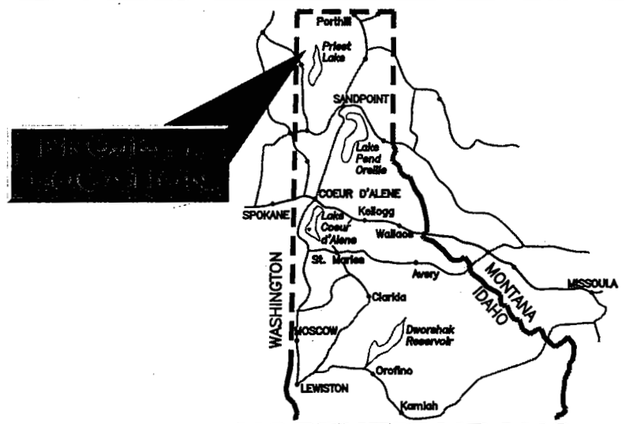
U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE, REGION 1

DRAWINGS FOR PROPOSED FOREST DEVELOPMENT ROADS

LAKEVIEW TIMBER SALE

FOREST ROADS

IDAHO PANHANDLE NATIONAL FORESTS
PRIEST LAKE RANGER DISTRICT
BONNER COUNTY, IDAHO



NORTHERN IDAHO
LOCATION MAP

CALL BEFORE YOU DIG
811 OR 1-800-626-4950

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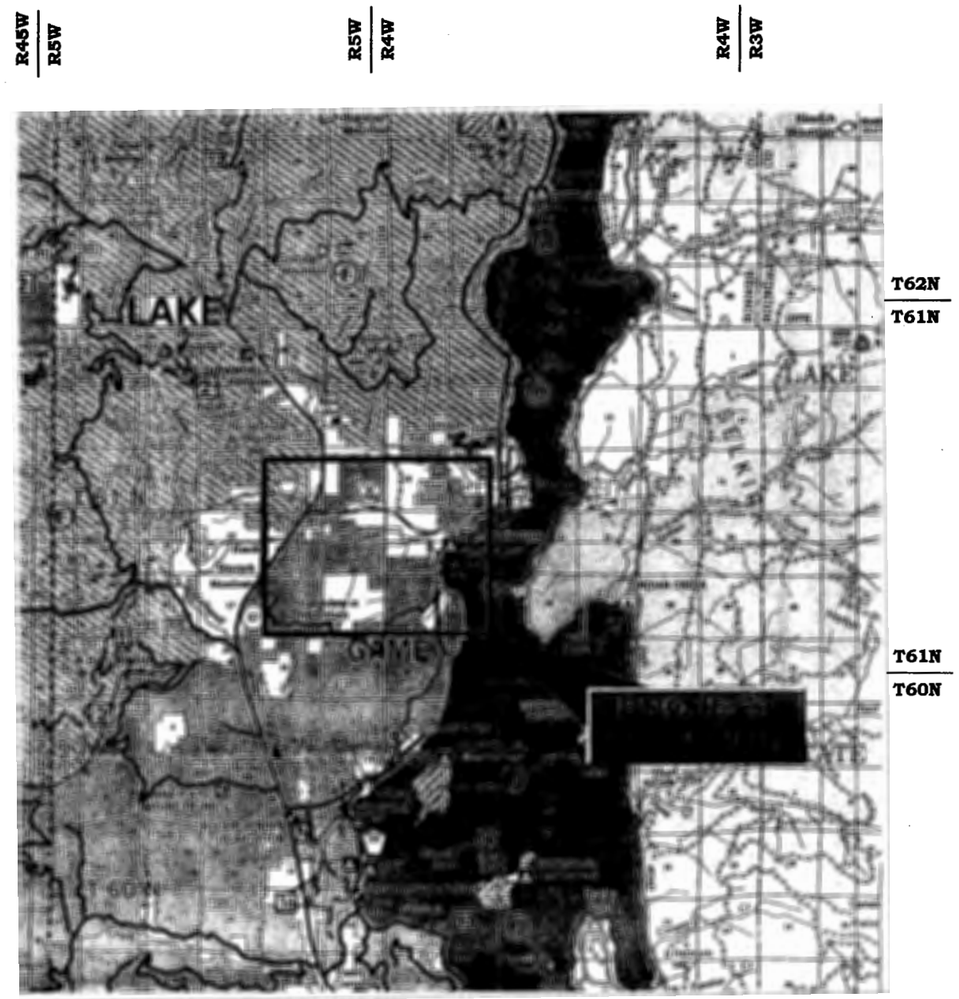
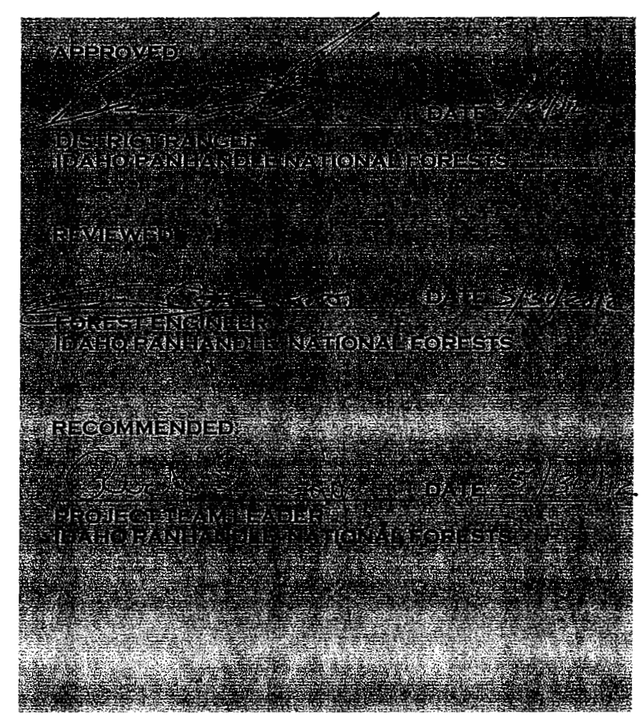
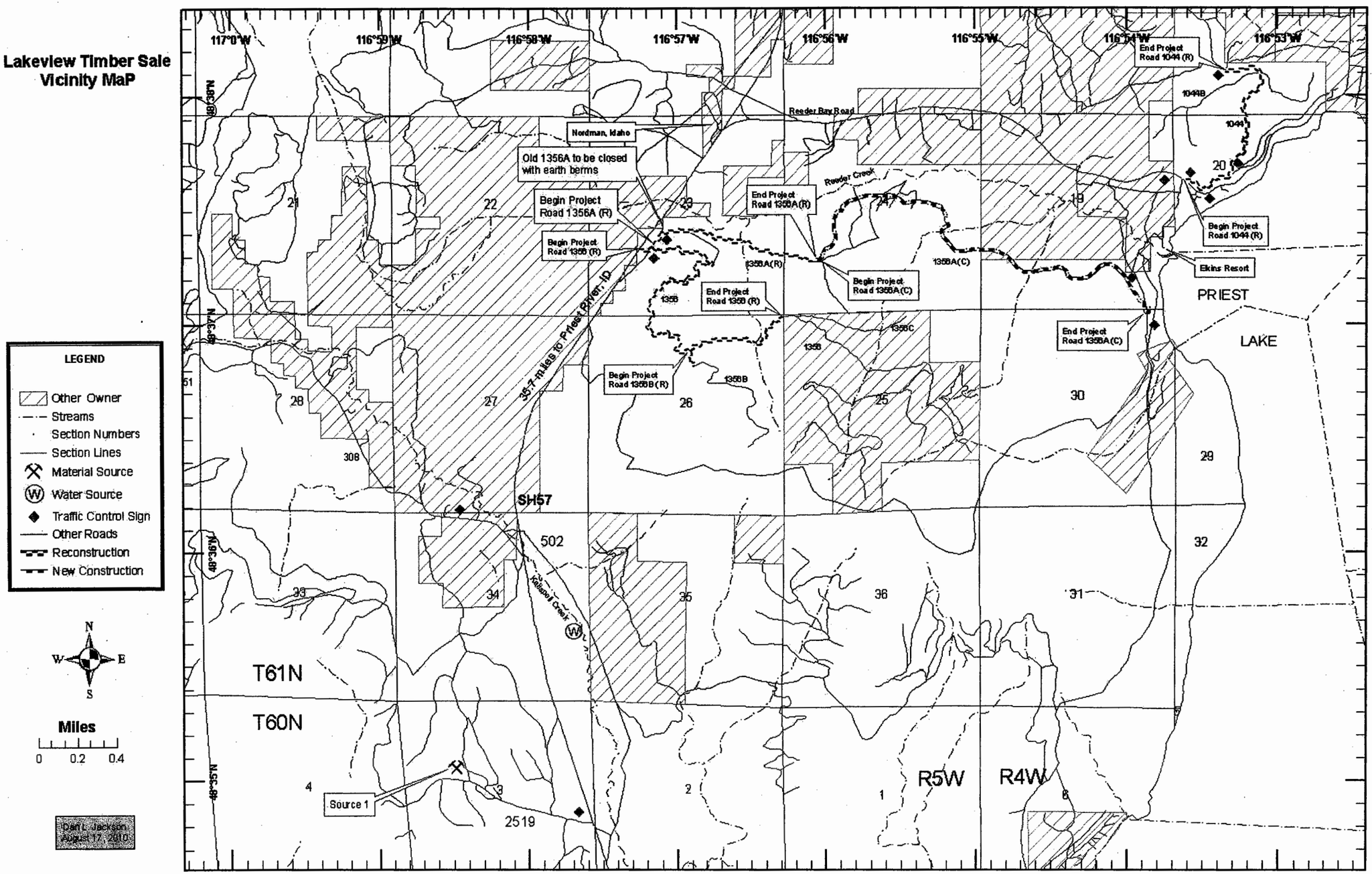




Lakeview Timber Sale Vicinity MaP



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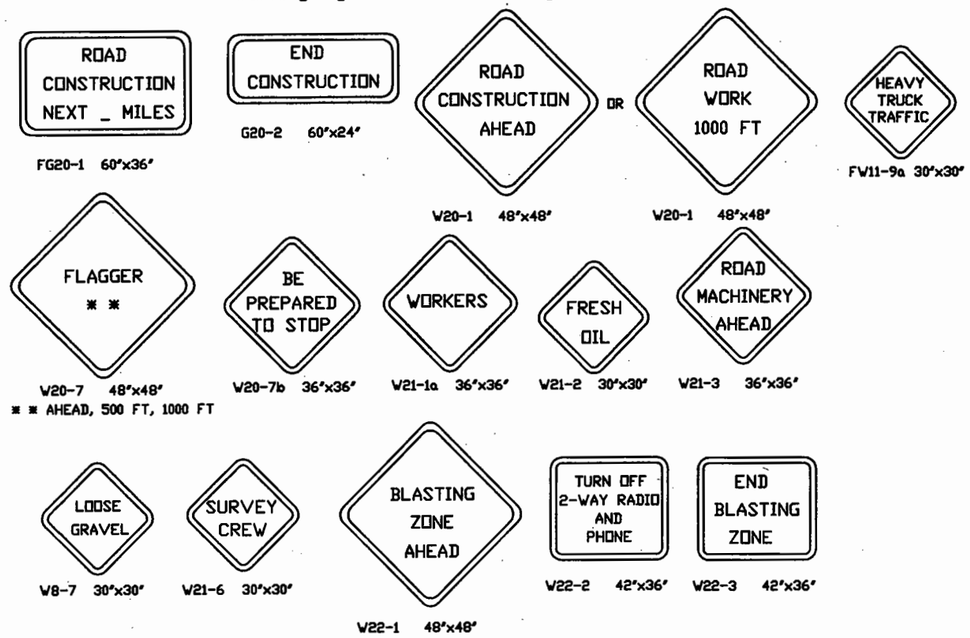
Revised *	Date *	Drawn DLJackson	Forest: Idaho Panhandle National Forests
Revised *	Date *	Design DLJackson	Project Name: Lakeview Timber Sale
Revised *	Date *	Checked	Sheet Title: Vicinity Map
Revised *	Date *	Reviewed	Sheet 2 of 31 Date: 8/17/2010

Warning Signs - Black on Orange

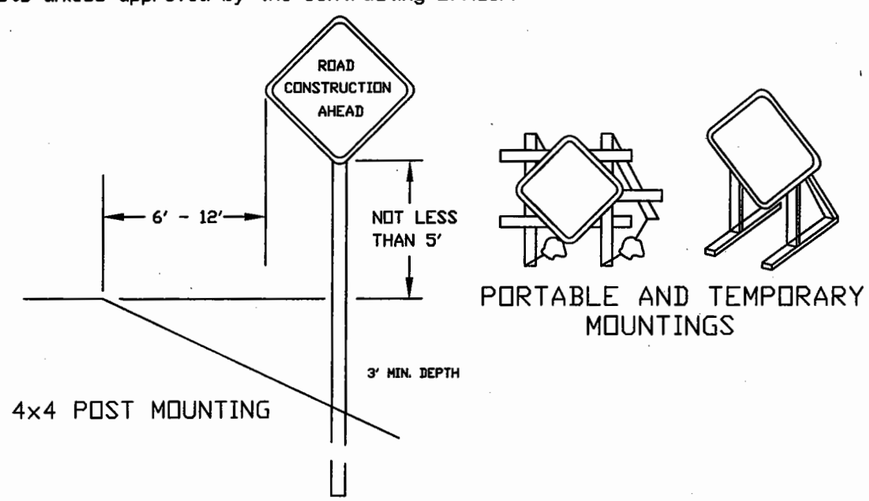


Regulatory Signs - Black on White

TYPICAL WARNING & REGULATORY SIGNS (AS PER MUTCD)

GENERAL SIGN & WARNING DEVICE NOTES

1. The Contractor shall be responsible for furnishing, installing, maintaining, and removeing signs and warning devices in conformance with the most current revision of the Manual on Uniforn Traffic Control Devices (MUTCD) and the approved traffic safety sign plan.
2. The Vicinity Map shows approximate locations for the minimum amount of signs required on this project.
3. A detailed 'Traffic Safety Sign Plan' shall be submitted by the Contractor for Approval by the Contracting Officer. The plan shall address types, amounts, locations and timing of signs and warning devices to be used for a specific road or activity.
4. Signs and warning devices shall be installed at the approved locations prior to starting any work activities.
5. During periods of non-work (weekends, holidays, end of work day, etc.) all signs shall be covered or removed.
6. Additional signs and warning devices shall be installed by the Contractor if conditions change.
7. All signs and warning devices shall be removed from the project upon completion and acceptance of the work.
8. Payment for furnishing, installing, maintaining, and removing signs and warning devices and for preparing the plan shall be considered incidental to pay items under Section 15101 - Mobilization. No seperate payment will be made.
9. Warning signs shall be black symbol/message/border on orange background, as per MUTCD.
10. Regulatory signs shall be black symbol/message/border on white background, as per MUTCD.
11. All signs shall be either reflectorized with a material that has a smooth, sealed outer surface, or iluminated to show approximately the same shape and color day and noght.
12. 'Home-made' signs shall not be allowed. Signs shall not be attached to trees or other sign posts unless approved by the Contracting Officer.



TYPICAL SIGN INSTALLATION (AS PER MUTCD)

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NORTHERN REGION

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Design DLJackson
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Reviewed

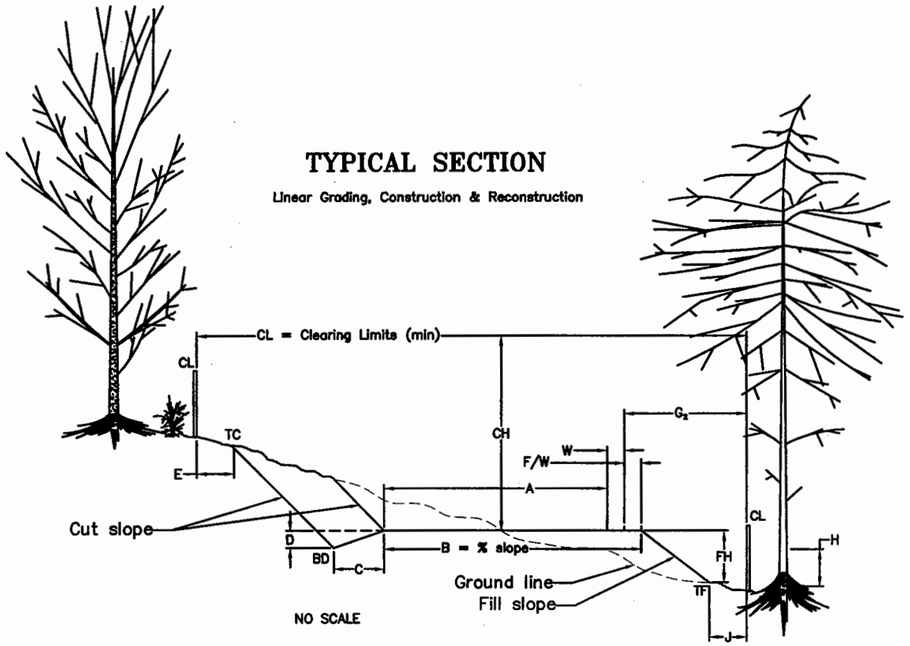
Forest: Idaho Panhandle National Forests
Project Name: Lakeview Timber Sale

Sheet Title: SIGN PLAN
Sheet 3 of 31
Date: 8/17/2010

SUMMARY OF ESTIMATED QUANTITIES

ROAD NUMBER				1044	1356	1356B	1356A	1356A	
TYPE OF CONSTRUCTION: (C = CONSTRUCTION, R = RECONSTRUCTION)				R	R	R	R	C	
LENGTH OF CONSTRUCTION (MILES)				1.09	2.02	0.09	0.94	2.37	
ITEM NO.	DESCRIPTION	M/M*	UNIT						TOTALS
15101	Mobilization	LSQ	LS	1	1	1	1	1	JOB
15202	Slope, reference, and clearing and grubbing stakes; method II, tolerance C	CQ	MI			0.15	0.94	2.37	3.46
20104A	Clearing and grubbing, disposal of tops and limbs 11.3, 12, logs 8, stumps 11.3, 12, 13.1, UOT 1	CQ	Acre			0.4	2.9	9.00	12.30
20104B	Clearing and grubbing, disposal of tops and limbs 11.3, logs 8, stumps 11.3, 13.1, UOT 2 (Sta. 126+40-137+03)	CQ	Acre					0.80	0.80
20207	Removal of individual trees, disposal of tops and limbs 11.3, logs 8, UOT 1	AQ	Each		12				12.00
20301	Removal of culverts	AQ	Each			1			1.00
20304	Removal of gate posts	LSQ	LS	1					1.00
20401	Roadway excavation, compaction method G, finishing method A	CQ	CY			391	2971	8081	11443.00
20419	Drainage Excavation, Type Outlet Ditch	AQ	LF	20		20	40		80.00
20420CB	Drainage Excavation, Type Catch Basin	AQ	Each	1					1.00
20420GD	Drainage Excavation, Type Grade Dip	AQ	Each					6	6.00
20427	Earth Berm	AQ	Each				2		2.00
21201	Linear grading	CQ	Mile	1.09					1.09
25101I	Placed riprap, class I, (commercial source)	CQ	CY				70	50	120.00
25101I-II	Placed riprap, class I-II, (source, MP 0.106 Rd 1044)	CQ	CY	10					10.00
25101V	Placed riprap, class V, (commercial source)	CQ	CY					10	10.00
30140	Haul and place stockpiled aggregate, compaction method I (Government source 1)	CQ	CY	207				531	738.00
30322	Road reconditioning, compaction method A	CQ	Mile		2.02				2.02
30605	Calcium Chloride	AQ	Ton	6.00				3.00	9.00
32122	Pit run aggregate, maximum size 4", compaction A (source 1)	CQ	CY	220	200		10		430.00
6025018C	18 inch corrugated metal pipe, 0.064 inch thickness for steel or 0.075 inch thickness for aluminum, method C	AQ	LF	32		32	46	70	180.00
6025024C	24 inch corrugated metal pipe, 0.064 inch thickness for steel or 0.075 inch thickness for aluminum, method C	AQ	LF			34		52	86.00
6025048C	48 inch corrugated metal pipe, 0.079 inch thickness for steel or 0.105 inch thickness for aluminum, method C	AQ	LF					40	40.00
62501	Seeding, Dry Method (Without Mulch)	CQ	Acre			0.2	0.9	5.30	6.40
65001	Furnish and install road closure device, type pipe gate, size 16'	AQ	Each				1	1	2.00

M/M* = Method of Measurement



DESIGN STANDARDS

ROAD NUMBER	A	B	C	D	E	G & G2	H	J	FW FH= 0 to 6'	FW FH>6'	CS	FS	W	Minimum CL & CH
1356A	Note 1	2-4	3	1	5	8	0	N/A	0	1	Note 2	Note 3	Note 4	30 & 14

A= Normal Subgrade Width (Ft)
B= Inslope, outslope & crown (%)
C= Ditch width (Ft)
D= Ditch Depth (Ft)
E= Clearing Past TC (Ft)
G & G2= Minimum Clearing past G (cut) & G2 (fill) shoulder (Ft)
H= Maximum Fill Height on Trees (Ft)
J= Clearing distance from toe of fill for windrow (Ft)
FH= Fill Height (Ft)
FW= Fill Widening (Ft), or as shown on the DRAWINGS or as staked.
CL/CH= Clearing Limit & Clearing Height (Ft)
BD= Bottom of Ditch
TC= Top of Cut
TF= Toe of Fill
CS= Cut Slope
FS= Fill Slope
W= Widening for curve, turnout & support for base & surface course aggregate (Ft)

NOTES:
1 Minimum 12' with ditch, 14' without
2 Cut slope ratio: 1.25:1, or as staked
3 Fill slope ratio: 1.33:1, or as staked

GENERAL NOTES

Section 156: Staking notes and a staking reference drawing will be available at the prework conference.

Section 204:
1. Treatment methods for slash removed incidental to Items 20419 and 20420CB shall be: T&L 11.3, stmps 11.3, logs 8, UOT 1, as per Section 201. This work is an indirect payment to Section 204.

Sections 301 & 321:
2. For road 1356A (C), Item 30140 shall have minimum finished dimensions of 4" depth x 13' top width.
3. Existing subgrade width may be wider than needed to accommodate the specified Top Width & Depth of aggregate surfacing. If so, the finished Top Width will be measured from the cut or ditch side, or as marked.
4. Item 30140 shall meet the requirements of Section 321.
5. All quantities are compacted in place.

Section 303:
6. The traveled way & shoulders of intersecting roads shall be reconditioned for a distance far enough to provide a smooth transition but not greater than 50'.
7. All existing culverts may not be noted in the DRAWINGS, however, all existing culverts shall have the catch basin & inlet/outlet cleaned to the dimensions SHOWN ON THE DRAWINGS to provide free drainage.
8. Clean all existing ditches to the minimum dimensions as SHOWN ON THE DRAWINGS or as marked. Ditches receiving rock armor, as specified on the drawings, shall be deepened 6" to accommodate the rock and maintain the minimum ditch depth.
9. Scarification is not required on roads undergoing reconditioning under Section 303.

Section 306:
10. The quantity shown in the Schedule of Items is based on an application rate of 1.23 #/SY for 94% minimum concentration CaCl pellet at a width of 13'. Other minimum concentrations may be approved by the Contracting Officer at an adjusted quantity or application rate.

Section 602:
11. Pipe bedding material, as specified on the PLANS, shall be crushed aggregate from the stockpile at Government source 1.
12. Compaction method shall be C.

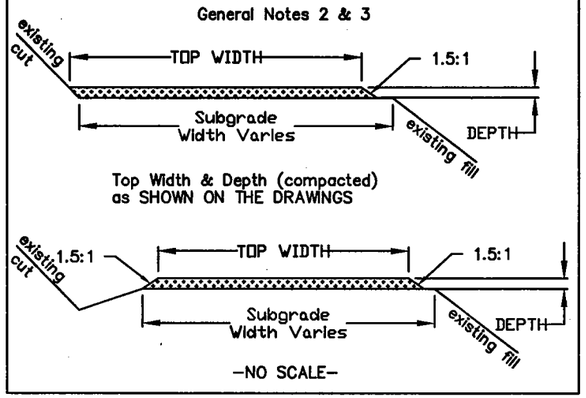
General:
13. Work items, described in the Project Work Descriptions, will be marked on the ground by the Contracting Officer. Marking for a specific road shall be done by the Forest Service within 10 days upon receipt of a written request from the Contractor.
14. MPs (mile posts) are for reference only and may not indicate actual miles.
15. It shall be the Purchaser's responsibility to call for utility locates in the areas they will be working. 811 or 1-800-626-4950. There are known underground and overhead utilities adjacent to SH57 , along road 1044 and other areas within the project.
16. See Section 651 for pit development and rehab requirements.
17. There are large boulders scattered throughout the project area.

**As per Table 204-2			DESIGN CRITERIA					*12' with ditch, 14' without ditch	
ROAD NUMBER	MILES	KM	FUNCTION	SVC LVL	OPER. MAINT LVL	LANES	DESIGN SPEED	* MINIMUM ROAD WIDTH	**CONSTR TOLERANCE
1044 (R)	1.09	1.75	L	D	2	Single	10	12/14	F
1356 (R)	2.02	3.25	C	C	2	Single	10	12/14	F
1356A (R)	0.94	1.51	L	D	2	Single	10	12/14	F
1356A (C)	2.37	3.81	L	D	2	Single	10	12/14	I
1356B (R)	0.09	0.14	L	D	2	Single	10	12/14	F

ITEMS 30140 & 32122

TYPICAL SECTIONS

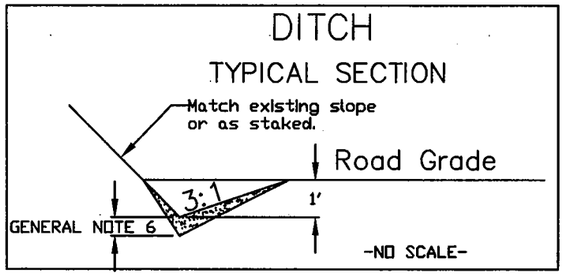
General Notes 2 & 3



Refer to sheet 5 General Notes for note numbers.

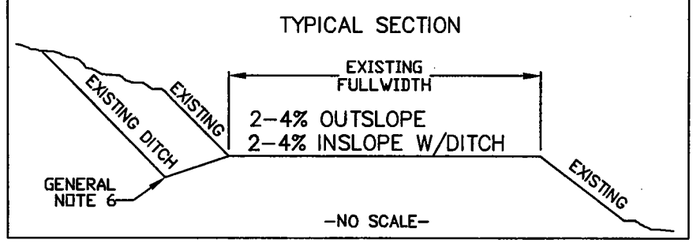
DITCH

TYPICAL SECTION



ITEM 30322 RECONDITIONING OF ROADBED

TYPICAL SECTION



212 LINEAR GRADING CONSTRUCTION NOTES

1. All work noted in the PROJECT WORK DESCRIPTION (PWD) is considered included in the cost of Item 21201, unless noted otherwise or another Pay Item is shown.
2. Typical Sections, General Notes, Design Standards and Design Criteria shown on the DRAWINGS apply to work under Section 212, unless noted otherwise in these notes.
3. Material shall not be sidecast in areas where it could roll down onto adjacent roadways.
4. The existing traveled way and shoulders will require scarification or deep ripping in order to reshape for proper drainage. The minimum depth shall be 6" or to the bottom of ruts and pot holes to provide a good bond between materials.
5. Large rocks protruding greater than 4 inches above the subgrade shall be removed or the tops blasted to a minimum depth of 6" and the resulting hole backfilled and compacted with suitable material. If blasting is needed, submit a blasting plan for approval at least 10 days in advance.
6. Do not excavate the existing cut slope unless directed to do so in the PWD or approved by the Contracting Officer.
7. Clearing limits will be marked by the Forest service at work mile posts noted in the PWD and at intervals of approximately 0.02 miles.
8. Clearing & Grubbing shall be in accordance with the requirements in Section 201.
9. Clearing slash shall be treated by the following methods: Tops & Limbs – 11.3, Stumps – 11.3, 13.1 Logs – 8, UOT–1 as per 201.06.
10. Seed and fertilize all disturbed areas as per Section 625.
11. **There are underground and overhead utilities in the area.

Road #	1044	Miles	1.09			
Mile Post	Work Description	Pay Item	Estimated Quantity	Unit Measure	Method of Measure	Remarks & Instructions
0.000	Begin Project					Jct w/road 1339 Reeder Bay @ MP 2.50
	Begin Composite road construction	21201	1.09	Miles	CQ	grading & reshaping, outsloped
	Begin Calcium Chloride	30605	6	Tons	AQ	
0.029	Spot pit run aggregate	32122	40	CY	CQ	6' depth x 14' top, as marked
0.035						existing cmp with ditch ahead to MP 0.55, insloped
0.055						end ditch, outsloped ahead
0.085						taper ahead to full cut on left at MP .106, as marked
0.106	Source for Item 251(01)I-III					slump on fill side right, shift left into cut 4', taper out ahead to MP .120, as marked. 1:1 cut slope, clear 5' past new top of cut. Estimated excavation: 150 CY. Use suitable material for cushion from MP 0.339 - 0.392. Use 10 CY @ MP 1.01. Haul oversize
0.120						outsloped ahead
0.228						reestablish and clean ditch left to 0.330, insloped
0.250						existing cmp, powerline comes in from right
0.257						spur right
0.265						road forks, powerline goes right, road 1044 continues up left
0.330						end ditch, outsloped ahead
0.337						existing grade dip, reconstruct
0.339						begin steep boney pitch ahead, remove loose rocks prior to placing select borrow for cushion.
	Begin pit run aggregate	32122	120	CY	CQ	6" depth x 13' top over prepared and approved subgrade, here to MP 0.413, as marked.
	Begin placing crushed aggregate	30140	63	CY	CQ	4" depth x 12' top, on top of pit run, here to 0.413, as marked.
0.392						Taper excavation from 0' here to full depth at 0.411
0.411						cut 3' here, thru cut, 1:1 side slopes, 12' width. Taper out to 0' cut at 0.429, as marked. Use suitable material as select borrow for cushion on section from 0.339 - 0.392. Clean & reconstruct ditch to 0.460
0.413	End placing crushed aggregate					
0.423						existing cmp
0.429	End pit run aggregate 20' ahead					sag, run pit run ahead 20', daylight out cut.
0.436						spur left
0.460						boney section thru "S" curves.
0.479						lower grade 3' and taper out to get suitable material to go ahead and back on boney portions. 16' width, 1:1 slopes.
	Begin pit run aggregate	32122	20	CY	CQ	6" depth x 12' top, here to .490
0.490						junction left back, outsloped ahead

Road #	1044	Miles	1.09			
Mile Post	Work Description	Pay Item	Estimated Quantity	Unit Measure	Method of Measure	Remarks & Instructions
0.562	Begin pitrun aggregate	32122	30	CY	DQ	6" depth x 13' top width for cushion on boney section here to 0.582, as marked
	Begin placing crushed aggregate	30140	18	CY	DQ	4" depth x 12' top width, over pitrun, as marked
0.581						remove large 3'x5' square boulder to a depth of 6" and fill hole prior to placing aggregate
0.582	End pit run aggregate					
	End crushed aggregate					
0.635						existing cmp, clean ditch left to 0.659
0.659						End ditch, outslope ahead. Road jct right down, 1044 goes up left.
0.725						Reconstruct grade dip
0.824						Construct ditch left ahead to 0.867
	Install 18" CMP	6025018C	32	LF	AQ	Skewed as marked
	Drainage excavation, type catch basin	20420CB	1	EA	AQ	
	Drainage excavation, type outlet ditch	20419	20	LF	AQ	as marked
	Pit run aggregate, spot	32122	10	CY	DQ	6" depth x 12' top width over new culvert, as marked
0.867						End ditch left, maintain intersection ahead, out sloped ahead
0.877						Jct w/Rd 1044B left, bermed closed.
0.881						Clean reconstruct ditch left to 0.910, insloped
0.897						road jct right with green farmer gate
0.900						steep eroded pitch ahead, deepely rutted, outsloped ahead. Rip to bottom of ruts and reshape
0.910						existing cmp, outsloped ahead
	Placing crushed aggregate	30140	126	CY	DQ	4" depth x 14' top width, here to 1.064, as marked
0.975						parts of pipe gate
	Removal of gate posts	20304	1	LS	LSQ	Remove posts and fill in holes
1.010						reconstruct existing grade dip
	Placed riprap, class I-III, method machine placed	25101I-III	10	CY	DQ	Place riprap at outfall of dip. Obtain from cut excavation at MP 0.106
1.040						
1.064	End placing crushed aggregate.					Clean and reconstruct ditch left ahead to 1.09, insloped
1.092						Jct right
	End Composite road construction					
	End Calcium Chloride					
	End Project					Road 1044 continues ahead

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Idaho Panhandle National Forests
Project Name
Lakeview Timber Sale

Sheet Title
Project Work Description 1044 (R)
Sheet 7 of 31 Date: 8/06/2010

Road #	1356	Miles	2.02			
Mile Post	Work Description	Pay Item	Estimated Quantity	Unit of Measure	Method of Measure	Remarks & Instructions
0.000	Begin Project					Jct w/SH57 @ MP 34.2
	Begin Reconditioning of roadbed, Comp A	30322	2.02	Mile	CQ	Maintain all grade dips, incidental
0.070						P10+00. Jct w/1356A (R) left
0.138						existing gate
	Individual removal of trees	20207	12	EA	AQ	Here to MP 2.02, as marked
0.400						existing cmp
0.434						switch back
0.447						existing cmp
0.596						existing cmp
0.676						existing cmp
0.712						existing cmp
1.387						existing cpp
1.410						T 10+00. Begin reconstruction of junstion with 1356B. Paid under 1356B.
	Begin pit run aggregate	32122	200	CY	CQ	6" depth x 12' top, here to 1.570
1.441						T 11+50 = P 10+00 Jct w/rd 1356B right
1.470						T 13+00. End reconstruction of junction with 1356B
1.467						existing grade dip
1.570	End pit run aggregate					
1.634						begin existing ditch
1.731						existing cmp
1.836						existing cmp
1.904						existing cmp
2.020	End Reconditioning of roadbed					
	End Project					Private property boundary, road continues
Revised:8/06/10	Project Totals					

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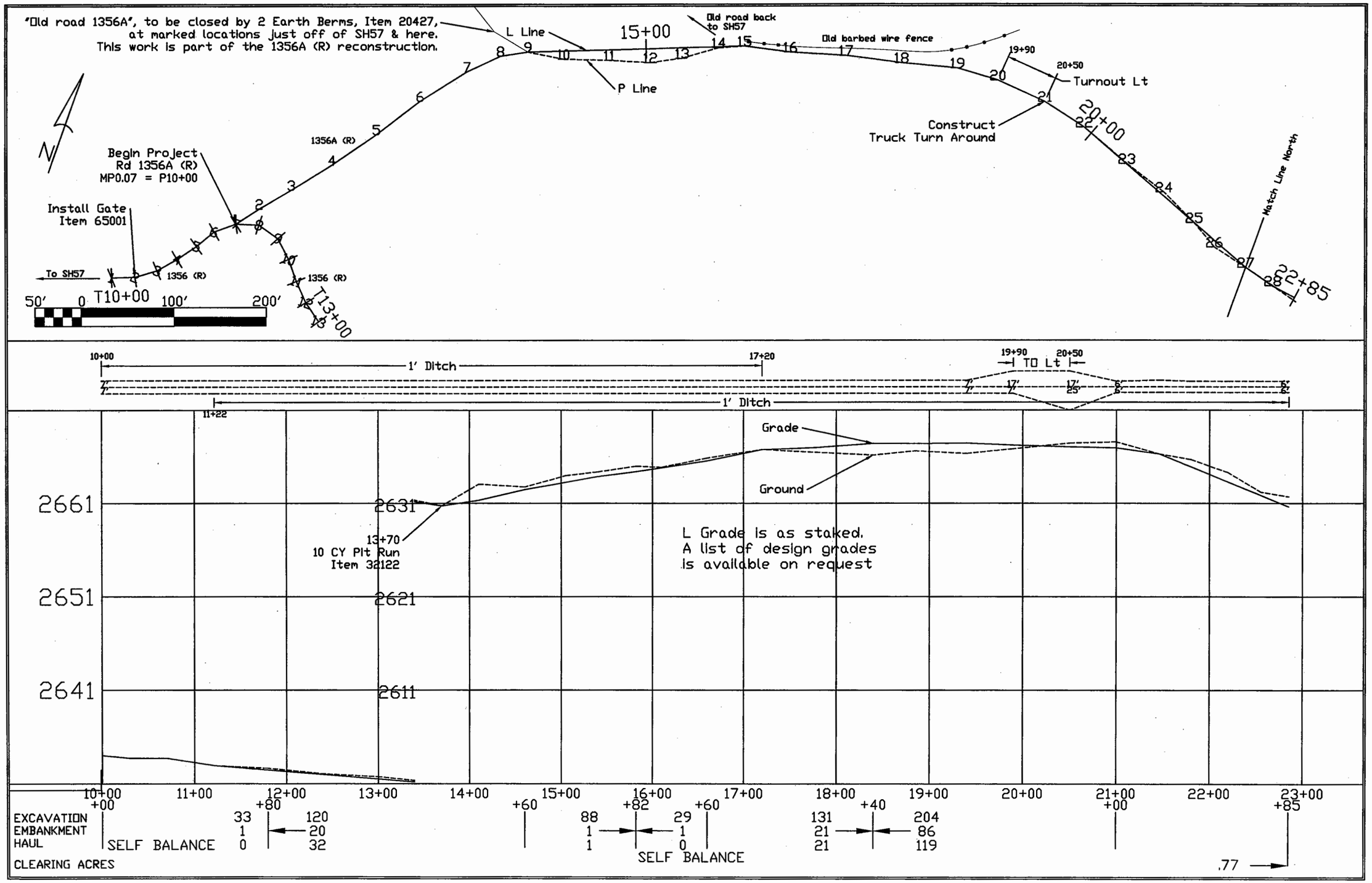
Lakeview Timber Sale

Sheet Title
Project Work Description 1356 (R)
Sheet 8 of 31 Date: 8/06/2010



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Project Name
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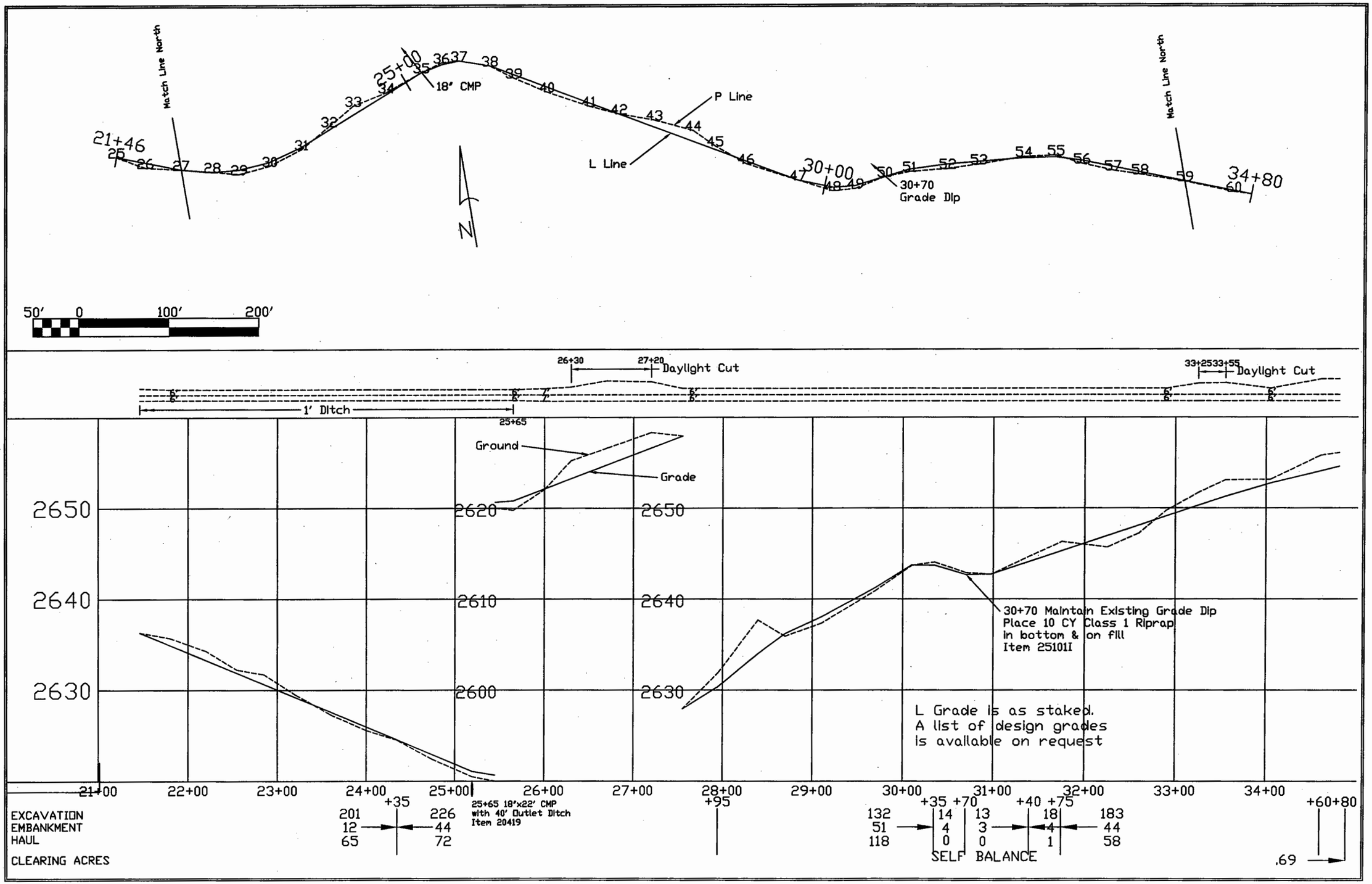
Sheet Title
Plan & Profile 1356A (R)
Sheet 9 of 31 Date: 8/18/2010



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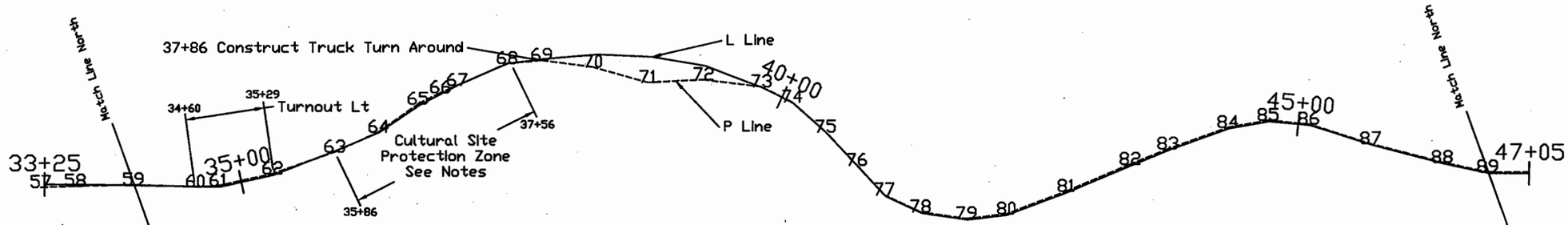
Forest
Idaho Panhandle National Forests

Project Name
Lakeview Timber Sale

Sheet Title
Plan & Profile 1356A (R)

Sheet 10 of 31

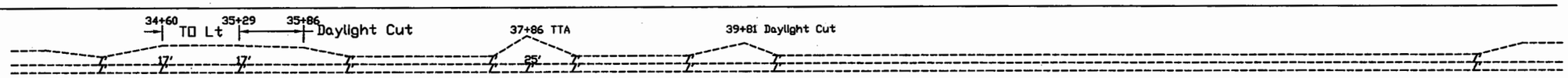
Date: 8/18/2010

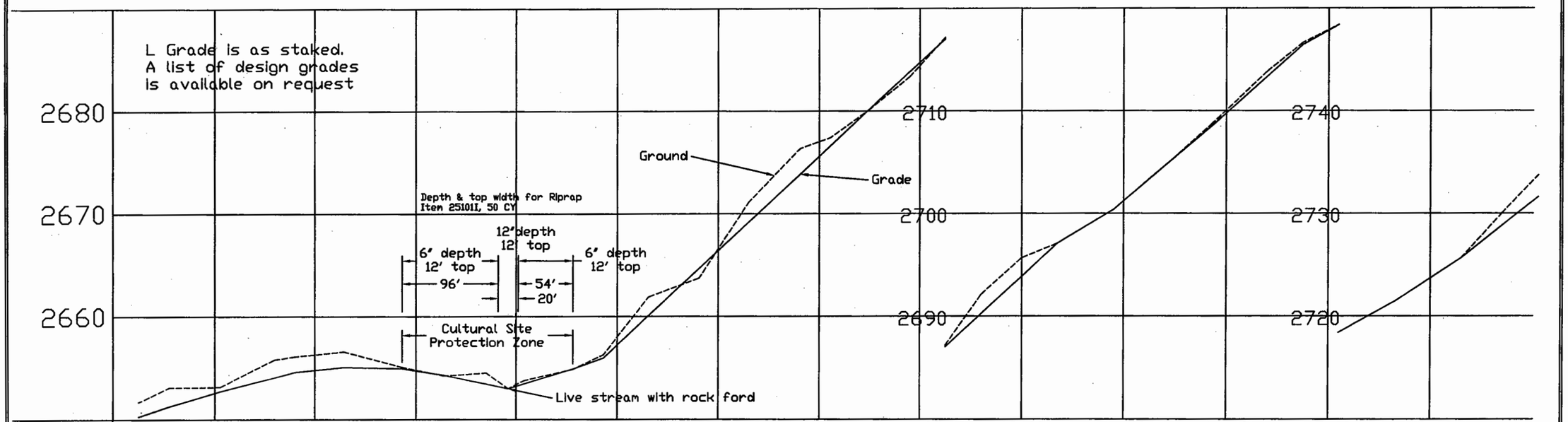


Cultural Site Notes:

1. Cultural resources have been found adjacent to this area.
2. Care SHALL be taken during construction to avoid this exclusion area, and an archeologist SHALL be present when working in this area. Notify the Contracting Officer at least 48 Hours before starting work in this area.
3. Avoidance means: NO parking, turnaround, equipment operation or material storage outside the staked traveled Way. Additionally:
4. Clearing limits shall be at the staked new top of cut or new toe of fill.
5. No trees, brush or stumps will be cut or grubbed, except that overhanging limbs shall be cut to 14' high.
6. No slash or excess or unsuitable excavation shall be deposited outside the staked clearing limits.
7. 36+70, remove the old log culvert and scatter back of 35+86. Backfill with suitable material. Incidental to 20401.
8. Place 50 CY Item 25101I as shown on the Profile.

50' 0 100' 200'





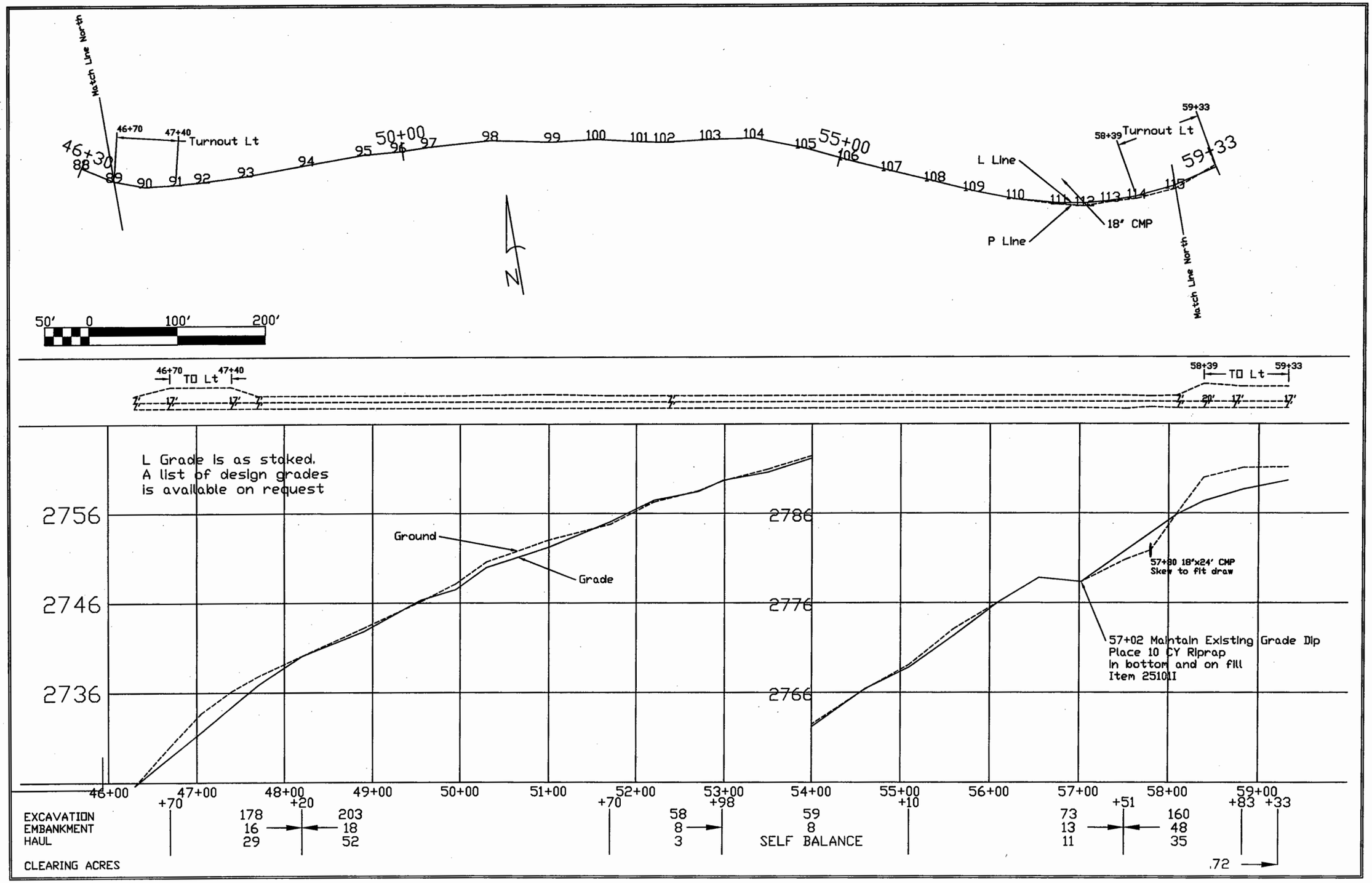
U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
R-1
NORTHERN REGION

Revised * Date *
Revised * Date *
Revised * Date *
Revised * Date *

Drawn DLJackson
Design DLJackson
Checked
Reviewed

Forest
Idaho Panhandle National Forests
Project Name
Lakeview Timber Sale

Sheet Title
Plan & Profile 1356A (R)
Sheet 11 of 31 Date: 8/18/2010



U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
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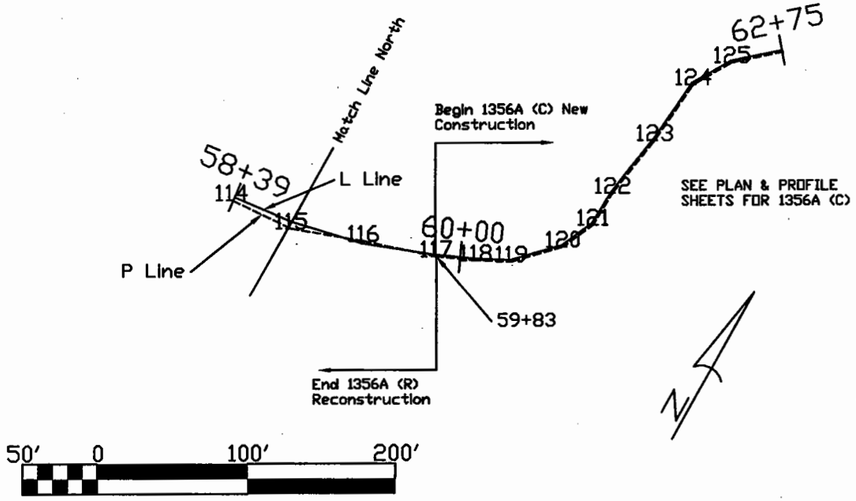
NORTHERN REGION

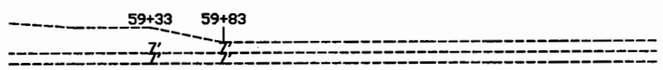
Revised * Date *
Revised * Date *
Revised * Date *
Revised * Date *

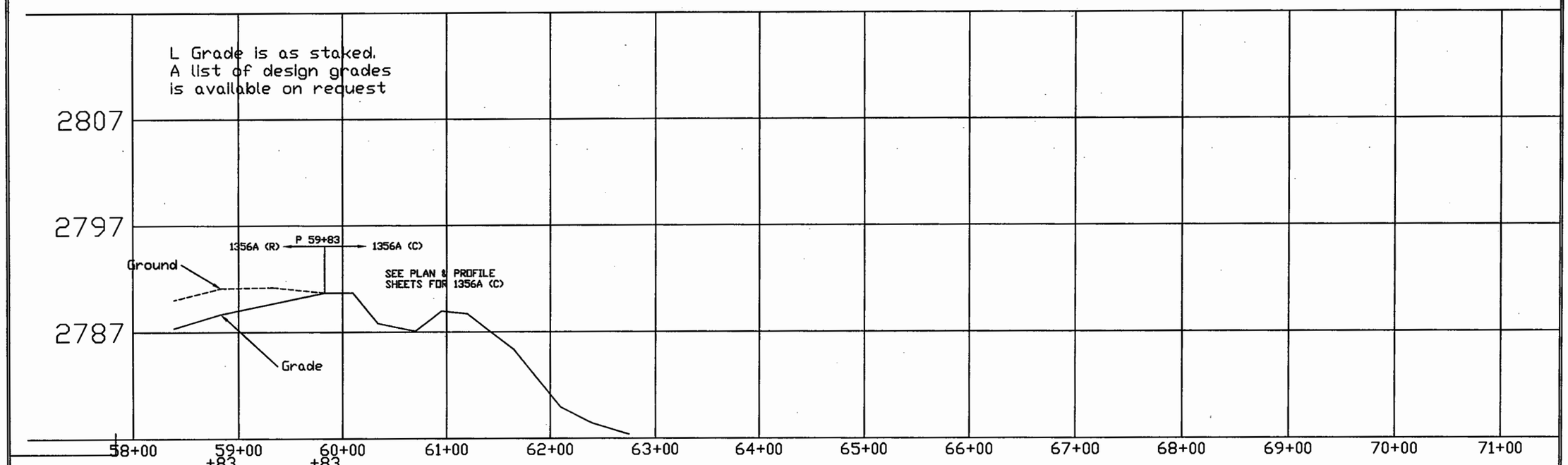
Drawn DLJackson
Design DLJackson
Checked
Reviewed

Forest
Idaho Panhandle National Forests
Project Name
Lakeview Timber Sale

Sheet Title
Plan & Profile 1356A (R)
Sheet 12 of 31 Date: 8/18/2010







	+83	+83
EXCAVATION	139	
EMBANKMENT	13	→
HAUL	35	
CLEARING ACRES	.04	→

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
R-1
NORTHERN REGION

Revised * Date *
Revised * Date *
Revised * Date *
Revised * Date *

Drawn DLJackson
Design DLJackson
Checked
Reviewed

Forest
Idaho Panhandle National Forests
Project Name
Lakeview Timber Sale

Sheet Title
Plan & Profile 1356A (R)
Sheet 13 of 31 Date: 8/18/2010

PLAN & PROFILE
1356A (C)

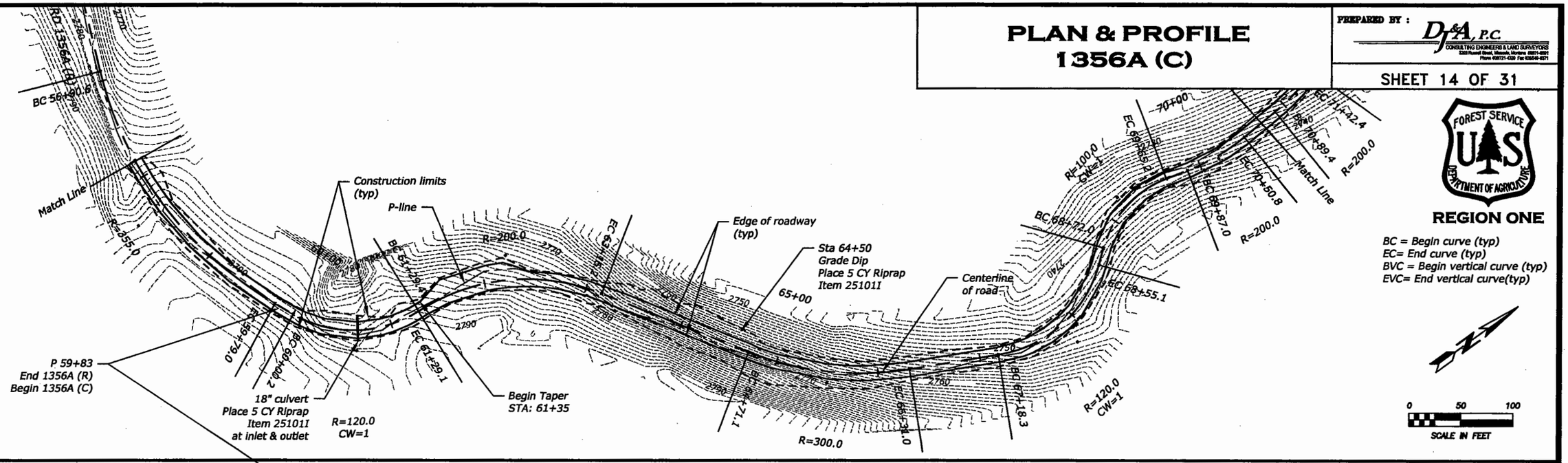
PREPARED BY : DJ&A, P.C.
CONSULTING ENGINEERS & LAND SURVEYORS

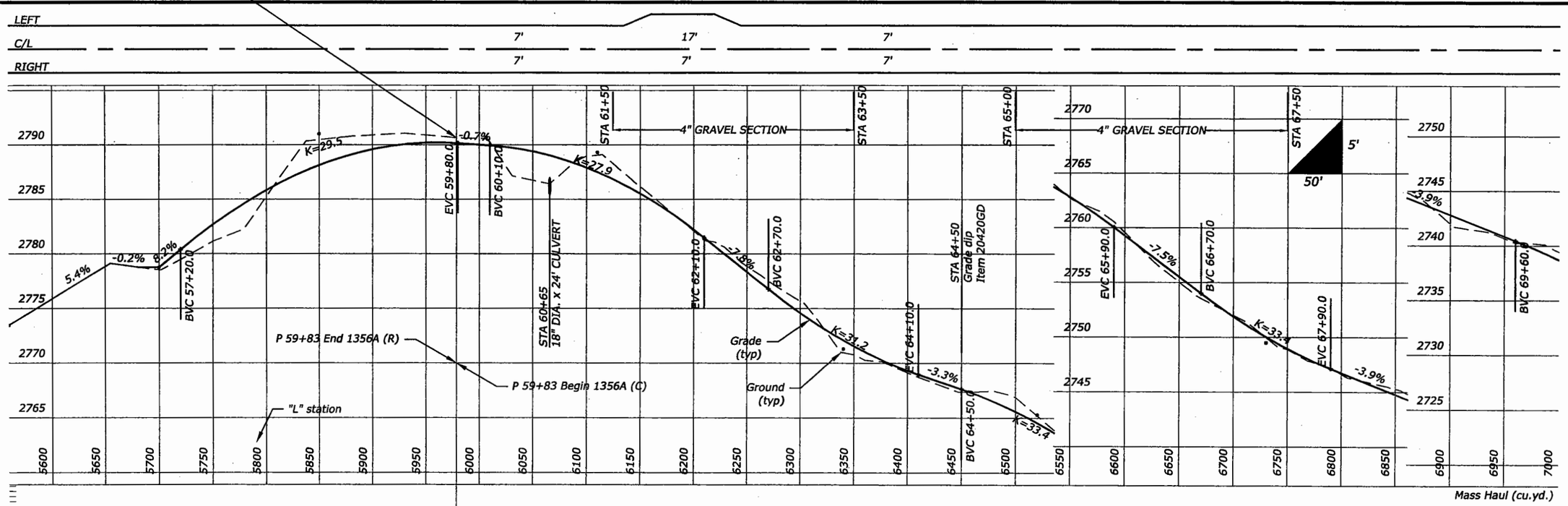
SHEET 14 OF 31

FOREST SERVICE U.S. DEPARTMENT OF AGRICULTURE

REGION ONE

BC = Begin curve (typ)
EC= End curve (typ)
BVC = Begin vertical curve (typ)
EVC= End vertical curve(typ)



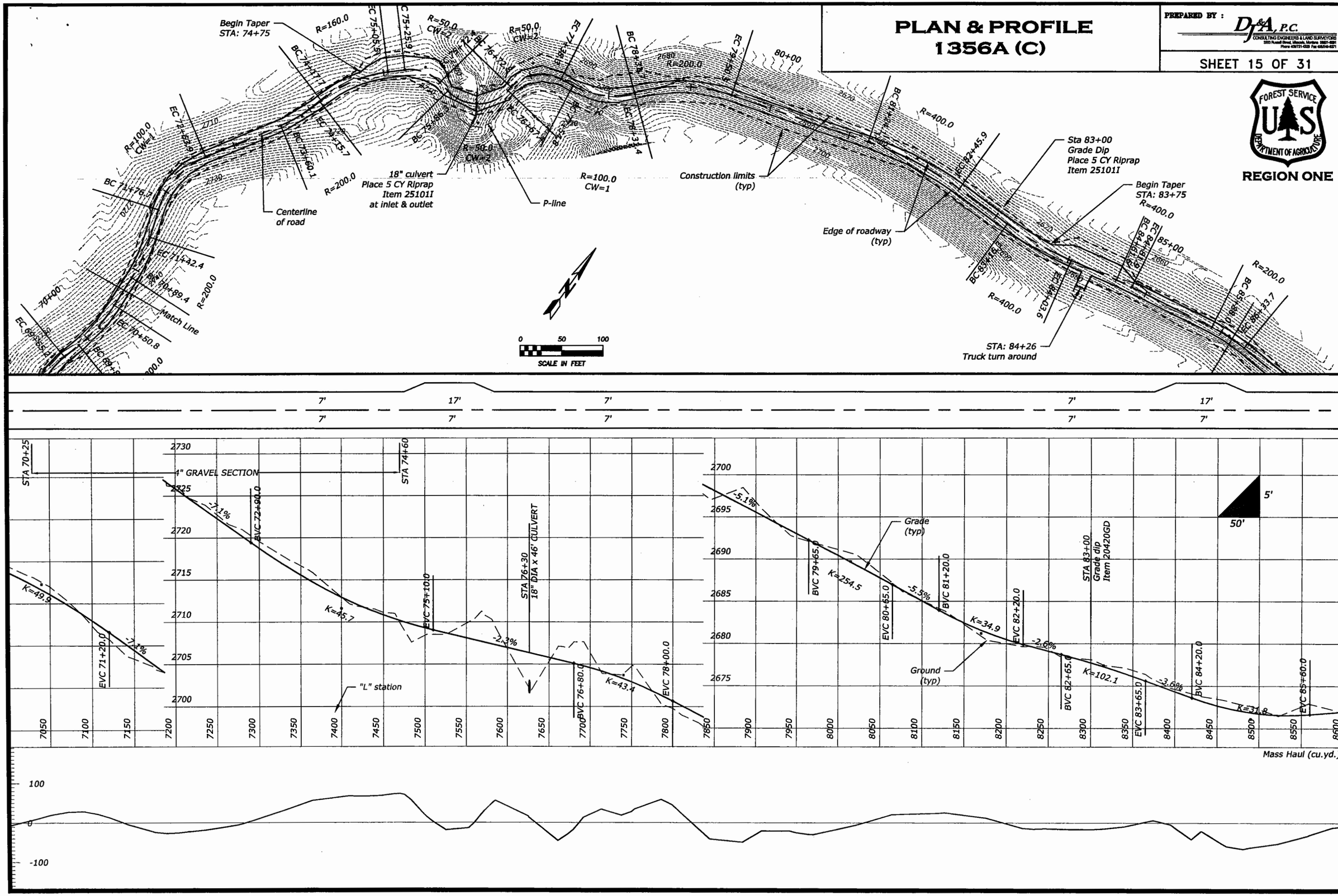


PLAN & PROFILE
1356A (C)

PREPARED BY : DJ&A, P.C.
CONSULTING ENGINEERS & LAND SURVEYORS

SHEET 15 OF 31

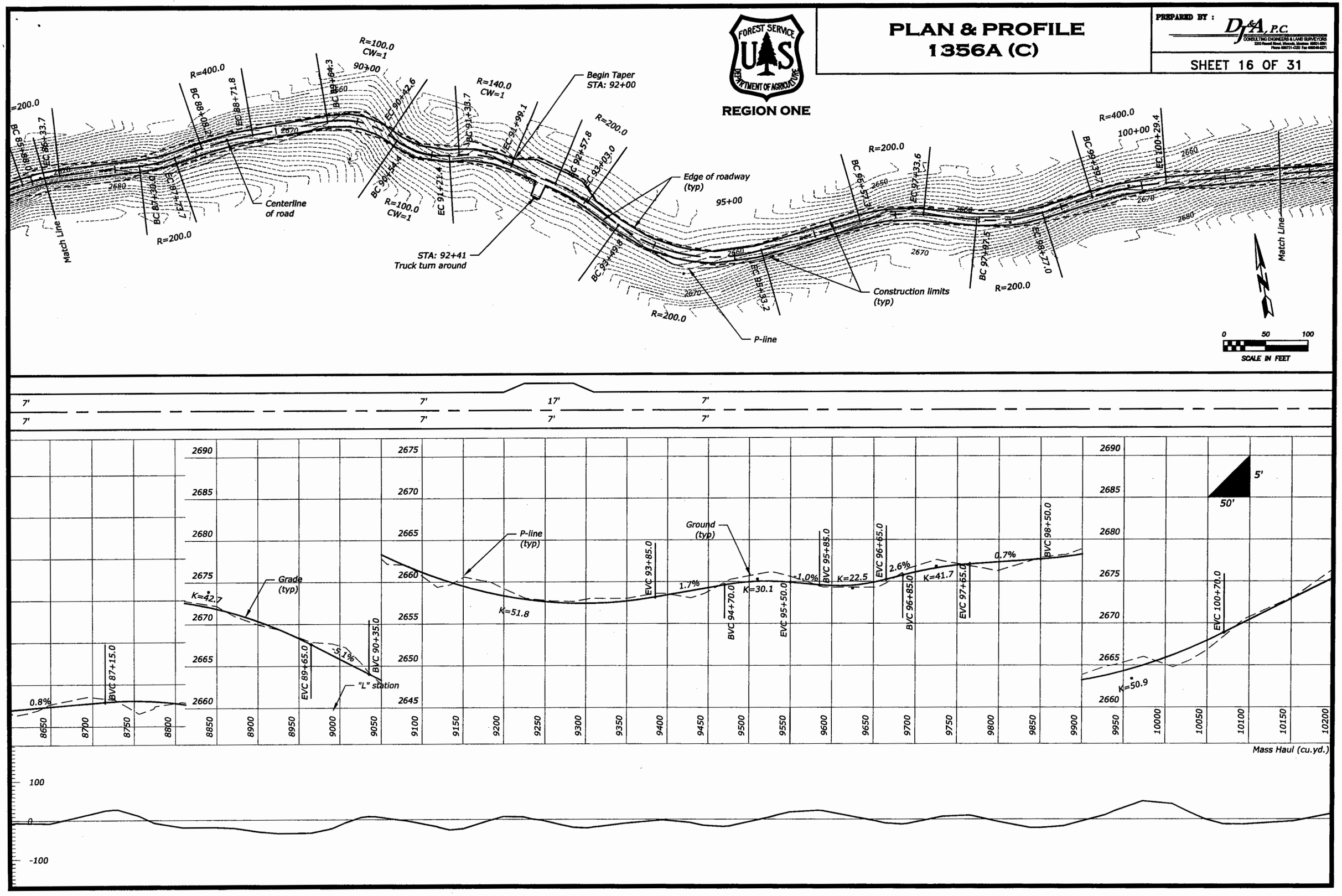
FOREST SERVICE U.S. DEPARTMENT OF AGRICULTURE
REGION ONE



PLAN & PROFILE
1356A (C)

REGION ONE

PREPARED BY : D&A, P.C. CONSULTING ENGINEERS & LAND SURVEYORS

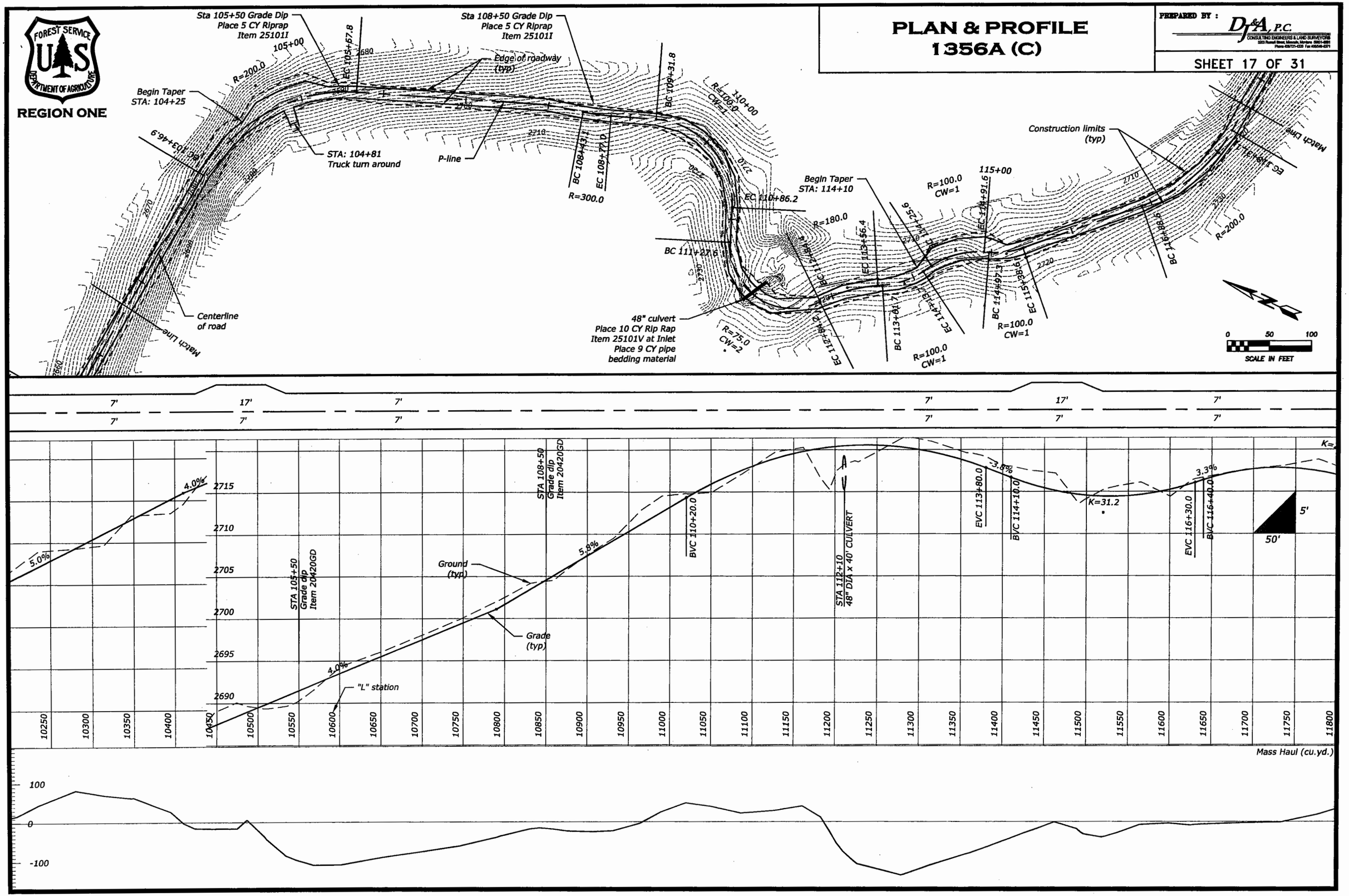


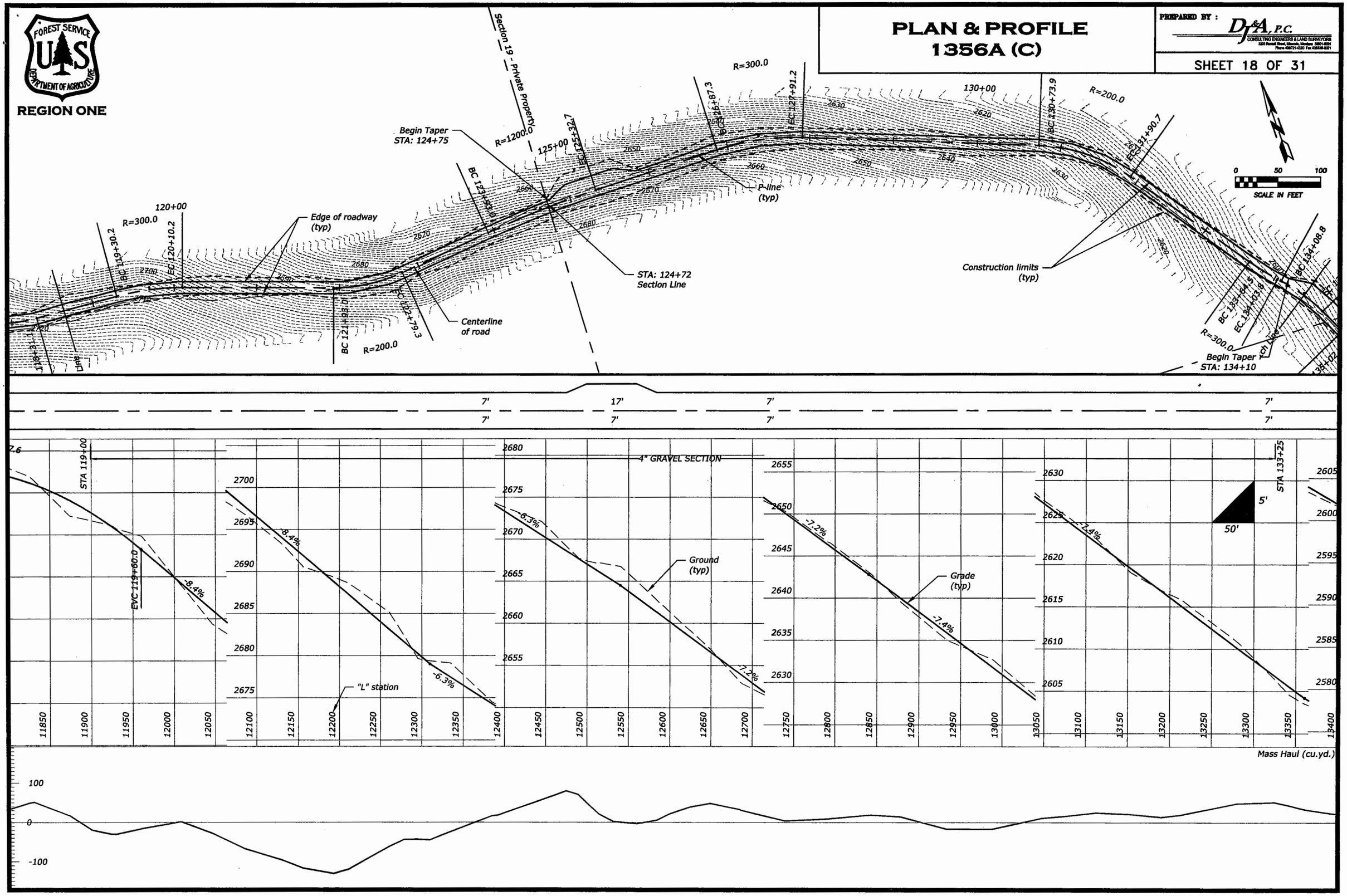
PLAN & PROFILE
1356A (C)

PREPARED BY : DJ&A, P.C.
CONSULTING ENGINEERS & LAND SURVEYORS

SHEET 17 OF 31

FOREST SERVICE U.S. DEPARTMENT OF AGRICULTURE
REGION ONE





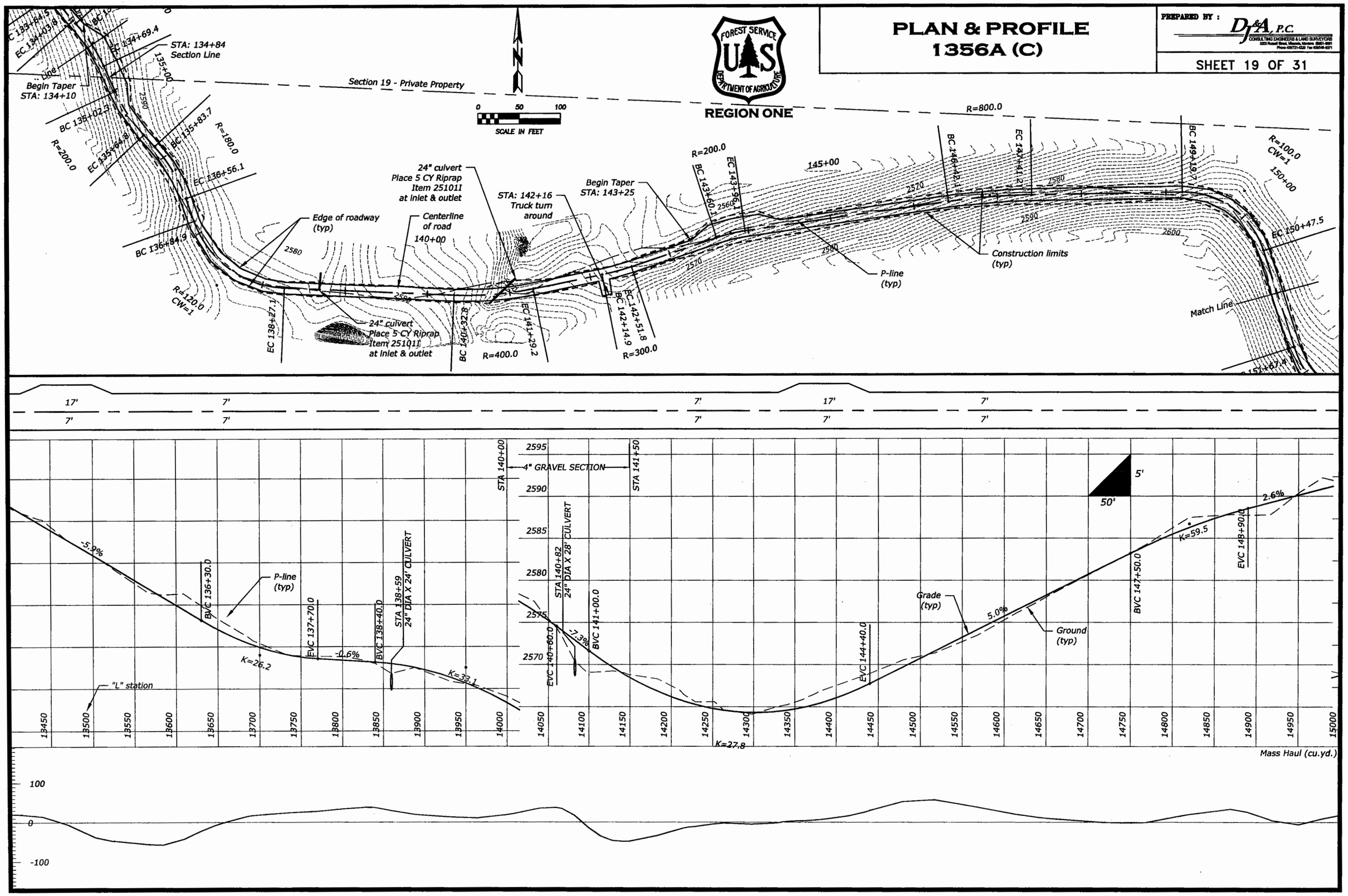
FOREST SERVICE
U S
DEPARTMENT OF AGRICULTURE
REGION ONE
PLAN & PROFILE
1356A (C)
PREPARED BY :
DJ&A, P.C.
CONSULTING ENGINEERS & LAND SURVEYORS
SHEET 18 OF 31
Section 19 - Private Property
Begin Taper
STA: 124+75
R=1200.0
125+00
R=300.0
130+00
R=200.0
120+00
R=300.0
Edge of roadway
(typ)
P-line
(typ)
STA: 124+72
Section Line
Construction limits
(typ)
Centerline
of road
R=200.0
R=300.0
Begin Taper
STA: 134+10
SCALE IN FEET
0
50
100
7'
17'
7'
7'
STA 119+00
EVC 119+60.0
-8.4%
-8.4%
-6.3%
"L" station
4" GRAVEL SECTION
-6.3%
-7.2%
Ground
(typ)
-7.2%
-7.4%
Grade
(typ)
-7.4%
STA 133+25
5'
50'
Mass Haul (cu.yd.)
100
0
-100

PLAN & PROFILE
1356A (C)

PREPARED BY : D&A, P.C.
CONSULTING ENGINEERS & LAND SURVEYORS
3223 Russell Street, Missoula, Montana 59801-6991
Phone 406/721-4320 Fax 406/549-6371

SHEET 19 OF 31

FOREST SERVICE U.S. DEPARTMENT OF AGRICULTURE
REGION ONE



PLAN & PROFILE
1356A (C)

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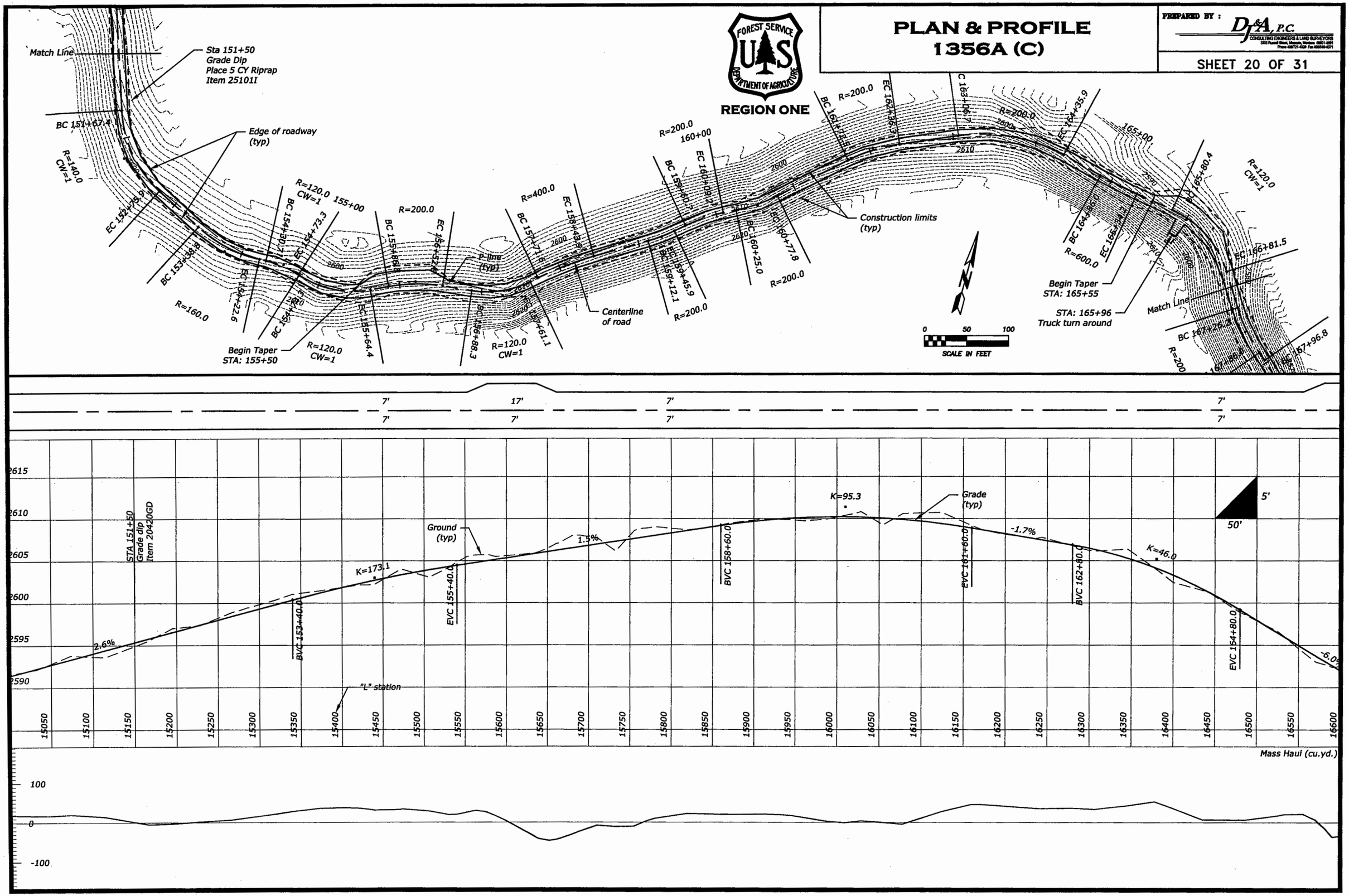
SHEET 20 OF 31

FOREST SERVICE U.S. DEPARTMENT OF AGRICULTURE
REGION ONE



PLAN & PROFILE
1356A (C)

PREPARED BY : DJ&A, P.C.
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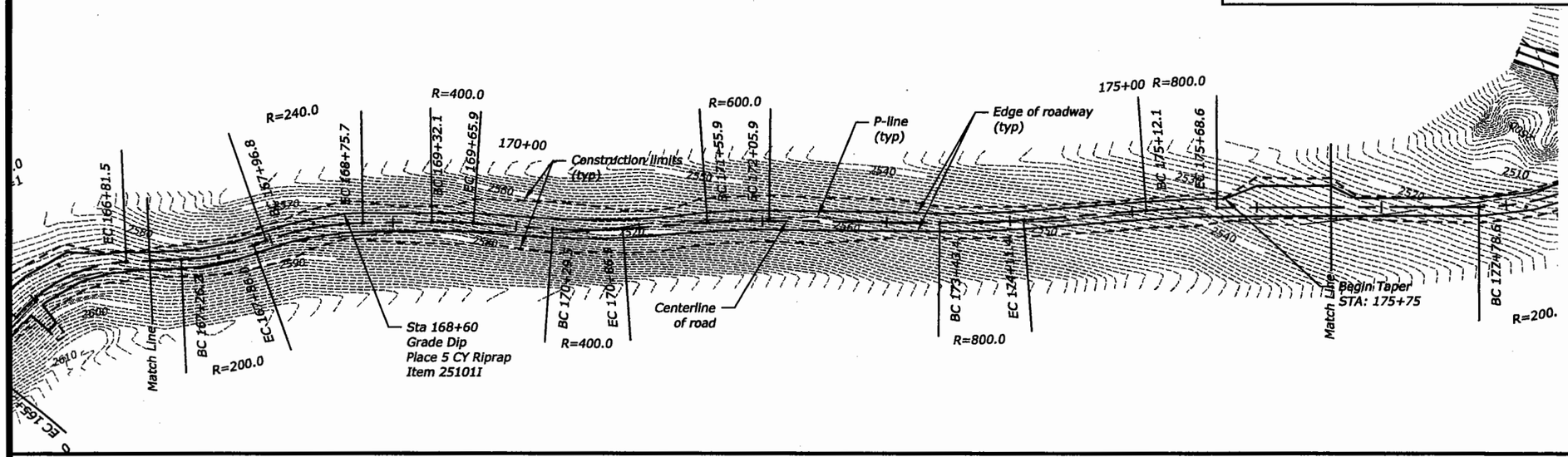
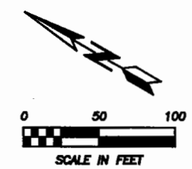
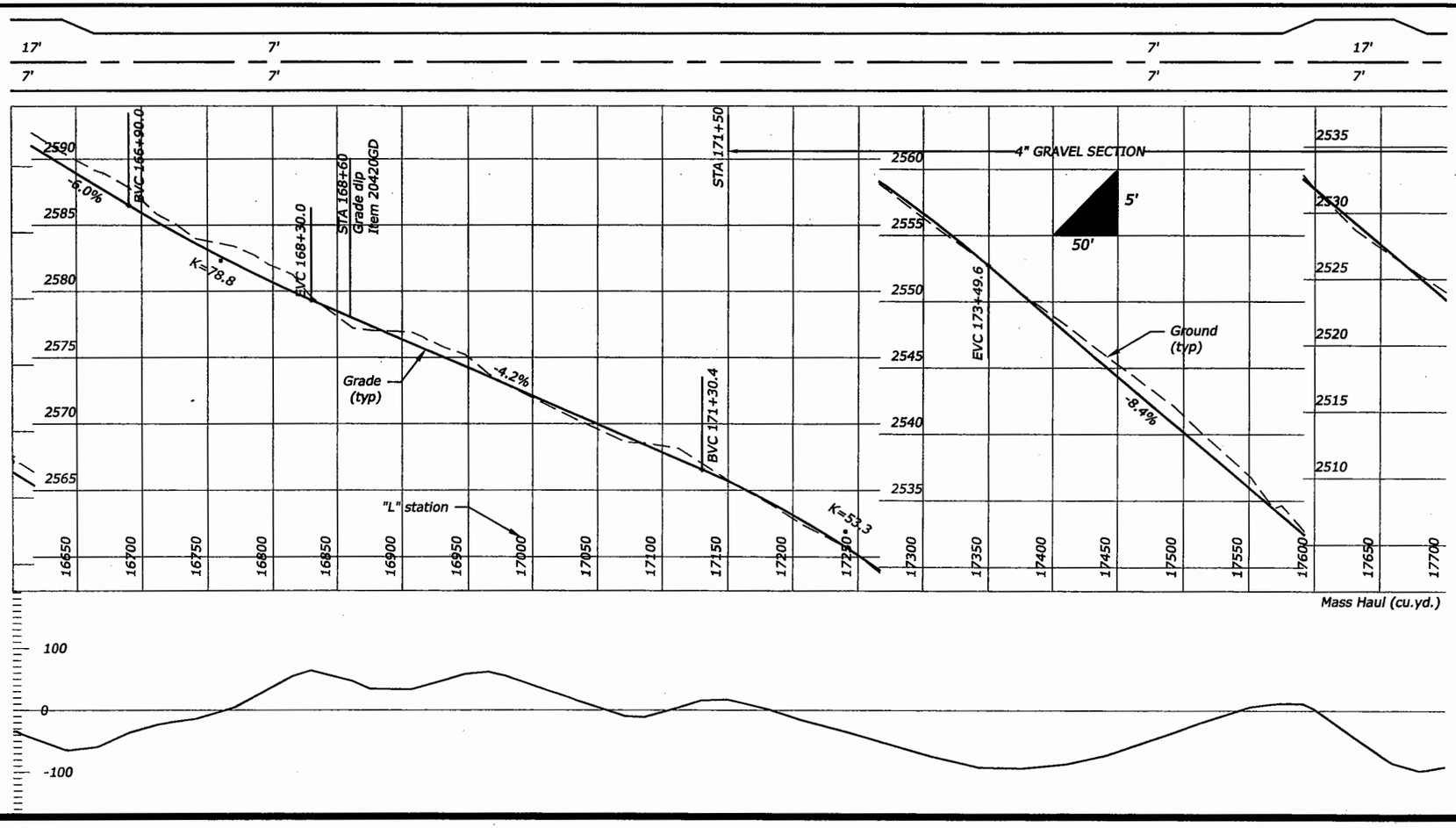




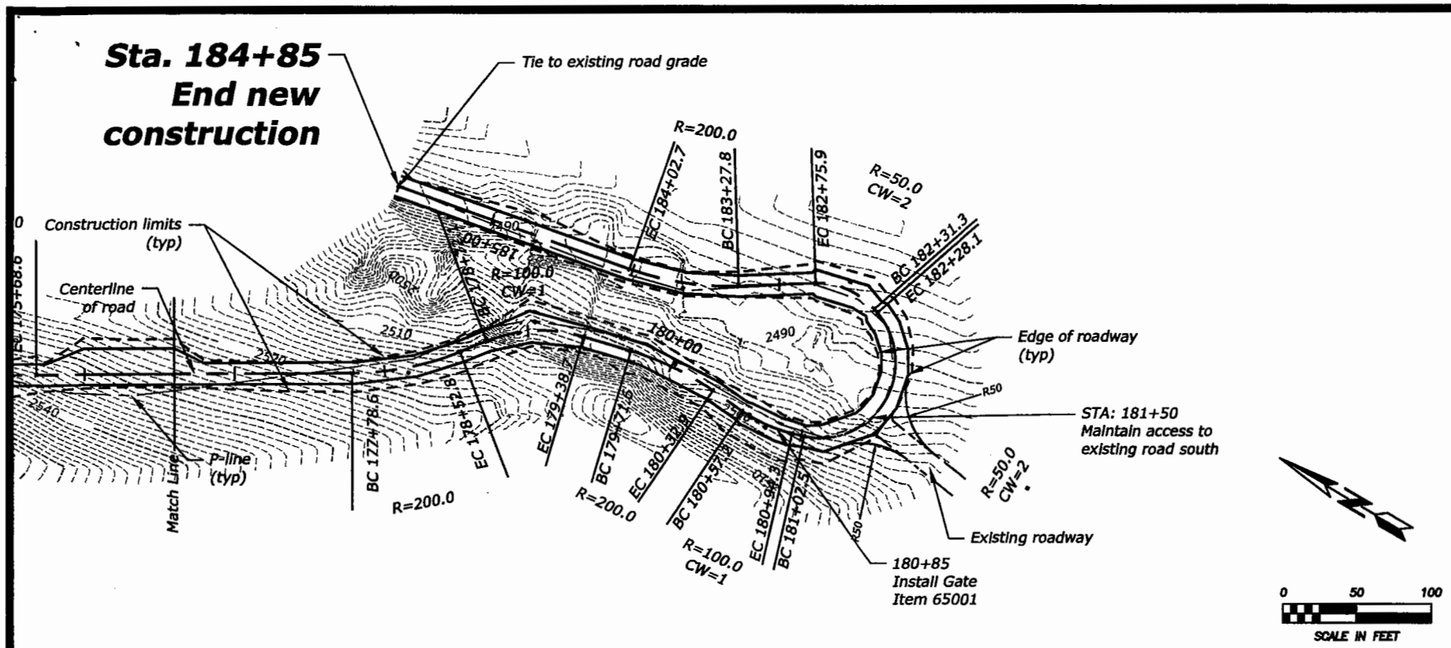


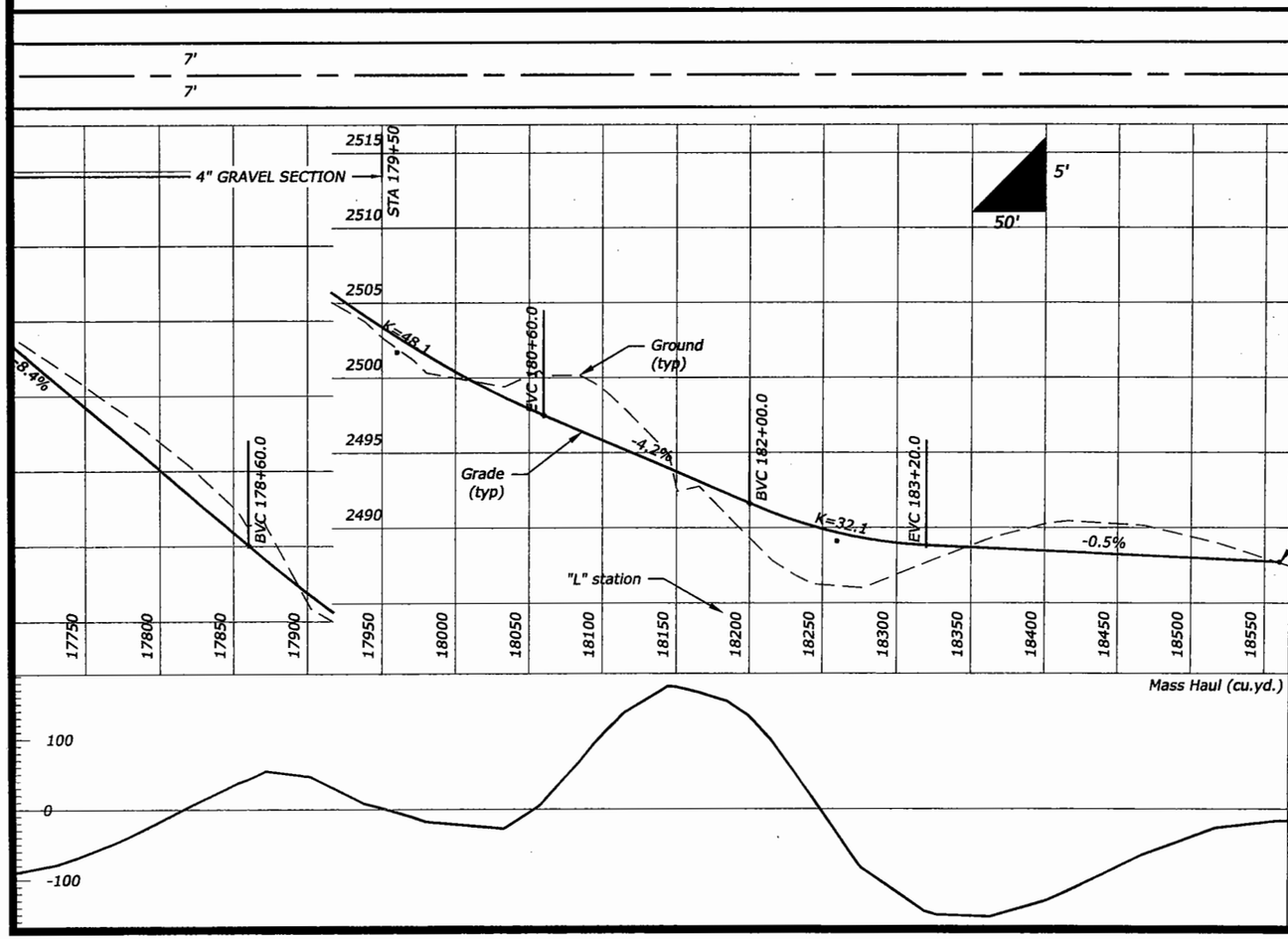
PLAN & PROFILE
1356A (C)

PREPARED BY : D&A, P.C.
CONSULTING ENGINEERS & LAND SURVEYORS

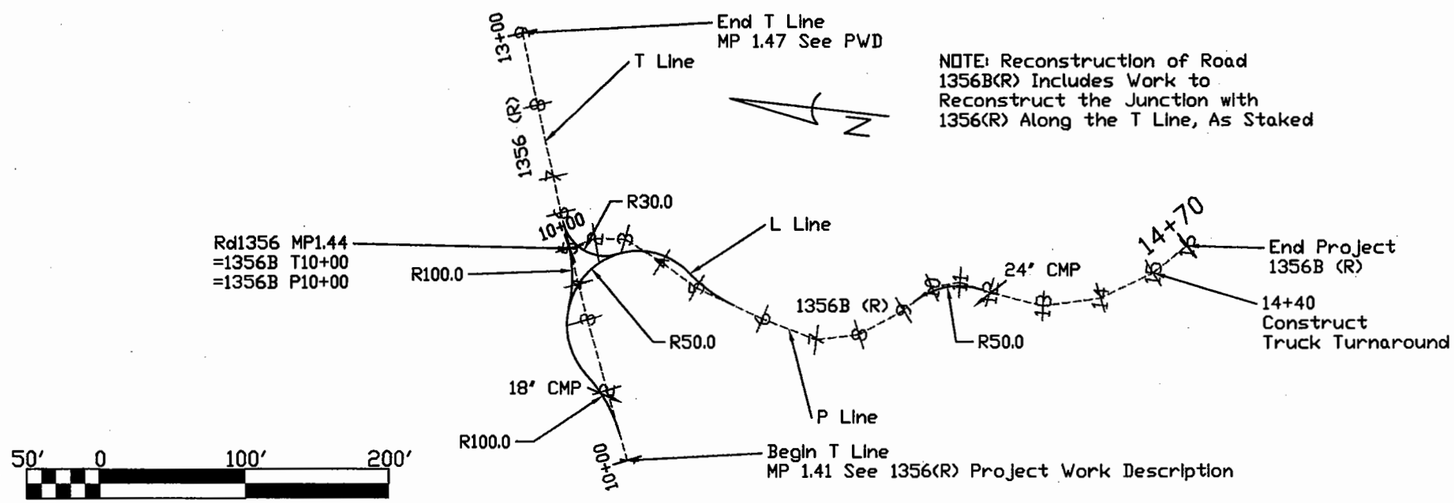
SHEET 22 OF 31

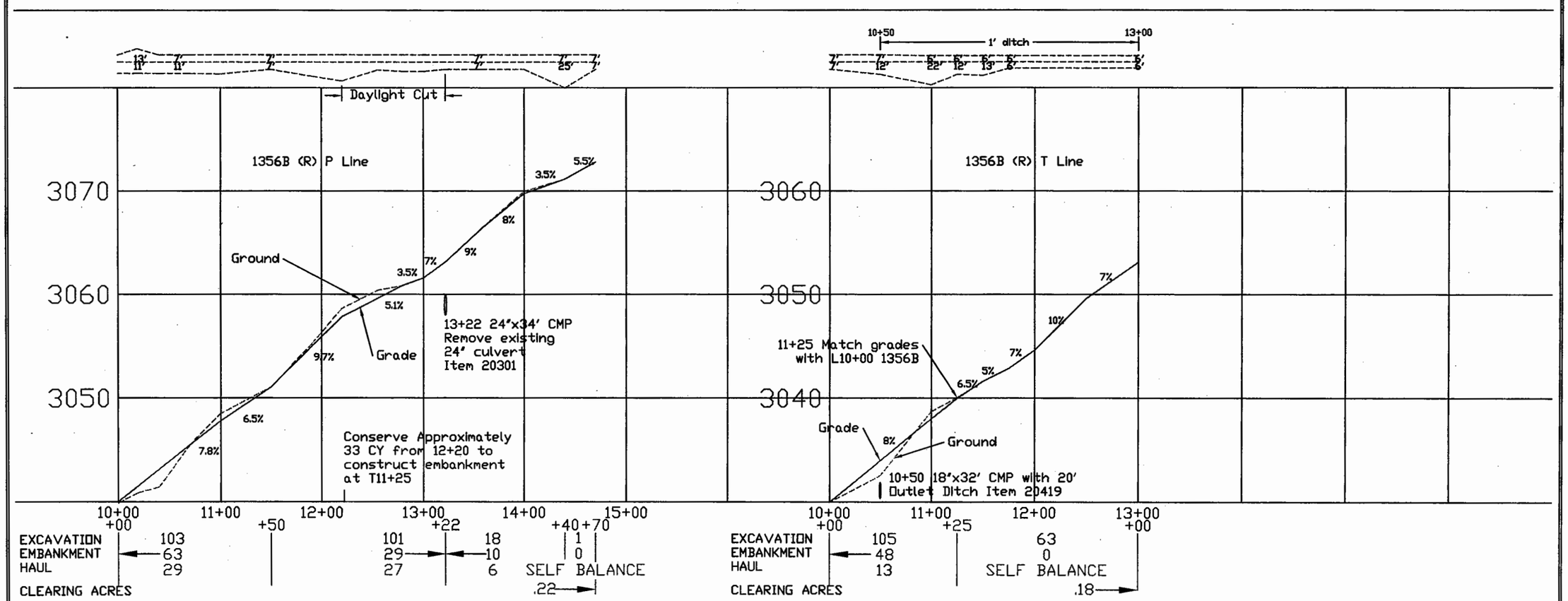
FOREST SERVICE U.S. DEPARTMENT OF AGRICULTURE
REGION ONE





Sta. 184+85
End new construction





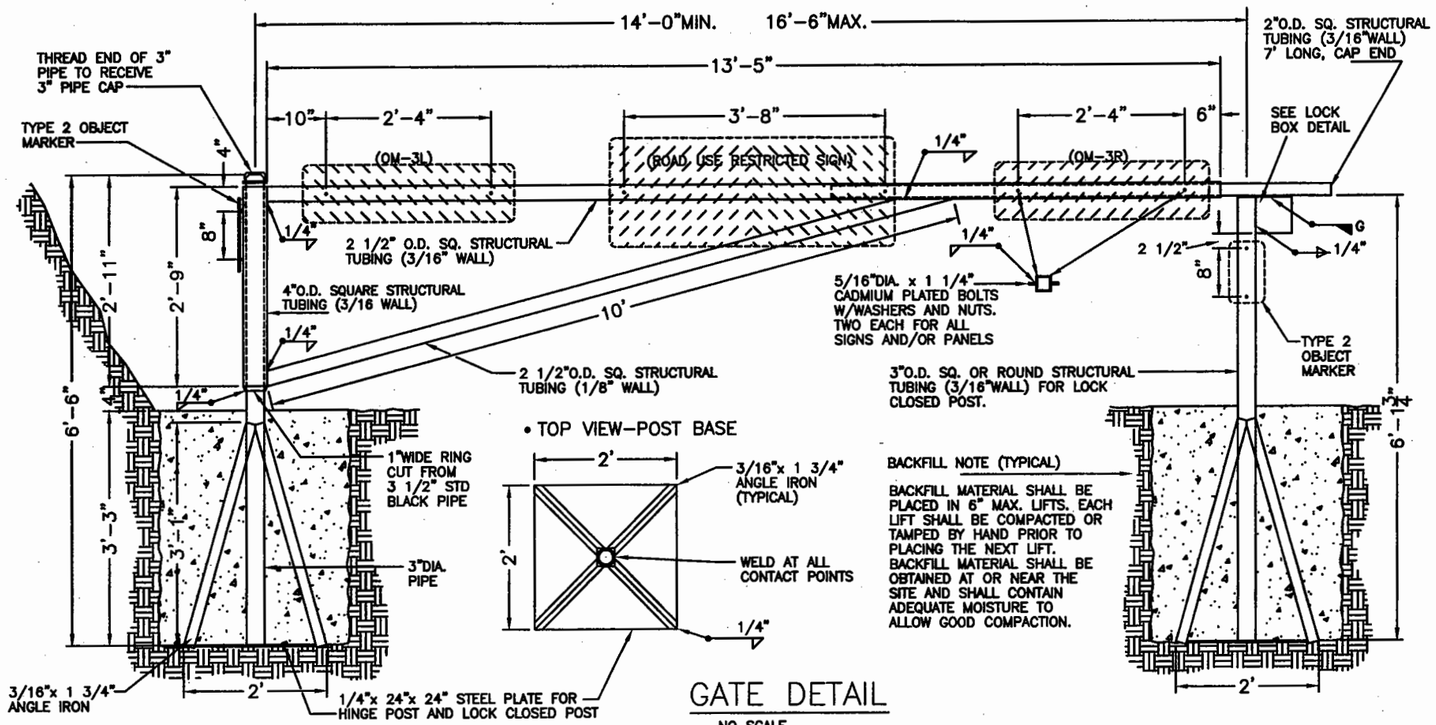
U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
R-1
NORTHERN REGION

Revised * Date *
Revised * Date *
Revised * Date *
Revised * Date *

Drawn DLJackson
Design DLJackson
Checked
Reviewed

Forest
Idaho Panhandle National Forests
Project Name
Lakeview Timber Sale

Sheet Title
Plan & Profile Road 1356B (R)
Sheet 23 of 31 Date: 8/18/2010

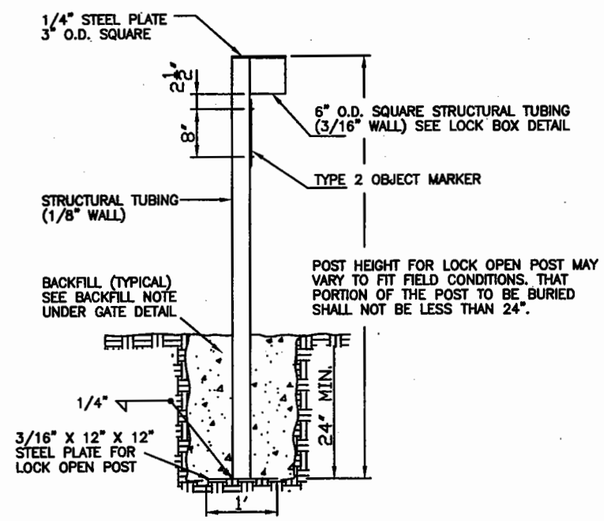


GATE DETAIL

NO SCALE

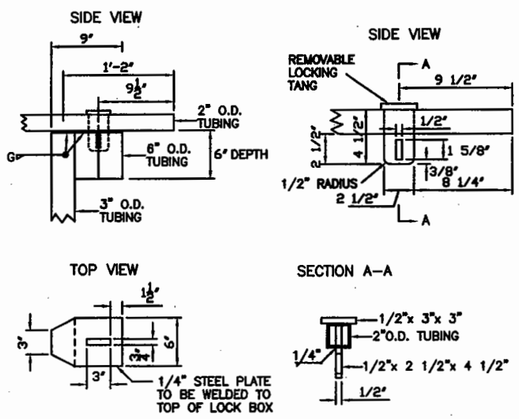
NOTES:

- Pipe sizes shown are for standard weight steel pipe
- Road use sign shall be centered on gate as shown on drawings.
- Gate post shall be marked with reflectorized yellow Type 2 (MUTCD), object markers, 6"x12", both sides of locked closed post and one side of locked open post as shown on drawings. On hinge post, marker shall be mounted to face traffic when gate is locked open.
- Road use restricted sign shall be furnished and installed by the contractor.
- Type 3 object markers, 12"x36" panels, white with 3" wide reflective red stripes.
- Type 2 object markers, 6"x12" panels, yellow.
- All object markers, types 2&3, shall be furnished and installed by the contractor or purchaser.
- After fabrication, all gate components must be sanded to remove all rust, scale and oily substances and painted with brown or red primer meeting requirements of 708.04 (a).
- Structural tubing shall be ASTM A36 structural steel.
- Locked open post should not be ordered until post height has been confirmed by the engineer.
- Install locking posts to the elevation necessary to make horizontal gate member level.



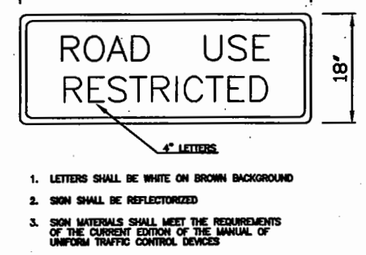
LOCK OPEN POST

NO SCALE



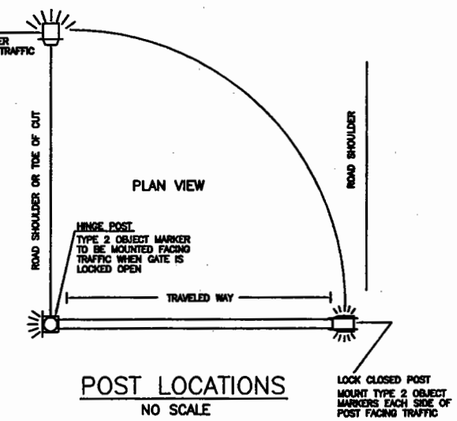
LOCK BOX DETAIL

NO SCALE



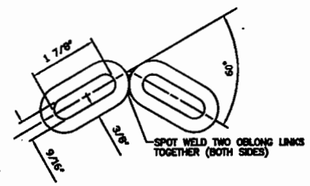
ROAD USE RESTRICTED SIGN

NO SCALE



POST LOCATIONS

NO SCALE

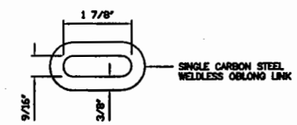


NOTES:

CONSTRUCT LOCKING DEVICE FROM CARBON STEEL WELDLESS OBLONG LINKS

TWO SINGLE LINKS AND ONE DOUBLE (WELDED) LINK REQUIRED FOR EACH LOCKING SYSTEM

THE CARBON STEEL WELDLESS OBLONG LINKS SHALL BE THE SAME OR EQUIVALENT TO THOSE LISTED BY:



MULTIPLE LOCKING SYSTEM

NO SCALE

Item 65001

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
R-1
NORTHERN REGION

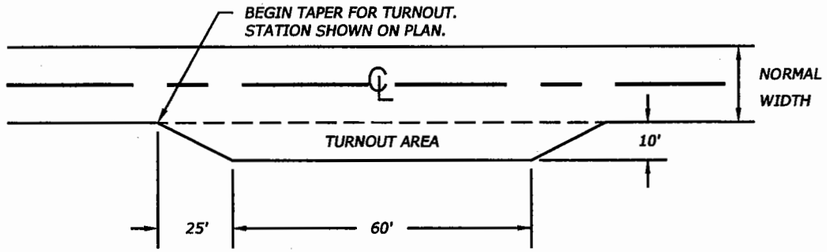
Revised * Date *
Revised * Date *
Revised * Date *
Revised * Date *

DRAWINGS FOR PROPOSED FOREST DEVELOPMENT PROJECT

Drawn *
Design DLJackson
Checked
Reviewed

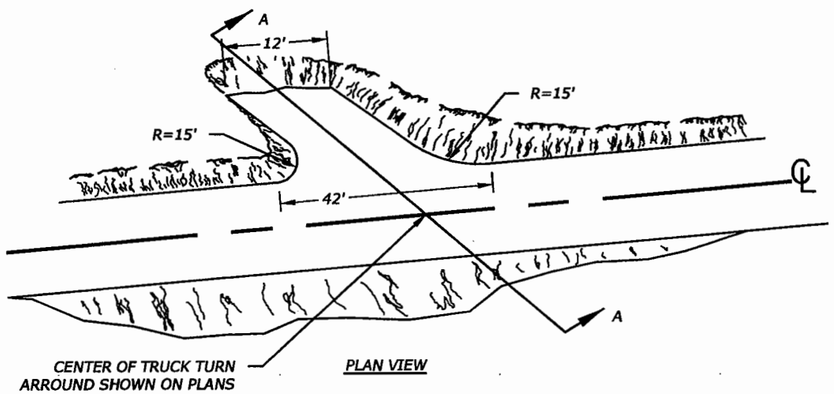
Forest: Idaho Panhandle National Forests
Project Name: Lakeview Timber Sale

Sheet Title: ROAD CLOSURE GATE DETAIL
Sheet 24 of 31
Date: 08/03/2010

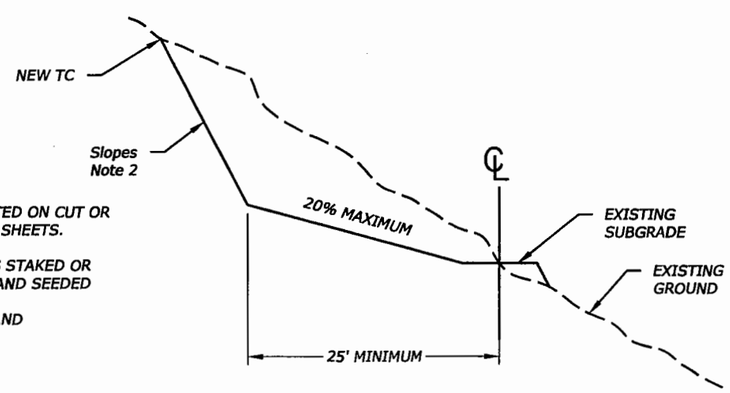


TURN-OUT DETAIL (LEFT OR RIGHT)

NO SCALE



PLAN VIEW



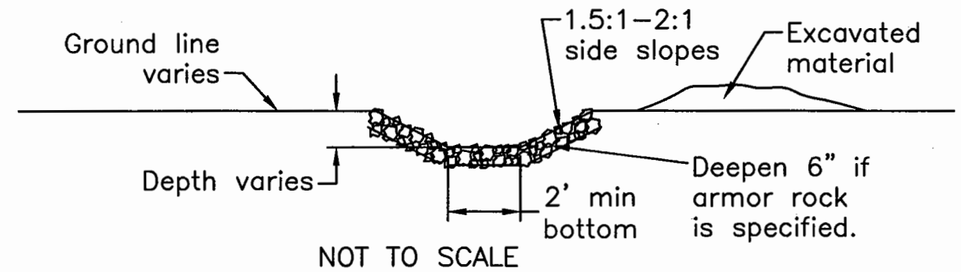
SECTION A-A

NOTE:

1. TRUCK TURN AROUND SHALL BE CONSTRUCTED ON CUT OR FILL SIDE AS SHOWN ON THE PLAN-PROFILE SHEETS.
2. CUT SLOPE AND/OR FILL SLOPE SHALL BE AS STAKED OR CONFORM TO ADJACENT ROADWAY SLOPES AND SEEDED
3. EARTHWORK IS INCLUDED IN EXCAVATION AND EMBANKMENT QUANTITIES.

TRUCK TURN AROUND DETAIL

OUTLET DITCH DETAIL, ITEM 20419

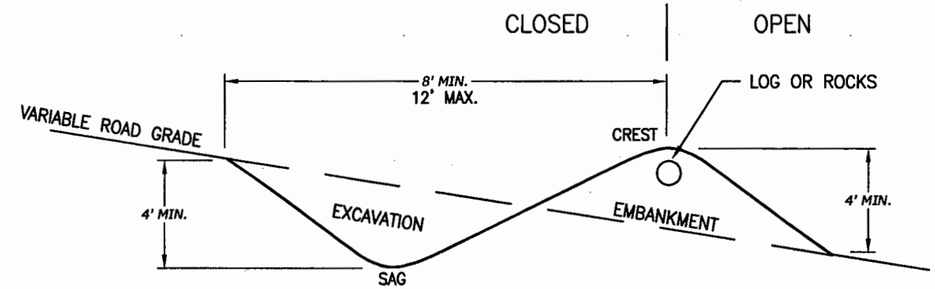


NOT TO SCALE

CONSTRUCTION NOTES

1. Ditch centerline at outlet will be marked.
2. Ditch depth varies to allow free drainage and to daylight at the outlet.
3. Clearing is indirect to 20419. Slash shall be as per General note 1.
4. Place excavated material away from ditch. Smooth & shape pile to allow free drainage.

EARTH BERM DETAIL, ITEM 20427



NOT TO SCALE

CONSTRUCTION NOTES

(1) PLACE MIN 12" X 12' LOG OR LARGE ROCKS IN EMBANKMENT AND COVER WITH AT LEAST ONE FOOT OF EMBANKMENT MATERIAL. LOG OR ROCKS MAY BE DELETED WITH WRITTEN APPROVAL BY THE CONTRACTING OFFICER.
(2) THE BOTTOM OF BERM SHALL BE OUTSLOPED ON A 7% GRADE UNLESS OTHERWISE DIRECTED.
(3) EARTH BERMS SHALL BE CONSTRUCTED AT LOCATIONS MARKED ON THE GROUND
(4) DITCH SAG TO DAYLIGHT TO ALLOW FOR FREE DRAINAGE

DJ&A, P.C.
CONSULTING ENGINEERS & LAND SURVEYORS
3203 Russell Street, Missoula, Montana 59801-8561
Phone 406/721-4320 Fax 406/549-8371

Idaho
Panhandle
National Forests

3815 Schreiber Way
Coeur d'Alene, ID
83814

No.	Date	Revision	By	Apvd.

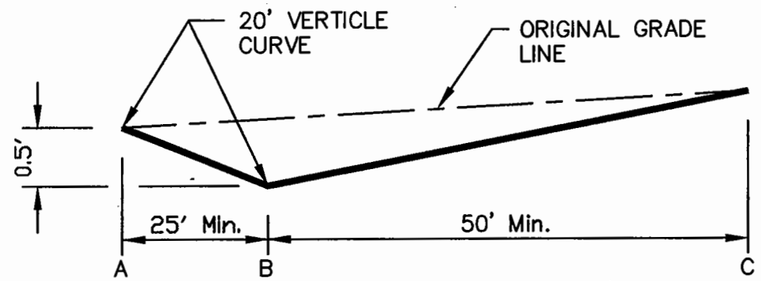
Drawn	KBE
Design	KBE
Checked	VA
Reviewed	---
Project No.	5787

LAKEVIEW TIMBER SALE

MISCELLANEOUS DETAILS

*

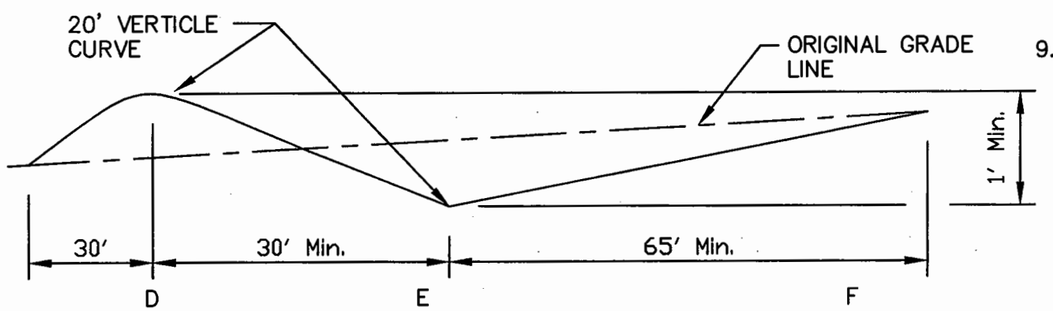
Date: 5/23/2012



ROAD PROFILE ALONG A–B–C OF GRADE DIP

DIP WILL MATCH BOTTOM OF DITCH IN DITCH SECTIONS, OR AS MARKED.

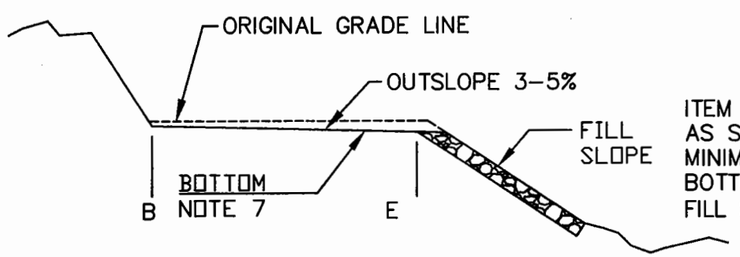
SEE NOTE 8



ROAD PROFILE ALONG D–E–F OF GRADE DIP

DIP WILL MATCH THE ORIGINAL GRADE LINE IN DITCH SECTIONS, OR AS MARKED.

SEE NOTE 8



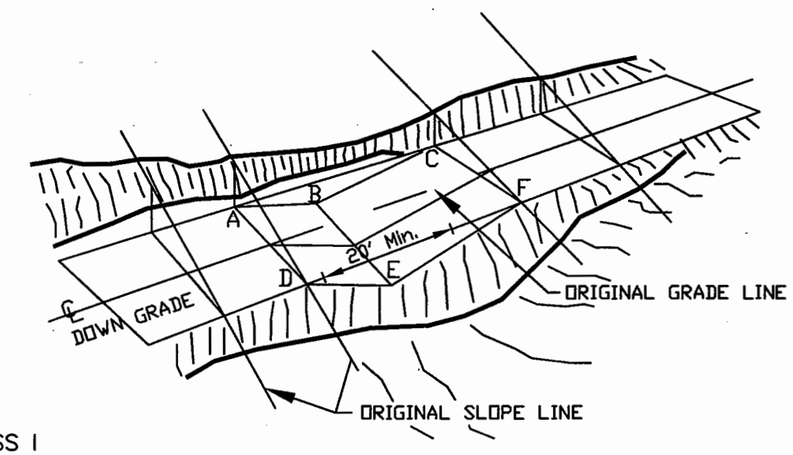
RIPRAP ARMOR

ITEM 25101I PLACED RIPRAP CLASS I AS SPECIFIED IN THE PLANS.
MINIMUM DIMENSIONS AS FOLLOWS:
BOTTOM OF DIP – 6"x 5' x 14'
FILL SLOPE – 1' x 10' x 10'

FILL SLOPE: 1.33:1, OR AS MARKED.

NOTES:

1. GRADE DIP SHALL DISCHARGE ONTO NATURAL GROUND.
2. INSLOPE/OUTSLOPE OF DRAINAGE DIP WILL BE 3–5%.
3. SKEW LINE B–E TO FIT LOW POINT IN DRAW, IF LOCATED IN NATURAL DRAIN, OR AS MARKED.
4. EXCAVATION BELOW THE EXISTING GRADE LINE WILL BE USED AS EMBANKMENT ABOVE THE EXISTING GRADE LINE ON THE DOWN SIDE OF THE DRAINAGE DIP.
5. THE MAXIMUM DEPTH OF EXCAVATION AND EMBANKMENT WILL VARY WITH THE PERCENT OF GRADE.
6. ARMOR ROCK FOR OUTFALLS SHALL CONFORM TO AND BE THE CLASS AS NOTED IN THE SCHEDULE OF ITEMS.
7. EXCAVATE 0.5' DEEPER THAN SHOWN IF RIPRAP IS SPECIFIED.
8. IN DITCH SECTIONS, DIP INSLOPE WILL START AT ORIGINAL ROAD GRADE AT FILL SHOULDER AND SLOPE DOWN GRADE INTO BOTTOM OF DITCH, OR AS MARKED.
9. FINAL LOCATION TO BE APPROVED BY THE ENGINEER.



PERSPECTIVE VIEW

NON–DITCH SECTION

Item 20420GD

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
R–1
NORTHERN REGION

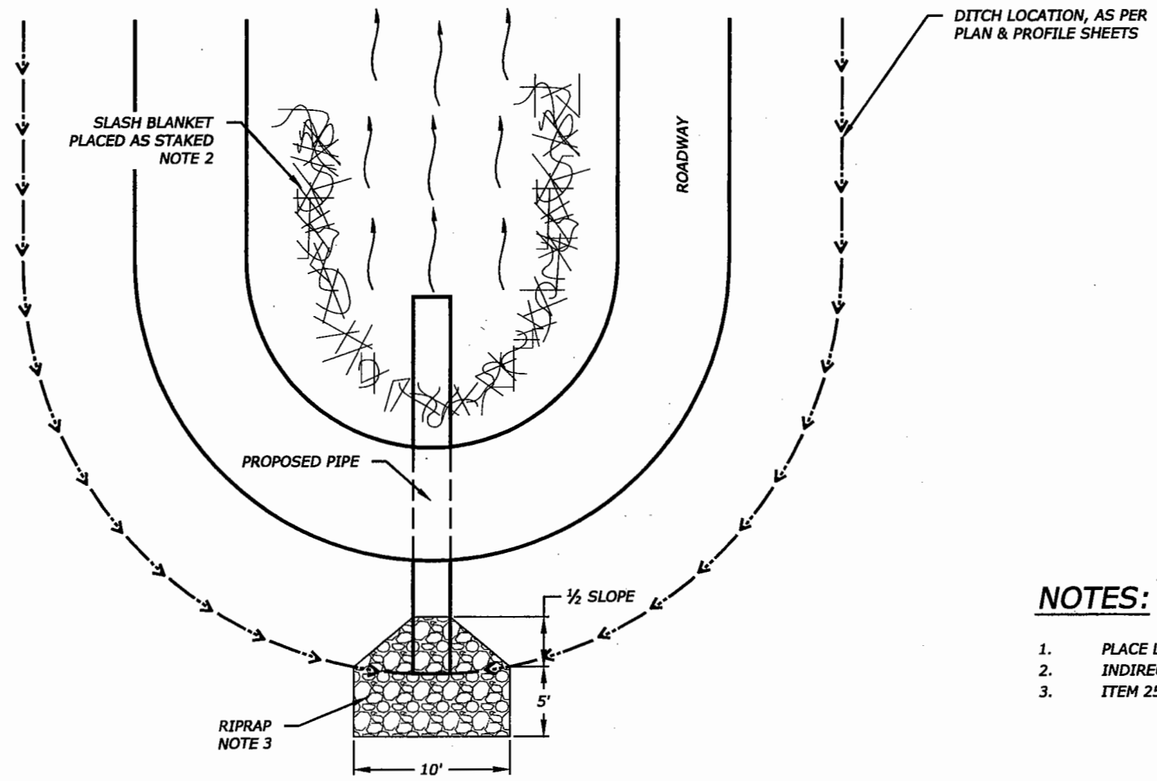
Revised DLJ	Date 120523		
Revised *	Date *		
Revised *	Date *		
Revised *	Date *		

DRAWINGS FOR PROPOSED FOREST DEVELOPMENT PROJECT

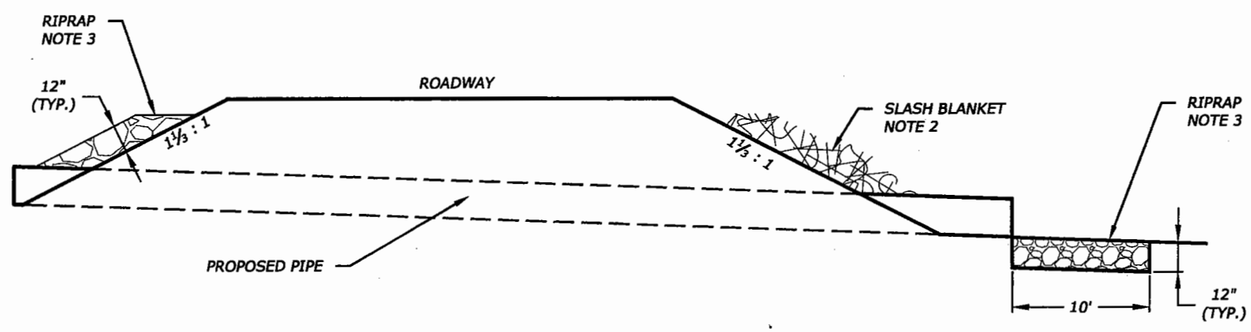
Drawn –
Design DLJackson
Checked
Reviewed

Forest: Idaho Panhandle National Forests
Project Name: Lakeview Timber Sale

Sheet Title: Grade Dip Detail
Sheet 26 of 31 Date: 05/23/12



PLAN



PROFILE

NOTES:

1. PLACE LARGE ROOT WADS AT TOE OF FILL.
2. INDIRECT PAYMENT TO ITEM 20104A, METHOD 12
3. ITEM 25101I OR 25101V, AS SPECIFIED ON THE PLANS

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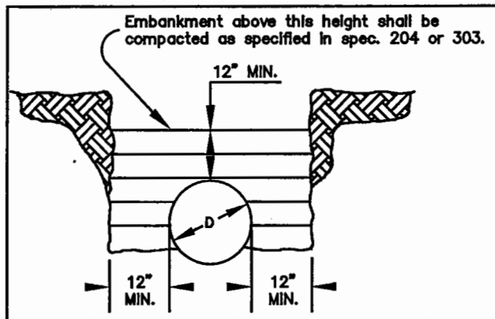
No.	Date	Revision	By	Apvd.

Drawn	KBE
Design	PD
Checked	VA
Reviewed	--
Project No.	5787

LAKEVIEW TIMBER SALE

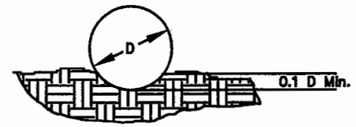
DRAW DETAIL

Date: 5/23/2012

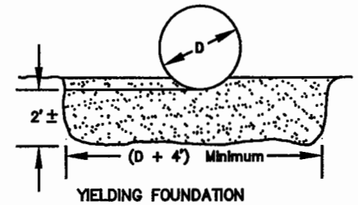


Maximum 6-inch compacted layers to density called for in the specifications. Bedding shall be suitable material uniformly compacted and shaped to fit the bottom of the pipe.

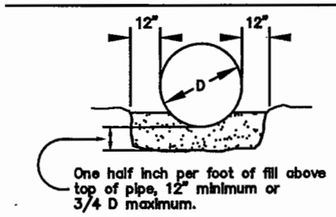
METAL THICKNESS AND GAGE TABLES			
Steel		Aluminum	Approx. Gage
Zinc Coated	Un-Coated		
Metal Thickness in inches			
0.064	0.0598	0.060	16
0.079	0.0747	0.075	14
0.109	0.1046	0.105	12
0.138	0.1345	0.135	10
0.168	0.1644	0.164	8
0.188	0.1838		7
0.218	0.2145		5
0.249	0.2451		3
0.280	0.2758		1



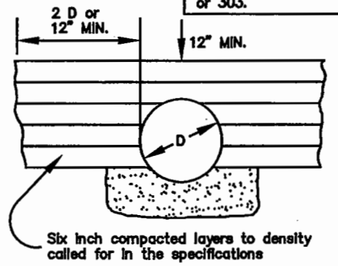
TYPICAL BEDDING MATERIAL



YIELDING FOUNDATION



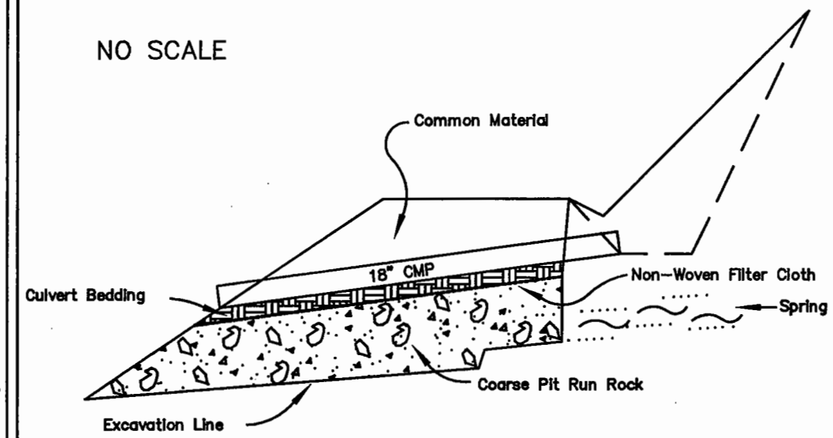
ROCK FOUNDATION



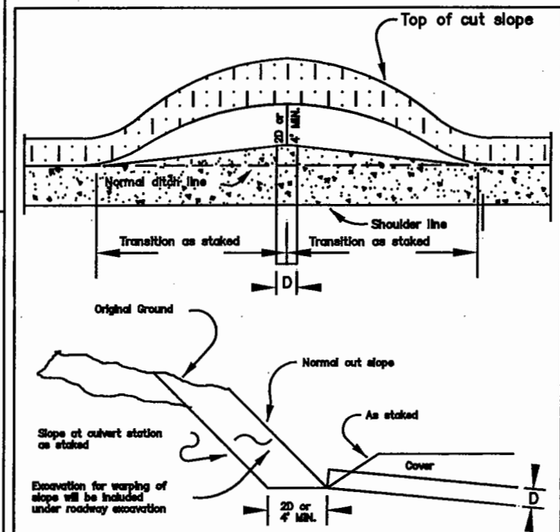
TYPICAL BACKFILL DETAIL

Bedding shall be suitable material uniformly compacted and shaped to fit the bottom of the pipe

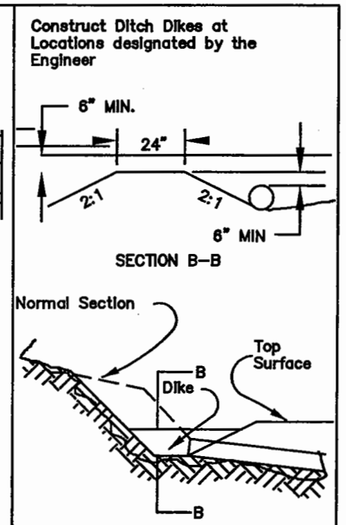
NO SCALE



UNDERDRAIN TYPICAL SECTION



TREATMENT OF CUT SLOPE AT CULVERT INLET



DITCH DIKE

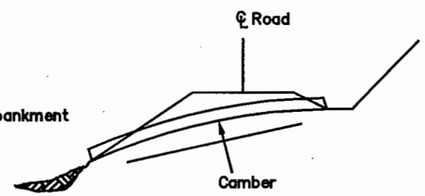
GENERAL NOTES:

TREATMENT OF DAMAGED SPELTER: The damaged or corroded ends of metal pipe to be extended shall be removed. If the damaged end is flame cut, the burned spelter on the galvanized pipe shall be wire brushed to clean metal and the area shall be painted with two coats of paint, high in zinc content, for repair of the galvanized surfaces.

SETTLEMENT AND CAMBER: Pipes shall be cambered as necessary to compensate for any anticipated settlement in the foundation or bed. Camber shall be on a parabolic curve with no point along the invert being higher than the invert at the inlet.

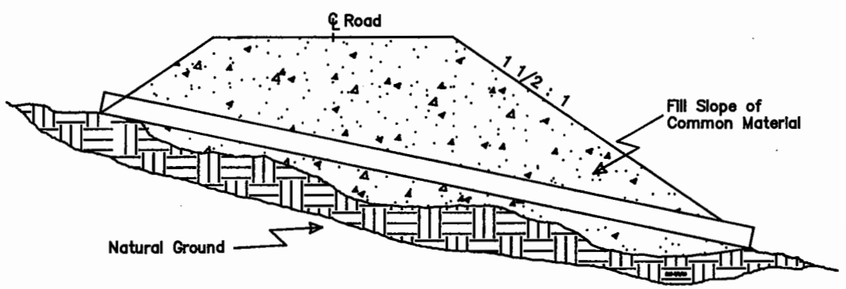
EMBANKMENT AND FOUNDATION SOIL CONDITION
Existing Fills, Regardless of Foundation Soils

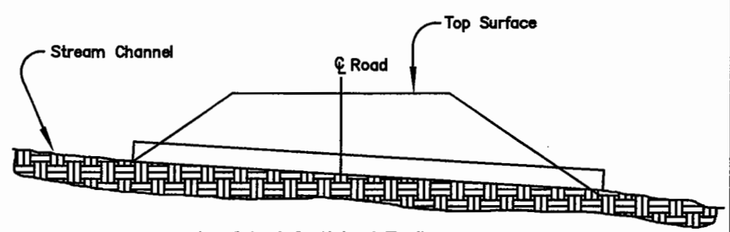
CAMBER
1% of pipe length, not to exceed 3/4 of pipe span.



1% of pipe length, not to exceed 3/4 of pipe span or as determined by the engineer.

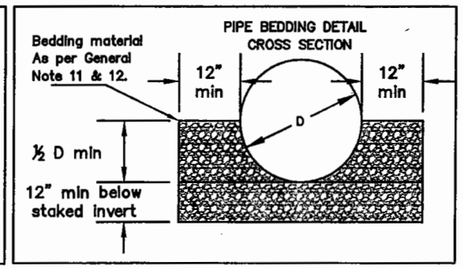
TYPICAL INSTALLATION IN EMBANKMENT





Lay Culvert On Natural Flowline

TYPICAL INSTALLATION IN STREAM CHANNEL



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No.	Date	Revision	By	Apvd.
1	120523	Pipe Bedding	DLJ	120523

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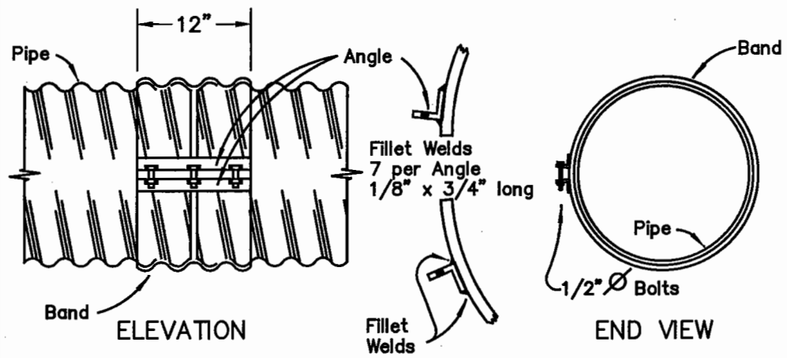
Design PD
Checked VA
Reviewed --
Project No. 5787

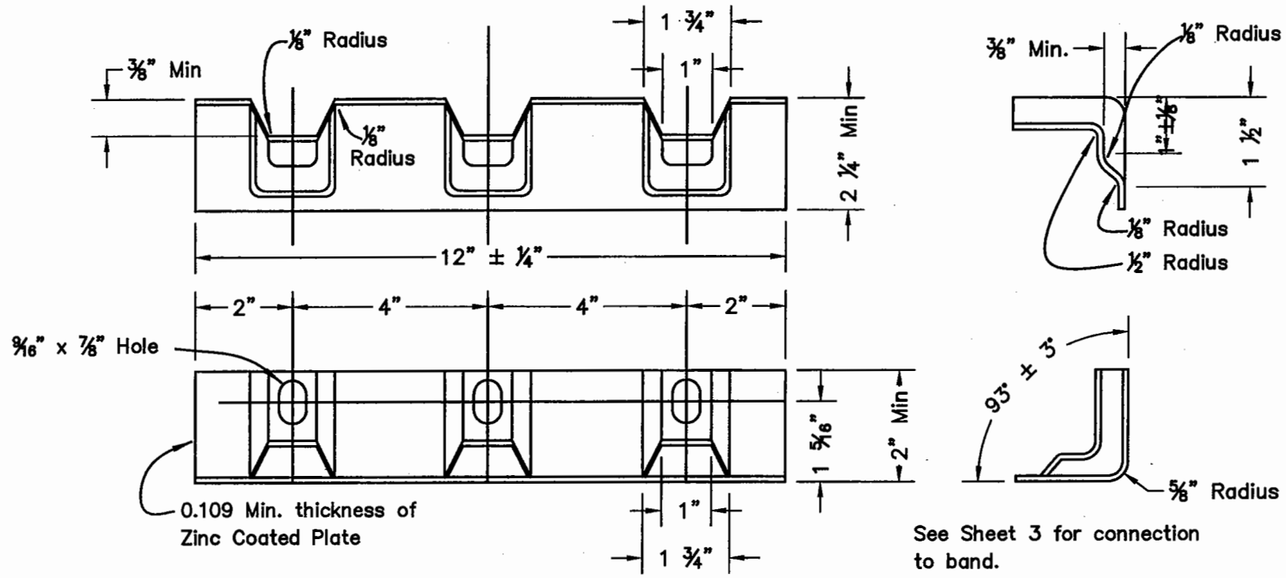
LAKEVIEW TIMBER SALE

CULVERT INSTALLATION DETAILS

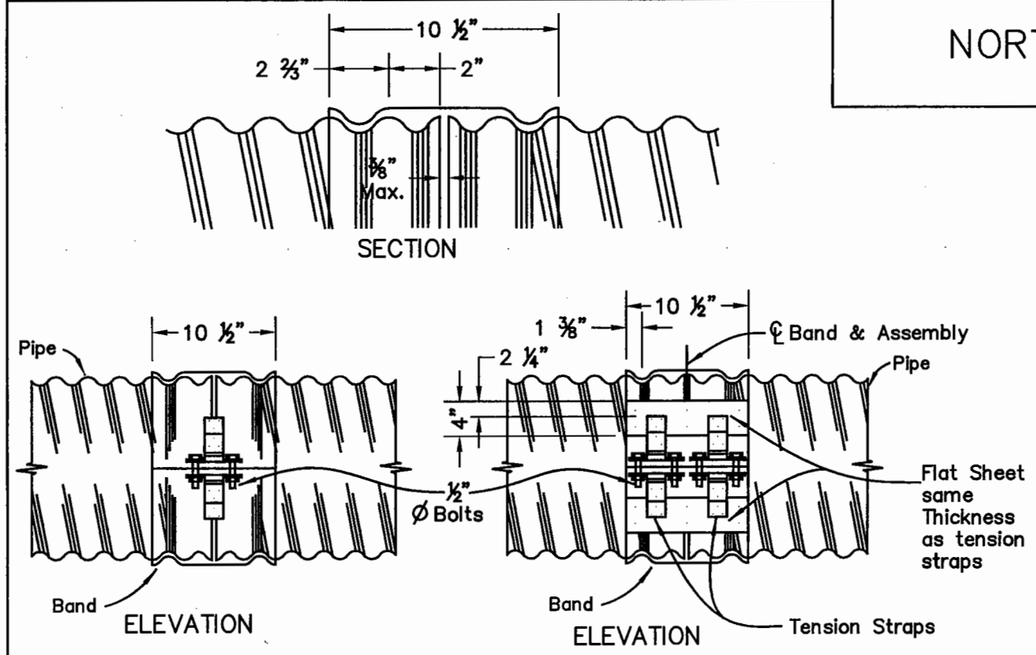
Date: 5/23/2012



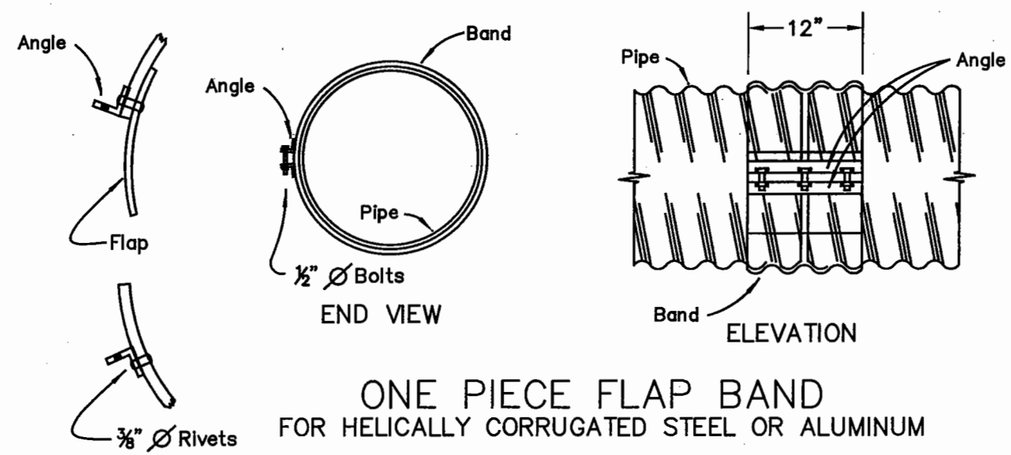
AMERICAN CULVERT BAND
FOR HELICALLY CORRUGATED STEEL PIPE



NORTHWEST CULVERT ANGLE ALTERNATIVE
FOR STEEL PIPE



HUGGER COUPLING BAND
FOR REFORMED END HELICALLY CORRUGATED
WELDED SEAM STEEL PIPE



ONE PIECE FLAP BAND
FOR HELICALLY CORRUGATED STEEL OR ALUMINUM

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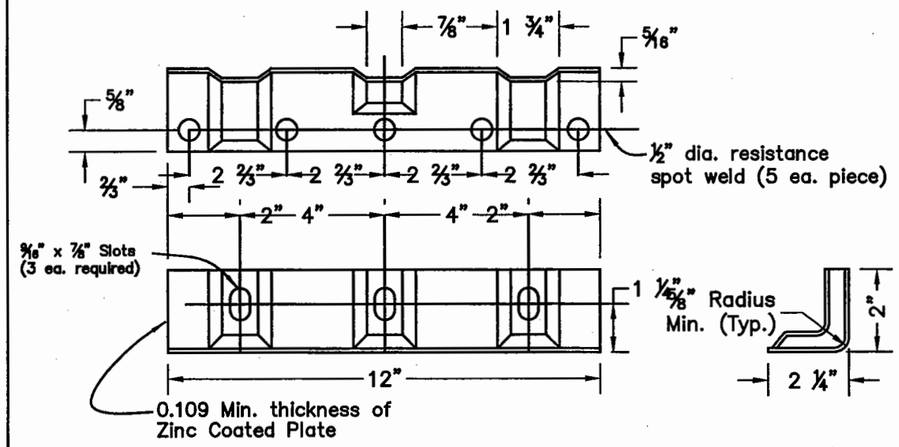
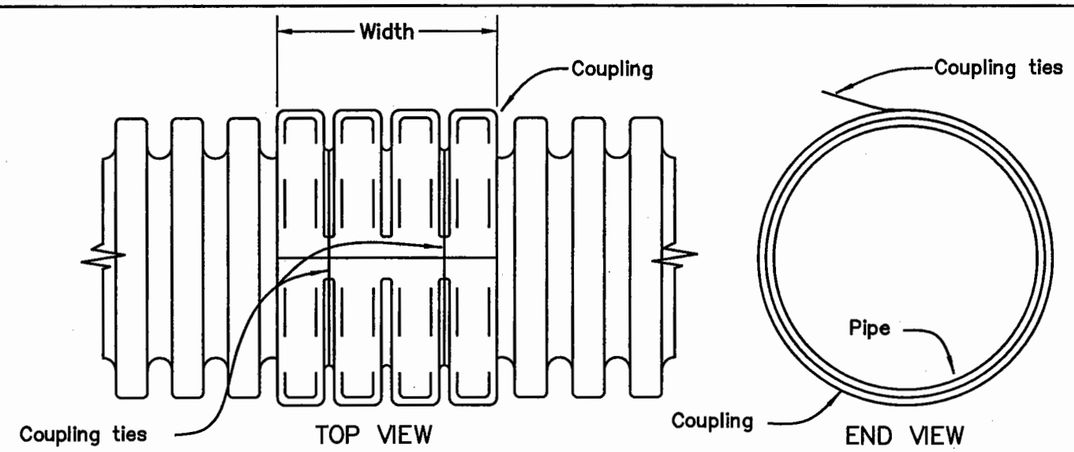
LAKEVIEW TIMBER SALE

COUPLING DETAIL
SHEET 1 OF 3

Date: 4/9/2010

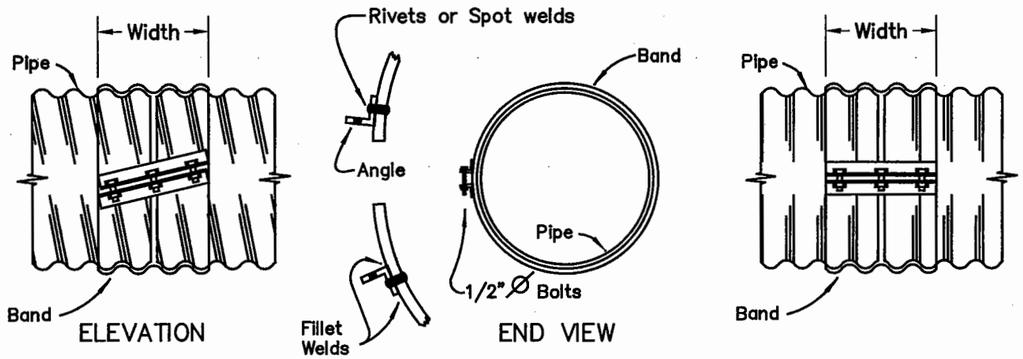


ALTERNATE FOR 2X2X3/16 ANGLE
FOR STEEL PIPE



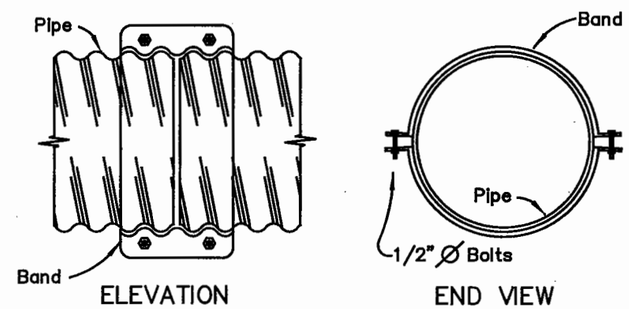
SPLIT COLLAR COUPLING
FOR ANNULAR CORRUGATED POLYETHYLENE PIPE

Notes:
1. Minimum width 4 corrugations, 2 on each culvert segment.
2. The opening of the coupling shall be within 15° of the top of the culvert.



HELICAL COUPLING BAND
FOR HELICALLY CORRUGATED STEEL OR ALUMINUM PIPE

ANNULAR COUPLING BAND
FOR ANNULAR OR REFORMED END HELICALLY CORRUGATED STEEL OR ALUMINUM PIPE



TWO PIECE INTEGRAL FLANGE
FOR HELICALLY CORRUGATED STEEL OR ALUMINUM PIPE

Notes:
1 Use 2x12x0.150 thickness 5052–H141 aluminum plate washer under bolt head & nut on aluminum pipe flange.
2. Use 2x12x0.125 thickness galvanized steel plate washer under bolt head & nut on steel pipe flange.

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LAKEVIEW TIMBER SALE

COUPLING DETAIL
SHEET 2 OF 3

Date: 4/9/2010
Sheet 30 of 31

COUPLING TYPE	CORRUGATION Inches	PIPE DIAMETER Inches	WIDTH Inches	SPECIFIED THICKNESS See Note 1–C: Pipe Wall	SPECIFIED THICKNESS See Note 1–C: Band	ANGLE – See Note 1–H: DIMENSION	ANGLE – See Note 1–H: BOLTS NO / DIAMETER	ANGLE TO BAND: RIVETS	ANGLE TO BAND: SPOT WELDS
Metal Pipe Annular and Helical	2–2/3x1/2 (Steel or Aluminum)	Thru 36	12	0.064–0.138	0.064–0.079	2x2x3/16	3–1/2	3–3/8	5–1/2
		42–60	12	0.064–0.079	0.064	2x2x3/16	3–1/2	3–3/8	5–1/2
		42–60	12	0.064–0.168	0.064–0.109	2x2x5/16	3–1/2	5–3/8	
		66–84	24	0.109–0.168	0.064–0.109	2x2x5/16	5–1/2	7–3/8	
	3x1 and 5x1 (Steel Only)	36–60	14	0.064–0.079	0.064	2x2x3/16	3–1/2	3–3/8	5–1/2
		42–60	14	0.109	0.064	2x2x5/16	3–1/2	5–3/8	
		66–120	25	0.064–0.109	0.064	2x2x5/16	5–1/2	9–3/8	
One Piece Flap Band & Two Piece Integral Flange	2–2/3x1/2 (Steel or Aluminum) see Note 1–I	18–24	12	0.064–0.079	0.064		3–1/2	4–3/8*	* Flap Band Only
								WELDS ANGLE TO BAND	
American Culvert Band	2–2/3x1/2 (Steel Only)	Thru 24	12	0.064–0.109	0.064–0.079	2x2x0.183	3–1/2	7–1/8x3/4 Long Fillet	
		30–36	12	0.064–0.109	0.064	2x2x0.183	3–1/2		
		42–48	12	0.064–0.079	0.064	2x2x0.183	3–1/2		
Northwest Culvert Alternative	2–2/3x1/2 (Steel Only)	Thru 84	12	0.064–0.079	0.064–0.109			5–3/16x3/4 Long Fillet	
		Thru 54	12	0.109	0.064–0.109				
		Thru 42	12	0.138	0.064–0.109				
		Thru 84	12	0.064–0.168	0.064–0.109			5–1/2 Spot	
						BAR AND STRAP: NUMBER/ THICKNESS	BOLT DIAMETER	BAR DIAMETER	BAR YIELD STRENGTH P.S.I.
Hugger	2–2/3x1/2 (Steel Only)	Thru 48	10–1/2	0.064–0.109	0.064–0.109	One 0.079	1/2	7/8	32,000
		36–48	10–1/2	0.138–0.168	0.079–0.109	One 0.109	1/2	7/8	45,000
		54–60	10–1/2	0.079–0.168	0.064–0.109	Two 0.079	1/2	7/8	32,000
		66–84	10–1/2	0.109–0.168	0.109	Two 0.109	1/2	7/8	45,000
	3x1 (Steel Only)	36–66	10–1/2	0.064–0.109	0.064	Two 0.079	1/2	7/8	32,000
		72–84	10–1/2	0.109	0.079	Two 0.079	1/2	7/8	32,000
		61–120	10–1/2	0.109	0.109	Two 0.109	1/2	7/8	45,000
PE Pipe Split Collar		Thru 24	See Drawing	per AASHTO M–294	per AASHTO M–294				

GENERAL NOTES

1. Metal Coupling Bands
   - A. These coupling bands meet the strength requirements for special Joint Types under Non–erodible Soil Conditions, Table 2.23.3 of AASHTO's "Standard Specifications for Highway Bridges".
   - B. For pipe walls and bands, the Specified Thickness for steel is given. For aluminum, the Specified Thickness is that for steel less the allowance for the zinc coating which is 0.003 to 0.004 of an inch per AASHTO M–36, M–196 and M–197.
   - C. The minimum specified Thickness for bands is two Specified Thickness less than that for the pipe, but in no case thinner than 0.064 inches, (0.060 for aluminum).
   - D. For pipe arches, use the same width band as for round pipe of equal periphery.
   - E. A two–piece band is required for pipe greater than 42 inches in diameter.
   - F. Tension straps may be connected to bands of plates with either spot or fillet welds that develop minimum required strength of strap.
   - G. For helically corrugated coupling bands, the connection angles may be oriented parallel to the pipe axis, provided connecting holes are slotted lengthwise sufficiently to allow adjustment for the helix angle.
   - H. Use 1 1/4 inch center to center gauge line dimension on attached angle leg for rivets and spot welds.
   - I. The Two Piece Integral Flange coupling band shall not be used on pipe arches.
   - J. Culvert bands shall be made of the same metal as the culverts being joined.
2. Polyethylene (PE) Couplings

   Testing standards for Corrugated Polyethylene (PE) Pipe couplings have not been established nor have couplings been tested for shear or bending moment. Therefore, until further information is available, PE couplings shall be used only where bending moment and shear requirements are minimal. Typical situations are:
   - A. Where the slope of the culvert will not be more than 5%.
   - B. Where the fill below the culvert is less than 2 feet.
   - C. In areas of firm soils. This excludes marshes unless the bedding is specially designed and approved by the engineer.
3. Other

   Couplings other than those shown on this drawing may be used upon submission of testing data (see 1–A above) and approval by the Engineer.

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LAKEVIEW TIMBER SALE

COUPLING DETAIL SHEET 3 OF 3

Date: 4/9/2010
Sheet 31 of 31