PRELIMINARY Basis of Design Report

- ☐ ACCEPTED
- ☑ ACCEPTED AS NOTED
- ☐ REVISE AND RESUBMIT

CITY OF SCOTTSDALE
SCOTTSDALE WATER
9379 E San Salvador Dr.
Scottsdale, AZ 85258

Disclaimer: If accepted; the preliminary approval is granted under the condition that a final basis of design report will also be submitted for city review and approval (typically during the DR or PP case). The final report shall incorporate further water or sewer design and analysis requirements as defined in the city design standards and policy manual and address those items noted in the preliminary review comments (both separate and included herein). The final report shall be submitted and approved prior to the plan review submission.
For questions or clarifications contact the Water Resources Planning and Engineering Department at 480-312-5685.

BY apritchard **DATE** 1/29/2024

WOOD PATEL

MASTER WATER REPORT
FOR
FAIRMONT SCOTTSDALE PRINCESS

November 22, 2023
WP# 215319

20' water easement required between Guest Rooms and Sunset Villas. DSPM 6-1.419

Water demand exhibit/water conservation modifications are attached to the end of this BOD.

An Excel copy of the Water Demand Exhibit is needed to input the Economic component of the exhibit for the zoning case packet. Please email and upload to the portal.

Prepared by
Robert G. Saunders, EIT

Registered Professional Engineer (Civil)
CERTIFICATE NO.
36382
DARIN L.
MOORE
Date Signed 11/22/23
ARIZONA, U.S.A.

EXPIRES 06-30-25

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1.0 INTRODUCTION

1.1 General Background

This Master Water Report for the Fairmont Scottsdale Princess addresses the addition of six (6) proposed projects that will improve approximately 15.6 acres across three (3) parcels with a combined total area of 53.4 acres. The three (3) parcels disturbed within the City of Scottsdale are APN#215-08-695, APN#215-08-694, and APN#215-08-693 which are all zoned C-2. Each project will include one (1) or more buildings, hardscape, landscape, and utility improvements.

The design criteria used to estimate water demands and evaluate system hydraulics are based on Wood, Patel & Associates, Inc.'s (WOODPATEL's) understanding of the requirements listed in the *City of Scottsdale Design Standards and Policies Manual, 2018* (Ref. 1).

The following is a summary of the primary design criteria utilized:

Average Day Water Demand, Commercial/Retail: ..... 0.8 gpd/sf
Average Day Water Demand, Resort/Hotel*: ..... 446.3 gpd/DU
Average Day Water Demand, Restaurant: ..... 1.3 gpd/sf
Maximum Pressure: ..... 120 psi
Minimum Pressure: 50psi
Maximum Day Demand: ..... 2 x ADD
Peak Hour Factor; Restaurant: ..... 6.0 x ADD

Abbreviations: gpd = gallons per day; sf = square feet; DU = dwelling units; ADD = average day demand

*Includes both inside and outside use, per Figure 6-1.2, City of Scottsdale *Design Standards and Policies Manual* (Ref. 1)

1.2 Project Location

The Fairmont Scottsdale Princess is a sprawling resort property with multiple guest buildings and amenities including pools, restaurants, conference rooms, and retail. It is located within Section 35, Township 4 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County, Arizona. Refer to Exhibit 1 - *Vicinity Map* for project location. The specific location of the proposed projects onsite are as follows:

The Sunset Villas and Bungalows project includes nine (9) proposed buildings on approximately 3.7 acres of an approximate 34.4-acre parcel (APN#215-08-695). This project is located east of Cottage Terrace, south of Hacienda Way, and west of the existing Spa Building.

The Conference Center/Event Lawn project includes a proposed building with open space for events on approximately 10.95 acres overlapping two (2) parcels with an approximate area of 44.4 acres (APN#215-08-693 and APN#215-08-695). This project is located east of Cottage Terrace, north of Hacienda Way, and west of the existing Palomino Ballroom.

The Parking Garage project includes a multi-level parking structure on approximately 3.9 acres of an approximate 9.0-acre parcel (APN#215-08-694). This project is located east of Princess Drive and south of Princess Boulevard.

The Guest Room Addition project includes a single building with underground parking on approximately 0.9 acres of an approximate 34.4-acre parcel (APN#215-08-695). This project is located east of Cottage Terrace and south of Hacienda Way.

The Italian Restaurant is a proposed restaurant on approximately 0.37 acres of an approximate 9.94-acre parcel (APN#215-08-693). This project is located on the southeast corner of Princess Boulevard and Cottage Terrace.

The Roasterie Restaurant is a proposed restaurant on approximately 0.24 acres of an approximate 34.4-acre parcel (APN#215-08-695). This project is located approximately 512-feet east of Cottage Terrace, 1151-feet south of East Hacienda Way, and south of the existing Spa Building.

2.0 EXISTING WATER INFRASTRUCTURE

The water infrastructure in the area includes existing public 12-inch water mains within Cottage Terrace, Princess Boulevard, and Princess Drive. There is an existing public 8-inch water main within Hacienda Way that connects to the existing 12-inch water mains within Cottage Terrace and Princess Drive. The existing Hacienda Way public 8-inch water main serves the dock area of the main resort, the existing Spa Building and the existing Palomino Ballroom. In addition, an existing 6-inch public water main extends from Hacienda Way south along the west side of the existing Spa Building through the property where it connects to the existing public 12-inch water main in Cottage Terrace. Refer to Exhibit 2 – *Concept Master Water Layout*.

3.0 PROPOSED WATER INFRASTRUCTURE

Water demands for the proposed projects can be found in Appendix A - *Water Demand and Calculations.* Average day, max day, and peak hour demands were calculated according to their land use in accordance with *City of Scottsdale Design Standards and Policies Manual* (Ref. 1). Although there are multiple projects being proposed, the construction schedule for them will overlap at some point where all the projects will be in construction at the same time. The water main infrastructure in particular will be done together to avoid multiple shutdowns.

3.1 Proposed Layout

A section of the existing public 6-inch water main will be removed west of the Spa Building and south of the public 8-inch water main in Hacienda Way. It will be replaced with a new section of public 8-inch water main extending south from the public 8-inch water main in Hacienda Way through the proposed Sunset Villas and Bungalows project, which connects back into the existing public 6-inch water main. The existing public 8-inch water main along the north side of the Palamino Ballroom, connecting the 8-

inch water main in Hacienda Way to the 12-inch water main in Princess Drive, will be rerouted around the proposed Conference Center. Refer to Exhibit 2 – *Concept Master Water Layout.* All landscape irrigation needed for all projects will be provided by the existing onsite grey water system. Water demands have also been added due to the addition of fountains on Conference Center/Event Lawn, The Italian Restaurant, and The Roasterie Restaurant. These fountains include a capacity of 15,000 gallons, using the small pool capacity, with demand values from Appendix D – *Scottsdale Water Demand Exhibit*.

3.1.1 Sunset Villas and Bungalows

The Sunset Villas and Bungalows improvements include a proposed public 8-inch water line through the Site which will connect to the existing public 8-inch water main in Hacienda Way and the existing public 6-inch water main along the west side of the Spa building as described in Section 3.1. The proposed public 8-inch water main will provide a 4-inch fire service to each of the nine (9) proposed buildings. Domestic demands will be served from a 4-inch water meter, vault, and backflow preventer connected to the existing public 8-inch line within Hacienda Way. This line will route through the site serving five (5) buildings with a 2-inch service and the remaining four (4) buildings will be served by two (2) 2.5-inch services that will each serve two (2) buildings. See plumbing plans for details. There will be one (1) proposed Fire Hydrant connection to the existing public 8-inch water main within Hacienda Way. Each proposed building will have a Fire Department Connection (FDC) with a backflow preventer placed inside the building. See plumbing plans for details.

3.1.2 Conference Center/Event Lawn

The Conference Center/Event Lawn improvements include the removal and re-alignment of the existing public 8-inch water main from Hacienda Way to Princess Drive as described in Section 3.1. The proposed improvements for the project include four (4) proposed fire hydrants, a 4-inch domestic water meter, vault, and backflow preventer, the relocation of two (2) existing fire hydrants, one (1) FDC, one (1) proposed 6-inch fire service with backflow preventer, and two (2) proposed fountains.

3.1.3 Parking Garage

The proposed water service for this project includes a 6-inch fire service with backflow preventer which connects to the existing public 12-inch water main within Princess Drive and one (1) FDC connection.

3.1.4 Guest Room Addition

The proposed water services for this project will include a 6-inch fire service with backflow preventer, a 2-inch domestic water service with meter and backflow preventer connected to the existing public 12-inch water main within Cottage Terrace, and one (1) FDC connection.

3.1.5 The Italian Restaurant

The proposed water services for this project will include a 6-inch fire service with backflow preventer, a 2-inch domestic service with meter and backflow preventer connected to the existing public 12-inch water main within Cottage Terrace, one (1) FDC connection, and a proposed fountain.

3.1.6 The Roasterie Restaurant

The proposed water services for this project will include a 6-inch fire service with backflow preventer, a 2-inch domestic service with meter and backflow preventer connected to the existing public 6-inch main running through the Fairmont Scottsdale Princess property south of the Spa Building, one (1) FDC connection, and a proposed fountain.

4.0 HYDRAULIC MODELING

4.1 Methodology

Bentley WaterCAD version 10i was used to analyze the proposed water system. The existing water infrastructure was calibrated using the results of two (2) hydrant flow tests. Fire Flow Test #1 (Permit #C69698) conducted on August 4, 2022, tested the fire hydrants connected to the existing public 12-inch water main along Cottage Terrace. Fire Flow Test #2 (Permit #C71326) conducted on February 6, 2023, tested the fire hydrants connected to the existing public 12-inch water main along Princess Drive. Refer to Appendix B - *Fire Hydrant Flow Test Results and Calculations*.

The domestic demands calculated for each of the proposed projects are listed in *Table 1: Domestic Demand* below using City of Scottsdale's design criteria (Ref. 1). Refer to Appendix A – *Water Demand and Calculations*. Demands for the Site include only the square footage of the Conference Center considering that the Event Lawn will not be in use simultaneously with the equivalent space in the Conference Center or the existing Palomino Ballroom. If inclement weather forces guests to go indoors, the space will be used in the Conference Center or the existing Palomino Ballroom and the Event Lawn will no longer be in use.

Table 1: Domestic Demand

Contributing Site	Average Daily Demand		Max Day		Peak Hour	
	(gpm)	(gpd)	(gpm)	(gpd)	(gpm)	(gpd)
Italian Restaurant*	29.9	21,502	59.7	42,952	178.9	128,752
Roasterie Restaurant*	19.1	13,702	38.1	27,352	114.1	81,952
Sunset Villas and Bungalows	26.7	19,191	53.4	38,382	93.5	67,169
Conference Center*	110.7	79,723	221.3	159,394	401.7	289,363
Event Lawn	--	--	--	--	--	--
Parking Garage	--	--	--	--	--	--
Guest Room Addition	96.1	69,177	192.2	138,354	336.4	242,120
Total	**282.5**	**203,295**	**564.7**	**406,434**	**1,124.6**	**809,356**

* Additional demands from fountains (Appendix D - *Scottsdale Water Demand Exhibit*)

The modeling results show that the minimum pressure experienced in the system is 62 psi during Peak Hour Demand and the maximum pressure experienced in the system is 74 psi during Average Day Demand. All results fell within the City of Scottsdale Standard allowable operating pressure range of 50 psi and 120 psi. Refer to Appendix C - *Hydraulic Modeling Results*.

The Fire Flow requirement for each project was determined from Appendix B of the International Fire Code (IFC) (Ref. 2). The fire flow requirement for each proposed project can be found in *Table 2: Fire Flow Demand* below. The projects associated with Fire Flow Test #1 are The Italian Restaurant, The Roasterie Restaurant, Sunset Villas and Bungalows, Conference Center/Event Lawn, and the Guest Room Addition. This is reflected within the modeling results which are labeled "Model 1". The only project associated with Fire Flow Test #2 is the Parking Garage. This is reflected within the modeling results which are labeled "Model 2". Applicable junctions were highlighted within each project's fire flow report for reference. Refer to Appendix B - *Fire Hydrant Flow Test Results and Calculations* and Appendix C – *Hydraulic Modeling Results*.

Table 2: Fire Flow Demand

Site	Building Type	Area (sf)	Fire Flow Required (gpm)	Reduction (%)	Total Fire Flow (gpm)
Italian Restaurant	V-B	16,500	3,500	50%	1,750
Roasterie Restaurant	V-B	10,500	2,750	Minimum	1,500
Sunset Villas and Bungalows	V-B	12,131*	3,000	50%	1,500
Conference Center	I-B	97,576	3,250	50%	1,625
Event Lawn	N/A	39,400	N/A	N/A	1,500
Parking Structure	I-B	340,500	6,000	50%	3,000
Guest Room Addition	V-A	151,086**	6,250	50%	3,125

***** Area of largest single building
** Square footage includes the underground parking garage

Modeling results determined that each project achieves its fire flow requirement at or above the minimum pressure of 30 psi established by the City of Scottsdale. Refer to Appendix C – *Hydraulic Modeling Results* for specific results.

The fire hydrants associated with each project in the model are as follows:

- Italian Restaurant: FH-4 & EX FH-5
- Roasterie Restaurant: FH-7
- Sunset Villas and Bungalows: FH-1, FH-2, FH-8, EX FH-1(TEST), & EX FH-3(FLOW)
- Conference Center: FH-1, FH-2, FH-3, FH-4, FH-5, FH-6, & EX FH-7(FLOW2)
- Event Lawn: FH-5 & FH-6
- Parking Structure: EX FH-6(TEST2), EX FH-7(FLOW2), EX FH-10, & EX FH-11
- Guest Room Addition: FH-2, EX FH-1(TEST1), & EX FH-3(FLOW1)

5.0 CONCLUSIONS

The following conclusions can be made based on the above analysis for the six (6) proposed Fairmont Scottsdale Princess projects:

1. The design criteria used to calculate potable water demands and evaluate system hydraulics are based on the *City of Scottsdale Design Standards and Policies Manual, 2018*.

2. The proposed water infrastructure described is adequate to serve the domestic and fire flow demands for the proposed projects.

3. The proposed projects meet or exceed the minimum pressure of 30 psi with their respective fire flow requirements per the City of Scottsdale for the MDD + FF scenarios.

4. The proposed projects exceed the minimum 50-psi pressure requirement as outlined by the City of Scottsdale standards for the ADD, MDD, and PH scenarios.

5. The proposed projects do not exceed the maximum 120-psi pressure requirement as outlined by the City of Scottsdale standards for the ADD, MDD, and PH scenarios.

6.0 REFERENCES

1. *City of Scottsdale Design Standards and Policies Manual*, 2018
2. *International Fire Code, by International Code Council*, 2021
3. *The Italian Restaurant – Phase 4C, Scottsdale, AZ*, by Kimley-Horn and Associates, Inc. November 2023.
4. *The Roasterie Restaurant – Phase 4D, Scottsdale, AZ*, by Kimley-Horn and Associates, Inc. November 2023.
5. *Water Distribution System Basis of Design Report for Fairmont Scottsdale Princess Conference Center & Event Lawn, Scottsdale, AZ,* by Wood, Patel & Associates, Inc. November 2023.
6. *Water Distribution System Basis of Design Report for Fairmont Scottsdale Princess Guest Room Addition, Scottsdale, AZ,* by Wood, Patel & Associates, Inc. November 2023.
7. *Water Distribution System Basis of Design Report for Fairmont Scottsdale Princess Sunset Villas and Bungalows, Scottsdale, AZ,* by Wood, Patel & Associates, Inc. June 2023.
8. *Water Distribution System Basis of Design Report for Fairmont Scottsdale Princess Parking Structure, Scottsdale, AZ,* by Wood, Patel & Associates, Inc. June 2023.

APPENDIX A – WATER DEMAND CALCULATIONS

WOOD PATEL

TABLE 1
WATER DISTRIBUTION SYSTEM DESIGN CRITERIA

Project	Fairmont Scottsdale Princess
Location	Scottsdale AZ
Project Number	215319
Project Engineer	Andrew J. Sanchez, E.I.T.
References	City of Scottsdale Design and Policies Manual (2018)

RESIDENTIAL WATER DEMANDS			
LAND USE	**AVERAGE DAILY DEMAND (ADD)**		**NOTES**
	VALUE	**UNITS**	
High Density Condominium	185.3	gpd/DU	Note 1
Resort Hotel	446.3	gpd/DU	Note 1

NON-RESIDENTIAL WATER DEMANDS			
LAND USE	**AVERAGE DAILY DEMAND (ADD)**		**NOTES**
	VALUE	**UNITS**	
Restaurant	1.3	gpd/sf	Note 1
Commercial/Retail	0.8	gpd/sf	Note 1
Commercial High Rise	0.6	gpd/sf	Note 1
Office	0.6	gpd/sf	Note 1
Institutional	1340	gpd/acre	Note 1
Industrial	1027	gpd/acre	Note 1
Research and Development	1284	gpd/acre	Note 1

HYDRAULIC MODELING CRITERIA				
DESCRIPTION		**VALUE**	**UNITS**	**NOTES**
PEAK FLOW				
	Max Day = Peaking Factor x ADD	2.0 x ADD	gpd	Note 1
	Peak Hour = Peaking Factor x ADD	3.5 x ADD	gpd	Note 1
	Peak Hour = Peaking Factor (Restraunt) x ADD	6.0 x ADD	gpd	Note 1
MODELED FIRE HYDRANT FLOW WITH 50% FIRE SPRINKLER REDUCTION (MINIMUM)				
☐	Residential, 0 - 3,600 sf fire-flow calculation area	1,000	gpm	Note 3
☑	Residential, 3,601 - 4,800 sf fire-flow calculation area	1,750	gpm	Note 4
☐	Residential, 4,801 - 6,200 sf fire-flow calculation area	2,000	gpm	Note 4
☐	Residential, 6,201 - 7,700 sf fire-flow calculation area	2,250	gpm	Note 4
☐	Residential, 7,701 - 9,400 sf fire-flow calculation area	2,500	gpm	Note 4
☐	Residential, 9,401 - 11,300 sf fire-flow calculation area	2,750	gpm	Note 4
☐	Multi-Family Residential	-	gpm	Note 2
☐	Commercial	-	gpm	Note 2
HYDRAULICS				
	Residual Pressure Range, Peak Flow	50-120	psi	Note 1
	Minimum Residual Pressure, Peak Flow + Fire Flow	30	psi	Note 1
	Maximum Velocity, Peak Flow	5	ft/sec	Note 1
	Maximum Velocity, Peak Day + Fire Flow	10	ft/sec	Note 1
	Minimum Pipe Diameter, Looped System	8	in	Note 1
	Hazen-Williams C-value	120	-	Note 1

Notes

1. Per City of Scottsdale Design and Policies Manual (2018)
2. Per 2021 International Fire Code
3. Residential limited to one- and two-family dwellings, assumes Type V-B construction, and has a 1-hour fire duration, with 50% sprinkler reduction
4. Residential limited to one- and two-family dwellings, assumes Type V-B construction, and has a 2-hour fire duration, with 50% sprinkler reduction

WOOD PATEL

WATER DEMAND DESIGN FLOWS

Project Fairmont Scottsdale Princess
Location Scottsdale AZ
Project Number 215319
Project Engineer Andrew J. Sanchez, E.I.T.
References City of Scottsdale Design and Policies Manual (2018)

LAND USE AND DWELLING UNIT BREAKDOWN BY JUNCTION												FIRE FLOW		
HYDRAULIC MODEL NODE	LAND USE	DWELLING UNITS	AREA (SF)	DEMAND VALUE	UNITS	AVERAGE DAILY DEMAND		MAX DAY		PEAK HOUR		FIRE FLOW AREA	FIRE FLOW TYPE	FIRE - FLOW
						(gpm)	(gpd)	(gpm)	(gpd)	(gpm)	(gpd)	(sf)		(gpm)
Italian Restaurant	Restaurant	--	16,500	1.3	gpd/sf	29.8	21,450	59.6	42,900	178.8	128,700	16,500	V-B	1,750
*** Fountain	Small Pool or Spa	--	--	--	--	.1	52	.1	52.0	.1	52.0			
Roasterie Restaurant	Restaurant	--	10,500	1.3	gpd/sf	19.0	13,650	38.0	27,300	114.0	81,900	10,500	V-B	1,500*
*** Fountain	Small Pool or Spa	--	--	--	--	.1	52	.1	52.0	.1	52.0			
Sunset Villas and Bungalows	Resort Hotel	43	--	446.3	gpd/DU	26.7	19,191	53.4	38,382	93.5	67,169	12,131	V-B	1,500
Conference Center	Restaurant (Kitchen)	--	3,219	1.3	gpd/sf	5.8	4,185	11.6	8,370	34.8	25,110	97,576	I-B	1,625
	Commercial/Retail	--	94,357	0.8	gpd/sf	104.8	75,486	209.6	150,972	366.8	264,201			
*** Fountain	Small Pool or Spa	--	--	--	--	.1	52	.1	52.0	.1	52.0			
Event Lawn	N/A	N/A	N/A	N/A	N/A	--	--	--	--	--	--	39,400	N/A	1,500
Parking Garage	N/A	N/A	N/A	N/A	N/A	--	--	--	--	--	--	340,500	I-B	3,000
Guest Room Addition	Resort Hotel	155	--	446.3	gpd/DU	96.1	69,177	192.2	138,354	336.4	242,120	151,086 **	V-A	3,125
Total		**198**	**124,576**			**282.5**	**203,295**	**564.7**	**406,434**	**1,124.6**	**809,356**			

* Adjusted for minimum fire flow requirements based on the square footage being below the minimums per the IFC.

** Square footage includes the underground parking garage.

*** Additional water demands calculated by City of Scottsdale Development Water Demand Exhibit.

APPENDIX B – FIRE HYDRANT FLOW TEST RESULTS AND CALCULATIONS

Arizona Flow Testing LLC

HYDRANT FLOW TEST REPORT

Project Name:	Fairmont Scottsdale Princess
Project Address:	7575 East Princess Blvd., Scottsdale, Arizona 85255
Client Project No.:	215319
Arizona Flow Testing Project No.:	22541
Flow Test Permit No.:	C69698
Date and time flow test conducted:	August 4, 2022 at 7:00 AM
Data is current and reliable until:	February 4, 2023
Conducted by:	Floyd Vaughan – Arizona Flow Testing, LLC (480-250-8154)
Witnessed by:	Sonny Schreiner –City of Scottsdale-Inspector (602-819-7718)

Raw Test Data

Static Pressure: **88.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **72.0 PSI**
(Measured in pounds per square inch)

Pitot Pressure: **40.0 PSI**
(Measured in pounds per square inch)

Diffuser Orifice Diameter: One 4-inch Pollard Diffuser
(Measured in inches)

Coefficient of Diffuser: 0.9

Flowing GPM: **2,718 GPM**
(Measured in gallons per minute)

GPM @ 20 PSI: **5,936 GPM**

Data with 16PSI Safety Factor

Static Pressure: **72.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **56.0 PSI**
(Measured in pounds per square inch)

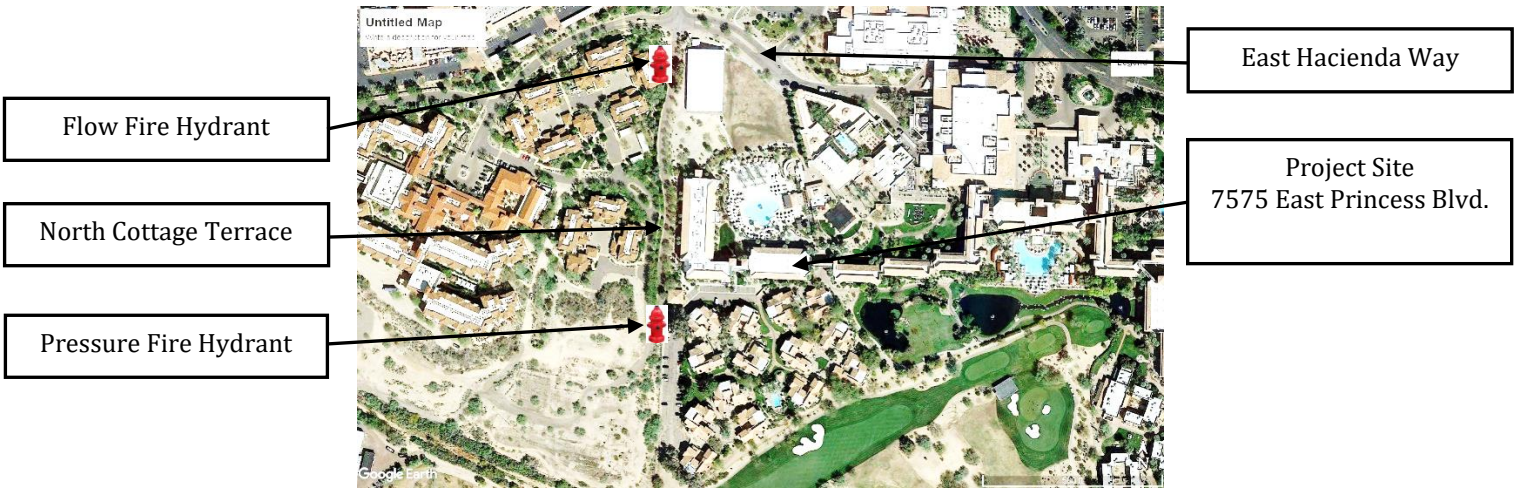
Distance between hydrants: Approx. 810 Feet

Main size: Not Provided

Flowing GPM: **2,718 GPM**

GPM @ 20 PSI**:** **5,136 GPM**

Flow Test Location **North**



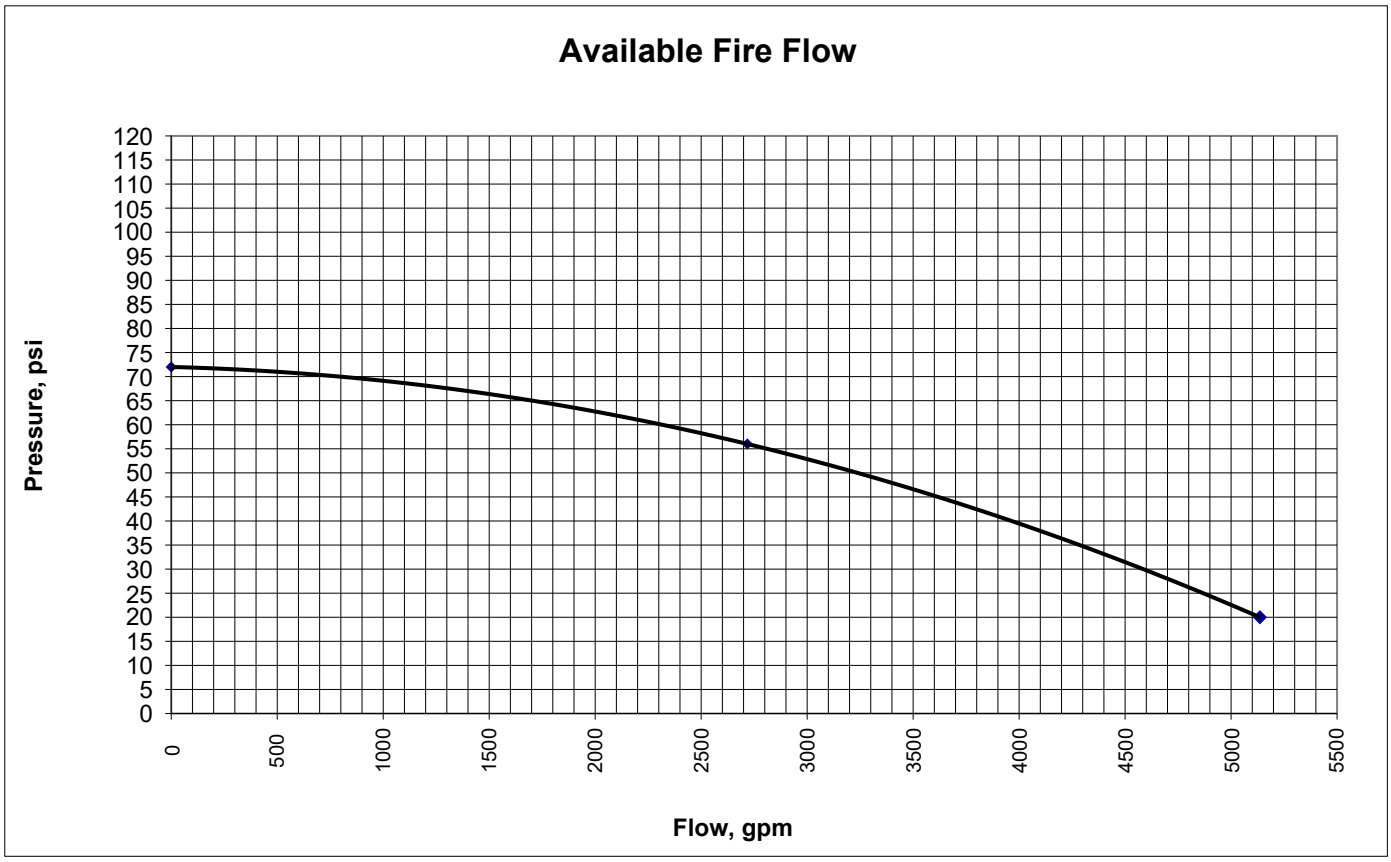
WOOD PATEL

EXISTING WATER SYSTEM PRESSURES (08-2022)

Project	Fairmont Scottsdale Princess
Location	Scottsdale AZ
Project Number	215319
Project Engineer	Andrew J. Sanchez, E.I.T.

Flow Test Location
Date of Flow Test

Pressure Hydrant		**Flow Hydrant**	
Static Pressure (psi)	72.0		
Residual Pressure (psi)	56.0	Flow (gpm)	2718
Calculated Flow at 20 psi	5136 gpm	Calculated Flow at	20 psi



Discharge (gpm)	Pressure (psi)	Head (ft)
0	72	166.2
2718	56	129.3
5136	20	46.2

Notes
1. Values provided from a flow test by Arizona Flow Testing LLC

Arizona Flow Testing LLC

HYDRANT FLOW TEST REPORT

Project Name:	Fairmont Scottsdale Princess - Parking Structure
Project Address:	7575 East Princess Drive, Scottsdale, Arizona, 85255
Client Project No.:	215319.4
Arizona Flow Testing Project No.:	23093
Flow Test Permit No.:	C71326
Date and time flow test conducted:	February 6, 2023 at 6:20 AM
Data is current and reliable until:	August 6, 2023
Conducted by:	Floyd Vaughan-Az Flow Testing, LLC (480-250-8154)
Witnessed by:	Sonny Schreiner – City of Scottsdale-Inspector (602-819-7718)

Raw Test Data

Static Pressure: **84.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **73.0 PSI**
(Measured in pounds per square inch)

Pitot Pressure: **25.0 PSI**
(Measured in pounds per square inch)
+

Diffuser Orifice Diameter: One 4-inch Hose Monster
(Measured in inches)

Coefficient of Diffuser: 0.7875

Flowing GPM: **1,880 GPM**
(Measured in gallons per minute)

GPM @ 20 PSI: **4,865 GPM**

Data with 12 PSI Safety Factor

Static Pressure: **72.0 PSI**
(Measured in pounds per square inch)

Scottsdale requires a maximum Static Pressure of 72 PSI for AFES Design.

Residual Pressure: **61.0 PSI**
(Measured in pounds per square inch)

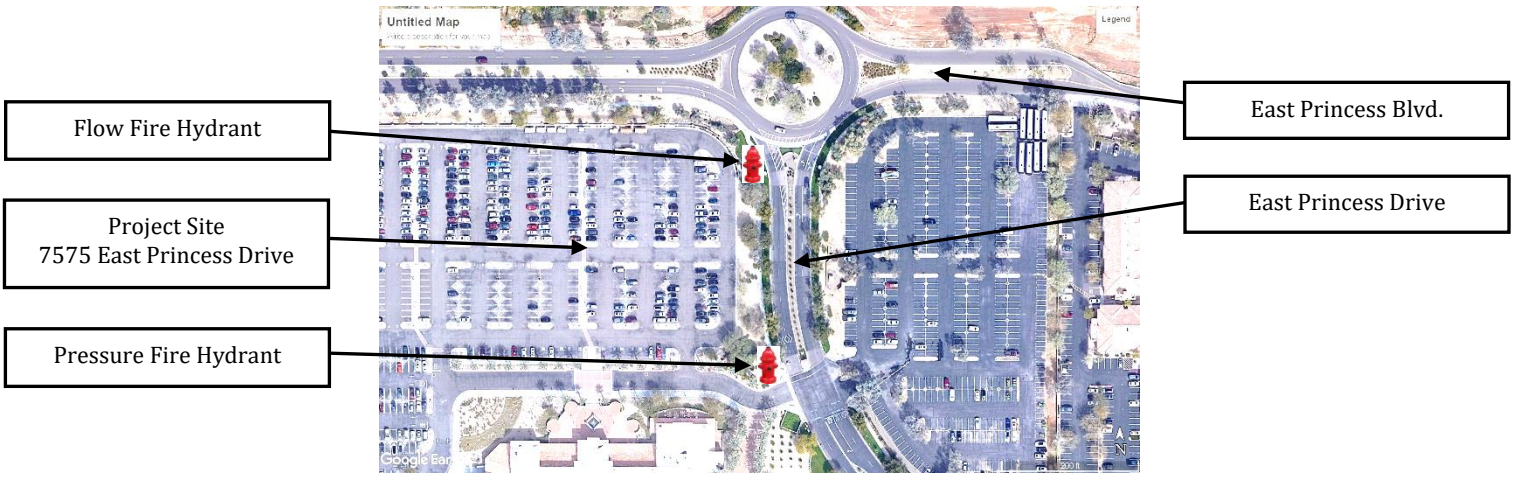
Approx. distance between hydrants: 340 Feet

Main size: Not Provided

Flowing GPM: **1,880 GPM**

GPM @ 20 PSI**:** **4,349 GPM**

Flow Test Location **North**



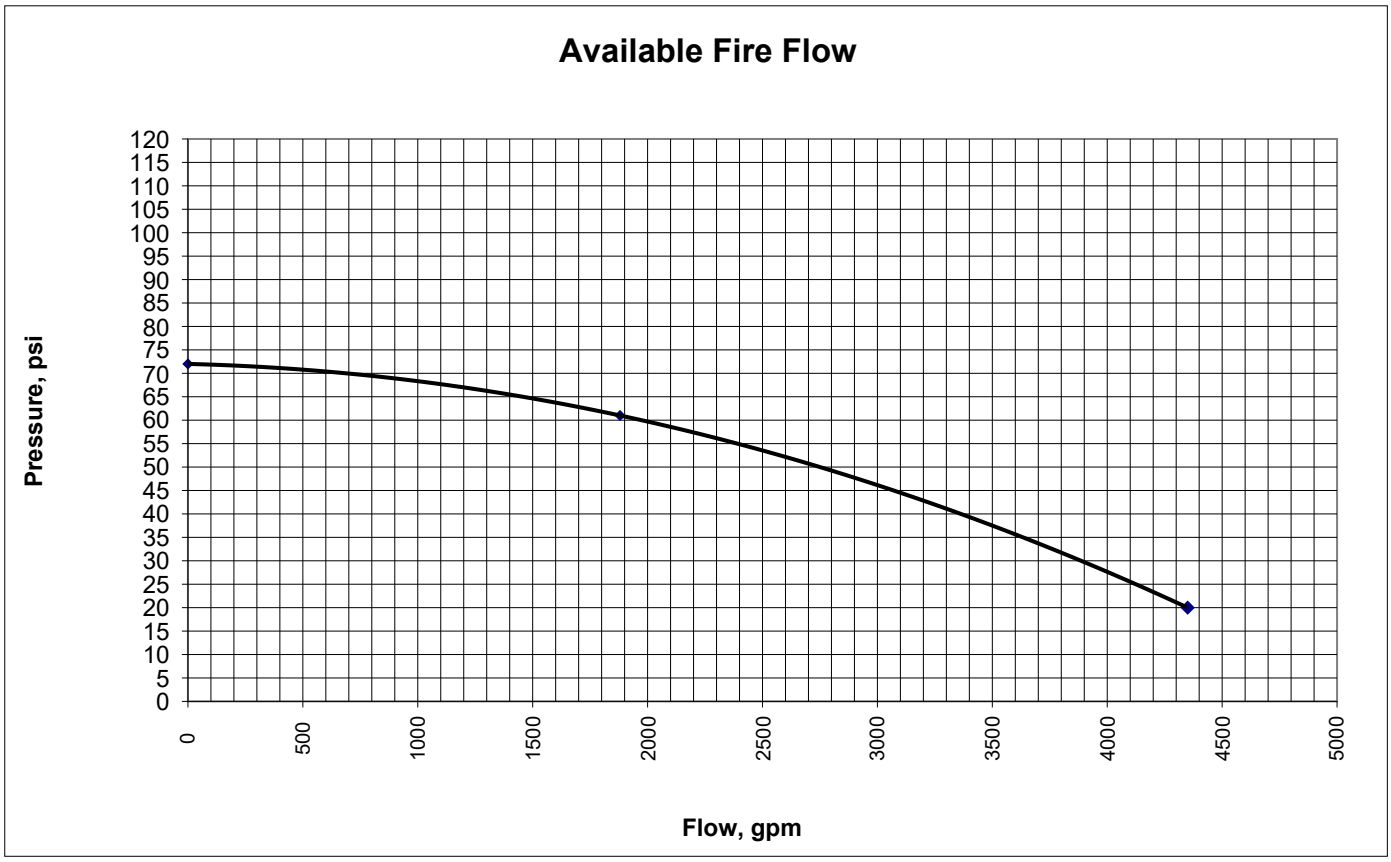
WOOD PATEL

EXISTING WATER SYSTEM PRESSURES (02-2023)

Project	Fairmont Scottsdale Princess
Location	Scottsdale AZ
Project Number	215319
Project Engineer	Andrew J. Sanchez, E.I.T.

Flow Test Location
Date of Flow Test

Pressure Hydrant		**Flow Hydrant**	
Static Pressure (psi)	72.0		
Residual Pressure (psi)	61.0	Flow (gpm)	1880
Calculated Flow at 20 psi	4350 gpm	Calculated Flow at	20 psi



Discharge (gpm)	Pressure (psi)	Head (ft)
0	72	166.2
1880	61	140.8
4350	20	46.2

Notes
1. Values provided from a flow test by Arizona Flow Testing LLC

APPENDIX C – HYDRAULIC MODELING RESULTS

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

FlexTable: Junction Table

Active Scenario: Calibration Static Model 1

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)	Pressure Head (ft)
J-20	1,552.46	0	70	1,713.82	161.36
Fire (Roasterie)	1,559.64	0	67	1,713.82	154.18
Fire (Italian)	1,556.30	0	68	1,713.82	157.52
Fire (Guest Room Addition)	1,550.00	0	71	1,713.82	163.82
Fire (Garage)	1,554.70	0	69	1,713.82	159.12
FH-8	1,552.10	0	70	1,713.82	161.72
FH-7	1,557.87	0	67	1,713.82	155.95
FH-2	1,553.15	0	70	1,713.82	160.67
FH-1	1,552.65	0	70	1,713.82	161.17
EX J-200	1,555.17	0	69	1,713.82	158.65
EX J-194	1,556.60	0	68	1,713.82	157.22
EX J-190	1,556.35	0	68	1,713.82	157.47
EX J-170	1,558.93	0	67	1,713.82	154.89
EX J-160	1,554.89	0	69	1,713.82	158.93
EX J-150	1,557.41	0	68	1,713.82	156.41
EX J-141	1,563.47	0	65	1,713.82	150.35
EX J-140	1,560.63	0	66	1,713.82	153.19
EX J-130	1,558.03	0	67	1,713.82	155.79
EX J-120	1,556.34	0	68	1,713.82	157.48
EX J-110	1,556.50	0	68	1,713.82	157.32
EX J-100	1,550.00	0	71	1,713.82	163.82
EX J-90	1,547.00	0	72	1,713.82	166.82
EX J-80	1,542.85	0	74	1,713.82	170.97
EX J-70	1,542.85	0	74	1,713.82	170.97
EX J-54	1,555.20	0	69	1,713.82	158.62
EX J-50	1,552.03	0	70	1,713.82	161.79
EX J-40	1,552.55	0	70	1,713.82	161.27
EX J-34	1,553.36	0	69	1,713.82	160.46
EX J-30	1,553.00	0	70	1,713.82	160.82
EX J-20	1,553.00	0	70	1,713.82	160.82
EX J-10	1,552.00	0	70	1,713.82	161.82
EX FH-12	1,552.10	0	70	1,713.82	161.72
EX FH-11	1,557.90	0	67	1,713.82	155.92
EX FH-9	1,554.65	0	69	1,713.82	159.17
EX FH-8	1,556.95	0	68	1,713.82	156.87
EX FH-7 (FLOW 2)	1,556.86	0	68	1,713.82	156.96
EX FH-6 (TEST 2)	1,559.33	0	67	1,713.82	154.49
EX FH-5	1,558.03	0	67	1,713.82	155.79
EX FH-4	1,557.29	0	68	1,713.82	156.53
EX FH-3 (FLOW 1)	1,550.00	0	71	1,713.82	163.82
EX FH-2	1,542.85	0	74	1,713.82	170.97
EX FH-1 (TEST 1)	1,547.30	0	72	1,713.82	166.52
Domestic (Villas and Bungalows)	1,553.30	0	69	1,713.82	160.52
Domestic (Roasterie)	1,560.25	0	66	1,713.82	153.57
Domestic (Italian)	1,556.30	0	68	1,713.82	157.52
Domestic (Guest Room Addition)	1,550.00	0	71	1,713.82	163.82
Domestic (Conference Center)	1,553.33	0	69	1,713.82	160.49

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

FlexTable: Junction Table

Active Scenario: Calibration Static Model 2

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)	Pressure Head (ft)
J-20	1,552.46	0	75	1,725.73	173.27
Fire (Roasterie)	1,559.64	0	72	1,725.73	166.09
Fire (Italian)	1,556.30	0	73	1,725.73	169.43
Fire (Guest Room Addition)	1,550.00	0	76	1,725.73	175.73
Fire (Garage)	1,554.70	0	74	1,725.73	171.03
FH-8	1,552.10	0	75	1,725.73	173.63
FH-7	1,557.87	0	73	1,725.73	167.86
FH-2	1,553.15	0	75	1,725.73	172.58
FH-1	1,552.65	0	75	1,725.73	173.08
EX J-200	1,555.17	0	74	1,725.73	170.56
EX J-194	1,556.60	0	73	1,725.73	169.13
EX J-190	1,556.35	0	73	1,725.73	169.38
EX J-170	1,558.93	0	72	1,725.73	166.80
EX J-160	1,554.89	0	74	1,725.73	170.84
EX J-150	1,557.41	0	73	1,725.73	168.32
EX J-141	1,563.47	0	70	1,725.73	162.26
EX J-140	1,560.63	0	71	1,725.73	165.10
EX J-130	1,558.03	0	73	1,725.73	167.70
EX J-120	1,556.34	0	73	1,725.73	169.39
EX J-110	1,556.50	0	73	1,725.73	169.23
EX J-100	1,550.00	0	76	1,725.73	175.73
EX J-90	1,547.00	0	77	1,725.73	178.73
EX J-80	1,542.85	0	79	1,725.73	182.88
EX J-70	1,542.85	0	79	1,725.73	182.88
EX J-54	1,555.20	0	74	1,725.73	170.53
EX J-50	1,552.03	0	75	1,725.73	173.70
EX J-40	1,552.55	0	75	1,725.73	173.18
EX J-34	1,553.36	0	75	1,725.73	172.37
EX J-30	1,553.00	0	75	1,725.73	172.73
EX J-20	1,553.00	0	75	1,725.73	172.73
EX J-10	1,552.00	0	75	1,725.73	173.73
EX FH-12	1,552.10	0	75	1,725.73	173.63
EX FH-11	1,557.90	0	73	1,725.73	167.83
EX FH-9	1,554.65	0	74	1,725.73	171.08
EX FH-8	1,556.95	0	73	1,725.73	168.78
EX FH-7 (FLOW 2)	1,556.86	0	73	1,725.73	168.87
EX FH-6 (TEST 2)	1,559.33	0	72	1,725.73	166.40
EX FH-5	1,558.03	0	73	1,725.73	167.70
EX FH-4	1,557.29	0	73	1,725.73	168.44
EX FH-3 (FLOW 1)	1,550.00	0	76	1,725.73	175.73
EX FH-2	1,542.85	0	79	1,725.73	182.88
EX FH-1 (TEST 1)	1,547.30	0	77	1,725.73	178.43
Domestic (Villas and Bungalows)	1,553.30	0	75	1,725.73	172.43
Domestic (Roasterie)	1,560.25	0	72	1,725.73	165.48
Domestic (Italian)	1,556.30	0	73	1,725.73	169.43
Domestic (Guest Room Addition)	1,550.00	0	76	1,725.73	175.73
Domestic (Conference Center)	1,553.33	0	75	1,725.73	172.40

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

FlexTable: Junction Table

Active Scenario: Calibration Residual Model 1

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)	Pressure Head (ft)
J-20	1,552.46	0	52	1,671.64	119.19
Fire (Roasterie)	1,559.64	0	49	1,672.90	113.27
Fire (Italian)	1,556.30	0	50	1,671.44	115.14
Fire (Guest Room Addition)	1,550.00	0	54	1,675.65	125.65
Fire (Garage)	1,554.70	0	51	1,671.47	116.77
FH-8	1,552.10	0	52	1,671.66	119.56
FH-7	1,557.87	0	50	1,674.07	116.20
FH-2	1,553.15	0	51	1,671.54	118.39
FH-1	1,552.65	0	51	1,671.63	118.98
EX J-200	1,555.17	0	50	1,671.57	116.40
EX J-194	1,556.60	0	50	1,671.49	114.90
EX J-190	1,556.35	0	50	1,671.50	115.15
EX J-170	1,558.93	0	49	1,671.47	112.54
EX J-160	1,554.89	0	50	1,671.47	116.58
EX J-150	1,557.41	0	49	1,671.47	114.06
EX J-141	1,563.47	0	47	1,671.46	107.99
EX J-140	1,560.63	0	48	1,671.46	110.83
EX J-130	1,558.03	0	49	1,671.45	113.42
EX J-120	1,556.34	0	50	1,671.44	115.10
EX J-110	1,556.50	0	50	1,671.44	114.94
EX J-100	1,550.00	0	53	1,671.56	121.56
EX J-90	1,547.00	0	56	1,676.85	129.85
EX J-80	1,542.85	0	58	1,676.80	133.95
EX J-70	1,542.85	0	58	1,676.62	133.77
EX J-54	1,555.20	0	51	1,672.55	117.35
EX J-50	1,552.03	0	52	1,671.66	119.63
EX J-40	1,552.55	0	52	1,671.59	119.04
EX J-34	1,553.36	0	51	1,671.52	118.16
EX J-30	1,553.00	0	51	1,671.49	118.49
EX J-20	1,553.00	0	51	1,671.47	118.47
EX J-10	1,552.00	0	52	1,671.43	119.43
EX FH-12	1,552.10	0	52	1,671.66	119.56
EX FH-11	1,557.90	0	49	1,671.47	113.57
EX FH-9	1,554.65	0	51	1,671.55	116.90
EX FH-8	1,556.95	0	50	1,671.52	114.57
EX FH-7 (FLOW 2)	1,556.86	0	50	1,671.49	114.63
EX FH-6 (TEST 2)	1,559.33	0	49	1,671.47	112.14
EX FH-5	1,558.03	0	49	1,671.45	113.42
EX FH-4	1,557.29	0	49	1,671.45	114.16
EX FH-3 (FLOW 1)	1,550.00	2,718	53	1,671.42	121.42
EX FH-2	1,542.85	0	58	1,676.53	133.68
EX FH-1 (TEST 1)	1,547.30	0	56	1,676.86	129.56
Domestic (Villas and Bungalows)	1,553.30	0	51	1,671.53	118.22
Domestic (Roasterie)	1,560.25	0	49	1,672.95	112.70
Domestic (Italian)	1,556.30	0	50	1,671.44	115.14
Domestic (Guest Room Addition)	1,550.00	0	54	1,675.74	125.74
Domestic (Conference Center)	1,553.33	0	51	1,671.52	118.19

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

FlexTable: Junction Table

Active Scenario: Calibration Residual Model 2

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)	Pressure Head (ft)
J-20	1,552.46	0	63	1,698.53	146.07
Fire (Roasterie)	1,559.64	0	60	1,698.73	139.09
Fire (Italian)	1,556.30	0	62	1,699.58	143.27
Fire (Guest Room Addition)	1,550.00	0	65	1,699.35	149.35
Fire (Garage)	1,554.70	0	62	1,699.02	144.32
FH-8	1,552.10	0	63	1,698.53	146.43
FH-7	1,557.87	0	61	1,698.91	141.04
FH-2	1,553.15	0	63	1,698.79	145.64
FH-1	1,552.65	0	63	1,698.53	145.88
EX J-200	1,555.17	0	62	1,697.96	142.79
EX J-194	1,556.60	0	60	1,695.80	139.21
EX J-190	1,556.35	0	60	1,695.98	139.63
EX J-170	1,558.93	0	61	1,699.99	141.06
EX J-160	1,554.89	0	62	1,699.02	144.13
EX J-150	1,557.41	0	61	1,699.02	141.61
EX J-141	1,563.47	0	59	1,700.21	136.74
EX J-140	1,560.63	0	60	1,700.21	139.58
EX J-130	1,558.03	0	61	1,699.88	141.85
EX J-120	1,556.34	0	62	1,699.65	143.31
EX J-110	1,556.50	0	62	1,699.48	142.98
EX J-100	1,550.00	0	65	1,699.36	149.36
EX J-90	1,547.00	0	66	1,699.35	152.35
EX J-80	1,542.85	0	68	1,699.34	156.49
EX J-70	1,542.85	0	68	1,699.31	156.46
EX J-54	1,555.20	0	62	1,698.67	143.47
EX J-50	1,552.03	0	63	1,698.53	146.50
EX J-40	1,552.55	0	63	1,698.52	145.97
EX J-34	1,553.36	0	63	1,698.88	145.52
EX J-30	1,553.00	0	63	1,699.04	146.04
EX J-20	1,553.00	0	63	1,699.16	146.16
EX J-10	1,552.00	0	64	1,699.36	147.36
EX FH-12	1,552.10	0	63	1,698.53	146.43
EX FH-11	1,557.90	0	61	1,699.02	141.12
EX FH-9	1,554.65	0	62	1,697.48	142.83
EX FH-8	1,556.95	0	60	1,696.45	139.50
EX FH-7 (FLOW 2)	1,556.86	1,880	60	1,695.61	138.75
EX FH-6 (TEST 2)	1,559.33	0	61	1,700.33	141.00
EX FH-5	1,558.03	0	61	1,699.87	141.84
EX FH-4	1,557.29	0	62	1,699.77	142.48
EX FH-3 (FLOW 1)	1,550.00	0	65	1,699.36	149.36
EX FH-2	1,542.85	0	68	1,699.30	156.45
EX FH-1 (TEST 1)	1,547.30	0	66	1,699.35	152.05
Domestic (Villas and Bungalows)	1,553.30	0	63	1,698.86	145.55
Domestic (Roasterie)	1,560.25	0	60	1,698.73	138.48
Domestic (Italian)	1,556.30	0	62	1,699.57	143.27
Domestic (Guest Room Addition)	1,550.00	0	65	1,699.35	149.35
Domestic (Conference Center)	1,553.33	0	63	1,698.87	145.54

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

FlexTable: Junction Table

Active Scenario: Calibration Flow@20 Model 1

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)	Pressure Head (ft)
J-20	1,552.46	0	11	1,576.75	24.29
Fire (Roasterie)	1,559.64	0	9	1,580.85	21.21
Fire (Italian)	1,556.30	0	9	1,576.09	19.79
Fire (Guest Room Addition)	1,550.00	0	17	1,589.77	39.77
Fire (Garage)	1,554.70	0	9	1,576.19	21.49
FH-8	1,552.10	0	11	1,576.81	24.71
FH-7	1,557.87	0	12	1,584.62	26.75
FH-2	1,553.15	0	10	1,576.41	23.26
FH-1	1,552.65	0	10	1,576.72	24.07
EX J-200	1,555.17	0	9	1,576.50	21.33
EX J-194	1,556.60	0	9	1,576.26	19.66
EX J-190	1,556.35	0	9	1,576.28	19.93
EX J-170	1,558.93	0	7	1,576.18	17.25
EX J-160	1,554.89	0	9	1,576.19	21.30
EX J-150	1,557.41	0	8	1,576.19	18.78
EX J-141	1,563.47	0	5	1,576.17	12.70
EX J-140	1,560.63	0	7	1,576.17	15.54
EX J-130	1,558.03	0	8	1,576.13	18.10
EX J-120	1,556.34	0	9	1,576.10	19.76
EX J-110	1,556.50	0	8	1,576.08	19.58
EX J-100	1,550.00	0	11	1,576.48	26.48
EX J-90	1,547.00	0	20	1,593.66	46.66
EX J-80	1,542.85	0	22	1,593.51	50.66
EX J-70	1,542.85	0	22	1,592.91	50.06
EX J-54	1,555.20	0	11	1,579.69	24.49
EX J-50	1,552.03	0	11	1,576.81	24.78
EX J-40	1,552.55	0	10	1,576.57	24.02
EX J-34	1,553.36	0	10	1,576.35	22.99
EX J-30	1,553.00	0	10	1,576.26	23.26
EX J-20	1,553.00	0	10	1,576.19	23.19
EX J-10	1,552.00	0	10	1,576.07	24.07
EX FH-12	1,552.10	0	11	1,576.81	24.71
EX FH-11	1,557.90	0	8	1,576.19	18.29
EX FH-9	1,554.65	0	9	1,576.45	21.80
EX FH-8	1,556.95	0	8	1,576.33	19.38
EX FH-7 (FLOW 2)	1,556.86	0	8	1,576.23	19.37
EX FH-6 (TEST 2)	1,559.33	0	7	1,576.18	16.85
EX FH-5	1,558.03	0	8	1,576.13	18.10
EX FH-4	1,557.29	0	8	1,576.12	18.82
EX FH-3 (FLOW 1)	1,550.00	5,136	11	1,576.01	26.01
EX FH-2	1,542.85	0	22	1,592.61	49.76
EX FH-1 (TEST 1)	1,547.30	0	20	1,593.70	46.40
Domestic (Villas and Bungalows)	1,553.30	0	10	1,576.37	23.06
Domestic (Roasterie)	1,560.25	0	9	1,581.01	20.76
Domestic (Italian)	1,556.30	0	9	1,576.09	19.79
Domestic (Guest Room Addition)	1,550.00	0	17	1,590.05	40.05
Domestic (Conference Center)	1,553.33	0	10	1,576.36	23.03

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

FlexTable: Junction Table

Active Scenario: Calibration Flow@20 Model 2

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)	Pressure Head (ft)
J-20	1,552.46	0	19	1,597.26	44.81
Fire (Roasterie)	1,559.64	0	17	1,598.20	38.57
Fire (Italian)	1,556.30	0	20	1,602.23	45.92
Fire (Guest Room Addition)	1,550.00	0	22	1,601.16	51.16
Fire (Garage)	1,554.70	0	19	1,599.60	44.90
FH-8	1,552.10	0	20	1,597.28	45.18
FH-7	1,557.87	0	18	1,599.07	41.20
FH-2	1,553.15	0	20	1,598.48	45.34
FH-1	1,552.65	0	19	1,597.26	44.61
EX J-200	1,555.17	0	17	1,594.57	39.40
EX J-194	1,556.60	0	12	1,584.39	27.79
EX J-190	1,556.35	0	12	1,585.22	28.87
EX J-170	1,558.93	0	20	1,604.17	45.24
EX J-160	1,554.89	0	19	1,599.60	44.71
EX J-150	1,557.41	0	18	1,599.60	42.19
EX J-141	1,563.47	0	18	1,605.24	41.77
EX J-140	1,560.63	0	19	1,605.24	44.61
EX J-130	1,558.03	0	20	1,603.64	45.61
EX J-120	1,556.34	0	20	1,602.55	46.21
EX J-110	1,556.50	0	20	1,601.78	45.28
EX J-100	1,550.00	0	22	1,601.19	51.19
EX J-90	1,547.00	0	23	1,601.14	54.14
EX J-80	1,542.85	0	25	1,601.11	58.26
EX J-70	1,542.85	0	25	1,600.97	58.12
EX J-54	1,555.20	0	18	1,597.94	42.74
EX J-50	1,552.03	0	20	1,597.28	45.25
EX J-40	1,552.55	0	19	1,597.22	44.67
EX J-34	1,553.36	0	20	1,598.93	45.57
EX J-30	1,553.00	0	20	1,599.70	46.70
EX J-20	1,553.00	0	20	1,600.23	47.23
EX J-10	1,552.00	0	21	1,601.21	49.21
EX FH-12	1,552.10	0	20	1,597.28	45.18
EX FH-11	1,557.90	0	18	1,599.60	41.70
EX FH-9	1,554.65	0	16	1,592.31	37.66
EX FH-8	1,556.95	0	13	1,587.43	30.48
EX FH-7 (FLOW 2)	1,556.86	4,349	12	1,583.49	26.63
EX FH-6 (TEST 2)	1,559.33	0	20	1,605.78	46.45
EX FH-5	1,558.03	0	20	1,603.62	45.59
EX FH-4	1,557.29	0	20	1,603.15	45.86
EX FH-3 (FLOW 1)	1,550.00	0	22	1,601.19	51.19
EX FH-2	1,542.85	0	25	1,600.90	58.05
EX FH-1 (TEST 1)	1,547.30	0	23	1,601.15	53.85
Domestic (Villas and Bungalows)	1,553.30	0	20	1,598.81	45.51
Domestic (Roasterie)	1,560.25	0	16	1,598.24	37.99
Domestic (Italian)	1,556.30	0	20	1,602.20	45.90
Domestic (Guest Room Addition)	1,550.00	0	22	1,601.16	51.16
Domestic (Conference Center)	1,553.33	0	20	1,598.87	45.54

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

FlexTable: Junction Table

Active Scenario: Average Daily Demand

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)	Pressure Head (ft)
J-66	1,556.22	0	68	1,713.21	156.99
J-20	1,552.46	0	70	1,713.14	160.68
J-10	1,550.14	0	71	1,713.14	163.00
Fire (Villas and Bungalows)	1,553.13	0	69	1,713.14	160.01
Fire (Roasterie)	1,559.64	0	66	1,713.14	153.51
Fire (Italian)	1,556.30	0	68	1,713.21	156.91
Fire (Guest Room Addition)	1,550.00	0	71	1,713.25	163.25
Fire (Garage)	1,554.70	0	69	1,713.21	158.51
Fire (Conf. Center)	1,556.46	0	68	1,713.21	156.75
FH-8	1,552.10	0	70	1,713.14	161.04
FH-7	1,557.87	0	67	1,713.18	155.31
FH-6	1,556.95	0	68	1,713.21	156.26
FH-5	1,556.39	0	68	1,713.21	156.82
FH-4	1,556.42	0	68	1,713.21	156.78
FH-3	1,556.46	0	68	1,713.21	156.75
FH-2	1,553.15	0	69	1,713.14	159.99
FH-1	1,552.65	0	69	1,713.14	160.49
EX J-194	1,556.60	0	68	1,713.21	156.61
EX J-190	1,556.35	0	68	1,713.21	156.86
EX J-170	1,558.93	0	67	1,713.21	154.28
EX J-160	1,554.89	0	68	1,713.21	158.32
EX J-150	1,557.41	0	67	1,713.21	155.80
EX J-141	1,563.47	0	65	1,713.21	149.74
EX J-140	1,560.63	0	66	1,713.21	152.58
EX J-130	1,558.03	0	67	1,713.21	155.18
EX J-120	1,556.34	0	68	1,713.21	156.87
EX J-110	1,556.50	0	68	1,713.21	156.71
EX J-100	1,550.00	0	71	1,713.22	163.22
EX J-90	1,547.00	0	72	1,713.26	166.26
EX J-80	1,542.85	0	74	1,713.26	170.41
EX J-70	1,542.85	0	74	1,713.25	170.40
EX J-54	1,555.20	0	68	1,713.14	157.94
EX J-50	1,552.03	0	70	1,713.14	161.11
EX J-40	1,552.55	0	69	1,713.14	160.59
EX J-34	1,553.36	0	69	1,713.14	159.78
EX J-30	1,553.00	0	69	1,713.16	160.16
EX J-20	1,553.00	0	69	1,713.18	160.18
EX J-10	1,552.00	0	70	1,713.21	161.21
EX FH-12	1,552.10	0	70	1,713.14	161.04
EX FH-11	1,557.90	0	67	1,713.21	155.31
EX FH-10	1,563.50	0	65	1,713.21	149.71
EX FH-7 (FLOW 2)	1,556.86	0	68	1,713.21	156.35
EX FH-6 (TEST 2)	1,559.33	0	67	1,713.21	153.88
EX FH-5	1,558.03	0	67	1,713.21	155.18
EX FH-4	1,557.29	0	67	1,713.21	155.92
EX FH-3 (FLOW 1)	1,550.00	0	71	1,713.22	163.22
EX FH-2	1,542.85	0	74	1,713.25	170.40
EX FH-1 (TEST 1)	1,547.30	0	72	1,713.26	165.96
Domestic (Villas and Bungalows)	1,553.30	27	69	1,713.14	159.83

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

FlexTable: Junction Table

Active Scenario: Average Daily Demand

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)	Pressure Head (ft)
Domestic (Roasterie)	1,560.25	19	66	1,713.14	152.89
Domestic (Italian)	1,556.30	30	68	1,713.21	156.91
Domestic (Guest Room Addition)	1,550.00	96	71	1,713.25	163.25
Domestic (Conference Center)	1,553.33	111	69	1,713.14	159.80

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

FlexTable: Pipe Table

Active Scenario: Average Daily Demand

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-R-1	R-1	PMP-1	1	48.0	130.0	283	0.05
P-PMP-1	PMP-1	EX FH-1 (TEST 1)	1	48.0	130.0	283	0.05
P-EX FH-11	EX J-150	EX FH-11	23	12.0	130.0	0	0.00
P-55	FH-6	J-66	125	8.0	130.0	0	0.00
P-50	FH-3	EX J-110	302	8.0	130.0	-3	0.02
P-31	FH-3	Fire (Conf. Center)	51	8.0	130.0	3	0.02
P-29	Fire (Conf. Center)	FH-4	222	8.0	130.0	3	0.02
P-27	FH-4	FH-5	243	8.0	130.0	3	0.02
P-25	FH-5	EX J-190	267	8.0	130.0	3	0.02
P-23	J-66	EX J-190	16	8.0	130.0	-3	0.02
P-21	EX J-194	J-66	44	8.0	130.0	-3	0.02
P-17	EX J-54	Fire (Villas and Bungalows)	73	8.0	130.0	13	0.08
P-15	Fire (Villas and Bungalows)	J-10	106	8.0	130.0	13	0.08
P-5	J-10	EX J-34	333	8.0	130.0	13	0.08
EX P-193	EX FH-7 (FLOW 2)	EX J-194	50	8.0	130.0	-3	0.02
EX P-191	EX J-160	EX FH-7 (FLOW 2)	93	8.0	130.0	-3	0.02
EX P-177	EX FH-6 (TEST 2)	EX J-140	221	12.0	130.0	3	0.01
EX P-175	EX J-170	EX FH-6 (TEST 2)	67	12.0	130.0	3	0.01
EX P-165	EX J-160	EX J-170	191	12.0	130.0	3	0.01
EX P-157	EX J-160	Fire (Garage)	189	12.0	130.0	0	0.00
EX P-155	Fire (Garage)	EX J-150	268	12.0	130.0	0	0.00
EX P-147(1)	EX J-150	EX FH-10	802	6.0	130.0	0	0.00
EX P-147	EX FH-10	EX J-141	91	6.0	130.0	0	0.00
EX P-145	EX J-141	EX J-140	403	12.0	130.0	0	0.00
EX P-135	EX J-140	EX J-130	649	12.0	130.0	3	0.01
EX P-129	EX J-130	EX FH-5	9	12.0	130.0	3	0.01
EX P-127	EX FH-5	EX FH-4	190	12.0	130.0	3	0.01
EX P-125	EX FH-4	EX J-120	245	12.0	130.0	3	0.01
EX P-117	EX J-120	Fire (Italian)	130	12.0	130.0	3	0.01
EX P-115	Fire (Italian)	Domestic (Italian)	13	12.0	130.0	3	0.01
EX P-113	Domestic (Italian)	EX J-110	171	12.0	130.0	-27	0.08
EX P-109	EX J-110	EX J-10	231	12.0	130.0	-30	0.08
EX P-107	EX J-10	EX FH-3 (FLOW 1)	133	12.0	130.0	-155	0.44
EX P-105	EX FH-3 (FLOW 1)	EX J-100	10	12.0	130.0	-155	0.44
EX P-99	EX J-100	Fire (Guest Room Addition)	294	12.0	130.0	-155	0.44
EX P-97	Fire (Guest Room Addition)	Domestic (Guest Room Addition)	6	12.0	130.0	-155	0.44
EX P-95	Domestic (Guest Room Addition)	EX FH-1 (TEST 1)	81	12.0	130.0	-251	0.71
EX P-93	EX FH-1 (TEST 1)	EX J-90	87	12.0	130.0	32	0.09
EX P-85	EX J-90	EX J-80	323	12.0	130.0	32	0.09

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

FlexTable: Pipe Table

Active Scenario: Average Daily Demand

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-75	EX J-80	EX J-70	46	6.0	130.0	32	0.36
EX P-65	EX J-70	EX FH-2	22	6.0	130.0	32	0.36
EX P-59	EX FH-12	FH-8	37	8.0	130.0	0	0.00
EX P-58	EX J-50	EX FH-12	89	8.0	130.0	0	0.00
EX P-57(2)	FH-7	Domestic (Roasterie)	272	6.0	130.0	32	0.36
EX P-57(1)	EX FH-2	FH-7	603	6.0	130.0	32	0.36
EX P-55	Domestic (Roasterie)	Fire (Roasterie)	12	6.0	130.0	13	0.14
EX P-53	Fire (Roasterie)	EX J-54	87	6.0	130.0	13	0.14
EX P-47(2)	J-20	FH-1	9	8.0	130.0	0	0.00
EX P-47(1)	EX J-50	J-20	19	8.0	130.0	0	0.00
EX P-45	FH-1	EX J-40	46	8.0	130.0	0	0.00
EX P-39	EX J-40	FH-2	103	8.0	130.0	0	0.00
EX P-37	FH-2	Domestic (Villas and Bungalows)	27	8.0	130.0	0	0.00
EX P-35(2)	Domestic (Conference Center)	EX J-34	5	8.0	130.0	-137	0.88
EX P-35(1)	Domestic (Villas and Bungalows)	Domestic (Conference Center)	5	8.0	130.0	-27	0.17
EX P-33	EX J-34	EX J-30	63	8.0	130.0	-125	0.80
EX P-25	EX J-30	EX J-20	43	8.0	130.0	-125	0.80
EX P-15	EX J-20	EX J-10	80	8.0	130.0	-125	0.80

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

FlexTable: Junction Table

Active Scenario: Max Day

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)	Pressure Head (ft)
J-66	1,556.22	0	67	1,711.62	155.40
J-20	1,552.46	0	69	1,711.35	158.90
J-10	1,550.14	0	70	1,711.37	161.23
Fire (Villas and Bungalows)	1,553.13	0	68	1,711.37	158.24
Fire (Roasterie)	1,559.64	0	66	1,711.38	151.74
Fire (Italian)	1,556.30	0	67	1,711.62	155.31
Fire (Guest Room Addition)	1,550.00	0	70	1,711.75	161.75
Fire (Garage)	1,554.70	0	68	1,711.62	156.92
Fire (Conf. Center)	1,556.46	0	67	1,711.62	155.16
FH-8	1,552.10	0	69	1,711.35	159.25
FH-7	1,557.87	0	66	1,711.50	153.63
FH-6	1,556.95	0	67	1,711.62	154.67
FH-5	1,556.39	0	67	1,711.62	155.23
FH-4	1,556.42	0	67	1,711.62	155.19
FH-3	1,556.46	0	67	1,711.62	155.16
FH-2	1,553.15	0	68	1,711.35	158.21
FH-1	1,552.65	0	69	1,711.35	158.70
EX J-194	1,556.60	0	67	1,711.62	155.02
EX J-190	1,556.35	0	67	1,711.62	155.27
EX J-170	1,558.93	0	66	1,711.62	152.69
EX J-160	1,554.89	0	68	1,711.62	156.73
EX J-150	1,557.41	0	67	1,711.62	154.21
EX J-141	1,563.47	0	64	1,711.62	148.15
EX J-140	1,560.63	0	65	1,711.62	150.99
EX J-130	1,558.03	0	66	1,711.62	153.59
EX J-120	1,556.34	0	67	1,711.62	155.28
EX J-110	1,556.50	0	67	1,711.62	155.12
EX J-100	1,550.00	0	70	1,711.66	161.66
EX J-90	1,547.00	0	71	1,711.81	164.81
EX J-80	1,542.85	0	73	1,711.80	168.95
EX J-70	1,542.85	0	73	1,711.78	168.93
EX J-54	1,555.20	0	68	1,711.37	156.17
EX J-50	1,552.03	0	69	1,711.35	159.32
EX J-40	1,552.55	0	69	1,711.35	158.80
EX J-34	1,553.36	0	68	1,711.36	158.00
EX J-30	1,553.00	0	69	1,711.45	158.45
EX J-20	1,553.00	0	69	1,711.51	158.51
EX J-10	1,552.00	0	69	1,711.62	159.62
EX FH-12	1,552.10	0	69	1,711.35	159.25
EX FH-11	1,557.90	0	67	1,711.62	153.72
EX FH-10	1,563.50	0	64	1,711.62	148.12
EX FH-7 (FLOW 2)	1,556.86	0	67	1,711.62	154.76
EX FH-6 (TEST 2)	1,559.33	0	66	1,711.62	152.29
EX FH-5	1,558.03	0	66	1,711.62	153.59
EX FH-4	1,557.29	0	67	1,711.62	154.33
EX FH-3 (FLOW 1)	1,550.00	0	70	1,711.66	161.66
EX FH-2	1,542.85	0	73	1,711.77	168.92
EX FH-1 (TEST 1)	1,547.30	0	71	1,711.81	164.51
Domestic (Villas and Bungalows)	1,553.30	53	68	1,711.35	158.05

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

FlexTable: Junction Table

Active Scenario: Max Day

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)	Pressure Head (ft)
Domestic (Roasterie)	1,560.25	38	65	1,711.38	151.13
Domestic (Italian)	1,556.30	60	67	1,711.62	155.32
Domestic (Guest Room Addition)	1,550.00	192	70	1,711.75	161.75
Domestic (Conference Center)	1,553.33	221	68	1,711.35	158.02

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

FlexTable: Pipe Table

Active Scenario: Max Day

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-R-1	R-1	PMP-1	1	48.0	130.0	565	0.10
P-PMP-1	PMP-1	EX FH-1 (TEST 1)	1	48.0	130.0	565	0.10
P-EX FH-11	EX J-150	EX FH-11	23	12.0	130.0	0	0.00
P-55	FH-6	J-66	125	8.0	130.0	0	0.00
P-50	FH-3	EX J-110	302	8.0	130.0	-6	0.04
P-31	FH-3	Fire (Conf. Center)	51	8.0	130.0	6	0.04
P-29	Fire (Conf. Center)	FH-4	222	8.0	130.0	6	0.04
P-27	FH-4	FH-5	243	8.0	130.0	6	0.04
P-25	FH-5	EX J-190	267	8.0	130.0	6	0.04
P-23	J-66	EX J-190	16	8.0	130.0	-6	0.04
P-21	EX J-194	J-66	44	8.0	130.0	-6	0.04
P-17	EX J-54	Fire (Villas and Bungalows)	73	8.0	130.0	25	0.16
P-15	Fire (Villas and Bungalows)	J-10	106	8.0	130.0	25	0.16
P-5	J-10	EX J-34	333	8.0	130.0	25	0.16
EX P-193	EX FH-7 (FLOW 2)	EX J-194	50	8.0	130.0	-6	0.04
EX P-191	EX J-160	EX FH-7 (FLOW 2)	93	8.0	130.0	-6	0.04
EX P-177	EX FH-6 (TEST 2)	EX J-140	221	12.0	130.0	5	0.01
EX P-175	EX J-170	EX FH-6 (TEST 2)	67	12.0	130.0	5	0.01
EX P-165	EX J-160	EX J-170	191	12.0	130.0	5	0.01
EX P-157	EX J-160	Fire (Garage)	189	12.0	130.0	1	0.00
EX P-155	Fire (Garage)	EX J-150	268	12.0	130.0	1	0.00
EX P-147(1)	EX J-150	EX FH-10	802	6.0	130.0	1	0.01
EX P-147	EX FH-10	EX J-141	91	6.0	130.0	1	0.01
EX P-145	EX J-141	EX J-140	403	12.0	130.0	1	0.00
EX P-135	EX J-140	EX J-130	649	12.0	130.0	6	0.02
EX P-129	EX J-130	EX FH-5	9	12.0	130.0	6	0.02
EX P-127	EX FH-5	EX FH-4	190	12.0	130.0	6	0.02
EX P-125	EX FH-4	EX J-120	245	12.0	130.0	6	0.02
EX P-117	EX J-120	Fire (Italian)	130	12.0	130.0	6	0.02
EX P-115	Fire (Italian)	Domestic (Italian)	13	12.0	130.0	6	0.02
EX P-113	Domestic (Italian)	EX J-110	171	12.0	130.0	-54	0.15
EX P-109	EX J-110	EX J-10	231	12.0	130.0	-60	0.17
EX P-107	EX J-10	EX FH-3 (FLOW 1)	133	12.0	130.0	-309	0.88
EX P-105	EX FH-3 (FLOW 1)	EX J-100	10	12.0	130.0	-309	0.88
EX P-99	EX J-100	Fire (Guest Room Addition)	294	12.0	130.0	-309	0.88
EX P-97	Fire (Guest Room Addition)	Domestic (Guest Room Addition)	6	12.0	130.0	-309	0.88
EX P-95	Domestic (Guest Room Addition)	EX FH-1 (TEST 1)	81	12.0	130.0	-502	1.42
EX P-93	EX FH-1 (TEST 1)	EX J-90	87	12.0	130.0	63	0.18
EX P-85	EX J-90	EX J-80	323	12.0	130.0	63	0.18

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

FlexTable: Pipe Table

Active Scenario: Max Day

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-75	EX J-80	EX J-70	46	6.0	130.0	63	0.72
EX P-65	EX J-70	EX FH-2	22	6.0	130.0	63	0.72
EX P-59	EX FH-12	FH-8	37	8.0	130.0	0	0.00
EX P-58	EX J-50	EX FH-12	89	8.0	130.0	0	0.00
EX P-57(2)	FH-7	Domestic (Roasterie)	272	6.0	130.0	63	0.72
EX P-57(1)	EX FH-2	FH-7	603	6.0	130.0	63	0.72
EX P-55	Domestic (Roasterie)	Fire (Roasterie)	12	6.0	130.0	25	0.28
EX P-53	Fire (Roasterie)	EX J-54	87	6.0	130.0	25	0.28
EX P-47(2)	J-20	FH-1	9	8.0	130.0	0	0.00
EX P-47(1)	EX J-50	J-20	19	8.0	130.0	0	0.00
EX P-45	FH-1	EX J-40	46	8.0	130.0	0	0.00
EX P-39	EX J-40	FH-2	103	8.0	130.0	0	0.00
EX P-37	FH-2	Domestic (Villas and Bungalows)	27	8.0	130.0	0	0.00
EX P-35(2)	Domestic (Conference Center)	EX J-34	5	8.0	130.0	-275	1.75
EX P-35(1)	Domestic (Villas and Bungalows)	Domestic (Conference Center)	5	8.0	130.0	-53	0.34
EX P-33	EX J-34	EX J-30	63	8.0	130.0	-250	1.59
EX P-25	EX J-30	EX J-20	43	8.0	130.0	-250	1.59
EX P-15	EX J-20	EX J-10	80	8.0	130.0	-250	1.59

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

FlexTable: Junction Table

Active Scenario: Peak Hour Demand

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)	Pressure Head (ft)
J-66	1,556.22	0	65	1,705.85	149.63
J-20	1,552.46	0	66	1,704.99	152.53
J-10	1,550.14	0	67	1,705.02	154.88
Fire (Villas and Bungalows)	1,553.13	0	66	1,705.02	151.88
Fire (Roasterie)	1,559.64	0	63	1,705.02	145.38
Fire (Italian)	1,556.30	0	65	1,705.85	149.55
Fire (Guest Room Addition)	1,550.00	0	68	1,706.40	156.40
Fire (Garage)	1,554.70	0	65	1,705.85	151.15
Fire (Conf. Center)	1,556.46	0	65	1,705.86	149.40
FH-8	1,552.10	0	66	1,704.99	152.89
FH-7	1,557.87	0	64	1,705.47	147.60
FH-6	1,556.95	0	64	1,705.85	148.90
FH-5	1,556.39	0	65	1,705.86	149.47
FH-4	1,556.42	0	65	1,705.86	149.43
FH-3	1,556.46	0	65	1,705.86	149.40
FH-2	1,553.15	0	66	1,704.99	151.84
FH-1	1,552.65	0	66	1,704.99	152.34
EX J-194	1,556.60	0	65	1,705.85	149.26
EX J-190	1,556.35	0	65	1,705.85	149.50
EX J-170	1,558.93	0	64	1,705.85	146.92
EX J-160	1,554.89	0	65	1,705.85	150.96
EX J-150	1,557.41	0	64	1,705.85	148.44
EX J-141	1,563.47	0	62	1,705.85	142.38
EX J-140	1,560.63	0	63	1,705.85	145.22
EX J-130	1,558.03	0	64	1,705.85	147.82
EX J-120	1,556.34	0	65	1,705.85	149.51
EX J-110	1,556.50	0	65	1,705.86	149.36
EX J-100	1,550.00	0	68	1,706.06	156.06
EX J-90	1,547.00	0	69	1,706.61	159.61
EX J-80	1,542.85	0	71	1,706.59	163.74
EX J-70	1,542.85	0	71	1,706.51	163.66
EX J-54	1,555.20	0	65	1,705.02	149.82
EX J-50	1,552.03	0	66	1,704.99	152.96
EX J-40	1,552.55	0	66	1,704.99	152.44
EX J-34	1,553.36	0	66	1,705.01	151.65
EX J-30	1,553.00	0	66	1,705.31	152.31
EX J-20	1,553.00	0	66	1,705.51	152.51
EX J-10	1,552.00	0	67	1,705.89	153.89
EX FH-12	1,552.10	0	66	1,704.99	152.89
EX FH-11	1,557.90	0	64	1,705.85	147.95
EX FH-10	1,563.50	0	62	1,705.85	142.35
EX FH-7 (FLOW 2)	1,556.86	0	64	1,705.85	148.99
EX FH-6 (TEST 2)	1,559.33	0	63	1,705.85	146.52
EX FH-5	1,558.03	0	64	1,705.85	147.82
EX FH-4	1,557.29	0	64	1,705.85	148.56
EX FH-3 (FLOW 1)	1,550.00	0	68	1,706.04	156.04
EX FH-2	1,542.85	0	71	1,706.47	163.62
EX FH-1 (TEST 1)	1,547.30	0	69	1,706.61	159.31
Domestic (Villas and Bungalows)	1,553.30	94	66	1,704.99	151.68

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

FlexTable: Junction Table

Active Scenario: Peak Hour Demand

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)	Pressure Head (ft)
Domestic (Roasterie)	1,560.25	114	63	1,705.02	144.77
Domestic (Italian)	1,556.30	179	65	1,705.85	149.55
Domestic (Guest Room Addition)	1,550.00	336	68	1,706.41	156.41
Domestic (Conference Center)	1,553.33	402	66	1,704.99	151.66

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

FlexTable: Pipe Table

Active Scenario: Peak Hour Demand

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-R-1	R-1	PMP-1	1	48.0	130.0	1,125	0.20
P-PMP-1	PMP-1	EX FH-1 (TEST 1)	1	48.0	130.0	1,125	0.20
P-EX FH-11	EX J-150	EX FH-11	23	12.0	130.0	0	0.00
P-55	FH-6	J-66	125	8.0	130.0	0	0.00
P-50	FH-3	EX J-110	302	8.0	130.0	-17	0.11
P-31	FH-3	Fire (Conf. Center)	51	8.0	130.0	17	0.11
P-29	Fire (Conf. Center)	FH-4	222	8.0	130.0	17	0.11
P-27	FH-4	FH-5	243	8.0	130.0	17	0.11
P-25	FH-5	EX J-190	267	8.0	130.0	17	0.11
P-23	J-66	EX J-190	16	8.0	130.0	-17	0.11
P-21	EX J-194	J-66	44	8.0	130.0	-17	0.11
P-17	EX J-54	Fire (Villas and Bungalows)	73	8.0	130.0	15	0.09
P-15	Fire (Villas and Bungalows)	J-10	106	8.0	130.0	15	0.09
P-5	J-10	EX J-34	333	8.0	130.0	15	0.09
EX P-193	EX FH-7 (FLOW 2)	EX J-194	50	8.0	130.0	-17	0.11
EX P-191	EX J-160	EX FH-7 (FLOW 2)	93	8.0	130.0	-17	0.11
EX P-177	EX FH-6 (TEST 2)	EX J-140	221	12.0	130.0	15	0.04
EX P-175	EX J-170	EX FH-6 (TEST 2)	67	12.0	130.0	15	0.04
EX P-165	EX J-160	EX J-170	191	12.0	130.0	15	0.04
EX P-157	EX J-160	Fire (Garage)	189	12.0	130.0	2	0.01
EX P-155	Fire (Garage)	EX J-150	268	12.0	130.0	2	0.01
EX P-147(1)	EX J-150	EX FH-10	802	6.0	130.0	2	0.02
EX P-147	EX FH-10	EX J-141	91	6.0	130.0	2	0.02
EX P-145	EX J-141	EX J-140	403	12.0	130.0	2	0.01
EX P-135	EX J-140	EX J-130	649	12.0	130.0	17	0.05
EX P-129	EX J-130	EX FH-5	9	12.0	130.0	17	0.05
EX P-127	EX FH-5	EX FH-4	190	12.0	130.0	17	0.05
EX P-125	EX FH-4	EX J-120	245	12.0	130.0	17	0.05
EX P-117	EX J-120	Fire (Italian)	130	12.0	130.0	17	0.05
EX P-115	Fire (Italian)	Domestic (Italian)	13	12.0	130.0	17	0.05
EX P-113	Domestic (Italian)	EX J-110	171	12.0	130.0	-162	0.46
EX P-109	EX J-110	EX J-10	231	12.0	130.0	-179	0.51
EX P-107	EX J-10	EX FH-3 (FLOW 1)	133	12.0	130.0	-660	1.87
EX P-105	EX FH-3 (FLOW 1)	EX J-100	10	12.0	130.0	-660	1.87
EX P-99	EX J-100	Fire (Guest Room Addition)	294	12.0	130.0	-660	1.87
EX P-97	Fire (Guest Room Addition)	Domestic (Guest Room Addition)	6	12.0	130.0	-660	1.87
EX P-95	Domestic (Guest Room Addition)	EX FH-1 (TEST 1)	81	12.0	130.0	-996	2.83
EX P-93	EX FH-1 (TEST 1)	EX J-90	87	12.0	130.0	129	0.36
EX P-85	EX J-90	EX J-80	323	12.0	130.0	129	0.36

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

FlexTable: Pipe Table

Active Scenario: Peak Hour Demand

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
EX P-75	EX J-80	EX J-70	46	6.0	130.0	129	1.46
EX P-65	EX J-70	EX FH-2	22	6.0	130.0	129	1.46
EX P-59	EX FH-12	FH-8	37	8.0	130.0	0	0.00
EX P-58	EX J-50	EX FH-12	89	8.0	130.0	0	0.00
EX P-57(2)	FH-7	Domestic (Roasterie)	272	6.0	130.0	129	1.46
EX P-57(1)	EX FH-2	FH-7	603	6.0	130.0	129	1.46
EX P-55	Domestic (Roasterie)	Fire (Roasterie)	12	6.0	130.0	15	0.16
EX P-53	Fire (Roasterie)	EX J-54	87	6.0	130.0	15	0.16
EX P-47(2)	J-20	FH-1	9	8.0	130.0	0	0.00
EX P-47(1)	EX J-50	J-20	19	8.0	130.0	0	0.00
EX P-45	FH-1	EX J-40	46	8.0	130.0	0	0.00
EX P-39	EX J-40	FH-2	103	8.0	130.0	0	0.00
EX P-37	FH-2	Domestic (Villas and Bungalows)	27	8.0	130.0	0	0.00
EX P-35(2)	Domestic (Conference Center)	EX J-34	5	8.0	130.0	-495	3.16
EX P-35(1)	Domestic (Villas and Bungalows)	Domestic (Conference Center)	5	8.0	130.0	-93	0.60
EX P-33	EX J-34	EX J-30	63	8.0	130.0	-481	3.07
EX P-25	EX J-30	EX J-20	43	8.0	130.0	-481	3.07
EX P-15	EX J-20	EX J-10	80	8.0	130.0	-481	3.07

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

Fire Flow Node FlexTable: Fire Flow Results Table

Active Scenario: Bungalows/The Roasterie (Model 1)

Label	Elevation (ft)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Hydraulic Grade (ft)
J-66	1,556.22	1,500	2,737	30	30	1,711.62
J-20	1,552.46	1,500	2,559	30	30	1,711.35
J-10	1,550.14	1,500	2,572	30	32	1,711.37
Fire (Villas and Bungalows)	1,553.13	1,500	2,486	30	31	1,711.37
Fire (Roasterie)	1,559.64	1,500	2,222	30	30	1,711.38
Fire (Italian)	1,556.30	1,500	3,046	30	33	1,711.62
Fire (Guest Room Addition)	1,550.00	1,500	3,508	30	36	1,711.75
Fire (Garage)	1,554.70	1,500	2,780	30	32	1,711.62
Fire (Conf. Center)	1,556.46	1,500	2,791	30	30	1,711.62
FH-8	1,552.10	1,500	2,340	30	30	1,711.35
FH-7	1,557.87	1,500	2,075	30	30	1,711.50
FH-6	1,556.95	1,500	2,492	30	30	1,711.62
FH-5	1,556.39	1,500	2,681	30	30	1,711.62
FH-4	1,556.42	1,500	2,702	30	30	1,711.62
FH-3	1,556.46	1,500	2,825	30	30	1,711.62
FH-2	1,553.15	1,500	2,884	30	30	1,711.35
FH-1	1,552.65	1,500	2,571	30	30	1,711.35
EX J-194	1,556.60	1,500	2,765	30	30	1,711.62
EX J-190	1,556.35	1,500	2,742	30	30	1,711.62
EX J-170	1,558.93	1,500	2,782	30	31	1,711.62
EX J-160	1,554.89	1,500	2,787	30	32	1,711.62
EX J-150	1,557.41	1,500	2,725	30	30	1,711.62
EX J-141	1,563.47	1,500	2,663	30	30	1,711.62
EX J-140	1,560.63	1,500	2,774	30	31	1,711.62
EX J-130	1,558.03	1,500	2,899	30	32	1,711.62
EX J-120	1,556.34	1,500	3,008	30	33	1,711.62
EX J-110	1,556.50	1,500	3,113	30	33	1,711.62
EX J-100	1,550.00	1,500	3,318	30	36	1,711.66
EX J-90	1,547.00	1,500	3,576	30	36	1,711.81
EX J-80	1,542.85	1,500	3,569	30	35	1,711.80
EX J-70	1,542.85	1,500	3,306	30	30	1,711.78
EX J-54	1,555.20	1,500	2,433	30	31	1,711.37
EX J-50	1,552.03	1,500	2,531	30	30	1,711.35
EX J-40	1,552.55	1,500	2,659	30	30	1,711.35
EX J-34	1,553.36	1,500	2,945	30	31	1,711.36
EX J-30	1,553.00	1,500	3,063	30	31	1,711.45
EX J-20	1,553.00	1,500	3,157	30	32	1,711.51
EX J-10	1,552.00	1,500	3,240	30	35	1,711.62
EX FH-12	1,552.10	1,500	2,392	30	30	1,711.35
EX FH-11	1,557.90	1,500	2,718	30	30	1,711.62
EX FH-10	1,563.50	1,500	2,291	30	30	1,711.62
EX FH-7 (FLOW 2)	1,556.86	1,500	2,789	30	30	1,711.62
EX FH-6 (TEST 2)	1,559.33	1,500	2,780	30	31	1,711.62
EX FH-5	1,558.03	1,500	2,901	30	32	1,711.62
EX FH-4	1,557.29	1,500	2,944	30	32	1,711.62
EX FH-3 (FLOW 1)	1,550.00	1,500	3,312	30	36	1,711.66
EX FH-2	1,542.85	1,500	3,167	30	30	1,711.77

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

Fire Flow Node FlexTable: Fire Flow Results Table

Active Scenario: Bungalows/The Roasterie (Model 1)

Label	Elevation (ft)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Hydraulic Grade (ft)
EX FH-1 (TEST 1)	1,547.30	1,500	3,581	30	37	1,711.81
Domestic (Villas and Bungalows)	1,553.30	1,553	2,999	30	30	1,711.35
Domestic (Roasterie)	1,560.25	1,538	2,236	30	30	1,711.38
Domestic (Italian)	1,556.30	1,560	3,110	30	33	1,711.62
Domestic (Guest Room Addition)	1,550.00	1,692	3,705	30	36	1,711.75
Domestic (Conference Center)	1,553.33	1,721	3,166	30	30	1,711.35

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

Fire Flow Node FlexTable: Fire Flow Results Table

Active Scenario: Conference Center (Model 1)

Label	Elevation (ft)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Hydraulic Grade (ft)
J-66	1,556.22	1,625	2,737	30	30	1,711.62
J-20	1,552.46	1,625	2,559	30	30	1,711.35
J-10	1,550.14	1,625	2,572	30	32	1,711.37
Fire (Villas and Bungalows)	1,553.13	1,625	2,486	30	31	1,711.37
Fire (Roasterie)	1,559.64	1,625	2,222	30	30	1,711.38
Fire (Italian)	1,556.30	1,625	3,046	30	33	1,711.62
Fire (Guest Room Addition)	1,550.00	1,625	3,508	30	36	1,711.75
Fire (Garage)	1,554.70	1,625	2,780	30	32	1,711.62
Fire (Conf. Center)	1,556.46	1,625	2,791	30	30	1,711.62
FH-8	1,552.10	1,625	2,340	30	30	1,711.35
FH-7	1,557.87	1,625	2,074	30	30	1,711.50
FH-6	1,556.95	1,625	2,492	30	30	1,711.62
FH-5	1,556.39	1,625	2,681	30	30	1,711.62
FH-4	1,556.42	1,625	2,702	30	30	1,711.62
FH-3	1,556.46	1,625	2,825	30	30	1,711.62
FH-2	1,553.15	1,625	2,884	30	30	1,711.35
FH-1	1,552.65	1,625	2,571	30	30	1,711.35
EX J-194	1,556.60	1,625	2,765	30	30	1,711.62
EX J-190	1,556.35	1,625	2,742	30	30	1,711.62
EX J-170	1,558.93	1,625	2,782	30	31	1,711.62
EX J-160	1,554.89	1,625	2,787	30	32	1,711.62
EX J-150	1,557.41	1,625	2,725	30	30	1,711.62
EX J-141	1,563.47	1,625	2,663	30	30	1,711.62
EX J-140	1,560.63	1,625	2,774	30	31	1,711.62
EX J-130	1,558.03	1,625	2,899	30	32	1,711.62
EX J-120	1,556.34	1,625	3,008	30	33	1,711.62
EX J-110	1,556.50	1,625	3,113	30	33	1,711.62
EX J-100	1,550.00	1,625	3,318	30	36	1,711.66
EX J-90	1,547.00	1,625	3,576	30	36	1,711.81
EX J-80	1,542.85	1,625	3,569	30	35	1,711.80
EX J-70	1,542.85	1,625	3,306	30	30	1,711.78
EX J-54	1,555.20	1,625	2,433	30	31	1,711.37
EX J-50	1,552.03	1,625	2,531	30	30	1,711.35
EX J-40	1,552.55	1,625	2,659	30	30	1,711.35
EX J-34	1,553.36	1,625	2,945	30	31	1,711.36
EX J-30	1,553.00	1,625	3,063	30	31	1,711.45
EX J-20	1,553.00	1,625	3,157	30	32	1,711.51
EX J-10	1,552.00	1,625	3,240	30	35	1,711.62
EX FH-12	1,552.10	1,625	2,392	30	30	1,711.35
EX FH-11	1,557.90	1,625	2,718	30	30	1,711.62
EX FH-10	1,563.50	1,625	2,291	30	30	1,711.62
EX FH-7 (FLOW 2)	1,556.86	1,625	2,789	30	30	1,711.62
EX FH-6 (TEST 2)	1,559.33	1,625	2,780	30	31	1,711.62
EX FH-5	1,558.03	1,625	2,901	30	32	1,711.62
EX FH-4	1,557.29	1,625	2,944	30	32	1,711.62
EX FH-3 (FLOW 1)	1,550.00	1,625	3,312	30	36	1,711.66
EX FH-2	1,542.85	1,625	3,167	30	30	1,711.77

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

Fire Flow Node FlexTable: Fire Flow Results Table

Active Scenario: Conference Center (Model 1)

Label	Elevation (ft)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Hydraulic Grade (ft)
EX FH-1 (TEST 1)	1,547.30	1,625	3,581	30	37	1,711.81
Domestic (Villas and Bungalows)	1,553.30	1,678	2,999	30	30	1,711.35
Domestic (Roasterie)	1,560.25	1,663	2,236	30	30	1,711.38
Domestic (Italian)	1,556.30	1,685	3,110	30	33	1,711.62
Domestic (Guest Room Addition)	1,550.00	1,817	3,705	30	36	1,711.75
Domestic (Conference Center)	1,553.33	1,846	3,166	30	30	1,711.35

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

Fire Flow Node FlexTable: Fire Flow Results Table

Active Scenario: Parking Structure (Model 2)

Label	Elevation (ft)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Hydraulic Grade (ft)
J-66	1,556.22	3,000	2,967	30	30	1,722.85
J-20	1,552.46	3,000	2,262	30	30	1,721.76
J-10	1,550.14	3,000	2,220	30	33	1,721.76
Fire (Villas and Bungalows)	1,553.13	3,000	2,166	30	32	1,721.76
Fire (Roasterie)	1,559.64	3,000	1,990	30	30	1,721.77
Fire (Italian)	1,556.30	3,000	2,834	30	32	1,722.30
Fire (Guest Room Addition)	1,550.00	3,000	2,666	30	33	1,721.99
Fire (Garage)	1,554.70	3,000	3,183	30	31	1,722.96
Fire (Conf. Center)	1,556.46	3,000	2,735	30	30	1,722.43
FH-8	1,552.10	3,000	2,116	30	30	1,721.76
FH-7	1,557.87	3,000	1,879	30	30	1,721.83
FH-6	1,556.95	3,000	2,690	30	30	1,722.85
FH-5	1,556.39	3,000	2,787	30	30	1,722.69
FH-4	1,556.42	3,000	2,729	30	30	1,722.55
FH-3	1,556.46	3,000	2,745	30	30	1,722.40
FH-2	1,553.15	3,000	2,446	30	30	1,721.76
FH-1	1,552.65	3,000	2,269	30	30	1,721.76
EX J-194	1,556.60	3,000	3,023	30	30	1,722.88
EX J-190	1,556.35	3,000	2,962	30	30	1,722.85
EX J-170	1,558.93	3,000	3,215	30	32	1,722.98
EX J-160	1,554.89	3,000	3,201	30	32	1,722.96
EX J-150	1,557.41	3,000	3,099	30	30	1,722.96
EX J-141	1,563.47	3,000	2,996	30	30	1,722.89
EX J-140	1,560.63	3,000	3,126	30	31	1,722.89
EX J-130	1,558.03	3,000	2,965	30	31	1,722.58
EX J-120	1,556.34	3,000	2,861	30	32	1,722.36
EX J-110	1,556.50	3,000	2,800	30	32	1,722.23
EX J-100	1,550.00	3,000	2,689	30	34	1,722.04
EX J-90	1,547.00	3,000	2,656	30	33	1,721.98
EX J-80	1,542.85	3,000	2,639	30	34	1,721.98
EX J-70	1,542.85	3,000	2,535	30	32	1,721.97
EX J-54	1,555.20	3,000	2,131	30	31	1,721.76
EX J-50	1,552.03	3,000	2,245	30	30	1,721.76
EX J-40	1,552.55	3,000	2,325	30	30	1,721.76
EX J-34	1,553.36	3,000	2,446	30	32	1,721.76
EX J-30	1,553.00	3,000	2,517	30	32	1,721.86
EX J-20	1,553.00	3,000	2,574	30	33	1,721.93
EX J-10	1,552.00	3,000	2,705	30	34	1,722.06
EX FH-12	1,552.10	3,000	2,152	30	30	1,721.76
EX FH-11	1,557.90	3,000	3,090	30	30	1,722.96
EX FH-10	1,563.50	3,000	2,554	30	30	1,722.90
EX FH-7 (FLOW 2)	1,556.86	3,000	3,088	30	30	1,722.91
EX FH-6 (TEST 2)	1,559.33	3,000	3,221	30	32	1,722.99
EX FH-5	1,558.03	3,000	2,963	30	31	1,722.57
EX FH-4	1,557.29	3,000	2,915	30	31	1,722.48
EX FH-3 (FLOW 1)	1,550.00	3,000	2,690	30	34	1,722.04
EX FH-2	1,542.85	3,000	2,494	30	31	1,721.96

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

Fire Flow Node FlexTable: Fire Flow Results Table

Active Scenario: Parking Structure (Model 2)

Label	Elevation (ft)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Hydraulic Grade (ft)
EX FH-1 (TEST 1)	1,547.30	3,000	2,661	30	33	1,721.98
Domestic (Villas and Bungalows)	1,553.30	3,053	2,499	30	31	1,721.76
Domestic (Roasterie)	1,560.25	3,038	2,011	30	30	1,721.77
Domestic (Italian)	1,556.30	3,060	2,891	30	32	1,722.29
Domestic (Guest Room Addition)	1,550.00	3,192	2,858	30	33	1,721.98
Domestic (Conference Center)	1,553.33	3,221	2,667	30	32	1,721.76

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

FlexTable: Junction Table

Active Scenario: Parking Structure+Fire Flow Split

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)	Pressure Head (ft)
J-66	1,556.22	0	36	1,640.34	84.12
J-20	1,552.46	0	38	1,639.97	87.51
J-10	1,550.14	0	39	1,639.98	89.84
Fire (Villas and Bungalows)	1,553.13	0	38	1,639.98	86.85
Fire (Roasterie)	1,559.64	0	35	1,639.98	80.34
Fire (Italian)	1,556.30	0	36	1,640.60	84.30
Fire (Guest Room Addition)	1,550.00	0	39	1,640.20	90.20
Fire (Garage)	1,554.70	0	37	1,640.81	86.11
Fire (Conf. Center)	1,556.46	0	36	1,640.41	83.95
FH-8	1,552.10	0	38	1,639.97	87.87
FH-7	1,557.87	0	36	1,640.04	82.17
FH-6	1,556.95	0	36	1,640.34	83.39
FH-5	1,556.39	0	36	1,640.37	83.98
FH-4	1,556.42	0	36	1,640.39	83.96
FH-3	1,556.46	0	36	1,640.41	83.95
FH-2	1,553.15	0	38	1,639.97	86.82
FH-1	1,552.65	0	38	1,639.97	87.32
EX J-194	1,556.60	0	36	1,640.34	83.74
EX J-190	1,556.35	0	36	1,640.34	83.99
EX J-170	1,558.93	0	36	1,642.32	83.39
EX J-160	1,554.89	0	37	1,641.19	86.30
EX J-150	1,557.41	0	36	1,640.26	82.85
EX J-141	1,563.47	0	34	1,641.48	78.01
EX J-140	1,560.63	0	35	1,641.89	81.26
EX J-130	1,558.03	0	36	1,641.21	83.18
EX J-120	1,556.34	0	37	1,640.74	84.40
EX J-110	1,556.50	0	36	1,640.44	83.94
EX J-100	1,550.00	0	39	1,640.25	90.25
EX J-90	1,547.00	0	40	1,640.20	93.20
EX J-80	1,542.85	0	42	1,640.19	97.34
EX J-70	1,542.85	0	42	1,640.18	97.33
EX J-54	1,555.20	0	37	1,639.98	84.78
EX J-50	1,552.03	0	38	1,639.97	87.94
EX J-40	1,552.55	0	38	1,639.97	87.42
EX J-34	1,553.36	0	37	1,639.98	86.62
EX J-30	1,553.00	0	38	1,640.08	87.08
EX J-20	1,553.00	0	38	1,640.15	87.15
EX J-10	1,552.00	0	38	1,640.28	88.28
EX FH-12	1,552.10	0	38	1,639.97	87.87
EX FH-11	1,557.90	750	36	1,640.23	82.33
EX FH-10	1,563.50	750	33	1,638.75	75.25
EX FH-7 (FLOW 2)	1,556.86	750	36	1,640.33	83.47
EX FH-6 (TEST 2)	1,559.33	750	36	1,642.72	83.39
EX FH-5	1,558.03	0	36	1,641.20	83.17
EX FH-4	1,557.29	0	36	1,641.00	83.71
EX FH-3 (FLOW 1)	1,550.00	0	39	1,640.25	90.25
EX FH-2	1,542.85	0	42	1,640.18	97.33
EX FH-1 (TEST 1)	1,547.30	0	40	1,640.20	92.90
Domestic (Villas and Bungalows)	1,553.30	53	37	1,639.97	86.67

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

FlexTable: Junction Table

Active Scenario: Parking Structure+Fire Flow Split

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)	Pressure Head (ft)
Domestic (Roasterie)	1,560.25	38	34	1,639.98	79.73
Domestic (Italian)	1,556.30	60	36	1,640.59	84.29
Domestic (Guest Room Addition)	1,550.00	192	39	1,640.20	90.20
Domestic (Conference Center)	1,553.33	221	37	1,639.97	86.64

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

Fire Flow Node FlexTable: Fire Flow Results Table

Active Scenario: Guest Room Addition (Model 1)

Label	Elevation (ft)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Hydraulic Grade (ft)
J-66	1,556.22	3,125	2,737	30	30	1,711.62
J-20	1,552.46	3,125	2,559	30	30	1,711.35
J-10	1,550.14	3,125	2,572	30	32	1,711.37
Fire (Villas and Bungalows)	1,553.13	3,125	2,486	30	31	1,711.37
Fire (Roasterie)	1,559.64	3,125	2,222	30	30	1,711.38
Fire (Italian)	1,556.30	3,125	3,046	30	33	1,711.62
Fire (Guest Room Addition)	1,550.00	3,125	3,508	30	36	1,711.75
Fire (Garage)	1,554.70	3,125	2,780	30	32	1,711.62
Fire (Conf. Center)	1,556.46	3,125	2,791	30	30	1,711.62
FH-8	1,552.10	3,125	2,340	30	30	1,711.35
FH-7	1,557.87	3,125	2,075	30	30	1,711.50
FH-6	1,556.95	3,125	2,492	30	30	1,711.62
FH-5	1,556.39	3,125	2,681	30	30	1,711.62
FH-4	1,556.42	3,125	2,701	30	30	1,711.62
FH-3	1,556.46	3,125	2,825	30	30	1,711.62
FH-2	1,553.15	3,125	2,884	30	30	1,711.35
FH-1	1,552.65	3,125	2,571	30	30	1,711.35
EX J-194	1,556.60	3,125	2,765	30	30	1,711.62
EX J-190	1,556.35	3,125	2,742	30	30	1,711.62
EX J-170	1,558.93	3,125	2,782	30	31	1,711.62
EX J-160	1,554.89	3,125	2,787	30	32	1,711.62
EX J-150	1,557.41	3,125	2,725	30	30	1,711.62
EX J-141	1,563.47	3,125	2,663	30	30	1,711.62
EX J-140	1,560.63	3,125	2,774	30	31	1,711.62
EX J-130	1,558.03	3,125	2,899	30	32	1,711.62
EX J-120	1,556.34	3,125	3,008	30	33	1,711.62
EX J-110	1,556.50	3,125	3,113	30	33	1,711.62
EX J-100	1,550.00	3,125	3,318	30	36	1,711.66
EX J-90	1,547.00	3,125	3,576	30	36	1,711.81
EX J-80	1,542.85	3,125	3,569	30	35	1,711.80
EX J-70	1,542.85	3,125	3,306	30	30	1,711.78
EX J-54	1,555.20	3,125	2,433	30	31	1,711.37
EX J-50	1,552.03	3,125	2,531	30	30	1,711.35
EX J-40	1,552.55	3,125	2,659	30	30	1,711.35
EX J-34	1,553.36	3,125	2,945	30	31	1,711.36
EX J-30	1,553.00	3,125	3,063	30	31	1,711.45
EX J-20	1,553.00	3,125	3,157	30	32	1,711.51
EX J-10	1,552.00	3,125	3,240	30	35	1,711.62
EX FH-12	1,552.10	3,125	2,392	30	30	1,711.35
EX FH-11	1,557.90	3,125	2,717	30	30	1,711.62
EX FH-10	1,563.50	3,125	2,291	30	30	1,711.62
EX FH-7 (FLOW 2)	1,556.86	3,125	2,789	30	30	1,711.62
EX FH-6 (TEST 2)	1,559.33	3,125	2,780	30	31	1,711.62
EX FH-5	1,558.03	3,125	2,901	30	32	1,711.62
EX FH-4	1,557.29	3,125	2,944	30	32	1,711.62
EX FH-3 (FLOW 1)	1,550.00	3,125	3,312	30	36	1,711.66
EX FH-2	1,542.85	3,125	3,167	30	30	1,711.77

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

Fire Flow Node FlexTable: Fire Flow Results Table

Active Scenario: Guest Room Addition (Model 1)

Label	Elevation (ft)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Hydraulic Grade (ft)
EX FH-1 (TEST 1)	1,547.30	3,125	3,581	30	37	1,711.81
Domestic (Villas and Bungalows)	1,553.30	3,178	2,999	30	30	1,711.35
Domestic (Roasterie)	1,560.25	3,163	2,236	30	30	1,711.38
Domestic (Italian)	1,556.30	3,185	3,110	30	33	1,711.62
Domestic (Guest Room Addition)	1,550.00	3,317	3,705	30	36	1,711.75
Domestic (Conference Center)	1,553.33	3,346	3,166	30	30	1,711.35

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

FlexTable: Junction Table

Active Scenario: Guest Room Addition+Fire Flow Split

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)	Pressure Head (ft)
J-66	1,556.22	0	38	1,644.04	87.82
J-20	1,552.46	0	38	1,639.46	87.00
J-10	1,550.14	0	39	1,640.71	90.57
Fire (Villas and Bungalows)	1,553.13	0	38	1,640.87	87.73
Fire (Roasterie)	1,559.64	0	35	1,641.48	81.84
Fire (Italian)	1,556.30	0	38	1,644.04	87.74
Fire (Guest Room Addition)	1,550.00	0	42	1,647.69	97.69
Fire (Garage)	1,554.70	0	39	1,644.04	89.34
Fire (Conf. Center)	1,556.46	0	38	1,644.04	87.58
FH-8	1,552.10	0	38	1,639.46	87.36
FH-7	1,557.87	0	37	1,643.60	85.73
FH-6	1,556.95	0	38	1,644.04	87.09
FH-5	1,556.39	0	38	1,644.04	87.65
FH-4	1,556.42	0	38	1,644.04	87.62
FH-3	1,556.46	0	38	1,644.04	87.58
FH-2	1,553.15	1,042	37	1,639.46	86.31
FH-1	1,552.65	0	38	1,639.46	86.81
EX J-194	1,556.60	0	38	1,644.04	87.45
EX J-190	1,556.35	0	38	1,644.04	87.69
EX J-170	1,558.93	0	37	1,644.04	85.11
EX J-160	1,554.89	0	39	1,644.04	89.15
EX J-150	1,557.41	0	37	1,644.04	86.63
EX J-141	1,563.47	0	35	1,644.04	80.57
EX J-140	1,560.63	0	36	1,644.04	83.41
EX J-130	1,558.03	0	37	1,644.04	86.01
EX J-120	1,556.34	0	38	1,644.04	87.70
EX J-110	1,556.50	0	38	1,644.04	87.54
EX J-100	1,550.00	0	41	1,644.57	94.57
EX J-90	1,547.00	0	44	1,648.73	101.73
EX J-80	1,542.85	0	46	1,648.65	105.80
EX J-70	1,542.85	0	46	1,648.30	105.45
EX J-54	1,555.20	0	37	1,640.97	85.77
EX J-50	1,552.03	0	38	1,639.46	87.43
EX J-40	1,552.55	0	38	1,639.46	86.91
EX J-34	1,553.36	0	38	1,640.24	86.88
EX J-30	1,553.00	0	38	1,641.53	88.53
EX J-20	1,553.00	0	39	1,642.41	89.41
EX J-10	1,552.00	0	40	1,644.05	92.05
EX FH-12	1,552.10	0	38	1,639.46	87.36
EX FH-11	1,557.90	0	37	1,644.04	86.14
EX FH-10	1,563.50	0	35	1,644.04	80.54
EX FH-7 (FLOW 2)	1,556.86	0	38	1,644.04	87.18
EX FH-6 (TEST 2)	1,559.33	0	37	1,644.04	84.71
EX FH-5	1,558.03	0	37	1,644.04	86.01
EX FH-4	1,557.29	0	38	1,644.04	86.75
EX FH-3 (FLOW 1)	1,550.00	1,041	41	1,644.46	94.46
EX FH-2	1,542.85	0	46	1,648.14	105.29
EX FH-1 (TEST 1)	1,547.30	1,041	44	1,648.75	101.45
Domestic (Villas and Bungalows)	1,553.30	53	38	1,639.99	86.68

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

FlexTable: Junction Table

Active Scenario: Guest Room Addition+Fire Flow Split

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)	Pressure Head (ft)
Domestic (Roasterie)	1,560.25	38	35	1,641.55	81.30
Domestic (Italian)	1,556.30	60	38	1,644.04	87.74
Domestic (Guest Room Addition)	1,550.00	192	42	1,647.75	97.75
Domestic (Conference Center)	1,553.33	221	38	1,640.09	86.76

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

Fire Flow Node FlexTable: Fire Flow Results Table

Active Scenario: The Italian (Model 1)

Label	Elevation (ft)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Hydraulic Grade (ft)
J-66	1,556.22	1,750	2,737	30	30	1,711.62
J-20	1,552.46	1,750	2,559	30	30	1,711.35
J-10	1,550.14	1,750	2,572	30	32	1,711.37
Fire (Villas and Bungalows)	1,553.13	1,750	2,486	30	31	1,711.37
Fire (Roasterie)	1,559.64	1,750	2,222	30	30	1,711.38
Fire (Italian)	1,556.30	1,750	3,046	30	33	1,711.62
Fire (Guest Room Addition)	1,550.00	1,750	3,508	30	36	1,711.75
Fire (Garage)	1,554.70	1,750	2,780	30	32	1,711.62
Fire (Conf. Center)	1,556.46	1,750	2,791	30	30	1,711.62
FH-8	1,552.10	1,750	2,340	30	30	1,711.35
FH-7	1,557.87	1,750	2,074	30	30	1,711.50
FH-6	1,556.95	1,750	2,492	30	30	1,711.62
FH-5	1,556.39	1,750	2,681	30	30	1,711.62
FH-4	1,556.42	1,750	2,702	30	30	1,711.62
FH-3	1,556.46	1,750	2,825	30	30	1,711.62
FH-2	1,553.15	1,750	2,884	30	30	1,711.35
FH-1	1,552.65	1,750	2,571	30	30	1,711.35
EX J-194	1,556.60	1,750	2,765	30	30	1,711.62
EX J-190	1,556.35	1,750	2,742	30	30	1,711.62
EX J-170	1,558.93	1,750	2,782	30	31	1,711.62
EX J-160	1,554.89	1,750	2,787	30	32	1,711.62
EX J-150	1,557.41	1,750	2,725	30	30	1,711.62
EX J-141	1,563.47	1,750	2,663	30	30	1,711.62
EX J-140	1,560.63	1,750	2,774	30	31	1,711.62
EX J-130	1,558.03	1,750	2,899	30	32	1,711.62
EX J-120	1,556.34	1,750	3,008	30	33	1,711.62
EX J-110	1,556.50	1,750	3,113	30	33	1,711.62
EX J-100	1,550.00	1,750	3,318	30	36	1,711.66
EX J-90	1,547.00	1,750	3,576	30	36	1,711.81
EX J-80	1,542.85	1,750	3,569	30	35	1,711.80
EX J-70	1,542.85	1,750	3,306	30	30	1,711.78
EX J-54	1,555.20	1,750	2,433	30	31	1,711.37
EX J-50	1,552.03	1,750	2,531	30	30	1,711.35
EX J-40	1,552.55	1,750	2,659	30	30	1,711.35
EX J-34	1,553.36	1,750	2,945	30	31	1,711.36
EX J-30	1,553.00	1,750	3,063	30	31	1,711.45
EX J-20	1,553.00	1,750	3,157	30	32	1,711.51
EX J-10	1,552.00	1,750	3,240	30	35	1,711.62
EX FH-12	1,552.10	1,750	2,392	30	30	1,711.35
EX FH-11	1,557.90	1,750	2,718	30	30	1,711.62
EX FH-10	1,563.50	1,750	2,291	30	30	1,711.62
EX FH-7 (FLOW 2)	1,556.86	1,750	2,789	30	30	1,711.62
EX FH-6 (TEST 2)	1,559.33	1,750	2,780	30	31	1,711.62
EX FH-5	1,558.03	1,750	2,901	30	32	1,711.62
EX FH-4	1,557.29	1,750	2,944	30	32	1,711.62
EX FH-3 (FLOW 1)	1,550.00	1,750	3,312	30	36	1,711.66
EX FH-2	1,542.85	1,750	3,167	30	30	1,711.77

Fairmont Scottsdale Princess Water Master Plan - WaterCAD

Fire Flow Node FlexTable: Fire Flow Results Table

Active Scenario: The Italian (Model 1)

Label	Elevation (ft)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Hydraulic Grade (ft)
EX FH-1 (TEST 1)	1,547.30	1,750	3,581	30	37	1,711.81
Domestic (Villas and Bungalows)	1,553.30	1,803	2,999	30	30	1,711.35
Domestic (Roasterie)	1,560.25	1,788	2,235	30	30	1,711.38
Domestic (Italian)	1,556.30	1,810	3,110	30	33	1,711.62
Domestic (Guest Room Addition)	1,550.00	1,942	3,705	30	36	1,711.75
Domestic (Conference Center)	1,553.33	1,971	3,166	30	30	1,711.35

APPENDIX D – SCOTTSDALE WATER DEMAND EXHIBIT

INSTRUCTIONS

INPUT DEVELOPMENT NAME, CASE NUMBER, AND QUANTITY VALUES TO DETERMINE TOTAL AVERAGE DAILY WATER USE PER THE 2018 DESIGN STANDARDS AND POLICY MANUAL (DS7PM) CHAPTER 6 USING GALLONS PER DAY (GPD) VALUES FROM FIGURE 6-1.2

TABLE 1: QUANTITY INPUT TABLE FOR THE DEVELOPMENT

FAIRMONT SCOTTSDALE PRINCESS

WATER USE DEVELOPMENT TYPE/CATEGORY	AVERAGE UNIT WATER USE PER DS&PM CH. 6 (GPD/UNIT)	INPUT APPLICABLE QUANTITY FOR DEVELOPMENT IN THIS COLUMN	NUMERICAL UNIT	TOTAL AVERAGE WATER USE (GPD)	NOTES
Category: Residential/ Commerical Residential/ Hotel					
< 2 DU/ac	485.6	-	DU	-	Community pool demands not included here. Refer to separate category.
2 – 2.9 DU/ac	470.4	-	DU	-	
3 – 7.9 DU/ac	248.2	-	DU	-	
8 – 11.9 DU/ac	227.6	-	DU	-	
12 – 22 DU/ac	227.6	-	DU	-	
High Density Condominium (condo)	185.3	-	DU	-	
Resort Hotel	446.3	**198**	ROOM	88,367	Includes site amenities such as 1 "standard" restaurant w/ associated dedicated kitchen, laundry service, landscaping, fountains, and 1 medium capacity pool. Large event venues/kitchens or multiple/large pools and multiple restaurants are not included.
Category: Commerical/ Other					
Restaurant	1.3	**29,719**	FT2	38,635	
Commercial/Retail	0.80	**94,357**	FT2	75,486	
Commerical High Rise	0.60	-	FT2	-	per IBC highrise is at or over 75 feet to highest finished floor
Office	0.60	-	FT2	-	
Institutional	1,340	-	ACRE	-	
Industrial	1,027	-	ACRE	-	
Research and Development	1,284	-	ACRE	-	
Category: Special Use Areas					
Natural Area Open Space	-		ACRE	-	Zero water demand
Developed Open Space - Parks	1,786	-	ACRE	-	
Developed Open Space- Golf Course	4,285	-	ACRE	-	
Category: Evaporation from Swimming Pools/Spas, Cooling, Turf Area Irrigation, Other Outdoor Consumptive Uses					
Extra large pool (60k to 100k gallons)	274	-	EA	-	Annual mean ETo = 74.75 in as collected by AZ Met. Kc = 1.1. Average pool size of 400 sq. ft. loses 20,490 gallons per year, or 51.23 gallons per sq ft, not including backwashing or leaks, per AMWUA calculator.
Large pool (above 30k to 60k gallons)	154	-	EA	-	
Medium pool (15k to 30k gallons)	75	-	EA	-	
Small pool or spa (under 15k gallons)	51	**3**	EA	154	
Total Bermuda Turf Area	0.10	**4,885**	FT2	468	1 sq ft of non-overseeded turf at 60% efficiency with increased Kc is 35 gallons per sq ft per year, per AMWUA calculator.
Total Overseeded Turf Area	0.02	-	FT2	-	1 sq ft of overseeded turf at 60% efficiency with increased Kc is 9 gallons per sq ft per year, per AMWUA calculator.
Evaporative Cooling/ Cooling Towers	-	-	TOTAL COOLING TONNAGE	-	Baed on 1.50 cycles of concentration and average annual daily utilization of 68%. Water use is linear with respect to total cooling capacity tonnage. Based on US Dept of Energy Efficiency and Renewable Energy data.
Category: Filter Backwash Flows & Make-up Water from Pools & Spas (rapid sand filters)					
Extra large pool (60k to 100k gallons)	229	-	EA	-	Based on once per 7 day backwash @ 50,100, and 150gpm, respectively for each size pool category for 8 minute duration. Quantity values used from pool input values above.
Large pool (above 30k to 60k gallons)	171	-	EA	-	
Medium pool (15k to 30k gallons)	114	-	EA	-	
Small pool or spa (under 15k gallons)	57	**3**	EA	171	
A. TOTAL AVERAGE DAILY WATER USE FOR THIS DEVELOPMENT				**203,282**	GPD

NOTES:

GPD=GALLONS PER DAY, DU=DWELLING UNITS, FT2=SQUARE FEET, AC=ACRE, EA=EACH UNIT, ETo=EVAPOTRANSPIRATION, Kc=CROP COEFFICIENT, AZMET=ARIZONA METEOROLOGICAL NETWORK, AMWUA=ARIZONA MUNICIPAL WATER USERS ASSOCIATION

NONE OF THE VALUES OR CALCULATIONS HEREIN ARE INTENDED TO BE USED FOR INFRASTRUCTURE DESIGN, PEAK FLOW DETERMINATION, OR SYSTEM CAPACITY ANALYSIS. FOR THESE PURPOSES REFER TO CH.6 & 7 OF THE CITY'S DESIGN STANDARDS AND POLICY MANUAL FOR THE RESPECTIVE DESIGN VALUES AND PEAKING FACTORS.

TABLE INPUT VALUES LAST UPDATED: 11/29/2023

INSTRUCTIONS

IDENTIFY WATER CONSERVATION MEASURES ABOVE THOSE REQUIRED BY CITY CODE THAT THE DEVELOPMENT(S) PROPOSE TO IMPLEMENT. ENTER AN "X" FOR EACH PROPOSED MEASURE.

TABLE 2: APPROVED SUPPLEMENTAL WATER CONSERVATION MEASURES

FAIRMONT SCOTTSDALE PRINCESS

PROPOSED FOR THIS DEVELOPMENT (ENTER "X")	MEASURE	DESCRIPTION
	1. Submetering	Multi-family and mixed-use developments SUBMETER UNITS for leak detection and for occupants ability to manage their own water use
	2. No outdoor water features	Decorative water features outdoors can be a source of water use that is not functional
	3. Indoor water features submetered	Water features have proven to be a source of leaks. Submetering that is capable of alerts to the building monitoring system greatly reduce water waste
x	4. Limitation on functional turf grass	Functional grass turf are areas used for congregation of large number of people and should be limited to up to 10% of the landscapable area
	5. Limitations on artificial turf	Artificial turf is a large source of heat especially during summer months.
	6. Landscaped Rainwater harvesting	Earthworks, such as berms and basins, are encouraged to promote passive rainwater harvesting for planned plants and trees
	7. Cooling tower controllers with monitoring technology	Arizona high evapotranspiration rates, cooling towers use significantly more water here than in other states. Monitory systems can optimize this water use.
	8. Pools and splashpads submeters with monitoring technology	Pools and splashpad can be a source of leaks. Submetering that is capable of alerts to the building monitoring system greatly reduce water waste. Timers on Splash pads

NOTES:

Greywater systems and large areas of artificial turf are not recommended by water conservation.

This list represents water conservation measures that the conservation office has approved and has shown to provide proven water savings.

TABLE INPUT VALUES LAST UPDATED: 11/29/2023

Water Demand Exhibit Summary

FAIRMONT SCOTTSDALE PRINCESS

1. Total Estimated Water Use per Day on a Sustainable Basis (gallons per day, gpd)

203,282 gpd

2. Net Water (NW) / Consumptive Use (gallons per day, gpd)

41,698 gpd

3. Proposed Water Conservation Measures Above Those Required By City Code

	1. Submetering	NOT PROPOSED
	2. No outdoor water features	NOT PROPOSED
	3. Indoor water features submetered	NOT PROPOSED
X	4. Limitation on functional turf grass	Functional grass turf are areas used for congregation of large number of people and should be limited to up to 10% of the landscapable area
	5. Limitations on artificial turf	NOT PROPOSED
	6. Landscaped Rainwater harvesting	NOT PROPOSED
	7. Cooling tower controllers with monitoring technology	NOT PROPOSED
	8. Pools and splashpads submeters with monitoring technology	NOT PROPOSED

4. Annual Economic Value of the Development on a per Gallon of Use Basis (Applies to Commercial or Mixed Use, To be Completed by City)

1. Major City Revenues $/1,000 gallons
2. Total Annual Output Impact $/1,000 gallons

TABLE INPUT VALUES LAST UPDATED: 11/29/2023

TABLE 4: WATER USE SUMMARY

FAIRMONT SCOTTSDALE PRINCESS

WATER USE SUMMARY FOR THE DEVELOPMENT

USE CATEGORY	AMOUNT	UNITS	% OF TOTAL USE	CALCULATION NOTES
A. TOTAL DAILY AVERAGE WATER USE	**203,282**	**GPD**	**100.0%**	A=B+C, C=D+E, F=B+D
B. OUTDOOR CONSUMPTIVE USE	21,861	GPD	10.8%	
C. TOTAL INDOOR USE	181,421	GPD	89.2%	
D. INDOOR CONSUMPTIVE USE	19,837	GPD	9.8%	
E. WASTEWATER TO SEWER	161,584	GPD	79.5%	
F. TOTAL CONSUMPTIVE USE (NET USE)	41,698	GPD	20.5%	

NOTES:
GPD=GALLONS PER DAY
ALL VALUES ARE FOR AVERAGE WATER USE ANALYSIS ONLY. THIS CALCULATION IS NOT INTENDED TO BE USED FOR INFRASTRUCTURE DESIGN, PEAK FLOW DETERMINATION, OR SYSTEM CAPACITY ANALYSIS. FOR THESE PURPOSES REFER TO CH.6 & 7 OF THE CITY'S DESIGN STANDARDS AND POLICY MANUAL FOR THE RESPECTIVE DESIGN VALUES, PEAKING FACTORS, AND DESIGN REQUIREMENTS.

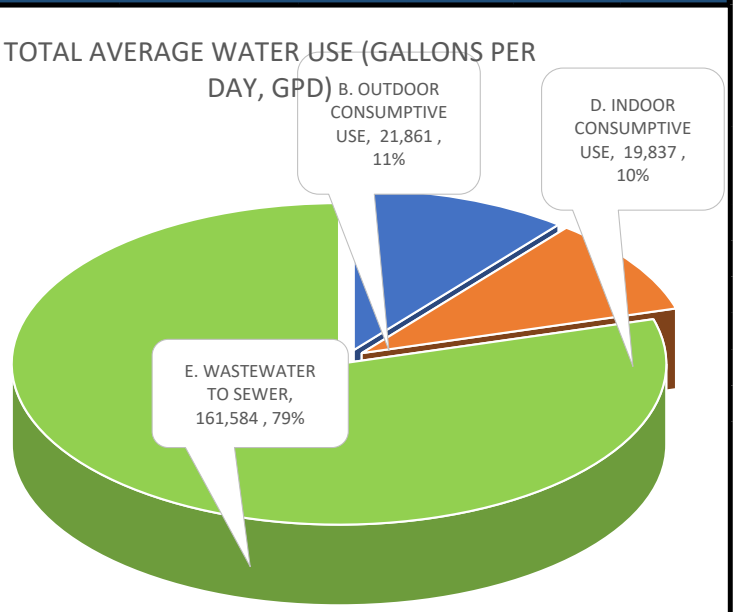


TABLE INPUT VALUES LAST UPDATED: 11/29/2023

TABLE 5: DETAILED WATER USE BREAKDOWN FOR THE DEVELOPMENT

FAIRMONT SCOTTSDALE PRINCESS

TO RIGHT:WATER USE ALLOCATION--->	A. TOTAL AVERAGE WATER USE (GPD)	B. AVERAGE OUTDOOR CONSUMPTIVE WATER USE[1]			C. AVERAGE INDOOR TOTAL WATER USE[1]			D. AVERAGE INDOOR CONSUMPTIVE WATER USE[2]			E. AVERAGE WASTEWATER FLOWS TO SEWER[3]		
BELOW: WATER USE DEVELOPMENT TYPE/CATEGORY		UNIT OUTDOOR CONSUMPTIVE WATER USE (GPD/UNIT)	OUTDOOR CONSUMPTIVE USE (GPD)	OUTDOOR CONSUMPTIVE USE (% OF TOTAL USE)	UNIT TOTAL INDOOR WATER USE (GPD/UNIT)	INDOOR TOTAL USE (GPD)	INDOOR TOTAL USE (% OF TOTAL USE)	UNIT CONSUMPTIVE INDOOR WATER USE (GPD/UNIT)	INDOOR CONSUMPTIVE USE (GPD)	INDOOR CONSUMPTIVE USE (% OF TOTAL USE)	WASTEWATER FLOW (GPD/UNIT)	WASTEWATER FLOW (GPD)	WASTEWATER (% OF TOTAL USE)
Category: Residential/ Commerical Residential/ Hotel													
< 2 DU/ac)	-	276.7	-	0.0%	208.9	-	0.0%	20.9	-	0.0%	188	-	0.0%
2 – 2.9 DU/ac	-	276.7	-	0.0%	193.7	-	0.0%	19.4	-	0.0%	174	-	0.0%
3 – 7.9 DU/ac	-	72.3	-	0.0%	175.9	-	0.0%	17.6	-	0.0%	158	-	0.0%
8 – 11.9 DU/ac	-	72.3	-	0.0%	155.3	-	0.0%	15.5	-	0.0%	140	-	0.0%
12 – 22 DU/ac	-	72.3	-	0.0%	155.3	-	0.0%	15.5	-	0.0%	140	-	0.0%
High Density Condominium (condo)	-	30.0	-	0.0%	155.3	-	0.0%	15.5	-	0.0%	140	-	0.0%
Resort Hotel	88,367	44.6	8,831	4.3%	401.7	79,536.6	39.1%	32.1	6,362.9	3.1%	370	73,174	36.0%
Category: Commerical/ Other													
Restaurant	38,635	0.10	2,972	1.5%	1.20	35,662.8	17.5%	0.12	3,566.3	1.8%	1.08	32,097	15.8%
Commercial/Retail	75,486	0.10	9,436	4.6%	0.70	66,049.9	32.5%	0.11	9,907.5	4.9%	0.60	56,142	27.6%
Commerical High Rise	-	0.10	-	0.0%	0.50	-	0.0%	0.05	-	0.0%	0.45	-	0.0%
Office	-	0.10	-	0.0%	0.50	-	0.0%	0.05	-	0.0%	0.45	-	0.0%
Institutional	-	670	-	0.0%	670.0	-	0.0%	100.50	-	0.0%	569.50	-	0.0%
Industrial	-	154	-	0.0%	873.0	-	0.0%	130.95	-	0.0%	742.05	-	0.0%
Research and Development	-	192	-	0.0%	1,092.0	-	0.0%	163.80	-	0.0%	928.20	-	0.0%
Category: Special Use Areas													
Natural Area Open Space	-	-	-	0.0%							-	-	0.0%
Developed Open Space - Parks	-	1,786	-	0.0%							-	-	0.0%
Developed Open Space- Golf Course	-	4,285	-	0.0%							-	-	0.0%
Category: Evaporation from Swimming Pools/Spas, Cooling, Turf Area Irrigation, Other Outdoor Consumptive Uses													
Extra large pool (60k to 100k gallons)	-	274	-	0.0%							-	-	0.0%
Large pool (above 30k to 60k gallons)	-	154	-	0.0%							-	-	0.0%
Medium pool (15k to 30k gallons)	-	75	-	0.0%							-	-	0.0%
Small pool or spa (under 15k gallons)	154	51	154	0.1%							-	-	0.0%
Total Bermuda Turf Area	468	0.10	468	0.2%							-	-	0.0%
Total Overseeded Turf Area	-	0.02	-	0.0%							-	-	0.0%
Evaporative Cooling/ Cooling Towers	-	-	-	0.0%							-	-	0.0%
Category: Filter Backwash Flows & Make-up Water from Pools & Spas (rapid sand filters)													
Extra large pool (60k to 100k gallons)	-				228.6	-	0.0%				229	-	0.0%
Large pool (above 30k to 60k gallons)	-				171.4	-	0.0%				171	-	0.0%
Medium pool (15k to 30k gallons)	-				114.3	-	0.0%				114	-	0.0%
Small pool or spa (under 15k gallons)	171				57.1	171.4	0.1%				57	171	0.1%
TOTALS	**203,282**		**21,861**	**10.8%**		**181,421**	**89.2%**		**19,837**	**9.8%**		**161,584**	**79.5%**

F. TOTAL CONSUMPTIVE/NET WATER USE FOR THIS DEVELOPMENT (B. + D.) **41,698 GPD** **20.5% OF TOTAL USE**

NOTES:

(1) PER 2018 DS&PM CHAPTER 6, FIGURE 6-1.2

(2) VARIES FROM 8% TO 15%, TYPICALLY 10%

(3) WASTEWATER FLOWS TO SEWER ARE CALCULATED AS C. MINUS D.

GPD=GALLONS PER DAY, DU=DWELLING UNIT, FT2=SQUARE FEET, AC=ACRE, EA=EACH UNIT

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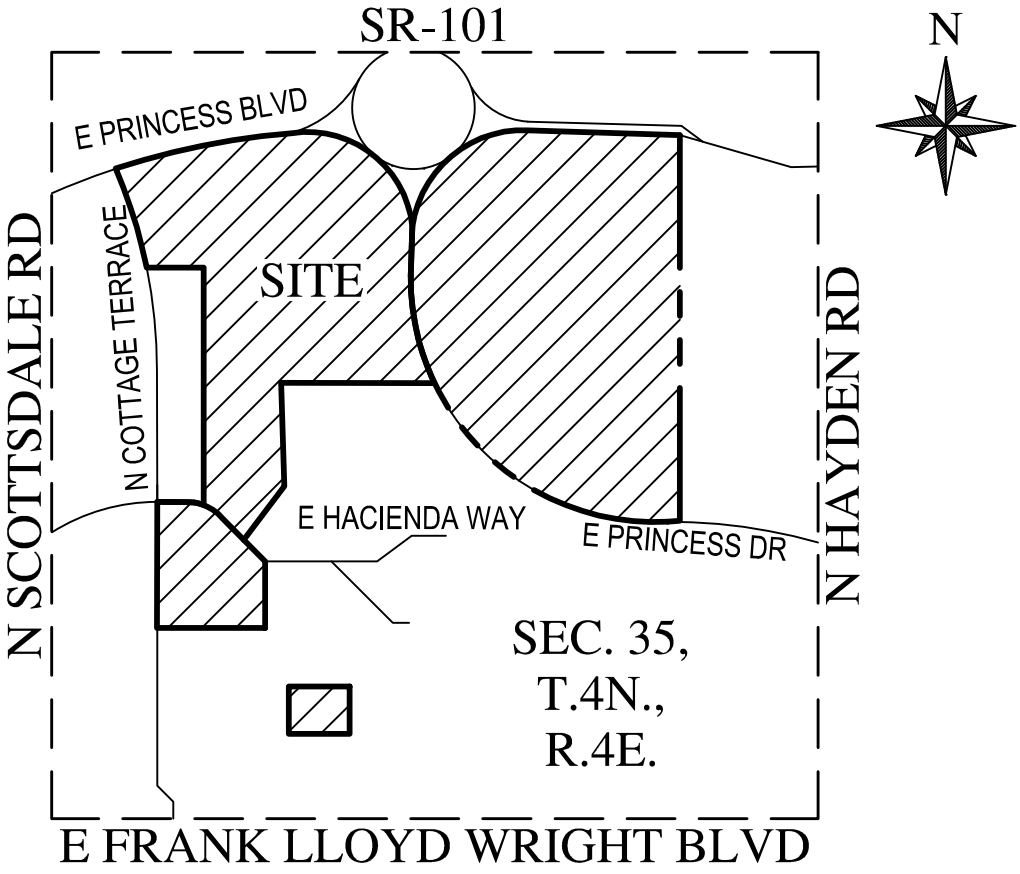
TABLE INPUT VALUES LAST UPDATED: 11/29/2023

EXHIBIT 1 – VICINITY MAP



VICINITY MAP

N.T.S.

NOT
FOR
CONSTRUCTION
OR RECORDING

WOOD PATEL

FAIRMONT SCOTTSDALE PRINCESS

VICINITY MAP EXHIBIT

DATE	11/22/2023	SCALE	N.T.S	SHEET	1 OF 1
JOB NO.	215319	DESIGN	AJS	CHECK	RS
		DRAWN	AJS	RFI #	

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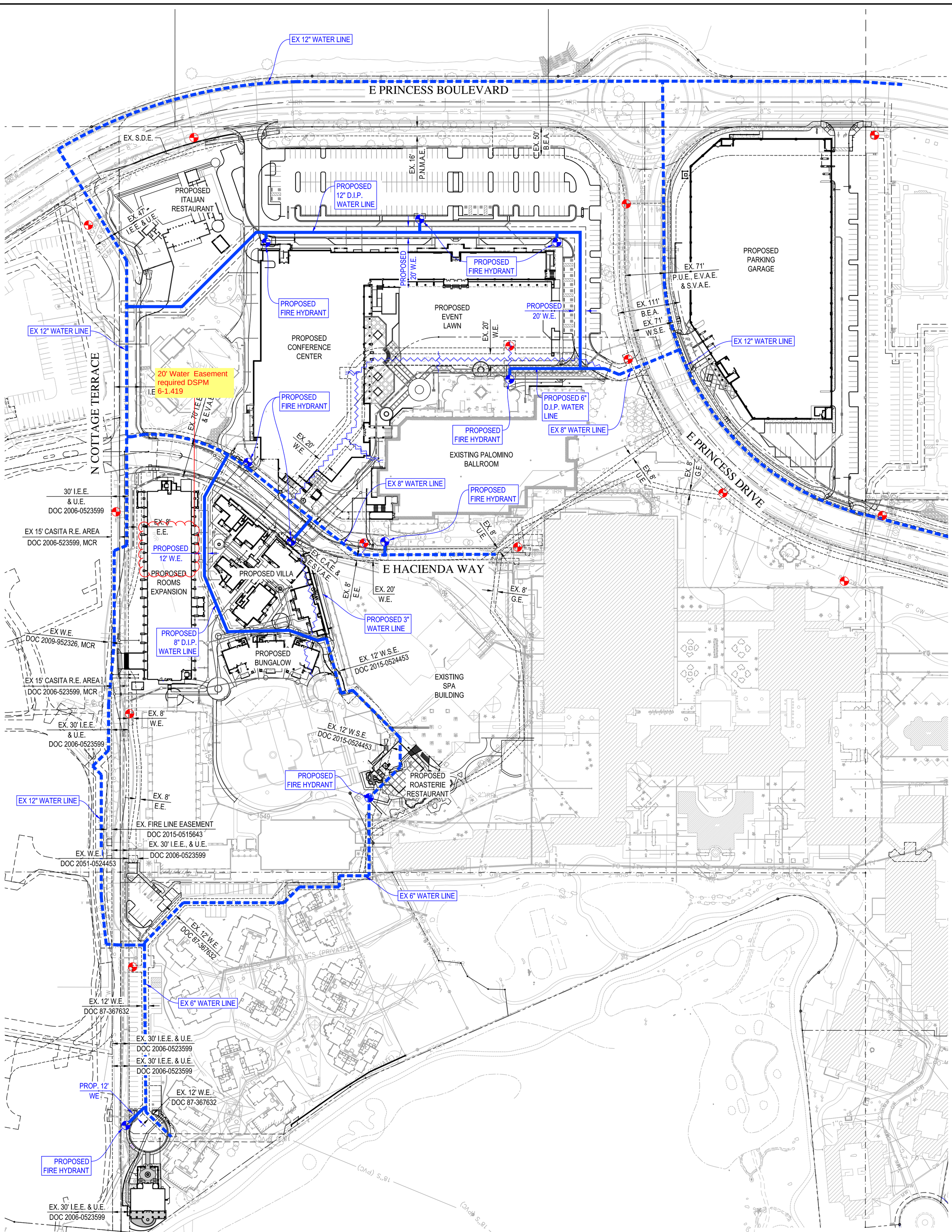
EXHIBIT 2 – CONCEPT MASTER WATER LAYOUT



WOOD PATEL

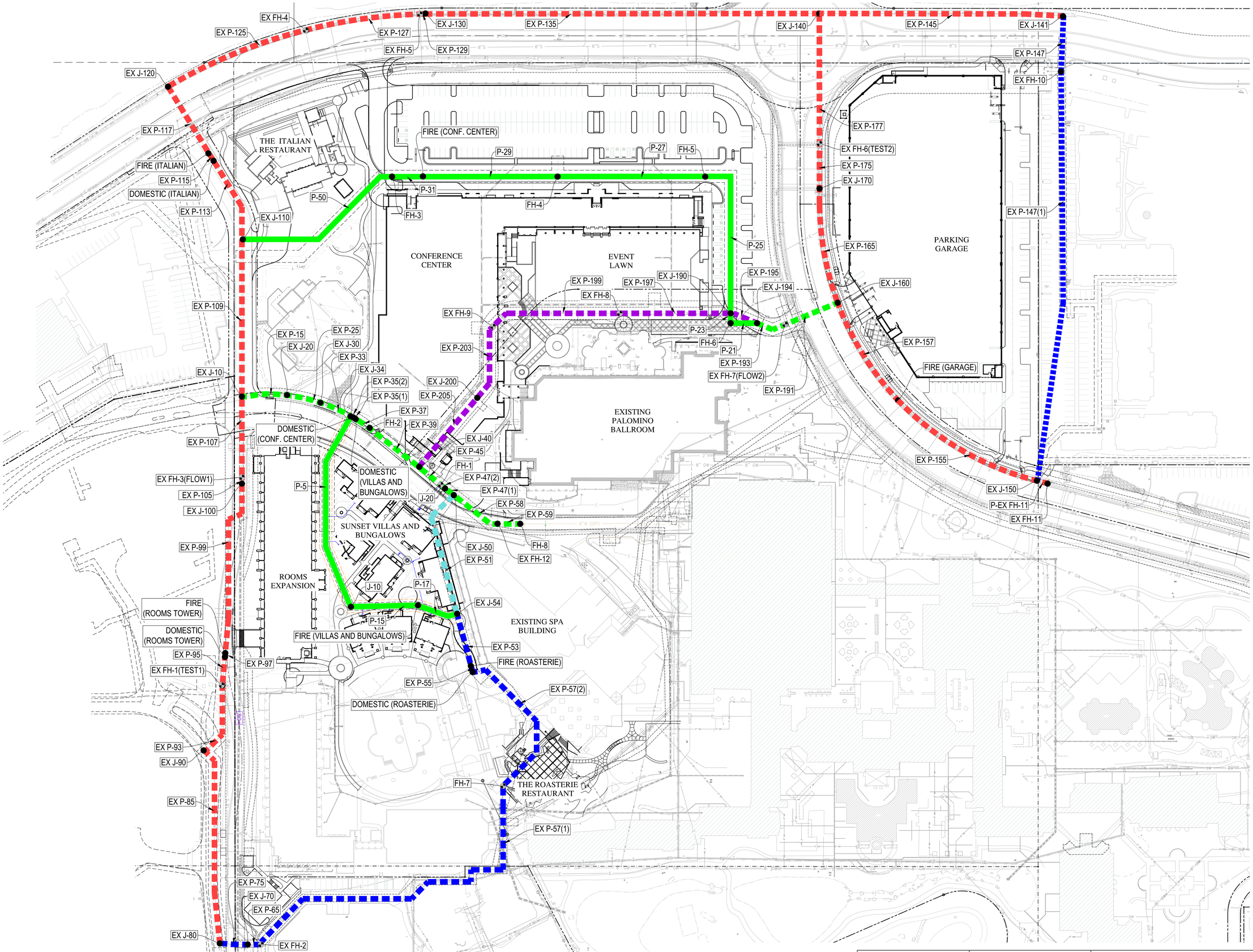
FAIRMONT SCOTTSDALE PRINCESS

EXHIBIT 2 - CONCEPT MASTER WATER LAYOUT

DATE	11/22/2023	SCALE	1" = 80'	SHEET	1 OF 1
JOB NO	215319	DESIGN	RS	DRAWN	JRS

Z:\2021\215319\Project Support\Reports\Master Reports\Sewer BOD\Exhibits\5319-EXH 5 - MASTER WATER & SEWER.dwg

EXHIBIT 3 – WATERCAD LAYOUT



N

0 50 100

Horz. 1 in. = 50 ft.

LEGEND

- PROPOSED 8" WATER PIPE
- EXISTING 6" WATER PIPE
- EXISTING 8" WATER PIPE
- EXISTING 12" WATER PIPE
- EXISTING 6" WATER PIPE TO BE REMOVED
- EXISTING 8" WATER PIPE TO BE REMOVED

J-XX JUNCTION NODE AND LABEL

P-XX PIPE LABEL

FH-XX FIRE HYDRANT LABEL

NOT FOR CONSTRUCTION OR RECORDING

WOOD PATEL

FAIRMONT SCOTTSDALE PRINCESS

EXHIBIT 3 - WATERCAD LAYOUT

DATE	11/22/2023	SCALE	1" = 50'
JOB NO	215319	DESIGN	RS
		DRAWN	DLH / JRS
		CHECK	AJS
		SHEET	1 OF 1

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PRINCESS RE-ZONING WATER CONSERVATION RECOMMENDATIONS:

The Water Demand Exhibit require a development to submit several water conservation elements that are above code requirements to ensure that large developments within Scottsdale use water in an efficient and responsible manner. The Princess Resort has been a collaborative partner in water conservation efforts with the City of Scottsdale. In the past, they have participated in our on-site water efficiency walkthrough to understand baseline operations of water use in the facility. In 2020, as a result of the efficiency walkthrough findings, the Princess also participated in our water conservation WaterSense-labeled device rebate program replacing 100 toilets, 100 showerheads and a urinal to increase the fixture efficiency across the resort. As a positive community partner, we are excited to work with the Princess Resort again to ensure that the re-zoning process results in a project that provides not only a benefit to the resort and guests, but also to the larger Scottsdale community by proactively conserving and carefully considering water efficient practices required for the sustainable expansion of the resort. Below are the items that Scottsdale Water would like to see incorporated into the project.

PROPOSED WATER CONSERVATION ELEMENTS:

Best practices for commercial water management include separating indoor and outdoor uses on separate meters or requiring submetering. This is important as it's impossible to pinpoint or ascertain highest water users and in certain cases leaks when different water uses are captured on the same meter. Separation of domestic and irrigation uses also benefits the user as this means the Princess will not be paying sewer fees for a mixed-use meter on the irrigation component of the water use.

WATER FEATURE CONSIDERATIONS FOR THE ROASTERY AND ITALIAN RESTAURANT:

While we understand the desired purpose of the water features included in the re-zoning plan is to fully immerse Princess guests in the ambiance of the facility or provide an "oasis in the desert", to make those dining feel as though they have been transported to Italy. Scottsdale encourages community partners like the Princess to consider the appropriateness to our Sonoran Desert environment and incorporate water features that provide functional benefits rather than focusing on aesthetic value alone, but seek to approve water features that add clear functional uses to the space such as masking objectionable noises or providing space-adjacent ambiance and/or cooling to those who may be directly sitting and actively enjoying the space (e.g for courtyards and restaurant sitting areas). Meandering stream-type water features constructed for aesthetics rather than functional purposes are not in aligned with the goals of the City's general plan nor does this kind of water features meet the requirements as listed in our ordinance (A.R.S. § 49-242) per the dimensions listed in the re-zoning documents:

- No person shall place into operation after July 1, 2016, any water feature that either sprays water into the air in a fine mist or sprays or drops water into the air in excess of six (6) feet in vertical height from ground level.
- Must not be greater than ten (10) feet in length.

DEMAND EXHIBIT MODIFICATION:

1. Incorporating non-water intensive art features that provide similar ambiance/ aesthetic value while decreasing the size, expanse and surface area of the proposed water features to the immediate area around seating spaces for restaurant goers. Scottsdale is home to a fantastic arts program with many notable installations, many do that do not include water, so there are resources to seek water alternative art/ ambiance pieces.

2. Scottsdale's Water feature ordinance (A.R.S. § 49-242) requires that all water features that use over 1,000 gallons of water per day be separately metered. Best practices, through the demand exhibit direct that all water features should be separately sub-metered with real-time alert capabilities that indicate unusual usage and water-use tracking capabilities. Through our commercial program, we have found water features are a frequent source of maintenance needs and leaks. Sub-metering water features helps efficiently manage them and cut both the cost of water wasted through leaks and infrastructure damage caused by faulty water feature operation.

LANDSCAPING:

New Event Lawn Space (40,000 sq ft):

Consider reducing grass areas in other sections of the resort to encourage active use of new lawn space and reduce areas where non-functional turf may be around especially any grass that borders city rights of way that may not be enjoyed by guests who use it to actively participate in resort activities. It appears that this project is replacing a current turf area that will ultimately become Phase 2A: New Sunset Casitas which is approximately the same size at 38,000-ish sq ft per LIS measurements.

Recommendation: Scottsdale acknowledges that Princess has taken the time to reach out to the surrounding community and neighborhood association to collaborate and discuss landscaping changes and as part of the rezoning process and will remove the grass area that is planned to be part of Phase 2A new Sunset Casitas re-zoning effort. As a reminder, Scottsdale has adopted new green building code that incorporates standards for irrigation hardware and efficient management of functional grass areas. As listed in A.R.S. § 31-144:

601.3.1.2.1 Irrigation system design. The design of the irrigation system shall be performed by an accredited or certified irrigation professional and shall be in accordance with the following:

a. Irrigation systems:

1. Shall be based on *hydrozones*. *Turfgrass* areas shall be on their own irrigation *stations*. Trees in turfgrass shall have a separate drip irrigation zone.

2. Shall have backflow prevention in accordance with the city plumbing code (IPC).

3. Shall have a master valve on municipally supplied water sources that allows pressurization of the irrigation mainline only when irrigation is scheduled. The master valve shall be installed immediately downstream of the back flow prevention device.

4. Shall have an isolation valve installed immediately upstream of each irrigation control valve.

b. Irrigation turfgrass sprinklers:

1. Shall not spray water directly on buildings or *hardscape* area.

2. Shall be prohibited on landscape areas having any dimension less than 8 feet.

3. Shall be limited to use with *turfgrass*.

4. Sprinkler heads including rotors, heads with rotating and fixed spray nozzles shall contain pressure regulating sprinkler bodies.

c. Landscape emitters:

1. The drip irrigation control valve shall be equipped with a pressure regulator and a cleanable wye strainer filter.

2. At the end of each lateral, a flush cap shall be installed in a six (6) inch round pit box.

3. Drip emitters shall be of pressure compensating type.

601.3.1.2.2 Irrigation Controllers. All irrigation systems shall use a weather based smart irrigation controller that is WaterSense labeled or equivalent and capable of frequency adjustment and day exclusion.

601.3.1.2.2.1. The following settings and schedule for the irrigation control system shall be documented on the Compliance Certificate

a. Precipitation rate of each irrigation *station*.

b. *Plant* factors for each *hydrozone*.

c. Soil type.

d. Rain sensor settings.

e. Peak demand schedule, including run times, cycle starts, and soak times.

f. Maximum runtimes to prevent water runoff and standing water.

g. Gallons per minute for each irrigation station.

Per code, Scottsdale recommends that Princess limit overall functional grass area to the limits defined in code based on landscapable area. Landscapable area is area that is designated as landscape, not total lot size. Code also discusses slope considerations for efficient watering (and reducing run-off and overwatering of grass areas. As discussed in the summary section of this document, the Water Conservation department would like to partner with Princess on efficient landscape management and would support the submission of a yearly budget to the Water Conservation office. Support is available to create this budget and get a baseline of usage from Scottsdale's conservation team. This helps ensure that the grass is getting its watering needs met, but that the area is not over or inefficiently watered.

New Guest Wing per *Amendment Narrative* document: "Lush landscaping will be provided to beautify the property as well as screen the west elevation from neighboring properties." **Recommendation:** Scottsdale recommends using only Arizona-friendly low water plants and landscaping from the Arizona Department of Water Resource's Low Water use plant list that would provide similar benefits (like screening for noise and privacy, while also enhancing the color/sculptural forms on the property) and that comply with the Princess Design Guidelines and CC&Rs for the Princess Community Association.

CONFERENCE CENTER EXPANSION:

Scottsdale applauds the Princess' plan to cool the new conference center expansion with an air-cooled HVAC system. The use of evaporative cooling technologies like cooling towers can substantially increase the water demand of large facilities and by choosing to use alternative technologies, this project is aligned with the City's goal of encouraging efficient cooling technology that doesn't require water-intensive equipment.

Sunset Villas and Bungalows/Casitas (Proposed 2023 Guest Wing Room Additions):

The Princess has laid out plans for an increase in guest rooms to accommodate expansion and stay competitive.

DEMAND EXHIBIT MODIFICATION:

The City proposes submetering the guest room additions with technology that includes real-time monitoring components and would alert to high flow, continuous or anomalous flow conditions. This can be accomplished in a number of ways including by building or by a further subdivision of the space such as by room or by floor. Sub-metering these areas ensures that the Princess can track and insolate flows within smaller sections of the resort. City meters are very effective for overall use calculation and billing. However, they don't provide granular usage because they aggregate water used across a large area and large number of different devices. During the construction phase, these systems are cost-effective and allow for the implementation of best practices in water monitoring and management. Projects that retrofit spaces with submeters after infrastructure is built can be incredibly disruptive (requiring down time for installation and modification) and expensive to large commercial facilities. Completing this foundational step during the early phases of expansion can help ensure that the facility can monitor and manage the water usage in an efficient and effective manner and allow for staff to reply quickly to real-time alerts especially when leaks or flows occur in places that may be out of sight. Sub-meters also save money when high flow events occur because these events will be less likely to be left unnoticed and therefore reduce the likelihood of significant property or infrastructure damage.

Submeter recommendations: The City recommends that sub-metering projects have a centralized monitoring component with real-time reads and usage alert capabilities. These alerts can feed into a previously established building management system or provide text and/or email alerts to the appropriate staff member. Systems that rely on occasional or non-automated monitoring are not recommended (e.g. manual-reads). This is because it is impossible for staff to be in all areas of the facility tracking usage and often have many other tasks. Real-time alerts facilitate effective and efficient use of staff time while addressing leaks and unexpected usage in a timely fashion. Permanent (in-line) sub-meters must meet or exceed American Water Works Association (AWWA) and NSF International (NSF/ANSI 61) standards.

SUMMARY

In addition to the items above the city would like to see on the Water Demand exhibit, Scottsdale Water invites the Princess to continue to have open communication with the Water Conservation Office to ensure a continued participation and partnership in property water conservation efforts. For example, we encourage an annual discussion on property landscaping and irrigation efficiency. Conservation has tools to provide a water budget and assess efficient irrigation practices on site. Water Conservation would also like to invite the Princess to carefully consider which fixtures would suit the needs of your new food service facilities. EnergyStar devices like commercial dishwashers and carefully selected combination ovens can have a positive impact on efficient water practices within the food service areas. Additionally, air-cooled equipment like ice machines can ensure exemplary service while also reducing the water footprint of your establishment. We applaud the actions the Princess has committed to in previous efforts with Scottsdale Water and look forward to a continual conservation conversation with all resort partners on ways to strive for the highest level of water conservation and efficiency strategies.