



**TRANSPORTATION CABINET**

Frankfort, Kentucky 40622  
www.transportation.ky.gov/

**Steven L. Beshear**  
Governor

**Michael W. Hancock, P.E.**  
Secretary

November 16, 2011

CALL NO. 301  
CONTRACT ID NO. 112322  
ADDENDUM # 1

Subject: Warren County, FE01 114 0231 021-022  
Letting November 18, 2011

- (1) Added - Geotechnical Report - Pages 19(a)-19(d) of 80
- (2) Revised - Special Notes - Pages 20-23 of 80
- (3) Revised - Guardrail Summary - Page 32 of 80
- (4) Revised - Bid Items - Pages 79-80 of 80

Proposal revisions are available at <http://transportation.ky.gov/contract/>.

If you have any questions, please contact us at 502-564-3500.

Sincerely,

A handwritten signature in blue ink that reads "Ryan Griffith".

Ryan Griffith  
Director  
Division of Construction Procurement

RG:ks  
Enclosures




An Equal Opportunity Employer M/F/D

(L-006-2011)

## MEMORANDUM

**TO:** Tim Sharp, PE  
Project Delivery & Preservation Branch I  
District 3, Bowling Green

**FROM:** Bart Asher, PE  
Geotechnical Branch Manager  
Division of Structural Design

**BY:** Jason Wright   
Geotechnical Branch

**DATE:** June 13, 2011

**SUBJECT:** Warren County  
US 231 (Approximately MP 21.5)  
Geotechnical Landslide Recommendation

At the request of the District, the Geotechnical Branch conducted an evaluation of a landslide located on US 231 in Warren County at approximately mile point 21.5. The landslide is affecting approximately 300 feet of the roadway. The Branch performed rockline soundings to determine the depth to bedded material. The slide is being caused by an over steepened slope on a side hill condition.

As part of the evaluation, 13 rock line soundings were taken along the edge of pavement of the northbound lane. The depths to bedrock ranged from 3.5 feet to 11.1 feet with an average depth of 7.0 feet. A drawing is attached showing the results of the drilling.

The Geotechnical Branch recommends installing a single row of Drilled-In Recycled Railroad Rails at 3.0 foot centers. The rails shall have minimum nominal weight of 136 lb/yd. Use 20 foot rails. The rails shall extend 15 feet either side of the slide. Placement from centerline shall be determined by the Engineer.

**Also, in conjunction with the repairs, it is important to the long term stability of the slope to maintain positive drainage in the roadside ditch.**

Included with this report is a site map and typical rail installation sheet

### **Recommendations:**

- 1) Install a single row of recycled railroad rails. **Rail spacing should be 3.0 feet center to center.** Installation of rails should occur throughout slide area and extending 15 feet on either side of pavement breaks. Installation of the row of rails from center line will be determined by the Engineer. Use a minimum length of **20 foot rails.**

Tim Sharp (L-006-2011)

6/13/2011

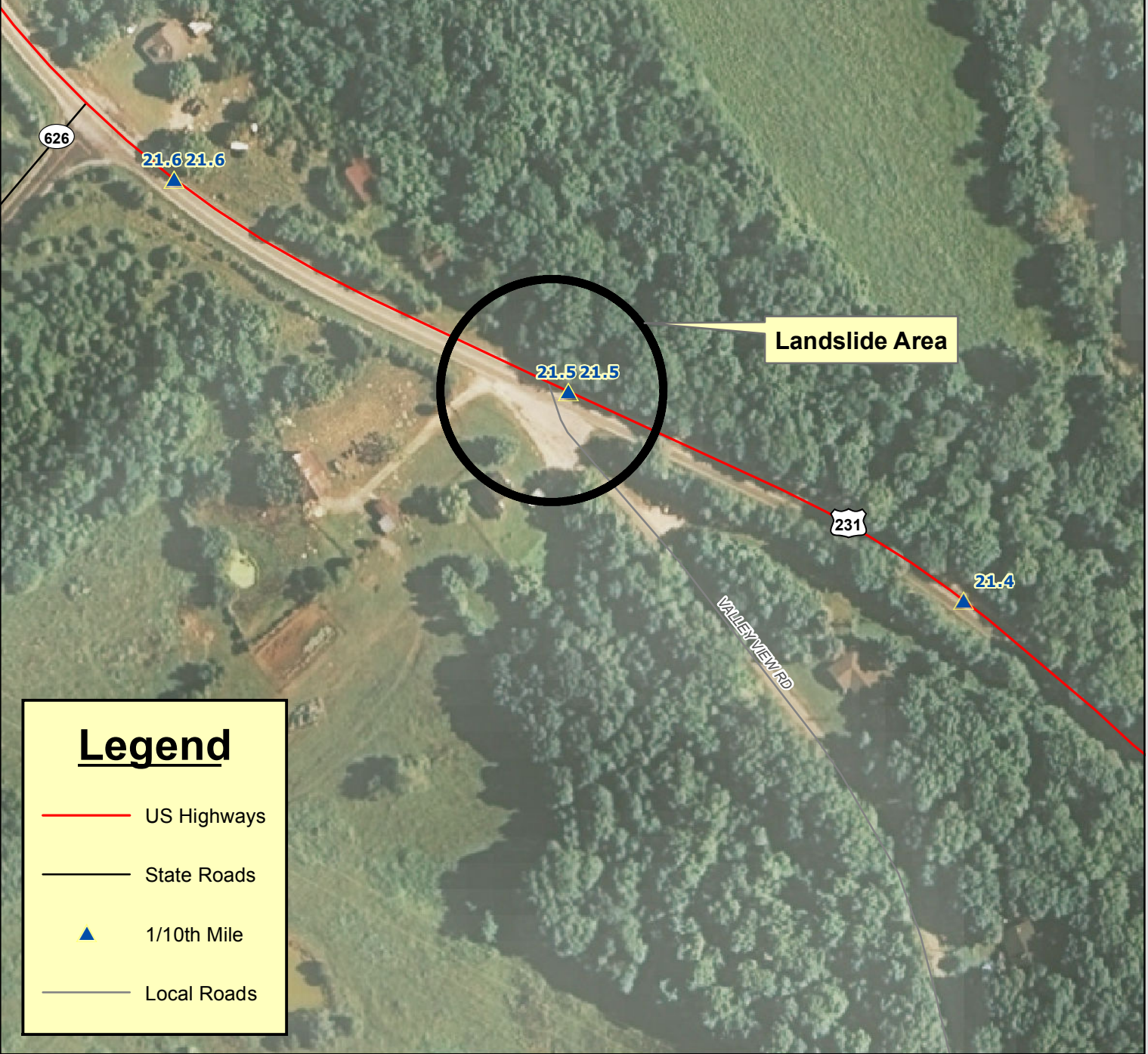
Page 2 of 2

- 2) Install Recycled Drilled-In (Used) Railroad Rails classified with a nominal weight of **136 lb/yd or greater**. Use only visibly straight Recycled Railroad Rails with no splices. The Engineer will verify rail nominal weights (Manufacturer's Stamp with lbs/yd, date, etc.). Provide certification for nominal weight if the Manufacturer's Stamp is unidentifiable. Install the flanges of the rails positioned parallel to the centerline of the roadway. Immediately after installing Railroad Rail, backfill the drilled socket with materials other than auger tailings including one of the following materials: concrete; pea gravel; or coarse aggregates (#67, #68, #78, #8 & #9 only). Shovel backfill material into drilled socket to prevent voids from forming around the rails.
- 3) Install lagging as instructed by the Engineer. Lagging could consist of concrete panels, recycled (used) steel "W" beam guardrail, or timber lagging.
- 4) Rails should be installed to a height of 1foot below the roadway level or as instructed by the Engineer.
- 5) Use Kentucky Coarse Aggregate Nos. 2's, 3's, or 23's meeting the requirements of Sections 703 and 805 of the Standard Specifications for Road and Bridge Construction (Current Edition) for backfill behind the lagging. Positive drainage must be maintained behind the lagging. Place Geotextile Fabric Type IV, in accordance with Section 214 & 843 of the Standard Specifications for Road and Bridge Construction, current edition, between the aggregate and soil interface.
- 6) Payment is based on total linear feet of rails installed.

### **Attachments**



# Warren County - US 231



Landslide Area

### Legend

- US Highways
- State Roads
- ▲ 1/10th Mile
- Local Roads

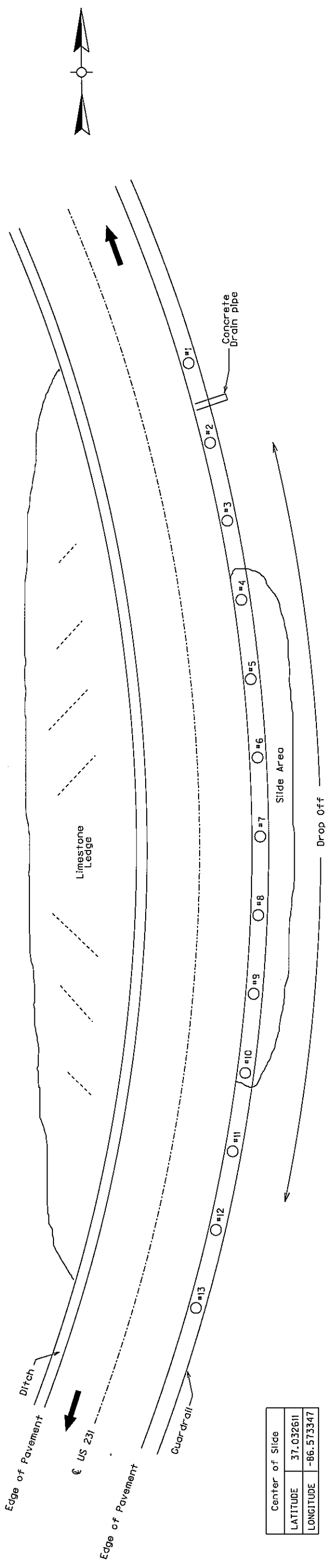


**Warren County  
US-231**

**Landslide at MP 21.5**



TYPICAL PLAN VIEW  
 ( NO SCALE )

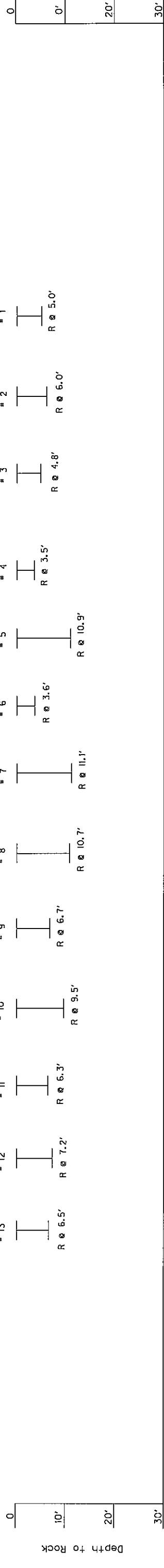


Center of Slide	
LATITUDE	37.032611
LONGITUDE	-86.573347

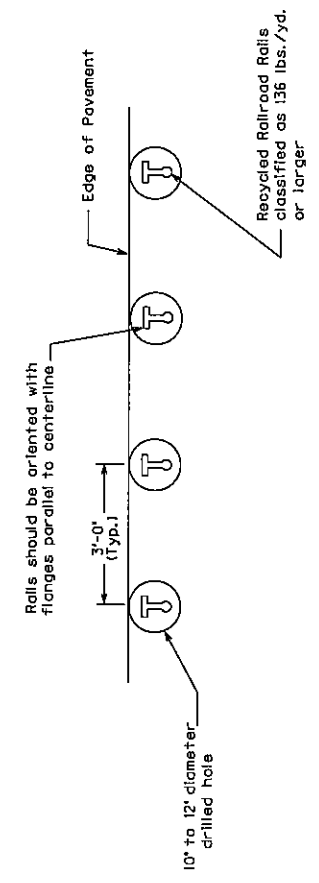
SUBSURFACE INFORMATION

Rockline Soundings 50' O.C. Along Edge of Pavement

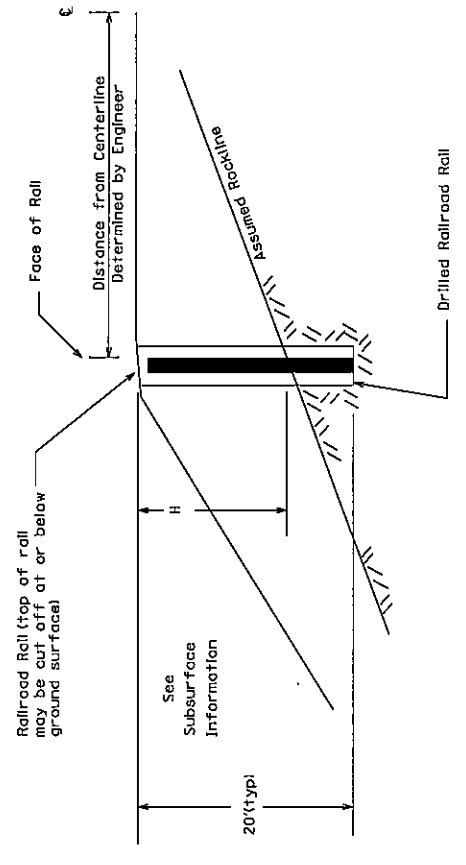
# 13	R @ 6.5'	# 12	R @ 7.2'	# 11	R @ 6.3'	# 10	R @ 9.5'	# 9	R @ 6.7'	# 8	R @ 10.7'	# 7	R @ 11.1'	# 6	R @ 3.6'	# 5	R @ 10.9'	# 4	R @ 3.5'	# 3	R @ 4.8'	# 2	R @ 6.0'	# 1	R @ 5.0'
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TYPICAL SPACING DETAIL  
 ( NO SCALE )



TYPICAL SECTION DETAIL  
 ( NO SCALE )



Commonwealth of Kentucky  
 DEPARTMENT OF HIGHWAYS  
 COUNTY OF  
**WARREN**

PROJECT NUMBERS:  
 Added: 11-16-11  
 Contract ID: 112322  
 Page 19(d) of 80  
 US 231 - Slide at M.P. 21.5

## SPECIAL NOTES FOR GUARDRAIL

### I. DESCRIPTION

All work shall be performed in accordance with the Department's current Standard Specifications and applicable Special Provisions except as hereafter specified. Article references are to the Standard Specifications.

This work shall consist furnishing all equipment, labor, materials, and incidentals for the following: (1) Site Preparation; (2) Do temporary erosion control, temporary pollution control, seeding and protection, and clean up; (3) Remove existing guardrail systems; (4) Furnishing and installing guardrail systems, including 9 Ft Posts; (5) Maintaining and control traffic; and (6) all other work specified in the Contract.

### II. MATERIALS

All materials shall be sampled and tested in accordance with the Department's Sampling Manual and the materials shall be available for sampling a sufficient time in advance of the use of the materials to allow for the necessary time for testing unless otherwise specified in these Notes.

- A. **Maintain and Control Traffic.** See Traffic Control Plan.
- B. **Seeding and Protection.** Use Seed Mixture No. 1.
- C. **Guardrail Posts.** Steel Guardrail posts are required. No alternate is allowed.

### III. CONSTRUCTION METHODS

- A. **Maintain and Control Traffic.** See Traffic Control Plan.
- B. **Site Preparation.** Prepare the shoulder for the guardrail installation, which includes regrading, reshaping, adding and compacting of suitable materials on the existing shoulders to provide proper template or foundation for the guardrail; filling voids left as the result of removing existing guardrail and guard posts with dry sand; removal of all obstructions or any other items; excavation and embankment; temporary pollution and erosion control; disposal, of waste materials; final dressing and cleanup; and seeding and protection. All site preparation shall be as approved or directed by the engineer.
- C. **Remove existing Guardrail system, including Concrete Posts and Existing Guardrail End Treatments.** Remove existing guardrail system including the guardrail end treatments, Bridge End connectors and all other elements of the existing guardrail system as per Section 719, except that the Contractor will take possession of all concrete posts and all concrete associated with existing bridge and/or guardrail end treatments. Locate all disposal areas off the Right of

Way.

Dispose of all existing concrete off the right of way at locations approved by the Engineer. Salvage existing material as per Section 719.03.06 except the Contractor shall deliver existing salvaged guardrail system materials to the Bailey Bridge Lot at Wilkinson Blvd in Frankfort, KY. Contact Bailey Bridge Lot Supervisor at (502) 564-8187 to schedule the delivery of material. Deliver the material between the hours of 8:00AM and 3:30PM, Monday through Friday. Remove any existing guardrail with a lane closure in place. Do not leave the area unprotected. After the guardrail is removed, a shoulder closure shall remain in place until the guardrail is replaced in that area.

**D. Installation of Guardrail systems.** Furnish guardrail systems as per Section 719. Steel guardrail posts are required. No alternate is allowed. The shoulder width shall be a minimum of 2 Ft unless otherwise directed by the Engineer. Grade slopes and shoulders as per applicable guardrail standard drawings. Guardrail locations shown on summary and/or drawing is approximate only. The Engineer will determine the exact termini for guardrail installations at time of construction. Construct radii at entrances and road intersections as per applicable Standard Drawings.

The guardrail shall be erected to the lines and grades shown on current standard drawings or as designated by the Engineer. Unless otherwise directed, the guardrail shall be constructed 2' 3" above true theoretical shoulder elevations, or by any method approved by the Engineer which allows the construction of the guardrail to the true grade and prevents apparent sags.

When installing guardrail the blunt end shall NOT be left exposed where it would be hazardous to the public. When it is not practical to complete the construction of the rail or the permanent end treatments first, the Engineer may require a temporary end by connecting at least 25 feet of rail to the last post, and by slightly flaring, and burying the end of the rail completely into the existing shoulder. If left overnight, a drum with bridge panel as detailed on Standard Drawings for Miscellaneous Traffic Control Devices shall be placed in advance of the guardrail end and maintained during use. The cost of the temporary end, including the barrier and panel, shall be included in the unit price for Guardrail - Single Face (Nested).

Furnish approximately **136-9 ft (Extra Length)** Steel guardrail posts. The Department will determine the exact location of the extra length posts at the time of guardrail construction.

**E. Property Damage.** The Contractor will be responsible for all damage to public and/or private property resulting from his work.

**F. Coordination with Utility Companies.** NOTICE: Utility locations are not shown in the proposal for this project and have not been located by the Department. Locate all underground, above ground and overhead utilities prior to beginning construction. The Contractor shall have the responsibility for contacting and maintaining liaison with all utility companies that have utilities located within the project limits. Do not disturb existing overhead or underground utilities. It is not anticipated that any utility facilities will need to be relocated and/or adjusted; however, in the

event that it is discovered that the work does require that utilities be relocated and/or adjusted, the utility companies will work concurrently with the Contractor while relocating their facilities. The Contractor shall be responsible for repairing all utility damage that occurs as a result of his operations.

**G. Right of Way Limits.** The exact limits of the Right-of-Way have not been established by the Department. The Contractor shall limit his activities to obvious Right-of-Way, permanent or temporary easements, and work areas secured by the Department through consent and release of the adjacent property owners. The Contractor shall be responsible for all encroachments onto private lands.

**H. Disposal of Waste.** Dispose of all removed concrete, debris, and other waste as per Section 204.03.08. The Department will incur no cost to obtain the disposal sites. The Department will NOT make direct payment for disposal of waste and debris from the project.

**I. Final Dressing, Seeding and Protection, and Clean Up.** Apply final dressing, class A to all disturbed areas, both on and off the Right-of-Way. Sow all disturbed earthen areas with Seed Mixture No. 1. The Department will NOT make direct payment for final dressing, seeding and protection, and clean up.

#### **IV. METHOD OF MEASUREMENT**

**A. Maintain and Control Traffic.** See Traffic Control Plan.

**B. Site preparation.** Site preparation will not be measured for payment but shall be incidental to the bid item "Guardrail, Single Face (Nested)".

**C. Remove Guardrail End Treatment.** End treatment removal will be incidental to the removal of the existing guardrail.

**D. Seeding and Protection, Temporary Erosion Control, Temporary Pollution Control, Waste Disposal.** The Department will NOT MEASURE for payment the operations shown here. These include Seeding and Protection, Temporary Erosion Control, Temporary Pollution Control, and Waste Disposal. These activities shall be incidental to the bid item "Guardrail, Single Face (Nested)".

#### **V. BASIS OF PAYMENT**

**A. Maintain and Control Traffic.** See Traffic Control Plan.

**B. Site Preparation.** Payment for site preparation shall be not paid directly. Site Preparation will be incidental to the bid item "Guardrail, Single Face (Nested)".

**C. Remove Guardrail End Treatment.** End treatment removal will be incidental to the



removal of the existing guardrail.

**D. Seeding and Protection, Temporary Erosion Control, Temporary Pollution Control, Waste Disposal.** The Department will NOT pay as per applicable sections for the following operations: Seeding and Protection, Temporary Erosion Control, Temporary Pollution Control, and Waste Disposal. These activities shall be incidental to the bid item “Guardrail, Single Face (Nested).”

REMOVE GUARDRAIL											
LANE	END TREAT.	BEGIN MILEPOINT	END MILEPOINT	END TREAT.	LIN FEET	REMARKS	LANE	BEGIN MILEPOINT	END MILEPOINT	LIN FEET	REMARKS
NB	Ty 1	21.400	21.560	Ty 1	750.0	2-Ply Rail	NB	21.400	21.560	745.0	includes 2 ET's incidental
				Total	750.0						

US 231 MP 21.5

NEW GUARDRAIL

CONTRACT ID: 112322  
COUNTY: WARREN  
PROPOSAL: FE01 114 0231 021-022

PAGE: 1  
LETTING: 11/18/11  
CALL NO: 301

LINE NO	ITEM	DESCRIPTION	APPROXIMATE QUANTITY	UNIT	UNIT PRICE	AMOUNT
SECTION 0001 ROADWAY						
0010	00001	DGA BASE	60.000	TON		
0020	00078	CRUSHED AGGREGATE SIZE NO 2	80.000	TON		
0030	00190	LEVELING & WEDGING PG64-22	25.000	TON		
0040	00212	CL2 ASPH BASE 1.00D PG64-22	335.000	TON		
0050	00301	CL2 ASPH SURF 0.38D PG64-22	190.000	TON		
0060	01982	DELINEATOR FOR GUARDRAIL-WHITE	85.000	EACH		
0070	24381EC	G/R STEEL W BEAM-S FACE (NESTED) (REVISED: 11-16-11)	750.000	LF		
0080	02367	GUARDRAIL END TREATMENT TYPE 1	2.000	EACH		
0090	02381	REMOVE GUARDRAIL	745.000	LF		
0100	02399	EXTRA LENGTH GUARDRAIL POST	136.000	EACH		
0110	02483	CHANNEL LINING CLASS II	20.000	TON		
0120	02562	SIGNS	170.000	SQFT		
0130	02599	FABRIC-GEOTEXTILE TYPE IV	2,500.000	SQYD		
0140	02650	MAINTAIN & CONTROL TRAFFIC	( 1.00)	LS		
0150	02676	MOBILIZATION FOR MILL & TEXT	( 1.00)	LS		
0160	02677	ASPHALT PAVE MILLING & TEXTURING	25.000	TON		
0170	03234	RAILROAD RAILS-DRILLED	2,000.000	LF		
0180	03236	CRIBBING (REVISED: 11-16-11)	1,500.000	SQFT		
0190	06510	PAVE STRIPING-TEMP PAINT-4 IN	3,380.000	LF		
0200	06514	PAVE STRIPING-PERM PAINT-4 IN	3,380.000	LF		

CONTRACT ID: 112322  
COUNTY: WARREN  
PROPOSAL: FE01 114 0231 021-022

PAGE: 2  
LETTING: 11/18/11  
CALL NO: 301

LINE NO	ITEM	DESCRIPTION	APPROXIMATE QUANTITY	UNIT	UNIT PRICE	AMOUNT
0210	20257NC	SITE PREPARATION	( 1.00)	LS		
SECTION 0002 DEMOBILIZATION						
0220	02569	DEMOBILIZATION (AT LEAST 1.5%)		LUMP		
		TOTAL BID				