

Water, Wastewater, and Solid Waste Generation

September 2, 2009

Water, Wastewater, and Solid Waste Generation

Project Name: Hillside House

Date: 09-02-09

NEW WATER DEMAND*

| | Amount | Unit | # of units, seats, or 1,000 sq.ft | factor/GPD | amount/gpd | AFY |
|--|--------|--------|-----------------------------------|------------|--------------|--------------|
| Auto Repair and Body shop | 0 | 1000SF | 0 | 98.2 | 0 | |
| Bank | 0 | 1000SF | 0 | 151.8 | 0 | |
| Church | 0 | 1000SF | 0 | 151.8 | 0 | |
| Church with School | 0 | 1000SF | 0 | 160.7 | 0 | |
| condominium | 81 | unit | 81 | 250 | 20250 | |
| Convalescent Hospital | 0 | 1000SF | 0 | 98.2 | 0 | |
| Gas Station | 0 | 1000SF | 0 | 258.9 | 0 | |
| Gas Station/Mini Market | 0 | 1000SF | 0 | 437.4 | 0 | |
| General Office | 6.5 | 1000SF | 6.5 | 89.3 | 580.45 | |
| Grocery Store | 0 | 1000SF | 0 | 375 | 0 | |
| Health Club | 0 | 1000SF | 0 | 285.7 | 0 | |
| Hotel/Motel | 0 | 1000SF | 0 | 116.1 | 0 | |
| Hotel/Motel/Restaurant | 0 | 1000SF | 0 | 133.9 | 0 | |
| Industrial Assembly and Manufacturing | 0 | 1000SF | 0 | 75.8 | 0 | |
| Industrial R&D | 0 | 1000SF | 0 | 103.9 | 0 | |
| Medical Office | 0 | 1000SF | 0 | 133.9 | 0 | |
| Mixed Medical/Dental | 0 | 1000SF | 0 | 205.3 | 0 | |
| Multifamily Apartment | 40 | unit | 40 | 214.3 | 8572 | |
| Restaurant 24 hour | 0 | seat | 0 | 35.7 | 0 | |
| Restaurant fast food | 0 | 1000SF | 0 | 1124.5 | 0 | |
| Restaurant sit down | 0 | seat | 0 | 18.3 | 0 | |
| Retail Large over 20,000 SF | 0 | 1000SF | 0 | 60.7 | 0 | |
| Retail Small under 20,000 SF | 0 | 1000SF | 0 | 98.2 | 0 | |
| Retirement Facility | 0 | 1000SF | 0 | 89.3 | 0 | |
| Senior Apartment | 0 | 1000SF | 0 | 107.1 | 0 | |
| School - Elementary | 0 | 1000SF | 0 | 16.4 | 0 | |
| School - Junior High | 0 | 1000SF | 0 | 24.7 | 0 | |
| Single Family Residential < 9999SF | 0 | unit | 0 | 285.6 | 0 | |
| Single Family Residential 10,000-22,000 SF | 0 | unit | 0 | 455.3 | 0 | |
| Single Family Residential 22,001- 43560 SF | 0 | unit | 0 | 788.8 | 0 | |
| Single Family Residential > 1 acre | 0 | unit | 0 | 1285.5 | 0 | |
| Theater | 0 | seat | 0 | 4.2 | 0 | |
| Warehouse/Industrial Storage | 0 | 1000SF | 0 | 62.5 | 0 | |
| WATER DEMAND TOTAL | | | | | 29402 | 32.93 |

NEW WASTEWATER GENERATION **

| Landscape Type | Amount | unit | Landscape water consumption | Irrigation Demand AFY | Sewer Demand AFY |
|---|--------|--------|-----------------------------|-----------------------|------------------|
| <i>Turf Grass</i> | | | | | |
| Cool Season | 0 | 1000SF | 0.055 | 0 | |
| Warm Season | 0 | 1000SF | 0.048 | 0 | |
| <i>Orchards</i> | | | | | |
| Avocados | 0 | 1000SF | 0.031 | 0 | |
| Citrus | 0 | 1000SF | 0.035 | 0 | |
| <i>Landscaping - Non-water conserving</i> | | | | | |
| Groundcover | 0 | 1000SF | 0.041 | 0 | |
| Schrubs | 0 | 1000SF | 0.041 | 0 | |
| Trees | 0 | 1000SF | 0.034 | 0 | |
| <i>Landscaping - Water Conserving</i> | | | | | |
| Groundcover | 190 | 1000SF | 0.021 | 3.99 | |
| Schrubs | 0 | 1000SF | 0.021 | 0 | |
| Trees | 13 | 1000SF | 0.017 | 0.221 | |
| TOTAL | | | AFY | 4.211 | 28.7 |

* Source: City of Santa Barbara Water Demand Factor and Conservation Study "User's Guide" Document NO. 2

** Wastewater generation is calculated by deducting irrigation demand from water demand. Use the Landscape Architect irrigation demand estimate or this table.

SOLID WASTE GENERATION***

CONSTRUCTION WASTE

| Type use | Amount SF | Factor/SF | Waste Generated (lbs) | Waste (Tons) |
|--------------------------------|-----------|-----------|-----------------------|------------------|
| <i>Commercial Development</i> | | | | |
| Remodel | 0 | 40 | 0 | |
| Demolition | 33,866 | 100 | 3386600 | 1693.3 |
| New Construction | 6,708 | 25 | 167700 | 83.85 |
| <i>Residential development</i> | | | | |
| Remodel | 5,442 | 100 | 544200 | 272.1 |
| Demolition | 8,546 | 60 | 512760 | 256.38 |
| New Construction | 219,159 | 15 | 3287385 | 1643.6925 |
| TOTAL | | | 7898645 | 3949.3225 |

OPERATION WASTE

PROJECT WASTE (NEW)

RESIDENTIAL

| Type Use | # Units | PPH | Waste Factor (Tons/Year) | Waste Gen. Tons/yr |
|--------------------------|---------|------|--------------------------|--------------------|
| <i>Residential</i> | | | | |
| Single Family | 0 | 3.01 | 0.95 | 0 |
| Attached Residential | 121 | 2.65 | 0.95 | 304.6175 |
| RESIDENTIAL TOTAL | | | | 304.6175 |

| COMMERCIAL/INDUSTRIAL/INSTITUTIONAL WASTE | | | | |
|--|----------|-------|-------------|--------------------|
| Type Use | SF/Rooms | Unit | Factor Tons | Waste Gen. Tons/yr |
| Neighborhood center 30,000-100,000 | 0 | SF | 0.0009 | 0 |
| <i>Regional Shopping Center 100,000-300,000</i> | | | | |
| Anchor | 0 | SF | 0.00012 | 0 |
| Tenant | 0 | SF | 0.0048 | 0 |
| General Retail and Miscellaneous Services | 0 | SF | 0.0057 | 0 |
| Eating and Drinking Establishments | 0 | SF | 0.0115 | 0 |
| Automotive Dealer and service stations | 0 | SF | 0.0016 | 0 |
| Hotel and Motel | 0 | Rooms | 0.8 | 0 |
| Warehouse | 0 | SF | 0.0016 | 0 |
| Health Services | 0 | SF | 0.0013 | 0 |
| Hospital | 0 | Rooms | 1.9 | 0 |
| Office | 6,708 | SF | 0.0013 | 8.7204 |
| Educational Institutions | 0 | SF | 0.001 | 0 |
| Transportation, Communications, Utilities | 0 | SF | 0.0026 | 0 |
| Manufacturing | 0 | SF | 0.0026 | 0 |
| COMMERCIAL/INDUSTRIAL/INSTITUTIONAL TOTAL | | | | 8.7204 |

| | | |
|--|------------------|--------------------|
| TOTAL INCREASE OPERATIONAL WASTE (TONS/YR) | 313.3379 | UNMITIGATED |
| TOTAL INCREASE OPERATIONAL WASTE (TONS/YR) Mitiga | 156.66895 | MITIGATED |

*** Source: Santa Barbara County Environmental Threshold and Guidelines Manual 2008

EXISTING WATER DEMAND*

| | Amount | Unit | # of units, seats, or 1,000 sq.ft | factor/GPD | amount/gpd | AFY |
|--|--------|--------|-----------------------------------|------------|-------------|-------------|
| Auto Repair and Body shop | 0 | 1000SF | 0 | 98.2 | 0 | |
| Bank | 0 | 1000SF | 0 | 151.8 | 0 | |
| Church | 0 | 1000SF | 0 | 151.8 | 0 | |
| Church with School | 0 | 1000SF | 0 | 160.7 | 0 | |
| condominium | 0 | unit | 0 | 250 | 0 | |
| Convalescent Hospital | 30 | 1000SF | 29.5 | 98.2 | 2896.9 | |
| Gas Station | 0 | 1000SF | 0 | 258.9 | 0 | |
| Gas Station/Mini Market | 0 | 1000SF | 0 | 437.4 | 0 | |
| General Office | 0 | 1000SF | 0 | 89.3 | 0 | |
| Grocery Store | 0 | 1000SF | 0 | 375 | 0 | |
| Health Club | 0 | 1000SF | 0 | 285.7 | 0 | |
| Hotel/Motel | 0 | 1000SF | 0 | 116.1 | 0 | |
| Hotel/Motel/Restaurant | 0 | 1000SF | 0 | 133.9 | 0 | |
| Industrial Assembly and Manufacturing | 0 | 1000SF | 0 | 75.8 | 0 | |
| Industrial R&D | 0 | 1000SF | 0 | 103.9 | 0 | |
| Medical Office | 2.1 | 1000SF | 2.1 | 133.9 | 281.19 | |
| Mixed Medical/Dental | 0 | 1000SF | 0 | 205.3 | 0 | |
| Multifamily Apartment | 0 | unit | 0 | 214.3 | 0 | |
| Restaurant 24 hour | 0 | seat | 0 | 35.7 | 0 | |
| Restaurant fast food | 0 | 1000SF | 0 | 1124.5 | 0 | |
| Restaurant sit down | 0 | seat | 0 | 18.3 | 0 | |
| Retail Large over 20,000 SF | 0 | 1000SF | 0 | 60.7 | 0 | |
| Retail Small under 20,000 SF | 0 | 1000SF | 0 | 98.2 | 0 | |
| Retirement Facility | 0 | 1000SF | 0 | 89.3 | 0 | |
| Senior Apartment | | 1000SF | 0 | 107.1 | 0 | |
| School - Elementary | 0 | 1000SF | 0 | 16.4 | 0 | |
| School - Junior High | 0 | 1000SF | 0 | 24.7 | 0 | |
| Single Family Residential < 9999SF | 0 | unit | 0 | 285.6 | 0 | |
| Single Family Residential 10,000-22,000 SF | 0 | unit | 0 | 455.3 | 0 | |
| Single Family Residential 22,001- 43560 SF | 1 | unit | 1 | 788.8 | 788.8 | |
| Single Family Residential > 1 acre | 0 | unit | 0 | 1285.5 | 0 | |
| Theater | 0 | seat | 0 | 4.2 | 0 | |
| Warehouse/Industrial Storage | 4.4 | 1000SF | 4.4 | 62.5 | 275 | |
| WATER DEMAND TOTAL | | | | | 4242 | 4.75 |

EXISTING WASTEWATER GENERATION **

| Landscape Type | Amount | unit | Landscape water consumption | Irrigation Demand AFY | Water Demand AFY |
|---|--------|--------|-----------------------------|-----------------------|------------------|
| <i>Turf Grass</i> | | | | | |
| Cool Season | 0 | 1000SF | 0.055 | 0 | |
| Warm Season | 0 | 1000SF | 0.048 | 0 | |
| <i>Orchards</i> | | | | | |
| Avocados | 0 | 1000SF | 0.031 | 0 | |
| Citrus | 0 | 1000SF | 0.035 | 0 | |
| <i>Landscaping - Non-water conserving</i> | | | | | |
| Groundcover | 0 | 1000SF | 0.041 | 0 | |
| Schrubs | 0 | 1000SF | 0.041 | 0 | |
| Trees | 0 | 1000SF | 0.034 | 0 | |
| <i>Landscaping - Water Conserving</i> | | | | | |
| Groundcover | 90 | 1000SF | 0.021 | 1.89 | |
| Schrubs | 0 | 1000SF | 0.021 | 0 | |
| Trees | 3 | 1000SF | 0.017 | 0.051 | |
| TOTAL | | | AFY | 1.941 | 2.81 |

EXISTING WASTE GENERATION

RESIDENTIAL

| Type Use | # Units | PPH | Waste Factor (Tons/Year) | Waste Gen. Tons/yr |
|--------------------------|---------|------|--------------------------|--------------------|
| <i>Residential</i> | | | | |
| Single Family | 0 | 3.01 | 0.95 | 0 |
| Attached Residential | 1 | 2.65 | 0.95 | 2.5175 |
| RESIDENTIAL TOTAL | | | | 2.5175 |

| COMMERCIAL/INDUSTRIAL/INSTITUTIONAL WASTE | | | | |
|---|----------|------|-------------|--------------------|
| Type Use | SF/Rooms | Unit | Factor Tons | Waste Gen. Tons/yr |
| Neighborhood center 30,000-100,000 | 0 | SF | 0.0009 | 0 |
| <i>Regional Shopping Center 100,000-300,000</i> | | | | |
| Anchor | 0 | SF | 0.00012 | 0 |
| Tenant | 0 | SF | 0.0048 | 0 |
| General Retail and Miscellaneous Services | 0 | SF | 0.0057 | 0 |
| Eating and Drinking establishments | 0 | SF | 0.0115 | 0 |

| | | | | |
|--|--------|-------|--------|---------------|
| Automotive Dealer and service stations | 0 | SF | 0.0016 | 0 |
| Hotel and Motel | 0 | Rooms | 0.8 | 0 |
| Warehouse | 4409 | SF | 0.0016 | 7.0544 |
| Health Services | 29,450 | SF | 0.0013 | 38.285 |
| Hospital | 0 | Rooms | 0.9 | 0 |
| Office | 2102 | SF | 0.0013 | 2.7326 |
| Educational Institutions | 0 | SF | 0.001 | 0 |
| Transportation, Communications, Utilities | 0 | SF | 0.0026 | 0 |
| Manufacturing | 0 | SF | 0.0026 | 0 |
| COMMERCIAL/INDUSTRIAL/INSTITUTIONAL TOTAL | | | | 48.072 |

| | |
|--|----------------|
| TOTAL EXISTING RESIDENTIAL COMMERCIAL/INDUSTRIAL/INSTITUTIONAL WASTE GENERATION | 50.5895 |
|--|----------------|

NET NEW DEVELOPMENT DEMAND

| | | | Total |
|--------------------------------------|--|--|-----------|
| Net New Water Demand | | | 32.93 |
| Net new Irrigation Demand | | | 2.27 |
| Net New Sewer Demand | | | 25.91 |
| Net New Construction Waste | | | 3949.3225 |
| Net New Residential Waste Generation | | | 302.1 |
| Net New Commercial Waste Generation | | | -39.3516 |
| Total Operational Waste Unmitigated | | | 262.7484 |
| Total Operational Waste Mitigated | | | 131.3742 |

No credit for previous water use
 Previously served by Goleta Water District