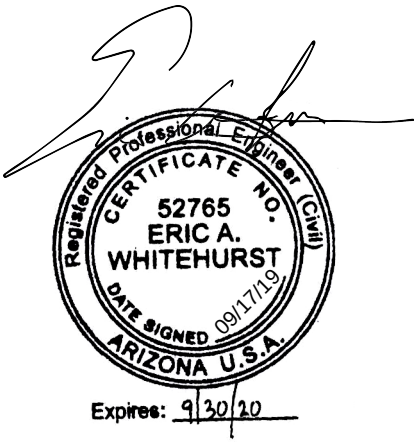
WATER

BASIS OF DESIGN REPORT

2nd Street & Bishop Lane
Scottsdale, Arizona

Prepared for:

The Morgan Group, Inc.
3001 Brighton Blvd., Suite 445
Denver, CO 80216



Prepared by:

291347001
September 2019

2ND STREET & BISHOP LANE

WATER BASIS OF DESIGN REPORT

SEPTEMBER 2019

Prepared By:

Kimley»Horn

Contents

Appendices

1.0 INTRODUCTION

Kimley-Horn and Associates, Inc. has prepared this Water and Wastewater Basis of Design Report for the proposed luxury apartment development at the southwest corner of 2nd Street and Bishop Lane in Scottsdale, Arizona. This report will demonstrate that the proposed project conforms to the City of Scottsdale design requirements.

2nd Street & Bishop Lane, the "project", encompasses approximately 1.13 ± net acres and contains a 210,857 square foot, eight-story apartment with a 93,372 square foot two-level underground parking garage. The project lies within a portion of the Northeast Quarter of Section 27, Township 2 North, Range 4 East of the Gila and Salt River Baseline and Meridian in Maricopa County, Arizona. More specifically, the project is bounded by East 2nd Street to the north followed by North Bishop Lane to the east followed by Moe Tavassoli Oriental Rugs to the south, and a public alley followed by existing commercial buildings to the west. The site slopes from the northwest to the southeast at approximately 1.0%. See **Appendix A** for the Vicinity Map.

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2.0 DOMESTIC WATER ANALYSIS

2.1 INTENT AND SCOPE

The intent of this section is to evaluate the potable water infrastructure for the proposed development. As a result of this analysis, it will be determined if the potable water infrastructure is capable of satisfying the projected water demands for the proposed development in accordance with the City of Scottsdale Design Standards & Policies Manual (**Reference 1**) and the 2015 International Fire Code (**Reference 2**) for fire prevention.

2.2 GENERAL THEORY

The water system modeling program Water CAD, developed by Haestad Methods, is used to model the water system servicing the proposed development. The program uses the fluid mechanic head loss theory known as the Hazen-Williams method. This is the typical method used to evaluate water distribution systems.

2.3 DOMESTIC WATER SUPPLY

There is an existing 8-inch ACP and 16-inch DIP water main located in East 2nd Street north of the site. The existing 8-inch ACP water main connects to an existing 6-inch ACP water main in North Bishop Lane east of the site and to an existing 4-inch DIP water main in the ally west of the site. There is an existing 8-inch ACP water main located in North Goldwater Boulevard approximately 310 feet south of the site.

A section of the existing 8-inch ACP water main, in East 2nd street, will be removed and replaced with 8-inch DIP pipe. A new 8-inch DIP private fire service will connect to the proposed 8-inch DIP pipe via an 8-inch by 8-inch tee. One 3-inch domestic water service will connect to the proposed 8-inch DIP pipe via tapping sleeve and valve. Refer to **Appendix B** for the Preliminary Utility Plan.

Residual and static pressures were obtained from a flow test performed on two fire hydrants (one flow and one pressure) in East 2nd Street, by EJ Flow Tests on May 5th, 2019. The tested fire hydrants were selected due to the proximity to the proposed building. See **Appendix D** for the Fire Flow Test results.

2.4 INTERNATIONAL FIRE CODE, 2015

According to the City of Scottsdale Fire Department, the 2015 International Fire Code (IFC) with City of Scottsdale Amendments is currently the governing code with respect to fire protection requirements. The IFC evaluates the building construction type, occupancy descriptions, and square footage to set minimum fire flow requirements with regards to a particular development.

The proposed building and garage are Construction Type I-B. Per Table B105.1(2) of **Reference 2**, the required fire flow is 6,000 gallons per minute. A reduction in fire-flow of 75% percent is allowed when the building is equipped with an approved fire sprinkler system. The apartment building and parking garage will be equipped with an approved fire sprinkler system. The minimum fire flow requirements per the IFC 2015 and COS DS&PM 6-1.501 for the proposed building are shown in Table 1. Table 1 also shows the required building fire flow based upon a maximum fire flow reduction of 75% allowed by the IFC 2015. The city of Scottsdale DS&PM 6-1.501 states a minimum of 2,500 gpm fire flow demand must be used for high-rise buildings. See **Appendix C** for IFC 2015 Appendix B.

Table 1 Required Building Fire Flows

Building	Building Construction Type	Building Area (sf)	Required Fire Flow per IFC 2015 (gpm)	Reduction	Required Fire Flow per IFC with Reduction (gpm)	Actual Required Fire Flow per COS DS&PM 6-1.501 (gpm)
Apartment & Garage	I-B	304,229	6,000	75%	1,500	2,500

2.5 WATER DEMANDS

According to the guidelines provided in Figure 6-1.2 of **Reference 1**, the proposed development will add the following demands to the existing water system for Average Day Demand (ADD), Maximum Day Demand (MDD), and Peak Hour Demand (PHD):

Table 2: Domestic Water Demands

Building	Building Area (SF)	# DUs	Total Demand[1] (GPM/DU)	ADD (GPM)	MDD[2] (GPM)	PHD[3] (GPM)
Building 1 + Garage	304,229	199	0.27	53.73	107.46	188.06

Notes:
1. For high density condominium land use, average day demand is 185.3 gpd/du or 0.27 gpm/du.
2. Maximum day demand defined as 2 times the average day demand.
3. Peak hour demand defined as 3.5 times the average day demand.

Two water analyses were performed to evaluate the existing adjacent off-site water infrastructure and the proposed on-site water system:

1. Peak Hour
2. Maximum Day Demand + Fire Flow

The system was analyzed for the worst-case scenario to ensure that the existing and proposed public water infrastructure can maintain a minimum pressure of 50 psi for the Peak Hour demand, and 30 psi for the Maximum Day plus Fire Flow demand. See **Appendix D** for water model layout to identify nodes and pipes.

See **Appendix D** for the Fire Flow Test and Water CAD Analysis and Layout. A summary of the water analysis results for the project is tabulated below:

Table 3 Domestic Water Model Result Summary

Criteria	Peak Hour Demand	Constraint	Peak Hour Pressure at Demand	Node with Minimum Pressure
Minimum Pressure	188 gpm	50 psi	24.0 psi	BLDG DW
Meets Criteria?	-	-	No*	

*The hydraulic water model was conservatively analyzed at the top floor elevation of the proposed high-rise building (maximum building height = 90 feet). The pressures do not meet the minimum requirement and will require a booster pump system to provide adequate water pressures to the building.

Table 4 Fire Flow Water Model Result Summary

Criteria	Max Day + Fire Flow Demand	Constraint	Max Day + Fire Flow Pressure at Demand	Node with Minimum Pressure
Minimum System Pressure	2,607 gpm	30 psi	9.0 psi	FIRE
Meets Criteria?	-	-	No*	

*The hydraulic water model was conservatively analyzed at the top floor elevation of the proposed high-rise building (maximum building height = 90 feet). The pressures do not meet the minimum requirement and will require a booster pump system to provide adequate water pressures to the building.

Table 5 Fire Hydrant Flow Water Model Result Summary

Criteria	Fire Flow Demand	Constraint	Fire Flow Pressure at Demand	Meets Criteria?
Hydrant 1	2,500 gpm	20 psi	48.0 psi	YES
Hydrant 2	2,500 gpm	20 psi	57.0 psi	YES

4.0 CONCLUSION

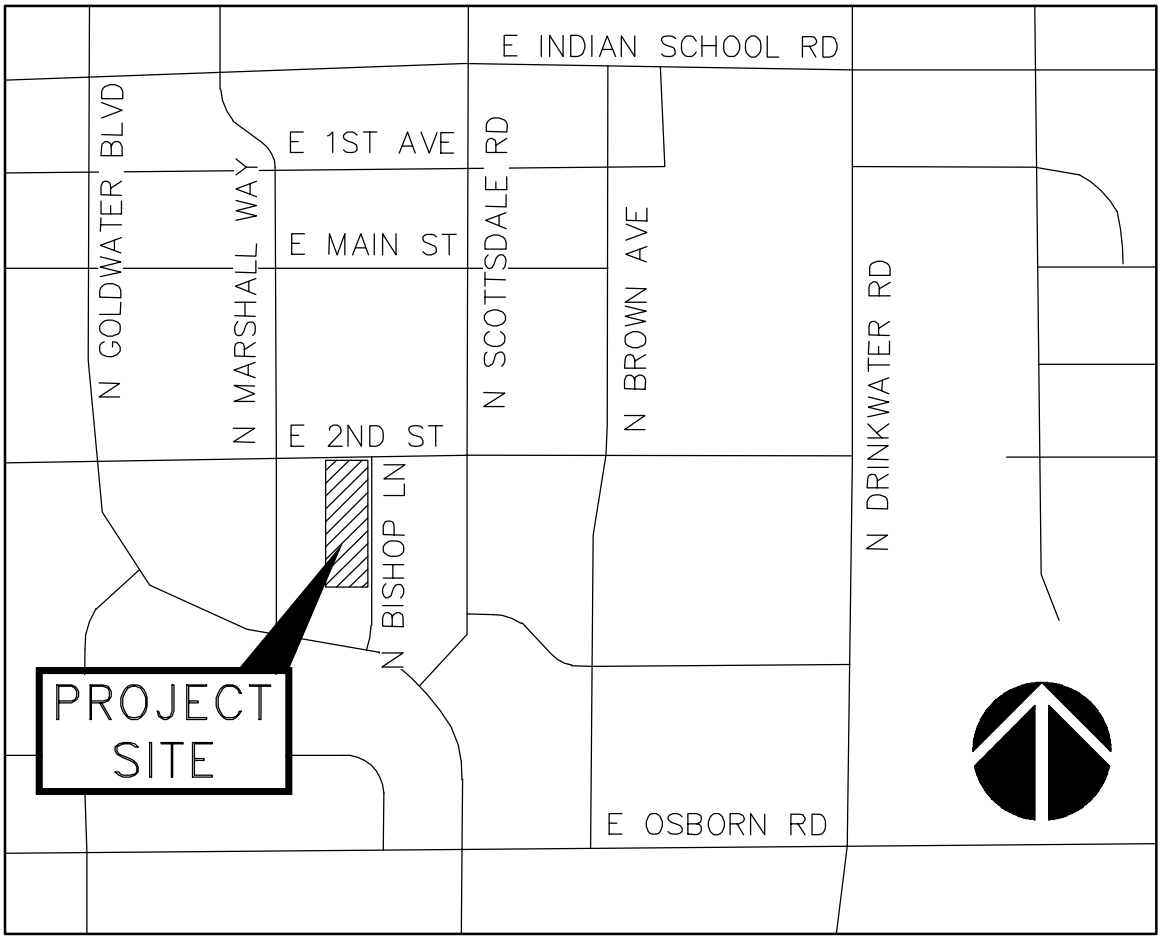
The proposed and existing on-site water system as outlined by this analysis appears adequate and sufficient to meet the required fire flow demand to the first floor of the proposed 2nd Street and Bishop Lane development near the southwest corner of 2nd Street and Bishop Lane in Scottsdale, Arizona. The proposed building will require a domestic and fire booster system to provide adequate water pressures to the top floors of the building at a maximum of 90 feet high.

5.0 REFERENCES

1. City of Scottsdale, *Design Standards and Policies Manual.* 2018.

2. International Code Council, *2015 International Fire* Code. May 2014.

Appendix A – Vicinity Map



VICINITY MAP

SCOTTSDALE, AZ
N.T.S.

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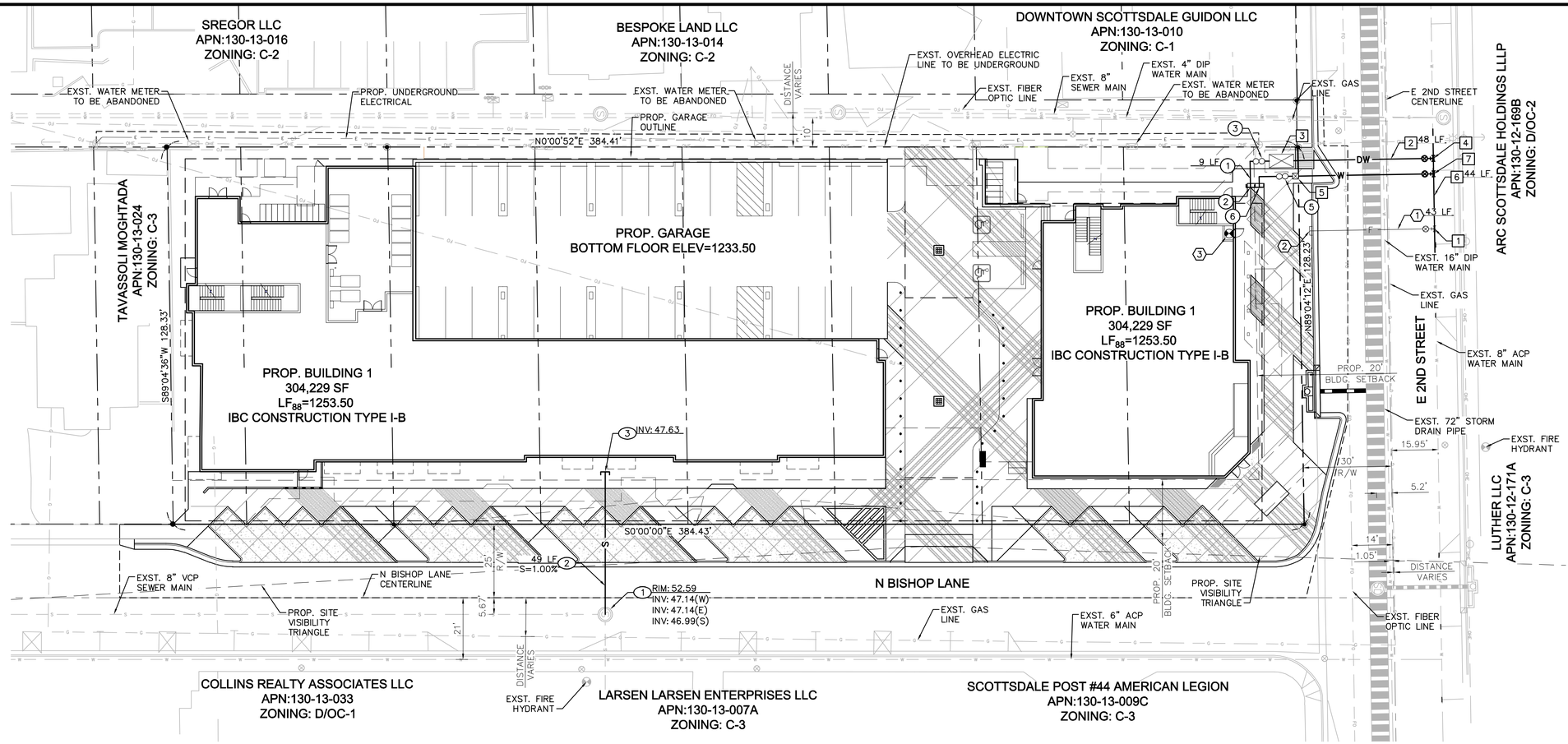
9-ZN-2019
9/23/2019

Appendix B –Utility Plan



DEVELOPER/OWNER

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LAND SURVEYOR

SURVEY INNOVATION GROUP, INC
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PH: (480) 922-0780
CONTACT: JASON SEGNERI, P.L.S.

CIVIL ENGINEER

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PHOENIX, ARIZONA 85020
PH: (602) 944-5500
CONTACT: ERIC WHITEHURST, PE

ARCHITECT

TODD & ASSOCIATES, INC.
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CONTACT: RANDALL MARTINEZ

BENCHMARK

FOUND 3" CITY OF SCOTTSDALE BRASS CAP IN HANDHOLE AT THE INTERSECTION OF OSBORN ROAD AND SCOTTSDALE ROAD.

GDACS DATA
NAVD88
ELEVATION = 1246.52'

BASIS OF BEARING

THE CENTERLINE OF 2ND STREET AS IN BOOK 32, PAGE 50, MARICOPA COUNTY RECORDS. SAID LINE BEARS N89°03'00"E.

LEGEND

- PROPERTY LINE
- RIGHT OF WAY LINE
- STREET CENTERLINE
- EASEMENT LINE
- EXISTING SEWER MAIN
- EXISTING WATER MAIN
- PROPOSED WATER MAIN
- PROPOSED SEWER MAIN
- PROPOSED STORM DRAIN
- EXSTING STORM DRAIN
- EXISTING SANITARY SEWER MANHOLE
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED SANITARY SEWER CLEANOUT
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT
- PROPOSED CATCH BASIN

PUBLIC WATER MAIN NOTES

1. INSTALL 8"X8" TEE.
2. INSTALL 3" WATER SERIVCE LINE TYPE K SOFT COPPER PER MAG SPEC. 754.1, LENGTH PER PLAN, MINIMUM 3' COVER. BEDDING AND BACKFILL PER COS STD DET 2201.
3. INSTALL WATER SERVICE LINE CONNECTION WITH 3" DOMESTIC WATER METER AND VAULT PER COS STD DET 2345-1, METER BOX PER MAG STD DET 320. METER TO BE INSTALLED BY CITY FORCES.
4. INSTALL 8"X3" TAPPING SLEEVE AND VALVE FOR DOMESTIC SERVICE.
5. INSTALL IRRIGATION WATER METER PER COS STD DET 2653, METER BOX PER MAG STD DET 320. METER TO BE INSTALLED BY CITY FORCES.
6. REMOVE AND REPLACE EXISTING 8" ACP WATER MAIN WITH 8" CLASS 350 DIP WATER MAIN POLYWRAPPED, LENGTH PER PLAN, MINIMUM 3' COVER. BEDDING AND BACKFILL PER COS STD DET 2201.
7. INSTALL 8"X2" TAPPING SLEEVE AND VALVE FOR IRRIGATION SERVICE.

PRIVATE DOMESTIC WATER NOTES

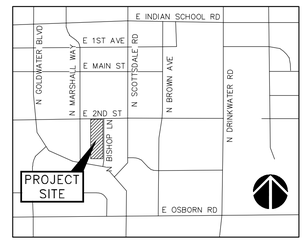
1. INSTALL 3" SCH 40 PVC DOMESTIC WATER SERVICE, LENGTH PER PLAN.
2. BUILDING DOMESTIC WATER CONNECTION, REF MEP PLANS FOR CONTINUATION.
3. INSTALL 3" DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY PER COS STD DET 2351.
5. IRRIGATION WATER DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY PER COS STD DET 2352. REF IRRIGATION PLANS FOR CONTINUATION.
6. IRRIGATION WATER CONNECTION, REF IRRIGATION PLANS FOR CONTINUATION.

PRIVATE FIRELINE NOTES

1. INSTALL 8" CLASS 350 DIP WATER MAIN POLYWRAPPED WITH TRACER WIRE, LENGTH PER PLAN, MINIMUM 3' COVER. BEDDING AND BACKFILL PER COS STD DET 2201.
2. BUILDING FIRELINE CONNECTION. INSTALL FIRELINE RISER AND BACKFLOW PREVENTOR PER COS STD DET 2369 IN FIRE RISER ROOM. REF FIRE SPRINKLER PLANS FOR CONTINUATION.
3. BUILDING FIRE RISER ROOM WITH INTERNAL BACKFLOW PREVENTOR.

PRIVATE SEWER NOTES

1. CONNECT TO EXISTING SANITARY SEWER MANHOLE, RIM AND INVERT PER PLAN.
2. INSTALL 6" SDR 35 PVC SEWER SERVICE, LENGTH AND SLOPE PER PLAN. BEDDING AND BACKFILL PER COS STD DET 2201.
3. CONNECT TO BUILDING SEWER AT TWO-WAY CLEANOUT, INVERT PER PLAN. REF MEP PLANS FOR CONTINUATION.



VICINITY MAP
PHOENIX, AZ
N.T.S.

GRAPHIC SCALE IN FEET
0 10 20 40

NOTES:

1. ADD 1200' TO ALL ELEVATIONS.
2. ALL ELEVATIONS ARE INVERT ELEVATIONS, UNLESS OTHERWISE NOTED.

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
Call 811 or click Arizona811.com

Kimley»Horn

7740 North 16th Street, Suite 300
Phoenix, Arizona 85020 (602) 944-5500

MORGAN

SWC N BISHOP LANE AND E 2ND STREET
SCOTTSDALE, ARIZONA

PRELIMINARY UTILITY PLAN

PROJECT No.
291347001

SCALE (H):	1"=20'
SCALE (V):	NONE
DRAWN BY:	CHS
DESIGN BY:	CHS
CHECK BY:	EAW
DATE:	09/17/19

PRELIMINARY
FOR REVIEW ONLY
NOT FOR CONSTRUCTION
Kimley»Horn
ENGINEER E. WHITEHURST
PE NO. 52765 DATE 09/19

347001Pre-UT.dwg

UT1
1 OF 1 SHEETS

Q.S.: 16-44 COS PROJECT #: 890-PA-2018

REV	DESCRIPTION	BY	DATE	APPR

K:\PHX_Civil\291347001 - 2nd St & Bishop\CAD\347001Pre-UT.dwg, Layout:UT1 Sep 17, 2019 - 1:31pm Connor.Sperry
XREFS: x347001b x347001w x347001bm x347001gd x347001d x347001st x347001ts

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Appendix C – Fire Flow Requirements from 2015 IFC

SECTION B105 FIRE-FLOW REQUIREMENTS FOR BUILDINGS

B105.1 One- and two-family dwellings.
The minimum fire-flow and flow duration requirements for one- and two-family *dwellings* having a fire-flow calculation area that does not exceed 3,600 square feet (344.5 m^2) shall be 1,000 gallons per minute (3785.4 L/min) for 1 hour. Fire-flow and flow duration for *dwellings* having a fire-flow calculation area in excess of 3,600 square feet (344.5m^2) shall not be less than that specified in Table B105.1.

Exception: A reduction in required fire-flow of 50 percent, as *approved,* is allowed when the building is equipped with an *approved automatic sprinkler system.*

TABLE B105.1 MINIMUM REQUIRED FIRE-FLOW AND FLOW DURATION FOR BUILDINGS

FIRE-FLOW CALCULATION AREA (square feet)					FIRE-FLOW (gallons per minute)[b]	FLOW DURATION (hours)
Type IA and IB[a]	Type IIA and IIIA[a]	Type IV and V-A[a]	Type IIB and IIIB[a]	Type V-B[a]		
0-22,700	0-12,700	0-8,200	0-5,900	0-3,600	1,500	2
22,701-30,200	12,701-17,000	8,201-10,900	5,901-7,900	3,601-4,800	1,750	
30,201-38,700	17,001-21,800	10,901-12,900	7,901-9,800	4,801-6,200	2,000	
38,701-48,300	21,801-24,200	12,901-17,400	9,801-12,600	6,201-7,700	2,250	
48,301-59,000	24,201-33,200	17,401-21,300	12,601-15,400	7,701-9,400	2,500	
59,001-70,900	33,201-39,700	21,301-25,500	15,401-18,400	9,401-11,300	2,750	
70,901-83,700	39,701-47,100	25,501-30,100	18,401-21,800	11,301-13,400	3,000	3
83,701-97,700	47,101-54,900	30,101-35,200	21,801-25,900	13,401-15,600	3,250	
97,701-112,700	54,901-63,400	35,201-40,600	25,901-29,300	15,601-18,000	3,500	
112,701-128,700	63,401-72,400	40,601-46,400	29,301-33,500	18,001-20,600	3,750	
128,701-145,900	72,401-82,100	46,401-52,500	33,501-37,900	20,601-23,300	4,000	4
145,901-164,200	82,101-92,400	52,501-59,100	37,901-42,700	23,301-26,300	4,250	
164,201-	92,401-	59,101-	42,701-	26,301-	4,500	

183,400	103,100	66,000	47,700	29,300		
183,401-203,700	103,101-114,600	66,001-73,300	47,701-53,000	29,301-32,600	4,750	
203,701-225,200	114,601-126,700	73,301-81,100	53,001-58,600	32,601-36,000	5,000	
225,201-247,700	126,701-139,400	81,101-89,200	58,601-65,400	36,001-39,600	5,250	
247,701-271,200	139,401-152,600	89,201-97,700	65,401-70,600	39,601-43,400	5,500	
271,201-295,900	152,601-166,500	97,701-106,500	70,601-77,000	43,401-47,400	5,750	
295,901-Greater	166,501-Greater	106,501-115,800	77,001-83,700	47,401-51,500	6,000	
—	—	115,801-125,500	83,701-90,600	51,501-55,700	6,250	
—	—	125,501-135,500	90,601-97,900	55,701-60,200	6,500	
—	—	135,501-145,800	97,901-106,800	60,201-64,800	6,750	
—	—	145,801-156,700	106,801-113,200	64,801-69,600	7,000	
—	—	156,701-167,900	113,201-121,300	69,601-74,600	7,250	
—	—	167,901-179,400	121,301-129,600	74,601-79,800	7,500	
—	—	179,401-191,400	129,601-138,300	79,801-85,100	7,750	
—	—	191,401-Greater	138,301-Greater	85,101-Greater	8,000	

For SI: 1 square foot = 0.0929 m^2, 1 gallon per minute = 3.785 L/m, 1 pound per square inch = 6.895 kPa.

a. Types of construction are based on the *International Building Code.*

b. Measured at 20 psi residual pressure.

B105.2 Buildings other than one- and two-family dwellings.
The minimum fire-flow and flow duration for buildings other than one- and two-family *dwellings* shall be as specified in Table B105.1.

Exception: A reduction in required fire-flow of up to 75 percent, as *approved,* is allowed when the building is provided with an *approved automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2. The resulting fire-flow shall not be less than 1,500 gallons per minute (5678 L/min) for the prescribed duration as specified in Table B105.1.

Appendix D – Fire Flow Test and Water CAD Results and Layout

Flow Test Summary

Project Name:	EJFT 19096
Project Address:	7125 E 2nd St, Scottsdale, AZ 85251
Date of Flow Test:	2019-05-03
Time of Flow Test:	7:34 AM
Data Reliable Until:	2019-11-03
Conducted By:	Eder Cueva & Tayler Lynch (EJ Flow Tests) 602.999.7637
Witnessed By:	Ray Padilla (City of Scottsdale) 602.541.0586
City Forces Contacted:	City of Scottsdale (602.541.0586)
Permit Number:	C58183

Note Scottsdale requires a max static pressure of 72 psi for safety factor

Raw Flow Test Data

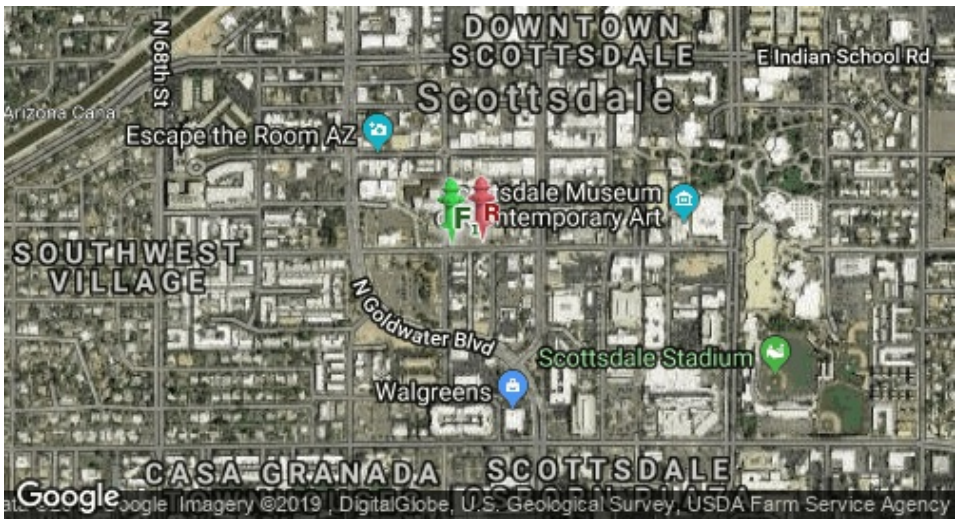
Static Pressure:	88.0 PSI
Residual Pressure:	82.0 PSI
Flowing GPM:	1,575
GPM @ 20 PSI:	5,841

Data with a 16 PSI Safety Factor

Static Pressure:	72.0 PSI
Residual Pressure:	66.0 PSI
Flowing GPM:	1,575
GPM @ 20 PSI:	5,054

Hydrant F_1

Pitot Pressure (1):	22	PSI
Coefficient of Discharge (1):	0.9	
Hydrant Orifice Diameter (1):	2.5	inches
Pitot Pressure (2):	22	PSI
Coefficient of Discharge (2):	0.9	
Hydrant Orifice Diameter (2):	2.5	inches



Static-Residual Hydrant

Flow Hydrant

Distance Between F_1 and R
204 ft (measured linearly)

Static-Residual Elevation
1257 ft (above sea level)

Flow Hydrant (F_1) Elevation
1257 ft (above sea level)

Elevation & distance values are approximate

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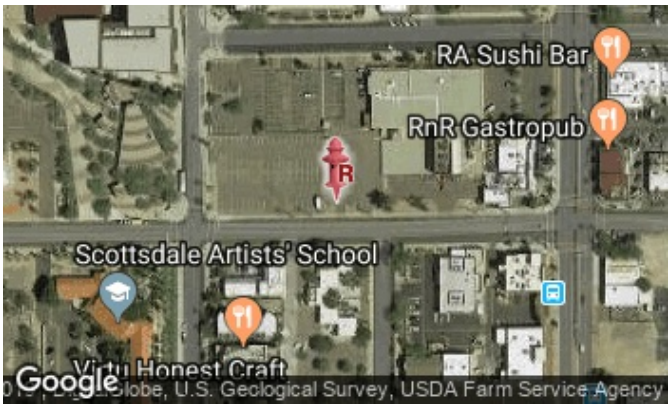
Flow Test Summary

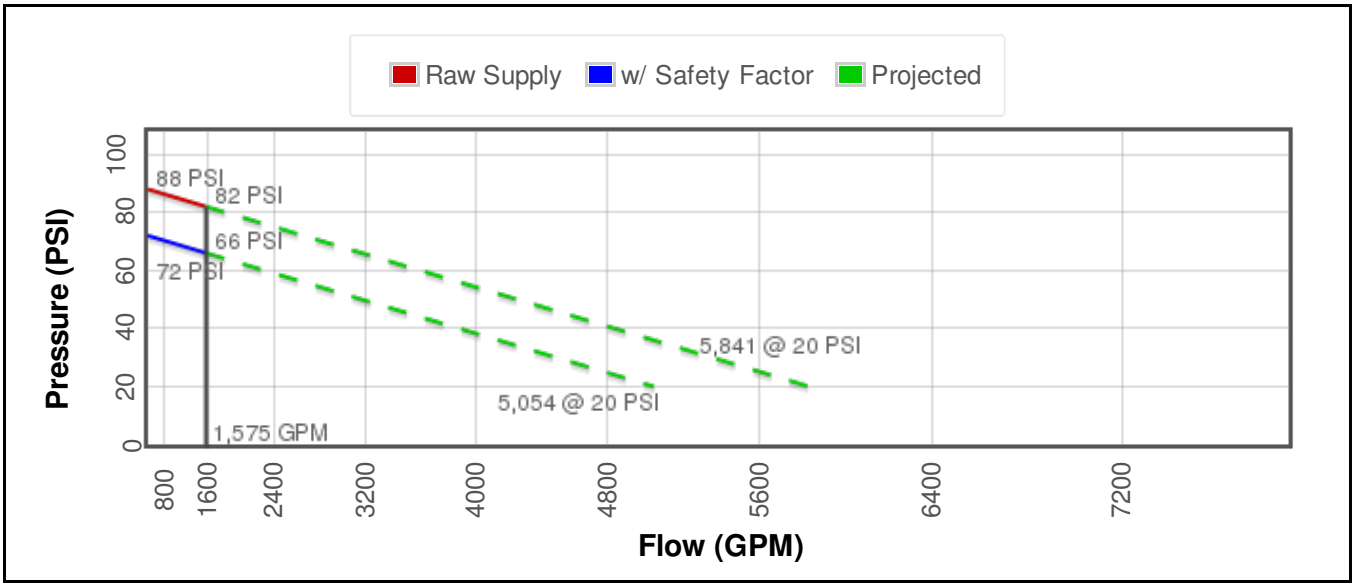
Static-Residual Hydrant



Flow Hydrant (only hydrant F1 shown for clarity)

Approximate Project Site

Water Supply Curve $N^{1.85}$ Graph



Pump Definition Detailed Report: 2nd & Bishop

Active Scenario: Peak Hour Demand

Element Details			
ID	64	Notes	
Label	2nd & Bishop		

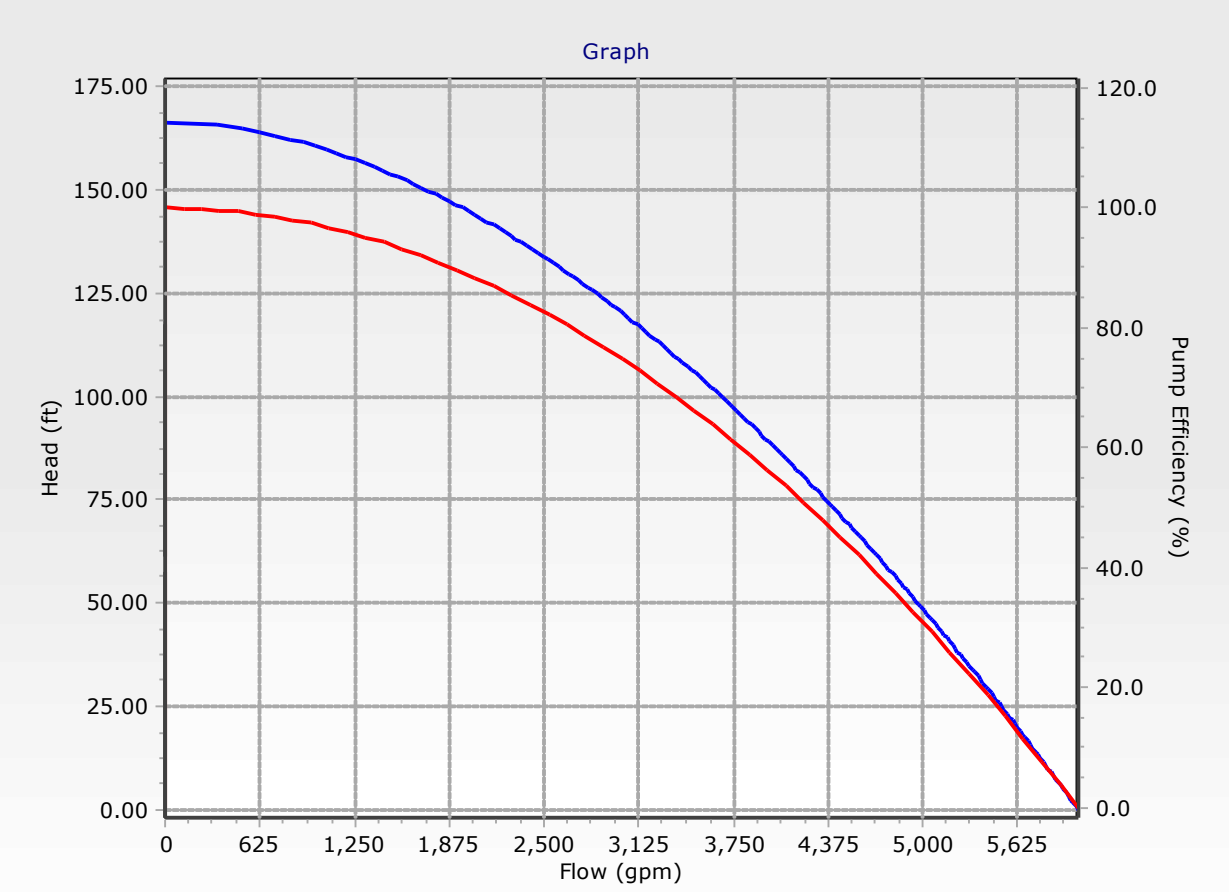
Pump Definition Type			
Pump Definition Type	Standard (3 Point)	Design Head	152.46 ft
Shutoff Flow	0 gpm	Maximum Operating Flow	5,054 gpm
Shutoff Head	166.32 ft	Maximum Operating Head	46.20 ft
Design Flow	1,575 gpm		

Pump Efficiency Type			
Pump Efficiency Type	Best Efficiency Point	Motor Efficiency	100.0 %
BEP Efficiency	100.0 %	Is Variable Speed Drive?	False
BEP Flow	0 gpm		

Transient (Physical)			
Inertia (Pump and Motor)	0.000 lb·ft²	Specific Speed	SI=25, US=1280
Speed (Full)	0 rpm	Reverse Spin Allowed?	True

Pump Definition Detailed Report: 2nd & Bishop

Active Scenario: Peak Hour Demand



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9/23/2019

Fire Flow Node FlexTable: Fire Flow Report

Active Scenario: Fire Flow

Label	Elevation (ft)	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Pressure (Calculated Residual @ Total Flow Needed) (psi)	Pressure (Residual Lower Limit) (psi)	Junction w/ Minimum Pressure (System)	Satisfies Fire Flow Constraints?
H-1	51.00	2,500	1,626	48	20	BLDG DW	False
H-2	51.17	2,500	1,845	57	20	BLDG DW	False
J-1	50.93	2,500	(N/A)	(N/A)	20	(N/A)	False
J-2	50.67	2,500	(N/A)	(N/A)	20	(N/A)	False
J-3	50.52	2,500	(N/A)	(N/A)	20	(N/A)	False
FIRE	145.40	2,500	1,672	12	20	BLDG DW	False
BLDG DW	145.75	2,500	(N/A)	(N/A)	20	(N/A)	False
J-12	51.00	2,500	(N/A)	(N/A)	20	(N/A)	False

FlexTable: Pipe Table

Active Scenario: Maximum Day Demand + Fire Flow

Label	Start Node	Stop Node	Diameter (in)	Length (Scaled) (ft)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-3	J-2	J-1	8.0	24	Asbestos Cement	140.0	107	0.69	0.01
P-4	J-3	J-2	8.0	75	Asbestos Cement	140.0	2,715	17.33	7.59
P-5	H-2	J-3	8.0	16	Ductile Iron	130.0	0	0.00	0.00
P-8	PMP-1	J-3	100.0	15	Ductile Iron	130.0	2,715	0.11	0.00
P-10	R-1	PMP-1	100.0	18	Ductile Iron	130.0	2,715	0.11	0.00
P-1	H-1	J-12	8.0	18	Ductile Iron	130.0	0	0.00	0.00
P-2	J-12	J-1	8.0	142	Asbestos Cement	140.0	0	0.00	0.00
P-9	J-2	FIRE	8.0	44	Ductile Iron	130.0	2,607	16.64	4.74
P-6	J-1	GPV-2	3.0	60	PVC	150.0	107	4.88	1.59
P-7	GPV-2	BLDG DW	3.0	12	PVC	150.0	107	4.88	0.32

FlexTable: Junction Table

Active Scenario: Peak Hour Demand

ID	Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)	Pressure (Minimum) (psi)	Is Active?
33	J-1	50.93	0	217.15	72	72	True
35	J-2	50.67	0	217.16	72	72	True
37	J-3	50.52	0	217.22	72	72	True
41	FIRE	145.40	0	217.16	31	31	True
43	BLDG DW	145.75	188	200.21	24	24	True
58	J-12	51.00	0	217.15	72	72	True

FlexTable: Pipe Table

Active Scenario: Peak Hour Demand

Label	Start Node	Stop Node	Diameter (in)	Length (Scaled) (ft)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)
P-3	J-2	J-1	8.0	24	Asbestos Cement	140.0	188	1.20	0.02
P-4	J-3	J-2	8.0	75	Asbestos Cement	140.0	188	1.20	0.05
P-5	H-2	J-3	8.0	16	Ductile Iron	130.0	0	0.00	0.00
P-8	PMP-1	J-3	100.0	15	Ductile Iron	130.0	188	0.01	0.00
P-10	R-1	PMP-1	100.0	18	Ductile Iron	130.0	188	0.01	0.00
P-1	H-1	J-12	8.0	18	Ductile Iron	130.0	0	0.00	0.00
P-2	J-12	J-1	8.0	142	Asbestos Cement	140.0	0	0.00	0.00
P-9	J-2	FIRE	8.0	44	Ductile Iron	130.0	0	0.00	0.00
P-6	J-1	GPV-2	3.0	60	PVC	150.0	188	8.54	4.49
P-7	GPV-2	BLDG DW	3.0	12	PVC	150.0	188	8.54	0.89

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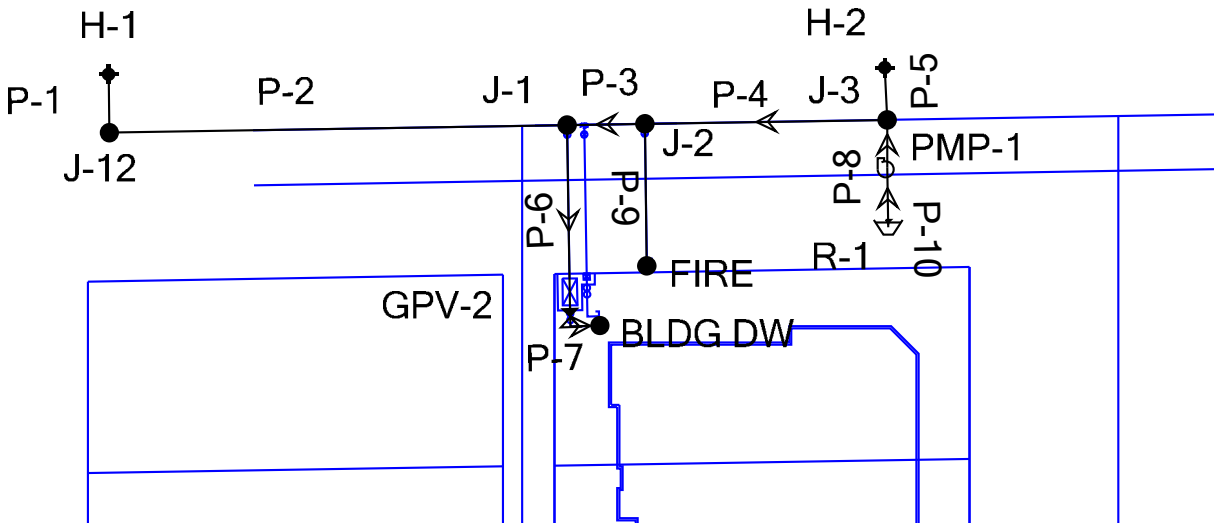
FlexTable: Junction Table

Active Scenario: Maximum Day Demand + Fire Flow

ID	Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)	Pressure (Minimum) (psi)	Is Active?
33	J-1	50.93	0	171.90	52	52	True
35	J-2	50.67	0	171.90	52	52	True
37	J-3	50.52	0	179.49	56	56	True
41	FIRE	145.40	2,607	167.17	9	9	True
43	BLDG DW	145.75	107	158.44	5	5	True
58	J-12	51.00	0	171.90	52	52	True

WaterCAD Layout



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