

Southern Asphalt, Inc.

Socastee Middle School Cut and Fill Calculations

Topsoil (10") Waste Offsite 38,565 cy

$$1,041,267 \text{ sf} \times 10 \text{ in} = 867,723 \text{ cf} = 32,138 \text{ cy} \quad \text{Surface Area} \times \text{Depth} = \text{Volume}$$

$$32,138 \text{ cy} \times 1.2 = 38,565 \text{ cy} \quad \text{Volume} \times \text{Swell Factor} = \text{Volume}_{\text{final}}$$

Cut - haul off site 35,497 cy

Cut for Pond

| | | | |
|-------------------|-----------|------------|---|
| Contour - Elev 18 | 67,942 sf | 65,092 cf | (Surface Area _{Elev 18} + Surface Area _{Elev 17}) X 0.5 X Height |
| Contour - Elev 17 | 62,241 sf | 318,490 cf | (Surface Area _{Elev 17} + Surface Area _{Elev 10}) X 0.5 X Height |
| Contour - Elev 10 | 28,756 sf | | |
| | | + | |
| | | 383,581 cf | = 14,207 cy |

Cut for Pond

| | | | |
|-------------------|-----------|------------|---|
| Contour - Elev 17 | 57,631 sf | 54,206 cf | (Surface Area _{Elev 17} + Surface Area _{Elev 16}) X 0.5 X Height |
| Contour - Elev 16 | 50,781 sf | 47,486 cf | (Surface Area _{Elev 16} + Surface Area _{Elev 15}) X 0.5 X Height |
| Contour - Elev 15 | 44,191 sf | 241,287 cf | (Surface Area _{Elev 15} + Surface Area _{Elev 8}) X 0.5 X Height |
| Contour - Elev 8 | 24,748 sf | | |
| | | + | |
| | | 342,979 cf | = 12,703 cy |

Cut for Ditch

| | | | |
|-------------------|-----------|-----------|---|
| Contour - Elev 17 | 12,762 sf | 28,312 cf | (Surface Area _{Elev 17} + Surface Area _{Elev 13}) X 0.5 X Height |
| Contour - Elev 13 | 1,394 sf | | |
| | | + | |
| | | 28,312 cf | = 1,049 cy |

Cut for Ditch

| | | | |
|-------------------|-----------|-----------|---|
| Contour - Elev 17 | 20,781 sf | 28,927 | (Surface Area _{Elev 17} + Surface Area _{Elev 15}) X 0.5 X Height |
| Contour - Elev 15 | 8,146 sf | | |
| | | + | |
| | | 28,927 cf | = 1,071 cy |

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| | | | | | | | | | | | | | | |
|---------------------------------------|---------------|-----------|---|-----|----|---------|-----------|---|-------------------------|-----------|---|---------------------------------|---------------------------------|--|
| Cut for Building Pad (1') | | | | | | | | | | | | | | |
| Contour - Elev 18 | 147,609 | sf | | | | 147,609 | | (Surface Area _{Elev 18} + Surface Area _{Elev 17}) X 0.5 X Height | | | | | | |
| Contour - Elev 17 | 147,609 | sf | | | | | + | | | | | | | |
| | | | | | | 147,609 | cf | = | 5,467 cy | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | Sub-total | | 34,497 cy | | | | | |
| | | | | | | | | | | | | | | |
| | 34,497 | cy | x | 1.2 | = | | | | 41,396 cy | | | | | |
| | | | | | | | | Volume x Swell Factor = | Volume _{final} | | | | | |
| Fill (Import) (Site & pad) | | | | | | | | | | | | | | |
| | 38,100 | cy | | | | | | | | | | | | |
| Building Pad Fill | 235,278 | sf | x | 2 | ft | = | 470,556 | cf | = | 17,428 cy | Surface Area X Depth = Volume | | | |
| Fill for Ditch under pad | | | | | | | | | | 3,866 | CY | Length x Width x Depth = Volume | | |
| Site Fill (Elev 18.5 and below) | | | | | | | | | | | | | | |
| Contour - Elev 17 | 76,380 | sf | | | | | | | | 63,650 | (Surface Area _{Elev 17} + Surface Area _{Elev 18}) X 0.5 X Height | | | |
| Contour - Elev 18 | 50,920 | sf | | | | | | | | 12,730 | (Surface Area _{Elev 18} + Surface Area _{Elev 18.5}) X 0.5 X Height | | | |
| Contour - Elev 18.5 | 0 | | | | | | | | | | | | | |
| | | | | | | | | + | | | | | | |
| | | | | | | | | | | 76,380 | cf | = | 2,829 cy | |
| Ditch Fill | | | | | | | | | | | | | | |
| | | | | | | | | | | 1,059 | CY | | Length x Width x Depth = Volume | |
| Near Pond Outfall / Embankment | | | | | | | | | | | | | | |
| Contour - Elev 17 | 10,192 | | | | | | | | | 10,192 | (Surface Area _{Elev 17} + Surface Area _{Elev 18}) X 0.5 X Height | | | |
| Contour - Elev 18 | 10,192 | | | | | | | | | 9,468 | (Surface Area _{Elev 18} + Surface Area _{Elev 19}) X 0.5 X Height | | | |
| Contour - Elev 19 | 8,743 | | | | | | | | | | | | | |
| | | | | | | | | + | | | | | | |
| | | | | | | | | | | 19,660 | cf | = | 728 cy | |

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Site Fill (Elev 19 and above)

| | | | | | |
|-------------------|---------|--|--|------------|---|
| Contour - Elev 19 | 343,543 | | | 340,758 | (Surface Area _{Elev 19} + Surface Area _{Elev 20}) X 0.5 X Height |
| Contour - Elev 20 | 337,972 | | | 189,290 | (Surface Area _{Elev 20} + Surface Area _{Elev 21}) X 0.5 X Height |
| Contour - Elev 21 | 40,608 | | | 64,722 | (Surface Area _{Elev 21} + Surface Area _{Elev 22}) X 0.5 X Height |
| Contour - Elev 22 | 88,836 | | | | |
| | | | | + | |
| | | | | 594,770 cf | = 22,029 cy |

LESS - Pavement Section

$$227,701 \text{ sf} \times 1.17 \text{ ft} = 265,651 \text{ cf} = (9,839) \text{ cy} \quad \text{Surface Area X Depth = Volume}$$

$$\text{Sub-total} \quad 38,100 \text{ cy}$$

$$38,100 \text{ cy} \times 1.2 = 45,720 \text{ cy} \quad \text{Volume x Swell Factor = Volume}_{\text{final}}$$

18" Select fill for Roadway

$$15,180 \text{ cy} \\ 227,701 \text{ sf} \times 1.5 \text{ ft} = 341,552 \text{ cf} = 12,650 \text{ cy} \quad \text{Surface Area X Depth = Volume}$$

$$12,650 \text{ cy} \times 1.2 = 15,180 \text{ cy} \quad \text{Volume x Swell Factor = Volume}_{\text{final}}$$

"The above calculations are, to the best of my knowledge and belief, accurate and complete. The data used for the calculations was derived from digital files provided by the Engineer-of-Record for use by Southern Asphalt. "



Robert E. Turner, IV, PE - SC #20985

