7330 N PIMA RD SCOTTSDALE 85258

The George Hotel – Hotel Renovation and Expansion

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 rsacks **DATE** 6/5/2023

Prepared for

City of Scottsdale

Prepared by

Prefling Engineering

4435 E. Chandler Blvd, Suite 200

Phoenix, AZ 85048

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Appendix

Introduction

Project Description

The George Hotel is proposing a renovation and reconstruction of an existing building of its existing site and facilities at their Scottsdale Arizona location. The address is 7330 N PIMA RD SCOTTSDALE 85258. The site is identified as assessor's parcel number: 174-08-939. The purpose of this report is to provide an analysis of the potable water and wastewater services for the proposed new construction and site development.

The proposed renovation is a modernization to the existing hotel property. This former Days Inn is transitioning from a modest, budget motel to a luxury boutique hotel with an emphasis on wellness and health. The project will keep the existing 2-story hotel building, the number of room units will remain the same within this building. The existing hotel rooms will receive new modern finishes, fixtures, and furniture. The exterior of the buildings will receive maintenance and new lighting. Lobby and courtyard restrooms will remain but receive updated finishes. The existing approved DRB for this property allows for 100 guest rooms, where this proposes the number of rooms to 84. The existing large area of ornamental turf and landscaping will be reduced for new guest patios in the swimming pool area. The usable outdoor spaces will link and unity the existing hotel buildings, that will remain.

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).

Project Location

The George Hotel is located along the western frontage of N. Pima Road between E. Via De Ventura and E. Indian Bend Rd. The site is an existing hotel site with multiple buildings, an existing pool, parking, hardscape, and landscaping. The Maricopa County APN # 174-08-939. The current zoning is R-5. The lot is located in section 01 township 2 North, range 4 East of the Gila and Salt River Base and Meridian within the City of Surprise Arizona. The location of the property is depicted in Exhibit 1 – Vicinity Map.

Existing Facilities/Conditions

This property is currently an existing operational hotel site. There are is an existing pool, parking, hardscape, and landscaping areas.

Water supply for this development will be provided by the existing 6" ACP water line loop that runs throughout the site and connects to the existing 8" water main in Pima Road.

Sanitary Service for this development will be provided by the existing 8" main located Pima Road and also runs along the south and west boundary.

Water Design Parameters

The design criteria used for this development is governed by the City of Scottsdale design standards, engineering and policy guide.

Potable Water Demand Design Criteria

The design criteria used in this report was based upon the design criteria used for this development is governed by the City of Scottsdale Design Standards and Policies Manual (Ref 1) and the MAG Uniform Standard Specifications and Details for Public Works Construction (Ref 2.). The specific design criteria for this development that serves as the basis of the proposed water design are listed below:

- The number of hotel rooms for this site is 84
- The average daily flow for this hotel development w/ restaurant is 140 gpd/unit.
- The peak flow is 1.7 times the average daily flow.
- Domestic water systems shall be designed to maintain a minimum residual pressure between 40 psi and 100 psi during Average Day, and a maximum flow velocity of 10 fps when flowing full.
- A Hazen-Williams C-Factor of 130 was used.
- Firm Pump Capacity shall meet or exceed the larger of the Max Day + Fire Flow or Peak Hour Demand.
- Fire Flow analysis based on 1,500-GPM flow and pressure equal to or greater than 20 psi.

Fireflow Analysis

A WaterCAD model and analysis was done on the existing 6" water loop that runs within throughout the site and connects to the 8" main in Pima Road. The results can be found in Appendix C. There are two existing fire hydrants adjacent to Lot 1 that provide the necessary coverage to reach the buildings. It is not anticipated that an onsite fireline is needed. A fire hydrant flow test was performed on 05-12-2022 which can be found in ***Appendix A***. This was the basis of the WaterCAD model setup for this loop.

Per Scottsdale's requirement the fire flow must be a minimum of 1,500 gpm at each building. This analysis was completed and shown to meet this criterion. Please see ***Appendix C*** for these results.

Proposed Water System Design

Potable Water Supply System

Water supply for this development will be provided by the existing 8" ACP water loop located throughout the site. The proposed development will tie into the existing system.

Water Demand Calculations

*Average Daily Flow = 140 * 84 = 11,760 gal/day (8.17 gpm)*
*Peak Daily Flow = 140 * 84 * 1.7 = 19,992 gal/day (13.88 gpm)*

Water Meter Sizing – Total Fixture Units

The overall number of hotel rooms is increasing by 1 with this development so the existing domestic water meter service and size will remain.

Proposed Wastewater System Design

Proposed Wastewater System

Sanitary supply for this development will be provided by the existing 8" sanitary line located onsite along the eastern, southern and western frontages. The proposed development will tie into the existing system.

Wastewater Demand Design Criteria

The design criteria used in this report was based upon City of Scottsdale Design Standards and Policies Manual and the MAG Uniform Standard Specifications and Details for Public Works Construction. The specific design criteria for this development that serves as the basis of the proposed water design are listed below:

- The total number of units being planned is ***84***
- The average daily flow for this hotel with restaurant is 150 gallons per unit
- Peaking Factor = 3.0

Projected Wastewater Flows

*Average Day Demand = 150 gpd/u * 84 = 12,600 gal/day*
*Design Flow with Peaking Factor = 3.0 * 12,600 = 37,800 gal/day*

Sanitary Flow and Velocity

The onsite 8" sewer main is currently designed to achieve an average slope of 0.8%. An 8" pipe flowing full at 0.8% slope will discharge at ~1.08 cfs at a velocity of 3.09 ft/sec.. See *Appendix B*.

Sanitary Capacity

The following calculation verifies that the proposed 8" sanitary line at 0.8% has capacity for this development.

WASTEWATER GENERATION FROM	SERVICE AREA (Lots)	ADF (GPD)	PEAKING FACTOR (P)	PEAK FLOW (GPD)	PIPE SIZE (D) (IN.)	PIPE SLOPE[1] (FT/FT)	FULL FLOW CAPACITY (GPD)
Scottsdale	206,307	12,450	3.00	37,350	8	0.0080	698,515

Conclusions

Based on the analysis presented in this Water and Wastewater Design Report, the following conclusions are drawn:

1. This new overall hotel renovation will be bringing the total number of hotel rooms to 84, which is below the maximum number of allowed rooms of 100 as per the approved DRB.
2. The existing domestic water service and meter will not be altered.
3. The existing onsite water main will continue to provide onsite and adjacent existing fire hydrants will provide the necessary fire flow.
4. This report was prepared in accordance with the recommendations and design parameters of the Engineering Development Standards (2018) and City of Scottsdale.
5. The hotel will continue to be adequately served for both water demand and wastewater capacity according to the 2018 Uniform Pluming Code.

References

1. City of Scottsdale, Engineering Development Standards, 2018
2. Arizona Administrative Code, Title 18, Chapter 9, Code No. R18-9-E301, June 2020.
3. Maricopa County Environmental Services Department, Maricopa County Environmental Health Code, September 2013.
4. Arizona Department of Environmental Quality, Engineering Bulletin No. 11, Chapter IV, July 1978.
5. 2018 Uniform Plumbing Code, International Association of Plumbing and Mechanical Officials, 2018.

Appendix A

Fire Flow Test Results

Google Maps 7330 north pima road

PITOT: 25 PSI

STATIC 70PSI RESIDUAL 56PSI

CITY OF SCOTTSDALE HYDRANT FLOW TEST PERMIT

Fire Hydrant Flow Test Permit Details

Permit Number:
C68689
Permit Type:
Civil
Location:
7330 north Pima Road
Keycode:
6F738

Owner Name:
David Hicks
Owner Address:
8361 W TROY ST
Owner City:
PEORIA
Owner State:
AZ
Owner Zip:
85382
Owner Phone:
(623) 826-8881

Contractor Name:

KNOCK IT OUT FIRE

Contractor Address:

8361 W TROY ST

Contractor City:

PEORIA

Contractor State:

AZ

Contractor Zip:

85382

Contractor Phone:

623-826-8881

Date Paid:

5/6/2022 2:03:48 PM

Amount Paid:

195.00

Credit Card Number:

XXXXXXXXXXXX4443

To schedule an inspection scan the QR code using a code reader app.

Two (2) working days' notice is required prior to scheduling your flow test.

Appendix B

8" Sanitary Full Flow Capacity & Velocity

Channel Report

Project Name: New Project

Studio Express by Hydrology Studio v 1.0.0.13

07-13-2022

George Hotel Sanitary

Channel 1

CIRCULAR PIPE

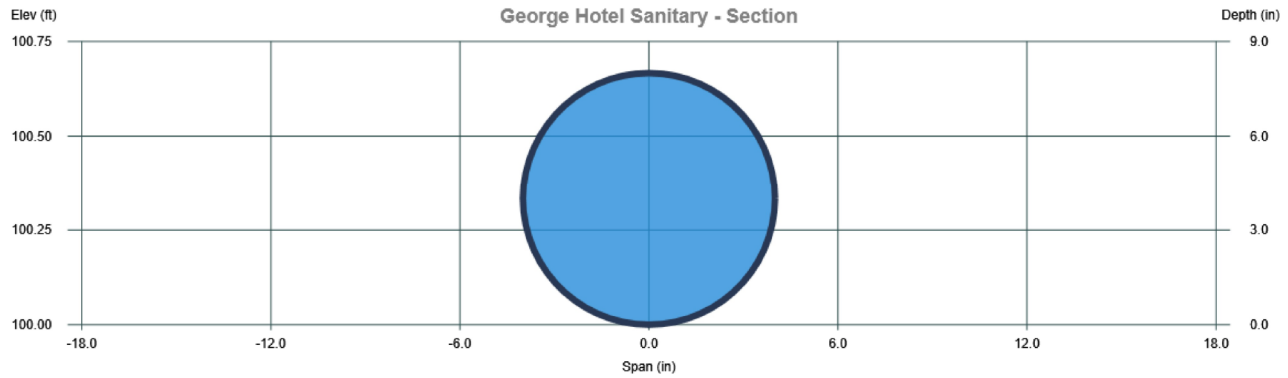
Diameter	= 8.0 in
Invert Elevation	= 100.00 ft
Pipe Slope	= 0.800 %
Manning's n	= 0.013

DISCHARGE

Method	= Known Depth
known Depth	= 0.67 ft

CALCULATION SAMPLE

Flow	Depth	Area	Velocity	WP	n-value	Crit Depth	HGL	EGL	Max Shear	Top Width
(cfs)	(in)	(sqft)	(ft/s)	(ft)		(in)	(ft)	(ft)	(lb/sqft)	(ft)
1.08	8.0	0.35	3.09	2.09	0.013	6.0	100.7	100.82	0.33	0.00



George Hotel - Scottsdale

APN: 174-08-939

WASTEWATER GENERATION FROM	SERVICE AREA (Lots)	ADF (GPD)	PEAKING FACTOR (P)	PEAK FLOW (GPD)	PIPE SIZE (D) (IN.)	PIPE SLOPE[(1)] (FT/FT)	FULL FLOW CAPACITY (GPD)	SURPLUS CAPACITY (GPD)	% CAPACITY USED	FLOW DEPTH (d) (IN)	d/D
Scottsdale	206,307	12,450	3.00	37,350	8	0.0080	698,515	661,165	5	1.26	0.16

Wastewater Generation (5-8du/acre)(gpd/du) 190

Manning's n = 0.013

Peaking Factor 2.5

(1) Minimum Pipe Slope requirement.

Full Flow Capacity = $1.4861/n*A*R^{2/3}*S^{1/2}$

$A = \pi/4*(D/12)^2$

R = D/4 For Circular Pipe Flowing full

S = Pipe slope

D = Pipe Diameter in Inches

Appendix C

WaterCAD Model Results

Demander Placed Here at J-2

J-1, pump and reservoir location

Pima Road

J–1

J–2

J–3

J–4

P–1

P–2

P–3

P–4

P–5

P–6

PMP–1

R–1

8"

6"

16"

Average Day

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

	Label	Start Node	Stop Node	Length (ft)	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
32: P-1	P-1	J-1	J-2	575	6.0	130.0	5	0.05
34: P-2	P-2	J-2	J-3	363	6.0	130.0	-4	0.04
36: P-3	P-3	J-3	J-4	465	6.0	130.0	-4	0.04
37: P-4	P-4	J-4	J-1	459	8.0	130.0	-4	0.02
40: P-5	P-5	R-1	PMP-1	1	48.0	130.0	8	0.00
41: P-6	P-6	PMP-1	J-1	1	48.0	130.0	8	0.00

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

	Label	Elevation (ft)	Flow (Out net) (gpm)	Hydraulic Grade (ft)
38: R-1	R-1	1,301.71	8	1,301.71

FlexTable: Pump Table (Current Time: 0.000 hours) (WaterCAD Layout.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	1,301.71	1,301.71	1,463.40	8	161.69

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

	Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
30: J-1	J-1	1,301.71	0	70	1,463.40
31: J-2	J-2	1,299.47	8	71	1,463.40
33: J-3	J-3	1,299.11	0	71	1,463.40
35: J-4	J-4	1,299.50	0	71	1,463.40

Peak Daily Flow

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

	Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
30: J-1	J-1	1,301.71	0	70	1,463.39
31: J-2	J-2	1,299.47	14	71	1,463.39
33: J-3	J-3	1,299.11	0	71	1,463.39
35: J-4	J-4	1,299.50	0	71	1,463.39

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

	Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
30: J-1	J-1	1,301.71	0	70	1,463.39
31: J-2	J-2	1,299.47	14	71	1,463.39
33: J-3	J-3	1,299.11	0	71	1,463.39
35: J-4	J-4	1,299.50	0	71	1,463.39

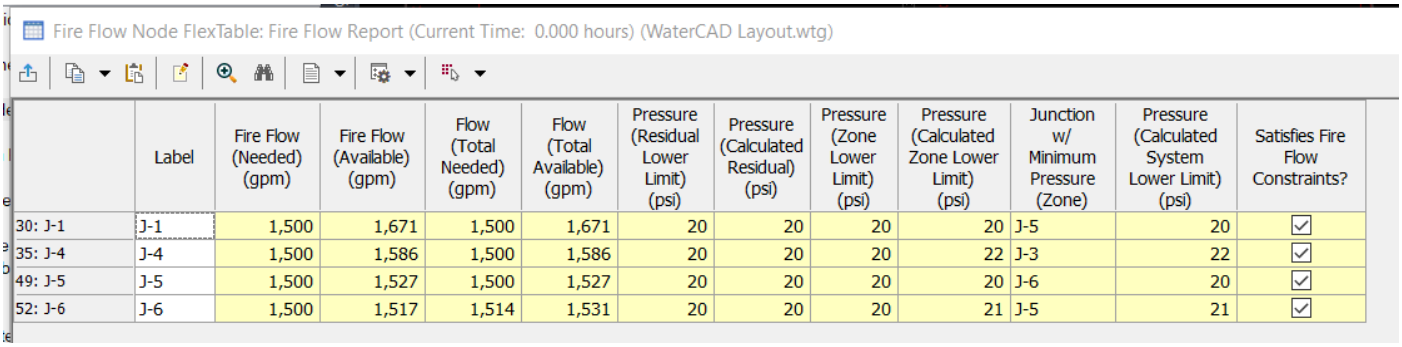
FlexTable: Pump Table (Current Time: 0.000 hours) (WaterCAD Layout.wtg)

	ID	Label	Elevation (ft)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
39: PMP-1	39	PMP-1	1,301.71	1,301.71	1,463.39	14	161.68

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

	Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Hydraulic Grade (ft)
30: J-1	J-1	1,301.71	0	70	1,463.39
31: J-2	J-2	1,299.47	14	71	1,463.39
33: J-3	J-3	1,299.11	0	71	1,463.39
35: J-4	J-4	1,299.50	0	71	1,463.39

Peak Daily Flow + Fire Flow



	Label	Fire Flow (Needed) (gpm)	Fire Flow (Available) (gpm)	Flow (Total Needed) (gpm)	Flow (Total Available) (gpm)	Pressure (Residual Lower Limit) (psi)	Pressure (Calculated Residual) (psi)	Pressure (Zone Lower Limit) (psi)	Pressure (Calculated Zone Lower Limit) (psi)	Junction w/ Minimum Pressure (Zone)	Pressure (Calculated System Lower Limit) (psi)	Satisfies Fire Flow Constraints?
30: J-1	J-1	1,500	1,671	1,500	1,671	20	20	20	20	J-5	20	☑
35: J-4	J-4	1,500	1,586	1,500	1,586	20	20	20	22	J-3	22	☑
49: J-5	J-5	1,500	1,527	1,500	1,527	20	20	20	20	J-6	20	☑
52: J-6	J-6	1,500	1,517	1,514	1,531	20	20	20	21	J-5	21	☑

Appendix D

Site Utility Plan

CONSTRUCTION NOTES

1. INSTALL REDUCED PRESSURE–PRINCIPLE BACKFLOW PREVENTION ASSEMBLY PER COS STD DTL 2352. BACKFLOW TO MATCH EXISTING METER SIZE.

EXISTING HYDRANT

NOT A PART

PIMA INN CONDOMINIUMS PHASE II
BK. 275, PG. 35, M.C.R.

OF THIS SURVEY

12.9' WTR/SWR ESMT

EXISTING GEORGE HOTEL FIRELINE CONNECTION

6" ACP WTR

20.0' WTR/SWR ESMT

NEW BUILDING
FFE: 1301.75

LOT 2a
INNER CIRCLE
BK. 111, PG. 42, M.C.R.
A.P.N. 174-08-037
JORGENSON NICHOLAS/
VAN COTT COURTNEY
2021-0476384 M.C.R.

NOT A PART

LOT 29
INNER CIRCLE
BK. 111, PG. 42, M.C.R.
A.P.N. 174-08-038
BECKER ARNOLD P/
THERESA TR
2001-1026893 M.C.R.

OF THIS SURVEY

LOT 30
INNER CIRCLE
BK. 111, PG. 42, M.C.R.
A.P.N. 174-08-039
EWING JAMES I
2018-0791040 M.C.R.

LOT 31
INNER CIRCLE
BK. 111, PG. 42, M.C.R.
A.P.N. 174-08-040
EWING JAMES I
2018-0355124 M.C.R.

BLDG 2: FFE= 01.86

BLDG 1: FFE = 02.13

BLDG 1: EXIST FFE = 02.00

8" VCP SAN.

8" ACP WTR

20.0' WTR/SWR ESMT

PIMA ROAD

EXISTING HYDRANT

6.0'

8" VCP SAN.

6" ACP WTR

23.5' WTR/SEWER ESMT

6.0'

TRACT "A"

INNER CIRCLE
BK. 111, PG. 42, M.C.R.

LOT 9
A.P.N. 174-08-018B
FOLSOM MARLA S
2021-0577393 M.C.R.

LOT 8
A.P.N. 174-08-017
DAVID GORDON MEDILL AND LAURA
MEDILL FAMILY REVOCABLE TRUST
2018-0411178 M.C.R.

LOT 7
A.P.N. 174-08-016
GILMORE GERALD R/KENNETH
2019-1056539 M.C.R.

LOT 6
A.P.N. 174-08-015
JOY LORANN SUGH CORSON TR
2011-0249500 M.C.R.

LOT 5
A.P.N. 174-08-014
ALEXANDER JOHN R
2013-0454360 M.C.R.

0' 30' 60' 90'
SCALE IN FEET
SCALE: 1" = 30'

THE GEORGE HOTEL SITE IMPROVEMENTS

A PORTION OF SECTION 01,
TOWNSHIP 2 NORTH, RANGE 4 EAST,
OF THE GILA AND SALT RIVER MERIDIAN,
MARICOPA COUNTY, ARIZONA.

4435 E. Chandler Blvd
Suite 200
Phoenix, AZ 85048
480-625-9795

PRELIM GRADING AND UTILITY PLAN
UTILITY PLAN

Version	
1	1ST SUBMITTAL 07/15/2022
2	2ND SUBMITTAL 02/21/2023
3	3RD SUBMITTAL 05/24/2023

Designed by: MJP
Drawn by: MJP
Checked by: MJP
Date: 05/24/2023

SEAL

Registered Professional Engineer
CERTIFICATE NO.
46785
MICHAEL J. PREFLING
ARIZONA U.S.A.
05/24/23

EXPIRES: 9/30/25

JOB NUMBER
100

SHEET
3 OF 3

C:\USERS\MIKEP\DESKTOP\NEW FOLDER\GEORGE HOTEL\PRLM-SITE IMPROVEMENTS.DWG 05/24/23 - 07:56pm