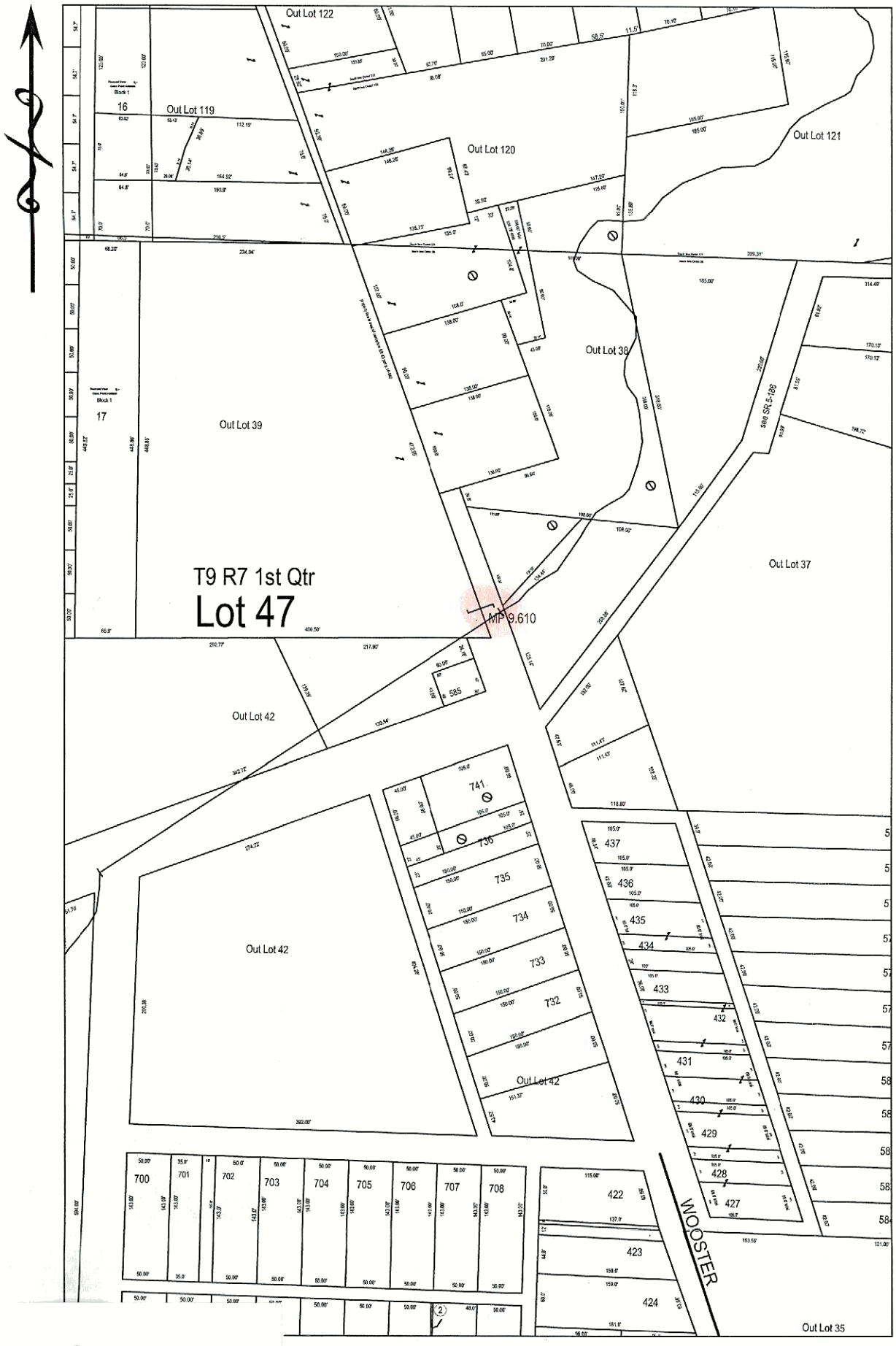
Print Date: 8/19/2016

1 inch = 100 feet

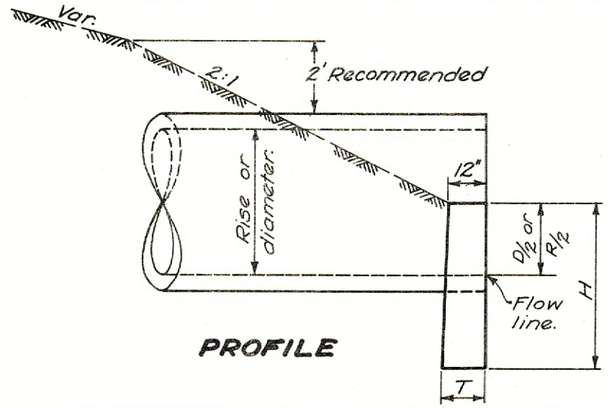
Holmes County, Ohio



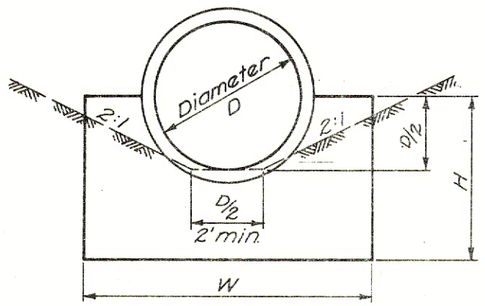
MP 9.6 bridge on Insle Run

lieved to be accurate, but accuracy is not guaranteed.
not be substituted for a title search, appraisal, survey, or zoning verification.

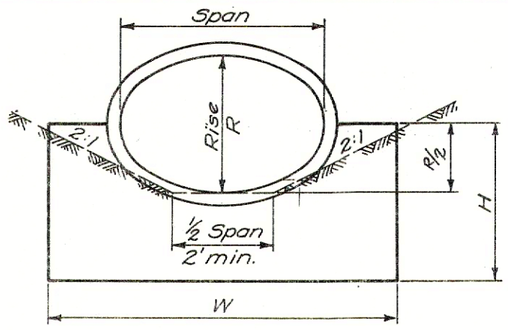
HOL 83 MP 9.61



PROFILE



CIRCULAR



ELLIPTICAL

CONCRETE PIPE

NOTES

CONCRETE for headwalls shall be Class C.

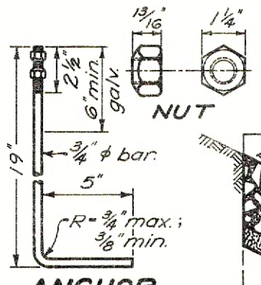
ANCHOR BOLTS (as detailed) for anchoring upstream end of metal pipes shall meet ASTM A307. The top 6" min. of bolt shall be galvanized according to ASTM A153. Nuts (as detailed) shall meet ASTM A325 and A153. Cost of anchors shall be included in the unit price bid per linear foot of 603 Conduit. Unless otherwise specified, anchor bolts shall be used only on pipes with span or rise greater than 24 inches.

HEADWALL FOR CONCRETE PIPE

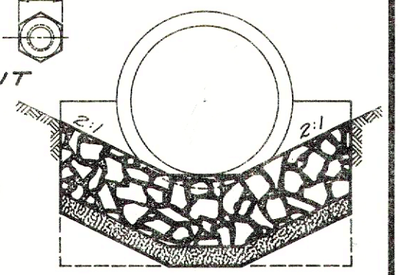
CIRCULAR					ELLIPTICAL					
D	W	H	T	Conc. Cu. Yds.	Span	Rise	W	H	T	Conc. Cu. Yds.
12"	2'-0"	3'-0"	12"	.20						
15"	2'-6"	3'-2"	12"	.25						
18"	3'-0"	3'-3"	12"	.31	23"	14"	3'-5"	3'-2"	12"	.33
21"	3'-6"	3'-4"	12"	.37						
24"	4'-0"	3'-6"	12"	.43	30"	19"	4'-2"	3'-4"	12"	.42
27"	4'-6"	3'-8"	12"	.49	34"	22"	4'-7"	3'-5"	12"	.46
30"	5'-0"	3'-9"	12"	.56	38"	24"	5'-0"	3'-6"	12"	.50
33"	5'-6"	3'-10"	12"	.62	42"	27"	5'-5"	3'-7"	12"	.55
36"	6'-0"	4'-0"	12"	.69	45"	29"	5'-10"	3'-8"	12"	.59
39"	6'-6"	4'-2"	12"	.77	49"	32"	6'-6"	3'-10"	12"	.67
42"	7'-0"	4'-3"	12"	.84	53"	34"	7'-2"	4'-0"	14"	.82
48"	8'-0"	4'-6"	14"	1.09	60"	38"	8'-5"	4'-2"	14"	1.01
54"	9'-3"	4'-9"	14"	1.32	68"	43"	9'-8"	4'-4"	16"	1.32
60"	10'-6"	5'-6"	16"	1.93	76"	48"	11'-0"	5'-0"	16"	1.79
66"	11'-9"	5'-9"	18"	2.42	83"	53"	12'-4"	5'-2"	18"	2.23
72"	13'-0"	6'-0"	18"	2.77	91"	58"	13'-7"	5'-5"	18"	2.53
78"	14'-3"	6'-3"	20"	3.37	98"	63"	14'-10"	5'-7"	20"	3.07
84"	15'-6"	6'-6"	22"	4.05	106"	68"	16'-2"	5'-10"	20"	3.42
90"	16'-9"	6'-9"	22"	4.51	113"	72"	17'-6"	6'-0"	22"	4.05
96"	18'-0"	7'-0"	24"	5.31						
102"	19'-3"	7'-3"	26"	6.20						
108"	20'-6"	7'-6"	26"	6.78						
114"	21'-9"	7'-9"	28"	7.81						
120"	23'-0"	8'-0"	30"	8.93						

HEADWALL FOR CORRUGATED METAL PIPE

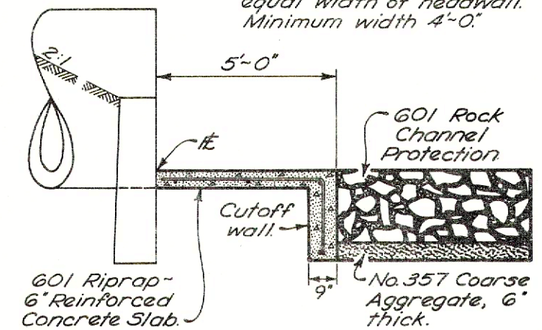
CIRCULAR					PIPE ARCH					
D	W	H	T	Conc. Cu. Yds.	Span	Rise	W	H	T	Conc. Cu. Yds.
12"	2'-0"	3'-0"	12"	.21						
15"	2'-6"	3'-2"	12"	.27	18"	11"	3'-0"	3'-0"	12"	.31
18"	3'-0"	3'-3"	12"	.33	22"	13"	3'-6"	3'-0"	12"	.37
21"	3'-6"	3'-4"	12"	.39	25"	16"	4'-0"	3'-2"	12"	.43
24"	4'-0"	3'-6"	12"	.46	29"	18"	4'-6"	3'-3"	12"	.48
27"	4'-6"	3'-8"	12"	.53						
30"	5'-0"	3'-9"	12"	.60	36"	22"	5'-6"	3'-5"	12"	.61
33"	5'-6"	3'-10"	12"	.68						
36"	6'-0"	4'-0"	12"	.76	43"	27"	6'-6"	3'-7"	12"	.74
39"	6'-6"	4'-2"	12"	.84						
42"	7'-0"	4'-3"	12"	.92	50"	31"	7'-8"	3'-9"	12"	.90
48"	8'-0"	4'-6"	12"	1.10	58"	36"	9'-0"	4'-0"	12"	1.09
54"	9'-3"	4'-9"	12"	1.33	65"	40"	10'-0"	4'-2"	12"	1.25
60"	10'-6"	5'-6"	12"	1.78	72"	44"	11'-0"	4'-4"	12"	1.43
66"	11'-9"	5'-9"	12"	2.06	73"	55"	13'-0"	4'-9"	12"	1.84
72"	13'-0"	6'-0"	12"	2.37	87"	63"	15'-6"	5'-2"	14"	2.56
78"	14'-3"	6'-3"	14"	2.94	103"	71"	18'-6"	5'-6"	16"	3.50
84"	15'-6"	6'-6"	14"	3.30	114"	77"	20'-0"	5'-9"	18"	4.18
90"	16'-9"	6'-9"	16"	4.00						
96"	18'-0"	7'-0"	16"	4.40						
102"	19'-3"	7'-3"	18"	5.28						
108"	20'-6"	7'-6"	20"	6.21						
114"	21'-9"	7'-9"	22"	7.25						
120"	23'-0"	8'-0"	24"	8.38						



ANCHOR BOLT

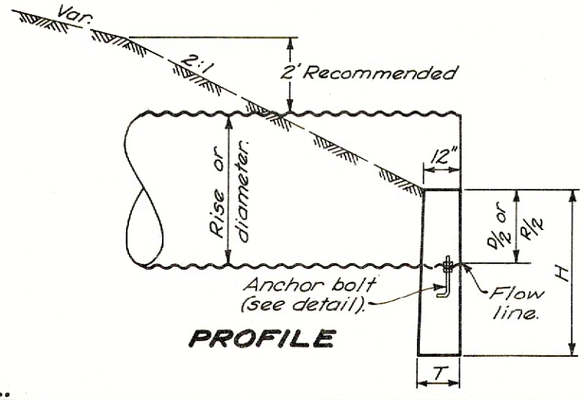


Width of protection shall equal width of headwall. Minimum width 4'-0".

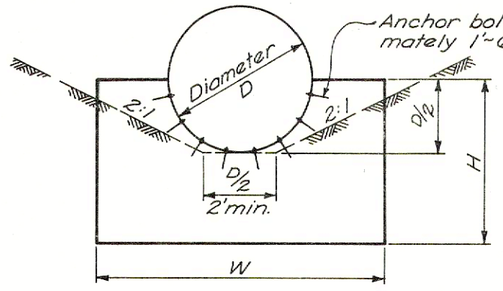


CHANNEL PROTECTION DETAIL

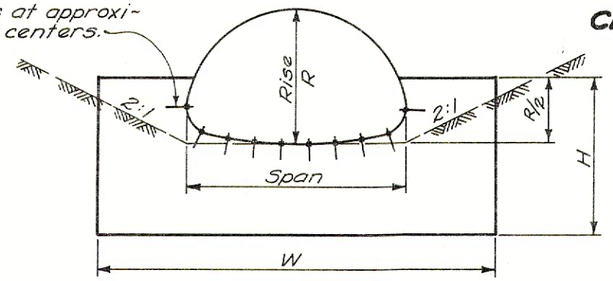
Cutoff wall depth (2'-6" min.) is variable to match required thickness of rock.



PROFILE



CIRCULAR



PIPE ARCH

CORRUGATED METAL PIPE

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

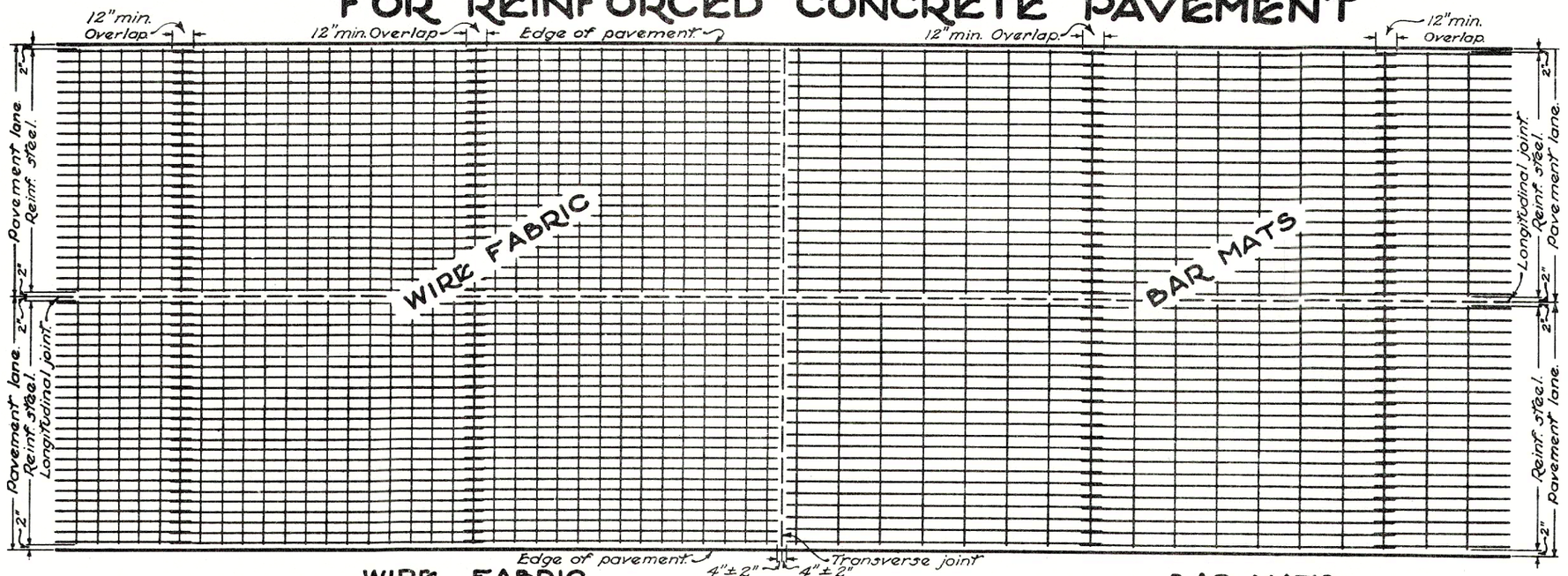
DATE 1-1-'70

HEADWALLS

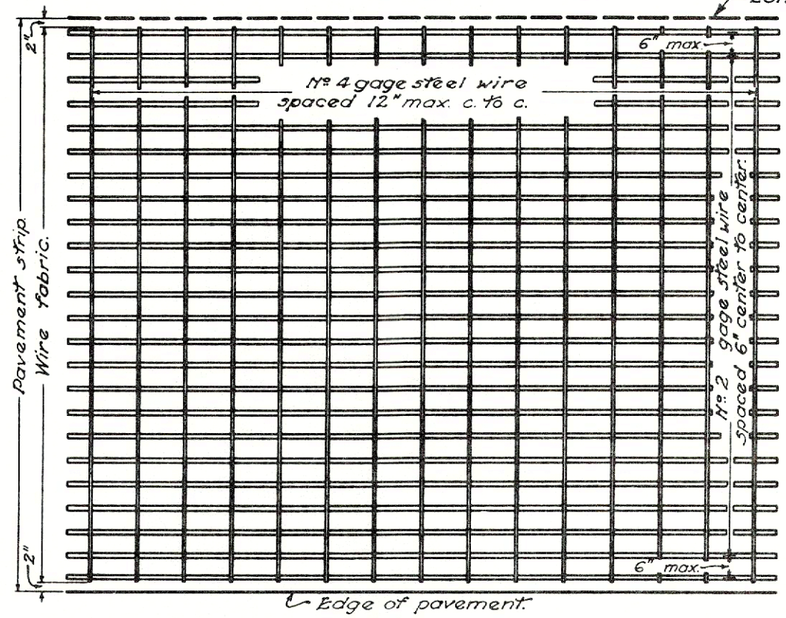
STANDARD CONSTRUCTION DRAWING HW-4

APPROVED R.E. Bell ENGR., L. & D.

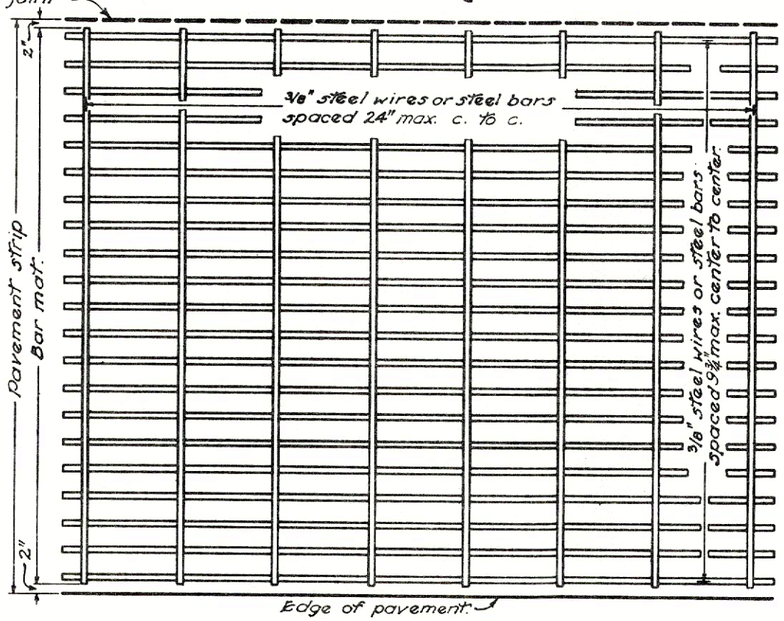
STEEL REINFORCING
FOR REINFORCED CONCRETE PAVEMENT



WIRE FABRIC



BAR MATS



NOTES

Steel reinforcing in normal or wider lane widths may consist of two units with an approved longitudinal hinge. The hinge shall consist of No. 4 gage steel wires connecting the two units such that the longitudinal members on either side of the hinge will be properly spaced when the reinforcing is in final position.

The distance from the top of the concrete pavement to the reinforcing steel may vary from 2½ inches to T/3 + 1 inch, where T = thickness of the concrete pavement.

The requirement for clearance between the transverse joints and the ends of wire or bar reinforcing is modified to the extent that the clearance may be 12" plus or minus 2" if the Contractor installs the dowel bars by using a dowel installing machine.

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

PAVEMENT REINFORCING

STANDARD CONSTRUCTION DRAWING **BP-2**

APPROVED R.E. Bartlett ENGR. L. & D.

DATE
6-1-65
1-10-67
1-17-68
12-1-68

FEDERAL-AID CONSTRUCTION IDENTIFICATION SIGNS

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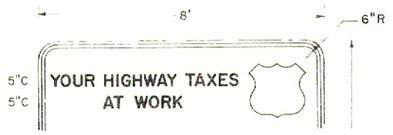

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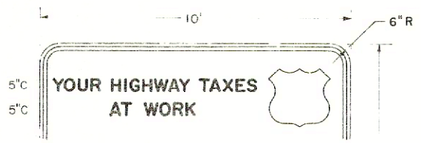

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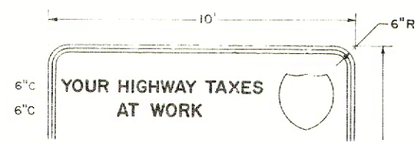

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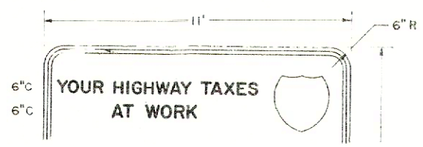

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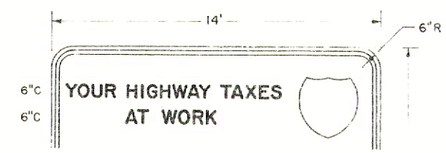

CODE N-54(2)-96(X)

CODE N-54(2)-120(4)

CODE N-55(2)-120(X)

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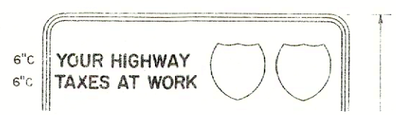

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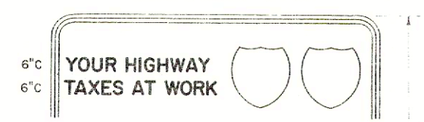

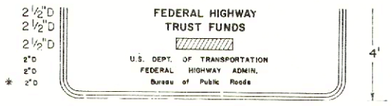

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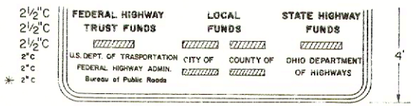

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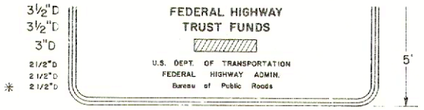

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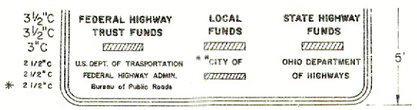

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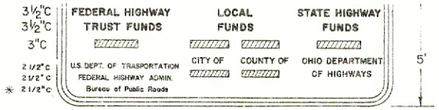
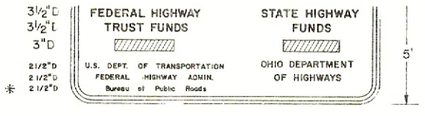


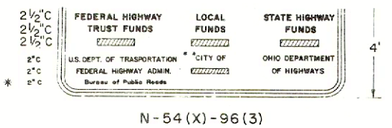
N-55(X)-168(4)

N-54(X)-96(2)

✲ THE WORDS "STATE HIGHWAY" SHALL BE REPLACED BY THE WORD "LOCAL", AND "OHIO DEPARTMENT OF HIGHWAYS" BY "COUNTY OF ____" OR "CITY OF ____" WHEN APPLICABLE.

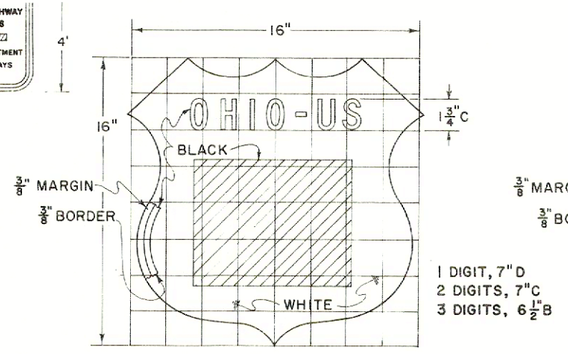


N-55(X)-120(2)

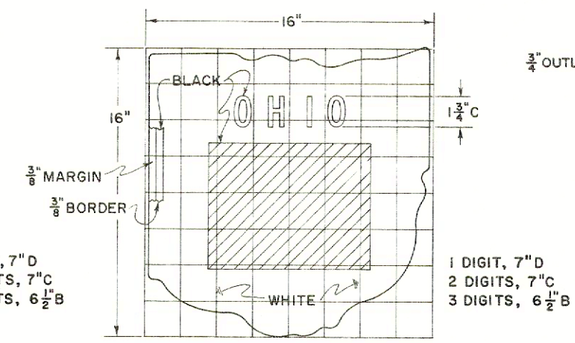


N-54(X)-96(3)

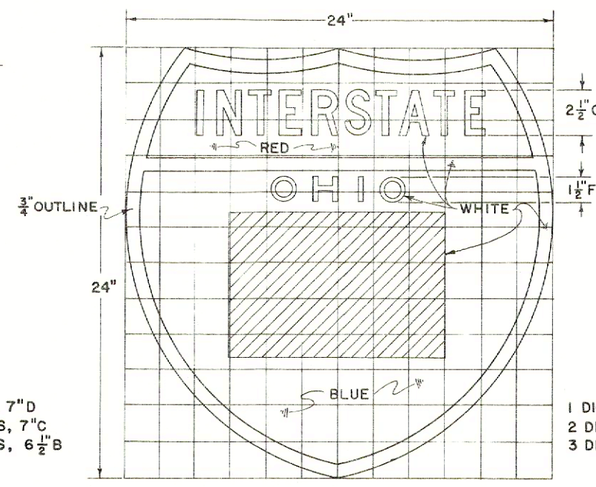
* IN "Bureau of Public Roads", WHERE UPPER AND LOWER CASE LETTERING IS SHOWN THE UPPER CASE LETTERS SHALL BE AS SPECIFIED AS TO SIZE AND SERIES. THE LOWER CASE LETTERS SHALL HAVE A LOOP HEIGHT 75% OF THE UPPER CASE HEIGHT.



M-1-16 (US)
(FOR USE WITH N-54 SIGN ONLY)



M-2-16 (OHIO)
(FOR USE WITH N-54 SIGN ONLY)



M-5-24 (INTERSTATE)
FOR USE WITH N-55 SIGN ONLY

1 DIGIT, 8"D
2 DIGITS, 8"D
3 DIGITS, 7"B

GENERAL INFORMATION

SIGN N-54 IS FOR USE ON PRIMARY AND SECONDARY SYSTEM PROJECTS. SIGN N-55 IS FOR USE ON INTERSTATE SYSTEM PROJECTS. WHEN TWO MARKERS ARE REQUIRED ON SIGN N-55 THE MARKER HAVING THE HIGHER ROUTE NUMBER SHALL BE PLACED TO THE RIGHT. WHEN TWO MARKERS ARE REQUIRED ON SIGN N-54 THE MARKER HAVING THE HIGHER ROUTE NUMBER SHALL BE PLACED TO THE RIGHT EXCEPT WHEN ONE MARKER IS U.S. AND THE OTHER IS OHIO. WHEN THIS OCCURS THE OHIO MARKER IS PLACED ON THE RIGHT REGARDLESS OF ROUTE NUMBER.

IN THE EVENT THAT MARKERS ARE NOT REQUIRED OR MORE THAN TWO MARKERS ARE REQUIRED, THE SIGN SIZE SHALL BE ADJUSTED SO AS TO PROPERLY ACCOMMODATE THE REQUIRED COPY.

NOTES:

ALPHABET AND LETTER SPACING

SIGN LETTERING, WHEN INDICATED ON THE PLANS AS A SERIES TYPE SUCH AS 5C OR 6C SHALL BE DESIGNED IN ACCORDANCE WITH THE "STANDARD ALPHABETS FOR HIGHWAY SIGNS OF THE BUREAU OF PUBLIC ROADS". THE SPACING BETWEEN LETTERS IS INDICATED IN THE "OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" AND IS TO BE INCREASED OR DECREASED PROPORTIONALLY SO THAT THE LEGEND OCCUPIES THE PROPER SPACE.

COPIES OF THE ABOVE REFERENCE ARE ON FILE IN THE OFFICE OF THE DEPARTMENT OF HIGHWAYS, BUREAU OF TRAFFIC, 450 E. TOWN ST., COLUMBUS, OHIO.

SIGN MATERIAL

SIGN MATERIAL SHALL BE 1/2 INCH HIGH OR MEDIUM-DENSITY RESIN IMPREGNATED FIBER OVERLAID PLYWOOD. IT SHALL BE DOUGLAS FIR EXTERIOR TYPE AND SHALL CONFORM TO COMMERCIAL STANDARD CS45-60, GRADE B OR BETTER.

SIGN COLORS

SIGN BACKGROUND COLOR SHALL BE WHITE USING TWO COATS OF ENAMEL. ENAMELS SHALL CONFORM TO FSS TT-E-489 C, CLASS A, AIR-DRYING. SIGN LEGEND AND BORDER SHALL BE BLACK OPAQUE SILK SCREEN PASTE OR BLACK ENAMEL.

QUANTITY, LOCATION, AND TYPE OF FEDERAL AID CONSTRUCTION IDENTIFICATION SIGNS IS SPECIFIED IN THE GENERAL NOTES.

▨ CROSSHATCHED AREA DENOTES A VARIABLE THAT SHALL BE FURNISHED AT THE TIME OF CONSTRUCTION.

** THE WORD CITY SHALL BE REPLACED BY THE WORD COUNTY WHEN APPROPRIATE.

BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

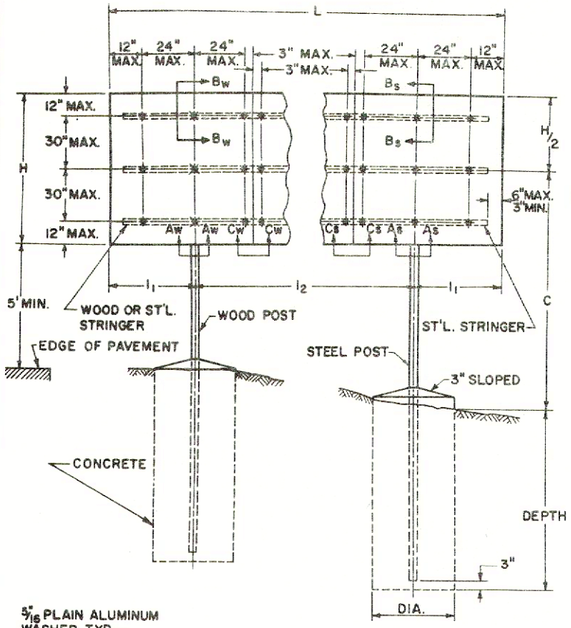
FEDERAL-AID CONSTRUCTION IDENTIFICATION SIGNS

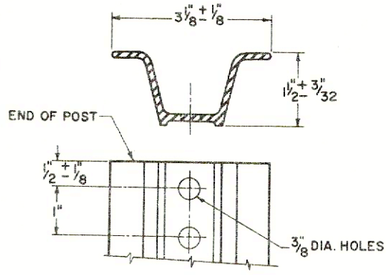
STANDARD CONSTRUCTION DRAWING FACI-1

APPROVED Fred Gaston
ENGINEER OF TRAFFIC

DATE
3-8-63
2-25-64
6-1-65
9-15-67

FEDERAL-AID CONSTRUCTION IDENTIFICATION SIGNS

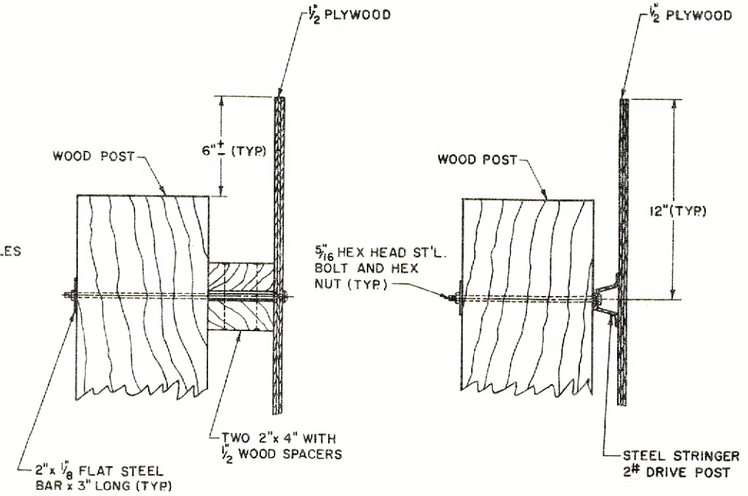




STEEL STRINGER
2# DRIVE POST

LEGEND

- ⊠ BOLTS THROUGH FACE, STRINGER & POST
- ○ BOLTS THROUGH FACE & STRINGER
- ● BOLTS THROUGH STRINGER & POST



SECTION Bw – Bw

NOTES

GENERAL: SIGN SUPPORTS MAY BE STEEL, WOOD OR A COMBINATION OF STEEL AND WOOD.

MATERIALS: THE MATERIALS LISTED BELOW SHALL BE IN ACCORDANCE WITH THE OHIO CONSTRUCTION AND MATERIAL SPECIFICATIONS.

DRIVE POST: 712.20

STRUCTURAL SHAPES: 711.01
WOOD POSTS AND STRINGERS: DOUGLAS FIR DENSE CONSTRUCTION, SOUTHERN YELLOW PINE DENSE STRUCTURAL OR BETTER.

THE POSTS AND STRINGERS SHALL BE PAINTED WITH ALL-WEATHER RESISTING HIGH QUALITY DARK GREEN ENAMEL. 708.10

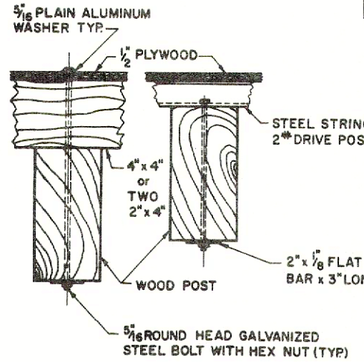
FABRICATION: ALL BOLT HOLES SHALL BE DRILLED FROM THE FACE THROUGH THE BACK OF THE SIGN USING A BACKING PANEL.

ALL JOINTS IN THE PLYWOOD SIGN PANELS SHALL BE VERTICAL AND SHALL BE PLACED WITHIN THE MIDDLE HALF OF THE SIGN PANEL.

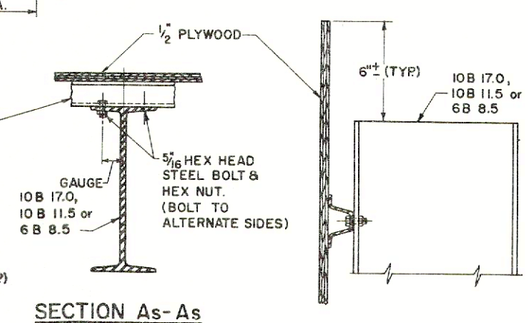
ERECTION: THE STRINGERS SHALL BE EITHER 4"x4" OR DOUBLE 2"x 4" WOOD WALES OR 2# DRIVE POSTS.

THE SIGN SUPPORT POST SIZE AND SPACING SHALL BE SELECTED FROM TABLES BASED ON SIGN AREA AND ACTUAL MOUNTING HEIGHT.

ON PROJECTS OF 6 MONTHS DURATION OR LESS THE CONTRACTOR, WITH THE ENGINEERS APPROVAL MAY OMIT CONCRETE FOUNDATION PROVIDED STRUCTURAL SUPPORT IMBEDMENT IS INCREASED BY 100 PER CENT.

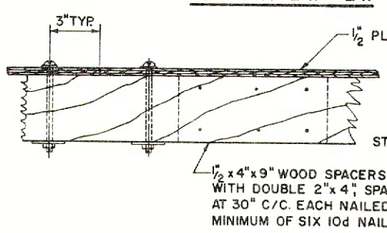


SECTION Aw–Aw

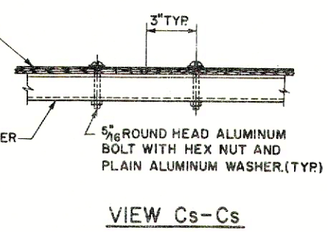


SECTION As-As

SECTION Bs-Bs



VIEW Cw–Cw



VIEW Cs–Cs
OR
VIEW Cw–Cw

SUPPORT SPACING

L	2 SUPPORTS		3 SUPPORTS	
	l_1	l_2	l_1	l_2
8'	1'–9"	4'–6"	1'–1"	2'–11"
10'	2'–3"	5'–6"	1'–5"	3'–7"
11'	2'–5"	6'–2"	1'–6"	4'–0"
14'	3'–1"	7'–10"	2'–0"	5'–0"

SUPPORT SIZE

SIGN AREA FT.² / C FEET	STEEL SUPPORTS					WOOD SUPPORTS				
	2 POST			3 POST		2 POST			3 POST	
	20-40	40-60	60-90	40-60	60-90	20-40	40-60	60-90	40-60	60-90
LESS 10	6B 8.5			6B 8.5		4"x 8"	4"x 10"	4"x 12"	4"x 8"	4"x 10"
10 – 12		10B 11.5								
12 – 14						4"x 10"	4"x 12"	6"x 12"	4"x 10"	4"x 12"
14 – 16										
16 – 18			10B 17	10B 11.5		4"x 12"	6"x 12"	6"x 14"	4"x 12"	6"x 12"
18 – 20										

SUPPORT FOUNDATIONS

SUPPORT		FOUNDATION	
TYPE	SIZE	DEPTH	DIA.
STEEL	6B 8.5	4'–0"	18"
STEEL	10B 11.5	5'–6"	18"
STEEL	10B 17.0	6'–3"	18"
WOOD	4" x 8" 4" x 10"	4'–0"	18"
WOOD	4" x 12" 6" x 12"	4'–6"	24"
WOOD	6" x 14"	5'–6"	24"

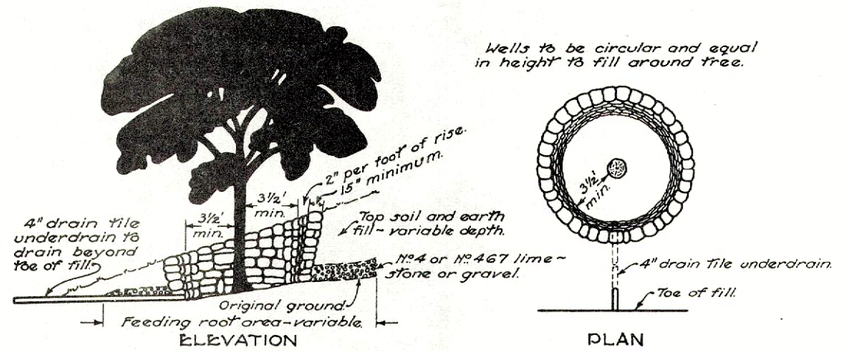
BUREAU OF TRAFFIC
OHIO DEPARTMENT OF HIGHWAYS

FEDERAL AID CONSTRUCTION IDENTIFICATION SIGNS

DATE 3-6-63, 2-29-64, 6-1-65

STANDARD CONSTRUCTION DRAWING FACI-2

APPROVED Fred C Clarke
ENGINEER OF TRAFFIC



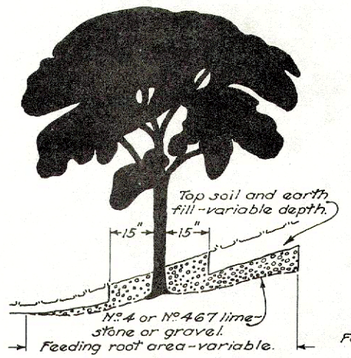
ELEVATION

PLAN

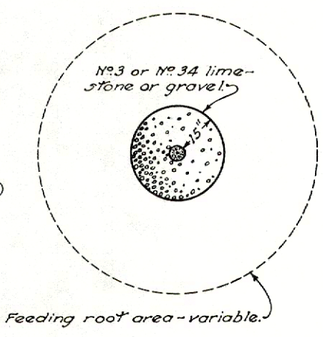
FRONT VIEW

Where fill around tree is 12" or more in depth over any part of feeding root area or periphery of the tree, wells are to be constructed as shown, augmented by Specifications for Roadside Improvement.

RIPRAP AND AGGREGATE FOR TREE PROTECTION AND AERATION IN FILL

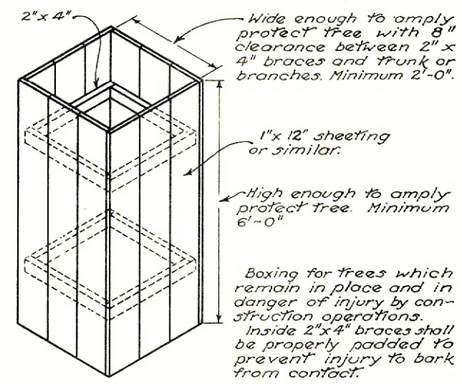


ELEVATION



PLAN

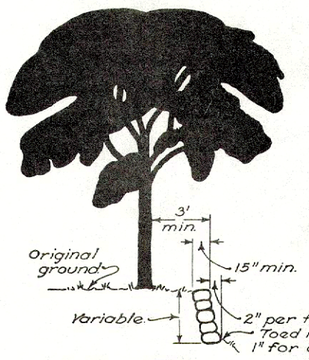
AGGREGATE FOR TREE ROOT AERATION IN FILL



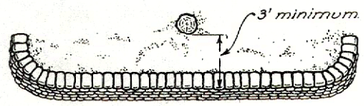
TREE PROTECTION BOX

Where the top of slope in cut is within 6' or less of tree, riprap is to be placed as shown, augmented by Specifications for Roadside Improvement.

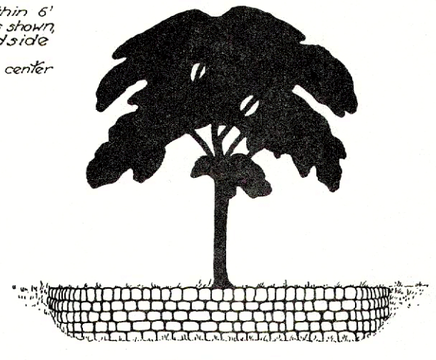
Walls are to extend far enough from center of tree to amply cover roots.



ELEVATION

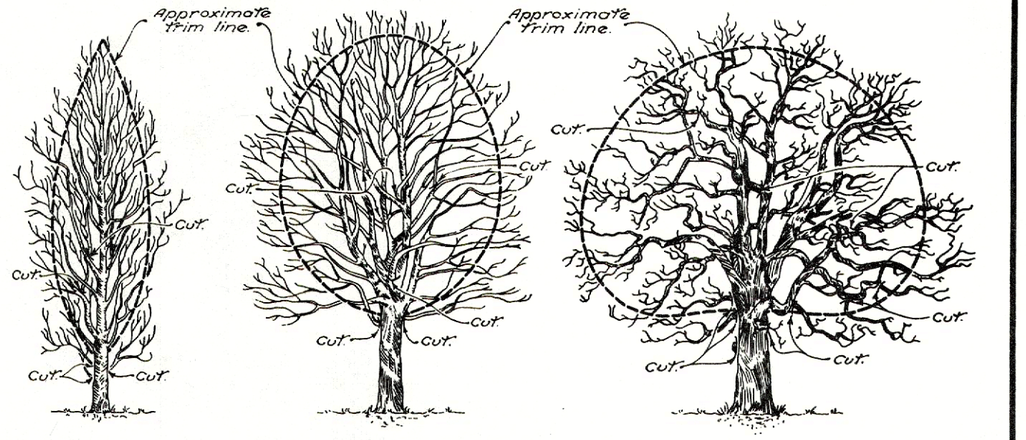


PLAN



FRONT VIEW

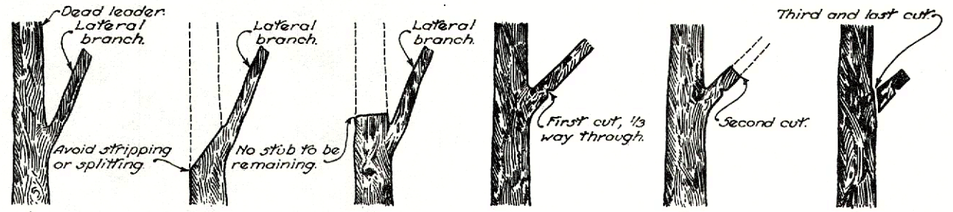
RIPRAP FOR TREE PROTECTION IN CUT



PYRAMIDAL TYPE

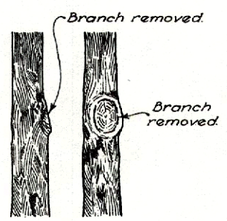
ROUND-HEADED TYPE

SPREADING TYPE

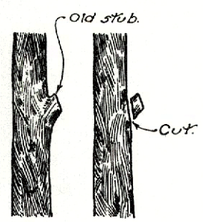


PART OF LEADER OR BRANCH TO BE REMOVED

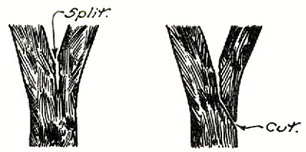
PROPER REMOVAL OF BRANCHES



Cuts made flush with remaining limb or trunk and ready for painting if diameter exceeds ½" -1" as specified.



REMOVING STUBS



PROPER CROTCH TREATMENT

PRUNING

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

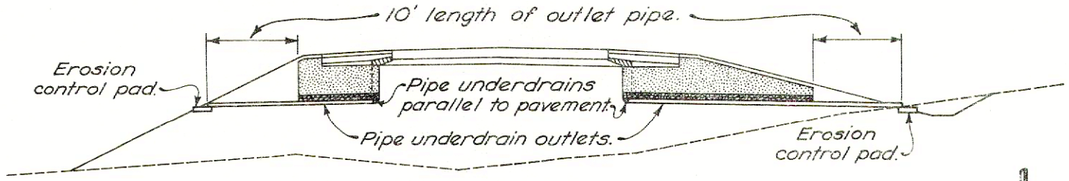
ROADSIDE IMPROVEMENT

STANDARD CONSTRUCTION DRAWING L-1

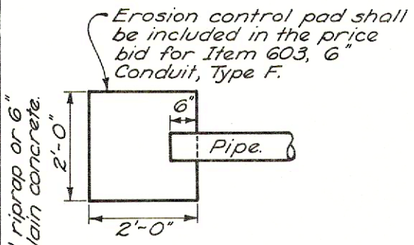
APPROVED _____ ENGR. L. & D.

DATE
2-20-36
7-10-36
2-16-38
12-1-41
10-1-45
4-1-50
6-1-65

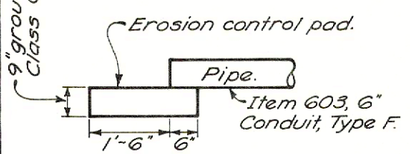
CONSTRUCTION METHODS



UNDERDRAIN OUTLET SECTION



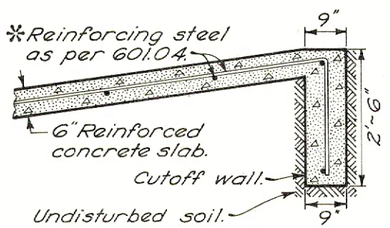
PLAN



PROFILE

PIPE UNDERDRAIN OUTLET

*If wire fabric is used in the slab, #4 bars @ 24" centers, overlapping the fabric 12", may be used in the cutoff wall.



RIPRAP CUTOFF WALL

Cutoff wall shall be included in the price bid for Item 601 Riprap-6" Reinforced Concrete Slab.

LAYING PIPE

CONCRETE CRADLE
CLASS A BEDDING

MASONRY COLLAR

NOTES

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

GRADE POLE shall be a straight pole dressed with corners rounded, size depending on 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 flowline 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.

ALTERNATE METHODS: The Engineer may approve other methods of determining alignment and gradient of pipe lines if the Contractor can demonstrate that the same degree of accuracy can be obtained as can be obtained by use of the method shown on this drawing.

MASONRY COLLARS: Where plans require that a pipe extension be joined to the end of an existing pipe with a butt joint, a collar shall be provided and the cost shall be included in the price bid for new conduit.

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF HIGHWAYS

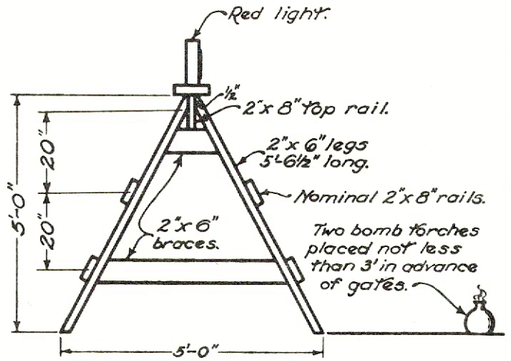
DRAINS AND SEWERS

STANDARD CONSTRUCTION DRAWING MC-4

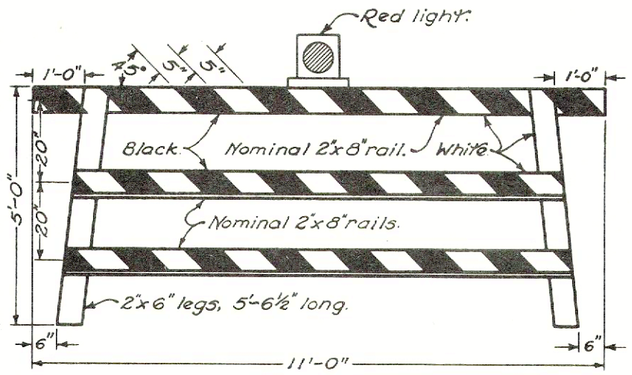
APPROVED R. E. Gatlin ENGR. L. & D.

DATE: 6-1-'65, 6-13-'69

STANDARD BARRICADES AND GATES

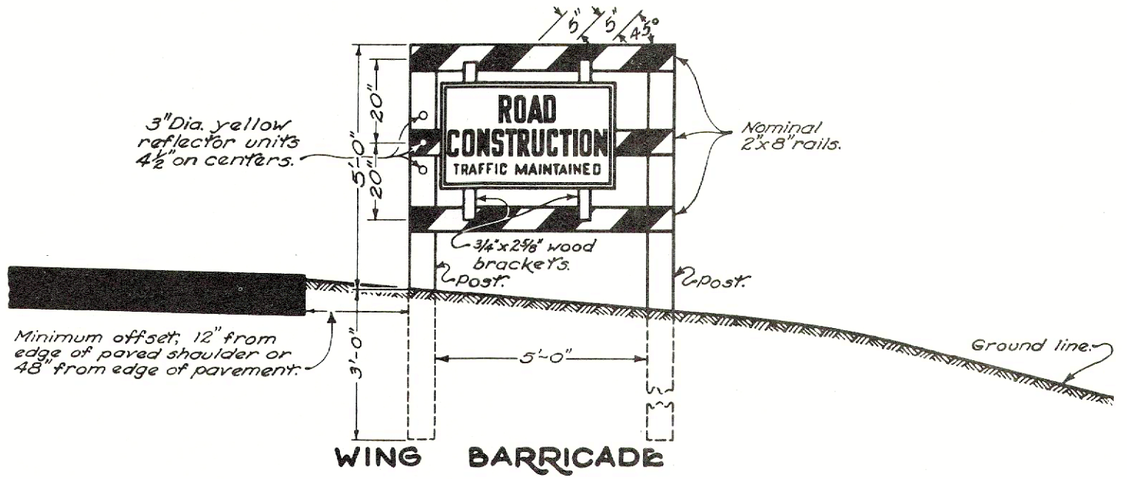


END VIEW

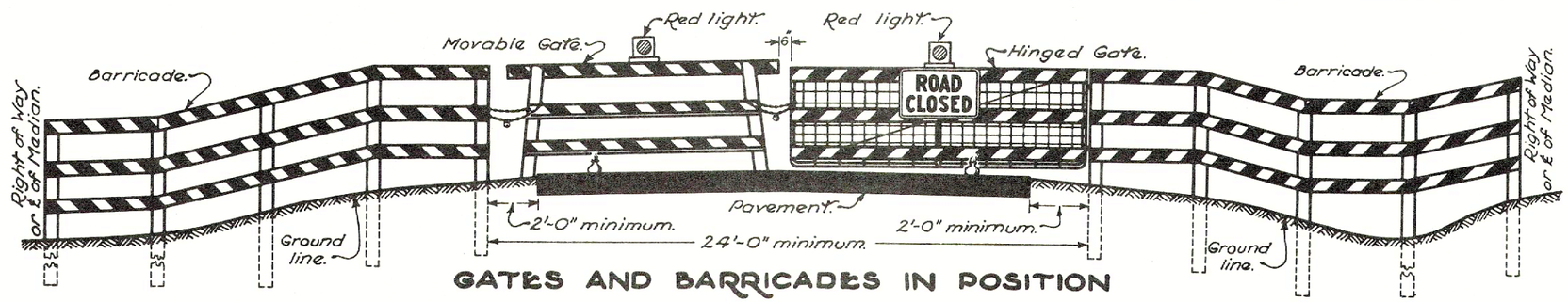


ELEVATION

MOVABLE GATE



WING 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.

POSTS shall be sound 4" x 4" sawed or $4\frac{1}{2}$" round.

CHAINS. Gates shall be chained and padlocked to one another and to adjacent posts of the barricades. Chains shall be 5/8" stock with welded links.

Barricades shall be constructed according to details shown. Rails of the barricade shall be bolted to the posts with 5/8" bolts.

The barricade shall provide an opening of a minimum width of 24 feet. For pavement widths greater than 20 feet minimum open width shall be the pavement width plus four (4) feet. Where erected on divided pavements the barricade shall effectively close the median opening.

PAINTING & REFLECTORIZATION. All rails of the barricades shall be reflectorized with 5" stripes of white reflective sheeting alternated with 5" stripes of black paint; stripes shall be on a 45° angle sloping downward toward the center line of the roadway.

When traffic is maintained the top rail of the barricade shall provide the above described treatment on both front and back, and the other rails on the front only. Three yellow reflector units 3" in diameter spaced on $4\frac{1}{2}$" centers shall be mounted on both sides of the posts nearest the pavement edges, as shown.

GATES. The movable gate shall be constructed according to the details shown. One gate shall be erected for each traffic lane. The gates shall be well spiked, using spikes long enough to clinch.

A hinged gate may be used and 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.

All rails shall be reflectorized, front and back with 5" stripes of white reflective sheeting alternated with 5" stripes of black paint; stripes shall be on a 45° angle sloping downward toward the center of the gate opening.

RED LIGHT. Each gate shall be equipped with a steady burning red light. During the hours of darkness, the red light shall be bright enough to be conspicuously visible at all distances up to 800 feet from the unit under normal atmospheric conditions. The red light may be operated by battery, electric generator, commercial power, or propane gas.

The red light shall be in operation at all times between sunset and sunrise during the period the highway is closed.

SIGNS. Upon the erection of the gates and barricades, according to the above standards, a ROAD CLOSED sign, size 48" x 30" shall be mounted on the gate as shown. When three gates are used for closing three-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 48" x 30" shall be mounted 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 48" x 30" shall be mounted on 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 MC-3

APPROVED R. E. Bellis ENGR. L. & D.

DATE
6-1-65
5-1-66
11-1-68
6-20-69

STATE OF OHIO
DEPARTMENT OF HIGHWAYS

HOL-76-9.61

HOLMES COUNTY
VILLAGE OF MILLERSBURG

ER-532 (17)

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	ER-532 (17)

1/4

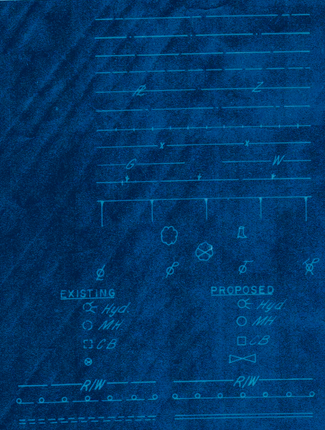
HOL-76-9.61

CONVENTIONAL SIGNS

COUNTY LINE
CORPORATION LINE
TOWNSHIP LINE
SECTION LINE
PROPERTY LINE
CENTER LINE
RAILROAD
FENCE LINE
GAS AND WATER MAINS
GROUND LINE
EMBANKMENT SLOPES

TREES AND STUMPS
TREES TO BE REMOVED
POLE LINE

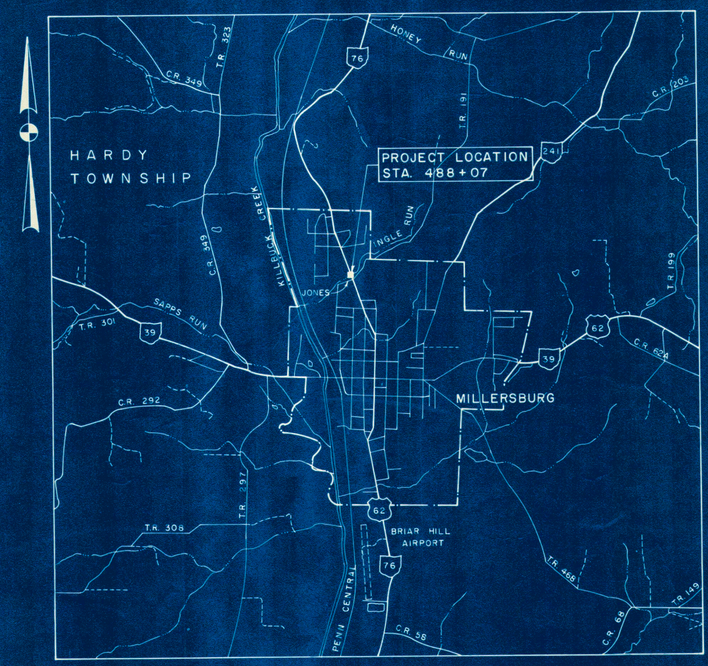
HYDRANTS
MANHOLES
CATCH BASINS
VALVES
RIGHT OF WAY
GUARD RAIL
PIPE - CONDUIT



INDEX OF SHEETS

LINE DATA

BEGIN WORK		STA. 487+83.5
END WORK		STA. 488+38.5
NET LENGTH OF WORK	=	55 LIN. FT. or 0.010 MILES
NET LENGTH OF PROJECT	=	*0.00 LIN. FT or 0.00 MILES*



LOCATION MAP

0 1/2 1 2
SCALE IN MILES

PORTION TO BE IMPROVED
STATE ROADS
OTHER ROADS

STANDARD CONSTRUCTION DRAWINGS			
HW-4	1-1-70	MC-4	6-13-69
BP-2	12-1-68	MC-3	5-20-69
FACI-1	9-15-67		
FACI-2	6-1-65		
L-1	6-1-65		

FILE NO. HOLMES CO.: HOL-76-9.61
DATE OF LETTING
CONTRACT NO.

1971 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 THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY, AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

APPROVED DATE 3-1-71 — Karl Snyder — KARL SNYDER - HOLMES COUNTY ENGINEER

APPROVED DATE 3-2-71 — DIVISION DEPUTY DIRECTOR

APPROVED DATE 5-27-71 — ENGINEER OF LOCATION & DESIGN

APPROVED DATE — DEPUTY DIRECTOR OF DESIGN & CONSTRUCTION

APPROVED DATE — DEPUTY DIRECTOR OF RIGHT-OF-WAY

NO RR HRF 5-27-71

APPROVED DATE 6-1-71 — William Bentley — DEPUTY DIRECTOR OF PLANNING & PROGRAMMING

APPROVED DATE 6/9/71 — FIRST ASSISTANT DIRECTOR

APPROVED DATE 6/9/71 — DIRECTOR OF HIGHWAYS

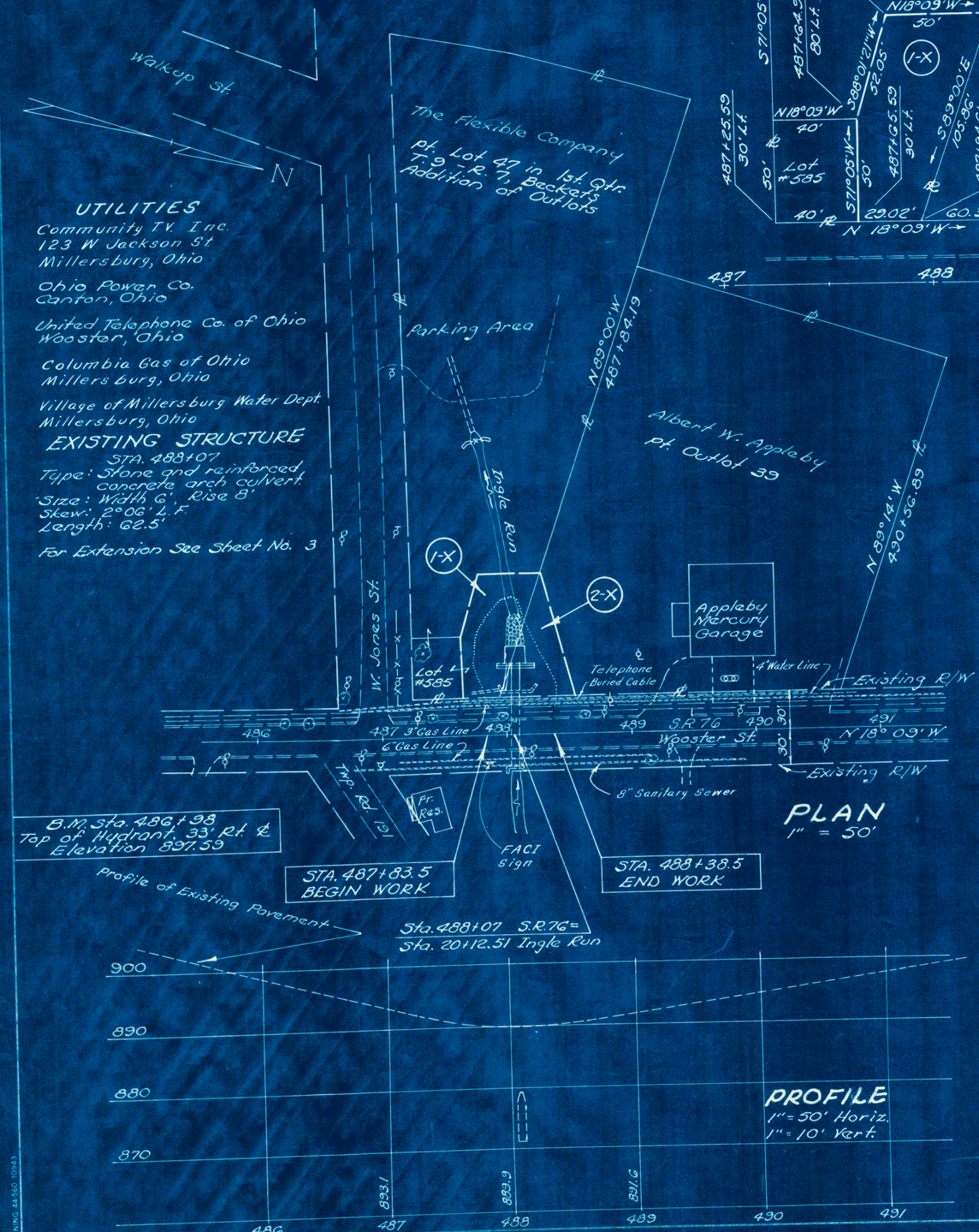
ENGINEERING ASSOCIATES LTD.
CONSULTING ENGINEERS
WOOSTER, OHIO

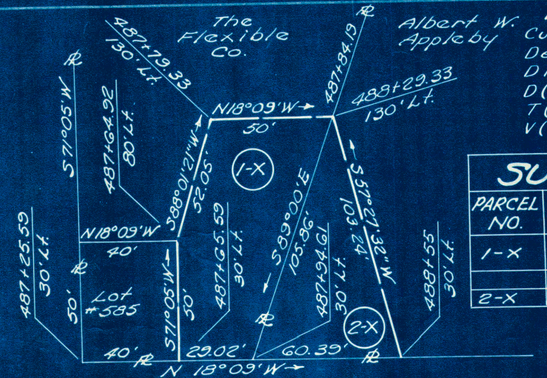
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED

DIVISION ENGINEER — DATE

VILLAGE OF MILLERSBURG





DESIGN DESIGNATION

Current ADT (1971)	4170
Design Year ADT (1991)	10380
DHV	1661
D (Directional Distribution)	60-40%
T (Percent B & C Trucks)	8%
V (Design Speed)	35 MPH

Documentation
Calc. by: DWS 2-2-71
Checked by: DGC 2-3-71

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

2/4

HOL-76-9.61

SUMMARY OF ADDITIONAL RIGHT OF WAY REQUIRED

PARCEL NO.	OWNER	DEED RECORD BOOK	DEED RECORD PAGE	DEED AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	REMARKS	TYPE FUNDS
1-X	The Flexible Co.	116	353	2.25 Ac.	0	0.098 Ac	0	0.098 Ac	Correct Flood Damage	
		137	223	2000 S.F.	0		0	0	Lot #585	
2-X	Albert W. Appleby	151	583	1.72 Ac.	0	0.069 Ac		0.069 Ac	Correct Flood Damage	

UTILITIES

Community TV. Inc.
123 W Jackson St
Millersburg, Ohio

Ohio Power Co.
Canton, Ohio

United Telephone Co. of Ohio
Wooster, Ohio

Columbia Gas of Ohio
Millersburg, Ohio

Village of Millersburg Water Dept
Millersburg, Ohio

EXISTING STRUCTURE

STA. 488+07
Type: Stone and reinforced concrete arch culvert
Size: Width 6', Rise 8'
Skew: 2°06' L.F.
Length: 62.5'

For Extension See Sheet No. 3

FEDERAL AID CONSTRUCTION IDENTIFICATION SIGNS:

The contractor shall furnish, erect, maintain and subsequently remove Federal Aid construction identification sign at the following approximate location:

STA. 487+80

Sign details shall be as specified on Standard Drawing FACI-1, Code N-54(1)-96(1), modified by deleting reference to "Your Highway Taxes at Work" and "federal Highway Trust Fund" and inserting in their respective positions "Your Highway Funds at Work" and "federal Emergency Relief Funds."

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

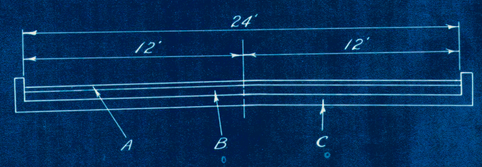
CLEARING AND GRUBBING: Although there are no trees and/or stumps specifically marked for removal within the limits of this project, a lump sum quantity has been included in the General Summary for Item 201, Clearing and Grubbing. All provisions as set forth in the specifications under this item shall be followed, and all cost shall be included in the lump sum price bid for Item 201 Clearing and Grubbing.

MAINTENANCE OF SEWER FLOW:

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 in use.

Payment for any additional costs involved in maintaining these flows by pumping or by any other means approved by the Engineer shall be included in the unit prices bid for the respective items of 603 Conduit.

UTILITIES: The contractor will exercise necessary precaution for the protection of all existing utilities.



A - Existing Asphalt Surface
B - Existing Brick
C - Existing Concrete Base with Curbs

TYPICAL SECTION ADJOINING PAVEMENT

GENERAL NOTES

FIELD OFFICE: The Contractor shall provide a suitable field office having a minimum of 150 sq ft. of floor space and in addition to the requirements of item 619, he shall provide and maintain sanitary provisions as per 107.06. All the above is included in the lump sum price bid for item 619 Field Office.

CONSTRUCTION LAYOUT STAKES: See note in proposal describing the work included in this lump sum pay item.

TRAFFIC: Two way traffic shall be maintained at all times in accordance with the requirements of item 614.

ELEVATION DATUM: All elevations are based on the USGS datum

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

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. Estimated quantities of materials shall not be ordered for delivery to the project unless aurthorized by the Engineer.

EROSION CONTROL: Item 601 is provided in these plans for erosion control. Rock of a stable nature will not be removed in order to place any of this item. The Engineer shall check and non-perform quantities or adjust locations and quantities for this item where indicated by field conditions during construction.

* Unless otherwise noted

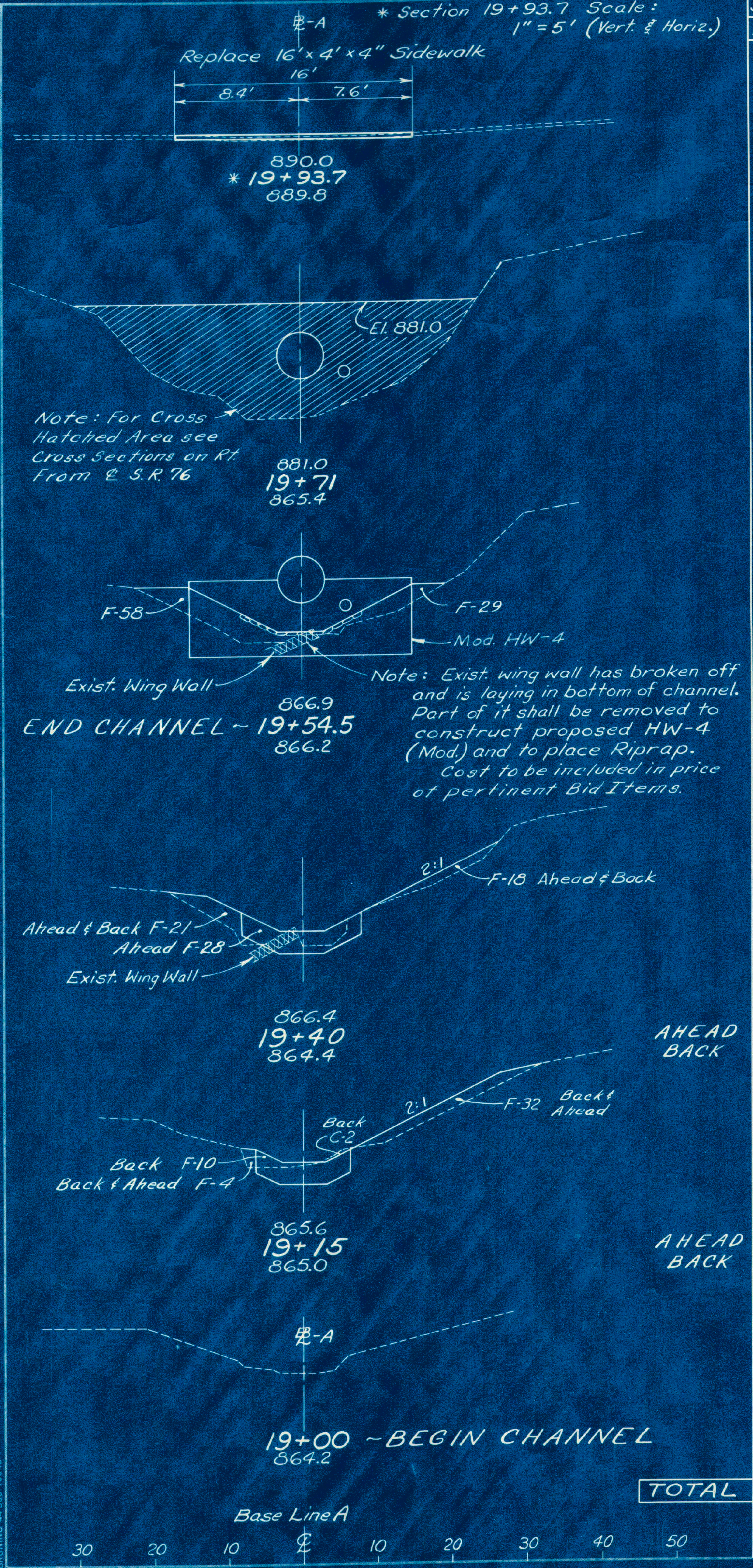
GENRAL SUMMARY

ITEM	From Sht 2	From Sht 4	Total	Code * Type Y-007	UNIT	DESCRIPTION
						Roadway
201	Lump		Lump		Lump	Clearing and Grubbing
202		7	7		Cu. Yd.	Portions of Structures Removed
203		1	1		Cu. Yd.	Excavation not Including Embankment Construction
203		439	439		Cu. Yd.	Embankment
608		64	64		Sq. Ft.	4" Concrete Walk
						Erosion Control - Code Type Y-005
601		41	41		Cu Yd.	Rock Channel Protection, Type A
601		25	25		Sq. Yd.	Riprap Using 6" Reinforced Concrete Slab
659		394	394		Sq. Yd	Seeding and Mulching
659		0.04	0.04		Ton	Commercial Fertilizer (12-12-12)
659		0.18	0.18		Ton	Agricultural Liming
						Drainage
602		28.2	28.2		Cu. Yd.	Concrete Masonry
603		26	26		Lin Ft.	21" Conduit, Type C, 706.02 Cl. IV or 707.13, as per plan
603		28	28		Lin Ft.	72" Conduit, Type A, 707.05, as per plan
614	Lump		Lump		Lump	MAINTAINING TRAFFIC
619	Lump		Lump		Lump	FIELD OFFICE
	Lump		Lump		Lump	CONSTRUCTION LAYOUT STAKES

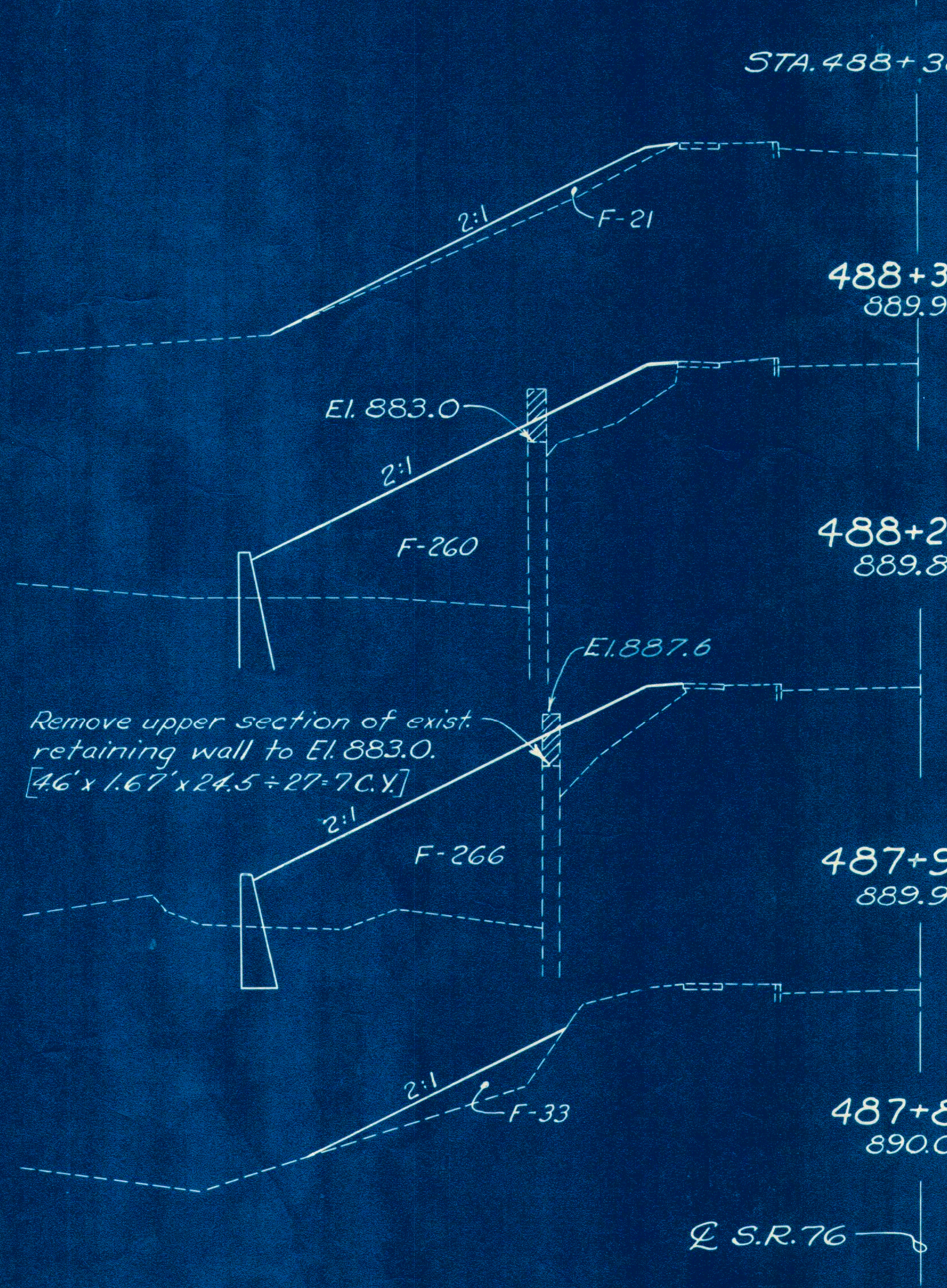

FED. RD. DIVISION 2 STATE OHIO PROJECT
3/4
HOL-76-9.61
CURVE DATA & INGLE RUN
P.I. = Sta. 19+28.07
Δ = 13° 15'
D = 22° 02' 13"
R = 260'
T = 30.20'
L = 60.13'
E = 1.74'
Drive and parking area Flexible Co.
NOTE: HW-4 HEADWALL MODIFIED
In leiu of the dimensions shown on Standard Drawing HW-4, the headwall used in this plan shall have the following dimensions:
Width = 30'
Height = 10'
Width: Top = 1'-0"
Bottom = 3'-4"
Existing Broken Wing Wall
28'
25'
14'
25'
3'
Conc. Mod. HW-4
Mod. HW-4
[(333+1)/2) 10' x 30' - π(3)²/2 x 1.28] 1/27 = 23.4 Cu. Yds.
Rock Channel Protection, Type A
[(16+12)/2 15 + (12+10)/2 10] 3.5/27 = 41 C.Y.
72" Conduit, Type A, 707.05
Replace 16' of 4' x 4' Sidewalk
℄ S.R. 76
Wooster St.
2°06' Skew Angle
Gage 8
Sidewalk (16' x 4' = 64 S.F.)
Wooded
18" V.S.P. (conc. encased)
Base Line A
18" V.S.P.
61° 30'
21" x 26'
18" V.S.P.
Sta. 488+07 ℄ S.R. 76
Sta. 20+12.51 ℄ Ingle Run
Riprap
Cut-off Wall 16' x 3' x 1'
(14' x 16' ÷ 9 = 25 S.Y.)
Concrete Collar. (See Detail), cost to be included in price bid per Lin. Ft. 21" Conduit.
4' Conc. Sidewalk
P.C. Sta. 18+97.87
P.T. Sta. 19+58.00
36" CMP
Headwall with angle iron trash rack
Conc. for connection
{[(5.5' x 6 + π(3)²/2) - π(3)²] 3 + (1/2 x 12 x 2 x 6)} 1/27 = 4.8 C.Y.
12' ±
PIPE CONNECTION DETAIL
Scale
PLAN
Scale in Feet
0 5 10
NOTE: Class C Concrete shall be used in the following connection. Floor of existing structure at outlet (12'±) shall be built-up to fit the existing continuous flow line grade.
Due to corrugations of proposed 72" pipe, sides of existing culvert shall be grooved-out to allow pipe to be extended 3' into the culvert.
The remaining opening between shell of the pipe and culvert walls shall be sealed with concrete so that it is flush with face of head wall and entrance end of proposed 72" pipe. See detail above.
Cost of grooving walls for pipe shall be included in the unit price bid for the 72" Conduit.
Pipe Collar
3/4" Dowel Bars
Existing Wing Wall
Proposed 21" Pipe
Existing 21" Pipe
3/4 x 18" Dowels - Doweled 9" into Existing Wingwall
Concrete Pipe Collar Detail
Scale 1" = 2'
Dowel holes shall be in accordance with 510 and dowel bars shall be in accordance with 509. Costs shall be included in price bid per lin. ft. 21" conduit.
875
870
865
860
℄ S.R. 76
34.5'
23.5'
Profile Grade El. = 889.91
El. = 887.55
El. = 886.8
El. = 885.2
18" V.S.P.
Cross hatched portion wall to be removed to Elev. 883.0
Top arch El. = 879.2 ±
El. 873.7
F.L. El. = 870.7
El. 870.9
F.L. El. = 873.5
+2.20%
+0.87%
F.L. 869.25
F.L. 870.93
36"
+4.40%
F.L. 869.53
El. 863.7
F.L. 866.9
3.4'
6" Bedding
Inv. 36" CMP El. = 857.99
PROFILE
488+07
889.91
SCALE: Horz. 0 5 10 20
Vert. 0 5 10
Sh't No 1 of 2
Documentation
Calc. by: DWS 2-2-71
Checked by: DGC 2-3-71
STA. 488+07
72" x 28' STD. PIPE CONDUIT EXTENSION

FED. RD. DIVISION	STATE	PROJECT		
2	OHIO			4/4

HOL-76-9.61



Station	Seeding Width	Seeding Sq.Yds.	Emb. E.A.	Emb. Cu.Yds.	Exc. E.A.	Exc. Cu.Yds.
19+54.5	32		87		0	
		53		41		0
19+40 AHEAD	34		67		0	
19+40 BACK	34		39		0	
		94		35		0
19+15 AHEAD	34		36		0	
19+15 BACK	34		48		2	
		28		13		1
19+00	0		0		0	
TOTAL		175		89		1



Station	Seeding Width	Seeding Sq.Yds.	Emb. E.A.	Emb. Cu.Yds.
STA. 488+38.5	0		0	
		14		2
488+32.5 (889.95)	41		21	
		55		62
488+20.5 (889.86)	41		260	
		109		234
487+96.5 (889.94)	41		266	
		35		50
487+87.5 (890.01)	29		33	
		6		2
STA. 487+83.5	0		0	
TOTAL		219		350

Scale in Feet
0 5 10 20

Area : 168 Acres
Q_{25} : 270 cfs.

ITEM 659 CALCULATIONS

Lime -
Sq. Yds. from table = 394
394 x 9 ÷ 1000 x 100 ÷ 2000 = 0.18 Tons

Fertilizer
Sq. Yds. from table = 394
394 x 9 ÷ 1000 x 20 ÷ 2000 = 0.04 Tons

BENDS AND BRANCHES	
21"x67½° Bend	1 each

QUANTITIES

Item	Description	Quantity	Unit
603	*72" Conduit, Type A, 707.05, as per plan	28	Lin. Ft.
603	*21" Conduit, Type C, 706.02 Cl. IV or 707.13	26	Lin. Ft.
602	* Concrete Masonry	28.2	Cu. Yds.
601	*Rock Channel Protection, Type A	41	Cu. Yds.
601	*Riprap using 6" Reinforced Concrete Slab	25	Sq. Yds.
203	Excavation	1	Cu. Yds.
203	Embankment	439	Cu. Yds.
659	Seeding and Mulching	394	Sq. Yds.
659	Commercial Fertilizer	0.04	Ton
659	Agricultural Liming	0.18	Ton
608	*Concrete Walk	64	Sq. Ft.
202	Portions of Structures Removed	7	Cu. Yds.

* For Calculations See Sheet Nº 3

Quantities		
Calc. by:	DWS	2-2-71
Checked by:	DGC	2-3-71

STA. 488+07
72"x28' ST'D. PIPE CONDUIT EXTENSION

Sheet 2 of 2 Sheets

BRUNING 44-560 10943

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

HOL-76-8.49

9.61

CURVE DATA ℄ INGLE RUN
P.I. = Sta. 19+28.07
Δ = 13°15'
D = 22°02'13"
R = 260'
T = 30.20'
L = 60.13'
E = 1.74'

NOTE: Remove existing headwall and wingwalls; place 1ft. Concrete cap extension on existing culvert (see drwing).
Place 3/4" x 18" dowels at 1'-0" %. Seal existing culvert end (around proposed 72" C.M.P.) with 2 ft. thickness of concrete (1ft. inside existing culvert and 1ft. outside to fit flush with new cap extension).

BRUNING 44-560 10943