GRADING & DRAINAGE ENGINEERS, INC
PROFESSIONAL CIVIL ENGINEERING SERVICES

Delete, saying it once will suffice.

Final Basis of Design Water Basis of Design Report

CASE 8-PP-2022
Hozho at Lone Mountain
SEC of 82nd Street & Dixileta Drive
Scottsdale, AZ 85266
DATED 8/10/2022

Include original and all subsequent submittal dates. DSPM 6-1.202 C

EXPIRES 6/30/2025

Table of Contents

FINAL Basis of Design Report

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

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

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 480-312-5685.

BY rrahman DATE 9/30/2022

09/30/2022

Provide case# per DSPM Section 6-1.202.C

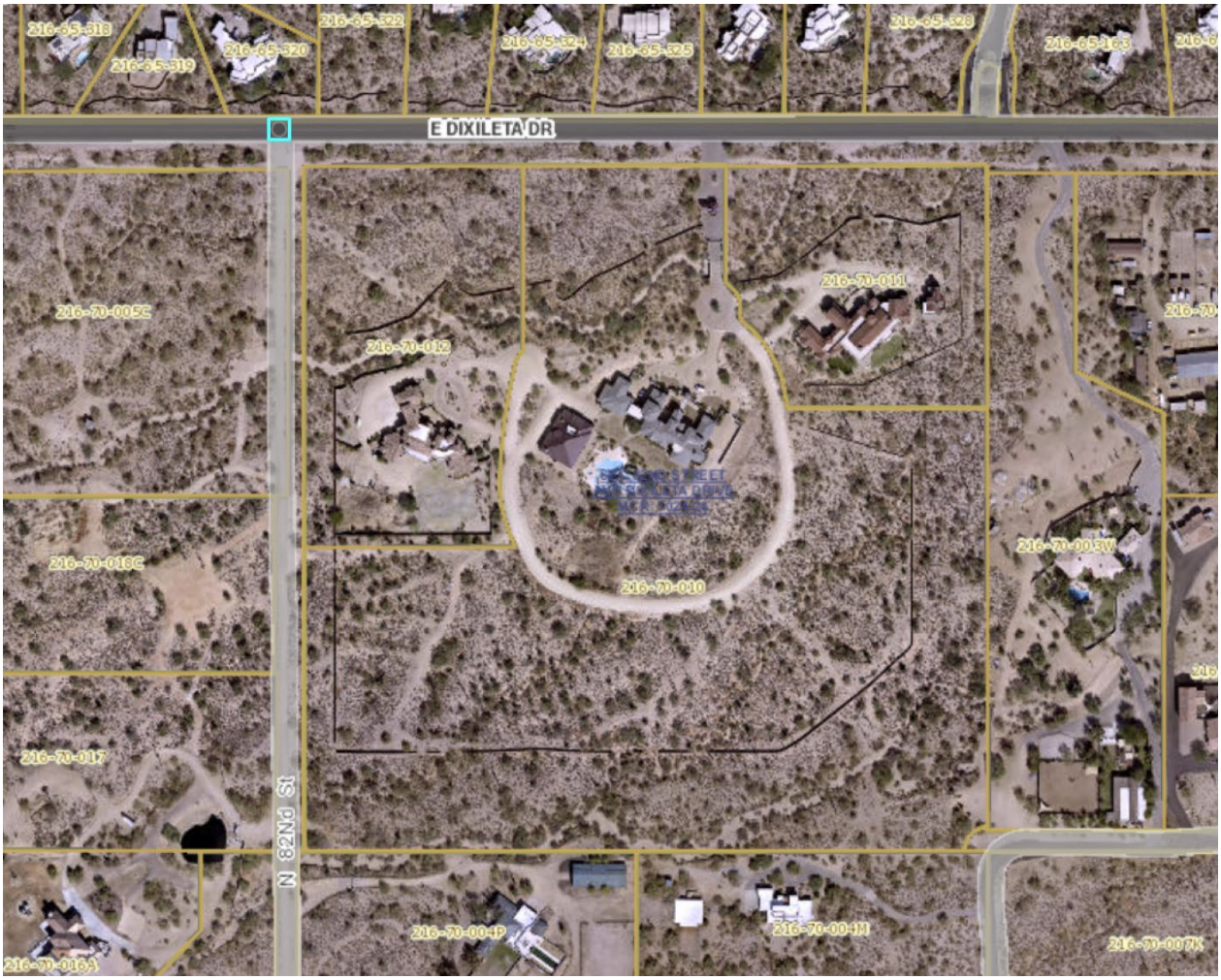
AZ 85083
623-581-3371 • info@gdengineers.com

8-PP-2022

1.0 Introduction

Proposed is to subdivide the existing three residential lots shown in Book 1024, Page 24, Maricopa County Recorder into seven new lots and provide a domestic water meter to each new lot. No additional water mains or hydrants are required.

The lot is located within Maricopa County's northwest quarter of Section 25, Township 5 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County, Arizona. The zoning is R1-190. The city quarter section associated with the utilities is 52-47. There are no known designated character areas or studies that will affect the project's design. See aerial below for general information. This report provides proposed demands as well as provides a flow test on the existing system.



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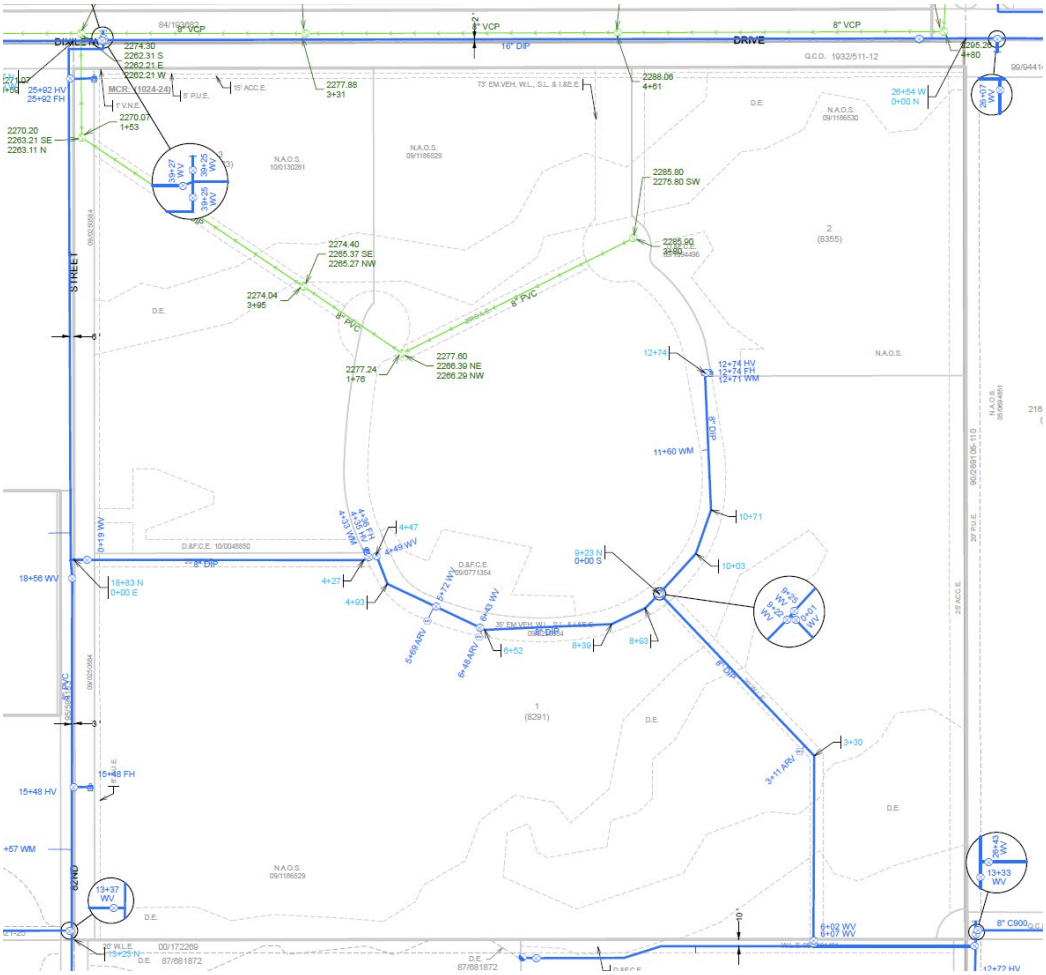
2.0 Design Documentation

All design procedures, governing policies and methodologies used within this report are as set forth in Chapter 6 of the City of Scottsdale's Design Standards & Policies Manual (DS&PM) dated January 2018.

3.0 Existing Conditions

The area is developed as shown in the above aerial photograph. The existing development has a looped eight inch DIP water line with fire hydrants. Proposed is to provide domestic water service to the four additional lots (see last page for new layout). Lots 3, 4, and 5 will tap the fronting eight-inch line and Lot 1 will tap the existing eight-inch PVC line in 82nd Street. No additional water mains or hydrants are proposed. See below Quarter Section 52-47 showing the three existing lots.



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Proposed Conditions

Proposed are four new single-family lots to bring the total lot count to seven (see next page). The IFC Appendix B was used to determine fire flow requirements. City records show one of the existing homes listed as 13,370 SF, which is the largest home in the subdivision. No other homes are proposed that exceed that size. The required fire flow for Type V-B construction of 13,370 sf, per Table B105.1(2) of the IFC, is 3,000 gpm; however, per Table B105.1(1), for homes larger than 3,601 sf, use half that value or 1,500 gpm.
Proposed is to tap the existing eight-inch line for domestic water service.

All construction shall be completed in accordance with the City of Scottsdale design specifications and details.

4.0 Computations

Per Figure 6-1.2 of the DS&PM for less than two dwelling units per acre, the Average Day Water Demand total is 485.6 gallons per day per unit and 0.69 GPM

Average Demand: (7 units)(0.69 gpm) = 4.83 gpm

Per 6-1.404, Peak hour flow = (3.5)(4.83 gpm) = 16.9 gpm
Per 6-1.404, Maximum day flow = (2)(4.83 gpm) = 9.7 gpm

Peak hour with Fire: 17 gpm + 1,500 gpm = 1,517 gpm

Based on the attached Hydrant Flow Test Report, conducted on August 9th, 2022, the existing water system with a 10% safety factor, can handle 3,451 gpm at 20 psi.

5.0 Summary

The existing looped eight inch water main is sufficient to accommodate four additional domestic water service taps. The other three lots already have services.

The proposed project schedule is to start construction in late 2022 with a twelve-month construction period.

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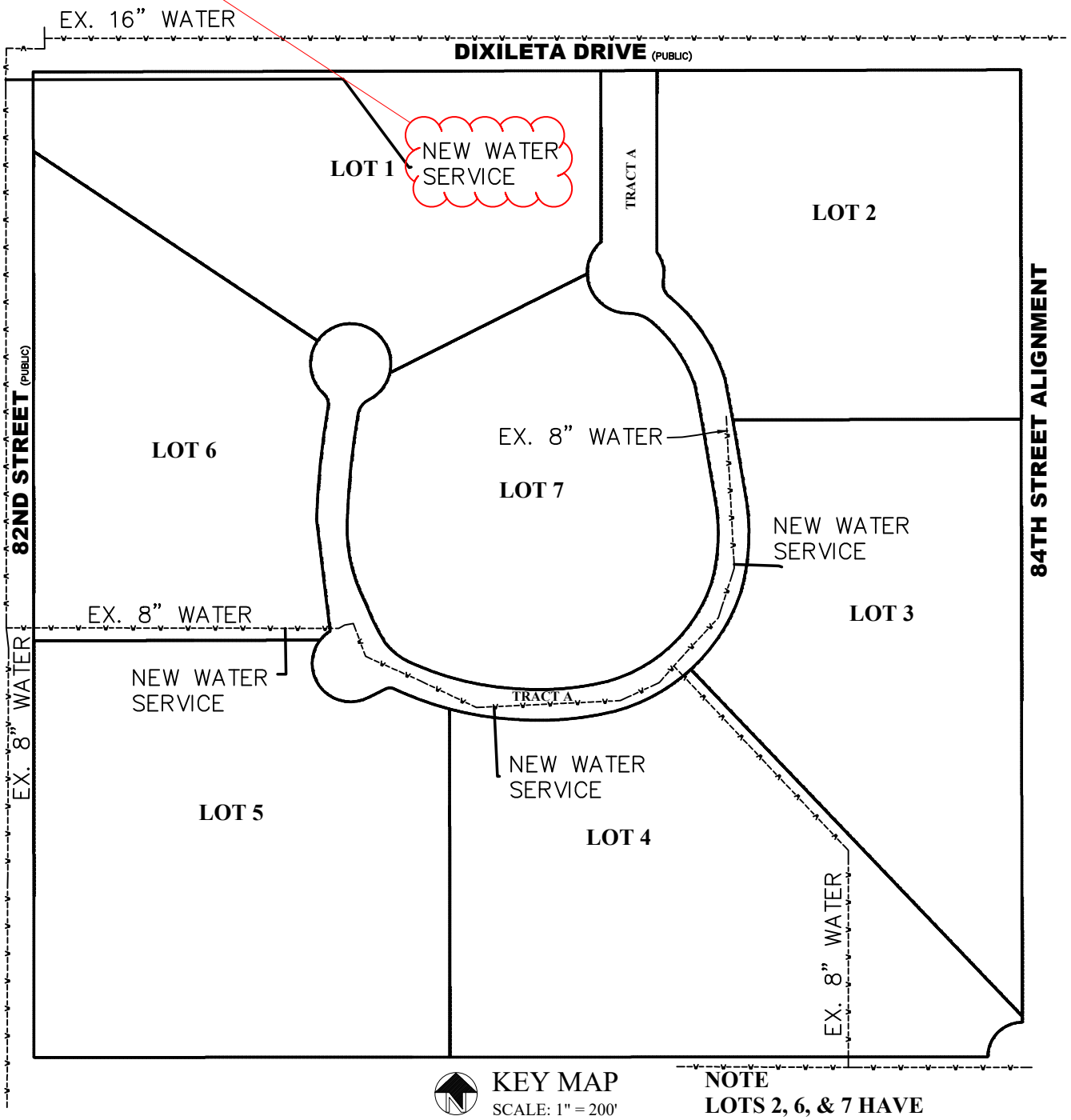
Use reduced pressure principle black flow preventer on the service line

HOZHO
WATER LAYOUT



KEY MAP
SCALE: 1" = 200'

NOTE
LOTS 2, 6, & 7 HAVE EXISTING WATER SERVICES

Arizona Flow Testing LLC

HYDRANT FLOW TEST REPORT

Project Name:	Dixileta & 82nd Street
Project Address:	8291 East Dixileta Drive, Scottsdale, Arizona 85266
Client Project No.:	Not Provided
Arizona Flow Testing Project No.:	22549
Flow Test Permit No.:	C69776
Date and time flow test conducted:	August 9, 2022 at 8:47 AM
Data is current and reliable until:	February 9, 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: **56.0 PSI**
(Measured in pounds per square inch)

Residual Pressure: **48.0 PSI**
(Measured in pounds per square inch)

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

Diffuser Orifice Diameter: Two 2.5-inch Pollard Diffusers
(Measured in inches)

Coefficient of Diffuser: 0.9

Flowing GPM: **1,678 GPM**
(Measured in gallons per minute)
839 GPM + 839 GPM = 1,678 GPM

GPM @ 20 PSI: **3,781 GPM**

Data with 10% Safety Factor

Static Pressure: **50.4 PSI**
(Measured in pounds per square inch)

Residual Pressure: **42.4 PSI**
(Measured in pounds per square inch)

Distance between hydrants: Approx. 800 Feet

Main size: Not Provided

Flowing GPM: **1,678 GPM**

GPM @ 20 PSI**:** **3,451 GPM**

Flow Test Location **North**