

FED ROAD DIST. NO.	UTAH	PROJECT NO.	SHEET NO.	TOTAL SHEETS
UTAH	UTAH	F-017(15)	1	

UTAH
DEPARTMENT OF TRANSPORTATION

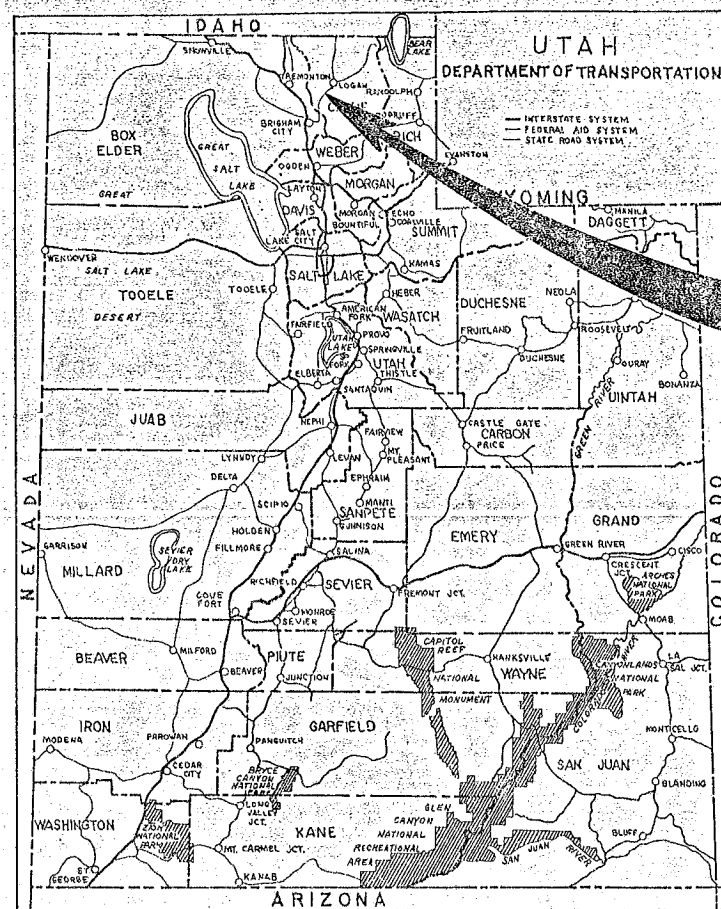
PLANS OF PROPOSED STATE ROAD

FEDERAL AID PROJECT

F-017 (15)

SR-91, WELLSVILLE
MT. STERLING RD. TO GREEN'S CORNER
GRADING, DRAINAGE, SURFACING & SIGNING

CACHE COUNTY	LENGTH
1	1
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100	100



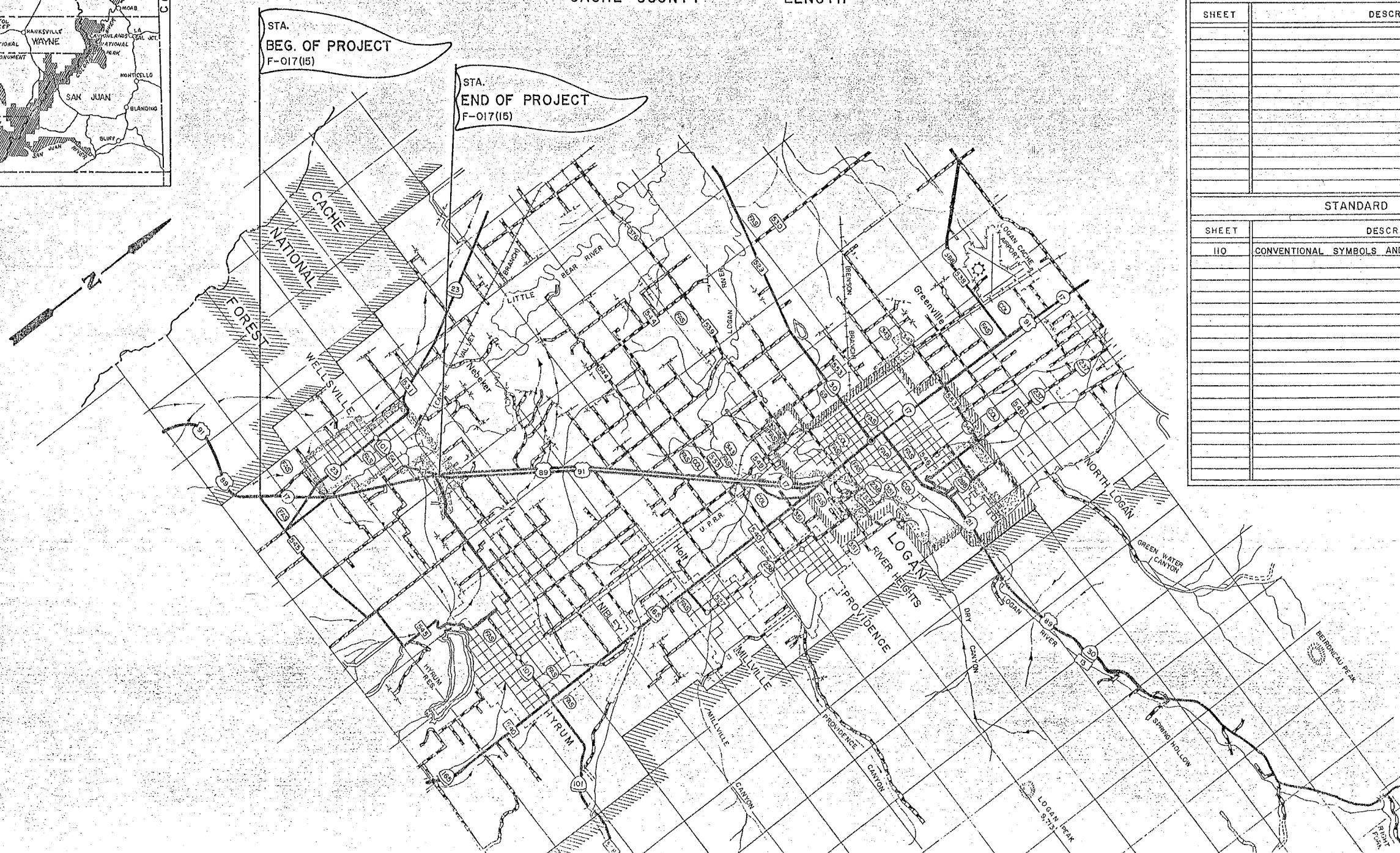
INDEX TO SHEETS

[illegible]

STRUCTURE DRAWINGS

[illegible]

STANDARD DRAWINGS

[illegible]

UTAH DEPARTMENT OF TRANSPORTATION

RECOMMENDED FOR APPROVAL _____ 1987

CHIEF, ROADWAY DESIGN

RECOMMENDED FOR APPROVAL 1987

ENGINEER FOR PRECONSTRUCTION

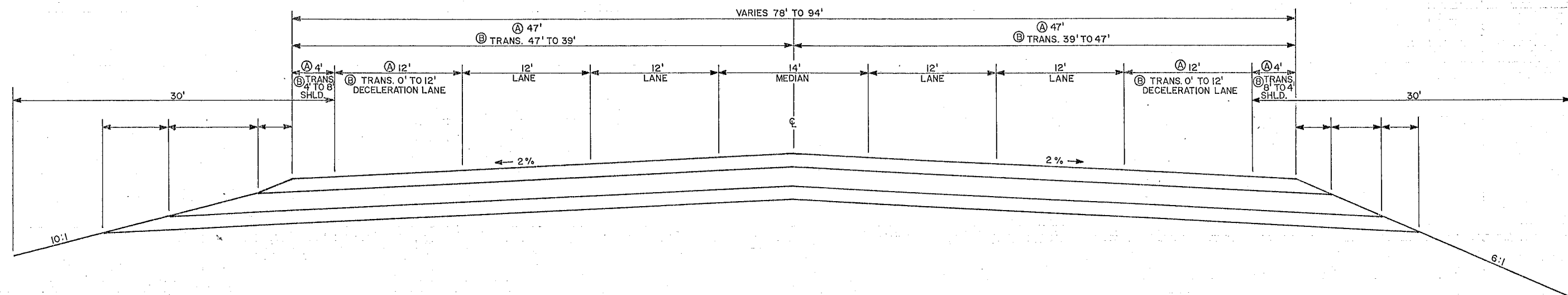
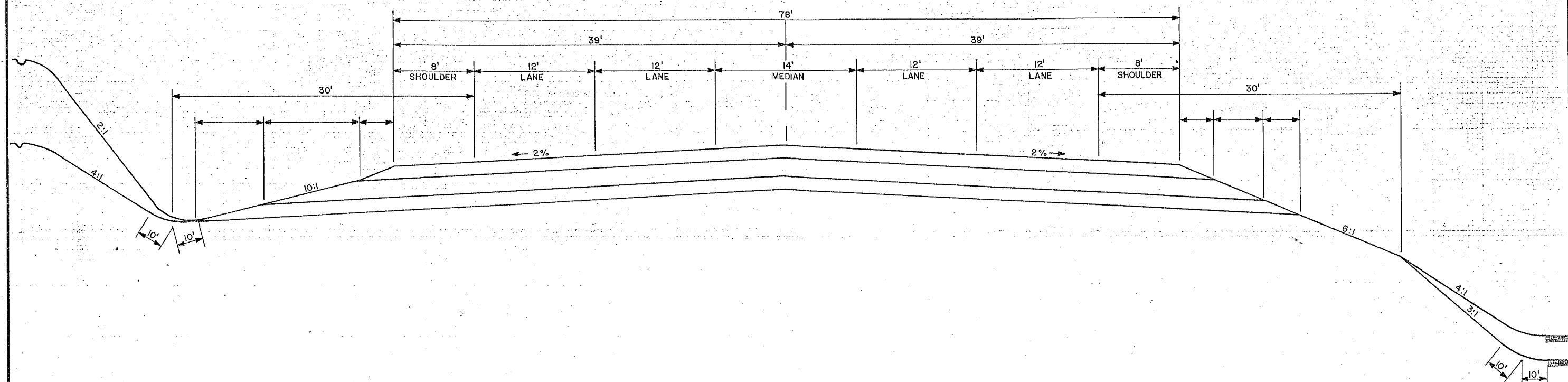
APPROVED _____ 1987

ASSISTANT DIRECTOR

US DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED

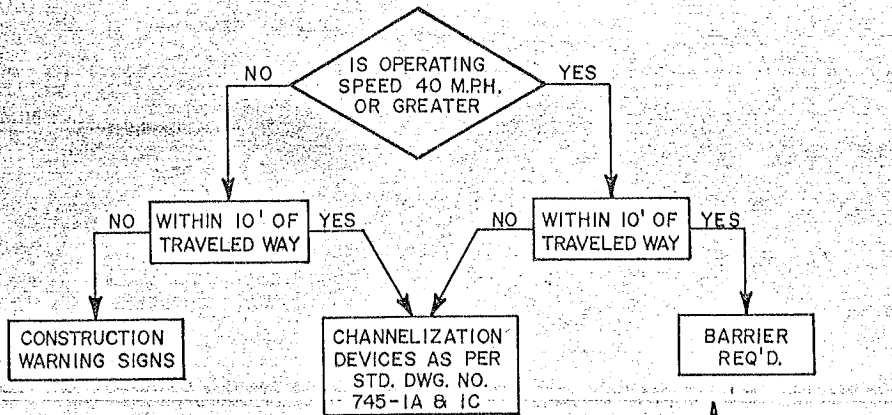
DIVISION ENGINEER DATE



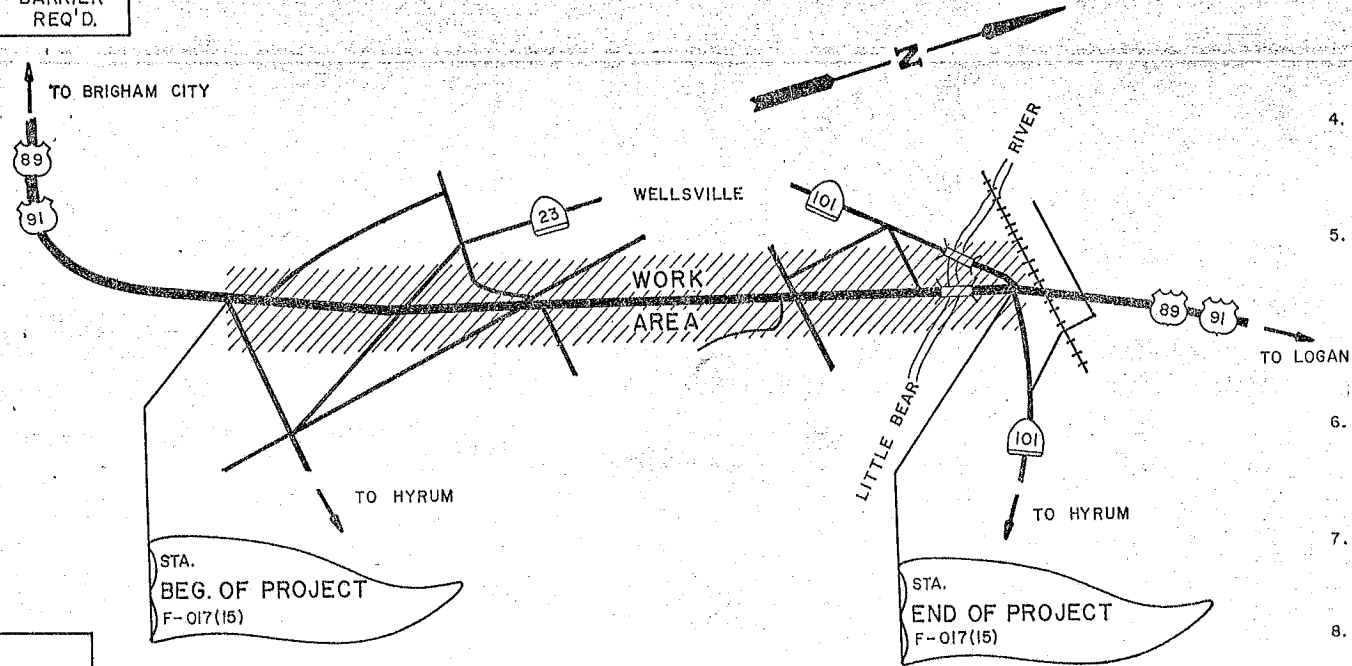
UTAH DEPARTMENT OF TRANSPORTATION

SHEET NO.		COUNTY		UTAH DEPARTMENT OF TRANSPORTATION												DATE							
PROJECT NUMBER		APPROVED DATE		APPROVAL RECOMM. DATE		PROJECT DESIGN ENGINEER		DESIGN		CHECK		REVIEW		NO. DATE		DESIGN REVISION BY		PARCELS AFFECTED BY		REQUEST BY		REMARKS	
								DRAWN		CHECK		DATE											
PROJECT NUMBER		APPROVED DATE		APPROVAL RECOMM. DATE		PROJECT DESIGN ENGINEER		QUANT.		CHECK		BY		DATE		ORIGINAL SUBMISSION FOR AUTHORIZATION		REVISIONS					
								QUANT.		CHECK		DATE											

TRAFFIC PHASING



DETAIL "AA"



- NOTES:

1. TRAFFIC CONTROL FOR MAJOR PHASES OF WORK IS COVERED BY DETAILS IN THE PLANS. ANYTIME THE OPERATION INTERFERES WITH TRAFFIC OR HAS THE POTENTIAL TO INTERFERE WITH TRAFFIC THEN TRAFFIC CONTROL IN ACCORDANCE WITH THESE DETAILS AND / OR THE MUTCD SHALL BE PROVIDED.
2. ALL NON-WORKING EQUIPMENT, VEHICLES, AND/OR PRIVATE VEHICLES OF EMPLOYEES SHALL BE PARKED IN LEGALLY RECOGNIZED PARKING AREAS OR WITHIN A BARRICADED WORK ZONE, INCLUDING EQUIPMENT DURING NON-WORKING HOURS. PARKING ON PRIVATE PROPERTY SHALL BE BY PERMISSION ONLY. ALL STOCKPILED MATERIALS MUST BE PLACED 30' FROM THE EDGE OF THE PAVEMENT OR WITHIN A BARRICADED WORK ZONE.
3. ANY CONSTRUCTION HAZARD OR SLOPE STEEPER THAN 3:1 AND BETWEEN 6" AND 48" IN DEPTH WITHIN 20' OF THE TRAVELED WAY SHALL BE PROTECTED IN ACCORDANCE WITH DETAIL "AA", THIS SHEET. SLOPE DEPTHS GREATER THAN 48" SHALL BE PROTECTED BY DEVICES AS RECOMMENDED BY THE UDOT DIVISION OF SAFETY.
4. THE CONTRACTOR MAY SUBMIT AN ALTERNATE TRAFFIC CONTROL PLAN. THIS PLAN SHALL BE SUBMITTED NO LATER THAN THE PRECONSTRUCTION CONFERENCE. ANY DEVIATION FROM THIS PLAN MUST BE APPROVED BY THE ENGINEER IN WRITING.
5. ALL SIGNS USED ON THE PROJECT TO CONTROL TRAFFIC SHALL BE EASILY READ AT ALL TIMES. NO SIGN SHALL BE USED ON THE PROJECT ON WHICH FACING IS MISSING IN EITHER THE MESSAGE OR BACKGROUND. ALL PARTS OF THE SIGN SHALL BE WHOLE AND IN WORKING ORDER. ANY SIGNS OR DEVICES DAMAGED OR DESTROYED ON THE PROJECT SHALL BE REPAIRED OR REPLACED IMMEDIATELY. ALL TRAFFIC CONTROL DEVICES SHALL BE CLEANED AT LEAST ONCE A WEEK USING APPROPRIATE DETERGENTS OR SOLVENTS.
6. DURING NON-WORKING HOURS ALL NON-APPLICABLE SIGNS AND/OR DEVICES SHALL BE REMOVED FROM THE ROADWAY OR BEHIND CURB AND GUTTER. THE SIGN SHALL BE TURNED AWAY FROM ROAD. NON-APPLICABLE POST MOUNTED SIGNS SHALL BE COVERED.
7. "ROAD WORK AHEAD" SIGNS SHALL BE ACCEPTABLE ALTERNATES TO "ROAD CONSTRUCTION AHEAD" SIGNS. "END ROAD WORK" SIGNS SHALL BE ACCEPTABLE ALTERNATES TO "END CONSTRUCTION" SIGNS.
8. CONES SHALL NOT BE ALLOWED FOR USE AS CHANNELIZING DEVICES FOR NIGHT TIME OPERATIONS.
9. NON-APPLICABLE TRAFFIC MARKINGS SHALL BE PHYSICALLY REMOVED (NOT PAINTED OVER) AND APPROPRIATE MARKINGS PUT IN PLACE BY THE CONTRACTOR BEFORE ALLOWING TRAFFIC ON THAT PORTION OF ROADWAY.
10. STANDARD PAVEMENT MARKINGS OR MUTCD CHANNELIZATION DEVICES OTHER THAN CONES SHALL BE PROVIDED DURING NON-WORKING HOURS.
11. ADVANCE WARNING DEVICE MODE TO BE SPECIFIED BY PROJECT ENGINEER.
12. SIGNS USED ON ROADS WITH POSTED SPEED LIMITS LESS THAN 40 M.P.H. SHALL HAVE A 5' MINIMUM MOUNTING HEIGHT.
13. THE FLAGGER SYMBOL SIGN SHOULD BE SUPPLEMENTED BY A DISTANCE PLATE WHEN FLAGGING STATION IS NOT VISIBLE FROM SIGN.
14. TRAFFIC CONTROL PLAN ITEMS NOT LISTED AS SPECIFIC BID ITEMS. SHALL BE PAID FOR IN THE ITEM "MOBILIZATION".

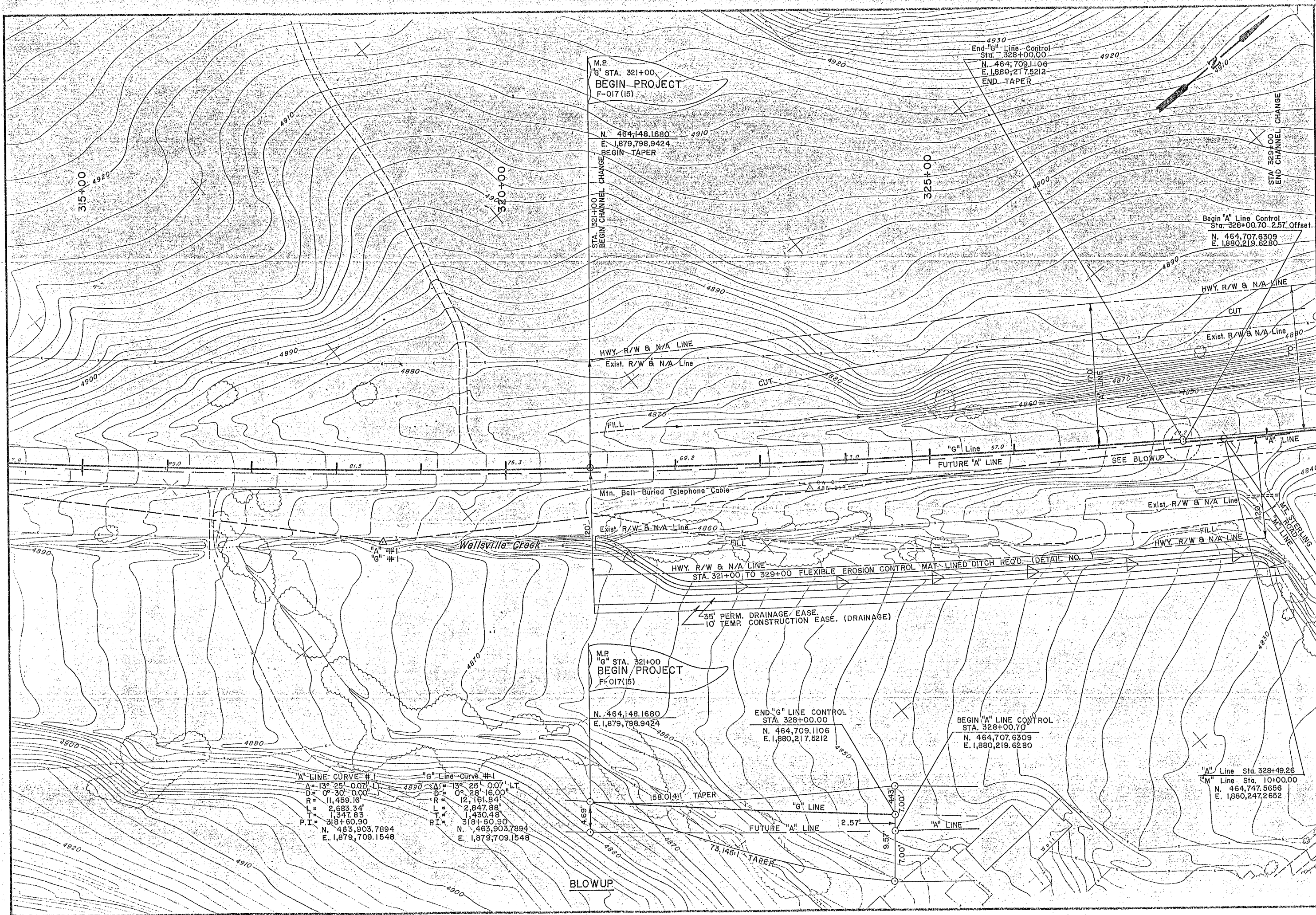
SITE A	
SITE B	
SITE C	
GRADE	
DRAINAGE	
SURFACE	
STRUCTURE	
RESURFACING	
SIDEWALKS	
PAVEMENT	
SIGNAL	
MAINTENANCE	
MAINTENANCE	

LOCATION OR WORK TYPE

[illegible]

TRAFFIC CONTROL

- LANE CLOSURE-DIVIDED HIGHWAY (DETAIL A-SHEET 4A)
LANE CLOSURE-MULTILANE UNDIVIDED (DETAIL B-SHEET 4A)
LANE CLOSURE-2 LANE-2 WAY (DETAIL D-SHEET 4B)
LANE CLOSURE-MULTIPLE LANES CLOSED (DETAIL K-SHEET 4F)
ROADWAY CLOSED-DIVIDED HIGHWAY (DETAIL G-SHEET 4D)
MEDIAN CROSSOVER (DETAIL F-SHEET 4C)
SHOULDER CLOSURE (DETAIL M-SHEET 4G)
DETOUR-URBAN WITH CIRCULATION
DETOUR-2 LANE (BRIDGE ETC.) (DETAIL H-SHEET 4D)
HAUL ROAD CROSSING (DETAIL E-SHEET 4C)
PEDESTRIAN ROUTING (DETAIL R & S-SHEET 4J)
FLAGGING (DETAILS C & D-SHEET 4B)
HAUL ROAD (DETAILS N-SHEET 4G)
URBAN INTERSECTION (SHEET 4E)
PAVEMENT MARKING (DETAIL P,Q-SHEET 4H)



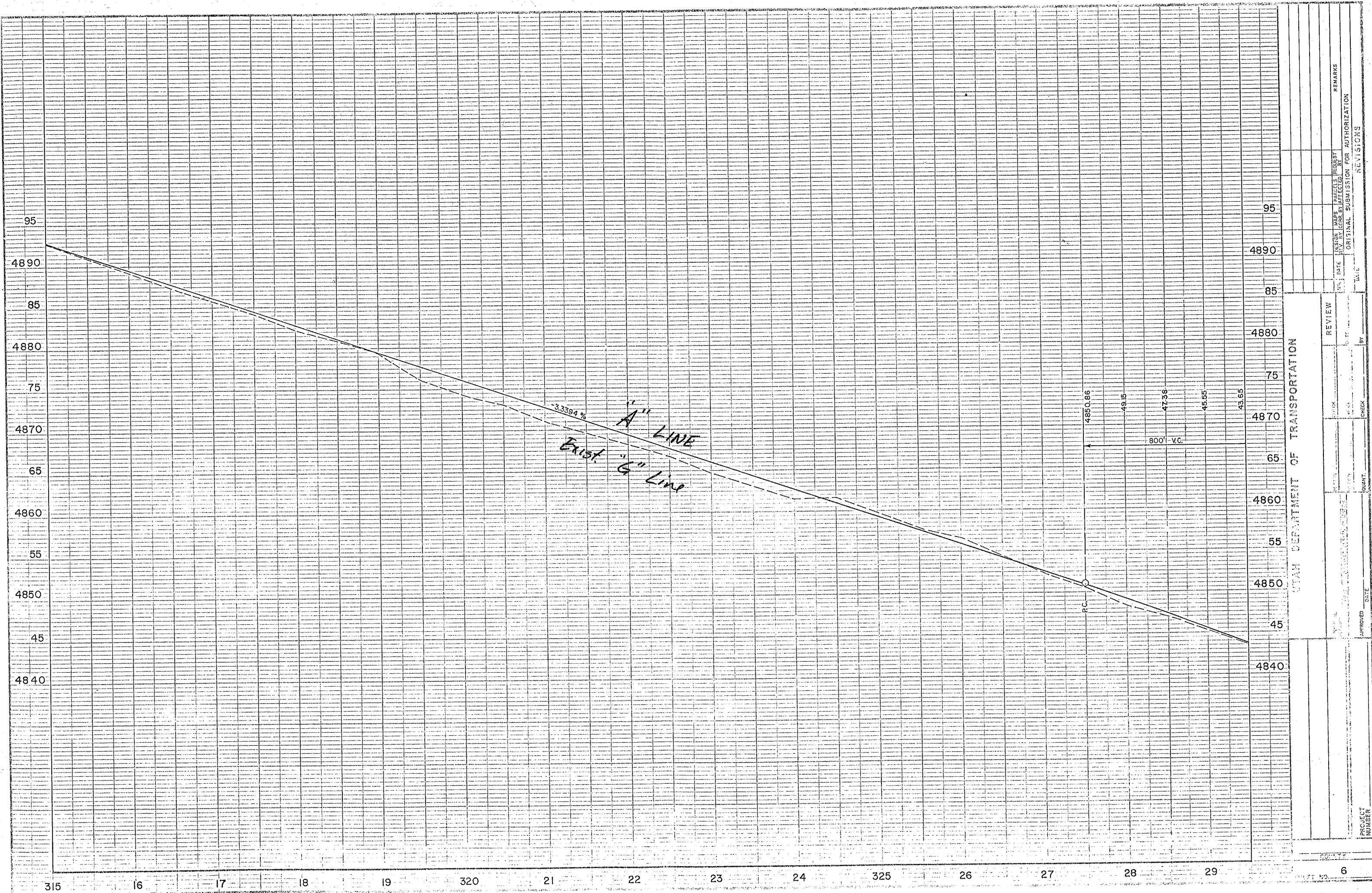
UTAH DEPARTMENT OF TRANSPORTATION — ODGEN, UTAH
DISTRICT ONE

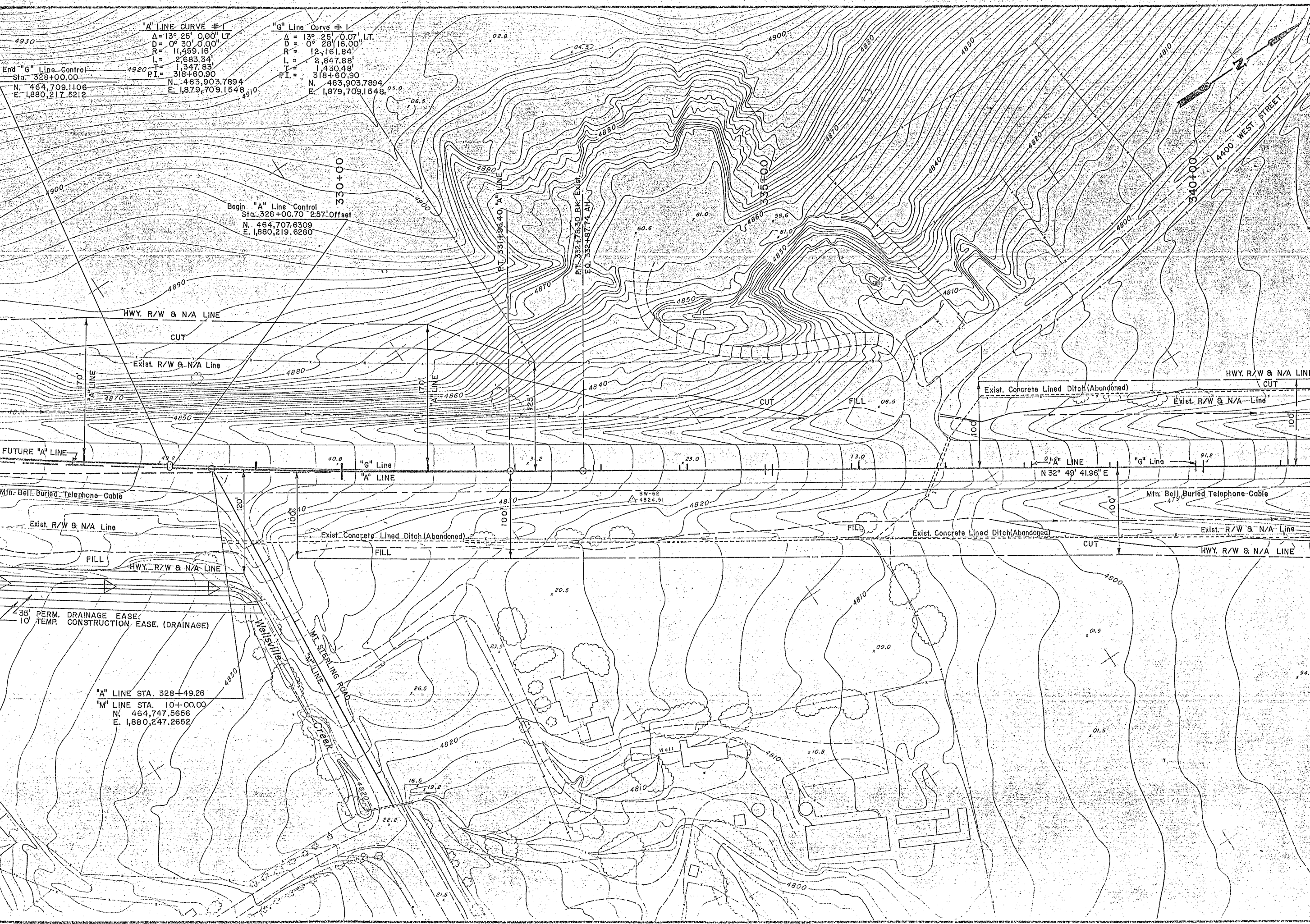
SR-91, WELLSVILLE
MT. STERLING RD. TO GREEN'S CORNER
GRADING, DRAINAGE
SURFACING & SIGNING

CACHE
COUNTY

SHEET NO. 5

[illegible]





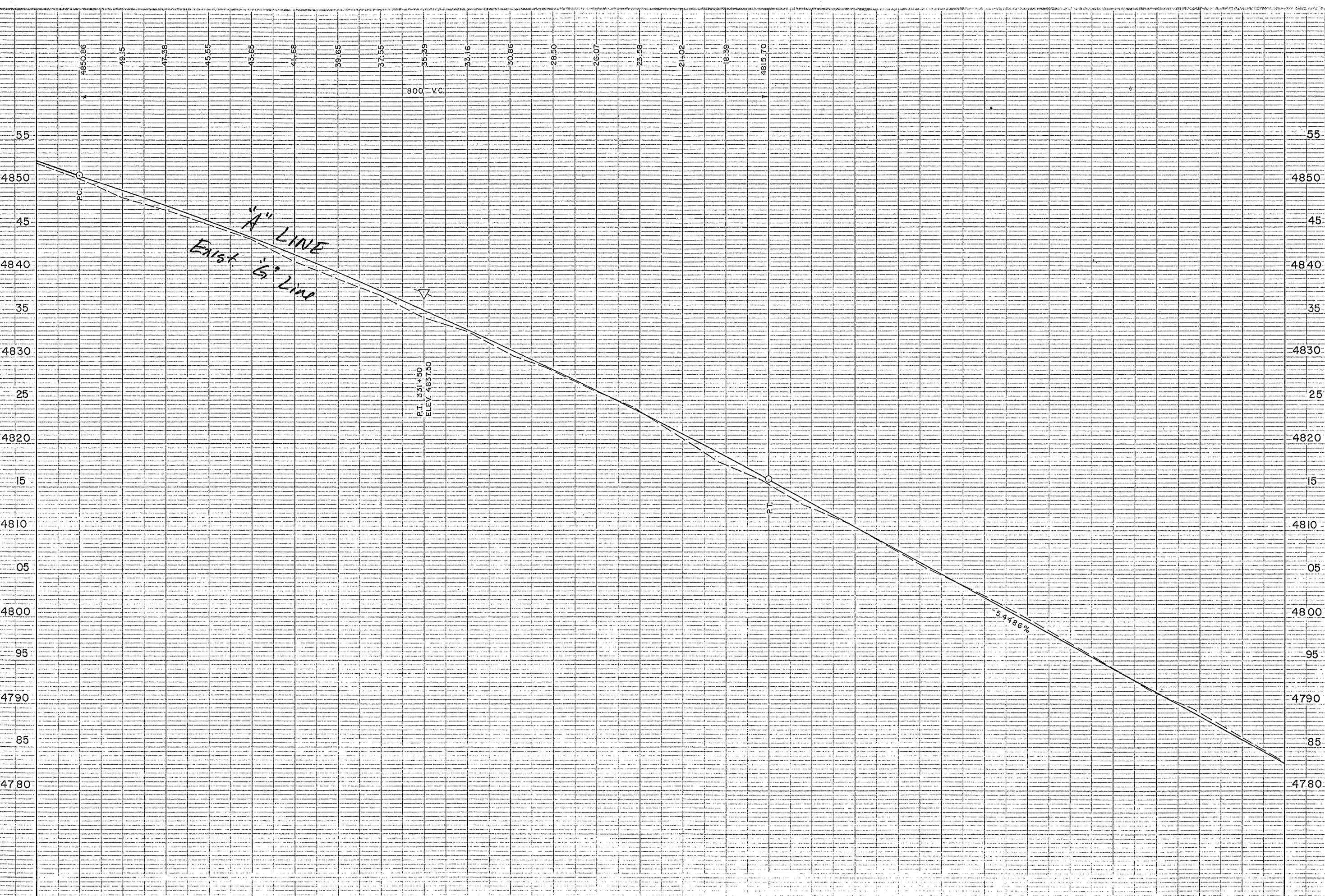
"A" Line Curve #1
A = 13° 25' 0.00" LT.
D = 0° 30' 0.00" LT.
R = 11,459.16'
L = 2,683.34'
T = 1,347.83'
PI = 318+60.90
End "G" Line Control
Sta. 328+00.00
N. 464,709.1106
E. 1,880,217.5212

"G" Line Curve #1
A = 13° 25' 0.07" LT.
D = 0° 28' 16.00" LT.
R = 12,161.84'
L = 2,847.88'
T = 1,430.48'
PI = 318+80.90
Begin "A" Line Control
Sta. 328+00.70 2.57' Offset
N. 464,707.6309
E. 1,880,219.6280

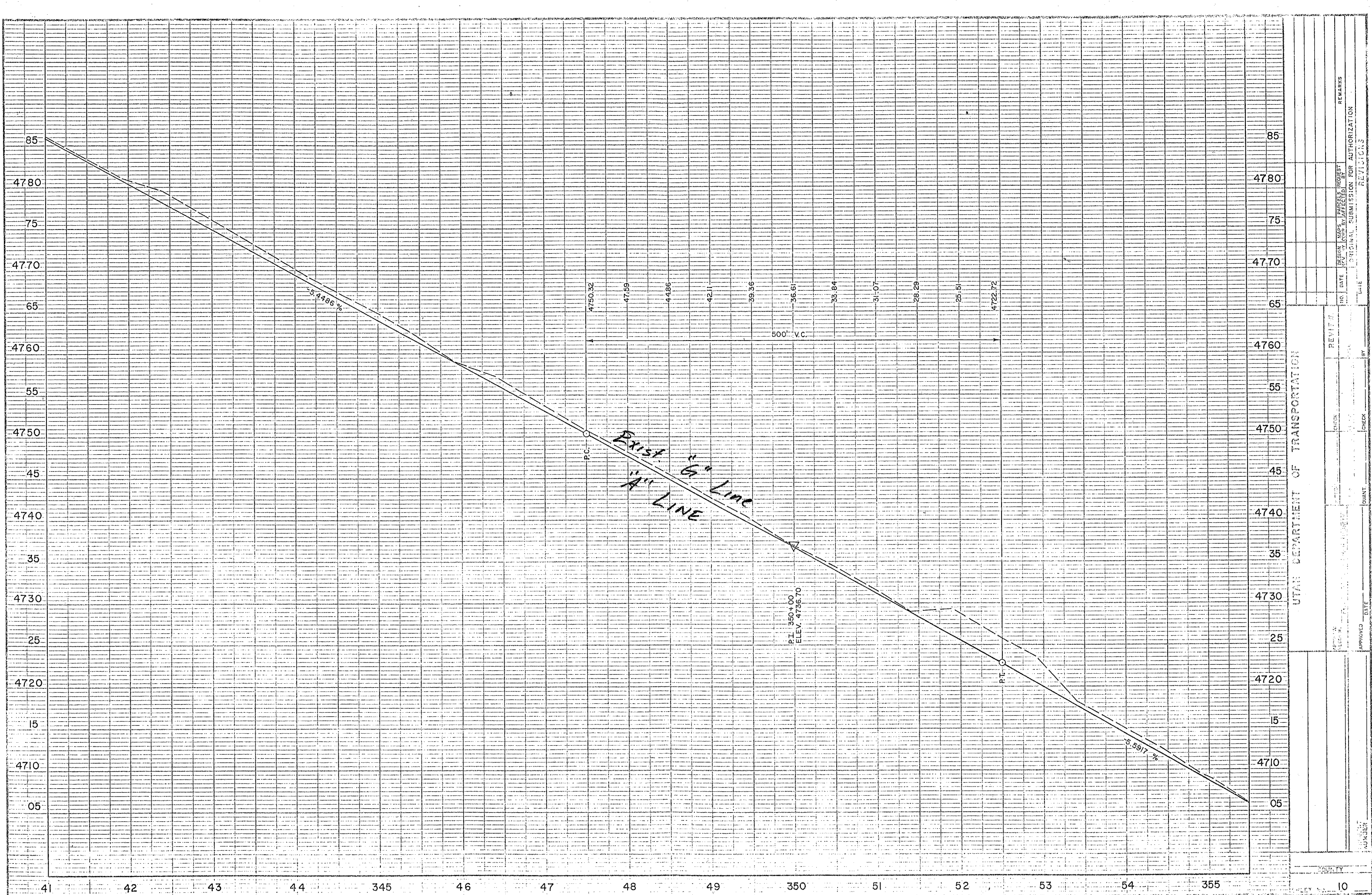
PT 331+98.40 "A" LINE
PT 332+78.50 BK EXIST.
EQ 332+87.74 AL

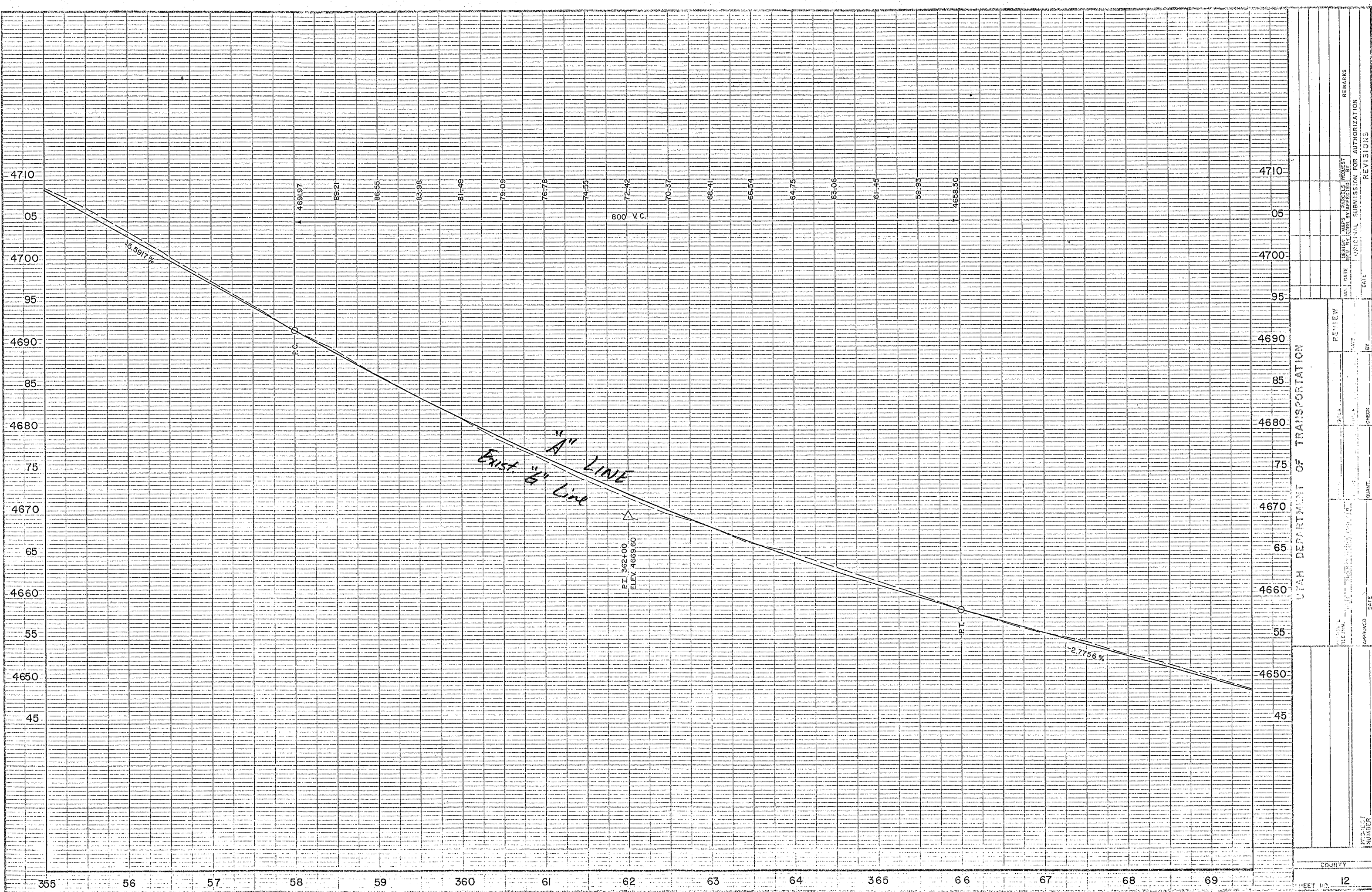
"A" LINE STA. 328+49.26
"M" LINE STA. 10+00.00
N. 464,747.5666
E. 1,880,247.2662

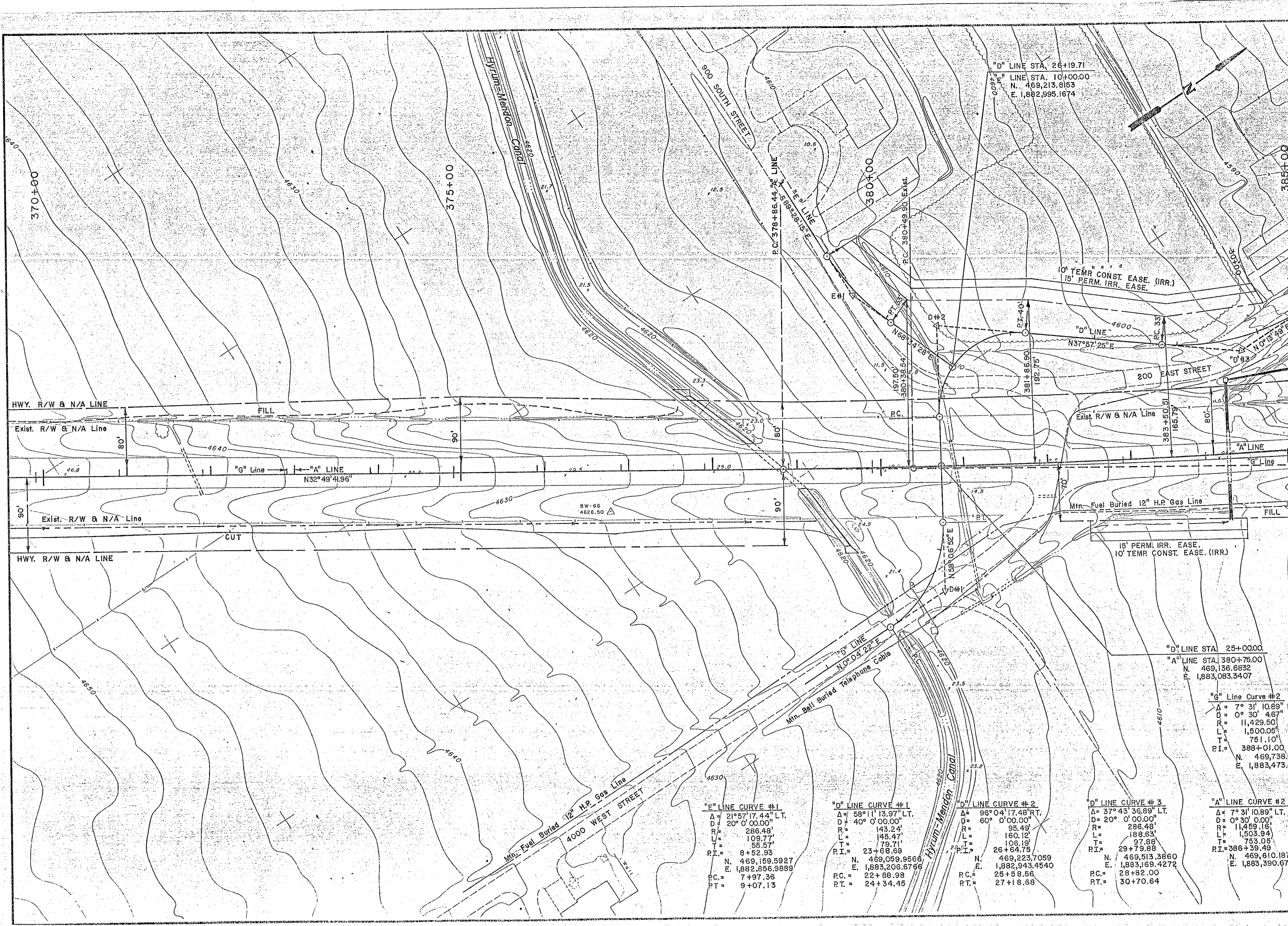
UTAH DEPARTMENT OF TRANSPORTATION DISTRICT ONE COGEN, UTAH		DESIGN J.W.T. 2/87		CHECK B.W.S. 2/87	REVIEW
SR-91, WELLSVILLE MT. STERLING RD. TO GREEN'S CORNER GRADING, DRAINAGE SURFACING & SIGNING		PLAN B.E.B. 2/87		CHECK J.W.T. 2/87	DATE
PROJECT NUMBER		DATE		APPROVED	REMARKS
F-017(15)		DATE		APPROVED	REMARKS
SHEET NO. 7		DATE		APPROVED	REMARKS



UTAH DEPARTMENT OF TRANSPORTATION	
PROJECT NUMBER	8
COUNTY	
APPROVED	DATE
QUANT.	CHECK
BY	DATE
REVIEW	DATE
REMARKS	
DIVISION FOR AUTHORIZATION	
DATE	







"E" LINE CURVE #1
Δ = 21°57'17.44" LT.
D = 20° 0'00.00"
R = 286.48'
L = 109.77'
T = 56.57'
P.I. = 8+52.93
N. 469,169.5927
E. 1,882,856.9889
P.C. = 7+97.36
P.T. = 9+07.13

"D" LINE CURVE #1
Δ = 58°04'13.97" LT.
D = 40° 0'00.00"
R = 143.24'
L = 146.47'
T = 79.71'
P.I. = 23+68.69
N. 469,059.9566
E. 1,883,206.6766
P.C. = 22+88.98
P.T. = 24+34.45

"D" LINE CURVE #2
Δ = 96°04'17.48" RT.
D = 60° 0'00.00"
R = 95.49'
L = 160.12'
T = 106.19'
P.I. = 26+64.75
N. 469,223.7059
E. 1,882,943.4540
P.C. = 25+58.56
P.T. = 27+18.68

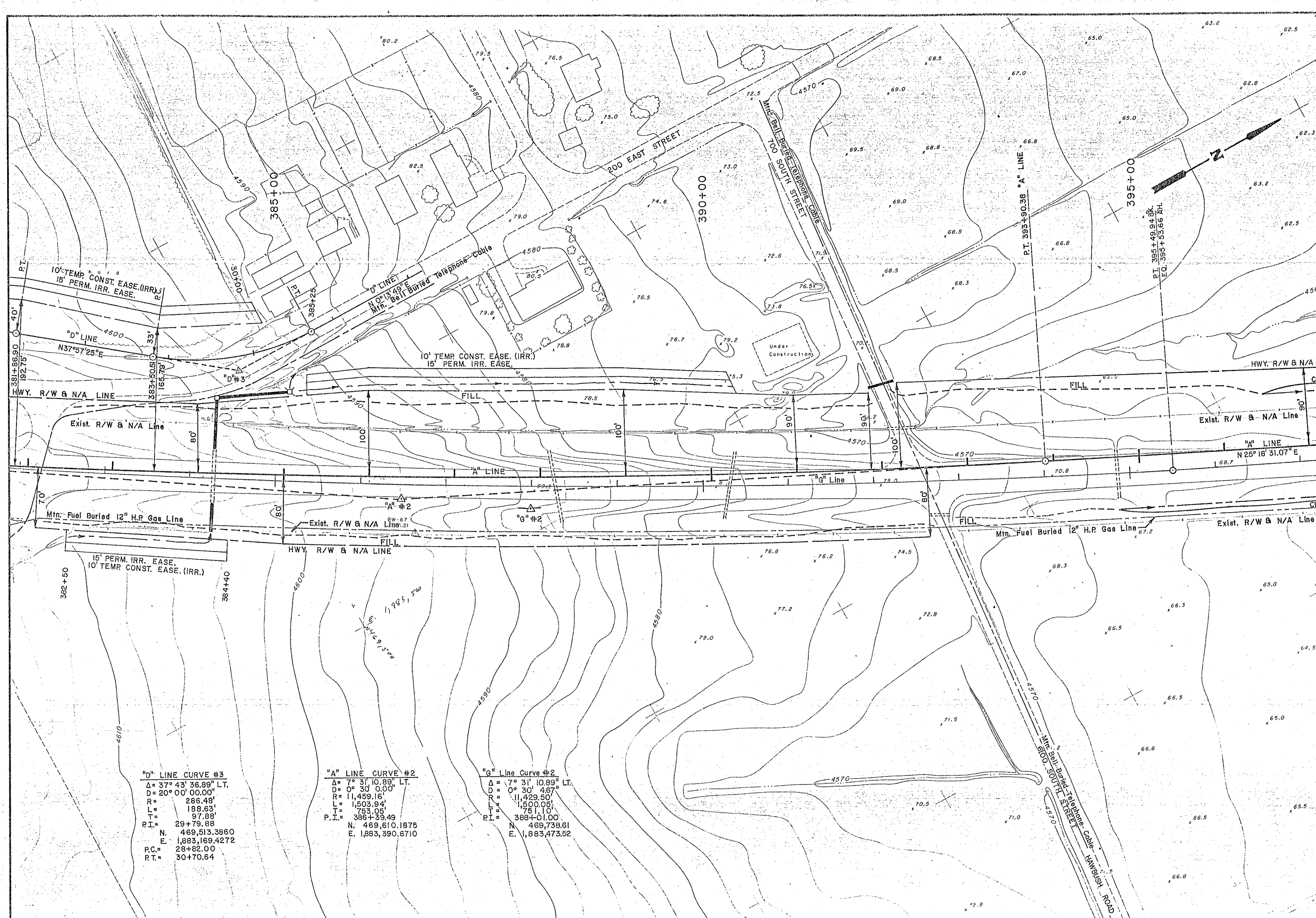
"D" LINE CURVE #3
Δ = 37°43'36.89" LT.
D = 20° 0'00.00"
R = 286.48'
L = 188.63'
T = 97.88'
P.I. = 29+79.88
N. 469,513.3860
E. 1,883,169.4272
P.C. = 28+82.00
P.T. = 30+70.64

"A" LINE CURVE #2
Δ = 7°31'10.89" LT.
D = 0°30'0.00"
R = 11,459.16'
L = 1,503.94'
T = 753.05'
P.I. = 386+39.49
N. 469,610.1875
E. 1,883,390.6710

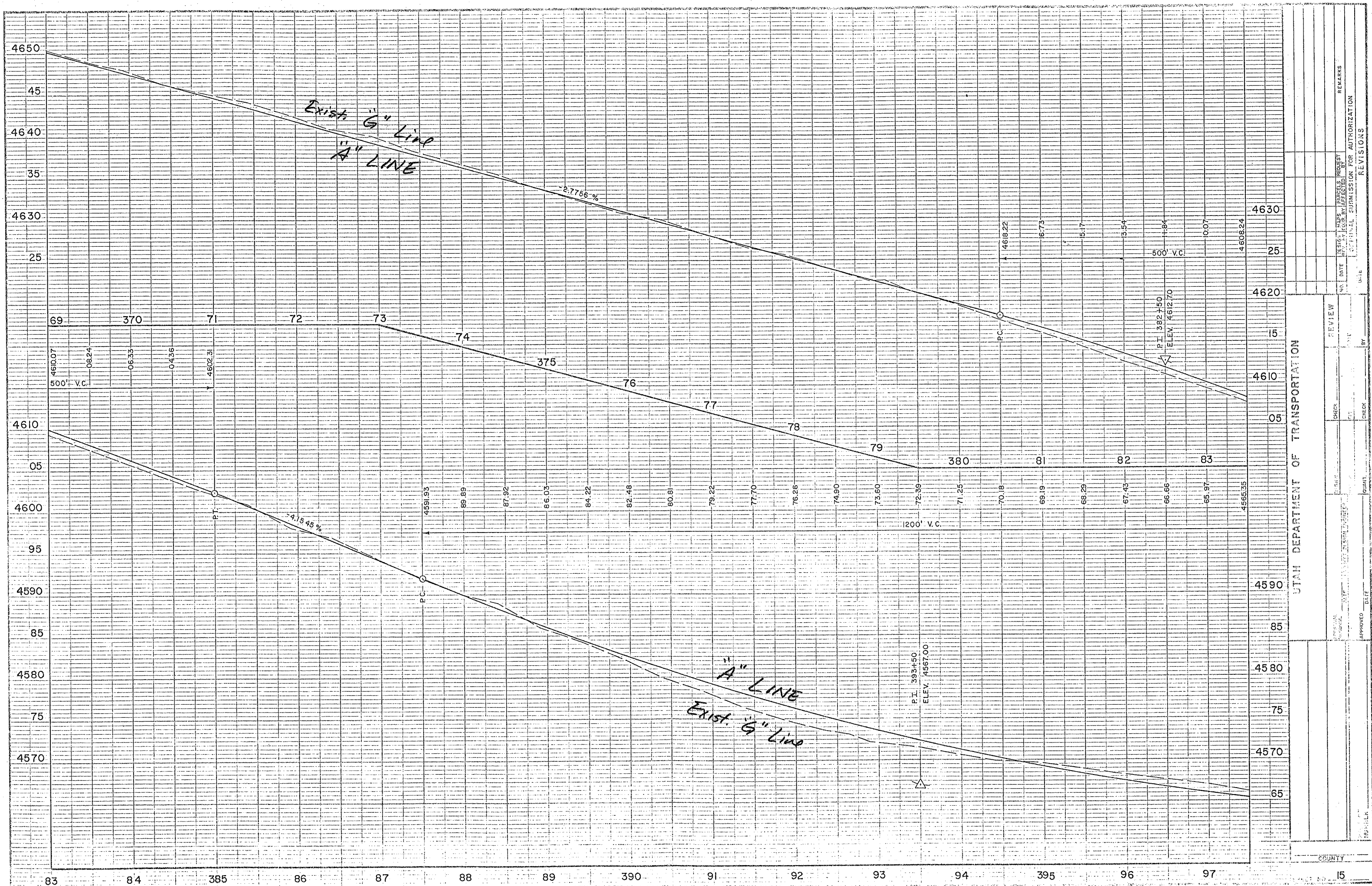
"G" Line Curve #2
Δ = 7°31'10.89" LT.
D = 0°30'0.00"
R = 11,429.50'
L = 1,500.05'
T = 751.10'
P.I. = 388+01.00
N. 469,738.61
E. 1,883,473.52

"D" LINE STA. 25+00.00
"A" LINE STA. 380+75.00
N. 469,136.6832
E. 1,883,083.3407

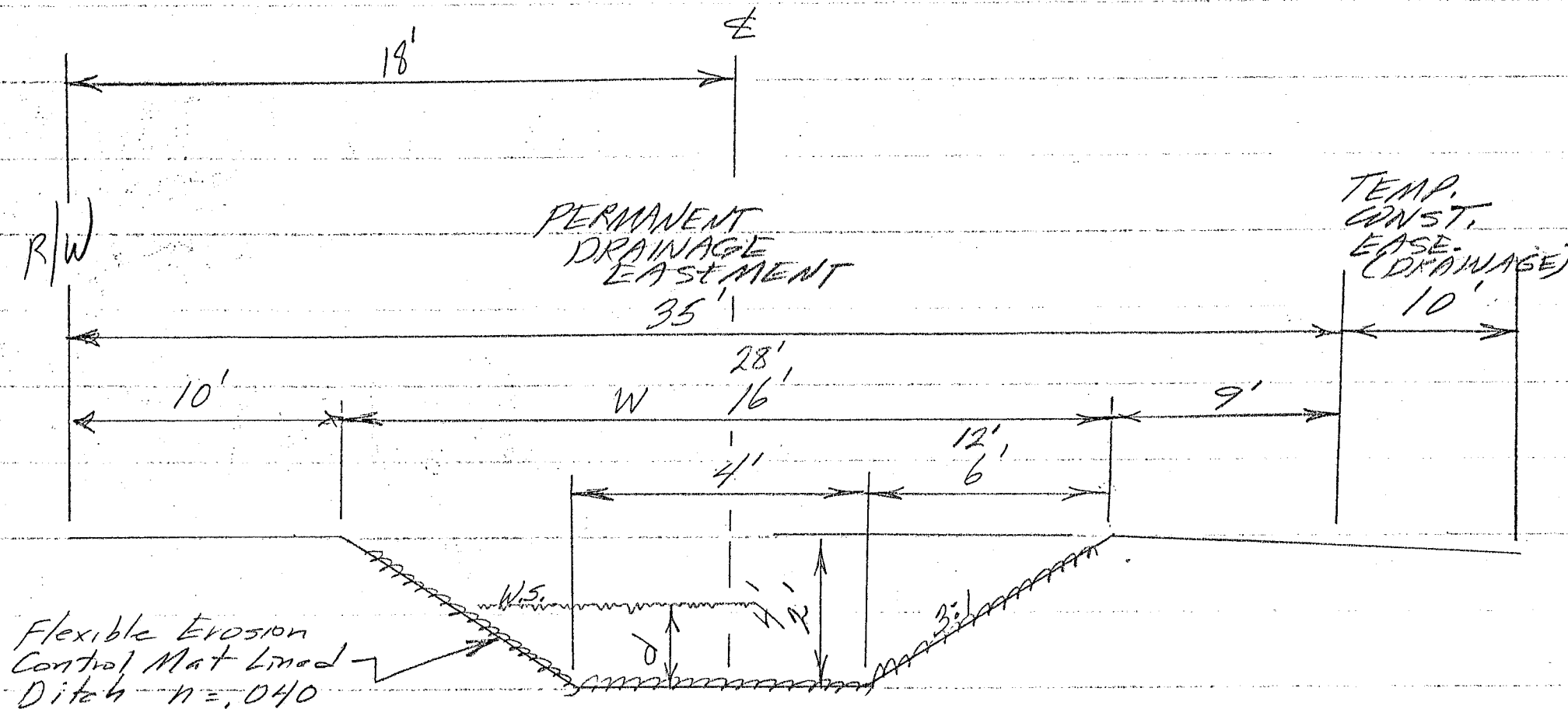
UTAH DEPARTMENT OF TRANSPORTATION		DISTRICT ONE		ROADWAY DESIGN		REVIEW	
SR-91, WELLSVILLE		MT. STERLING RD. TO GREEN'S CORNER		GRADING, DRAINAGE, SURFACING & SIGNING		PLAN SHEET	
APPROVAL	DATE	PROJECT DESIGN ENGINEER	DATE	CHECK	DATE	BY	DATE
DESIGN	DATE	DESIGNER	DATE	CHECK	DATE	BY	DATE
NO.	DATE	DESIGN	DATE	CHECK	DATE	BY	DATE
ORIGINAL SUBMISSION FOR AUTHORIZATION				REVISIONS			
PROJECT NUMBER				F-017 (15)			
COUNTY				SHEET NO. 13			



SR-91 WELLSVILLE MT. STERLING RD. TO GREEN'S CORNER GRADING, DRAINAGE, SURFACING & SIGNING		UTAH DEPARTMENT OF TRANSPORTATION DISTRICT ONE ROADWAY DESIGN		REVIEW DESIGN J.W.T. 2/87 CHECK B.W.S. 2/87 DATE 2/87		REMARKS NO. DATE DESIGN MAPS PARCELS REQUEST BY ORIGINAL SUBMISSION FOR AUTHORIZATION	
PLAN SHEET PROJECT NUMBER F-017 (5)		APPROVAL DIST. RDWY. DESIGN ENGINEER DATE		QUANT. XXX XXX CHECK XXX XXX BY		REVISIONS DATE	
SHEET NO. 14 CACHE COUNTY							



Wellsville Creek



$$S = \frac{36.5 - 26}{820}$$

$$S = .012805$$

$$S^{1/2} = .113159$$

$$S = \frac{10}{240} = .0417$$

$$S^{1/2} = .204124$$

$$Q = \frac{1.49}{n} A R^{2/3} S^{1/2} \quad R = \frac{A}{P}$$

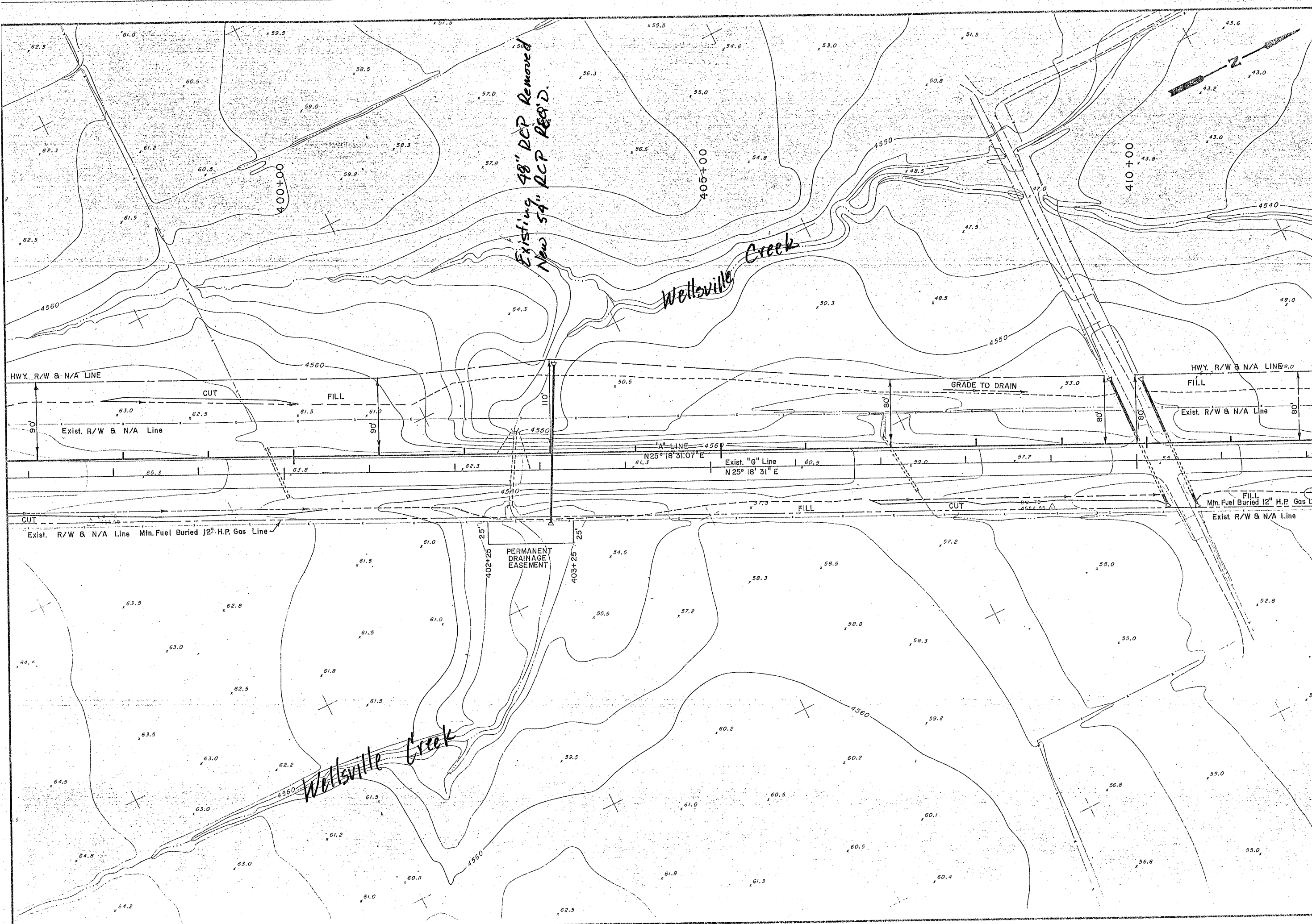
$$A = (4 + 3d)d = 4d + 3d^2$$

$$P = 2\sqrt{10d^2 + 4} = 6.32d^2 + 4$$

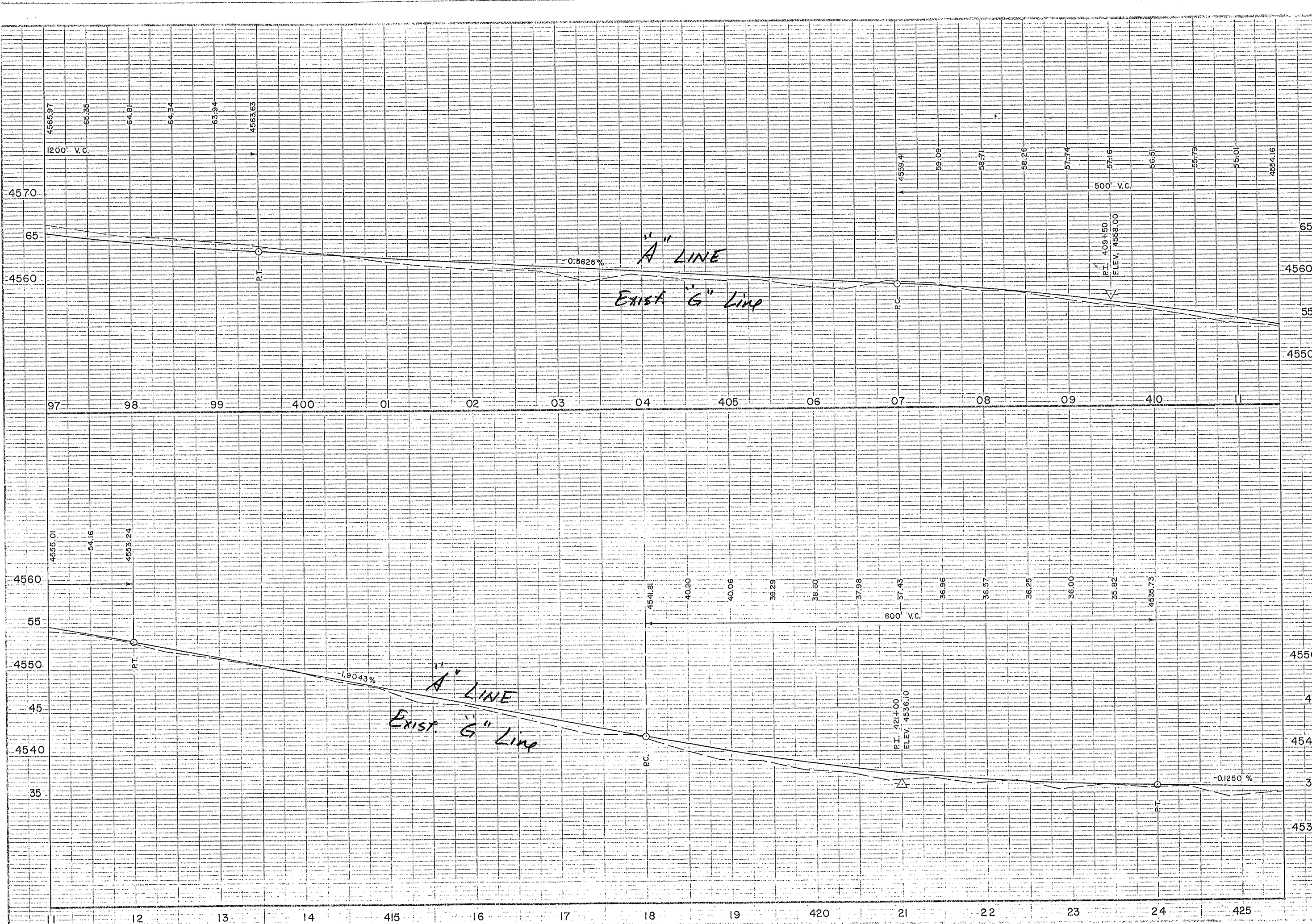
$$R = \frac{4d + 3d^2}{6.32d^2 + 4}$$

d	A	Q
1.0	7.00	41
1.2	9.12	54
1.4	11.48	69
1.6	14.08	84

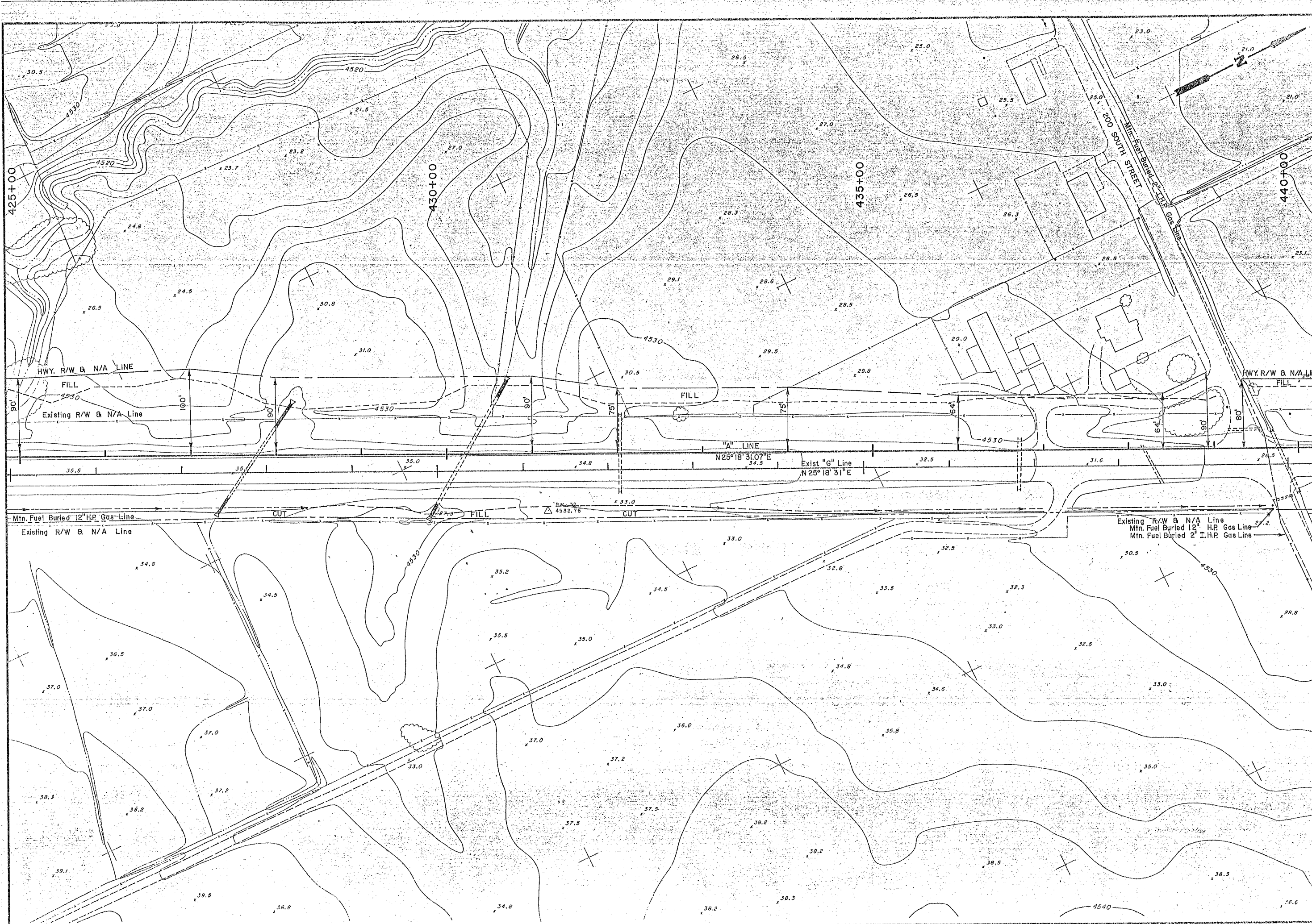
d	A	Q	W
2.0	20.00	65	
2.5	28.75	92	
2.75	33.6875	106	



UTAH DEPARTMENT OF TRANSPORTATION		DISTRICT ONE — OGDEN, UTAH		DESIGN		REVIEW	
SR-91, WELLSVILLE		MT. STERLING RD. TO GREEN'S CORNER		ROADWAY		PLAN SHEET	
GRADING, DRAINAGE, SURFACING & SIGNING		PROJECT DESIGN ENGINEER		CHECK		B.W.S. 2/87	
DATE		DATE		DATE		DATE	
APPROVED		DIST. RDWY. DESIGN ENGINEER		QUANT. XXX XXX XXX		BY	
PROJECT NUMBER		F-017(15)		CHECK XXX XXX XXX		DATE	
SHEET NO. 16		CACHE COUNTY		ORIGINAL SUBMISSION FOR AUTHORIZATION		REVISIONS	
NO.		DATE		DESIGN NO.		REMARKS	



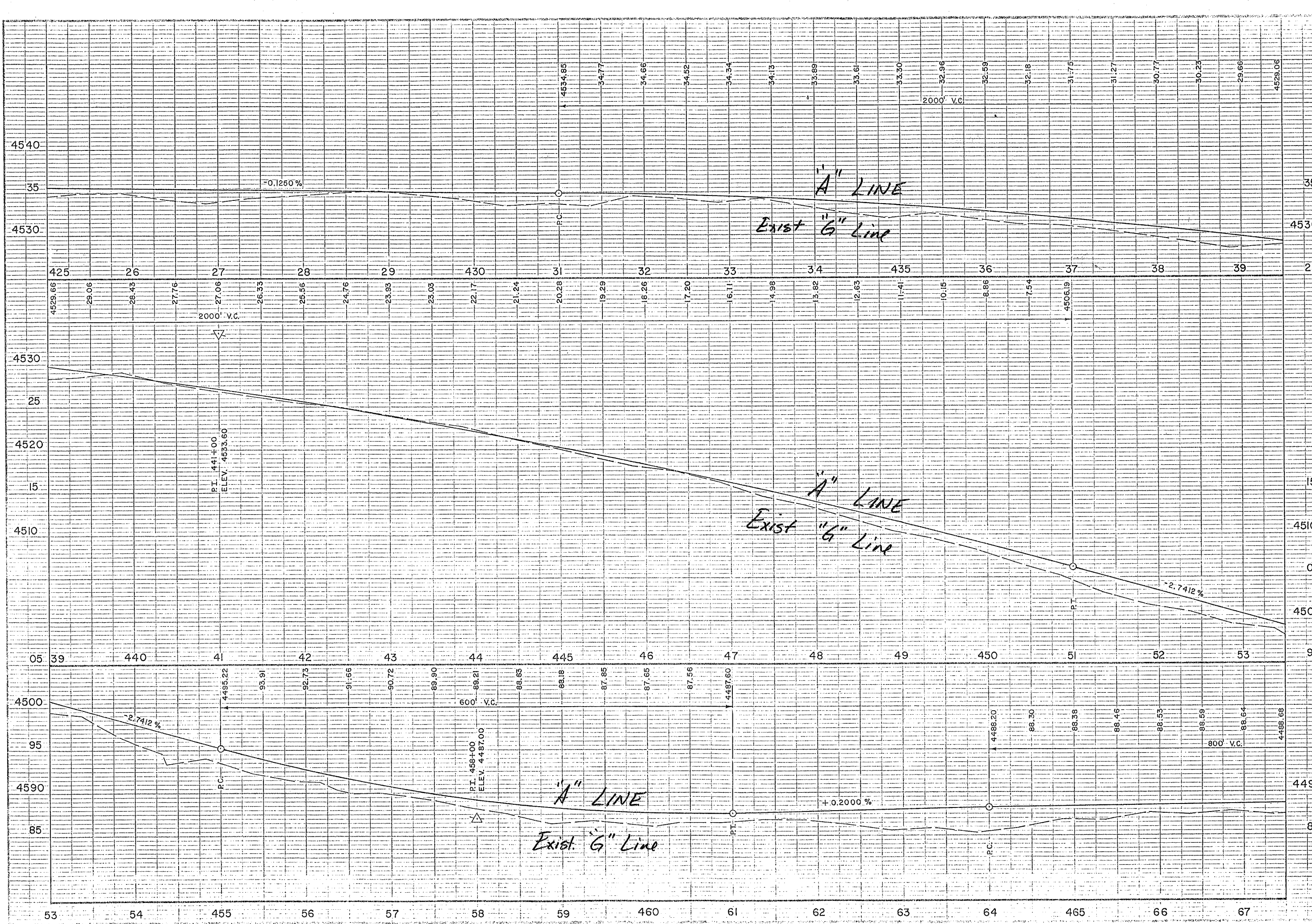
UTAH DEPARTMENT OF TRANSPORTATION			
7			
DESIGN	MAPS	PARCELS REQUEST	REMARKS
NO.	DATE	REV. BY CORRECTION	
ORIGINAL SUBMISSION FOR AUTHORIZATION			REVISIONS
CHECK	BY	CHECK	BY
DESIGN	DATE	QUANT.	QUANT.
COUNTY			
PROJECT NO. 18			



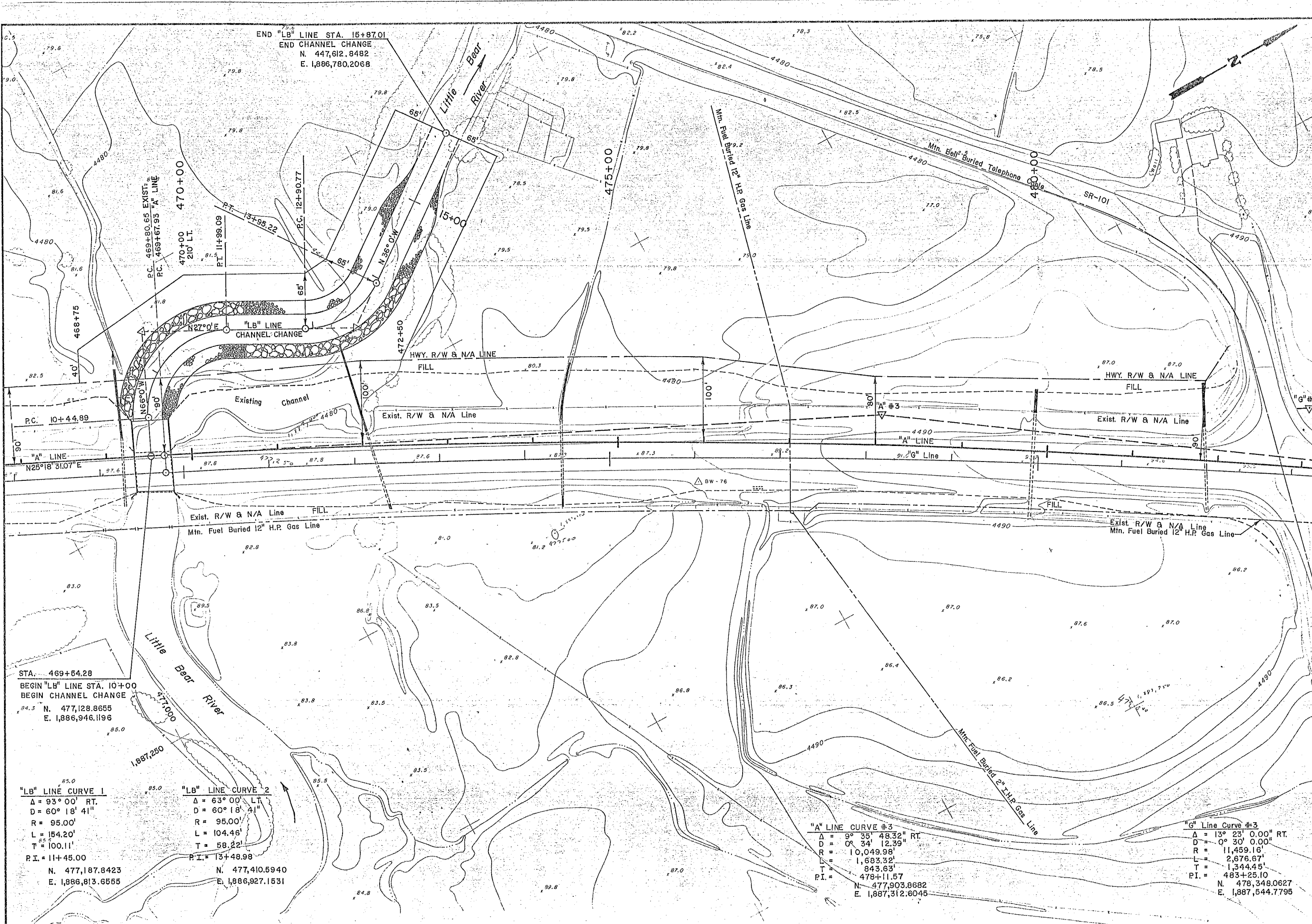
UTAH DEPARTMENT OF TRANSPORTATION		DISTRICT ONE		ODGEN, UTAH	
SR-91, WELLSVILLE		PROJECT DESIGN ENGINEER		ROADWAY DESIGN	
MT. STERLING RD. TO GREEN'S CORNER		DATE		J.W.T. 2/87	
GRADING, DRAINAGE		DATE		B.E.B. 2/87	
SURFACING & SIGNING		DATE		XXX XXX XXX	
PLAN SHEET		DATE		XXX XXX XXX	
PROJECT NUMBER		DATE		XXX XXX XXX	
F-017(15)		DATE		XXX XXX XXX	
CACHE COUNTY		DATE		XXX XXX XXX	
SHEET NO. 19		DATE		XXX XXX XXX	
REVISIONS		DATE		XXX XXX XXX	
ORIGINAL SUBMISSION FOR AUTHORIZATION		DATE		XXX XXX XXX	
DESIGN LABOR BY AFFECTED BY		DATE		XXX XXX XXX	
NO. DATE		DATE		XXX XXX XXX	
REMARKS		DATE		XXX XXX XXX	



UTAH DEPARTMENT OF TRANSPORTATION		DISTRICT ONE — OGDEN, UTAH		ROADWAY DESIGN		REVIEW	
SR 91, WELLSVILLE	MT. STERLING RD. TO GREEN'S CORNER	DESIGN	J.W.T.	CHECK	B.W.S.	2/87	BY
GRADING, DRAINAGE, SURFACING & SIGNING	PLAN SHEET	APPROVAL	J.W.T.	CHECK	B.W.S.	2/87	BY
PROJECT NUMBER	F-017(15)	APPROVED	DATE	DIST. ROADWAY DESIGN ENGINEER	QUANT.	XXX XXX XXX XXX	BY
SHEET NO. 20		COUNTY		CACHE		REVISIONS	
						ORIGINAL SUBMISSION FOR AUTHORIZATION	
						REMARKS	



UTAH DEPARTMENT OF TRANSPORTATION		
PROJECT NO.	22	
COUNTY		
DESIGNED BY		
CHECKED BY		
APPROVED BY		
DATE		
REVISIONS		
NO.	DATE	REVISIONS
1		REVISIONS
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100		REVISIONS



STA. 469+54.28
BEGIN "LB" LINE STA. 10+00
BEGIN CHANNEL CHANGE
N. 477,128.8655
E. 1,886,946.1196

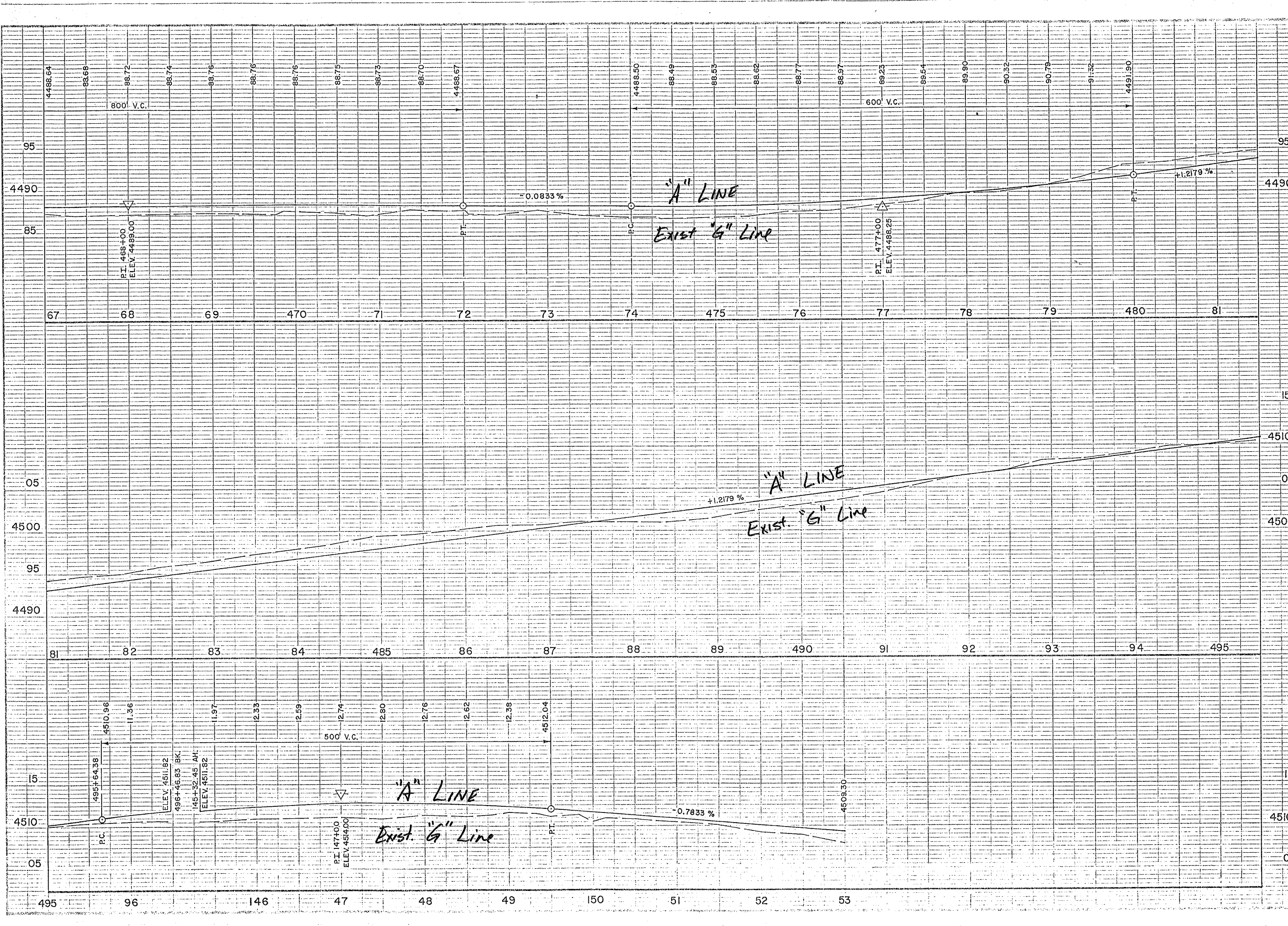
"LB" LINE CURVE 1
Δ = 93° 00' RT.
D = 60° 18' 41"
R = 95.00'
L = 154.20'
T = 100.11'
P.I. = 11+45.00
N. 477,187.8423
E. 1,886,813.6565

"LB" LINE CURVE 2
Δ = 63° 00' LT.
D = 60° 18' 41"
R = 95.00'
L = 104.46'
T = 58.22'
P.I. = 13+48.98
N. 477,410.5940
E. 1,886,927.1531

"A" LINE CURVE #3
Δ = 9° 35' 48.32" RT.
D = 0° 34' 12.39"
R = 10,049.98'
L = 1,683.32'
T = 843.63'
P.I. = 478+11.57
N. 477,903.8682
E. 1,887,312.6045

"G" Line Curve #3
Δ = 13° 23' 0.00" RT.
D = 0° 30' 0.00"
R = 11,459.16'
L = 2,676.67'
T = 1,344.45'
P.I. = 483+25.10
N. 478,348.0627
E. 1,887,544.7795

UTAH DEPARTMENT OF TRANSPORTATION DISTRICT ONE — OGDEN, UTAH		SR-91, WELLSVILLE CORNER MT. STERLING RD. TO GREEN'S CORNER GRADING, DRAINAGE SURFACING & SIGNING		PLAN SHEET F-017(15)	
APPROVED DATE		PROJECT DESIGN ENGINEER DATE		DIST. B'Y DESIGN ENGINEER DATE	
CHECK DATE		CHECK DATE		CHECK DATE	
REVIEW DATE		REVIEW DATE		REVIEW DATE	
DESIGN NO.		DESIGN NO.		DESIGN NO.	
DATE		DATE		DATE	
SUBMISSION FOR AUTHORIZATION		SUBMISSION FOR AUTHORIZATION		SUBMISSION FOR AUTHORIZATION	
REVISIONS		REVISIONS		REVISIONS	
DATE		DATE		DATE	
BY		BY		BY	
PROJECT NUMBER		PROJECT NUMBER		PROJECT NUMBER	
CACHE COUNTY		CACHE COUNTY		CACHE COUNTY	
SHEET NO. 23		SHEET NO. 23		SHEET NO. 23	



UTAH DEPARTMENT OF TRANSPORTATION			
PROJECT NO.	SHEET NO.	DATE	BY
	26		
DESIGN	MAPS	PARCELS	REMARKS
NO.	DATE	NO.	NO.
SUBMISSION FOR AUTHORIZATION			
REVISIONS			
COUNT			
CHECK			
DATE			
APPROVED			
PROJECT NUMBER			