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## 1.0 Introduction

### Project Description and Location

The 4242 N. Scottsdale Road project is a proposed 0.32 net acre bar/restaurant project located at the southwest corner the intersection of 5th Avenue and Scottsdale Road in Scottsdale, Arizona. The site is further described as a portion of Section 22, Township 2 North, Range 4 East of the Gila and Salt River Base and Meridian, Maricopa County Arizona. The site is identified as assessor's parcel numbers: 173-50-126 and 173-50-127. The purpose of this report is to provide an analysis of the potable water for the proposed development. The proposed development consists of a building with the City of Scottsdale land use type of restaurant (7,543 sf).

The site will consist of a bar/restaurant and surface paved parking. Please refer to the overall site utility plan in **Appendix C**.

The purpose of this report is to satisfy the City of Scottsdale engineering design requirements regarding the basis of water design for the proposed 4242 N. Scottsdale Road project. Water design calculations are provided for review and approval by Maricopa County Environmental Services Department.

This report has been prepared to meet the requirements of the City of Scottsdale, the Maricopa County Environmental Services Department (MCESD), the Arizona Administrative Code (AAC), and the Arizona Department of Environmental Quality (ADEQ).

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## 2.0 Water Basis of Design

### Existing Facilities/Conditions

Existing public water lines are located on all sides of the proposed development. An existing 8-inch public water line is in the alley on the west side of the project. An existing 8-inch public water line is in Scottsdale Road.

### Proposed Improvements and Demand

The domestic potable water needs for the project will be served by an existing water meter adjacent to Scottsdale Road.

Calculations for estimated average day, max day, and peak demands for the development are as follows:

AVERAGE DAY WATER DEMANDS <sup>(1)</sup>							
IN GALLONS PER DAY (GPD) <sup>(2)</sup>				IN GALLONS PER MINUTE (GPM) <sup>(2)(3)</sup>			
Land Use	Inside Use	Outside Use	Total Use	Inside Use	Outside Use	Total Use	Units
<b>Residential Demand per Dwelling Unit</b>							
< 2 dwelling unit per acre (DU/ac)	208.9	276.7	485.6	0.30	0.39	0.69	per unit
2 – 2.9 DU/ac	193.7	276.7	470.4	0.27	0.39	0.66	per unit
3 – 7.9 DU/ac	175.9	72.3	248.2	0.25	0.11	0.36	per unit
8 – 11.9 DU/ac	155.3	72.3	227.6	0.22	0.11	0.33	per unit
12 – 22 DU/ac	155.3	72.3	227.6	0.22	0.11	0.33	per unit
High Density Condominium (condo)	155.3	30	185.3	0.22	0.05	0.27	per unit
Resort Hotel (includes site amenities)	401.7	44.6	446.3	0.56	0.07	0.63	per room
<b>Service and Employment</b>							
Restaurant	1.2	0.1	1.3	1.67E-03	1.39E-04	1.81E-03	per square foot (sq.ft.)
Commercial/Retail	0.7	0.1	0.8	9.73E-04	1.39E-04	1.11E-03	per sq.ft.
Commercial High Rise	0.5	0.1	0.6	6.95E-04	1.39E-04	8.34E-04	per sq.ft.

### DOMESTIC WATER DEMAND CALCULATIONS

BUILDING	GROSS SQUARE FOOTAGE	UNIT DEMAND (PER SF)	Total Avg Day Demand (GPM)	Total Max Day Demand (GPM)	Total Peak Day Demand (GPM)
Bar/Restaurant	11,203	1.2	18.71	65	75

### **3.0 Fire Flow Requirements**

Per Scottsdale's requirement (DSPM 6-1.501) the fire flow for a commercial building must be a minimum of 1,500 gpm at the building. Determining the Fire Flow requirement is per 2015 IFC, Appendix B. This proposed building will be construction type A-2 and will not have an automatic sprinkler system.

As mentioned above, Scottsdale requires a minimum of **1,500 gpm** for fire flow analysis in commercial buildings. This is the value that will be used in the WaterCAD simulation.

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## 4.0 Fire Flow Results and Adjustments

A flow and pressure test was performed on October 23, 2024 by Knock It Out Fire. A copy of this flow test is provided in **Appendix A**. The Scottsdale flow test permit number is: **C76725**. This test was witnessed by Scottsdale Water Inspector C. Mendez on this same day.

The flow test resulted in a static pressure of 101 psi, a residual pressure of 87 psi with a projected available hydrant flow of 3,622 GPM. There is currently an 8-inch looped system adjacent to the site which will provide adequate fire flow requirements for the proposed development. The adjusted fire flow test results are shown below and are what is used in the WaterCAD simulation model. The calculations for these adjustment calculations are shown in **Appendix A**.

FIRE FLOW DEMAND			
BUILDING	GROSS SQUARE FOOTAGE	CONSTR. TYPE	GPM REQUIRED
Bar/Restaurant	11,203	A-2	1,500

Raw Fire Flow Test Data		Data with a 48 PSI Safety Factor	
Static Pressure	101	53	reduced by 48
Residual Pressure	87	39	reduced by 48
Flowing GPM	1404	1,264	reduced by 10%
GPM @ 20 psi	3622	3,260	reduced by 10%

## 5.0 WaterCAD Design Parameters

A water model was created to simulate the proposed Overall water system. The model was analyzed for (4) different scenarios: Average Day, Peak Hour, Max Day + Fire Flow, and Average Day at highest Finish Floor.

As seen in **Appendix B** the following junctions are significant.

J-4: Building Demand Node

J-5: Fire Demand Node

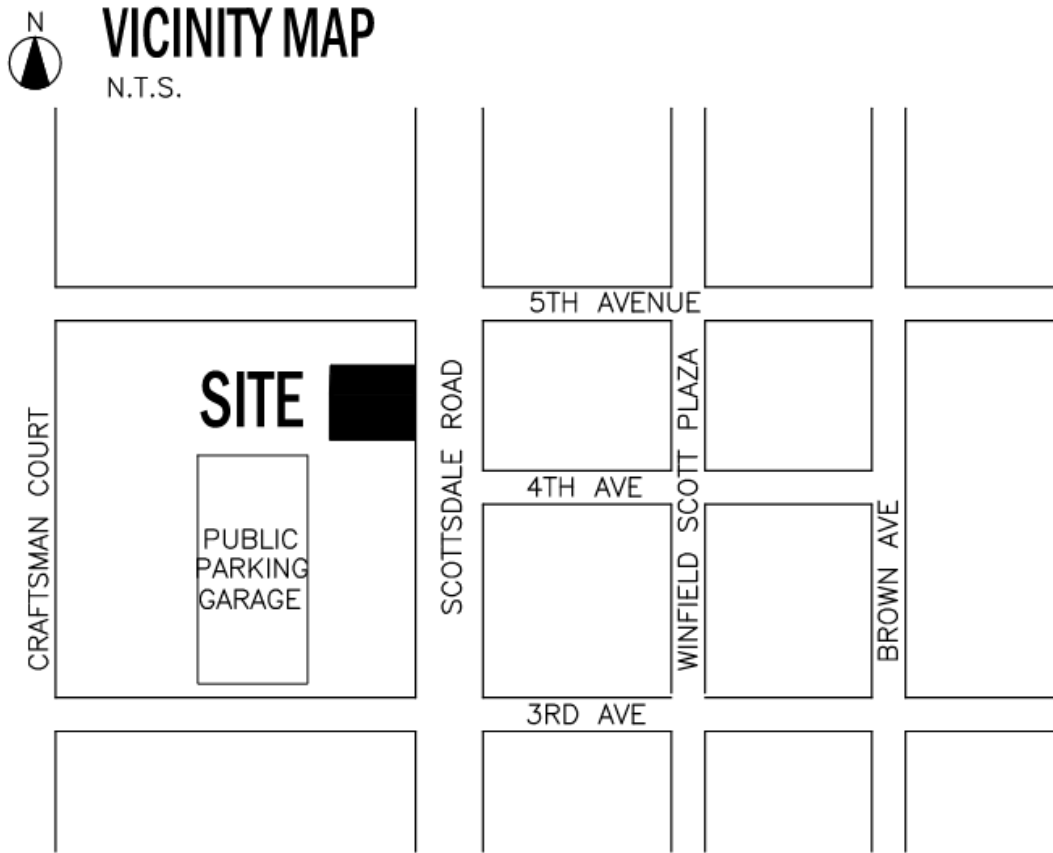
J-1: Fire Hydrant

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## **Conclusions**

- The 4242 N. Scottsdale Road project will obtain water service from an existing water meter. This water meter will run within the site and connect to the public main in Scottsdale Road.
  - This proposed development will produce water demands which will not require upsizing of the existing water meter.
  - Fire flow analysis has met the City of Scottsdale requirements.
-

### EXHIBIT 1 – VICINITY MAP



**Appendix A**  
**Fire Flow Test Results**

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8361 W. Troy St. Peoria, Az 85382

623-826-8881 C-16 333560

Knockitoutfire@gmail.com

**Fire Hydrant Water Flow Test @6:30a.m.**

**4246 North Scottsdale Road Scottsdale, AZ 10/23/24**

usually measured from another hydrant. What hydrant? Location?

Static:  psi before flowing

Coefficient of Discharge: 0.9

Residual:  psi while flowing

Pitot:  pitot gage reading

Diameter:  size of opening tested

10% Reduced = 1264 gpm

This hydrant is flowing:  GPM from the test outlet

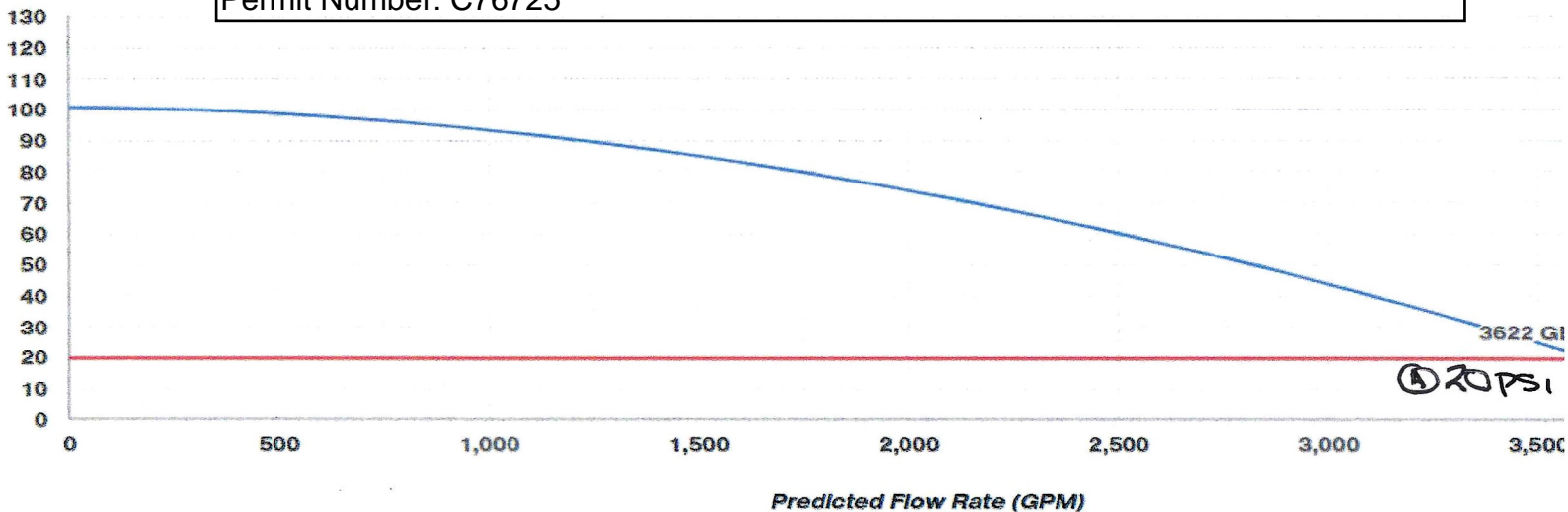
10% Reduced = 3,260 gpm

Projected available hydrant flow:  GPM <sup>Note 1</sup>

GPM at 20 psi: 3622  
 Class: AA  
 Marking color: Light Blue  
 % Pressure Drop: 14%

As witnessed by C Mendez on Wednesday, October 23, 7AM (City of Scottsdale)

Permit Number: C76725



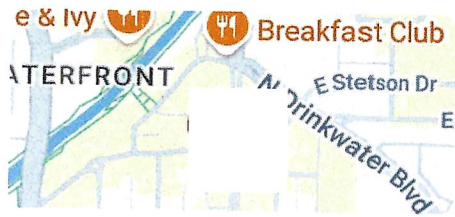
Scottsdale, Arizona

Google Street View

Jun 2024 See more dates



Image capture: Jun 2024 © 2024 Google



**Appendix B**  
**WaterCAD Model Results**

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## AVERAGE DAY DEMAND

FlexTable: Pump Table (Current Time: 0.000 hours) (WaterCAD Layout 4242 N. Scottsdale.wtg)

ID	Label	Elevation (ft)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
39: PMP-1	39 PMP-1	1,653.00	1,267.00	1,378.83	19	111.83

FlexTable: Pipe Table (Current Time: 0.000 hours) (WaterCAD Layout 4242 N. Scottsdale.wtg)

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	
40: P-1	P-1	R-1	PMP-1	1	48.0	130.0	19	0.00
41: P-2	P-2	PMP-1	J-1	1	48.0	130.0	19	0.00
55: P-3	P-3	J-1	J-3	187	6.0	130.0	0	0.00
86: P-4	P-4	J-2	J-4	95	8.0	130.0	0	0.00
88: P-6	P-6	J-5	J-4	25	8.0	130.0	0	0.00
90: P-5	P-5	J-4	J-6	56	8.0	92.5	-19	0.12
91: P-7	P-7	J-6	J-1	37	6.0	92.5	-19	0.21

FlexTable: Junction Table (Current Time: 0.000 hours) (WaterCAD Layout 4242 N. Scottsdale.wtg)

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)	
30: J-1	J-1	1,267.00	0	48	1,378.83
49: J-3	J-3	1,267.00	0	48	1,378.83
59: J-2	J-2	1,267.00	0	48	1,378.82
84: J-5	J-5	1,267.00	0	48	1,378.82
85: J-4	J-4	1,267.00	19	48	1,378.82
89: J-6	J-6	1,267.00	0	48	1,378.82

FlexTable: Reservoir Table (Current Time: 0.000 hours) (WaterCAD Layout 4242 N. Scottsdale.wtg)

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)	
38: R-1	R-1	1,267.00	19	1,267.00

### MAX DAY DEMAND

FlexTable: Pump Table (Current Time: 0.000 hours) (WaterCAD Layout 4242 N. Scottsdale.wtg)

ID	Label	Elevation (ft)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
39: PMP-1	39 PMP-1	1,653.00	1,267.00	1,374.69	65	107.69

FlexTable: Pipe Table (Current Time: 0.000 hours) (WaterCAD Layout 4242 N. Scottsdale.wtg)

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	
40: P-1	P-1	R-1	PMP-1	1	48.0	130.0	65	0.01
41: P-2	P-2	PMP-1	J-1	1	48.0	130.0	65	0.01
55: P-3	P-3	J-1	J-3	187	6.0	130.0	0	0.00
86: P-4	P-4	J-2	J-4	95	8.0	130.0	0	0.00
88: P-6	P-6	J-5	J-4	25	8.0	130.0	0	0.00
90: P-5	P-5	J-4	J-6	56	8.0	92.5	-65	0.41
91: P-7	P-7	J-6	J-1	37	6.0	92.5	-65	0.74

FlexTable: Junction Table (Current Time: 0.000 hours) (WaterCAD Layout 4242 N. Scottsdale.wtg)

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)	
30: J-1	J-1	1,267.00	0	47	1,374.69
49: J-3	J-3	1,267.00	0	47	1,374.69
59: J-2	J-2	1,267.00	0	47	1,374.64
84: J-5	J-5	1,267.00	0	47	1,374.64
85: J-4	J-4	1,267.00	65	47	1,374.64
89: J-6	J-6	1,267.00	0	47	1,374.65

FlexTable: Reservoir Table (Current Time: 0.000 hours) (WaterCAD Layout 4242 N. Scottsdale.wtg)

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)	
38: R-1	R-1	1,267.00	65	1,267.00

### PEAK HOUR DEMAND

FlexTable: Pump Table (Current Time: 0.000 hours) (WaterCAD Layout 4242 N. Scottsdale.wtg)

ID	Label	Elevation (ft)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
39: PMP-1	39 PMP-1	1,653.00	1,267.00	1,374.12	75	107.12

FlexTable: Pipe Table (Current Time: 0.000 hours) (WaterCAD Layout 4242 N. Scottsdale.wtg)

Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	
40: P-1	P-1	R-1	PMP-1	1	48.0	130.0	75	0.01
41: P-2	P-2	PMP-1	J-1	1	48.0	130.0	75	0.01
45: P-3	P-3	J-1	J-3	187	6.0	130.0	0	0.00
46: P-4	P-4	J-2	J-4	95	8.0	130.0	0	0.00
48: P-6	P-6	J-5	J-4	25	8.0	130.0	0	0.00
50: P-5	P-5	J-4	J-6	56	8.0	92.5	-75	0.48
51: P-7	P-7	J-6	J-1	37	6.0	92.5	-75	0.85

FlexTable: Junction Table (Current Time: 0.000 hours) (WaterCAD Layout 4242 N. Scottsdale.wtg)

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)	
30: J-1	J-1	1,267.00	0	46	1,374.12
49: J-3	J-3	1,267.00	0	46	1,374.12
59: J-2	J-2	1,267.00	0	46	1,374.06
84: J-5	J-5	1,267.00	0	46	1,374.06
85: J-4	J-4	1,267.00	75	46	1,374.06
89: J-6	J-6	1,267.00	0	46	1,374.07

FlexTable: Reservoir Table (Current Time: 0.000 hours) (WaterCAD Layout 4242 N. Scottsdale.wtg)

Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)	
38: R-1	R-1	1,267.00	75	1,267.00

### MAX DAY + FIRE FLOW DEMAND

Fire Flow Node FlexTable: Fire Flow Results Table (Current Time: 0.000 hours) (WaterCAD Layout 4242 N. Scottsdale.wtg)

	Label	Elevation (ft)	Demand (Maximum) (gpm)	Fire Flow (Needed) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Fire Flow (Available) (gpm)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)	Satisfies Fire Flow Constraints?
30: J-1	J-1	1,267.00	0	1,500	1,500	10,000	10,000	29	20	✓
49: J-3	J-3	1,267.00	0	1,500	1,500	1,785	1,785	20	20	✓
59: J-2	J-2	1,267.00	0	1,500	1,500	2,168	2,168	20	20	✓
84: J-5	J-5	1,267.00	0	1,500	1,500	2,332	2,332	20	20	✓
85: J-4	J-4	1,267.00	65	1,500	1,565	2,465	2,400	20	20	✓
89: J-6	J-6	1,267.00	0	1,500	1,500	2,790	2,790	20	20	✓

FlexTable: Pump Table (Current Time: 0.000 hours) (WaterCAD Layout 4242 N. Scottsdale.wtg)

	ID	Label	Elevation (ft)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
39: PMP-1	39	PMP-1	1,653.00	1,267.00	1,374.69	65	107.69

FlexTable: Pipe Table (Current Time: 0.000 hours) (WaterCAD Layout 4242 N. Scottsdale.wtg)

	Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
40: P-1	P-1	R-1	PMP-1	1	48.0	130.0	65	0.01
41: P-2	P-2	PMP-1	J-1	1	48.0	130.0	65	0.01
55: P-3	P-3	J-1	J-3	187	6.0	130.0	0	0.00
86: P-4	P-4	J-2	J-4	95	8.0	130.0	0	0.00
88: P-6	P-6	J-5	J-4	25	8.0	130.0	0	0.00
90: P-5	P-5	J-4	J-6	56	8.0	92.5	-65	0.41
91: P-7	P-7	J-6	J-1	37	6.0	92.5	-65	0.74

FlexTable: Junction Table (Current Time: 0.000 hours) (WaterCAD Layout 4242 N. Scottsdale.wtg)

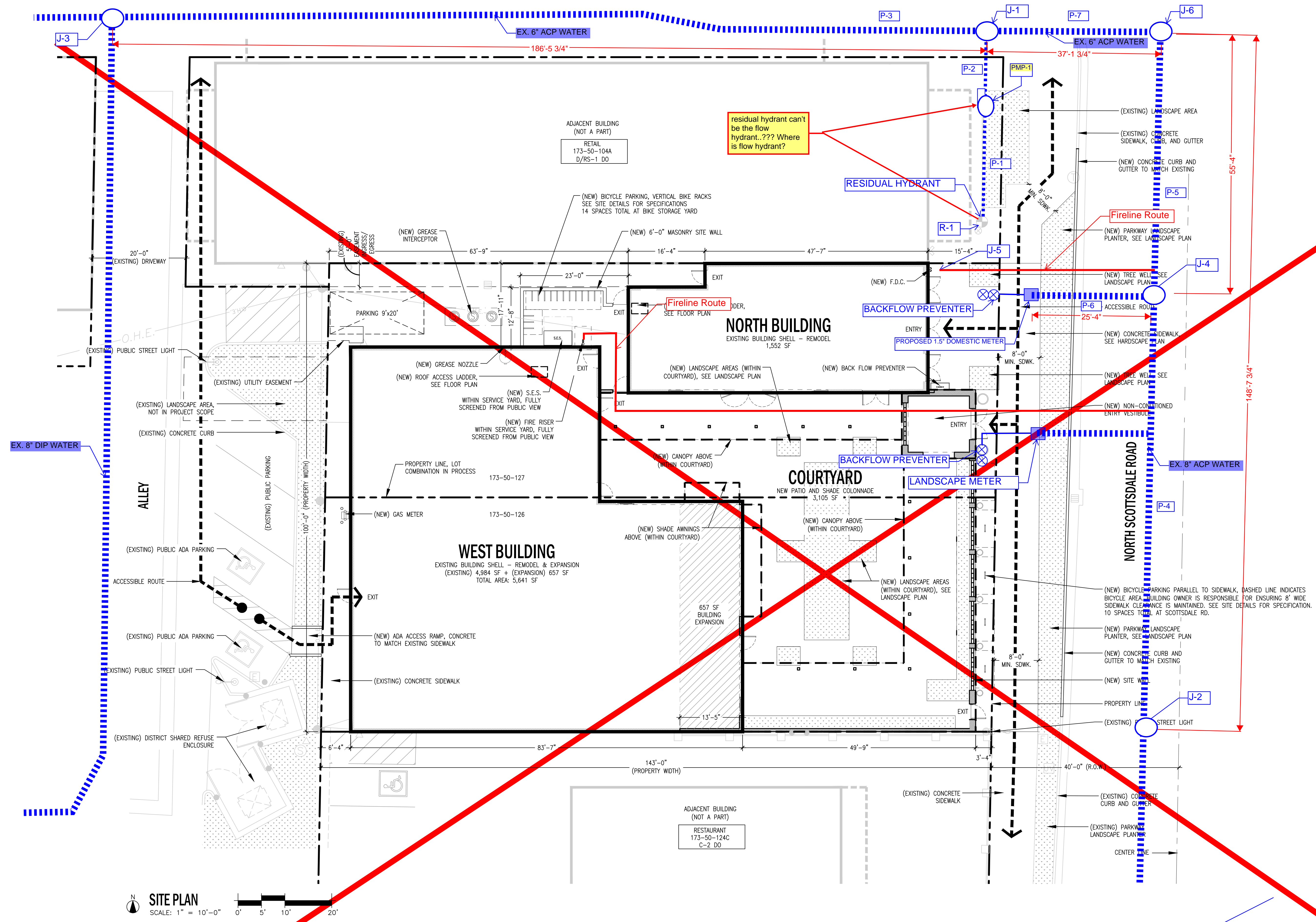
	Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
30: J-1	J-1	1,267.00	0	47	1,374.69
49: J-3	J-3	1,267.00	0	47	1,374.69
59: J-2	J-2	1,267.00	0	47	1,374.64
84: J-5	J-5	1,267.00	0	47	1,374.64
85: J-4	J-4	1,267.00	65	47	1,374.64
89: J-6	J-6	1,267.00	0	47	1,374.65

FlexTable: Reservoir Table (Current Time: 0.000 hours) (WaterCAD Layout 4242 N. Scottsdale.wtg)

	Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
38: R-1	R-1	1,267.00	65	1,267.00

**Appendix C**  
**Site Utility Plan**





**PROJECT DATA**

ZONING: C-2/P-3 DO  
 APN: 173-50-126 & 173-50-127  
 OCCUPANCY TYPE: ASSEMBLY (A-2), BAR/RESTAURANT  
 BUILDING HEIGHT: 66'-0"  
 ALLOWED: 22'-0"  
 EXISTING TO REMAIN: 22'-0"

**SITE AREA:**  
 NET: ± 13,940 SF = 0.32 ACRES

**BUILDING AREAS:**  
 WEST BUILDING (EXISTING) 4,984 SF  
 WEST BUILDING (EXPANSION) 657 SF  
 NORTH BUILDING (EXISTING) 1,552 SF  
 NORTH BUILDING (EXPANSION) 657 SF

**PATIO AREA:**  
 RESTAURANT PATIO (NEW) 3,105 SF

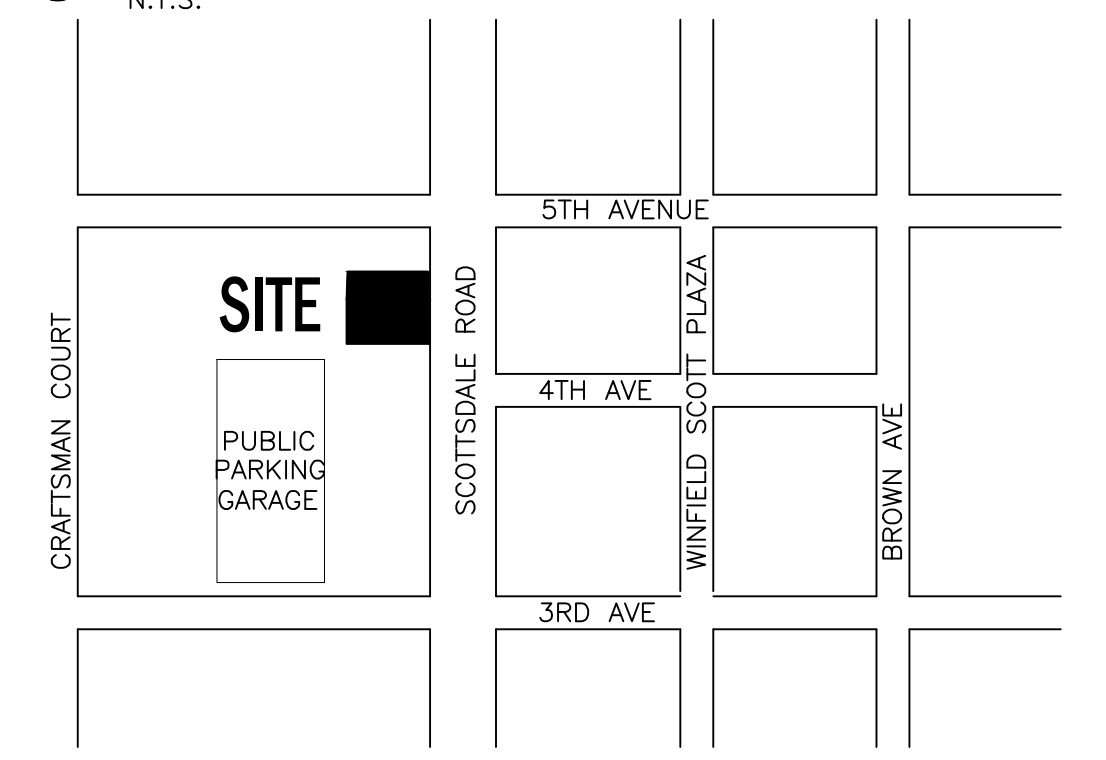
**LOT COVERAGE:**  
 7,193 SF / 13,940 SF 52 %  
 MAX ALLOWED 60 %

**PARKING REQUIRED:**  
 RESTAURANT (7,193 - 1,162 B.O.H.) SF/300 20.1 SPACES  
 RESTAURANT PATIO (3,105 SF - 500)/350 7.5 SPACES  
 TOTAL REQUIRED 28 SPACES

**PARKING PROVIDED:**  
 ON-SITE PARKING 1 SPACES  
 IN LIEU PARKING 5 SPACES  
 BIKE PARKING CREDIT (24 BIKE PARKING / 8) 3 SPACES  
 BIKE SHOWER CREDIT 2 SPACES  
 IMPROVEMENT DISTRICT CREDIT 17.5 SPACES  
 TOTAL PROVIDED 28.5 SPACES

BIKE PARKING PROVIDED: 24 SPACES

**VICINITY MAP**  
 N.T.S.



**GENERAL SITE NOTES**

- ALL ROOF DRAINS TO BE INTERNAL TO THE BUILDING, PER ZONING ORDINANCE 7.105
- PROJECT TO MEET CITY OF SCOTTSDALE NOISE ORDINANCE. ALL SPEAKERS TO FACE DOWNWARDS.
- WINDOWS AND DOORS TO BE RECESSED. SEE SITE DETAILS FOR MORE INFORMATION
- ALL LIGHTING TO MEET CITY OF SCOTTSDALE ORDINANCE. SEE SITE LIGHTING AND PHOTOMETRIC PLANS.
- APPROVAL OF PUBLIC IMPROVEMENTS IN THE RIGHT OF WAY TO BE COMPLETED PRIOR TO OBTAINING A BUILDING PERMIT.
- LOT COMBINATION TO BE APART OF SEPARATE SUBMITTAL.

**SITE PLAN**  
 SCALE: 1" = 10'-0"  
 0' 5' 10' 20'

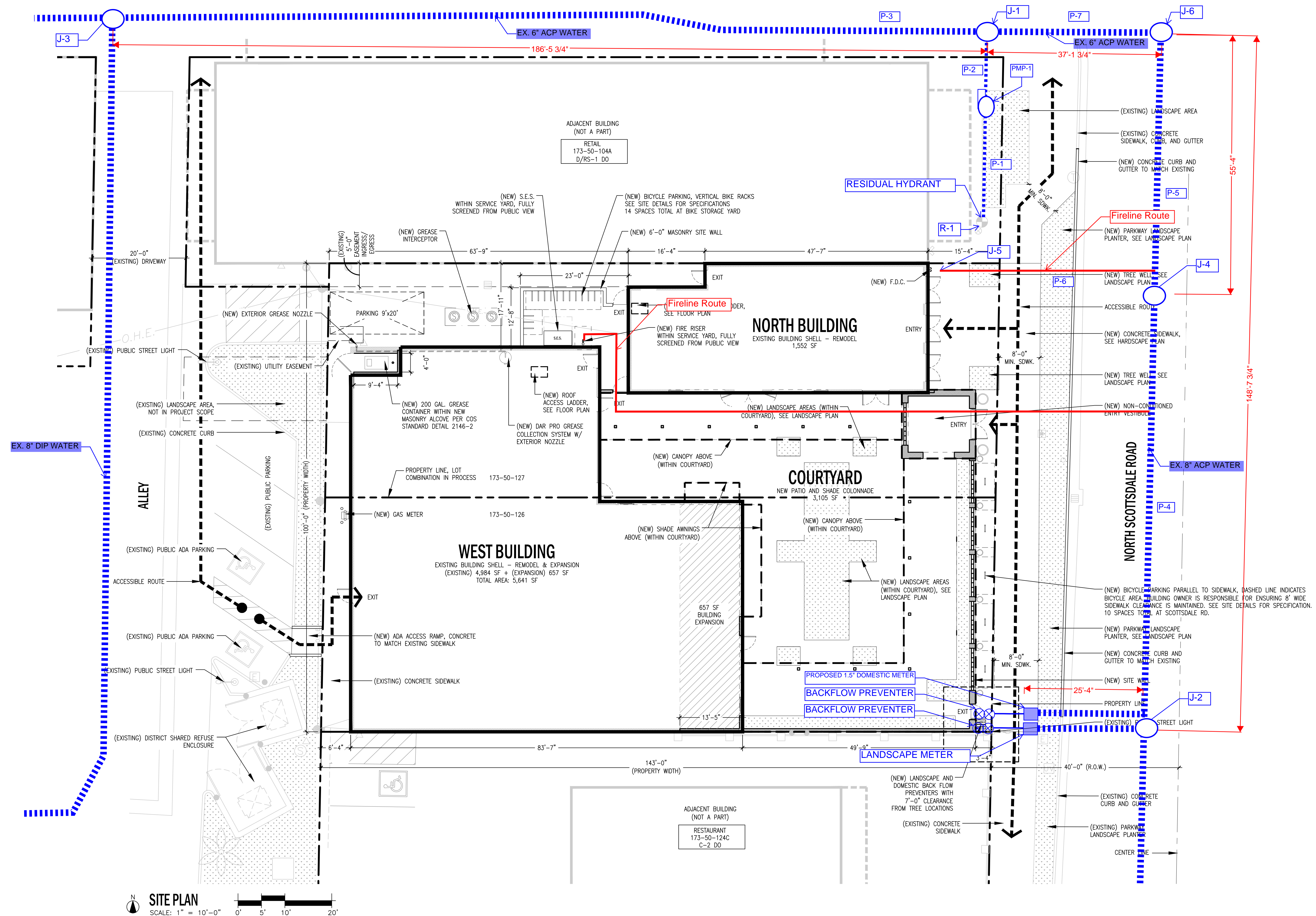
**4242 SCOTTSDALE RD.**

BUILDING REMODEL, EXPANSION, & ADAPTIVE REUSE  
 SCOTTSDALE, ARIZONA  
 FOR: JOCQUE CONCEPTS

utility plan updated  
 3/28/25, inserted on  
 next page by LDillon  
 on 4/4/25



**DESIGN REVIEW**  
**SITE PLAN**  
 v.02B  
 CASE #: 574-PA-2024  
 2024 . 11 . 08  
 REVISED: 2025 . 02 . 22



### PROJECT DATA

ZONING: C-2/P-3 DO  
 APN: 173-50-126 & 173-50-127  
 OCCUPANCY TYPE: ASSEMBLY (A-2), BAR/RESTAURANT

BUILDING HEIGHT:  
 ALLOWED: 66'-0"  
 EXISTING TO REMAIN: 22'-0"

SITE AREA:  
 NET: ± 13,940 SF = 0.32 ACRES

BUILDING AREAS:  
 WEST BUILDING (EXISTING): 4,984 SF  
 WEST BUILDING (EXPANSION): 657 SF  
 NORTH BUILDING (EXISTING): 1,552 SF  
 7,193 SF

PATIO AREA:  
 RESTAURANT PATIO (NEW): 3,105 SF

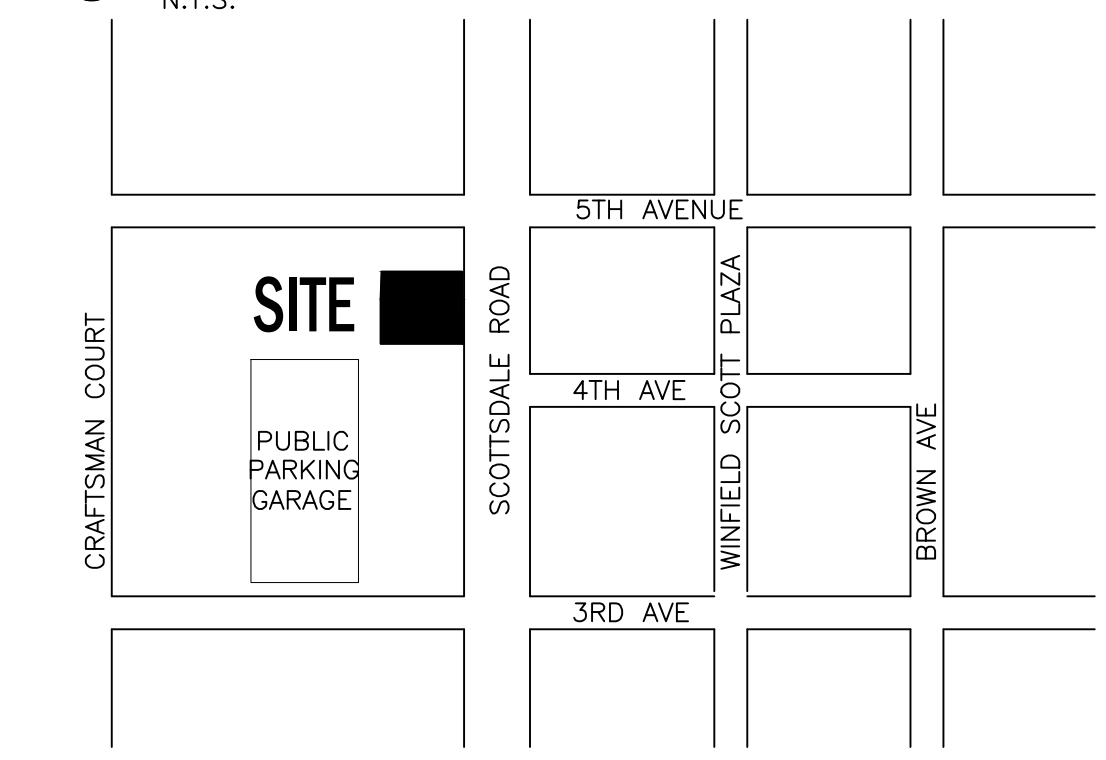
LOT COVERAGE:  
 7,193 SF / 13,940 SF: 52 %  
 MAX ALLOWED: 60 %

PARKING REQUIRED:  
 RESTAURANT (7,193 - 1,162 B.O.H.) SF/300: 20.1 SPACES  
 RESTAURANT PATIO (3,105 SF - 500)/350: 7.5 SPACES  
 TOTAL REQUIRED: 28 SPACES

PARKING PROVIDED:  
 ON-SITE PARKING: 1 SPACES  
 IN LIEU PARKING: 5 SPACES  
 BIKE PARKING CREDIT (24 BIKE PARKING / 8): 3 SPACES  
 BIKE SHOWER CREDIT: 2 SPACES  
 IMPROVEMENT DISTRICT CREDIT: 17.5 SPACES  
 TOTAL PROVIDED: 28.5 SPACES

BIKE PARKING PROVIDED: 24 SPACES

### VICINITY MAP



### GENERAL SITE NOTES

- ALL ROOF DRAINS TO BE INTERNAL TO THE BUILDING, PER ZONING ORDINANCE 7.105
- PROJECT TO MEET CITY OF SCOTTSDALE NOISE ORDINANCE. ALL SPEAKERS TO FACE DOWNWARDS.
- WINDOWS AND DOORS TO BE RECESSED. SEE SITE DETAILS FOR MORE INFORMATION
- ALL LIGHTING TO MEET CITY OF SCOTTSDALE ORDINANCE. SEE SITE LIGHTING AND PHOTOMETRIC PLANS.
- APPROVAL OF PUBLIC IMPROVEMENTS IN THE RIGHT OF WAY TO BE COMPLETED PRIOR TO OBTAINING A BUILDING PERMIT.
- LOT COMBINATION TO BE APART OF SEPARATE SUBMITTAL.

# 4242 SCOTTSDALE RD.

BUILDING REMODEL, EXPANSION, & ADAPTIVE REUSE  
 SCOTTSDALE, ARIZONA  
 FOR: JOCQUE CONCEPTS



DESIGN REVIEW  
 SITE PLAN  
 v.02C  
 CASE #: 574-PA-2024  
 2024 . 11 . 08  
 REVISED: 2025 . 02 . 22  
 REVISED: 2025 . 03 . 26