PRELIMINARY WATER REPORT

for

3200 SCOTTSDALE

3202 N. Scottsdale Road,

Scottsdale, Arizona

Prepared For:

3202 Scottsdale, LLC

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 ldillon **DATE** 6/15/2022

Address/conform to comments/stipulations below and herein. Address applicable items in final BOD:

1) DS&PM 6-1.400, B. The existing water system grid on Scottsdale Rd is deficient per City standards and continuing redevelopment. The mile and half-mile distribution main alignments must be a minimum of 12 inch. Scottsdale Road is on the 1-mile alignment. **Stipulation**: Prior to the building permit being issued execute an in-lieu payment agreement and complete payment for future 12" DIP main required along Scottsdale Rd. frontage Length= 160ft.
2) DS&PM 6-1.416, F. The proposed large domestic water meter will require a vault per COS detail 2345-1.
3) Address comments on utility plan herein e.g. hydrant line requires iso valve, meters to be adjacent to backflow, etc.

Prepared by:

SEG

ustainability Engineering Group
8280 E. Gelding Drive, Suite 101
Scottsdale, AZ 85260
480.588.7226 **www.azSEG.com**

Project Number: 210708
Submittal Date: April 6, 2022

Pre-App #: 488-PA-2021

6-ZN-2022
Round 1
submittal

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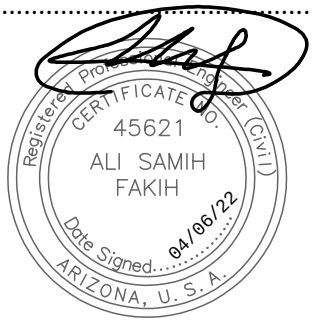


requires vault per COS detail 2345-1

1. INTRODUCTION

1.1. SUMMARY OF PROPOSED DEVELOPEMENT

3202 N. Scottsdale Road is a proposed 150-unit high-density multifamily project located between N. 71 Street and N. Scottsdale Road in Scottsdale, Arizona. The project will include a health club/gym on the ground floor. Domestic (3") and fire line (6") services will be provided off the existing 8" ACP water line at N Scottsdale Road. Irrigation service (1.5") will be provided via an existing water meter off the same water main. The purpose of this memo to provide a preliminary water analysis for rezoning.

approximate size ok. finalize sizing using fixture count and DS&PM criteria.

1.2. LEGAL DESCRIPTION

The following parcel of subdivided land is located in the East ½ of the SE ¼ of Section 27, Township 2 North, Range 4 East of the Gila and Salt River Base and Meridian in Scottsdale, Arizona. Refer to **EXHIBIT 1** for a vicinity map.

- APN 130-16-007A, Scottsdale Trailer Corral, 91,855 sq. ft.

All part of Lot 4, Security Acres Amended, as recorded in Book 8, Page 59 of Maricopa County Records. The total land area is 2.11 acres, more or less.

2. DESIGN DOCUMENTATION

2.1. DESIGN COMPLIANCE

The proposed water system is designed to meet design criteria of the City of Scottsdale ("the City") Water Resources Department, the Arizona Department of Environmental Quality ("ADEQ"), and Maricopa County Environmental Services Department ("MCESD").

2.2. PROCEDURES, POLICIES AND METHODOLOGIES

The general methodology used to evaluate public water infrastructure consists of modeling a local network of water distribution mains to meet the city's pressure, velocity, and water demand requirements during daily demand and fire events. Connection to the water system is modeled as a reservoir and pump. The pump will simulate pressure drop and available flow from the existing water system as depicted by the fire flow test.

2.3. SOFTWARE ACKNOWLEDGEMENT:

Bentley WaterCAD® Version 8i is the computer modeling tool used in this water study.

3. EXISTING CONDITIONS

3.1. EXISTING AND PROPOSED ZONING AND LAND USES

The parcel is presently zoned C-3, Highway Commercial. The project is proposing rezoning to D/DMU-2, Downtown Multiple Use, Type 2.

3.2. EXISTING TOPOGRAPHY, VEGETATION AND LANDFORM FEATURES:

The parcel is fully developed as a for rent residential trailer and RV community. The topography generally slopes from the northwest to the southeast with approximately two feet of fall. Refer to **EXHIBIT 2** for an aerial of the overall project existing conditions.

3.3. EXISTING WATER INFRASTRUCTURE:

See **EXHIBIT 3** - City of Scottsdale (QS 15-44)

- An 8" ACP water main is located in Scottsdale Road approximately 35' west of the road centerline running north-south along the entire frontage.
- A 6" ACP main is located adjacent to the west property line in 71st Street and runs the entire length of the frontage.
- Hydrants exist near the north corners of the site.
- Existing service / water meters for the site come from the mains in Scottsdale Road.

3.4. CERTIFIED FLOW TEST RESULTS OF EXISTING WATER SYSTEM:

Certified fire hydrant flow testing was performed on August 24, 2021 by Arizona Flow Testing LLC at 8:00 a.m. The fire flow test recorded a static pressure of 90 psi and residual pressure of 82 psi at 2,683 gpm. The extrapolated flow at 20 psi is 8,657 gpm.

The test adjusted to 72 psi static pressure results in a residual pressure of 64 psi. The adjusted flow at 20 psi is 7,373 gpm. The adjusted pressure parameters are required by the City of Scottsdale to be used in hydraulic analysis. The flow test documentation is included in the **APPENDIX I**.

4. PROPOSED CONDITIONS

4.1. SITE PLAN:

EXHIBIT 4 depicts the preliminary site plan. All onsite structures and service line will be removed. The property is being re-developed with a structure containing 150 apartment units. The ground floor will include 4,000 sf of health club/gym use (commercial/retail).

An existing 24' wide fire lane has been constructed along the south line of the adjacent north property (ALTA Scottsdale).

4.2. PROPOSED WATER SYSTEM:

Pipes for domestic and irrigation water (metered services) will be tapped off the 8" ACP water line in N Scottsdale Road line and be installed with backflow prevention while the 6" fire line will require a tee and valve to be cut into the 8'' ACP line. A new fire hydrant is also proposed off the 8" ACP line in N Scottsdale Road, the assembly will be located on-site near the main entrance of the building.

A Fire department connection (FDC) will be installed on the SE corner of the building, next to the proposed connections.

The existing and proposed fire hydrants located adjacent to the site along Scottsdale Road and 71st Street will provide adequate fire department supply. See **APPENDIX II** for a preliminary utility/service plan.

4.3. SECOND SOURCE:

The existing system is valved to allow for shutdowns in the event of service disruption and assures second sourcing for emergency service.

4.4. WATER REQUIREMENTS:

The city's design standards govern the fire flow rates used for all buildings per Section 6-1.500 of the City of Scottsdale's Design Standards & Policies Manual ("DS&PM"), dated January 2018. The minimum fire flow is 2,500 gpm for commercial and multi-family residential properties, per Section 6-1.501 of the DS&PM.

4.5. MAINTENANCE RESPONSIBILITIES:

Water meter and service line connections to the public main will be located within easements and or right-of-way and maintained by the city.

On-site domestic and landscape services and backflow preventers will be privately maintained by the owner as will the fire line.

5. WATER SYSTEM COMPUTATIONS

5.1. WATER DEMANDS

166 shown in wastewater report? clarify (minor difference)

Table 1: WATER DEMAND CALCULATIONS

	Area (sq.ft.)	Dwelling Units	ADD (gpm/unit)	Avg. Day Demand (gpm)	Max. Day Demand (gpm)	Peak Hour (gpm)
Residential	-	150	0.27	40.5	81.0	141.8
Commercial/Retail	4,000	-	1.11E-03	4.4	8.9	15.5
	TOTAL DEMANDS (gpm):			44.9	89.9	157.3
Peaking Factors:	Max Day = 2.0, Peak Hour = 3.5					

5.2. SOFTWARE MODELING:

Bentley WaterCAD® Version 8i is the computer modeling tool used in this study.

Network analysis input parameters included the following:

- Pipe diameters (inches)
- Pipe lengths (feet)
- Pipes invert elevations (feet – MSL)

- A reservoir and a pump to model the fire flow test performed
- System demands (gpm)
- Fire flows (gpm)
- Model piping is ductile iron pipe using Hazen-Williams frictional losses (C = 130)

Output parameters included but were not limited to:

- Pressure (psi)
- Flow rates (gpm)
- Velocities (fps)

5.3. MINIMUM PRESSURE REQUIREMENTS:

The following system pressure requirements are in accordance with the City's design standards: Average day, maximum day and peak hour flow demands:

- Minimum pressure = 50 psi
- Maximum pressure = 120 psi

Maximum day plus coincident fire flow demand:

- Minimum pressure = 30 psi
- Maximum pressure = 120 psi

Head loss in the public mains shall not exceed 10 feet per 1,000 feet length of pipe.

5.4. WATER SYSTEM ANALYSIS:

A summary of the modeling results is presented below in Table 2. Detailed WaterCAD® reports are presented in **APPENDIX III**.

Table 2: WaterCAD® Analysis Results

Demand Scenario	Water Demand (GMP)	Pressure (PSIG)				Max. Velocity (ft/s)	Pipe ID
		Min.	Node	Max.	Node		
Average Day	44.9	70	J-12	72	J-6	0.25	P-15
Maximum Day	89.9	69	J-14	72	J-6	0.5	P-15
Peak Hour	157.3	69	J-14	72	J-6	0.88	P-15
Max. + Fire Flow	3000 + MDD Split Flow	41	FH-1	65	J-6	10.4	P-15

These results indicate that the proposed water system meets the City's criteria for daily water usage and fire flow events.

6. SUMMARY / CONCLUSIONS

6.1. Summary:

The proposed water connections are designed to meet criteria of the City's Design Standards and Policies Manual, the Arizona Department of Environmental Quality ("ADEQ"), and Maricopa County Environmental Services Department ("MCESD").

The hydraulic output indicates that the surrounding existing public water system and fire hydrants are sufficient to provide domestic, irrigation and fire service to this project.

Pressure regulating valves preset to 80 psi will be required on all water service connections to the building. Backflow prevention will be provided on all metered service connections.

6.2. PROJECT SCHEDULE:

As a residential apartment development, the infrastructure and buildings are proposed to be constructed in a single phase.

7. REFERENCES

1. COS Water Q-S MAP 15-44
2. City of Scottsdale Design Standards & Policies Manual, 2018 (Chapter 6 – Water)

8. EXHIBITS

EXHIBIT 1	-	Vicinity Map- Local Aerial
EXHIBIT 2	-	Aerial
EXHIBIT 3	-	COS Water Q-S Map 15-44
EXHIBIT 4	-	Preliminary Site Plan

9. APPENDICIES

APPENDIX I	-	Fire Hydrant Flow Test
APPENDIX II	-	Preliminary Utility/Service Plan
APPENDIX III	-	Water Modeling Reports

EXHIBITS

1. ***Vicinity Map***
2. ***Aerial***
3. ***Water Q-S 15-44***
4. ***Preliminary Site Plan***

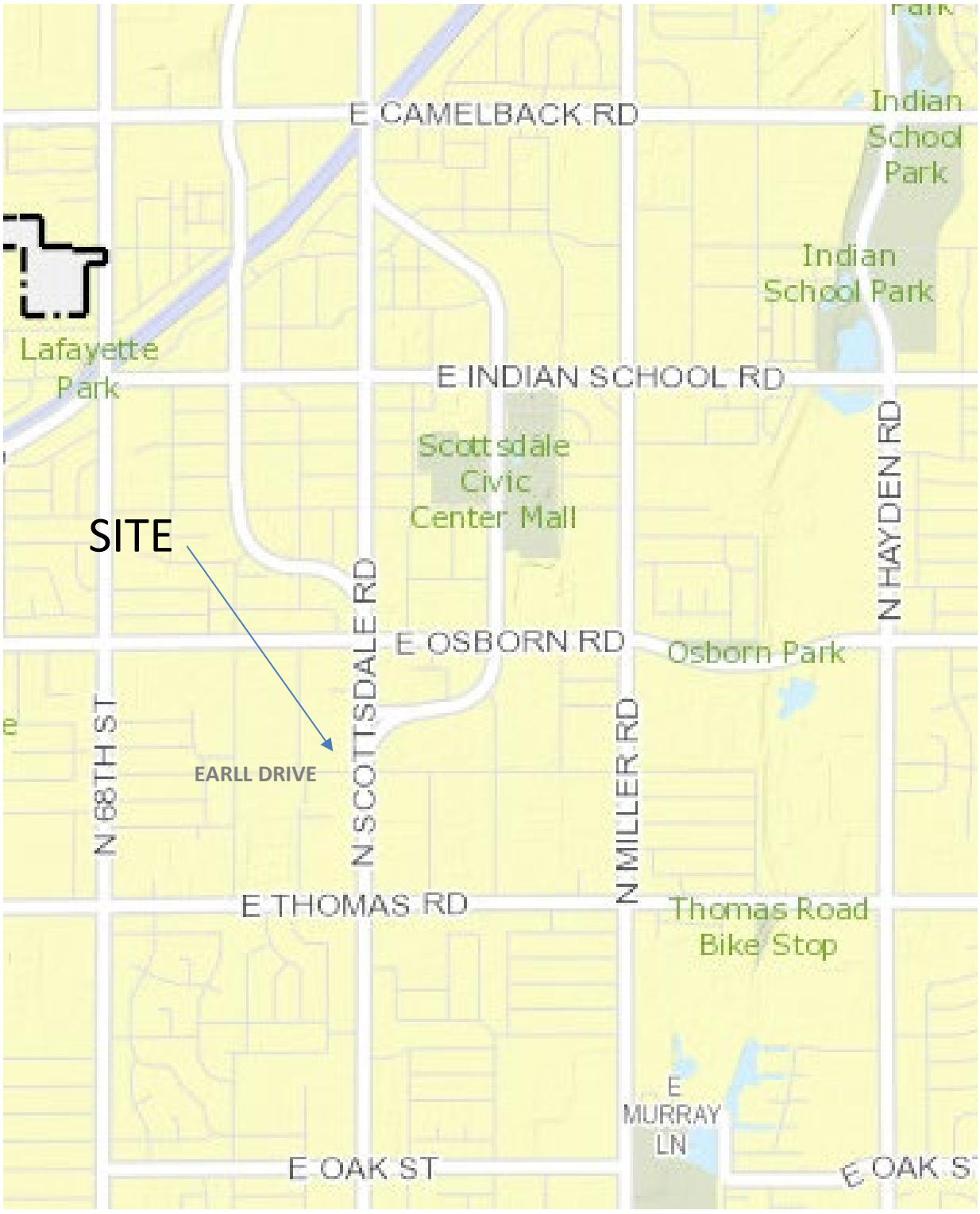


EXHIBIT 1 – Vicinity Map

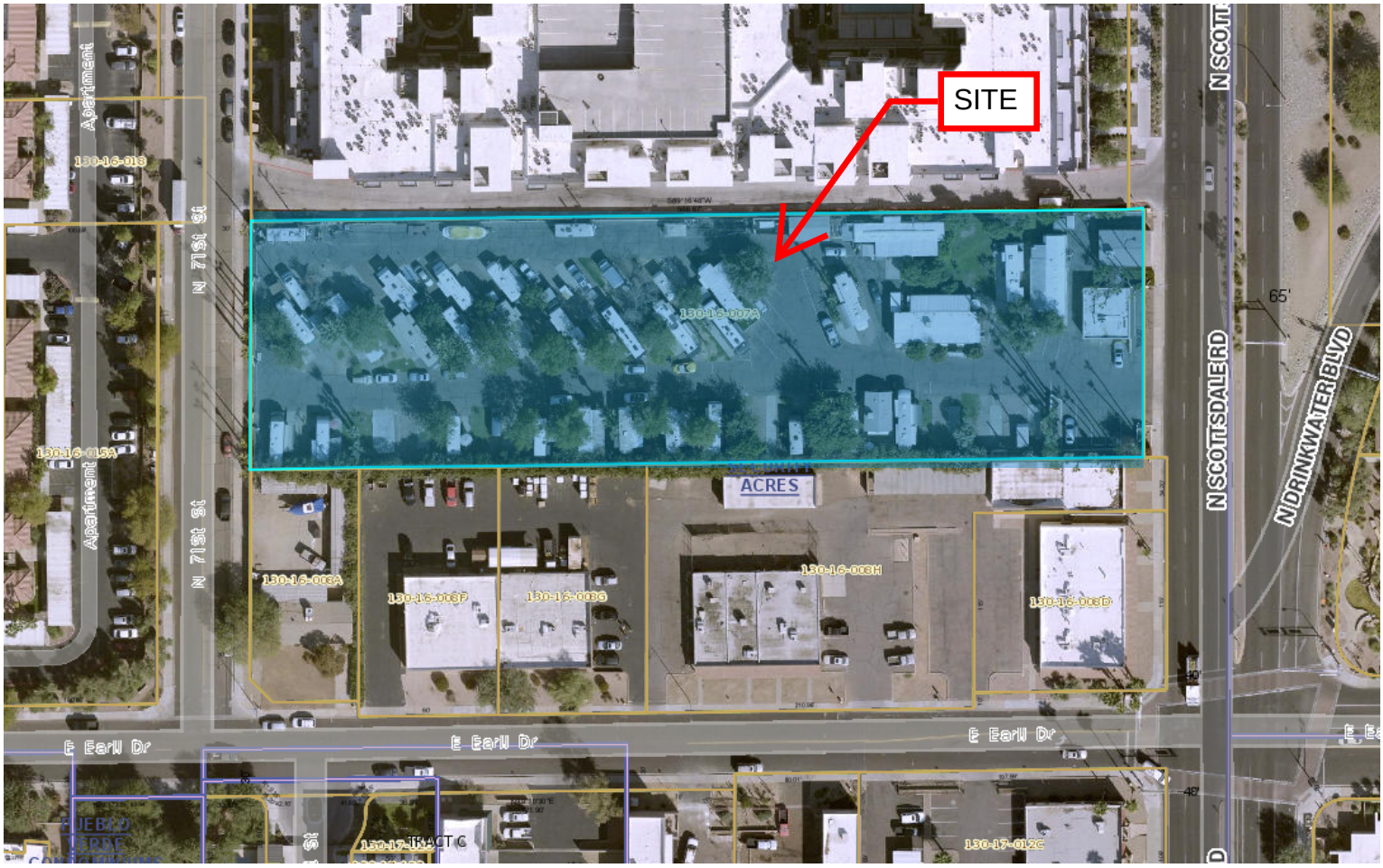


FIGURE 2 – Aerial

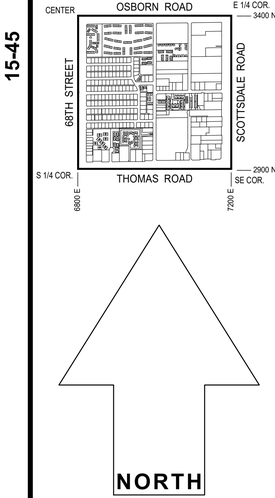
GENERAL NOTES:

- THIS IS A COMPUTER GENERATED DRAWING. FOR ANY REVISIONS PLEASE CONTACT THE CITY OF SCOTTSDALE GIS DEPARTMENT AT (480) 312-7792.
- THE SECTION LINE BEARING AND DISTANCES ARE BASED ON THE CITY OF SCOTTSDALE GPS SURVEY OF SEPTEMBER, 1991. BEARINGS ARE NAD 83 GRID AND DISTANCES ARE FLATTENED TO GROUND. WHERE NO CORNER WAS FOUND THE DIMENSIONS ARE GIVEN TO CALCULATED SECTION CORNERS AND ARE NOTED AS 'CALCULATED' ON THE MAP.

LEGEND:

- Air Release Valve (ARV)
- Non-potable Air Release Valve (NPARV)
- Blowoff
- Cap
- Cathodic Protection (CPT)
- Fill Drain (FND)
- Fire Hydrant
- Non-GPS Point
- Pressure Reducing Valve (PRV)
- Pump (WP)
- Reducer
- Sample Station (SS)
- Water Manhole (WMH)
- Non-Potable Manhole (NPMH)
- Well (WELL)
- Valve
- Non-potable Valve (NPV)
- Vault (WVT)
- Water Main
- Non-Potable Main (NP)
- Fire / Private Main
- Non-Scottsdale Main

VICINITY MAP



SCALE: 1" = 100'

0 50 100 200

The map scale of 1" = 100' is based on a full size print of 30" x 36"

WATER

QUARTER SECTION MAP

15-44

SE 1/4 SEC. 27 T2N R4E

EXHIBIT 3

N O T I C E

THIS DOCUMENT IS PROVIDED FOR GENERAL INFORMATION PURPOSES ONLY. THE CITY OF SCOTTSDALE DOES NOT WARRANT ITS ACCURACY COMPLETENESS OR SUITABILITY FOR ANY PARTICULAR PURPOSE. IT SHOULD NOT BE RELIED UPON WITHOUT FIELD VERIFICATION.

THE CITY OF SCOTTSDALE

04-JUL-21

CITY OF SCOTTSDALE

SCOTTSDALE GEOGRAPHIC INFORMATION SYSTEMS

3629 North Drinkwater Boulevard
Scottsdale, Arizona 85251

Site Plan / First Floor

16 units / 42 spaces

EXHIBIT 4

Option Two

Site Area:	2.11 acres net (91,855 sf) 2.42 acres net (105,370 sf)
Residential Area:	195,000sf gross (157,000sf leasable)
Total Units:	166 units (945sf average)
Density:	68.60 / acre gross
Parking Required:	302 spaces (1hr: 1.5; 2br: 2.0: 1/6 guest)
Parking Provided:	302 spaces (1.82 : unit)

0' 30' 60' 90' 120' NORTH

3202 SCOTTSDALE- Scottsdale, Arizona

21137- 7-19-21

DAVIS

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APPENDICIES

I. FH Flow Test

II. Preliminary Utility Plan

III. Water Model Reports

Arizona Flow Testing LLC

HYDRANT FLOW TEST REPORT

Project Name:	Not Provided
Project Address:	3202 North Scottsdale Road, Scottsdale, Arizona, 85251
Client Project No.:	Not Provided
Arizona Flow Testing Project No.:	21452
Flow Test Permit No.:	C66195
Date and time flow test conducted:	August 24, 2021 at 8:00 AM
Data is current and reliable until:	February 24, 2022
Conducted by:	Floyd Vaughan– Arizona Flow Testing, LLC (480-250-8154)
Coordinated by:	Ray Padilla –City of Scottsdale-Inspector (602-541-0586)

Raw Test Data

Static Pressure: **90.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **82.0 PSI**
(Measured in pounds per square inch)

Pitot Pressure: **39.0 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: **2,683 GPM**
(Measured in gallons per minute)

GPM @ 20 PSI: **8,657 GPM**

Data with 18 PSI Safety Factor

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

Residual Pressure: **64.0 PSI**
(Measured in pounds per square inch)

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

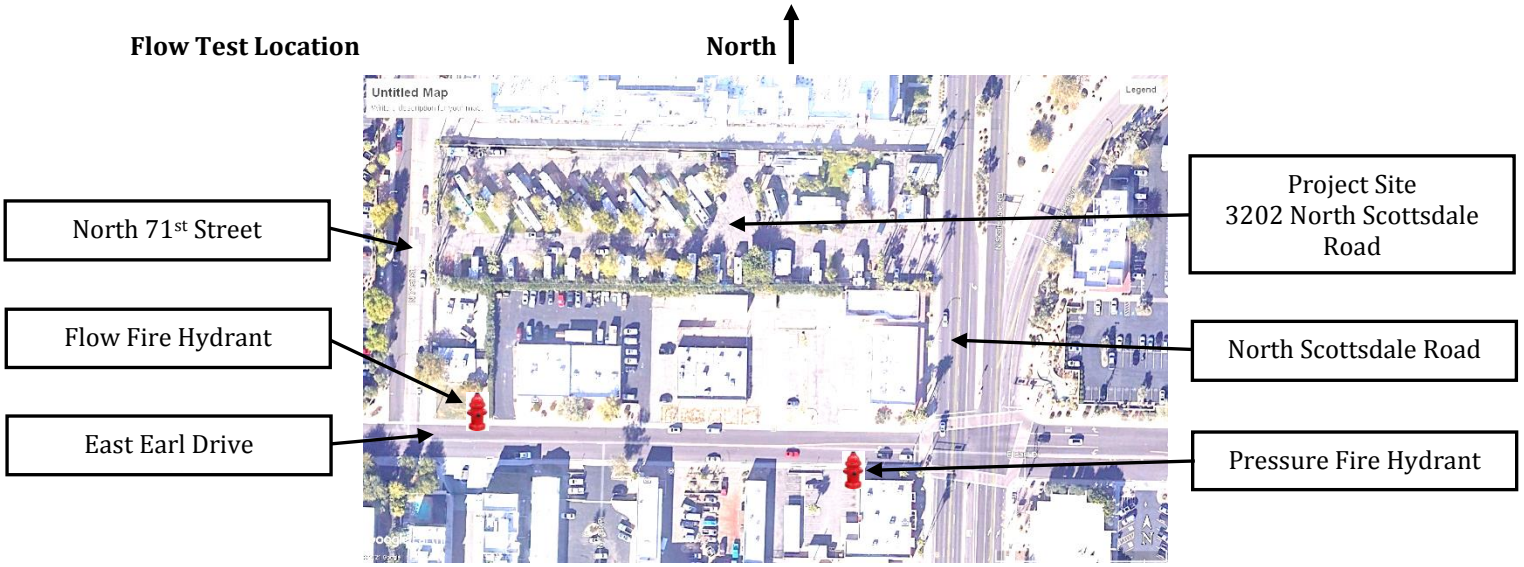
Distance between hydrants: Approx.: 490-Feet

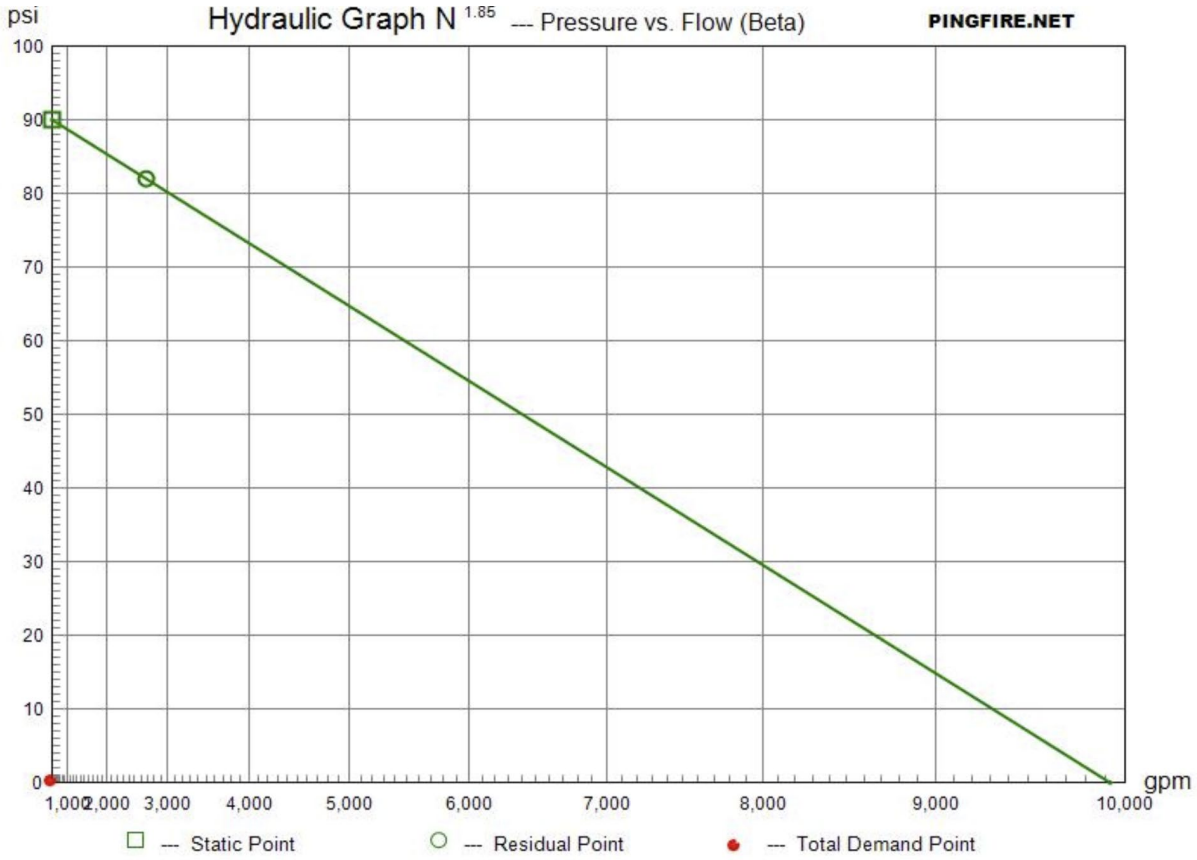
Main size: Not Provided

Flowing GPM: **2,683 GPM**

GPM @ 20 PSI**:** **7,373 GPM**

Flow Test Location **North**

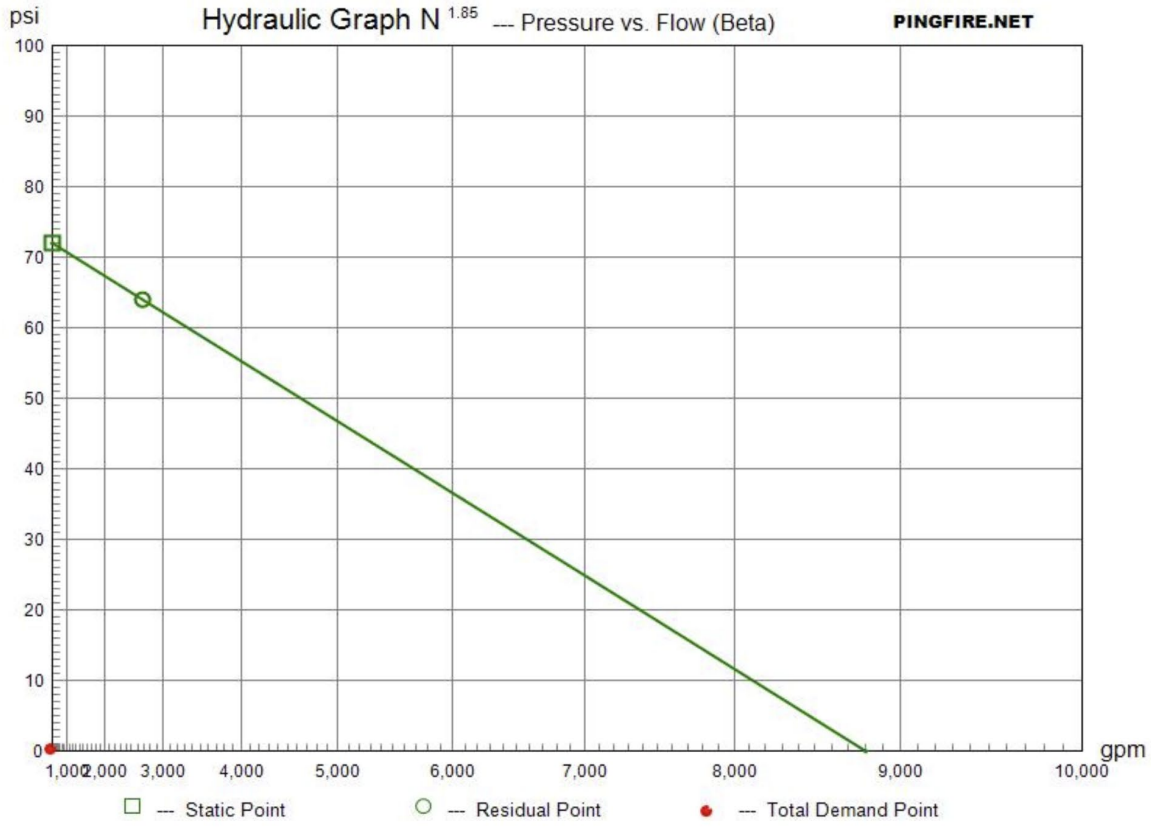




Project Location: 3202 N. Scottsdale Road

Flow Test: Hydrant Elev.= 1239.8 ft., Static Pressure= 90 psi, Residual Pressure= 82 psi, Flow= 2683 gpm

FH FLOW TEST - RAW DATA



Project Location: 3202 N. Scottsdale Road

Flow Test: Hydrant Elev.= 1239.8 ft., Static Pressure= 72 psi, Residual Pressure= 64 psi, Flow= 2683 gpm

FH FLOW TEST – DATA AT 72 PSI

CIVIL ENGINEER
SUSTAINABILITY ENGINEERING GROUP
8280 E. GELDING DR., SUITE 101
SCOTTSDALE, ARIZONA 85260
PHONE: 480-588-7226
ATTN: ALI FAKIH
EMAIL: ALI@AZSEG.COM

ARCHITECT:
DAVIS
3033 N. CENTRAL AVE, SUITE 800
PHOENIX, AZ 85012

SURVEYOR
AW LAND SURVEYING, LLC
P.O. BOX 2170
CHANDLER, ARIZONA 85244
PHONE: 480-244-7630
ATTN: DANIEL ARMIJO
EMAIL: ARMIJODARMIJO@AWLANDSURVEY.COM

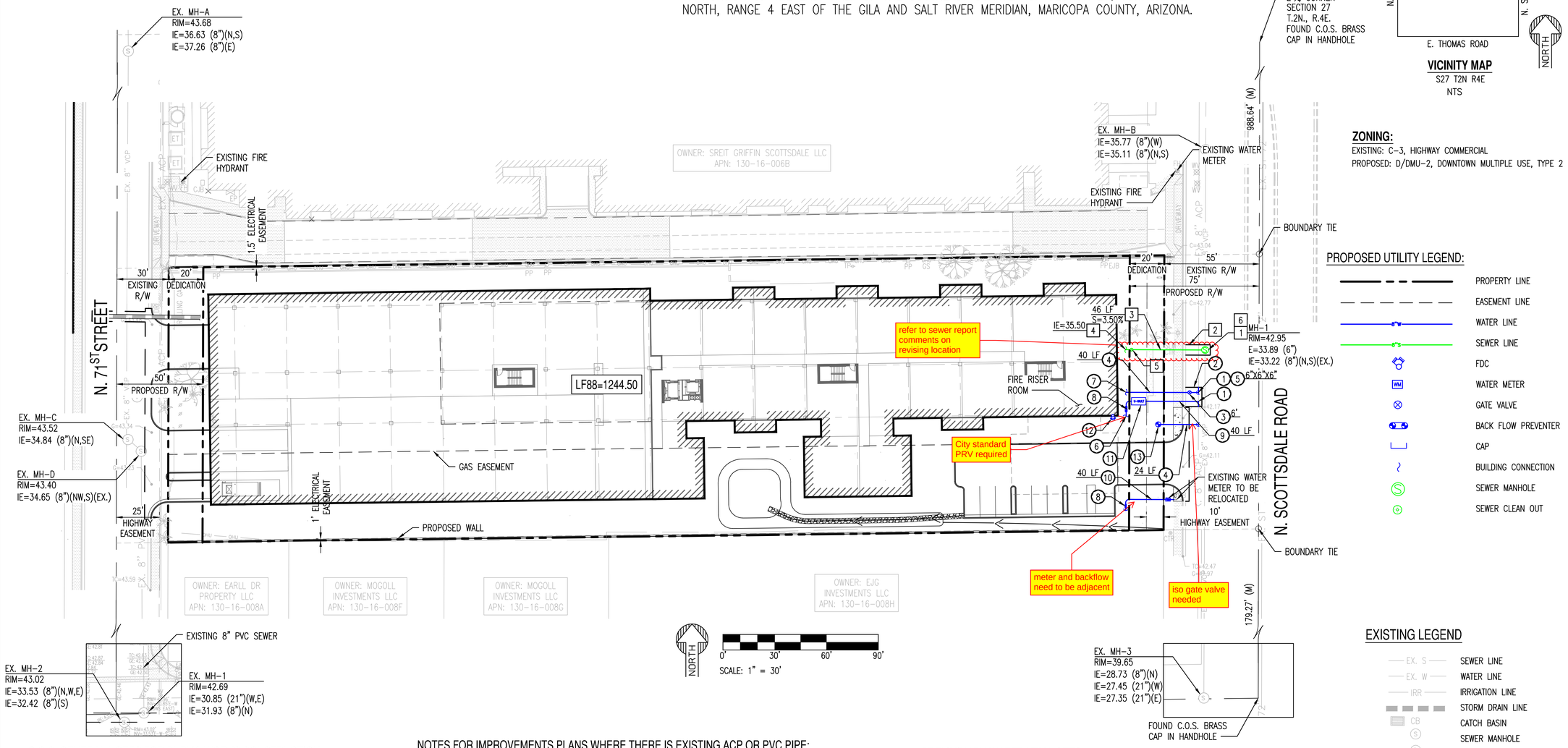
OWNER/DEVELOPER:
3202 SCOTTSDALE, LLC.

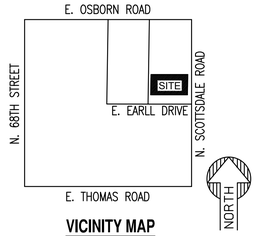
3200 SCOTTSDALE

PRELIMINARY UTILITY PLAN

3202 N. SCOTTSDALE ROAD. SCOTTSDALE, AZ.

A PORTION OF THE EAST HALF OF THE SOUTHEAST QUARTER OF SECTION 27, TOWNSHIP 2 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER MERIDIAN, MARICOPA COUNTY, ARIZONA.





VICINITY MAP
S27 T2N R4E
NTS

E ¼ CORNER SECTION 27 T.2N., R.4E. FOUND C.O.S. BRASS CAP IN HANDHOLE

ZONING:
EXISTING: C-3, HIGHWAY COMMERCIAL
PROPOSED: D/DMU-2, DOWNTOWN MULTIPLE USE, TYPE 2

PROPOSED UTILITY LEGEND:

- PROPERTY LINE
- EASEMENT LINE
- WATER LINE
- SEWER LINE
- FDC
- WATER METER
- GATE VALVE
- BACK FLOW PREVENTER
- CAP
- BUILDING CONNECTION
- SEWER MANHOLE
- SEWER CLEAN OUT

EXISTING LEGEND

- EX. S — SEWER LINE
- EX. W — WATER LINE
- IRR — IRRIGATION LINE
- STORM DRAIN LINE
- CB — CATCH BASIN
- S — SEWER MANHOLE
- D — STORM MANHOLE
- WV — WATER VALVE
- WMB — WATER METER BOX
- FIRE HYDRANT
- ECB — ELECTRIC CABINET

C.O.S. GENERAL NOTES FOR PUBLIC WORKS CONSTRUCTION

1. ALL CONSTRUCTION IN THE PUBLIC RIGHTS-OF-WAY OR IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO THE LATEST MAG UNIFORM STANDARD SPECIFICATIONS AND UNIFORM STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION AS AMENDED BY THE LATEST VERSION OF THE CITY OF SCOTTSDALE SUPPLEMENTAL STANDARD SPECIFICATIONS AND SUPPLEMENTAL STANDARD DETAILS. IF THERE IS A CONFLICT, THE CITY'S SUPPLEMENTAL STANDARD DETAILS WILL GOVERN.
2. THE CITY ONLY APPROVES THE SCOPE, NOT THE DETAIL, OF ENGINEERING DESIGNS; THEREFORE, IF CONSTRUCTION QUANTITIES ARE SHOWN ON THESE PLANS, THEY ARE NOT VERIFIED BY THE CITY.
3. THE APPROVAL OF PLANS IS VALID FOR SIX (6) MONTHS. IF A RIGHT-OF-WAY PERMIT FOR THE CONSTRUCTION HAS NOT BEEN ISSUED WITHIN SIX MONTHS, THE PLANS MUST BE RESUBMITTED TO THE CITY FOR REAPPROVAL.
4. A PUBLIC WORKS INSPECTOR WILL INSPECT ALL WORKS WITHIN THE CITY RIGHTS-OF-WAY AND IN EASEMENTS. NOTIFY INSPECTION SERVICES 24 HOURS PRIOR TO BEGINNING CONSTRUCTION BY CALLING 480-312-5750.
5. WHENEVER EXCAVATION IS NECESSARY, CALL THE BLUE STAKE CENTER, 811, TWO WORKING DAYS BEFORE EXCAVATION BEGINS. THE CENTER WILL SEE THAT THE LOCATION OF THE UNDERGROUND UTILITY LINES IS IDENTIFIED FOR THE PROJECT.
6. RIGHT-OF-WAY PERMITS ARE REQUIRED FOR ALL WORK IN PUBLIC RIGHTS-OF-WAY AND EASEMENTS GRANTED FOR PUBLIC PURPOSES. A RIGHT-OF-WAY PERMIT WILL BE ISSUED BY THE CITY ONLY AFTER THE REGISTRANT HAS PAID A BASE FEE PLUS A FEE FOR INSPECTION SERVICES. COPIES OF ALL PERMITS MUST BE RETAINED ON-SITE AND BE AVAILABLE FOR INSPECTION AT ALL TIMES. FAILURE TO PRODUCE THE REQUIRED PERMITS WILL RESULT IN IMMEDIATE SUSPENSION OF ALL WORK UNTIL THE PROPER PERMIT DOCUMENTATION IS OBTAINED.
7. ALL EXCAVATION AND GRADING THAT IS NOT IN THE PUBLIC RIGHTS-OF-WAY OR NOT IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO APPENDIX J, GRADING, OF THE LATEST EDITION OF THE INTERNATIONAL BUILDING CODE. A PERMIT FOR THIS GRADING MUST BE SECURED FROM THE CITY FOR A FEE ESTABLISHED BY THE CITY.

NOTES FOR IMPROVEMENTS PLANS WHERE THERE IS EXISTING ACP OR PVC PIPE:

ANY WATER LINE PROJECT THAT INVOLVES CONNECTING TO AN EXISTING ACP OR PVC PIPE REQUIRES SPECIAL ATTENTION. PER DSPM SECTION 6-1.408:

FITTINGS INSTALLED INTO ASBESTOS CEMENT PIPE (ACP) OR PVC PIPE WITHIN 6-FEET OF ANOTHER
FITTING OR JOINT WILL REQUIRE THAT SECTION OF PIPE TO BE REMOVED AND REPLACED WITH DUCTILE IRON PIPE (DIP).
EXISTING TEES, TAPPING SLEEVES AND RELATED APPURTENANCES THAT ARE NOT UTILIZED BY A DEVELOPMENT SHALL BE REMOVED BY THE CONTRACTOR. A MINIMUM 3-FOOT SECTION OF PIPE SHALL BE REMOVED, WITH NO LESS THAN 6 FEET REMAINING TO THE NEAREST JOINT. THE REMOVED
PIPE SHALL BE REPLACED WITH DIP.
WHEN MORE THAN 3-FEET OF EXISTING ACP OR PVC WATER LINES ARE EXPOSED DURING CONSTRUCTION AND THE BEDDING IS DISTURBED, THE WATER LINE MUST BE REPLACED WITH DIP (MINIMUM CLASS 350) WITH MECHANICAL JOINTS OR FLANGED JOINTS TO 3-FEET PAST THE SIDES OF THE EXPOSED CROSSING TRENCH. REFER TO MAG STANDARD DETAIL NO. 403-3.
NO TAPPING SLEEVE AND VALVE SHALL BE USED ON ACP PIPE. VALVES WILL NEED TO BE CUT INTO ACP PIPE.
DISPOSAL OF MATERIALS CONTAINING ASBESTOS AND/OR LEAD SHALL BE IN CONFORMANCE WITH ALL REGULATIONS, LAWS AND ORDINANCES.

NOTE:

1. EXISTING MANHOLES RIMS AND INVERTS HAVE BEEN SET BASED ON QUARTER SECTION MAP QS# 15-44. DATED 07/04/2021. ELEVATIONS TO BE VERIFIED IN FIELD.
2. EXISTING MANHOLES RIMS AND INVERTS HAVE BEEN SET BASED ON ALTA DRINKWATER UTILITY PLAN SHEET C4.00 AND C4.10. DATED 08/03/2018. ELEVATIONS TO BE VERIFIED IN FIELD.

call out city typ. detail(s)

PRELIMINARY WATER KEY NOTES

1. CONNECTION TO EXISTING WATER LINE. REPLACE AT LEAST 3' OF ACP PIPE PER C.O.S. REQUIREMENTS.
2. SAWCUT, REMOVE AND REPLACE EXISTING PAVEMENT.
3. GATE VALVE WITH VALVE BOX AND COVER, SIZE PER PLAN.
4. 6" DUCTILE IRON PIPE. LENGTH PER PLAN.
5. INSTALL CUT-IN TEE, SIZE PER PLAN.
6. DOMESTIC CONNECTION TO BUILDING.
7. FIRE CONNECTION TO BUILDING.
8. BACKFLOW PREVENTION, SIZE TO MATCH WATER METER SIZE.
9. INSTALL 3" TYPE "K" COPPER DOMESTIC SERVICE CONNECTION. LENGTH PER PLAN.
10. CONNECT TO EXISTING WATER METER AND INSTALL 1-1/2" TYPE "K" COPPER IRRIGATION SERVICE LINE. LENGTH PER PLAN.
11. INSTALL 3" DOMESTIC SERVICE VAULT.
12. INSTALL FIRE DEPARTMENT CONNECTION.
13. FIRE HYDRANT.

PRELIMINARY SEWER KEY NOTES

1. SERVICE CONNECTION TO EXISTING SEWER MAIN.
2. SAWCUT, REMOVE AND REPLACE EXISTING PAVEMENT.
3. 8" PVC SEWER LINE. LENGTH AND SLOPE PER PLAN.
4. SEWER CONNECTION TO BUILDING.
5. SEWER CLEAN-OUT.
6. 4' SEWER MANHOLE.

PRELIMINARY
NOT FOR
CONSTRUCTION

SUSTAINABILITY ENGINEERING GROUP
SEG
8280 E. GELDING DRIVE SUITE 101, SCOTTSDALE, ARIZONA 85260
WWW.AZSEG.COM TEL. 480.588.7226 FAX. 480.259.3534

Contact Arizona 811 at least two full working days before you begin excavation
ARIZONA811
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PROJECT: 3200 SCOTTSDALE
LOCATION: 3202 N. SCOTTSDALE ROAD. SCOTTSDALE, AZ.

DRAWN	LP	10/08/2021
DESIGNED	LP	10/08/2021
QC	SC	10/12/2021
FINAL QC		
PROJ. MGR.	AF	

DATE: 04/18/2022
ISSUED FOR: REZONING

REVISION NO.:	DATE:
1	
2	
3	
4	

JOB NO.: 210708

SHEET TITLE: **PRELIMINARY UTILITY PLAN**

PAGE NO.: SHEET NO.: **C4.10**

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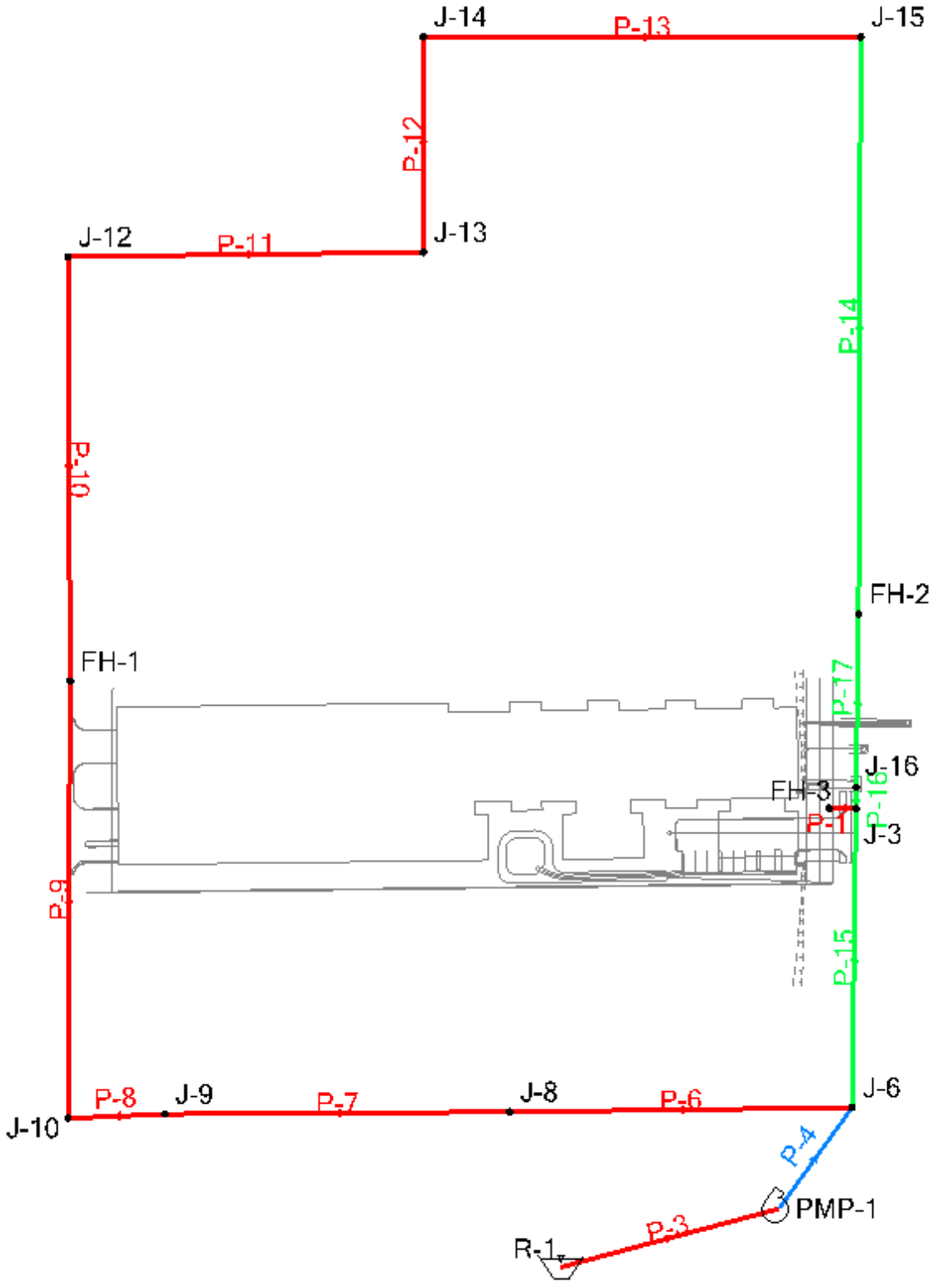
PRE-APP #: 488-PA-2021



Model Map

APPENDIX III

Average Day Demand

Junction Table - Time: 0.00 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-6	1,239.60	0.00	1,406.27	72
J-8	1,240.60	0.00	1,406.27	72
J-9	1,241.30	0.00	1,406.27	71
J-10	1,241.60	0.00	1,406.27	71
FH-1	1,242.40	0.00	1,406.27	71
J-12	1,245.40	0.00	1,406.26	70
J-13	1,245.50	0.00	1,406.26	70
J-14	1,245.60	0.00	1,406.26	70
J-15	1,245.20	0.00	1,406.26	70
FH-2	1,243.50	0.00	1,406.26	70
J-16	1,242.13	44.90	1,406.26	71
J-3	1,241.77	0.00	1,406.26	71
FH-3	1,241.02	0.00	1,406.26	71

Average Day Demand

Pipe Table - Time: 0.00 hours

Label	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Length (ft)	Velocity (ft/s)	Pressure Loss (psi)
P-3	36.0	Ductile Iron	130.0	44.90	174	0.01	0.0
P-4	24.0	Ductile Iron	130.0	44.90	97	0.03	0.0
P-6	6.0	Cast Iron	130.0	5.72	265	0.06	0.0
P-7	6.0	Cast Iron	130.0	5.72	266	0.06	0.0
P-8	6.0	Cast Iron	130.0	5.72	75	0.06	0.0
P-9	6.0	ACP	140.0	5.72	338	0.06	0.0
P-10	6.0	ACP	130.0	5.72	328	0.06	0.0
P-11	6.0	Ductile Iron	130.0	5.72	275	0.06	0.0
P-12	6.0	Ductile Iron	130.0	5.72	167	0.06	0.0
P-13	6.0	ACP	130.0	5.72	338	0.06	0.0
P-14	8.0	ACP	130.0	5.72	446	0.04	0.0
P-17	8.0	ACP	130.0	5.72	134	0.04	0.0
P-15	8.0	ACP	130.0	-39.18	231	0.25	0.0
P-1	6.0	Ductile Iron	130.0	0.00	21	0.00	0.0

Average Day Demand

Pump Table - Time: 0.00 hours

Label	Elevation (ft)	Status (Initial)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
PMP-1	1,239.60	On	1,240.00	1,406.27	44.90	166.27

Average Day Demand

Reservoir Table - Time: 0.00 hours

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	1,240.00	44.90	1,240.00

Maximum Day Demand

Junction Table - Time: 0.00 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-6	1,239.60	0.00	1,406.25	72
J-8	1,240.60	0.00	1,406.24	72
J-9	1,241.30	0.00	1,406.24	71
J-10	1,241.60	0.00	1,406.23	71
FH-1	1,242.40	0.00	1,406.23	71
J-12	1,245.40	0.00	1,406.22	70
J-13	1,245.50	0.00	1,406.22	70
J-14	1,245.60	0.00	1,406.21	69
J-15	1,245.20	0.00	1,406.21	70
FH-2	1,243.50	0.00	1,406.21	70
J-16	1,242.13	89.80	1,406.21	71
J-3	1,241.77	0.00	1,406.21	71
FH-3	1,241.02	0.00	1,406.21	71

Maximum Day Demand

Pipe Table - Time: 0.00 hours

Label	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Length (ft)	Velocity (ft/s)	Pressure Loss (psi)
P-3	36.0	Ductile Iron	130.0	89.80	174	0.03	0.0
P-4	24.0	Ductile Iron	130.0	89.80	97	0.06	0.0
P-6	6.0	Cast Iron	130.0	11.44	265	0.13	0.0
P-7	6.0	Cast Iron	130.0	11.44	266	0.13	0.0
P-8	6.0	Cast Iron	130.0	11.44	75	0.13	0.0
P-9	6.0	ACP	140.0	11.44	338	0.13	0.0
P-10	6.0	ACP	130.0	11.44	328	0.13	0.0
P-11	6.0	Ductile Iron	130.0	11.44	275	0.13	0.0
P-12	6.0	Ductile Iron	130.0	11.44	167	0.13	0.0
P-13	6.0	ACP	130.0	11.44	338	0.13	0.0
P-14	8.0	ACP	130.0	11.44	446	0.07	0.0
P-17	8.0	ACP	130.0	11.44	134	0.07	0.0
P-15	8.0	ACP	130.0	-78.36	231	0.50	0.0
P-1	6.0	Ductile Iron	130.0	0.00	21	0.00	0.0

Maximum Day Demand

Pump Table - Time: 0.00 hours

Label	Elevation (ft)	Status (Initial)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
PMP-1	1,239.60	On	1,240.00	1,406.25	89.80	166.25

Maximum Day Demand

Reservoir Table - Time: 0.00 hours

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	1,240.00	89.80	1,240.00

Peak Hour Demand

Junction Table - Time: 0.00 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-6	1,239.60	0.00	1,406.18	72
J-8	1,240.60	0.00	1,406.17	72
J-9	1,241.30	0.00	1,406.15	71
J-10	1,241.60	0.00	1,406.15	71
FH-1	1,242.40	0.00	1,406.14	71
J-12	1,245.40	0.00	1,406.12	70
J-13	1,245.50	0.00	1,406.10	69
J-14	1,245.60	0.00	1,406.09	69
J-15	1,245.20	0.00	1,406.08	70
FH-2	1,243.50	0.00	1,406.07	70
J-16	1,242.13	157.15	1,406.07	71
J-3	1,241.77	0.00	1,406.08	71
FH-3	1,241.02	0.00	1,406.08	71

Peak Hour Demand

Pipe Table - Time: 0.00 hours

Label	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Length (ft)	Velocity (ft/s)	Pressure Loss (psi)
P-3	36.0	Ductile Iron	130.0	157.15	174	0.05	0.0
P-4	24.0	Ductile Iron	130.0	157.15	97	0.11	0.0
P-6	6.0	Cast Iron	130.0	20.02	265	0.23	0.0
P-7	6.0	Cast Iron	130.0	20.02	266	0.23	0.0
P-8	6.0	Cast Iron	130.0	20.02	75	0.23	0.0
P-9	6.0	ACP	140.0	20.02	338	0.23	0.0
P-10	6.0	ACP	130.0	20.02	328	0.23	0.0
P-11	6.0	Ductile Iron	130.0	20.02	275	0.23	0.0
P-12	6.0	Ductile Iron	130.0	20.02	167	0.23	0.0
P-13	6.0	ACP	130.0	20.02	338	0.23	0.0
P-14	8.0	ACP	130.0	20.02	446	0.13	0.0
P-17	8.0	ACP	130.0	20.02	134	0.13	0.0
P-15	8.0	ACP	130.0	-137.13	231	0.88	0.0
P-1	6.0	Ductile Iron	130.0	0.00	21	0.00	0.0

Peak Hour Demand

Pump Table - Time: 0.00 hours

Label	Elevation (ft)	Status (Initial)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
PMP-1	1,239.60	On	1,240.00	1,406.18	157.15	166.18

Peak Hour Demand

Reservoir Table - Time: 0.00 hours

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
R-1	1,240.00	157.15	1,240.00

NFPA Split FF

Junction Table - Time: 0.00 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure (psi)
J-6	1,239.60	0.00	1,390.01	65
J-8	1,240.60	0.00	1,374.75	58
J-9	1,241.30	0.00	1,359.39	51
J-10	1,241.60	0.00	1,355.07	49
FH-1	1,242.40	1,500.00	1,338.09	41
J-12	1,245.40	0.00	1,348.35	45
J-13	1,245.50	0.00	1,356.95	48
J-14	1,245.60	0.00	1,362.16	50
J-15	1,245.20	0.00	1,372.74	55
FH-2	1,243.50	500.00	1,376.17	57
J-16	1,242.13	0.00	1,379.23	59
J-3	1,241.77	0.00	1,379.60	60
FH-3	1,241.02	500.00	1,379.18	60

NFPA Split FF

Pipe Table - Time: 0.00 hours

Label	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Length (ft)	Velocity (ft/s)	Pressure Loss (psi)
P-3	36.0	Ductile Iron	130.0	2,500.00	174	0.79	0.0
P-4	24.0	Ductile Iron	130.0	2,500.00	97	1.77	0.0
P-6	6.0	Cast Iron	130.0	872.58	265	9.90	6.6
P-7	6.0	Cast Iron	130.0	872.58	266	9.90	6.6
P-8	6.0	Cast Iron	130.0	872.58	75	9.90	1.9
P-9	6.0	ACP	140.0	872.58	338	9.90	7.3
P-10	6.0	ACP	130.0	-627.42	328	7.12	4.4
P-11	6.0	Ductile Iron	130.0	-627.42	275	7.12	3.7
P-12	6.0	Ductile Iron	130.0	-627.42	167	7.12	2.3
P-13	6.0	ACP	130.0	-627.42	338	7.12	4.6
P-14	8.0	ACP	130.0	-627.42	446	4.00	1.5
P-17	8.0	ACP	130.0	-1,127.42	134	7.20	1.3
P-15	8.0	ACP	130.0	-1,627.42	231	10.39	4.5
P-1	6.0	Ductile Iron	130.0	-500.00	21	5.67	0.2

NFPA Split FF

Pump Table - Time: 0.00 hours

Label	Elevation (ft)	Status (Initial)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
PMP-1	1,239.60	On	1,239.99	1,390.05	2,500.00	150.07

Fire Flow Demand

Fire Flow Results Table - Time: 0.00 hours

Label	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed: Fire Flow + Max Day) (gpm)	Flow (Total Available) (gpm)	Pressure (Calculated Residual) (psi)	Pressure (Calculated System Lower Limit) (psi)	Junction w/ Minimum Pressure (System)	Velocity of Maximum Pipe (ft/s)
FH-1	0.00	1,916.74	2,000.00	1,916.74	34	41	J-12	12.00
FH-2	0.00	2,133.84	2,000.00	2,133.84	55	55	J-15	12.00
FH-3	0.00	1,057.53	2,000.00	1,057.53	67	66	J-15	12.00

This chart represents the total available flow from each individual hydrant while the remaining three are closed. NFPA 1 spacing and flow requirements will be applicable to this project.

2021-08-26 3202 N Scottsdale Rd.wtg
Pump Definition Detailed Report: PMP - 1
Active Scenario: PHD

Element Details

ID	63	Notes	
Label	PMP - 1		

Pump Definition Type

Pump Definition Type	Standard (3 Point)	Design Head	147.80 ft
Shutoff Flow	0 gpm	Maximum Operating Flow	7,373 gpm
Shutoff Head	166.28 ft	Maximum Operating Head	46.20 ft
Design Flow	2,683 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

2021-08-26 3202 N Scottsdale Rd.wtg
Pump Definition Detailed Report: PMP - 1
Active Scenario: PHD