

CALCULATION OF QUANTITIES

PROJECT TIP NUMBER: I-5972
CONSTRUCTION WBS NUMBER: 44989.1.1
COUNTY: JOHNSTON
FEDERAL AID NUMBER: NHP-0095(045)

TOTAL LENGTH [USE EXACT THREE (3) FIGURES BEYOND DECIMAL]

STA.	<u> 21+60.000 </u>	TO STA.	<u> 56+50.000 </u>	=	<u> 3490.000 </u>	LIN. FT.
STA.	<u> </u>	TO STA.	<u> </u>	=	<u> </u>	LIN. FT.
STA.	<u> </u>	TO STA.	<u> </u>	=	<u> </u>	LIN. FT.
STA.	<u> </u>	TO STA.	<u> </u>	=	<u> </u>	LIN. FT.
STA.	<u> </u>	TO STA.	<u> </u>	=	<u> </u>	LIN. FT.
STA.	<u> </u>	TO STA.	<u> </u>	=	<u> </u>	LIN. FT.
STA.	<u> </u>	TO STA.	<u> </u>	=	<u> </u>	LIN. FT.
STA.	<u> </u>	TO STA.	<u> </u>	=	<u> </u>	LIN. FT.

TOTAL LENGTH * = 3,490.000 **LIN. FT. / 5,280 =** 0.661 **MILES**

STRUCTURE LENGTHS

STA.	<u> 35+83.000 </u>	TO STA.	<u> 38+04.000 </u>	=	<u> 221.000 </u>	LIN. FT.
STA.	<u> </u>	TO STA.	<u> </u>	=	<u> </u>	LIN. FT.
STA.	<u> </u>	TO STA.	<u> </u>	=	<u> </u>	LIN. FT.
STA.	<u> </u>	TO STA.	<u> </u>	=	<u> </u>	LIN. FT.
STA.	<u> </u>	TO STA.	<u> </u>	=	<u> </u>	LIN. FT.

LENGTH OF STRUCTURES * = 221.000 **LIN. FT. / 5,280 =** 0.042 **MILES**

ROADWAY LENGTH (LESS STRUCTURES) = 0.619 **MILES**

NOTE: USED **LANE FOR LENGTH**

*** LENGTH SHOWN TO THREE (3) DECIMAL PLACES USING NORMAL ROUNDING.**

Computed by: Erin Seals
(Please Print Name)

Checked by: Andrew Hefler
(Please Print Name)

PROJECT NO.: I-5972
 COMPUTED BY: E. SEALS 7/5/23
 CHECKED BY: ash 7/7/23

SHEET 1 OF 1

SECTION: 200

CLEARING AND GRUBBING

* Calculate Acreage for Tree Areas Only

LINE	STATION	STATION	LOCATION	AREA FROM CADD OR LENGTH	WIDTH	SQUARE FEET
-Y1-	44+28	45+36	LT	2,475.93		2,475.93
	45+12	45+36	LT	175.87		175.87
	45+53	45+74	LT	106.38		106.38
	46+71	47+45	LT	2,206.66		2,206.66
	47+43	48+50	LT	1,822.20		1,822.20
	49+54	50+21	LT	1,122.58		1,122.58
	29+15	29+60	RT	519.05		519.05
	46+79	47+62	RT	3,929.95		3,929.95
-RPA-	10+52	19+36	LT	22,840.24		22,840.24
-RPB-	12+44	13+05	RT	783.11		783.11
	13+34	15+33	RT	1,006.31		1,006.31
	15+41	15+94	RT	178.46		178.46
	16+21	21+33	RT	9,540.68		9,540.68
-RPC-	15+58	18+52	LT	6,677.84		6,677.84
-Y2-	16+86	21+79	CL	35,272.27		35,272.27
-L-	28+00	44+00	LT	37,561.61		37,561.61
INTERCHANGE		A		87,806.71		87,806.71
		B		135,690.39		135,690.39
		C		138,469.26		138,469.26
		D		208,460.52		208,460.52
Total Sq. Feet =					Total Sq. Feet	696,646.02
43560 Sq. Feet/ACRE					Acres*	15.99
					SAY	16.00

PROJECT NO.: I-5972
COMPUTED BY: EBS 7/5/23
CHECKED BY: ash 7/7/23

SHEET 1 OF 1

SECTION: 200 OR 226

SUPPLEMENTARY CLEARING AND GRUBBING

CLEARING AND GRUBBING	=	SUPPLEMENTARY CLEARING AND GRUBBING
0 THRU 10 ACRES	=	1 ACRES
11 THRU 25 ACRES	=	2 ACRES
26 THRU 50 ACRES	=	3 ACRES
51 THRU 80 ACRES	=	4 ACRES
80 ACRES OR MORE	=	5 ACRES

ACRES SUPPLEMENTARY CLEARING AND GRUBBING

2 ACRES

PROJECT NO.: I-5972
COMPUTED BY: RK&K GEOTECHNICAL UNIT
CHECKED BY: EBS 7/10/23

SHEET 1 OF 1

SECTION: 225

UNDERCUT EXCAVATION

LINE	STATION	STATION	LOCATION	LENGTH	CUBIC YARDS
					500
					500
					2,800
					150
				TOTAL	3950.00

PROJECT NO.: I-5972
 COMPUTED BY: EBS 1/23/19
 CHECKED BY: MJA 2/12/19

SHEET 1 OF 1

SECTION: 240

DRAINAGE DITCH EXCAVATION

LINE	SIDE	STATION	STATION	VOLUME CY ³
-L-	LT	30+50	33+50	67.00
-L-	RT	35+00	40+79	393.00
-L-	LT	50+50	54+50	50.00
-L-	RT	54+00		101.00
-L-	LT	58+00	61+00	506.00
-L-	LT	61+00	63+50	479.00
-RPA-	RT	19+00	21+50	330.00
-RPA-	LT	20+75		55.00
-RPC-	LT	15+00	18+50	358.00
-RPC-	LT	18+50	21+50	253.00
-RPC-	LT	21+50	24+50	23.00
-RPC-	RT	17+10		22.00
-RPD-	RT	15+50		66.00
-RPD-	RT	27+50	29+50	30.00
-RPD-	RT	29+50		201.00
-Y1-	LT	28+00	31+50	2,626.00
-Y1-	RT	32+00	35+00	80.00
-Y1-	LT	32+50	36+00	631.00
-Y1-	LT	39+00	42+00	145.00
-Y1-	LT	44+50	46+50	184.00
-Y1-	RT	44+50	45+50	190.00
			TOTAL	6,790.00
			SAY	6790

PROJECT NO.: I-5972
 COMPUTED BY: EBS 7/7/23
 CHECKED BY: ash 7/8/23

SHEET 1 OF 1

SECTION: 250

REMOVAL OF EXISTING ASPHALT PAVEMENT

(FILL IN THE BLANK FOR 'ASPHALT' OR 'CONCRETE' PAVEMENT)

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	WIDTH	SQUARE YARDS
L LT	27+95	38+75	LT	6990.94		776.77
L LT	41+97	66+56	LT	25185.32		2798.37
L LT	69+79	77+11	LT	4137.38		459.71
L LT	54+37	58+96	RT	3879.15		431.02
L RT	33+39	40+79	RT	4909.14		545.46
L RT	44+20	68+83	RT	25017.00		2779.67
L RT	68+85	82+41	RT	7570.93		841.21
L RT	54+37	58+96	LT	4352.31		483.59
Y1	31+63	35+81	CL	12139.28		1348.81
Y1	38+07	40+00	CL	5479.19		608.80
RPA	10+00	19+56	CL	20844.13		2316.01
RPB	10+00	23+35	CL	35358.39		3928.71
RPC	10+00	18+65	CL	22001.10		2444.57
RPD	10+00	30+07	CL	40956.27		4550.70
	27+88	30+95	CL	6276.64		697.40
	30+66	31+09	CL	655.93		72.88
TOTAL						25,083.68
SAY						25,090

PROJECT NO.: I-5972
COMPUTED BY: RK&K, GEOTECHNICAL UNIT
CHECKED BY: ash 7/7/23

SHEET 1 OF 1

SECTION: 265

SELECT GRANULAR MATERIAL

LINE	STATION	STATION	LOCATION	LENGTH	CUBIC YARDS
PER LETTER FROM GEOTECH DATED NOVEMBER 8, 2021					
			Contingency		3,000.00
			Varies		11,300.00
			TOTAL		14300.00

PROJECT NO.: I-5972

SHEET 1 OF 1

COMPUTED BY: GEOTECHNICAL RECOMMENDATIONS, RK&K

CHECKED BY: ash 7/7/23

SECTION: 270

REVISED BY:

GEOTEXTILE FOR SOIL STABILIZATION

LINE	BEG. STA.	END STA.	LOCATION	LENGTH	AREA FROM CADD OR WIDTH	SQUARE YARDS
	Geotech					
			Contingency			2,000.00
			Varies I.C			11,300.00
			Varies II.C			33,900.00
			Contingency II.C			2,000.00
	Erosion Control					
						1,100.00
					GRAND TOTAL	50,300.00

TEMPORARY SHORING TABLE

SHORING I.D.	BEGIN/OFFSET		END/OFFSET		ESTIMATED AVERAGE HEIGHT (ft)	ESTIMATED MAXIMUM HEIGHT (ft)	SHORING QTY (ft ²)
1	-Y1- STA 35+23±	1.5' RT	-Y1- STA 36+15±	1.5' RT	11.3	20	1040
2	-Y1- STA 37+67±	1.5' RT	-Y1- STA 38+34±	1.5' RT	10.8	20	724
3	-Y1- STA 35+13±	3' RT	-Y1- STA 35+90±	2' RT	15	21	1155
4	-Y1- STA 37+92±	3.5' RT	-Y1- STA 38+39±	3.5' RT	12	21	564
5	-L- STA 56+02±	13.7' LT	-L- STA 56+77±	14.6' LT	6.1	6.1	458
6	-L- STA 56+02±	9.3' RT	-L- STA 56+77±	8.3' RT	6.1	6.1	458

Total: 4397

Say: 4400

PROJECT NO.: I-5972
 COMPUTED BY: EBS 1/24/19
 CHECKED BY: MJA 2/12/19

SHEET 1 OF 1

SECTION: 500

FINE GRADING

NOTE: THE WIDTH IS MEASURED FROM EOP +1 FOOT TO EOP +1 FOOT

LINE	STATION	STATION	LOCATION	LENGTH	AREA FROM CADD OR WIDTH	SQUARE FEET
-L-	27+94.89	43+06.30	LT		34,117.53	34,117.53
-L-	33+39.01	45+70.47	RT		28,399.65	28,399.65
-L-	43+06.30	52+31.26	LT		9,373.09	9,373.09
-L-	45+70.47	53+01.47	RT		8,278.23	8,278.23
-L-	52+31.26	60+18.58	LT		26,142.66	26,142.66
-L-	53+01.48	61+28.03	RT		27,670.43	27,670.43
-L-	60+18.58	65+07.38	LT		5,119.46	5,119.46
-L-	61+28.03	67+60.65	RT		6,802.10	6,802.10
-L-	65+07.41	77+11.40	LT		27,057.54	27,057.54
-L-	67+60.65	82+40.82	RT		33,242.51	33,242.51
-Y1-	21+69.44	36+27.17	LT		18,109.98	18,109.98
-Y1-	21+69.44	35+98.19	RT		35,732.03	35,732.03
-Y1-	38+16.08	44+40.02	LT		8,951.58	8,951.58
-Y1-	37+65.81	42+47.55	RT		15,646.69	15,646.69
-Y1-	44+04.19	56+54.83	RT		23,594.82	23,594.82
-Y1-	44+61.31	48+08.93	LT		2,610.66	2,610.66
-Y1-	49+32.33	56+55.53	LT		3,845.58	3,845.58
-Y2-	10+00.00	33+51.74	BT		94,724.55	94,724.55
-RPA-	13+73.63	22+00.00	BT		23,072.96	23,072.96
-RPB-	13+96.34	26+91.55	BT		53,967.20	53,967.20
-RPC-	14+36.37	25+14.28	BT		29,545.41	29,545.41
-RPD-	14+08.22	31+02.75	BT		51,911.51	51,911.51
-TEMPRPB-	10+70.00	17+62.41			19,290.34	19,290.34
-TEMPRPC-	11+95.36	22+42.28			26,105.54	26,105.54
					TOTAL IN FT ²	613,312.04
					TOTAL IN YD ²	68,145.78
					SAY	68,150.00

PROJECT NO.: I-5972
 COMPUTED BY: GEOTECHNICAL UNIT, RK&K
 CHECKED BY: ash 7/7/23
 REVISED BY:

SHEET 1 OF 1

SECTION: SP

#57 STONE

LINE	STATION	STATION	LOCATION	LENGTH OR AREA	HEIGHT	WIDTH	NO. PIERS	PIER VOLUME	TONS
			PER GEOTECH REPORT, NOVEMBER 8, 2021						
Y1	37+55.00	41+55.00	RT	N/A	N/A	N/A	N/A	N/A	1300.00
							TOTAL		1,300.00
							SAY		1,300

PROJECT NO.: I-5972
COMPUTED BY: RK&K Geotechnical Unit
CHECKED BY: EBS 7/10/23

SHEET 1 OF 1

SECTION: 505

SHALLOW UNDERCUT

LINE	STATION	STATION	LOCATION	LENGTH	CUBIC YARDS
Per NCDOT, Geotech.recommendations Letter Dated: November 8, 2021					
	Contingency				500.00
	Varies				9,800.00
				TOTAL	10300.00

PROJECT NO.: I-5972

SHEET 1 OF 1

COMPUTED BY: GEOTECHNICAL UNIT, RK&K

CHECKED BY: AG 3/6/2020 EBS 3/11/2020

SECTION: 505

CLASS IV SUBGRADE STABILIZATION

LINE	STATION	STATION	LOCATION	LENGTH	TON
PER GEOTECHNICAL REPORT, November 8, 2021					
	Contingency				1,000.00
	Varies				21,600.00
				TOTAL	22600.00

PROJECT NO.: I-5972
 COMPUTED BY: EBS 10/11/21
 CHECKED BY: ash 7/10/23

INCIDENTAL MILLING

LINE	STATION	STATION	WIDTH	CAD AREA SQ. FT.
L	27+95	28+45	28.00	1,400
L	33+39	33+89	28.00	1,400
L	76+61	77+11	28.00	1,400
L	81+91	82+41	28.00	1,400
Y1	21+70	22+20	57.00	317
Y1	56+00	56+50	36.00	200
Y3	13+50	14+00	20.00	111
			TOTAL:	6,228
			TOTAL (SY)	692
			SAY	700

PROJECT NO.: I-5972
 COMPUTED BY: EBS 10/11/21
 CHECKED BY: ash 7/10/23

SHEET 1 OF 1

SECTION: 607

MILLING ASPHALT PAVEMENT, 2.25" DEPTH

LINE	STATION	STATION	WIDTH	CAD AREA SQ. FT.
L	28+45	76+61	28.00	134,863
L	33+89	81+91	28.00	134,451
			TOTAL:	269,314
			TOTAL (SY)	29,924
			SAY	29,930

PROJECT NO.: I-5972

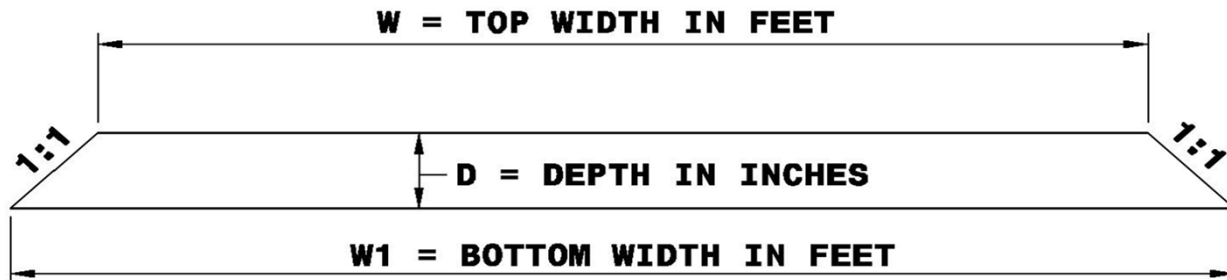
SHEET 1 OF 2

COMPUTED BY: EBS 10/13/2021

CHECKED BY:

SECTION: 610

ASPHALT CONCRETE BASE COURSE TYPE B25.0C



CALCULATE:

$$\text{LENGTH X } \frac{(W+W1)}{2} \times D \times 114\# / \text{YD}^2 / \text{IN} = \underline{\hspace{2cm}} \text{ TONS}$$

$$9 \text{ FT}^2 / \text{YD}^2 \times 2000\# / \text{TON}$$

NOTE: IF USING AREA, NO LENGTH OR W1 FIGURE IS NEEDED IN COMPUTATION.

LINE	BEG STA.	END STA.	LENGTH	AREA / W	W1	DEPTH	TONS
-L- (LT)	27+95	30+95	300.06	5264.195		10.5	350.07
-L- (LT)	30+95	38+75	779.94	22.646	23.521	10.5	1197.25
-L- (RT)	33+39	36+89	350.19	6387.61		10.5	424.78
-L- (RT)	36+89	40+79	389.82	22.646	23.521	10.5	598.40
-L- (LT)	38+75	43+04	429.05	13620.003		10.5	905.73
-L- (RT)	40+79	45+70	491.54	15103.225		10.5	1004.36
-L- (LT)	43+04	52+31	927.49	10.646	11.521	10.5	683.61
-L- (RT)	45+70	53+01	731.08	10.646	11.521	10.5	538.84
-L- (LT)	52+31	54+30	198.59	5301.187		10.5	352.53
-L- (RT)	53+01	55+00	198.52	5301.654		10.5	352.56
-L- (LT)	54+30	58+20	390.00	38.146	39.021	10.5	1000.67
-L- (RT)	55+00	59+00	400.00	38.146	39.021	10.5	1026.32
-L- (LT)	58+20	60+19	198.58	5303.23		10.5	352.66
-L- (RT)	59+00	60+99	198.53	5299.556		10.5	352.42
-L- (LT)	60+19	65+07	488.87	10.646	11.521	10.5	360.32
-L- (RT)	60+99	67+88	689.82	10.646	11.521	10.5	508.44
-L- (LT)	65+07	69+79	471.55	14250.799		10.5	947.68
-L- (RT)	67+88	71+61	372.47	11915.330		10.5	792.37
-L- (LT)	69+79	73+61	382.38	22.646	23.521	10.5	586.97
						SUBTOTAL	12335.98

PROJECT NO.: I-5972
 COMPUTED BY: EBS 10/13/2021
 CHECKED BY: ash 7/7/23

SHEET 2 OF 2

SECTION: 610

ASPHALT CONCRETE BASE COURSE TYPE B25.0C (CONTINUED)

NOTE: IF USING AREA, NO LENGTH OR W1 FIGURE IS NEEDED IN COMPUTATION.

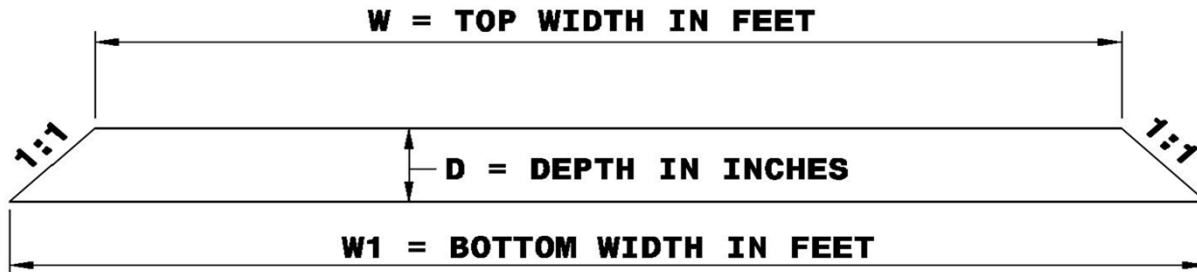
LINE	BEG STA.	END STA.	LENGTH	AREA / W	W1	DEPTH	TONS
-L- (RT)	71+61	79+41	780.03	22.646	23.521	10.5	1197.39
-L- (LT)	73+61	77+11	350.40	6156.803		10.5	409.43
-L- (RT)	79+41	82+41	299.79	5301.268		10.5	352.53
-RPA-	13+73	21+98	825.29	26392.12		4	668.60
-RPB-	13+90	27+09	1319.40	59695.61		4	1512.29
-RPC-	14+29	24+85	1055.20	33480.31		4	848.17
-RPD-	13+99	30+75	1676.09	58092.47		4	1471.68
-Y1- RT	21+70	29+61	791.00	8553.261		4	216.68
-Y1- RT	30+09	35+65	556.37	22807.3		4	577.78
-Y1- LT	30+49	36+27	578.43	6454.16		4	163.51
-Y1- RT	37+67	42+46	479.37	15564.13		4	394.29
-Y1- RT	44+04	56+55	1250.48	23400.49		4	592.81
-Y1- LT	38+17	44+30	612.66	7496.952		4	189.92
-Y1- LT	44+60	48+00	339.87	2594.722		4	65.73
-Y1- LT	49+32	56+55	723.08	3511.57		4	88.96
-Y2-	10+10	33+53	2342.34	91988.74		4	2330.38
-Y3-	23+31	23+92	61.00	997.3685		4	25.27
-TEMPRPB-	10+70	17+62	6+92	18879.14		4	478.27
-TEMPRPC-	10+00	22+42	12+42	25437.31		4	644.41
-Y1- WEDGE							5765.20
						TOTAL	30329.28
						SAY	30330.00

PROJECT NO.: I-5972
 COMPUTED BY: J. NIEWODOWSKI (01/22/2019)
 CHECKED BY:

SHEET 1 OF 2

SECTION: 610

ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C



CALCULATE:

$$\text{LENGTH} \times \frac{(W+W1)}{2} \times D \times 114\# / \text{YD}^2 / \text{IN} = \underline{\hspace{2cm}} \text{ TONS}$$

$$9 \text{ FT}^2 / \text{YD}^2 \times 2000\# / \text{TON}$$

NOTE: IF USING AREA, NO LENGTH OR W1 FIGURE IS NEEDED IN COMPUTATION.

LINE	BEG. STA.	END STA.	LENGTH	AREA / W	W1	DEPTH	TONS
-L- (LT)	27+95	30+95	300.1	5026.485		4	127.34
-L- (LT)	30+95	38+75	779.9	22.3125	22.646	4	444.16
-L- (RT)	33+39	36+89	350.2	6110.265		4	154.79
-L- (RT)	36+89	40+79	389.8	22.3125	22.646	4	221.99
-L- (LT)	38+75	43+04	429.1	13278.76		4	336.40
-L- (RT)	40+79	45+70	491.5	14397.96		4	364.75
-L- (LT)	43+04	52+31	927.5	10.3125	10.646	4	246.22
-L- (RT)	45+70	53+01	731.1	10.3125	10.646	4	194.08
-L- (LT)	52+31	54+30	198.6	5142.066		4	130.27
-L- (RT)	53+01	55+00	198.5	5141.825		4	130.26
-L- (LT)	54+30	58+20	390.0	37.8125	38.146	4	375.24
-L- (RT)	55+00	59+00	400.0	37.8125	38.146	4	384.85
-L- (LT)	58+20	60+19	198.6	5143.357		4	130.30
-L- (RT)	59+00	60+99	198.5	5139.729		4	130.21
-L- (LT)	60+19	65+07	488.9	10.3125	10.646	4	129.78
-L- (RT)	60+99	67+88	689.8	10.3125	10.646	4	183.13
-L- (LT)	65+07	69+79	471.6	9169.62		4	232.30
-L- (RT)	67+88	71+61	372.5	11618.64		4	294.34
-L- (LT)	69+79	73+61	382.4	22.3125	22.646	4	217.75
SUBTOTAL							4428.16

PROJECT NO.: I-5972
 COMPUTED BY: J. NIEWODOWSKI (01/22/2019)
 CHECKED BY:

SHEET 1 OF 2

SECTION: 610

ASPHALT CONCRETE INTERMEDIATE COURSE TYPE I19.0C (CONTINUED)

NOTE: IF USING AREA, NO LENGTH OR W1 FIGURE IS NEEDED IN COMPUTATION.

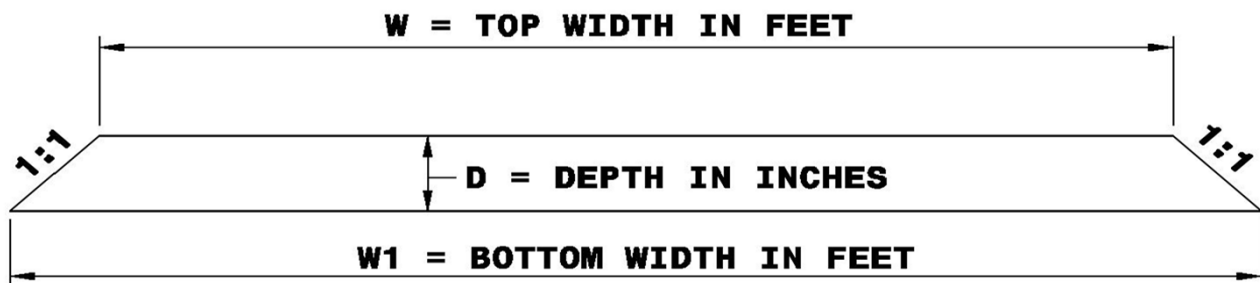
LINE	BEG. STA.	END STA.	LENGTH	AREA / W	W1	DEPTH	TONS
-L- (RT)	71+61	79+41	780.2	22.3125	22.646	4	444.31
-L- (LT)	73+61	77+11	350.0	5879.448		4	148.95
-L- (RT)	79+41	82+41	299.8	5063.621		4	128.28
-RPA-	13+73	21+98	825.29	26208.82		3	497.97
-RPB-	13+90	27+09	1319.40	59402.56		3	1128.65
-RPC-	14+29	24+85	1055.20	33245.94		3	631.67
-RPD-	13+99	30+75	1676.09	60381.29		3	1147.24
-Y1- RT	21+70	29+61	791.00	8377.572		4	212.23
-Y1- RT	30+09	35+65	556.37	22683.72		4	574.65
-Y1- LT	30+49	36+27	578.43	6325.684		4	160.25
-Y1- RT	37+67	42+46	479.37	15457.65		4	391.59
-Y1- RT	44+04	56+55	1250.48	23122.75		4	585.78
-Y1- LT	38+17	44+30	612.66	7360.874		4	186.48
-Y1- LT	44+60	48+00	339.87	2519.233		4	63.82
-Y1- LT	49+32	56+55	723.08	3350.966		4	84.89
-Y2-	10+10	33+59		92853.49		3	1764.22
-Y1- WEDGE							3269.60
						TOTAL	15848.74
						SAY	15850.00

PROJECT NO.: I-5872
 COMPUTED BY: EBS 1/25/19
 CHECKED BY:

SHEET 1 OF 1

SECTION: 610

ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C



CALCULATE:

$$\text{LENGTH} \times \frac{(W+W1)}{2} \times D \times 112\# / YD^2 / IN = \underline{\hspace{2cm}} \text{ TONS}$$

$$9 \text{ FT}^2 / YD^2 \times 2000\# / \text{TON}$$

NOTE: IF USING AREA, NO LENGTH OR W1 FIGURE IS NEEDED IN COMPUTATION.

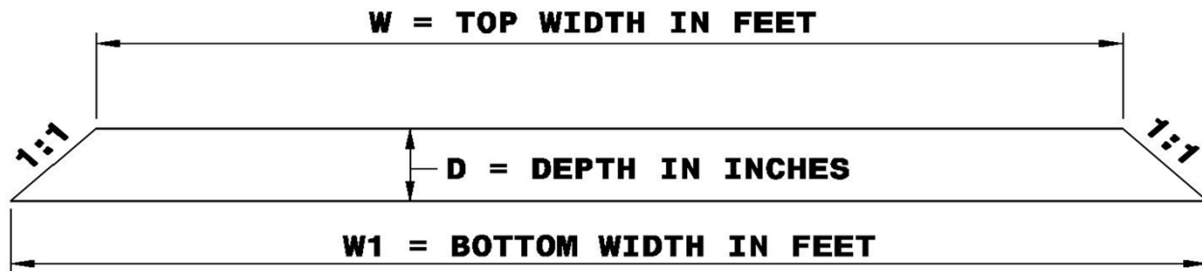
LINE	BEG. STA.	END STA.	LENGTH	AREA / W	W1	DEPTH	TONS
-RPA-	13+73	21+98	825.3	26105.66		3	487.31
-RPB-	13+90	27+09	1319.4	59237.63		3	1105.77
-RPC-	14+29	24+85	1055.2	33114.04		3	618.13
-RPD-	13+99	30+75	1676.1	60171.78		3	1123.21
-Y1-	21+70	36+17	1447.1	72654.6		1.5	678.11
-Y1-	37+67	56+55	1888.1	76385.91		1.5	712.94
-Y1- RT	21+70	29+61	791.0	8201.882		3	153.10
-Y1- RT	30+09	35+65	556.4	22560.15		3	421.12
-Y1- LT	30+49	36+27	578.4	6197.208		3	115.68
-Y1- RT	37+67	42+46	479.4	15351.18		3	286.56
-Y1- RT	44+04	56+55	1250.5	22845		3	426.44
-Y1- LT	38+17	44+30	612.7	7224.795		3	134.86
-Y1- LT	44+60	48+00	339.9	2443.744		3	45.62
-Y1- LT	49+32	56+55	723.1	3190.362		3	59.55
-Y2-	10+10	33+59	2348.9	91443.67		1.5	853.47
-Y3-	13+50	23+92	1041.8	21806.25		1.5	203.53
-TEMPRPB-	10+70	17+62	692.4	18347.21		3	342.48
-TEMPRPC-	10+00	22+42	1242.3	28111.6		3	524.75
-Y1- WEDGE							1689.08
						TOTAL	9981.71
						SAY	9990.00

PROJECT NO.: I-5972
 COMPUTED BY: J. NIEWODOWSKI (01/22/2019)
 CHECKED BY:

SHEET 1 OF 1

SECTION: 610

ASPHALT CONCRETE SURFACE COURSE TYPE S9.5D



CALCULATE:

$$\frac{\text{LENGTH} \times ((W+W1)/2) \times D \times 112\# / \text{YD}^2 / \text{IN}}{9 \text{ FT}^2 / \text{YD}^2 \times 2000\# / \text{TON}} = \frac{9060.00}{1} \text{ TONS}$$

NOTE: IF USING AREA, NO LENGTH OR W1 FIGURE IS NEEDED IN COMPUTATION.

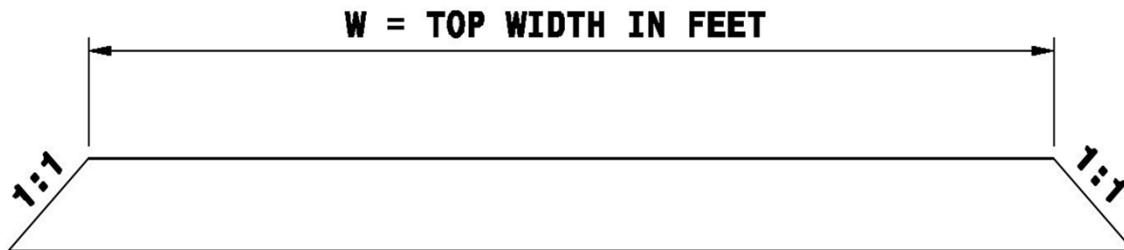
LINE	BEG. STA.	END STA.	LENGTH	AREA / W	W1	DEPTH	TONS	
-L- (LT)	27+95	30+95	300.1	13495.716		3	251.92	
-L- (LT)	30+95	38+75	779.9	50.125	50.625	3	733.41	
-L- (RT)	33+39	36+89	350.2	15902.679		3	296.85	
-L- (RT)	36+89	40+79	389.8	50.125	50.625	3	366.56	
-L- (LT)	38+75	52+31	1356.5	61109.010		3	1140.70	
-L- (RT)	40+79	53+01	1222.6	56707.133		3	1058.53	
-L- (LT)	52+31	54+30	198.6	10697.503		3	199.69	
-L- (RT)	53+01	55+00	198.5	10696.141		3	199.66	
-L- (LT)	54+30	55+77	147.1	65.625	66.125	3	180.92	
-L- (RT)	55+00	55+77	77.1	65.625	66.125	3	94.84	
-L- (LT)	55+77	57+58	180.8	70.125	70.625	3	237.45	
-L- (RT)	55+77	57+58	180.8	70.125	70.625	3	237.45	
-L- (LT)	57+58	58+20	62.1	65.625	66.125	3	76.39	
-L- (RT)	57+58	59+00	142.1	65.625	66.125	3	174.76	
-L- (LT)	58+20	60+19	198.6	10699.257		3	199.72	
-L- (RT)	59+00	60+99	198.5	10694.248		3	199.63	
-L- (LT)	60+19	69+79	960.4	45960.498		3	857.93	
-L- (RT)	60+99	71+61	1062.3	48672.326		3	908.55	
-L- (LT)	69+79	73+61	382.4	50.125	50.625	3	359.56	
-L- (RT)	71+61	79+41	780.2	50.125	50.625	3	733.66	
-L- (LT)	73+61	77+11	350.0	15672.424		3	292.55	
-L- (RT)	79+41	82+41	299.8	13451.074		3	251.09	
TOTAL								9051.82
SAY								9060.00

PROJECT NO.: I-5972
 COMPUTED BY: J. NIEWODOWSKI (01/22/2019)
 CHECKED BY: R Myers

SHEET 1 OF 1

SECTION: 650

OPEN-GRADED ASPHALT FRICTION COURSE TYPE FC-1



CALCULATE:

$$\frac{\text{LENGTH X WIDTH x 70\# / YD}^2}{9\text{FT}^2 / \text{YD}^2 \text{ X } 2000\# / \text{TON}} =$$

1880.00

TONS

$$9\text{FT}^2 / \text{YD}^2 \text{ X } 2000\# / \text{TON}$$

NOTE: IF USING AREA NO LENGTH FIGURE IS NEEDED IN COMPUTATION.

LINE	BEG. STA.	END STA.	LENGTH	W	AREA	AREA1	DEPTH	TONS
-L- (LT)	27+95	30+95	300.1		13308.00	13345.508	0.75	51.8
-L- (LT)	30+95	38+75	779.9	50.00		50.125	0.75	151.9
-L- (RT)	33+39	36+89	350.2		15727.00	15770.774	0.75	61.3
-L- (RT)	36+89	40+79	389.8	50.00		50.125	0.75	75.9
-L- (LT)	38+75	52+31	1356.5		60401.26	60570.830	0.75	235.2
-L- (RT)	40+79	53+01	1222.6		56064.63	56217.458	0.75	218.3
-L- (LT)	52+31	54+30	198.6		10598.00	10622.823	0.75	41.3
-L- (RT)	53+01	55+00	198.5		10596.00	10620.815	0.75	41.3
-L- (LT)	54+30	55+77	147.1	65.50		65.625	0.75	37.5
-L- (RT)	55+00	55+77	77.1	65.50		65.625	0.75	19.7
-L- (LT)	55+77	57+58	180.8	70.00		70.125	0.75	49.3
-L- (RT)	55+77	57+58	180.8	70.00		70.125	0.75	49.3
-L- (LT)	57+58	58+20	62.1	65.50		65.625	0.75	15.8
-L- (RT)	57+58	59+00	142.1	65.50		65.625	0.75	36.2
-L- (LT)	58+20	60+19	198.6		10600.00	10624.823	0.75	41.3
-L- (RT)	59+00	60+99	198.5		10595.00	10619.816	0.75	41.3
-L- (LT)	60+19	69+79	960.4		45448.74	45568.790	0.75	177.0
-L- (RT)	60+99	71+61	1062.3		48115.51	48248.299	0.75	187.4
-L- (LT)	69+79	73+61	382.4	50.00		50.125	0.75	74.4
-L- (RT)	71+61	79+41	780.2	50.00		50.125	0.75	151.9
-L- (LT)	73+61	77+11	350.0		15497.00	15540.752	0.75	60.4
-L- (RT)	79+41	82+41	299.8		13339.00	13376.474	0.75	52.0
				TOTAL				1870.1
				SAY				1880.00

PROJECT NO.: I-5972
 COMPUTED BY: EBS 7/7/23
 CHECKED BY: ASH 7/7/23

SHEET 1 OF 1

SECTION: 620

ASPHALT BINDER FOR PLANT MIX

GRADE PG 64-22

SA-1		TONS	X	0.068	=		TONS
S4.75A		TONS	X	0.070	=		TONS
S9.5B		TONS	X	0.065	=		TONS
S9.5C	9,990	TONS	X	0.059	=	589.41	TONS
I19.0C	15,850	TONS	X	0.048	=	760.80	TONS
B25.0C	30,330	TONS	X	0.045	=	1,364.85	TONS
PADC, TYPE P-57		TONS	X	0.030	=		TONS
PADC, TYPE P-78M		TONS	X	0.030	=		TONS
PATCHING EXISTING PAVEMENT	220	TONS	X	0.048	=	10.56	TONS

SUBTOTAL TONS ASPHALT BINDER
 FOR PLANT MIX, GRADE PG 64-22 = 2,725.62 TONS

TOTAL TONS ASPHALT BINDER
 FOR PLANT MIX = 2,725.62 TONS
 SAY 2,730 TONS

PROJECT NO.:
 COMPUTED BY:
 CHECKED BY:

SHEET OF
 SECTION: 620

POLYMER MODIFIED ASPHALT BINDER FOR PLANT MIX

GRADE PG 76-22

TYPE S9.5D	<u>9,060</u>	TONS	X	0.058	=	<u>525.48</u>	TONS
OGAFC, TYPE FC-1 MOD	<u>1,880</u>	TONS	X	0.062	=	<u>116.56</u>	TONS
PATCHING EXISTING PAVEMENT	<u> </u>	TONS	X	0.048	=	<u> </u>	TONS

SUBTOTAL TONS POLYMER MODIFIED ASPHALT BINDER FOR PLANT MIX, GRADE PG 76-22	=	<u>642.04</u>	TONS
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GRADE PG 70-28

ULTRA-THIN BONDED WEARING COURSE	<u> </u>	TONS	X	0.050	=	<u> </u>	TONS
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SUBTOTAL TONS POLYMER MODIFIED ASPHALT BINDER FOR PLANT MIX, GRADE PG 70-28	=	<u> </u>	TONS
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TOTAL TONS POLYMER MODIFIED ASPHALT BINDER FOR PLANT MIX	=	<u>642.04</u>	TONS
	SAY	<u>645</u>	TONS

PROJECT NO.: I-5972
 COMPUTED BY: EBS 7/6/23
 CHECKED BY: ash 7/7/23

SHEET 1 OF 1

SECTION: 654

ASPHALT PAVEMENT REPAIR

LINE	STATION (Str #)	LENGTH OF PIPE UNDER PAVEMENT (FT)	PIPE SIZE (IN)	WIDTH* (FT)	AREA (SY)	RATE (Lbs/SY/in)	WEIGHT (Lbs)
Y1	28+00	35.00	24.0	8.5	33.06	114	41,452
Y1	28+00	60.00	30.0	9.1	60.56	114	75,937
Y1	29+50	100.00	15.0	7.6	84.26	114	105,656
TOTAL (LB)							223,044.80
TOTAL (TON)							112
Per CFI Questions							100
SAY							220.00

*See STD. Drawing No. 654.01

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

GUARDRAIL SUMMARY

G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

MULLC

COMPUTED BY: EBS DATE: 1/22/19
CHECKED BY: MJA DATE: 2/12/19

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL
W = TOTAL WIDTH OF FLARE FROM BEGIN

ALN.	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS					REMOVE EXISTING GR	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPR. END	TRAIL. END			APPRO ACH END	TRAILIN G END	APPR. END	TRAIL. END	B-77	TYPE-III	CAT-1	GREU TL-3	AT-1		
-Y1-	30+48.01	35+80.87	RT																	532.86	
-Y1-	30+92.93	36+01.44	LT																	508.51	
-Y1-	33+41.43	35+51.70	RT	210.27				33+41.34	11.5		50		1		1		1				
-Y1-	37+72.72	42+01.46	RT	428.74				37+71.49	11.5			50		1		1		1			
-Y1-	35+20.83	36+16.48	LT	95.65				36+13.51	10	13			1		1		1				
-Y1-	38+07.00	42+04.72	RT																	397.7	
-Y1-	38+36.27	40+43.33	LT	207.06				38+36.27	10	13	50		1		1		1				
-Y1-	38+28.65	43+35.59	LT																	506.9	
-L-	54+91.63	56+00.00	CL	108.37				54+91.63	12	15					1						
-L-	54+91.63	56+00.00	CL	108.37				56+00.00	12	15					1						
-L-	54+50.94	57+02.56	RT																	251.6	
-L-	54+91.63	58+43.37	CL																	703.5	
-L-	56+74.82	57+93.58	LT																	118.8	
-L-	57+35.00	58+43.37	CL	108.37				57+35.00	12	15					1						
-L-	57+35.00	58+43.37	CL	108.37				58+43.37	12	15					1						
-RPB-	23+51.17	24+54.97	RT																	103.8	
-RPB-	23+88.51	24+36.36	RT																	47.8	
-RPD-	26+97.16	29+69.63	RT	274.25				28+00.00	13	16	50		1			1	1				
-Y3-	23+91.75	23+91.75	CL	50.00				23+91.75											2		
SUBTOTAL:				1,699.45	0.00										4	4	1	5	2	3171.54	
ANCHOR UNIT DEDUCTIONS:																					
B-77 4 @ 22.875' Each				-91.50																	
TYPE-III 4 @ 18.75' Each				-75.00																	
GREU TL-3 5 @ 50' Each				-250.00																	
CAT-1 1 @ 6.25' Each				-6.25																	
AT-1 2 @ 6.25' Each				-12.50																	
LESS GUARDRAIL DEDUCTIONS:				1,264.20	0.00																
PROJECT TOTAL:				1,264.20	0.00																3171.5
SAY:				1,300.0	0.0										4	4	1	5	2	3180.0	
(10 ADDITIONAL GUARDRAIL POSTS)																					

PROJECT NO.: I-5972
 COMPUTED BY: J. NIEWODOWSKI (01/22/2019)
 CHECKED BY: E. SEALS 1/23/19
 REVISED BY: EBS 7/6/23 RECHECKED BY: ash 7/7/23

SHEET 1 OF 1

SECTION: 866

WOVEN WIRE FENCE, 47" FABRIC

$$E = \left[\frac{A - (8B + 16C + 16D)}{14} \right] - \frac{(B + C + D)}{2}$$

$$F = (2B + 3C + 3D)$$

STATION TO STATION	LT. OR RT.	A	B	C	D	E	F
		FABRIC L.F.	END BRACE	CORNER BRACE	LINE BRACE	4" POSTS	5" POSTS
-RPB- 17+87 TO 23+51	RT.	606	2		1	40	7
-RPC- 14+60 TO 16+20	LT	156	2			9	4
-RPD- 13+35 TO 16+30	RT.	338.00	1	5		15	17
-RPD- 16+30 TO 21+42	RT.	564.00		1	1	37	6
-RPD- 21+75 TO 30+42	RT.	1,010.00		6	1	61	21
-Y1- 44+40 TO 46+50	RT.	209.00	1	1		12	5
TOTAL		2,883.00				173	60
SAY		2,890				174	60

PROJECT NO.: I-5972
COMPUTED BY: DIVISION
CHECKED BY: E. SEALS 7/6/23

SHEET 1 OF 1

SECTION: 545

INCIDENTAL STONE BASE

(FURNISHED BY DIVISION)

Per Combined or Pre-Let Field Inspection Questions dated: March 28, 2022

SAY = 500 TONS

PROJECT NO. : I-5972
COMPUTED BY: EBS 7/10/23
CHECKED BY: ASH 7/10/23

SHEET 1 OF 1

SECTION: 300

FOUNDATION CONDITIONING MATERIAL MINOR STRUCTURES

$$\begin{array}{rcccccc} \underline{3844} & \text{LIN. FT} & \times & 0.106 & = & \underline{407.46 \text{ TONS}} \\ & & & & \text{SAY} & \underline{410 \text{ TONS}} \end{array}$$

FOUNDATION CONDITIONING GEOTEXTILE

$$\begin{array}{rcccccc} \underline{3844} & \text{LIN. FT} & \times & 6 \text{ FT} / 18 & = & \underline{1281.33 \text{ SY}} \\ & & & & \text{SAY} & \underline{1290 \text{ SY}} \end{array}$$

PROJECT NO.: I-5972

SHEET 1 OF 1

SECTION: 815

SUBSURFACE DRAINS

SUBDRAIN EXCAVATION (USE 6' DEPTH FOR PROOF ROLLING AND 4' DEPTH ELSEWHERE)		<u>4972.8</u>	YD ³
GEOTEXTILE FOR SUBSURFACE DRAINS		<u>14800</u>	YD ²
SUBDRAIN COARSE AGGREGATE (USE 3' DEPTH)		<u>2486.4</u>	YD ³
6" PERFORATED SUBDRAIN PIPE		<u>14800</u>	LIN. FT.
6" OUTLET PIPE (6 LINEAR FT. PER PIPE OUTLET)		<u>180</u>	LIN. FT.
SUBDRAIN PIPE OUTLET (USE 1 PER 500' OF PIPE)		<u>30</u>	EACH
EXCAVATION	<u>14800</u> LIN. FT. x <u>6</u> DEPTH x 0.056 =	<u>4972.8</u>	YD ³
AGGREGATE	<u>14800</u> LIN. FT. x <u>3'</u> DEPTH x 0.056 =	<u>2486.4</u>	YD ³

NOTE: USE 6" SUBDRAIN PIPE UNLESS ANOTHER SIZE IS SPECIFICALLY RECOMMENDED BY THE GEOTECHNICAL UNIT.

Calculated by : AG 3/6/2020

Checked by : EBS 3/11/2020

PROJECT NO.: I-5972
 COMPUTED BY: EBS 7/7/23
 CHECKED BY: ash 7/10/23

SHEET 1 OF 4

SECTION: 876

PLAIN RIP RAP, CLASS I

(AT PIPE OUTLETS - CLASS I RIP RAP)

LINE	STATION	PIPE SIZE (in)	PIPE WITH DITCH (Y OR N)	TONS
L	45+95.01 LT	42	Y	20
L	61+00.00 RT	54	Y	66
Y1	41+82.72 RT	54	Y	66
Y1	41+94.90 RT	15	Y	3
RPD	15+51.04 RT	42	Y	40
RPD	29+49.45 RT	54	Y	66
Y1	38+24 TO 40+30 RT (TOE PROTECTION)			68
Y1	37+40 TO 41+54 RT (UNDER FILL)			133
Y2	17+25 (CHANNEL IMPROVEMENTS)			55
			TOTAL	517
			SAY	520

PROJECT NO.: I-5972
 COMPUTED BY: EBS 7/7/23
 CHECKED BY: ash 7/10/23

SECTION: 876

PLAIN RIP RAP, CLASS II

(WITH OR WITHOUT FILTER FABRIC)

LINE	STATION	LOCATION	DITCH (Y/N)	PIPE DIAMETER	TONS
PER GEOTECHNICAL REPORT, November 8, 2021					
Y1	37+55 TO 41+55	RT	N/A	N/A	2400
				TOTAL	2400
				SAY	2400

PROJECT NO.: I-5972
 COMPUTED BY: GEOTECHNICAL UNIT, RK&K
 CHECKED BY: EBS 7/7/23

SHEET 3 OF 4

SECTION: 876

PLAIN RIP RAP, CLASS A

(WITH OR WITHOUT FILTER FABRIC)

LINE	STATION	LOCATION	DITCH (Y/N)	PIPE DIAMETER	TONS
PER GEOTECHNICAL REPORT, November 8, 2021					
Y1	37+55 TO 41+55	RT	N/A	N/A	700
				TOTAL	700
				SAY	700

PROJECT NO.: I-5972
 COMPUTED BY: EBS 7/7/23
 CHECKED BY: ash 7/7/23

SHEET 1 OF 2

SECTION: 876

GEOTEXTILE FOR DRAINAGE

(CLASS B RIP RAP)

LINE	STATION	PIPE SIZE (in)	PIPE WITH DITCH (Y OR N)	SQUARE YARDS
L	35+25.25 RT	15	Y	5
L	54+00.00 RT	36	Y	28
Y1	21+89.45 LT	18	N	10
Y1	28+50.10 LT	30	Y	7
Y1	29+39.99 LT	15	Y	7
Y1	34+42.32 RT	15	Y	7
Y1	35+87.98 LT	15	Y	5
Y1	38+05.00 RT	15	N	5
Y1	39+57.18 LT	15	Y	7
Y1	44+50.00 RT	30	Y	21
Y2	11+00.79 RT	18	Y	10
Y2	33+00.39 RT	24	Y	14
RPB	16+43.26 LT	30	Y	42
RPB	25+65.71 LT	30	Y	21
RPC	24+36.71 RT	15	Y	15
Y1	44+50 TO 45+00 (TOE PROTECTION)			70
Y2	20+20 TP 21+50 (TOE PROTECTION)			141
			SUBTOTAL	415

PROJECT NO.: I-5972
 COMPUTED BY: EBS 7/7/23
 CHECKED BY: ash 7/7/23

SHEET 2 OF 2

SECTION: 876

GEOTEXTILE FOR DRAINAGE

(CLASS I RIP RAP)

LINE	STATION	PIPE SIZE (in)	PIPE WITH DITCH (Y OR N)	SQUARE YARDS
L	45+95.01 LT	42	Y	39
L	61+00.00 RT	54	Y	124
Y1	41+82.72 RT	54	Y	124
Y1	41+94.90 RT	15	Y	7
RPD	15+51.04 RT	42	Y	78
RPD	29+49.45 RT	54	Y	124
Y1	38+24 TO 40+30 (TOE PROTECTION)			145
Y1	37+40 TO 41+54 (UNDER FILL)			188
Y2	17+25 (CHANNEL IMPROVEMENTS)			80
	EROSION CONTROL			1500
			SUBTOTAL	2409
			SHEET1	415
			GRAND TOTAL	2824
			SAY	2825

