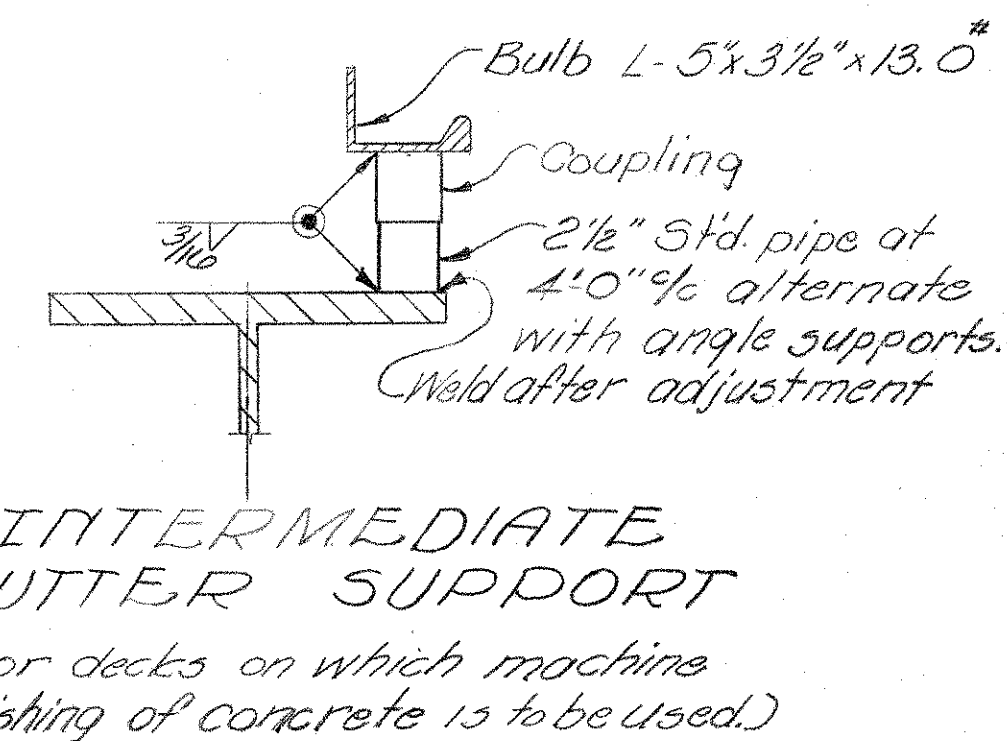
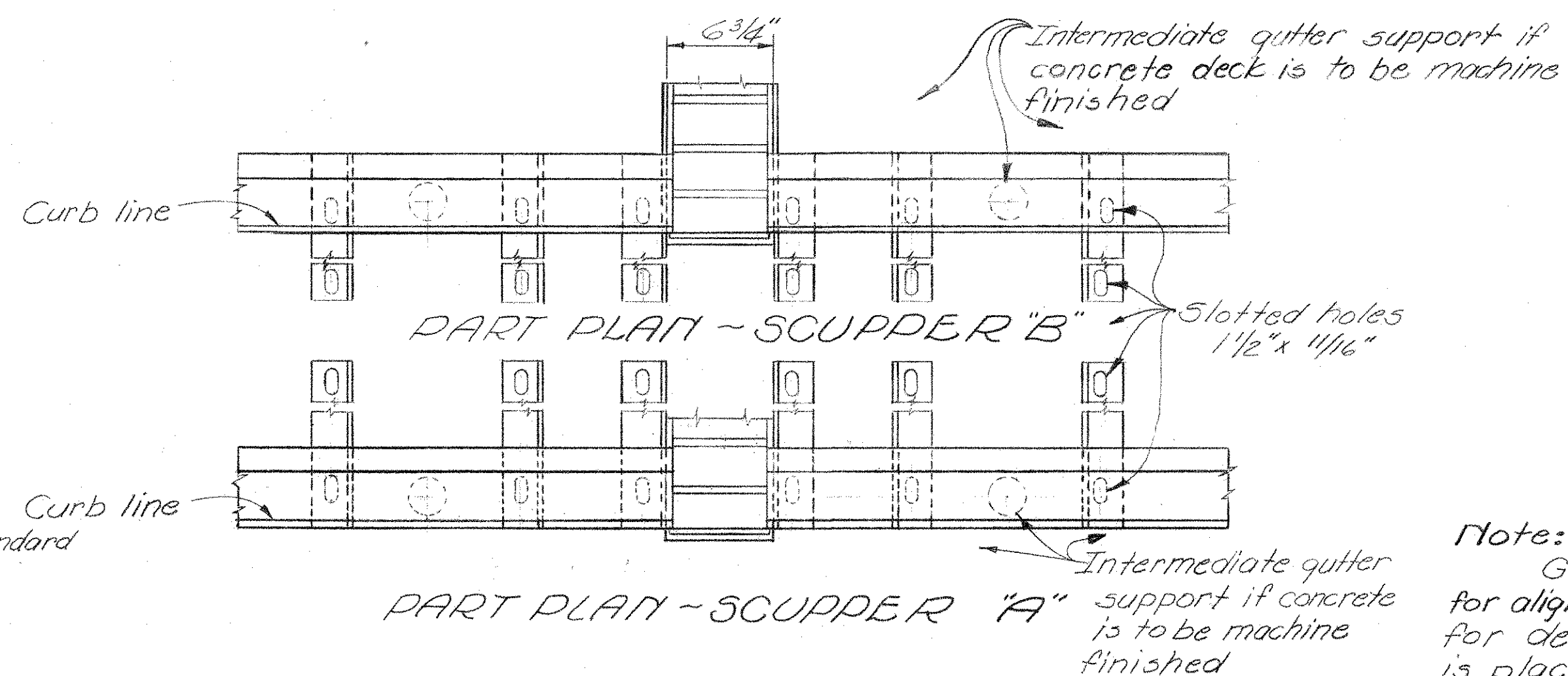
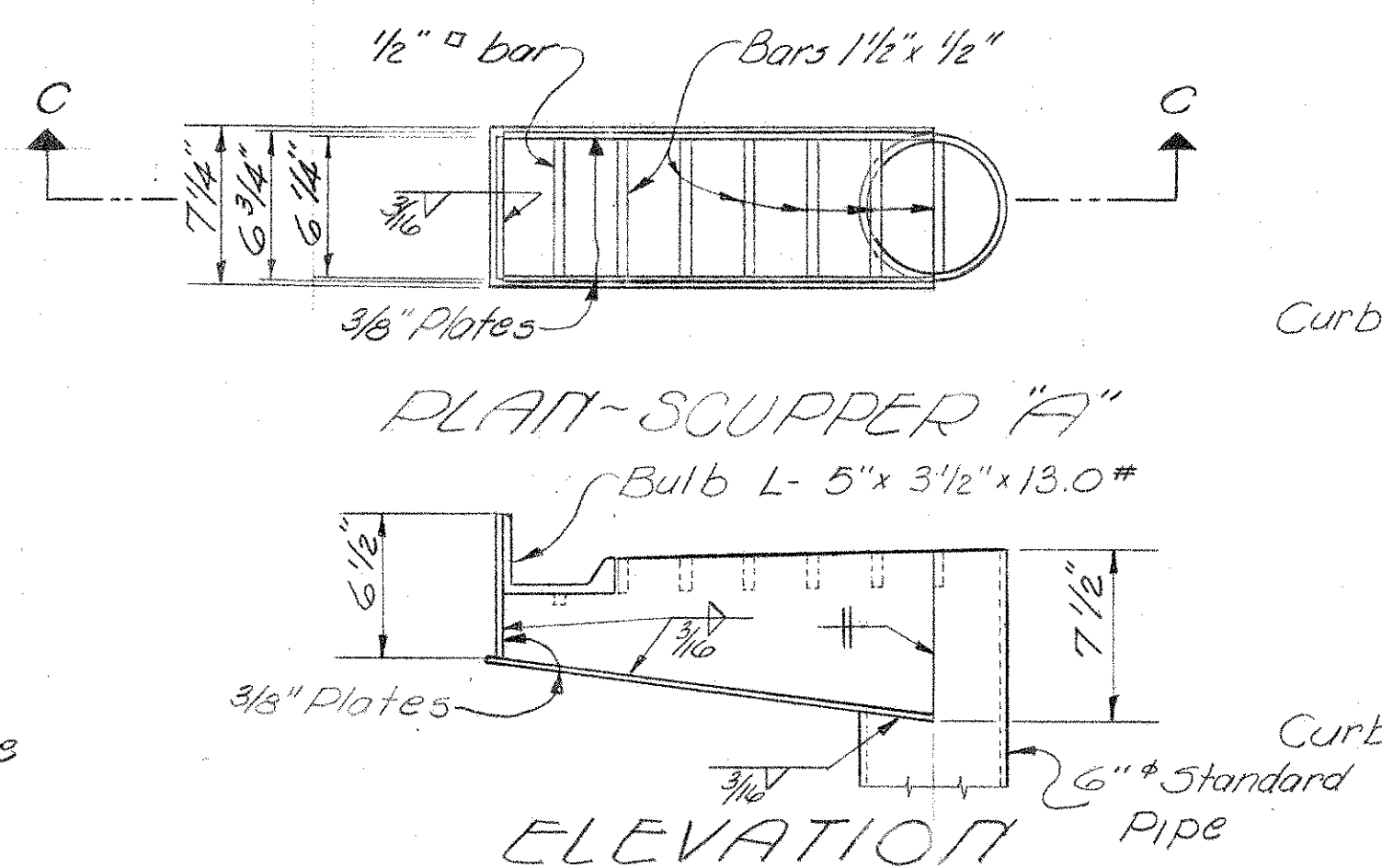
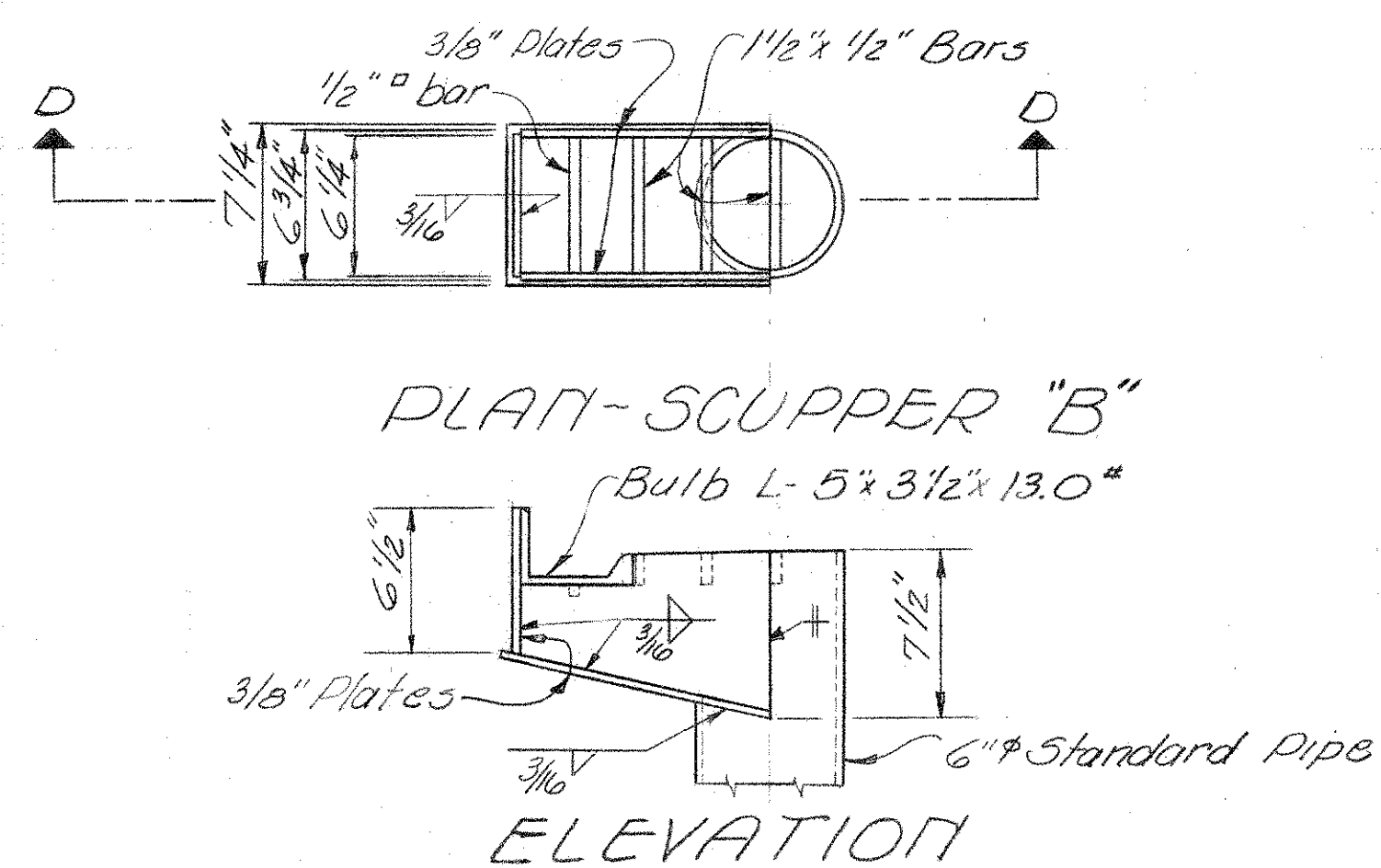
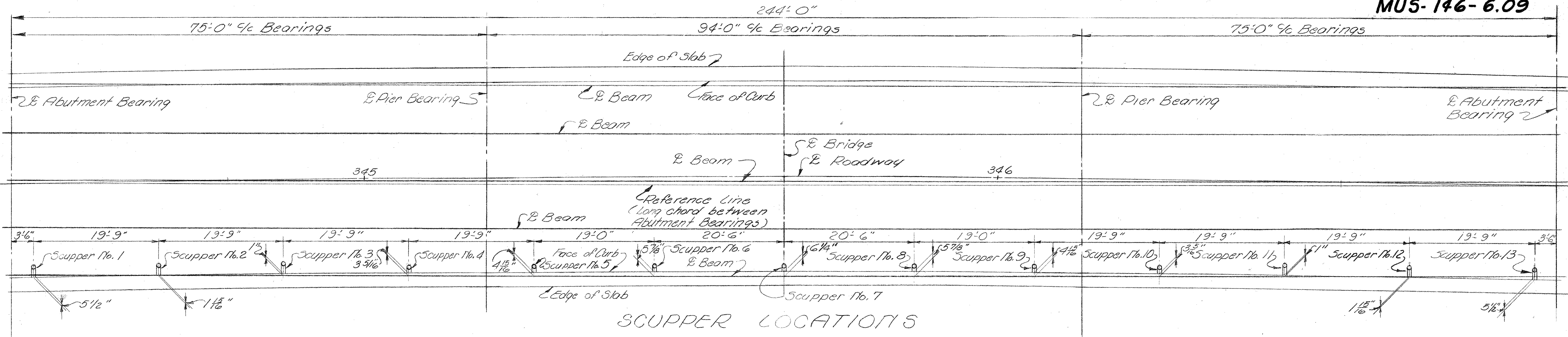


- ~NOTES~
- BEAM SPLICE WELDING PROCEDURE:**
1. Raise the abutment ends of the beams 3 5/8".
 2. Butt-weld the beam flanges and web, using the following sequence: make two passes on each flange then two on the web; repeat using one pass at each location, until welds are completed.
 3. Weld the bottom and top moment plates.
 4. Lower the beam ends to final position.
- DECK PLACING PROCEDURE:** In placing the deck concrete, construction joints will be permitted parallel to the transverse reinforcing steel and near the middle of any span. Because of the flow of curing water from the surface of previously-placed deck concrete, the sequence of pours shall be upgrade, starting at the lowest end. (East end)
- WELDING** shall be Class "A", except as 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

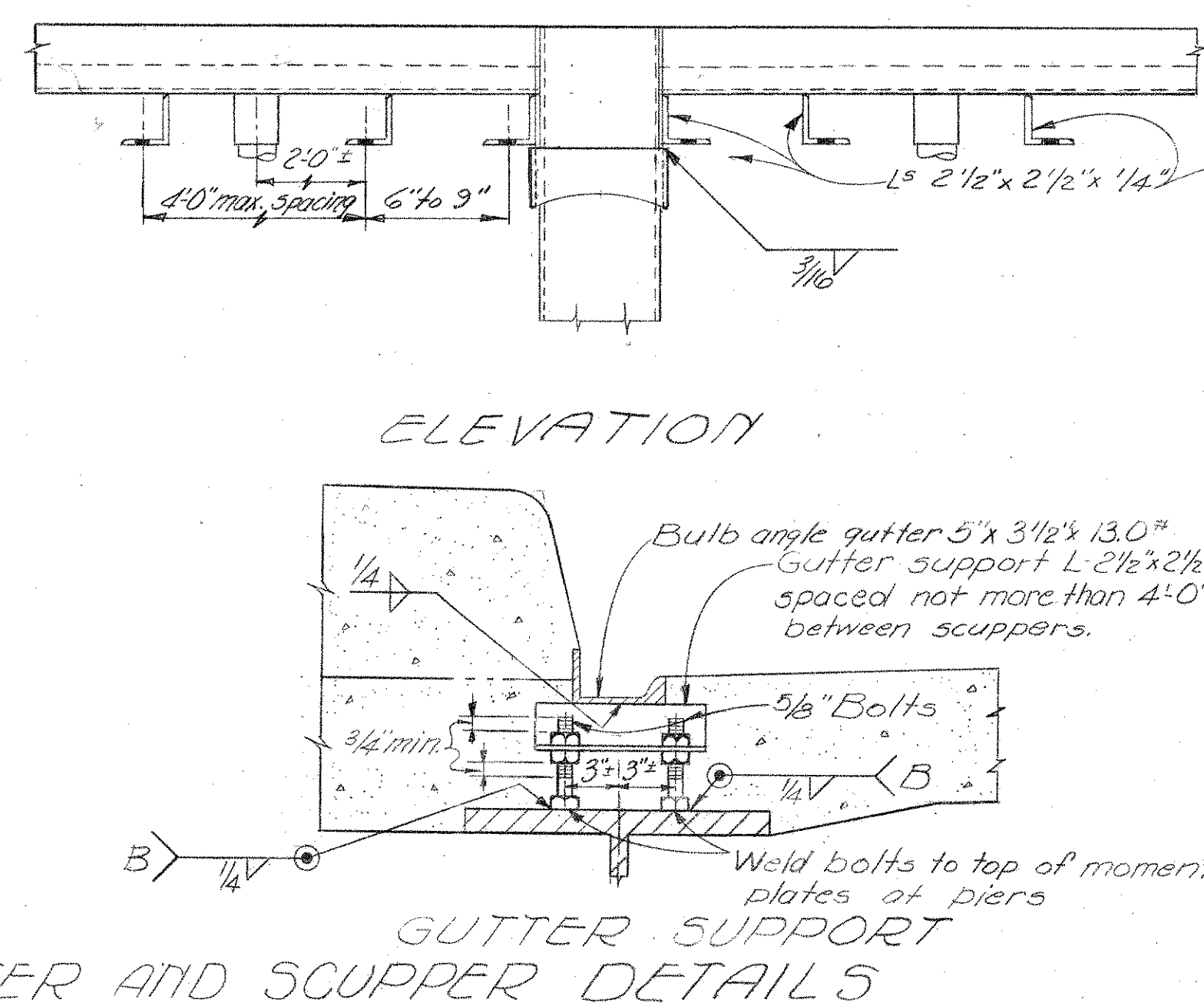
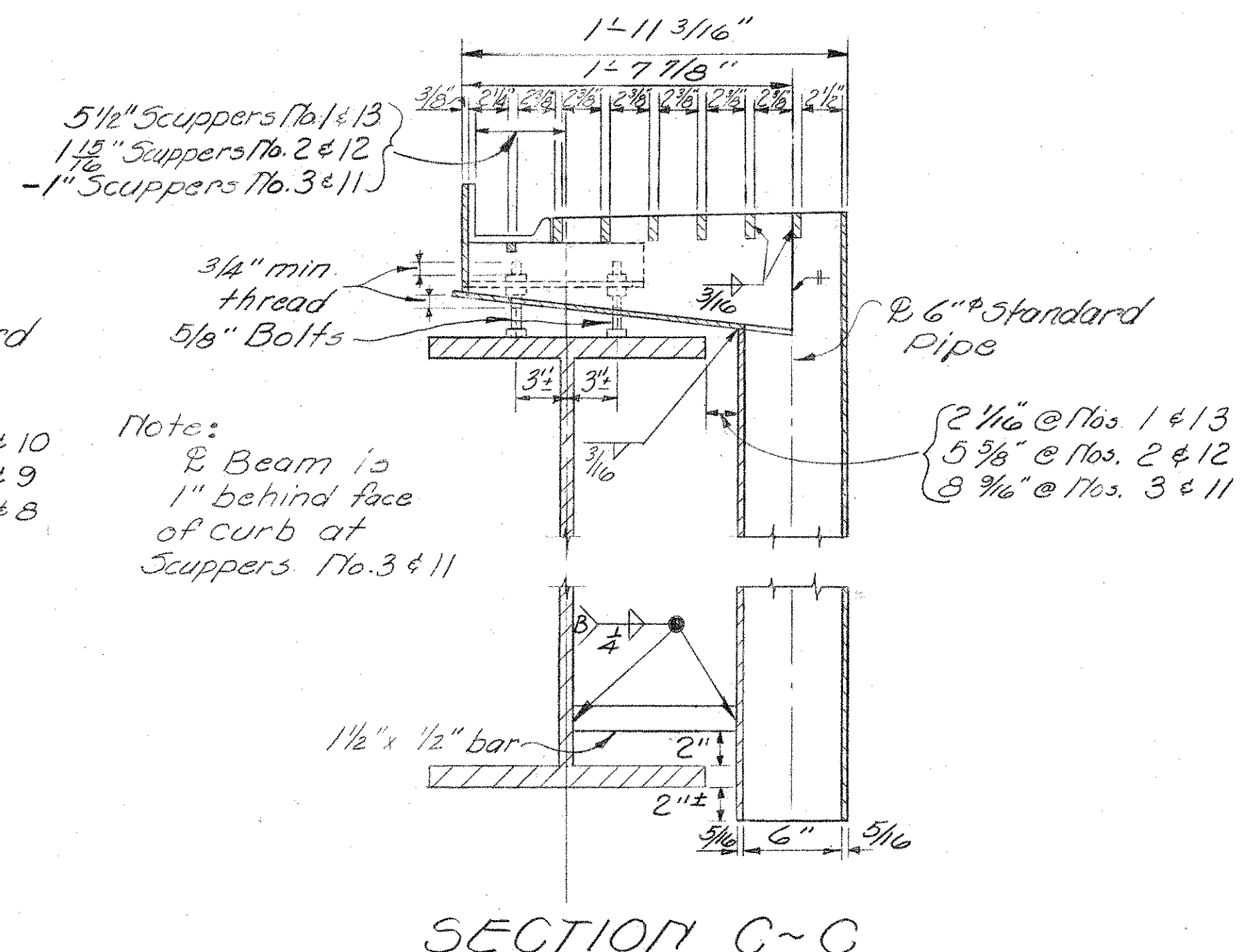
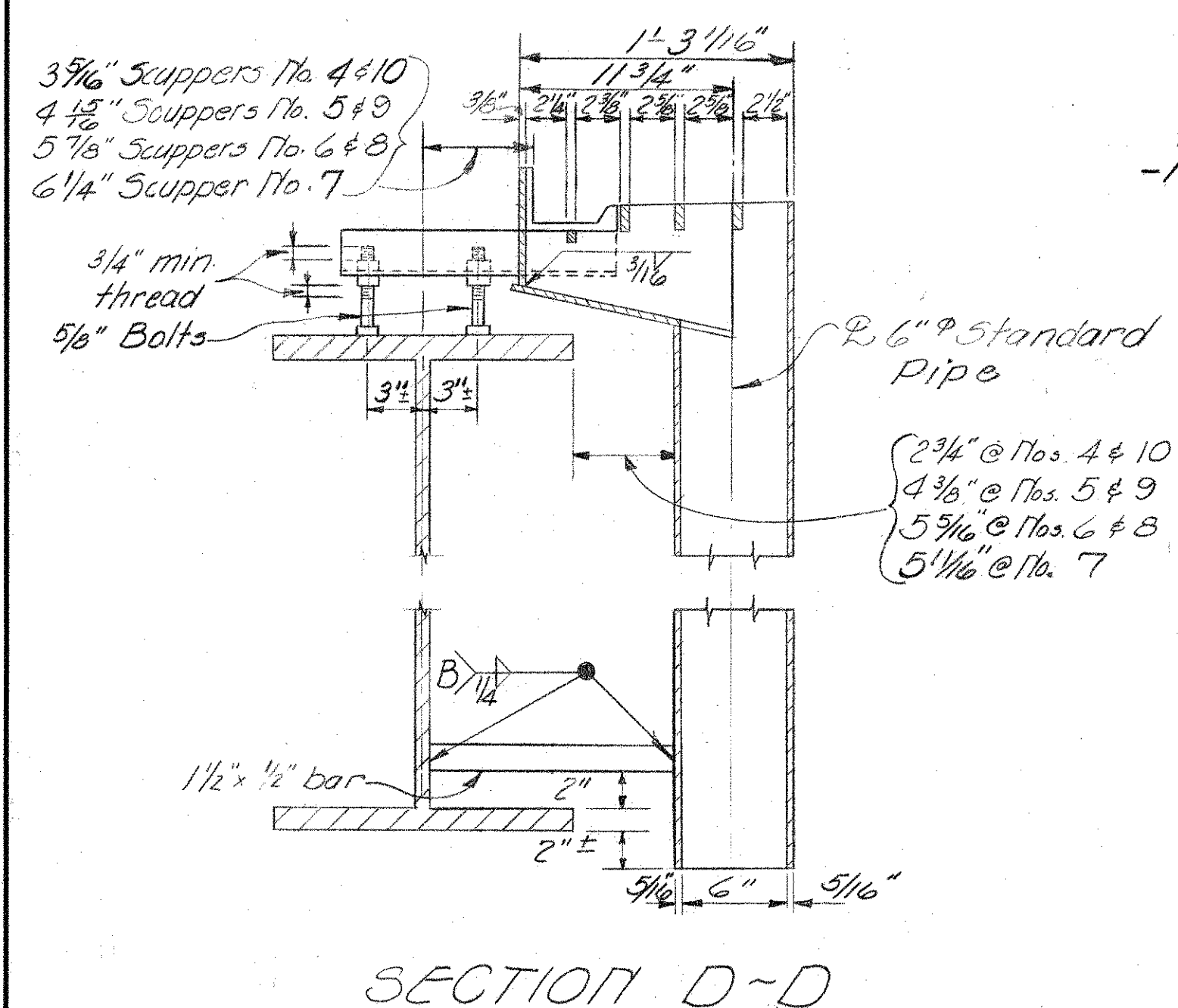
DEFLECTION				
LOCATION	OUTSIDE BEAMS		INSIDE BEAMS	
	END SPANS	MIDDLE SPAN	END SPANS	MIDDLE SPAN
Deflection due to weight of steel	5/32"	3/16"	5/32"	3/16"
Deflection due to remaining dead load	3/8"	1/2"	3/8"	17/32"
Concavity required for horizontal curve and superelevation	- 1/32"	- 1/32"	- 1/32"	- 1/32"
Sum of Deflection and Concavity	1/2"	21/32"	1/2"	11/16"

REVISION	DATE	DESCRIPTION	BY
	3/26/62	AS CONSTRUCTED	H.F.K.
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: R.J.M.		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (SECTION 3) SUPERSTRUCTURE DETAILS BRIDGE NO. MUS-146-0652 STATE ROUTE NO. 146 OVER BIG RUN	
TRACED BY:			
CHECKED BY: EJR			
SUBMITTED BY: Elmer S. Barrett			
RECOMMENDED: Dan E. Johnson		APPROVED: Steven Malerich	DATE: NOV. 1959
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: DRAWING NUMBER 027f-UD7-68/83 SHEET 83 OF 92	

WORK AS CONSTRUCTED



Note:
Gutters shall be accurately adjusted for alignment and grade with allowance for dead load deflection, before concrete is placed.



	3/26/62	AS CONSTRUCTED	H.F.W.
REVISION	DATE	DESCRIPTION	BY
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: <i>P.J.M.</i> TRACED BY: CHECKED BY: <i>ELR</i> SUBMITTED BY: <i>Elmer S Barrett</i> ELMER S. BARRETT ASSOCIATES RECOMMENDED: <i>Stan S. Johnson</i> CHIEF ENG. DIV.		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (SECTION 3) SUPERSTRUCTURE DETAILS BRIDGE NO. MUS-146 -0652 STATE ROUTE NO. 146 OVER BIG RUN APPROVED: <i>Steven Malenich</i> COL. C.E. DISTRICT ENGINEER DATE: NOV. 1959	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: _____ DRAWING NUMBER 027f-UD7-68/84 SHEET 84 of 92	

MICROFILMED
JUN 6 1985

~NOTES~

BAR SIZE is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four are used, indicate the bar size number. For example, A700 is a No. 7 size bar and P1001 is a No. 10 size

WORK AS CONSTRUCTED

MUSKINGUM COUNTY
MUS- 146- 6.09

Station & Offset	Depth From-To	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	% W.C.	SHTL Class	Station & Offset	Depth From-To	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	% W.C.	SHTL Class	
322+0 12' Lt.	0-2.8	5	1	8	74	12	25.1	2.9	18	A-4-b	369+78 £	0.9-5.5	0	0	6	72	22	32.2	7.3	25	A-4-b	
	2.8-4.1	21	6	28	33	12	17.8	NP	11	A-4-a		5.5-6.8	7	6	16	53	18	24.5	0.9	16	A-4-b	
	4.1-5.5	0	0	11	64	25	27.3	2.5	21	A-4-b		6.8-8.0	20	7	9	45	19	28.3	1.9	15	A-4-a	
	5.5-6.0	22	6	28	31	13	19.9	1.2	12	A-4-a												
	6.0-6.5	24	3	27	33	13	19.5	3.2	12	A-4-a												
324+0 12' Rt.	0-1.2	51	15	11	15	8	20.3	1.5	12	A-1-b	371+88 £	1.0-3.2	19	5	11	50	15	23.6	0.1	26	A-4-b	
	1.2-2.5	3	3	64	26	4	-	NP	10	A-3-a		3.2-3.5	41	9	15	25	10	28.6	7.2	22	A-2-4	
324+25 12' Rt.	0-1.0	4	3	62	18	13	-	NP	10	A-3-a	372+00 £	0.6-2.2	14	5	19	49	13	25.6	1.6	22	A-4-a	
												2.2-3.5	34	10	19	25	12	22.0	1.3	17	A-4-a	
328+0 £	1.0-3.5	17	3	18	54	8	22.3	4.7	19	A-4-b	374+00 £	3.5-4.4	46	10	18	19	7	24.7	3.2	30	A-2-4	
	3.5-4.5	12	3	40	31	14	18.0	1.0	12	A-4-a		4.4-6.0	13	6	26	39	16	22.9	1.6	23	A-4-a	
	4.5-6.3	3	1	28	38	30	34.6	16.1	17	A-6-b												
	6.3-6.5	3	3	48	31	15	19.5	NP	14	A-4-a		1.2-2.0	27	5	21	38	9	24.5	1.9	19	A-4-a	
329+0 £	1.0-3.5	7	3	30	43	17	21.2	11.0	16	A-6-a	374+25 £	2.0-5.1	41	12	24	18	5	-	NP	20	A-1-b	
	3.5-6.2	6	4	22	44	24	26.0	0.6	17	A-4-a		0.8-1.9	42	5	17	29	7	24.7	0.8	18	A-4-a	
331+0 £											376+00 £	1.9-3.0	29	10	27	30	4	21.3	2.1	15	A-2-4	
	0.4-2.5	12	2	55	18	13	-	NP	11	A-3-a		0.8-2.0	51	3	18	23	5	23.5	NP	16	A-2-4	
	2.5-3.8	4	4	42	26	24	20.7	3.9	13	A-4-a	2.0-4.0	65	2	12	17	4	23.2	NP	15	A-1-b		
	3.8-5.0	1	1	4	53	41	52.6	8.0	36	A-5	376+12 £	0.6-2.5	39	3	18	30	10	22.6	0.3	20	A-4-a	
5.0-8.0	0	0	2	50	48	65.6	8.1	39	A-5	2.5-3.0		31	2	30	30	7	-	NP	12	A-4-a		
332+0 £	0-3.0	0	0	0	79	21	30.8	1.6	25	A-4-b	379+93 £	0.6-1.5	17	3	10	53	17	27.0	2.0	20	A-4-b	
	3.0-4.5	0	0	6	78	16	26.1	0.1	28	A-4-b		1.5-3.0	4	2	6	56	32	31.7	8.5	20	A-4-b	
	4.5-6.3	16	4	40	30	10	17.0	NP	14	A-4-a	383+95 £	0.4-3.1	42	3	10	36	9	23.0	3.9	16	A-4-a	
	6.3-8.0	13	4	38	23	22	21.2	NP	21	A-4-a		3.1-5.1	7	1	12	58	22	31.0	9.3	20	A-4-b	
336+0 £	0.8-1.8	3	2	5	80	10	21.6	1.6	21	A-4-b	388+00 £	5.1-5.5	3	1	3	53	40	35.9	9.3	19	A-4-b	
	1.8-6.5	0	0	1	74	25	22.0	1.0	27	A-4-b		5.5-5.7	3	1	7	62	27	28.7	7.9	14	A-4-b	
	6.5-8.0	0	4	13	76	7	23.2	1.8	28	A-4-b												
338+0 £	1.0-4.5	0	2	6	71	21	23.1	10.2	23	A-4-b	388+14 £	0.7-1.7	48	2	14	28	8	21.0	1.6	14	A-4-a	
	4.5-5.2	1	22	39	31	7	-	NP	18	A-4-a		1.7-2.6	9	1	45	35	10	-	NP	9	A-4-a	
	5.2-8.0	41	20	19	12	8	-	NP	34	A-1-b		0.7-3.4	27	2	11	47	13	23.4	0.0	20	A-4-a	
339+60 £	0.6-1.8	4	7	21	61	7	21.8	0.4	20	A-4-b	389+43 £	3.4-3.8	22	4	18	43	13	24.0	5.3	12	A-4-a	
	1.8-3.5	25	27	14	24	10	25.7	1.1	17	A-2-4		393+60 £	0.8-1.5	9	2	11	56	22	26.2	12.8	18	A-6-a
	3.5-5.0	20	44	16	11	9	21.0	2.4	13	A-1-b			1.5-3.3									
	5.0-7.4	42	26	12	18	2	-	NP	9	A-1-b			3.3-3.5	51	1	15	23	10	27.6	5.3	13	A-2-4
	7.4-8.0	20	27	32	21	0	-	NP	8	A-1-b												
343+0 £	0.8-2.6	0	1	3	77	19	27.3	2.5	22	A-4-b	394+10 £	0.3-1.1	22	1	14	50	13	22.4	4.9	16	A-4-b	
	2.6-4.0	0	1	5	61	33	42.5	6.3	25	A-5		1.1-2.5	20	1	19	45	15	24.8	3.5	15	A-4-a	
	4.0-6.6	24	3	14	40	19	31.0	5.9	20	A-4-a		2.5-3.0	13	0	41	28	18	20.1	3.5	12	A-4-a	
	6.6-8.0	27	30	20	14	9	-	NP	21	A-1-b		0.3-1.3	34	2	16	40	8	22.0	1.5	22	A-4-a	
345+0 £	1.0-2.5	0	3	9	65	23	29.8	4.0	20	A-4-b	395+00 £	1.3-2.1	31	2	21	40	6	20.8	0.9	13	A-4-a	
	2.5-4.5	0	11	30	39	20	23.6	2.3	18	A-4-a		0.5-1.4	16	1	8	58	17	29.6	6.4	19	A-4-b	
	4.5-5.1	2	27	34	26	11	-	NP	16	A-4-a		1.4-2.4	5	0	5	63	27	32.9	6.0	22	A-4-b	
	5.1-6.0	52	14	13	14	7	24.3	2.3	14	A-1-b		2.4-3.5	26	3	7	41	23	30.4	4.4	17	A-4-a	
	6.0-8.0	50	24	7	10	9	45.9	10.0	16	A-2-5		3.5-3.8	36	3	8	37	16	28.2	7.5	15	A-4-a	
348+50 £	0.8-6.0	0	3	49	37	11	20.4	NP	23	A-4-a	398+00 £	0.5-1.5	41	0	5	37	17	30.8	5.0	26	A-4-a	
	6.0-7.1	18	9	39	30	4	20.2	NP	29	A-2-4		1.5-2.5	0	0	2	61	37	32.3	6.6	21	A-4-b	
	7.1-8.0	50	28	7	13	2	18.7	NP	18	A-1-a		2.5-3.4	7	0	5	63	25	29.2	4.9	15	A-4-b	
351+25 £	0.4-1.8	19	11	15	39	16	20.3	0.5	20	A-4-a	402+00 £	3.4-4.7	0	0	1	92	7	37.3	9.5	16	A-4-b	
	1.8-5.5	26	33	12	20	9	30.3	2.6	18	A-2-4		4.7-5.0	3	0	2	63	32	37.4	13.3	16	A-6-a	
	5.5-8.0	42	23	3	25	7	28.4	4.4	18	A-2-4		5.0-5.2	6	0	2	56	36	37.9	8.5	14	A-4-b	
355+00 £	0.4-2.4	1	10	21	58	10	22.3	0.6	18	A-4-b	406+00 £	0.9-3.5	20	1	39	27	13	18.8	2.9	17	A-4-a	
	2.4-4.1	5	28	24	30	13	21.6	2.7	16	A-4-a		3.5-4.8	5	1	6	56	32	33.5	7.2	21	A-4-b	
	4.1-6.5	3	7	33	47	10	20.0	1.0	22	A-4-a		4.8-6.5	1	0	4	52	43	35.3	10.1	33	A-4-b	
355+60 £	0.3-4.9	0	1	2	72	25	35.0	4.2	23	A-4-b	406+22 £	0.3-1.0	7	1	19	56	17	22.0	1.3	19	A-4-b	
	4.9-6.0	0	17	39	32	12	17.8	NP	18	A-4-a		1.0-2.1	26	2	18	37	17	20.4	0.1	14	A-4-a	
356+00 £											407+50 £	2.1-2.3	43	1	20	26	10	22.6	3.7	10	A-4-a	
	0.3-1.5	1	8	22	46	23	27.0	3.7	19	A-4-a		0.4-1.8	12	1	24	47	16	19.9	1.6	15	A-4-a	
	1.5-3.2	1	7	28	40	24	27.0	4.6	18	A-4-a		1.8-2.1	8	0	45	35	12	19.8	NP	10	A-4-a	
357+30 £	3.2-6.8	18	54	9	13	6	29.0	5.5	14	A-1-b	408+87.5 £											
	0.3-1.3	1	2	14	61	22	26.5	5.6	20	A-4-b		0.8-1.1	31	1	29	31	8	18.8	14.3	14	A-6-a	
	1.3-5.4	1	2	11	65	21	29.5	2.7	21	A-4-b		1.1-2.8	21	3	32	28	16	22.5	1.5	17	A-4-a	
	5.4-7.0	1	2	13	66	18	27.4	1.9	15	A-4-b		2.8-5.0	2	2	6	59	31	32.0	3.1	17	A-4-b	
358+75 £	7.0-8.0	5	6	34	43	12	21.4	1.4	27	A-4-a	410+00 £	0.5-1.0	56	3	14	22	5	18.6	1.6	15	A-2-4	
												1.0-2.8	37	4	36	18	5	-	NP	9	A-1-b	
	0.8-5.2	30	2	12	35	21	29.5	3.1	20	A-4-a		410+80 £	0.0-1.5									
	5.2-6.2	11	3	22	48	16	26.3	6.1	16	A-4-a												
360+00 £	0.4-3.0	17	3	43	25	12	-	NP	14	A-4-a	411+15 £		1.0-2.8	9	1	38	34	18	22.0	1.0	23	A-4-a
	3.0-5.2	18	9	28	36	9	21.8	NP	12	A-4-a			2.8-3.1	33	2	26	31	8	19.9	0.9	15	A-4-a
363+05 £	0.6-1.3	15	3	22	46	14	23.0	1.0	24	A-4-a	412+30 £	1.0-2.4	23	1	19	41	16	22.7	13.5	16	A-6-a	
	1.3-3.3	22	1	39	26	12	20.0	1.1	12	A-4-a		2.4-3.3	8	0	52	24	16	-	NP	10	A-4-a	
365+00 £	1.0-1.5	7	2	21	58	12	21.4	1.0	20	A-4-b	413+70 £	1.2-4.2	1	0	1	76	22	31.1	6.3	23	A-4-b	
	1.5-3.5	4	1	11	60	24	28.5	5.1	20	A-4-b		4.2-5.5	0	1	2	90	7	22.4	1.4	27	A-4-b	
	3.5-4.7	21	1	41	27	10	17.8	0.8	13	A-4-a		5.5-6.0	11	5	10	53	21	27.2	3.4	17	A-4-a	
368+25 £	1.0-3.2	8	2	24	53	13	19.7	0.7	20	A-4-b												
	3.2-3.5	4	3	33	45	15	18.2	1.2	17	A-4-a								</				

LEGEND FOR PROJECT — AVERAGE RESULTS OF 173 SAMPLES TESTED

DESCRIPTION	H.R. B. CLASS	OHIO CLASS	% AGG.	% C. SAND	% F. SAND	% SILT	% CLAY	LIQUID LIMIT	PLASTIC INDEX	WATER CONTENT	SAMPLES TESTED
Gravel and/or Stone Fragments	A-1-a(0)	A-1-a	50	28	7	13	2	NP	NP	18	1
Gravel and/or Stone Fragments with Sand	A-1-b(0)	A-1-b	39	22	18	15	6	NP	NP	15	12
Fine Sand	-	A-3-a	6	3	60	21	10	NP	NP	10	3
Gravel and/or Stone Fragments w Sand & Silt	A-2-4(0) A-2-5(0)	A-2-4 A-2-5	37 50	11 24	20 7	24 10	8 9	22 46	2 10	18 16	12 1
Gravel and/or Stone Fragments with Sand, Silt, & Clay	A-2-6(1)	A-2-6	58	2	11	18	11	28	12	18	1
Sandy Silt	A-4-(3)	A-4-a	18	5	26	36	15	21	2	17	71
Silt	A-4(0)	A-4-b	5	2	9	63	21	28	3	22	60
Elastic Silt & Clay w/without Organic Material	A-5(0)	A-5	0	0	5	56	39	49	7	30	5
Silt and Clay	A-6(6)	A-6-a	15	2	16	49	18	25	12	17	6
Silty Clay	A-6(7)	A-6-b	3	1	28	38	30	35	16	17	1
Topsoil	Visual Classification										
Overburden	Visual Classification										
Sandstone	Visual Classification										
Shale	Visual Classification										

Auger and core borings - Plotted to vertical scale only

Auger boring - Plan View

Core boring - Plan View

Water content nearly equal to or greater than Liquid Limit.

Notes:

(1) Figures beside borings indicate water content in per cent.

(2) NP for Liquid Limit & Plastic Index indicates non-plastic sample.

(3) T.S. = x' above borings indicate depth of top soil.

(4) W - Free Water Level.

(5) Samples taken are: Lab. Nos. 1 thru 175 excluding 102 & 138.

Station & Offset	Depth From-To	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class
414+50 <u>EL</u>	1.0-2.4	0	1	7	70	22	24.9	2.4	28	A-4-b
	2.4-3.5	0	1	4	70	25	28.5	2.5	30	A-4-b
	3.5-7.5	1	0	2	69	28	30.0	2.3	31	A-4-b
	7.5-8.0	0	3	19	64	14	24.3	2.9	26	A-4-b
414+65 <u>EL</u>	0.7-3.4	0	0	2	75	23	29.9	4.9	25	A-4-b
	3.4-3.9	5	1	45	32	17	19.4	0.9	13	A-4-a
419+00 <u>EL</u>	1.0-3.5	4	9	25	53	9	17.5	0.5	21	A-4-b
	3.5-3.7	8	9	25	45	13	25.3	3.3	28	A-4-a
	3.7-4.0	23	2	22	31	22	23.4	3.8	16	A-4-a
418+88 <u>EL</u>	1.0-2.8	17	7	28	38	10	22.6	0.3	19	A-4-a
421+50 <u>EL</u>	0.7-1.5	14	1	46	29	10	-	NP	12	A-4-a
	1.5-2.0	19	0	46	27	8	-	NP	10	A-2-4
423+50 <u>EL</u>	0.9-2.8	9	2	8	55	26	34.0	7.5	23	A-4-b
	2.8-4.0	6	3	9	57	25	34.0	6.8	21	A-4-b
426+00 <u>EL</u>	0.8-1.5	18	2	3	61	16	22.2	14.0	19	A-6-a
	1.5-2.4	17	1	11	54	17	27.0	3.5	19	A-4-b
	2.4-4.2	1	2	4	60	33	34.3	7.4	21	A-4-b
	4.2-6.0	15	3	3	57	22	29.0	10.3	17	A-4-b
	6.0-6.2	23	6	4	47	20	30.4	6.3	13	A-4-a
427+90 <u>EL</u>	1.0-3.1	15	1	17	43	24	33.1	5.3	25	A-4-a
	3.1-4.1	1	0	10	58	31	33.4	6.3	20	A-4-b
429+40 <u>EL</u>	1.0-5.8	0	0	10	53	37	43.8	8.2	34	A-5
432+50 <u>EL</u>	1.0-2.4	1	2	10	72	15	28.2	3.2	28	A-4-b
	2.4-3.9	0	1	8	74	17	24.4	2.2	33	A-4-b
436+25 <u>EL</u>	0.0-1.8	58	2	11	18	11	28.3	12.1	18	A-2-6
438+12 10' Rt.	0.0-1.8	43	8	20	25	4	18.8	NP	17	A-2-4
	1.8-3.0	17	10	19	46	8	24.5	2.5	20	A-4-a
	3.0-6.0	15	3	6	56	20	29.7	3.0	25	A-4-b
442+00 11' Rt.	0.0-1.1	56	13	13	14	4	-	NP	11	A-1-b
	1.1-2.3	9	3	7	49	32	27.9	7.5	15	A-4-a


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

For Information Only

	3/27/62	AS CONSTRUCTED	H. F. K.
REVISION	DATE	DESCRIPTION	BY
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY:		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO.146 (Section 3)	
TRACED BY:			
CHECKED BY: <i>ELM</i>			
SUBMITTED BY: <i>Elmer S. Barrett</i> ELMER S. BARRETT ASSOCIATES			
RECOMMENDED: <i>Don E. Johnson</i> CHIEF ENG. DIV.		APPROVED: <i>Steven Malench</i> COL. C. E. DISTRICT ENGINEER	DATE: NOV. 1959
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE:	SPEC. NO.
		DRAWING NUMBER 027f-UD7-68/	
		SHEET 1 OF 5	

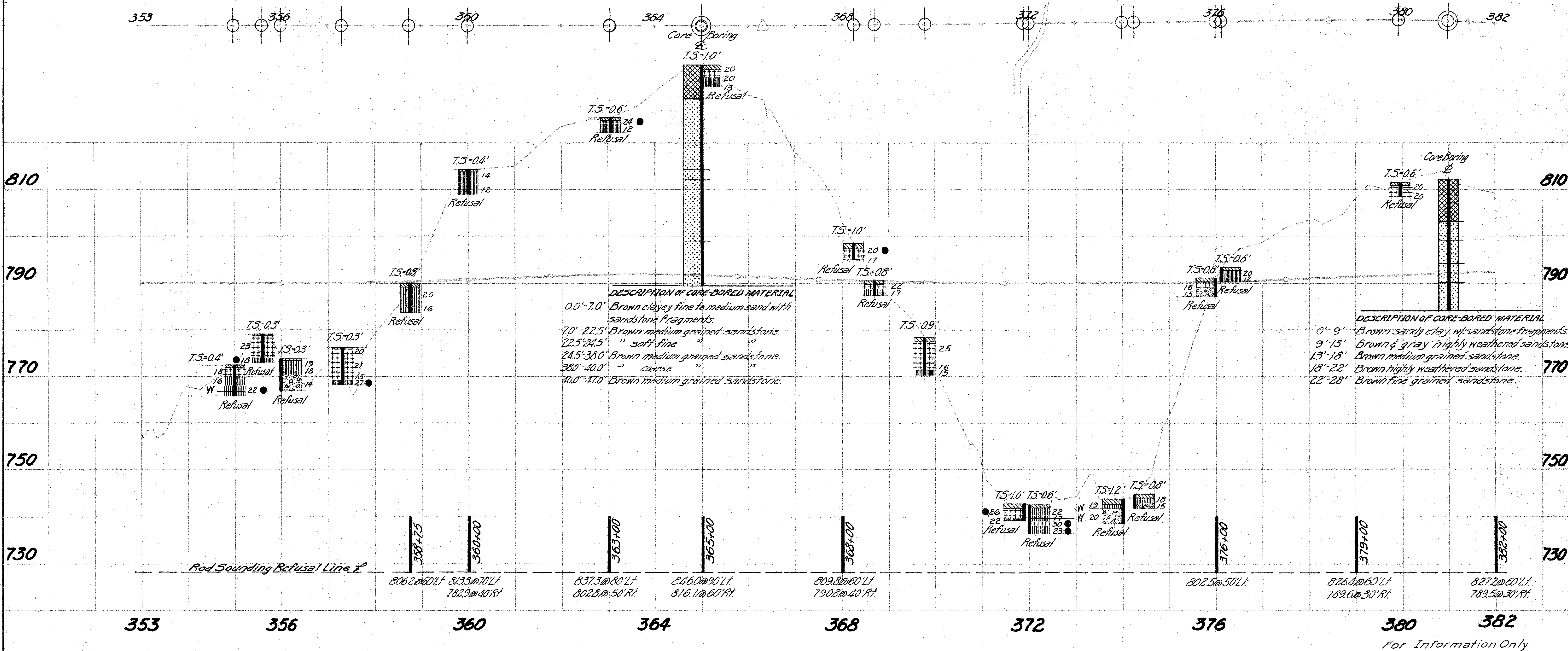
WORK AS CONSTRUCTED

SUMMARY OF SOIL TEST



WORK AS CONSTRUCTED SOIL PROFILE STA. 322+00 TO STA. 353+00

MICROFILMED
JUN 6 1985



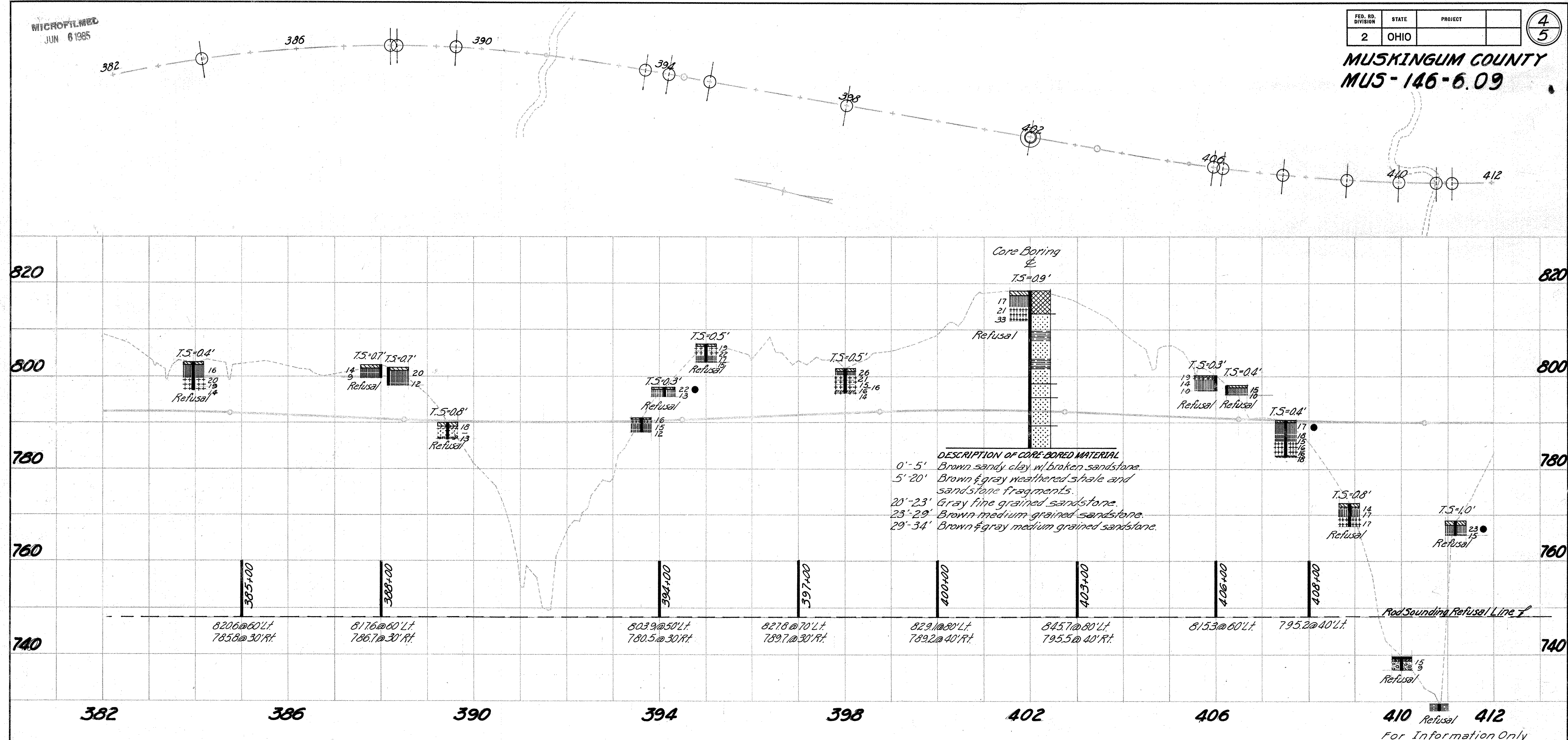
3/26/62		AS CONSTRUCTED	H.F. K.
REVISION	DATE	DESCRIPTION	BY
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.			
DRAWN BY: <i>AMN</i>		LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)	
TRACED BY:			
CHECKED BY: <i>gbd</i>			
SUBMITTED BY: <i>Elmer S. Barrett</i>			
RECOMMENDED BY: <i>Elmer S. Barrett</i>			
APPROVED: <i>Steven Malevich</i>		DATE: NOV. 1959	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: HORIZ. 1"=100' VERT. 1"=10' SPEC. NO. DRAWING NUMBER 027f-UD7-68/ SHEET 3 OF 5	

MICROFILMED
JUN 6 1985

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

4
5

MUSKINGUM COUNTY
MUS-146-6.09



3/27/62		AS CONSTRUCTED		H. F. K.	
REVISION	DATE	DESCRIPTION			BY
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.					
DRAWN BY: <i>AWN</i>					
TRACED BY:					
CHECKED BY: <i>gls</i>					
SUBMITTED BY: <i>Elmer S. Barrett</i>					
ELMER S. BARRETT ASSOCIATES					
RECOMMENDED: <i>Stan E. Johnson</i>					
CHIEF ENG. DIV.					
APPROVED: <i>Steven Malerich</i>					
COL. C.E. DISTRICT ENGINEER					
DATE: NOV. 1959					
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO					
SCALE: <i>1/4" = 10'</i> <i>1/8" = 10'</i>					
SPEC. NO.					
DRAWING NUMBER					
027f-UD7-68/					
SHEET 4 OF 5					

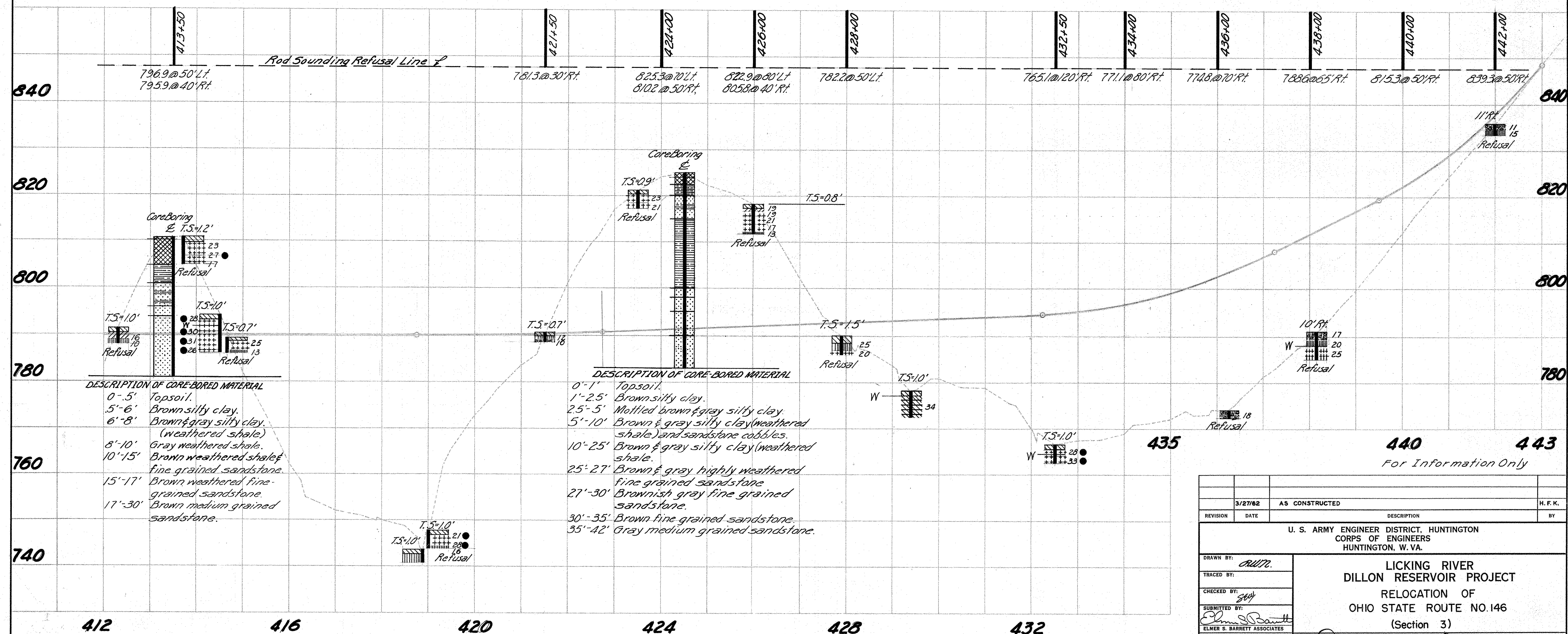
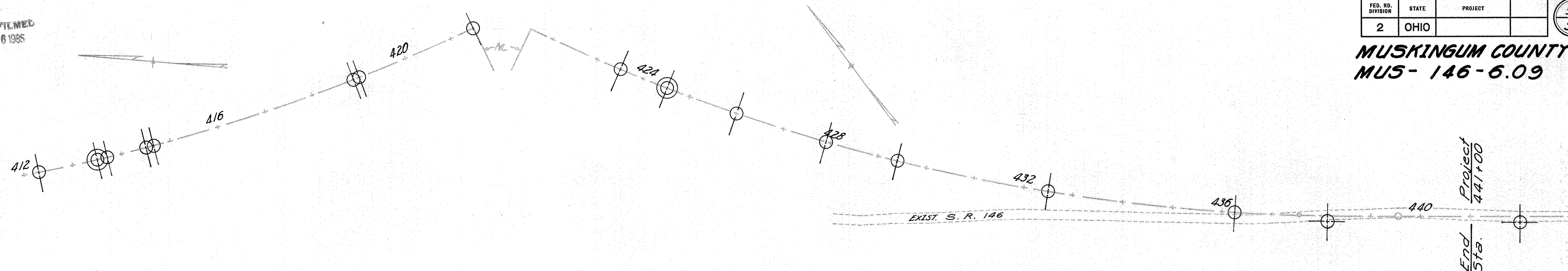
WORK AS CONSTRUCTED SOIL PROFILE STA. 382+00 TO STA. 412+00

MICROFILMED
JUN 6 1985

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

5
5

MUSKINGUM COUNTY
MUS- 146-6.09



DESCRIPTION OF CORE-BORED MATERIAL

- 0'-5' Topsoil.
- 5'-6' Brown silty clay.
- 6'-8' Brown & gray silty clay. (weathered shale)
- 8'-10' Gray weathered shale.
- 10'-15' Brown weathered shale & fine grained sandstone.
- 15'-17' Brown weathered fine grained sandstone.
- 17'-30' Brown medium grained sandstone.

DESCRIPTION OF CORE-BORED MATERIAL

- 0'-1' Topsoil.
- 1'-2.5' Brown silty clay.
- 2.5'-5' Mottled brown & gray silty clay.
- 5'-10' Brown & gray silty clay (weathered shale) and sandstone cobbles.
- 10'-25' Brown & gray silty clay (weathered shale).
- 25'-27' Brown & gray highly weathered fine grained sandstone.
- 27'-30' Brownish gray fine grained sandstone.
- 30'-35' Brown fine grained sandstone.
- 35'-42' Gray medium grained sandstone.

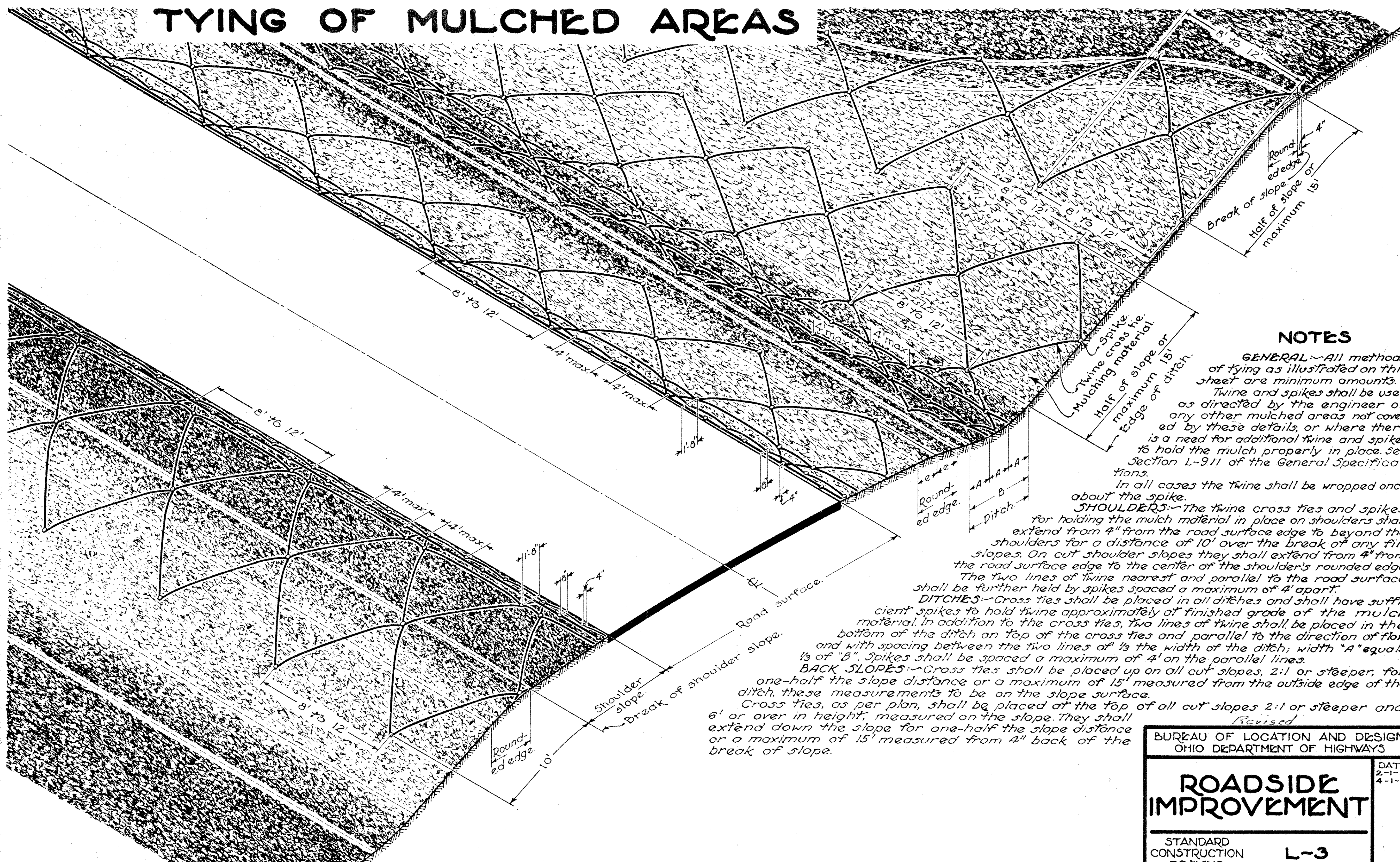
3/27/62	AS CONSTRUCTED	H. F. K.
REVISION	DATE	DESCRIPTION
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.		
LICKING RIVER DILLON RESERVOIR PROJECT RELOCATION OF OHIO STATE ROUTE NO. 146 (Section 3)		
DATE: NOV. 1959		BY:
APPROVED: <i>Steven Malevich</i> COL. C. E. DISTRICT ENGINEER		
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		SCALE: HORIZ 1"=100' VERT 1"=10'
SPEC. NO. 027f-UD7-68/		DRAWING NUMBER
SHEET 5 OF 5		

WORK AS CONSTRUCTED SOIL PROFILE STA. 412+00 TO STA. 443+00

TYING OF MULCHED AREAS

1/8

MUSKINGUM COUNTY
MUS-146-6.09



NOTES

GENERAL: All methods of tying as illustrated on this sheet are minimum amounts.

Twine and spikes shall be used as directed by the engineer on any other mulched areas not covered by these details, or where there is a need for additional twine and spikes to hold the mulch properly in place. See Section L-9.11 of the General Specifications.

In all cases the twine shall be wrapped once about the spike.

SHOULDERS: The twine cross ties and spikes for holding the mulch material in place on shoulders shall extend from 4" from the road surface edge to beyond the shoulders for a distance of 10' over the break of any fill slopes. On cut shoulder slopes they shall extend from 4" from the road surface edge to the center of the shoulder's rounded edge. The two lines of twine nearest and parallel to the road surface shall be further held by spikes spaced a maximum of 4' apart.

DITCHES: Cross ties shall be placed in all ditches and shall have sufficient spikes to hold twine approximately at finished grade of the mulch material. In addition to the cross ties, two lines of twine shall be placed in the bottom of the ditch on top of the cross ties and parallel to the direction of flow and with spacing between the two lines of 1/3 the width of the ditch; width "A" equals 1/3 of "B". Spikes shall be spaced a maximum of 4' on the parallel lines.

BACK SLOPES: Cross ties shall be placed up on all cut slopes, 2:1 or steeper, for one-half the slope distance or a maximum of 15' measured from the outside edge of the ditch, these measurements to be on the slope surface. Cross ties, as per plan, shall be placed at the top of all cut slopes 2:1 or steeper and 6' or over in height, measured on the slope. They shall extend down the slope for one-half the slope distance or a maximum of 15' measured from 4" back of the break of slope.

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

**ROADSIDE
IMPROVEMENT**

STANDARD
CONSTRUCTION
DRAWING
APPROVED *K.L.B.* CHIEF ENGINEER

L-3

DATE
2-1-47
4-1-50

For Information Only

U. S. ARMY ENGINEER DISTRICT, HUNTINGTON
CORPS OF ENGINEERS
HUNTINGTON, W. VA.

LICKING RIVER
DILLON RESERVOIR PROJECT
RELOCATION OF
OHIO STATE ROUTE NO. 146
(Section 3)

DRAWN BY:
TRACED BY:
CHECKED BY: *gwh*
SUBMITTED BY: *Elmer S. Barrett*
ELMER S. BARRETT ASSOCIATES
RECOMMENDED BY: *Harold Johnson*
CHIEF ENGR. DIV.

APPROVED: *Steven Malerich*
COL. C. E. DISTRICT ENGINEER
DATE: NOV. 1959

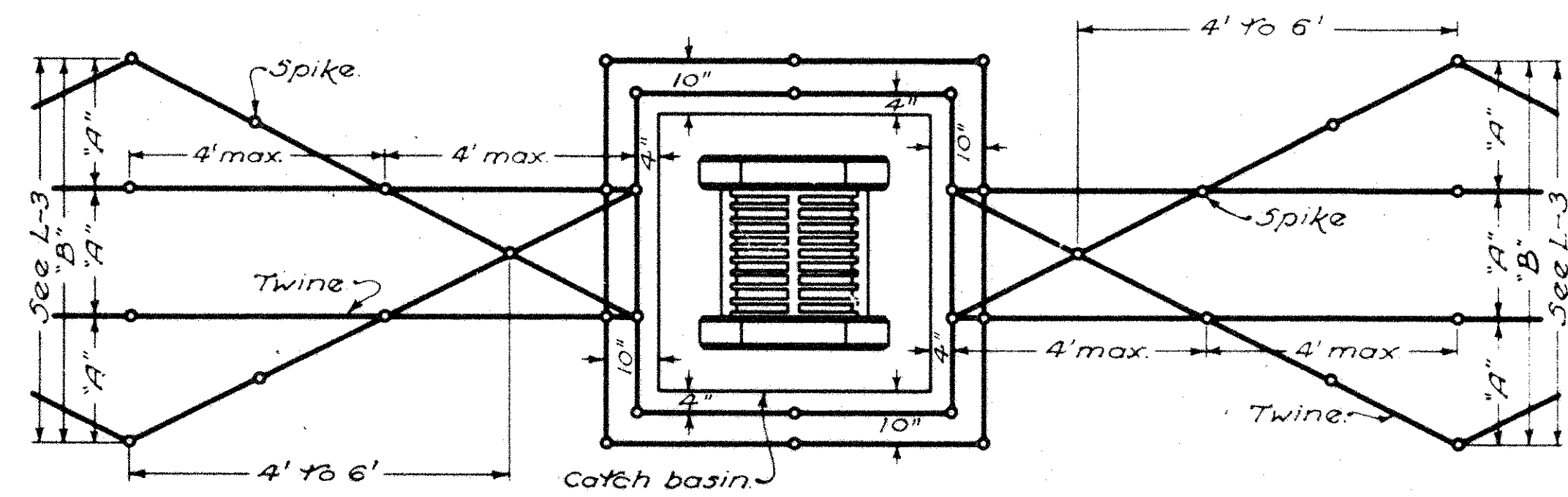
ELMER S. BARRETT ASSOCIATES
CONSULTING ENGINEERS
CHILLICOTHE, OHIO

SCALE: DRAWING NUMBER
027f-UD7-68/
SHEET 1 OF 8

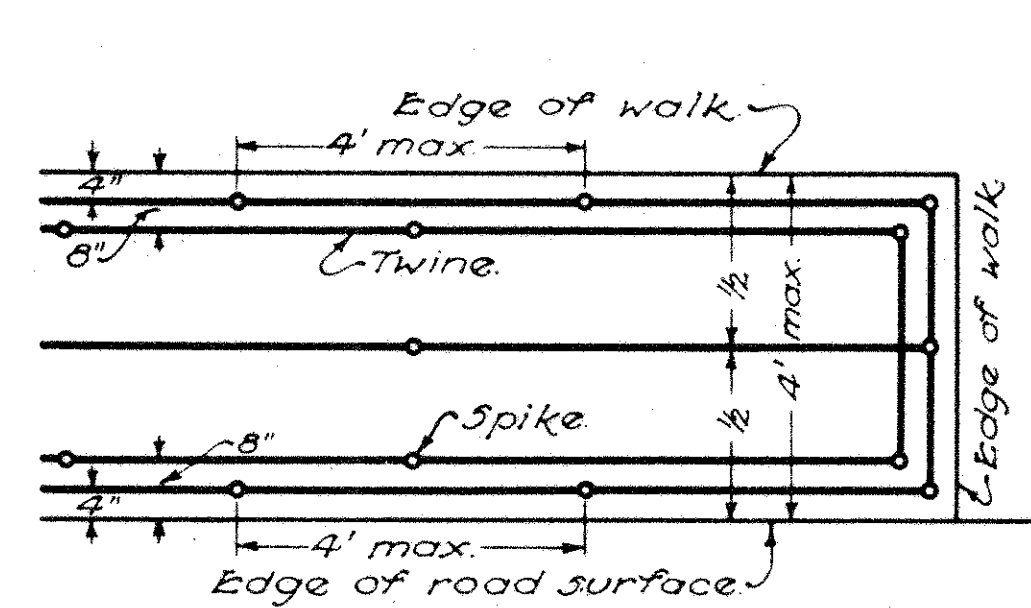
WORK AS CONSTRUCTED

TYING OF MULCHED AREAS

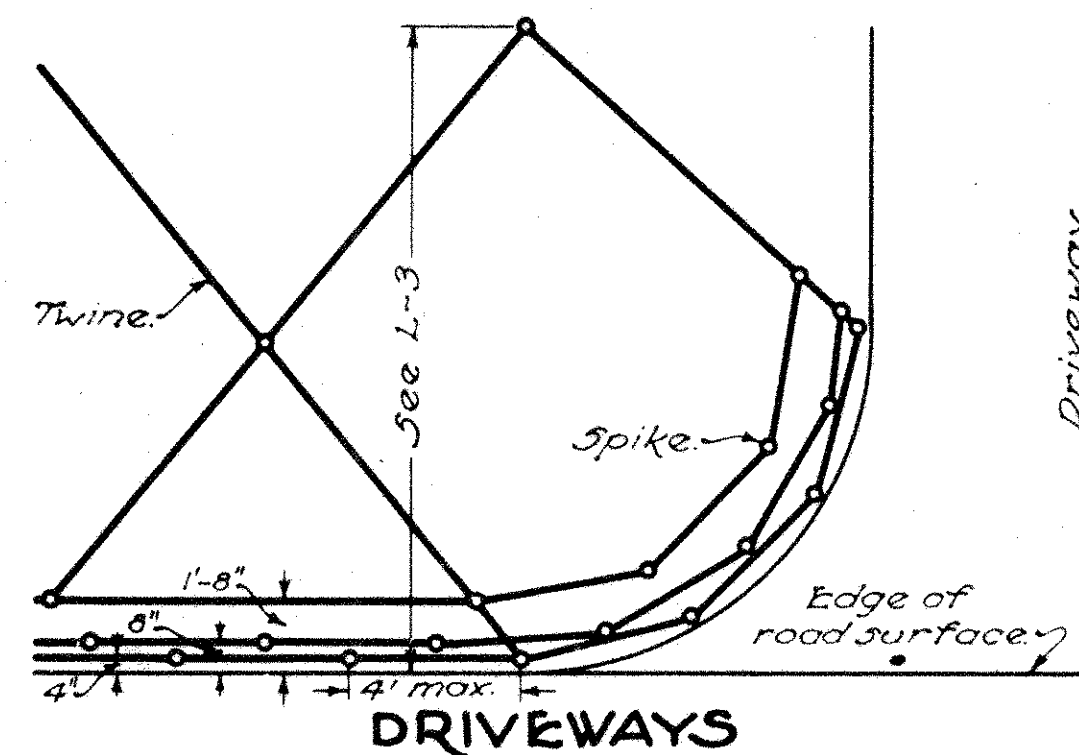
2
8



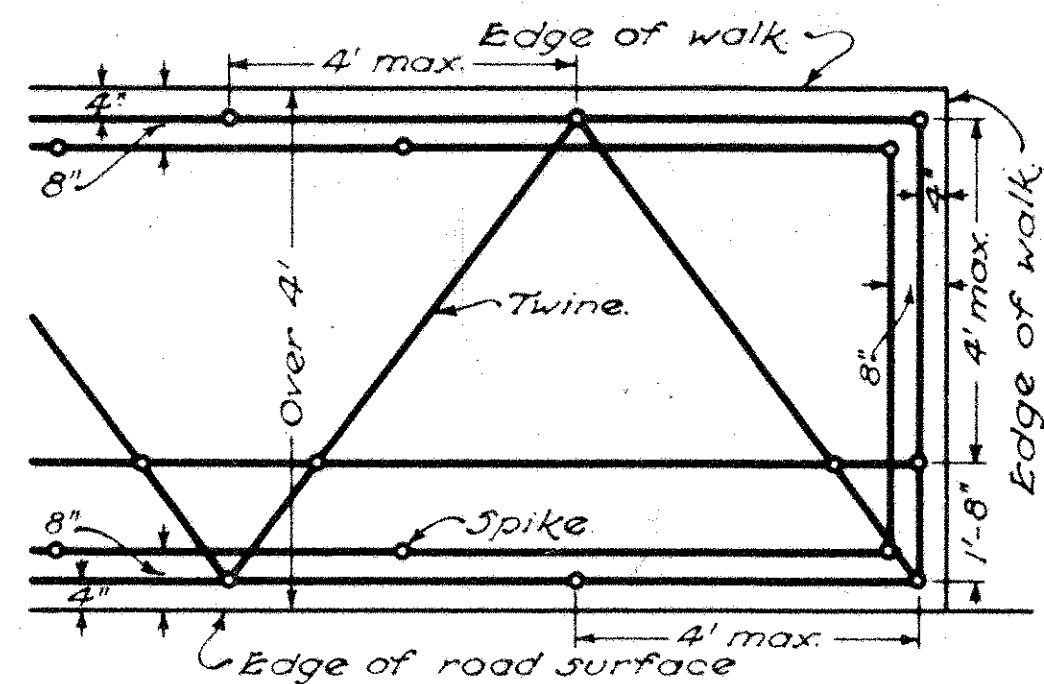
AROUND CATCH BASIN IN SIDE DITCH



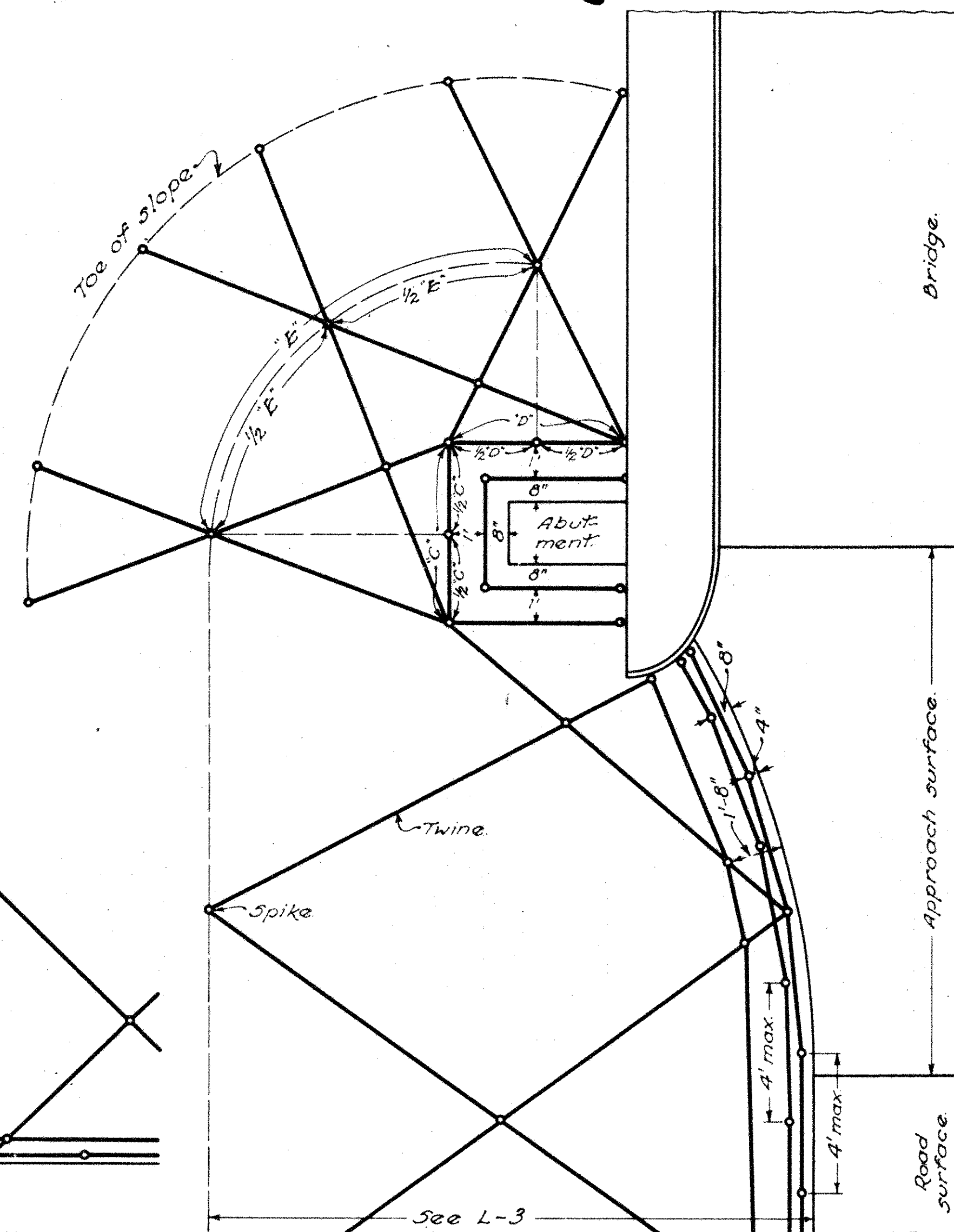
PARKWAY STRIP BETWEEN WALK AND ROAD SURFACE



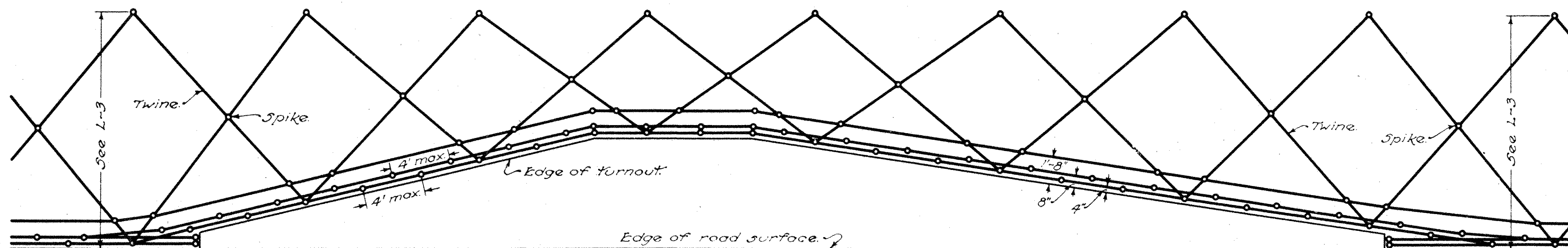
DRIVEWAYS



BEYOND PAVEMENT ABUTTING ROAD SURFACE



AT BRIDGE ABUTMENT



MAILBOX TURNOUTS

NOTES

GENERAL: All methods of tying as illustrated on this sheet are minimum amounts.

Twine and spikes shall be used as directed by the engineer on any other mulched areas not covered by these details, or where there is a need for additional twine and spikes to hold the mulch properly in place. See Section L-9.11 of the General Specifications.

In all cases the twine shall be wrapped once about the spike.

SHOULDERS: The twine cross ties and spikes for holding the mulch material in place on shoulders shall extend from 4" from the road surface edge to beyond the shoulders for a distance of 10' over the break of any fill slopes. On cut shoulder slopes they shall extend from 4" from the road surface edge to the center of the shoulder's rounded edge.

The two lines of twine nearest and parallel to the road surface shall be further held by spikes spaced a maximum of 4' apart.

DITCHES: Cross ties shall be placed in all ditches and shall have sufficient spikes to hold twine approximately at finished grade of the mulch material. In addition to the cross ties, two lines of twine shall be placed in the bottom of the ditch on top of the cross ties and parallel to the direction of flow and with spacing between the two lines of $\frac{1}{3}$ the width of the ditch; width "A" equals $\frac{1}{3}$ of "B". Spikes shall be spaced a maximum of 4' on the parallel lines.

Revised

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

DATE: 4-1-50

ROADSIDE IMPROVEMENT

STANDARD CONSTRUCTION DRAWING L-3-A

APPROVED: *[Signature]* CHIEF ENGINEER

For Information Only

U. S. ARMY ENGINEER DISTRICT, HUNTINGTON
CORPS OF ENGINEERS
HUNTINGTON, W.VA.

DRAWN BY: _____

TRACED BY: _____

CHECKED BY: *[Signature]*

SUBMITTED BY: *[Signature]*

RECOMMENDED: *[Signature]*

APPROVED BY: *[Signature]* DATE: NOV. 1959

ELMER S. BARRETT ASSOCIATES
CONSULTING ENGINEERS
CHILLICOTHE, OHIO

LICKING RIVER
DILLON RESERVOIR PROJECT
RELOCATION OF
OHIO STATE ROUTE NO. 146
(Section 3)

SCALE: _____ SPEC. NO. _____

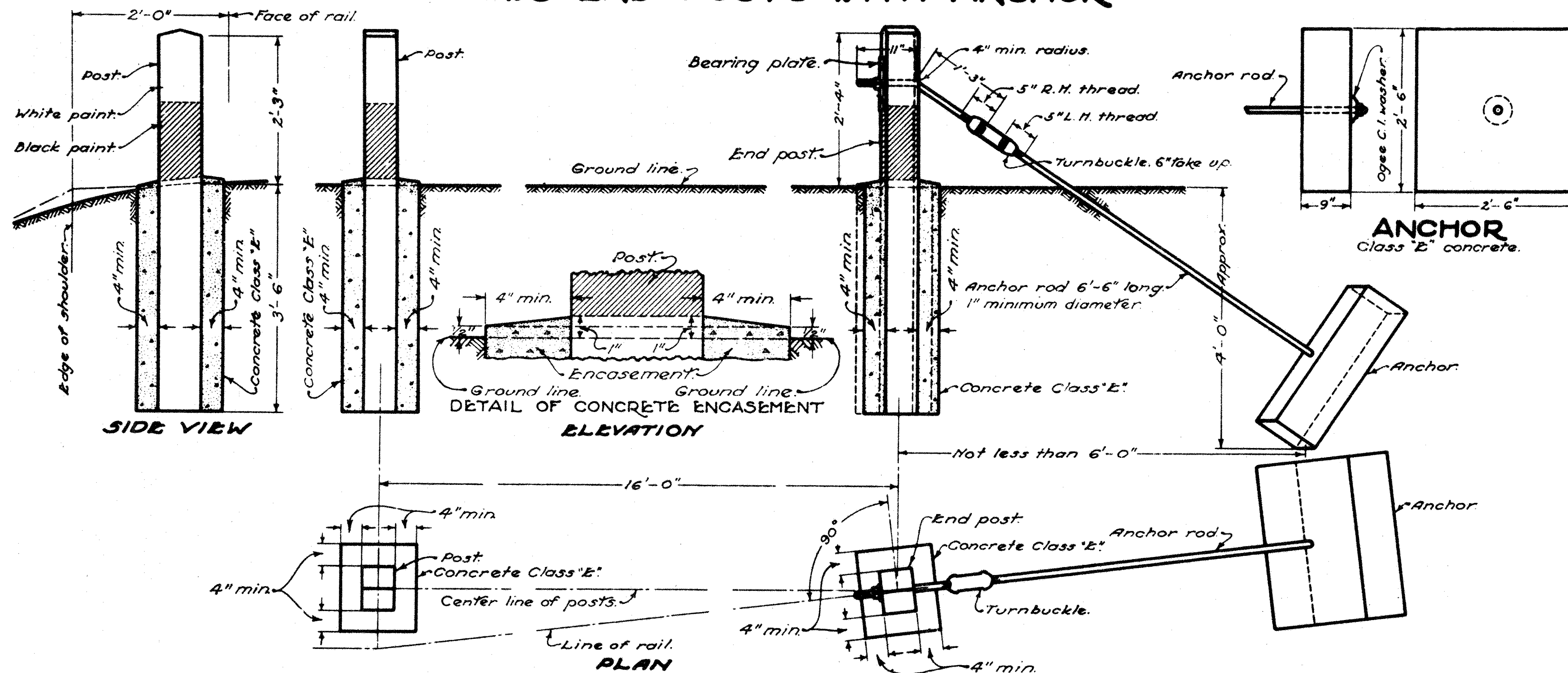
DRAWING NUMBER
027f-UD 7-68/

SHEET 2 OF 3

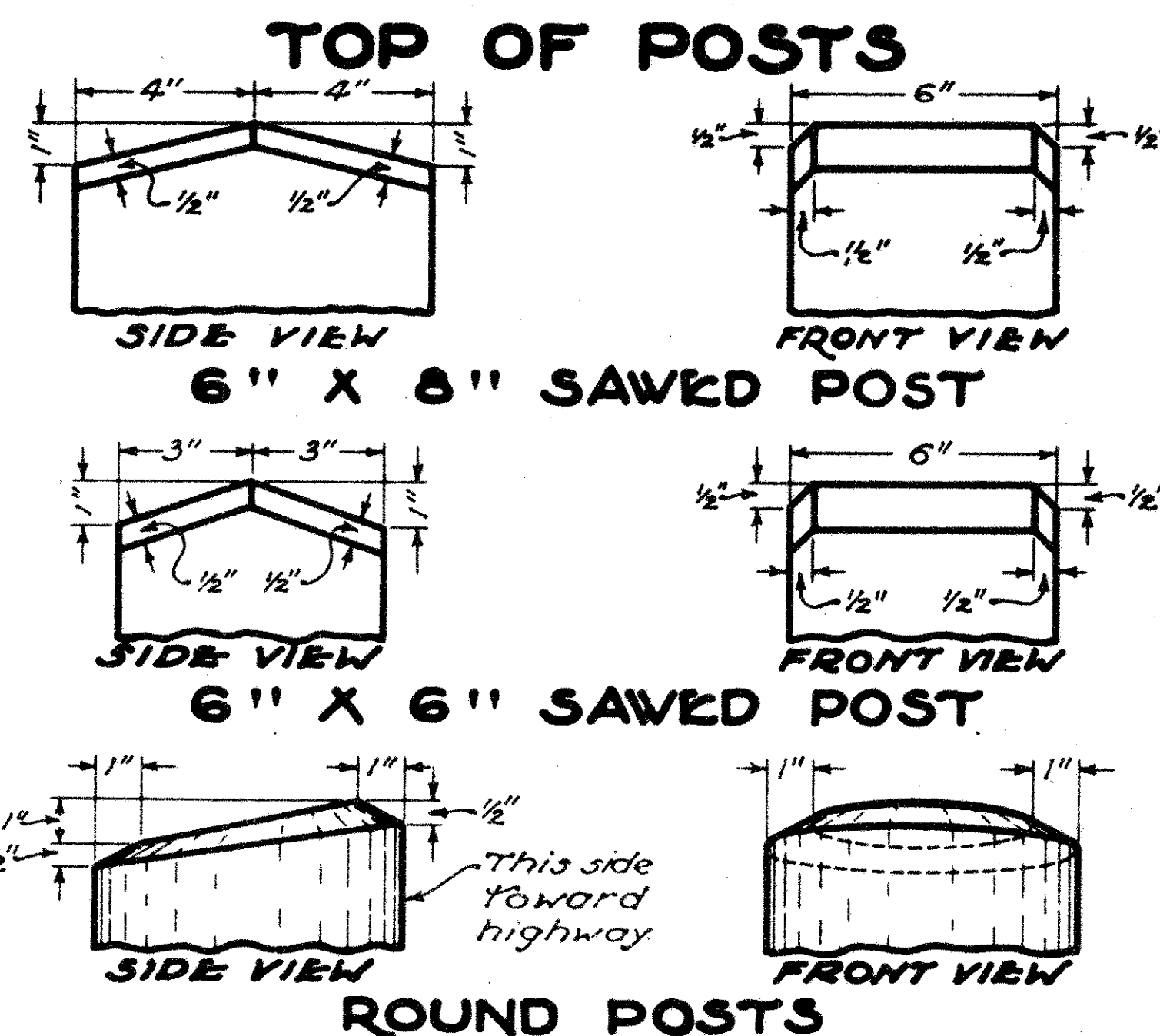
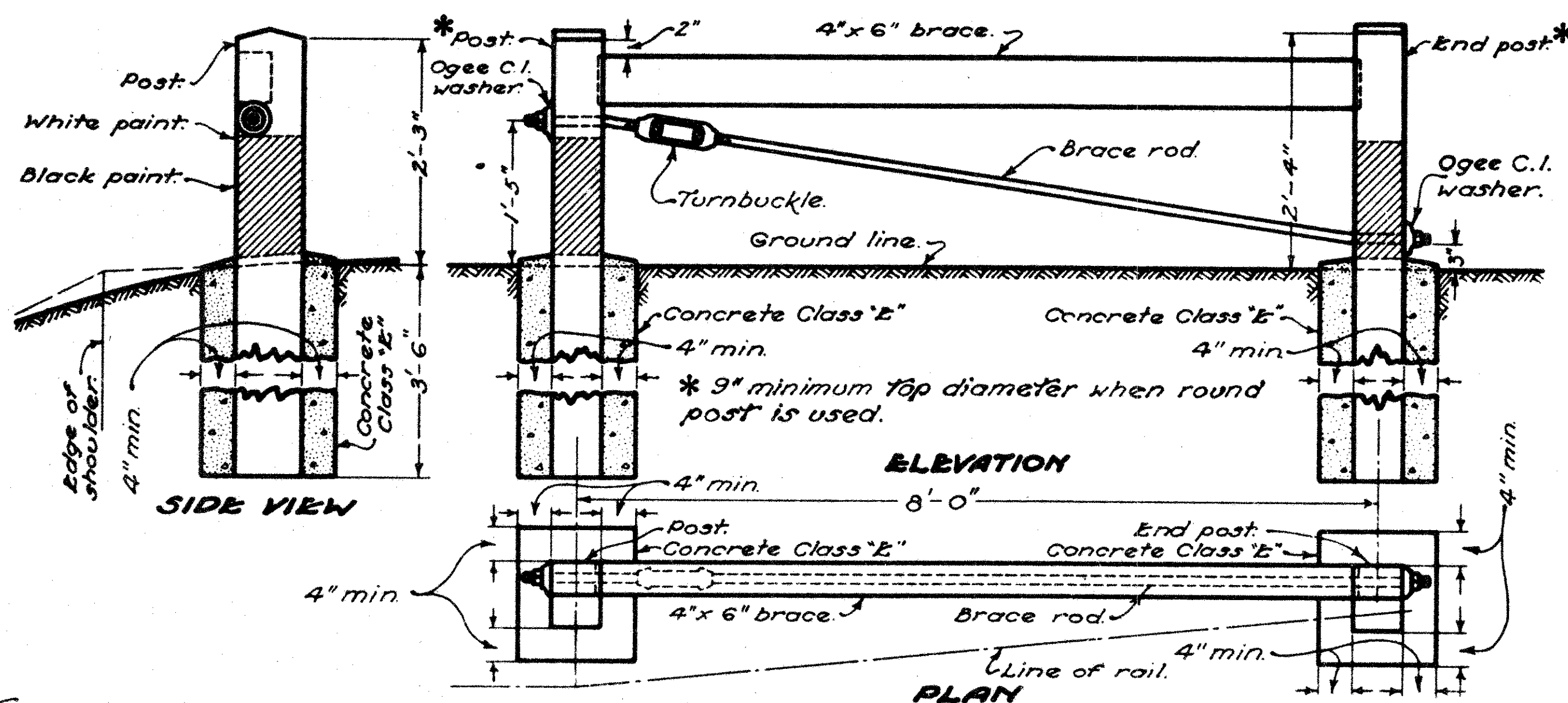
WORK AS CONSTRUCTED

STANDARD GUARD RAIL

TWO END POSTS WITH ANCHOR



TWO END POSTS WITH BRACING



NOTES

GENERAL:—Standard Construction Drawings showing rail types shall be used in conjunction with this drawing.

POSTS:—Wood posts may be either round or square sawed shall be either built treated or pressure treated in accordance with the specifications.

For flexible plate, steel beam, 4 cable and 4 tape types, square sawed posts, when used, shall be full 6"x8" and round wood posts, when used, shall have a minimum top diameter of 7". For 3 cable, 2 or 3 tape and woven wire band types, square sawed posts, when used, may be full 6"x6" and round wood posts, when used, shall have a minimum top diameter of 6".

Bolt holes shall be bored and top of posts trimmed after posts are set.

Posts shall be spaced 16 feet on centers for all types of rail except steel beam, measured along the center line of the rail except where otherwise noted in the specifications for curves. Posts for steel beam type shall be spaced 12'-6" on centers measured along the center line of the rail.

END ANCHORAGE:—Where end anchorage is required deadmen shall be used except where physical features such as bridges, drives, road intersections, etc. make this impractical, in which case the end anchorage shall be of the bracing type with the two end posts spaced 8 feet on centers.

The two posts at each end of each run shall be encased in concrete when end anchorage is used. Top of concrete encasement shall be 1/2" minimum above shoulder and shall have a slope of 1/2" away from the post.

PAINTING:—The portion of the post above the ground shall have two coats of paint in addition to the prime coat. The paint below the lower edge of the rail shall be black and the paint above the lower edge of the rail shall be white.

BUREAU OF LOCATION AND DESIGN OHIO DEPARTMENT OF HIGHWAYS	
GUARD RAIL	
STANDARD CONSTRUCTION DRAWING	I-15 No. 1
APPROVED: W. J. Cremon, ENGR. L. & D.	

MUSKINGUM COUNTY
MUS-146-6.09

For Information Only

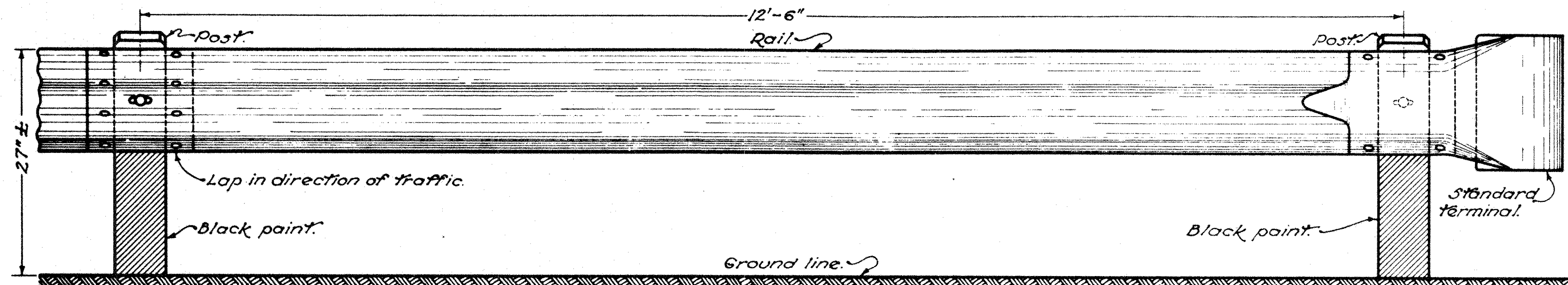
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.	
DRAWN BY:	
TRACED BY:	
CHECKED BY:	
SUBMITTED BY:	
ELMER S. BARRETT ASSOCIATES	
RECOMMENDED:	
APPROVED: Steven Malenich, COL. C.E. DISTRICT ENGINEER	
DATE: NOV. 1959	
SHEET 3 OF 8	

WORK AS CONSTRUCTED

STEEL BEAM DEEP GUARD RAIL

4
8

MUSKINGUM COUNTY
MUS-146-6.09



ELEVATION

NOTES

GENERAL:—The details shown hereon shall apply when steel beam deep guard rail is specified.

Standard design shall be used unless otherwise specified.

Barrier design shall be used when this type is specifically required by the plan or proposal.

When steel beam deep guard rail is used as bridge railing, the 6'-3" spacing between posts shall be used for a distance of 12'-6" beyond each end of the bridge.

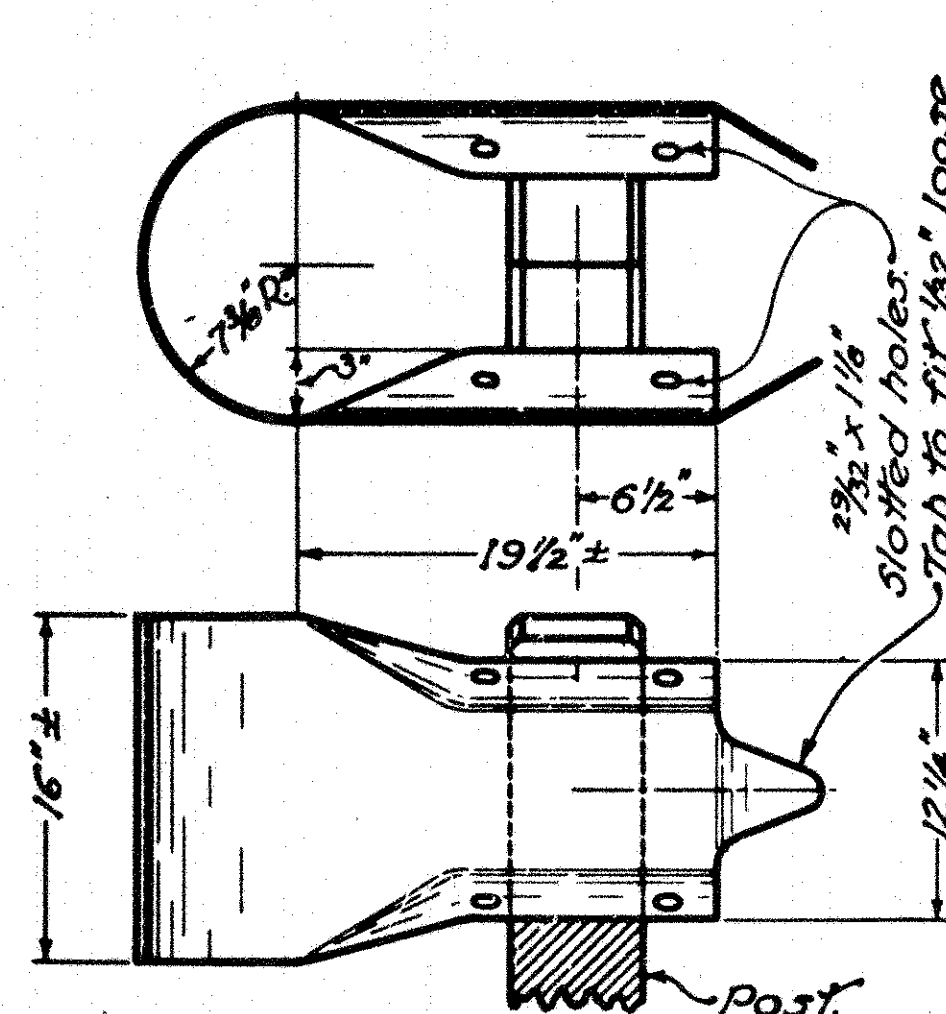
BOLTS:—Bolts for rail splice and for fastening rail to posts to be 5/8" diameter with button head, oval shoulder and hexagon nuts.

POSTS:—Shall be either wood or steel except that the same type of post shall be used throughout the length of a project unless otherwise permitted by the Engineer. For details not shown hereon, see Standard Drawing I-15 No. 1.

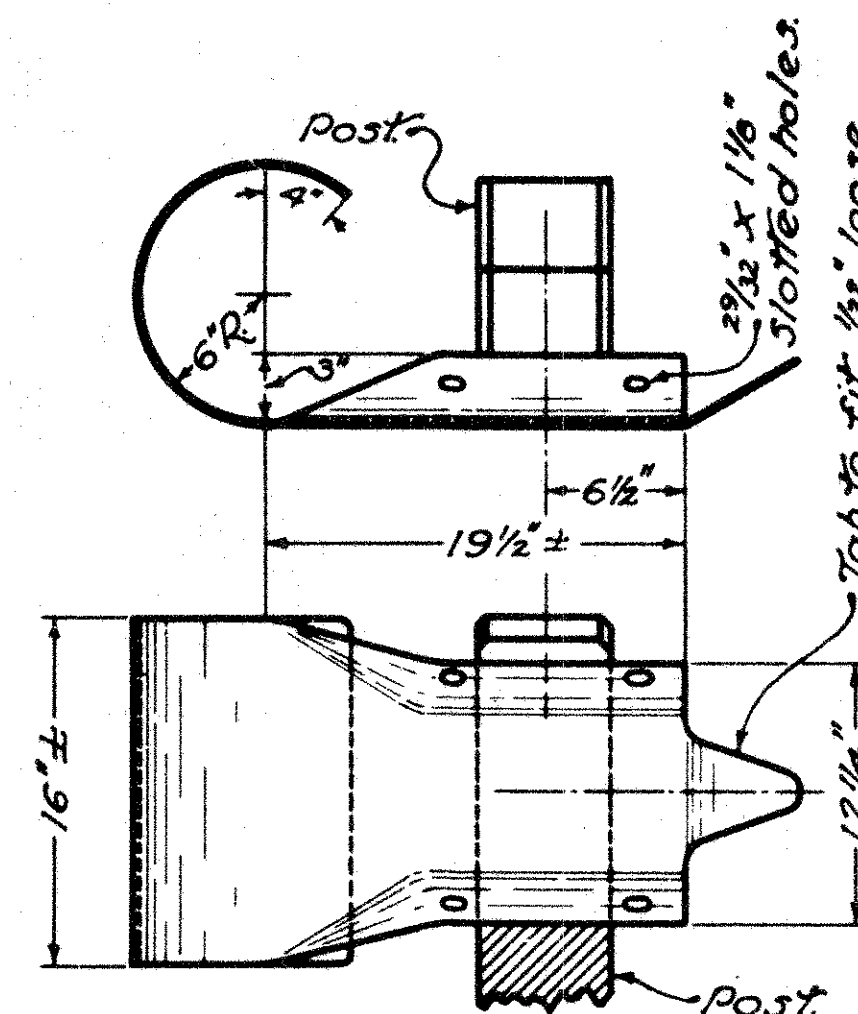
Wood posts may be either round or square sawed, creosote butt treated or pentachlorophenol pressure treated.

Steel posts shall be 6 B x 8 1/2 pounds.

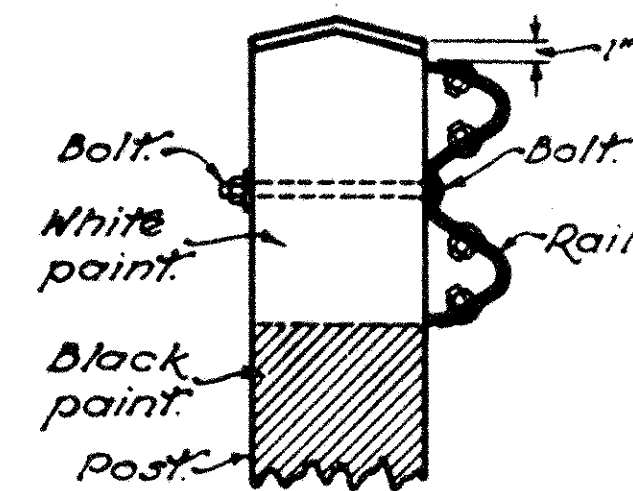
TERMINALS:—Details shown are for use with wood posts. If steel posts are used the curvature of the terminal shall be modified to fit the steel post. Terminals shall be made from 12 gage minimum thickness steel.



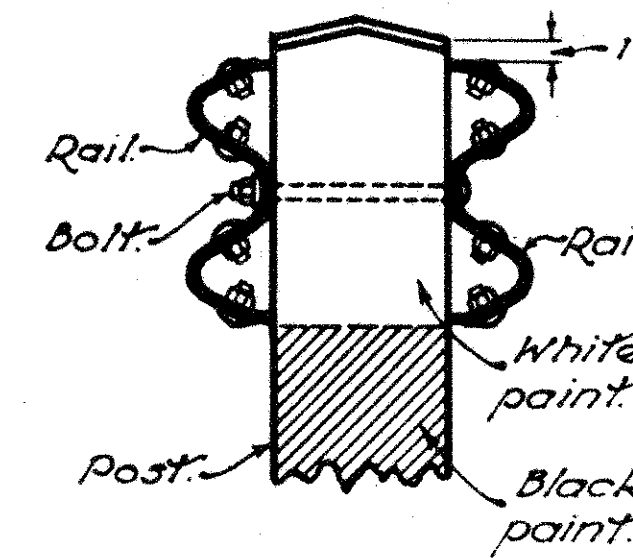
BARRIER TERMINAL



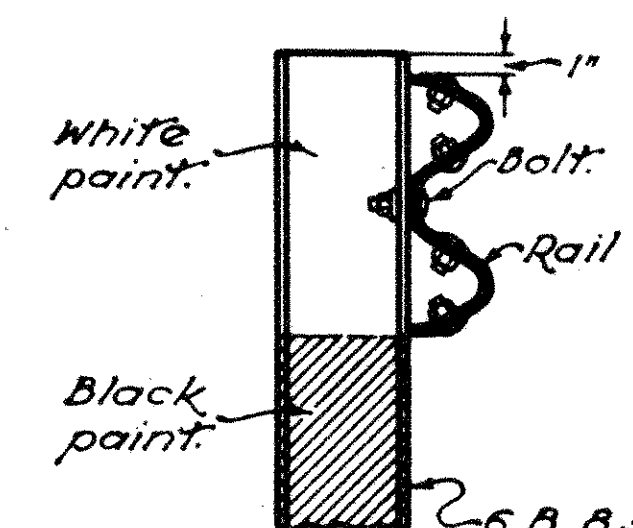
STANDARD TERMINAL



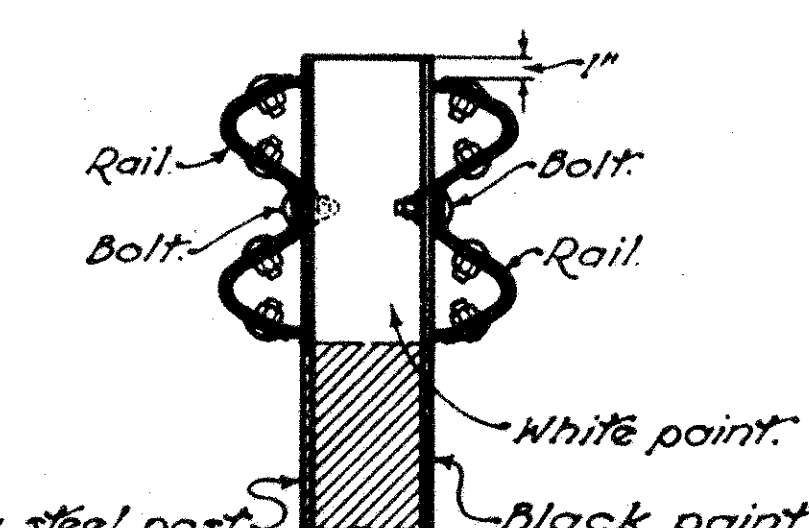
STANDARD DESIGN
USING WOOD POSTS



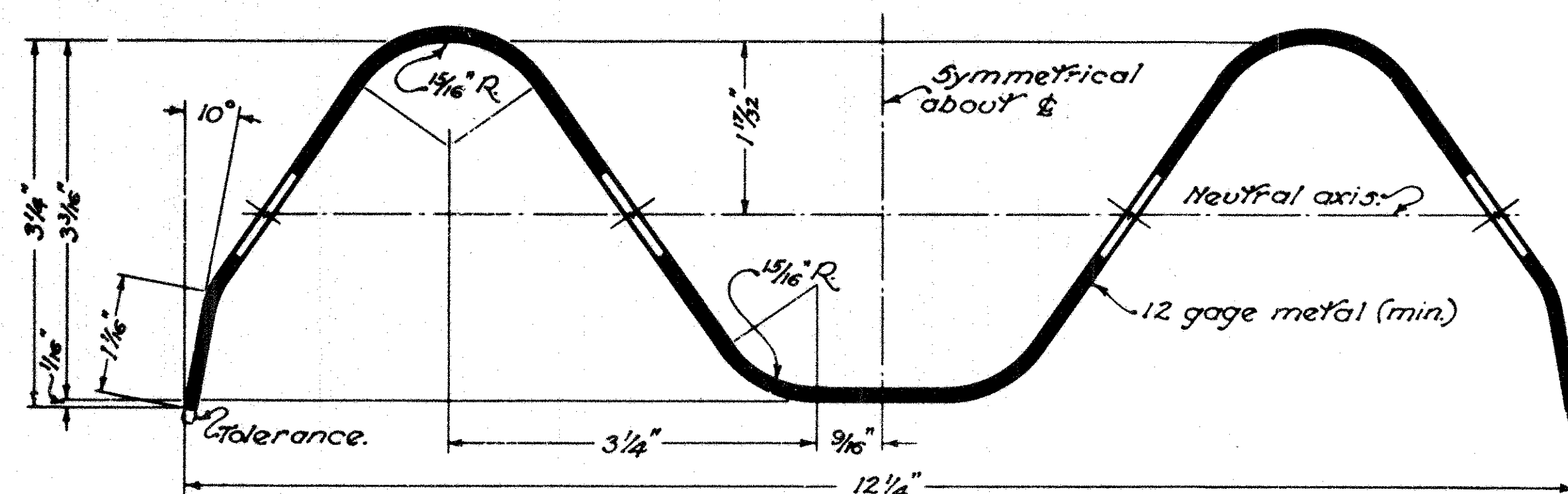
BARRIER DESIGN
USING WOOD POSTS



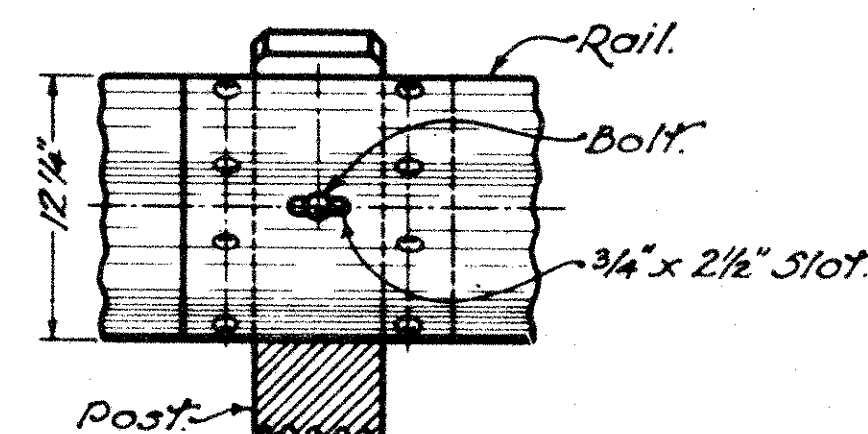
STANDARD DESIGN
USING STEEL POSTS



BARRIER DESIGN
USING STEEL POSTS



SECTION THRU RAIL ELEMENT



RAIL SPLICE

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

GUARD
RAIL

DATE:
7-2-56
6-1-57

STANDARD
CONSTRUCTION
DRAWING

I-15
NO. 2-A

APPROVED: *[Signature]* ENGR. L. & D.

For Information Only

U. S. ARMY ENGINEER DISTRICT, HUNTINGTON
CORPS OF ENGINEERS
HUNTINGTON, W.VA.

DRAWN BY:
TRACED BY:
CHECKED BY:
SUBMITTED BY:
ELMER S. BARRETT ASSOCIATES
RECOMMENDED BY:
CHIEF ENGR. DIV.

LICKING RIVER
DILLON RESERVOIR PROJECT
RELOCATION OF
OHIO STATE ROUTE NO. 146
(Section 3)

APPROVED: *[Signature]* DATE: NOV. 1959
COL. G. E. DISTRICT ENGINEER

ELMER S. BARRETT ASSOCIATES
CONSULTING ENGINEERS
CHILLICOTHE, OHIO

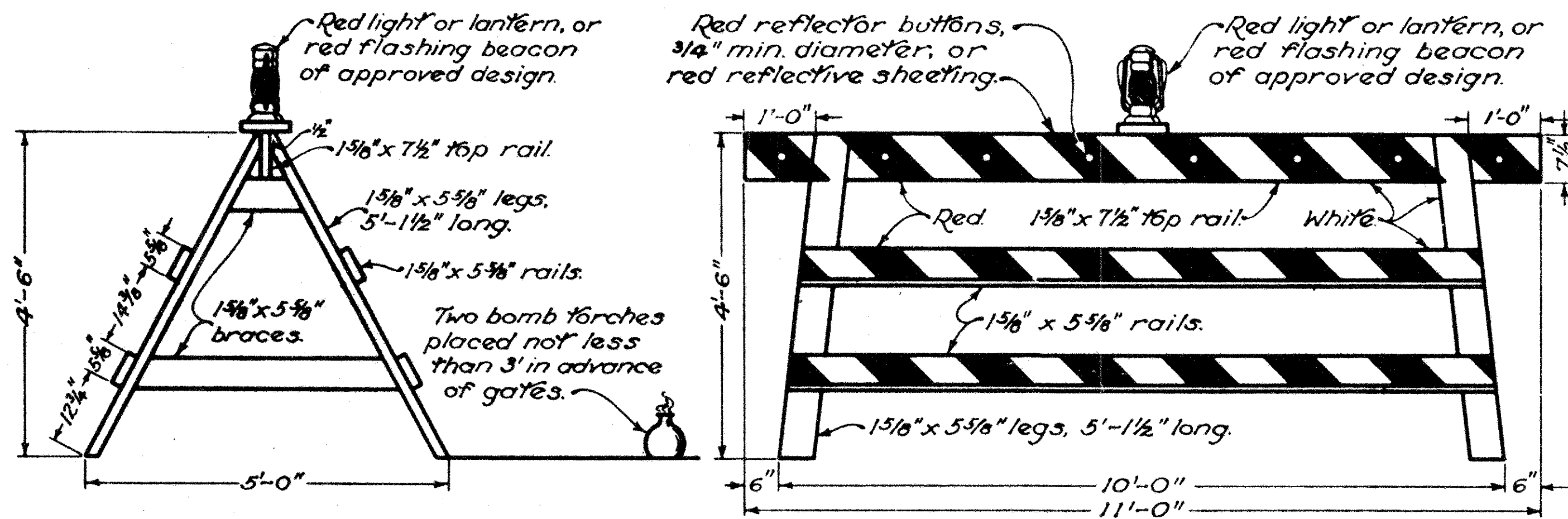
SCALE: SPEC. NO.
DRAWING NUMBER
027f-UD 7-68/
SHEET 4 OF 8

WORK AS CONSTRUCTED

STANDARD BARRICADES AND GATES

5
8

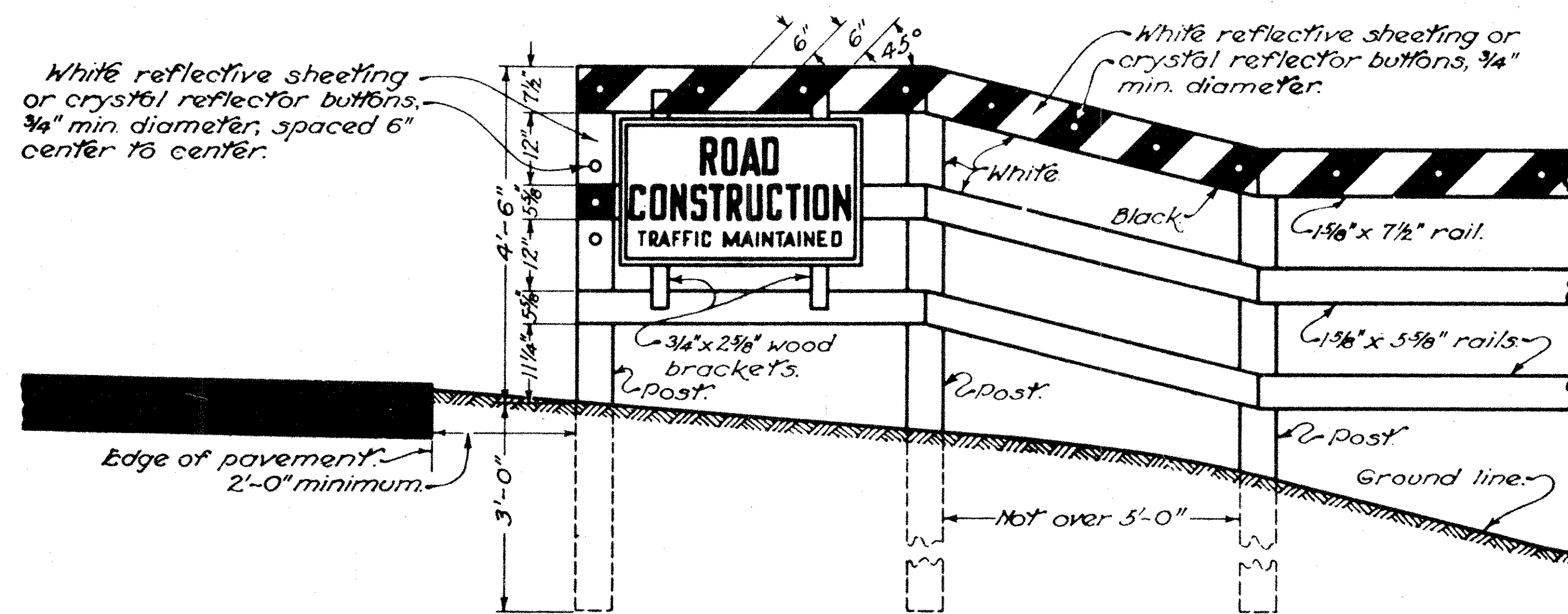
MUSKINGUM COUNTY
MUS- 146- 6.09



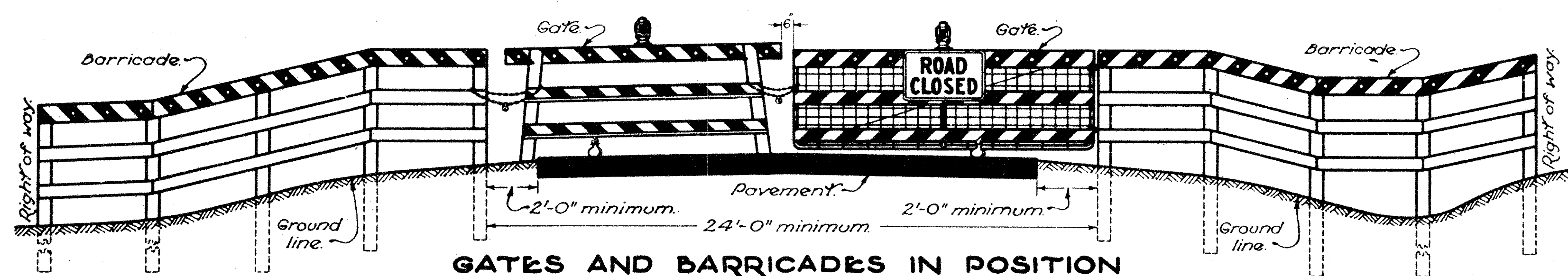
END VIEW

GATE

ELEVATION



BARRICADE



GATES AND BARRICADES IN POSITION

NOTES

LUMBER used in the construction of the gates and barricades shall be No. 1 common yellow pine or No. 1 common Douglas Fir, or other materials approved by the Engineer, surfaced on four sides standard, in accordance with the requirements of the Specifications.

GATES: The movable gate shall be constructed according to the details shown. Alternate 6" stripes shall be applied on all three rails of a 45° angle, and shall be red and white in color. If all three rails are painted with alternating stripes of red and white, red reflector buttons shall be mounted in the red stripes on the top rail. The top rail may be reflectorized with 6" stripes of red reflective sheeting alternated with 6" stripes of white paint (or white reflective sheeting) in lieu of red reflector buttons. One gate shall be erected for each traffic lane. The gates shall be well spiked, using spikes long enough to clinch.

The hinged gate shall be an approved farm type having 12' length, 48" height, with steel frame or a type approved by the Engineer. The gate shall be hung on hinge screw hooks or as otherwise approved. Striping similar to that used on the movable gate shall be accomplished with lumber 1" nominal thickness or with metal strips fastened to the gate. The gate shall be supported at the center in an approved manner.

BARRICADES shall be constructed according to the details shown. The top rail shall be painted on both sides with alternate 6" black and white stripes on a 45° sloping toward the roadway. The two lower rails and posts shall be painted white on both sides.

The barricade shall have an opening of a minimum width of 24 feet. For pavement widths greater than 20 feet, the minimum widths of the barricade openings shall be the pavement width plus 4 feet. The barricade shall remain in place following the re-opening of the road if berm or other work is not completed.

POSTS shall be 6"x6" sawed or 8" round posts and shall conform to the Specifications for Guard Rail Posts.

RAILS of the barricade shall be bolted to the posts with 3/8" bolts.

CHAINS: Gates shall be chained and padlocked to one another and to adjacent posts of the barricades. Chains shall be of 3/8" stock with welded links.

BARRICADE REFLECTORS: The top rail of the barricades shall be reflectorized with reflective sheeting or with crystal reflector buttons of 3/4" minimum diameter placed in the black stripes. When traffic is maintained, the top rail of the barricades shall be reflectorized on both sides, and reflectorized sheeting or three crystal reflector buttons of 3/4" minimum diameter shall be mounted as shown on each side of the two posts adjacent to the traveled roadway.

SIGNS: Upon the erection of the gates and barricades according to the above standards, the Construction Contractor shall furnish ROAD CLOSED sign, size 40"x 24", which shall be mounted on the gate as shown. When three gates are used for closing 3-lane roads, the sign shall be mounted on the middle gate facing traffic approaching the closed section.

Where traffic is maintained a ROAD CONSTRUCTION TRAFFIC MAINTAINED sign, size 40"x 24", will be furnished for mounting on the barricade at the right-hand side of the roadway adjacent to the pavement, facing traffic approaching the construction section. An END OF CONSTRUCTION sign, size 40"x 24", shall be mounted on the back of the barricade at the right-hand side of the road facing traffic leaving the construction section.

MODIFIED DESIGN: The barricade shown hereon is primarily for use in rural areas. In urban areas and at locations where it is impracticable to extend the barricade to the right of way line because of a sidewalk or other obstruction, the ends of the barricade shall be located as directed by the Engineer to effect the desired closing of the highway.

BUREAU OF LOCATION AND DESIGN OHIO DEPARTMENT OF HIGHWAYS	
BARRICADES AND GATES	
STANDARD CONSTRUCTION DRAWING G-7.07	
APPROVED: <i>[Signature]</i> ENGR. L. & D.	

For Information Only

U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.	
DRAWN BY:	
TRACED BY:	
CHECKED BY: <i>[Signature]</i>	
SUBMITTED BY: <i>[Signature]</i>	
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO	
APPROVED: <i>[Signature]</i> DATE: NOV. 1959	
COL. C. E. DISTRICT ENGINEER	
SCALE:	SPEC. NO.
DRAWING NUMBER 027f-UD 7-68/	
SHEET 5 OF 8	

WORK AS CONSTRUCTED

CONSTRUCTION METHODS

6
6

MUSKINGUM COUNTY
MUS- 146- 6.09

NOTES

BARRELLING OUT CONCRETE WALL: When necessary that the pipe be barreled out to the required length, it shall be done according to the details shown hereon.

GRADE STAKES shall be set at the following intervals: For grades less than 0.70% - 25 feet. For grades of 0.70% and over - 50 feet.

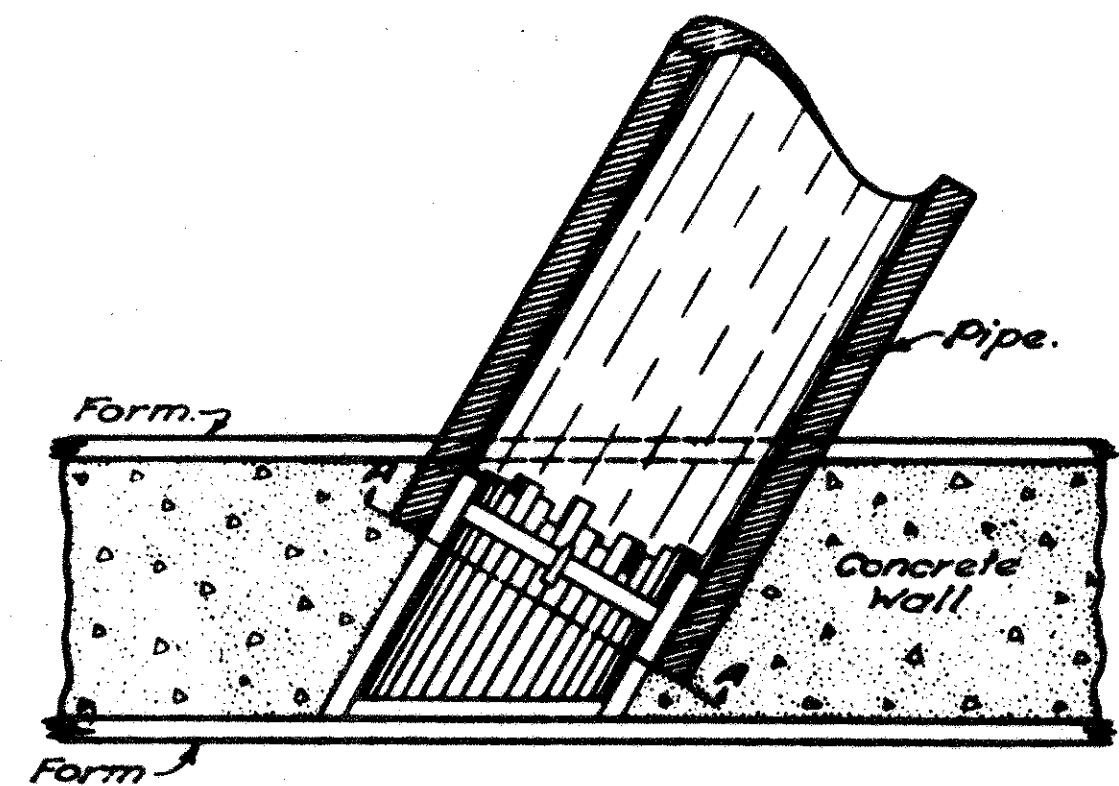
GRADE POLE shall be a straight pole dressed with corners rounded, size depending on the length but approximately 1" x 2". The pole shall be equipped with a metal bracket on the bottom with a projecting length of 12". Notches shall be cut on the pole for the depth of the flow line below the grade string and for the depth of trench. A spirit level shall be used on the pole to determine when the pole is vertical.

POSSUM or swab is for wiping out any excess mortar from the inside of the pipe and shall be made and used as follows: The stem is 1" x 1" x 6'-0" and made of strong wood. The burlap sack shall be filled around the stem in such a manner so that the stem will remain practically central when the swab is in the pipe and the stem is unsupported. The swab, when pulled ahead, shall drag the entire circumference of the pipe so that any mortar which has entered at the joints will be dragged ahead. The length of the stem shall be such that the swab will not pass a joint where the backfill has not been tamped. After every tenth pipe layed, the swab shall be removed and cleaned.

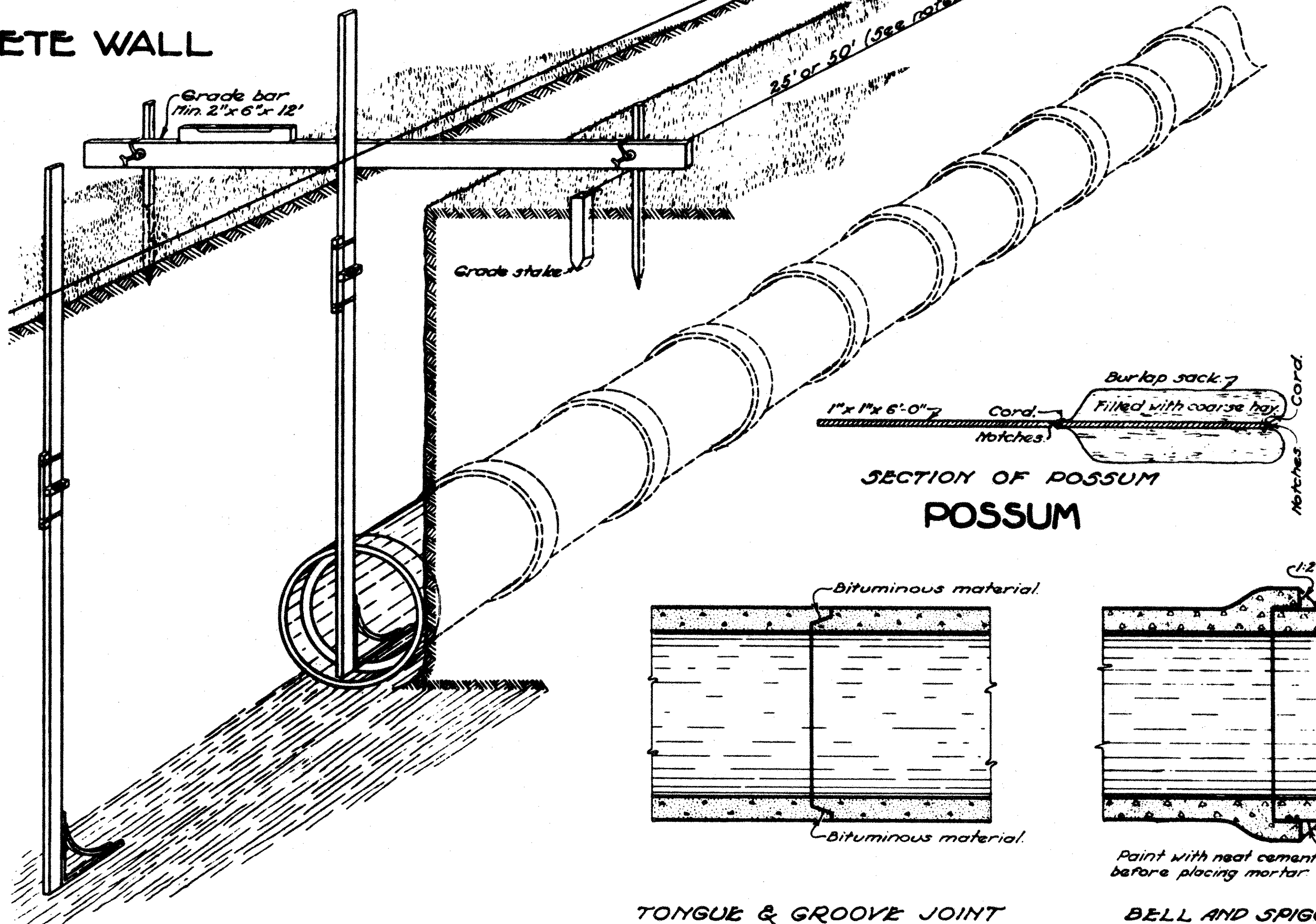
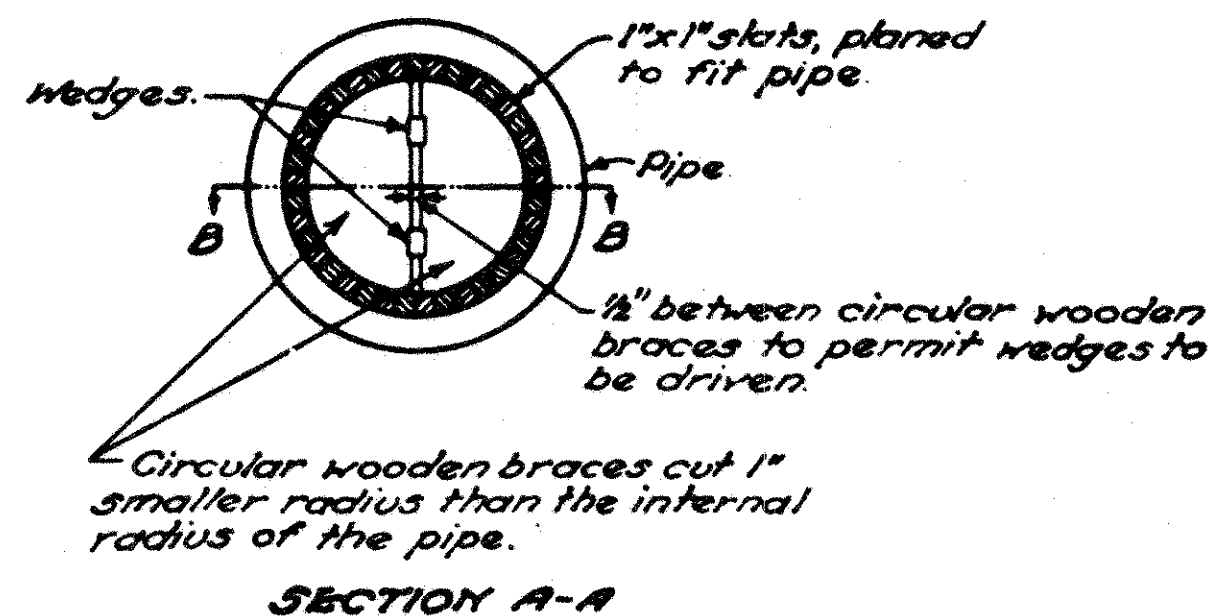
PIPE JOINTS: When the construction item calls for sealed joints, they shall conform to the appropriate details shown for pipe joints.

ALTERNATE METHOD OF INSTALLATION: Where tongue and groove pipe, 36" diameter or over is used, the slanting portion of the tongue shall be given one or more coats of Sec. 11-5.6 F-1 bituminous material before placing. After the pipe has been placed in true alignment and blocked, any opening remaining between the inner surface of the pipe and the slanting portion of the tongue may be filled with stiff cement mortar consisting of one part of cement to two parts of clean sand.

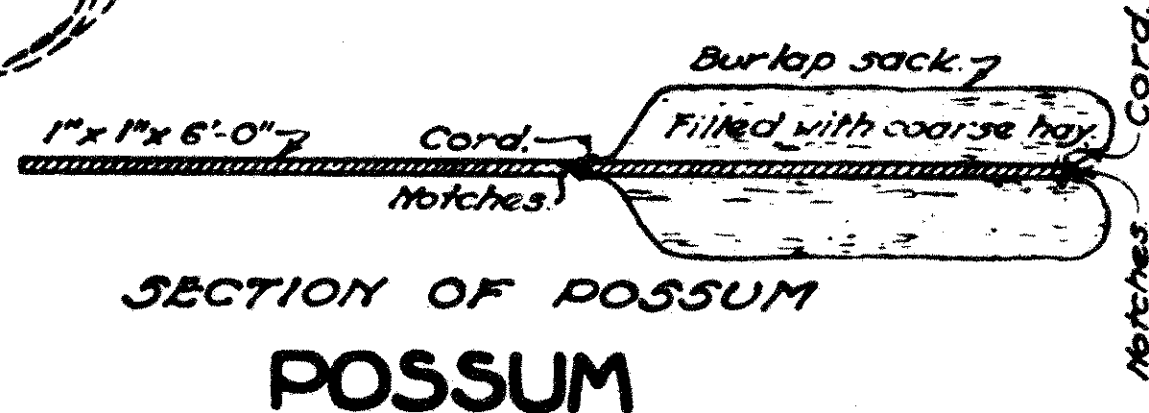
The remaining openings in the joint shall be filled with additional bituminous material by brushing or by pouring.



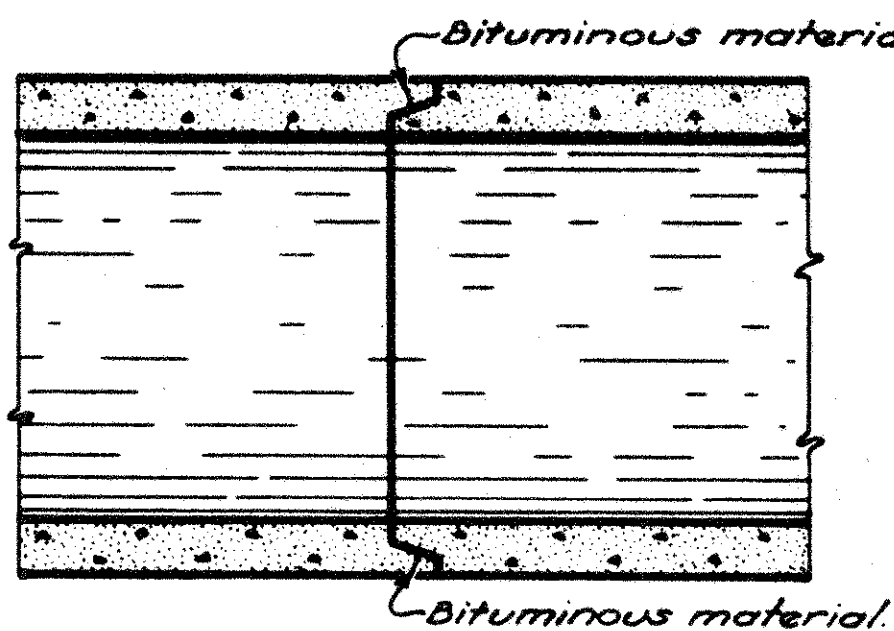
SECTION B-B
Through wall and pipe
BARRELLING CONCRETE WALL



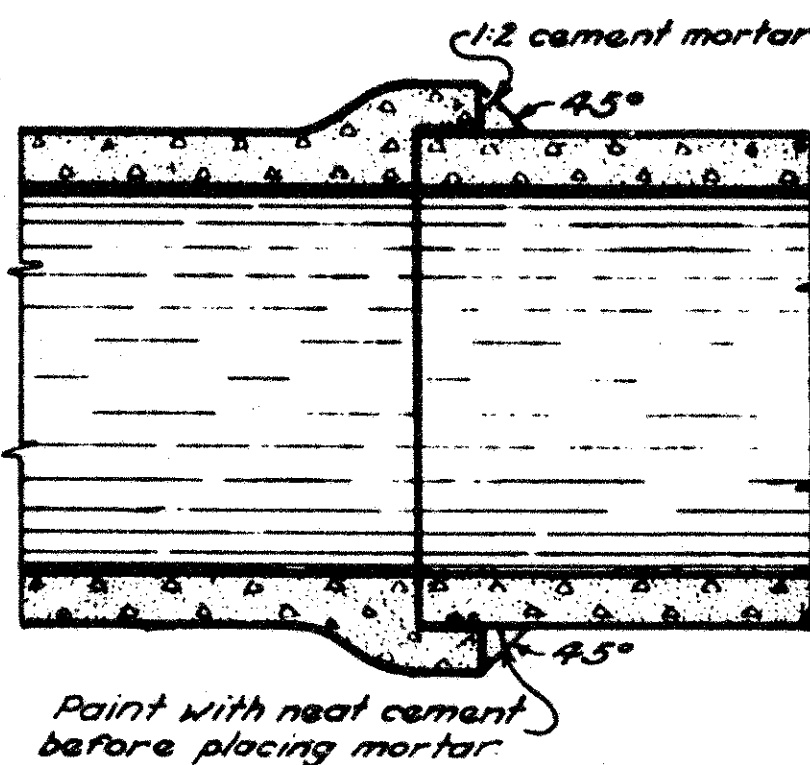
LAYING PIPE



SECTION OF POSSUM
POSSUM



TONGUE & GROOVE JOINT



BELL AND SPIGOT JOINT

PIPE JOINTS

BUREAU OF LOCATION & RIGHT OF WAY
OHIO DEPARTMENT OF HIGHWAYS

PIPE CULVERTS

STANDARD
CONSTRUCTION **S-27 P.C. 3**
DRAWING
APPROVED **M.D.S. CHIEF ENGINEER**

DATE:
9 - 1933
5 - 1934
6 - 17-35
1 - 1-36
3 - 1-39
1 - 1-48
2-20-48

For Information Only

U. S. ARMY ENGINEER DISTRICT, HUNTINGTON
CORPS OF ENGINEERS
HUNTINGTON, W.VA.

DRAWN BY:
TRACED BY:
CHECKED BY: *gdy*
SUBMITTED BY: *Elmer S. Barrett*
RECOMMENDED: *Elmer S. Barrett*
CHIEF ENGINEER

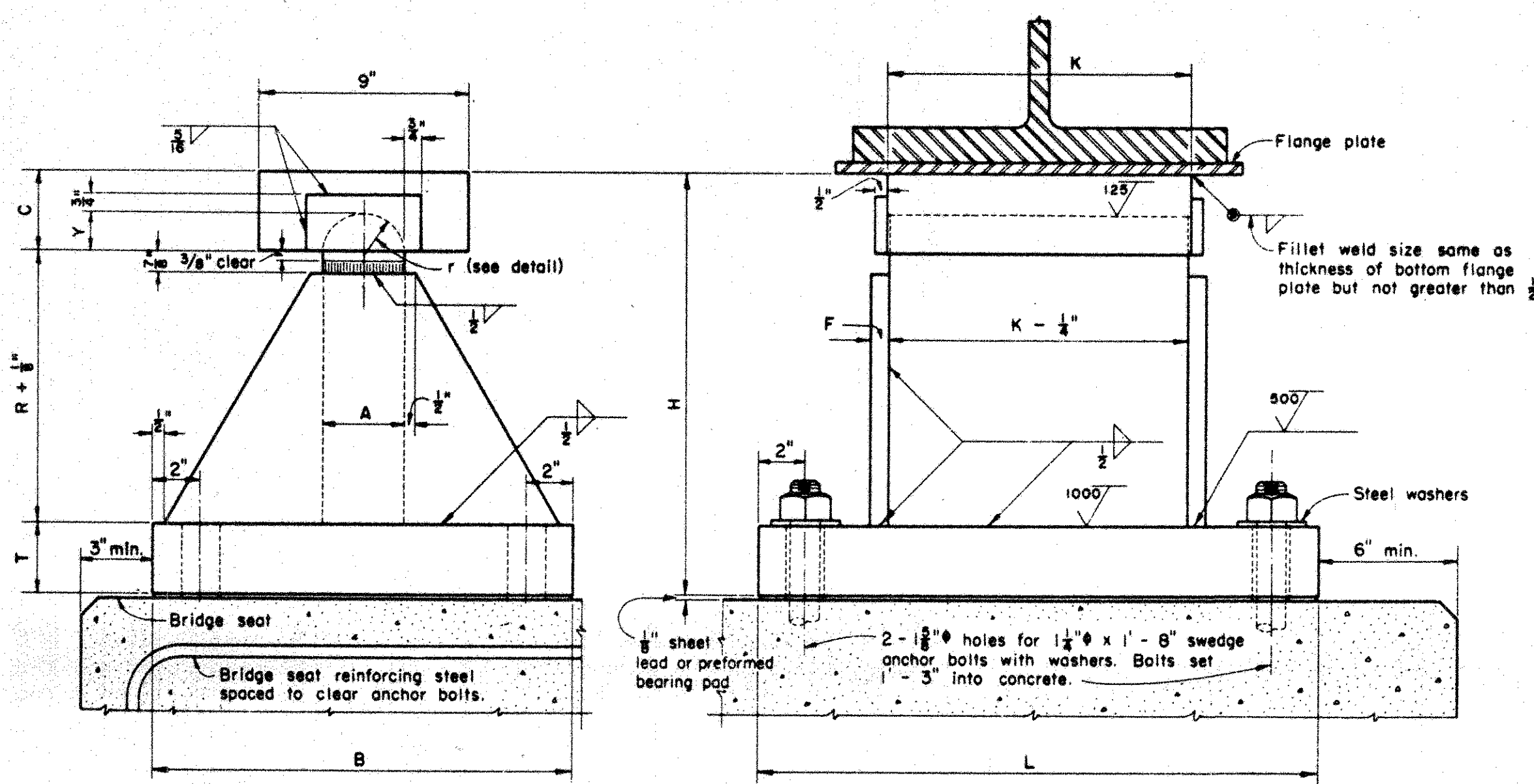
LYCKING RIVER
DILLON RESERVOIR PROJECT
RELOCATION OF
OHIO STATE ROUTE NO. 146
(Section 3)

APPROVED: *Steven Malovich* DATE: NOV. 1959
COL. C.E. DISTRICT ENGINEER

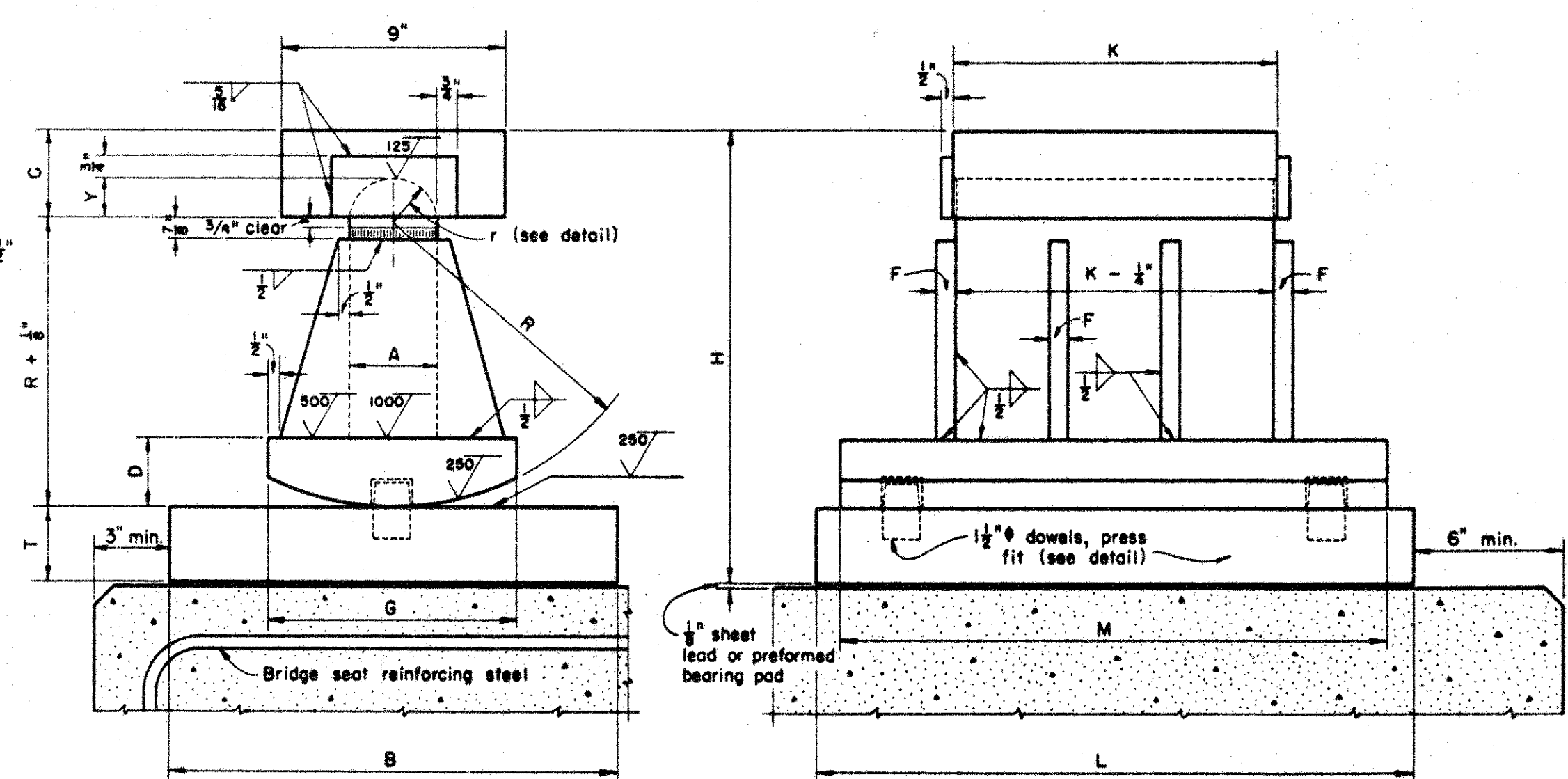
ELMER S. BARRETT ASSOCIATES
CONSULTING ENGINEERS
CHILLICOTHE, OHIO

SCALE: SPEC. NO.
DRAWING NUMBER
027f-UD 7-68/
SHEET 6 OF 8

WORK AS CONSTRUCTED



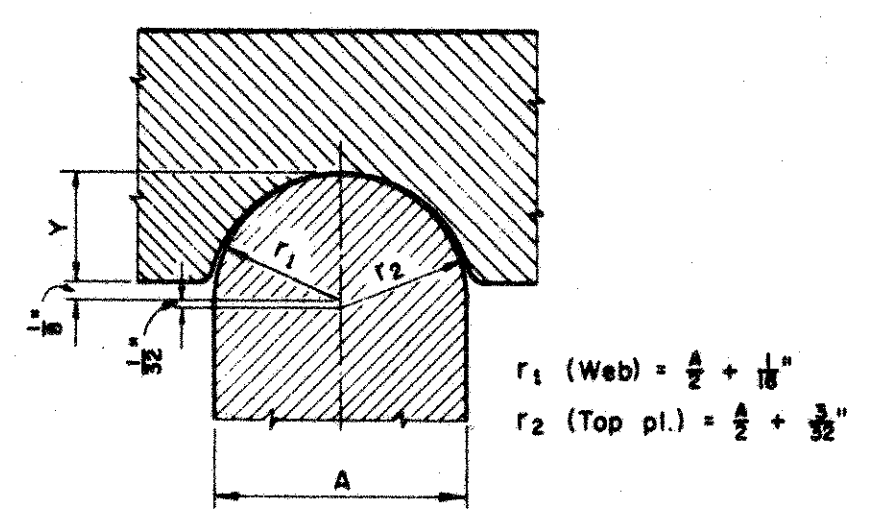
STRUCTURAL STEEL BOLSTER
See table below for additional dimensions.



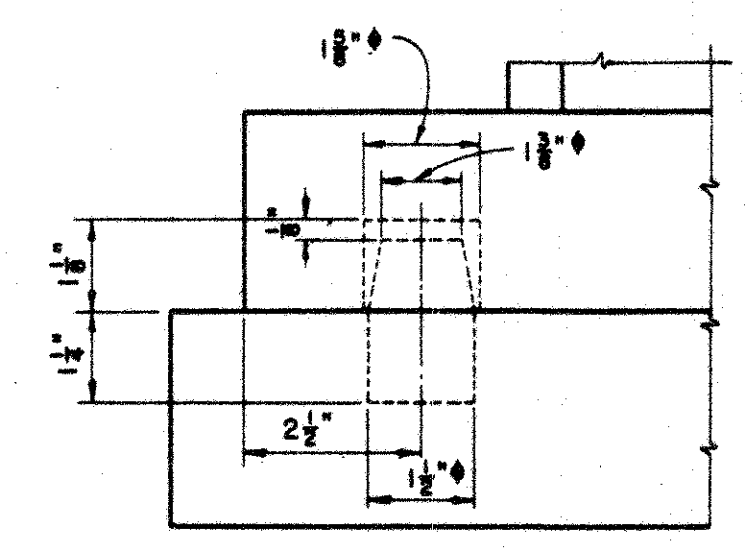
STRUCTURAL STEEL ROCKER
See table below for additional dimensions.

Bolster No.	Rocker No.	Dimensions (inches)													Weight each (lb.)		Maximum Load (lb.)
		A	B	C	D	F	G	H	K	L	M	R	T	Y	Bolster	Rocker	
	R-75	2 1/2	8	2 1/2	1 3/4	1/2	7	9 3/8	9	18	16	5 1/2	1 1/2	1 3/8		205	75,000
B-100	R-100	2 1/2	10	2 1/2	2	1/2	7 1/2	10 3/8	9	19	17	6 1/2	1 1/2	1 3/8	225	250	100,000
B-125	R-125	3	11	3	2	1/2	8	12 1/8	10 1/2	20	18	7 1/2	1 1/2	1 7/8	295	315	125,000
B-150	R-150	3	12	3	2 1/2	1/2	8 1/2	13 3/8	11 1/2	22	19	8 1/2	1 3/4	1 7/8	360	400	150,000
B-175	R-175	3	14	3 1/2	2 1/2	1/2	9	15 1/8	12	23	20	9 1/2	2	1 7/8	455	505	175,000
B-200	R-200	3	16	3 1/2	2 3/4	3/8	9	16 3/8	12	24	21	10 1/2	2 1/4	1 7/8	540	605	200,000
B-225	R-225	3	17	3 1/2	2 3/4	3/8	9	16 3/4	13	25	22	11	2 1/4	1 7/8	590	665	225,000
B-250	R-250	3 1/2	18	3 1/2	2 3/4	3/4	10	17 3/8	13	26	23	11 1/2	2 1/2	1 11/16	695	775	250,000
B-275	R-275	3 1/2	19	3 1/2	3 1/4	3/4	12	18 3/8	14	27	24	12	2 3/4	1 11/16	800	945	275,000
B-300	R-300	3 1/2	20	3 1/2	3 1/4	3/4	12	19 1/8	14	28	25	12 1/2	3	1 11/16	895	1050	300,000

Weights given are for one rocker or bolster complete (including sheet lead, anchor bolts and washers).



TOP BEARING DETAIL



DOWEL DETAIL

DESIGN SPECIFICATIONS: This standard drawing conforms to the requirements of "Design Specifications for Highway Structures" of the State of Ohio, Department of Highways, dated October 1, 1951, together with revisions thereof dated July 15, 1952, April 1, 1954 and February 1, 1955.

LIMITATION: This rocker and bolster design shall not be used where the anticipated movement is in excess of 2 inches.

REVISIONS 2-2-59	STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES	
	STANDARD ROCKERS AND BOLSTERS FOR STEEL BEAM AND GIRDER BRIDGES REACTIONS 75,000 lb. TO 300,000 lb.	
	APPROVED: DATE: 3-1-59 ELMER S. BARRETT ASSOCIATES	DRAWING NUMBER RB-1-55
	PREPARED: MPB CFB JCH WBR TRACED: JVP CHECKED: CEM SPH REVIEWED: CBO SPS CHA AJP DMG	

For Reference Only

3/27/62	AS CONSTRUCTED	H. F. K.
REVISION	DATE	DESCRIPTION
		BY
U. S. ARMY ENGINEER DISTRICT, HUNTINGTON CORPS OF ENGINEERS HUNTINGTON, W. VA.		
DRAWN BY:		
TRACED BY:		
CHECKED BY:		
SUBMITTED BY:		
RECOMMENDED BY:		
APPROVED: Steven Malerich COL. C. E. DISTRICT ENGINEER		
DATE: NOV. 1959		
ELMER S. BARRETT ASSOCIATES CONSULTING ENGINEERS CHILLICOTHE, OHIO		
SCALE:	SPEC. NO.	
	DRAWING NUMBER	
	027f-UD7-68/	
SHEET 7 OF 8		