U.S. Department
of Transportation

Federal Highway Administration

Eastern Federal Lands Highway Division

Final Construction Report

Project No.: ERFO-PRA-BLRI 2K12, N20

Location: On the Blue Ridge Parkway in Buncombe and McDowell Counties, North Carolina

Description: The project was a design build for emergency repairs of landslide areas resulting from Hurricanes during September 2004. The project provided repair and rehabilitation of road failures and landslide and debris removal from the Blue Ridge Parkway motor road due to severe rainfall from Hurricanes Frances, Ivan & Jeanne.

Submitted by David R. Hyde
Project Engineer

Recommeded by: Charles E. Melton — 2/1/13
Construction Operations Engineer — Date

Approved by: Thomas J. Scott — 3/29/13
Construction Engineer — Date

FINAL CONSTRUCTION REPORT

Project: ERFO-PRA-BLRI 2K12, N20
BLUE RIDGE PARKWAY
Repair of slides and Roadway

INDEX

		PAGE
I.	PROJECT DESCRIPTION……	1
II.	PROJECT DATA……	1 - 3
III.	CONSTRUCTION…….	3 - 25
IV.	CONSTRUCTION ENGINEERING…….	26
V.	APPENDIX:	
	MP 321.85 & MP 321.9	
	Title Sheet/Location Map……	27
	Typical Sections…….	28 - 31
	MP 322.0	
	Title Sheet/Location Map……	32
	Typical Sections…….	33 - 36
	MP 323.25	
	Title Sheet/Location Map……	37
	Typical Sections…….	38 - 40
	MP 321.85 & MP 321.9	
	Title Sheet/Location Map……	41
	Typical Sections…….	42 - 45
	Final Voucher Assembly	
	Final Voucher and Claims Release…….	46 - 47
	Letter of Acceptance from Cooperating Agency……	48
	Letter of Acceptance from FHWA…….	49 - 50
	Material Certification……	51
	Final Estimate…….	52 - 56
	Project Photographs…….....	57 - 63

FINAL CONSTRUCTION REPORT

Project: ERFO-PRA-BLRI 2K12, N20
BLUE RIDGE PARKWAY

I) PROJECT DESCRIPTION

A) Project Number – Project ERFO-PRA-BLRI 2K12, N20 was located on the Blue Ridge Parkway in Buncombe and McDowell Counties, North Carolina. Disaster Number NC2004-1-NPS

B) Description of Work – The project was a design build for emergency repairs of landslide areas resulting from Hurricanes during September 2004.

The project provided repair and rehabilitation of road failures and removal of landslide debris removal from the Blue Ridge Parkway motor road due to severe rainfall from Hurricanes Frances, Ivan & Jeanne.

C) Environmental Considerations –

National Environmental Policy Act (NEPA) Compliance: A Categorical Exclusion, 23 CFR Chapter 1 771.117(d) (1&3), was prepared and signed by the Federal Highway Administration.

SHPO – 106 Concurrence: The National Park Service determined that there were no known cultural resources within the proposed project area protected under the requirements of Section 106 of the National Historic Preservation Act.

II) PROJECT DATA

A) Specifications – Standard Specifications for Construction of Roads and Bridges on Federal Projects, FP-96 English

B) Termini – Mileposts 321.85, 321.9, 322, 323.25 and 357.26.

C) Length –

Milepost 321.85	175.0 feet
Milepost 321.90	200.0 feet
Milepost 322.00	300.0 feet
Milepost 323.28	325.0 feet
Milepost 357.26	100.0 feet
Total Project Length:	1100.00 feet

D) Width –

Roadway travel lane: 10 feet
Shoulder width (Left): 5 feet
Shoulder width (Right): 3 feet

E) Pavement Structure –

Pavement surface course:
2-inch Superpave Hot Asphalt Concrete Pavement, 1/2-inch nominal maximum size aggregate, 0.3 to $3x10^6$ ESAL's, Type 4 pavement smoothness. NC DOT Type RS 9.5 B surface course.

Pavement base course:
3-inch Superpave Hot Asphalt Concrete Pavement, 1-inch nominal maximum size aggregate, 0.3 to 3x10 ESAL's , NC DOT Type RB 25.0B Base Course.

Aggregate Base:
8-inch depth, North Carolina Gradation ABC

F) Structures – None

G) Contract Number and Date – DTFH71-05-C-00026, July 11, 2005

H) Contracting Officers –

Melissa L. Ridenour	Division Engineer
Donald W. Miller	Director, Project Delivery
Wanda A. Peffer	Contracting Officer
Eduardo A. Calderon	Construction Engineer
Charles E. Melton	Construction Operations Engineer

I) Contract Bid Amount – $2,883,080.00

J) Engineer's Estimate – $2,400,000.00

K) Final Contract Amount – $2,820,162.00

L) Contract Time –

Notice To Proceed:	July 12, 2005
Original Completion Date:	March 3, 2006
Extensions Granted:	31 Calendar Days
Revised Completion Date:	April 3, 2006
Date Substantially Complete:	April 3, 2006
Date All Work Complete:	June 29, 2006
Liquidated Damages Assessed:	None

Contractor –

Richard Goettle, Inc.
12071 Hamilton Avenue
Cincinnati, OH 45231

M) Subcontractors –

Schnabel Engineering South
15-E Glen Bridge Road
Arden, NC 28704
Field Construction Quality Control Service $34,800.00

Pinnacle Design Build
6030 Bethelview Road; Suite 304
Cummings, GA 30040
Design, Furnish, and Install MSE $311,100.00

Pesterfield P.A.
370 North Louisiana Avenue
Asheville, NC 28806
Surveying, Control, and Layout Services $36,520.00

N) Construction Engineering Costs –

EFLHD PE Costs:	$ 87,636.27
EFLHD CE Costs:	$ 127,683.98
Total Costs:	$ 215,320.25

Percent of Final Contract Amount: 7.64 percent

O) Maintaining Agency –

Blue Ridge Parkway, National Park Service
Asheville, North Carolina

III) CONSTRUCTION

A) Materials –

Schedule A:

Item 250B, Repair Pavement Distress Area, (MP 321.90)
Silt fence, TerraTex, EconoFence, Supplied by: Webtec, Inc., 6509-C Northpark Boulevard, Charlotte, NC 28216

Aggregate Topsoil, supplied by: Explosives Supply Co., Inc., Woodlawn Quarry, 214 American Thread Road, Marion, NC 28752

Item 250C, Repair Slide (MP 322)
Granular Backfill, Supplied by: Explosives Supply Co., Inc., Woodlawn Quarry, McDowell County, Marion NC

Turf Establishment:
Bonded Fiber Matrix, supplied by: Mat, Inc., 12402 Highway 2, Floodwood, MN 55736

Seed:
Kentucky 31, Tall Fescue, supplied by: BWI, 15 Shelton Drive, Greer, SC 29650 and Country Boy Seed, Inc., 6685 Gate City Highway, Bristol, VA 24202

Crimson Clover, supplied by: BWI Companies, Greenville, SC
Red Clover, Supplied by: Country Boy Seed, Inc., 6685 Gate City Highway, Bristol, VA 24202

Chewing Fescue, supplied by: Country Boy Seed, Inc., 6685 Gate City Highway, Bristol, VA 24202

Annual Ryegrass, Supplied by: Country Boy Seed, Inc., 6685 Gate City Highway, Bristol, VA 24202

Cross tie anchors and related hardware, supplied by: Dywidag Systems International, North Central Division, 320 Marmon Drive, Bolingbrook, IL 60440

Aggregate Base Course for Paved waterways, supplied by: Vulcan Materials Company, Boone Quarry, 3869 Highway 105 South, Boone, NC 28607

Aggregate Topsoil, supplied by: Explosives Supply Co., Inc., Woodlawn Quarry, 214 American Thread Road, Marion, NC 28752

Aggregate base course for Roadway, supplied by: Vulcan Material Company, Spruce Pine Quarry, 396 Granite Lane, Bakersville, NC 28705

Silt fence, TerraTex, EconoFence, Supplied by: Webtec, Inc. 6509-C Northpark Boulevard, Charlotte, NC 28216

Geotextile Fabric, Contech C180, supplied by: Contech Construction Products Inc., 9025 Centre Pointe Drive, Suite 400,West Chester, OH 45069

Geogrid supplied by: The Tensar Corporation, 1210 Citizens Parkway, Morrow, GA 30260

Welded Wire slope facing and Support Struts, supplied by: Modular Container System, 12 Alex Street, P.O. Box 411, Lavonia, GA 30553

Ground Anchors, 600-inch diameter, 270 grade low relaxation seven wire strand supplied by: Strand-Tech Martin, Inc., P.O. Box 2220, Summerville, SC 29484

Item 250D, Repair Slide (MP 323.25)
Precast Concrete Anchors, supplied by: Carr Concrete, P.O. Box 265, Waverly, WV 26184

Riprap supplied by: Vulcan Materials Company, Spruce Pine Quarry, 396 Granite Lane, Bakersville, NC 28705

Aggregate base course for Roadway, Culvert Pipe Bedding and Backfill, supplied by: Vulcan Material Company, Spruce Pine Quarry, 396 Granite Lane, Bakersville, NC 28705

Turf Establishment:

Bonded Fiber Matrix, supplied by: Mat, Inc., 12402 Highway 2, Floodwood, MN 55736

Seed:
Kentucky 31, Tall Fescue, supplied by: BWI, 15 Shelton Drive, Greer, SC 29650 and Country Boy Seed, Inc., 6685 Gate City Highway, Bristol, VA 24202

Crimson Clover, supplied by: BWI Companies, Greenville, SC

Red Clover, Supplied by: Country Boy Seed, Inc., 6685 Gate City Highway, Bristol, VA 24202

Chewing Fescue, supplied by: Country Boy Seed, Inc., 6685 Gate City Highway, Bristol, VA 24202

Annual Ryegrass, Supplied by: Country Boy Seed, Inc., 6685 Gate City Highway, Bristol, VA 24202

Aggregate Topsoil, supplied by: Explosives Supply Co., Inc., Woodlawn Quarry, 214 American Thread Road, Marion, NC 28752

Item 250D, Repair Slide (MP 357.26)
Plastic Pipe Culvert supplied by: Blue Ridge Pipe and Supply Company, Inc., 4267 Goose Creek Road, P.O. Box 235, Glenwood, NC 28737. Manufactured by: ADS, 4640 Trueman Blvd, Hillard, OH 43026

Pre-Cast Headwall and Drop inlet, supplied by: Permatile Concrete Products Company, P.O. Box 2049, 100 Beacon Road, Bristol, VA/TN 24203

Turf Establishment:

Bonded Fiber Matrix, supplied by: Mat, Inc., 12402 Hwy 2, Floodwood, MN 55736

Seed:
Kentucky 31, Tall Fescue, supplied by: BWI, 15 Shelton Drive, Greer, SC 29650 and Country Boy Seed, Inc., 6685 Gate City Highway, Bristol, VA 24202

Crimson Clover, supplied by: BWI Companies, Greenville, SC

Red Clover, Supplied by: Country Boy Seed, Inc., 6685 Gate City Highway, Bristol, VA 24202

Chewing Fescue, supplied by: Country Boy Seed, Inc., 6685 Gate City Highway, Bristol, VA 24202

Annual Ryegrass, Supplied by: Country Boy Seed, Inc., 6685 Gate City Highway, Bristol, VA 24202

Silt fence, TerraTex, EconoFence, Supplied by: Webtec, Inc., 6509-C Northpark Boulevard, Charlotte, NC 28216

Aggregate Topsoil, supplied by: Explosives Supply Co., Inc., Woodlawn Quarry, 214 American Thread Road, Marion, NC 28752

Contingent Fee Items for Schedule A:

Item 15716, Inlet Protection
Silt fence, TerraTex, EconoFence, Supplied by: Webtec, Inc. 6509-C Northpark Boulevard, Charlotte, NC 28216

Aggregate, Supplied by: Explosives Supply Co., Inc., Woodlawn Quarry, McDowell County, Marion North Carolina.

Item 15742, Filter Berm
Filtrexx DitchChexx, Supplied by: Filtrexx International, 35481 Grafton Eastern Road, Grafton, OH 44044

Item 25101C, Placed Riprap, Class 3
Riprap supplied by: Vulcan Materials Company, Spruce Pine Quarry, 396 Granite Lane, Bakersville, NC 28705

Item 30501, Aggregate-topsoil Course
Aggregate Topsoil, supplied by: Explosives Supply Co., Inc., Woodlawn Quarry, 214 American Thread Road, Marion, NC 28752

Item 41801BCD, Superpave Asphalt Concrete Pavement, ½-inch Nominal Maximum size Aggregate, <0.3 ESAL

Supplied by: Maymead Materials, Inc. Marion NC, Marion Plant
Designed by: Bradford Rose
Approved NC DOT Superpave Mix Design
Specification: NCDOT Asphalt Concrete Surface Course, Type RS 9.5B
Asphalt Binder:
Binder Grade: Asphalt Binder, PG 64-22
AC Specific Gravity (AASHTO T228) – 1.036
Binder supplier: Citgo, Bristol, VA

Anti-Strip:
Ad-Here LOF 6500
Supplied by: Arr-Maz Products

Aggregate Sources and Blend Percentages:

Course Aggregate, 78m	Blend %	23.00
Screenings, Dry	Blend %	11.00
Sand, Manufactured	Blend%	40.90

Supplied by: Vulcan Materials Company, Morganton Quarry, Morganton, NC

Course Aggregate, 9	Blend%	10.10

Supplied by: Maymead, Inc. Potter Quarry

Recycled Asphalt Pavement (RAP)	Blend %	15.00

Supplied by: Maymead, Inc. onsite stockpile
Gradation of Material used:

Aggregate – #78m	
37.5mm	100.0
25.0mm	100.0
19.0mm	100.0
12.5mm	100.0
9.5mm	94.2
4.75mm	25.1
2.36 mm	3.0
1.18 mm	1.8
0.6 mm	1.5
0.3 mm	1.2
0.15 mm	0.9
0.075 mm	0.6
Bulk Dry S.G.	2.762
Apparent S.G.	2.800

Manufactured Sand

37.5mm	100.0
25.0mm	100.0
19.0mm	100.0
12.5mm	100.0
9.5mm	100.0
4.75mm	99.3
2.36 mm	79.2
1.18 mm	60.3
0.6 mm	46.4
0.3 mm	29.6
0.15 mm	11.2
0.075 mm	3.4
Bulk Dry S.G.	2.841
Apparent S.G.	2.865

Aggregate - #9

37.5mm	100.0
25.0mm	100.0
19.0mm	100.0
12.5mm	100.0
9.5mm	100.0
4.75mm	86.6
2.36 mm	36.7
1.18 mm	11.6
0.6 mm	4.6
0.3 mm	2.4
0.15 mm	1.7
0.075 mm	1.4
Bulk Dry S.G.	2.678
Apparent S.G.	2.694

Dry Screenings

37.5mm	100.0
25.0mm	100.0
9.0mm	100.0
12.5mm	100.0
9.5mm	100.0
4.75mm	99.0
2.36 mm	83.4
1.18 mm	69.6
0.6 mm	57.4
0.3 mm	42.0
0.15 mm	24.4
0.075 mm	13.3
Bulk Dry S.G.	2.804
Apparent S.G.	2.847

Bag House Fines

37.5mm	100.0
25.0mm	100.0
19.0mm	100.0
12.5mm	100.0
9.5mm	100.0
4.75mm	100.0
2.36 mm	100.0
1.18 mm	100.0
0.6 mm	100.0
0.3 mm	98.0
0.15 mm	97.0
0.075 mm	95.0
Bulk Dry S.G.	2.737
Apparent S.G.	2.737

Rap

37.5mm	100.0
25.0mm	100.0
19.0mm	100.0
12.5mm	100.0
9.5mm	98.2
4.75mm	79.3
2.36 mm	59.0
1.18 mm	42.8
0.6 mm	31.6
0.3 mm	21.8
0.15 mm	14.7
0.075 mm	10.2
Bulk Dry S.G.	2.710
Apparent S.G.	2.781

Mix Properties:

% Asphalt Binder-Total Mix	6.0
Gmb @ Nmax	2.446
Max Specific Gravity (Gmm)	2.594
% Voids Total Mix (VTM)	4.0
% Solids Total Mix	96.0
% Effective Binder Content	5.6
Dust to Pbe Ratio	0.98
By Volume of Effective Pb	13.2
% Solids by Vol. of Agg. Only	82.8
% Voids in Mineral Agg. (VMA)	17.3
% Voids Filled w/Binder (VFA)	76.3
% Gmm @ Nini	89.8
% Gmm @ Ndes	96.0
% Gmm @ Nmax	96.9
Minimum Compaction Density	92.0%

Item 41801BCD, Superpave Asphalt Concrete Pavement, 3/4-inch Nominal Maximum size Aggregate, <0.3 ESAL

Supplied by: Maymead Materials, Inc. Marion, NC, Marion Plant
Designed by: Bradford Rose
Approved NC DOT Superpave Mix Design
Specification: NCDOT Asphalt Concrete Base Course, Type RB 25.0B

Asphalt Binder:

Binder Grade: Asphalt Binder, PG 64-22
AC Specific Gravity (AASHTO T228) – 1.035
Binder supplier: Citgo, Bristol, VA

Anti-Strip:

Morelife 5000
Supplied by: Morton International

Aggregate Sources and Blend Percentages:

Course Aggregate, 67	Blend %	25.00
Course Aggregate, 5	Blend%	22.00
Screenings, washed, Dry	Blend %	10.20
Sand, Manufactured	Blend%	28.00

Supplied by: Vulcan Materials Company, Morganton Quarry, Morganton, NC

Recycled Asphalt Pavement (RAP) Blend % 14.80
Supplied by: Maymead, Inc. onsite stockpile

Gradation of Material used:

Aggregate – #67	
37.5mm	100.0
25.0mm	100.0
19.0mm	97.4
12.5mm	58.5
9.5mm	30.3
4.75mm	7.0
2.36 mm	2.1
1.18 mm	1.5
0.6 mm	1.0
0.3 mm	1.0
0.15 mm	0.5
0.075 mm	0.5
Bulk Dry S.G.	2.829
Apparent S.G.	2.877

Aggregate - #5

37.5mm	100.0
25.0mm	92.8
19.0mm	39.6
12.5mm	3.6
9.5mm	2.1
4.75mm	0.1
2.36 mm	0.1
1.18 mm	0.1
0.6 mm	0.1
0.3 mm	0.1
0.15 mm	0.1
0.075 mm	0.1
Bulk Dry S.G.	2.846
Apparent S.G.	2.892

Manufactured Sand

37.5mm	100.0
25.0mm	100.0
19.0mm	100.0
12.5mm	100.0
9.5mm	100.0
4.75mm	99.3
2.36 mm	82.0
1.18 mm	64.6
0.6 mm	51.1
0.3 mm	34.1
0.15 mm	13.5
0.075 mm	3.4
Bulk Dry S.G.	2.841
Apparent S.G.	2.865

Dry Screenings

37.5mm	100.0
25.0mm	100.0
19.0mm	100.0
2.5mm	100.0
9.5mm	100.0
4.75mm	99.0
2.36 mm	83.4
1.18 mm	69.6
0.6 mm	57.4
0.3 mm	42.0
0.15 mm	24.4
0.075 mm	13.3
Bulk Dry S.G.	2.804
Apparent S.G.	2.847

Bag House Fines

37.5mm	100.0
25.0mm	100.0
19.0mm	100.0
12.5mm	100.0
9.5mm	100.0
4.75mm	100.0
2.36 mm	100.0
1.18 mm	100.0
0.6 mm	100.0
0.3 mm	98.0
0.15 mm	97.0
0.075 mm	95.0
Bulk Dry S.G.	2.705
Apparent S.G.	2.705

Rap

37.5mm	100.0
25.0mm	100.0
19.0mm	100.0
12.5mm	94.0
9.5mm	87.0
4.75mm	71.0
2.36 mm	54.0
1.18 mm	41.0
0.6 mm	29.0
0.3 mm	21.0
0.15 mm	14.0
0.075 mm	9.0
Bulk Dry S.G.	2.710
Apparent S.G.	2.781

Mix Properties:

% Asphalt Binder-Total Mix 5.0
Gmb @ Nmax 2.492
Max Specific Gravity (Gmm) 2.593
% Voids Total Mix (VTM) 4.0
% Solids Total Mix 96.0
% Effective Binder Content 4.9
Dust to Pbe Ratio 0.96
By Volume of Effective Pb 11.8
% Solids by Vol. of Agg. Only 84.2
% Voids in Mineral Agg. (VMA) 15.9
% Voids Filled w/Binder (VFA) 74.2
% Gmm @ Nini 89.6
% Gmm @ Ndes 95.0
% Gmm @ Nmax 96.7
Minimum Compaction Density 92.0%

Item 60403, Inlet, Type 4B
Pre-Cast Drop inlet, supplied by: Permatile Concrete Products Company, P.O. Box 2049, 100 Beacon Road, Bristol, VA 24203

Item 60502, Standard Underdrain System (6-Inch pipe)
Granular Backfill, Supplied by: Explosives Supply Co., Inc., Woodlawn Quarry, McDowell County, Marion, NC

6-inch plastic underdrain pipe, supplied by: Blue Ridge Pipe and Supply Company, Inc., 4267 Goose Creek Road, P.O. Box 235, Glenwood, NC 28737. Manufactured by: ADS, 4640 Trueman Blvd, Hillard, OH 43026

Item 60508, Granular Backfill
Granular Backfill, Supplied by: Explosives Supply Co., Inc., Woodlawn Quarry, McDowell County, Marion, NC

Item 61701H, Guardrail System, SBTB
Timber Guardrail System with Steel back supplied by: The Cor-Tenn Company, 111 State Street, Knoxville, TN 37902

Item 62518, Erosion Control Mat, type 2
North American Green, C125BN, supplied by: CFP, Inc., 10039 Industrial Drive, Pineville, NC 28134

Item 63401HA, Pavement Markings, Type H, Solid
and
Item 63401HB, Pavement Markings, Type H, Broken
Thermoplastic supplied by: Dobco, 1001 Nebula Road, P.O. Box 888, Manchester, GA 31816

Glass Beads, supplied by: Potter Industries, 820 Lufkin Road, Apex, NC 27539

Item 66601, CM No. 0001, Contract Modification work, Additional Guardrail Work.
Timber Guardrail System with Steel back supplied by: The Cor-Tenn Company, 111 State Street, Knoxville, TN 37902

Item 66601, CM No. 0002, Contract Modification Work, Furnish Plant Trees

Item 26001 Geosynthetic Reinforcement (Type VII-A)
Item 26001 Geosynthetic Reinforcement (Type VII-B)
Item 26001 Geosynthetic Reinforcement (Type VII-C)
Geosynthetic Reinforcement Type VII-A, B and C was Miragrid manufactured by: TC Mirafi, 365 South Holland Drive, Pendergrass, GA 30567. Supplied by: CFP, Inc., P.O. Box 38327, Charlotte, NC 28278

Item 26003 Welded Wire Fabric Face
Wire Mesh manufactured by: Ivy Steel and Wire, Jacksonville, FL, Mesh Hooks manufactured by: Meadow Burk Products, Charlotte, NC. Supplied by: CFP, Inc., P.O. Box 38327, Charlotte, NC 28278

Item 30101Z Aggregate Base, Grading C or D
North Carolina DOT Gradation Aggregate Base Course supplied by: Explosive Supply Co., Inc., P.O. Box 217, Spruce Pine, NC 28777

Aggregate, No. 57 stone portion supplied by: Explosive Supply Co., Inc., P.O. Box 217, Spruce Pine, NC 28777

Topsoil portion was conserved topsoil from onsite excavation, provided by: Taylor and Murphy Construction Company.

Item 401801BBD Superpave Asphalt Concrete Pavement, 1/2-Inch Nominal Maximum Size Aggregate, 0.3<-<3 ESAL, Type 4 Pavement Smoothness
Supplied by: APAC –Carolina, Inc., Asheville Division, Weaverville Plant.
Designed by: Neil Moss
Approved NC DOT Superpave Mix Design
Specification: NCDOT Asphalt Concrete Surface Course, Type RS 9.5B

Asphalt Binder:
Binder Grade: Asphalt Binder, PG 64-22
AC Specific Gravity (AASHTO T228) – 1.030
Binder supplier: Associated Asphalt, Inman, SC

Aggregate Sources and Blend Percentages:

Course Aggregate, 78m,	Blend %	50.00
Screenings, washed,	Blend %	40.00

Supplied by: Hedrick Industries, North Buncombe Quarry, Asheville, NC

Recycled Asphalt Pavement (RAP)	Blend %	10.00

Supplied by: APAC-Carolina, Inc., stockpile

Gradation of Material used:

Aggregate – 78m	
12.5mm	100.0
9.5mm	90.0
4.75mm	30.0
2.36 mm	7.0
1.18 mm	3.0
0.6 mm	2.0
0.3 mm	2.0
0.15 mm	1.0
0.075 mm	1.0
Bulk Dry S.G.	2.742
Apparent S.G.	2.801

Washed Screenings

12.5mm	100.0
9.5mm	100.0
4.75mm	99.0
2.36 mm	79.0
1.18 mm	55.0
0.6 mm	40.0
0.3 mm	26.0
0.15 mm	11.0
0.075 mm	8.0
Bulk Dry S.G.	2.776
Apparent S.G.	2.827

Bag House Fines

12.5mm	100.0
9.5mm	100.0
4.75mm	100.00
2.36mm	100.0
1.18mm	100.0
0.6 mm	100.0
0.3 mm	100.0
0.15 mm	100.0
0.075 mm	90.0
Bulk Dry S.G.	2.776
Apparent S.G.	2.827

Rap

19.0mm	100.0
12.5mm	97.0
9.5mm	96.0
4.75mm	82.00
2.36mm	87.0
1.18mm	52.0
0.6 mm	38.0
0.3 mm	33.0
0.15 mm	20.0
0.075 mm	11.0
Bulk Dry S.G.	2.828
Apparent S.G.	2.850

Mix Properties:

% Asphalt Binder-Total Mix	6.5
Gmb @ Nmax	2.431
Max Specific Gravity (Gmm)	2.518
% Voids Total Mix (VTM)	3.5
% Solids Total Mix	96.5
% Effective Binder Content	5.8
Dust to Pbe Ratio	0.93
By Volume of Effective Pb	13.9
% Solids by Vol. of Agg. Only	82.6
% Voids in Mineral Agg. (VMA)	17.7
% Voids Filled w/Binder (VFA)	78.5
% Gmm @ Nini	88.0
% Gmm @ Ndes	95.5
% Gmm @ Nmax	96.6
Minimum Compaction Density	92.0%

Item 40801CB Superpave Asphalt Concrete Pavement, 3/4-inch Nominal Maximum Size Aggregate, 0.3<-<3 ESAL

Supplied by: APAC –Carolina, Inc., Asheville Division, Weaverville Plant
Designed by: Neil Moss
Approved NC DOT Superpave Mix Design
Specification: NCDOT Asphalt Concrete Surface Course, Type RS 9.5B

Asphalt Binder:

Binder Grade: Asphalt Binder, PG 64-22
AC Specific Gravity (AASHTO T228) – 1.030
Binder supplier: Associated Asphalt, Inman, SC

Aggregate Sources and Blend Percentages:

Course Aggregate,	78m,	Blend %	25.90
Course Aggregate,	57m,	Blend%	27.00
Screenings, washed		Blend %	32.00

Supplied by: Hedrick Industries, North Buncombe Quarry, Asheville, NC

Recycled Asphalt Pavement (RAP) Blend % 15.10
Supplied by: APAC-Carolina, Inc., Stockpile

Gradation of Material used:

Aggregate – 78m

19.0mm	100.0
2.5mm	96.0
9.5mm	87.0
4.75mm	39.0
2.36 mm	10.0
1.18 mm	5.0
0.6 mm	3.0
0.3 mm	3.0
0.15 mm	2.0
0.075 mm	1.4
Bulk Dry S.G.	2.770
Apparent S.G.	2.823

Washed Screenings

12.5mm	100.0
9.5mm	100.0
4.75mm	99.0
2.36 mm	79.0
1.18 mm	55.0
0.6 mm	39.0
0.3 mm	25.0
0.15 mm	12.0
0.075 mm	5.1
Bulk Dry S.G.	2.795
Apparent S.G.	2.859

Aggregate – 57m

25.0mm	100.0
19.0mm	94.0
12.5mm	36.0
9.5mm	15.0
4.75mm	4.0
2.36 mm	3.0
1.18 mm	3.0
0.6 mm	2.0
0.3 mm	2.0
0.15 mm	1.0
0.075 mm	1.1
Bulk Dry S.G.	2.793
Apparent S.G.	2.833

Bag House Fines

12.5mm	100.0
9.5mm	100.0
4.75mm	100.0
2.36mm	100.0
1.18mm	100.0
0.6 mm	100.0
0.3 mm	100.0
0.15 mm	100.0
0.075 mm	90.0
Bulk Dry S.G.	2.789
Apparent S.G.	2.866

Rap

19.0mm	100.0
12.5mm	97.0
9.5mm	96.0
4.75mm	82.00
2.36mm	87.0
1.18mm	52.0
0.6 mm	38.0
0.3 mm	33.0
0.15 mm	20.0
0.075 mm	11.0
Bulk Dry S.G.	2.871
Apparent S.G.	2.760

Mix Properties:

% Asphalt Binder-Total Mix	4.6
Gmb @ Nmax	2.479
Max Specific Gravity (Gmm)	2.601
% Voids Total Mix (VTM)	4.7
% Solids Total Mix	95.3
% Effective Binder Content	3.9
Dust to Pbe Ratio	1.36
By Volume of Effective Pb	9.4
% Solids by Vol. of Agg. Only	85.9
% Voids in Mineral Agg. (VMA)	14.8
% Voids Filled w/Binder (VFA)	64.4
% Gmm @ Nini	88.6
% Gmm @ Ndes	95.3
% Gmm @ Nmax	96.3
Minimum Compaction Density	92.0%

Item 60501 Underdrain System
Granular Backfill #57 Stone supplied by: Explosive Supply Co., Inc., P.O. Box 217, Spruce Pine, NC 28777

6-inch collector pipe supplied by: Willco, Inc., 23 Heritage Drive, Asheville, NC 28806

Item 60602M Pipe Anchor Assembly, 24-inch
Portland Cement Concrete supplied by: Southern Concrete Materials, P.O. Box 5395, Asheville, NC 28813, produced at Burnsville, NC plant

Mix Requirements:
- Max. W/C Ratio: 0.49
- Min. Cement Content: 611 lbs.
- Slump: 2 to 4-inches
- Air content: 3 to 5 percent

Cement:
- Type: Portland Type 1/11
- Brand: Giant
- Source and Mill: Harleysville, SC

Fly Ash: Not used

Fine Aggregate:
- Specific Gravity: 2.66
- Manufacture: B&T, Columbia, SC
- Location of Source: B&T Edmund Pit

Quality Tests:
- Sodium Sulfate Soundness loss: N/A
- Sand Equivalent: N/A
- Fineness Modulus: 2.70

Course Aggregate:
- Specific Gravity: 3.12
- Manufacture: Vulcan Materials, Mayland Quarry
- Location of Source: Spruce Pine, NC

Quality Tests:
- LA Abrasion: 44
- Sodium Sulfate Soundness Loss: 2.8 percent
- Adherent Coating: N/A

Water:
- Source: Town of Burnsville, NC
- Approved Drinking water Supply: Yes
- Approved by: Town of Burnsville

Air Entraining Admixture:
Brand: Master Builders Micro Air
Source: Cleveland, OH

Water Reducer:
Brand: Mater Builders Polyheed 997
Source: Cleveland, OH

Water Reducer/Retarder:
Brand: Master Builders Delvo
Source: Cleveland, OH

Other Additives: N/A

Mix Proportions:

Item	Sp.Gr.	SSD Wt./Cu.yd.	Volumes/Cu.Ft
Cement	3.15	625	3.180
Fine Agg.	2.66	1252	7.543
Course Agg.	3.05	2075	10.658
Water	34 gal.	283 lbs.	4.539
Entrained Air	4 percent /27 cu.ft.		1.080
Total Volume			27.000

Admixtures:

Air Entraining:	Micro Air	2 to 5 oz/per cu.yd.
Water Reducer:	Polyheed	5 to 7 oz/per 100 wt.
Water Reducer/ Retarder:	Delvo	3 to 5 oz/per 100 wt.

Mix Summary:

Water/Cement Ratio:	.45
Slump:	2-inches to 4-inches
Air Content:	4 percent
Unit weight:	156.86
Temperature:	70 F.
7-day Strength:	3000 psi.
28-day Strength:	4200 psi.

Item 60905N Asphalt Concrete Curb, 6-inch Depth

Used Item, 401801BBD Superpave Asphalt Concrete Pavement, 1/2-inch Nominal Maximum Size Aggregate, 0.3<-<3 ESAL,
Supplied by: APAC –Carolina, Inc., Asheville Division, Weaverville Plant
Designed by: Neil Moss
Approved NC DOT Superpave Mix Design
Specification: NCDOT Asphalt Concrete Surface Course, Type RS 9.5B
(See item 401801BBD for mix design)

Item 61701H Guardrail System SBTB
Steel Back Timber Guardrail supplied by: The Cor-Tenn Company, 111 State Street. Knoxville, TN 37902

Item 62006 Remove and Reset Stone Masonry Headwall
Masonry salvaged from existing headwall and contractor supplied masonry from Elberton, GA

Item 62401H Furnish and Place Topsoil, 3-inch Depth
Topsoil for this item was material conserved from excavated soil within the project work limits.

Item 62403 Furnish and Place Topsoil (Vegetative Soil Mix)
Topsoil was conserved from excavated material on site. Fertilizer: 19-19-19, manufactured by: Royster-Clark, Inc., 999 Waterside Drive, Suite 800, Norfolk, VA 23510. Limestone: Pelletized Limestone, manufactured by: Oldcastle stone products, 2200 Sullivan Trail, Easton Penna 18040. Seed mix: supplied by: Garner Seed Company, 6292 Old Highway 49, Denton, NC 27239

Item 62509 Turf Establishment
Fertilizer: RC Blend Plus 10-10-10
Supplied by: Royster-Clark, Inc., 1516 Concord Avenue, Monroe, NC 28110

Lime: Lime-Liquid
Mulch: Paper, 100%
Seed: Ryegrass-Annual
Supplied by: Ikex, Inc., Hwy 264 East Alternate, Middlesex, NC 27557

Seed: Chewings Fescue
White Clover
Redtop
Supplied by: Ernst Conservation Seeds, 9006 Mercer Pike, Meadville, PA 16335

Seed: Ky. 31, tall Fescue
Supplied by: Garner Seed Company, 6292 Old Highway. 49, Denton, NC 27239

Item 62901B Erosion Control Mat Type 2
Item 62901E Erosion Control Mat Type 5
Type 2: North American Green, SC150
Type 5: North American Green, P300
Supplied by: CFP Inc., P.O. Box 38327, Charlotte, NC 28278

Items 63401HA Pavement markings, Type H, Solid
Paint: Sherwin Williams, Hotline Waterborne, White and Yellow
Glass Spheres: Potters Industries Inc.
Supplied by: Interstate Road Management, 806 B Locust Street, Hendersonville, NC 28792

Item 63501 Temporary Traffic Control
Reflective Sheeting: Scotchlite, by 3M
Aluminum Panels: Vulcan Aluminum
Warning Lights: Empco-Lite
Supplied by: Tri State Traffic Safety, P.O. Box 129, Gaffney, SC 29342

Item 63701 Field Office
Location was 4188 Hwy 80 south, Burnsville, NC 28714
Supplied by: Taylor and Murphy Construction Company

B) Experimental or New Features –

None

C) Changes and Problems –

1) Changes

Contract Modification (CM) No. 001 was issued to add pay item 66601 Additional Guardrail Work, at a lump sum price of $23,176.00, to reduce pay items 20412 Waste by 1,150 cubic yards, and item 20103 Clearing and Grubbing by 176 square yards. An extension to the contract time established a new contract completion date of March 20, 2006.

No change in contract amount Contract time increase = 17 calendar days.

CM No. 0002 was issued to reduce Pay Item 20405 Select Borrow by 160 cubic yards, and to add one Pay Item 66601 –Furnish and Plant Trees at a lump sum price of $6,400.00. Considering the number of trees and the steep slopes an extension of 14 calendar days, establishing a new contract completion date of April 3, 2006.

No change to contract amount Contract time increase = 14calendar days.

CM No. 0003 was issued to finalize the quantities.

Net contract increase = $62,918.00 No change to contract time.

Significant Overruns and Underruns

Item 15703, Silt Fence
Silt Fence installation was also provided for in the lump sum cost for each slide repair site. This quantity was sufficient in providing erosion control during construction therefore this item was not needed. Quantity underrun for this item was 100.00 linear feet, or 100.00 percent of the original contract amount.

Item 15722, Temporary Diversion Berm
Temporary Diversion Berm installation was also provided for in the lump sum cost for each slide repair site. Additional diversion berms were not required therefore this item was not needed. Quantity underrun for this item was 100.00 linear feet, or 100.00 percent of the original contract amount.

Item 20103, Clearing and Grubbing
Clearing and Grubbing was also included in the lump sum cost for repairs at each landslide area. The quantity for this item was overestimated. Quantity underrun for this item was 648.00 square yards, or 82.40 percent of the original contract amount.

Item 20301AZ, Removal of Structures and Obstructions
Original design indicated there was a possibility of 7 items for removal, which included drop inlets, headwalls and pipe culvert. On site conditions did not require excavation as deep and wide as originally anticipated there for no additional pipe culverts, headwalls or drop inlets were removed. This resulted in an underrun of 7.0 each, or 100.00 percent of the original contract amount.

Item 20402, Subexcavation
It was originally estimated that additional subexcavation might be required if suitable material was not reached at the elevation as indicated on the plans. On site conditions for sub-excavation resulted in suitable material at the anticipated elevations. This resulted in an under run of 230.00 cubic yards, or 100 percent of the original contract amount.

Item 20405, Select Borrow
If additional subexcavation had been required as described in Item 20402, Subexcavation above. This would have required Select Borrow to be placed to the elevations indicated in the plans. Since no subexcavation was required therefore no select borrow was required, Resulting in and underrun of 140.00 cubic yards, or 100 percent of the original contract amount.

Item 20412, Waste
Original contract quantity included removal of total roadway width and existing embankment. Contractor design allowed one lane of roadway to remain in place. Therefore this item underran by 1,150.00 cubic yards, or 61.33 percent of the original contract amount.

Item 20413, Slope Scaling
Original design anticipated that rock would be encountered in repair of the cut slope. Rock was not encountered therefore slope scaling was not required. This resulted in the item under- run of 30.00 cubic yards, or 100 percent of the original contract amount.

Item 30101Z, Aggregate Base, Grading C or D
Under-run of this item was due to contractor's design which did not result in removal of pavement and aggregate beyond the construction limits. Resulting in an underrun of 150.00 tons, or 100 percent of the original contract amount.

Item 30305C, Shoulder and Ditch Reconditioning
Total contract quantity was not required to complete project. This item underran by 85.00 linear feet, or 24.29 percent of the original contract amount.

Item 41801BCD, Superpave Asphalt Concrete Pavement, 1/2 -inch nominal maximum aggregate, <0.3 ESAL
Quantity overrun was due to a request by National Park Service that pavement overlay be place as one continuous operation covering also the short areas between repair sites. Quantity overrun was 230.00 tons, or 766.67 percent of the original contract amount.

Item 41901B, Asphalt Pavement, full depth patch, Type 2
Item 41901C, Asphalt Pavement, full depth patch, Type 3
Both items above were not needed to complete project. During construction an onsite investigation revealed that full depth patching was not needed. Therefore each item underran by 870.00 square feet, or 100 percent of the original contract amount.

Item 60201M, 24-inch Pipe Culvert
Original design anticipated that the existing pipe culvert at MP 321.9 would need partial replacement. On site investigation revealed that the existing pipe culvert did not need partial replacement. This resulted in an underrun of 65.00 linear feet, or 100 percent of the original contract amount.

Item 60502, Standard Underdrain System (6-inch pipe)
Total estimated quantity for this item was not required to properly complete the project. Quantity for this item underran by 50.0 linear feet, or 50 percent of the original contract amount.

Item 60703B, Cleaning Culverts in Place
Original quantity included cleaning of all pipe culverts within the slide repair sites. Field inspection during construction reveled that all pipe culverts did not require cleaning. This resulted in a quantity underrun of 112.00 linear feet, or 74.67 percent of the original contract amount.

Item 60704, Reconditioning drainage structures
Field inspection during construction reveled that these structures did not require reconditioning. This resulted in a quantity underrun of 2.0 each, or 100 percent of the original contract amount.

Item 60801E, Paved Waterway, Type 5
Lump Sum cost for each slide area included replacement of existing paved waterway. This item was included to replace any damaged paved waterway adjacent to slide repair sites. No additional damage to adjacent waterways was found. Therefore quantity for this item was not required. Quantity for this item underran by 100.00 square yards, or100 percent of the original contract amount.

Item 62007AM, Stone Masonry Headwall for 24-inch Pipe Culvert
None of the existing pipe culverts required removal and replacement. Therefore the existing headwalls remained intact. Quantity for this item was not required. This

resulted in a quantity underrun of 2.0 each, or 100 percent of the original contract amount.

Item 62901B, Erosion Control Mat, Type 2
The original quantity for this item was underestimated. To completely cover all areas as required resulted in a quantity overrun of 1,300.00 square yards, or 108.33 percent of the original contract amount.

Item 63401HA, Pavement Markings, Type H, solid
The overrun of this item was due to the overrun of Item 41801BCD, Superpave Asphalt Concrete Pavement. When additional surface course was placed this resulted in additional pavement markings. Quantity overrun for this item was 550.00 linear feet, or 183.33 percent of the original contract amount.

Item 63401HB, Pavement Markings, Type H, broken
This item was not required to complete the project. There were no areas that would allow for passing zones within the construction limits. Quantity underrun for this item was 150.00 linear feet, or 100 percent of the original contract amount.

Item 63531B, Temporary construction fence (orange plastic)
Installation of this item was not required. This was due to construction site being closed to public access. Underrun quantity for this item was 300.00 linear feet, or 100 percent of the original contract amount.

2) Problems
No other problems existed except those covered in the above discussed Contract Modifications.

D) Recommendations –

None

E) Claims –

None

IV) CONSTRUCTION ENGINEERING

A) Project Personnel –
David Hyde, Project Engineer/COTR
Dennis Ramsey, Project Engineer
David Gerlach, Project Inspector
Gary Rodes, Project Inspector

B) Contract Inspection – None

C) Other Contacts –
National Park Service, Al Hollister, Project Manager, National Park Service, Asheville, North Carolina

D) Partnering –
Informal partnering was successfully implemented on this project and a good relationship was maintained between all partners.

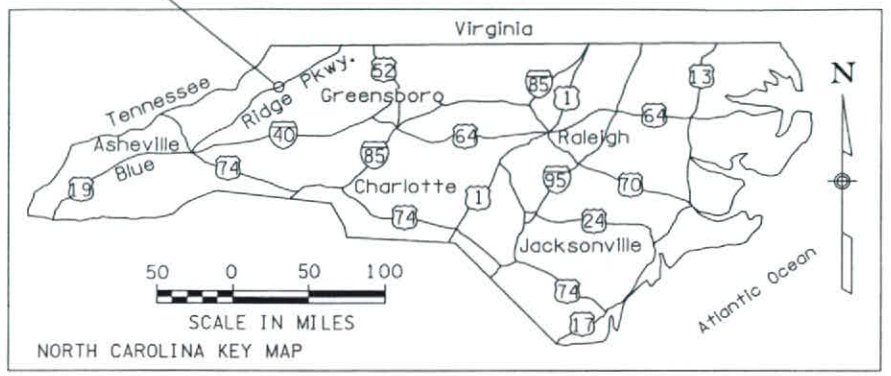
REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
SE	NC	ERFO-PRA-BLRI 2K12, N20	1	20

U.S. DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

BLUE RIDGE PARKWAY

PROJECT ERFO-PRA-BLRI 2K12, N20



NORTH CAROLINA KEY MAP

AS-BUILT PLANS FOR

PROJECT ERFO-PRA-BLRI 2K12, N20

NATIONAL PARK SERVICE PMIS# 110156

CANTILEVER PILE WALL AT
MP 321.85 & MP 321.9

BUNCOMBE AND MCDOWELL COUNTIES,
NORTH CAROLINA

IMPROVEMENT: CONSTRUCT CANTILEVER PILE WALL WITH GABION LAGGING.

CONSTRUCT PROJECT IN ACCORDANCE WITH THE DRAWINGS & NOTES, SPECIFICATIONS•, & SPECIAL CONTRACT REQUIREMENTS (SCRs)

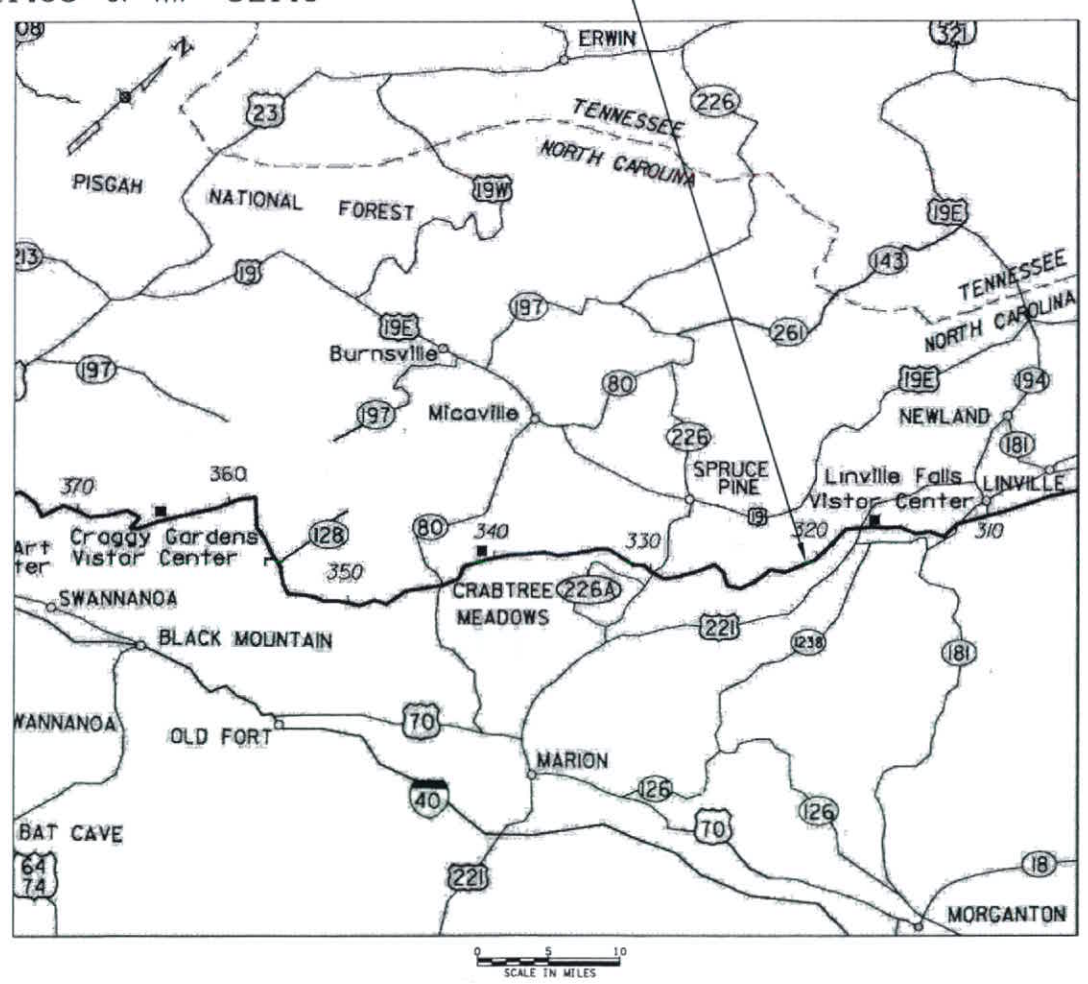
ABBREVIATIONS:

APPROX	APPROXIMATE
CIP	CAST IN PLACE
CO	CONTRACTING OFFICER
EXIST	EXISTING
ID	INNER DIAMETER
MSE	MECHANICALLY STABILIZED EARTH
NPS	NATIONAL PARK SERVICE
OD	OUTER DIAMETER
RT	RIGHT
SCH	SCHEDULE
STD	STANDARD DETAIL
TYP	TYPICAL
W/	WITH

SPECIFICATIONS:

•Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects", FP-96 (ENGLISH)

PROJECT ERFO-PRA-BLRI 2K12, N20
MP 321.85 & MP 321.9



PROJECT LENGTH (Parkway)	0.12 MILES
INCIDENTAL ROAD CONSTRUCTION	N/A
TOTAL	0.12 MILES

INDEX TO SHEETS

SHEET NO	DESCRIPTION
1	COVER SHEET
2	TABULATION OF QUANTITIES
3	SEDIMENT & EROSION CONTROL - PLAN VIEW
4	SEDIMENT & EROSION CONTROL - SECTION VIEW
5	SILT FENCE STANDARD DETAIL
6	FILTER BERM STANDARD DETAIL
7	LAYOUT PLAN
8	ACCESS PLAN
9	TYPICAL SECTION
10	NOTES
11	PLAN VIEW
12	PLAN VIEW & LAYOUT TABLE
13	PROFILE VIEW
14	CROSS-SECTIONS - STA. 1+00 TO 2+00
15	CROSS-SECTIONS - STA. 2+25 TO 3+00
16	CROSS-SECTIONS - STA. 3+25 TO 4+00
17	CROSS-SECTIONS - STA. 4+25 TO 5+00
18	CROSS-SECTIONS - STA. 5+25 TO 6+00
19	CROSS-SECTIONS - STA. 6+25 TO 6+50
20	PAVEMENT STANDARD DETAIL

PLANS PREPARED FOR

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

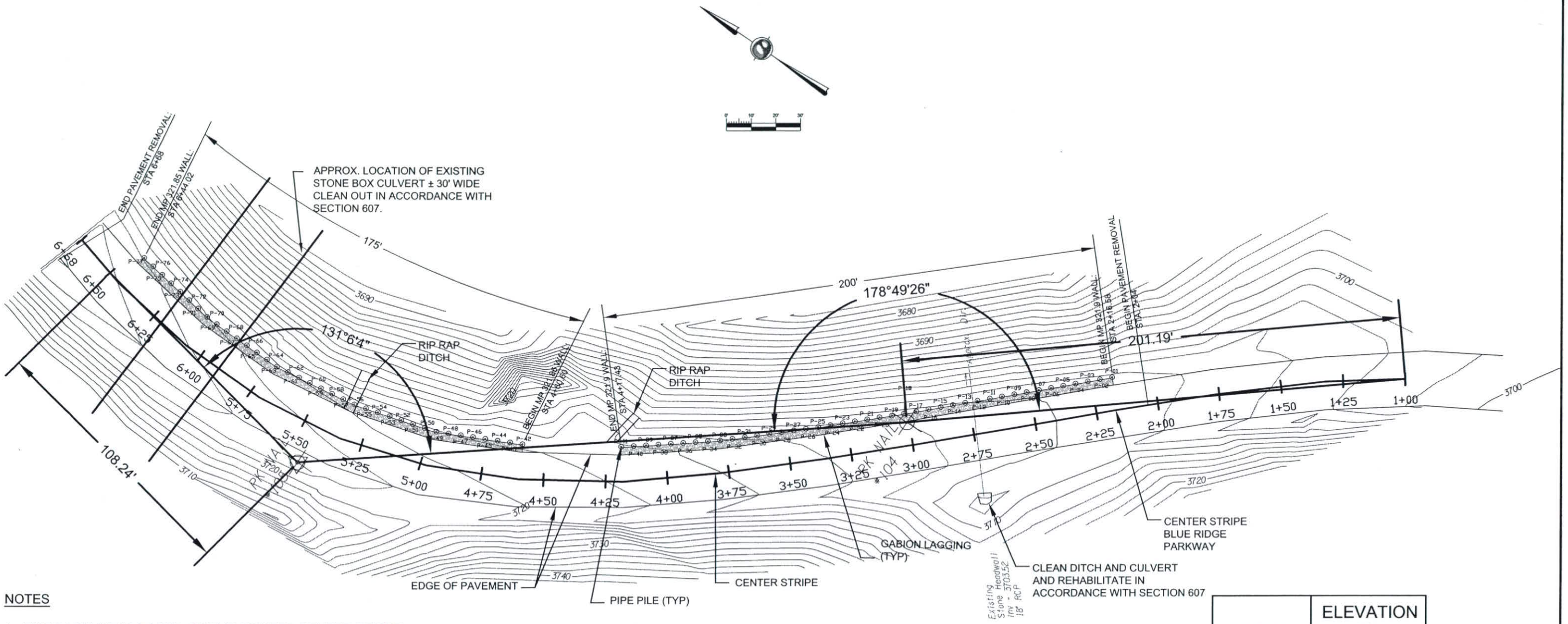
PLANS PREPARED BY:

amec
AMEC Earth & Environmental of North Carolina, Inc.
981 Centerview Drive, Suite 305
Greensboro, North Carolina 27407

CONTRACTOR:

GOETTLE
Richard Goettle, Inc.
12071 Hamilton Avenue
Cincinnati, Ohio 45231

OCTOBER 2005



NOTES

1. THE BASELINE IS BASED ON THE PAINTED CENTER STRIPE.
2. PRIOR TO CONSTRUCTION, VERIFY THAT THE CENTER STRIPE IS CONSISTANT DISTANCE FROM THE EDGE OF PAVEMENT.
3. PROVIDE MEANS TO RELOCATE THE BASELINE IN THE EVENT IT IS LOST DUE TO CONSTRUCTION ACTIVITIES (SEE SHEET 10 OF 20).
4. SEE SHEET 11 OF 20 FOR MP 321.9 PLAN VIEW.
5. SEE SHEET 12 OF 20 FOR MP 321.85 PLAN VIEW.
6. STAKE EXISTING CULVERT AND BOX CULVERT LIMITS PRIOR TO PLACING PILES.

PK NAIL	ELEVATION (ft)
104	3712.05
105	3722.82

REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
G						
F						
E						
D						
C						
B						
A	03	04	2006	AS-BUILT DRAWING	RFS	DWD

Client Logo: GOETTLE

Client: RICHARD GOETTLE, INC.

AMEC Earth & Environmental
981 Centerview Drive, Suite 305
Greensboro, North Carolina 27407
Phone: (336) 855-8993
amec

DATUM: NAVD88
PROJECTION: NC Plane 3200
DRAWN BY: RFS
REVIEWED BY: DWD
ORIGINAL SCALE:

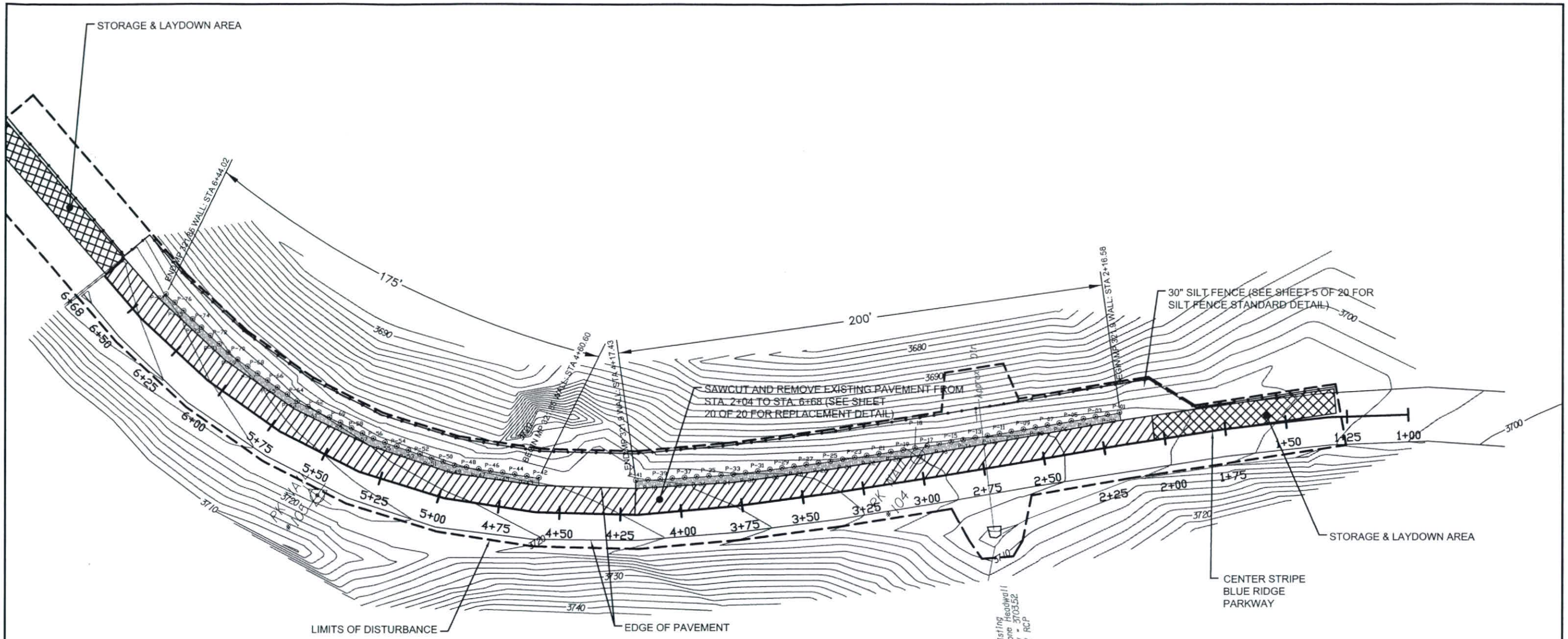
PROJECT: BLUE RIDGE PARKWAY SLIDE REPAIR
EFLHD Project ERFO-PRA-BLRI 2K12, N20

TITLE: BLUE RIDGE PARKWAY MP 321.85 & 321.9
LAYOUT PLAN

PROJECT NO.: 5-4495-0501
REVISION NO.: A
DATE: 12/05/05
DRAWING NO.:
SHEET NO.: 7 of 20

R:\Geotechnical Project Files\2005 Projects\Goettle\blue ridge parkway as-builts\mp 321\07 09 11 12 MP321 PLANS.dwg - 07 LAYOUT PLAN - Apr. 14, 2006 8:22am - bob.scott

www.amec.com/earthandenvironmental



NOTES

1. GRADE ACCESS RAMP TO AREA OF SLIDE BEGINNING AT STORAGE AND LAYDOWN AREA AS SHOWN ON THE PLAN.
2. PRIOR TO CLEARING AND GRADING, CONSTRUCT SILT FENCE AT LIMITS OF DISTURBANCE, AS APPROVED BY THE CO.
3. DO NOT DISTURB AREA BEYOND THE SILT FENCE UNLESS APPROVED BY THE CO.
4. RESTORE CONTOURS, SHOULDERS, AND ANY DAMAGED PAVEMENT AFTER CONSTRUCTION IS COMPLETE AND ACCESS IS NO LONGER REQUIRED.
5. SEED, FERTILIZE AND MULCH ALL AREAS REQUIRING TURF RE-ESTABLISHMENT, WITH AN EROSION CONTROL MAT APPLIED TO THE SEEDED AREA TO PREVENT EROSION IN ACCORDANCE WITH BLUE RIDGE PARKWAY GUIDELINES FOR SEEDING AND REHABILITATION.
6. REPLACE PAVEMENT MARKINGS WITH TYPE A MARKINGS IN ACCORDANCE WITH SECTION 634.04.

REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
A	03	04	2006	AS-BUILT DRAWING	RFS	DWD

Client Logo: GOETTLE

Client: RICHARD GOETTLE, INC.

AMEC Earth & Environmental
981 Centerview Drive, Suite 305
Greensboro, North Carolina 27407
Phone: (336) 855-8993
amec

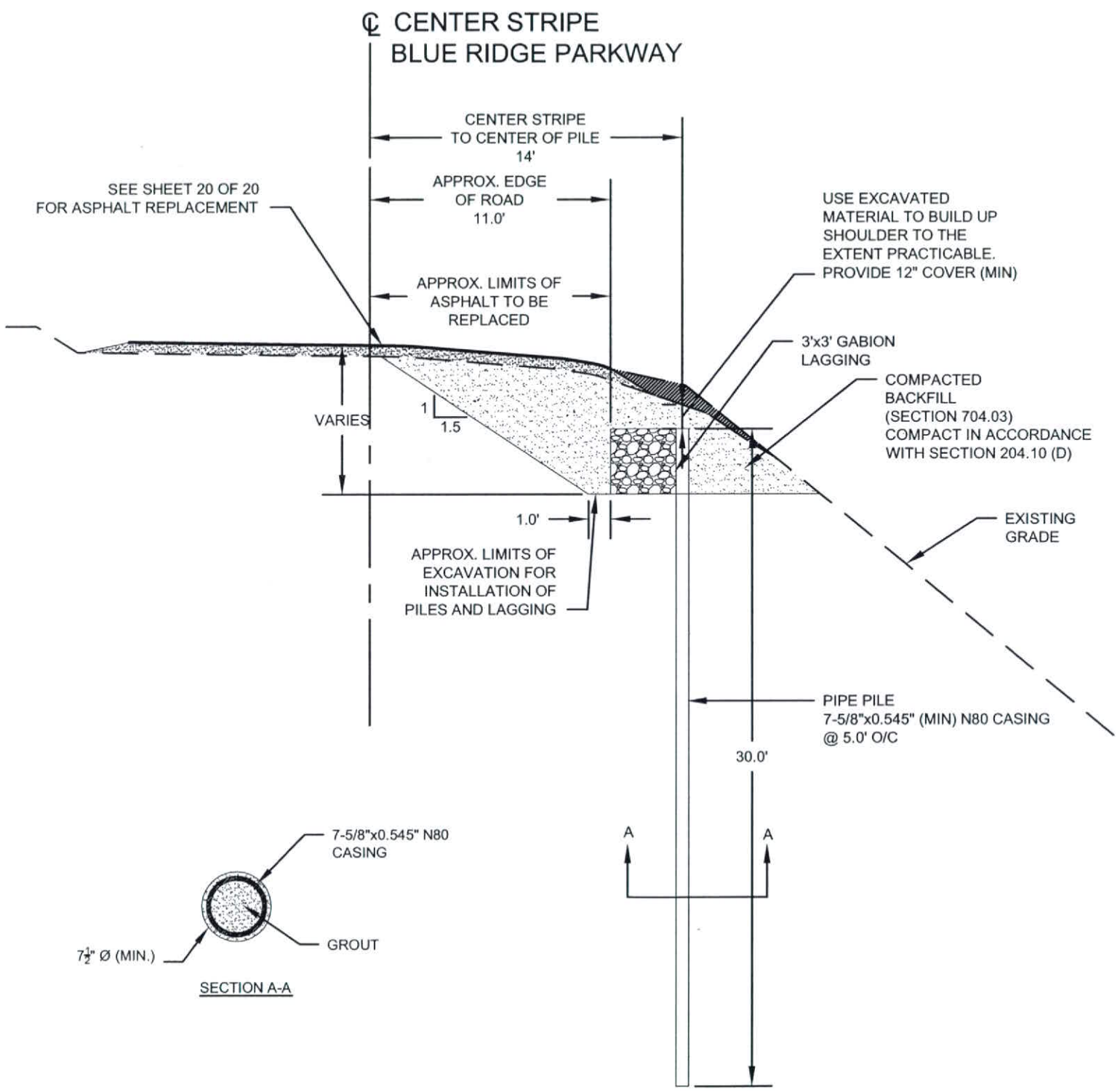
www.amec.com/earthandenvironmental

DATUM:
PROJECTION:
DRAWN BY: RFS
REVIEWED BY: DWD
ORIGINAL SCALE: GRAPHIC

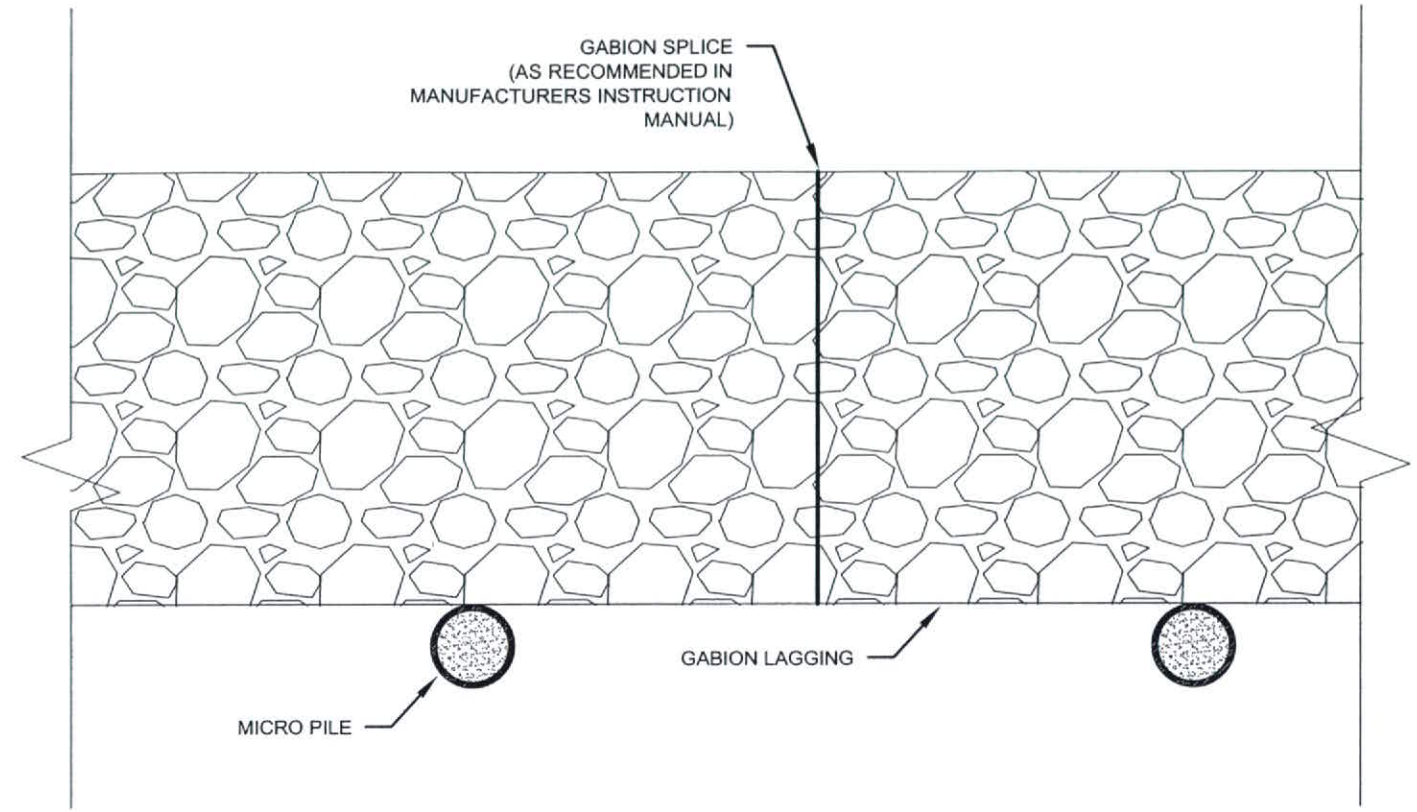
PROJECT: BLUE RIDGE PARKWAY SLIDE REPAIR
EFLHD Project ERFO-PRA-BLRI 2K12, N20

TITLE: BLUE RIDGE PARKWAY MP 321.85 & 321.9
ACCESS PLAN

PROJECT NO.: 5-4495-0501
REVISION NO.: A
DATE: 12/05/06
DRAWING NO.:
SHEET NO.: 8 of 20



TYPICAL SECTION



GABION DETAIL

NOTES

1. INSTALL GABIONS FLUSH TO BACK OF PILES.
2. LOCATE GABION SPLICE AS REQUIRED TO FACILITATE CONSTRUCTION. SPLICE LOCATION IS NOT CRITICAL TO DESIGN.
3. FIELD-LOCATE AND STAKE EXISTING CULVERTS.
4. INSTALL PILES NO CLOSER THAN 12" FROM EXISTING STRUCTURES.
5. IF CULVERT LOCATION INTERFERES WITH GABION OR PILES REQUIRE RELOCATION, NOTIFY THE DESIGNER OF RECORD.

REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
A	03	04	2006	AS-BUILT DRAWING	RFS	DWD

Client Logo: GOETTLE

Client: RICHARD GOETTLE, INC.

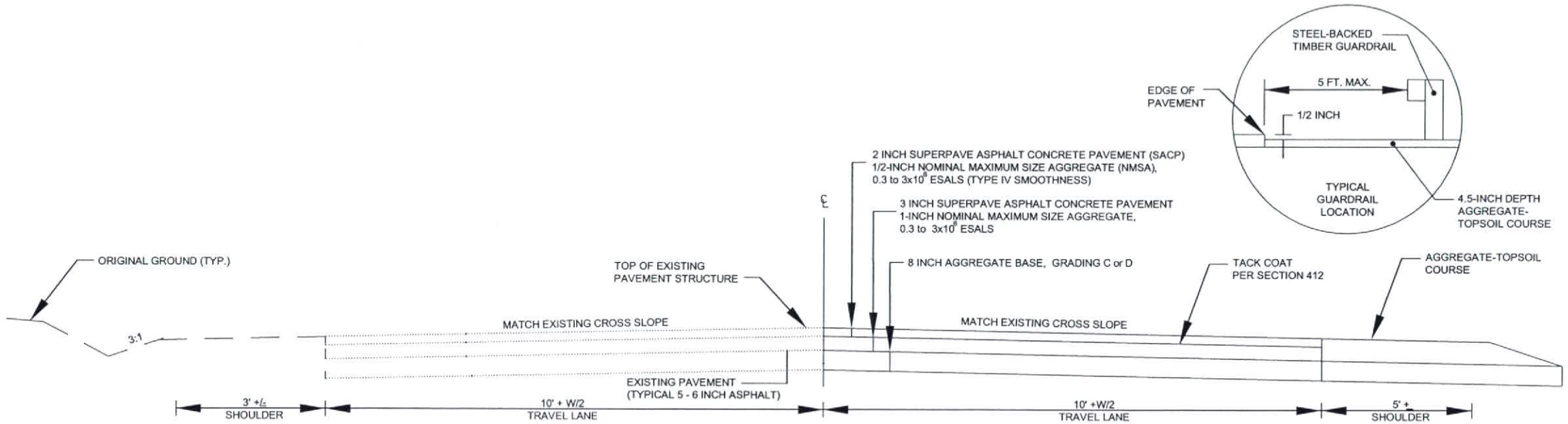
AMEC Earth & Environmental
981 Centerview Drive, Suite 305
Greensboro, North Carolina 27407
Phone: (336) 855-8993
www.amec.com/earthandenvironmental

DATUM: NAVD88
PROJECTION: NC Plane 3200
DRAWN BY: RFS
REVIEWED BY: DWD
ORIGINAL SCALE: AS SHOWN

PROJECT: BLUE RIDGE PARKWAY SLIDE REPAIR
EFLHD Project ERFO-PRA-BLRI 2K12, N20

TITLE: BLUE RIDGE PARKWAY MP 321.85 & 321.9
TYPICAL SECTION

PROJECT NO.: 5-4495-0501
REVISION NO.: A
DATE: 12/05/05
DRAWING NO.:
SHEET NO.: 9 of 20



TYPICAL PARKWAY REPLACEMENT PAVEMENT SECTION

NOTES:

1. ROADWAY SUPERELEVATIONS AND WIDENING (W) SHALL MATCH EXISTING OR SHALL BE AS DIRECTED BY THE CO.
2. SEED ALL DISTURBED AREAS AND NEW STABILIZED SHOULDERS IN ACCORDANCE WITH SECTION 625.
3. PROVIDE A TYPE IV PAVEMENT SMOOTHNESS TO SURFACE COURSE IN ACCORDANCE WITH SECTION 401.

REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
A	03	04	2006	AS-BUILT DRAWINGS	RFS	DWD

GOETTLE

Client: RICHARD GOETTLE, INC.

AMEC Earth & Environmental
961 Centerview Drive, Suite 305
Greensboro, North Carolina 27407
Phone: (336) 855-8993
amec

DATUM:
PROJECTION:
DRAWN BY: RFS
REVIEWED BY: DWD
ORIGINAL SCALE: AS SHOWN

PROJECT: BLUE RIDGE PARKWAY SLIDE REPAIR
EFLHD Project ERFO-PRA-BLRI 2K12, N20

TITLE: BLUE RIDGE PARKWAY MP 321.85 & 321.9
TYPICAL PARKWAY REPLACEMENT
PAVEMENT STANDARD DETAIL

PROJECT NO.: 5-4495-0501
REVISION NO.: A
DATE: 12/05/05
DRAWING NO.:
SHEET NO.: 20 of 20

R:\Geotechnical Project Files\2005 Projects\Goettle\blue ridge parkway as-builts\mp 321\20 MP321 PAVEMENT DETAIL.dwg - PAVEMENT DETAIL - Apr. 14, 2006 8:23am - bob.scott

www.amec.com/earthandenvironmental

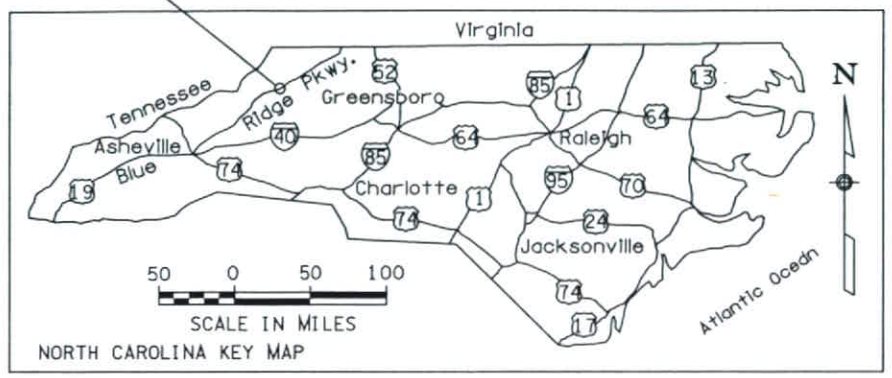
REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
SE	NC	ERFO-PRA-BLRI 2K12, N20	1	42

U.S. DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

BLUE RIDGE PARKWAY

PROJECT ERFO-PRA-BLRI 2K12, N20



AS-BUILT PLANS FOR

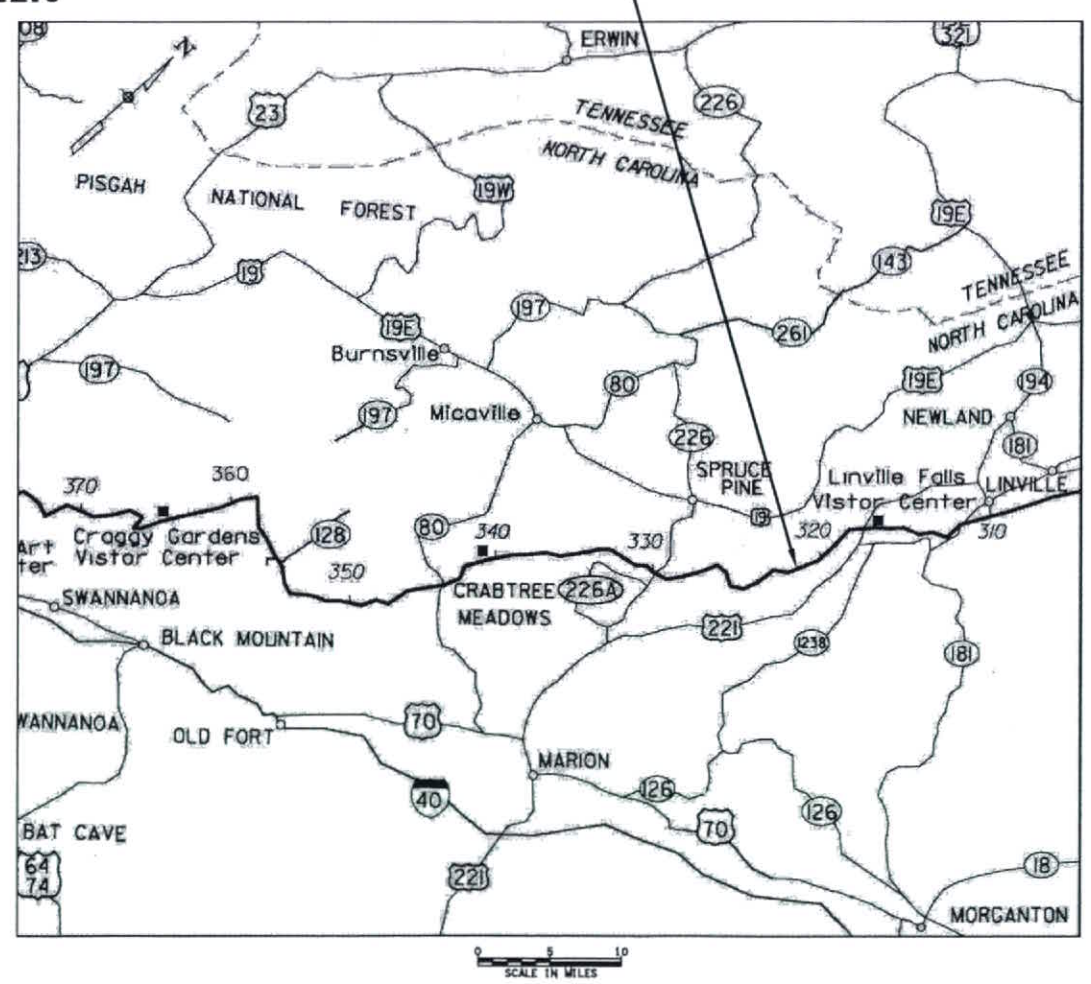
PROJECT ERFO-PRA-BLRI 2K12, N20

NATIONAL PARK SERVICE PMIS# 110156

ANCHORED WALL AT
MP 322.0

BUNCOMBE AND MCDOWELL COUNTIES,
NORTH CAROLINA

PROJECT ERFO-PRA-BLRI 2K12, N20
MP 322.0



IMPROVEMENT: CONSTRUCT ANCHORED WALL WITH TEMPORARY SOIL NAIL WALL AND MSE SLOPE RESTORATION

CONSTRUCT PROJECT IN ACCORDANCE WITH THE DRAWINGS & NOTES, SPECIFICATIONS•, & SPECIAL CONTRACT REQUIREMENTS (SCRs)

ABBREVIATIONS:

APPROX	APPROXIMATE
CIP	CAST IN PLACE
CO	CONTRACTING OFFICER
EXIST	EXISTING
ID	INNER DIAMETER
MSE	MECHANICALLY STABILIZED EARTH
NPS	NATIONAL PARK SERVICE
OD	OUTER DIAMETER
RT	RIGHT
SCH	SCHEDULE
STD	STANDARD DETAIL
TYP	TYPICAL
W/	WITH

SPECIFICATIONS:

•Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects", FP-96 (ENGLISH)

PLANS PREPARED FOR

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

PLANS PREPARED BY:

AMEC Earth & Environmental of North Carolina, Inc.
981 Centerview Drive, Suite 305
Greensboro, North Carolina 27407

CONTRACTOR:

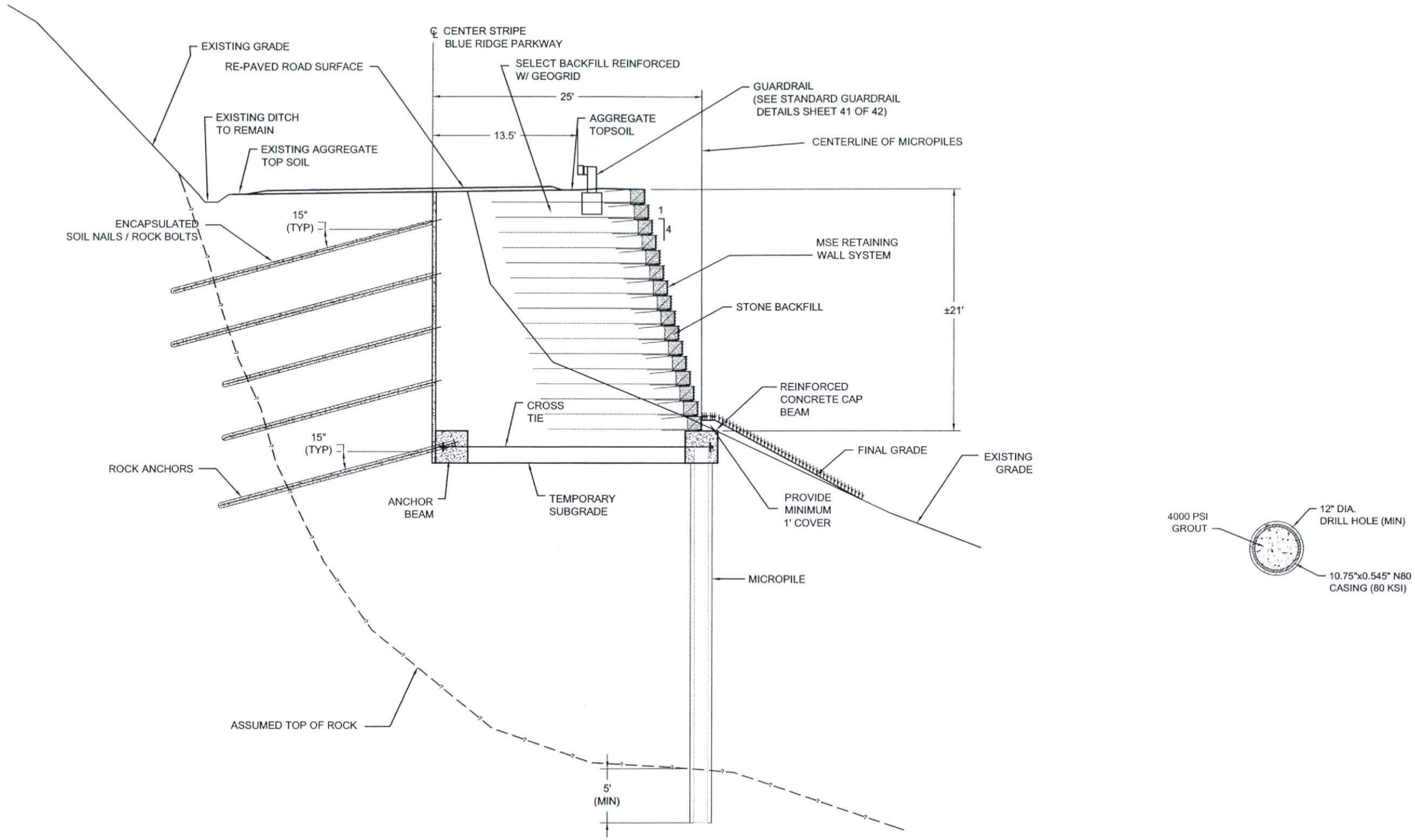
Richard Goettle, Inc.
12071 Hamilton Avenue
Cincinnati, Ohio 45231

OCTOBER 2005

INDEX TO SHEETS

SHEET NO	DESCRIPTION
1	COVER SHEET
2	TABULATION OF QUANTITIES
3	SEDIMENT & EROSION CONTROL - PLAN VIEW
4	SEDIMENT & EROSION CONTROL - SECTION VIEW
5	SILT FENCE STANDARD DETAIL
6	FILTER BERM STANDARD DETAIL
7	LAYOUT PLAN
8	ACCESS PLAN
9	TYPICAL SECTION
10	NOTES (GENERAL, CONSTRUCTION SEQUENCE, MATERIAL SPECIFICATIONS, SOIL NAIL AND ANCHOR TESTING)
11	NOTES (ANCHOR AND PILE INSTALLATION)
12	NOTES (ROAD SURVEY, EROSION CONTROL)
13	TEMPORARY SOIL NAIL WALL PLAN
14	TEMPORARY SOIL NAIL WALL PROFILE & FACING DETAILS
15	PERMANENT WALL PLAN
16	PERMANENT WALL SECTION A-A
17	PERMANENT WALL SECTION B-B & LAYOUT TABLE
18	PERMANENT WALL BEAM DETAILS
19	PERMANENT WALL ANCHOR DETAILS
20	MSE WALL NOTES 1
21	MSE WALL NOTES 2
22	MSE WALL NOTES 3
23	MSE WALL PLAN
24	MSE WALL ELEVATION 1
25	MSE WALL ELEVATION 2
26	MSE WALL TYPICAL SECTION
27	MSE WALL TYPICAL DETAILS
28	CROSS-SECTIONS - STA. 0+00
29	CROSS-SECTIONS - STA. 0+25
30	CROSS-SECTIONS - STA. 0+50
31	CROSS-SECTIONS - STA. 0+75
32	CROSS-SECTIONS - STA. 1+00
33	CROSS-SECTIONS - STA. 1+25
34	CROSS-SECTIONS - STA. 1+50
35	CROSS-SECTIONS - STA. 1+75
36	CROSS-SECTIONS - STA. 2+00
37	CROSS-SECTIONS - STA. 2+25
38	CROSS-SECTIONS - STA. 2+50
39	CROSS-SECTIONS - STA. 2+75
40	CROSS-SECTIONS - STA. 3+00
41	GUARDRAIL STANDARD DETAIL
42	PAVEMENT STANDARD DETAIL

PROJECT LENGTH (Parkway)	0.06 MILES
INCIDENTAL ROAD CONSTRUCTION	N/A
TOTAL	0.06 MILES



TYPICAL CROSS-SECTION

REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
A	03	04	2006	AS-BUILT DRAWINGS	RFS	DWD

GOETTLE

Client: RICHARD GOETTLE, INC.

AMEC Earth & Environmental
981 Centerview Drive, Suite 305
Greensboro, North Carolina 27407
Phone: (336) 855-8993
amec

DATUM:
PROJECTION:
DRAWN BY: RFS
REVIEWED BY: DWD
ORIGINAL SCALE: AS SHOWN

PROJECT: BLUE RIDGE PARKWAY SLIDE REPAIR
EFLHD Project ERFO-PRA-BLRI 2K12, N20

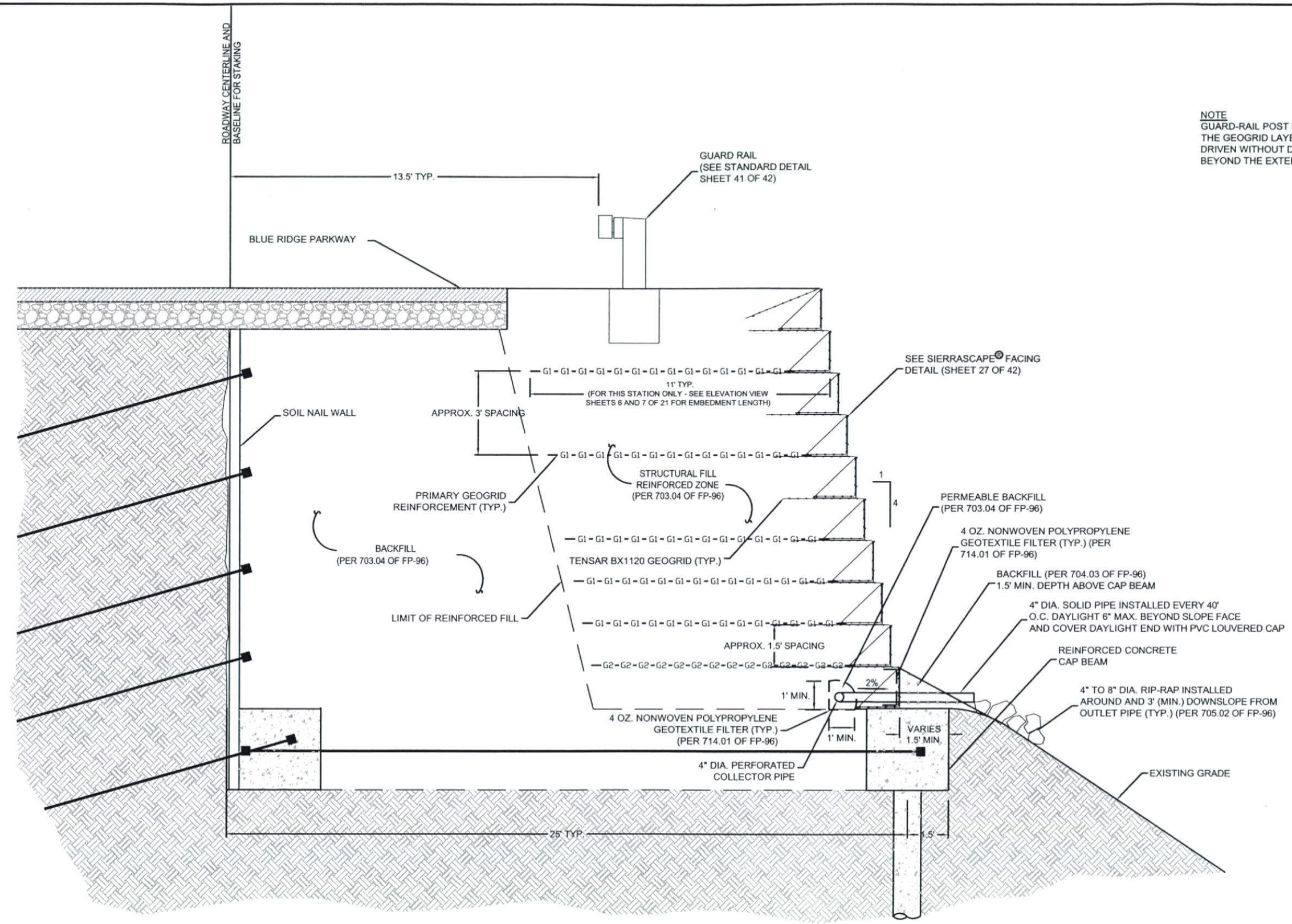
TITLE: BLUE RIDGE PARKWAY MP 322.0
TYPICAL SECTION

PROJECT NO.: 5-4495-0501
REVISION NO.: A
DATE: 12/06/05
DRAWING NO.:
SHEET NO.: 9 of 42

R:\Geotechnical Project Files\2005 Projects\Goettle\blue ridge parkway as-builts\mp 322\09 MP322 TYP SECTION.dwg - TYPICAL SECTION - Apr. 14, 2006 8:12am - bob.scott

www.amec.com/earthandenvironmental

NOTE
GUARD-RAIL POST MAY EXTEND THROUGH THE GEOGRID LAYERS. POSTS CAN BE AUGERED OR DRIVEN WITHOUT DAMAGING THE GEOGRID BEYOND THE EXTENT OF THE HOLE/POST.



-G1-G1-G1- GEOGRID TYPE 1 TENSAR UX1000MSE
-G2-G2-G2- GEOGRID TYPE 2 TENSAR UX1100MSE
-G3-G3-G3- GEOGRID TYPE 3 TENSAR UX1400MSE

TYPICAL CROSS-SECTION STA. 0+88.0

0 1 2 4 6

PINNACLE Design/Build
6030 Bethelview Road, Suite 304, Cumming, Georgia 30040
770/205-4088 • 770/205-4958(fax)
www.pinnacledesignbuild.com

REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
A	03	04	2006	AS-BUILT DRAWINGS	RFS	DWD

GOETTLE

Client: RICHARD GOETTLE, INC.

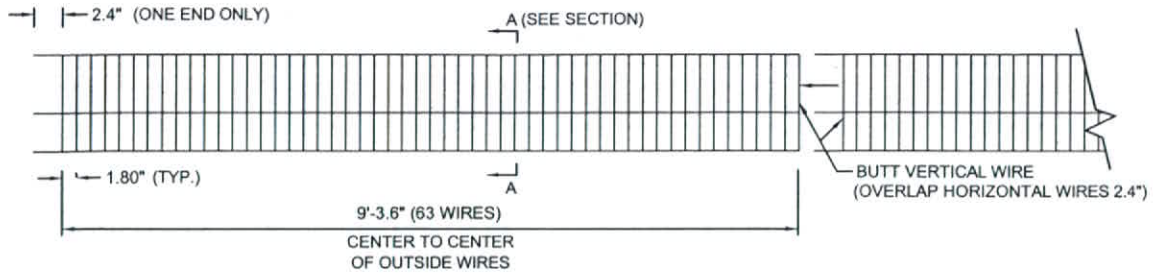
AMEC Earth & Environmental
981 Centerview Drive, Suite 305
Greensboro, North Carolina 27407
Phone: (336) 855-8993
amec
www.amec.com/oar/thandenvironmental

DATUM:
PROJECTION:
DRAWN BY: RFS
REVIEWED BY: DWD
ORIGINAL SCALE: AS SHOWN

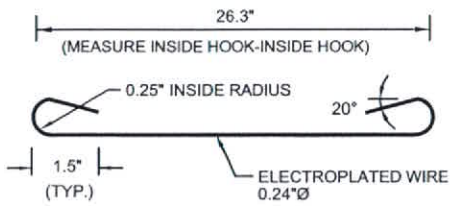
PROJECT: BLUE RIDGE PARKWAY SLIDE REPAIR
EFLHD Project ERFO-PRA-BLRI 2K12, N20

TITLE: BLUE RIDGE PARKWAY MP 322.0
MSE WALL TYPICAL CROSS-SECTION

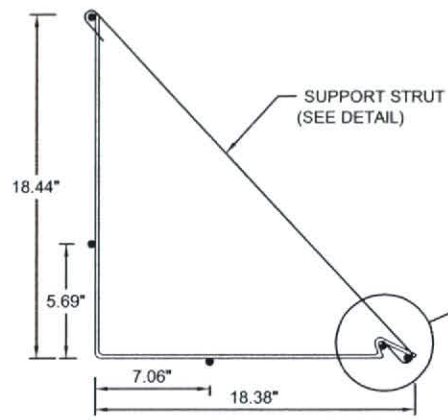
PROJECT NO.: 5-4495-0501
REVISION NO. A
DATE: 12/06/05
DRAWING NO.:
SHEET NO.: 26 of 42



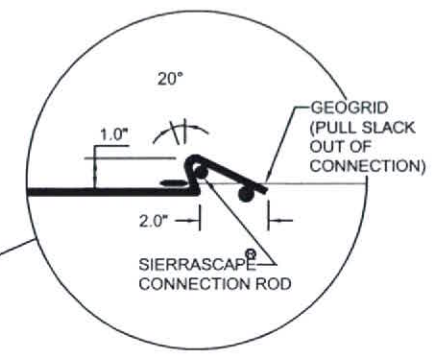
ELEVATION VIEW



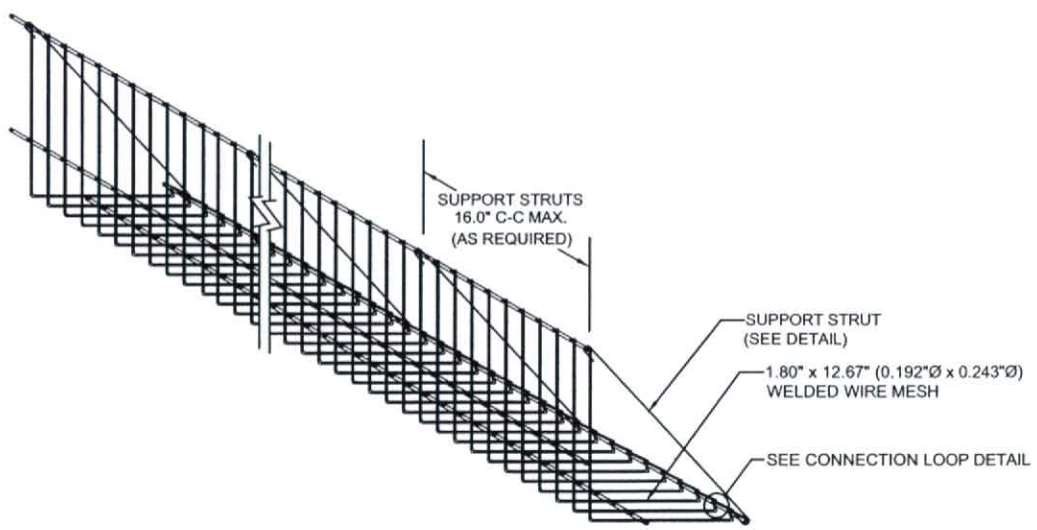
SUPPORT STRUT DETAIL



SECTION A-A

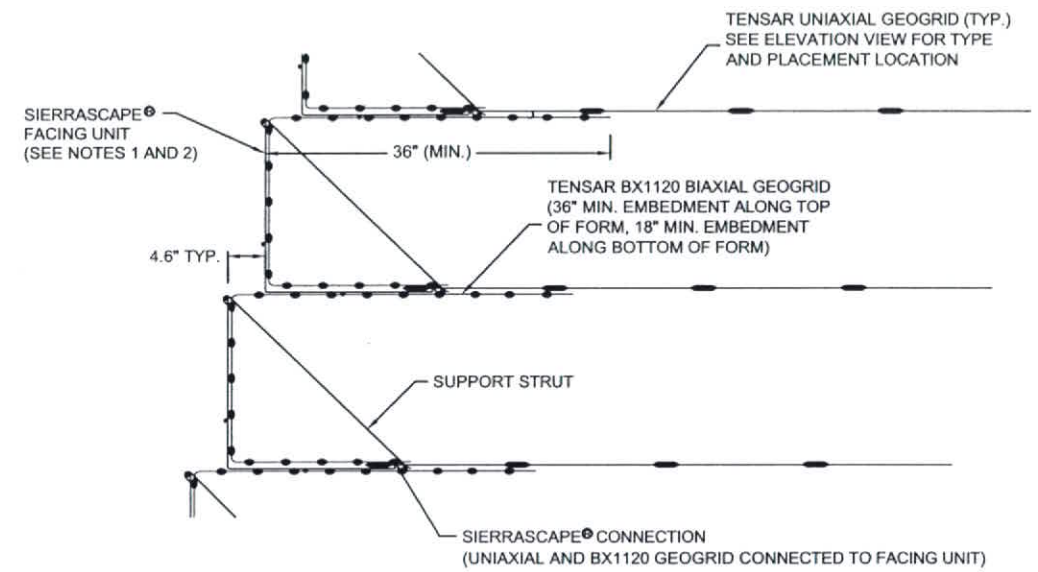


CONNECTION LOOP DETAIL



NOTE:
1. ALL FACING UNITS SHALL BE GALVANIZED PER ASTM A123, AFTER BENDING.
2. SIERRASCAPE ® IS THE GABION EQUIVALENT MARKETED AND INSTALLED BY PINNACLE DESIGN/BUILD

SIERRASCAPE® FACING UNIT
NOT TO SCALE



NOTES:
1. SEE SIERRASCAPE® FACING UNIT DETAIL FOR FACING MATERIAL AND DIMENSIONS.
2. FACING UNITS SHALL BE CONSTRUCTED FROM GALVANIZED STEEL.
3. LONG-TERM CONNECTION STRENGTH (Tac) IS GREATER THAN LONG-TERM GEOGRID STRENGTH (Tal) IN ALL CASES DUE TO WRAP-FACE SYSTEM.

SIERRASCAPE® FACING DETAIL
NOT TO SCALE

MANUFACTURE'S STANDARD DETAILS SHOWN HERE FOR CONVENIENCE ONLY

PINNACLE Design/Build
6030 Bethelview Road, Suite 304, Cumming, Georgia 30040
770/205-4088 • 770/205-4958(fax)
www.pinnacledesignbuild.com

REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
A	03	04	2006	AS-BUILT DRAWINGS	RFS	DWD

GOETTLE

Client: RICHARD GOETTLE, INC.

AMEC Earth & Environmental
981 Centerview Drive, Suite 305
Greensboro, North Carolina 27407
Phone: (336) 855-8993
amec

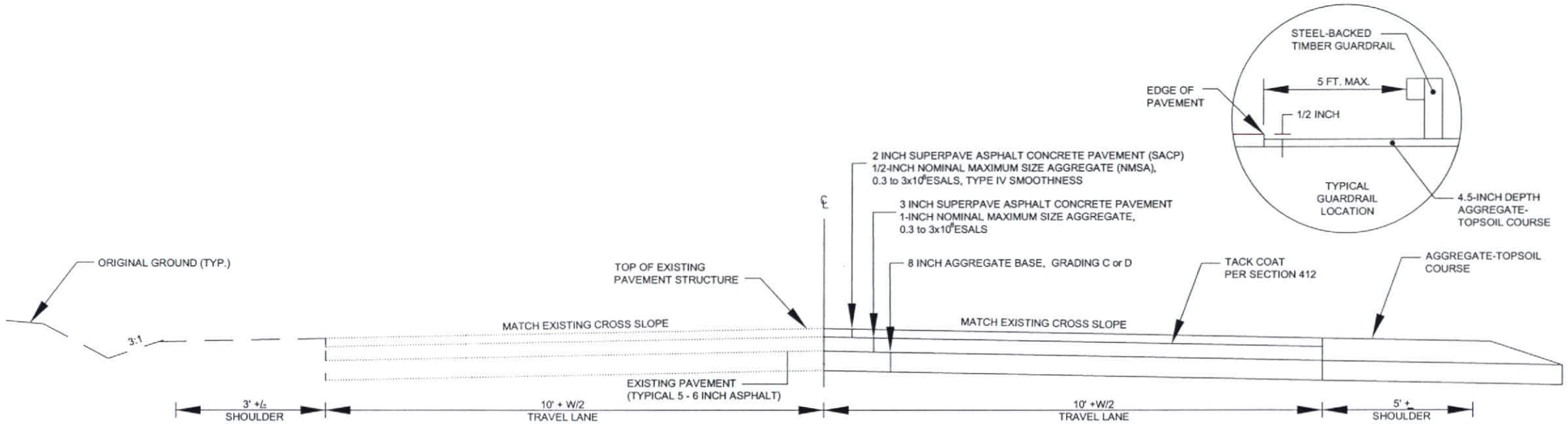
www.amec.com/earthandenvironmental

DATUM:
PROJECTION:
DRAWN BY: RFS
REVIEWED BY: DWD
ORIGINAL SCALE: AS SHOWN

PROJECT: BLUE RIDGE PARKWAY SLIDE REPAIR
EFLHD Project ERFO-PRA-BLRI 2K12, N20

TITLE: BLUE RIDGE PARKWAY MP 322.0
MSE WALL TYPICAL DETAILS

PROJECT NO.: 5-4495-0501
REVISION NO.: A
DATE: 12/06/05
DRAWING NO.:
SHEET NO.: 27 of 42



TYPICAL PARKWAY REPLACEMENT PAVEMENT SECTION

NOTES:

1. ROADWAY SUPERELEVATIONS AND WIDENING (W) SHALL MATCH EXISTING OR SHALL BE AS DIRECTED BY THE CO.
2. SEED ALL DISTURBED AREAS AND NEW STABILIZED SHOULDERS IN ACCORDANCE WITH SECTION 625.
3. PROVIDE A TYPE IV PAVEMENT SMOOTHNESS TO SURFACE COURSE IN ACCORDANCE WITH SECTION 401.

REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
A	03	04	2006	AS-BUILT DRAWINGS	RFS	DWD

GOETTLE

Client: RICHARD GOETTLE, INC.

AMEC Earth & Environmental
961 Centerview Drive, Suite 305
Greensboro, North Carolina 27407
Phone: (336) 855-8993

amec

DATUM:
PROJECTION:
DRAWN BY: RFS
REVIEWED BY: DWD
ORIGINAL SCALE: AS SHOWN

PROJECT: BLUE RIDGE PARKWAY SLIDE REPAIR
EFLHD Project ERFO-PRA-BLRI 2K12, N20

TITLE: BLUE RIDGE PARKWAY MP 322.0
TYPICAL PARKWAY REPLACEMENT
PAVEMENT STANDARD DETAIL

PROJECT NO.: 5-4495-0501
REVISION NO.: A
DATE: 12/06/05
DRAWING NO.:
SHEET NO.: 42 of 42

R:\Geotechnical Project Files\2005 Projects\Goettle\blue ridge parkway as-builts\mp 322\42 PAVEMENT DETAIL.dwg - PAVEMENT DETAIL - Apr. 14, 2006 8:16am - bob.scott

www.amec.com/usa/thandwinvironmental

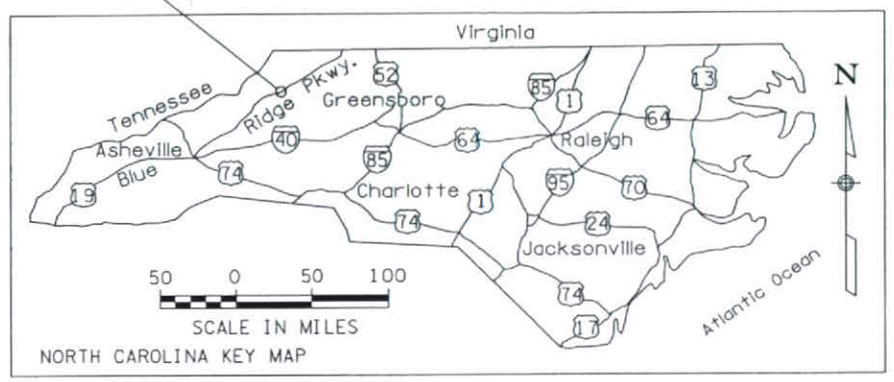
REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
SE	NC	ERFO-PRA-BLRI 2K12, N20	1	28

U.S. DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

BLUE RIDGE PARKWAY

PROJECT ERFO-PRA-BLRI 2K12, N20



NORTH CAROLINA KEY MAP

AS-BUILT PLANS FOR

PROJECT ERFO-PRA-BLRI 2K12, N20

NATIONAL PARK SERVICE PMIS# 110156

ANCHOR BLOCK SLOPE STABILITY SYSTEM AT MP 323.25

BUNCOMBE AND MCDOWELL COUNTIES, NORTH CAROLINA

IMPROVEMENT: CONSTRUCT ANCHOR & REACTION BLOCK SLOPE STABILITY SYSTEM WITH SLOPE RESTORATION.

CONSTRUCT PROJECT IN ACCORDANCE WITH THE DRAWINGS & NOTES, SPECIFICATIONS*, & SPECIAL CONTRACT REQUIREMENTS (SCRs)

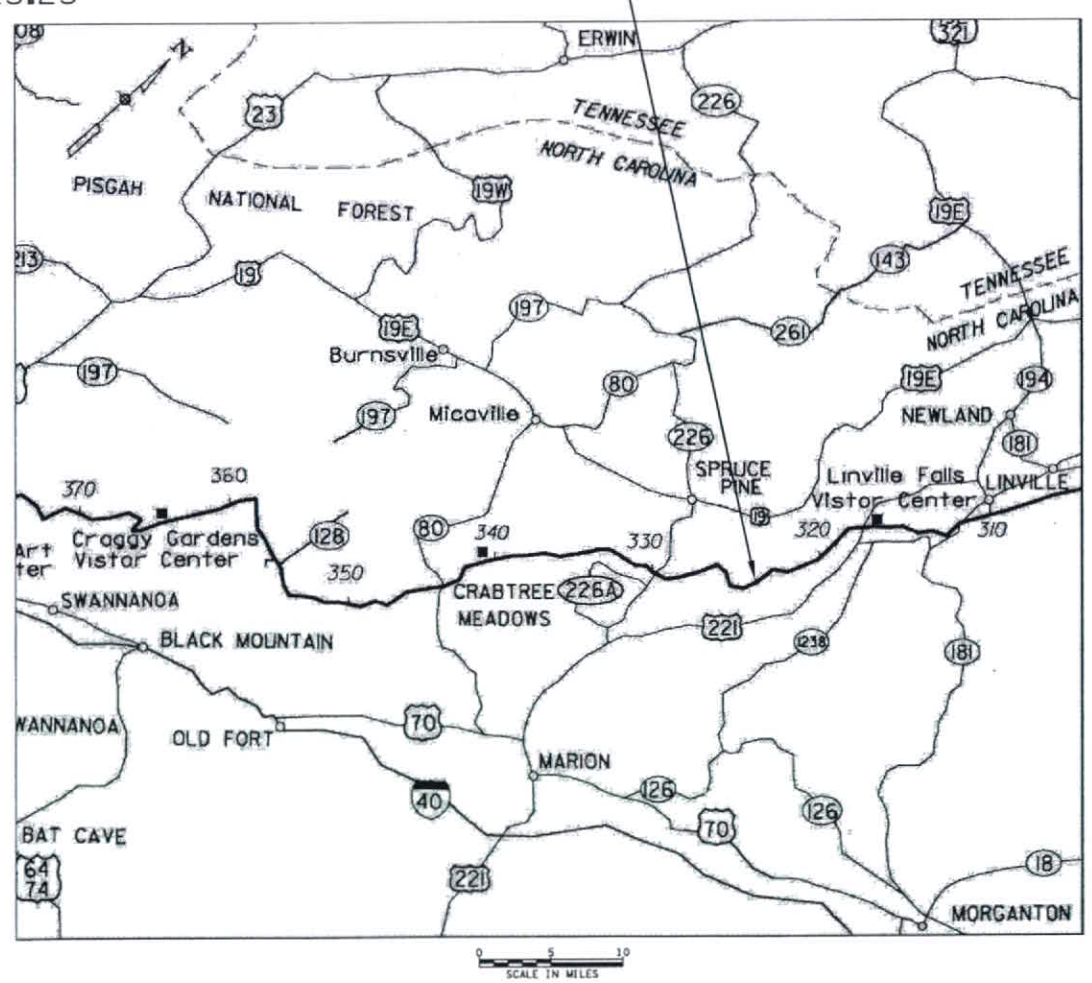
ABBREVIATIONS:

APPROX	APPROXIMATE
CIP	CAST IN PLACE
CO	CONTRACTING OFFICER
EXIST	EXISTING
ID	INNER DIAMETER
MSE	MECHANICALLY STABILIZED EARTH
NPS	NATIONAL PARK SERVICE
OD	OUTER DIAMETER
RT	RIGHT
SCH	SCHEDULE
STD	STANDARD DETAIL
TYP	TYPICAL
W/	WITH

SPECIFICATIONS:

*Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects", FP-96 (ENGLISH)

PROJECT ERFO-PRA-BLRI 2K12, N20
MP 323.25



PLANS PREPARED FOR

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

PLANS PREPARED BY:

AMEC Earth & Environmental of North Carolina, Inc.
981 Centerview Drive, Suite 305
Greensboro, North Carolina 27407

CONTRACTOR:

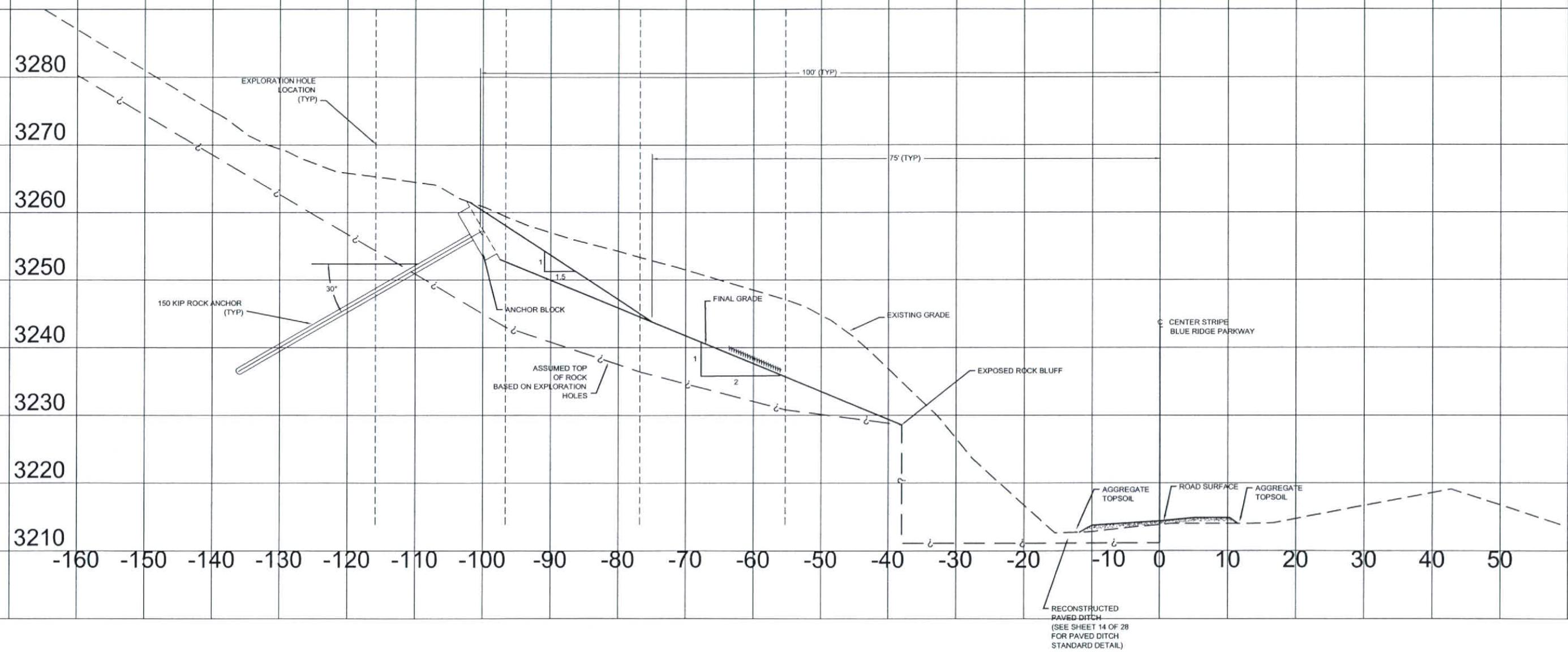
Richard Goettle, Inc.
12071 Hamilton Avenue
Cincinnati, Ohio 45231

OCTOBER 2005

PROJECT LENGTH (Parkway)	0.04 MILES
INCIDENTAL ROAD CONSTRUCTION	N/A
TOTAL	0.04 MILES

INDEX TO SHEETS

SHEET NO	DESCRIPTION
1	COVER SHEET
2	TABULATION OF QUANTITIES
3	SEDIMENT & EROSION CONTROL - PLAN VIEW
4	SEDIMENT & EROSION CONTROL - ELEVATION VIEW
5	SILT FENCE STANDARD DETAIL
6	FILTER BERM STANDARD DETAIL
7	LAYOUT PLAN
8	ACCESS PLAN
9	TYPICAL SECTION
10	NOTES
11	NOTES
12	PLAN VIEW
13	REGRADING PLAN
14	PAVED DITCH STANDARD DETAIL
15	PROFILE & LAYOUT TABLE
16	ANCHOR BLOCK DETAILS
17	PERMANENT ANCHOR DETAILS
18	CROSS-SECTIONS - STA. 0+00 TO 0+25
19	CROSS-SECTIONS - STA. 0+50
20	CROSS-SECTIONS - STA. 0+75
21	CROSS-SECTIONS - STA. 1+00
22	CROSS-SECTIONS - STA. 1+25
23	CROSS-SECTIONS - STA. 1+50
24	CROSS-SECTIONS - STA. 1+75 TO 2+00
25	CROSS-SECTIONS - STA. 2+25 TO 2+50
26	CROSS-SECTIONS - STA. 2+50 TO 3+00
27	CROSS-SECTIONS - STA. 3+25
28	PAVEMENT REPLACEMENT STANDARD DETAIL



STA. 1+75

REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
A	03	04	2006	AS-BUILT DRAWINGS	RFB	DWD

GOETTLE

Client: RICHARD GOETTLE, INC.

AMEC Earth & Environmental
981 Centerview Drive, Suite 305
Greensboro, North Carolina 27407
Phone: (336) 855-8993
amec

DATUM:
PROJECTION:
DRAWN BY: RFS
REVIEWED BY: DWD
ORIGINAL SCALE: AS SHOWN

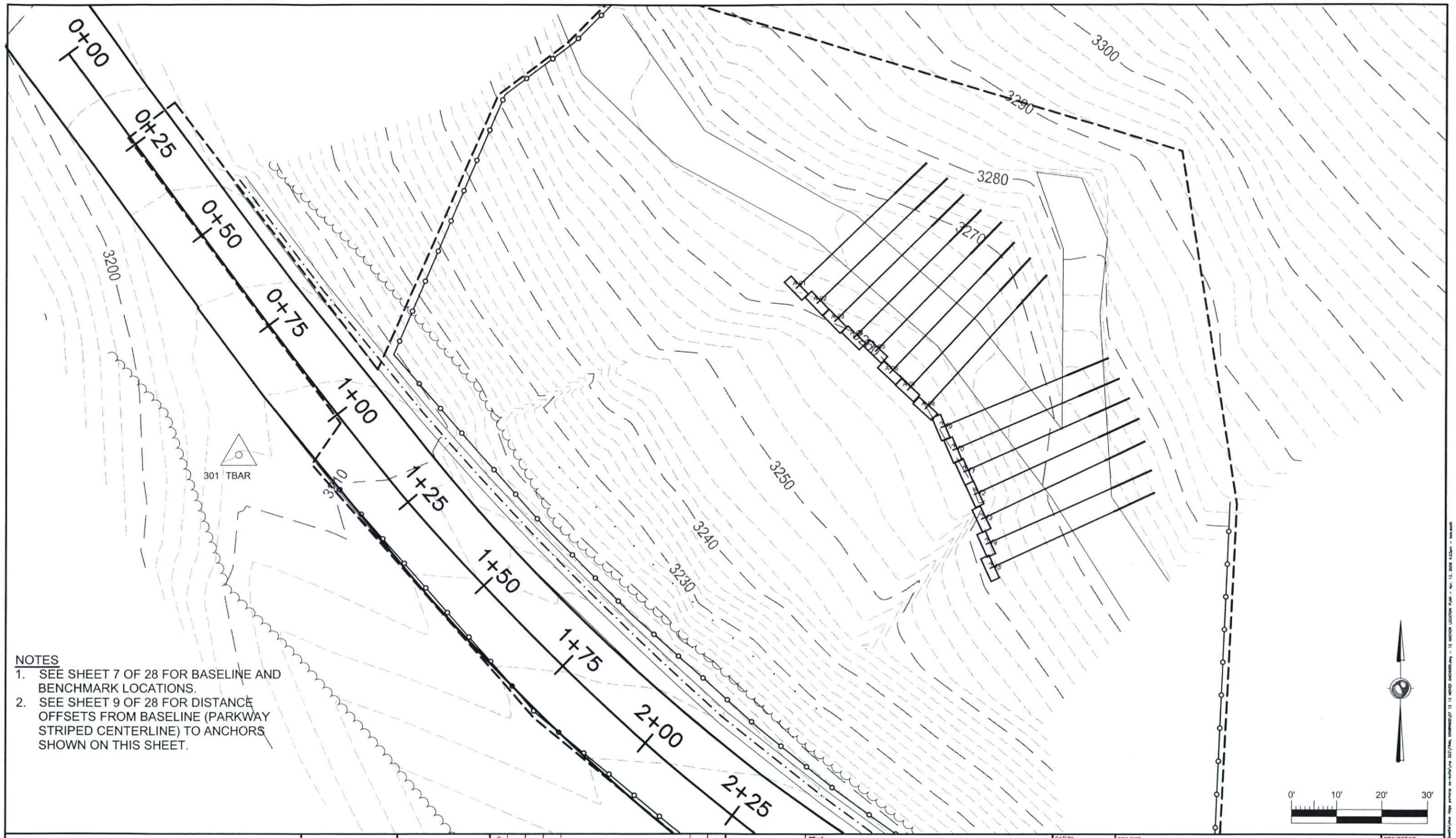
PROJECT: BLUE RIDGE PARKWAY SLIDE REPAIR
EFLHD Project ERFO-PRA-BLRI 2K12, N20

TITLE: BLUE RIDGE PARKWAY MP 323.25
TYPICAL SECTION

PROJECT NO.: 5-4495-0501
REVISION NO.: A
DATE: 12/05/05
DRAWING NO.:
SHEET NO.: 9 of 28

R:\Geotechnical Project Files\2005 Projects\Goettle\blue ridge parkway as-builts\mp 323\FINAL DRAWINGS\09 and 18-27 MP323 XSEC.dwg - TYPICAL SECTION - Apr. 13, 2006 4:25pm - bob.scott

www.amec.com/earthandenvironmental



NOTES

1. SEE SHEET 7 OF 28 FOR BASELINE AND BENCHMARK LOCATIONS.
2. SEE SHEET 9 OF 28 FOR DISTANCE OFFSETS FROM BASELINE (PARKWAY STRIPED CENTERLINE) TO ANCHORS SHOWN ON THIS SHEET.

REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
G						
F						
E						
D						
C						
B						
A	03	04	2006	AS-BUILT DRAWINGS	RFS	DWD

GOETTLE

Client: RICHARD GOETTLE, INC.

AMEC Earth & Environmental
961 Centerview Drive, Suite 305
Greensboro, North Carolina 27407
Phone: (336) 855-8993

amec

DATUM:
PROJECTION:
DRAWN BY: RFS
REVIEWED BY: DWD
ORIGINAL SCALE: GRAPHIC

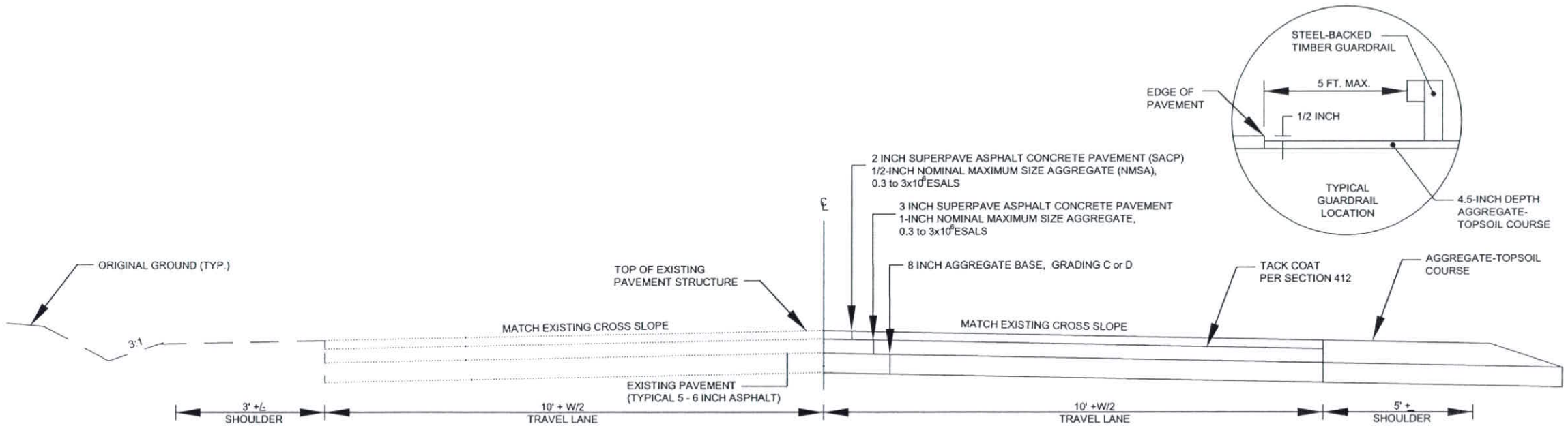
PROJECT: BLUE RIDGE PARKWAY SLIDE REPAIR
EFLHD Project ERFO-PRA-BLRI 2K12, N20

TITLE: BLUE RIDGE PARKWAY MP 323.25
ANCHOR LOCATION PLAN

PROJECT NO.: 5-4495-0501
REVISION NO.: A
DATE: 12/05/05
DRAWING NO.:
SHEET NO.: 12 of 28

R:\Geotechnical Project Files\2005 Projects\Goettle\blue ridge parkway as-builts\mp 323\FINAL DRAWINGS\07 12 13 MOVED ANCHORS.dwg - 12 ANCHOR LOCATION PLAN - Apr. 13, 2006 4:23pm - bob.scott

www.amec.com/earthandenvironmental



TYPICAL PARKWAY REPLACEMENT PAVEMENT SECTION

NOTES:

1. ROADWAY SUPERELEVATIONS AND WIDENING (W) SHALL MATCH EXISTING OR SHALL BE AS DIRECTED BY THE CO.
2. SEED ALL DISTURBED AREAS AND NEW STABILIZED SHOULDERS IN ACCORDANCE WITH SECTION 625.
3. PROVIDE A TYPE IV PAVEMENT SMOOTHNESS TO SURFACE COURSE IN ACCORDANCE WITH SECTION 401.

REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
A	03	04	2006	AS-BUILT DRAWINGS	RFS	DWD

GOETTLE

Client: RICHARD GOETTLE, INC.

AMEC Earth & Environmental
961 Centerview Drive, Suite 305
Greensboro, North Carolina 27407
Phone: (336) 855-8993
amec

DATUM:
PROJECTION:
DRAWN BY: RFS
REVIEWED BY: DWD
ORIGINAL SCALE: AS SHOWN

PROJECT: BLUE RIDGE PARKWAY SLIDE REPAIR
EFLHD Project ERFO-PRA-BLRI 2K12, N20

TITLE: BLUE RIDGE PARKWAY MP 323.25
TYPICAL PARKWAY REPLACEMENT
PAVEMENT STANDARD DETAIL

PROJECT NO.: 5-4495-0501
REVISION NO: A
DATE: 12/05/05
DRAWING NO.:
SHEET NO.: 28 of 28

R:\Geotechnical Project Files\2005 Projects\Goettle\blue ridge parkway as-builts\mp 323\FINAL DRAWINGS\28 MP323 PAVEMENT DETAIL.dwg – PAVEMENT DETAIL – Apr. 13, 2006 4:27pm – bob.scott

www.amec.com/earthandenvironmental

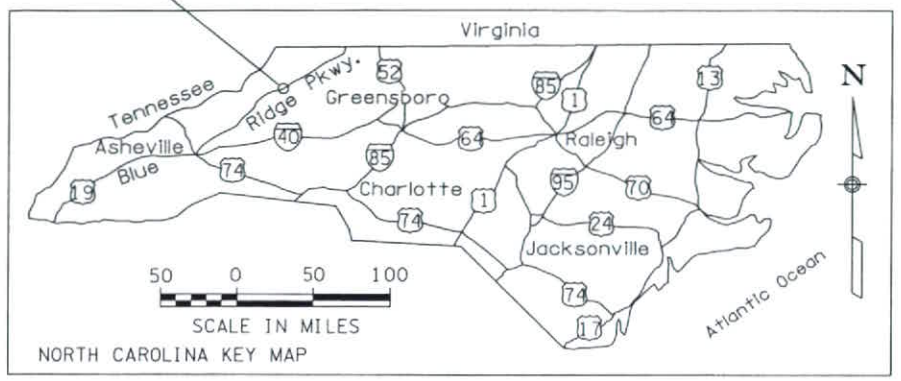
REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
SE	NC	ERFO-PRA-BLRI 2K12, N20	1	29

U.S. DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

BLUE RIDGE PARKWAY

PROJECT ERFO-PRA-BLRI 2K12, N20



NORTH CAROLINA KEY MAP

AS-BUILT PLANS FOR

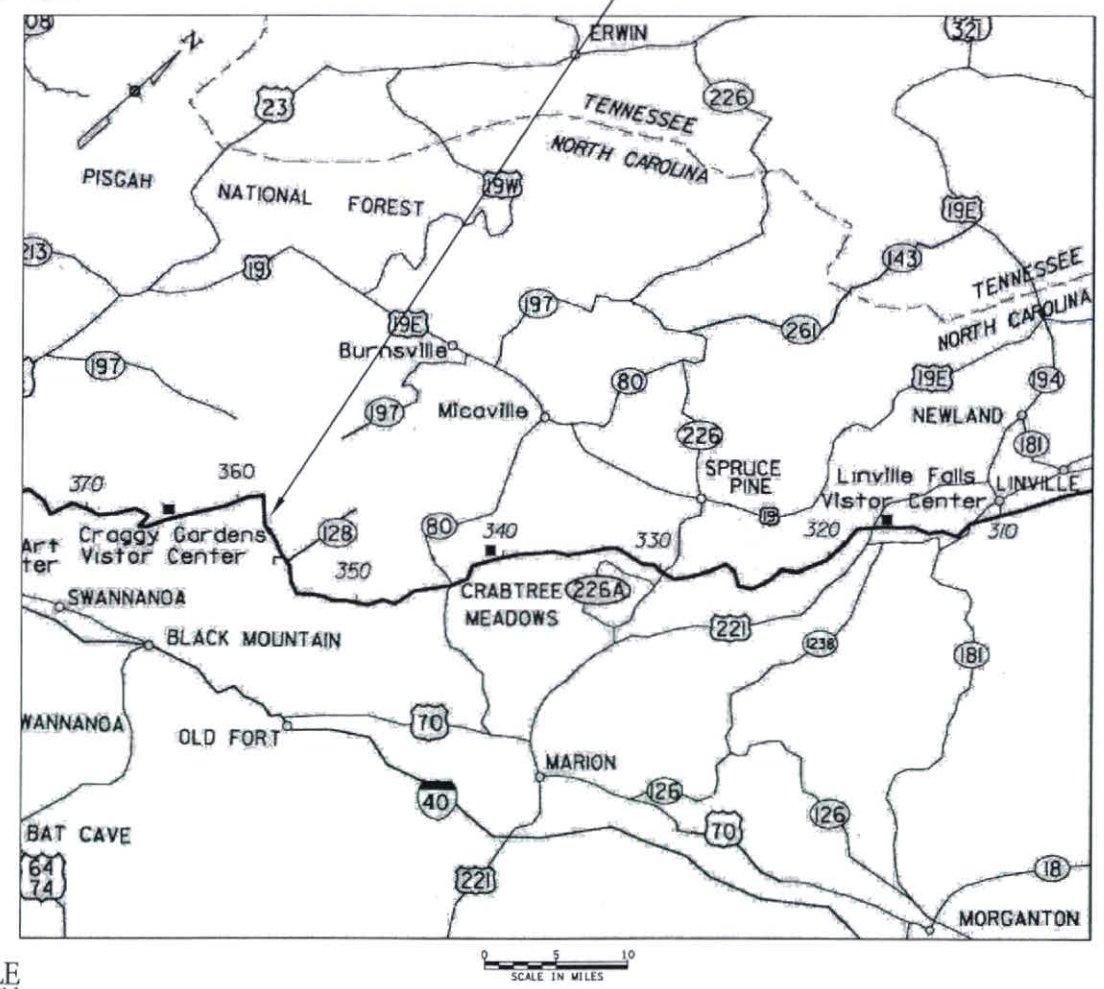
PROJECT ERFO-PRA-BLRI 2K12, N20

NATIONAL PARK SERVICE PMIS# 110156

MSE WALL AT
MP 357.26

BUNCOMBE AND MCDOWELL COUNTIES,
NORTH CAROLINA

PROJECT ERFO-PRA-BLRI 2K12, N20
MP 357.26



IMPROVEMENT: CONSTRUCTION OF AN MSE WALL.

CONSTRUCT PROJECT IN ACCORDANCE WITH THE DRAWINGS & NOTES, SPECIFICATIONS•, & SPECIAL CONTRACT REQUIREMENTS (SCRs)

ABBREVIATIONS:

APPROX	APPROXIMATE
BL	BASELINE
CIP	CAST IN PLACE
CO	CONTRACTING OFFICER
EXIST	EXISTING
ID	INNER DIAMETER
MSE	MECHANICALLY STABILIZED EARTH
NPS	NATIONAL PARK SERVICE
OD	OUTER DIAMETER
RT	RIGHT
SCH	SCHEDULE
STD	STANDARD DETAIL
TYP	TYPICAL
W/	WITH

SPECIFICATIONS:

•Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects", FP-96 (ENGLISH)

PLANS PREPARED FOR

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
STERLING, VIRGINIA

PLANS PREPARED BY:

amec
AMEC Earth & Environmental of North Carolina, Inc.
981 Centerview Drive, Suite 305
Greensboro, North Carolina 27407

CONTRACTOR:

GOETTLE
Richard Goettle, Inc.
12071 Hamilton Avenue
Cincinnati, Ohio 45231

PINNACLE Design/Build
6030 Bethelview Road, Suite 304, Cumming, Georgia 30040
770/205-4088 - 770/205-4958(fax)
www.pinnacledesignbuild.com

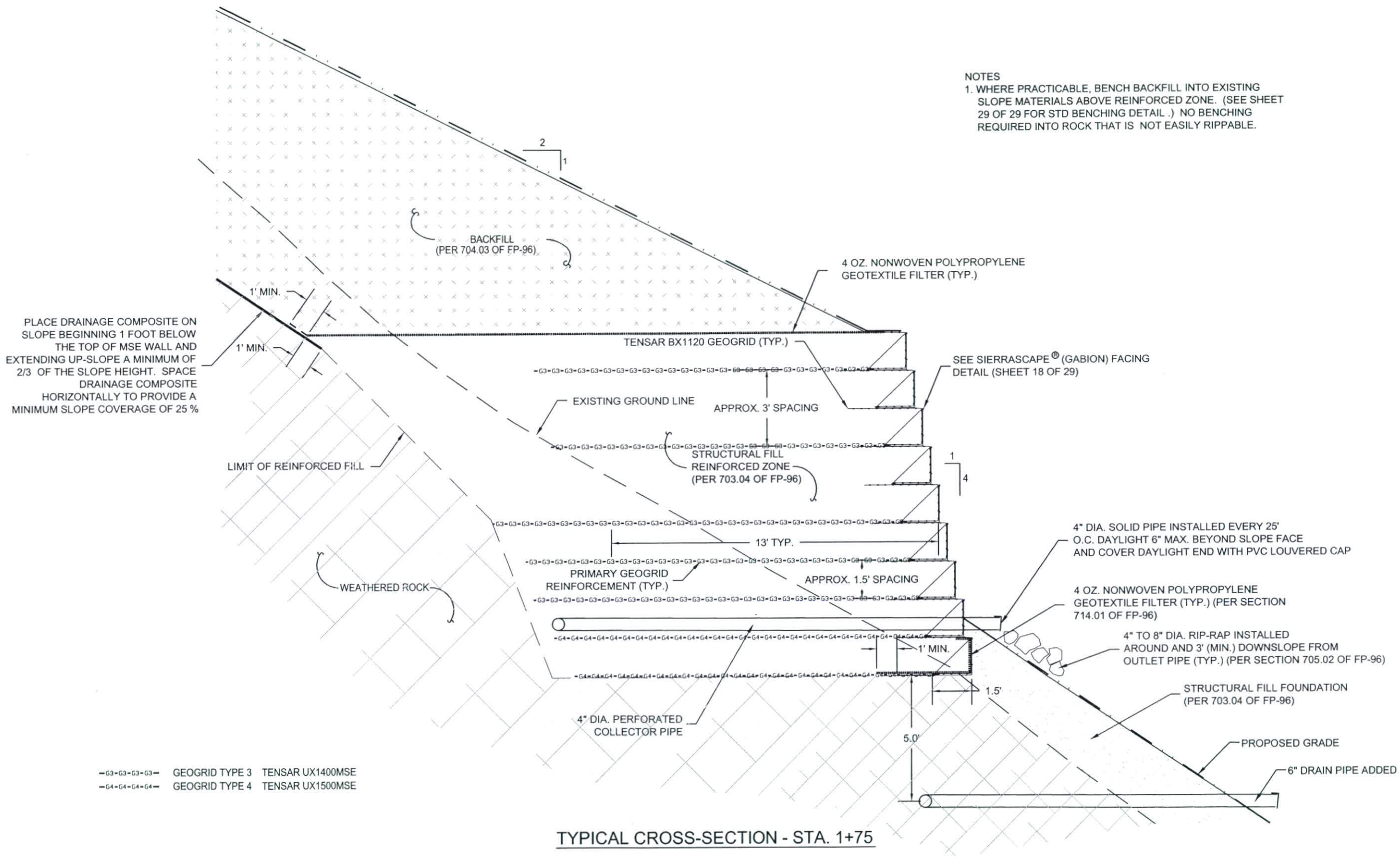
OCTOBER 2005

INDEX TO SHEETS

SHEET NO	DESCRIPTION
1	COVER SHEET
2	TABULATION OF QUANTITIES
3	SEDIMENT & EROSION CONTROL - PLAN VIEW
4	SEDIMENT & EROSION CONTROL - SECTION VIEW
5	SILT FENCE STANDARD DETAIL
6	FILTER BERM STANDARD DETAIL
7	BASELINE LAYOUT PLAN
8	ACCESS PLAN
9	PLAN VIEW
10	MSE WALL PROFILE
11	TYPICAL SECTION
12	NOTES
13	NOTES
14	NOTES
15	CROSS-SECTION - STA. 1+50
16	CROSS-SECTION - STA. 1+75
17	CROSS-SECTION - STA. 2+00
18	TYPICAL DETAILS
19	TYPICAL DETAILS (CONTINUED)
20	TRAFFIC CONTROL PLAN
21	SHOULDER CLOSURE LAYOUT
22	GUARDRAIL STANDARD DETAIL
23	PAVEMENT STANDARD DETAIL
24	DRAINAGE PLAN VIEW
25	DRAINAGE SECTION VIEW
26	INLET STANDARD DETAIL
27	LOOSE RIPRAP END PROTECTION STANDARD DETAIL
28	PIPE CULVERT BEDDING STANDARD DETAIL
29	BENCHING STANDARD DETAIL

PROJECT LENGTH (Parkway)	0.02 MILES
INCIDENTAL ROAD CONSTRUCTION	N/A
TOTAL	0.02 MILES

NOTES
1. WHERE PRACTICABLE, BENCH BACKFILL INTO EXISTING SLOPE MATERIALS ABOVE REINFORCED ZONE. (SEE SHEET 29 OF 29 FOR STD BENCHING DETAIL .) NO BENCHING REQUIRED INTO ROCK THAT IS NOT EASILY RIPPABLE.



TYPICAL CROSS-SECTION - STA. 1+75

PINNACLE Design/Build
6030 Bethelview Road, Suite 304, Cumming, Georgia 30040
770/205-4088 • 770/205-4958(fax)
www.pinnacledesignbuild.com

REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
A	03	04	2006	AS-BUILT DRAWINGS	RFS	DWD

GOETTLE

Client: RICHARD GOETTLE, INC.

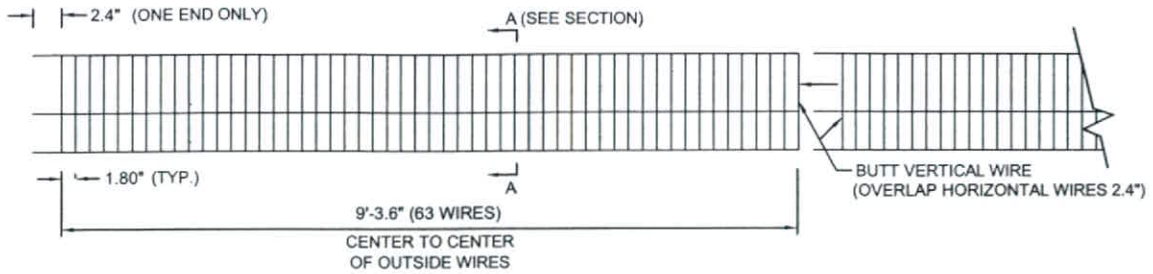
AMEC Earth & Environmental
981 Centerview Drive, Suite 305
Greensboro, North Carolina 27407
Phone: (336) 855-8993
amec
www.amec.com/earthandenvironmental

DATUM:	
PROJECTION:	
DRAWN BY:	RFS
REVIEWED BY:	DWD
ORIGINAL SCALE:	AS SHOWN

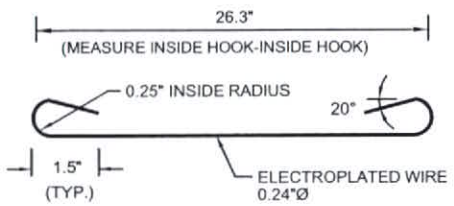
PROJECT: BLUE RIDGE PARKWAY SLIDE REPAIR
EFLHD Project ERFO-PRA-BLRI 2K12, N20

TITLE: BLUE RIDGE PARKWAY MP 357.26
TYPICAL SECTION

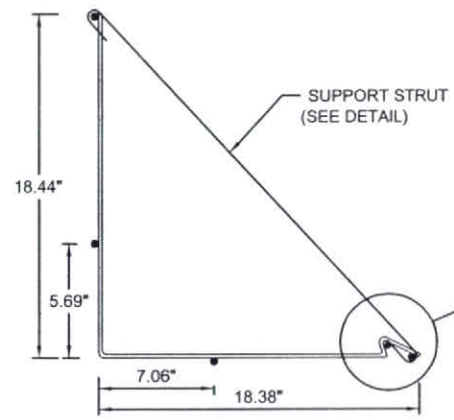
PROJECT NO.:	5-4495-0501
REVISION NO.	A
DATE:	12/05/05
DRAWING NO.:	
SHEET NO.:	11 of 29



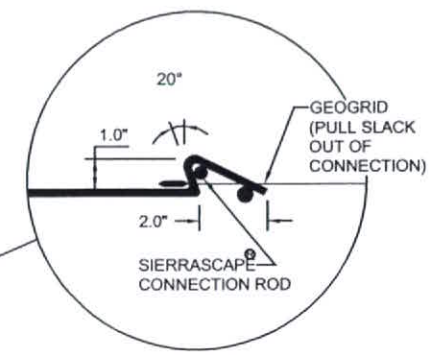
ELEVATION VIEW



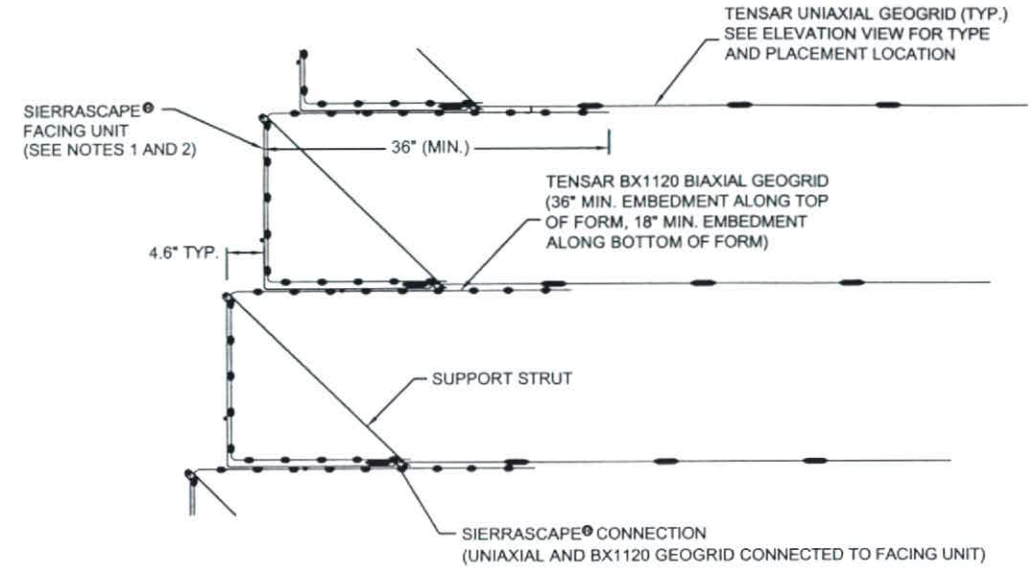
SUPPORT STRUT DETAIL



SECTION A-A



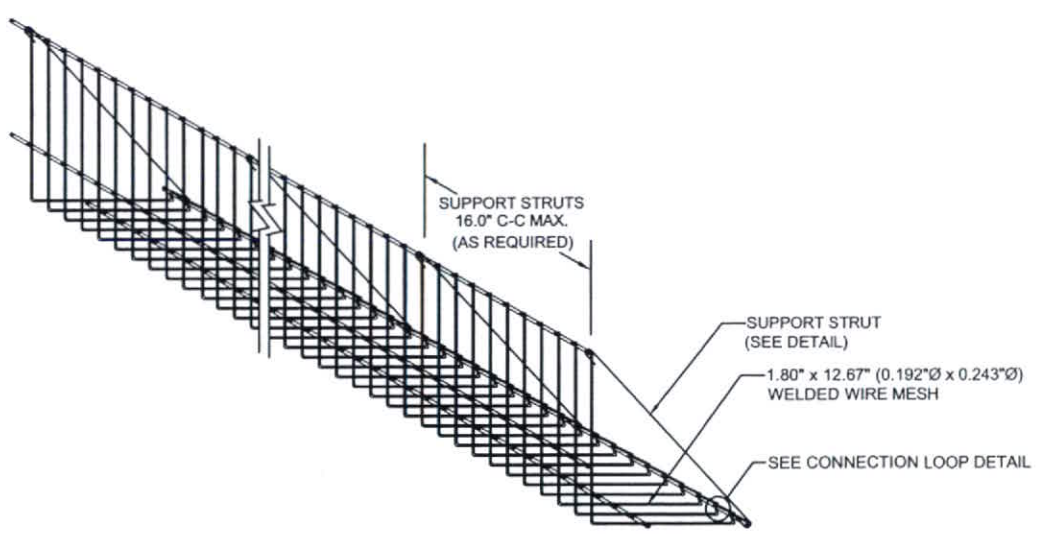
CONNECTION LOOP DETAIL



NOTES:

1. SEE SIERRASCAPE® FACING UNIT DETAIL FOR FACING MATERIAL AND DIMENSIONS.
2. FACING UNITS SHALL BE CONSTRUCTED FROM GALVANIZED STEEL.
3. LONG-TERM CONNECTION STRENGTH (Tac) IS GREATER THAN LONG-TERM GEOGRID STRENGTH (Tal) IN ALL CASES DUE TO WRAP-FACE SYSTEM.

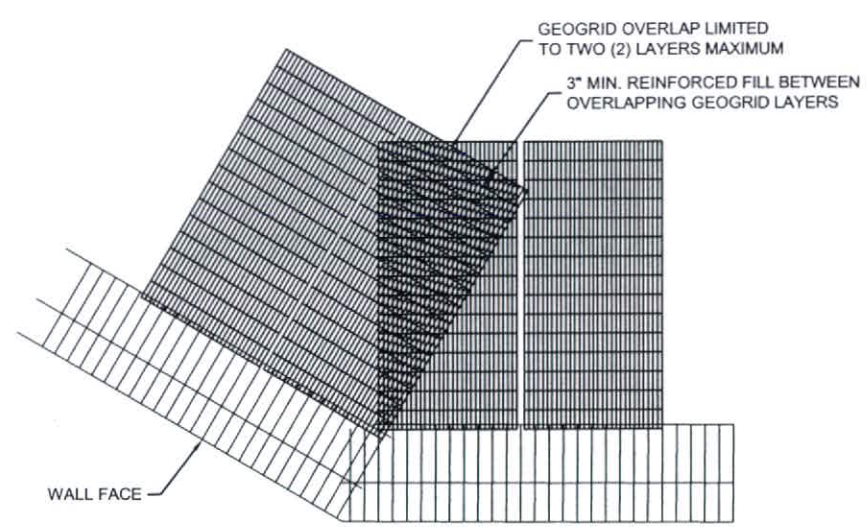
SIERRASCAPE® FACING DETAIL
NOT TO SCALE



NOTE:

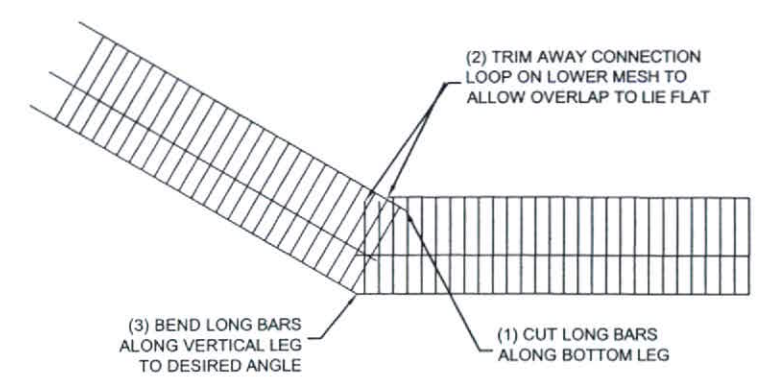
1. ALL FACING UNITS SHALL BE GALVANIZED PER ASTM A123, AFTER BENDING.
2. SIERRASCAPE ® IS THE GABION FACING EQUIVALENT MARKETED AND INSTALLED BY PINNACLE DESIGN/BUILD.

SIERRASCAPE® FACING UNIT
NOT TO SCALE



PLAN VIEW

GEOGRID PLACEMENT AT CORNERS
NOT TO SCALE



PLAN VIEW

SIERRASCAPE® BENDING DETAIL
NOT TO SCALE

PINNACLE Design/Build
6030 Bethelview Road, Suite 304, Cumming, Georgia 30040
770/205-4088 • 770/205-4958(fax)
www.pinnacledesignbuild.com

REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
G						
F						
E						
D						
C						
B						
A	03	04	2006	AS-BUILT DRAWINGS	RFS	DWD

GOETTLE

Client: RICHARD GOETTLE, INC.

AMEC Earth & Environmental
981 Centerview Drive, Suite 305
Greensboro, North Carolina 27407
Phone: (336) 855-8993
www.amec.com/earthandenvironmental

amec

DATUM:	
PROJECTION:	
DRAWN BY:	RFS
REVIEWED BY:	DWD
ORIGINAL SCALE:	AS SHOWN

PROJECT: BLUE RIDGE PARKWAY SLIDE REPAIR
EFLHD Project ERFO-PRA-BLRI 2K12, N20

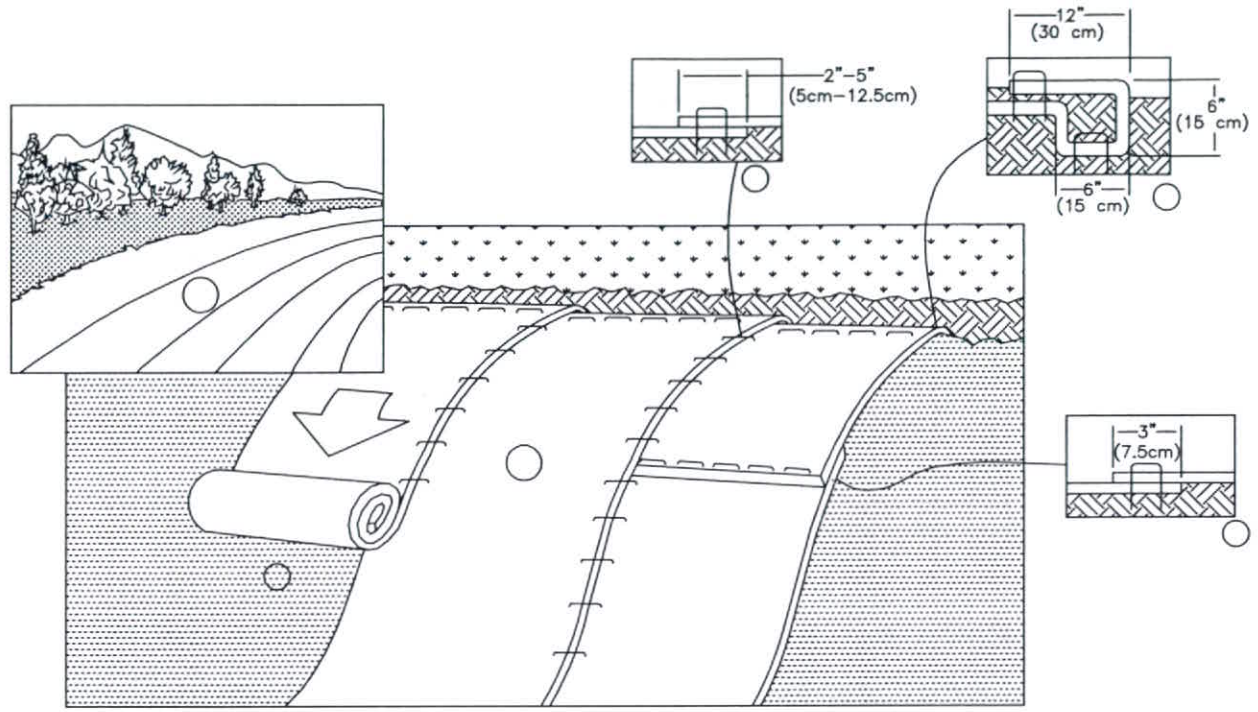
TITLE: BLUE RIDGE PARKWAY MP 357.26
TYPICAL DETAILS

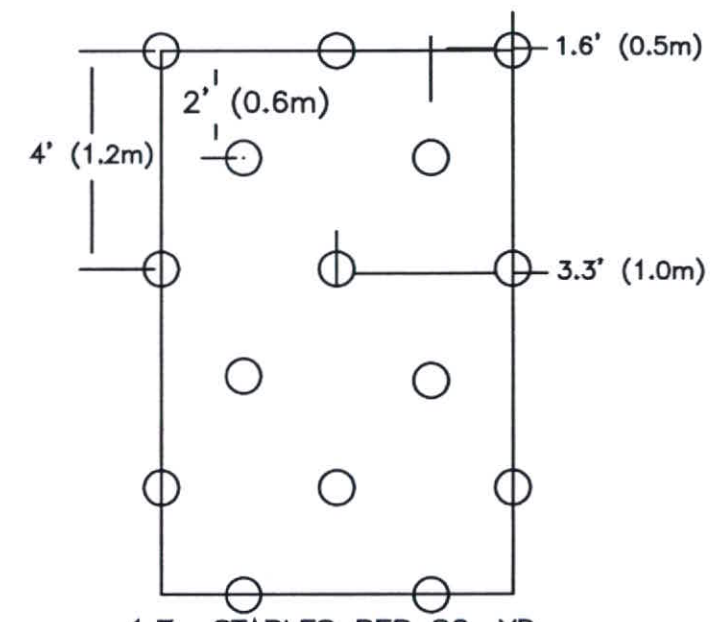
PROJECT NO.:	5-4495-0501
REVISION NO.	A
DATE:	12/05/05
DRAWING NO.:	
SHEET NO.:	18 of 29

SLOPE INSTALLATION

NORTH AMERICAN GREEN
EROSION CONTROL *Products*
Guaranteed SOLUTIONS

14649 HIGHWAY 41 NORTH
EVANSVILLE, IN 47725
800-772-2040
www.nagreen.com





1.7 STAPLES PER SQ. YD.
(2.0 STAPLES PER SQ. M)

1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP's), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP's IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF RECP's EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP's WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF RECP's BACK OVER SEED AND COMPACTED SOIL. SECURE RECP's OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) APART ACROSS THE WIDTH OF THE RECP's.
3. ROLL THE RECP's (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. RECP's WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP's MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN ON THE RIGHT.
4. THE EDGES OF PARALLEL RECP's MUST BE STAPLED WITH APPROXIMATELY 2" - 5" (5 CM - 12.5 CM) OVERLAP DEPENDING ON RECP's TYPE.
5. CONSECUTIVE RECP's SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5 CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE RECP's WIDTH.
6. EROSION CONTROL BLANKET SHALL BE NAG SC150BN.

PINNACLE Design/Build
6030 Bethelview Road, Suite 304, Cumming, Georgia 30040
770/205-4088 • 770/205-4958(fax)
www.pinnacledesignbuild.com

REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
A	03	04	2006	AS-BUILT DRAWINGS	RFS	DWD

GOETTLE

Client: RICHARD GOETTLE, INC.

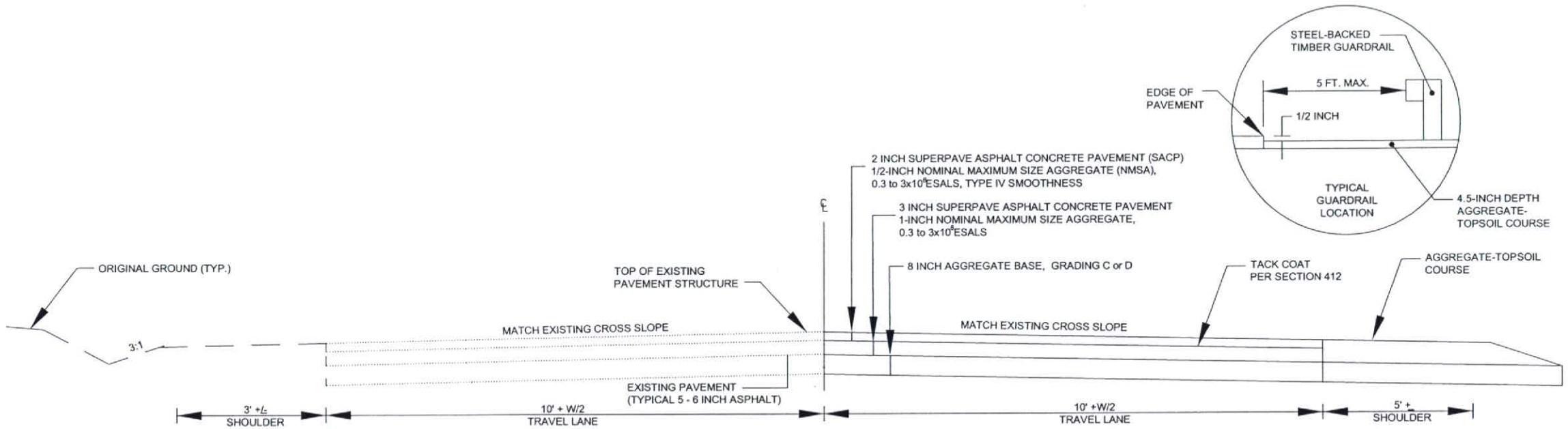
AMEC Earth & Environmental
981 Centerview Drive, Suite 305
Greensboro, North Carolina 27407
Phone: (336) 855-8993
amec
www.amec.com/earthandenvironmental

DATUM:
PROJECTION:
DRAWN BY: RFS
REVIEWED BY: DWD
ORIGINAL SCALE: AS SHOWN

PROJECT: BLUE RIDGE PARKWAY SLIDE REPAIR
EFLHD Project ERFO-PRA-BLRI 2K12, N20

TITLE: BLUE RIDGE PARKWAY MP 357.26
TYPICAL DETAILS

PROJECT NO.: 5-4495-0501
REVISION NO.: A
DATE: 12/05/05
DRAWING NO.:
SHEET NO.: 19 of 29



TYPICAL PARKWAY REPLACEMENT PAVEMENT SECTION

NOTES:

1. ROADWAY SUPERELEVATIONS AND WIDENING (W) SHALL MATCH EXISTING OR SHALL BE AS DIRECTED BY THE CO.
2. SEED ALL DISTURBED AREAS AND NEW STABILIZED SHOULDERS IN ACCORDANCE WITH SECTION 625.
3. SEE GUARDRAIL SCHEDULE FOR LOCATIONS. PLACE 5 FEET FROM EDGE OF PAVEMENT OR AS DIRECTED BY THE CO.
4. PROVIDE A TYPE IV PAVEMENT SMOOTHNESS TO SURFACE COURSE IN ACCORDANCE WITH SECTION 401.

REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
G						
F						
E						
D						
C						
B						
A	03	04	2006	AS-BUILT DRAWINGS	RFS	DWD

GOETTLE

Client: RICHARD GOETTLE, INC.

AMEC Earth & Environmental
961 Centerview Drive, Suite 305
Greensboro, North Carolina 27407
Phone: (336) 855-8993

amec

www.amec.com/earthandenvironmental

DATUM:
PROJECTION:
DRAWN BY: RFS
REVIEWED BY: DWD
ORIGINAL SCALE: AS SHOWN

PROJECT: BLUE RIDGE PARKWAY SLIDE REPAIR
EFLHD Project ERFO-PRA-BLRI 2K12, N20

TITLE: BLUE RIDGE PARKWAY MP 357.26
TYPICAL PARKWAY REPLACEMENT
PAVEMENT STANDARD DETAIL

PROJECT NO.: 5-4495-0501
REVISION NO.: A
DATE: 12/05/05
DRAWING NO.:
SHEET NO.: 23 of 29

R:\Geotechnical Project Files\2005 Projects\Goettle\blue ridge parkway as-builts\mp 357\23 PAVEMENT DETAIL.dwg - PAVEMENT DETAIL - Apr. 13, 2006 4:16pm - bob.scott

Construction

Standard Form 1034
Revised October 1967
Department of the Treasury
1 TFM 4-2000
1034-121

PUBLIC VOUCHER FOR PURCHASES AND SERVICES OTHER THAN PERSONAL

VOUCHER NO.

U.S. DEPARTMENT, BUREAU, OR ESTABLISHMENT AND LOCATION

U. S. Department of Transportation
Federal Highway Administration
Eastern Federal Lands Highway Division
21400 Ridgetop Circle
Sterling, Virginia 20166-6511

DATE VOUCHER PREPARED: November 13, 2006

CONTRACT NUMBER AND DATE: DTFH71-05-C-00026 07/11/2005

REQUISITION NUMBER AND DATE

SCHEDULE NO.

PAID BY

PAYEE'S NAME AND ADDRESS

Richard Goettle, Inc.
12071 Hamilton Ave.
Cincinnati, OH 45231

DATE INVOICE RECEIVED

DISCOUNT TERMS

PAYEE'S ACCOUNT NUMBER

SHIPPED FROM | TO | WEIGHT

GOVERNMENT B/L NUMBER

NUMBER AND DATE OF ORDER	DATE OF DELIVERY OR SERVICE	ARTICLES OR SERVICES (Enter description, item number of contract or Federal supply schedule, and other information deemed necessary)	QUANTITY	UNIT PRICE COST	UNIT PRICE PER	AMOUNT (1)
		Completed Estimate No. 06 - Final Payment of Contract. This is final settlement for the construction of ERFO-PRA-BLRI 2K12, N20, Blue Ridge Parkway and final closeout is specifically conditioned upon the execution of the Contractor's Release attached hereto and incorporated herein. By: Doug Keller Title: PRESIDENT Date: 11/27/06				

(Use continuation sheet(s) if necessary) **(Payee must NOT use the space below)** **TOTAL** $8,000.00

PAYMENT:
- [ ] PROVISIONAL
- [ ] COMPLETE
- [ ] PARTIAL
- [x] FINAL
- [ ] PROGRESS
- [ ] ADVANCE

APPROVED FOR =$ 8,000.00

EXCHANGE RATE =$1.00

DIFFERENCES

BY [2] D. W. Miller 2/26/07
Donald W. Miller

TITLE Director, Project Delivery

Amount verified; correct for payment

(Signature or initials)

Pursuant to authority vested in me, I certify that this voucher is correct and proper for payment.

2/27/07 (Date) (Authorized Certifying Officer) Administration Program Coordinator (Title)

ACCOUNTING CLASSIFICATION

PROJ: 1515375140057 ORG: 1537001102 TASK: 540.00.F170.37

PAID BY

CHECK NUMBER ON TREASURER OF THE UNITED STATES

CHECK NUMBER ON (Name of bank)

CASH $ DATE

PAYEE [3]

1 When stated in foreign currency, insert name of currency.
2 If the ability to certify and authority to approve are combined in one person, one signature only is necessary; otherwise the approving officer will sign in the space provided, over his official title.
3 When a voucher is receipted in the name of a company or corporation, the name of the person writing the company or corporate name, as well as the capacity in which he signs, must appear. For example: "John Doe Company, per John Smith, Secretary", or "Treasurer", as the case may be.

FOR

TITLE

Previous edition usable

NSN 7540-00-900-2234

PRIVACY ACT STATEMENT

The information requested on this form is required under the provisions of 31 U.S.C. 82b and 82c, for the purpose of disbursing Federal money. The information requested is to identify the particular creditor and the amounts to be paid. Failure to furnish this information will hinder discharge of the payment obligation.

DEPARTMENT OF TRANSPORTATION

CONTRACTOR'S RELEASE

CONTRACT NO. DTFH71-05-C-00026

CONTRACTOR *(Name and address)*	SUM OF
Richard Goettle, Inc. 12071 Hamilton Ave. Cincinnati, OH 45231	eight-thousand dollars
	DOLLARS ($) 8,000.00

In consideration of the sum stated above, which has been paid or is to be paid to the Contractor, or his assignees, the Contractor, upon payment of the said sum by the UNITED STATES OF AMERICA (hereinafter called the Government), does remise, release, and discharge the Government, its officers, agents, and employees, of and from all liabilities, obligations, claims, and demands whatsoever under or arising from the said contract, except:

1. Specified claims in stated amounts or in estimated amounts where the amounts ar not susceptible of exact statement by the Contractor, as follows:

2. Claims, together with reasonable expenses incidental thereto, based upon the liabilities of the Contractor to third parties arising out of the performance of this contract, which are not known to the Contractor on the date of the execution of this release and of which the Contractor gives notice in writing to the Contracting Officer within the period specified in the said contract: and

3. Claims for reimbursement of costs (other than expenses of the Contractor by reason of his indemnification of the Government against patent liability), including reasonable expenses incidental thereto, incurred by the Contractor under any provisions of the said contract relating to patents.

The Contractor agrees, in connection with patent matters and with claims which are not released as set forth above, that he will comply with all provisions of the said contract, including without limitation those provisions relating to notifications to the Contracting Officer and relating to the defense or prosecution of litigation.

IN WITNESS WHEREOF, this release has been executed this _____ day of _____

WITNESSES

Richard Goettle, Inc.
(Contractor)

_____

BY Doug Keller

_____

TITLE PRESIDENT

NOTE: *In the case of a corporation, witnesses are not required, but the certification below must be completed.*

CERTIFICATE

I, Dan Baker, certify that I am the Asst. secretary of the corporation named as Contractor in the foregoing release; that Doug Keller who signed said release on behalf of the Contractor was then PRESIDENT of said corporation; that said release was duly signed for and in behalf of said corporation by authority of its governing body and is within the scope of its corporate powers.

(CORPORATE SEAL)

_____

Form DOT F 4220.4

Emmet

United States Department of the Interior

NATIONAL PARK SERVICE
Blue Ridge Parkway
199 Hemphill Knob Road
Asheville, NC 28803

IN REPLY REFER TO:

D30 (BLRI)
Project 2K12, N20
PMIS No. 110156

RECEIVED
2006 SEP 18 PM 3:44
EASTERN FEDERAL LANDS HIGHWAY DIVISION STERLING, VA

September 15, 2006

Ms. Melisa L. Ridenour, Division Engineer
Eastern Federal Lands Highway Division
Federal Highway Administration
Loudoun Tech Center
21400 Ridgetop Circle
Sterling, Virginia 20166-6511

Dear Ms. Ridenour:

Reference: Blue Ridge Parkway; Project ERFO-PRA-BLRI 2K12, N20; Slide Repairs at Mileposts 321.8, 321.9, 322.0, 323.25, 357.26; Contract No. DTFH71-05-C-00026; Buncombe and McDowell Counties, North Carolina

Subject: Letter of Acceptance

An inspection was held on the referenced project on April 7, 2006. Those in attendance at this inspection were Messrs. Jason Hartkemeyer and Tony Eckert representing the contractor Richard Goettle, Inc; Mr. David Hyde representing the Federal Highway Administration and Mr. Alan D. Hollister representing the National Park Service.

This inspection revealed that all items of the contract had been completed in accordance with the contract documents with the exception of theTurf Establishment Item which did not satisfy the germination requirements of the contract. It was determined at this time that Messrs. Hyde and Hollister would conduct a turf inspection at a later date but, the Parkway could be opened to traffic at the convenience of all parties. The Parkway was opened to visitor traffic on Monday, April 10, 2006 at approximately 10:30 AM.

Messrs. Hyde and Hollister conducted two subsequent Turf Establishment inspections on May 15, 2006 and June 29, 2006. The latter inspection revealed that all turf establishment had been completed in accordance with the contract documents.

Based on the above the project is hereby accepted as of the close of business on June 29, 2006.

We appreciate the excellent cooperation your project staff extended us throughout the duration of this project.

Sincerely,

Philip A. Francis, Jr.
Superintendent
Blue Ridge Parkway

For

Alan D. Hollister
Landscape Architect
Denver Service Center – T

cc:
Director, SERO, Attn: K. Cochran, L. Edwards
Superintendent, BLRI, Attn: M. Bogle, J. Garrison, M. Molling, G. Johnson, P. Lockamy
FHWA, E. Melton, D. Hyde, D. Ramsey
DSC-T, J. Helmkamp
DSC-T, PM, L. Hultquist
DSC-T, PS, G. Stahlecker Proj. File, Hollister

TAKE PRIDE IN AMERICA

U.S. Department
of Transportation
Federal Highway
Administration

Eastern Federal Lands
Highway Division

21400 Ridgetop Circle
Sterling, VA 20166-6511

CERTIFIED MAIL
RETURN RECEIPT

Refer to: HFCO-15

Mr. Doug Keller
President
Richard Goettle, Inc.
12071 Hamilton Ave.
Cincinnati, Ohio 45231

Subject: Contract Closeout
Contract No. DTFH71-05-C-00026
Project No. ERFO-PRA-BLRI 2K12, N20 – Blue Ridge Parkway

Dear Mr. Keller:

We are pleased to advise you that the work performed on the above subject contract has been satisfactorily completed in substantial conformity with the plans and specifications. Final acceptance was effective on April 03, 2006, and as of that date you were relieved of further maintenance obligations.

Enclosed please find the following documents:

- The Final Estimate (Estimate No.6)
- Two copies of Contract Modification (CM) No. 0003.
- Three copies of Form 4220.4, Contractor's Release.
- Three copies of Form 1034, Public Voucher for Purchases and Services Other than Personal.

Celebrating 50 Years
1956 50th 2006
Eisenhower Interstate System

BUCKLE UP AMERICA

You are requested to sign and return both copies of CM No. 0003, and all three copies of Forms 4220.4 and 1034, which are based on the final estimate. One copy of CM No. 0003, with all the appropriate signatures, will be returned to you for your records. Upon receipt of the executed documents, we will process the final payment.

If you have any questions, please contact Mr. Charles E. Melton at 865-453-7123.

Sincerely yours,

Zaki M. Saad
Acting Construction Engineer

Enclosures

U.S. Department of Transportation
Federal Highway Administration
Federal Lands Highway Office

Federal Lands Highway
Construction Project
Materials Certification

State North Carolina Contract No. **DTFH71-05-C-00026** Project Name **Blue Ridge Parkway ERFO-PRA-BLRI 2K12, N20**

Part I – Field Control

It is certified (1) that all material accepted pursuant to this contract complies with the terms of the contract as documented by the project records in accordance with Federal Lands standards; or (2) that material not complying with the terms of the contract was accepted in accordance with FAR Clause 52.246-12 based on a technical evaluation of material documented in the project records.

It is further certified (1) that the results of verification tests taken during construction conform to validity of acceptance tests according to Federal Lands standards; and (2) that inconsistencies between verification and acceptance tests were responded to in accordance with Federal Lands Standards and so documented in the project records.

It is further certified (1) for material accepted by manufacturer's certification of compliance, such certifications and accompanying test results (when required) indicate compliance with the terms of the contract; and (2) that if verification tests of such materials were taken, the tests confirmed the validity of the certifications, or the discrepancies were responded to in accordance with Federal Lands standards and so documented in the project records.

Project Engineer _____ Date 5/17/06

Construction Operations Engineer _____ Date 5/17/06

Part II – Final Review

It is certified (1) that the results of the verification tests taken during construction confirm the validity of the job site acceptance testing and/or manufacturer's certificates; or (2) that inconsistencies are appropriately documented together with the technical basis of acceptance of the materials.

Materials Engineer _____ Date 5/19/06

It is certified that the records for this project have been reviewed and confirmed that the acceptance and documentation of all materials complied with Federal Lands standards.

Construction Engineer _____ Date 5/22/06

Form FHWA 1637 (3-94)

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION
21400 RIDGETOP CIRCLE
STERLING, VIRGINIA 20166

batch #
cntrl #

ERFO-PRA-BLRI 2K12,N20 - BLUE RIDGE PARKWAY

Repair of slides and roadway at Mileposts 321.85, 321.9, 322, 323.25, and 357.26.

TO: RICHARD GOETTLE, INC.
12071 HAMILTON AVE.
CINCINNATI, OH 45231

INVOICE OF __/__/06, rec'd __/__/06
INVOICE AMOUNT

ADVICE TYPE 10

HUNTINGTON NATIONAL BANK
CINCINNATI, OH 45202
042 015 422

(01651066560) RICHARD GOETTLE, INC.
**DTFH71-05-C-00026*
FINAL ESTIMATE # 06

T I N # 31-0589745

CONSTRUCTION SUMMARY

For work performed up to and including April 3, 2006

TOTAL AMOUNT EARNED TO DATE	$2,820,162.00
*ADJUSTMENTS	$0.00
TOTAL PAYMENTS APPROVED TO DATE	$2,820,162.00
TOTAL PAYMENTS PREVIOUSLY PAID	$2,812,162.00
AMOUNT TO BE PAID THIS ESTIMATE	$8,000.00

*ADJUSTMENTS: Amount withheld for verification of final quantities and submittal of contractor provided as-built drawings. Est. 05, $8,000.00; Returned Est. 06.

CHECKED
FHWA
By Mvo
Date 10-30-2006

FINAL ESTIMATE # 06
PERIOD THROUGH 04/03/06

CONTRACT NUMBER: DTFH71-05-C-00026
AWARD DATE: July 11, 2005

STATE North Carolina
COUNTIES Buncombe & McDowell
FOREST OR PARK Blue Ridge Parkway

LENGTH N/A

This estimate submitted 10/19/06 by
David Hyde, Project Engineer

I certify that the quantities shown herein are supported by measurements and/or weighings made in accordance with provisions of the contract, and that contractor's payrolls have been submitted as prescribed.

Charles E. Melton date: 1/26/2007
Charles E. Melton, Construction Operations Engineer
Concur in estimate

for date: 1/31/07
Thomas J. Scott, Jr., Construction Engineer
Approve for payment

date: 2/22/07
Patricia C. Mark, Financial Manager
Certify funds available

ACCOUNT NUMBER	EXPEND	LIQUIDATE
Proj 1515375140057; Org 1537001102; Task 540.00.F170.37	$8,000.00	

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION

ERFO-PRA-BLRI 2K12,N20 - BLUE RIDGE PARKWAY - FINAL ESTIMATE # 06

		CONTRACTED						FINAL QUANTITIES				TOTAL	PERCENT	OVERRUN
ITEM NO.	DESCR.	QUANTITY	CM	AMENDED	UNIT	UNIT PRICE	AMOUNT	CURRENT	PREVIOUS	TO DATE	AMOUNT	CHANGE	VARIATION	QUANTITY
Schedule A:														
0110	*Design*	100.000		100.000	*LPSM*	$125,000.00	$125,000.00	0.000	100.000	100.000	$125,000.00	0.000	0.00	0
0151	*Mobilization*	100.000		100.000	*LPSM*	$250,000.00	$250,000.00	0.000	100.000	100.000	$250,000.00	0.000	0.00	0
0152	*Survey and Staking*	100.000		100.000	*LPSM*	$25,000.00	$25,000.00	0.000	100.000	100.000	$25,000.00	0.000	0.00	0
0154	*Contractor Quality Control & Testing*	100.000		100.000	*LPSM*	$100,000.00	$100,000.00	0.000	100.000	100.000	$100,000.00	0.000	0.00	0
250A	*Repair Pavement Distress Area (MP 321.85)*	100.000		100.000	*LPSM*	$225,000.00	$225,000.00	0.000	100.000	100.000	$225,000.00	0.000	0.00	0
250B	*Repair Pavement Distress Area (MP 321.9)*	100.000		100.000	*LPSM*	$225,000.00	$225,000.00	0.000	100.000	100.000	$225,000.00	0.000	0.00	0
250C	*Repair Slide (MP 322)*	100.000		100.000	*LPSM*	$1,275,000.00	$1,275,000.00	0.000	100.000	100.000	$1,275,000.00	0.000	0.00	0
250D	*Repair Slide (MP 323.25)*	100.000		100.000	*LPSM*	$305,000.00	$305,000.00	0.000	100.000	100.000	$305,000.00	0.000	0.00	0
250E	*Repair Slide (MP 357.26)*	100.000		100.000	*LPSM*	$100,500.00	$100,500.00	0.000	100.000	100.000	$100,500.00	0.000	0.00	0
0635	*Temporary Traffic Control*	100.000		100.000	*LPSM*	$25,000.00	$25,000.00	0.000	100.000	100.000	$25,000.00	0.000	0.00	0
0637	*Field Office*	100.000		100.000	*LPSM*	$12,500.00	$12,500.00	0.000	100.000	100.000	$12,500.00	0.000	0.00	0
Contingent Fee Items for Schedule A:														
15703	*Silt Fence (CM #0003, 01/12/07, decrease quantity 100 lnft)*	100.000	-100.000	0.000	*LNFT*	$5.00	$0.00	0.000	0.000	0.000	$0.00	-100.000	-100.00	0
15716	*Inlet Protection, Type ____*	2.000		2.000	*EACH*	$500.00	$1,000.00	0.000	2.000	2.000	$1,000.00	0.000	0.00	0
15722	*Temporary Diversion Berm (CM #0003, 01/12/07, decrease quantity 100 lnft)*	100.000	-100.000	0.000	*LNFT*	$10.00	$0.00	0.000	0.000	0.000	$0.00	-100.000	-100.00	0
15742	*Filter Berm*	120.000		120.000	*LNFT*	$25.00	$3,000.00	0.000	120.000	120.000	$3,000.00	0.000	0.00	0
20103	*Clearing and Grubbing (CM #0001, 03/23/06, decrease quantity 176 sqyd; CM #0003, 01/12/07, further decrease quantity 648 sqyd)*	1000.000	-824.000	176.000	*SQYD*	$1.00	$176.00	0.000	176.000	176.000	$176.00	-824.000	-82.40	0
20301AZ	*Removal of Structures and Obstructions (Pipe culverts, inlets, headwalls & misc.) (CM #0003, 01/12/07, decrease quantity 7 each)*	7.000	-7.000	0.000	*EACH*	$500.00	$0.00	0.000	0.000	0.000	$0.00	-7.000	-100.00	0
20307	*Sawcutting pavement*	50.000		50.000	*LNFT*	$10.00	$500.00	0.000	50.000	50.000	$500.00	0.000	0.00	0
20402	*Subexcavation (CM #0003, 01/12/07, decrease quantity 230 cuyd)*	230.000	-230.000	0.000	*CUYD*	$15.00	$0.00	0.000	0.000	0.000	$0.00	-230.000	-100.00	0
20405	*Select Borrow (CM #0002, 03/30/06, decrease quantity 160 cuyd; CM #0003, 01/12/07, further decrease quantity 140 cuyd)*	300.000	-300.000	0.000	*CUYD*	$40.00	$0.00	0.000	0.000	0.000	$0.00	-300.000	-100.00	0

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION

ERFO-PRA-BLRI 2K12,N20 - BLUE RIDGE PARKWAY - FINAL ESTIMATE # 06

		CONTRACTED						FINAL QUANTITIES				TOTAL	PERCENT	OVERRUN
ITEM NO.	DESCR.	QUANTITY	CM	AMENDED	UNIT	UNIT PRICE	AMOUNT	CURRENT	PREVIOUS	TO DATE	AMOUNT	CHANGE	VARIATION	QUANTITY
20412	*Waste (CM #0001, 03/23/06, decrease quantity 1,150 cuyd; CM #0003, 01/12/07, further decrease quantity 1,150 cuyd)*	3750.000	-2300.000	1450.000	*CUYD*	$20.00	$29,000.00	0.000	1450.000	1450.000	$29,000.00	-2300.000	-61.33	0
20413	*Slope Scaling (CM #0003, 01/12/07, decrease quantity 30 cuyd)*	30.000	-30.000	0.000	*CUYD*	$25.00	$0.00	0.000	0.000	0.000	$0.00	-30.000	-100.00	0
25101C	*Placed riprap, class 3*	20.000		20.000	*CUYD*	$100.00	$2,000.00	0.000	20.000	20.000	$2,000.00	0.000	0.00	0
30101Z	*Aggregate base, grading C or D (CM #0003, 01/12/07, decrease quantity 150 ton)*	150.000	-150.000	0.000	*TON*	$25.00	$0.00	0.000	0.000	0.000	$0.00	-150.000	-100.00	0
30305C	*Shoulder and ditch reconditioning (CM #0003, 01/12/07, decrease quantity 85 lnft)*	350.000	-85.000	265.000	*LNFT*	$50.00	$13,250.00	0.000	265.000	265.000	$13,250.00	-85.000	-24.29	0
30501	*Aggregate-topsoil course*	8.000		8.000	*TON*	$100.00	$800.00	0.000	8.000	8.000	$800.00	0.000	0.00	0
41801BCD	*Superpave asphalt concrete pavement, 1/2-inch nominal maximum size aggregate, <0.3 ESAL (CM #0003, 01/12/07, increase quantity 230 ton)*	30.000	230.000	260.000	*TON*	$165.00	$42,900.00	0.000	260.000	260.000	$42,900.00	230.000	766.67	0
41801CB	*Superpave asphalt concrete pavement, 3/4-inch nominal maximum size aggregate, <0.3 ESAL*	50.000		50.000	*TON*	$165.00	$8,250.00	0.000	50.000	50.000	$8,250.00	0.000	0.00	0
41901B	*Asphalt pavement, full depth patch, type 2 (CM #0003, 01/12/07, decrease quantity 870 sqft)*	870.000	-870.000	0.000	*SQFT*	$17.00	$0.00	0.000	0.000	0.000	$0.00	-870.000	-100.00	0
41901C	*Asphalt pavement, full depth patch, type 3 (CM #0003, 01/12/07, decrease quantity 870 sqft)*	870.000	-870.000	0.000	*SQFT*	$17.00	$0.00	0.000	0.000	0.000	$0.00	-870.000	-100.00	0
60201M	*24-inch Pipe Culvert (CM #0003, 01/12/07, decrease quantity 65 lnft)*	65.000	-65.000	0.000	*LNFT*	$100.00	$0.00	0.000	0.000	0.000	$0.00	-65.000	-100.00	0
60403	*Inlet, Type 4B*	1.000		1.000	*EACH*	$2,500.00	$2,500.00	0.000	1.000	1.000	$2,500.00	0.000	0.00	0
60502	*Standard Underdrain System (6-inch pipe) (CM #0003, 01/12/07, decrease quantity 50 lnft)*	100.000	-50.000	50.000	*LNFT*	$30.00	$1,500.00	0.000	50.000	50.000	$1,500.00	-50.000	-50.00	0
60508	*Granular Backfill*	10.000		10.000	*CUYD*	$45.00	$450.00	0.000	10.000	10.000	$450.00	0.000	0.00	0
60703B	*Cleaning culverts in place (CM #0003, 01/12/07, decrease quantity 112 lnft)*	150.000	-112.000	38.000	*LNFT*	$20.00	$760.00	0.000	38.000	38.000	$760.00	-112.000	-74.67	0
60704	*Reconditioning drainage structures (CM #0003, 01/12/07, decrease quantity 2 each)*	2.000	-2.000	0.000	*EACH*	$500.00	$0.00	0.000	0.000	0.000	$0.00	-2.000	-100.00	0

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION

ERFO-PRA-BLRI 2K12,N20 - BLUE RIDGE PARKWAY - FINAL ESTIMATE # 06

		CONTRACTED						FINAL QUANTITIES				TOTAL	PERCENT	OVERRUN
ITEM NO.	DESCR.	QUANTITY	CM	AMENDED	UNIT	UNIT PRICE	AMOUNT	CURRENT	PREVIOUS	TO DATE	AMOUNT	CHANGE	VARIATION	QUANTITY
60801E	*Paved waterway, type 5 (CM #0003, 01/12/07, decrease quantity 100 sqyd)*	100.000	-100.000	0.000	*SQYD*	$55.00	$0.00	0.000	0.000	0.000	$0.00	-100.000	-100.00	0
61701H	*Guardrail System, SBTB*	80.000		80.000	*LNFT*	$100.00	$8,000.00	0.000	80.000	80.000	$8,000.00	0.000	0.00	0
62007AM	*Stone Masonry Headwall for 24-inch pipe culvert (CM #0003, 01/12/07, decrease quantity 2 each)*	2.000	-2.000	0.000	*EACH*	$5,000.00	$0.00	0.000	0.000	0.000	$0.00	-2.000	-100.00	0
62403	*Furnishing and Placing Topsoil*	30.000		30.000	*CUYD*	$20.00	$600.00	0.000	30.000	30.000	$600.00	0.000	0.00	0
62518	*Turf Establishment*	1200.000		1200.000	*SQYD*	$1.00	$1,200.00	0.000	1200.000	1200.000	$1,200.00	0.000	0.00	0
62901B	*Erosion Control Mat, Type 2 (CM #0003, 01/12/07, increase quantity 1300 sqyd)*	1200.000	1300.000	2500.000	*SQYD*	$2.00	$5,000.00	0.000	2500.000	2500.000	$5,000.00	1300.000	108.33	0
63401HA	*Pavement Markings, Type H, solid (CM #0003, 01/12/07, increase quantity 550 lnft)*	300.000	550.000	850.000	*LNFT*	$2.00	$1,700.00	0.000	850.000	850.000	$1,700.00	550.000	183.33	0
63401HB	*Pavement Markings, Type H, broken (CM #0003, 01/12/07, decrease quantity 150 lnft)*	150.000	-150.000	0.000	*LNFT*	$2.00	$0.00	0.000	0.000	0.000	$0.00	-150.000	-100.00	0
63531B	*Temporary construction fence (orange plastic) (CM #0003, 01/12/07, decrease quantity 300 lnft)*	300.000	-300.000	0.000	*LNFT*	$5.00	$0.00	0.000	0.000	0.000	$0.00	-300.000	-100.00	0
66601	*CM No. 0001, 03/23/06, Contract Modification Work, Additional Guardrail Work*		100.000	100.000	*LPSM*	$23,176.00	$23,176.00	0.000	100.000	100.000	$23,176.00	0.000	0.00	0
66601	*CM No. 0002, 03/30/06, Contract Modification Work, Furnish and Plant Trees*		100.000	100.000	*LPSM*	$6,400.00	$6,400.00	0.000	100.000	100.000	$6,400.00	0.000	0.00	0

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
EASTERN FEDERAL LANDS HIGHWAY DIVISION

ERFO-PRA-BLRI 2K12,N20 - BLUE RIDGE PARKWAY - FINAL ESTIMATE # 06

DATE TIME BEGAN:	07/12/05	
DATE CONTRACT COMPLETE:	03/03/06	04/03/06 CM 0002
DAYS ALLOWED:	235	
EXTENSIONS GRANTED BY CM	17	by CM 0001
	14	by CM 0002
TOTAL DAYS ALLOWED	266	
DAYS USED	266	04/03/06 Time Count End
TIME USED to date/allowed	100.00%	
WORK COMPLETE to date/probable	100.00%	
CONSTR FUNDS USED to date/allotted	97.82%	
CE FUNDS USED to date/allotted	#DIV/0!	
CE BUDGET USED	67.73%	

TOTAL INCREASE DUE TO CMS	$71,226.00
TOTAL DECREASE DUE TO CMS	-$134,144.00
TOTAL INCREASE DUE TO OVERRUNS	$0.00
TOTAL DECREASE DUE TO UNDERRUNS	$0.00
CM #0001, 03/23/06, added guardrail work; 2 item u/r; 17 CD	$0.00
CM #0002, 03/30/06, added furnish & plant trees item; select borrow u/r; 14 CD	$0.00
CM #0003, 01/12/07, final quantities	-$62,918.00
CONTRACT AWARD	$2,883,080.00
NET CMs	-$62,918.00
TOTAL CONTRACT AMOUNT	$2,820,162.00

CONSTRUCTION	BID	TO DATE
CONTRACT	$2,883,080.00	$2,820,162.00
DBE INCENTIVE	$0.00	$0.00
QUALITY INCENTIVE	$0.00	$0.00
SMOOTHNESS INCENTIVE	$0.00	$0.00
TOTAL	$2,883,080.00	$2,820,162.00

FUNDS AUTHORIZED
Proj 1515375140057; Org 1537001102; Task 540.00.F170.37

TOTAL	$2,883,080.00	$2,883,080.00
BALANCE OR DEFICIT		$62,918.00

CONSTRUCTION ENGINEERING	AUTHORIZED	TO DATE	PROBABLE	PROBABLE CE/ TO DATE CN
TOTAL-ALL WORK CODES	$0.00	$101,601.47	$150,000.00	5.32%

C E BREAKDOWN	FUNCTION C	FUNCTION I	FUNCTION M	FUNCTION T	TOTAL
*TO DATE AUTHORIZED					$0.00
EXPENDED	$80,150.07	$18,451.40	$3,000.00		$101,601.47
PROBABLE	$120,000.00	$20,000.00	$10,000.00	$0.00	$150,000.00

EXPENDED PER DELPHI REPORTS AS OF 05/06 FY 06 & PP 08

need to determine how much, if any, from 1515375140054

*CE AUTH. PER DELPHI

DELPHI CE ACCOUNT NUMBERS Proj 1515375140057; Org 1537001102; Task 520.C0.F170.37

ACCOUNT NUMBER FOR PYRL:

BLUE RIDGE PARKWAY SLIDE LOOKING UP TO ROAD AT MP 322.00

BLUE RIDGE PARKWAY SLIDE MP 322.00 LOOKING NORTHWEST

BLUE RIDGE PARKWAY SLIDE MP 322.00 LOOKING SOUTHEAST

DRILLING WALL ANCHORS

DRILLING WALL ANCHORS

DRILLING ROCK ANCHORS FOR SOIL NAIL WALL

NEAR COMPLETION OF SOIL NAIL WALL

DRILLING ROCK ANCHORS FOR SOIL NAIL WALL

INSTALLING MICRO PILE

DRILLING TO INSTALL MICRO PILES

ANCHORED MSE WALL NEAR COMPLETION

SOIL EROSION CONTROL SLOPE STABILITY SYSTEM AT MP 323.25

FINISHED GUARDRAIL

FINISHED SECTION OF ROAD AT MP 322.00 LOOKING SOUTHEAST