

APPENDIX A

MST Alternative List of Parcels

List of Parcels

Key	Vineyard	APN
1	Premier Pacific Vineyards Coombsville Vineyard	046-351-016
1B	Premier Pacific Vineyards Skyline Vineyard	046-351-001
2	Black Cat Vineyards	046-352-007
3	Huneeus Vintners	045-240-023
3B	Huneeus Vintners Faust House - NO VINES	045-250-030
4A	Berry Lane D'Ambrosio	045-250-033
4B1	Rapp Ranch D'Ambrosio (WEST SITE)	052-170-018
4B2	Rapp Ranch D'Ambrosio (EAST SITE)	052-170-019
5	Simpkins	052-250-013
5B	Simpkins	052-230-002
5C	Simpkins	052-250-011
5D	Simpkins	052-250-012
6	Quail Knoll - Zimmerman	052-170-027
7	Frazier Winery - Lupine Hill Vineyard/Winery (East Site)	052-170-042
7B	Frazier Winery - All Vineyard (West Site)	052-170-030
8	Maroon Vineyards	052-100-032
9	Silverman	052-200-009
10A	Nickel and Nickel - Barrow Lane	052-130-046
10B	Nickel and Nickel - Carpenter	052-130-049
10C-D	Nickel and Nickel - John's Creek	052-130-058
10C-D-2	Nickel and Nickel - John's Creek	052-130-058
11	Meteor Vineyard	052-130-061
12	Farella-Park Vineyard	052-130-021
13	Bacigalupi Estate Vineyard	052-130-038
14	Dead Fred	052-130-052
15	Sodaro Estate	052-130-063
16	Darrin Family Vineyard	052-130-032
17	Yahome	049-270-014
18	Arcadia Vineyard	049-080-025
18B	Arcadia Vineyard	049-080-026
18C	Arcadia Vineyard	049-080-028
NVCC	Napa Valley Country Club 1	052-130-041
NVCC	Napa Valley Country Club 2	052-170-044

APPENDIX B

MST Alternative Demand Data by Parcel

MST GOLF COURSE/VINEYARD ALTERNATE RECYCLED WATER PROJECT

VINEYARD WATER DEMAND WORKSHEET

Node **J-40**
 Max GPM **193**

VINEYARD DATA:

Map Legend Number **1**
 Vineyard Name **Premier Pacific Vineyards Coombsville Vineyard**
 Street Number **2184**
 Street Name **Imola**
 APN **046-351-016**

Owner Contact Name
 Owner Phone
 Owner eMail
 Irrigator Contact Name **Tom Adams**
 Irrigator Phone **(707) 224-6565**
 Irrigator eMail **tadams@ppvco.com**

TOTAL STORAGE AVAILABLE (Gallons): **11,404,785**

IRRIGATION DATA, MAXIMUM DAY - VINEYARDS:

Separate Irrigation Cycles	Acres	Vine Spacing (feet)	Row Spacing (feet)	Estimated Number of Vines	Drippers per Vine	Flow per Dripper (GPH)	Maximum Irrigation Frequency (Cycles/week)	Maximum Irrigation Duration (Hours/Cycle)	Irrigation Amount per Cycle (Gallons)	Irrigation Amount per Week (Gallons)	Maximum Flow Rate (gpm)
1-A	3.74	3.3	5.7	8,653	1	0.50	1	10.0	43,265	43,265	72
2-A	10.03	3.3	5.7	23,206	1	0.50	1	10.0	116,030	116,030	193
3-A	8.71	3.5	10.0	10,840	1	1.00	1	12.0	130,080	130,080	181
4-A	9.90	7.0	10.0	6,161	1	1.00	1	12.0	73,932	73,932	103
5-A	1.86	3.3	5.7	4,303	1	0.50	1	10.0	21,515	21,515	36
6-A	2.11	3.3	5.7	4,882	1	0.50	1	10.0	24,410	24,410	41
7-A	2.96	3.3	5.7	6,848	1	0.50	1	10.0	34,240	34,240	57
8-A	4.40	3.3	5.7	10,180	1	0.50	1	10.0	50,900	50,900	85
9-A	1.41	3.3	5.7	3,262	1	0.50	1	10.0	16,310	16,310	27
10-A	0.95	3.3	5.7	2,198	1	0.50	1	10.0	10,990	10,990	18
11-A	3.58	3.3	5.7	8,283	1	0.50	1	10.0	41,415	41,415	69
12-A	4.39	3.3	5.7	10,157	1	0.50	1	10.0	50,785	50,785	85
13-A	3.02	3.3	5.7	6,987	1	0.50	1	10.0	34,935	34,935	58
14-A	2.70	3.3	5.7	6,247	1	0.50	1	10.0	31,235	31,235	52
15-A	3.45	3.3	5.7	7,982	1	0.50	1	10.0	39,910	39,910	67
15 blocks	63.21			120,189						719,952	193

154.0 Hours of Irrigation per week **719,952** Gallons Total Water Demand Required per week 18-hour GPM: 95
 24-hour GPM: 71

IRRIGATION DATA, MAXIMUM DAY - LANDSCAPING:

Site(s)	Acres	Demand (AF per acre)	Peak Month (%)	Irrigation Duration	Max Day Demand (Gallons)	Annual Demand (Gallons)	Max Day Flow Rate (gpm)
-	-	2.8	20%	6.0	-	-	-

MST GOLF COURSE/VINEYARD ALTERNATE RECYCLED WATER PROJECT

VINEYARD WATER DEMAND WORKSHEET

Node **J-40**
 Max GPM **16**

VINEYARD DATA:

Map Legend Number **2**

Vineyard Name **Black Cat Vineyards**

Street Number **1352**

Street Name **Fourth Ave**

APN **046-352-007**

Owner Contact Name

Owner Phone

Owner eMail

Irrigator Contact Name **Rick Reichow**

Irrigator Phone **(707) 255-3692**

Irrigator eMail **rreichow@napalink.net**

TOTAL STORAGE AVAILABLE (Gallons): **0**

IRRIGATION DATA, MAXIMUM DAY - VINEYARDS:

Separate Irrigation Cycles	Acres	Vine Spacing (feet)	Row Spacing (feet)	Estimated Number of Vines	Drippers per Vine	Flow per Dripper (GPH)	Maximum Irrigation Frequency (Cycles/week)	Maximum Irrigation Duration (Hours/Cycle)	Irrigation Amount per Cycle (Gallons)	Irrigation Amount per Week (Gallons)	Maximum Flow Rate (gpm)
1	0.83	6.0	8.0	756	1	0.50	2	10.0	3,780	7,560	6
2	0.83	6.0	8.0	756	1	0.50	2	10.0	3,780	7,560	6
3	0.83	6.0	8.0	756	1	0.50	2	10.0	3,780	7,560	6
4				-					-	-	-
5				-					-	-	-
6				-					-	-	-
7				-					-	-	-
8				-					-	-	-
9				-					-	-	-
10				-					-	-	-
11				-					-	-	-
12				-					-	-	-
13				-					-	-	-
14				-					-	-	-
15				-					-	-	-
3 blocks	2.50			2,268						22,680	6

60.0 Hours of Irrigation per week **22,680** Gallons Total Water Demand Required per week 18-hour GPM: **3**
 24-hour GPM: **2**

IRRIGATION DATA, MAXIMUM DAY - LANDSCAPING:

Site(s)	Acres	Demand (AF per acre)	Peak Month (%)	Irrigation Duration	Max Day Demand (Gallons)	Annual Demand (Gallons)	Max Day Flow Rate (gpm)
	0.50	2.8	20%	6.0	3,550	456,120	10

MST GOLF COURSE/VINEYARD ALTERNATE RECYCLED WATER PROJECT

VINEYARD WATER DEMAND WORKSHEET

Node **J-03**
 Max GPM **185**

VINEYARD DATA:

Map Legend Number **3**

Vineyard Name **Huneus Vintners**

Street Number **1465**

Street Name **Coombsville**

APN **045-240-023**

Owner Contact Name

Owner Phone

Owner eMail

Irrigator Contact Name **Michael Sipora**

Irrigator Phone **(707) 753-0733**

Irrigator eMail **Michael@Quintessa.com**

TOTAL STORAGE AVAILABLE (Gallons): **8,470,800**

IRRIGATION DATA, MAXIMUM DAY - VINEYARDS:

Separate Irrigation Cycles	Acres	Vine Spacing (feet)	Row Spacing (feet)	Estimated Number of Vines	Drippers per Vine	Flow per Dripper (GPH)	Maximum Irrigation Frequency (Cycles/week)	Maximum Irrigation Duration (Hours/Cycle)	Irrigation Amount per Cycle (Gallons)	Irrigation Amount per Week (Gallons)	Maximum Flow Rate (gpm)
1	12.22	4.0	6.0	22,183	1	0.50	2	8.0	88,732	177,464	185
2	12.22	4.0	6.0	22,183	1	0.50	2	8.0	88,732	177,464	185
3	12.22	4.0	6.0	22,183	1	0.50	2	8.0	88,732	177,464	185
4	12.22	4.0	6.0	22,183	1	0.50	2	8.0	88,732	177,464	185
5	12.22	4.0	6.0	22,183	1	0.50	2	8.0	88,732	177,464	185
6	12.22	4.0	6.0	22,183	1	0.50	2	8.0	88,732	177,464	185
7	12.22	4.0	6.0	22,183	1	0.50	2	8.0	88,732	177,464	185
8	12.22	4.0	6.0	22,183	1	0.50	2	8.0	88,732	177,464	185
9	12.22	4.0	6.0	22,183	1	0.50	2	8.0	88,732	177,464	185
10				-					-	-	-
11				-					-	-	-
12				-					-	-	-
13				-					-	-	-
14				-					-	-	-
15				-					-	-	-
9 blocks	110.00			199,647						1,597,176	185

144.0 Hours of Irrigation per week 1,597,176 Gallons Total Water Demand Required per week 18-hour GPM: 211
 24-hour GPM: 158

IRRIGATION DATA, MAXIMUM DAY - LANDSCAPING:

Site(s)	Acres	Demand (AF per acre)	Peak Month (%)	Irrigation Duration	Max Day Demand (Gallons)	Annual Demand (Gallons)	Max Day Flow Rate (gpm)
-		2.8	20%	6.0	-	-	-

MST GOLF COURSE/VINEYARD ALTERNATE RECYCLED WATER PROJECT

VINEYARD WATER DEMAND WORKSHEET

Node **J-30**
 Max GPM **85**

VINEYARD DATA:

Map Legend Number **4A**
 Vineyard Name **Berry Lane D'Ambrosio**
 Street Number **1065**
 Street Name **Berry Lane**
 APN **045-250-033**

Owner Contact Name
 Owner Phone **(707) 224-0195**
 Owner eMail
 Irrigator Contact Name **Aaron DeBeers**
 Irrigator Phone **(707) 227-4170**
 Irrigator eMail **adebeers@dbicnapa.com**

TOTAL STORAGE AVAILABLE (Gallons): **0**

IRRIGATION DATA, MAXIMUM DAY - VINEYARDS:

Separate Irrigation Cycles	Acres	Vine Spacing (feet)	Row Spacing (feet)	Estimated Number of Vines	Drippers per Vine	Flow per Dripper (GPH)	Maximum Irrigation Frequency (Cycles/week)	Maximum Irrigation Duration (Hours/Cycle)	Irrigation Amount per Cycle (Gallons)	Irrigation Amount per Week (Gallons)	Maximum Flow Rate (gpm)
1	9.32	5.0	8.0	10,149	1	0.50	1	8.0	40,596	40,596	85
2	2.40	5.0	8.0	2,614	1	0.50	1	8.0	10,456	10,456	22
3	1.00	5.0	8.0	1,089	1	0.50	2	8.0	4,356	8,712	9
4				-					-	-	-
5				-					-	-	-
6				-					-	-	-
7				-					-	-	-
8				-					-	-	-
9				-					-	-	-
10				-					-	-	-
11				-					-	-	-
12				-					-	-	-
13				-					-	-	-
14				-					-	-	-
15				-					-	-	-
3 blocks	12.72			13,852						59,764	85

32.0 Hours of Irrigation per week **59,764 Gallons Total Water Demand Required per week** *18-hour GPM:* 8
24-hour GPM: 6

IRRIGATION DATA, MAXIMUM DAY - LANDSCAPING:

Site(s)	Acres	Demand (AF per acre)	Peak Month (%)	Irrigation Duration	Max Day Demand (Gallons)	Annual Demand (Gallons)	Max Day Flow Rate (gpm)
-		2.8	20%	6.0	-	-	-

MST GOLF COURSE/VINEYARD ALTERNATE RECYCLED WATER PROJECT

VINEYARD WATER DEMAND WORKSHEET

Node **J-19**
 Max GPM **83**

VINEYARD DATA:

Map Legend Number **4B1**

Vineyard Name **Rapp Ranch D'Ambrosio (WEST SITE)**

Street Number **20**

Street Name **Chateau Lane**

APN **052-170-018**

Owner Contact Name **D'Ambrosio Brothers Investment Company**

Owner Phone

Owner eMail

Irrigator Contact Name **Aaron DeBeers**

Irrigator Phone **(707) 227-4170**

Irrigator eMail **adebeers@dbicnapa.com**

TOTAL STORAGE AVAILABLE (Gallons): **45,000**

IRRIGATION DATA, MAXIMUM DAY - VINEYARDS:

Separate Irrigation Cycles	Acres	Vine Spacing (feet)	Row Spacing (feet)	Estimated Number of Vines	Drippers per Vine	Flow per Dripper (GPH)	Maximum Irrigation Frequency (Cycles/week)	Maximum Irrigation Duration (Hours/Cycle)	Irrigation Amount per Cycle (Gallons)	Irrigation Amount per Week (Gallons)	Maximum Flow Rate (gpm)
1	2.13	5.0	7.0	2,651	2	0.50	2	8.0	21,208	42,416	44
2	1.31	5.0	7.0	1,630	2	0.50	2	8.0	13,040	26,080	27
3	1.92	5.0	7.0	2,390	2	0.50	2	8.0	19,120	38,240	40
4				-					-	-	-
5				-					-	-	-
6				-					-	-	-
7				-					-	-	-
8				-					-	-	-
9				-					-	-	-
10				-					-	-	-
11				-					-	-	-
12				-					-	-	-
13				-					-	-	-
14				-					-	-	-
15				-					-	-	-
3 blocks	5.36			6,671						106,736	44

48.0 Hours of Irrigation per week **106,736** Gallons Total Water Demand Required per week 18-hour GPM: 14
 24-hour GPM: 11

IRRIGATION DATA, MAXIMUM DAY - LANDSCAPING:

Site(s)	Acres	Demand (AF per acre)	Peak Month (%)	Irrigation Duration	Max Day Demand (Gallons)	Annual Demand (Gallons)	Max Day Flow Rate (gpm)
	2.00	2.8	20%	6.0	14,201	1,824,480	39

MST GOLF COURSE/VINEYARD ALTERNATE RECYCLED WATER PROJECT

VINEYARD WATER DEMAND WORKSHEET

Node **J-19**
 Max GPM **94**

VINEYARD DATA:

Map Legend Number **4B2**

Vineyard Name **Rapp Ranch D'Ambrosio (EAST SITE)**

Street Number **10**

Street Name **Chateau Lane**

APN **052-170-019**

Owner Contact Name **D'Ambrosio Brothers Investment Company**

Owner Phone

Owner eMail

Irrigator Contact Name **Aaron DeBeers**

Irrigator Phone **(707) 227-4170**

Irrigator eMail

TOTAL STORAGE AVAILABLE (Gallons): **20,000**

IRRIGATION DATA, MAXIMUM DAY - VINEYARDS:

Separate Irrigation Cycles	Acres	Vine Spacing (feet)	Row Spacing (feet)	Estimated Number of Vines	Drippers per Vine	Flow per Dripper (GPH)	Maximum Irrigation Frequency (Cycles/week)	Maximum Irrigation Duration (Hours/Cycle)	Irrigation Amount per Cycle (Gallons)	Irrigation Amount per Week (Gallons)	Maximum Flow Rate (gpm)
1	2.24	5.0	7.0	2,788	2	0.50	2	8.0	22,304	44,608	46
2	2.67	5.0	7.0	3,323	2	0.50	2	8.0	26,584	53,168	55
3	1.36	5.0	7.0	1,693	2	0.50	2	8.0	13,544	27,088	28
4	0.68	5.0	7.0	846	2	0.50	2	8.0	6,768	13,536	14
5				-					-	-	-
6				-					-	-	-
7				-					-	-	-
8				-					-	-	-
9				-					-	-	-
10				-					-	-	-
11				-					-	-	-
12				-					-	-	-
13				-					-	-	-
14				-					-	-	-
15				-					-	-	-
4 blocks	6.95			8,650						138,400	55

64.0 Hours of Irrigation per week **138,400** Gallons Total Water Demand Required per week 18-hour GPM: 18
 24-hour GPM: 14

IRRIGATION DATA, MAXIMUM DAY - LANDSCAPING:

Site(s)	Acres	Demand (AF per acre)	Peak Month (%)	Irrigation Duration	Max Day Demand (Gallons)	Annual Demand (Gallons)	Max Day Flow Rate (gpm)
	2.00	2.8	20%	6.0	14,201	1,824,480	39

MST GOLF COURSE/VINEYARD ALTERNATE RECYCLED WATER PROJECT

VINEYARD WATER DEMAND WORKSHEET

Node **J-20**
 Max GPM **28**

VINEYARD DATA:

Map Legend Number **5**

Vineyard Name **Simpkins**

Street Number **1153**

Street Name **Second Ave**

APN **052-250-013**

Owner Contact Name **Cliff & Joan Simpkins**

Owner Phone **226-1902**

Owner eMail

Irrigator Contact Name **Michael Wolf**

Irrigator Phone **(707) 255-4084**

Irrigator eMail **Mike@MichaelWolfVineyardServices.com**

TOTAL STORAGE AVAILABLE (Gallons): **10,000**

IRRIGATION DATA, MAXIMUM DAY - VINEYARDS:

Separate Irrigation Cycles	Acres	Vine Spacing (feet)	Row Spacing (feet)	Estimated Number of Vines	Drippers per Vine	Flow per Dripper (GPH)	Maximum Irrigation Frequency (Cycles/week)	Maximum Irrigation Duration (Hours/Cycle)	Irrigation Amount per Cycle (Gallons)	Irrigation Amount per Week (Gallons)	Maximum Flow Rate (gpm)
1	1.79	4.0	7.0	2,785	1	0.50	1	4.0	5,570	5,570	23
2	1.79	4.0	7.0	2,785	1	0.50	1	4.0	5,570	5,570	23
3	1.79	4.0	7.0	2,785	1	0.50	1	4.0	5,570	5,570	23
4	1.79	4.0	7.0	2,785	1	0.50	1	4.0	5,570	5,570	23
5	1.79	4.0	7.0	2,785	1	0.50	1	4.0	5,570	5,570	23
6	1.79	4.0	7.0	2,785	1	0.50	1	4.0	5,570	5,570	23
7				-					-	-	-
8				-					-	-	-
9				-					-	-	-
10				-					-	-	-
11				-					-	-	-
12				-					-	-	-
13				-					-	-	-
14				-					-	-	-
15				-					-	-	-
6 blocks	10.74			16,710						33,420	23

24.0 Hours of Irrigation per week **33,420** Gallons Total Water Demand Required per week 18-hour GPM: **4**
 24-hour GPM: **3**

IRRIGATION DATA, MAXIMUM DAY - LANDSCAPING:

Site(s)	Acres	Demand (AF per acre)	Peak Month (%)	Irrigation Duration	Max Day Demand (Gallons)	Annual Demand (Gallons)	Max Day Flow Rate (gpm)
	0.25	2.8	20%	6.0	1,775	228,060	5

MST GOLF COURSE/VINEYARD ALTERNATE RECYCLED WATER PROJECT

VINEYARD WATER DEMAND WORKSHEET

Node **J-19**
 Max GPM **72**

VINEYARD DATA:

Map Legend Number **6**
 Vineyard Name **Quail Knoll - Zimmerman**
 Street Number **21**
 Street Name **Palm Drive**
 APN **052-170-027**

Owner Contact Name
 Owner Phone
 Owner eMail
 Irrigator Contact Name **Brian Umlauf**
 Irrigator Phone **(707) 291-9928**
 Irrigator eMail **BrianU99@Sonic.net**

TOTAL STORAGE AVAILABLE (Gallons): **0**

IRRIGATION DATA, MAXIMUM DAY - VINEYARDS:

Separate Irrigation Cycles	Acres	Vine Spacing (feet)	Row Spacing (feet)	Estimated Number of Vines	Drippers per Vine	Flow per Dripper (GPH)	Maximum Irrigation Frequency (Cycles/week)	Maximum Irrigation Duration (Hours/Cycle)	Irrigation Amount per Cycle (Gallons)	Irrigation Amount per Week (Gallons)	Maximum Flow Rate (gpm)
1	9.00			-					-	-	-
2				-					-	-	-
3				-					-	-	-
4				-					-	-	-
5				-					-	-	-
6				-					-	-	72
7				-					-	-	-
8				-					-	-	-
9				-					-	-	-
10				-					-	-	-
11				-					-	-	-
12				-					-	-	-
13				-					-	-	-
14				-					-	-	-
15				-					-	-	-
1 block	9.00			-						102,012	72

0.0 Hours of Irrigation per week **102,012** Gallons Total Water Demand Required per week 18-hour GPM: 13
 24-hour GPM: 10

IRRIGATION DATA, MAXIMUM DAY - LANDSCAPING:

Site(s)	Acres	Demand (AF per acre)	Peak Month (%)	Irrigation Duration	Max Day Demand (Gallons)	Annual Demand (Gallons)	Max Day Flow Rate (gpm)
-		2.8	20%	6.0	-	-	-

MST GOLF COURSE/VINEYARD ALTERNATE RECYCLED WATER PROJECT

VINEYARD WATER DEMAND WORKSHEET

Node **J-19**
Max GPM **68**

VINEYARD DATA:

Map Legend Number **7**

Vineyard Name **Frazier Winery - Lupine Hill Vineyard/Winery (East Site)**
Street Number **40**
Street Name **Rapp Lane**
APN **052-170-042**

Owner Contact Name **Bill Frazier**
Owner Phone
Owner eMail
Irrigator Contact Name **Jon Frazier**
Irrigator Phone **(707) 486-1640**
Irrigator eMail **ranchhand22@hotmail.com**

TOTAL STORAGE AVAILABLE (Gallons): **0**

IRRIGATION DATA, MAXIMUM DAY - VINEYARDS:

Separate Irrigation Cycles	Acres	Vine Spacing (feet)	Row Spacing (feet)	Estimated Number of Vines	Drippers per Vine	Flow per Dripper (GPH)	Maximum Irrigation Frequency (Cycles/week)	Maximum Irrigation Duration (Hours/Cycle)	Irrigation Amount per Cycle (Gallons)	Irrigation Amount per Week (Gallons)	Maximum Flow Rate (gpm)
1	3.00	7.0	3.5	5,334	1	0.50	3	4.0	10,668	32,004	44
2	3.00	7.0	3.5	5,334	1	0.50	3	4.0	10,668	32,004	44
3	2.50	7.0	3.5	4,445	1	0.50	3	4.0	8,890	26,670	37
4	2.50	7.0	3.5	4,445	1	0.50	3	4.0	8,890	26,670	37
5	3.25	7.0	3.5	5,778	1	0.50	3	4.0	11,556	34,668	48
6	3.25	7.0	3.5	5,778	1	0.50	3	4.0	11,556	34,668	48
7				-					-	-	-
8				-					-	-	-
9				-					-	-	-
10				-					-	-	-
11				-					-	-	-
12				-					-	-	-
13				-					-	-	-
14				-					-	-	-
15				-					-	-	-
6 blocks	17.50			31,114						186,684	48

72.0 Hours of Irrigation per week **186,684** Gallons Total Water Demand Required per week 18-hour GPM: 25
24-hour GPM: 19

IRRIGATION DATA, MAXIMUM DAY - LANDSCAPING:

Site(s)	Acres	Demand (AF per acre)	Peak Month (%)	Irrigation Duration	Max Day Demand (Gallons)	Annual Demand (Gallons)	Max Day Flow Rate (gpm)
	1.00	2.8	20%	6.0	7,100	912,240	20

MST GOLF COURSE/VINEYARD ALTERNATE RECYCLED WATER PROJECT

VINEYARD WATER DEMAND WORKSHEET

Node **J-19**
 Max GPM **95**

VINEYARD DATA:

Map Legend Number **7B**
 Vineyard Name **Frazier Winery - All Vineyard (West Site)**
 Street Number **40**
 Street Name **Lupine Hill**
 APN **052-170-030**

Owner Contact Name **Bill Frazier**
 Owner Phone
 Owner eMail
 Irrigator Contact Name **Jon Frazier**
 Irrigator Phone **(707) 486-1640**
 Irrigator eMail **ranchhand22@hotmail.com**

TOTAL STORAGE AVAILABLE (Gallons): **0**

IRRIGATION DATA, MAXIMUM DAY - VINEYARDS:

Separate Irrigation Cycles	Acres	Vine Spacing (feet)	Row Spacing (feet)	Estimated Number of Vines	Drippers per Vine	Flow per Dripper (GPH)	Maximum Irrigation Frequency (Cycles/week)	Maximum Irrigation Duration (Hours/Cycle)	Irrigation Amount per Cycle (Gallons)	Irrigation Amount per Week (Gallons)	Maximum Flow Rate (gpm)
1	2.50	6.0	3.5	5,186	1	0.50	3	4.0	10,372	31,116	43
2	2.50	6.0	3.5	5,186	1	0.50	3	4.0	10,372	31,116	43
3	5.50	6.0	3.5	11,409	1	0.50	3	4.0	22,818	68,454	95
4				-					-	-	-
5				-					-	-	-
6				-					-	-	-
7				-					-	-	-
8				-					-	-	-
9				-					-	-	-
10				-					-	-	-
11				-					-	-	-
12				-					-	-	-
13				-					-	-	-
14				-					-	-	-
15				-					-	-	-
3 blocks	10.50			21,781						130,686	95

36.0 Hours of Irrigation per week **130,686** Gallons Total Water Demand Required per week 18-hour GPM: 17
 24-hour GPM: 13

IRRIGATION DATA, MAXIMUM DAY - LANDSCAPING:

Site(s)	Acres	Demand (AF per acre)	Peak Month (%)	Irrigation Duration	Max Day Demand (Gallons)	Annual Demand (Gallons)	Max Day Flow Rate (gpm)
-		2.8	20%	6.0	-	-	-

MST GOLF COURSE/VINEYARD ALTERNATE RECYCLED WATER PROJECT

VINEYARD WATER DEMAND WORKSHEET

Node **J-19**
Max GPM **44**

VINEYARD DATA:

Map Legend Number **8**

Vineyard Name **Maroon Vineyards**

Street Number **1080**

Street Name **LaDonde Lane**

APN **052-100-032**

Owner Contact Name

Owner Phone

Owner eMail

Irrigator Contact Name **Paul Maroon**

Irrigator Phone **(707) 258-2985**

Irrigator eMail **maroon@sbcglobal.net**

TOTAL STORAGE AVAILABLE (Gallons): **12,000**

IRRIGATION DATA, MAXIMUM DAY - VINEYARDS:

Separate Irrigation Cycles	Acres	Vine Spacing (feet)	Row Spacing (feet)	Estimated Number of Vines	Drippers per Vine	Flow per Dripper (GPH)	Maximum Irrigation Frequency (Cycles/week)	Maximum Irrigation Duration (Hours/Cycle)	Irrigation Amount per Cycle (Gallons)	Irrigation Amount per Week (Gallons)	Maximum Flow Rate (gpm)
1	2.00	5.0	6.0	2,904	2	0.25	2	4.0	5,808	11,616	24
2	2.00	5.0	6.0	2,904	2	0.25	2	4.0	5,808	11,616	24
3	2.00	5.0	6.0	2,904	2	0.25	2	4.0	5,808	11,616	24
4	2.00	5.0	6.0	2,904	2	0.25	2	4.0	5,808	11,616	24
5	2.00	5.0	6.0	2,904	2	0.25	2	4.0	5,808	11,616	24
6	2.00	5.0	6.0	2,904	2	0.25	2	4.0	5,808	11,616	24
7				-					-	-	-
8				-					-	-	-
9				-					-	-	-
10				-					-	-	-
11				-					-	-	-
12				-					-	-	-
13				-					-	-	-
14				-					-	-	-
15				-					-	-	-
6 blocks	12.00			17,424						69,696	24

48.0 Hours of Irrigation per week **69,696** Gallons Total Water Demand Required per week 18-hour GPM: 9
24-hour GPM: 7

IRRIGATION DATA, MAXIMUM DAY - LANDSCAPING:

Site(s)	Acres	Demand (AF per acre)	Peak Month (%)	Irrigation Duration	Max Day Demand (Gallons)	Annual Demand (Gallons)	Max Day Flow Rate (gpm)
	1.00	2.8	20%	6.0	7,100	912,240	20

MST GOLF COURSE/VINEYARD ALTERNATE RECYCLED WATER PROJECT

VINEYARD WATER DEMAND WORKSHEET

Node **J-20**
 Max GPM **57**

VINEYARD DATA:

Map Legend Number **9**
 Vineyard Name **Silverman**
 Street Number **3004**
 Street Name **North**
 APN **052-200-009**

Owner Contact Name **Gail Silverman**
 Owner Phone **255-3137**
 Owner eMail
 Irrigator Contact Name **Michael Wolf**
 Irrigator Phone **(707) 255-4084**
 Irrigator eMail **Mike@MichaelWolfVineyardServices.com**

TOTAL STORAGE AVAILABLE (Gallons): **977,400**

IRRIGATION DATA, MAXIMUM DAY - VINEYARDS:

Separate Irrigation Cycles	Acres	Vine Spacing (feet)	Row Spacing (feet)	Estimated Number of Vines	Drippers per Vine	Flow per Dripper (GPH)	Maximum Irrigation Frequency (Cycles/week)	Maximum Irrigation Duration (Hours/Cycle)	Irrigation Amount per Cycle (Gallons)	Irrigation Amount per Week (Gallons)	Maximum Flow Rate (gpm)
1	2.00	4.0	7.0	3,111	2	0.50	2	5.0	15,555	31,110	52
2	1.13	4.0	7.0	1,754	2	0.50	2	5.0	8,770	17,540	29
3	1.13	4.0	7.0	1,754	2	0.50	2	5.0	8,770	17,540	29
4	1.13	4.0	7.0	1,754	2	0.50	2	5.0	8,770	17,540	29
5	1.13	4.0	7.0	1,754	2	0.50	2	5.0	8,770	17,540	29
6				-					-	-	-
7				-					-	-	-
8				-					-	-	-
9				-					-	-	-
10				-					-	-	-
11				-					-	-	-
12				-					-	-	-
13				-					-	-	-
14				-					-	-	-
15				-					-	-	-
5 blocks	6.51			10,127						101,270	52

50.0 Hours of Irrigation per week **101,270 Gallons Total Water Demand Required per week** *18-hour GPM: 13*
24-hour GPM: 10

IRRIGATION DATA, MAXIMUM DAY - LANDSCAPING:

Site(s)	Acres	Demand (AF per acre)	Peak Month (%)	Irrigation Duration	Max Day Demand (Gallons)	Annual Demand (Gallons)	Max Day Flow Rate (gpm)
	0.25	2.8	20%	6.0	1,775	228,060	5

MST GOLF COURSE/VINEYARD ALTERNATE RECYCLED WATER PROJECT

VINEYARD WATER DEMAND WORKSHEET

Node **J-25**
 Max GPM **86**

VINEYARD DATA:

Map Legend Number **10A**

Vineyard Name **Nickel and Nickel - Barrow Lane**

Street Number **1090**

Street Name **Barrow Lane**

APN **052-130-046**

Owner Contact Name **Erik Nickel**

Owner Phone **(707) 944-2861**

Owner eMail

Irrigator Contact Name **Grant Hemingway**

Irrigator Phone **(707) 944-2861**

Irrigator eMail **ghemingway@farniente.com**

TOTAL STORAGE AVAILABLE (Gallons): **0**

IRRIGATION DATA, MAXIMUM DAY - VINEYARDS:

Separate Irrigation Cycles	Acres	Vine Spacing (feet)	Row Spacing (feet)	Estimated Number of Vines	Drippers per Vine	Flow per Dripper (GPH)	Maximum Irrigation Frequency (Cycles/week)	Maximum Irrigation Duration (Hours/Cycle)	Irrigation Amount per Cycle (Gallons)	Irrigation Amount per Week (Gallons)	Maximum Flow Rate (gpm)
1-A	2.35	5.0	8.0	2,559	2	0.50	2	5.0	12,795	25,590	43
2-A	2.35	5.0	8.0	2,559	2	0.50	2	5.0	12,795	25,590	43
3-B	2.35	5.0	8.0	2,559	2	0.50	2	5.0	12,795	25,590	43
4-B	2.35	5.0	8.0	2,559	2	0.50	2	5.0	12,795	25,590	43
5-C	1.50	5.0	8.0	1,634	2	0.50	2	5.0	8,170	16,340	27
6-C	1.50	5.0	8.0	1,634	2	0.50	2	5.0	8,170	16,340	27
7-D	1.50	5.0	8.0	1,634	2	0.50	2	5.0	8,170	16,340	27
8-D	1.50	5.0	8.0	1,634	2	0.50	2	5.0	8,170	16,340	27
9				-					-	-	-
10				-					-	-	-
11				-					-	-	-
12				-					-	-	-
13				-					-	-	-
14				-					-	-	-
15				-					-	-	-
8 blocks	15.40			16,772						167,720	86

80.0 Hours of Irrigation per week **167,720** Gallons Total Water Demand Required per week 18-hour GPM: 22
 24-hour GPM: 17

IRRIGATION DATA, MAXIMUM DAY - LANDSCAPING:

Site(s)	Acres	Demand (AF per acre)	Peak Month (%)	Irrigation Duration	Max Day Demand (Gallons)	Annual Demand (Gallons)	Max Day Flow Rate (gpm)
-		2.8	20%	6.0	-	-	-

MST GOLF COURSE/VINEYARD ALTERNATE RECYCLED WATER PROJECT

VINEYARD WATER DEMAND WORKSHEET

Node **J-42**
 Max GPM **87**

VINEYARD DATA:

Map Legend Number **10B**

Vineyard Name **Nickel and Nickel - Carpenter**

Street Number **2310**

Street Name **North Third Ave**

APN **052-130-049**

Owner Contact Name **Erik Nickel**

Owner Phone **(707) 944-2861**

Owner eMail

Irrigator Contact Name **Grant Hemingway**

Irrigator Phone **(707) 944-2861**

Irrigator eMail **ghemingway@farniente.com**

TOTAL STORAGE AVAILABLE (Gallons): **0**

IRRIGATION DATA, MAXIMUM DAY - VINEYARDS:

Separate Irrigation Cycles	Acres	Vine Spacing (feet)	Row Spacing (feet)	Estimated Number of Vines	Drippers per Vine	Flow per Dripper (GPH)	Maximum Irrigation Frequency (Cycles/week)	Maximum Irrigation Duration (Hours/Cycle)	Irrigation Amount per Cycle (Gallons)	Irrigation Amount per Week (Gallons)	Maximum Flow Rate (gpm)
1	4.80	5.0	8.0	5,227	2	0.50	2	5.0	26,135	52,270	87
2	3.85	5.0	8.0	4,193	2	0.50	2	6.0	25,158	50,316	70
3	3.85	5.0	8.0	4,193	2	0.50	2	5.0	20,965	41,930	70
4-A	2.90	6.0	8.0	2,632	2	0.50	2	5.0	13,160	26,320	44
5-A	1.58	6.0	10.0	1,147	2	0.50	2	5.0	5,735	11,470	19
6	4.73	6.0	10.0	3,434	2	0.50	2	5.0	17,170	34,340	57
7				-					-	-	-
8				-					-	-	-
9				-					-	-	-
10				-					-	-	-
11				-					-	-	-
12				-					-	-	-
13				-					-	-	-
14				-					-	-	-
15				-					-	-	-
6 blocks	21.71			20,826						216,646	87

62.0 Hours of Irrigation per week **216,646** Gallons Total Water Demand Required per week 18-hour GPM: 29
 24-hour GPM: 21

IRRIGATION DATA, MAXIMUM DAY - LANDSCAPING:

Site(s)	Acres	Demand (AF per acre)	Peak Month (%)	Irrigation Duration	Max Day Demand (Gallons)	Annual Demand (Gallons)	Max Day Flow Rate (gpm)
-		2.8	20%	6.0	-	-	-

MST GOLF COURSE/VINEYARD ALTERNATE RECYCLED WATER PROJECT

VINEYARD WATER DEMAND WORKSHEET

Node **J-50**
 Max GPM **162**

VINEYARD DATA:

Map Legend Number **10C-D**
 Vineyard Name **Nickel and Nickel - John's Creek**
 Street Number **2424**
 Street Name **North Third Ave**
 APN **052-130-058**

Owner Contact Name **Erik Nickel**
 Owner Phone **(707) 944-2861**
 Owner eMail
 Irrigator Contact Name **Grant Hemingway**
 Irrigator Phone **(707) 944-2861**
 Irrigator eMail **ghemingway@farniente.com**

TOTAL STORAGE AVAILABLE (Gallons): **4,121,702**

IRRIGATION DATA, MAXIMUM DAY - VINEYARDS:

Separate Irrigation Cycles	Acres	Vine Spacing (feet)	Row Spacing (feet)	Estimated Number of Vines	Drippers per Vine	Flow per Dripper (GPH)	Maximum Irrigation Frequency (Cycles/week)	Maximum Irrigation Duration (Hours/Cycle)	Irrigation Amount per Cycle (Gallons)	Irrigation Amount per Week (Gallons)	Maximum Flow Rate (gpm)
1-A	4.05	6.0	8.0	3,675	2	0.50	2	6.0	22,050	44,100	61
2-A	4.05	6.0	8.0	3,675	2	0.50	2	6.0	22,050	44,100	61
3-B	4.20	6.0	8.0	3,812	2	0.50	2	6.0	22,872	45,744	64
4-B	4.20	6.0	8.0	3,812	2	0.50	2	6.0	22,872	45,744	64
5-C	4.15	6.0	8.0	3,766	2	0.50	2	6.0	22,596	45,192	63
6-C	4.15	6.0	8.0	3,766	2	0.50	2	6.0	22,596	45,192	63
7-D	2.25	6.0	10.0	1,634	2	0.50	2	6.0	9,804	19,608	27
8-D	2.25	6.0	10.0	1,634	2	0.50	2	6.0	9,804	19,608	27
9-D	2.25	6.0	10.0	1,634	2	0.50	2	6.0	9,804	19,608	27
10-D	2.25	6.0	10.0	1,634	2	0.50	2	6.0	9,804	19,608	27
11-D	2.25	6.0	10.0	1,634	2	0.50	2	6.0	9,804	19,608	27
12-D	2.25	6.0	10.0	1,634	2	0.50	2	6.0	9,804	19,608	27
13	3.73	6.0	10.0	2,708	2	0.50	2	6.0	16,248	32,496	45
14				-					-	-	-
15				-					-	-	-
13 blocks	42.03			35,018						420,216	162

156.0 Hours of Irrigation per week 420,216 Gallons Total Water Demand Required per week 18-hour GPM: 56
 24-hour GPM: 42

IRRIGATION DATA, MAXIMUM DAY - LANDSCAPING:

Site(s)	Acres	Demand (AF per acre)	Peak Month (%)	Irrigation Duration	Max Day Demand (Gallons)	Annual Demand (Gallons)	Max Day Flow Rate (gpm)
-		2.8	20%	6.0	-	-	-

MST GOLF COURSE/VINEYARD ALTERNATE RECYCLED WATER PROJECT

VINEYARD WATER DEMAND WORKSHEET

Node **J-19**
 Max GPM **72**

VINEYARD DATA:

Map Legend Number **11**
 Vineyard Name **Meteor Vineyard**
 Street Number **2181**
 Street Name **Third Ave**
 APN **052-130-061**

Owner Contact Name **Barry Schuler**
 Owner Phone **(707) 258-2900**
 Owner eMail
 Irrigator Contact Name **Michael Wolf**
 Irrigator Phone **(707) 255-4084**
 Irrigator eMail **Mike@MichaelWolfVineyardServices.com**

TOTAL STORAGE AVAILABLE (Gallons): **0**

IRRIGATION DATA, MAXIMUM DAY - VINEYARDS:

Separate Irrigation Cycles	Acres	Vine Spacing (feet)	Row Spacing (feet)	Estimated Number of Vines	Drippers per Vine	Flow per Dripper (GPH)	Maximum Irrigation Frequency (Cycles/week)	Maximum Irrigation Duration (Hours/Cycle)	Irrigation Amount per Cycle (Gallons)	Irrigation Amount per Week (Gallons)	Maximum Flow Rate (gpm)
1	0.24	5.0	7.0	299	2	0.50	2	7.0	2,093	4,186	5
2	3.16	5.0	7.0	3,931	2	0.50	2	7.0	27,517	55,034	66
3	3.16	5.0	7.0	3,931	2	0.50	2	7.0	27,517	55,034	66
4	3.16	5.0	7.0	3,931	2	0.50	2	7.0	27,517	55,034	66
5	3.16	5.0	7.0	3,931	2	0.50	2	7.0	27,517	55,034	66
6	3.16	5.0	7.0	3,931	2	0.50	2	7.0	27,517	55,034	66
7	3.16	5.0	7.0	3,931	2	0.50	2	7.0	27,517	55,034	66
8	3.16	5.0	7.0	3,931	2	0.50	2	7.0	27,517	55,034	66
9				-					-	-	-
10				-					-	-	-
11				-					-	-	-
12				-					-	-	-
13				-					-	-	-
14				-					-	-	-
15				-					-	-	-
8 blocks	22.35			27,816						389,424	66

112.0 Hours of Irrigation per week 389,424 Gallons Total Water Demand Required per week 18-hour GPM: 52
 24-hour GPM: 39

IRRIGATION DATA, MAXIMUM DAY - LANDSCAPING:

Site(s)	Acres	Demand (AF per acre)	Peak Month (%)	Irrigation Duration	Max Day Demand (Gallons)	Annual Demand (Gallons)	Max Day Flow Rate (gpm)
	0.30	2.8	20%	6.0	2,130	273,672	6

MST GOLF COURSE/VINEYARD ALTERNATE RECYCLED WATER PROJECT

VINEYARD WATER DEMAND WORKSHEET

Node **J-42**
 Max GPM **29**

VINEYARD DATA:

Map Legend Number **12**
 Vineyard Name **Farella-Park Vineyard**
 Street Number **2222**
 Street Name **Third Ave**
 APN **052-130-021**

Owner Contact Name **Tom Farella**
 Owner Phone **(707) 254-9489**
 Owner eMail
 Irrigator Contact Name **Michael Wolf**
 Irrigator Phone **(707) 255-4084**
 Irrigator eMail **Mike@MichaelWolfVineyardServices.com**

TOTAL STORAGE AVAILABLE (Gallons): **0**

IRRIGATION DATA, MAXIMUM DAY - VINEYARDS:

Separate Irrigation Cycles	Acres	Vine Spacing (feet)	Row Spacing (feet)	Estimated Number of Vines	Drippers per Vine	Flow per Dripper (GPH)	Maximum Irrigation Frequency (Cycles/week)	Maximum Irrigation Duration (Hours/Cycle)	Irrigation Amount per Cycle (Gallons)	Irrigation Amount per Week (Gallons)	Maximum Flow Rate (gpm)
1	1.90	6.0	8.0	1,726	1	1.00	1	8.0	13,808	13,808	29
2	1.90	6.0	8.0	1,726	1	1.00	1	8.0	13,808	13,808	29
3	1.90	6.0	8.0	1,726	1	1.00	1	8.0	13,808	13,808	29
4	1.90	6.0	8.0	1,726	1	1.00	1	8.0	13,808	13,808	29
5	1.90	6.0	8.0	1,726	1	1.00	1	8.0	13,808	13,808	29
6	1.90	6.0	8.0	1,726	1	1.00	1	8.0	13,808	13,808	29
7	1.90	6.0	8.0	1,726	1	1.00	1	8.0	13,808	13,808	29
8	1.90	6.0	8.0	1,726	1	1.00	1	8.0	13,808	13,808	29
9	1.90	6.0	8.0	1,726	1	1.00	1	8.0	13,808	13,808	29
10	1.90	6.0	8.0	1,726	1	1.00	1	8.0	13,808	13,808	29
11	1.90	6.0	8.0	1,726	1	1.00	1	8.0	13,808	13,808	29
12	1.90	6.0	8.0	1,726	1	1.00	1	8.0	13,808	13,808	29
13				-	1	1.00	1	8.0	-	-	-
14				-	1	1.00	1	8.0	-	-	-
15				-	1	1.00	1	8.0	-	-	-
12 blocks	22.82			20,712						165,696	29

120.0 Hours of Irrigation per week **165,696** Gallons Total Water Demand Required per week 18-hour GPM: 22
 24-hour GPM: 16

IRRIGATION DATA, MAXIMUM DAY - LANDSCAPING:

Site(s)	Acres	Demand (AF per acre)	Peak Month (%)	Irrigation Duration	Max Day Demand (Gallons)	Annual Demand (Gallons)	Max Day Flow Rate (gpm)
-		2.8	20%	6.0	-	-	-

MST GOLF COURSE/VINEYARD ALTERNATE RECYCLED WATER PROJECT

VINEYARD WATER DEMAND WORKSHEET

Node **J-42**
 Max GPM **65**

VINEYARD DATA:

Map Legend Number **13**
 Vineyard Name **Bacigalupi Estate Vineyard**
 Street Number
 Street Name
 APN **052-130-038**

Owner Contact Name
 Owner Phone
 Owner eMail
 Irrigator Contact Name **Bill Bacigalupi**
 Irrigator Phone **(707) 255-6665**
 Irrigator eMail **Baciman@aol.com**

TOTAL STORAGE AVAILABLE (Gallons): **0**

IRRIGATION DATA, MAXIMUM DAY - VINEYARDS:

Separate Irrigation Cycles	Acres	Vine Spacing (feet)	Row Spacing (feet)	Estimated Number of Vines	Drippers per Vine	Flow per Dripper (GPH)	Maximum Irrigation Frequency (Cycles/week)	Maximum Irrigation Duration (Hours/Cycle)	Irrigation Amount per Cycle (Gallons)	Irrigation Amount per Week (Gallons)	Maximum Flow Rate (gpm)
1				-					-	-	-
2				-					-	-	-
3				-					-	-	-
4				-					-	-	-
5				-					-	-	-
6				-					-	-	26
7				-					-	-	-
8				-					-	-	-
9				-					-	-	-
10				-					-	-	-
11				-					-	-	-
12				-					-	-	-
13				-					-	-	-
14				-					-	-	-
15				-					-	-	-
0 blocks	-			-						169,560	26

0.0 Hours of Irrigation per week **169,560** Gallons Total Water Demand Required per week 18-hour GPM: 22
 24-hour GPM: 17

IRRIGATION DATA, MAXIMUM DAY - LANDSCAPING:

Site(s)	Acres	Demand (AF per acre)	Peak Month (%)	Irrigation Duration	Max Day Demand (Gallons)	Annual Demand (Gallons)	Max Day Flow Rate (gpm)
	2.00	2.8	20%	6.0	14,201	1,824,480	39

MST GOLF COURSE/VINEYARD ALTERNATE RECYCLED WATER PROJECT

VINEYARD WATER DEMAND WORKSHEET

Node **J-50**
 Max GPM **22**

VINEYARD DATA:

Map Legend Number **14**
 Vineyard Name **Dead Fred**
 Street Number **55**
 Street Name **Blue Oakl Lane**
 APN **052-130-052**

Owner Contact Name **David Goldman & Lisa Cort**
 Owner Phone **(707) 254-4970**
 Owner eMail
 Irrigator Contact Name **Michael Wolf**
 Irrigator Phone **(707) 255-4084**
 Irrigator eMail **Mike@MichaelWolfVineyardServices.com**

TOTAL STORAGE AVAILABLE (Gallons): **30,000**

IRRIGATION DATA, MAXIMUM DAY - VINEYARDS:

Separate Irrigation Cycles	Acres	Vine Spacing (feet)	Row Spacing (feet)	Estimated Number of Vines	Drippers per Vine	Flow per Dripper (GPH)	Maximum Irrigation Frequency (Cycles/week)	Maximum Irrigation Duration (Hours/Cycle)	Irrigation Amount per Cycle (Gallons)	Irrigation Amount per Week (Gallons)	Maimum Flow Rate (gpm)
1	0.59	5.0	7.0	739	2	0.50	2	6.0	4,434	8,868	12
2	0.59	5.0	7.0	739	2	0.50	2	6.0	4,434	8,868	12
3	0.59	5.0	7.0	739	2	0.50	2	6.0	4,434	8,868	12
4	0.59	5.0	7.0	739	2	0.50	2	6.0	4,434	8,868	12
5	0.59	5.0	7.0	739	2	0.50	2	6.0	4,434	8,868	12
6				-					-	-	-
7				-					-	-	-
8				-					-	-	-
9				-					-	-	-
10				-					-	-	-
11				-					-	-	-
12				-					-	-	-
13				-					-	-	-
14				-					-	-	-
15				-					-	-	-
5 blocks	2.97			3,695						44,340	12

60.0 Hours of Irrigation per week **44,340** Gallons Total Water Demand Required per week 18-hour GPM: **6**
 24-hour GPM: **4**

IRRIGATION DATA, MAXIMUM DAY - LANDSCAPING:

Site(s)	Acres	Demand (AF per acre)	Peak Month (%)	Irrigation Duration	Max Day Demand (Gallons)	Annual Demand (Gallons)	Max Day Flow Rate (gpm)
	0.50	2.8	20%	6.0	3,550	456,120	10

MST GOLF COURSE/VINEYARD ALTERNATE RECYCLED WATER PROJECT

VINEYARD WATER DEMAND WORKSHEET

Node **J-50**
 Max GPM **46**

VINEYARD DATA:

Map Legend Number	15	Owner Contact Name	Donald Sodaro
Vineyard Name	Sodaro Estate	Owner Phone	(949) 640-8887
Street Number	22	Owner eMail	
Street Name	Blue Oakl Lane	Irrigator Contact Name	Michael Wolf
APN	052-130-063	Irrigator Phone	(707) 255-4084
		Irrigator eMail	Mike@MichaelWolfVineyardServices.com

TOTAL STORAGE AVAILABLE (Gallons): 40,000

IRRIGATION DATA, MAXIMUM DAY - VINEYARDS:

Separate Irrigation Cycles	Acres	Vine Spacing (feet)	Row Spacing (feet)	Estimated Number of Vines	Drippers per Vine	Flow per Dripper (GPH)	Maximum Irrigation Frequency (Cycles/week)	Maximum Irrigation Duration (Hours/Cycle)	Irrigation Amount per Cycle (Gallons)	Irrigation Amount per Week (Gallons)	Maimum Flow Rate (gpm)
1	1.01	4.0	7.0	1,570	2	0.50	2	6.0	9,420	18,840	26
2	1.01	4.0	7.0	1,570	2	0.50	2	6.0	9,420	18,840	26
3	1.01	4.0	7.0	1,570	2	0.50	2	6.0	9,420	18,840	26
4	1.01	4.0	7.0	1,570	2	0.50	2	6.0	9,420	18,840	26
5	1.01	4.0	7.0	1,570	2	0.50	2	6.0	9,420	18,840	26
6	1.01	4.0	7.0	1,570	2	0.50	2	6.0	9,420	18,840	26
7	1.01	4.0	7.0	1,570	2	0.50	2	6.0	9,420	18,840	26
8	1.01	4.0	7.0	1,570	2	0.50	2	6.0	9,420	18,840	26
9	1.01	4.0	7.0	1,570	2	0.50	2	6.0	9,420	18,840	26
10				-					-	-	-
11				-					-	-	-
12				-					-	-	-
13				-					-	-	-
14				-					-	-	-
15				-					-	-	-
9 blocks	9.08			14,130						169,560	26

108.0 Hours of Irrigation per week 169,560 Gallons Total Water Demand Required per week 18-hour GPM: 22
 24-hour GPM: 17

IRRIGATION DATA, MAXIMUM DAY - LANDSCAPING:

Site(s)	Acres	Demand (AF per acre)	Peak Month (%)	Irrigation Duration	Max Day Demand (Gallons)	Annual Demand (Gallons)	Max Day Flow Rate (gpm)
	1.00	2.8	20%	6.0	7,100	912,240	20

MST GOLF COURSE/VINEYARD ALTERNATE RECYCLED WATER PROJECT

VINEYARD WATER DEMAND WORKSHEET

Node **J-50**
 Max GPM **63**

VINEYARD DATA:

Map Legend Number **16**

Vineyard Name **Darrin Family Vineyard**

Street Number **2456**

Street Name **Third Ave**

APN **052-130-032**

Owner Contact Name **Tim Darrin**

Owner Phone **(707) 255-1010**

Owner eMail

Irrigator Contact Name **Michael Wolf**

Irrigator Phone **(707) 255-4084**

Irrigator eMail **Mike@MichaelWolfVineyardServices.com**

TOTAL STORAGE AVAILABLE (Gallons): **1,303,200**

IRRIGATION DATA, MAXIMUM DAY - VINEYARDS:

Separate Irrigation Cycles	Acres	Vine Spacing (feet)	Row Spacing (feet)	Estimated Number of Vines	Drippers per Vine	Flow per Dripper (GPH)	Maximum Irrigation Frequency (Cycles/week)	Maximum Irrigation Duration (Hours/Cycle)	Irrigation Amount per Cycle (Gallons)	Irrigation Amount per Week (Gallons)	Maximum Flow Rate (gpm)
1	1.65	4.0	7.0	2,570	2	0.50	1	8.0	20,560	20,560	43
2	1.65	4.0	7.0	2,570	2	0.50	1	8.0	20,560	20,560	43
3	1.65	4.0	7.0	2,570	2	0.50	1	8.0	20,560	20,560	43
4	1.65	4.0	7.0	2,570	2	0.50	1	8.0	20,560	20,560	43
5	1.65	4.0	7.0	2,570	2	0.50	1	8.0	20,560	20,560	43
6				-					-	-	-
7				-					-	-	-
8				-					-	-	-
9				-					-	-	-
10				-					-	-	-
11				-					-	-	-
12				-					-	-	-
13				-					-	-	-
14				-					-	-	-
15				-					-	-	-
5 blocks	8.26			12,850						102,800	43

40.0 Hours of Irrigation per week **102,800** Gallons Total Water Demand Required per week 18-hour GPM: 14
 24-hour GPM: 10

IRRIGATION DATA, MAXIMUM DAY - LANDSCAPING:

Site(s)	Acres	Demand (AF per acre)	Peak Month (%)	Irrigation Duration	Max Day Demand (Gallons)	Annual Demand (Gallons)	Max Day Flow Rate (gpm)
	1.00	2.8	20%	6.0	7,100	912,240	20

MST GOLF COURSE/VINEYARD ALTERNATE RECYCLED WATER PROJECT

VINEYARD WATER DEMAND WORKSHEET

Node **J-50**
 Max GPM **298**

VINEYARD DATA:

Map Legend Number **17**
 Vineyard Name **Yahome**
 Street Number **4028**
 Street Name **Hagen Rd**
 APN **049-270-014**

Owner Contact Name
 Owner Phone
 Owner eMail
 Irrigator Contact Name **Russ Weis**
 Irrigator Phone **(707) 259-6646**
 Irrigator eMail **Rweis@SilveradoVineyards.com**

TOTAL STORAGE AVAILABLE (Gallons): **120,000**

IRRIGATION DATA, MAXIMUM DAY - VINEYARDS:

Separate Irrigation Cycles	Acres	Vine Spacing (feet)	Row Spacing (feet)	Estimated Number of Vines	Drippers per Vine	Flow per Dripper (GPH)	Maximum Irrigation Frequency (Cycles/week)	Maximum Irrigation Duration (Hours/Cycle)	Irrigation Amount per Cycle (Gallons)	Irrigation Amount per Week (Gallons)	Maximum Flow Rate (gpm)
1	11.10	6.0	8.0	10,073	2	0.55	2	6.0	66,482	132,964	185
2	20.00	5.0	11.0	15,840	2	0.55	2	6.0	104,544	209,088	290
3	19.50	5.0	11.0	15,444	2	0.55	2	6.0	101,930	203,861	283
4	19.50	5.0	11.0	15,444	2	0.55	2	6.0	101,930	203,861	283
5	20.50	5.0	11.0	16,236	2	0.55	2	6.0	107,158	214,315	298
6	19.40	5.0	11.0	15,365	2	0.55	2	6.0	101,409	202,818	282
7				-					-	-	-
8				-					-	-	-
9				-					-	-	-
10				-					-	-	-
11				-					-	-	-
12				-					-	-	-
13				-					-	-	-
14				-					-	-	-
15				-					-	-	-
6 blocks	110.00			88,402						1,166,906	298

72.0 Hours of Irrigation per week **1,166,906** Gallons Total Water Demand Required per week 18-hour GPM: **154**
 24-hour GPM: **116**

IRRIGATION DATA, MAXIMUM DAY - LANDSCAPING:

Site(s)	Acres	Demand (AF per acre)	Peak Month (%)	Irrigation Duration	Max Day Demand (Gallons)	Annual Demand (Gallons)	Max Day Flow Rate (gpm)
-		2.8	20%	6.0	-	-	-

MST GOLF COURSE/VINEYARD ALTERNATE RECYCLED WATER PROJECT

VINEYARD WATER DEMAND WORKSHEET

Node **J-10**
 Max GPM **298**

VINEYARD DATA:

Map Legend Number **18**
 Vineyard Name **Arcadia Vineyard**
 Street Number
 Street Name **Olive Hill**
 APN **049-080-025**

Owner Contact Name **Warren Viniarski**
 Owner Phone **(707) 224-8822**
 Owner eMail **warren@wminapa.com**
 Irrigator Contact Name **Noelle Garcia/Steve Matthiasson**
 Irrigator Phone **(707) 224-8822/(707) 486-2429**
 Irrigator eMail **arcadia@wminapa.com**

TOTAL STORAGE AVAILABLE (Gallons): **13,034,040**

IRRIGATION DATA, MAXIMUM DAY - VINEYARDS:

Separate Irrigation Cycles	Acres	Vine Spacing (feet)	Row Spacing (feet)	Estimated Number of Vines	Drippers per Vine	Flow per Dripper (GPH)	Maximum Irrigation Frequency (Cycles/week)	Maximum Irrigation Duration (Hours/Cycle)	Irrigation Amount per Cycle (Gallons)	Irrigation Amount per Week (Gallons)	Maximum Flow Rate (gpm)
1	10.00	5.0	7.0	12,446	1	0.50	1	10.0	62,230	62,230	104
2	10.00			-					-	-	-
3	10.00			-					-	-	-
4	10.00			-					-	-	-
5	10.00			-					-	-	-
6	10.00			-					-	-	298
7	10.00			-					-	-	-
8	10.00			-					-	-	-
9				-					-	-	-
10				-					-	-	-
11				-					-	-	-
12				-					-	-	-
13				-					-	-	-
14				-					-	-	-
15				-					-	-	-
8 blocks	80.00			12,446						848,659	298

10.0 Hours of Irrigation per week 848,659 Gallons Total Water Demand Required per week 18-hour GPM: 112
 24-hour GPM: 84

IRRIGATION DATA, MAXIMUM DAY - LANDSCAPING:

Site(s)	Acres	Demand (AF per acre)	Peak Month (%)	Irrigation Duration	Max Day Demand (Gallons)	Annual Demand (Gallons)	Max Day Flow Rate (gpm)
-		2.8	20%	6.0	-	-	-

APPENDIX C

MST Alternative Demand Data by Junction

DB Table - 'Demand Data' MST Alternative

ID (Char)	DEMAND1 (Num)	PATTERN1 (Char)	DEMAND2 (Num)	PATTERN2 (Char)	DEMAND3 (Num)	PATTERN3 (Char)	DEMAND4 (Num)	PATTERN4 (Char)
1	0.0000	VINEYARD2	0.2078	LANDSCAPE2	0.0000	GOLFCEM2		
2	0.0000	VINEYARD2	0.0000	LANDSCAPE2	0.0000	GOLFCEM2		
3	0.0070	VINEYARD2	0.0114	LANDSCAPE2	0.0000	GOLFCEM2		
4	0.0000	VINEYARD2	0.0980	LANDSCAPE2	0.0000	GOLFCEM2		
5	0.0170	VINEYARD2	0.0677	LANDSCAPE2	0.0000	GOLFCEM2		
6	0.0000		0.0000		0.0000			
7	0.0256	VINEYARD2	0.0305	LANDSCAPE2	0.0000	GOLFCEM2		
8	0.0319	MST	0.0000		0.0000			
9	0.0154	VINEYARD2	0.0094	LANDSCAPE2	0.0000	GOLFCEM2		
10	0.1241	MST	0.0000		0.0000			
11	0.2502	VINEYARD2	0.0755	LANDSCAPE2	0.0000	GOLFCEM2		
12	0.0000		0.0000		0.0000			
13	0.0570	VINEYARD2	0.0702	LANDSCAPE2	0.0000	GOLFCEM2		
14	0.3042	MST	0.0000		0.0000			
15	0.0000		0.0000		0.0000			
16	0.0000	VINEYARD2	0.1300	LANDSCAPE2	0.5680	GOLFCEM2		
17	0.0000	VINEYARD2	0.3402	LANDSCAPE2	0.0000	GOLFCEM2		
18	0.0000	VINEYARD2	0.0016	LANDSCAPE2	0.0355	GOLFCEM2		
19	0.0000	VINEYARD2	0.0563	LANDSCAPE2	0.0000	GOLFCEM2		
20	0.0000	VINEYARD2	0.1283	LANDSCAPE2	0.0000	GOLFCEM2		
21	0.0317	VINEYARD2	1.5123	LANDSCAPE2	0.0000	GOLFCEM2		
22	0.0000	VINEYARD2	0.2625	LANDSCAPE2	0.0000	GOLFCEM2		
23	0.0000	VINEYARD2	0.2246	LANDSCAPE2	0.0000	GOLFCEM2		
24	0.0000	VINEYARD2	0.1524	LANDSCAPE2	0.0000	GOLFCEM2		
25	0.0000	VINEYARD2	0.0000	LANDSCAPE2	0.0000	GOLFCEM2		
26	0.3838	VINEYARD2	0.0000	LANDSCAPE2	1.5513	GOLFCEM2		
27	0.0000	VINEYARD2	0.0000	LANDSCAPE2	0.0000	GOLFCEM2		
28	0.0000	VINEYARD2	0.0000	LANDSCAPE2	0.0000	GOLFCEM2		
29	0.0250	VINEYARD2	0.0000	LANDSCAPE2	0.0000	GOLFCEM2		
30	0.0000	VINEYARD2	0.0000	LANDSCAPE2	0.0000	GOLFCEM2		
31	0.1544	VINEYARD2	0.1019	LANDSCAPE2	0.0000	GOLFCEM2		
32	0.1112	VINEYARD2	0.0441	LANDSCAPE2	0.0000	GOLFCEM2		
33	0.1616	MST	0.0000		0.0000			
34	0.0000		0.0000		0.0000			
35	0.2076	VINEYARD2	0.0826	LANDSCAPE2	0.0000	GOLFCEM2		
36	0.0282	VINEYARD2	0.0493	LANDSCAPE2	0.0000	GOLFCEM2		
37	0.0156	VINEYARD2	0.0346	LANDSCAPE2	0.0000	GOLFCEM2		
38	0.0400	VINEYARD2	0.0354	LANDSCAPE2	0.0000	GOLFCEM2		
39	0.0164	VINEYARD2	0.0262	LANDSCAPE2	0.0000	GOLFCEM2		
40	0.0540	VINEYARD2	0.0141	LANDSCAPE2	0.0000	GOLFCEM2		
41	0.8543	MST	0.0000		0.0000			
42	0.0304	MST	0.0000		0.0000			
43	0.0410	VINEYARD2	0.0596	LANDSCAPE2	0.0000	GOLFCEM2		
44	0.0069	VINEYARD2	0.0248	LANDSCAPE2	0.0000	GOLFCEM2		
45	0.0157	VINEYARD2	0.0208	LANDSCAPE2	0.0000	GOLFCEM2		
46	0.0290	VINEYARD2	0.0495	LANDSCAPE2	0.0000	GOLFCEM2		
47	0.0243	VINEYARD2	0.0248	LANDSCAPE2	0.0000	GOLFCEM2		
48	0.1392	VINEYARD2	0.0580	LANDSCAPE2	0.0000	GOLFCEM2		
49	0.1017	VINEYARD2	0.0377	LANDSCAPE2	0.0000	GOLFCEM2		

DB Table - 'Demand Data' MST Alternative

ID (Char)	DEMAND1 (Num)	PATTERN1 (Char)	DEMAND2 (Num)	PATTERN2 (Char)	DEMAND3 (Num)	PATTERN3 (Char)	DEMAND4 (Num)	PATTERN4 (Char)
50	0.0684	VINEYARD2	0.0711	LANDSCAPE2	0.0000	GOLFCEM2		
51	0.0114	MST	0.0000		0.0000			
52	0.0000		0.0000		0.0000			
53	0.0218	VINEYARD2	0.0210	LANDSCAPE2	0.0000	GOLFCEM2		
54	0.0408	VINEYARD2	0.0321	LANDSCAPE2	0.0000	GOLFCEM2		
55	0.0509	VINEYARD2	0.0472	LANDSCAPE2	0.0000	GOLFCEM2		
56	0.0000		0.0000		0.0000			
57	0.0000		0.0000		0.0000			
58	0.0000		0.0000		0.0000			
59	0.0000		0.0000		0.0000			
60	0.1462	MST	0.0000		0.0000			
61	0.0000		0.0000		0.0000			
62	0.0000	VINEYARD2	0.0000	LANDSCAPE2	0.0000	GOLFCEM2		
63	0.0106	VINEYARD2	0.0455	LANDSCAPE2	0.0000	GOLFCEM2		
64	0.0690	VINEYARD2	0.0000	LANDSCAPE2	0.5801	GOLFCEM2		
65	0.0000	VINEYARD2	0.0200	LANDSCAPE2	0.0000	GOLFCEM2		
66	0.0068	VINEYARD2	0.0200	LANDSCAPE2	0.1761	GOLFCEM2		
67	0.0000		0.0000		0.0000			
68	0.0710	VINEYARD2	0.0731	LANDSCAPE2	0.0000	GOLFCEM2		
69	0.0684	VINEYARD2	0.0283	LANDSCAPE2	0.0000	GOLFCEM2		
70	0.0435	VINEYARD2	0.0259	LANDSCAPE2	0.0000	GOLFCEM2		
71	0.0310	VINEYARD2	0.0470	LANDSCAPE2	0.0000	GOLFCEM2		
72	0.0719	VINEYARD2	0.0712	LANDSCAPE2	0.0000	GOLFCEM2		
73	0.0443	VINEYARD2	0.0200	LANDSCAPE2	0.0000	GOLFCEM2		
74	0.3863	MST	0.0000		0.0000			
75	0.0000		0.0000		0.0000			
76	0.0000		0.0000		0.0000			
77	0.0000		0.0000		0.0000			
78	0.0000	VINEYARD2	0.0000	LANDSCAPE2	0.0000	GOLFCEM2		
79	0.2592	VINEYARD2	0.1253	LANDSCAPE2	0.0000	GOLFCEM2		
80	0.1090	VINEYARD2	0.0701	LANDSCAPE2	0.0000	GOLFCEM2		
81	0.3009	VINEYARD2	0.0306	LANDSCAPE2	0.0000	GOLFCEM2		
82		VINEYARD2		LANDSCAPE2		GOLFCEM2		
83		VINEYARD2		LANDSCAPE2		GOLFCEM2		
84		VINEYARD2		LANDSCAPE2		GOLFCEM2		
85		VINEYARD2		LANDSCAPE2		GOLFCEM2		
86		VINEYARD2		LANDSCAPE2		GOLFCEM2		
87		VINEYARD2		LANDSCAPE2		GOLFCEM2		
88		VINEYARD2		LANDSCAPE2		GOLFCEM2		
89		VINEYARD2		LANDSCAPE2		GOLFCEM2		
90		VINEYARD2		LANDSCAPE2		GOLFCEM2		
91		VINEYARD2		LANDSCAPE2		GOLFCEM2		
92		VINEYARD2		LANDSCAPE2		GOLFCEM2		
93		VINEYARD2		LANDSCAPE2		GOLFCEM2		
94		VINEYARD2		LANDSCAPE2		GOLFCEM2		
95		VINEYARD2		LANDSCAPE2		GOLFCEM2		
96		VINEYARD2		LANDSCAPE2		GOLFCEM2		
97		VINEYARD2		LANDSCAPE2		GOLFCEM2		
98		VINEYARD2		LANDSCAPE2		GOLFCEM2		

DB Table - 'Demand Data' MST Alternative

		ID (Char)	DEMAND1 (Num)	PATTERN1 (Char)	DEMAND2 (Num)	PATTERN2 (Char)	DEMAND3 (Num)	PATTERN3 (Char)	DEMAND4 (Num)	PATTERN4 (Char)
99	<input type="checkbox"/>	CAR_J-30		VINEYARD2		LANDSCAPE2		GOLFCEM2		
100	<input type="checkbox"/>	CAR_J-1		VINEYARD2		LANDSCAPE2		GOLFCEM2		
101	<input type="checkbox"/>	CAR_J-2		VINEYARD2		LANDSCAPE2		GOLFCEM2		
102	<input type="checkbox"/>	CAR_J-3		VINEYARD2		LANDSCAPE2		GOLFCEM2		
103	<input type="checkbox"/>	CAR_J-4		VINEYARD2		LANDSCAPE2		GOLFCEM2		
104	<input type="checkbox"/>	CAR_J-5		VINEYARD2		LANDSCAPE2		GOLFCEM2		
105	<input type="checkbox"/>	CAR_J-6		VINEYARD2		LANDSCAPE2		GOLFCEM2		
106	<input type="checkbox"/>	CAR_J-7		VINEYARD2		LANDSCAPE2		GOLFCEM2		
107	<input type="checkbox"/>	CAR_J-8		VINEYARD2		LANDSCAPE2		GOLFCEM2		
108	<input type="checkbox"/>	CAR_J-9		VINEYARD2		LANDSCAPE2		GOLFCEM2		
109	<input type="checkbox"/>	CAR_J-10		VINEYARD2		LANDSCAPE2		GOLFCEM2		
110	<input type="checkbox"/>	CAR_J-11		VINEYARD2		LANDSCAPE2		GOLFCEM2		
111	<input type="checkbox"/>	CAR_J-12		VINEYARD2		LANDSCAPE2		GOLFCEM2		
112	<input type="checkbox"/>	OTH_J-27	0.0000	VINEYARD2	0.0000	LANDSCAPE2	0.0000	GOLFCEM2	0.1400	BF_COLLEGE2
113	<input type="checkbox"/>	MST_J-56								
114	<input type="checkbox"/>	MST_J-57								

APPENDIX D

MST Alternative Parcel to Node Assignments

MST Alternative Appendix D - Parcel to Node Assignments

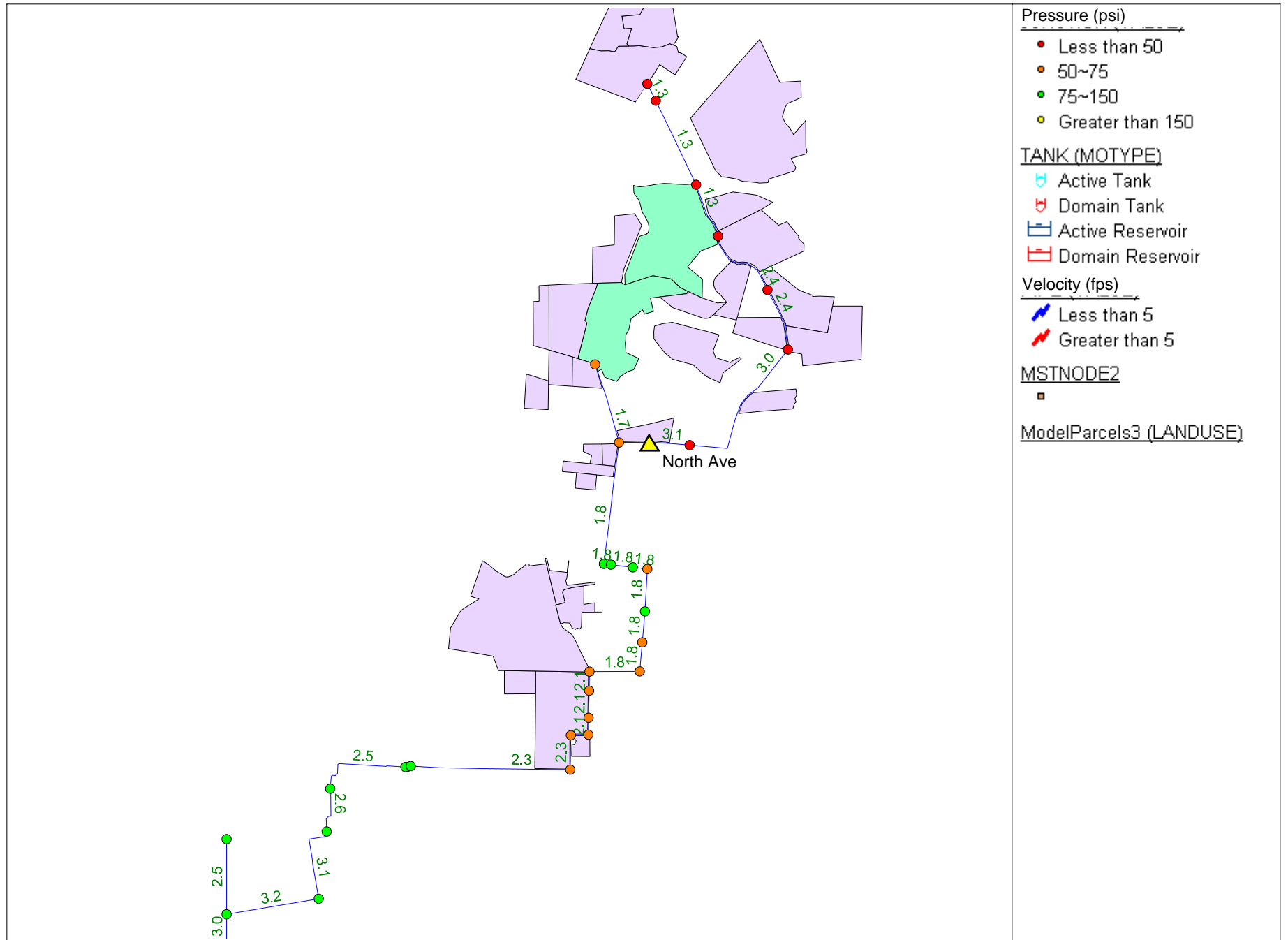
Parcel to Node Assignment

Key	Vineyard	APN	NODE
1	Premier Pacific Vineyards Coombsville Vineyard	046-351-016	J-40
1B	Premier Pacific Vineyards Skyline Vineyard	046-351-001	J-40
2	Black Cat Vineyards	046-352-007	J-40
3	Huneus Vintners	045-240-023	J-03
3B	Huneus Vintners Faust House - NO VINES	045-250-030	J-03
4A	Berry Lane D'Ambrosio	045-250-033	J-30
4B1	Rapp Ranch D'Ambrosio (WEST SITE)	052-170-018	J-19
4B2	Rapp Ranch D'Ambrosio (EAST SITE)	052-170-019	J-19
5	Simpkins	052-250-013	J-20
5B	Simpkins	052-230-002	J-20
5C	Simpkins	052-250-011	J-20
5D	Simpkins	052-250-012	J-20
6	Quail Knoll - Zimmerman	052-170-027	J-19
7	Frazier Winery - Lupine Hill Vineyard/Winery (East Site)	052-170-042	J-19
7B	Frazier Winery - All Vineyard (West Site)	052-170-030	J-19
8	Maroon Vineyards	052-100-032	J-19
9	Silverman	052-200-009	J-20
10A	Nickel and Nickel - Barrow Lane	052-130-046	J-25
10B	Nickel and Nickel - Carpenter	052-130-049	J-42
10C-D	Nickel and Nickel - John's Creek	052-130-058	J-50
10C-D-2	Nickel and Nickel - John's Creek	052-130-058	J-50
11	Meteor Vineyard	052-130-061	J-19
12	Farella-Park Vineyard	052-130-021	J-42
13	Bacigalupi Estate Vineyard	052-130-038	J-42
14	Dead Fred	052-130-052	J-50
15	Sodaro Estate	052-130-063	J-50
16	Darrin Family Vineyard	052-130-032	J-50
17	Yahome	049-270-014	J-50
18	Arcadia Vineyard	049-080-025	J-10
18B	Arcadia Vineyard	049-080-026	J-10
18C	Arcadia Vineyard	049-080-028	J-10
NVCC	Napa Valley Country Club 1	052-130-041	J-19
NVCC	Napa Valley Country Club 2	052-170-044	J-19

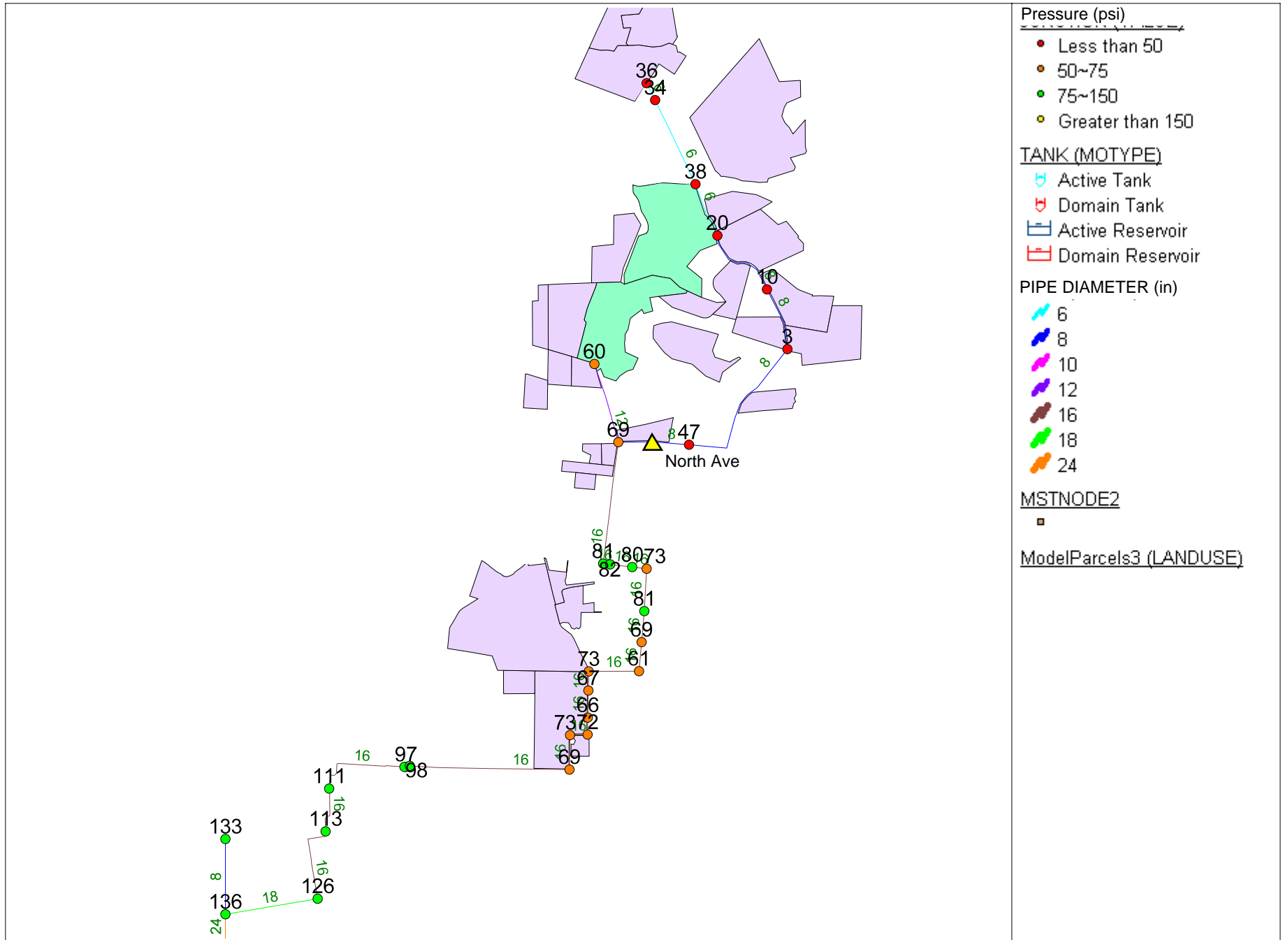
APPENDIX E

MST Alternative Hydraulic Model Results – Velocities and Pressures

Updated Run 5 velocities, 5 am, MST Alternative



Updated Run 5, 5 am, MST Alternative



APPENDIX F

MST Alternative Additional Cost Information

Pipe Unit Costs

Diameter	Bare Pipe Unit Cost*	Project Related Cost Markup**	Adjusted Unit Cost (\$/lf)	Type of Construction			Diameter	Bare Pipe Unit Cost*	Project Related Cost Markup*	Adjusted Unit Cost (\$/lf)	Type of Construction
6	\$ 65	1.4	\$ 91	Open-cut			16	\$ 791	1.4	\$ 1,107	Jack & Bore
8	\$ 87	1.4	\$ 121	Open-cut			18	\$ 813	1.4	\$ 1,138	Jack & Bore
10	\$ 124	1.4	\$ 173	Open-cut			24	\$ 1,124	1.4	\$ 1,574	Jack & Bore
12	\$ 130	1.4	\$ 182	Open-cut							
16	\$ 173	1.4	\$ 242	Open-cut							
18	\$ 195	1.4	\$ 273	Open-cut							
24	\$ 260	1.4	\$ 364	Open-cut							
*Cost based on \$10.82 per in per lf and \$12.36 for 10-inch pipe only for open cut construction based on previous studies by BC.											
These costs were based on May 2007 costs and have not been escalated due to the slow state of the economy.											
** Costs associated with other bid items such as mobilization, shoring, dewatering, connections to the existing pipeline, valves, blowoffs, air vacuum release valves, test stations, over excavation, and turnouts.											

MST Alternate Project - Pipe & Pump Station Sizes and Cost

Component 1: Streblov to Imola Extension

Order	Construction Method	Up Node	Dn Node	Length (ft)	MST Only - 18-hour pumping			Full MST & NSH Size ¹		
					Pipe Size	Unit Cost	Pipe Reach Cost	Pipe Size	Unit Cost	Pipe Reach Cost
1	Open Cut			6,104	16	\$242	\$1,479,414	24	\$364	\$2,219,121
2	Bore & Jack			546	16	\$1,107	\$604,422	24	\$1,574	\$859,404
							\$2,083,836	\$3,078,525		
							Contingency (30%)	\$625,151		
							Construction Costs	\$2,708,987		
							Engineering, Admin, Overhead (20%)	\$541,797		
							Total Capital Costs	\$3,250,785		
							Hospital Share 25%	\$812,696		
							MST Share 75%	\$2,438,088		
							\$3,900,000 ²			

Component 2: MST Pipelines

Segment	Order	Pipe ID	Up Node	Dn Node	Length (ft)	MST Only - 18-hour pumping			Full MST & NSH Size ¹		
						Pipe Size	Unit Cost	Pipe Reach Cost	Pipe Size	Unit Cost	Pipe Reach Cost
Imola to 4th and North	1	MST_P-9	OTH_J-5	MST_J-41	4,285	16	\$242	\$1,038,426	24	\$364	\$1,557,639
	2	MST_P-8	MST_J-41	MST_J-40	923	16	242	223,662	24	364	335,493
	3	MST_P-7	MST_J-40	MST_J-39	472	16	242	114,306	24	364	171,459
	4	MST_P-10	MST_J-39	MST_J-53	456	16	242	110,535	24	364	165,802
	5	MST_P-11	MST_J-53	MST_J-54	726	16	242	175,891	24	364	263,836
	6	MST_P-6	MST_J-54	MST_J-3	514	16	242	124,460	24	364	186,690
	7	MST_P-4	MST_J-3	MST_J-38	1,351	16	242	327,320	24	364	490,980
	8	MST_P-5	MST_J-38	MST_J-51	781	16	242	189,351	24	364	284,026
	9	MST_P-3	MST_J-51	MST_J-37	833	16	242	202,008	24	364	303,013
	10	MST_P-2	MST_J-37	MST_J-35	1,139	16	242	275,960	24	364	413,941
	11	MST_P-1	MST_J-35	MST_J-55	387	16	242	93,864	24	364	140,796
	12	MST_P-12	MST_J-55	MST_J-31	595	16	242	144,311	24	364	216,467
	13	MST_P-14	MST_J-31	MST_J-30	191	16	242	46,391	18	273	52,189
	14	MST_P-38	MST_J-30	MST_J-20	3,282	16	242	795,522	12	182	596,642
4th and North to Golf Course	15	MST_P-58	MST_J-20	MST_J-19	2,200	12	\$182	\$399,907	12	\$182	\$399,907
4th and North to E. 3rd	16	MST_P-25	MST_J-20	MST_J-25	1,898	8	\$121	\$230,020	8	\$121	\$230,020
	17	MST_P-31	MST_J-25	MST_J-42	4,206	8	121	509,720	12	182	764,580
	18	MST_P-29	MST_J-42	MST_J-43	1,721	8	121	208,504	12	182	312,756
	19	MST_P-30	MST_J-43	MST_J-50	2,152	8	121	260,807	12	182	391,210
	20	MST_P-28	MST_J-50	MST_J-7	1,511	6	91	137,367	12	182	274,733
	21	MST_P-42	MST_J-7	MST_J-11	2,501	6	91	227,305	12	182	454,610
	22	MST_P-43	MST_J-11	MST_J-10	507	6	91	46,096	8	\$121	61,462
								\$5,881,732	\$8,068,250		
							Contingency (30%)	\$1,764,520			
							Construction Costs	\$7,646,252			
							Engineering, Admin, Overhead (20%)	\$1,529,250			
							Total Capital Costs	\$9,175,502			
							\$12,586,470				

¹"Full MST" refers to the 80/83 Scenario. Not all 80/83 Scenario pipes are included in these tables, only the pipes that correspond to the pipes in the MST Alternative Scenario are included.

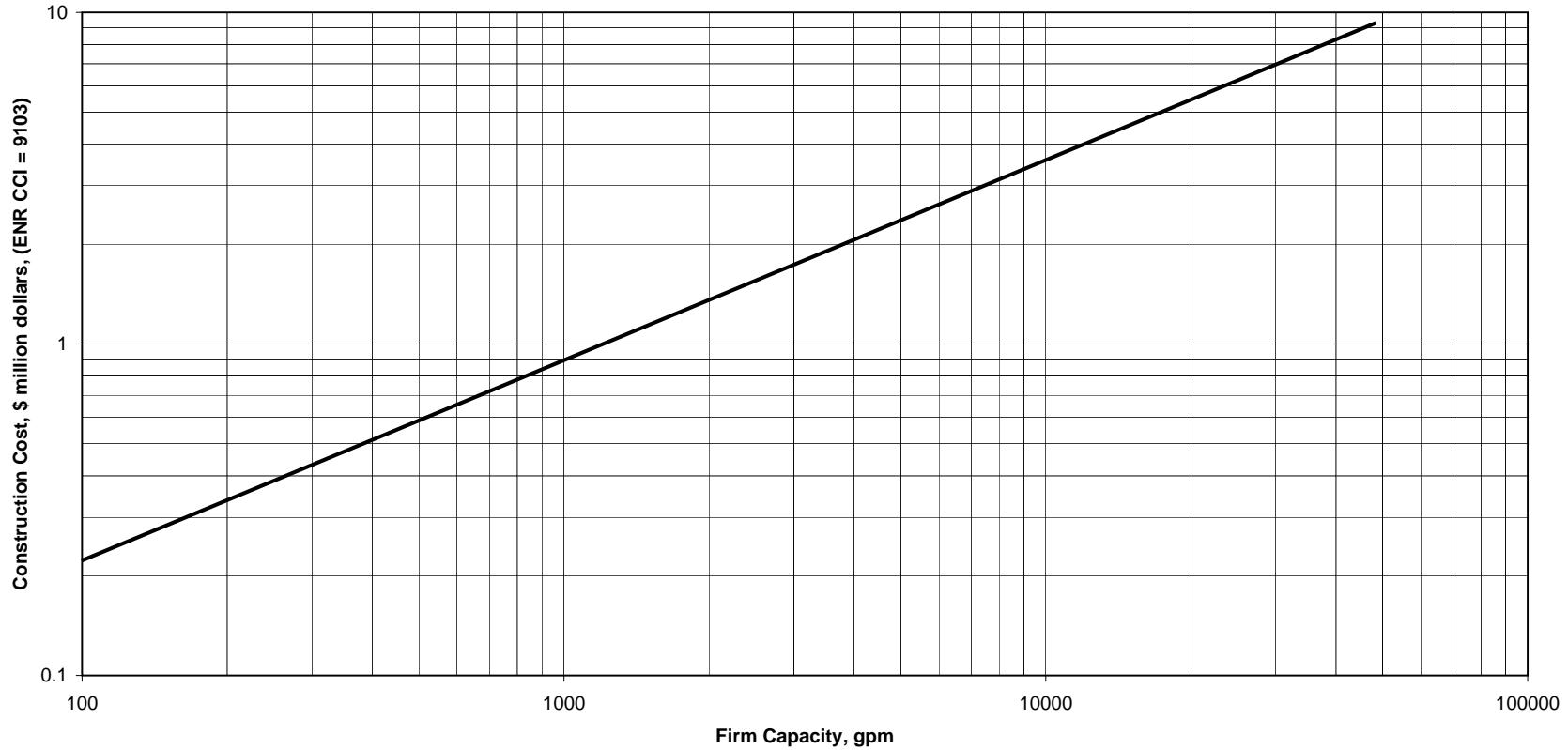
²Based on May 2007 Phase 1 Report

Component 3: North Avenue Pump Station

PSI	GPM	Cost
47	489	\$336,000
		Contingency (30%)
		\$100,800
		Construction Costs
		\$436,800
		Engineering, Admin, Overhead (20%)
		\$87,360
		Total Capital Costs
		\$524,160

Capital Cost Summary	MST Share of Costs	Full MST	Difference for pipe costs
1. Streblov to Imola Extension	\$2,438,088	\$3,900,000	\$1,461,912
2. MST Pipelines	9,175,502	12,586,470	3,410,967
3. North Avenue Pump Station	524,160	N/A	
	\$12,137,751	\$16,486,470	\$4,872,879

Pump Station Construction Costs



Based on City of San Bruno Water System Master Plan Update Construction Cost Table (Figure 9-2).
 This table was created using Bay Area pump station construction cost examples.
 The original was done with an ENR CCI = 7445, then was brought up to an ENR CCI of 9103 at the time of the last report in May 2007.
 These prices will not be escalated due to the condition of our current Fall 2008 economy.

Run	Location	psi Required	gpm	% of Curve	Cost Estimate	With Allowances for Design, Construction Contingencies, and Professional Services
5	North Ave	47	489	60%	\$336,000	\$524,160