MINNESOTA DEPARTMENT OF TRANSPORTATION

THE COUNTY OF DODGE AND OLMSTED

CONSTRUCTION PLAN FOR GRADING AGGREGATE BASE AND BR. NO. 88716 REPLACEMENT

LOCATED ON DODGE C.S.A.H. 17 & OLMSTED C.S.A.H. 5 **BETWEEN** DODGE C.S.A.H. 16 **AND** OLMSTED C.S.A.H. 3 1/2 MI. SOUTH PINE ISLAND **(GEOGRAPHIC DESCRIPTION)**

FROM 223.09' SO. OF W.1/4 COR. SEC. 7 T.107N. - R. 15 W. **TO** APPROX. 495' SO. CENTER SEC. 5 T. 108N. - R. 15 W. **(LEGAL DESCRIPTION)**

~~STATE PROJ. NO.~~ S.A.P. 20-617-01

GROSS LENGTH	14677.00	FEET	2.720 MILES
BRIDGES-LENGTH		FEET	MILES
EXCEPTIONS-LENGTH		FEET	MILES
NET LENGTH	14677.00	FEET	2.780 MILES

~~STATE PROJ. NO.~~ S.A.P. 55-605-09

GROSS LENGTH	25625.52	FEET	4.853 MILES
BRIDGES-LENGTH		FEET	MILES
EXCEPTIONS-LENGTH		FEET	MILES
NET LENGTH	25625.52	FEET	4.853 MILES

END: SAP 55-605-09
STA. 1411+11.42

EQUATION STA. 1381+90.10 = STA. 1381+89.76

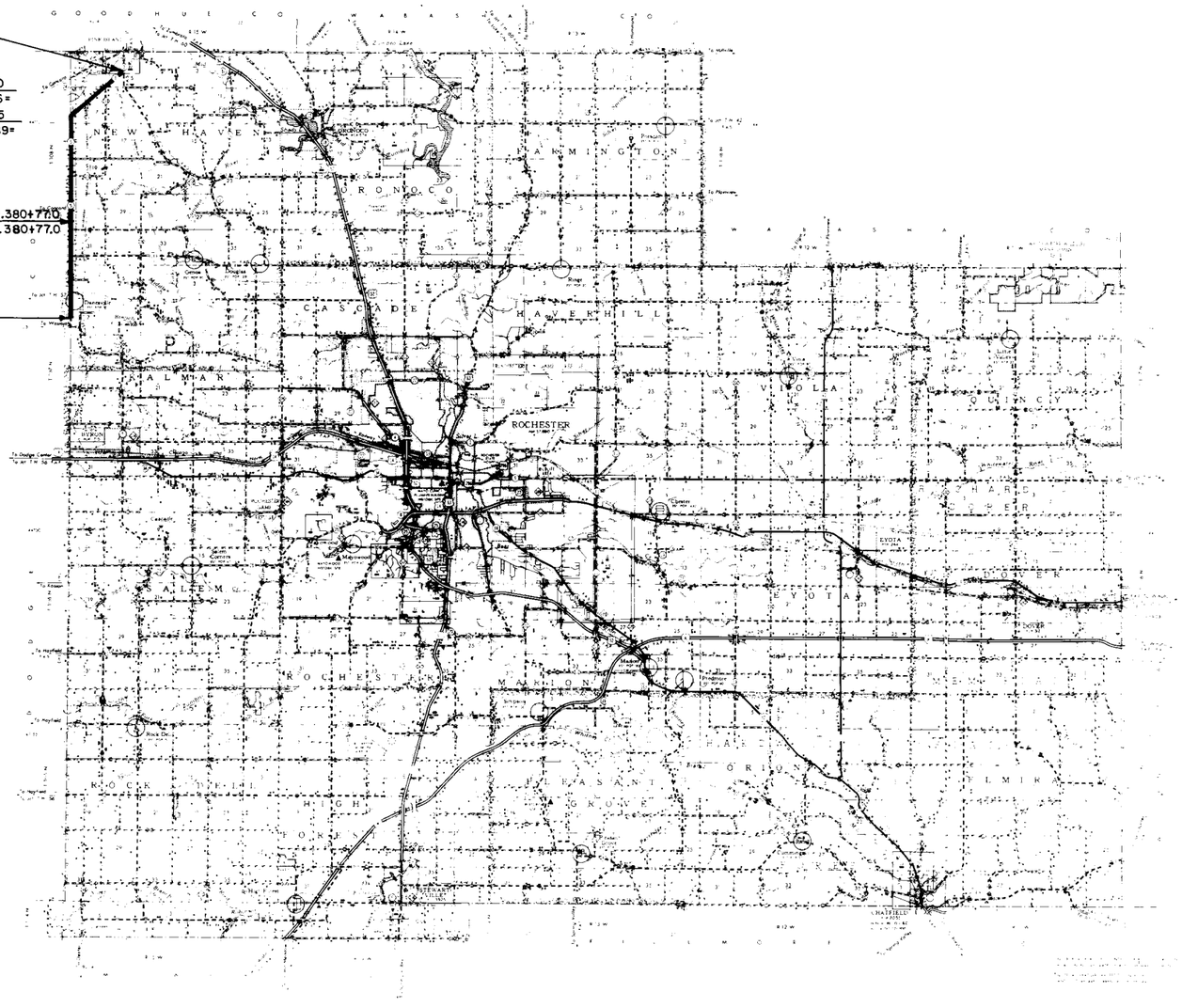
EQUATION STA. 1298+69.45 = STA. 524+60.89

BR. NO. 88716
STA. 482+80

BEGIN: SAP 55-605-09 STA. 380+77.0

END: SAP 20-617-01 STA. 380+77.0

BEGIN: SAP 20-617-01
STA. 234+00.00



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 (NAME)
DRY RUN
DRAINAGE DITCH (SIZE)
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
CATCH BASIN C.B.
FIRE HYDRANT
CATTLE GUARD
OVERPASS (Highway Over)
UNDERPASS (Highway Under)
BRIDGE
BUILDING (One Story Frame)
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
SAND PIT
BORROW PIT
ROCK QUARRY
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
WATER MAIN
CONDUIT
TELEPHONE CABLE IN CONDUIT
ELECTRIC CABLE IN CONDUIT
TELEPHONE MANHOLE
ELECTRIC MANHOLE
BURIED TELEPHONE CABLE
BURIED ELECTRIC CABLE
AERIAL TELEPHONE CABLE
SEWER, (SANITARY OR STORM)
SEWER MANHOLE

SCALES

PLAN 0 100'
PROFILE 0 100' HORZ. 0 10' VERT.
INDEX MAP 0 10560
GENERAL LAYOUT 0 10'

MINN. PROJ. NO.

THE 1983 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN

INDEX

SHEET NO. 1		TITLE SHEET & LAYOUT MAP
" " 2		ESTIMATE OF QUANTITIES
" " 3		TYPICAL SECTIONS
" " 4-17		PLAN & PROFILE SHEETS
" " 18-94		CROSS SECTION SHEETS
" " 95-96		BRIDGE SHEETS BR. NO. 88716

DATE 3-25-85 REG. NO. 8611 ENGR. W. D. Mull
COUNTY ~~DODGE~~

DESIGN DESIGNATION

R EN18(20)

ADT (Current Year)	= 750	Design Speed	50 MPH
ADT (Future Year)	= 1350	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)	= 9.1 %	STA. 1406+04	TO STA. 1409+77 MPH 40
SOIL FACTOR	130	STA.	TO STA. MPH
9 TON DESIGN		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 3-25-85 REG. NO. 10219 ENGR. JK Dolan
COUNTY Olmsted

Recommended for Approval _____ 19
DISTRICT STATE AID ENGINEER

Recommended for Approval Delbert D. Olstad 4-8- 1985
STATE AID PLANS AND SPECS ENGINEER

Approved 4/8 1985 _____
STATE AID ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED
_____ _____
DIVISION ADMINISTRATOR DATE

STATE AID PROJ. NO. SAP 20-617-01 & SAP 55-605-09
~~STATE PROJ. NO.~~ DODGE CO. C.S.A.H. 17 & OLMSTED CO. C.S.A.H. 5 **SHEET NO.** 1 **OF** 96 **SHEETS**

ESTIMATED QUANTITIES

	SPECIFICATION NO.	ITEM	UNIT	SAP 20-617-01 PARTICIPATING RURAL	SAP 20-617-01 NON-PARTICIPATING	SAP 55-605-09 PARTICIPATING RURAL	SAP 55-605-09 NON-PARTICIPATING	TOTAL ESTIMATED QUANTITIES
	2021.501	MOBILIZATION	LUMP SUM	0.34		0.66		1
	2101.502	CLEARING	TREE	172		159		331
	2101.507	GRUBBING	TREE	156		145		301
	2104.501	REMOVE PIPE CULVERT	LIN. FT.	1465		1769		3234
	2104.501	REMOVE TILE DRAIN	LIN. FT.	230		12		242
(1)	2104.501	REMOVE FENCE	LIN. FT.	4200		7700		11900
(2)	2104.509	REMOVE WOOD BOX CULVERT	EACH			1		1
(2)	2104.509	REMOVE CONCRETE BOX CULVERT	EACH	3		6		9
	2105.501	COMMON EXCAVATION (P)	CU.YD.	66385		195868		262253
	2105.503	ROCK EXCAVATION	CU.YD.			3046		3046
	2105.507	SUBGRADE EXCAVATION (P)	CU.YD.	17064		27930		44994
	2105.535	SALVAGED TOPSOIL (EV) (P)	CU.YD.	8306		16198		24504
(3)	2123.501	COMMON LABORERS	HR.			6		6
(3)	2123.503	MOTOR GRADER	HR.			6		6
(3)	2123.508	15 CU.YD. SCRAPER	HR.			12		12
(3)	2123.509	DOZER	HR.			8		8
(4)	2130.501	WATER	M-GAL.	140		240		380
(5)	2131.502	CALCIUM CHLORIDE SOLUTION	GAL.	25114		43886		69000
(6)	2211.501	AGGREGATE BASE, CLASS 2	TON	15356		26070		41426
	2501.511	18" C.S. PIPE CULVERT	LIN. FT.	1608		1218		2826
	2501.511	24" C.S. PIPE CULVERT	LIN. FT.	92		576		668
	2501.511	30" C.S. PIPE CULVERT	LIN. FT.			72		72
	2501.511	24" R.C. PIPE CULVERT CL.2	LIN. FT.			258		258
	2501.511	24" R.C. PIPE CULVERT CL.3	LIN. FT.	104		80		184
	2501.511	30" R.C. PIPE CULVERT CL.2	LIN. FT.	246		94		340
	2501.511	36" R.C. PIPE CULVERT CL.2	LIN. FT.			96		96
	2501.511	36" R.C. PIPE CULVERT CL.3	LIN. FT.			132		132
	2501.511	42" R.C. PIPE CULVERT CL.2	LIN. FT.	78				78
	2501.511	48" R.C. PIPE CULVERT CL.2	LIN. FT.	112				112
	2501.511	48" R.C. PIPE CULVERT CL.3	LIN. FT.			80		80
	2501.511	60" R.C. PIPE CULVERT CL.2	LIN. FT.			114		114
	2501.511	60" R.C. PIPE CULVERT CL.3	LIN. FT.			142		142
	2501.511	60" R.C. PIPE CULVERT CL4	LIN. FT.			72		72
	2501.515	18" G.S. PIPE APRON	EACH	64		68		132
	2501.515	24" G.S. PIPE APRON	EACH	6		32		38
	2501.515	30" G.S. PIPE APRON	EACH			2		2
	2501.515	24" R.C. PIPE APRON	EACH	2		8		10
	2501.515	30" R.C. PIPE APRON	EACH	6		2		8
	2501.515	36" R.C. PIPE APRON	EACH			4		4
	2501.515	42" R.C. PIPE APRON	EACH	2				2
	2501.515	48" R.C. PIPE APRON	EACH	2		2		4
	2501.515	60" R.C. PIPE APRON	EACH			6		6
	2501.521	42" SPAN C.S. PIPE-ARCH CULVERT	LIN. FT.	48				48
	2501.521	57" SPAN C.S. PIPE-ARCH CULVERT	LIN. FT.			42		42
	2501.521	44" SPAN R.C. PIPE-ARCH CULVERT CL.2A	LIN. FT.			770		770
	2501.521	51" SPAN R.C. PIPE-ARCH CULVERT CL.2A	LIN. FT.	78				78
	2501.521	73" SPAN R.C. PIPE-ARCH CULVERT CL.2A	LIN. FT.	78				78
	2501.521	88" SPAN R.C. PIPE-ARCH CULVERT CL.3A	LIN. FT.	108				108
	2501.521	102" SPAN R.C. PIPE-ARCH CULVERT CL.2A	LIN. FT.			86		86
	2501.521	102" SPAN R.C. PIPE-ARCH CULVERT CL.3A	LIN. FT.			144		144
	2501.521	115" SPAN R.C. PIPE-ARCH CULVERT CL.2A	LIN. FT.			84		84
	2501.521	115" SPAN R.C. PIPE-ARCH CULVERT CL.3A	LIN. FT.	102				102
	2501.525	42" SPAN G.S. PIPE-ARCH APRON	EACH	2				2
	2501.525	57" SPAN G.S. PIPE-ARCH APRON	EACH			2		2
	2501.525	44" SPAN R.C. PIPE-ARCH APRON	EACH			18		18
	2501.525	51" SPAN R.C. PIPE-ARCH APRON	EACH	2				2
	2501.525	73" SPAN R.C. PIPE-ARCH APRON	EACH	2				2
	2501.525	88" SPAN R.C. PIPE-ARCH APRON	EACH	2				2
	2501.525	102" SPAN R.C. PIPE-ARCH APRON	EACH			4		4
	2501.525	115" SPAN R.C. PIPE-ARCH APRON	EACH	2		2		4
	2501.541	60" HIGH R.C. CATTLE-PASS CULVERT CL. 3	LIN. FT.			78		78
	2501.541	72" HIGH R.C. CATTLE-PASS CULVERT CL. 3	LIN. FT.	78		130		208
	2501.545	60" HIGH R.C. CATTLE-PASS APRON	EACH			2		2
	2501.545	72" HIGH R.C. CATTLE-PASS APRON	EACH	2		4		6
	2511.501	RANDOM RIP RAP CL. III	CU.YD.	211		435		646
	2511.511	GRANULAR FILTER	CU. YD.	106		221		327
	2575.501	ROADSIDE SEEDING (P)	ACRE	21		46		67
	2575.502	SEED MIXTURE 2	POUND	2100		4600		6700
	2575.502	SEED MIXTURE 5	POUND	1050		2300		3350
	2575.505	SODDING	SQ. YD.	20634		30768		51402
(7)	2575.511	MULCH MATERIAL TYPE 1	TON	42		92		134
	2575.519	DISC ANCHORING (P)	ACRE	21		46		67
(8)	2575.531	COMMERCIAL FERTILIZER ANALYSIS 12-12-12	TON	2.1		4.6		6.7
(9)	0575.602	HAY OR STRAW BALES	EACH	260		715		975
	2502.521	8" C.S. PIPE DRAIN	LIN. FT.	1954		1034		2988
	2502.521	10" C.S. PIPE DRAIN	LIN. FT.	120				120
	2502.521	12" C.S. PIPE DRAIN	LIN. FT.			120		120

ESTIMATED QUANTITIES

SPECIFICATION NO.	ITEM	UNIT	SAP 20-617-01 PARTICIPATING RURAL	SAP 20-617-01 NON-PARTICIPATING	SAP 55-605-09 PARTICIPATING RURAL	SAP 55-605-09 NON-PARTICIPATING	TOTAL ESTIMATED QUANTITIES
2502.551	8" C.S. INSPECTION TEE	LIN. FT.	63		73		136
2502.551	10" C.S. INSPECTION TEE	LIN. FT.	8				8
2502.551	12" C.S. INSPECTION TEE	LIN. FT.			11		11
0504.602	RELOCATE HYDRANT	EACH				1	1
2211.501	AGGREGATE BASE CLASS 5	TON	12072		21077		33149

(P) PLAN QUANTITY

(1) IN AREA'S DESIGNATED BY THE ENGINEER.

(2) REMOVE WOOD BOX CULV. STA.422+16 INPL. 6'W.x4'H.x 54', REMOVE CONC. BOX CULV. STA.265+47 INPL.6'x4'x27', STA.272+91 INPL. 10'x8'x 27', STA. 323+51 INPL. 6'x6'x 27.6', STA.400+40 INPL. 4'x6'x32', STA.461+32 INPL.8'x3'x 30', STA.482+80 INPL. 10'x4'x 28', STA.1305+34 INPL.4'x4'x 36', STA.1338+95 INPL .6'x6'x 36', STA. 1339+39 INPL 4'x6'x 20'.

(3) EQUIPMENT HOUR ARE FOR THE OBLITERATING OF OLD ROAD AT LOCATIONS NOTED IN THE PLAN.

(4) WATER TO BE USED AS A DUST PREVENTATIVE AS DIRECTED BY THE ENGINEER.

(5) CALCIUM CHLORIDE SOLUTION COMPUTED FOR 44' WIDE AND 0.35 GALLON/SQ.YD. APPLICATION. APPLY TO COMPLETED AGGREGATE BASE SURFACE.

(6) INCLUDES 32,562 TONS FOR MAINLINE, 3,605 TONS FOR 9 PUBLIC ROAD APPROACHES, 2,010 TONS FOR 67 FEILD ENT. AND 3,249 TONS FOR 59 RES. DRIVES.

(7) APPLICATION RATE 2 TONS / ACRE.

(8) APPLICATION RATE 200 LBS./ACRE.

(9) HAY OR STRAW BALES TO BE USED FOR EROSION CONTROL.

LOCATIONS OF SODDING AT RESIDENTS	
LT.	RT.
STA.246+50 TO STA.249+50	STA.246+50 TO STA. 249+50
STA.256+00 TO STA.262+00	STA.259+80 TO STA. 263+00
STA.266+80 TO STA.270+00	STA.266+50 TO STA. 271+40
STA.275+70 TO STA.280+50	STA.274+40 TO STA. 277+70
STA.282+00 TO STA.284+00	STA.291+20 TO STA. 298+60
STA.293+40 TO STA.300+00	STA.350+35 TO STA. 354+50
STA.326+00 TO STA.328+00	STA.361+00 TO STA. 362+50
STA. 10+50 TO STA. 13+50	STA.380+00 TO STA. 381+50
STA.351+30 TO STA.354+30	STA.394+00 TO STA. 397+00
STA.388+30 TO STA.390+00	STA.406+00 TO STA. 409+00
STA.392+00 TO STA.393+80	STA.449+00 TO STA. 452+00
STA.407+00 TO STA.410+50	STA. 30+50 TO STA. 32+00
STA.420+00 TO STA.422+00	STA.476+20 TO STA. 478+50
STA.423+00 TO STA.425+30	STA.487+50 TO STA. 491+00
STA.443+00 TO STA.448+00	STA.500+70 TO STA. 504+00
STA.455+00 TO STA.458+50	STA.507+00 TO STA. 509+00
STA.472+50 TO STA.475+00	STA.514+00 TO STA. 516+20
STA.1307+00 TO STA.1316+00	STA.1312+00 TO STA. 1320+00
STA.1370+00 TO STA.1372+10	STA.1354+00 TO STA. 1358+00
STA.1404+50 TO STA.1408+00	STA.1380+00 TO STA. 1383+00
STA.61+50 TO STA. 62+50	

(1) ALL ℄ CULVERTS TO HAVE SOD PLACED AROUND APRONS.

(2) 7500 SQ. YDS. SOD TO BE PLACED AS DITCH LINERS AS DIRECTED BY THE ENGINEER.

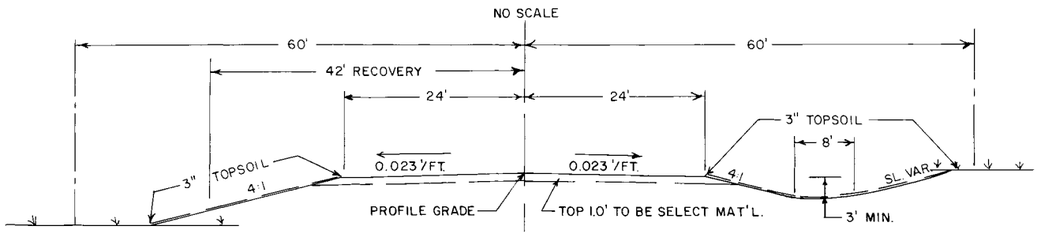
STANDARD PLATES

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

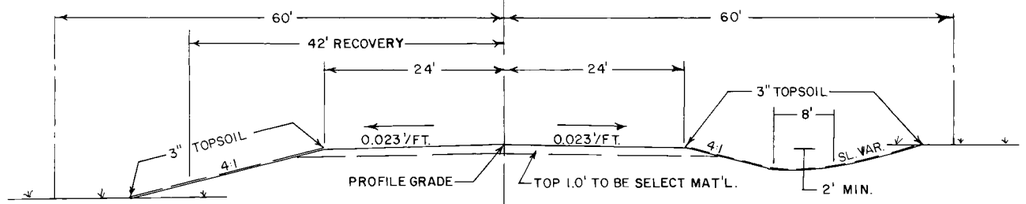
PLATE NO.	DESCRIPTION
0004 A	SPECIFICATION REFERENCE TO STANDARD PLATES
3000 H	REINFORCE CONCRETE PIPE
3007 A	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURES
3014 J	REINFORCED CONCRETE PIPE ARCH DETAIL
3020 F	REINFORCED PRECAST CONCRETE CATTLE PASS (60"&72")
3040 F	CORRUGATED METAL PIPE CULVERT
3100 F	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3110 F	CONCRETE APRON FOR REINFORCED CONCRETE PIPE-ARCH
3114 G	SECTIONAL CONCRETE APRON FOR REINFORCED CONC. PIPE-ARCH
3122 I	METAL APRON FOR C.M. PIPE-ARCH CULVERT
3123 H	METAL APRON FOR C.M. PIPE
3124 B	METAL APRON CONNECTION
3133 A	RIP RAP AT R.C.P. OUTLETS
3134 A	RIP RAP AT C.M.P. OUTLETS
3142 A	OUTLET SCREEN FOR C.M. & S.C. PIPES
3143 C	INSPECTION TEES
3145 C	CONCRETE PIPE TIES
3221 C	CORRUGATED STEEL PIPE COUPLING BAND
8000 H	STANDARD BARRICADES
9000 B	APPROACHES AND ENTRANCES
9102 C	SODDING AT PIPE CULVERT ENDS

GRADING TYPICAL SECTIONS

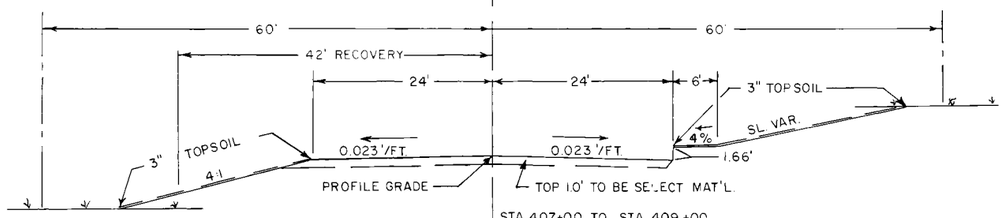
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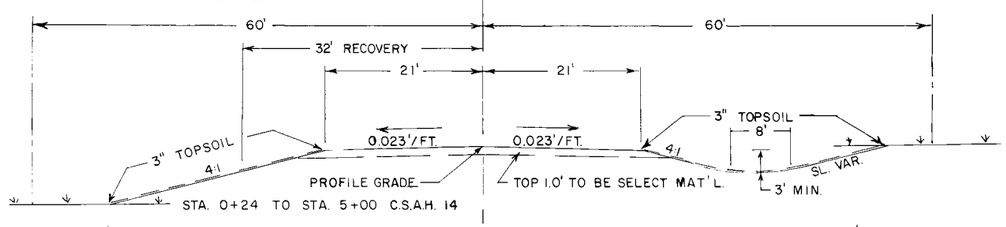
STA. 234+00	TO STA. 246+00	STA. 363+00	TO STA. 379+50	STA. 458+00	TO STA. 472+50
STA. 250+00	TO STA. 259+56	STA. 383+50	TO STA. 387+90	STA. 474+00	TO STA. 476+25
STA. 262+70	TO STA. 266+80	STA. 396+70	TO STA. 407+00	STA. 478+50	TO STA. 489+00
STA. 271+40	TO STA. 275+50	STA. 413+00	TO STA. 420+00	STA. 490+00	TO STA. 502+00
STA. 285+00	TO STA. 291+20	STA. 421+00	TO STA. 423+00	STA. 504+00	TO STA. 511+00
STA. 299+74	TO STA. 326+00	STA. 425+00	TO STA. 443+00	STA. 1317+25	TO STA. 1354+00
STA. 328+50	TO STA. 350+35	STA. 446+50	TO STA. 449+70	STA. 1358+00	TO STA. 1370+00
STA. 354+25	TO STA. 360+00	STA. 452+00	TO STA. 455+00	STA. 1372+00	TO STA. 1380+50
				STA. 1382+00	TO STA. 1411+11.42



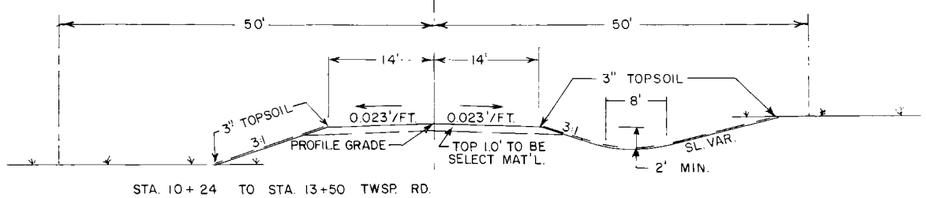
STA. 246+00	TO STA. 250+00	STA. 409+00	TO STA. 413+00	STA. 502+00	TO STA. 504+00
STA. 277+50	TO STA. 285+00	STA. 423+00	TO STA. 425+00	STA. 1354+00	TO STA. 1358+00
STA. 326+00	TO STA. 328+50	STA. 455+00	TO STA. 458+00	STA. 1370+00	TO STA. 1372+00
STA. 360+00	TO STA. 363+00	STA. 472+50	TO STA. 474+00	STA. 1380+50	TO STA. 1382+00
STA. 379+50	TO STA. 383+50	STA. 476+25	TO STA. 478+50		
STA. 387+90	TO STA. 391+80	STA. 489+00	TO STA. 490+50		



STA. 259+56	TO STA. 262+70	STA. 407+00	TO STA. 409+00		
STA. 266+80	TO STA. 271+40	STA. 420+00	TO STA. 421+00		
STA. 275+50	TO STA. 277+50	STA. 443+80	TO STA. 446+50		
STA. 291+20	TO STA. 299+74	STA. 449+70	TO STA. 452+00		
STA. 350+35	TO STA. 354+25	STA. 1311+90	TO STA. 1317+25		
STA. 391+80	TO STA. 396+70				

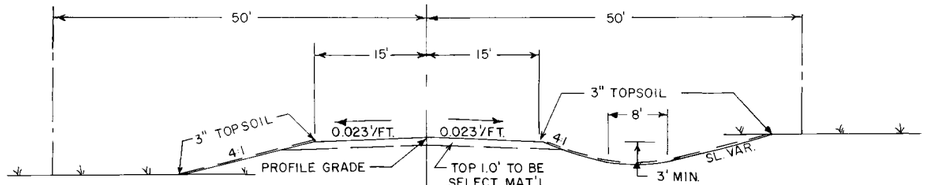


STA. 0+24 TO STA. 5+00 C.S.A.H. 14



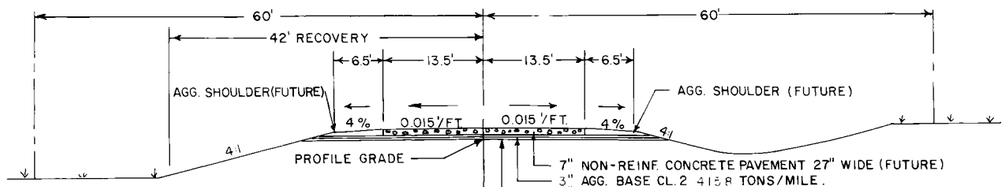
STA. 10+24 TO STA. 13+50 TWSP. RD.
STA. 30+24 TO STA. 33+00 TWSP. RD.
STA. 40+24 TO STA. 48+00 TWSP. RD.

TYPICAL GRADING SECTION

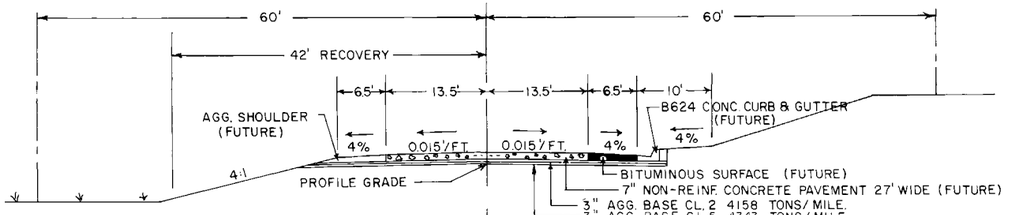


STA. 20+24 TO STA. 23+00 CR 113
STA. 60+24 TO STA. 64+00 CR 113
STA. 78+00 TO STA. 82+53 TWSP. RD.

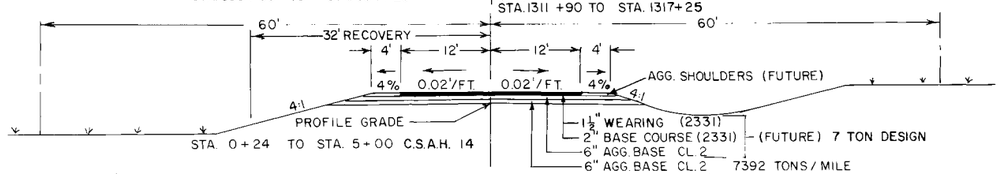
TYPICAL SURFACING SECTIONS



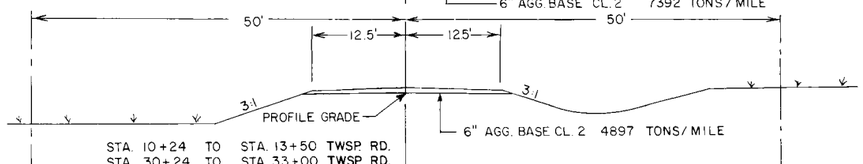
STA. 234+00	TO STA. 259+56	STA. 396+70	TO STA. 407+00
STA. 262+70	TO STA. 266+80	STA. 409+00	TO STA. 420+00
STA. 271+40	TO STA. 275+50	STA. 421+00	TO STA. 443+80
STA. 277+50	TO STA. 291+20	STA. 446+50	TO STA. 449+70
STA. 299+74	TO STA. 350+35	STA. 452+00	TO STA. 1311+90
STA. 354+25	TO STA. 391+80	STA. 1317+25	TO STA. 1411+11.42



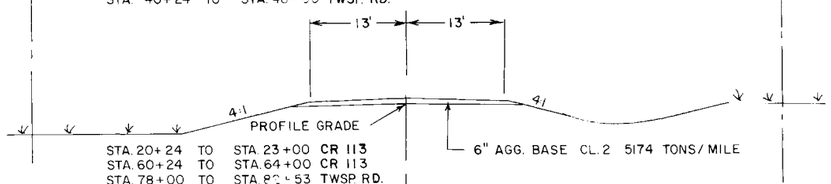
STA. 259+56	TO STA. 262+70	STA. 391+80	TO STA. 396+70
STA. 266+80	TO STA. 271+40	STA. 407+00	TO STA. 409+00
STA. 275+50	TO STA. 277+50	STA. 420+00	TO STA. 421+00
STA. 291+20	TO STA. 299+74	STA. 443+80	TO STA. 446+50
STA. 350+35	TO STA. 354+25	STA. 449+70	TO STA. 452+00
		STA. 1311+90	TO STA. 1317+25



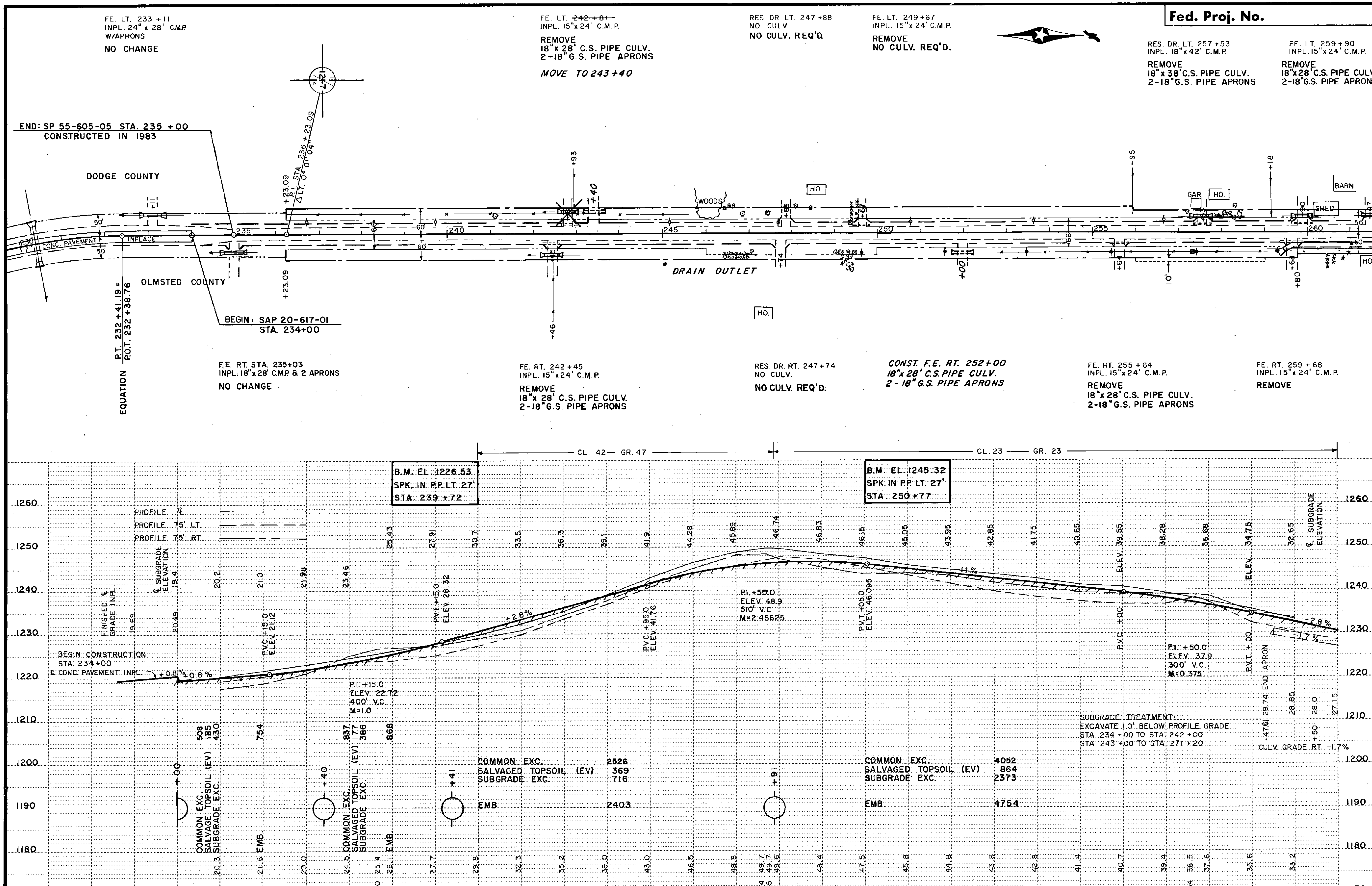
STA. 0+24 TO STA. 5+00 C.S.A.H. 14



STA. 10+24 TO STA. 13+50 TWSP. RD.
STA. 30+24 TO STA. 33+00 TWSP. RD.
STA. 40+24 TO STA. 48+00 TWSP. RD.



STA. 20+24 TO STA. 23+00 CR 113
STA. 60+24 TO STA. 64+00 CR 113
STA. 78+00 TO STA. 82+53 TWSP. RD.



~~State Proj. No.~~ DODGE CO. C.S.A.H. 17 OLMSTED CO. C.S.A.H. 5
S.A.P. 20-617-01 S.A.P. 55-605-09 **Sheet No.** 4 **of** 96 **Sheets**

AS BUILT PLANS

Fed. Proj. No.

FM. ENT. LT. 261+47
INPL. 15" x 30' C.M.P.
REMOVE
18"x32' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS

DODGE CO. 18 LT. 262+45
INPL. 24" x 46' R.C.P.
REMOVE
42" SPAN x 48' C.S. PIPE ARCH CULV.
2-42" SPAN G.S. PIPE ARCH APRONS
INLET ELEV. 24.2 OUTLET ELEV. 23.9
PLACE CULV. 45' LT.
CONST. 50' SHOULDER RADIUS

BARN ENT. LT. 267+05
INPL. 15" x 24' C.M.P.
REMOVE
NO CULV. REQ'D.

FM. ENT. LT. 267+76
INPL. 15" x 28' C.M.P.
REMOVE
NO CULV. REQ'D.

FE. LT. ~~270+21~~
INPL. 12" x 24' C.M.P.
REMOVE
18"x28' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS
MOVED TO 271+60

FE. LT. 274+28
INPL. 15" x 24' C.M.P.
REMOVE
18"x28' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS
MOVE F.E. TO 275+50

LT. 280+44
RES DR INPL. 15" x 28' C.M.P.
REMOVE
18"x32' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS

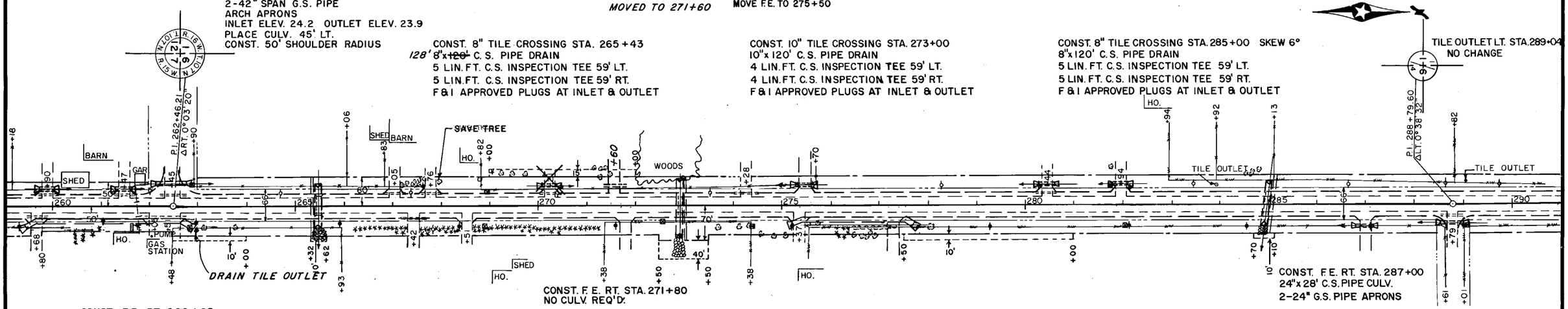
RES. DR. LT. 281+94
NO CULV.
18"x32' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS

CONST. 8" TILE CROSSING STA. 265+43
~~128'~~ 8"x~~120'~~ C.S. PIPE DRAIN
5 LIN. FT. C.S. INSPECTION TEE 59' LT.
5 LIN. FT. C.S. INSPECTION TEE 59' RT.
F & I APPROVED PLUGS AT INLET & OUTLET

CONST. 10" TILE CROSSING STA. 273+00
10"x120' C.S. PIPE DRAIN
4 LIN. FT. C.S. INSPECTION TEE 59' LT.
4 LIN. FT. C.S. INSPECTION TEE 59' RT.
F & I APPROVED PLUGS AT INLET & OUTLET

CONST. 8" TILE CROSSING STA. 285+00 SKEW 6°
8"x120' C.S. PIPE DRAIN
5 LIN. FT. C.S. INSPECTION TEE 59' LT.
5 LIN. FT. C.S. INSPECTION TEE 59' RT.
F & I APPROVED PLUGS AT INLET & OUTLET

TILE OUTLET LT. STA. 289+04
NO CHANGE



CONST. F.E. RT. 262+65

CONST. F. E. RT. STA. 271+80
NO CULV. REQ'D.

CONST. F.E. RT. STA. 287+00
24"x28' C.S. PIPE CULV.
2-24" G.S. PIPE APRONS

STATION ENT. & FE. RT. 262+05 & 262+51
INPL. 15" x 90' C.M.P.
REMOVE
18"x334' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS
CULV. LENGTH INCLUDES 2-30° BENDS
INLET ELEV. 29.74 OUTLET ELEV. 24.06

℄ CULV. 265+47
INPL. 6'x4'x27' CONC. BOX
REMOVE CONC. BOX CULV.
42"x78' R.C. PIPE CULV. CL. 2
2-42" R.C. PIPE APRONS
PLACE CULV. ON "B" BEDDING
16 CU. YDS. RANDOM RIPRAP CL. III
18" DEPTH
8 CU. YDS. GRANULAR FILTER 9" DEPTH
PLACE 58 SQ. YDS. SOD AROUND CULV. APRONS

FE. RT. 267+42
INPL. 12" x 24' C.M.P.
REMOVE
NO ENT. REQ'D.

RES. DR. RT. 268+51
NO CULV.
NO CULV. REQ'D.

℄ CULV. 272+91
INPL. 8' x 10' x 27' CONC. BOX
REMOVE CONC. BOX CULV.
115" SPAN x 102' R.C.P. ARCH CL. 3A
2-115" SPAN R.C.P. ARCH APRONS
PLACE CULV. ON "B" BEDDING
55 CU. YDS. RANDOM RIPRAP CL. III
18" DEPTH
27 CU. YDS. GRANULAR FILTER 9" DEPTH
PLACE 82 SQ. YDS. SOD AROUND CULV. APRONS

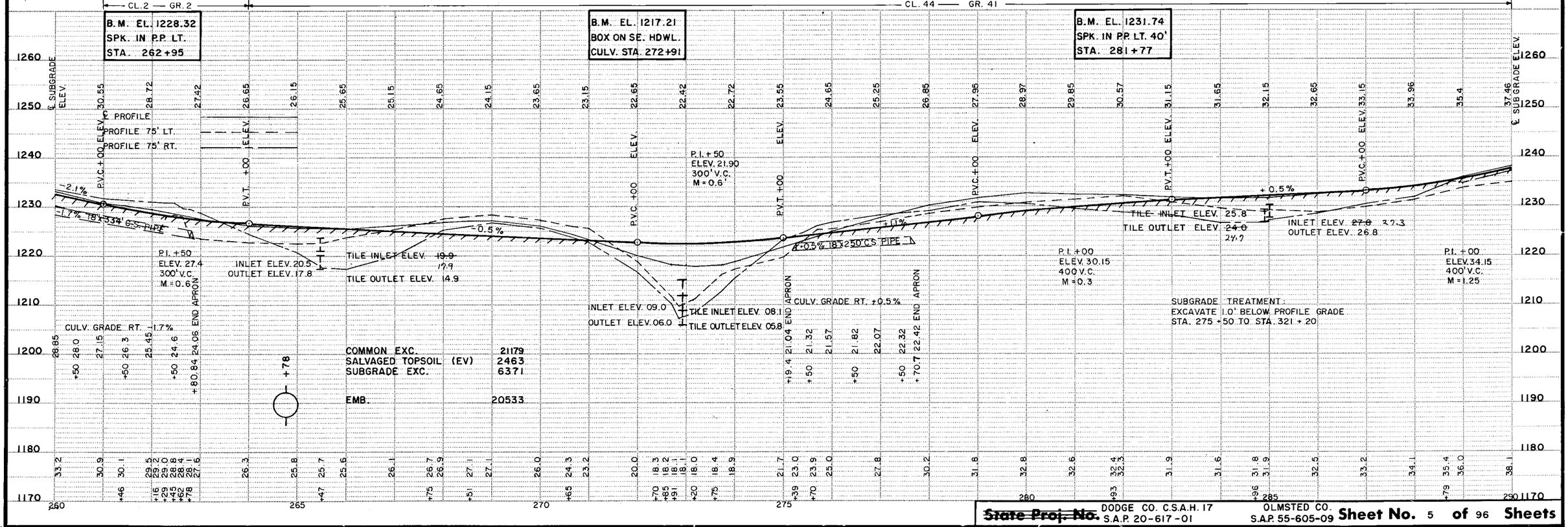
RES. DR. RT. 275+37
INPL. 15" x 24' C.M.P.
REMOVE
18"x250' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS
CULV. LENGTH INCLUDES 2-30° BENDS
INLET ELEV. 22.42 OUTLET ELEV. 21.17

CONST. DR. RT. STA. 277+30

NO. CULV. REQ'D.

℄ CULV. 284+96
INPL. 24"x24' R.C.P. W/APRONS
MOVE CULV. TO STA. 284+64 SKEW 6°
REMOVE 48 LIN. FT.
51" SPAN x 78' R.C.P. ARCH CL. 2A
2-51" SPAN R.C.P. ARCH APRONS
PLACE CULV. ON "B" BEDDING
16 CU. YDS. RANDOM RIPRAP CL. III 18" DEPTH
8 CU. YDS. GRANULAR FILTER 9" DEPTH
PLACE 58 SQ. YDS. SOD AROUND CULV. APRONS

TWP. RD. RT. 288+79
INPL. 18"x32' C.M.P.
REMOVE
24"x36' C.S. PIPE CULV.
2-24"G.S. PIPE APRONS
CONST. 30' SHOULDER RADIUS



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AS BUILT PLANS

Gray Equipment Form #2

Fed. Proj. No.

F.E. LT. 293 + 37
INPL. 15"x 24' C.M.P.

REMOVE
NO CULV. REQ'D.

RES. DR. LT. 296 + 46
NO CULV.

NO CULV. REQ'D.

RES. DR. LT. 298 + 76
INPL. 18"x 28' C.M.P.

REMOVE
NO CULV. REQ'D.

F.E. LT. 299 + 62
INPL. 15"x 34' C.M.P.

REMOVE
NO CULV. REQ'D.

INDUSTRIAL DR. LT. 301+70
INPL. 15"x 34' C.M.P.

REMOVE
18"x 36' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS

℄ CULV. 306 + 52
INPL. 48"x 46' C.M.P.
Conc. Lt. = 20°

REMOVE
73"SPAN x 78' R.C.P.-ARCH CL. 2A
2-73"SPAN R.C.P. ARCH APRONS
PLACE CULV. ON "B" BEDDING
28 CU.YDS. RANDOM RIPRAP CL. III 18"DEPTH
14 CU.YDS. GRANULAR FILTER 9" DEPTH
PLACE 82 SQ.YDS. SOD AROUND CULV. APRONS

F.E. LT. 308 + 80
INPL. 15"x 24' C.M.P.

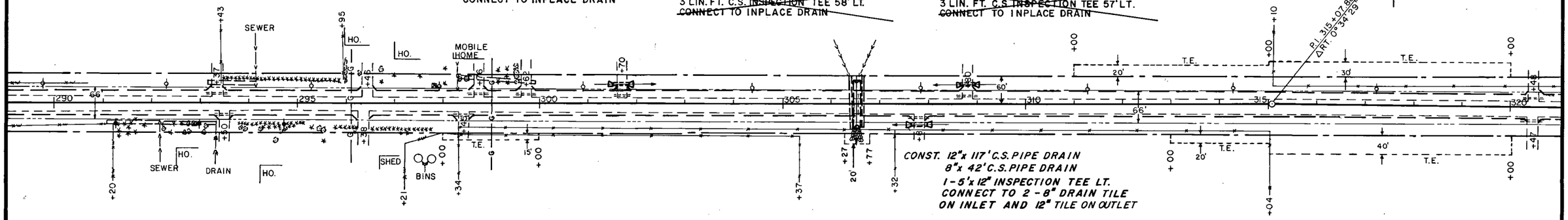
REMOVE
24"x 28' C.S. PIPE CULV.
2-24"G.S. PIPE APRONS

SEWER OUTLET L.T. STA. 294+16
120' EXTEND 8"~~x 100'~~ C.S. PIPE DRAIN AND OUTLET SCREEN.
CONNECT TO INPLACE DRAIN

SEWER OUTLET LT. 24' STA. 298+30
REMOVE 26' SEWER
192' EXTEND 8"~~x 160'~~ C.S. PIPE DRAIN AND OUTLET SCREEN.
CONNECT TO INPLACE DRAIN

TILE OUTLET 58' LT. STA. 306+39
INPL. 6" TITLE.
~~8"x 106' C.S. PIPE DRAIN & OUTLET SCREEN~~
3 LIN. FT. C.S. INSPECTION TEE 58' LT.
~~CONNECT TO INPLACE DRAIN~~

TILE OUTLET 57' LT. STA. 306+58
INPL. 6" TILE.
~~8"x 106' C.S. PIPE DRAIN & OUTLET SCREEN~~
3 LIN. FT. C.S. INSPECTION TEE 57' LT.
~~CONNECT TO INPLACE DRAIN~~



DRAIN OUTLET RT. STA. 293+30
SEWER OUTLET RT. STA. 292+18
EXTEND 8"~~x 222'~~ C.S. PIPE DRAIN & OUTLET SCREEN. 232'
CONNECT TO INPLACE DRAINS

FM. ENT. RT. 293 + 50
INPL. 15"x 24' C.M.P.

REMOVE
NO CULV. REQ'D.

YARD ENT. RT. 296 + 38
NO CULV.

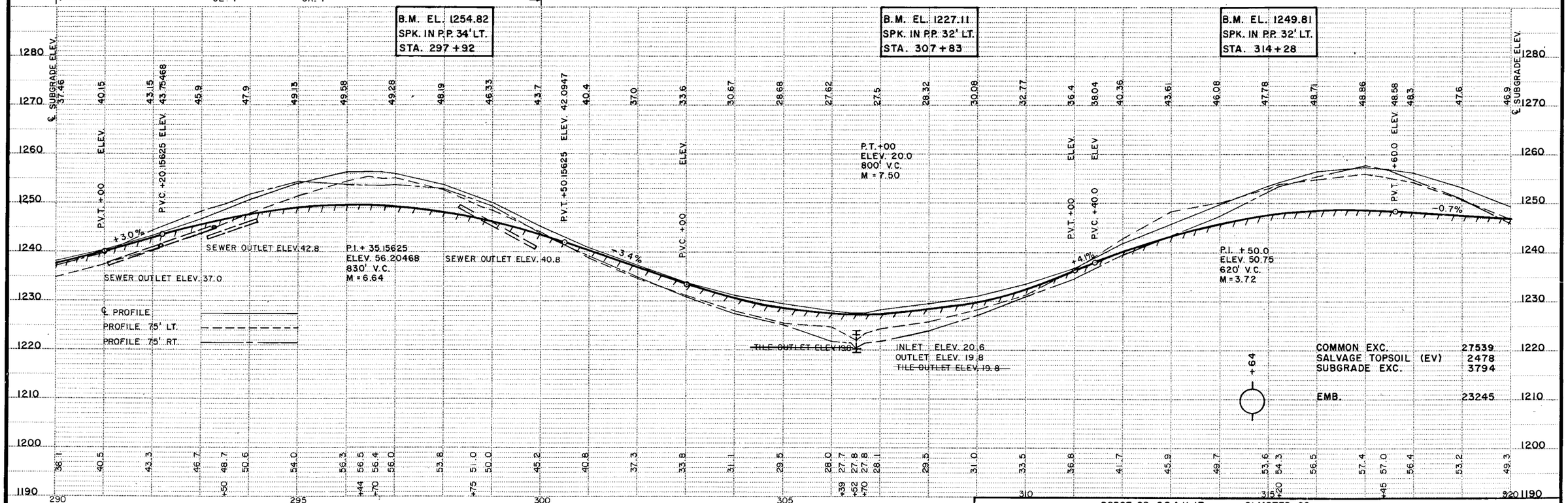
NO CULV. REQ'D.

F.E. RT. 298 + 45
INPL. 12"x 20' C.M.P.

REMOVE
NO CULV. REQ'D.

F.E. RT. 307 + 81
INPL. 15"x 24' C.M.P.

REMOVE
30' 18"x ~~28'~~ C.S. PIPE CULV.
2-18"G.S. PIPE APRON



COMMON EXC.	27539
SALVAGE TOPSOIL (EV)	2478
SUBGRADE EXC.	3794
EMB.	23245

~~State Proj. No.~~ DODGE CO. C.S.A.H. 17 S.A.P. 20-617-01 OLMSTED CO. S.A.P. 55-605-09 **Sheet No. 6 of 96 Sheets**

AS BUILT PLANS

Copy Equipment Form #2

F.E. LT. ~~320+48~~
INPL. 15"x24' C.M.P.

REMOVE
18"x28' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS

MOVED TO 319+90

FM. DR. LT. 326+46
INPL. 15"x24' C.M.P.

REMOVE
NO CULV. REQ'D.

DODGE CO. TWP. RD. LT. 328+26
NO CULV.

CONST. 50' SHOULDER RADIUS
18"x60' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS
PLACE CULV. 40' LEFT ℄

F.E. LT. 329+14
INPL. 15"x24' C.M.P.

REMOVE
MOVE F.E. TO 10+90
18"x28' C.S. PIPE
2-18" G.S. PIPE APRONS

F.E. LT. 335+63
NO CULV.

18"x 28' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS

TWP. RD. LT. 341+40
INPL. 15"x44' C.M.P.

REMOVE
40' 18"x ~~36'~~ C.S. PIPE CULV.
2-18"G.S. PIPE APRONS
CONST. 30' SHOULDER RADIUS

F.E. LT. 345+58
NO CULV.

MOVE ENT. TO STA. 343+00
18"x 28' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS

Fed. Proj. No.

FM. DR. LT. 12+43
INPL. 15"x 20' C.M.P.

REMOVE
18"x32' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

FM. LT. 13+62
INPL. 15"x 20' C.M.P.

NO CHANGE

END CONST.
STA. 13+50

CONST. ~~8"x140'~~ *148'* C.S. PIPE DRAIN
5-4 LIN. FT. C.S. INSP. TEE
STA. 324+00 SKEW 25°

F.E. RT. 13+64
NO CULV.

NO CHANGE

TILE OUTLET 21' LT. STA. ~~333+99~~ *334+05*
INPL. 6" TILE
REMOVE 38 LIN. FT.
8"x 110' C.S. PIPE DRAIN & OUTLET SCREEN
5 LIN. FT. C.S. INSPECTION TEE 59' LT.

TILE OUTLET 41' LT. STA. 346+17
INPL. 8" TILE
REMOVE 18 LIN. FT.
8"x 130' C.S. PIPE CULV. & OUTLET SCREEN
5 LIN. FT. C.S. INSPECTION TEE 59' LT.

TILE OUTLET 13' LT. STA. 323+48
INPL. 6" TILE
REMOVE 56 LIN. FT.
~~168'~~ 8"x ~~140'~~ C.S. PIPE DRAIN OUTLET & SCREEN
2-~~3~~ LIN. FT. C.S. INSPECTION TEE~~S~~

P.O.T. 10+00 = 328+26
Δ LT. 90°00' DODGE CO. DRAIN

P.O.T. STA. 328+23.98

P.O.T. STA. 341+40.08

CONST. CATTLE PASS STA. 324+00
72"H x 78' R.C. CATTLE PASS CL.3
2-72"H R.C. CATTLE PASS APRONS
PLACE CATTLE PASS ON "B" BEDDING
PLACE 82 SQ.YDS. SOD AROUND APRONS

P.O.T. 0+00 = 328+26
Δ RT. 89°30' ℄ C.S.A.H. 14

F.E. LT. 0+60
INPL. 18"x 26' C.M.P. / APRONS

REMOVE 31 LIN. FT.
MOVE ENT. TO STA. 2+00
18"x 28' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS

CONST. F. ENT. RT. 342+30
18"x 28' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS.

MOVED TO 346+10 SKEWED 12°

F.E. RT. ~~320+47~~
INPL. 15"x 22' C.M.P.

REMOVE
18"x 28' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS

MOVE TO 319+90

℄ CULV. 323+51
INPL. 6'x6'x27.6' CONC. BOX CATTLE PASS

REMOVE BOX CULV.
48"x 112' R.C. PIPE CULV. CL.2
2-48" R.C.P. CULV. APRONS
PLACE CULV. ON "B" BEDDING
20 CU.YDS. RANDOM RIPRAP CL. III 18" DEPTH
10 CU.YDS. GRANULAR FILTER 9" DEPTH
PLACE 71 SQ.YDS. SOD AROUND CULV. APRONS

C.S.A.H. 14 LT. 328+26
NO CULV.

CONST. 50' SHOULDER RADIUS
18"x 70' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS
PLACE CULV. 47' RT. ℄

F.E. RT. 0+70
NO CULV. INPL.

MOVE ENT. TO STA. 2+00
18"x 28' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS.

END CONST.
STA. 5+00

℄ CULV. 333+98
INPL. 24"x 36' R.C.P. W/APRONS

REMOVE 48' LIN. FT.
30"x 82' R.C. PIPE CULV. CL. 2
2-30" R.C. PIPE APRONS
PLACE CULV. ON "B" BEDDING
10 CU.YDS. RANDOM RIPRAP CL. III 18" DEPTH
5 CU.YDS. GRANULAR FILTER 9" DEPTH
PLACE 40 SQ.YDS. SOD AT CULV. APRONS
CONST. DITCH BLOCK AT INLET APRON.

F.E. RT. ~~338+66~~
NO CULV.

18"x 28' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS

MOVED TO 337+45

TILE OUTLET 50' LT. STA. 346+50
INPL. 8" TILE
REMOVE 9 LIN. FT.
8"x 130' C.S. PIPE CULV. & OUTLET SCREEN
5 LIN. FT. C.S. INSPECTION TEE 59' LT.

℄ CULV. 346+20
INPL. 48"x 50' C.M.P.

REMOVE *116'*
88" SPAN x ~~106'~~ R.C.P. ARCH CULV. CL. 3A
2-88" SPAN R.C.P. ARCH APRONS
PLACE CULV. ON "B" BEDDING
39 CU.YDS. RANDOM RIPRAP CL. III 18" DEPTH
20 CU.YDS. GRANULAR FILTER 9" DEPTH
PLACE 82 SQ.YDS. SOD AROUND CULV. APRONS

CL. 1 – GR. 1 | CL. 5 | GR. 5

B.M. EL. 1238.91
SQ. ON SE. HDWL.
CATTLE PASS 323+48

B.M. EL. 1241.59
SPK. IN P.P. LT. 33'
STA. 326+58

B.M. EL. 1225.80
SPK. IN P.P. LT. 36'
STA. 341+08

PROFILE C.S.A.H. 14 STA. 328+26

PROFILE TWP. RD. LT. STA. 328+26

SUBGRADE ELEVATION

℄ PROFILE
PROFILE 75' LT.
PROFILE 75' RT.

INLET ELEV. 31.8
OUTLET ELEV. 30.8
TILE OUTLET ELEV. 30.8

INLET ELEV. 43.5
OUTLET ELEV. 42.9

P.I. + 38.46154
ELEV. 41.03084
400' V.C.
M = 0.65

INLET ELEV. 27.0
OUTLET ELEV. ~~23.0~~ 23.5
TILE OUTLET ELEV. ~~23.0~~ 23.5

P.I. + 00
ELEV 31.8
300' V.C.
M = 0.45

P.I. + 50.0
ELEV. 25.8
420' V.C.
M = 1.68

P.I. + 00
ELEV. 03.8
630' V.C.
M = 6.53625

INLET ELEV. 98.5
OUTLET ELEV. 95.5
TILE OUTLET ELEV. 95.5

SUBGRADE TREATMENT:
EXCAVATE 1.0' BELOW PROFILE GRADE
STA. 326+70 TO STA. 330+70
STA. 333+00 TO STA. 343+80
STA. 0+55 TO STA. 5+00 C.S.A.H. 14
STA. 10+48 TO STA. 13+50 TWSP. RD. APPR.

~~State Proj. No.~~ DODGE CO. C.S.A.H 17
S.A.P. 20-617-01

OLMSTED CO.
S.A.P. 55-605-09

Sheet No. 7 of 96 Sheets

AS BUILT PLANS

Copy Equipment Form #21

Fed. Proj. No.

FM. DR. LT. 354+03
INPL. 15"x 24' C.M.P.

REMOVE
NO CULV. REQ'D.

RES. DR. LT. 356+25
INPL. 15"x 24' C.M.P.

REMOVE
MOVE DR. TO 356+10
28' 18"x ~~44'~~ C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

GAR. ENT. LT. 356+97
INPL. 15"x 24' C.M.P.

REMOVE
NO ENT. REQ'D.

F.E. LT. 357+27
INPL. 12"x 24' C.M.P.

REMOVE
44' 18"x ~~28'~~ C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

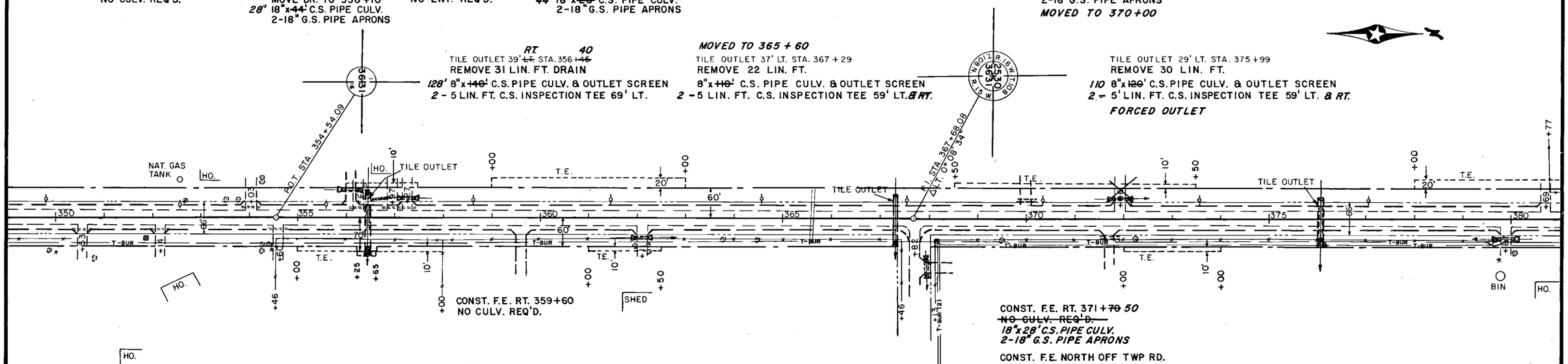
F.E. LT. 371+96
NO CULV.

18"x 28' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS
MOVED TO 370+00

RT *40*
TILE OUTLET 39' ~~LT~~ STA. 356 ~~+45~~
REMOVE 31 LIN. FT. DRAIN
128' 8"x ~~140'~~ C.S. PIPE CULV. & OUTLET SCREEN
2 - 5 LIN. FT. C.S. INSPECTION TEE 69' LT.

MOVED TO 365+60
TILE OUTLET 37' LT. STA. 367+29
REMOVE 22 LIN. FT.
8"x ~~110'~~ C.S. PIPE CULV. & OUTLET SCREEN
2 - 5 LIN. FT. C.S. INSPECTION TEE 59' LT. *& RT.*

TILE OUTLET 29' LT. STA. 375+99
REMOVE 30 LIN. FT.
110 8"x ~~120'~~ C.S. PIPE CULV. & OUTLET SCREEN
2 - 5' LIN. FT. C.S. INSPECTION TEE 59' LT. *& RT.*
FORCED OUTLET



CONST. F.E. NORTH OFF TWP RD.
18"x 28' C.S. PIPE OFF TWP RD.
2- 18" G.S. PIPE APRONS

FM. DR. RT. 350+53
INPL. 24"x 30' C.M.P.

REMOVE
NO CULV. REQ'D.

RES. DR. RT. 352+14
INPL. 18"x 30' C.M.P.

REMOVE
NO CULV. REQ'D.

F.E. RT. 354+60
INPL. 15"x 24' C.M.P.

REMOVE
NO ENT. REQ'D.

℄ CULV. 356+45
INPL. 18"x 42' R.C.P. W/APRONS

REMOVE 54 LIN. FT.
24"x 104' R.C.P. CULV. CL. 3
2-24" R.C. PIPE APRONS
PLACE CULV. ON "B" BEDDING
7 CU.YDS. RANDOM RIPRAP CL. III 18" DEPTH
4 CU.YDS. GRANULAR FILTER 9" DEPTH
PLACE 29 SQ.YDS. SOD AROUND APRONS

F.E. RT. 362+11
NO CULV.

18"x 28' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

℄ CULV. 367+30
INPL. 24"x 36' R.C.P. W/APRONS

REMOVE 48 LIN. FT.
88' 30"x ~~42'~~ R.C. PIPE CULV. CL. 2
2-30" R.C. PIPE CULV. APRONS
PLACE CULV. ON "B" BEDDING
10 CU.YDS. RANDOM RIPRAP CL. III 18" DEPTH
5 CU.YDS. GRANULAR FILTER 9" DEPTH
CONST DITCH BLOCK AT INLET
PLACE 40 SQ.YDS. SOD AROUND APRONS

TWP. RD. RT. 367+82
NO CULV.

NO CULV. REQ'D.

℄ CULV. 376+05
INPL. 24"x 42' R.C.P. W/APRONS

REMOVE 54 LIN. FT.
84 30"x ~~42'~~ R.C. PIPE CULV. CL. 2
2-30" R.C. PIPE APRONS
PLACE CULV. ON "B" BEDDING
10 CU.YDS. RANDOM RIPRAP CL. III 18" DEPTH
5 CU.YDS. GRANULAR FILTER 9" DEPTH
PLACE 40 SQ.YDS. SOD AROUND APRONS

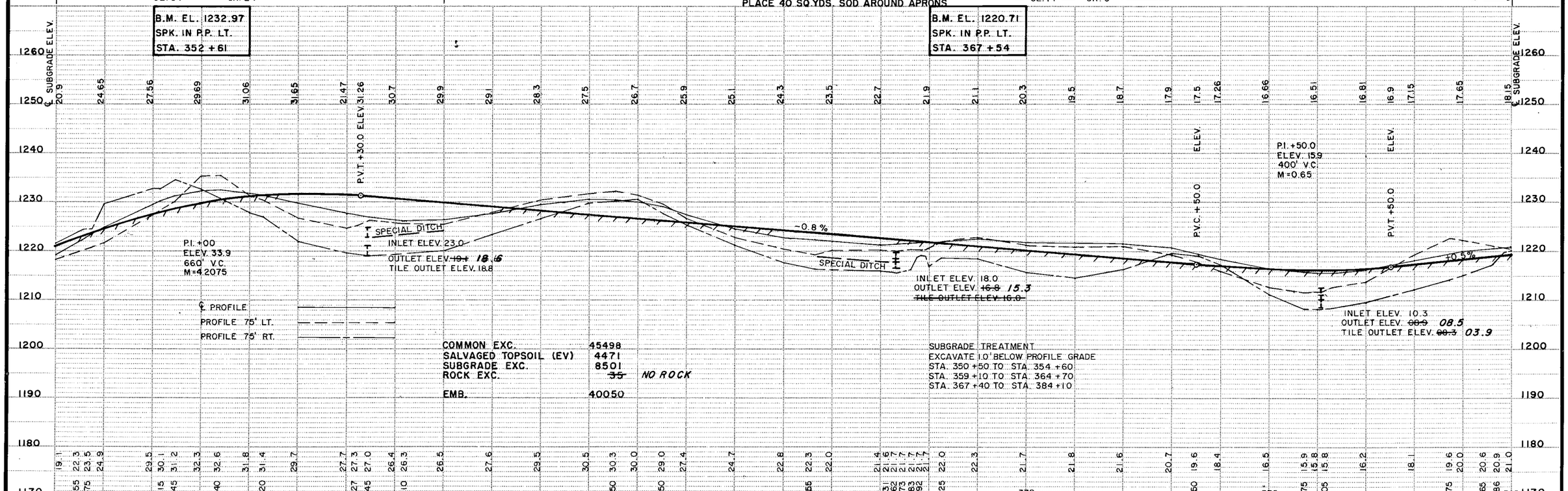
FM. DR. RT. 379+87
NO CULV.

18"x 32' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

CL. 34 — GR. 24 — CL. 14 — GR. 6

B.M. EL. 1232.97
SPK. IN P.P. LT.
STA. 352+61

B.M. EL. 1220.71
SPK. IN P.P. LT.
STA. 367+54



COMMON EXC.	45498	
SALVAGED TOPSOIL (EV)	4471	
SUBGRADE EXC.	8501	
ROCK EXC.	~~35~~	NO ROCK
EMB.	40050	

SUBGRADE TREATMENT
EXCAVATE 1.0' BELOW PROFILE GRADE
STA. 350+50 TO STA. 354+60
STA. 359+10 TO STA. 364+70
STA. 367+40 TO STA. 384+10

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S.A.P. 20-617-01
AS BUILT PLANS

OLMSTED CO.
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Copy Equipment Form #2

F.E. LT. 380 + 69
NO CULV.

18"x 48' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS

℄ CULV. 385 + 24
INPL. 18"x 40' R.C.P.
W/APRONS

REMOVE 52 LIN. FT.
24"x 90' R.C. PIPE CULV. CL.2
2-24" R.C. PIPE APRONS
PLACE CULV. ON "B" BEDDING
7 CU.YDS. RANDOM RIPRAP CL.III 18"DEPTH
4 CU.YDS. GRANULAR FILTER 9" DEPTH
PLACE 29 SQ.YDS. SOD AROUND APRONS

F.E. LT. 387 + 19
INPL. 15" x 40' C.M.P.

REMOVE
18"x 28' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS

RES. DR. LT. 388 + 14
INPL. 15"x 36' C.M.P.

REMOVE
18"x 32' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS

DODGE CO. RD. 22 LT. 393 + 95
NO CULV.

NO CULV. REQ'D.

FM. DR. LT. 396 + 32
INPL. 15"x 32' C.M.P.

REMOVE
18"x 32' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS

℄ CATTLE PASS 400 + 40
INPL. 6'H x 4'W x 32' CONC. BOX

REMOVE CONC. BOX CULV.
96 ~~30"x 94"~~ R.C. PIPE CULV. CL.2
2-30" R.C. PIPE APRONS
PLACE CULV. ON "B" BEDDING
10 CU.YDS. RANDOM RIPRAP CL.III 18" DEPTH
5 CU.YDS. GRANULAR FILTER 9" DEPTH
PLACE 40 SQ.YDS. SOD AROUND APRONS

F.E. LT. 404 + 36
NO CULV.

NO CULV. REQ'D.

℄ CULV. 406 + 14
INPL. 18"x 70' R.C.P.

REMOVE
100' ~~24"x 88"~~ R.C. PIPE CULV. CL.2
2-24" R.C. PIPE APRONS
PLACE CULV. ON "B" BEDDING
7 CU.YDS. RANDOM RIPRAP CL.III 18" DEPTH
4 CU.YDS. GRANULAR FILTER 9" DEPTH
PLACE 29 SQ.YDS. SOD AROUND APRONS

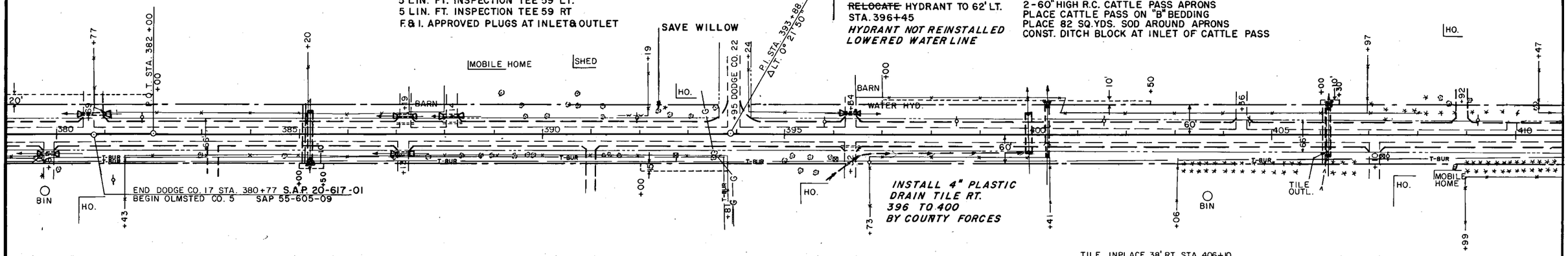
FM. DR. LT. 408 + 92
NO CULV.

NO CULV. REQ'D.

CONST. 8" TILE CROSSING STA. 385 + 20
8"x 120' C.S. PIPE DRAIN & OUTLET SCREEN
5 LIN. FT. INSPECTION TEE 59' LT.
5 LIN. FT. INSPECTION TEE 59 RT
F & I. APPROVED PLUGS AT INLET & OUTLET

WATER HYDRANT 49' LT.
STA. 396 + 45
~~RELOCATE~~ HYDRANT TO 62' LT.
STA. 396+45
HYDRANT NOT REINSTALLED
LOWERED WATER LINE

CONST. CATTLE PASS STA. 400 + 00
60" HIGH x 78' R.C. CATTLE PASS CL.3
2-60" HIGH R.C. CATTLE PASS APRONS
PLACE CATTLE PASS ON "B" BEDDING
PLACE 82 SQ.YDS. SOD AROUND APRONS
CONST. DITCH BLOCK AT INLET OF CATTLE PASS



CONST. F.E. RT. 383 + 10
NO CULV. REQUIRED

INSTALL 4" PLASTIC DRAIN TILE RT. 396 TO 400 BY COUNTY FORCES

F.E. RT. 387 + 13
NO CULV.

18"x 28' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS

CONST. DR. RT. 391+00
18"x 28' C.S. PIPE
2-18" G.S. PIPE APRONS

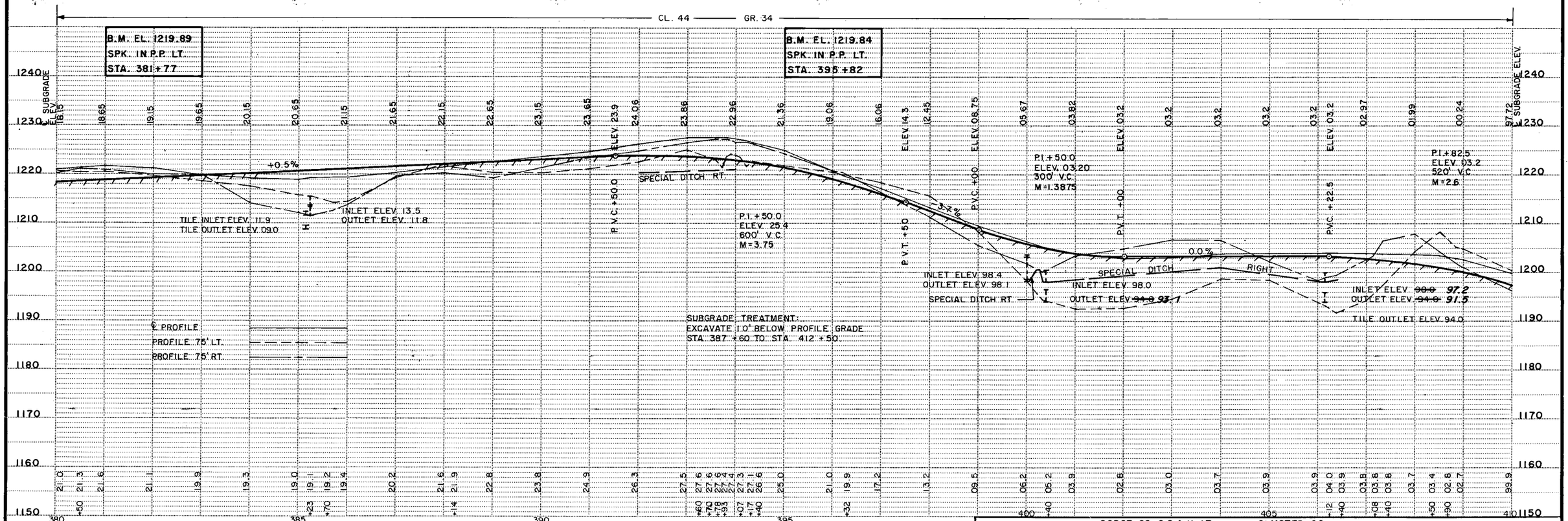
FM. DR. RT. 396 + 32
INPL. 15"x 32' C.M.P.

REMOVE
NO CULV. REQ'D.

TILE INPLACE 38' RT. STA. 406+10
15 REMOVE ~~12~~ LIN. FT. TILE DRAIN
132' EXTEND 8"x ~~10C~~' C.S. PIPE DRAIN & OUTLET SCREEN
5 ~~3~~ LIN. FT. INSPECTION TEE.

FM. ENT. RT. 407 + 10
NO CULV.

NO CULV. REQ'D.



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AS BUILT PLANS

F.E. LT. 414 + 67
INPL. 15" x 24' C.M.P.

REMOVE
18"x 28' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS

RES. DR. LT. 420 + 82
INPL. 18"x 24' C.M.P.

REMOVE
NO ENT. REQ'D.

YARD DR. LT. 421 + 40
INPL. 15"x 24' C.M.P.

REMOVE
~~24"x 32' C.S. PIPE CULV.~~
~~2-24"G.S. PIPE APRONS~~
CONST. DR. LT. STA. 421 + 40 TO LT. STA. 423 + 29.

RES. DR. LT. 423 + 29
INPL. 15" x 26' C.M.P.

REMOVE
NO ENT. REQ'D.

F.E. LT. 427 + 35
NO CULV.

~~18"x 28' G.S. PIPE CULV.~~
~~2-18"G.S. PIPE APRONS~~
NO ENT. REQ'D.

F.E. LT. 433 + 52
NO CULV.

NO F.E. REQ'D.

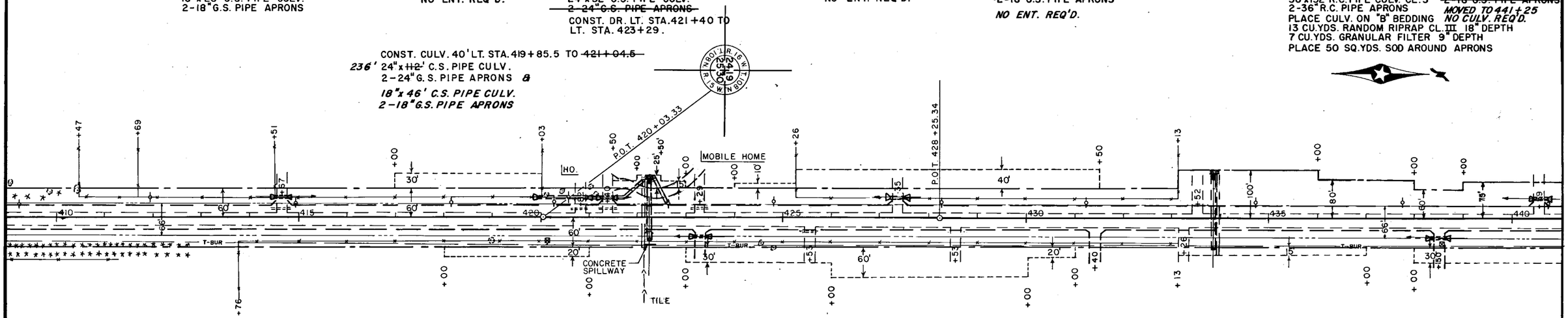
℄ CULV. 433 + 88
INPL. 30"x 44' R.C.P.

REMOVE
36"x132' R.C. PIPE CULV. CL. 3
2-36" R.C. PIPE APRONS
PLACE CULV. ON "B" BEDDING
13 CU.YDS. RANDOM RIPRAP CL. III 18" DEPTH
7 CU.YDS. GRANULAR FILTER 9" DEPTH
PLACE 50 SQ.YDS. SOD AROUND APRONS

F.E. LT. ~~440 + 59~~
NO CULV.

~~18"x 28' G.S. PIPE CULV.~~
~~2-18"G.S. PIPE APRONS~~
MOVED TO 441 + 25
NO CULV. REQ'D.

CONST. CULV. 40' LT. STA. 419 + 85.5 TO ~~421 + 04.5~~
236' 24"x ~~112'~~ C.S. PIPE CULV.
2-24"G.S. PIPE APRONS *8*
18"x 46' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS



CONST. TILE CROSSING STA. 422 + ~~10~~ *18*
8"x 144' C.S. PIPE DRAIN
5 LIN. FT. INSPECTION TEE 59' RT.
CONNECT TO INPLACE TILE AT INLET

℄ CULV. 422 + 16
INPL. 6'W. x 4'H. x 54'
WOOD BOX

REMOVE WOOD BOX CULV.
60"x 114' R.C. PIPE CULV. CL. 2
2-60" R.C. PIPE APRONS
PLACE CULV. ON "B" BEDDING
28 CU.YDS. RANDOM RIPRAP CL. III 18" DEPTH
14 CU.YDS. GRANULAR FILTER 9" DEPTH
PLACE 82 SQ.YDS. SOD AROUND APRONS
CONST. TIMBER WEIR AT INLET APRON
SEE PLAN SHEET NO. 48 FOR DETAIL DRAWING
TIMBER WEIR CONST. TO BE CONSIDERED AS INCIDENTAL WORK

F.E. RT. 425 + 53
INPL. 15"x 24' C.M.P.

REMOVE
MOVE F.E. TO STA. 423 + 29
24"x 28' C.S. PIPE CULV.
2-24"G.S. PIPE APRONS

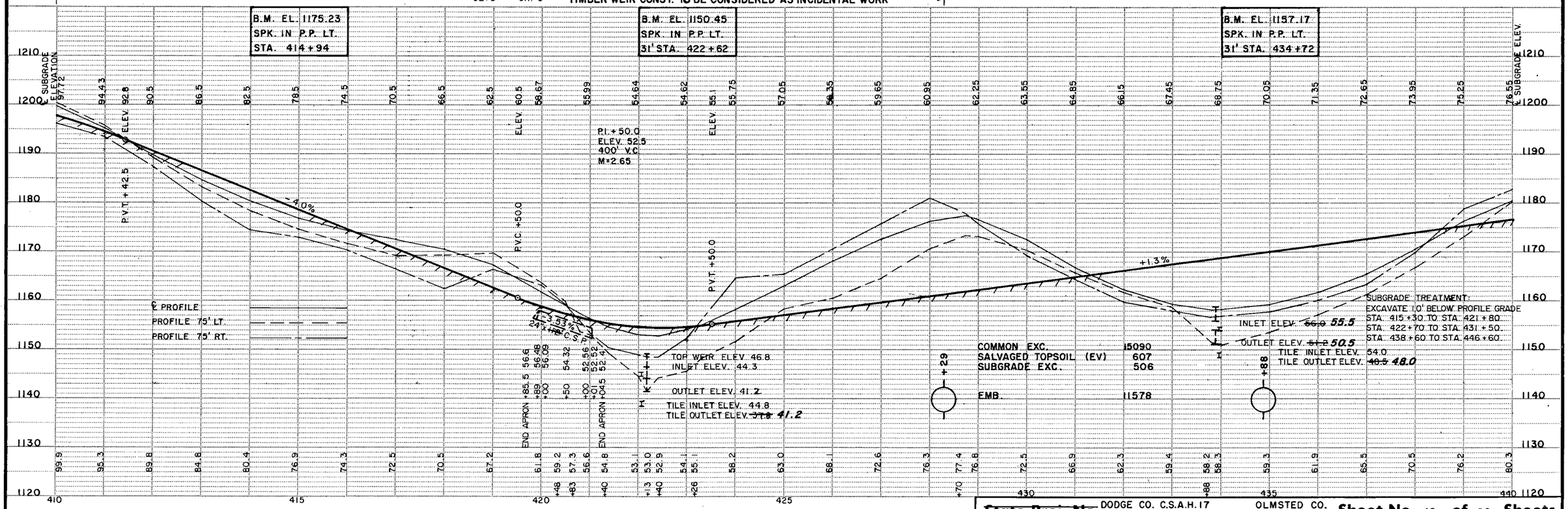
F.E. RT. 428 + 53
NO CULV.

MOVE F.E. TO STA. 431 + 40
NO CULV. REQ'D.

F.E. RT. 433 + 26
NO CULV.

MOVE F.E. TO STA. 438 + 50
30' 18"x ~~28'~~ C.S. PIPE CULV.
2-18"G.S. PIPE APRONS

CONST. CROSSING STA. 433 + 92
154' 8"x ~~160'~~ C.S. PIPE DRAIN
5 LIN. FT. INSPECTION TEE 74' RT.
6 LIN. FT. INSPECTION TEE 84' LT.
F & I APPROVED PLUGS AT INLET & OUTLET



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AS BUILT PLANS

℄ CULV. 442 + 60
INPL. 18" x 56' R.C.P.

REMOVE
24"x80'R.C.PIPE CULV. CL.2
2-24"R.C. PIPE APRONS
PLACE CULV. ON "B" BEDDING
7 CU.YDS. RANDOM RIPRAP CL.3
18" DEPTH
4 CU.YDS. GRANULAR FILTER 9" DEPTH
PLACE 29 SQ.YDS. SOD AROUND APRONS

FM. DR. LT. 446 + 30
INPL. 15"x 24' C.M.P.

REMOVE
NO CULV. REQ'D.

F.E. LT. 450 ~~+ 36~~ 75
NO CULV.

18"x 28' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS

FM. DR. LT. 457 + 93
INPL. 18"x 26' C.M.P.

REMOVE
24"x 32' C.S. PIPE CULV.
2-24"G.S. PIPE APRONS

F.E. LT. 460 + 87
NO CULV.

NO ENT. REQ'D.

℄ CULV. 461 + 52
INPL. 8'W. x 3'H. x 30'
CONC. BOX W/ WINGWALLS

REMOVE CONC. BOX CULV.
96" ~~102" SPAN x 86'~~ R.C. PIPE-ARCH CULV. CL. 2A
2-102" SPAN R.C. PIPE-ARCH APRONS
PLACE CULV. ON "B" BEDDING
52 CU.YDS. RANDOM RIPRAP CL. III 18" DEPTH
26 CU.YDS. GRANULAR FILTER 9" DEPTH
PLACE 82 SQ.YDS. SOD AROUND APRONS

467 + 40
CONST. F.E. LT. STA. ~~465 + 00~~
18"x 28' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

P.O.T. 443 + 38.72
P.O.T. 446 + 17.94
SAVE PINE
HO.
STONE FLOWER PLANTER
CORN CRIB
BARN
HO.
DRY WELL
SHED
SHED
GAS TANK
CORN CRIB
HO.
PUMP SHUTOFF
P.C. 20 + 65.21
P.O.T. 20 + 00 = 443 + 97
△RT. 90° 00' 00"
P.I. 2 + 03.12
27° 04' 00"
△LT. 0° 00' 01"
D = 137.67'
L = 270.67'
E = 16.36'
T-BUR
T-BUR
END CONSTRUCTION
STA. 23+00
P.T. 23 + 35.88
BEGIN CURB 449 + 00

F.E. RT. 443 + 60
NO CULV.

MOVE F.E. TO STA. ~~441 + 00~~ *442*
~~NO CULV. REQ'D.~~
18"x 32' C.S. PIPE CULV.
2 - 18" G.S. PIPE APRONS

C.R. 113 RT. 443 + 97
NO CULV.

NO CULV. REQ'D.
CONST. 50' SHOULDER RADIUS

SHED ENT. 448 + 87
INPL. 15" x 26' C.M.P.

REMOVE
~~18"x 32' C.S. PIPE CULV.~~
~~2-18"G.S. PIPE APRONS~~
NO CULV. REQ'D

FM. DR. RT. 449 + 85
INPL. 15" x 24' C.M.P.

REMOVE
~~18"x 230' C.S. PIPE CULV.~~
~~2-18"G.S. PIPE APRONS~~
~~PLACE CULV. 40' RT. ℄~~
NO CULV. REQ'D.

CONST. F.E. RT. 465 + 15
18"x 32' C.S. PIPE CULV.
2 - 18" G.S. PIPE APRON

F.E. RT. 462 + 30
INPL. 18" x 26' C.M.P.

REMOVE
MOVE F.E. TO STA. 465 + ~~00~~ *20*
24"x 28' C.S. PIPE CULV.
2-24"G.S. PIPE APRONS

62.
CONST. TILE CROSSING STA. 461 + ~~42~~
12"x 120' C.S. PIPE DRAIN
5 LIN.FT. INSPECTION TEE 59' RT.
6 LIN.FT. INSPECTION TEE 59' LT.
F & I PLUGS AT INLET & OUTLET

PROFILE CR. 113 RT. STA. 443+97 — CL. 19 — GR. 16

B.M. EL. 1178.77
SPK. IN P.P. RT.
52' STA. 444+42

B.M. EL. 1106.54
SPK. IN P.P. RT.
41' STA. 457+55

SPECIAL DITCH RT.
INLET ELEV. 73.5
OUTLET ELEV. ~~72.0~~ *71.6*

P.I. + ~~00~~ *23.25581*
ELEV. ~~88.45~~ *80.75232*
560' V.C.
M = 3.01
C = 0.3839

P.I. + 00
ELEV. ~~63.45~~ *54.45*
700' V.C.
M = 4.725

P.I. ~~+93.02985~~ *+76.49254*
ELEV. ~~88.45156~~ *80.82465*
1010 V.C.
M = 16.9175
C = 0.6634

P.I. + 00
ELEV. 27.0
700' V.C.
M = 4.6375

℄ PROFILE
PROFILE 75' LT.
PROFILE 75' RT.

END APRON +56.5 +69
END APRON +01.5

SUBGRADE TREATMENT:
EXCAVATE 1.0' BELOW PROFILE GRADE
STA. 448 + 60 TO STA. 457 + 00
STA. 465 + 30 TO STA. 474 + 00
STA. 20 + 50 TO STA. 23 + 00 C.R. 13

INLET ELEV. ~~87.2~~ *86.8*
OUTLET ELEV. ~~85.0~~ *82.5*
TILE INLET ELEV. 85.0
TILE OUTLET ELEV. 82.2

COMMON EXC.	36408	
SALVAGED TOPSOIL (EV)	2565	
SUBGRADE EXC.	3789	
ROCK EXC.	*NO ROCK* ~~108~~	
EMB.	29618	

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AS BUILT PLANS

TWP. RD. LT. 472 +34
NO CULV.
~~18"x36' C.S. PIPE CULV.~~
~~2-18" G.S. PIPE APRONS~~
CONST. 30' SHOULDER RADIUS
SEE SHEET NO. 91 FOR PROFILE
NO CULV. REQ'D.

CONST. FE. ENT. LT. 32+40
18"x 28' C.S. PIPE CULV.
2-18" G.S. PIPE APRON

YARD ENT. LT. 476 +~~52~~ 95
INPL. 15"x 32' C.M.P.
REMOVE
~~NO ENT. REQ'D.~~
NO CULV. REQ'D.

YARD ENT. LT. 477 +48
NO CULV.
~~18"x32' C.S. PIPE CULV.~~
~~2-18" G.S. PIPE APRONS~~
NO ENT. REQ'D.

BR. 88716 482 +80
INPL. 10' W. x 4' H. x 28' LONG
CONC. BOX.
40 SQ. FT. WATERWAY OPENING
REMOVE CONC. BOX CULV.

F.E. LT. 483 +~~15~~ 30
NO CULV.
NO CULV. REQ'D.

F.E. LT. 493 +02
NO CULV.
MOVE F.E. TO STA. 494 +00
NO CULV. REQ'D.

CONST. FE. ENT. LT. 490+25
18"x 28' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

℄ CULV. 499 +05
INPL. 48"x 50' C.M.P.
REMOVE
60"x 48' R.C. PIPE CULV. CL. 3
60"x 72' R.C. PIPE CULV. CL. 4
2-60" R.C. PIPE APRONS
PLACE CULV. ON "B" BEDDING
28 CU. YDS. RANDOM RIPRAP CL. III
18" DEPTH
14 CU. YDS. GRANULAR FILTER
9" DEPTH
PLACE 82 SQ. YDS. SOD AROUND APRONS

RES. DR. RT. 31 + 28
NO CULV. INPL.
~~18"x 32' C.S. PIPE CULV.~~
~~2-18" G.S. PIPE APRONS~~
NO CULV. REQ'D.

℄ CULV. 474 + 75
INPL. 36"x 38' R.C.P./APRONS
REMOVE 54 LIN. FT.
36"x 96' R.C. PIPE CULV. CL. 2
2-36" R.C. PIPE APRONS
PLACE CULV. ON "B" BEDDING
13 CU. YDS. RANDOM RIPRAP CL. III 18" DEPTH
7 CU. YDS. GRANULAR FILTER 9" DEPTH
PLACE 50 SQ. YDS. SOD AROUND APRONS

115" SPAN x 84' R.C. PIPE-ARCH CL. 2A
2-115" SPAN R.C. PIPE ARCH APRONS
PLACE CULV. ON "B" BEDDING
53 CU. YDS. RANDOM RIPRAP CL. III 18" DEPTH
26 CU. YDS. GRANULAR FILTER 9" DEPTH
PLACE 82 SQ. YDS. SOD AROUND APRONS
CONST. TIMBER WEIR AT INLET APRON
SEE PLAN SHEET NO. 58 FOR DETAIL DRAWING
TIMBER WEIR CONST. TO BE CONSIDERED AS INCIDENTAL WORK
INLET 12' NORTH

P.O.T. 472 + 32.55 C.M.
P.O.T. 492 + 73.92 1/2" RE-ROD
P.I. 498 + 47.16 LT. 0° 21' 18" 1/2" RE-ROD
P.I. 130 + 00 = 472 + 34 ΔLT. 86° 40' 00"
P.I. 140 + 00 = 472 + 34 ΔRT. 90° 57' 00"
END CONST. STA. 33 + 00
SAVE PINE
HIGH VOLTAGE MARKER
BLDG.
HO.

CONST. F.E. RT. 486 +00
24"x 28' C.S. PIPE CULV.
2-24" G.S. PIPE APRONS

MOVE INLET TO 482+82
CONST. TILE CROSSING STA. 482+70
8"x 120' C.S. PIPE DRAIN
5 LIN. FT. INSPECTION 59' RT.
7 LIN. FT. INSPECTION 59' LT.
F & I APPROVED PLUGS AT INLET & OUTLET

TWP. RD. RT. 472 +34
NO CULV.
SHEET NO. 92 FOR PROFILE.
~~18"x 36' C.S. PIPE CULV.~~
~~2-18" G.S. PIPE APRONS~~
CONST. 30' SHOULDER RADIUS
NO CULV. REQ'D.

FM. DR. RT. 476 + 46
NO CULV.
NO CULV. REQ'D.

RES. DR. RT. 487 + 72
INPL. 18"x 32' C.M.P.
REMOVE
24"x 32' C.S. PIPE CULV.
2-24" G.S. PIPE APRONS

CONST. TILE CROSSING STA. 499 +00
8"x 144' C.S. PIPE
5 LIN. FT. INSPECTION TEE 68' RT.
5 LIN. FT. INSPECTION TEE 74' LT.
F & I APPROVED PLUGS AT INLET & OUTLET

F.E. RT. 498 +47
NO CULV.
MOVE F.E. TO STA. 496 +00
18"x ~~28~~ 32 C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

CL. 2 — GR. 3

B.M. EL. 1135.62
SPK. IN P.P. RT.
40' STA. 471 + 41

B.M. EL. 1121.59
SPK. IN P.P. LT.
41' STA. 476 + 21

B.M. EL. 1103.17
□ ON SE. COR. HDWL
CULV. STA. 482+80

END CONST. STA. 48+00

P.I. +00
ELEV. 27.0
700' V.C.
M = 0.37857

P.I. +00
ELEV. 24.6
500' V.C.
M = 2.3125

P.I. +00
ELEV. 00.6
620' V.C.
M = 6.355

P.I. +50.0
ELEV. 32.1
700' V.C.
M = 4.33125

INLET ELEV. 19.9
OUTLET ELEV. 13.4
TOP WEIR ELEV. 00.0
INLET ELEV. 97.0
OUTLET ELEV. 95.7
92.2 TILE OUTLET ELEV.
97.2 TILE INLET ELEV.
TILE INLET ELEV. 06.2
TILE OUTLET ELEV. 02.2
INLET ELEV. 07.5
OUTLET ELEV. 04.7

COMMON EXC.	16666	COMMON EXC.	8108
SALVAGED TOPSOIL (EV)	1373	SALVAGED TOPSOIL (EV)	513
SUBGRADE EXC.	1770	SUBGRADE EXC.	486
EMB.	13711	EMB.	6357
COMMON EXC.	24892
SALVAGED TOPSOIL (EV)	932
SUBGRADE EXC.	669
EMB.	18892

SUBGRADE TREATMENT:
EXCAVATE 1.0' BELOW PROFILE GRADE
STA. 476 + 00 TO STA. 479 + 40
STA. 488 + 20 TO STA. 495 + 80
STA. 30 + 50 TO STA. 33 + 00 TWP. RD. LT.
STA. 40 + 55 TO STA. 48 + 00 TWP. RD. RT.

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AS BUILT PLANS

F.E. LT. 504 + 10
NO CULV.

18"x 28' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS

CONST. TILE CROSSING STA. 511+05
8"x120' C.S. PIPE DRAIN
5 LIN. FT. INSPECTION TEE 59' RT.
5 LIN. FT. INSPECTION TEE 59' LT.
F & I APPROVED PLUGS AT INLET & OUTLET

℄ CULV. 511 + 09
INPL. 48"x 46' C.M.P.

REMOVE Box culv. + 20' C.M.P.
48"x 80' R.C. PIPE CULV. CL.3
2-48" R.C. PIPE APRONS
PLACE CULV. ON "B" BEDDING
20 CU.YDS. RANDOM RIPRAP CL III 18" DEPTH
10 CU.YDS. GRANULAR FILTER 9" DEPTH
PLACE 71 SQ.YDS. SOD AROUND APRONS

F.E. LT. 520 + 27
NO CULV.

18"x 28' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

MOVE TO 518+90

P.I. 80+00
RT. 46°20'
D 16°
T 153.24'
L 289.58'
E 31.41'

P.I. SET 0.84' E. OF SEC. COR.
Δ LT. OF 09°00' FROM P.I.

END CONSTRUCTION
STA. 78+00
P.C. 78+46.76

P.T. 81+36.34

EQUATION

P.I. 524+60.89 =
P.O.T. 1298+69.45

EQUATION

T.S. 1303+22.09

RES. DR. RT. 502 + 34
NO CULV.

~~18"x 32' G.S. PIPE CULV.~~
~~2-18" G.S. PIPE APRONS~~
NO CULV. REQ'D.

RES. DR. RT. 507 + 41
INPL. 24"x 52' C.M.P.

REMOVE
24"x 52' C.S. PIPE CULV.
2-24" G.S. PIPE APRONS

F.E. RT. 509 + 11
INPL. 24"x 24' C.M.P.

REMOVE
24"x 28' C.S. PIPE CULV.
2-24" G.S. PIPE APRONS

RES. DR. RT. 514 + 16
INPL. 18"x 32' C.M.P.

REMOVE
24"x 32' C.S. PIPE CULV.
2-24" G.S. PIPE APRONS

F.E. RT. 1298 + 82
INPL. 15"x 24' C.M.P.

REMOVE
24"x 28' C.S. PIPE CULV.
2-24" G.S. PIPE APRONS

WOOD WALL

HO.

CL. 2 — GR. 1

B.M. EL. 1120.30
SPK. IN FE. POST
RT. 49' 500 + 77

B.M. EL. 1118.34
SPK. IN FE. POST
LT. 45' 520 + 77

P.I. + 50.0
ELEV. 24.6
500' V.C.
M = 2.40625

P.I. + 50.0
ELEV. 83.2
700' V.C.
M = 7.7

P.I. + 68.06072
ELEV. 21.75855
1100' V.C.
M = 11.412 5

℄ PROFILE
PROFILE 75' LT.
PROFILE 75' RT.

SPECIAL DITCH RT.
INLET ELEV. 85.8
OUTLET ELEV. 84.8
TILE INLET ELEV. 84.1
TILE OUTLET ELEV. 81.1

COMMON EXC.	9332
SALVAGED TOPSOIL (EV)	1044
SUBGRADE EXC.	2082
EMB.	8300

COMMON EXC.	18781
SALVAGED TOPSOIL (EV)	1109
SUBGRADE EXC.	1822
EMB.	15005

SUBGRADE TREATMENT:
EXCAVATE 1.0' BELOW PROFILE GRADE
STA. 501 + 40 TO STA. 1302 + 90

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AS BUILT PLANS

℄ CULV. 1305 + 34
INPL. 4'x4' R.C. BOX 36' LONG
48"x10' C.M.P. INLET ENDS

REMOVE CONC. BOX CULV.
REMOVE 10 LIN. FT. CULV.

60"x94' R.C. PIPE CULV. CL.3
2-60" R.C. PIPE APRONS
PLACE CULV. ON "B" BEDDING
28 CU.YDS. RANDOM RIPRAP CL.III
18" DEPTH
14 CU.YDS. GRANULAR FILTER 9" DEPTH
PLACE 82 SQ.YDS. SOD AROUND APRONS

CONST. TILE CROSSING STA. 1305+28
8"x120' C.S. PIPE DRAIN
5 LIN. FT. INSPECTION TEE 59' RT.
7 LIN. FT. INSPECTION TEE 59' LT.
F & I APPROVED PLUGS AT INLET & OUTLET

P.I. 80+00
Δ RT. 46° 20'
D 16°
T 153.24'
L 289.58'
E 31.41'

TWP. RD. LT. 1306+85
INPL. 42"x47' C.M.P.

REMOVE
MOVE TWSP. RD. TO STA. 1304+00
CONST. ℄ CULV. STA. 80+00
~~82'30"x72'~~ 82'30"x 78' C.S. PIPE CULV.
2-30" G.S. PIPE APRONS
SEE SHEET NO. 94 FOR PROFILE
CONTRACTOR ADDED 10'

FM. DR. LT. 1307 + 17
INPL. 15"x 24' C.M.P.

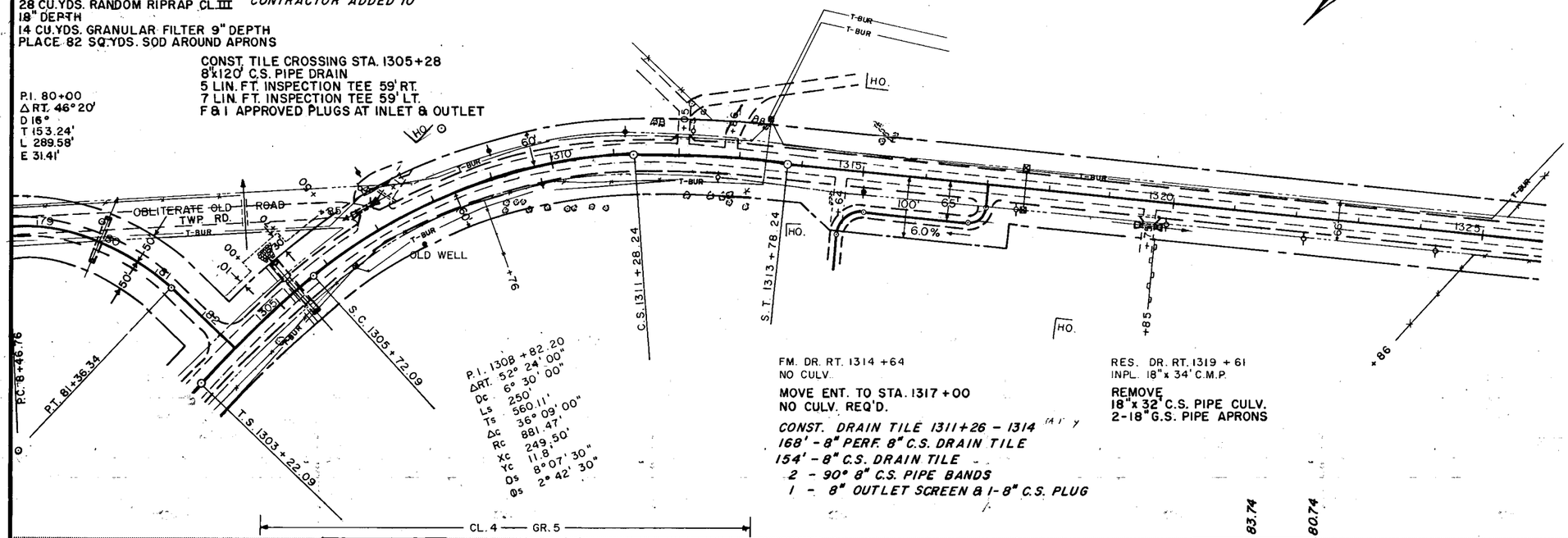
REMOVE
18"x32' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

FM. ENT. LT. 1312 +05
INPL. 15"x 24' C.M.P.

REMOVE
NO CULV. REQ'D.

FM. ENT. LT. 1312 +86
INPL. 15"x 24' C.M.P.

REMOVE
COMBINE DRIVE WITH DRIVE LT. STA. 1312 +05
NO CULV. REQ'D.



P.I. 1308 +82.20
Δ RT. 52° 24' 00"
Dc 6° 30' 00"
Ls 250'
Ts 560.11'
Δc 36° 09' 00"
Rc 881.47'
Xc 249.50'
Yc 111.8
Os 8° 07' 30"
2° 42' 30"

FM. DR. RT. 1314 +64
NO CULV.

MOVE ENT. TO STA. 1317 +00
NO CULV. REQ'D.

CONST. DRAIN TILE 1311+26 – 1314
168' - 8" PERF. 8" C.S. DRAIN TILE
154' - 8" C.S. DRAIN TILE
2 - 90° 8" C.S. PIPE BANDS
1 - 8" OUTLET SCREEN & 1-8" C.S. PLUG

RES. DR. RT. 1319 + 61
INPL. 18"x 34' C.M.P.

REMOVE
18"x 32' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

B.M. EL. 1079.48
SPK. IN T.P. LT.
STA. 1307 + 02

B.M. EL. 1085.51
SPK. IN P.P. RT.
STA. 1321 + 77

℄ PROFILE
PROFILE 75' LT.
PROFILE 75' RT.

P.I. +50.0
ELEV. 73.65
650' V.C.
M = 6.9875

P.I. +73.0337I
ELEV. 15.18655
1150' V.C.
M = 12.79375

P.I. +88.46154
ELEV. ~~93.2~~ 81.50767
300' V.C.
M = ~~0.9375~~ 0.975
C = 0.4333

TILE INLET ELEV. 67.5
TILE OUTLET ELEV. 62.9
INLET ELEV. 69.5
OUTLET ELEV. 66.0

COMMON EXC.		4159
SALVAGED TOPSOIL	(EV)	407
SUBGRADE EXC.		882
EMB.		3718

SUBGRADE TREATMENT:
EXCAVATE 1.0' BELOW PROFILE GRADE
STA. 1307 +70 TO STA. 1337 +50

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AS BUILT PLANS

℄ CULV. 1331 + 12
INPL. 48"x 34' C.M.P.
W/LIMESTONE HDWLS.

REMOVE
44"SPAN x 80' R.C. PIPE-ARCH CULV. CL.2A
2-44"SPAN R.C.P.-ARCH APRONS
PLACE CULV. ON "B" BEDDING
13 CU.YDS. RANDOM RIPRAP CL.III 18"DEPTH
7 CU.YDS. GRANULAR FILTER 9" DEPTH
PLACE 50 SQ.YDS. SOD AROUND APRON
PLACE DITCH BLOCK AT INLET
SKEW CULV. 15°

MOVE TO 1330+92

CONST. FE. ENT. 1331+10
NO CULV. REQ'D.

P.I. 1331 + 77.52
ΔLT. 6° 27'
D = 0° 45'
T = 430.45'
L = 860.00'

F.E. LT. 1338 + 25
INPL. 18"x 24' C.M.P.

REMOVE
24"x 28' C.S. PIPE CULV.
2-24"G.S. PIPE APRONS

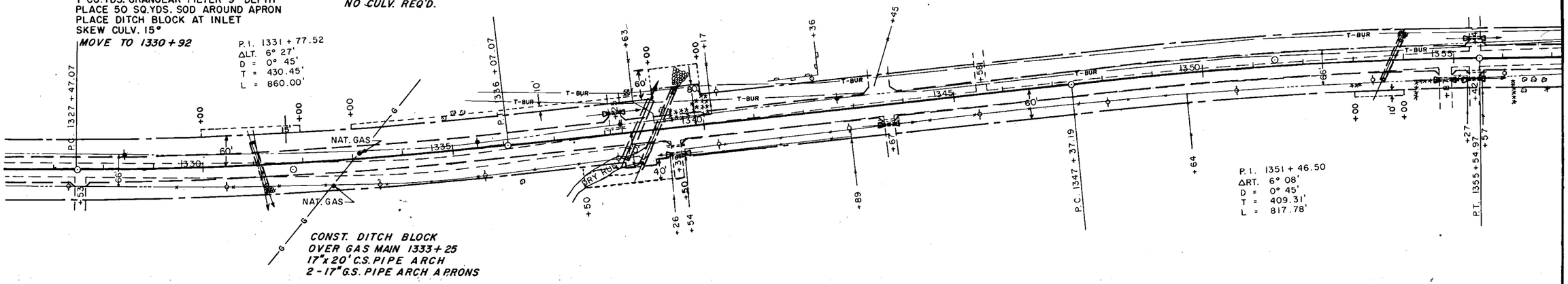
F.E. LT. 1345 + 58
NO CULV.

NO ENT. REQ'D.

CONST. DOUBLE F.E. LT. 1343+55
NO CULV. REQ'D.

F.E. LT. 1355 + 41
NO CULV.

18"x 28' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS



F.E. RT. 1327 + 53
NO CULV.

NO CULV. REQ'D.

CONST. CATTLE PASS STA. 138+62
72" HIGH x 102' R.C. CATTLE PASS CL. 3
2-72" HIGH CATTLE PASS APRONS
PLACE 82 SQ. YDS. SOD AROUND APRONS
SKEW 30°

℄ CULV. 1338 + 95
INPL. 6'x 6'x 42' R.C. BOX
W/ WINGWALLS SKEWED 30°

REMOVE CONC. BOX CULV.
102" SPAN x 144' R.C. PIPE-ARCH CL.3A
2-102" SPAN R.C.P.-ARCH APRONS
PLACE CULV. ON "B" BEDDING
52 CU.YDS. RANDOM RIPRAP CL. III 18" DEPTH
26 CU.YDS. GRANULAR FILTER 9" DEPTH
PLACE 82 SQ.YDS. SOD AROUND APRONS
SKEW 30°

FM. ENT. RT. 1339+39
INPL. 4'x 6'x 20' CONC. BOX

REMOVE CONC. BOX CULV.
72" HIGH x 28' R.C. CATTLE PASS CL.3
2-72" HIGH R.C. CATTLE PASS APRONS
PLACE CATTLE PASS ON "B" BEDDING
PLACE 82 SQ.YDS. SOD AROUND APRONS
INLET ELEV. 41.5 OUTLET ELEV. 41.0

F.E. RT. 1343+67
INPL. 18"x 32' C.M.P.

REMOVE
~~18"x 28' G.S. PIPE CULV.~~
~~2-18" G.S. PIPE APRONS~~
NO CULV. REQ'D.

℄ CULV. 1353 + 75
INPL. 48" x 40' C.M.P.
W/ APRONS SKEWED 25°

REMOVE 48 LIN. FT.
44"SPAN x 86' R.C. PIPE CULV. CL.2A
2-44"SPAN R.C.P. ARCH APRONS
PLACE CULV. ON "B" BEDDING
13 CU.YDS. RANDOM RIPRAP CL. III 18" DEPTH
7 CU.YDS. GRANULAR FILTER 9" DEPTH
PLACE 50 SQ.YDS. SOD AROUND APRONS
PLACE DITCH BLOCK AT INLET
SKEW 25°

YARD ENT. RT. 1354+87
NO CULV.

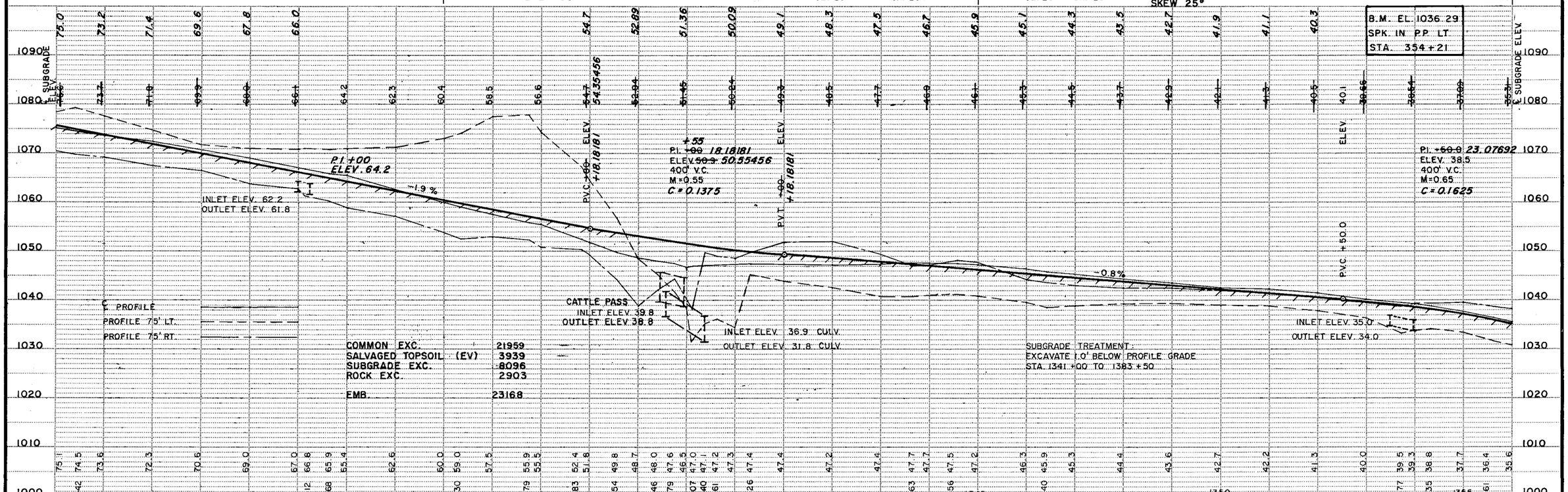
~~18"x 32' C.S. PIPE CULV.~~
~~2-18"G.S. PIPE APRONS~~
NO CULV. REQ'D.

FM. ENT. RT. 1355+42
INPL. 18" x 42' C.M.P.

REMOVE
18"x 32' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS

CL. 20 — GR. 20 — CL. 23 — GR. 23

B.M. EL. 1036.29
SPK. IN P.P. LT
STA. 354 + 21



COMMON EXC.	21959
SALVAGED TOPSOIL (EV)	3939
SUBGRADE EXC.	8096
ROCK EXC.	2903
EMB.	23168

SUBGRADE TREATMENT
EXCAVATE 1.0' BELOW PROFILE GRADE
STA. 1341 +00 TO 1383 +50

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AS BUILT PLANS

F.E. LT. 1360 + 31
NO CULV.

NO CULV. REQ'D.

F.E. LT. 1364 + 80
NO CULV.

NO CULV. REQ'D.

℄ CULV. 1365 + 28
INPL. 36" x 34' C.M.P.
SKEWED 15°

REMOVE
44" SPAN x 80' R.C.P.-ARCH CL. 2A
2-44" SPAN R.C.P.-ARCH APRONS
PLACE CULV. ON "B" BEDDING
13 CU. YDS. RANDOM RIPRAP CL. III 18" DEPTH
7 CU. YDS. GRANULAR FILTER 9" DEPTH
PLACE 50 SQ. YDS. SOD AROUND APRONS

F.E. LT. 1369 + 02
INPL. 15" x 24' C.M.P.

REMOVE
18" x 28' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

FM. ENT. LT. 1371 + 05
INPL. 15" x 24' C.M.P.

REMOVE
18" x 32' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

FM. ENT. LT. 1375 + 88
NO CULV.

18" x 28' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

CONST. C.R. 113 APPROACH RT. 1375+20
F. & I. CULV. AT STA. 60+65
57" SPAN x 42' C.S. PIPE CULV.
2-57" SPAN G.S. PIPE APRONS
INLET ELEV. 11.0 OUTLET ELEV. 10.7

℄ CULV. 1377 + 10
INPL. 42" x 41' C.M.P.

℄ CULV. 1378 + 02
INPL. 42" x 45' C.M.P.

REMOVE
CONST. CULV'S. STA. 1377+05.5 & +14.5
2-44" SPAN x 92' R.C.P.-A CULV. CL. 2A
4-44" SPAN R.C.P.-A APRONS
PLACE CULV'S. ON "B" BEDDING
26 CU. YDS. RANDOM RIPRAP CL. III
18" DEPTH. PLACE 100 SQ. YDS. SOD AT APRONS
13 CU. YDS. GRANULAR FILTER 9" DEPTH
PLACE DITCH BLOCK AT INLET
SKEW 32°

F.E. LT. 1382 + 30
INPL. 22" x 30' C.M.P.

REMOVE
NO CULV. REQ'D.

REMOVE
CONST. CULV'S. STA. 1377+97.5 & 1378+06.5
2-44" SPAN x 92' R.C.P.-A CULV. CL. 2A
4-44" SPAN R.C.P.-A APRONS
PLACE CULV'S. ON "B" BEDDING
26 CU. YDS. RANDOM RIPRAP CL. III 18" DEPTH
13 CU. YDS. GRANULAR FILTER 9" DEPTH
PLACE DITCH BLOCK AT INLET
SKEW CULV'S. 32°
PLACE 100 SQ. YDS. SOD AROUND APRONS

OFFICE REVISION
P.I. 1369+15.66
ΔLT. 4° 11' 24"
D 0° 45'
T 279.46'
L 558.67'
E 5.11'
REMOVE CROWN
165' RUN OFF

P.I. ~~1369+15.66~~
ΔLT. ~~2° 50'~~
D = ~~0° 22' 00"~~
T = ~~386.45'~~
L = ~~772.72'~~
E = ~~4.77'~~

OFFICE REVISION
P.I. 1378+98.65
ΔRT. 1° 44' 49"
D 00° 18' (0.30°)
T 291.20'
L 582.31'
E 2.23'
NO SUPER ELEVATION REQ'D.

P.C. 1365+29.21
P.C. 1366+36.20
P.T. 1371+94.87
P.T. 1373+01.93
P.C. 60+97.75
P.T. 63+74.31
P.I. 62+42.40
ΔRT. 41° 29' 15"
D = 144.65'
T = 276.56'
L = 26.47'
E =
P.O.T. 1375+20 = 0+00
RT. 90° 00' 00"
P.C. 1376+07.47
P.T. 1381+89.76
P.O.T. 1381+90.10
P.O.T. 1382+24.88

T-BUR
CONST. ℄
SURVEY ℄
OBLITERATE OLD ROAD
MAINTAIN DITCH
SEPTIC TANK
HO.

FM. DR. RT. 1358 + 01
INPL. 18" x 24' C.M.P.

REMOVE
18" x 32' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

F.E. RT. 1365 + 43
NO CULV.

NO CULV. REQ'D.

F.E. RT. 1368 + 91
INPL. 18" x 24' C.M.P.

REMOVE
~~18" x 28' C.S. PIPE CULV.~~
~~2-18" G.S. PIPE APRONS~~

NO ENT. REQ'D.

F.E. RT. 1371 + 05
INPL. 15" x 24' C.M.P.

REMOVE
18" x 28' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

END CONST.
STA. 64+00

RES. DR. LT. 61 + 15
INPL. 49" SPAN x 32' C.M.P.-A
W/APRONS

CONST. APPROACH LT. 61+50
NO CHANGE WITH CULV. LOCATION

FM. ENT. RT. 1382 + 30
INPL. 24" x 28' C.M.P.

REMOVE
24" x 32' C.S. PIPE CULV.
2-24" G.S. PIPE APRONS

F.E. RT. 1380+50
NO. CULV. INPL.
24" x 28' C.S. PIPE
2-24" G.S. PIPE APRONS

PROFILE CR 113 RT. STA. 1375+20

CL. 12 — GR. 12
CL. 28 — GR. 26

B.M. EL. 1021.49
SPK. IN P.P. 35'
RT. STA. 1365+70

℄ PROFILE
PROFILE 75' LT.
PROFILE 75' RT.

P.I. +50.0
ELEV. ~~26.0~~ 25.35
400' V.C.
M = ~~0.7~~ 0.755
C = 0.18875

P.I. +00
ELEV. 20.84
200' V.C.
M = 0.2

P.I. +00
ELEV. 15.05
400' V.C.
M = 0.175

P.I. +00
ELEV. 07.70
400' V.C.
M = 0.375

P.V.T. +50.0 ELEV. 24.5
P.V.C. +50 ELEV. 29.55
P.V.T. +50.0 ELEV. 24.17
P.V.C. +00 ELEV. 20.84
P.V.T. +00 ELEV. 20.64
P.V.C. +00 ELEV. 15.05
P.V.T. +00 ELEV. 09.24
P.V.C. +00 ELEV. 07.7
P.V.T. +00

-2.1%
-0.59%
-0.1%
+2.5%
+1.6%
-1.05%
-0.38%
-0.3%

INLET ELEV. 18.7
OUTLET ELEV. 17.1
INLET ELEV. 10.0
OUTLET ELEV. 09.7
INLET ELEV. 09.0
OUTLET ELEV. 08.7

SUBGRADE ELEV.
℄ SUBGRADE ELEV.
ELEV.

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AS BUILT PLANS

F.E. LT. 1395 + 10
INPL. 24" x 24' C.M.P.
REMOVE

24" x 28' C.S. PIPE CULV.
2 - 24" G.S. PIPE APRONS

℄ CULV. 1398 + 15
INPL. 48" x 34' C.M.P. SPAN
REMOVE

2-44"SPAN x 78' R.C.P.-A. CULV. CL.2A
4-44"SPAN R.C.P.-A. APRONS
PLACE CULV. ON "B" BEDDING
26 CU. YDS. RANDOM RIP RAP CL III 18" DEPTH
13 CU. YDS. GRANULAR FILTER 9" DEPTH
PLACE 100 SQ. YDS. SOD AROUND APRONS
1398+11 & 1398+20

F.E. LT. 1404 + 63
INPL. 15" x 40' C.M.P.
REMOVE

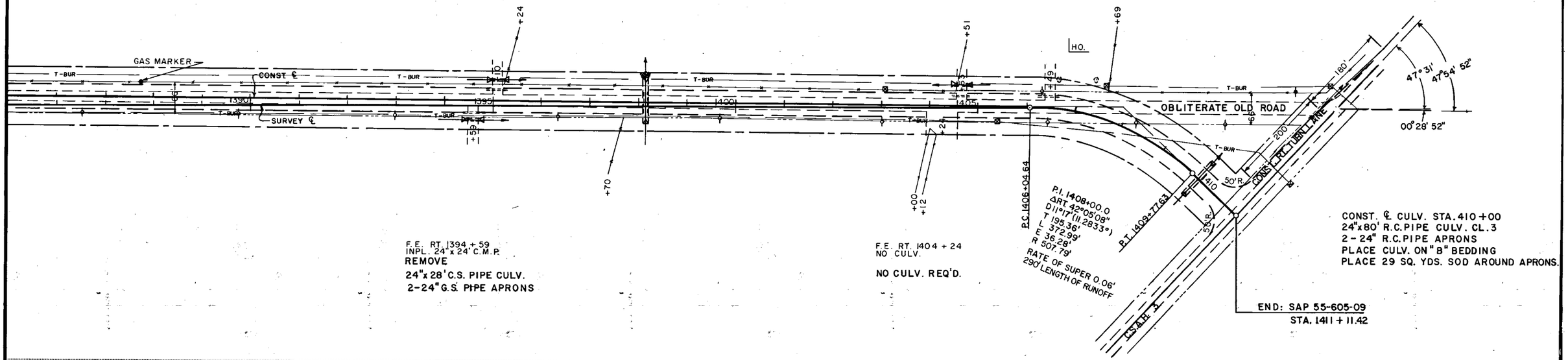
18" x 28' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

FM. ENT. LT. 1406 + 49
INPL. 15" x 24' C.M.P.
REMOVE

NO CULV. REQ'D.

℄ CULV. 1412 + 05
INPL. 24" x 26' C.M.P.
REMOVE

CONST. F.E. OFF TURN LANE
24" x 28' C.S. PIPE CULV.
2 - 24" G.S. PIPE APRONS



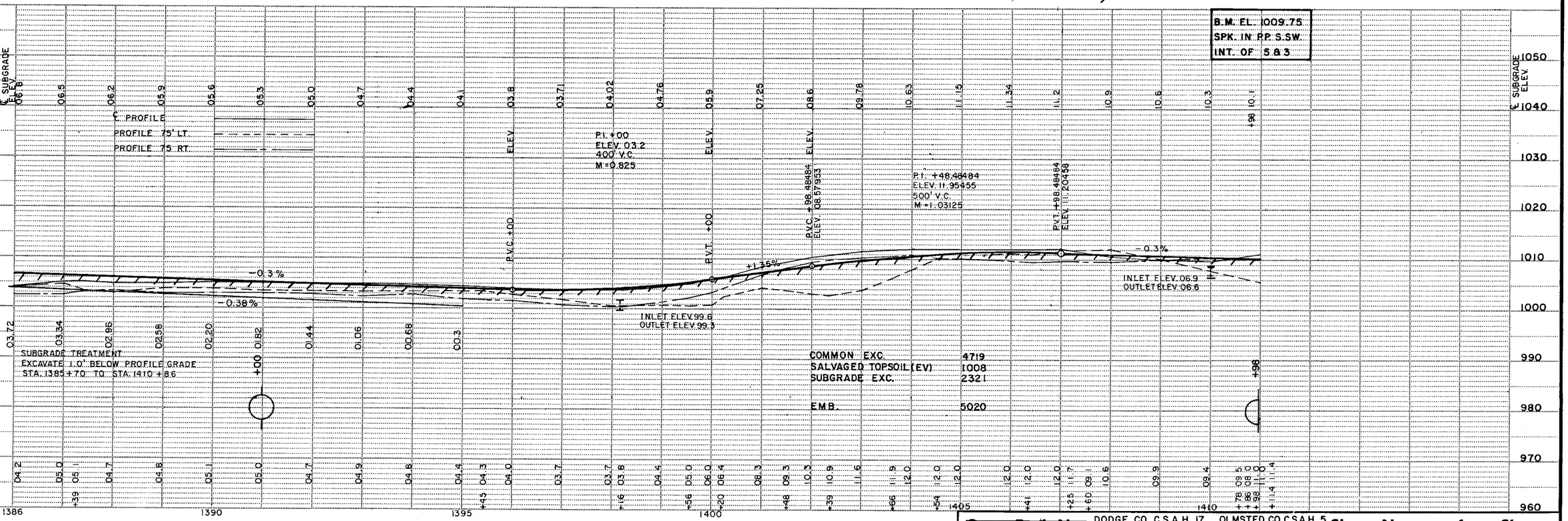
F.E. RT. 1394 + 59
INPL. 24" x 24' C.M.P.
REMOVE

24" x 28' C.S. PIPE CULV.
2-24" G.S. PIPE APRONS

F.E. RT. 1404 + 24
NO CULV.

NO CULV. REQ'D.

B.M. EL. 1009.75
SPK. IN RP. S.S.W.
INT. OF S & S



SUBGRADE TREATMENT
EXCAVATE 1.0' BELOW PROFILE GRADE
STA. 1385 + 70 TO STA. 1410 + 86

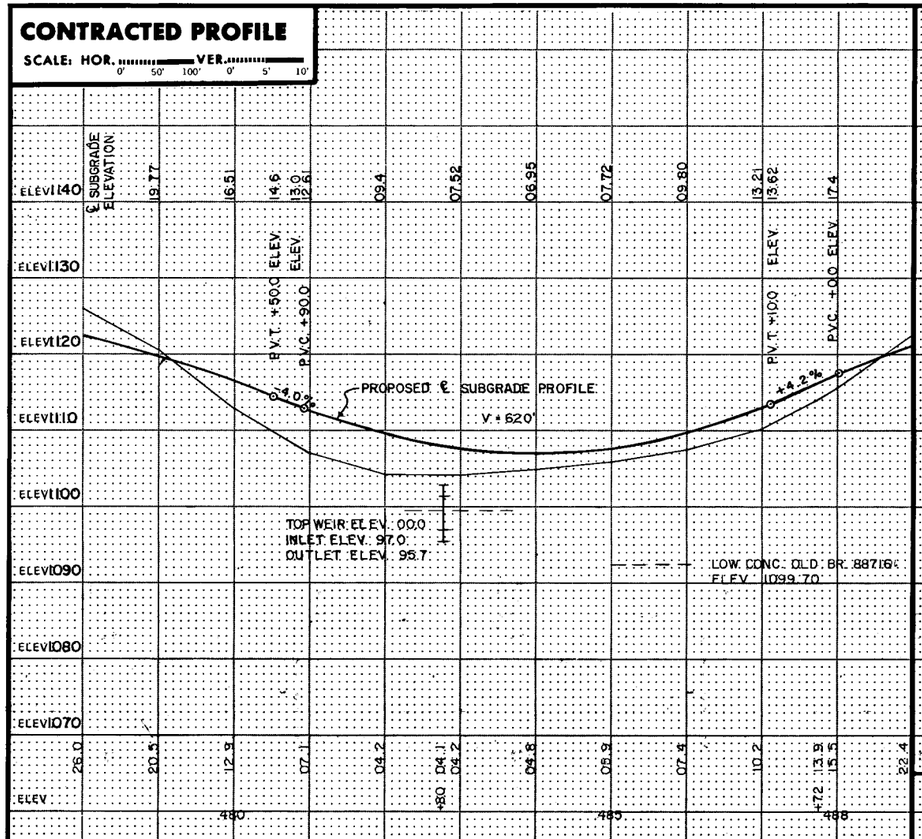
COMMON EXC.	4719
SALVAGED TOPSOIL (EV)	1008
SUBGRADE EXC.	2321
EMB.	5020

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AS BUILT PLANS

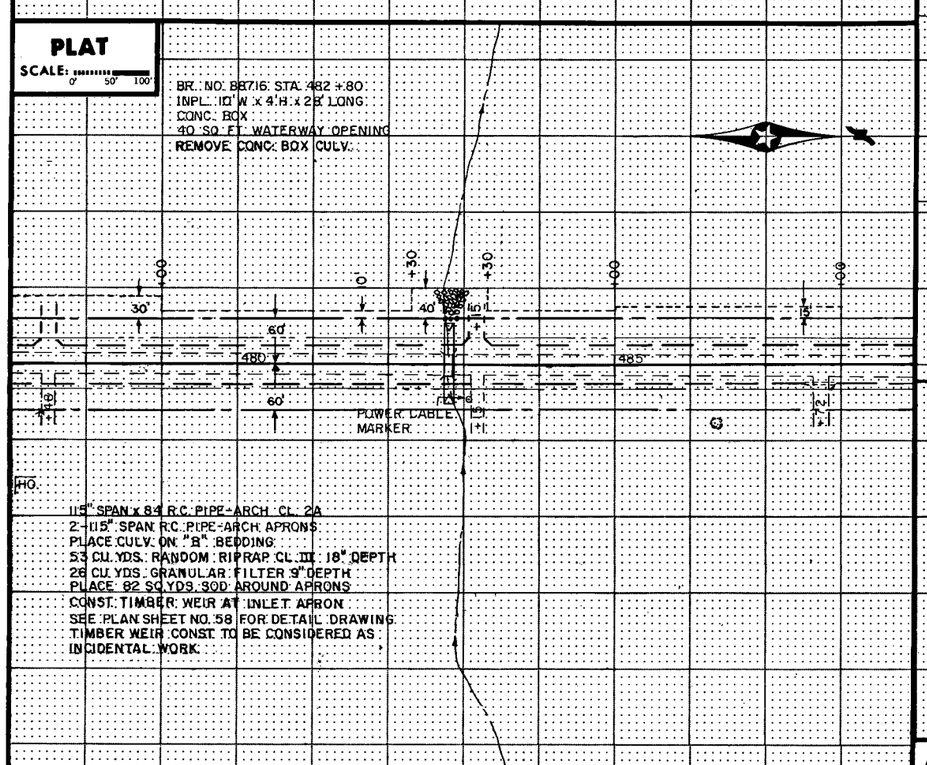
CONTRACTED PROFILE

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



PLAT

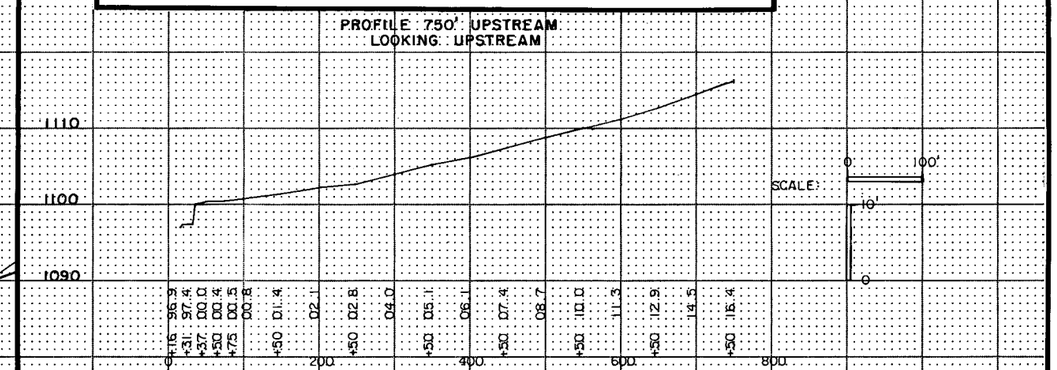
SCALE: 0' 50' 100'



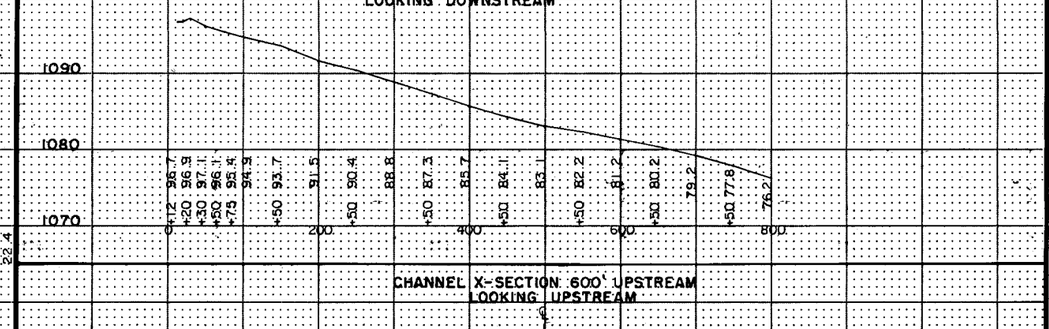
TYPICAL SECTIONS & PERTINENT DATA

SCALES AS SHOWN

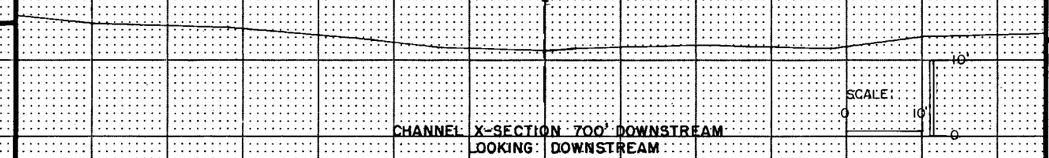
PROFILE 750' UPSTREAM
LOOKING UPSTREAM



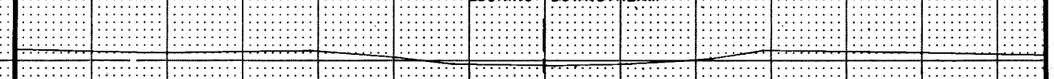
PROFILE 800' DOWNSTREAM
LOOKING DOWNSTREAM



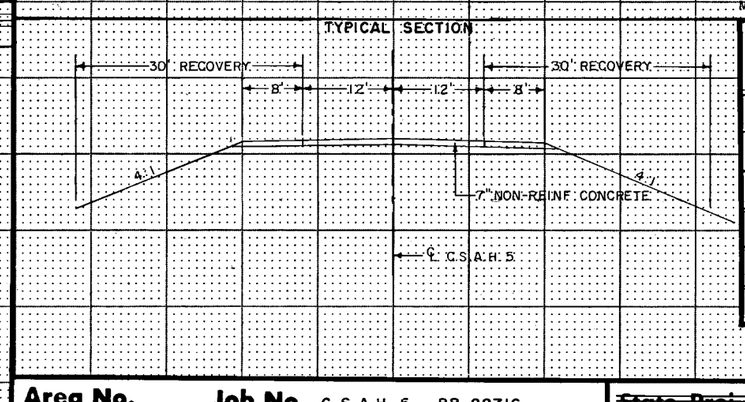
CHANNEL X-SECTION 600' UPSTREAM
LOOKING UPSTREAM



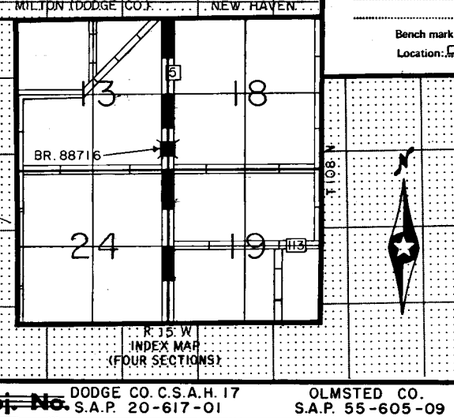
CHANNEL X-SECTION 700' DOWNSTREAM
LOOKING DOWNSTREAM



TYPICAL SECTION



MILTON DODGE CO. NEW HAVEN



R 15 W
INDEX MAP
(FOUR SECTIONS)

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 1-25-84

Stream or ditch designation UNNAMED
Drainage area 0.13 SQ MILE
Max. flood on record UNKNOWN Design flood (100 yr. freq.) 250 C.F.S.
Max. observed highwater elevation UNKNOWN Design highwater elevation 1103.8
Design mean velocity through structure 10.0 F.P.S.
Low superstructure at or above elevation 1103.0
Flowline elevation 1097.0 Skew angle NONE
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 250+ C.F.S. at stage 1104.2 and mean velocity of ..... F.P.S. with ..... 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 1103.17 (M.S.L. 1929 Adj.)
Location: □ ON SE. COR. HDWL. STA. 482 + 80

MINNESOTA
DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

AT MILE POINT 13.77 ON C.S.A.H. 5 (T.H., C.S.A.H., C.R. etc.)
PROPOSED BRIDGE LOCATED 0.7 MILES N OF JCT. C.R. 113 & C.S.A.H. 5
SEC. 18 TWP 108 R 15W
TOWNSHIP NEW HAVEN COUNTY OLMSTED
BRIDGE NO. 88716

Area No. **Job No.** C.S.A.H. 5 BR. 88716

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OLMSTED CO. S.A.P. 55-605-09

Sheet No. 95 of 96 Sheets

SCALE: 0 10'

60'

24'

℄ OF LAYOUT
℄ C.S.A.H. 5

482+00

+80

483+00

484+00

24'

60'

PLAN

ELEVATION

SCALE: 0 10'

0 10'

℄ PROFILE
PROFILE 20' LT.
PROFILE 20' RT.

1110
1100
1090

TOP WEIR ELEV. 00.0
INLET FLOWLINE ELEV. 97.0
OUTLET FLOWLINE ELEV. 95.7

04.2 04.1 04.2 04.8

482 +80 483 484

OLMSTED COUNTY C.S.A.H. 5 BR. 88716

S.A.P. 20-617-01 DODGE CO.
S.A.P. 55-605-09 OLMSTED CO.

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