

Moffett Park Specific Plan Sunnyvale, CA

Infrastructure Fee Study

April 2023

Prepared for:
City of Sunnyvale

Prepared by:



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Moffett Park Specific Plan Sunnyvale, CA

Water Master Plan Report

October 2022

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1.0 INTRODUCTION

The Moffett Park Specific Plan (MPSP) provides guidance on the development of the Moffett Park area with corporate headquarters, offices, and research and development facilities. The MPSP was adopted by City of Sunnyvale (City) in 2004, and last revised in 2013. The MPSP documents goals and objectives for future development, community and design guidelines, infrastructure improvements, and development standards. The MPSP is being updated because of recent changes to proposed land uses and anticipated development intensities.

The 2013 MPSP revision examined the existing water system and determined the minimum water system improvements that are required to support buildout conditions. Changes to the anticipated land use and development intensities may affect the proposed water system improvements. BKF Engineers (BKF) performed an analysis of the existing and proposed domestic water distribution system to evaluate impacts and determine required improvements to support the updated buildout conditions. The BKF effort included review of updated land uses and development intensity assumptions, estimation of domestic water demands, and evaluation of existing water system under peak demand scenarios. This Water Master Plan (WMP) has been prepared to document the analysis and provide recommended improvements to support the latest buildout condition.

2.0 LAND USE AND DEVELOPMENT INTENSITY

The MPSP provides a comprehensive, long-term plan that supports the development of the Moffett Park area. The plan includes a mix of land uses consistent with the City's goals and objectives for future development. The Moffett Park Specific Plan area is shown in **Figure 1** below.

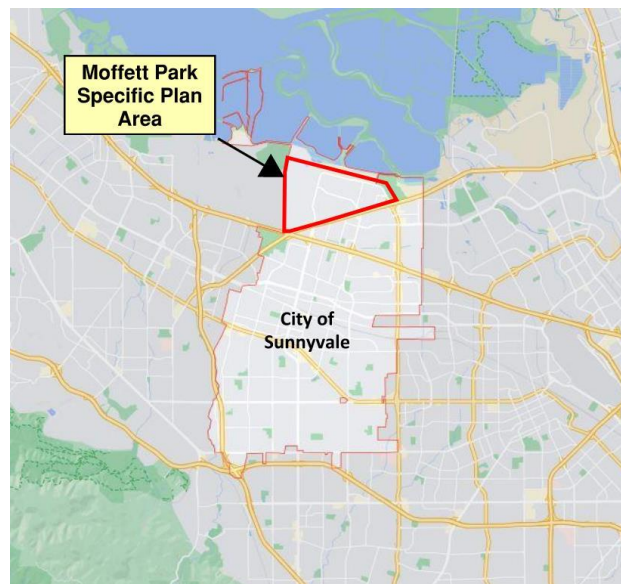


Figure 1 – Moffett Park Specific Plan Area

The total MPSP area is approximately 1,157 acres. The majority of this area is expected to be re-developed as part of the buildout of Moffett Park, with some exceptions. Public land parcels that include

right-of-way and public roads, the Lockheed Martin campus parcel, and institutional parcels including public schools and emergency services were all assumed to be fully developed in the existing condition. These parcels are not expected to be re-developed as part of buildout conditions. With these exceptions, the total Moffett Park area to be re-developed is approximately 783 acres.

The revised land use types include residential, office, research & development, and mixed-use land use. Each proposed land use has a corresponding minimum and maximum land use development intensity (**Appendix A**). These assumptions were expressed in terms of percent floor area ratio (FAR), which describes the allowable measurement of a building's floor area in relation to the size of the parcel that the building is on. These density assumptions were used as the basis for the water demand estimates described in the next section.

3.0 WATER DEMANDS

Domestic water system demands are estimated for the MPSP area under the latest full buildout condition. Existing domestic demands from the Moffett Park area are included, with the full buildout condition, as part of the model calibration process. This assumption is further explained in the calibration discussion in the model development section.

The buildout domestic demands are estimated using a water demand factor of 132 gallons per day per dwelling unit (gpd/du) for residential land use and 0.13 gallons per day per square foot (gpd/SF) for office and research & development land use¹. These domestic demand factors include outdoor water use factors; however, there is an extensive recycled water system throughout the Moffett Park area. It is assumed that the already installed recycled water network will provide the entirety of outdoor water use once operational so the outdoor water factors are not included in this analysis. The existing recycled water system will also be used for toilet flushing which will further alleviate domestic demand. For the purposes of this analysis, this additional demand reduction is not included which is a conservative assumption. The indoor demand factors were applied to the maximum development intensity for each parcel based on the revised land use to calculate domestic demand.

Peaking factors are applied to an estimated average day demand (ADD) to estimate maximum day demand (MDD) and peak hour demand (PHD). MDD is typically used to evaluate water infrastructure in conjunction with the required fire flows. As noted above, the full buildout domestic demands are based on the maximum allowable development intensity. Therefore, the estimated ADD represents the most conservative development scenario for every redevelopment parcel within the Moffett Park area. Further, the estimated buildout demands are added to the existing domestic demands, captured through the calibration process. **Table 1** shows the domestic demands estimated using the minimum, average, and maximum development intensities. The maximum allowable development intensity ADD is 1.6 times greater than the average development intensity ADD. In other words, by using the maximum allowable redevelopment, there is already a peaking factor of 1.6 included. In comparison, the City's 2010 Water Utility Master Plan (WUMP) recommended an MDD peaking factor of 1.84, but noted that

¹ Demand factors consistent with City of Redwood City water demand factors (Appendix B)

East Palo Alto and CalWater used an MDD peaking factor of 1.4. Therefore, the assumption to use the maximum allowable development intensity already addresses the MDD peaking factor and so no additional peaking factor is included for the MDD water analysis. The buildout domestic demands estimated using this methodology are 12.5 million-gallons per day (MGD) for the 783 acres of redevelopment.

For PHD, the 2010 WUMP recommended a peaking factor of 3.04. The 3.04 peaking factor is applied to the domestic demands estimated from the average development intensity assumptions to assess the performance of the existing system under a peak hour demand scenario. The total peak hour demand is 23.2 MGD.

Per 2019 California Fire Code (CFC), the maximum fire flow demand for any building is 8,000 gallons per minute (gpm), while fire sprinklers can provide allowances for fire flow demand reductions of up to 75%. For this analysis, a reduction of 50% is applied to the maximum fire flow demand, and a fire flow demand of 4,000 gpm is established as the benchmark for evaluating the existing system. This is consistent with the maximum fire flow demand evaluated in the 2010 WUMP.

4.0 DESIGN CRITERIA

The following assumptions and design criteria are utilized in evaluating the City's water distribution system. The criteria is adapted from those used in the 2010 WUMP, and is established to ensure that the proposed distribution system will provide adequate water pressure and can accommodate peak demands without excessive wear or energy usage. The results of the existing system evaluation are evaluated against the recommended design criteria to identify system deficiencies and recommend improvements. The water system design criteria recommended for this hydraulic analysis are as follows:

Table 2 – Domestic Water System Design Criteria

Minimum Service Pressure during Non-Emergency Operations	40 psi
Minimum Residual Pressure during Maximum Day Demands + Fire Flow	20 psi
Maximum Service Pressure	150 psi
Minimum Pipe Size for New Construction with Fire Hydrant	6 inch
Maximum Pipeline Velocity during Non-Emergency Operations	7 fps
Maximum Pipeline Velocity during Maximum Day Demands + Fire Flow	15 fps
Maximum Headloss Gradient	0.015 ft/ft
Existing Pipeline Roughness Coefficient	Determined through model calibration
Proposed Pipeline Roughness Coefficient	C = 130

5.0 MODEL DEVELOPMENT

The domestic water system hydraulic model was developed for this study as a steady state model using Bentley WaterCAD modeling software. The modeled facilities were imported from the City’s GIS records for the existing system, and include pipelines, junctions, and hydrants up to the point of connection of the Moffett Park area to the existing City of Sunnyvale system. BKF used information from GIS records, as-builts, and block maps to input the physical model parameters such as pipe size and materials. The extent of the modeled Moffett Park system and connection points to the existing system are shown in **Figure 2**.

BKF used 26 hydrant tests taken throughout the Moffett Park area to establish boundary conditions and calibrate the steady state hydraulic model. As hydrant tests are conducted in the field between the hours of 8AM to 5PM, test results reflect existing demand conditions within the focus area at the time of the test. The hydraulic grade line (HGL) at each hydrant was estimated based on measured test pressures and hydrant elevations, and the average HGL was used to establish model static pressures. Hydrant flows measured at each location were applied at the corresponding hydrant node in the model, as shown in **Figure 2**. The model was executed, and the calculated residual pressure was compared to the field measured residual pressure. The boundary conditions and the existing pipe roughness coefficients were adjusted iteratively until a best fit of residual pressures was achieved, while maintaining acceptable roughness coefficients based on the existing pipe material and pipe age.

Losses due to pipe friction were calculated by the modeling software using the Hazen-Williams Equation. Because the model does not individually account for minor losses associated with hydraulic singularities (such as bends, valves, and other appurtenances), modeled C-factors were conservatively reduced during calibration to account for these losses. The Hazen-Williams coefficients utilized in the calibrated model fell within the acceptable ranges per industry standards, and are summarized below:

Table 3 – Calibrated Hazen-Williams Coefficients

Pipe Material	Calibrated Hazen Williams Coefficient
Asbestos Cement	100
Concrete Cylindrical	100
Cast Iron	60
Ductile Iron	100
PVC	120
Steel	100

The calibrated model yielded a net zero difference when evaluating the modeled losses against the hydrant test losses. **Table 4** documents a comparison between hydrant test values and the calibrated model.

6.0 EXISTING SYSTEM EVALUATION

The existing water system was evaluated using the calibrated hydraulic model. Typically, water distribution systems are sensitive to fire flows. As a result, the most conservative demand conditions for evaluating the existing system are during either MDD plus fire flows, or during PHD. Steady-state scenarios modeling MDD, MDD plus fire flow, and PHD were developed to model the City’s existing water system under buildout conditions.

The model indicates that the existing water system serving the Moffett Park area experiences residual pressures ranging from 56 psi to 65 psi under MDD conditions. In addition, no pipelines were determined to exceed a pipeline velocity of 7 fps or a headloss gradient of 0.015 ft/ft. Based on the established design criteria, the system performed adequately and all service junctions are expected to maintain service pressures within the allowable range under non-emergency conditions.

Under MDD plus fire flow, the model indicates that there are over 160 hydrants that are unable to achieve the required fire flow of 4,000 gpm at a minimum residual pressure of 20 psi, as shown in **Figure 3**. The pipelines in the Moffett Park area were likely not sized to meet demands resulting from the maximum development intensity assumption, and deficient pipes have been identified as capacity deficient and recommended for improvement in the next section. The model indicates that several pipelines have excessive velocities at the required fire flow. These pipelines are undersized and generate significant head loss at hydrants connected to these pipelines and were identified as capacity deficient. Improvements recommended to mitigate identified deficiencies will be discussed in the next section.

A summary of the pressure and velocity results from the existing system evaluation under MDD and MDD plus fire flow can be found in the **Table 5** below, while tables documenting the full output from the WaterCAD model can be found in **Appendix C**.

Table 5 – Existing System Evaluation Summary

Parameter	Requirement	Minimum	Maximum
Service Pressures during Non-Emergency Operations (psi)	40 min	56	65
Pipeline Velocities during Non-Emergency Operations (fps)	7 max	-	4.3
Residual Pressures during MDD plus Fire Flow (psi)	20 min	0	-
Pipeline Velocities during MDD plus Fire Flow (fps)	15 max	-	17.9
Available Fire Flow at Residual Pressure Criteria (gpm)	4,000 min	1,965	-

Under peak hour demands, the model indicates that the existing system is unable to maintain adequate service pressures. The entirety of the existing system serving the Moffett Park area experiences service pressures of 0 psi during peak hour demands. However, the majority of the pipelines were determined to be within a pipeline velocity of 7 fps or a headloss gradient of 0.015 ft/ft.

7.0 PROPOSED IMPROVEMENTS

As described in the previous section, the existing system is currently deficient under buildout conditions and is unable to meet the required fire flow during MDD conditions. In order to mitigate these deficiencies, several portions of the existing system are recommended for improvement. Key improvements are summarized below:

- The pipelines along Mathilda Avenue, Caribbean Drive, and Moffett Park Drive should be upsized to 18-inch domestic water main in order to provide a primary transmission loop through the Moffett Park area. This improvement will increase service pressures throughout the study area and provide reliability and redundancy under maximum day demands and emergency conditions.
- The pipelines along Bordeaux Drive and Java Drive should be upsized to 16-inch domestic water main in order to provide a secondary transmission loop through the Moffett Park area. In conjunction with the primary transmission loop, this improvement will mitigate the majority of the deficiencies in the system, allowing all but a few hydrants to achieve the required fire flow at a residual pressure of 20 psi under maximum day demand conditions.

While the above improvements address the majority of deficiencies, there are several additional targeted improvements that are recommended to allow any remaining hydrants to meet fire flow requirements. These improvements are primarily upsizing non-looped pipelines, where flow is constrained in a single unidirectional pipe. All of the recommended improvements are documented in **Figure 4**.

A summary of the pressure and velocity results with the proposed improvements can be found in the **Table 6** below, while tables documenting the full output from the WaterCAD model can be found in **Appendix C**.

Table 6 – Proposed Improvements Evaluation Summary

Parameter	Requirement	Minimum	Maximum
Service Pressures during Non-Emergency Operations (psi)	40 min	57	66
Pipeline Velocities during Non-Emergency Operations (fps)	7 max	-	3.7
Residual Pressures during MDD plus Fire Flow (psi)	20 min	20	-
Pipeline Velocities during MDD plus Fire Flow (fps)	15 max	-	15.0
Available Fire Flow at Residual Pressure Criteria (gpm)	4,000 min	4,015	-

Even with improvements made to the transmission lines within the Moffett Park area, the model indicated that the system was unable to support peak hour demands while maintaining adequate service pressures. With these improvements in place and under peak hour demand, the modeled system experiences an 8 psi drop across the distribution network. An additional 5 psi of losses are attributed to the existing piping across Highway 237 during peak hour demand. This suggests that these deficiencies cannot be mitigated

by localized improvements, and would require that deficiencies caused by peak hour demands be addressed by improvements to supply provided by the City's water distribution system. However, evaluating the expansion of the City's water supply to serve buildout demands from the Moffett Park area is not within the scope of this plan, and it is recommended that the City initiate a planning effort to evaluate supply capacity for the Moffett Park area against the larger city-wide distribution system.

8.0 COST ESTIMATES

Preliminary cost estimates for the improvements described in the previous section are presented in **Table 8**. As shown, mitigating all existing deficiencies has an estimated total cost of \$18.4 Million. These costs were estimated using pipeline unit costs as shown in **Table 7**. These costs were extracted from the 2010 WUMP, which were then escalated to reflect the most recent Engineering News Record Construction Cost Index (ENR CCI). The ENR CCI is an inflation index used to adjust prices from one time period to another. The cost estimates used in this report are based on the ENR CCI of 13,004 for May 2022. In addition, a factor of 30 percent has been factored into all unit costs for contingencies, such as engineering, legal, administration, and other construction contingencies. Estimates of improvement costs provided represent Class 4 Order of Magnitude level costs as established by the American Association of Cost Engineers and represent an accuracy of +50% to -30%, and new cost estimates should be obtained during pre-design for proposed improvements to confirm budget amounts.

9.0 CONCLUSIONS

Based on the evaluation described in the previous sections, the existing domestic water system serving the Moffett Park area is currently undersized for the maximum development assumptions designated by the updated MPSP. In order to mitigate deficiencies observed under maximum day demands plus fire flow, it is recommended that the following approximate lengths of new domestic water main be constructed:

- 0.4 miles of new 14-inch main
- 1.6 miles of new 16-inch main
- 4.5 miles of new 18-inch main

These improvements are estimated to have a total cost of \$18.4 Million.

ATTACHMENTS

FIGURES

- Figure 2: Existing Modeled System
Figure 3: Existing System Evaluation (MDD plus Fire Flow)
Figure 4: Proposed Improvements

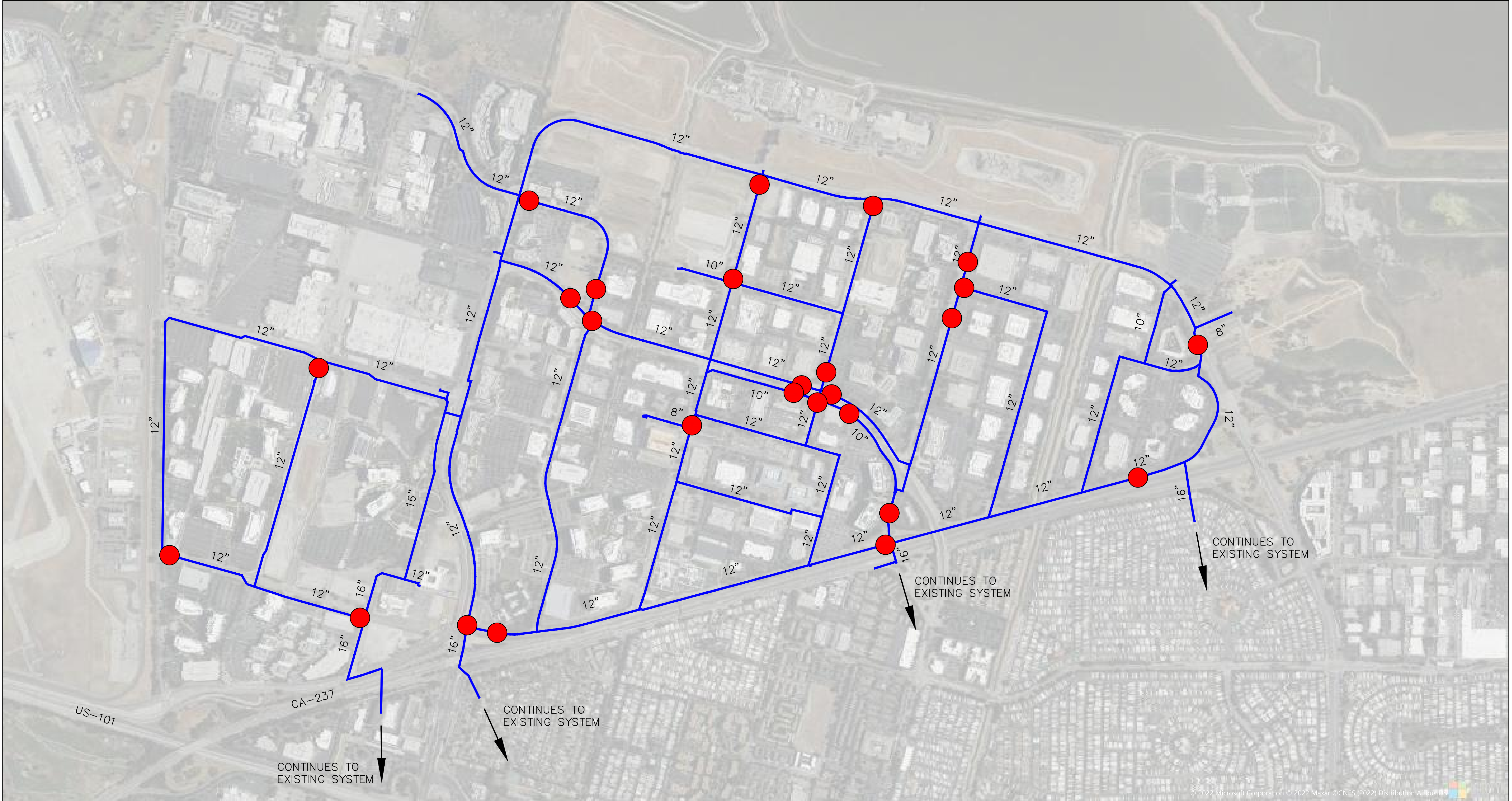
TABLES

- Table 1: Domestic Water Demands
Table 4: Hydrant Calibration
Table 7: Pipeline Unit Costs
Table 8: Proposed Improvement Costs

APPENDICES

- Appendix A: Intensity and Density Standards by Land Use District
Appendix B: City of Redwood City Demand Factors
Appendix C: WaterCAD Model Output

FIGURES



LEGEND

- EXISTING SYSTEM
- 8" EXISTING DIAMETER
- TEST HYDRANT

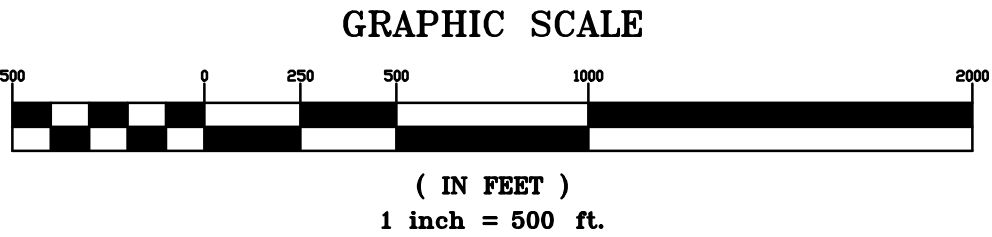
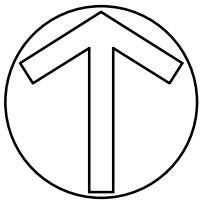


FIGURE 2
EXISTING MODELED SYSTEM
MOFFETT PARK SPECIFIC PLAN
WATER MASTER PLAN
MAY 2022

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JOB NO. 20191089-10



LEGEND

- EXISTING SYSTEM
- 8" EXISTING DIAMETER
- HYDRANT W/ RESIDUAL PRESSURE ≥ 20 PSI
- HYDRANT W/ RESIDUAL PRESSURE < 20 PSI

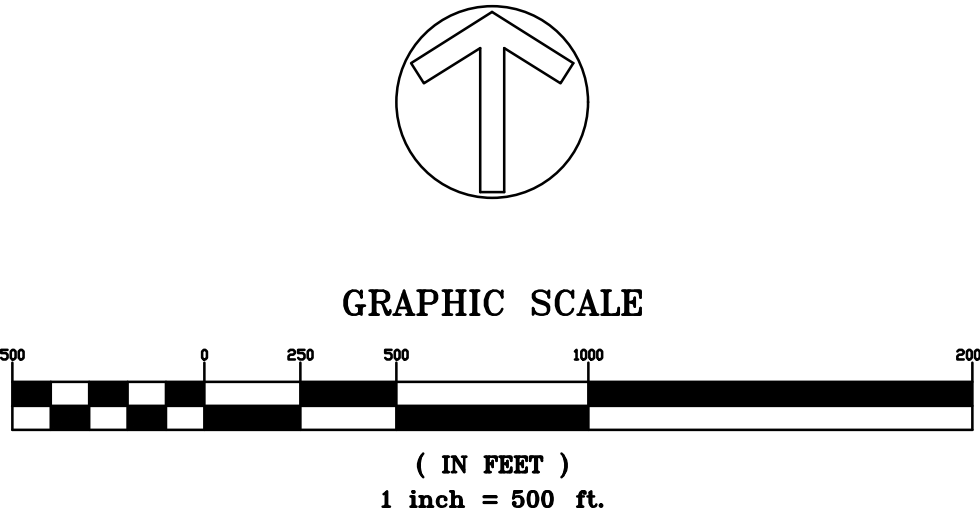


FIGURE 3
EXISTING SYSTEM EVALUATION
MOFFETT PARK SPECIFIC PLAN
WATER MASTER PLAN
MAY 2022

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LEGEND

- | | |
|--|---------------------------------------|
|  EXISTING SYSTEM | 8" EXISTING DIAMETER |
|  PROPOSED IMPROVEMENT | 8" PROPOSED DIAMETER |
| | (8") EXISTING DIAMETER TO BE REPLACED |

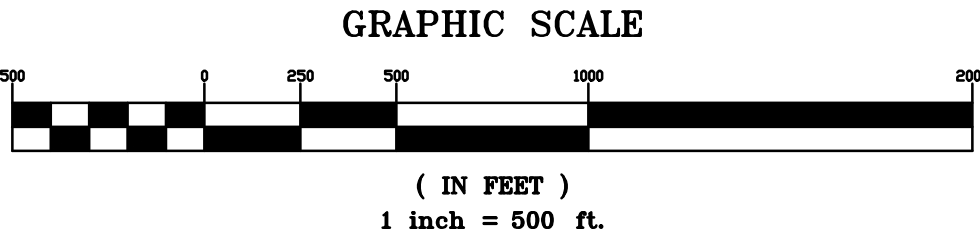
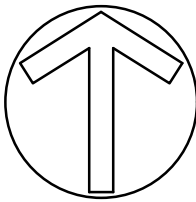


FIGURE 4
PROPOSED IMPROVEMENTS
MOFFETT PARK SPECIFIC PLAN
WATER MASTER PLAN
MAY 2022

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TABLES

Moffett Park Specific Plan - Water Master Plan
Table 1 - Domestic Water Demands

Land Use Type	Area	Office+R&D Floor Area		Residential Units		Water Demands											
		Minimum	Maximum	Minimum	Maximum	Minimum Development Intensity			Average Development Intensity			Maximum Development Intensity			Peak Hour Demands		
	(ac)	(SF)	(SF)	(units)	(units)	(MGD)	(gpd)	(gpm)	(MGD)	(gpd)	(gpm)	(MGD)	(gpd)	(gpm)	(MGD)	(gpd)	(gpm)
MP-AC	82	1,251,332	3,575,235	3,112	14,056	0.6	573,457	398	1.4	1,446,815	1,005	2.3	2,320,173	1,611	4.4	4,398,317	3,054
MP-R	133	0	0	8,571	21,028	1.1	1,131,372	786	2.0	1,953,534	1,357	2.8	2,775,696	1,928	5.9	5,938,743	4,124
MP-MU	147	2,239,977	3,199,967	0	21,552	0.3	291,197	202	1.8	1,776,028	1,233	3.3	3,260,860	2,264	5.4	5,399,126	3,749
MP-O1	231	3,517,933	15,076,856	0	0	0.5	457,331	318	1.2	1,208,661	839	2.0	1,959,991	1,361	3.7	3,674,330	2,552
MP-O2	187	2,848,371	16,276,404	0	0	0.4	370,288	257	1.2	1,243,110	863	2.1	2,115,933	1,469	3.8	3,779,055	2,624
MP-E4	5	77,246	220,703	0	0	0.0	10,042	7	0.0	19,367	13	0.03	28,691	20	0.06	58,875	41
MP-P	27																
MP-I	16																
TOTAL	1,157	9,934,859	38,349,164	11,683	56,636	2.8	2,833,688	1,968	7.6	7,647,515	5,311	12.5	12,461,343	8,654	23.2	23,248,447	16,145



Hydrant ID	Hydrant Tests			Calibrated Model			Hydrant Tests vs. Calibrated Model	Percent Change		
	Static Pressure	Residual Pressure @ 1,500 gpm ¹	Pressure Loss	Static Pressure	Residual Pressure @ 1,500 gpm ¹	Pressure Loss		Static Pressure	Residual Pressure	Pressure Loss
	(psi)	(psi)	(psi)	(psi)	(psi)	(psi)		(%)	(%)	(%)
554-106-75	95	92	3	90	84	6	-3	-5%	-9%	107%
593-A-75	100	97	3	93	89	4	-1	-7%	-9%	54%
W551H750101	86	83	3	90	88	2	1	5%	6%	-31%
W552H750101	95	90	6	89	87	2	4	-6%	-3%	-64%
W552H751024	95	93	2	87	84	3	-1	-8%	-10%	50%
W573H750101	94	90	4	93	91	2	2	-1%	1%	-52%
W573H750105	94	90	4	93	91	2	2	-1%	1%	-52%
W575H750103	94	88	6	96	93	3	3	2%	6%	-49%
W589H750102	102	100	2	95	92	3	-1	-7%	-8%	50%
W589H750103	98	96	2	95	92	3	-1	-3%	-4%	50%
W589H750108	100	98	2	95	92	3	-1	-5%	-6%	50%
W589H750109	100	98	2	95	92	3	-1	-5%	-6%	50%
W589H750110	88	86	2	96	93	3	-1	9%	8%	50%
W589H750111	100	98	2	95	92	3	-1	-5%	-6%	50%
W590H750101	90	88	2	95	92	3	-1	6%	5%	50%
W610H750108	86	84	2	95	92	3	-1	10%	10%	50%
W610H750109	98	94	4	94	91	3	1	-4%	-3%	-23%
W610H750110	84	82	2	95	92	3	-1	13%	12%	50%
W611H750105	92	88	4	96	94	2	2	4%	7%	-50%
W613H750101	92	88	4	97	95	2	2	5%	8%	-49%
W613H750103	98	95	3	97	94	3	0	-1%	-1%	3%
W615H750101	90	88	2	96	93	3	-1	7%	6%	50%
W629H750101	92	90	2	97	94	3	-1	5%	4%	50%
W629H750103	92	90	2	97	95	2	0	5%	6%	0%
W629H750104	100	98	2	96	93	3	-1	-4%	-5%	30%
W631H750104	94	90	4	95	92	3	1	1%	2%	-23%
Average	94	91	3	94	91	3	0	0%	0%	0%

Notes:

- Hydrant test flows ranged from 1,210 gpm to 1,590 gpm. Hazen-Williams equation was used to determine headloss in relation to measured test flow. This relation was applied to a fire flow of 1,500 gpm to provide equivalent residual pressures across the modeled system in order to allow for a direct comparison of test results. These adjusted residual pressures are reported in this table.

Moffett Park Specific Plan - Water Master Plan
Table 7 - Pipeline Unit Costs

Pipe Diameter (in)	Unit Cost (\$/LF)
6	\$191
8	\$250
10	\$316
12	\$382
14	\$441
16	\$507
18	\$565
20	\$631
24	\$756
27	\$844
30	\$939
36	\$1,130

Notes:

1. Unit Costs include a 30% cost contingency factor to account for Engineering, Legal, Administration, and other Construction Cost Contingencies.
2. Unit Costs shown are based on ENR-CCI cost index of 13,004 for May 2022.

Moffett Park Specific Plan - Water Master Plan
Table 8 - Proposed Improvement Costs

Project Number	Description	Length (LF)	Existing Diameter (in)	Proposed Diameter (in)	Unit Cost (\$/LF)	Total Cost (\$)
1	Primary Transmission Loop	21,550	12	18	565	\$12,176,000
2	Secondary Transmission Loop	7,749	12	16	507	\$3,929,000
3	Targetted Fire Flow Improvement	1,061	12	14	441	\$468,000
4	Targetted Fire Flow Improvement	506	12	16	507	\$257,000
5	Targetted Fire Flow Improvement	488	10	14	441	\$216,000
6	Targetted Fire Flow Improvement	388	8	14	441	\$172,000
7	Targetted Fire Flow Improvement	2,113	12	18	565	\$1,194,000
Sub-total - New 14-inch Main		1,937				\$856,000
Sub-total - New 16-inch Main		8,255				\$4,186,000
Sub-total - New 18-inch Main		23,663				\$13,370,000
Total		33,855				\$18,412,000

Notes:

1. Recommended improvement lengths shown above represent improvements required to meet criteria assuming full flow at each hydrant, where flows are applied to the hydrant connection to the distribution main. Splitting fire flow would allow for less length of recommended improvements, as described below:

- Project Number 5 - Instead of 488 LF of 14-inch, only 241 LF would be required to meet criteria. This would result in a total project cost of \$107,000.

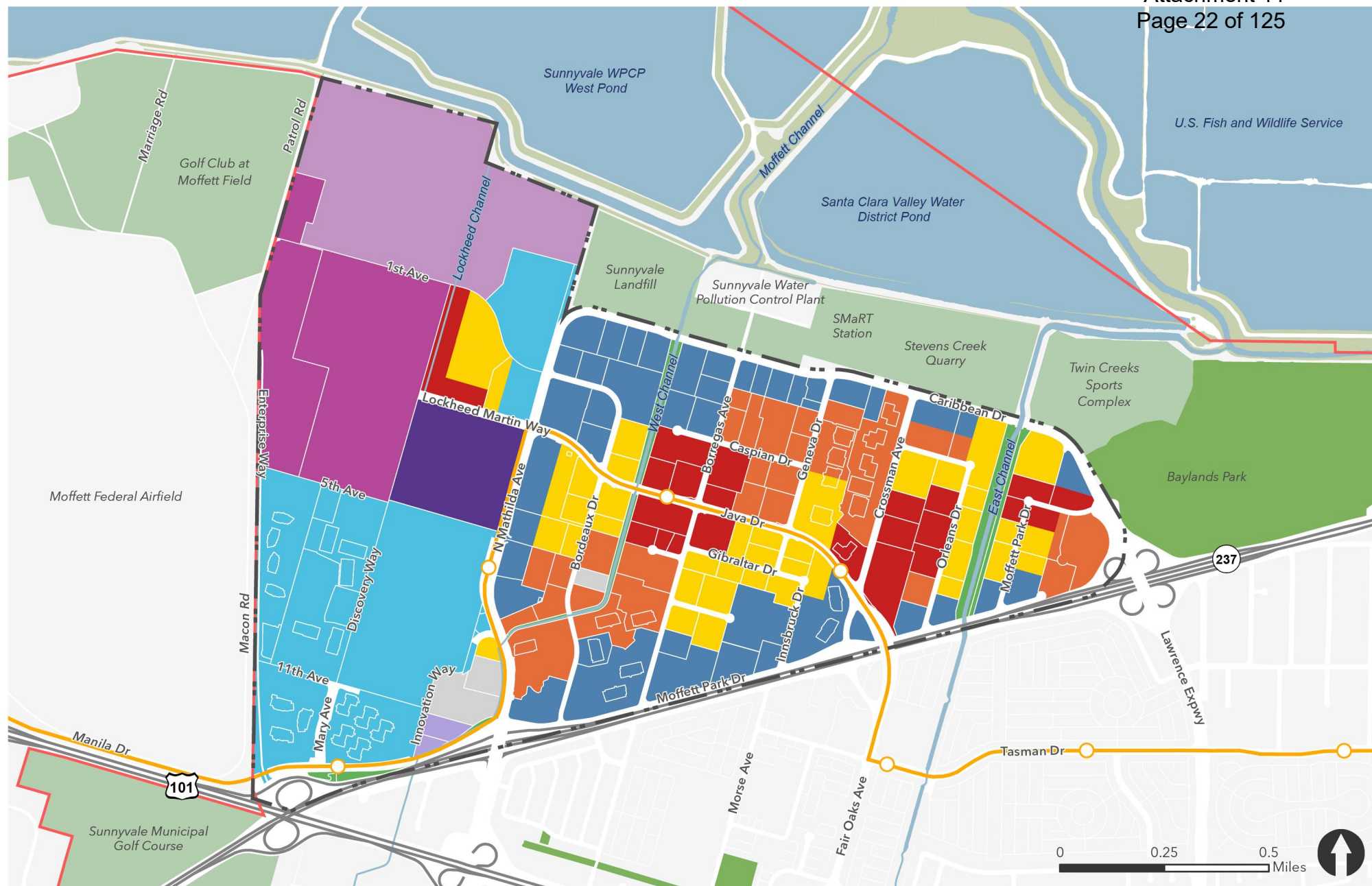
APPENDIX A

Intensity and Density Standards by Land Use District

Table XX: Intensity and Density Standards by Land Use District

District	Office/R+D Base FAR	Office/R+D Bonus FAR Maximum	Residential Density Minimum	Residential Density Maximum	Total FAR Maximum**
MP-AC	35%	75%	40 du/a (100%)	180 du/a (350%)	450%* 150% Office
MP-R	-	-	70 du/a (175%)	150 du/a (350%)	400%*
MP-MU	35%	100%	-	150 du/a (350%)	400% 200% Office
MP-O1	35%	100%	-	-	150%
MP-O2	35%	135%	-	-	200%
MP-E1(Navy)	35%	75%	(Maker Space Minimum: 35% FAR)		150%
MP-E2 (LHM Core)	35%	50%	-	-	100%
MP-E3 (North LHM)	35%	-	(Maker Space Minimum: 5% of floor area)		35%
MP-E4	35%	50%	-	-	100%
MP-P	-	-	-	-	-
MP-I	-	-	-	-	-

- Note: Maximum residential densities not inclusive of Assembly Bill 2345 density bonus.
- *East Orleans** may exceed the Residential FAR Maximum and Maximum FAR by up to 1.0 FAR because of the increased height limits in the East Orleans neighborhood, MP-AC and MP-R projects only.
- **Maximum FAR.** Maximum FAR is allowed non-res FAR, residential FAR, and Transfer of Development Rights



- | | | | |
|-------------------------|---------------------------|---------------------------|-----------------------|
| Specific Plan Boundary | MP-O1: Office 1 | MP-E4: Mixed Employment 4 | MP-P: Public 1 |
| City of Sunnyvale Limit | MP-O2: Office 2 | MP-AC: Activity Center 1 | MP-I: Institutional 1 |
| VTA Light Rail | MP-E1: Mixed Employment 1 | MP-MU: Mixed Use 1 | |
| Freeway | MP-E2: Mixed Employment 2 | MP-R: Residential 1 | |
| Water/Channel | MP-E3: Employment 3 | | |

APPENDIX B

City of Redwood City Demand Factors

ATTACHMENT Q (1 of 3)

WATER DEMAND PROJECTION WORKSHEET

JOB TITLE _____
JOB NUMBER _____
JOB LOCATION _____

CAL. BY _____
CHKD. BY _____
DATE _____

INDOOR WATER DEMAND PROJECTION

A. RESIDENTIAL

1. Multi - Family
_____ Units X 2.2 Persons = _____ Persons

2. Single Family
_____ Units X 3.4 Persons = _____ Persons

_____ Persons X 60* GPD = _____ GPD Projected

B. OFFICE/COMMERCIAL

_____ sqft X 0.13 gpd/sqft = _____ GPD Projected

C. HOTEL

_____ rooms X 195 gpd/room = _____ GPD Projected

D. RESTAURANTS

_____ seats X 30 gpd/seat = _____ GPD Projected

E. ALL OTHERS SEE PAGE 3: = _____ GPD Projected

LANDSCAPING WATER DEMAND PROJECTION

A. RESIDENTIAL

17 gpd X _____ persons = _____ GPD Projected

B. COMMERCIAL

_____ sqft X 3.5 cuft of water /sqft of landscape per year = _____ CUFT/YR

To convert to GPD:

_____ cuft/yr X 7.48 gal/ cuft X 1 yr/ 365 days = _____ GPD Projected

TOTAL DOMESTIC WATER DEMAND PROJECTION

INDOOR + LANDSCAPING PROJECTION = _____ GPD Projected

* From SFPUC Demand Study by URS, " Projected Water Usage for BAWSCA Agencies " ,
Tech Memo of August 2006.

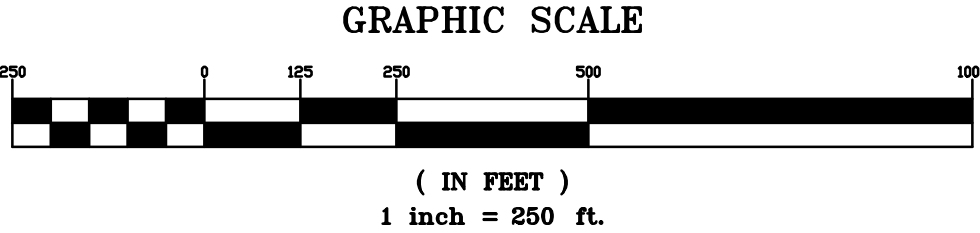
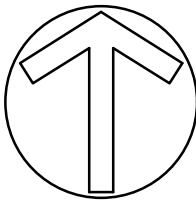
APPENDIX C

WaterCAD Model Output



LEGEND

- MODELED PIPELINES
- MODELED JUNCTION NODES



**FIGURE C1-1
MODELED JUNCTIONS**
MOFFETT PARK SPECIFIC PLAN
WATER MASTER PLAN
OCTOBER 2022

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CONTINUES ON FIGURE C1-1



CONTINUES ON FIGURE C1-4

LEGEND

- MODELED PIPELINES
- MODELED JUNCTION NODES

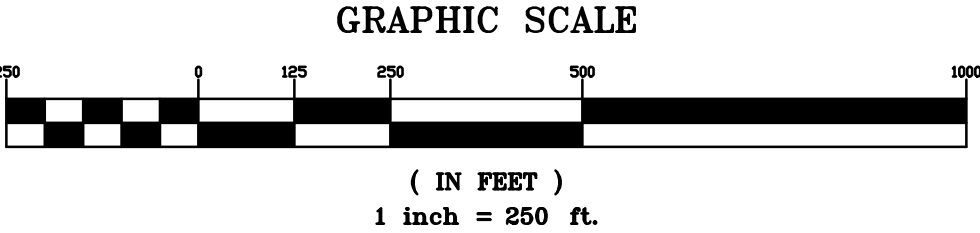
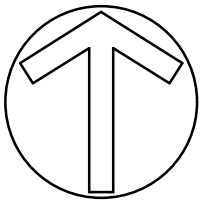
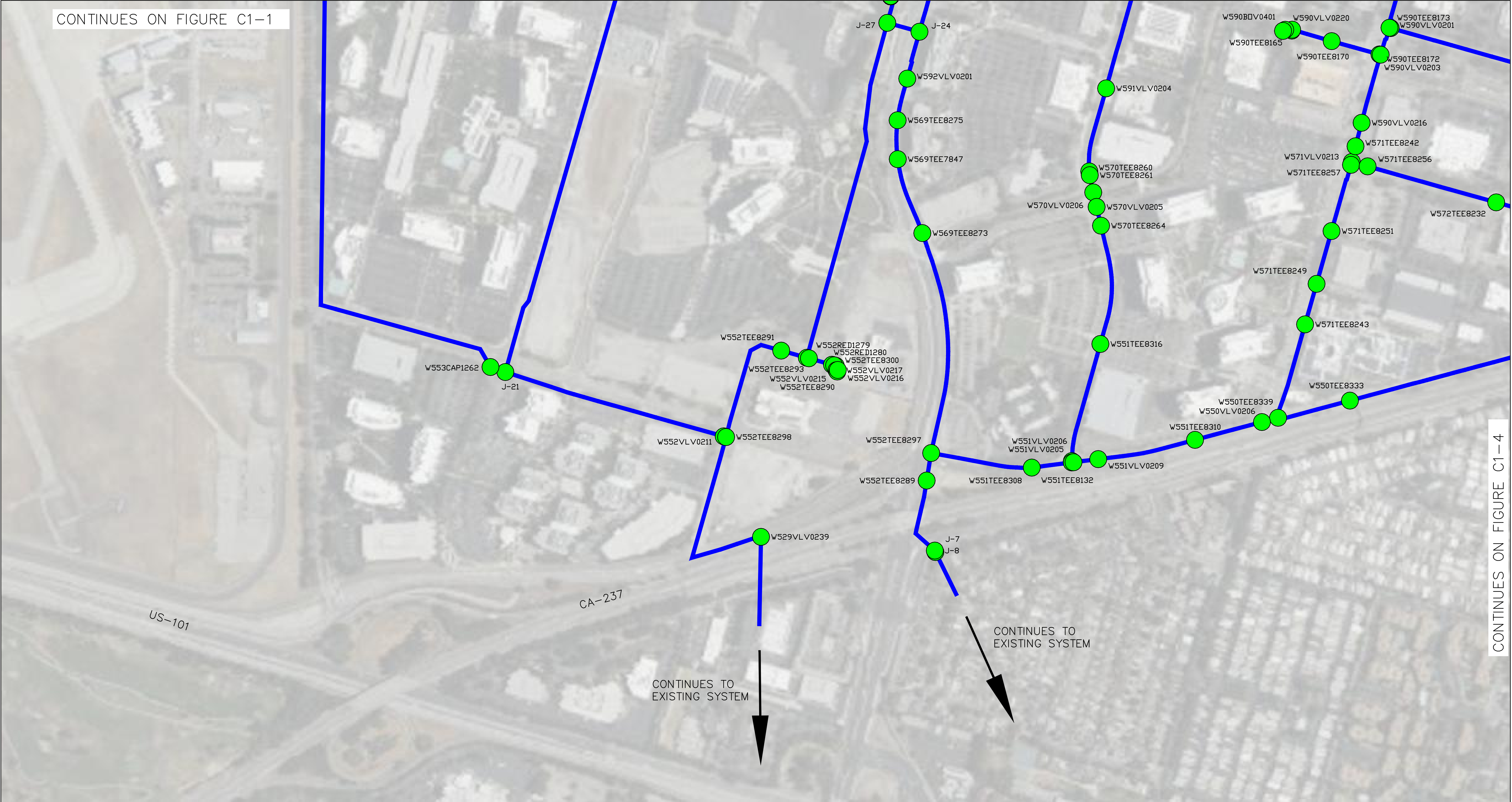


FIGURE C1-2
MODELED JUNCTIONS
MOFFETT PARK SPECIFIC PLAN
WATER MASTER PLAN
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LEGEND

- MODELED PIPELINES
- MODELED JUNCTION NODES

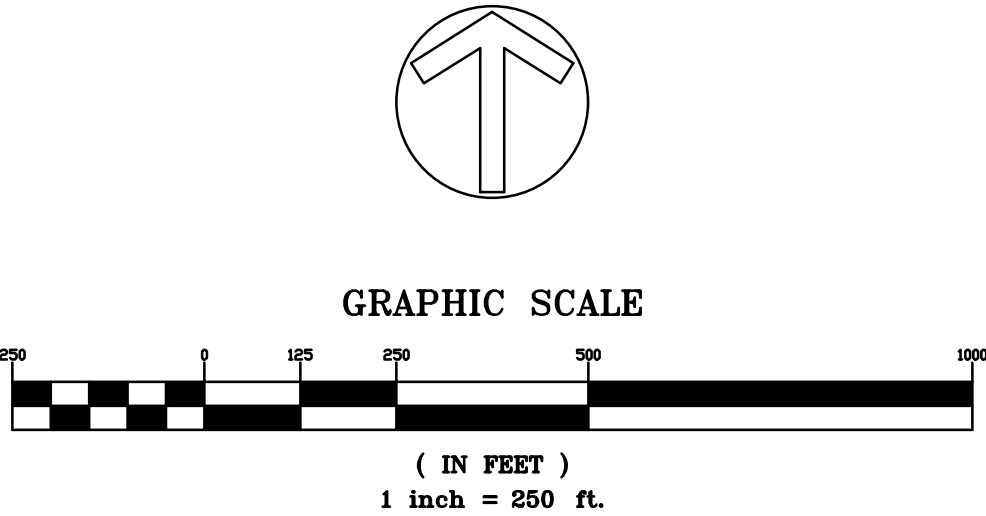


FIGURE C1-3
MODELED JUNCTIONS
MOFFETT PARK SPECIFIC PLAN
WATER MASTER PLAN
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LEGEND

- MODELED PIPELINES
- MODELED JUNCTION NODES

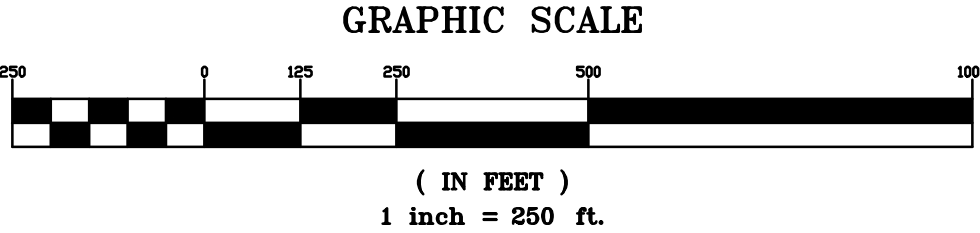
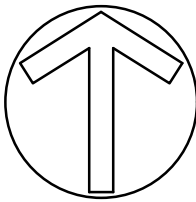


FIGURE C1-4
MODELED JUNCTIONS
MOFFETT PARK SPECIFIC PLAN
WATER MASTER PLAN
OCTOBER 2022

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Moffett Park Specific Plan - Water Master Plan
Table C1 - Allocated Demands under Maximum
Development Intensity Assumptions

Model Node ID	Demand (gpm)
W529VLV0239	6.8
W550TEE8333	39.5
W550TEE8339	75.0
W550VLV0206	0.0
W551TEE8132	0.0
W551TEE8308	51.6
W551TEE8310	140.1
W551TEE8316	26.7
W551VLV0205	0.0
W551VLV0206	0.0
W551VLV0209	0.0
W552RED1279	0.0
W552RED1280	0.0
W552TEE8289	0.0
W552TEE8290	0.0
W552TEE8291	0.0
W552TEE8293	30.8
W552TEE8297	0.0
W552TEE8298	13.1
W552TEE8300	0.0
W552VLV0211	0.0
W552VLV0215	0.0
W552VLV0216	0.0
W552VLV0217	0.0
W553CAP1262	155.5
W569TEE7847	39.6
W569TEE8273	243.4
W569TEE8275	0.0
W570TEE8260	85.8
W570TEE8261	0.0
W570TEE8264	99.6
W570VLV0205	0.0
W570VLV0206	0.0
W571TEE8242	0.0
W571TEE8243	0.0
W571TEE8249	19.7
W571TEE8251	42.4

Moffett Park Specific Plan - Water Master Plan
Table C1 - Allocated Demands under Maximum
Development Intensity Assumptions

Model Node ID	Demand (gpm)
W571TEE8256	0.0
W571TEE8257	172.1
W571VLV0213	0.0
W572TEE8223	45.3
W572TEE8224	0.0
W572TEE8227	17.6
W572TEE8232	213.7
W572TEE8238	0.0
W572VLV0210	0.0
W573ARV0601	15.2
W573RED1296	0.0
W573TEE8644	0.0
W573TEE8645	298.5
W573TEE8649	145.8
W573VLV0208	0.0
W573VLV0209	0.0
W573VLV0222	23.7
W574TEE8632	67.4
W574TEE8633	0.0
W574VLV0202	0.0
W574VLV0203	19.2
W586RED1287	0.0
W586TEE8516	56.6
W586VLV0201	150.7
W586VLV0202	0.0
W586VLV0204	0.0
W587VLV0217	191.6
W588TEE8485	172.5
W588TEE8495	168.2
W589TEE8187	101.6
W589TEE8206	115.1
W589TEE8208	18.6
W589TEE8218	0.0
W589TEE8219	0.0
W589VLV0210	102.6
W589VLV0217	0.0
W589VLV0218	0.0

Moffett Park Specific Plan - Water Master Plan
Table C1 - Allocated Demands under Maximum
Development Intensity Assumptions

Model Node ID	Demand (gpm)
W589VLV0221	0.0
W590BOV0401	0.0
W590TEE8165	156.7
W590TEE8170	42.5
W590TEE8172	36.5
W590TEE8173	0.0
W590TEE8178	228.6
W590TEE8181	0.0
W590VLV0201	0.0
W590VLV0203	0.0
W590VLV0206	0.0
W590VLV0208	0.0
W590VLV0209	0.0
W590VLV0216	0.0
W590VLV0220	0.0
W591VLV0204	142.0
W592TEE8141	0.0
W592VLV0201	0.0
W592VLV0211	0.0
W592VLV0212	0.0
W610TEE7955	146.9
W610TEE7961	174.3
W610TEE7977	38.3
W610TEE7980	188.5
W610TEE7981	0.0
W611BOV0402	150.1
W611TEE7920	0.0
W611TEE7928	28.7
W611TEE7929	198.2
W611TEE7933	0.0
W611TEE7935	46.7
W611TEE7944	75.4
W611TEE7946	62.1
W611TEE7947	0.0
W611TEE7948	0.0
W611VLV0203	0.0
W611VLV0208	0.0

Moffett Park Specific Plan - Water Master Plan
Table C1 - Allocated Demands under Maximum
Development Intensity Assumptions

Model Node ID	Demand (gpm)
W611VLV0214	0.0
W612TEE7842	52.6
W612TEE8114	372.6
W613TEE8098	240.9
W613TEE8101	97.4
W613VLV0206	126.2
W615CAP1255	0.0
W615TEE8057	0.0
W615TEE8060	0.0
W615TEE8062	0.0
W615TEE8063	0.0
W615TEE8065	111.0
W615TEE8077	104.0
W615VLV0201	0.0
W615VLV0204	0.0
W615VLV0207	0.0
W615VLV0215	0.0
W615VLV0220	80.4
W615VLV0226	0.0
W615VLV0227	0.0
W615VLV0228	0.0
W626TEE8049	0.0
W627ARV0601	0.0
W627TEE8039	0.0
W627TEE8047	0.0
W627VLV0202	0.0
W628ARV0601	0.0
W628TEE8030	15.0
W628TEE8035	220.8
W628VLV0202	0.0
W628VLV0205	0.0
W628VLV0211	0.0
W629TEE8013	52.2
W629TEE8016	101.8
W629TEE8019	41.9
W629TEE8020	0.0
W629TEE8021	0.0

Moffett Park Specific Plan - Water Master Plan
Table C1 - Allocated Demands under Maximum
Development Intensity Assumptions

Model Node ID	Demand (gpm)
W629TEE8023	14.8
W629TEE8026	32.6
W629TEE8038	15.3
W629VLV0201	0.0
W629VLV0202	22.0
W629VLV0204	0.0
W631TEE7891	0.0
W631TEE7896	549.4
W631TEE7911	0.0
W631TEE7912	0.0
W631TEE7916	83.8
W631TEE7917	20.1
W631VLV0204	0.0
W631VLV0207	36.2
W631VLV0225	0.0
W631VLV1091	89.7
W651TEE7864	27.3
W651TEE7869	44.4
W651VLV0204	0.0
W651VLV0205	36.4
J-2	0.0
J-3	0.0
J-4	0.0
J-7	0.0
J-8	0.0
J-9	0.0
J-10	0.0
J-11	0.0
J-16	0.0
J-20	277.6
J-21	284.7
J-24	458.8
J-25	0.0
J-27	162.4
Total	7,470



LEGEND

- MODELED PIPELINES
- MODELED HYDRANT NODES

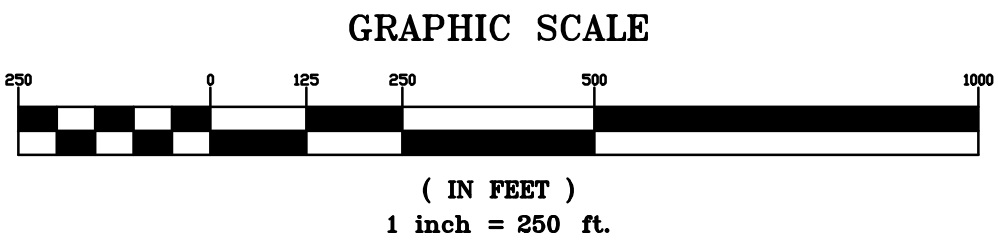
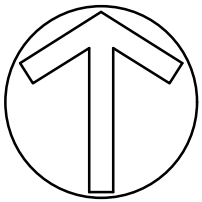


FIGURE C2-1
MODELED HYDRANTS
MOFFETT PARK SPECIFIC PLAN
WATER MASTER PLAN
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CONTINUES ON FIGURE C2-1



CONTINUES ON FIGURE C2-4

LEGEND

- MODELED PIPELINES
- MODELED HYDRANT NODES

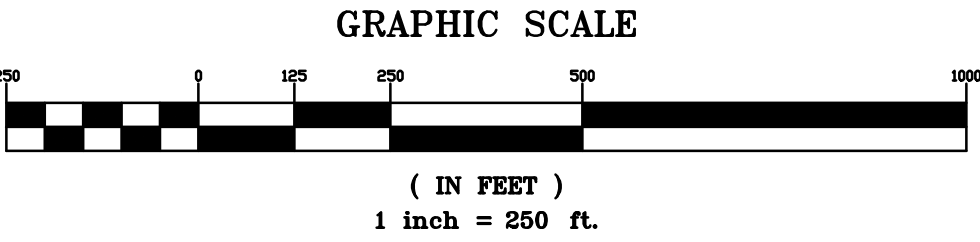
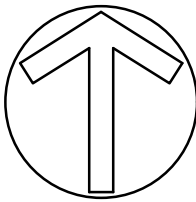
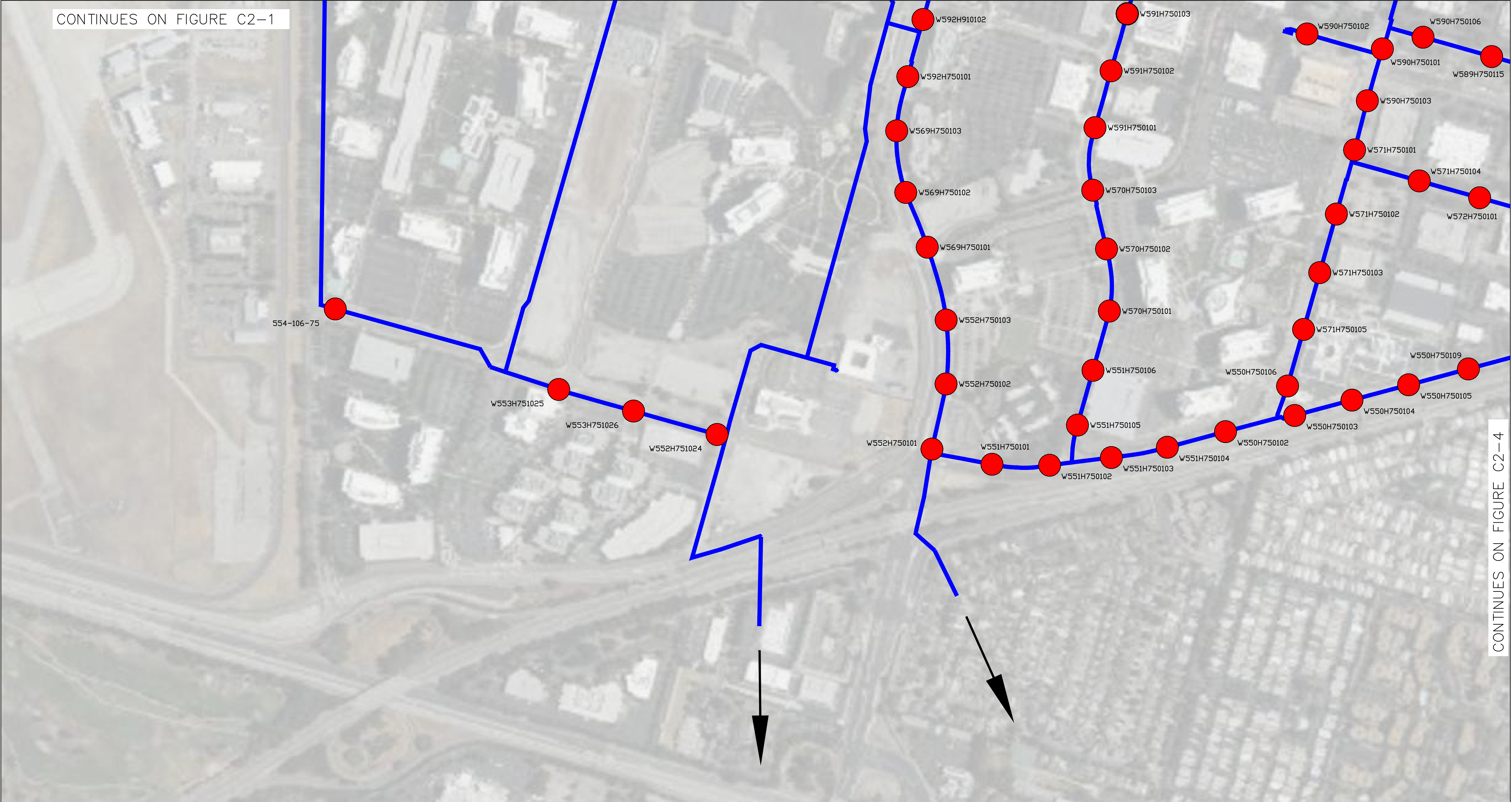


FIGURE C2-2
MODELED HYDRANTS
MOFFETT PARK SPECIFIC PLAN
WATER MASTER PLAN
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LEGEND

- MODELED PIPELINES
- MODELED HYDRANT NODES

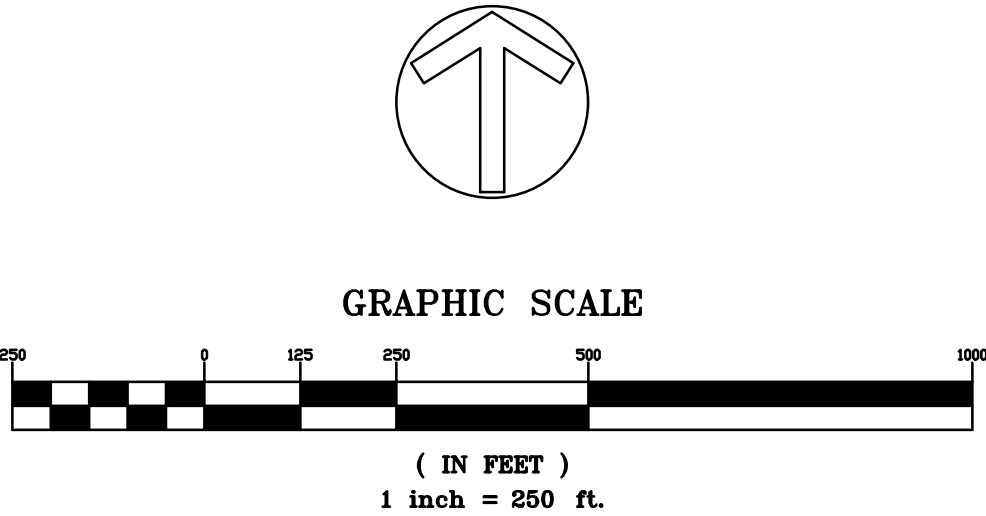


FIGURE C2-3
MODELED HYDRANTS
MOFFETT PARK SPECIFIC PLAN
WATER MASTER PLAN
OCTOBER 2022

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Moffett Park Specific Plan - Water Master Plan

Appendix C - WaterCAD Model Output

Table C2 - Existing System Fire Flow Results (during MDD)

Hydrant ID	Hydrant Elevation (ft)	Required Fire Flow (gpm)	Static Pressure (psi)	Residual Pressure (psi)	Available Fire Flow (gpm)	Velocity of Maximum Pipe (gpm)
W631H750104	7.5	4,000	60	13	3,490	9.5
W631H760108	8.5	4,000	60	11	3,416	9.4
W631H750106	8.6	4,000	60	10	3,368	9.4
W631H750107	7.9	4,000	60	11	3,403	9.4
W631H750103	8.7	4,000	60	11	3,429	9.4
W610H750109	9.7	4,000	59	13	3,484	9.5
W553H751025	26.3	4,000	57	5	3,076	8.8
W553H751026	25.9	4,000	57	9	3,262	8.9
W552H751024	26.8	4,000	58	15	3,624	10.7
W551H750101	21.9	4,000	58	19	3,890	9.6
W551H750102	20.3	4,000	57	17	3,752	9.6
W551H750105	20.0	4,000	57	14	3,528	9.5
W551H750106	19.8	4,000	57	11	3,377	9.4
W570H750101	18.5	4,000	57	9	3,284	9.3
W570H750102	17.1	4,000	57	8	3,234	9.3
W570H750103	15.6	4,000	56	6	3,113	9.2
W591H750101	17.8	4,000	58	7	3,193	9.2
W591H750102	14.2	4,000	59	9	3,291	9.3
W591H750103	11.0	4,000	58	9	3,298	9.3
W610H750107	11.9	4,000	58	12	3,461	9.5
W610H750108	11.4	4,000	59	16	3,704	9.7
W610H750110	9.4	4,000	59	14	3,590	9.6
W610H750106	9.4	4,000	59	14	3,545	9.5
W610H750111	10.0	4,000	59	13	3,524	9.5
W610H750105	10.3	4,000	59	14	3,538	9.5
W631H750101	10.2	4,000	59	15	3,629	9.6
W610H910104	9.5	4,000	59	15	3,652	9.6
W610H910103	10.5	4,000	60	15	3,655	9.5
W610H910102	11.3	4,000	60	16	3,698	9.5
W610H910101	11.9	4,000	60	17	3,753	9.5
W592H910103	12.5	4,000	61	18	3,846	9.5
W592H750101	12.8	4,000	61	19	3,960	9.5
W569H750103	12.3	4,000	60	17	3,786	9.4
W569H750102	13.3	4,000	60	16	3,702	9.3
W569H750101	15.8	4,000	60	15	3,662	9.3

Moffett Park Specific Plan - Water Master Plan

Appendix C - WaterCAD Model Output

Table C2 - Existing System Fire Flow Results (during MDD)

Hydrant ID	Hydrant Elevation (ft)	Required Fire Flow (gpm)	Static Pressure (psi)	Residual Pressure (psi)	Available Fire Flow (gpm)	Velocity of Maximum Pipe (gpm)
W552H750103	16.7	4,000	59	16	3,723	9.3
W552H750102	17.8	4,000	59	18	3,813	9.4
W551H750103	18.5	4,000	56	15	3,555	9.5
W551H750104	20.2	4,000	56	13	3,488	9.5
W550H750102	20.9	4,000	57	14	3,506	9.5
W550H750106	19.8	4,000	57	13	3,484	9.6
W571H750105	18.3	4,000	58	13	3,487	9.6
W571H750103	17.4	4,000	58	13	3,484	9.6
W571H750102	14.9	4,000	59	14	3,586	9.7
W571H750104	14.0	4,000	58	12	3,455	9.6
W572H750101	11.4	4,000	58	12	3,447	9.6
W572H750102	13.5	4,000	59	14	3,598	9.7
W550H750103	12.4	4,000	57	14	3,524	9.6
W550H750104	10.5	4,000	58	13	3,481	9.6
W550H750105	17.2	4,000	58	13	3,474	9.6
W550H750109	15.5	4,000	58	12	3,433	9.5
W549H750111	14.5	4,000	59	14	3,566	9.7
W549H750110	15.9	4,000	58	15	3,600	9.7
W572H750106	12.8	4,000	59	18	3,809	9.9
W572H750105	14.6	4,000	59	16	3,725	9.8
W572H750104	12.4	4,000	59	16	3,671	9.7
W572H750103	12.5	4,000	59	15	3,655	9.7
W589H750113	12.1	4,000	60	16	3,728	9.8
W589H750112	10.7	4,000	60	17	3,789	9.8
W589H750114	8.6	4,000	59	15	3,630	9.7
W589H750115	9.2	4,000	59	15	3,599	9.7
W590H750106	10.5	4,000	59	16	3,703	9.8
W589H750109	10.5	4,000	59	19	3,880	9.9
W589H750108	9.2	4,000	60	13	3,514	9.6
W589H750107	9.4	4,000	60	11	3,394	9.5
W589H750106	8.7	4,000	59	12	3,432	9.5
W590H750105	8.5	4,000	60	18	3,836	12.7
W611H750101	9.6	4,000	60	18	3,868	9.9
W589H750105	7.3	4,000	60	16	3,709	9.8
W589H750104	8.2	4,000	60	16	3,707	9.8

Moffett Park Specific Plan - Water Master Plan

Appendix C - WaterCAD Model Output

Table C2 - Existing System Fire Flow Results (during MDD)

Hydrant ID	Hydrant Elevation (ft)	Required Fire Flow (gpm)	Static Pressure (psi)	Residual Pressure (psi)	Available Fire Flow (gpm)	Velocity of Maximum Pipe (gpm)
W589H750103	8.9	4,000	60	17	3,771	9.8
W589H750110	8.2	4,000	61	18	3,847	9.9
W612H750106	8.9	4,000	61	17	3,768	9.8
W589H750102	6.5	4,000	60	18	3,841	9.9
W589H750101	5.4	4,000	59	16	3,711	9.8
W589H750111	9.2	4,000	60	12	3,489	9.6
W588H750104	9.6	4,000	60	16	3,714	9.8
W588H750106	8.7	4,000	60	12	3,457	9.6
W591H750104	9.2	4,000	59	11	3,387	9.4
W572H750107	10.0	4,000	60	20	3,962	10.1
W573H750105	10.9	4,000	60	19	3,917	10.1
W573H750106	11.1	4,000	60	17	3,776	12.5
W588H750103	12.2	4,000	60	17	3,751	9.9
W588H750107	10.3	4,000	60	17	3,791	9.9
W588H750102	9.9	4,000	60	15	3,657	9.8
W588H750101	8.9	4,000	61	15	3,634	9.8
W588H750108	8.8	4,000	61	15	3,630	9.8
W613H750104	6.5	4,000	62	15	3,650	9.8
W613H750103	5.6	4,000	62	16	3,757	9.9
W611H750104	5.3	4,000	59	15	3,609	9.6
W611H940108	3.2	4,000	58	14	3,525	9.5
W610H750114	10.1	4,000	59	15	3,663	9.6
W590H750104	13.0	4,000	60	18	3,811	9.8
W590H750101	9.4	4,000	60	17	3,749	9.8
W590H750102	7.8	4,000	59	0	1,965	13.8
W590H750103	8.8	4,000	59	16	3,681	9.7
W571H750101	10.6	4,000	59	16	3,689	9.8
W611H750102	9.5	4,000	61	17	3,795	9.8
W611H750107	10.0	4,000	60	0	2,580	11.3
W611H750106	12.1	4,000	61	2	3,052	13.2
W611H750105	5.5	4,000	61	16	3,716	9.8
W629H750102	8.0	4,000	61	15	3,619	9.7
W629H750101	5.4	4,000	61	15	3,662	9.7
W651H940105	5.9	4,000	61	13	3,516	9.6
W651H940104	5.2	4,000	60	10	3,377	9.5
W651H940103	4.1	4,000	59	7	3,204	9.3
W651H940102	4.9	4,000	62	9	3,332	9.4
W651H940101	6.2	4,000	61	8	3,313	9.4
W650H940104	9.7	4,000	61	8	3,285	9.4
W650H940103	3.8	4,000	60	8	3,281	9.4
W650H940102	4.1	4,000	61	10	3,349	9.4

Moffett Park Specific Plan - Water Master Plan

Appendix C - WaterCAD Model Output

Table C2 - Existing System Fire Flow Results (during MDD)

Hydrant ID	Hydrant Elevation (ft)	Required Fire Flow (gpm)	Static Pressure (psi)	Residual Pressure (psi)	Available Fire Flow (gpm)	Velocity of Maximum Pipe (gpm)
W650H940101	5.5	4,000	61	12	3,455	9.5
W631H940102	6.4	4,000	60	14	3,592	9.6
W631H750105	6.0	4,000	59	10	3,333	9.4
W611H750103	5.0	4,000	59	16	3,665	9.7
W629H940108	7.5	4,000	62	15	3,658	9.7
W629H940107	10.2	4,000	61	14	3,609	9.7
W629H750104	10.0	4,000	61	16	3,721	9.8
W629H750105	3.6	4,000	61	15	3,671	9.7
W629H750106	5.1	4,000	62	15	3,677	9.7
W612H750105	5.7	4,000	61	16	3,689	9.7
W612H750104	4.7	4,000	61	17	3,781	9.8
W612H750103	3.6	4,000	61	15	3,675	9.7
W612H750102	4.3	4,000	61	15	3,653	9.7
W612H750101	4.6	4,000	61	16	3,693	9.7
W573H750107	4.8	4,000	62	19	3,916	10.0
W574H750104	4.6	4,000	62	17	3,782	9.9
W587H750103	4.6	4,000	62	15	3,689	9.8
W587H750102	8.3	4,000	62	13	3,566	9.7
W587H750101	6.7	4,000	63	13	3,578	9.7
W614H750104	6.4	4,000	62	12	3,511	9.7
W614H750103	7.5	4,000	62	13	3,543	9.7
W614H750102	5.2	4,000	63	13	3,587	9.7
W614H750101	6.5	4,000	62	14	3,617	9.7
W613H750101	5.1	4,000	63	18	3,863	9.9
W613H750102	4.0	4,000	62	16	3,701	9.8
W629H750103	4.3	4,000	63	18	3,883	9.9
W628H750101	3.1	4,000	63	19	3,917	10.0
W627H940105	4.0	4,000	62	17	3,803	9.9
W627H940104	2.8	4,000	62	16	3,727	9.8
W627H940103	3.0	4,000	63	16	3,713	9.8
W627H940102	4.6	4,000	61	13	3,563	9.6
W627H940101	4.8	4,000	60	12	3,507	9.6
W626H940101	3.9	4,000	63	16	3,719	9.8
W615H940104	8.8	4,000	63	17	3,789	9.8
W615H750105	11.3	4,000	64	14	3,632	9.7
W615H750106	5.4	4,000	64	14	3,624	9.7
W615H940103	5.2	4,000	64	17	3,807	9.8
W615H750101	3.0	4,000	63	17	3,803	9.8
W615H750102	3.9	4,000	64	18	3,871	9.9
W615H750107	4.3	4,000	64	18	3,860	9.8
W614H750105	6.4	4,000	65	18	3,858	9.9

Moffett Park Specific Plan - Water Master Plan

Appendix C - WaterCAD Model Output

Table C2 - Existing System Fire Flow Results (during MDD)

Hydrant ID	Hydrant Elevation (ft)	Required Fire Flow (gpm)	Static Pressure (psi)	Residual Pressure (psi)	Available Fire Flow (gpm)	Velocity of Maximum Pipe (gpm)
W587H750107	4.8	4,000	64	16	3,765	9.8
W587H750106	4.6	4,000	64	17	3,801	9.8
W587H750105	3.0	4,000	63	17	3,772	9.8
W587H750104	5.2	4,000	64	19	3,898	9.9
W574H750106	3.9	4,000	60	17	3,795	9.8
W574H750107	6.3	4,000	59	16	3,733	9.8
W649H001007	5.5	4,000	60	0	2,355	8.6
W649H001006	5.2	4,000	59	0	2,566	8.8
W649H001009	6.7	4,000	58	0	2,667	9.1
W631H001008	13.2	4,000	59	0	2,831	9.6
W628H750102	14.6	4,000	63	18	3,843	10.9
593-A-75	7.0	4,000	62	8	3,324	9.0
554-106-75	8.0	4,000	59	0	2,835	8.6
W552H750101	10.8	4,000	58	20	4,005	9.6
W592H910102	9.6	4,000	62	21	4,005	9.5
W573H750101	2.8	4,000	60	22	4,005	10.2
W574H750105	12.8	4,000	64	21	4,005	10.0
W575H750103	20.6	4,000	64	21	4,005	9.9

Appendix C - WaterCAD Model Output

Table C3 - Fire Flow Results with Proposed Improvements (during MDD)

Hydrant ID	Hydrant Elevation (ft)	Required Fire Flow (gpm)	Static Pressure (psi)	Residual Pressure (psi)	Available Fire Flow (gpm)	Velocity of Maximum Pipe (gpm)
W631H750104	7.5	4,000	64	28	4,737	10.6
W631H760108	8.5	4,000	63	26	4,518	10.0
W631H750106	8.6	4,000	63	24	4,288	9.8
W631H750107	7.9	4,000	63	24	4,301	9.8
W631H750103	8.7	4,000	63	24	4,324	9.9
W610H750109	9.7	4,000	63	25	4,414	9.9
W553H751025	26.3	4,000	57	21	4,128	9.5
W553H751026	25.9	4,000	58	22	4,201	9.6
W552H751024	26.8	4,000	57	22	4,234	9.6
W551H750101	20.3	4,000	59	26	4,606	10.0
W551H750102	20.0	4,000	59	26	4,599	10.1
W551H750105	19.8	4,000	59	25	4,546	10.0
W551H750106	18.5	4,000	59	25	4,538	10.0
W570H750101	17.1	4,000	60	26	4,547	10.0
W570H750102	15.6	4,000	60	26	4,570	10.0
W570H750103	17.8	4,000	59	25	4,452	10.0
W591H750101	14.2	4,000	61	26	4,581	10.1
W591H750102	11.0	4,000	62	28	4,706	10.1
W591H750103	11.9	4,000	62	27	4,673	10.1
W610H750107	11.4	4,000	62	28	4,727	10.2
W610H750108	9.4	4,000	63	29	4,820	10.2
W610H750110	9.4	4,000	63	26	4,566	10.0
W610H750106	10.0	4,000	62	26	4,503	10.0
W610H750111	10.3	4,000	62	26	4,484	10.0
W610H750105	10.2	4,000	62	26	4,515	10.0
W631H750101	9.5	4,000	63	28	4,718	10.1
W610H910104	10.5	4,000	62	29	4,863	10.2
W610H910103	11.3	4,000	62	29	4,847	10.2
W610H910102	11.9	4,000	62	28	4,841	10.2
W610H910101	12.5	4,000	62	28	4,833	10.2
W592H910103	12.8	4,000	62	28	4,843	10.2
W592H750101	13.3	4,000	62	29	4,858	10.2
W569H750103	15.8	4,000	60	27	4,747	10.1
W569H750102	16.7	4,000	60	27	4,707	10.1
W569H750101	17.8	4,000	60	27	4,664	10.1



Appendix C - WaterCAD Model Output

Table C3 - Fire Flow Results with Proposed Improvements (during MDD)

Hydrant ID	Hydrant Elevation (ft)	Required Fire Flow (gpm)	Static Pressure (psi)	Residual Pressure (psi)	Available Fire Flow (gpm)	Velocity of Maximum Pipe (gpm)
W552H750103	18.5	4,000	59	26	4,647	10.1
W552H750102	20.2	4,000	59	26	4,598	10.0
W551H750103	20.9	4,000	58	25	4,536	10.0
W551H750104	19.8	4,000	59	26	4,565	10.0
W550H750102	18.3	4,000	59	26	4,618	10.1
W550H750106	17.4	4,000	60	24	4,383	9.9
W571H750105	14.9	4,000	61	23	4,248	9.8
W571H750103	14.0	4,000	61	22	4,186	9.8
W571H750102	11.4	4,000	62	23	4,279	9.8
W571H750104	13.5	4,000	61	21	4,102	9.7
W572H750101	12.4	4,000	61	21	4,076	9.7
W572H750102	10.5	4,000	62	23	4,268	9.8
W550H750103	17.2	4,000	60	27	4,656	10.1
W550H750104	15.5	4,000	60	27	4,717	10.2
W550H750105	14.5	4,000	61	28	4,758	10.2
W550H750109	15.9	4,000	60	27	4,703	10.2
W549H750111	12.8	4,000	62	28	4,839	10.3
W549H750110	14.6	4,000	61	28	4,777	10.2
W572H750106	12.4	4,000	62	28	4,738	10.8
W572H750105	12.5	4,000	62	26	4,505	10.0
W572H750104	12.1	4,000	62	25	4,397	9.9
W572H750103	10.7	4,000	62	24	4,355	9.9
W589H750113	8.6	4,000	63	25	4,442	10.0
W589H750112	9.2	4,000	63	26	4,561	10.1
W589H750114	10.5	4,000	62	24	4,341	9.9
W589H750115	10.5	4,000	62	24	4,296	9.9
W590H750106	9.2	4,000	63	25	4,439	10.0
W589H750109	9.4	4,000	63	28	4,769	10.2
W589H750108	8.7	4,000	63	23	4,191	11.4
W589H750107	8.5	4,000	63	20	4,015	9.6
W589H750106	9.6	4,000	63	21	4,088	10.4
W590H750105	7.3	4,000	64	28	4,448	15.0
W611H750101	8.2	4,000	63	29	4,912	10.3
W589H750105	8.9	4,000	63	29	4,860	10.3
W589H750104	8.2	4,000	63	29	4,887	10.3



Table C3 - Fire Flow Results with Proposed Improvements (during MDD)

Hydrant ID	Hydrant Elevation (ft)	Required Fire Flow (gpm)	Static Pressure (psi)	Residual Pressure (psi)	Available Fire Flow (gpm)	Velocity of Maximum Pipe (gpm)
W589H750103	8.9	4,000	63	29	4,881	10.3
W589H750110	6.5	4,000	64	28	4,717	10.2
W612H750106	5.4	4,000	64	27	4,592	10.1
W589H750102	9.2	4,000	63	29	4,890	10.3
W589H750101	9.6	4,000	63	29	4,861	10.3
W589H750111	8.7	4,000	63	21	4,104	10.5
W588H750104	9.2	4,000	63	29	4,881	10.3
W588H750106	10.0	4,000	63	21	4,080	10.6
W591H750104	10.9	4,000	62	28	4,726	10.2
W572H750107	11.1	4,000	62	30	4,975	10.4
W573H750105	12.2	4,000	62	29	4,881	10.3
W573H750106	10.3	4,000	63	27	4,405	15.0
W588H750103	9.9	4,000	63	29	4,873	10.3
W588H750107	8.9	4,000	63	28	4,763	11.6
W588H750102	8.8	4,000	63	25	4,459	10.0
W588H750101	6.5	4,000	64	24	4,340	9.9
W588H750108	5.6	4,000	64	24	4,291	9.9
W613H750104	5.3	4,000	65	24	4,300	9.9
W613H750103	3.2	4,000	65	26	4,428	10.0
W611H750104	10.1	4,000	62	28	4,801	10.2
W611H940108	13.0	4,000	61	27	4,688	10.1
W610H750114	9.4	4,000	63	29	4,839	10.3
W590H750104	7.8	4,000	63	27	4,612	10.1
W590H750101	8.8	4,000	63	26	4,496	10.0
W590H750102	10.6	4,000	62	22	4,152	9.7
W590H750103	9.5	4,000	63	25	4,391	9.9
W571H750101	10.0	4,000	62	25	4,404	9.9
W611H750102	5.5	4,000	64	28	4,647	10.1
W611H750107 ¹	8.0	4,000	63	23	4,199	9.8
W611H750106	5.4	4,000	64	26	4,447	10.0
W611H750105	5.9	4,000	64	27	4,585	10.1
W629H750102	5.2	4,000	64	26	4,506	10.0
W629H750101	4.1	4,000	65	29	4,855	10.7
W651H940105	4.9	4,000	65	30	4,979	10.4
W651H940104	6.2	4,000	64	30	4,917	10.3
W651H940103	9.7	4,000	63	28	4,773	10.2
W651H940102	3.8	4,000	65	31	5,006	10.4
W651H940101	4.1	4,000	65	31	4,997	10.4
W650H940104	5.5	4,000	64	30	4,947	10.3
W650H940103	6.4	4,000	64	30	4,916	



Table C3 - Fire Flow Results with Proposed Improvements (during MDD)

Hydrant ID	Hydrant Elevation (ft)	Required Fire Flow (gpm)	Static Pressure (psi)	Residual Pressure (psi)	Available Fire Flow (gpm)	Velocity of Maximum Pipe (gpm)
W650H940102	6.0	4,000	64	30	4,945	10.3
W650H940101	5.0	4,000	65	31	5,004	10.4
W631H940102	7.5	4,000	64	30	4,950	10.3
W631H750105	10.2	4,000	62	24	4,323	9.9
W611H750103	10.0	4,000	62	28	4,815	10.2
W629H940108	3.6	4,000	65	31	5,040	10.4
W629H940107	5.1	4,000	65	30	4,986	10.4
W629H750104	5.7	4,000	64	29	4,839	11.1
W629H750105	4.7	4,000	65	27	4,606	10.1
W629H750106	3.6	4,000	65	27	4,539	10.0
W612H750105	4.3	4,000	65	26	4,523	10.0
W612H750104	4.6	4,000	65	27	4,634	10.1
W612H750103	4.8	4,000	65	26	4,472	10.0
W612H750102	4.6	4,000	65	25	4,436	10.0
W612H750101	4.6	4,000	65	26	4,505	10.0
W573H750107	8.3	4,000	64	29	4,837	12.0
W574H750104	6.7	4,000	64	26	4,490	10.0
W587H750103	6.4	4,000	64	24	4,311	9.9
W587H750102	7.5	4,000	64	22	4,123	9.7
W587H750101	5.2	4,000	65	22	4,107	9.7
W614H750104	6.5	4,000	64	20	4,023	9.7
W614H750103	5.1	4,000	65	21	4,058	9.7
W614H750102	4.0	4,000	65	22	4,117	9.7
W614H750101	4.3	4,000	65	22	4,174	9.8
W613H750101	3.1	4,000	65	27	4,586	10.1
W613H750102	4.0	4,000	65	24	4,316	9.9
W629H750103	2.8	4,000	66	28	4,700	10.2
W628H750101	3.0	4,000	66	30	4,930	10.6
W627H940105	4.6	4,000	65	31	5,036	10.4
W627H940104	4.8	4,000	65	31	5,028	10.4
W627H940103	3.9	4,000	65	31	5,062	10.4
W627H940102	8.8	4,000	63	29	4,873	10.3
W627H940101	11.3	4,000	62	28	4,777	10.2
W626H940101	5.4	4,000	65	31	5,026	10.4
W615H940104	5.2	4,000	65	31	5,043	10.4
W615H750105	3.0	4,000	66	26	4,418	11.5
W615H750106	3.9	4,000	65	25	4,337	10.2
W615H940103	4.3	4,000	65	31	5,092	10.5
W615H750101	6.4	4,000	64	31	5,030	10.4
W615H750102	4.8	4,000	65	29	4,809	
W615H750107	4.6	4,000	65	28	4,693	



Appendix C - WaterCAD Model Output

Table C3 - Fire Flow Results with Proposed Improvements (during MDD)

Hydrant ID	Hydrant Elevation (ft)	Required Fire Flow (gpm)	Static Pressure (psi)	Residual Pressure (psi)	Available Fire Flow (gpm)	Velocity of Maximum Pipe (gpm)
W614H750105	3.0	4,000	66	27	4,583	10.1
W587H750107	5.2	4,000	65	25	4,423	9.9
W587H750106	3.9	4,000	65	26	4,447	10.0
W587H750105	6.3	4,000	64	25	4,428	10.0
W587H750104	5.5	4,000	65	28	4,639	10.1
W574H750106	13.2	4,000	62	28	4,834	10.3
W574H750107	14.6	4,000	61	28	4,783	10.2
W649H001007	7.0	4,000	64	20	4,031	9.6
W649H001006	8.0	4,000	63	24	4,289	9.8
W649H001009	10.8	4,000	62	25	4,382	9.9
W631H001008	9.6	4,000	63	26	4,577	10.0
W628H750102	2.8	4,000	66	30	4,892	13.9
593-A-75	12.8	4,000	62	20	4,025	9.5
554-106-75	20.6	4,000	60	22	4,176	9.6
W552H750101	21.9	4,000	58	25	4,562	10.0
W592H910102	12.3	4,000	62	29	4,901	10.2
W573H750101	12.1	4,000	62	29	4,966	10.4
W574H750105	5.2	4,000	65	31	5,032	12.5
W575H750103	6.7	4,000	64	31	5,112	10.5

Notes:

1. Recommended improvements represent improvements required to meet criteria assuming full fire flow at each hydrant, where flows are applied to the hydrant connection to the distribution main. Splitting fire flow would allow for less length of recommended improvement to pipelines serving hydrant W611H750107. The decrease in improvement length would result in a residual pressure at 2,000 gpm of 22 psi and an available fire flow of 2,114 gpm.



Moffett Park Specific Plan Sunnyvale, CA

Wastewater Master Plan Report

October 2022

Prepared for:
City of Sunnyvale

Prepared by:



255 Shoreline Drive, Suite 200
Redwood City, CA 94065

1.0 INTRODUCTION

The Moffett Park Specific Plan (MPSP) provides guidance on the development of the Moffett Park area within the City of Sunnyvale (City) in Santa Clara County, California. The Moffett Park area is currently comprised of corporate headquarters, offices, and research and development facilities. The MPSP documents goals and objectives for future development of the area, including community and design guidelines, infrastructure improvements and development standards. The MPSP was previously adopted by the City in 2004, and was last revised in 2013. The MPSP is presently being updated because of recent changes to proposed district types (i.e. land uses).

The 2013 MPSP revision examined the existing wastewater system and determined the minimum wastewater system improvements that are required to convey peak dry weather flows (PDWF) and peak wet weather flows (PWWF) during the anticipated buildout conditions. The recent changes to the anticipated district types will affect the minimum wastewater system improvements.

BKF Engineers (BKF) has performed an analysis of the existing wastewater collection system and the most recent proposed district types. Our analysis includes calculating new PDWF and PWWF in the MPSP area based on the most recent proposed district types. We identify deficiencies in the existing system, and determine the minimum improvements within the MPSP that are required to convey the new PDWF and PWWF from the MPSP area. In addition, we identify additional system improvements that are required to convey new PDWF and PWWF from the MPSP and from future offsite improvements (cumulative impacts). The BKF effort included a review of assumptions, estimation of wastewater flow generation, and hydraulic modeling of the new PDWF and PWWF. This Wastewater Master Plan (WWMP) report has been prepared to document the BKF analysis and the recommended wastewater system improvements.

2.0 LAND USE

The MPSP provides a comprehensive, long-term plan that supports the development of the Moffett Park area. The plan includes a mix of land uses consistent with the City's goals and objectives for future development. The MPSP area is shown in Figure 1 below.

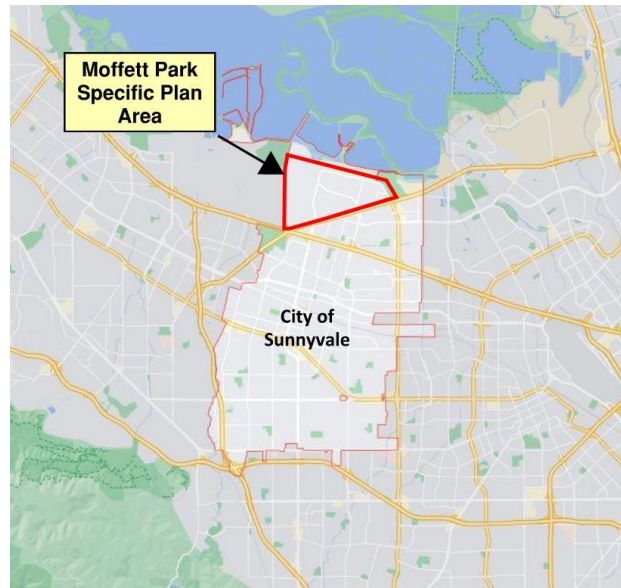


Figure 1 – Moffett Park Specific Plan (MPSP) Area

The total MPSP area is approximately 1,157 acres. The majority of this area is expected to be re-developed as part of the buildout of Moffett Park, with the following exceptions: public land parcels that include right-of-way and public roads, the Lockheed Martin campus and institutional parcels including public schools and emergency services are assumed to be fully-developed in the existing condition. That is, the parcels identified as exceptions are not expected to be re-developed as part of MPSP buildout conditions. With the fully-developed parcels excluded, the total Moffett Park area to be re-developed is approximately 783 acres.

The buildout of the MPSP discussed in this study reflect the newly proposed specific plan. The revised MPSP proposed district types include residential, office, research & development, and mixed-use land use. The proposed district types are shown in **Appendix A**. The proposed district types were compared to zoning classifications listed in the City of Sunnyvale Sanitary Sewer Systems Design Standards, last revised June 2015 (design standards) and were used as the basis for the wastewater flow estimates described in the Section 3.0.

3.0 WASTEWATER FLOW GENERATION

MPSP Onsite Flow Generation

Wastewater flows are estimated in the MPSP area for proposed district type based on wastewater flow factors specified in the design standards (**Appendix B**). Each proposed district type is assigned a comparable land use type that is consistent with the design standards. The wastewater flow factors are applied to each parcel based on the comparable land use types to calculate average dry weather flow (ADWF). **Table 1** shows the calculated wastewater flows in the MPSP area.

Peaking factors are applied to the ADWF to estimate peak dry weather flow (PDWF) and peak wet weather flow (PWWF). PWWF is typically used to evaluate the sewer infrastructure. However, the design standards specify that the dry weather peaking factor is to be determined by ADWF generated by each development parcel, ranging from a peaking factor of 2.0 for development parcels that generate over 600,000 gallons per day (gpd) and up to 3.5 for developments that generate under 8,000 gpd. The total PDWF for the buildout of the MPSP area is 11.73 million-gallons per day (MGD).

For PWWF, the design standards recommend an inflow allowance based on a 10-year storm event that is 65% of the ADWF. The peaking factor for PWWF is calculated using the following equation:

$$\text{PWWF} = \text{ADWF} \times (\text{PDWF Peaking Factor} + 0.65)$$

This peaking factor is applied to the estimated ADWF to assess the performance of the existing system under a PWWF scenario. The total PWWF for the buildout of the MPSP area is 14.29 MGD.

Offsite Flow Generation

Flows from the City of Sunnyvale are collected by the City's wastewater collection system and conveyed to the sewer system throughout the MPSP area. As such, it is necessary to consider how the development of the City will impact flow into the MPSP area. Evaluation of the City's collection system outside of the MPSP area (offsite area) is not included. Therefore, boundary nodes have been designated and existing and future flows to these nodes were provided by others, as documented in **Table 2** below.

Table 2 – Offsite Flows to Boundary Nodes

Boundary Node ID	Existing PDWF (cfs)	Existing PWWF (cfs)	Buildout PDWF (cfs)	Buildout PWWF (cfs)
S529MNH0207XX	1.26	2.41	1.44	2.94
S549MNH0201XX	1.60	4.33	1.87	5.70
S550MNH0207XX	5.27	15.02	7.34	20.20
S550MNH0210XX	4.45	13.32	5.70	13.39
S575MNH0203XX	0.28	0.68	0.28	0.68
S615MNH0206XX	16.90	32.37	20.22	28.93
S674MNH0202XX	1.01	1.22	1.12	1.33

4.0 DESIGN CRITERIA

The following assumptions and Design Criteria are utilized in evaluating the MPSP's wastewater system. The criteria are consistent with those specified in the Design Criteria, and are established to ensure that the proposed wastewater collection system will provide adequate capacity to convey peak sewer flows to the wastewater pollution control plant (WPCP). The results of the system evaluation are evaluated against the recommended Design Criteria to identify system deficiencies and recommend improvements. The wastewater system Design Criteria recommended for this planning effort are as follows:

Table 3 – Wastewater Collection System Design Criteria

Minimum Pipe Diameter	8 inches
Maximum Flow Depth	For 10-inch diameters and smaller: Maximum $d/D = 0.50$
	For 12-inch diameters and larger: Maximum $d/D = 0.75$
Minimum Slope	For 8-inch diameters: Minimum slope = 0.005 feet/feet (0.5%)
	For 10-inch diameters and larger: Minimum slope = 0.004 feet/feet (0.4%)
	If the slope criteria above are not possible to meet, provided slope must result in a minimum velocity of 2.5 feet per second when the pipe is flowing half full.
Maximum Slope	0.14 feet/feet (14.0%)
Minimum Cover	5 feet below finished grade
Manhole Drop	Minimum pipe inlet-to-outlet invert elevation drop through manholes shall be: 0.10 foot for pipe sizes 8-inch and 10-inch
	For larger pipe where flow through the manhole does not change direction, and there are no other incoming pipes: No minimum drop
	For all other situations: Provide 0.2-foot minimum drop
Manhole Spacing	For 18-inch diameters and smaller: Maximum distance between manholes = 300 feet
	For diameters larger than 18-inch: Maximum distance between manholes = 400 feet

5.0 MODEL DEVELOPMENT

The wastewater collection system hydraulic model was developed for this study using Bentley SewerCAD modeling software. This software is a 1D sewer modeling software used for steady-state capacity analysis and sewer system planning using defined boundary conditions and sewer flow allocation. The modeled facilities were imported from City's GIS database, and include pipelines and manholes up to the point of connection to the existing City of Sunnyvale WPCP. This model was truncated to only include the system serving the MPSP area, with specified boundary nodes representing the points where flows from the offsite wastewater collection system enter the Moffett

Park system. These flows were provided by others. BKF used information from GIS records, as-builts, and block maps to input the physical model parameters such as pipe size, slope, invert and rim elevations, etc. The extent of the modeled Moffett Park system and boundary nodes from the existing offsite collection system are shown in **Figure 2**.

It should be noted that the received GIS database information indicated the presence of high-flow diversions within the system. Limitations to the SewerCAD modeling engine require that the flow distribution of modeled diversions be manually specified. These flow distributions were specified on a case-by-case basis, with the majority of diversions assumed to divert no flow based on modeled hydraulic grades.

6.0 EXISTING SYSTEM EVALUATION

The existing wastewater collection system is evaluated using the hydraulic model. In coordination with the City, the following steady-state scenarios were developed:

- **Proposed MPSP Evaluation** – This scenario includes the existing system in the MPSP area with existing offsite flows and proposed MPSP flows. The intent of this scenario is to identify system deficiencies resulting from the buildout of the MPSP.
- **Proposed MPSP Improvements** – This scenario includes the improved system in the MPSP area with existing offsite flows and proposed MPSP flows. The intent of this scenario is to identify the minimum improvements required to mitigate deficiencies resulting from the buildout of the MPSP.
- **Proposed Cumulative Impacts Evaluation** – This scenario includes the improved system in the MPSP area with future offsite flows and proposed MPSP flows. The intent of this scenario is to identify system deficiencies resulting from the future offsite development that is within City's service area, in addition to the MPSP.
- **Proposed Cumulative Impacts Improvements** – This scenario includes an enhanced system in the MPSP area with future offsite flows and proposed MPSP flows. The intent of this scenario is to identify additional improvements required to mitigate deficiencies resulting from the cumulative development of the City's service area, including all offsite developments and the MPSP area.

Under future flows from the buildout of the MPSP area, the model indicates that there are several pipelines which exceed d/D criteria under peak wet weather flows, as shown in **Figure 3**. The pipelines in the MPSP area were likely not sized to meet demands resulting from the revised development assumptions and deficient pipes have been identified as capacity deficient and recommended for improvement in the next section.

Under future flows from the buildout of the offsite area, the model indicates that there are several pipelines which exceed d/D criteria under peak wet weather flows, as shown in **Figure 4**. It should be noted that the received boundary flows indicate that the distribution of flows to each node change from existing to future as a result of proposed operational changes. As a result, the model indicates that deficiencies in some pipelines decrease in severity under future offsite flow conditions, and may require

smaller improvement sizing to meet design criteria under cumulative buildout conditions than under MPSP buildout conditions. Specifically, improvement sizing recommendations to address a deficiency in a portion of the existing 39-inch sewer trunk along East Caribbean Drive would decrease under cumulative buildout conditions compared to MPSP buildout conditions.

A summary of the depth and velocity results from the existing system evaluation under peak wet weather flow conditions can be found in **Table 4** below. This summary documents the impact to the existing sewer system resulting from wastewater flows generated by the proposed MPSP and cumulative buildout. Tables documenting the full output from the SewerCAD model can be found in **Appendix C**.

Table 4 – Existing System Evaluation Summary

Parameter	Maximum
Proposed MPSP Conditions Evaluation	
Depth-to-Diameter Ratio (d/D)	Surcharged ¹
Pipeline Velocities during PDWF (fps)	15.2
Pipeline Velocities during PWWF (fps)	20.8 ²
Proposed Cumulative Impacts Evaluation	
Depth-to-Diameter Ratio (d/D)	Surcharged ¹
Pipeline Velocities during PDWF (fps)	16.8
Pipeline Velocities during PWWF (fps)	22.7 ²

7.0 PROPOSED IMPROVEMENTS

As described in the previous section, the existing system is currently deficient under cumulative buildout conditions and is unable to meet the specified Design Criteria under PWWF conditions. In order to mitigate these deficiencies, several portions of the existing system are recommended for improvement. Key improvements are summarized below:

- The existing 12-inch and 18-inch gravity sewer trunk along Innovation Way, N Mathilda Avenue and W Caribbean Drive should be replaced with new gravity sewer ranging in size from 18-inch to 27-inch from State Route 237 to approximately 1,000 LF west of Borregas Avenue. The improvement is intended to mitigate deficiencies caused by the cumulative buildout of the MPSP and offsite areas. This improvement will provide adequate capacity for the pipeline to meet Design Criteria under the cumulative buildout PWWF conditions.

¹ In some locations, surcharging reaches or exceeds the manhole rim elevation.

² Maximum presented velocities are for unusually short and steep existing pipe segments. The vast majority of the system has low slopes and low velocities.

- The existing 24-inch gravity sewer trunk along Borregas Ave should be replaced with new gravity sewer ranging in size from 27-inch to 30-inch from State Route 237 to Carl Road. This improvement is intended to mitigate deficiencies caused by the cumulative buildout of the MPSP and offsite areas. This improvement will provide adequate capacity for the pipeline to meet Design Criteria under the cumulative buildout PWWF conditions.
- The existing 39-inch and 48-inch gravity sewer trunk along E Caribbean Drive should be replaced with new gravity sewer ranging in size from 42-inch to 54-inch from Twin Creeks to the WPCP. This improvement is intended to mitigate deficiencies caused by the cumulative buildout of the MPSP and offsite areas. This improvement will provide adequate capacity for the pipeline to meet Design Criteria under the cumulative buildout PWWF conditions. It should be noted that the buildout of the offsite system is expected to include diversion of flow through the existing Arques pump station as a means of alleviating flow in the Lawrence interceptor. The received boundary flow conditions indicate that the completion of this project will result in a decrease in PWWF to the sewer trunk along E Caribbean Drive under cumulative buildout conditions. As such, the recommended improvement size for several of the deficient pipelines decreases in the cumulative buildout scenario. This improvement should be coordinated with the Arques pump station diversion to determine ultimate sizing recommendations.

While the above improvements to primary sewer trunks address the majority of deficiencies, there are several additional targeted improvements that are recommended to mitigate any remaining capacity deficiencies, as well as recommendations for new manhole construction and adjusted pipeline slope as needed to meet the specified Design Criteria in the recommended improvements. All of the recommended improvements are documented in **Figure 5 and 6**.

A summary of the depth and velocity results with the proposed improvements can be found in the **Table 5** below. This summary documents the performance of the improved sewer system under MPSP buildout and cumulative buildout conditions. Tables documenting the full output from the SewerCAD model can be found in **Appendix C**.

Table 5 – Proposed Improvements Evaluation Summary

Parameter	Maximum
Proposed MPSP Conditions Evaluation	
Depth-to-Diameter Ratio (d/D)	0.73
Pipeline Velocities during PDWF (fps)	15.2
Pipeline Velocities during PWWF (fps)	20.8 ²

² Maximum presented velocities are for unusually short and steep existing pipe segments. The vast majority of the system has low slopes and low velocities.

Proposed Cumulative Impacts Evaluation	
Depth-to-Diameter Ratio (d/D)	0.75
Pipeline Velocities during PDWF (fps)	16.8
Pipeline Velocities during PWWF (fps)	22.7

8.0 COST ESTIMATES

Preliminary cost estimates for the improvements described in the previous section are presented in **Table 7**. As shown, mitigating deficiencies in the existing system caused by the buildout of the MPSP has an estimated total cost of \$17.9 Million and an estimated total cost of \$18.5 Million to mitigate deficiencies in the existing system caused by the cumulative buildout of the MPSP area and the offsite system. These costs were estimated using pipeline unit costs as shown in **Table 6**. These costs were developed from unit costs for comparable projects in surrounding areas, which were then escalated to reflect the most recent Engineering News Record Construction Cost Index (ENR CCI). The ENR CCI is an inflation index used to adjust prices from one time period to another. The cost estimates used in this report are based on the ENR CCI of 13,171 for August 2022. In addition, a factor of 30 percent has been factored into all unit costs to account for engineering, legal and administration costs, in addition to unexpected construction contingencies. Estimates of improvement costs provided represent Class 4 Order of Magnitude level costs as established by the American Association of Cost Engineers and represent an accuracy of +50% to -30%, and new cost estimates should be obtained during pre-design for proposed improvements to confirm budget amounts.

9.0 CONCLUSIONS

Based on the evaluation described in the previous sections, the existing wastewater system serving the Moffett Park area is currently undersized for buildout of the updated MPSP, as well as for the cumulative buildout of the MPSP area and offsite areas. In order to mitigate deficiencies observed during peak wet weather flows, it is recommended that the following approximate lengths of new sanitary sewer gravity main be constructed to meet the needs of the cumulative buildout of the MPSP area and offsite areas:

- 0.03 miles of new 10-inch main
- 0.39 miles of new 12-inch main
- 0.03 miles of new 15-inch main
- 0.34 miles of new 18-inch main
- 0.77 miles of new 21-inch main
- 0.27 miles of new 24-inch main
- 1.29 miles of new 27-inch main
- 0.07 miles of new 30-inch main
- 0.10 miles of new 42-inch main
- 0.37 miles of new 48-inch main

- 0.46 miles of new 54-inch main

These improvements are estimated to have a total cost of \$18.5 Million.

ATTACHMENTS

FIGURES

- Figure 2: Existing Modeled System
- Figure 3: Existing System Evaluation – MPSP Buildout
- Figure 4: Existing System Evaluation – Cumulative Buildout
- Figure 5: Proposed MPSP Improvements
- Figure 6: Proposed Cumulative Impact Improvements

TABLES

- Table 1: MPSP Future Wastewater Flow Estimates
- Table 6: Pipeline Unit Costs
- Table 7: Proposed Improvement Costs

APPENDICES

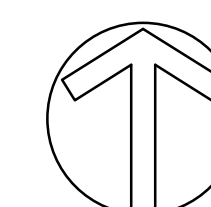
- Appendix A: Intensity and Density Standards by Land Use District
- Appendix B: City of Sunnyvale Sanitary Sewer Systems Design Standards Wastewater Flow Factors
- Appendix C: SewerCAD Model Output

FIGURES

LEGEND

— EXISTING WASTEWATER SYSTEM

■ BOUNDARY NODE FOR OFFSITE SYSTEM



GRAPHIC SCALE



(IN FEET)
1 inch = 500 ft.

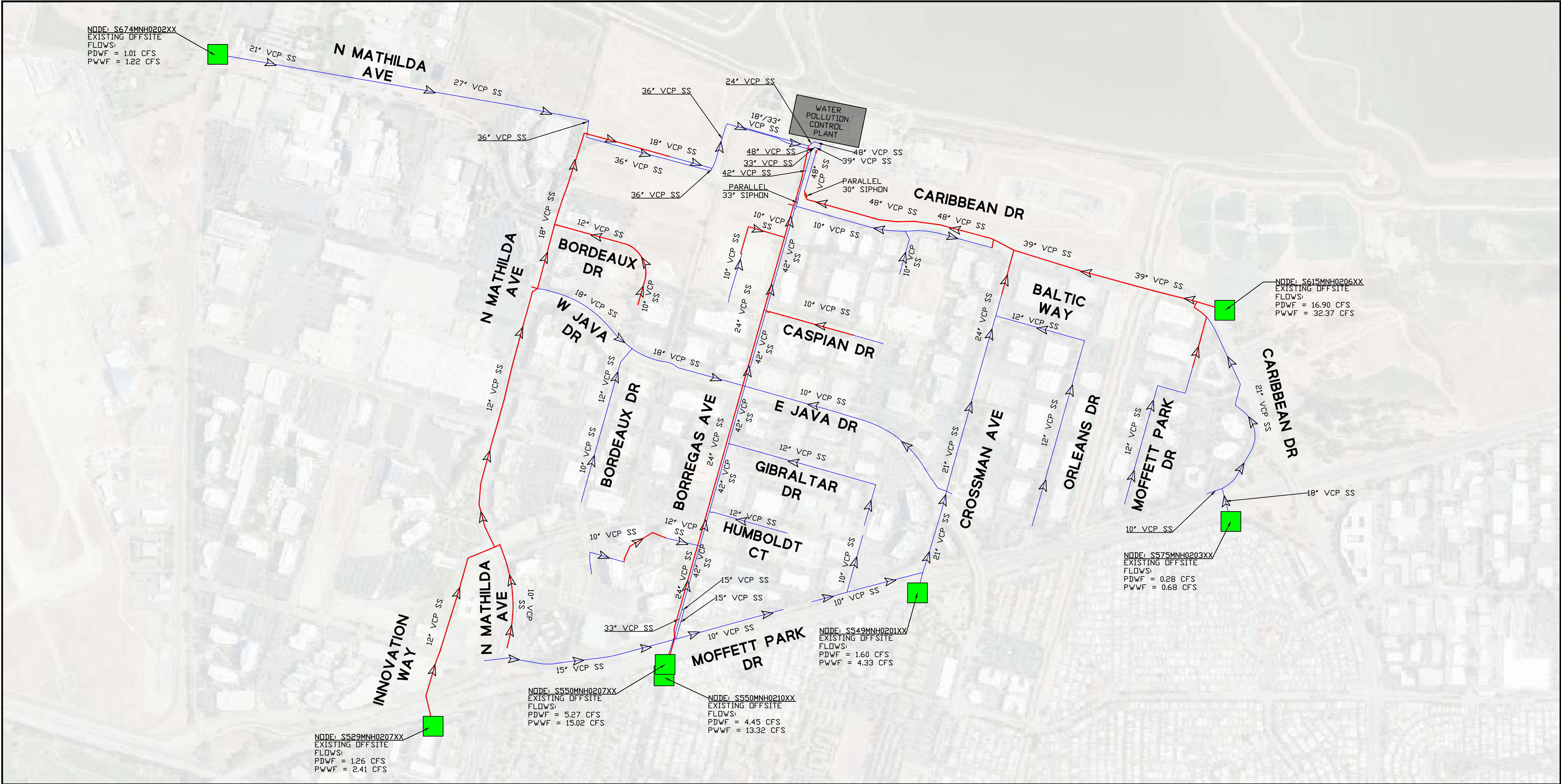
FIGURE 2
EXISTING MODELED SYSTEM
MOFFETT PARK SPECIFIC PLAN
WASTEWATER MASTER PLAN
SEPTEMBER 2022

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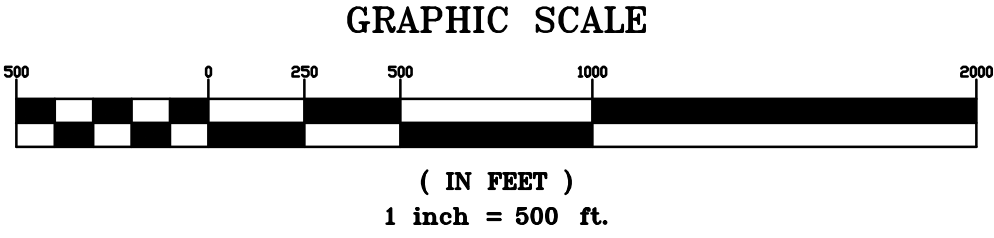
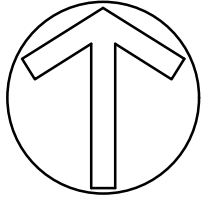


LEGEND

- EXISTING WASTEWATER SYSTEM
- IDENTIFIED DEFICIENCIES (SEE CRITERIA DEFINITION)
- BOUNDARY NODE FOR OFFSITE SYSTEM

DEFICIENCY CRITERIA

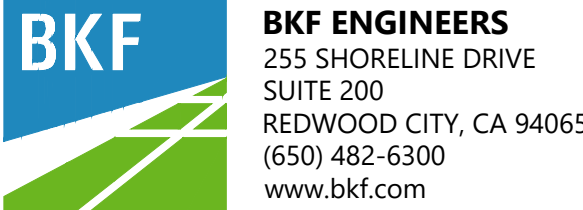
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2. MAXIMUM ALLOWABLE d/D OF 0.75 FOR PIPELINES 12" OR LARGER



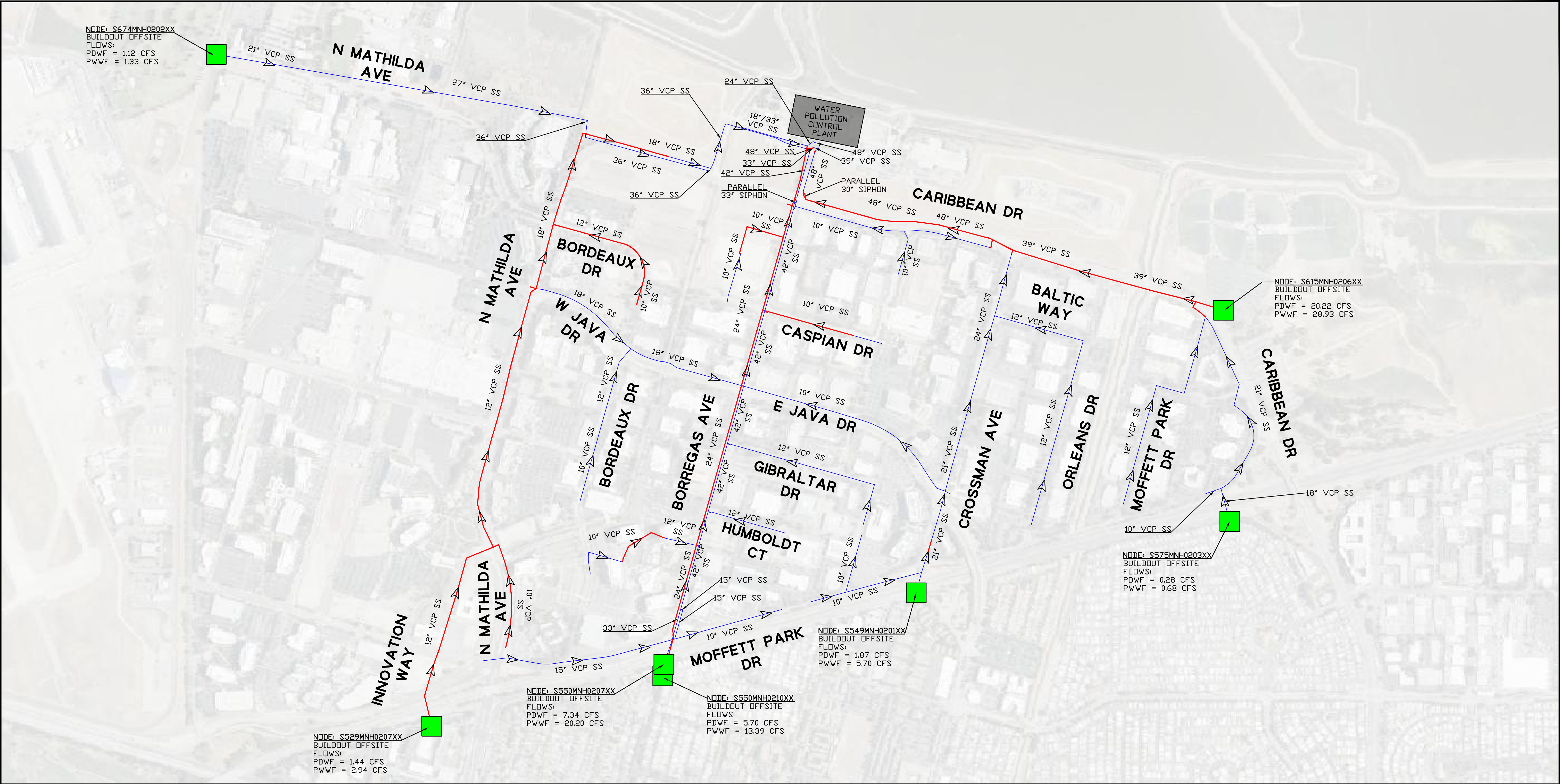
**FIGURE 3
MOFFETT PARK EXISTING SYSTEM
EVALUATION - MPSP BUILDOUT**

MOFFETT PARK SPECIFIC PLAN
WASTEWATER MASTER PLAN
SEPTEMBER 2022

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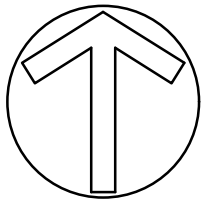


LEGEND

- EXISTING WASTEWATER SYSTEM
- IDENTIFIED DEFICIENCIES
(SEE CRITERIA DEFINITION)
- BOUNDARY NODE FOR OFFSITE SYSTEM

DEFICIENCY CRITERIA

- 1. MAXIMUM ALLOWABLE
d/D OF 0.50 FOR
PIPELINES 10" OR SMALLER
- 2. MAXIMUM ALLOWABLE
d/D OF 0.75 FOR
PIPELINES 12" OR LARGER



GRAPHIC SCALE

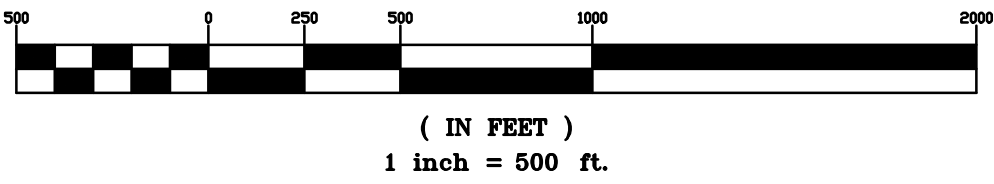


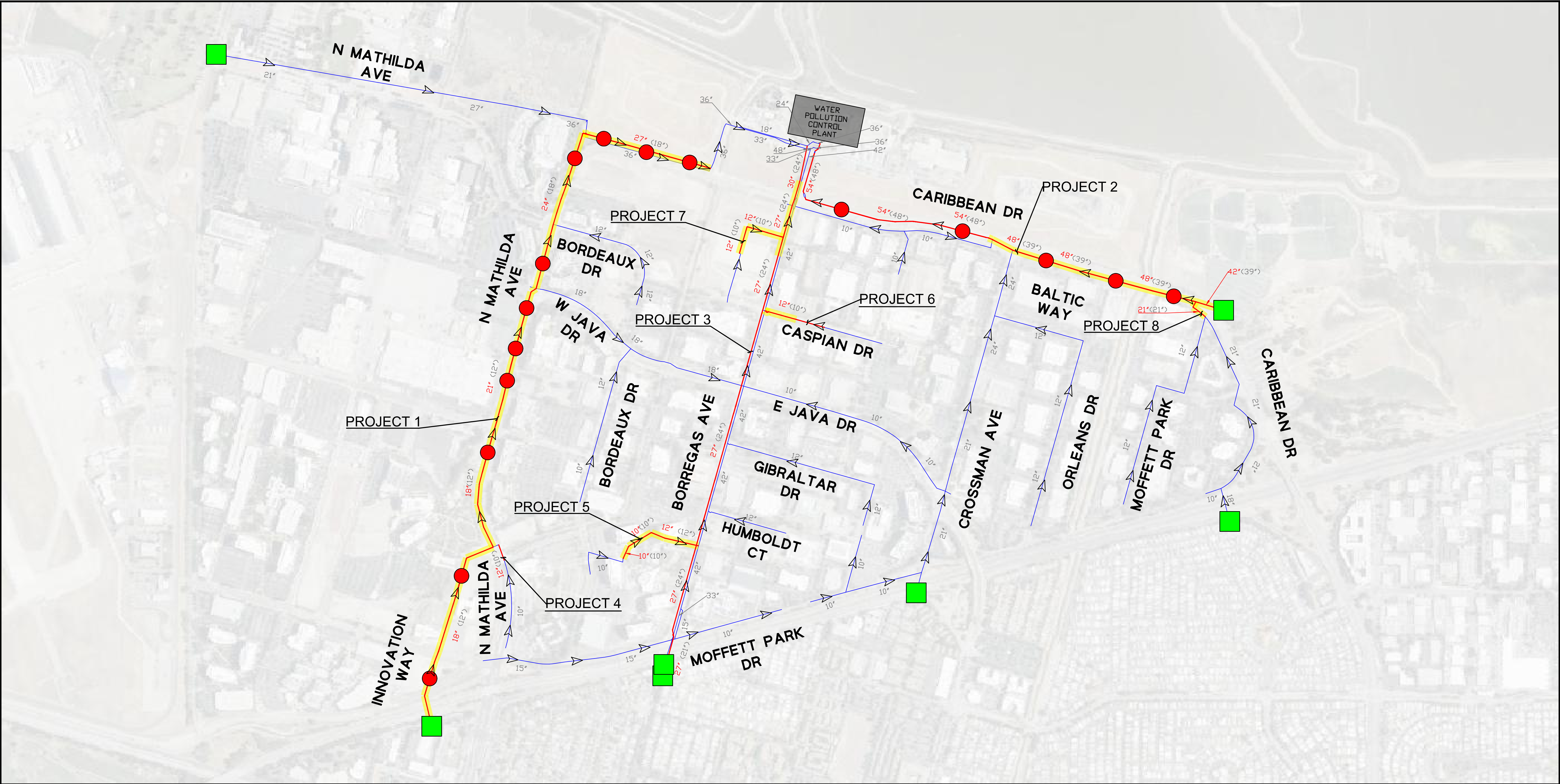
FIGURE 4
MOFFETT PARK EXISTING SYSTEM
EVALUATION - CUMULATIVE
BUILDOUT

MOFFETT PARK SPECIFIC PLAN
WASTEWATER MASTER PLAN
SEPTEMBER 2022

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LEGEND

- EXISTING WASTEWATER SYSTEM
- PROPOSED PIPELINE REPLACEMENTS
- PROPOSED SLOPE CHANGES (SEE NOTE 1)
- EXISTING BOUNDARY NODE FOR OFFSITE SYSTEM
- PROPOSED NEW MANHOLE (SEE NOTE 2)

- 12" EXISTING DIAMETER
- 12" PROPOSED DIAMETER
- (12") EXISTING DIAMETER TO BE REPLACE

NOTES

- IT IS RECOMMENDED THAT THE INVERTS OF REPLACED PIPELINES BE CONSTRUCTED TO MEET MINIMUM SLOPE CRITERIA, OR MINIMUM VELOCITY CRITERIA WHEN MINIMUM SLOPE CRITERIA CANNOT BE MET
- IT IS RECOMMENDED THAT NEW MANHOLES BE INSTALLED WHERE REPLACED PIPELINE LENGTHS EXCEED MAXIMUM MANHOLE SPACING CRITERIA

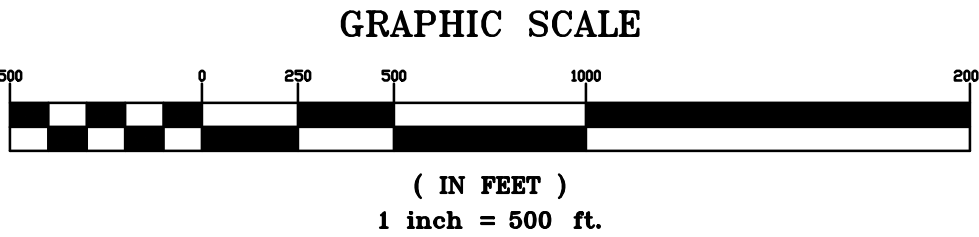
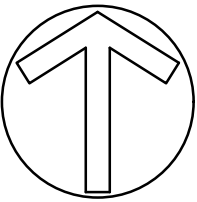


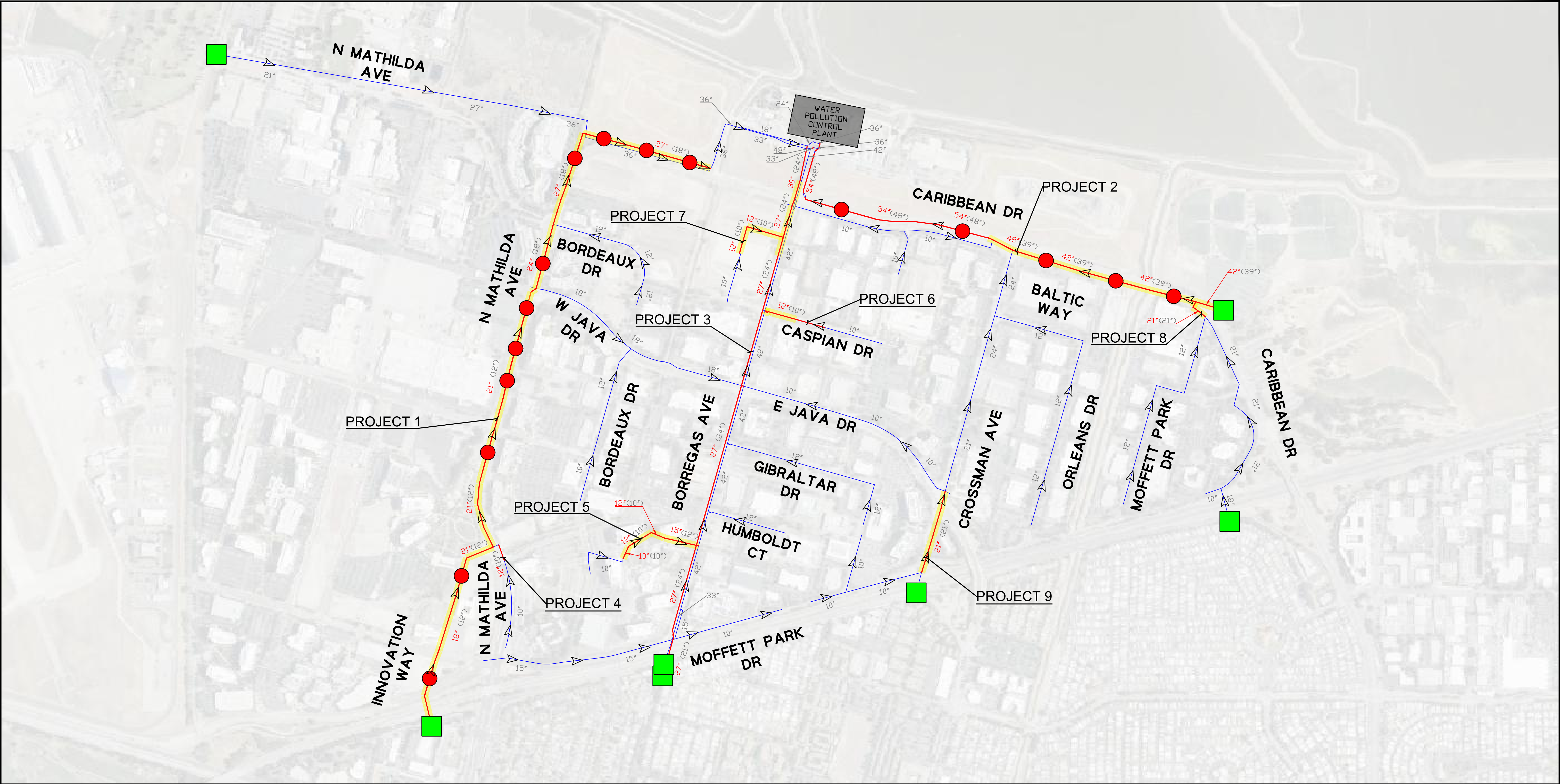
FIGURE 5
MOFFETT PARK SPECIFIC PLAN -
PROPOSED MPSP BUILDOUT
IMPROVEMENTS

MOFFETT PARK SPECIFIC PLAN
WASTEWATER MASTER PLAN
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LEGEND

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- IT IS RECOMMENDED THAT NEW MANHOLES BE INSTALLED WHERE REPLACED PIPELINE LENGTHS EXCEED MAXIMUM MANHOLE SPACING CRITERIA

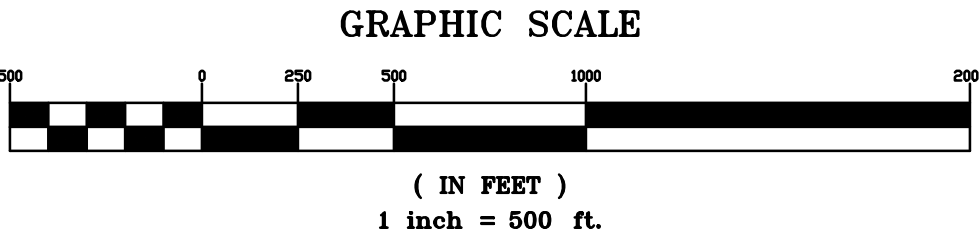
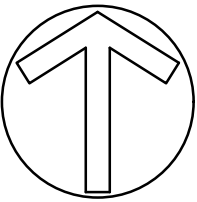


FIGURE 6
MOFFETT PARK SPECIFIC PLAN -
PROPOSED CUMULATIVE
BUILDOUT IMPROVEMENTS

MOFFETT PARK SPECIFIC PLAN
WASTEWATER MASTER PLAN
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TABLES

MPSP District Type				Comparable Design Standards Land Use Type				Area				Wastewater Estimates									
												Wastewater Unit Factor		Average Dry Weather Flow		Peak Dry Weather Flow		Peak Wet Weather Flow			
				(acres)				(gpd/acre)		(gpd)		(cfs)		(gpd)		(cfs)		(gpd)		(cfs)	
MP-AC	Activity Center	Commercial	82.1	2,300	188,775	0.29	604,526	0.94	727,229	1.13											
MP-R	Residential	High Density Residential	132.9	3,500	465,290	0.72	1,455,829	2.25	1,758,268	2.72											
MP-MU	Mixed Use	High Density Residential/Office	146.9	4,500	661,150	1.02	1,984,506	3.07	2,414,254	3.74											
MP-O1	Office 1	Administration-Professional Office	230.7	1,950	449,952	0.70	1,257,162	1.95	1,549,631	2.40											
MP-O2	Office 2	Administration-Professional Office	186.8	1,950	364,313	0.56	1,177,928	1.82	1,414,732	2.19											
MP-E1	Mixed Employment 1 (Navy)	Industrial	44.1	1,500	66,167	0.10	181,958	0.28	224,966	0.35											
MP-E2	Mixed Employment 2 (LHM)	(Metered Data consistent with W&C report)	143.4	-	317,670	0.49	805,889	1.25	1,012,374	1.57											
MP-E3	Mixed Employment 3 (LHM)	(Metered Data consistent with W&C report)	142.4	-																	
MP-E4	Mixed Employment 4	Industrial	5.1	1,500	7,600	0.01	26,600	0.04	31,540	0.05											
MP-P	Public	Right-of-Way (No Generation)	27.0	-	-	-	-	-	-	-											
MP-I	Institutional	Public Facility	15.8	1,700	26,796	0.04	85,790	0.13	103,207	0.16											
Total			1157.2		2,547,714	3.94	7,580,188	11.73	9,236,202	14.29											

Moffett Park Specific Plan - Wastewater Master Plan
Table 6 - Pipeline Unit Costs

Pipe Diameter (in)	Unit Cost (\$/LF)
10	\$336
12	\$383
15	\$479
18	\$575
21	\$671
24	\$719
27	\$765
30	\$864
42	\$1,180
48	\$1,336
54	\$1,492
Connection to Existing Manholes	\$2,000
New Manholes	\$13,500

Notes:

1. Unit Costs include a 30% cost contingency factor to account for Engineering, Legal and Administration costs, in addition to unexpected Construction Cost Contingencies.
2. Unit Costs shown are based on ENR-CCI cost index of 13,171 for August 2022.

Moffett Park Specific Plan - Wastewater Master Plan
Table 7 - Proposed Improvement Costs

Project Number	Project Type	Alignment	Upstream Node ID	Downstream Node ID	Length (LF)	Existing Diameter (in)	Proposed Diameter		Proposed Manholes	Manhole Re-Connections	Total Cost	
							MPSP Buildout (in)	Cumulative Buildout (in)			MPSP Buildout	Cumulative Buildout (\$)
1	Primary Sewer Trunk Capacity Improvement	Innovation Wy	S529MNH0207XX	S569MNH0204XX	1,780	12	18		2	16	\$1,082,500	
		N Mathilda Ave	S569MNH0204XX	S592MNH0215XX	1,610	12	18	21	1	14	\$967,250	\$1,121,810
		N Mathilda Ave	S592MNH0215XX	S610MNH0203XX	1,360	12		21	3	12	\$977,060	
		N Mathilda Ave	S610MNH0203XX	S610MNH0205XX	60	12	21	24	0	2	\$44,260	\$47,140
		N Mathilda Ave	S610MNH0205XX	New	1,380	18		24	2	9	\$1,037,220	
		N Mathilda Ave	New	S650MNH0207XX	200	18	24	27	0	1	\$145,800	\$155,000
		W Caribbean Dr	S650MNH0207XX	S651MNH0203XX	1,410	18		27	3	8	\$1,135,150	
2	Primary Sewer Trunk Capacity Improvement	E Caribbean Dr	S615MNH0206XX	New	530	39	42		1	3	\$644,900	
		E Caribbean Dr	New	New	1,340	39	48	42	2	4	\$1,825,240	\$1,616,200
		E Caribbean Dr	New	S628MNH0210XX	630	39	48		0	5	\$851,680	
		E Caribbean Dr	S628MNH0210XX	S652MNH0212XX	2,430	48		54	2	22	\$3,696,560	
3	Primary Sewer Trunk Capacity Improvement	Borregas Ave	S550MNH0210XX	S652MNH0209XX	5,210	24	27		0	36	\$4,057,650	
		Borregas Ave	S652MNH0209XX	S652MNH0207XX	360	24	30		0	2	\$315,040	
4	Targeted Capacity Improvement	N Mathilda Ave	S569MNH0206XX	S569MNH0205XX	170	10	12		0	2	\$69,110	
5	Targeted Capacity Improvement	ROW w/o Borregas Ave	MH1_MoffetRealign	MH2_MoffetRealign	140	10	10		0	2	\$51,040	
		ROW w/o Borregas Ave	MH2_MoffetRealign	MH4_MoffetRealign	410	10	12		0	4	\$165,030	
		ROW w/o Borregas Ave	MH4_MoffetRealign	MH5_MoffetRealign	190	12	12		0	2	\$76,770	
		ROW w/o Borregas Ave	MH5_MoffetRealign	S571MNH0211XX	170	12	12	15	0	2	\$69,110	\$85,430
6	Targeted Capacity Improvement	Caspian Dr	S612MNH0202XX	S611MNH0210XX	640	10	12		0	4	\$253,120	
7	Targeted Capacity Improvement	ROW w/o Borregas Ave	S630MNH0211XX	S630MNH0203XX	660	10	12		0	6	\$264,780	
8	Targeted Capacity Improvement	E Caribbean Dr	S615MNH0210XX	S615MNH0204XX	220	21	21		0	4	\$155,620	
9	Targeted Capacity Improvement	Crossman Ave	S573MNH0212XX	S573MNH0203XX	860	21	-	21	0	8	-	\$593,060
					21,760						\$17,884,890	\$18,451,870



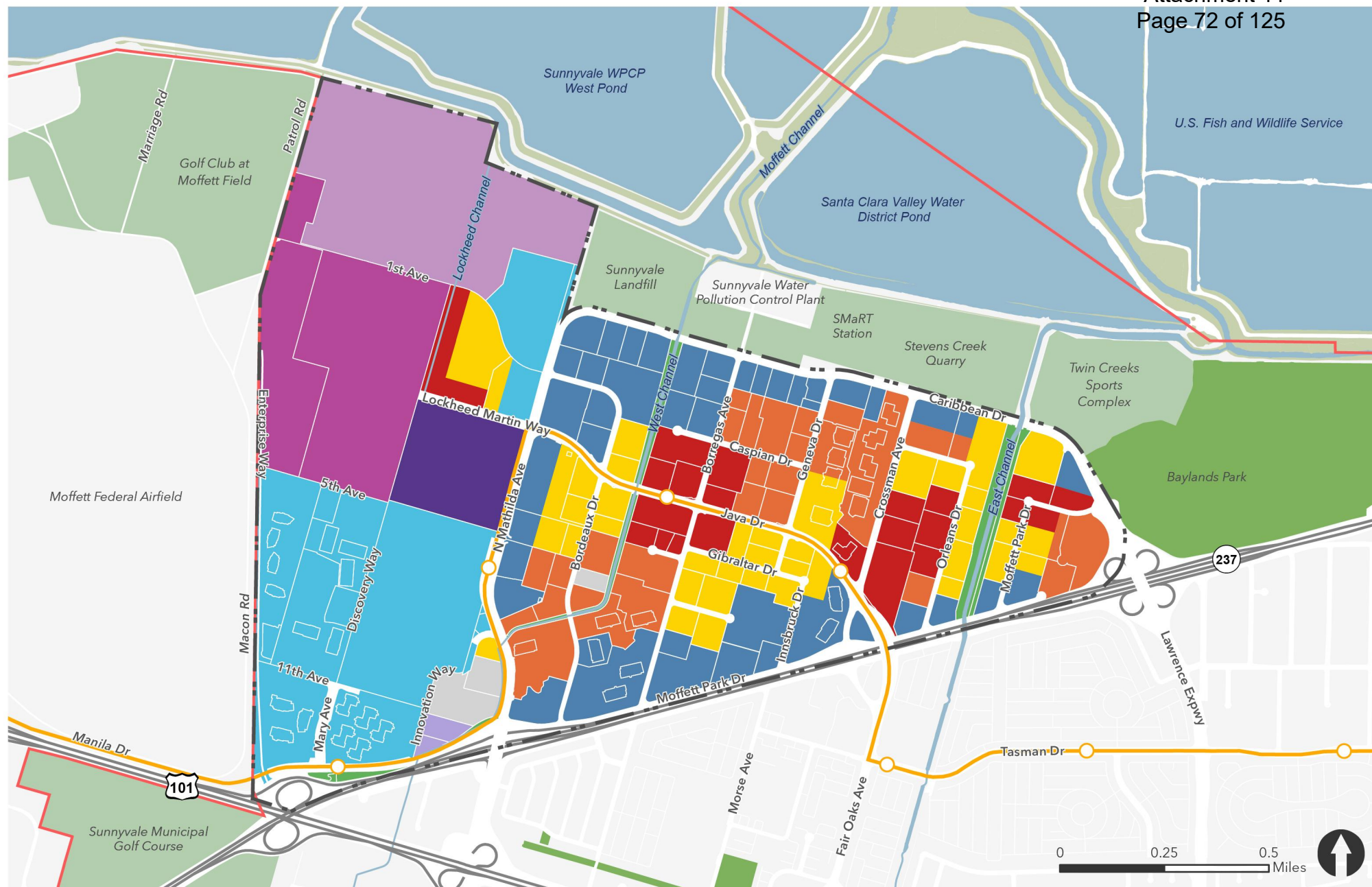
APPENDIX A

Intensity and Density Standards by Land Use District

Table XX: Intensity and Density Standards by Land Use District

District	Office/R+D Base FAR	Office/R+D Bonus FAR Maximum	Residential Density Minimum	Residential Density Maximum	Total FAR Maximum**
MP-AC	35%	75%	40 du/a (100%)	180 du/a (350%)	450%* 150% Office
MP-R	-	-	70 du/a (175%)	150 du/a (350%)	400%*
MP-MU	35%	100%	-	150 du/a (350%)	400% 200% Office
MP-O1	35%	100%	-	-	150%
MP-O2	35%	135%	-	-	200%
MP-E1(Navy)	35%	75%	(Maker Space Minimum: 35% FAR)		150%
MP-E2 (LHM Core)	35%	50%	-	-	100%
MP-E3 (North LHM)	35%	-	(Maker Space Minimum: 5% of floor area)		35%
MP-E4	35%	50%	-	-	100%
MP-P	-	-	-	-	-
MP-I	-	-	-	-	-

- Note: Maximum residential densities not inclusive of Assembly Bill 2345 density bonus.
- *East Orleans** may exceed the Residential FAR Maximum and Maximum FAR by up to 1.0 FAR because of the increased height limits in the East Orleans neighborhood, MP-AC and MP-R projects only.
- **Maximum FAR.** Maximum FAR is allowed non-res FAR, residential FAR, and Transfer of Development Rights



- | | | | |
|-------------------------|---------------------------|---------------------------|-----------------------|
| Specific Plan Boundary | MP-O1: Office 1 | MP-E4: Mixed Employment 4 | MP-P: Public 1 |
| City of Sunnyvale Limit | MP-O2: Office 2 | MP-AC: Activity Center 1 | MP-I: Institutional 1 |
| VTA Light Rail | MP-E1: Mixed Employment 1 | MP-MU: Mixed Use 1 | |
| Freeway | MP-E2: Mixed Employment 2 | MP-R: Residential 1 | |
| Water/Channel | MP-E3: Employment 3 | | |

APPENDIX B

City of Sunnyvale Sanitary Sewer Systems Design Standards Wastewater Flow Factors

G. Wastewater flow factors for average daily flows:

Zoning Classification	Zoning Code	<i>gpd/unit</i>	<i>gpd/1000 sqft</i>	<i>gpd/acre</i>
Low Density Res.	R0	170	-	1,100
Low Density Res.	R1	215	-	1,000
Low-Med. Den. Res.	R1.5	190	-	900
Low-Med. Den. Res. PD	R1.7	165	-	1,500
Low-Med. Den. Res.	R2	145	-	1,450
Med. Den. Res.	R3	135	-	2,900
High Den. Res.	R4	150	-	3,500
High Den. Res./Office	R5	100	-	4,500
Res. Mobile Home	RMH	160	-	1,400
Commercial	C1, C2, C3, C4 & MPC	-	245	2,300
Downtown Specific Plan	DSP	-	-	1,600
Lakeside Specific Plan	LSP	-	-	-
Industrial	M3, MPI, MS	-	115	1,500
Moffett Park TOD	MPT	-	170	-
Admin-Prof. Office	O	-	170	1,950
Public Facility	PF	-	245	1,700
Split Zoning	SP	-	-	-

1. Dry weather peak flows for residential and non-residential developments shall be based on the ratio of the peak to average flow per the dry weather peaking factor shown below.

Average Dry Weather Flow	Dry Weather Peaking Factor
Less than 8,000 gpd	3.5
8,000 gpd to 15,000 gpd	3.25
15,000 gpd to 35,000 gpd	3.0
35,000 gpd to 80,000 gpd	2.75
80,000 gpd to 250,000 gpd	2.5
250,000 gpd to 600,000 gpd	2.2
Over 600,000 gpd	2.0

2. Wet weather flows for residential and non-residential developments shall include an infiltration and inflow allowance based on a 10-year storm event that is 65% of the average dry weather flow (ADWF). This allowance is added to the peak dry weather flow.

$$\text{Peak Wet Weather Flow (PWWF)} = \text{ADWF} \times (\text{Dry Weather Peaking Factor} + 0.65)$$

APPENDIX C

SewerCAD Model Output

Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C1 - MPSP Evaluation Node Results - PWWF

Node ID	Ground/Rim Elevation	Invert Elevation	Structure Depth	Wastewater Loading	Hydraulic Grade Line	Flow Depth	System Flow
	(ft)	(ft)	(ft)	(cfs)	(ft)	(ft)	(cfs)
00_S651MNH0211XX	10.76	-5.75	16.51	0.00	-5.75	0.00	0.00
MH1_MoffetRealign	16.70	4.40	12.30	0.00	4.94	0.54	0.18
MH2_MoffetRealign	16.10	4.22	11.88	0.03	4.88	0.66	0.21
MH3_MoffetRealign	14.95	3.78	11.17	0.18	4.12	0.34	0.39
MH4_MoffetRealign	15.30	3.39	11.91	0.03	3.67	0.28	0.41
MH5_MoffetRealign	13.40	2.42	10.98	0.00	2.69	0.27	0.41
S529MNH0207XX	28.30	13.00	15.30	2.41	25.74	12.74	2.41
S529MNH0208XX	24.30	12.83	11.47	0.02	24.30	11.47	2.42
S549MNH0201XX	14.40	1.51	12.89	4.33	2.32	0.81	4.33
S549MNH0203XX	12.22	3.79	8.43	0.00	3.88	0.09	0.03
S549MNH0217XX	12.22	4.67	7.55	0.03	4.76	0.09	0.03
S550MNH0201XX	16.49	1.59	14.90	0.20	3.71	2.12	15.46
S550MNH0202XX	17.27	10.07	7.20	0.00	11.34	1.27	15.02
S550MNH0203XX	18.30	6.40	11.90	0.00	11.22	4.82	13.32
S550MNH0204XX	18.40	6.66	11.74	0.00	11.66	5.00	13.32
S550MNH0205XX	18.25	4.60	13.65	0.00	4.88	0.28	0.14
S550MNH0207XX	20.00	11.04	8.96	15.02	12.69	1.65	15.02
S550MNH0210XX	20.80	9.39	11.41	13.32	14.73	5.34	13.32
S550MNH0217XX	14.80	6.42	8.38	0.00	6.55	0.13	0.06
S550MNH0218XX	15.45	5.46	9.99	0.00	5.60	0.14	0.06
S550MNH0220XX	16.40	5.18	11.22	0.00	9.84	4.66	13.32
S550MNH0221XX	17.32	3.65	13.67	0.11	3.89	0.24	0.24
S550MNH0222XX	13.90	7.31	6.59	0.06	7.44	0.13	0.06
S550MNH0223XX	17.92	10.62	7.30	0.00	12.24	1.62	15.02
S550MNH0225XX	16.80	1.60	15.20	0.00	3.70	2.10	15.46
S550MNH0226XX	17.72	4.31	13.41	0.00	4.48	0.17	0.14
S551MNH0203XX	21.50	7.70	13.80	0.00	7.84	0.14	0.08
S551MNH0204XX	22.25	6.62	15.63	0.00	6.75	0.13	0.08
S551MNH0205XX	20.20	5.66	14.54	0.00	5.80	0.14	0.08
S552MNH0201XX	20.19	9.20	10.99	0.01	20.19	10.99	2.60
S552MNH0202XX	21.70	10.23	11.47	0.05	21.45	11.22	2.59
S552MNH0203XX	25.50	11.68	13.82	0.09	23.53	11.85	2.55
S552MNH0204XX	25.40	12.00	13.40	0.03	24.35	12.35	2.46
S552MNH0206XX	24.00	9.32	14.68	0.00	9.32	0.00	0.00
S552MNH0207XX	23.40	8.90	14.50	0.08	9.03	0.13	0.08
S552MNH0208XX	22.00	13.92	8.08	0.00	18.15	4.23	0.00
S552MNH0209XX	20.00	11.22	8.78	0.30	18.14	6.92	0.30
S552MNH0211XX	23.18	11.06	12.12	0.00	22.39	11.33	2.55
S552MNH0212XX	23.40	11.37	12.03	0.00	22.96	11.59	2.55
S569MNH0204XX	19.04	8.13	10.91	0.77	19.04	10.91	3.37
S569MNH0205XX	18.20	7.10	11.10	0.05	18.01	10.91	0.38
S569MNH0206XX	18.40	8.50	9.90	0.03	18.05	9.55	0.33
S569MNH0209XX	14.50	4.18	10.32	0.00	14.50	10.32	3.82
S569MNH0210XX	15.30	4.73	10.57	0.00	15.30	10.57	3.82



Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C1 - MPSP Evaluation Node Results - PWWF

Node ID	Ground/Rim Elevation	Invert Elevation	Structure Depth	Wastewater Loading	Hydraulic Grade Line	Flow Depth	System Flow
	(ft)	(ft)	(ft)	(cfs)	(ft)	(ft)	(cfs)
S569MNH0211XX	17.23	5.05	12.18	0.07	17.23	12.18	3.82
S569MNH0212XX	18.00	5.38	12.62	0.00	18.00	12.62	3.75
S570MNH0201XX	13.30	4.12	9.18	0.15	4.33	0.21	0.15
S570MNH0202XX	14.55	5.95	8.60	0.14	6.18	0.23	0.17
S570MNH0203XX	15.10	6.60	8.50	0.03	6.70	0.10	0.03
S570MNH0204XX	15.90	4.45	11.45	0.01	4.95	0.50	0.18
S571MNH0205XX	11.74	3.94	7.80	0.13	4.11	0.17	0.13
S571MNH0207XX	12.90	3.92	8.98	0.00	8.44	4.52	13.32
S571MNH0208XX	11.55	2.20	9.35	0.12	2.50	0.30	0.41
S571MNH0209XX	12.44	3.06	9.38	0.16	3.32	0.26	0.29
S571MNH0211XX	12.23	0.88	11.35	0.03	2.17	1.29	15.90
S571MNH0212XX	13.73	1.78	11.95	0.00	3.27	1.49	15.46
S571MNH0216XX	10.72	-0.20	10.92	0.00	1.05	1.25	16.31
S571MNH0219XX	12.08	2.66	9.42	0.00	7.05	4.39	13.32
S572MNH0201XX	10.22	2.83	7.39	0.00	2.91	0.08	0.03
S572MNH0202XX	9.10	4.43	4.67	0.18	4.63	0.20	0.18
S572MNH0203XX	12.40	6.40	6.00	0.00	6.40	0.00	0.00
S572MNH0204XX	13.30	5.50	7.80	0.00	5.50	0.00	0.00
S572MNH0206XX	8.40	3.81	4.59	0.00	4.01	0.20	0.18
S572MNH0207XX	11.15	6.29	4.86	0.00	6.29	0.00	0.00
S573MNH0201XX	10.00	-0.51	10.51	0.01	0.30	0.81	4.41
S573MNH0202XX	9.00	-0.07	9.07	0.01	1.16	1.23	4.37
S573MNH0203XX	10.10	-1.30	11.40	0.00	-0.30	1.00	4.70
S573MNH0204XX	9.62	1.43	8.19	0.00	1.54	0.11	0.06
S573MNH0210XX	7.38	3.07	4.31	0.10	3.23	0.16	0.10
S573MNH0211XX	6.93	2.72	4.21	0.08	2.94	0.22	0.19
S573MNH0212XX	9.97	0.70	9.27	0.00	1.53	0.83	4.36
S573MNH0213XX	8.25	-0.21	8.46	0.02	0.97	1.18	4.40
S573TEE1001XX	10.63	0.00	10.63	0.23	0.53	0.53	0.23
S574MNH0202XX	7.04	2.90	4.14	0.12	3.07	0.17	0.12
S575MNH0203XX	6.26	1.25	5.01	0.68	1.66	0.41	0.68
S575MNH0206XX	6.55	1.45	5.10	0.09	1.59	0.14	0.09
S586MNH0201XX	4.45	-0.83	5.28	0.00	-0.35	0.48	1.00
S586MNH0202XX	4.60	-0.27	4.87	0.00	0.20	0.47	1.00
S586MNH0204XX	5.70	0.32	5.38	0.00	0.87	0.55	1.00
S586MNH0205XX	6.40	0.72	5.68	0.23	1.20	0.48	1.00
S586MNH0209XX	3.61	-0.90	4.51	0.00	-0.56	0.34	0.43
S586TEE1003XX	6.44	0.00	6.44	0.00	0.36	0.36	1.00
S587MNH0201XX	4.25	-0.34	4.59	0.04	0.01	0.35	0.46
S587MNH0202XX	5.17	0.44	4.73	0.11	0.77	0.33	0.41
S587MNH0206XX	4.35	0.55	3.80	0.03	0.87	0.32	0.38
S587MNH0207XX	5.22	1.34	3.88	0.17	1.64	0.30	0.35
S587MNH0208XX	6.39	2.12	4.27	0.06	2.33	0.21	0.18
S588MNH0201XX	7.25	-3.02	10.27	0.39	-2.01	1.01	5.09



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Node ID	Ground/Rim Elevation	Invert Elevation	Structure Depth	Wastewater Loading	Hydraulic Grade Line	Flow Depth	System Flow
	(ft)	(ft)	(ft)	(cfs)	(ft)	(ft)	(cfs)
S588MNH0202XX	8.80	-1.87	10.67	0.00	-0.83	1.04	4.70
S588MNH0203XX	6.14	1.22	4.92	0.00	1.50	0.28	0.30
S588MNH0204XX	5.98	1.97	4.01	0.12	2.25	0.28	0.30
S589MNH0202XX	8.90	1.46	7.44	0.08	1.73	0.27	0.24
S589MNH0203XX	9.15	2.35	6.80	0.14	2.56	0.21	0.16
S589MNH0204XX	9.25	3.24	6.01	0.04	3.32	0.08	0.02
S589MNH0205XX	9.82	1.85	7.97	0.01	2.01	0.16	0.06
S589MNH0206XX	8.10	2.20	5.90	0.00	2.45	0.25	0.27
S589MNH0207XX	7.50	1.30	6.20	0.09	1.59	0.29	0.36
S589MNH0208XX	8.00	0.77	7.23	0.00	1.06	0.29	0.36
S589MNH0211XX	7.40	3.10	4.30	0.10	3.35	0.25	0.27
S589MNH0214XX	9.60	2.54	7.06	0.03	2.67	0.13	0.05
S590MNH0201XX	8.90	0.59	8.31	0.03	0.82	0.23	0.27
S590MNH0202XX	8.60	0.13	8.47	0.01	4.08	3.95	13.56
S590MNH0203XX	8.80	0.52	8.28	0.05	4.58	4.06	13.55
S590MNH0204XX	9.90	1.39	8.51	0.18	5.61	4.22	13.50
S590MNH0213XX	7.90	-0.53	8.43	0.12	-0.15	0.38	0.57
S590MNH0215XX	8.94	-2.25	11.19	0.00	-0.69	1.56	16.31
S590MNH0216XX	8.63	-2.40	11.03	0.00	-1.04	1.36	16.88
S590MNH0217XX	8.06	-4.19	12.25	0.00	-2.27	1.92	19.74
S590MNH0218XX	7.60	-1.13	8.73	0.08	2.59	3.72	13.64
S590MNH0219XX	7.79	-1.91	9.70	0.00	-2.19	-0.28	2.58
S590MNH0220XX	8.02	0.38	7.64	0.09	0.71	0.33	0.45
S591MNH0201XX	10.60	1.39	9.21	0.17	1.81	0.42	0.57
S591MNH0202XX	10.90	2.12	8.78	0.04	2.49	0.37	0.40
S591MNH0203XX	12.10	3.20	8.90	0.21	3.49	0.29	0.36
S592MNH0212XX	14.00	3.93	10.07	0.00	14.00	10.07	3.82
S592MNH0214XX	13.19	3.03	10.16	0.14	13.19	10.16	3.96
S592MNH0215XX	12.80	2.88	9.92	0.45	12.80	9.92	4.41
S592MNH0216XX	12.92	2.63	10.29	0.00	12.92	10.29	4.41
S592MNH0217XX	12.10	2.46	9.64	0.00	12.10	9.64	4.41
S609MNH0206XX	11.33	1.56	9.77	0.19	11.33	9.77	4.60
S609MNH0207XX	10.00	1.12	8.88	0.00	10.00	8.88	4.60
S609MNH0208XX	10.31	0.97	9.34	0.00	10.31	9.34	4.60
S610MNH0203XX	10.60	0.00	10.60	0.00	4.47	4.47	4.60
S610MNH0204XX	9.00	3.00	6.00	1.83	3.51	0.51	1.83
S610MNH0205XX	9.91	-0.50	10.41	0.09	3.36	3.86	4.67
S610MNH0206XX	8.36	2.00	6.36	0.12	2.74	0.74	0.12
S610MNH0207XX	9.00	0.23	8.77	0.05	1.22	0.99	2.53
S610MNH0208XX	9.40	0.56	8.84	0.06	1.32	0.76	0.64
S610MNH0209XX	10.20	2.23	7.97	0.00	2.89	0.66	1.84
S610MNH0210XX	9.30	1.46	7.84	0.00	2.03	0.57	1.84
S611MNH0201XX	8.20	-0.08	8.28	0.00	0.74	0.82	2.53
S611MNH0202XX	8.20	-0.21	8.41	0.00	0.62	0.83	2.53



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Node ID	Ground/Rim Elevation	Invert Elevation	Structure Depth	Wastewater Loading	Hydraulic Grade Line	Flow Depth	System Flow
	(ft)	(ft)	(ft)	(cfs)	(ft)	(ft)	(cfs)
S611MNH0203XX	9.20	-0.79	9.99	0.05	-0.18	0.61	2.58
S611MNH0205XX	6.40	-2.40	8.80	0.05	1.03	3.43	13.69
S611MNH0206XX	5.10	-3.69	8.79	0.00	-0.44	3.25	13.69
S611MNH0207XX	4.20	-4.91	9.11	0.00	-1.96	2.95	13.69
S611MNH0208XX	5.09	-4.19	9.28	0.00	-1.25	2.94	13.69
S611MNH0209XX	7.03	-4.52	11.55	0.07	-3.12	1.40	19.81
S611MNH0210XX	5.87	-5.91	11.78	0.00	-4.30	1.61	20.65
S611MNH0214XX	5.50	-2.40	7.90	0.08	-2.23	0.17	0.08
S612CLN1001XX	4.37	2.20	2.17	0.39	2.54	0.34	0.39
S612MNH0201XX	5.33	-1.98	7.31	0.09	-1.44	0.54	0.84
S612MNH0202XX	5.76	-1.08	6.84	0.22	-0.60	0.48	0.76
S612MNH0203XX	5.37	1.35	4.02	0.14	1.67	0.32	0.53
S613MNH0201XX	4.45	-4.82	9.27	0.14	-3.76	1.06	5.35
S613MNH0202XX	5.95	-3.92	9.87	0.12	-2.90	1.02	5.21
S613MNH0203XX	3.10	-5.35	8.45	0.03	-4.05	1.30	6.13
S613MNH0204XX	3.42	-3.37	6.79	0.00	-2.96	0.41	0.75
S613MNH0208XX	3.20	-5.72	8.92	0.19	-4.28	1.44	6.32
S613TEE1001XX	2.66	-5.82	8.48	0.00	-4.29	1.53	6.32
S614MNH0201XX	3.31	-3.31	6.62	0.00	-2.57	0.74	0.75
S614MNH0202XX	3.70	-1.82	5.52	0.19	-1.44	0.38	0.75
S614MNH0203XX	3.53	-1.07	4.60	0.10	-0.69	0.38	0.56
S614MNH0204XX	3.65	-0.22	3.87	0.05	0.12	0.34	0.43
S615MNH0201XX	5.25	-1.16	6.41	0.08	-0.67	0.49	1.08
S615MNH0202XX	4.85	-1.88	6.73	0.00	-1.12	0.76	1.08
S615MNH0203XX	5.00	-5.20	10.20	0.14	-1.20	4.00	1.64
S615MNH0204XX	4.88	-5.92	10.80	0.00	-1.42	4.50	34.01
S615MNH0206XX	2.00	-5.37	7.37	32.37	-0.94	4.43	32.37
S615MNH0207XX	2.20	-2.30	4.50	0.00	-1.11	1.19	0.43
S615MNH0208XX	2.70	-1.57	4.27	0.00	-1.06	0.51	0.43
S615MNH0210XX	4.80	-3.38	8.18	0.00	-1.15	2.23	1.50
S627MNH0201XX	3.60	-7.54	11.14	0.00	-3.52	4.02	34.01
S627MNH0202XX	10.90	-6.69	17.59	0.00	-2.22	4.47	34.01
S628MNH0201XX	3.70	-5.87	9.57	0.00	-5.19	0.68	0.23
S628MNH0205XX	5.25	-4.54	9.79	0.02	-4.33	0.21	0.23
S628MNH0206XX	3.43	-8.36	11.79	0.00	-4.87	3.49	40.33
S628MNH0207XX	2.88	-6.49	9.37	0.00	-4.58	1.91	6.32
S628MNH0209XX	4.02	-8.59	12.61	0.00	-5.45	3.14	40.56
S628MNH0210XX	4.30	-8.94	13.24	0.00	-5.57	3.37	40.56
S628MNH0211XX	4.40	-9.01	13.41	0.00	-5.60	3.41	40.56
S628MNH0212XX	3.70	-9.46	13.16	0.00	-5.97	3.49	40.56
S628MNH0213XX	5.10	-2.13	7.23	0.04	-1.93	0.20	0.21
S628TEE1001XX	5.18	-4.13	9.31	0.00	-3.93	0.20	0.21
S629MNH0201XX	3.99	-1.47	5.46	0.00	-1.22	0.25	0.16
S629MNH0202XX	4.50	-0.40	4.90	0.00	-0.23	0.17	0.16



Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C1 - MPSP Evaluation Node Results - PWWF

Node ID	Ground/Rim Elevation	Invert Elevation	Structure Depth	Wastewater Loading	Hydraulic Grade Line	Flow Depth	System Flow
	(ft)	(ft)	(ft)	(cfs)	(ft)	(ft)	(cfs)
S629MNH0203XX	5.26	0.34	4.92	0.02	0.53	0.19	0.16
S629MNH0204XX	4.70	-10.71	15.41	0.00	-7.65	3.06	40.56
S629MNH0205XX	4.60	-10.69	15.29	0.00	-7.27	3.42	20.28
S629MNH0208XX	4.50	-3.93	8.43	0.05	-3.81	0.12	0.07
S629MNH0209XX	5.60	-2.57	8.17	0.02	-2.50	0.07	0.02
S629MNH0210XX	4.05	-1.49	5.54	0.00	-1.25	0.24	0.16
S629MNH0211XX	4.10	-10.04	14.14	0.00	-6.48	3.56	40.56
S629MNH0212XX	3.40	-9.87	13.27	0.00	-6.33	3.54	40.56
S629MNH0213XX	3.30	-9.71	13.01	0.00	-6.18	3.53	40.56
S629MNH0214XX	5.30	-10.73	16.03	0.00	-7.75	2.98	40.56
S629MNH0216XX	3.06	-8.99	12.05	0.00	-7.68	1.31	10.38
S629MNH0217XX	3.88	-9.31	13.19	0.00	-7.91	1.40	20.86
S629MNH0218XX	3.10	-9.10	12.20	0.02	-7.72	1.38	10.48
S629MNH0223XX	4.82	1.07	3.75	0.15	1.25	0.18	0.15
S629MNH0224XX	3.40	-10.67	14.07	0.00	-7.09	3.58	40.56
S630MNH0201XX	4.70	-4.55	9.25	0.04	-3.76	0.79	0.30
S630MNH0202XX	5.10	-7.43	12.53	0.00	-4.92	2.51	13.99
S630MNH0203XX	3.72	-7.37	11.09	0.00	-4.13	3.24	13.99
S630MNH0204XX	3.70	-5.21	8.91	0.00	-3.80	1.41	0.30
S630MNH0205XX	5.59	-6.17	11.76	0.00	-3.39	2.78	13.69
S630MNH0209XX	5.52	-7.31	12.83	0.11	-5.90	1.41	20.76
S630MNH0210XX	5.00	-7.94	12.94	0.00	-5.48	2.46	13.99
S630MNH0211XX	4.00	-3.70	7.70	0.05	-3.44	0.26	0.26
S630MNH0212XX	4.00	-3.63	7.63	0.03	-3.11	0.52	0.21
S630MNH0213XX	5.52	-2.87	8.39	0.09	-2.65	0.22	0.17
S630TEE1001XX	5.01	0.00	5.01	0.00	0.00	0.00	0.00
S631MNH0201XX	6.00	-3.10	9.10	0.25	1.58	4.68	5.26
S631MNH0202XX	6.48	-3.02	9.50	0.00	1.98	5.00	5.01
S631MNH0203XX	7.84	-1.94	9.78	0.00	2.36	4.30	4.67
S631MNH0206XX	7.38	1.34	6.04	0.15	2.73	1.39	0.27
S631MNH0207XX	7.30	0.73	6.57	0.00	2.71	1.98	0.27
S631MNH0208XX	5.20	-3.24	8.44	0.00	0.84	4.08	5.26
S631MNH0209XX	8.50	-0.57	9.07	0.03	2.66	3.23	0.34
S631MNH0210XX	8.22	0.09	8.13	0.04	2.69	2.60	0.31
S648MNH0201XX	9.50	0.08	9.42	0.00	0.90	0.82	2.78
S648MNH0202XX	10.20	0.40	9.80	0.00	1.22	0.82	2.78
S649MNH0201XX	7.90	-1.13	9.03	0.00	-0.31	0.82	2.78
S649MNH0204XX	7.90	-0.88	8.78	0.00	-0.06	0.82	2.78
S649MNH0205XX	7.90	-0.56	8.46	0.00	0.26	0.82	2.78
S649MNH0206XX	8.90	-0.24	9.14	0.00	0.58	0.82	2.78
S650MNH0201XX	8.10	-1.52	9.62	0.00	-0.71	0.81	2.78
S650MNH0202XX	7.00	-1.80	8.80	0.00	-1.24	0.56	2.78
S650MNH0203XX	3.87	-5.71	9.58	0.00	-4.82	0.89	2.78
S650MNH0204XX	3.45	-2.45	5.90	0.00	-1.93	0.52	2.78



Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C1 - MPSP Evaluation Node Results - PWWF

Node ID	Ground/Rim Elevation	Invert Elevation	Structure Depth	Wastewater Loading	Hydraulic Grade Line	Flow Depth	System Flow
	(ft)	(ft)	(ft)	(cfs)	(ft)	(ft)	(cfs)
S650MNH0205XX	7.00	-2.38	9.38	0.00	-1.60	0.78	2.78
S650MNH0206XX	8.60	-3.89	12.49	0.01	-1.99	1.90	5.27
S650MNH0207XX	8.30	-3.67	11.97	0.00	-0.43	3.24	5.26
S650MNH0209XX	6.40	-4.65	11.05	0.00	-3.14	1.51	5.27
S650MNH0210XX	4.13	-5.96	10.09	0.09	-5.43	0.53	2.87
S650MNH0211XX	3.90	-6.67	10.57	0.03	-6.14	0.53	2.91
S650MNH0215XX	6.94	-0.65	7.59	0.00	-0.65	0.00	0.00
S650TEE1001XX	5.62	0.00	5.62	0.00	0.00	0.00	0.00
S651MNH0201XX	4.50	-5.41	9.91	0.00	-4.34	1.07	5.27
S651MNH0202XX	9.72	-9.58	19.30	0.04	-8.03	1.55	2.95
S651MNH0203XX	10.92	-9.61	20.53	0.00	-8.03	1.58	8.22
S651MNH0205XX	8.47	-10.03	18.50	0.00	-8.26	1.77	8.22
S651MNH0208XX	1.59	-10.16	11.75	0.00	-8.66	1.50	8.22
S651MNH0209XX	4.18	-6.03	10.21	0.00	-6.03	0.00	0.00
S651MNH0210XX	1.22	-10.27	11.49	0.00	-8.74	1.53	8.22
S651MNH0211XX	9.00	-9.77	18.77	0.00	-8.36	1.41	8.22
S652MNH0202XX	6.16	-14.10	20.26	0.00	-13.01	1.09	13.99
S652MNH0203XX	7.80	-11.45	19.25	0.00	-9.55	1.90	40.56
S652MNH0204XX	6.85	-11.54	18.39	0.00	-9.84	1.70	29.08
S652MNH0205XX	6.68	-10.90	17.58	0.00	-9.11	1.79	29.08
S652MNH0207XX	5.63	-10.15	15.78	0.00	-8.80	1.35	13.99
S652MNH0208XX	3.20	-10.55	13.75	0.00	-8.86	1.69	8.22
S652MNH0209XX	2.69	-8.69	11.38	0.00	-6.52	2.17	13.99
S652MNH0211XX	5.81	-14.90	20.71	0.00	-13.65	1.25	13.99
S652MNH0212XX	5.89	-14.90	20.79	0.00	-12.10	2.80	69.64
S652MNH0214XX	9.74	-14.10	23.84	0.00	-11.58	2.52	69.64
S652MNH0215XX	7.10	-11.08	18.18	0.00	-8.19	2.89	20.28
S652MNH0225XX	8.62	-11.36	19.98	0.00	-8.91	2.45	29.08
S673MNH0201XX	10.80	0.72	10.08	0.00	1.54	0.82	2.78
S673MNH0202XX	12.00	2.12	9.88	0.00	2.88	0.76	2.78
S674MNH0201XX	12.30	2.92	9.38	1.57	3.68	0.76	2.78
S674MNH0202XX	12.60	3.56	9.04	1.22	4.07	0.51	1.22

Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C2 - MPSP Evaluation Pipe Results - PWWF

Pipe ID	Pipe Diameter	Length	Slope	Pipe Roughness	Upstream Node	Downstream Node	Invert Elevation		Ground / Rim Elevation		HGL Elevation		Flow Depth		Depth to Diameter	Peak Flow	Half Full Velocity ¹	Velocity ²
							Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream				
							(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)				
	(in)	(ft)	(ft/ft)	(Mannings n)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(d/D)	(cfs)	(ft/s)	(ft/s)
4300	18	348	0.001	0.013	00_S651MNH0211XX	S651MNH0209XX	-5.75	-6.03	10.76	4.18	-5.75	-6.03	0.00	0.00	0.00	0.00	1.7	0.0
2991	10	138	0.001	0.013	MH1_MoffetRealign	MH2_MoffetRealign	4.40	4.22	16.70	16.10	4.94	4.93	0.54	0.71	0.75	0.18	1.5	1.2
3678	10	268	0.002	0.013	MH2_MoffetRealign	MH3_MoffetRealign	4.22	3.78	16.10	14.95	4.88	4.85	0.66	1.07	SURCHARGED	0.21	1.6	1.3
3017	10	143	0.003	0.013	MH3_MoffetRealign	MH4_MoffetRealign	3.78	3.42	14.95	15.30	4.12	3.94	0.34	0.52	0.52	0.39	2.0	1.8
3193	12	185	0.005	0.013	MH4_MoffetRealign	MH5_MoffetRealign	3.39	2.51	15.30	13.40	3.67	2.78	0.28	0.27	0.27	0.41	3.1	2.3
3130	12	169	0.006	0.013	MH5_MoffetRealign	S571MNH0211XX	2.42	1.48	13.40	12.23	2.69	2.31	0.27	0.83	0.55	0.41	3.4	2.5
4079	12	316	0.001	0.013	S529MNH0207XX	S529MNH0208XX	13.00	12.83	28.30	24.30	25.74	24.30	12.74	11.47	SURCHARGED	2.41	1.1	3.1
4388	12	361	0.002	0.013	S529MNH0208XX	S552MNH0204XX	12.83	12.00	24.30	25.40	26.17	24.50	13.34	12.50	SURCHARGED	2.42	2.2	3.1
3312	21	212	0.004	0.013	S549MNH0201XX	S573MNH0212XX	1.51	0.70	14.40	9.97	2.32	1.54	0.81	0.84	0.47	4.33	4.1	4.0
4504	10	392	0.002	0.013	S549MNH0203XX	S572MNH0201XX	3.79	2.83	12.22	10.22	3.88	2.91	0.09	0.08	0.10	0.03	2.0	0.9
4436	10	370	0.002	0.013	S549MNH0217XX	S549MNH0203XX	4.67	3.79	12.22	12.22	4.76	3.88	0.09	0.09	0.11	0.03	2.0	0.8
2359	42	10	-0.001	0.013	S550MNH0201XX	S550MNH0225XX	1.59	1.60	16.49	16.80	3.71	3.71	2.12	2.11	0.61	15.46	3.3	1.6
2606	33	48	0.165	0.013	S550MNH0202XX	S550MNH0201XX	10.07	2.09	17.27	16.49	11.34	3.73	1.27	1.64	0.53	15.02	36.2	20.8
4492	24	386	0.003	0.013	S550MNH0203XX	S550MNH0220XX	6.41	5.18	18.30	16.40	11.22	9.88	4.81	4.70	SURCHARGED	13.32	4.1	4.2
2736	24	78	0.003	0.013	S550MNH0204XX	S550MNH0203XX	6.66	6.40	18.40	18.30	11.66	11.39	5.00	4.99	SURCHARGED	13.32	4.2	4.2
2998	15	138	0.003	0.013	S550MNH0205XX	S550MNH0226XX	4.71	4.31	18.25	17.72	4.88	4.48	0.17	0.17	0.14	0.14	2.8	1.4
3438	33	240	0.002	0.013	S550MNH0207XX	S550MNH0223XX	11.04	10.62	20.00	17.92	12.69	12.25	1.65	1.63	0.60	15.02	3.7	4.0
4552	21	409	0.006	0.013	S550MNH0210XX	S550MNH0204XX	9.39	6.91	20.80	18.40	14.73	11.84	5.34	4.93	SURCHARGED	13.32	5.1	5.5
4535	10	400	0.002	0.013	S550MNH0217XX	S550MNH0218XX	6.42	5.46	14.80	15.45	6.55	5.60	0.13	0.14	0.16	0.06	2.0	1.1
4545	10	404	0.002	0.013	S550MNH0218XX	S550MNH0205XX	5.46	4.60	15.45	18.25	5.60	4.88	0.14	0.28	0.25	0.06	1.9	1.0
4511	24	394	0.003	0.013	S550MNH0220XX	S571MNH0207XX	5.18	3.92	16.40	12.90	9.84	8.48	4.66	4.56	SURCHARGED	13.32	4.1	4.2
2482	15	27	0.002	0.013	S550MNH0221XX	S550MNH0201XX	3.65	3.60	17.32	16.49	3.89	3.79	0.24	0.19	0.17	0.24	2.3	1.4
4091	10	318	0.003	0.013	S550MNH0222XX	S550MNH0217XX	7.31	6.42	13.90	14.80	7.44	6.55	0.13	0.13	0.16	0.06	2.1	1.1
3964	33	302	0.002	0.013	S550MNH0223XX	S550MNH0202XX	10.62	10.07	17.92	17.27	12.24	11.36	1.62	1.29	0.53	15.02	3.8	4.1
3824	42	287	0.001	0.013	S550MNH0225XX	S571MNH0212XX	2.00	1.78	16.80	13.73	3.70	3.28	1.70	1.50	0.46	15.46	2.9	3.0
3093	15	160	0.003	0.013	S550MNH0226XX	S550MNH0221XX	4.31	3.85	17.72	17.32	4.48	4.08	0.17	0.23	0.16	0.14	2.8	1.4
4622	15	463	0.002	0.013	S551MNH0203XX	S551MNH0204XX	7.70	6.62	21.50	22.25	7.84	6.75	0.14	0.13	0.11	0.08	2.5	1.1
4503	15	393	0.002	0.013	S551MNH0204XX	S551MNH0205XX	6.62	5.66	22.25	20.20	6.75	5.80	0.13	0.14	0.11	0.08	2.6	1.1
4595	15	448	0.002	0.013	S551MNH0205XX	S550MNH0205XX	5.66	4.60	20.20	18.25	5.80	4.88	0.14	0.28	0.17	0.08	2.6	1.1
4461	12	375	0.003	0.013	S552MNH0201XX	S569MNH0204XX	9.20	8.20	20.19	19.04	21.04	19.04	11.84	10.84	SURCHARGED	2.60	2.3	3.3
3431	12	239	0.004	0.013	S552MNH0202XX	S552MNH0201XX	10.23	9.30	20.19	20.19	21.45	20.19	11.22	10.89	SURCHARGED	2.59	2.8	3.3
2855	12	102	0.003	0.013	S552MNH0203XX	S552MNH0212XX	11.68	11.37	25.50	23.40	23.53	23.01	11.85	11.64	SURCHARGED	2.55	2.5	3.2
2860	12	105	0.003	0.013	S552MNH0204XX	S552MNH0203XX	12.00	11.68	25.40	25.50	24.35	23.85	12.35	12.17	SURCHARGED	2.46	2.5	3.1
3465	15	245	0.002	0.013	S552MNH0206XX	S552MNH0207XX	9.32	8.90	24.00	23.40	9.32	9.07	0.00	0.17	0.07	0.00	2.2	0.0
4587	15	432	0.003	0.013	S552MNH0207XX	S551MNH0203XX	8.90	7.70	23.40	21.50	9.03	7.84	0.13	0.14	0.11	0.08	2.8	1.1
4613	10	454	0.006	0.013	S552MNH0208XX	S552MNH0209XX	13.92	11.22	22.00	20.00	18.15	18.15	4.23	6.93	SURCHARGED	0.00	3.1	0.0
4601	10	444	0.006	0.013	S552MNH0209XX	S569MNH0206XX	11.22	8.56	20.00	18.40	18.14	18.06	6.92	9.50	SURCHARGED	0.30	3.1	0.6
3150	12	173	0.005	0.013	S552MNH0211XX	S552MNH0202XX	11.06	10.28	23.18	21.70	22.39	21.51	11.33	11.23	SURCHARGED	2.55	3.0	3.2
2850	12	102	0.003	0.013	S552MNH0212XX	S552MNH0211XX	11.37	11.06	23.40	23.18	22.96	22.44	11.59	11.38	SURCHARGED	2.55	2.5	3.2
3847	12	291	0.003	0.013	S569MNH0204XX	S569MNH0212XX	8.13	7.30	19.04	18.00	20.61	18.00	12.48	10.70	SURCHARGED	3.37	2.4	4.3
2671	12	60	0.008	0.013	S569MNH0205XX	S569MNH0212XX	7.10	6.60	18.20	18.00	18.01	18.00	10.91	11.40	SURCHARGED	0.38	4.2	0.5
3133	10	169	0.008	0.013	S569MNH0206XX	S569MNH0205XX	8.50	7.18	18.40	18.20	18.05	18.02	9.55	10.84	SURCHARGED	0.33	3.6	0.6
2927	12	124	0.002	0.013	S569MNH0209XX	S592MNH0212XX	4.18	3.93	14.50	14.00	15.43	14.00	11.25	10.07	SURCHARGED	3.82	2.0	4.9
3282	12	205	0.003	0.013	S569MNH0210XX	S569MNH0209XX	4.73	4.18	15.30	14.50	16.86	14.50	12.13	10.32	SURCHARGED	3.82	2.4	4.9
3423	12	237	0.001	0.013	S569MNH0211XX	S569MNH0210XX	5.05	4.73	17.23	15.30	18.02	15.30	12.97	10.57	SURCHARGED	3.82	1.7	4.9
3370	12	228	0.001	0.013	S569MNH0212XX	S569MNH0211XX	5.38	5.08	18.00	17.23	19.75	17.23	14.37	12.15	SURCHARGED	3.75	1.7	4.8
4409	10	365	0.003	0.013	S570MNH0201XX	S591MNH0203XX	4.12	3.20	13.30	12.10	4.33	3.63	0.21	0.43	0.38	0.15	2.0	1.4
4373	10	358	0.002	0.013	S570MNH0202XX	S570MNH0204XX	5.95	5.17	14.55	15.90	6.18	5.35	0.23	0.18	0.24	0.17	1.9	1.4
3356	10	225	0.002	0.013	S570MNH0203XX	S570MNH0202XX	6.60	6.05	15.10	14.55	6.70	6.41	0.10	0.36	0.27	0.03	2.0	0.9
2529	10	34	0.001	0.013	S570MNH0204XX	MH1_MoffetRealign	4.45	4.40	15.90	16.70	4.95	4.94	0.50	0.54	0.62	0.18	1.5	1.2
3652	12	265	0.003	0.013	S571MNH0205XX	S571MNH0209XX	3.94	3.06	11.74	12.44	4.11	3.37	0.17	0.31	0.24	0.13	2.6	1.5
4507	24	393	0.003	0.013	S571MNH0207XX	S571MNH0219XX	3.92	2.66	12.90	12.08	8.44	7.08	4.52	4.42	SURCHARGED	13.32	4.1	4.2
3833	12	297	0.003	0.013	S571MNH0208XX	S571MNH0216XX	2.20	1.22	11.55	10.72	2.50	1.49	0.30	0.27	0.29	0.41	2.6	2.0
3624	12	263	0.003	0.013	S571MNH0209XX	S571MNH0208XX	3.06	2.20	12.44	11.55	3.32	2.58	0.26	0.38	0.32	0.29	2.6	1.8
4408	42	365	0.003	0.013	S571MNH0211XX	S571MNH0216XX	0.88	-0.20	12.23	10.72	2.17	1.06	1.29	1.26	0.37	15.90	5.7	4.9

Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C2 - MPSP Evaluation Pipe Results - PWWF

Pipe ID	Pipe Diameter	Length	Slope	Pipe Roughness	Upstream Node	Downstream Node	Invert Elevation		Ground / Rim Elevation		HGL Elevation		Flow Depth		Depth to Diameter	Peak Flow	Half Full Velocity ¹	Velocity ²
							Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream				
							(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)				
	(in)	(ft)	(ft/ft)	(Mannings n)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(d/D)	(cfs)	(ft/s)	(ft/s)
4396	42	363	0.002	0.013	S571MNH0212XX	S571MNH0211XX	1.78	1.18	13.73	12.23	3.27	2.38	1.49	1.20	0.38	15.46	4.3	4.0
4670	42	582	0.004	0.013	S571MNH0216XX	S590MNH0215XX	-0.20	-2.25	10.72	8.94	1.05	-0.68	1.25	1.57	0.40	16.31	6.2	5.3
4513	24	394	0.003	0.013	S571MNH0219XX	S590MNH0204XX	2.66	1.39	12.08	9.90	7.05	5.68	4.39	4.29	SURCHARGED	13.32	4.1	4.2
4530	10	400	0.004	0.013	S572MNH0201XX	S573MNH0212XX	2.83	1.07	10.22	9.97	2.91	1.56	0.08	0.49	0.34	0.03	2.7	1.0
3237	12	198	0.003	0.013	S572MNH0202XX	S572MNH0206XX	4.43	3.81	9.10	8.40	4.63	4.01	0.20	0.20	0.20	0.18	2.5	1.6
2550	10	38	0.003	0.013	S572MNH0203XX	S572MNH0207XX	6.40	6.29	12.40	11.15	6.40	6.29	0.00	0.00	0.00	0.00	2.2	0.0
3912	10	298	0.003	0.013	S572MNH0204XX	S549MNH0203XX	5.50	4.62	13.30	12.22	5.50	4.62	0.00	0.00	0.00	0.00	2.2	0.0
3389	12	231	0.003	0.013	S572MNH0206XX	S589MNH0211XX	3.81	3.10	8.40	7.40	4.01	3.42	0.20	0.32	0.26	0.18	2.5	1.6
3628	10	263	0.003	0.013	S572MNH0207XX	S572MNH0204XX	6.29	5.50	11.15	13.30	6.29	5.50	0.00	0.00	0.00	0.00	2.2	0.0
3232	21	196	0.004	0.013	S573MNH0201XX	S573MNH0203XX	-0.51	-1.30	10.00	10.10	0.30	-0.29	0.81	1.01	0.52	4.41	4.2	4.1
3020	21	144	0.001	0.013	S573MNH0202XX	S573MNH0213XX	-0.07	-0.21	9.00	8.25	1.16	1.00	1.23	1.21	0.70	4.37	2.1	2.3
3490	21	247	0.002	0.013	S573MNH0203XX	S589MNH0202XX	-1.30	-1.87	10.10	8.80	-0.30	-0.82	1.00	1.05	0.59	4.70	3.2	3.3
2800	10	90	0.005	0.013	S573MNH0204XX	S573MNH0203XX	1.43	0.99	9.62	10.10	1.54	1.10	0.11	0.11	0.13	0.06	2.8	1.4
2977	12	135	0.003	0.013	S573MNH0210XX	S573MNH0211XX	3.07	2.72	7.38	6.93	3.23	2.94	0.16	0.22	0.19	0.10	2.3	1.3
3883	12	296	0.003	0.013	S573MNH0211XX	S588MNH0204XX	2.72	1.97	6.93	5.98	2.94	2.26	0.22	0.29	0.25	0.19	2.3	1.5
3298	21	209	0.004	0.013	S573MNH0212XX	S573MNH0202XX	0.70	-0.07	9.97	9.00	1.53	1.20	0.83	1.27	0.60	4.36	4.0	3.9
4015	21	308	0.001	0.013	S573MNH0213XX	S573MNH0201XX	-0.21	-0.51	8.25	10.00	0.97	0.42	1.18	0.93	0.61	4.40	2.1	2.3
2694	10	63	-0.003	0.013	S573TEE1001XX	S573MNH0203XX	0.00	0.20	10.63	10.10	0.53	0.41	0.53	0.21	0.45	0.23	2.3	0.4
4017	12	308	0.003	0.013	S574MNH0202XX	S587MNH0208XX	2.90	2.12	7.04	6.39	3.07	2.34	0.17	0.22	0.20	0.12	2.3	1.3
4279	18	345	0.002	0.013	S575MNH0203XX	S586MNH0205XX	1.25	0.72	6.26	6.40	1.66	1.23	0.41	0.51	0.31	0.68	2.3	1.7
3107	10	162	0.004	0.013	S575MNH0206XX	S586MNH0205XX	1.45	0.72	6.55	6.40	1.59	1.22	0.14	0.50	0.39	0.09	2.7	1.5
3340	21	218	0.002	0.013	S586MNH0201XX	S615MNH0201XX	-0.83	-1.16	4.45	5.25	-0.35	-0.63	0.48	0.53	0.29	1.00	2.6	1.9
4275	21	358	0.002	0.013	S586MNH0202XX	S586MNH0201XX	-0.27	-0.83	4.60	4.45	0.20	-0.33	0.47	0.50	0.28	1.00	2.6	1.9
4401	21	369	0.001	0.013	S586MNH0204XX	S586TEE1003XX	0.32	0.00	5.70	6.44	0.87	0.36	0.55	0.36	0.26	1.00	1.9	1.5
3705	21	276	0.001	0.013	S586MNH0205XX	S586MNH0204XX	0.72	0.32	6.40	5.70	1.20	0.87	0.48	0.55	0.30	1.00	2.5	1.9
3715	12	273	0.002	0.013	S586MNH0209XX	S615MNH0208XX	-0.90	-1.57	3.61	2.70	-0.56	-1.06	0.34	0.51	0.42	0.43	2.3	1.9
2515	21	31	0.009	0.013	S586TEE1003XX	S586MNH0202XX	0.00	-0.27	6.44	4.60	0.36	0.21	0.36	0.48	0.24	1.00	6.1	3.5
3891	12	296	0.002	0.013	S587MNH0201XX	S614MNH0203XX	-0.34	-1.07	4.25	3.53	0.01	-0.66	0.35	0.41	0.38	0.46	2.3	1.9
4035	12	310	0.003	0.013	S587MNH0202XX	S587MNH0201XX	0.44	-0.34	5.17	4.25	0.77	0.02	0.33	0.36	0.35	0.41	2.3	1.9
4127	12	323	0.002	0.013	S587MNH0206XX	S614MNH0204XX	0.55	-0.22	4.35	3.65	0.87	0.19	0.32	0.41	0.36	0.38	2.2	1.8
4081	12	316	0.002	0.013	S587MNH0207XX	S587MNH0206XX	1.34	0.55	5.22	4.35	1.64	0.88	0.30	0.33	0.31	0.35	2.3	1.8
3920	12	298	0.003	0.013	S587MNH0208XX	S587MNH0207XX	2.12	1.34	6.39	5.22	2.33	1.65	0.21	0.31	0.26	0.18	2.3	1.5
4617	24	455	0.002	0.013	S588MNH0201XX	S613MNH0202XX	-3.02	-3.92	7.25	5.95	-2.01	-2.86	1.01	1.06	0.52	5.09	3.2	3.2
4611	21	452	0.002	0.013	S588MNH0202XX	S588MNH0201XX	-1.87	-2.77	8.80	7.25	-0.83	-1.97	1.04	0.80	0.53	4.70	2.9	3.2
4024	12	309	0.003	0.013	S588MNH0203XX	S587MNH0202XX	1.22	0.44	6.14	5.17	1.50	0.78	0.28	0.34	0.31	0.30	2.3	1.7
3937	12	300	0.003	0.013	S588MNH0204XX	S588MNH0203XX	1.97	1.22	5.98	6.14	2.25	1.50	0.28	0.28	0.28	0.30	2.3	1.7
4489	10	385	0.002	0.013	S589MNH0202XX	S590MNH0201XX	1.46	0.59	8.90	8.90	1.73	0.94	0.27	0.35	0.37	0.24	1.9	1.6
3984	10	304	0.003	0.013	S589MNH0203XX	S589MNH0202XX	2.35	1.47	9.15	8.90	2.56	1.78	0.21	0.31	0.31	0.16	2.2	1.5
3992	10	305	0.003	0.013	S589MNH0204XX	S589MNH0203XX	3.24	2.35	9.25	9.15	3.32	2.59	0.08	0.24	0.19	0.02	2.2	0.9
4287	10	347	0.002	0.013	S589MNH0204XX	S589MNH0214XX	3.24	2.54	9.25	9.60	3.33	2.67	0.09	0.13	0.13	0.02	1.8	0.0
4194	10	331	0.001	0.013	S589MNH0205XX	S573MNH0204XX	1.85	1.43	9.82	9.62	2.01	1.55	0.16	0.12	0.17	0.06	1.4	0.9
3961	12	302	0.003	0.013	S589MNH0206XX	S589MNH0207XX	2.20	1.30	8.10	7.50	2.45	1.62	0.25	0.32	0.29	0.27	2.5	1.8
3159	12	176	0.003	0.013	S589MNH0207XX	S589MNH0208XX	1.30	0.77	7.50	8.00	1.59	1.06	0.29	0.29	0.29	0.36	2.5	1.9
2916	12	122	0.003	0.013	S589MNH0208XX	S590MNH0220XX	0.77	0.38	8.00	8.02	1.06	0.76	0.29	0.38	0.33	0.36	2.6	1.9
4027	12	309	0.003	0.013	S589MNH0211XX	S589MNH0206XX	3.10	2.20	7.40	8.10	3.35	2.46	0.25	0.26	0.26	0.27	2.5	1.7
4459	10	376	0.002	0.013	S589MNH0214XX	S589MNH0205XX	2.54	1.85	9.60	9.82	2.67	2.02	0.13	0.17	0.18	0.05	1.7	0.9
3472	10	245	0.012	0.013	S590MNH0201XX	S590MNH0217XX	0.59	-2.41	8.90	8.06	0.82	-2.17	0.23	0.24	0.28	0.27	4.4	3.0
4514	24	394	0.003	0.013	S590MNH0202XX	S590MNH0218XX	0.13	-1.13	8.60	7.60	4.08	2.67	3.95	3.80	SURCHARGED	13.56	4.1	4.3
2903	24	118	0.003	0.013	S590MNH0203XX	S590MNH0202XX	0.52	0.13	8.80	8.60	4.58	4.16	4.06	4.03	SURCHARGED	13.55	4.1	4.3
3676	24	267	0.003	0.013	S590MNH0204XX	S590MNH0203XX	1.39	0.52	9.90	8.80	5.61	4.66	4.22	4.14	SURCHARGED	13.50	4.1	4.3
4188	12	338	0.003	0.013	S590MNH0213XX	S590MNH0216XX	-0.53	-1.46	7.90	8.63	-0.15	-0.89	0.38	0.57	0.47	0.57	2.4	2.1
2954	42	130	0.002	0.013	S590MNH0215XX	S590MNH0216XX	-2.20	-2.40	8.94	8.63	-0.69	-1.03	1.51	1.37	0.41	16.31	4.1	3.9
4673	42	601	0.003	0.013	S590MNH0216XX	S590MNH0217XX	-2.40	-4.04	8.63	8.06	-1.04	-2.27	1.36	1.77	0.45	16.88	5.5	4.9
4480	42	380	0.001	0.013	S590MNH0217XX	S611MNH0209XX	-4.19	-4.52	8.06	7.03	-2.27	-3.09	1.92	1.43	0.48	19.74	3.1	3.3
3341	24	406	0.003	0.013	S590MNH0218XX	S611MNH0205XX	-1.13	-2.40	7.60	6.40	2.59	1.11	3.72	3.51	SURCHARGED	13.64	4.0	4.3

Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C2 - MPSP Evaluation Pipe Results - PWWF

Pipe ID	Pipe Diameter	Length	Slope	Pipe Roughness	Upstream Node	Downstream Node	Invert Elevation		Ground / Rim Elevation		HGL Elevation		Flow Depth		Depth to Diameter	Peak Flow	Half Full Velocity ¹	Velocity ²
							Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream				
							(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)				
	(in)	(ft)	(ft/ft)	(Mannings n)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(d/D)	(cfs)	(ft/s)	(ft/s)
2463	18	23	0.010	0.013	S590MNH0219XX	S590MNH0217XX	-3.03	-3.25	7.79	8.06	-2.19	-2.17	0.84	1.08	0.64	2.58	5.9	4.9
3985	12	304	0.003	0.013	S590MNH0220XX	S590MNH0213XX	0.38	-0.53	8.02	7.90	0.71	-0.08	0.33	0.45	0.39	0.45	2.5	2.0
4426	12	368	0.002	0.013	S591MNH0201XX	S610MNH0208XX	1.39	0.66	10.60	9.40	1.81	1.39	0.42	0.73	0.58	0.57	2.0	1.9
4644	12	504	0.001	0.013	S591MNH0202XX	S591MNH0201XX	2.12	1.39	10.90	10.60	2.49	1.88	0.37	0.49	0.43	0.40	1.7	1.5
3388	10	231	0.004	0.013	S591MNH0203XX	S591MNH0202XX	3.20	2.29	12.10	10.90	3.49	2.55	0.29	0.26	0.33	0.36	2.5	2.1
4447	12	371	0.002	0.013	S592MNH0212XX	S592MNH0214XX	3.93	3.04	14.00	13.19	17.46	13.19	13.53	10.15	SURCHARGED	3.82	2.2	4.9
3056	12	154	0.001	0.013	S592MNH0214XX	S592MNH0215XX	3.03	2.88	13.19	12.80	14.70	12.80	11.67	9.92	SURCHARGED	3.96	1.4	5.0
2989	12	137	0.002	0.013	S592MNH0215XX	S592MNH0216XX	2.88	2.63	12.80	12.92	15.02	12.92	12.14	10.29	SURCHARGED	4.41	1.9	5.6
2818	12	94	0.002	0.013	S592MNH0216XX	S592MNH0217XX	2.63	2.46	12.92	12.10	13.53	12.10	10.90	9.64	SURCHARGED	4.41	1.9	5.6
4450	12	372	0.002	0.013	S592MNH0217XX	S609MNH0206XX	2.46	1.71	12.10	11.33	17.02	11.33	14.56	9.62	SURCHARGED	4.41	2.0	5.6
4053	12	313	0.001	0.013	S609MNH0206XX	S609MNH0207XX	1.56	1.12	11.33	10.00	15.22	10.00	13.66	8.88	SURCHARGED	4.60	1.7	5.9
2670	12	60	0.003	0.013	S609MNH0207XX	S609MNH0208XX	1.12	0.97	10.00	10.31	11.30	10.31	10.18	9.34	SURCHARGED	4.60	2.3	5.9
4491	12	386	0.003	0.013	S609MNH0208XX	S610MNH0203XX	0.97	0.00	10.31	10.60	11.54	10.57	5.11	5.11	SURCHARGED	4.60	2.3	5.9
2676	12	60	0.000	0.013	S610MNH0203XX	S610MNH0205XX	0.00	0.00	10.60	9.91	4.47	3.46	4.47	3.46	SURCHARGED	4.60	0.1	5.9
2698	18	63	0.032	0.013	S610MNH0204XX	S610MNH0205XX	3.00	1.00	9.00	9.91	3.51	3.51	0.51	2.51	SURCHARGED	1.83	10.6	6.7
4485	18	385	0.001	0.013	S610MNH0205XX	S610MNH0209XX	2.50	2.23	9.91	10.20	3.35	2.89	0.85	0.66	0.50	1.84	1.6	0.0
4640	18	494	0.003	0.013	S610MNH0205XX	S631MNH0203XX	-0.50	-1.94	9.91	7.84	3.36	2.38	3.86	4.32	SURCHARGED	4.67	3.2	2.7
3784	10	280	0.002	0.013	S610MNH0206XX	S631MNH0206XX	2.00	1.34	8.36	7.38	2.74	2.73	3.74	1.39	SURCHARGED	0.12	2.0	1.3
4392	18	366	0.001	0.013	S610MNH0207XX	S611MNH0201XX	0.23	-0.08	9.00	8.20	1.22	0.75	0.99	0.83	0.61	2.53	1.7	1.9
3172	12	180	0.002	0.013	S610MNH0208XX	S610MNH0207XX	0.56	0.23	9.40	9.00	1.32	1.27	0.76	1.04	0.90	0.64	1.9	1.9
4512	18	396	0.002	0.013	S610MNH0209XX	S610MNH0210XX	2.23	1.46	10.20	9.30	2.89	2.04	0.66	0.58	0.41	1.84	2.6	2.5
4479	18	381	0.003	0.013	S610MNH0210XX	S610MNH0207XX	1.46	0.23	9.30	9.00	2.03	1.30	0.57	1.07	0.55	1.84	3.4	3.0
2706	18	65	0.002	0.013	S611MNH0201XX	S611MNH0202XX	-0.08	-0.21	8.20	8.20	0.74	0.64	0.82	0.85	0.55	2.53	2.7	2.7
4253	18	344	0.002	0.013	S611MNH0202XX	S611MNH0203XX	-0.21	-0.79	8.20	9.20	0.62	-0.07	0.83	0.72	0.51	2.53	2.4	2.5
4556	18	411	0.005	0.013	S611MNH0203XX	S590MNH0219XX	-0.79	-3.03	9.20	7.79	-0.18	-2.18	0.61	0.85	0.49	2.58	4.4	3.9
4506	24	393	0.003	0.013	S611MNH0205XX	S611MNH0206XX	-2.40	-3.69	6.40	5.10	1.03	-0.41	3.43	3.28	SURCHARGED	13.69	4.1	4.4
3314	24	213	0.002	0.013	S611MNH0206XX	S611MNH0208XX	-3.69	-4.19	5.10	5.09	-0.44	-1.22	3.25	2.97	SURCHARGED	13.69	3.5	4.4
4484	24	383	0.003	0.013	S611MNH0207XX	S630MNH0205XX	-4.91	-6.17	4.20	5.59	-1.96	-3.36	2.95	2.81	SURCHARGED	13.69	4.1	4.4
3207	24	187	0.004	0.013	S611MNH0208XX	S611MNH0207XX	-4.19	-4.91	5.09	4.20	-1.25	-1.93	2.94	2.98	SURCHARGED	13.69	4.5	4.4
4558	42	412	0.003	0.013	S611MNH0209XX	S611MNH0210XX	-4.52	-5.91	7.03	5.87	-3.12	-4.29	1.40	1.62	0.43	19.81	6.1	5.5
2462	10	23	0.000	0.013	S611MNH0210XX	S611MNH0208XX	0.00	0.00	5.87	5.09	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0
4678	42	620	0.002	0.013	S611MNH0210XX	S630MNH0209XX	-5.91	-7.31	5.87	5.52	-4.30	-5.86	1.61	1.45	0.44	20.65	5.0	4.8
3491	10	248	0.002	0.013	S611MNH0214XX	S630MNH0213XX	-2.40	-2.87	5.50	5.52	-2.23	-2.60	0.17	0.27	0.26	0.08	1.8	1.1
4022	10	309	0.003	0.013	S612CLN1001XX	S612MNH0203XX	2.20	1.35	4.37	5.37	2.54	1.72	0.34	0.37	0.43	0.39	2.1	1.9
4169	10	339	0.003	0.013	S612MNH0201XX	S611MNH0210XX	-1.98	-2.88	5.33	5.87	-1.44	-2.47	0.54	0.41	0.57	0.84	2.1	2.3
3915	10	298	0.003	0.013	S612MNH0202XX	S612MNH0201XX	-1.08	-1.98	5.76	5.33	-0.60	-1.29	0.48	0.69	0.70	0.76	2.2	2.3
3864	10	294	0.008	0.013	S612MNH0203XX	S612MNH0202XX	1.35	-1.08	5.37	5.76	1.67	-0.47	0.32	0.61	0.56	0.53	3.7	3.1
3427	24	238	0.002	0.013	S613MNH0201XX	S613MNH0203XX	-4.82	-5.35	4.45	3.10	-3.76	-4.02	1.06	1.33	0.60	5.35	3.4	3.4
4608	24	450	0.002	0.013	S613MNH0202XX	S613MNH0201XX	-3.92	-4.82	5.95	4.45	-2.90	-3.73	1.02	1.09	0.53	5.21	3.2	3.2
3319	24	214	0.002	0.013	S613MNH0203XX	S613MNH0208XX	-5.35	-5.72	3.10	3.20	-4.05	-4.26	1.30	1.46	0.69	6.13	3.0	3.2
4047	12	312	0.003	0.013	S613MNH0204XX	S613MNH0203XX	-3.37	-4.44	3.42	3.10	-2.96	-3.98	0.41	0.46	0.44	0.75	2.7	2.4
2375	24	12	0.008	0.013	S613MNH0208XX	S613TEE1001XX	-5.72	-5.82	3.20	2.66	-4.28	-4.28	1.44	1.54	0.74	6.32	6.5	5.8
4584	24	427	0.002	0.013	S613TEE1001XX	S628MNH0207XX	-5.82	-6.49	2.66	2.88	-4.29	-4.58	1.53	1.91	0.86	6.32	2.9	3.1
4069	12	315	0.000	0.013	S614MNH0201XX	S613MNH0204XX	-3.31	-3.37	3.31	3.42	-2.57	-2.95	0.74	0.42	0.58	0.75	0.6	1.0
3983	12	304	0.005	0.013	S614MNH0202XX	S614MNH0201XX	-1.82	-3.31	3.70	3.31	-1.44	-2.57	0.38	0.74	0.56	0.75	3.2	2.8
3924	12	299	0.003	0.013	S614MNH0203XX	S614MNH0202XX	-1.07	-1.82	3.53	3.70	-0.69	-1.13	0.38	0.69	0.54	0.56	2.3	2.0
3840	12	290	0.002	0.013	S614MNH0204XX	S586MNH0209XX	-0.22	-0.90	3.65	3.61	0.12	-0.54	0.34	0.36	0.35	0.43	2.2	1.8
4627	21	471	0.002	0.013	S615MNH0201XX	S615MNH0202XX	-1.16	-1.88	5.25	4.85	-0.67	-1.12	0.49	0.76	0.36	1.08	2.6	1.9
3850	21	293	0.002	0.013	S615MNH0202XX	S615MNH0210XX	-1.88	-2.40	4.85	4.80	-1.12	-1.15	0.76	1.25	0.58	1.08	2.8	2.0
2690	21	62	0.000	0.013	S615MNH0203XX	S615MNH0204XX	-5.20	-5.20	5.00	4.88	-1.20	-1.21	4.00	3.99	SURCHARGED	1.64	0.1	0.7
4620	39	458	0.002	0.013	S615MNH0204XX	S627MNH0202XX	-5.92	-6.69	4.88	10.90	-1.42	-2.20	4.50	4.49	SURCHARGED	34.01	4.1	4.1
3857	39	294	0.002	0.013	S615MNH0206XX	S615MNH0204XX	-5.37	-5.92	2.00	4.88	-0.94	-1.40	4.43	4.52	SURCHARGED	32.37	4.3	3.9
3619	12	262	0.003	0.013	S615MNH0207XX	S615MNH0210XX	-2.30	-3.00	2.20	4.80	-1.11	-1.14	1.19	1.86	SURCHARGED	0.43	2.3	0.5
3671	12	267	0.003	0.013	S615MNH0208XX	S615MNH0207XX	-1.57	-2.30	2.70	2.20	-1.06	-1.11	0.51	1.19	0.85	0.43	2.4	1.9
3087	21	160	0.011	0.013	S615MNH0210XX	S615MNH0203XX	-3.38	-5.20	4.80	5.00	-1.15	-1.16	2.23	4.04	SURCHARGED	1.50	7.0	0.6

Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C2 - MPSP Evaluation Pipe Results - PWWF

Pipe ID	Pipe Diameter	Length	Slope	Pipe Roughness	Upstream Node	Downstream Node	Invert Elevation		Ground / Rim Elevation		HGL Elevation		Flow Depth		Depth to Diameter	Peak Flow	Half Full Velocity ¹	Velocity ²
							Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream				
							(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)				
	(in)	(ft)	(ft/ft)	(Mannings n)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(d/D)	(cfs)	(ft/s)	(ft/s)
4694	39	709	0.001	0.013	S627MNH0201XX	S628MNH0206XX	-7.54	-8.36	3.60	3.43	-3.52	-4.72	4.02	3.64	SURCHARGED	34.01	3.4	4.1
4697	39	757	0.001	0.013	S627MNH0202XX	S627MNH0201XX	-6.69	-7.54	10.90	3.60	-2.22	-3.50	4.47	4.04	SURCHARGED	34.01	3.3	4.1
2783	10	85	0.005	0.013	S628MNH0201XX	S628MNH0209XX	-5.87	-6.31	3.70	4.02	-5.19	-5.20	0.68	1.11	SURCHARGED	0.23	2.9	2.1
3029	10	146	0.006	0.013	S628MNH0205XX	S628MNH0201XX	-4.54	-5.46	5.25	3.70	-4.33	-5.19	0.21	0.27	0.29	0.23	3.2	2.2
3395	39	231	0.001	0.013	S628MNH0206XX	S628MNH0209XX	-8.36	-8.59	3.43	4.02	-4.87	-5.41	3.49	3.18	SURCHARGED	40.33	3.1	4.9
2537	24	36	0.006	0.013	S628MNH0207XX	S628MNH0206XX	-6.49	-6.71	2.88	3.43	-4.58	-4.61	1.91	2.10	SURCHARGED	6.32	5.7	5.2
2578	39	43	0.008	0.013	S628MNH0209XX	S628MNH0210XX	-8.59	-8.94	4.02	4.30	-5.45	-5.54	3.14	3.40	SURCHARGED	40.56	9.0	9.2
2479	48	27	0.003	0.013	S628MNH0210XX	S628MNH0211XX	-8.94	-9.01	4.30	4.40	-5.57	-5.59	3.37	3.42	0.85	40.56	5.9	6.0
4637	48	487	0.001	0.013	S628MNH0211XX	S628MNH0212XX	-9.01	-9.46	4.40	3.70	-5.60	-5.95	3.41	3.51	0.87	40.56	3.5	4.0
3683	48	268	0.001	0.013	S628MNH0212XX	S629MNH0213XX	-9.46	-9.71	3.70	3.30	-5.97	-6.16	3.49	3.55	0.88	40.56	3.5	4.0
4295	10	346	0.006	0.013	S628MNH0213XX	S628TEE1001XX	-2.13	-4.13	5.10	5.18	-1.93	-3.93	0.20	0.20	0.24	0.21	3.1	2.1
2442	10	21	0.006	0.013	S628TEE1001XX	S629MNH0205XX	-4.13	-4.25	5.18	5.25	-3.93	-4.05	0.20	0.20	0.24	0.21	3.1	2.1
2391	10	14	0.001	0.013	S629MNH0201XX	S629MNH0210XX	-1.47	-1.49	3.99	4.05	-1.22	-1.25	0.25	0.24	0.29	0.16	1.5	1.2
4496	10	389	0.004	0.013	S629MNH0201XX	S629MNH0209XX	-1.16	-2.57	3.99	5.60	-1.16	-2.50	0.00	0.07	0.04	0.00	2.4	0.0
2804	10	92	0.012	0.013	S629MNH0202XX	S629MNH0201XX	-0.40	-1.47	4.50	3.99	-0.23	-1.22	0.17	0.25	0.26	0.16	4.3	2.5
3203	10	187	0.004	0.013	S629MNH0203XX	S629MNH0202XX	0.34	-0.40	5.26	4.50	0.53	-0.21	0.19	0.19	0.23	0.16	2.5	1.7
2453	48	22	0.001	0.013	S629MNH0204XX	S629MNH0214XX	-10.71	-10.73	4.70	5.30	-7.65	-7.67	3.06	3.06	0.77	40.56	3.5	4.0
2582	30	49	0.000	0.013	S629MNH0205XX	S629MNH0204XX	-10.69	-10.71	4.60	4.70	-7.00	-7.12	3.69	3.59	SURCHARGED	20.28	1.7	0.0
2581	30	49	0.000	0.013	S629MNH0205XX	S629MNH0204XX	-10.69	-10.71	4.60	4.70	-7.27	-7.39	3.42	3.32	SURCHARGED	20.28	1.7	4.1
4384	10	360	0.006	0.013	S629MNH0208XX	S629MNH0218XX	-3.93	-6.00	4.50	3.10	-3.81	-5.88	0.12	0.12	0.14	0.07	3.1	1.5
4487	10	385	0.004	0.013	S629MNH0209XX	S629MNH0208XX	-2.57	-3.93	5.60	4.50	-2.50	-3.77	0.07	0.16	0.14	0.02	2.4	0.9
4431	10	371	0.002	0.013	S629MNH0210XX	S628MNH0213XX	-1.49	-2.13	4.05	5.10	-1.25	-1.85	0.24	0.28	0.31	0.16	1.7	1.3
4696	48	752	0.001	0.013	S629MNH0211XX	S629MNH0224XX	-10.04	-10.67	4.10	3.40	-6.48	-6.99	3.56	3.68	0.91	40.56	3.3	3.8
3155	48	175	0.001	0.013	S629MNH0212XX	S629MNH0211XX	-9.87	-10.04	3.40	4.10	-6.33	-6.45	3.54	3.59	0.89	40.56	3.6	4.0
3196	48	186	0.001	0.013	S629MNH0213XX	S629MNH0212XX	-9.71	-9.87	3.30	3.40	-6.18	-6.31	3.53	3.56	0.89	40.56	3.4	3.8
4538	48	402	0.001	0.013	S629MNH0214XX	S652MNH0215XX	-10.73	-11.08	5.30	7.10	-7.75	-8.17	2.98	2.91	0.74	40.56	3.4	3.8
2532	33	36	0.003	0.013	S629MNH0216XX	S629MNH0218XX	-8.99	-9.10	3.06	3.10	-7.52	-7.54	1.47	1.56	0.55	10.38	4.9	0.0
2924	33	127	0.003	0.013	S629MNH0216XX	S629MNH0217XX	-8.99	-9.31	3.06	3.88	-7.68	-7.80	1.31	1.51	0.51	10.38	4.5	4.2
4651	42	517	0.004	0.013	S629MNH0217XX	S652MNH0225XX	-9.31	-11.36	3.88	8.62	-7.91	-8.50	1.40	2.86	0.61	20.86	6.6	5.9
2796	33	91	0.002	0.013	S629MNH0218XX	S629MNH0217XX	-9.10	-9.31	3.10	3.88	-7.72	-7.80	1.38	1.51	0.53	10.48	4.3	4.1
3182	10	182	0.004	0.013	S629MNH0223XX	S629MNH0203XX	1.07	0.34	4.82	5.26	1.25	0.56	0.18	0.22	0.24	0.15	2.6	1.7
2454	48	22	0.001	0.013	S629MNH0224XX	S629MNH0205XX	-10.67	-10.69	3.40	4.60	-7.09	-7.11	3.58	3.58	0.90	40.56	3.5	4.0
3313	10	213	0.003	0.013	S630MNH0201XX	S630MNH0204XX	-4.55	-5.21	4.70	3.70	-3.76	-3.80	0.79	1.41	SURCHARGED	0.30	2.2	1.9
2978	24	135	0.004	0.013	S630MNH0202XX	S630MNH0210XX	-7.43	-7.94	5.10	5.00	-4.92	-5.44	2.51	2.50	SURCHARGED	13.99	4.4	4.5
3246	24	199	0.000	0.013	S630MNH0203XX	S630MNH0202XX	-7.37	-7.43	3.72	5.10	-4.13	-4.89	3.24	2.54	SURCHARGED	13.99	1.3	4.5
3129	10	169	0.004	0.013	S630MNH0204XX	S630MNH0203XX	-5.21	-5.87	3.70	3.72	-3.80	-3.83	1.41	2.04	SURCHARGED	0.30	2.5	0.5
3231	24	195	0.006	0.013	S630MNH0205XX	S630MNH0203XX	-6.17	-7.37	5.59	3.72	-3.39	-4.10	2.78	3.27	SURCHARGED	13.69	5.7	4.4
4604	42	444	0.004	0.013	S630MNH0209XX	S629MNH0216XX	-7.31	-8.92	5.52	3.06	-5.90	-7.52	1.41	1.40	0.40	20.76	6.3	5.7
3599	24	260	0.003	0.013	S630MNH0210XX	S652MNH0209XX	-7.94	-8.69	5.00	2.69	-5.48	-6.47	2.46	2.22	SURCHARGED	13.99	3.9	4.5
3795	10	282	0.003	0.013	S630MNH0211XX	S630MNH0201XX	-3.70	-4.55	4.00	4.70	-3.44	-3.67	0.26	0.88	0.68	0.26	2.2	1.8
2397	10	15	0.005	0.013	S630MNH0212XX	S630MNH0211XX	-3.63	-3.70	4.00	4.00	-3.11	-3.11	0.52	0.59	0.66	0.21	2.8	1.9
3608	10	261	0.003	0.013	S630MNH0213XX	S630MNH0212XX	-2.87	-3.63	5.52	4.00	-2.65	-3.06	0.22	0.57	0.47	0.17	2.2	1.6
2633	10	54	0.121	0.013	S630TEE1001XX	S630MNH0210XX	0.00	-6.54	5.01	5.00	0.00	-5.22	0.00	1.32	0.79	0.00	14.0	0.0
3807	18	284	0.000	0.013	S631MNH0201XX	S631MNH0208XX	-3.10	-3.24	6.00	5.20	1.58	0.87	4.68	4.11	SURCHARGED	5.26	1.3	3.0
2914	18	121	0.001	0.013	S631MNH0202XX	S631MNH0201XX	-3.02	-3.10	6.48	6.00	1.98	1.70	5.00	4.80	SURCHARGED	5.01	1.5	2.8
3171	18	179	0.006	0.013	S631MNH0203XX	S631MNH0202XX	-1.94	-3.02	7.84	6.48	2.36	2.01	4.30	5.03	SURCHARGED	4.67	4.6	2.7
3674	12	277	0.002	0.013	S631MNH0206XX	S631MNH0207XX	1.34	0.73	7.38	7.30	2.73	2.71	1.39	1.98	SURCHARGED	0.27	2.1	0.3
3831	12	293	0.002	0.013	S631MNH0207XX	S631MNH0210XX	0.73	0.09	7.30	8.22	2.71	2.70	1.98	2.61	SURCHARGED	0.27	2.1	0.3
4641	18	497	0.001	0.013	S631MNH0208XX	S650MNH0207XX	-3.24	-3.67	5.20	8.30	0.84	-0.41	4.08	3.26	SURCHARGED	5.26	1.8	3.0
3966	12	302	0.002	0.013	S631MNH0209XX	S631MNH0202XX	-0.57	-1.23	8.50	6.48	2.66	2.63	3.23	3.86	SURCHARGED	0.34	2.1	0.4
4007	12	307	0.002	0.013	S631MNH0210XX	S631MNH0209XX	0.09	-0.57	8.22	8.50	2.69	2.67	2.60	3.24	SURCHARGED	0.31	2.1	0.4
4108	27	320	0.001	0.013	S648MNH0201XX	S649MNH0206XX	0.08	-0.24	9.50	8.90	0.90	0.58	0.82	0.82	0.37	2.78	2.5	2.1
4107	27	320	0.001	0.013	S648MNH0202XX	S648MNH0201XX	0.40	0.08	10.20	9.50	1.22	0.90	0.82	0.82	0.37	2.78	2.5	2.1
4494	27	387	0.001	0.013	S649MNH0201XX	S650MNH0201XX	-1.13	-1.52	7.90	8.10	-0.31	-0.71	0.82	0.81	0.36	2.78	2.5	2.1
3534	27	253	0.001	0.013	S649MNH0204XX	S649MNH0201XX	-0.88	-1.13	7.90	7.90	-0.06	-0.31	0.82	0.82	0.37	2.78	2.5	2.1

Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C2 - MPSP Evaluation Pipe Results - PWWF

Pipe ID	Pipe Diameter	Length	Slope	Pipe Roughness	Upstream Node	Downstream Node	Invert Elevation		Ground / Rim Elevation		HGL Elevation		Flow Depth		Depth to Diameter	Peak Flow	Half Full Velocity ¹	Velocity ²
							Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream				
							(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)				
	(in)	(ft)	(ft/ft)	(Mannings n)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(d/D)	(cfs)	(ft/s)	(ft/s)	
4116	27	321	0.001	0.013	S649MNH0205XX	S649MNH0204XX	-0.56	-0.88	7.90	7.90	0.26	-0.05	0.82	0.83	0.37	2.78	2.5	2.1
4104	27	320	0.001	0.013	S649MNH0206XX	S649MNH0205XX	-0.24	-0.56	8.90	7.90	0.58	0.26	0.82	0.82	0.37	2.78	2.5	2.1
3781	27	280	0.001	0.013	S650MNH0201XX	S650MNH0202XX	-1.52	-1.80	8.10	7.00	-0.71	-1.23	0.81	0.57	0.31	2.78	2.5	2.1
2421	27	18	0.032	0.013	S650MNH0202XX	S650MNH0205XX	-1.80	-2.38	7.00	7.00	-1.24	-1.59	0.56	0.79	0.30	2.78	14.0	7.3
4680	36	629	0.000	0.013	S650MNH0203XX	S650MNH0210XX	-5.71	-5.96	3.87	4.13	-4.82	-5.42	0.89	0.54	0.24	2.78	1.9	1.5
3146	36	173	0.019	0.013	S650MNH0204XX	S650MNH0203XX	-2.45	-5.71	3.45	3.87	-1.93	-4.81	0.52	0.90	0.24	2.78	13.0	5.8
2835	27	99	0.001	0.013	S650MNH0205XX	S650MNH0204XX	-2.38	-2.45	7.00	3.45	-1.60	-1.89	0.78	0.56	0.30	2.78	2.1	1.9
4597	18	448	0.002	0.013	S650MNH0206XX	S650MNH0209XX	-3.89	-4.65	8.60	6.40	-1.99	-3.12	1.90	1.53	SURCHARGED	5.27	2.5	3.0
2714	18	67	0.003	0.013	S650MNH0207XX	S650MNH0206XX	-3.67	-3.89	8.30	8.60	-0.43	-0.60	3.24	3.29		SURCHARGED	5.26	3.4
4618	18	455	0.002	0.013	S650MNH0209XX	S651MNH0201XX	-4.65	-5.41	6.40	4.50	-3.14	-4.32	1.51	1.09	0.87	5.27	2.4	3.0
2959	36	131	0.005	0.013	S650MNH0210XX	S650MNH0211XX	-5.96	-6.67	4.13	3.90	-5.43	-6.13	0.53	0.54	0.18	2.87	7.0	3.8
4661	36	538	0.005	0.013	S650MNH0211XX	S651MNH0202XX	-6.67	-9.58	3.90	9.72	-6.14	-7.99	0.53	1.59	0.35	2.91	6.9	3.8
2378	33	13	0.141	0.013	S650MNH0215XX	S650MNH0204XX	-0.65	-2.45	6.94	3.45	-0.65	-1.91	0.00	0.54	0.10	0.00	33.4	0.0
2362	18	11	0.062	0.013	S650TEE1001XX	S650MNH0215XX	0.00	-0.65	5.62	6.94	0.00	-0.65	0.00	0.00	0.00	0.00	14.8	0.0
4602	18	444	0.003	0.013	S651MNH0201XX	S651MNH0203XX	-5.41	-6.93	4.50	10.92	-4.34	-6.05	1.07	0.88	0.65	5.27	3.5	3.9
2505	36	30	0.001	0.013	S651MNH0202XX	S651MNH0203XX	-9.58	-9.61	9.72	10.92	-8.03	-8.03	1.55	1.58	0.52	2.95	3.0	2.1
4630	36	478	0.001	0.013	S651MNH0203XX	S651MNH0205XX	-9.61	-10.03	10.92	8.47	-8.03	-8.21	1.58	1.82	0.57	8.22	2.8	2.7
3014	36	143	0.001	0.013	S651MNH0205XX	S651MNH0211XX	-9.60	-9.77	8.47	9.00	-8.26	-8.36	1.34	1.41	0.46	8.22	3.3	3.0
2883	33	111	0.001	0.013	S651MNH0208XX	S651MNH0210XX	-10.16	-10.27	1.59	1.22	-8.66	-8.73	1.50	1.54	0.55	8.22	2.8	2.8
4375	18	358	0.001	0.013	S651MNH0209XX	S652MNH0207XX	-6.03	-6.44	4.18	5.63	-6.03	-6.44	0.00	0.00	0.00	0.00	2.0	0.0
3360	33	221	0.001	0.013	S651MNH0210XX	S652MNH0208XX	-10.27	-10.55	1.22	3.20	-8.74	-8.85	1.53	1.70	0.59	8.22	3.2	3.1
2350	18	8	0.012	0.013	S651MNH0211XX	00_S651MNH0211XX	-5.34	-5.44	9.00	10.76	-5.34	-5.44	0.00	0.00	0.00	0.00	6.6	0.0
4467	33	376	0.001	0.013	S651MNH0211XX	S651MNH0208XX	-9.77	-10.16	9.00	1.59	-8.36	-8.65	1.41	1.51	0.53	8.22	2.9	2.8
2713	48	72	0.011	0.013	S652MNH0202XX	S652MNH0211XX	-14.10	-14.90	6.16	5.81	-13.01	-13.57	1.09	1.33	0.30	13.99	12.0	7.5
2562	48	40	0.004	0.013	S652MNH0203XX	S652MNH0214XX	-11.45	-11.61	7.80	9.74	-9.55	-9.73	1.90	1.88	0.47	40.56	7.2	7.0
2637	39	55	0.004	0.013	S652MNH0204XX	S652MNH0214XX	-11.54	-11.78	6.85	9.74	-9.84	-10.09	1.70	1.69	0.52	29.08	6.6	6.7
2356	33	10	0.064	0.013	S652MNH0205XX	S652MNH0204XX	-10.90	-11.54	6.68	6.85	-9.11	-9.52	1.79	2.02	0.69	29.08	22.5	18.0
2716	24	68	0.020	0.013	S652MNH0207XX	S652MNH0202XX	-10.15	-11.50	5.63	6.16	-8.80	-10.54	1.35	0.96	0.58	13.99	10.2	9.8
2569	33	45	0.003	0.013	S652MNH0208XX	S652MNH0225XX	-10.55	-10.70	3.20	8.62	-8.86	-8.87	1.69	1.83	0.64	8.22	5.1	4.4
4198	24	362	0.002	0.013	S652MNH0209XX	S652MNH0207XX	-8.69	-9.50	2.69	5.63	-6.52	-8.15	2.17	1.35	0.88	13.99	3.4	4.5
4728	48	14	0.000	0.013	S652MNH0211XX	WPCP	-14.90	-14.90	5.81	0.00	-13.65	-13.81	1.25	1.09	0.29	13.99	0.1	1.1
2618	48	51	0.016	0.013	S652MNH0214XX	S652MNH0212XX	-14.10	-14.90	9.74	5.89	-11.58	-11.88	2.52	3.02	0.69	69.64	14.3	13.4
2459	48	24	0.015	0.013	S652MNH0215XX	S652MNH0203XX	-11.08	-11.45	7.10	7.80	-6.82	-6.82	4.26	4.63	SURCHARGED	20.28	14.1	0.0
2458	48	25	0.015	0.013	S652MNH0215XX	S652MNH0203XX	-11.08	-11.45	7.10	7.80	-8.19	-8.19	2.89	3.26		SURCHARGED	20.28	14.0
2443	33	21	0.010	0.013	S652MNH0225XX	S652MNH0205XX	-10.70	-10.90	8.62	6.68	-8.91	-8.72	1.79	2.18	0.72	29.08	8.8	9.0
4105	27	320	0.001	0.013	S673MNH0201XX	S648MNH0202XX	0.72	0.40	10.80	10.20	1.54	1.22	0.82	0.82	0.37	2.78	2.5	2.1
4531	21	400	0.002	0.013	S673MNH0202XX	S673MNH0201XX	2.12	1.32	12.00	10.80	2.88	1.92	0.76	0.60	0.39	2.78	3.0	2.8
4529	21	400	0.002	0.013	S674MNH0201XX	S673MNH0202XX	2.92	2.12	12.30	12.00	3.68	2.89	0.76	0.77	0.44	2.78	3.0	2.8
4439	21	370	0.002	0.013	S674MNH0202XX	S674MNH0201XX	3.56	2.92	12.60	12.30	4.07	3.71	0.51	0.79	0.37	1.22	2.7	2.1
4727	48	14	0.000	0.013	S652MNH0212XX	WPCP	-14.90	-14.90	5.89	0.00	-12.10	-12.38	2.80	2.52	0.67	69.64	0.1	5.5

Notes:

1. Half full velocity is determined per Manning's equation assuming no backwater conditions downstream.
2. Velocity as indicated by the model at the specified d/D.

Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C3 - MPSP Improvement Node Results - PWWF

Node ID	Ground/Rim Elevation	Invert Elevation	Structure Depth	Wastewater Loading	Hydraulic Grade Line	Flow Depth	System Flow
	(ft)	(ft)	(ft)	(cfs)	(ft)	(ft)	(cfs)
00_S651MNH0211XX	10.76	-5.75	16.51	0.00	-5.75	0.00	0.00
MH1_MoffetRealign	16.70	4.40	12.30	0.00	4.62	0.22	0.18
MH2_MoffetRealign	16.10	3.99	12.11	0.03	4.21	0.22	0.21
MH3_MoffetRealign	14.95	2.98	11.97	0.18	3.28	0.30	0.39
MH4_MoffetRealign	15.30	2.55	12.75	0.03	2.86	0.31	0.41
MH5_MoffetRealign	13.40	1.99	11.41	0.00	2.36	0.37	0.41
S529MNH0207XX	28.30	13.00	15.30	2.41	13.69	0.69	2.41
S529MNH0208XX	24.30	12.13	12.17	0.02	12.82	0.69	2.42
S549MNH0201XX	14.40	1.51	12.89	4.33	2.32	0.81	4.33
S549MNH0203XX	12.22	3.79	8.43	0.00	3.88	0.09	0.03
S549MNH0217XX	12.22	4.67	7.55	0.03	4.76	0.09	0.03
S550MNH0201XX	16.49	1.59	14.90	0.20	3.71	2.12	15.46
S550MNH0202XX	17.27	10.07	7.20	0.00	11.34	1.27	15.02
S550MNH0203XX	18.30	6.40	11.90	0.00	7.88	1.48	13.32
S550MNH0204XX	18.40	6.66	11.74	0.00	8.16	1.50	13.32
S550MNH0205XX	18.25	4.60	13.65	0.00	4.88	0.28	0.14
S550MNH0207XX	20.00	11.04	8.96	15.02	12.69	1.65	15.02
S550MNH0210XX	20.80	9.39	11.41	13.32	10.66	1.27	13.32
S550MNH0217XX	14.80	6.42	8.38	0.00	6.55	0.13	0.06
S550MNH0218XX	15.45	5.46	9.99	0.00	5.60	0.14	0.06
S550MNH0220XX	16.40	5.18	11.22	0.00	6.65	1.47	13.32
S550MNH0221XX	17.32	3.65	13.67	0.11	3.89	0.24	0.24
S550MNH0222XX	13.90	7.31	6.59	0.06	7.44	0.13	0.06
S550MNH0223XX	17.92	10.62	7.30	0.00	12.24	1.62	15.02
S550MNH0225XX	16.80	1.60	15.20	0.00	3.70	2.10	15.46
S550MNH0226XX	17.72	4.31	13.41	0.00	4.48	0.17	0.14
S551MNH0203XX	21.50	7.70	13.80	0.00	7.84	0.14	0.08
S551MNH0204XX	22.25	6.62	15.63	0.00	6.75	0.13	0.08
S551MNH0205XX	20.20	5.66	14.54	0.00	5.80	0.14	0.08
S552MNH0201XX	20.19	9.14	11.05	0.01	9.83	0.69	2.60
S552MNH0202XX	21.70	9.80	11.90	0.05	10.52	0.72	2.59
S552MNH0203XX	25.50	10.84	14.66	0.09	11.56	0.72	2.55
S552MNH0204XX	25.40	11.13	14.27	0.03	11.90	0.77	2.46
S552MNH0206XX	24.00	9.32	14.68	0.00	9.32	0.00	0.00
S552MNH0207XX	23.40	8.90	14.50	0.08	9.03	0.13	0.08
S552MNH0208XX	22.00	13.92	8.08	0.00	13.92	0.00	0.00
S552MNH0209XX	20.00	11.22	8.78	0.30	11.46	0.24	0.30
S552MNH0211XX	23.18	10.28	12.90	0.00	10.99	0.71	2.55
S552MNH0212XX	23.40	10.56	12.84	0.00	11.28	0.72	2.55
S569MNH0204XX	19.04	7.50	11.54	0.77	8.43	0.93	3.37
S569MNH0205XX	18.20	7.10	11.10	0.05	7.35	0.25	0.38
S569MNH0206XX	18.40	8.50	9.90	0.03	8.74	0.24	0.33
S569MNH0209XX	14.50	4.11	10.39	0.00	5.17	1.06	3.82
S569MNH0210XX	15.30	4.50	10.80	0.00	5.56	1.06	3.82
S569MNH0211XX	17.23	4.95	12.28	0.07	6.01	1.06	3.82
S569MNH0212XX	18.00	5.70	12.30	0.00	6.60	0.90	3.75



Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
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Node ID	Ground/Rim Elevation	Invert Elevation	Structure Depth	Wastewater Loading	Hydraulic Grade Line	Flow Depth	System Flow
	(ft)	(ft)	(ft)	(cfs)	(ft)	(ft)	(cfs)
S570MNH0201XX	13.30	4.12	9.18	0.15	4.33	0.21	0.15
S570MNH0202XX	14.55	5.95	8.60	0.14	6.18	0.23	0.17
S570MNH0203XX	15.10	6.60	8.50	0.03	6.70	0.10	0.03
S570MNH0204XX	15.90	4.45	11.45	0.01	4.70	0.25	0.18
S571MNH0205XX	11.74	3.94	7.80	0.13	4.11	0.17	0.13
S571MNH0207XX	12.90	3.92	8.98	0.00	5.39	1.47	13.32
S571MNH0208XX	11.55	2.20	9.35	0.12	2.50	0.30	0.41
S571MNH0209XX	12.44	3.06	9.38	0.16	3.32	0.26	0.29
S571MNH0211XX	12.23	0.88	11.35	0.03	2.17	1.29	15.90
S571MNH0212XX	13.73	1.78	11.95	0.00	3.27	1.49	15.46
S571MNH0216XX	10.72	-0.20	10.92	0.00	1.05	1.25	16.31
S571MNH0219XX	12.08	2.66	9.42	0.00	4.12	1.46	13.32
S572MNH0201XX	10.22	2.83	7.39	0.00	2.91	0.08	0.03
S572MNH0202XX	9.10	4.43	4.67	0.18	4.63	0.20	0.18
S572MNH0203XX	12.40	6.40	6.00	0.00	6.40	0.00	0.00
S572MNH0204XX	13.30	5.50	7.80	0.00	5.50	0.00	0.00
S572MNH0206XX	8.40	3.81	4.59	0.00	4.01	0.20	0.18
S572MNH0207XX	11.15	6.29	4.86	0.00	6.29	0.00	0.00
S573MNH0201XX	10.00	-0.51	10.51	0.01	0.30	0.81	4.41
S573MNH0202XX	9.00	-0.07	9.07	0.01	1.16	1.23	4.37
S573MNH0203XX	10.10	-1.30	11.40	0.00	-0.30	1.00	4.70
S573MNH0204XX	9.62	1.43	8.19	0.00	1.54	0.11	0.06
S573MNH0210XX	7.38	3.07	4.31	0.10	3.23	0.16	0.10
S573MNH0211XX	6.93	2.72	4.21	0.08	2.94	0.22	0.19
S573MNH0212XX	9.97	0.70	9.27	0.00	1.53	0.83	4.36
S573MNH0213XX	8.25	-0.21	8.46	0.02	0.97	1.18	4.40
S573TEE1001XX	10.63	0.00	10.63	0.23	0.53	0.53	0.23
S574MNH0202XX	7.04	2.90	4.14	0.12	3.07	0.17	0.12
S575MNH0203XX	6.26	1.25	5.01	0.68	1.66	0.41	0.68
S575MNH0206XX	6.55	1.45	5.10	0.09	1.59	0.14	0.09
S586MNH0201XX	4.45	-0.83	5.28	0.00	-0.35	0.48	1.00
S586MNH0202XX	4.60	-0.27	4.87	0.00	0.20	0.47	1.00
S586MNH0204XX	5.70	0.32	5.38	0.00	0.87	0.55	1.00
S586MNH0205XX	6.40	0.72	5.68	0.23	1.20	0.48	1.00
S586MNH0209XX	3.61	-0.90	4.51	0.00	-0.56	0.34	0.43
S586TEE1003XX	6.44	0.00	6.44	0.00	0.36	0.36	1.00
S587MNH0201XX	4.25	-0.34	4.59	0.04	0.01	0.35	0.46
S587MNH0202XX	5.17	0.44	4.73	0.11	0.77	0.33	0.41
S587MNH0206XX	4.35	0.55	3.80	0.03	0.87	0.32	0.38
S587MNH0207XX	5.22	1.34	3.88	0.17	1.64	0.30	0.35
S587MNH0208XX	6.39	2.12	4.27	0.06	2.33	0.21	0.18
S588MNH0201XX	7.25	-3.02	10.27	0.39	-2.01	1.01	5.09
S588MNH0202XX	8.80	-1.87	10.67	0.00	-0.83	1.04	4.70
S588MNH0203XX	6.14	1.22	4.92	0.00	1.50	0.28	0.30
S588MNH0204XX	5.98	1.97	4.01	0.12	2.25	0.28	0.30
S589MNH0202XX	8.90	1.46	7.44	0.08	1.73	0.27	0.24



Moffett Park Specific Plan - Wastewater Master Plan
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Node ID	Ground/Rim Elevation	Invert Elevation	Structure Depth	Wastewater Loading	Hydraulic Grade Line	Flow Depth	System Flow
	(ft)	(ft)	(ft)	(cfs)	(ft)	(ft)	(cfs)
S589MNH0203XX	9.15	2.35	6.80	0.14	2.56	0.21	0.16
S589MNH0204XX	9.25	3.24	6.01	0.04	3.32	0.08	0.02
S589MNH0205XX	9.82	1.85	7.97	0.01	2.01	0.16	0.06
S589MNH0206XX	8.10	2.20	5.90	0.00	2.45	0.25	0.27
S589MNH0207XX	7.50	1.30	6.20	0.09	1.59	0.29	0.36
S589MNH0208XX	8.00	0.77	7.23	0.00	1.06	0.29	0.36
S589MNH0211XX	7.40	3.10	4.30	0.10	3.35	0.25	0.27
S589MNH0214XX	9.60	2.54	7.06	0.03	2.67	0.13	0.05
S590MNH0201XX	8.90	0.59	8.31	0.03	0.82	0.23	0.27
S590MNH0202XX	8.60	0.13	8.47	0.01	1.62	1.49	13.56
S590MNH0203XX	8.80	0.52	8.28	0.05	2.00	1.48	13.55
S590MNH0204XX	9.90	1.39	8.51	0.18	2.86	1.47	13.50
S590MNH0213XX	7.90	-0.53	8.43	0.12	-0.15	0.38	0.57
S590MNH0215XX	8.94	-2.25	11.19	0.00	-0.69	1.56	16.31
S590MNH0216XX	8.63	-2.40	11.03	0.00	-1.04	1.36	16.88
S590MNH0217XX	8.06	-4.19	12.25	0.00	-2.37	1.82	17.90
S590MNH0218XX	7.60	-1.13	8.73	0.08	0.38	1.51	13.64
S590MNH0219XX	7.79	-1.91	9.70	0.00	-2.28	-0.37	0.74
S590MNH0220XX	8.02	0.38	7.64	0.09	0.71	0.33	0.45
S591MNH0201XX	10.60	1.39	9.21	0.17	1.81	0.42	0.57
S591MNH0202XX	10.90	2.12	8.78	0.04	2.49	0.37	0.40
S591MNH0203XX	12.10	3.20	8.90	0.21	3.49	0.29	0.36
S592MNH0212XX	14.00	3.87	10.13	0.00	4.93	1.06	3.82
S592MNH0214XX	13.19	3.17	10.02	0.14	4.22	1.05	3.96
S592MNH0215XX	12.80	2.88	9.92	0.45	3.80	0.92	4.41
S592MNH0216XX	12.92	2.52	10.40	0.00	3.44	0.92	4.41
S592MNH0217XX	12.10	2.27	9.83	0.00	3.19	0.92	4.41
S609MNH0206XX	11.33	1.30	10.03	0.19	2.24	0.94	4.60
S609MNH0207XX	10.00	0.47	9.53	0.00	1.43	0.96	4.60
S609MNH0208XX	10.31	0.32	9.99	0.00	1.26	0.94	4.60
S610MNH0203XX	10.60	-0.70	11.30	0.00	0.51	1.21	4.60
S610MNH0204XX	9.00	3.00	6.00	1.83	3.51	0.51	1.83
S610MNH0205XX	9.91	-1.05	10.96	0.09	0.02	1.07	6.51
S610MNH0206XX	8.36	2.00	6.36	0.12	2.19	0.19	0.12
S610MNH0207XX	9.00	0.23	8.77	0.05	0.71	0.48	0.69
S610MNH0208XX	9.40	0.56	8.84	0.06	1.02	0.46	0.64
S610MNH0209XX	10.20	2.23	7.97	0.00	2.25	0.02	0.00
S610MNH0210XX	9.30	1.46	7.84	0.00	1.48	0.02	0.00
S611MNH0201XX	8.20	-0.08	8.28	0.00	0.31	0.39	0.69
S611MNH0202XX	8.20	-0.21	8.41	0.00	0.20	0.41	0.69
S611MNH0203XX	9.20	-0.79	9.99	0.05	-0.47	0.32	0.74
S611MNH0205XX	6.40	-2.40	8.80	0.05	-0.92	1.48	13.69
S611MNH0206XX	5.10	-3.69	8.79	0.00	-1.88	1.81	13.69
S611MNH0207XX	4.20	-4.91	9.11	0.00	-3.43	1.48	13.69
S611MNH0208XX	5.09	-4.19	9.28	0.00	-2.79	1.40	13.69
S611MNH0209XX	7.03	-4.52	11.55	0.07	-3.19	1.33	17.97



Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C3 - MPSP Improvement Node Results - PWWF

Node ID	Ground/Rim Elevation	Invert Elevation	Structure Depth	Wastewater Loading	Hydraulic Grade Line	Flow Depth	System Flow
	(ft)	(ft)	(ft)	(cfs)	(ft)	(ft)	(cfs)
S611MNH0210XX	5.87	-5.91	11.78	0.00	-4.38	1.53	18.81
S611MNH0214XX	5.50	-2.40	7.90	0.08	-2.23	0.17	0.08
S612CLN1001XX	4.37	2.20	2.17	0.39	2.54	0.34	0.39
S612MNH0201XX	5.33	-1.98	7.31	0.09	-1.53	0.45	0.84
S612MNH0202XX	5.76	-1.08	6.84	0.22	-0.65	0.43	0.76
S612MNH0203XX	5.37	1.35	4.02	0.14	1.67	0.32	0.53
S613MNH0201XX	4.45	-4.82	9.27	0.14	-3.80	1.02	5.35
S613MNH0202XX	5.95	-3.92	9.87	0.12	-2.90	1.02	5.21
S613MNH0203XX	3.10	-5.35	8.45	0.03	-4.18	1.17	6.13
S613MNH0204XX	3.42	-3.37	6.79	0.00	-2.96	0.41	0.75
S613MNH0208XX	3.20	-5.72	8.92	0.19	-4.60	1.12	6.32
S613TEE1001XX	2.66	-5.82	8.48	0.00	-4.59	1.23	6.32
S614MNH0201XX	3.31	-3.31	6.62	0.00	-2.57	0.74	0.75
S614MNH0202XX	3.70	-1.82	5.52	0.19	-1.44	0.38	0.75
S614MNH0203XX	3.53	-1.07	4.60	0.10	-0.69	0.38	0.56
S614MNH0204XX	3.65	-0.22	3.87	0.05	0.12	0.34	0.43
S615MNH0201XX	5.25	-1.16	6.41	0.08	-0.67	0.49	1.08
S615MNH0202XX	4.85	-1.88	6.73	0.00	-1.40	0.48	1.08
S615MNH0203XX	5.00	-4.00	9.00	0.14	-3.11	0.89	1.64
S615MNH0204XX	4.88	-5.90	10.78	0.00	-3.29	2.61	34.01
S615MNH0206XX	2.00	-5.37	7.37	32.37	-2.82	2.55	32.37
S615MNH0207XX	2.20	-2.30	4.50	0.00	-1.97	0.33	0.43
S615MNH0208XX	2.70	-1.57	4.27	0.00	-1.24	0.33	0.43
S615MNH0210XX	4.80	-3.38	8.18	0.00	-2.92	0.46	1.50
S627MNH0201XX	3.60	-7.25	10.85	0.00	-4.76	2.49	34.01
S627MNH0202XX	10.90	-6.41	17.31	0.00	-3.91	2.50	34.01
S628MNH0201XX	3.70	-5.87	9.57	0.00	-5.65	0.22	0.23
S628MNH0205XX	5.25	-4.54	9.79	0.02	-4.33	0.21	0.23
S628MNH0206XX	3.43	-8.23	11.66	0.00	-5.67	2.56	40.33
S628MNH0207XX	2.88	-6.49	9.37	0.00	-5.54	0.95	6.32
S628MNH0209XX	4.02	-8.69	12.71	0.00	-6.12	2.57	40.56
S628MNH0210XX	4.30	-8.94	13.24	0.00	-6.13	2.81	40.56
S628MNH0211XX	4.40	-9.01	13.41	0.00	-6.15	2.86	40.56
S628MNH0212XX	3.70	-9.46	13.16	0.00	-6.53	2.93	40.56
S628MNH0213XX	5.10	-2.13	7.23	0.04	-1.93	0.20	0.21
S628TEE1001XX	5.18	-4.13	9.31	0.00	-3.93	0.20	0.21
S629MNH0201XX	3.99	-1.47	5.46	0.00	-1.22	0.25	0.16
S629MNH0202XX	4.50	-0.40	4.90	0.00	-0.23	0.17	0.16
S629MNH0203XX	5.26	0.34	4.92	0.02	0.53	0.19	0.16
S629MNH0204XX	4.70	-10.71	15.41	0.00	-8.04	2.67	40.56
S629MNH0205XX	4.60	-10.69	15.29	0.00	-7.71	2.98	20.28
S629MNH0208XX	4.50	-3.93	8.43	0.05	-3.81	0.12	0.07
S629MNH0209XX	5.60	-2.57	8.17	0.02	-2.50	0.07	0.02
S629MNH0210XX	4.05	-1.49	5.54	0.00	-1.25	0.24	0.16
S629MNH0211XX	4.10	-10.04	14.14	0.00	-7.01	3.03	40.56
S629MNH0212XX	3.40	-9.87	13.27	0.00	-6.88	2.99	40.56



Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C3 - MPSP Improvement Node Results - PWWF

Node ID	Ground/Rim Elevation	Invert Elevation	Structure Depth	Wastewater Loading	Hydraulic Grade Line	Flow Depth	System Flow
	(ft)	(ft)	(ft)	(cfs)	(ft)	(ft)	(cfs)
S629MNH0213XX	3.30	-9.71	13.01	0.00	-6.74	2.97	40.56
S629MNH0214XX	5.30	-10.73	16.03	0.00	-8.14	2.59	40.56
S629MNH0216XX	3.06	-8.99	12.05	0.00	-7.75	1.24	9.46
S629MNH0217XX	3.88	-9.31	13.19	0.00	-7.98	1.33	19.02
S629MNH0218XX	3.10	-9.10	12.20	0.02	-7.79	1.31	9.56
S629MNH0223XX	4.82	1.07	3.75	0.15	1.25	0.18	0.15
S629MNH0224XX	3.40	-10.67	14.07	0.00	-7.54	3.13	40.56
S630MNH0201XX	4.70	-4.72	9.42	0.04	-4.46	0.26	0.30
S630MNH0202XX	5.10	-7.43	12.53	0.00	-5.85	1.58	13.99
S630MNH0203XX	3.72	-6.89	10.61	0.00	-5.27	1.62	13.99
S630MNH0204XX	3.70	-5.36	9.06	0.00	-5.04	0.32	0.30
S630MNH0205XX	5.59	-6.17	11.76	0.00	-4.59	1.58	13.69
S630MNH0209XX	5.52	-7.31	12.83	0.11	-5.97	1.34	18.92
S630MNH0210XX	5.00	-7.99	12.99	0.00	-6.37	1.62	13.99
S630MNH0211XX	4.00	-3.70	7.70	0.05	-3.45	0.25	0.26
S630MNH0212XX	4.00	-3.63	7.63	0.03	-3.27	0.36	0.21
S630MNH0213XX	5.52	-2.87	8.39	0.09	-2.65	0.22	0.17
S630TEE1001XX	5.01	0.00	5.01	0.00	0.00	0.00	0.00
S631MNH0201XX	6.00	-3.21	9.21	0.25	-1.87	1.34	7.10
S631MNH0202XX	6.48	-3.02	9.50	0.00	-1.66	1.36	6.85
S631MNH0203XX	7.84	-2.35	10.19	0.00	-1.27	1.08	6.51
S631MNH0206XX	7.38	1.34	6.04	0.15	1.61	0.27	0.27
S631MNH0207XX	7.30	0.73	6.57	0.00	1.00	0.27	0.27
S631MNH0208XX	5.20	-3.67	8.87	0.00	-2.31	1.36	7.10
S631MNH0209XX	8.50	-0.57	9.07	0.03	-0.26	0.31	0.34
S631MNH0210XX	8.22	0.09	8.13	0.04	0.38	0.29	0.31
S648MNH0201XX	9.50	0.08	9.42	0.00	0.90	0.82	2.78
S648MNH0202XX	10.20	0.40	9.80	0.00	1.22	0.82	2.78
S649MNH0201XX	7.90	-1.13	9.03	0.00	-0.31	0.82	2.78
S649MNH0204XX	7.90	-0.88	8.78	0.00	-0.06	0.82	2.78
S649MNH0205XX	7.90	-0.56	8.46	0.00	0.26	0.82	2.78
S649MNH0206XX	8.90	-0.24	9.14	0.00	0.58	0.82	2.78
S650MNH0201XX	8.10	-1.52	9.62	0.00	-0.71	0.81	2.78
S650MNH0202XX	7.00	-1.80	8.80	0.00	-1.24	0.56	2.78
S650MNH0203XX	3.87	-5.71	9.58	0.00	-4.82	0.89	2.78
S650MNH0204XX	3.45	-2.45	5.90	0.00	-1.93	0.52	2.78
S650MNH0205XX	7.00	-2.38	9.38	0.00	-1.60	0.78	2.78
S650MNH0206XX	8.60	-4.77	13.37	0.01	-3.56	1.21	7.11
S650MNH0207XX	8.30	-4.46	12.76	0.00	-2.98	1.48	7.10
S650MNH0209XX	6.40	-5.49	11.89	0.00	-4.27	1.22	7.11
S650MNH0210XX	4.13	-5.96	10.09	0.09	-5.43	0.53	2.87
S650MNH0211XX	3.90	-6.67	10.57	0.03	-6.14	0.53	2.91
S650MNH0215XX	6.94	-0.65	7.59	0.00	-0.65	0.00	0.00
S650TEE1001XX	5.62	0.00	5.62	0.00	0.00	0.00	0.00
S651MNH0201XX	4.50	-6.22	10.72	0.00	-5.00	1.22	7.11
S651MNH0202XX	9.72	-9.58	19.30	0.04	-7.84	1.74	2.95

Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C3 - MPSP Improvement Node Results - PWWF

Node ID	Ground/Rim Elevation	Invert Elevation	Structure Depth	Wastewater Loading	Hydraulic Grade Line	Flow Depth	System Flow
	(ft)	(ft)	(ft)	(cfs)	(ft)	(ft)	(cfs)
S651MNH0203XX	10.92	-9.61	20.53	0.00	-7.85	1.76	10.06
S651MNH0205XX	8.47	-10.03	18.50	0.00	-8.10	1.93	10.06
S651MNH0208XX	1.59	-10.16	11.75	0.00	-8.57	1.59	10.06
S651MNH0209XX	4.18	-6.03	10.21	0.00	-6.03	0.00	0.00
S651MNH0210XX	1.22	-10.27	11.49	0.00	-8.68	1.59	10.06
S651MNH0211XX	9.00	-9.77	18.77	0.00	-8.22	1.55	10.06
S652MNH0202XX	6.16	-14.10	20.26	0.00	-13.01	1.09	13.99
S652MNH0203XX	7.80	-11.45	19.25	0.00	-9.62	1.83	40.56
S652MNH0204XX	6.85	-11.54	18.39	0.00	-9.84	1.70	29.08
S652MNH0205XX	6.68	-10.90	17.58	0.00	-9.11	1.79	29.08
S652MNH0207XX	5.63	-10.15	15.78	0.00	-8.80	1.35	13.99
S652MNH0208XX	3.20	-10.55	13.75	0.00	-8.86	1.69	10.06
S652MNH0209XX	2.69	-8.69	11.38	0.00	-7.12	1.57	13.99
S652MNH0211XX	5.81	-14.90	20.71	0.00	-13.65	1.25	13.99
S652MNH0212XX	5.89	-14.90	20.79	0.00	-12.21	2.69	69.64
S652MNH0214XX	9.74	-14.10	23.84	0.00	-11.67	2.43	69.64
S652MNH0215XX	7.10	-11.08	18.18	0.00	-8.70	2.38	20.28
S652MNH0225XX	8.62	-11.36	19.98	0.00	-8.91	2.45	29.08
S673MNH0201XX	10.80	0.72	10.08	0.00	1.54	0.82	2.78
S673MNH0202XX	12.00	2.12	9.88	0.00	2.88	0.76	2.78
S674MNH0201XX	12.30	2.92	9.38	1.57	3.68	0.76	2.78
S674MNH0202XX	12.60	3.56	9.04	1.22	4.07	0.51	1.22
NEW-4602	7.72	-6.58	14.30	0.00	-5.38	1.19	7.11
NEW-4618	5.46	-5.85	11.31	0.00	-4.63	1.22	7.11
NEW-4597	7.51	-5.13	12.64	0.00	-3.91	1.22	7.11
NEW-4641	7.06	-4.14	11.20	0.00	-2.73	1.41	7.10
NEW-4640	8.81	-1.74	10.55	0.00	-0.67	1.07	6.51
NEW-4491	10.47	-0.25	10.72	0.00	0.76	1.01	4.60
NEW-4053	10.63	0.86	9.77	0.00	1.80	0.94	4.60
NEW-4450	11.68	1.75	9.93	0.00	2.67	0.93	4.41
NEW-4447	13.55	3.48	10.07	0.00	4.57	1.09	3.82
NEW-4461	19.62	8.52	11.10	0.00	9.15	0.63	2.60
NEW-4388	24.86	11.62	13.24	0.00	12.33	0.71	2.42
NEW-4696	3.75	-10.36	14.11	0.00	-7.25	3.11	40.56
NEW-4637	4.05	-9.23	13.28	0.00	-6.34	2.89	40.56
NEW-4694	3.51	-7.64	11.15	0.00	-5.17	2.47	34.01
NEW-4697	7.25	-6.83	14.08	0.00	-4.34	2.49	34.01
NEW-4620	7.91	-6.16	14.07	0.00	-3.66	2.50	34.01

Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C4 - MPSP Improvement Pipe Results - PWWF

Pipe ID	Pipe Diameter ¹	Length	Slope	Pipe Roughness	Upstream Node	Downstream Node	Invert Elevation		Ground / Rim Elevation		HGL Elevation		Flow Depth		Depth to Diameter	Peak Flow	Half Full Velocity ²	Velocity ³
							Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream				
(in)	(ft)	(ft/ft)	(Mannings n)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(d/D)	(cfs)	(ft/s)	(ft/s)	
4300	18	348	0.001	0.013	00_S651MNH0211XX	S651MNH0209XX	-5.75	-6.03	10.76	4.18	-5.75	-6.03	0.00	0.00	0.00	0.00	1.7	0.0
2991	10	138	0.003	0.013	MH1_MofffetRealign	MH2_MofffetRealign	4.40	3.99	16.70	16.10	4.62	4.45	0.22	0.46	0.41	0.18	2.2	1.6
3678	12	268	0.003	0.013	MH2_MofffetRealign	MH3_MofffetRealign	3.99	3.18	16.10	14.95	4.21	3.81	0.22	0.63	0.42	0.21	2.5	1.6
3017	12	143	0.003	0.013	MH3_MofffetRealign	MH4_MofffetRealign	2.98	2.55	14.95	15.30	3.28	3.10	0.30	0.55	0.43	0.39	2.5	1.9
3193	12	185	0.003	0.013	MH4_MofffetRealign	MH5_MofffetRealign	2.55	1.99	15.30	13.40	2.86	2.37	0.31	0.38	0.35	0.41	2.5	2.0
3130	12	169	0.003	0.013	MH5_MofffetRealign	S571MNH0211XX	1.99	1.48	13.40	12.23	2.36	2.31	0.37	0.83	0.60	0.41	2.5	2.0
4079	18	316	0.003	0.013	S529MNH0207XX	S529MNH0208XX	13.00	12.13	28.30	24.30	13.69	13.29	0.69	1.16	0.62	2.41	3.1	3.0
4388-1	18	179	0.003	0.013	NEW-4388	S552MNH0204XX	11.62	11.13	24.86	25.40	12.33	12.10	0.71	0.97	0.56	2.42	3.1	3.0
4388-2	18	183	0.003	0.013	S529MNH0208XX	NEW-4388	12.13	11.62	24.30	24.86	12.82	12.34	0.69	0.72	0.47	2.42	3.1	3.0
3312	21	212	0.004	0.013	S549MNH0201XX	S573MNH0212XX	1.51	0.70	14.40	9.97	2.32	1.54	0.81	0.84	0.47	4.33	4.1	4.0
4504	10	392	0.002	0.013	S549MNH0203XX	S572MNH0201XX	3.79	2.83	12.22	10.22	3.88	2.91	0.09	0.08	0.10	0.03	2.0	0.9
4436	10	370	0.002	0.013	S549MNH0217XX	S549MNH0203XX	4.67	3.79	12.22	12.22	4.76	3.88	0.09	0.09	0.11	0.03	2.0	0.8
2359	42	10	-0.001	0.013	S550MNH0201XX	S550MNH0225XX	1.59	1.60	16.49	16.80	3.71	3.71	2.12	2.11	0.61	15.46	3.3	1.6
2606	33	48	0.165	0.013	S550MNH0202XX	S550MNH0201XX	10.07	2.09	17.27	16.49	11.34	3.73	1.27	1.64	0.53	15.02	36.2	20.8
4492	27	386	0.003	0.013	S550MNH0203XX	S550MNH0220XX	6.41	5.18	18.30	16.40	7.88	6.67	1.47	1.49	0.66	13.32	4.4	4.8
2736	27	78	0.003	0.013	S550MNH0204XX	S550MNH0203XX	6.66	6.40	18.40	18.30	8.16	7.98	1.50	1.58	0.69	13.32	4.5	4.9
2998	15	138	0.003	0.013	S550MNH0205XX	S550MNH0226XX	4.71	4.31	18.25	17.72	4.88	4.48	0.17	0.17	0.14	0.14	2.8	1.4
3438	33	240	0.002	0.013	S550MNH0207XX	S550MNH0223XX	11.04	10.62	20.00	17.92	12.69	12.25	1.65	1.63	0.60	15.02	3.7	4.0
4552	27	409	0.006	0.013	S550MNH0210XX	S550MNH0204XX	9.39	6.91	20.80	18.40	10.66	8.26	1.27	1.35	0.58	13.32	6.1	6.2
4535	10	400	0.002	0.013	S550MNH0217XX	S550MNH0218XX	6.42	5.46	14.80	15.45	6.55	5.60	0.13	0.14	0.16	0.06	2.0	1.1
4545	10	404	0.002	0.013	S550MNH0218XX	S550MNH0205XX	5.46	4.60	15.45	18.25	5.60	4.88	0.14	0.28	0.25	0.06	1.9	1.0
4511	27	394	0.003	0.013	S550MNH0220XX	S571MNH0207XX	5.18	3.92	16.40	12.90	6.65	5.41	1.47	1.49	0.66	13.32	4.4	4.9
2482	15	27	0.002	0.013	S550MNH0221XX	S550MNH0201XX	3.65	3.60	17.32	16.49	3.89	3.79	0.24	0.19	0.17	0.24	2.3	1.4
4091	10	318	0.003	0.013	S550MNH0222XX	S550MNH0217XX	7.31	6.42	13.90	14.80	7.44	6.55	0.13	0.13	0.16	0.06	2.1	1.1
3964	33	302	0.002	0.013	S550MNH0223XX	S550MNH0202XX	10.62	10.07	17.92	12.24	11.36	1.62	1.29	0.53	15.02	3.8	4.1	
3824	42	287	0.001	0.013	S550MNH0225XX	S571MNH0212XX	2.00	1.78	16.80	13.73	3.70	3.28	1.70	1.50	0.46	15.46	2.9	3.0
3093	15	160	0.003	0.013	S550MNH0226XX	S550MNH0221XX	4.31	3.85	17.72	17.32	4.48	4.08	0.17	0.23	0.16	0.14	2.8	1.4
4622	15	463	0.002	0.013	S551MNH0203XX	S551MNH0204XX	7.70	6.62	21.50	22.25	7.84	6.75	0.14	0.13	0.11	0.08	2.5	1.1
4503	15	393	0.002	0.013	S551MNH0204XX	S551MNH0205XX	6.62	5.66	22.25	20.20	6.75	5.80	0.13	0.14	0.11	0.08	2.6	1.1
4595	15	448	0.002	0.013	S551MNH0205XX	S550MNH0205XX	5.66	4.60	20.20	18.25	5.80	4.88	0.14	0.28	0.17	0.08	2.6	1.1
4461-1	18	188	0.005	0.013	NEW-4461	S569MNH0204XX	8.52	7.50	19.62	19.04	9.15	9.09	0.63	1.59	0.74	2.60	4.4	4.0
4461-2	18	187	0.003	0.013	S552MNH0201XX	NEW-4461	9.14	8.52	20.19	19.62	9.83	9.17	0.69	0.65	0.45	2.60	3.4	3.3
3431	18	239	0.003	0.013	S552MNH0202XX	S552MNH0201XX	9.80	9.14	21.70	20.19	10.52	9.95	0.72	0.81	0.51	2.59	3.1	3.1
2855	18	102	0.003	0.013	S552MNH0203XX	S552MNH0212XX	10.84	10.56	25.50	23.40	11.56	11.29	0.72	0.73	0.48	2.55	3.1	3.1
2860	18	105	0.003	0.013	S552MNH0204XX	S552MNH0203XX	11.13	10.84	25.40	25.50	11.90	11.79	0.77	0.95	0.58	2.46	3.1	3.0
3465	15	245	0.002	0.013	S552MNH0206XX	S552MNH0207XX	9.32	8.90	24.00	23.40	9.32	9.07	0.00	0.17	0.07	0.00	2.2	0.0
4587	15	432	0.003	0.013	S552MNH0207XX	S551MNH0203XX	8.90	7.70	23.40	21.50	9.03	7.84	0.13	0.14	0.11	0.08	2.8	1.1
4613	10	454	0.006	0.013	S552MNH0208XX	S552MNH0209XX	13.92	11.22	22.00	20.00	13.92	11.61	0.00	0.39	0.23	0.00	3.1	0.0
4601	10	444	0.006	0.013	S552MNH0209XX	S569MNH0206XX	11.22	8.56	20.00	18.40	11.46	8.85	0.24	0.29	0.32	0.30	3.1	2.4
3150	18	173	0.003	0.013	S552MNH0211XX	S552MNH0202XX	10.28	9.80	23.18	21.70	10.99	10.63	0.71	0.83	0.52	2.55	3.1	3.1
2850	18	102	0.003	0.013	S552MNH0212XX	S552MNH0211XX	10.56	10.28	23.40	23.18	11.28	11.00	0.72	0.72	0.48	2.55	3.1	3.1
3847	18	291	0.002	0.013	S569MNH0204XX	S569MNH0212XX	7.50	6.90	19.04	18.00	8.43	7.60	0.93	0.70	0.54	3.37	2.7	2.9
2671	12	60	0.008	0.013	S569MNH0205XX	S569MNH0212XX	7.10	6.60	18.20	18.00	7.35	6.83	0.25	0.23	0.24	0.38	4.2	2.8
3133	12	169	0.008	0.013	S569MNH0206XX	S569MNH0205XX	8.50	7.18	18.40	18.20	8.74	8.10	0.24	0.92	0.58	0.33	4.0	2.6
2927	18	124	0.002	0.013	S569MNH0209XX	S592MNH0212XX	4.11	3.87	14.50	14.00	5.17	4.95	1.06	1.08	0.71	3.82	2.6	2.9
3282	18	205	0.002	0.013	S569MNH0210XX	S569MNH0209XX	4.50	4.11	15.30	14.50	5.56	5.19	1.06	1.08	0.71	3.82	2.6	2.9
3423	18	237	0.002	0.013	S569MNH0211XX	S569MNH0210XX	4.95	4.50	17.23	15.30	6.01	5.59	1.06	1.09	0.72	3.82	2.6	2.9
3370	18	228	0.003	0.013	S569MNH0212XX	S569MNH0211XX	5.70	4.95	18.00	17.23	6.60	6.29	0.90	1.34	0.75	3.75	3.4	3.6
4409	10	365	0.003	0.013	S570MNH0201XX	S591MNH0203XX	4.12	3.20	13.30	12.10	4.33	3.63	0.21	0.43	0.38	0.15	2.0	1.4
4373	10	358	0.002	0.013	S570MNH0202XX	S570MNH0204XX	5.95	5.17	14.55	15.90	6.18	5.35	0.23	0.18	0.24	0.17	1.9	1.4
3356	10	225	0.002	0.013	S570MNH0203XX	S570MNH0202XX	6.60	6.05	15.10	14.55	6.70	6.41	0.10	0.36	0.27	0.03	2.0	0.9
2529	10	34	0.001	0.013	S570MNH0204XX	MH1_MofffetRealign	4.45	4.40	15.90	16.70	4.70	4.63	0.25	0.23	0.29	0.18	1.5	1.2
3652	12	265	0.003	0.013	S571MNH0205XX	S571MNH0209XX	3.94	3.06	11.74	12.44	4.11	3.37	0.17	0.31	0.24	0.13	2.6	1.5
4507	27	393	0.003	0.013	S571MNH0207XX	S571MNH0219XX	3.92	2.66	12.90	12.08	5.39	4.14	1.47	1.48	0.66	13.32	4.4	4.9
3833	12	297	0.003	0.013	S571MNH0208XX	S571MNH0216XX	2.20	1.22	11.55	10.72	2.50	1.49	0.30	0.27	0.29	0.41	2.6	2.0
3624	12	263	0.003	0.013	S571MNH0209XX	S571MNH0208XX	3.06	2.20	12.44	11.55	3.32	2.58	0.26	0.38	0.32	0.29	2.6	1.8
4408	42	365	0.003	0.013	S571MNH0211XX	S571MNH0216XX	0.88	-0.20	12.23	10.72	2.17	1.06	1.29	1.26	0.37	15.90	5.7	4.9
4396	42	363	0.002	0.013	S571MNH0212XX	S571MNH0211XX	1.78	1.18	13.73	12.23	3.27	2.38	1.49	1.20	0.38	15.46	4.3	4.0

Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C4 - MPSP Improvement Pipe Results - PWWF

Pipe ID	Pipe Diameter ¹	Length	Slope	Pipe Roughness	Upstream Node	Downstream Node	Invert Elevation		Ground / Rim Elevation		HGL Elevation		Flow Depth		Depth to Diameter	Peak Flow	Half Full Velocity ²	Velocity ³
							Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream				
	(in)	(ft)	(ft/ft)	(Mannings n)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(d/D)	(cfs)	(ft/s)	(ft/s)
4670	42	582	0.004	0.013	S571MNH0216XX	S590MNH0215XX	-0.20	-2.25	10.72	8.94	1.05	-0.68	1.25	1.57	0.40	16.31	6.2	5.3
4513	27	394	0.003	0.013	S571MNH0219XX	S590MNH0204XX	2.66	1.39	12.08	9.90	4.12	2.92	1.46	1.53	0.66	13.32	4.4	4.9
4530	10	400	0.004	0.013	S572MNH0201XX	S573MNH0212XX	2.83	1.07	10.22	9.97	2.91	1.56	0.08	0.49	0.34	0.03	2.7	1.0
3237	12	198	0.003	0.013	S572MNH0202XX	S572MNH0206XX	4.43	3.81	9.10	8.40	4.63	4.01	0.20	0.20	0.20	0.18	2.5	1.6
2550	10	38	0.003	0.013	S572MNH0203XX	S572MNH0207XX	6.40	6.29	12.40	11.15	6.40	6.29	0.00	0.00	0.00	0.00	2.2	0.0
3912	10	298	0.003	0.013	S572MNH0204XX	S549MNH0203XX	5.50	4.62	13.30	12.22	5.50	4.62	0.00	0.00	0.00	0.00	2.2	0.0
3389	12	231	0.003	0.013	S572MNH0206XX	S589MNH0211XX	3.81	3.10	8.40	7.40	4.01	3.42	0.20	0.32	0.26	0.18	2.5	1.6
3628	10	263	0.003	0.013	S572MNH0207XX	S572MNH0204XX	6.29	5.50	11.15	13.30	6.29	5.50	0.00	0.00	0.00	0.00	2.2	0.0
3232	21	196	0.004	0.013	S573MNH0201XX	S573MNH0203XX	-0.51	-1.30	10.00	10.10	0.30	-0.29	0.81	1.01	0.52	4.41	4.2	4.1
3020	21	144	0.001	0.013	S573MNH0202XX	S573MNH0213XX	-0.07	-0.21	9.00	8.25	1.16	1.00	1.23	1.21	0.70	4.37	2.1	2.3
3490	21	247	0.002	0.013	S573MNH0203XX	S588MNH0202XX	-1.30	-1.87	10.10	8.80	-0.30	-0.82	1.00	1.05	0.59	4.70	3.2	3.3
2800	10	90	0.005	0.013	S573MNH0204XX	S573MNH0203XX	1.43	0.99	9.62	10.10	1.54	1.10	0.11	0.11	0.13	0.06	2.8	1.4
2977	12	135	0.003	0.013	S573MNH0210XX	S573MNH0211XX	3.07	2.72	7.38	6.93	3.23	2.94	0.16	0.22	0.19	0.10	2.3	1.3
3883	12	296	0.003	0.013	S573MNH0211XX	S588MNH0204XX	2.72	1.97	6.93	5.98	2.94	2.26	0.22	0.29	0.25	0.19	2.3	1.5
3298	21	209	0.004	0.013	S573MNH0212XX	S573MNH0202XX	0.70	-0.07	9.97	9.00	1.53	1.20	0.83	1.27	0.60	4.36	4.0	3.9
4015	21	308	0.001	0.013	S573MNH0213XX	S573MNH0201XX	-0.21	-0.51	8.25	10.00	0.97	0.42	1.18	0.93	0.61	4.40	2.1	2.3
2694	10	63	-0.003	0.013	S573TEE1001XX	S573MNH0203XX	0.00	0.20	10.63	10.10	0.53	0.41	0.53	0.21	0.45	0.23	2.3	0.4
4017	12	308	0.003	0.013	S574MNH0202XX	S587MNH0208XX	2.90	2.12	7.04	6.39	3.07	2.34	0.17	0.22	0.20	0.12	2.3	1.3
4279	18	345	0.002	0.013	S575MNH0203XX	S586MNH0205XX	1.25	0.72	6.26	6.40	1.66	1.23	0.41	0.51	0.31	0.68	2.3	1.7
3107	10	162	0.004	0.013	S575MNH0206XX	S586MNH0205XX	1.45	0.72	6.55	6.40	1.59	1.22	0.14	0.50	0.39	0.09	2.7	1.5
3340	21	218	0.002	0.013	S586MNH0201XX	S615MNH0201XX	-0.83	-1.16	4.45	5.25	-0.35	-0.63	0.48	0.53	0.29	1.00	2.6	1.9
4275	21	358	0.002	0.013	S586MNH0202XX	S586MNH0201XX	-0.27	-0.83	4.60	4.45	0.20	-0.33	0.47	0.50	0.28	1.00	2.6	1.9
4401	21	369	0.001	0.013	S586MNH0204XX	S586TEE1003XX	0.32	0.00	5.70	6.44	0.87	0.36	0.55	0.36	0.26	1.00	1.9	1.5
3705	21	276	0.001	0.013	S586MNH0205XX	S586MNH0204XX	0.72	0.32	6.40	5.70	1.20	0.87	0.48	0.55	0.30	1.00	2.5	1.9
3715	12	273	0.002	0.013	S586MNH0209XX	S615MNH0208XX	-0.90	-1.57	3.61	2.70	-0.56	-1.24	0.34	0.33	0.33	0.43	2.3	1.9
2515	21	31	0.009	0.013	S586TEE1003XX	S586MNH0202XX	0.00	-0.27	6.44	4.60	0.36	0.21	0.36	0.48	0.24	1.00	6.1	3.5
3891	12	296	0.002	0.013	S587MNH0201XX	S614MNH0203XX	-0.34	-1.07	4.25	3.53	0.01	-0.66	0.35	0.41	0.38	0.46	2.3	1.9
4035	12	310	0.003	0.013	S587MNH0202XX	S587MNH0201XX	0.44	-0.34	5.17	4.25	0.77	0.02	0.33	0.36	0.35	0.41	2.3	1.9
4127	12	323	0.002	0.013	S587MNH0206XX	S614MNH0204XX	0.55	-0.22	4.35	3.65	0.87	0.19	0.32	0.41	0.36	0.38	2.2	1.8
4081	12	316	0.002	0.013	S587MNH0207XX	S587MNH0206XX	1.34	0.55	5.22	4.35	1.64	0.88	0.30	0.33	0.31	0.35	2.3	1.8
3920	12	298	0.003	0.013	S587MNH0208XX	S587MNH0207XX	2.12	1.34	6.39	5.22	2.33	1.65	0.21	0.31	0.26	0.18	2.3	1.5
4617	24	455	0.002	0.013	S588MNH0201XX	S613MNH0202XX	-3.02	-3.92	7.25	5.95	-2.01	-2.86	1.01	1.06	0.52	5.09	3.2	3.2
4611	21	452	0.002	0.013	S588MNH0202XX	S588MNH0201XX	-1.87	-2.77	8.80	7.25	-0.83	-1.97	1.04	0.80	0.53	4.70	2.9	3.2
4024	12	309	0.003	0.013	S588MNH0203XX	S587MNH0202XX	1.22	0.44	6.14	5.17	1.50	0.78	0.28	0.34	0.31	0.30	2.3	1.7
3937	12	300	0.003	0.013	S588MNH0204XX	S588MNH0203XX	1.97	1.22	5.98	6.14	2.25	1.50	0.28	0.28	0.28	0.30	2.3	1.7
4489	10	385	0.002	0.013	S589MNH0202XX	S590MNH0201XX	1.46	0.59	8.90	8.90	1.73	0.94	0.27	0.35	0.37	0.24	1.9	1.6
3984	10	304	0.003	0.013	S589MNH0203XX	S589MNH0202XX	2.35	1.47	9.15	8.90	2.56	1.78	0.21	0.31	0.31	0.16	2.2	1.5
3992	10	305	0.003	0.013	S589MNH0204XX	S589MNH0203XX	3.24	2.35	9.25	9.15	3.32	2.59	0.08	0.24	0.19	0.02	2.2	0.9
4287	10	347	0.002	0.013	S589MNH0204XX	S589MNH0214XX	3.24	2.54	9.25	9.60	3.33	2.67	0.09	0.13	0.13	0.02	1.8	0.0
4194	10	331	0.001	0.013	S589MNH0205XX	S573MNH0204XX	1.85	1.43	9.82	9.62	2.01	1.55	0.16	0.12	0.17	0.06	1.4	0.9
3961	12	302	0.003	0.013	S589MNH0206XX	S589MNH0207XX	2.20	1.30	8.10	7.50	2.45	1.62	0.25	0.32	0.29	0.27	2.5	1.8
3159	12	176	0.003	0.013	S589MNH0207XX	S589MNH0208XX	1.30	0.77	7.50	8.00	1.59	1.06	0.29	0.29	0.29	0.36	2.5	1.9
2916	12	122	0.003	0.013	S589MNH0208XX	S590MNH0220XX	0.77	0.38	8.00	8.02	1.06	0.76	0.29	0.38	0.33	0.36	2.6	1.9
4027	12	309	0.003	0.013	S589MNH0211XX	S589MNH0206XX	3.10	2.20	7.40	8.10	3.35	2.46	0.25	0.26	0.26	0.27	2.5	1.7
4459	10	376	0.002	0.013	S589MNH0214XX	S589MNH0205XX	2.54	1.85	9.60	9.82	2.67	2.02	0.13	0.17	0.18	0.05	1.7	0.9
3472	10	245	0.012	0.013	S590MNH0201XX	S590MNH0217XX	0.59	-2.41	8.90	8.06	0.82	-2.22	0.23	0.19	0.25	0.27	4.4	3.0
4514	27	394	0.003	0.013	S590MNH0202XX	S590MNH0218XX	0.13	-1.13	8.60	7.60	1.62	0.43	1.49	1.56	0.68	13.56	4.4	4.9
2903	27	118	0.003	0.013	S590MNH0203XX	S590MNH0202XX	0.52	0.13	8.80	8.60	2.00	1.67	1.48	1.54	0.67	13.55	4.5	4.9
3676	27	267	0.003	0.013	S590MNH0204XX	S590MNH0203XX	1.39	0.52	9.90	8.80	2.86	2.05	1.47	1.53	0.67	13.50	4.4	4.9
4188	12	338	0.003	0.013	S590MNH0213XX	S590MNH0216XX	-0.53	-1.46	7.90	8.63	-0.15	-0.89	0.38	0.57	0.47	0.57	2.4	2.1
2954	42	130	0.002	0.013	S590MNH0215XX	S590MNH0216XX	-2.20	-2.40	8.94	8.63	-0.69	-1.03	1.51	1.37	0.41	16.31	4.1	3.9
4673	42	601	0.003	0.013	S590MNH0216XX	S590MNH0217XX	-2.40	-4.04	8.63	8.06	-1.04	-2.36	1.36	1.68	0.43	16.88	5.5	4.9
4480	42	380	0.001	0.013	S590MNH0217XX	S611MNH0209XX	-4.19	-4.52	8.06	7.03	-2.37	-3.16	1.82	1.36	0.45	17.90	3.1	3.2
3341	27	406	0.003	0.013	S590MNH0218XX	S611MNH0205XX	-1.13	-2.40	7.60	6.40	0.38	-0.86	1.51	1.54	0.68	13.64	4.4	4.8
2463	18	23	0.010	0.013	S590MNH0219XX	S590MNH0217XX	-3.03	-3.25	7.79	8.06	-2.28	-2.28	0.75	0.97	0.57	0.74	5.9	3.4
3985	12	304	0.003	0.013	S590MNH0220XX	S590MNH0213XX	0.38	-0.53	8.02	7.90	0.71	-0.08	0.33	0.45	0.39	0.45	2.5	2.0
4426	12	368	0.002	0.013	S591MNH0201XX	S610MNH0208XX	1.39	0.66	10.60	9.40	1.81	1.22	0.42	0.56	0.49	0.57	2.0	1.9
4644	12	504	0.001	0.013	S591MNH0202XX	S591MNH0201XX	2.12	1.39	10.90	10.60	2.49	1.88	0.37	0.49	0.43	0.40	1.7	1.5

Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C4 - MPSP Improvement Pipe Results - PWWF

Pipe ID	Pipe Diameter ¹	Length	Slope	Pipe Roughness	Upstream Node	Downstream Node	Invert Elevation		Ground / Rim Elevation		HGL Elevation		Flow Depth		Depth to Diameter	Peak Flow	Half Full Velocity ²	Velocity ³
							Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream				
	(in)	(ft)	(ft/ft)	(Mannings n)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(d/D)	(cfs)	(ft/s)	(ft/s)
3388	10	231	0.004	0.013	S591MNH0203XX	S591MNH0202XX	3.20	2.29	12.10	10.90	3.49	2.55	0.29	0.26	0.33	0.36	2.5	2.1
4447-1	18	166	0.002	0.013	NEW-4447	S592MNH0214XX	3.48	3.17	13.55	13.19	4.57	4.31	1.09	1.14	0.75	3.82	2.6	2.9
4447-2	18	205	0.002	0.013	S592MNH0212XX	NEW-4447	3.87	3.48	14.00	13.55	4.93	4.58	1.06	1.10	0.72	3.82	2.6	2.9
3056	18	154	0.002	0.013	S592MNH0214XX	S592MNH0215XX	3.17	2.88	13.19	12.80	4.22	3.87	1.05	0.99	0.68	3.96	2.6	2.9
2989	21	137	0.003	0.013	S592MNH0215XX	S592MNH0216XX	2.88	2.52	12.80	12.92	3.80	3.45	0.92	0.93	0.53	4.41	3.4	3.4
2818	21	94	0.003	0.013	S592MNH0216XX	S592MNH0217XX	2.52	2.27	12.92	12.10	3.44	3.21	0.92	0.94	0.53	4.41	3.4	3.5
4450-1	21	171	0.003	0.013	NEW-4450	S609MNH0206XX	1.75	1.30	11.68	11.33	2.67	2.32	0.92	1.02	0.56	4.41	3.4	3.5
4450-2	21	201	0.003	0.013	S592MNH0217XX	NEW-4450	2.27	1.75	12.10	11.68	3.19	2.69	0.92	0.94	0.53	4.41	3.4	3.4
4053-1	21	148	0.003	0.013	NEW-4053	S609MNH0207XX	0.86	0.47	10.63	10.00	1.80	1.44	0.94	0.97	0.55	4.60	3.4	3.5
4053-2	21	166	0.003	0.013	S609MNH0206XX	NEW-4053	1.30	0.86	11.33	10.63	2.24	1.81	0.94	0.95	0.54	4.60	3.4	3.5
2670	21	60	0.003	0.013	S609MNH0207XX	S609MNH0208XX	0.47	0.32	10.00	10.31	1.43	1.28	0.96	0.96	0.55	4.60	3.3	3.4
4491-1	21	170	0.003	0.013	NEW-4491	S610MNH0203XX	-0.25	-0.70	10.47	10.60	0.76	0.56	1.01	1.26	0.65	4.60	3.4	3.5
4491-2	21	216	0.003	0.013	S609MNH0208XX	NEW-4491	0.32	-0.25	10.31	10.47	1.26	0.77	0.94	1.02	0.56	4.60	3.4	3.5
2676	21	60	0.002	0.013	S610MNH0203XX	S610MNH0205XX	-0.70	-0.85	10.60	9.91	0.51	0.46	1.21	1.31	0.72	4.60	3.3	3.4
2698	18	63	0.032	0.013	S610MNH0204XX	S610MNH0205XX	3.00	1.00	9.00	9.91	3.51	1.32	0.51	0.32	0.28	1.83	10.6	6.7
4485	18	385	0.001	0.013	S610MNH0205XX	S610MNH0209XX	2.50	2.23	9.91	10.20	2.50	2.25	0.00	0.02	0.01	0.00	1.6	0.0
4640-1	24	231	0.003	0.013	NEW-4640	S631MNH0203XX	-1.74	-2.35	8.81	7.84	-0.67	-1.26	1.07	1.09	0.54	6.51	3.7	3.8
4640-2	24	263	0.003	0.013	S610MNH0205XX	NEW-4640	-1.05	-1.74	9.91	8.81	0.02	-0.66	1.07	1.08	0.54	6.51	3.7	3.8
3784	10	280	0.002	0.013	S610MNH0206XX	S631MNH0206XX	2.00	1.34	8.36	7.38	2.19	1.64	0.19	0.30	0.29	0.12	2.0	1.3
4392	18	366	0.001	0.013	S610MNH0207XX	S611MNH0201XX	0.23	-0.08	9.00	8.20	0.71	0.32	0.48	0.40	0.29	0.69	1.7	1.4
3172	12	180	0.002	0.013	S610MNH0208XX	S610MNH0207XX	0.56	0.23	9.40	9.00	1.02	0.78	0.46	0.55	0.50	0.64	1.9	1.9
4512	18	396	0.002	0.013	S610MNH0209XX	S610MNH0210XX	2.23	1.46	10.20	9.30	2.25	1.48	0.02	0.02	0.01	0.00	2.6	0.3
4479	18	381	0.003	0.013	S610MNH0210XX	S610MNH0207XX	1.46	0.23	9.30	9.00	1.48	0.74	0.02	0.51	0.18	0.00	3.4	0.4
2706	18	65	0.002	0.013	S611MNH0201XX	S611MNH0202XX	-0.08	-0.21	8.20	8.20	0.31	0.20	0.39	0.41	0.27	0.69	2.7	1.9
4253	18	344	0.002	0.013	S611MNH0202XX	S611MNH0203XX	-0.21	-0.79	8.20	9.20	0.20	-0.43	0.41	0.36	0.25	0.69	2.4	1.8
4556	18	411	0.005	0.013	S611MNH0203XX	S590MNH0219XX	-0.79	-3.03	9.20	7.79	-0.47	-2.28	0.32	0.75	0.36	0.74	4.4	2.8
4506	27	393	0.003	0.013	S611MNH0205XX	S611MNH0206XX	-2.40	-3.69	6.40	5.10	-0.92	-1.86	1.48	1.83	0.74	13.69	4.5	4.9
3314	27	213	0.001	0.013	S611MNH0206XX	S611MNH0208XX	-3.69	-3.99	5.10	5.09	-1.88	-2.70	1.81	1.29	0.69	13.69	2.9	3.4
4484	27	383	0.003	0.013	S611MNH0207XX	S630MNH0205XX	-4.91	-6.17	4.20	5.59	-3.43	-4.57	1.48	1.60	0.68	13.69	4.5	4.9
3207	27	187	0.004	0.013	S611MNH0208XX	S611MNH0207XX	-4.19	-4.91	5.09	4.20	-2.79	-3.41	1.40	1.50	0.65	13.69	4.8	5.3
4558	42	412	0.003	0.013	S611MNH0209XX	S611MNH0210XX	-4.52	-5.91	7.03	5.87	-3.19	-4.38	1.33	1.53	0.41	17.97	6.1	5.3
2462	10	23	0.000	0.013	S611MNH0210XX	S611MNH0208XX	0.00	0.00	5.87	5.09	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0
4678	42	620	0.002	0.013	S611MNH0210XX	S630MNH0209XX	-5.91	-7.31	5.87	5.52	-4.38	-5.93	1.53	1.38	0.41	18.81	5.0	4.7
3491	10	248	0.002	0.013	S611MNH0214XX	S630MNH0213XX	-2.40	-2.87	5.50	5.52	-2.23	-2.60	0.17	0.27	0.26	0.08	1.8	1.1
4022	10	309	0.003	0.013	S612CLN1001XX	S612MNH0203XX	2.20	1.35	4.37	5.37	2.54	1.72	0.34	0.37	0.43	0.39	2.1	1.9
4169	12	339	0.003	0.013	S612MNH0201XX	S611MNH0210XX	-1.98	-3.10	5.33	5.87	-1.53	-2.72	0.45	0.38	0.42	0.84	2.6	2.5
3915	12	298	0.003	0.013	S612MNH0202XX	S612MNH0201XX	-1.08	-1.98	5.76	5.33	-0.65	-1.45	0.43	0.53	0.48	0.76	2.5	2.3
3864	10	294	0.008	0.013	S612MNH0203XX	S612MNH0202XX	1.35	-1.08	5.37	5.76	1.67	-0.58	0.32	0.50	0.49	0.53	3.7	3.1
3427	24	238	0.002	0.013	S613MNH0201XX	S613MNH0203XX	-4.82	-5.35	4.45	3.10	-3.80	-4.14	1.02	1.21	0.56	5.35	3.4	3.4
4608	24	450	0.002	0.013	S613MNH0202XX	S613MNH0201XX	-3.92	-4.82	5.95	4.45	-2.90	-3.76	1.02	1.06	0.52	5.21	3.2	3.2
3319	24	214	0.002	0.013	S613MNH0203XX	S613MNH0208XX	-5.35	-5.72	3.10	3.20	-4.18	-4.56	1.17	1.16	0.58	6.13	3.0	3.2
4047	12	312	0.003	0.013	S613MNH0204XX	S613MNH0203XX	-3.37	-4.44	3.42	3.10	-2.96	-4.08	0.41	0.36	0.39	0.75	2.7	2.4
2375	24	12	0.008	0.013	S613MNH0208XX	S613TEE1001XX	-5.72	-5.82	3.20	2.66	-4.60	-4.58	1.12	1.24	0.59	6.32	6.5	5.8
4584	24	427	0.002	0.013	S613TEE1001XX	S628MNH0207XX	-5.82	-6.49	2.66	2.88	-4.59	-5.52	1.23	0.97	0.55	6.32	2.9	3.1
4069	12	315	0.000	0.013	S614MNH0201XX	S613MNH0204XX	-3.31	-3.37	3.31	3.42	-2.57	-2.95	0.74	0.42	0.58	0.75	0.6	1.0
3983	12	304	0.005	0.013	S614MNH0202XX	S614MNH0201XX	-1.82	-3.31	3.70	3.31	-1.44	-2.57	0.38	0.74	0.56	0.75	3.2	2.8
3924	12	299	0.003	0.013	S614MNH0203XX	S614MNH0202XX	-1.07	-1.82	3.53	3.70	-0.69	-1.13	0.38	0.69	0.54	0.56	2.3	2.0
3840	12	290	0.002	0.013	S614MNH0204XX	S586MNH0209XX	-0.22	-0.90	3.65	3.61	0.12	-0.54	0.34	0.36	0.35	0.43	2.2	1.8
4627	21	471	0.002	0.013	S615MNH0201XX	S615MNH0202XX	-1.16	-1.88	5.25	4.85	-0.67	-1.40	0.49	0.48	0.28	1.08	2.6	1.9
3850	21	293	0.002	0.013	S615MNH0202XX	S615MNH0210XX	-1.88	-2.40	4.85	4.80	-1.40	-2.03	0.48	0.37	0.24	1.08	2.8	2.0
2690	21	62	0.002	0.013	S615MNH0203XX	S615MNH0204XX	-4.00	-4.15	5.00	4.88	-3.11	-3.12	0.89	1.03	0.55	1.64	3.2	2.6
4620-1	48	227	0.001	0.013	NEW-4620	S627MNH0202XX	-6.16	-6.41	7.91	10.90	-3.66	-3.90	2.50	2.51	0.63	34.01	3.8	4.1
4620-2	42	231	0.001	0.013	S615MNH0204XX	NEW-4620	-5.90	-6.16	4.88	7.91	-3.29	-3.65	2.61	2.51	0.73	34.01	3.5	4.0
3857	42	294	0.001	0.013	S615MNH0206XX	S615MNH0204XX	-5.37	-5.70	2.00	4.88	-2.82	-3.27	2.55	2.43	0.71	32.37	3.5	4.0
3619	12	262	0.003	0.013	S615MNH0207XX	S615MNH0210XX	-2.30	-3.00	2.20	4.80	-1.97	-2.73	0.33	0.27	0.30	0.43	2.3	1.9
3671	12	267	0.003	0.013	S615MNH0208XX	S615MNH0207XX	-1.57	-2.30	2.70	2.20	-1.24	-1.97	0.33	0.33	0.33	0.43	2.4	1.9
3087	21	160	0.004	0.013	S615MNH0210XX	S615MNH0203XX	-3.38	-4.00	4.80	5.00	-2.92	-3.04	0.46	0.96	0.41	1.50	4.1	3.0
4694-1	48	354	0.001	0.013	NEW-4694	S628MNH0206XX	-7.64	-8.03	3.51	3.43	-5.17	-5.59	2.47	2.44	0.61	34.01	3.8	4.1

Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C4 - MPSP Improvement Pipe Results - PWWF

Pipe ID	Pipe Diameter ¹	Length	Slope	Pipe Roughness	Upstream Node	Downstream Node	Invert Elevation		Ground / Rim Elevation		HGL Elevation		Flow Depth		Depth to Diameter	Peak Flow	Half Full Velocity ²	Velocity ³
							Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream				
							(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)				
4694-2	48	355	0.001	0.013	S627MNH0201XX	NEW-4694	-7.25	-7.64	3.60	3.51	-4.76	-5.17	2.49	2.47	0.62	34.01	3.8	4.1
4697-1	48	378	0.001	0.013	NEW-4697	S627MNH0201XX	-6.83	-7.25	7.25	3.60	-4.34	-4.75	2.49	2.50	0.62	34.01	3.8	4.1
4697-2	48	379	0.001	0.013	S627MNH0202XX	NEW-4697	-6.41	-6.83	10.90	7.25	-3.91	-4.33	2.50	2.50	0.63	34.01	3.8	4.1
2783	10	85	0.005	0.013	S628MNH0201XX	S628MNH0209XX	-5.87	-6.31	3.70	4.02	-5.65	-5.94	0.22	0.37	0.35	0.23	2.9	2.1
3029	10	146	0.006	0.013	S628MNH0205XX	S628MNH0201XX	-4.54	-5.46	5.25	3.70	-4.33	-5.25	0.21	0.21	0.25	0.23	3.2	2.2
3395	48	231	0.001	0.013	S628MNH0206XX	S628MNH0209XX	-8.23	-8.49	3.43	4.02	-5.67	-6.09	2.56	2.40	0.62	40.33	3.8	4.3
2537	24	36	0.006	0.013	S628MNH0207XX	S628MNH0206XX	-6.49	-6.71	2.88	3.43	-5.54	-5.49	0.95	1.22	0.54	6.32	5.7	5.2
2578	48	43	0.006	0.013	S628MNH0209XX	S628MNH0210XX	-8.69	-8.94	4.02	4.30	-6.12	-6.10	2.57	2.84	0.68	40.56	8.7	8.1
2479	54	27	0.003	0.013	S628MNH0210XX	S628MNH0211XX	-8.94	-9.01	4.30	4.40	-6.13	-6.14	2.81	2.87	0.63	40.56	6.3	6.0
4637-1	54	244	0.001	0.013	NEW-4637	S628MNH0212XX	-9.23	-9.46	4.05	3.70	-6.34	-6.52	2.89	2.94	0.65	40.56	3.8	4.1
4637-2	54	244	0.001	0.013	S628MNH0211XX	NEW-4637	-9.01	-9.23	4.40	4.05	-6.15	-6.34	2.86	2.89	0.64	40.56	3.7	4.0
3683	54	268	0.001	0.013	S628MNH0212XX	S629MNH0213XX	-9.46	-9.71	3.70	3.30	-6.53	-6.72	2.93	2.99	0.66	40.56	3.8	4.1
4295	10	346	0.006	0.013	S628MNH0213XX	S628TEE1001XX	-2.13	-4.13	5.10	5.18	-1.93	-3.93	0.20	0.20	0.24	0.21	3.1	2.1
2442	10	21	0.006	0.013	S628TEE1001XX	S628MNH0205XX	-4.13	-4.25	5.18	5.25	-3.93	-4.05	0.20	0.20	0.24	0.21	3.1	2.1
2391	10	14	0.001	0.013	S629MNH0201XX	S629MNH0210XX	-1.47	-1.49	3.99	4.05	-1.22	-1.25	0.25	0.24	0.29	0.16	1.5	1.2
4496	10	389	0.004	0.013	S629MNH0201XX	S629MNH0209XX	-1.16	-2.57	3.99	5.60	-1.16	-2.50	0.00	0.07	0.04	0.00	2.4	0.0
2804	10	92	0.012	0.013	S629MNH0202XX	S629MNH0201XX	-0.40	-1.47	4.50	3.99	-0.23	-1.22	0.17	0.25	0.26	0.16	4.3	2.5
3203	10	187	0.004	0.013	S629MNH0203XX	S629MNH0202XX	0.34	-0.40	5.26	4.50	0.53	-0.21	0.19	0.19	0.23	0.16	2.5	1.7
2453	54	22	0.001	0.013	S629MNH0204XX	S629MNH0214XX	-10.71	-10.73	4.70	5.30	-8.04	-8.06	2.67	2.67	0.59	40.56	3.8	4.0
2582 ⁴	30	49	0.000	0.013	S629MNH0205XX	S629MNH0204XX	-10.69	-10.71	4.60	4.70	-7.49	-7.61	3.20	3.10	SURCHARGED	20.28	1.7	0.0
2581 ⁴	30	49	0.000	0.013	S629MNH0205XX	S629MNH0204XX	-10.69	-10.71	4.60	4.70	-7.71	-7.83	2.98	2.88	SURCHARGED	20.28	1.7	4.1
4384	10	360	0.006	0.013	S629MNH0208XX	S629MNH0218XX	-3.93	-6.00	4.50	3.10	-3.81	-5.88	0.12	0.12	0.14	0.07	3.1	1.5
4487	10	385	0.004	0.013	S629MNH0209XX	S629MNH0208XX	-2.57	-3.93	5.60	4.50	-2.50	-3.77	0.07	0.16	0.14	0.02	2.4	0.9
4431	10	371	0.002	0.013	S629MNH0210XX	S629MNH0213XX	-1.49	-2.13	4.05	5.10	-1.25	-1.85	0.24	0.28	0.31	0.16	1.7	1.3
4696-1	54	375	0.001	0.013	NEW-4696	S629MNH0224XX	-10.36	-10.67	3.75	3.40	-7.25	-7.46	3.11	3.21	0.70	40.56	3.6	3.9
4696-2	54	377	0.001	0.013	S629MNH0211XX	NEW-4696	-10.04	-10.36	4.10	3.75	-7.01	-7.24	3.03	3.12	0.68	40.56	3.6	3.9
3155	54	175	0.001	0.013	S629MNH0212XX	S629MNH0211XX	-9.87	-10.04	3.40	4.10	-6.88	-6.99	2.99	3.05	0.67	40.56	3.9	4.1
3196	54	186	0.001	0.013	S629MNH0213XX	S629MNH0212XX	-9.71	-9.87	3.30	3.40	-6.74	-6.86	2.97	3.01	0.67	40.56	3.6	3.9
4538	54	402	0.001	0.013	S629MNH0214XX	S629MNH0215XX	-10.73	-11.08	5.30	7.10	-8.14	-8.66	2.59	2.42	0.56	40.56	3.7	4.0
2532	33	36	0.003	0.013	S629MNH0216XX	S629MNH0218XX	-8.99	-9.10	3.06	3.10	-7.61	-7.63	1.38	1.47	0.52	9.46	4.9	0.0
2924	33	127	0.003	0.013	S629MNH0216XX	S629MNH0217XX	-8.99	-9.31	3.06	3.88	-7.75	-7.87	1.24	1.44	0.49	9.46	4.5	4.1
4651	42	517	0.004	0.013	S629MNH0217XX	S629MNH0225XX	-9.31	-11.36	3.88	8.62	-7.98	-8.50	1.33	2.86	0.60	19.02	6.6	5.8
2796	33	91	0.002	0.013	S629MNH0218XX	S629MNH0217XX	-9.10	-9.31	3.10	3.88	-7.79	-7.88	1.31	1.43	0.50	9.56	4.3	4.0
3182	10	182	0.004	0.013	S629MNH0223XX	S629MNH0203XX	1.07	0.34	4.82	5.26	1.25	0.56	0.18	0.22	0.24	0.15	2.6	1.7
2454	54	22	0.001	0.013	S629MNH0224XX	S629MNH0205XX	-10.67	-10.69	3.40	4.60	-7.54	-7.56	3.13	3.13	0.70	40.56	3.8	4.0
3313	12	213	0.003	0.013	S630MNH0201XX	S630MNH0204XX	-4.72	-5.36	4.70	3.70	-4.46	-5.04	0.26	0.32	0.29	0.30	2.5	1.8
2978	27	135	0.003	0.013	S630MNH0202XX	S630MNH0210XX	-7.43	-7.79	5.10	5.00	-5.85	-6.34	1.58	1.45	0.68	13.99	4.0	4.5
3246	27	199	0.003	0.013	S630MNH0203XX	S630MNH0202XX	-6.89	-7.43	3.72	5.10	-5.27	-5.83	1.62	1.60	0.72	13.99	4.1	4.6
3129	12	169	0.003	0.013	S630MNH0204XX	S630MNH0203XX	-5.36	-5.87	3.70	3.72	-5.04	-5.08	0.32	0.79	0.55	0.30	2.5	1.8
3231	27	195	0.003	0.013	S630MNH0205XX	S630MNH0203XX	-6.17	-6.69	5.59	3.72	-4.59	-5.26	1.58	1.43	0.67	13.99	4.0	4.5
4604	42	444	0.004	0.013	S630MNH0209XX	S629MNH0216XX	-7.31	-8.92	5.52	3.06	-5.97	-7.59	1.34	1.33	0.38	18.92	6.3	5.6
3599	27	260	0.003	0.013	S630MNH0210XX	S652MNH0209XX	-7.99	-8.69	5.00	2.69	-6.37	-7.09	1.62	1.60	0.72	13.99	4.0	4.6
3795	12	282	0.003	0.013	S630MNH0211XX	S630MNH0201XX	-3.70	-4.52	4.00	4.70	-3.45	-4.15	0.25	0.37	0.31	0.26	2.5	1.7
2397	10	15	0.005	0.013	S630MNH0212XX	S630MNH0211XX	-3.63	-3.70	4.00	4.00	-3.27	-3.27	0.36	0.43	0.47	0.21	2.8	1.9
3608	10	261	0.003	0.013	S630MNH0213XX	S630MNH0212XX	-2.87	-3.63	5.52	4.00	-2.65	-3.17	0.22	0.46	0.41	0.17	2.2	1.6
2633	10	54	0.121	0.013	S630TEE1001XX	S630MNH0210XX	0.00	-6.54	5.01	5.00	0.00	-6.18	0.00	0.36	0.22	0.00	14.0	0.0
3807	24	284	0.002	0.013	S631MNH0201XX	S631MNH0208XX	-3.21	-3.67	6.00	5.20	-1.87	-2.29	1.34	1.38	0.68	7.10	2.9	3.2
2914	24	121	0.002	0.013	S631MNH0202XX	S631MNH0201XX	-3.02	-3.21	6.48	6.00	-1.66	-1.83	1.36	1.38	0.69	6.85	2.9	3.1
3171	24	179	0.003	0.013	S631MNH0203XX	S631MNH0202XX	-2.35	-2.82	7.84	6.48	-1.27	-1.65	1.08	1.17	0.56	6.51	3.7	3.8
3674	12	277	0.002	0.013	S631MNH0206XX	S631MNH0207XX	1.34	0.73	7.38	7.30	1.61	1.01	0.27	0.28	0.27	0.27	2.1	1.6
3831	12	293	0.002	0.013	S631MNH0207XX	S631MNH0210XX	0.73	0.09	7.30	8.22	1.00	0.42	0.27	0.33	0.30	0.27	2.1	1.6
4641-1	24	200	0.002	0.013	NEW-4641	S650MNH0207XX	-4.14	-4.46	7.06	8.30	-2.73	-2.98	1.41	1.48	0.72	7.10	2.9	3.2
4641-2	24	298	0.002	0.013	S631MNH0208XX	NEW-4641	-3.67	-4.14	5.20	7.06	-2.31	-2.72	1.36	1.42	0.70	7.10	2.9	3.2
3966	12	302	0.002	0.013	S631MNH0209XX	S631MNH0202XX	-0.57	-1.23	8.50	6.48	-0.26	-0.99	0.31	0.24	0.27	0.34	2.1	1.7
4007	12	307	0.002	0.013	S631MNH0210XX	S631MNH0209XX	0.09	-0.57	8.22	8.50	0.38	-0.22	0.29	0.35	0.32	0.31	2.1	1.6
4108	27	320	0.001	0.013	S648MNH0201XX	S649MNH0206XX	0.08	-0.24	9.50	8.90	0.90	0.58	0.82	0.82	0.37	2.78	2.5	2.1
4107	27	320	0.001	0.013	S648MNH0202XX	S648MNH0201XX	0.40	0.08	10.20	9.50	1.22	0.90	0.82	0.82	0.37	2.78	2.5	2.1

Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C4 - MPSP Improvement Pipe Results - PWWF

Pipe ID	Pipe Diameter ¹	Length	Slope	Pipe Roughness	Upstream Node	Downstream Node	Invert Elevation		Ground / Rim Elevation		HGL Elevation		Flow Depth		Depth to Diameter	Peak Flow	Half Full Velocity ²	Velocity ³
							Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream				
							(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)				
4494	27	387	0.001	0.013	S649MNH0201XX	S650MNH0201XX	-1.13	-1.52	7.90	8.10	-0.31	-0.71	0.82	0.81	0.36	2.78	2.5	2.1
3534	27	253	0.001	0.013	S649MNH0204XX	S649MNH0201XX	-0.88	-1.13	7.90	7.90	-0.06	-0.31	0.82	0.82	0.37	2.78	2.5	2.1
4116	27	321	0.001	0.013	S649MNH0205XX	S649MNH0204XX	-0.56	-0.88	7.90	7.90	0.26	-0.05	0.82	0.83	0.37	2.78	2.5	2.1
4104	27	320	0.001	0.013	S649MNH0206XX	S649MNH0205XX	-0.24	-0.56	8.90	7.90	0.58	0.26	0.82	0.82	0.37	2.78	2.5	2.1
3781	27	280	0.001	0.013	S650MNH0201XX	S650MNH0202XX	-1.52	-1.80	8.10	7.00	-0.71	-1.23	0.81	0.57	0.31	2.78	2.5	2.1
2421	27	18	0.032	0.013	S650MNH0202XX	S650MNH0205XX	-1.80	-2.38	7.00	7.00	-1.24	-1.59	0.56	0.79	0.30	2.78	14.0	7.3
4680	36	629	0.000	0.013	S650MNH0203XX	S650MNH0210XX	-5.71	-5.96	3.87	4.13	-4.82	-5.42	0.89	0.54	0.24	2.78	1.9	1.5
3146	36	173	0.019	0.013	S650MNH0204XX	S650MNH0203XX	-2.45	-5.71	3.45	3.87	-1.93	-4.81	0.52	0.90	0.24	2.78	13.0	5.8
2835	27	99	0.001	0.013	S650MNH0205XX	S650MNH0204XX	-2.38	-2.45	7.00	3.45	-1.60	-1.89	0.78	0.56	0.30	2.78	2.1	1.9
4597-1	27	223	0.002	0.013	NEW-4597	S650MNH0209XX	-5.13	-5.49	7.51	6.40	-3.91	-4.26	1.22	1.23	0.55	7.11	3.1	3.2
4597-2	27	218	0.002	0.013	S650MNH0206XX	NEW-4597	-4.77	-5.13	8.60	7.51	-3.56	-3.90	1.21	1.23	0.54	7.11	3.2	3.3
2714	27	67	0.002	0.013	S650MNH0207XX	S650MNH0206XX	-4.46	-4.57	8.30	8.60	-2.98	-3.03	1.48	1.54	0.67	7.10	3.2	3.3
4618-1	27	230	0.002	0.013	NEW-4618	S651MNH0201XX	-5.85	-6.22	5.46	4.50	-4.63	-5.00	1.22	1.22	0.54	7.11	3.1	3.2
4618-2	27	225	0.002	0.013	S650MNH0209XX	NEW-4618	-5.49	-5.85	6.40	5.46	-4.27	-4.62	1.22	1.23	0.55	7.11	3.1	3.2
2959	36	131	0.005	0.013	S650MNH0210XX	S650MNH0211XX	-5.96	-6.67	4.13	3.90	-5.43	-6.13	0.53	0.54	0.18	2.87	7.0	3.8
4661	36	538	0.005	0.013	S650MNH0211XX	S651MNH0202XX	-6.67	-9.58	3.90	9.72	-6.14	-7.81	0.53	1.77	0.38	2.91	6.9	3.8
2378	33	13	0.141	0.013	S650MNH0215XX	S650MNH0204XX	-0.65	-2.45	6.94	3.45	-0.65	-1.91	0.00	0.54	0.10	0.00	33.4	0.0
2362	18	11	0.062	0.013	S650TEE1001XX	S650MNH0215XX	0.00	-0.65	5.62	6.94	0.00	-0.65	0.00	0.00	0.00	0.00	14.8	0.0
4602-1	27	221	0.002	0.013	NEW-4602	S651MNH0203XX	-6.58	-6.93	7.72	10.92	-5.38	-6.02	1.20	0.91	0.47	7.11	3.1	3.2
4602-2	27	223	0.002	0.013	S651MNH0201XX	NEW-4602	-6.22	-6.58	4.50	7.72	-5.00	-5.37	1.22	1.21	0.54	7.11	3.1	3.2
2505	36	30	0.001	0.013	S651MNH0202XX	S651MNH0203XX	-9.58	-9.61	9.72	10.92	-7.84	-7.84	1.74	1.77	0.58	2.95	3.0	2.1
4630	36	478	0.001	0.013	S651MNH0203XX	S651MNH0205XX	-9.61	-10.03	10.92	8.47	-7.85	-8.05	1.76	1.98	0.62	10.06	2.8	2.8
3014	36	143	0.001	0.013	S651MNH0205XX	S651MNH0211XX	-9.60	-9.77	8.47	9.00	-8.10	-8.21	1.50	1.56	0.51	10.06	3.3	3.2
2883	33	111	0.001	0.013	S651MNH0208XX	S651MNH0210XX	-10.16	-10.27	1.59	1.22	-8.57	-8.66	1.59	1.61	0.58	10.06	2.8	2.9
4375	18	358	0.001	0.013	S651MNH0209XX	S652MNH0207XX	-6.03	-6.44	4.18	5.63	-6.03	-6.44	0.00	0.00	0.00	0.00	2.0	0.0
3360	33	221	0.001	0.013	S651MNH0210XX	S652MNH0208XX	-10.27	-10.55	1.22	3.20	-8.68	-8.84	1.59	1.71	0.60	10.06	3.2	3.2
2350	18	8	0.012	0.013	S651MNH0211XX	00_S651MNH0211XX	-5.34	-5.44	9.00	10.76	-5.34	-5.44	0.00	0.00	0.00	0.00	6.6	0.0
4467	33	376	0.001	0.013	S651MNH0211XX	S651MNH0208XX	-9.77	-10.16	9.00	1.59	-8.22	-8.55	1.55	1.61	0.58	10.06	2.9	3.0
2713	48	72	0.011	0.013	S652MNH0202XX	S652MNH0211XX	-14.10	-14.90	6.16	5.81	-13.01	-13.57	1.09	1.33	0.30	13.99	12.0	7.5
2562	54	40	0.004	0.013	S652MNH0203XX	S652MNH0214XX	-11.45	-11.61	7.80	9.74	-9.62	-9.84	1.83	1.77	0.40	40.56	7.8	7.0
2637	39	55	0.004	0.013	S652MNH0204XX	S652MNH0214XX	-11.54	-11.78	6.85	9.74	-9.84	-10.09	1.70	1.69	0.52	29.08	6.6	6.7
2356	33	10	0.064	0.013	S652MNH0205XX	S652MNH0204XX	-10.90	-11.54	6.68	6.85	-9.11	-9.52	1.79	2.02	0.69	29.08	22.5	18.0
2716	24	68	0.020	0.013	S652MNH0207XX	S652MNH0202XX	-10.15	-11.50	5.63	6.16	-8.80	-10.54	1.35	0.96	0.58	13.99	10.2	9.8
2569	33	45	0.003	0.013	S652MNH0208XX	S652MNH0225XX	-10.55	-10.70	3.20	8.62	-8.86	-8.87	1.69	1.83	0.64	10.06	5.1	4.6
4198	30	362	0.002	0.013	S652MNH0209XX	S652MNH0207XX	-8.69	-9.50	2.69	5.63	-7.12	-8.24	1.57	1.26	0.57	13.99	4.0	4.3
4728	48	14	0.000	0.013	S652MNH0211XX	WPCP	-14.90	-14.90	5.81	0.00	-13.65	-13.81	1.25	1.09	0.29	13.99	0.1	1.1
4727	54	14	0.000	0.013	S652MNH0212XX	WPCP	-14.90	-14.90	5.89	0.00	-12.21	-12.47	2.69	2.43	0.57	69.64	0.1	4.4
2618	54	51	0.016	0.013	S652MNH0214XX	S652MNH0212XX	-14.10	-14.90	9.74	5.89	-11.67	-12.04	2.43	2.86	0.59	69.64	15.5	13.3
2459 ⁴	48	24	0.015	0.013	S652MNH0215XX	S652MNH0203XX	-11.08	-11.45	7.10	7.80	-7.74	-7.74	3.34	3.71	0.88	20.28	14.1	0.0
2458 ⁴	48	25	0.015	0.013	S652MNH0215XX	S652MNH0203XX	-11.08	-11.45	7.10	7.80	-8.70	-8.68	2.38	2.77	0.88	20.28	14.0	9.3
2443	33	21	0.010	0.013	S652MNH0225XX	S652MNH0205XX	-10.70	-10.90	8.62	6.68	-8.91	-8.72	1.79	2.18	0.72	29.08	8.8	9.0
4105	27	320	0.001	0.013	S673MNH0201XX	S648MNH0202XX	0.72	0.40	10.80	10.20	1.54	1.22	0.82	0.82	0.37	2.78	2.5	2.1
4531	21	400	0.002	0.013	S673MNH0202XX	S673MNH0201XX	2.12	1.32	12.00	10.80	2.88	1.92	0.76	0.60	0.39	2.78	3.0	2.8
4529	21	400	0.002	0.013	S674MNH0201XX	S673MNH0202XX	2.92	2.12	12.30	12.00	3.68	2.89	0.76	0.77	0.44	2.78	3.0	2.8
4439	21	370	0.002	0.013	S674MNH0202XX	S674MNH0201XX	3.56	2.92	12.60	12.30	4.07	3.71	0.51	0.79	0.37	1.22	2.7	2.1

Notes:

1. Highlighted pipe diameters reflect pipelines upsized as part of the recommended MPSP improvements.
2. Half full velocity is determined per Manning's equation assuming no backwater conditions downstream.
3. Velocity as indicated by the model at the specified d/D.
4. These pipelines were identified as depressed sewer and improvements were not recommended to address d/D deficiencies.

Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C5 - Cumulative Evaluation Node Results - PWWF

Node ID	Ground/Rim Elevation	Invert Elevation	Structure Depth	Wastewater Loading	Hydraulic Grade Line	Flow Depth	System Flow
	(ft)	(ft)	(ft)	(cfs)	(ft)	(ft)	(cfs)
00_S651MNH0211XX	10.76	-5.75	16.51	0.00	-5.75	0.00	0.00
MH1_MoffetRealign	16.70	4.40	12.30	0.00	4.94	0.54	0.18
MH2_MoffetRealign	16.10	4.22	11.88	0.03	4.88	0.66	0.21
MH3_MoffetRealign	14.95	3.78	11.17	0.18	4.12	0.34	0.39
MH4_MoffetRealign	15.30	3.39	11.91	0.03	3.67	0.28	0.41
MH5_MoffetRealign	13.40	2.42	10.98	0.00	2.69	0.27	0.41
S529MNH0207XX	28.30	13.00	15.30	2.94	26.45	13.45	2.94
S529MNH0208XX	24.30	12.83	11.47	0.02	24.30	11.47	2.96
S549MNH0201XX	14.40	1.51	12.89	5.70	2.47	0.96	5.70
S549MNH0203XX	12.22	3.79	8.43	0.00	3.88	0.09	0.03
S549MNH0217XX	12.22	4.67	7.55	0.03	4.76	0.09	0.03
S550MNH0201XX	16.49	1.59	14.90	0.20	4.00	2.41	20.64
S550MNH0202XX	17.27	10.07	7.20	0.00	11.55	1.48	20.20
S550MNH0203XX	18.30	6.40	11.90	0.00	11.42	5.02	13.39
S550MNH0204XX	18.40	6.66	11.74	0.00	11.87	5.21	13.39
S550MNH0205XX	18.25	4.60	13.65	0.00	4.88	0.28	0.14
S550MNH0207XX	20.00	11.04	8.96	20.20	13.06	2.02	20.20
S550MNH0210XX	20.80	9.39	11.41	13.39	14.97	5.58	13.39
S550MNH0217XX	14.80	6.42	8.38	0.00	6.55	0.13	0.06
S550MNH0218XX	15.45	5.46	9.99	0.00	5.60	0.14	0.06
S550MNH0220XX	16.40	5.18	11.22	0.00	10.03	4.85	13.39
S550MNH0221XX	17.32	3.65	13.67	0.11	4.07	0.42	0.24
S550MNH0222XX	13.90	7.31	6.59	0.06	7.44	0.13	0.06
S550MNH0223XX	17.92	10.62	7.30	0.00	12.57	1.95	20.20
S550MNH0225XX	16.80	1.60	15.20	0.00	3.99	2.39	20.64
S550MNH0226XX	17.72	4.31	13.41	0.00	4.48	0.17	0.14
S551MNH0203XX	21.50	7.70	13.80	0.00	7.84	0.14	0.08
S551MNH0204XX	22.25	6.62	15.63	0.00	6.75	0.13	0.08
S551MNH0205XX	20.20	5.66	14.54	0.00	5.80	0.14	0.08
S552MNH0201XX	20.19	9.20	10.99	0.01	20.19	10.99	3.14
S552MNH0202XX	21.70	10.23	11.47	0.05	21.70	11.47	3.13
S552MNH0203XX	25.50	11.68	13.82	0.09	24.17	12.49	3.08
S552MNH0204XX	25.40	12.00	13.40	0.03	25.21	13.21	2.99
S552MNH0206XX	24.00	9.32	14.68	0.00	9.32	0.00	0.00
S552MNH0207XX	23.40	8.90	14.50	0.08	9.03	0.13	0.08
S552MNH0208XX	22.00	13.92	8.08	0.00	18.15	4.23	0.00
S552MNH0209XX	20.00	11.22	8.78	0.30	18.14	6.92	0.30
S552MNH0211XX	23.18	11.06	12.12	0.00	23.00	11.94	3.08
S552MNH0212XX	23.40	11.37	12.03	0.00	23.40	12.03	3.08
S569MNH0204XX	19.04	8.13	10.91	0.77	19.04	10.91	3.91
S569MNH0205XX	18.20	7.10	11.10	0.05	18.01	10.91	0.38
S569MNH0206XX	18.40	8.50	9.90	0.03	18.05	9.55	0.33
S569MNH0209XX	14.50	4.18	10.32	0.00	14.50	10.32	4.35
S569MNH0210XX	15.30	4.73	10.57	0.00	15.30	10.57	4.35



Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C5 - Cumulative Evaluation Node Results - PWWF

Node ID	Ground/Rim Elevation	Invert Elevation	Structure Depth	Wastewater Loading	Hydraulic Grade Line	Flow Depth	System Flow
	(ft)	(ft)	(ft)	(cfs)	(ft)	(ft)	(cfs)
S569MNH0211XX	17.23	5.05	12.18	0.07	17.23	12.18	4.35
S569MNH0212XX	18.00	5.38	12.62	0.00	18.00	12.62	4.28
S570MNH0201XX	13.30	4.12	9.18	0.15	4.33	0.21	0.15
S570MNH0202XX	14.55	5.95	8.60	0.14	6.18	0.23	0.17
S570MNH0203XX	15.10	6.60	8.50	0.03	6.70	0.10	0.03
S570MNH0204XX	15.90	4.45	11.45	0.01	4.95	0.50	0.18
S571MNH0205XX	11.74	3.94	7.80	0.13	4.11	0.17	0.13
S571MNH0207XX	12.90	3.92	8.98	0.00	8.61	4.69	13.39
S571MNH0208XX	11.55	2.20	9.35	0.12	2.50	0.30	0.41
S571MNH0209XX	12.44	3.06	9.38	0.16	3.32	0.26	0.29
S571MNH0211XX	12.23	0.88	11.35	0.03	2.39	1.51	21.08
S571MNH0212XX	13.73	1.78	11.95	0.00	3.53	1.75	20.64
S571MNH0216XX	10.72	-0.20	10.92	0.00	1.25	1.45	21.49
S571MNH0219XX	12.08	2.66	9.42	0.00	7.20	4.54	13.39
S572MNH0201XX	10.22	2.83	7.39	0.00	2.91	0.08	0.03
S572MNH0202XX	9.10	4.43	4.67	0.18	4.63	0.20	0.18
S572MNH0203XX	12.40	6.40	6.00	0.00	6.40	0.00	0.00
S572MNH0204XX	13.30	5.50	7.80	0.00	5.50	0.00	0.00
S572MNH0206XX	8.40	3.81	4.59	0.00	4.01	0.20	0.18
S572MNH0207XX	11.15	6.29	4.86	0.00	6.29	0.00	0.00
S573MNH0201XX	10.00	-0.51	10.51	0.01	0.44	0.95	5.78
S573MNH0202XX	9.00	-0.07	9.07	0.01	1.43	1.50	5.74
S573MNH0203XX	10.10	-1.30	11.40	0.00	-0.11	1.19	6.07
S573MNH0204XX	9.62	1.43	8.19	0.00	1.54	0.11	0.06
S573MNH0210XX	7.38	3.07	4.31	0.10	3.23	0.16	0.10
S573MNH0211XX	6.93	2.72	4.21	0.08	2.94	0.22	0.19
S573MNH0212XX	9.97	0.70	9.27	0.00	1.73	1.03	5.73
S573MNH0213XX	8.25	-0.21	8.46	0.02	1.20	1.41	5.76
S573TEE1001XX	10.63	0.00	10.63	0.23	0.53	0.53	0.23
S574MNH0202XX	7.04	2.90	4.14	0.12	3.07	0.17	0.12
S575MNH0203XX	6.26	1.25	5.01	0.68	1.66	0.41	0.68
S575MNH0206XX	6.55	1.45	5.10	0.09	1.59	0.14	0.09
S586MNH0201XX	4.45	-0.83	5.28	0.00	-0.35	0.48	1.00
S586MNH0202XX	4.60	-0.27	4.87	0.00	0.20	0.47	1.00
S586MNH0204XX	5.70	0.32	5.38	0.00	0.87	0.55	1.00
S586MNH0205XX	6.40	0.72	5.68	0.23	1.20	0.48	1.00
S586MNH0209XX	3.61	-0.90	4.51	0.00	-0.56	0.34	0.43
S586TEE1003XX	6.44	0.00	6.44	0.00	0.36	0.36	1.00
S587MNH0201XX	4.25	-0.34	4.59	0.04	0.01	0.35	0.46
S587MNH0202XX	5.17	0.44	4.73	0.11	0.77	0.33	0.41
S587MNH0206XX	4.35	0.55	3.80	0.03	0.87	0.32	0.38
S587MNH0207XX	5.22	1.34	3.88	0.17	1.64	0.30	0.35
S587MNH0208XX	6.39	2.12	4.27	0.06	2.33	0.21	0.18
S588MNH0201XX	7.25	-3.02	10.27	0.39	-1.86	1.16	6.46



Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C5 - Cumulative Evaluation Node Results - PWWF

Node ID	Ground/Rim Elevation	Invert Elevation	Structure Depth	Wastewater Loading	Hydraulic Grade Line	Flow Depth	System Flow
	(ft)	(ft)	(ft)	(cfs)	(ft)	(ft)	(cfs)
S588MNH0202XX	8.80	-1.87	10.67	0.00	-0.62	1.25	6.07
S588MNH0203XX	6.14	1.22	4.92	0.00	1.50	0.28	0.30
S588MNH0204XX	5.98	1.97	4.01	0.12	2.25	0.28	0.30
S589MNH0202XX	8.90	1.46	7.44	0.08	1.73	0.27	0.24
S589MNH0203XX	9.15	2.35	6.80	0.14	2.56	0.21	0.16
S589MNH0204XX	9.25	3.24	6.01	0.04	3.32	0.08	0.02
S589MNH0205XX	9.82	1.85	7.97	0.01	2.01	0.16	0.06
S589MNH0206XX	8.10	2.20	5.90	0.00	2.45	0.25	0.27
S589MNH0207XX	7.50	1.30	6.20	0.09	1.59	0.29	0.36
S589MNH0208XX	8.00	0.77	7.23	0.00	1.06	0.29	0.36
S589MNH0211XX	7.40	3.10	4.30	0.10	3.35	0.25	0.27
S589MNH0214XX	9.60	2.54	7.06	0.03	2.67	0.13	0.05
S590MNH0201XX	8.90	0.59	8.31	0.03	0.82	0.23	0.27
S590MNH0202XX	8.60	0.13	8.47	0.01	4.21	4.08	13.63
S590MNH0203XX	8.80	0.52	8.28	0.05	4.71	4.19	13.61
S590MNH0204XX	9.90	1.39	8.51	0.18	5.75	4.36	13.56
S590MNH0213XX	7.90	-0.53	8.43	0.12	-0.15	0.38	0.57
S590MNH0215XX	8.94	-2.25	11.19	0.00	-0.45	1.80	21.49
S590MNH0216XX	8.63	-2.40	11.03	0.00	-0.82	1.58	22.07
S590MNH0217XX	8.06	-4.19	12.25	0.00	-2.00	2.19	25.07
S590MNH0218XX	7.60	-1.13	8.73	0.08	2.70	3.83	13.71
S590MNH0219XX	7.79	-1.91	9.70	0.00	-1.88	0.03	2.73
S590MNH0220XX	8.02	0.38	7.64	0.09	0.71	0.33	0.45
S591MNH0201XX	10.60	1.39	9.21	0.17	1.81	0.42	0.57
S591MNH0202XX	10.90	2.12	8.78	0.04	2.49	0.37	0.40
S591MNH0203XX	12.10	3.20	8.90	0.21	3.49	0.29	0.36
S592MNH0212XX	14.00	3.93	10.07	0.00	14.00	10.07	4.35
S592MNH0214XX	13.19	3.03	10.16	0.14	13.19	10.16	4.49
S592MNH0215XX	12.80	2.88	9.92	0.45	12.80	9.92	4.94
S592MNH0216XX	12.92	2.63	10.29	0.00	12.92	10.29	4.94
S592MNH0217XX	12.10	2.46	9.64	0.00	12.10	9.64	4.94
S609MNH0206XX	11.33	1.56	9.77	0.19	11.33	9.77	5.13
S609MNH0207XX	10.00	1.12	8.88	0.00	10.00	8.88	5.13
S609MNH0208XX	10.31	0.97	9.34	0.00	10.31	9.34	5.13
S610MNH0203XX	10.60	0.00	10.60	0.00	6.43	6.43	5.13
S610MNH0204XX	9.00	3.00	6.00	1.83	4.91	1.91	1.83
S610MNH0205XX	9.91	-0.50	10.41	0.09	4.70	5.20	5.06
S610MNH0206XX	8.36	2.00	6.36	0.12	3.95	1.95	0.12
S610MNH0207XX	9.00	0.23	8.77	0.05	1.25	1.02	2.68
S610MNH0208XX	9.40	0.56	8.84	0.06	1.35	0.79	0.64
S610MNH0209XX	10.20	2.23	7.97	0.00	2.92	0.69	1.99
S610MNH0210XX	9.30	1.46	7.84	0.00	2.06	0.60	1.99
S611MNH0201XX	8.20	-0.08	8.28	0.00	0.77	0.85	2.68
S611MNH0202XX	8.20	-0.21	8.41	0.00	0.65	0.86	2.68



Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C5 - Cumulative Evaluation Node Results - PWWF

Node ID	Ground/Rim Elevation	Invert Elevation	Structure Depth	Wastewater Loading	Hydraulic Grade Line	Flow Depth	System Flow
	(ft)	(ft)	(ft)	(cfs)	(ft)	(ft)	(cfs)
S611MNH0203XX	9.20	-0.79	9.99	0.05	-0.16	0.63	2.73
S611MNH0205XX	6.40	-2.40	8.80	0.05	1.12	3.52	13.76
S611MNH0206XX	5.10	-3.69	8.79	0.00	-0.36	3.33	13.76
S611MNH0207XX	4.20	-4.91	9.11	0.00	-1.90	3.01	13.76
S611MNH0208XX	5.09	-4.19	9.28	0.00	-1.18	3.01	13.76
S611MNH0209XX	7.03	-4.52	11.55	0.07	-2.92	1.60	25.14
S611MNH0210XX	5.87	-5.91	11.78	0.00	-4.07	1.84	25.98
S611MNH0214XX	5.50	-2.40	7.90	0.08	-2.23	0.17	0.08
S612CLN1001XX	4.37	2.20	2.17	0.39	2.54	0.34	0.39
S612MNH0201XX	5.33	-1.98	7.31	0.09	-1.44	0.54	0.84
S612MNH0202XX	5.76	-1.08	6.84	0.22	-0.60	0.48	0.76
S612MNH0203XX	5.37	1.35	4.02	0.14	1.67	0.32	0.53
S613MNH0201XX	4.45	-4.82	9.27	0.14	-3.62	1.20	6.72
S613MNH0202XX	5.95	-3.92	9.87	0.12	-2.74	1.18	6.58
S613MNH0203XX	3.10	-5.35	8.45	0.03	-3.98	1.37	7.50
S613MNH0204XX	3.42	-3.37	6.79	0.00	-2.96	0.41	0.75
S613MNH0208XX	3.20	-5.72	8.92	0.19	-4.37	1.35	7.69
S613TEE1001XX	2.66	-5.82	8.48	0.00	-4.37	1.45	7.69
S614MNH0201XX	3.31	-3.31	6.62	0.00	-2.57	0.74	0.75
S614MNH0202XX	3.70	-1.82	5.52	0.19	-1.44	0.38	0.75
S614MNH0203XX	3.53	-1.07	4.60	0.10	-0.69	0.38	0.56
S614MNH0204XX	3.65	-0.22	3.87	0.05	0.12	0.34	0.43
S615MNH0201XX	5.25	-1.16	6.41	0.08	-0.67	0.49	1.08
S615MNH0202XX	4.85	-1.88	6.73	0.00	-1.41	0.47	1.08
S615MNH0203XX	5.00	-5.20	10.20	0.14	-2.28	2.92	1.64
S615MNH0204XX	4.88	-5.92	10.80	0.00	-2.43	3.49	30.57
S615MNH0206XX	2.00	-5.37	7.37	28.93	-2.05	3.32	28.93
S615MNH0207XX	2.20	-2.30	4.50	0.00	-1.97	0.33	0.43
S615MNH0208XX	2.70	-1.57	4.27	0.00	-1.24	0.33	0.43
S615MNH0210XX	4.80	-3.38	8.18	0.00	-2.23	1.15	1.50
S627MNH0201XX	3.60	-7.54	11.14	0.00	-4.13	3.41	30.57
S627MNH0202XX	10.90	-6.69	17.59	0.00	-3.07	3.62	30.57
S628MNH0201XX	3.70	-5.87	9.57	0.00	-5.48	0.39	0.23
S628MNH0205XX	5.25	-4.54	9.79	0.02	-4.33	0.21	0.23
S628MNH0206XX	3.43	-8.36	11.79	0.00	-5.22	3.14	38.26
S628MNH0207XX	2.88	-6.49	9.37	0.00	-4.99	1.50	7.69
S628MNH0209XX	4.02	-8.59	12.61	0.00	-5.73	2.86	38.49
S628MNH0210XX	4.30	-8.94	13.24	0.00	-5.79	3.15	38.49
S628MNH0211XX	4.40	-9.01	13.41	0.00	-5.82	3.19	38.49
S628MNH0212XX	3.70	-9.46	13.16	0.00	-6.18	3.28	38.49
S628MNH0213XX	5.10	-2.13	7.23	0.04	-1.93	0.20	0.21
S628TEE1001XX	5.18	-4.13	9.31	0.00	-3.93	0.20	0.21
S629MNH0201XX	3.99	-1.47	5.46	0.00	-1.22	0.25	0.16
S629MNH0202XX	4.50	-0.40	4.90	0.00	-0.23	0.17	0.16



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Table C5 - Cumulative Evaluation Node Results - PWWF

Node ID	Ground/Rim Elevation	Invert Elevation	Structure Depth	Wastewater Loading	Hydraulic Grade Line	Flow Depth	System Flow
	(ft)	(ft)	(ft)	(cfs)	(ft)	(ft)	(cfs)
S629MNH0203XX	5.26	0.34	4.92	0.02	0.53	0.19	0.16
S629MNH0204XX	4.70	-10.71	15.41	0.00	-7.77	2.94	38.49
S629MNH0205XX	4.60	-10.69	15.29	0.00	-7.41	3.28	19.24
S629MNH0208XX	4.50	-3.93	8.43	0.05	-3.81	0.12	0.07
S629MNH0209XX	5.60	-2.57	8.17	0.02	-2.50	0.07	0.02
S629MNH0210XX	4.05	-1.49	5.54	0.00	-1.25	0.24	0.16
S629MNH0211XX	4.10	-10.04	14.14	0.00	-6.67	3.37	38.49
S629MNH0212XX	3.40	-9.87	13.27	0.00	-6.54	3.33	38.49
S629MNH0213XX	3.30	-9.71	13.01	0.00	-6.39	3.32	38.49
S629MNH0214XX	5.30	-10.73	16.03	0.00	-7.87	2.86	38.49
S629MNH0216XX	3.06	-8.99	12.05	0.00	-7.47	1.52	13.04
S629MNH0217XX	3.88	-9.31	13.19	0.00	-7.73	1.58	26.19
S629MNH0218XX	3.10	-9.10	12.20	0.02	-7.51	1.59	13.14
S629MNH0223XX	4.82	1.07	3.75	0.15	1.25	0.18	0.15
S629MNH0224XX	3.40	-10.67	14.07	0.00	-7.25	3.42	38.49
S630MNH0201XX	4.70	-4.55	9.25	0.04	-3.71	0.84	0.30
S630MNH0202XX	5.10	-7.43	12.53	0.00	-4.89	2.54	14.06
S630MNH0203XX	3.72	-7.37	11.09	0.00	-4.09	3.28	14.06
S630MNH0204XX	3.70	-5.21	8.91	0.00	-3.75	1.46	0.30
S630MNH0205XX	5.59	-6.17	11.76	0.00	-3.34	2.83	13.76
S630MNH0209XX	5.52	-7.31	12.83	0.11	-5.70	1.61	26.09
S630MNH0210XX	5.00	-7.94	12.94	0.00	-5.45	2.49	14.06
S630MNH0211XX	4.00	-3.70	7.70	0.05	-3.44	0.26	0.26
S630MNH0212XX	4.00	-3.63	7.63	0.03	-3.11	0.52	0.21
S630MNH0213XX	5.52	-2.87	8.39	0.09	-2.65	0.22	0.17
S630TEE1001XX	5.01	0.00	5.01	0.00	0.00	0.00	0.00
S631MNH0201XX	6.00	-3.10	9.10	0.25	2.65	5.75	5.64
S631MNH0202XX	6.48	-3.02	9.50	0.00	3.08	6.10	5.40
S631MNH0203XX	7.84	-1.94	9.78	0.00	3.53	5.47	5.06
S631MNH0206XX	7.38	1.34	6.04	0.15	3.93	2.59	0.27
S631MNH0207XX	7.30	0.73	6.57	0.00	3.92	3.19	0.27
S631MNH0208XX	5.20	-3.24	8.44	0.00	1.79	5.03	5.64
S631MNH0209XX	8.50	-0.57	9.07	0.03	3.87	4.44	0.34
S631MNH0210XX	8.22	0.09	8.13	0.04	3.90	3.81	0.31
S648MNH0201XX	9.50	0.08	9.42	0.00	0.92	0.84	2.89
S648MNH0202XX	10.20	0.40	9.80	0.00	1.24	0.84	2.89
S649MNH0201XX	7.90	-1.13	9.03	0.00	-0.29	0.84	2.89
S649MNH0204XX	7.90	-0.88	8.78	0.00	-0.04	0.84	2.89
S649MNH0205XX	7.90	-0.56	8.46	0.00	0.28	0.84	2.89
S649MNH0206XX	8.90	-0.24	9.14	0.00	0.60	0.84	2.89
S650MNH0201XX	8.10	-1.52	9.62	0.00	-0.70	0.82	2.89
S650MNH0202XX	7.00	-1.80	8.80	0.00	-1.23	0.57	2.89
S650MNH0203XX	3.87	-5.71	9.58	0.00	-4.80	0.91	2.89
S650MNH0204XX	3.45	-2.45	5.90	0.00	-1.92	0.53	2.89



Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C5 - Cumulative Evaluation Node Results - PWWF

Node ID	Ground/Rim Elevation	Invert Elevation	Structure Depth	Wastewater Loading	Hydraulic Grade Line	Flow Depth	System Flow
	(ft)	(ft)	(ft)	(cfs)	(ft)	(ft)	(cfs)
S650MNH0205XX	7.00	-2.38	9.38	0.00	-1.58	0.80	2.89
S650MNH0206XX	8.60	-3.89	12.49	0.01	-1.60	2.29	5.65
S650MNH0207XX	8.30	-3.67	11.97	0.00	0.33	4.00	5.64
S650MNH0209XX	6.40	-4.65	11.05	0.00	-2.91	1.74	5.65
S650MNH0210XX	4.13	-5.96	10.09	0.09	-5.42	0.54	2.98
S650MNH0211XX	3.90	-6.67	10.57	0.03	-6.13	0.54	3.02
S650MNH0215XX	6.94	-0.65	7.59	0.00	-0.65	0.00	0.00
S650TEE1001XX	5.62	0.00	5.62	0.00	0.00	0.00	0.00
S651MNH0201XX	4.50	-5.41	9.91	0.00	-4.28	1.13	5.65
S651MNH0202XX	9.72	-9.58	19.30	0.04	-7.87	1.71	3.06
S651MNH0203XX	10.92	-9.61	20.53	0.00	-7.87	1.74	8.72
S651MNH0205XX	8.47	-10.03	18.50	0.00	-8.06	1.97	8.72
S651MNH0208XX	1.59	-10.16	11.75	0.00	-8.31	1.85	8.72
S651MNH0209XX	4.18	-6.03	10.21	0.00	-6.03	0.00	0.00
S651MNH0210XX	1.22	-10.27	11.49	0.00	-8.36	1.91	8.72
S651MNH0211XX	9.00	-9.77	18.77	0.00	-8.13	1.64	8.72
S652MNH0202XX	6.16	-14.10	20.26	0.00	-13.00	1.10	14.06
S652MNH0203XX	7.80	-11.45	19.25	0.00	-9.60	1.85	38.49
S652MNH0204XX	6.85	-11.54	18.39	0.00	-9.65	1.89	34.90
S652MNH0205XX	6.68	-10.90	17.58	0.00	-8.93	1.97	34.90
S652MNH0207XX	5.63	-10.15	15.78	0.00	-8.80	1.35	14.06
S652MNH0208XX	3.20	-10.55	13.75	0.00	-8.43	2.12	8.72
S652MNH0209XX	2.69	-8.69	11.38	0.00	-6.50	2.19	14.06
S652MNH0211XX	5.81	-14.90	20.71	0.00	-13.65	1.25	14.06
S652MNH0212XX	5.89	-14.90	20.79	0.00	-12.02	2.88	73.39
S652MNH0214XX	9.74	-14.10	23.84	0.00	-11.51	2.59	73.39
S652MNH0215XX	7.10	-11.08	18.18	0.00	-8.31	2.77	19.24
S652MNH0225XX	8.62	-11.36	19.98	0.00	-8.48	2.88	34.90
S673MNH0201XX	10.80	0.72	10.08	0.00	1.56	0.84	2.89
S673MNH0202XX	12.00	2.12	9.88	0.00	2.90	0.78	2.89
S674MNH0201XX	12.30	2.92	9.38	1.57	3.70	0.78	2.89
S674MNH0202XX	12.60	3.56	9.04	1.33	4.09	0.53	1.33

Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C6 - Cumulative Evaluation Pipe Results - PWWF

Pipe ID	Pipe Diameter	Length	Slope	Pipe Roughness	Upstream Node	Downstream Node	Invert Elevation		Ground / Rim Elevation		HGL Elevation		Flow Depth		Depth to Diameter	Peak Flow	Half Full Velocity ¹	Velocity ²
							Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream				
							(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)				
	(in)	(ft)	(ft/ft)	(Mannings n)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(d/D)	(cfs)	(ft/s)	(ft/s)
4300	18	348	0.001	0.013	00_S651MNH0211XX	S651MNH0209XX	-5.75	-6.03	10.76	4.18	-5.75	-6.03	0.00	0.00	0.00	0.00	1.7	0.0
2991	10	138	0.001	0.013	MH1_MoffetRealign	MH2_MoffetRealign	4.40	4.22	16.70	16.10	4.94	4.93	0.54	0.71	0.75	0.18	1.5	1.2
3678	10	268	0.002	0.013	MH2_MoffetRealign	MH3_MoffetRealign	4.22	3.78	16.10	14.95	4.88	4.85	0.66	1.07	SURCHARGED	0.21	1.6	1.3
3017	10	143	0.003	0.013	MH3_MoffetRealign	MH4_MoffetRealign	3.78	3.42	14.95	15.30	4.12	3.94	0.34	0.52	0.52	0.39	2.0	1.8
3193	12	185	0.005	0.013	MH4_MoffetRealign	MH5_MoffetRealign	3.39	2.51	15.30	13.40	3.67	2.78	0.28	0.27	0.27	0.41	3.1	2.3
3130	12	169	0.006	0.013	MH5_MoffetRealign	S571MNH0211XX	2.42	1.48	13.40	12.23	2.69	2.57	0.27	1.09	0.68	0.41	3.4	2.5
4079	12	316	0.001	0.013	S529MNH0207XX	S529MNH0208XX	13.00	12.83	28.30	24.30	26.45	24.30	13.45	11.47	SURCHARGED	2.94	1.1	3.8
4388	12	361	0.002	0.013	S529MNH0208XX	S552MNH0204XX	12.83	12.00	24.30	25.40	27.79	25.30	14.96	13.30	SURCHARGED	2.96	2.2	3.8
3312	21	212	0.004	0.013	S549MNH0201XX	S573MNH0212XX	1.51	0.70	14.40	9.97	2.47	1.75	0.96	1.05	0.58	5.70	4.1	4.2
4504	10	392	0.002	0.013	S549MNH0203XX	S572MNH0201XX	3.79	2.83	12.22	10.22	3.88	2.91	0.09	0.08	0.10	0.03	2.0	0.9
4436	10	370	0.002	0.013	S549MNH0217XX	S549MNH0203XX	4.67	3.79	12.22	12.22	4.76	3.88	0.09	0.09	0.11	0.03	2.0	0.8
2359	42	10	-0.001	0.013	S550MNH0201XX	S550MNH0225XX	1.59	1.60	16.49	16.80	4.00	3.99	2.41	2.39	0.69	20.64	3.3	2.1
2606	33	48	0.165	0.013	S550MNH0202XX	S550MNH0201XX	10.07	2.09	17.27	16.49	11.55	4.02	1.48	1.93	0.62	20.20	36.2	22.7
4492	24	386	0.003	0.013	S550MNH0203XX	S550MNH0220XX	6.41	5.18	18.30	16.40	11.42	10.06	5.01	4.88	SURCHARGED	13.39	4.1	4.3
2736	24	78	0.003	0.013	S550MNH0204XX	S550MNH0203XX	6.66	6.40	18.40	18.30	11.87	11.59	5.21	5.19	SURCHARGED	13.39	4.2	4.3
2998	15	138	0.003	0.013	S550MNH0205XX	S550MNH0226XX	4.71	4.31	18.25	17.72	4.88	4.48	0.17	0.17	0.14	0.14	2.8	1.4
3438	33	240	0.002	0.013	S550MNH0207XX	S550MNH0223XX	11.04	10.62	20.00	17.92	13.06	12.59	2.02	1.97	0.73	20.20	3.7	4.2
4552	21	409	0.006	0.013	S550MNH0210XX	S550MNH0204XX	9.39	6.91	20.80	18.40	14.97	12.05	5.58	5.14	SURCHARGED	13.39	5.1	5.6
4535	10	400	0.002	0.013	S550MNH0217XX	S550MNH0218XX	6.42	5.46	14.80	15.45	6.55	5.60	0.13	0.14	0.16	0.06	2.0	1.1
4545	10	404	0.002	0.013	S550MNH0218XX	S550MNH0205XX	5.46	4.60	15.45	18.25	5.60	4.88	0.14	0.28	0.25	0.06	1.9	1.0
4511	24	394	0.003	0.013	S550MNH0220XX	S571MNH0207XX	5.18	3.92	16.40	12.90	10.03	8.65	4.85	4.73	SURCHARGED	13.39	4.1	4.3
2482	15	27	0.002	0.013	S550MNH0221XX	S550MNH0201XX	3.65	3.60	17.32	16.49	4.07	4.07	0.42	0.47	0.35	0.24	2.3	1.4
4091	10	318	0.003	0.013	S550MNH0222XX	S550MNH0217XX	7.31	6.42	13.90	14.80	7.44	6.55	0.13	0.13	0.16	0.06	2.1	1.1
3964	33	302	0.002	0.013	S550MNH0223XX	S550MNH0202XX	10.62	10.07	17.92	17.27	12.57	11.57	1.95	1.50	0.63	20.20	3.8	4.3
3824	42	287	0.001	0.013	S550MNH0225XX	S571MNH0212XX	2.00	1.78	16.80	13.73	3.99	3.54	1.99	1.76	0.54	20.64	2.9	3.2
3093	15	160	0.003	0.013	S550MNH0226XX	S550MNH0221XX	4.31	3.85	17.72	17.32	4.48	4.13	0.17	0.28	0.18	0.14	2.8	1.4
4622	15	463	0.002	0.013	S551MNH0203XX	S551MNH0204XX	7.70	6.62	21.50	22.25	7.84	6.75	0.14	0.13	0.11	0.08	2.5	1.1
4503	15	393	0.002	0.013	S551MNH0204XX	S551MNH0205XX	6.62	5.66	22.25	20.20	6.75	5.80	0.13	0.14	0.11	0.08	2.6	1.1
4595	15	448	0.002	0.013	S551MNH0205XX	S550MNH0205XX	5.66	4.60	20.20	18.25	5.80	4.88	0.14	0.28	0.17	0.08	2.6	1.1
4461	12	375	0.003	0.013	S552MNH0201XX	S569MNH0204XX	9.20	8.20	20.19	19.04	21.95	19.04	12.75	10.84	SURCHARGED	3.14	2.3	4.0
3431	12	239	0.004	0.013	S552MNH0202XX	S552MNH0201XX	10.23	9.30	21.70	20.19	22.03	20.19	11.80	10.89	SURCHARGED	3.13	2.8	4.0
2855	12	102	0.003	0.013	S552MNH0203XX	S552MNH0212XX	11.68	11.37	25.50	23.40	24.17	23.40	12.49	12.03	SURCHARGED	3.08	2.5	3.9
2860	12	105	0.003	0.013	S552MNH0204XX	S552MNH0203XX	12.00	11.68	25.40	25.50	25.21	24.47	13.21	12.79	SURCHARGED	2.99	2.5	3.8
3465	15	245	0.002	0.013	S552MNH0206XX	S552MNH0207XX	9.32	8.90	24.00	23.40	9.32	9.07	0.00	0.17	0.07	0.00	2.2	0.0
4587	15	432	0.003	0.013	S552MNH0207XX	S551MNH0203XX	8.90	7.70	23.40	21.50	9.03	7.84	0.13	0.14	0.11	0.08	2.8	1.1
4613	10	454	0.006	0.013	S552MNH0208XX	S552MNH0209XX	13.92	11.22	22.00	20.00	18.15	18.15	4.23	6.93	SURCHARGED	0.00	3.1	0.0
4601	10	444	0.006	0.013	S552MNH0209XX	S569MNH0206XX	11.22	8.56	20.00	18.40	18.14	18.06	6.92	9.50	SURCHARGED	0.30	3.1	0.6
3150	12	173	0.005	0.013	S552MNH0211XX	S552MNH0202XX	11.06	10.28	23.18	21.70	23.00	21.70	11.94	11.42	SURCHARGED	3.08	3.0	3.9
2850	12	102	0.003	0.013	S552MNH0212XX	S552MNH0211XX	11.37	11.06	23.40	23.18	23.83	23.07	12.46	12.01	SURCHARGED	3.08	2.5	3.9
3847	12	291	0.003	0.013	S569MNH0204XX	S569MNH0212XX	8.13	7.30	19.04	18.00	21.50	18.00	13.37	10.70	SURCHARGED	3.91	2.4	5.0
2671	12	60	0.008	0.013	S569MNH0205XX	S569MNH0212XX	7.10	6.60	18.20	18.00	18.01	18.00	10.91	11.40	SURCHARGED	0.38	4.2	0.5
3133	10	169	0.008	0.013	S569MNH0206XX	S569MNH0205XX	8.50	7.18	18.40	18.20	18.05	18.02	9.55	10.84	SURCHARGED	0.33	3.6	0.6
2927	12	124	0.002	0.013	S569MNH0209XX	S592MNH0212XX	4.18	3.93	14.50	14.00	15.86	14.00	11.68	10.07	SURCHARGED	4.35	2.0	5.5
3282	12	205	0.003	0.013	S569MNH0210XX	S569MNH0209XX	4.73	4.18	15.30	14.50	17.57	14.50	12.84	10.32	SURCHARGED	4.35	2.4	5.5
3423	12	237	0.001	0.013	S569MNH0211XX	S569MNH0210XX	5.05	4.73	17.23	15.30	18.84	15.30	13.79	10.57	SURCHARGED	4.35	1.7	5.5
3370	12	228	0.001	0.013	S569MNH0212XX	S569MNH0211XX	5.38	5.08	18.00	17.23	20.52	17.23	15.14	12.15	SURCHARGED	4.28	1.7	5.5
4409	10	365	0.003	0.013	S570MNH0201XX	S591MNH0203XX	4.12	3.20	13.30	12.10	4.33	3.63	0.21	0.43	0.38	0.15	2.0	1.4
4373	10	358	0.002	0.013	S570MNH0202XX	S570MNH0204XX	5.95	5.17	14.55	15.90	6.18	5.35	0.23	0.18	0.24	0.17	1.9	1.4
3356	10	225	0.002	0.013	S570MNH0203XX	S570MNH0202XX	6.60	6.05	15.10	14.55	6.70	6.41	0.10	0.36	0.27	0.03	2.0	0.9
2529	10	34	0.001	0.013	S570MNH0204XX	MH1_MoffetRealign	4.45	4.40	15.90	16.70	4.95	4.94	0.50	0.54	0.62	0.18	1.5	1.2
3652	12	265	0.003	0.013	S571MNH0205XX	S571MNH0209XX	3.94	3.06	11.74	12.44	4.11	3.37	0.17	0.31	0.24	0.13	2.6	1.5
4507	24	393	0.003	0.013	S571MNH0207XX	S571MNH0219XX	3.92	2.66	12.90	12.08	8.61	7.24	4.69	4.58	SURCHARGED	13.39	4.1	4.3
3833	12	297	0.003	0.013	S571MNH0208XX	S571MNH0216XX	2.20	1.22	11.55	10.72	2.50	1.49	0.30	0.27	0.29	0.41	2.6	2.0
3624	12	263	0.003	0.013	S571MNH0209XX	S571MNH0208XX	3.06	2.20	12.44	11.55	3.32	2.58	0.26	0.38	0.32	0.29	2.6	1.8
4408	42	365	0.003	0.013	S571MNH0211XX	S571MNH0216XX	0.88	-0.20	12.23	10.72	2.39	1.26	1.51	1.46	0.43	21.08	5.7	5.3

Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C6 - Cumulative Evaluation Pipe Results - PWWF

Pipe ID	Pipe Diameter	Length	Slope	Pipe Roughness	Upstream Node	Downstream Node	Invert Elevation		Ground / Rim Elevation		HGL Elevation		Flow Depth		Depth to Diameter	Peak Flow	Half Full Velocity ¹	Velocity ²
							Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream				
							(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)				
	(in)	(ft)	(ft/ft)	(Mannings n)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(d/D)	(cfs)	(ft/s)	(ft/s)
4396	42	363	0.002	0.013	S571MNH0212XX	S571MNH0211XX	1.78	1.18	13.73	12.23	3.53	2.57	1.75	1.39	0.45	20.64	4.3	4.3
4670	42	582	0.004	0.013	S571MNH0216XX	S590MNH0215XX	-0.20	-2.25	10.72	8.94	1.25	-0.44	1.45	1.81	0.47	21.49	6.2	5.7
4513	24	394	0.003	0.013	S571MNH0219XX	S590MNH0204XX	2.66	1.39	12.08	9.90	7.20	5.82	4.54	4.43	SURCHARGED	13.39	4.1	4.3
4530	10	400	0.004	0.013	S572MNH0201XX	S573MNH0212XX	2.83	1.07	10.22	9.97	2.91	1.77	0.08	0.70	0.47	0.03	2.7	1.0
3237	12	198	0.003	0.013	S572MNH0202XX	S572MNH0206XX	4.43	3.81	9.10	8.40	4.63	4.01	0.20	0.20	0.20	0.18	2.5	1.6
2550	10	38	0.003	0.013	S572MNH0203XX	S572MNH0207XX	6.40	6.29	12.40	11.15	6.40	6.29	0.00	0.00	0.00	0.00	2.2	0.0
3912	10	298	0.003	0.013	S572MNH0204XX	S549MNH0203XX	5.50	4.62	13.30	12.22	5.50	4.62	0.00	0.00	0.00	0.00	2.2	0.0
3389	12	231	0.003	0.013	S572MNH0206XX	S589MNH0211XX	3.81	3.10	8.40	7.40	4.01	3.42	0.20	0.32	0.26	0.18	2.5	1.6
3628	10	263	0.003	0.013	S572MNH0207XX	S572MNH0204XX	6.29	5.50	11.15	13.30	6.29	5.50	0.00	0.00	0.00	0.00	2.2	0.0
3232	21	196	0.004	0.013	S573MNH0201XX	S573MNH0203XX	-0.51	-1.30	10.00	10.10	0.44	-0.09	0.95	1.21	0.62	5.78	4.2	4.3
3020	21	144	0.001	0.013	S573MNH0202XX	S573MNH0213XX	-0.07	-0.21	9.00	8.25	1.43	1.24	1.50	1.45	0.84	5.74	2.1	2.4
3490	21	247	0.002	0.013	S573MNH0203XX	S588MNH0202XX	-1.30	-1.87	10.10	8.80	-0.11	-0.61	1.19	1.26	0.70	6.07	3.2	3.5
2800	10	90	0.005	0.013	S573MNH0204XX	S573MNH0203XX	1.43	0.99	9.62	10.10	1.54	1.10	0.11	0.11	0.13	0.06	2.8	1.4
2977	12	135	0.003	0.013	S573MNH0210XX	S573MNH0211XX	3.07	2.72	7.38	6.93	3.23	2.94	0.16	0.22	0.19	0.10	2.3	1.3
3883	12	296	0.003	0.013	S573MNH0211XX	S588MNH0204XX	2.72	1.97	6.93	5.98	2.94	2.26	0.22	0.29	0.25	0.19	2.3	1.5
3298	21	209	0.004	0.013	S573MNH0212XX	S573MNH0202XX	0.70	-0.07	9.97	9.00	1.73	1.47	1.03	1.54	0.73	5.73	4.0	4.2
4015	21	308	0.001	0.013	S573MNH0213XX	S573MNH0201XX	-0.21	-0.51	8.25	10.00	1.20	0.59	1.41	1.10	0.72	5.76	2.1	2.4
2694	10	63	-0.003	0.013	S573TEE1001XX	S573MNH0203XX	0.00	0.20	10.63	10.10	0.53	0.41	0.53	0.21	0.45	0.23	2.3	0.4
4017	12	308	0.003	0.013	S574MNH0202XX	S587MNH0208XX	2.90	2.12	7.04	6.39	3.07	2.34	0.17	0.22	0.20	0.12	2.3	1.3
4279	18	345	0.002	0.013	S575MNH0203XX	S586MNH0205XX	1.25	0.72	6.26	6.40	1.66	1.23	0.41	0.51	0.31	0.68	2.3	1.7
3107	10	162	0.004	0.013	S575MNH0206XX	S586MNH0205XX	1.45	0.72	6.55	6.40	1.59	1.22	0.14	0.50	0.39	0.09	2.7	1.5
3340	21	218	0.002	0.013	S586MNH0201XX	S615MNH0201XX	-0.83	-1.16	4.45	5.25	-0.35	-0.63	0.48	0.53	0.29	1.00	2.6	1.9
4275	21	358	0.002	0.013	S586MNH0202XX	S586MNH0201XX	-0.27	-0.83	4.60	4.45	0.20	-0.34	0.47	0.49	0.28	1.00	2.6	1.9
4401	21	369	0.001	0.013	S586MNH0204XX	S586TEE1003XX	0.32	0.00	5.70	6.44	0.87	0.36	0.55	0.36	0.26	1.00	1.9	1.5
3705	21	276	0.001	0.013	S586MNH0205XX	S586MNH0204XX	0.72	0.32	6.40	5.70	1.20	0.87	0.48	0.55	0.30	1.00	2.5	1.9
3715	12	273	0.002	0.013	S586MNH0209XX	S615MNH0208XX	-0.90	-1.57	3.61	2.70	-0.56	-1.24	0.34	0.33	0.33	0.43	2.3	1.9
2515	21	31	0.009	0.013	S586TEE1003XX	S586MNH0202XX	0.00	-0.27	6.44	4.60	0.36	0.21	0.36	0.48	0.24	1.00	6.1	3.5
3891	12	296	0.002	0.013	S587MNH0201XX	S614MNH0203XX	-0.34	-1.07	4.25	3.53	0.01	-0.66	0.35	0.41	0.38	0.46	2.3	1.9
4035	12	310	0.003	0.013	S587MNH0202XX	S587MNH0201XX	0.44	-0.34	5.17	4.25	0.77	0.02	0.33	0.36	0.35	0.41	2.3	1.9
4127	12	323	0.002	0.013	S587MNH0206XX	S614MNH0204XX	0.55	-0.22	4.35	3.65	0.87	0.19	0.32	0.41	0.36	0.38	2.2	1.8
4081	12	316	0.002	0.013	S587MNH0207XX	S587MNH0206XX	1.34	0.55	5.22	4.35	1.64	0.88	0.30	0.33	0.31	0.35	2.3	1.8
3920	12	298	0.003	0.013	S587MNH0208XX	S587MNH0207XX	2.12	1.34	6.39	5.22	2.33	1.65	0.21	0.31	0.26	0.18	2.3	1.5
4617	24	455	0.002	0.013	S588MNH0201XX	S613MNH0202XX	-3.02	-3.92	7.25	5.95	-1.86	-2.70	1.16	1.22	0.60	6.46	3.2	3.4
4611	21	452	0.002	0.013	S588MNH0202XX	S588MNH0201XX	-1.87	-2.77	8.80	7.25	-0.62	-1.81	1.25	0.96	0.63	6.07	2.9	3.3
4024	12	309	0.003	0.013	S588MNH0203XX	S587MNH0202XX	1.22	0.44	6.14	5.17	1.50	0.78	0.28	0.34	0.31	0.30	2.3	1.7
3937	12	300	0.003	0.013	S588MNH0204XX	S588MNH0203XX	1.97	1.22	5.98	6.14	2.25	1.50	0.28	0.28	0.28	0.30	2.3	1.7
4489	10	385	0.002	0.013	S589MNH0202XX	S590MNH0201XX	1.46	0.59	8.90	8.90	1.73	0.94	0.27	0.35	0.37	0.24	1.9	1.6
3984	10	304	0.003	0.013	S589MNH0203XX	S589MNH0202XX	2.35	1.47	9.15	8.90	2.56	1.78	0.21	0.31	0.31	0.16	2.2	1.5
3992	10	305	0.003	0.013	S589MNH0204XX	S589MNH0203XX	3.24	2.35	9.25	9.15	3.32	2.59	0.08	0.24	0.19	0.02	2.2	0.9
4287	10	347	0.002	0.013	S589MNH0204XX	S589MNH0214XX	3.24	2.54	9.25	9.60	3.33	2.67	0.09	0.13	0.13	0.02	1.8	0.0
4194	10	331	0.001	0.013	S589MNH0205XX	S573MNH0204XX	1.85	1.43	9.82	9.62	2.01	1.55	0.16	0.12	0.17	0.06	1.4	0.9
3961	12	302	0.003	0.013	S589MNH0206XX	S589MNH0207XX	2.20	1.30	8.10	7.50	2.45	1.62	0.25	0.32	0.29	0.27	2.5	1.8
3159	12	176	0.003	0.013	S589MNH0207XX	S589MNH0208XX	1.30	0.77	7.50	8.00	1.59	1.06	0.29	0.29	0.29	0.36	2.5	1.9
2916	12	122	0.003	0.013	S589MNH0208XX	S590MNH0220XX	0.77	0.38	8.00	8.02	1.06	0.76	0.29	0.38	0.33	0.36	2.6	1.9
4027	12	309	0.003	0.013	S589MNH0211XX	S589MNH0206XX	3.10	2.20	7.40	8.10	3.35	2.46	0.25	0.26	0.26	0.27	2.5	1.7
4459	10	376	0.002	0.013	S589MNH0214XX	S589MNH0205XX	2.54	1.85	9.60	9.82	2.67	2.02	0.13	0.17	0.18	0.05	1.7	0.9
3472	10	245	0.012	0.013	S590MNH0201XX	S590MNH0217XX	0.59	-2.41	8.90	8.06	0.82	-1.88	0.23	0.53	0.46	0.27	4.4	3.0
4514	24	394	0.003	0.013	S590MNH0202XX	S590MNH0218XX	0.13	-1.13	8.60	7.60	4.21	2.78	4.08	3.91	SURCHARGED	13.63	4.1	4.3
2903	24	118	0.003	0.013	S590MNH0203XX	S590MNH0202XX	0.52	0.13	8.80	8.60	4.71	4.29	4.19	4.16	SURCHARGED	13.61	4.1	4.3
3676	24	267	0.003	0.013	S590MNH0204XX	S590MNH0203XX	1.39	0.52	9.90	8.80	5.75	4.79	4.36	4.27	SURCHARGED	13.56	4.1	4.3
4188	12	338	0.003	0.013	S590MNH0213XX	S590MNH0216XX	-0.53	-1.46	7.90	8.63	-0.15	-0.64	0.38	0.82	0.60	0.57	2.4	2.1
2954	42	130	0.002	0.013	S590MNH0215XX	S590MNH0216XX	-2.20	-2.40	8.94	8.63	-0.45	-0.81	1.75	1.59	0.48	21.49	4.1	4.2
4673	42	601	0.003	0.013	S590MNH0216XX	S590MNH0217XX	-2.40	-4.04	8.63	8.06	-0.82	-1.99	1.58	2.05	0.52	22.07	5.5	5.2
4480	42	380	0.001	0.013	S590MNH0217XX	S611MNH0209XX	-4.19	-4.52	8.06	7.03	-2.00	-2.88	2.19	1.64	0.55	25.07	3.1	3.5
3341	24	406	0.003	0.013	S590MNH0218XX	S611MNH0205XX	-1.13	-2.40	7.60	6.40	2.70	1.21	3.83	3.61	SURCHARGED	13.71	4.0	4.4

Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C6 - Cumulative Evaluation Pipe Results - PWWF

Pipe ID	Pipe Diameter	Length	Slope	Pipe Roughness	Upstream Node	Downstream Node	Invert Elevation		Ground / Rim Elevation		HGL Elevation		Flow Depth		Depth to Diameter	Peak Flow	Half Full Velocity ¹	Velocity ²
							Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream				
							(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)				
	(in)	(ft)	(ft/ft)	(Mannings n)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(d/D)	(cfs)	(ft/s)	(ft/s)
2463	18	23	0.010	0.013	S590MNH0219XX	S590MNH0217XX	-3.03	-3.25	7.79	8.06	-1.88	-1.88	1.15	1.37	0.84	2.73	5.9	4.9
3985	12	304	0.003	0.013	S590MNH0220XX	S590MNH0213XX	0.38	-0.53	8.02	7.90	-0.71	-0.08	0.33	0.45	0.39	0.45	2.5	2.0
4426	12	368	0.002	0.013	S591MNH0201XX	S610MNH0208XX	1.39	0.66	10.60	9.40	1.81	1.43	0.42	0.77	0.59	0.57	2.0	1.9
4644	12	504	0.001	0.013	S591MNH0202XX	S591MNH0201XX	2.12	1.39	10.90	10.60	2.49	1.88	0.37	0.49	0.43	0.40	1.7	1.5
3388	10	231	0.004	0.013	S591MNH0203XX	S591MNH0202XX	3.20	2.29	12.10	10.90	3.49	2.55	0.29	0.26	0.33	0.36	2.5	2.1
4447	12	371	0.002	0.013	S592MNH0212XX	S592MNH0214XX	3.93	3.04	14.00	13.19	18.74	13.19	14.81	10.15	SURCHARGED	4.35	2.2	5.5
3056	12	154	0.001	0.013	S592MNH0214XX	S592MNH0215XX	3.03	2.88	13.19	12.80	15.24	12.80	12.21	9.92	SURCHARGED	4.49	1.4	5.7
2989	12	137	0.002	0.013	S592MNH0215XX	S592MNH0216XX	2.88	2.63	12.80	12.92	15.56	12.92	12.68	10.29	SURCHARGED	4.94	1.9	6.3
2818	12	94	0.002	0.013	S592MNH0216XX	S592MNH0217XX	2.63	2.46	12.92	12.10	13.90	12.10	11.27	9.64	SURCHARGED	4.94	1.9	6.3
4450	12	372	0.002	0.013	S592MNH0217XX	S609MNH0206XX	2.46	1.71	12.10	11.33	18.48	11.33	16.02	9.62	SURCHARGED	4.94	2.0	6.3
4053	12	313	0.001	0.013	S609MNH0206XX	S609MNH0207XX	1.56	1.12	11.33	10.00	16.50	10.00	14.94	8.88	SURCHARGED	5.13	1.7	6.5
2670	12	60	0.003	0.013	S609MNH0207XX	S609MNH0208XX	1.12	0.97	10.00	10.31	11.55	10.31	10.43	9.34	SURCHARGED	5.13	2.3	6.5
4491	12	386	0.003	0.013	S609MNH0208XX	S610MNH0203XX	0.97	0.00	10.31	10.60	15.23	7.22	14.26	7.22	SURCHARGED	5.13	2.3	6.5
2676	12	60	0.000	0.013	S610MNH0203XX	S610MNH0205XX	0.00	0.00	10.60	9.91	6.43	5.18	6.43	5.18	SURCHARGED	5.13	0.1	6.5
2698	18	63	0.032	0.013	S610MNH0204XX	S610MNH0205XX	3.00	1.00	9.00	9.91	4.91	4.90	1.91	3.90	SURCHARGED	1.83	10.6	1.0
4485	18	385	0.001	0.013	S610MNH0205XX	S610MNH0209XX	2.50	2.23	9.91	10.20	3.39	2.92	0.89	0.69	0.53	1.99	1.6	0.0
4640	18	494	0.003	0.013	S610MNH0205XX	S631MNH0203XX	-0.50	-1.94	9.91	7.84	4.70	3.55	5.20	5.49	SURCHARGED	5.06	3.2	2.9
3784	10	280	0.002	0.013	S610MNH0206XX	S631MNH0206XX	2.00	1.34	8.36	7.38	3.95	3.94	1.95	2.60	SURCHARGED	0.12	2.0	0.2
4392	18	366	0.001	0.013	S610MNH0207XX	S611MNH0201XX	0.23	-0.08	9.00	8.20	1.25	0.78	1.02	0.86	0.63	2.68	1.7	2.0
3172	18	180	0.002	0.013	S610MNH0208XX	S610MNH0207XX	0.56	0.23	9.40	9.00	1.35	1.30	0.79	1.07	0.93	0.64	1.9	1.9
4512	12	396	0.002	0.013	S610MNH0209XX	S610MNH0210XX	2.23	1.46	10.20	9.30	2.92	2.07	0.69	0.61	0.43	1.99	2.6	2.5
4479	18	381	0.003	0.013	S610MNH0210XX	S610MNH0207XX	1.46	0.23	9.30	9.00	2.06	1.34	0.60	1.11	0.57	1.99	3.4	3.0
2706	18	65	0.002	0.013	S611MNH0201XX	S611MNH0202XX	-0.08	-0.21	8.80	8.20	0.77	0.67	0.85	0.88	0.58	2.68	2.7	2.8
4253	18	344	0.002	0.013	S611MNH0202XX	S611MNH0203XX	-0.21	-0.79	8.20	9.20	0.65	-0.05	0.86	0.74	0.53	2.68	2.4	2.6
4556	18	411	0.005	0.013	S611MNH0203XX	S590MNH0219XX	-0.79	-3.03	9.20	7.79	-0.16	-1.87	0.63	1.16	0.60	2.73	4.4	4.0
4506	24	393	0.003	0.013	S611MNH0205XX	S611MNH0206XX	-2.40	-3.69	6.40	5.10	1.12	-0.33	3.52	3.36	SURCHARGED	13.76	4.1	4.4
3314	24	213	0.002	0.013	S611MNH0206XX	S611MNH0208XX	-3.69	-4.19	5.10	5.09	-0.36	-1.15	3.33	3.04	SURCHARGED	13.76	3.5	4.4
4484	24	383	0.003	0.013	S611MNH0207XX	S630MNH0205XX	-4.91	-6.17	4.20	5.59	-1.90	-3.31	3.01	2.86	SURCHARGED	13.76	4.1	4.4
3207	24	187	0.004	0.013	S611MNH0208XX	S611MNH0207XX	-4.19	-4.91	5.09	4.20	-1.18	-1.87	3.01	3.04	SURCHARGED	13.76	4.5	4.4
4558	42	412	0.003	0.013	S611MNH0209XX	S611MNH0210XX	-4.52	-5.91	7.03	5.87	-2.92	-4.06	1.60	1.85	0.49	25.14	6.1	5.8
2462	10	23	0.000	0.013	S611MNH0210XX	S611MNH0208XX	0.00	0.00	5.87	5.09	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0
4678	42	620	0.002	0.013	S611MNH0210XX	S630MNH0209XX	-5.91	-7.31	5.87	5.52	-4.07	-5.66	1.84	1.65	0.50	25.98	5.0	5.1
3491	10	248	0.002	0.013	S611MNH0214XX	S630MNH0213XX	-2.40	-2.87	5.50	5.52	-2.23	-2.60	0.17	0.27	0.26	0.08	1.8	1.1
4022	10	309	0.003	0.013	S612CLN1001XX	S612MNH0203XX	2.20	1.35	4.37	5.37	2.54	1.72	0.34	0.37	0.43	0.39	2.1	1.9
4169	10	339	0.003	0.013	S612MNH0201XX	S611MNH0210XX	-1.98	-2.88	5.33	5.87	-1.44	-2.47	0.54	0.41	0.57	0.84	2.1	2.3
3915	10	298	0.003	0.013	S612MNH0202XX	S612MNH0201XX	-1.08	-1.98	5.76	5.33	-0.60	-1.29	0.48	0.69	0.70	0.76	2.2	2.3
3864	10	294	0.008	0.013	S612MNH0203XX	S612MNH0202XX	1.35	-1.08	5.37	5.76	1.67	-0.47	0.32	0.61	0.56	0.53	3.7	3.1
3427	24	238	0.002	0.013	S613MNH0201XX	S613MNH0203XX	-4.82	-5.35	4.45	3.10	-3.62	-3.95	1.20	1.40	0.65	6.72	3.4	3.6
4608	24	450	0.002	0.013	S613MNH0202XX	S613MNH0201XX	-3.92	-4.82	5.95	4.45	-2.74	-3.58	1.18	1.24	0.61	6.58	3.2	3.4
3319	24	214	0.002	0.013	S613MNH0203XX	S613MNH0208XX	-5.35	-5.72	3.10	3.20	-3.98	-4.33	1.37	1.39	0.69	7.50	3.0	3.3
4047	12	312	0.003	0.013	S613MNH0204XX	S613MNH0203XX	-3.37	-4.44	3.42	3.10	-2.96	-3.89	0.41	0.55	0.48	0.75	2.7	2.4
2375	24	12	0.008	0.013	S613MNH0208XX	S613TEE1001XX	-5.72	-5.82	3.20	2.66	-4.37	-4.36	1.35	1.46	0.70	7.69	6.5	6.1
4584	24	427	0.002	0.013	S613TEE1001XX	S628MNH0207XX	-5.82	-6.49	2.66	2.88	-4.37	-4.98	1.45	1.51	0.74	7.69	2.9	3.2
4069	12	315	0.000	0.013	S614MNH0201XX	S613MNH0204XX	-3.31	-3.37	3.31	3.42	-2.57	-2.95	0.74	0.42	0.58	0.75	0.6	1.0
3983	12	304	0.005	0.013	S614MNH0202XX	S614MNH0201XX	-1.82	-3.31	3.70	3.31	-1.44	-2.57	0.38	0.74	0.56	0.75	3.2	2.8
3924	12	299	0.003	0.013	S614MNH0203XX	S614MNH0202XX	-1.07	-1.82	3.53	3.70	-0.69	-1.13	0.38	0.69	0.54	0.56	2.3	2.0
3840	12	290	0.002	0.013	S614MNH0204XX	S586MNH0209XX	-0.22	-0.90	3.65	3.61	0.12	-0.54	0.34	0.36	0.35	0.43	2.2	1.8
4627	21	471	0.002	0.013	S615MNH0201XX	S615MNH0202XX	-1.16	-1.88	5.25	4.85	-0.67	-1.40	0.49	0.48	0.28	1.08	2.6	1.9
3850	21	293	0.002	0.013	S615MNH0202XX	S615MNH0210XX	-1.88	-2.40	4.85	4.80	-1.41	-2.03	0.47	0.37	0.24	1.08	2.8	2.0
2690	21	62	0.000	0.013	S615MNH0203XX	S615MNH0204XX	-5.20	-5.20	5.00	4.88	-2.28	-2.28	2.92	2.92	SURCHARGED	1.64	0.1	0.7
4620	39	458	0.002	0.013	S615MNH0204XX	S627MNH0202XX	-5.92	-6.69	4.88	10.90	-2.43	-3.06	3.49	3.63	SURCHARGED	30.57	4.1	3.7
3857	39	294	0.002	0.013	S615MNH0206XX	S615MNH0204XX	-5.37	-5.92	2.00	4.88	-2.05	-2.41	3.32	3.51	SURCHARGED	28.93	4.3	3.5
3619	12	262	0.003	0.013	S615MNH0207XX	S615MNH0210XX	-2.30	-3.00	2.20	4.80	-1.97	-2.23	0.33	0.77	0.55	0.43	2.3	1.9
3671	12	267	0.003	0.013	S615MNH0208XX	S615MNH0207XX	-1.57	-2.30	2.70	2.20	-1.24	-1.97	0.33	0.33	0.33	0.43	2.4	1.9
3087	21	160	0.011	0.013	S615MNH0210XX	S615MNH0203XX	-3.38	-5.20	4.80	5.00	-2.23	-2.24	1.15	2.96	SURCHARGED	1.50	7.0	4.3

Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C6 - Cumulative Evaluation Pipe Results - PWWF

Pipe ID	Pipe Diameter	Length	Slope	Pipe Roughness	Upstream Node	Downstream Node	Invert Elevation		Ground / Rim Elevation		HGL Elevation		Flow Depth		Depth to Diameter	Peak Flow	Half Full Velocity ¹	Velocity ²
							Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream				
							(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)				
	(in)	(ft)	(ft/ft)	(Mannings n)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(d/D)	(cfs)	(ft/s)	(ft/s)
4694	39	709	0.001	0.013	S627MNH0201XX	S628MNH0206XX	-7.54	-8.36	3.60	3.43	-4.13	-5.10	3.41	3.26	SURCHARGED	30.57	3.4	3.7
4697	39	757	0.001	0.013	S627MNH0202XX	S627MNH0201XX	-6.69	-7.54	10.90	3.60	-3.07	-4.11	3.62	3.43	SURCHARGED	30.57	3.3	3.7
2783	10	85	0.005	0.013	S628MNH0201XX	S628MNH0209XX	-5.87	-6.31	3.70	4.02	-5.48	-5.49	0.39	0.82	0.73	0.23	2.9	2.1
3029	10	146	0.006	0.013	S628MNH0205XX	S628MNH0201XX	-4.54	-5.46	5.25	3.70	-4.33	-5.25	0.21	0.21	0.25	0.23	3.2	2.2
3395	39	231	0.001	0.013	S628MNH0206XX	S628MNH0209XX	-8.36	-8.59	3.43	4.02	-5.22	-5.69	3.14	2.90	0.93	38.26	3.1	4.6
2537	24	36	0.006	0.013	S628MNH0207XX	S628MNH0206XX	-6.49	-6.71	2.88	3.43	-4.99	-5.00	1.50	1.71	0.80	7.69	5.7	5.5
2578	39	43	0.008	0.013	S628MNH0209XX	S628MNH0210XX	-8.59	-8.94	4.02	4.30	-5.73	-5.76	2.86	3.18	0.93	38.49	9.0	9.1
2479	48	27	0.003	0.013	S628MNH0210XX	S628MNH0211XX	-8.94	-9.01	4.30	4.40	-5.79	-5.81	3.15	3.20	0.79	38.49	5.9	5.9
4637	48	487	0.001	0.013	S628MNH0211XX	S628MNH0212XX	-9.01	-9.46	4.40	3.70	-5.82	-6.17	3.19	3.29	0.81	38.49	3.5	3.9
3683	48	268	0.001	0.013	S628MNH0212XX	S629MNH0213XX	-9.46	-9.71	3.70	3.30	-6.18	-6.37	3.28	3.34	0.83	38.49	3.5	3.9
4295	10	346	0.006	0.013	S628MNH0213XX	S628TEE1001XX	-2.13	-4.13	5.10	5.18	-1.93	-3.93	0.20	0.20	0.24	0.21	3.1	2.1
2442	10	21	0.006	0.013	S628TEE1001XX	S629MNH0205XX	-4.13	-4.25	5.18	5.25	-3.93	-4.05	0.20	0.20	0.24	0.21	3.1	2.1
2391	10	14	0.001	0.013	S629MNH0201XX	S629MNH0210XX	-1.47	-1.49	3.99	4.05	-1.22	-1.25	0.25	0.24	0.29	0.16	1.5	1.2
4496	10	389	0.004	0.013	S629MNH0201XX	S629MNH0209XX	-1.16	-2.57	3.99	5.60	-1.16	-2.50	0.00	0.07	0.04	0.00	2.4	0.0
2804	10	92	0.012	0.013	S629MNH0202XX	S629MNH0201XX	-0.40	-1.47	4.50	3.99	-0.23	-1.22	0.17	0.25	0.26	0.16	4.3	2.5
3203	10	187	0.004	0.013	S629MNH0203XX	S629MNH0202XX	0.34	-0.40	5.26	4.50	0.53	-0.21	0.19	0.19	0.23	0.16	2.5	1.7
2453	48	22	0.001	0.013	S629MNH0204XX	S629MNH0214XX	-10.71	-10.73	4.70	5.30	-7.77	-7.79	2.94	2.94	0.73	38.49	3.5	3.9
2582	30	49	0.000	0.013	S629MNH0205XX	S629MNH0204XX	-10.69	-10.71	4.60	4.70	-7.15	-7.26	3.54	3.45	SURCHARGED	19.24	1.7	0.0
2581	30	49	0.000	0.013	S629MNH0205XX	S629MNH0204XX	-10.69	-10.71	4.60	4.70	-7.41	-7.52	3.28	3.19	SURCHARGED	19.24	1.7	3.9
4384	10	360	0.006	0.013	S629MNH0208XX	S629MNH0218XX	-3.93	-6.00	4.50	3.10	-3.81	-5.88	0.12	0.12	0.14	0.07	3.1	1.5
4487	10	385	0.004	0.013	S629MNH0209XX	S629MNH0208XX	-2.57	-3.93	5.60	4.50	-2.50	-3.77	0.07	0.16	0.14	0.02	2.4	0.9
4431	10	371	0.002	0.013	S629MNH0210XX	S628MNH0213XX	-1.49	-2.13	4.05	5.10	-1.25	-1.85	0.24	0.28	0.31	0.16	1.7	1.3
4696	48	752	0.001	0.013	S629MNH0211XX	S629MNH0224XX	-10.04	-10.67	4.10	3.40	-6.67	-7.16	3.37	3.51	0.86	38.49	3.3	3.8
3155	48	175	0.001	0.013	S629MNH0212XX	S629MNH0211XX	-9.87	-10.04	3.40	4.10	-6.54	-6.65	3.33	3.39	0.84	38.49	3.6	4.0
3196	48	186	0.001	0.013	S629MNH0213XX	S629MNH0212XX	-9.71	-9.87	3.30	3.40	-6.39	-6.52	3.32	3.35	0.83	38.49	3.4	3.8
4538	48	402	0.001	0.013	S629MNH0214XX	S652MNH0215XX	-10.73	-11.08	5.30	7.10	-7.87	-8.29	2.86	2.79	0.71	38.49	3.4	3.8
2532	33	36	0.003	0.013	S629MNH0216XX	S629MNH0218XX	-8.99	-9.10	3.06	3.10	-7.27	-7.29	1.72	1.81	0.64	13.04	4.9	0.0
2924	33	127	0.003	0.013	S629MNH0216XX	S629MNH0217XX	-8.99	-9.31	3.06	3.88	-7.47	-7.59	1.52	1.72	0.59	13.04	4.5	4.5
4651	42	517	0.004	0.013	S629MNH0217XX	S652MNH0225XX	-9.31	-11.36	3.88	8.62	-7.73	-8.05	1.58	3.31	0.70	26.19	6.6	6.3
2796	33	91	0.002	0.013	S629MNH0218XX	S629MNH0217XX	-9.10	-9.31	3.10	3.88	-7.51	-7.60	1.59	1.71	0.60	13.14	4.3	4.3
3182	10	182	0.004	0.013	S629MNH0223XX	S629MNH0203XX	1.07	0.34	4.82	5.26	1.25	0.56	0.18	0.22	0.24	0.15	2.6	1.7
2454	48	22	0.001	0.013	S629MNH0224XX	S629MNH0205XX	-10.67	-10.69	3.40	4.60	-7.25	-7.27	3.42	3.42	0.86	38.49	3.5	3.9
3313	10	213	0.003	0.013	S630MNH0201XX	S630MNH0204XX	-4.55	-5.21	4.70	3.70	-3.71	-3.75	0.84	1.46	SURCHARGED	0.30	2.2	0.5
2978	24	135	0.004	0.013	S630MNH0202XX	S630MNH0210XX	-7.43	-7.94	5.10	5.00	-4.89	-5.41	2.54	2.53	SURCHARGED	14.06	4.4	4.5
3246	24	199	0.000	0.013	S630MNH0203XX	S630MNH0202XX	-7.37	-7.43	3.72	5.10	-4.09	-4.86	3.28	2.57	SURCHARGED	14.06	1.3	4.5
3129	10	169	0.004	0.013	S630MNH0204XX	S630MNH0203XX	-5.21	-5.87	3.70	3.72	-3.75	-3.78	1.46	2.09	SURCHARGED	0.30	2.5	0.5
3231	24	195	0.006	0.013	S630MNH0205XX	S630MNH0203XX	-6.17	-7.37	5.59	3.72	-3.34	-4.06	2.83	3.31	SURCHARGED	13.76	5.7	4.4
4604	42	444	0.004	0.013	S630MNH0209XX	S629MNH0216XX	-7.31	-8.92	5.52	3.06	-5.70	-7.35	1.61	1.57	0.45	26.09	6.3	6.1
3599	24	260	0.003	0.013	S630MNH0210XX	S652MNH0209XX	-7.94	-8.69	5.00	2.69	-5.45	-6.46	2.49	2.23	SURCHARGED	14.06	3.9	4.5
3795	10	282	0.003	0.013	S630MNH0211XX	S630MNH0201XX	-3.70	-4.55	4.00	4.70	-3.44	-3.63	0.26	0.92	0.71	0.26	2.2	1.8
2397	10	15	0.005	0.013	S630MNH0212XX	S630MNH0211XX	-3.63	-3.70	4.00	4.00	-3.11	-3.11	0.52	0.59	0.66	0.21	2.8	1.9
3608	10	261	0.003	0.013	S630MNH0213XX	S630MNH0212XX	-2.87	-3.63	5.52	4.00	-2.65	-3.06	0.22	0.57	0.47	0.17	2.2	1.6
2633	10	54	0.121	0.013	S630TEE1001XX	S630MNH0210XX	0.00	-6.54	5.01	5.00	0.00	-5.19	0.00	1.35	0.81	0.00	14.0	0.0
3807	18	284	0.000	0.013	S631MNH0201XX	S631MNH0208XX	-3.10	-3.24	6.00	5.20	2.65	1.84	5.75	5.08	SURCHARGED	5.64	1.3	3.2
2914	18	121	0.001	0.013	S631MNH0202XX	S631MNH0201XX	-3.02	-3.10	6.48	6.00	3.08	2.76	6.10	5.86	SURCHARGED	5.40	1.5	3.1
3171	18	179	0.006	0.013	S631MNH0203XX	S631MNH0202XX	-1.94	-3.02	7.84	6.48	3.53	3.11	5.47	6.13	SURCHARGED	5.06	4.6	2.9
3674	12	277	0.002	0.013	S631MNH0206XX	S631MNH0207XX	1.34	0.73	7.38	7.30	3.93	3.92	2.59	3.19	SURCHARGED	0.27	2.1	0.3
3831	12	293	0.002	0.013	S631MNH0207XX	S631MNH0210XX	0.73	0.09	7.30	8.22	3.92	3.90	3.19	3.81	SURCHARGED	0.27	2.1	0.3
4641	18	497	0.001	0.013	S631MNH0208XX	S650MNH0207XX	-3.24	-3.67	5.20	8.30	1.79	0.36	5.03	4.03	SURCHARGED	5.64	1.8	3.2
3966	12	302	0.002	0.013	S631MNH0209XX	S631MNH0202XX	-0.57	-1.23	8.50	6.48	3.87	3.84	4.44	5.07	SURCHARGED	0.34	2.1	0.4
4007	12	307	0.002	0.013	S631MNH0210XX	S631MNH0209XX	0.09	-0.57	8.22	8.50	3.90	3.87	3.81	4.44	SURCHARGED	0.31	2.1	0.4
4108	27	320	0.001	0.013	S648MNH0201XX	S649MNH0206XX	0.08	-0.24	9.50	8.90	0.92	0.60	0.84	0.84	0.37	2.89	2.5	2.1
4107	27	320	0.001	0.013	S648MNH0202XX	S648MNH0201XX	0.40	0.08	10.20	9.50	1.24	0.92	0.84	0.84	0.37	2.89	2.5	2.1
4494	27	387	0.001	0.013	S649MNH0201XX	S650MNH0201XX	-1.13	-1.52	7.90	8.10	-0.29	-0.69	0.84	0.83	0.37	2.89	2.5	2.2
3534	27	253	0.001	0.013	S649MNH0204XX	S649MNH0201XX	-0.88	-1.13	7.90	7.90	-0.04	-0.29	0.84	0.84	0.37	2.89	2.5	2.1

Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C6 - Cumulative Evaluation Pipe Results - PWWF

Pipe ID	Pipe Diameter	Length	Slope	Pipe Roughness	Upstream Node	Downstream Node	Invert Elevation		Ground / Rim Elevation		HGL Elevation		Flow Depth		Depth to Diameter	Peak Flow	Half Full Velocity ¹	Velocity ²
							Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream				
							(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)				
	(in)	(ft)	(ft/ft)	(Mannings n)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(d/D)	(cfs)	(ft/s)	(ft/s)
4116	27	321	0.001	0.013	S649MNH0205XX	S649MNH0204XX	-0.56	-0.88	7.90	7.90	0.28	-0.04	0.84	0.84	0.37	2.89	2.5	2.1
4104	27	320	0.001	0.013	S649MNH0206XX	S649MNH0205XX	-0.24	-0.56	8.90	7.90	0.60	0.28	0.84	0.84	0.37	2.89	2.5	2.1
3781	27	280	0.001	0.013	S650MNH0201XX	S650MNH0202XX	-1.52	-1.80	8.10	7.00	-0.70	-1.22	0.82	0.58	0.31	2.89	2.5	2.1
2421	27	18	0.032	0.013	S650MNH0202XX	S650MNH0205XX	-1.80	-2.38	7.00	7.00	-1.23	-1.58	0.57	0.80	0.31	2.89	14.0	7.4
4680	36	629	0.000	0.013	S650MNH0203XX	S650MNH0210XX	-5.71	-5.96	3.87	4.13	-4.80	-5.41	0.91	0.55	0.24	2.89	1.9	1.5
3146	36	173	0.019	0.013	S650MNH0204XX	S650MNH0203XX	-2.45	-5.71	3.45	3.87	-1.92	-4.79	0.53	0.92	0.24	2.89	13.0	5.9
2835	27	99	0.001	0.013	S650MNH0205XX	S650MNH0204XX	-2.38	-2.45	7.00	3.45	-1.58	-1.88	0.80	0.57	0.31	2.89	2.1	1.9
4597	18	448	0.002	0.013	S650MNH0206XX	S650MNH0209XX	-3.89	-4.65	8.60	6.40	-1.60	-2.90	2.29	1.75	SURCHARGED	5.65	2.5	3.2
2714	18	67	0.003	0.013	S650MNH0207XX	S650MNH0206XX	-3.67	-3.89	8.30	8.60	0.33	0.13	4.00	4.02	SURCHARGED	5.64	3.4	3.2
4618	18	455	0.002	0.013	S650MNH0209XX	S651MNH0201XX	-4.65	-5.41	6.40	4.50	-2.91	-4.26	1.74	1.15	0.96	5.65	2.4	3.2
2959	36	131	0.005	0.013	S650MNH0210XX	S650MNH0211XX	-5.96	-6.67	4.13	3.90	-5.42	-6.12	0.54	0.55	0.18	2.98	7.0	3.8
4661	36	538	0.005	0.013	S650MNH0211XX	S651MNH0202XX	-6.67	-9.58	3.90	9.72	-6.13	-7.84	0.54	1.74	0.38	3.02	6.9	3.8
2378	33	13	0.141	0.013	S650MNH0215XX	S650MNH0204XX	-0.65	-2.45	6.94	3.45	-0.65	-1.90	0.00	0.55	0.10	0.00	33.4	0.0
2362	18	11	0.062	0.013	S650TEE1001XX	S650MNH0215XX	0.00	-0.65	5.62	6.94	0.00	-0.65	0.00	0.00	0.00	0.00	14.8	0.0
4602	18	444	0.003	0.013	S651MNH0201XX	S651MNH0203XX	-5.41	-6.93	4.50	10.92	-4.28	-6.01	0.92	0.68	0.56	5.65	3.5	4.0
2505	36	30	0.001	0.013	S651MNH0202XX	S651MNH0203XX	-9.58	-9.61	9.72	10.92	-7.87	-7.87	1.71	1.74	0.58	3.06	3.0	2.1
4630	36	478	0.001	0.013	S651MNH0203XX	S651MNH0205XX	-9.61	-10.03	10.92	8.47	-7.87	-8.02	1.74	2.01	0.63	8.72	2.8	2.7
3014	36	143	0.001	0.013	S651MNH0205XX	S651MNH0211XX	-9.60	-9.77	8.47	9.00	-8.06	-8.12	1.54	1.65	0.53	8.72	3.3	3.0
2883	33	111	0.001	0.013	S651MNH0208XX	S651MNH0210XX	-10.16	-10.27	1.59	1.22	-8.31	-8.35	1.85	1.92	0.69	8.72	2.8	2.8
4375	18	358	0.001	0.013	S651MNH0209XX	S652MNH0207XX	-6.03	-6.44	4.18	5.63	-6.03	-6.44	0.00	0.00	0.00	0.00	2.0	0.0
3360	33	221	0.001	0.013	S651MNH0210XX	S652MNH0208XX	-10.27	-10.55	1.22	3.20	-8.36	-8.42	1.91	2.13	0.74	8.72	3.2	3.1
2350	18	8	0.012	0.013	S651MNH0211XX	00_S651MNH0211XX	-5.34	-5.44	9.00	10.76	-5.34	-5.44	0.00	0.00	0.00	0.00	6.6	0.0
4467	33	376	0.001	0.013	S651MNH0211XX	S651MNH0208XX	-9.77	-10.16	9.00	1.59	-8.13	-8.30	1.64	1.86	0.64	8.72	2.9	2.9
2713	48	72	0.011	0.013	S652MNH0202XX	S652MNH0211XX	-14.10	-14.90	6.16	5.81	-13.00	-13.56	1.10	1.34	0.30	14.06	12.0	7.5
2562	48	40	0.004	0.013	S652MNH0203XX	S652MNH0214XX	-11.45	-11.61	7.80	9.74	-9.60	-9.79	1.85	1.82	0.46	38.49	7.2	6.9
2637	39	55	0.004	0.013	S652MNH0204XX	S652MNH0214XX	-11.54	-11.78	6.85	9.74	-9.65	-9.91	1.89	1.87	0.58	34.90	6.6	7.0
2356	33	10	0.064	0.013	S652MNH0205XX	S652MNH0204XX	-10.90	-11.54	6.68	6.85	-8.93	-9.28	1.97	2.26	0.77	34.90	22.5	19.0
2716	24	68	0.020	0.013	S652MNH0207XX	S652MNH0202XX	-10.15	-11.50	5.63	6.16	-8.80	-10.54	1.35	0.96	0.58	14.06	10.2	9.8
2569	33	45	0.003	0.013	S652MNH0208XX	S652MNH0225XX	-10.55	-10.70	3.20	8.62	-8.43	-8.44	2.12	2.26	0.80	8.72	5.1	4.4
4198	24	362	0.002	0.013	S652MNH0209XX	S652MNH0207XX	-8.69	-9.50	2.69	5.63	-6.50	-8.15	2.19	1.35	0.89	14.06	3.4	4.5
4728	48	14	0.000	0.013	S652MNH0211XX	WPCP	-14.90	-14.90	5.81	0.00	-13.65	-13.80	1.25	1.10	0.29	14.06	0.1	1.1
2618	48	51	0.016	0.013	S652MNH0214XX	S652MNH0212XX	-14.10	-14.90	9.74	5.89	-11.51	-11.79	2.59	3.11	0.71	73.39	14.3	13.6
2459	48	24	0.015	0.013	S652MNH0215XX	S652MNH0203XX	-11.08	-11.45	7.10	7.80	-7.00	-7.00	4.08	4.45	SURCHARGED	19.24	14.1	0.0
2458	48	25	0.015	0.013	S652MNH0215XX	S652MNH0203XX	-11.08	-11.45	7.10	7.80	-8.31	-8.30	2.77	3.15	SURCHARGED	19.24	14.0	9.2
2443	33	21	0.010	0.013	S652MNH0225XX	S652MNH0205XX	-10.70	-10.90	8.62	6.68	-8.48	-8.46	2.22	2.44	0.85	34.90	8.8	9.4
4105	27	320	0.001	0.013	S673MNH0201XX	S648MNH0202XX	0.72	0.40	10.80	10.20	1.56	1.24	0.84	0.84	0.37	2.89	2.5	2.1
4531	21	400	0.002	0.013	S673MNH0202XX	S673MNH0201XX	2.12	1.32	12.00	10.80	2.90	1.94	0.78	0.62	0.40	2.89	3.0	2.8
4529	21	400	0.002	0.013	S674MNH0201XX	S673MNH0202XX	2.92	2.12	12.30	12.00	3.70	2.91	0.78	0.79	0.45	2.89	3.0	2.8
4439	21	370	0.002	0.013	S674MNH0202XX	S674MNH0201XX	3.56	2.92	12.60	12.30	4.09	3.73	0.53	0.81	0.38	1.33	2.7	2.1
4727	48	14	0.000	0.013	S652MNH0212XX	WPCP	-14.90	-14.90	5.89	0.00	-12.02	-12.31	2.88	2.59	0.68	73.39	0.1	5.8

Notes:

1. Half full velocity is determined per Manning's equation assuming no backwater conditions downstream.
2. Velocity as indicated by the model at the specified d/D.

Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C7 - Cumulative Improvement Node Results - PWWF

Node ID	Ground/Rim Elevation	Invert Elevation	Structure Depth	Wastewater Loading	Hydraulic Grade Line	Flow Depth	System Flow
	(ft)	(ft)	(ft)	(cfs)	(ft)	(ft)	(cfs)
00_S651MNH0211XX	10.76	-5.75	16.51	0.00	-5.75	0.00	0.00
MH1_MoffetRealign	16.70	4.40	12.30	0.00	4.62	0.22	0.18
MH2_MoffetRealign	16.10	3.99	12.11	0.03	4.21	0.22	0.21
MH3_MoffetRealign	14.95	2.98	11.97	0.18	3.28	0.30	0.39
MH4_MoffetRealign	15.30	2.55	12.75	0.03	2.86	0.31	0.41
MH5_MoffetRealign	13.40	1.99	11.41	0.00	2.58	0.59	0.41
S529MNH0207XX	28.30	13.00	15.30	2.94	13.81	0.81	2.94
S529MNH0208XX	24.30	12.13	12.17	0.02	12.91	0.78	2.96
S549MNH0201XX	14.40	1.51	12.89	5.70	2.47	0.96	5.70
S549MNH0203XX	12.22	3.79	8.43	0.00	3.88	0.09	0.03
S549MNH0217XX	12.22	4.67	7.55	0.03	4.76	0.09	0.03
S550MNH0201XX	16.49	1.59	14.90	0.20	4.00	2.41	20.64
S550MNH0202XX	17.27	10.07	7.20	0.00	11.55	1.48	20.20
S550MNH0203XX	18.30	6.40	11.90	0.00	7.89	1.49	13.39
S550MNH0204XX	18.40	6.66	11.74	0.00	8.17	1.51	13.39
S550MNH0205XX	18.25	4.60	13.65	0.00	4.88	0.28	0.14
S550MNH0207XX	20.00	11.04	8.96	20.20	13.06	2.02	20.20
S550MNH0210XX	20.80	9.39	11.41	13.39	10.66	1.27	13.39
S550MNH0217XX	14.80	6.42	8.38	0.00	6.55	0.13	0.06
S550MNH0218XX	15.45	5.46	9.99	0.00	5.60	0.14	0.06
S550MNH0220XX	16.40	5.18	11.22	0.00	6.65	1.47	13.39
S550MNH0221XX	17.32	3.65	13.67	0.11	4.07	0.42	0.24
S550MNH0222XX	13.90	7.31	6.59	0.06	7.44	0.13	0.06
S550MNH0223XX	17.92	10.62	7.30	0.00	12.57	1.95	20.20
S550MNH0225XX	16.80	1.60	15.20	0.00	3.99	2.39	20.64
S550MNH0226XX	17.72	4.31	13.41	0.00	4.48	0.17	0.14
S551MNH0203XX	21.50	7.70	13.80	0.00	7.84	0.14	0.08
S551MNH0204XX	22.25	6.62	15.63	0.00	6.75	0.13	0.08
S551MNH0205XX	20.20	5.66	14.54	0.00	5.80	0.14	0.08
S552MNH0201XX	20.19	9.14	11.05	0.01	9.91	0.77	3.14
S552MNH0202XX	21.70	9.80	11.90	0.05	10.61	0.81	3.13
S552MNH0203XX	25.50	10.84	14.66	0.09	11.64	0.80	3.08
S552MNH0204XX	25.40	11.13	14.27	0.03	12.03	0.90	2.99
S552MNH0206XX	24.00	9.32	14.68	0.00	9.32	0.00	0.00
S552MNH0207XX	23.40	8.90	14.50	0.08	9.03	0.13	0.08
S552MNH0208XX	22.00	13.92	8.08	0.00	13.92	0.00	0.00
S552MNH0209XX	20.00	11.22	8.78	0.30	11.46	0.24	0.30
S552MNH0211XX	23.18	10.28	12.90	0.00	11.09	0.81	3.08
S552MNH0212XX	23.40	10.56	12.84	0.00	11.36	0.80	3.08
S569MNH0204XX	19.04	7.50	11.54	0.77	8.42	0.92	3.91
S569MNH0205XX	18.20	7.10	11.10	0.05	7.35	0.25	0.38
S569MNH0206XX	18.40	8.50	9.90	0.03	8.74	0.24	0.33
S569MNH0209XX	14.50	4.11	10.39	0.00	5.12	1.01	4.35
S569MNH0210XX	15.30	4.50	10.80	0.00	5.51	1.01	4.35
S569MNH0211XX	17.23	4.95	12.28	0.07	5.96	1.01	4.35
S569MNH0212XX	18.00	5.70	12.30	0.00	6.54	0.84	4.28



Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C7 - Cumulative Improvement Node Results - PWWF

Node ID	Ground/Rim Elevation	Invert Elevation	Structure Depth	Wastewater Loading	Hydraulic Grade Line	Flow Depth	System Flow
	(ft)	(ft)	(ft)	(cfs)	(ft)	(ft)	(cfs)
S570MNH0201XX	13.30	4.12	9.18	0.15	4.33	0.21	0.15
S570MNH0202XX	14.55	5.95	8.60	0.14	6.18	0.23	0.17
S570MNH0203XX	15.10	6.60	8.50	0.03	6.70	0.10	0.03
S570MNH0204XX	15.90	4.45	11.45	0.01	4.70	0.25	0.18
S571MNH0205XX	11.74	3.94	7.80	0.13	4.11	0.17	0.13
S571MNH0207XX	12.90	3.92	8.98	0.00	5.39	1.47	13.39
S571MNH0208XX	11.55	2.20	9.35	0.12	2.50	0.30	0.41
S571MNH0209XX	12.44	3.06	9.38	0.16	3.32	0.26	0.29
S571MNH0211XX	12.23	0.88	11.35	0.03	2.39	1.51	21.08
S571MNH0212XX	13.73	1.78	11.95	0.00	3.53	1.75	20.64
S571MNH0216XX	10.72	-0.20	10.92	0.00	1.25	1.45	21.49
S571MNH0219XX	12.08	2.66	9.42	0.00	4.13	1.47	13.39
S572MNH0201XX	10.22	2.83	7.39	0.00	2.91	0.08	0.03
S572MNH0202XX	9.10	4.43	4.67	0.18	4.63	0.20	0.18
S572MNH0203XX	12.40	6.40	6.00	0.00	6.40	0.00	0.00
S572MNH0204XX	13.30	5.50	7.80	0.00	5.50	0.00	0.00
S572MNH0206XX	8.40	3.81	4.59	0.00	4.01	0.20	0.18
S572MNH0207XX	11.15	6.29	4.86	0.00	6.29	0.00	0.00
S573MNH0201XX	10.00	-0.69	10.69	0.01	0.47	1.16	5.78
S573MNH0202XX	9.00	0.26	8.74	0.01	1.46	1.20	5.74
S573MNH0203XX	10.10	-1.30	11.40	0.00	-0.11	1.19	6.07
S573MNH0204XX	9.62	1.43	8.19	0.00	1.54	0.11	0.06
S573MNH0210XX	7.38	3.07	4.31	0.10	3.23	0.16	0.10
S573MNH0211XX	6.93	2.72	4.21	0.08	2.94	0.22	0.19
S573MNH0212XX	9.97	0.70	9.27	0.00	1.89	1.19	5.73
S573MNH0213XX	8.25	-0.04	8.29	0.02	1.15	1.19	5.76
S573TEE1001XX	10.63	0.00	10.63	0.23	0.53	0.53	0.23
S574MNH0202XX	7.04	2.90	4.14	0.12	3.07	0.17	0.12
S575MNH0203XX	6.26	1.25	5.01	0.68	1.66	0.41	0.68
S575MNH0206XX	6.55	1.45	5.10	0.09	1.59	0.14	0.09
S586MNH0201XX	4.45	-0.83	5.28	0.00	-0.35	0.48	1.00
S586MNH0202XX	4.60	-0.27	4.87	0.00	0.20	0.47	1.00
S586MNH0204XX	5.70	0.32	5.38	0.00	0.87	0.55	1.00
S586MNH0205XX	6.40	0.72	5.68	0.23	1.20	0.48	1.00
S586MNH0209XX	3.61	-0.90	4.51	0.00	-0.56	0.34	0.43
S586TEE1003XX	6.44	0.00	6.44	0.00	0.36	0.36	1.00
S587MNH0201XX	4.25	-0.34	4.59	0.04	0.01	0.35	0.46
S587MNH0202XX	5.17	0.44	4.73	0.11	0.77	0.33	0.41
S587MNH0206XX	4.35	0.55	3.80	0.03	0.87	0.32	0.38
S587MNH0207XX	5.22	1.34	3.88	0.17	1.64	0.30	0.35
S587MNH0208XX	6.39	2.12	4.27	0.06	2.33	0.21	0.18
S588MNH0201XX	7.25	-3.02	10.27	0.39	-1.86	1.16	6.46
S588MNH0202XX	8.80	-1.87	10.67	0.00	-0.62	1.25	6.07
S588MNH0203XX	6.14	1.22	4.92	0.00	1.50	0.28	0.30
S588MNH0204XX	5.98	1.97	4.01	0.12	2.25	0.28	0.30
S589MNH0202XX	8.90	1.46	7.44	0.08	1.73	0.27	0.24



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Table C7 - Cumulative Improvement Node Results - PWWF

Node ID	Ground/Rim Elevation	Invert Elevation	Structure Depth	Wastewater Loading	Hydraulic Grade Line	Flow Depth	System Flow
	(ft)	(ft)	(ft)	(cfs)	(ft)	(ft)	(cfs)
S589MNH0203XX	9.15	2.35	6.80	0.14	2.56	0.21	0.16
S589MNH0204XX	9.25	3.24	6.01	0.04	3.32	0.08	0.02
S589MNH0205XX	9.82	1.85	7.97	0.01	2.01	0.16	0.06
S589MNH0206XX	8.10	2.20	5.90	0.00	2.45	0.25	0.27
S589MNH0207XX	7.50	1.30	6.20	0.09	1.59	0.29	0.36
S589MNH0208XX	8.00	0.77	7.23	0.00	1.06	0.29	0.36
S589MNH0211XX	7.40	3.10	4.30	0.10	3.35	0.25	0.27
S589MNH0214XX	9.60	2.54	7.06	0.03	2.67	0.13	0.05
S590MNH0201XX	8.90	0.59	8.31	0.03	0.82	0.23	0.27
S590MNH0202XX	8.60	0.13	8.47	0.01	1.62	1.49	13.63
S590MNH0203XX	8.80	0.52	8.28	0.05	2.01	1.49	13.61
S590MNH0204XX	9.90	1.39	8.51	0.18	2.87	1.48	13.56
S590MNH0213XX	7.90	-0.53	8.43	0.12	-0.15	0.38	0.57
S590MNH0215XX	8.94	-2.25	11.19	0.00	-0.45	1.80	21.49
S590MNH0216XX	8.63	-2.40	11.03	0.00	-0.82	1.58	22.07
S590MNH0217XX	8.06	-4.19	12.25	0.00	-2.10	2.09	23.08
S590MNH0218XX	7.60	-1.13	8.73	0.08	0.38	1.51	13.71
S590MNH0219XX	7.79	-1.91	9.70	0.00	-1.99	-0.08	0.74
S590MNH0220XX	8.02	0.38	7.64	0.09	0.71	0.33	0.45
S591MNH0201XX	10.60	1.39	9.21	0.17	1.81	0.42	0.57
S591MNH0202XX	10.90	2.12	8.78	0.04	2.49	0.37	0.40
S591MNH0203XX	12.10	3.20	8.90	0.21	3.49	0.29	0.36
S592MNH0212XX	14.00	3.87	10.13	0.00	4.88	1.01	4.35
S592MNH0214XX	13.19	3.17	10.02	0.14	4.21	1.04	4.49
S592MNH0215XX	12.80	2.88	9.92	0.45	3.87	0.99	4.94
S592MNH0216XX	12.92	2.52	10.40	0.00	3.51	0.99	4.94
S592MNH0217XX	12.10	2.27	9.83	0.00	3.26	0.99	4.94
S609MNH0206XX	11.33	1.30	10.03	0.19	2.31	1.01	5.13
S609MNH0207XX	10.00	0.47	9.53	0.00	1.49	1.02	5.13
S609MNH0208XX	10.31	0.32	9.99	0.00	1.33	1.01	5.13
S610MNH0203XX	10.60	-0.70	11.30	0.00	0.58	1.28	5.13
S610MNH0204XX	9.00	3.00	6.00	1.83	3.51	0.51	1.83
S610MNH0205XX	9.91	-1.05	10.96	0.09	0.08	1.13	7.05
S610MNH0206XX	8.36	2.00	6.36	0.12	2.19	0.19	0.12
S610MNH0207XX	9.00	0.23	8.77	0.05	0.71	0.48	0.69
S610MNH0208XX	9.40	0.56	8.84	0.06	1.02	0.46	0.64
S610MNH0209XX	10.20	2.23	7.97	0.00	2.25	0.02	0.00
S610MNH0210XX	9.30	1.46	7.84	0.00	1.48	0.02	0.00
S611MNH0201XX	8.20	-0.08	8.28	0.00	0.31	0.39	0.69
S611MNH0202XX	8.20	-0.21	8.41	0.00	0.20	0.41	0.69
S611MNH0203XX	9.20	-0.79	9.99	0.05	-0.47	0.32	0.74
S611MNH0205XX	6.40	-2.40	8.80	0.05	-0.91	1.49	13.76
S611MNH0206XX	5.10	-3.69	8.79	0.00	-1.87	1.82	13.76
S611MNH0207XX	4.20	-4.91	9.11	0.00	-3.42	1.49	13.76
S611MNH0208XX	5.09	-4.19	9.28	0.00	-2.78	1.41	13.76
S611MNH0209XX	7.03	-4.52	11.55	0.07	-2.99	1.53	23.15



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Table C7 - Cumulative Improvement Node Results - PWWF

Node ID	Ground/Rim Elevation	Invert Elevation	Structure Depth	Wastewater Loading	Hydraulic Grade Line	Flow Depth	System Flow
	(ft)	(ft)	(ft)	(cfs)	(ft)	(ft)	(cfs)
S611MNH0210XX	5.87	-5.91	11.78	0.00	-4.16	1.75	23.99
S611MNH0214XX	5.50	-2.40	7.90	0.08	-2.23	0.17	0.08
S612CLN1001XX	4.37	2.20	2.17	0.39	2.54	0.34	0.39
S612MNH0201XX	5.33	-1.98	7.31	0.09	-1.53	0.45	0.84
S612MNH0202XX	5.76	-1.08	6.84	0.22	-0.65	0.43	0.76
S612MNH0203XX	5.37	1.35	4.02	0.14	1.67	0.32	0.53
S613MNH0201XX	4.45	-4.82	9.27	0.14	-3.62	1.20	6.72
S613MNH0202XX	5.95	-3.92	9.87	0.12	-2.74	1.18	6.58
S613MNH0203XX	3.10	-5.35	8.45	0.03	-4.00	1.35	7.50
S613MNH0204XX	3.42	-3.37	6.79	0.00	-2.96	0.41	0.75
S613MNH0208XX	3.20	-5.72	8.92	0.19	-4.42	1.30	7.69
S613TEE1001XX	2.66	-5.82	8.48	0.00	-4.42	1.40	7.69
S614MNH0201XX	3.31	-3.31	6.62	0.00	-2.57	0.74	0.75
S614MNH0202XX	3.70	-1.82	5.52	0.19	-1.44	0.38	0.75
S614MNH0203XX	3.53	-1.07	4.60	0.10	-0.69	0.38	0.56
S614MNH0204XX	3.65	-0.22	3.87	0.05	0.12	0.34	0.43
S615MNH0201XX	5.25	-1.16	6.41	0.08	-0.67	0.49	1.08
S615MNH0202XX	4.85	-1.88	6.73	0.00	-1.41	0.47	1.08
S615MNH0203XX	5.00	-4.00	9.00	0.14	-3.14	0.86	1.64
S615MNH0204XX	4.88	-5.90	10.78	0.00	-3.29	2.61	30.57
S615MNH0206XX	2.00	-5.37	7.37	28.93	-2.92	2.45	28.93
S615MNH0207XX	2.20	-2.30	4.50	0.00	-1.97	0.33	0.43
S615MNH0208XX	2.70	-1.57	4.27	0.00	-1.24	0.33	0.43
S615MNH0210XX	4.80	-3.38	8.18	0.00	-2.92	0.46	1.50
S627MNH0201XX	3.60	-7.25	10.85	0.00	-4.78	2.47	30.57
S627MNH0202XX	10.90	-6.41	17.31	0.00	-3.83	2.58	30.57
S628MNH0201XX	3.70	-5.87	9.57	0.00	-5.65	0.22	0.23
S628MNH0205XX	5.25	-4.54	9.79	0.02	-4.33	0.21	0.23
S628MNH0206XX	3.43	-8.23	11.66	0.00	-5.77	2.46	38.26
S628MNH0207XX	2.88	-6.49	9.37	0.00	-5.50	0.99	7.69
S628MNH0209XX	4.02	-8.69	12.71	0.00	-6.24	2.45	38.49
S628MNH0210XX	4.30	-8.94	13.24	0.00	-6.24	2.70	38.49
S628MNH0211XX	4.40	-9.01	13.41	0.00	-6.27	2.74	38.49
S628MNH0212XX	3.70	-9.46	13.16	0.00	-6.65	2.81	38.49
S628MNH0213XX	5.10	-2.13	7.23	0.04	-1.93	0.20	0.21
S628TEE1001XX	5.18	-4.13	9.31	0.00	-3.93	0.20	0.21
S629MNH0201XX	3.99	-1.47	5.46	0.00	-1.22	0.25	0.16
S629MNH0202XX	4.50	-0.40	4.90	0.00	-0.23	0.17	0.16
S629MNH0203XX	5.26	0.34	4.92	0.02	0.53	0.19	0.16
S629MNH0204XX	4.70	-10.71	15.41	0.00	-8.12	2.59	38.49
S629MNH0205XX	4.60	-10.69	15.29	0.00	-7.81	2.88	19.24
S629MNH0208XX	4.50	-3.93	8.43	0.05	-3.81	0.12	0.07
S629MNH0209XX	5.60	-2.57	8.17	0.02	-2.50	0.07	0.02
S629MNH0210XX	4.05	-1.49	5.54	0.00	-1.25	0.24	0.16
S629MNH0211XX	4.10	-10.04	14.14	0.00	-7.14	2.90	38.49
S629MNH0212XX	3.40	-9.87	13.27	0.00	-7.00	2.87	38.49



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Table C7 - Cumulative Improvement Node Results - PWWF

Node ID	Ground/Rim Elevation	Invert Elevation	Structure Depth	Wastewater Loading	Hydraulic Grade Line	Flow Depth	System Flow
	(ft)	(ft)	(ft)	(cfs)	(ft)	(ft)	(cfs)
S629MNH0213XX	3.30	-9.71	13.01	0.00	-6.86	2.85	38.49
S629MNH0214XX	5.30	-10.73	16.03	0.00	-8.22	2.51	38.49
S629MNH0216XX	3.06	-8.99	12.05	0.00	-7.54	1.45	12.05
S629MNH0217XX	3.88	-9.31	13.19	0.00	-7.80	1.51	24.20
S629MNH0218XX	3.10	-9.10	12.20	0.02	-7.58	1.52	12.15
S629MNH0223XX	4.82	1.07	3.75	0.15	1.25	0.18	0.15
S629MNH0224XX	3.40	-10.67	14.07	0.00	-7.67	3.00	38.49
S630MNH0201XX	4.70	-4.72	9.42	0.04	-4.46	0.26	0.30
S630MNH0202XX	5.10	-7.43	12.53	0.00	-5.84	1.59	14.06
S630MNH0203XX	3.72	-6.89	10.61	0.00	-5.27	1.62	14.06
S630MNH0204XX	3.70	-5.36	9.06	0.00	-5.04	0.32	0.30
S630MNH0205XX	5.59	-6.17	11.76	0.00	-4.59	1.58	13.76
S630MNH0209XX	5.52	-7.31	12.83	0.11	-5.78	1.53	24.10
S630MNH0210XX	5.00	-7.99	12.99	0.00	-6.36	1.63	14.06
S630MNH0211XX	4.00	-3.70	7.70	0.05	-3.45	0.25	0.26
S630MNH0212XX	4.00	-3.63	7.63	0.03	-3.27	0.36	0.21
S630MNH0213XX	5.52	-2.87	8.39	0.09	-2.65	0.22	0.17
S630TEE1001XX	5.01	0.00	5.01	0.00	0.00	0.00	0.00
S631MNH0201XX	6.00	-3.21	9.21	0.25	-1.80	1.41	7.63
S631MNH0202XX	6.48	-3.02	9.50	0.00	-1.59	1.43	7.39
S631MNH0203XX	7.84	-2.35	10.19	0.00	-1.21	1.14	7.05
S631MNH0206XX	7.38	1.34	6.04	0.15	1.61	0.27	0.27
S631MNH0207XX	7.30	0.73	6.57	0.00	1.00	0.27	0.27
S631MNH0208XX	5.20	-3.67	8.87	0.00	-2.25	1.42	7.63
S631MNH0209XX	8.50	-0.57	9.07	0.03	-0.26	0.31	0.34
S631MNH0210XX	8.22	0.09	8.13	0.04	0.38	0.29	0.31
S648MNH0201XX	9.50	0.08	9.42	0.00	0.92	0.84	2.89
S648MNH0202XX	10.20	0.40	9.80	0.00	1.24	0.84	2.89
S649MNH0201XX	7.90	-1.13	9.03	0.00	-0.29	0.84	2.89
S649MNH0204XX	7.90	-0.88	8.78	0.00	-0.04	0.84	2.89
S649MNH0205XX	7.90	-0.56	8.46	0.00	0.28	0.84	2.89
S649MNH0206XX	8.90	-0.24	9.14	0.00	0.60	0.84	2.89
S650MNH0201XX	8.10	-1.52	9.62	0.00	-0.70	0.82	2.89
S650MNH0202XX	7.00	-1.80	8.80	0.00	-1.23	0.57	2.89
S650MNH0203XX	3.87	-5.71	9.58	0.00	-4.80	0.91	2.89
S650MNH0204XX	3.45	-2.45	5.90	0.00	-1.92	0.53	2.89
S650MNH0205XX	7.00	-2.38	9.38	0.00	-1.58	0.80	2.89
S650MNH0206XX	8.60	-4.77	13.37	0.01	-3.50	1.27	7.65
S650MNH0207XX	8.30	-4.46	12.76	0.00	-2.90	1.56	7.63
S650MNH0209XX	6.40	-5.49	11.89	0.00	-4.21	1.28	7.65
S650MNH0210XX	4.13	-5.96	10.09	0.09	-5.42	0.54	2.98
S650MNH0211XX	3.90	-6.67	10.57	0.03	-6.13	0.54	3.02
S650MNH0215XX	6.94	-0.65	7.59	0.00	-0.65	0.00	0.00
S650TEE1001XX	5.62	0.00	5.62	0.00	0.00	0.00	0.00
S651MNH0201XX	4.50	-6.22	10.72	0.00	-4.95	1.27	7.65
S651MNH0202XX	9.72	-9.58	19.30	0.04	-7.76	1.82	3.06



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Node ID	Ground/Rim Elevation	Invert Elevation	Structure Depth	Wastewater Loading	Hydraulic Grade Line	Flow Depth	System Flow
	(ft)	(ft)	(ft)	(cfs)	(ft)	(ft)	(cfs)
S651MNH0203XX	10.92	-9.61	20.53	0.00	-7.77	1.84	10.71
S651MNH0205XX	8.47	-10.03	18.50	0.00	-8.02	2.01	10.71
S651MNH0208XX	1.59	-10.16	11.75	0.00	-8.46	1.70	10.71
S651MNH0209XX	4.18	-6.03	10.21	0.00	-6.03	0.00	0.00
S651MNH0210XX	1.22	-10.27	11.49	0.00	-8.57	1.70	10.71
S651MNH0211XX	9.00	-9.77	18.77	0.00	-8.13	1.64	10.71
S652MNH0202XX	6.16	-14.10	20.26	0.00	-13.00	1.10	14.06
S652MNH0203XX	7.80	-11.45	19.25	0.00	-9.67	1.78	38.49
S652MNH0204XX	6.85	-11.54	18.39	0.00	-9.65	1.89	34.90
S652MNH0205XX	6.68	-10.90	17.58	0.00	-8.98	1.92	34.90
S652MNH0207XX	5.63	-10.15	15.78	0.00	-8.80	1.35	14.06
S652MNH0208XX	3.20	-10.55	13.75	0.00	-8.73	1.82	10.71
S652MNH0209XX	2.69	-8.69	11.38	0.00	-7.11	1.58	14.06
S652MNH0211XX	5.81	-14.90	20.71	0.00	-13.65	1.25	14.06
S652MNH0212XX	5.89	-14.90	20.79	0.00	-12.14	2.76	73.39
S652MNH0214XX	9.74	-14.10	23.84	0.00	-11.60	2.50	73.39
S652MNH0215XX	7.10	-11.08	18.18	0.00	-8.79	2.29	19.24
S652MNH0225XX	8.62	-11.36	19.98	0.00	-8.78	2.58	34.90
S673MNH0201XX	10.80	0.72	10.08	0.00	1.56	0.84	2.89
S673MNH0202XX	12.00	2.12	9.88	0.00	2.90	0.78	2.89
S674MNH0201XX	12.30	2.92	9.38	1.57	3.70	0.78	2.89
S674MNH0202XX	12.60	3.56	9.04	1.33	4.09	0.53	1.33
NEW-4602	7.72	-6.58	14.30	0.00	-5.33	1.24	7.65
NEW-4618	5.46	-5.85	11.31	0.00	-4.57	1.28	7.65
NEW-4597	7.51	-5.13	12.64	0.00	-3.85	1.27	7.65
NEW-4641	7.06	-4.14	11.20	0.00	-2.71	1.43	7.63
NEW-4640	8.81	-1.74	10.55	0.00	-0.62	1.13	7.05
NEW-4491	10.47	-0.25	10.72	0.00	0.84	1.09	5.13
NEW-4053	10.63	0.86	9.77	0.00	1.87	1.01	5.13
NEW-4450	11.68	1.75	9.93	0.00	2.75	1.00	4.94
NEW-4447	13.55	3.48	10.07	0.00	4.52	1.04	4.35
NEW-4461	19.62	8.52	11.10	0.00	9.19	0.67	3.14
NEW-4388	24.86	11.62	13.24	0.00	12.45	0.83	2.96
NEW-4696	3.75	-10.36	14.11	0.00	-7.38	2.98	38.49
NEW-4637	4.05	-9.23	13.28	0.00	-6.46	2.77	38.49
NEW-4694	3.51	-7.64	11.15	0.00	-5.31	2.33	30.57
NEW-4697	7.25	-6.83	14.08	0.00	-4.29	2.54	30.57
NEW-4620	7.91	-6.16	14.07	0.00	-3.56	2.60	30.57

Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C8 - Cumulative Improvement Pipe Results - PWWF

Pipe ID	Pipe Diameter ¹	Length	Slope	Pipe Roughness	Upstream Node	Downstream Node	Invert Elevation		Ground / Rim Elevation		HGL Elevation		Flow Depth		Depth to Diameter	Peak Flow	Half Full Velocity ²	Velocity ³
							Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream				
4300	18	348	0.001	0.013	00_S651MNH0211XX	S651MNH0209XX	-5.75	-6.03	10.76	4.18	-5.75	-6.03	0.00	0.00	0.00	0.00	1.7	0.0
2991	10	138	0.003	0.013	MH1_MofffetRealign	MH2_MofffetRealign	4.40	3.99	16.70	16.10	4.62	4.45	0.22	0.46	0.41	0.18	2.2	1.6
3678	12	268	0.003	0.013	MH2_MofffetRealign	MH3_MofffetRealign	3.99	3.18	16.10	14.95	4.21	3.81	0.22	0.63	0.42	0.21	2.5	1.6
3017	12	143	0.003	0.013	MH3_MofffetRealign	MH4_MofffetRealign	2.98	2.55	14.95	15.30	3.28	3.10	0.30	0.55	0.43	0.39	2.5	1.9
3193	12	185	0.003	0.013	MH4_MofffetRealign	MH5_MofffetRealign	2.55	1.99	15.30	13.40	2.86	2.58	0.31	0.59	0.45	0.41	2.5	2.0
3130	15	169	0.003	0.013	MH5_MofffetRealign	S571MNH0211XX	1.99	1.48	13.40	12.23	2.58	2.57	0.59	1.09	0.67	0.41	2.9	1.9
4079	18	316	0.003	0.013	S529MNH0207XX	S529MNH0208XX	13.00	12.13	28.30	24.30	13.81	13.46	0.81	1.33	0.71	2.94	3.1	3.2
4388-1	18	179	0.003	0.013	NEW-4388	S552MNH0204XX	11.62	11.13	24.86	25.40	12.45	12.24	0.83	1.11	0.65	2.96	3.1	3.2
4388-2	18	183	0.003	0.013	S529MNH0208XX	NEW-4388	12.13	11.62	24.30	24.86	12.91	12.46	0.78	0.84	0.54	2.96	3.1	3.2
3312	21	212	0.004	0.013	S549MNH0201XX	S573MNH0212XX	1.51	0.70	14.40	9.97	2.47	1.91	0.96	1.21	0.62	5.70	4.1	4.2
4504	10	392	0.002	0.013	S549MNH0203XX	S572MNH0201XX	3.79	2.83	12.22	10.22	3.88	2.91	0.09	0.08	0.10	0.03	2.0	0.9
4436	10	370	0.002	0.013	S549MNH0217XX	S549MNH0203XX	4.67	3.79	12.22	12.22	4.76	3.88	0.09	0.09	0.11	0.03	2.0	0.8
2359	42	10	-0.001	0.013	S550MNH0201XX	S550MNH0225XX	1.59	1.60	16.49	16.80	4.00	3.99	2.41	2.39	0.69	20.64	3.3	2.1
2606	33	48	0.165	0.013	S550MNH0202XX	S550MNH0201XX	10.07	2.09	17.27	16.49	11.55	4.02	1.48	1.93	0.62	20.20	36.2	22.7
4492	27	386	0.003	0.013	S550MNH0203XX	S550MNH0220XX	6.41	5.18	18.30	16.40	7.89	6.67	1.48	1.49	0.66	13.39	4.4	4.8
2736	27	78	0.003	0.013	S550MNH0204XX	S550MNH0203XX	6.66	6.40	18.40	18.30	8.17	7.99	1.51	1.59	0.69	13.39	4.5	4.9
2998	15	138	0.003	0.013	S550MNH0205XX	S550MNH0226XX	4.71	4.31	18.25	17.72	4.88	4.48	0.17	0.17	0.14	0.14	2.8	1.4
3438	33	240	0.002	0.013	S550MNH0207XX	S550MNH0223XX	11.04	10.62	20.00	17.92	13.06	12.59	2.02	1.97	0.73	20.20	3.7	4.2
4552	27	409	0.006	0.013	S550MNH0210XX	S550MNH0204XX	9.39	6.91	20.80	18.40	10.66	8.27	1.27	1.36	0.58	13.39	6.1	6.2
4535	10	400	0.002	0.013	S550MNH0217XX	S550MNH0218XX	6.42	5.46	14.80	15.45	6.55	5.60	0.13	0.14	0.16	0.06	2.0	1.1
4545	10	404	0.002	0.013	S550MNH0218XX	S550MNH0205XX	5.46	4.60	15.45	18.25	5.60	4.88	0.14	0.28	0.25	0.06	1.9	1.0
4511	27	394	0.003	0.013	S550MNH0220XX	S571MNH0207XX	5.18	3.92	16.40	12.90	6.65	5.41	1.47	1.49	0.66	13.39	4.4	4.9
2482	15	27	0.002	0.013	S550MNH0221XX	S550MNH0201XX	3.65	3.60	17.32	16.49	4.07	4.07	0.42	0.47	0.35	0.24	2.3	1.4
4091	10	318	0.003	0.013	S550MNH0222XX	S550MNH0217XX	7.31	6.42	13.90	14.80	7.44	6.55	0.13	0.13	0.16	0.06	2.1	1.1
3964	33	302	0.002	0.013	S550MNH0223XX	S550MNH0202XX	10.62	10.07	17.92	17.27	12.57	11.57	1.95	1.50	0.63	20.20	3.8	4.3
3824	42	287	0.001	0.013	S550MNH0225XX	S571MNH0212XX	2.00	1.78	16.80	13.73	3.99	3.54	1.99	1.76	0.54	20.64	2.9	3.2
3093	15	160	0.003	0.013	S550MNH0226XX	S550MNH0221XX	4.31	3.85	17.72	17.32	4.48	4.13	0.17	0.28	0.18	0.14	2.8	1.4
4622	15	463	0.002	0.013	S551MNH0203XX	S551MNH0204XX	7.70	6.62	21.50	22.25	7.84	6.75	0.14	0.13	0.11	0.08	2.5	1.1
4503	15	393	0.002	0.013	S551MNH0204XX	S551MNH0205XX	6.62	5.66	22.25	20.20	6.75	5.80	0.13	0.14	0.11	0.08	2.6	1.1
4595	15	448	0.002	0.013	S551MNH0205XX	S550MNH0205XX	5.66	4.60	20.20	18.25	5.80	4.88	0.14	0.28	0.17	0.08	2.6	1.1
4461-1	18	188	0.005	0.013	NEW-4461	S569MNH0204XX	8.52	7.50	19.62	19.04	9.19	8.89	0.67	1.39	0.69	3.14	4.4	4.2
4461-2	18	187	0.003	0.013	S552MNH0201XX	NEW-4461	9.14	8.52	20.19	19.62	9.91	9.21	0.77	0.69	0.49	3.14	3.4	3.5
3431	18	239	0.003	0.013	S552MNH0202XX	S552MNH0201XX	9.80	9.14	21.70	20.19	10.61	10.05	0.81	0.91	0.57	3.13	3.1	3.2
2855	18	102	0.003	0.013	S552MNH0203XX	S552MNH0212XX	10.84	10.56	25.50	23.40	11.64	11.37	0.80	0.81	0.54	3.08	3.1	3.2
2860	18	105	0.003	0.013	S552MNH0204XX	S552MNH0203XX	11.13	10.84	25.40	25.50	12.03	11.92	0.90	1.08	0.66	2.99	3.1	3.2
3465	15	245	0.002	0.013	S552MNH0206XX	S552MNH0207XX	9.32	8.90	24.00	23.40	9.32	9.07	0.00	0.17	0.07	0.00	2.2	0.0
4587	15	432	0.003	0.013	S552MNH0207XX	S551MNH0203XX	8.90	7.70	23.40	21.50	9.03	7.84	0.13	0.14	0.11	0.08	2.8	1.1
4613	10	454	0.006	0.013	S552MNH0208XX	S552MNH0209XX	13.92	11.22	22.00	20.00	13.92	11.61	0.00	0.39	0.23	0.00	3.1	0.0
4601	10	444	0.006	0.013	S552MNH0209XX	S569MNH0206XX	11.22	8.56	20.00	18.40	11.46	8.85	0.24	0.29	0.32	0.30	3.1	2.4
3150	18	173	0.003	0.013	S552MNH0211XX	S552MNH0202XX	10.28	9.80	23.18	21.70	11.09	10.73	0.81	0.93	0.58	3.08	3.1	3.2
2850	18	102	0.003	0.013	S552MNH0212XX	S552MNH0211XX	10.56	10.28	23.40	23.18	11.36	11.10	0.80	0.82	0.54	3.08	3.1	3.2
3847	21	291	0.002	0.013	S569MNH0204XX	S569MNH0212XX	7.50	6.90	19.04	18.00	8.42	7.62	0.92	0.72	0.47	3.91	3.0	3.1
2671	12	60	0.008	0.013	S569MNH0205XX	S569MNH0212XX	7.10	6.60	18.20	18.00	7.35	6.83	0.25	0.23	0.24	0.38	4.2	2.8
3133	12	169	0.008	0.013	S569MNH0206XX	S569MNH0205XX	8.50	7.18	18.40	18.20	8.74	8.10	0.24	0.92	0.58	0.33	4.0	2.6
2927	21	124	0.002	0.013	S569MNH0209XX	S592MNH0212XX	4.11	3.87	14.50	14.00	5.12	4.89	1.01	1.02	0.58	4.35	2.9	3.1
3282	21	205	0.002	0.013	S569MNH0210XX	S569MNH0209XX	4.50	4.11	15.30	14.50	5.51	5.14	1.01	1.03	0.58	4.35	2.9	3.0
3423	21	237	0.002	0.013	S569MNH0211XX	S569MNH0210XX	4.95	4.50	17.23	15.30	5.96	5.54	1.01	1.04	0.59	4.35	2.9	3.0
3370	21	228	0.003	0.013	S569MNH0212XX	S569MNH0211XX	5.70	4.95	18.00	17.23	6.54	6.16	0.84	1.21	0.59	4.28	3.8	3.7
4409	10	365	0.003	0.013	S570MNH0201XX	S591MNH0203XX	4.12	3.20	13.30	12.10	4.33	3.63	0.21	0.43	0.38	0.15	2.0	1.4
4373	10	358	0.002	0.013	S570MNH0202XX	S570MNH0204XX	5.95	5.17	14.55	15.90	6.18	5.35	0.23	0.18	0.24	0.17	1.9	1.4
3356	10	225	0.002	0.013	S570MNH0203XX	S570MNH0202XX	6.60	6.05	15.10	14.55	6.70	6.41	0.10	0.36	0.27	0.03	2.0	0.9
2529	10	34	0.001	0.013	S570MNH0204XX	MH1_MofffetRealign	4.45	4.40	15.90	16.70	4.70	4.63	0.25	0.23	0.29	0.18	1.5	1.2
3652	12	265	0.003	0.013	S571MNH0205XX	S571MNH0209XX	3.94	3.06	11.74	12.44	4.11	3.37	0.17	0.31	0.24	0.13	2.6	1.5
4507	27	393	0.003	0.013	S571MNH0207XX	S571MNH0219XX	3.92	2.66	12.90	12.08	5.39	4.15	1.47	1.49	0.66	13.39	4.4	4.9
3833	12	297	0.003	0.013	S571MNH0208XX	S571MNH0216XX	2.20	1.22	11.55	10.72	2.50	1.49	0.30	0.27	0.29	0.41	2.6	2.0
3624	12	263	0.003	0.013	S571MNH0209XX	S571MNH0208XX	3.06	2.20	12.44	11.55	3.32	2.58	0.26	0.38	0.32	0.29	2.6	1.8
4408	42	365	0															

Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C8 - Cumulative Improvement Pipe Results - PWWF

Pipe ID	Pipe Diameter ¹	Length	Slope	Pipe Roughness	Upstream Node	Downstream Node	Invert Elevation		Ground / Rim Elevation		HGL Elevation		Flow Depth		Depth to Diameter	Peak Flow	Half Full Velocity ²	Velocity ³
							Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream				
	(in)	(ft)	(ft/ft)	(Mannings n)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(d/D)	(cfs)	(ft/s)	(ft/s)
4530	10	400	0.004	0.013	S572MNH0201XX	S573MNH0212XX	2.83	1.07	10.22	9.97	2.91	1.92	0.08	0.85	0.56	0.03	2.7	1.0
3237	12	198	0.003	0.013	S572MNH0202XX	S572MNH0206XX	4.43	3.81	9.10	8.40	4.63	4.01	0.20	0.20	0.20	0.18	2.5	1.6
2550	10	38	0.003	0.013	S572MNH0203XX	S572MNH0207XX	6.40	6.29	12.40	11.15	6.40	6.29	0.00	0.00	0.00	0.00	2.2	0.0
3912	10	298	0.003	0.013	S572MNH0204XX	S549MNH0203XX	5.50	4.62	13.30	12.22	5.50	4.62	0.00	0.00	0.00	0.00	2.2	0.0
3389	12	231	0.003	0.013	S572MNH0206XX	S589MNH0211XX	3.81	3.10	8.40	7.40	4.01	3.42	0.20	0.32	0.26	0.18	2.5	1.6
3628	10	263	0.003	0.013	S572MNH0207XX	S572MNH0204XX	6.29	5.50	11.15	13.30	6.29	5.50	0.00	0.00	0.00	0.00	2.2	0.0
3232	21	196	0.002	0.013	S573MNH0201XX	S573MNH0203XX	-0.69	-1.10	10.00	10.10	0.47	-0.09	1.16	1.01	0.62	5.78	3.0	3.4
3020	21	144	0.002	0.013	S573MNH0202XX	S573MNH0213XX	0.26	-0.04	9.00	8.25	1.46	1.19	1.20	1.23	0.70	5.74	3.0	3.3
3490	21	247	0.002	0.013	S573MNH0203XX	S589MNH0202XX	-1.30	-1.87	10.10	8.90	-0.11	-0.61	1.19	1.26	0.70	6.07	3.2	3.5
2800	10	90	0.005	0.013	S573MNH0204XX	S573MNH0203XX	1.43	0.99	9.62	10.10	1.54	1.10	0.11	0.11	0.13	0.06	2.8	1.4
2977	12	135	0.003	0.013	S573MNH0210XX	S573MNH0211XX	3.07	2.72	7.38	6.93	3.23	2.94	0.16	0.22	0.19	0.10	2.3	1.3
3883	12	296	0.003	0.013	S573MNH0211XX	S588MNH0204XX	2.72	1.97	6.93	5.98	2.94	2.26	0.22	0.29	0.25	0.19	2.3	1.5
3298	21	209	0.002	0.013	S573MNH0212XX	S573MNH0202XX	0.70	0.26	9.97	9.00	1.89	1.52	1.19	1.26	0.70	5.73	3.0	3.4
4015	21	308	0.002	0.013	S573MNH0213XX	S573MNH0201XX	-0.04	-0.69	8.25	10.00	1.15	0.58	1.19	1.27	0.70	5.76	3.0	3.4
2694	10	63	-0.003	0.013	S573TEE1001XX	S573MNH0203XX	0.00	0.20	10.63	10.10	0.53	0.41	0.53	0.21	0.45	0.23	2.3	0.4
4017	12	308	0.003	0.013	S574MNH0202XX	S587MNH0208XX	2.90	2.12	7.04	6.39	3.07	2.34	0.17	0.22	0.20	0.12	2.3	1.3
4279	18	345	0.002	0.013	S575MNH0203XX	S586MNH0205XX	1.25	0.72	6.26	6.40	1.66	1.23	0.41	0.51	0.31	0.68	2.3	1.7
3107	10	162	0.004	0.013	S575MNH0206XX	S586MNH0205XX	1.45	0.72	6.55	6.40	1.59	1.22	0.14	0.50	0.39	0.09	2.7	1.5
3340	21	218	0.002	0.013	S586MNH0201XX	S615MNH0201XX	-0.83	-1.16	4.45	5.25	-0.35	-0.63	0.48	0.53	0.29	1.00	2.6	1.9
4275	21	358	0.002	0.013	S586MNH0202XX	S586MNH0201XX	-0.27	-0.83	4.60	4.45	0.20	-0.34	0.47	0.49	0.28	1.00	2.6	1.9
4401	21	369	0.001	0.013	S586MNH0204XX	S586TEE1003XX	0.32	0.00	5.70	6.44	0.87	0.36	0.55	0.36	0.26	1.00	1.9	1.5
3705	21	276	0.001	0.013	S586MNH0205XX	S586MNH0204XX	0.72	0.32	6.40	5.70	1.20	0.87	0.48	0.55	0.30	1.00	2.5	1.9
3715	12	273	0.002	0.013	S586MNH0209XX	S615MNH0208XX	-0.90	-1.57	3.61	2.70	-0.56	-1.24	0.34	0.33	0.33	0.43	2.3	1.9
2515	21	31	0.009	0.013	S586TEE1003XX	S586MNH0202XX	0.00	-0.27	6.44	4.60	0.36	0.21	0.36	0.48	0.24	1.00	6.1	3.5
3891	12	296	0.002	0.013	S587MNH0201XX	S614MNH0203XX	-0.34	-1.07	4.25	3.53	0.01	-0.66	0.35	0.41	0.38	0.46	2.3	1.9
4035	12	310	0.003	0.013	S587MNH0202XX	S587MNH0201XX	0.44	-0.34	5.17	4.25	0.77	0.02	0.33	0.36	0.35	0.41	2.3	1.9
4127	12	323	0.002	0.013	S587MNH0206XX	S614MNH0204XX	0.55	-0.22	4.35	3.65	0.87	0.19	0.32	0.41	0.36	0.38	2.2	1.8
4081	12	316	0.002	0.013	S587MNH0207XX	S587MNH0206XX	1.34	0.55	5.22	4.35	1.64	0.88	0.30	0.33	0.31	0.35	2.3	1.8
3920	12	298	0.003	0.013	S587MNH0208XX	S587MNH0207XX	2.12	1.34	6.39	5.22	2.33	1.65	0.21	0.31	0.26	0.18	2.3	1.5
4617	24	455	0.002	0.013	S588MNH0201XX	S613MNH0202XX	-3.02	-3.92	7.25	5.95	-1.86	-2.70	1.16	1.22	0.60	6.46	3.2	3.4
4611	21	452	0.002	0.013	S588MNH0202XX	S588MNH0201XX	-1.87	-2.77	8.80	7.25	-0.62	-1.81	1.25	0.96	0.63	6.07	2.9	3.3
4024	12	309	0.003	0.013	S588MNH0203XX	S587MNH0202XX	1.22	0.44	6.14	5.17	1.50	0.78	0.28	0.34	0.31	0.30	2.3	1.7
3937	12	300	0.003	0.013	S588MNH0204XX	S588MNH0203XX	1.97	1.22	5.98	6.14	2.25	1.50	0.28	0.28	0.28	0.30	2.3	1.7
4489	10	385	0.002	0.013	S589MNH0202XX	S589MNH0201XX	1.46	0.59	8.90	8.90	1.73	0.94	0.27	0.35	0.37	0.24	1.9	1.6
3984	10	304	0.003	0.013	S589MNH0203XX	S589MNH0202XX	2.35	1.47	9.15	8.90	2.56	1.78	0.21	0.31	0.31	0.16	2.2	1.5
3992	10	305	0.003	0.013	S589MNH0204XX	S589MNH0203XX	3.24	2.35	9.25	9.15	3.32	2.59	0.08	0.24	0.19	0.02	2.2	0.9
4287	10	347	0.002	0.013	S589MNH0204XX	S589MNH0214XX	3.24	2.54	9.25	9.60	3.33	2.67	0.09	0.13	0.13	0.02	1.8	0.0
4194	10	331	0.001	0.013	S589MNH0205XX	S573MNH0204XX	1.85	1.43	9.82	9.62	2.01	1.55	0.16	0.12	0.17	0.06	1.4	0.9
3961	12	302	0.003	0.013	S589MNH0206XX	S589MNH0207XX	2.20	1.30	8.10	7.50	2.45	1.62	0.25	0.32	0.29	0.27	2.5	1.8
3159	12	176	0.003	0.013	S589MNH0207XX	S589MNH0208XX	1.30	0.77	7.50	8.00	1.59	1.06	0.29	0.29	0.29	0.36	2.5	1.9
2916	12	122	0.003	0.013	S589MNH0208XX	S590MNH0220XX	0.77	0.38	8.00	8.02	1.06	0.76	0.29	0.38	0.33	0.36	2.6	1.9
4027	12	309	0.003	0.013	S589MNH0211XX	S589MNH0206XX	3.10	2.20	7.40	8.10	3.35	2.46	0.25	0.26	0.26	0.27	2.5	1.7
4459	10	376	0.002	0.013	S589MNH0214XX	S589MNH0205XX	2.54	1.85	9.60	9.82	2.67	2.02	0.13	0.17	0.18	0.05	1.7	0.9
3472	10	245	0.012	0.013	S590MNH0201XX	S590MNH0217XX	0.59	-2.41	8.90	8.06	0.82	-1.99	0.23	0.42	0.39	0.27	4.4	3.0
4514	27	394	0.003	0.013	S590MNH0202XX	S590MNH0218XX	0.13	-1.13	8.60	7.60	1.62	0.43	1.49	1.56	0.68	13.63	4.4	4.9
2903	27	118	0.003	0.013	S590MNH0203XX	S590MNH0202XX	0.52	0.13	8.80	8.60	2.01	1.67	1.49	1.54	0.67	13.61	4.5	4.9
3676	27	267	0.003	0.013	S590MNH0204XX	S590MNH0203XX	1.39	0.52	9.90	8.80	2.87	2.06	1.48	1.54	0.67	13.56	4.4	4.9
4188	12	338	0.003	0.013	S590MNH0213XX	S590MNH0216XX	-0.53	-1.46	7.90	8.63	-0.15	-0.64	0.38	0.82	0.60	0.57	2.4	2.1
2954	42	130	0.002	0.013	S590MNH0215XX	S590MNH0216XX	-2.20	-2.40	8.94	8.63	-0.45	-0.81	1.75	1.59	0.48	21.49	4.1	4.2
4673	42	601	0.003	0.013	S590MNH0216XX	S590MNH0217XX	-2.40	-4.04	8.63	8.06	-0.82	-2.09	1.58	1.95	0.51	22.07	5.5	5.2
4480	42	380	0.001	0.013	S590MNH0217XX	S611MNH0209XX	-4.19	-4.52	8.06	7.03	-2.10	-2.96	2.09	1.56	0.52	23.08	3.1	3.4
3341	27	406	0.003	0.013	S590MNH0218XX	S611MNH0205XX	-1.13	-2.40	7.60	6.40	0.38	-0.86	1.51	1.54	0.68	13.71	4.4	4.8
2463	21	23	0.010	0.013	S590MNH0219XX	S590MNH0217XX	-3.03	-3.25	7.79	8.06	-1.99	-1.99	1.04	1.26	0.66	0.74	6.5	3.3
3985	12	304	0.003	0.013	S590MNH0220XX	S590MNH0213XX	0.38	-0.53	8.02	7.90	0.71	-0.08	0.33	0.45	0.39	0.45	2.5	2.0
4426	12	368	0.002	0.013	S591MNH0201XX	S610MNH0208XX	1.39	0.66	10.60	9.40	1.81	1.22	0.42	0.56	0.49	0.57	2.0	1.9
4644	12	504	0.001	0.013	S591MNH0202XX	S591MNH0201XX	2.12	1.39	10.90	10.60	2.49	1.88	0.37	0.49	0.43	0.40	1.7	1.5
3388	10	231	0.004	0.013	S591MNH0203XX	S591MNH0202XX	3.20	2.29	12.10	10.90	3.49	2.55	0.29	0.26	0.33	0.36	2.5	2.1
4447-1	21	166	0.002	0.013	NEW-4447	S592MNH0214XX	3.48	3.17	13.55	13.19	4.52	4.27	1.04	1.10	0.61	4.35	2.9	3.0
4447-2	21	205	0.002	0.013	S592MNH0212XX	NEW-4447	3.87	3.48	14.00	13.55	4.88	4.53	1.01	1.05	0.59	4.35	2.9	3.0
3056	21	154	0.002	0.013	S592MNH0214XX	S592MNH0215XX	3.17	2.88	13.19	12.80	4.21	3.95	1.04	1.07	0.60	4.49	2.9	3.1

Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C8 - Cumulative Improvement Pipe Results - PWWF

Pipe ID	Pipe Diameter ¹	Length	Slope	Pipe Roughness	Upstream Node	Downstream Node	Invert Elevation		Ground / Rim Elevation		HGL Elevation		Flow Depth		Depth to Diameter	Peak Flow	Half Full Velocity ²	Velocity ³
							Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream				
	(in)	(ft)	(ft/ft)	(Mannings n)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(d/D)	(cfs)	(ft/s)	(ft/s)
2989	21	137	0.003	0.013	S592MNH0215XX	S592MNH0216XX	2.88	2.52	12.80	12.92	3.87	3.52	0.99	1.00	0.57	4.94	3.4	3.5
2818	21	94	0.003	0.013	S592MNH0216XX	S592MNH0217XX	2.52	2.27	12.92	12.10	3.51	3.28	0.99	1.01	0.57	4.94	3.4	3.6
4450-1	21	171	0.003	0.013	NEW-4450	S609MNH0206XX	1.75	1.30	11.68	11.33	2.75	2.39	1.00	1.09	0.60	4.94	3.4	3.5
4450-2	21	201	0.003	0.013	S592MNH0217XX	NEW-4450	2.27	1.75	12.10	11.68	3.26	2.76	0.99	1.01	0.57	4.94	3.4	3.5
4053-1	21	148	0.003	0.013	NEW-4053	S609MNH0207XX	0.86	0.47	10.63	10.00	1.87	1.51	1.01	1.04	0.59	5.13	3.4	3.6
4053-2	21	166	0.003	0.013	S609MNH0206XX	NEW-4053	1.30	0.86	11.33	10.63	2.31	1.88	1.01	1.02	0.58	5.13	3.4	3.6
2670	21	60	0.003	0.013	S609MNH0207XX	S609MNH0208XX	0.47	0.32	10.00	10.31	1.49	1.35	1.02	1.03	0.59	5.13	3.3	3.5
4491-1	21	170	0.003	0.013	NEW-4491	S610MNH0203XX	-0.25	-0.70	10.47	10.60	0.84	0.61	1.09	1.31	0.69	5.13	3.4	3.6
4491-2	21	216	0.003	0.013	S609MNH0208XX	NEW-4491	0.32	-0.25	10.31	10.47	1.33	0.85	1.01	1.10	0.60	5.13	3.4	3.6
2676	24	60	0.002	0.013	S610MNH0203XX	S610MNH0205XX	-0.70	-0.85	10.60	9.91	0.58	0.54	1.28	1.39	0.67	5.13	3.6	3.5
2698	18	63	0.032	0.013	S610MNH0204XX	S610MNH0205XX	3.00	1.00	9.00	9.91	3.51	1.32	0.51	0.32	0.28	1.83	10.6	6.7
4485	18	385	0.001	0.013	S610MNH0205XX	S610MNH0209XX	2.50	2.23	9.91	10.20	2.50	2.25	0.00	0.02	0.01	0.00	1.6	0.0
4640-1	24	231	0.003	0.013	NEW-4640	S631MNH0203XX	-1.74	-2.35	8.81	7.84	-0.62	-1.20	1.12	1.15	0.57	7.05	3.7	3.9
4640-2	24	263	0.003	0.013	S610MNH0205XX	NEW-4640	-1.05	-1.74	9.91	8.81	0.08	-0.60	1.13	1.14	0.57	7.05	3.7	3.9
3784	10	280	0.002	0.013	S610MNH0206XX	S631MNH0206XX	2.00	1.34	8.36	7.38	2.19	1.64	0.19	0.30	0.29	0.12	2.0	1.3
4392	18	366	0.001	0.013	S610MNH0207XX	S611MNH0201XX	0.23	-0.08	9.00	8.20	0.71	0.32	0.48	0.40	0.29	0.69	1.7	1.4
3172	12	180	0.002	0.013	S610MNH0208XX	S610MNH0207XX	0.56	0.23	9.40	9.00	1.02	0.78	0.46	0.55	0.50	0.64	1.9	1.9
4512	18	396	0.002	0.013	S610MNH0209XX	S610MNH0210XX	2.23	1.46	10.20	9.30	2.25	1.48	0.02	0.02	0.01	0.00	2.6	0.3
4479	18	381	0.003	0.013	S610MNH0210XX	S610MNH0207XX	1.46	0.23	9.30	9.00	1.48	0.74	0.02	0.51	0.18	0.00	3.4	0.4
2706	18	65	0.002	0.013	S611MNH0201XX	S611MNH0202XX	-0.08	-0.21	8.20	8.20	0.31	0.20	0.39	0.41	0.27	0.69	2.7	1.9
4253	18	344	0.002	0.013	S611MNH0202XX	S611MNH0203XX	-0.21	-0.79	8.20	9.20	0.20	-0.43	0.41	0.36	0.25	0.69	2.4	1.8
4556	18	411	0.005	0.013	S611MNH0203XX	S590MNH0219XX	-0.79	-3.03	9.20	7.79	-0.47	-1.99	0.32	1.04	0.45	0.74	4.4	2.8
4506	27	393	0.003	0.013	S611MNH0205XX	S611MNH0206XX	-2.40	-3.69	6.40	5.10	-0.91	-1.85	1.49	1.84	0.74	13.76	4.5	4.9
3314	27	213	0.001	0.013	S611MNH0206XX	S611MNH0208XX	-3.69	-3.99	5.10	5.09	-1.87	-2.70	1.82	1.29	0.69	13.76	2.9	3.5
4484	27	383	0.003	0.013	S611MNH0207XX	S630MNH0205XX	-4.91	-6.17	4.20	5.59	-3.42	-4.57	1.49	1.60	0.69	13.76	4.5	4.9
3207	27	187	0.004	0.013	S611MNH0208XX	S611MNH0207XX	-4.19	-4.91	5.09	4.20	-2.78	-3.40	1.41	1.51	0.65	13.76	4.8	5.3
4558	42	412	0.003	0.013	S611MNH0209XX	S611MNH0210XX	-4.52	-5.91	7.03	5.87	-2.99	-4.15	1.53	1.76	0.47	23.15	6.1	5.7
2462	10	23	0.000	0.013	S611MNH0210XX	S611MNH0208XX	0.00	0.00	5.87	5.09	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.0
4678	42	620	0.002	0.013	S611MNH0210XX	S630MNH0209XX	-5.91	-7.31	5.87	5.52	-4.16	-5.74	1.75	1.57	0.48	23.99	5.0	5.0
3491	10	248	0.002	0.013	S611MNH0214XX	S630MNH0213XX	-2.40	-2.87	5.50	5.52	-2.23	-2.60	0.17	0.27	0.26	0.08	1.8	1.1
4022	10	309	0.003	0.013	S612CLN1001XX	S612MNH0203XX	2.20	1.35	4.37	5.37	2.54	1.72	0.34	0.37	0.43	0.39	2.1	1.9
4169	12	339	0.003	0.013	S612MNH0201XX	S611MNH0210XX	-1.98	-3.10	5.33	5.87	-1.53	-2.72	0.45	0.38	0.42	0.84	2.6	2.5
3915	12	298	0.003	0.013	S612MNH0202XX	S612MNH0201XX	-1.08	-1.98	5.76	5.33	-0.65	-1.45	0.43	0.53	0.48	0.76	2.5	2.3
3864	10	294	0.008	0.013	S612MNH0203XX	S612MNH0202XX	1.35	-1.08	5.37	5.76	1.67	-0.58	0.32	0.50	0.49	0.53	3.7	3.1
3427	24	238	0.002	0.013	S613MNH0201XX	S613MNH0203XX	-4.82	-5.35	4.45	3.10	-3.62	-3.97	1.20	1.38	0.65	6.72	3.4	3.6
4608	24	450	0.002	0.013	S613MNH0202XX	S613MNH0201XX	-3.92	-4.82	5.95	4.45	-2.74	-3.58	1.18	1.24	0.60	6.58	3.2	3.4
3319	24	214	0.002	0.013	S613MNH0203XX	S613MNH0208XX	-5.35	-5.72	3.10	3.20	-4.00	-4.38	1.35	1.34	0.67	7.50	3.0	3.3
4047	12	312	0.003	0.013	S613MNH0204XX	S613MNH0203XX	-3.37	-4.44	3.42	3.10	-2.96	-3.90	0.41	0.54	0.48	0.75	2.7	2.4
2375	24	12	0.008	0.013	S613MNH0208XX	S613TEE1001XX	-5.72	-5.82	3.20	2.66	-4.42	-4.41	1.30	1.41	0.68	7.69	6.5	6.1
4584	24	427	0.002	0.013	S613TEE1001XX	S628MNH0207XX	-5.82	-6.49	2.66	2.88	-4.42	-5.48	1.40	1.01	0.60	7.69	2.9	3.2
4069	12	315	0.000	0.013	S614MNH0201XX	S613MNH0204XX	-3.31	-3.37	3.31	3.42	-2.57	-2.95	0.74	0.42	0.58	0.75	0.6	1.0
3983	12	304	0.005	0.013	S614MNH0202XX	S614MNH0201XX	-1.82	-3.31	3.70	3.31	-1.44	-2.57	0.38	0.74	0.56	0.75	3.2	2.8
3924	12	299	0.003	0.013	S614MNH0203XX	S614MNH0202XX	-1.07	-1.82	3.53	3.70	-0.69	-1.13	0.38	0.69	0.54	0.56	2.3	2.0
3840	12	290	0.002	0.013	S614MNH0204XX	S586MNH0209XX	-0.22	-0.90	3.65	3.61	0.12	-0.54	0.34	0.36	0.35	0.43	2.2	1.8
4627	21	471	0.002	0.013	S615MNH0201XX	S615MNH0202XX	-1.16	-1.88	5.25	4.85	-0.67	-1.40	0.49	0.48	0.28	1.08	2.6	1.9
3850	21	293	0.002	0.013	S615MNH0202XX	S615MNH0210XX	-1.88	-2.40	4.85	4.80	-1.41	-2.03	0.47	0.37	0.24	1.08	2.8	2.0
2690	21	62	0.002	0.013	S615MNH0203XX	S615MNH0204XX	-4.00	-4.15	5.00	4.88	-3.14	-3.15	0.86	1.00	0.53	1.64	3.2	2.6
4620-1	42	227	0.001	0.013	NEW-4620	S627MNH0202XX	-6.16	-6.41	7.91	10.90	-3.56	-3.82	2.60	2.59	0.74	30.57	3.5	3.9
4620-2	42	231	0.001	0.013	S615MNH0204XX	NEW-4620	-5.90	-6.16	4.88	7.91	-3.29	-3.55	2.61	2.61	0.75	30.57	3.5	4.0
3857	42	294	0.001	0.013	S615MNH0206XX	S615MNH0204XX	-5.37	-5.70	2.00	4.88	-2.92	-3.27	2.45	2.43	0.70	28.93	3.5	3.9
3619	12	262	0.003	0.013	S615MNH0207XX	S615MNH0210XX	-2.30	-3.00	2.20	4.80	-1.97	-2.73	0.33	0.27	0.30	0.43	2.3	1.9
3671	12	267	0.003	0.013	S615MNH0208XX	S615MNH0207XX	-1.57	-2.30	2.70	2.20	-1.24	-1.97	0.33	0.33	0.33	0.43	2.4	1.9
3087	21	160	0.004	0.013	S615MNH0210XX	S615MNH0203XX	-3.38	-4.00	4.80	5.00	-2.92	-3.07	0.46	0.93	0.40	1.50	4.1	3.0
4694-1	48	354	0.001	0.013	NEW-4694	S628MNH0206XX	-7.64	-8.03	3.51	3.43	-5.31	-5.69	2.33	2.34	0.58	30.57	3.8	4.0
4694-2	42	355	0.001	0.013	S627MNH0201XX	NEW-4694	-7.25	-7.64	3.60	3.51	-4.78	-5.30	2.47	2.34	0.69	30.57	3.5	3.9
4697-1	42	378	0.001	0.013	NEW-4697	S627MNH0201XX	-6.83	-7.25	7.25	3.60	-4.29	-4.76	2.54	2.49	0.72	30.57	3.5	4.0
4697-2	42	379	0.001	0.013	S627MNH0202XX	NEW-4697	-6.41	-6.83	10.90	7.25	-3.83	-4.28	2.58	2.55	0.73	30.57	3.5	4.0
2783	10	85	0.005	0.013	S628MNH0201XX	S628MNH0209XX	-5.87	-6.31	3.70	4.02	-5.65	-6.07	0.22	0.24	0.28	0.23	2.9	2.1
3029	10	146	0.006	0.013	S628MNH0205XX	S628MNH0201XX	-4.54	-5.46	5.25	3.70	-4.33	-5.25	0.21	0.21	0.25	0.23	3.2	2.2
3395	48	231	0.001	0.013	S628MNH0206XX	S628MNH0209XX	-8.23	-8.49	3.43	4.02	-5.77	-6.21	2.46	2.28	0.59	38.26	3.8	4.3

Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C8 - Cumulative Improvement Pipe Results - PWWF

Pipe ID	Pipe Diameter ¹	Length	Slope	Pipe Roughness	Upstream Node	Downstream Node	Invert Elevation		Ground / Rim Elevation		HGL Elevation		Flow Depth		Depth to Diameter	Peak Flow	Half Full Velocity ²	Velocity ³
							Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream				
(in)	(ft)	(ft/ft)	(Mannings n)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(d/D)	(cfs)	(ft/s)	(ft/s)	
2537	24	36	0.006	0.013	S628MNH0207XX	S628MNH0206XX	-6.49	-6.71	2.88	3.43	-5.50	-5.60	0.99	1.11	0.52	7.69	5.7	5.5
2578	48	43	0.006	0.013	S628MNH0209XX	S628MNH0210XX	-8.69	-8.94	4.02	4.30	-6.24	-6.22	2.45	2.72	0.65	38.49	8.7	8.0
2479	54	27	0.003	0.013	S628MNH0210XX	S628MNH0211XX	-8.94	-9.01	4.30	4.40	-6.24	-6.26	2.70	2.76	0.61	38.49	6.3	5.9
4637-1	54	244	0.001	0.013	NEW-4637	S628MNH0212XX	-9.23	-9.46	4.05	3.70	-6.46	-6.64	2.77	2.82	0.62	38.49	3.8	4.0
4637-2	54	244	0.001	0.013	S628MNH0211XX	NEW-4637	-9.01	-9.23	4.40	4.05	-6.27	-6.45	2.74	2.78	0.61	38.49	3.7	4.0
3683	54	268	0.001	0.013	S628MNH0212XX	S629MNH0213XX	-9.46	-9.71	3.70	3.30	-6.65	-6.84	2.81	2.87	0.63	38.49	3.8	4.0
4295	10	346	0.006	0.013	S628MNH0213XX	S628TEE1001XX	-2.13	-4.13	5.10	5.18	-1.93	-3.93	0.20	0.20	0.24	0.21	3.1	2.1
2442	10	21	0.006	0.013	S628TEE1001XX	S628MNH0205XX	-4.13	-4.25	5.18	5.25	-3.93	-4.05	0.20	0.20	0.24	0.21	3.1	2.1
2391	10	14	0.001	0.013	S629MNH0201XX	S629MNH0210XX	-1.47	-1.49	3.99	4.05	-1.22	-1.25	0.25	0.24	0.29	0.16	1.5	1.2
4496	10	389	0.004	0.013	S629MNH0201XX	S629MNH0209XX	-1.16	-2.57	3.99	5.60	-1.16	-2.50	0.00	0.07	0.04	0.00	2.4	0.0
2804	10	92	0.012	0.013	S629MNH0202XX	S629MNH0201XX	-0.40	-1.47	4.50	3.99	-0.23	-1.22	0.17	0.25	0.26	0.16	4.3	2.5
3203	10	187	0.004	0.013	S629MNH0203XX	S629MNH0202XX	0.34	-0.40	5.26	4.50	0.53	-0.21	0.19	0.19	0.23	0.16	2.5	1.7
2453	54	22	0.001	0.013	S629MNH0204XX	S629MNH0214XX	-10.71	-10.73	4.70	5.30	-8.12	-8.15	2.59	2.58	0.57	38.49	3.8	4.0
2582 ⁴	30	49	0.000	0.013	S629MNH0205XX	S629MNH0204XX	-10.69	-10.71	4.60	4.70	-7.61	-7.72	3.08	2.99	SURCHARGED	19.24	1.7	0.0
2581 ⁴	30	49	0.000	0.013	S629MNH0205XX	S629MNH0204XX	-10.69	-10.71	4.60	4.70	-7.81	-7.92	2.88	2.79		SURCHARGED	19.24	1.7
4384	10	360	0.006	0.013	S629MNH0208XX	S629MNH0218XX	-3.93	-6.00	4.50	3.10	-3.81	-5.88	0.12	0.12	0.14	0.07	3.1	1.5
4487	10	385	0.004	0.013	S629MNH0209XX	S629MNH0208XX	-2.57	-3.93	5.60	4.50	-2.50	-3.77	0.07	0.16	0.14	0.02	2.4	0.9
4431	10	371	0.002	0.013	S629MNH0210XX	S628MNH0213XX	-1.49	-2.13	4.05	5.10	-1.25	-1.85	0.24	0.28	0.31	0.16	1.7	1.3
4696-1	54	375	0.001	0.013	NEW-4696	S629MNH0224XX	-10.36	-10.67	3.75	3.40	-7.38	-7.59	2.98	3.08	0.67	38.49	3.6	3.8
4696-2	54	377	0.001	0.013	S629MNH0211XX	NEW-4696	-10.04	-10.36	4.10	3.75	-7.14	-7.37	2.90	2.99	0.66	38.49	3.6	3.9
3155	54	175	0.001	0.013	S629MNH0212XX	S629MNH0211XX	-9.87	-10.04	3.40	4.10	-7.00	-7.12	2.87	2.92	0.64	38.49	3.9	4.1
3196	54	186	0.001	0.013	S629MNH0213XX	S629MNH0212XX	-9.71	-9.87	3.30	3.40	-6.86	-6.99	2.85	2.88	0.64	38.49	3.6	3.9
4538	54	402	0.001	0.013	S629MNH0214XX	S652MNH0215XX	-10.73	-11.08	5.30	7.10	-8.22	-8.76	2.51	2.32	0.54	38.49	3.7	3.9
2532	33	36	0.003	0.013	S629MNH0216XX	S629MNH0218XX	-8.99	-9.10	3.06	3.10	-7.36	-7.38	1.63	1.72	0.61	12.05	4.9	0.0
2924	33	127	0.003	0.013	S629MNH0216XX	S629MNH0217XX	-8.99	-9.31	3.06	3.88	-7.54	-7.67	1.45	1.64	0.56	12.05	4.5	4.4
4651	42	517	0.004	0.013	S629MNH0217XX	S652MNH0225XX	-9.31	-11.36	3.88	8.62	-7.80	-8.36	1.51	3.00	0.65	24.20	6.6	6.1
2796	33	91	0.002	0.013	S629MNH0218XX	S629MNH0217XX	-9.10	-9.31	3.10	3.88	-7.58	-7.67	1.52	1.64	0.57	12.15	4.3	4.2
3182	10	182	0.004	0.013	S629MNH0223XX	S629MNH0203XX	1.07	0.34	4.82	5.26	1.25	0.56	0.18	0.22	0.24	0.15	2.6	1.7
2454	54	22	0.001	0.013	S629MNH0224XX	S629MNH0205XX	-10.67	-10.69	3.40	4.60	-7.67	-7.68	3.00	3.01	0.67	38.49	3.8	4.0
3313	12	213	0.003	0.013	S630MNH0201XX	S630MNH0204XX	-4.72	-5.36	4.70	3.70	-4.46	-5.03	0.26	0.33	0.29	0.30	2.5	1.8
2978	27	135	0.003	0.013	S630MNH0202XX	S630MNH0210XX	-7.43	-7.79	5.10	5.00	-5.84	-6.33	1.59	1.46	0.68	14.06	4.0	4.5
3246	27	199	0.003	0.013	S630MNH0203XX	S630MNH0202XX	-6.89	-7.43	3.72	5.10	-5.27	-5.82	1.62	1.61	0.72	14.06	4.1	4.6
3129	12	169	0.003	0.013	S630MNH0204XX	S630MNH0203XX	-5.36	-5.87	3.70	3.72	-5.04	-5.07	0.32	0.80	0.56	0.30	2.5	1.8
3231	27	195	0.003	0.013	S630MNH0205XX	S630MNH0203XX	-6.17	-6.69	5.59	3.72	-4.59	-5.25	1.58	1.44	0.67	13.76	4.0	4.5
4604	42	444	0.004	0.013	S630MNH0209XX	S629MNH0216XX	-7.31	-8.92	5.52	3.06	-5.78	-7.41	1.53	1.51	0.44	24.10	6.3	5.9
3599	27	260	0.003	0.013	S630MNH0210XX	S652MNH0209XX	-7.99	-8.69	5.00	2.69	-6.36	-7.09	1.63	1.60	0.72	14.06	4.0	4.6
3795	12	282	0.003	0.013	S630MNH0211XX	S630MNH0201XX	-3.70	-4.52	4.00	4.70	-3.45	-4.15	0.25	0.37	0.31	0.26	2.5	1.7
2397	10	15	0.005	0.013	S630MNH0212XX	S630MNH0211XX	-3.63	-3.70	4.00	4.00	-3.27	-3.27	0.36	0.43	0.47	0.21	2.8	1.9
3608	10	261	0.003	0.013	S630MNH0213XX	S630MNH0212XX	-2.87	-3.63	5.52	4.00	-2.65	-3.17	0.22	0.46	0.41	0.17	2.2	1.6
2633	10	54	0.121	0.013	S630TEE1001XX	S630MNH0210XX	0.00	-6.54	5.01	5.00	0.00	-6.17	0.00	0.37	0.22	0.00	14.0	0.0
3807	24	284	0.002	0.013	S631MNH0201XX	S631MNH0208XX	-3.21	-3.67	6.00	5.20	-1.80	-2.24	1.41	1.43	0.71	7.63	2.9	3.3
2914	24	121	0.002	0.013	S631MNH0202XX	S631MNH0201XX	-3.02	-3.21	6.48	6.00	-1.59	-1.75	1.43	1.46	0.72	7.39	2.9	3.2
3171	24	179	0.003	0.013	S631MNH0203XX	S631MNH0202XX	-2.35	-2.82	7.84	6.48	-1.21	-1.58	1.14	1.24	0.60	7.05	3.7	3.9
3674	12	277	0.002	0.013	S631MNH0206XX	S631MNH0207XX	1.34	0.73	7.38	7.30	1.61	1.01	0.27	0.28	0.27	0.27	2.1	1.6
3831	12	293	0.002	0.013	S631MNH0207XX	S631MNH0210XX	0.73	0.09	7.30	8.22	1.00	0.42	0.27	0.33	0.30	0.27	2.1	1.6
4641-1	27	200	0.002	0.013	NEW-4641	S650MNH0207XX	-4.14	-4.46	7.06	8.30	-2.71	-2.89	1.43	1.57	0.67	7.63	3.1	3.3
4641-2	24	298	0.002	0.013	S631MNH0208XX	NEW-4641	-3.67	-4.14	5.20	7.06	-2.25	-2.71	1.42	1.43	0.71	7.63	2.9	3.2
3966	12	302	0.002	0.013	S631MNH0209XX	S631MNH0202XX	-0.57	-1.23	8.50	6.48	-0.26	-0.99	0.31	0.24	0.27	0.34	2.1	1.7
4007	12	307	0.002	0.013	S631MNH0210XX	S631MNH0209XX	0.09	-0.57	8.22	8.50	0.38	-0.22	0.29	0.35	0.32	0.31	2.1	1.6
4108	27	320	0.001	0.013	S648MNH0201XX	S649MNH0206XX	0.08	-0.24	9.50	8.90	0.92	0.60	0.84	0.84	0.37	2.89	2.5	2.1
4107	27	320	0.001	0.013	S648MNH0202XX	S648MNH0201XX	0.40	0.08	10.20	9.50	1.24	0.92	0.84	0.84	0.37	2.89	2.5	2.1
4494	27	387	0.001	0.013	S649MNH0201XX	S650MNH0201XX	-1.13	-1.52	7.90	8.10	-0.29	-0.69	0.84	0.83	0.37	2.89	2.5	2.2
3534	27	253	0.001	0.013	S649MNH0204XX	S649MNH0201XX	-0.88	-1.13	7.90	7.90	-0.04	-0.29	0.84	0.84	0.37	2.89	2.5	2.1
4116	27	321	0.001	0.013	S649MNH0205XX	S649MNH0204XX	-0.56	-0.88	7.90	7.90	0.28	-0.04	0.84	0.84	0.37	2.89	2.5	2.1
4104	27	320	0.001	0.013	S649MNH0206XX	S649MNH0205XX	-0.24	-0.56	8.90	7.90	0.60	0.28	0.84	0.84	0.37	2.89	2.5	2.1
3781	27	280	0.001	0.013	S650MNH0201XX	S650MNH0202XX	-1.52	-1.80	8.10	7.00	-0.70	-1.22	0.82	0.58	0.31	2.89	2.5	2.1
2421	27	18	0.032	0.013	S650MNH0202XX	S650MNH0205XX	-1.80	-2.38	7.00	7.00	-1.23	-1.58	0.57	0.80	0.31	2.8		

Moffett Park Specific Plan - Wastewater Master Plan
Appendix C - SewerCAD Model Output
Table C8 - Cumulative Improvement Pipe Results - PWWF

Pipe ID	Pipe Diameter ¹	Length	Slope	Pipe Roughness	Upstream Node	Downstream Node	Invert Elevation		Ground / Rim Elevation		HGL Elevation		Flow Depth		Depth to Diameter	Peak Flow	Half Full Velocity ²	Velocity ³
							Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream				
	(in)	(ft)	(ft/ft)	(Mannings n)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(d/D)	(cfs)	(ft/s)	(ft/s)
4597-1	27	223	0.002	0.013	NEW-4597	S650MNH0209XX	-5.13	-5.49	7.51	6.40	-3.85	-4.20	1.28	1.29	0.57	7.65	3.1	3.3
4597-2	27	218	0.002	0.013	S650MNH0206XX	NEW-4597	-4.77	-5.13	8.60	7.51	-3.50	-3.84	1.27	1.29	0.57	7.65	3.2	3.3
2714	27	67	0.002	0.013	S650MNH0207XX	S650MNH0206XX	-4.46	-4.57	8.30	8.60	-2.90	-2.94	1.56	1.63	0.71	7.63	3.2	3.3
4618-1	27	230	0.002	0.013	NEW-4618	S651MNH0201XX	-5.85	-6.22	5.46	4.50	-4.57	-4.94	1.28	1.28	0.57	7.65	3.1	3.3
4618-2	27	225	0.002	0.013	S650MNH0209XX	NEW-4618	-5.49	-5.85	6.40	5.46	-4.21	-4.57	1.28	1.28	0.57	7.65	3.1	3.3
2959	36	131	0.005	0.013	S650MNH0210XX	S650MNH0211XX	-5.96	-6.67	4.13	3.90	-5.42	-6.12	0.54	0.55	0.18	2.98	7.0	3.8
4661	36	538	0.005	0.013	S650MNH0211XX	S651MNH0202XX	-6.67	-9.58	3.90	9.72	-6.13	-7.73	0.54	1.85	0.40	3.02	6.9	3.8
2378	33	13	0.141	0.013	S650MNH0215XX	S650MNH0204XX	-0.65	-2.45	6.94	3.45	-0.65	-1.90	0.00	0.55	0.10	0.00	33.4	0.0
2362	18	11	0.062	0.013	S650TEE1001XX	S650MNH0215XX	0.00	-0.65	5.62	6.94	0.00	-0.65	0.00	0.00	0.00	0.00	14.8	0.0
4602-1	27	221	0.002	0.013	NEW-4602	S651MNH0203XX	-6.58	-6.93	7.72	10.92	-5.33	-5.98	1.25	0.95	0.49	7.65	3.1	3.3
4602-2	27	223	0.002	0.013	S651MNH0201XX	NEW-4602	-6.22	-6.58	4.50	7.72	-4.95	-5.32	1.27	1.26	0.56	7.65	3.1	3.3
2505	36	30	0.001	0.013	S651MNH0202XX	S651MNH0203XX	-9.58	-9.61	9.72	10.92	-7.76	-7.76	1.82	1.85	0.61	3.06	3.0	2.1
4630	36	478	0.001	0.013	S651MNH0203XX	S651MNH0205XX	-9.61	-10.03	10.92	8.47	-7.77	-7.97	1.84	2.06	0.65	10.71	2.8	2.9
3014	36	143	0.001	0.013	S651MNH0205XX	S651MNH0211XX	-9.60	-9.77	8.47	9.00	-8.02	-8.13	1.58	1.64	0.54	10.71	3.3	3.2
2883	33	111	0.001	0.013	S651MNH0208XX	S651MNH0210XX	-10.16	-10.27	1.59	1.22	-8.46	-8.55	1.70	1.72	0.62	10.71	2.8	3.0
4375	18	358	0.001	0.013	S651MNH0209XX	S652MNH0207XX	-6.03	-6.44	4.18	5.63	-6.03	-6.44	0.00	0.00	0.00	0.00	2.0	0.0
3360	33	221	0.001	0.013	S651MNH0210XX	S652MNH0208XX	-10.27	-10.55	1.22	3.20	-8.57	-8.71	1.70	1.84	0.64	10.71	3.2	3.3
2350	18	8	0.012	0.013	S651MNH0211XX	00_S651MNH0211XX	-5.34	-5.44	9.00	10.76	-5.34	-5.44	0.00	0.00	0.00	0.00	6.6	0.0
4467	33	376	0.001	0.013	S651MNH0211XX	S651MNH0208XX	-9.77	-10.16	9.00	1.59	-8.13	-8.45	1.64	1.71	0.61	10.71	2.9	3.0
2713	48	72	0.011	0.013	S652MNH0202XX	S652MNH0211XX	-14.10	-14.90	6.16	5.81	-13.00	-13.56	1.10	1.34	0.30	14.06	12.0	7.5
2562	54	40	0.004	0.013	S652MNH0203XX	S652MNH0214XX	-11.45	-11.61	7.80	9.74	-9.67	-9.89	1.78	1.72	0.39	38.49	7.8	6.9
2637	39	55	0.004	0.013	S652MNH0204XX	S652MNH0214XX	-11.54	-11.78	6.85	9.74	-9.65	-9.91	1.89	1.87	0.58	34.90	6.6	7.0
2356	33	10	0.064	0.013	S652MNH0205XX	S652MNH0204XX	-10.90	-11.54	6.68	6.85	-8.98	-9.28	1.92	2.26	0.70	34.90	23.9	18.8
2716	24	68	0.020	0.013	S652MNH0207XX	S652MNH0202XX	-10.15	-11.50	5.63	6.16	-8.80	-10.54	1.35	0.96	0.58	14.06	10.2	9.8
2569	33	45	0.003	0.013	S652MNH0208XX	S652MNH0225XX	-10.55	-10.70	3.20	8.62	-8.73	-8.75	1.82	1.95	0.69	10.71	5.1	4.7
4198	30	362	0.002	0.013	S652MNH0209XX	S652MNH0207XX	-8.69	-9.50	2.69	5.63	-7.11	-8.24	1.58	1.26	0.57	14.06	4.0	4.3
4728	48	14	0.000	0.013	S652MNH0211XX	WPCP	-14.90	-14.90	5.81	0.00	-13.65	-13.80	1.25	1.10	0.29	14.06	0.1	1.1
4727	54	14	0.000	0.013	S652MNH0212XX	WPCP	-14.90	-14.90	5.89	0.00	-12.14	-12.40	2.76	2.50	0.59	73.39	0.1	4.6
2618	54	51	0.016	0.013	S652MNH0214XX	S652MNH0212XX	-14.10	-14.90	9.74	5.89	-11.60	-11.95	2.50	2.95	0.61	73.39	15.5	13.5
2459 ⁴	48	24	0.015	0.013	S652MNH0215XX	S652MNH0203XX	-11.08	-11.45	7.10	7.80	-7.88	-7.87	3.20	3.58	0.85	19.24	14.1	0.0
2458 ⁴	48	25	0.015	0.013	S652MNH0215XX	S652MNH0203XX	-11.08	-11.45	7.10	7.80	-8.79	-8.77	2.29	2.68	0.85	19.24	14.0	9.2
2443	33	21	0.010	0.013	S652MNH0225XX	S652MNH0205XX	-10.70	-10.90	8.62	6.68	-8.78	-8.58	1.92	2.32	0.71	34.90	9.3	9.4
4105	27	320	0.001	0.013	S673MNH0201XX	S648MNH0202XX	0.72	0.40	10.80	10.20	1.56	1.24	0.84	0.84	0.37	2.89	2.5	2.1
4531	21	400	0.002	0.013	S673MNH0202XX	S673MNH0201XX	2.12	1.32	12.00	10.80	2.90	1.94	0.78	0.62	0.40	2.89	3.0	2.8
4529	21	400	0.002	0.013	S674MNH0201XX	S673MNH0202XX	2.92	2.12	12.30	12.00	3.70	2.91	0.78	0.79	0.45	2.89	3.0	2.8
4439	21	370	0.002	0.013	S674MNH0202XX	S674MNH0201XX	3.56	2.92	12.60	12.30	4.09	3.73	0.53	0.81	0.38	1.33	2.7	2.1

Notes:

- Highlighted pipe diameters reflect pipelines upsized as part of the recommended MPSP improvements.
- Half full velocity is determined per Manning's equation assuming no backwater conditions downstream.
- Velocity as indicated by the model at the specified d/D.
- These pipelines were identified as depressed sewer and improvements were not recommended to address d/D deficiencies.

Moffett Park Specific Plan Sunnyvale, CA

Infrastructure Fee Calculations

April 2023

Prepared for:
City of Sunnyvale

Prepared by:



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Moffett Park Specific Plan
Improvement Costs by Development Area

Utility Service	New Office + R&D Floor Area (SF)	New Residential Dwelling Units	New Residential Floor Area (SF)	Total Utility Improvement Cost (\$)	Utility Improvement Cost / Office + R&D Floor Area (\$/SF)	Utility Improvement Cost / Residential Floor Area (\$/SF)
Water	10,000,000	20,000	16,560,000	\$36,737,000	\$1.21	\$1.49
Sanitary Sewer	10,000,000	20,000	16,560,000	\$36,536,198	\$1.21	\$1.48

Notes:

1. New residential floor area calculated using an average area of 828 square feet per Dwelling Unit
2. On a per square foot basis, residential area has a greater impact on the domestic water and sanitary sewer demands than Office or R&D areas. Office/R&D average day water demand is 0.13 gpd/sf. By comparison, residential average day water demand is 0.16 gpd/sf, or 22.6% higher than Office/R&D. Average indoor water demands were used to determine an adjustment factor so residential areas are responsible for a greater portion of the improvement costs. Therefore, a 22.6% adjustment factor was applied to the corresponding residential costs per square foot. The same distribution factor is applied to both water and sanitary sewer based on the water return rate to sewer.

Moffett Park Specific Plan - Water Master Plan
Table 7 - Pipeline Unit Costs

Pipe Diameter (in)	Unit Cost (\$/LF)
14	\$928
16	\$1,040
18	\$1,114

Notes:

1. Unit Costs include engineering, legal, administration, and other construction cost contingencies.

Moffett Park Specific Plan - Water Master Plan
Table 8 - Proposed Improvement Costs

Project Number	Description	Length (LF)	Existing Diameter (in)	Proposed Diameter (in)	Unit Cost (\$/LF)	Total Cost (\$)
1	Primary Transmission Loop	21,550	12	18	1114	\$24,002,000
2	Secondary Transmission Loop	7,749	12	16	1040	\$8,056,000
3	Targeted Fire Flow Improvement	1,061	12	14	928	\$985,000
4	Targeted Fire Flow Improvement	506	12	16	1040	\$526,000
5	Targeted Fire Flow Improvement	488	10	14	928	\$453,000
6	Targeted Fire Flow Improvement	388	8	14	928	\$361,000
7	Targeted Fire Flow Improvement	2,113	12	18	1114	\$2,354,000
Sub-total - New 14-inch Main		1,937				\$1,799,000
Sub-total - New 16-inch Main		8,255				\$8,582,000
Sub-total - New 18-inch Main		23,663				\$26,356,000
Total		33,855				\$36,737,000

Notes:

1. Recommended improvement lengths shown above represent improvements required to meet criteria assuming full flow at each hydrant, where flows are applied to the hydrant connection to the distribution main. Splitting fire flow would allow for less length of recommended improvements, as described below:

- Project Number 5 - Instead of 488 LF of 14-inch, only 241 LF would be required to meet criteria. This would result in a total project cost of \$229,000.

Moffett Park Specific Plan - Wastewater Master Plan
Table 6 - Pipeline Unit Costs

Pipe Diameter (in)	Unit Cost (\$/LF)
10	\$965
12	\$1,053
15	\$1,229
18	\$1,316
21	\$1,404
24	\$1,492
27	\$1,580
30	\$1,667
42	\$1,931
48	\$2,106
54	\$2,282
Connection to Existing Manholes	\$14,310
New Manholes	\$53,663

Notes:

1. Unit Costs include engineering, legal and administration costs, and other construction cost contingencies.

Moffett Park Specific Plan - Wastewater Master Plan
Table 7 - Proposed Improvement Costs

Project Number	Project Type	Alignment	Upstream Node ID	Downstream Node ID	Length (LF)	Existing Diameter (in)	Proposed Diameter		Proposed Manholes	Manhole Re-Connections	Total Cost	
							MPSP Buildout (in)	Cumulative Buildout (in)			MPSP Buildout	Cumulative Buildout (\$)
1	Primary Sewer Trunk Capacity Improvement	Innovation Wy	S529MNH0207XX	S569MNH0204XX	1,780	12	18		2	16		\$2,679,210
		N Mathilda Ave	S569MNH0204XX	S592MNH0215XX	1,610	12	18	21	1	14	\$2,373,165	\$2,514,443
		N Mathilda Ave	S592MNH0215XX	S610MNH0203XX	1,360	12		21	3	12		\$2,242,148
		N Mathilda Ave	S610MNH0203XX	S610MNH0205XX	60	12	21	24	0	2	\$112,860	\$118,125
		N Mathilda Ave	S610MNH0205XX	New	1,380	18		24	2	9		\$2,294,730
		N Mathilda Ave	New	S650MNH0207XX	200	18	24	27	0	1	\$312,660	\$330,210
		W Caribbean Dr	S650MNH0207XX	S651MNH0203XX	1,410	18		27	3	8		\$2,502,563
2	Primary Sewer Trunk Capacity Improvement	E Caribbean Dr	S615MNH0206XX	New	530	39	42		1	3		\$1,119,758
		E Caribbean Dr	New	New	1,340	39	48	42	2	4	\$2,986,605	\$2,751,435
		E Caribbean Dr	New	S628MNH0210XX	630	39		48	0	5		\$1,398,330
		E Caribbean Dr	S628MNH0210XX	S652MNH0212XX	2,430	48		54	2	22		\$5,966,190
3	Primary Sewer Trunk Capacity Improvement	Borregas Ave	S550MNH0210XX	S652MNH0209XX	5,210	24		27	0	36		\$8,744,355
		Borregas Ave	S652MNH0209XX	S652MNH0207XX	360	24		30	0	2		\$628,830
4	Targeted Capacity Improvement	N Mathilda Ave	S569MNH0206XX	S569MNH0205XX	170	10		12	0	2		\$207,630
5	Targeted Capacity Improvement	ROW w/o Borregas Ave	MH1_MoffetRealign	MH2_MoffetRealign	140	10		10	0	2		\$163,755
		ROW w/o Borregas Ave	MH2_MoffetRealign	MH4_MoffetRealign	410	10		12	0	4		\$488,970
		ROW w/o Borregas Ave	MH4_MoffetRealign	MH5_MoffetRealign	190	12		12	0	2		\$228,690
		ROW w/o Borregas Ave	MH5_MoffetRealign	S571MNH0211XX	170	12	12	15	0	2	\$207,630	\$237,465
6	Targeted Capacity Improvement	Caspian Dr	S612MNH0202XX	S611MNH0210XX	640	10		12	0	4		\$731,160
7	Targeted Capacity Improvement	ROW w/o Borregas Ave	S630MNH0211XX	S630MNH0203XX	660	10		12	0	6		\$780,840
8	Targeted Capacity Improvement	E Caribbean Dr	S615MNH0210XX	S615MNH0204XX	220	21		21	0	4		\$366,120
9	Targeted Capacity Improvement	Crossman Ave	S573MNH0212XX	S573MNH0203XX	860	21	-	21	0	8	-	\$1,321,920
					21,760						\$36,536,198	\$37,816,875