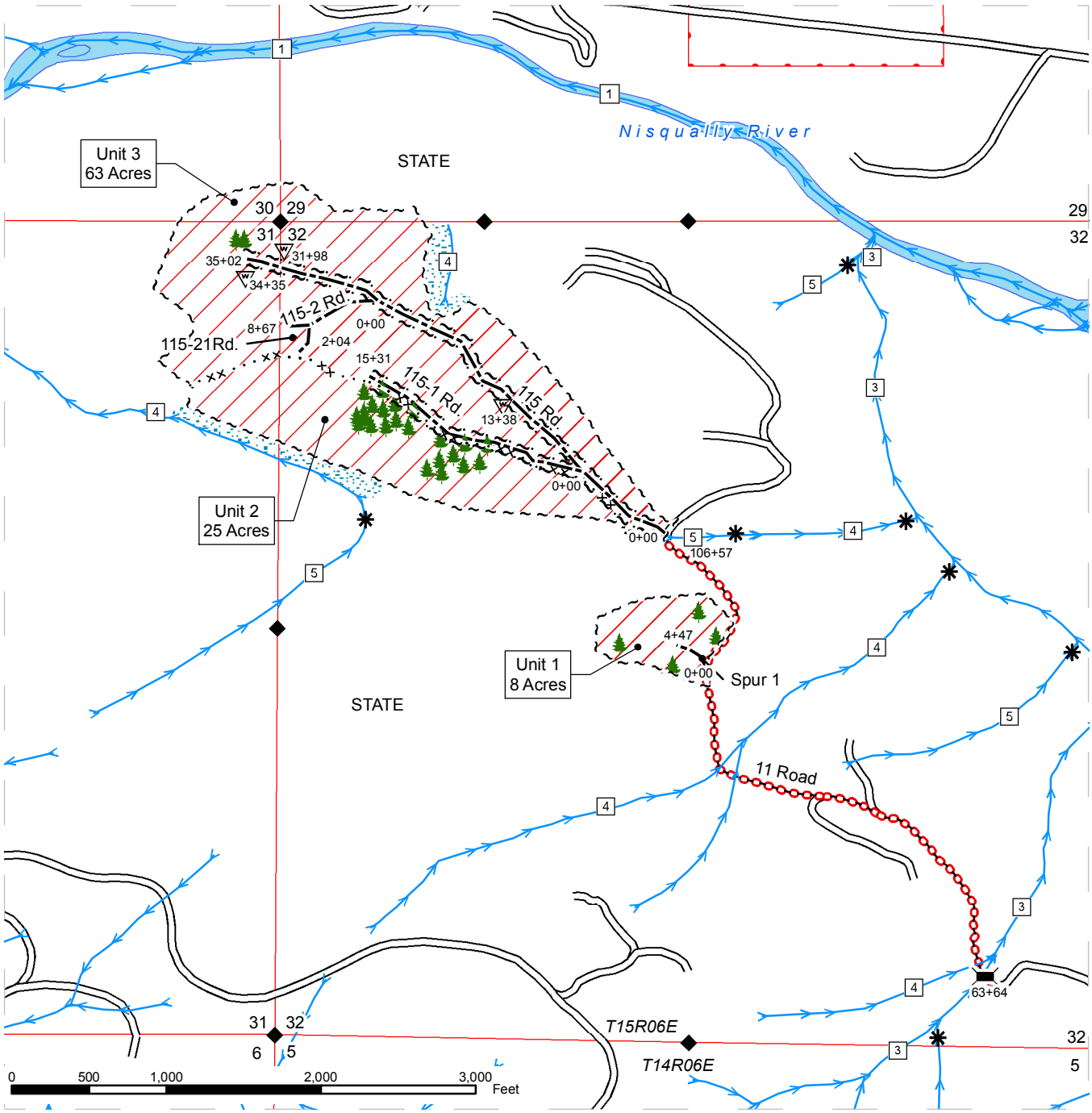
ROAD PLAN MAP

SALE NAME: CLOSER PC & REGEN
AGREEMENT#: 30-078967
TOWNSHIP(S): T15R06E
TRUST(S): Common School and Indemnity(03), Capitol Grant(07)

REGION: South Puget Sound Region
COUNTY(S): LEWIS
ELEVATION RGE: 1553-2147ft.



- Timber Sale Area
- WMZ/RMZ Area
- White Timber Sale Boundary Tags
- Blue Special Management Boundary Tags
- Orange Right of Way Tags
- Existing Roads
- Optional Road Construction
- Required Abandonment
- Streams
- Stream Type
- Stream Type Change
- Monumented Corner
- Leave Tree Area Marked with Yellow Leave Tree Tags
- Bridge
- Waste Area

Prepared By: C. Fosberg
Creation Date: 10/15/2008
Modification Date: 1/5/2009

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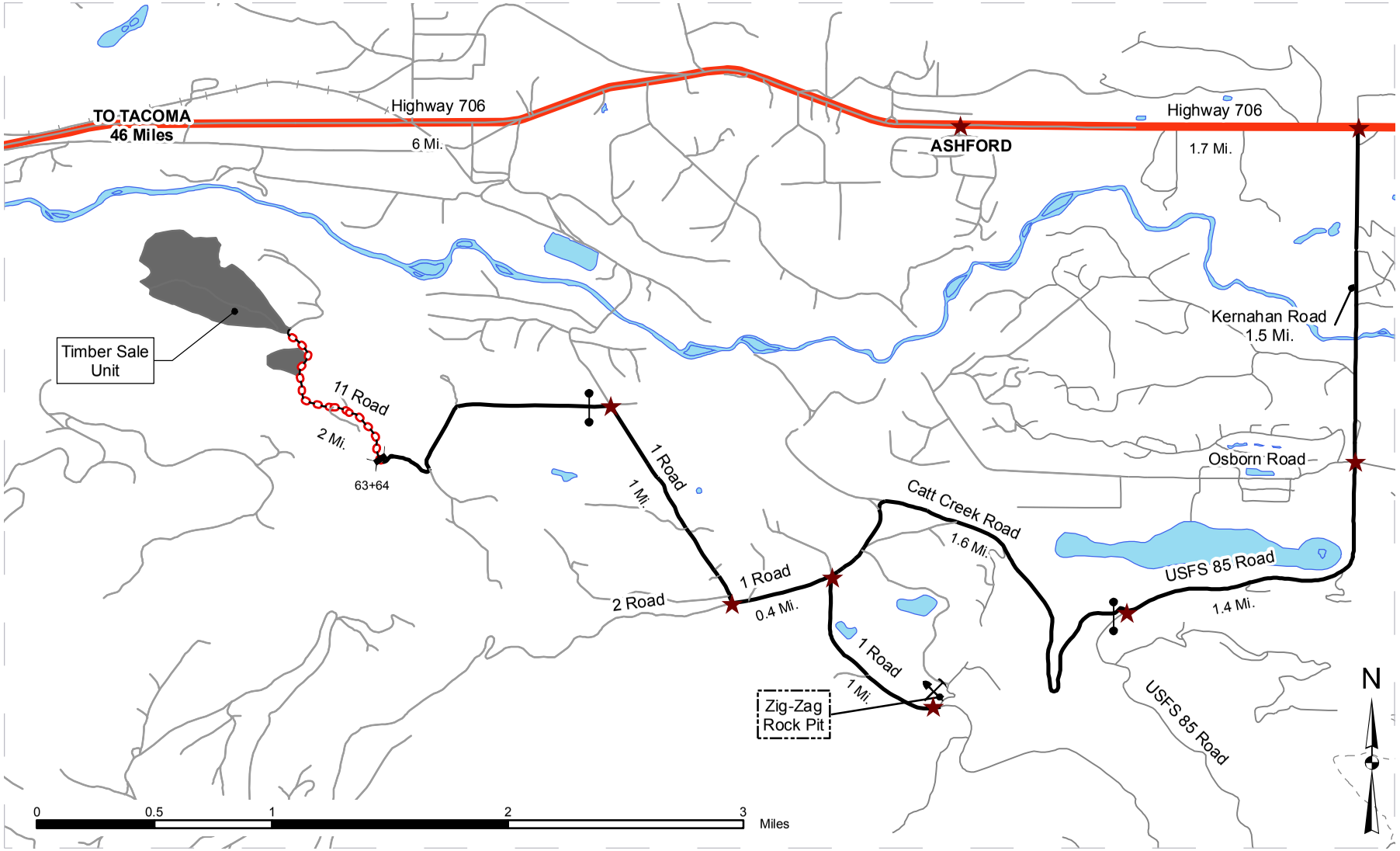


- Timber Sale Area
- Haul Route
- Required Abandonment
- Gate - Combo: 8967
- Rock Pit
- Bridge
- Distance Indicator

DRIVING DIRECTIONS:

From Elbe, take HWY 706 past Ashford approximately 1.7 miles.
Turn right onto the Kernahan Road.
Travel south on Kernahan Rd. approximately 1.5 miles, turn right onto Osborne then make an immediate left onto the USFS 85 Road.
Proceed on the 85 Road approximately 1.4 miles
Turn right onto the DNR Catt Creek Rd, go past gate and travel west approximately 2.0 miles before reaching the 1 Road.
The 1/2 Road junction is located approximately 0.4 miles further to the west of the 1/Catt Cr. Road junction.

Prepared By: C. Fosberg

Creation Date: 10/27/2008

Modification Date: 12/9/2008

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES
SOUTH PUGET SOUND REGION

CLOSER PC AND REGEN
ROAD PLAN

SECTIONS 2, 31, 32, and 33, TOWNSHIP 15 NORTH, RANGE 6 EAST, W.M.
LEWIS COUNTY
ELBE UNIT

AGREEMENT NO.: 30-078967 STAFF ENGINEER: M. Bell
DATE: 10/01/08 DRAWN & COMPILED BY: M. Bell

SECTION 0 - SCOPE OF PROJECT

This project includes but is not limited to optional construction including:

clearing;
grubbing;
right-of-way debris disposal;
excavation and/or embankment to subgrade;
landing construction;
acquisition and installation of drainage structures;
acquisition, manufacture, and application of rock;
grass seeding;
road abandonment.

This project also includes but is not limited to abandonment including:

removing bridge and transport to Ashford cooler compound (see section 8.3-2B)
removing embankments;
constructing waterbars;
removing stream culverts;
acquisition and application of grass seed and fertilizer;
acquisition and application of straw;
scattering stumps and slash over road prism;
blocking road with stumps and slash.

SECTION 1 - GENERAL CLAUSES

1.1-1 **ROAD PLAN SCOPE**

Clauses in this plan apply to all construction or abandonment including landings unless otherwise noted.

1.1-2.1 **ABANDONMENT**

Abandonment of the following roads is required. All roads shall be abandoned in accordance with this Road Plan.

Road	Stations
11	63+00 to 106+57

1.1-3 **OPTIONAL ROADS**

Construction of the following roads is not required. Roads used by the Purchaser shall be constructed on the State's location and in accordance with this Road Plan.

Road	Stations	Type
115	0+00 to 35+02	Construction
115-1	0+00 to 15+31	Construction
115-2	0+00 to 8+67	Construction
115-21	0+00 to 2+04	Construction
Spur 1	0+00 to 4+47	Construction

1.1-4 **ROAD PLAN CHANGES**

Any departure from this Road Plan including relocation, extension, change in design, or additional roads shall be submitted in writing, to the Contract Administrator for consideration, submitted plans must be approved before construction begins.

1.1-5 **HIDDEN CONDITIONS**

On this plan quantities are minimum acceptable values. Additional quantities required by the State because of hidden conditions or Purchaser's choice of construction season or techniques shall be at the Purchaser's expense. Hidden conditions include, but are not limited to: solid subsurface rock, subsurface springs, saturated ground, and unstable soil.

1.2-1 **CONSTRUCTION PERIOD**

The construction, abandonment, or rock haul on any of the roads specified herein shall not be permitted when in the opinion of the Contract Administrator, excessive damage may occur, nor shall it be permitted from November 1 to May 31 unless authority to do so is granted, in writing, by the Contract Administrator. If permission is granted to operate between November 1 and May 31, the Purchaser may be required to provide a "Closed Season Plan" to include further protection of water, soil, roads and other forest assets. The "Closed Season Plan" must be approved in writing by the Contract Administrator.

1.2-1C **DAILY CONSTRUCTION TIME**

No operation of road construction equipment will be allowed on weekends or State recognized holidays unless authority to do so is granted in writing by the Contract Administrator.

1.2-2 **HAUL APPROVAL**

Purchaser shall not use roads constructed under this Road Plan for hauling, other than timber cut on the right-of-way, without written approval from the Contract Administrator.

1.2-3 **EXCAVATOR CONSTRUCTION**

Roads shall be constructed using track mounted hydraulic excavators unless otherwise authorized, in writing, by the Contract Administrator.

1.2.1-1 **CONSTRUCTION STEPS**

Pioneering shall not extend past construction that will be completed during the current construction season. Pioneering shall not extend more than 1000 feet beyond completed construction unless approved, in writing, by the Contract Administrator.

Drainage shall be provided on all uncompleted construction as approved, in writing, by the Contract Administrator.

Road pioneering operations shall not undercut the final cut slope, deposit excavated material outside the right of way limits, or restrict drainage.

Clearing and grubbing shall be completed prior to starting excavation and embankment.

Culverts shall be installed in completed subgrade as construction progresses.

Subgrade, ditches, and culvert installations and subgrade compaction shall be completed and are subject to written approval by the Contract Administrator prior to rock application, and/or timber haul.

1.3-1A **CLOSURE TO PREVENT ROAD DAMAGE**

At any time of the year, the hauling of forest products shall not be permitted when in the opinion of the Contract Administrator excessive road damage may occur.

1.3-1D **DIRT ROADS**

Dirt surface roads shall be water barred by November 1. Water bars shall be constructed in conformance with the attached DRIVABLE WATER BAR DETAIL at a maximum spacing which will produce a vertical drop of no more than 10 feet between water bars or between natural drainage paths and with a maximum spacing of 300 feet.

1.4-3 **R P DAMAGE**

Reference points (R.P.'s) that are moved or damaged at any time during construction shall be reset in their original locations by the Purchaser. Excavation and embankment shall not proceed on road segments controlled by said R.P.'s until all moved or damaged R.P.'s are reset.

1.5-1 **ROAD MAINTENANCE RESPONSIBILITY**

Maintenance on roads listed in Contract Clauses C-050 (Purchaser Road Maintenance and Repair) and C-060 (Designated Road Maintainer) shall be performed in accordance with Forest Access Road Maintenance Specifications.

1.5-3 **SNOWPLOWING**

Snowplowing shall not be permitted unless authorized, in writing, by the Contract Administrator.

SECTION 2 - CLEARING

2.1-1 **CLEARING SPECIFICATION**

Fell all vegetative material larger than 6 inches DBH or over 20 feet high between the marked right-of-way boundaries or if not marked in the field, between clearing limits specified on TYPICAL SECTION SHEET.

SECTION 3 - GRUBBING

3-1 **GRUBBING SPECIFICATIONS**

All stumps shall be removed that fall between grubbing limits shown on the TYPICAL SECTION SHEET. Those outside the grubbing limits but with undercut roots shall also be removed.

3-2 **GRUBBING LIMITS**

Grubbing limits are defined as the entire area between the external limits shown on the TYPICAL SECTION SHEET.

SECTION 4 - DEBRIS DISPOSAL AND REMOVAL

4.1-1 **DEBRIS DEFINITION**

Right-of-way debris is defined as all non-merchantable vegetative material larger than one cubic foot in volume within the clearing limits.

4.1-2 **DISPOSAL COMPLETION**

All right-of-way debris disposal shall be completed prior to the application of rock and/or timber haul.

4.2.3-3 **DEBRIS PLACEMENT**

Right-of-way debris shall not be placed against standing timber.

4.2.3-4 **SCATTERING RIGHT OF WAY DEBRIS**

Right-of-way debris shall be placed outside grubbing limits.

SECTION 5 - EXCAVATION

5.1-1 **DEFAULT ROAD DIMENSIONS**

Unless controlled by specific design sheets herein, roads shall be constructed in accordance with dimensions shown on the TYPICAL SECTION SHEET.

5.1-3 **ROAD GRADE AND ALIGNMENT**

Road grade and alignment shall conform to the State's marked location. Grade and alignment shall have smooth continuity without abrupt changes in direction. Maximum grades are: 18 percent favorable and 12 percent adverse or as specified on drawings. Minimum radius curve is 60 feet.

5.1-4 **CURVE WIDENING**

Minimum extra widening on the inside of curves shall be:

5 feet extra	80 to 100 foot radius curve
7 feet extra	60 to 80 foot radius curve

Curve widening, where required, shall be added to the inside of curves.

5.1-7 **CONSTRUCTION TOLERANCES**

Roads shall be constructed to the dimensions shown on the TYPICAL SECTION SHEET, within the tolerance listed below. Tolerance classes for each road are listed on the TYPICAL SECTION SHEET.

Tolerance Class	A	B	C
Road Width (feet)	+1.5	+1.5	+2.0
Subgrade elevation (feet +/-)	0.5	1.0	2.0
Centerline alignment (feet lt./rt.)	1.0	1.5	3.0

5.1-8 **CUT SLOPE RATIO**

Excavation (cut) slopes shall be constructed no steeper than shown on the following table:

Material Type	Excavation Slope Ratio	Percent
Common Earth (on side slopes less than 55%)	1:1	100
Common Earth (55% to 70% sideslopes)	¾:1	133
Common Earth (on slopes over 70%)	½:1	200
Fractured or loose rock	½:1	200
Hardpan or solid rock	¼:1	400

5.1-9 **SHAPING CUT SLOPE**

Excavation and embankment slopes shall be constructed to a uniform line and left rough for easier re-vegetation.

5.1-10 **FILL WIDENING**

Embankments shall be widened as follows:

Height at Shoulder	Subgrade Widening
2 to 6 feet	2 feet
6 feet or over	4 feet

5.1-11 **FILL SLOPE RATIO**

Embankment (fill) slopes shall be constructed no steeper than shown on the following table:

Material Type	Embankment Slope Ratio	Percent
Common Earth and Rounded Gravel	1½:1	67
Angular Rock	1¼:1	80
Sandy Soils.	2:1	50

5.1-12 **DISPOSAL OF ORGANIC DEBRIS**

Organic material shall be excluded from embankment as shown on the TYPICAL SECTION SHEET.

5.1-14 **FULL BENCH CONSTRUCTION**

Where side slopes exceed 45 percent, full bench construction shall be utilized for the entire subgrade width.

5.1-15 **END HAUL CONSTRUCTION**

Waste material may be deposited adjacent to the road prism on side slopes up to 55 percent if the waste material is compacted. On side slopes of 55 percent or more, all excavation shall be end hauled or pushed to designated embankment sites. All waste embankments shall be compacted in horizontal layers not exceeding 2 feet.

5.1-16 **REQUIRED END HAUL LOCATIONS**

On the following road, full bench construction shall be utilized with all excess excavated material end hauled or pushed to designated waste areas.

End Haul/Waste Material Disposal

Road	Stations	Waste Area Location	Remarks
115	25+36 to 29+40	115RD @ sta. 13+38	
		115RD @ sta. 31+98	
		11RD @ sta. 34+35	Use old spur to right

5.1-22 **PROHIBITED DISPOSAL AREAS**

Waste material shall not be deposited within 100 feet of a culvert installation, stream, Riparian Management Zone, wetland or Wetland Management Zone.

5.1-23 **TURNOUTS**

Turnout locations noted on this plan are approximate. Locations shall be adjusted to fit with final subgrade alignment and sight distances. Location shall be subject to written approval of the Contract Administrator. Standard dimensions are: 50 feet long, 10 feet wide, with 25 foot transitions on either end.

5.1-25 **TURNAROUNDS**

Turnarounds shall be no larger than 30 feet long and 30 feet wide. Location shall be subject to written approval of the Contract Administrator.

5.3-1 **FILL COMPACTION**

All embankment and waste material shall be compacted. The minimum acceptable compaction is achieved by placing embankments in 2 foot or shallower lifts and routing excavation equipment over entire width of the lifts. Side hill embankments too narrow to accommodate excavation equipment may be placed by end-dumping or side casting until sufficiently wide to support the equipment.

5.3-2 **VIBRATORY FILL COMPACTION**

All embankment and select borrow deeper than 5 feet at the road shoulder shall be compacted full width in 1 foot lifts by four coverages with a vibratory drum roller weighing at least 12,000 pounds at a maximum operating speed of 3 mph.

5.5-4 **SUBGRADE COMPACTION**

Constructed subgrades shall be compacted full width except ditch prior to rock application. Compaction shall be by a smooth-drum vibratory roller weighing at least 12,000 pounds. Four complete passes shall be made at a maximum operating speed of 3 mph.

5.5-5 **SUBGRADE CROWN**

Finished subgrade shall be crowned as shown on the TYPICAL SECTION SHEET, and shall be uniform, firm, rut-free, and shaped to ensure surface runoff in an even, unconcentrated manner.

SECTION 6 - DRAINAGE

6.2.1-1A **TEMPORARY CULVERTS**

Purchaser shall furnish, install and maintain temporary culverts of the length and diameter specified on the CULVERT LIST. Culverts may be new or used steel, plastic, concrete, or such other material as approved by the Contract Administrator. All said culverts shall be removed from the road bed and State Land prior to the termination of this contract.

6.2.1-5A **CULVERT REMOVAL**

Metal, concrete, or plastic culverts and bands removed from the road bed as listed in the CULVERT LIST shall be removed from State land prior to termination of this contract.

6.2.2.1-1 **CULVERT SPECIFICATIONS**

Culvert, downspout, flume, and energy dissipator installation shall be in accordance with CULVERT AND DRAINAGE SPECIFICATION DETAIL and the National Corrugated Metal Pipe Association "Installation Manual for Corrugated Steel Drainage Structures".

6.2.2.3-1 **CROSS DRAIN SKEW**

Cross drains and surface culverts on road grades in excess of 3% shall be skewed at least 30 degrees from perpendicular to the road centerline, except that cross drain culverts at the low points of dips in roads shall not be skewed.

6.2.2.3-2 **CULVERT SLOPE**

Cross drain culverts shall be installed at a slope steeper than the incoming ditch grade, but not less than 3% or as designed.

6.2.2.5-1 **ENERGY DISSIPATORS**

Drainage structure outfalls shall not terminate directly on unprotected soil that will erode. Downspouts, flumes, and energy dissipators shall be installed to prevent erosion.

6.3-1 **DITCH CONSTRUCTION**

Ditches shall be constructed concurrently with construction of the subgrade. Ditches shall drain to culverts, ditchouts, and natural drainages.

6.3-2 **DITCH, HEADWALL, AND CATCHBASIN CONSTRUCTION**

Shaping the ditchline, culvert headwalls, and catch basins shall be completed prior to application of rock and/or timber haul and shall be done in accordance with the TYPICAL SECTION SHEET and CULVERT AND DRAINAGE SPECIFICATION DETAIL.

6.4-1 **CATCH BASINS**

Catch basins shall be constructed to resist erosion in accordance with CULVERT AND DRAINAGE SPECIFICATION DETAIL. Minimum dimensions: two feet wide and four feet long with backslopes consistent with Clause 5.1-8: Excavation Slopes.

6.5-1 **HEADWALLS**

Headwalls shall be constructed in accordance with CULVERT AND DRAINAGE SPECIFICATION DETAIL at all cross drain culverts.

SECTION 7 - ROCK

7.1-1 **ROCK SOURCES**

Rock for construction under this contract may be obtained from a source on State land as listed below at no charge to the Purchaser. Development and use shall be in accordance with a written "Development Plan" prepared by the State. Upon completion of operations, the rock source shall be left in the condition specified in said plan, subject to approval by the Contract Administrator. Use of material from any other source must have prior written approval from the Contract Administrator. If other operators are using or desire to use this rock source, a joint operating plan shall be developed. All parties shall follow this plan.

Source	Location	Type
Zig Zag Pit	SE ¼ SW ¼ Section 2 Township 14 North Range 6 East, W.M.	4 Inch In Place

7.1-3 **PIT OPERATIONS**

All rock source operations shall be conducted as directed by the Contract Administrator and in accordance with an approved development plan.

7.2.1.1-8 **4 INCH IN PLACE**

"4 INCH IN PLACE" rock shall have a minimum of 90 percent of the top 4 inches of the running surface pass a 4 inch square opening. Processing such as grid rolling, jaw crushing, or such other method as is demonstrated by the Purchaser to be effective, shall be required if necessary to achieve this requirement.

7.2.1.2-2 **DEBRIS IN ROCK**

Manufactured run rock shall contain no more than 5 percent by weight of vegetative debris, dirt, or trash.

7.2.4-1 **DRILLING AND SHOOTING SPECIFICATION**

Rock drilling and shooting shall meet the following specifications:

a. Oversize material remaining in the rock source at the conclusion of the timber sale shall not exceed 5 percent of the total volume mined for the sale.

b. Oversize material is defined as rock fragments larger than two feet in any dimension.

c. The Purchaser shall submit an informational drilling and shooting plan to the Contract Administrator 4 working days prior to any drilling.

7.4.2-1 **MINIMUM ROCK**

Apply at least the minimum required rock quantity as shown on ROCK LIST. Required and optional rock shall meet the specifications on the ROCK LIST.

7.4.2-2 **SUBGRADE APPROVAL FOR ROCK**

Subgrade shall be approved, in writing, by the Contract Administrator prior to application of rock.

7.4.2-3 **SUBGRADE SHAPING**

A grader shall be used to shape the subgrade prior to the application of rock.

7.4.2-7 **ROCK FOR WIDENING**

Turnarounds, Turnouts, and curve widening shall have rock applied to the same depth and specifications as the traveled way.

7.4.2-8 **ROCK SHAPING**

Each lift of rock shall be crowned as shown on TYPICAL SECTION SHEET, and shall be uniform, firm, rut-free, and shaped to ensure surface runoff in an even, unconcentrated manner.

7.4.3-3 **COMPACTION TIMING**

Rock shall be spread and compacted using loaded haul trucks concurrently with rock hauling operations.

SECTION 8 - STRUCTURES

8.2-2 **ROAD AND BRIDGE APPROACHES**

Requirements for the Catt Creek Road Approach to 85 Road and State Land bridge approaches:

a. Top of the road surfacing shall be kept level with the asphalt surface or bridge deck at all times.

b. Metal tracked equipment shall not be used on the asphalt surface or bridge deck at any time. If equipment must be run on the asphalt surface or bridge deck then rubber tired equipment or alternative plan, as approved in writing, by the region engineer shall be used.

c. Any dirt, rock, or other material spilled on the asphalt surface or bridge deck shall be removed immediately. Any damage to the asphalt surface or bridge deck shall be repaired at the Purchaser's expense as directed by the Contract Administrator.

8.3-2B **STATE PROVIDED STRUCTURE**

Purchaser is responsible for disassembly, cleaning bridge deck, loading, transport, unloading, and placement of the bridge to the designated location. The Purchaser is required to submit a plan of operations to the Contract Administrator for written approval for disassembly, loading, transport, and placement of the State provided bridge superstructure prior to operations. The plan shall include, but not limited to, a description of the equipment and techniques to be used to lift and place the superstructure. Equipment used to lift the superstructure shall have sufficient capacity to lift it free and clear without dragging. Purchaser will be liable for damage to the bridge superstructure.

Structure

Current Location: SE ¼, SE ¼, Section 32, T15N, R06E, W. M. Station 63+64 of 11 Road;

Specification: Roscoe, 65 ft by 14 ft, U-80, 2 sections, approximately 13.75 tons per section.

Note: Design drawings for the bridge may be obtained by contacting the Region Engineer at DNR's South Puget Sound Region office.

New Location:

Road	Address	Location in Compound
Ashford Cooler Compound	52010 278th Ave East Ashford, WA	Per Contract Administrator

8.3-3A **LIFT DEVICE**

Lift devices shall be provided for each section as specified by the manufacturer or design engineer.

8.4-8 **GATE CLOSURE**

On the following road, Purchaser shall keep gate closed and locked when no operation is in progress.

Road	Station
11	2+00

SECTION 9 - ROAD AND LANDING DEACTIVATION

9.2-1 **LANDING DEBRIS**

Purchaser shall reduce or relocate debris generated by road and landing construction, in a manner approved, in writing, by the Contract Administrator, to avoid landing failures and potential debris slides.

9.2-2 **LANDING DRAINAGE**

Purchaser shall provide for drainage of the landing surface as approved by the Contract Administrator.

SECTION 10 - ROAD AND LANDING ABANDONMENT

10.1-1 **ABANDONMENT**

If existing or constructed, the following roads shall be abandoned by the Purchaser prior to the termination of this contract.

Road	Stations	Type
11	63+00 to 106+57	A
115	0+00 to 35+02	B
115-1	0+00 to 15+31	B
115-2	0+00 to 8+67	B
115-21	0+00 to 2+04	B
Spur 1	0+00 to 4+47	B

10.1-1A **ABANDONMENT TYPE A**

Abandonment shall consist of:

Constructing non-drivable water bars in conformance with the attached NON-DRIVABLE WATER BAR DETAIL at a maximum spacing which will produce a vertical drop of no more than 10 feet between water bars or between natural drainage paths and with a maximum spacing of 100 feet;

Skewing water bars at least 30 degrees from perpendicular to the road centerline on roads in excess of 3% grade;

Keying water bars into ditchline;

Removing stream culverts and leaving the resulting trench open in accordance clause 10.1-3;

Sloping all trench walls and approach embankments no steeper than 1.5:1;

Removing culverts from State Land;

Move bridge from station 63+64 on 11 road to Ashford Cooler Compound as specified in clause 8.3-2B;

After 11 road bridge is removed block approaches using stumps, slash, Ecology Blocks, and/or rip rap as approved in writing by the Contract Administrator;

Grass seeding all exposed soils within 100 feet of any typed water concurrently with abandonment. Application rate shall be 50 pounds seed per acre.

Seed Specification

40% Perennial Ryegrass

40% Creeping Red Fescue

10% White Clover

10% Annual Ryegrass

Weed seed shall not exceed 0.5% by weight.

Covering, concurrently with abandonment, all exposed soils within 100 feet of any typed water, with a 3 inch deep layer of straw;

Scattering stumps and slash over the road prism.

Block road entrances with stumps and slash;

All work shall be completed as directed by the Contract Administrator.

10.1-1B **ABANDONMENT TYPE B**

Abandonment shall consist of:

Constructing non-drivable water bars in conformance with the attached NON-DRIVABLE WATER BAR DETAIL at a maximum spacing which will produce a vertical drop of no more than 10 feet between water bars or between natural drainage paths and with a maximum spacing of 100 feet;

Skewing water bars at least 30 degrees from perpendicular to the road centerline on roads in excess of 3% grade;

Keying water bars into ditchline;

Removing cross drain culverts and leaving the resulting trench open;

Sloping all trench walls and approach embankments no steeper than 1.5:1;

Removing culverts from State Land;

Scattering stumps and slash over the road prism.

Block road entrances with stumps and slash;

All work shall be completed as directed by the Contract Administrator.

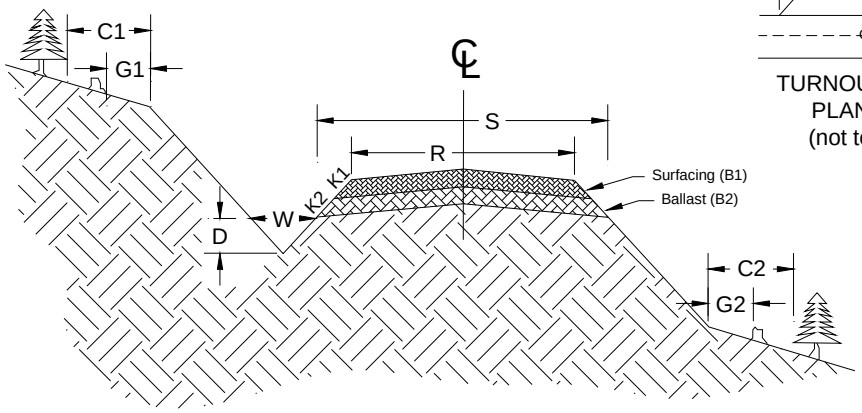
10.1-3 **CULVERT REMOVAL**

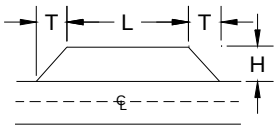
On the following roads, Purchaser shall remove existing culverts and leave the resulting trench open with excavation slopes consistent with Clause 5.1-8. The trench bottom shall have a minimum width as listed or conform to natural ground. Excavated material shall be placed in a waste area designated by the Contract Administrator.

Road	Stations	Existing Culvert	Trench Bottom Width
11	65+60	48”x 40’ (Type 4)	6 ft
11	88+00	24”x 30’ (Type 5)	4 ft
11	88+61	72” x 70’ (Type 3)	9 ft

TYPICAL SECTION SHEET

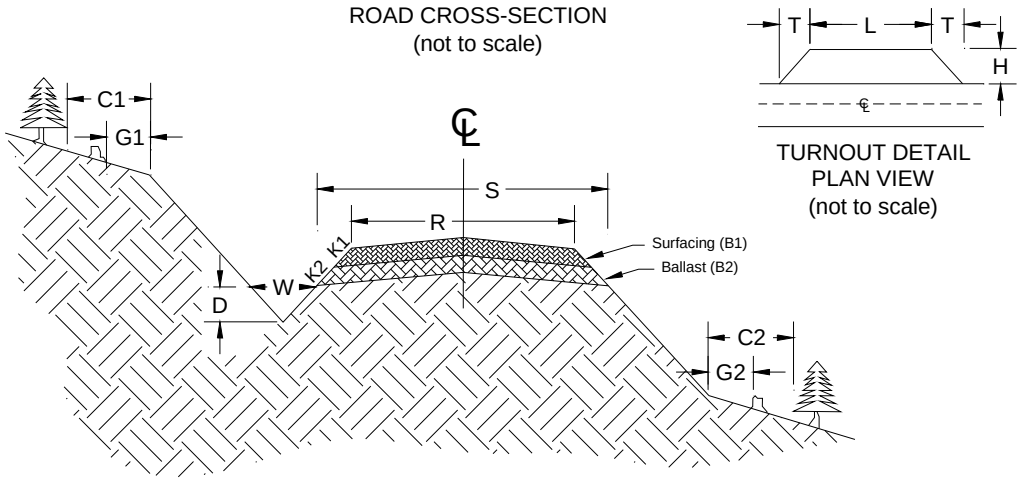
ROAD CROSS-SECTION
(not to scale)





TURNOUT DETAIL
PLAN VIEW
(not to scale)

Road Number	From Station	To Station	Tolerance Class	Subgrade Width (feet)	Road Width (feet)	Ditch Width (feet)	Ditch Depth (feet)	Crown in. @ CL	Grubbing Limits (feet)		Clearing Limits (feet)		Cut Slope Ratio	Fill Slope Ratio
				S	R	W	D		G1	G2	C1	C2	%	%
115	0+00	35+02	C	14	10	2	1	4	2	2	5	5	100	67
115-1	0+00	15+31	C	14	10	2	1	4	2	2	5	5	100	67
115-2	0+00	8+67	C	14	10	2	1	4	2	2	5	5	100	67
115-21	0+00	2+04	C	14	10	2	1	4	2	2	5	5	100	67
Spur 1	0+00	4+47	C	14	10	2	1	4	2	2	5	5	100	67



ROCK LIST

BALLAST

Road Number	From Station	To Station	Rock Slope	Compacted Rock Depth	C.Y. Station	# of Stations	C.Y. Subtotal	Rock Source	Turnout		
									Length	Width	Taper
			K2	B2					L	H	T
115*	0+00	35+02	2:1	12”	44	35	1540	Zig Zag Pit	50	10	25
115-1*	0+00	15+31	2:1	12”	44	15	660				
115-2*	0+00	8+67	2:1	12”	44	9	396				
115-21*	0+00	2+04	2:1	12”	44	2	88				
Spur 1*	0+00	4+47	2:1	12”	44	4.5	198				

BALLAST TOTAL 2882 Cubic Yards

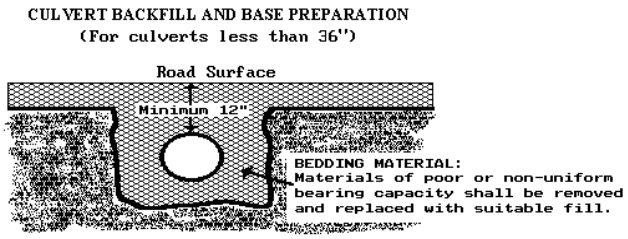
*Optional Rock: If Purchaser elects to haul on optional rock roads in wet weather, the depth listed above is recommended but not required.

NOTE: Yardages are estimated on a compacted (In-Place) basis. Compliance of required rock will be based on compacted depth measurement.

CULVERT LIST

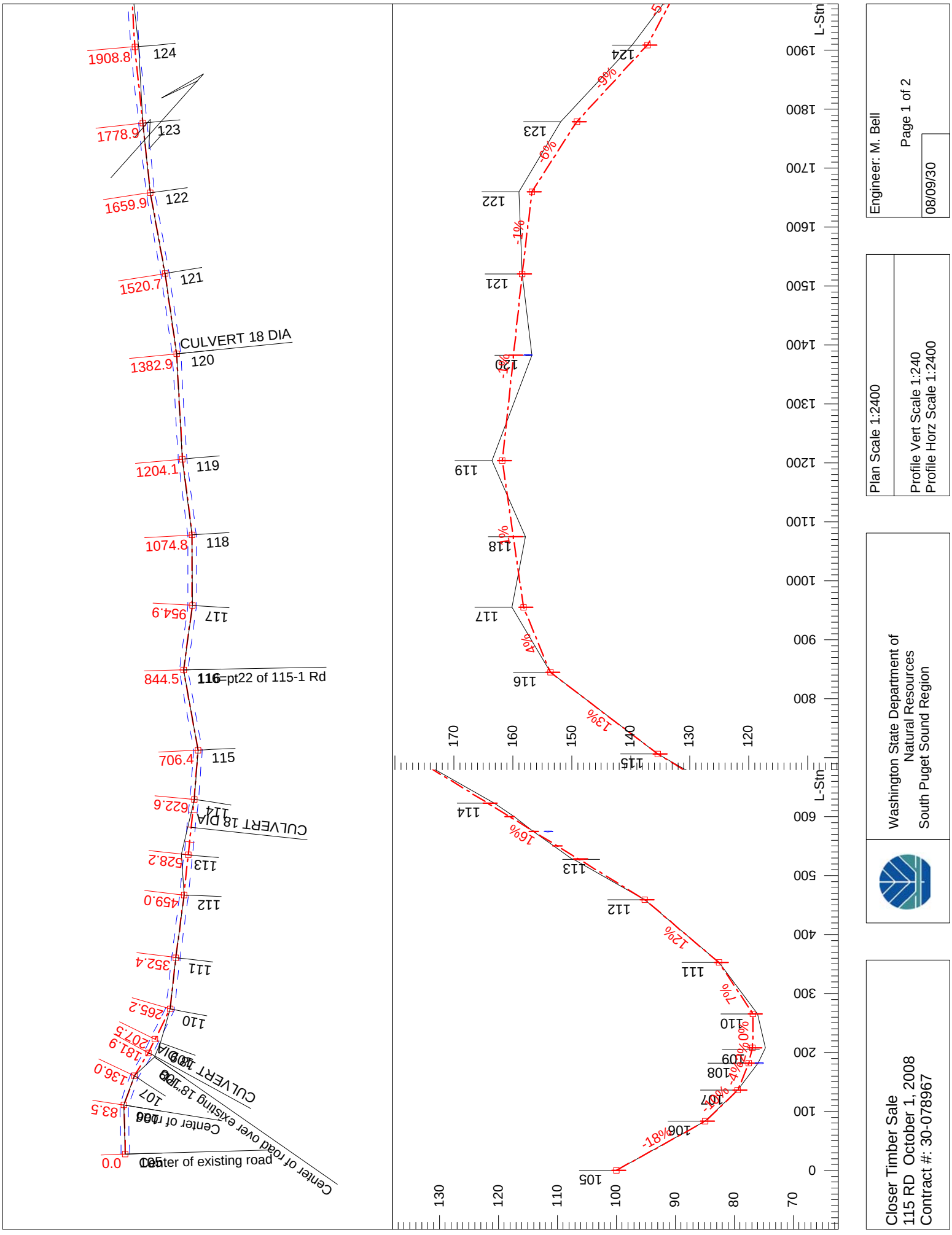
Road Number	Location	Culvert Dia.	Culvert Type	Length (ft) Culvert	Length (ft) Downspt	Length (ft) Flume	Riprap (C.Y.) Inlet	Riprap (C.Y.) Outlet	Riprap (C.Y.) Type	Backfill Material	Placement Method	Const. Staked	Remarks
115	1+82	18”	Temp	30’									
	5+75	18”	Temp	30’									
	13+83	18”	Temp	30’									
	21+16	18”	Temp	30’									
	28+24	18”	Temp	30’									
	30+79	18”	Temp	30’									
	33+18	18”	Temp	30’									
115-1	3+27	18”	Temp	30’									
	6+06	18”	Temp	30’									
115-2	3+71	18”	Temp	30’									
	6+36	18”	Temp	30’									
115-21	0+00	18”	Temp	30’									

PD = Polyethylene Pipe Dual Wall AASHTO No. M294 Type S
GS16 = Galvanized Steel AASHTO No. M36, 16 Gauge
AS12 = Aluminized Steel AASHTO No. M274, 12 Gauge
TEMP = Temporary Culvert



Key:

QS - Quarry Spalls
SR - Shot Rock
NT - Native (bank run)
SL - Select Fill
HL - Heavy Loose Riprap
LL - Light Loose Riprap
Flume - Half round pipe
Downspout - Full round pipe



Engineer: M. Bell

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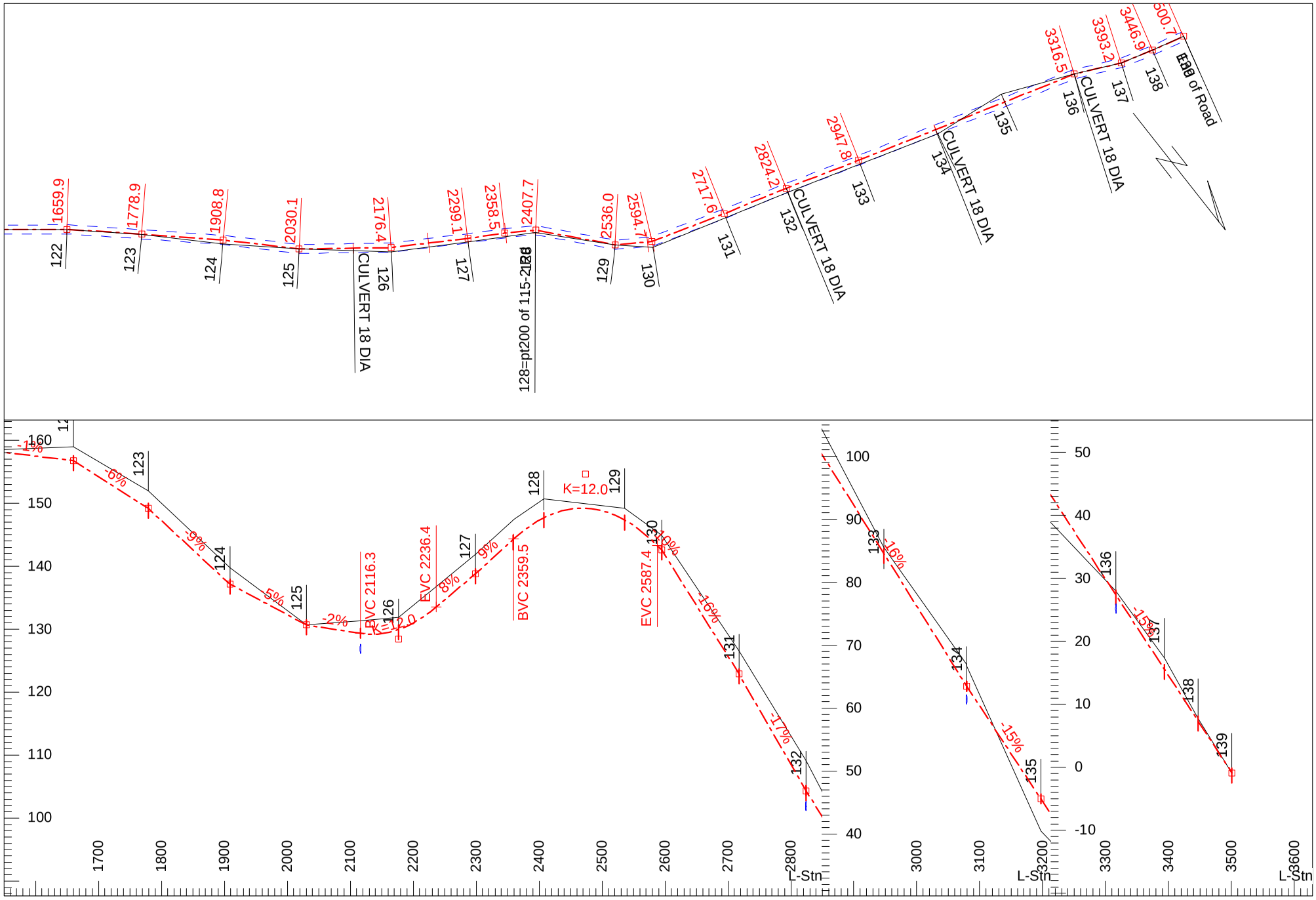
08/09/30

Plan Scale 1:2400

Profile Vert Scale 1:240
Profile Horz Scale 1:2400

Washington State Department of Natural Resources
South Puget Sound Region

Closer Timber Sale
115 RD October 1, 2008
Contract #: 30-078967



Closer Timber Sale
115 RD October 1, 2008
Contract #: 30-078967

Washington State Department of
Natural Resources
South Puget Sound Region

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Engineer: M. Bell

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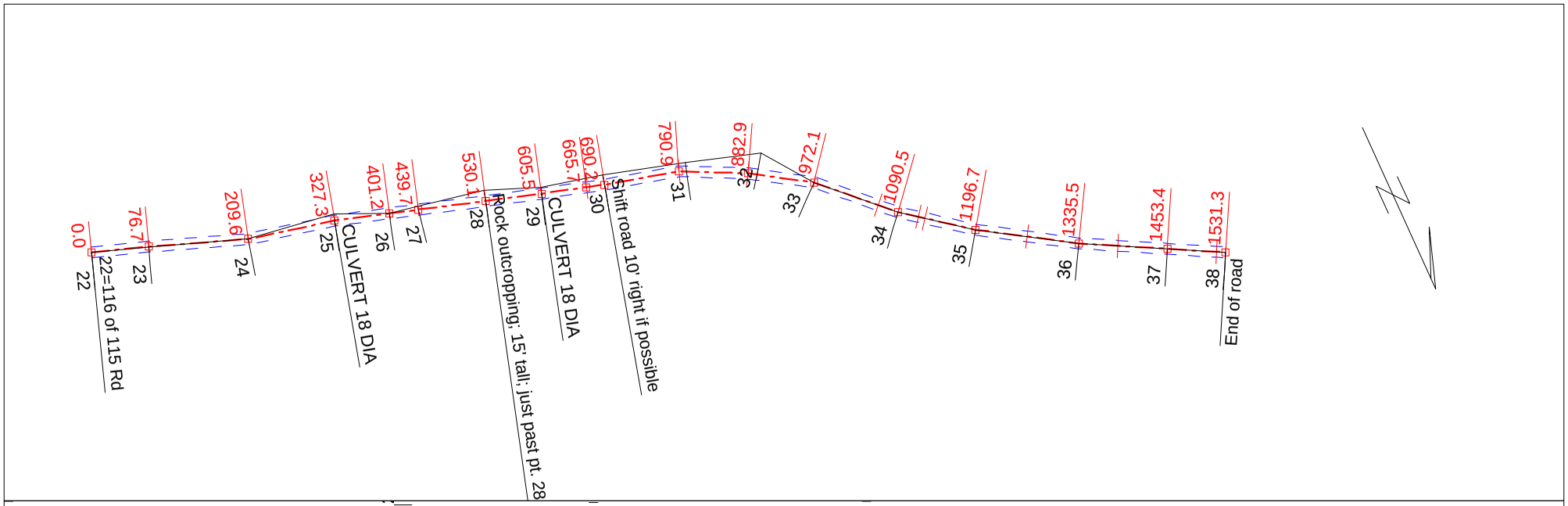
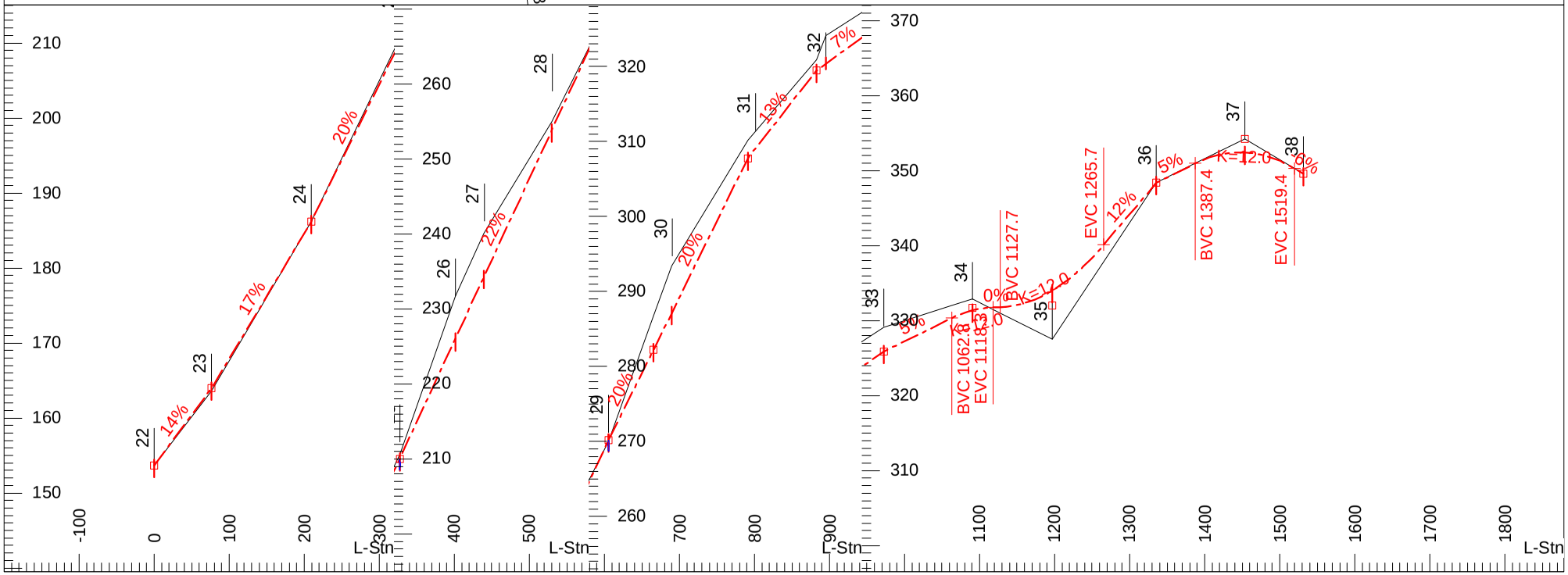
08/09/30





Closer Timber Sale
115-1 RD October 1, 2008
Contract #: 30-078967

Washington State Department of
Natural Resources
South Puget Sound Region

Plan Scale 1:2400

Profile Vert Scale 1:240
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Engineer: M. Bell

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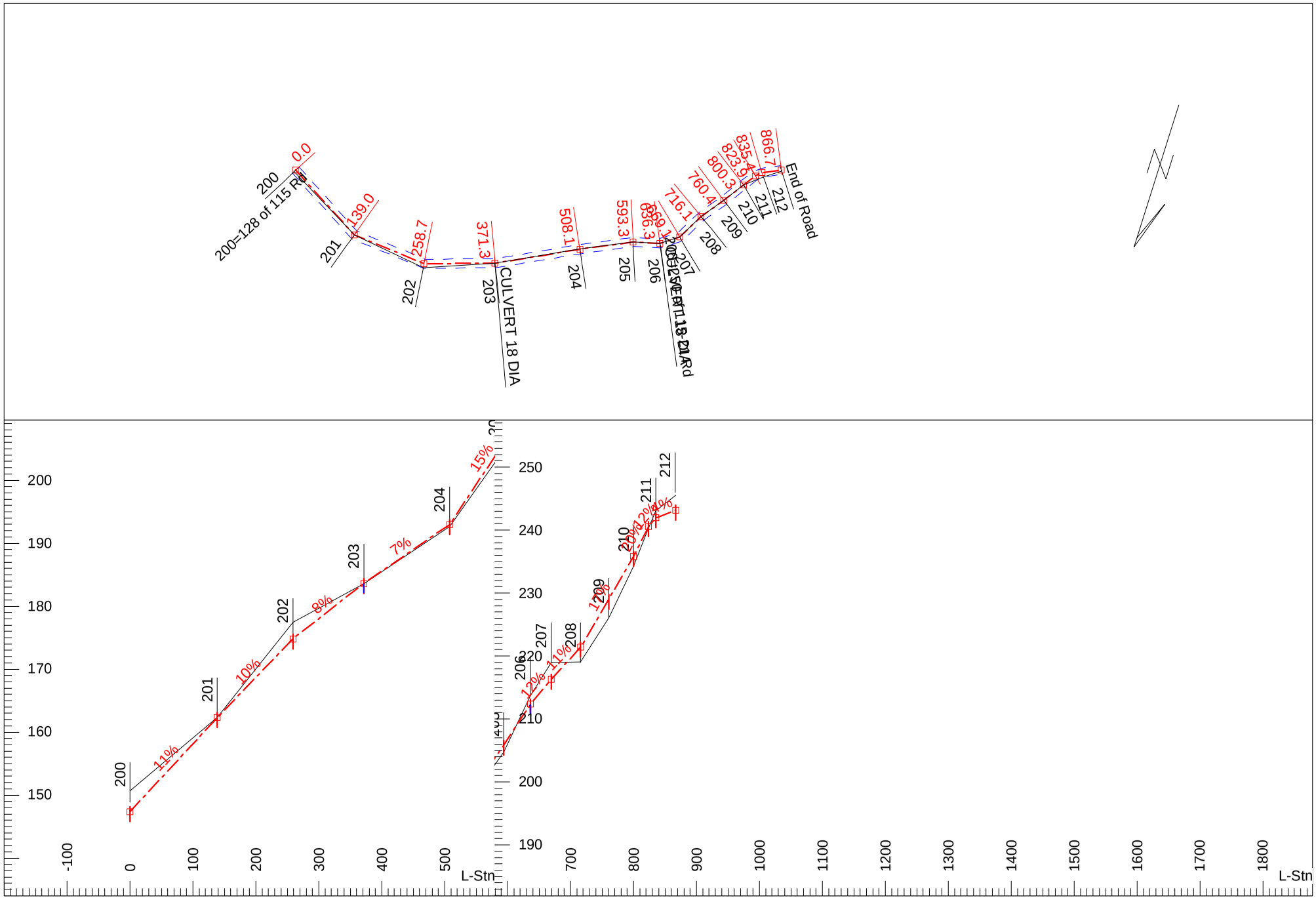
08/10/01



Closer Timber Sale
115-2 RD October 1, 2008
Contract #: 30-078967

Washington State Department of
Natural Resources
South Puget Sound Region

Plan Scale 1:2400

Profile Vert Scale 1:240
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Engineer: M. Bell

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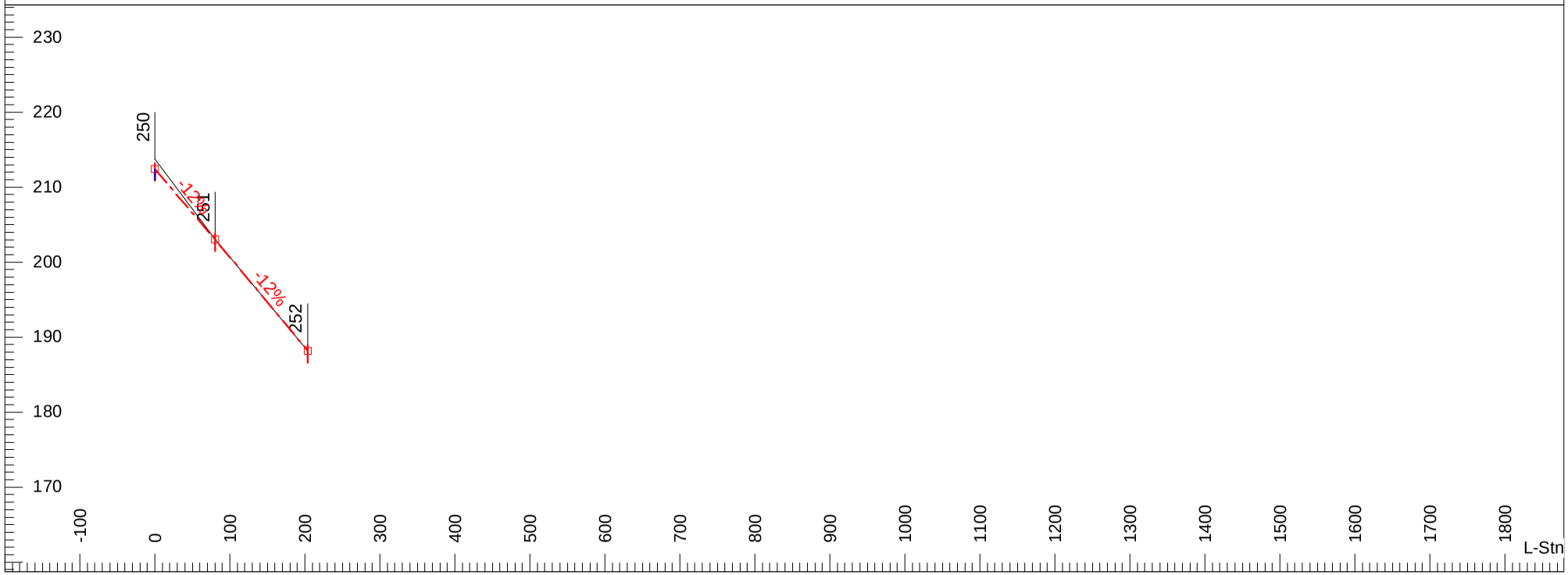

Closer Timber Sale
115-21 RD October 1, 2008
Contract #: 30-078967

Washington State Department of
Natural Resources
South Puget Sound Region

Plan Scale 1:2400

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Engineer: M. Bell

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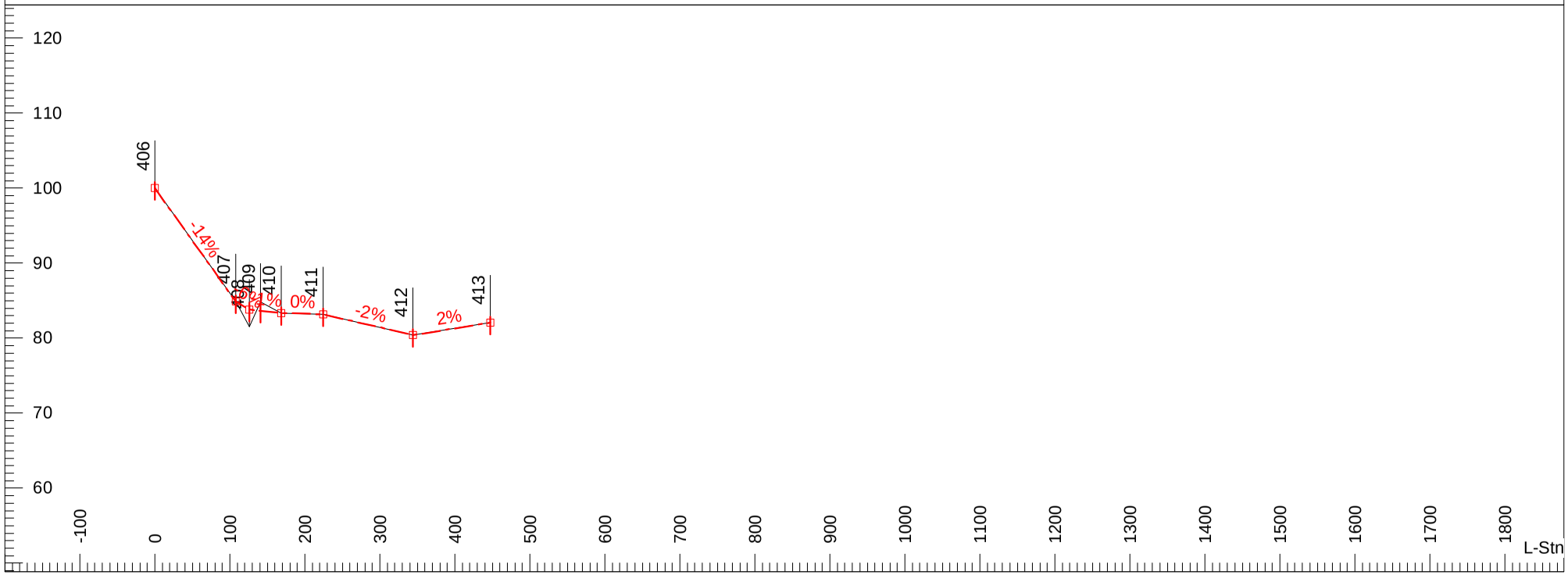
01/05/2009



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Closer Timber Sale
Spur 1 October, 1, 2008
Contract #: 30-078967

Washington State Department of
Natural Resources
South Puget Sound Region

Plan Scale 1:2400

Profile Vert Scale 1:240
Profile Horz Scale 1:2400

Engineer: M. Bell

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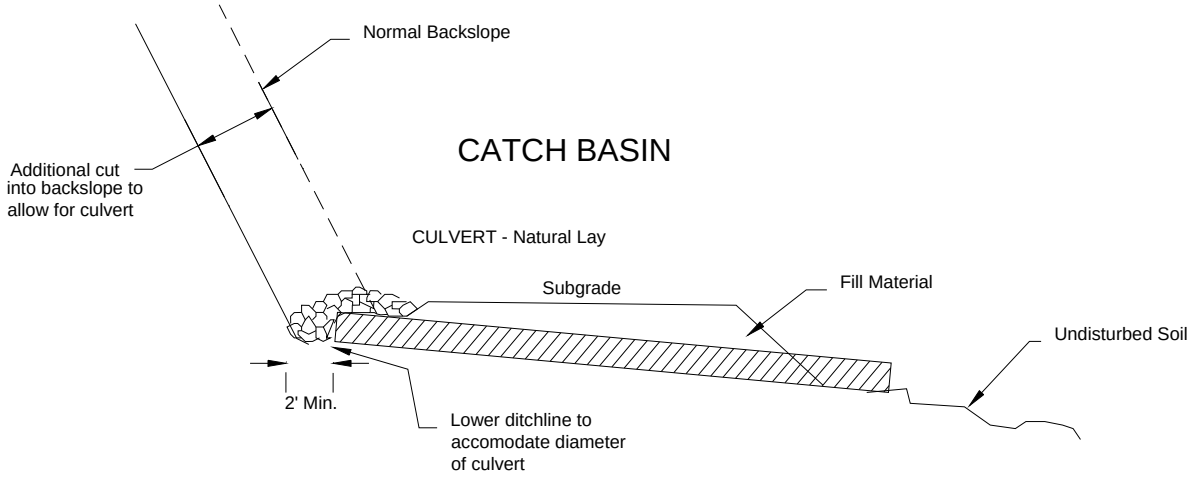
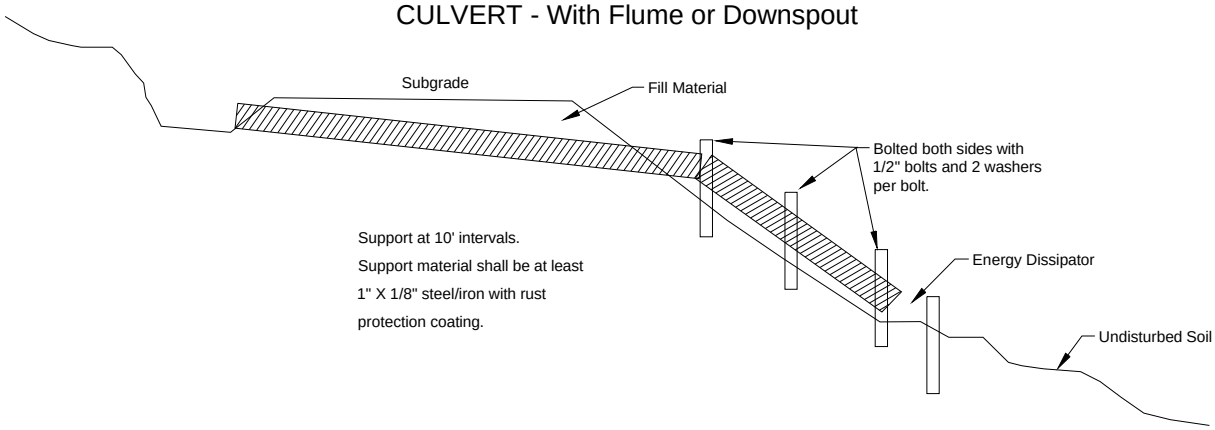
08/10/01

CULVERT AND DRAINAGE SPECIFICATION DETAIL

(Page 1 of 3)

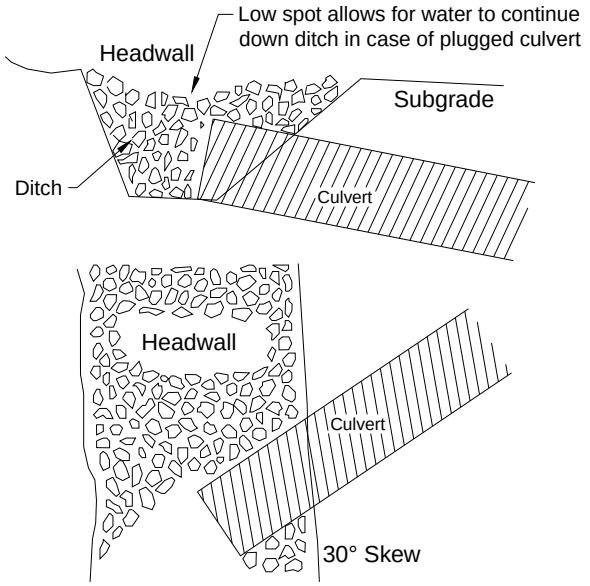




CULVERT AND DRAINAGE SPECIFICATION DETAIL

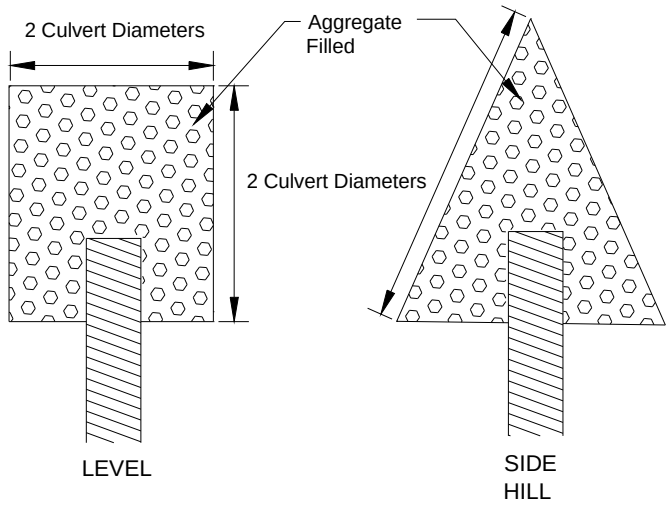
Proper preparation of foundation and placement of bedding material shall precede the installation of all culvert pipe. This includes necessary leveling of the native trench bottom and compaction of required bedding material to form a uniform dense unyielding base. The backfill material shall be placed so that the pipe is uniformly supported along the barrel.

HEADWALLS



Headwalls to be constructed of material that will resist erosion.

ENERGY DISSIPATORS



Dissipator Specifications:
Depth: 1 culvert diameter
Aggregate: as specified in the CULVERT LIST.

CULVERT AND DRAINAGE SPECIFICATION DETAIL

(Page 3 of 3)

POLYETHYLENE PIPE INSTALLATION

INSTALLATION REQUIREMENTS:

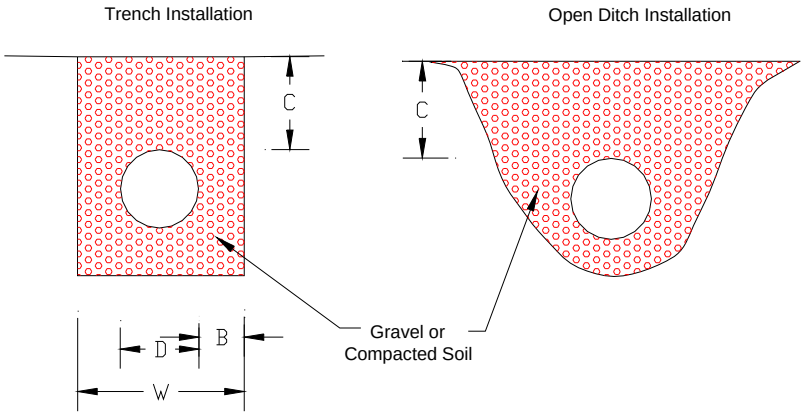
1. Crushed stone, gravel, or compacted soil backfill material shall be used as the bedding and envelope material around the culvert. The aggregate size shall not exceed 1/6 pipe diameter or 4" diameter, whichever is smaller.

2. The corrugated pipe shall be laid on grade, on a layer of bedding material as shown for the two types of installations. If native soil is used as the bedding and backfill material, it shall be well compacted in six inch layers under the haunches, around the sides and above the pipe to the recommended minimum height of cover.

3. Either crushed aggregate or flexible (asphalt) pavement may be laid as part of the minimum cover requirements.

4. Site conditions and availability of bedding materials often dictate the type of installation method used.

5. The load bearing capability of flexible conduits is dependent on the type of backfill material used and the degree of compaction achieved. Crushed stone and gravel backfill materials typically reach a compaction level of 90-95% AASHTO standard density without compaction. When native soils are used as backfill material, a compaction level of 85% is required. This minimum compaction can be achieved by either hand or mechanical tamping.



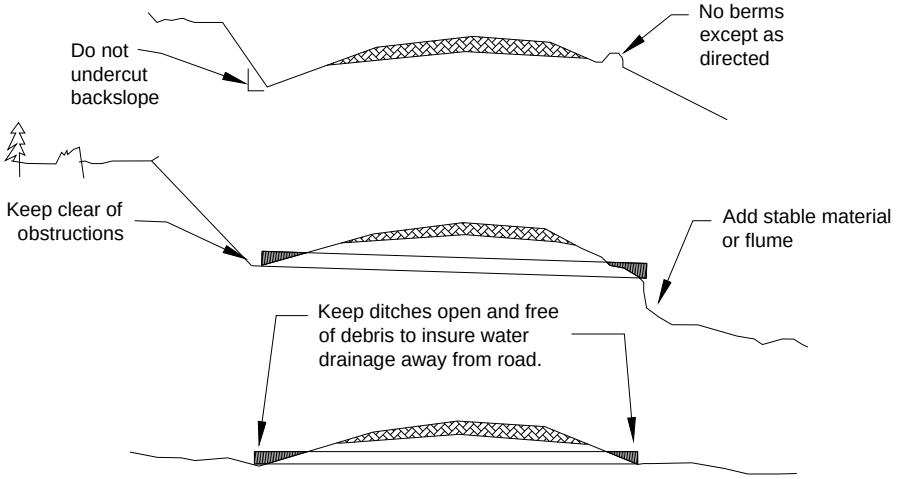
MINIMUM DIMENSIONS
Trench or Open Ditch Installation

Nominal Diameter	Minimum Thickness	Minimum Cover	Min. Trench Width
D	B	C	W
18"	6"	12"	36"
24"	6"	12"	42"
30"	6"	12"	48"
36"	6"	12"	54"

STATE OF WASHINGTON
DEPARTMENT OF NATURAL RESOURCES

FOREST ACCESS ROAD MAINTENANCE SPECIFICATIONS

1. CONSTRUCTION, RECONSTRUCTION and PRE-HAUL MAINTENANCE (Prior to acceptance to the contract or acceptance on a timber sale).
   A. Cuts and Fills
      1. Maintain slope lines as constructed. Remove slides from the ditches and roadway. Replace fills to 1 ½ : 1 slopes with selected material or as directed. Remove overhanging material from the cut slopes.
      2. Material from slides or other sources requiring removal shall not be deposited in streams or at locations where it will erode into streams or water courses.
      3. Undesirable slide materials and debris shall not be mixed into the surface material.
   B. Surface
      1. Grade and shape the road surface, turnouts, and shoulders to the original crown, inslope or outslope as directed to provide suitable traveled surface and surface water runoff in an even, unconcentrated manner.
      2. Blading must not undercut the backslope at the bottom of the ditchline or cut geotextile at centerline.
      3. Watering may be required to control dust and to retain fine surface rock.
      4. Desirable surface material shall not be bladed off the roadway.
      5. Replace surface material lost or worn away.
      6. Remove berms except as directed by the State.
      7. Barrel spread soft spots to prevent degradation of geotextile.
   C. Drainage
      1. Keep ditches and drainage channels at outlets and inlets of culverts clear of obstructions and functioning as intended.
      2. Inspect and clean culverts at least monthly, with additional inspections during storms and periods of high runoff. This must be done even during periods of inactivity.
      3. Add stable material at the outlet end of the culvert as needed to stabilize the stream bed.
      4. Headwalls: maintain to the road shoulder level with material that will resist erosion.
      5. Keep silt bearing surface runoff from getting into live streams.
   D. Structures
      Repair bridges, culverts, cattleguards, fences, and other road structures to the condition required by the construction specifications.
   E. Termination of Use or End of Season
      Do maintenance work to minimize damage from the elements such as blading to insure correct runoff, ditch, and culvert cleaning and water bars.
   F. Debris
      Remove fallen timber, limbs, and stumps from the slopes or roadway.
2. Existing Roads – Timber Sale, Operator Maintained
   A. Same as above but not to exceed the condition of the road on the date the contract was signed.
3. A.R.R.F. – Directed maintenance to comply with these specifications.



LIVE STREAM CULVERT REMOVAL PROCEDURE

Order of work is as follows, deviations shall be approved, in writing, by the Contract Administrator.

1) Purchaser shall notify the State of intent to start project, and a pre-work conference shall be held before move in of equipment. Before construction begins the following items must be submitted in writing to the Contract Administrator:

   a. Construction schedule.
   b. Water bypass plan.

   State will designate a representative that will remain on site at all times when work is being performed in creek channel

2) Assemble the items on the Materials List onsite before proceeding.
3) Remove 95% of fill and end haul to waste area.
4) Set up pumps (3 required, with one as backup).
5) One possible method for water bypass: Dam up stream with sandbags and line floor of dam with plastic (to prevent sub-surface water flow), place clean rock on plastic to hold in place, and key leading edge of plastic into channel bottom. Build a settling pond at culvert outlet. Fill may need to be removed before the settling pond installation due to space limitations. Pump clean water at catch basin around work site and back into stream. Dirty water shall be pumped away from site and onto forest floor a minimum of 200 feet from live streams. Silt fence shall be erected at base of fill slope and bottom edge of fence shall be keyed into slope and held in place with rocks to prevent water from flowing under the silt fence.
6) Remove remainder of fill and culvert.
7) Backfill settling pond.
8) Cover exposed soils within 100 feet of all live streams with straw (minimum depth of 3 inches) and grass seed.

Materials List:

- 3 pumps, (one as a backup). The clean water pump (dam at culvert catch basin) shall have a minimum capacity of 600 gallons per minute, except as listed. The dirty water pump (settling pond) and the backup pump shall each have a minimum capacity of 450 gpm. Culvert removal should not start during rain or threat of rain;
- 5,000 square feet plastic sheet;
- 400 feet of silt fence and stakes;
- 20 bales of straw.

Legal Description: SE ¼ SW ¼ Section 2 Township 14 North Range 6 East, W.M.

Rock Pit Name: Zig Zag Pit

PIT DEVELOPMENT PLAN, pg 1 of 2

1. Pile debris in clean, burnable piles as directed by the Contract Administrator.

2. A minimum stripping width of 20 feet must be maintained from all pit faces and at the termination of operations pit shall be left in said condition.

3. Pile all reject rock and overburden away from pit working area as shown on pit drawing. Oversize material shall not exceed 5% of the total mined for the sale. Oversize material is defined as rock fragments larger than 1.5 feet in any dimension.

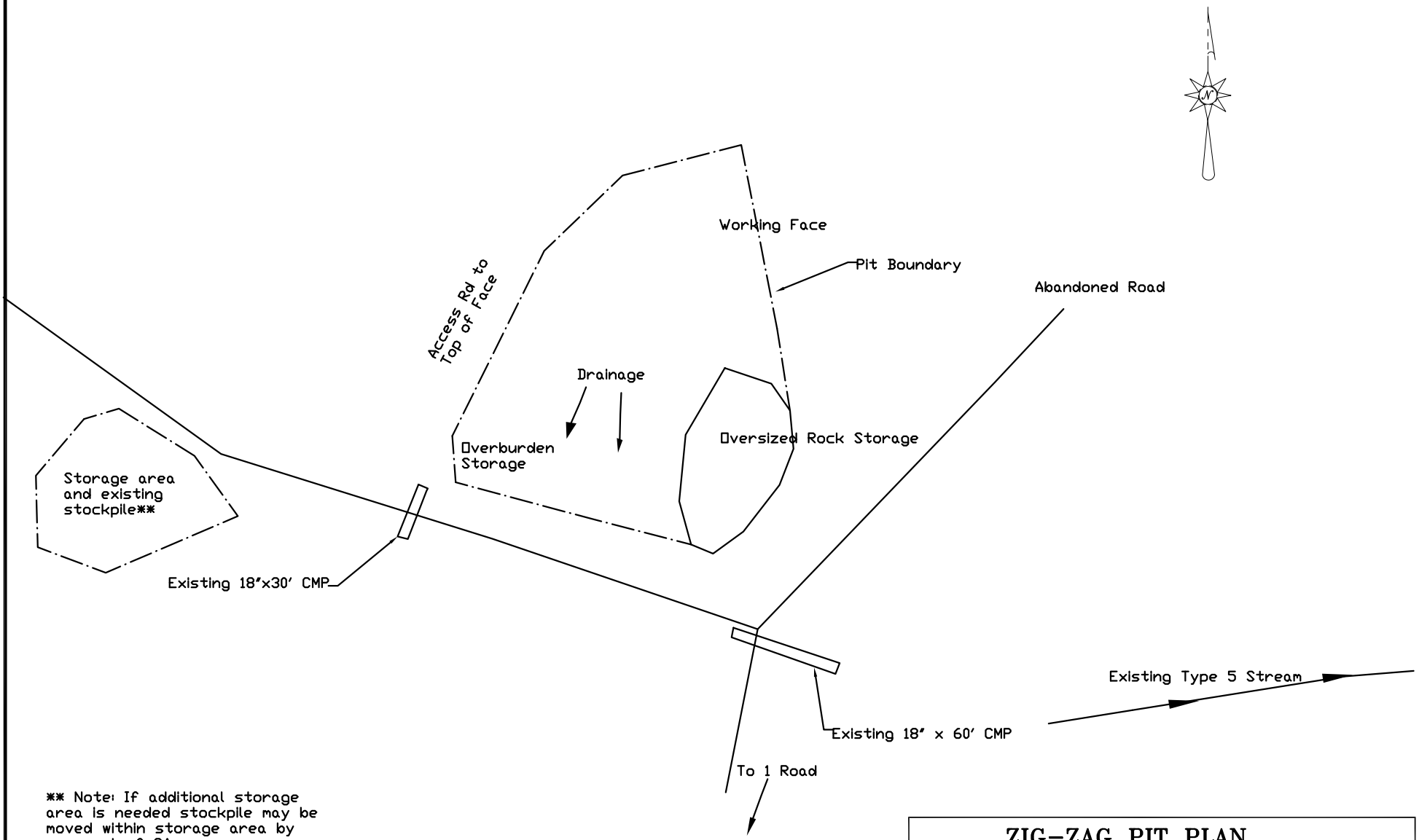
4. Pit floor shall be sloped to allow drainage as shown. No ponding will be allowed.

5. Maximum face height will be no greater than what can be reached by the excavating equipment.

6. At the termination of use the pit face shall have a maximum backslope of 1/2:1.

7. Quantity and Quality of ballast pit are not guaranteed by the State.

8. See “Zig Zag Pit Plan View, pg 2 of 2” drawing for additional information.



** Note: If additional storage area is needed stockpile may be moved within storage area by approval of CA.

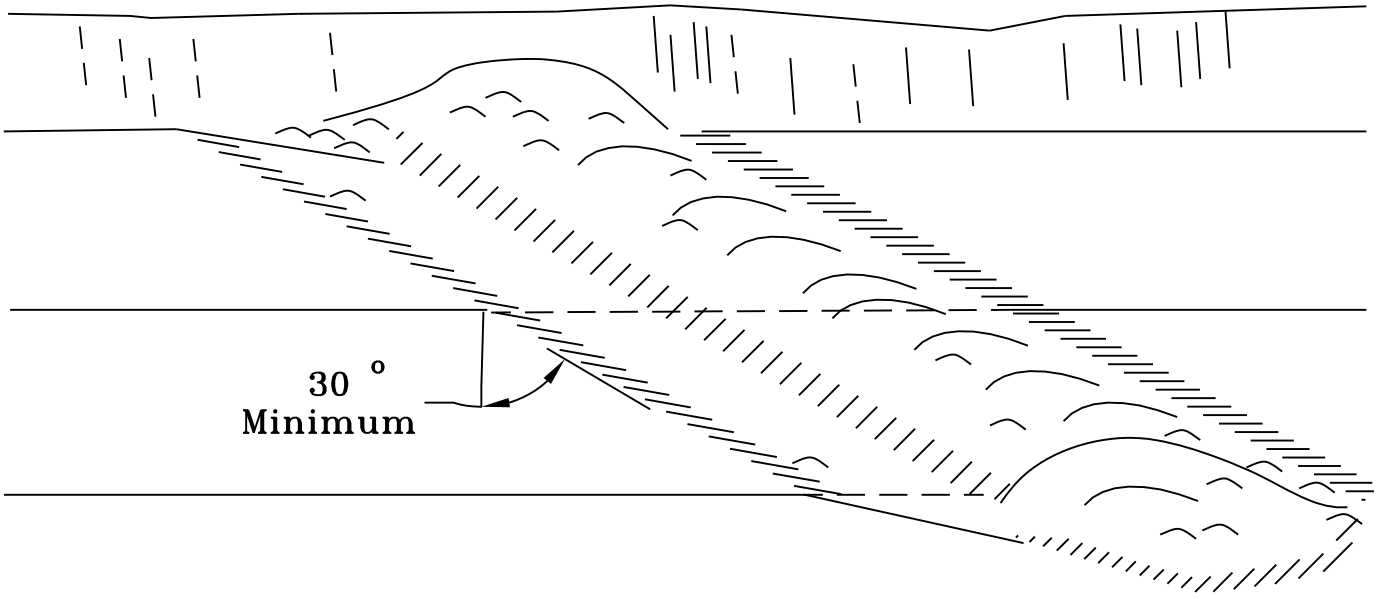
Contract #30-078967
Date: 10/30/08
Scale : None
Drawn By: M.D.B.

ZIG-ZAG PIT PLAN
Closer Timber Sale

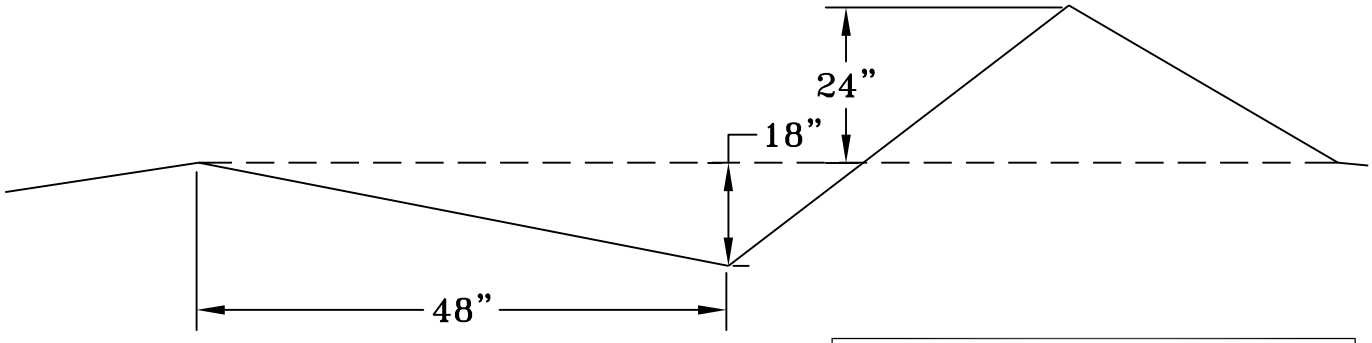
WASHINGTON STATE DEPARTMENT OF
Natural Resources
SPS Region

Non-Drivable Water Bar Detail

Cross Ditch



Cross Section at Centerline



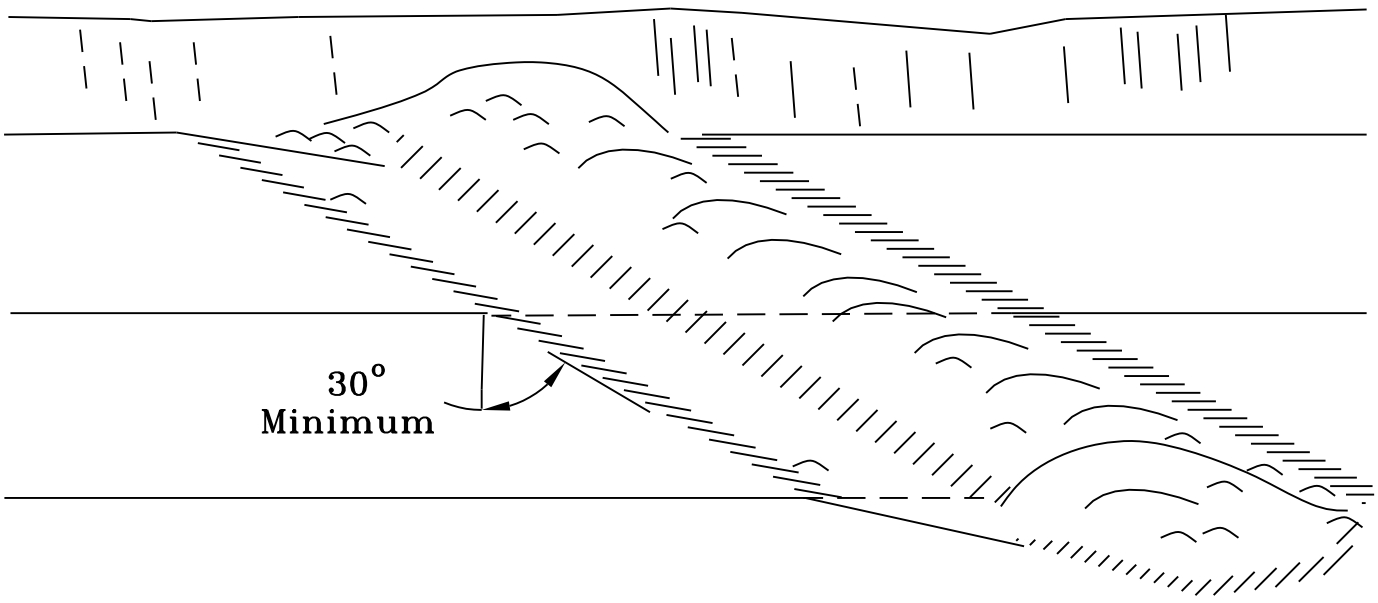
Non-Drivable Water Bar Detail

Date: 10-01-08
Scale : None
Contract# 30-078967
Drawn by: M.A.D.

WASHINGTON STATE DEPARTMENT OF
Natural Resources
SPS Region

Drivable Water Bar Detail

Cross Ditch



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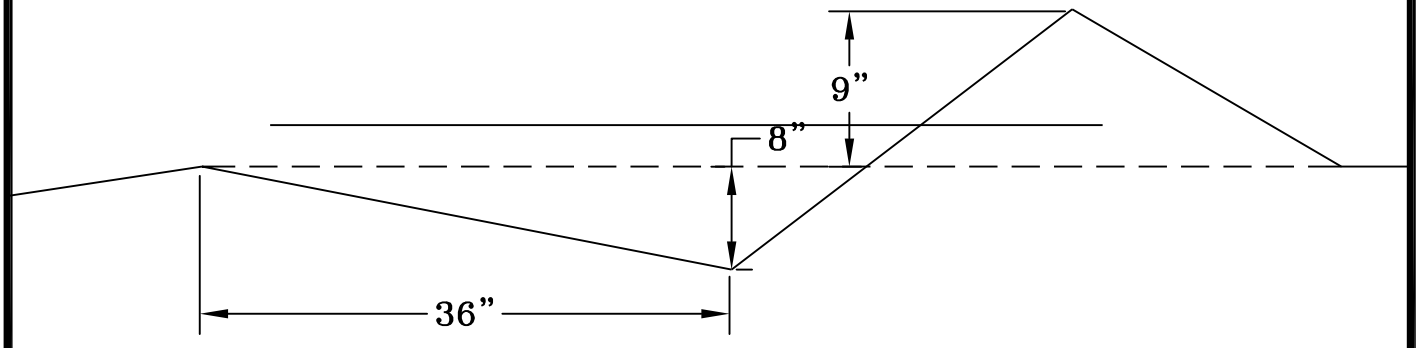

Date: 10-01-08
Scale : None
Contract# 30-078967
Drawn by: M.A.D.

Drivable Water Bar Detail

WASHINGTON STATE DEPARTMENT OF
Natural Resources
SPS Region