MINNESOTA DEPARTMENT OF TRANSPORTATION

THE COUNTY OF OLMSTED

CONSTRUCTION PLAN FOR GRADING AND AGGREGATE BASE

LOCATED ON CSAH 20 **BETWEEN** T.H. 30 **AND** CSAH 16 **(GEOGRAPHIC DESCRIPTION)**

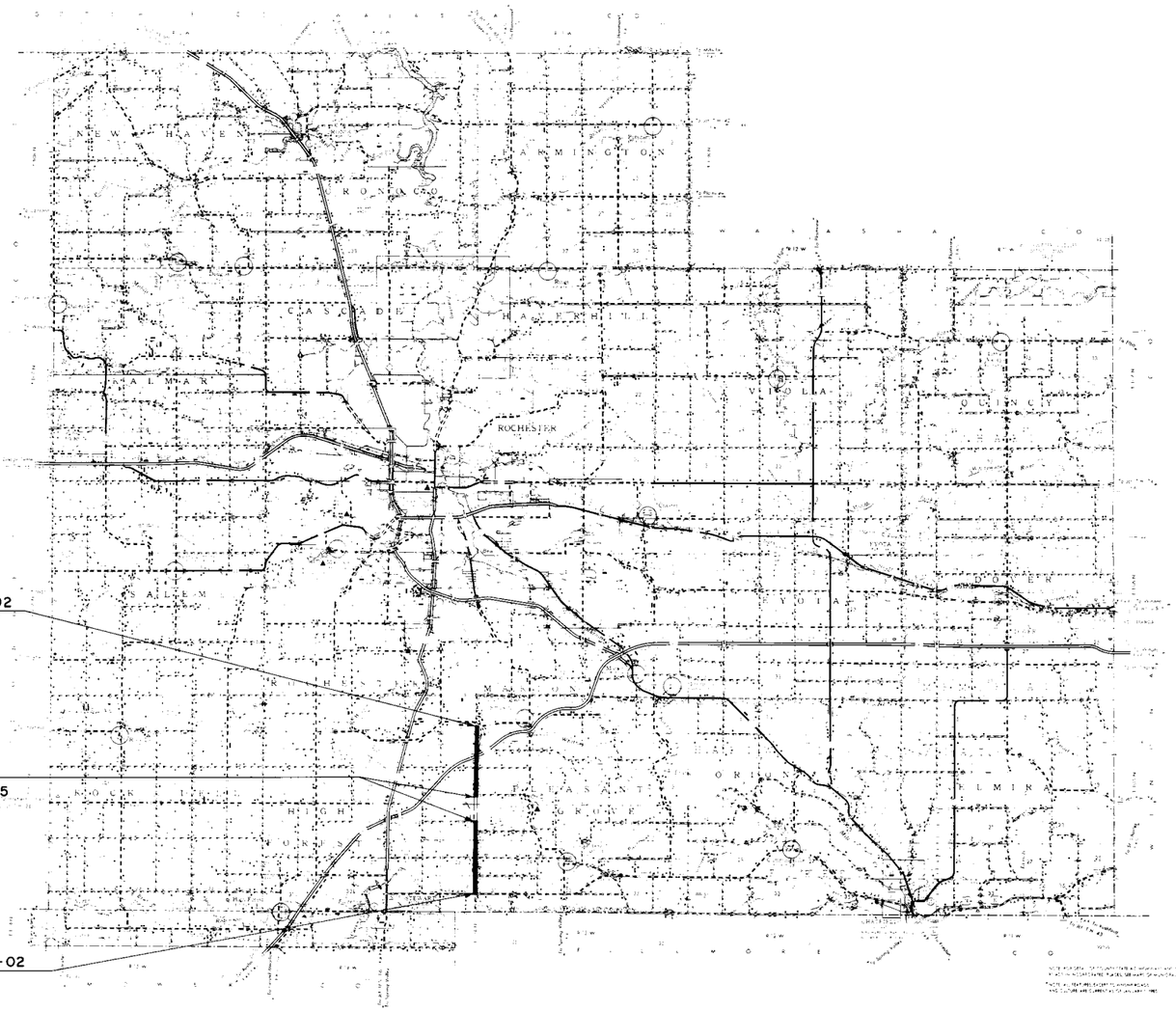
FROM WEST 1/4 COR. SEC. 31 T105N-R13W **TO** 3528.74' N.N.E. OF THE WEST 1/4 COR. SEC. 7 T105N-R13W **(LEGAL DESCRIPTION)**

~~**STATE PROJ. NO.**~~ SAP 55-620-02

GROSS LENGTH	24,617.37 FEET	4.622	MILES
BRIDGES-LENGTH	0.00 FEET	0.000	MILES
EXCEPTIONS-LENGTH	3,873.45 FEET	0.734	MILES
NET LENGTH	20,743.92 FEET	3.929	MILES

STATE PROJ. NO. .....

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



PLANS SYMBOLS

UTILITIES SYMBOLS

SCALES

PLAN	0 — 100'	
PROFILE	0 — 100' HOR	0 — 10' VERT.
INDEX MAP	0 — 10,560'	
CROSS SECTIONS	0 — 10'	

MINN. PROJ. NO. .....

GOVERNING SPECIFICATIONS

THE 1988 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 & TYPICAL SECTIONS
SHEET NO. 2A	DETAIL DRAWINGS
SHEET NO. 3-10	PLAN AND PROFILE SHEETS
SHEET NO. 11-40	CROSS SECTIONS

DESIGN DESIGNATION

R .....

ΣN18(20) .....

ADT (Current Year)	=	251 (1989)	Design Speed 55 MPH
ADT (Future Year)	=	452(2009)	Based on STOPPING Sight Distance
DHV (Design Hr. Vol.)	=	%	Height of eye 3.5' Height of object 0.5'
D (Directional Distr.)	=	%	Design Speed not achieved at:
T (Heavy Commercial)	=	%	STA. TO STA. MPH
SOIL FACTOR		130 %	STA. TO STA. MPH
DESIGN		ULT. 7-9 TON	STA. TO STA. MPH
SHOULDER WIDTH		4' ULT.	

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 3/30/89 REG. NO. 10397 ENGR. Michael Sheehan

COUNTY Olmsted

Recommended for Approval 4-4 1989
DISTRICT STATE AID ENGINEER

Recommended for Approval 4/12 1989
STATE AID PLANS AND SPECS ENGINEER

Approved 4/13 1989 .....
STATE AID ENGINEER

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

STATE AID PROJ. NO. 55-620-02 CSAH 20

~~**STATE PROJ. NO.**~~ .....

SHEET NO. 1 **OF** 40 **SHEETS**

BR. NO. 93523 232+45
INPL. 60"x 48' R.C.P. CULV.
INPL. 54"x 48' R.C.P. CULV.
W/CONC. HDWLS.
36 SQ. FT. WATERWAY OPENING
REMOVE HEADWALLS

SALVAGE CULVERTS

STA. 232+14
INSTALL 60" x 48' RC.P CULV.
60"x 20' R.C.P CULV. CL. 2
2-60" R.C.P. APRONS
STA. 232+26
INSTALL 54"x 48' R.C.P. CULV.
54"x 26' R.C.P. CULV. CL. 2
2-54" R.C.P APRONS
PLACE CULVERTS ON "B" BEDDING
F & I. CONC. PIPE JOINT TIES
SKEW CULVERTS 22° RT
40 CU. YDS. RIPRAP CL. 3-18" DEPTH
20 CU. YDS. GRANULAR FILTER-9" DEPTH

F.E. LT. 243 + 60
NO CULV.
MOVE TO STA. 241+85
~~18"x 28' C.S. PIPE CULV.~~
~~2-18" G.S. PIPE APRONS~~
NO CULV. REQ'D

CONST. RIGHT TURN LANE

END: S.A.P. 55-620-02
STA. 246 +17.37

P.T. 228+50.28

P.T. 179+69.63

C.S.A.H. 16
P.I. 175 +88.30
ΔRT. 39° 49'
D-5°
T-415.00'
L-796.33'
E-72.83'

SEE "INSET A"

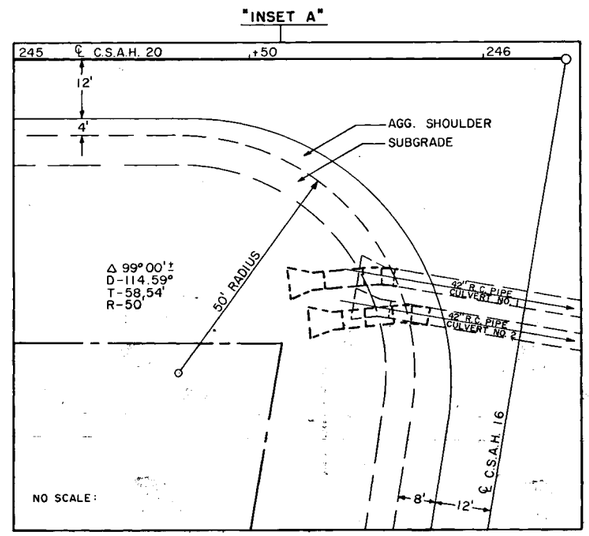
CULVERT NO. 1

SALVAGE 42" R.C. PIPE APRON
2-42" x 4' R.C. PIPE 7°30' RADIUS PIPE
INSTALL 42"x 8' R.C. PIPE (SALVAGED FROM CULV. NO. 2)
INSTALL 42" R.C. PIPE APRON
INLET ELEV. 1225.2
PLACE CULVERTS ON "B" BEDDING
F & I CONC. PIPE JOINT TIES
PLACE 29 SQ. YDS. SOD AROUND INLET APRON

CULVERT NO. 2

SALVAGE 42" R.C. PIPE APRON
SALVAGE 42" x 8' R.C. PIPE
2-42"x 4' R.C. PIPE 7°30' RADIUS PIPE
42"x 10' R.C. PIPE CL. 2
INSTALL 42" R.C. PIPE APRON
INLET ELEV. 1225.3
F & I CONC. PIPE JOINT TIES
PLACE 29 SQ. YDS. SOD AROUND INL. APRON

"INSET A"



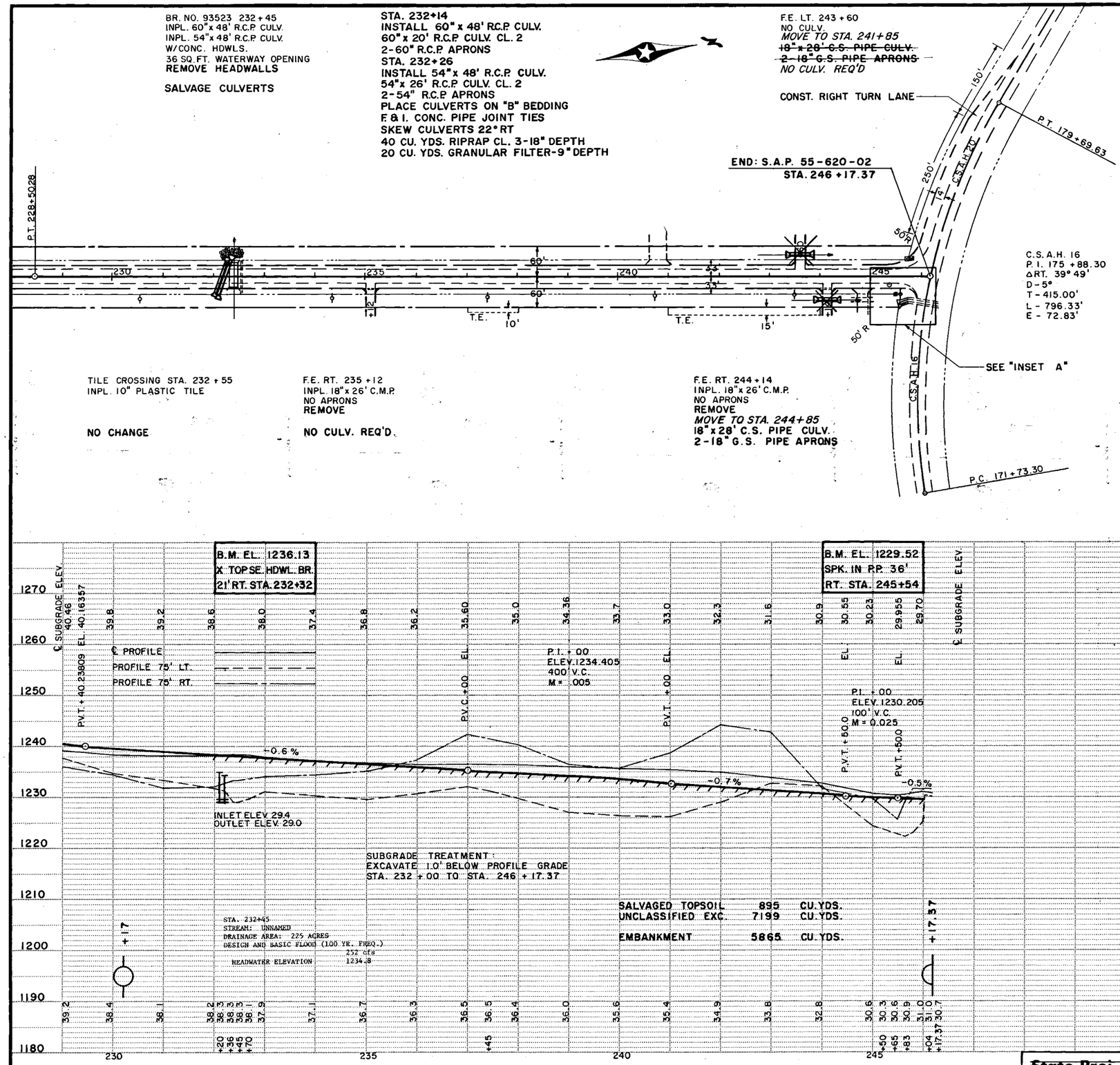
TILE CROSSING STA. 232 + 55
INPL. 10" PLASTIC TILE

NO CHANGE

F.E. RT. 235 + 12
INPL. 18"x 26' C.M.P.
NO APRONS
REMOVE

NO CULV. REQ'D.

F.E. RT. 244 + 14
INPL. 18"x 26' C.M.P.
NO APRONS
REMOVE
MOVE TO STA. 244+85
18"x 28' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS



SALVAGED TOPSOIL	895	CU. YDS.
UNCLASSIFIED EXC.	7199	CU. YDS.
EMBANKMENT	5865	CU. YDS.

~~State Proj. No.~~ S.A.P. 55-620-02 C.S.A.H. 20 **Sheet No. 10 of 40 Sheets**

AS BUILT PLANS

ESTIMATED QUANTITIES

	SPECIFICATION NO.	ITEM	UNIT	MUNICIPAL	RURAL	TOTAL ESTIMATED QUANTITIES
	2101.501	CLEARING	ACRE		1.05	1.05
	2101.502	CLEARING	TREE		57	57
	2101.506	GRUBBING	ACRE		1.05	1.05
	2101.507	GRUBBING	TREE		45	45
	2104.501	REMOVE PIPE CULVERTS	LIN. FT.		1,497	1,497
	2104.503	REMOVE CONC. HEADWALLS	EACH		2	2
	2104.521	SALVAGE 54" R.C.P. CULVERT	LIN. FT.		48	48
	2104.521	SALVAGE 60" R.C.P. CULVERT	LIN. FT.		48	48
①	2105.515	UNCLASSIFIED EXCAVATION (P)	CU. YD.		82,994	82,994
	2105.535	SALVAGED TOPSOIL (EV) (P)	CU. YD.		11,099	11,099
②	2123.503	MOTOR GRADER	HOUR		24	24
②	2123.508	15 CU. YD. SCRAPER	HOUR		24	24
②	2123.509	DOZER	HOUR		24	24
③	2130.501	WATER	M-GAL.		175	175
④	2211.501	AGGREGATE BASE CLASS 2	TON		19,500	19,500
	2211.501	AGGREGATE BASE CLASS 5 MODIFIED	TON		15,700	15,700
	2501.511	18" C.S. PIPE CULVERT	LIN. FT.		676	676
	2501.511	24" C.S. PIPE CULVERT	LIN. FT.		96	96
	2501.511	30" C.S. PIPE CULVERT	LIN. FT.		36	36
	2501.511	24" R.C. PIPE CULVERT CLASS 2	LIN. FT.		320	320
	2501.511	30" R.C. PIPE CULVERT CLASS 2	LIN. FT.		298	298
	2501.511	36" R.C. PIPE CULVERT CLASS 2	LIN. FT.		68	68
⑤	2501.511	42" R.C. PIPE CULVERT CLASS 2	LIN. FT.		84	84
	2501.511	54" R.C. PIPE CULVERT CLASS 2	LIN. FT.		26	26
	2501.511	60" R.C. PIPE CULVERT CLASS 2	LIN. FT.		20	20
	2501.515	18" G.S. PIPE APRONS	EACH		42	42
	2501.515	24" G.S. PIPE APRONS	EACH		6	6
	2501.515	30" G.S PIPE APRONS	EACH		2	2
	2501.515	24" R.C. PIPE APRONS	EACH		10	10
	2501.515	30" R.C. PIPE APRONS	EACH		8	8
	2501.515	36" R.C. PIPE APRONS	EACH		2	2
	2501.515	42" R.C. PIPE APRONS	EACH		2	2
	2501.515	54" R.C. PIPE APRONS	EACH		2	2
	2501.515	60" R.C. PIPE APRONS	EACH		2	2
	2501.521	51" SPAN R.C. PIPE-ARCH CULVERT CLASS 2A	LIN. FT.		60	60
	2501.521	73" SPAN R.C. PIPE-ARCH CULVERT CLASS 2A	LIN. FT.		58	58
	2501.525	51" SPAN R.C. PIPE-ARCH APRONS	EACH		2	2
	2501.525	73" SPAN RC. PIPE-ARCH APRONS	EACH		2	2
	2501.571	INSTALL 54" RC. PIPE CULVERT	LIN. FT.		48	48
	2501.571	INSTALL 60" R.C. PIPE CULVERT	LIN. FT.		48	48
⑥	2502.521	6" C.S. PIPE DRAIN	LIN. FT.		366	366
⑦	2502.521	8" C.S. PIPE DRAIN	LIN. FT.		350	350
	2502.521	10" C.S. PIPE DRAIN	LIN. FT.		120	120
	2502.541	4" PERFORATED PE. PIPE DRAIN / GEOTEXTILE KNIT SOCK	LIN.FT.		27860	27860
	2502.551	8" C.S. INSPECTION TEES	LIN. FT.		25	25
	2502.551	10" C.S. INSPECTION TEES	LIN. FT.		10	10
⑬⑧	2511.501	RANDOM RIPRAP CLASS 3	CU. YD.		230	230
	2575.501	SEEDING (P)	ACRE		27	27
⑨	2575.502	SEED MIXTURE 500	POUND		1,650	1,650
⑩	2575.502	SEED MIXTURE 1100	POUND		2,150	2,150
	2575.505	SODDING TYPE EROSION CONTROL	SQ. YD.		27,070	27,070
⑪	2575.511	MULCH MATERIAL TYPE 1	TON		54	54
	2575.519	DISC ANCHORING (P)	ACRE		27	27
⑫	2575.531	COMMERCIAL FERTILIZER ANALYSIS 10-10-10	TON		2.7	2.7
	2104.521	SALVAGE 42" R. C. PIPE CULVERT	LIN. FT.		8	8
	2104.523	SALVAGE 42" R. C. PIPE APRONS	EACH		2	2
	2501.511	42" C. S. PIPE CULVERT	LIN. FT.		32	32
	2501.515	42" G. S. PIPE APRONS	EACH		2	2
	2501.571	INSTALL 42" R. C. PIPE CULVERT	LIN. FT.		8	8
	2501.573	INSTALL 42" R. C. PIPE APRONS	EACH		2	2

① UNCLASSIFIED EXC. INCLUDES SUBGRADE TREATMENT AS SHOWN ON PLAN. (P) PLAN QUANTITY

② EQUIPMENT HOURS TO BE USED TO SEAL SINKHOLE RT. STA. 172 + 40, AND TO ESTABLISH DRAINAGE WHERE MUCK WASHED INTO I-90 RIGHT OF WAY RT. STA. 200 + 00.

③ WATER TO BE USED AS A DUST PREVENTATIVE AS DIRECTED BY THE ENGINEER.

④ INCLUDES 15,700 TONS FOR MAINLINE AND 3800 TONS FOR APPROACHES.

⑤ INCLUDES 16 FEET OF RADIUS PIPE.

⑥ INCLUDES 61 OUTLET SCREENS FOR 6" C. S. PIPES.

⑦ INCLUDES 1 OUTLET SCREEN FOR 8" C. S. PIPES.

⑧ INCLUDES 60 CU. YDS. TO BE PLACED AT OUTLET APRONS OF CULVERT AS SHOWN ON THE PLAN AND 170 CU. YDS. FOR 70 DITCH CHECKS AT LOCATIONS DESIGNATED BY THE ENGINEER.

⑨ APPLICATION RATE 60 POUNDS PER ACRE.

⑩ APPLICATION RATE 80 POUNDS PER ACRE.

⑪ APPLICATION RATE 2 TONS PER ACRE.

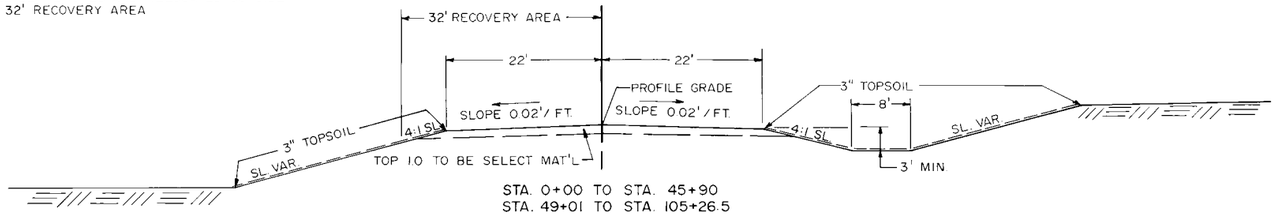
⑫ APPLICATION RATE 200 POUNDS PER ACRE.

⑬ GRANULAR FILTER MATERIAL WILL BE INCIDENTAL TO RIPRAP CONSTRUCTION.

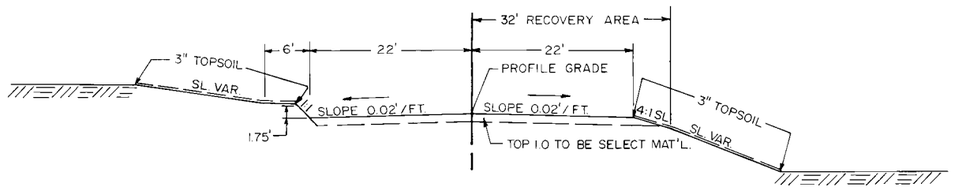
ALBINSON, INC. MINNEAPOLIS, MINN.

TYPICAL GRADING SECTIONS

ALL UTILITY POLES AND UNYIELDING OBJECTS SHALL BE REMOVED AND RELOCATED OUTSIDE THE 32' RECOVERY AREA

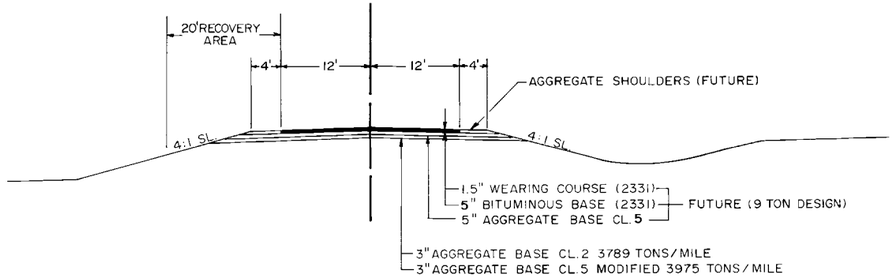


STA. 0+00 TO STA. 45+90
STA. 49+01 TO STA. 105+26.5
STA. 144+00 TO STA. 246+00

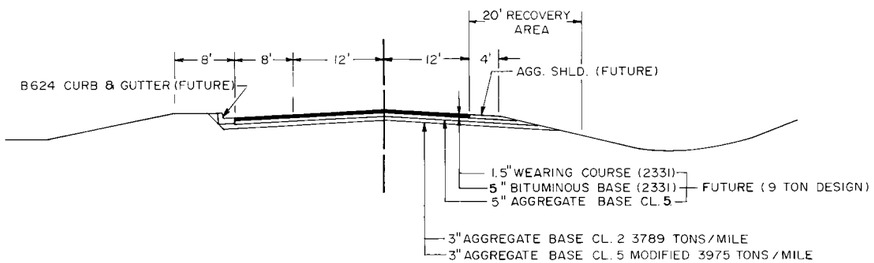


STA. 45+91 TO STA. 49+00

TYPICAL SURFACING SECTIONS



STA. 0+00 TO STA. 45+90
STA. 49+01 TO STA. 105+26.5
STA. 144+00 TO STA. 246+00



STA. 45+91 TO STA. 49+00

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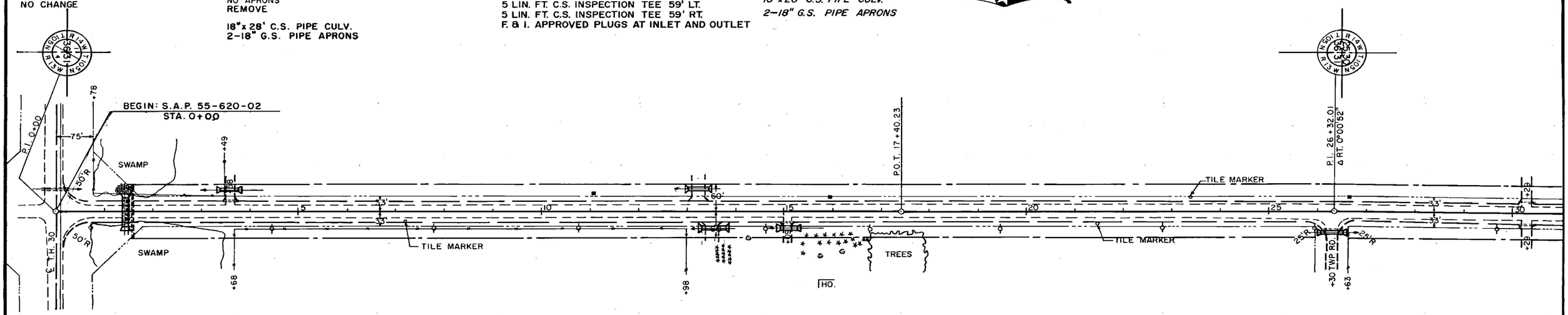
℄ CULV. T.H. 30
48" OUTL. CONC. PIPE
NO CHANGE

F.E. LT. 3+58
INPL. 18"x 26' C.M.P.
NO APRONS
REMOVE

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

CONSTRUCT 10" TILE CROSSING STA. 1+55
10"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 AND OUTLET

CONSTRUCT F.E. 13+15
18"x 28' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS



℄ CULV. 1+41
INPL. 42"x 47' CONC. PIPE

REMOVE

℄ CULV. 1+47
INPL. 42"x 47' CONC. PIPE

REMOVE

STA. 1+45
73" SPAN x 58' R.C. PIPE-ARCH CLASS 2A
2-73" SPAN R.C. PIPE-ARCH APRONS
PLACE CULV. ON "B" BEDDING
F. & I. CONC. PIPE JOINT TIES
20 CU. YDS. RIPRAP CL. 3 18" DEPTH
10 CU. YDS. GRANULAR FILTER 9" DEPTH

STA. 1+41
STREAM: UNNAMED
DRAINAGE AREA: 150 ACRES

DESIGN FLOOD (25 YR. FREQ.)	128 cfs
HEADWATER ELEVATION	1233.1
BASIC FLOOD (100 YR. FREQ.)	192 cfs
HEADWATER ELEVATION	1235.7

CONSTRUCT F.E. STA. 13+55
24"x 28' C.S. PIPE CULV.
2-24" G.S. PIPE APRONS

FM. DR. RT. 15+09
INPL. 18"x 32' C.M.P.
NO APRONS
REMOVE

24"x 36' C.S. PIPE CULV.
2-24" G.S. PIPE APRONS

CONSTRUCT F.E. STA. 25+40
24"x 28' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

TWP. RD. RT. 26+30
INPL. 18"x 44' C.M.P.
NO APRONS
REMOVE

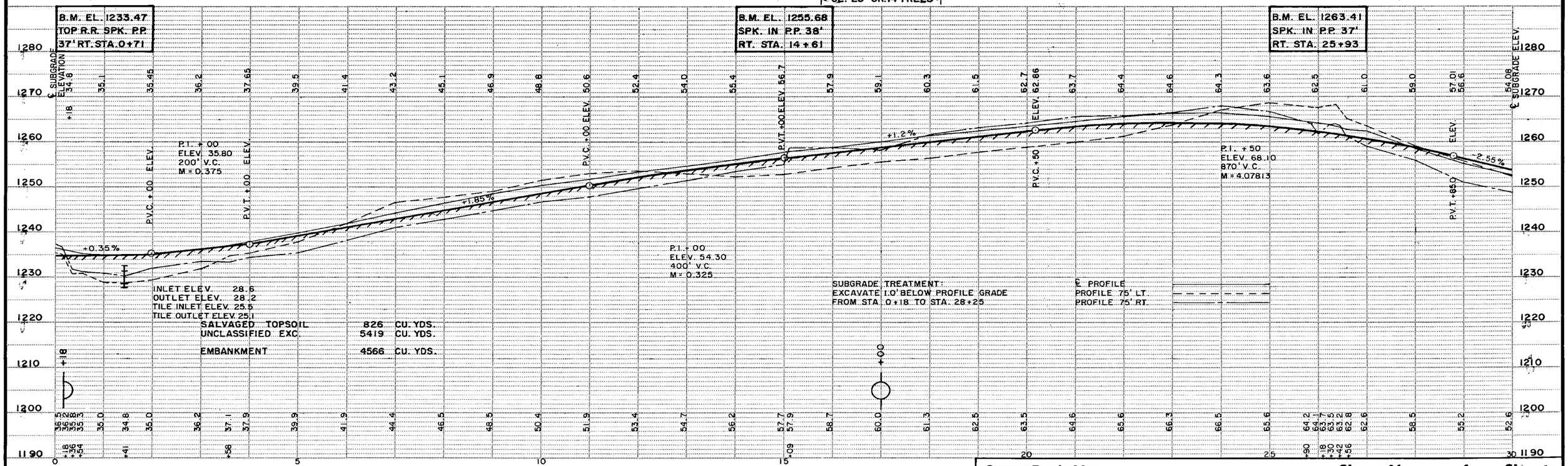
18"x 44' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

←CL. 25-GR.14 TREES→

B.M. EL. 1233.47
TOP R.R. SPK. P.P.
37' RT. STA. 0+71

B.M. EL. 1255.68
SPK. IN P.P. 38'
RT. STA. 14+61

B.M. EL. 1263.41
SPK. IN P.P. 37'
RT. STA. 25+93



INLET ELEV. 28.6
OUTLET ELEV. 28.2
TILE INLET ELEV. 25.5
TILE OUTLET ELEV. 25.1

SALVAGED TOPSOIL	826	CU. YDS.
UNCLASSIFIED EXC.	5419	CU. YDS.
EMBANKMENT	4566	CU. YDS.

SUBGRADE TREATMENT:
EXCAVATE 1.0' BELOW PROFILE GRADE
FROM STA. 0+18 TO STA. 28+25

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

~~State Proj. No.~~ S.A.P. 55-620-02 C.S.A.H. 20 **Sheet No.** 3 **of** 40 **Sheets**

AS BUILT PLANS

F.E. LT. 30 + 29
INPL. 18"x 26' C.M.P.
NO APRONS
REMOVE

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

FM. ENT. LT. 33 + 91
INPL. 18"x 28' C.M.P.
NO APRONS
REMOVE

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

FM. ENT. LT. 46 + 36
INPL. 15"x 30' C.M.P.
NO APRONS
REMOVE

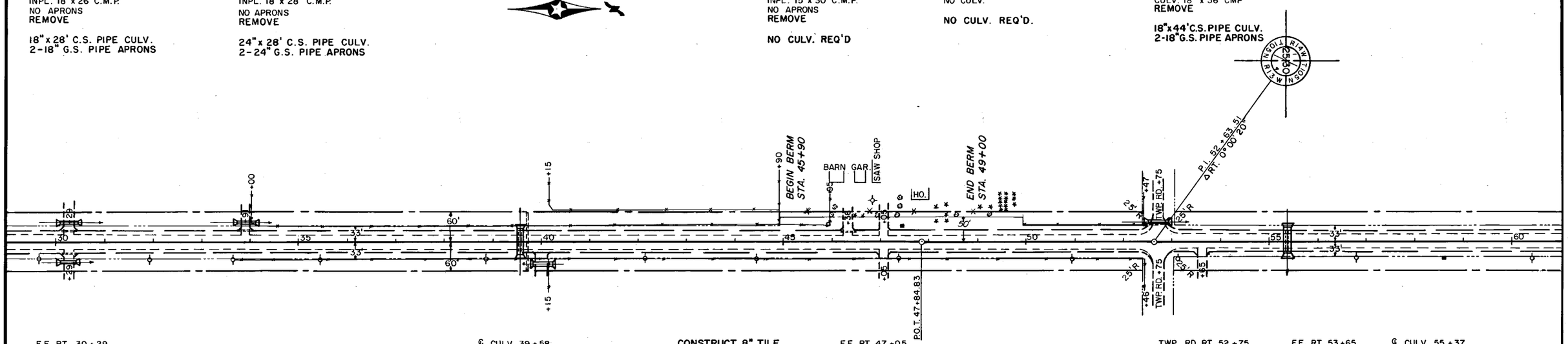
NO CULV. REQ'D

FM. ENT. LT. 47 + 05
NO CULV.

NO CULV. REQ'D.

TWP. RD. LT. 52 + 75
CULV. 18" x 36' CMP
REMOVE

18"x44' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS



F.E. RT. 30 + 29
INPL. 18"x 26' C.M.P.
NO APRONS
REMOVE

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

CONSTRUCT F.E. STA. 40+00
18"x 28' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

℄ CULV. 39 + 58
INPL. 24"x 42' C.M.P.
W/APRONS
REMOVE 49 LIN. FT.

42"x 58' R.C.P. CULV. CLASS 2
2-42" R.C. PIPE APRONS
PLACE CULV. ON "B" BEDDING
F. & I. CONCRETE PIPE JOINT TIES

CONSTRUCT 8" TILE
CROSSING STA. 39+68
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. APPPOVED PLUG AT
INLET & OUTLET

F.E. RT. 47 + 05
NO CULV.

NO CULV. REQ'D.

TWP. RD. RT. 52 + 75
NO CULV.

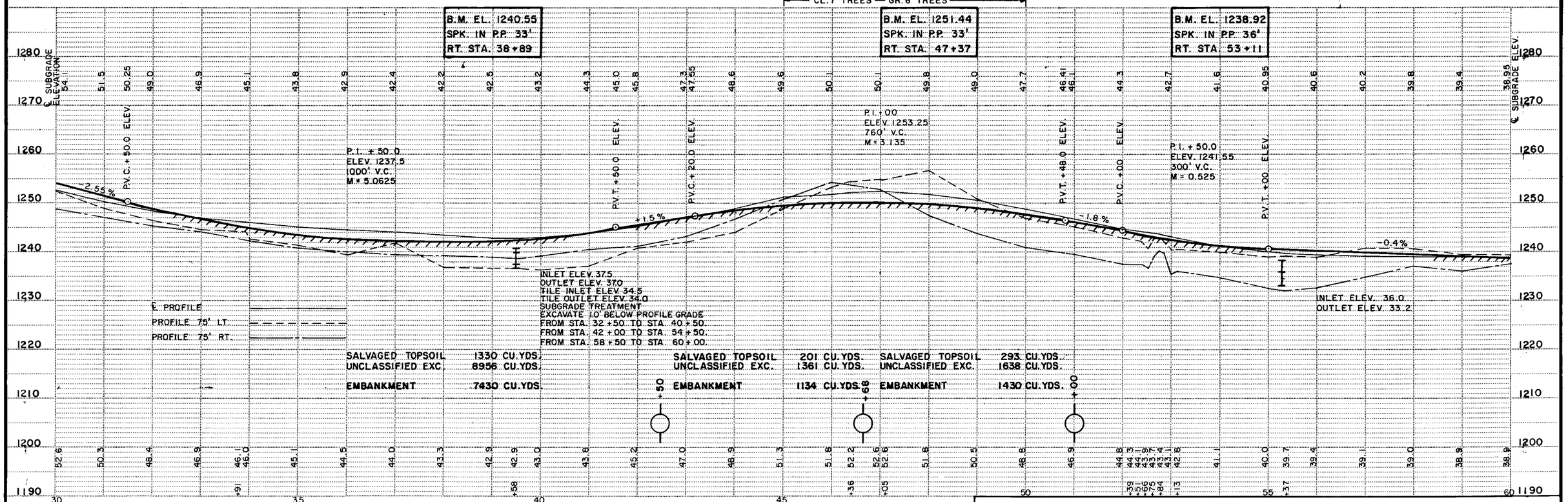
NO CULV. REQ'D.

F.E. RT. 53 + 65
NO CULV.

NO CULV. REQ'D.

℄ CULV. 55 + 37
INPL. 24"x 36' C.M.P.
NO APRONS
REMOVE

30"x 66' R.C.P. CULV. CLASS 2
2-30" R.C. PIPE APRONS
PLACE CULV. ON "B" BEDDING
F. & I. CONC. PIPE JOINT TIES



~~State Proj. No.~~ S.A.P. 55-620-02 C.S.A.H. 20

Sheet No. 4 of 40 Sheets

AS BUILT PLANS

℄ CULV. 62 +81
INPL. 24" x 48' C.M.P.
NO APRONS
REMOVE

24"x 58' R.C.P. CULV. CLASS 2
2-24" R.C. PIPE APRONS
PLACE CULV. ON "B" BEDDING
F. & I. CONC. PIPE JOINT TIES

℄ CULV. 67 +18
INPL. 24"x 64' C.M.P.
NO APRONS
REMOVE

24"x 76' R.C.P. CULV. CLASS 2
2-24" R.C. PIPE APRONS
PLACE CULV. ON "B" BEDDING
F. & I. CONC. PIPE JOINT TIES

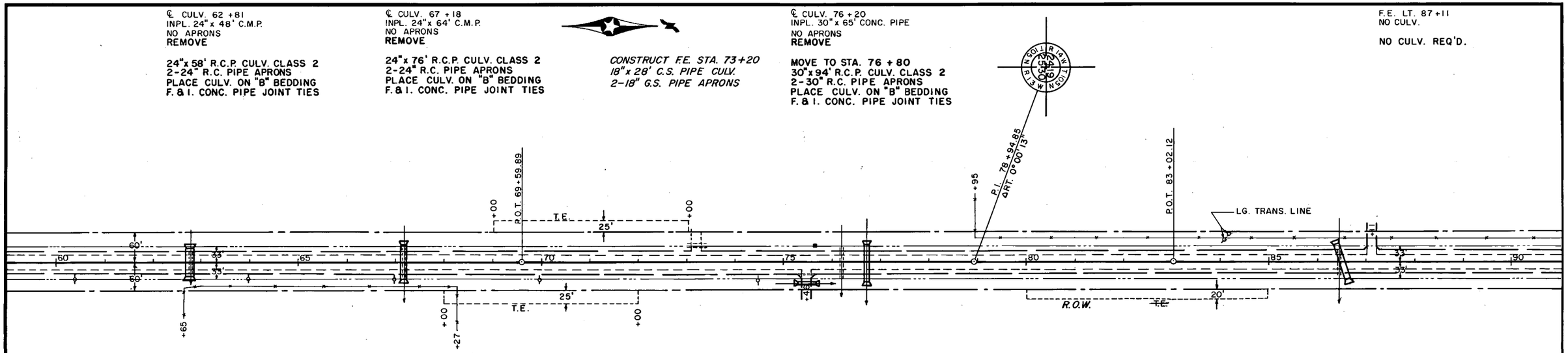
CONSTRUCT F.E. STA. 73+20
18"x 28' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

℄ CULV. 76 +20
INPL. 30" x 65' CONC. PIPE
NO APRONS
REMOVE

MOVE TO STA. 76 + 80
30"x 94' R.C.P. CULV. CLASS 2
2-30" R.C. PIPE APRONS
PLACE CULV. ON "B" BEDDING
F. & I. CONC. PIPE JOINT TIES

F.E. LT. 87 +11
NO CULV.

NO CULV. REQ'D.

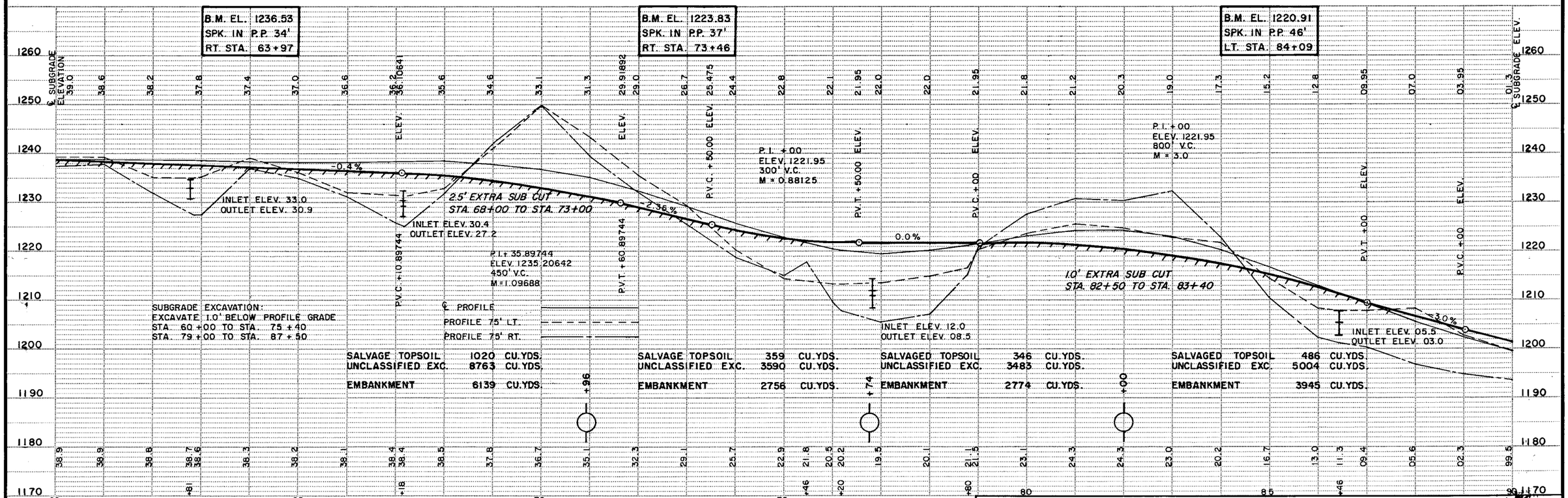


FM. DR. RT. 75 +46
INPL. 18" x 52' C.M.P.
NO APRONS
REMOVE

24"x ~~32'~~ 56' C.S. PIPE CULV.
2-24" G.S. PIPE APRONS

℄ CULV. 86 +46
INPL. 24" x 54' CONC. PIPE
NO APRONS
REMOVE

30"x 70' R.C.P. CULV. CLASS 2
2-30" R.C. PIPE APRONS
PLACE CULV. ON "B" BEDDING
F. & I. CONC. PIPE JOINT TIES
SKEW CULV. 15°



SALVAGE TOPSOIL	1020	CU.YDS.	
UNCLASSIFIED EXC.	8763	CU.YDS.	
EMBANKMENT	6139	CU.YDS.	
SALVAGE TOPSOIL	359	CU.YDS.	
UNCLASSIFIED EXC.	3590	CU.YDS.	
EMBANKMENT	2756	CU.YDS.	
SALVAGED TOPSOIL	346	CU.YDS.	
UNCLASSIFIED EXC.	3483	CU.YDS.	
EMBANKMENT	2774	CU.YDS.	
SALVAGED TOPSOIL	486	CU.YDS.	
UNCLASSIFIED EXC.	5004	CU.YDS.	
EMBANKMENT	3945	CU.YDS.	

AS BUILT PLANS

℄ CULV. 92+28
INPL. 18" x 34' C.M.P.
NO APRONS
REMOVE

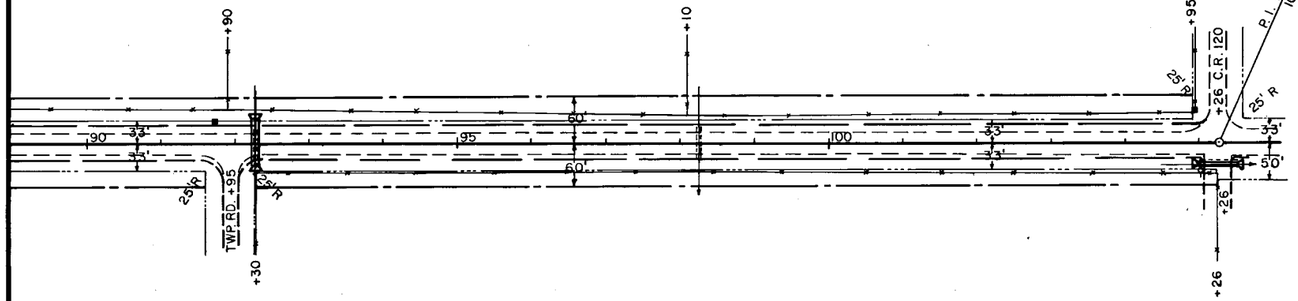
24" x 62' R.C.P. CULV. CLASS 2
2-24" R.C. PIPE APRONS
PLACE CULV. ON "B" BEDDING
F. & I. CONC. PIPE JOINT TIES

℄ CULV. 98+23
INPL. 36" x 39' C.M.P.
NO APRONS
REMOVE

NO CULV REQ'D.

C.R. 120 LT. 105+26
NO CULV.

NO CULV. REQ'D.



TWP. RD. RT. 91+95
NO CULV.

NO CULV. REQ'D.

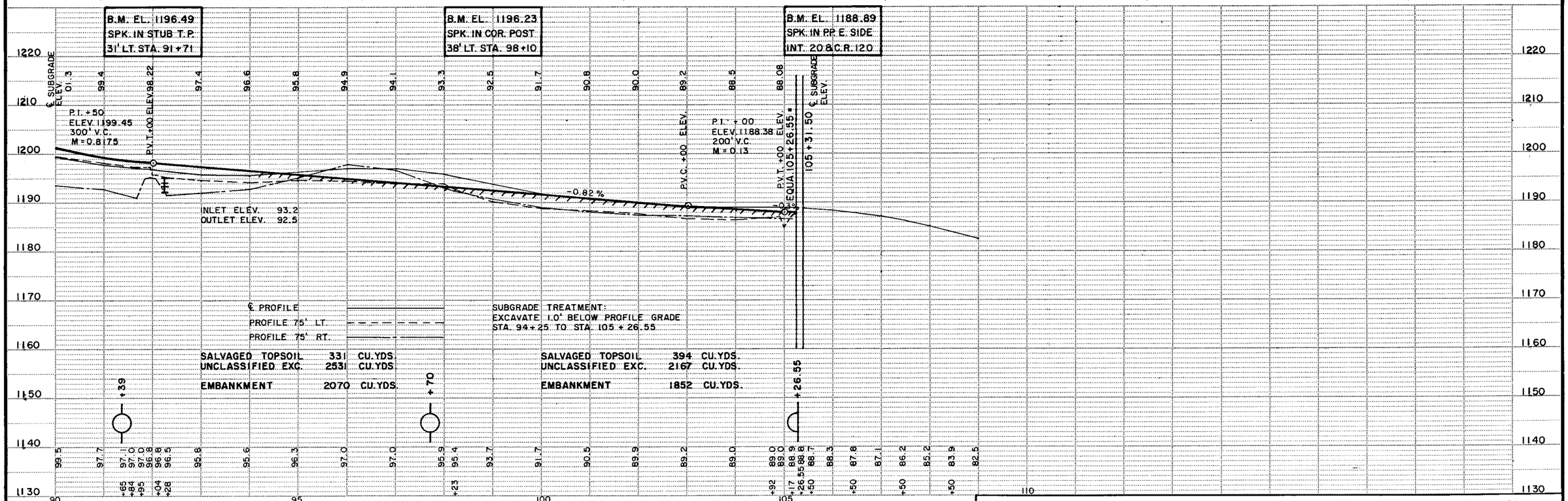
DOUBLE F.E. RT. 105+26
INPL. 18" x 52' C.M.P
APRON ON OUTL. ONLY
REMOVE 55 LIN. FT.

18" x 56' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

B.M. EL. 1196.49
SPK. IN STUB T.P.
31' LT. STA. 91+71

B.M. EL. 1196.23
SPK. IN COR. POST
38' LT. STA. 98+10

B.M. EL. 1188.89
SPK. IN PP E. SIDE
INT. 20.8 C.R. 120



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AS-BUILT PLANS

RES. DR. LT. 159+67
INPL. 30" x 20' C.M.P.
NO APRONS
REMOVE

CONSTRUCT F.E. LT. STA. 163+25
42" x 28' C.S. PIPE CULV.
2-42" G.S. PIPE APRONS

42" x 32' C.S. PIPE CULV.
2-42" G.S. PIPE CULV. APRONS

℄ CULV. 166+75
INPL. 24" x 42' CONC. PIPE
NO APRONS
REMOVE

24" x ~~58'~~ 64' R.C.P. CULV. CLASS 2
2-24" R.C. PIPE APRONS
PLACE CULV. ON "B" BEDDING
F. & I. CONC. PIPE JOINT TIES

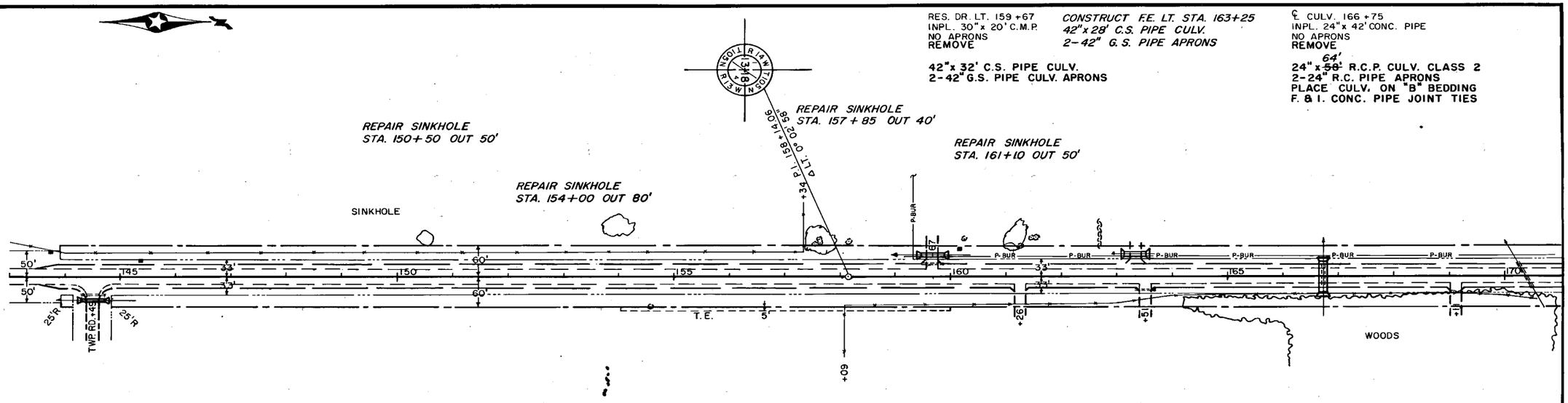
REPAIR SINKHOLE
STA. 150+50 OUT 50'

REPAIR SINKHOLE
STA. 154+00 OUT 80'

SINKHOLE

REPAIR SINKHOLE
STA. 157+85 OUT 40'

REPAIR SINKHOLE
STA. 161+10 OUT 50'



TWP. RD. RT. 144+49
INPL. 18" x 36' C.M.P.
W/APRONS
REMOVE 41 LIN. FT.

30" x 36' C.S. PIPE CULV.
2-30" G.S. PIPE APRONS

F.E. RT. 161+26
NO CULV.

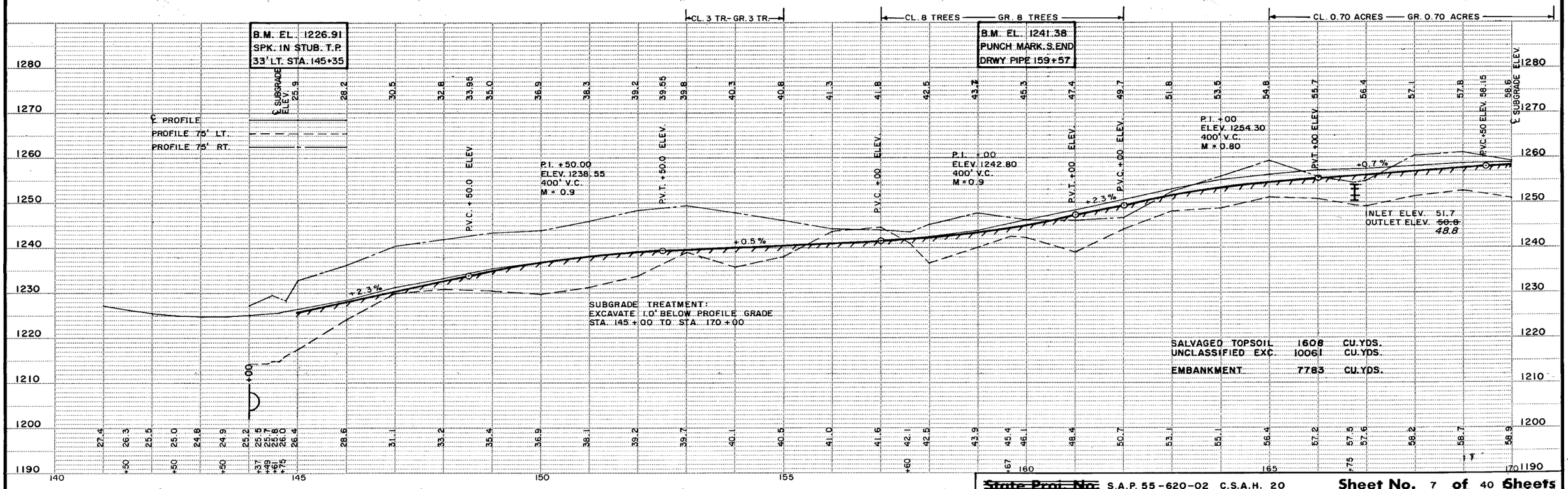
~~**NO CULV. REQ'D.**~~
18" x 28' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

F.E. RT. 163+51
INPL. 18" x 26' C.M.P.
NO APRONS
REMOVE

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

F.E. RT. 169+11
NO CULV.

NO CULV. REQ'D.



SALVAGED TOPSOIL	1608	CU. YDS.
UNCLASSIFIED EXC.	10061	CU. YDS.
EMBANKMENT	7783	CU. YDS.

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Sheet No. 7 **of** 40 **Sheets**

AS BUILT PLANS

CONST. 8" TILE CROSSING
STA. 170+25 *100'*
8"x~~10'~~ C.S. PIPE DRAIN
5 LIN. FT. C.S. INSPECTION TEE ~~59'~~ RT.
49'
OUTLET SCREEN 45' LT.
SKEW TILE 15° LT.

~~CONST. F.E. LT. 173+25~~
~~18"x 28' C.S. PIPE CULV.~~
~~2-18" G.S. PIPE APRONS~~

F.E. LT. 179+43
NO CULV.
MOVE TO STA. 175+25
18"x 28' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

TWP. RD. LT. 184+45
NO CULV.

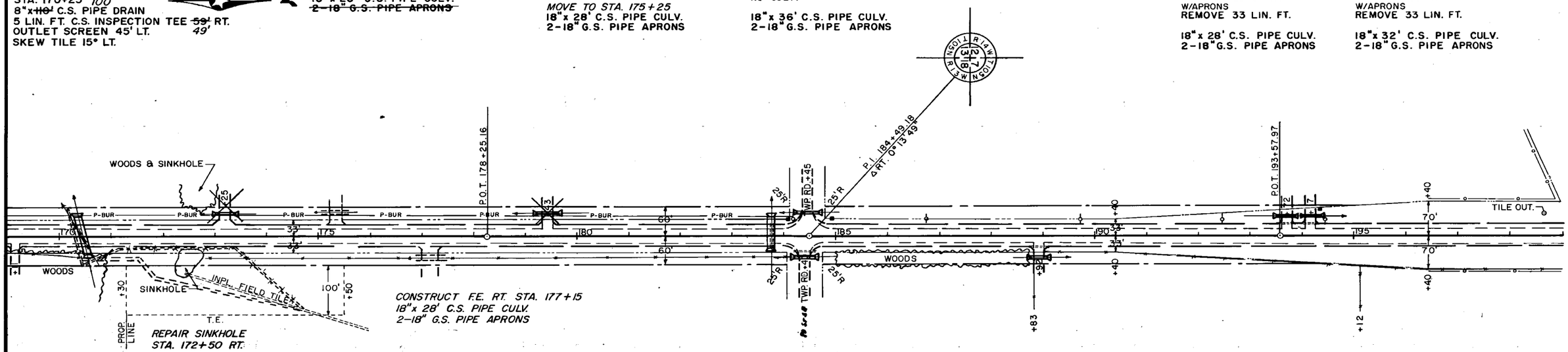
18"x 36' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

F.E. LT. 193+72
INPL. 18"x 28' C.M.P.
W/APRONS
REMOVE 33 LIN. FT.

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

FM. DR. LT. 194+17
INPL. 18" x 28' C.M.P.
W/APRONS
REMOVE 33 LIN. FT.

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



℄ CULV. 170+38
INPL. 30"x 57' C.M.P.
W/APRONS
REMOVE 66 LIN. FT.

30"x 68' R.C.P. CULV. CLASS 2
2-30" R.C. PIPE APRONS
PLACE CULV. ON "B" BEDDING
F. & I. CONC. PIPE JOINT TIES
SKEW CULV. 15°

INPL. OUTLET TILE RT. STA. 172+40

EXTEND TILE OUTLET WITH 4"
PERFORATED P.E.
PIPE DRAIN TO INLET 8" C.S.
INSPECTION TEE RT. STA. 170+25

℄ CULV. 183+78
INPL. 24"x 52' CONC. PIPE
NO APRONS
REMOVE

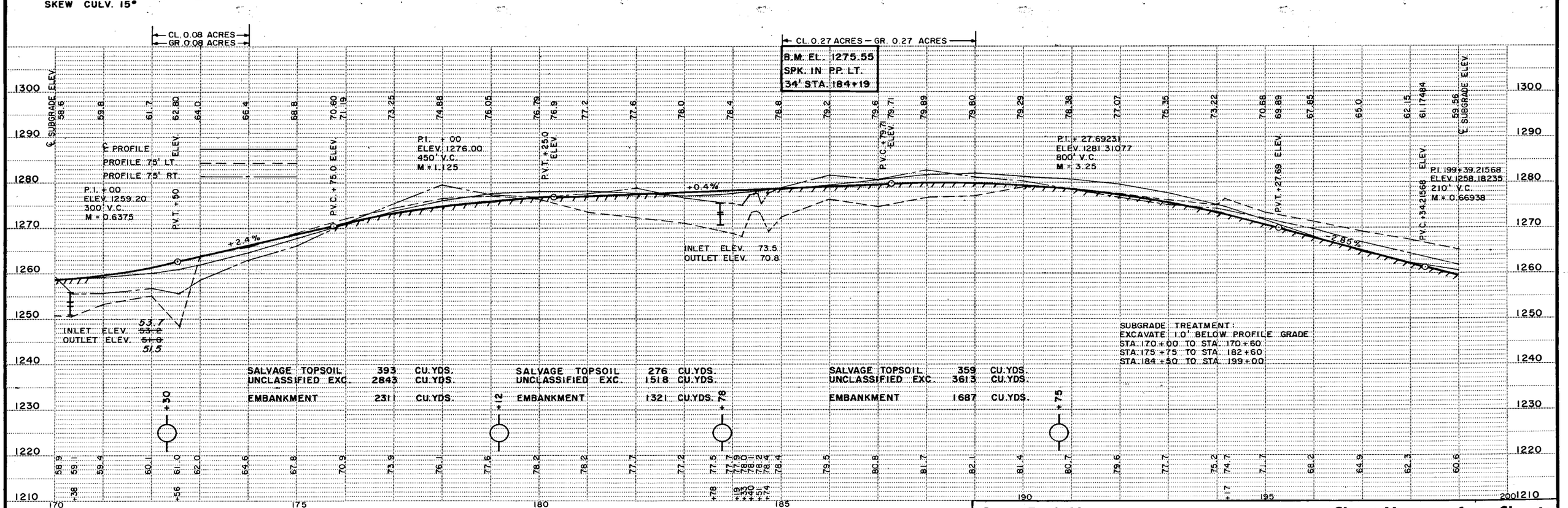
24"x 66' R.C.P. CULV. CLASS 2
2-24" R.C. PIPE APRONS
PLACE CULV. ON "B" BEDDING
F. & I. CONC. PIPE JOINT TIES

TWP. RD. RT. 184+40
INPL. 18"x 35' C.M.P.
NO APRONS
REMOVE

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

F.E. RT. 188+92
INPL. 18"x 26' C.M.P.
NO APRONS
REMOVE

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



SALVAGE TOPSOIL 393 CU.YDS.
UNCLASSIFIED EXC. 2843 CU.YDS.
EMBANKMENT 231 CU.YDS.

SALVAGE TOPSOIL 276 CU.YDS.
UNCLASSIFIED EXC. 1518 CU.YDS.
EMBANKMENT 1321 CU.YDS.

SALVAGE TOPSOIL 359 CU.YDS.
UNCLASSIFIED EXC. 3613 CU.YDS.
EMBANKMENT 1687 CU.YDS.

SUBGRADE TREATMENT:
EXCAVATE 1.0' BELOW PROFILE GRADE
STA. 170+00 TO STA. 170+60
STA. 175+75 TO STA. 182+60
STA. 184+50 TO STA. 199+00

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AS BUILT PLANS

INPL. GUARDRAIL
STA. 199+39 TO 202+01.5
4-25' TWISTED ENDS
REMOVED BY OTHERS

BEGIN CURB STA. 199+58

END CURB STA. 201+80

INPL. 24" R.C.P.

OUT. 24" R.C.P.

OUT. 48" R.C.P.

TILE OUT

BEGIN CURB STA. 199+40

END CURB STA. 202+42

℄ CULV. 199+00
—x 40' C.M.P.
REMOVE
NO CULV. REQ'D

F.E. RT. 203+85
INPL. 36"x 24' C.M.P.
NO APRONS
REMOVE
~~NO 55. REQ'D~~
57" SPAN x 28' C.S. PIPE-ARCH
2-57" SPAN G.S. PIPE-ARCH APRONS

F.E. LT. 204+97
INPL. 15"x 26' C.M.P.
NO APRONS
REMOVE
18"x 28' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

HOOK UP FIELD TILE
DITCH OUTLET

℄ CULV. 204+51
INPL. 48"x 36' C.M.P. SPAN
W/APRONS
REMOVE 45 LIN. FT.
51" SPAN x 80' R.C. PIPE-ARCH CL. 2A
2-51" SPAN R.C. PIPE-ARCH APRONS
PLACE CULV. ON "B" BEDDING
F. & I. CONC. PIPE JOINT TIES
SKEW CULV. 15°

F.E. RT. 207+02
NO CULV.
NO CULV. REQ'D.

FM. DR. RT. 210+85
NO CULV.
NO CULV. REQ'D.

℄ CULV. 211+07
INPL. 24"x 52' CONC. PIPE
NO APRONS
REMOVE
36"x 68' R.C.P. CULV. CLASS 2
2-36" R.C. PIPE CULV. APRONS
PLACE CULV. ON "B" BEDDING
F. & I. CONC. PIPE JOINT TIES

PLT. 210+88.63
DLT. 0°08'38"

CONNECTED TO
FIELD TILE

F.E. RT. 213+97
NO CULV.
~~MOVE TO 215+80~~
~~18"x 28' C.S. PIPE CULV.~~
~~2-18" G.S. PIPE APRONS~~
NO CULV. REQ'D.

F.E. LT. 218+12
INPL. 18"x 28' C.M.P.
REMOVE
18"x 28' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

P.O.T. 218+59.79

CONSTRUCT 8" TILE
CROSSING STA. 211+17
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
CONNECTED FIELD TILE LT. STA. 211+25±

P.C. 219+42.80

FM. DR. LT. 219+89
NO CULV.
18"x 32' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

F.E. RT. 224+20
NO CULV.
NO CULV. REQ'D

BASEMENT
DRAIN

HO.

TRAILER HO.

RES. DR. LT. 222+26
INPL. 18"x 28' C.M.P.
NO APRONS
REMOVE
18"x 32' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

DEAD MAN FOR GUY WIRES
ON T.V. TOWER

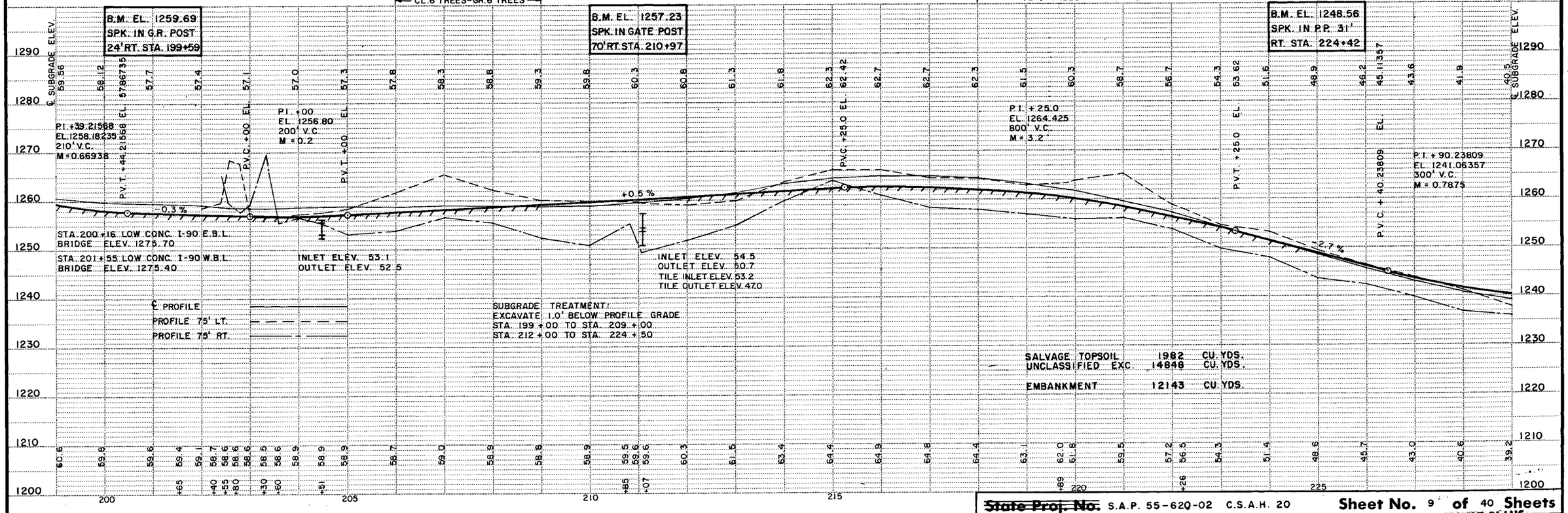
OLD WELL
OUT 43'

F.E. LT. 224+40
INPL. 18"x 30' C.M.P.
NO APRONS
REMOVE
18"x 28' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

CONSTRUCT F.E. LT. STA. 226+80
18"x 28' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS

P.I. 223+97.49
ΔRT. 9° 04' 29"
D- 1° 00' 00"
L- 907.48'
T- 454.69'
E- 17.81'
RATE SUPERELEVATION 0.023'/FT.
165' TRANSITION

P.T. 228+50.28

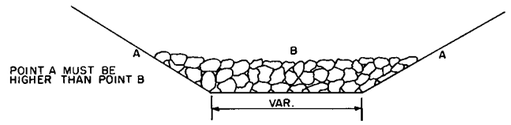


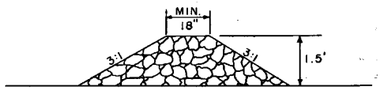
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AS BUILT PLANS

ROCK OR STONE DITCH CHECK

SECTIONS





NOTES FOR ROCK DITCH CHECKS

1. DITCH CHECKS MAY BE CONSTRUCTED WITH ROCKS OR STONES OBTAINED FROM THIS PROJECT.
2. DITCH CHECKS SHALL BE LEFT IN PLACE.
3. BASIS OF PAYMENT FOR DITCH CHECKS SHALL BE UNDER ITEM NO. 2511.501 RANDOM RIP RAP CLASS 3.
4. DITCH CHECKS SHALL BE CONSTRUCTED AT LOCATIONS DESIGNATED BY THE ENGINEER DURING CONSTRUCTION.
5. APPROXIMATELY 70 DITCH CHECKS TO BE CONSTRUCTED ON PROJECT.

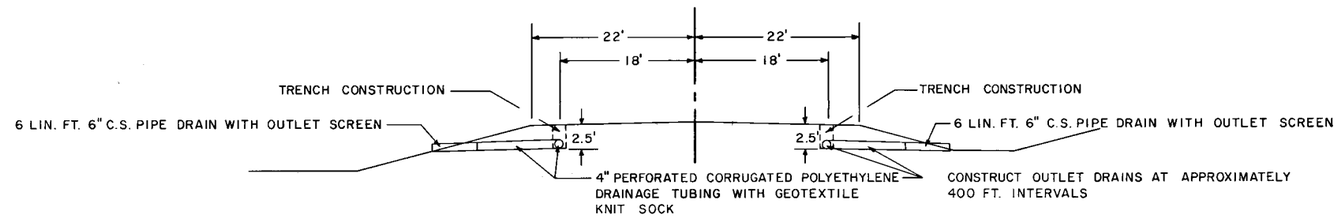
STANDARD PLATES

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

PLATE NO.	DESCRIPTION
0005 A	SPECIFICATION REFERENCE TO STANDARD PLATES.
3000 K	REINFORCED CONCRETE PIPE.
3007 B	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURES.
3014 J	REINFORCED CONCRETE PIPE ARCH DETAIL.
3040 F	CORRUGATED METAL PIPE CULVERT.
3100 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE.
3110 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE-ARCH.
3123 I	METAL APRON FOR C.S. PIPE.
3124 B	METAL APRON CONNECTION.
3133 B	RIPRAP AT R.C.P. OUTLETS.
3142 A	OUTLET SCREEN FOR C.M. & S.C. PIPES.
3143 C	INSPECTION TEES.
3145 E	CONCRETE PIPE TIES, EYE BOLT TIE.
3221 C	CORRUGATED STEEL PIPE COUPLING BANDS.
8000 I	STANDARD BARRICADES.
9000 B	APPROACHES AND ENTRANCES.
9102 C	SODDING AT PIPE CULVERT ENDS.

SODDING LOCATIONS	SQ. YDS.
℄ CULV. STA. 1+41 INLET & OUTLET	70
" " 39+58 " "	50
" " 55+37 " "	40
" " 62+81 " "	30
" " 67+18 " "	30
" " 76+80 " "	40
" " 86+46 " "	40
" " 92+28 " "	30
" " 166+75 " "	30
" " 170+38 " "	40
" " 183+78 " "	30
" " 204+51 " "	60
" " 211+07 " "	50
" " 232+20 " "	125
DITCH & SLOPES LT. STA. 44+90 TO STA. 49+25	1690
DITCH & SLOPES LT. STA. 219+45 TO STA. 222+50	1185
DITCH LINER LT. STA. 4+00 TO STA. 13+50	1265
" " RT. STA. 6+50 TO STA. 21+00	1935
" " LT. STA. 25+00 TO STA. 35+00	1335
" " RT. STA. 25+00 TO STA. 27+75	365
" " LT. STA. 56+00 TO STA. 62+00	800
" " LT. & RT. STA. 68+50 TO STA. 73+50	1330
" " LT. & RT. STA. 80+50 TO STA. 85+00	1200
" " LT. & RT STA. 94+50 TO STA. 105+20	2850
" " LT. STA. 144+50 TO STA. 157+25	1700
" " RT. STA. 144+50 TO STA. 170+40	3450
" " LT. STA. 173+00 TO STA. 181+00	1065
" " RT. STA. 174+50 TO STA. 183+75	1235
" " LT. & RT. STA. 191+00 TO STA. 199+75	2330
" " LT. & RT. STA. 202+00 TO STA. 204+50	670
" " LT. STA. 223+00 TO STA. 227+50	600
" " RT. STA. 235+25 TO STA. 245+75	1400
TOTAL SQ. YDS. SOD	27070

SUBSURFACE DRAINS



SUBSURFACE DRAIN LOCATIONS

		6" (CS)	4" (PE)	OUTLET LOCATIONS
STA. 1+50 TO STA. 5+75	LT. & RT.	12 LIN. FT.	870 LIN. FT.	STA. 1+50 *LT. 1+98 RT*
STA. 5+75 TO STA. 10+00	" "	12 " "	870 " "	STA. 5+75
STA. 10+00 TO STA. 14+00	" "	12 " "	820 " "	STA. 10+00
STA. 14+00 TO STA. 18+25	" "	12 " "	870 " "	STA. 14+00 *LT. 13+00 RT. 27+75 RT*
STA. 18+25 TO STA. 26+50	" "	24 " "	1690 " "	STA. 18+25 & ~~26+50~~ *27 LT.*
STA. 26+50 TO STA. 30+50	" "	12 " "	820 " "	STA. ~~30+50~~ *30+75*
STA. 30+50 TO STA. 34+50	" "	12 " "	820 " "	STA. ~~34+50~~ *35+00*
STA. 34+50 TO STA. 38+50	" "	12 " "	820 " "	STA. 38+50
STA. 38+50 TO STA. 46+00	" "	12 " "	1320 " "	STA. ~~39+50~~ *39+70*
STA. 64+75 TO STA. 69+00	" "	12 " "	870 " "	STA. 69+00
STA. 69+00 TO STA. 73+25	" "	12 " "	870 " "	STA. 73+25
STA. 79+25 TO STA. 85+50	" "	12 " "	1270 " "	STA. 85+50
~~STA. 145+25 TO STA. 149+50~~	~~" "~~	~~12 " "~~	~~870 " "~~	~~STA. 145+25~~
~~STA. 149+50 TO STA. 154+00~~	~~" "~~	~~12 " "~~	~~920 " "~~	~~STA. 149+50~~
~~STA. 154+00 TO STA. 158+25~~	~~LT. & RT.~~	~~12 LIN. FT.~~	~~870 LIN. FT.~~	~~STA. 154+00~~

		6" (CS)	4" (PE)	OUTLET LOCATIONS
~~STA. 158+25 TO STA. 162+50~~	~~LT. & RT.~~	~~12 LIN. FT.~~	~~870 LIN. FT.~~	~~STA. 158+25~~
STA. 162+50 TO STA. 166+75	" "	12 " "	870 " "	STA. 162+50
STA. 166+75 TO STA. 170+35	" "	12 " "	740 " "	STA. 166+~~75~~ *+70*
STA. 170+35 TO STA. 175+00	" "	12 " "	950 " "	STA. 170+35
STA. 175+00 TO STA. 179+50	" "	12 " "	920 " "	STA. 175+00 *RT. 174+70 LT.*
STA. 179+50 TO STA. 183+75	" "	12 " "	870 " "	STA. 179+50
STA. 183+75 TO STA. 192+00	" "	24 " "	1690 " "	STA. 183+75 & 192+00
STA. 192+00 TO STA. 196+00	" "	12 " "	820 " "	STA. 196+00
STA. 196+00 TO STA. 199+75	" "	12 " "	770 " "	STA. ~~199+75~~ *198+00*
STA. 199+75 TO STA. 204+50	" "	12 " "	970 " "	STA. 204+~~50~~ *LT. 203+70 RT.*
STA. 204+50 TO STA. 211+10	" "	12 " "	1340 " "	STA. 204+~~50~~ *+55* *ADD OUTLET 204+38 RT.*
STA. 211+10 TO STA. 216+00	" "	12 " "	1000 " "	STA. 211+10
STA. 226+00 TO STA. 232+50	RIGHT	6 " "	660 " "	STA. 232+50
STA. 232+50 TO STA. 236+50	RIGHT	6 " "	410 " "	STA. 236+50
STA. 236+50 TO STA. 240+50	RIGHT	6 LIN. FT.	410 LIN. FT.	STA. 240+50

AS BUILT PLANS