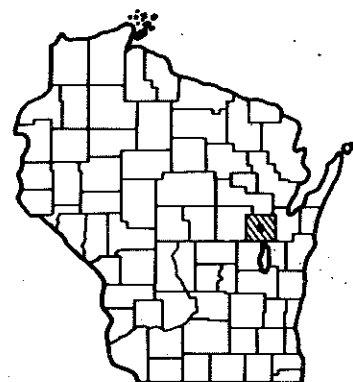


Index of Sheets

Sheet No. 1	Title
Sheet No. 2-2.2	Typical Cross Sections
Sheet No. 3	Estimate of Quantities
Sheet No. 3A	Miscellaneous Quantities
Sheet No. 4-4.1	Right of Way Plat
Sheet No. 5-5.1	Plan and Profile
Sheet No. 6-6.4	Standard Details
Sheet No. -	Structure Plans
Sheet No. -	Computer Earthwork Data
Sheet No. 8-8.7	Cross Sections

TOTAL SHEETS = 23



Design Designation

A.D.T. (1978)	=	2,702
A.D.T. (1998)	=	4,294
D.H.V.	=	601
D.	=	55
T.	=	6
V.	=	55

Conventional Signs

County Line	-----
Township or Range Line	-----
Section Line	-----
New Right of Way Line	-----
Present Right of Way Line	-----
Wire Fence	-----
Corporate or City Limits	-----
Property Line	-----
Traveled Way or P.E.	-----
Railroads	-----
Base or Survey Line	-----
Caution Symbol (combustible fluids under pressure)	-----

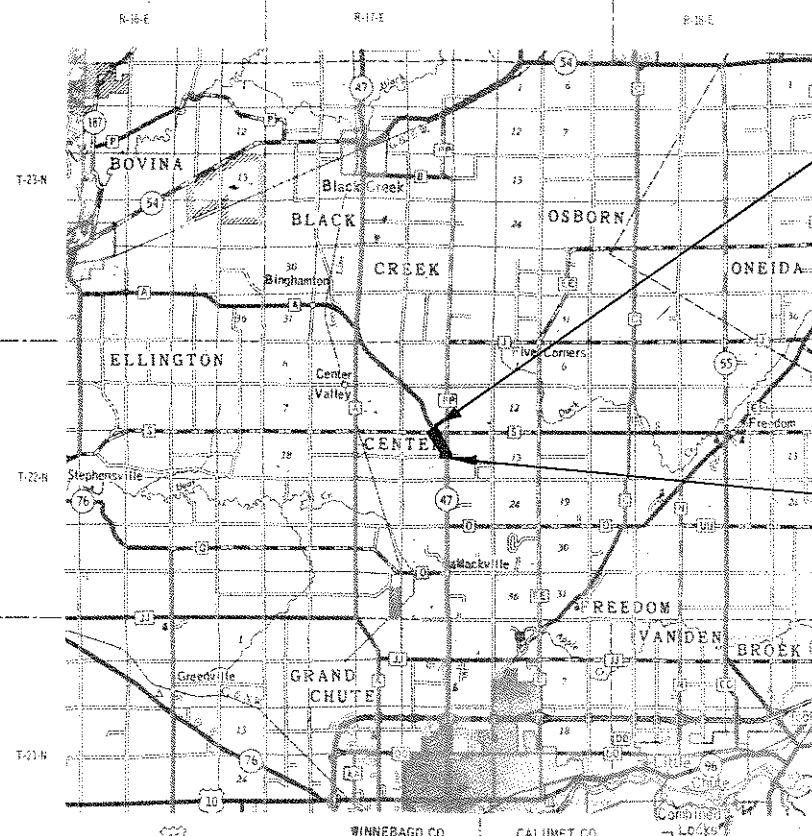
Culverts in Place	-----
Culverts Required	-----
Drop Inlet	-----
Power Pole	-----
Telephone or Telegraph Pole	-----
Right of Way Markers	-----
Reference Stake for Hubs Only	-----
Marsh	-----
Hedge	-----
Trees	-----
Ground Elevation	-----
Grade Elevation	-----

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

PLAN AND PROFILE OF PROPOSED APPLETON - BLACK CREEK ROAD (C.T.H. "S" INTERSECTION) S.T.H. 47 OUTAGAMIE COUNTY

STATE PROJECT NUMBER
6242-2-72

Scales
Plan 1 in. = 100 ft.
Profile Hor. 1 in. = 100 ft. Vert. 1 in. = 10 ft.
Cross Sections Hor. 1 in. = 5 ft. Vert. 1 in. = 5 ft.



**END OF PROJECT 6242-2-71,72
STA. 394 + 85**

N = 206,251.498
E = 2,412,850.873
LOCATED 347.67 FEET NORTH OF AND 1,038.70 FEET EAST OF THE NORTH QUARTER CORNER OF SECTION 15, TOWN 22 NORTH, RANGE 17 EAST.

**BEGINNING OF PROJECT 6242-2-71,72
STA. 362 + 00**

N = 203,392.059
E = 2,414,352.629
LOCATED 109.64 FEET NORTH OF AND 1.91 FEET WEST OF THE EAST QUARTER CORNER OF SECTION 15, TOWN 22 NORTH, RANGE 17 EAST.

Layout

Scale

Total Net Length of Centerline = 0.622 Mi. Rural

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
6242-2-71	HHS 0131(1)	1
6242-2-72	"	2

RECEIVED

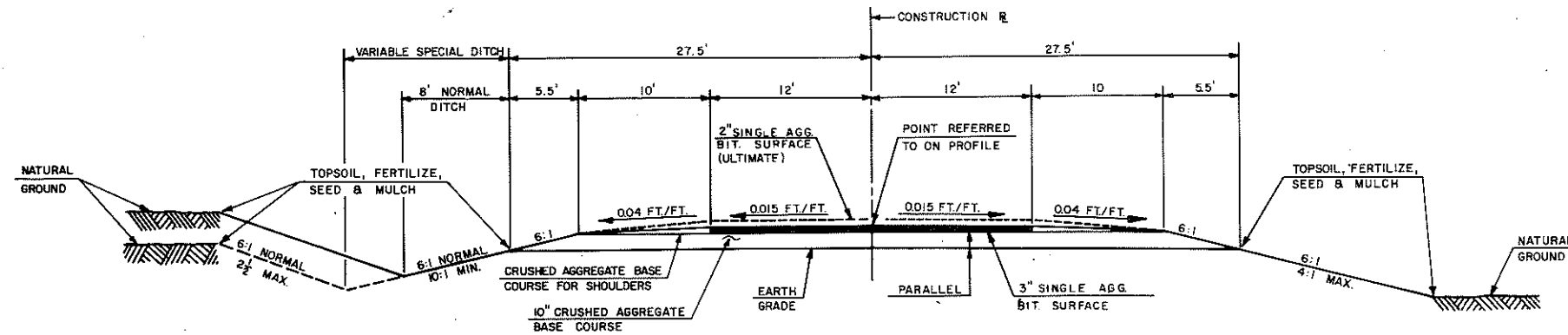
MAY 24 1978

OUTAGAMIE COUNTY
HIGHWAY COMMISSION

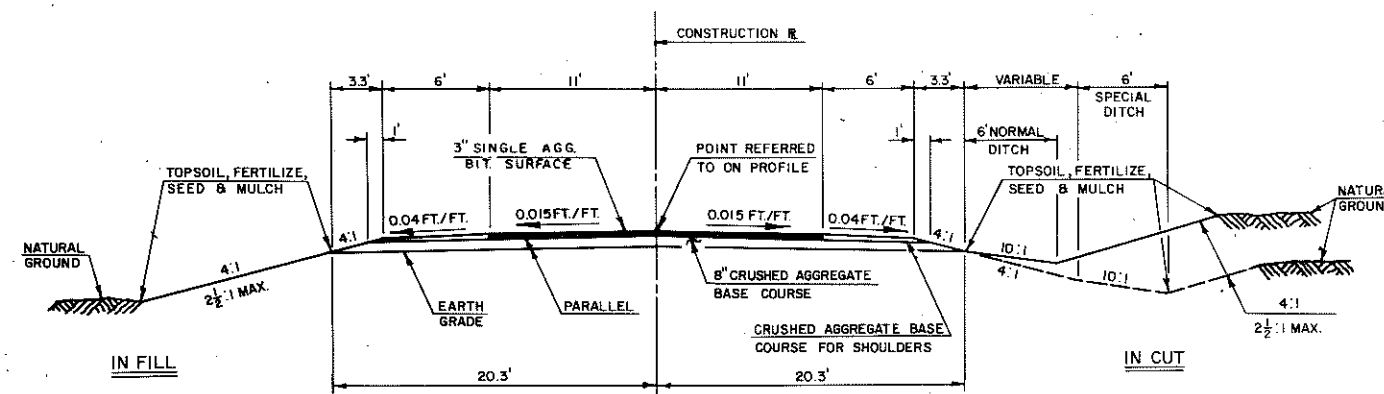
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS			
Surveyor	District Checker	H.A.T.	
Designer	J.S.B.	C.O. Checker	R.A.H.
District Supervisor	J.E.F.	C.O. Monitor	159
Approved:			
Date	3-15-78	C.R. Ryan District Engineer	
Approved:			
Date	4-22-78	R.D. Strand Chief of Facilities Development	
Approved:			
Date	4-25-78	H.J. Jellies State Highway Engineer	
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION REGION 5 WISCONSIN DIVISION			
Approved:			
Date		District Engineer	

S-39

STATE PROJECT NUMBER	SHEET NO.
6242-2-72	2
TYPICAL CROSS SECTIONS FOR	
S.T.H. 47	OUTAGAMIE CO.



TYPICAL SECTION FOR S.T.H. 47
STA. 362+00 TO STA. 394+85



TYPICAL CROSS SECTION FOR
C.T.H. "S" AND S.T.H. 47 CONNECTOR

GENERAL NOTES

CERTAIN UNDERGROUND UTILITY STRUCTURES HAVE BEEN LOCATED ON THESE PLANS. THESE LOCATIONS SHALL NOT BE TAKEN AS CONCLUSIVE. VERIFICATION AS TO THE LOCATION TO THE SATISFACTION OF THE CONTRACTOR OF ALL UNDERGROUND UTILITY STRUCTURES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE ASSUMED AS A CONDITION OF THE CONTRACT. PRIVATE UTILITY COMPANIES SHALL ADJUST OR MOVE ALL FACILITIES WHICH INTERFERE WITH NEW CONSTRUCTION.

ALL COORDINATES SHOWN ON THE PLANS ARE REFERENCED TO THE WISCONSIN COORDINATE SYSTEM CENTRAL ZONE.

FILL AS SHOWN ON THE PLAN SHEETS PERTAINS TO EMBANKMENT CONSTRUCTED FROM UNCLASSIFIED EXCAVATION AND BORROW EXCAVATION. THE SHRINKAGE ALLOWANCE USED TO COMPUTE THE VOLUME OF MATERIAL NECESSARY TO COMPLETE THE FILL IS 25% FOR UNCLASSIFIED EXCAVATION AND FOR BORROW EXCAVATION, ALL BASED ON THE VOLUME OF FILL. BEARINGS SHOWN ON THESE PLANS ARE GRID BEARINGS TO THE NEAREST SECOND.

WHEN THE QUANTITIES OF THE ITEMS OF CRUSHED AGGREGATE BASE COURSE OR SINGLE AGGREGATE BITUMINOUS ARE MEASURED FOR PAYMENT BY THE TON, THE DEPTH OR THICKNESS AS SHOWN ON THE PLANS IS APPROXIMATE, AND THE ACTUAL THICKNESS WILL DEPEND ON THE DISTRIBUTION OF THE MATERIAL AS DIRECTED BY THE ENGINEER IN THE FIELD.

ALL DISTURBED AREAS WITHIN THE RIGHT-OF-WAY ARE TO BE TOPSOILED, FERTILIZED AND SEEDED. SEED MIXTURE #1 SHALL BE USED.

SALVAGED TOPSOIL SHALL BE PLACED AS SHOWN ON THE PLANS TO A DEPTH OF APPROXIMATELY 3 INCHES AT TIME OF PLACEMENT.

EXCAVATION BELOW SUBGRADE (E.B.S.) IS NOT SHOWN ON THE CROSS SECTIONS OR PLAN AND PROFILE SHEETS, BUT IF REQUIRED, SHALL BE MEASURED AND PAID FOR AS UNCLASSIFIED EXCAVATION. THE LOCATION OF E.B.S., IF REQUIRED, SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

INLET AND DISCHARGE ELEVATIONS FOR DRAINAGE STRUCTURES SHOWN ARE APPROXIMATE AND SHALL BE VERIFIED BY THE ENGINEER IN THE FIELD.

THE EXACT LOCATIONS AND LIMITS OF PRIVATE ENTRANCES AND FIELD ENTRANCES SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

INTERSECTION SOD FLUMES TO BE AS DIRECTED BY THE ENGINEER.

ISLANDS AT INTERSECTIONS ARE TO BE SURFACED WITH SINGLE AGGREGATE BITUMINOUS SURFACE.

STANDARD ABBREVIATIONS

C.T.H.	=	COUNTY TRUNK HIGHWAY	MAX.	=	MAXIMUM
S.T.H.	=	STATE TRUNK HIGHWAY	MIN.	=	MINIMUM
I.H.	=	INTERSTATE HIGHWAY	NO.	=	NUMBER
'/ft./ft.	=	FOOT PER FOOT	L.S.	=	LUMP SUM
C.P.	=	CULVERT PIPE	R/W	=	RIGHT OF WAY
R.C.C.P.	=	REINFORCED CONCRETE CULVERT PIPE	P.E.	=	PRIVATE ENTRANCE
C.M.C.P.	=	CORRUGATED METAL CULVERT PIPE	SQ. FT.	=	SQUARE FEET
C.M.P.A.	=	CORRUGATED METAL PIPE ARCH	SQ. YD.	=	SQUARE YARD
P.C.	=	POINT OF CURVATURE	REQ'D	=	REQUIRED
P.I.	=	POINT OF INTERSECTION	CU. YD.	=	CUBIC YARD
P.T.	=	POINT OF TANGENCY	LN. FT.	=	LINEAL FEET
P.L.	=	PROPERTY LINE	V.C.	=	VERTICAL CURVE
Δ	=	ANGLE	SE.	=	SUPERELEVATION
D.	=	DEGREE OF CURVE	RD.	=	ROAD
T.	=	TANGENT LENGTH OF CURVE	N.	=	NORTH
L.	=	LENGTH OF CURVE	S.	=	SOUTH
E.	=	EXTERNAL DISTANCE	E.	=	EAST
R.	=	RADIUS	W.	=	WEST
CL	=	CENTERLINE	BK.	=	BACK
RL	=	REFERENCE LINE	AH.	=	AHEAD
RDWY.	=	ROADWAY	N.B.	=	NORTHBOUND
MED.	=	MEDIAN	S.B.	=	SOUTHBOUND
D.G.	=	DITCH GRADE	E.B.	=	EASTBOUND
R.O.	=	RUNOFF	W.B.	=	WESTBOUND
CL.	=	CLASS	RT.	=	RIGHT
R.H.F.	=	RIGHT HAND FORWARD	LT.	=	LEFT
L.H.F.	=	LEFT HAND FORWARD	INL.	=	INLET
STA.	=	STATION	DIS.	=	DISCHARGE
F.R.	=	FRONTAGE ROAD	PAV'T	=	PAVEMENT

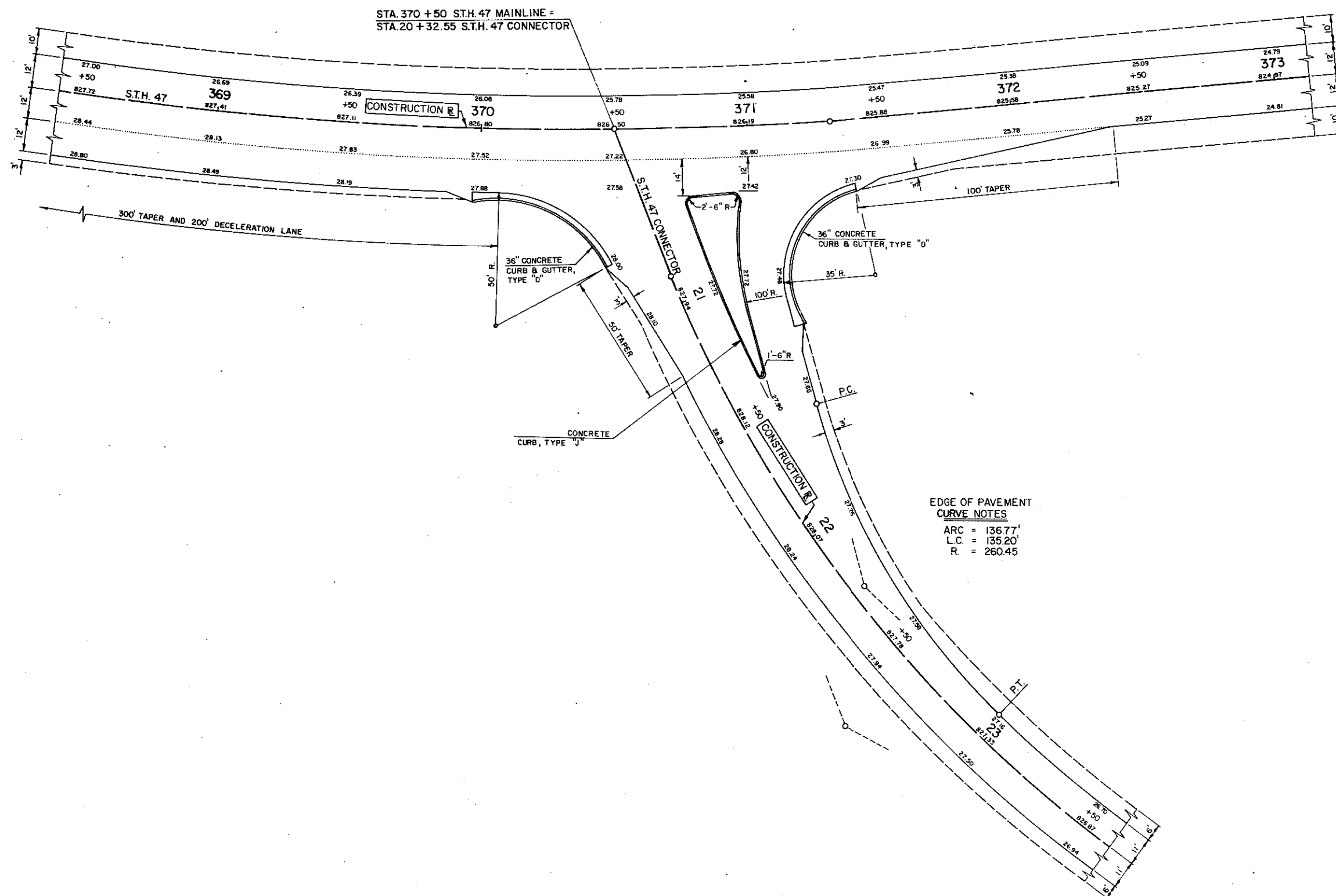
STANDARD DETAIL DRAWINGS

SOD OR MASONRY AND SOD DITCH CHECKS.....	8E4-2
APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH.....	8F1-7
DESIGN & LAYOUT DETAILS FOR SIDE ROAD AT-GRADE INTERSECTIONS.....	9A1-3
CONSTRUCTION BARRICADES AND STANDARD SIGNS.....	15C1-5
LANDMARK REFERENCE MONUMENTS.....	16A1-2

UTILITIES

WISCONSIN TELEPHONE COMPANY	WISCONSIN ELECTRIC POWER COMPANY
MR. JAMES CONIFF 432-8844	MR. O.R. BOLL 739-1411
112 NORTH ADAMS STREET	807 SOUTH ONEIDA
GREEN BAY, WISCONSIN 54301	P.O. BOX 1007
	APPLETON, WISCONSIN 54911

STATE PROJECT NUMBER	SHEET NO.
6242-2-72	2.1
CONSTRUCTION DETAILS FOR	
S.T.H. 47	OUTAGAMIE CO.
S.T.H. 47 CONNECTOR	



ESTIMATE OF QUANTITIES

CONTRACT NO. 2 6242-02-72
GRADING, BASE COURSE & SURFACING
(SINGLE AGGREGATE BITUMINOUS SURFACE)
CONTRACT NO. 1 6242-02-71
PRODUCING & HAULING
(CRUSHED AGGREGATE BASE COURSE &
SINGLE AGGREGATE BITUMINOUS SURFACE)

STATE PROJECT NUMBER	SHEET NO.
6242- 02-71,72	3

CONTRACT NO.	STATION TO STATION	NET LENGTH OF CENTER LINE	CLEARING	GRUBBING			REMOVING PAVEMENT	UNCLASSIFIED EXCAVATION	BORROW EXCAVATION	FINISHING ROADWAY	OBLITERATING OLD ROAD	SHAPING & COMPACTING CRUSHED AGGREGATE BASE COURSE	PLACING SINGLE AGGREGATE BITUMINOUS SURFACE	BITUMINOUS MATERIAL FOR SURFACE COURSE	CULVERT PIPE, CLASS III, 24-INCH	CULVERT PIPE CLASS III, 30-INCH	APRON ENDWALLS FOR CULVERT PIPES, 24-INCH	APRON ENDWALLS FOR CULVERT PIPES, 30-INCH	CORRUGATED METAL PIPE ARCH, 57 X 30-INCH	METAL APRON ENDWALLS FOR PIPE ARCH, 57 X 30-INCH	CONCRETE CURB, TYPE "J"	CONCRETE CURB AND GUTTER, 36-INCH TYPE D		
		ITEM NO. UNIT	LIN. FT.	INCH.-DIA.	INCH.-DIA.		SQ. YD.	CU. YD.	CU. YD.	LUMP SUM	STATION	TON	TON	TON	LIN. FT.	LIN. FT.	EACH	EACH	LIN. FT.	EACH	LIN. FT.	LIN. FT.		
2	STA. 362 + 00 - 394 + 85 (6242-01-72)		3,285	12	12		2,115	5,155	11,412	1	2	13,510	2,562		144	44	4	2	84	2	320	385		
1	STA. 362+00 - 394+85 (6242-01-71)													155										
	TOTALS		3,285	12	12		2,115	5,155	11,412	1	2	13,510	2,562	155	144	44	4	2	84	2	320	385		

CONTRACT NO.	LANDMARK REFERENCE MONUMENT	SALVAGED TOPSOIL			FERTILIZER	SEEDING	SODDING	FIELD OFFICE, TYPE "A"	PRODUCING & HAULING CRUSHED AGGREGATE BASE COURSE	PRODUCING & HAULING SINGLE AGGREGATE BITUMINOUS SURFACE		GRADING AND PLACING BASE AND BITUMINOUS SURFACE
									90001	90002		90001
	EACH	SQ. YD.			CWT.	LB.	SQ. YD.	LUMP SUM	TON	TON		LUMP SUM
2	4	18,800			12	255	330	1				1
1									13,510	2,562		
	4	18,800			12	255	330	1	13,510	2,562		1

DETAIL SUMMARY OF MISCELLANEOUS QUANTITIES

STATE PROJECT NUMBER

SHEET NO.

6242-2-72

3A

EROSION CONTROL

STATION TO STATION	LOCATION	SALVAGED TOPSOIL SQ. YD.	FERTILIZER CWT.	SEEDING LB.
362 + 00 - 396 + 00	S.T.H. 47 MAINLINE	15,300	9.7	207
20 + 32 - 25 + 34	" " CONNECTOR	1,500	1.0	20
48 + 00 - 52 + 00	C.T.H. "S"	1,200	0.8	16
UNDISTRIBUTED		800	0.5	12

CROSS DRAINS

STATION	LOCATION	DIAMETER INCHES	LENGTH FEET	TYPE	CLASS	INLET	DISCHARGE	THICKNESS		APRON ENDWALL	SQ. YD.
								STEEL INCH	ALUMINUM INCH		
369 + 00	S.T.H. 47 MAINLINE	57"X 38"	84	C.M.P.A.		821.5	821.2			2	50
381 + 00	" " "	24	64	C.P.	III	815.8	815.5	0.064	0.075	2	16
389 + 60	" " "	24	80	C.P.	III	810.5	810.2	0.064	0.075	2	16
51 + 50	C.T.H. "S"	30	44	C.P.	III	810.0	809.8	0.079	0.075	2	23

CONCRETE CURB, CONCRETE CURB AND GUTTER

STATION TO STATION	LOCATION	CONCRETE CURB, TYPE "J" LIN. FT.	CONCRETE CURB & GUTTER, 36", TYPE "D" LIN. FT.
20 + 35 - 21 + 25	S.T.H. 47 CONNECTOR, LT. & RT.	170	130
49 + 00 - 51 + 00	C.T.H. "S", LT. & RT.	150	255

MISCELLANEOUS

ITEM	STATION TO STATION	LOCATION	UNIT	QUANTITY
CLEARING	48 + 33	C.T.H. "S", 29' LT.	IN. - DIA.	12
GRUBBING	48 + 33	C.T.H. "S", 29' LT.	IN. - DIA.	12
OBLITERATING OLD ROAD	367 + 00 - 369 + 00	S.T.H. 47, RT.	STATION	2

SOODING

STATION TO STATION	LOCATION	TYPE	SQ. YD.
364 + 00 - 366 + 00	S.T.H. 47 MAINLINE, RT.	DITCH CHECK	75
371 + 00 - 372 + 00	" " " "	DITCH CHECK	45
375 + 00 - 376 + 00	" " " LT.	DITCH CHECK	45
PIPE END PROTECTION (SEE CROSS DRAIN SUMMARY)			105
UNDISTRIBUTED			60

SINGLE AGGREGATE BITUMINOUS SURFACE

STATION TO STATION	LOCATION	SINGLE AGG. BIT. TON	BITUMINOUS MATERIAL FOR SURFACE COURSE TON
362 + 00 - 396 + 00	S.T.H. 47 MAINLINE	1,960	118
20 + 45 - 25 + 34	" " CONNECTOR	311	19
48 + 00 - 52 + 00	C.T.H. "S"	291	18

CRUSHED AGGREGATE BASE COURSE

STATION TO STATION	LOCATION	ROADWAY TON	SHOULDER TON
362 + 00 - 396 + 00	S.T.H. 47 MAINLINE	10,554	677
20 + 45 - 25 + 34	S.T.H. 47 CONNECTOR	1,102	80
48 + 00 - 52 + 00	C.T.H. "S"	910	33
UNDISTRIBUTED		134	20

EXCAVATION

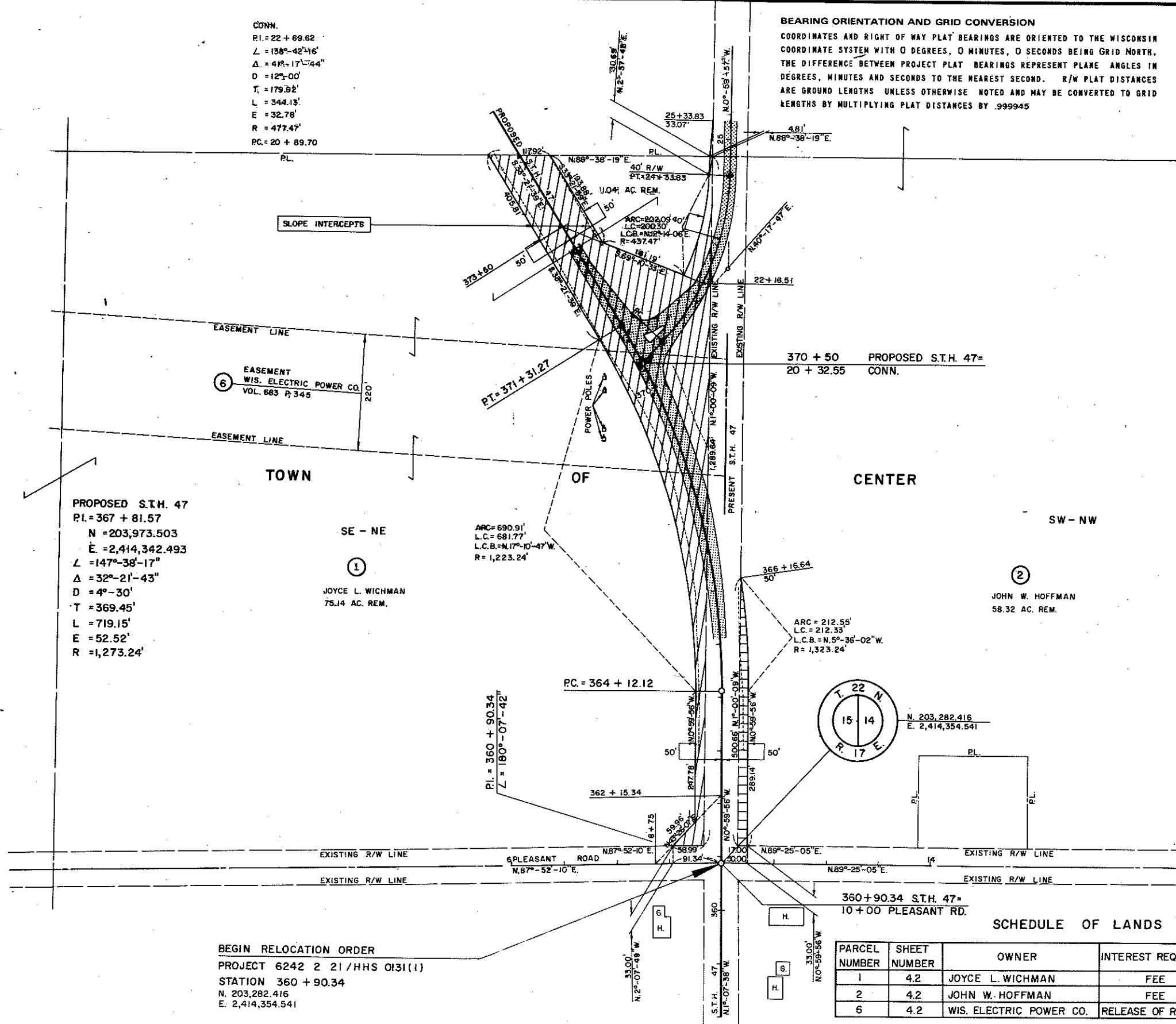
STATION TO STATION	LOCATION	UNCLASSIFIED C.Y.	BORROW C.Y.
362 + 00 - 376 + 00	S.T.H. 47 MAINLINE	2,529	2,385
376 + 00 - 396 + 00	" " "	1,936	7,848
20 + 45 - 25 + 34	" " CONNECTOR	262	1,179
48 + 00 - 52 + 00	C.T.H. "S"	428	

LANDMARK REFERENCE MONUMENT

LOCATION	EACH
UNDISTRIBUTED	4

REMOVING PAVEMENT

STATION TO STATION	LOCATION	SQ. YD.
362 + 00 - 364 + 50	S.T.H. 47 MAINLINE	445
391 + 00 - 396 + 00	" " "	895
22 + 70 - 25 + 34	" " CONNECTOR	470
50 + 30 - 52 + 00	C.T.H. "S"	305



BEARING ORIENTATION AND GRID CONVERSION
 COORDINATES AND RIGHT OF WAY PLAT BEARINGS ARE ORIENTED TO THE WISCONSIN COORDINATE SYSTEM WITH 0 DEGREES, 0 MINUTES, 0 SECONDS BEING GRID NORTH. THE DIFFERENCE BETWEEN PROJECT PLAT BEARINGS REPRESENT PLANE ANGLES IN DEGREES, MINUTES AND SECONDS TO THE NEAREST SECOND. R/W PLAT DISTANCES ARE GROUND LENGTHS UNLESS OTHERWISE NOTED AND MAY BE CONVERTED TO GRID LENGTHS BY MULTIPLYING PLAT DISTANCES BY .999945

REVISION DATE	R/W PROJECT NUMBER 6242 2 21	SHEET NUMBER 4.2
	FEDERAL PROJECT NUMBER HHS 0131(1)	
PLAT OF RIGHT OF WAY REQUIRED FOR 6242 2 00 APPLETON - BLACK CREEK ROAD (C.T.H. "S" & C.T.H. "PP" INTERSECTIONS) S.T.H. 47 OUTAGAMIE COUNTY DATE 7-18-77 SCALE 200 Ft. CONSTRUCTION PROJECT NUMBER 6242-2-72		

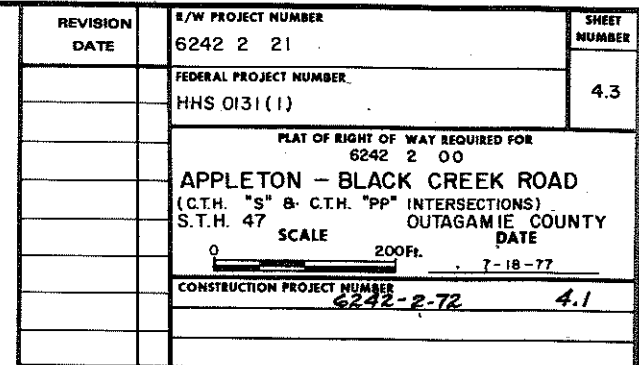


PROPOSED S.T.H. 47
 P.I. = 367 + 81.57
 N = 203,973.503
 E = 2,414,342.493
 L = 147°-38'-17"
 Δ = 32°-21'-43"
 D = 4°-30'
 T = 369.45'
 L = 719.15'
 E = 52.52'
 R = 1,273.24'

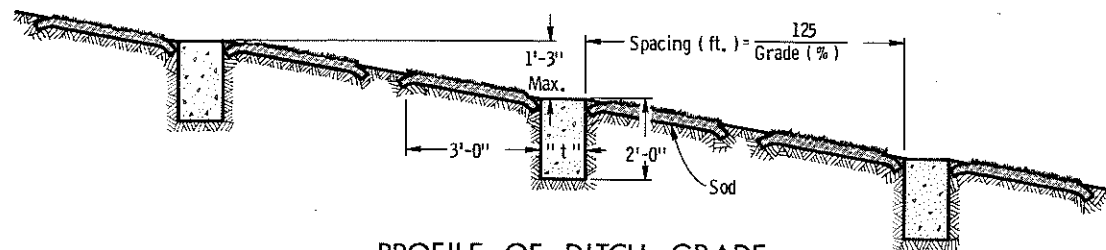
BEGIN RELOCATION ORDER
 PROJECT 6242 2 21/HHS 0131(1)
 STATION 360 + 90.34
 N. 203,282.416
 E. 2,414,354.541

SCHEDULE OF LANDS & INTERESTS REQUIRED

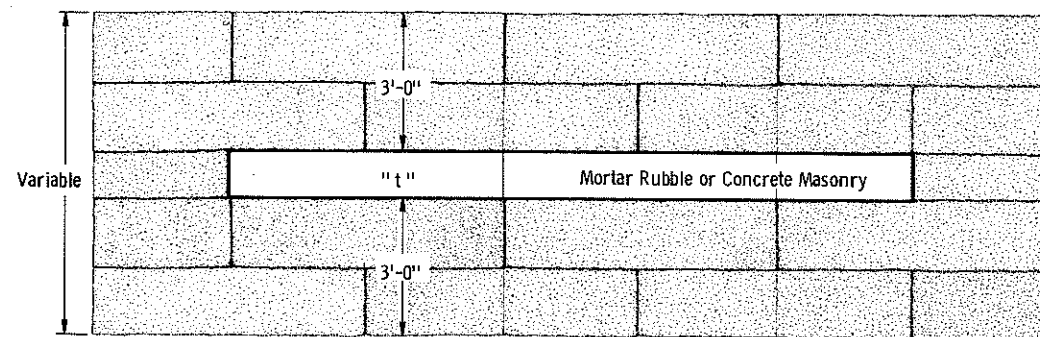
PARCEL NUMBER	SHEET NUMBER	OWNER	INTEREST REQUIRED	L.H.E. ACRES	ACRES REQUIRED			TOTAL REMAINING ACRES	OPERATIONS PROJECT I.D.
					NEW R/W REQUIRED	EXISTING R/W	TOTAL R/W REQUIRED		
1	4.2	JOYCE L. WICHMAN	FEE	—	2.77	1.05	3.82	76.18	6242 2 21
2	4.2	JOHN W. HOFFMAN	FEE	—	0.17	0.42	0.59	58.32	6242 2 21
6	4.2	WIS. ELECTRIC POWER CO.	RELEASE OF RIGHTS	—	—	—	—	—	6242 2 21



PARCEL NUMBER	SHEET NUMBER	OWNER	INTEREST REQUIRED	L.H.E. ACRES	ACRES REQUIRED			TOTAL REMAINING ACRES	OPERATIONS PROJECT I.D.
					NEW R/W REQUIRED	EXISTING R/W	TOTAL R/W REQUIRED		
3	4.3	FRED RUSCH	FEE	—	3.44	0.14	3.58	29.33	6242 2 21
4	4.3	HERBERT A. LEHNDORF	FEE	—	0.23	0.21	0.44	39.56	6242 2 21
5									
7	4.3	ARNOLD F. TIEDT	FEE	—	0.05	0.31	0.36	91.07	6242 2 21

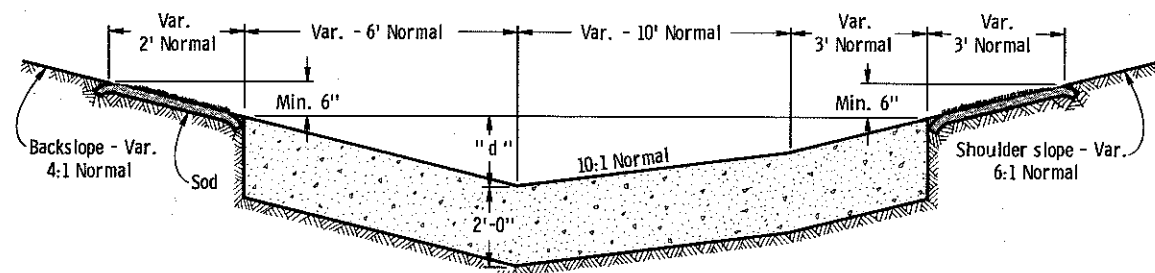


PROFILE OF DITCH GRADE

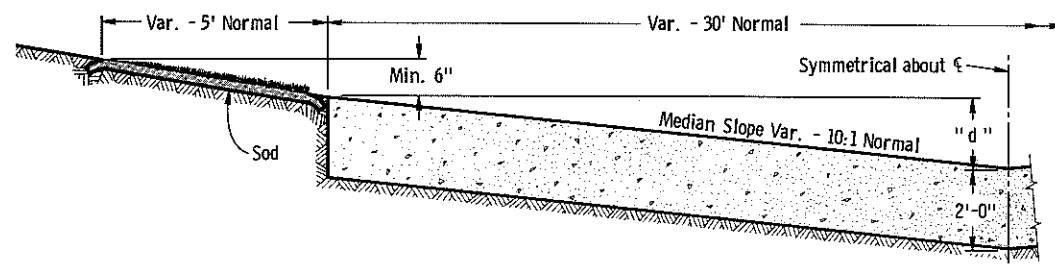


PLAN VIEW SHOWING
MASONRY AND SOD

"t" - Masonry thickness shall be 0'-9" for concrete and 1'-0" for mortar rubble.



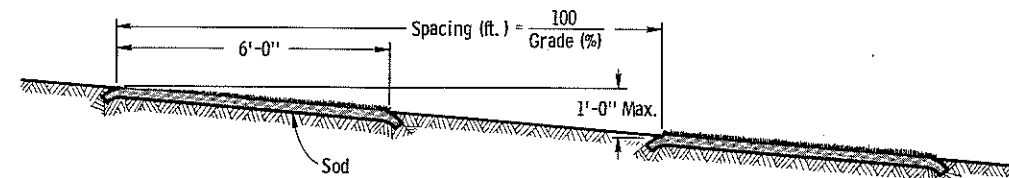
SIDE DITCH CROSS SECTION



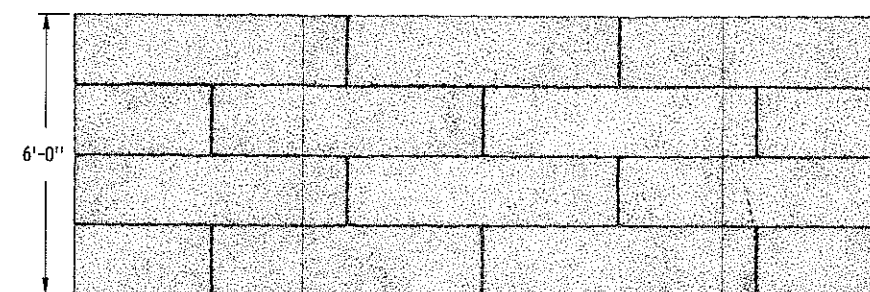
MEDIAN DITCH CROSS SECTION

"d" - The minimum depth of the masonry portion of the ditch checks shall be equal to the maximum depth of flow. The normal "d" will be 1'-6".

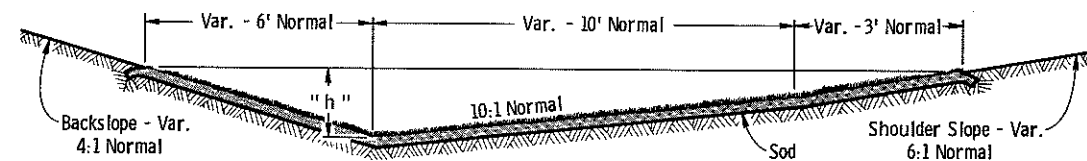
MASONRY AND SOD DITCH CHECKS



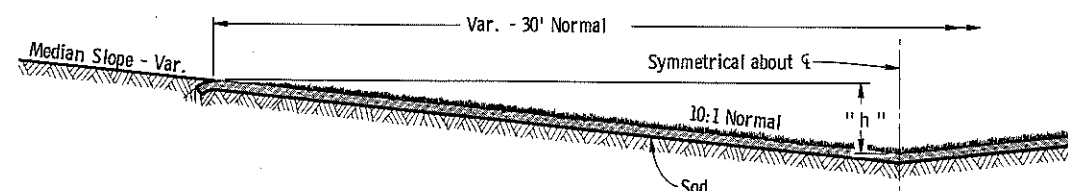
PROFILE OF DITCH GRADE



PLAN VIEW SHOWING SOD



SIDE DITCH CROSS SECTION



MEDIAN DITCH CROSS SECTION

"h" - The minimum height of ditch to be sodded shall be equal to the maximum depth of flow plus 6". The normal "h" will be 1'-6".

SOD DITCH CHECKS

GENERAL NOTES

Details of construction, materials and workmanship not shown on this drawing shall conform to the pertinent requirements of the Standard Specifications and the applicable Special Provisions.

Alternate designs for ditch checks, of the material or combination of materials shown hereon, may be used upon written permission of the Engineer.

Sod strips for ditch checks may be placed either transversely or longitudinally to the direction of water flow.

SOD OR MASONRY AND SOD DITCH CHECKS

State of Wisconsin
Department of Transportation
Division of Highways

RECOMMENDED FOR APPROVAL:

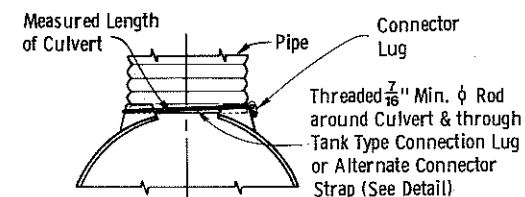
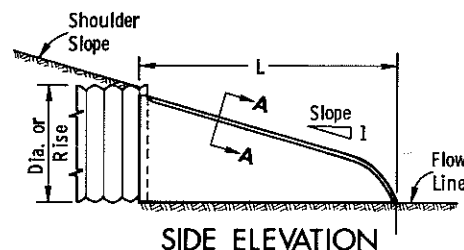
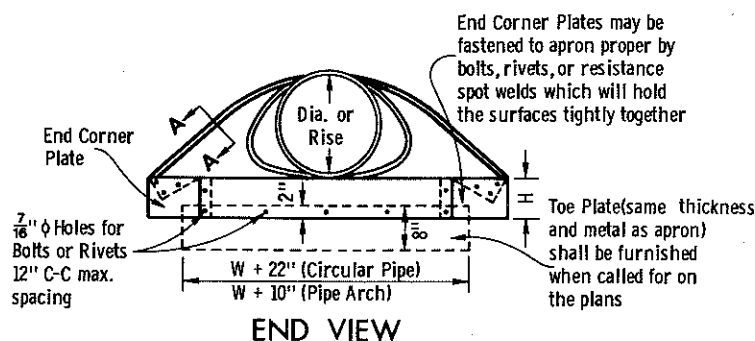
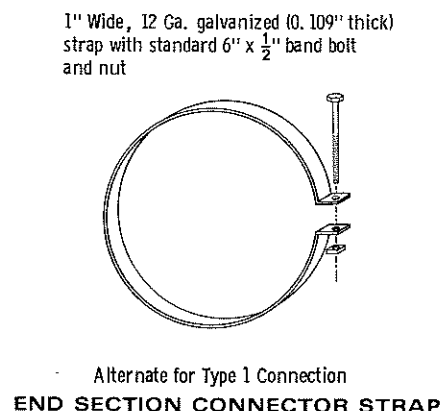
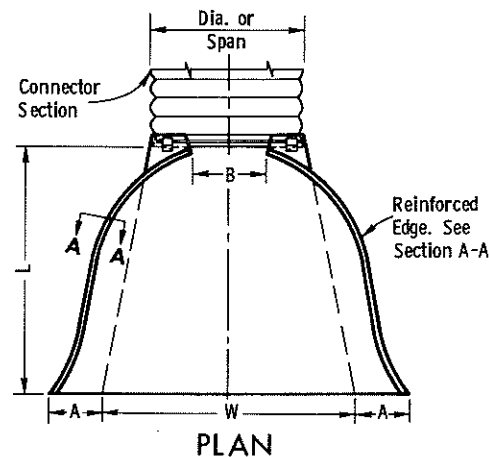
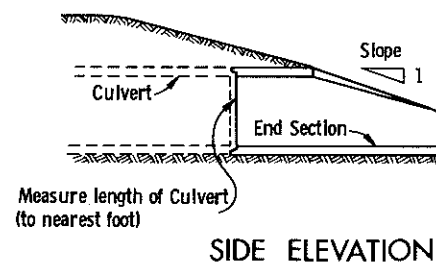
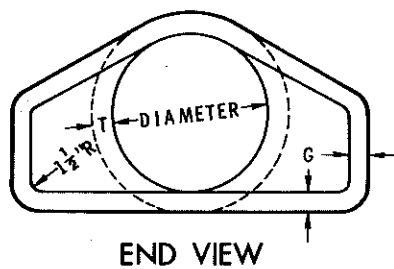
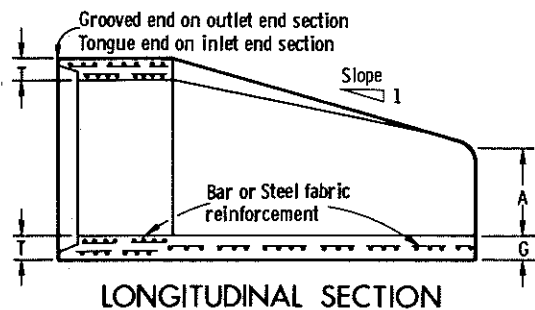
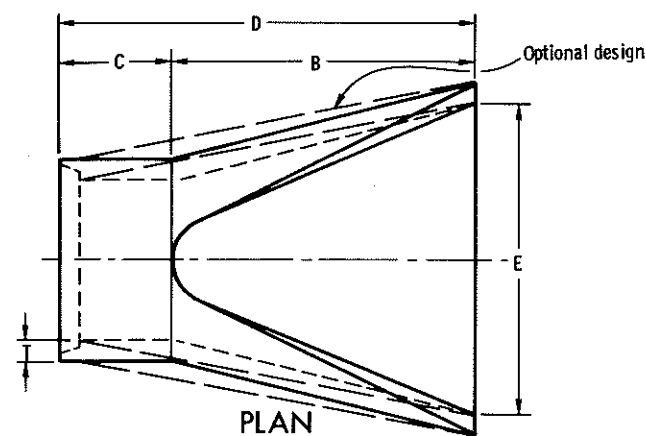
9/7/71
DATE

APPROVED:

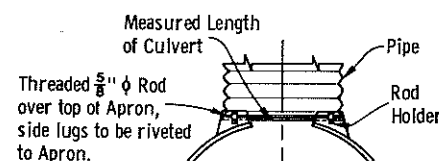
9/7/71
DATE

L. C. Hennrich
ACTING CHIEF DESIGN ENGINEER

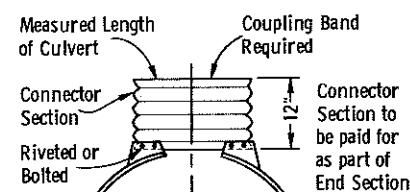
H. J. Hammeister
STATE HIGHWAY ENGINEER



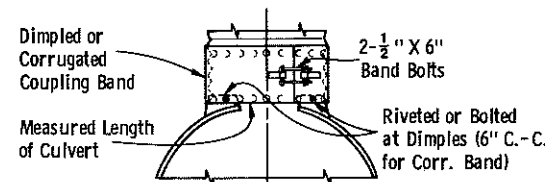
For 12" thru 24" only (Circular Pipe)



For 30" and 36" only (Circular Pipe)
For 17" X 13" thru 57" X 38" only (Pipe Arch)



For 42" thru 84" only (Circular Pipe)
For 64" X 43" & 71" X 47" (Pipe Arch)



Alternate for
All sizes Corrugated Circular Pipe and Pipe Arch

NOTE: Dimpled Band fits over Outside of Endwall, and Corr. Band fits Inside Endwall. Dimpled Band may be used with Helically Corrugated Pipe

CONNECTION DETAILS

CIRCULAR PIPE

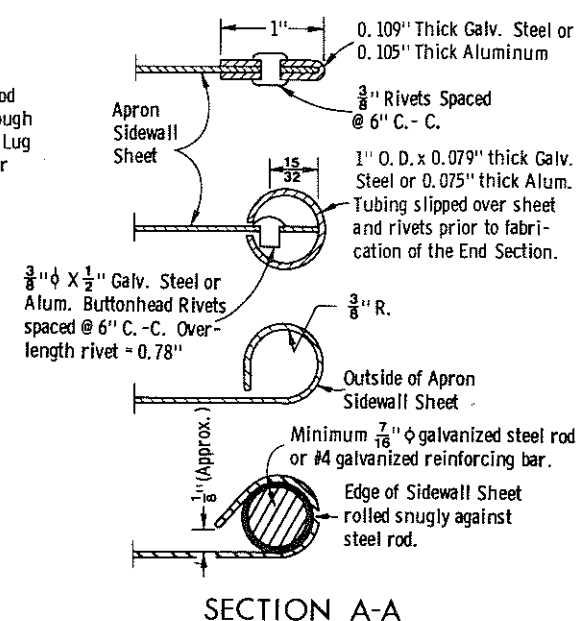
For Circumferentially Corrugated Pipe use Endwall Connection Details 1, 2, 3, or 5 as applicable.

For Helically Corrugated Pipe use Endwall Connection Details 1, 2 or 5.

For Helically Corrugated Pipes with two Circumferential Corrugations at each end use Endwall Connection Details 1, 2, or 3

PIPE ARCH

Use Endwall Connection Details 2, 3, or 5 as applicable.



GENERAL NOTES

Details of construction, materials, and workmanship not shown on this drawing shall conform to the pertinent requirements of the Standard Specifications and the applicable Special Provisions.

Variations of the dimensions and designs shown hereon will be permitted providing equivalent capacity and structural integrity are attained, and prior approval of the Engineer is obtained.

Concrete culvert endwalls may not be used with galvanized steel or aluminum culvert pipe or vice versa.

Galvanized steel or aluminum endwalls shall normally be installed on culvert pipe of the same metal. The use of galvanized steel endwalls on aluminum pipes is permitted, provided the two metals at the joint interface are kept separated by a suitable insulating material approximately 1/16 inch thick or greater. Such material would be an asphalt impregnated fabric, a sheet plastic, a rubber gasket or other nondegradable material of substantial strength.

When two or more pipe arches with apron endwalls are to be laid adjacent to each other, they shall be separated by the following amount.

Pipes: Total width of apron endwall less the diameter of pipe plus 6 inches.

Pipe Arches: Total width of apron endwall less the span dimension of the pipe arch plus 6 inches.

DIA.	APPROX. WEIGHT/SECTION	T	A	B	C	D	E	G	APPROX. SLOPE
12"	530	2"	4"	24"	48 7/8"	72 7/8"	24"	2"	3 to 1
15"	740	2 1/4"	6"	27"	46"	73"	30"	2 1/4"	
18"	990	2 1/2"	9"	27"	46"	73"	36"	2 1/2"	
21"	1,280	2 3/4"	9"	36"	37 1/2"	73 1/2"	42"	2 3/4"	
24"	1,520	3"	9 1/2"	43 1/2"	30"	73 1/2"	48"	3"	
27"	1,930	3 1/4"	10 1/2"	49 1/2"	24"	73 1/2"	54"	3 1/4"	
30"	2,190	3 1/2"	12"	54"	19 3/4"	73 3/4"	60"	3 1/2"	
36"	4,100	4"	15"	63"	34 3/4"	97 3/4"	72"	4"	
42"	5,380	4 1/2"	21"	63"	35"	98"	78"	4 1/2"	
48"	6,550	5"	24"	72"	26"	98"	84"	5"	3 to 1
54"	8,040	5 1/2"	27"	65"	33 1/4" - 35"	98 1/4" - 100"	90"	5"	2 2/5 to 1
60"	8,730	6"	30" - 35"	60"	39"	99"	96"	5"	2 to 1
66"	10,630	6 1/2"	34" - 36"	72" - 78"	21" - 27"		102"	5 1/2"	
72"	12,520	7"	36" - 38"	78"	21"		108"	6"	
78"	14,430	7 1/2"	38" - 40"	78"	21"	99"	114"	6 1/2"	2 to 1
84"	18,160	8"	36"	90 1/2"	21"	111 1/2"	120"	6 1/2"	1 1/2 to 1

** Minimum
* Maximum

REINFORCED CONCRETE APRON ENDWALLS

D PIPE DIAM.	MIN. METAL THICKNESS	MIN. ALUM. THICKNESS	DIMENSIONS					APPROX. SLOPE
			A ± 1"	B MAX.	H ± 1"	L ± 1/2"	W ± 2"	
12"	0.064	0.060	6"	6"	6"	21"	24"	2 1/2 to 1
15"			7"	8"		26"	30"	
18"			8"	10"		31"	36"	
21"		0.060	9"	12"		36"	42"	
24"	0.064	0.075	10"	13"	6"	41"	48"	
30"	0.079	0.075	12"	16"	8"	51"	60"	
36"	0.079	0.105	14"	19"	9"	60"	72"	
42"	0.109		16"	22"	11"	69"	84"	2 1/2 to 1
48"			18"	27"	12"	78"	90"	2 1/4 to 1
54"		0.105		30"		84"	102"	2 to 1
60"		NA		33"		87"	114"	1 3/4 to 1
66"				36"		87"	120"	1 1/2 to 1
72"				39"		87"	126"	1 1/3 to 1
78"				42"		87"	132"	1 1/4 to 1
84"	0.109	NA	18"	45"	12"	87"	138"	1 1/8 to 1

NOTE: All splices to be lap riveted or bolted

METAL OR ALUMINUM APRON ENDWALLS FOR CIRCULAR PIPES

PIPE — ARCH DIMENSIONS		MIN. METAL THICK.	DIMENSIONS					APPROX SLOPE
SPAN	RISE		A ± 1"	B MAX.	H ± 1"	L ± 1½"	W ± 2"	
17"	13"	0.064	7"	9"	6"	19"	30"	2½ to 1
21"	15"	↑	7"	10"	↑	23"	36"	↑
24"	18"	↓	8"	12"	↓	28"	42"	
28"	20"	0.064	9"	14"	↓	32"	48"	
35"	24"	0.079	10"	16"	6"	39"	60"	
42"	29"	0.079	12"	18"	8"	46"	75"	
49"	33"	0.109	13"	21"	9"	53"	85"	↓
57"	38"	↑	18"	26"	12"	63"	90"	2½ to 1
64"	43"	↑	18"	30"	12"	70"	102"	2¼ to 1
71"	47"	↑	18"	33"	12"	77"	114"	2¼ to 1
77"	52"	↓	18"	36"	12"	77"	126"	2 to 1
83"	57"	0.109	18"	39"	12"	77"	138"	2 to 1

NOTE: All splices to be lap riveted or bolted

METAL APRON ENDWALLS FOR PIPE ARCHES

APRON ENDWALLS FOR CULVERT PIPE AND PIPE ARCH

State of Wisconsin
Department of Transportation
Division of Highways

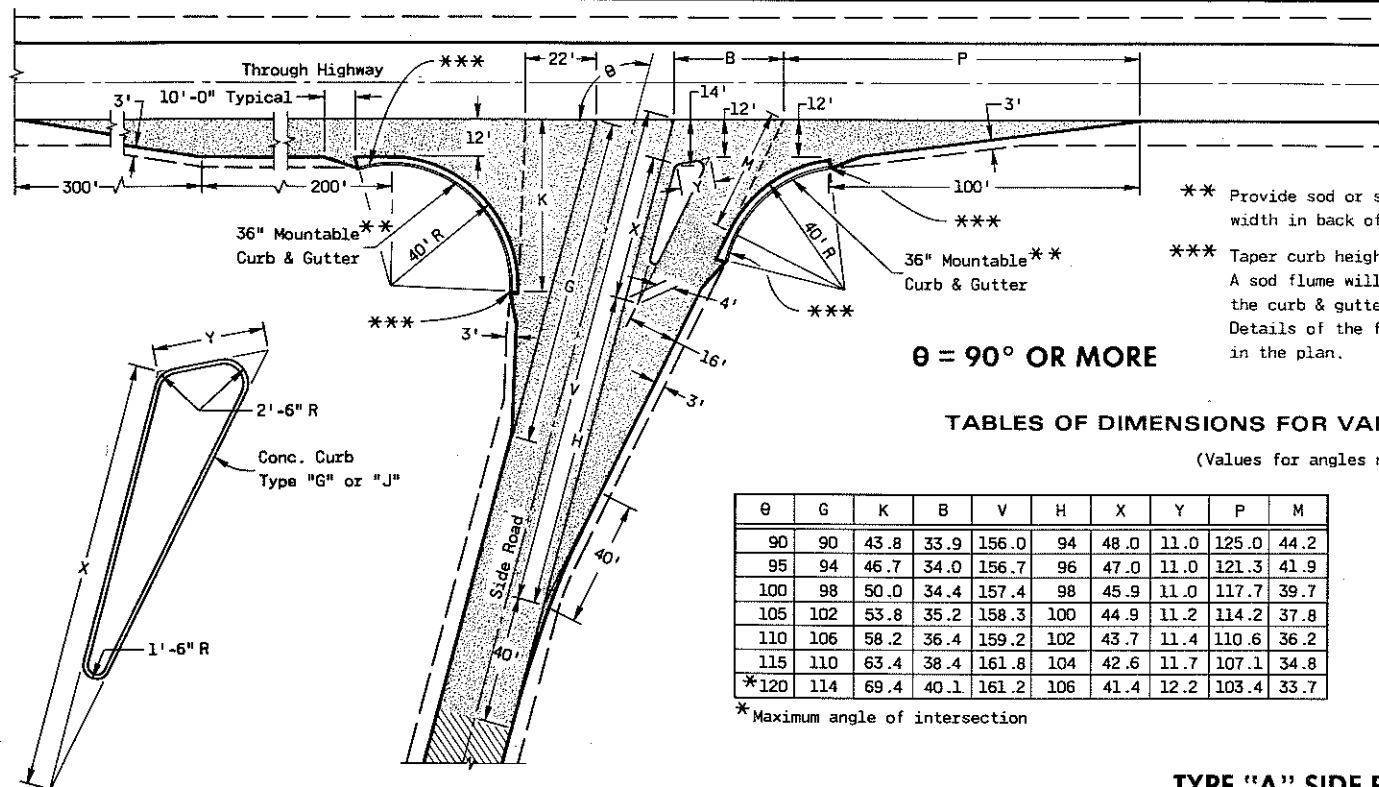
APPROVED
3-9-77
DATE

APPROVED
3-9-77
DATE

FWHA

CHIEF OF FACILITIES DEVELOPMENT

STATE HIGHWAY ENGINEER



*** Provide sod or salvaged topsoil & seed to a 3'-0" width in back of curb & gutter sections.

*** Taper curb height 0" to 6" in 10'-0". A sod flume will be required at discharge end of the curb & gutter. Details of the flume(s) will be shown elsewhere in the plan.

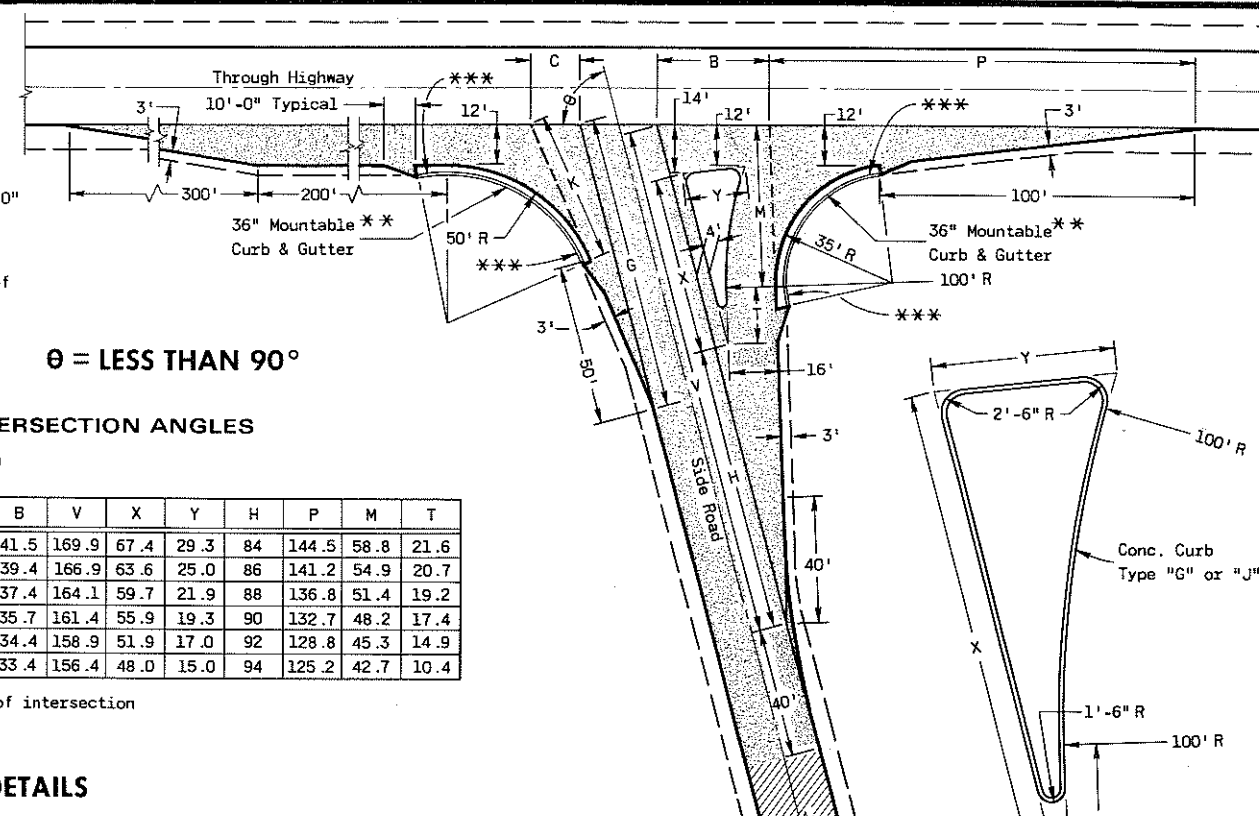
$\theta = 90^\circ$ OR MORE

TABLES OF DIMENSIONS FOR VARIABLE SIDE ROAD INTERSECTION ANGLES

(Values for angles not shown shall be interpolated)

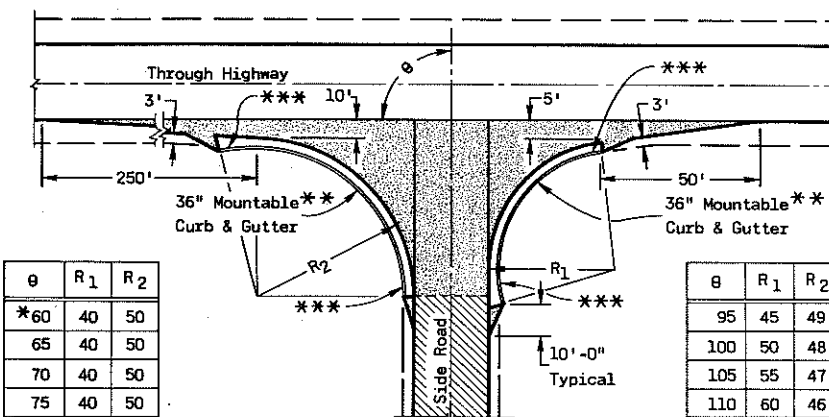
θ	G	K	B	V	H	X	Y	P	M
90	90	43.8	33.9	156.0	94	48.0	11.0	125.0	44.2
95	94	46.7	34.0	156.7	96	47.0	11.0	121.3	41.9
100	98	50.0	34.4	157.4	98	45.9	11.0	117.7	39.7
105	102	53.8	35.2	158.3	100	44.9	11.2	114.2	37.8
110	106	58.2	36.4	159.2	102	43.7	11.4	110.6	36.2
115	110	63.4	38.4	161.8	104	42.6	11.7	107.1	34.8
*120	114	69.4	40.1	161.2	106	41.4	12.2	103.4	33.7

*Maximum angle of intersection



$\theta = \text{LESS THAN } 90^\circ$

TYPE "A" SIDE ROAD INTERSECTION DETAILS



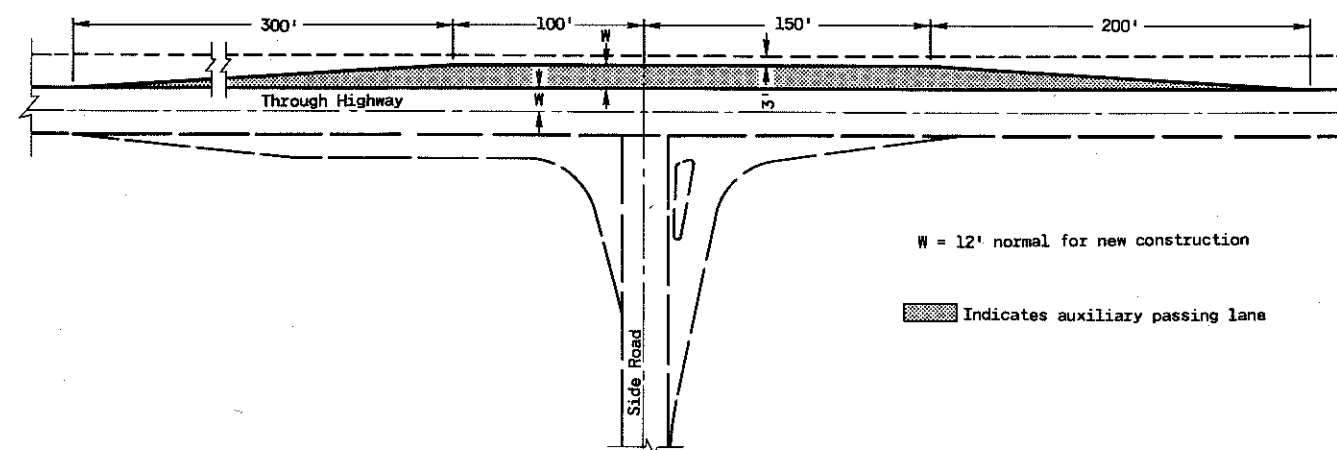
TYPE "B" SIDE ROAD INTERSECTION DETAILS

θ	R ₁	R ₂
*60	40	50
65	40	50
70	40	50
75	40	50
80	40	50
85	40	50
90	40	50

*Min. Angle of Intersection

θ	R ₁	R ₂
95	45	49
100	50	48
105	55	47
110	60	46
115	65	45
*120	70	44

*Max. Angle of Intersection



PASSING LANE DETAIL

W = 12' normal for new construction

Indicates auxiliary passing lane

GENERAL NOTES

Designs may be used interchangeably in combination or separately for any one complete intersection depending upon intersection angle and surfacing of each approach roadway.

Details on this drawing are for minimum design only, and not applicable to special conditions, as shown elsewhere on the plans.

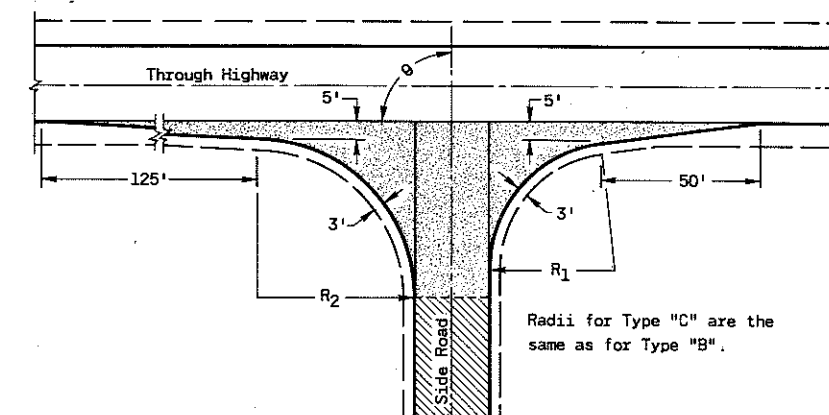
SIDE ROAD SURFACING NOTE

If the side road is not presently paved, pavement shall be placed to the limits shown. In the case where the construction limits are beyond the paving limits, gravel or crushed stone surfacing shall be placed between the paving limits and construction limits.

If the side road is presently paved, new pavement shall be placed to the limits of design as shown and beyond, if necessary, to meet existing pavement.

If the side road is the construction project, the intersection surfacing shall be the same as for the project.

New Pavement
Existing Surface

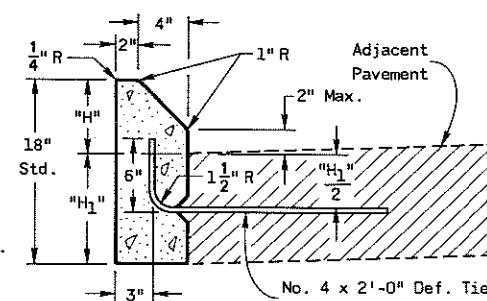


TYPE "C" SIDE ROAD INTERSECTION DETAILS

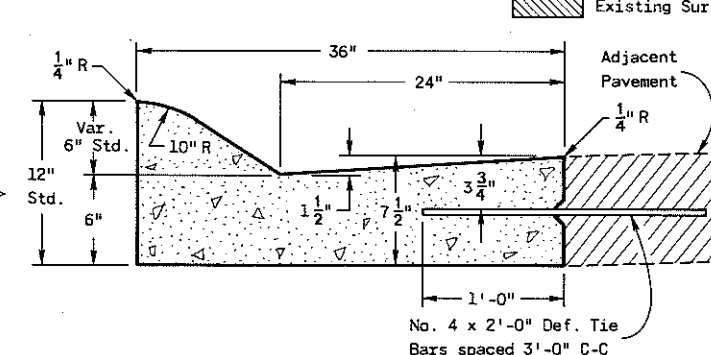
Radii for Type "C" are the same as for Type "B".

"H" = 6" Max. and 4" Min. and shall be 6" unless otherwise shown on the plans.

"H₁" = Same as adjacent pavement thickness for rigid pavement and 12" for non-rigid pavement (Tie Bars omitted).



TYPE "G" (INCLUDING TIE BARS) TYPE "J" (EXCLUDING TIE BARS) MOUNTABLE CONCRETE CURB



TYPE "A" (INCLUDING TIE BARS) TYPE "D" (EXCLUDING TIE BARS) MOUNTABLE CONCRETE CURB & GUTTER 36"

LAYOUT DETAILS FOR AT-GRADE SIDE ROAD INTERSECTIONS

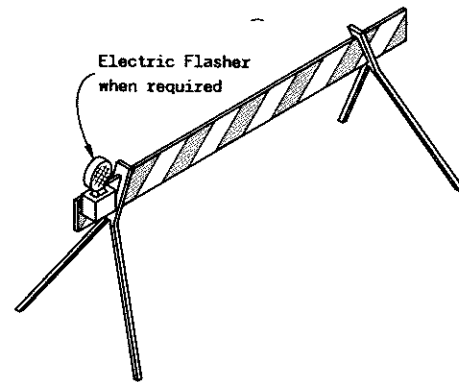
State of Wisconsin
Department of Transportation
Division of Highways

RECOMMENDED FOR APPROVAL
9-10-76
DATE
APPROVED
9-10-76
DATE
CHIEF OF FACILITIES DEVELOPMENT
STATE HIGHWAY ENGINEER

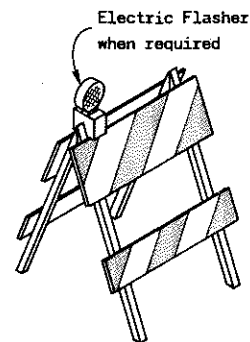
TABLE OF BARRICADE CHARACTERISTICS

BARRICADE TYPE	I	II	III
Height	3' Minimum		5' Minimum
* Rail Width	8" Minimum to 12" Maximum		
Rail Length	2' Minimum to variable Maximum		
** Stripe Width	6" at 45° Angle		
Stripe Colors	Reflectorized Orange & White		

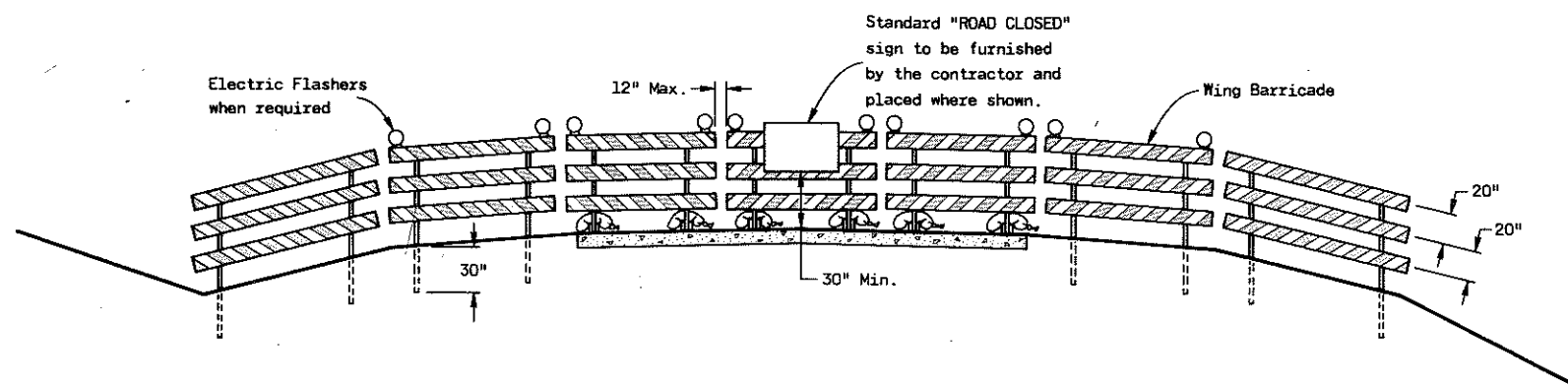
* Nominal dimensions when barricade is constructed of lumber.
 ** May be 4" for rail lengths less than 3'.



TYPICAL TYPE I BARRICADE

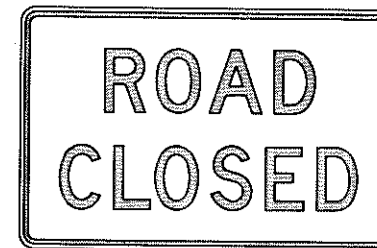


TYPICAL TYPE II BARRICADE



TYPICAL INSTALLATION SHOWING TYPE III BARRICADE

CONSTRUCTION BARRICADES



R11-2
 48" x 30"
 Black Lettering on Reflective
 White Background
 Letter Series "D"
 Letter height 8"



W20-3
 48" x 48"
 Black Lettering on Reflective
 Orange Background
 Letter Series "D"
 Letter height 7"

STANDARD SIGNS-TYPE II

GENERAL NOTES

The contractor shall furnish, erect and maintain Barricades and Signs. Details regarding location, spacing, dimensions, fabrication, material, sign lettering, lighting devices and color of Barricades and Signs shall conform to this drawing, the Wisconsin Manual on Uniform Traffic Control Devices, the Standard Specifications, Special Provisions and/or plans.

Type III Barricades and Signs shall be erected at the termini of projects and at other road or street locations where it is necessary to control or eliminate public access to the construction area.

Type I and II Barricades shall be used on projects when traffic is to be maintained through the construction area.

The actual field location of barricade installations and advance signs shall be as directed by the Engineer.

Each barricade shall have the name and telephone number of a person responsible for 24 hour emergency service printed in letters at least 3/4 inch in height.

CONSTRUCTION BARRICADES
 & STANDARD SIGNS

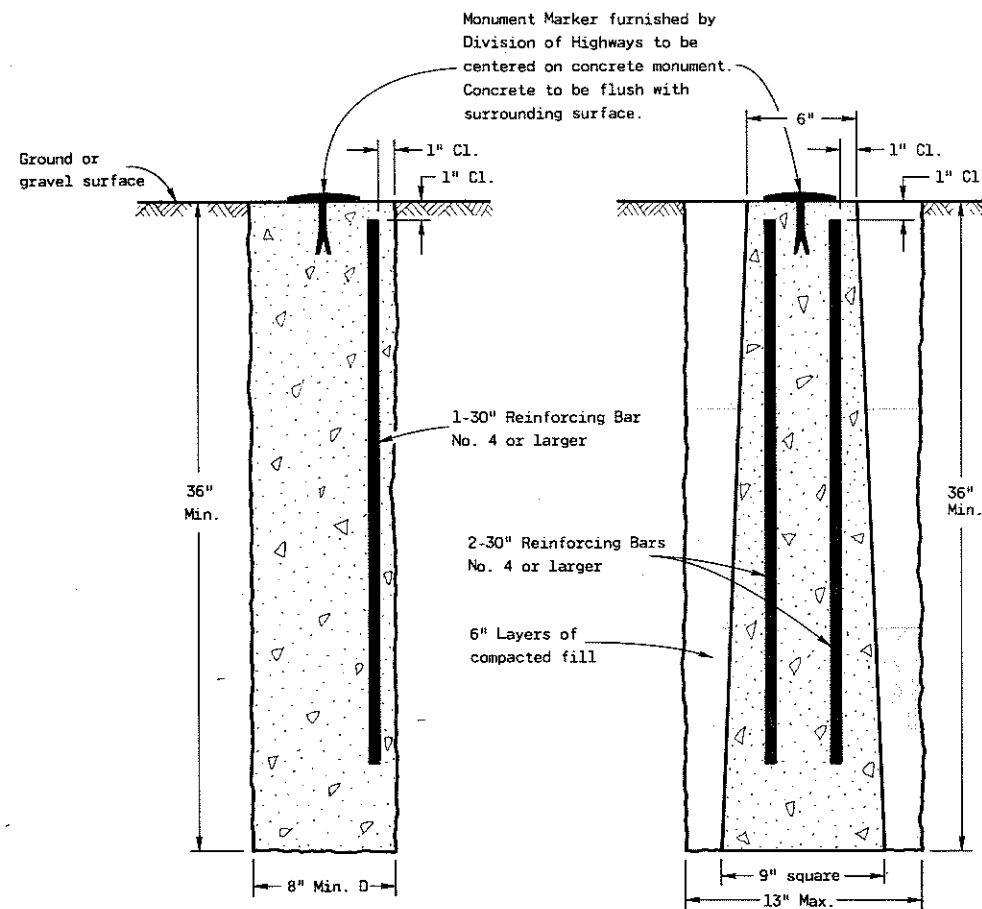
State of Wisconsin
 Department of Transportation
 Division of Highways

APPROVED
 10-1-76
 DATE

D. J. Stund
 CHIEF OF FACILITIES DEVELOPMENT

APPROVED
 10-1-76
 DATE

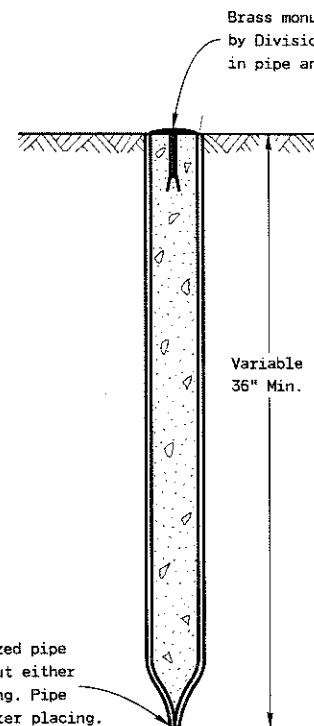
W. J. Soder
 STATE HIGHWAY ENGINEER



**CAST-IN-PLACE
CONCRETE MONUMENT**

**PRECAST
CONCRETE MONUMENT**

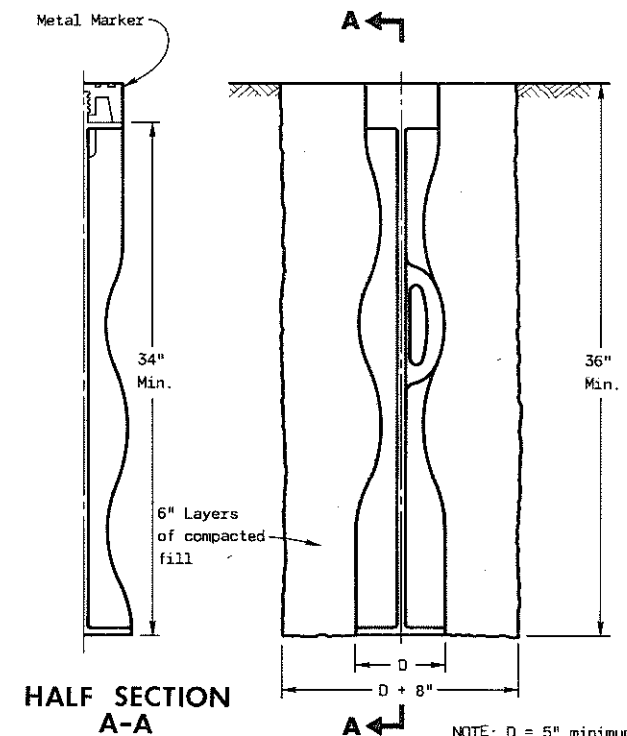
TYPE A



3" Nominal I.D. galvanized pipe
downward end crimped shut either
by flattening or shearing. Pipe
filled with concrete after placing.

TYPE B

NOT TO BE USED IN PAVEMENT STRUCTURE

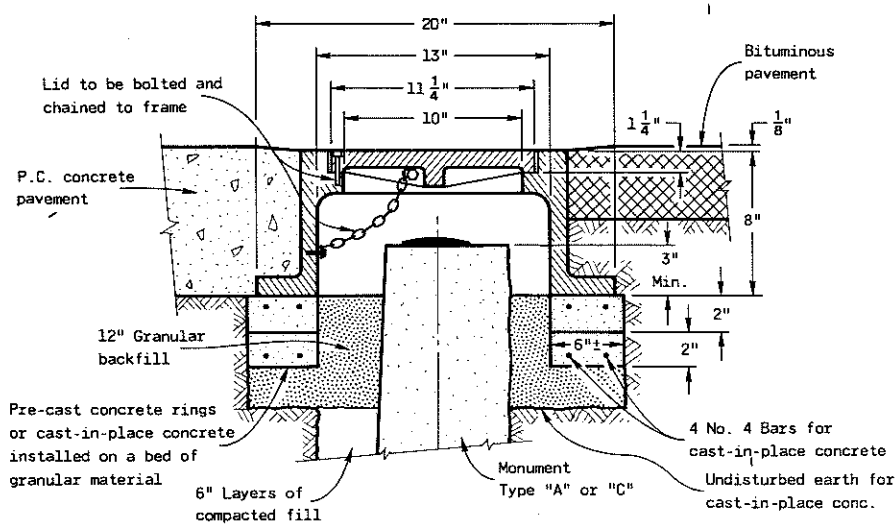


HALF SECTION
A-A

METAL MONUMENT

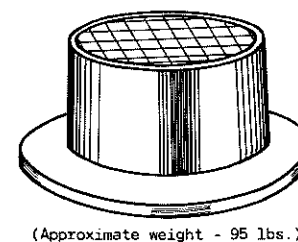
(Includes Marker)

TYPE C



DETAIL OF MONUMENT COVER

INSTALLATION IN PAVEMENT OVER A MONUMENT



(Approximate weight - 95 lbs.)

GENERAL NOTES

Details of construction, materials and workmanship not shown on this drawing shall conform to the pertinent requirements of the Standard Specifications and the applicable Special Provisions.

Detailed drawings of proposed alternate designs for Metal Monuments or Monument Covers shall be submitted to the Engineer for approval.

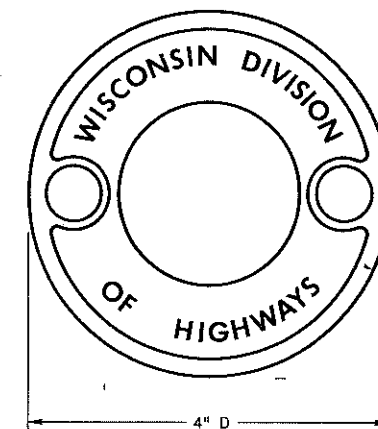
The installed Metal Monument must be easily detected with a dip needle. Inert permanent magnets shall be attached near the top and bottom of those Monuments constructed of a metal alloy which is not attractive to a dip needle.

Type A and Type C Monuments are equal alternates unless otherwise specified on the plan or by special provision.

When Landmark Reference Monument and Cover is specified, contractor shall furnish and install Monument and Monument Cover in conformance with details on this drawing and pertinent requirements of Section 611 of the Standard Specifications.

The Monument Cover shall be a "Non-Rocking" type. Adjustment of the Cover to grade may be accomplished by the use of mortar and brick, or by either pre-cast or cast-in-place Reinforced Concrete Grade Rings.

Monuments shall be located and placed at the direction of the Engineer.



TOP LEGEND FOR MARKER

LANDMARK REFERENCE MONUMENTS

State of Wisconsin
Department of Transportation
Division of Highways

RECOMMENDED FOR APPROVAL:

2-15-74
DATE

J. C. Henrich
CHIEF OF FACILITIES DEVELOPMENT

APPROVED
3-21-74
DATE

H. J. Sedler
STATE HIGHWAY ENGINEER

SURVEY I. 8
CONSTRUCTION R.

S.T.H. 47

STATE PROJECT NUMBER	SHEET NUMBER
6242-2-X 72	8

STATION	DISTANCE	YARDAGE		
		EXCAVATION		FILL
		UNCL.		
368 825				
362		67		17
363				
367 825		278		67
364		174		198
365		91		389
366		44		567
367		31		778
366 825				
368				
365 830				
364 830				
363 830				
SHEET TOTAL		785		2,016

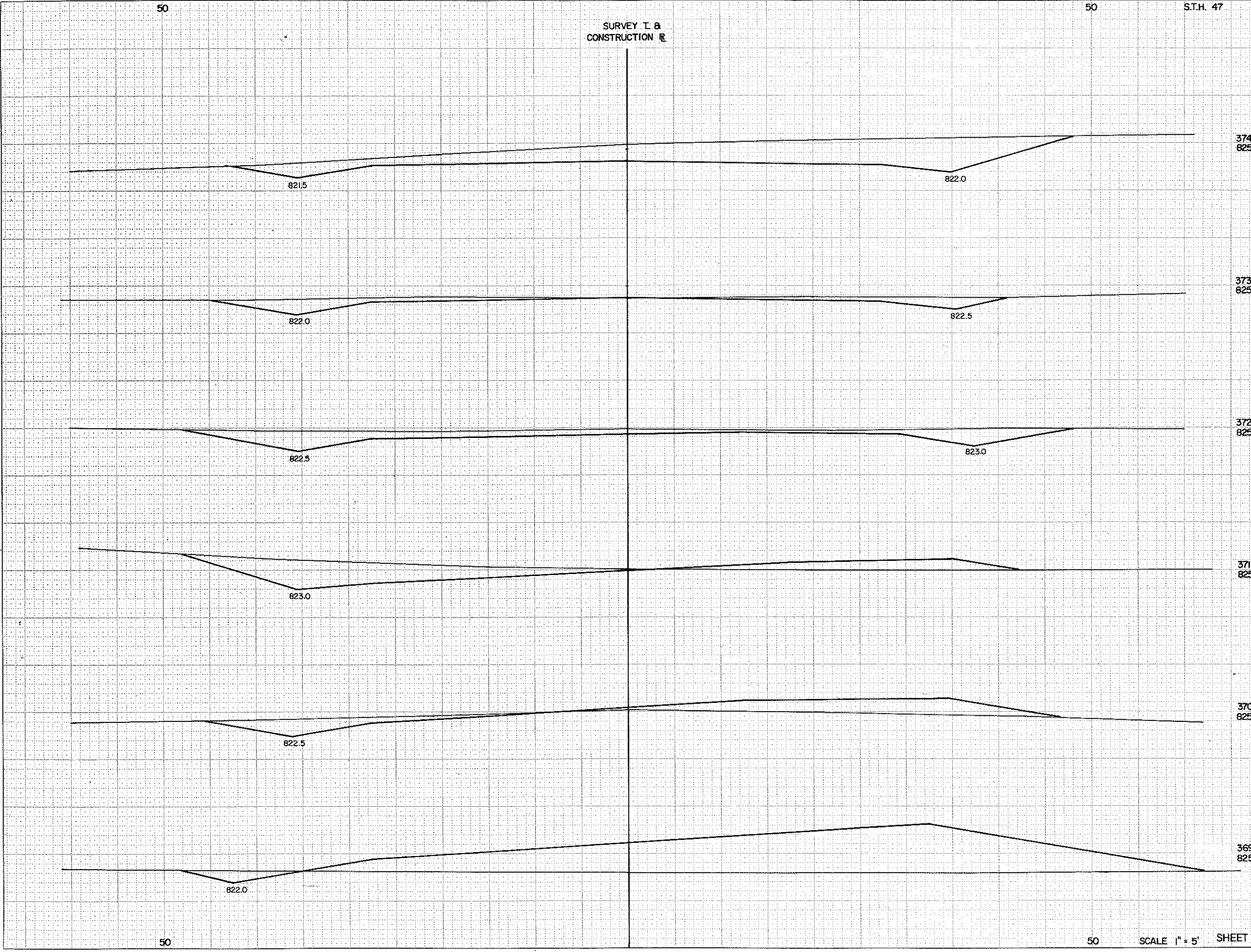
50

50

50

50

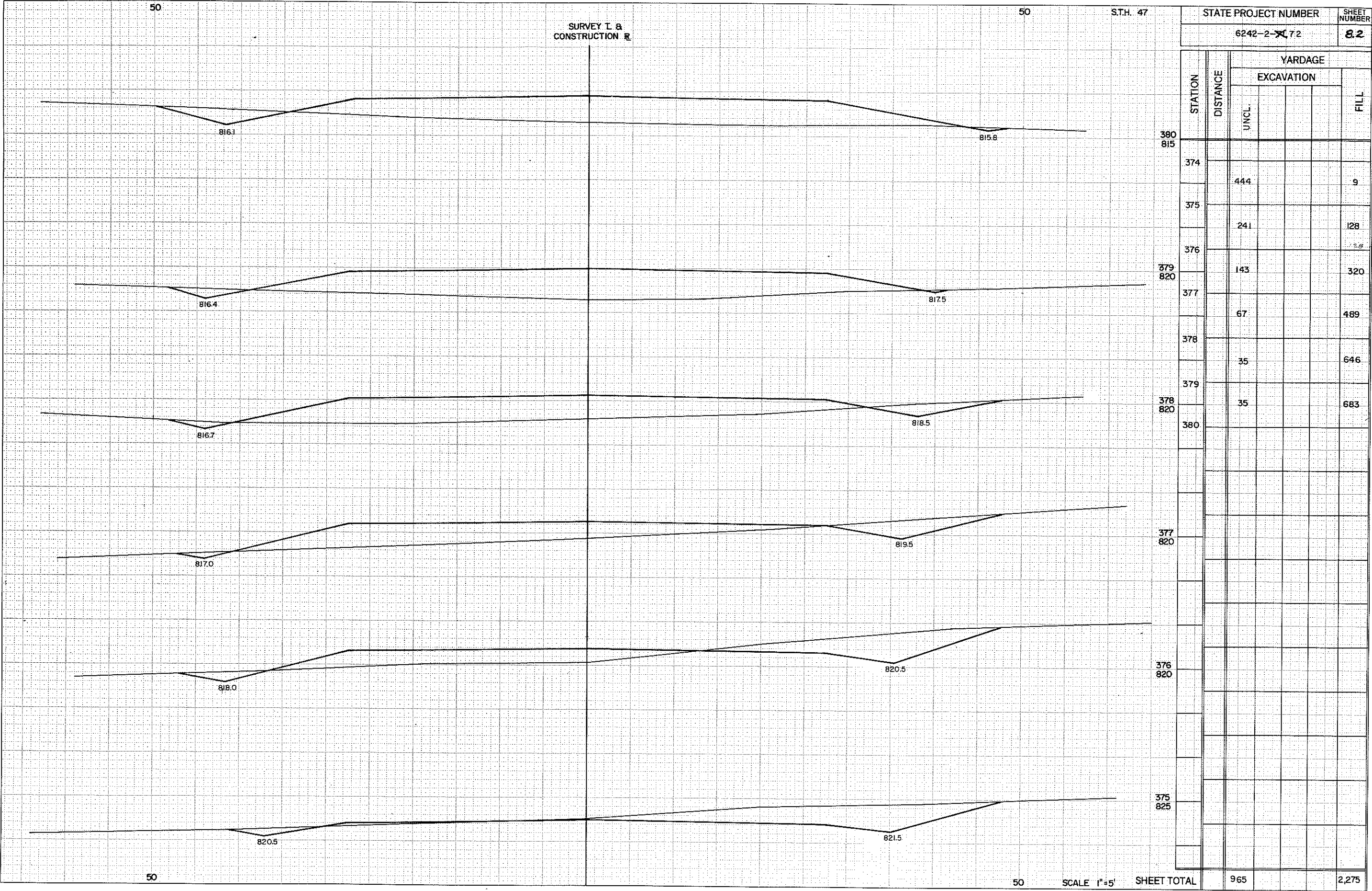
SCALE 1" = 5'

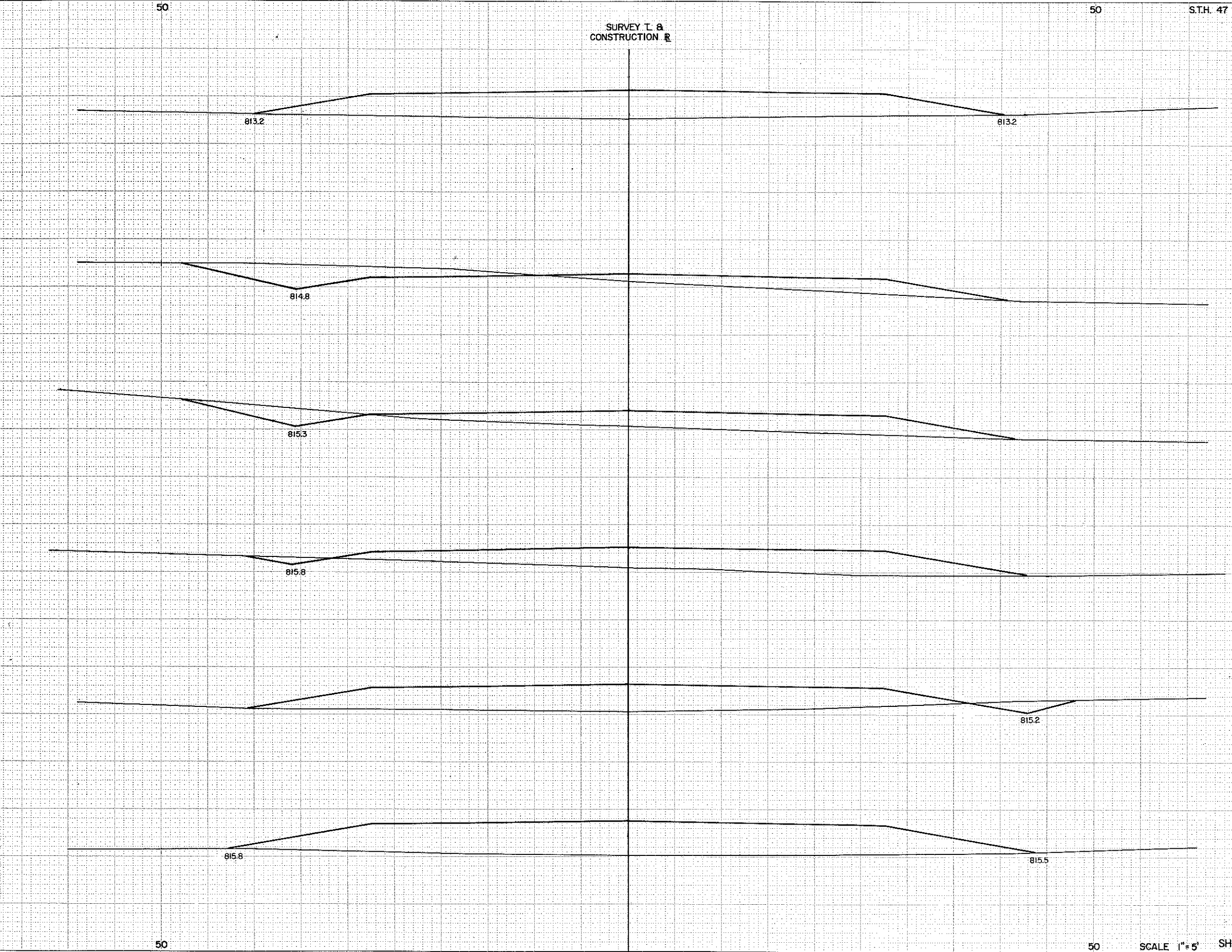


SURVEY I &
CONSTRUCTION R

STATE PROJECT NUMBER		SHEET NUMBER		
6242-2- 72 72		81		
STATION	DISTANCE	YARDAGE		
		EXCAVATION		FILL
		UNCL.		
368		31		967
369		63		613
370		178		148
371		220		50
372		180		
373		387		
374				

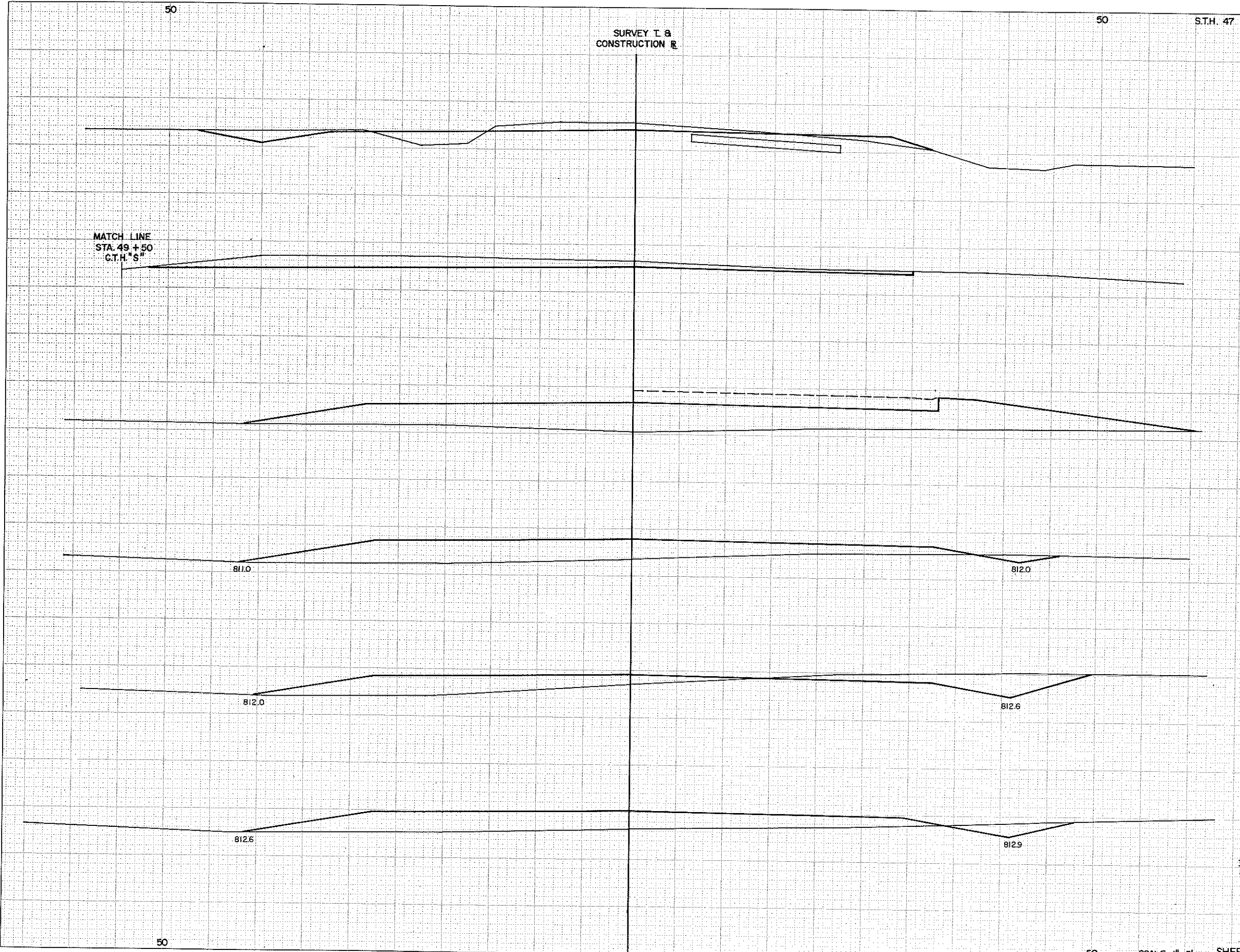
SCALE 1" = 5'





STATE PROJECT NUMBER	SHEET NUMBER
6242-2-X,72	8.3

STATION	DISTANCE	YARDAGE			
		EXCAVATION			FILL
		UNCL			
386 810					
380		26			754
381		13			730
382					
385 815		20			533
383		39			409
384		111			269
385					
384 815		80			420
386					
383 815					
382 815					
381 815					
SHEET TOTAL		289			3,115



STATE PROJECT NUMBER		SHEET NUMBER			
6242-2-X 72		84			
STATION	DISTANCE	YARDAGE			
		EXCAVATION			FILL
		UNCL.			
386					
	19				546
387					
	85				348
388					
	74				369
389					
	7				643
390					
	119				404
391					
	170				37
392					

