PROJECT SPECIAL PROVISIONS

ROADWAY

CLEARING AND GRUBBING - METHOD III:

(4-6-06) (Rev. 1-17-12) 200

SP2 R02B

Perform clearing on this project to the limits established by Method "III" shown on Standard Drawing No. 200.03 of the 2012 Roadway Standard Drawings.

BURNING RESTRICTIONS:

(7-1-95) 200, 215 SP2 R05

Open burning is not permitted on any portion of the right-of-way limits established for this project. Do not burn the clearing, grubbing or demolition debris designated for disposal and generated from the project at locations within the project limits, off the project limits or at any waste or borrow sites in this county. Dispose of the clearing, grubbing and demolition debris by means other than burning, according to state or local rules and regulations.

LUMP SUM GRADING:

(8-17-10) 226 SP2 R16

Lump sum grading shall be performed in accordance with Section 226 Comprehensive Grading of the 2012 Standard Specifications except as follows:

Delete all references to Section 230, Borrow Excavation.

SHOULDER AND FILL SLOPE MATERIAL:

(5-21-02) 235, 560

SP2 R45 A

Description

Perform the required shoulder and slope construction for this project in accordance with the applicable requirements of Section 560 and Section 235 of the 2012 Standard Specifications.

Measurement and Payment

Where the material has been obtained from an authorized stockpile or from a borrow source and *Borrow Excavation* is not included in the contract, no direct payment will be made for this work, as the cost of this work will be part of the work being paid at the contract lump sum price for *Grading*. If *Borrow Excavation* is included in this contract and the material has been obtained from an authorized stockpile or from a borrow source, measurement and payment will be as provided in Section 230 of the *2012 Standard Specifications* for *Borrow Excavation*.

ROCK EMBANKMENTS:

(SPECIAL)

Description

Construct rock embankments in accordance with the contract and this special provision at locations shown on the final construction plans, or as directed by the Engineer.

Materials

Refer to Division 10 of the Standard Specifications:

Item	Section
Select Material, Class VI	1016
Geotextile for Rock Embankments, Type 2	1056
Rip Rap, Class B	1042

Construction Methods

Prior to beginning work on the rock embankments, conduct a preconstruction meeting with the Resident Engineer, Inspectors, Contractors, and the Western Region Operations Engineer.

Construct rock embankments in accordance with the slopes, dimensions and elevations shown on the plans and Section 235 of the *Standard Specifications*. Place and grade rock so smaller pieces are uniformly distributed throughout rock embankments. Provide a uniform surface free of obstructions, debris and groups of large rocks that could cause voids within embankments.

Using a combination of materials listed above, construct a layered rock embankment starting below the pond surface and extending an approximate elevation 3 feet above the top of the pond surface. Working in 18 inch lifts, begin placing the Class 1 Rip Rap, and work it into the pond sediments. Repeat the process until the rip rap is stable when tracked in with a D9 dozer or equivalent. The edge of the rip rap should extend, in plan view, three (3) feet beyond the toe of the embankment in the areas shown on the plans. Install geotextiles from top of the Class 1 Rip Rap using a two foot layer of Class B Rip Rap. Continue placing the Class B Rip Rap in lifts until the tracked surface is approximately 2 feet above the pond surface. Choke off the Class B Rip Rap with a compacted 1 foot layer of Class VI Select Material. Install geotextiles on top of the Class VI Select Material in accordance with Article 270-3 of the Standard Specifications before placing embankment fill material. As of 02/2011, The Hydraulics Unit has estimated the pond surface elevation to be 568.9'. Please refer to "Rock Embankment Typical" included in the plans.

Measurement and Payment

Class VI Select Material, Class B Rip Rap and Class 1 Rip Rap will be measured and paid for in tons. Select material will be measured by weighing material in trucks in accordance with

Article 106-7 of the Standard Specifications. The contract unit prices for Class VI Select Material, Class B Rip Rap and Class 1 Rip Rap will be full compensation for providing, hauling, handling, placing, compacting and maintaining select material.

Geotextile for Rock Embankments will be measured and paid for in square yards. Geotextiles will be measured along the finished top surface of the Class VI Select Material and extending downward along the existing and 1 foot onto the Class 1 Rip Rap. No additional payment will be made for overlapping geotextile. The contract unit price for Geotextile for Rock Embankments will be full compensation for supplying, transporting and installing geotextile and wire staples.

Payment will be made under:

Pay Item	Pay Unit
Rip Rap, Class 1	Ton
Rip Rap, Class B	Ton
Select Material, Class VI	Ton
Geotextile for Rock Embankments	Square Yard

BRIDGE APPROACH FILLS:

(10-19-10) (Rev. 1-17-12) 422 SP4 R02

Description

Bridge approach fills include bridge approach fills for sub regional tier bridges and reinforced bridge approach fills. Construct bridge approach fills in accordance with the contract and Standard Drawing No. 422.10 or 422.11 of the 2012 Roadway Standard Drawings. Define "geosynthetics" as geotextiles or geomembranes.

Materials

Refer to Division 10 of the 2012 Standard Specifications.

Item	Section
Anchor Pins	1056-2
Geotextiles	1056
Portland Cement Concrete	1000
Select Material	1016
Subsurface Drainage Materials	1044
Wire Staples	1060-8(D)

For bridge approach fills for sub regional tier bridges, provide Type 1 geotextile for filtration geotextiles. For reinforced bridge approach fills, provide Type 5 geotextile for geotextile reinforcement and Type 1 geotextile and No. 78M stone for drains. Use Class B concrete for concrete pads.

Use Class III or V select material for reinforced bridge approach fills and only Class V select material (standard size No. 78M stone) for bridge approach fills for sub regional tier bridges. Provide PVC pipes, fittings and outlet pipes for subsurface drainage materials. For drains and PVC pipes behind end bents, use pipes with perforations that meet AASHTO M 278.

Use PVC, HDPE or linear low density polyethylene (LLDPE) geomembranes for reinforced bridge approach fills. For PVC geomembranes, provide grade PVC30 geomembranes that meet ASTM D7176. For HDPE and LLDPE geomembranes, use geomembranes with a nominal thickness of at least 30 mils that meet Geosynthetic Research Institute Standard Specifications GM13 or GM17, respectively. Handle and store geomembranes in accordance with Article 1056-2 of the 2012 Standard Specifications. Provide material certifications for geomembranes in accordance with Article 1056-3 of the 2012 Standard Specifications.

Construction Methods

Excavate as necessary for bridge approach fills in accordance with the contract. Notify the Engineer when foundation excavation is complete. Do not place geomembranes or filtration geotextiles until excavation dimensions and foundation material are approved. Attach geomembranes and filtration geotextiles to end bent cap back and wing walls with adhesives, tapes or other approved methods. Glue or weld geomembrane seams to prevent leakage.

For reinforced bridge approach fills, place geotextile reinforcement within 3" of locations shown in Standard Drawing No. 422.10 of the 2012 Roadway Standard Drawings and in slight tension free of kinks, folds, wrinkles or creases. Install geotextile reinforcement with the orientation, dimensions and number of layers shown in Standard Drawing No. 422.10 of the 2012 Roadway Standard Drawings. Place first layer of geotextile reinforcement directly on geomembranes with no void or material in between. Install geotextile reinforcement with the machine direction (MD) parallel to the roadway centerline. The MD is the direction of the length or long dimension of the geotextile roll. Do not splice or overlap geotextile reinforcement in the MD so seams are perpendicular to the roadway centerline. Wrap geotextile reinforcement at end bent cap back and wing walls as shown in Standard Drawing No. 422.10 of the 2012 Roadway Standard Drawings and directed by the Engineer. Extend geotextile reinforcement at least 4 ft back behind end bent cap back and wing walls into select material.

Overlap adjacent geotextiles at least 18" with seams oriented parallel to the roadway centerline. Hold geotextiles in place with wire staples or anchor pins as needed. Contact the Engineer when existing or future obstructions such as foundations, pavements, pipes, inlets or utilities will interfere with geosynthetics.

For reinforced bridge approach fills, construct one foot square drains consisting of 4" diameter continuous perforated PVC pipes surrounded by No. 78M stone wrapped in Type 1 geotextiles. Install drains in accordance with Standard Drawing No. 422.10 of the 2012 Roadway Standard Drawings. For bridge approach fills for sub regional tier bridges, install 4" diameter continuous perforated PVC drain pipes in accordance with Standard Drawing No. 422.11 of the 2012 Roadway Standard Drawings.

Use solvent cement to connect PVC pipes so joints do not leak. Connect perforated pipes to outlet pipes just behind wing walls. Provide drain pipes and drains with positive drainage towards outlets. Place pipe sleeves in or under wing walls for outlet pipes so positive drainage is maintained. Use sleeves that can withstand wing wall loads.

Place select material in 8" to 10" thick lifts. Use only hand operated compaction equipment to compact select material for bridge approach fills. Compact Class III select material in accordance with Subarticle 235-3(C) of the 2012 Standard Specifications. Compact No. 78M stone with a vibratory compactor to the satisfaction of the Engineer. Do not displace or damage geosynthetics, drain pipes or drains when placing and compacting select material. End dumping directly on geosynthetics is not permitted. Do not operate heavy equipment on geosynthetics, drain pipes or drains until they are covered with at least 8" of select material. Replace any damaged geosynthetics, drain pipes or drains to the satisfaction of the Engineer.

Cover open ends of outlet pipes with rodent screens as shown in Standard Drawing No. 815.03 of the 2012 Roadway Standard Drawings. Connect ends of outlet pipes to concrete pads or existing drainage structures as directed by the Engineer. Construct concrete pads with an Ordinary surface finish that meets Subarticle 825-6(B) of the 2012 Standard Specifications.

Measurement and Payment

Reinforced Bridge Approach Fill, Station

Bridge Approach Fill - Sub Regional Tier, Station

Pay Item	Pay Unit
Payment will be made under:	
price. The contract lump sum price for <i>Bria</i> will be full compensation for labor, tool excavating, backfilling, hauling and removing connecting outlet pipes to existing drainage	Station will be paid at the contract lump sumdge Approach Fill - Sub Regional Tier, Station ls, equipment and bridge approach fill materials, ng excavated materials, compacting No. 78M stone, estructures and supplying No. 78M stone, filtration butlet components and any incidentals necessary to be regional tier bridge.
contract lump sum price for <i>Reinforced</i> compensation for labor, tools, equipment excavating, backfilling, hauling and removing connecting outlet pipes to existing drain	will be paid at the contract lump sum price. The Bridge Approach Fill, Station will be full and reinforced bridge approach fill materials ing excavated materials, compacting select material inage structures and supplying select materials at the components and any incidentals necessary to at each bridge.

Lump Sum

Lump Sum

ASPHALT PAVEMENTS - SUPERPAVE:

19-12)

SP6 R01

Revise the 2012 Standard Specifications as follows:

Page 6-3, Article 605-7 APPLICATION RATES AND TEMPERATURES, replace this article, including Table 601-1, with the following:

Apply tack coat uniformly across the existing surface at target application rates shown in Table 605-1.

TABLE 605-1	*******
APPLICATION RATES FOR TACK COA	T

E-istina Suufaaa	Target Rate (gal/sy)
Existing Surface	Emulsified Asphalt
New Asphalt	0.04 ± 0.01
Oxidized or Milled Asphalt	0.06 ± 0.01
Concrete	0.08 ± 0.01

Apply tack coat at a temperature within the ranges shown in Table 605-2. Tack coat shall not be overheated during storage, transport or at application.

TABLE 605-2 APPLICATION TEMPERATURE FOR TACK COAT

Asphalt Material	Temperature Range
Asphalt Binder, Grade PG 64-22	350 - 400°F
Emulsified Asphalt, Grade RS-1H	130 - 160°F
Emulsified Asphalt, Grade CRS-1	130 - 160°F
Emulsified Asphalt, Grade CRS-1H	130 - 160°F
Emulsified Asphalt, Grade HFMS-1	130 - 160°F
Emulsified Asphalt, Grade CRS-2	130 - 160°F

Page 6-18, Article 610-1 DESCRIPTION, lines 40-41, delete the last sentence of the last paragraph.

Page 6-19, Subarticle 610-3(A) Mix Design-General, line 5, add the following as the first paragraph:

Warm mix asphalt (WMA) is allowed for use at the Contractor's option in accordance with the NCDOT Approved Products List for WMA Technologies available at: http://www.ncdot.org/doh/operations/materials/pdf/wma.pdf.

ASPHALT BINDER CONTENT OF ASPHALT PLANT MIXES:

(11-21-00) (Rev. 7-17-12)

609

SP6 R15

The approximate asphalt binder content of the asphalt concrete plant mixtures used on this project will be as follows:

Asphalt Concrete Base Course	Type B 25.0	4.4%
Asphalt Concrete Intermediate Course	Type I 19.0	4.8%
Asphalt Concrete Surface Course	Type S 4.75A	: 6.8%
Asphalt Concrete Surface Course	Type SA-1	6.8%
Asphalt Concrete Surface Course	Type SF 9.5A	6.7%
Asphalt Concrete Surface Course	Type S 9.5	6.0%
Asphalt Concrete Surface Course	Type S 12.5	5.6%

The actual asphalt binder content will be established during construction by the Engineer within the limits established in the 2012 Standard Specifications.

ASPHALT PLANT MIXTURES:

 $\overline{(7-1-95)}$

609

SP6 R20

Place asphalt concrete base course material in trench sections with asphalt pavement spreaders made for the purpose or with other equipment approved by the Engineer.

PRICE ADJUSTMENT - ASPHALT BINDER FOR PLANT MIX:

(11-21-00

620

SP6 R25

Price adjustments for asphalt binder for plant mix will be made in accordance with Section 620 of the 2012 Standard Specifications.

The base price index for asphalt binder for plant mix is \$614.33 per ton.

This base price index represents an average of F.O.B. selling prices of asphalt binder at supplier's terminals on July 1, 2012

FINAL SURFACE TESTING NOT REQUIRED:

(5-18-04) (Rev. 5-15-12)

610

SP6 R45

Final surface testing is not required on this project.

GUARDRAIL ANCHOR UNITS, TYPE 350:

(4-20-04) (Rev. 8-16-11)

862

SP8 R65

Description

Furnish and install guardrail anchor units in accordance with the details in the plans, the applicable requirements of Section 862 of the 2012 Standard Specifications, and at locations shown in the plans.

Materials

The Contractor may at his option, furnish any one of the guardrail anchor units or approved equal.

Guardrail anchor unit (ET-Plus) as manufactured by:

Trinity Industries, Inc. 2525 N. Stemmons Freeway Dallas, Texas 75207 Telephone: 800-644-7976

The guardrail anchor unit (SKT 350) as manufactured by:

Road Systems, Inc. 3616 Old Howard County Airport Big Spring, Texas 79720 Telephone: 915-263-2435

Prior to installation the Contractor shall submit to the Engineer:

- (A) FHWA acceptance letter for each guardrail anchor unit certifying it meets the requirements of NCHRP Report 350, Test Level 3, in accordance with Article 106-2 of the 2012 Standard Specifications.
- (B) Certified working drawings and assembling instructions from the manufacturer for each guardrail anchor unit in accordance with Article 105-2 of the 2012 Standard Specifications.

No modifications shall be made to the guardrail anchor unit without the express written permission from the manufacturer. Perform installation in accordance with the details in the plans, and details and assembling instructions furnished by the manufacturer.

Construction Methods

Guardrail end delineation is required on all approach and trailing end sections for both temporary and permanent installations. Guardrail end delineation consists of yellow reflective sheeting applied to the entire end section of the guardrail in accordance with Article 1088-3 of the 2012 Standard Specifications and is incidental to the cost of the guardrail anchor unit.

Measurement and Payment

Measurement and payment will be made in accordance with Article 862-6 of the 2012 Standard Specifications.

Payment will be made under:

Pay Item
Guardrail Anchor Units, Type 350

Pay Unit Each

PREFORMED SCOUR HOLE WITH LEVEL SPREADER APRON:

(10-15-02) (Rev. 10-20-09)

410

SP8 R105

Description

Construct and maintain preformed scour holes with spreader aprons at the locations shown on the plans and in accordance with the details in the plans. Work includes excavation, shaping and maintaining the hole and apron, furnishing and placing filter fabric, rip rap (class as specified in the plans) and permanent soil reinforcement matting.

Materials

Item	Section
Plain Rip Rap	1042
Filter Fabric	1056

The permanent soil reinforcement matting shall be permanent erosion control reinforcement mat and shall be constructed of synthetic or a combination of coconut and synthetic fibers evenly distributed throughout the mat between a bottom UV stabilized netting and a heavy duty UV stabilized top net. The matting shall be stitched together with UV stabilized polypropylene thread to form a permanent three dimensional structure. The mat shall have the following minimum physical properties:

Property	Test Method	Value Unit
Light Penetration	ASTM D6567	9 %
Thickness	ASTM D6525	0.40 in
Mass Per Unit Area	ASTM D6566	0.55 lb/sy
Tensile Strength	ASTM D6818	385 lb/ft
Elongation (Maximum)	ASTM D6818	49 %
Resiliency	ASTM D1777	>70 %
UV Stability *	ASTM 4355	≥80 %
Porosity (Permanent Net)	ECTC Guidelines	≥85 %
Maximum Permissible Shear Stress (Vegetated)	Performance Bench Test	≥8.0 lb/ft²
Maximum Allowable Velocity (Vegetated)	Performance Bench Test	≥16.0 ft/s

^{*}ASTM D1682 Tensile Strength and % strength retention of material after 1,000 hours of exposure.

Submit a certification (Type 1, 2, or 3) from the manufacturer showing:

- (A) The chemical and physical properties of the mat used, and
- (B) Conformance of the mat with this specification.

Construction Methods

All areas to be protected with the mat shall be brought to final grade and seeded in accordance with Section 1660 of the 2012 Standard Specifications. The surface of the soil shall be smooth, firm, stable and free of rocks, clods, roots or other obstructions that would prevent the mat from lying in direct contact with the soil surface. Areas where the mat is to be placed will not need to be mulched.

Measurement and Payment

Preformed Scour Holes with Level Spreader Aprons will be measured and paid as the actual number incorporated into the completed and accepted work. Such price and payment will be full compensation for all work covered by this provision.

Payment will be made under:

Pay ItemPay UnitPreformed Scour Hole with Level Spreader ApronsEach

MATERIALS: (2-21-12) (Rev. 6-19-12)

1005, 1081, 1092

SP10 R01

Revise the 2012 Standard Specifications as follows:

Page 10-23, Table 1005-1, AGGREGATE GRADATION-COARSE AGGREGATE, replace with the following:

Light- weight	ABC (M)	ABC	9	14M	78M	67	6M	57M	57	5	467M	4	Std. Size#	
ı	ı	ı	•	ı		1		ı	1	ı	100	100	2"	-
	100	100	•	ı	ı	•	ı	100	100	100	95 - 100	90- 100	1 1/2"	
ı	75- 100	75- 97	ı		ı	100	100	95 -	95- 100	90- 100	ı	20- 55	1:	
•	•	•	•	ı	100	90 <u>-</u>	100		ı	20- 55	35 <u>-</u> 70	0-15	3/4"	· •
100	45- 79	55- 80	•		98- 100	1	20- 55	25- 45	25 - 60	0-10	•		1/2"	ercen
80-	•		100	100	75- 100	20- 55	0-20	•	ı	0-5	0-30	0-5	3/8"	tage o
5- 40	20 - 40	35 <u>-</u> 55	85- 100	35- 70	20- 45	0-10	0-8	0-10	0-10	ı	0-5	. 1	#	Percentage of Total by Weight Passing
0-20		ı	10 <u>-</u>	5-20	0-15	0-5	ſ	0-5	0-5	1	•	•	#	d by V
ı	0- 25	25- 45	J	ı	•	ı	ı			ı	•	. 1	#10	Veigh
0-10	•	ı	0-10	0-8	1	ı	•	ı	•	ı	ı	ı	#16	t Pass
ı	•	1 4 - 30	ı	, I	ı		1	ı	ı	ı	•	ı	#40	ing
0-2.5	0- 12 B	4- 12 ^B	A	>	>	A	. >	A .	>	>	>	A	#200	
AST	Maintenance Stabilization	Aggregate Base Course, Aggregate Stabilization	AST	Asphalt Plant Mix, AST, Weep Hole Drains, Str. Concrete	Asphalt Plant Mix, AST, Str. Conc, Weep Hole Drains	AST, Str. Concrete, Asphalt Plant Mix	AST	AST, Concrete Pavement	AST, Str. Concrete, Shoulder Drain, Sediment Control Stone	AST, Sediment Control Stone	Asphalt Plant Mix	Asphalt Plant Mix	Remarks	

Page 10-162, Subarticle 1081-1(A) Classifications, lines 4-7, delete the second and third sentences of the description for Type 3A.

Page 10-162, Subarticle 1081-1(B) Requirements, lines 26-30, replace the second paragraph with the following:

For epoxy resin systems used for embedding dowel bars, threaded rods, rebar, anchor bolts and other fixtures in hardened concrete, the manufacturer shall submit test results showing that the bonding system will obtain 125% of the specified required yield strength of the fixture. Furnish certification that, for the particular bolt grade, diameter and embedment depth required, the anchor system will not fail by adhesive failure and that there is no movement of the anchor bolt. For certification and anchorage, use 3,000 psi as the minimum Portland cement concrete compressive strength used in this test. Use adhesives that meet Section 1081.

List the properties of the adhesive on the container and include density, minimum and maximum temperature application, setting time, shelf life, pot life, shear strength and compressive strength.

Page 10-169, Subarticle 1081-3(G) Anchor Bolt Adhesives, delete this subarticle.

Page 10-204, Subarticle 1092-2(A) Performance and Test Requirements, replace

Table 1092-3 Minimum Coefficient of Retroreflection for NC Grade A with the following:

			TAB	LE 1(192-3			
MINIMU	M COEFFICI	ENT (OF RE	TRO	REFL	ECTI	ON FOR NC GI	RADE A
	(Ca	ndelas	Per L	ux Pe	r Squa	are M	eter)	
Observation	Entrance	ite	X	ua	75	و	Fluorescent	Fluorescent

Observation Angle, degrees	Entrance Angle, degrees	White	Yellow	Green	Red	Blue	Fluorescent Yellow Green	Fluorescent Yellow
0.2	-4.0	525	395	52	95	30	420	315
0.2	30.0	215	162	22	43	10	170	130
0.5	-4.0	310	230	31	56	18	245	185
0.5	30.0	135	100	14	27	6	110	81
1.0	-4.0	120	60	8	16	3.6	64	48
1.0	30.0	45	34	4.5	9	2	36	27

SELECT MATERIAL, CLASS III, TYPE 3:

1-17-12) 1016, 10

SP10 R05

Revise the 2012 Standard Specifications as follows:

Page 10-39, Article 1016-3, CLASS III, add the following after line 14:

Type 3 Select Material

Type 3 select material is a natural or manufactured fine aggregate material meeting the following gradation requirements and as described in Sections 1005 and 1006:

Percentage of Total by Weight Passing										
3/8"	#4	#8	#16	#30	#50	#100	#200			
100	95-100	65-100	35-95	15-75	5-35	0-25	0-8			

Page 10-39, Article 1016-3, CLASS III, line 15, replace "either type" with "Type 1, Type 2 or Type 3".

Page 10-62, Article 1044-1, line 36, delete the sentence and replace with the following:

Subdrain fine aggregate shall meet Class III select material, Type 1 or Type 3.

Page 10-63, Article 1044-2, line 2, delete the sentence and replace with the following:

Subdrain coarse aggregate shall meet Class V select material.