

Appendix D - Road Reconstruction

Blue Dot Integrated Resource Stewardship Contract (IRSC)

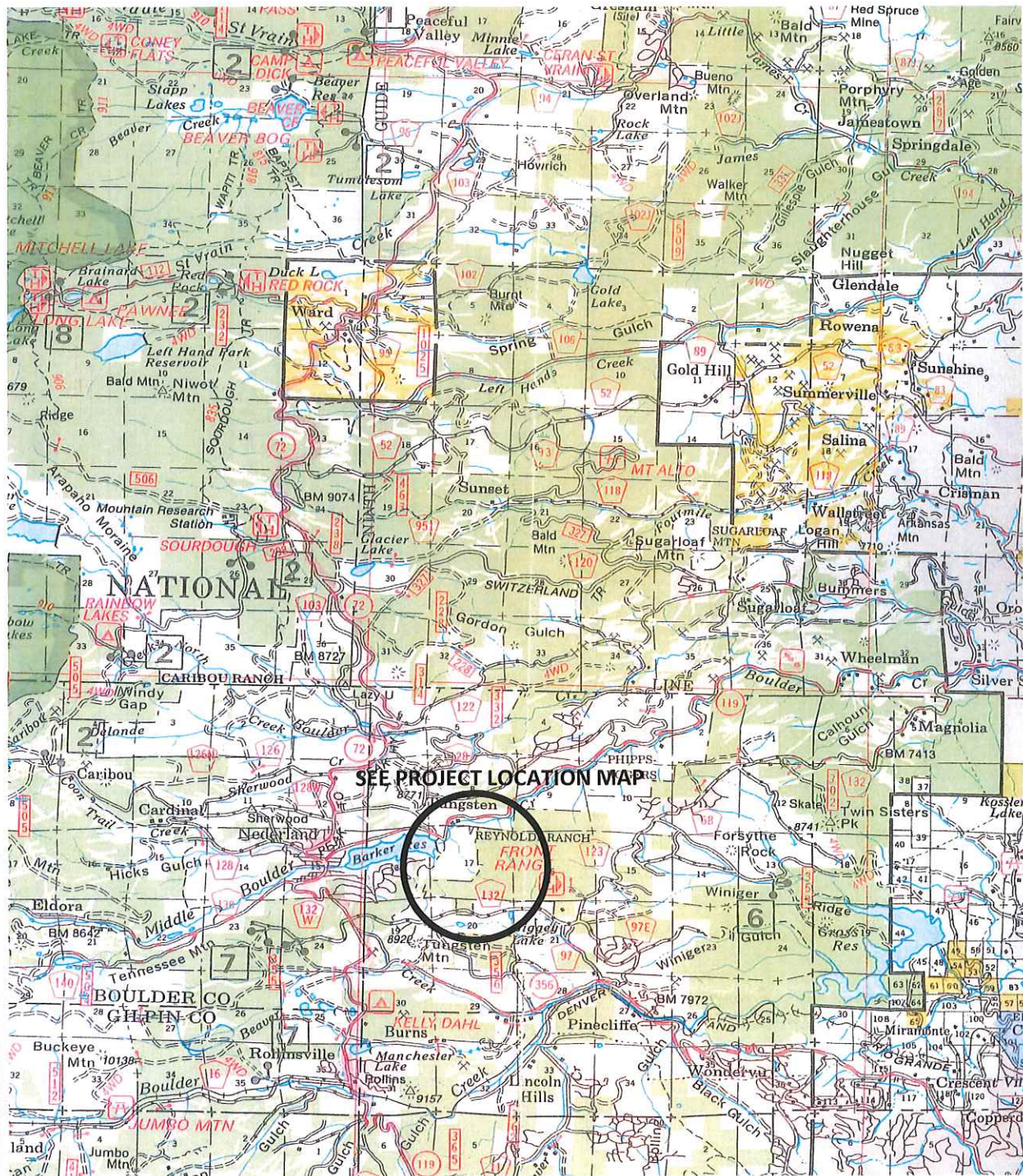
Arapaho and Roosevelt National Forest

Boulder Ranger District

U.S. Department of Agriculture

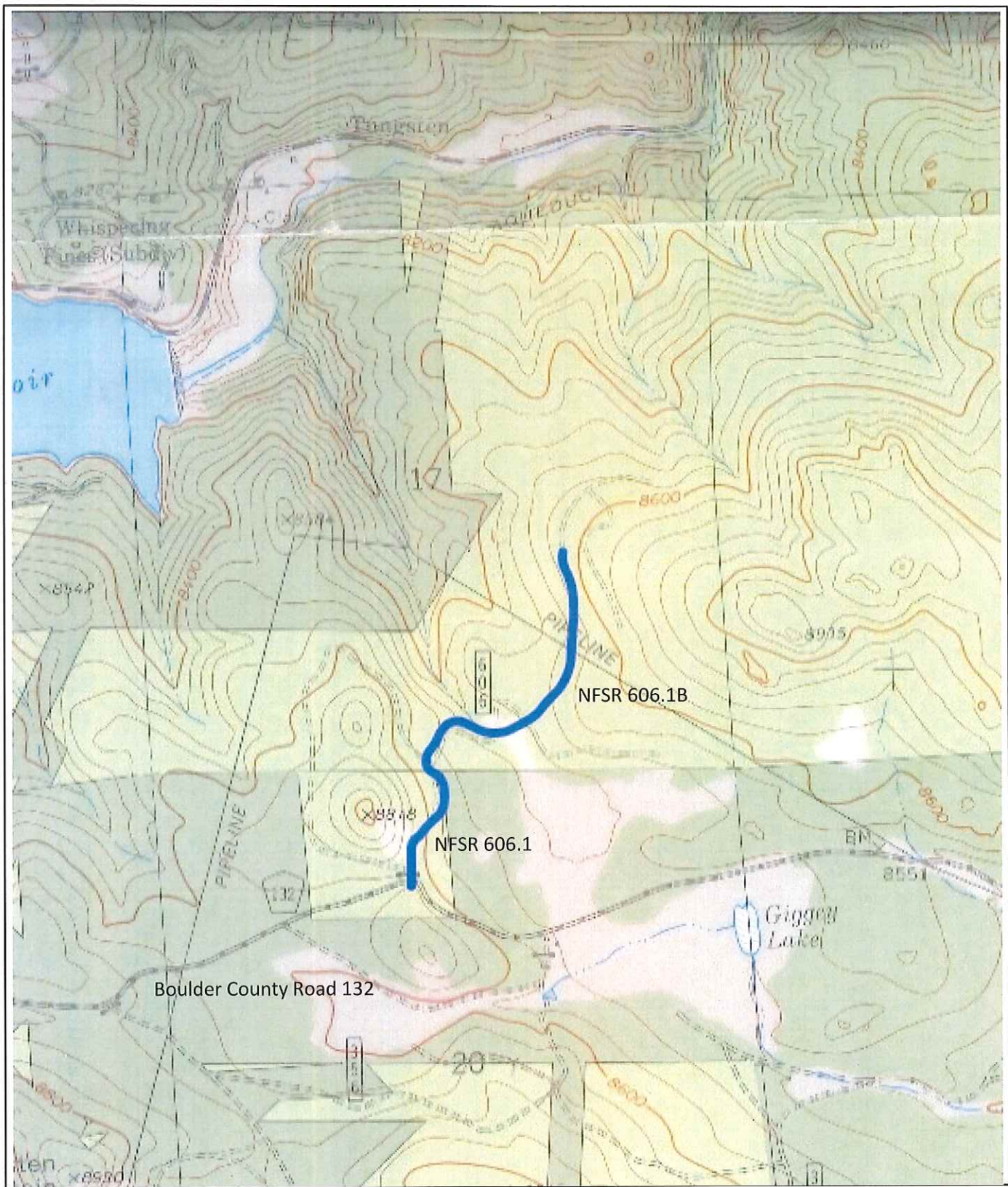
Forest Service

Rocky Mountain Region (Region Two)



FOREST LOCATION MAP

100-4



PROJECT LOCATION MAP
100-5

ESTIMATE OF QUANTITIES

ITEM	DESCRIPTION	MEAS.	UNIT	QUANTITY
151(01)	Mobilization	A.Q.	L.S.	1
203(01)	Removal of Gate, 16 Feet Metal	C.Q.	Each	1
203(02)	Removal of Fence, Type Barb Wire	C.Q.	L.F.	50
204(20)C	Roadway Drainage Excavation, Type Construct Rolling Dip	C.Q.	Each	12
204(20)R	Roadway Drainage Excavation, Type Reconstruct Rolling Dip	C.Q.	Each	5
204(20)G	Roadway Drainage Excavation, Type Grade/Sag Dip	C.Q.	Each	1
230(01)B	Roadside Brushing, Both Sides Moderate Vegetation	C.Q.	Mile	0.50
303(01)	Roadway Reconditioning	C.Q.	Mile	0.86
619(01)	Fence, Barbed Wire, 4 Strand	C.Q.	L.F.	50
619(02)16	Gate, Metal, 16 Foot Width	C.Q.	Each	1
619(20)	Remove and Reset Gate, Type Metal Pedestrian	C.Q.	Each	1

Construction Signs for Forest System Roads

1. All work shall be done in accordance with the Standard Specifications applicable to the Project and the "Manual on Uniform Traffic Control Devices for all Classes of Streets and Highways" (MUTCD) published by the U.S. Department of Transportation, Federal Highway Administration.
2. Contractor shall submit a Temporary Traffic Control (TTC) plan for review by the Engineer. Work on the Project shall not be started until all required signs are in place as agreed upon by the Engineer and the Contractor.
3. 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 (including connecting roads) with well-maintained signs. Signs shall be moved, added to, changed or removed as required during the progress of construction and removed entirely when the Project is completed.
4. All signs shall be placed for best visibility and legibility, maintained in good condition and kept clean and free of dirt at all times. Contractor's vehicles and equipment must be parked so that signs and barricades are visible to approaching traffic at all times.
5. When it is known that signs will be needed at one location for long periods of time (ie. 3 to 4 weeks), a permanent sign support should be considered. The following factors, in addition to time periods, should be considered in making the decision of a permanent or temporary sign support: amount of logging traffic, vehicle speeds, motorized mixed use, sight distance, road conditions, road width, average daily traffic and local special events that could increase traffic volume.
All sign supports must be crashworthy as outlined in Part 6 of the MUTCD.
6. Information specific to the Sample Temporary Traffic Control Devices shown on Drawing 156-02:
 - The ROAD WORK, XX FEET, XX MILES, or AHEAD (W20-1) sign, which serves as a general warning of obstructions or restrictions, should be located in advance of the work space or any detour, on the road where the work is taking place. Where traffic can enter a TTC zone from a crossroad or a major (high-volume) driveway, an advance warning sign should be used on the crossroad or major driveway.
 - The ROAD MACHINERY AHEAD (W21-3) sign may be used to warn of machinery operating in or adjacent to the roadway.
 - The TRUCK CROSSING (W8-6) sign may be used to alert road users to locations where unexpected travel on the roadway or entries into or departures from the roadway by construction vehicles might occur. These locations might be relatively confined or might occur randomly over a segment of roadway.
 - The HEAVY TRUCK TRAFFIC (FW11-10d) Sign may be used to alert road users to locations where unexpected heavy truck traffic occurs in or adjacent to the roadway.
 - The END ROAD WORK Sign (G20-2) should be placed near the downstream end of the termination area, as determined by engineering judgment. The END ROAD WORK sign may be installed on the back of a warning sign facing the opposite direction of road users or on the back of a Type 3 Barricade.
 - The ROAD CLOSED Sign (R11-2) should be installed where roads have been closed to all traffic (except authorized vehicles). The Road Closed sign shall be designed as horizontal rectangles. These signs shall be preceded by the applicable Advance Road Closed warning sign with the secondary legend AHEAD. ROAD CLOSED, XX FEET, XX MILES, or AHEAD (W20-3).
7. Reflective sheeting shall meet the retroreflectivity requirements in Part 2 of the MUTCD.

Sample Temporary Traffic Control Devices



W20-1
(36" x 36")
(black on orange)



W21-3
(30" x 30")
(black on orange)



W8-6
(30" x 30")
(black on orange)



FW11-10d
(30" x 30")
(black on orange)



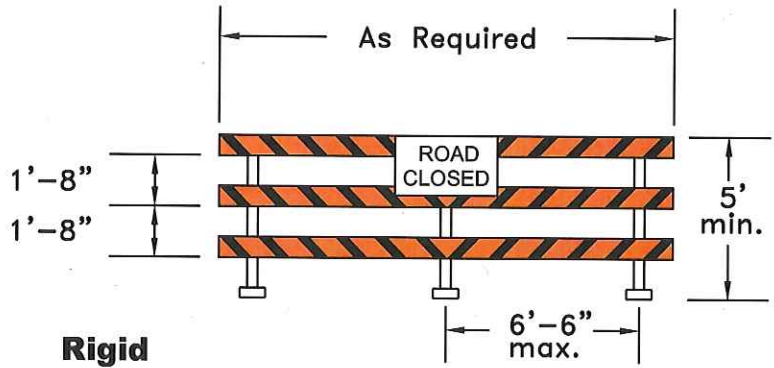
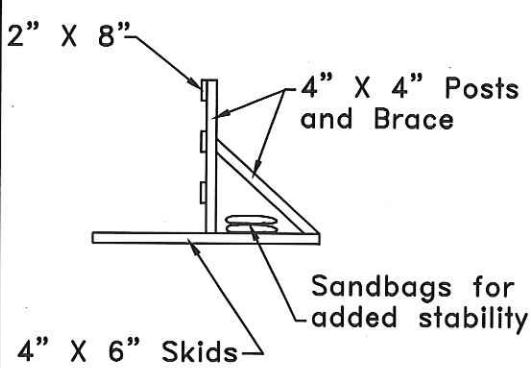
G20-2
(36" x 18")
(black on orange)



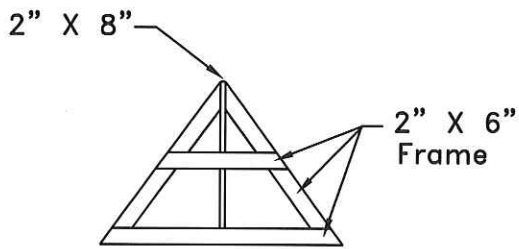
R11-2
(48" x 30")
(black on white)

Note:
Other Temporary Traffic Control Devices are available as shown in Part 5 and 6 of the MUTCD.

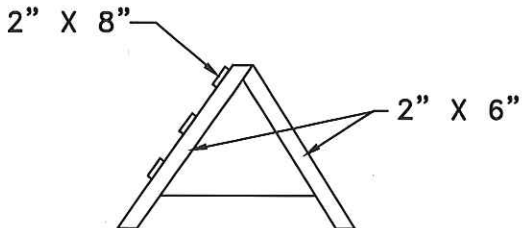
Type III Movable Barricades



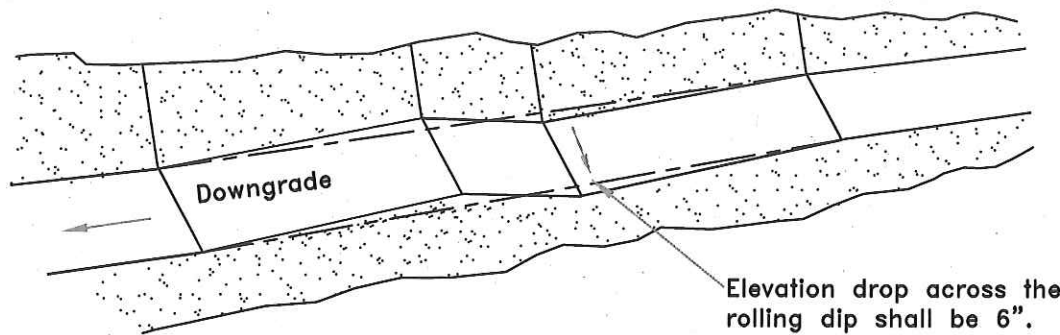
Rigid



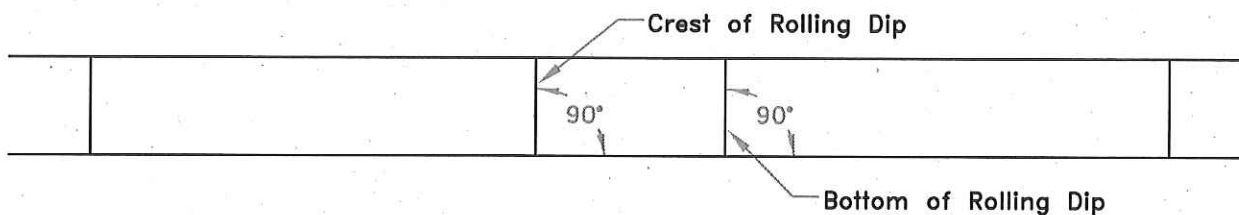
Demountable



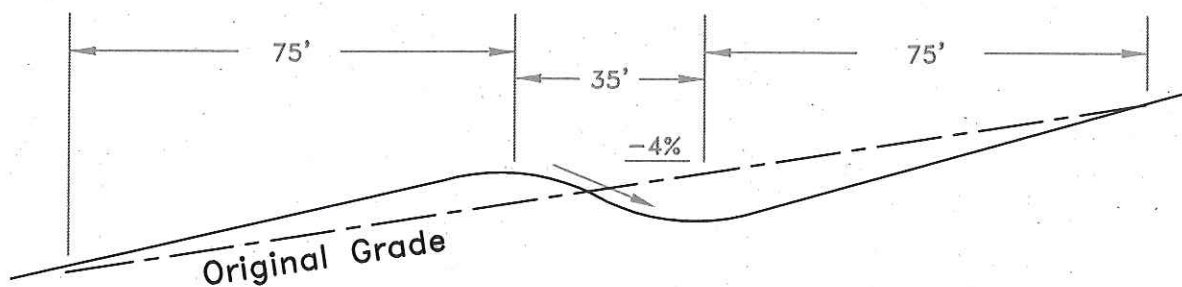
Hinged



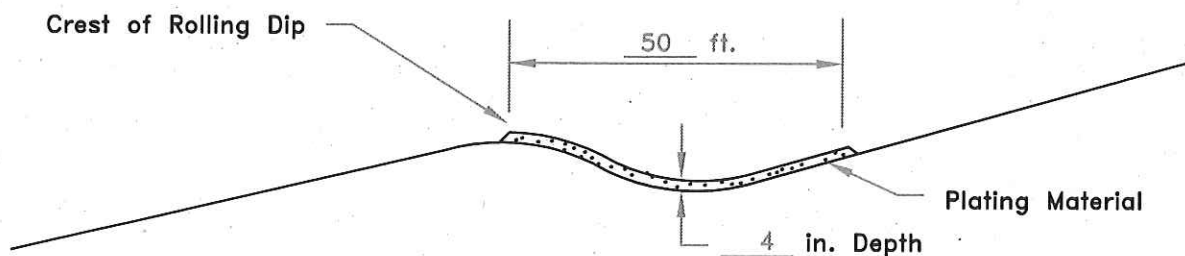
PERSPECTIVE VIEW



PLAN VIEW

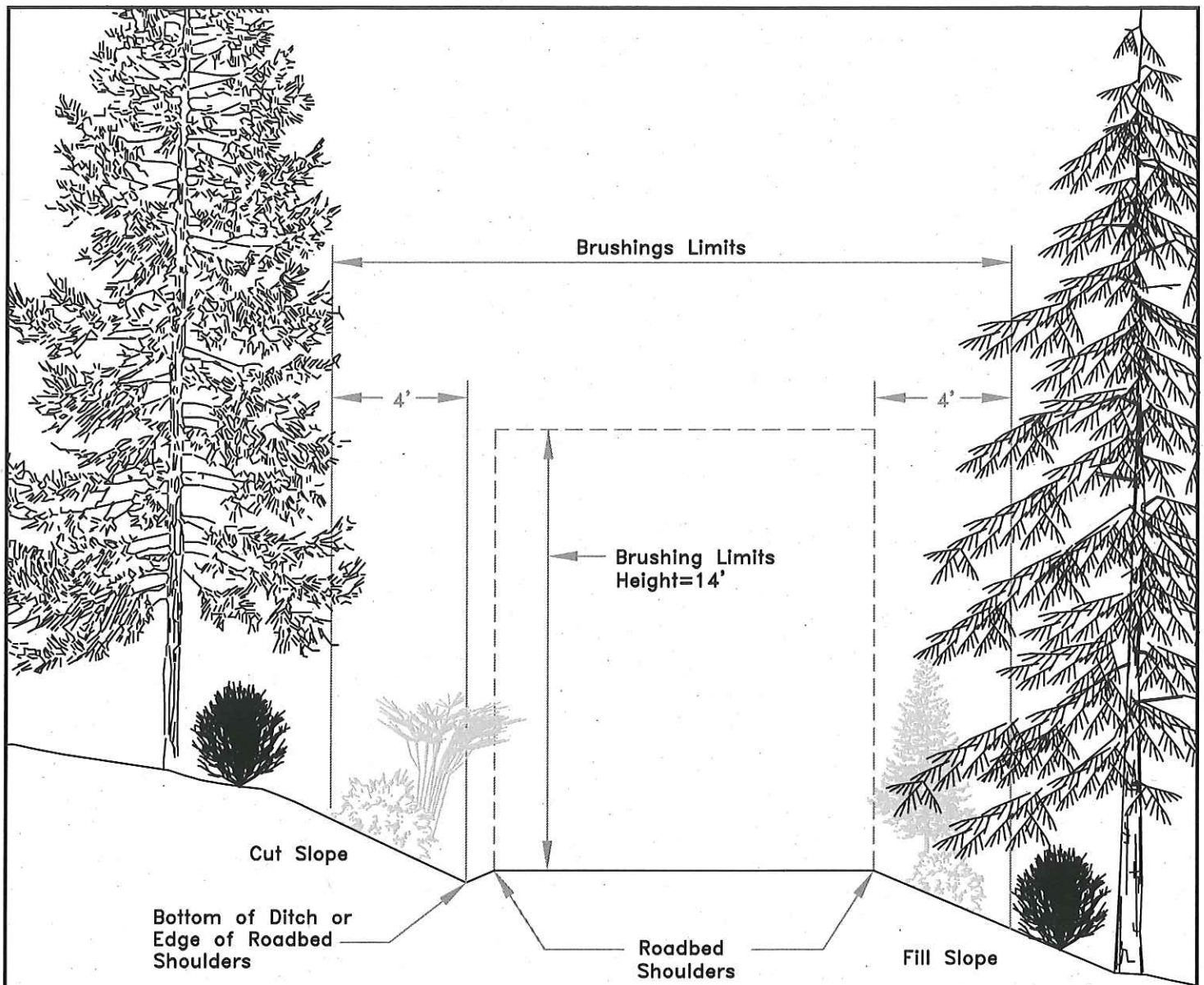


PROFILE ROLLING DIP

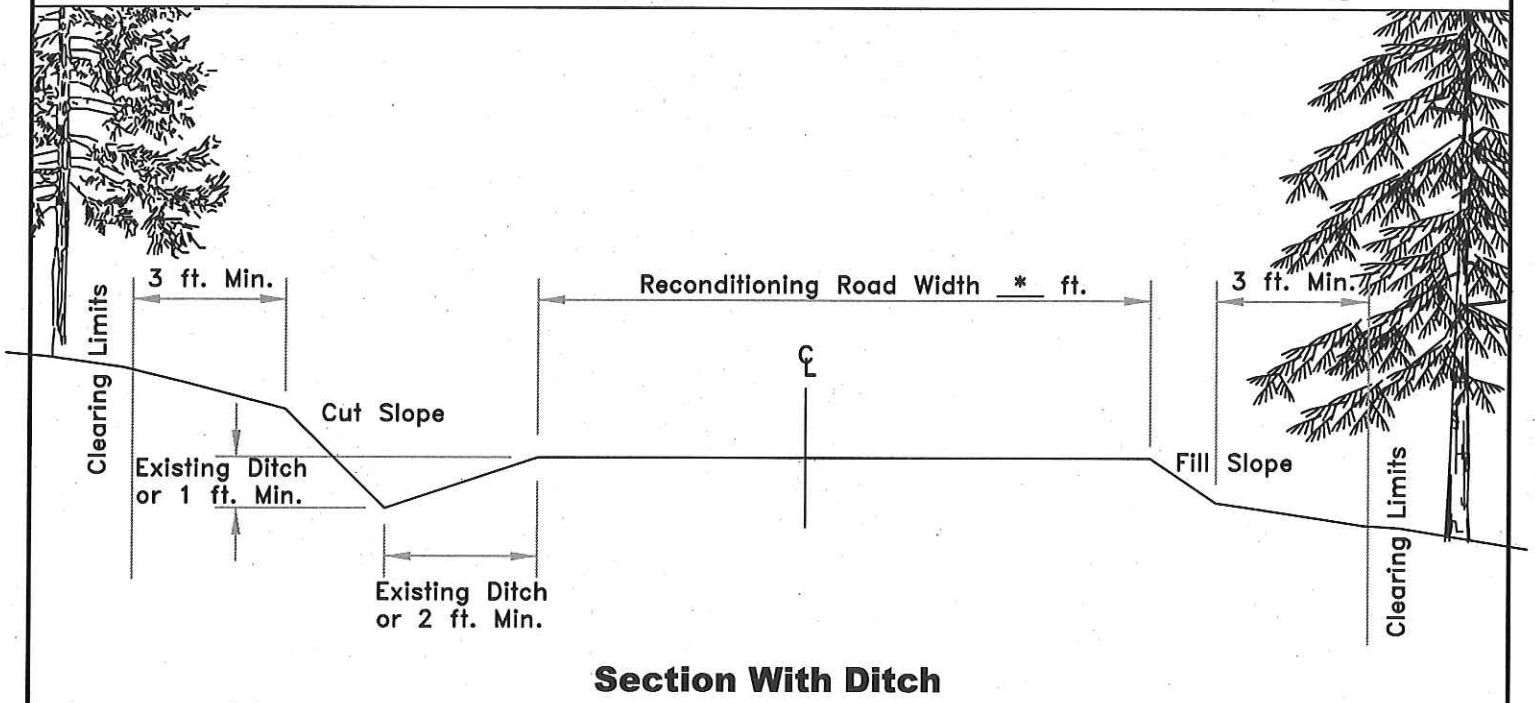
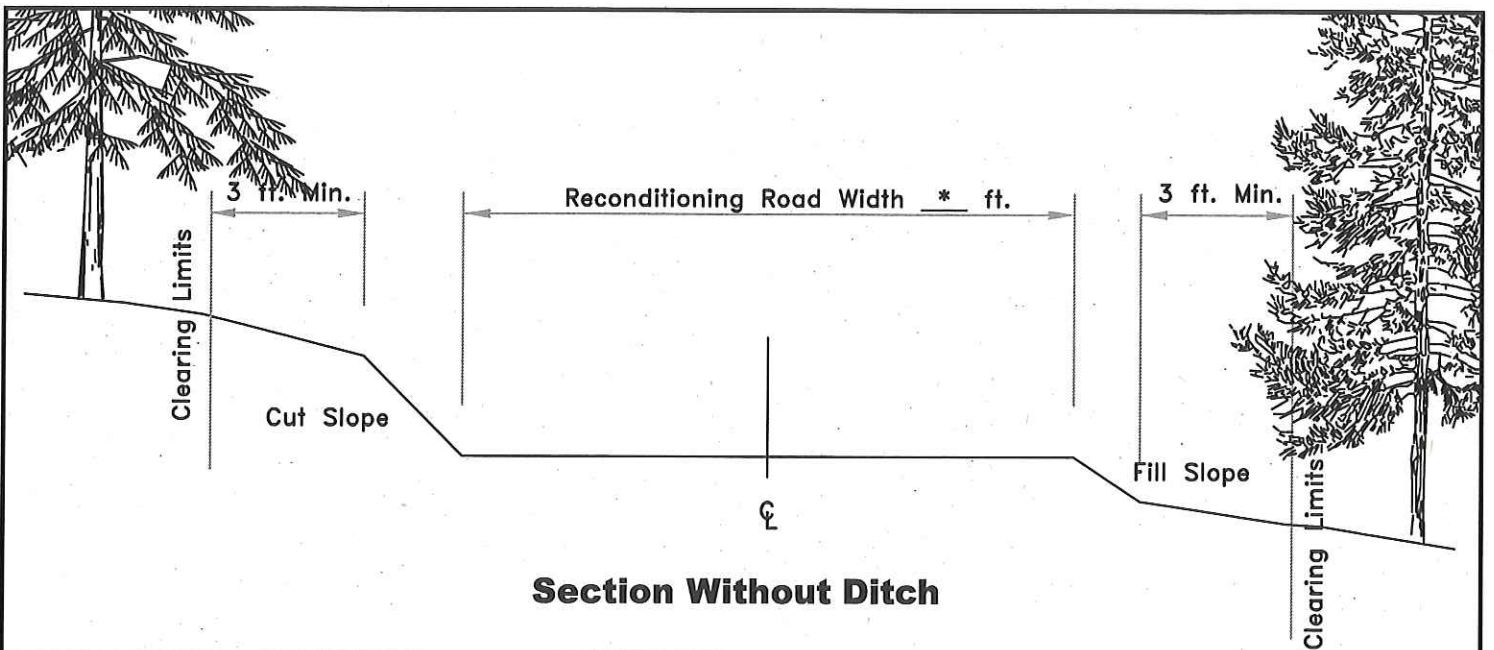


PROFILE ROLLING DIP WITH PLATING

1. When rolling dips are constructed in ditch sections the ditch shall drain across the rolling dip. Resume ditch construction 25' downgrade from the crest of the rolling dip.
2. Outlet drain ditches shall have cut slopes equal to or flatter than H1.5:V1. Excavation from outlet ditching shall be wasted along the sides of the ditch. All necessary clearing will be treated in with applicable specifications.
3. Tolerance class through the rolling dip shall be Class D (Table 204-2).
4. Plating material, when called for, shall meet the requirements of Section 302.



1. Cut all brush and trees (6 inches diameter, or less, at the point of cut) inside the brushing limits and outside the roadbed no higher than 4 inches above ground level (6 inches for machine brushing). If rocks or other obstructions are encountered, cut no higher than 6 inches above the obstruction. Limb live trees with a diameter larger than 6 inches to a height of 14 feet above the road surface.
2. Slash Treatment (203.05): Brush and Small Trees: Method F (Scattering) and G (Chipping)
Windfall: Method F (Scattering) and G (Chipping)



NOTE: *Existing roadwidth

Required reconditioning includes necessary widening for fill, sluff, curves and turnouts.

Scarification: Surface irregularities greater than 2 in.

Rock Disposal: Cast/Scattering over fill slope.

Roadside Brushing: Per Section 230 if required.

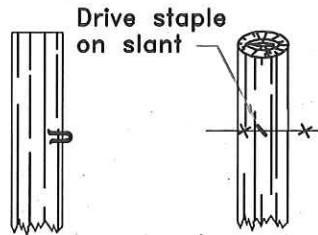
Excess and Unsuitable Material: . . Dispose of as approved by the CO.

Intersecting Roads: Blade for 50 ft. each direction.



When splicing wire, form a loop, then wrap over itself a minimum of five times.

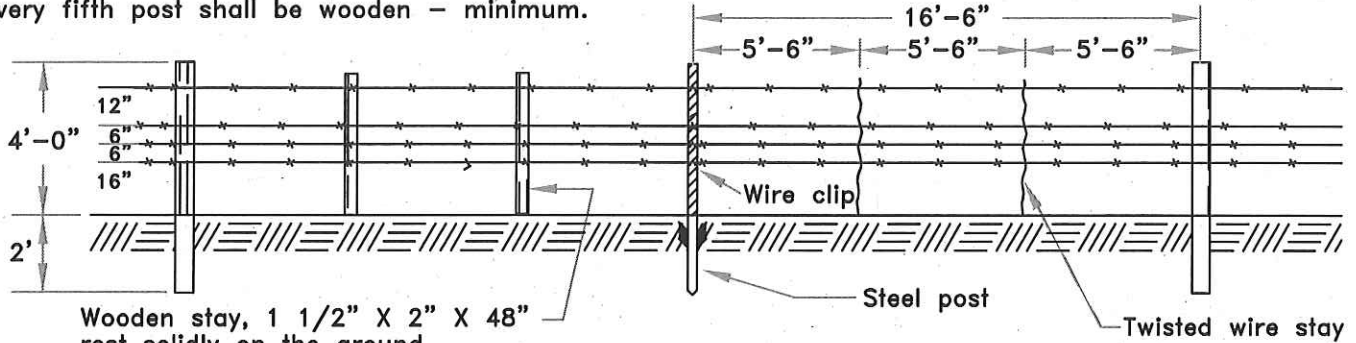
Splicing Detail



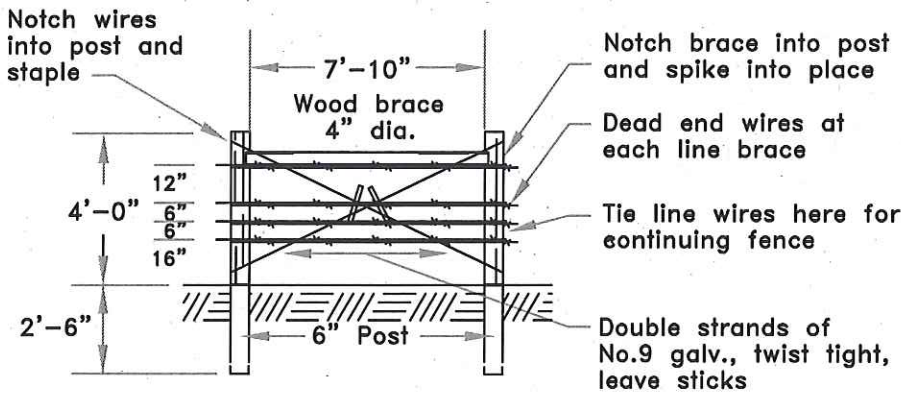
Do not crimp wire with staple

Construction Detail

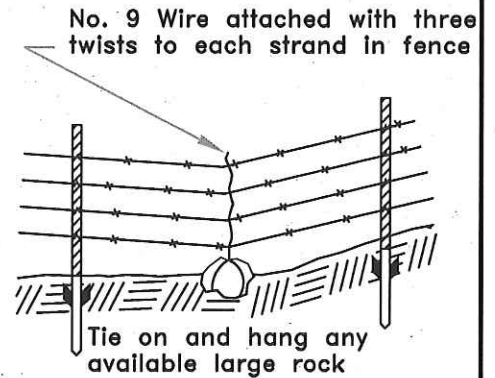
Every fifth post shall be wooden - minimum.



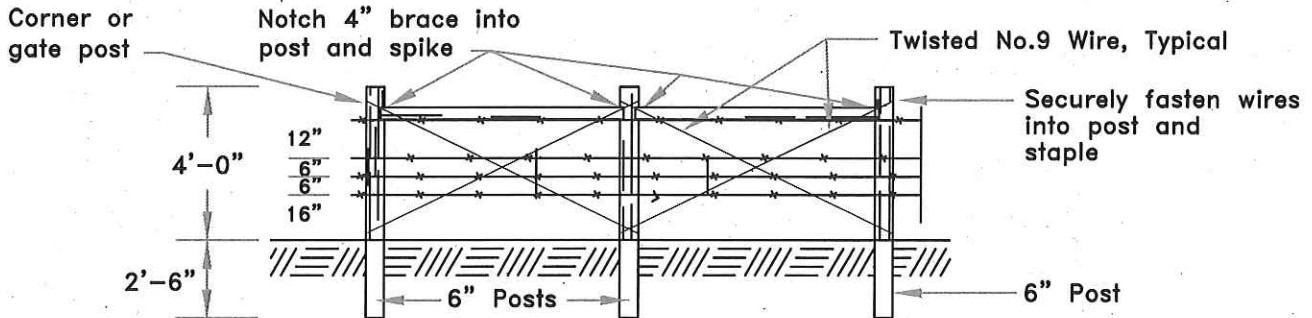
Line Fence Detail



Line Brace

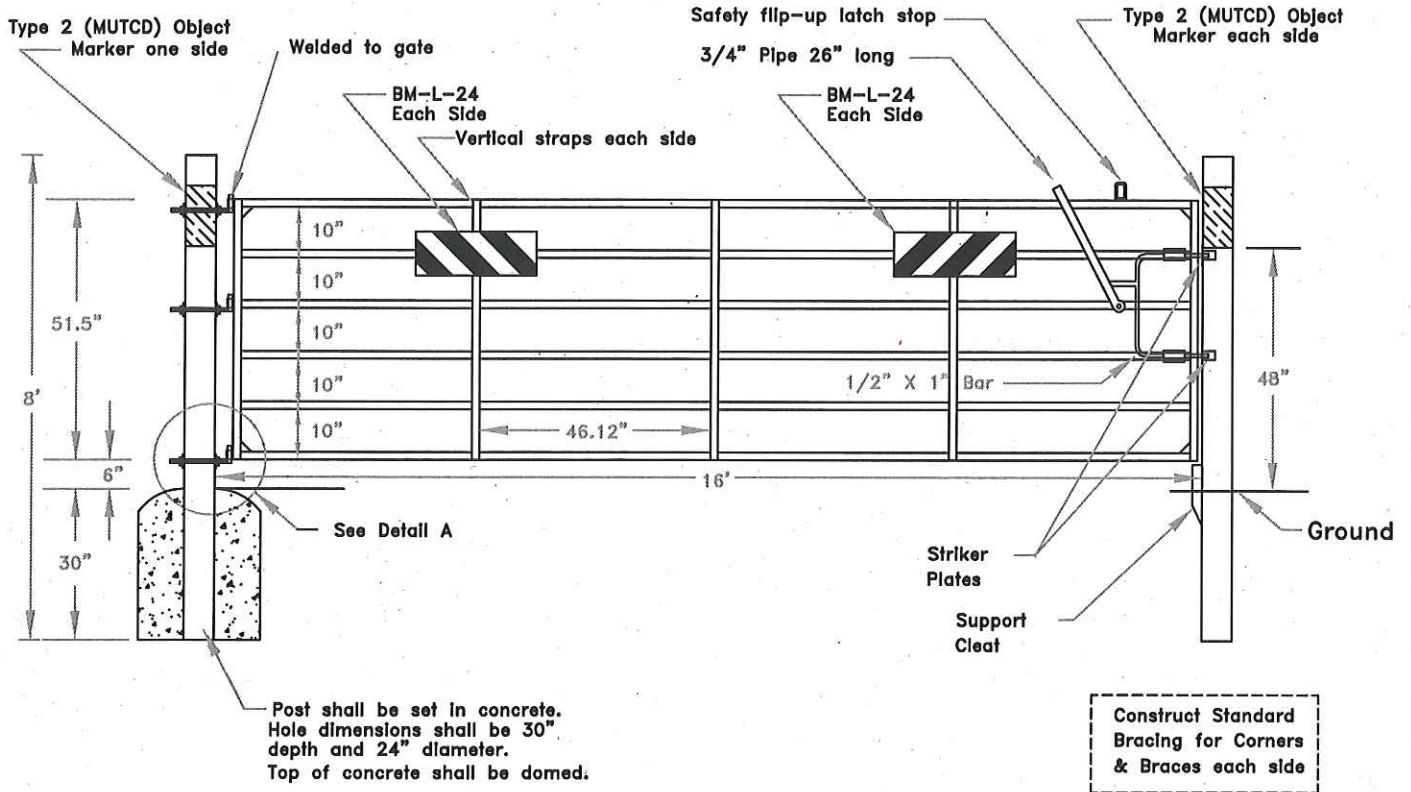


Sag Bracing

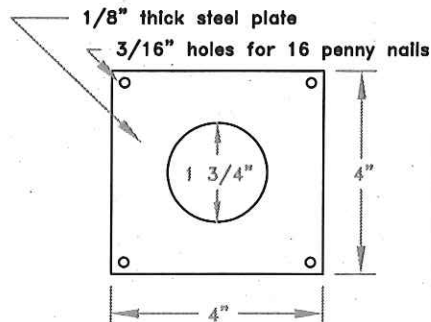


Bracing for Corners

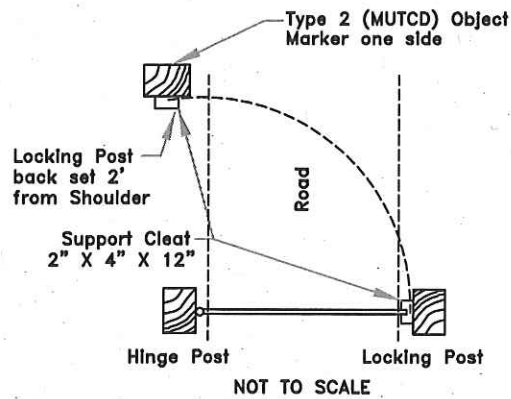
1. When tying into existing fence, use same number and spacing of wires as existing.
2. Materials for fence shall conform to Section 710.
3. Wood posts shall be treated in conformance with AASHTO M 133, Copper Naphthenate 0.075 lb/ft³.
4. Spacing for three wire fence, starting at the bottom, shall be 16", 10" and 12".



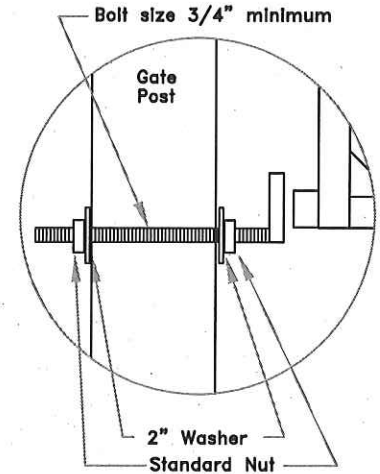
Typical 16'-0" Gate



Striker Plates



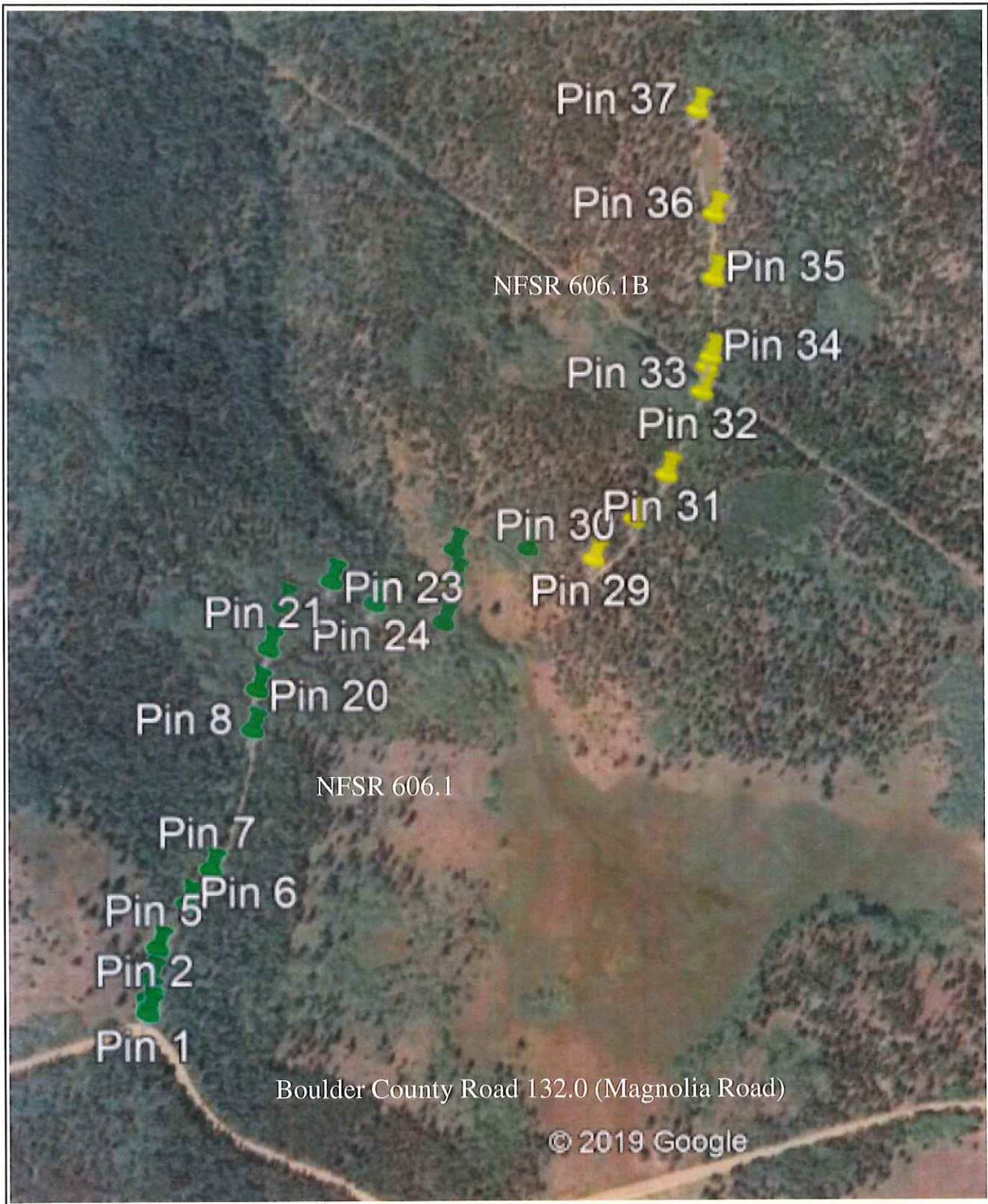
Plan View



Detail A

1. Gates shall be constructed of 14 gauge 1/2" square steel tubing. All gates shall have 12 gauge vertical straps as shown on the drawing. A 16' gate will have three straps front and back.
2. Painting shall conform to Section 708 and 563. Color shall be approved by the CO.
3. Gate shall have a level latch with 12" X 1" double pin slide with a safety flip-up latch stop.
4. Wood posts shall be treated in conformance with AASHTO M 133, Copper Naphthenate 0.075 lb./ft³ in accordance with UC4B.
5. Minimum wood gate posts shall be 6" X 8" rectangular.
6. Bagged concrete meeting the requirements of ASTM C 387 may be used and mixed on site in accordance with manufacturer's recommendations.
7. Variations by different manufacturers shall be approved in writing by the CO.

- 1 Removed items shall be disposed off National Forest lands and to an approved landfill or recycled.
- 2 Clearing limits for grubbing and roadside brushing shown on the drawings are the minimum. Wider limits maybe required depending on cross slope.
- 3 The final location of rolling dips, grade sags, sediment basins, culverts, and turnouts will be approved by the Engineer.
- 4 Final location of disposal pits and log deck areas from road clearing and grubbing operations shall be approved and flagged by the Engineer.
- 5 Topsoil from disposal pits shall be conserved and shall be spread evenly over the disposal pit for the final surface. Excess material from disposal pits shall be used in roadway reconstruction.
- 6 Slope rounding shall be sufficient to eliminate any overhang or vertical cut at the top of the cut bank.
- 7 Boulders too large to be incorporated into the embankment shall be randomly scattered outside the clearing limits or placed as specified by the engineer.
- 8 All drainage structures, including ditches, culverts, rolling dips, and grade sags shall be constructed to drain.
- 9 If unmerchantable timber is decked, it shall be decked separately from merchantable timber.
- 10 Road reconditioning includes roadway ditches, intersection construction, turnouts and turnarounds. Roadway drainage excavation shall include rolling dips grade/sag dips, and any related leadoff ditching
- 11 Reconditioning of roads includes cleaning all ditches, culverts, and catchbasins. Culverts shall be cleaned for a distance of five feet (5') from both the inlet and the outlet.
- 12 Metal closure gate shall be installed at the location designated by the Engineer. Contractor shall be responsible for all hardware, posts, object markers, warning signs, and miscellaneous materials incidental to the installation of the metal gate.
- 13 Existing metal pedestrain gate shall be installed at the location designated by the Engineer. Contractor shall be responsible for all hardware, posts, object markers, warning signs, and miscellaneous materials incidental to the resetting of the metal pedestrian gate.



DESCRIPTION OF WORK
ROAD LOCATION MAP #1 - SURVEY PINS
NFSR 606.1 and 606.1B

MILE POST	SPEC.	FEATURE	UNITS (Feet)	UNITS (Mile)	UNITS (Each)	UNITS (Acre)	UNITS (C.Y.)	UNITS (S.Y.)	DESCRIPTION OF WORK
BOP = Beginning of Project CMP = Corrugated Metal Pipe CY = Cubic Yards EOP = End of Project S/B = Sediment Basin TO = Turnout R/D = Rolling Dip CW = Curve Widening W/D = Water Deflector CCY = Compacted Cubic Yards G/S = Grade Sag DECOM=Decommission/Obliteration									
									NFSR 606.1
Pin 1	303(01)	BOP		0.51					Intersection with Boulder County Road 132 (Magnolia Road). Begin roadway reconditioning NFSR 606.1 to End of Project.
Pin 2	203(01)				1				Remove existing 16 foot closure gate and adjacent barb wire fencing.
	203(02)		50						
	619(01)		50						Install new 16 foot closure gate (Government Furnished Gate). Install new barbed wire fence.
	619(02)16				1				
	619(20)				1				Re-install/reset existing pedestrian gate.
Pin 3									Intersection NFSR 606.1A left
Pin 4	204(20)C	R/D							Construct new rolling dip
Pin 5	204(20)C	R/D							Construct new rolling dip
Pin 6	204(20)C	R/D							Construct new rolling dip
Pin 7	204(20)C	R/D							Construct new rolling dip
Pin 8	204(20)C	R/D							Construct new rolling dip
Pin 20	230(01)B	R/D		0.50					Intersection NFSR 606.1A. Begin roadside brushing (moderate) to End of Project.
Pin 21	204(20)R	R/D							Reconstruct existing rolling dip
Pin 22	204(20)R	R/D							Reconstruct existing rolling dip
Pin 23	204(20)R	R/D							Reconstruct existing rolling dip
Pin 24	204(20)R	R/D							Reconstruct existing rolling dip
Pin 25	204(20)G	G/S							Construct sag/grade dip
Pin 26									Road centerline
Pin 27	204(20)C	R/D							Construct new rolling dip

