

Date: May 10, 2024

Memorandum to: Doug Wheatley, PE
Project Manager
HNTB North Carolina, P.C.

From: Abner F. Riggs, Jr. PE
Senior Geotechnical Engineer
Terracon Consultants

State Project: 44691.1.1 (R-5759)
County: Wilkes
Description: Widening of NC 115 (Statesville Road) from US 421 to 2nd Street

Subject: Geotechnical Report - Design and Construction Recommendations

Terracon Consultants has completed a subsurface investigation for this project and presents the following recommendations:

I. Slope and Embankment Stability

A. Slope Design

All permanent slopes should be constructed at a ratio of 2:1 (H:V) or flatter.

B. Undercut for Embankment Stability

Undercut for embankment stability is necessary where soft foundation soils are encountered which must be removed prior to the placement of embankment. These areas are shown with a double-hatch pattern on the cross sections and should be wasted. The total estimated volume of undercut for embankment stability is 1,200 cubic yards.

<u>Alignment</u>	<u>Stations (±)</u>
-L-	135+10 to 137+20
-Y4-	11+40 to 12+10

We recommend that an additional 500 cubic yards of undercut excavation for embankment stability be included in the contract as a contingency to be used at the discretion of the engineer.

C. Geotextile for Soil Stabilization

A quantity of 1,200 square yards of geotextile for soil stabilization should be included in the project contract to be used in conjunction with the undercut described in section I.B. An additional quantity of 500 square yards of geotextile for soil stabilization is recommended for inclusion in the contract as a contingency to be used at the discretion



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of the Engineer. Geotextile for soil stabilization shall follow NCDOT Standard Specifications, Section 270.

II. Subgrade Stability

A. Subsurface Drainage - Subsurface Drains

Subsurface drainage is necessary when groundwater is encountered within 6 feet of proposed subgrade. It is recommended that 2,600 linear feet of 6-inch Perforated Subdrain Pipe be included in the project contract in the following areas:

<u>Alignment</u>	<u>Station (±)</u>	<u>Offset</u>
-L-	99+00 to 103+00	LT/RT
-L-	154+75 to 163+75	LT/RT

We recommend an additional quantity of 1,000 linear feet of 6-inch Perforated Subdrain Pipe be included in the project contract as a contingency item to be used at the discretion of the Project Engineer. Construction of subsurface drains shall follow Standard Specifications, Section 815, "Subsurface Drainage" (Roadway Standard Drawing No. 815.02). The Hydraulics Engineer should determine the outfall and should extend the ditches to the outfall if there is insufficient outfall in the recommended areas.

B. Grade Point Undercut

We recommend 250 cubic yards of grade point undercut excavation be included in the contract as a contingency item to be used at the discretion of the Engineer.

C. Undercut for Subgrade Stability

Undercut for subgrade stability is recommended for the following areas that contain highly plastic clays, or soils having greater than 50 percent passing a #200 sieve within 3 feet of proposed subgrade. Soft alluvial soils or artificial fill soils may also be undercut. These areas are shown with a double-hatch pattern on the cross sections and should be wasted. Undercut should be to a depth of 3.0 feet below subgrade or to firm bearing suitable soils and should extend to 1.0 foot beyond curb and gutter or pavement structure. The estimated total volume of undercut is 750 cubic yards.

<u>Alignment</u>	<u>Stations (±)</u>
-Y6_REV-	15+00 to 17+70

We recommend a quantity of 500 cubic yards of undercut excavation be included in the contract as a contingency item, to be used in areas for undercut at the discretion of the engineer.

D. Aggregate Subgrade (Type I)

For Aggregate Subgrade, see the Section 505 of Standard Specifications.

Shallow undercut is recommended for the following areas that contain highly plastic clays with plastic indices (PI) of 26 or greater or soils having greater than 50 percent of material passing a #200 sieve within 3 feet of proposed subgrade. These areas are shown by a shaded symbol on the cross sections and should be wasted. Shallow undercut should be to a depth of 1.0 foot below subgrade. Backfill should extend to a depth of 1.0 foot below subgrade from the edge of existing pavement to 1.0 foot beyond curb and gutter, sidewalk, or pavement structure. The estimated total volume of shallow undercut is 5,000 cubic yards.

<u>Alignment</u>	<u>Stations (±)</u>
-L-	9+85 to 15+25
-L-	18+25 to 20+48
-L-	22+75 to 25+25
-L-	27+25 to 29+75
-L-	31+25 to 33+75
-L-	40+25 to 44+25
-L-	57+25 to 59+75
-L-	61+75 to 63+25
-L-	96+25 to 102+75
-L-	106+25 to 108+25
-L-	124+75 to 126+25
-L-	156+25 to 162+25
-L-	163+75 to 170+75
-Y1-	10+65 to 13+36
-Y10-	10+25 to 13+15
-Y12-	10+35 to 12+50
-LPB-	10+90 to 11+65
-RPB-	15+20 to 16+15
-LPD-	11+25 to 14+14
-RPD-	11+50 to 15+11
-C1-	10+35 to 12+15
-C1-	12+40 to 13+15
-C1-	13+90 to 14+60
-C2-	10+00 to 15+50
-DRW1-	11+15 to 12+25

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An additional quantity of 500 cubic yards of shallow undercut is recommended for inclusion in the contract as a contingency item, to be used at the discretion of the engineer.

Geotextile for Subgrade Stabilization

A quantity of 17,350 square yards of geotextile for subgrade stabilization should be included in the project contract. An additional quantity of 2,000 square yards of geotextile for soil stabilization is recommended for inclusion in the contract as a contingency item, to be used at the discretion of the engineer.

Class IV Subgrade Stabilization

We recommend a quantity of 11,250 tons of class IV subgrade stabilization be included in the contract for backfilling the shallow undercut. We recommend an additional quantity of 1,000 tons of class IV subgrade stabilization for inclusion in the contract as a contingency item, to be used at the discretion of the engineer.

E. Geotextile for Soil Stabilization

A quantity of 700 square yards of geotextile for soil stabilization is recommended for inclusion in the project contract as a contingency item in Section II.C to be used at the discretion of the engineer.

III. Borrow Specifications

A. Borrow Criteria

Common borrow for embankment construction to subgrade shall meet Piedmont and Western area criteria as described in Section 1018-2(A) of the NCDOT Standard Specifications.

B. Shrinkage Factor

A shrinkage factor of 15 percent is recommended for calculation of earthwork quantities on this project.

A rock swell factor of 30 percent is recommended for calculation of earthwork quantities on this project.

C. Select Granular Material

Select granular material used for backfilling in embankment construction and fill over geotextile for embankment stabilization shall meet the criteria outlined in Standard Specifications, Article 1016-3 Class II or III. The backfill material should be placed to a height of three (3) feet above the geotextile for embankment stabilization, unless shown otherwise in the plans.

We recommend a quantity of 1,200 cubic yards of select granular material be included in the contract for backfilling the undercut described in section I.B. We recommend a quantity of 500 cubic yards of select granular material to be included in the project as a contingency item in section I.B and II.C, to be used at the discretion of the engineer. Follow Standard Specifications, Section 265, "Select Granular Material".

IV. Miscellaneous

A. Reduction of Unclassified Excavation – Clearing and Grubbing

A loss of 8,500 cubic yards of unclassified excavation is estimated on the project due to clearing and grubbing of cut sections.

B. Reduction of Unclassified Excavation - Acceptable

The soils derived primarily from cuts along the alignments are unsuitable for use as borrow within the top 3 feet of embankments. The following areas of excavation contain clay with plastic indices (PI) greater than 25 and less than or equal to 35.

<u>Alignment</u>	<u>Stations (±)</u>
-L-	9+85 to 15+25
-L-	18+25 to 20+48
-L-	22+75 to 25+25
-L-	27+25 to 29+75
-L-	31+25 to 33+75
-L-	40+25 to 44+25
-L-	57+25 to 63+25
-L-	65+25 to 67+75
-L-	96+25 to 98+75
-L-	100+25 to 102+75
-L-	105+25 to 108+25
-L-	117+25 to 120+25
-L-	121+75 to 123+25
-L-	124+75 to 125+25
-L-	127+25 to 129+25
-L-	156+25 to 158+75
-L-	163+75 to 170+75
-Y1-	10+65 to 13+36
-Y6_REV-	15+00 to 18+50
-Y10-	10+25 to 13+15
-Y11-	12+15 to 14+15
-Y12-	10+35 to 12+50
-LPB-	10+90 to 11+65

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<u>Alignment</u>	<u>Stations (±)</u>
-RPB-	15+20 to 16+15
-LPD-	11+25 to 14+14
-RPD-	11+50 to 12+35
-RPD-	13+60 to 14+15
-C1-	11+15 to 12+15
-C1-	12+65 to 12+85
-C2-	10+00 to 11+85
-C2-	15+15 to 15+50
-DRW1-	11+35 to 12+25
-DRW4_REV-	10+00 to 11+84

These soils are shown by the asterisk pattern on the cross sections and should only be used as fill where they will be separated from subgrade by 3 feet or more of suitable borrow material. We estimate a quantity of 22,100 cubic yards of excavated highly plastic acceptable unclassified excavation.

C. Rock Blasting

Crystalline rock is present above or within 6 feet of proposed grade at the following locations and may require blasting.

<u>Alignment</u>	<u>Stations (±)</u>
-L-	141+00 to 142+25
-L-	147+00 to 147+75
-Y14-	15+00 to 16+50

The crystalline rock encountered on this project is shown on cross-sections submitted with the project inventory report. For blasting, see the Section 220 of the NCDOT Standard Specifications. Any exposed final surficial rock slopes shall result in a cleaned stable slope face cleared of loose rock. This shall be considered incidental to the blasting.

D. Groundwater Wells

A groundwater well was found within proposed right-of-way limits at the following location:

<u>Alignment</u>	<u>Stations (±)</u>	<u>Offset (ft.)</u>
-L-	58+34	73 RT

The well should be sealed in accordance with the Standard Specifications, Section 205," Sealing Abandoned Wells".

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Sincerely,
Terracon Consultants, Inc.



Matthew L. Hartman, P.G.
Project Geologist

Abner F. Riggs, Jr., PE
Senior Geotechnical Engineer
N.C. Registration No. 14155

Attachments: Summary of Quantities

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED.

**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION****GEOTECHNICAL ENGINEERING UNIT****Summary of Quantities**

WBS Number: 44691.1.1

County: Wilkes

Project Engineer: A. Riggs, Jr.

TIP Number: R-5759

Field Office / PEF: Terracon

Project Geologist: M. Hartman

Description: Widening of NC 115 (Statesville Road) from US 421 to 2nd Street

Pay Item No.	Pay Item/ Quantity Adjustment	Spec Book Section No. or Special Provision (SP) Reference	Report Section	Alignment	Begin Station	End Station	Quantity	Units / %
0015000000-N	Sealing Abandoned Wells	205 - Sealing Abandoned Wells	IV. D	Varies	N/A	N/A	1	EA
Total Quantity of Sealing Abandoned Wells =							1	EA
0036000000-E	Undercut Excavation	225 - Roadway Excavation	I. B	-L-	135+10.00	137+20.00	1,085	CY
0036000000-E	Undercut Excavation	225 - Roadway Excavation	I. B	Contingency	N/A	N/A	500	CY
0036000000-E	Undercut Excavation	225 - Roadway Excavation	I. B	-Y4-	11+40.00	12+10.00	115	CY
0036000000-E	Undercut Excavation	225 - Roadway Excavation	II. B	Contingency	N/A	N/A	250	CY
0036000000-E	Undercut Excavation	225 - Roadway Excavation	II. C	-Y6_REV-	15+00.00	17+70.00	750	CY
0036000000-E	Undercut Excavation	225 - Roadway Excavation	II. C	Contingency	N/A	N/A	500	CY
Total Quantity of Undercut Excavation =							3,200	CY
0195000000-E	Select Granular Material	265 - Select Granular Material	III. C	-L-	135+10.00	137+20.00	1,085	CY
0195000000-E	Select Granular Material	265 - Select Granular Material	III. C	-Y6_REV-	15+00.00	17+70.00	750	CY
0195000000-E	Select Granular Material	265 - Select Granular Material	III. C	Contingency	N/A	N/A	500	CY
0195000000-E	Select Granular Material	265 - Select Granular Material	III. C	-Y4-	11+40.00	12+10.00	115	CY
Total Quantity of Select Granular Material =							2,450	CY
0196000000-E	Geotextile for Soil Stabilization	270 - Geotextile for Soil Stabilization	I. C	-L-	135+10.00	137+20.00	850	SY
0196000000-E	Geotextile for Soil Stabilization	270 - Geotextile for Soil Stabilization	I. C	Contingency	N/A	N/A	500	SY
0196000000-E	Geotextile for Soil Stabilization	270 - Geotextile for Soil Stabilization	I. C	-Y4-	11+40.00	12+10.00	350	SY
0196000000-E	Geotextile for Soil Stabilization	270 - Geotextile for Soil Stabilization	II. E	Contingency	N/A	N/A	700	SY
Total Quantity of Geotextile for Soil Stabilization =							2,400	SY
1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	II. D	-L-	09+85.00	15+25.00	380	CY
1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	II. D	-L-	18+25.00	20+48.00	87	CY
1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	II. D	-L-	22+75.00	25+25.00	98	CY
1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	II. D	-L-	27+25.00	29+75.00	128	CY
1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	II. D	-L-	31+25.00	33+75.00	109	CY
1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	II. D	-L-	40+25.00	44+25.00	200	CY
1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	II. D	-L-	57+25.00	59+75.00	469	CY
1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	II. D	-L-	61+75.00	63+25.00	210	CY



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1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	II. D	-L-	96+25.00	102+75.00	908	CY
1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	II. D	-L-	106+25.00	108+25.00	263	CY
1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	II. D	-L-	124+75.00	126+25.00	55	CY
1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	II. D	-L-	156+25.00	162+25.00	367	CY
1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	II. D	-L-	163+75.00	170+75.00	322	CY
1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	II. D	-Y1-	10+65.00	13+36.00	315	CY
1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	II. D	-Y10-	10+25.00	13+15.00	91	CY
1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	II. D	-Y12-	10+35.00	12+50.00	147	CY
1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	II. D	-LPB-	10+90.00	11+65.00	15	CY
1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	II. D	-RPB-	15+20.00	16+15.00	30	CY
1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	II. D	-LPD-	11+25.00	14+14.00	112	CY
1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	II. D	-RPD-	11+50.00	15+11.06	100	CY
1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	II. D	-C1-	10+35.00	12+15.00	128	CY
1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	II. D	-C1-	12+40.00	13+15.00	18	CY
1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	II. D	-C1-	13+90.00	14+60.00	21	CY
1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	II. D	-C2-	10+00.00	15+49.75	350	CY
1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	II. D	-DRW1-	11+15.00	12+25.00	77	CY
1099500000-E	Shallow Undercut	505 - Aggregate Subgrade	II. D	Contingency	N/A	N/A	500	CY
Total Quantity of Shallow Undercut =							5,500	CY
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-L-	09+85.00	15+25.00	770	TON
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-L-	18+25.00	20+48.00	176	TON
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-L-	22+75.00	25+25.00	215	TON
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-L-	27+25.00	29+75.00	306	TON
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-L-	31+25.00	33+75.00	343	TON
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-L-	40+25.00	44+25.00	725	TON
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-L-	57+25.00	59+75.00	1,028	TON
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-L-	61+75.00	63+25.00	468	TON



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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County: Wilkes
 Field Office / PEF: Terracon

Project Engineer: A. Riggs, Jr.
 Project Geologist: M. Hartman

Pay Item No.	Pay Item/ Quantity Adjustment	Spec Book Section No. or Special Provision (SP) Reference	Report Section	Alignment	Begin Station	End Station	Quantity	Units / %
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-L-	96+25.00	102+75.00	1,937	TON
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-L-	106+25.00	108+25.00	422	TON
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-L-	124+75.00	126+25.00	440	TON
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-L-	156+25.00	162+25.00	685	TON
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-L-	163+75.00	170+75.00	625	TON
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-Y1-	10+65.00	13+36.00	604	TON
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-Y10-	10+25.00	13+15.00	215	TON
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-Y12-	10+35.00	12+50.00	271	TON
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-LPB-	10+90.00	11+65.00	25	TON
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-RPB-	15+20.00	16+15.00	57	TON
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-LPD-	11+25.00	14+14.00	209	TON
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-RPD-	11+50.00	15+11.06	191	TON
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-C1-	10+35.00	12+15.00	327	TON
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-C1-	12+40.00	13+15.00	73	TON
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-C1-	13+90.00	14+60.00	104	TON
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-C2-	10+00.00	15+49.75	788	TON
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-DRW1-	11+15.00	12+25.00	246	TON
1099700000-E	Class IV Subgrade Stabilization	505 - Aggregate Subgrade	II. D	Contingency	N/A	N/A	1,000	TON
Total Quantity of Class IV Subgrade Stabilization =							12,250	TON
1112000000-E	Geotextile for Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-L-	09+85.00	15+25.00	1,185	SY
1112000000-E	Geotextile for Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-L-	18+25.00	20+48.00	272	SY
1112000000-E	Geotextile for Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-L-	22+75.00	25+25.00	332	SY
1112000000-E	Geotextile for Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-L-	27+25.00	29+75.00	473	SY

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1112000000-E	Geotextile for Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-L-	31+25.00	33+75.00	530	SY
1112000000-E	Geotextile for Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-L-	40+25.00	44+25.00	1,122	SY
1112000000-E	Geotextile for Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-L-	57+25.00	59+75.00	1,587	SY
1112000000-E	Geotextile for Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-L-	61+75.00	63+25.00	722	SY
1112000000-E	Geotextile for Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-L-	96+25.00	102+75.00	2,975	SY
1112000000-E	Geotextile for Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-L-	106+25.00	108+25.00	651	SY
1112000000-E	Geotextile for Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-L-	124+75.00	126+25.00	679	SY
1112000000-E	Geotextile for Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-L-	156+25.00	162+25.00	1,057	SY
1112000000-E	Geotextile for Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-L-	163+75.00	170+75.00	964	SY
1112000000-E	Geotextile for Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-Y1-	10+65.00	13+36.00	933	SY
1112000000-E	Geotextile for Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-Y10-	10+25.00	13+15.00	331	SY
1112000000-E	Geotextile for Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-Y12-	10+35.00	12+50.00	418	SY
1112000000-E	Geotextile for Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-LPB-	10+90.00	11+65.00	39	SY

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1112000000-E	Geotextile for Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-RPB-	15+20.00	16+15.00	89	SY
1112000000-E	Geotextile for Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-LPD-	11+25.00	14+14.00	323	SY
1112000000-E	Geotextile for Subgrade Stabilization	505 - Aggregate Subgrade	II. D	-RPD-	11+50.00	15+11.06	295	SY
1112000000-E	Geotextile for Subgrade	505 - Aggregate Subgrade	II. D	-C1-	10+35.00	12+15.00	505	SY
1112000000-E	Geotextile for Subgrade	505 - Aggregate Subgrade	II. D	-C1-	12+40.00	13+15.00	112	SY
1112000000-E	Geotextile for Subgrade	505 - Aggregate Subgrade	II. D	-C1-	13+90.00	14+60.00	161	SY
1112000000-E	Geotextile for Subgrade	505 - Aggregate Subgrade	II. D	-C2-	10+00.00	15+49.75	1,215	SY
1112000000-E	Geotextile for Subgrade	505 - Aggregate Subgrade	II. D	-DRW1-	11+15.00	12+25.00	380	SY
1112000000-E	Geotextile for Subgrade	505 - Aggregate Subgrade	II. D	Contingency	N/A	N/A	2,000	SY
Total Quantity of Geotextile for Subgrade Stabilization =							19,350	SY
2044000000-E	6" Perforated Subdrain Pipe	815 - Subsurface Drainage	II. A	-L-	99+00.00	103+00.00	800	LF
2044000000-E	6" Perforated Subdrain Pipe	815 - Subsurface Drainage	II. A	-L-	154+75.00	163+75.00	1,800	LF
2044000000-E	6" Perforated Subdrain Pipe	815 - Subsurface Drainage	II. A	Contingency	N/A	N/A	1,000	LF
Total Quantity of 6" Perforated Subdrain Pipe =							3,600	LF
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-L-	22+75.00	25+25.00	255	CY
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-L-	31+25.00	33+75.00	15	CY

**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION****GEOTECHNICAL ENGINEERING UNIT****Summary of Quantities**WBS Number: 44691.1.1County: WilkesProject Engineer: A. Riggs, Jr.TIP Number: R-5759Field Office / PEF: TerraconProject Geologist: M. HartmanDescription: Widening of NC 115 (Statesville Road) from US 421 to 2nd Street

Pay Item No.	Pay Item/ Quantity Adjustment	Spec Book Section No. or Special Provision (SP) Reference	Report Section	Alignment	Begin Station	End Station	Quantity	Units / %
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-L-	31+25.00	33+75.00	4	CY
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-L-	40+25.00	44+25.00	394	CY
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-L-	57+25.00	63+25.00	7,328	CY
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-L-	65+25.00	67+75.00	323	CY
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-L-	96+25.00	98+75.00	272	CY
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-L-	100+25.00	102+75.00	7	CY



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING UNIT

Summary of Quantities

WBS Number: 44691.1.1

County: Wilkes

Project Engineer: A. Riggs, Jr.

TIP Number: R-5759

Field Office / PEF: Terracon

Project Geologist: M. Hartman

Description: Widening of NC 115 (Statesville Road) from US 421 to 2nd Street

Pay Item No.	Pay Item/ Quantity Adjustment	Spec Book Section No. or Special Provision (SP) Reference	Report Section	Alignment	Begin Station	End Station	Quantity	Units / %
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-L-	105+25.00	108+25.00	277	CY
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-L-	117+25.00	120+25.00	1,583	CY
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-L-	121+75.00	123+25.00	1,574	CY
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-L-	124+75.00	125+25.00	6	CY
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-L-	127+25.00	129+25.00	1,480	CY
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-L-	156+25.00	158+75.00	46	CY



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL ENGINEERING UNIT

Summary of Quantities

WBS Number: 44691.1.1

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TIP Number: R-5759

Field Office / PEF: Terracon

Project Geologist: M. Hartman

Description: Widening of NC 115 (Statesville Road) from US 421 to 2nd Street

Pay Item No.	Pay Item/ Quantity Adjustment	Spec Book Section No. or Special Provision (SP) Reference	Report Section	Alignment	Begin Station	End Station	Quantity	Units / %
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-L-	163+75.00	170+75.00	103	CY
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-Y1-	10+65.00	13+36.00	229	CY
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-Y6_REV-	15+00	18+50	2,860	CY
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-Y10-	10+25.00	13+15.00	137	CY
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-Y11-	12+15.00	14+15.00	1,365	CY
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-LPB-	10+90	11+65.00	18	CY



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GEOTECHNICAL ENGINEERING UNIT

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TIP Number: R-5759

Field Office / PEF: Terracon

Project Geologist: M. Hartman

Description: Widening of NC 115 (Statesville Road) from US 421 to 2nd Street

Pay Item No.	Pay Item/ Quantity Adjustment	Spec Book Section No. or Special Provision (SP) Reference	Report Section	Alignment	Begin Station	End Station	Quantity	Units / %
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-RPB-	15+20.00	16+15.00	14	CY
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-LPD-	11+25.00	14+14.00	91	CY
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-RPD-	11+50	12+35.00	4	CY
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-RPD-	13+60.00	14+15.00	50	CY
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-C1-	11+15.00	12+15.00	306	CY
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-C1-	12+65.00	12+85.00	11	CY

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Pay Item No.	Pay Item/ Quantity Adjustment	Spec Book Section No. or Special Provision (SP) Reference	Report Section	Alignment	Begin Station	End Station	Quantity	Units / %
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-C2-	10+00.00	11+85.00	208	CY
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-C2-	15+15.00	15+49.75	116	CY
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-DRW1-	11+35.00	12+25.00	8	CY
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-DRW4_REV-	10+00.00	11+84.42	1,655	CY
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-L-	09+85.00	15+25.00	978	CY
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-L-	18+25.00	20+48.00	47	CY



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING UNIT

Summary of Quantities

WBS Number: 44691.1.1

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TIP Number: R-5759

Field Office / PEF: Terracon

Project Geologist: M. Hartman

Description: Widening of NC 115 (Statesville Road) from US 421 to 2nd Street

Pay Item No.	Pay Item/ Quantity Adjustment	Spec Book Section No. or Special Provision (SP) Reference	Report Section	Alignment	Begin Station	End Station	Quantity	Units / %
N/A	Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill	225 - Roadway Excavation	IV. B	-Y12-	10+35.00	12+50.00	336	CY
Total Quantity of Unclassified Excavation - Acceptable, but not to be used in top 3 ft of embankment or backfill =							22,100	CY

These Items Only Impact Earthwork Totals								
N/A	Loss Due to Clearing & Grubbing	200 - Clearing and Grubbing	IV. A	N/A	N/A	N/A	8,500	CY