

COLORADO DEPARTMENT OF HIGHWAYS

PLAN AND PROFILE OF PROPOSED FEDERAL AID PROJECT NO. S 0002 (19) STATE HIGHWAY NO. 100 LAS ANIMAS COUNTY

REGION NO. DIVISION PROJECT NO. SHEET NO.
COLORADO 5 0002 (19)
Rev. 5-16-58 J.W.K. Stockpiles shown
Add'l. Detail. Sta. M-60-A

CONVENTIONAL SIGNS

CENTER LINE	PLAN SHEET	TITLE SHEET
RIGHT OF WAY LINE	P.O.W. MARKER	
COUNTY LINE	---	
TOWNSHIP OR RANGE LINE	---	
LAND LINES	SECTION LINE	1/4 SECTION LINE
RAILROAD	TITLE SHEET	PLAN SHEET
BARBED WIRE FENCE	---	
COMBINATION WIRE FENCE	---	
SNOW FENCE	---	
TELEPHONE & TELEGRAPH LINES	---	
POWER LINE	---	
DETOUR	---	
PRESENT ROAD (Plan Sheets)	---	

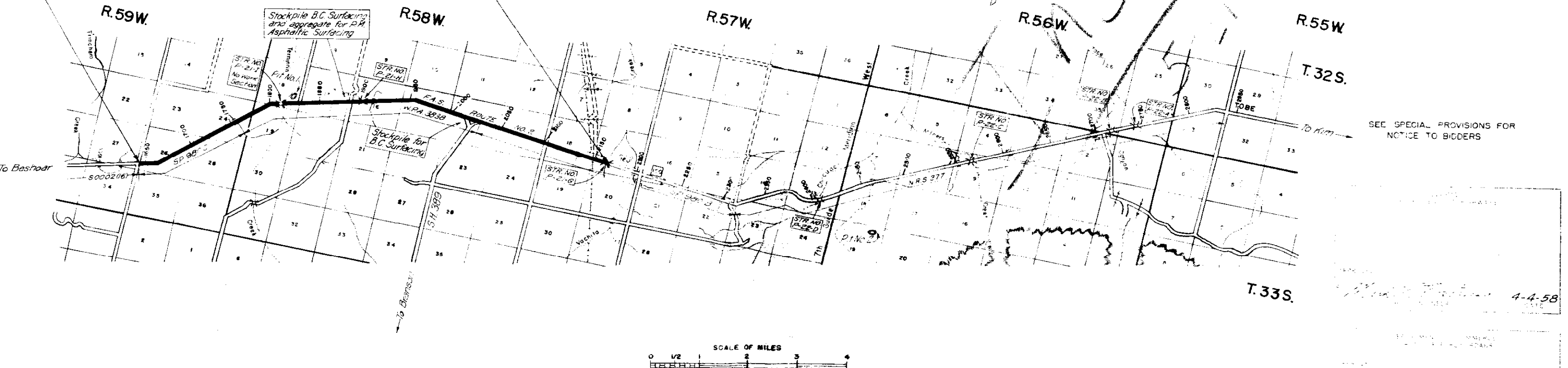
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SCALES OF ORIGINAL DRAWINGS
 ON PLAN. 1 IN. = 100 FT.
 ON PROFILE. 1 IN. = 100 FT. HORIZONTAL
 1 IN. = 10 FT. VERTICAL
 GRADE LINE ON PROFILE IS SHOWN AS GRADE OF FINISHED ROAD
 GROSS LENGTH OF PROJECT 52,777.0 FT. = 9.996 Miles
 NET LENGTH OF PROJECT 52,729.0 " = 9.987 "

STA. 1643+00 BEGIN S 0002 (19)
 = STA. 1643+00 END S0002(16)
 = STA. 1643+00 BEGIN SP980C

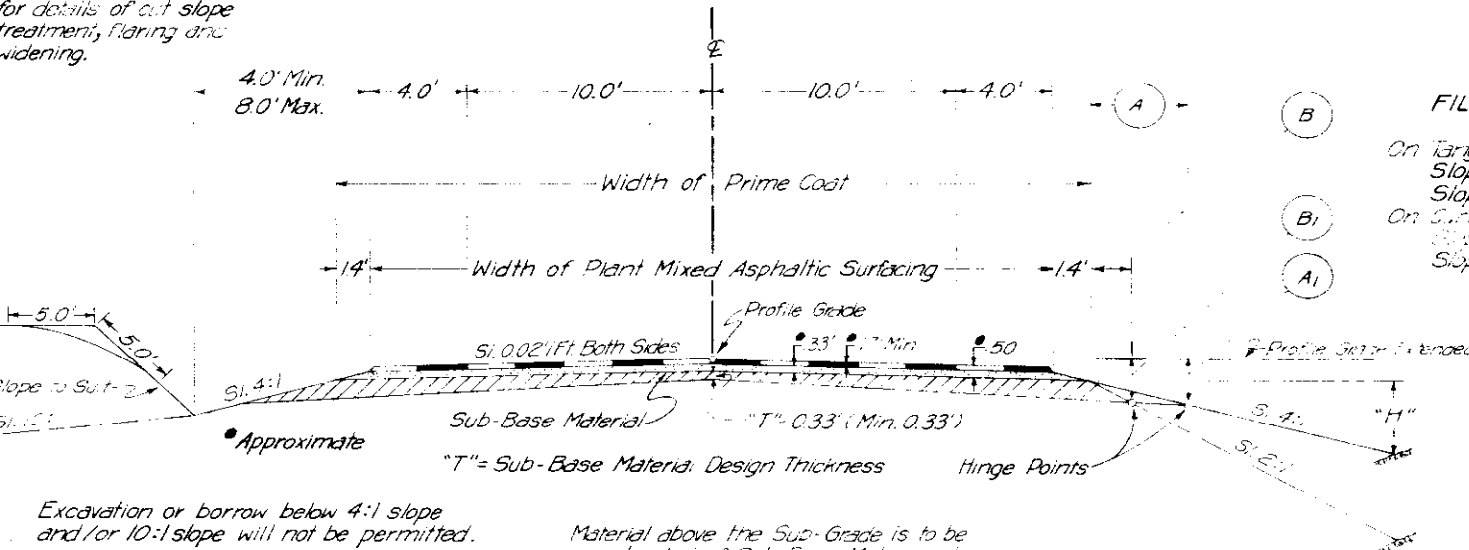
STA. 2170+77.0 END S0002(19)
 = STA. 2112+87.0 ON SP980B



TYPICAL CROSS SECTION OF IMPROVEMENT

NOTE:

See Standard M-2-EM for details of cut slope treatment, flaring and widening.



FILL SLOPES
 On Tangent:
 Slope 4:1 where "H" is 3' or less
 Slope 2:1 where "H" is over 3'
 On Curve:
 Slope 4:1 where "H" is 5' or less
 Slope 2:1 where "H" is over 5'

SIDE SLOPE HINGE POINTS

Sub-Base Design Thick. Inches	T-.33' Min	Slope 4:1		Slope 2:1	
		A	A ₁	B	B ₁
4"	.33'	2.2'	-1.4'	1.0'	-1.3'
5"	.42'	"	"	"	"
6"	.50'	"	"	"	"
8"	.67'	3.9'	-1.6'	1.8'	-1.7'
9"	.75'	"	"	"	"
11"	.92'	"	"	"	"

Excavation or borrow below 4:1 slope and/or 10:1 slope will not be permitted.

The depth and width of the side ditch shall be varied where necessary in order to provide proper drainage and/or entrance to drainage structures.

Material above the Sub-Grade is to be constructed of Sub-Base Material at locations designated in Sub-Base material tabulation. Estimated quantities of material required are tabulated in the Sub-Base Material Plan.

Approximate 0.5' compacted thickness of Gravel or Crushed Rock Surfacing shall be placed in separate courses at the following rates per 100 Lin. Ft. of roadway.

Plant Mixed Asphaltic Surfacing (Includes Asphalt) 35 Tons
 Bottom Course 65 Tons

GENERAL NOTES

This project is to be constructed in conformity with the Standard Specifications of the Colorado Department of Highways, adopted January 1, 1958.

All quantities on preliminary plans are to be considered approximate only.

All curves are to be superelevated and widened as provided by the Standard Superelevation sheet included with the plans.

For preliminary plan quantities of Asphaltic Road Materials the following rates of application were used.

PRIME COAT @ 0.40 Gals. per Sq. Yd.
PAVING ASPHALT (120-150 PENETRATION) @ 5.7% by weight

Rate of application and grade of Asphaltic Material shall be as determined by the Engineer at time of application.

The following listed approaches shall be primed, and asphaltic processed, (1 1/2" Thick) Sta. 1643+ Lt. & Rt. Sta. 1839+ Lt. Sta. 1854+ Rt. Sta. 2004+ & Sta. 2007+ Lt. Sta. 2010+ Rt. Sta. 2019+ Rt. Sta. 2101+ Lt. & Rt.

At Bridge Appr., 1815+, the Asphaltic Surfacing shall be widened to meet the curbed width of the bridge and shall take place gradually over a distance of 300 ft. each way from the Bridge ends. The Prime Coat shall be widened beyond that as indicated on Typical Section.

The Asphaltic Surfacing shall be placed over the curbed width of the bridge at Sta. 1914+ and Sta. 2170+.

The minimum width for side approach roads on this project shall be 12 feet in lieu of the 16 feet shown on Standard M-2-EM.

It is estimated that Blading (Item 207) will be required between: Sta. 1643+00 - 2169+ (250 hrs.) Blading is not to be allowed thru areas where excavation is shown on plans.

Class AX Concrete may be used on this project

Revised May 16, 1958
 J.W. Kutz Specifications
 & Note for Mass. Mt. Concrete

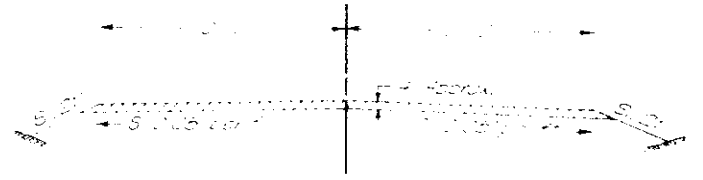
FEDERAL ROAD DISTRICT NO.	DIVISION	PROJ. NO.	SHEET NO.
9	COLORADO	5 0002 (19)	2

TABULATION OF LENGTH AND DESIGN

STATION	ROADWAY	BRIDGE	LOADING	BRIDGE NO.	WORK SECTION
	LIN. FT.	LIN. FT.			LIN. FT.
1643+00 ~ Begin Sub-Base					
1643+00 ~ End 5 0002 (19)					
1643+00 ~ Begin SP 9800					
1759+83.5 on S. 1st. S. 1st. =					
1701+70 End SP 9800					
1701+70 Begin W.F.A. 3538					
1814+68.5					
1815+6.5 Terminus Creek					480
1914+28.6					
1914+28.6					
1914+57.2					
2002+42.0 on S. 1st. S. 1st. =					
1902+13.2 End W.F.A. 3538 =					
1902+63.5 on SP 9800					
2170+50.0					
2170+50.0					
2170+73.2 End 5 0002 (19) =					
2172+87.0 on SP 9800					
TOTALS	52,673.5	65.5			480
SUMMARY					
			LIN. FT.	MILES	
Roadway			52,673.5	3.976	
Bridges			65.5	1.2	
Total Net Length			52,739.0	3.987	
Bridge Net Work Section			480	0.9	
Total Gross Length			53,219.0	3.987	
DESIGN DATA					
Maximum Degree of Curve				1.50%	
Maximum Grade				1.50%	
Minimum A.F.S.D. - horizontals				1.50%	
Minimum A.F.S.D. - verticals				1.50%	
Maximum Design Speed				55 M.P.H.	

TYPICAL SECTION OF DETOUR

STA 1912 - STA 1917
 STA 2168 - STA 2173



Detour Surfacing shall be placed at the rate of 34 tons per 100 lin. ft. of roadway.

FED. ROAD REG. NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	CCC2(19)	3	

Rev 5-16-58-J.W.K. Subletters, Items 13, 14, 16, 17, 18, 26
Quants

COMPARISON OF APPROXIMATE QUANTITIES

ITEM NO.	ITEM	UNIT	ROADWAY	BRIDGE STA 19 1/4+	BRIDGE STA 2170+	PROJECT TOTALS
11	REMOVAL OF 3 STRUCTURES	LUMP SUM				
11	REMOVING AND RESETTING MAIL BOXES	LUMP SUM				
11	REMOVAL OF PORTIONS OF PRESENT BRIDGE	EACH				2
11	REMOVE AND RESET GUARD POSTS	EACH	50			50
11	REMOVE AND REBUILD CATTLE GUARD	EACH				1
12	REMOVING AND REBUILDING FENCE	LIN. FT.	2000			2000
12	LINE POSTS (CEDAR)	EACH	40			40
13	UNCLASSIFIED EXCAVATION	CU. YD.	5000			5000
13	UNCLASSIFIED DITCH EXCAVATION	CU. YD.	300			300
13	STRIPPING	CU. YD.	1000			1000
14	UNCLASSIFIED STRUCTURAL EXCAVATION-MISCELLANEOUS	CU. YD.				
16	STRUCTURE BACKFILL (CLASS 1)	CU. YD.	50			50
		CU. YD.	80			80
17	WETTINGS	M. GAL.	2000			2000
17	COMPACTION (MODIFIED)	CU. YD.	39000			39000
18	STATION YARD OVERHAUL	STA. YD.	1000			1000
18	YARD MILE OVERHAUL	YD. MI.	300			300
18	TON MILE OVERHAUL	TON MI.	333,004	42		333,000
23	SUB-BASE MATERIAL (CLASS 1)	TON	78,700			78,700
26	PLACING STOCKPILED SURFACING	TON	34,000			34,000
26	DETOUR SURFACING	TON	300			300
29	ASPHALT (120-150 PENETRATION)	TON	1170			1170
30	ASPHALTIC ROAD MATERIAL MC (PRIME)	GAL.	73,000			73,000
32	PLANT MIXED ASPHALTIC SURFACING	TON	18,632	8		18,650
42	TREATED BRIDGE TIMBER	M FT. BH				0.0
46	CLASS "A" CONCRETE	CU. YD.				4
48	STRUCTURAL STEEL	LB.				2100
48	TRANSPORT, ALTER AND ERECT STRUCTURAL STEEL	LB.	1050			1050
49	CEMENT RUBBLE MASONRY	CU. YD.	18,750			18,550
53	24" CORRUGATED METAL CULVERT PIPE	LIN. FT.	254			254
75	METAL PLATE GUARD FENCE (BEAM TYPE)	LIN. FT.				100
75	METAL PLATE GUARD RAIL (BEAM TYPE)	LIN. FT.				100
92	TIMBER GUARD POSTS	EACH	4			4
148	METAL BRIDGE PLANK (7 GAGE)	SQ. FT.	750			1400
207	BLADING	HOUR	200			250
81	STATE FORCES PROJECT MARKERS *SIGNING AND STRIPING ENTIRE PROJECT	EACH LUMP SUM				
48	STATE FURNISHED MATERIAL * STRUCTURAL STEEL	LB.				35,500
26	GRAVEL OR CRUSHED ROCK SURFACING PRODUCED AND STOCKPILED BY COUNTY * EASEMENTS ENTIRE PROJECT	TON LUMP SUM	54,000	18,750	16,550	54,000

* NON FEDERAL AID

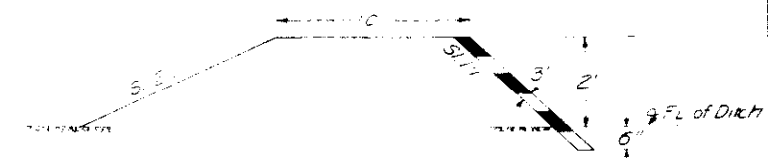
TIMBER GUARD POSTS

STATION	SIDE	SPACING	REMOVE & RESET NO.	NEW POSTS NO.
1732+57	Rt & Lt.	Culvert	2	
1765+75	" "	" "	2	
1793+32	" "	" "	2	
1814+04.5-1814+68.5	" "	Bridge	12	
1815+16.5-1815+80.5	" "	Bridge	12	
1820+50	Rt & Lt.	Culvert	2	
1861+72	" "	" "	2	
1898+76	" "	" "	2	
1913+64.5	" "	Bridge	2	
1915+21	" "	Bridge	2	

POSTS

STATION	SIDE	SPACING	REMOVE & RESET NO.	NEW POSTS NO.
1929+68	Rt & Lt.	*M.B.C.	2	
2008+92	" "	Culvert	2	
2010+82	" "	" "	2	
2023+21	" "	" "	2	
2139+91	" "	" "	2	
2158+17	Rt & Lt.	Culvert		2
2169+86	" "	Bridge		2
TOTALS			50	4

ITEM 32
PLANT MIXED ASPHALTIC SLOPE PAVING
 STA. 1940+00



There are 50 posts on the job that can be removed and reset
 * Masonry Box Culvert

It is estimated that Sub-Base is available in the vicinity of the pit indicated in Sub-Base Material Plan. It is estimated that Surfacing is available from Stockpiles indicated in Surfacing Plan. Estimated quantities involved in these operations are shown below. Alteration of the Sub-Base Material Plan and Surfacing Plan as outlined will be allowed only on written permission from the department.

See List of Structures for Quantities

SURFACING PLAN (FROM STOCKPILES) (BY CONTRACTOR)

MATERIAL TO BE PLACED	SOURCE AVAILABLE	TONS (GRADING "C")		TON MILE OVERHAUL	
		TOP COURSE PLANT MIX	BOTTOM COURSE	TOP COURSE PLANT MIX	BOTTOM COURSE
1643+00-1814+68.5 Bridge 1814+	Stockpile 100 Ft from Sta. 1895	6,009	11,160	19,024	35,331
1815+16.5-1895+00		2,794	5,189	2,165	4,021
1895+00-1914+28.5 Bridge 1914+		675	1,254	136	253
1914+57-1943+00		995	1,848	1,093	2,030
Estimated For: Approach to Project 1643+		5	9	24	43
Road Approaches		28	139	58	286
Bridge Widening		8	54	12	83
Slope Paving 1940+		2			
1943+00-2170+50 1943+00-2015+00 2015+00-2170+50 Bridge 2170+	Stockpile 100 Ft from Sta. 2015	7,963	4,680	24,108	2,290
Estimated For: Approach to Project 2170+					
" " " 2170+		35	65	184	194
Road Approaches		109	283	350	353
TOTALS		18,623	34,788	47,154	59,958

SURFACING PLAN (BY COUNTY FORCES)

Stockpile Sta. 2015	Pit No. 2 1.7 Mi. to Sta. 2373+66.8 (Farm 158) & 5.5 Mi. to Sta. 2170+77.0 50,000 Cu. Yds. "R" = 81		15,650		
Stockpile Sta. 1895		18,050	20,300		
TOTALS		18,050	35,950		

All Plant Mix from Stockpile Sta. 1895
 Quantities in Summary
 Includes Asphalt

SUB-BASE MATERIAL PLAN

MATERIAL TO BE PLACED	SOURCE AVAILABLE	6" T THICKNESS	TONS		TON MILE OVERHAUL	
			CLASS	CLASS	CLASS	CLASS
1643+00-1730+00	Pit No. 1 500 Ft. to Sta. 1827+00 100,000 Cu. Yds. "R" = 80	9"	12,876		35,482	
1730+00-1740+00		4"	950		1,745	
1740+00-1800+00		9"	2,165		4,021	
1800+00-1814+68.5		5"	1,395		253	
Bridge						
1815+16.5-1827+00		5"	124		230	
1827+00-1860+00		5"	3,335		1,277	
1860+00-1900+00		9"	5,921		1,511	
1900+00-1914+28.5		5"	1,395		253	
Bridge						
1914+57.0-1920+00		5"	50		93	
1920+00-1970+00		8"	680		1,241	
1970+00-1991+00		5"	1,935		5,959	
1991+00-2010+00		9"	2,812		9,575	
2010+00-2020+00		4"	950		3,473	
2020+00-2060+00		9"	5,920		24,342	
2060+00-2070+00		4"	950		4,372	
2070+00-2090+00		9"	2,960		14,464	
2090+00-2100+00		4"	950		4,372	
2100+00-2150+00		9"	7,400		42,466	
2150+00-2160+00		5"	950		539	
2160+00-2170+50.5		9"	1,554		12,122	
Estimated For: Approach to Project 1643+			10		50	
" " " Project			74		469	
Bridge Widening			67		307	
Crest Widening			158		257	
Corr. Irreg. in Subgrade			708		2,438	
Road Approaches			887		2,445	
TOTALS			78,677		226,695	

Based on Design Curve "B"

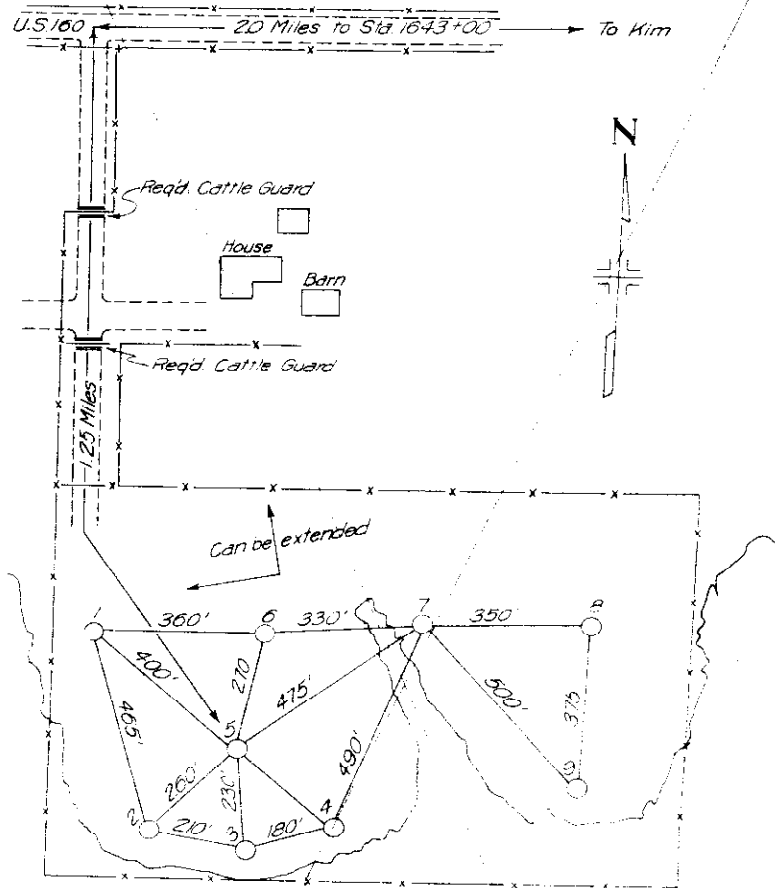
SKETCH MAPS OF MATERIAL PITS

Rev. 5-16-58-J.W.K.-
Pit No. 2

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	50002 (19)	5	

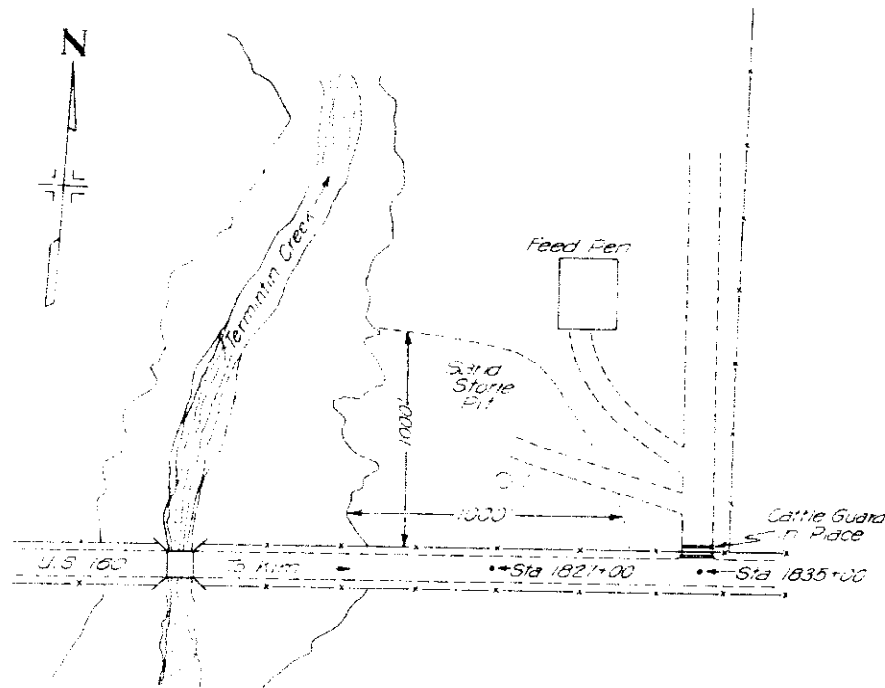
PIT NO.

Location: N.W. 1/4 of the S.W. 1/4 Sec. 4 T.34S. R.59W.
 Owner: George Price
 Quantity Available: 175,000 Cu. Yds.
 Proposed Use: 3.25 Miles to Sta. 1643+00
 Haul Distance: Estimated for Stripping



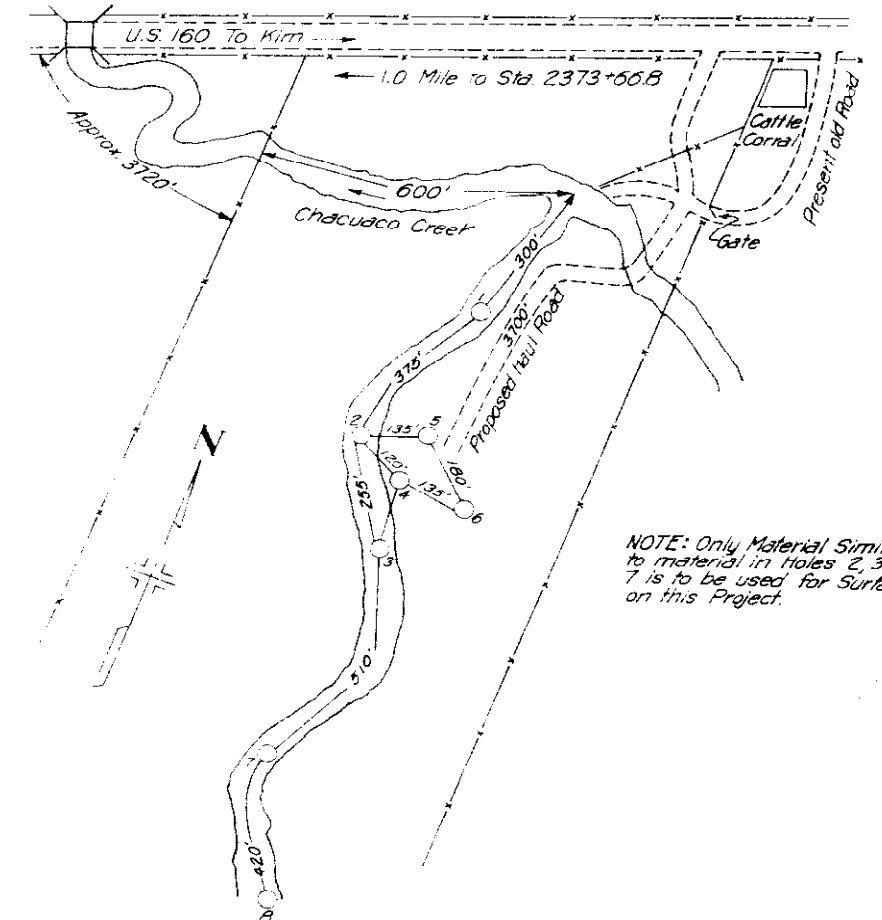
PIT NO. 1

Location: S. 1/2 Sec. 18 T.33S. R.58W.
 Owner: Clarence P. & Bette L. Newcomb
 Quantity Available: 100,000 Cu. Yds.
 Proposed Use: Sub-Base and Structure Backfill
 Haul Distance: 500' to Sta. 1827+00
 Estimated for Stripping: 1000 Cu. Yds.



PIT NO. 2 (Used by County for Stockpile Surfacing)

Location: N.E. 1/4 Sec. 19 T.33S. R.56W.
 Owner: Lorean Gdweil
 Quantity Available: 50,000 Cu. Yds.
 Proposed Use: Surfacing, Plant Mix
 Haul Distance: 1.7 Miles to Sta. 2373+66.2 and 5.5 Mi. to Sta. 2170+770
 Estimated for Stripping: 5000 Cu. Yds.



NOTE: Only Material Similar to material in Holes 2, 3 & 7 is to be used for Surfacing on this Project.

LOG OF PIT

Sample No. 2047

TEST NO.	DEPTH IN FEET	DESCRIPTION OF TEST HOLE MATERIAL
1	0.0'-5.0'	Soil and Rock
1-A	0.0'-12.0'+	Sand and Gravel
2	0.0'-3.0'	Similar to No. 1
2-A	3.0'-12.0'+	Sand and Gravel
3	0.0'-1.0'	Soil and Rock
3-A	1.0'-12.0'+	Sand and Gravel
4	0.0'-3.0'	Similar to No. 3
4-A	3.0'-9.0'+	Similar to No. 3-A Hit 24" to 30" Boulders
5	0.0'-3.5'	Similar to No. 3
5-A	3.5'-12.0'+	Sand and Gravel
6	0.0'-8.0'	Similar to No. 3
6-A	8.0'-12.0'+	Similar to No. 3-A
7	0.0'-3.5'	Soil and Rock
7-A	3.5'-12.0'+	Sand and Gravel
8	0.0'-4.0'	Similar to No. 7
8-A	4.0'-12.0'+	Similar to No. 7-A
9	0.0'-1.0'	Similar to No. 7
9-A	1.0'-12.0'+	Sand and Gravel

LOG OF PIT

Sample No. 2049

TEST NO.	DEPTH IN FEET	DESCRIPTION OF TEST HOLE MATERIAL
1	0.0' - 3.0'	Sandstone This is approximately 15.0' Deep

LOG OF PIT

Sample No. 2048

TEST NO.	DEPTH IN FEET	DESCRIPTION OF TEST HOLE MATERIAL
1	0.0'-10.0'+	Sand and Gravel (Water at 7.0')
2	0.0'-11.0'	Sand and Gravel (Hit Shale at 11.0')
3	0.0'-4.0'	Sand and Gravel (Hit Shale at 4.0')
4	0.0'-7.0'	Sand and Gravel (Hit Boulders)
5	0.0'-3.5'	Overburden
5-A	3.5'-12.0'+	Sand and Gravel
6	0.0'-6.0'	Similar to No. 5
6-A	6.0'-12.0'+	Sand and Gravel
7	0.0'-5.0'	Sand and Gravel (Hit Rock Probably Solid)
8	0.0'-4.0'	Similar to No. 7 (Hit Shale)

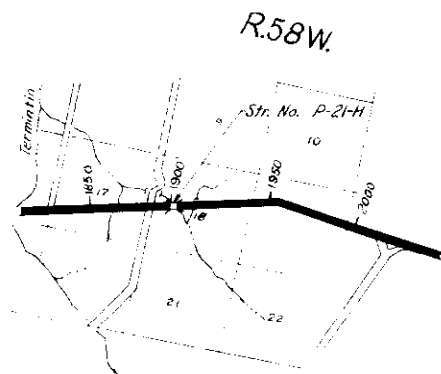
NOTE: Pit can be extended both up and down Stream. Up Stream 450' above Hole No. 8 a 6.0' Deposit of Sand and Gravel in an Area where 2 Streams come together. This is a deposit other than Stream Bed.

FED ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
	COLO.	50002(19)	7	

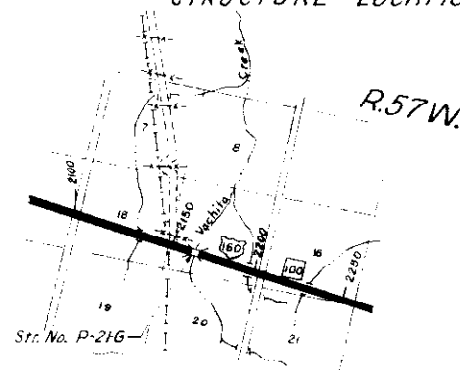
Rev. 5-16-58 J.W.K. Subletters, Item 18 Quants.

LIST OF WORK TO BE DONE FOR STRUCTURE No. P-21-H & P-21-G

- Remove Entire Superstructure.
- Remove end posts on each wing.
- Place and erect salvaged structural steel girders, diaphragms and guardrail post brackets. Paint all salvaged structural steel with one(1) field coat of Aluminum paint.
- Use cement rubble masonry between girders and outside edge girders to end faces of Abutment seals at each Abutment.
- Erect new metal plank flooring.
- Place treated timber wheel guards.
- Raise Abutments to two(2) inches below finish grade elevation.
- Erect Guardrail and Transition Rail as per plan.
- Place Asphaltic Wearing Surface as shown.



STRUCTURE LOCATION



STRUCTURE LOCATION

SUMMARY OF QUANTITIES (Structure No. P-21-H)

Item	Description	Unit	Total
	Removal of Portions of Bridge	Each	1
32	Plant Mixed Asphaltic Surfacing	Ton	10
42	Treated Bridge Timber	Mt/bm	0.300
46	Class A Concrete	Cu. Yd.	2
48	Structural Steel (Includes 3/4% ± for overrun)	Lb.	1,310
48	Transport, Alter and Erect Structural Steel (Includes 3/4% ± overrun)	Lb.	18,705
49	Cement Rubble Masonry	Cu. Yd.	2
75	Metal Plate Guard Fence	Lin. Ft.	50
75	Metal Plate Guard Rail	Lin. Ft.	50
148	Metal Bridge Plank (76 gage)	Sq. Ft.	750
0	Expansion Joint Material (Type I)	Sq. Ft.	13
18	Ton Mile Overhaul	Ton Mi.	4
48	State Furnished Material	Lb.	18,705

Q Expansion Joint Material shall be in accordance to A.A.S.H.O. specification M-155-54 and the type shown and shall be included in the Bid Price for Item 46.

Q Material req'd for Item 48 to be furnished by the Colo. Dept of Highways from the Dept. warehouse at Denver, Colo.

SUMMARY OF QUANTITIES (Structure No. P-21-G)

Item	Description	Unit	Total
11	Removal of Portions of Bridge	Each	1
32	Plant Mixed Asphaltic Surfacing	Ton	8
42	Treated Bridge Timber	Mt/bm	0.260
46	Class A Concrete	Cu. Yd.	2
48	Structural Steel (Includes 3/4% ± for overrun)	Lb.	14,005
48	Transport, Alter and Erect Structural Steel (Includes 3/4% ± overrun)	Lb.	16,520
49	Cement Rubble Masonry	Cu. Yd.	2
75	Metal Plate Guard Fence	Lin. Ft.	50
75	Metal Plate Guard Rail	Lin. Ft.	50
148	Metal Bridge Plank (76 gage)	Sq. Ft.	650
0	Expansion Joint Material (Type I)	Sq. Ft.	13
18	Ton Mile Overhaul	Ton Mi.	42
48	State Furnished Material	Lb.	16,520

GENERAL NOTES

ALL WORK SHALL BE DONE ACCORDING TO THE STANDARD SPECIFICATIONS OF THE COLORADO DEPARTMENT OF HIGHWAYS APPLICABLE TO THE PROJECT.
 ALL CONCRETE SHALL BE CLASS "A" AND AIR ENTRAINMENT AS SPECIFIED.
 ALL CONCRETE SURFACES EXPOSED TO VIEW SHALL RECEIVE CLASS "1" SURFACE FINISH, EXCEPT THE UNDERSIDE OF FLOOR SLABS AND ABUTMENT FACES BETWEEN OUTSIDE STRINGERS.
 CONCRETE GIRDERS, FLOOR SLABS AND CURBS SHALL BE Poured MONOLITHICALLY.
 FORMS FOR CONCRETE SURFACES EXPOSED IN THE FINISHED WORK SHALL BE CONSTRUCTED OF SHIP-LAY OR TONGUE AND GROOVE LUMBER S 3 S UNLESS FACED WITH PANEL BOARD.
 FOOTINGS IN ROCK SHALL BE Poured OUT TO ROCK AND NOT FORMED.
 SOUNDINGS AND DEPTH OF FOOTING SHOWN ARE IN ACCORDANCE WITH THE BEST AVAILABLE DATA AND WHEN DIFFERENT CONDITIONS ARE ENCOUNTERED THE BRIDGE ENGINEER WILL INSPECT AND DETERMINE IF REDSIGN IS NECESSARY.
 ALL REINFORCING STEEL SHALL CONFORM TO ASTM SPECIFICATION A 305-50T OR THE LATEST REVISION THEREOF, AND SHALL BE INTERMEDIATE GRADE STEEL OF A DEFORMED TYPE. EACH BAR SHALL BE TAGGED WITH THE NUMBER DESIGNATION AND THE STATION NUMBER OF THE PROJECT. PRIMARY BARS SHALL NOT BE SPICED AND SECONDARY BARS WHEN SPICED SHALL LAY 20 DIAMETERS OF THE BAR. DIMENSIONS FOR REINFORCING STEEL NOT SHOWN AS CLEAR SHALL BE TO THE CENTER LINE OF THE BAR.
 ALL STRUCTURAL STEEL SHALL BE PAINTED ONE SHOP COAT OF ZINC CHROMATE AND TWO FIELD COATS OF ALUMINUM, UNLESS OTHERWISE NOTED, EXCEPT THE UNEXPOSED PORTION OF STEEL PILING NEED NOT BE PAINTED.
 HANDRAIL BOLTS SHALL HAVE HEX HEADS, NUTS, AND LOCK WASHERS UNLESS OTHERWISE SPECIFIED AND ALL BOLTS EXCEPT AS NOTED ARE 1/2" DIA. AND SHALL BE POWER DRIVEN.
 WHEN TREATED TIMBER OR PILING IS SHOWN ON THE DRAWING THE PRESERVATIVE FOR TREATMENT SHALL BE CREOSOTE OIL.
 WHEN EXCAVATING FOR FOOTINGS THE FINAL ONE FOOT IN DEPTH SHALL BE DONE BY HAND LABOR METHODS.

LOADING DATA

LIVE LOAD: A A S H O 1952
 DEAD LOAD: ASSUMES 15 LBS PER SQ. FT. ADDITIONAL WEARING SURFACE WHICH INCLUDES THE 1 INCH CONCRETE MONOLITHIC WEARING SURFACE SHOWN.

DESIGNING DATA

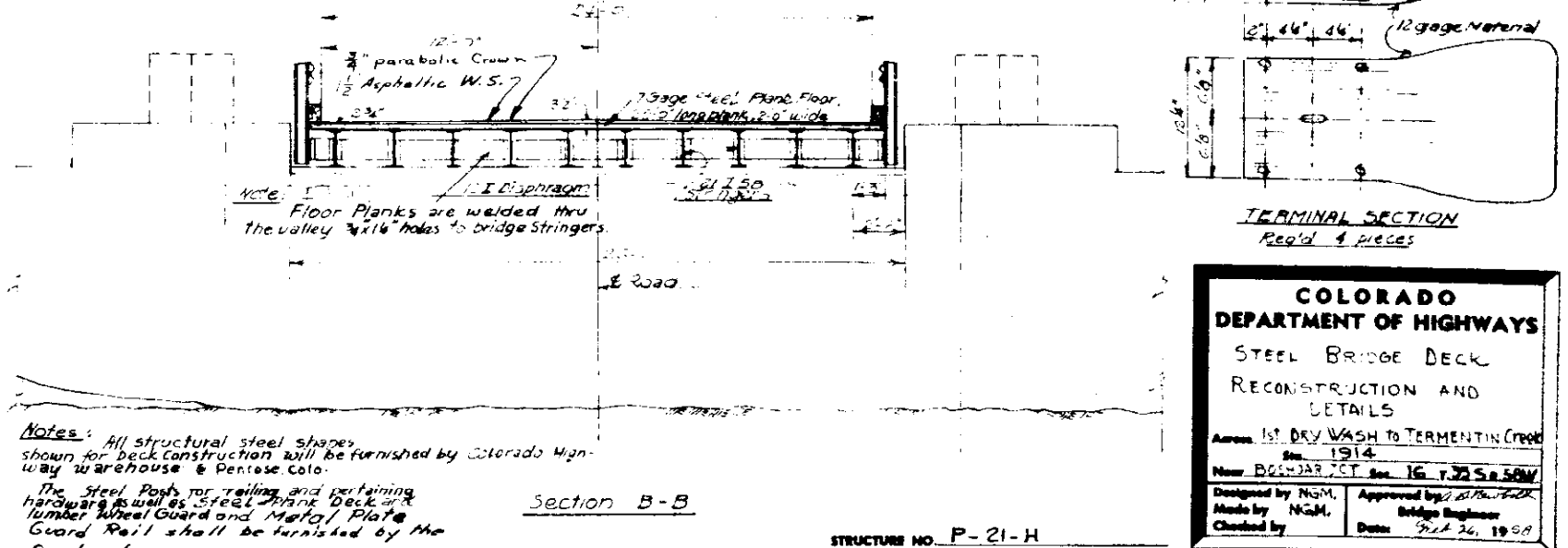
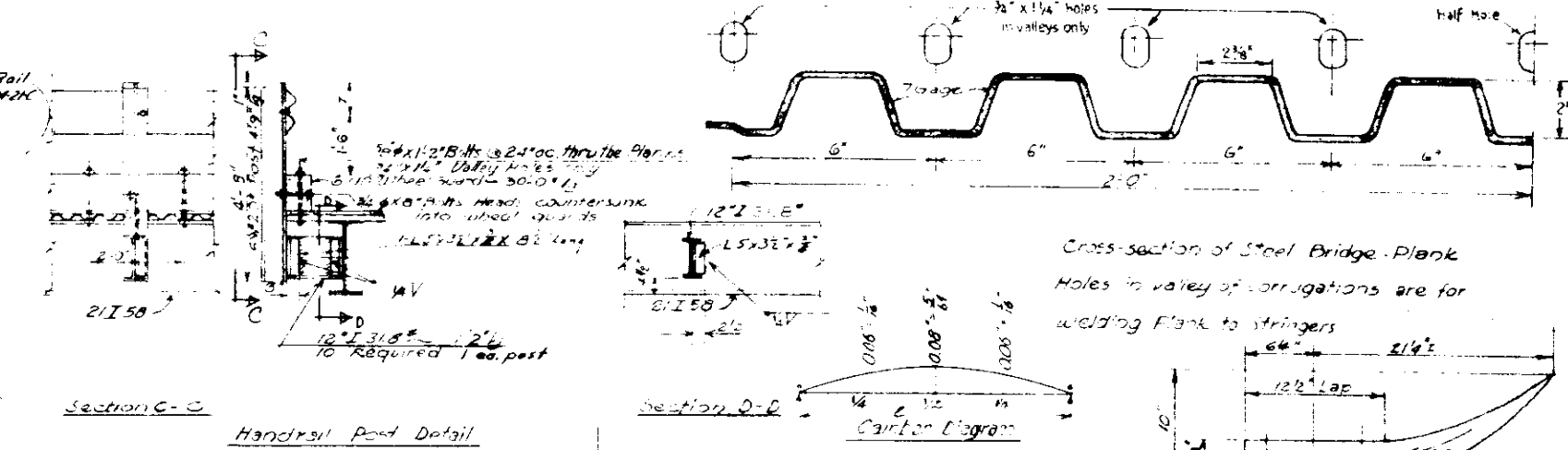
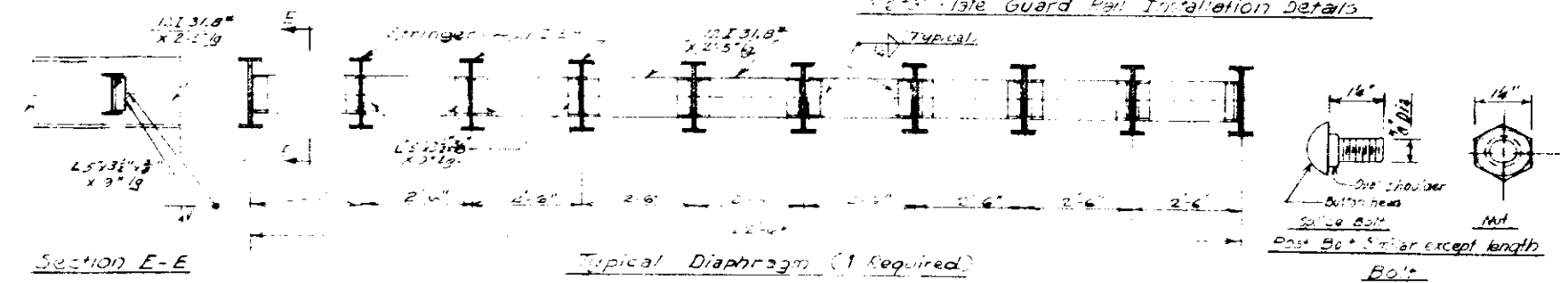
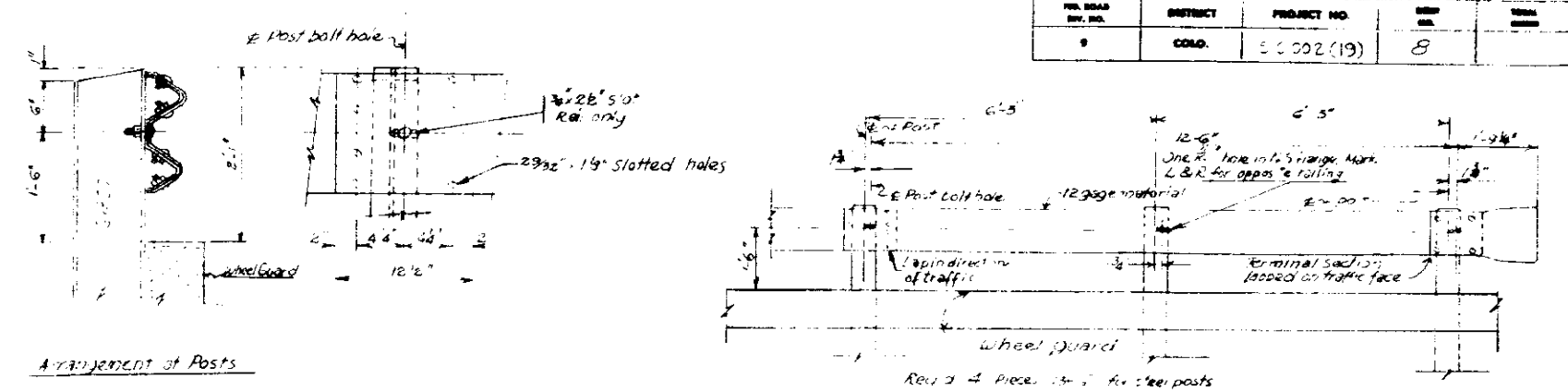
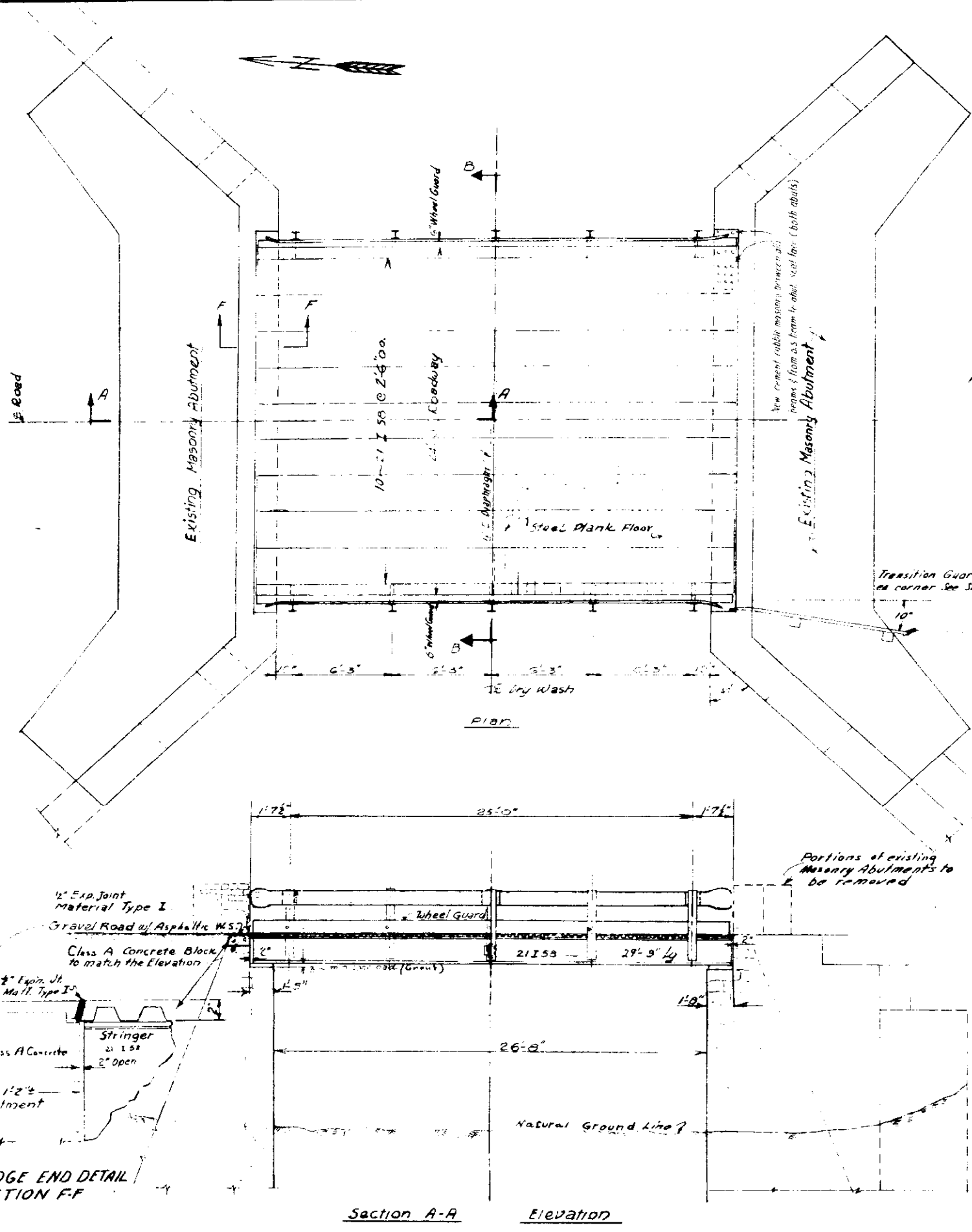
A A S H O 1952 UNIT STRESSES EXCEPT AS NOTED
 Reinforcing Steel fs: 20000 lbs. per sq. in.
 Structural Steel fs: 18000 lbs. per sq. in.
 fc: 1200 lbs. per sq. in.
 n: 10

COLORADO
 DEPARTMENT OF HIGHWAYS
 STRUCTURE LOCATION &
 SUMMARY OF QUANTITIES
 STEEL BRIDGE DECK RE-
 CONSTRUCTION LIST OF WORK

Across Vichita Creek & 1 1/2 Miles West of Fort Collins
 Sta. 21+4 and 21+70
 Near Reservoir, Sec. 20, T. 33 S. R. 58 W.

Designed by A.C. B. Approved by *A.B. Hambrick*
 Made by M.E. Bridge Engineer
 Checked by Date: *9-16-26, 1958*

NO. DRAW	DISTRICT	PROJECT NO.	REV.	DATE
9	COLO.	50002 (19)	8	



Notes: All structural steel shapes shown for deck construction will be furnished by Colorado Highway Warehouse & Pontose, Colo.
The Steel Posts for railing and pertaining hardware as well as Steel Plank Deck or Lumber Wheel Guard and Metal Plate Guard Rail shall be furnished by the Contractor.

COLORADO DEPARTMENT OF HIGHWAYS

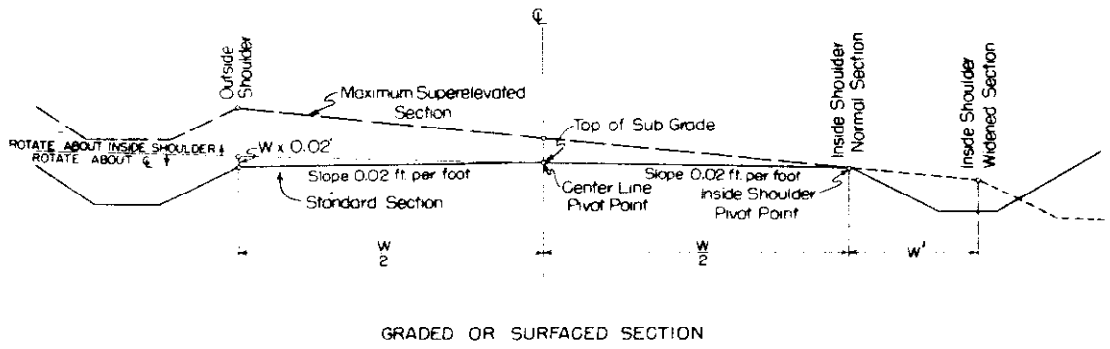
STEEL BRIDGE DECK RECONSTRUCTION AND DETAILS

Across 1st DRY WASH TO TERMENTIN CREEK
Sta. 1914
Near DENVER, CO. Sec. 16 T. 35 S. 50 W.

Designed by NCM
Made by NCM
Checked by

Approved by [Signature]
Bridge Engineer
Date: 5/23/26, 1928

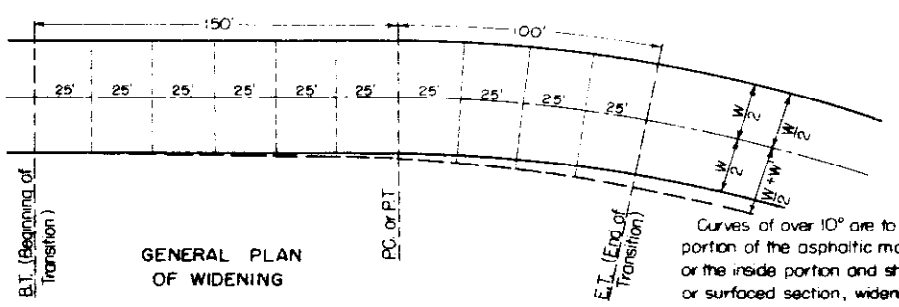
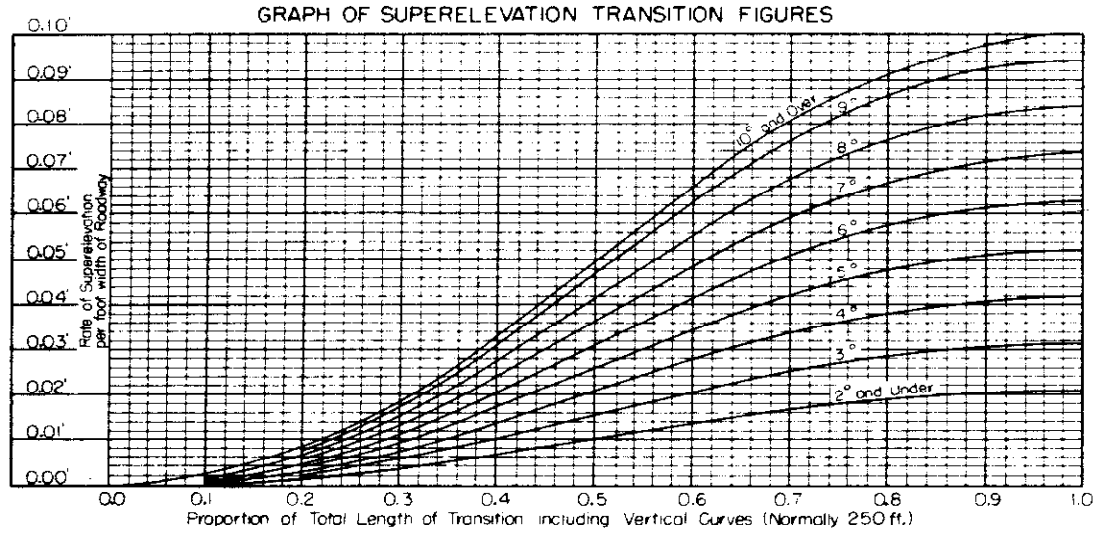
STRUCTURE NO. P-21-H



GRADED OR SURFACED SECTION

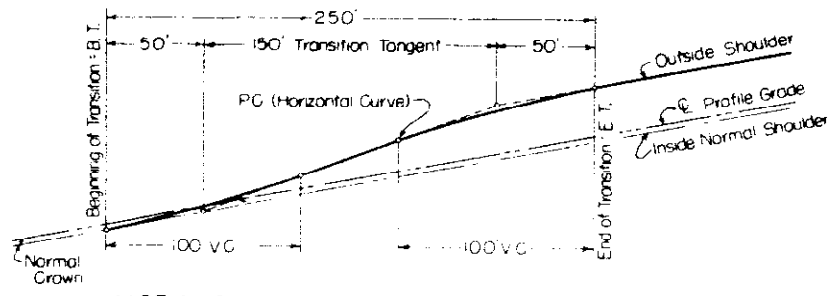
SUPERELEVATION AND WIDENING TABLES

DISTANCE FROM B.T. (PROPORTION)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	Max. 1.0
Degree of Curvature	RATE OF SUPERELEVATION (IN FEET) PER FOOT WIDTH OF ROADWAY									
2° and Under	0.00044	0.00175	0.00394	0.00700	0.01050	0.01400	0.01706	0.01925	0.02056	0.02100
3°	0.00066	0.00263	0.00591	0.01050	0.01575	0.02100	0.02559	0.02888	0.03084	0.03150
4°	0.00088	0.00350	0.00788	0.01400	0.02100	0.02800	0.03413	0.03850	0.04113	0.04200
5°	0.00109	0.00438	0.00984	0.01750	0.02625	0.03500	0.04266	0.04813	0.05141	0.05250
6°	0.00131	0.00525	0.01181	0.02100	0.03150	0.04200	0.05119	0.05775	0.06169	0.06300
7°	0.00153	0.00613	0.01378	0.02450	0.03675	0.04900	0.05972	0.06738	0.07197	0.07350
8°	0.00175	0.00700	0.01575	0.02800	0.04200	0.05600	0.06825	0.07700	0.08225	0.08400
9°	0.00197	0.00788	0.01772	0.03150	0.04725	0.06300	0.07678	0.08663	0.09253	0.09450
10° and Over	0.00208	0.00833	0.01875	0.03333	0.05000	0.06667	0.08125	0.09166	0.09792	0.10000
	OFFSETS FOR WIDENING - W' (IN FEET)									
Over 10° - Under 12°	0.03	0.12	0.27	0.48	0.75	1.08	1.47	1.92	2.43	3.00
12° - 15°	0.04	0.16	0.36	0.64	1.00	1.44	1.96	2.56	3.24	4.00
15° - 20°	0.05	0.20	0.45	0.80	1.25	1.80	2.45	3.20	4.05	5.00
20° and Over	0.06	0.24	0.54	0.96	1.50	2.16	2.94	3.84	4.86	6.00



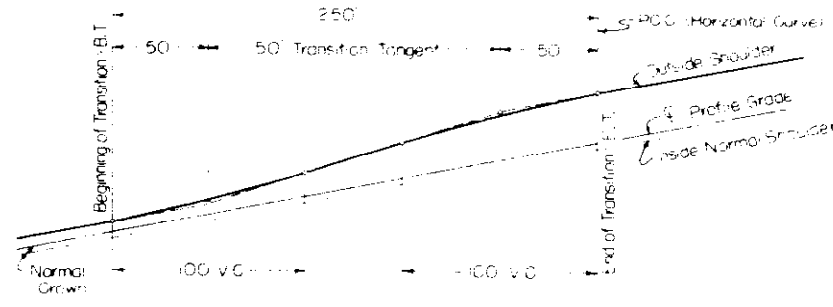
GENERAL PLAN OF WIDENING

Curves of over 10° are to have the inside portion of the asphaltic mat and shoulder, or the inside portion and shoulder in a graded or surfaced section, widened in accordance with the plan, offsets for widening, and cross sections.



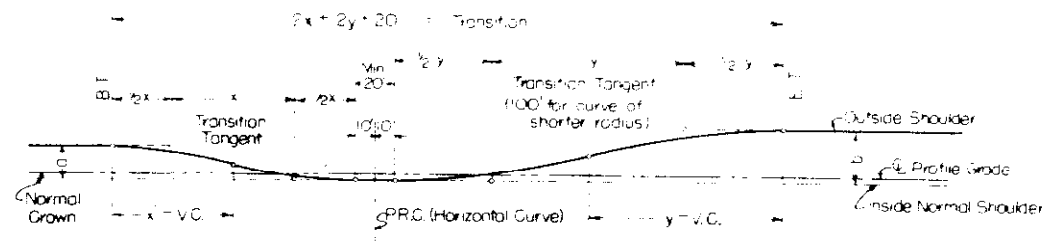
CASE I: SIMPLE CURVE WITH UNLIMITED TANGENT APPROACH

NOTE: CASE I
The transition in this case, from normal crowned section to superelevated section, shall proceed by raising the outside shoulder over a distance of 250 ft. as shown, beginning at a point on the tangent 150 ft. from the end of the curve and acquiring full superlevation at a point 100 ft. inside the curve.



CASE II: COMPOUND CURVE

NOTE: CASE II
Superelevation transitions at the outside ends of compound curves shall be constructed in accordance with rules given under CASE I.
Superelevation transition between the arcs of different radii shall be made in accordance with CASE I, except that the entire transition shall be within the limits of the curve of the larger radius.
In cases where curves in the same direction have a tangent distance of less than 300 ft. between points of curve, the intervening tangent shall be superelevated an amount equal to that of the curve of greater radius and the transition shall be made as in the case of a true compound curve.



CASE III: REVERSE CURVES

NOTE: CASE III
Transitions between true reverse curves shall be accomplished as shown on the above diagram.
Transition tangents shall be directly proportional to the amount of superlevation of the respective curves.
EXAMPLE: Let a represent the amount of superlevation on 1st curve,
" b " " " " 2nd " "
" x " " " " transition tangent " 1st " "
" y " " " " " 2nd " "
then, a:b = x:y.
The transition tangent of the curve having the shorter radius shall be set at 100 ft.
A normal crowned section 20 ft long, 10 ft on each side of the P.C. shall be used.
In cases where curves in opposite directions are in such proximity that a standard transition can not be had, the practice outlined for true reversing curves shall be used.
The total distance between the P.T. of the first curve and the P.C. of the succeeding curve shall be prorated into the transition distance of the respective curves until a maximum of 150 ft of transition tangent for each curve is achieved.

GENERAL NOTES

Curves on projects using the Section shown are to be superelevated and widened as indicated in the accompanying drawings and tables.
The normal inside edge of the Graded or Surfaced Section is to remain at the standard elevation of 0.02 ft per foot width of roadway below the profile grade, as shown in the Typical Section for the Project. The centerline pivot point is to be used until the superlevation equals 0.02 ft per foot width of roadway. When this elevation is exceeded the normal inside shoulder pivot point is to be used.
When the degree of curvature exceeds 10° the inside edge of the Asphaltic Mat or the inside shoulder of the Graded or Surfaced Section is to be widened from the normal inside edge or shoulder, respectively, as shown by the table and plan or by cross-sections. Curves of 10° or less are not to be widened.
The slope of the shoulders and widened sections shall conform to the rate per foot width of roadway required, except that the inside shoulder shall maintain the Typical Section slope until this slope is exceeded by the required superlevation slope.
The outside ditch on superelevated sections is to be modified, where necessary, to provide proper drainage. Otherwise, this ditch shall conform to normal ditch section shown for Project.
The rate of superlevation per foot width of roadway to be applied at the outside shoulder of the roadway is computed as follows:
The full superlevation per foot width of roadway rate for a given degree of curvature is 0.0105 ft x Degree of Curvature.
The maximum superlevation of 0.02 ft per foot width, applying to curves of 10° and over, is not to be exceeded.
Where spiral curves are used, the transition from normal crowned section to full superlevation and widening shall take place over the full length of spiral curve.
Special transition problems not covered by this standard sheet shall be covered by appropriate notes included with curve data on plans.

COLORADO
DEPARTMENT OF HIGHWAYS
STANDARD METHODS
FOR
SUPERELEVATION &
WIDENING OF CURVES

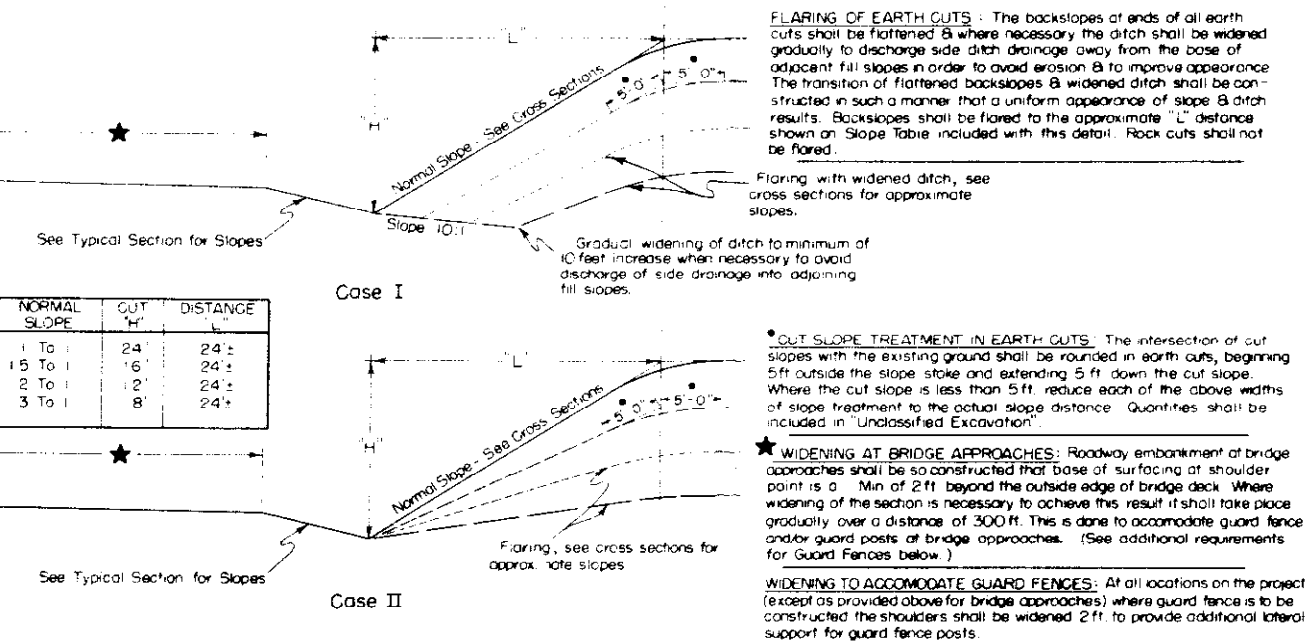
Designed by *REL* Approved by *J. Julian*
Made by *SJM* Checked by *CRS* Date: November 1953

STANDARD SIDE APPROACH ROADS, FLARING, CUT SLOPE TREATMENT & WIDENING AT BRIDGES AND AT CREST OF GRADES

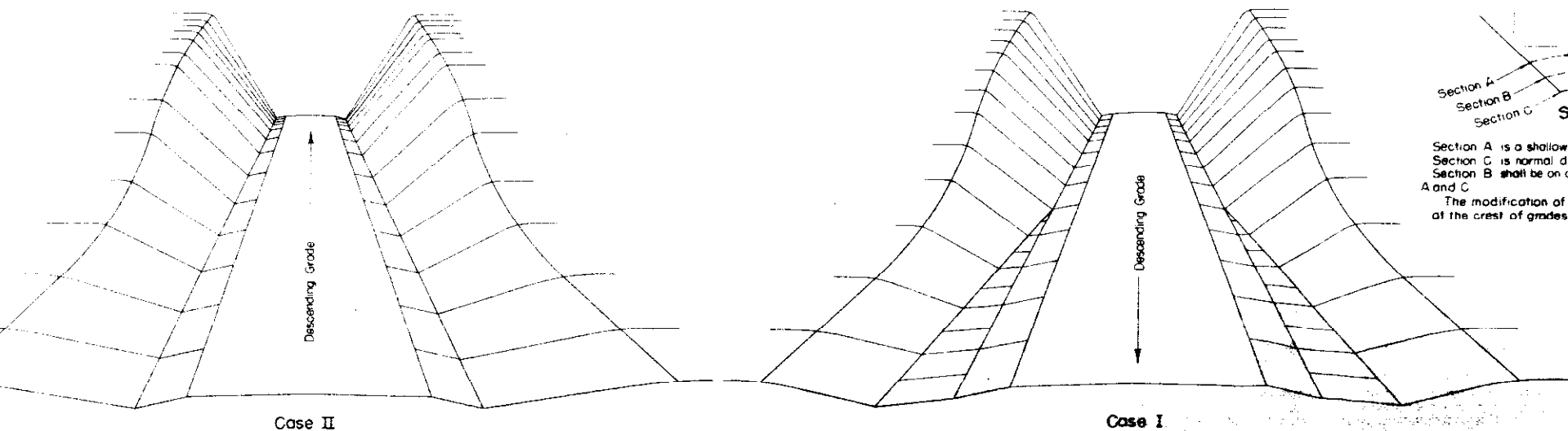
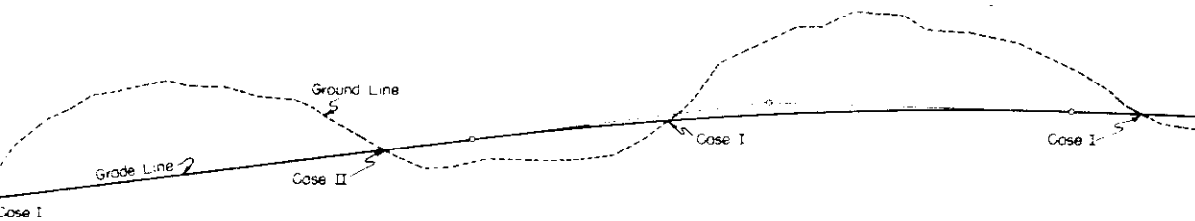
STANDARD M-2-EM

FED. ROAD DIV. NO. 9 DISTRICT COLO. 50002(19) 10 SHEET NO. TOTAL SHEETS
 Rev. 12-9-53, Details of Road Approaches, J.C.R.
 Rev. 10-28-55, Widening of Bridge Approaches Note, S.J.M.

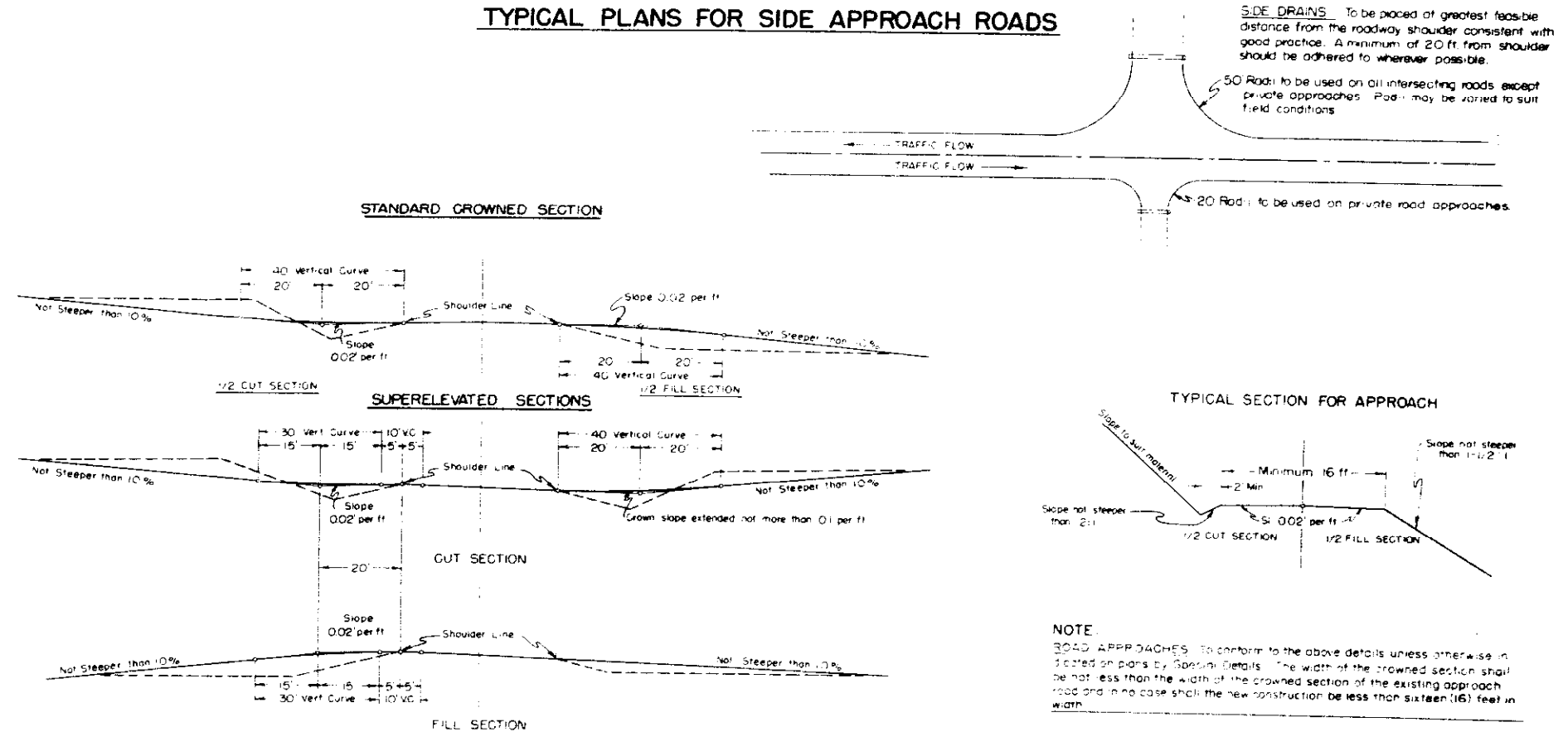
GENERAL DETAILS FOR FLARING OF EARTH CUTS, CUT SLOPE TREATMENT & WIDENING AT BRIDGES



PLAN OF FLARING IN EARTH CUTS

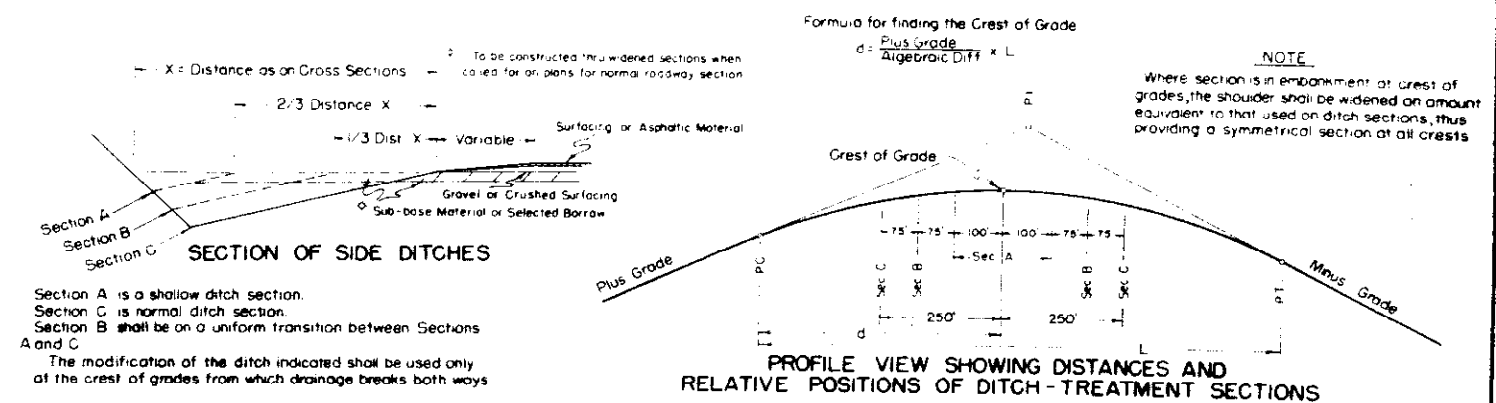


TYPICAL PLANS FOR SIDE APPROACH ROADS



DETAILS FOR DITCH & WIDENED SHOULDERS AT CREST OF GRADES

(TO BE USED ONLY WHERE SIGHT DISTANCE AT CREST OF GRADE IS 600 FT OR LESS)



GENERAL NOTES

All work shall be done in accordance with the Standard Specifications of the Colorado Department of Highways applicable to the Project.

All side approach roads to the Project shall be Gravel Surfaced with a four (4) inch thickness of "Gravel or Crushed Rock Surfacing" extending approximately to the Right of Way Line. Estimated tonnage & type of material required for this operation are shown in the Surfacing Plan.

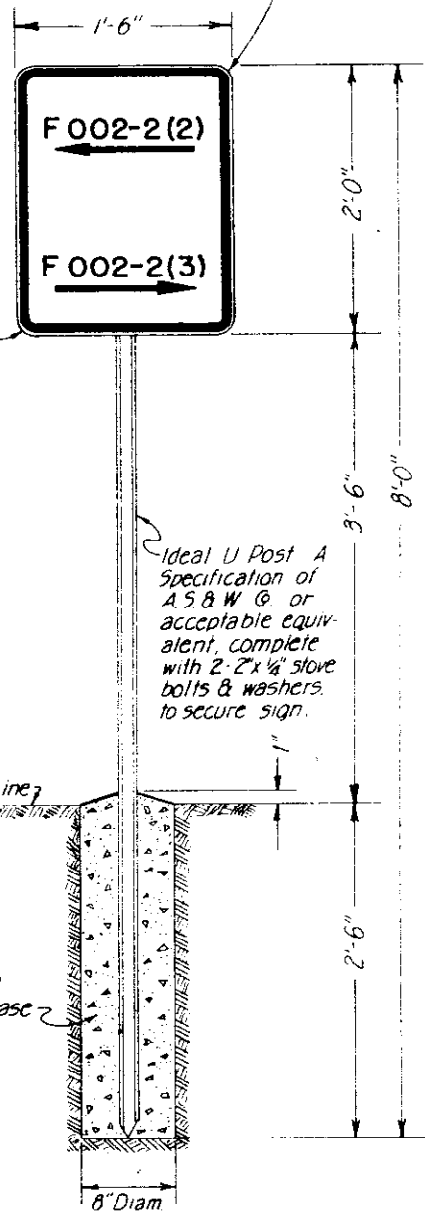
The maximum grades shown are to be the limiting grades for all road approaches. Modifications of grades will be permitted where adherence to the grades as shown would cause damage to property or create other unsatisfactory conditions. Grades less than the maximum shown are to be used wherever feasible.

COLORADO DEPARTMENT OF HIGHWAYS
STANDARD SIDE APPROACH ROADS, FLARING, CUT SLOPE TREATMENT, AND WIDENING AT BRIDGES AND AT CREST OF GRADES

Designed by A.Z. Made by S.J.M. B.A.S.H. Checked by C.R.S. Approved by A. Julian Date: November 1, 1953

PROJECT MARKER POST

Metal Sign Conforming to A.A.S.H.O. Manual on Uniform Traffic Control Devices. White Background, Black Letters & Symbols.



NOTES FOR PROJECT MARKER POSTS

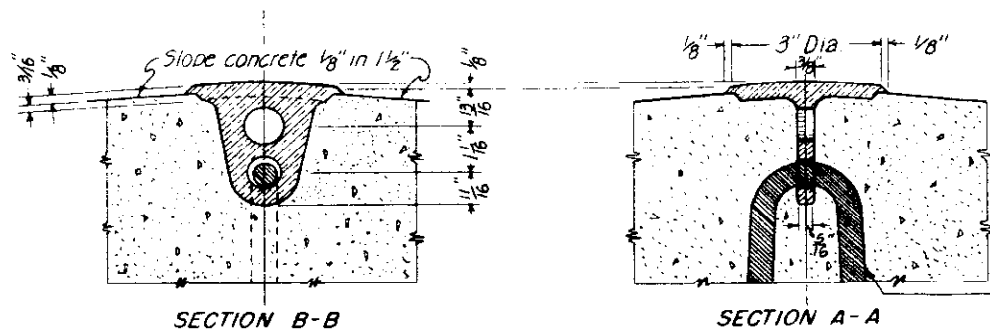
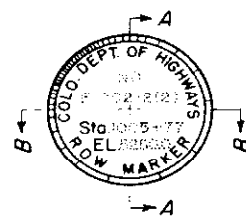
All work shall be done in accordance with the Standard Specifications of the Colorado Department of Highways applicable to this project.

Numbers and arrows shall show the proper numbers and directions of the projects each way from where the post is placed. Post is to be set with sign facing the road at the end of the project, two feet inside the R.O.W. line or at a point amply protected from traffic in such a position that the sign will indicate properly the projects to which it refers.

NOTES FOR R.O.W. MARKER POSTS

All work shall be done in accordance with the Standard Specifications of the Colorado Department of Highways applicable to the project. Posts shall be made of Class A Concrete. The upper 12 inches of marker posts shall be rubbed free of form marks, and the top surface of the post must be constructed to drain thoroughly.

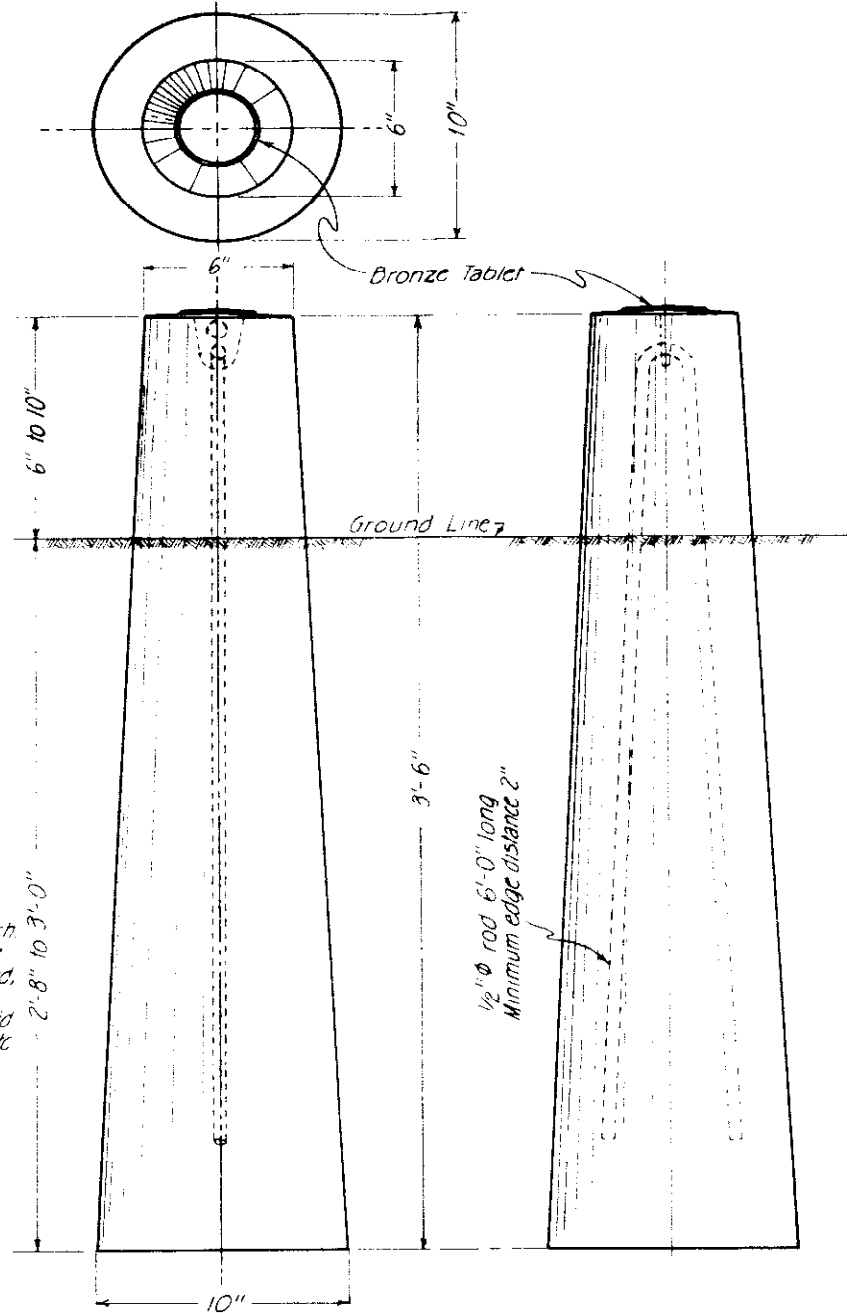
All exposed surfaces of the bronze tablet are to be ground to a smooth surface. All letters are to be depressed a minimum of 1/16 inch. Information on the bronze tablet indicated by pin lines is to be stamped in field by the engineering party after post is placed. 3/16 inch letters and figures to be used. Project designations on tablets shall be properly shown (i.e., I for Fed Aid Interstate, F for Fed Aid Primary, S for Fed Aid Secondary, etc. & C for State Projects. See detail below.)



DETAIL OF BRONZE TABLET FOR RIGHT OF WAY MARKER POST AND BENCH MARK

Omit and use 12"x 1/2" rod for Bench Mark Tablet.

RIGHT OF WAY MARKER POST



STANDARD M-7-C

FEDERAL ROAD DIVISION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	S0002 (19)	11	

Rev 4-4-56, Added Bridge Bench Mark, J.C.R.

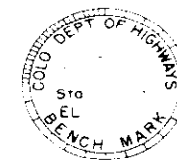
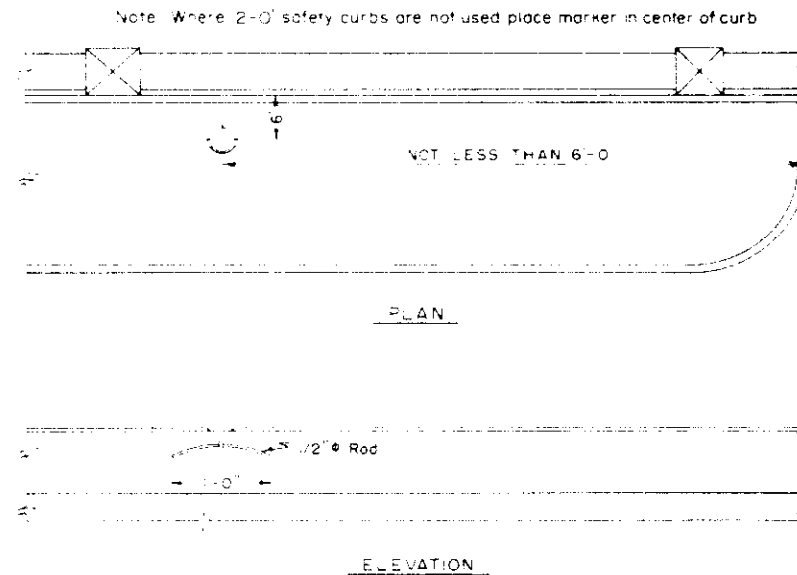
BENCH MARK

All work shall be done in accordance with Standard Specifications of the Colorado Department of Highways applicable to the project.

All exposed surfaces of the bronze tablet are to be ground to a smooth surface. All letters are to be depressed a minimum of 1/16 inch. Information on the bronze tablet indicated by pin lines is to be stamped in field by the engineering party after marker is placed. 3/16 inch letters and figures to be used. Project designation on tablets shall be properly shown (i.e., I for Fed Aid Interstate, F for Fed Aid Primary, S for Fed Aid Secondary, etc. & C for State Projects. See details below.)

Bronze Bench Mark Tablets will be furnished by the Department at no expense to the Contractor.

Installation of Bronze Bench Mark Tablets will not be paid for directly, but shall be included in the price bid for Concrete.



One marker to be placed on Bridges as shown. The station shown on marker shall be the center-line stationing directly opposite the marker.

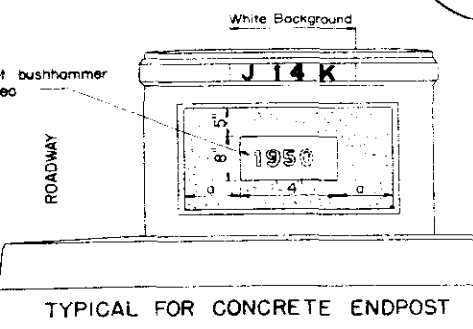
COLORADO DEPARTMENT OF HIGHWAYS STANDARD MARKER POSTS AND BENCH MARKS

Designed by R.E.L. | Approved by E.E.O. | Made by E.E.O. | Checked by R.E.L. | Date: Nov. 12, 1953

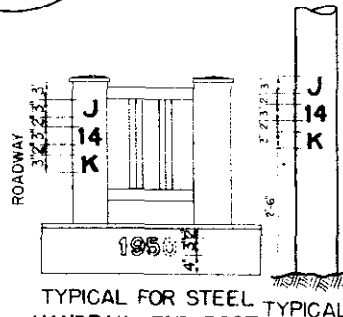


Scale in inches
0
1
2
3

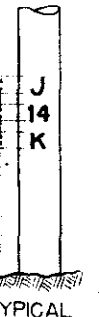
abcdefghijklmnopqrstuvwxyz



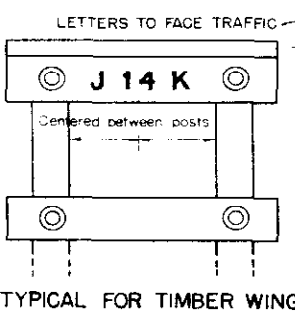
TYPICAL FOR CONCRETE ENDPOST



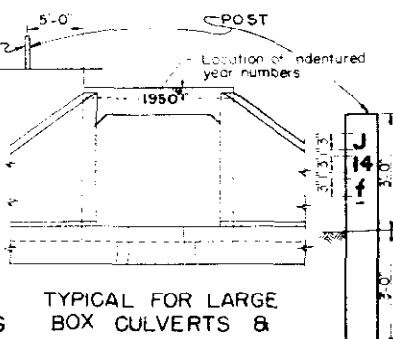
TYPICAL FOR STEEL HANDRAIL END POST



TYPICAL FOR SIGN POSTS



TYPICAL FOR TIMBER WING HANDRAIL



TYPICAL FOR LARGE BOX CULVERTS & END POSTS

SAMPLE BRIDGE NUMBER

SAMPLE YEAR NUMBER

GENERAL NOTES
 ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE COLORADO DEPARTMENT OF HIGHWAYS APPLICABLE TO THE PROJECT.
 THE SIZE, SHAPE AND SPACING OF THE LETTERS AND FIGURES SHALL BE IN ACCORDANCE WITH THE FULL SIZE SHOWN ON THIS SHEET. ADDITIONAL COPIES OF THIS FULL SIZE SHEET CAN BE OBTAINED FROM THE DEPARTMENT WITHOUT CHARGE.
 THE YEAR NUMBERS ARE RECESSED IN CONCRETE TO A MINIMUM AS SHOWN IN THE PANEL OF THE ENDPOST ON THE RIGHT HAND SIDE OF EACH BRIDGE END AND INTO THE FACE OF THE DOWNSTREAM HEADWALL OF CULVERTS AS SHOWN ON PLAN DETAILS. NUMBERS TO BE MADE OF WOOD, METAL OR OTHER SUITABLE MATERIAL AND ATTACHED TO THE FORMS BEFORE CONCRETE IS POURED. THE YEAR NUMBER OF EACH STRUCTURE SHALL CORRESPOND WITH THE YEAR IN WHICH THE CONCRETE IS POURED.
 THE STRUCTURE NUMBER SHALL BE STENCILED ON THE RIGHT HAND SIDE OF EACH BRIDGE END AS SHOWN ON THIS STANDARD AND AS SPECIFIED WHERE THE STRUCTURE HAS NO END POSTS THE NUMBER SHALL BE PLACED ON A POST ON THE RIGHT HAND SIDE OF THE ROAD AS SHOWN FOR SIGNS THE NUMBER SHALL BE PLACED ON SIGN POSTS ON THE RIGHT HAND SIDE OF THE ROADWAY.
 THE CORRECT NUMBER FOR EACH BRIDGE OR SIGN IS SHOWN ON THE PLANS.
 THE NUMBERS FOR MAJOR STRUCTURES OF OVER 20 FEET CLEAR SPAN SHALL BE UPPER CASE LETTERS. THE NUMBERS FOR MINOR STRUCTURES OF 12 TO 20 FEET CLEAR SPAN SHALL BE LOWER CASE LETTERS. SIGN BRIDGES SHALL BE CONSIDERED AS MAJOR STRUCTURES.
 A PROPER WHITE BACKGROUND RECTANGULAR IN SHAPE AND EXTENDING THREE INCHES BEYOND THE LIMITS OF THE NUMBER SHALL BE PAINTED WITH TWO COATS OF ACCEPTABLE WHITE PAINT UNLESS AN APPROVED WHITE CONCRETE PAINT IS USED BEFORE PAINTING THE SURFACE MUST BE THOROUGHLY DRIED, CLEANED AND PROPERLY SIZED ON TIMBER HANDRAILS. THE WHITE PAINT USED ON THE BRIDGE WILL BE SATISFACTORY.
 AFTER THE WHITE BACKGROUND HAS DRIED SUFFICIENTLY, THE CORRECT STRUCTURE NUMBER SHALL BE CAREFULLY STENCILED ON IT, WITH TWO COATS OF "SECOND FIELD COATS-DARK" OR EXTERIOR BLACK PAINT (MAINT) AS SPECIFIED UNDER ITEM 38 "PAINTS AND PAINTING". THE BRACES OF THE STENCILED LETTERS AND FIGURES SHALL BE CAREFULLY FILLED IN BY HAND TO MAKE SOLID FIGURES.
 SUFFICIENT TIME BETWEEN SUCCESSIVE COATS SHALL BE ALLOWED TO PERMIT THOROUGH DRYING.
 THE COST OF PAINTING OF STRUCTURE NUMBERS AND FURNISHING AND PLACING POSTS FOR STRUCTURE NUMBERS SHALL BE CONSIDERED SUBSIDIARY WORK AND SHALL BE INCLUDED IN THE ORIGINAL CONTRACT ITEMS AND WILL NOT PAID FOR AS A SEPARATE ITEM.

COLORADO DEPARTMENT OF HIGHWAYS
 STANDARD LETTERS AND FIGURES FOR YEAR NUMBERS AND STRUCTURE NUMBERS

Designed by _____
 Made by _____
 Checked by _____

Approved by *L. L. ...*
 Bridge Engineer
 Date: Feb 17, 1958

STRUCTURE NO.

STANDARD TIMBER GUARD POSTS

STANDARD M-19-D SPECIFICATIONS

FED. ROAD DIVISION NO.	DISTRICT	SHEET NO.	TOTAL SHEETS
9	COLO.	5002/19	13

Rev. 5-13-53, Specifications, J.G.R.
 Rev. 2-4-53, Date Nails Deleted, D.L.V.
 Rev. 2-1-54, Delineation by State Forces, J.C.R.

POSTS - Lodgepole Pine, Southern Yellow Pine or West Coast Douglas Fir, not less than six (6) inches in diameter treated with Pentachlorophenol as provided under paragraph 42.2.20 of the specifications, after being peeled and shaved in accordance with specifications.

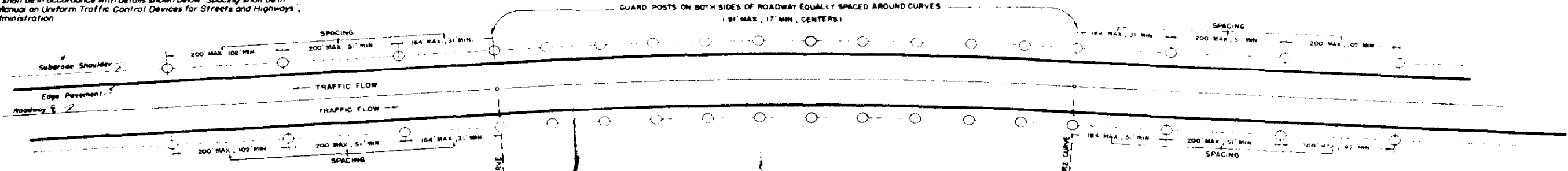
PAINTING - Posts shall be painted with aluminum paint and a black band placed around each post as per details on this sheet. Number of coats and type of paint applied shall be in accordance with specifications.

(Work By State Forces)

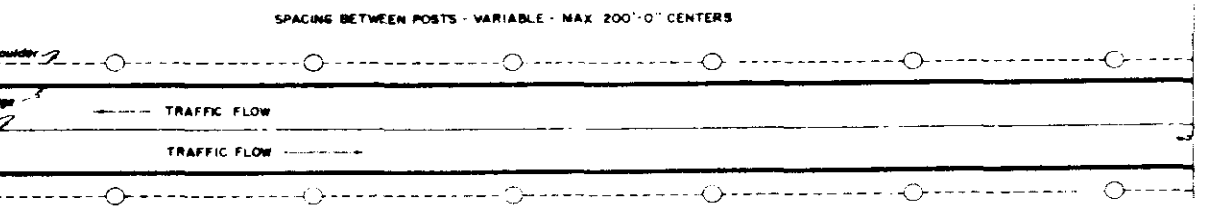
REFLECTIVE SHEETING - In accordance with the details herein, State Forces will furnish and place the required 2' x 6" smooth surfaced reflective delineators fabricated from 3s. H14 aluminum alloy, minimum thickness 0.025", reflectorized with reflective sheeting strips or other approved reflective materials. Strips shall be suitable for placement around a curved surface.

Typical Installation on Curves

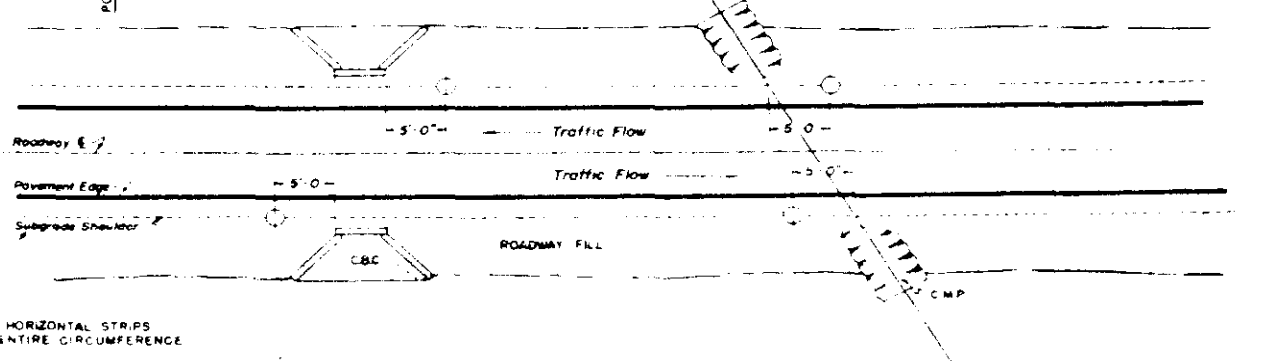
Location of guard posts on curves shall be in accordance with details shown below. Spacing shall be in accordance with Section 157, Table 1 of Manual on Uniform Traffic Control Devices for Streets and Highways, 948 by the Public Roads Administration.



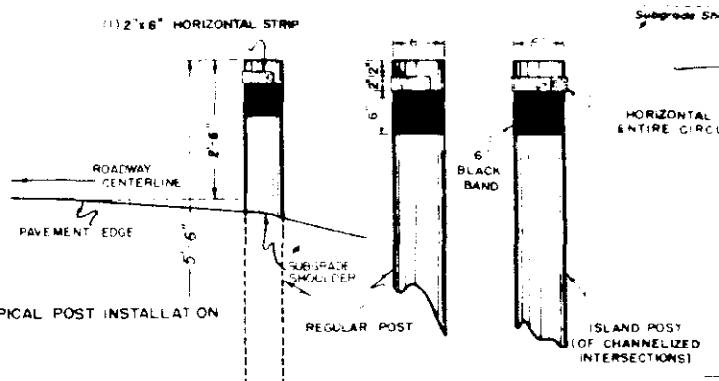
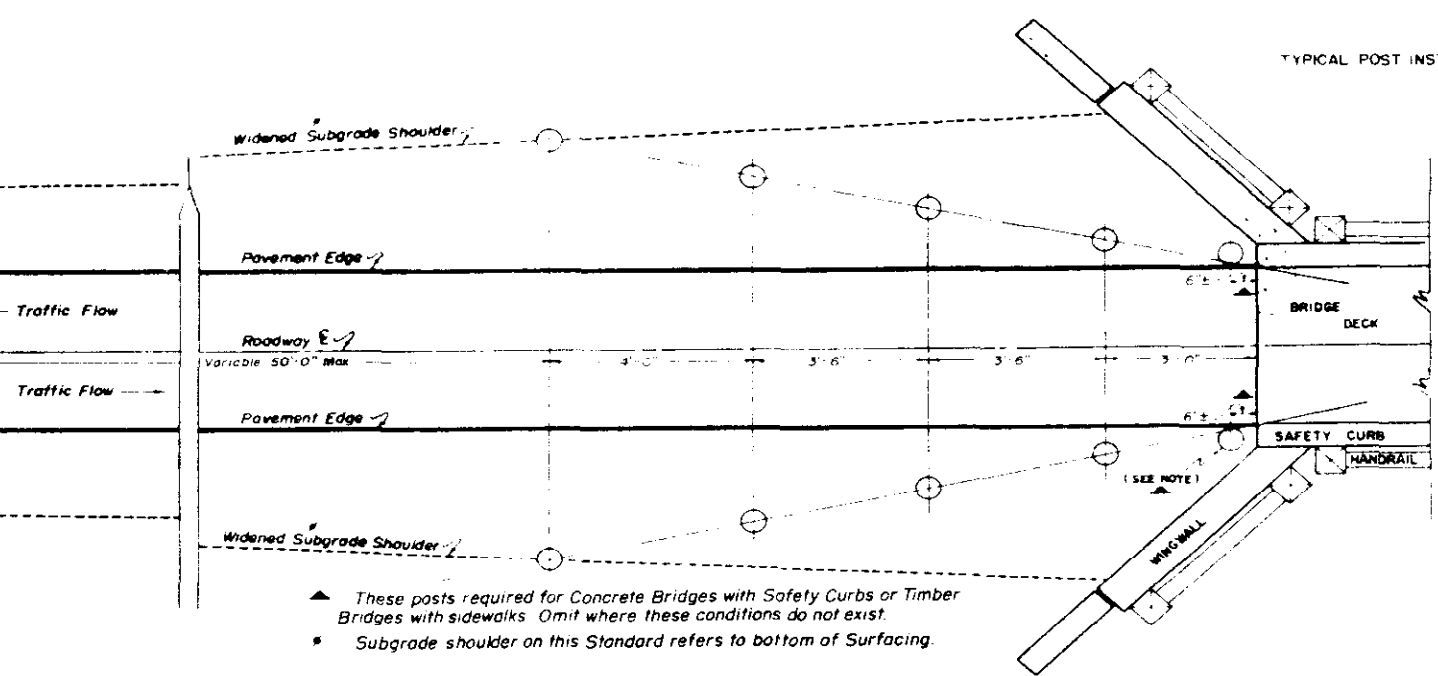
Method of Placement on Tangents



Plan View Showing Placement at Isolated Minor Structures



Typical Installation at Bridge Approaches

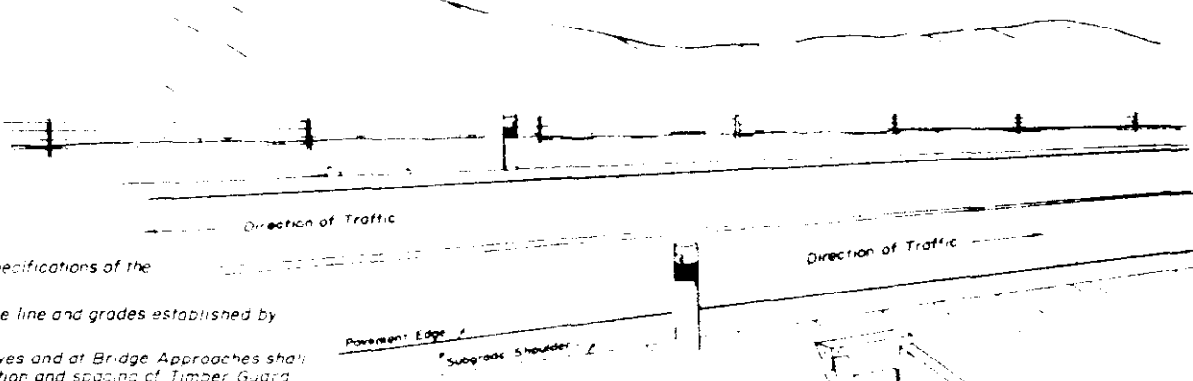


(Work By State Forces)
 INSTALLATION DETAILS OF REFLECTORIZED STRIPS

GENERAL NOTES

- (Work By Contractor)
 All work shall be done in accordance with the Standard Specifications of the Colorado Department of Highways applicable to the project.
- All posts shall be set and tamped in, plumb and firm, to the line and grades established by the Engineer.
- INSTALLATION of Timber Guard Posts on Tangents, Curves and at Bridge Approaches shall be in conformity with details on this sheet. The number, location and spacing of Timber Guard Posts is shown on plans.
- (Work By State Forces)
 Reflective delineators shall be furnished and installed by State Forces after the Contractor has finished his operations.
- Installation of reflective delineators shall be in accordance with the following: Wrap Around Reflective Sheeting Strips shall be installed horizontally one (1) sheet on all posts. Island posts shall have Wrap Around Reflective Sheeting Strips placed horizontally to cover entire circumference of Post.
- On Divided Highways and Islands, Reflective Sheeting Strips shall be placed in a manner to obtain maximum visibility for the primary direction of travel. In all instances tests shall be made to insure the maximum effectiveness of reflective delineators.
- All Traffic Islands shall be marked with Island Posts as indicated hereon.

Pictorial View Showing Location at Isolated Minor Structures



COLORADO DEPARTMENT OF HIGHWAYS

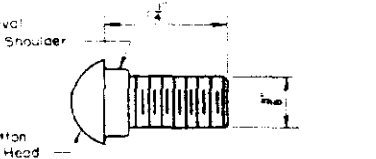
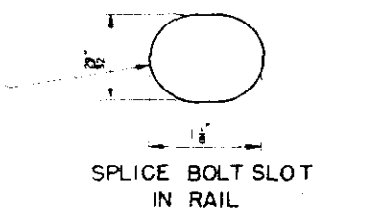
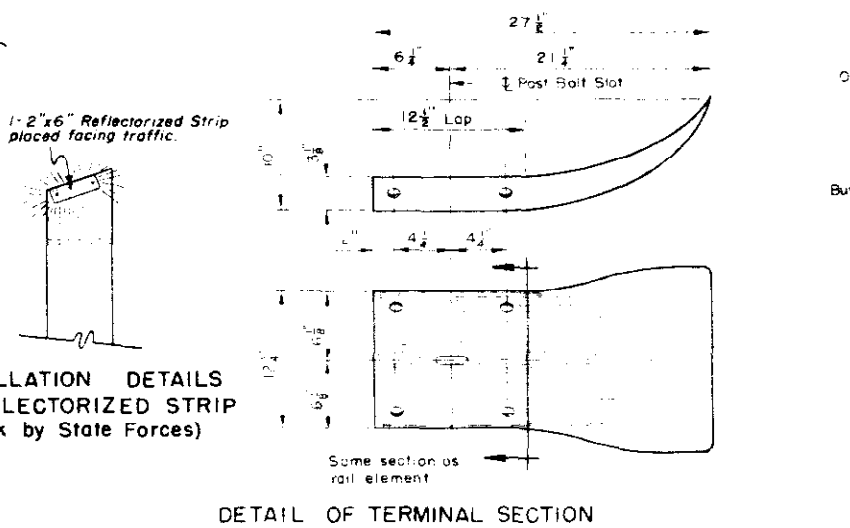
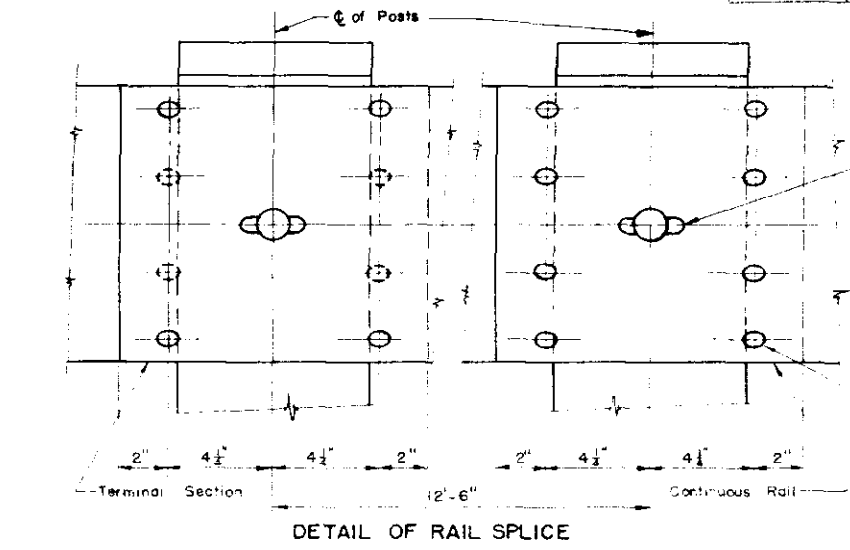
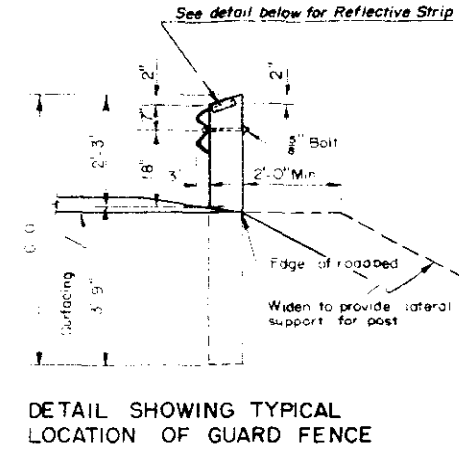
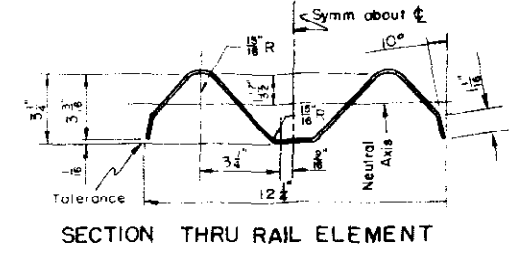
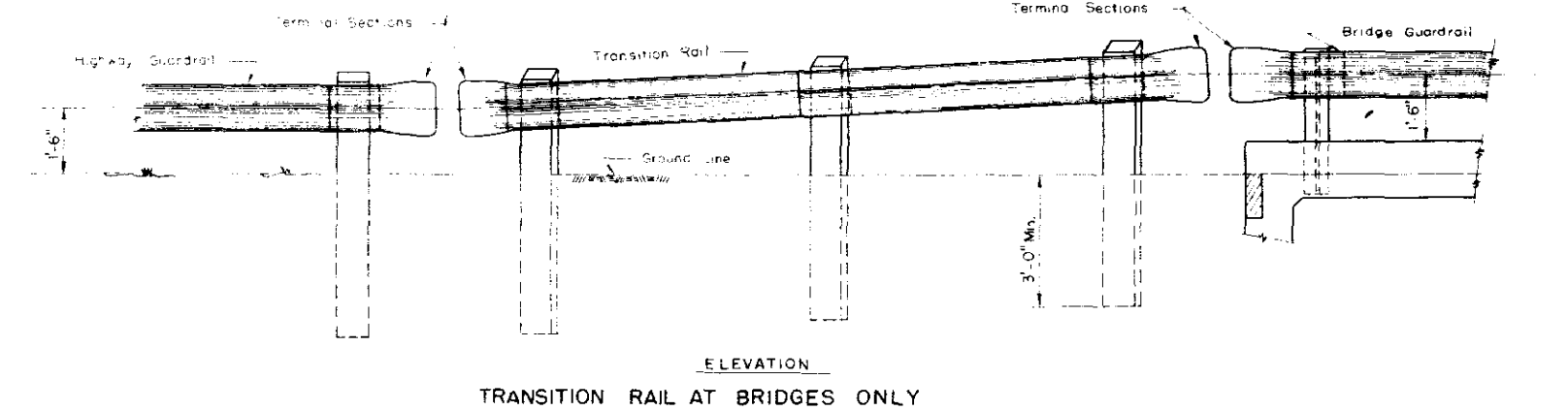
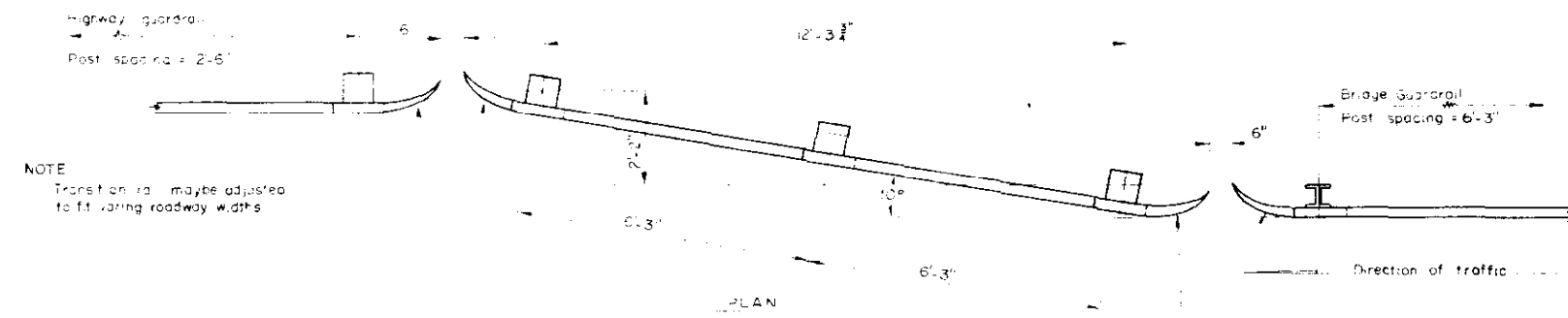
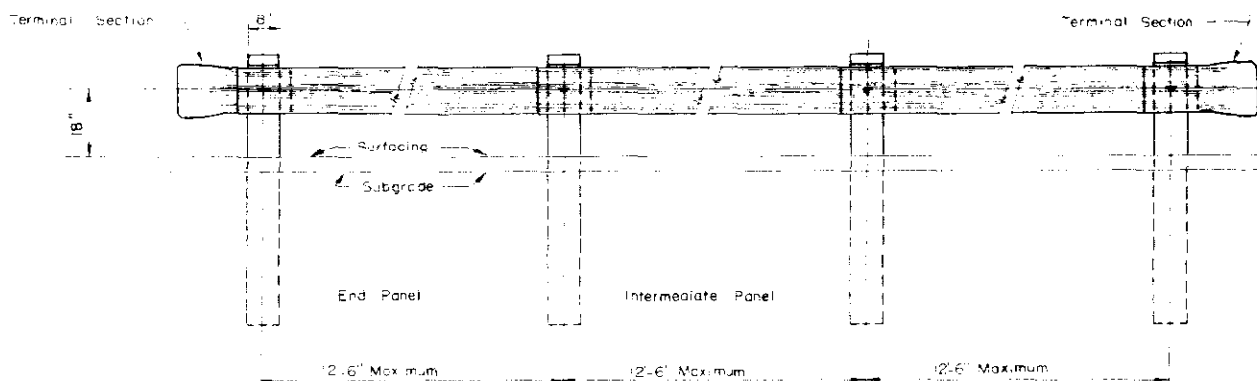
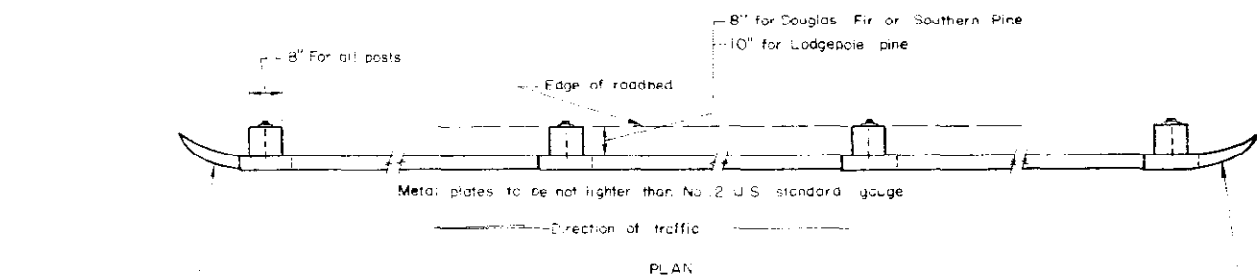
STANDARD TIMBER GUARD POSTS

Designed by: _____
 Checked by: _____

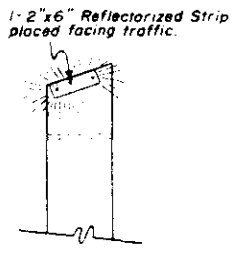
Approved by: _____
 Date: _____

STANDARD M-21-C

FED. ROAD DIV. NO.	DISTRICT	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	50002 (19)	14	



INSTALLATION DETAILS OF REFLECTORIZED STRIP (Work by State Forces)



GENERAL NOTES

All work shall be done according to the Standard Specifications of the Colorado Department of Highways, applicable to the project.

All wood posts shall be close grained Douglas Fir of the Coast Region, Dense, longleaf or Shortleaf Southern Pine or Lodgepole Pine.

All wood posts shall be square edged, full sawn, with tops beveled as shown. All bolt holes are to be drilled $\frac{1}{16}$ inch larger than diameter of bolt before treatment is applied. All wood posts shall be pressure treated for the full length of the posts, as provided for in the specifications.

Timber posts fabricated from Douglas Fir or Southern Pine shall be 8"x8" square. Timber posts fabricated from Lodgepole Pine shall be 8"x10" and shall be installed with the 8" face parallel to the center line of the roadway.

All wood posts shall be set and tamped in place and firm to the lines and grades as directed by the engineer.

Metal plate guard fence shall be painted in accordance with standard specifications.

Metal plate guard fence galvanized in accordance with Table I of ASTM A-93 may be furnished in lieu of painting requirements.

Metal plates shall not be lighter than No. 12 U.S. standard gauge.

Standard galvanized cast iron O.G. or galvanized malleable post washers shall be used under all bolt heads and nuts coming in contact with wood posts.

Where side walks are constructed adjacent to the lane for traffic, guard fence shall be placed in such a manner that the fence lies on the line between the sidewalk area and the normal roadway shoulder.

Where guard fences are constructed on the approaches to bridges, with sidewalks, the fence on bridge shall be placed in line with the face of the curbing on the bridge.

(Work by State Forces)

Reflective delineators shall be furnished and installed by State Forces after the Contractor has finished his operations.

COLORADO DEPARTMENT OF HIGHWAYS
STANDARD METAL PLATE GUARD FENCE (BEAM TYPE)

Designed by: _____
Made by: _____
Checked by: _____

Reviewed by: _____
Bridge Engineer
Date: May 15, 1956

Standard Wire Fence With Wooden Posts

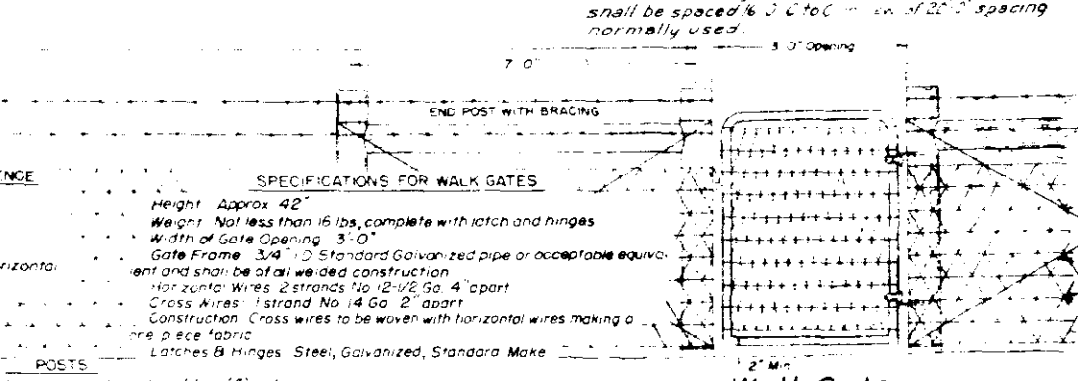
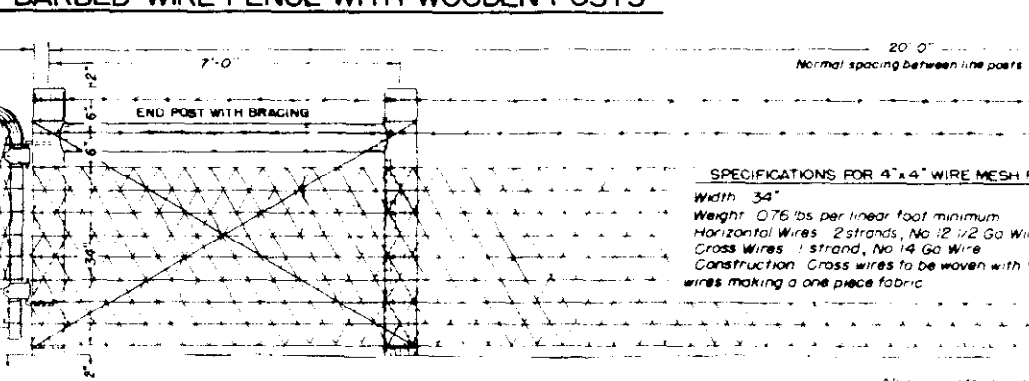
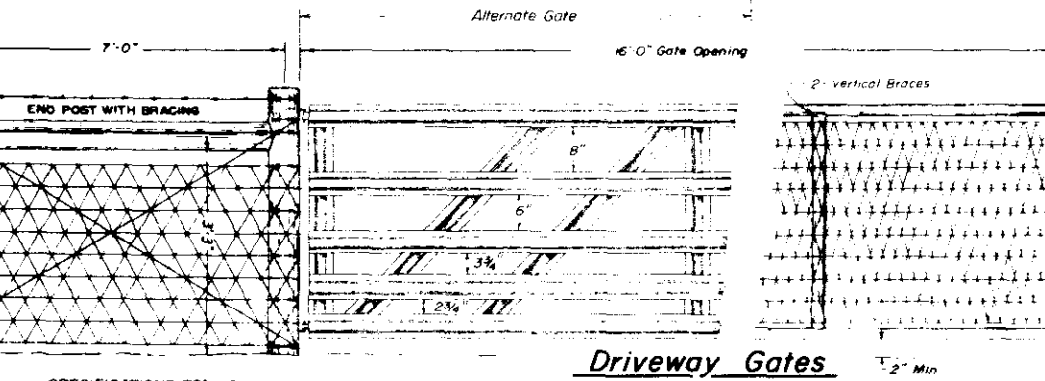
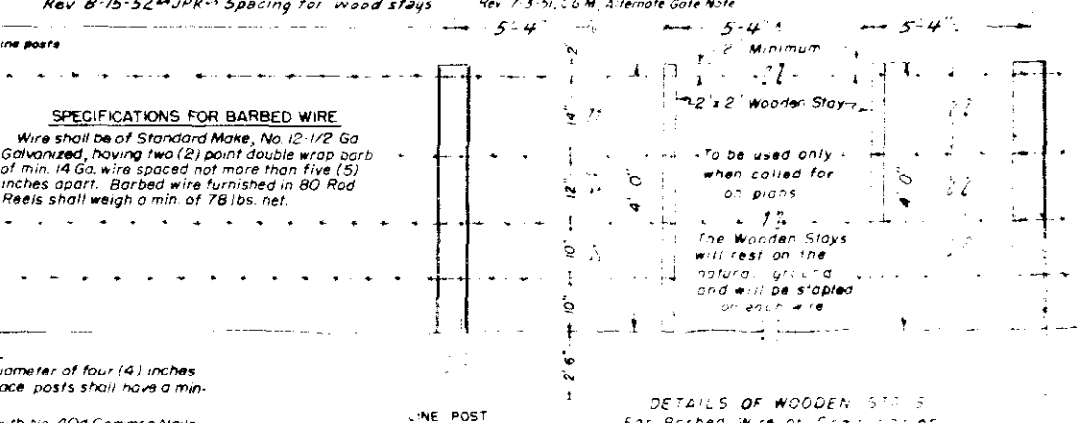
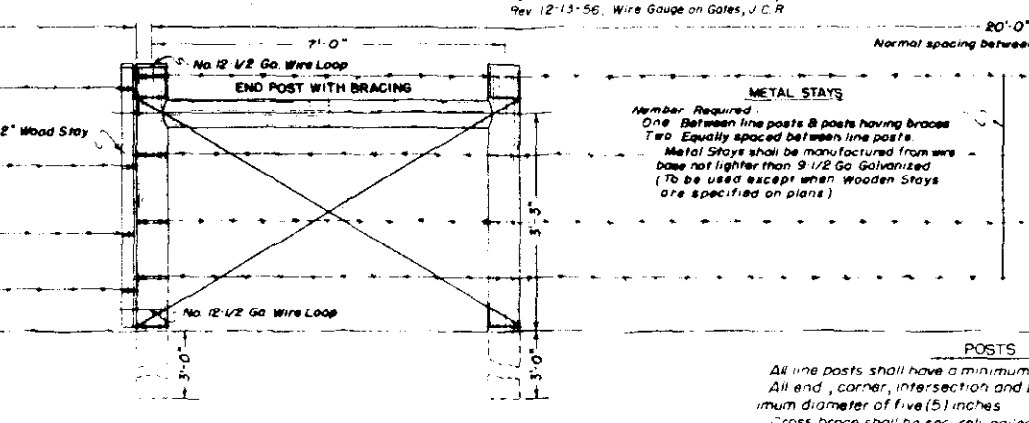
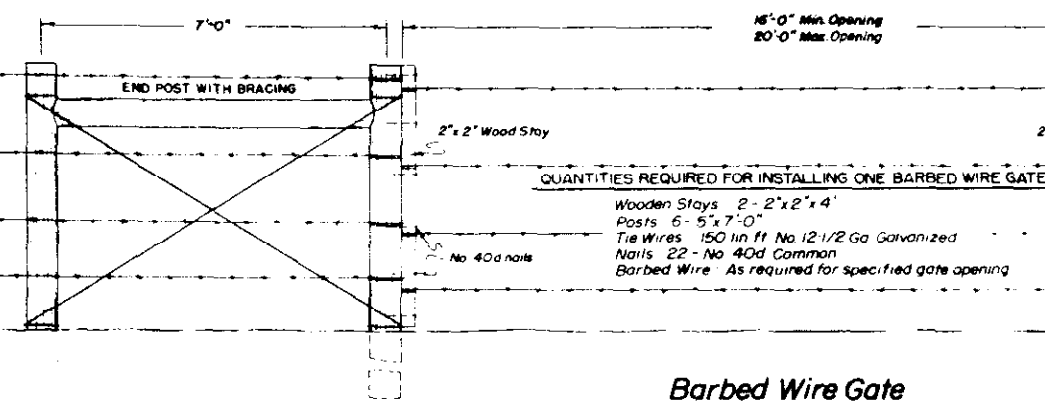
Rev. 2-17-58, Barbed Wire Specs, J.C.R.
 Rev. 4-27-53, Illustr. Sketch to show Timber Guard Posts, J.C.R.
 Rev. 11-3-53, Added Post Pointing details, J.C.R.
 Rev. 12-4-53, Gate Nails Deleted, D.L.V.
 Rev. 7-17-55, Alternate Gate Note, Gated Drive Gate & Comb Wire Gate, S.J.M.
 Rev. 11-21-56, Added Line Brace Details, J.C.R.
 Rev. 12-13-56, Wire Gauge on Gates, J.C.R.

STANDARD M-24-H

Rev. 6-10-52, T.M.G., Wooden Stays
 Rev. 7-30-52, J.C.R., Deleted Connecting Pipe Braces on Driveway Gate
 Rev. 8-15-52, J.P.K., Spacing for wood stays

FED. ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	SP00219	75	

Rev. 3-1-50, C.G.M., Post spacing, Driveway gate, Added Gate Note
 Rev. 7-3-50, C.G.M., Alternate Gate Note

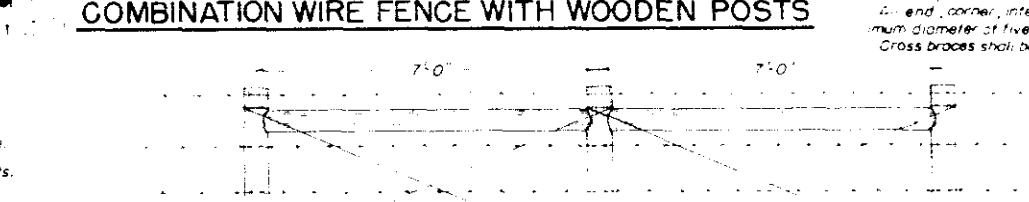


SPECIFICATIONS FOR DRIVEWAY GATES

Approx. 42"
 Not less than 79 lbs. complete with latch and hinges of Gate Opening 16'-0"
 Frame: 1" I.D. Standard Galvanized pipe or acceptable equivalent and shall be welded construction.
 Horizontal Wires: 2 strands No. 12-1/2 Ga. 4" apart.
 Wires: 1 strand No. 14 Ga. 2" apart.
 Construction: Cross wires to be woven with horizontal wires making a one piece fabric.
 Latches & Hinges: Steel, Galvanized, Standard Make.

SPECIFICATIONS FOR ALTERNATE DESIGN DRIVEWAY GATES

Height: Approx. 42" (5 panels)
 Construction: Tempered steel, 90 lbs. min.
 Width of Gate Opening: 16'-0"
 Alternate equivalent standard metal gates other than shown will be acceptable subject to the Engineer's approval.
 Latches & Hinges: Steel, Galvanized, Aluminum, Standard Make.
 3'-0" all posts except line posts.
 Line Posts: 2'-6"



General Notes

All work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department applicable to the Project.

Wire mesh used in Combination Wire Fence as shown above shall be galvanized. Wire mesh used in walk and driveway gates shall be galvanized or painted with an approved waterproof asphalt or mineral paint.

Fence Staples shall be galvanized and of at least 1 1/2" in length and shall be made from wire base not less than No. 9 Ga. Barbed wire fence shall have eight (8) staples per line post. Combination wire fence shall have fourteen (14) staples per line post.

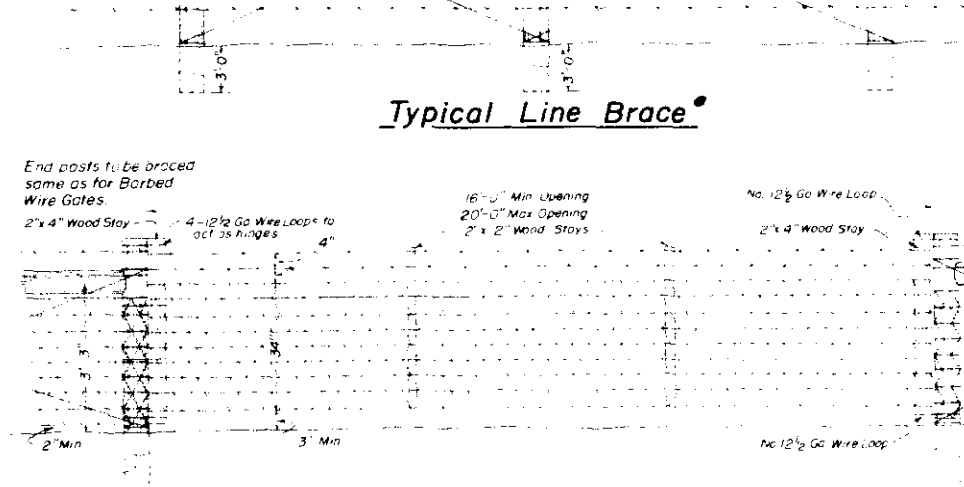
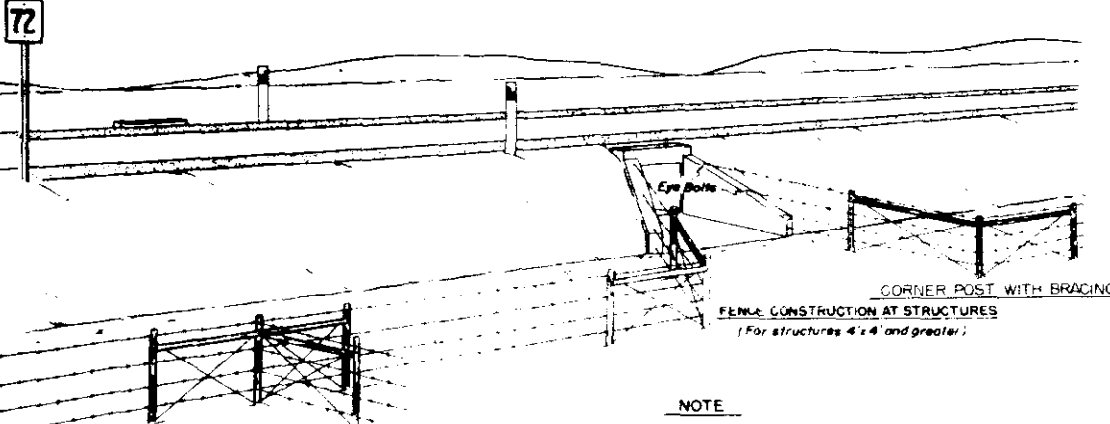
Fence wire to be placed on either road or field side of posts depending on local conditions. On curves the wire should be placed on side of post which would prevent tension on staples. This will also apply where wind drift, tumble weeds or other conditions would exert unusual pressure against the wire.

POSTS

Posts shall be treated or untreated as specified on plans and shall conform to the following:
 Untreated posts shall be made of seasoned straight native cedar. The tops of posts shall be sawed off square and peeling of the posts will not be required. Split posts will not be acceptable for use unless specifically permitted in the Special Provisions of plans.
 Treated posts shall be made of seasoned, straight, sound Lodgepole Pine or Southern Pine, to be peeled and tops to be cut off square before pressure treatment. Posts shall be pressure treated in conformity with requirement of the Specifications.

Frames of Galvanized Finish Gate Frames, Galvanized Pipe or Aluminum Painting with zinc chromate Primer as per specifications will be considered to be equivalent.

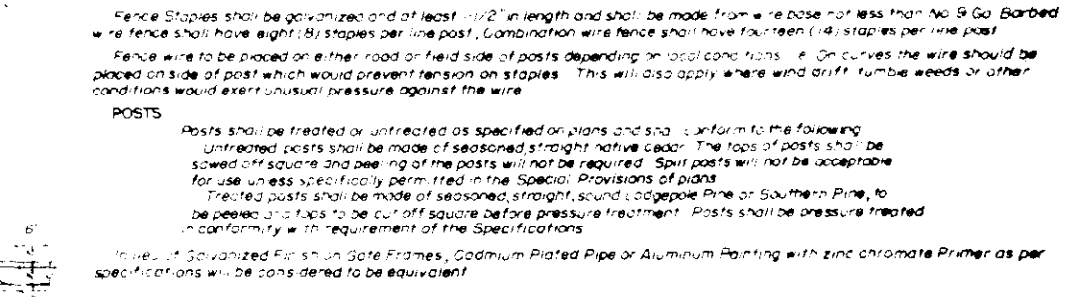
Illustrative Sketch Showing Typical Examples For Constructing Fences



Combination Wire Gate
 Item No. 76 eg

QUANTITIES REQUIRED FOR INSTALLING ONE COMBINATION WIRE GATE

Wooden Stays: 2 - 2"x4"x4"
 Posts: 6 - 5"x7"-0"
 Tie Wires: 156 lin. ft. No. 12 1/2 Ga. Galvanized
 Nails: 16 - No. 40d Common
 Combination Wire: As required for specified gate opening



COLORADO DEPARTMENT OF HIGHWAYS

Standard Wire Fence With Wooden Posts

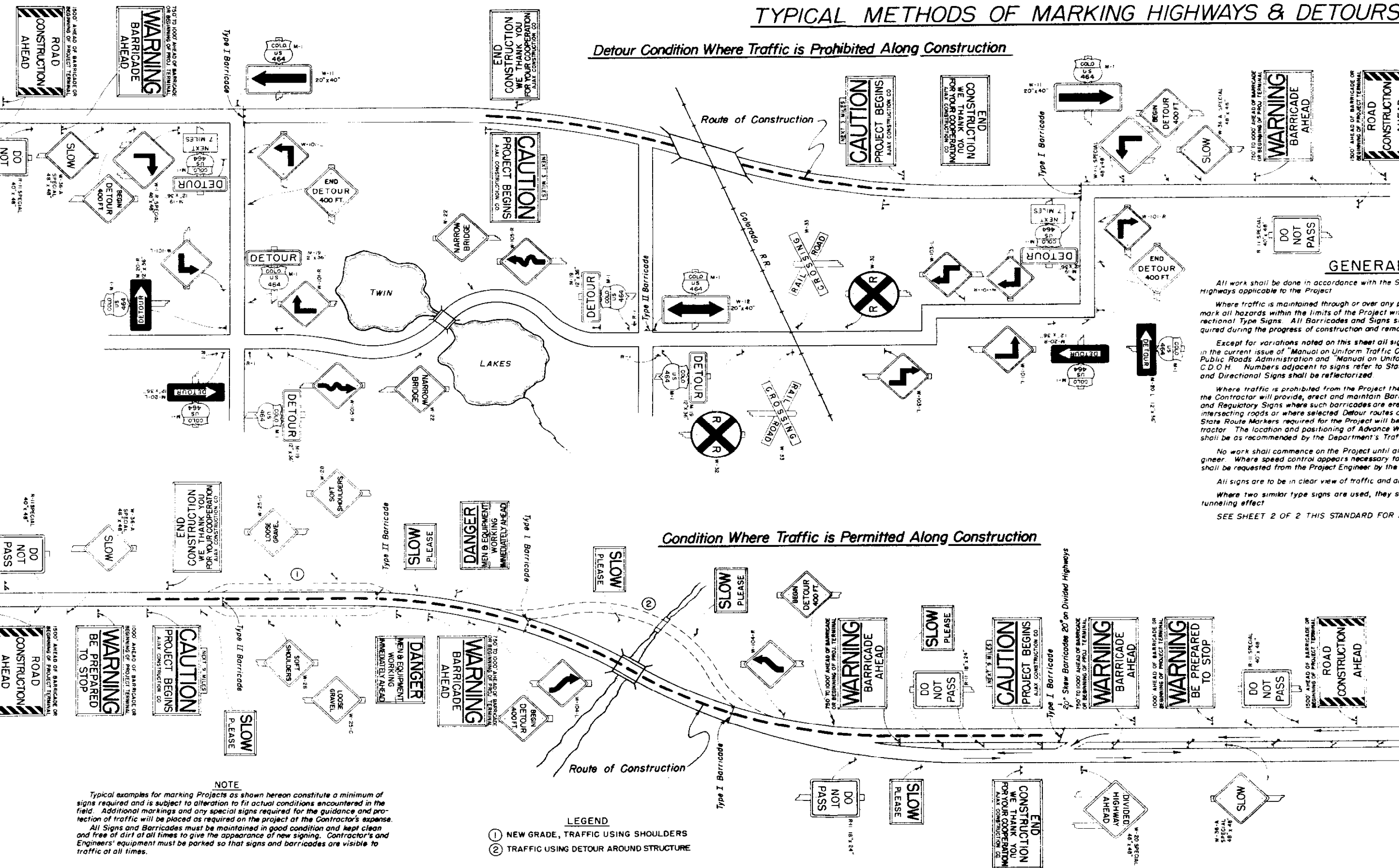
Designed by C.G.M. Approved by J.P.K.
 Made by J.C.R. Engineer, Survey & Plans
 Checked by J.C.R. Date: Mar 1950

STANDARD ROADWAY CONSTRUCTION TRAFFIC SIGNS

STANDARD M-29-B
(SHEET 1 OF 2 SHEETS)

FED. ROAD DIV. NO.	DISTRICT	SHEET NO.	TOTAL SHEETS
8	COLO.	30002 (19) 76	

TYPICAL METHODS OF MARKING HIGHWAYS & DETOURS



GENERAL NOTES

All work shall be done in accordance with the Standard Specifications of the Colorado Department of Highways applicable to the Project.

Where traffic is maintained through or over any part of the Project, the Contractor will be required to mark all hazards within the limits of the Project with well maintained Barricades, Warning Signs and Directional Type Signs. All Barricades and Signs shall be moved, added to, changed or removed as required during the progress of construction and removed entirely when project is completed.

Except for variations noted on this sheet all signs will be in conformity with the specification outlined in the current issue of "Manual on Uniform Traffic Control Devices for Streets & Highways" by the U.S. Public Roads Administration and "Manual on Uniform Traffic Control Devices for Streets and Highways," C.D.O.H. Numbers adjacent to signs refer to Standards in the manual. Standard Warning, Regulatory and Directional Signs shall be reflectorized.

Where traffic is prohibited from the Project the Detour will be marked by the Department except that the Contractor will provide, erect and maintain Barricades complete with approved Directional Arrows and Regulatory Signs where such barricades are erected and maintained at the ends of the Project and intersecting roads or where selected Detour routes are in advance of the actual project terminal. U.S. or State Route Markers required for the Project will be furnished by the Department and installed by the Contractor. The location and positioning of Advance Warning Signs, Barricades and Speed Control Signs shall be as recommended by the Department's Traffic Operations Section.

No work shall commence on the Project until all Warning Signs are in place and approved by the Engineer. Where speed control appears necessary for protection of the traveling public, such speed control shall be requested from the Project Engineer by the Contractor.

All signs are to be in clear view of traffic and are not to be obstructed by equipment, weeds or otherwise.

Where two similar type signs are used, they shall be placed approximately 75 feet apart to avoid a tunneling effect.

SEE SHEET 2 OF 2 THIS STANDARD FOR ADDITIONAL NOTES AND DETAILS.

NOTE
Typical examples for marking Projects as shown herein constitute a minimum of signs required and is subject to alteration to fit actual conditions encountered in the field. Additional markings and any special signs required for the guidance and protection of traffic will be placed as required on the project at the Contractor's expense.

All Signs and Barricades must be maintained in good condition and kept clean and free of dirt at all times to give the appearance of new signing. Contractor's and Engineers' equipment must be parked so that signs and barricades are visible to traffic at all times.

- LEGEND**
- ① NEW GRADE, TRAFFIC USING SHOULDERS
 - ② TRAFFIC USING DETOUR AROUND STRUCTURE

COLORADO
DEPARTMENT OF HIGHWAYS

Standard Roadway
Construction Traffic Signs

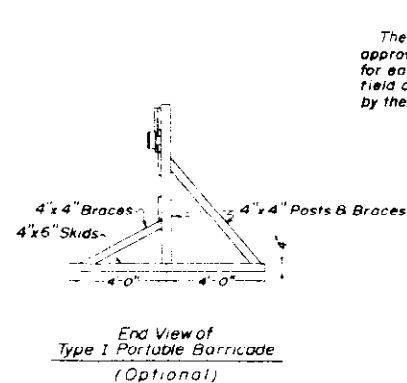
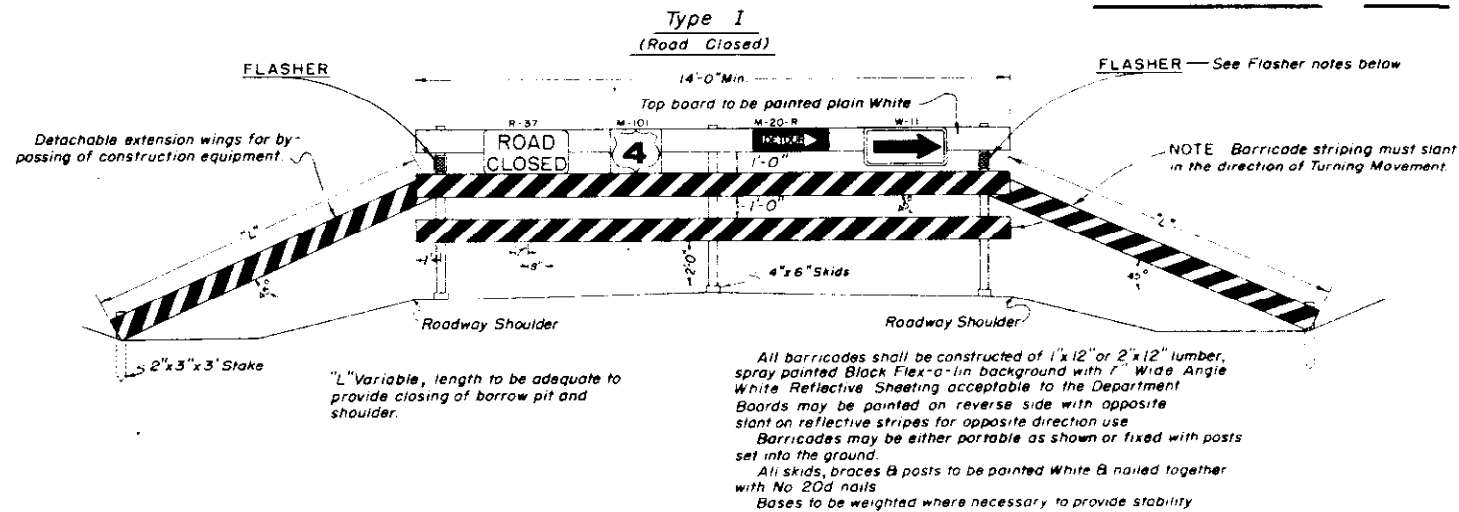
Designed by J.C.R. Approved by *L. Julian*
Made by J.C.R. Engineer, Surveys & Plans
Checked by Date: July 22, 1955

STANDARD ROADWAY CONSTRUCTION TRAFFIC SIGNS

STANDARD M-29-B
(SHEET 2 OF 2 SHEETS)

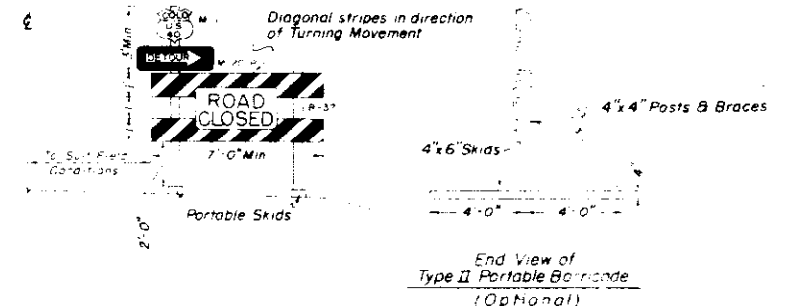
FED. ROAD DIV. NO. DISTRICT SHEET NO. TOTAL SHEETS
9 COLO. 30001(1) 17
Rev. 7-10-56, Reflective Materials, L.N.P.

DETAILS OF BARRICADES



NOTE
The various types & combinations of approved signs for barricades required for each project will be governed by field conditions and subject to approval by the Engineer.

Type II (Beg. of Detour, By-Pass Areas within Proj., Extreme Hazards, etc.)

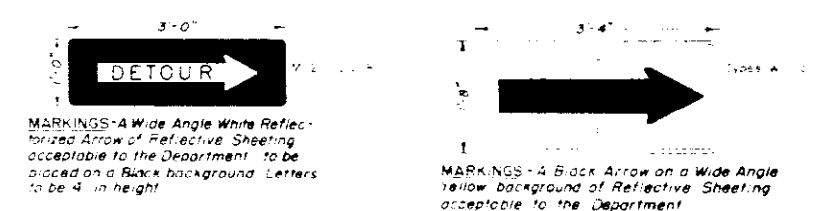


NOTE: Alternate materials or other reflecting elements on Construction Traffic Signs and Barricades will be permitted only after approval of such material by the Department.

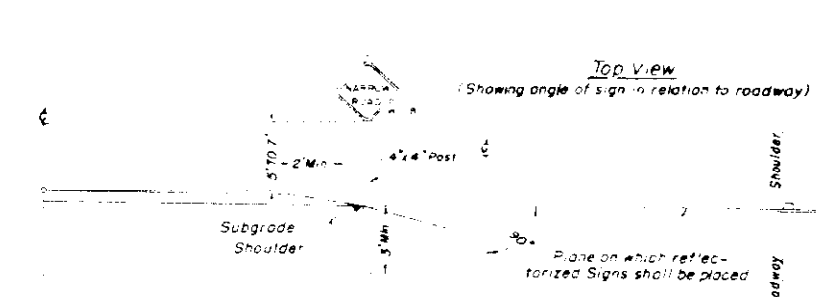
DETAILS OF CONSTRUCTION SIGNS



Details of Reflectorized Arrows



Position of Signs Relative to Roadbed & Hazards



Construction Signs "A" through and including "G" shall be made of 3/8" Plywood or other material after approval by the Department, and as per details above. Signs shall be reflectorized with reflective sheeting or other reflective materials of types approved by the Department.

CONSTRUCTION SIGN "A" - Wide Angle White background with painted Black lettering. Barricade stripes of 4" Wide Angle White placed over Black painted vertical stripes spaced as shown above. This sign is the First advance warning sign and shall be placed 1500 feet ahead of barricade or beginning of project terminal and on both sides of the travelled way in all cases.

CONSTRUCTION SIGN "B" - The word "WARNING" and 1" underline shall be painted White on a 23" strip of Wide Angle Flat Top Red. Balance of lettering painted Black on a 22" strip of Wide Angle White. This sign is the Second advance warning sign and shall be placed 1000 feet ahead of barricade or beginning of project terminal and on both sides of the travelled way on divided highways and singly on two-lane highways.

CONSTRUCTION SIGN "C" - The word "WARNING" and 1" underline shall be painted White on a 23" strip of Wide Angle Flat Top Red. Balance of lettering painted Black on a 22" strip of Wide Angle White. This sign is the Third advance warning sign in cases where barricades are used and shall be placed 750 to 1000 feet ahead of barricade or beginning of project terminal and on both sides of the travelled way on divided highways and singly on two-lane highways.

REVERSE SIDES OF SIGNS "A", "B" and "C" - The word "SLOW" shall be painted Black and superimposed over a Yellow miniature W-36-A background panel. Balance of lettering shall be painted Black on a White background.

CONSTRUCTION SIGN "D" - The word "CAUTION" and 1 1/2" underline shall be painted White on a 24 1/2" strip of Wide Angle Flat Top Red. Balance of lettering painted Black on a 20 1/2" strip of Wide Angle White. This sign will be provided with a detachable 1" material board mounted on back of sign with 2-1/4" x 2" bolts. This board shall be painted White with Black lettering. (Indicate to the nearest Mile). This sign shall be placed to mark the beginning of the Project. To be placed singly and may be placed opposite barricade if desirable.

CONSTRUCTION SIGN "E" - The word "DANGER" and 1" underline shall be painted White on a 17 1/2" strip of Wide Angle Flat Top Red. Balance of lettering painted Black on a

27 1/2" strip of Wide Angle White. The sign is of the hinged and fold type to facilitate the closing down of sign when the need is not prevalent. This sign shall be placed 500 feet ahead of the situation on hand.

CONSTRUCTION SIGN "F" - The words "END CONSTRUCTION" and "CONTRACTORS NAME" shall be painted Black on strips 22" and 6 1/2" respectively of Wide Angle White. Balance of lettering shall be painted White on a 16 1/2" strip of Wide Angle Flat Top Red. This sign shall be placed to mark the ending of the Project. To be placed singly and may be placed opposite barricade if desirable.

CONSTRUCTION SIGN "G" - The words "SLOW" and "PLEASE" shall be painted Black on a background of Wide Angle Yellow. This sign shall be used frequently within the limits of the Project.

All of the preceding signs shall be fastened to 2-4" x 4" posts set 4 feet in the ground with a minimum of 3-1" x 4" nailing strips on the back. Bottom of sign to be not less than 36" above ground.

FLAGMAN WARNING SIGN "H" - This sign shall be made of Plastic or other lightweight material, painted Red background with White lettering on the "STOP" side and painted Green background with White lettering on the "GO" side. Handle to be grooved on one side to indicate reading of sign to flagman. This sign will be used whenever flagmen are necessary. Sign to be reflectorized if used to stop traffic at night.

DETOUR WARNING SIGN "I" - To be of 3/8" (Minimum) plywood or No. 16 (Minimum) gauge metal with Black painted letters on a Wide Angle Yellow background.

CONSTRUCTION SIGN "J" - 3/4" x 9" metal slides to be placed between "NEXT" MILES, spaced so as to accommodate appropriate size numerals. Required numerals to be furnished by the Department and to be installed by the Contractor. Numerals calculated to the nearest Mile.

All material shall be sound and durable. Barricades, signs, symbols and lettering conforming to styles noted hereon will be of good workmanship and well maintained. Uneven lettering will not be accepted.

Flares and Torches shall be of the oil burning type approved by the Department and

shall be placed 3 feet to 5 feet ahead of the object to be illuminated. Particular care shall be taken to protect all signs and barricades from smoke and smudge arising from the use thereof.

Flashers used on Type I Barricade shall be of the Battery or Electrical Type. The illuminating element in a flashing amber beacon or signal shall be flashed continuously at a rate between 50 or 60 flashes per minute which will be clearly distinguishable to traffic. The duration in which Flashers will be left in operation will be governed by field conditions and subject to approval by the Engineer.

Alternate methods of processing signs or the substitution of pressure sensitive symbols or other reflecting elements for painted symbols will be permitted only after approval of such methods or materials by the Department.

The Department shall furnish and install the following as required outside the limits of the Project:

1. "ROAD CONSTRUCTION AHEAD"	Minimum 4
2. "WARNING BE PREPARED TO STOP"	Minimum 2
3. "WARNING BARRICADE AHEAD"	As Required
4. Standard Warning & Directional Signs	As Required

The Contractor shall furnish and install the following as required within the limits of the Project:

1. All Barricades	As Required
2. "CAUTION PROJECT BEGINS"	Minimum 2
3. "DANGER MEN & EQUIPMENT WORKING IMMEDIATELY AHEAD"	As Required
4. "END CONSTRUCTION WE THANK YOU FOR YOUR COOPERATION"	Minimum 2
5. "SLOW PLEASE"	As Required
6. Standard Warning & Directional Signs	As Required
7. Approved Directional Arrows & Regulatory Signs for Barricades	As Required
8. Torches and Flares as follows: Type I Barricade	Minimum 3
Type II Barricade	Minimum 1
9. Flashers - Type I Barricade	2 Required

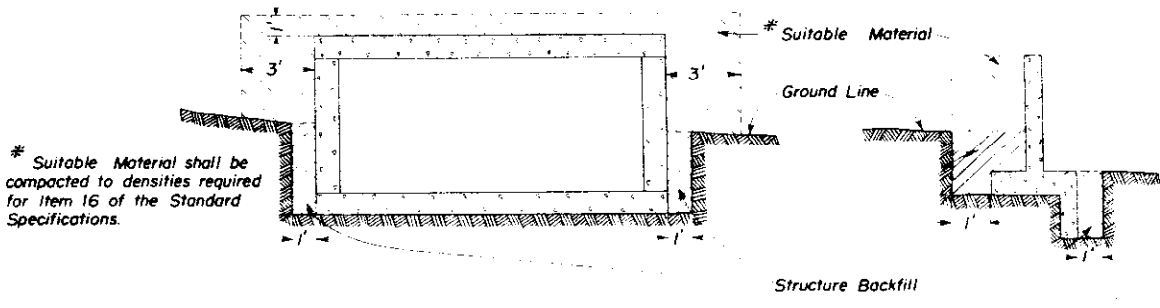
NOTE
Warning Signs to be made of 3/8" (Minimum) plywood or No. 16 Gauge (Min.) metal and shall be reflectorized. Location to be governed by field conditions. Exact location to be staked by the Engineer. In all cases warning signs are to be placed well in advance of hazard, the distance depending on topography, and existing approach speeds.

COLORADO DEPARTMENT OF HIGHWAYS

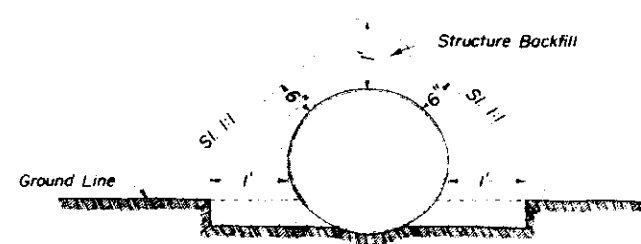
Standard Roadway Construction Traffic Signs

Designed by JCR
Made by JCR
Checked by JCR

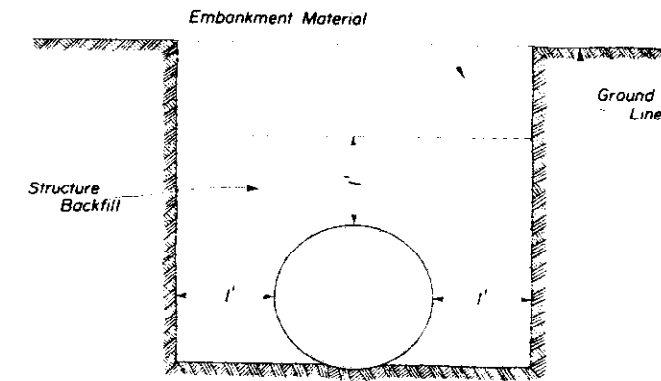
Approved by [Signature]
Engineer, Surveys & Plans
Date: July 22, 1955



CIRCULAR CONDUIT

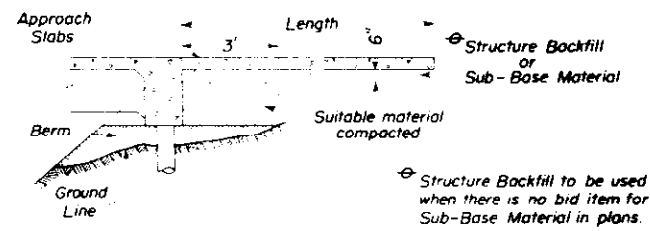


SIPHONS OR CONDUIT IN TRENCH

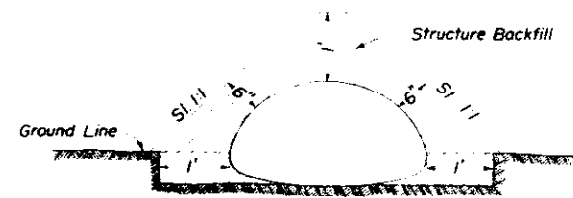


PIERS, ABUTMENTS, RETAINING WALLS ETC.

All material that is to be compacted shall be placed in horizontal layers not more than 6" inches in depth and compacted before the next layer is placed. For Arches, Rigid Frames and Box Culverts the fill shall be brought up uniformly on both sides of the center of structure to avoid stresses in the structure caused by unsymmetrical loading.



ELLIPTICAL OR ARCH CONDUIT

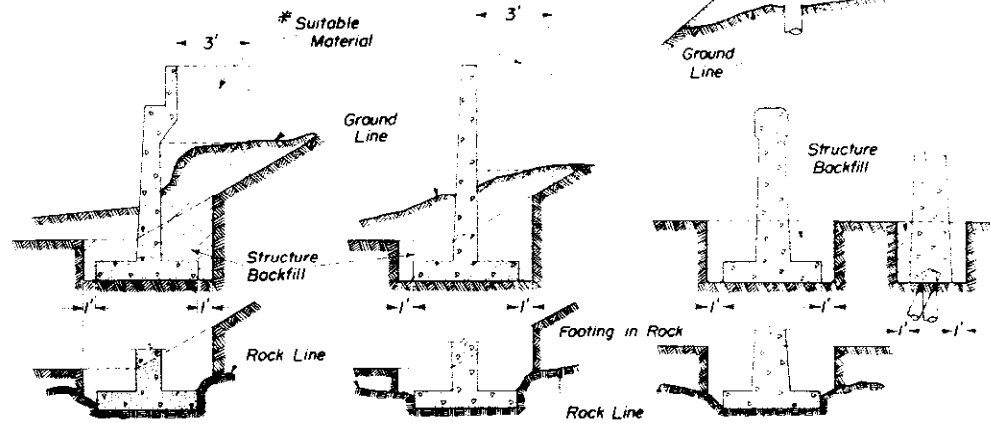


GENERAL NOTES

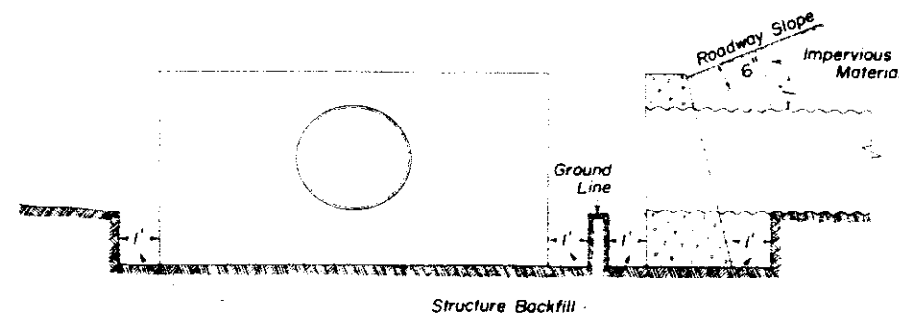
All work shall be done according to the Standard Specifications of the Colorado Department of Highways applicable to the Project.

If, in the opinion of the Engineer, the material beneath the Structure is of such character as to cause unequal settlement along the length of the Structure, the material shall be removed to such a depth ordered, and backfilled with gravel or other suitable material and compacted in accordance with Item 16 of the Standard Specifications.

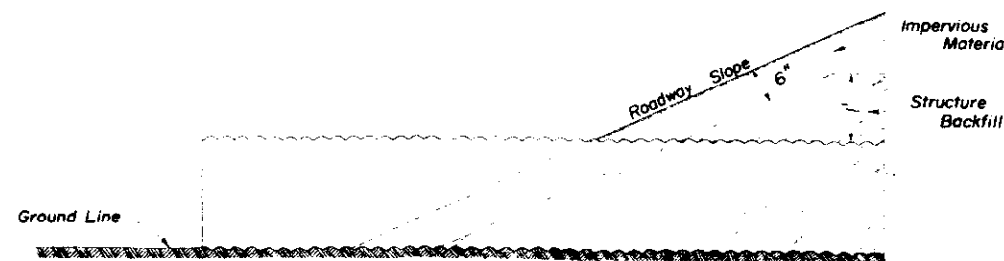
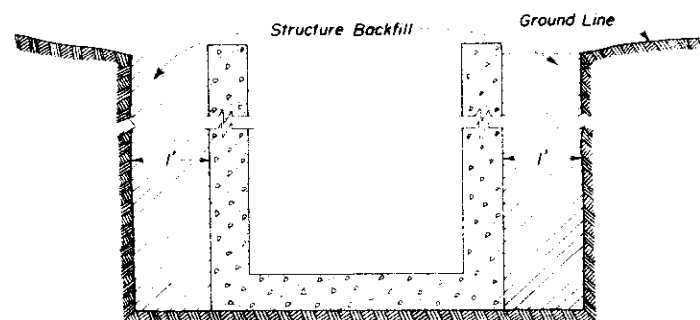
Suitable Material shall be any "Unclassified Excavation" material developed on the project except large rock, boulders or other materials considered by the Engineer to be undesirable for backfill around culverts, boxes etc.



HEADWALLS AND END OF CULVERTS



DROP INLETS, DIVISION BOXES, INTERCEPTING HEADWALLS ETC.



COLORADO DEPARTMENT OF HIGHWAYS

STANDARD METHODS OF BACKFILL AROUND STRUCTURES

Designed by H.E.P. Made by D.M.E. Checked by L.E.O. Approval by L.S.D. Knecht Bridge Engineer Date: May 2, 1958

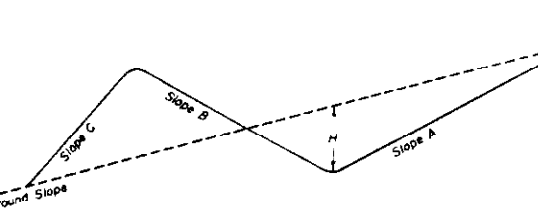
STANDARD TYPES *of* DITCHES *and* CONSTRUCTION METHODS

STANDARD M-107-C

FED. ROAD DIVISION NO.	DISTRICT	SHEET NO.	TOTAL SHEETS
9.	COLO.	S0002(19) 18	

DETAILS *for* CONTOUR INTERCEPTING DITCHES

Typical Section for Contour Intercepting Ditches



PURPOSE & USE OF THE TABLE

The primary purpose of the information for Contour and Intercepting Ditches shown on this sheet is to serve as a guide in construction and to readily arrive at yardages of excavation involved. Foremost consideration in constructing these ditches is given first to the natural ground line slope confronted in construction, thence to the other values shown on the Typical Section. By properly arriving at the combination of values shown on the Typical Section and in the Table for a specified condition, the number of cubic yards of excavation per 100 lin. ft. of ditch may be read under the appropriate column for this item.

Typical Construction Layouts

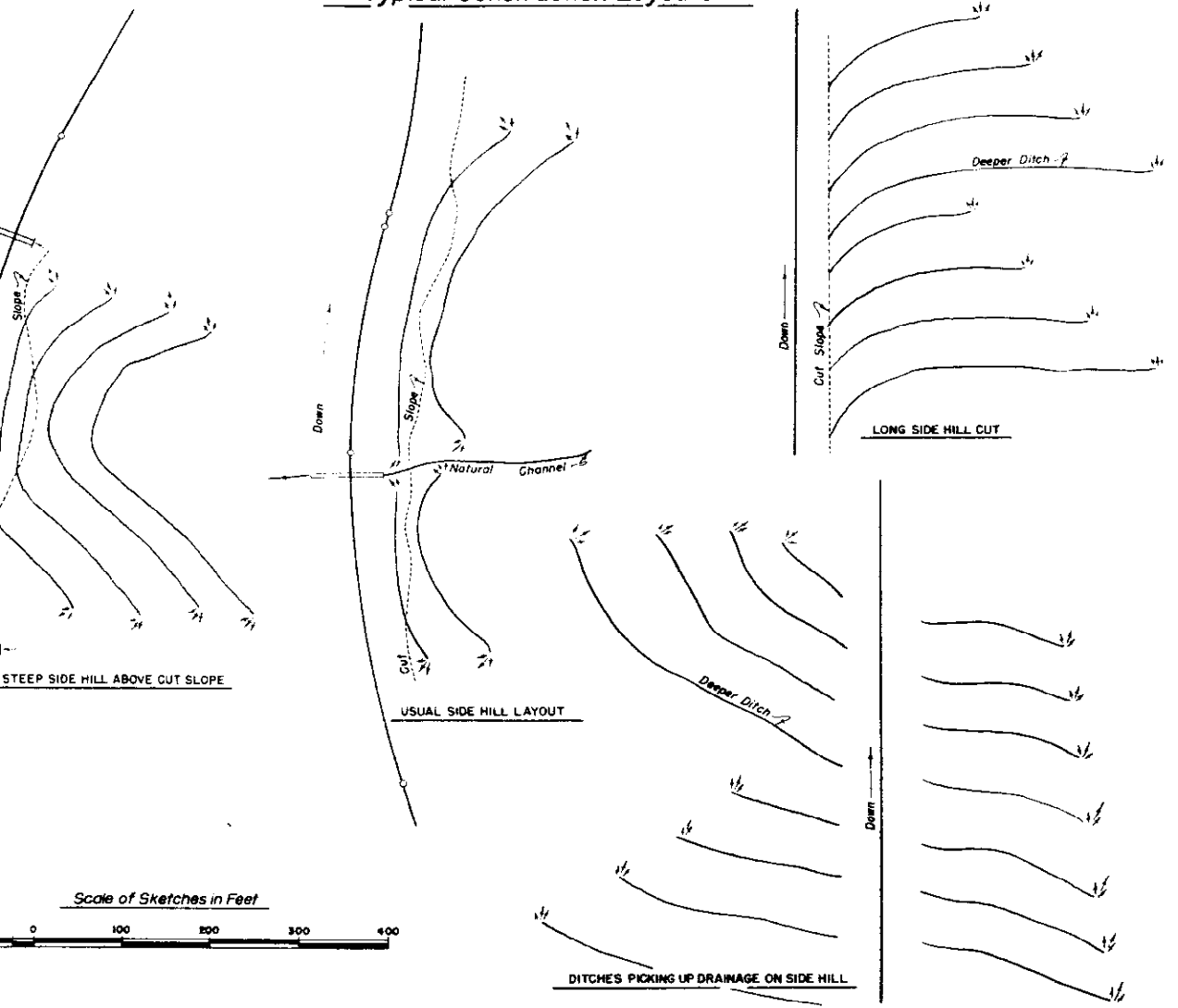
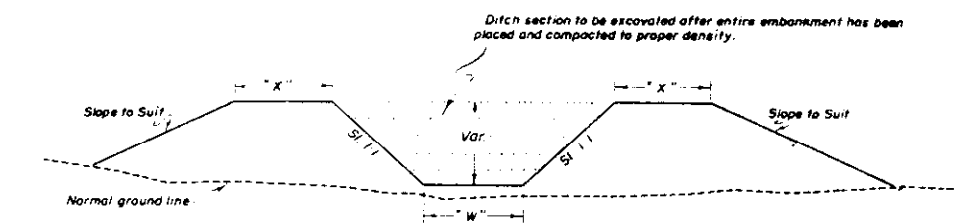


Table of Slopes and Yardages

Ground	SLOPES			H	Cubic Yards per 100 lin. ft. of Ditch		
	A	B	C				
5:1 Or Flatter	2:1	4:1	2:1	15"	16		
				18"	23		
				21"	32		
	1-1/2:1	3:1	2:1	1-1/2:1	15"	15	
					18"	22	
					21"	30	
					15"	14	
					18"	20	
					21"	27	
		4:1	2:1	1-1/2:1	1-1/2:1	15"	13
						18"	19
						21"	25
						15"	12
						18"	18
						21"	25
4:1	2:1	4:1	2:1	15"	12		
				18"	17		
				21"	23		
	1-1/2:1	3:1	2:1	1-1/2:1	15"	10	
					18"	15	
					21"	20	
					15"	10	
					18"	14	
					21"	19	
		4:1	2:1	1-1/2:1	1-1/2:1	15"	17
						18"	25
						21"	34
						15"	17
						18"	24
						21"	32
3:1	2:1	4:1	2:1	15"	15		
				18"	22		
				21"	30		
	1-1/2:1	3:1	2:1	1-1/2:1	15"	15	
					18"	21	
					21"	29	
					15"	13	
					18"	18	
					21"	25	
		4:1	2:1	1-1/2:1	1-1/2:1	15"	12
						18"	17
						21"	23
						15"	11
						18"	16
						21"	21
2:1	1-1/2:1	2:1	1-1/2:1	15"	10		
				18"	14		
				21"	20		
	1-1/2:1	3:1	2:1	1-1/2:1	15"	22	
					18"	31	
					21"	43	
					15"	21	
					18"	30	
					21"	41	
		4:1	2:1	1-1/2:1	1-1/2:1	15"	20
						18"	29
						21"	40
						15"	13
						18"	19
						21"	26
1-1/2:1	1:1	1-1/2:1	1:1	15"	12		
				18"	17		
				21"	24		
	1-1/2:1	2:1	1-1/2:1	1-1/2:1	15"	12	
					18"	17	
					21"	23	
					15"	8	
					18"	12	
					21"	16	
		4:1	1:1	1-1/2:1	1:1	15"	11
						18"	16
						21"	21
						15"	11
						18"	16
						21"	21

▲ Slopes are approximate and may be varied to suit conditions encountered during construction.

TYPICAL SECTIONS *for* DRAINAGE, IRRIGATION DITCHES *and* CHANNEL CHANGES



For Embankment Sections

(Generally for use in Irrigation Ditches & Channel Changes)



For Cut Sections

NOTE - Unless otherwise shown in Structure Notes of plans, dimension "W" = 1 foot

GENERAL NOTES

All work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department applicable to the Project.

All ditches are to be constructed to lines and grades as staked by the Engineer using the ditch section shown on plans or as ordered by the Engineer.

CONTOUR INTERCEPTING DITCHES: Ditches are to be laid out along the ground contour on a grade of not over 1% (Type of soil shall govern the grade).

Ends of ditches are to be lined up so that concentration of flow from a higher contour ditch into one of lower contour is, as far as possible avoided. The use of a deeper ditch is recommended where this condition is encountered.

The following horizontal spacing of ditches is recommended:

4% to 6%	Approximately 70' Centers
8% to 10%	Approximately 60' Centers
20% to 4:1 Slope	Approximately 55' Centers
30% to 1-1/2:1 Slope	Approximately 50' Centers

Where ditch checks are required the intervening ditch between one set of ditch checks shall not exceed a grade of 1.0%. Details of checks will be shown on plans when required.

COLORADO STATE HIGHWAY DEPARTMENT

Standard Types of Ditches and Construction Methods

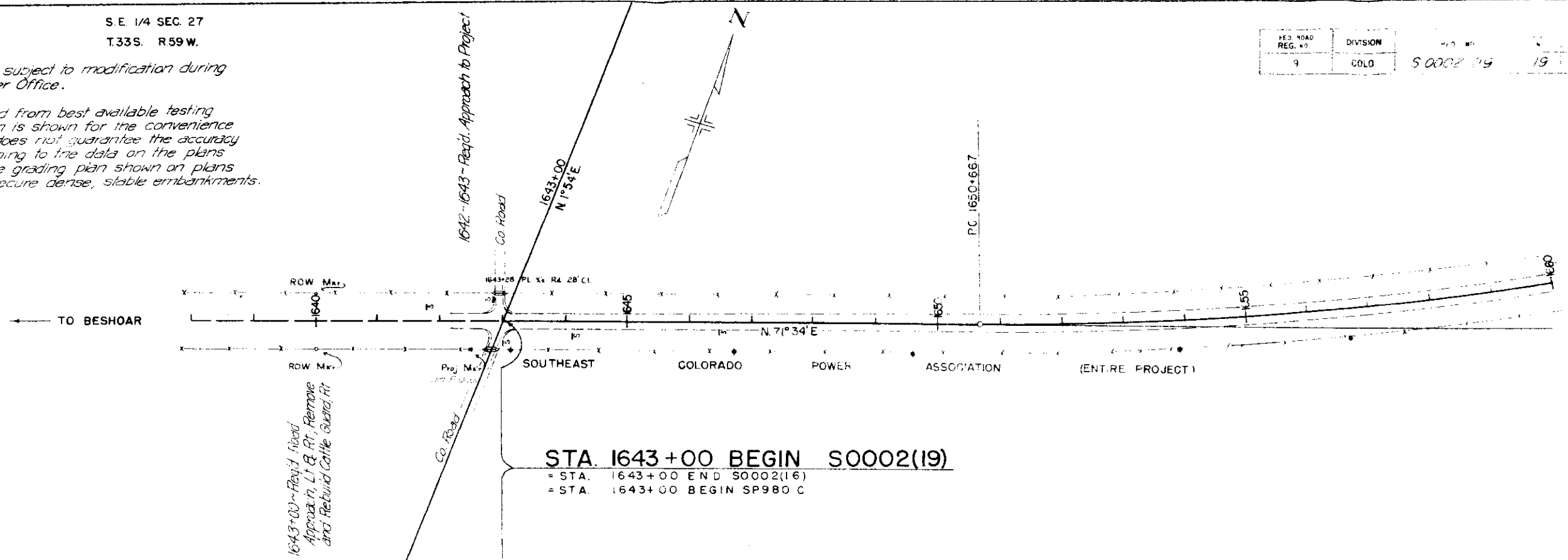
Designed by C.G.M. Approved by *[Signature]*
 Made by C.G.M. Engineer, Surveys & Plans
 Checked by Date: Aug. 18, 1950

S.E. 1/4 SEC. 27
T.33S. R.59W.

REG. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.
9	COLO.	S 0002 (19)	19

NOTE: Alignment and Grades as shown are subject to modification during construction after approval by the Denver Office.

Soil data shown on plans is obtained from best available testing laboratory information. This information is shown for the convenience of the Contractor and the Department does not guarantee the accuracy of these tests. If materials not conforming to the data on the plans are encountered during construction the grading plan shown on plans will be modified where necessary to secure dense, stable embankments.



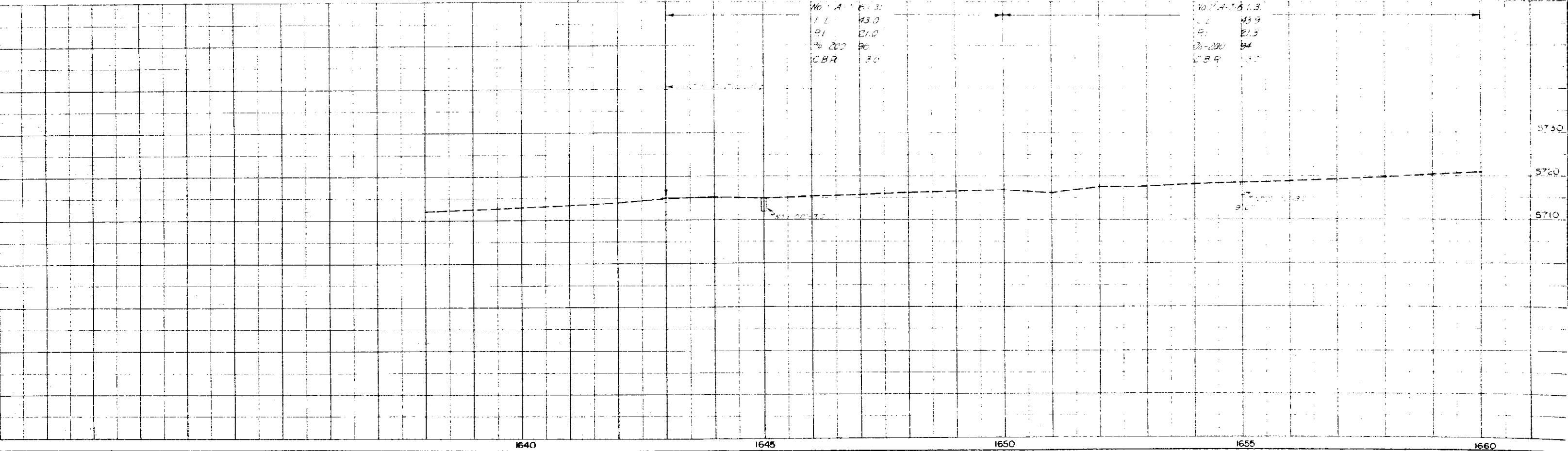
STA. 1643+00 BEGIN S0002(19)
 = STA. 1643+00 END S0002(16)
 = STA. 1643+00 BEGIN SP980 C

SW 1/4 SEC 26

B.M.
 NAIL IN PP. 52 Rt. 1653+90
 Elev. 5727.6

No.	A	61.3
1	L	43.0
2	P	21.0
3	200	96
	CBR	30

No.	A	61.3
1	L	43.9
2	P	21.3
3	200	94
	CBR	30



1640 1645 1650 1655 1660

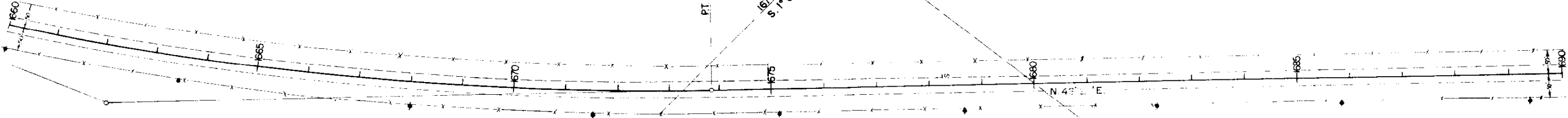
SW 1/4 SEC. 26
T.33S. R.59W

NW 1/4 SEC. 26

NE 1/4 SEC. 26

FED. ROAD REG. NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLD.	S 0002 (19)	20	

$\Delta 23^{\circ}12' L$
 $D 1^{\circ}$
 $T 1176.2'$
 $L 2320.0'$
 $R 5730.0'$
 $H.S.D. = 1300'$



PI 1665+42.9

B.M.
 NW 1/4 PP 52 RE 1668+00
 Elev. 5724.43

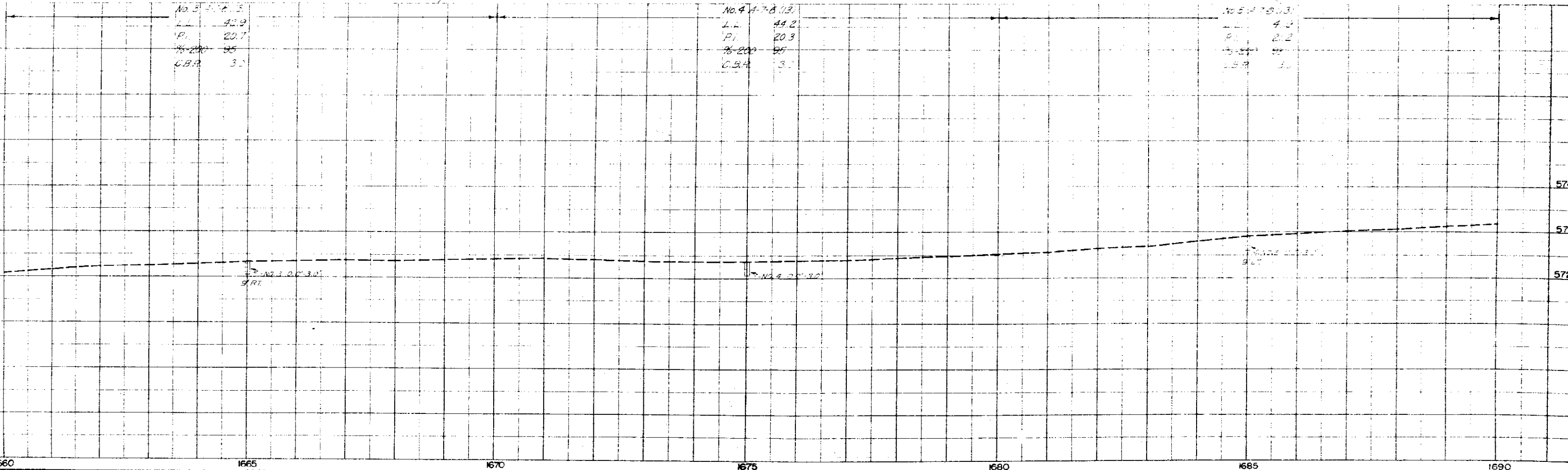
SE 1/4 SEC. 26

B.M.
 NW 1/4 PP 52 RE 1680+00
 Elev. 5726.30

No. 3 1-7-8 (13)
 L.L. 42.9
 P.I. 20.7
 % 2.00 95
 C.B.A. 3.0

No. 4 1-7-8 (13)
 L.L. 48.2
 P.I. 20.3
 % 2.00 95
 C.B.A. 3.0

No. 5 1-7-8 (13)
 L.L. 41.3
 P.I. 21.2
 % 2.00 95
 C.B.A. 3.0



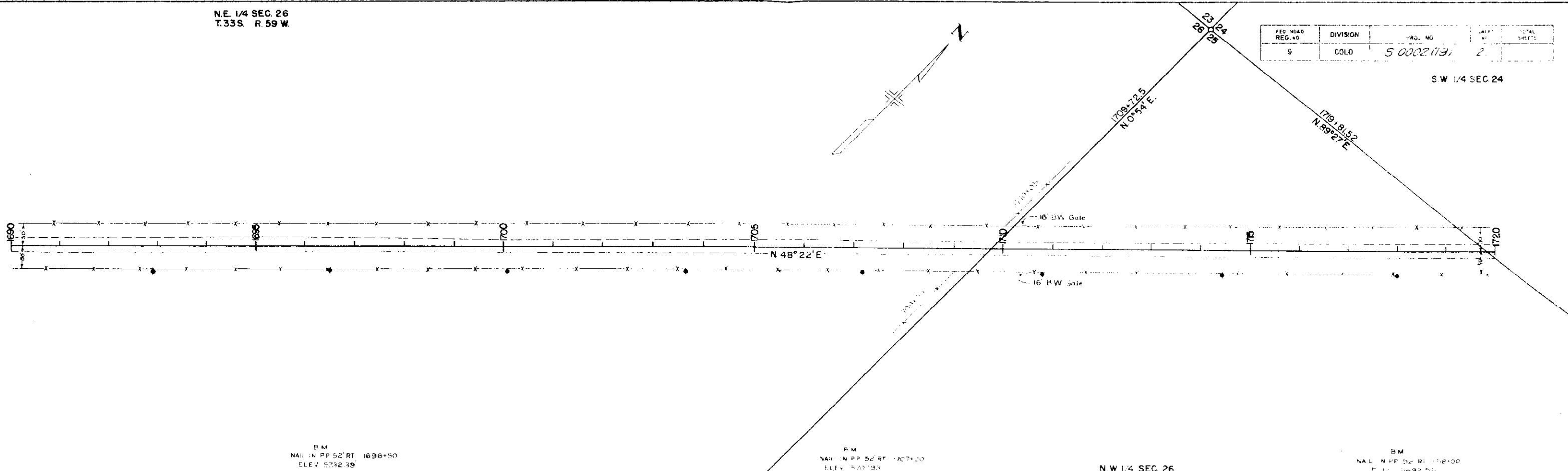
1660 1665 1670 1675 1680 1685 1690

5740
5730
5720

N.E. 1/4 SEC. 26
T.33S. R. 59 W.

FED. ROAD REG. NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	S 0002 (19)	2	

S.W. 1/4 SEC. 24



B.M.
NAIL IN PP 52' RT. 1696+50
ELEV. 5732.39

B.M.
NAIL IN PP 52' RT. 1707+00
ELEV. 5701.93

B.M.
NAIL IN PP 52' RT. 1718+00
ELEV. 5682.53

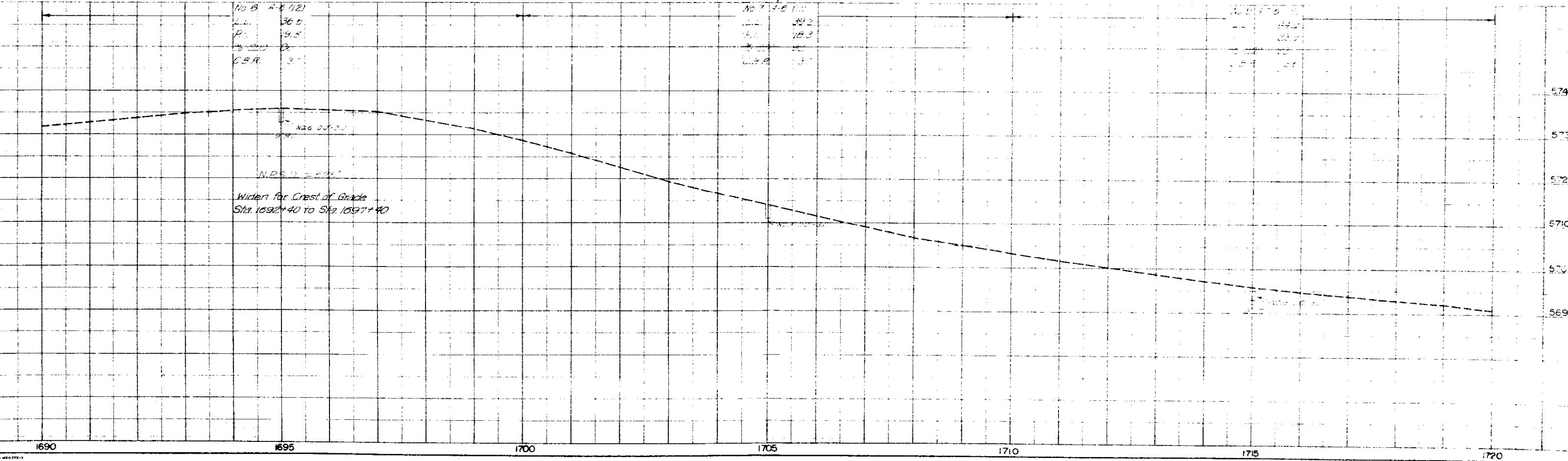
N.W. 1/4 SEC. 26

No. 6 4-6 (12)
L.L. 36.0
P.I. 19.5
C.B.R. 3.0

No. 7 4-6 (11)
L.L. 39.2
P.I. 18.3
C.B.R. 3.0

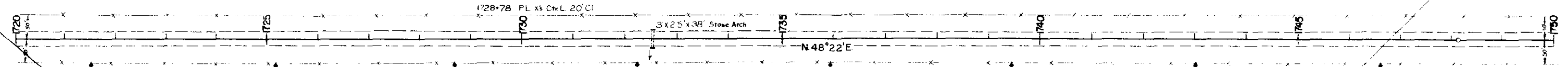
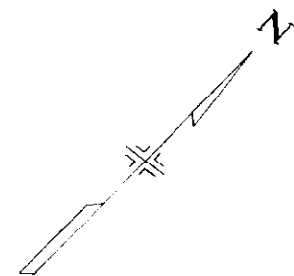
No. 8 4-6 (10)
L.L. 42.4
P.I. 17.1
C.B.R. 3.0

Widen for Crest of Grade
Sta. 1692+40 to Sta. 1697+40



S.W. 1/4 SEC. 24
T.33 S. R.59 W.

FED. ROAD REG. NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLD	S 0002 (19)	22	



N.W. 1/4 SEC. 25

B.M.
NAIL IN PP. 52' RT. 1732+30
ELEV. 5679.50'

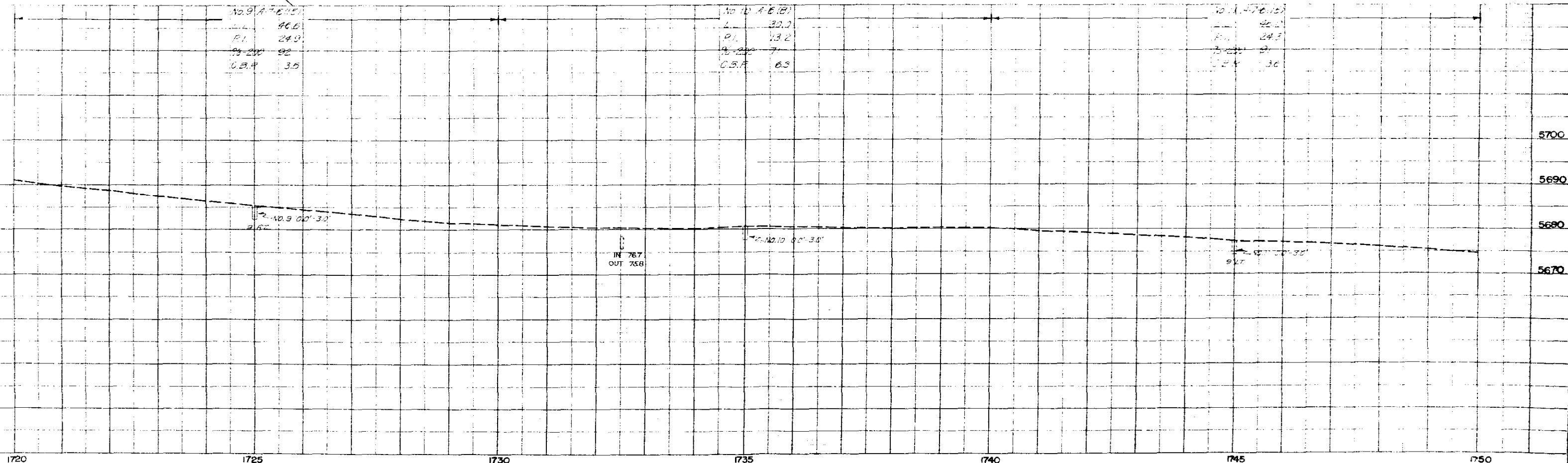
B.M.
NAIL IN PP. 52' RT. 1746+60
ELEV. 5673.44'

S.E. 1/4 SEC. 24

No. 9 A-B (15)
L. 40.0
P.I. 24.9
B-200 92
C.B.P. 3.5

No. 10 A-B (18)
L. 32.0
P.I. 13.2
B-200 71
C.B.P. 6.5

No. 11 A-B (15)
L. 22.0
P.I. 24.3
B-200 91
C.B.P. 3.6



IN 767
OUT 768

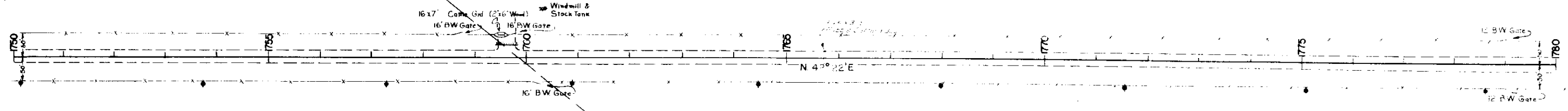
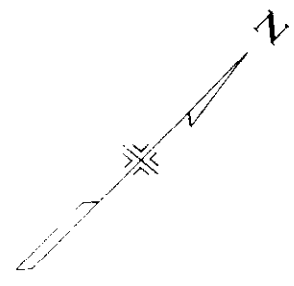
IN 767
OUT 768

1720 1725 1730 1735 1740 1745 1750

S.E. 1/4 SEC. 24
T.33S. R.59W.

REG. NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLD	5 0002 (19)	23	

1759+75 ~ Remove Barrel Side
Drain, Lt.; Reqd. 24" x 42" Side
Drain and Road Approach, Lt.



B.M.
NAIL IN PP. 50' RT. 1760+30
ELEV. 5667.54'

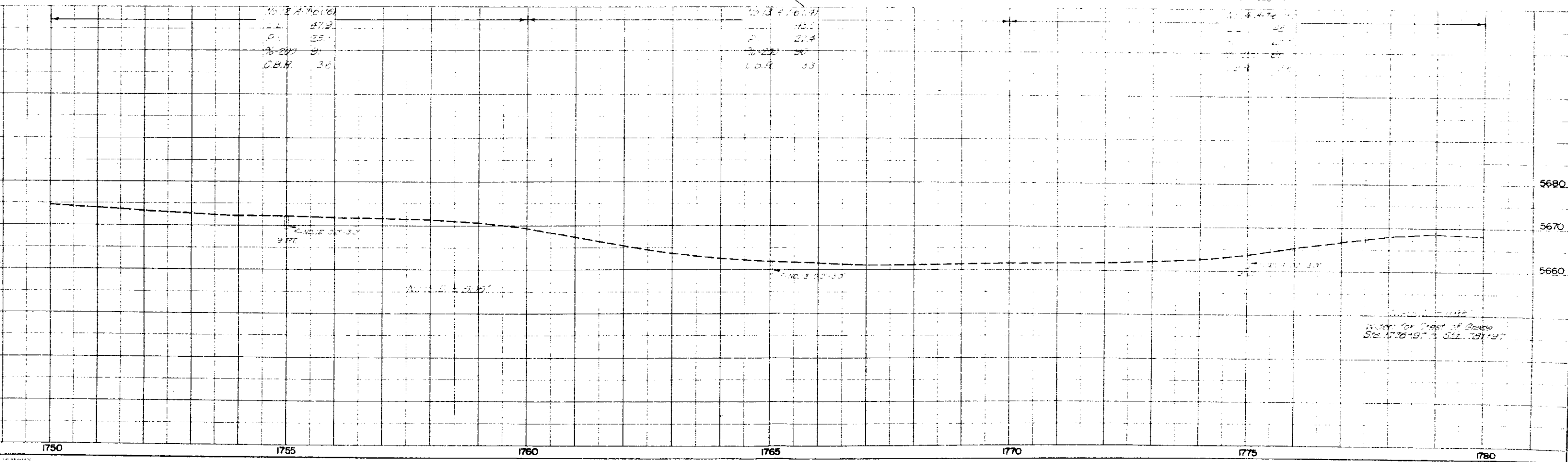
NE 1/4 SEC 24

B.M.
NAIL IN PP. 50' RT. 1775+30
ELEV. 5667.54'

1513 A 7016
L.L. 47.2
D.L. 25.1
16-200 31
C.B.M. 36

1513 A 7017
L.L. 43.0
D.L. 22.4
16-200 30
C.B.M. 33

1513 A 7018
L.L. 44.7
D.L. 22.7
16-200 30
C.B.M. 33

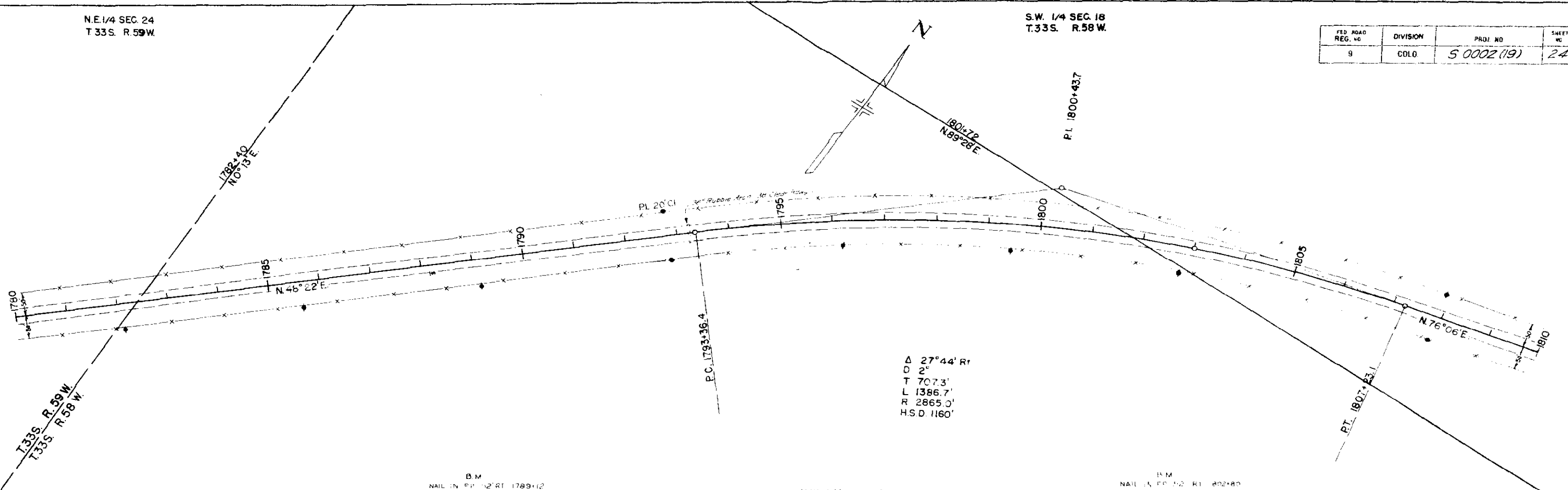


1750 1755 1760 1765 1770 1775 1780

N.E. 1/4 SEC. 24
T.33S. R.59W.

S.W. 1/4 SEC. 18
T.33S. R.58W.

FED. ROAD REG. NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	5 0002 (19)	24	



B.M.
NAIL IN P.P. 1/2 RT 1789+12
ELEV. 5655.43

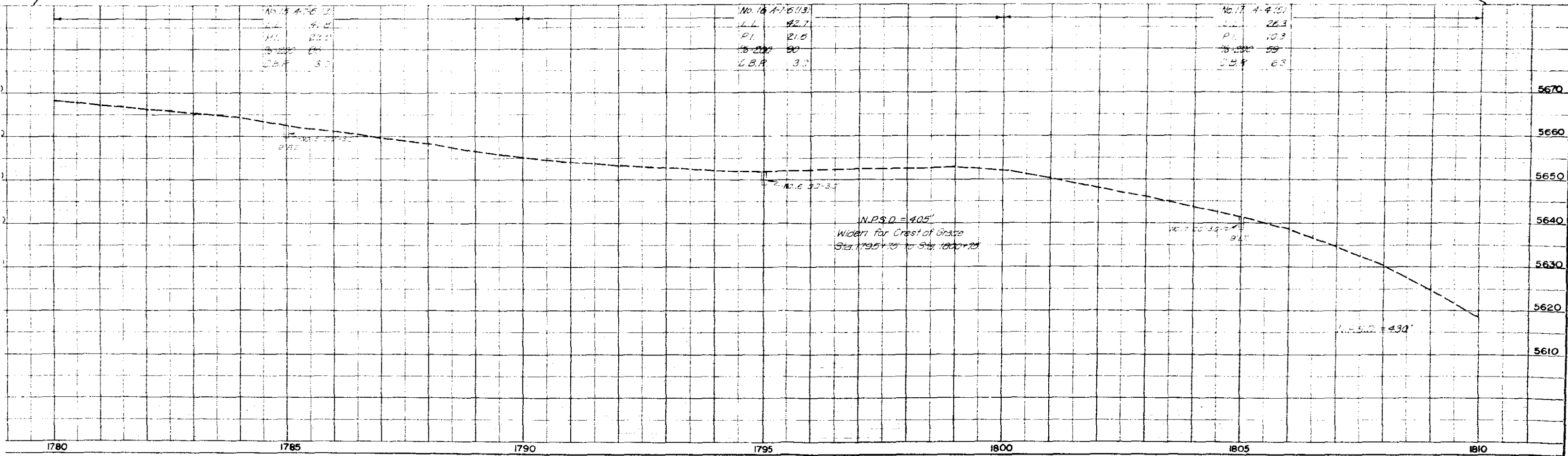
N.W. 1/4 SEC. 19

B.M.
NAIL IN P.P. 1/2 RT 1802+80
ELEV. 5647.58

No. 15 A-75 (1)
L.L. 4.0
P.I. 22.0
% 2.00 60
C.B.P. 3.0

No. 16 A-76 (1)
L.L. 42.7
P.I. 21.5
% 2.00 90
C.B.P. 3.0

No. 17 A-77 (1)
L.L. 26.3
P.I. 10.3
% 2.00 59
C.B.P. 6.3



N.P.S.D. = 405'
Widened for Crest of Grade
Sta. 1795+75 to Sta. 1800+75

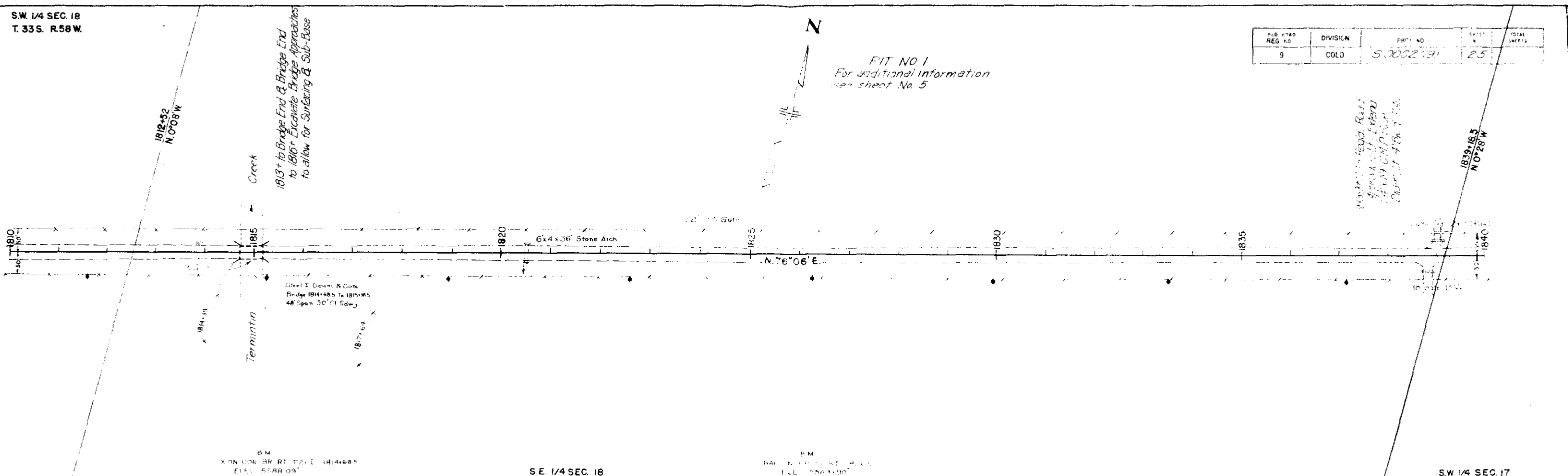
N.P.S.D. = 430'

SW 1/4 SEC. 18
T. 33S. R. 58W.

FED. ROAD REG. NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	S. 0002191	25	

FIT NO. 1
For additional information
see sheet No. 5

Proposed Road Right
Approach to E. End
of 1917 Bridge
Dist. 1.40m. 1.5m.



B.M.
X ON COR. BR. RE. P. 21 I 1814+65.5
Elev. 5588.00'

B.M.
NAIL IN BR. RE. P. 21 I 1815+65.5
Elev. 5588.00'

S.E. 1/4 SEC. 18

S.W. 1/4 SEC. 17

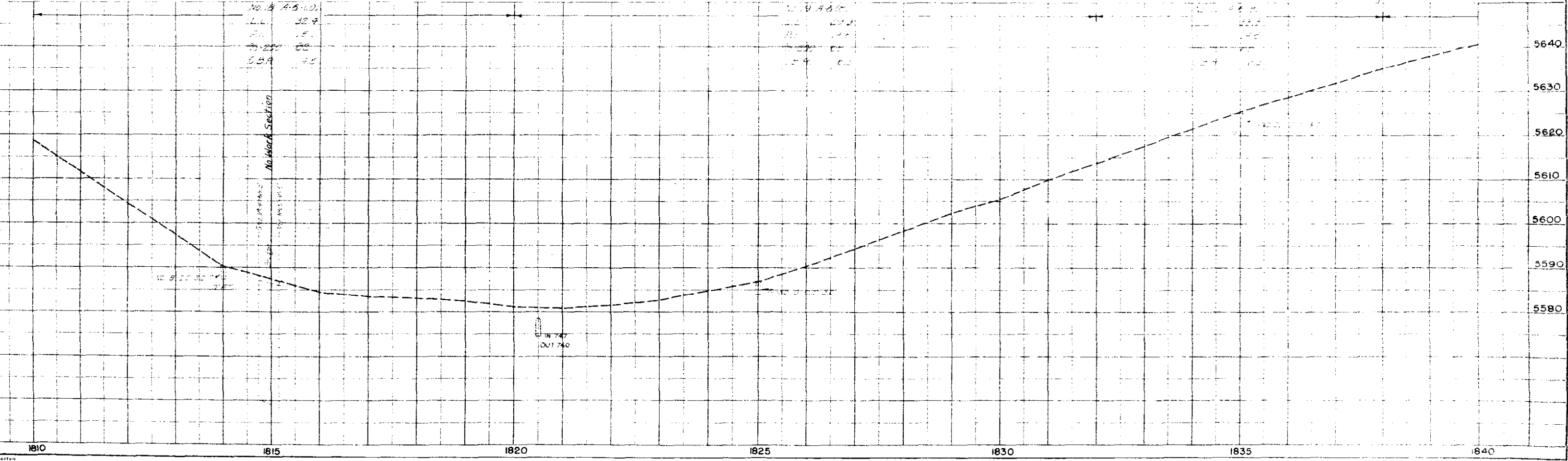
No. 4 A-5-10

LL	32.4
SL	15.1
BL	28.2
CLR	40.0

No. 4 A-5-10

LL	32.4
SL	15.1
BL	28.2
CLR	40.0

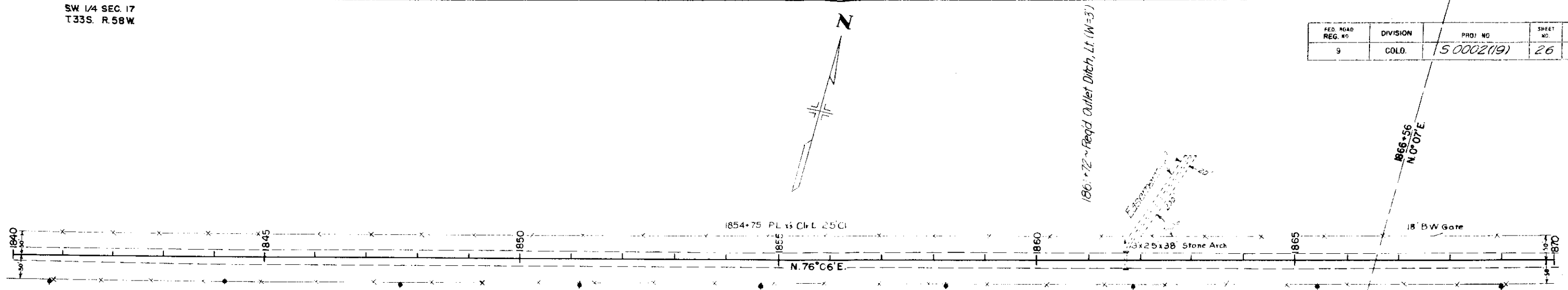
No. 4 A-5-10 Section



1810 1815 1820 1825 1830 1835 1840

SW 1/4 SEC. 17
T33S. R.58W

FED. ROAD REG. NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	5 0002(19)	26	



B.M.
NAIL IN PP. 50 RT. 1841+00
ELEV. 5642.82

B.M.
NAIL IN PP. 50 RT. 1864+00
ELEV. 5641.37

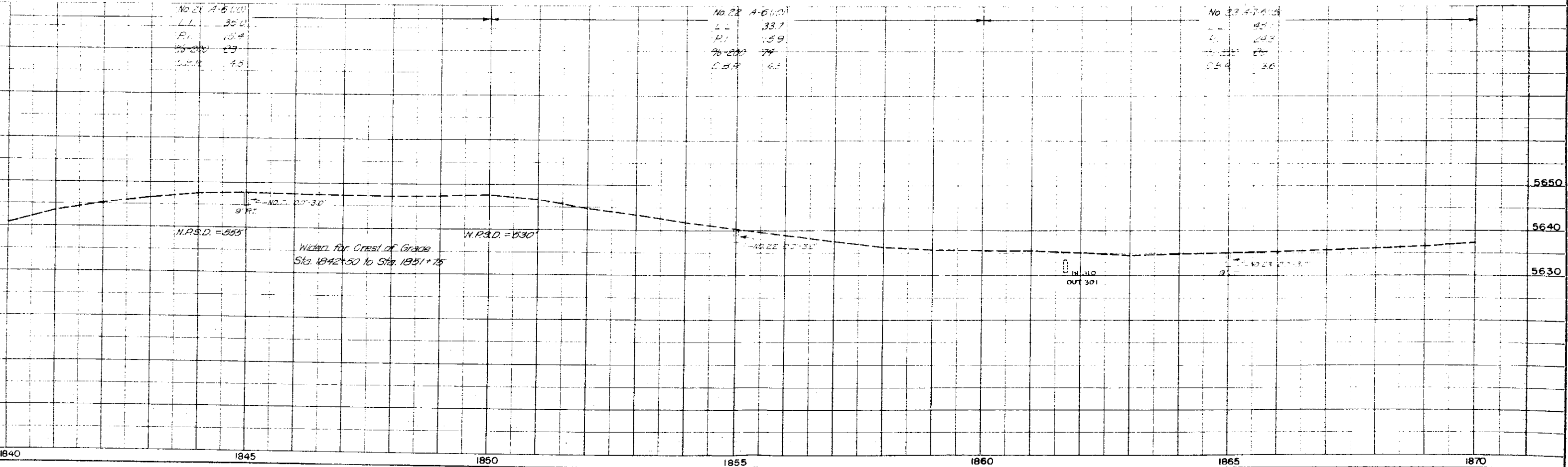
B.M.
NAIL IN PP. 52 RT. 1869+00
ELEV. 5636.62

SE 1/4 SEC. 17

No. 21 A-61101
L.L. 35.0
P.I. 15.4
T.S. 200 29
S.E.A. 4.5

No. 22 A-61101
L.L. 33.7
P.I. 15.9
T.S. 200 74
C.B.P. 4.5

No. 33 A-76101
L.L. 45.0
P.I. 24.3
T.S. 200 28
C.B.P. 3.6



N.P.S.D. = 555

N.P.S.D. = 530

Widened for Crest of Grade
Sta. 1842+50 to Sta. 1851+75

No. 22 2.5°-3.0'

No. 23 2.5°-3.0'

IN 310
OUT 301

1840

1845

1850

1855

1860

1865

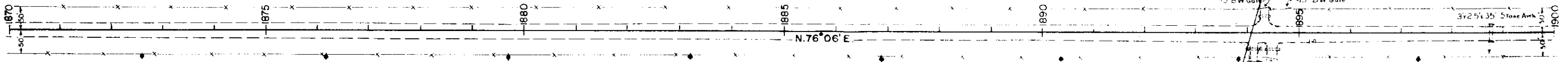
1870

SE 1/4 SEC. 17
T 33 S. R. 58 W.

NE 1/4 SEC. 17

FED. ROAD REG. NO. 9	DIVISION COLO.	REG. NO. S 0002 (19)	27
			NW 1/4 SEC. 16

N



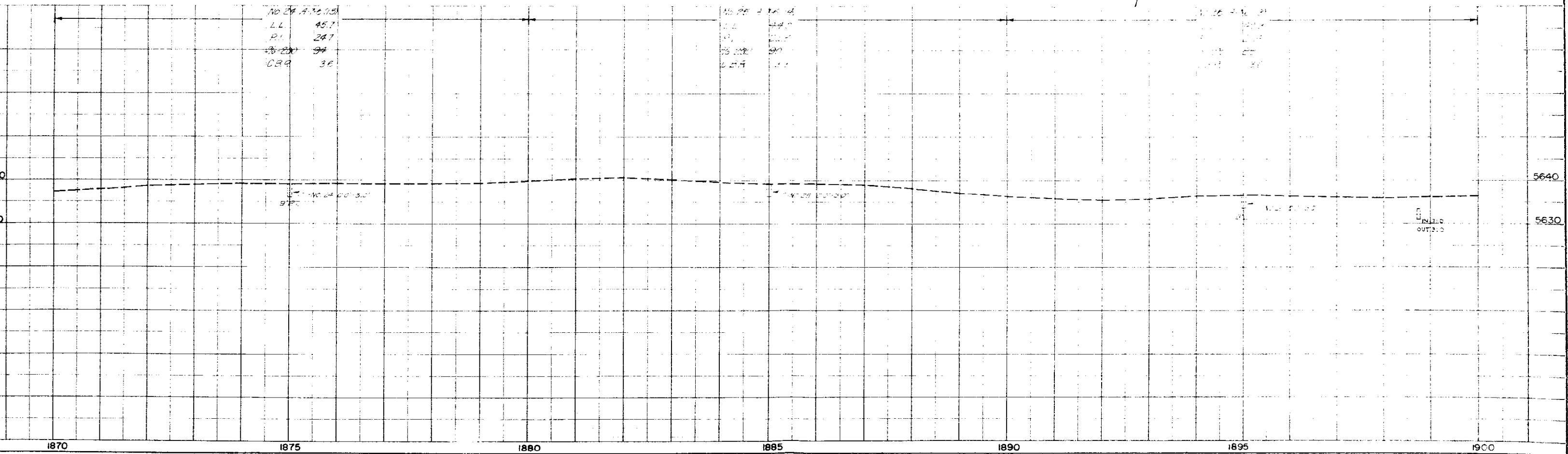
RED
NAILED IN PLACE
FILED 5640110

SW 1/4 SEC. 16

No. 29 4.25.05
 LL 45.7
 RL 24.7
 36-20 94
 CBA 36

No. 29 4.25.05
 LL 45.7
 RL 24.7
 36-20 94
 CBA 36

No. 29 4.25.05
 LL 45.7
 RL 24.7
 36-20 94
 CBA 36

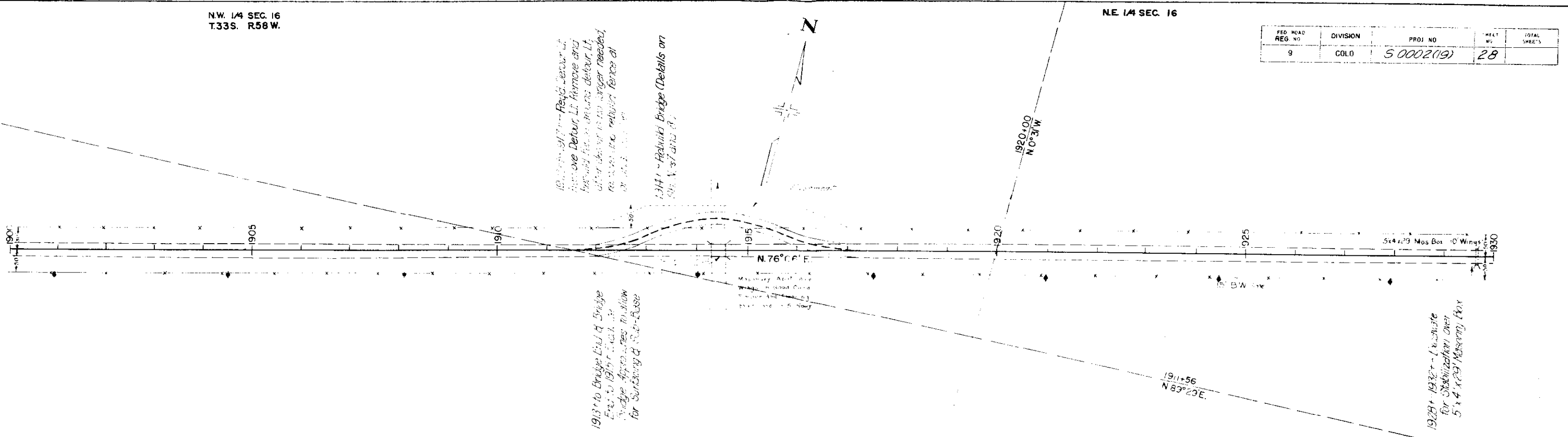


1870 1875 1880 1885 1890 1895 1900

NW 1/4 SEC. 16
T33S. R58W.

NE 1/4 SEC. 16

FED. ROAD REG. NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	5 0002(19)	28	

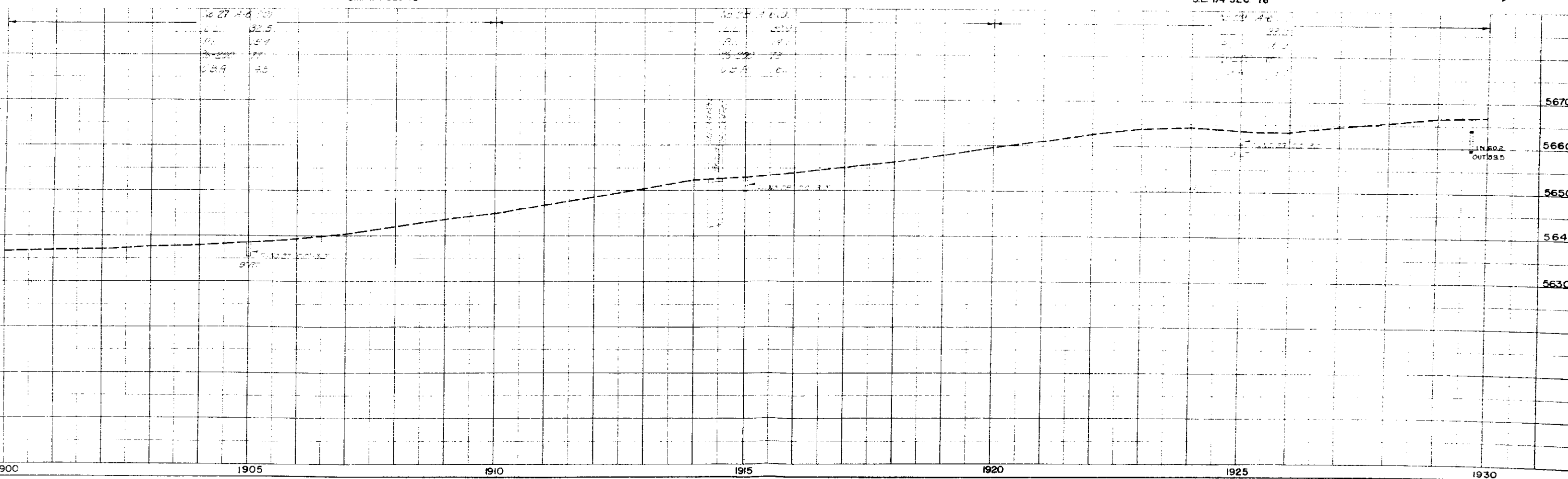


B.M.
NAIL IN RT. 12' RT. 1900+00
ELEV. 5637.35'

SW 1/4 SEC. 16

B.M.
NAIL IN RT. 52' RT. 1914+00
ELEV. 5650.31'

SE 1/4 SEC. 16



1900 1905 1910 1915 1920 1925 1930

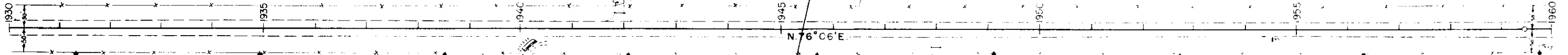
NE 1/4 SEC. 16
T.33S R.58W

REG. NO.	DIVISION	PRJ. NO.	DATE
9	COLO	S 0002 19	29

1941+93 ~ Req'd. 24" x 20' C.M.P.
Side Drain, and Road Approach, L.

N

1945+43.5
S 1° 45' E



1940+00 ~ Req'd. Diversion of
12" x 10" pipe for lateral with
12" x 10" pipe on street end

1944+00 ~ Req'd. 24" x 20' C.M.P.
Side Drain, and Road Approach, L.

B.M.
NAIL IN PP 52' RT 1981+36
ELEV. 5666.93

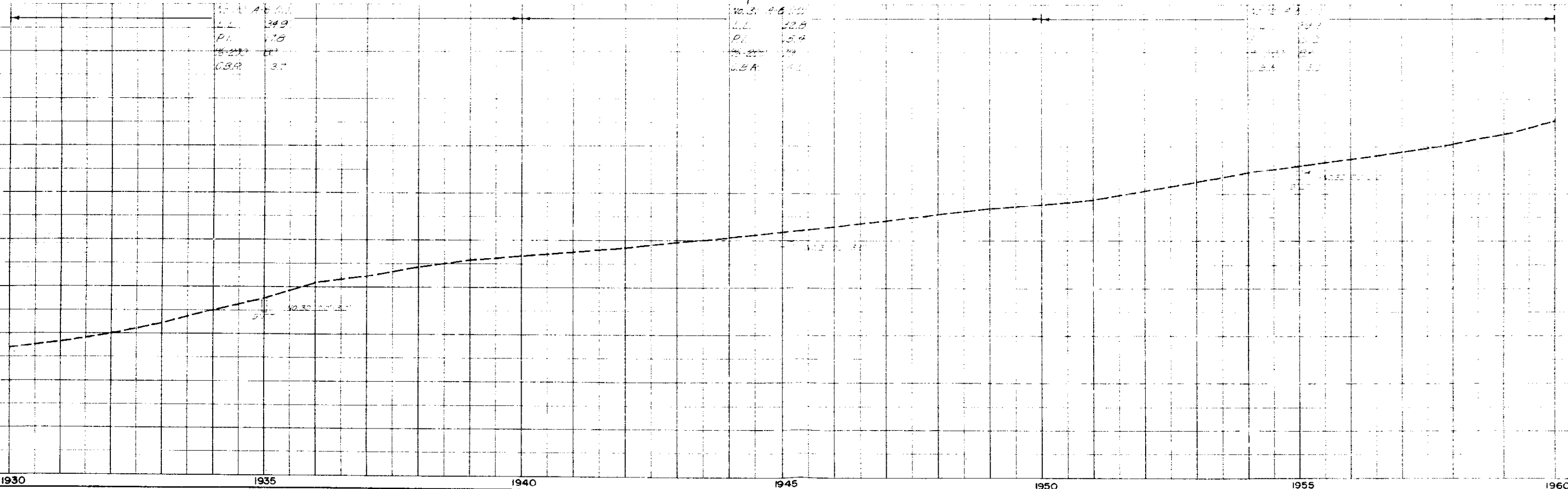
B.M.
NAIL IN PP 52' RT 1981+36
ELEV. 5667.03

NW 1/4 SEC. 5

10.31 46.00
L.L. 39.9
P.I. 17.8
G.S.A. 3.7

10.31 46.00
L.L. 32.8
P.I. 5.9
G.S.A. 4.1

10.31 46.00
L.L. 39.2
P.I. 17.8
G.S.A. 3.7



P.C. 1959+46.6

NW 1/4 SEC. 15
T.33S. R.58W.

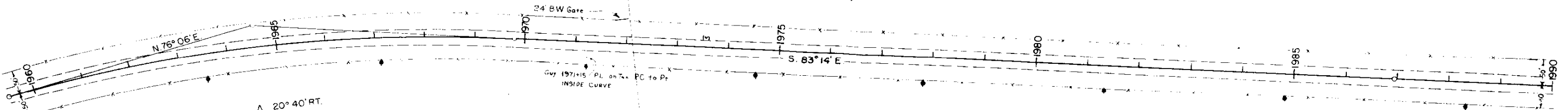
FED. ROAD REG. NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	5 0002 (19)	30	



P.I. 1964+69.0

1972+12
S 1° 46' E

P.O.T. 1986+95.1

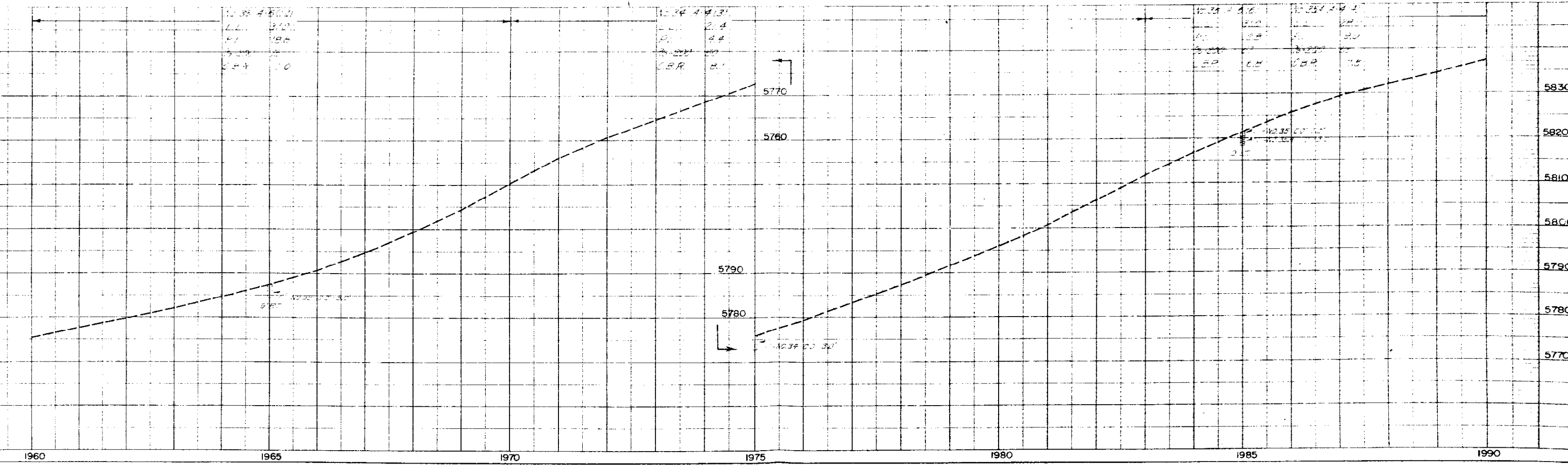


Δ 20° 40' RT.
D 2°
T 522.4'
L 1033.3'
R 2865.0'
H.S.D. 1160'

P.T. 1969+79.9

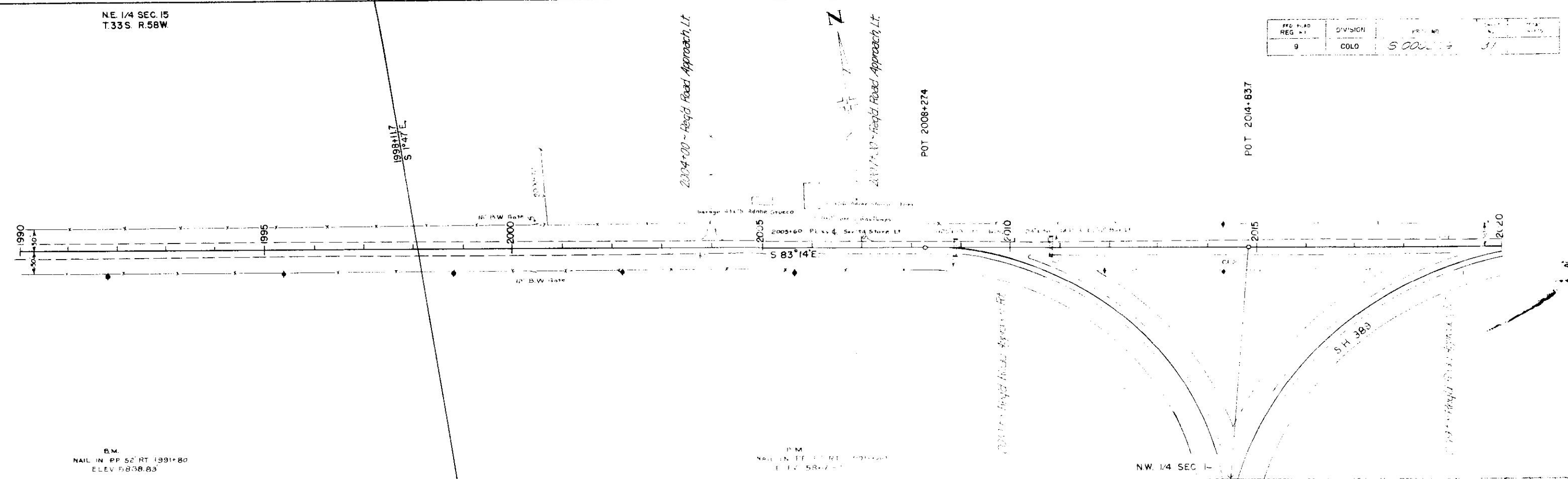
B.M.
NAIL IN TOP EAST CORNER
ELEV. 5780.14

NE 1/4 SEC. 15



NE 1/4 SEC. 15
T.33S. R.58W.

REG. #	DIVISION	PROJECT NO.	DATE
9	COLO.	S.000.000	3/1



B.M.
NAIL IN PP 52 RT 1991+80
ELEV 5838.83

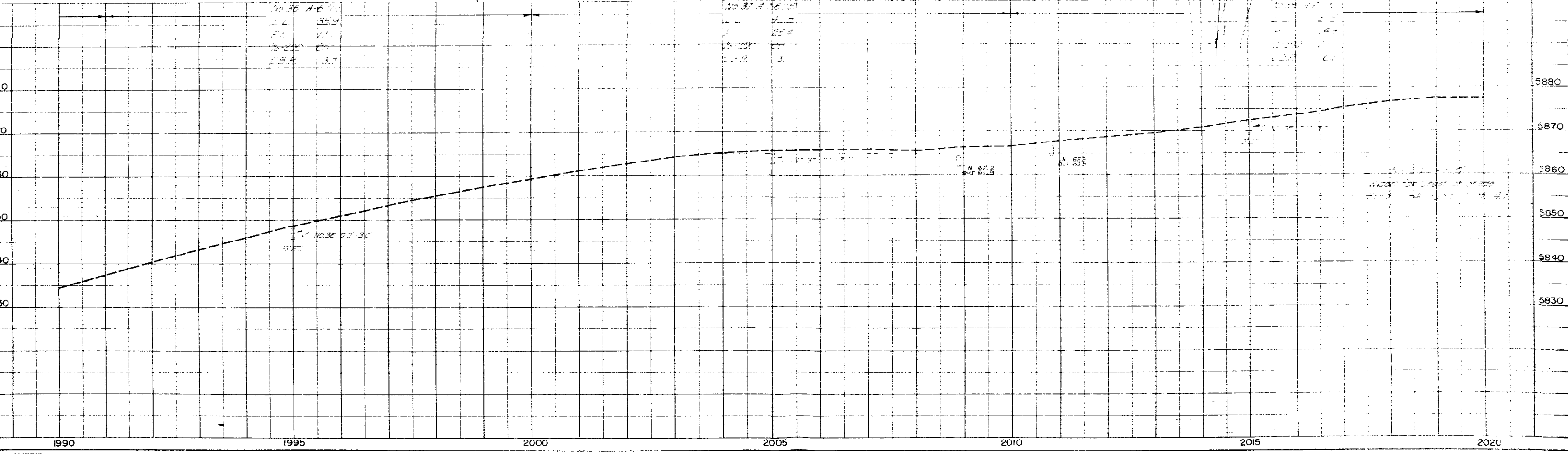
B.M.
NAIL IN PP 52 RT 2011+80
ELEV 5847.77

NW 1/4 SEC 15

10.36	1.6
1.2	35.9
2.0	1.1
18.200	2.0
25.4	3.7

15.37	1.6
1.2	35.9
2.0	1.1
18.200	2.0
25.4	3.7

10.36	1.6
1.2	35.9
2.0	1.1
18.200	2.0
25.4	3.7



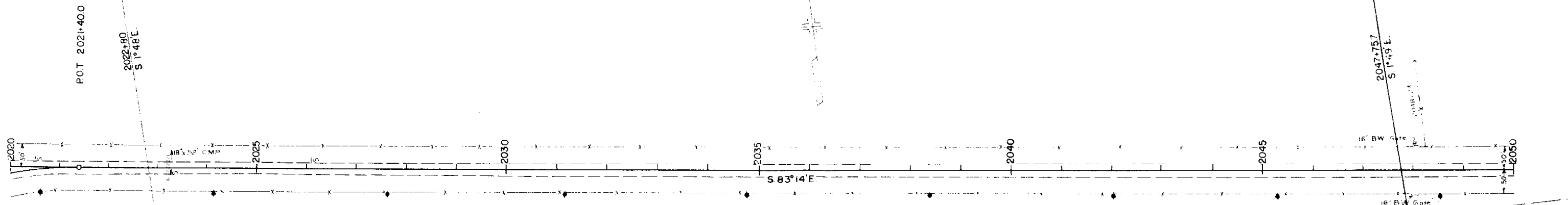
1990 1995 2000 2005 2010 2015 2020

NW 1/4 SEC. 14
T.33S. R.58W.

NE 1/4 SEC. 14

NW 1/4 SEC. 13

FED. ROAD REG. NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLL.	S 0002 (19)	32	



B.M.
NAIL IN PP 52' RT 2020+68
ELEV 5877.37
SW 1/4 SEC. 14

B.M.
NAIL IN PP 52' RT 2034+70
ELEV 5881.11
S.E. 1/4 SEC. 14

SW 1/4 SEC. 13

No. 29 A 6520
L.L. 58.1
P.L. 19.1
B.S. 200 77
C.B.R. 3.0

No. 40 A 7012
L.L. 40.0
P.L. 22.3
B.S. 200 85
C.B.R. 3.0

No. 41 A 7012
L.L. 40.0
P.L. 22.3
B.S. 200 85
C.B.R. 3.0

IN 21.6
OUT 12.4
2020+68 2020+70

2034+70 2034+70

N.W.S.D. = 76.0"

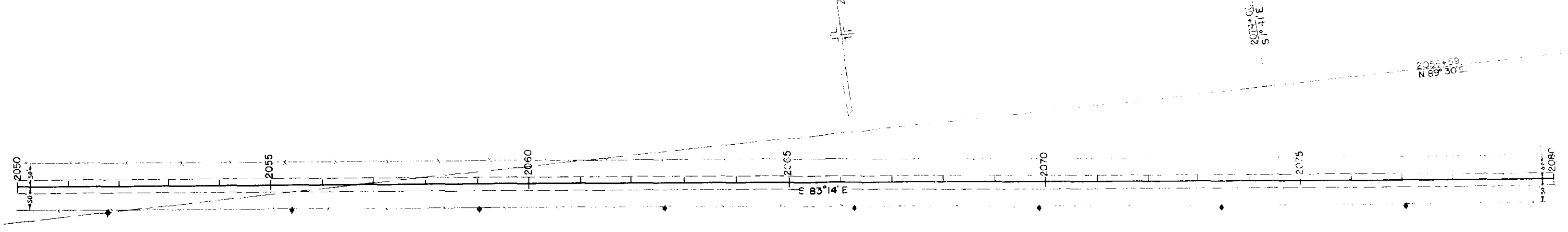
5900
5890
5880
5870

2020 2025 2030 2035 2040 2045 2050

NW 1/4 SEC. 13
T.33S. R. 58 W.

FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	S 5002 (19)	33	

NE 1/4 SEC. 13



B.M.
NAIL IN PP. 52' RT. 2051+80
ELEV. 5894.85

S.W. 1/4 SEC. 13

B.M.
E. I. 5844.51

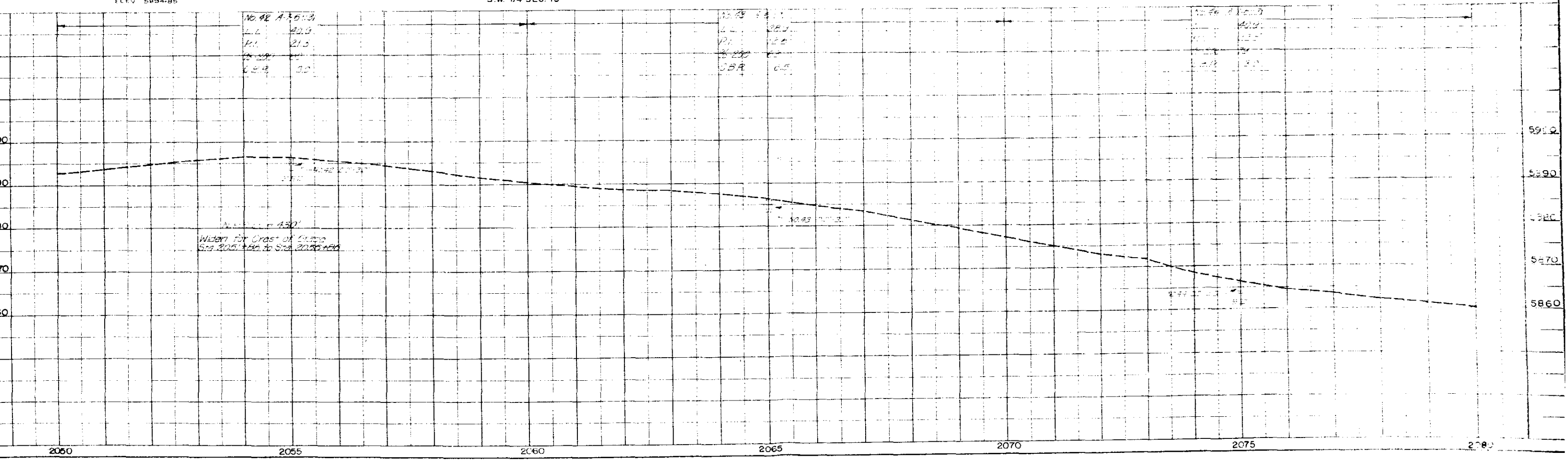
SE 1/4 SEC. 13

No. 42 A 3513
L.L. 21.9
P.I. 21.5
G.S.P. 20
C.S.P. 20

No. 42 A 3511
L.L. 22.0
P.I. 22.0
G.S.P. 20
C.S.P. 20

No. 42 A 3509
L.L. 22.0
P.I. 22.0
G.S.P. 20
C.S.P. 20

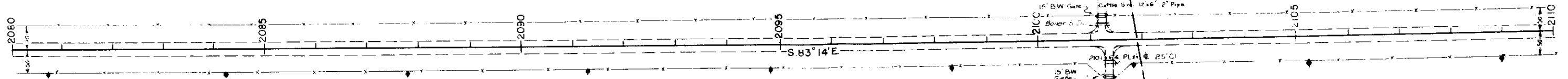
Widened for Crest of Gravel
Sta. 2051+40 to Sta. 2055+00



NE 1/4 SEC 13
T.33S. R.58W.

SW 1/4 SEC. 18
T.33S. R.57W.

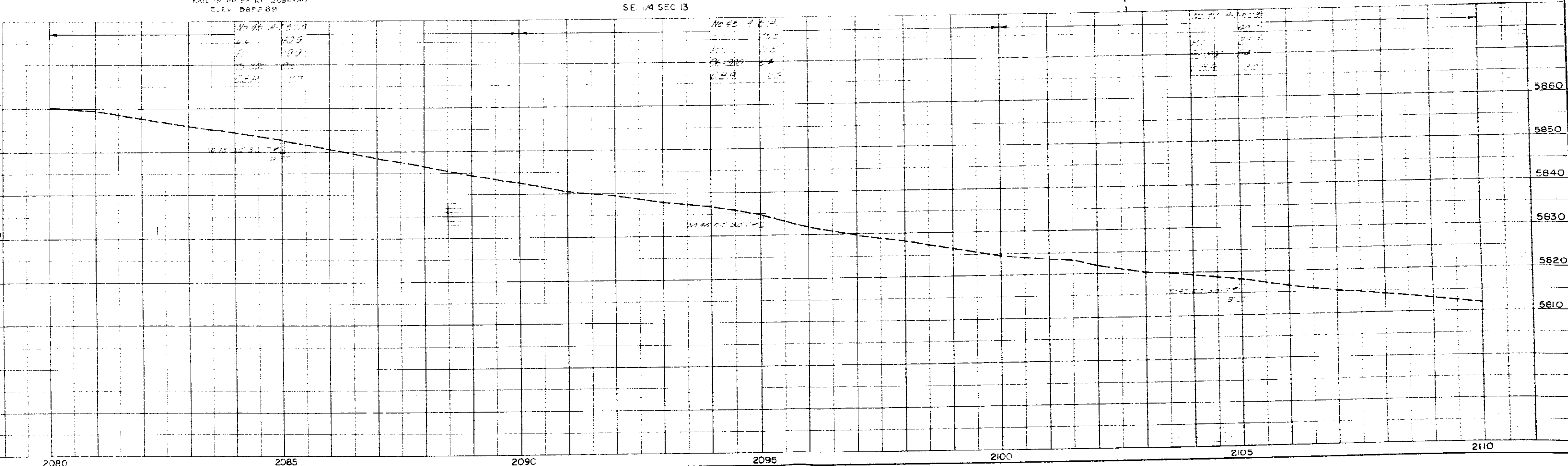
FED. ROAD REG. NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	S 0002 (19)	34	



BM
NAIL IN PP 52 FT. 2084+30
ELEV. 5882.69

SE 1/4 SEC 13

BM
NAIL IN PP 52 FT. 2105+30
ELEV. 5817.92



2080

2085

2090

2095

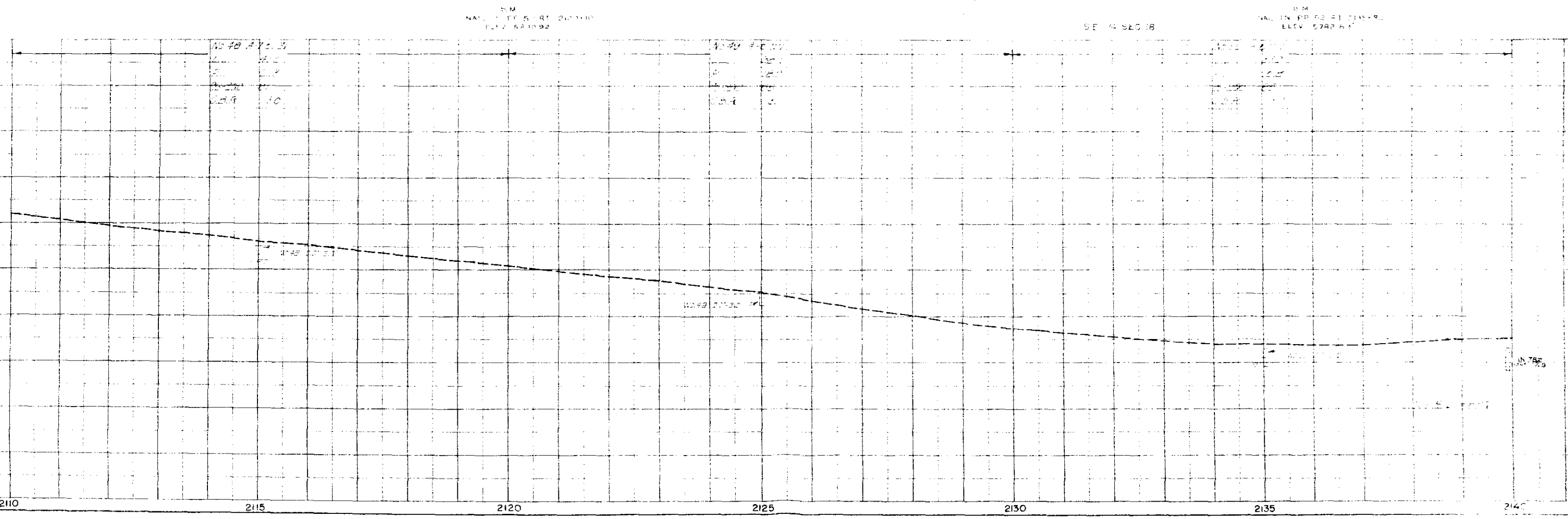
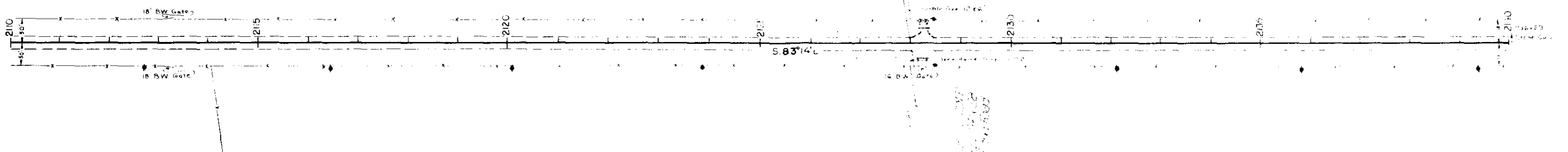
2100

2105

2110

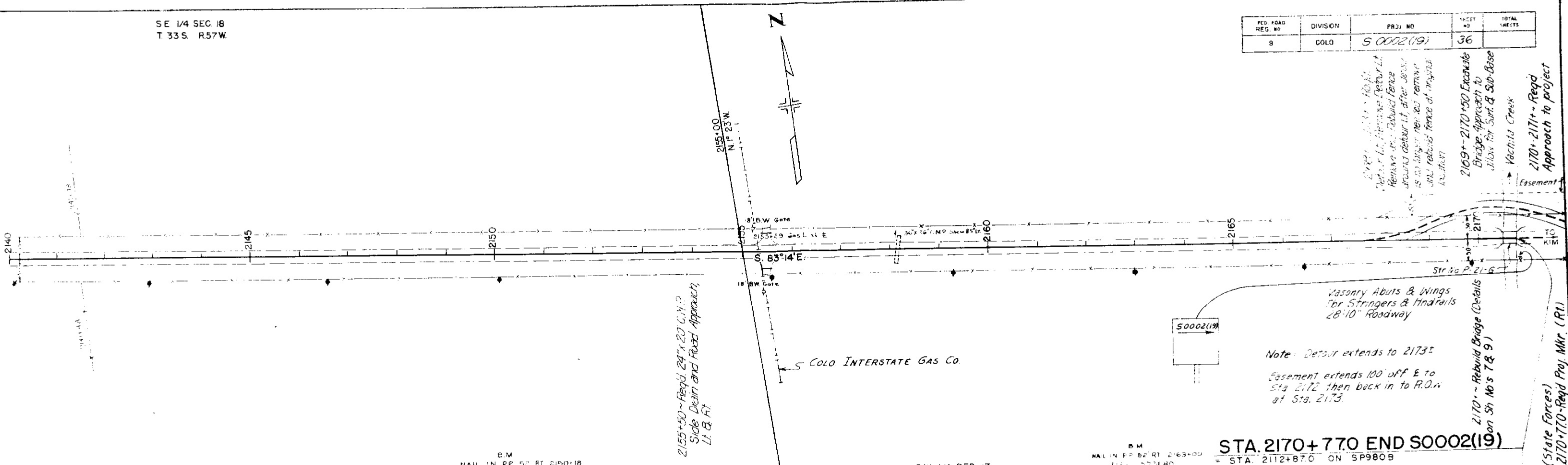
SW 1/4 SEC 18
T. 33S. R. 57W.

REG. NO.	DIVISION	PLAT NO.
9	COLD	6 2007 10



SE 1/4 SEC. 18
T. 33 S. R. 57 W.

FED. ROAD REG. NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	S 0002 (19)	36	



B.M.
NAIL IN PP 52 RT 2150+18
ELEV 5781.84

S.W. 1/4 SEC 17

B.M.
NAIL IN PP 52 RT 2163+00
ELEV 5774.80

STA. 2170+7.70 END S0002(19)
= STA. 2112+87.0 ON SP9808

No. 51 A-B (102)
L.L. 40.5
P.I. 20.0
% 2.27
C.B.R. 2.7

No. 52 A-B (107)
L.L. 34.9
P.I. 15.8
% 2.00
C.B.R. 4.5

No. 53 A-B (107)
L.L. 39.2
P.I. 20.0
% 2.27
C.B.R. 3.0

AV.
BANK X 1.2
VD, U.H.
M, D.H.
ROW SOURCE

2140 2145 2150 2155 2160 2165 2170

(State Forces)
2170+7.70-Reqd Proj. Mkr. (RT)

2170+ ~ Rebuild Bridge (Details on Sh. No's 7 & 9)

Note: Detour extends to 2173±
Easement extends 100' off E to Sta. 2172 then back in to R.O.W. at Sta. 2173.

Masonry Abuts & Wings for Stringers & Handrails 28'-10" Roadway

2170+ ~ 2170+50 Excavate Bridge Approach to allow for Surf & Sub-Base

2170+ ~ 2171+ ~ Req'd Approach to project

2155+50 ~ Req'd 24" x 20" C.H.P. Side Drain and Road Approach Lt. & Rt.

S. COLO INTERSTATE GAS CO

S0002(19)

Easement

TO KIM

Str No P. 21-G

2170

2170

2170

2170

2170

2170

2170

2170

2170

2170

2170

2170

2170

2170

2170

2170

2170

2170

2170

2170

2170

2170

Excavation
Cu. Yds. Area

Embankment
Area Cu. Yds.

Excavation
Cu. Yds. Area

Embankment
Area Cu. Yds.

FED. ROAD DIVISION NO.	DISTRICT	PROJ. NO.
9	COLO.	S 0002 (19) 37

Rev. 5-16-58 JWK Deleted Mr. I. W. No. 014

SUMMARY OF EARTHWORK QUANTITIES

EXCAVATION

UNCLASSIFIED DITCH EXCAVATION
FROM LIST OF STRUCTURES 270 CU. YDS.

LIST OF STRUCTURES AS EXCAVATION
* LIST OF STRUCTURES AS EMBANKMENT

2920 * CU. YDS.
1400 CU. YDS.

TOTALS

4320 CU. YDS.

STATION YARD OVERHAUL

ESTIMATED FOR STRUCTURE BACKFILL
TOTALS

503 STA. YDS.

YARD MILE OVERHAUL

ESTIMATED FOR STRUCTURE BACKFILL

256 YD. MI.

COMPACTION (Modified)

* EMBANKMENT
BLADING AREAS
DIKE RT. OF STA. 1940+

1430 CU. YDS.
36707 CU. YDS.
15 CU. YDS.
38122 CU. YDS.

SHEET TOTALS
EXCAVATION
EMBANKMENT