

STATE OF OHIO  
DEPARTMENT OF HIGHWAYS

COL-172-12.03

HANOVER TOWNSHIP  
COLUMBIANA COUNTY

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	5-928(5)	

1  
14

COL-172-12.03

S-928(5)

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CONVENTIONAL SIGNS

State Line	-----
County Line	-----
Township Line	-----
Section Line	-----
Center Line	-----
Corporation Line	-----
Fence Line	-x-x-x-x-
Guard Rail (existing)	-o-o-o-o-
Guard Rail (proposed)	-o-o-o-o-
Railroad Line	-----
Poles	-----
Trees and Stumps	-----
Drain Pipe	-----
Property Line	-----
Right of Way Line	-----
Existing Right of Way Line	-----

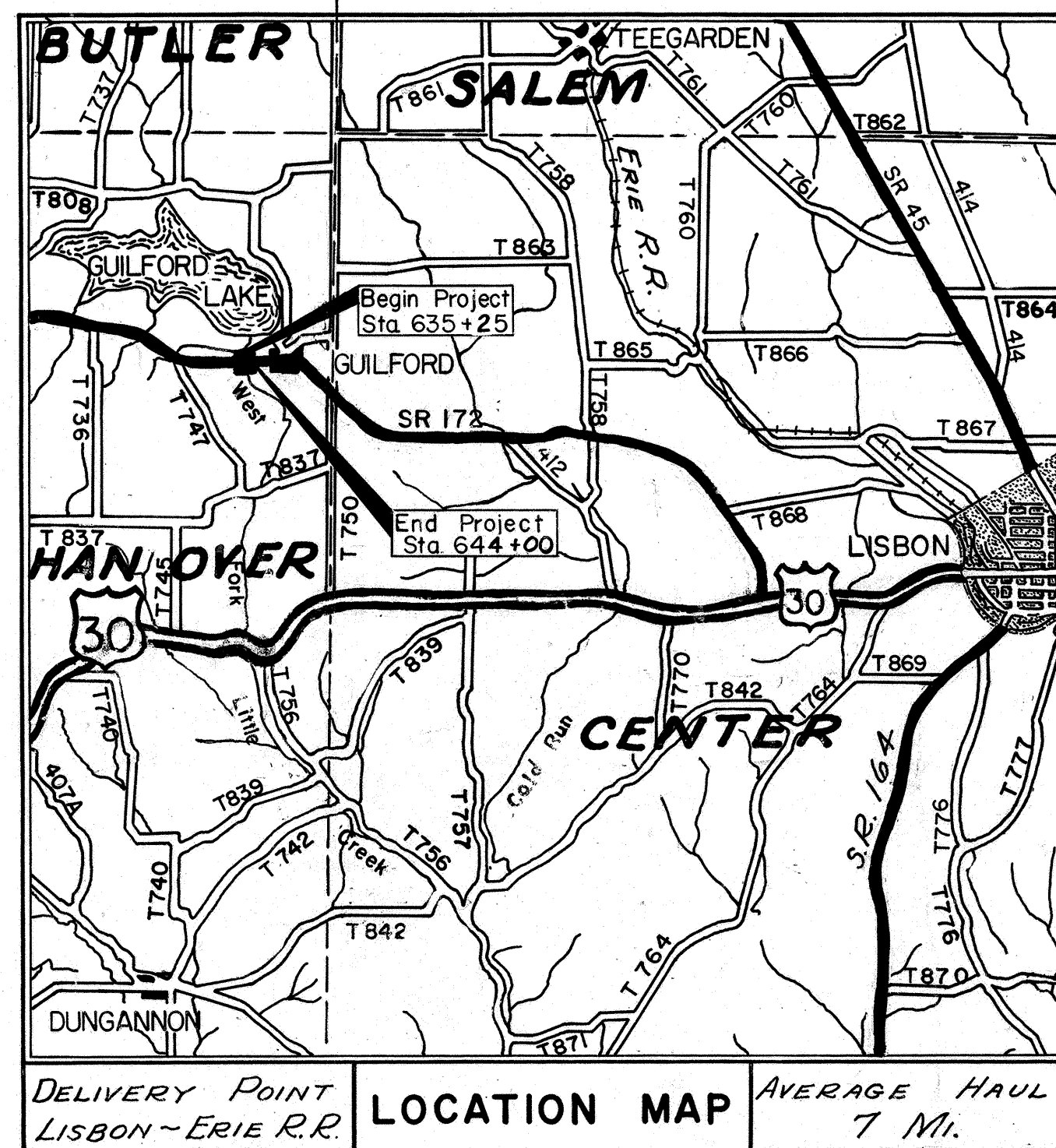
Power Existing	⊙	Telephone To Be Removed	⊗
New	⊙	Old	⊗

INDEX OF SHEETS

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LINE DATA

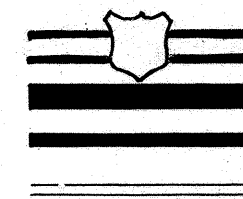
Begin Project	Sta. 635+25	
End Project	Sta. 644+00	
Gross Length Project	=	875
Additions or Deduction	None	
Net Length of Project	=	875 Lin. Ft. or 0.165 Miles
Begin Work	Sta. 635+25	
End Work	Sta. 644+00	
Net Length of Work	=	875 Lin. Ft. or 0.165 Miles



SCALE OF MILES

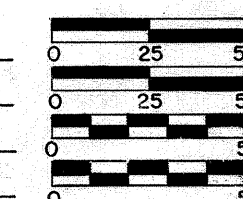


Federal Highways  
Portion to be improved  
State Roads  
Other Roads



SCALE

Plan  
Profile: Horizontal  
Profile: Vertical  
Cross Sections



1965 SPECIFICATIONS

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

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

Approved Earl W. Wilson  
Date 4-19-65 Division Deputy Director

Approved J.W. Wilson  
Date 6-21-65 Deputy Director of Planning & Programming

Approved C.H. Albrecht  
Date 5-11-65 Engineer of Bridges

Approved R.N. Ricketts  
Date 5-13-65 Engineer of Location & Design

Approved D.E. Shultz  
Date 5-13-65 Deputy Director of Design & Construction

Approved T.H. Board  
Date 6-22-65 Deputy Director of Right of Way

Approved \_\_\_\_\_  
Date \_\_\_\_\_ First Assistant Director

Approved F.E. Masten  
Date 6/22/65 Director of Highways

PLANS PREPARED BY:  
GANNETT, FLEMING, CORDRY & CARPENTER  
CONSULTING ENGINEERS  
600 NORTH SECOND ST.  
HARRISBURG, PENNSYLVANIA

DEPARTMENT OF COMMERCE  
BUREAU OF PUBLIC ROADS

APPROVED:

DIVISION ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

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STANDARD DRAWINGS			
BP-6	6-1-65	L-1	6-1-65
MC-3	6-1-65	BP-5	6-1-65
MC-1	6-1-65	FACT-1	6-1-65
GR-1	6-1-65	FACT-2	6-1-65
GR-2A	9-1-65		
SP-53	6-30-61		
MC-4	6-1-65		

SUPPLEMENTAL SPECIFICATIONS	

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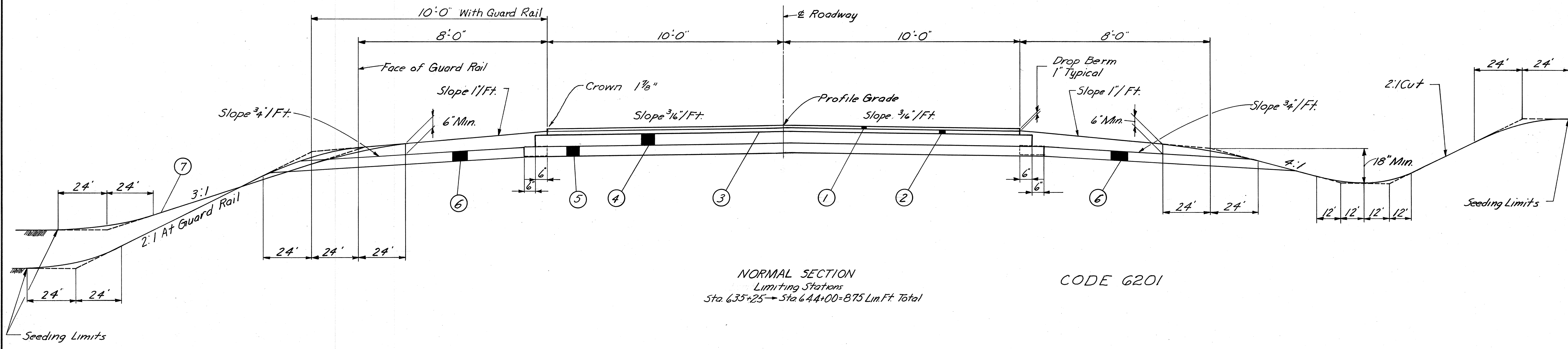
File No.	COLUMBIANA COUNTY	COL-172-12.03
Date of Letting	-----	196
Contract No.	-----	

9-9-65

# TYPICAL SECTION

TYPE 404 ON 304

SCALE: 1"=2'



NORMAL SECTION  
 Limiting Stations  
 Sta. 635+25 → Sta. 644+00 = 875 Lin. Ft. Total

CODE 6201

LEGEND

- 1 Item 404 1 1/4" Asphalt Concrete (85-100)
- 2 Item 402 1 3/4" Asphalt Concrete (85-100)
- 3 Item 408 Bituminous prime coat 702.09, RT-2 or RT-3 applied at the rate of 0.40 gals. per sq. yd.
- 4 Item 304 6" aggregate base
- 5 Item 310 5" subbase
- 6 Item 605 Aggregate Drains
- 7 Item 659 Seeding and Mulching



# GENERAL NOTES

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

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## UNDERGROUND UTILITIES

The locations of the underground utilities shown on the plans have been obtained by diligent field checks and searches of available records. It is believed that they are essentially correct, but the State of Ohio makes no guarantees as to their accuracy or completeness.

## PRIVATE SEWER TAPS

This plan makes no provision for connecting, nor shall the Engineer or Contractor connect, any existing or new private drainage to the new highway drainage system when such private drains carry effluent or drainage from leaching bed outlets, cellar drains, or sink drains, or polluted water of any kind. Connections may be made to the existing or new highway drainage system when the water carried to the project drainage system does not come within the category outlined above. Acceptable water includes flow from roof drains, field drains, and enclosed natural drainage sources which would reach the road through natural channels if such water was not conducted artificially. Existing sewer taps which do not carry acceptable water as defined above shall be plugged at the right-of-way line. Plugging specified shall be by means of Class "E" Concrete and payment therefor shall be included in the unit price bid for Item 203. Excavation not including embankment construction.

## FIELD OFFICE

The contractor shall, in addition to the requirements of 105.152, provide a suitable field office having a minimum of 100 sq. ft. of floor space. The Contractor shall have a telephone installed and maintained in this field office during the construction of this project. The Contractor shall also provide and maintain sanitary provisions as per 107.06. All the above is included in the lump sum price bid for Field Office.

## SEEDING

Quantities for seeding are calculated for the soil areas between the work limits, as shown on the cross sections.

## DESIGN SPEED

The geometrics for this project have been planned for a design speed of 50 miles per hour.

## REMOVAL OF TREES AND STUMPS

All trees and stumps lying within the construction limits of this project shall be removed under the lump sum price bid for Item 201, Clearing and Grubbing except the trees for which protection and preservation work is indicated elsewhere in these plans shall not be removed.

The following is an estimate of the number of trees and stumps to be removed.

SIZES	12"-18"	18"-24"	24"-30"	30"-36"	36"-42"
NO. TREES	9	0	0	0	0
NO. STUMPS	1				

The above estimate is approximate and the State of Ohio reserves the right to order the removal of additional trees and stumps outside of the limits of construction but within the right-of-way and/or easement lines. Payment for the removal of these additional trees or stumps shall be included in the lump sum price bid for Item 201 Clearing and Grubbing.

## ITEM 605 AGGREGATE DRAINS

Aggregate drains shall be placed at fifty (50) foot intervals on each side of normal crowned sections and at twenty-five (25) foot intervals on the low side only of super-elevated sections. An aggregate drain shall be placed at the low point of each sag vertical curve.

## CONSTRUCTION LAYOUT STAKES

See note in proposal describing the work included in this lump sum pay item.

## PART WIDTH CONSTRUCTION

Because of the necessity of building this project under traffic and constructing the pavement part at a time, extreme care shall be taken to prevent the construction of a butt joint on centerline in the 304 and 310 courses.

This shall be accomplished by building the 304 and 310 courses, placed with the first portion of the pavement built, at least eighteen (18) inches beyond the centerline and by surfacing no closer than eighteen (18) inches to this edge of the above courses. When the second portion of the pavement is built, at least twelve (12) inches of these projecting courses shall be 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.

## PLACEMENT OF ASPHALT CONCRETE

Two-way traffic shall be maintained at all times except that one-way traffic will be permitted for minimum periods of time consistent with the requirements of the specifications for protection of completed asphaltic concrete courses.

## MAINTAINING TRAFFIC

The Contractor shall maintain traffic at all times in accordance with the requirements of Item 614. The length of one way traffic zones shall be kept to a minimum consistent with the requirements of the work. Maximum use shall be made of the existing pavement for traffic maintenance, holding the length and duration of use of temporary traffic lanes to a minimum.

Temporary traffic lanes shall be surfaced with 410 material, treated with calcium chloride and the surface maintained daily in a manner satisfactory to the Engineer. Two way traffic lanes shall be surfaced with aggregate at least twenty (20) feet wide and one way traffic lanes shall have the surfacing aggregate not less than twelve (12) feet wide.

Payment for constructing, maintaining and removing temporary traffic lanes and for all other items required for the maintenance of traffic, except furnishing and placing calcium chloride and traffic compacted surface shall be included in the lump sum bid for Maintaining Traffic, Item 614.

## MAINTENANCE OF SEWER FLOWS

The Contractor shall conduct his operations so as to maintain at all times sewer flows through existing facilities to remain in place and through existing facilities to be replaced until new facilities are completed and placed into use.

Payment for any additional costs involved in maintaining these flows by pumping or by any other means approved by the Engineer shall be included in the unit prices bid for the respective pipe items.

## FEDERAL AID CONSTRUCTION IDENTIFICATION (FACI) SIGNS

The Contractor shall furnish, erect, maintain and subsequently remove Federal Aid construction identification signs at each of the following locations:

635 + 30 ± Rt.      643 + 95 ± Lt.

Sign details shall be as specified on Standard Drawing FACI-1, Code N-54(1)-96(2).

The signs shall be erected in accordance with Standard Drawing FACI-2. Additional requirements shall be in accordance with notes in the proposal.

## ESTIMATED QUANTITIES

Specific locations and usage of estimated quantities set up on this plan to be used "as directed by the Engineer" shall be made a matter of record by incorporation into the final change order governing completion of this project.

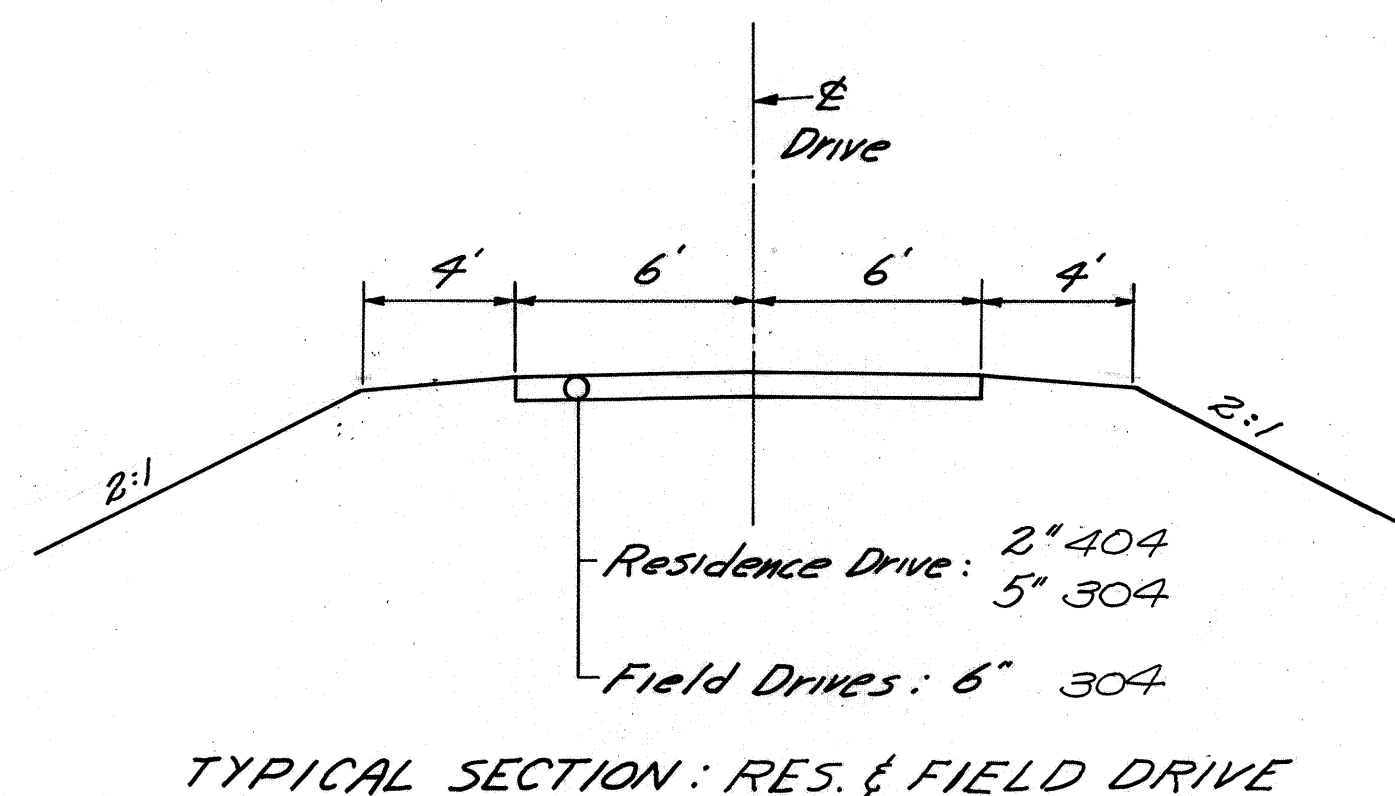
## ELEVATION DATUM

All elevations based on USGS Datum.

PAVEMENT CALCULATIONS (main line)									
From Sheet	From Sta.	To Sta.	404, 402, 203	Sq. Yds.	304, 408	Sq. Yds.	310	Sq. Yds.	
6	635+25	644+00	875 Lin. Ft. x 20.0 ÷ 9 =	1944.0	875 Lin. Ft. x 21.0 ÷ 9 =	2042.0	875 Lin. Ft. x 22.0 ÷ 9 =	2139.0	
<b>Totals</b>				<b>1944.0</b>		<b>2,042.0</b>		<b>2,139.0</b>	

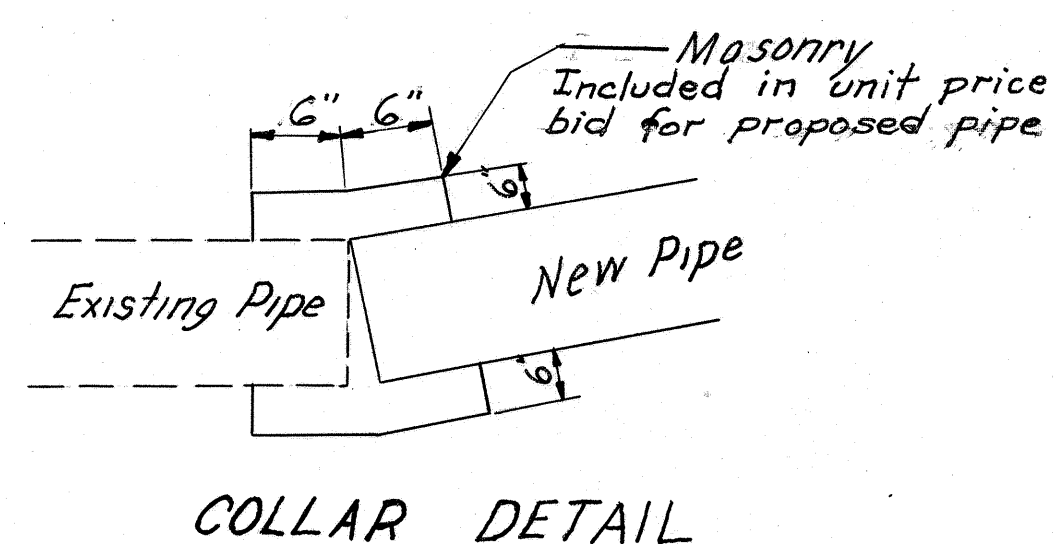
  

404	1 1/2" thick	= 1944 x 1.25 ÷ 36 = 68 Cu. Yds.
402	1 3/4" thick	= 1944 x 1.75 ÷ 36 = 95 Cu. Yds.
304	6" thick	= 2042 x 6 ÷ 36 = 340 Cu. Yds.
408	0.4 gals/sq.yd	= 2042 x .4 = 817 Gals.
310	5" thick	= 2139 x 5 ÷ 36 = 297 Cu. Yds.
203	Subgrade Preparation	= 1944 Use 1944 Sq. Yds.



EXCAVATION AND EMBANKMENT SUMMARY						
From Sheet	From Sta.	To Sta.		203 Excav.	203 Emb.	659 Seeding & Mulching
6	635+25	644+00		3829	5673	6375
<b>TOTALS</b>				<b>3829 C.Y.</b>	<b>5673 C.Y.</b>	<b>6375 S.Y.</b>

TYPICAL SECTION: RES. &amp; FIELD DRIVE



COLLAR DETAIL

203 Embankment using 5 gals. per cu. yd. = 5673 C.Y. x 5 ÷ 1,000 = 28.4 M. Gals.  
 310 Subbase using 5 gals. per cu. yd. = \*297 C.Y. x 5 ÷ 1,000 = 1.5 M. Gals.  
 \*From Sheet No. 5 Total 203 Water = 29.9 M. Gals. - Use 30 M. Gals.  
 304 Base using 5 gals. per cu. yd. = \*229 C.Y. x 5 ÷ 1,000 = 2.1 M. Gals. - Use 2 M. Gals. For Item 304

659 Seeding & Mulching = 6375 Sq. Yds.  
 659 Commercial Fertilizer (12-12-12) - Pay Rate 20 Lbs./1000 Sq. Ft. = 6375 x 9 x 20 ÷ (1000)(2000) = 0.57 Tons  
 659 Agricultural Liming - Pay Rate 100 Lbs./1000 Sq. Ft. = 6375 x 9 x 100 ÷ (1000)(2000) = 2.87 Tons

410 FOR MAINTAINING TRAFFIC  
 Sta. 635+25 to Sta. 644+00 = 875 Lin. Ft.  
 875 x 75 ÷ 100 = 656 use 650  
 410 Type "A" or "B" = 650 x 25% = 162 Cu. Yds.  
 410 Type "C" = 650 x 75% = 488 Cu. Yds.

616 FOR MAINTAINING TRAFFIC  
 650 ÷ 50 = 13 Tons.



# GENERAL SUMMARY

FED. RD. DIVISION	STATE	PROJECT	
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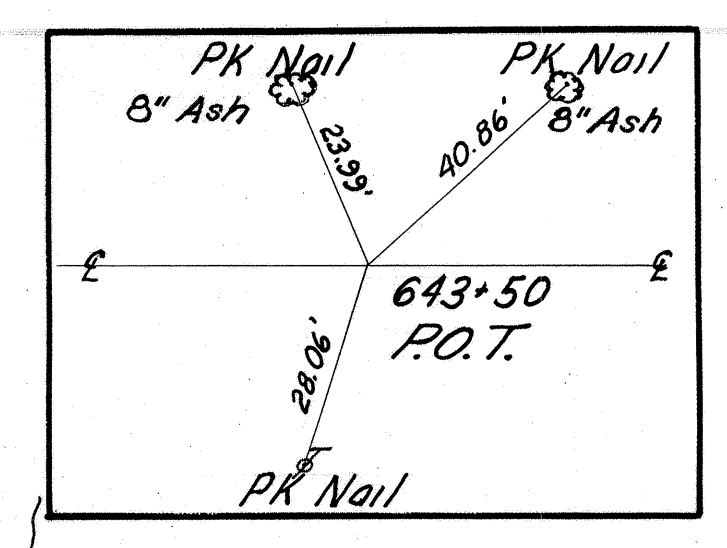
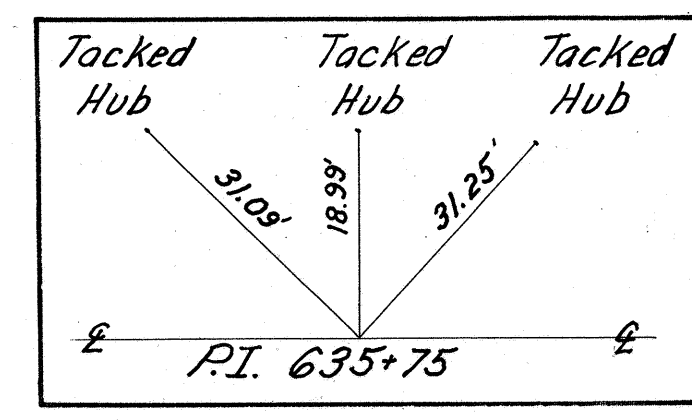
\*Construction Type Code 4005  
Construction Type Code 6201 (Except as noted)

ITEM	SHEET NUMBERS			ITEM	QUANT	UNIT	DESCRIPTION
	3	4	6				
201	Lump			201	Lump	Lump	ROADWAY Clearing and Grubbing
203		3829	127	203	3956	Cu. Yds.	Excavation Not Including Embankment Construction, as per plan
203		5673		203	5673	Cu. Yds.	Embankment
203		1944		203	1944	Sq. Yds.	Subgrade Preparation
203		30		203	30	M. Gals.	Water
410		162		410	162	Cu. Yds.	Traffic Compacted Surface, Type "A" or "B"
410		488		410	488	Cu. Yds.	Traffic Compacted Surface, Type C
604			2	604	2	Each	Monument Assemblies, Standard
606			150	606	150	Lin. Ft.	Guard Rail, Type 4
616		13		616	13	Tons	Calcium Chloride
659		6375		659	* 6375	Sq. Yds.	Seeding and Mulching
659		0.57		659	* 0.57	Tons	Commercial Fertilizer (12-12-12)
659		2.87		659	* 2.87	Tons	Agricultural Liming
202			Lump	202	Lump	Lump	DRAINAGE Existing Structures Removed
601			93	601	* 93	Cu. Yds.	Dumped Rock Channel Protection
601			50	601	* 50	Sq. Yds.	Riprap Using 6" Reinforced Concrete Slab, as per plan
602			29	602	29	Cu. Yds.	Concrete Masonry
603			70	603	70	Lin. Ft.	16'-7" x 10'-1" Conduit, Type "A", 707.03, 5-3 Gage, with Class "B" Bedding
603			76	603	76	Lin. Ft.	12" Conduit, Type "C" with Class "B" Bedding
603			70	603	70	Lin. Ft.	12" Conduit, Type "D"
605			374	605	374	Lin. Ft.	Aggregate Drains
304		340	89	304	429	Cu. Yds.	PAVEMENT Aggregate Base
304		2		304	2	M. Gals.	Water
310		297		310	297	Cu. Yds.	Subbase
402		95		402	95	Cu. Yds.	Asphalt Concrete (85-100)
404		68	22	404	90	Cu. Yds.	Asphalt Concrete (85-100)
408		817		408	817	Gals.	Bituminous Prime Coat, 702.09 RT-2 or RT-3
614	Lump			614	Lump	Lump	Field Office
	Lump				Lump	Lump	Construction Layout Stakes
	Lump				Lump	Lump	Maintaining Traffic



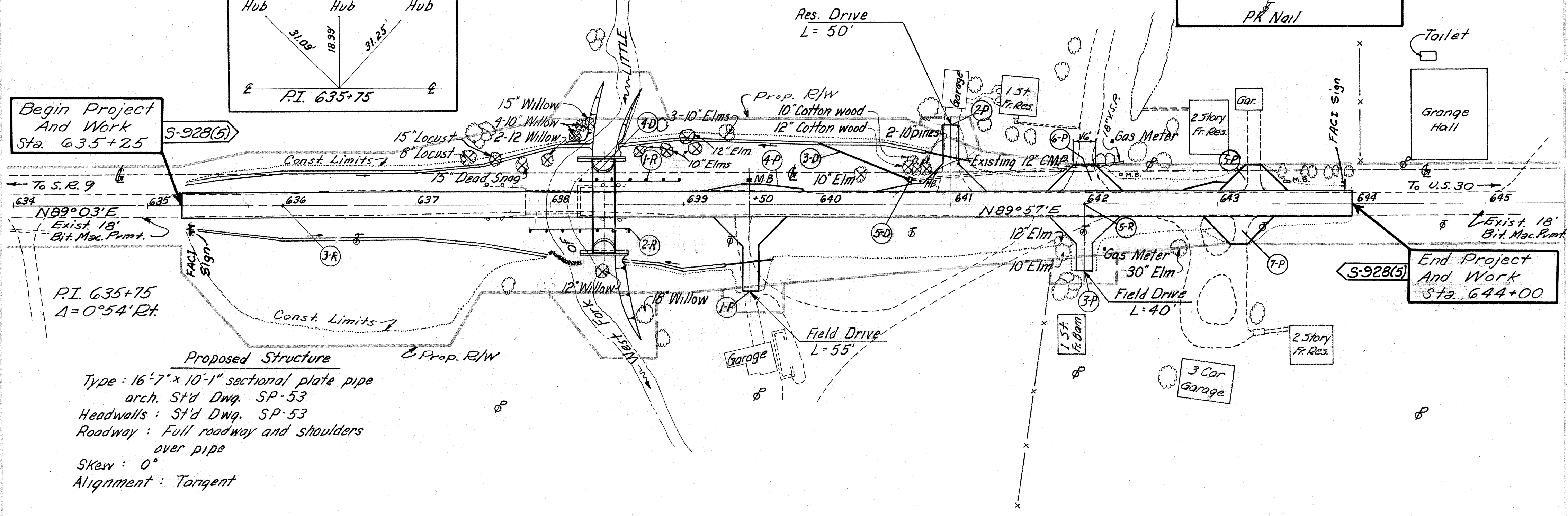
COL-172-12.03

**Existing Bridge Data**  
 Type: Simple steel beam with timber deck and asphalt surface. Masonry abutments.  
 Span: 36' face to face of abutments  
 Roadway: 18' curb to curb. 18'-7" face to face of guard rails.  
 Skew: None  
 To be Removed

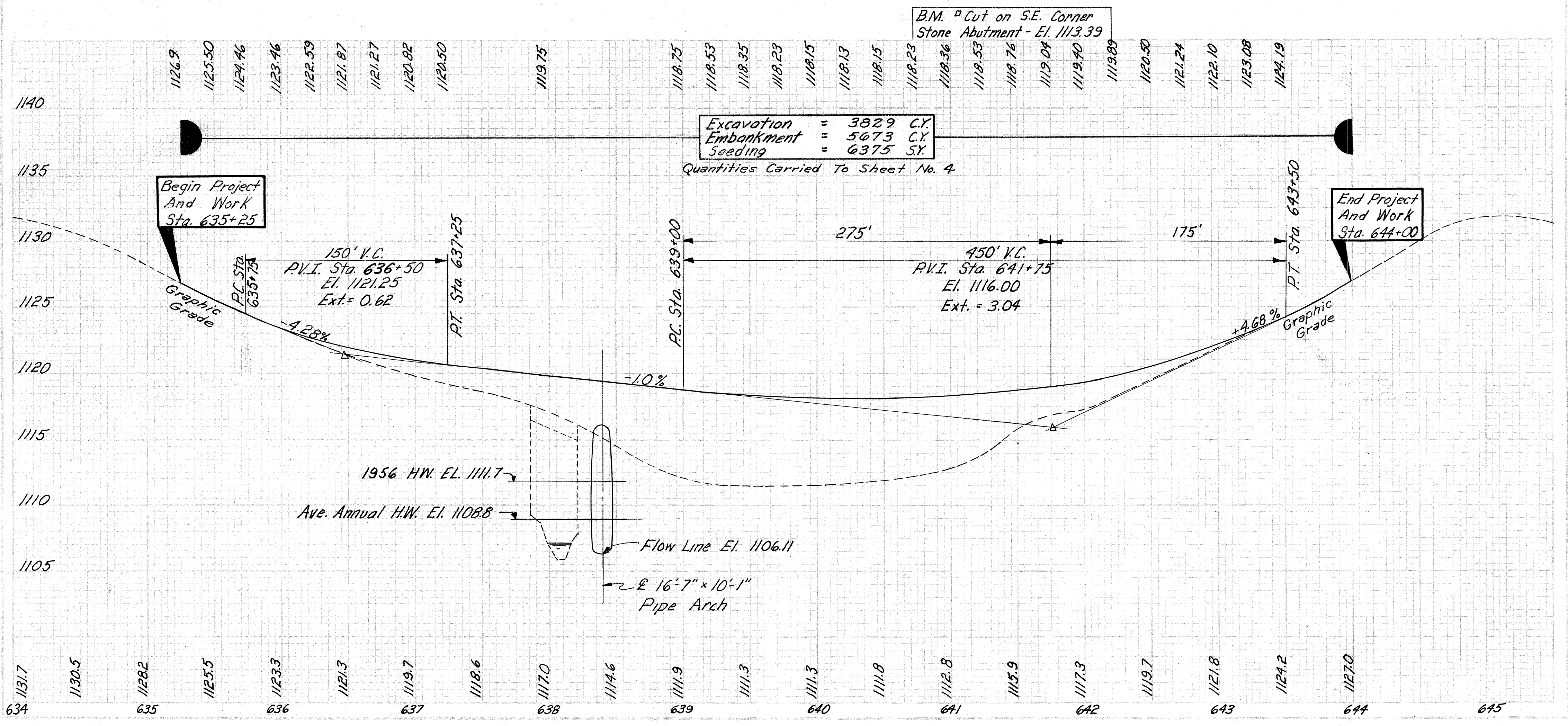


Begin Project And Work Sta. 635+25

End Project And Work Sta. 644+00



**Proposed Structure**  
 Type: 16'-7" x 10'-1" sectional plate pipe arch. Std Dwg. SP-53  
 Headwalls: Std Dwg. SP-53  
 Roadway: Full roadway and shoulders over pipe  
 Skew: 0°  
 Alignment: Tangent



Excavation = 3829 C.Y.  
 Embankment = 5673 C.Y.  
 Seeding = 6375 SY.  
 Quantities Carried To Sheet No. 4

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	QUANTITY	UNIT	PRICE	AMOUNT
GO1	635+50 - 643+50	DRAINAGE	89	Lt		
GO2	640+00 - 640+70	PAVEMENT	76	Lt		
GO3	639+50 (Field Drive)	PAVEMENT	374	Lt		
GO4	641+00 (Res. Drive)	PAVEMENT	7	Lt		
GO5	642+00 (Field Drive)	PAVEMENT	2	Lt		
GO6	643+50 (M.B. Approach)	PAVEMENT	5	Lt		
GO7	642+00 (Dr. & M.B.)	PAVEMENT	4	Lt		
GO8	643+50 (Res. Dr.)	PAVEMENT	4	Lt		
GO9	638+00 - 638+23	ROADWAY	4	Lt		
GO10	638+23 - 638+50	ROADWAY	1	Lt		
GO11	638+50 - 638+50	ROADWAY	1	Lt		
GO12	638+50 - 638+50	ROADWAY	1	Lt		
GO13	638+50 - 638+50	ROADWAY	1	Lt		
GO14	638+50 - 638+50	ROADWAY	1	Lt		
GO15	638+50 - 638+50	ROADWAY	1	Lt		
GO16	638+50 - 638+50	ROADWAY	1	Lt		
GO17	638+50 - 638+50	ROADWAY	1	Lt		
GO18	638+50 - 638+50	ROADWAY	1	Lt		
GO19	638+50 - 638+50	ROADWAY	1	Lt		
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GO27	638+50 - 638+50	ROADWAY	1	Lt		
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GO74	638+50 - 638+50	ROADWAY	1	Lt		
GO75	638+50 - 638+50	ROADWAY	1	Lt		
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GO99	638+50 - 638+50	ROADWAY	1	Lt		
GO100	638+50 - 638+50	ROADWAY	1	Lt		



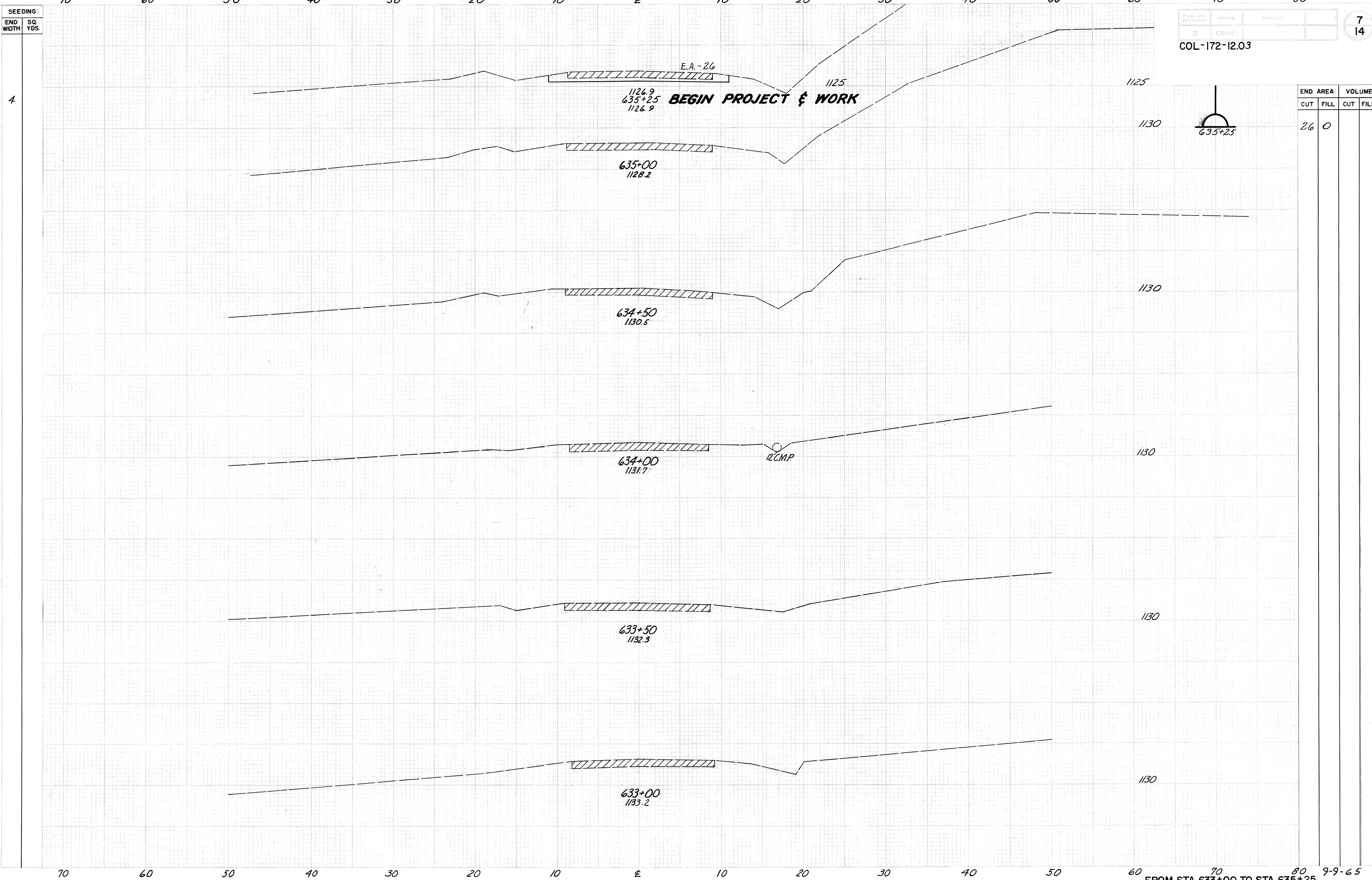
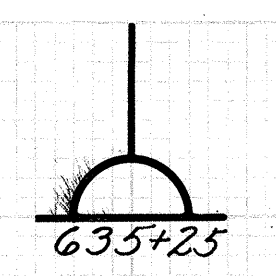
SEEDING  
END WIDTH SQ. YDS.

FED. RD. DIVISION STATE PROJECT  
2 OHIO  
COL-172-12.03

7  
14

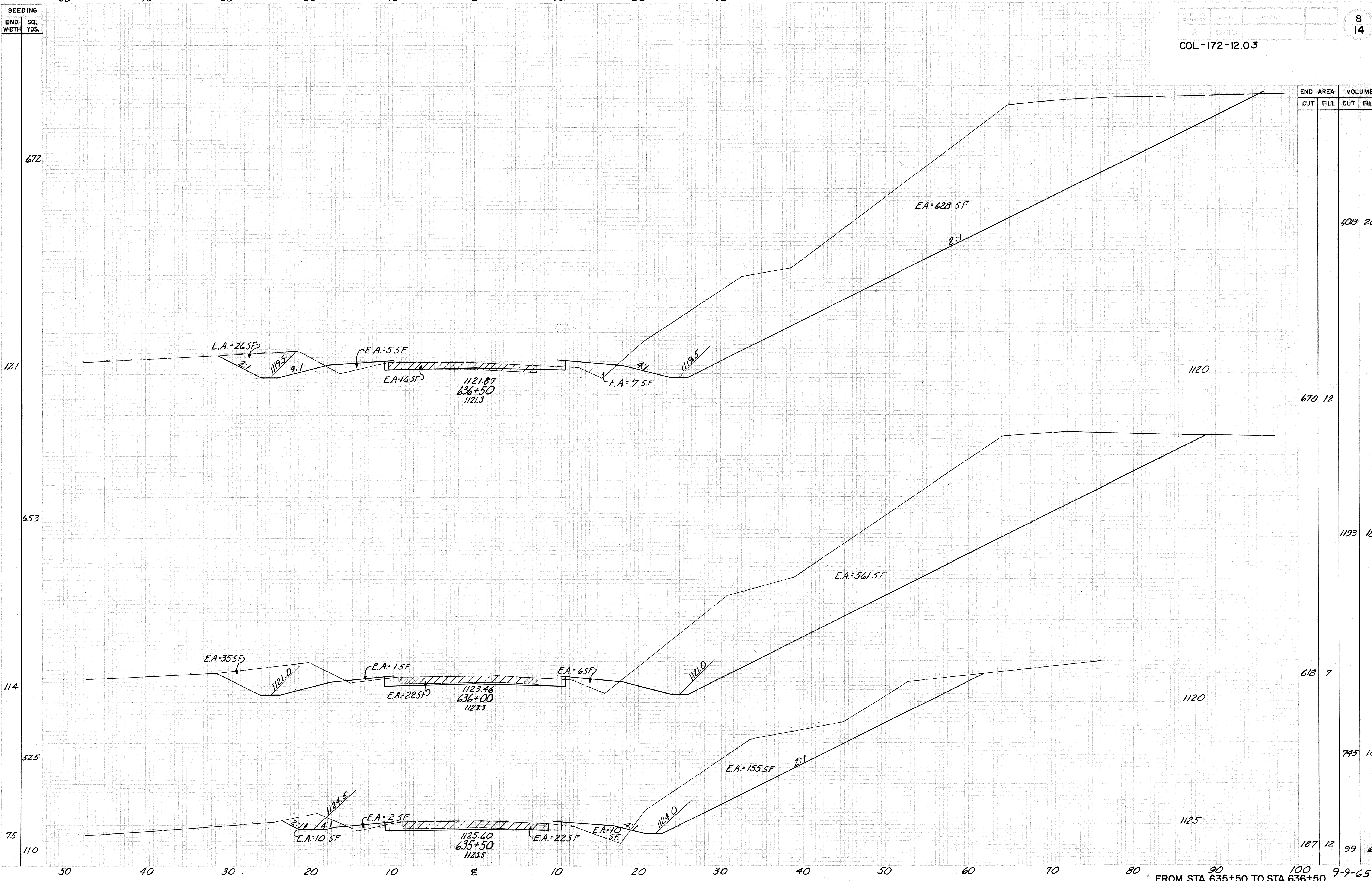
4

END AREA		VOLUME	
CUT	FILL	CUT	FILL
26	0		



FROM STA. 633+00 TO STA. 635+25 9-9-65





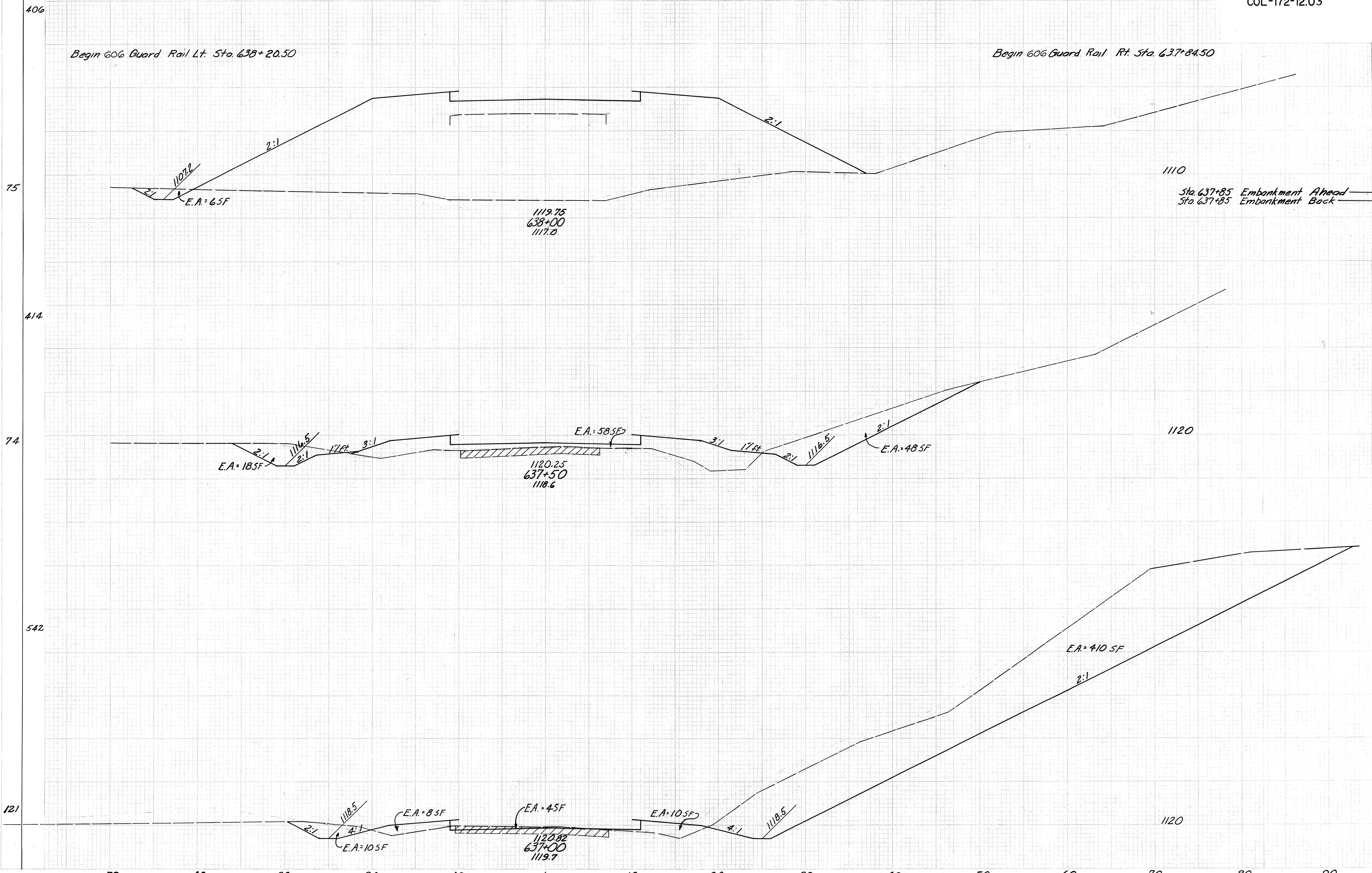
END AREA		VOLUME	
CUT	FILL	CUT	FILL
		103	28
		670	12
		1193	18
		618	7
		745	18
		187	12
		99	6



SEEDING:  
END WIDTH SQ. YDS.

FED. RD. DIVISION STATE PROJECT  
2 OHIO  
COL-172-12.03

9  
14



END STA.	AREA		VOLUME	
	CUT	FILL	CUT	FILL
406				496
75			7	
638			6	354
638			638	
58				
67				
75				
66			58	
542				
121				454
70				
424			18	

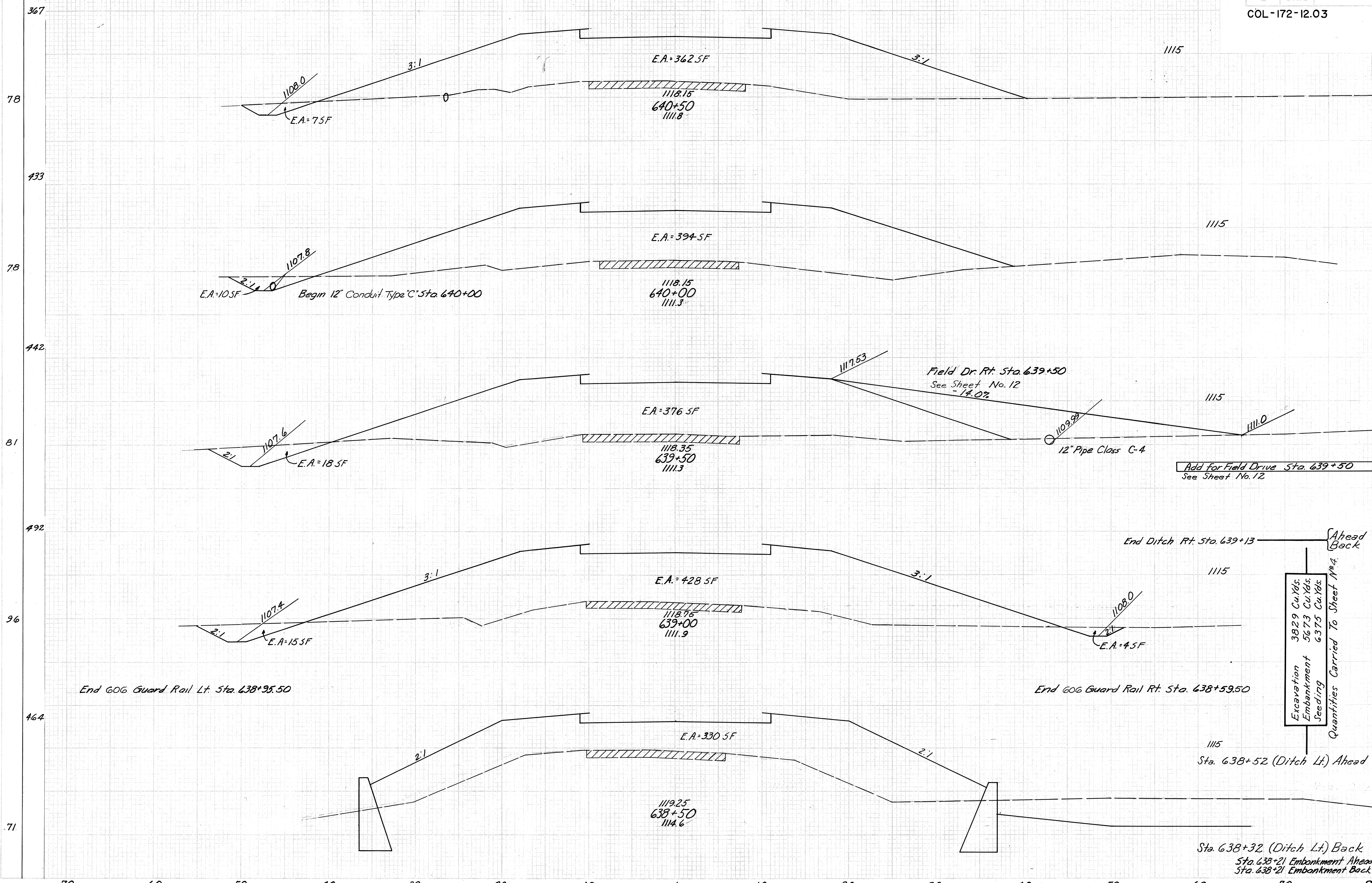


SEEDING  
END WIDTH SQ. YDS.

FED. DIVISION STATE PROJECT  
2 OHIO

10  
14

COL-172-12.03



END STA.	AREA		VOLUME	
	CUT	FILL	CUT	FILL
78	7	362		
433			16	700
78	10	394		
442			26	713
81	18	376		
			0	85
			23	
492	16	0		744
	20	0		
			9	
96	19	428		
			34	702
464				
71	0	330		
			6	334
			330	
			638	

Excavation 3829 Cu.Yds.  
Embankment 5673 Cu.Yds.  
Seeding 6375 Cu.Yds.  
Quantities Carried To Sheet No. 4.

Add for Field Drive Sta. 639+50  
See Sheet No. 12

End Ditch Rt. Sta. 639+13  
Ahead Back

End GOG Guard Rail Rt. Sta. 638+59.50

End GOG Guard Rail Lt. Sta. 638+95.50

Sta. 638+52 (Ditch Lt.) Ahead 19

Sta. 638+32 (Ditch Lt.) Back 6  
Sta. 638+21 Embankment Ahead 330  
Sta. 638+21 Embankment Back 638

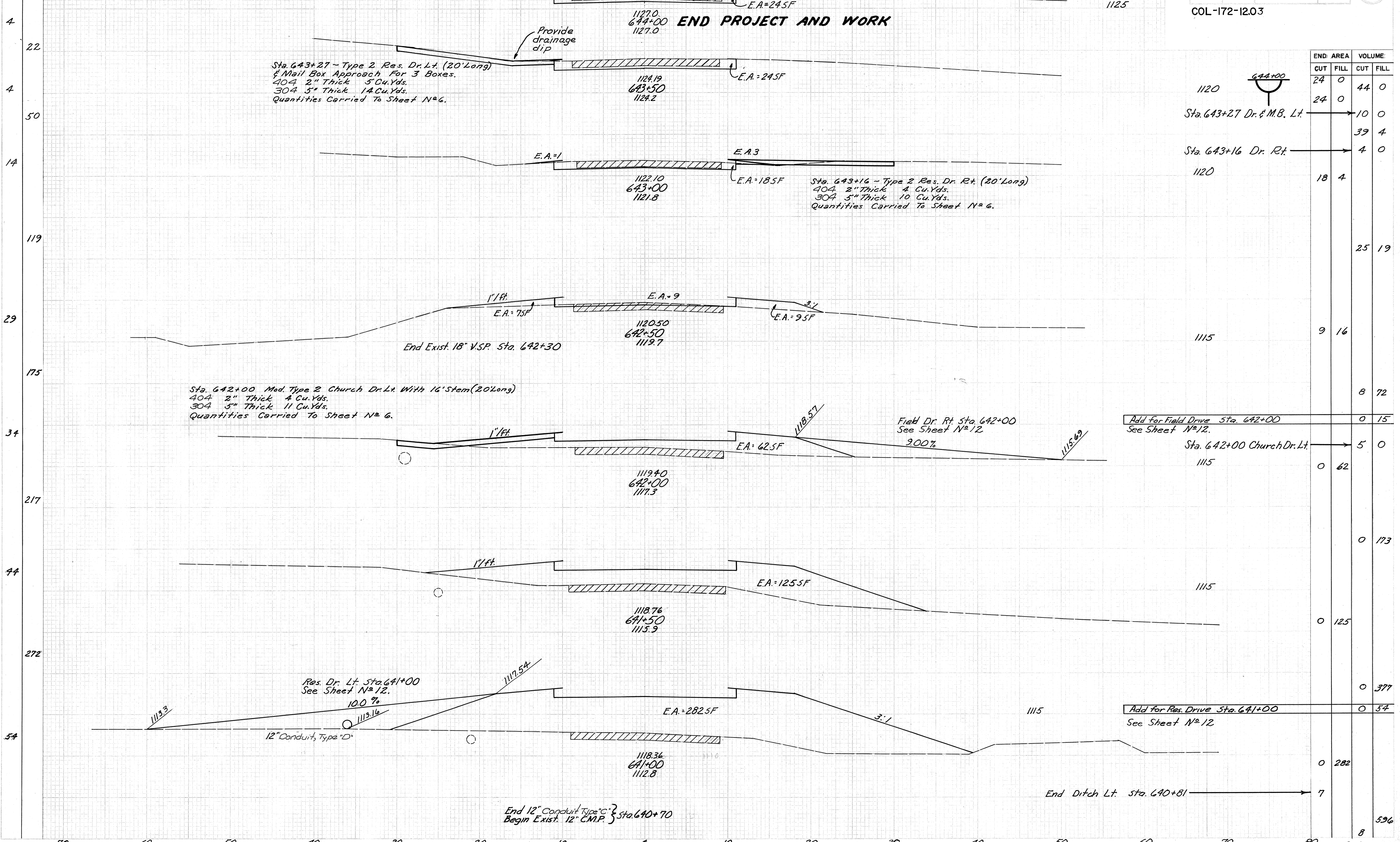
FROM STA. 638+50 TO STA. 640+50

9-9-65



SEEDING  
END WIDTH SQ. YDS.

COL-172-12.03



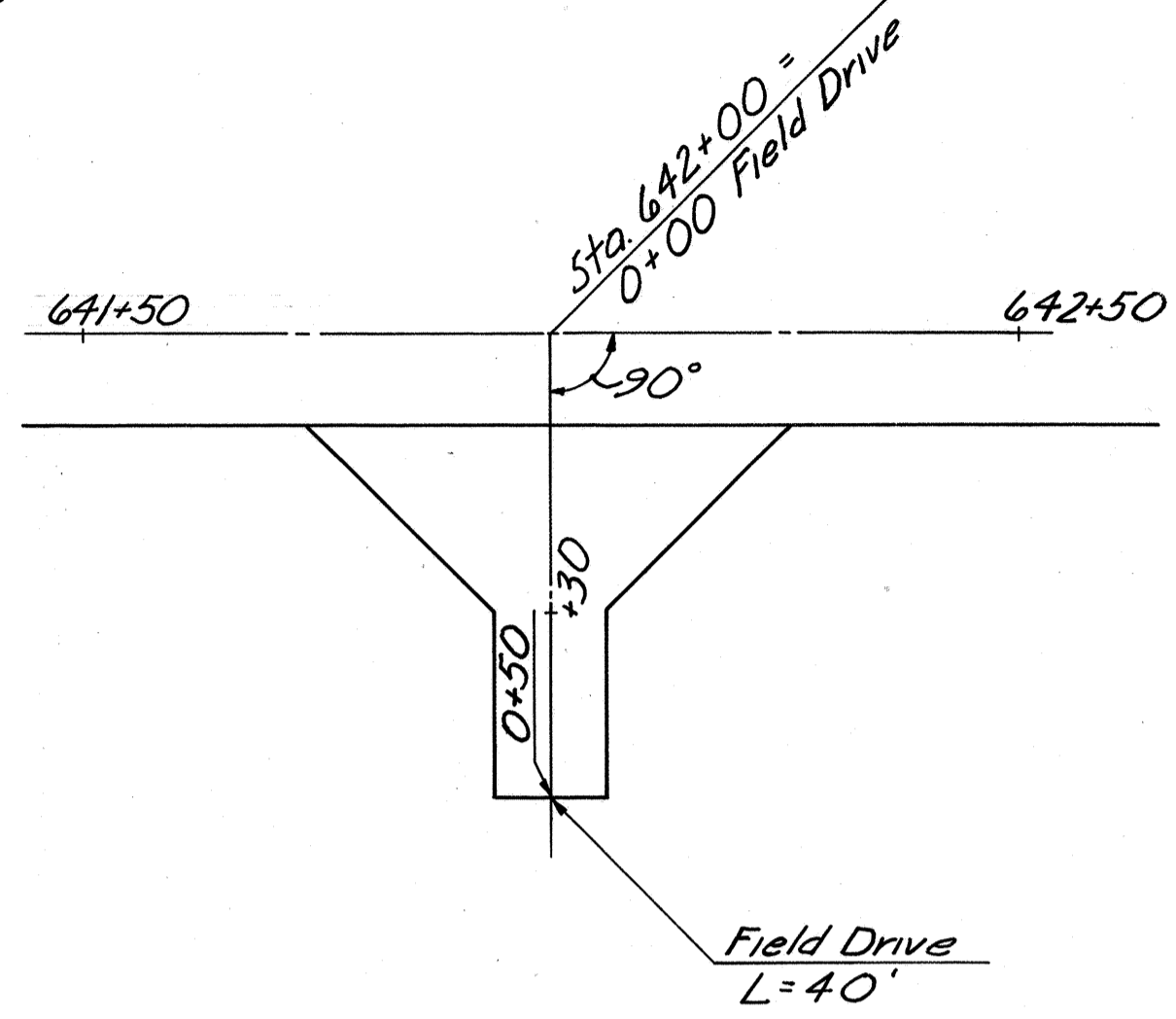
END AREA	VOLUME	
	CUT	FILL
24 0	0	44 0
24 0	0	10 0
		39 4
		4 0
18 4		
		25 19
9 16		
		8 72
		0 15
		5 0
0 62		
		0 173
		0 125
		0 377
		0 54
0 282		
		7
		8
		596



COL-172-12.03

**TYPE 2**  
Field Drive @ Sta 642+00  
**ESTIMATED QUANTITIES**  
\* 304 6" Thick = 16 Cu. Yds.  
\*\* 203 Embankment = 15 Cu. Yds.

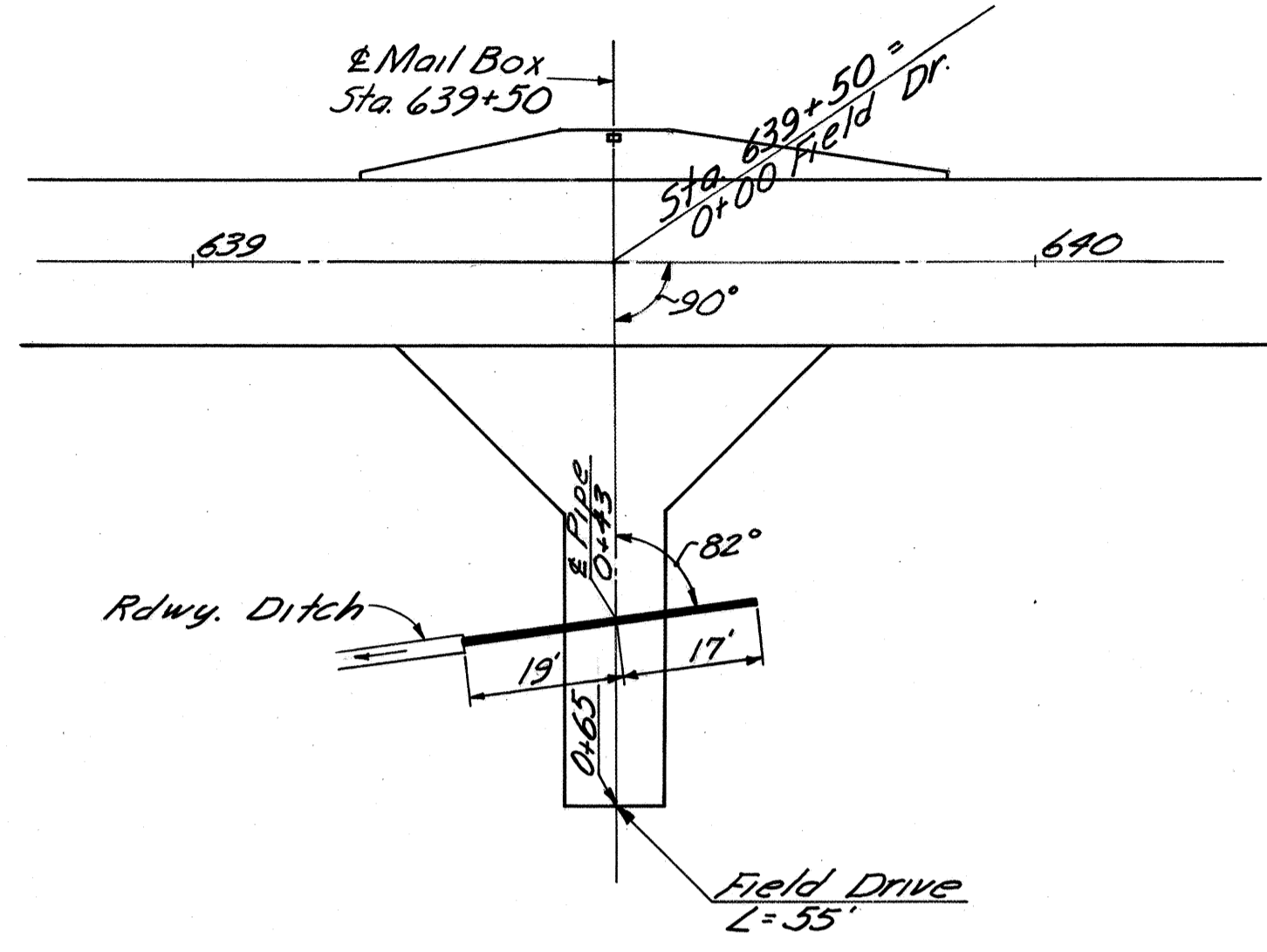
\* Quantity carried to Plan & Profile Sheet N° 6.  
\*\* Quantity carried to Cross Sections Sheet N° 11.



PLAN  
Scale: 1" = 20'  
TYPE 2  
FIELD DRIVE RT. STA. 642+00

**Type 2**  
1 Mail Box Approach Sta 639+50  
**ESTIMATED QUANTITIES**  
\* 404 @ 2" thick = 2 Cu. Yds.  
\* 304 @ 5" thick = 4 Cu. Yds.

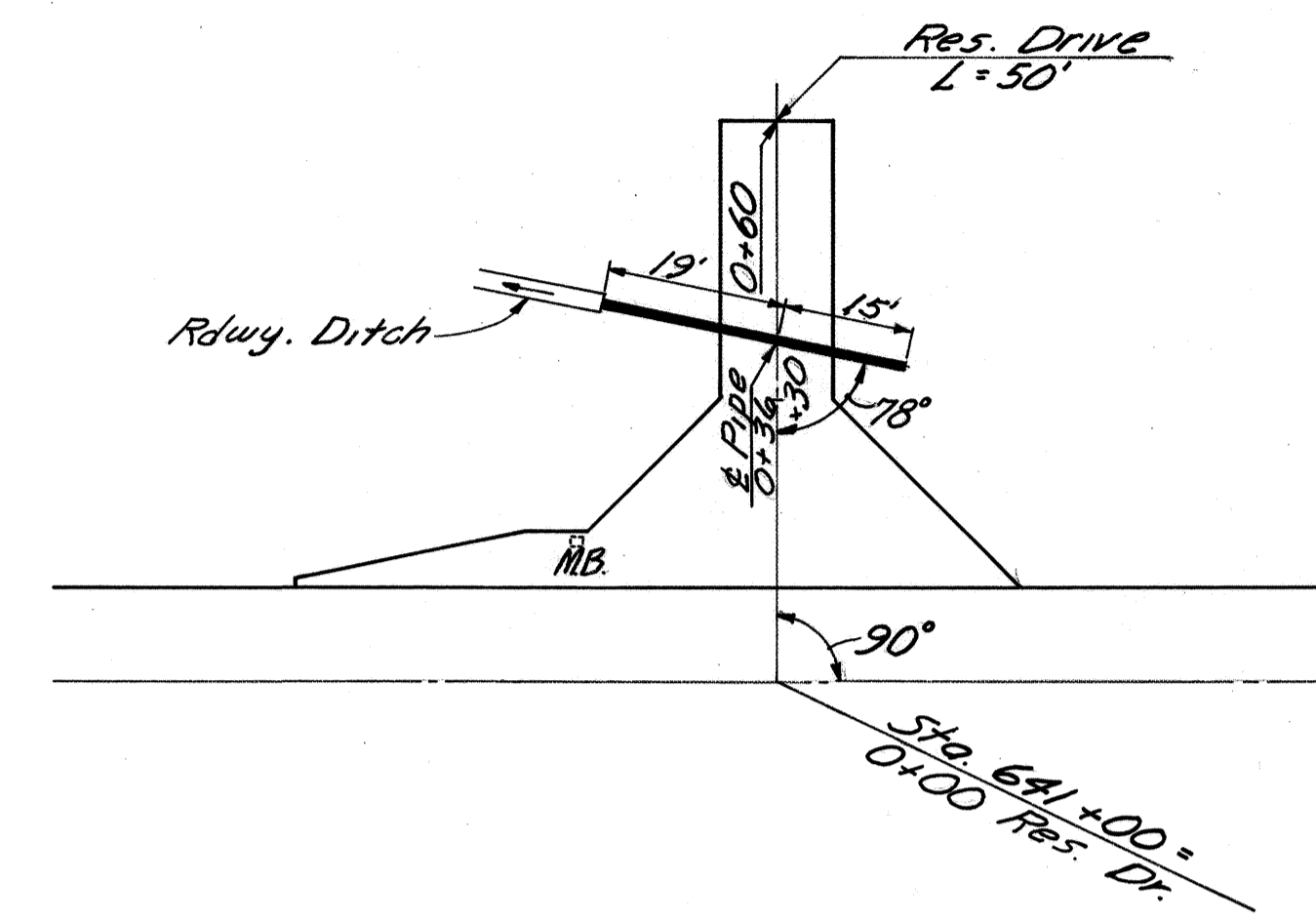
\* Quantities carried to Plan & Profile Sheet N° 6.



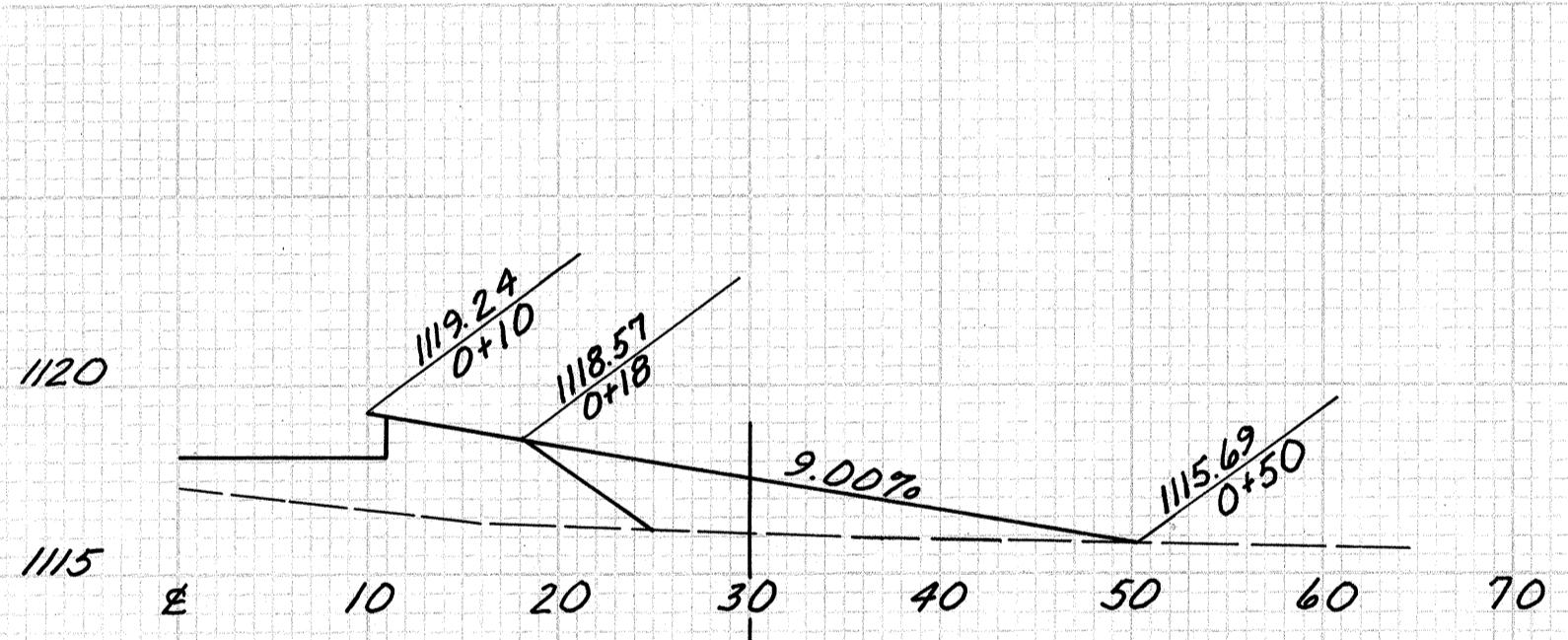
PLAN  
Scale 1" = 20'  
TYPE 2 FIELD DRIVE RT. STA 639+50  
ONE MAIL BOX APPROACH LT. STA. 639+50

**Type 2**  
Field Drive @ Sta 639+50  
**ESTIMATED QUANTITIES**  
\* 304 6" Thick = 17 Cu. Yds.  
\*\* 203 Embankment = 85 Cu. Yds.  
\* 603 12" Conduit Type "D" = 36 L.F.

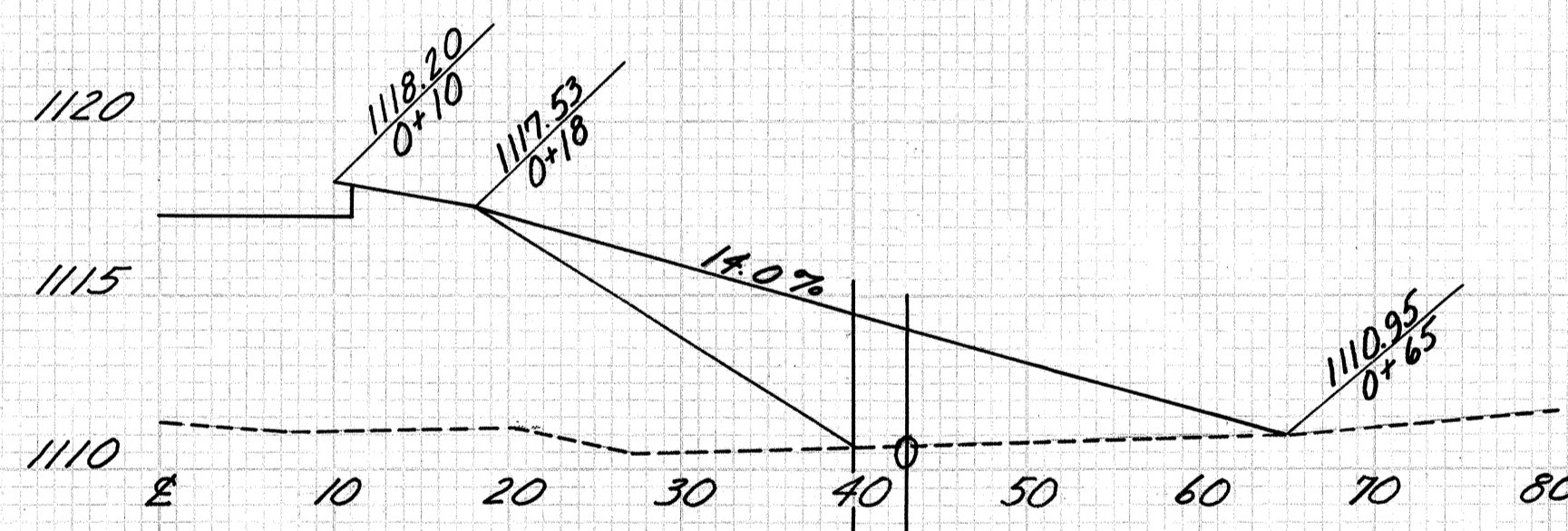
\* Quantities carried to Plan & Profile Sheet N° 6.  
\*\* Quantities carried to Cross Sections Sheet N° 10.



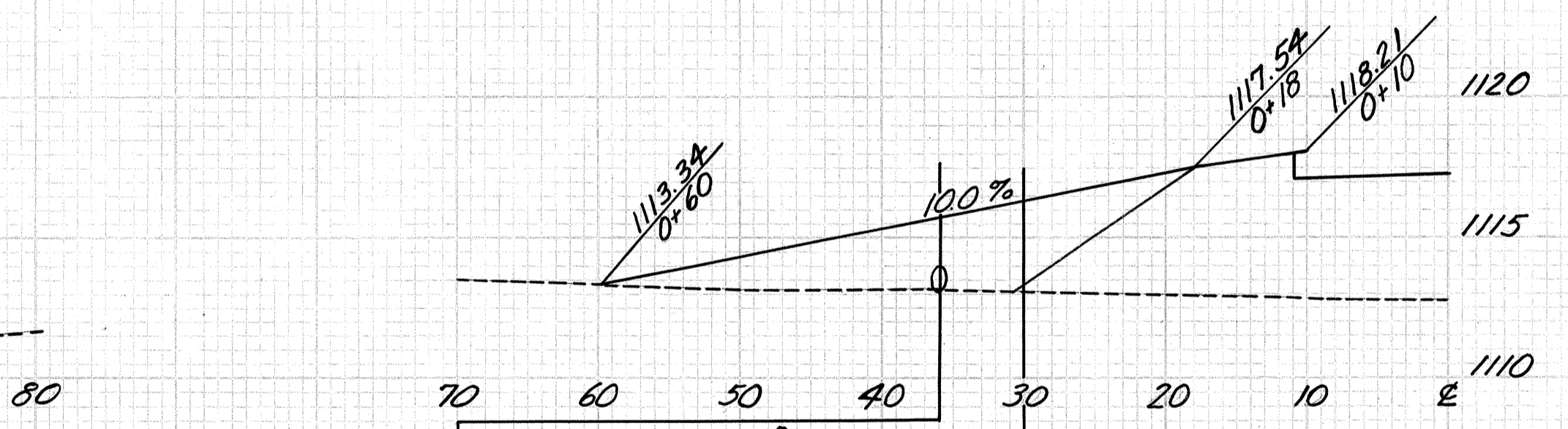
PLAN  
Scale 1" = 20'  
TYPE 2 RES. DRIVE LT. STA. 641+00



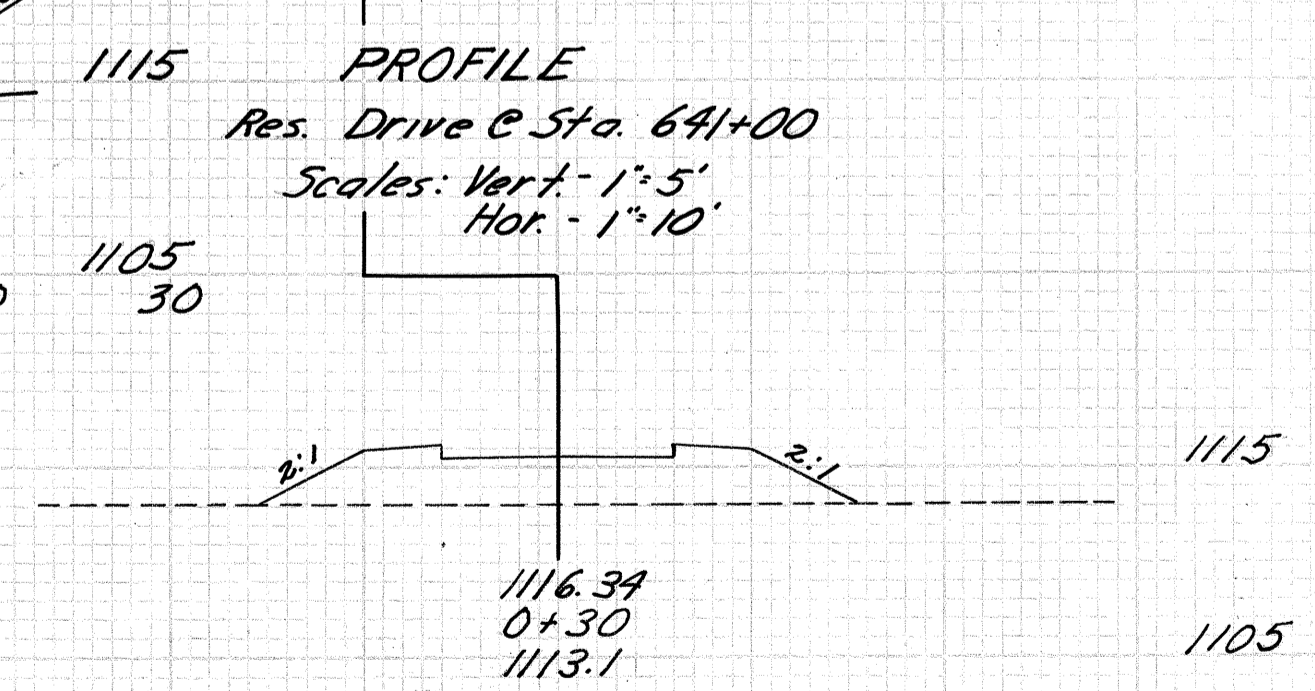
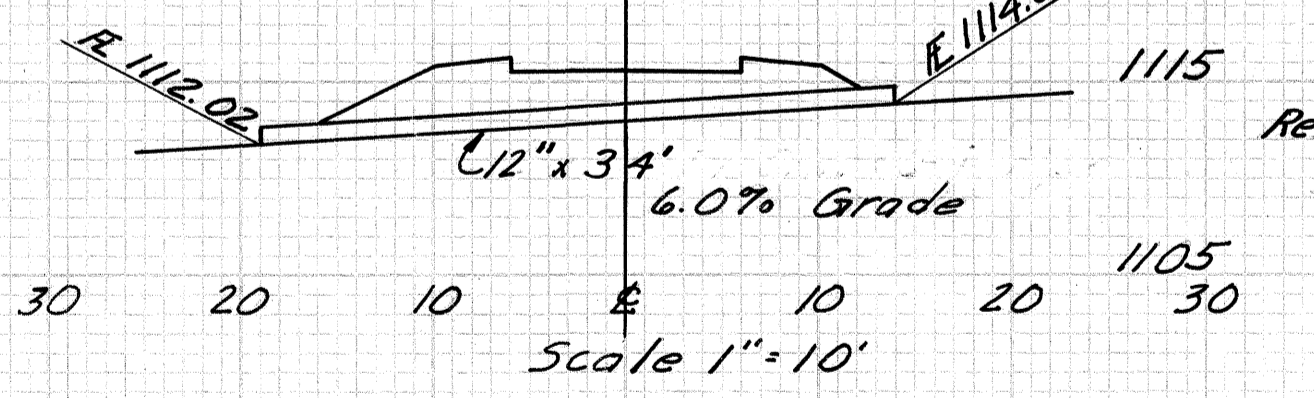
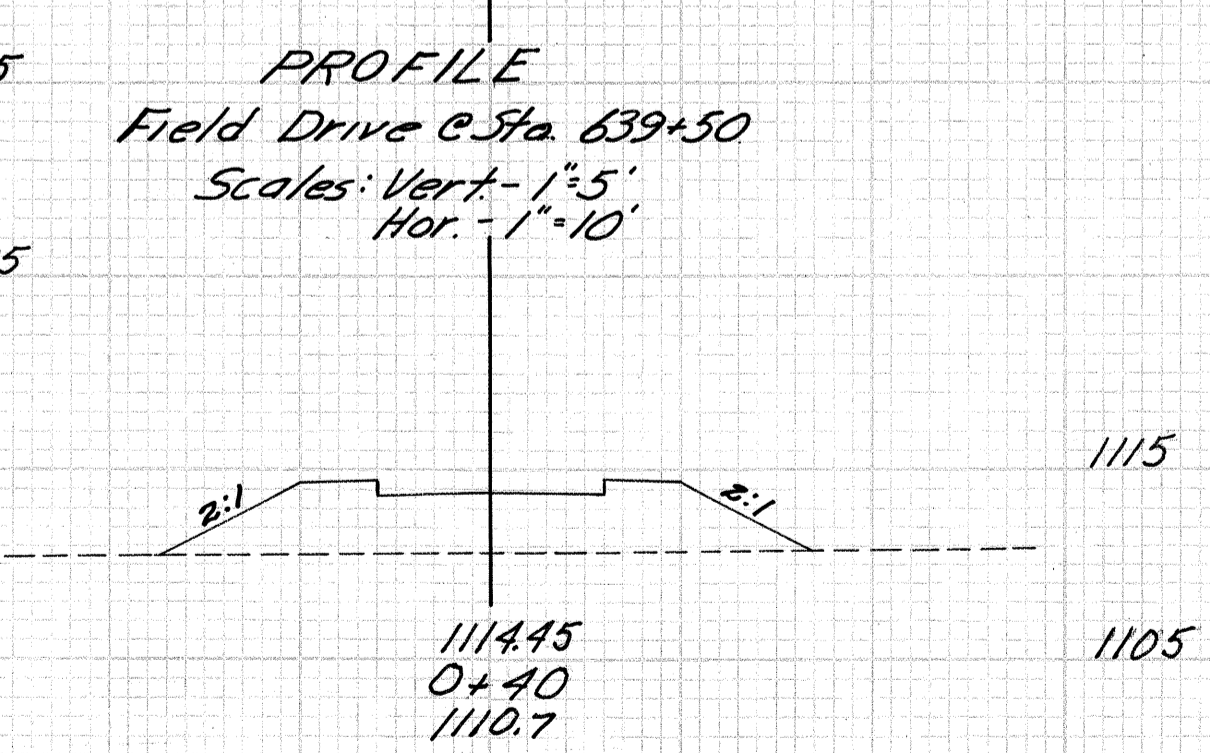
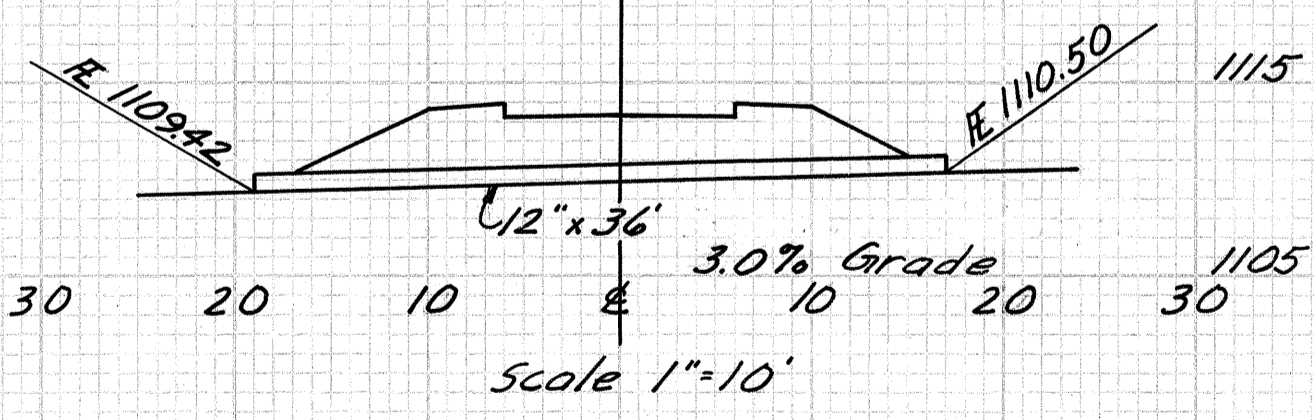
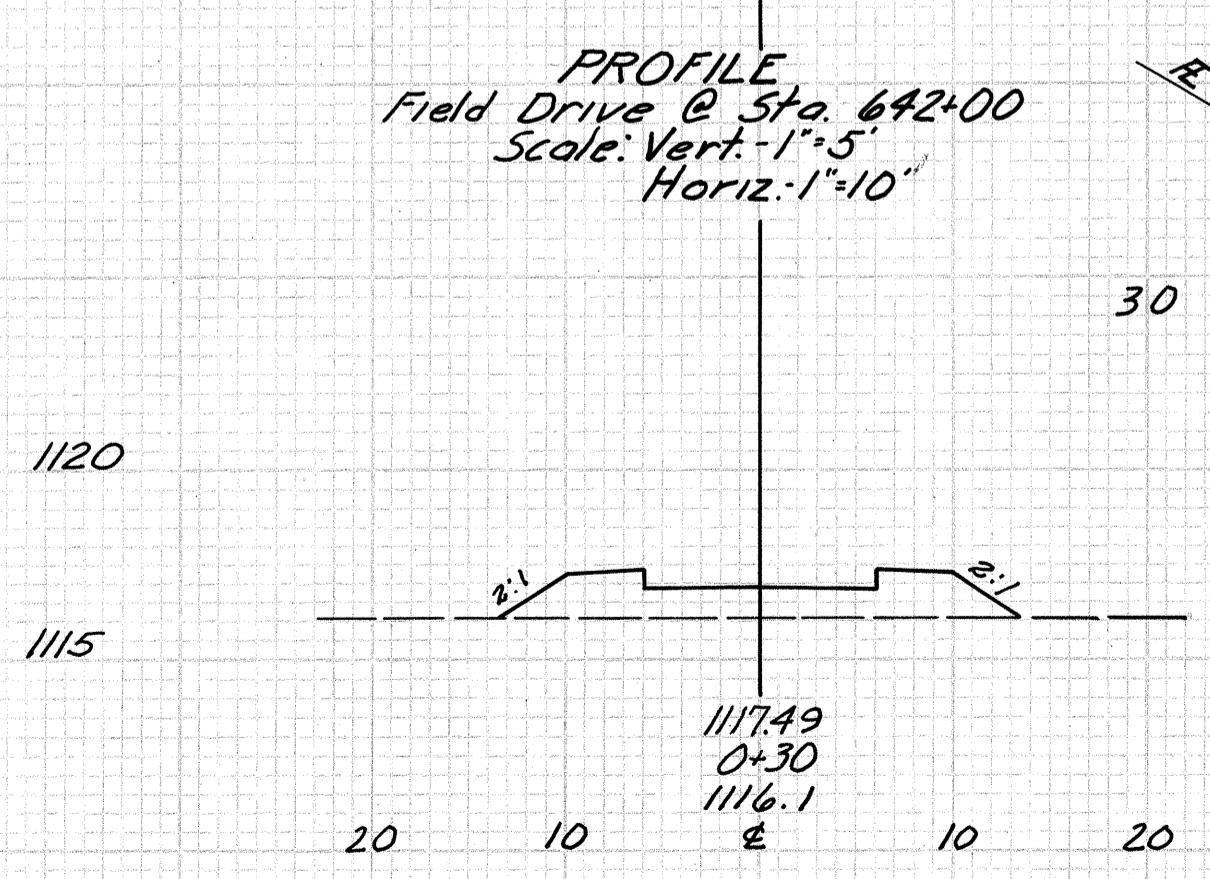
PROFILE  
Field Drive @ Sta. 642+00  
Scale: Vert. - 1" = 5'  
Horiz. - 1" = 10'



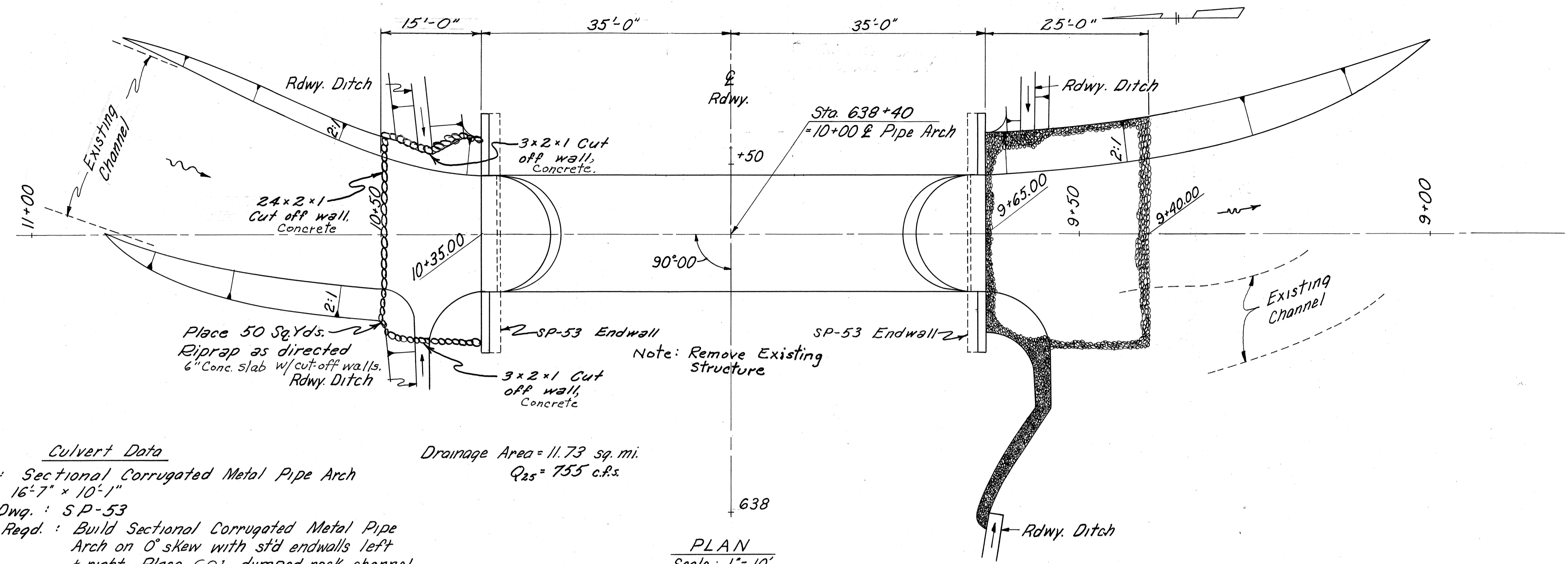
PROFILE  
Field Drive @ Sta 639+50  
Scale: Vert. - 1" = 5'  
Hor. - 1" = 10'



PROFILE  
Res. Drive @ Sta. 641+00  
Scale: Vert. - 1" = 5'  
Hor. - 1" = 10'



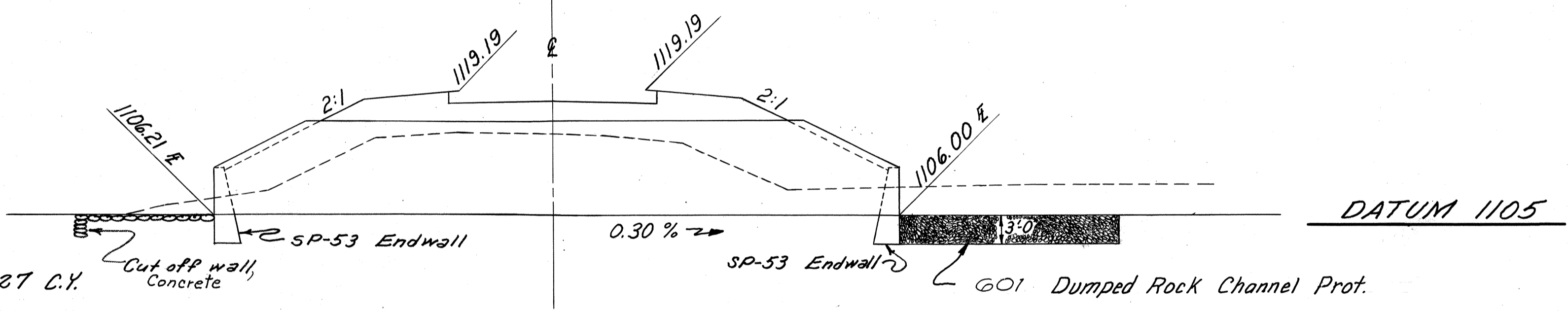




**Culvert Data**  
 Type: Sectional Corrugated Metal Pipe Arch  
 Size: 16'-7" x 10'-1"  
 Std. Dwg.: SP-53  
 Work Reqd.: Build Sectional Corrugated Metal Pipe Arch on 0° skew with std endwalls left & right. Place 601 dumped rock channel protection right.

Drainage Area = 11.73 sq. mi.  
 $Q_{25} = 755$  c.f.s.

**PLAN**  
 Scale: 1" = 10'

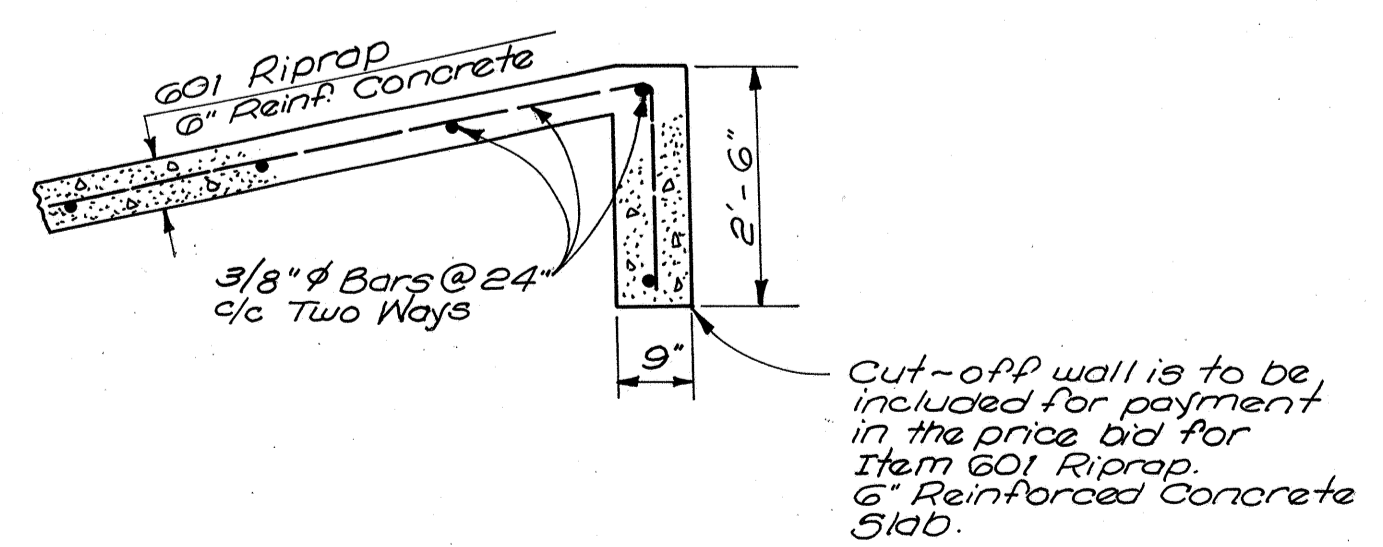
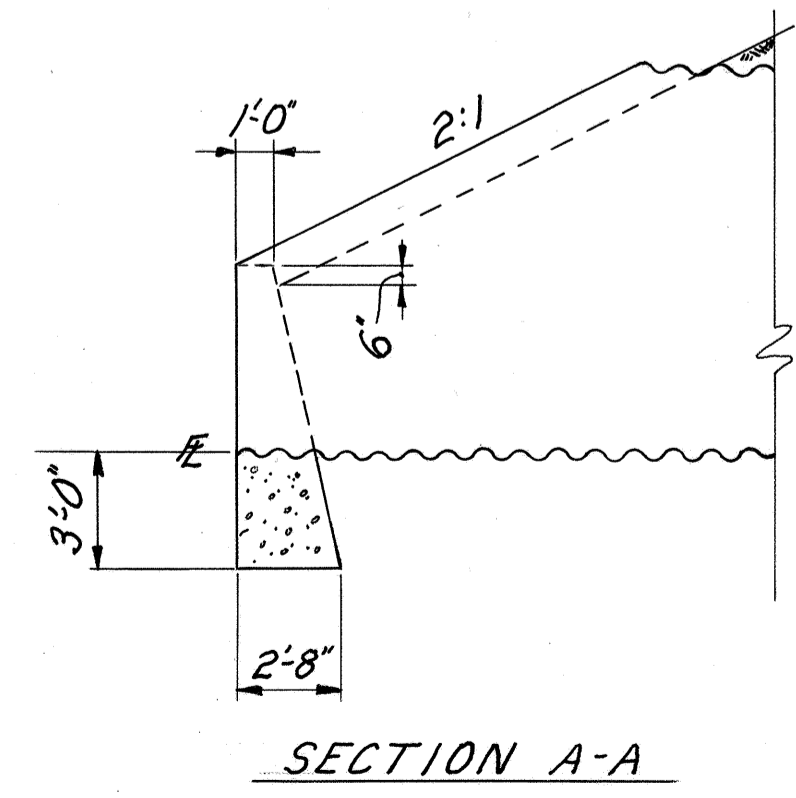
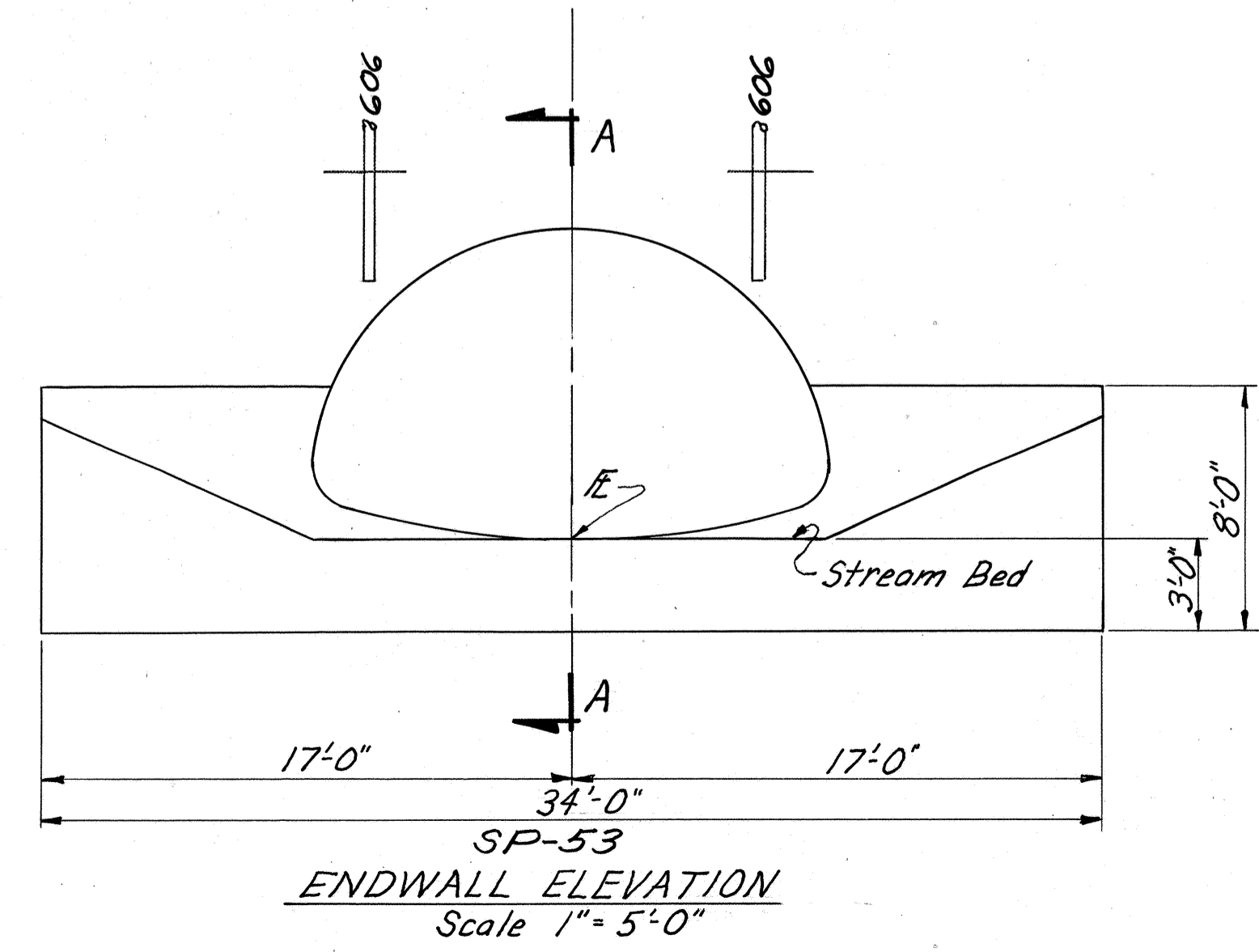


**ELEVATION**  
 Scale: 1" = 10'

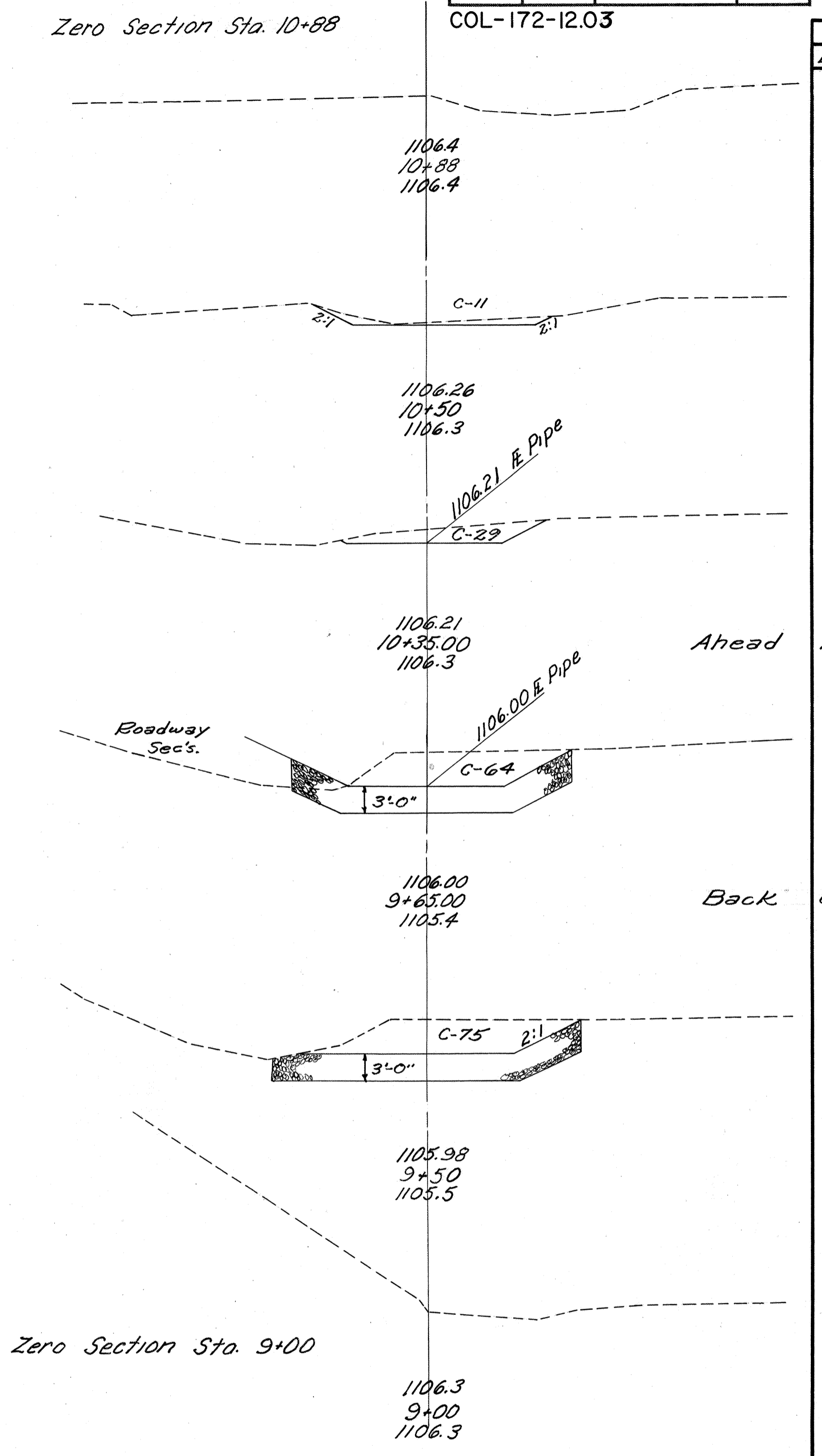
- \* Estimated Quantities**
- 203 Excavation = 127 C.Y.
  - 603 16'-7" x 10'-1" Conduit, Type 'A', 707.03, 5-3 Gage with Class 'B' Bedding = 70 L.F.
  - 601 Dumped Rock Channel Prot. = 89 C.Y.
  - 602 Concrete Masonry = 29 C.Y.
  - 601 Riprap, using 6" reinforced conc. slab = 50 S.Y.
  - 602 Existing Structure Removed = Lump

\* Quantities Carried To Sheet N° 6.  
 The cost of riprap includes cut-off walls, See detail on this sheet.

NOTE: When no longer needed to maintain traffic, the existing structure shall be removed and disposed of by the Contractor.



**DETAIL OF CUT-OFF WALL**



**CROSS SECTIONS**  
 Scale 1" = 10'

**STA. 638+40**  
**16'-7" x 10'-1" SEC. CORR. METAL PIPE ARCH**

COL-172-1208



