MINNESOTA DEPARTMENT OF TRANSPORTATION

THE COUNTY OF OLMSTED

CONSTRUCTION PLAN FOR AGGREGATE BASE, AGGREGATE SHOULDERING & CONCRETE PAVING

LOCATED ON C.S.A.H. 2 **BETWEEN** C.S.A.H. 11 **AND** T.H.42 APPROX. 4.0 MILES N.E. OF ROCHESTER **(GEOGRAPHIC DESCRIPTION)**

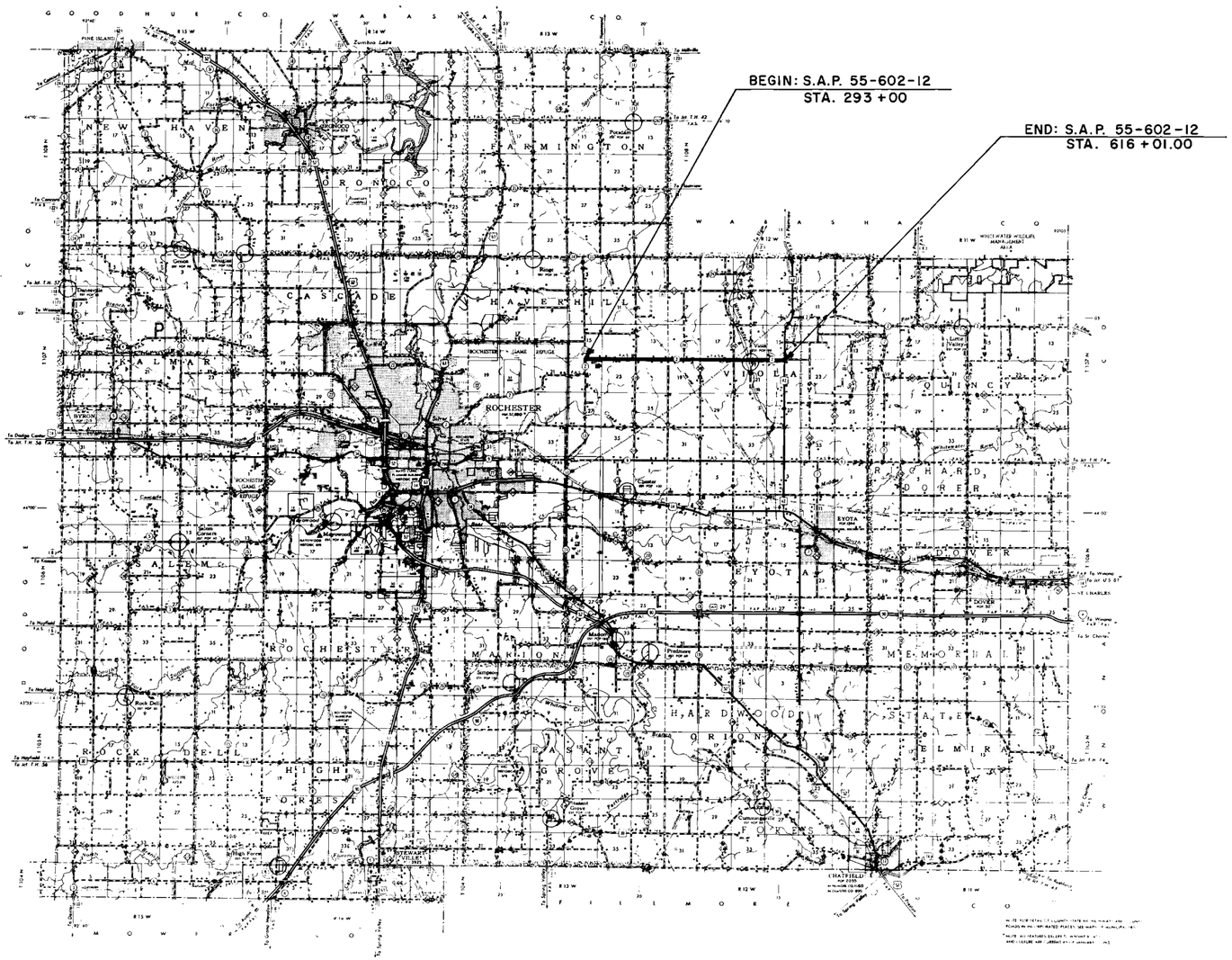
FROM 1366.5' S. OF N.1/4 COR. SEC. 22 T107N-R13W **TO** 48.0' W. OF N. 1/4 COR. SEC. 22 T107N-R13W **(LEGAL DESCRIPTION)**

STATE PROJ. NO. _____

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

~~**STATE PROJ. NO:**~~ S.A.P. 55-602-12

GROSS LENGTH	32,301.00	FEET 6.118	MILES
BRIDGES-LENGTH	0	FEET 0	MILES
EXCEPTIONS-LENGTH	0	FEET 0	MILES
NET LENGTH	32,301.00	FEET 6.118	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
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

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

ALBINSON VPLS 51401

SCALES

PLAN 0 100'

PROFILE 0 100' HORIZ. 0 10' VERT.

INDEX MAP 0 10560'

~~GENERAL LAYOUT~~

MINN. PROJ. NO. _____

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

INDEX

SHEET NO. 1	TITLE SHEET AND LAYOUT MAP
SHEET NO. 2	ESTIMATE OF QUANTITIES
SHEET NO. 3	PAVEMENT JOINTS
SHEET NO. 4-10	PLAN AND PROFILE

GRADED 1986 UNDER S.A.P. 55-602-10

DESIGN DESIGNATION

STA. 598+00 TO STA. 616+01.00
ADT (Current Year) = 670 (1986)
ADT (Future Year) = 1206 (2006)
T (Heavy Commercial) = 8.2%
TST HCADT = 4.4%
10 TON DESIGN

DESIGN DESIGNATION

STA. 293+00 TO STA. 598+00
R

ADT (Current Year) = 892 (1987)
ADT (Future Year) = 1606 (2007)
DHV (Design Hr. Vol.) = _____
D (Directional Distr.) = _____ %
T (Heavy Commercial) = 9.1 %
SOIL FACTOR 130%
TST HCADT 0.8 %
10 TON DESIGN

STA. 293+00 TO STA. 616+01.00
EN18 (20)
Design Speed 50 **MPH**
Based on STOPPING **Sight Distance**
Height of eye 3.5 **Height of object** 0.5
Design Speed not achieved at:
STA. 520+00 TO STA. 541+00 MPH 45
STA. 558+00 TO STA. 579+00 MPH 40
STA. 612+00 TO STA. 616+01 MPH 40

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 1/8/88 REG. NO. 10397 ENGR. Michael Sahar

COUNTY Olmsted

Recommended for Approval _____ 1-12 1987
DISTRICT STATE AID ENGINEER

Recommended for Approval Julie Skallman 1/29 1988
STATE AID PLANS AND SPECS ENGINEER

Approved 1/29 1988 _____
STATE AID ENGINEER

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

STATE AID PROJ. NO. 55-602-12
~~**STATE PROJ. NO:**~~ OLMSTED COUNTY **SHEET NO.** 1 **OF** 9 **SHEETS**

ESTIMATED QUANTITIES

SPECIFICATION NO.	ITEM	UNIT	RURAL	TOTAL ESTIMATED QUANTITIES
2105.525	TOPSOIL BORROW (LV)	CU. YD.	1010	1010
2112.501	SUBGRADE PREPARATION	ROAD STA.	322	322
2130.501	WATER	(M) GAL'S.	77	77
2211.501	AGGREGATE BASE, CLASS 5	TON	7355	7355
2221.501	AGGREGATE SHOULDERING, CLASS 2	TON	14589	14589
2221.501	AGGREGATE SHOULDERING, CLASS 3	TON	7169	7169
2301.501	CONCRETE PAVEMENT	SQ. YD.	85781 (P)	85781 (P)
2301.511	STRUCTURAL CONCRETE	CU. YD.	16824 (P)	16824 (P)
2331.504	BITUMINOUS MATERIAL FOR MIXTURE	TON	206	206
2331.508	WEARING COURSE MIXTURE (MOD.)	TON	560	560
2331.514	BASE COURSE MIXTURE (MOD.)	TON	891	891
2331.516	SHOULDER MIXTURE (MOD.)	TON	1881	1881
2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	203	203
2506.521	INSTALL CASTINGS	EACH	14	14
2531.501	CONCRETE CURB & GUTTER DESIGN B624	LIN. FT.	4521	4521
2575.505	SODDING	SQ. YD.	10353	10353
2301.536	DOWEL BAR ASSEMBLIES	LIN. FT.	2832	2832

(P) PLAN QUANTITY

CONSTRUCTION NOTES

GRADES:

THE CENTERLINE GRADE FOR PAVING WILL BE ESTABLISHED BY THE OLMSTED COUNTY HIGHWAY DEPT.

JOINTS:

ALL CONTRACTION JOINTS, ALL LONGITUDINAL JOINTS AND PERMANENT HEADER JOINTS WILL BE INCIDENTAL TO ITEM NO. 2301.501 CONCRETE PAVEMENT AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR. THE DOWEL BAR ASSEMBLIES REQUIRED IN THE C5D-1 JOINT FROM STA. 598+00 TO STA. 615+77 WILL BE PAID FOR BY THE LINEAR FT. OF PAVEMENT JOINT IN WHICH THE DEVISES ARE INSTALLED.

REINFORCED PANEL OVER CULVERTS:

REINFORCED CONCRETE PANELS OF THE LENGTH INDICATED AT LOCATIONS LISTED BELOW SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD DETAIL PLATE NOTED IN THE PLANS, EXCEPT FROM STA. 294+00 TO STA. 598+00 WHERE DOWELED TRANSVERSE JOINTS WILL NOT BE REQUIRED. ALL REINFORCEMENT BARS WILL BE CONSIDERED INCIDENTAL AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.

STATION:	PANELS 17'	STA:	PANELS 14'-17'-14'-16'-15'	STA:	PANELS 16'
318+68		433+61		549+85	
345+10	13'-16'-14'-17'-13'	444+69	14'	558+88	17'-13'-16'-14'-17'
	16'-14'-17'-13'	456+55	17'	561+20	13'-16'-14'-17'
355+00	17'	473+84	12'-15'-13'-16'-13'	567+40	14'
366+11	17'	494+32	16'-14'-17'-13'	569+30	16'
400+42	17'	524+51	16'-14'-17'-13'	572+45	14'
408+39	14'-17'-13'-16'	535+66	17'-13'	580+94	14'-17'
423+66	14'	547+44	12'-15'-13'	604+93	16'-14'-17'-13'

CONCRETE PAVEMENTS NON-REINFORCED

CONCRETE PAVEMENT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD DETAIL PLATE NOTED IN THE PLANS, MODIFIED TO THE EXTENT THAT DOWELS WILL NOT BE REQUIRED IN THE FIRST TEN CONTRACTION JOINTS AT BEGINNING OF PROJECT AND THE TEN JOINTS EACH SIDE OF RAILROAD XING AT STA. 560+31.5.

AGGREGATE BASE:

ITEM NO. 2211.501 AGGREGATE BASE CLASS 5 INCLUDES 905 TONS FOR C.S.A.H. 11 LT. 303+13.00, 558 TONS FOR C.S.A.H. 24 LT. 458+62.15, 246 TONS FOR TWP. RD. RT. 537+65.00, AND 5,646 TONS IN CONJUNCTION WITH THE OPERATIONS OF ITEM NO. 2112.501 SUBGRADE PREPARATION.

AGGREGATE SHOULDERING, CLASS 2:

ITEM NO. 2221.501 AGGREGATE SHOULDERING CLASS 2 INCLUDES 1752 TONS FOR 122 ENTRANCES AND APPROACHES AND 12,837 TONS FOR SHOULDERING.

SHOULDER MIXTURE:

ITEM NO. 2331.516 SHOULDER MIXTURE INCLUDES 575 TONS FOR 54 ENTRANCES AND APPROACHES, 18 TONS FOR 5 BITUMINOUS SPILLWAYS, 262 TONS FOR 11 PUBLIC ROAD APPROACHES AND 1026 TONS FOR BITUMINOUS SHOULDER CONSTRUCTION.

WATER:

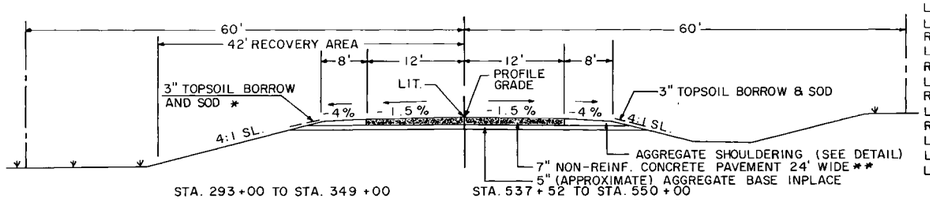
WATER TO BE USED AS A DUST PREVENTATIVE AS DIRECTED BY THE ENGINEER.

STANDARD PLATES

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

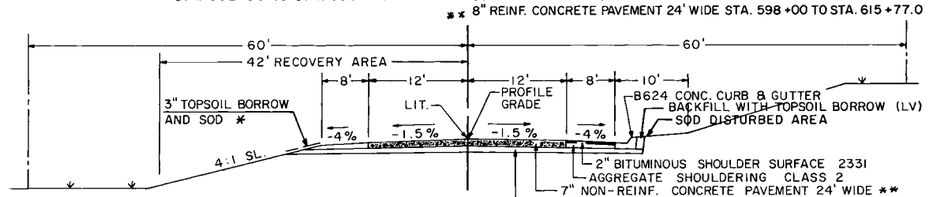
PLATE NO.	DESCRIPTION
0004 A	SPECIFICATION REFERENCE TO STANDARD PLATES.
1016 H	CONCRETE PAVEMENTS NON-REINFORCED.
1070 J	REINFORCED PANEL OVER CULVERTS.
1103 I	TYPICAL DOWEL BAR ASSEMBLY
1141 C	PAVEMENT KEYWAY FOR KEYED JOINT CONSTRUCTION.
1150 N	CONSTRUCTION OF HEADER JOINTS.
1210 E	CONCRETE PAVEMENT ADJACENT TO RAILWAY CROSSING.
4010 G	CONC. SHORT CONE & ADJUSTING RING.
7100 F	CONCRETE CURB AND GUTTERS DESIGN B624.
7110 E	CURB AND GUTTER CONSTRUCTION AT CATCH BASIN.
7111 G	INSTALLATION & REINFORCEMENT OF CATCH BASIN CASTINGS.
7035 J	CONCRETE WALK AND CURB RETURNS AT ENTRANCES.
8000 1	STANDARD BARRICADES.
8003 B	BREAKAWAY SIGN SUPPORT (PLASTIC)

TYPICAL SECTIONS



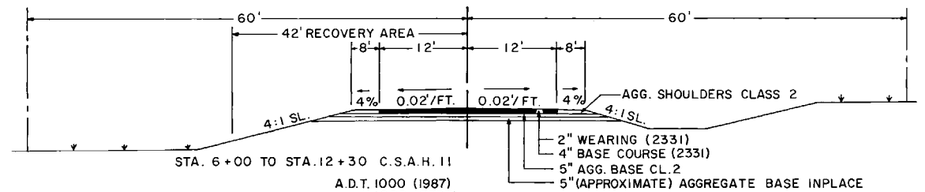
STA. 293+00 TO STA. 349+00
STA. 354+80 TO STA. 518+50
STA. 521+50 TO STA. 529+00
STA. 532+93 TO STA. 536+10

STA. 537+52 TO STA. 550+00
STA. 554+50 TO STA. 566+50
* STA. 574+80 TO STA. 598+50
** STA. 602+00 TO STA. 615+77
** 8" REINF. CONCRETE PAVEMENT 24' WIDE STA. 598+00 TO STA. 615+77.0

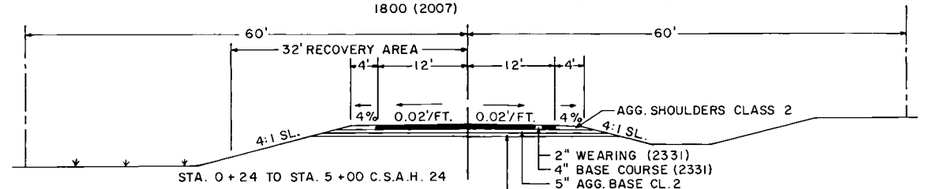


RT. STA. 349+00 TO STA. 354+80
RT. STA. 518+50 TO STA. 521+50
RT. STA. 529+00 TO STA. 532+93
RT. STA. 536+10 TO STA. 537+52

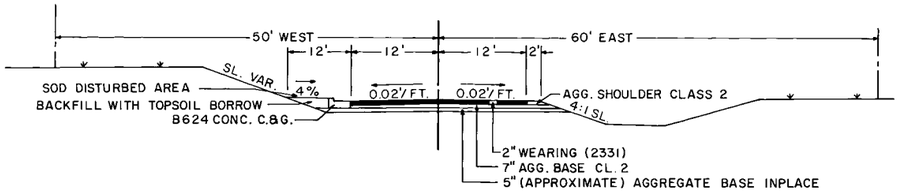
RT. STA. 550+00 TO STA. 554+50
RT. STA. 566+50 TO STA. 574+80
** RT. STA. 598+50 TO STA. 602+00
LT. STA. 567+50 TO STA. 580+50
** 8" REINF. CONCRETE PAVEMENT 24' WIDE STA. 598+00 TO STA. 615+77.0



STA. 6+00 TO STA. 12+30 C.S.A.H. 11
A.D.T. 1000 (1987)
1800 (2007)



STA. 0+24 TO STA. 5+00 C.S.A.H. 24
A.D.T. 338 (1987)
608 (2007)

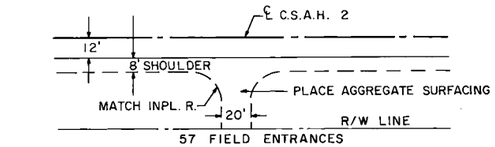


STA. 0+24 TO STA. 2+00 TWP. RD. RT. STA. 537+65

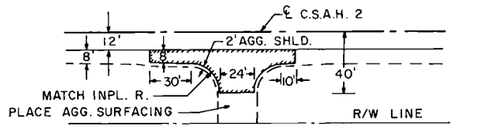
* LOCATIONS FOR TOPSOIL BORROW & SOD ON SHOULDER SLOPES

LEFT STA. 307+30 TO STA. 309+20
LEFT STA. 322+70 TO STA. 326+00
RIGHT STA. 319+50 TO STA. 330+70
LEFT STA. 329+50 TO STA. 333+50
RIGHT STA. 400+50 TO STA. 403+50
LEFT STA. 301+50 TO STA. 404+70
RIGHT STA. 412+50 TO STA. 415+10
LEFT STA. 425+40 TO STA. 433+50
RIGHT STA. 448+40 TO STA. 452+00
LEFT STA. 460+60 TO STA. 469+00
LEFT STA. 477+00 TO STA. 480+00
LEFT STA. 498+50 TO STA. 500+30
LEFT STA. 520+30 TO STA. 523+70
RIGHT STA. 532+50 TO STA. 536+20
LEFT STA. 564+00 TO STA. 567+50
RIGHT STA. 565+00 TO STA. 566+50
LEFT STA. 580+70 TO STA. 583+00
LEFT STA. 586+50 TO STA. 590+20

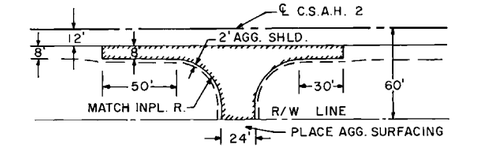
APPROACHES AND ENTRANCES



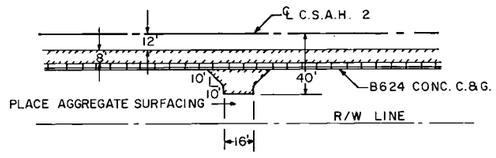
57 FIELD ENTRANCES



14 FARM AND RES. ENTRANCES



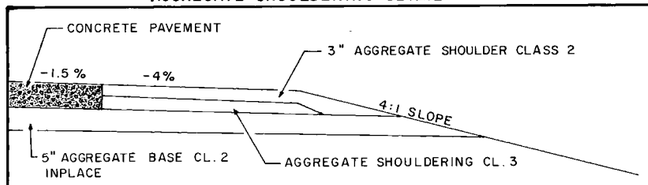
5 ROAD APPROACHES



46 URBAN TYPE ENTRANCES

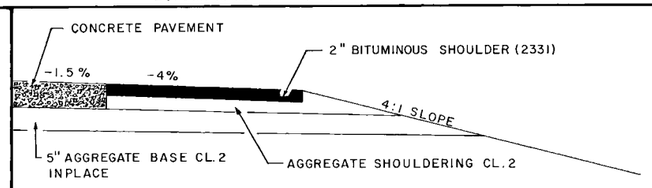
DESIGNATES BITUMINOUS SURFACING

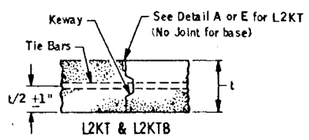
AGGREGATE SHOULDERING DETAIL



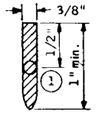
NOTE: IN LOCATIONS OF BITUMINOUS SHOULDERING ELIMINATE THE AGGREGATE SHOULDERING CL. 3 AND USE AGGREGATE SHOULDERING CL. 2

BITUMINOUS SHOULDERING DETAIL

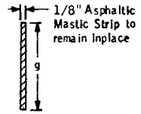




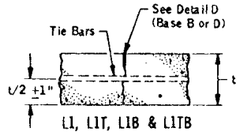
L2KT & L2KTB



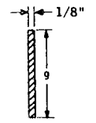
DETAIL A
(Formed & Sealer Spec. 3720)



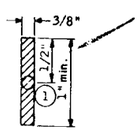
DETAIL B
(Formed & Unsealed)



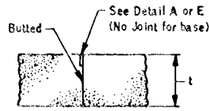
L1, L1T, L1B & L1TB



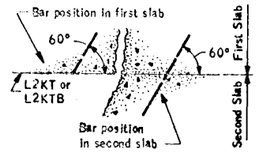
DETAIL D
(Sawed & Sealer Spec. 3720)
(Base joints unsealed)



DETAIL E
(Sawed & Sealer Spec. 3720)



L3 & L3B



TIE BAR BENDING DETAIL

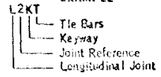
TYPE L1 JOINT DEPTHS		
Pavement Thickness	Concrete Pavement	Concrete Base
t	g	g
6"	2"	2"
6-1/2"	2-1/8"	2"
7"	2-1/4"	2-1/4"
7-1/2"	2-1/2"	2-1/4"
8"	2-5/8"	2-1/2"
8-1/2"	2-7/8"	2-1/2"
9"	3"	2-3/4"
10"	3-1/4"	3"

LONGITUDINAL JOINTS

CLASS DESIGNATION				JOINT DETAIL	JOINT SEALER SPEC.
Without Tie Bars	With Tie Bars	With Keyway & Tie Bars	Butted		
L1 L1B	L1T L1TB	L2KT L2KTB	L3 L3B	D B or D A or E None	3720 Unsealed 3720 Unsealed

LEGEND
- L = Longitudinal Joint
- No. = Joint Reference
- T = Tie Bars
- K = Keyway
- B = Concrete Base

EXAMPLE



LONGITUDINAL JOINT NOTES

Tie bars for L1T8 joints shall be the same size and spacing as shown on standard plan sheet 5-297.216 - .219.

Except when noted otherwise in the plans the tie bar spacing for all L2KT and L2KTB joints shall be 2' 6" c. to c. and bent 60° as shown.

Tie bars in the L2KT and L2KTB joints shall be the same size and length as used for the L1T or L1TB joints when tying pav't. to pav't. or base to base. Tie bars in the L2KT or L2KTB joints shall be No. 4 x 2' 6" when tying curb and gutter to pav't. or base.

All tie bars shall meet the requirements of Grade 60 for AASHTO M-31 or M-53.

Normally, tied pavement widths shall not exceed 30 feet except bridge approach panels and pavement tapers.

Joint width tolerance, +1/16", -1/32".

Spec. 3720 Sealer - Top of sealer flush to -3/16" below top of pavement surface.

(1) Just prior to sealing joint (Detail A&E) a paper rope with a 1/8" larger diameter than the joint opening may be placed 1/2" below the top of the pavement.

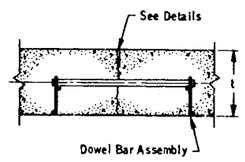
GENERAL NOTES:

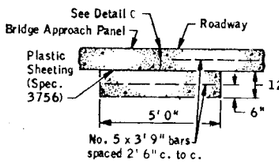
See the following standard plates and standard plan sheet for additional details: Dowel Bar Assembly 1103, Pav't. Keyway 1141, and Concrete Pavement with Skewed Joints 5-297.216 - 219.

See paving layouts in the plans for joint class designations to be used and special reinforcement required.

Approved June 25, 1985
Raymond A. Cada Jr.
Acting Director
OFFICE OF ENGINEERING STANDARDS

LONGITUDINAL JOINTS
DESIGN L

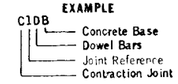




CONCRETE SILL
(Included as part of C3S joint)

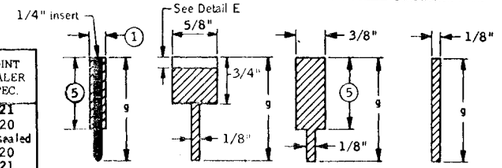
LEGEND
- C = Contraction Joint
- No. = Joint Reference
- -1 = Hot Poured Seal Spec. 3720
- D = Dowel Bars
- S = Concrete Sill
- B = Concrete Base

EXAMPLE



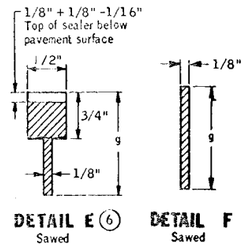
CONTRACTION JOINTS

CLASS DESIGNATION		JOINT DETAIL	JOINT SEALER SPEC.
WITHOUT DOWELS	WITH DOWELS		
C1	C1D	A or C	3721
C1-1	C1D-1	A or B	3720
C1B	C1DB	D or F	Unsealed
C2-1	C2D-1	B	3720
C3S		C	3721
C4	C4D	C	3721
C5-1	C5D-1	E	3720



DETAIL A Formed (Insert to be removed) **DETAIL B** (2) Sawed or Formed (3) **DETAIL C** Sawed **DETAIL D** Formed Asphaltic mastic strip to remain in place

MIN. CONTRACTION JOINT DEPTHS		
Pavement Thickness	Concrete Pavement	Concrete Base
t	g	g
6"	1-1/2"	1-1/4"
6-1/2"	1-5/8"	1-1/4"
7"	1-3/4"	1-1/2"
7-1/2"	1-7/8"	1-1/2"
8"	2"	1-1/2"
8-1/2"	2-1/8"	1-1/2"
9"	2-1/4"	1-1/2"
10"	2-1/2"	2"



DETAIL E (6) Sawed **DETAIL F** Sawed

(1) Design C1 or C1D; Prior to installing preformed joint sealer in the formed joint, (Detail A) the joint shall be widened to a nominal width of 3/8" by sawing along the full length of the formed joint.

Design C1-1 or C1D-1; Prior to sealing formed joint (Detail A) with hot poured joint sealer, the joint shall be widened to a nominal width of 5/8" for a depth of 3/4", +1/8", -1/16", by sawing along the full length of the formed joint. Prior to sealing joint (Detail B) with hot poured joint sealer a strip of paper 5/8" wide shall be placed on the bottom of the 5/8" wide joint.

(2) Design C1-1 or C1D-1, C2-1 or C2D-1; Prior to sealing joint (Detail B) with hot poured joint sealer a strip of paper 5/8" wide shall be placed on the bottom of the 5/8" wide joint.

(3) Design C2-1 or C2D-1; Use insert for forming joint (no sawing permitted).

(4) Use 5/16" x 2" insert for forming joint. Final dimensions shall be obtained by sawing.

(5) Depth shall be 1/4" greater than preformed joint sealer when compressed to fit joint design width.

(6) Design C5-1 or C5D-1; Prior to sealing joint (Detail E) with hot poured joint sealer a strip of paper 1/2" wide shall be placed on the bottom of the 1/2" wide joint.

CONTRACTION JOINT NOTES

In concrete base construction the contraction joints shall be spaced at 30 foot intervals and at right angles to the longitudinal joints except as noted below. Where concrete base is constructed adjacent to existing pavement or base, the contraction joints in the new base shall match those in the existing pavement or base except that the spacing shall not be less than 15 feet nor more than 30 feet.

Joint width tolerances: +1/16", -1/32".

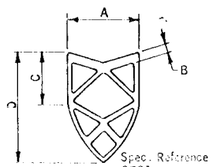
GENERAL NOTES:

See the following standard plates and standard plan sheet for additional details: Dowel Bar Assembly 1103; Construction of Header Joints 1150, and Concrete Pavement with Skewed Joints 5-297.216 - .219.

See paving layouts in the plans for joint class designation to be used and special reinforcement required.

CONTRACTION JOINTS
DESIGN C

REQUIRED DIMENSIONS		
Joint Type	Transverse	Transverse
Nominal Sealer Size	13/16" Use in all 3/8" Joints	1-1/4" Use in all 1/2" Joints
A	0.80" +0.14" -0.05"	1.25" ± 0.13"
B	0.08" ± 0.02"	0.10" ± 0.02"
C	0.60" Min.	1.00" Min.
D	0.80" Min.	1.00" Min.
Web and wall thickness unless noted	0.03" Min.	0.06" Min.

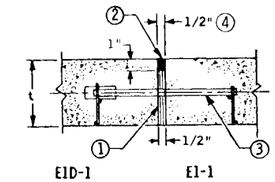


TYPICAL SHAPE FOR SATISFACTORY INSTALLATION IN JOINT (5 CELL MIN.)

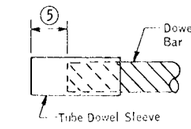
NOTES:
"A" Dimension shall apply at any point throughout "C" depth. The above concrete joint sealers shall be used in 3/8" and 1/2" contraction joints. In its final position, the top corners of the preformed joint sealer shall be placed not less than 1/8" nor more than 5/16" below the pavement surface.

Sharp internal corners will not be permitted. All corners shall be provided with suitable fillet. Currently approved configurations are on file in the Materials Engineering Section, Minnesota Department Of Transportation.

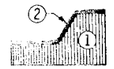
CONTRACTION JOINT SEALER
(PERFORMED ELASTIC TYPE)



E1D-1 (with dowels) E1-1 (without dowels)
DETAIL A



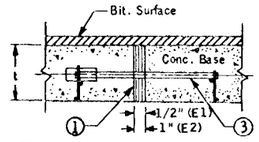
DOWEL BAR SLEEVE DETAIL



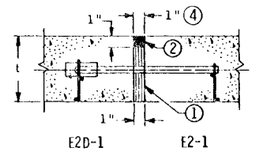
Section thru curb
E2-1



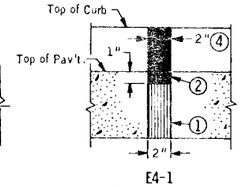
Section thru curb
E4-1



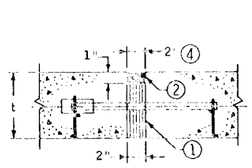
E1DB & E2DB (with dowels) E1B & E2B (without dowels)
DETAIL F



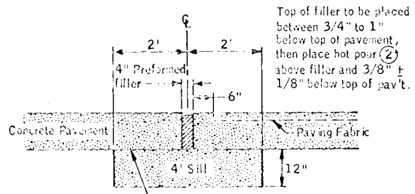
E2D-1 (with dowels) E2-1 (without dowels)
DETAIL G



E4-1 (without dowels)
DETAIL H



E4D-1 (with dowels)
DETAIL I



DETAIL E8S JOINT

(1) Preformed Joint Filler Material - Spec. 3702

(2) Joint Sealer Spec. 3720 Top of sealer, flush to 1/8" below top of pavement surface. Top of sealer for curb section E joints flush with surface (0") ± 1/8".

(3) Dowel Bar Assembly See Std. Pl. 1103

(4) Joint width. Joint width is equal to half of the Joint No. in 1/2" intervals (i.e. E1 = 1/2", E2 = 1", E3 = 1-1/2", E4 = 2", E8 = 4").

(5) Space from end of dowel bar to end of sleeve to be equal to expansion joint width.

LEGEND
- E = Expansion Joint
- No. = Joint Reference
- -1 = Hot Poured Seal (2)
- D = Dowel Bars
- B = Concrete Base

EXAMPLE

EXPANSION JOINTS

CLASS DESIGNATION		JOINT DETAIL	JOINT SEALER SPEC.
WITH DOWELS	WITHOUT DOWELS		
E1D-1	E1-1	A	(2)
E1DB	E1B	F	Unsealed
E2D-1	E2-1	G	(2)
E2DB	E2B	F	Unsealed
	E4-1	H	(2)
E4D-1		I	(2)

EXPANSION JOINTS
DESIGN E

~~MODIFIED~~ **PAVEMENT JOINTS**

State Proj. No. S.A.P. 55-602-12 Sheet No. 3 of 9 Sheets

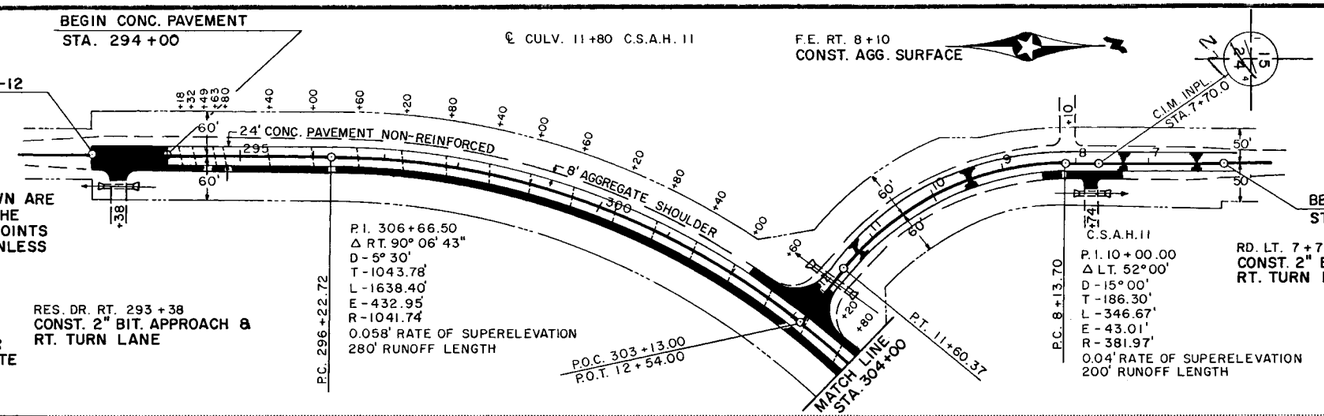
Fed. Proj. No.

BEGIN CONC. PAVEMENT
STA. 294+00

BEGIN: S.A.P. 55-602-12
STA. 293+00

℄ CULV. 11+80 C.S.A.H. 11

F.E. RT. 8+10
CONST. AGG. SURFACE



NOTE: C5-1 CONTRACTION JOINTS SHOWN ARE THE JOINTS LOCATED BETWEEN THE 17' & 13' PANELS. ROTATION OF JOINTS TO BE AT 13', 16', 14', AND 17' UNLESS OTHERWISE SHOWN.

NOTE: CONSTRUCT PERMANENT HEADER JOINT AT BEGINNING OF CONCRETE

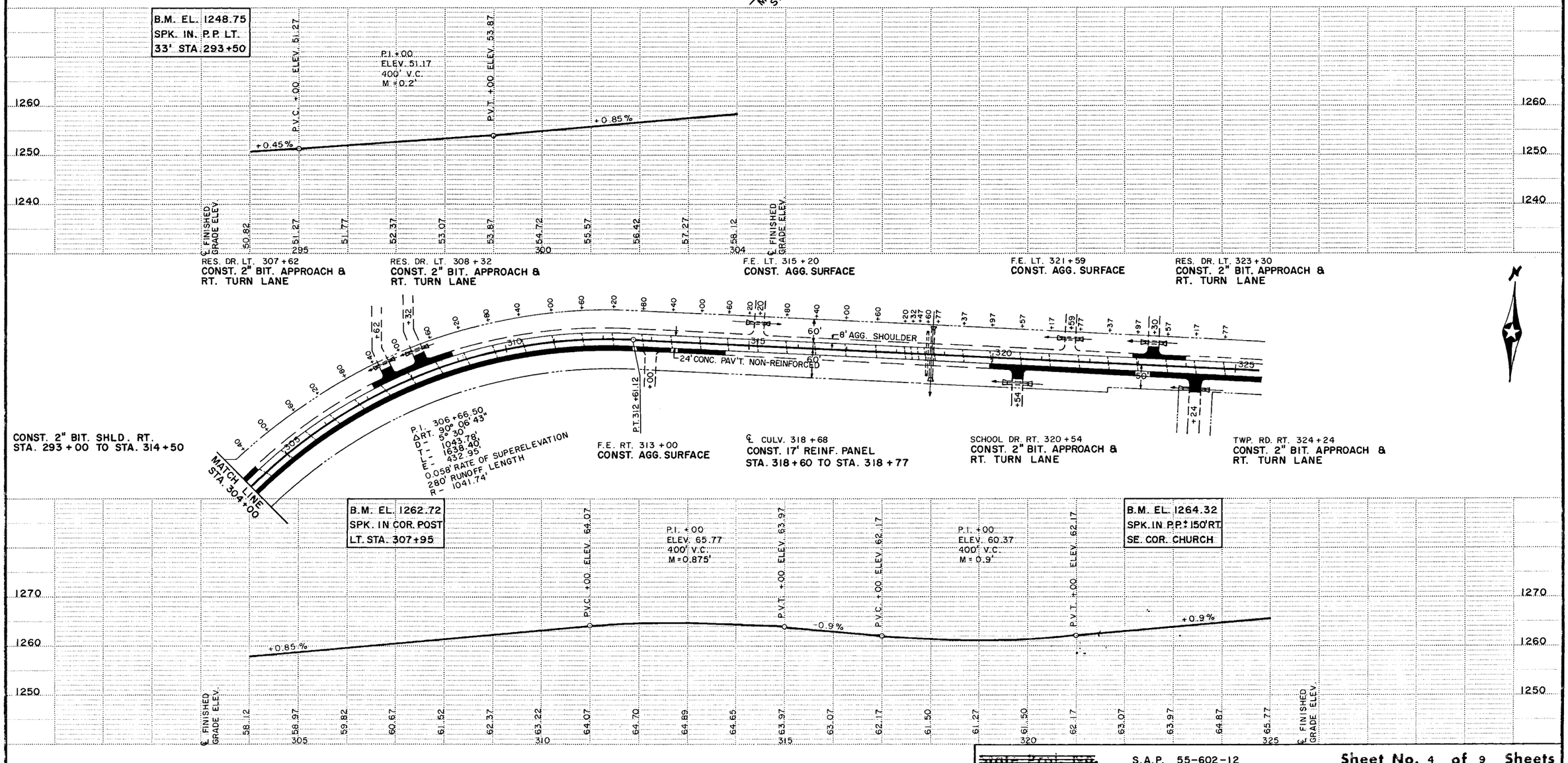
RES. DR. RT. 293+38
CONST. 2" BIT. APPROACH & RT. TURN LANE

BEGIN CONST. C.S.A.H. 11
STA. 6+00

RD. LT. 7+74
CONST. 2" BIT. APPROACH & RT. TURN LANE

NOTE: CONST. C5-1 CONTRACTION JOINTS STA. 294+00 TO STA. 598+00.
CONST. C5D-1 CONTRACTION JOINTS STA. 598+00 TO STA. 615+77.

7" NON-REINF. CONCRETE PAVEMENT STA. 294+00 TO STA. 597+00.
8" CONCRETE PAVEMENT STA. 598+00 TO STA. 615+77.
TRANSITION FROM 7" CONCRETE STA. 597+00 TO 8" CONCRETE STA. 598+00.



FM. DR. LT. 326+49
CONST. 2" BIT. APPROACH & RT. TURN LANE

FM. DR. LT. 330+13
CONST. 2" BIT. APPROACH & RT. TURN LANE

FM. DR. LT. 330+20
CONST. 2" BIT. APPROACH & RT. TURN LANE

F.E. LT. 333+49
CONST. AGG. SURFACE

℄ CULV. 344+21 SKEWED 35°
CONST. 13', 16', 14', 17', 13', 16', 14', 17', AND 13' REINF. PANELS STA. 344+02 TO STA. 345+35

℄ CULVS 345+10 & 345+20 SKEWED 15°

F.E. LT. 345+00
CONST. AGG. SURFACE

℄ CULV. 355+00
CONST. 17' REINF. PANEL STA. 354+91 TO STA. 355+08

Fed. Proj. No.

F.E. LT. 354+70
CONST. AGG. SURFACE

P.I. 328+58.05
Δ LT. 0° 11' 30"

P.O.T. 354+10.75

24' CONCRETE PAVEMENT NON-REINFORCED

8' AGG. SHLD.

8' AGG. SHLD.

RES. DR. RT. 325+69
CONST. 2" BIT. APPROACH & RT. TURN LANE

RES. DR. RT. 327+86
CONST. 2" BIT. APPROACH & RT. TURN LANE

F.E. RT. 330+85
CONST. AGG. SURFACE

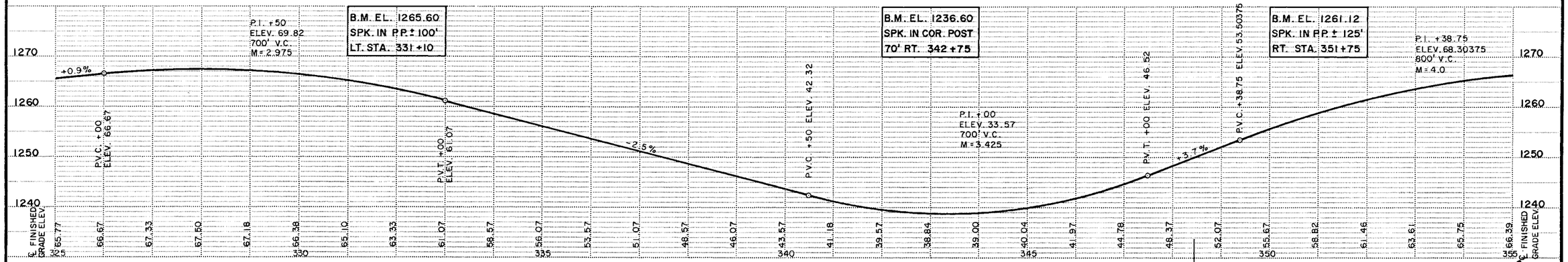
RADIO TOWER DR. RT. 343+11
CONST. AGG. SURFACE

CONST. B624 CONC. CURB & GUTTER RT. 349+00 TO 354+80
CONST. 2" BIT. SHLD. RT. 348+90 TO 354+80
BACKFILL CURB WITH TOPSOIL BORROW (LV) 75 CU. YDS.
PLACE 709 SQ. YDS. SOD. CONST. BIT. SPILLWAY RT. 348+90
BIT. QUANTITY INCLUDED IN SHLD. MIXTURE

F.E. RT. 349+16
CONST. AGG. SURFACE

FM. DR. RT. 351+98
CONST. 2" BIT. APPROACH

FM. DR. RT. 353+93
CONST. 2" BIT. APPROACH



F.E. LT. 354+70
CONST. AGG. SURFACE

℄ CULV. 366+11
CONST. 17' REINF. PANEL STA. 365+02 TO STA. 365+19

F.E. LT. 367+85
CONST. AGG. SURFACE

F.E. LT. 378+90
CONST. AGG. SURFACE

T. 10 N. R. 13 W.
14, 13
23, 24
T. 10 N. R. 13 W.

P.I. 381+07.70
Δ LT. 00° 08' 11"

TWP. RD. LT. 381+08
CONST. 2" BIT. APPROACH & RT. TURN LANE

P.O.T. 354+70.75

8' AGG. SHLD.

24' CONCRETE PAVEMENT NON-REINFORCED

8' AGG. SHLD.

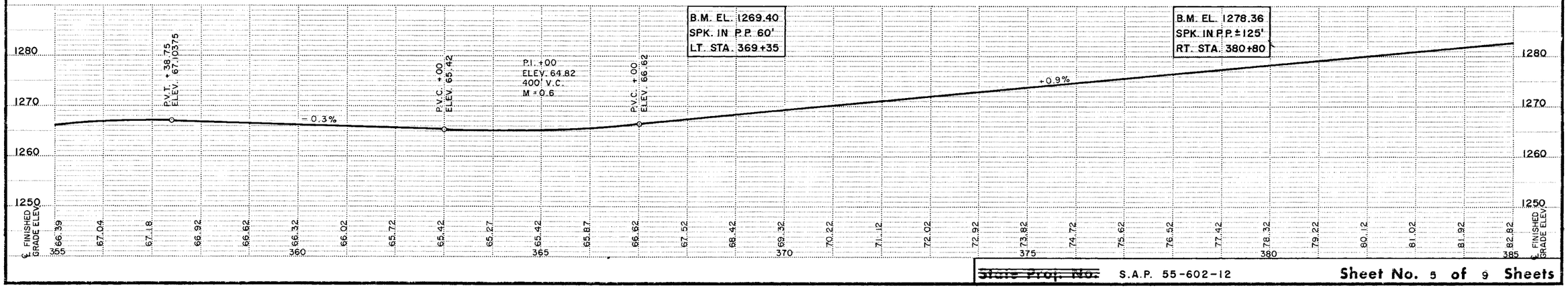
F.E. RT. 355+40
CONST. AGG. SURFACE

NOTE: C5-1 CONTRACTION JOINTS SHOWN ARE THE JOINTS LOCATED BETWEEN THE 17' & 13' PANELS. ROTATION OF JOINTS TO BE AT 13', 16', 14', AND 17' UNLESS OTHERWISE SHOWN.

F.E. RT. 367+85
CONST. AGG. SURFACE

F.E. RT. 378+90
CONST. AGG. SURFACE

C.R. 119 RT. 381+08
CONST. 2" BIT. APPROACH & RT. TURN LANE



~~State Proj. No.~~ S.A.P. 55-602-12

Sheet No. 5 of 9 Sheets

Fed. Proj. No.

F.E. LT. 386+47
CONST. AGG. SURFACE

F.E. LT. 393+75
CONST. AGG. SURFACE

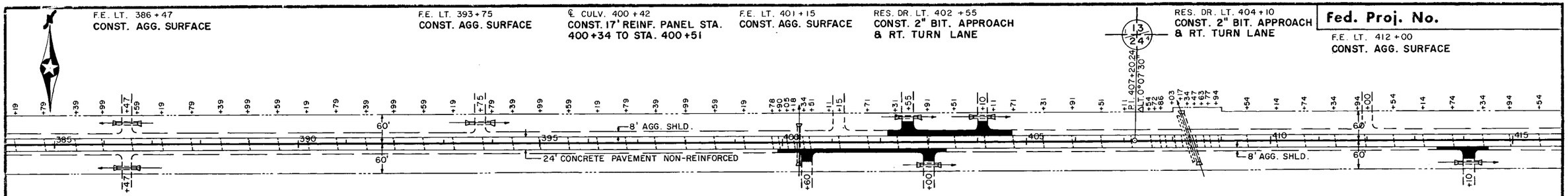
℄ CULV. 400+42
CONST. 17' REINF. PANEL STA. 400+34 TO STA. 400+51

F.E. LT. 401+15
CONST. AGG. SURFACE

RES. DR. LT. 402+55
CONST. 2" BIT. APPROACH & RT. TURN LANE

RES. DR. LT. 404+10
CONST. 2" BIT. APPROACH & RT. TURN LANE

F.E. LT. 412+00
CONST. AGG. SURFACE



F.E. RT. 386+47
CONST. AGG. SURFACE

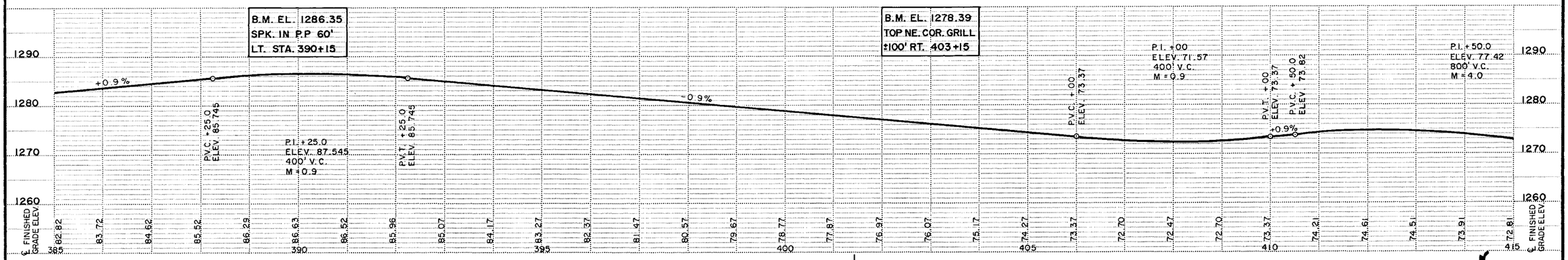
NOTE: C5-1 CONTRACTION JOINTS SHOWN ARE THE JOINTS LOCATED BETWEEN THE 17' & 13' PANELS ROTATION OF JOINTS TO BE AT 13', 16', 14', AND 17' UNLESS OTHERWISE SHOWN.

RES. DR. RT. 400+60
CONST. 2" BIT. APPROACH & RT. TURN LANE

RES. DR. RT. 403+00
CONST. 2" BIT. APPROACH & RT. TURN LANE

℄ CULV. 408+39 SKEW 20°
CONST. 14', 17', 13', AND 16' REINF. PANELS STA. 409+03 TO STA. 409+63.

RES. DR. RT. 414+10
CONST. 2" BIT. APPROACH & RT. TURN LANE



F.E. LT. 420+42
CONST. AGG. SURFACE

RES. DR. LT. 427+68
CONST. 2" BIT. APPROACH & RT. TURN LANE

F.E. LT. 429+98
CONST. AGG. SURFACE

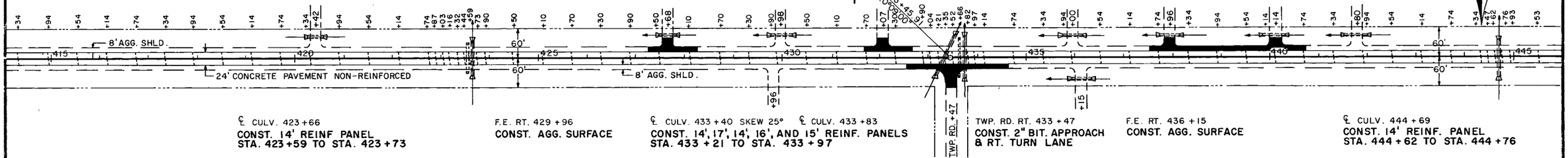
RES. DR. LT. 432+07
CONST. 2" BIT. APPROACH & RT. TURN LANE

F.E. LT. 436+00
CONST. AGG. SURFACE

RES. DR. LT. 437+96
CONST. 2" BIT. APPROACH & RT. TURN LANE

RES. DR. RT. 440+14
CONST. 2" BIT. APPROACH & RT. TURN LANE

F.E. LT. 441+80
CONST. AGG. SURFACE



℄ CULV. 423+66
CONST. 14' REINF PANEL STA. 423+59 TO STA. 423+73

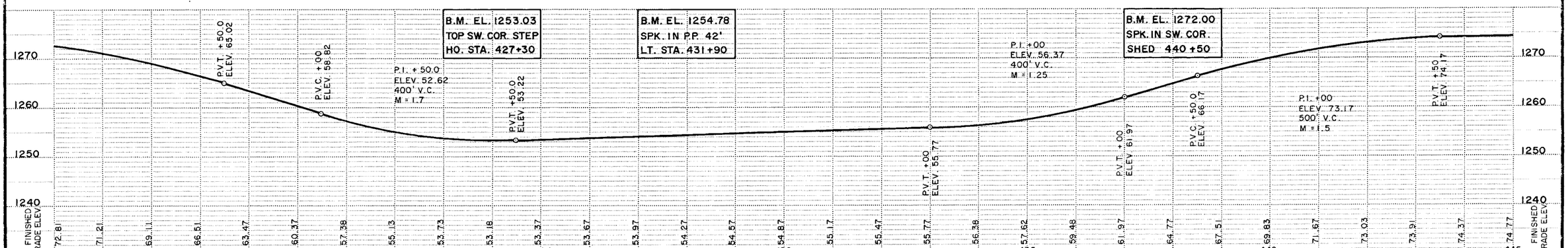
F.E. RT. 429+96
CONST. AGG. SURFACE

℄ CULV. 433+40 SKEW 25° ℄ CULV. 433+83
CONST. 14', 17', 14', 16', AND 15' REINF. PANELS STA. 433+21 TO STA. 433+97

TWP. RD. RT. 433+47
CONST. 2" BIT. APPROACH & RT. TURN LANE

F.E. RT. 436+15
CONST. AGG. SURFACE

℄ CULV. 444+69
CONST. 14' REINF. PANEL STA. 444+62 TO STA. 444+76



~~State Proj. No.~~

S.A.P. 55-602-12

F.E. LT. 466+24
CONST. AGG. SURFACE

NOTE: C5-I CONTRACTION JOINTS SHOWN ARE THE JOINTS LOCATED BETWEEN THE 17'& 13' PANELS. ROTATION OF JOINTS TO BE AT 13', 16', 14', AND 17' UNLESS OTHERWISE SHOWN.

F.E. LT. 457+02
CONST. AGG. SURFACE

18 19 P.I. 459+62.15 Δ RT. 00°13'00"

END CONST. STA. 5+00

RES. DR. LT. 461+65
CONST. 2" BIT. APPR. & RT. TURN LANE

RES. DR. LT. 463+88
CONST. 2" BIT. APPR. & RT. TURN LANE

RES. DR. LT. 466+80
CONST. 2" BIT. APPR. & RT. TURN LANE

RES. DR. LT. 467+78
CONST. 2" BIT. APPR. & RT. TURN LANE

Fed. Proj. No.

F.E. LT. 469+90
CONST. AGG. SURFACE

F.E. LT. 472+00
CONST. AGG. SURFACE

C.S.A.H. 2 F.E. RT. 1+85
CONST. AGG. SURFACE

BEGIN APPR. STA. 459+74
END SHLD.

8' AGG. SHLD.

24' CONCRETE PAVEMENT NON-REINFORCED

F.E. RT. 448+00
CONST. AGG. SURFACE

RES. DR. RT. 450+95
CONST. 2" BIT. APPR. & RT. TURN LANE

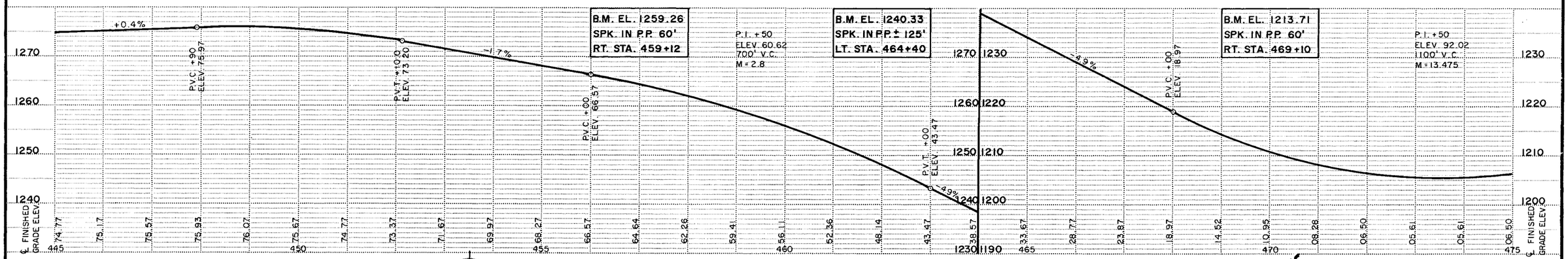
F.E. RT. 452+65
CONST. AGG. SURFACE

℄ CULV. 456+55
CONST. 17' REINF. PANEL STA. 456+47 TO STA. 456+64

F.E. RT. 458+80
CONST. AGG. SURFACE

FM. DR. RT. 470+38
CONST. 2" BIT. APPR. & RT. TURN LANE

℄ CULV. 473+84
CONST. 12', 15', 13', 16', AND 13' REINF. PANELS STA. 473+50 TO STA. 474+19



DOUBLE APPROACH LT. 477+48
CONST. 2" BIT. APPR. & RT. TURN LANE

F.E. LT. 481+96
CONST. AGG. SURFACE

CENTER LOT 18 19 SEC. 17 T.117N. R.19W.

P.I. 484+83.59 Δ LT. 00°15'30"

F.E. LT. 492+20
CONST. AGG. SURFACE

RES. DR. LT. 498+55
CONST. 2" BIT. APPR. & RT. TURN LANE

8' AGG. SHLD.

24' CONCRETE PAVEMENT NON-REINF.

8' AGG. SHLD.

F.E. RT. 477+91
CONST. AGG. SURFACE

C.R. 102 RT. 484+84
CONST. 2" BIT. APPR. & RT. TURN LANE

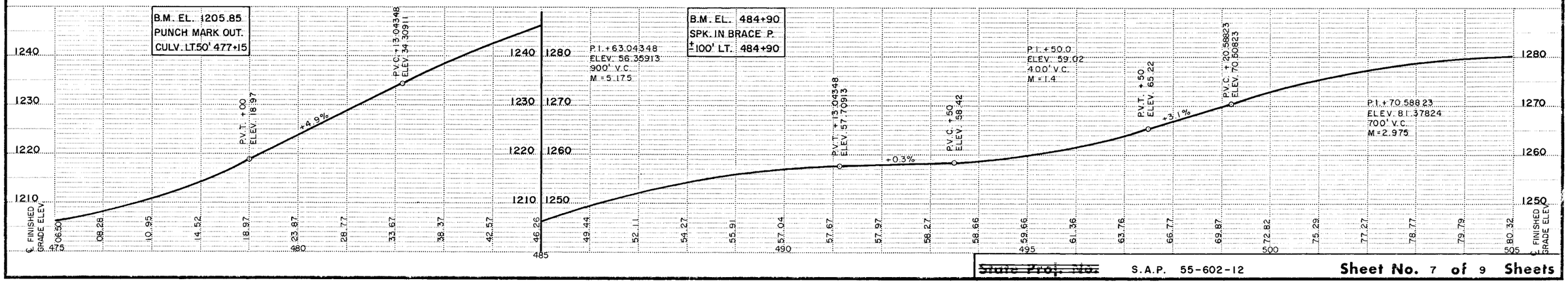
C.R. 102

F.E. RT. 492+30
CONST. AGG. SURFACE

℄ CULV. 494+32
CONST. 16', 14', 17', AND 13' REINF. PANELS STA. 494+02 TO STA. 494+62

F.E. RT. 498+43
CONST. AGG. SURFACE

F.E. RT. 503+33
CONST. AGG. SURFACE



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F.E. LT. 511+32
CONST. AGG. SURFACE

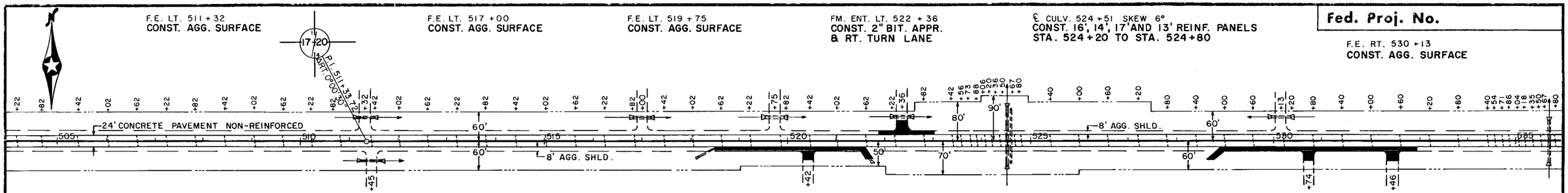
F.E. LT. 517+00
CONST. AGG. SURFACE

F.E. LT. 519+75
CONST. AGG. SURFACE

FM. ENT. LT. 522+36
CONST. 2" BIT. APPR.
& RT. TURN LANE

℄ CULV. 524+51 SKEW 6°
CONST. 16', 14', 17' AND 13' REINF. PANELS
STA. 524+20 TO STA. 524+80

F.E. RT. 530+13
CONST. AGG. SURFACE



NOTE: C5-1 CONTRACTION JOINTS SHOWN ARE THE JOINTS LOCATED BETWEEN THE 17' & 13' PANELS. ROTATION OF JOINTS TO BE AT 13', 16', 14', AND 17' UNLESS OTHERWISE SHOWN.

F.E. RT. 511+45
CONST. AGG. SURFACE

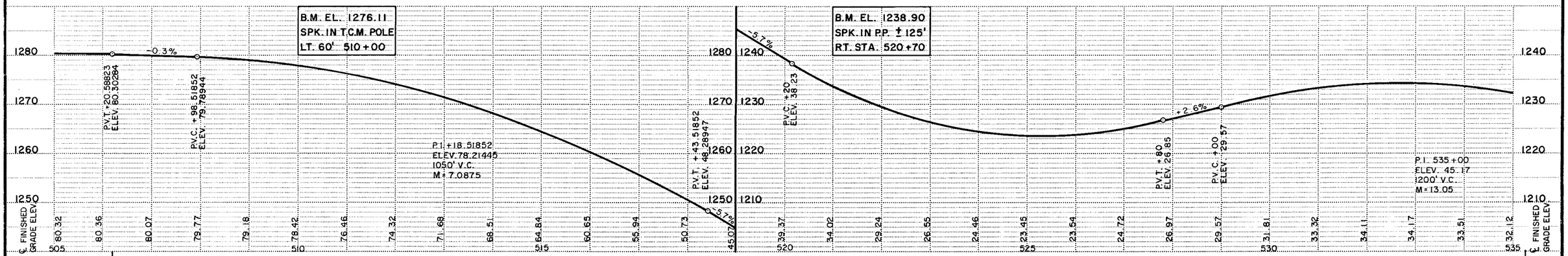
CONST. B624 CONC. C&G. RT. STA. 518+50 TO STA. 521+50.
CONST. 2" BIT. SHLD. RT. STA. 518+50 TO STA. 521+60.
BACKFILL CURB WITH TOPSOIL BORROW (LV) 39 CU.YDS.
PLACE 367 SQ.YDS. SOD. CONST. BIT. SPILLWAY STA. 521+60
BIT. QUANTITY INCLUDED IN MIXTURE.

RES. DR. RT. 520+42
CONST. 2" BIT.
APPROACH

CONST. B624 CONC. C&G. RT. STA. 529+00 TO STA. 532+93
CONST. 2" BIT. SHLD. RT. STA. 528+90 TO STA. 532+93
BACKFILL CURB WITH TOPSOIL BORROW (LV) 51 CU.YDS.
PLACE 480 SQ.YDS. SOD. CONST. BIT. SPILLWAY RT. STA.
528+90. BIT. QUANTITY INCLUDED IN MIXTURE.

FM. DR. RT. 530+74
CONST. 2" BIT.
APPROACH

RES. DR. RT. 532+46
CONST. 2" BIT.
APPROACH



F.E. LT. 536+50
CONST. AGG. SURFACE

C.R. 102 LT. 537+64
CONST. 2" BIT. APPROACH
& RT. TURN LANE

℄ CULV. 535+66
CONST. 17' & 13' REINF.
PANELS STA. 535+50
TO STA. 535+80

℄ CULV. 547+44
CONST. 12', 15', & 13' REINF.
PANELS STA. 547+24 TO
STA. 547+64

F.E. LT. 553+07
CONST. AGG. SURFACE

℄ CULV. 549+85
CONST. 16' REINF. PANEL STA.
549+77 TO STA. 549+93

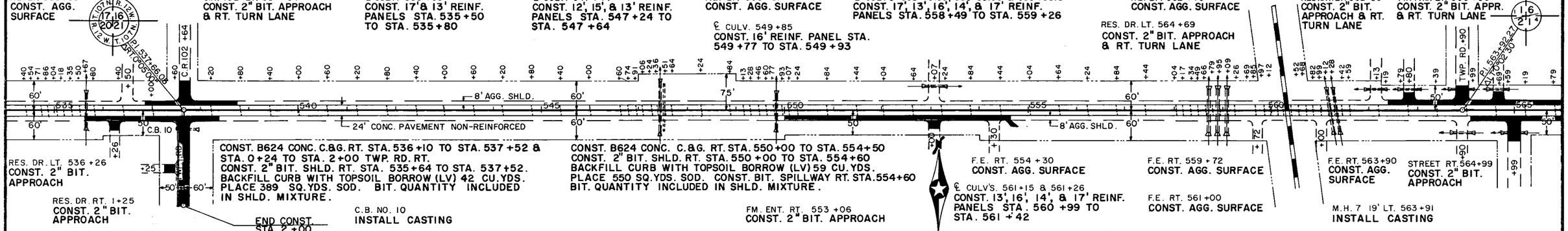
℄ CULV'S 558+70.33, 558+88.00 & 559+05.67
CONST. 17', 13', 16', 14', & 17' REINF.
PANELS STA. 558+49 TO STA. 559+26

F.E. LT. 562+13
CONST. AGG. SURFACE

RES. DR. LT. 564+69
CONST. 2" BIT. APPROACH
& RT. TURN LANE

RES. DR. LT. 562+80
CONST. 2" BIT.
APPROACH & RT.
TURN LANE

TWP. RD. LT. 563+90
CONST. 2" BIT. APPR.
& RT. TURN LANE



CONST. B624 CONC. C&G. RT. STA. 536+10 TO STA. 537+52 & STA. 0+24 TO STA. 2+00 TWP. RD. RT.
CONST. 2" BIT. SHLD. RT. STA. 535+64 TO STA. 537+52.
BACKFILL CURB WITH TOPSOIL BORROW (LV) 42 CU.YDS.
PLACE 389 SQ.YDS. SOD. BIT. QUANTITY INCLUDED
IN SHLD. MIXTURE.

C.B. NO. 10
INSTALL CASTING

CONST. B624 CONC. C&G. RT. STA. 550+00 TO STA. 554+50
CONST. 2" BIT. SHLD. RT. STA. 550+00 TO STA. 554+60
BACKFILL CURB WITH TOPSOIL BORROW (LV) 59 CU.YDS.
PLACE 550 SQ.YDS. SOD. CONST. BIT. SPILLWAY RT. STA. 554+60
BIT. QUANTITY INCLUDED IN SHLD. MIXTURE.

FM. ENT. RT. 553+06
CONST. 2" BIT. APPROACH

F.E. RT. 554+30
CONST. AGG. SURFACE

℄ CULV'S. 561+15 & 561+26
CONST. 13', 16', 14', & 17' REINF.
PANELS STA. 560+99 TO
STA. 561+42

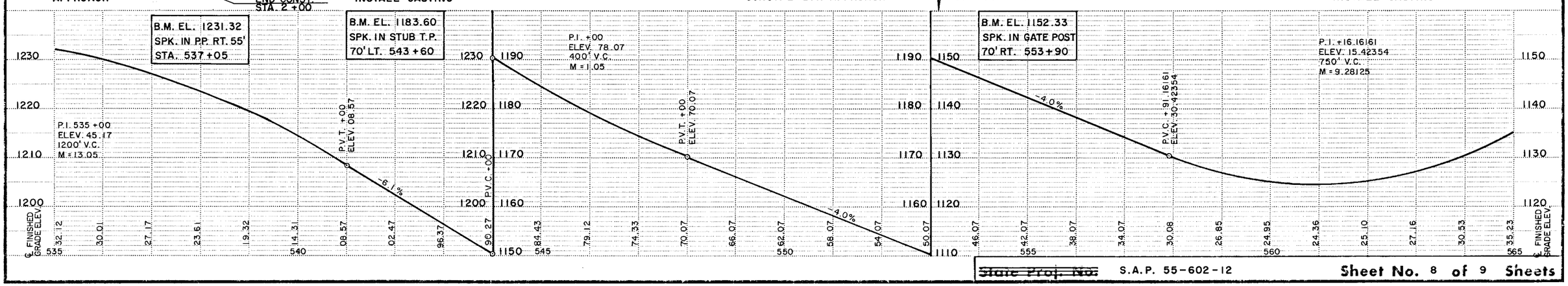
F.E. RT. 559+72
CONST. AGG. SURFACE

F.E. RT. 561+00
CONST. AGG. SURFACE

F.E. RT. 563+90
CONST. AGG.
SURFACE

STREET RT. 564+99
CONST. 2" BIT.
APPROACH

M.H. 7 19' LT. 563+91
INSTALL CASTING



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RES. DR. LT. 567+12
CONST. 2" BIT. APPROACH

RES. DR. LT. 569+57
CONST. 2" BIT. APPROACH

RES. DR. LT. 570+19
CONST. 2" BIT. APPROACH

RES. DR. LT. 571+96
CONST. 2" BIT. APPROACH

FM. DR. LT. 573+50
CONST. 2" BIT. APPROACH

RES. DR. LT. 573+96
CONST. 2" BIT. APPROACH

RES. DR. LT. 577+40
CONST. 2" BIT. APPROACH

RES. DR. LT. 580+66
CONST. 2" BIT. APPROACH

F.E. LT. 584+85
CONST. AGG. SURFACE

CONST. B624 CONC. C.&G. LT. STA. 567+50 TO 580+50.
CONST. 2" BIT. SHLD. RT. STA. 562+38 TO STA. 580+50.
BACKFILL CURB WITH TOPSOIL BORROW (LV) 169 CU. YDS.
PLACE 1589 SQ. YDS. SOD. BIT. QUANTITY INCLUDED IN SHLD. MIXTURE.

FM. ENT. LT. 590+34
CONST. 2" BIT. APPROACH & RT. TURN LANE

M.H. 6 19' LT. 567+40
INSTALL CASTING

C.B. 9A 21' LT. 567+56
INSTALL CASTING

M.H. 5 15' LT. 567+93
INSTALL CASTING

C.B. 8 21' LT. 567+93
INSTALL CASTING

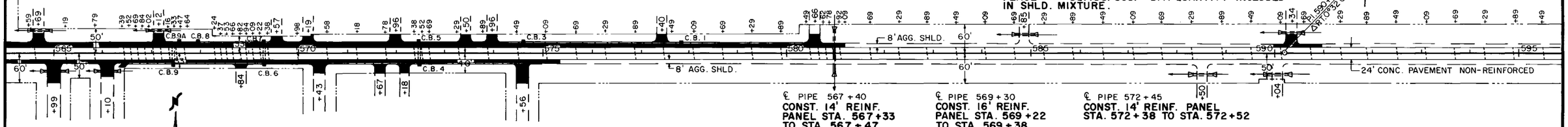
M.H. 4 15' LT. 569+30
INSTALL CASTING

C.B. 7 21' LT. 569+30
INSTALL CASTING

C.B. 5 21' LT. 572+45
INSTALL CASTING

C.B. 3 21' LT. 574+60
INSTALL CASTING

C.B. 1 21' LT. 577+80
INSTALL CASTING



℄ PIPE 567+40
CONST. 14' REINF. PANEL STA. 567+33 TO STA. 567+47

℄ PIPE 569+30
CONST. 16' REINF. PANEL STA. 569+22 TO STA. 569+38

℄ PIPE 572+45
CONST. 14' REINF. PANEL STA. 572+38 TO STA. 572+52

STREET RT. 566+10
CONST. 2" BIT. APPROACH

RES. DR. RT. 568+84
CONST. 2" BIT. APPROACH

STREET RT. 570+43
CONST. 2" BIT. APPROACH

RES. DR. RT. 571+67
CONST. 2" BIT. APPROACH

RES. DR. RT. 572+18
CONST. 2" BIT. APPROACH

STREET RT. 574+56
CONST. 2" BIT. APPROACH

C.B. 9 21' RT. 567+40
INSTALL CASTING

C.B. 6 21' RT. 569+30
INSTALL CASTING

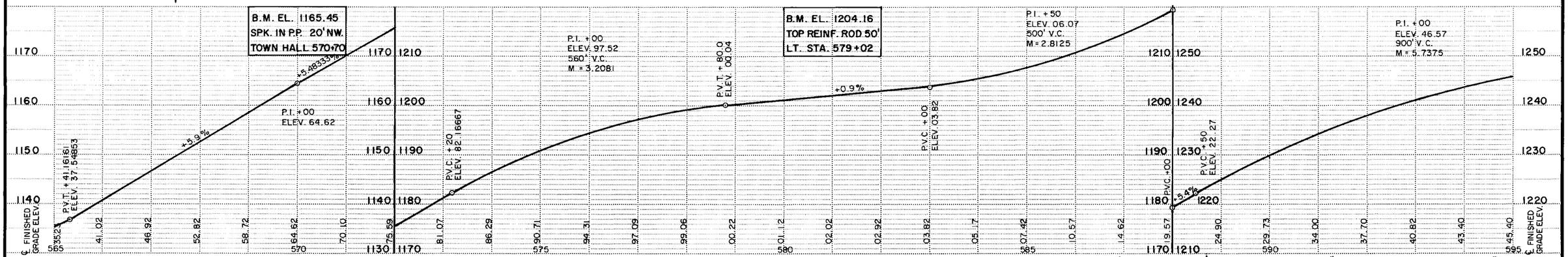
C.B. 4 21' RT. 572+45
INSTALL CASTING

CONST. B624 CONC. C.&G. RT. STA. 566+50 TO STA. 574+80.
CONST. 2" BIT. SHLD. RT. STA. 564+07 TO STA. 575+48.
BACKFILL CURB WITH TOPSOIL BORROW (LV) 108 CU. YDS.
PLACE 1014 SQ. YDS. SOD. CONST. BIT. SPILLWAY RT. STA. 566+50.
BIT. QUANTITY INCLUDED IN SHLD. MIXTURE.

F.E. RT. 588+50
CONST. AGG. SURFACE

NATURAL GAS ENT. RT. 590+04
CONST. AGG. SURFACE

℄ CULV. 580+94
CONST. 14' & 17' REINF. PANEL STA. 580+78 TO STA. 581+09



ELEVATOR ENT. LT. 598+62
CONST. 2" BIT. APPROACH

ELEVATOR ENT. LT. 601+73
CONST. 2" BIT. APPROACH

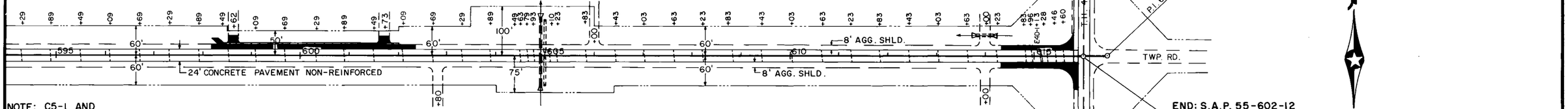
CONST. B624 CONC. C.&G. LT. STA. 598+50 TO STA. 602+00.
CONST. 2" BIT. SHLD. RT. 598+20 TO STA. 602+35.
BACKFILL CURB WITH TOPSOIL BORROW (LV) 46 CU. YDS.
PLACE 428 SQ. YDS. SOD. CONST. BIT. SPILLWAY LT. STA. 598+50
BIT. QUANTITY INCLUDED IN SHLD. MIXTURE.

F.E. LT. 606+00
CONST. AGG. SURFACE

F.E. LT. 614+00
CONST. AGG. SURFACE

CONST. 6" BIT. SHLD. LT. & RADIUS FROM STA. 614+25. BIT. QUANTITY INCLUDED IN SHLD. MIXTURE.

TRANSITION FROM 7" CONCRETE STA. 597+00 TO 8" CONCRETE STA. 598+00.



NOTE: C5-1 AND C5D-1 CONTRACTION JOINTS SHOWN ARE THE JOINTS LOCATE BETWEEN THE 17' & 13' PANELS. ROTATION OF JOINTS TO BE AT 13', 16', 14', AND 17' UNLESS OTHERWISE SHOWN.
CONST. C5D-1 CONTRACTION JOINTS FROM STA. 598+00 TO STA. 615+77.

F.E. RT. 602+80
CONST. AGG. SURFACE

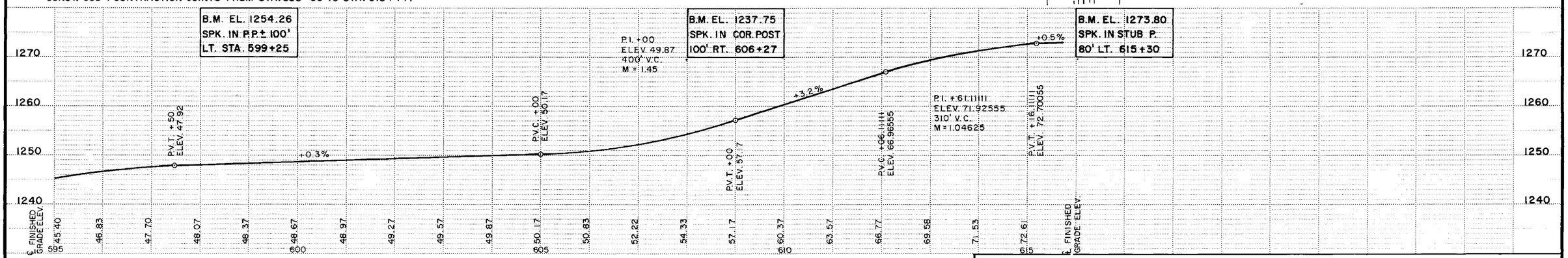
℄ CULV. 604+93
CONST. 16', 14', 17' & 13' REINF. PANELS STA. 604+63 TO STA. 605+23.

F.E. RT. 614+00
CONST. AGG. SURFACE

CONST. 6" BIT. SHLD. RT. & RADIUS & TURN LANE AS SHOWN FROM STA. 614+25. BIT. QUANTITY INCLUDED IN SHLD. MIXTURE.

END: S.A.P. 55-602-12
STA. 616+01.00

NOTE: CONSTRUCT PERMANENT HEADER JOINT AT END OF CONCRETE.
CONSTRUCT E4D-1 JOINT AT STA. 615+13



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