

FINAL WATER CAPACITY REPORT

68TH and ISR

6824 E. Indian School Road,
Scottsdale, AZ 85251

Prepared For:



2435 E. Southlake Blvd. S. 150
Southlake, Texas. 76092

Prepared by:



Sustainability Engineering Group

8280 E. Gelding Drive, Suite 101
Scottsdale, AZ 85260
480.588.7226 www.azSEG.com

Project Number: 210903

Submission Date: July 1, 2022 (DRB)

**FINAL Basis of Design
Report (DR or PP)**

- APPROVED
- APPROVED AS NOTED
- REVISE AND RESUBMIT

Reviewed By:



On behalf of the Scottsdale
Water Resources Department

DISCLAIMER: If approved, the approval is granted under the condition that the final construction documents submitted for city review will match the information herein. Any subsequent changes in the water or sewer design that materially impact design criteria or standards will require re-analysis, re-submittal, and approval of a revised basis of design report prior to the plan review submission; this approval is not a guarantee of construction document acceptance. For questions or clarifications contact the Water Resources Planning and Engineering Department at 480-321-5685

REVIEWER: DATE
EMAIL: **ANDREW BUELL**
ABUELL@CAROLLO.COM **08/12/2022**

address comments
on next page within
the submitted
improvement plans.

Case No.: 10-DR-2022

Plan Check No.: TBD

Ordinance Issues:

1. Note to the Submitter/Developer, as per section 6-1.000.A of the DSPM, Developers may be required to install, at their expense, all on-site and off-site improvements, if required.

Policy and Design Related Issues:

2. Reduce flow by 10% for hydraulic analysis per DSPM 6-1.405

3. Statement in report of using 2,500 gpm for “multi-story” residential developments is incorrect. 2,500 gpm min fire flow is incorrect fire flow and is for highrise as defined by IBC i.e. 75ft to highest finished floor. Proposed development is only 46ft high. With Fire Flow @2500GPM, there is insufficient pressure at test hydrant (30PSI). DSPM 6-1.406.B. With Fire Flow @2500GPM, there is insufficient pressure at highest Finished Floor Elevation (15PSI). DSPM 6-1.406.C. By using the minimum City commercial fire flow of 1,500 gpm the system has adequate flow and pressure to meet the Max Day (31.2 gpm) + Fire Flow (1,500 gpm) requirements.

Technical Corrections to be Resolved:

7. Keynotes on utility plan incorrectly labeled.

8. Incorrect fire flow used for modeling scenarios. Correct fire flow determined and confirmed to be adequate herein.

9. Confirm with fire plan reviewers if second fire line and riser/rise room and FDC are needed for commercial and residential uses/buildings.

10. Plan shows 3 water service and profile only shows 2. 3 should be shown (2 domestic and 1 landscaping)

Table of Contents



1. INTRODUCTION	1
1.1 SUMMARY OF PROPOSED DEVELOPMENT:.....	1
1.2 SITE and LEGAL DESCRIPTION:.....	1
2. DESIGN DOCUMENTATION	1
2.1 DESIGN COMPLIANCE:.....	1
2.2 PROCEDURES, POLICIES AND METHODOLOGIES:.....	1
3. EXISTING CONDITIONS	1
3.1 ZONING & LAND USE:.....	1
3.2 EXISTING TOPOGRAPHY, VEGETATION AND LANDFORM FEATURES:.....	2
3.3 EXISTING WATER MAIN:.....	2
3.4 CERTIFIED FLOW TEST RESULTS OF EXISTING WATER SYSTEM:.....	2
4. PROPOSED CONDITIONS	2
4.1 SITE PLAN:.....	2
4.2 PROPOSED WATER SYSTEM:.....	2
4.3 WATER REQUIREMENTS:.....	3
4.4 MAINTENANCE RESPONSIBILITIES:.....	3
5. WATER SYSTEM COMPUTATIONS	3
5.1 WATER DEMANDS:.....	3
5.2 PRESSURE REQUIREMENTS:.....	3
5.3 WATER SYSTEM ANALYSIS:.....	4
6. SUMMARY	5
6.1 SUMMARY OF PROPOSED WATER IMPROVEMENTS:.....	5
6.2 PROJECT SCHEDULE:.....	5
7 SUPPORTING MAPS	5
7.1 SITE UTILITY PLAN.....	5
8 REFERENCES	5

LIST OF TABLES:

TABLE 1 - COS Demand Criteria by Demand Type

TABLE 2 - Water Demand Calculations

LIST OF FIGURES:

FIGURE 1 - Vicinity Map

FIGURE 2 - Site Aerial

FIGURE 3 - FIRM Excerpt

FIGURE 4 - Water Quarter Section Map

APPENDIX:

APPENDIX I - Hydrant Flow Test Report

APPENDIX II - Preliminary Utility Plan

1. INTRODUCTION

1.1 SUMMARY OF PROPOSED DEVELOPMENT:

The proposed development consists of a 54-unit four-story residential building 46.5 feet high with 900 square feet of commercial development located north and east of the 68th Street and Indian School Road intersection in Scottsdale Arizona. The purpose of this report is to analyze service requirements for the metered residential, commercial and landscape elements of this development along with fire protection and their impact on the city's water system.

1.2 SITE and LEGAL DESCRIPTION:

The project property consists of two parcels of land totaling 41,886 square feet bounded by the Arizona Canal to the north, 5th Avenue/Valley Plaza to the east, Indian School Road to the south and an SRP well site/68th Street to the west. It is a portion of Section 22, Township 2 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County, with the following Assessor Parcel Numbers:

- Parcel 173-48-048J; AZ Ocean View LLC, Zoning is D/DMU-2 PBD DO.
- Parcel 173-48-048G; AZ Ocean View LLC, Zoning is D/DMU-2 PBD DO.

SEE COMMENTS ABOUT COMMON/SEPARATE OWNERS AND BUILDINGS

Refer to **FIGURE 1 - Vicinity Map** for the project's location with respect to major cross streets.

2. DESIGN DOCUMENTATION

2.1 DESIGN COMPLIANCE:

The proposed water system is designed to meet the 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 design this public water infrastructure consists of evaluating the existing network of water distribution mains assuring compliance to the City's pressure, head loss, and water demand requirements during daily demands and fire events.

3. EXISTING CONDITIONS

3.1 ZONING & LAND USE:

The overall project parcel has been rezoned from C-2 DO (Downtown Overlay) to D/DMU-2 PBD (Planned Block Development). The site is presently cleared.

3.2 EXISTING TOPOGRAPHY, VEGETATION AND LANDFORM FEATURES:

The cleared site is essentially flat and void of vegetation. The Arizona Canal supports a recreational pathway. 5th Avenue and Indian School Road are fully paved with attached curb, gutter and sidewalk. Refer to **FIGURE 2** for an aerial of the overall project existing conditions.

FIRM Map Number 04013C2235M dated September 18, 2020 indicates this site is designated as Zone "X". As such, it is defined as areas outside of the 0.2% annual chance of flooding. Refer to **FIGURE 3** for an excerpt from the FIRM.

3.3 EXISTING WATER MAIN:

Water: City of Scottsdale (QS 15-44)

- An existing 6" asbestos cement (AC) water distribution main fronts the site under 5th Avenue.
- A 12" AC water distribution main fronts the site along Indian School Road.
- Additional water mains in Indian School Road include a 36" ductile iron (DI) and a 24" DI transmission main.
- A fire hydrant exists mid-site along 5th Avenue.
- A fire hydrant approximately 150 ft Northeast of the property along 5th Ave.
- A fire hydrant approximately 80 ft West of the property along Indian School Rd.
- Water meters to the site exist along both road frontages.

Refer to **FIGURE 4** for an excerpt of COS QS 17-44 showing water/sewer system locations.

3.4 CERTIFIED FLOW TEST RESULTS OF EXISTING WATER SYSTEM:

Certified fire hydrant flow testing was performed on February 22, 2022 by Arizona Flow Testing LLC at 7:00 a.m. The fire flow test recorded a static pressure of 102.0 psi and residual pressure of 52.0 psi at 2,105 gpm. Derated data with a 30% safety factor vies a static pressure of 72.0 psi and a residual pressure of 22.0 psi. This derated data will be used to model the system. The flow test documentation is included in the **APPENDIX I**.

4. PROPOSED CONDITIONS

30psi is min.

4.1 SITE PLAN:

The property is proposed to be re-developed for multi-family residential use with some supporting commercial use. Development will include a new drive entrance and looped 24' wide paved access drive off 5th Avenue.

4.2 PROPOSED WATER SYSTEM:

The existing 12" running along Indian School is to remain in place. Per city stipulations, the portion of the existing 6" ACP line running along 5th Avenue will be removed and upsized to a 12" DIP line across the property frontage. Service connections will be provided to the new 12" water main in 5th Avenue. Residential service will consist of a 2" metered connection, a 1" metered connection for the retail

service, a 1" metered connection for landscaping service and a 6" DIP fire line serving both the residential and commercial building.

The existing fire hydrant at the property's frontage to 5th Avenue will require re-connection to the new 12" water main.

4.3 WATER REQUIREMENTS:

The City's design standards and Appendix B of the International Fire Code (IFC) govern the fire flow rates used for all buildings. The proposed gross building area including all floors is 48,007 s.f. and this report will assume Type V-B construction type requiring the greatest fire flow (6,000 gpm for a 4-hour duration). The structure will be equipped with automatic fire sprinkler systems allowing a 75% reduction in required fire flow per Appendix B. This results in an IFC demand of 1,500 gpm but the City typically recommends 2,500 gpm for multi-storied structures. The water system will be evaluated for a 2,500 gpm fire flow plus the 31.2 gpm max day flow (shown in Table 2 below).

Incorrect. 2,500 is min fire flow for IBC high rise building i.e. 75FT to finished floor

incorrect →

4.4 MAINTENANCE RESPONSIBILITIES:

Water meters located on-site will be within water easements dedicated to the City of Scottsdale or dedicated R.O.W. Reduced pressure principle backflow devices will be installed adjacent to the meters and be maintained by the property owner.

25% of this is 1,500gpm which is City min for commercial fire flow. Use 1,500gpm.

5. WATER SYSTEM COMPUTATIONS

5.1 WATER DEMANDS:

The proposed development at the site consists of multi-family residential and some commercial/retail uses. The associated DS+PM demands along with the peaking factors are shown in Table 1 below. A summary of the total water demands for the site are presented below in Table 2.

Table 1: COS Design Criteria by Demand Type

Land Use	Average Day Demand (gpm)	Max Day Peaking Factor	Peak Hour Peaking Factor
High Density Residential	0.27	2	3.5
Commercial / Retail	1.11E-03	2	3.5

Table 2: Water Demand Calculations

	Units or Area (sq. ft.)	ADD (gpm)	Avg. Day Demand (gpm)	Max. Day Demand (gpm)	Peak Hour (gpm)
High Density Residential	54	0.27	14.6	29.2	51.0
Commercial/Retail	900	1.11E-03	1.0	2.0	3.5
TOTAL DEMANDS (gpm):			15.6	31.2	54.5

5.2 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 psig
 - At the highest finished floor level to be served by the system pressure during normal daily operating conditions.
- Maximum pressure = 120 psig
- Maximum day plus coincident fire flow demand:
 - Minimum pressure = 30 psig
 - At the highest ceiling level to be served by the system pressure during normal daily operating conditions.
 - Maximum pressure = 120 psig

5.3 WATER SYSTEM ANALYSIS:

Providing domestic and fire service to the proposed development may require a building pump. System losses in the new 5th Avenue 12" DIP are evaluated in Table 3 for ~~2,531.2 gpm~~ ^{1531.2 GPM} (fire flow plus max day) using Bentley® FlowMaster® with input pressures derated to 72 psi per the City's DS+PM. The results are summarized below:

Table 3:

MD+FF Pipe Losses in 5th Avenue		
Project Description		
Friction Method	Hazen-Williams Formula	
Solve For	Pressure at 2	
Input Data		
Pressure 1	72.00	psi
Elevation 1	1269.20	ft
Elevation 2	1270.50	ft
Length	206.00	ft
Roughness Coefficient	130.000	
Diameter	12.0	in
Discharge	2531.2	gpm
Results		
Pressure 2	70.17	psi
Headloss	2.92	ft
Energy Grade 1	1436.07	ft
Energy Grade 2	1433.16	ft
Hydraulic Grade 1	1435.27	ft
Hydraulic Grade 2	1432.36	ft
Flow Area	0.79	ft ²
Wetted Perimeter	3.14	ft
Velocity	7.18	ft/s
Velocity Head	0.80	ft
Friction Slope	0.01416	ft/ft

THIS ANALYSIS IS FOR THE HEADLOSS BETWEEN THE TWO HYDRANTS WITH 2532 GPM FLOWING THROUGH THE 12".

The resulting pressure in the 12" pipe at the fire line connection will be approximately 70.2 psi at 2531.2 gpm per the derated fire flow data.

6. SUMMARY

6.1 SUMMARY OF PROPOSED WATER IMPROVEMENTS:

- The existing offsite water lines are to remain in place.
- All onsite services will be provided off the existing 12" ACP line along Indian School Road.

6.2 PROJECT SCHEDULE:

As a residential/commercial development the infrastructure and buildings are proposed to be constructed in a single phase. Construction is anticipated to begin in late 2022 and be completed in 2023.

7 SUPPORTING MAPS

7.1 SITE UTILITY PLAN

Refer to Preliminary Utility Plan in **APPENDIX II**.

8 REFERENCES

1. *COS QS Water Plan number 17-44*
2. *City of Scottsdale Design Standards & Policies Manual, 2018 (Chapter 6 – Water)*

FIGURES

FIGURE 1 - Vicinity Map

FIGURE 2 - Aerial

FIGURE 3 - FIRM

FIGURE 4 - Water Quarter Section Map

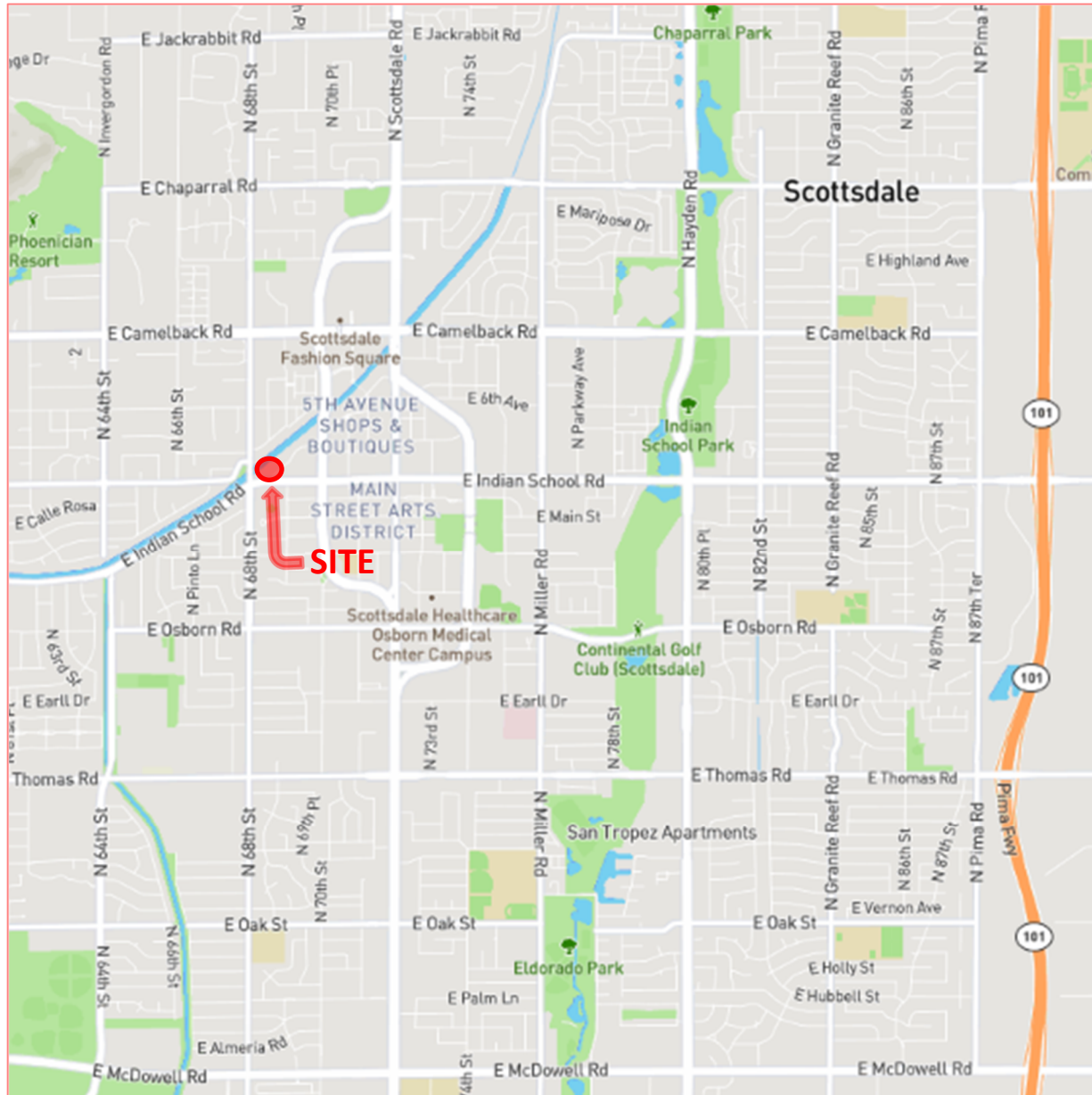
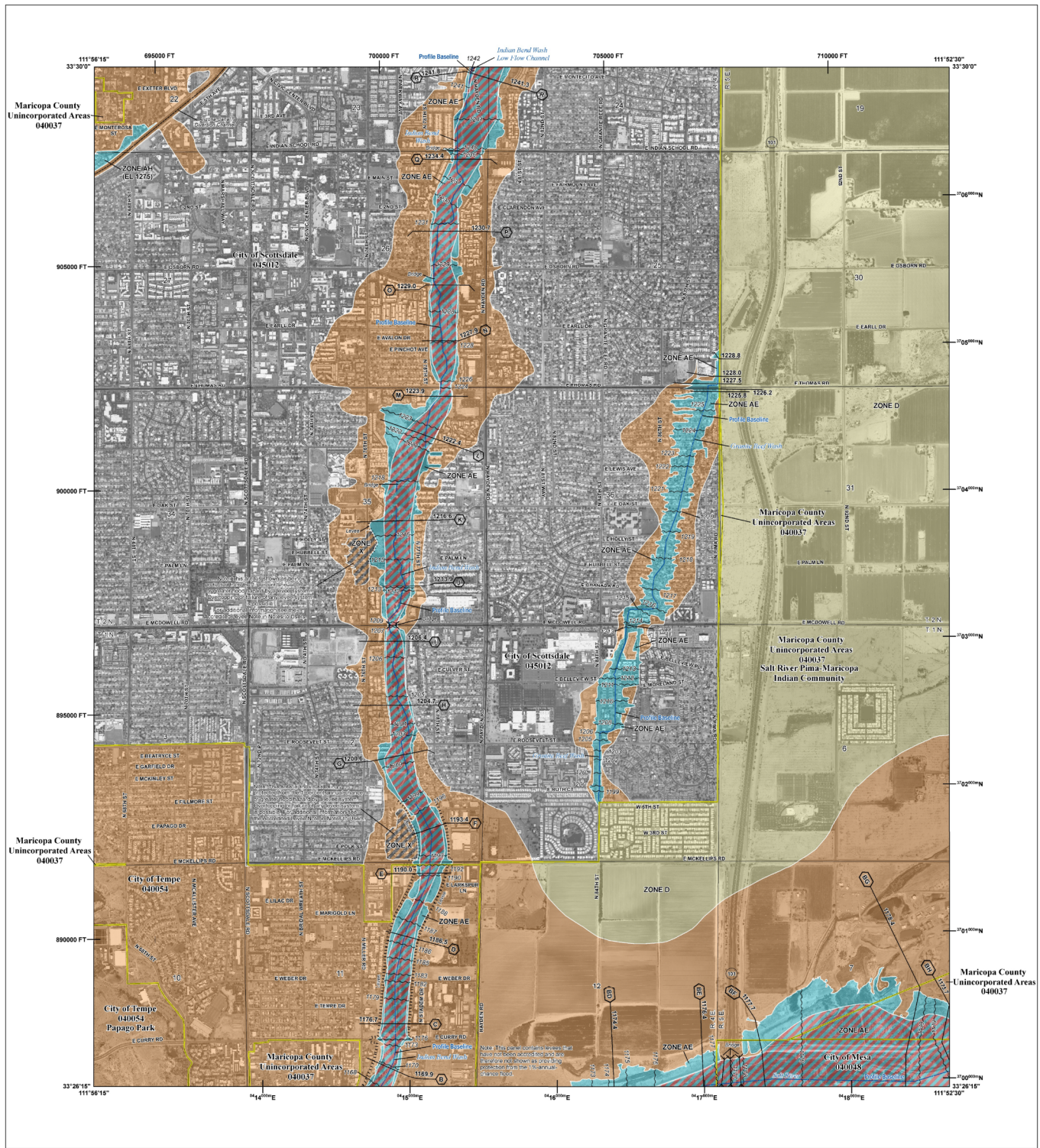


FIGURE 1 - Vicinity Map

8280 E. Gelding Dr., Suite 101
Scottsdale, AZ 85260



FIGURE 2 - Site Aerial



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT
[HTTPS://MSC.FEMA.GOV](https://msc.fema.gov)

- SPECIAL FLOOD HAZARD AREAS**
 - Without Base Flood Elevation (BFE) Zone A, AE, AR
 - With BFE or Depth Zone AE, AO, AH, VE, AR
 - Regulatory Floodway
 - 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
 - Future Conditions 1% Annual Chance Flood Hazard Zone X
 - Area with Reduced Flood Risk due to Levee See Notes, Zone X
 - Area with Flood Risk due to Levee Zone D
- OTHER AREAS OF FLOOD HAZARD**
 - Area of Minimal Flood Hazard Zone X
 - Area of Undetermined Flood Hazard Zone D
- OTHER AREAS**
 - Channel, Culvert, or Storm Sewer Levee, Dike, or Floodwall
 - Cross Sections with 1% Annual Chance Water Surface Elevation
 - Coastal Transect
 - Coastal Transect Baseline
 - Profile Baseline
 - Hydrographic Feature
 - Base Flood Elevation Line (BFE)
 - Limit of Study
- GENERAL STRUCTURES**
 - Jurisdiction Boundary
- OTHER FEATURES**
 - Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Service Center website at <https://msc.fema.gov>. Available products may include previously issued editions of Map Changes, Flood Insurance Study Reports, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

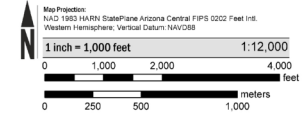
Communities occupying land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM index. These may be obtained directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study Report for this jurisdiction. To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-368-6622.

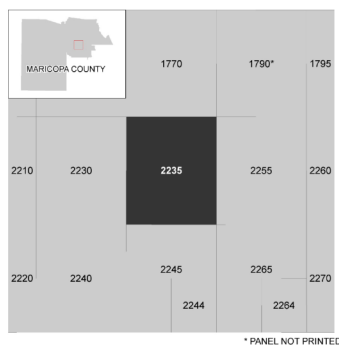
Base map information shown on this FIRM was derived from U.S. Census Bureau TIGER files, dated 2014, and digital data provided by the Flood Control District of Maricopa County. Digital orthophotography was provided by the Flood Control District of Maricopa County. The imagery was from 1st Feb 2013 and was processed with a 0.8 foot ground sample distance.

ACCEPTED LEGISLATION NOTES TO USERS: Check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1 percent-annual-chance level) and Emergency Action Plan, on the levee generally shown as providing protection for areas on this panel. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit the FEMA Website at <http://www.fema.gov/national-flood-insurance-program>.

SCALE



PANEL LOCATOR



NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP
MARICOPA COUNTY, ARIZONA
 and Incorporated Areas
 PANEL 2235 OF 4425

COMMUNITY	NUMBER	PANEL	SUFFIX
MARICOPA COUNTY	040037	2235	M
MESA, CITY OF	040048	2235	M
SCOTTSDALE, CITY OF	040012	2235	M
TEMPE, CITY OF	040054	2235	M

FIGURE 3

APPENDIX I

Hydrant Flow Test Report

Arizona Flow Testing LLC

HYDRANT FLOW TEST REPORT

Project Name:	Stockdale Partners
Project Address:	68 th Street and Indian School, Scottsdale, Arizona, 85251
Client Project No.:	Nor Provided
Arizona Flow Testing Project No.:	22110
Flow Test Permit No.:	C67929
Date and time flow test conducted:	February 22, 2022 at 7:00 AM
Data is current and reliable until:	August 22, 2022
Conducted by:	Floyd Vaughan – Arizona Flow Testing, LLC (480-250-8154)
Witnessed by:	Chris Mendez –City of Scottsdale-Inspector (602-9028-9046)

Raw Test Data

Static Pressure: **102.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **52.0 PSI**
(Measured in pounds per square inch)

Pitot Pressure: **24.0 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: **2,105 GPM**
(Measured in gallons per minute)

GPM @ 20 PSI: **2,750 GPM**

Data with 30 PSI Safety Factor

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

Residual Pressure: **22.0 PSI**
(Measured in pounds per square inch)

Distance between hydrants: Approx.: 270 feet

Main size: Not Provided

Flowing GPM: ~~2,105 GPM~~
1894.5GPM

GPM @ 20 PSI: **2,150 GPM**

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

Flow Test Location



APPENDIX II

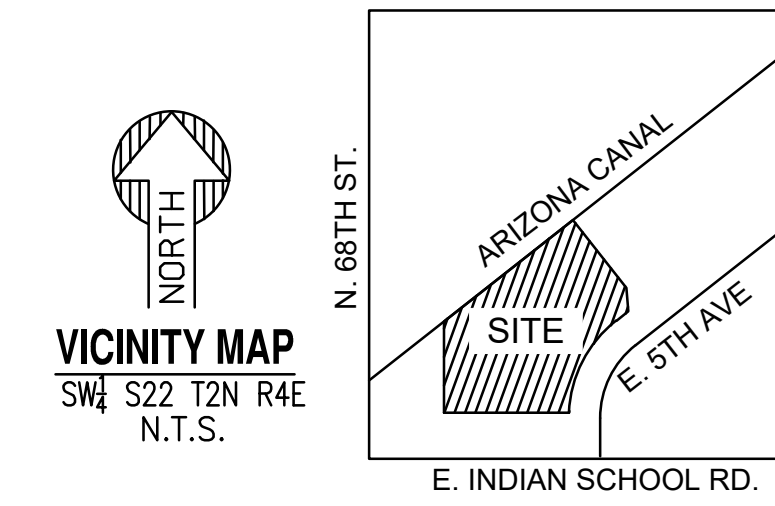
Preliminary Utility Plan

OWNER
 MAGNOLIA PROPERTY CO.
 2435 E. SOUTHLAKE BLVD. SUITE 150
 SOUTHLAKE, TEXAS. 76092
 PHONE: 817-769-2580

CIVIL ENGINEER
 SUSTAINABILITY ENGINEERING GROUP
 8280 E. GELDING DR. SUITE 101
 SCOTTSDALE, ARIZONA 85260
 PHONE: 480-237-2507
 ATTN: ALI FAKIH

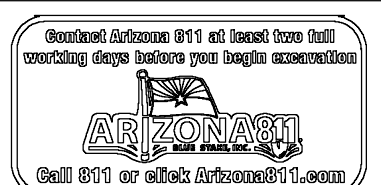
ARCHITECT
 WILDER ARCHITECTS, LLC.
 16904 CLUB HILL DR.
 DALLAS, TEXAS. 75248
 PHONE: 214-616-5196

SURVEYOR
 MLC SERVICES, LLC.
 3231 S. COUNTRY CLUB WAY., SUITE 103
 TEMPE, ARIZONA. 85282
 PHONE: 602-393-2030
 ATTN: CHRISTOPHER J. WILSON



PRELIMINARY
 NOT FOR
 CONSTRUCTION

SUSTAINABILITY
 ENGINEERING
 GROUP
 SEG

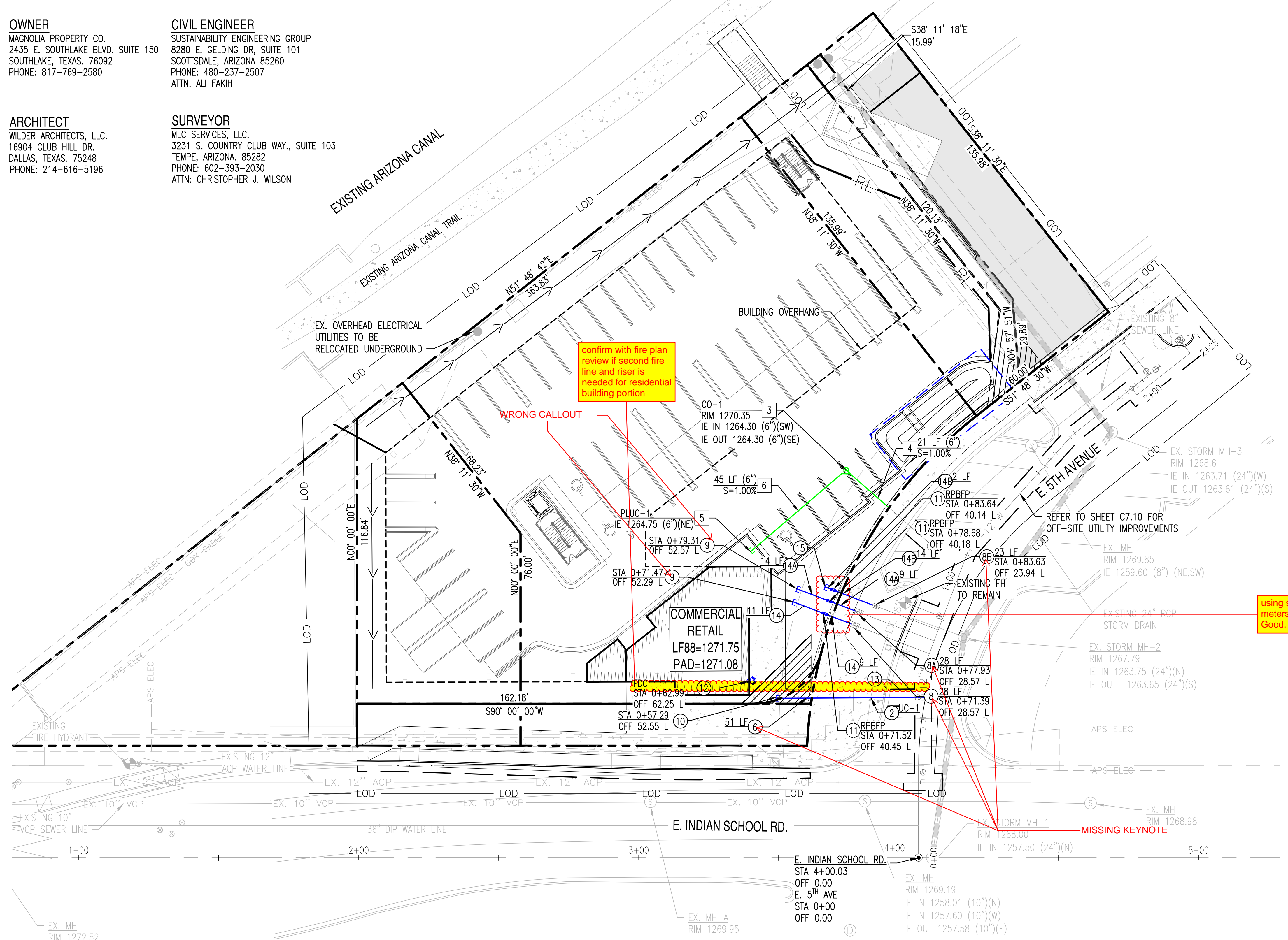


PROJECT
 68th AND ISR
 LOCATION
 6824 E. INDIAN SCHOOL ROAD,
 SCOTTSDALE, ARIZONA, 85251.

DATE: 07/01/2022
 ISSUED FOR: DRB

REVISION NO.	DATE

PRELIMINARY
 ON-SITE UTILITY PLAN



PRIVATE WATER KEY NOTES

- CONTRACTOR TO VERIFY SIZE AND LOCATION OF EXISTING WATER LINE PRIOR TO CONSTRUCTION.
- CONTRACTOR TO VERIFY ALL INVERTS AND CLEARANCE OF CROSSING UTILITIES PRIOR TO COMMENCING CONSTRUCTION.
- GATE VALVE WITH VALVE BOX, TYPE "C" WITH LOCKING LID. SIZE PER PLAN.
- DOMESTIC CONNECTION TO BUILDING, REFER TO MEP PLAN FOR CONTINUATION. BACKFLOW PREVENTION WILL BE IN THE FIRE RISER ROOM.
- FIRE CONNECTION TO BUILDING, REFER TO PLAN FOR CONTINUATION.
- REDUCED PRESSURE PRINCIPLE BACKFLOW ASSEMBLY (RPPBA). SIZE TO MATCH WATER METER SIZE.
- FIRE DEPARTMENT CONNECTION BY BUILDING CONTRACTOR. SHOWN FOR REFERENCE.
- SAWCUT, REMOVE AND REPLACE EXISTING ASPHALT FOR TRENCHING.
- 2" TYPE "K" COPPER DOMESTIC SERVICE LINE. LENGTH PER PLAN.
- 1" TYPE "K" COPPER DOMESTIC SERVICE LINE. LENGTH PER PLAN.
- 1" TYPE "K" COPPER IRRIGATION SERVICE LINE. LENGTH PER PLAN.
- CAP END AND PROVIDE FLUSHING. REFER TO IRRIGATION PLANS.

PRIVATE SEWER KEY NOTES

- SEWER CLEAN-OUT.
- 6" PVC-SDR 35 SEWER LINE CONNECTION PER MAG STD. DET. 440-1. S=1.00% MINIMUM. LENGTH AND SLOPE PER PLAN.
- SEWER CONNECTION TO BUILDING.
- 6" PVC SDR-35 SEWER LINE. LENGTH AND SLOPE PER PLAN. MAINTAIN 4' MINIMUM COVER.

UTILITY CROSSINGS			
UC-1	6" WATER BOT	1266.02	NO EXTRA PROTECTION REQUIRED
	8" SEWER TOP	1259.07	

NOTE:
 1. EXISTING MANHOLES RIMS AND INVERTS HAVE BEEN SET BASED ON AS-BUILT. P IP 27505, SHEET 3 OF 6. DATED 12/07/1995.

GENERAL UTILITY CONSTRUCTION NOTES

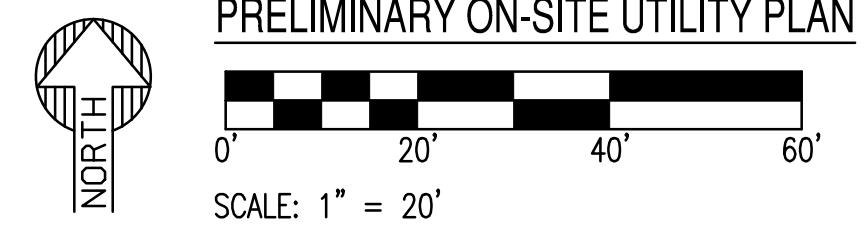
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH MAG UNIFORM STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION, OR AS AMENDED BY LOCAL MUNICIPALITY SPECIFICATIONS, UNLESS OTHERWISE NOTED.
- BEDDING MATERIAL TO BE IN ACCORDANCE WITH MAG SECTION 702.2 AND TABLE 702-1.
- PROVIDE TRENCH EXCAVATION, BEDDING & BACKFILLING, AND COMPACTION PER MAG SPECIFICATION SECTION 601.
- FOR HDPE PIPE INSTALLATION PROVIDE TRENCH EXCAVATION, BEDDING & BACKFILLING, AND COMPACTION PER MAG SPECIFICATION SECTION 603.
- SEPARATION OF WATER LINE FROM ELECTRICAL OR GAS LINES WILL CONFORM TO C.O.S. STD. DET. 2372.
- WATER PIPING CONNECTING THE METER TO THE BFP SHALL BE INSPECTED BY A CITY BACKFLOW PREVENTION SPECIALIST PRIOR TO CLSM AND BACKFILL.
- ALL PRODUCTS USED ON THIS SITE SHALL CONFORM TO ANSI/NSF STANDARDS 60 AND 61 IN ACCORDANCE WITH REGULATORY CITATION R18-4-213.
- PROVIDE 3' MINIMUM COVER FOR WATER SERVICE LEADS AT LOT LINES.
- PROVIDE 5' MINIMUM COVER FOR SANITARY LEADS AT LOT LINES.
- MAINTAIN SANITARY SEPARATION / PROTECTION FROM WATER AND UTILITIES PER C.O.S. STD. DET. 2401.

EXISTING LEGEND:

---XXXX---	EX. MAJOR CONTOURS	EX. S	SEWER LINE	---	STORM DRAIN LINE
---XXXX---	EX. MINOR CONTOURS	⊙	SEWER MANHOLE	⊙	STORM CATCH BASIN
P=XX.XX	EX. SPOT ELEVATION	EX. W	WATER LINE	⊙	STORM MANHOLE
---	EASEMENT LINE AS NOTED	⊗	WATER VALVE	⊙	STREET LIGHT
		⊕	FIRE HYDRANT	---	ROAD CENTERLINE

PROPOSED UTILITY LEGEND:

---	PROPERTY LINE	⊕	FIRE HYDRANT	⊕	BACK FLOW PREVENTER	⊙	SEWER MANHOLE
---	EASEMENT LINE	⊕	FDC	⊕	REDUCER	⊙	SEWER CLEAN OUT
---	8"W WATER LINE	⊕	WATER METER	⊕	CAP		
---	8"S SEWER LINE	⊕	GATE VALVE	⊕	BUILDING CONNECTION		



confirm with fire plan review if second fire line and riser is needed for residential building portion

WRONG CALLOUT

using separate water meters for each use. Good.

MISSING KEYNOTE

THIS DRAWING IS AN INSTRUMENT OF SERVICE AND THE PROPERTY OF SUSTAINABILITY ENGINEERING GROUP, AND SHALL REMAIN THEIR PROPERTY. THE USE OF THIS DRAWING SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH IT IS PREPARED AND PUBLICATION THEREOF IS EXPRESSLY LIMITED TO SUCH USE.

Pump Definition Detailed Report: Pump Definition - 1

Element Details			
ID	91	Notes	
Label	Pump Definition - 1		
Pump Definition Type			
Pump Definition Type	Standard (3 Point)	Design Head	50.82 ft
Shutoff Flow	0 gpm	Maximum Operating Flow	2,150 gpm
Shutoff Head	166.32 ft	Maximum Operating Head	46.20 ft
Design Flow	1,895 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·ft ²	Specific Speed	SI=25, US=1280
Speed (Full)	0 rpm	Reverse Spin Allowed?	True

Pump Definition Detailed Report: Pump Definition - 1

