MINNESOTA DEPARTMENT OF TRANSPORTATION

THE COUNTY OF OLMSTED

CONSTRUCTION PLAN FOR BRIDGE NO. L-8956 REPLACEMENT

LOCATED ON C.R. 139 **BETWEEN** T.H. 30 **AND** 0.8 MI. N. & 4.5 MI. N.W. OF CHATFIELD **(GEOGRAPHIC DESCRIPTION)**

FROM APPROX. 875' E. & 1125 N. OF S.W. COR. SEC. 21 T.105N. R.12W. **TO** APPROX. 1530' E. & 1110' N. OF S.W. COR. SEC. 21 T.105N. R.12W. **(LEGAL DESCRIPTION)**

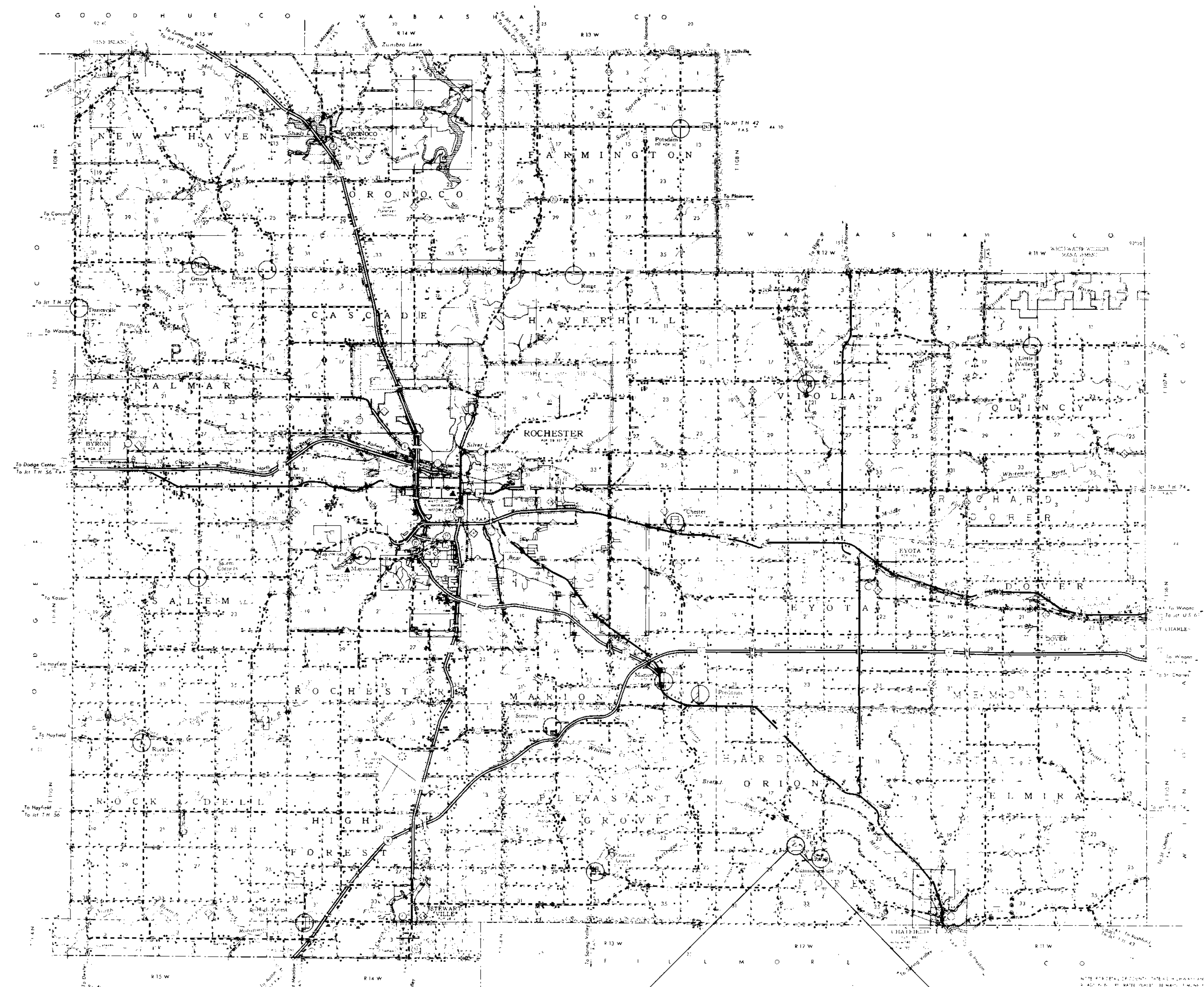
STATE PROJ. NO.					~~**STATE PROJ. NO.**~~ S.A.P. 55-598-27				
GROSS LENGTH		FEET		MILES	GROSS LENGTH	950	FEET	0.18	MILES
BRIDGES-LENGTH		FEET		MILES	BRIDGES-LENGTH	0	FEET	0	MILES
EXCEPTIONS-LENGTH		FEET		MILES	EXCEPTIONS-LENGTH	0	FEET	0	MILES
NET LENGTH		FEET		MILES	NET LENGTH	950	FEET	0.18	MILES

PLANS SYMBOLS

STATE LINE
COUNTY LINE
TOWNSHIP OR RANGE LINE
SECTION LINE
QUARTER LINE
SIXTEENTH LINE
RIGHT OF WAY LINE
PRESENT RIGHT OF WAY LINE
CONTROL OF ACCESS LINE
PROPERTY LINE (Except Land Lines)
VACATED PLATTED PROPERTY
CORPORATE OR CITY LIMITS
TRUNK HIGHWAY CENTER LINE
RETAINING WALL
RAILROAD
RAILROAD RIGHT OF WAY LINE
RIVER OR CREEK
DRY RUN
DRAINAGE DITCH
DRAIN TILE
CULVERT
DROP INLET
GUARD RAIL
BARBED WIRE FENCE
WOVEN WIRE FENCE
CHAIN LINK FENCE
RAILROAD SNOW FENCE
STONE WALL OR FENCE
HEDGE
RAILROAD CROSSING SIGN
RAILROAD CROSSING BELL
ELECTRIC WARNING SIGN
CROSSING GATE
MEANDER CORNER
SPRINGS
MARSH
TIMBER, ORCHARD, BRUSH, NURSERY (TIMBER)
CATCH BASIN C.B.
FIRE HYDRANT
CATTLE GUARD
OVERPASS (Highway Over)
UNDERPASS (Highway Under)
BRIDGE
BUILDING (One Story Frame) 1-S-F 75'
F FRAME C-CONCRETE
S STONE T TILE
B BRICK ST STUCCO
IRON PIPE OR ROD
MONUMENT (STONE, CONCRETE, OR METAL)
WOODEN HUB
GRAVEL PIT (G)
SAND PIT (S)
BORROW PIT (B)
ROCK QUARRY (Q)
SLOPE EASEMENT SE

UTILITIES SYMBOLS

POWER POLE LINE
TELEPHONE OR TELEGRAPH POLE LINE
JOINT TELEPHONE AND POWER ON POWER POLES
ON TELEPHONE POLES
ANCHOR
STEEL TOWER
STREET LIGHT
PEDESTAL (TELEPHONE CABLE TERMINAL)
GAS MAIN G
WATER MAIN
CONDUIT
TELEPHONE CABLE IN CONDUIT T
ELECTRIC CABLE IN CONDUIT P
TELEPHONE MANHOLE T
ELECTRIC MANHOLE P
BURIED TELEPHONE CABLE T-BUR
BURIED ELECTRIC CABLE P-BUR
AERIAL TELEPHONE CABLE T-AE
SEWER, (SANITARY OR STORM)
SEWER MANHOLE



BEGIN S.A.P. 55-598-27
STA. 365+00

END S.A.P. 55-598-27
STA. 374+50

SCALES

PLAN		100 FEET
PROFILE		100 FEET HORIZ. & 10' VERT.
INDEX MAP		10,560 FEET
GENERAL LAYOUT		10 FEET

STATE AID TITLE SHEET 5/77 ALBINSON MPLS 55405

MINN. PROJ. NO.

SPECIFICATIONS REFERENCE

The 1978 Edition of the Minnesota Department of Transportation "Standard Specifications For Highway Construction" Shall Govern.

INDEX

SHEET NO. 1 TITLE SHEET
SHEET NO. 2 TYPICAL SECTIONS AND ESTIMATE QUANTITIES
SHEET NO. 3 & 4 CROSS SECTIONS
SHEET NO. 5 & 6 BRIDGE SHEETS

DESIGN DESIGNATION

R		**ΣN18(20)**	
ADT (Current Year)	= 53	**Design Speed** 30 **MPH**	
ADT (Future Year)	= 83	**Based on** STOPPING **Sight Distance**	
DHV (Design Hr. Vol.)	=	**Height of eye** 3.75	**Height of object** 0.5'
D (Directional Distr.)	= %	**Design Speed not achieved at:**	
T (Heavy Commercial)	= %	**STA. TO STA. MPH**	
SOIL FACTOR	130	**STA. TO STA. MPH**	
		STA. TO STA. MPH	

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE *6-1-82* REG. NO. *10219* ENGR. *[signature]*

COUNTY *Olmsted*

Recommended for Approval *[signature]* *6-1* 19*82*
DISTRICT STATE AID ENGINEER

Recommended for Approval *Delvert D. Ottesdahl* *11-1-* 19*82*
STATE AID PLANS AND SPECS ENGINEER

Approved *5-4* 19*83* *Roy L. Hanson* *for*
STATE AID ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED

DIVISION ADMINISTRATOR DATE

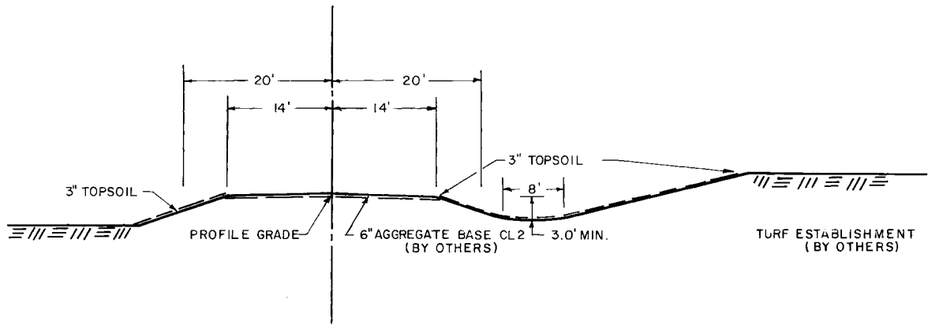
STATE AID PROJ. NO. 55-598-27
~~**STATE PROJ. NO.**~~ **SHEET NO.** 1 **OF** 6 **SHEETS**

ESTIMATED QUANTITIES

SPECIFICATION NO.	ITEM	UNIT	NON PARTICIPATING	PARTICIPATING	TOTAL ESTIMATED QUANTITIES	
2021.501	MOBILIZATION	LUMP SUM		1	1	
2105.501	COMMON EXCAVATION	CU. YD.	657		657	(P)
2105.511	COMMON CHANNEL EXCAVATION	CU. YD.		115	115	
2105.523	COMMON BORROW (CV)	CU. YD.	1718		1718	
2442.501	REMOVE OLD BRIDGE	LUMP SUM	1		1	
2451.507	GRANULAR BEDDING (CV)	CU. YD.		77	77	(P)
2501.511	18" C.S. PIPE CULVERT	LIN. FT.	28		28	
2501.515	18" G.S. PIPE APRONS	EACH	2		2	
2501.521	115" SPAN R.C.P.-ARCH CULV. CL. II A	LIN. FT.		76	76	
2501.525	115" SPAN R.C.P.-ARCH APRONS	EACH		4	4	
2511.501	RANDOM RIPRAP CLASS III	CU. YD.		96	96	
2511.511	GRANULAR FILTER	CU. YD.		48	48	

(P) PLAN QUANTITY

TYPICAL GRADING SECTION

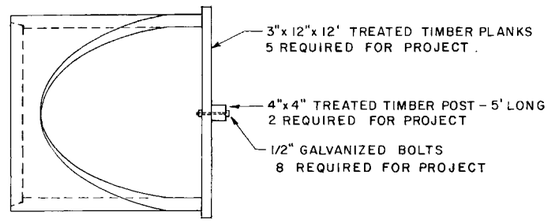


STA. 365+00 TO STA. 374+50

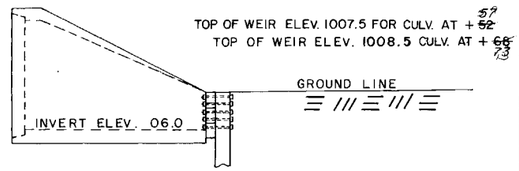
INCIDENTAL ITEM

TIMBER WEIR CONSTRUCTION AT INLET OF 115" SPAN R.C. PIPE-ARCH APRON

TOP VIEW



SIDE VIEW



STANDARD PLATES

THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION SHALL APPLY ON THIS PROJECT.

PLATE NO	DESCRIPTION
0003 A	SPECIFICATION REFERENCE TO STANDARD PLATES
3007 A	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURE
3014 J	REINF. CONC. PIPE ARCH DETAIL
3040 F	CORRUGATED METAL PIPE CULVERT
3114 G	SECTIONAL CONC. APRON FOR REINF. CONC. PIPE - ARCH
3123 H	METAL APRON FOR C.M. PIPE
3124 A	METAL APRON CONNECTION
3133 A	RIP RAP AT R.C.P. OUTLETS
3145 A	CONC. PIPE JOINT TIES
3221 C	CORRUGATED STEEL PIPE COUPLING BAND
8000 H	STANDARD BARRICADES
9000 B	APPROACHES AND ENTRANCES.

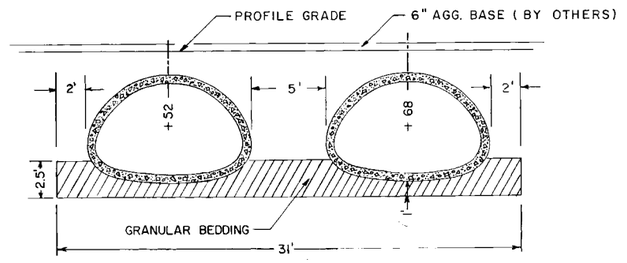
NOTE: MATERIAL FROM THE UPPER 1.0' OF THE NATURAL TOPSOIL SHALL NOT BE USED IN THE UPPER 1.0' OF THE ROADWAY. PART OF THIS MATERIAL SHALL BE UNIFORMLY SPREAD ON SLOPES AND DITCH BOTTOMS TO A DEPTH OF 3". NO PAYMENT IN ADDITION TO THE CONTRACT PRICE FOR COMMON EXCAVATION WILL BE MADE FOR SPREADING THE TOPSOIL AS ABOVE PROVIDED, NOR WILL ANY UNDERCUTTING, MADE IN EXCAVATION PRIOR TO PLACING THE TOPSOIL, BE MEASURED FOR PAYMENT.

NOTE: CORRUGATED STEEL AND REINFORCED CONCRETE PIPE CULVERT EXCAVATION WILL BE CONSIDERED INCIDENTAL, AND WILL BE INCLUDED FOR PAYMENT UNDER UNIT PRICE FOR "PIPE CULVERT."

NOTE: ALL DIMENSIONS AND SLOPES SHOWN ON TYPICAL SECTIONS ARE APPROXIMATE.

BEDDING DETAIL ℄ CULVERTS

STA. 369+52 & +68



S. A. P. 55-598-27

~~State Proj. No.~~

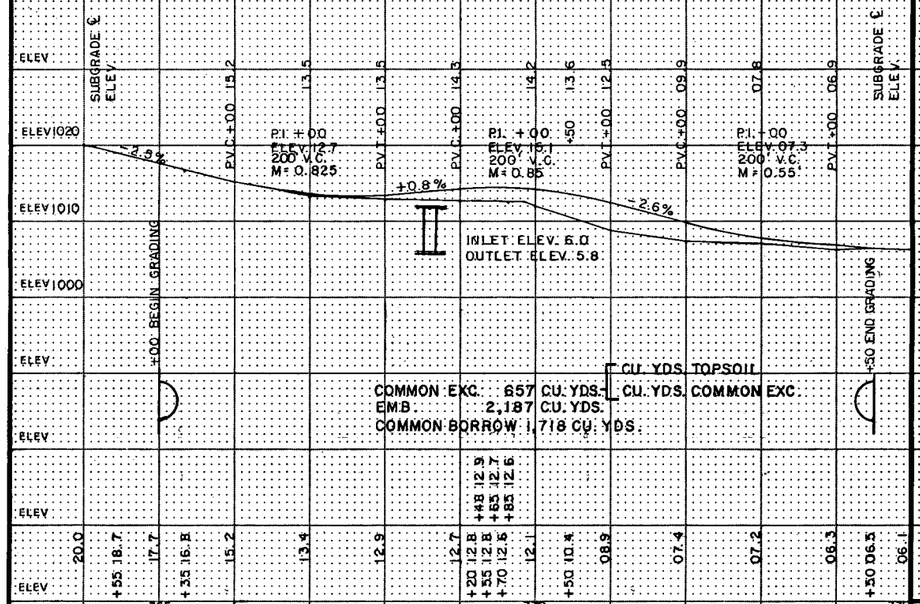
CR. 139 OLMSTED COUNTY **Sheet No.** 2 **of** 6 **Sheets**

CONTRACTED PROFILE

SCALE: HOR. 0' 50' 100' VER. 0' 5' 10'

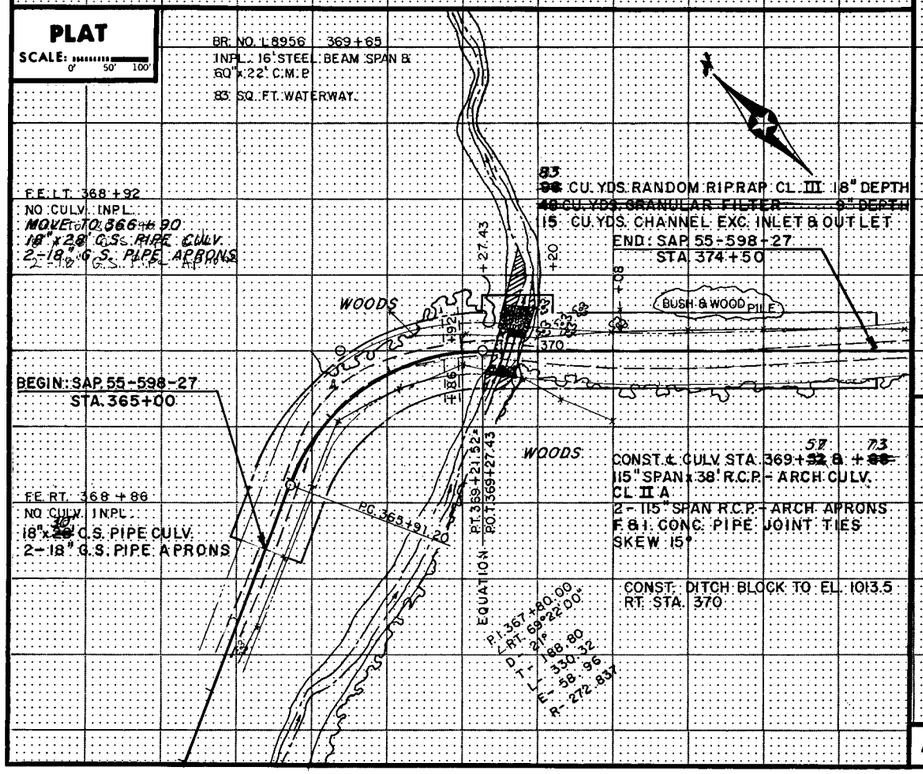
VERTICAL CONTROL

ELEVATIONS SHOWN IN THIS PLAN ARE BASED ON MEAN SEA-LEVEL DATUM, 1929 ADJ. AND TIED TO THE U.S. LEVEL NET.
B.M. BRASS DISC, S.E. COR. BR. NO. 9009
B.M. NO. 1956 ELEV. 1006.87



PLAT

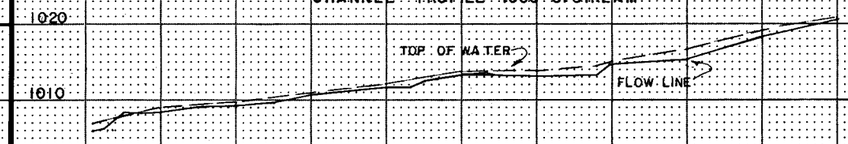
SCALE: 0' 50' 100'



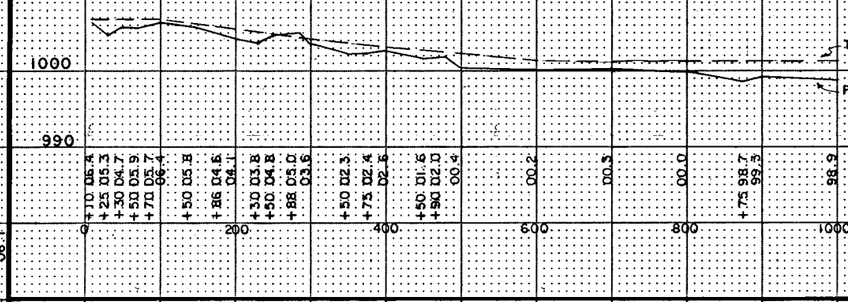
TYPICAL SECTIONS & PERTINENT DATA

SCALES AS SHOWN

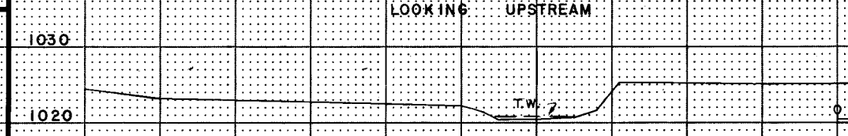
CHANNEL PROFILE 1000' UPSTREAM



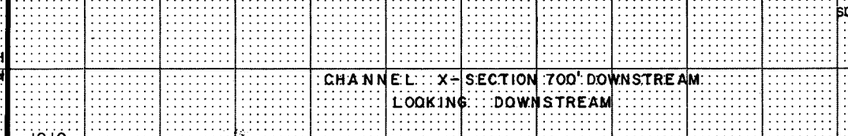
CHANNEL PROFILE 1000' DOWNSTREAM



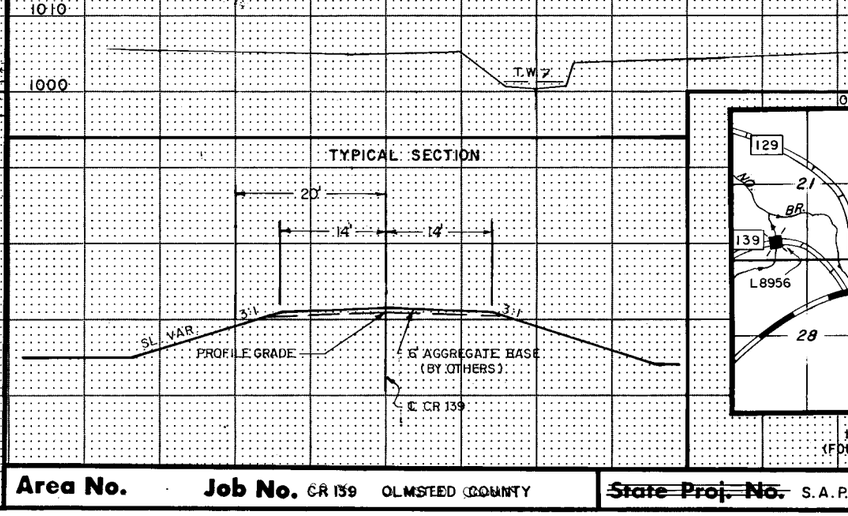
CHANNEL X-SECTION 1000' UPSTREAM
LOOKING UPSTREAM

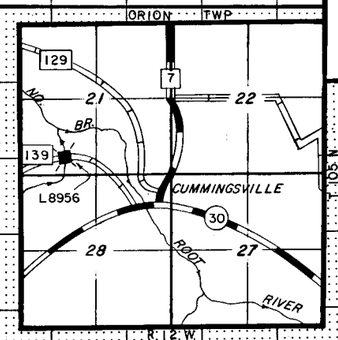


CHANNEL X-SECTION 700' DOWNSTREAM
LOOKING DOWNSTREAM



TYPICAL SECTION





Fed. Proj. No.

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. Special Features: Waterfalls, dams, floods, ice, debris, sliding banks, recreational boating.
2. Other bridges or culverts over the same stream (particularly structures which carry high water without overflow of roadway) :Given location, type, length, height above high water, cross-sectional area etc.
3. Apparent highwater elevation..... Obtained from.....
4. Other data: Approx. velocity of water at time of survey.....

HYDRAULIC ENGINEERS RECOMMENDATION

DATE .....

Stream or ditch designation ..... UNNAMED .....
Drainage area ..... 2.63 SQ. MI. .....
Max. flood on record..... Design flood (25 yr. freq.) 880 C.F.S.
Max. observed highwater elevation UNKNOWN Design highwater elevation 1013.4
Design mean velocity through structure ..... 11 ..... F.P.S. 2.6FT STAGE INCREASE
Low superstructure at or above elevation .....
Flowline elevation ..... 1006.0 Skew angle ..... 15° .....
Waterway area req'd. below elevation ..... = ... Sq. Ft. at Rt. angles to channel

In the interest of flood plain zoning the regional flood (100 yr. freq.) is 1,320 C.F.S. at stage 1014.5 and mean velocity of 12 F.P.S. with 3.2 Ft. swellhead.
The above recommendation will provide a structure of adequate waterway to pass the regional flood within criteria established by the Dept. of Natural Resources.

FOUNDATION ENGINEERS RECOMMENDATION

DATE .....

Bridge survey sheets made from: SURVEY CONDUCTED BY OLMSTED COUNTY.

Bench mark elevation 1014.89 (M.S.L. 1929 Adj.)
Location: SPK. IN STUMP, 19' RT. STA. 369+04

MINNESOTA
DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

AT MILE POINT 7.0 ON CR 139 (T.H., C.S.A.H., C.R. etc.)
PROPOSED BRIDGE LOCATED 4.5 MILES N.W. OF CHATFIELD
SEC. 21 TWP. 105N R. 12 W.
TOWNSHIP ORION COUNTY OLMSTED
BRIDGE NO. L8956

Area No. Job No. CR 139 OLMSTED COUNTY ~~State Proj. No.~~ S.A.P. 55-598-27 Sheet No. 5 of 6 Sheets

Fed. Proj. No.

0 SCALE 10'

RANDOM RIPRAP CL. III 18" DEPTH
~~GRANULAR FILTER 9" DEPTH~~

+ 27.43

+ 20

50'

73°

57 / ~~52~~

73 / ~~68~~

369

370

371

5'

50'

P.I. 367+80.00
∠RT. 69° 22'00"
D - 21°
T - 188.80
L - 330.32
E - 58.96

EQUATION P.T. 369 + 21.52 = 369 + 27.43

CONST. TIMBER WEIR AT INLET
RANDOM RIPRAP CL. III 18" DEPTH
~~GRANULAR FILTER 9" DEPTH~~

ELEVATION

PROFILE
℄ ———
20'LT – – –
20'RT ———

1020
1010
1000

INLET ELEV. 6.0
OUTLET ELEV. 5.8
TOP OF WEIR ELEV. 7.5 AT + 57 / ~~52~~
TOP OF WEIR ELEV. 8.5 AT + ~~68~~ 73

EQUATION 369+21.52 = 369+27.43

12.7 12.8 12.9 12.8 12.7 12.6 12.6 12.1 10.4 08.9

+20 +48 +55 +65 +70 +85 +50

369 370 371

AS BUILT PLANS

S.A.P. 55-598-27 6 6 L 8956