

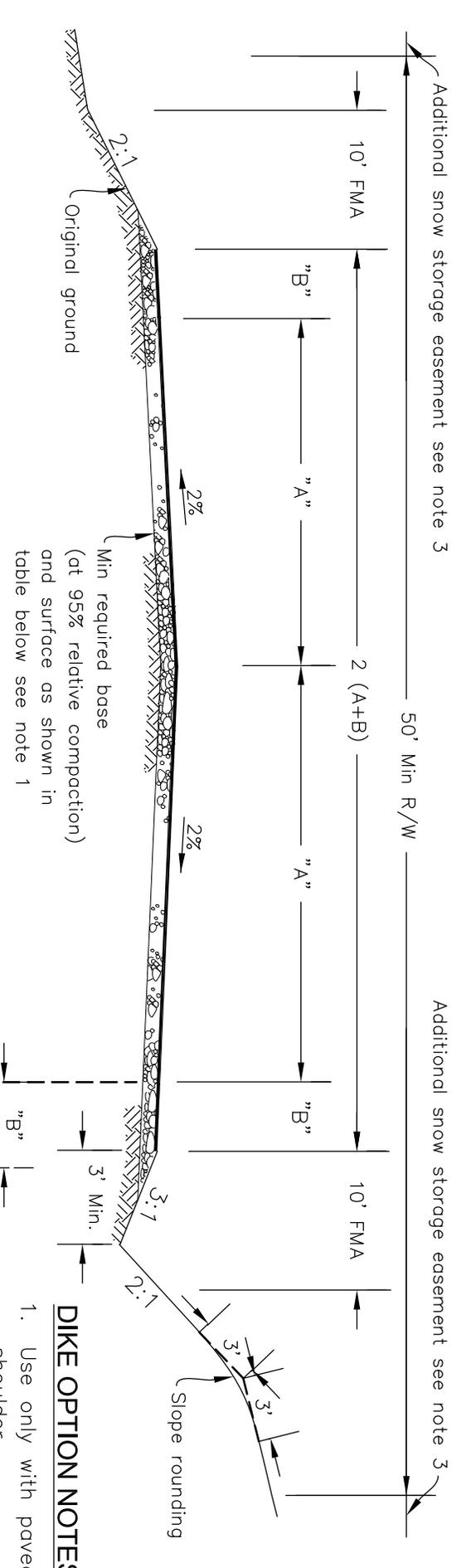


COUNTY OF NEVADA
Department of Public Works

STANDARD DRAWINGS
Published Feb. 2020

COUNTY OF NEVADA
Department of Public Works
STANDARD DRAWINGS

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- NOTES:**
1. Structural section design to be based on "R" value and "T.I."
 2. Centerline of improvements to coincide with centerline of R/W.
 3. 10' wide Snow Storage Easement required above 3500' elevation. To be provided outside of Ditch Area.
 4. FMA = Fuel Modification Area
 5. See Section L-XVII 3.4, L.U.D.C. for maximum grade standards.

MINIMUM ROAD REQUIREMENTS

CLASS	1	2	1	2
ELEVATION	LOWER THAN 3500'	HIGHER THAN 3500'	<400	401-2000
ADT	<400	401-2000	<400	401-2000
SURFACE**	3" A.C.	3" A.C.	3" A.C.	3" A.C.
AGG. BASE	6"	8"	8"	8"
"A"	10'	10'	10'	10'
"B"	2'	4'	2'	4'
DESIGN SPEED	20 MPH	25 MPH	20 MPH	25 MPH
Std Max GRADE	10% *	10% *	8% *	8% *

* SEE NOTE 5



Additional snow storage easement see note 3

Additional snow storage easement see note 3

10' FMA

2 (A+B)

A

B

10' FMA

B

3' Min.

3' AC Min

3' AC Min

3' AC Min

DIKE OPTION NOTES:

1. Use only with paved shoulder
2. Add to "B" the width necessary for storm flows

DIKE OPTION

Dike per latest Caltrans standards

PAVED DITCH

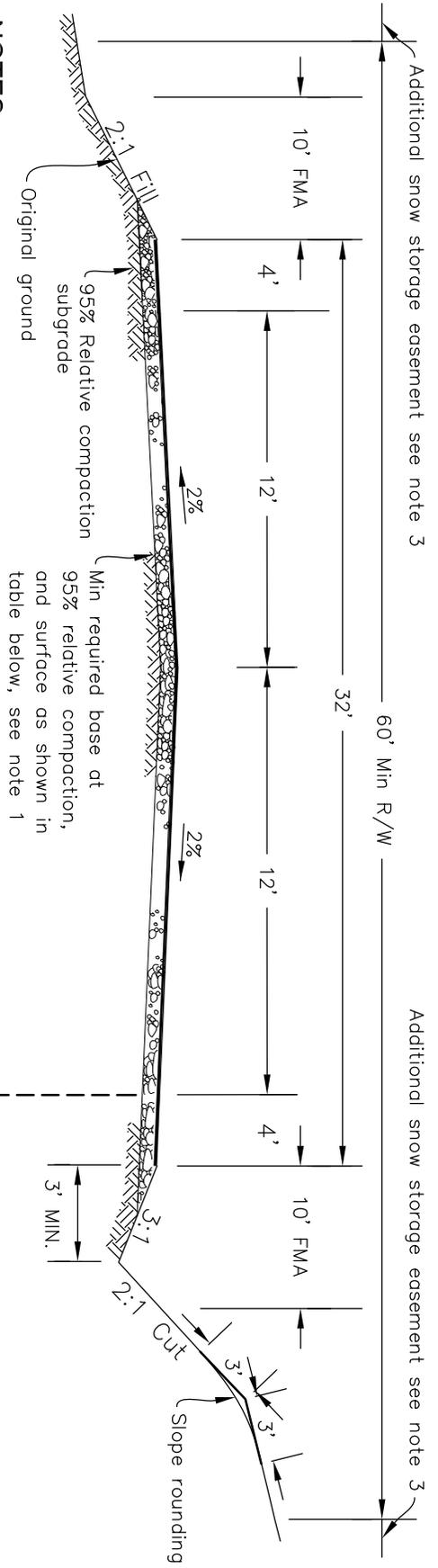
NOTE:

Required where profile grade exceeds 5%

COUNTY OF NEVADA
DEPARTMENT OF PUBLIC WORKS
LOCAL RURAL ROAD SYSTEM
LOCAL CLASS 1 & 2 ROAD

Approved by: *Patrick Perkins*
Principal Civil Engineer Date 12-17-19

STANDARD DRAWING
A-1



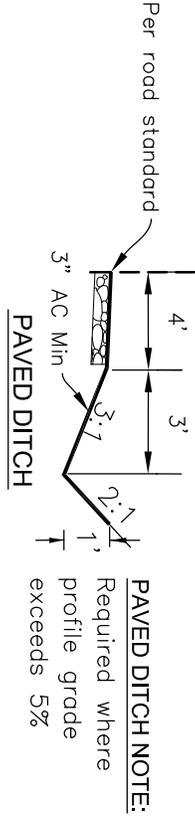
NOTES:

1. Structural section design to be based on "R" value and "T.I."
2. Centerline of improvements to coincide with centerline of R/W.
3. 10' wide Snow Storage Easement required above 3500' elevation. To be provided outside of the Ditch Area.
4. FMA = Fuel Modification Area
5. See Section L-XII 3.4, L.U.D.C., for maximum grade standards.

MINIMUM ROAD REQUIREMENTS

ELEVATION	LOWER THAN 3500'	HIGHER THAN 3500'
SURFACE	3" A.C.	3" A.C.
BASE	8" A.B.	8" A.B.
DESIGN SPEED	35 M.P.H.	35 M.P.H.
Sid Max GRADE	10% *	8% *

* SEE NOTE 5



DIKE OPTION

Use only with Caltrans standards

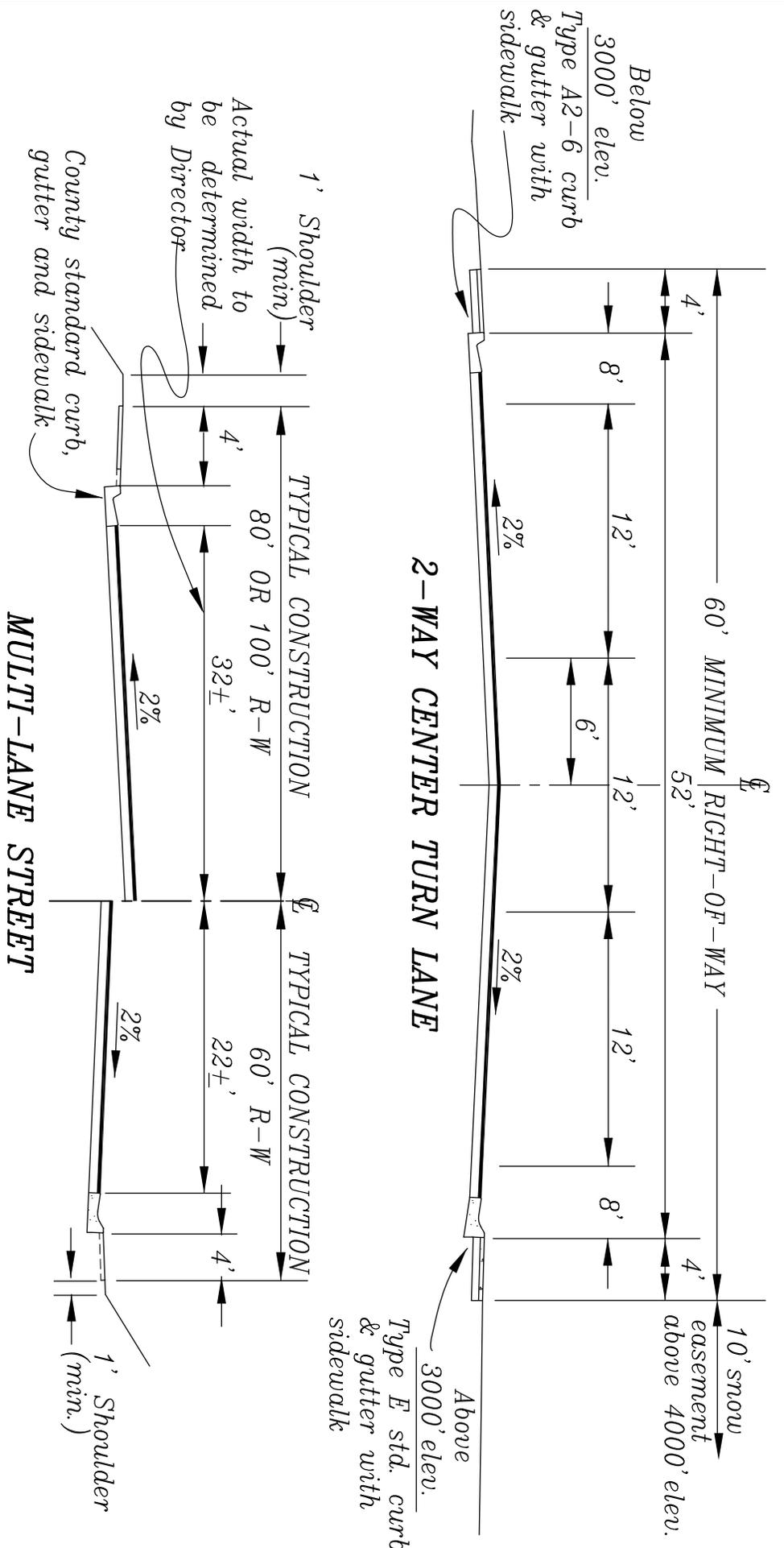
DIKE OPTION NOTE:

Use only with paved shoulder

COUNTY OF NEVADA DEPARTMENT OF PUBLIC WORKS

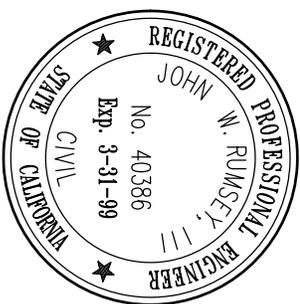
LOCAL RURAL ROAD SYSTEM MINOR COLLECTOR AND LOCAL CLASS 3 ROAD

Approved by: *Patrick G. Perkins* 12-17-19
 Principal Civil Engineer Date
 STANDARD DRAWING A-2

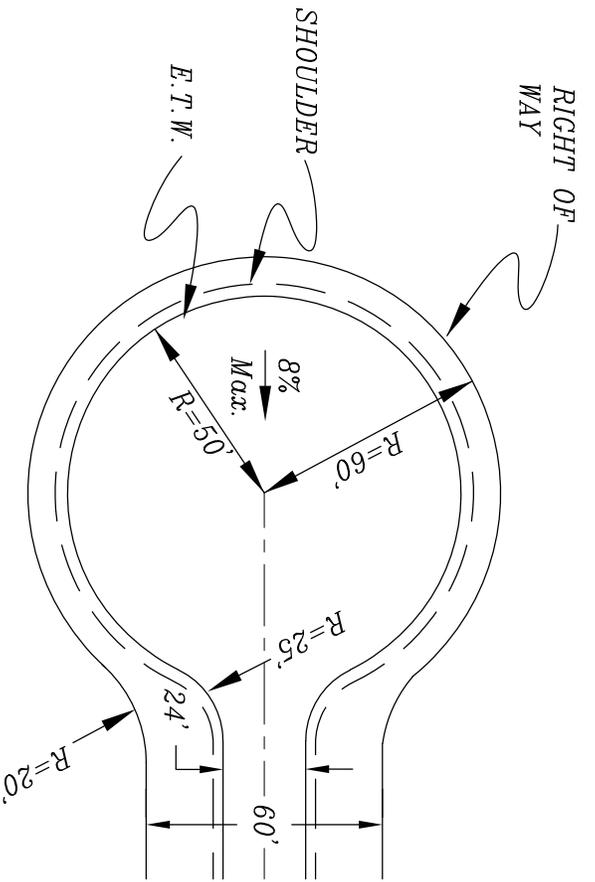


NOTES:

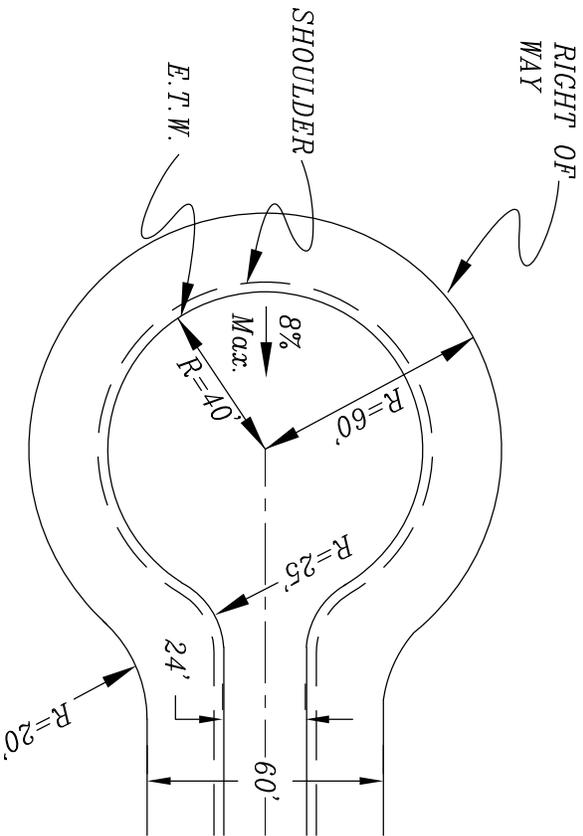
1. All structural section in this classification are to be designed based on "R" values and "T.I."
2. Centerline of improvements to coincide with centerline of right-of-way.
3. Right-of-way to be extended 12' for each additional lane:
Example: 4 lanes=72', 5 lanes=84', etc.



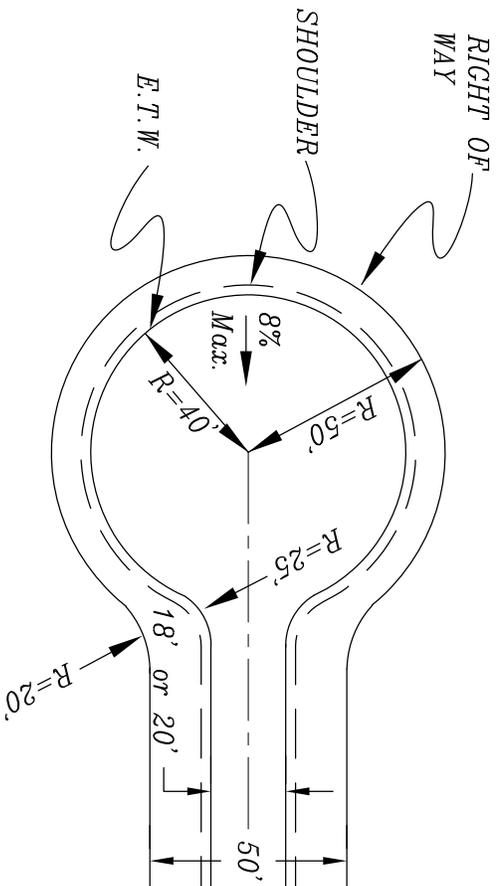
COUNTY OF NEVADA DEPARTMENT OF TRANSPORTATION LOCAL URBAN ROAD SYSTEM	
URBAN/COMMERCIAL MINIMUM STANDARD	
Approved by: <i>John W. Rumsey</i> 4-25-95 Senior Civil Engineer	Date
STANDARD DRAWING A-3	



CUL-DE-SAC
ON Street Parking Allowed



CUL-DE-SAC



CUL-DE-SAC
ON Street Parking NOT Allowed



STANDARD CUL-DE-SACCS

COUNTY OF NEVADA
DEPARTMENT OF TRANSPORTATION
LOCAL RURAL ROAD SYSTEM

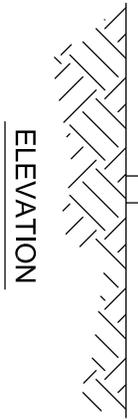
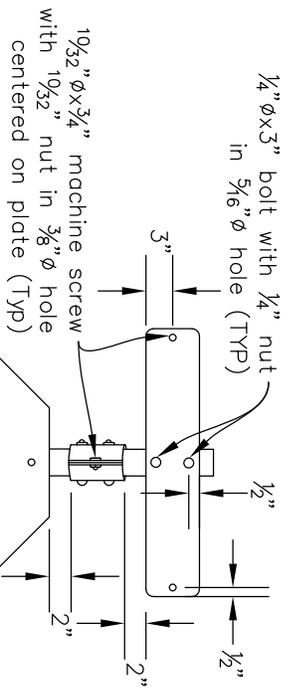
Approved by:

John W. Rumsey 4-25-95
Senior Civil Engineer Date

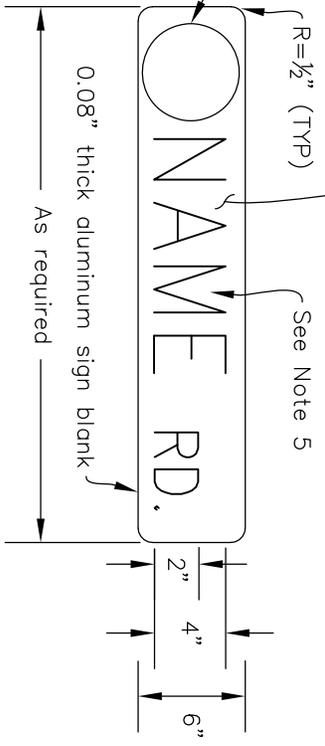
STANDARD
DRAWING

A-4

1. Posts shall be 6' to 12' from edge of traveled way (rural) or 2' from the face of curb or dike (urban).
2. 12' min to 30" max from edge of traveled way in areas with no sidewalk.
3. County provided 5" diameter decal for county maintained signs.
4. Lettering and decal shall be centered on sign.
5. Lettering to consist of minimum $\frac{1}{2}$ " stroke.



ELEVATION



SIGN PLATE DETAIL



COUNTY OF NEVADA
 DEPARTMENT OF PUBLIC WORKS
 LOCAL RURAL ROAD SYSTEM
 STANDARD STREET
 AND STOP SIGN

Approved by: *Patrick Perkins*
 Principal Civil Engineer
 12-17-19 Date
 STANDARD DRAWING
 A-5

THROUGH ROAD

→ DIRECTION OF TRAVEL

"D"

OBJECT



OBJECT

MINIMUM UNOBSTRUCTED SIGHT LINE
DIRECTION OF TRAVEL

"D"

MINIMUM UNOBSTRUCTED SIGHT LINE

PREVAILING SPEED ON MAJOR ROAD ①

REQUIRED DISTANCE "D" ②

DESIRED MINIMUM

20	220'	125'
25	260'	150'
30	330'	200'
35	385'	250'
40	440'	300'
45	490'	360'
50	550'	430'
55	600'	500'
60	660'	580'

INTERSECTING ROAD/DRIVEWAY

EYE

15'

MINIMUM UNOBSTRUCTED SIGHT LINE

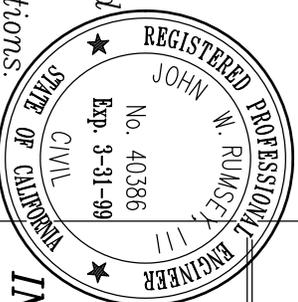
EDGE OF TRAVELED WAY

OBJECT:

4 1/4 feet high at the center of traffic lane.

EYE:

3 1/2 feet high at the center of approach.



COUNTY OF NEVADA
DEPARTMENT OF TRANSPORTATION

LOCAL RURAL ROAD SYSTEM

REQUIRED SITE LINE
AT

INTERSECTIONS/DRIVEWAYS

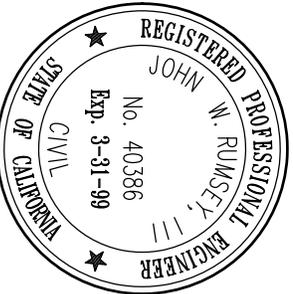
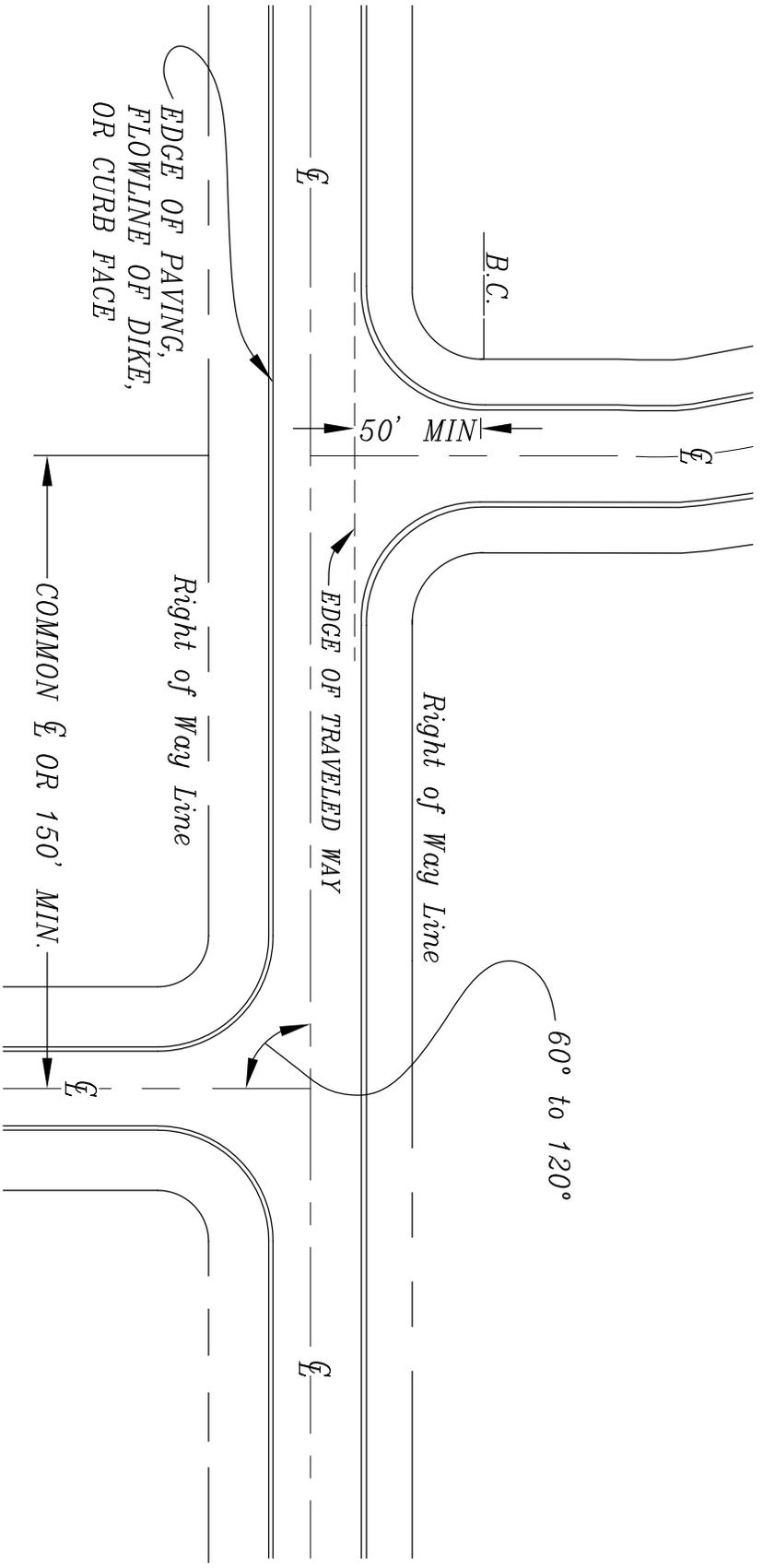
Approved by:

John W. Rumsey 4-25-95
Senior Civil Engineer Date

STANDARD
DRAWING

A-6

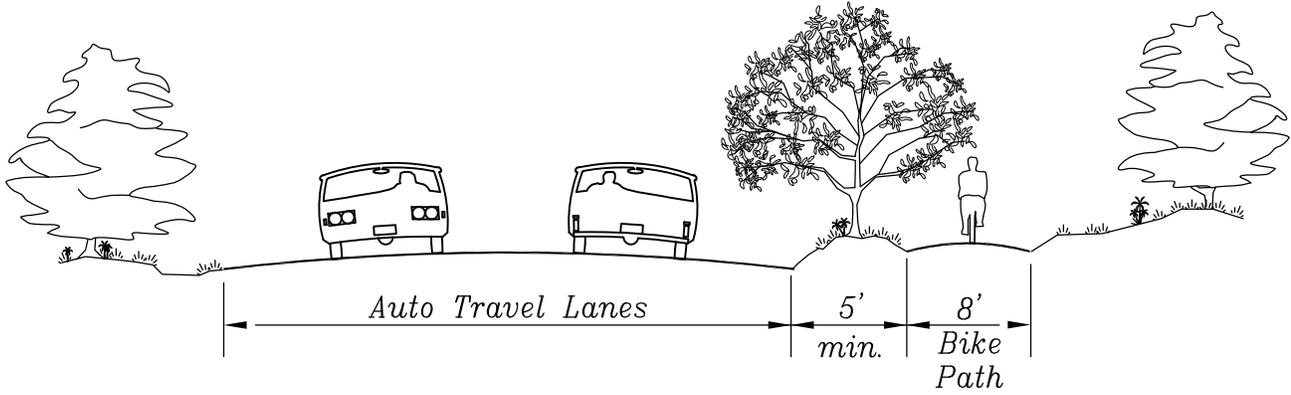
- 1 Posted speed limit, design speed, measured prevailing speed or as determined by the Department of Transportation.
- 2 The desired distance is to be obtained, at all road intersections. Driveways may have unusual cases due to significant environmental impacts & the Department of Transportation may reduce the required distance to the minimum distance.



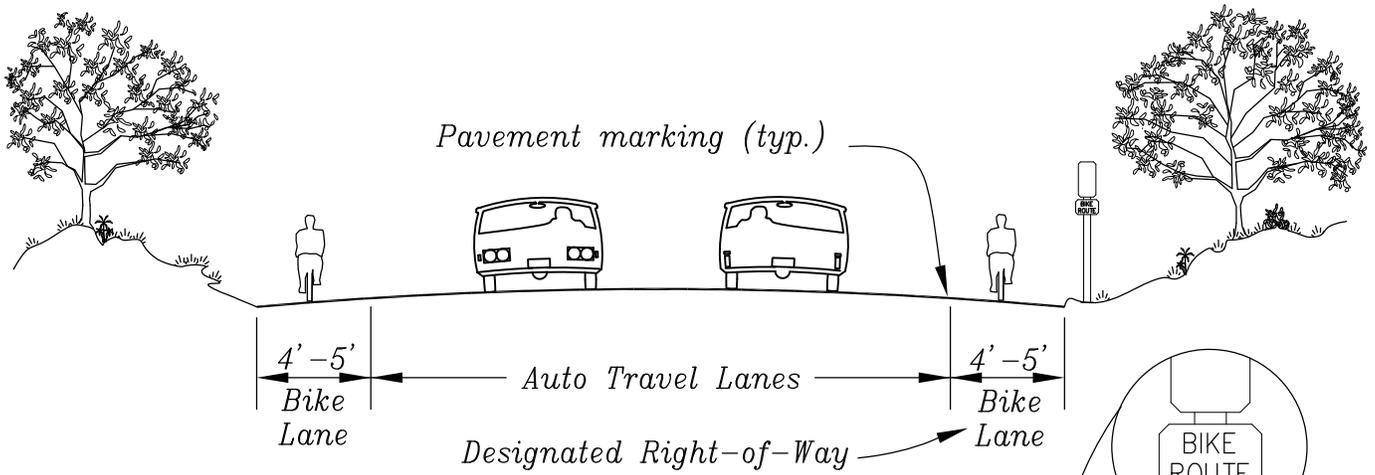
COUNTY OF NEVADA
 DEPARTMENT OF TRANSPORTATION
 LOCAL RURAL ROAD SYSTEM
STANDARD ROAD INTERSECTIONS

Approved by: John W. Rumsey 4-25-95
 Senior Civil Engineer Date

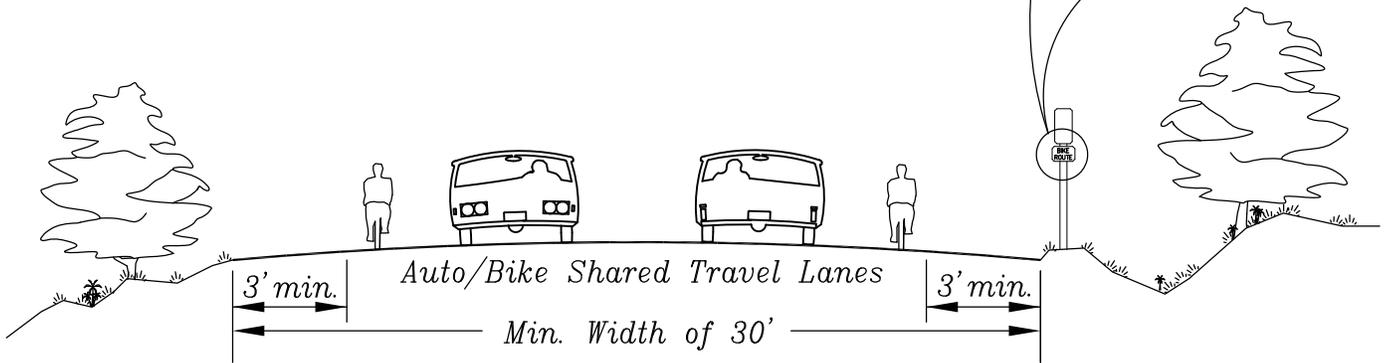
STANDARD DRAWING
A-7



CLASS I BICYCLE PATH



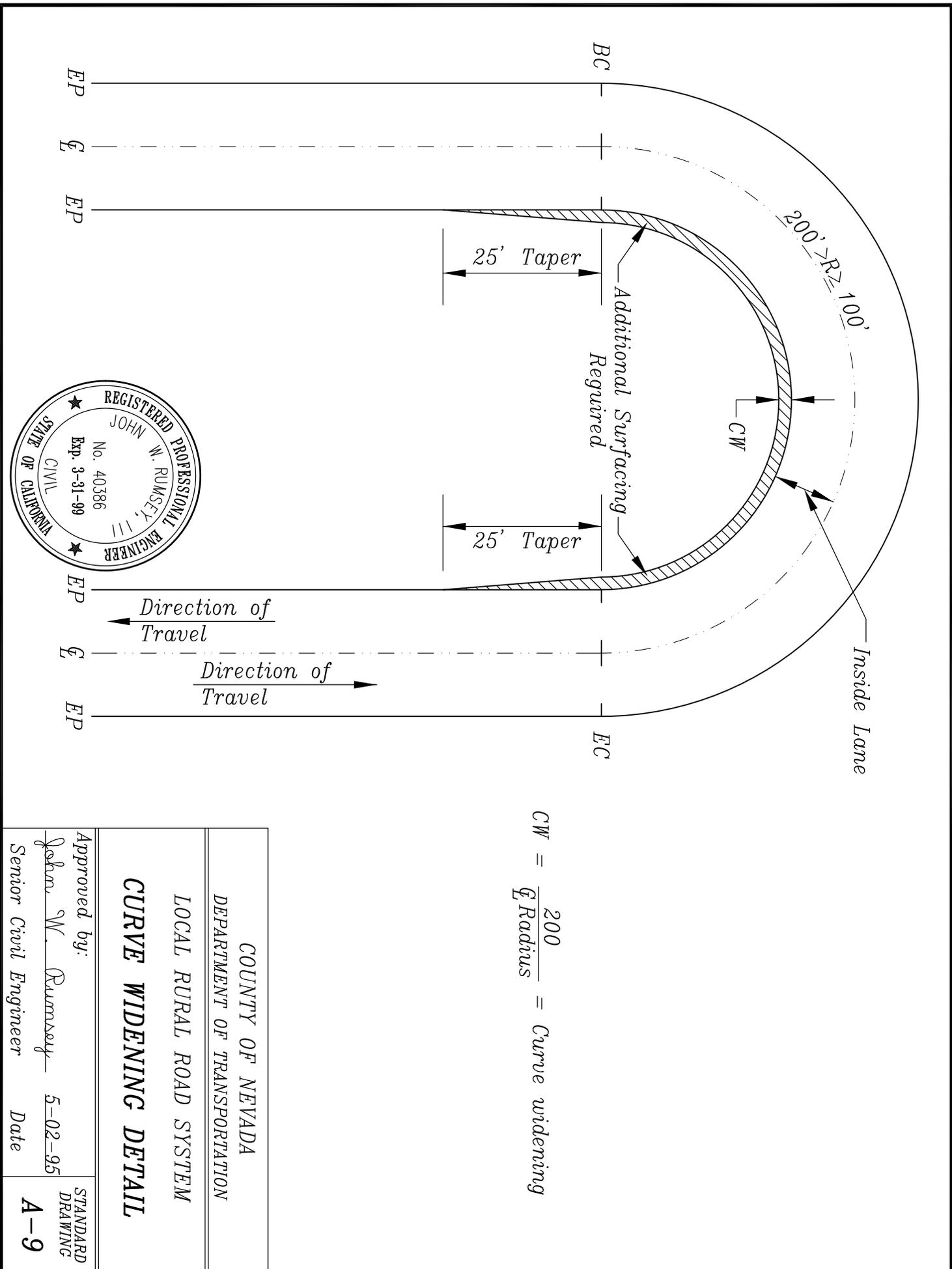
CLASS II BICYCLE LANE



CLASS III BICYCLE ROUTE

All bikeway classifications are to conform to the design criteria in the State of California Highway Design Manual, Chapter 1000, Topic 1003 or as stated in the Nevada County Bicycle Master Plan



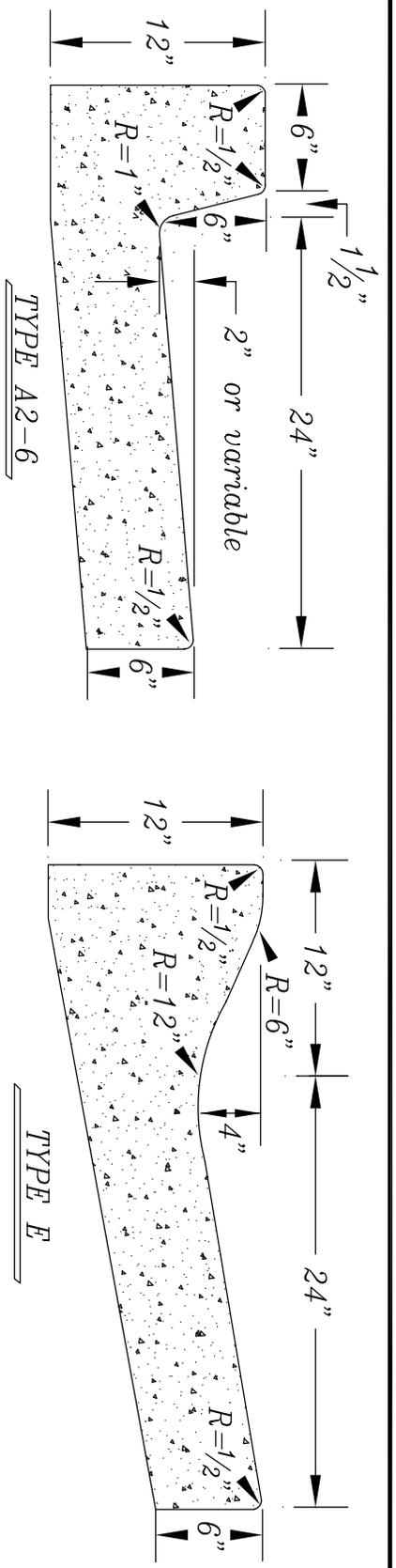


$$CW = \frac{200}{\frac{1}{4} \text{ Radius}} = \text{Curve widening}$$

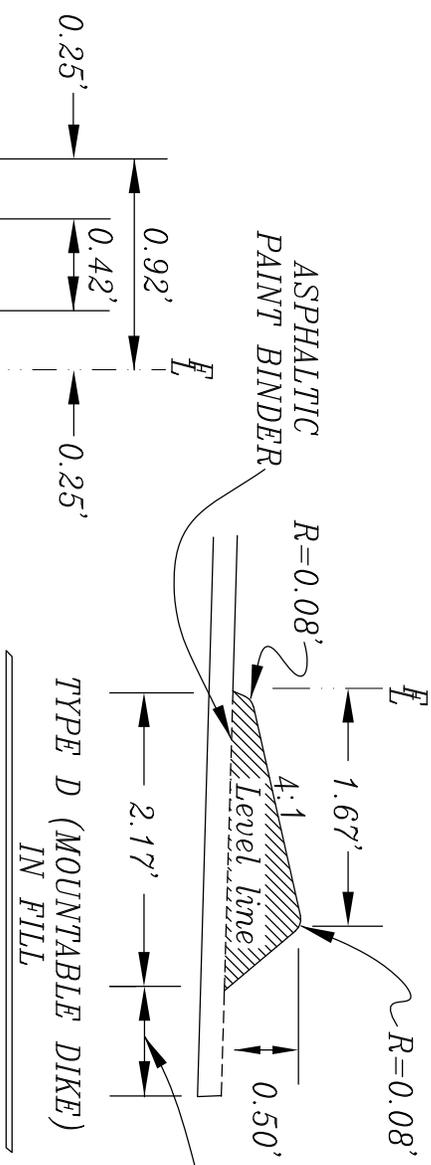
COUNTY OF NEVADA
 DEPARTMENT OF TRANSPORTATION
 LOCAL RURAL ROAD SYSTEM
CURVE WIDENING DETAIL

Approved by: John W. Rumsey 5-02-95
 Senior Civil Engineer Date

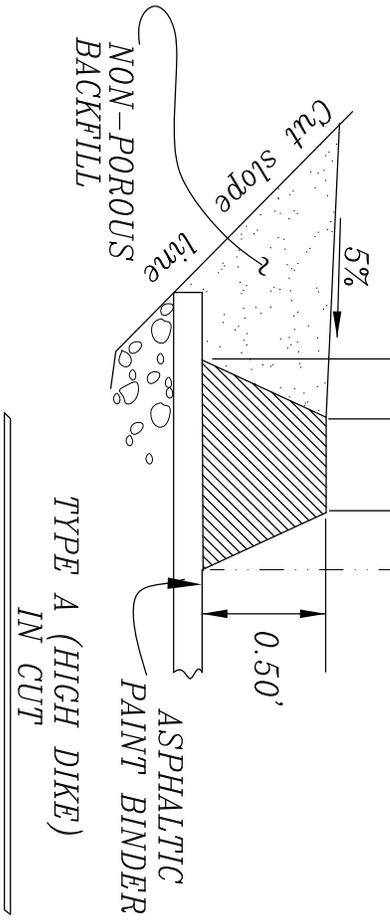
STANDARD DRAWING
A-9



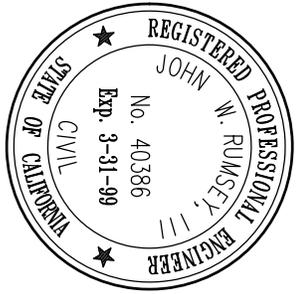
STANDARD CONCRETE CURB AND GUTTER



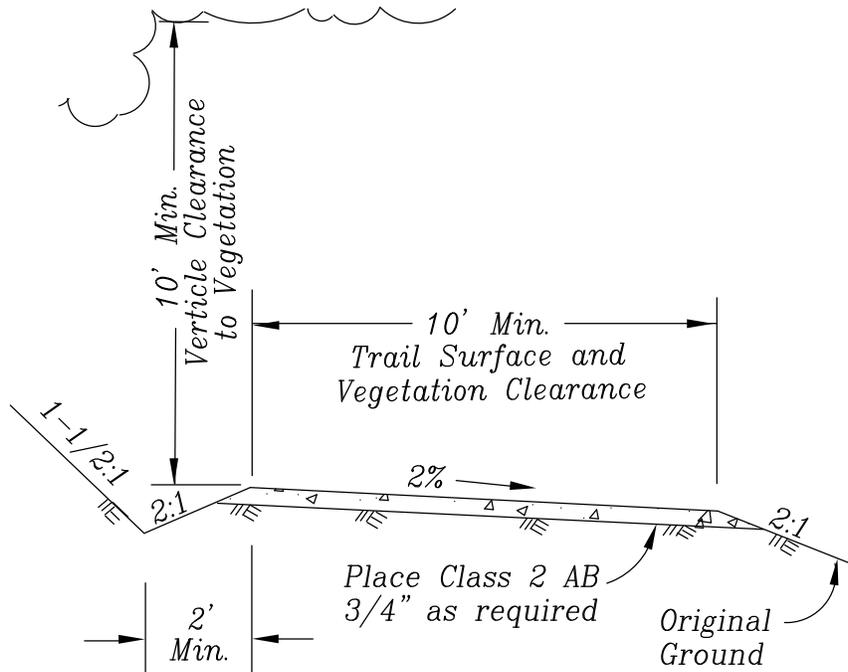
As required for machine installation



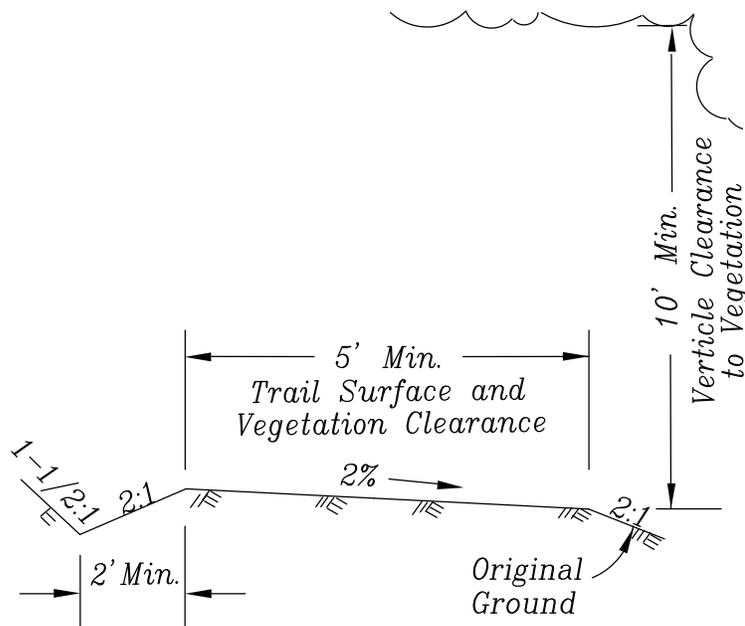
STANDARD ASPHALT CONCRETE DIKE



COUNTY OF NEVADA DEPARTMENT OF TRANSPORTATION LOCAL RURAL ROAD SYSTEM	
STANDARD CONCRETE CURB AND GUTTER STANDARD ASPHALT CONCRETE DIKE	
Approved by: John W. Rumsey Senior Civil Engineer	Date 4-25-95
STANDARD DRAWING A-10	



TYPE 1 TRAIL

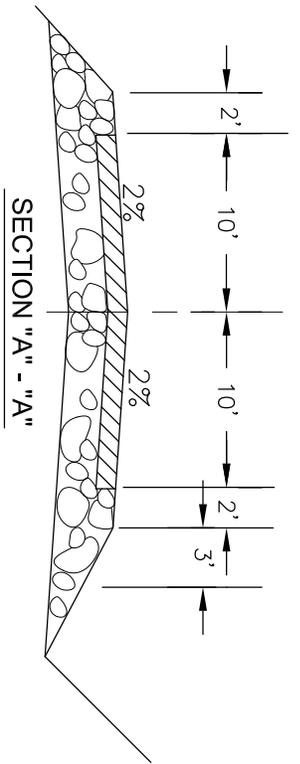


TYPE 2 TRAIL

NOTES:

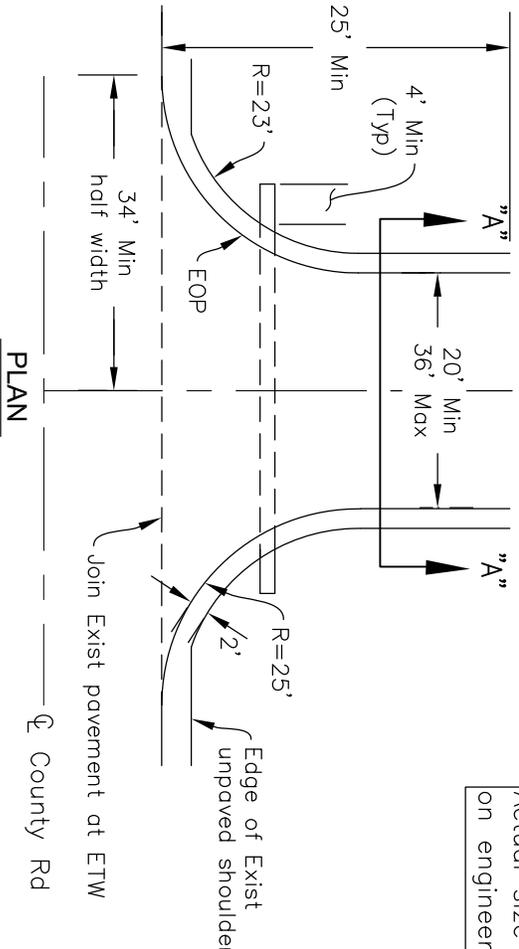
1. All facilities within community areas to be wheelchair accessible.
2. Type 1 Facilities to be paved, suitable firm surface material or native material.
3. Type 2 Facilities to be native material.

COUNTY OF NEVADA DEPARTMENT OF TRANSPORTATION LOCAL RURAL ROAD SYSTEM MULTIPURPOSE TRAILS	
Approved by: <i>John W. Rumsey</i> Senior Civil Engineer	STANDARD DRAWING A-11
11-19-98 Date	



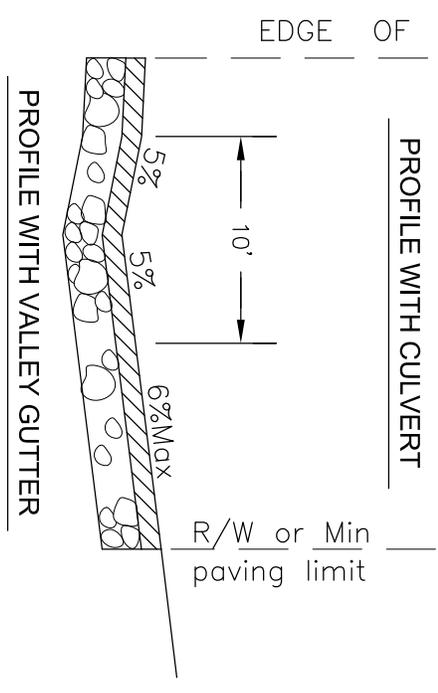
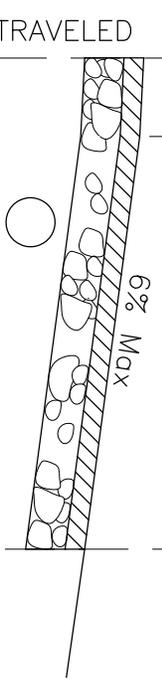
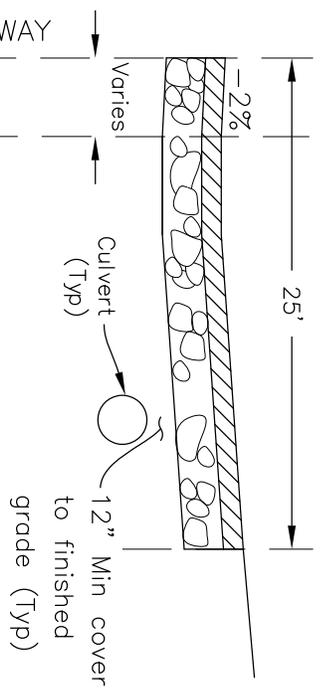
CULVERT DATA	
Length	Min ϕ
Up to 30'	12"
30'-80'	18"
80'-100'	24"
Above 3000'	18" Min

All pipe shall be new HDPE. Actual size will be dependent on engineering analysis.



NOTES:

1. Subgrade to be compacted to 95% relative compaction. Place 6" compacted Class 2 Aggregate Base with 3" Min Asphalt Concrete to match existing where county road is paved.
2. Portland Cement Concrete may be used only if approved by the Department of Public Works.
3. The Department of Public Works must approve use of culvert or valley gutter.
4. Special design required in areas with existing curb and gutter.
5. Adequate sight distance shall be provided per County standards.

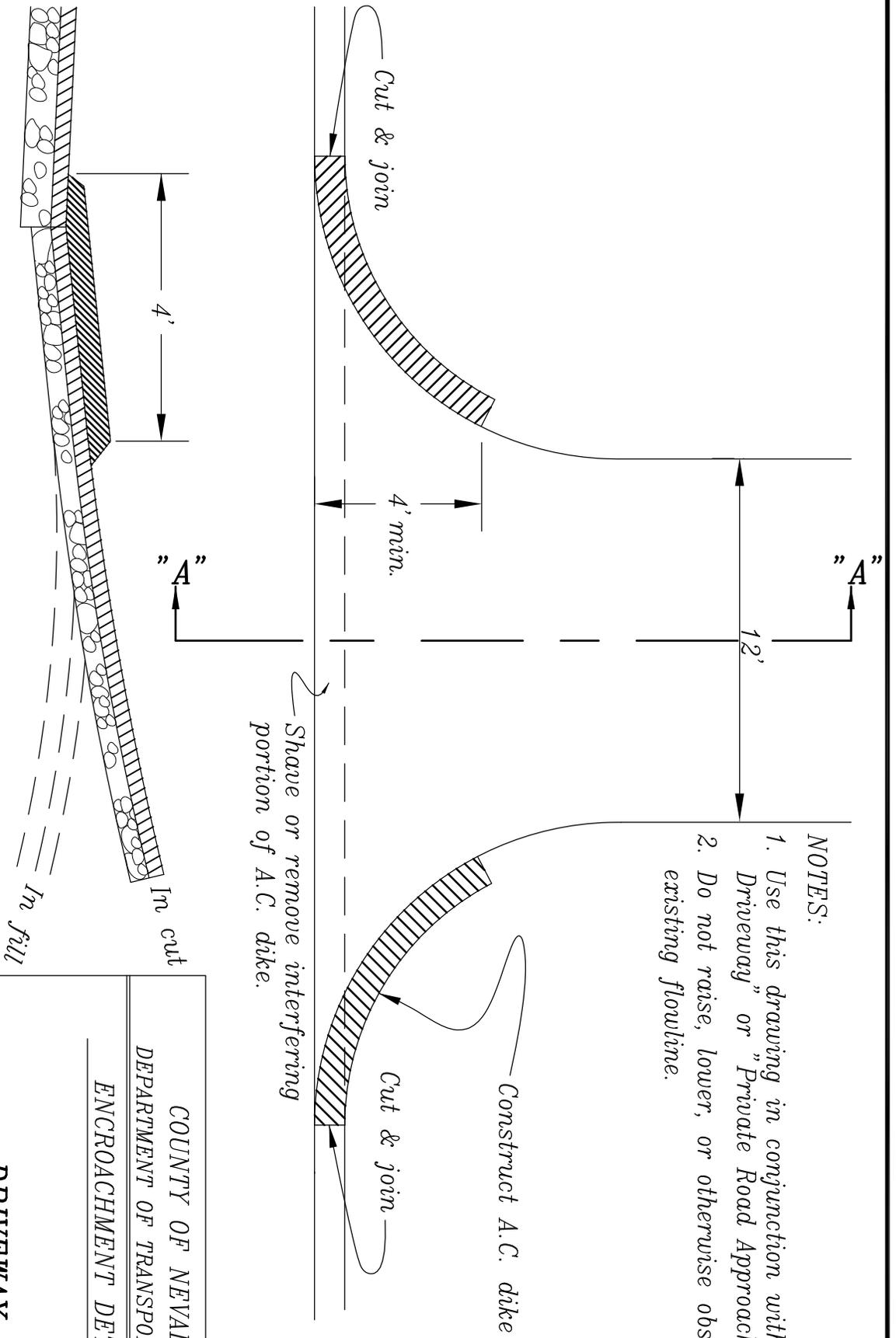


COUNTY OF NEVADA
DEPARTMENT OF PUBLIC WORKS
ENCROACHMENTS
PRIVATE ROAD APPROACH

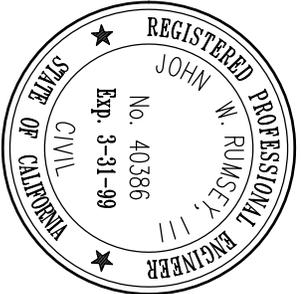
Approved by: *Patrick G. Perkins*
Principal Civil Engineer Date 12-17-19

STANDARD DRAWING
B-1

- NOTES:
1. Use this drawing in conjunction with "Private Driveway" or "Private Road Approach" standards.
 2. Do not raise, lower, or otherwise obstruct existing flowline.



PROFILE SECTION "A" - "A"

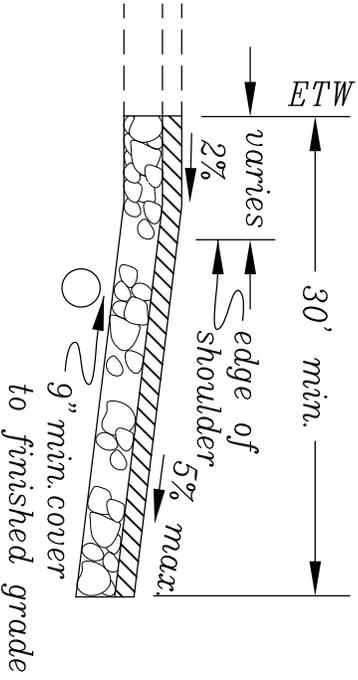
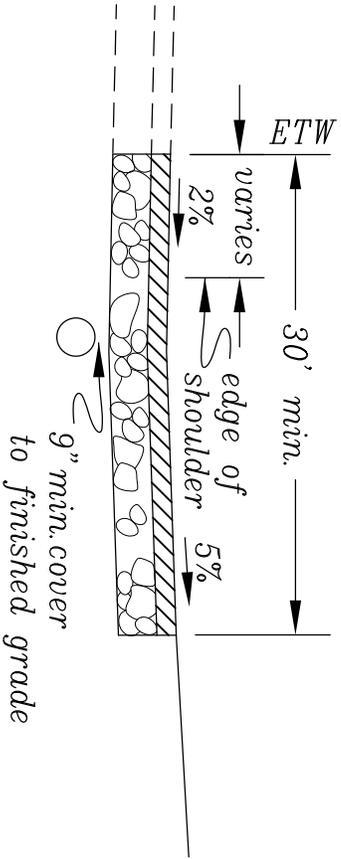
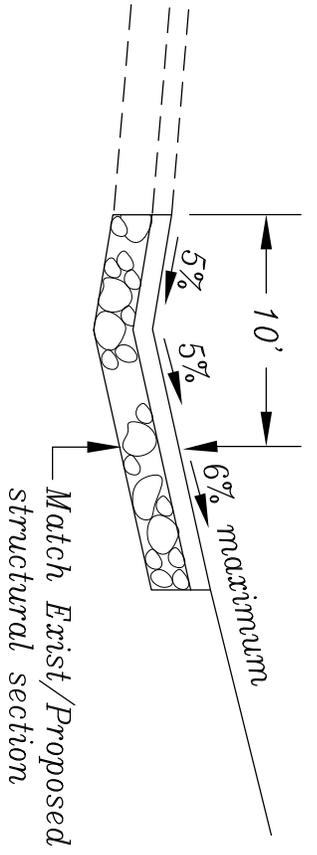


COUNTY OF NEVADA
 DEPARTMENT OF TRANSPORTATION
 ENCROACHMENT DETAIL

**DRIVEWAY
 IN DIKE SECTION**

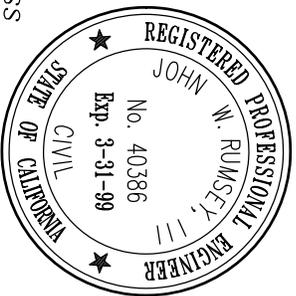
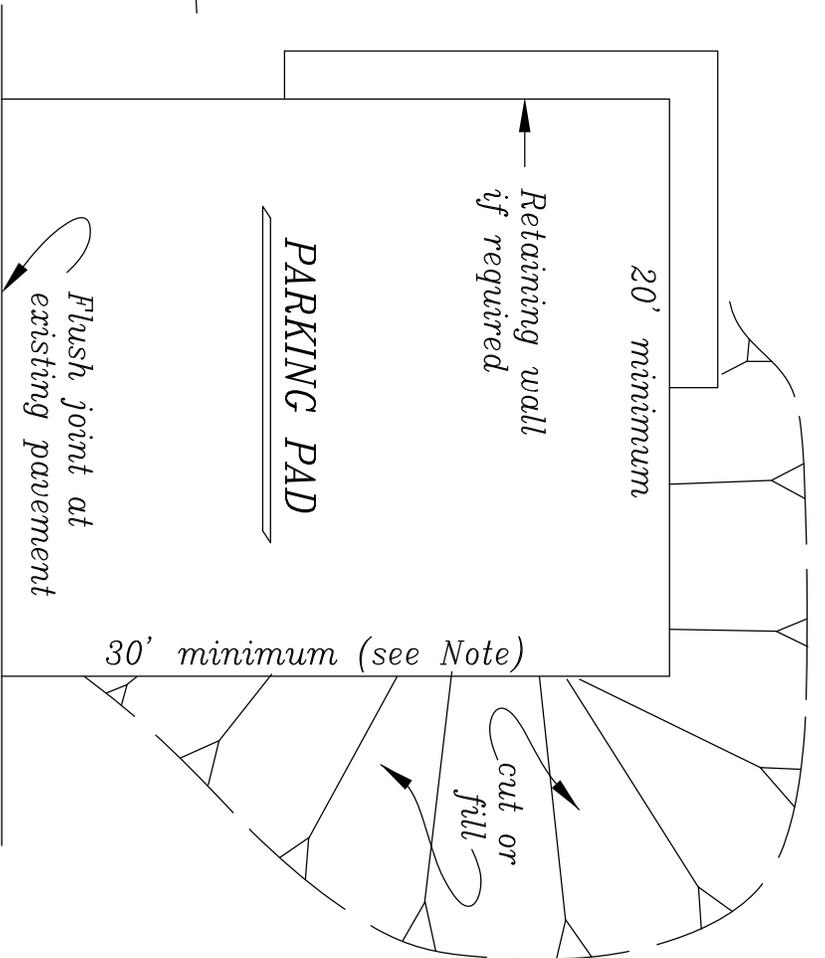
Approved by: John W. Rumsey Senior Civil Engineer Date 5-02-95

STANDARD DRAWINGS
B-2



PARKING PAD PROFILE

NOTE: 30' minimum depth of parking pad unless pre-approved by the Department of Transportation.

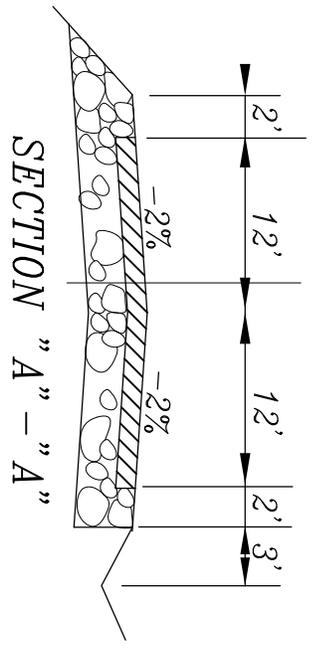


PARKING PAD

COUNTY OF NEVADA
DEPARTMENT OF TRANSPORTATION
ENCROACHMENT DETAIL

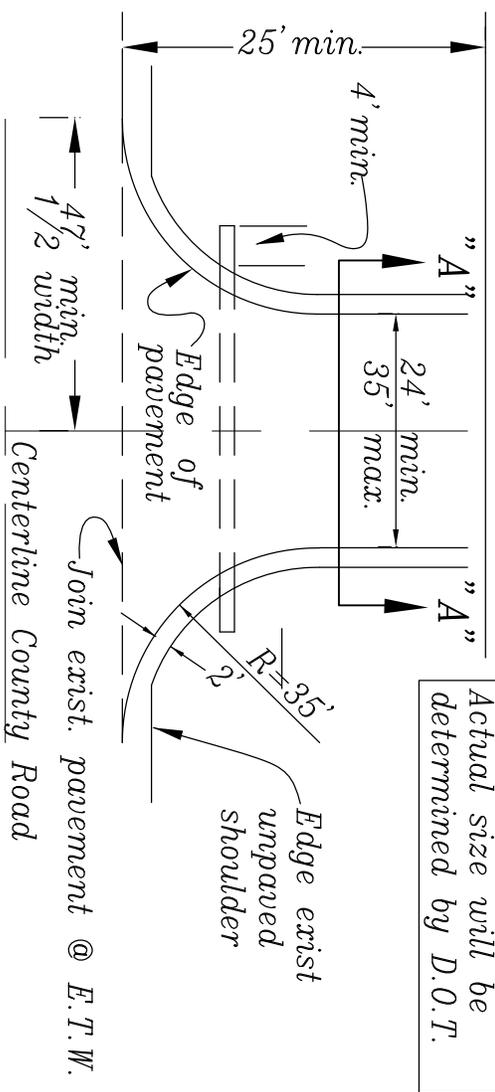
Approved by: John W. Rumsey 5-02-95
Director of Transportation Date

STANDARD DRAWINGS
B-3



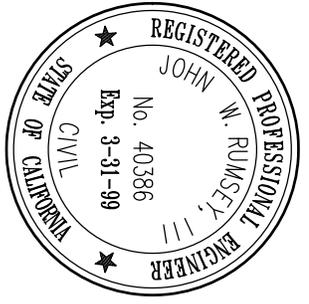
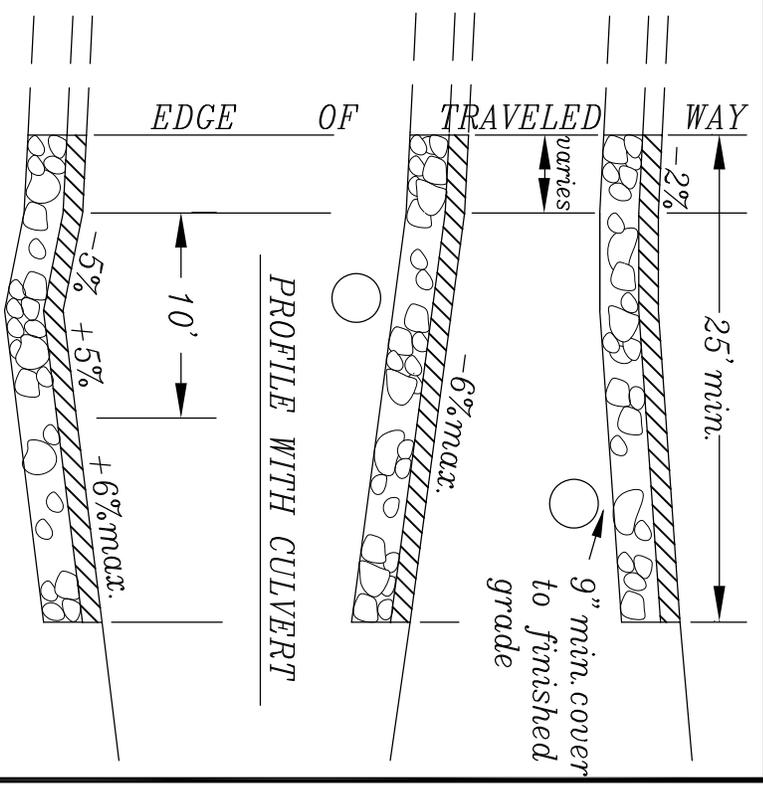
CULVERT DATA		
Length	32'	Min. dia.
	33'-80'	12"
	80'-100'	18"
		24"

All pipe shall be new C.M.P. or R.C.P. Actual size will be determined by D.O.T.



PLAN

- NOTES:
1. Subgrade to be compacted to 95% relative compaction. Place 6" compacted Aggregate Base Class 2 with 3" Asphalt Concrete where county road is paved.
 2. Portland Cement Concrete may be used only if approved by the Department of Transportation.
 3. The Department of Transportation will determine use of Culvert or Valley gutter.
 4. Adequate sight distance shall be provided per standard.



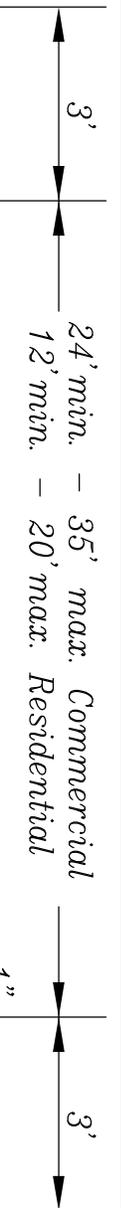
COUNTY OF NEVADA
DEPARTMENT OF TRANSPORTATION
ENCROACHMENT DETAIL

**COMMERCIAL APPROACH
WITHOUT CURB & CUTTER**

Approved by: John W. Rumsey Date 5-02-95

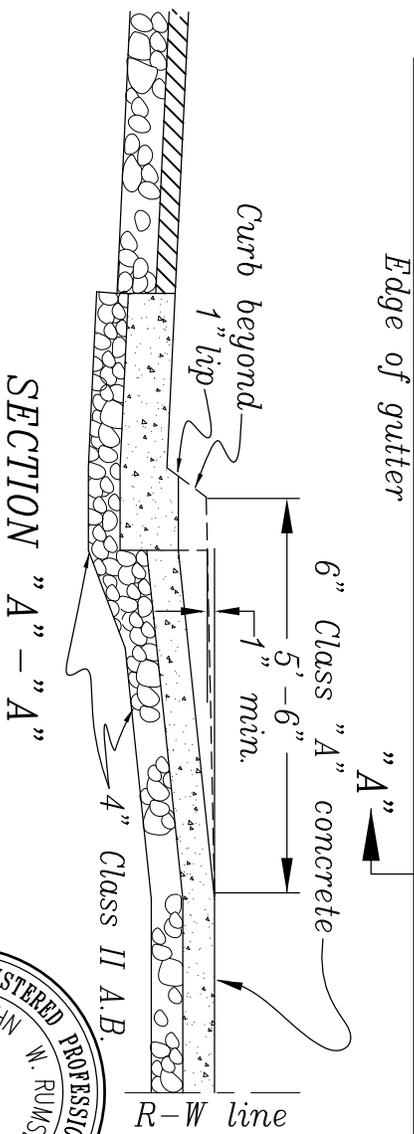
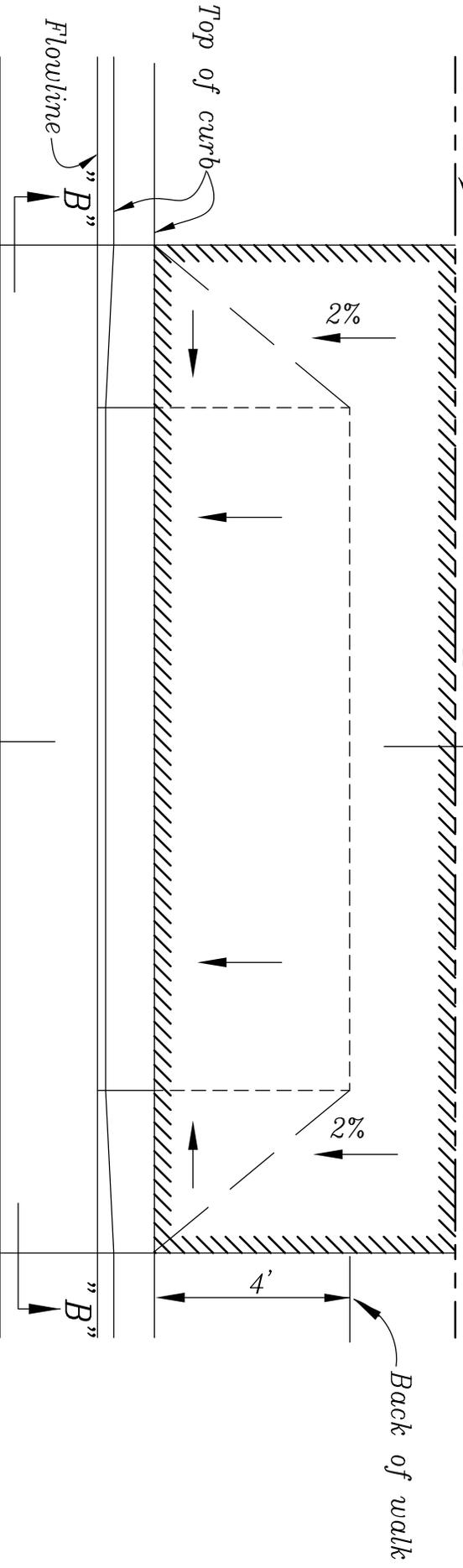
Senior Civil Engineer

STANDARD DRAWINGS
B-4



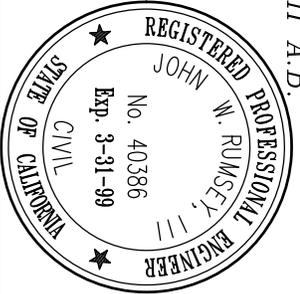
RIGHT OF WAY LINE

SECTION "B" - "B"



SECTION "A" - "A"

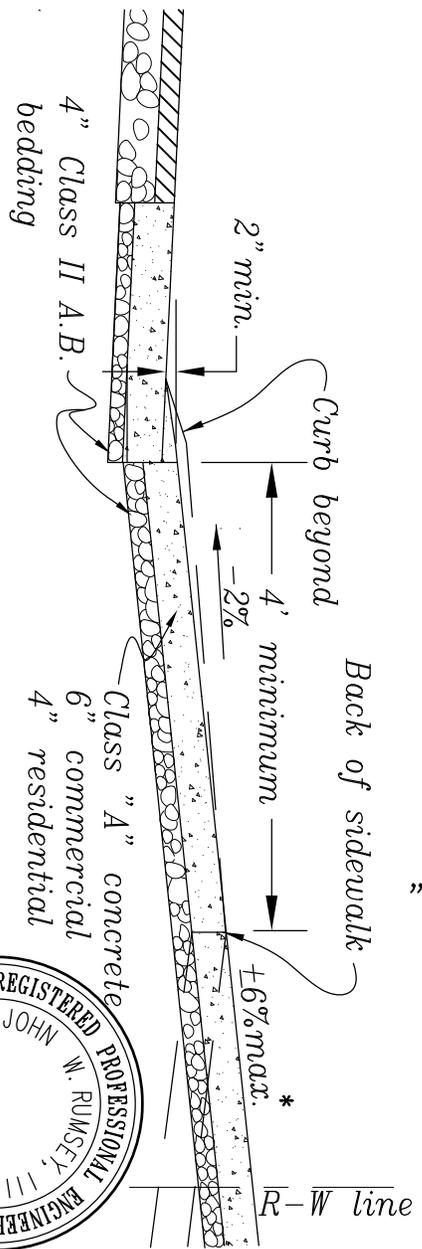
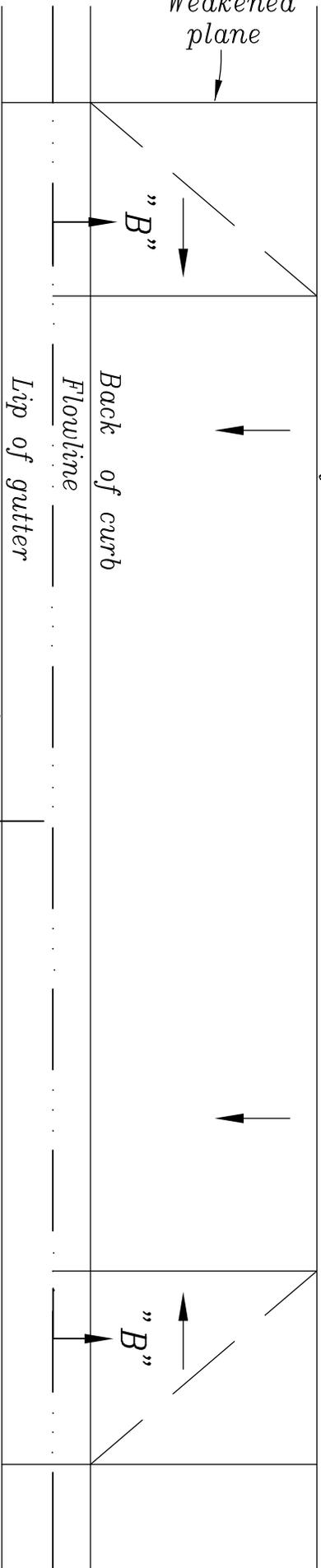
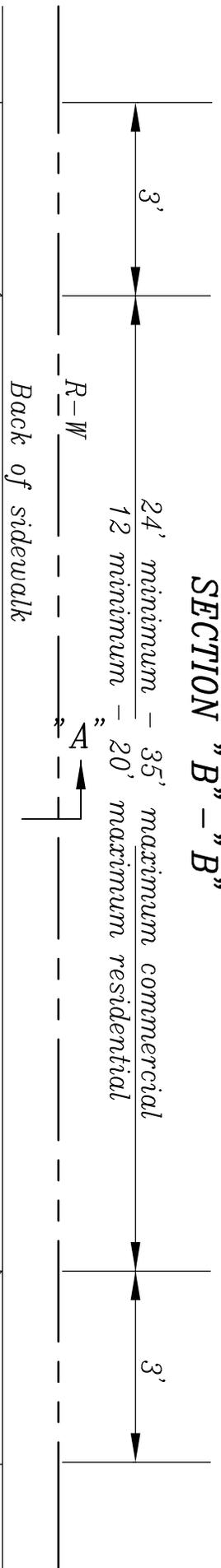
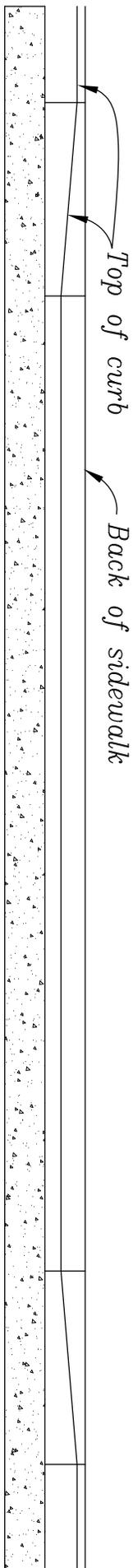
NOTE:
1. All construction shall comply with the Americans With Disabilities ACT of 1990.



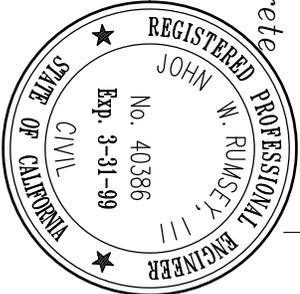
COUNTY OF NEVADA
DEPARTMENT OF TRANSPORTATION
ENCROACHMENT DETAIL
**DRIVEWAY
IN CURB & GUTTER SECTION**

Approved by: John W. Rumsey 5-02-95
Senior Civil Engineer Date

STANDARD DRAWINGS
B-5



* Unless pre-approved by the Engineer

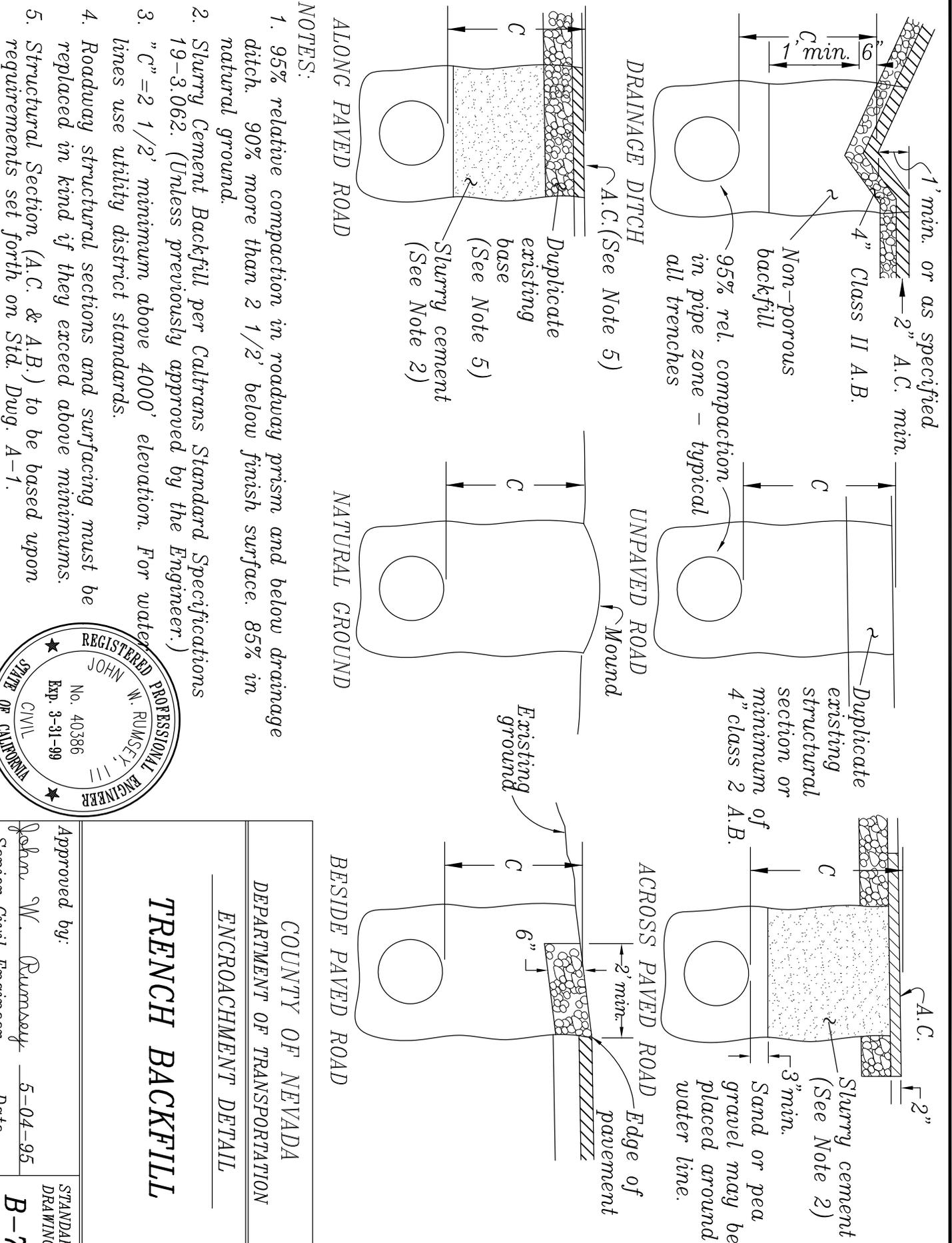


COUNTY OF NEVADA
DEPARTMENT OF TRANSPORTATION
ENCROACHMENT DETAIL

**DRIVEWAY
TYPE "E" CURB & GUTTER**

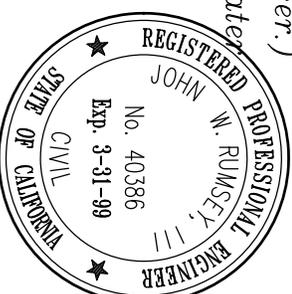
Approved by: John W. Rumsey 5-02-95
Senior Civil Engineer Date

STANDARD DRAWINGS
B-6

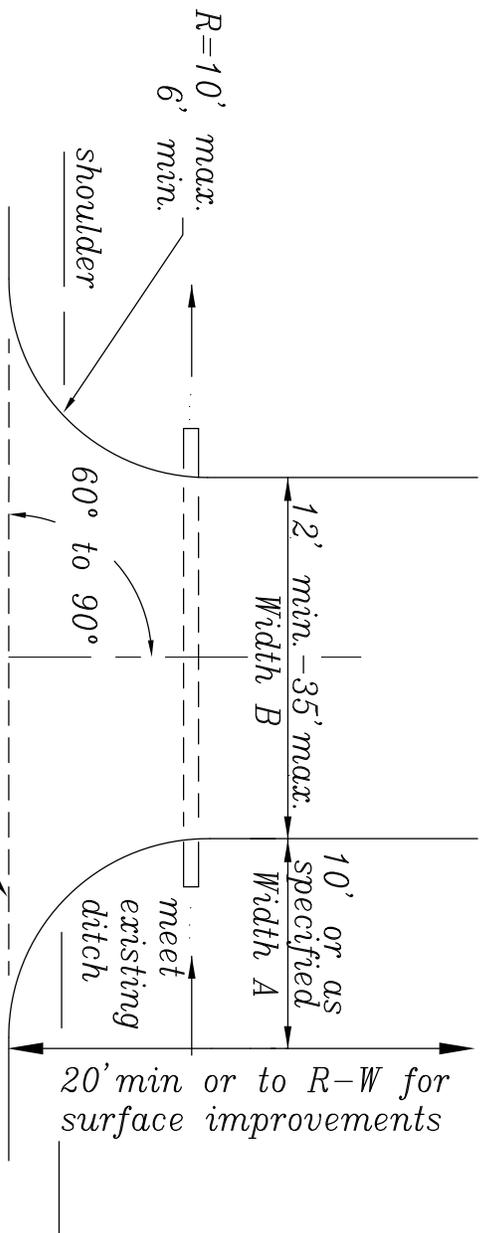


NOTES:

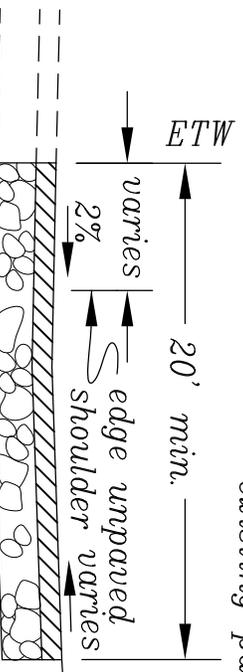
1. 95% relative compaction in roadway prism and below drainage ditch. 90% more than 2 1/2' below finish surface. 85% in natural ground.
2. Slurry Cement Backfill per Caltrans Standard Specifications 19-3.062. (Unless previously approved by the Engineer.)
3. "C" = 2 1/2' minimum above 4000' elevation. For water lines use utility district standards.
4. Roadway structural sections and surfacing must be replaced in kind if they exceed above minimums.
5. Structural Section (A.C. & A.B.) to be based upon requirements set forth on Std. Dwg. A-1.



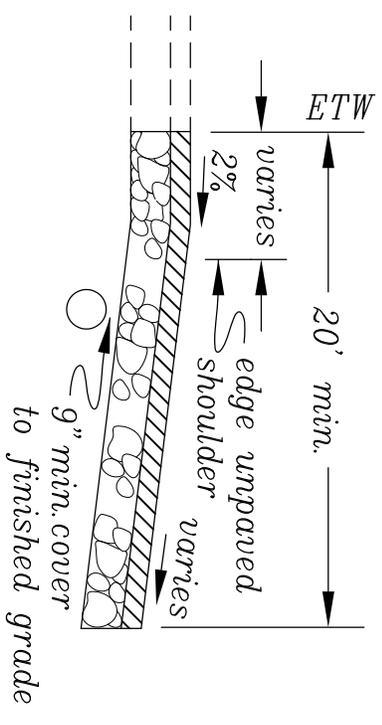
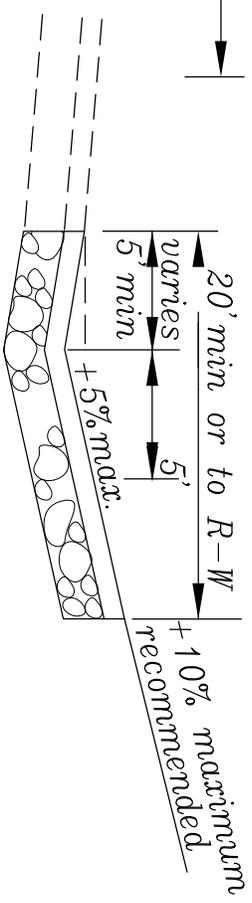
COUNTY OF NEVADA DEPARTMENT OF TRANSPORTATION ENCROACHMENT DETAIL	
TRENCH BACKFILL	
Approved by: <u>John W. Rumsey</u> Senior Civil Engineer	Date: <u>5-04-95</u>
STANDARD DRAWINGS B-7	



Width 2A + B
Flush joint at edge
existing pavement



VALLEY DRAIN PROFILE



PRIVATE DRIVEWAY PROFILE

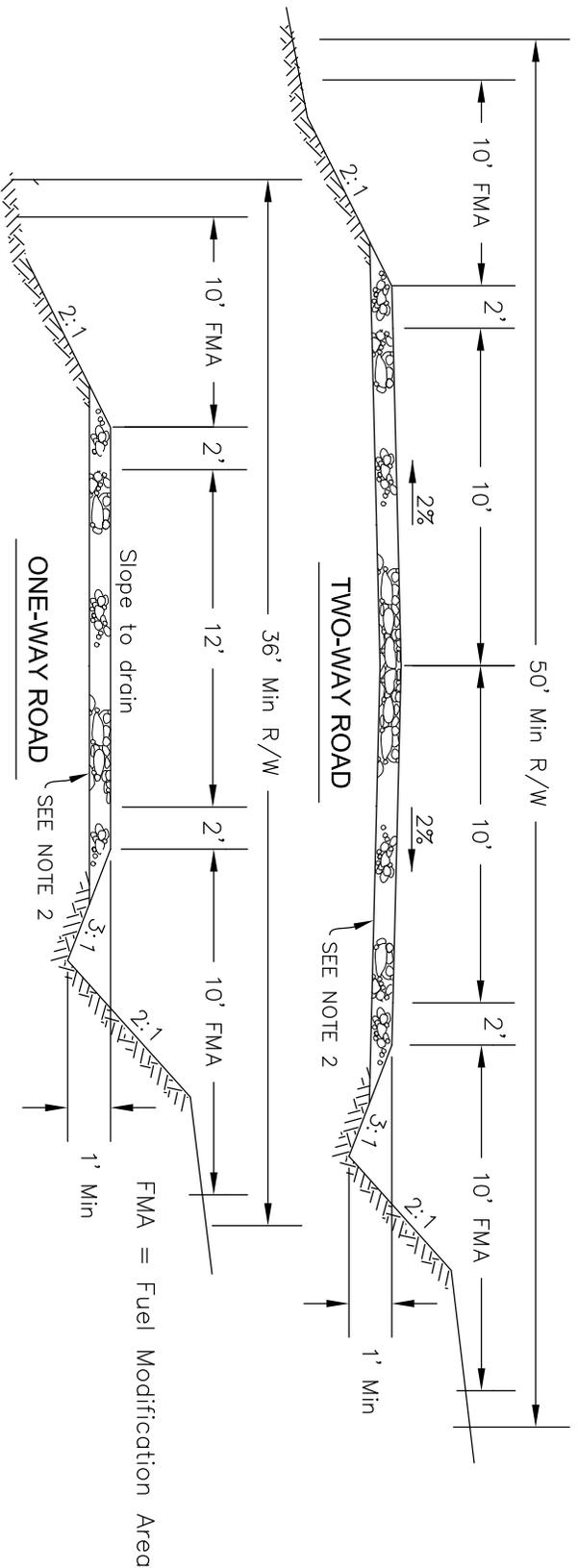


PRIVATE DRIVEWAY

COUNTY OF NEVADA
DEPARTMENT OF TRANSPORTATION
ENCROACHMENT DETAIL

Approved by: John W. Rumsey 5-04-95 Date
Senior Civil Engineer

STANDARD DRAWINGS
B-8



NOTES:

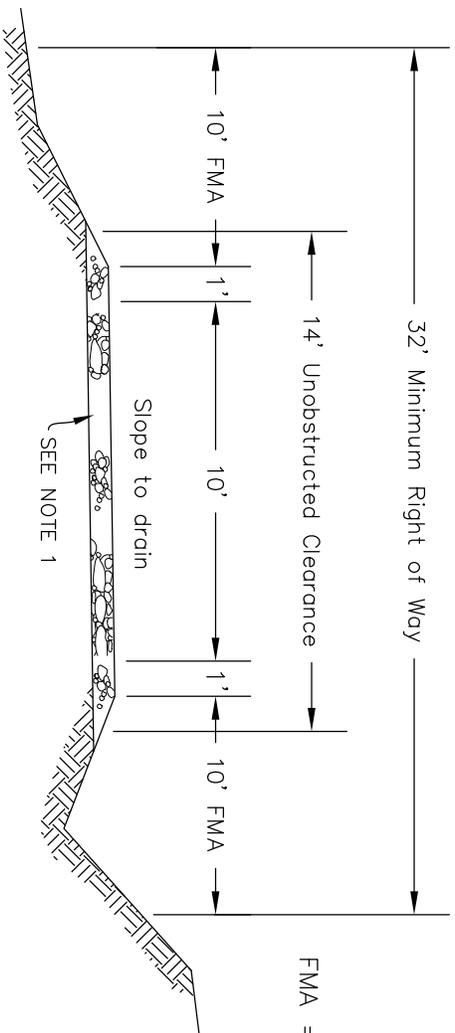
1. Changes in SRA Fire Safe Regulations shall supercede this standard and be approved by the Engineer.
2. The surface shall be capable of supporting a 75,000 lb. vehicle with a minimum of 6" AB compacted to 95%, placed on a subgrade compacted to 95%. Road grade shall not exceed 16%.
3. Roadway turnouts shall be provided along the route at locations specified in Nevada County Land Use and Development Code Chapter XVII.
4. Slope easements or R/W shall be provided to contain all cuts and/or fills satisfactory to the Engineer.
5. All Secondary "Emergency Egress Only" routes shall be identified as such by signs constructed to the standards as specified by the current California Manual on Uniform Traffic Control Devices.
6. All horizontal and vertical curves with inadequate sight distance shall be constructed to a two way road standard.



COUNTY OF NEVADA
DEPARTMENT OF PUBLIC WORKS

LOCAL RURAL ROAD SYSTEM
**FIRE STANDARD
ACCESS ROAD**

Approved by: *Patrick Perkins*
Principal Civil Engineer Date 12-17-19
STANDARD DRAWING C-1



FMA = Fuel Modification Area

NOTES:

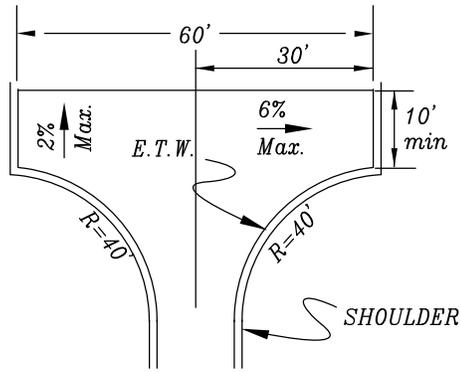
1. Surface capable of supporting a 40,000 lb. vehicle with a minimum of 4" A.B., compacted to 95%, placed on a subgrade compacted to 90%.



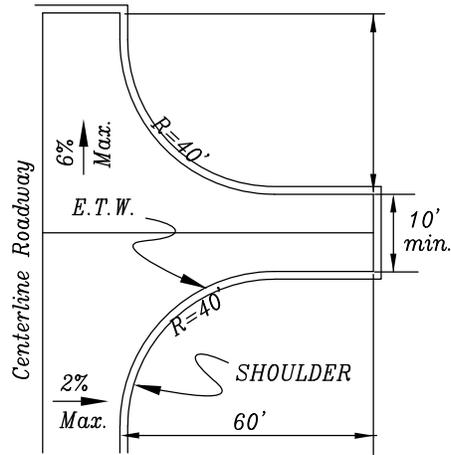
COUNTY OF NEVADA
DEPARTMENT OF PUBLIC WORKS

LOCAL RURAL ROAD SYSTEM
FIRE STANDARD DRIVEWAY

Approved by: *Patrick Perkins*
Principal Civil Engineer Date 12-17-19
STANDARD DRAWING C-2

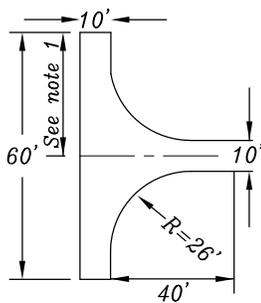


ALTERNATIVE A

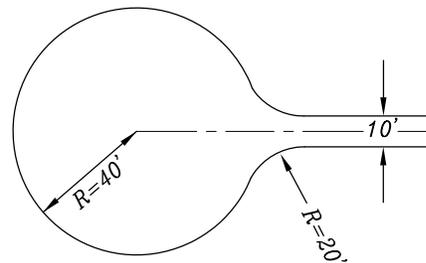


ALTERNATIVE B

HAMMER HEAD TURNAROUND



HAMMERHEAD



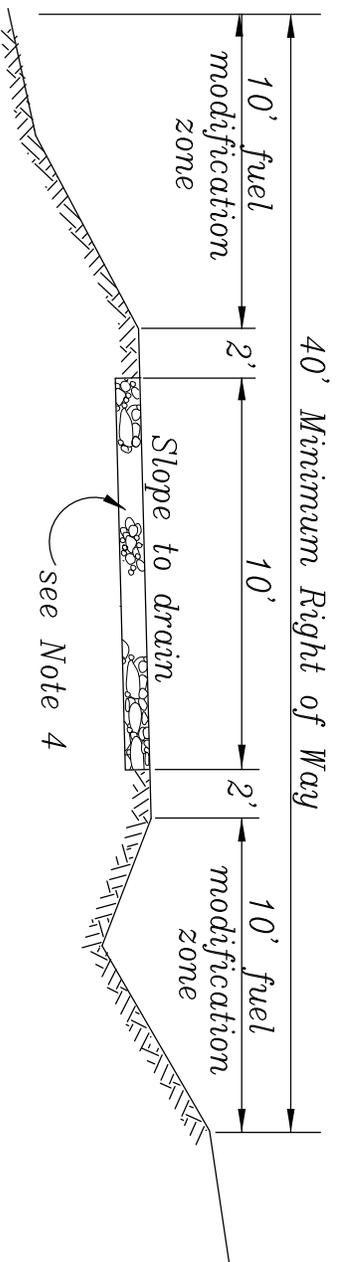
CUL-DE-SAC

NOTES:

1. The point where the driveway enters the hammerhead may be adjusted to suit site conditions.



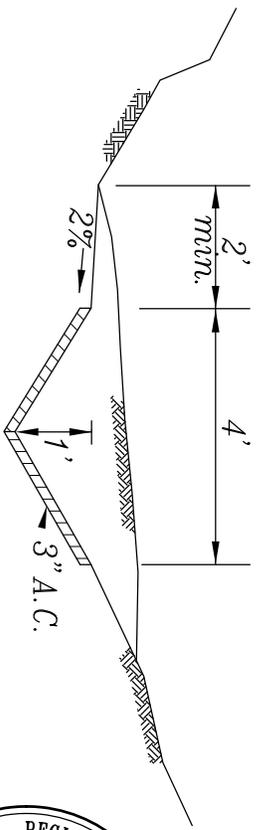
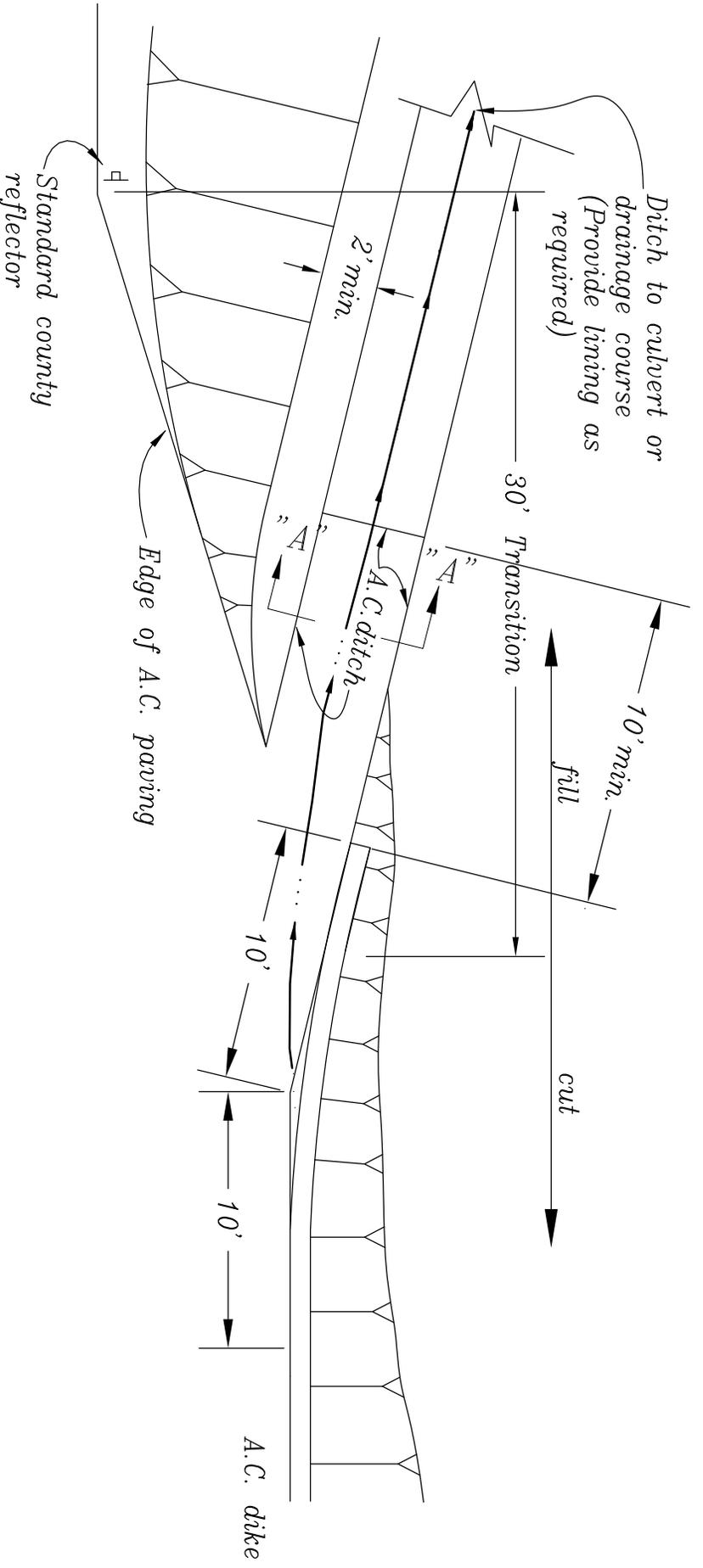
COUNTY OF NEVADA DEPARTMENT OF TRANSPORTATION LOCAL RURAL ROAD SYSTEM	
FIRE STANDARD TURNAROUNDS	
Approved by: <i>John W. Rumsey</i> 5-04-95 Senior Civil Engineer	Date
STANDARD DRAWING C-3	



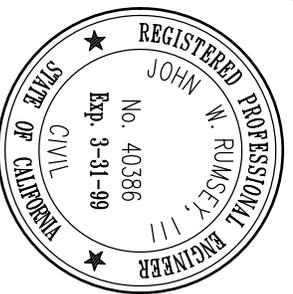
NOTES:

1. This Secondary Emergency Egress/Firebreak Only Road Standard is not intended to satisfy the requirements of P.R.C. 4290 or the Nevada County Road Standards for new development.
2. An adopted One Way Emergency Event Traffic Control Plan is essential to the use of this standard.
3. For Planning purposes, the area served by such a road as an interim, secondary egress should not contain more than 220 dwellings.
4. The Surface shall be capable of supporting a 40,000 lb. vehicle with a minimum of 4" A.B., compacted to 95%, placed on a subgrade compacted to 90%. Road grade shall not exceed 16%.
5. Slope easements or R.O.W. shall be provided to contain all cuts and/or fills.
6. Roadway turnouts shall be provided along the route at locations specified by the entity responsible for fire protection.
7. Any gates proposed shall be constructed to a Standard satisfactory to the entity having primary fire suppression responsibility.
8. All Secondary "Emergency Egress Only" routes shall be identified as such by signs constructed to the standards as specified by the entity having responsibility for primary fire suppression responsibility.
9. All horizontal and vertical curves with inadequate sight distance shall be constructed to a two way standard.

COUNTY OF NEVADA DEPARTMENT OF TRANSPORTATION LOCAL RURAL ROAD SYSTEM SECONDARY EMERGENCY EGRESS ONLY/FIREBREAK RD.	
Approved by: _____ Senior Civil Engineer	STANDARD DRAWING C-4
Date _____	

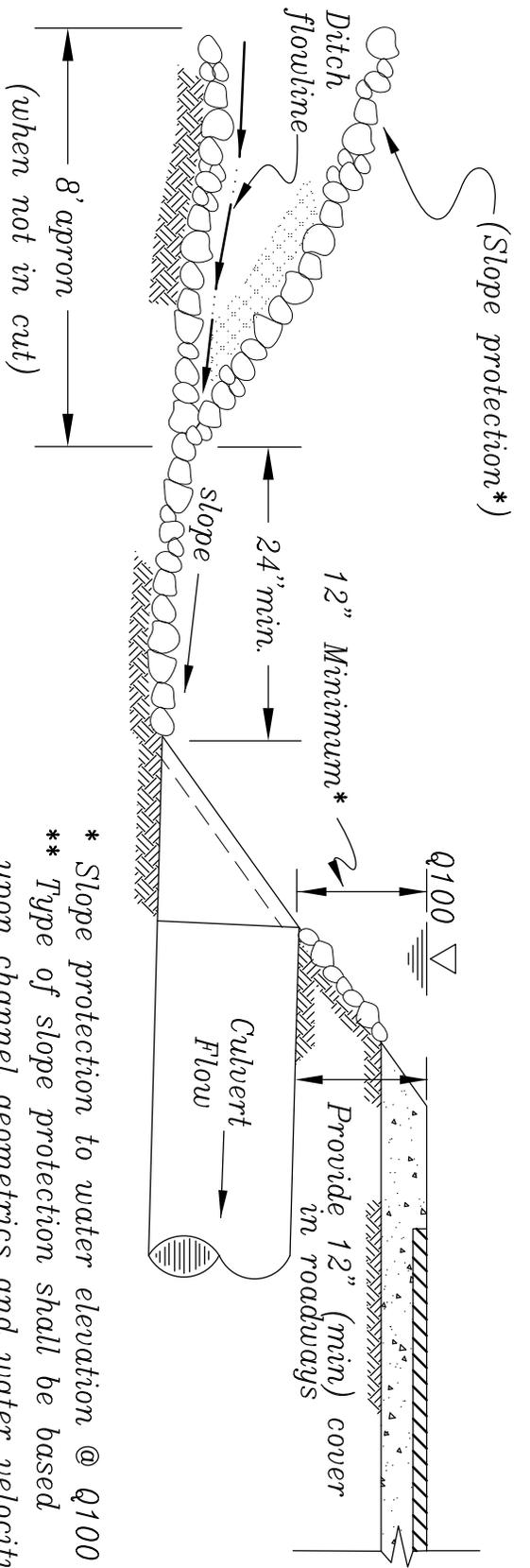


SECTION "A" - "A"



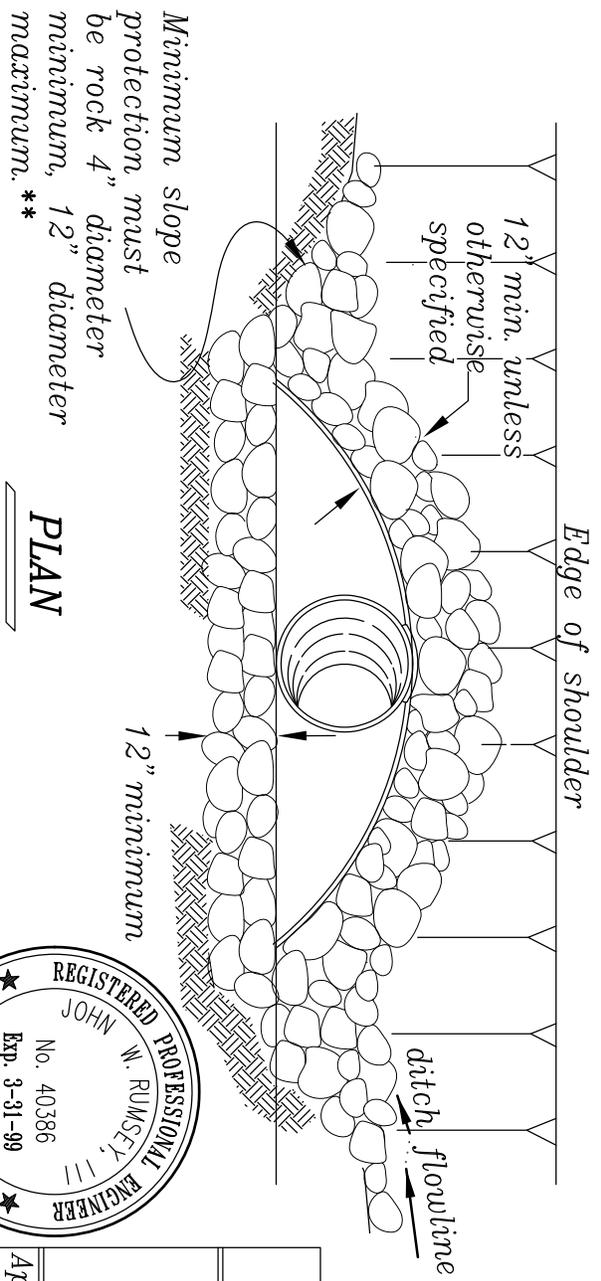
COUNTY OF NEVADA
 DEPARTMENT OF TRANSPORTATION
 DRAINAGE DETAIL
DIKE SECTION TO FILL

Approved by: John W. Rumsey 5-04-95
 Senior Civil Engineer Date
 STANDARD DRAWING
D-1

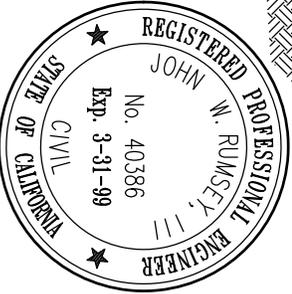


ELEVATION

* Slope protection to water elevation @ Q100
 ** Type of slope protection shall be based upon channel geometrics and water velocity

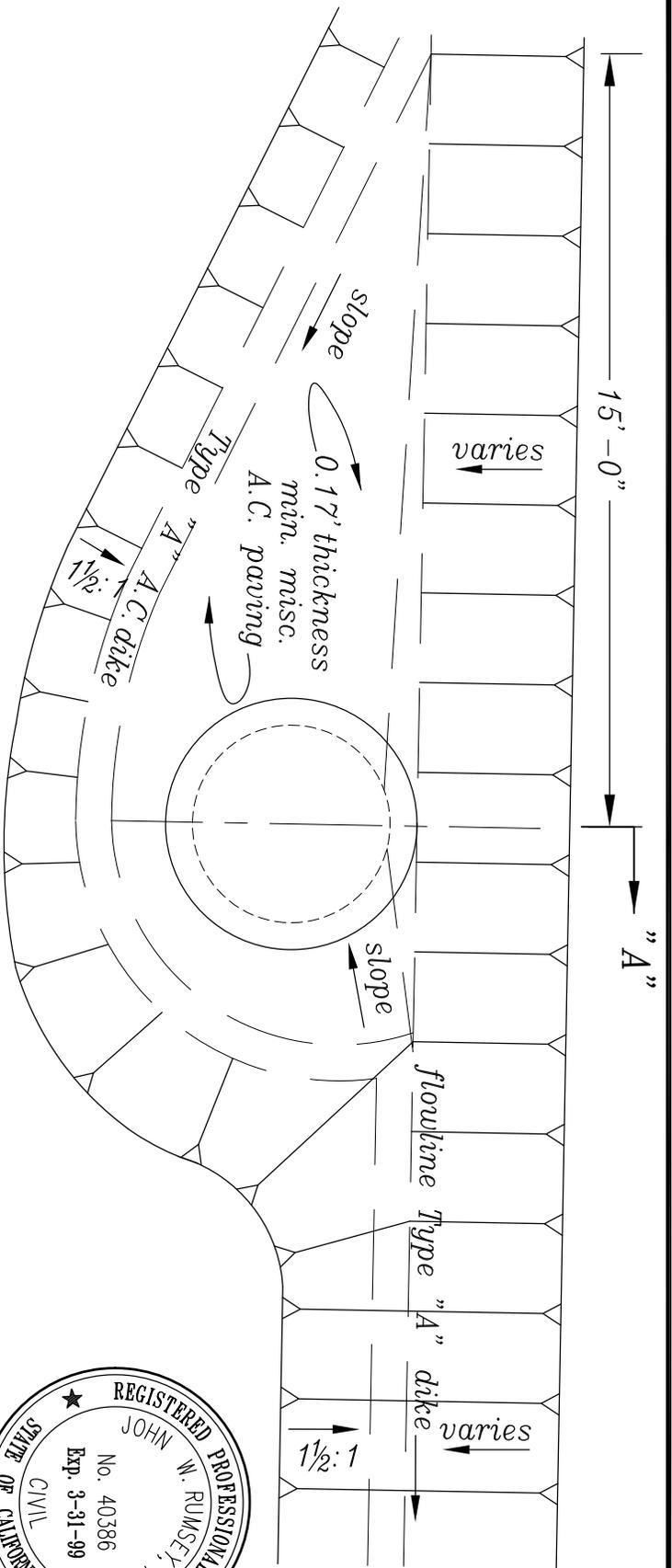


PLAN



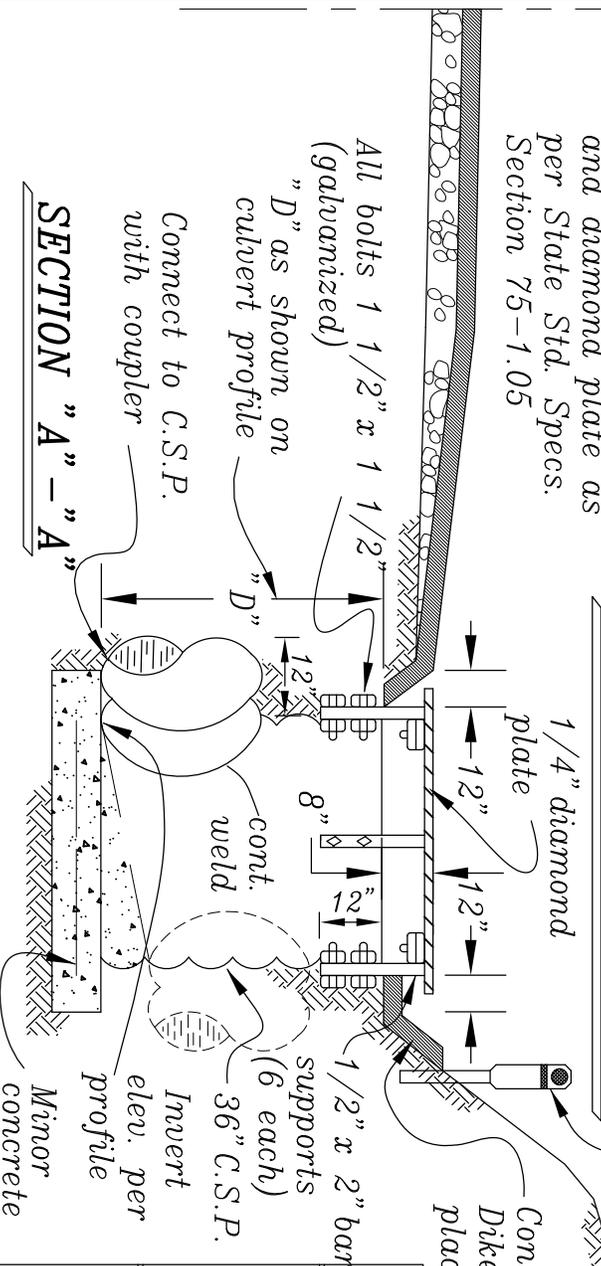
COUNTY OF NEVADA
 DEPARTMENT OF TRANSPORTATION
 DRAINAGE DETAIL
FLARED END SECTION

Approved by: John W. Rumsey 5-10-95
 Senior Civil Engineer Date
 STANDARD DRAWING
D-2



NOTE: After fabrication, galvanize the supports and diamond plate as per State Std. Specs. Section 75-1.05

STANDARD DROP INLET



Contractor may elect to use Type "B" Dike in D.I. construction where machine placement for Type "A" Dike is restricted.

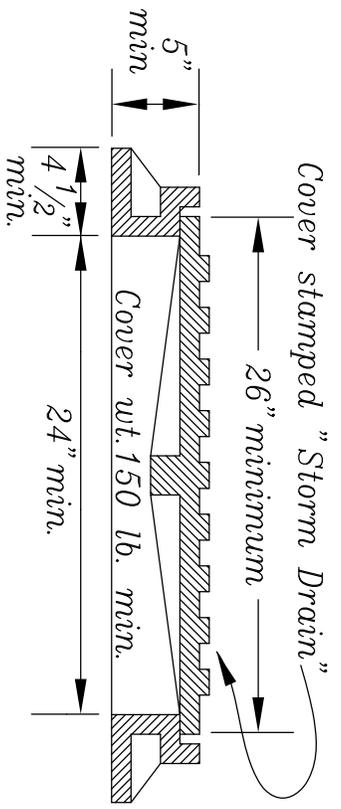
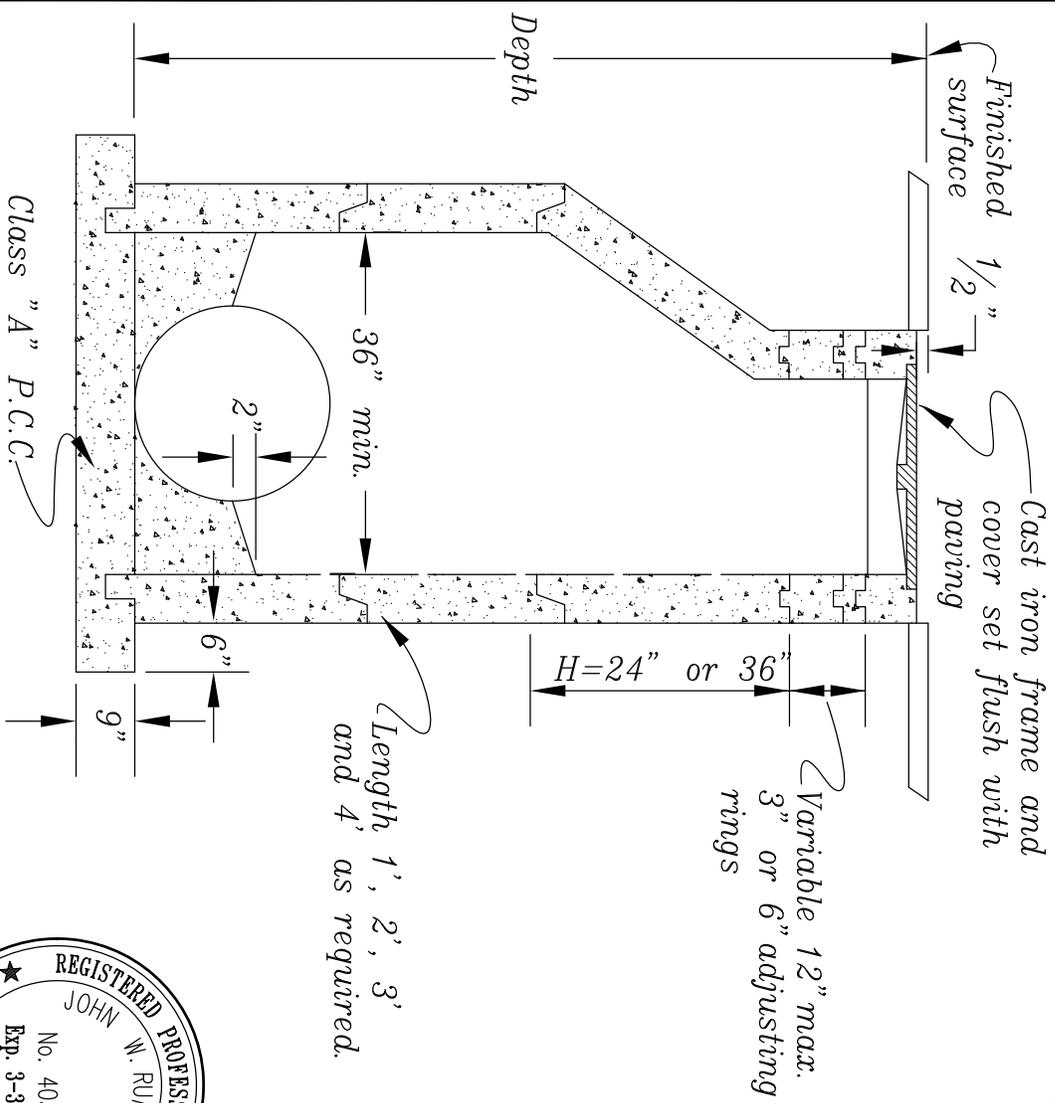
STANDARD DROP INLET

Approved by:

John W. Rumsey 5-10-95
Senior Civil Engineer Date

STANDARD DRAWING

D-3

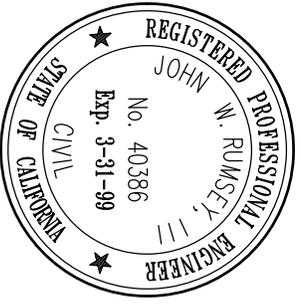


SECTION OF FRAME & COVER

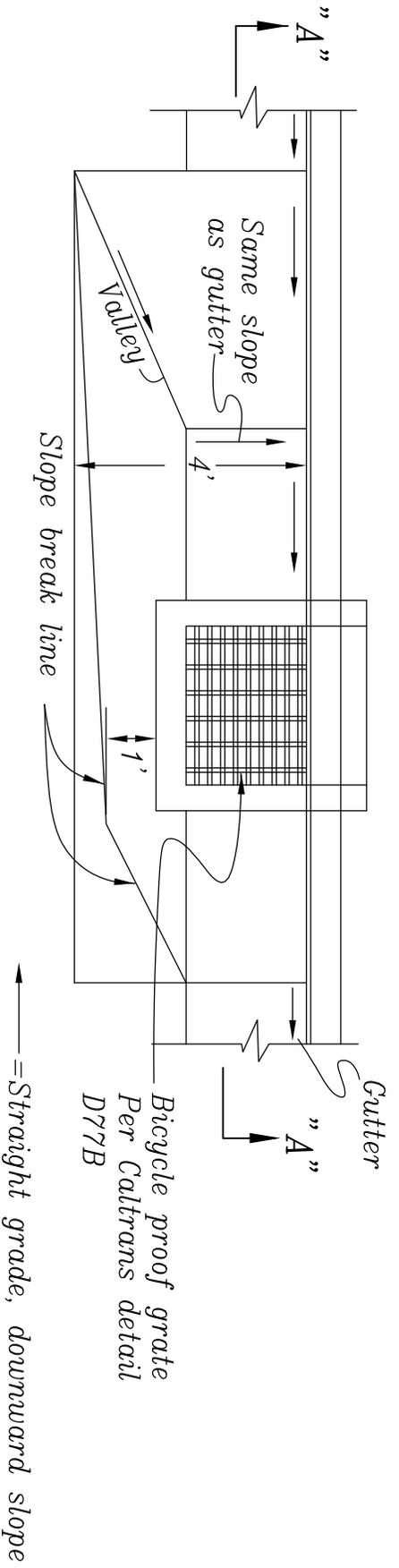
Variable 12" max.
3" or 6" adjusting
rings

Length 1', 2', 3'
and 4' as required.

- NOTES:
1. All exposed metal to be coated with asphalt.
 2. Use Class III R.C.P.

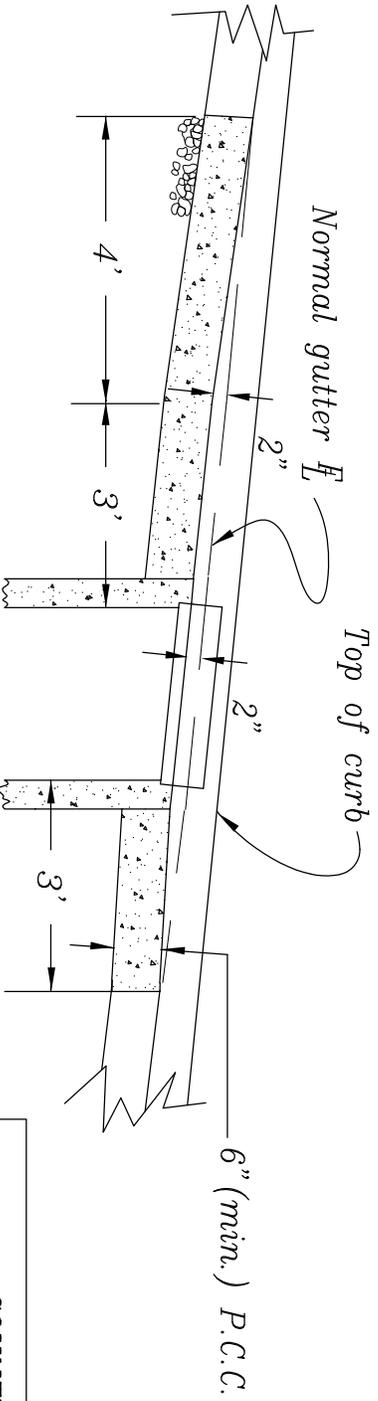


COUNTY OF NEVADA DEPARTMENT OF TRANSPORTATION DRAINAGE DETAIL	
R.C.P MANHOLE FOR CLOSED CONDUIT SYSTEM	
Approved by: <i>John W. Rumsey</i> 5-10-95 Senior Civil Engineer Date	STANDARD DRAWING D-4

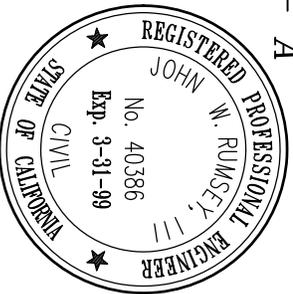


PLAN

2" (min.) Class 2 A.B. * @95% rel. compaction



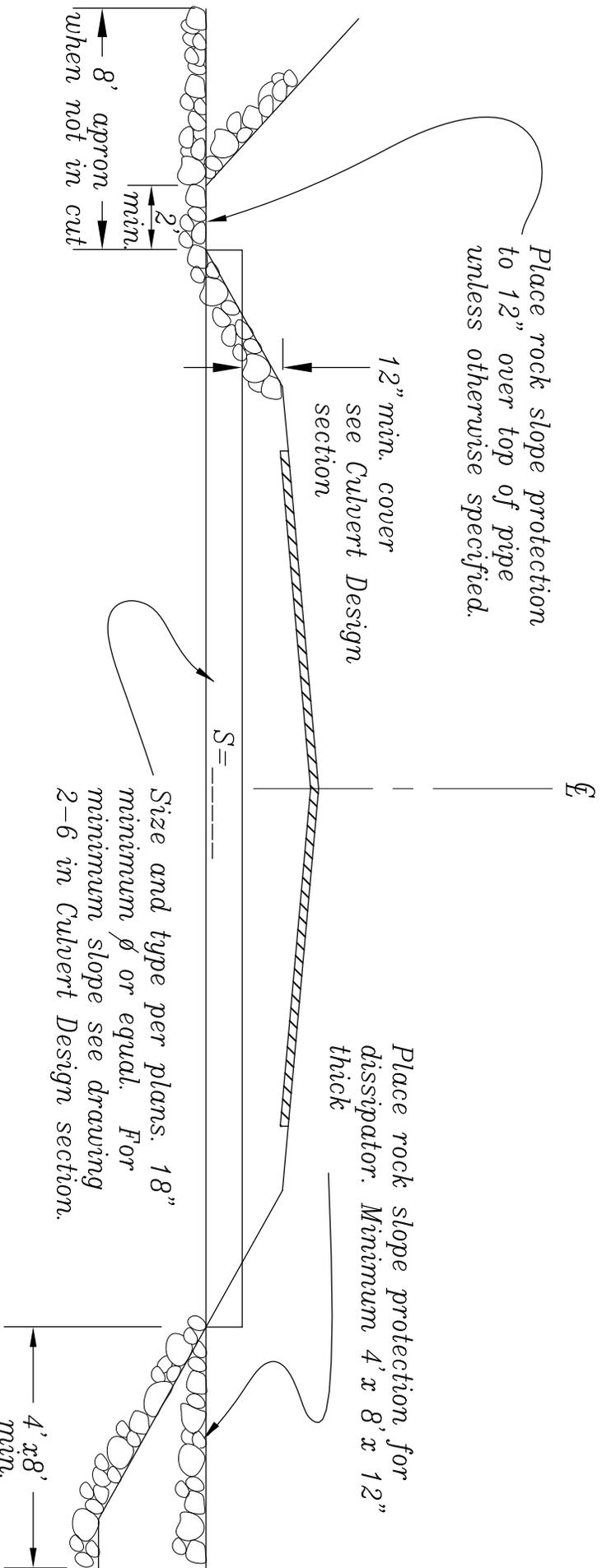
SECTION "A" - "A"



COUNTY OF NEVADA
 DEPARTMENT OF TRANSPORTATION
 DRAINAGE DETAIL
INLET ON GRADE

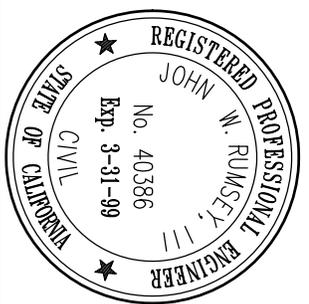
Approved by:
 John W. Rumsey 5-10-95
 Senior Civil Engineer Date

STANDARD
 DRAWING
D-6

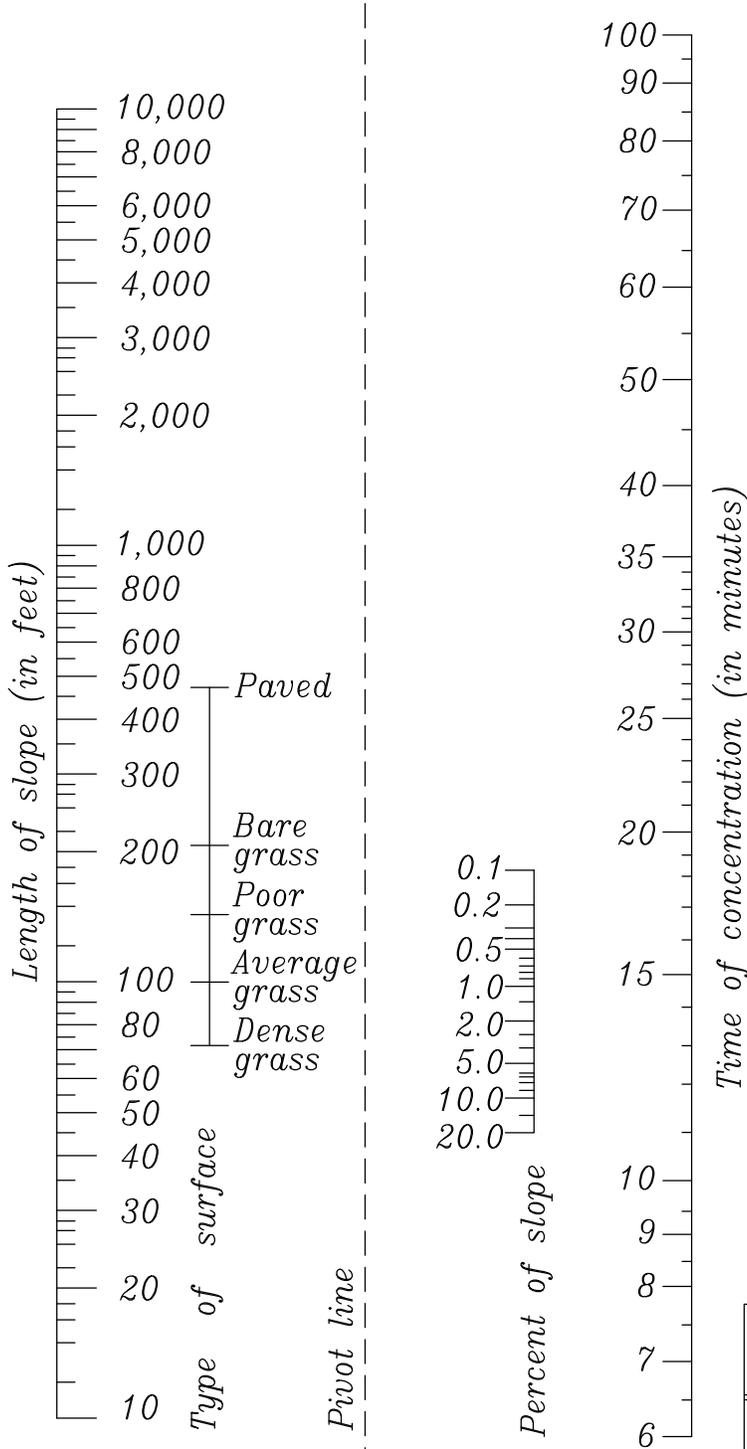


TYPICAL
no scale

1. Culverts to be installed per size and type shown on the plans.
2. Rock slope protection to be No. 1 backing placed a minimum of 12" thickness, method "B" placement.



COUNTY OF NEVADA DEPARTMENT OF TRANSPORTATION DRAINAGE DETAIL	
TYPICAL CULVERT DETAIL	
Approved by: <i>John W. Rumsey</i> Senior Civil Engineer	Date 5-10-95
STANDARD DRAWING D-7	



COUNTY OF NEVADA
 DEPARTMENT OF TRANSPORTATION
 LOCAL RURAL ROAD SYSTEM

**TIME OF CONCENTRATION
 SHEET FLOW**



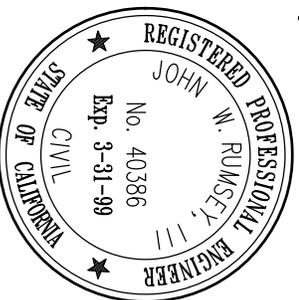
Approved by:
John W. Rumsey 5-10-95
 Senior Civil Engineer Date

STANDARD
 DRAWING
D-8

VELOCITIES IN GUTTERS, CHANNELS & EXISTING DRAINAGE CHANNELS FOR GIVEN SLOPE

Slope	Velocity	Slope	Velocity
0.5%	= 1.7' /Sec	8.0	= 6.6
1.0	= 2.3	.5	= 6.9
1.5	= 3.0	9.0	= 7.2
2.0	= 3.4	.5	= 7.5
2.5	= 3.8	10.0	= 7.8
3.0	= 4.2	.5	= 8.0
3.5	= 4.4	11.0	= 8.2
4.0	= 4.6	.5	= 8.5
.5	= 4.8	12.0	= 8.7
5.0	= 5.0	.5	= 8.9
.5	= 5.2	13.0	= 9.1
6.0	= 5.4	.5	= 9.3
.5	= 5.7	14.0	= 9.6
7.0	= 6.0	.5	= 9.8
.5	= 6.3	15.0	= 10.0

NOTE: The velocities shown hereon are to be used only for the purpose of calculating Tc, Time of Concentration.



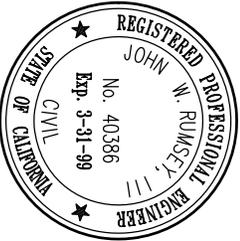
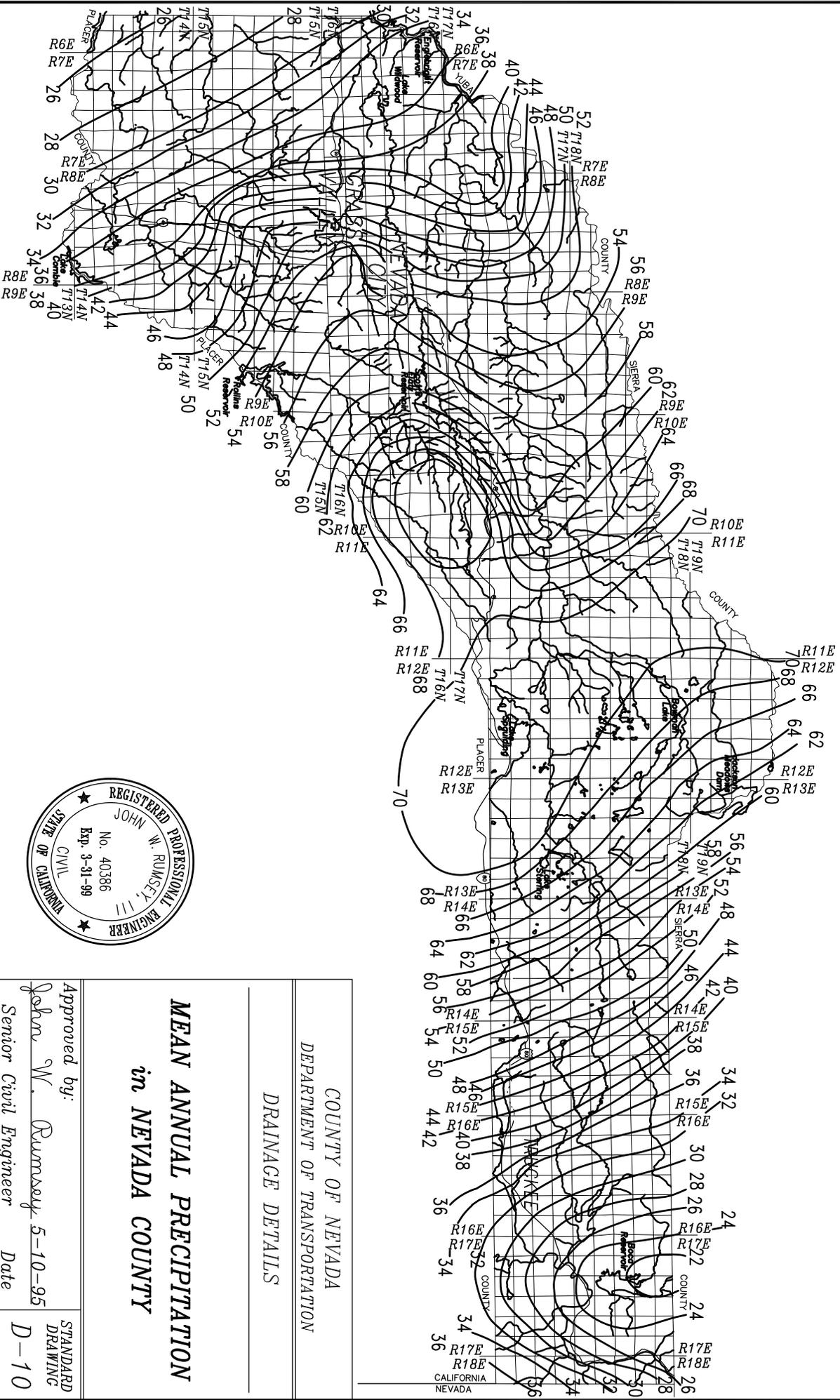
COUNTY OF NEVADA
DEPARTMENT OF TRANSPORTATION
LOCAL RURAL ROAD SYSTEM

VELOCITIES IN GUTTERS & CHANNELS

Approved by: John W. Rumsey 5-10-95
Senior Civil Engineer Date

STANDARD
DRAWING
D-9

NEVADA COUNTY



COUNTY OF NEVADA
DEPARTMENT OF TRANSPORTATION

DRAINAGE DETAILS

MEAN ANNUAL PRECIPITATION in NEVADA COUNTY

Approved by:

John W. Rumsey 5-10-95
Senior Civil Engineer Date

STANDARD
DRAWING
D-10

NEVADA COUNTY DESIGN STORM (INTENSITY)

10 YEAR STORM DURATION IN MINUTES FOR NEVADA COUNTY

Mean Annual Precipitation Inches	5	10	15	30	60	120	180	360	720	1440
					1hr	2Hr	3Hr	6Hr	12Hr	24Hr
	<i>Intensity in inches per hour</i>									
20	1.57	1.15	.96	.70	.51	.38	.31	.23	.17	.12
22	1.68	1.23	1.03	.75	.55	.40	.34	.25	.18	.13
24	1.80	1.31	1.10	.80	.59	.43	.36	.26	.19	.14
26	1.91	1.40	1.17	.85	.62	.46	.38	.28	.20	.15
28	2.02	1.48	1.23	.90	.66	.48	.40	.30	.22	.16
30	2.14	1.57	1.30	.95	.70	.51	.43	.31	.23	.17
32	2.25	1.65	1.37	1.01	.74	.54	.45	.33	.24	.18
34	2.37	1.73	1.44	1.06	.77	.57	.47	.35	.25	.19
36	2.48	1.82	1.51	1.11	.81	.59	.49	.36	.27	.19
38	2.59	1.90	1.58	1.16	.85	.62	.52	.38	.28	.20
40	2.71	1.98	1.65	1.21	.89	.65	.54	.40	.29	.21
42	2.82	2.07	1.72	1.26	.92	.68	.56	.41	.30	.22
44	2.94	2.15	1.79	1.31	.96	.70	.59	.43	.31	.23
46	3.05	2.23	1.86	1.36	1.00	.73	.61	.45	.33	.24
48	3.17	2.32	1.93	1.41	1.03	.76	.63	.46	.34	.25
50	3.28	2.40	2.00	1.46	1.07	.78	.65	.48	.35	.26
52	3.39	2.48	2.07	1.52	1.11	.81	.68	.50	.36	.27
54	3.51	2.57	2.14	1.57	1.15	.84	.70	.51	.37	.27
56	3.62	2.65	2.21	1.62	1.18	.87	.72	.53	.39	.28
58	3.74	2.73	2.28	1.67	1.22	.89	.74	.55	.40	.29
60	3.85	2.82	2.35	1.72	1.26	.92	.77	.56	.41	.30
62	3.96	2.90	2.42	1.77	1.30	.95	.79	.58	.42	.31
64	4.08	2.98	2.49	1.82	1.33	.98	.81	.60	.44	.32
66	4.19	3.07	2.56	1.87	1.37	1.00	.84	.61	.45	.33
68	4.31	3.15	2.63	1.92	1.41	1.03	.86	.63	.46	.34
70	4.42	3.24	2.70	1.97	1.44	1.06	.88	.65	.47	.35
72	4.53	3.32	2.77	2.02	1.48	1.08	.90	.66	.48	.35
74	4.65	3.40	2.84	2.08	1.52	1.11	.93	.68	.50	.36
76	4.76	3.49	2.90	2.13	1.56	1.14	.95	.70	.51	.37
78	4.88	3.57	2.97	2.18	1.59	1.17	.97	.71	.52	.38
80	4.99	3.65	3.04	2.23	1.63	1.19	.99	.73	.53	.39



COUNTY OF NEVADA DEPARTMENT OF TRANSPORTATION	
DRAINAGE DETAIL 10 YEAR STORM DURATION IN MINUTES FOR NEVADA COUNTY	
Approved by: <i>John W. Rumsey</i> 5-11-95 Senior Civil Engineer	STANDARD DRAWING D-11
Date	

NEVADA COUNTY DESIGN STORM (INTENSITY)

100 YEAR STORM DURATION IN MINUTES FOR NEVADA COUNTY

Mean Annual Precipitation Inches	5	10	15	30	60	120	180	360	720	1440
					1hr	2hr	3hr	6hr	12hr	24hr
	<i>Intensity in inches per hour</i>									
20	2.22	1.63	1.36	.99	.73	.53	.44	.32	.24	.17
22	2.39	1.75	1.46	1.07	.78	.57	.48	.35	.25	.19
24	2.55	1.86	1.55	1.14	.83	.61	.51	.37	.27	.20
26	2.71	1.98	1.65	1.21	.89	.65	.54	.40	.29	.21
28	2.87	2.10	1.75	1.28	.94	.69	.57	.42	.31	.22
30	3.03	2.22	1.85	1.35	.99	.73	.60	.44	.32	.24
32	3.19	2.34	1.95	1.43	1.04	.76	.64	.47	.34	.25
34	3.36	2.46	2.05	1.50	1.10	.80	.67	.49	.36	.26
36	3.52	2.58	2.15	1.57	1.15	.84	.70	.51	.38	.28
38	3.68	2.69	2.24	1.64	1.20	.88	.73	.54	.39	.29
40	3.84	2.81	2.34	1.72	1.26	.92	.77	.56	.41	.30
42	4.00	2.93	2.44	1.79	1.31	.96	.80	.58	.43	.31
44	4.17	3.05	2.54	1.86	1.36	1.00	.83	.61	.45	.33
46	4.33	3.17	2.64	1.93	1.41	1.04	.86	.63	.46	.34
48	4.49	3.29	2.74	2.00	1.47	1.07	.89	.66	.48	.35
50	4.65	3.40	2.84	2.08	1.52	1.11	.93	.68	.50	.36
52	4.81	3.52	2.94	2.15	1.57	1.15	.96	.70	.51	.38
54	4.97	3.64	3.03	2.22	1.63	1.19	.99	.73	.53	.39
56	5.14	3.76	3.13	2.29	1.68	1.23	1.02	.75	.55	.40
58	5.30	3.88	3.23	2.37	1.73	1.27	1.06	.77	.57	.41
60	5.46	4.00	3.33	2.44	1.78	1.31	1.09	.80	.58	.43
62	5.62	4.12	3.43	2.51	1.84	1.35	1.12	.82	.60	.44
64	5.78	4.23	3.53	2.58	1.89	1.38	1.15	.84	.62	.45
66	5.94	4.35	3.63	2.65	1.94	1.42	1.19	.87	.64	.46
68	6.11	4.47	3.72	2.73	2.00	1.46	1.22	.89	.65	.48
70	6.27	4.59	3.82	2.80	2.05	1.50	1.25	.91	.67	.49
72	6.43	4.71	3.92	2.87	2.10	1.54	1.28	.94	.69	.50
74	6.59	4.83	4.02	2.94	2.15	1.58	1.31	.96	.70	.52
76	6.75	4.94	4.12	3.02	2.21	1.62	1.35	.99	.72	.53
78	6.92	5.06	4.22	3.09	2.26	1.65	1.38	1.01	.74	.54
80	7.08	5.18	4.32	3.16	2.31	1.69	1.41	1.03	.76	.55



COUNTY OF NEVADA DEPARTMENT OF TRANSPORTATION	
DRAINAGE DETAIL 100 YEAR STORM DURATION IN MINUTES FOR NEVADA COUNTY	
Approved by: <i>John W. Rumsey</i> 5-11-95 Senior Civil Engineer	STANDARD DRAWING D-12 Date

NEVADA COUNTY DESIGN STORM (DEPTH)

10 YEAR STORM DURATION IN MINUTES FOR NEVADA COUNTY

Mean Annual Precipitation Inches	5	10	15	30	60	120	180	360	720	1440
					1hr	2Hr	3Hr	6Hr	12Hr	24Hr
	Design Storm Depth in inches									
20	.13	.19	.24	.35	.51	.75	.94	1.37	2.01	2.94
22	.14	.21	.26	.38	.55	.81	1.01	1.47	2.16	3.16
24	.15	.22	.27	.40	.59	.86	1.07	1.57	2.30	3.37
26	.16	.23	.29	.43	.62	.91	1.14	1.67	2.45	3.59
28	.17	.25	.31	.45	.66	.97	1.21	1.77	2.60	3.80
30	.18	.26	.33	.48	.70	1.02	1.28	1.87	2.74	4.01
32	.19	.27	.34	.50	.74	1.08	1.35	1.97	2.89	4.23
34	.20	.29	.36	.53	.77	1.13	1.42	2.07	3.03	4.44
36	.21	.30	.38	.55	.81	1.19	1.48	2.17	3.18	4.66
38	.22	.32	.40	.58	.85	1.24	1.55	2.27	3.33	4.87
40	.23	.33	.41	.60	.89	1.30	1.62	2.37	3.47	5.08
42	.24	.34	.43	.63	.92	1.35	1.69	2.47	3.62	5.30
44	.24	.36	.45	.66	.96	1.41	1.76	2.57	3.77	5.51
46	.25	.37	.47	.68	1.00	1.46	1.82	2.67	3.91	5.73
48	.26	.39	.48	.71	1.03	1.51	1.89	2.77	4.06	5.94
50	.27	.40	.50	.73	1.07	1.57	1.96	2.87	4.20	6.16
52	.28	.41	.52	.76	1.11	1.62	2.03	2.97	4.35	6.37
54	.29	.43	.53	.78	1.15	1.68	2.10	3.07	4.50	6.58
56	.30	.44	.55	.81	1.18	1.73	2.17	3.17	4.64	6.80
58	.31	.46	.57	.83	1.22	1.79	2.23	3.27	4.79	7.01
60	.32	.47	.59	.86	1.26	1.84	2.30	3.37	4.94	7.23
62	.33	.48	.60	.88	1.30	1.90	2.37	3.47	5.08	7.44
64	.34	.50	.62	.91	1.33	1.95	2.44	3.57	5.23	7.65
66	.35	.51	.64	.94	1.37	2.01	2.51	3.67	5.37	7.87
68	.36	.53	.66	.96	1.41	2.06	2.58	3.77	5.52	8.08
70	.37	.54	.67	.99	1.44	2.12	2.64	3.87	5.67	8.30
72	.38	.55	.69	1.01	1.48	2.17	2.71	3.97	5.81	8.51
74	.39	.57	.71	1.04	1.52	2.22	2.78	4.07	5.96	8.72
76	.40	.58	.73	1.06	1.56	2.28	2.85	4.17	6.11	8.94
78	.41	.59	.74	1.09	1.59	2.33	2.92	4.27	6.25	9.15
80	.42	.61	.76	1.11	1.63	2.39	2.98	4.37	6.40	9.37



COUNTY OF NEVADA DEPARTMENT OF TRANSPORTATION	
DRAINAGE DETAIL 10 YEAR STORM DURATION IN MINUTES FOR NEVADA COUNTY	
Approved by: <i>John W. Rumsey</i> 5-11-95 Senior Civil Engineer	STANDARD DRAWING D-13
Date	

NEVADA COUNTY DESIGN STORM (DEPTH)

100 YEAR STORM DURATION IN MINUTES FOR NEVADA COUNTY

Mean Annual Precipitation Inches	5	10	15	30	60	120	180	360	720	1440
					1hr	2hr	3hr	6hr	12hr	24hr
	<i>Design Storm depth in inches</i>									
20	.19	.27	.34	.50	.73	1.06	1.33	1.95	2.85	4.17
22	.20	.29	.36	.53	.78	1.14	1.43	2.09	3.06	4.48
24	.21	.31	.39	.57	.83	1.22	1.52	2.23	3.27	4.78
26	.23	.33	.41	.60	.89	1.30	1.62	2.37	3.47	5.09
28	.24	.35	.44	.64	.94	1.37	1.72	2.51	3.68	5.39
30	.25	.37	.46	.68	.99	1.45	1.81	2.66	3.89	5.69
32	.27	.39	.49	.71	1.04	1.53	1.91	2.80	4.10	6.00
34	.28	.41	.51	.75	1.10	1.61	2.01	2.94	4.30	6.30
36	.29	.43	.54	.79	1.15	1.68	2.10	3.08	4.51	6.60
38	.31	.45	.56	.82	1.20	1.76	2.20	3.22	4.72	6.91
40	.32	.47	.59	.86	1.26	1.84	2.30	3.36	4.93	7.21
42	.33	.49	.61	.89	1.31	1.92	2.39	3.51	5.13	7.51
44	.35	.51	.64	.93	1.36	1.99	2.49	3.65	5.34	7.82
46	.36	.53	.66	.97	1.41	2.07	2.59	3.79	5.55	8.12
48	.37	.55	.68	1.00	1.47	2.15	2.68	3.93	5.76	8.43
50	.39	.57	.71	1.04	1.52	2.23	2.78	4.07	5.96	8.73
52	.40	.59	.73	1.07	1.57	2.30	2.88	4.21	6.17	9.03
54	.41	.61	.76	1.11	1.63	2.38	2.98	4.36	6.38	9.34
56	.43	.63	.78	1.15	1.68	2.46	3.07	4.50	6.58	9.64
58	.44	.65	.81	1.18	1.73	2.54	3.17	4.64	6.79	9.94
60	.45	.67	.83	1.22	1.78	2.61	3.27	4.78	7.00	10.25
62	.47	.69	.86	1.25	1.84	2.69	3.36	4.92	7.21	10.55
64	.48	.71	.88	1.29	1.89	2.77	3.46	5.06	7.41	10.86
66	.50	.73	.91	1.33	1.94	2.84	3.56	5.21	7.62	11.16
68	.51	.75	.93	1.36	2.00	2.92	3.65	5.35	7.83	11.46
70	.52	.76	.96	1.40	2.05	3.00	3.75	5.49	8.04	11.77
72	.54	.78	.98	1.44	2.10	3.08	3.85	5.63	8.24	12.07
74	.55	.80	1.01	1.47	2.15	3.15	3.94	5.77	8.45	12.37
76	.56	.82	1.03	1.51	2.21	3.23	4.04	5.91	8.66	12.68
78	.58	.84	1.05	1.54	2.26	3.31	4.14	6.06	8.87	12.98
80	.59	.86	1.08	1.58	2.31	3.39	4.23	6.20	9.07	13.28



COUNTY OF NEVADA DEPARTMENT OF TRANSPORTATION	
DRAINAGE DETAIL 100 YEAR STORM DURATION IN MINUTES FOR NEVADA COUNTY	
Approved by: <i>John W. Rumsey</i>	5-11-95
Senior Civil engineer	Date
STANDARD DRAWING D-14	

TABLE FOR ESTIMATING "C" IN RATIONAL FORMULA UNIMPROVED AREAS

CONDITION	EXTREME	HIGH	MODERATE	LOW
Slope	.36 - .28 Above 30%	.28 - .15 30% - 10%	.15 - .10 10% - 5%	.10 - .05 5% - 0
Surface permeability	.20 - .15 Bare rock or very thin soil	.15 - .07 Impervious clays shallow soils	.07 - .04 Deep pervious loam, sandy loam	.03 Deep sand, volcanic ash
Vegetation	.20 - .15 None or very sparse	.15 - .07 Less than 20% covered with substantial growth	.07 - .04 About 50% covered with heavy growth	.03 90% covered with heavy growth, deep hummus layer
Surface	.20 - .15 Smooth soil, slick rock drainage flow continuous	.15 - .07 Roughened soil or rocks	.07 - .04 Drainage flow interrupted many ponds, lakes & marshes	.03 Drainage flow arrested many ponds, lakes & marshes

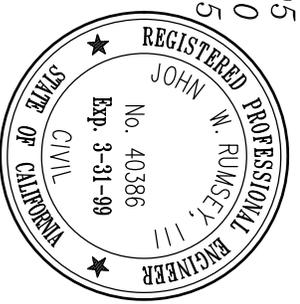
IMPROVED AREAS

<u>Surface</u>	C
Rooft surfaces	.95
A.C. or P.C.C. pavement, patios, driveways, streets, sidewalks.....	.90
Landscaped areas.....	.25
Gravel walks, roadways.....	.30

<u>EXAMPLE: Unimproved</u>	<u>EXAMPLE: Improved</u>
20% slope.....	100 acre tract
Well drained soil.....	15 ac..... @.95
Fair cover.....	50 ac. A.C.pave..... @.90
No ponds.....	35 ac. landscaped... @.25
C = .42	

$$C = (15 \times .95) + (50 \times .90) + (35 \times .25) = 0.68 \quad C = 0.68$$

100 acres



COUNTY OF NEVADA
DEPARTMENT OF TRANSPORTATION
DRAINAGE DETAILS

VALUES FOR ESTIMATING COEFFICIENT OF RUNOFF "C"

Approved by: John W. Rumsey 5-11-95
Senior Civil Engineer Date

STANDARD DRAWING
D-15

LAND USE DESCRIPTION	HYDROLOGIC SOIL GROUP			
	A	B	C	D
Cultivated land: ^① without conservation treatment	72	81	88	91
with conservation treatment	62	71	78	81
Pasture or range land: poor condition	68	79	86	89
good condition	39	61	74	80
Meadow: good condition	30	58	71	78
Wood or Forest land: thin stand, poor cover, no mulch	45	66	77	83
good cover ^②	25	55	70	77
Open spaces, lawns, parks, golf courses, cemeteries, etc.				
good condition: grass cover on 75% or more of the area	39	61	74	80
fair condition: grass cover on 50% to 75% of the area	49	69	79	84
Commercial and business areas (85% impervious)	89	92	94	95
Industrial districts (72% impervious)	81	88	91	93
Residential: ^③				
Average lot size				
1/8 acre or less				
Average % Impervious ^④				
65	77	85	90	92
1/4 acre	61	75	83	87
1/3 acre	57	72	81	86
1/2 acre	54	70	80	85
1 acre	51	68	79	84
Paved parking lots, roofs, driveways, etc.	98	98	98	98
Streets and roads:				
paved with curbs and storm sewers	98	98	98	98
gravel	76	85	89	91
dirt	72	82	87	89

① For a more detailed description of agricultural land use curve numbers refer to National Engineering Handbook, Section 4, Hydrology, Chapter 9, August 1972.

② Good cover is protected from grazing and litter and brush cover soil.

③ Curve numbers are computed assuming the runoff from the house and driveway is directed towards the street with a minimum of roof water directed to lawns where additional infiltration could occur.

④ The remaining pervious areas (lawn) are considered to be in good pasture condition for these curve numbers.



COUNTY OF NEVADA DEPARTMENT OF TRANSPORTATION	
<h2>RUNOFF CURVE NUMBERS</h2>	
Approved by: <i>John W. Rumsey</i>	5-11-95 Date
Senior Civil Engineer	STANDARD DRAWING D-16

