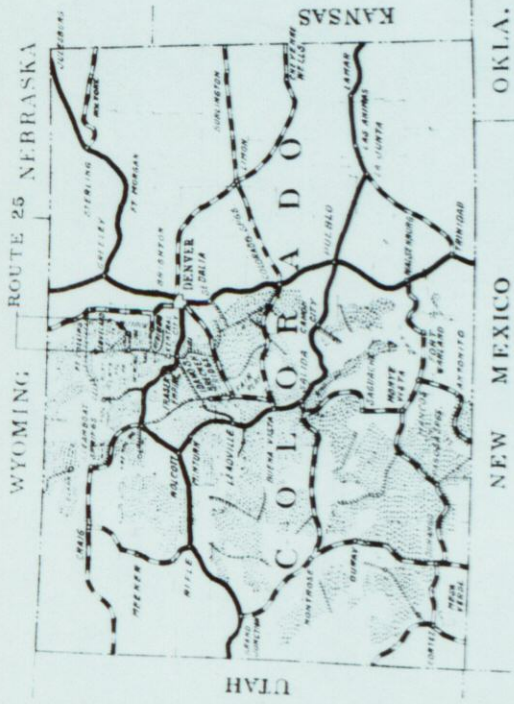




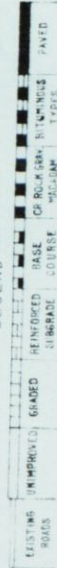
Federal Aid Highway System
Forest Highway System
National Forests

INDEX MAP

Scale Miles

0 1 2 3 4

LEGEND



UNITED STATES DEPARTMENT OF AGRICULTURE BUREAU OF PUBLIC ROADS

AS CONSTRUCTED

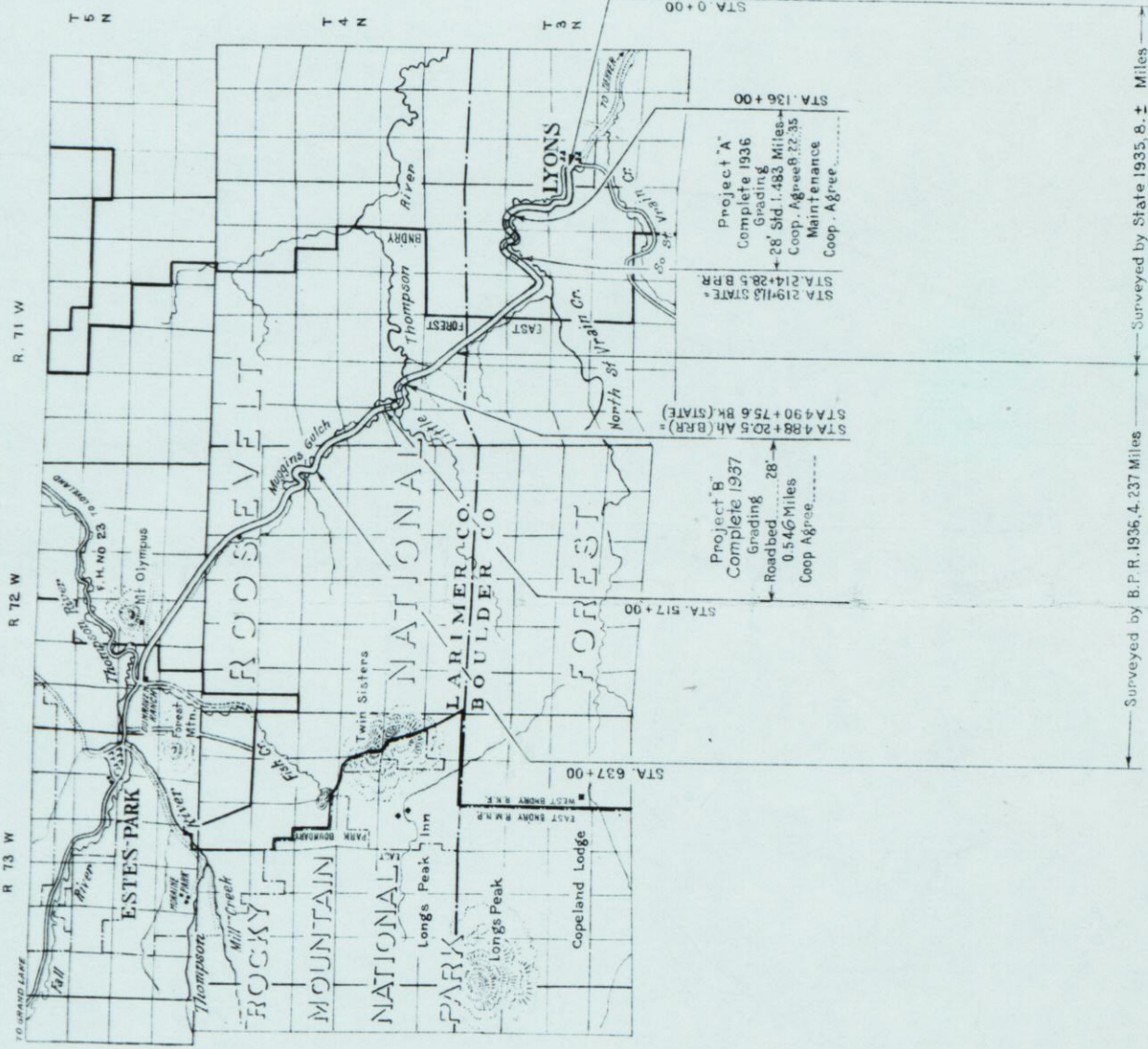
PROJECT 25-B

ROUTE 25 NORTH ST. VRAIN
 LYONS TO A JUNCTION WITH F.H. NO. 23

22 MILES CLASS 2

COLORADO FOREST HIGHWAY SYSTEM

ROOSEVELT NATIONAL FOREST
 BOULDER & LARIMER COUNTIES
 COLORADO



Project A
 Complete 1936
 Grading
 + 28' Std. 1.483 Miles
 Coop. Agreed 22.35
 Maintenance
 Coop. Agreed

Project B
 Complete 1937
 Grading
 + Roadbed
 0.546 Miles
 Coop. Agreed

Surveyed by B.P.R. 1935, 4, 237 Miles

Surveyed by State 1935, 8.1 Miles

INDEX TO SHEETS

Sheet No.	Description	Station to Station
1	Title Sheet	
2	Typical Sections	
3	Summary	
7-B	Plan & Profile	488+27.5 517+00
835D-143	Std. Construction Signs	
15-24	Cross Sections	488+27.5 517+00
03-51D-185	Std. Barbed Wire Fence	

Rev.

APPROVED

DISTRICT ENGINEER
 U.S. BUREAU OF PUBLIC ROADS

DATE

APPROVED

REGIONAL FORESTER
 U.S. FOREST SERVICE

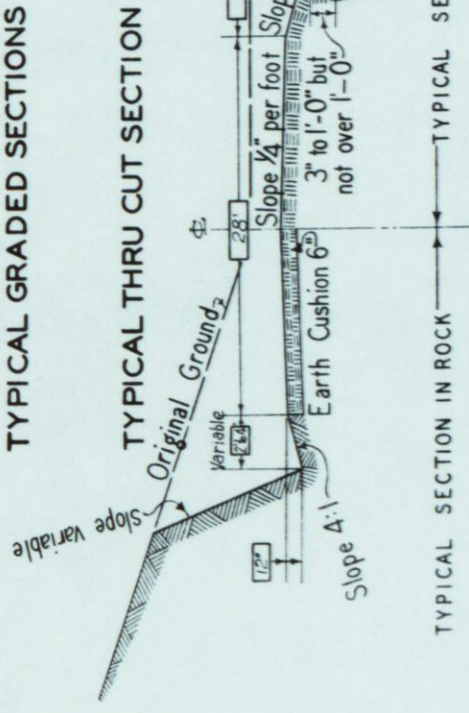
DATE

APPROVED

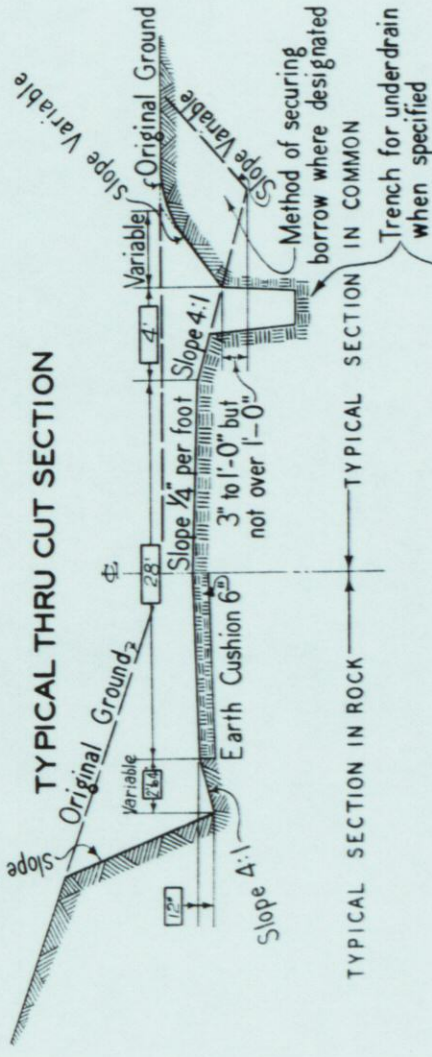
STATE HIGHWAY ENGINEER
 STATE OF COLORADO

DATE

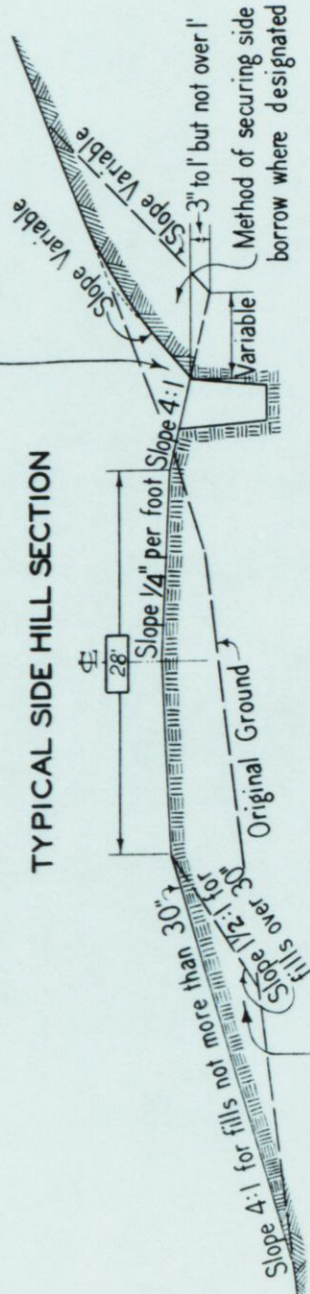
TYPICAL GRADED SECTIONS



TYPICAL THRU CUT SECTION

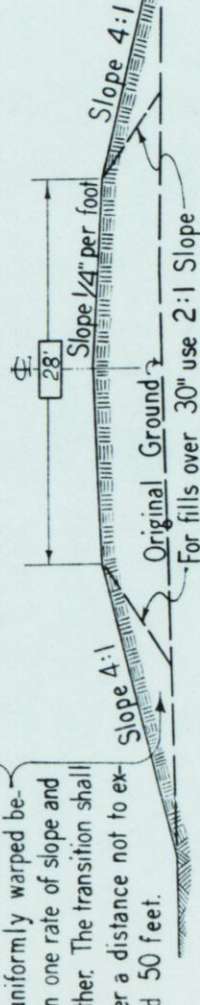


TYPICAL SIDE HILL SECTION



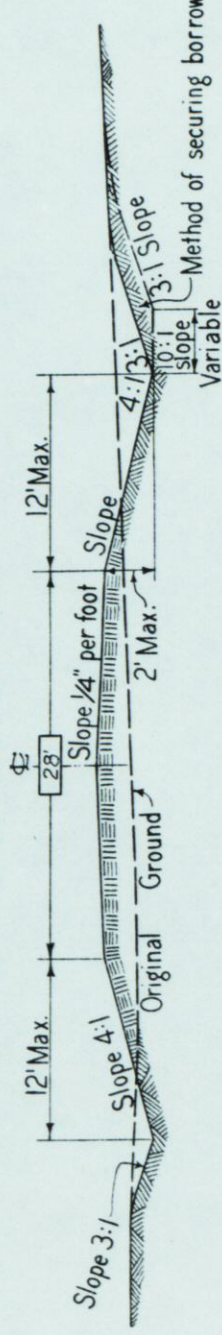
Fill slopes shall vary between these limits as staked. The fills shall be uniformly warped between one rate of slope and another. The transition shall cover a distance not to exceed 50 feet.

TYPICAL THRU FILL SECTION



TYPICAL SHALLOW FILL SECTION

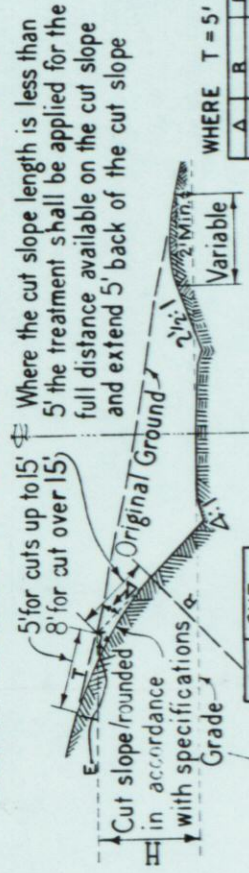
FOR FILLS NOT MORE THAN 2 FEET



SLOPE TREATMENT IN EARTH CUTS

TYPICAL SECTION

SHOWING ROUNDING & FLATTENING OF UPPER & LOWER CUT SLOPE



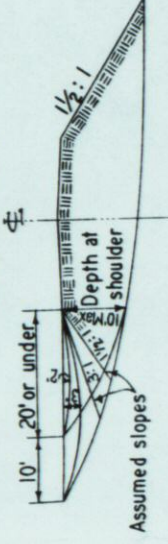
WHERE $T = 5'$

Δ	R	F
0°	∞	0.00
10°	27.15	0.22
20°	28.36	0.44
30°	18.66	0.66
40°	13.74	0.88
50°	10.72	1.11
60°	8.66	1.34
70°	7.14	1.58
80°	5.96	1.82
90°	5.00	2.07

*Or Flatter

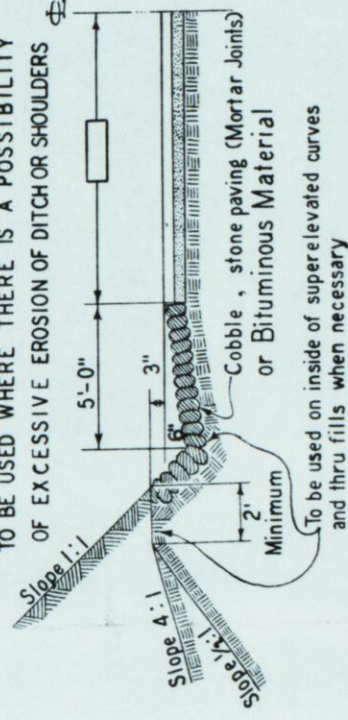
TYPICAL SECTION

SHOWING METHOD OF FILLING EMBANKMENTS

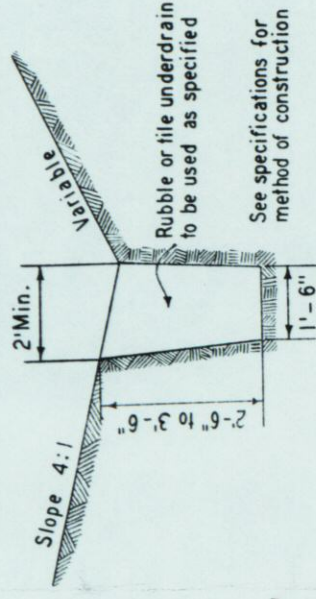


STONE PAVING

TO BE USED WHERE THERE IS A POSSIBILITY
OF EXCESSIVE EROSION OF DITCH OR SHOULDERS

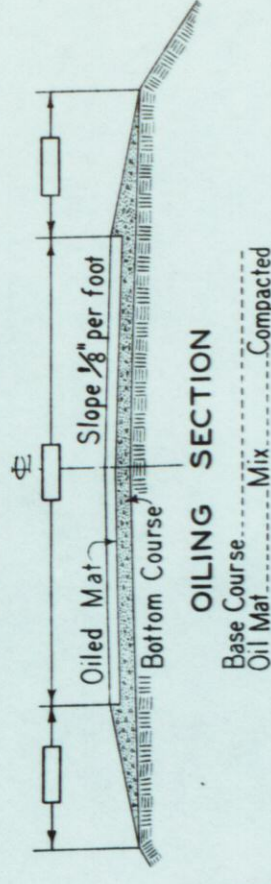


TILE OR RUBBLE UNDERDRAIN

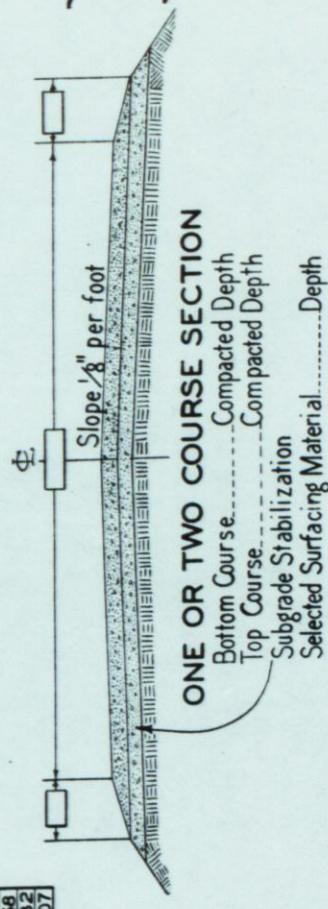


SURFACING SECTIONS

CRUSHED ROCK OR CRUSHED GRAVEL
OR OTHER SURFACE COURSE



ONE OR TWO COURSE SECTION



GENERAL NOTES

All curves are to be widened and superelevated as per instructions. Where drainage conditions or superelevation and widening of curves require, larger and deeper side ditches shall be constructed as directed by the engineer.

Increase or decrease thickness of surfacing as local conditions may require.

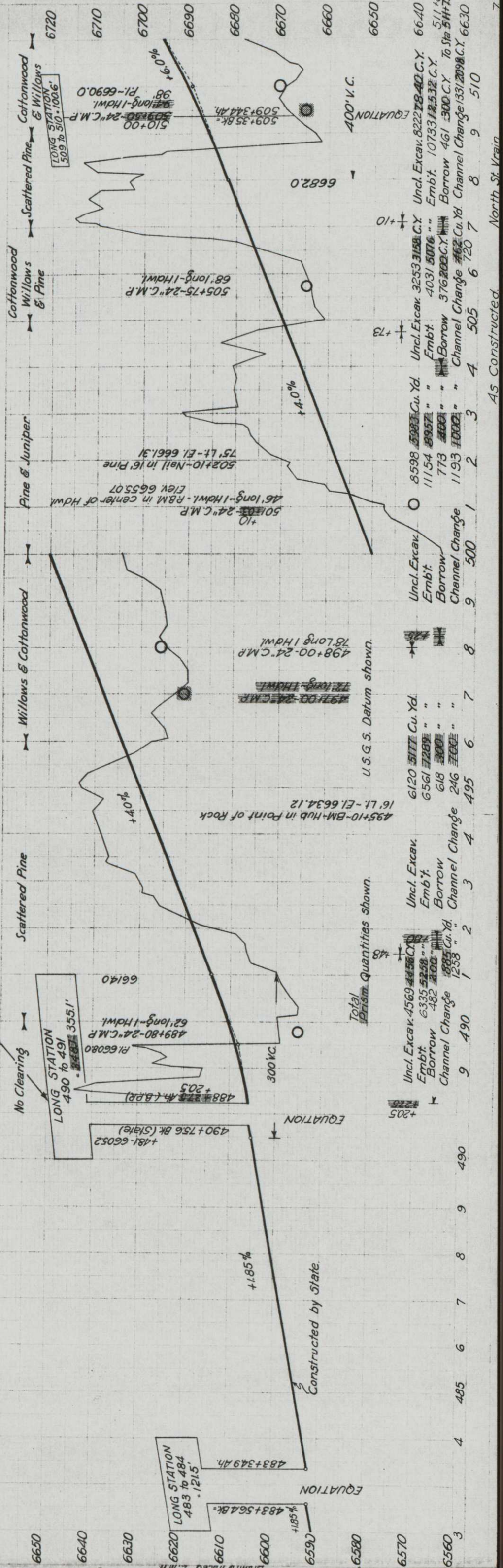
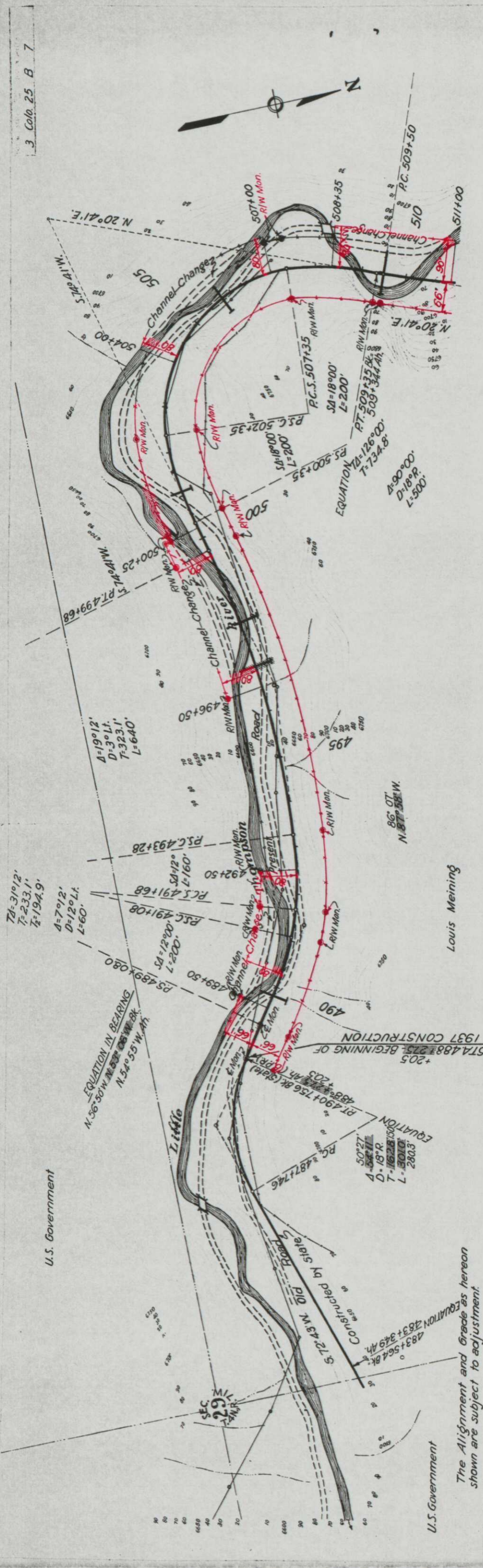
Width to be increased for guard rail.

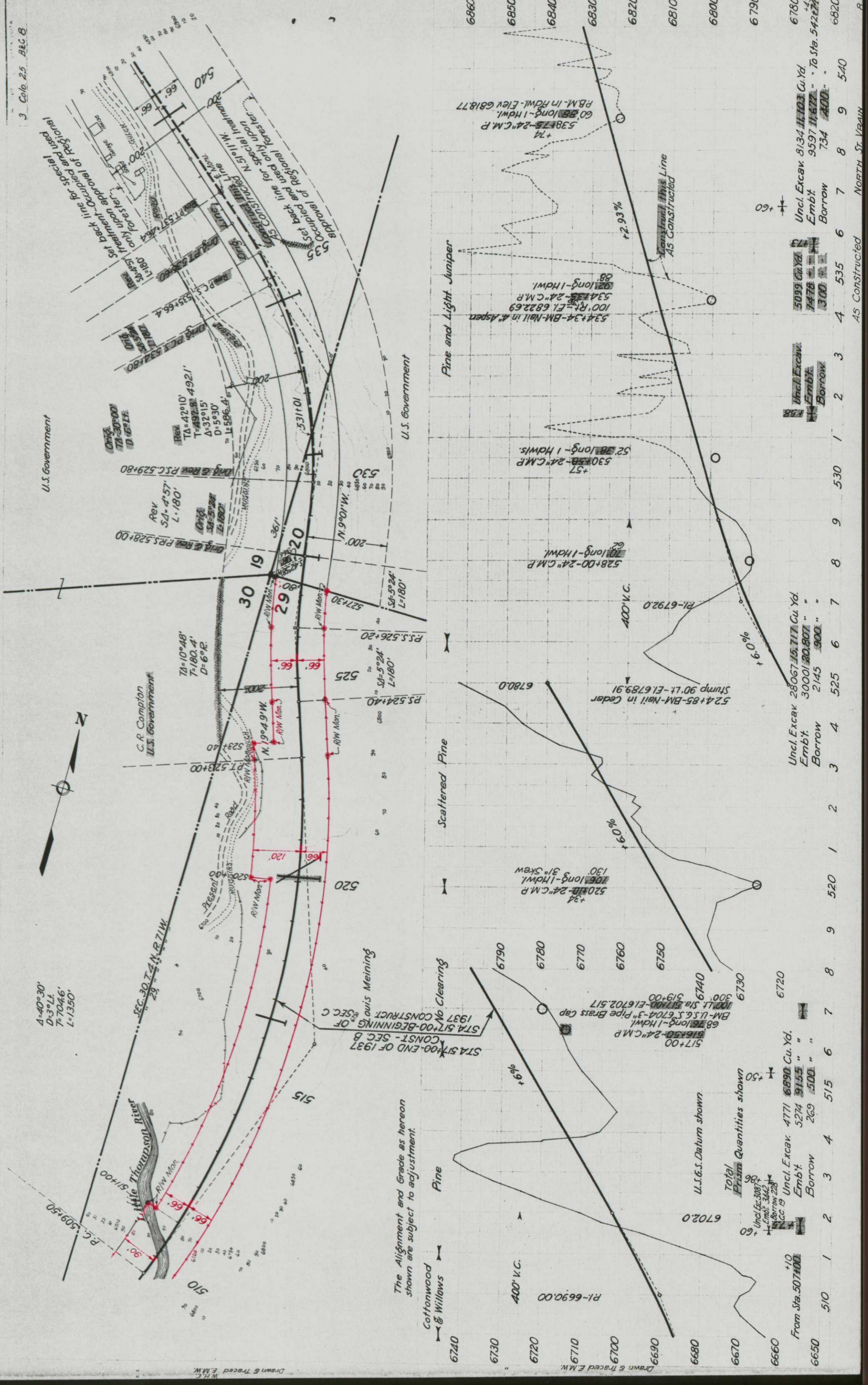
Increase or decrease thickness of surfacing as local conditions may require.
Width to be increased for guard rail.

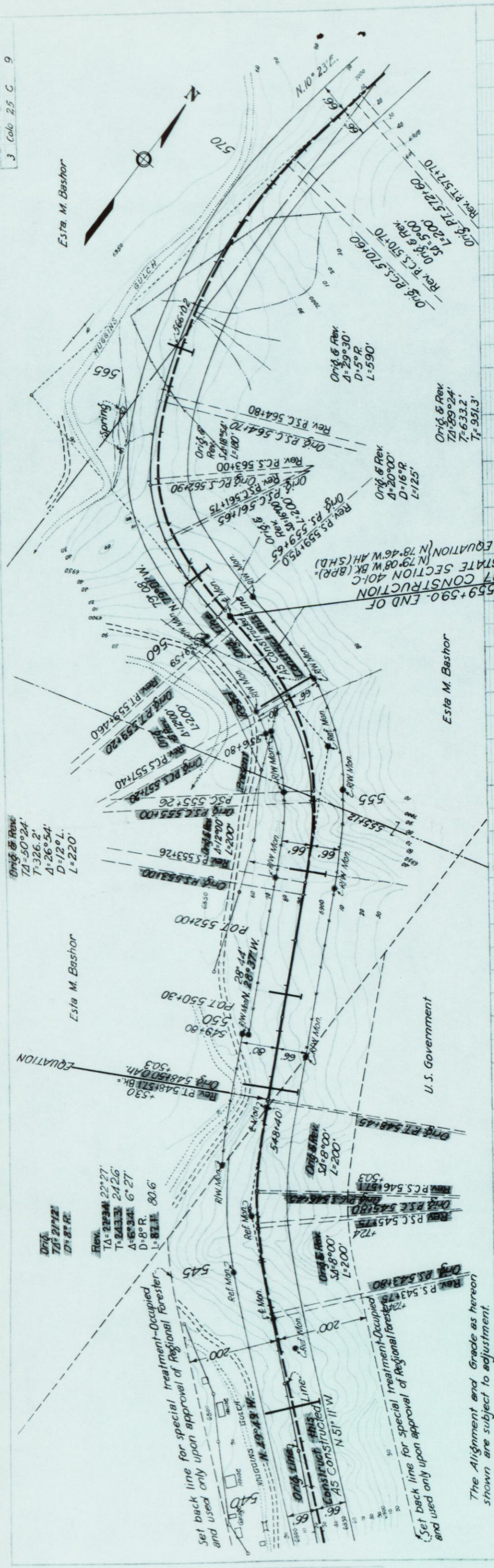
U.S. DEPARTMENT OF AGRICULTURE
BUREAU OF PUBLIC ROADS
DISTRICT NO. 3 DENVER, COLO.

TYPICAL CROSS SECTIONS
NATIONAL FOREST HIGHWAYS

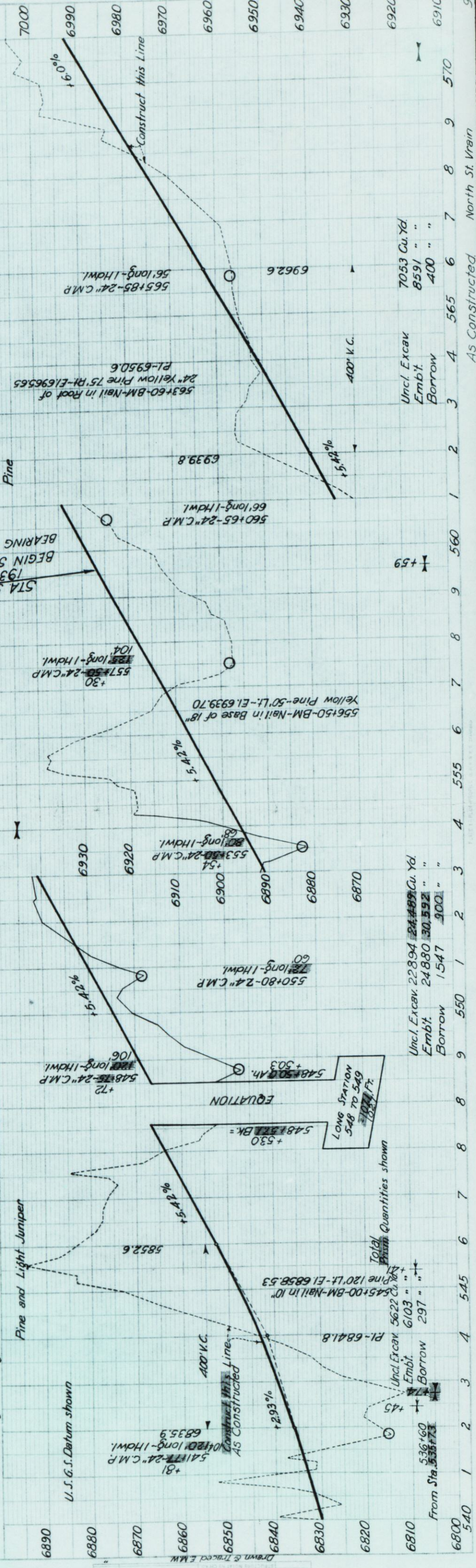
DISTRICT NO. 3 ROADBED 28'
PROJECT Colo. 25-C North 5th vein
NATIONAL FOREST Roosevelt
COUNTY Laimer
STATE Colorado







The Alignment and Grade as here shown are subject to adjustment.



As Constructed.

As Constructed.

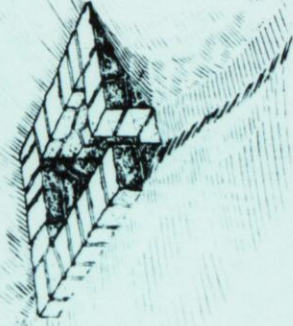
[illegible]

CU YD QUANTITIES IN ONE HEADWALL					
D	L	X° 1'-6"	X° 2'-0"	X° 2'-6"	X° 3'-0"
*15'	6-3"	144	164	184	
18'	6-6"	157	178	199	220
24'	7-0"	184	207	229	252
30'	7-6"	211	236	260	284
36'	8-0"	239	265	291	317

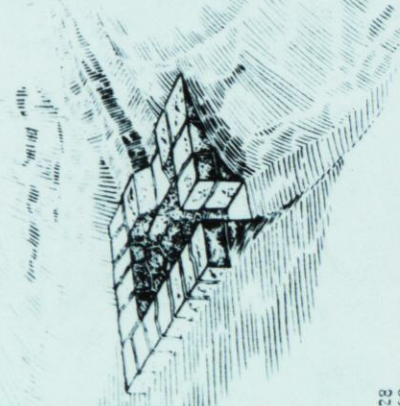
Note
 $H = 12^\circ + D + X$

CUYO QUANTITIES IN ONE HEADWALL					
D	L1	X=1'-6"	X=2'-0"	X=2'-6"	X=3'-0"
18"	9'-6"	2.23	2.54	2.85	3.16
24"	10'-6"	2.66	3.00	3.34	3.68
30"	11'-6"	3.09	3.46	3.84	4.21
36"	12'-6"	3.54	3.94	4.35	4.75

**PERSPECTIVE VIEW
OF
STRUCTURE
WITH ONE WAY INLET**
Use for all ordinary cases
with moderate cut slopes



**PERSPECTIVE VIEW
OF
STRUCTURE
WITH TWO WAY INLET**
Showing inlet on upgrade side
with inlet notch in backwall



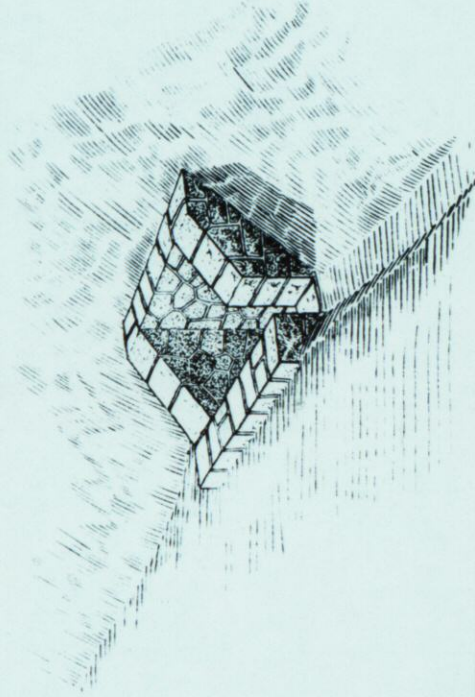
Designed by C.E. Learned Date Mar 1928
 Drawn by C. R. Lupton Date " " 1928
 Traced by A.E. Westfall Date Oct. 1929
 Checked by A.W. West Date June 1929

APPROVED _____ May 7, 1930.
 R. F. Copeland.
 Bridge Engineer.

CUYD QUANTITIES IN ONE HEADWALL AND INLET											
D	L	X=1'-6"		X=2'-0"		X=2'-6"		X=3'-0"		X=3'-6"	
		H	CUYDS	H	CUYDS	H	CUYDS	H	CUYDS	H	CUYDS
18"	6'-6"	4.41	4.41	5'-0"	5.03	5'-0"	5.62	5'-6"	6.21	6'-0"	6.80
24"	7'-0"	4'-6"	5.21	5'-0"	5.83	5'-6"	6.45	6'-0"	7.07	6'-6"	7.69
30"	7'-6"	5'-0"	6.02	5'-6"	6.66	6'-0"	7.30	6'-6"	7.94	7'-0"	8.58
36"	8'-0"	5'-6"	6.85	6'-0"	7.53	6'-6"	8.21	7'-0"	8.89	7'-6"	9.57

HEADWALL & INLET USED FOR SIDE HILL SECTION

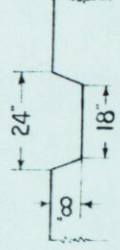
**PERSPECTIVE VIEW
OF
STRUCTURE
WITH ONEWAY INLET**



PERSPECTIVE VIEW
OF
STRUCTURE
WITH THREE WAY INLET

This type used where grades are nearly flat and it is advisable to make an inlet on lower side

DETAIL OF NOTCH IN BACKWALL

[illegible]

HEADWALL & INLET USED FOR SIDE HILL SECTION

ONE WAY INLET WITH VARIABLE HEIGHT, BACK & SIDEWALLS BUILT TO RETAIN HIGH CUT BANKS

SPECIFICATIONS U.S. Bureau of Public Roads Form BR 50 1935

CEMENT STONE MASONRY (cement stone masonry shall be composed of

approved stones laid in a cement mortar of 1 to 2 Mixture.

CONSTRUCTION The minimum earth cover on top of the pipe shall not be less than $\frac{1}{2}$ the diameter of the pipe with a minimum of one foot. Headwalls in all cases to be built parallel to the center line of the road. On side hill sections the height of the back wall will vary in accordance with the height and class of material in the bank slopes back of the culvert inlet. The road side edge of the headwall to be on or back of the line of the adjacent ditch bottom. If solid rock is encountered the back wall may be omitted or modified to suit the actual field conditions. If foundation materials under headwalls and inlets are found unsuitable either remove and replace with satisfactory selected materials or extend cement stone masonry to provide a satisfactory footing.

METHOD OF MEASUREMENT The quantities in the above tables are based on the deduction of the pipe openings and one inlet notch.

BASIS OF PAYMENT Payment shall be as provided under Cement Stone Masonry in the Bureau of Public Roads Specifications Form FR 50 1935

APPROVED *E. E. Palen* May 7, 1930
ACTING DISTRICT ENGINEER

U.S. DEPARTMENT OF AGRICULTURE
BUREAU OF PUBLIC ROADS
DISTRICT NO. 3
DENVER, COLO.

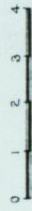
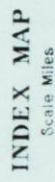
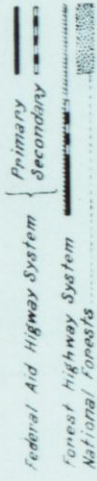
STANDARD CEMENT STONE MASONRY HEADWALLS AND INLETS FOR PIPE CULVERTS

CLASS "A"

OCTOBER 1929

DIST NO	STATE	ROUTE NO	SECTION	SHEET NO	TOTAL SHEETS
3	COLORADO	25	C	1	

SHEET#	DESCRIPTION	STATION TO STATION
1	Title Sheet	
2	Typical Sections	
3	Summary	
8-9	Plan & Profile Sfd C.S.M. Howls & Inlets	517+00 559+59
03-57D-043 Sfd	Typical Signs for use on Forest	517+00 559+59
74-38	Cross Sections	
03-57D-135 Sfd	Barbed Wire Fence	



LEGEND

EXISTING ROADS	UNIMPROVED	GRADED	REINFORCED SUBGRADE	BASE COURSE	CR. ROCK GRV. MACADAM	BITUMINOUS TYPES	PAVED
-------------------	------------	--------	------------------------	----------------	--------------------------	---------------------	-------

- Surveyed by B.P.R. 1936, 4.237 Miles -

Surveyed by State 1935, 8. $\pm$ Miles

APPROVED

DISTRICT ENGINEER
U.S. BUREAU OF PUBLIC ROADS

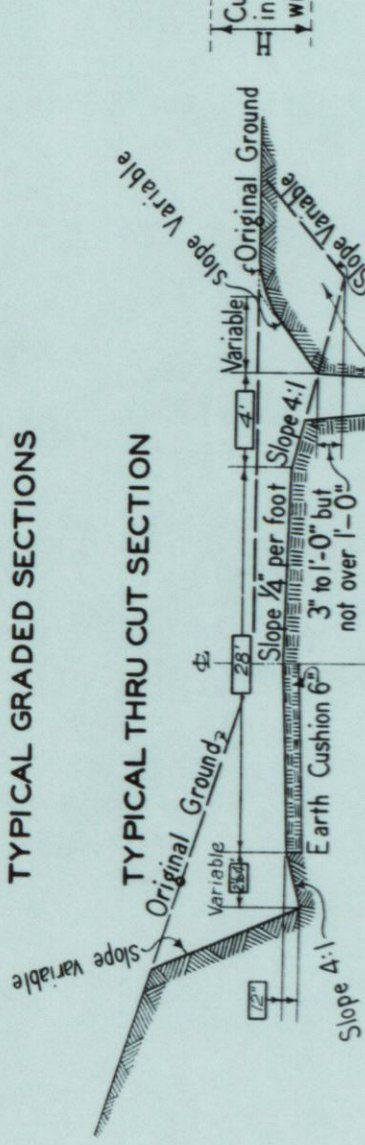
APPROVED

REGIONAL FORESTER
U.S. FOREST SERVICE

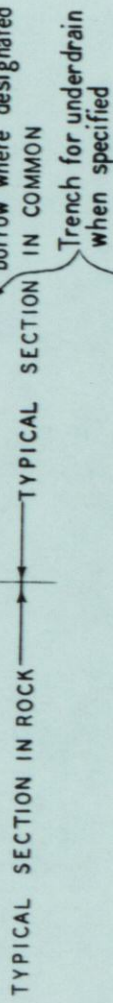
APPROVED

STATE HIGHWAY ENGINEER
STATE OF COLORADO

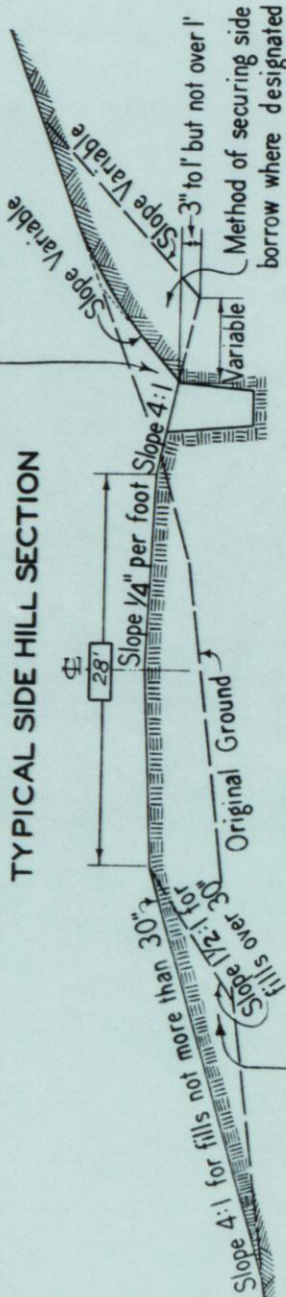
TYPICAL GRADED SECTIONS



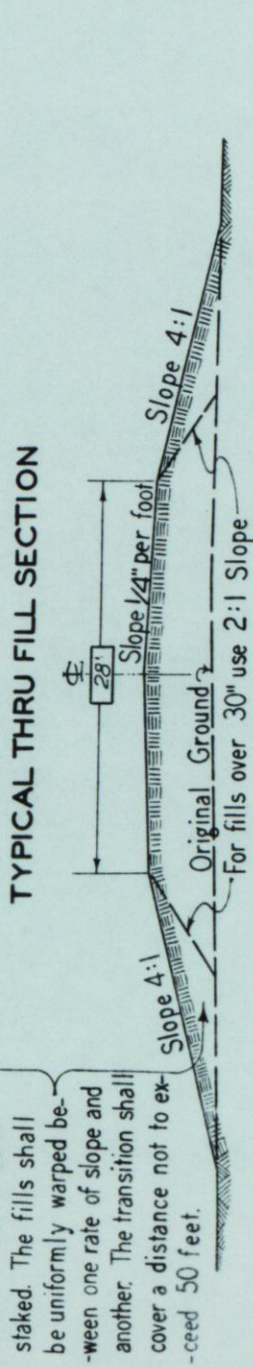
TYPICAL SECTION IN ROCK



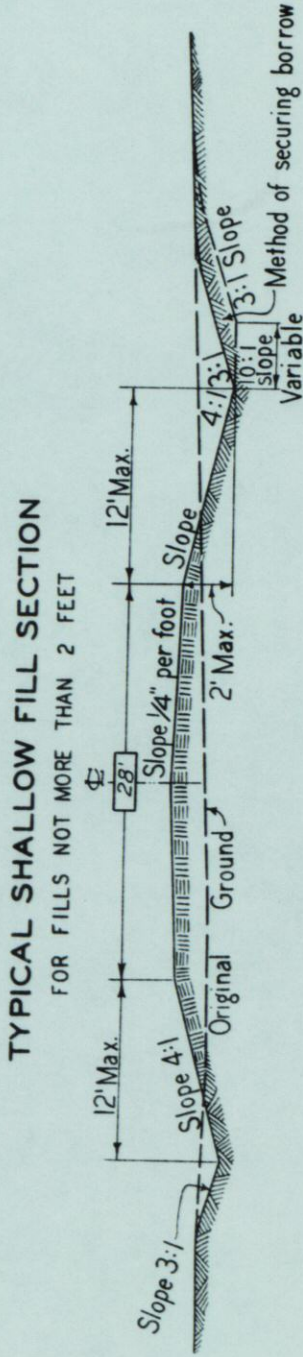
TYPICAL SIDE HILL SECTION



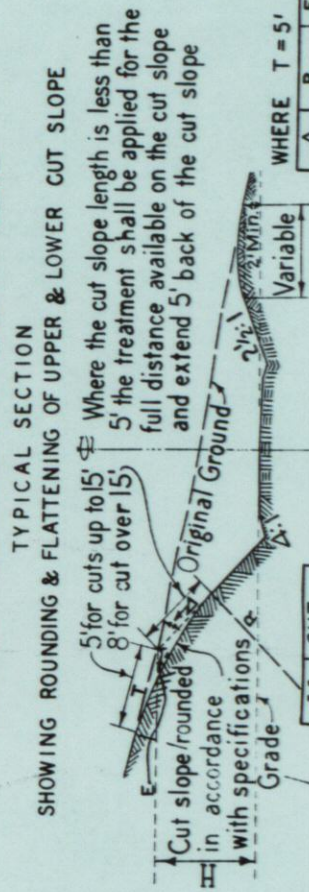
TYPICAL THRU FILL SECTION



TYPICAL SHALLOW FILL SECTION



SLOPE TREATMENT IN EARTH CUTS



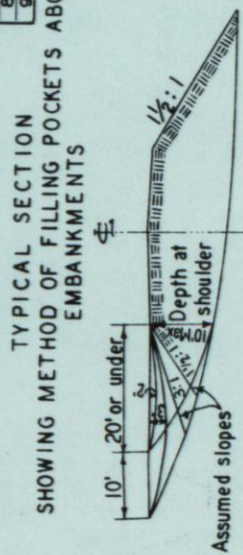
H	CUT SLOPE(S)
0' to 5'	2:1
5' to 8'	1 1/2:1
8' and over	1:1

*Or Flatter

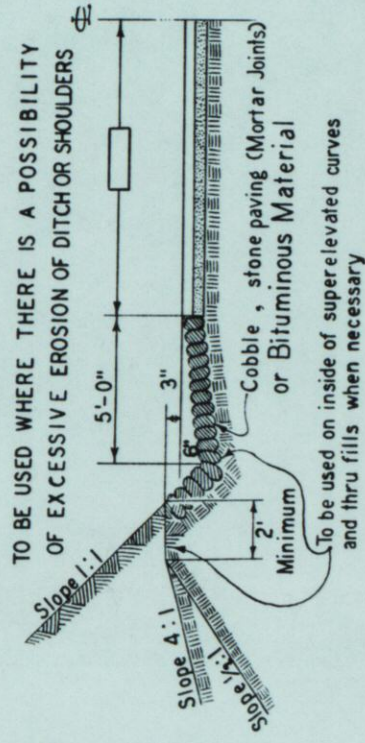
WHERE $T = 5'$

A	R	F
10°	57.15	0.22
20°	28.36	0.44
30°	18.66	0.66
40°	13.74	0.88
50°	10.72	1.11
60°	8.66	1.34
70°	7.14	1.58
80°	5.96	1.82
90°	5.00	2.07

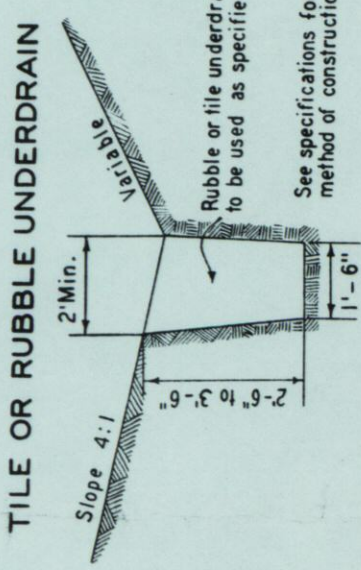
TYPICAL METHOD OF FILLING POCKETS ABOVE EMBANKMENTS



STONE PAVING

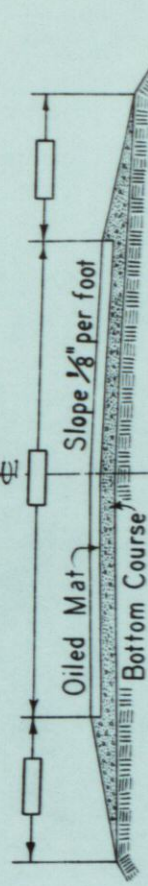


TILE OR RUBBLE UNDERDRAIN



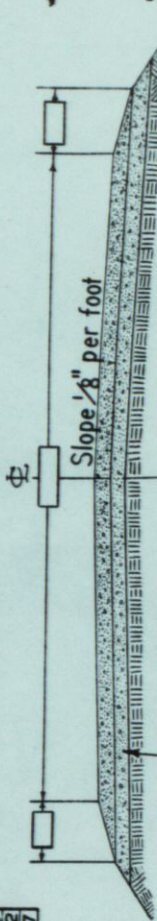
SURFACING SECTIONS

CRUSHED ROCK OR CRUSHED GRAVEL
OR OTHER SURFACE COURSE



OILING SECTION

Base Course
Oil Mat
Mix
Compacted



ONE OR TWO COURSE SECTION

Bottom Course
Top Course
Subgrade Stabilization
Selected Surfacing Material
Depth

GENERAL NOTES

All curves are to be widened and superelevated as per instructions. Where drainage conditions or superelevation and widening of curves require, larger and deeper side ditches shall be constructed as directed by the engineer. Increase or decrease thickness of surfacing as local conditions may require. Width to be increased for guard rail.

U.S. DEPARTMENT OF AGRICULTURE
BUREAU OF PUBLIC ROADS
DISTRICT NO. 3
DENVER, COLO.

TYPICAL CROSS SECTIONS NATIONAL FOREST HIGHWAYS

DISTRICT NO. 3 ROADBED 28'
PROJECT Colo. 25-B North St. Vrain
NATIONAL FOREST Roosevelt
COUNTY Larimer
STATE Colorado