

D Street Extension

Quantity Calcs

8/29/19 - KLL

Borrow, SMTA

NOTES

• pavement structure

$$\frac{32611 \text{ sf}(2 \text{ ft})}{27} \left(\frac{2 \text{ ton}}{\text{cy}} \right) = 4831 \text{ ton}$$

→ 32611 sf was calculate in autocad using closed polyline on edge of new roadway

• fill for ditches

$$591 \text{ cy} \left(\frac{2 \text{ ton}}{\text{cy}} \right) = 1182$$

→ avg end method using cross sections was used for ditch and embankment volumes

• embankment

4660 tons TOTAL FILL REQ'D

existing road material *assumed 1.5ft of usable material

$$\frac{(878 \text{ ft})(28 \text{ ft})(1.5 \text{ ft})}{27} \left(\frac{2 \text{ ton}}{\text{cy}} \right) \approx 2730 \text{ ton}$$

$$4660 \text{ ton} - 2730 \text{ ton} = 1930 \text{ ton}$$

$$203(5) \text{ Borrow } \Sigma = 7943 \text{ ton} \approx \underline{\underline{7945 \text{ ton}}}$$

$$203(19) \text{ Borrow } \Sigma = \underline{\underline{2730 \text{ ton}}}$$

D-1

$$32611 \text{ sf} \left(\frac{4}{12} \text{ ft} \right) \left(\frac{145 \text{ lb}}{\text{cf}} \right) \left(\frac{1 \text{ ton}}{2000 \text{ lb}} \right) = 788 \text{ ton}$$

$$(1911.7 - 1070.8 \text{ ft})(2+2 \text{ ft}) \left(\frac{2}{12} \text{ ft} \right) \left(\frac{145 \text{ lb}}{\text{cf}} \right) \left(\frac{1 \text{ ton}}{2000 \text{ lb}} \right) = 41 \text{ ton}$$

$$301(1) \text{ D-1 } \Sigma = 829 \text{ ton} \approx \underline{\underline{830 \text{ ton}}}$$

HMA

$$29030 \text{ sf} \left(\frac{2}{12} \text{ ft} \right) \left(\frac{150 \text{ lb}}{\text{cf}} \right) \left(\frac{1 \text{ ton}}{2000 \text{ lb}} \right) = 362.8 \text{ ton} \approx 363 \text{ ton}$$

$$401(18) \text{ HMA } \Sigma = \underline{\underline{363 \text{ ton}}}$$

Binder

$$363 \text{ ton}(0.055) = 19.9 \text{ ton} \approx 20 \text{ ton}$$

$$401(4) \text{ Binder } \Sigma = 20 \text{ ton}$$

D Street Extension

Quantity Calcs

8/29/19 - KLL

geofabric

$$32611 \text{ sf} \left(\frac{1 \text{ sy}}{9 \text{ sf}} \right) = 3623 \text{ sy} \approx 3625 \text{ sy}$$

$$630(1) \Sigma = \underline{\underline{3625 \text{ sy}}}$$

Seed/topsoil

*assumed 7ft both sides of road

$$\frac{(1911.7 - 1070.8 \text{ ft})(14 \text{ ft})}{9} = 1308 \text{ sy} \approx 1310 \text{ sy}$$

$$618(4) \Sigma = 1310 \text{ sy}$$

$$620(1) \Sigma = \underline{\underline{1310 \text{ sy}}}$$

Unclassified excavation

*was calculated using avg end method and cross sections.

D STREET EXTENSION AVERAGE END METHOD

Updated 8.27.2019

<i>ENTER</i> STATION	STATION	INTERVAL	<i>ENTER</i> CUT END AREA	CUT STA VOL	<i>ENTER</i> FILL END AREA	FILL STA VOL
1070.81	10+70.81	0.00	116.00	0.00	0.00	0.00
		9.19		39.48		0.00
1080.00	10+80.00	0.00	116.00	0.00	0.00	0.00
		20.00		84.44		0.00
1100.00	11+00.00	0.00	112.00	0.00	0.00	0.00
		20.00		73.33		0.00
1120.00	11+20.00	0.00	86.00	0.00	0.00	0.00
		20.00		68.15		0.00
1140.00	11+40.00	0.00	98.00	0.00	0.00	0.00
		20.00		74.07		0.00
1160.00	11+60.00	0.00	102.00	0.00	0.00	0.00
		20.00		77.04		0.00
1180.00	11+80.00	0.00	106.00	0.00	0.00	0.00
		20.00		77.78		0.00
1200.00	12+00.00	0.00	104.00	0.00	0.00	0.00
		20.00		77.04		0.00
1220.00	12+20.00	0.00	104.00	0.00	0.00	0.00
		20.00		79.26		0.00
1240.00	12+40.00	0.00	110.00	0.00	0.00	0.00
		20.00		81.85		0.00
1260.00	12+60.00	0.00	111.00	0.00	0.00	0.00
		4.77		19.52		0.00
1264.77	12+64.77	0.00	110.00	0.00	0.00	0.00
		15.23		61.77		0.00
1280.00	12+80.00	0.00	109.00	0.00	0.00	0.00
		16.71		69.32		0.00
1296.71	12+96.71	0.00	115.00	0.00	0.00	0.00
		3.29		13.89		0.00
1300.00	13+00.00	0.00	113.00	0.00	0.00	0.00
		20.00		86.30		0.00
1320.00	13+20.00	0.00	120.00	0.00	0.00	0.00
		8.64		37.92		0.00
1328.64	13+28.64	0.00	117.00	0.00	0.00	0.00
		11.36		48.17		0.00
1340.00	13+40.00	0.00	112.00	0.00	0.00	0.00
		20.00		80.00		0.00
1360.00	13+60.00	0.00	104.00	0.00	0.00	0.00
		20.00		69.63		0.00
1380.00	13+80.00	0.00	84.00	0.00	0.00	0.00
		20.00		58.52		0.00
1400.00	14+00.00	0.00	74.00	0.00	0.00	0.00
		20.00		55.56		0.00
1420.00	14+20.00	0.00	76.00	0.00	0.00	0.00
		20.00		54.81		0.00
1440.00	14+40.00	0.00	72.00	0.00	0.00	0.00
		20.00		55.56		0.00
1460.00	14+60.00	0.00	78.00	0.00	0.00	0.00
		20.00		68.52		0.00
1480.00	14+80.00	0.00	107.00	0.00	0.00	0.00
		20.00		66.67		0.00

Unclassified 1 of 2

1500.00	15+00.00	0.00	73.00	0.00	0.00	0.00
		20.00		53.70		0.00
1520.00	15+20.00	0.00	72.00	0.00	0.00	0.00
		20.00		53.33		0.00
1540.00	15+40.00	0.00	72.00	0.00	0.00	0.00
		20.00		53.33		0.00
1560.00	15+60.00	0.00	72.00	0.00	0.00	0.00
		20.00		53.33		0.00
1580.00	15+80.00	0.00	72.00	0.00	0.00	0.00
		20.00		53.33		0.00
1600.00	16+00.00	0.00	72.00	0.00	0.00	0.00
		20.00		53.33		0.00
1620.00	16+20.00	0.00	72.00	0.00	0.00	0.00
		20.00		53.33		0.00
1640.00	16+40.00	0.00	72.00	0.00	0.00	0.00
		20.00		53.33		0.00
1660.00	16+60.00	0.00	72.00	0.00	0.00	0.00
		20.00		53.70		0.00
1680.00	16+80.00	0.00	73.00	0.00	0.00	0.00
		20.00		53.70		0.00
1700.00	17+00.00	0.00	72.00	0.00	0.00	0.00
		20.00		53.33		0.00
1720.00	17+20.00	0.00	72.00	0.00	0.00	0.00
		20.00		53.70		0.00
1740.00	17+40.00	0.00	73.00	0.00	0.00	0.00
		20.00		54.07		0.00
1760.00	17+60.00	0.00	73.00	0.00	0.00	0.00
		20.00		54.07		0.00
1780.00	17+80.00	0.00	73.00	0.00	0.00	0.00
		20.00		53.70		0.00
1800.00	18+00.00	0.00	72.00	0.00	0.00	0.00
		20.00		52.59		0.00
1820.00	18+20.00	0.00	70.00	0.00	0.00	0.00
		20.00		52.96		0.00
1840.00	18+40.00	0.00	73.00	0.00	0.00	0.00
		20.00		54.07		0.00
1860.00	18+60.00	0.00	73.00	0.00	0.00	0.00
		20.00		53.70		0.00
1880.00	18+80.00	0.00	72.00	0.00	0.00	0.00
		20.00		54.81		0.00
1900.00	19+00.00	0.00	76.00	0.00	0.00	0.00
		11.67		39.55		0.00
1911.67	19+11.67	0.00	107.00	0.00	0.00	0.00
				0.00		0.00

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NET CUT VOL.: 2689.62 NET FILL VOL.: 0.00
CY

Unclassified 2of2

D STREET EXTENSION AVERAGE END METHOD

Updated 8.27.2019

ENTER STATION	STATION	INTERVAL	ENTER CUT END AREA	CUT STA VOL	ENTER FILL END AREA	FILL STA VOL
1070.81	10+70.81	0.00	0.00	0.00	0.00	0.00
		9.19		0.00		0.00
1080.00	10+80.00	0.00	0.00	0.00	0.00	0.00
		20.00		0.00		0.00
1100.00	11+00.00	0.00	0.00	0.00	0.00	0.00
		20.00		0.00		0.00
1120.00	11+20.00	0.00	0.00	0.00	0.00	0.00
		20.00		0.00		13.70
1140.00	11+40.00	0.00	0.00	0.00	37.00	0.00
		20.00		0.00		35.93
1160.00	11+60.00	0.00	0.00	0.00	60.00	0.00
		20.00		0.00		42.22
1180.00	11+80.00	0.00	0.00	0.00	54.00	0.00
		20.00		0.00		36.67
1200.00	12+00.00	0.00	0.00	0.00	45.00	0.00
		20.00		0.00		30.00
1220.00	12+20.00	0.00	0.00	0.00	36.00	0.00
		20.00		0.00		26.67
1240.00	12+40.00	0.00	0.00	0.00	36.00	0.00
		20.00		0.00		30.74
1260.00	12+60.00	0.00	0.00	0.00	47.00	0.00
		4.77		0.00		8.57
1264.77	12+64.77	0.00	0.00	0.00	50.00	0.00
		15.23		0.00		29.33
1280.00	12+80.00	0.00	0.00	0.00	54.00	0.00
		16.71		0.00		37.75
1296.71	12+96.71	0.00	0.00	0.00	68.00	0.00
		3.29		0.00		8.41
1300.00	13+00.00	0.00	0.00	0.00	70.00	0.00
		20.00		0.00		56.30
1320.00	13+20.00	0.00	0.00	0.00	82.00	0.00
		8.64		0.00		25.60
1328.64	13+28.64	0.00	0.00	0.00	78.00	0.00
		11.36		0.00		30.29
1340.00	13+40.00	0.00	0.00	0.00	66.00	0.00
		20.00		0.00		43.33
1360.00	13+60.00	0.00	0.00	0.00	51.00	0.00
		20.00		0.00		32.59
1380.00	13+80.00	0.00	0.00	0.00	37.00	0.00
		20.00		0.00		26.67
1400.00	14+00.00	0.00	0.00	0.00	35.00	0.00
		20.00		0.00		34.81
1420.00	14+20.00	0.00	0.00	0.00	59.00	0.00
		20.00		0.00		47.78
1440.00	14+40.00	0.00	0.00	0.00	70.00	0.00
		20.00		0.00		35.56
1460.00	14+60.00	0.00	0.00	0.00	26.00	0.00
		20.00		0.00		9.63
1480.00	14+80.00	0.00	0.00	0.00	0.00	0.00
		20.00		0.00		22.96
1500.00	15+00.00	0.00	0.00	0.00	62.00	0.00
		20.00		0.00		49.63
1520.00	15+20.00	0.00	0.00	0.00	72.00	0.00
		20.00		0.00		54.44
1540.00	15+40.00	0.00	0.00	0.00	75.00	0.00
		20.00		0.00		57.04
1560.00	15+60.00	0.00	0.00	0.00	79.00	0.00

Borrow 10F2

1580.00	15+80.00	20.00		0.00			69.63
		0.00	0.00	0.00	109.00		0.00
		20.00		0.00			90.37
1600.00	16+00.00	0.00	0.00	0.00	135.00		0.00
		20.00		0.00			111.48
1620.00	16+20.00	0.00	0.00	0.00	166.00		0.00
		20.00		0.00			119.26
1640.00	16+40.00	0.00	0.00	0.00	156.00		0.00
		20.00		0.00			110.74
1660.00	16+60.00	0.00	0.00	0.00	143.00		0.00
		20.00		0.00			109.26
1680.00	16+80.00	0.00	0.00	0.00	152.00		0.00
		20.00		0.00			104.07
1700.00	17+00.00	0.00	0.00	0.00	129.00		0.00
		20.00		0.00			90.74
1720.00	17+20.00	0.00	0.00	0.00	116.00		0.00
		20.00		0.00			92.96
1740.00	17+40.00	0.00	0.00	0.00	135.00		0.00
		20.00		0.00			105.19
1760.00	17+60.00	0.00	0.00	0.00	149.00		0.00
		0.00		0.00			0.00
1780.00	17+80.00	0.00	0.00	0.00	125.00		0.00
		20.00		0.00			79.63
1800.00	18+00.00	0.00	0.00	0.00	90.00		0.00
		20.00		0.00			59.63
1820.00	18+20.00	0.00	0.00	0.00	71.00		0.00
		20.00		0.00			63.33
1840.00	18+40.00	0.00	0.00	0.00	100.00		0.00
		20.00		0.00			79.63
1860.00	18+60.00	0.00	0.00	0.00	115.00		0.00
		20.00		0.00			91.11
1880.00	18+80.00	0.00	0.00	0.00	131.00		0.00
		20.00		0.00			97.78
1900.00	19+00.00	0.00	0.00	0.00	133.00		0.00
		11.67		0.00			28.74
1911.67	19+11.67	0.00	0.00	0.00	0.00		0.00
				0.00			0.00

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NET CUT VOL.: 0.00 NET FILL VOL.: 2330.18

CY

Borrow 2 of 2

D STREET EXTENSION AVERAGE END METHOD

Updated 8.27.2019

<i>ENTER</i> STATION	STATION	INTERVAL	<i>ENTER</i> CUT END AREA	CUT STA VOL	<i>ENTER</i> FILL END AREA	FILL STA VOL
1070.81	10+70.81	0.00	0.00	0.00	0.00	0.00
		9.19		0.00		0.00
1080.00	10+80.00	0.00	0.00	0.00	0.00	0.00
		20.00		0.00		0.00
1100.00	11+00.00	0.00	0.00	0.00	0.00	0.00
		20.00		0.00		0.37
1120.00	11+20.00	0.00	0.00	0.00	1.00	0.00
		20.00		0.00		0.74
1140.00	11+40.00	0.00	0.00	0.00	1.00	0.00
		20.00		0.00		1.11
1160.00	11+60.00	0.00	0.00	0.00	2.00	0.00
		20.00		0.00		1.85
1180.00	11+80.00	0.00	0.00	0.00	3.00	0.00
		20.00		0.00		2.59
1200.00	12+00.00	0.00	0.00	0.00	4.00	0.00
		20.00		0.00		2.96
1220.00	12+20.00	0.00	0.00	0.00	4.00	0.00
		20.00		0.00		2.96
1240.00	12+40.00	0.00	0.00	0.00	4.00	0.00
		20.00		0.00		2.96
1260.00	12+60.00	0.00	0.00	0.00	4.00	0.00
		4.77		0.00		0.71
1264.77	12+64.77	0.00	0.00	0.00	4.00	0.00
		15.23		0.00		2.26
1280.00	12+80.00	0.00	0.00	0.00	4.00	0.00
		16.71		0.00		4.64
1296.71	12+96.71	0.00	0.00	0.00	11.00	0.00
		3.29		0.00		1.40
1300.00	13+00.00	0.00	0.00	0.00	12.00	0.00
		20.00		0.00		8.15
1320.00	13+20.00	0.00	0.00	0.00	10.00	0.00
		8.64		0.00		2.88
1328.64	13+28.64	0.00	0.00	0.00	8.00	0.00
		11.36		0.00		3.16
1340.00	13+40.00	0.00	0.00	0.00	7.00	0.00
		20.00		0.00		5.56
1360.00	13+60.00	0.00	0.00	0.00	8.00	0.00
		20.00		0.00		4.81
1380.00	13+80.00	0.00	0.00	0.00	5.00	0.00
		20.00		0.00		3.70
1400.00	14+00.00	0.00	0.00	0.00	5.00	0.00
		20.00		0.00		5.19
1420.00	14+20.00	0.00	0.00	0.00	9.00	0.00
		20.00		0.00		8.89
1440.00	14+40.00	0.00	0.00	0.00	15.00	0.00
		20.00		0.00		6.67
1460.00	14+60.00	0.00	0.00	0.00	3.00	0.00
		20.00		0.00		1.11
1480.00	14+80.00	0.00	0.00	0.00	0.00	0.00
		20.00		0.00		4.81
1500.00	15+00.00	0.00	0.00	0.00	13.00	0.00
		20.00		0.00		10.74
1520.00	15+20.00	0.00	0.00	0.00	16.00	0.00
		20.00		0.00		12.59
1540.00	15+40.00	0.00	0.00	0.00	18.00	0.00
		20.00		0.00		13.33
1560.00	15+60.00	0.00	0.00	0.00	18.00	0.00
		20.00		0.00		18.89

D1 Material 10F2

1580.00	15+80.00	0.00	0.00	0.00	33.00	0.00
		20.00		0.00		31.85
1600.00	16+00.00	0.00	0.00	0.00	53.00	0.00
		20.00		0.00		41.11
1620.00	16+20.00	0.00	0.00	0.00	58.00	0.00
		20.00		0.00		42.22
1640.00	16+40.00	0.00	0.00	0.00	56.00	0.00
		20.00		0.00		38.52
1660.00	16+60.00	0.00	0.00	0.00	48.00	0.00
		20.00		0.00		34.81
1680.00	16+80.00	0.00	0.00	0.00	46.00	0.00
		20.00		0.00		34.07
1700.00	17+00.00	0.00	0.00	0.00	46.00	0.00
		20.00		0.00		31.85
1720.00	17+20.00	0.00	0.00	0.00	40.00	0.00
		20.00		0.00		32.59
1740.00	17+40.00	0.00	0.00	0.00	48.00	0.00
		20.00		0.00		37.04
1760.00	17+60.00	0.00	0.00	0.00	52.00	0.00
		0.00		0.00		0.00
1780.00	17+80.00	0.00	0.00	0.00	44.00	0.00
		20.00		0.00		27.04
1800.00	18+00.00	0.00	0.00	0.00	29.00	0.00
		20.00		0.00		17.41
1820.00	18+20.00	0.00	0.00	0.00	18.00	0.00
		20.00		0.00		14.81
1840.00	18+40.00	0.00	0.00	0.00	22.00	0.00
		20.00		0.00		17.41
1860.00	18+60.00	0.00	0.00	0.00	25.00	0.00
		20.00		0.00		24.07
1880.00	18+80.00	0.00	0.00	0.00	40.00	0.00
		20.00		0.00		24.81
1900.00	19+00.00	0.00	0.00	0.00	27.00	0.00
		11.67		0.00		5.84
1911.67	19+11.67	0.00	0.00	0.00	0.00	0.00
				0.00		0.00
0.00		0.00	0.00	0.00	0.00	0.00

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NET CUT VOL.: 0.00 NET FILL VOL.: 590.51

CY

D1 Material 2of2