WATER & SEWER DESIGN REPORT FOR
TAKE 5
7234 E, SHEA BLVD, SCOTTSDALE, AZ

PREPARED FOR

Take 5 Oil Change/ Driven Brands
400 S. Church Street, Suite 700
Charlotte, NC 28202
Ph: 980.259.0701

&
M3 Design
2008 N. 7th Ave
Phoenix, Az 85007
Ph: 480.528.3136
Contact: Jesse Macias

PREPARED BY

KBell Engineering, LLC
1355 N. 86th Place
Mesa, AZ 85207
PH: 602.980.8246
Email: kbell@kbelleng.com

Date:
February 27, 2024

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 JCampo **DATE** 3/25/2024

KBELL ENGINEERING

TABLE OF CONTENTS

Introduction

Developer
Take 5 Oil Change/ Driven Brands
400 S. Church Street, Suite 700
Charlotte, NC 28202

Address and Assessor's Parcel Number
7234 E. Shea Boulevard
A portion of APN 175-43-001F

Project Description:

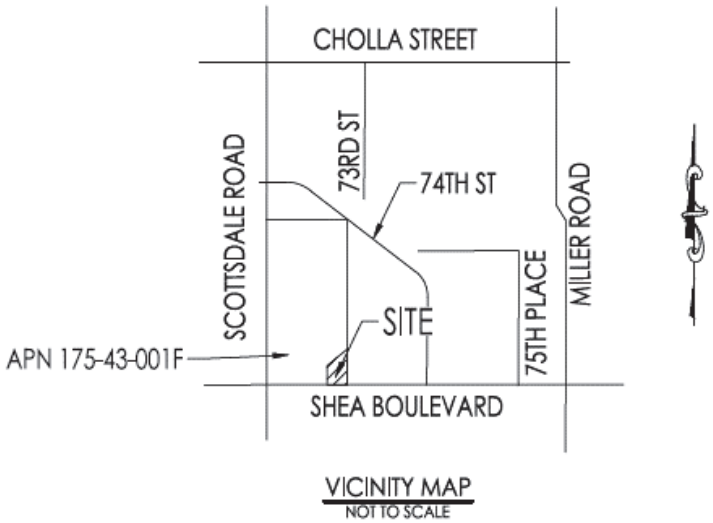
The project is a proposed 1,682 sf vehicular maintenance facility located at 7234 E. Shea Boulevard in Scottsdale, Az near Shea Boulevard and Scottsdale Road. The development consists of one 1682 sf retail building and associated parking, utilities, and other improvements.

The property is currently developed as a dry-cleaning business. There are existing drive aisles, utilities and parking. Utilities along the existing driveways include an existing 8" waterline in the main driveway to the north of the project and an existing sewer line located west of the project. A copy of the preliminary utility plan is included as **Exhibit A**.

The purpose of this report is to describe the existing improvements and proposed improvements for the retail building and associated parking, utilities, and other improvements.

Project Location:

The project site is located between Miller Road and Scottsdale Road along Shea Boulevard The project is located in Section 23, Township 3 North, Range 4 East of the Gila and Salt River Base and Meridian. A vicinity map for the site has been provided below:



VICINITY MAP
NOT TO SCALE

Water

Existing Conditions

The site has existing water and fire service to the existing dry-cleaning business that is proposed to be reconfigured to serve the new development. There is an existing 8" waterline in the main drive aisle to the north and a 12" waterline in the main drive aisle to the west of the project.

Proposed Conditions

All design criteria shall meet the City of Scottsdale and Maricopa County Environmental Services Department Requirements. The project proposes to provide a 4" fire line from the 8" line to the north and a 1" service tap from the existing 12" line located in the drive aisle to the west of the site.

Existing 1" service line. Utility plan calls out new 1.25" service.

Average Day Demand for Commercial Use was calculated using the City of Scottsdale design criteria as0.8 gpd/sf of building, with max day peaking factor of 3.5 times average daily flow. A fire hydrant flow test will be completed on the existing hydrants to the north and east of the site. A summary of the average daily flow, peak daily flow and peak hour flow have been provided as **Exhibit B**.

Based on a total of 1682 square feet of building area and with Type VB construction per the International Building Code, Table B105.1, Exhibit B of the 2012 IFC requires 1500 gallons per minute of fire flow for a duration of 2 hours with a residual pressure not less than 20 psi. A fire flow model will be included with the construction documents for the site. A fire flow test has been included as **Exhibit D**.

Sewer

Existing Conditions

The site has existing 8" sewer line located to the west of the existing dry-cleaning business with a service to the existing building that is proposed to be reconfigured to serve the new development.

Proposed Conditions

The project proposes to tie into the existing sewer line at the manhole to the north of the site with a proposed 6" sewer service. A summary of the average sewer daily flow, peak daily flow and peak hour flow have been provided as **Exhibit C**.

There are no floor drains in the facility, therefore, a sand/oil separator on the building service should not be required.

References

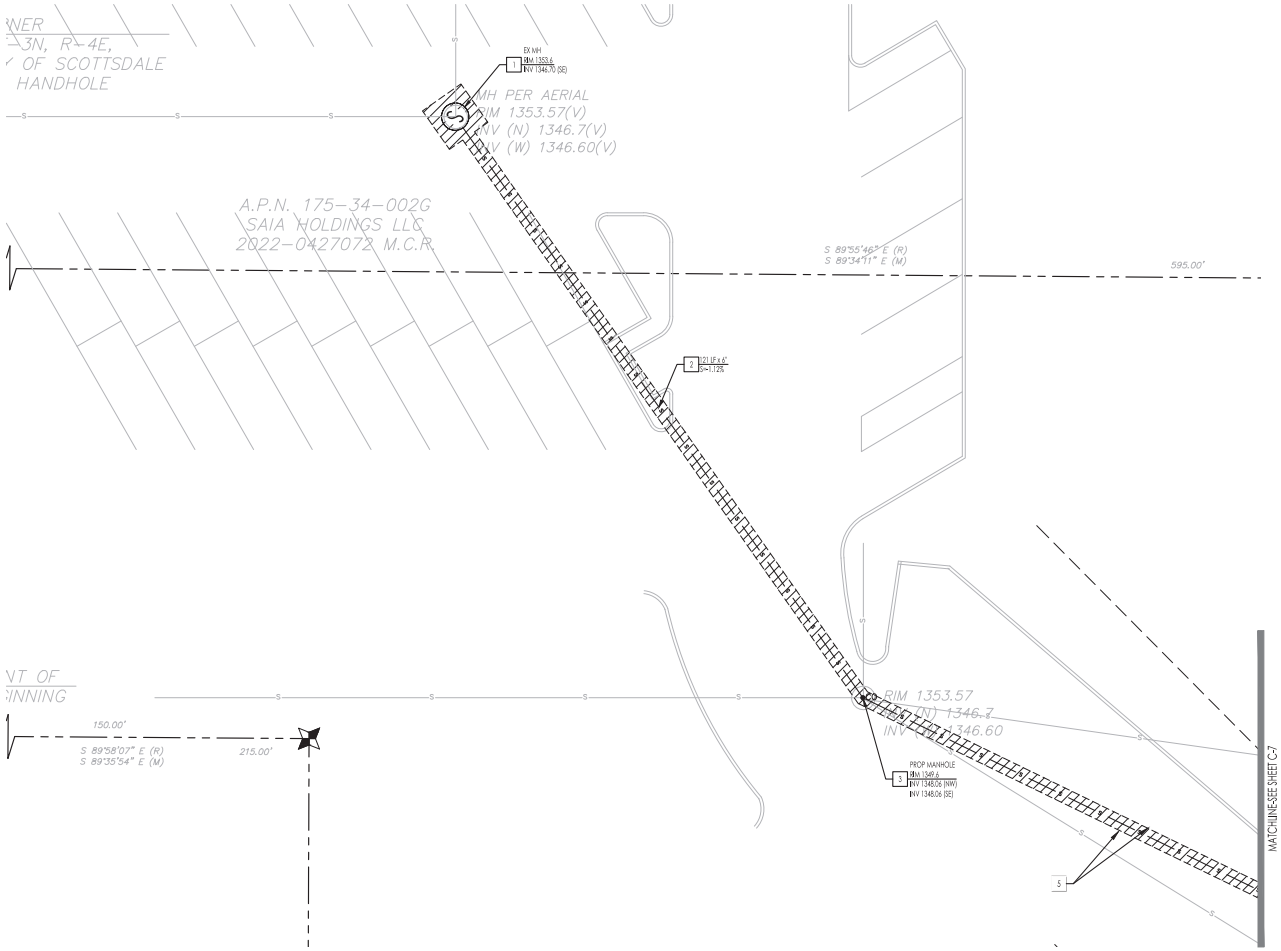
1. City of Scottsdale Design Standards & Policies Manual, dated February 20, 2018
2. Arizona State Standards, Title 18, Chapter 4 Department of Environmental Quality – Safe Drinking Water (2011)

Exhibits

Exhibit A	Utility Map
Exhibit B	Water Calculations
Exhibit C	Sewer Calculations
Exhibit D	Fire Hydrant Flow Test

Exhibit A

Utility Map



ⓦ WATER CONSTRUCTION NOTES

NO WATER CONSTRUCTION THIS SHEET.

SEWER CONSTRUCTION KEYNOTES

1. CONNECT NEW SEWER TAP AT EX MANHOLE. CORE AND GROUT CONNECTION.
2. INSTALL NEW 6" VCP PRIVATE SEWER LINE. TRENCH AND BEDDING PER PLUMBING CODE.
3. INSTALL NEW CLEANOUT PER MAG STD DTL 441.
4. CONNECT TO BUILDING PLUMBING DOWN STREAM OF DOUBLE CLEANOUT FROM PLUMBING PLANS. SEE PLUMBING PLANS FOR CONTINUATION.
5. SAWCUT, REMOVE AND REPLACE EX ASPHALT PER COS STD DTL 2201, TYPE A.
6. SAWCUT, REMOVE AND REPLACE EX CONCRETE SIDEWALK PER MAG STD DTL 230. REMOVE TO NEAREST JOINT.

NOTE:

EXISTING WATER & SEWER INFORMATION PER COS RECORDS. CONTRACTOR TO VERIFY ALL DIMENSIONS AND ELEVATIONS.

2.5 7.5
0 5 10 20
SCALE: 1"=10'

CALL ARIZONA BLUE STAKE, INC. 48 HOURS BEFORE YOU BEGIN EXCAVATION
CALL 811
DIAL 8-1-1 OR 1-800-STAKE-IT (782-5348)
IN MARICOPA COUNTY (602) 263-1100

THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

2645 NORTH 7th AVENUE
PHOENIX, ARIZONA 85007

M3 DESIGN

TAKE 5

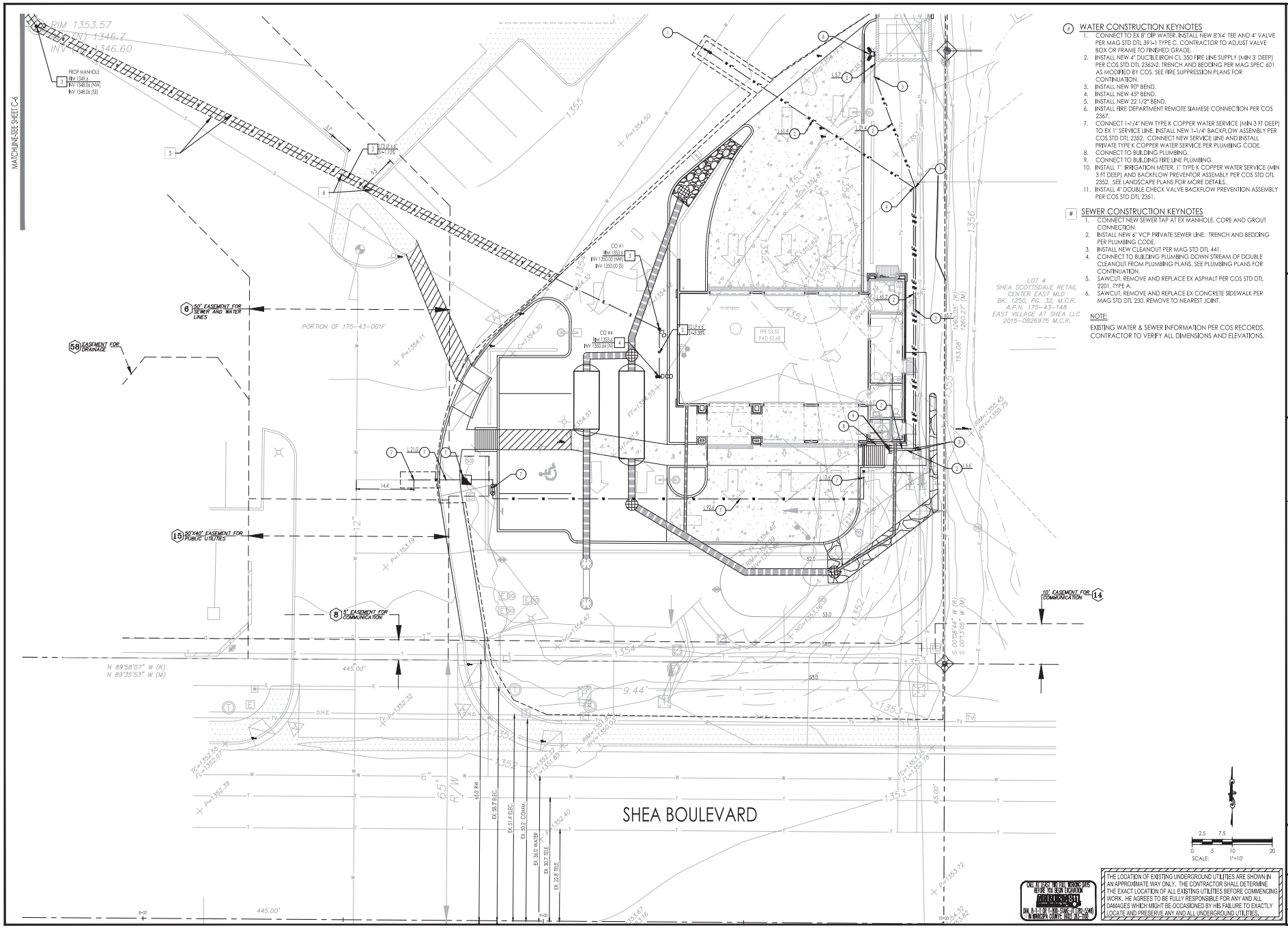
DRAFT FOR PRELIMINARY REVIEW ONLY

57116
KELLY J. BELL
EXPIRES 12-31-2024

TAKE 5 RETAIL FACILITY
7234 E SHEA BLVD
SCOTTSDALE, AZ 85254

UTILITY PLAN

DATE:	2024.02.29
SCALE:	1" = 20'
DRAWN BY:	KJB/MG/JJB
PROJECT NUMBER:	KBE 105513
SHEET:	C-6
REV:	



WATER CONSTRUCTION KEYNOTES

1. CONNECT TO EX 8" DIP WATER. INSTALL NEW 8"X4" TEE AND 4" VALVE PER MAG STD DTL 391-1 TYPE C. CONTRACTOR TO ADJUST VALVE BOX OR FRAME TO FINISHED GRADE.
2. INSTALL NEW 4" DUCTILE IRON CL 350 FIRE LINE SUPPLY (MIN 3' DEEP) PER COS STD DTL 2362-2. TRENCH AND BEDDING PER MAG SPEC 601 AS MODIFIED BY COS. SEE FIRE SUPPRESSION PLANS FOR CONTINUATION.
3. INSTALL NEW 90° BEND.
4. INSTALL NEW 45° BEND.
5. INSTALL NEW 22 1/2° BEND.
6. INSTALL FIRE DEPARTMENT REMOTE SIAMESE CONNECTION PER COS 2367.
7. CONNECT 1-1/4" NEW TYPE K COPPER WATER SERVICE (MIN 3 FT DEEP) TO EX 1" SERVICE LINE. INSTALL NEW 1-1/4" BACKFLOW ASSEMBLY PER COS STD DTL 2352. CONNECT NEW SERVICE LINE AND INSTALL PRIVATE TYPE K COPPER WATER SERVICE PER PLUMBING CODE.
8. CONNECT TO BUILDING PLUMBING.
9. CONNECT TO BUILDING FIRE LINE PLUMBING.
10. INSTALL 1" IRRIGATION METER. 1" TYPE K COPPER WATER SERVICE (MIN 3 FT DEEP) AND BACKFLOW PREVENTOR ASSEMBLY PER COS STD DTL 2352. SEE LANDSCAPE PLANS FOR MORE DETAILS.
11. INSTALL 4" DOUBLE CHECK VALVE BACKFLOW PREVENTION ASSEMBLY PER COS STD DTL 2351.

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NOTE:

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2645 NORTH 7th AVENUE
PHOENIX, ARIZONA 85007

M3 DESIGN

TAKE 5 OIL CHANGE

DRAFT FOR PRELIMINARY REVIEW ONLY

57116
KELLY J. BELL
REGISTERED PROFESSIONAL ENGINEER
ARIZONA

TAKE 5 RETAIL FACILITY
7234 E SHEA BLVD
SCOTTSDALE, AZ 85254

UTILITY PLAN

DATE:	2024.02.29
SCALE:	1" = 20'
DRAWN BY:	KJB/MG/JJB
PROJECT NUMBER:	KBE 105513
SHEET:	C-7
REV:	

Exhibit B

Water Calculations

Take 5 -7632 E. Shea Blvd
Date 8.22.2023

Water Calculations

Peaking Factor 3.5 times average daily flow

Use	basis	SF of facility	avg daily flow gpd	avg daily flow (gpm)	peak (max) daily flow (gpd)	peak (max) daily flow (gpm)	peak hour flow (gpd)	peak hour flow (gpm)
commercial/retail	0.8	1,682	1,346	0.934	2,422	1.68	4,037	2.80

Exhibit C

Sewer Calculations

Take 5 -7632 E. Shea Blvd
Date 8.22.2023

Sewer Calculations

Peaking Factor: 3

Use	basis	SF of facility	avg daily flow (gpd)	avg daily flow (gpm)	peaking factor	peak daily flow (gpm)
commercial/retail	0.5	1,682	841	0.584	3.00	1.75

Exhibit D

Fire Hydrant Flow Test

METRO
FIRE+SECURITY
63 S. Hamilton Place, Gilbert, AZ 85233 (480) 464-0509 • 3851 N. Oracle Road, Tucson, AZ 85705 (520) 888-0694
www.metrofireandsecurity.com
AZ ROC# C-16:111021 • CR-67:103313 • CR-5: 213027 • CR-80:295875 • R-16:166777

Hydrant Flow Test Report

JOB NAME:	Mark's Cleaners	DATE:	1/26/2024
ADDRESS:	7234 E. Shea Blvd., Scottsdale, AZ 85254	TIME:	9:30AM
TEST BY:	Metro Fire Equipment		
WATER SUPPLIED BY:	City		
PURPOSE OF TEST:	Water Curve Data		

DATA

FLOW HYDRANT:		Outlet # 1		Outlet # 2
	Outlet Diameter (in):	2.5		2.5
	Coefficient:	0.9		0.9
	Pitot Reading (psig):	**78**		**0**
	Flow GPM:	**1482**		**0**
TOTAL FLOW DURING TEST:		**1482**	**GPM**	

TEST DURATION: 1 MINUTE

GAUGE HYDRANT:	STATIC (psig):	**90**		RESIDUAL (psig):	**86**	

ADJUSTED FLOW DATA:

GPM At 20 PSIG: **6951**	GPM At 0 PSIG: **7962**

NOTE: Results of this flow test identify water system characteristics for the date, time, and locations of this test only. Pressure and flows within the water system vary of time, it is expected and should be considered when preparing designs based upon fire flow test data. Numerous factors affect the water system, such as water level fluctuations in reservoirs, operating pressure ranges at booster pump stations, elevations at point of use, daily demand fluctuations, seasonal demands, emergency demands, water treatment plant availability, increased demands due to growth, operation/maintenance schedules, etc.