

**APPENDIX K**  
**TRAFFIC CALCULATIONS**



## 25,000 cy facility wastewater transportation

### Windrow Size

|        |                                |        |
|--------|--------------------------------|--------|
| L      | 150 feet                       |        |
| W1     | 7 feet                         |        |
| W2     | 15 feet                        |        |
| H      | 8 feet                         |        |
| Volume | 13,200 cubic feet each windrow | 488.89 |
| Area   | 2,250 square feet              |        |

|               |  |
|---------------|--|
| Facility Size | 25,000 cubic yards on site at any given time |
|               | 675,000 cubic feet                           |

How many windrows? (assuming processing, curing, and storage done in windrows)

|                     |                     |
|---------------------|---------------------|
| Number of Windrows: | 51.1                |
| Area for windrows:  | 115,057 square feet |

|                      |   |
|----------------------|---|
| Size factor:         | 2 (factor used to compute operational area) |
| Total Facility Area: | 230,114 square feet                         |
| Acres:               | <b>5.28</b> acre conversion                 |

### Precipitation and Runoff Estimate

San Rafael 35.2 Annual average rainfall (1981 to 2010) - highest in California (<http://www.currentresults.com/Weather/California/average-yearly-city-precipitation.php#b>)

| Inches (intensity, i) | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|-----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                       | 7   | 7.1 | 4.6 | 1.9 | 0.9 | 0.1 | 0   | 0.1 | 0.2 | 1.5 | 4.3 | 7.6 |

Runoff (<http://www.brighthubengineering.com/hydraulics-civil-engineering/93173-runoff-coefficients-for-use-in-rational-method-calculations/>)

| Q = CiA                             | Jan               | Feb               | Mar               | Apr               | May              | Jun             | Jul        | Aug             | Sep              | Oct              | Nov               | Dec               |
|-------------------------------------|-------------------|-------------------|-------------------|-------------------|------------------|-----------------|------------|-----------------|------------------|------------------|-------------------|-------------------|
| C - runoff coefficient (open)       | 0.69              | 0.69              | 0.69              | 0.69              | 0.69             | 0.69            | 0.69       | 0.69            | 0.69             | 0.69             | 0.69              | 0.69              |
| C - runoff coefficient (material)   | 0.14              | 0.14              | 0.14              | 0.14              | 0.14             | 0.14            | 0.14       | 0.14            | 0.14             | 0.14             | 0.14              | 0.14              |
| i - rain intensity (feet/month)     | 0.58              | 0.59              | 0.38              | 0.16              | 0.08             | 0.01            | -          | 0.01            | 0.02             | 0.13             | 0.36              | 0.63              |
| A - watershed area (open)           | 115,056.82        | 115,056.82        | 115,056.82        | 115,056.82        | 115,056.82       | 115,056.82      | 115,056.82 | 115,056.82      | 115,056.82       | 115,056.82       | 115,056.82        | 115,056.82        |
| A - watershed area (material)       | 115,056.82        | 115,056.82        | 115,056.82        | 115,056.82        | 115,056.82       | 115,056.82      | 115,056.82 | 115,056.82      | 115,056.82       | 115,056.82       | 115,056.82        | 115,056.82        |
| Q - storm water runoff (cubic feet) | 55,706.68         | 56,502.49         | 36,607.24         | 15,120.38         | 7,162.29         | 795.81          | -          | 795.81          | 1,591.62         | 11,937.14        | 34,219.82         | 60,481.53         |
| <b>Conversion to Gallons</b>        | <b>416,685.94</b> | <b>422,638.59</b> | <b>273,822.19</b> | <b>113,100.47</b> | <b>53,573.91</b> | <b>5,952.66</b> | -          | <b>5,952.66</b> | <b>11,905.31</b> | <b>89,289.84</b> | <b>255,964.22</b> | <b>452,401.88</b> |

1 cubic foot = 7.48 gallons

|                                   |              |
|-----------------------------------|--------------|
| 1 truck = gallons capacity        | 20,000.00    |
| <b>Number of trucks per month</b> | <b>20.83</b> |

