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*JOHNSON UTILITIES, L.L.C.* RECEIVED

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5230 East Shea Boulevard \* Scottsdale, Arizona 85254

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Arizona Corporation Commission

DOCKETED

AZ CORP. COMMISSION  
DOCUMENT CONTROL  
January 30, 2007

JAN 30 2007

Linda A. Jaress  
Arizona Corporation Commission  
1200 W. Washington Street  
Phoenix, Arizona 85007

DOCKETED BY *NR*

Re: Johnson Utilities, L.L.C. - Application for Extension of Certificate of Convenience and Necessity (CC&N) Docket No. WS-02987A-06-0667

Dear Mrs. Jaress:

This letter is in response to your Insufficiency Letter dated November 14, 2006 regarding the above captioned matter. We will respond serially to your requests without restating them.

Wastewater CC&N Application

1. The amendment to our current Council of Governments §208 plan to include the requested CC&N area has been prepared and submitted to CAAG for processing. We would request that the 208 plan amendment be filed as a compliance item in this docket within 2 years of the decision approving this application.
2. The Preliminary Wastewater report for Walker Butte was correct and the flows for Unit 1 will go to the Section 11 WWTP. The engineering on the project concluded that due to geological obstructions between Unit 1 and our Anthem WWTP, that will serve the remainder of the project, it made the most sense to send the flows to the Section 11 WWTP.
3. When the Wastewater Collection Plan for Monterra was originally prepared the Town of Florence was planning on providing the water and sewer service to the project. The Town has subsequently asked Johnson Utilities to provide the service. The updated plan is attached here to as Attachment 1.
4. The Anthem WWTP is currently under construction and has not received any flows for the last 12 months. The flows from the Section 11 WWTP for the last 12 months are attached here to as Attachment 2.
5. The annual compliance report for Section 11 WWTP is attached hereto as Attachment 3. We will be filing in April our annual compliance status report from ADEQ for all our water and wastewater plants as required by ACC Decision No. 65840.
6. The approximate size in acres of each of the developments in the proposed CC&N is listed below:

Monterra: 870 acres

Montessa: 32 acres

Walker Butte: 404 acres

Florence Plaza: 15 acres

7. The sewer cost estimate detailing the \$9,666,692 is attached hereto as Attachment 4.
8. The ADEQ "Aquifer Protection Permit" for Section 11 and Anthem are attached here to as Attachments 5 & 6 respectively.
9. The preliminary wastewater design plans for the each of the projects are currently being engineered and are not yet available. It is common that the preliminary design plans for subdivisions aren't completed until the CC&N is already approved. If the developer is in a hurry with their projects they will sometimes prepare the plans earlier and take on the risk of spending time and money to engineer a project that may or may not be approved for service by the ACC. If staff would like to see the preliminary design plans as a requirement of the CC&N we would request that it be included as a compliance item that would be filed within 2 years of an approval of the CC&N.
10. The requests for service from the Town of Florence to serve the Monterra and Montessa developments are attached here to as Attachments 7 & 8 respectively.

#### Water CC&N Application

1. The corrected Water and Sewer Report for Montessa correcting the water and sewer service provider is attached hereto as Attachment 9.
2. Our current Designation of Assured Water Supply for the Pinal AMA applies to all homes in our current and future CC&N areas within the AMA. Once our CC&N application is approved we file the approval with ADWR notifying them of the change in our CC&N service area. Currently we are planning to submit an application to increase our Pinal AMA designation of 1,595 acre-feet per year. The application to ADWR will be made by the end of 2007.
3. The ADEQ Compliance Report for PWS #11-136 is not available yet. This is a relatively new system that started servicing customers in July of 2006. We will be receiving our first annual compliance report in April and will be docketing it with the rest of our annual compliance status reports from ADEQ as required by ACC Decision No. 65840.
4. Our estimated water construction cost from Specific Engineering is attached hereto as Attachment 10.

5. The preliminary water design plans for the each of the projects are currently being engineered and are not yet available. It is common that the preliminary design plans for subdivisions aren't completed until the CC&N is already approved. If the developer is in a hurry with their projects they will sometimes prepare the plans earlier and take on the risk of spending time and money to engineer a project that may or may not be approved for service by the ACC. If staff would like to see the preliminary design plans as a requirement of the CC&N we would request that it be included as a compliance item that would be filed within 2 years of an approval of the CC&N.
6. The requests for service from the Town of Florence to serve the Monterra and Montessa developments are attached here to as Attachments 7 & 8 respectively.
7. There are no golf courses currently planned for either community. Each residential subdivision has Tot Lots/Pocket Parks and the associated open spaces and are currently planed to be irrigated with ground water. The remaining planned parks and water features are described for each subdivision below.

Monterra has a lake and irrigation system designed to be 100% effluent. The system, per state regulation, will be 100% effluent within 5 years.

Walker Butte has a small fountain in phase 1 of the project that uses very limited amounts of water and will be filled with ground water. The base of the fountain will be lined to prevent infiltration and will only be subject to typical surface evaporation.

Montessa & Florence Plaza have no water features planned and very limited landscaped areas.

The legal descriptions for Walker Butte and Montessa in the original application where revised and we have attached them hereto as Attachments 11 & 12 respectively. We apologize for any confusion on the legal descriptions that staff may have had.

In the event Staff needs additional information or clarification, please feel free to contact me at 480-998-3300

Sincerely,  
Johnson Utilities, L.L.C.



Daniel Hodges

Cc: Docket Control (15 copies)  
Del Smith  
Lyn Farmer  
Brian Bozzo

# ATTACHMENT 1

**Wastewater Collection  
Master Plan  
for  
Monterra**



*Prepared by Otak, Inc.  
51 W. Third Street, Suite 201  
Tempe, AZ 85281  
(480) 557-6670*

*September 2005*

*Otak Project No. 12956*

**KENNETH A. NELSON, P.E.**

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Table of Contents  
*Monterra*

	<b>Page</b>
<i>Existing Conditions</i>	1
<i>System Analysis</i>	1
<i>Conclusions</i>	2
 <b>Figures</b>	
<i>Vicinity Map</i>	<i>Figure 1</i>
<i>Topography Map</i>	<i>Figure 2</i>
<i>Layout Map</i>	<i>Figure 3</i>
 <b>Appendix</b>	
<i>Wastewater Collection Master Plan Calculations</i>	<i>Appendix A</i>
<i>Sewer Pipe Sizing Calculations</i>	<i>Appendix B</i>
<i>ADEQ Administrative Code Sections</i>	<i>Appendix C</i>

## *Existing Conditions*

The proposed Monterra private, residential development is on approximately 870 acres located in a portion of Sections 29, 31 and 32, T4S, R9E, and Section 6, T5S, R9E of the Gila & Salt River Base and Meridian in Pinal County, Arizona. The site is bounded by Attaway Road to the west. Hunt Highway is located approximately 800 feet to the north and the Gila River is directly south of the site (See Figure 1 – *Vicinity Map*). The site presently consists of 29 irrigated fields of approximately 30 acres each.

There are no existing wastewater mains in the immediate area of the proposed development. A Wastewater Treatment Facility is currently under construction approximately two (2) miles Northwest of the northerly Monterra project boundary. This WWTF will be the outfall for the entire Monterra project. Johnson Utilities Company, LLC will be the water and sewer provider for this site.

Site topography was obtained by ground survey methods and mapping was provided by M2 Group, Inc. The site topography is gently terraced sloping from the north/northeast to the south/southwest at an average grade of approximately 0.3%.

## *System Analysis*

In order to determine the peak flow, an average flow and a *peaking factor* were used with respect to the proposed development for the downstream pipe. The Johnson Utilities Company, LLC guidelines were referenced for Unit Daily Design Flows and Peaking Factors and utilized for sewer design. This site has a total of 3,626 residential dwelling units (DU). This number was used to analyze the wastewater collection requirements for this site. See Appendix C for Daily Design Flows and Peaking Factor Tables.

An average flow of 100 gallons per capita per day and 2.5 capita per DU were assumed for the residential analysis. A peaking factor of 1.87 was used for the proposed development. The peak sewer flow for Monterra was calculated to be approximately 1,927,483 gallons per day (gpd), or 1,339 gpm. A wet weather factor of 250 gallons per acre per day is added to the peak flow resulting in a total peak flow of 164,246 gpd, or 114 gpm for this site. The total flow for Monterra was found to be 2,091,730 gpd or 1,453 gpm. See Appendix B for flow calculations.

The minimum allowable slope is defined by the Arizona Department of Environmental Quality as a slope that will produce a minimum flow velocity of two feet per second (2 fps) when flowing full (see Appendix B). Pipe flow capacity was determined using Manning's equation for an 8-inch pipe size. A minimum slope of 0.0033 ft/ft was determined to allow for a velocity of two feet per second with a resulting capacity of 313 gpm (0.70 cfs) for an 8-inch diameter pipe ( $n=0.013$ ) flowing full. Using the same analysis, a 10" diameter pipe with a minimum slope of 0.0024 ft/ft has a capacity of 490 gpm. A 12" diameter pipe

with a minimum slope of 0.0019 ft/ft has a capacity of 705 gpm. Monterra was designed with a slope of 0.0033 ft/ft. See Table 2 in Appendix A for the entire design. The proposed 8-inch gravity sewer has adequate capacity for the Monterra development.

Figure 3 - Layout Map identifies the pipe layout with directional flow arrows. The project wastewater is gravity fed to a proposed Lift Station located in Monterra South (Phase 1), and then will be pumped to a proposed manhole in Hunt Highway to the Northwest of the Monterra project site. From there, the wastewater will be piped directly to the Wastewater Treatment Facility listed above.

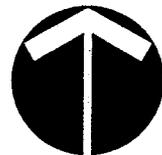
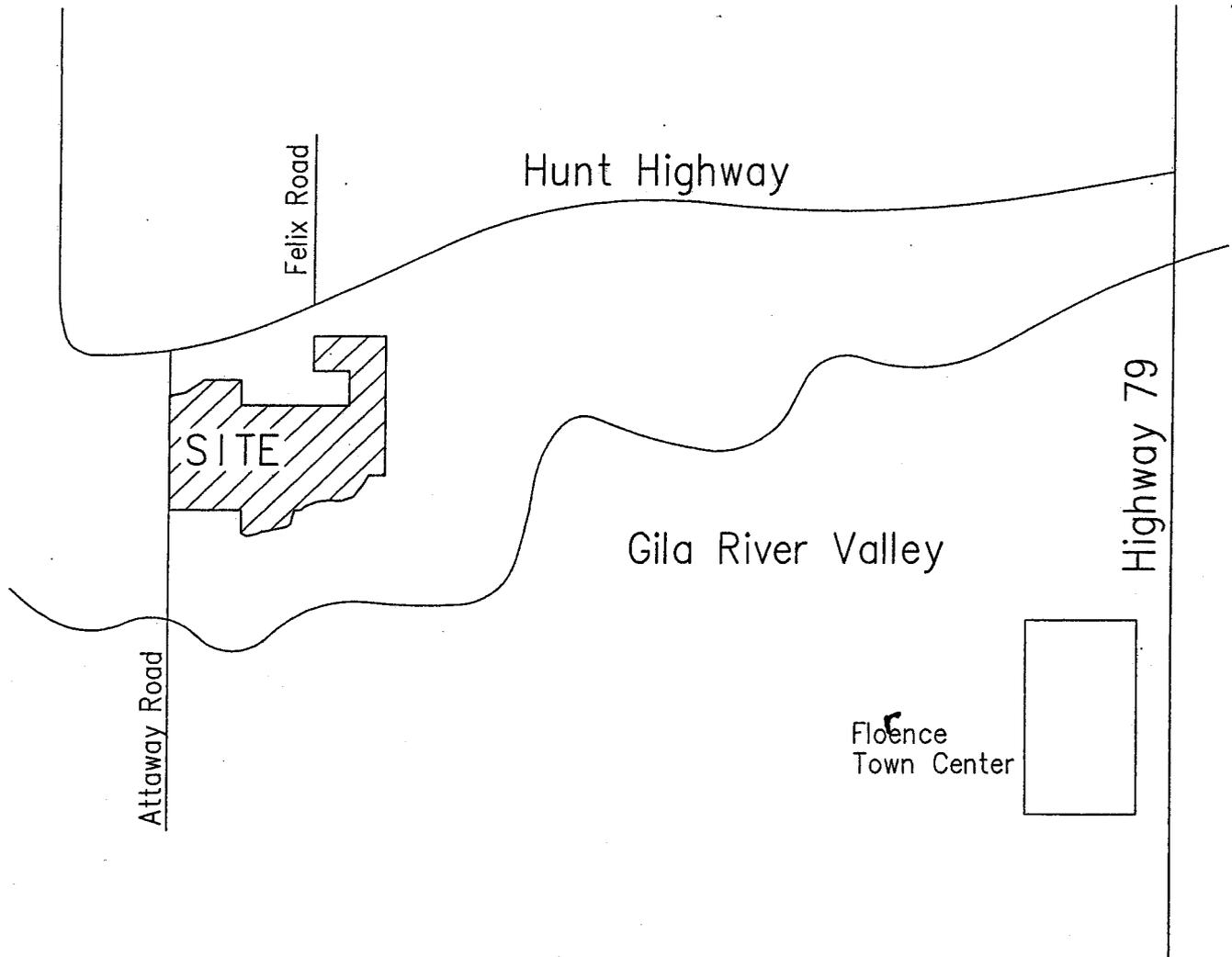
### *Conclusions*

A gravity wastewater collection system will adequately serve the development utilizing 8-inch diameter, 10-inch diameter, 12-inch diameter and 15-inch diameter gravity pipes with at least the minimum allowable slope for each pipe size.

The entire sewer system shall have a minimum of 5 feet of cover.

The final design for sewer layout will utilize a grading plan in order to maintain minimum cover, provide pipe sizes for required capacity, and provide service to potential offsite collection areas.

TEM: REYNOLDK 09/26/2005 2:34am --> T:\PROJECT\12900\12956\REPORTS\SEWER\SMP-FIG-1.DWG



N.T.S.

Date	RAK
Designed	RAK
Drawn	

# MONTERRA

Checked By	Date
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## VICINITY MAP

**otak** Incorporated  
 51 W. Third St., Suite 201  
 Tempe, Arizona 85281  
 Phone: (480) 557-8870  
 FAX: (480) 557-8508

Project No.	12956
	SMP-FIG-1
File No.	FIGURE 1
Sheet No.	

*Appendix A —*  
*Wastewater Collection Masterplan*  
*Calculations*

Scenario: Base

Manhole Report

Label	Ground Elevation (ft)	Sump Elevation (ft)	Matchline Offset (ft)	Structure Depth (ft)	Invert Out Elevation (ft)	Invert In Elevation 1 (ft)	Invert In Elevation 2 (ft)	Invert In Elevation 3 (ft)
MH-1	1,433.22	1,412.97	0.10	20.25	1,412.97	1,413.07	1,413.07	N/A
MH-2	1,432.82	1,413.60	0.10	19.22	1,413.60	1,413.70	1,413.70	N/A
MH-3	1,432.22	1,414.07	0.10	18.15	1,414.07	1,414.17	1,414.17	N/A
MH-4	1,431.77	1,414.76	0.10	17.01	1,414.76	1,414.86	N/A	N/A
MH-5	1,431.90	1,415.45	0.10	16.45	1,415.45	1,415.55	N/A	N/A
MH-6	1,432.45	1,416.15	0.10	16.30	1,416.15	1,416.25	N/A	N/A
MH-7	1,432.99	1,416.84	0.10	16.15	1,416.84	1,416.94	N/A	N/A
MH-8	1,434.55	1,418.59	0.10	15.96	1,418.59	1,418.69	N/A	N/A
MH-9	1,433.99	1,419.68	0.10	14.31	1,419.68	1,419.78	N/A	N/A
MH-10	1,434.59	1,421.23	0.10	13.36	1,421.23	1,421.33	N/A	N/A
MH-11	1,433.06	1,421.16	0.10	11.90	1,421.16	N/A	N/A	N/A
MH-12	1,438.90	1,423.24	0.10	15.66	1,423.24	1,423.34	N/A	N/A
MH-13	1,438.70	1,423.82	0.10	14.88	1,423.82	1,423.92	N/A	N/A
MH-14	1,439.00	1,424.41	0.10	14.59	1,424.41	1,424.51	N/A	N/A
MH-15	1,439.30	1,425.00	0.10	14.30	1,425.00	1,425.10	N/A	N/A
MH-16	1,440.80	1,425.61	0.10	15.19	1,425.61	1,425.71	1,425.71	N/A
MH-17	1,440.70	1,426.22	0.10	14.48	1,426.22	1,426.32	N/A	N/A
MH-18	1,440.30	1,426.75	0.10	13.55	1,426.75	1,426.85	1,426.85	N/A
MH-19	1,440.30	1,427.74	0.10	12.56	1,427.74	1,427.84	1,427.84	N/A
MH-20	1,439.90	1,429.09	0.00	10.81	1,429.09	1,429.09	N/A	N/A
MH-21	1,441.40	1,430.35	0.00	11.05	1,430.35	1,430.35	N/A	N/A
MH-22	1,441.50	1,431.60	0.00	9.90	1,431.60	1,431.60	N/A	N/A
MH-23	1,445.10	1,432.85	0.10	12.25	1,432.85	1,432.95	1,432.95	N/A
MH-24	1,444.90	1,434.43	0.00	10.47	1,434.43	1,434.43	N/A	N/A
MH-25	1,447.90	1,435.87	0.10	12.03	1,435.87	1,435.97	1,435.97	N/A
MH-26	1,452.60	1,437.37	0.10	15.23	1,437.37	1,437.47	1,437.47	N/A
MH-27	1,452.80	1,438.42	0.10	14.38	1,438.42	1,438.52	N/A	N/A
MH-28	1,436.10	1,423.08	0.10	13.02	1,423.08	1,423.18	N/A	N/A
MH-29	1,435.50	1,424.31	0.10	11.19	1,424.31	1,424.41	1,424.41	N/A
MH-30	1,435.60	1,425.57	0.10	10.03	1,425.57	1,425.67	N/A	N/A
MH-31	1,438.00	1,426.82	0.10	11.18	1,426.82	1,426.92	N/A	N/A
MH-32	1,434.45	1,413.61	0.10	20.84	1,413.61	1,413.71	1,413.71	N/A
MH-33	1,432.88	1,414.74	0.10	18.14	1,414.74	1,414.84	1,414.84	N/A
MH-34	1,433.32	1,414.35	0.10	18.97	1,414.35	1,414.45	N/A	N/A
MH-35	1,433.20	1,414.82	0.10	18.38	1,414.82	1,414.92	N/A	N/A
MH-36	1,432.27	1,415.73	0.00	16.54	1,415.73	1,415.73	N/A	N/A
MH-38	1,431.60	1,415.88	0.10	15.72	1,415.88	1,415.98	1,415.98	N/A
MH-39	1,431.40	1,417.26	0.10	14.14	1,417.26	1,417.36	1,417.36	N/A
MH-40	1,431.40	1,418.52	0.10	12.88	1,418.52	1,418.62	N/A	N/A
MH-41	1,431.80	1,419.44	0.10	12.36	1,419.44	1,419.54	1,419.54	N/A
MH-42	1,433.70	1,420.16	0.10	13.54	1,420.16	1,420.26	N/A	N/A
MH-43	1,433.70	1,420.88	0.10	12.82	1,420.88	1,420.98	N/A	N/A
MH-44	1,434.20	1,424.09	0.10	10.11	1,424.09	1,424.19	N/A	N/A
MH-45	1,434.10	1,424.47	0.10	9.63	1,424.47	1,424.57	N/A	N/A
MH-46	1,430.08	1,420.84	0.10	9.24	1,420.84	N/A	N/A	N/A
MH-47	1,430.26	1,416.03	0.10	14.23	1,416.03	1,416.13	1,416.13	N/A
MH-48	1,431.54	1,417.39	0.00	14.15	1,417.39	1,417.39	N/A	N/A
MH-49	1,430.92	1,418.73	0.10	12.19	1,418.73	1,418.83	1,418.83	N/A
MH-50	1,430.17	1,419.29	0.10	10.88	1,419.29	1,419.39	N/A	N/A
MH-51	1,430.36	1,420.11	0.10	10.25	1,420.11	1,420.21	N/A	N/A
MH-52	1,430.15	1,421.57	0.10	8.58	1,421.57	1,421.67	N/A	N/A
MH-53	1,431.16	1,422.54	0.10	8.62	1,422.54	N/A	N/A	N/A

Scenario: Base

Manhole Report

Label	Ground Elevation (ft)	Sump Elevation (ft)	Matchline Offset (ft)	Structure Depth (ft)	Invert Out Elevation (ft)	Invert In Elevation 1 (ft)	Invert In Elevation 2 (ft)	Invert In Elevation 3 (ft)
MH-54	1,431.44	1,419.31	0.10	12.13	1,419.31	1,419.41	N/A	N/A
MH-55	1,432.58	1,420.48	0.00	12.10	1,420.48	1,420.48	N/A	N/A
MH-56	1,431.58	1,421.35	0.10	10.23	1,421.35	N/A	N/A	N/A
MH-57	1,431.13	1,417.08	0.10	14.05	1,417.08	1,417.18	N/A	N/A
MH-58	1,433.07	1,418.82	0.10	14.25	1,418.82	1,418.92	1,418.92	N/A
MH-59	1,431.62	1,419.90	0.10	11.72	1,419.90	1,420.00	N/A	N/A
MH-60	1,432.38	1,420.47	0.10	11.91	1,420.47	1,420.57	N/A	N/A
MH-61	1,431.49	1,421.59	0.00	9.90	1,421.59	1,421.59	N/A	N/A
MH-62	1,430.28	1,422.64	0.10	7.64	1,422.64	1,422.74	N/A	N/A
MH-63	1,431.43	1,423.58	0.10	7.85	1,423.58	N/A	N/A	N/A
MH-64	1,431.19	1,419.48	0.10	11.71	1,419.48	1,419.58	1,419.58	N/A
MH-65	1,430.75	1,420.02	0.10	10.73	1,420.02	1,420.12	1,420.12	N/A
MH-66	1,429.81	1,421.02	0.10	8.79	1,421.02	1,421.12	N/A	N/A
MH-67	1,430.90	1,422.20	0.10	8.70	1,422.20	1,422.30	1,422.30	N/A
MH-68	1,429.95	1,423.39	0.10	6.56	1,423.39	N/A	N/A	N/A
MH-69	1,431.49	1,423.10	0.10	8.39	1,423.10	N/A	N/A	N/A
MH-70	1,431.59	1,421.11	0.00	10.48	1,421.11	1,421.11	N/A	N/A
MH-71	1,430.29	1,422.10	0.10	8.19	1,422.10	1,422.20	1,422.20	N/A
MH-72	1,431.14	1,423.10	0.00	8.04	1,423.10	1,423.10	N/A	N/A
MH-73	1,430.30	1,424.63	0.10	5.67	1,424.63	N/A	N/A	N/A
MH-74	1,431.32	1,423.04	0.10	8.28	1,423.04	N/A	N/A	N/A
MH-75	1,431.71	1,420.02	0.10	11.69	1,420.02	1,420.12	N/A	N/A
MH-76	1,431.51	1,420.73	0.10	10.78	1,420.73	1,420.83	1,420.83	N/A
MH-77	1,432.21	1,421.48	0.10	10.73	1,421.48	1,421.58	N/A	N/A
MH-78	1,432.21	1,421.99	0.10	10.22	1,421.99	N/A	N/A	N/A
MH-79	1,431.41	1,422.22	0.10	9.19	1,422.22	N/A	N/A	N/A
MH-80	1,433.97	1,412.44	0.10	21.53	1,412.44	1,412.54	1,412.54	N/A
MH-81	1,434.05	1,412.60	0.10	21.45	1,412.60	1,412.70	N/A	N/A
MH-82	1,434.02	1,412.98	0.10	21.04	1,412.98	1,413.08	N/A	N/A
MH-83	1,433.88	1,413.18	0.10	20.70	1,413.18	1,413.28	N/A	N/A
MH-84	1,433.67	1,413.42	0.10	20.25	1,413.42	1,413.52	N/A	N/A
MH-85	1,432.33	1,414.40	0.10	17.93	1,414.40	N/A	N/A	N/A
MH-86	1,433.28	1,413.11	0.00	20.17	1,413.11	1,413.11	N/A	N/A
MH-87	1,432.82	1,413.54	0.10	19.28	1,413.54	1,413.64	N/A	N/A
MH-88	1,432.37	1,413.99	0.10	18.38	1,413.99	1,414.09	N/A	N/A
MH-89	1,432.12	1,414.42	0.00	17.70	1,414.42	1,414.42	N/A	N/A
MH-90	1,431.67	1,414.81	0.10	16.86	1,414.81	1,414.91	1,414.91	1,414.91
MH-91	1,432.02	1,415.31	0.00	16.71	1,415.31	1,415.31	N/A	N/A
MH-92	1,431.40	1,415.89	0.10	15.51	1,415.89	N/A	N/A	N/A
MH-93	1,431.25	1,415.31	0.00	15.94	1,415.31	1,415.31	N/A	N/A
MH-94	1,430.64	1,415.89	0.00	14.75	1,415.89	1,415.89	N/A	N/A
MH-95	1,430.27	1,416.22	0.10	14.05	1,416.22	1,416.32	1,416.32	N/A
MH-96	1,430.90	1,416.53	0.10	14.37	1,416.53	1,416.63	N/A	N/A
MH-97	1,430.89	1,416.76	0.10	14.13	1,416.76	1,416.86	N/A	N/A
MH-98	1,432.26	1,418.25	0.10	14.01	1,418.25	N/A	N/A	N/A
MH-99	1,430.03	1,416.57	0.10	13.46	1,416.57	1,416.67	N/A	N/A
MH-100	1,428.57	1,416.90	0.10	11.67	1,416.90	1,417.00	N/A	N/A
MH-101	1,429.74	1,417.25	0.10	12.49	1,417.25	1,417.35	N/A	N/A
MH-102	1,430.24	1,417.85	0.00	12.39	1,417.85	1,417.85	N/A	N/A
MH-103	1,430.61	1,418.23	0.10	12.38	1,418.23	1,418.33	1,418.33	1,418.33
MH-104	1,430.87	1,418.59	0.10	12.28	1,418.59	1,418.69	N/A	N/A
MH-105	1,430.97	1,419.84	0.00	11.13	1,419.84	1,419.84	N/A	N/A

Scenario: Base

Manhole Report

Label	Ground Elevation (ft)	Sump Elevation (ft)	Matchline Offset (ft)	Structure Depth (ft)	Invert Out Elevation (ft)	Invert In Elevation 1 (ft)	Invert In Elevation 2 (ft)	Invert In Elevation 3 (ft)
MH-106	1,431.50	1,421.10	0.10	10.40	1,421.10	1,421.20	N/A	N/A
MH-107	1,431.71	1,421.35	0.10	10.36	1,421.35	1,421.45	N/A	N/A
MH-108	1,431.85	1,421.59	0.10	10.26	1,421.59	N/A	N/A	N/A
MH-109	1,431.02	1,418.70	0.10	12.32	1,418.70	1,418.80	N/A	N/A
MH-110	1,431.17	1,418.98	0.10	12.19	1,418.98	1,419.08	1,419.08	N/A
MH-111	1,431.60	1,419.33	0.10	12.27	1,419.33	1,419.43	N/A	N/A
MH-112	1,431.89	1,420.42	0.00	11.47	1,420.42	1,420.42	N/A	N/A
MH-113	1,431.45	1,421.00	0.10	10.45	1,421.00	N/A	N/A	N/A
MH-114	1,431.94	1,419.77	0.00	12.17	1,419.77	1,419.77	N/A	N/A
MH-115	1,432.56	1,420.35	0.10	12.21	1,420.35	N/A	N/A	N/A
MH-116	1,432.91	1,416.08	0.10	16.83	1,416.08	1,416.18	N/A	N/A
MH-117	1,431.52	1,417.35	0.00	14.17	1,417.35	1,417.35	N/A	N/A
MH-118	1,430.29	1,418.50	0.10	11.79	1,418.50	1,418.60	N/A	N/A
MH-119	1,431.40	1,419.49	0.10	11.91	1,419.49	1,419.59	1,419.59	N/A
MH-120	1,430.80	1,415.02	0.10	15.78	1,415.02	1,415.12	N/A	N/A
MH-121	1,431.00	1,415.46	0.10	15.54	1,415.46	1,415.56	N/A	N/A
MH-122	1,432.20	1,415.66	0.10	16.54	1,415.66	1,415.76	1,415.76	N/A
MH-123	1,433.30	1,416.42	0.10	16.88	1,416.42	1,416.52	N/A	N/A
MH-124	1,433.40	1,417.34	0.10	16.06	1,417.34	1,417.44	N/A	N/A
MH-125	1,433.60	1,418.61	0.10	14.99	1,418.61	1,418.71	1,418.71	N/A
MH-126	1,433.60	1,419.60	0.10	14.00	1,419.60	1,419.70	1,419.70	N/A
MH-127	1,433.70	1,420.59	0.00	13.11	1,420.59	N/A	N/A	N/A
MH-128	1,433.60	1,419.08	0.00	14.52	1,419.08	N/A	N/A	N/A
MH-129	1,432.30	1,416.65	0.10	15.65	1,416.65	1,416.75	1,416.75	N/A
MH-130	1,433.40	1,417.41	0.10	15.99	1,417.41	1,417.51	N/A	N/A
MH-131	1,433.50	1,418.33	0.10	15.17	1,418.33	1,418.43	N/A	N/A
MH-132	1,433.60	1,419.45	0.00	14.15	1,419.45	N/A	N/A	N/A
MH-133	1,432.50	1,417.64	0.10	14.86	1,417.64	1,417.74	N/A	N/A
MH-134	1,433.50	1,418.40	0.10	15.10	1,418.40	1,418.50	N/A	N/A
MH-135	1,433.60	1,419.33	0.10	14.27	1,419.33	1,419.43	N/A	N/A
MH-136	1,433.70	1,420.49	0.00	13.21	1,420.49	N/A	N/A	N/A
MH-137	1,433.60	1,419.90	0.10	13.70	1,419.90	1,420.00	N/A	N/A
MH-138	1,433.70	1,420.50	0.10	13.20	1,420.50	1,420.60	N/A	N/A
MH-139	1,433.70	1,420.85	0.10	12.85	1,420.85	1,420.95	1,420.95	1,420.95
MH-140	1,433.70	1,421.86	0.10	11.84	1,421.86	1,421.96	N/A	N/A
MH-141	1,433.80	1,422.39	0.10	11.41	1,422.39	1,422.49	N/A	N/A
MH-142	1,437.00	1,423.58	0.10	13.42	1,423.58	1,423.68	N/A	N/A
MH-143	1,436.90	1,424.21	0.00	12.69	1,424.21	N/A	N/A	N/A
MH-144	1,433.70	1,421.38	0.10	12.32	1,421.38	1,421.48	N/A	N/A
MH-145	1,437.00	1,422.70	0.10	14.30	1,422.70	1,422.80	N/A	N/A
MH-146	1,437.10	1,423.29	0.10	13.81	1,423.29	1,423.39	1,423.39	N/A
MH-147	1,436.90	1,424.28	0.00	12.62	1,424.28	N/A	N/A	N/A
MH-148	1,437.00	1,424.28	0.00	12.72	1,424.28	N/A	N/A	N/A
MH-149	1,433.90	1,421.86	0.10	12.04	1,421.86	1,421.96	1,421.96	N/A
MH-150	1,434.00	1,422.39	0.10	11.61	1,422.39	1,422.49	N/A	N/A
MH-151	1,436.90	1,423.75	0.10	13.15	1,423.75	1,423.85	N/A	N/A
MH-152	1,437.00	1,424.14	0.00	12.86	1,424.14	N/A	N/A	N/A
MH-153	1,433.80	1,422.65	0.00	11.15	1,422.65	N/A	N/A	N/A
MH-154	1,437.10	1,422.13	0.10	14.97	1,422.13	1,422.23	1,422.23	N/A
MH-155	1,437.20	1,423.69	0.00	13.51	1,423.69	1,423.69	N/A	N/A
MH-156	1,438.70	1,425.16	0.10	13.54	1,425.16	1,425.26	N/A	N/A
MH-157	1,439.70	1,426.00	0.00	13.70	1,426.00	N/A	N/A	N/A

Scenario: Base

Manhole Report

Label	Ground Elevation (ft)	Sump Elevation (ft)	Matchline Offset (ft)	Structure Depth (ft)	Invert Out Elevation (ft)	Invert In Elevation 1 (ft)	Invert In Elevation 2 (ft)	Invert In Elevation 3 (ft)
MH-158	1,437.10	1,423.12	0.10	13.98	1,423.12	1,423.22	1,423.22	N/A
MH-159	1,437.30	1,424.24	0.00	13.06	1,424.24	1,424.24	N/A	N/A
MH-160	1,439.00	1,425.26	0.10	13.74	1,425.26	1,425.36	1,425.36	N/A
MH-161	1,439.50	1,426.26	0.00	13.24	1,426.26	1,426.26	N/A	N/A
MH-162	1,439.10	1,426.16	0.00	12.94	1,426.16	N/A	N/A	N/A
MH-163	1,437.20	1,424.11	0.10	13.09	1,424.11	1,424.21	1,424.21	N/A
MH-164	1,438.80	1,425.23	0.00	13.57	1,425.23	1,425.23	N/A	N/A
MH-165	1,438.80	1,426.08	0.00	12.72	1,426.08	N/A	N/A	N/A
MH-166	1,437.80	1,425.21	0.00	12.59	1,425.21	N/A	N/A	N/A
MH-167	1,431.50	1,415.40	0.10	16.10	1,415.40	1,415.50	1,415.50	N/A
MH-168	1,429.90	1,416.15	0.10	13.75	1,416.15	1,416.25	N/A	N/A
MH-169	1,432.90	1,416.00	0.10	16.90	1,416.00	1,416.10	1,416.10	N/A
MH-170	1,432.80	1,416.86	0.10	15.94	1,416.86	1,416.96	N/A	N/A
MH-171	1,432.70	1,417.57	0.10	15.13	1,417.57	1,417.67	N/A	N/A
MH-172	1,432.80	1,418.28	0.10	14.52	1,418.28	1,418.38	N/A	N/A
MH-173	1,432.90	1,418.99	0.10	13.91	1,418.99	1,419.09	N/A	N/A
MH-174	1,433.00	1,420.03	0.10	12.97	1,420.03	1,420.13	1,420.13	N/A
MH-175	1,433.10	1,421.09	0.10	12.01	1,421.09	1,421.19	N/A	N/A
MH-176	1,433.50	1,422.10	0.00	11.40	1,422.10	1,422.10	N/A	N/A
MH-177	1,435.80	1,423.00	0.10	12.80	1,423.00	1,423.10	N/A	N/A
MH-178	1,435.80	1,423.39	0.00	12.41	1,423.39	N/A	N/A	N/A
MH-179	1,436.00	1,421.22	0.00	14.78	1,421.22	1,421.22	N/A	N/A
MH-180	1,435.80	1,422.31	0.10	13.49	1,422.31	1,422.41	N/A	N/A
MH-181	1,436.00	1,422.81	0.10	13.19	1,422.81	1,422.91	1,422.91	N/A
MH-182	1,436.00	1,423.74	0.00	12.26	1,423.74	N/A	N/A	N/A
MH-183	1,435.90	1,423.57	0.00	12.33	1,423.57	N/A	N/A	N/A
MH-184	1,432.70	1,417.05	0.10	15.65	1,417.05	1,417.15	N/A	N/A
MH-185	1,432.90	1,418.12	0.10	14.78	1,418.12	1,418.22	N/A	N/A
MH-186	1,432.90	1,418.73	0.10	14.17	1,418.73	1,418.83	N/A	N/A
MH-187	1,433.00	1,419.34	0.10	13.66	1,419.34	1,419.44	N/A	N/A
MH-188	1,433.40	1,421.09	0.00	12.31	1,421.09	1,421.09	N/A	N/A
MH-189	1,435.90	1,422.74	0.10	13.16	1,422.74	1,422.84	N/A	N/A
MH-190	1,436.00	1,423.22	0.00	12.78	1,423.22	N/A	N/A	N/A
MH-191	1,439.50	1,427.18	0.10	12.32	1,427.18	1,427.28	1,427.28	N/A
MH-192	1,439.60	1,427.94	0.10	11.66	1,427.94	1,428.04	N/A	N/A
MH-193	1,441.10	1,428.77	0.10	12.33	1,428.77	1,428.87	N/A	N/A
MH-194	1,441.20	1,429.59	0.10	11.61	1,429.59	1,429.69	N/A	N/A
MH-195	1,441.40	1,430.42	0.10	10.98	1,430.42	1,430.52	N/A	N/A
MH-196	1,441.50	1,431.24	0.10	10.26	1,431.24	1,431.34	N/A	N/A
MH-197	1,441.10	1,432.07	0.10	9.03	1,432.07	1,432.17	N/A	N/A
MH-198	1,441.00	1,432.58	0.00	8.42	1,432.58	N/A	N/A	N/A
MH-199	1,438.60	1,428.21	0.10	10.39	1,428.21	1,428.31	N/A	N/A
MH-200	1,439.00	1,428.97	0.10	10.03	1,428.97	1,429.07	N/A	N/A
MH-201	1,437.90	1,429.73	0.10	8.17	1,429.73	1,429.83	N/A	N/A
MH-202	1,439.20	1,430.49	0.10	8.71	1,430.49	1,430.59	N/A	N/A
MH-203	1,439.00	1,431.25	0.10	7.75	1,431.25	1,431.35	N/A	N/A
MH-204	1,440.90	1,432.02	0.10	8.88	1,432.02	1,432.12	N/A	N/A
MH-205	1,441.00	1,432.50	0.00	8.50	1,432.50	N/A	N/A	N/A
MH-206	1,436.00	1,420.01	0.10	15.99	1,420.01	1,420.11	1,420.11	N/A
MH-207	1,438.60	1,421.22	0.00	17.38	1,421.22	1,421.22	N/A	N/A
MH-208	1,438.80	1,422.31	0.10	16.49	1,422.31	1,422.41	1,422.41	N/A
MH-209	1,438.90	1,422.70	0.10	16.20	1,422.70	1,422.80	N/A	N/A

Scenario: Base

Manhole Report

Label	Ground Elevation (ft)	Sump Elevation (ft)	Matchline Offset (ft)	Structure Depth (ft)	Invert Out Elevation (ft)	Invert In Elevation 1 (ft)	Invert In Elevation 2 (ft)	Invert In Elevation 3 (ft)
MH-210	1,438.90	1,423.02	0.10	15.88	1,423.02	1,423.12	N/A	N/A
MH-211	1,438.80	1,423.17	0.00	15.63	1,423.17	N/A	N/A	N/A
MH-212	1,435.90	1,420.37	0.10	15.53	1,420.37	1,420.47	N/A	N/A
MH-213	1,435.90	1,421.43	0.10	14.47	1,421.43	1,421.53	1,421.53	N/A
MH-214	1,438.60	1,422.93	0.00	15.67	1,422.93	1,422.93	N/A	N/A
MH-215	1,438.80	1,424.34	0.00	14.46	1,424.34	1,424.34	N/A	N/A
MH-216	1,439.00	1,425.74	0.10	13.26	1,425.74	1,425.84	N/A	N/A
MH-217	1,439.00	1,426.74	0.00	12.26	1,426.74	N/A	N/A	N/A
MH-218	1,436.20	1,422.49	0.10	13.71	1,422.49	1,422.59	1,422.59	N/A
MH-219	1,438.70	1,423.97	0.00	14.73	1,423.97	1,423.97	N/A	N/A
MH-220	1,438.80	1,425.36	0.00	13.44	1,425.36	1,425.36	N/A	N/A
MH-221	1,439.00	1,426.73	0.00	12.27	1,426.73	N/A	N/A	N/A
MH-222	1,440.80	1,426.20	0.10	14.60	1,426.20	1,426.30	N/A	N/A
MH-223	1,440.90	1,426.80	0.10	14.10	1,426.80	1,426.90	1,426.90	N/A
MH-224	1,440.80	1,427.46	0.00	13.34	1,427.46	N/A	N/A	N/A
MH-225	1,441.10	1,428.00	0.00	13.10	1,428.00	1,428.00	N/A	N/A
MH-226	1,441.10	1,429.11	0.10	11.99	1,429.11	1,429.21	N/A	N/A
MH-227	1,441.20	1,429.77	0.10	11.43	1,429.77	1,429.87	1,429.87	N/A
MH-228	1,441.10	1,430.30	0.00	10.80	1,430.30	N/A	N/A	N/A
MH-229	1,441.30	1,430.33	0.10	10.97	1,430.33	1,430.43	1,430.43	N/A
MH-230	1,441.30	1,431.22	0.00	10.08	1,431.22	N/A	N/A	N/A
MH-231	1,440.90	1,431.19	0.00	9.71	1,431.19	N/A	N/A	N/A
MH-232	1,440.30	1,427.97	0.00	12.33	1,427.97	1,427.97	N/A	N/A
MH-233	1,440.30	1,429.09	0.10	11.21	1,429.09	1,429.19	N/A	N/A
MH-234	1,440.40	1,429.53	0.10	10.87	1,429.53	1,429.63	N/A	N/A
MH-235	1,440.50	1,430.47	0.00	10.03	1,430.47	N/A	N/A	N/A
MH-236	1,437.00	1,425.09	0.10	11.91	1,425.09	1,425.19	N/A	N/A
MH-237	1,438.00	1,425.52	0.10	12.48	1,425.52	1,425.62	N/A	N/A
MH-238	1,438.10	1,425.90	0.10	12.20	1,425.90	1,426.00	1,426.00	N/A
MH-239	1,438.30	1,427.51	0.00	10.79	1,427.51	1,427.51	N/A	N/A
MH-240	1,438.50	1,429.02	0.10	9.48	1,429.02	1,429.12	N/A	N/A
MH-241	1,438.20	1,430.04	0.00	8.16	1,430.04	1,430.04	N/A	N/A
MH-242	1,438.20	1,430.85	0.00	7.35	1,430.85	N/A	N/A	N/A
MH-243	1,438.00	1,426.93	0.10	11.07	1,426.93	1,427.03	1,427.03	N/A
MH-244	1,438.10	1,428.53	0.00	9.57	1,428.53	1,428.53	N/A	N/A
MH-245	1,438.30	1,429.89	0.00	8.41	1,429.89	N/A	N/A	N/A
MH-246	1,437.90	1,427.95	0.10	9.95	1,427.95	1,428.05	N/A	N/A
MH-247	1,438.10	1,429.57	0.00	8.53	1,429.57	1,429.57	N/A	N/A
MH-248	1,438.20	1,431.07	0.00	7.13	1,431.07	N/A	N/A	N/A
MH-249	1,440.20	1,428.56	0.10	11.64	1,428.56	1,428.66	1,428.66	N/A
MH-250	1,440.30	1,430.07	0.00	10.23	1,430.07	1,430.07	N/A	N/A
MH-251	1,440.50	1,431.45	0.10	9.05	1,431.45	1,431.55	N/A	N/A
MH-252	1,440.40	1,432.48	0.00	7.92	1,432.48	1,432.48	N/A	N/A
MH-253	1,441.80	1,433.40	0.00	8.40	1,433.40	N/A	N/A	N/A
MH-254	1,440.20	1,429.59	0.10	10.61	1,429.59	1,429.69	1,429.69	N/A
MH-255	1,440.40	1,430.98	0.00	9.42	1,430.98	1,430.98	N/A	N/A
MH-256	1,440.60	1,432.27	0.00	8.33	1,432.27	N/A	N/A	N/A
MH-257	1,441.50	1,430.61	0.10	10.89	1,430.61	1,430.71	N/A	N/A
MH-258	1,441.60	1,432.06	0.00	9.54	1,432.06	1,432.06	N/A	N/A
MH-259	1,441.80	1,433.39	0.00	8.41	1,433.39	N/A	N/A	N/A
MH-260	1,437.90	1,427.71	0.10	10.19	1,427.71	1,427.81	1,427.81	N/A
MH-261	1,438.10	1,429.25	0.00	8.85	1,429.25	1,429.25	N/A	N/A

Scenario: Base

Manhole Report

Label	Ground Elevation (ft)	Sump Elevation (ft)	Matchline Offset (ft)	Structure Depth (ft)	Invert Out Elevation (ft)	Invert In Elevation 1 (ft)	Invert In Elevation 2 (ft)	Invert In Elevation 3 (ft)
MH-262	1,438.20	1,430.69	0.10	7.51	1,430.69	1,430.79	N/A	N/A
MH-263	1,438.40	1,431.71	0.00	6.69	1,431.71	1,431.71	N/A	N/A
MH-264	1,438.30	1,432.49	0.00	5.81	1,432.49	N/A	N/A	N/A
MH-265	1,438.00	1,428.74	0.10	9.26	1,428.74	1,428.84	1,428.84	N/A
MH-266	1,438.10	1,430.20	0.00	7.90	1,430.20	1,430.20	N/A	N/A
MH-267	1,438.30	1,431.56	0.00	6.74	1,431.56	N/A	N/A	N/A
MH-268	1,437.90	1,429.76	0.10	8.14	1,429.76	1,429.86	N/A	N/A
MH-269	1,438.10	1,431.30	0.00	6.80	1,431.30	1,431.30	N/A	N/A
MH-270	1,438.40	1,432.73	0.00	5.67	1,432.73	N/A	N/A	N/A
MH-271	1,445.20	1,433.71	0.10	11.49	1,433.71	1,433.81	1,433.81	N/A
MH-272	1,445.20	1,435.34	0.00	9.86	1,435.34	1,435.34	N/A	N/A
MH-273	1,445.50	1,436.86	0.10	8.64	1,436.86	1,436.96	N/A	N/A
MH-274	1,445.70	1,437.92	0.00	7.78	1,437.92	1,437.92	N/A	N/A
MH-275	1,449.70	1,438.80	0.00	10.90	1,438.80	N/A	N/A	N/A
MH-276	1,445.20	1,434.76	0.10	10.44	1,434.76	1,434.86	1,434.86	N/A
MH-277	1,445.30	1,436.32	0.00	8.98	1,436.32	1,436.32	N/A	N/A
MH-278	1,445.60	1,437.77	0.00	7.83	1,437.77	N/A	N/A	N/A
MH-279	1,449.40	1,435.82	0.10	13.58	1,435.82	1,435.92	N/A	N/A
MH-280	1,449.70	1,437.45	0.10	12.25	1,437.45	1,437.55	1,437.55	N/A
MH-281	1,449.70	1,439.00	0.00	10.70	1,439.00	N/A	N/A	N/A
MH-282	1,449.60	1,438.13	0.10	11.47	1,438.13	1,438.23	1,438.23	N/A
MH-283	1,449.70	1,439.32	0.10	10.38	1,439.32	1,439.42	1,439.42	N/A
MH-284	1,449.70	1,440.14	0.00	9.56	1,440.14	N/A	N/A	N/A
MH-285	1,449.70	1,439.92	0.10	9.78	1,439.92	1,440.02	N/A	N/A
MH-286	1,453.00	1,441.36	0.00	11.64	1,441.36	N/A	N/A	N/A
MH-287	1,449.50	1,436.81	0.10	12.69	1,436.81	1,436.91	N/A	N/A
MH-288	1,452.60	1,437.93	0.10	14.67	1,437.93	1,438.03	N/A	N/A
MH-289	1,452.70	1,438.59	0.10	14.11	1,438.59	1,438.69	N/A	N/A
MH-290	1,452.70	1,439.62	0.00	13.08	1,439.62	N/A	N/A	N/A
MH-291	1,452.70	1,439.61	0.10	13.09	1,439.61	1,439.71	1,439.71	N/A
MH-292	1,452.70	1,439.91	0.10	12.79	1,439.91	1,440.01	N/A	N/A
MH-293	1,452.70	1,440.18	0.10	12.52	1,440.18	1,440.28	N/A	N/A
MH-294	1,452.70	1,441.23	0.00	11.47	1,441.23	N/A	N/A	N/A
MH-295	1,452.90	1,440.80	0.10	12.10	1,440.80	1,440.90	N/A	N/A
MH-296	1,453.00	1,441.10	0.10	11.90	1,441.10	1,441.20	1,441.20	N/A
MH-297	1,452.90	1,441.73	0.00	11.17	1,441.73	N/A	N/A	N/A
MH-298	1,453.00	1,441.70	0.10	11.30	1,441.70	1,441.80	N/A	N/A
MH-299	1,452.90	1,442.72	0.00	10.18	1,442.72	N/A	N/A	N/A
MH-300	1,456.10	1,439.51	0.10	16.59	1,439.51	1,439.61	1,439.61	N/A
MH-301	1,456.20	1,440.83	0.00	15.37	1,440.83	1,440.83	N/A	N/A
MH-302	1,456.30	1,442.05	0.10	14.25	1,442.05	1,442.15	N/A	N/A
MH-303	1,456.40	1,443.05	0.00	13.35	1,443.05	1,443.05	N/A	N/A
MH-304	1,459.00	1,443.83	0.00	15.17	1,443.83	N/A	N/A	N/A
MH-305	1,456.00	1,440.50	0.10	15.50	1,440.50	1,440.60	1,440.60	N/A
MH-306	1,456.30	1,441.82	0.00	14.48	1,441.82	1,441.82	N/A	N/A
MH-307	1,456.30	1,442.89	0.00	13.41	1,442.89	N/A	N/A	N/A
MH-308	1,458.70	1,441.49	0.10	17.21	1,441.49	1,441.59	N/A	N/A
MH-309	1,458.80	1,442.82	0.00	15.98	1,442.82	1,442.82	N/A	N/A
MH-310	1,459.00	1,444.04	0.00	14.96	1,444.04	N/A	N/A	N/A
MH-311	1,452.60	1,437.63	0.10	14.97	1,437.63	1,437.73	N/A	N/A
MH-312	1,451.40	1,438.26	0.10	13.14	1,438.26	1,438.36	1,438.36	N/A
MH-313	1,451.10	1,439.82	0.00	11.28	1,439.82	1,439.82	N/A	N/A

Scenario: Base

Manhole Report

Label	Ground Elevation (ft)	Sump Elevation (ft)	Matchline Offset (ft)	Structure Depth (ft)	Invert Out Elevation (ft)	Invert In Elevation 1 (ft)	Invert In Elevation 2 (ft)	Invert In Elevation 3 (ft)
MH-314	1,451.10	1,441.47	0.10	9.63	1,441.47	1,441.57	N/A	N/A
MH-315	1,454.00	1,443.00	0.00	11.00	1,443.00	1,443.00	N/A	N/A
MH-316	1,457.10	1,444.44	0.10	12.66	1,444.44	1,444.54	N/A	N/A
MH-317	1,457.40	1,445.73	0.00	11.67	1,445.73	N/A	N/A	N/A
MH-318	1,451.30	1,438.52	0.10	12.78	1,438.52	1,438.62	N/A	N/A
MH-319	1,451.60	1,439.27	0.10	12.33	1,439.27	1,439.37	N/A	N/A
MH-320	1,451.80	1,439.53	0.10	12.27	1,439.53	1,439.63	N/A	N/A
MH-321	1,451.60	1,440.65	0.00	10.95	1,440.65	1,440.65	N/A	N/A
MH-322	1,451.50	1,441.64	0.10	9.86	1,441.64	1,441.74	1,441.74	N/A
MH-323	1,451.20	1,442.86	0.00	8.34	1,442.86	N/A	N/A	N/A
MH-324	1,454.20	1,442.70	0.10	11.50	1,442.70	1,442.80	1,442.80	N/A
MH-325	1,454.00	1,443.92	0.00	10.08	1,443.92	N/A	N/A	N/A
MH-326	1,454.20	1,443.96	0.10	10.24	1,443.96	1,444.06	N/A	N/A
MH-327	1,457.40	1,444.88	0.10	12.52	1,444.88	1,444.98	N/A	N/A
MH-328	1,457.40	1,445.14	0.10	12.26	1,445.14	1,445.24	N/A	N/A
MH-329	1,457.50	1,446.51	0.00	10.99	1,446.51	N/A	N/A	N/A
MH-330	1,431.50	1,422.83	0.10	8.67	1,422.83	1,422.93	1,422.93	1,422.93
MH-331	1,432.00	1,423.85	0.10	8.15	1,423.85	1,423.95	N/A	N/A
MH-332	1,431.50	1,425.56	0.00	5.94	1,425.56	N/A	N/A	N/A
MH-333	1,431.40	1,423.77	0.00	7.63	1,423.77	1,423.77	N/A	N/A
MH-334	1,432.00	1,424.61	0.10	7.39	1,424.61	1,424.71	1,424.71	N/A
MH-335	1,431.50	1,425.47	0.00	6.03	1,425.47	N/A	N/A	N/A
MH-336	1,431.40	1,423.85	0.10	7.55	1,423.85	1,423.95	1,423.95	N/A
MH-337	1,431.30	1,425.52	0.00	5.78	1,425.52	N/A	N/A	N/A
MH-338	1,433.90	1,424.87	0.10	9.03	1,424.87	1,424.97	N/A	N/A
MH-339	1,433.90	1,425.82	0.00	8.08	1,425.82	1,425.82	N/A	N/A
MH-340	1,433.80	1,426.66	0.00	7.14	1,426.66	N/A	N/A	N/A
MH-341	1,431.30	1,425.63	0.00	5.67	1,425.63	1,425.63	N/A	N/A
MH-342	1,433.70	1,426.43	0.00	7.27	1,426.43	N/A	N/A	N/A
MH-343	1,430.10	1,419.54	0.10	10.56	1,419.54	1,419.64	N/A	N/A
MH-344	1,430.10	1,420.04	0.10	10.06	1,420.04	1,420.14	N/A	N/A
MH-345	1,431.60	1,421.56	0.10	10.04	1,421.56	1,421.66	1,421.66	N/A
MH-346	1,431.40	1,422.55	0.00	8.85	1,422.55	1,422.55	N/A	N/A
MH-347	1,434.10	1,423.45	0.10	10.65	1,423.45	1,423.55	N/A	N/A
MH-348	1,431.40	1,417.90	0.10	13.50	1,417.90	1,418.00	1,418.00	N/A
MH-349	1,431.40	1,418.22	0.10	13.18	1,418.22	1,418.32	N/A	N/A
MH-350	1,431.40	1,418.64	0.10	12.76	1,418.64	1,418.74	N/A	N/A
MH-351	1,431.50	1,420.23	0.10	11.27	1,420.23	1,420.33	N/A	N/A
MH-352	1,431.60	1,421.51	0.10	10.09	1,421.51	1,421.61	N/A	N/A
MH-353	1,434.20	1,422.94	0.00	11.26	1,422.94	N/A	N/A	N/A
MH-354	1,431.30	1,419.60	0.10	11.70	1,419.60	1,419.70	N/A	N/A
MH-355	1,431.70	1,420.19	0.10	11.51	1,420.19	1,420.29	N/A	N/A
MH-356	1,433.80	1,420.79	0.10	13.01	1,420.79	1,420.89	N/A	N/A
MH-357	1,433.70	1,421.38	0.10	12.32	1,421.38	1,421.48	N/A	N/A
MH-358	1,433.60	1,421.98	0.10	11.62	1,421.98	1,422.08	N/A	N/A
MH-359	1,434.10	1,422.57	0.10	11.53	1,422.57	1,422.67	N/A	N/A
MH-360	1,434.10	1,423.17	0.00	10.93	1,423.17	N/A	N/A	N/A
MH-361	1,434.00	1,424.91	0.10	9.09	1,424.91	1,425.01	N/A	N/A
MH-362	1,439.20	1,425.61	0.10	13.59	1,425.61	1,425.71	1,425.71	N/A
MH-363	1,439.10	1,427.13	0.10	11.97	1,427.13	1,427.23	1,427.23	N/A
MH-364	1,438.80	1,428.62	0.00	10.18	1,428.62	N/A	N/A	N/A
MH-365	1,439.40	1,428.18	0.10	11.22	1,428.18	1,428.28	N/A	N/A

Scenario: Base

Manhole Report

Label	Ground Elevation (ft)	Sump Elevation (ft)	Matchline Offset (ft)	Structure Depth (ft)	Invert Out Elevation (ft)	Invert In Elevation 1 (ft)	Invert In Elevation 2 (ft)	Invert In Elevation 3 (ft)
MH-366	1,439.40	1,429.88	0.00	9.52	1,429.88	N/A	N/A	N/A
MH-367	1,436.60	1,426.56	0.00	10.04	1,426.56	1,426.56	N/A	N/A
MH-368	1,436.50	1,427.40	0.10	9.10	1,427.40	1,427.50	1,427.50	N/A
MH-369	1,435.50	1,428.53	0.00	6.97	1,428.53	N/A	N/A	N/A
MH-370	1,441.90	1,428.46	0.10	13.44	1,428.46	1,428.56	1,428.56	N/A
MH-371	1,439.50	1,429.93	0.00	9.57	1,429.93	N/A	N/A	N/A
MH-372	1,441.60	1,429.52	0.10	12.08	1,429.52	1,429.62	N/A	N/A
MH-373	1,441.20	1,431.26	0.00	9.94	1,431.26	N/A	N/A	N/A
MH-374	1,433.90	1,421.45	0.10	12.45	1,421.45	1,421.55	N/A	N/A
MH-375	1,433.90	1,421.83	0.10	12.07	1,421.83	1,421.93	N/A	N/A
MH-376	1,433.90	1,422.21	0.10	11.69	1,422.21	1,422.31	N/A	N/A
MH-377	1,436.80	1,422.77	0.10	14.03	1,422.77	1,422.87	1,422.87	N/A
MH-378	1,436.80	1,423.63	0.10	13.17	1,423.63	1,423.73	1,423.73	N/A
MH-379	1,433.90	1,424.64	0.10	9.26	1,424.64	1,424.74	N/A	N/A
MH-380	1,434.10	1,425.69	0.00	8.41	1,425.69	N/A	N/A	N/A
MH-381	1,437.00	1,424.80	0.10	12.20	1,424.80	1,424.90	1,424.90	N/A
MH-382	1,434.10	1,425.81	0.00	8.29	1,425.81	N/A	N/A	N/A
MH-383	1,437.00	1,426.22	0.00	10.78	1,426.22	1,426.22	N/A	N/A
MH-384	1,441.90	1,427.52	0.00	14.38	1,427.52	N/A	N/A	N/A
MH-385	1,436.60	1,423.78	0.10	12.82	1,423.78	1,423.88	1,423.88	N/A
MH-386	1,436.80	1,425.53	0.00	11.27	1,425.53	N/A	N/A	N/A
MH-387	1,441.90	1,424.79	0.10	17.11	1,424.79	1,424.89	1,424.89	N/A
MH-388	1,442.00	1,426.54	0.00	15.46	1,426.54	N/A	N/A	N/A
MH-389	1,441.70	1,425.80	0.10	15.90	1,425.80	1,425.90	N/A	N/A
MH-390	1,441.90	1,426.83	0.00	15.07	1,426.83	1,426.83	N/A	N/A
MH-391	1,441.90	1,427.74	0.00	14.16	1,427.74	N/A	N/A	N/A
MH-392	1,431.80	1,420.10	0.10	11.70	1,420.10	1,420.20	N/A	N/A
MH-393	1,432.20	1,420.83	0.10	11.37	1,420.83	1,420.93	N/A	N/A
MH-394	1,434.70	1,422.58	0.10	12.12	1,422.58	1,422.68	1,422.68	N/A
MH-395	1,434.80	1,424.03	0.00	10.77	1,424.03	1,424.03	N/A	N/A
MH-396	1,434.90	1,425.39	0.10	9.51	1,425.39	1,425.49	N/A	N/A
MH-397	1,434.80	1,426.20	0.00	8.60	1,426.20	N/A	N/A	N/A
MH-398	1,434.80	1,423.57	0.10	11.23	1,423.57	1,423.67	1,423.67	N/A
MH-399	1,434.90	1,424.99	0.00	9.91	1,424.99	1,424.99	N/A	N/A
MH-400	1,434.70	1,426.15	0.00	8.55	1,426.15	1,426.15	N/A	N/A
MH-401	1,435.00	1,427.30	0.10	7.70	1,427.30	1,427.40	N/A	N/A
MH-402	1,435.10	1,428.11	0.00	6.99	1,428.11	N/A	N/A	N/A
MH-403	1,434.90	1,424.56	0.10	10.34	1,424.56	1,424.66	N/A	N/A
MH-404	1,435.00	1,426.15	0.00	8.85	1,426.15	1,426.15	N/A	N/A
MH-405	1,434.90	1,427.63	0.00	7.27	1,427.63	1,427.63	N/A	N/A
MH-406	1,437.20	1,429.11	0.00	8.09	1,429.11	N/A	N/A	N/A
MH-407	1,431.50	1,416.53	0.10	14.97	1,416.53	1,416.63	1,416.63	N/A
MH-408	1,431.60	1,417.65	0.00	13.95	1,417.65	1,417.65	N/A	N/A
MH-409	1,431.60	1,418.65	0.00	12.95	1,418.65	N/A	N/A	N/A
MH-410	1,431.70	1,417.02	0.10	14.68	1,417.02	1,417.12	1,417.12	N/A
MH-411	1,431.70	1,418.23	0.00	13.47	1,418.23	1,418.23	N/A	N/A
MH-412	1,431.50	1,419.31	0.10	12.19	1,419.31	1,419.41	1,419.41	N/A
MH-413	1,431.50	1,419.63	0.00	11.87	1,419.63	N/A	N/A	N/A
MH-414	1,432.10	1,420.35	0.10	11.75	1,420.35	1,420.45	N/A	N/A
MH-415	1,432.50	1,420.78	0.10	11.72	1,420.78	1,420.88	N/A	N/A
MH-416	1,432.80	1,421.79	0.10	11.01	1,421.79	1,421.89	N/A	N/A
MH-417	1,432.80	1,422.22	0.10	10.58	1,422.22	1,422.32	N/A	N/A

Scenario: Base

Manhole Report

Label	Ground Elevation (ft)	Sump Elevation (ft)	Matchline Offset (ft)	Structure Depth (ft)	Invert Out Elevation (ft)	Invert In Elevation 1 (ft)	Invert In Elevation 2 (ft)	Invert In Elevation 3 (ft)
MH-418	1,432.90	1,423.23	0.00	9.67	1,423.23	N/A	N/A	N/A
MH-419	1,431.70	1,417.77	0.10	13.93	1,417.77	1,417.87	N/A	N/A
MH-420	1,432.40	1,418.71	0.00	13.69	1,418.71	1,418.71	N/A	N/A
MH-421	1,432.50	1,419.55	0.00	12.95	1,419.55	N/A	N/A	N/A
MH-422	1,431.50	1,417.07	0.10	14.43	1,417.07	1,417.17	N/A	N/A
MH-423	1,432.80	1,418.82	0.10	13.98	1,418.82	1,418.92	1,418.92	N/A
MH-424	1,432.90	1,419.54	0.10	13.36	1,419.54	1,419.64	N/A	N/A
MH-425	1,432.90	1,420.27	0.10	12.63	1,420.27	1,420.37	N/A	N/A
MH-426	1,432.90	1,420.71	0.10	12.19	1,420.71	1,420.81	N/A	N/A
MH-427	1,433.10	1,421.75	0.10	11.35	1,421.75	1,421.85	N/A	N/A
MH-428	1,435.90	1,423.50	0.00	12.40	1,423.50	1,423.50	N/A	N/A
MH-429	1,435.90	1,425.15	0.00	10.75	1,425.15	N/A	N/A	N/A
MH-430	1,432.70	1,419.14	0.10	13.56	1,419.14	1,419.24	N/A	N/A
MH-431	1,433.00	1,420.49	0.10	12.51	1,420.49	1,420.59	1,420.59	N/A
MH-432	1,433.10	1,420.77	0.10	12.33	1,420.77	1,420.87	N/A	N/A
MH-433	1,433.40	1,422.49	0.00	10.91	1,422.49	1,422.49	N/A	N/A
MH-434	1,435.30	1,424.10	0.00	11.20	1,424.10	1,424.10	N/A	N/A
MH-435	1,435.40	1,425.71	0.10	9.69	1,425.71	1,425.81	N/A	N/A
MH-436	1,435.20	1,426.70	0.00	8.50	1,426.70	N/A	N/A	N/A
MH-437	1,433.00	1,421.37	0.10	11.63	1,421.37	1,421.47	N/A	N/A
MH-438	1,433.20	1,422.59	0.10	10.61	1,422.59	1,422.69	1,422.69	N/A
MH-439	1,435.00	1,423.91	0.00	11.09	1,423.91	1,423.91	N/A	N/A
MH-440	1,435.20	1,425.13	0.00	10.07	1,425.13	1,425.13	N/A	N/A
MH-441	1,435.20	1,426.36	0.00	8.84	1,426.36	N/A	N/A	N/A
MH-442	1,434.80	1,423.68	0.10	11.12	1,423.68	1,423.78	N/A	N/A
MH-443	1,437.10	1,424.76	0.10	12.34	1,424.76	1,424.86	1,424.86	N/A
MH-444	1,437.20	1,426.46	0.00	10.74	1,426.46	1,426.46	N/A	N/A
MH-445	1,437.40	1,428.06	0.10	9.34	1,428.06	1,428.16	N/A	N/A
MH-446	1,437.50	1,429.08	0.00	8.42	1,429.08	1,429.08	N/A	N/A
MH-447	1,437.30	1,429.99	0.00	7.31	1,429.99	N/A	N/A	N/A
MH-448	1,437.50	1,425.88	0.10	11.62	1,425.88	1,425.98	N/A	N/A
MH-449	1,437.20	1,427.05	0.10	10.15	1,427.05	1,427.15	1,427.15	N/A
MH-450	1,437.30	1,428.14	0.00	9.16	1,428.14	1,428.14	N/A	N/A
MH-451	1,437.50	1,429.13	0.00	8.37	1,429.13	N/A	N/A	N/A
MH-452	1,437.30	1,428.18	0.10	9.12	1,428.18	1,428.28	N/A	N/A
MH-453	1,437.40	1,429.51	0.00	7.89	1,429.51	1,429.51	N/A	N/A
MH-454	1,437.50	1,430.77	0.00	6.73	1,430.77	N/A	N/A	N/A
MH-455	1,431.25	1,416.50	0.10	14.75	1,416.50	1,416.60	1,416.60	N/A
MH-456	1,432.44	1,417.43	0.00	15.01	1,417.43	1,417.43	N/A	N/A
MH-457	1,433.89	1,418.27	0.10	15.62	1,418.27	N/A	N/A	N/A
MH-458	1,430.59	1,417.49	0.10	13.10	1,417.49	1,417.59	N/A	N/A
MH-459	1,431.72	1,418.73	0.00	12.99	1,418.73	1,418.73	N/A	N/A
MH-460	1,433.10	1,420.05	0.10	13.05	1,420.05	N/A	N/A	N/A

Scenario: Base

Gravity Pipe Report

Label	Upstream Node	Upstream Invert Elevation (ft)	Downstream Node	Downstream Invert Elevation (ft)	Constructed Slope (ft/ft)	Length (ft)	Section Size
P-1	MH-1	1,412.97	Pump Station 1B	1,412.78	0.001400	130.98	15 inch
P-2	MH-2	1,413.60	MH-1	1,413.07	0.003300	162.68	8 inch
P-3	MH-3	1,414.07	MH-2	1,413.70	0.003300	110.75	8 inch
P-4	MH-4	1,414.76	MH-3	1,414.17	0.003300	179.84	8 inch
P-5	MH-5	1,415.45	MH-4	1,414.86	0.003300	179.84	8 inch
P-6	MH-6	1,416.15	MH-5	1,415.55	0.003300	179.84	8 inch
P-7	MH-7	1,416.84	MH-6	1,416.25	0.003300	179.84	8 inch
P-8	MH-8	1,418.59	MH-7	1,416.94	0.003300	499.94	8 inch
P-9	MH-9	1,419.68	MH-8	1,418.69	0.003300	299.78	8 inch
P-10	MH-10	1,421.23	MH-9	1,419.78	0.003300	440.18	8 inch
P-11	MH-154	1,422.13	MH-10	1,421.33	0.003300	240.11	8 inch
P-12	MH-32	1,413.61	MH-1	1,413.07	0.001900	286.45	12 inch
P-13	MH-33	1,414.74	MH-32	1,413.71	0.002400	429.26	10 inch
P-14	MH-38	1,415.88	MH-33	1,414.84	0.003300	313.74	8 inch
P-15	MH-47	1,416.03	MH-33	1,414.84	0.003300	359.45	8 inch
P-16	MH-48	1,417.39	MH-47	1,416.13	0.003300	383.31	8 inch
P-17	MH-49	1,418.73	MH-48	1,417.39	0.003300	406.69	8 inch
P-18	MH-50	1,419.29	MH-49	1,418.83	0.003300	138.52	8 inch
P-19	MH-51	1,420.11	MH-50	1,419.39	0.003300	219.21	8 inch
P-20	MH-52	1,421.57	MH-51	1,420.21	0.003300	410.89	8 inch
P-21	MH-53	1,422.54	MH-52	1,421.67	0.003300	263.00	8 inch
P-22	MH-54	1,419.31	MH-49	1,418.83	0.003300	145.00	8 inch
P-23	MH-55	1,420.48	MH-54	1,419.41	0.003300	323.20	8 inch
P-24	MH-56	1,421.35	MH-55	1,420.48	0.003300	263.80	8 inch
P-25	MH-57	1,417.08	MH-47	1,416.13	0.003300	290.00	8 inch
P-26	MH-58	1,418.82	MH-57	1,417.18	0.003300	495.00	8 inch
P-27	MH-343	1,419.54	MH-58	1,418.92	0.003300	189.73	8 inch
P-28	MH-59	1,419.90	MH-58	1,418.92	0.003300	296.85	8 inch
P-29	MH-60	1,420.47	MH-59	1,420.00	0.003300	145.01	8 inch
P-30	MH-61	1,421.59	MH-60	1,420.57	0.003300	306.30	8 inch
P-31	MH-62	1,422.64	MH-61	1,421.59	0.003300	320.00	8 inch
P-32	MH-63	1,423.58	MH-62	1,422.74	0.003300	253.80	8 inch
P-33	MH-64	1,419.48	MH-103	1,418.33	0.003300	348.50	8 inch
P-34	MH-65	1,420.02	MH-64	1,419.58	0.003300	135.00	8 inch
P-35	MH-66	1,421.02	MH-65	1,420.12	0.003300	270.00	8 inch
P-36	MH-67	1,422.20	MH-66	1,421.12	0.003300	330.00	8 inch
P-37	MH-68	1,423.39	MH-67	1,422.30	0.003300	329.58	8 inch
P-38	MH-69	1,423.10	MH-67	1,422.30	0.003300	241.42	8 inch
P-39	MH-70	1,421.11	MH-65	1,420.12	0.003300	300.00	8 inch
P-40	MH-71	1,422.10	MH-70	1,421.11	0.003300	300.00	8 inch
P-41	MH-74	1,423.04	MH-71	1,422.20	0.003300	252.82	8 inch
P-42	MH-72	1,423.10	MH-71	1,422.20	0.003300	270.00	8 inch
P-43	MH-73	1,424.63	MH-72	1,423.10	0.003300	466.00	8 inch
P-44	MH-80	1,412.44	Pump Station 1A	1,411.71	0.003300	218.44	8 inch
P-45	MH-81	1,412.60	MH-80	1,412.54	0.003300	21.00	8 inch
P-46	MH-82	1,412.98	MH-81	1,412.70	0.003300	82.95	8 inch
P-47	MH-83	1,413.18	MH-82	1,413.08	0.003300	32.22	8 inch
P-48	MH-84	1,413.42	MH-83	1,413.28	0.003300	39.85	8 inch
P-49	MH-85	1,414.40	MH-84	1,413.52	0.003300	267.93	8 inch
P-50	MH-86	1,413.11	MH-80	1,412.54	0.003300	175.00	8 inch
P-51	MH-129	1,416.65	MH-122	1,415.76	0.003300	270.00	8 inch

Scenario: Base

Gravity Pipe Report

Label	Upstream Node	Upstream Invert Elevation (ft)	Downstream Node	Downstream Invert Elevation (ft)	Constructed Slope (ft/ft)	Length (ft)	Section Size
P-52	MH-123	1,416.42	MH-122	1,415.76	0.003300	200.00	8 inch
P-53	MH-124	1,417.34	MH-123	1,416.52	0.003300	250.00	8 inch
P-54	MH-127	1,420.59	MH-126	1,419.70	0.003300	270.00	8 inch
P-55	MH-128	1,419.08	MH-125	1,418.71	0.003300	112.66	8 inch
P-56	MH-133	1,417.64	MH-129	1,416.75	0.003300	270.00	8 inch
P-57	MH-130	1,417.41	MH-129	1,416.75	0.003300	200.00	8 inch
P-58	MH-131	1,418.33	MH-130	1,417.51	0.003300	250.00	8 inch
P-59	MH-132	1,419.45	MH-131	1,418.43	0.003300	306.64	8 inch
P-60	MH-126	1,419.60	MH-125	1,418.71	0.003300	270.00	8 inch
P-61	MH-134	1,418.40	MH-133	1,417.74	0.003300	200.00	8 inch
P-62	MH-135	1,419.33	MH-134	1,418.50	0.003300	250.00	8 inch
P-63	MH-136	1,420.49	MH-135	1,419.43	0.003300	323.51	8 inch
P-64	MH-125	1,418.61	MH-124	1,417.44	0.003300	352.66	8 inch
P-65	MH-140	1,421.86	MH-139	1,420.95	0.003300	276.18	8 inch
P-66	MH-148	1,424.28	MH-146	1,423.39	0.003300	270.00	8 inch
P-67	MH-137	1,419.90	MH-126	1,419.70	0.003300	62.26	8 inch
P-68	MH-138	1,420.50	MH-137	1,420.00	0.003300	150.00	8 inch
P-69	MH-139	1,420.85	MH-138	1,420.60	0.003300	76.41	8 inch
P-70	MH-141	1,422.39	MH-140	1,421.96	0.003300	130.00	8 inch
P-71	MH-142	1,423.58	MH-141	1,422.49	0.003300	330.00	8 inch
P-72	MH-143	1,424.21	MH-142	1,423.68	0.003300	160.23	8 inch
P-73	MH-144	1,421.38	MH-139	1,420.95	0.003300	130.00	8 inch
P-74	MH-146	1,423.29	MH-145	1,422.80	0.003300	148.05	8 inch
P-75	MH-145	1,422.70	MH-144	1,421.48	0.003300	370.00	8 inch
P-76	MH-150	1,422.39	MH-149	1,421.96	0.003300	130.00	8 inch
P-77	MH-152	1,424.14	MH-151	1,423.85	0.003300	88.96	8 inch
P-78	MH-151	1,423.75	MH-150	1,422.49	0.003300	380.00	8 inch
P-79	MH-147	1,424.28	MH-146	1,423.39	0.003300	270.00	8 inch
P-80	MH-149	1,421.86	MH-139	1,420.95	0.003300	276.18	8 inch
P-81	MH-153	1,422.65	MH-149	1,421.96	0.003300	208.86	8 inch
P-82	MH-158	1,423.12	MH-154	1,422.23	0.003300	270.00	8 inch
P-83	MH-166	1,425.21	MH-163	1,424.21	0.003300	303.50	8 inch
P-84	MH-163	1,424.11	MH-158	1,423.22	0.003300	270.00	8 inch
P-85	MH-87	1,413.54	MH-86	1,413.11	0.003300	130.46	8 inch
P-86	MH-88	1,413.99	MH-87	1,413.64	0.003300	104.23	8 inch
P-87	MH-89	1,414.42	MH-88	1,414.09	0.003300	100.16	8 inch
P-88	MH-90	1,414.81	MH-89	1,414.42	0.003300	119.50	8 inch
P-89	MH-91	1,415.31	MH-90	1,414.91	0.003300	119.50	8 inch
P-90	MH-92	1,415.89	MH-91	1,415.31	0.003300	176.00	8 inch
P-91	MH-93	1,415.31	MH-90	1,414.91	0.003300	119.50	8 inch
P-92	MH-94	1,415.89	MH-93	1,415.31	0.003300	176.00	8 inch
P-93	MH-95	1,416.22	MH-94	1,415.89	0.003300	99.99	8 inch
P-94	MH-96	1,416.53	MH-95	1,416.32	0.003300	63.42	8 inch
P-95	MH-97	1,416.76	MH-96	1,416.63	0.003300	40.85	8 inch
P-96	MH-98	1,418.25	MH-97	1,416.86	0.003300	422.18	8 inch
P-97	MH-99	1,416.57	MH-95	1,416.32	0.003300	76.01	8 inch
P-98	MH-100	1,416.90	MH-99	1,416.67	0.003300	71.21	8 inch
P-99	MH-101	1,417.25	MH-100	1,417.00	0.003300	74.09	8 inch
P-100	MH-340	1,426.66	MH-339	1,425.82	0.003300	255.00	8 inch
P-101	MH-338	1,424.87	MH-336	1,423.95	0.003300	280.00	8 inch
P-102	MH-337	1,425.52	MH-336	1,423.95	0.003300	476.00	8 inch

Scenario: Base

Gravity Pipe Report

Label	Upstream Node	Upstream Invert Elevation (ft)	Downstream Node	Downstream Invert Elevation (ft)	Constructed Slope (ft/ft)	Length (ft)	Section Size
P-103	MH-334	1,424.61	MH-333	1,423.77	0.003300	255.00	8 inch
P-104	MH-332	1,425.56	MH-331	1,423.95	0.003300	488.01	8 inch
P-105	MH-335	1,425.47	MH-334	1,424.71	0.003300	229.00	8 inch
P-106	MH-366	1,429.88	MH-365	1,428.28	0.003300	484.00	8 inch
P-107	MH-365	1,428.18	MH-363	1,427.23	0.003300	290.00	8 inch
P-108	MH-363	1,427.13	MH-362	1,425.71	0.003300	428.00	8 inch
P-109	MH-371	1,429.93	MH-370	1,428.56	0.003300	416.00	8 inch
P-110	MH-367	1,426.56	MH-362	1,425.71	0.003300	256.00	8 inch
P-111	MH-373	1,431.26	MH-372	1,429.62	0.003300	498.50	8 inch
P-112	MH-370	1,428.46	MH-368	1,427.50	0.003300	290.00	8 inch
P-113	MH-372	1,429.52	MH-370	1,428.56	0.003300	290.00	8 inch
P-114	MH-369	1,428.53	MH-368	1,427.50	0.003300	310.77	8 inch
P-115	MH-390	1,426.83	MH-389	1,425.90	0.003300	280.00	8 inch
P-116	MH-388	1,426.54	MH-387	1,424.89	0.003300	500.00	8 inch
P-117	MH-386	1,425.53	MH-385	1,423.88	0.003300	500.00	8 inch
P-118	MH-378	1,423.63	MH-377	1,422.87	0.003300	230.00	8 inch
P-119	MH-380	1,425.69	MH-379	1,424.74	0.003300	289.00	8 inch
P-120	MH-379	1,424.64	MH-378	1,423.73	0.003300	276.00	8 inch
P-121	MH-384	1,427.52	MH-383	1,426.22	0.003300	391.81	8 inch
P-122	MH-382	1,425.81	MH-381	1,424.90	0.003300	276.00	8 inch
P-123	MH-383	1,426.22	MH-381	1,424.90	0.003300	400.00	8 inch
P-124	MH-389	1,425.80	MH-387	1,424.89	0.003300	276.00	8 inch
P-125	MH-387	1,424.79	MH-385	1,423.88	0.003300	276.00	8 inch
P-126	MH-385	1,423.78	MH-377	1,422.87	0.003300	276.00	8 inch
P-127	MH-375	1,421.83	MH-374	1,421.55	0.003300	85.26	8 inch
P-128	MH-376	1,422.21	MH-375	1,421.93	0.003300	85.32	8 inch
P-129	MH-374	1,421.45	MH-43	1,420.98	0.003300	140.00	8 inch
P-130	MH-377	1,422.77	MH-376	1,422.31	0.003300	140.00	8 inch
P-131	MH-381	1,424.80	MH-378	1,423.73	0.003300	325.00	8 inch
P-132	MH-404	1,426.15	MH-403	1,424.66	0.003300	450.00	8 inch
P-133	MH-401	1,427.30	MH-400	1,426.15	0.003300	350.00	8 inch
P-134	MH-402	1,428.11	MH-401	1,427.40	0.003300	216.50	8 inch
P-135	MH-397	1,426.20	MH-396	1,425.49	0.003300	216.50	8 inch
P-136	MH-403	1,424.56	MH-398	1,423.67	0.003300	270.00	8 inch
P-137	MH-43	1,420.88	MH-42	1,420.26	0.003300	190.00	8 inch
P-138	MH-42	1,420.16	MH-41	1,419.54	0.003300	186.41	8 inch
P-139	MH-405	1,427.63	MH-404	1,426.15	0.003300	450.00	8 inch
P-140	MH-406	1,429.11	MH-405	1,427.63	0.003300	448.74	8 inch
P-141	MH-398	1,423.57	MH-394	1,422.68	0.003300	270.00	8 inch
P-142	MH-399	1,424.99	MH-398	1,423.67	0.003300	400.00	8 inch
P-143	MH-400	1,426.15	MH-399	1,424.99	0.003300	350.00	8 inch
P-144	MH-396	1,425.39	MH-395	1,424.03	0.003300	410.00	8 inch
P-145	MH-394	1,422.58	MH-393	1,420.93	0.003300	500.00	8 inch
P-146	MH-395	1,424.03	MH-394	1,422.68	0.003300	410.00	8 inch
P-147	MH-393	1,420.83	MH-392	1,420.20	0.003300	189.71	8 inch
P-148	MH-392	1,420.10	MH-41	1,419.54	0.003300	170.00	8 inch
P-149	MH-102	1,417.85	MH-101	1,417.35	0.003300	152.63	8 inch
P-150	MH-103	1,418.23	MH-102	1,417.85	0.003300	114.50	8 inch
P-151	MH-104	1,418.59	MH-103	1,418.33	0.003300	78.82	8 inch
P-152	MH-105	1,419.84	MH-104	1,418.69	0.003300	347.30	8 inch
P-153	MH-41	1,419.44	MH-40	1,418.62	0.003300	250.00	8 inch

Scenario: Base

Gravity Pipe Report

Label	Upstream Node	Upstream Invert Elevation (ft)	Downstream Node	Downstream Invert Elevation (ft)	Constructed Slope (ft/ft)	Length (ft)	Section Size
P-155	MH-39	1,417.26	MH-38	1,415.98	0.003300	389.87	8 inch
P-156	MH-339	1,425.82	MH-338	1,424.97	0.003300	255.00	8 inch
P-157	MH-336	1,423.85	MH-330	1,422.93	0.003300	280.00	8 inch
P-158	MH-341	1,425.63	MH-334	1,424.71	0.003300	280.00	8 inch
P-159	MH-342	1,426.43	MH-341	1,425.63	0.003300	241.61	8 inch
P-160	MH-391	1,427.74	MH-390	1,426.83	0.003300	275.00	8 inch
P-161	MH-106	1,421.10	MH-105	1,419.84	0.003300	381.84	8 inch
P-162	MH-107	1,421.35	MH-106	1,421.20	0.003300	47.22	8 inch
P-163	MH-108	1,421.59	MH-107	1,421.45	0.003300	42.60	8 inch
P-164	MH-109	1,418.70	MH-103	1,418.33	0.003300	113.00	8 inch
P-165	MH-110	1,418.98	MH-109	1,418.80	0.003300	52.82	8 inch
P-166	MH-111	1,419.33	MH-110	1,419.08	0.003300	77.87	8 inch
P-167	MH-112	1,420.42	MH-111	1,419.43	0.003300	298.30	8 inch
P-168	MH-113	1,421.00	MH-112	1,420.42	0.003300	176.00	8 inch
P-169	MH-114	1,419.77	MH-110	1,419.08	0.003300	211.01	8 inch
P-170	MH-115	1,420.35	MH-114	1,419.77	0.003300	176.00	8 inch
P-171	MH-116	1,416.08	MH-90	1,414.91	0.003300	353.50	8 inch
P-172	MH-117	1,417.35	MH-116	1,416.18	0.003300	354.18	8 inch
P-173	MH-118	1,418.50	MH-117	1,417.35	0.003300	350.00	8 inch
P-174	MH-119	1,419.49	MH-118	1,418.60	0.003300	270.00	8 inch
P-175	MH-11	1,421.16	MH-119	1,419.59	0.003300	475.00	8 inch
P-176	MH-46	1,420.84	MH-119	1,419.59	0.003300	376.62	8 inch
P-177	MH-34	1,414.35	MH-2	1,413.70	0.003300	197.57	8 inch
P-178	MH-35	1,414.82	MH-34	1,414.45	0.003300	111.93	8 inch
P-179	MH-36	1,415.73	MH-35	1,414.92	0.003300	243.90	8 inch
P-180	MH-455	1,416.50	MH-36	1,415.73	0.003300	234.28	8 inch
P-181	MH-456	1,417.43	MH-455	1,416.60	0.003300	250.00	8 inch
P-182	MH-457	1,418.27	MH-456	1,417.43	0.003300	254.68	8 inch
P-183	MH-458	1,417.49	MH-455	1,416.60	0.003300	270.00	8 inch
P-184	MH-459	1,418.73	MH-458	1,417.59	0.003300	344.00	8 inch
P-185	MH-460	1,420.05	MH-459	1,418.73	0.003300	400.00	8 inch
P-186	MH-167	1,415.40	MH-32	1,413.71	0.003300	511.41	8 inch
P-187	MH-169	1,416.00	MH-167	1,415.50	0.003300	151.71	8 inch
P-188	MH-168	1,416.15	MH-167	1,415.50	0.003300	196.50	8 inch
P-189	MH-422	1,417.07	MH-168	1,416.25	0.003300	250.99	8 inch
P-190	MH-423	1,418.82	MH-422	1,417.17	0.003300	500.00	8 inch
P-202	MH-438	1,422.59	MH-437	1,421.47	0.003300	340.63	8 inch
P-219	MH-442	1,423.68	MH-438	1,422.69	0.003300	300.00	8 inch
P-220	MH-439	1,423.91	MH-438	1,422.69	0.003300	370.00	8 inch
P-221	MH-440	1,425.13	MH-439	1,423.91	0.003300	370.00	8 inch
P-222	MH-441	1,426.36	MH-440	1,425.13	0.003300	371.71	8 inch
P-223	MH-443	1,424.76	MH-442	1,423.78	0.003300	296.64	8 inch
P-224	MH-449	1,427.05	MH-448	1,425.98	0.003300	325.00	8 inch
P-225	MH-453	1,429.51	MH-452	1,428.28	0.003300	375.00	8 inch
P-226	MH-452	1,428.18	MH-449	1,427.15	0.003300	310.00	8 inch
P-227	MH-446	1,429.08	MH-445	1,428.16	0.003300	280.00	8 inch
P-228	MH-448	1,425.88	MH-443	1,424.86	0.003300	310.00	8 inch
P-229	MH-450	1,428.14	MH-449	1,427.15	0.003300	300.00	8 inch
P-230	MH-451	1,429.13	MH-450	1,428.14	0.003300	299.00	8 inch
P-231	MH-444	1,426.46	MH-443	1,424.86	0.003300	485.00	8 inch
P-232	MH-445	1,428.06	MH-444	1,426.46	0.003300	485.00	8 inch

Scenario: Base

Gravity Pipe Report

Label	Upstream Node	Upstream Invert Elevation (ft)	Downstream Node	Downstream Invert Elevation (ft)	Constructed Slope (ft/ft)	Length (ft)	Section Size
P-233	MH-447	1,429.99	MH-446	1,429.08	0.003300	274.00	8 inch
P-234	MH-454	1,430.77	MH-453	1,429.51	0.003300	379.37	8 inch
P-235	MH-219	1,423.97	MH-218	1,422.59	0.003300	420.00	8 inch
P-236	MH-216	1,425.74	MH-215	1,424.34	0.003300	425.00	8 inch
P-237	MH-212	1,420.37	MH-206	1,420.11	0.003300	79.16	8 inch
P-238	MH-213	1,421.43	MH-212	1,420.47	0.003300	290.00	8 inch
P-239	MH-211	1,423.17	MH-208	1,422.41	0.003300	229.00	8 inch
P-240	MH-217	1,426.74	MH-216	1,425.84	0.003300	272.94	8 inch
P-241	MH-206	1,420.01	Pump Station 2	1,419.72	0.001900	154.09	8 inch
P-242	MH-220	1,425.36	MH-219	1,423.97	0.003300	420.00	8 inch
P-243	MH-221	1,426.73	MH-220	1,425.36	0.003300	416.38	8 inch
P-244	MH-218	1,422.49	MH-213	1,421.53	0.003300	290.00	8 inch
P-245	MH-207	1,421.22	MH-206	1,420.11	0.002400	460.00	8 inch
P-246	MH-208	1,422.31	MH-207	1,421.22	0.002400	455.84	8 inch
P-247	MH-214	1,422.93	MH-213	1,421.53	0.003300	425.00	8 inch
P-248	MH-215	1,424.34	MH-214	1,422.93	0.003300	425.00	8 inch
P-249	MH-247	1,429.57	MH-246	1,428.05	0.003300	460.00	8 inch
P-250	MH-244	1,428.53	MH-243	1,427.03	0.003300	457.50	8 inch
P-251	MH-246	1,427.95	MH-243	1,427.03	0.003300	280.00	8 inch
P-252	MH-242	1,430.85	MH-241	1,430.04	0.003300	243.45	8 inch
P-253	MH-269	1,431.30	MH-268	1,429.86	0.003300	435.00	8 inch
P-254	MH-265	1,428.74	MH-260	1,427.81	0.003300	280.00	8 inch
P-255	MH-264	1,432.49	MH-263	1,431.71	0.003300	236.09	8 inch
P-256	MH-266	1,430.20	MH-265	1,428.84	0.003300	412.00	8 inch
P-257	MH-262	1,430.69	MH-261	1,429.25	0.003300	435.00	8 inch
P-258	MH-155	1,423.69	MH-154	1,422.23	0.003300	445.00	8 inch
P-259	MH-164	1,425.23	MH-163	1,424.21	0.003300	310.00	8 inch
P-260	MH-162	1,426.16	MH-160	1,425.36	0.003300	241.00	8 inch
P-261	MH-156	1,425.16	MH-155	1,423.69	0.003300	445.65	8 inch
P-262	MH-165	1,426.08	MH-164	1,425.23	0.003300	256.50	8 inch
P-263	MH-199	1,428.21	MH-191	1,427.28	0.003300	283.03	8 inch
P-264	MH-205	1,432.50	MH-204	1,432.12	0.003300	115.84	8 inch
P-265	MH-191	1,427.18	MH-161	1,426.26	0.003300	280.00	8 inch
P-266	MH-347	1,423.45	MH-346	1,422.55	0.003300	274.18	8 inch
P-267	MH-330	1,422.83	MH-345	1,421.66	0.003300	354.00	8 inch
P-268	MH-354	1,419.60	MH-348	1,418.00	0.003300	485.31	8 inch
P-269	MH-353	1,422.94	MH-352	1,421.61	0.003300	401.40	8 inch
P-270	MH-348	1,417.90	MH-39	1,417.36	0.003300	162.49	8 inch
P-271	MH-44	1,424.09	MH-347	1,423.55	0.003300	163.86	8 inch
P-272	MH-344	1,420.04	MH-343	1,419.64	0.003300	119.18	8 inch
P-273	MH-352	1,421.51	MH-351	1,420.33	0.003300	357.17	8 inch
P-274	MH-45	1,424.47	MH-44	1,424.19	0.003300	83.00	8 inch
P-275	MH-345	1,421.56	MH-344	1,420.14	0.003300	431.00	8 inch
P-276	MH-346	1,422.55	MH-345	1,421.66	0.003300	270.00	8 inch
P-277	MH-333	1,423.77	MH-330	1,422.93	0.003300	255.00	8 inch
P-278	MH-361	1,424.91	MH-45	1,424.57	0.003300	104.04	8 inch
P-279	MH-362	1,425.61	MH-361	1,425.01	0.003300	182.43	8 inch
P-280	MH-368	1,427.40	MH-367	1,426.56	0.003300	256.00	8 inch
P-281	MH-360	1,423.17	MH-359	1,422.67	0.003300	150.00	8 inch
P-282	MH-359	1,422.57	MH-358	1,422.08	0.003300	150.00	8 inch
P-283	MH-358	1,421.98	MH-357	1,421.48	0.003300	150.00	8 inch

Scenario: Base

Gravity Pipe Report

Label	Upstream Node	Upstream Invert Elevation (ft)	Downstream Node	Downstream Invert Elevation (ft)	Constructed Slope (ft/ft)	Length (ft)	Section Size
P-284	MH-357	1,421.38	MH-356	1,420.89	0.003300	150.00	8 inch
P-285	MH-356	1,420.79	MH-355	1,420.29	0.003300	150.00	8 inch
P-286	MH-355	1,420.19	MH-354	1,419.70	0.003300	150.00	8 inch
P-287	MH-350	1,418.64	MH-349	1,418.32	0.003300	96.20	8 inch
P-288	MH-349	1,418.22	MH-348	1,418.00	0.003300	67.73	8 inch
P-289	MH-351	1,420.23	MH-350	1,418.74	0.003300	452.85	8 inch
P-290	MH-409	1,418.65	MH-408	1,417.65	0.003300	303.32	8 inch
P-291	MH-412	1,419.31	MH-411	1,418.23	0.003300	327.38	8 inch
P-292	MH-410	1,417.02	MH-407	1,416.63	0.003300	120.00	8 inch
P-293	MH-407	1,416.53	MH-38	1,415.98	0.003300	166.82	8 inch
P-294	MH-420	1,418.71	MH-419	1,417.87	0.003300	255.00	8 inch
P-295	MH-415	1,420.78	MH-414	1,420.45	0.003300	100.00	8 inch
P-296	MH-417	1,422.22	MH-416	1,421.89	0.003300	100.00	8 inch
P-297	MH-408	1,417.65	MH-407	1,416.63	0.003300	310.00	8 inch
P-298	MH-419	1,417.77	MH-410	1,417.12	0.003300	196.29	8 inch
P-299	MH-411	1,418.23	MH-410	1,417.12	0.003300	335.00	8 inch
P-300	MH-421	1,419.55	MH-420	1,418.71	0.003300	255.00	8 inch
P-301	MH-122	1,415.66	MH-121	1,415.56	0.003300	30.00	8 inch
P-302	MH-121	1,415.46	MH-120	1,415.12	0.003300	103.95	8 inch
P-304	MH-258	1,432.06	MH-257	1,430.71	0.003300	410.00	8 inch
P-305	MH-254	1,429.59	MH-249	1,428.66	0.003300	280.00	8 inch
P-306	MH-253	1,433.40	MH-252	1,432.48	0.003300	280.00	8 inch
P-307	MH-256	1,432.27	MH-255	1,430.98	0.003300	392.00	8 inch
P-308	MH-251	1,431.45	MH-250	1,430.07	0.003300	420.19	8 inch
P-309	MH-28	1,423.08	MH-218	1,422.59	0.003300	150.00	8 inch
P-310	MH-241	1,430.04	MH-240	1,429.12	0.003300	280.00	8 inch
P-311	MH-245	1,429.89	MH-244	1,428.53	0.003300	411.50	8 inch
P-312	MH-243	1,426.93	MH-238	1,426.00	0.003300	280.00	8 inch
P-313	MH-248	1,431.07	MH-247	1,429.57	0.003300	455.00	8 inch
P-314	MH-260	1,427.71	MH-31	1,426.92	0.003300	240.00	8 inch
P-315	MH-236	1,425.09	MH-29	1,424.41	0.003300	205.19	8 inch
P-316	MH-237	1,425.52	MH-236	1,425.19	0.003300	99.87	8 inch
P-317	MH-238	1,425.90	MH-237	1,425.62	0.003300	85.26	8 inch
P-318	MH-29	1,424.31	MH-28	1,423.18	0.003300	342.42	8 inch
P-319	MH-30	1,425.57	MH-29	1,424.41	0.003300	349.87	8 inch
P-320	MH-31	1,426.82	MH-30	1,425.67	0.003300	349.87	8 inch
P-321	MH-270	1,432.73	MH-269	1,431.30	0.003300	435.00	8 inch
P-322	MH-261	1,429.25	MH-260	1,427.81	0.003300	435.00	8 inch
P-323	MH-267	1,431.56	MH-266	1,430.20	0.003300	412.00	8 inch
P-324	MH-263	1,431.71	MH-262	1,430.79	0.003300	280.00	8 inch
P-325	MH-268	1,429.76	MH-265	1,428.84	0.003300	280.00	8 inch
P-326	MH-232	1,427.97	MH-18	1,426.85	0.003300	339.65	8 inch
P-327	MH-235	1,430.47	MH-234	1,429.63	0.003300	252.67	8 inch
P-328	MH-234	1,429.53	MH-233	1,429.19	0.003300	104.39	8 inch
P-329	MH-223	1,426.80	MH-222	1,426.30	0.003300	151.28	8 inch
P-330	MH-222	1,426.20	MH-16	1,425.71	0.003300	147.00	8 inch
P-331	MH-231	1,431.19	MH-229	1,430.43	0.003300	230.00	8 inch
P-332	MH-228	1,430.30	MH-227	1,429.87	0.003300	130.00	8 inch
P-333	MH-229	1,430.33	MH-227	1,429.87	0.003300	140.00	8 inch
P-334	MH-224	1,427.46	MH-223	1,426.90	0.003300	170.00	8 inch
P-335	MH-209	1,422.70	MH-208	1,422.41	0.002400	121.15	8 inch

Scenario: Base

Gravity Pipe Report

Label	Upstream Node	Upstream Invert Elevation (ft)	Downstream Node	Downstream Invert Elevation (ft)	Constructed Slope (ft/ft)	Length (ft)	Section Size
P-336	MH-210	1,423.02	MH-209	1,422.80	0.002400	91.32	8 inch
P-337	MH-225	1,428.00	MH-223	1,426.90	0.003300	335.00	8 inch
P-338	MH-226	1,429.11	MH-225	1,428.00	0.003300	335.00	8 inch
P-339	MH-227	1,429.77	MH-226	1,429.21	0.003300	169.99	8 inch
P-340	MH-230	1,431.22	MH-229	1,430.43	0.003300	240.00	8 inch
P-341	MH-233	1,429.09	MH-232	1,427.97	0.003300	339.65	8 inch
P-342	MH-13	1,423.82	MH-12	1,423.34	0.002400	199.22	8 inch
P-343	MH-14	1,424.41	MH-13	1,423.92	0.002400	205.00	8 inch
P-344	MH-15	1,425.00	MH-14	1,424.51	0.002400	205.00	8 inch
P-345	MH-16	1,425.61	MH-15	1,425.10	0.002400	212.55	8 inch
P-346	MH-17	1,426.22	MH-16	1,425.71	0.002400	210.03	8 inch
P-347	MH-252	1,432.48	MH-251	1,431.55	0.003300	280.00	8 inch
P-348	MH-257	1,430.61	MH-254	1,429.69	0.003300	280.00	8 inch
P-349	MH-259	1,433.39	MH-258	1,432.06	0.003300	401.38	8 inch
P-350	MH-255	1,430.98	MH-254	1,429.69	0.003300	392.00	8 inch
P-351	MH-250	1,430.07	MH-249	1,428.66	0.003300	425.00	8 inch
P-352	MH-249	1,428.56	MH-19	1,427.84	0.003300	220.00	8 inch
P-353	MH-273	1,436.86	MH-272	1,435.34	0.003300	460.20	8 inch
P-354	MH-277	1,436.32	MH-276	1,434.86	0.003300	440.00	8 inch
P-355	MH-280	1,437.45	MH-279	1,435.92	0.003300	464.13	8 inch
P-356	MH-276	1,434.76	MH-271	1,433.81	0.003300	290.00	8 inch
P-357	MH-275	1,438.80	MH-274	1,437.92	0.003300	266.71	8 inch
P-358	MH-291	1,439.61	MH-282	1,438.23	0.003300	418.20	8 inch
P-359	MH-281	1,439.00	MH-280	1,437.55	0.003300	437.01	8 inch
P-360	MH-278	1,437.77	MH-277	1,436.32	0.003300	439.26	8 inch
P-361	MH-271	1,433.71	MH-23	1,432.95	0.003300	230.55	8 inch
P-362	MH-272	1,435.34	MH-271	1,433.81	0.003300	465.00	8 inch
P-363	MH-274	1,437.92	MH-273	1,436.96	0.003300	290.00	8 inch
P-364	MH-309	1,442.82	MH-308	1,441.59	0.003300	370.00	8 inch
P-365	MH-306	1,441.82	MH-305	1,440.60	0.003300	370.00	8 inch
P-366	MH-305	1,440.50	MH-300	1,439.61	0.003300	270.00	8 inch
P-367	MH-304	1,443.83	MH-303	1,443.05	0.003300	237.85	8 inch
P-368	MH-302	1,442.05	MH-301	1,440.83	0.003300	370.00	8 inch
P-369	MH-308	1,441.49	MH-305	1,440.60	0.003300	270.00	8 inch
P-370	MH-303	1,443.05	MH-302	1,442.15	0.003300	270.00	8 inch
P-371	MH-310	1,444.04	MH-309	1,442.82	0.003300	370.00	8 inch
P-372	MH-301	1,440.83	MH-300	1,439.61	0.003300	370.00	8 inch
P-373	MH-307	1,442.89	MH-306	1,441.82	0.003300	324.00	8 inch
P-374	MH-300	1,439.51	MH-27	1,438.52	0.003300	300.00	8 inch
P-375	MH-289	1,438.59	MH-288	1,438.03	0.003300	170.00	8 inch
P-376	MH-292	1,439.91	MH-291	1,439.71	0.003300	60.00	8 inch
P-377	MH-293	1,440.18	MH-292	1,440.01	0.003300	51.61	8 inch
P-378	MH-294	1,441.23	MH-293	1,440.28	0.003300	287.42	8 inch
P-379	MH-297	1,441.73	MH-296	1,441.20	0.003300	160.00	8 inch
P-380	MH-299	1,442.72	MH-298	1,441.80	0.003300	280.00	8 inch
P-381	MH-290	1,439.62	MH-289	1,438.69	0.003300	280.00	8 inch
P-382	MH-288	1,437.93	MH-287	1,436.91	0.003300	310.54	8 inch
P-383	MH-287	1,436.81	MH-25	1,435.97	0.003300	253.26	8 inch
P-384	MH-283	1,439.32	MH-282	1,438.23	0.003300	330.00	8 inch
P-385	MH-298	1,441.70	MH-296	1,441.20	0.003300	150.00	8 inch
P-386	MH-286	1,441.36	MH-285	1,440.02	0.003300	405.65	8 inch

Scenario: Base

Gravity Pipe Report

Label	Upstream Node	Upstream Invert Elevation (ft)	Downstream Node	Downstream Invert Elevation (ft)	Constructed Slope (ft/ft)	Length (ft)	Section Size
P-387	MH-284	1,440.14	MH-283	1,439.42	0.003300	216.45	8 inch
P-388	MH-295	1,440.80	MH-291	1,439.71	0.003300	330.00	8 inch
P-389	MH-296	1,441.10	MH-295	1,440.90	0.003300	60.00	8 inch
P-390	MH-285	1,439.92	MH-283	1,439.42	0.003300	150.00	8 inch
P-391	MH-282	1,438.13	MH-280	1,437.55	0.003300	176.09	8 inch
P-392	MH-25	1,435.87	MH-24	1,434.43	0.003300	436.09	8 inch
P-393	MH-319	1,439.27	MH-318	1,438.62	0.003300	194.53	8 inch
P-394	MH-321	1,440.65	MH-320	1,439.63	0.003300	308.78	8 inch
P-395	MH-315	1,443.00	MH-314	1,441.57	0.003300	435.00	8 inch
P-396	MH-324	1,442.70	MH-322	1,441.74	0.003300	290.00	8 inch
P-397	MH-326	1,443.96	MH-324	1,442.80	0.003300	351.80	8 inch
P-398	MH-327	1,444.88	MH-326	1,444.06	0.003300	248.47	8 inch
P-399	MH-317	1,445.73	MH-316	1,444.54	0.003300	361.50	8 inch
P-400	MH-318	1,438.52	MH-312	1,438.36	0.003300	50.00	8 inch
P-401	MH-312	1,438.26	MH-311	1,437.73	0.003300	160.00	8 inch
P-402	MH-313	1,439.82	MH-312	1,438.36	0.003300	442.05	8 inch
P-403	MH-323	1,442.86	MH-322	1,441.74	0.003300	341.00	8 inch
P-404	MH-322	1,441.64	MH-321	1,440.65	0.003300	300.00	8 inch
P-405	MH-325	1,443.92	MH-324	1,442.80	0.003300	341.00	8 inch
P-406	MH-316	1,444.44	MH-315	1,443.00	0.003300	435.00	8 inch
P-407	MH-328	1,445.14	MH-327	1,444.98	0.003300	50.00	8 inch
P-408	MH-320	1,439.53	MH-319	1,439.37	0.003300	50.00	8 inch
P-409	MH-311	1,437.63	MH-26	1,437.47	0.003300	50.00	8 inch
P-410	MH-329	1,446.51	MH-328	1,445.24	0.003300	384.61	8 inch
P-411	MH-314	1,441.47	MH-313	1,439.82	0.003300	500.00	8 inch
P-412	MH-26	1,437.37	MH-25	1,435.97	0.003300	422.57	8 inch
P-413	MH-12	1,423.24	MH-210	1,423.12	0.002400	50.28	8 inch
P-414	MH-200	1,428.97	MH-199	1,428.31	0.003300	200.00	8 inch
P-415	MH-201	1,429.73	MH-200	1,429.07	0.003300	200.00	8 inch
P-416	MH-202	1,430.49	MH-201	1,429.83	0.003300	200.00	8 inch
P-417	MH-203	1,431.25	MH-202	1,430.59	0.003300	200.00	8 inch
P-418	MH-204	1,432.02	MH-203	1,431.35	0.003300	201.74	8 inch
P-419	MH-198	1,432.58	MH-197	1,432.17	0.003300	124.19	8 inch
P-420	MH-192	1,427.94	MH-191	1,427.28	0.003300	200.20	8 inch
P-421	MH-193	1,428.77	MH-192	1,428.04	0.003300	220.00	8 inch
P-422	MH-194	1,429.59	MH-193	1,428.87	0.003300	220.00	8 inch
P-423	MH-195	1,430.42	MH-194	1,429.69	0.003300	220.00	8 inch
P-424	MH-196	1,431.24	MH-195	1,430.52	0.003300	220.00	8 inch
P-425	MH-197	1,432.07	MH-196	1,431.34	0.003300	220.00	8 inch
P-430	MH-331	1,423.85	MH-330	1,422.93	0.003300	280.00	8 inch
P-431	MH-279	1,435.82	MH-276	1,434.86	0.003300	290.00	8 inch
P-432	MH-24	1,434.43	MH-23	1,432.95	0.003300	450.00	8 inch
P-433	MH-22	1,431.60	MH-21	1,430.35	0.003300	380.00	8 inch
P-434	MH-21	1,430.35	MH-20	1,429.09	0.003300	380.00	8 inch
P-435	MH-20	1,429.09	MH-19	1,427.84	0.003300	380.00	8 inch
P-436	MH-23	1,432.85	MH-22	1,431.60	0.003300	378.12	8 inch
P-437	MH-19	1,427.74	MH-18	1,426.85	0.002400	370.32	8 inch
P-438	MH-18	1,426.75	MH-17	1,426.32	0.002400	179.37	8 inch
P-439	MH-27	1,438.42	MH-26	1,437.47	0.003300	289.84	8 inch
P-440	MH-239	1,427.51	MH-238	1,426.00	0.003300	457.50	8 inch
P-441	MH-413	1,419.63	MH-412	1,419.41	0.003300	68.16	8 inch

Scenario: Base

Gravity Pipe Report

Label	Upstream Node	Upstream Invert Elevation (ft)	Downstream Node	Downstream Invert Elevation (ft)	Constructed Slope (ft/ft)	Length (ft)	Section Size
P-442	MH-414	1,420.35	MH-412	1,419.41	0.003300	286.12	8 inch
P-443	MH-416	1,421.79	MH-415	1,420.88	0.003300	276.44	8 inch
P-444	MH-418	1,423.23	MH-417	1,422.32	0.003300	274.56	8 inch
P-446	MH-160	1,425.26	MH-159	1,424.24	0.003300	310.00	8 inch
P-447	MH-161	1,426.26	MH-160	1,425.36	0.003300	270.66	8 inch
P-448	MH-159	1,424.24	MH-158	1,423.22	0.003300	310.00	8 inch
P-449	MH-240	1,429.02	MH-239	1,427.51	0.003300	457.50	8 inch
P-450	MH-364	1,428.62	MH-363	1,427.23	0.003300	422.60	8 inch
P-452	MH-40	1,418.52	MH-39	1,417.36	0.003300	350.13	8 inch
P-456	MH-157	1,426.00	MH-156	1,425.26	0.003300	222.72	8 inch
P-847	MH-79	1,422.22	MH-76	1,420.83	0.003300	418.76	8 inch
P-849	MH-75	1,420.02	MH-64	1,419.58	0.003300	135.10	8 inch
P-854	MH-76	1,420.73	MH-75	1,420.12	0.003300	184.54	8 inch
P-886	MH-120	1,415.02	MH-3	1,414.17	0.003300	257.33	8 inch
P-894	MH-78	1,421.99	MH-77	1,421.58	0.003300	123.26	8 inch
P-895	MH-77	1,421.48	MH-76	1,420.83	0.003300	196.61	8 inch
P-900	MH-436	1,426.70	MH-435	1,425.81	0.003300	268.81	8 inch
P-907	MH-435	1,425.71	MH-434	1,424.10	0.003300	487.18	8 inch
P-908	MH-433	1,422.49	MH-432	1,420.87	0.003300	490.00	8 inch
P-909	MH-434	1,424.10	MH-433	1,422.49	0.003300	490.00	8 inch
P-910	MH-429	1,425.15	MH-428	1,423.50	0.003300	500.00	8 inch
P-911	MH-428	1,423.50	MH-427	1,421.85	0.003300	500.00	8 inch
P-912	MH-425	1,420.27	MH-424	1,419.64	0.003300	190.00	8 inch
P-913	MH-427	1,421.75	MH-426	1,420.81	0.003300	285.00	8 inch
P-914	MH-426	1,420.71	MH-425	1,420.37	0.003300	105.00	8 inch
P-928	MH-437	1,421.37	MH-431	1,420.59	0.003300	235.29	8 inch
P-930	MH-432	1,420.77	MH-431	1,420.59	0.003300	54.71	8 inch
P-934	MH-424	1,419.54	MH-423	1,418.92	0.003300	186.21	8 inch
P-935	MH-431	1,420.49	MH-430	1,419.24	0.003300	379.02	8 inch
P-946	MH-430	1,419.14	MH-423	1,418.92	0.003300	65.00	8 inch
P-948	MH-189	1,422.74	MH-188	1,421.09	0.003300	500.00	8 inch
P-949	MH-188	1,421.09	MH-187	1,419.44	0.003300	500.00	8 inch
P-950	MH-190	1,423.22	MH-189	1,422.84	0.003300	115.00	8 inch
P-952	MH-186	1,418.73	MH-185	1,418.22	0.003300	155.00	8 inch
P-956	MH-187	1,419.34	MH-186	1,418.83	0.003300	155.00	8 inch
P-957	MH-185	1,418.12	MH-184	1,417.15	0.003300	291.14	8 inch
P-960	MH-173	1,418.99	MH-172	1,418.38	0.003300	185.00	8 inch
P-965	MH-172	1,418.28	MH-171	1,417.67	0.003300	185.00	8 inch
P-966	MH-170	1,416.86	MH-169	1,416.10	0.003300	232.00	8 inch
P-967	MH-184	1,417.05	MH-169	1,416.10	0.003300	290.00	8 inch
P-969	MH-171	1,417.57	MH-170	1,416.96	0.003300	185.00	8 inch
P-971	MH-178	1,423.39	MH-177	1,423.10	0.003300	85.97	8 inch
P-972	MH-176	1,422.10	MH-175	1,421.19	0.003300	275.00	8 inch
P-973	MH-177	1,423.00	MH-176	1,422.10	0.003300	275.00	8 inch
P-985	MH-183	1,423.57	MH-181	1,422.91	0.003300	202.09	8 inch
P-986	MH-182	1,423.74	MH-181	1,422.91	0.003300	252.91	8 inch
P-990	MH-181	1,422.81	MH-180	1,422.41	0.003300	120.45	8 inch
P-991	MH-179	1,421.22	MH-174	1,420.13	0.003300	330.00	8 inch
P-992	MH-174	1,420.03	MH-173	1,419.09	0.003300	283.71	8 inch
P-993	MH-175	1,421.09	MH-174	1,420.13	0.003300	290.00	8 inch
P-994	MH-180	1,422.31	MH-179	1,421.22	0.003300	330.00	8 inch

Scenario: Base

Outlet Report

Label	Ground Elevation (ft)	Sump Elevation (ft)	Structure Depth (ft)
Pump Station 1A	1,432.50	1,411.71	20.79
Pump Station 1B	1,432.50	1,412.78	19.72
Pump Station 2	1,436.10	1,419.72	16.38

*Appendix B —  
Sewer Pipe Sizing  
Calculations*

Monterra  
Sewer Pipe Sizing Calculations

\*see figure 3 for POINT locations

POINT "A"		Peaking Factor= 2.13	Demand Factor= 0.370				
PARCEL DESIGNATION	DWELLING UNITS	AREA (ac)	WET WEATHER IN. (gpm)	SEWER FLOW (gpm)	TOTAL FLOW (gpm)	PIPE SIZE (inch.)	FIGURE 3 MANHOLE NO.
3_1	119	20.0	3.47	44.01	47.47	8	
3_2	150	23.5	4.08	55.47	59.55		
3_3	150	23.5	4.08	55.47	59.55		
3_4	150	25.9	4.49	55.47	59.96		
3_5	196	27.0	4.69	72.48	77.16		
3_6	136	22.4	3.89	50.29	54.18		
3_10 (Park)	-	3.7	0.64	7.71	8.35		
1_1	128	27.5	4.78	47.33	52.11	10	
<b>TOTAL DU'S=</b>	<b>1029</b>						
<b>TOTAL POP.=</b>	<b>2573</b>						
<b>TOTAL SYSTEM FLOW=</b>					<b>418.34</b>		

POINT "B"		Peaking Factor= 2.05	Demand Factor= 0.356				
PARCEL DESIGNATION	DWELLING UNITS	AREA (ac)	WET WEATHER IN. (gpm)	SEWER FLOW (gpm)	TOTAL FLOW (gpm)	PIPE SIZE (inch.)	FIGURE 3 MANHOLE NO.
Point "A"	1029	173.5	30.12	373.93	404.05	10	
3_7	157	32.5	5.65	55.88	61.53		
3_8	94	23.3	4.04	33.45	37.49		
1_8	132	33.3	5.77	46.98	52.75		
1_9 (Park)	-	6.6	1.15	13.75	14.90	12	
<b>TOTAL DU'S=</b>	<b>1412</b>						
<b>TOTAL POP.=</b>	<b>3530</b>						
<b>TOTAL SYSTEM FLOW=</b>					<b>555.82</b>		

POINT "C"		Peaking Factor= 1.98	Demand Factor= 0.344				
PARCEL DESIGNATION	DWELLING UNITS	AREA (ac)	WET WEATHER IN. (gpm)	SEWER FLOW (gpm)	TOTAL FLOW (gpm)	PIPE SIZE (inch.)	FIGURE 3 MANHOLE NO.
Point "B"	1412	269.1	46.73	506.83	553.56	12	
1_4 E	99	13.7	2.38	34.03	36.41		
1_5	117	19.3	3.35	40.22	43.57		
1_6	104	17.5	3.04	35.75	38.79		
1_7	136	19.5	3.38	46.75	50.13		
1_10 (School)	-	14.7	2.56	30.67	33.22		
2_1	123	18.4	3.19	42.28	45.47	15	
<b>TOTAL DU'S=</b>	<b>1991</b>						
<b>TOTAL POP.=</b>	<b>4978</b>						
<b>TOTAL SYSTEM FLOW=</b>					<b>801.15</b>		

Monterra  
Sewer Pipe Sizing Calculations

9/26/2005

POINT "D"		Peaking Factor= 2.36	AREA (ac)	Demand Factor= 0.410	TOTAL FLOW (gpm)		PIPE SIZE (inch.)	FIGURE 3 MANHOLE NO.
PARCEL DESIGNATION	DWELLING UNITS	WET WEATHER IN. (gpm)	SEWER FLOW (gpm)	TOTAL FLOW (gpm)	PIPE SIZE (inch.)	FIGURE 3 MANHOLE NO.		
1_2	128	3.68	52.44	56.12				
1_3	217	4.40	88.91	93.31				
1_4W	74	1.79	30.32	32.11			8	
TOTAL DU'S=		419		TOTAL SYSTEM FLOW=		181.54		
TOTAL POP.=		1048						

POINT "E"		Peaking Factor= 2.25	AREA (ac)	Demand Factor= 0.391	TOTAL FLOW (gpm)		PIPE SIZE (inch.)	FIGURE 3 MANHOLE NO.
PARCEL DESIGNATION	DWELLING UNITS	WET WEATHER IN. (gpm)	SEWER FLOW (gpm)	TOTAL FLOW (gpm)	PIPE SIZE (inch.)	FIGURE 3 MANHOLE NO.		
2_5	141	3.53	55.08	58.61				
2_6	95	3.99	37.11	41.10				
2_7	130	4.17	50.78	54.95				
2_8	113	2.99	44.14	47.13				
2_9	157	4.95	61.33	66.28				
2_10	-	3.06	36.69	39.74			10	
TOTAL DU'S=		636		TOTAL SYSTEM FLOW=		307.82		
TOTAL POP.=		1590						

POINT "F"		Peaking Factor= 2.09	AREA (ac)	Demand Factor= 0.363	TOTAL FLOW (gpm)		PIPE SIZE (inch.)	FIGURE 3 MANHOLE NO.
PARCEL DESIGNATION	DWELLING UNITS	WET WEATHER IN. (gpm)	SEWER FLOW (gpm)	TOTAL FLOW (gpm)	PIPE SIZE (inch.)	FIGURE 3 MANHOLE NO.		
Point "E"	636	22.69	267.46	290.15			10	
2_2	138	4.97	50.07	55.04				
2_3	165	4.34	59.87	64.21				
2_4	143	4.13	51.89	56.02				
3_9	134	3.70	48.62	52.33			12	
TOTAL DU'S=		1216		TOTAL SYSTEM FLOW=		517.75		
TOTAL POP.=		3040						

Monterra  
Sewer Pipe Sizing Calculations

9/26/2005

Pump Station "1"		Peaking Factor= 1.94	Demand Factor= 0.337		TOTAL SYSTEM FLOW=		
PARCEL DESIGNATION	DWELLING UNITS	AREA (ac)	WET WEATHER IN. (gpm)	SEWER FLOW (gpm)	TOTAL FLOW (gpm)	PIPE SIZE (Inch.)	FIGURE 3 MANHOLE NO.
Point "C"	1991	372.2	64.62	722.70	787.33		
Point "D"	419	58.9	9.87	141.12	150.99		
TOTAL DU'S=		2410			938.32		
TOTAL POP.=		6025					

Pump Station "2"		Peaking Factor= 2.09	Demand Factor= 0.363		TOTAL SYSTEM FLOW=		
PARCEL DESIGNATION	DWELLING UNITS	AREA (ac)	WET WEATHER IN. (gpm)	SEWER FLOW (gpm)	TOTAL FLOW (gpm)	PIPE SIZE (Inch.)	FIGURE 3 MANHOLE NO.
Point "F"	1216	229.5	39.84	477.91	517.75		
TOTAL DU'S=		1216			517.75		
TOTAL POP.=		3040					

*Appendix C —*

*Arizona Department of Environmental  
Quality Administrative Code Sections*

or control to the downstream point where the sewer delivers wastewater to a sewage collection system owned or controlled by a public or private sewer utility, or to a sewage treatment facility.

2. A sewer collection system repair is not an expansion of the system that requires a Notice of Intent to Discharge. Repairs include work performed in response to deterioration of existing structures, devices, and appurtenances with the intent to maintain or restore the system to its original operational characteristics.
- B. Performance.** An applicant shall design, construct, and operate a sewage collection system so that it:
1. Provides adequate wastewater flow capacity for the planned service;
  2. Minimizes sedimentation, blockage, and erosion through maintenance of proper flow velocities throughout the system;
  3. Prevents sanitary sewer overflows through appropriate sizing, capacities, and inflow and infiltration prevention measures throughout the system;
  4. Protects water quality through minimization of exfiltration losses from the system;
  5. Provides for adequate inspection, maintenance, testing, visibility, and accessibility; and
  6. Maintains system structural integrity.
- C. Notice of Intent to Discharge.** In addition to the Notice of Intent to Discharge requirements specified in R18-9-A301(B), an applicant shall submit the following information:
1. A statement, signed by the owner or operator of the sewage treatment facility that treats or processes the sewage from the proposed sewer collection system.
    - a. The owner or operator shall affirm that the additional volume of wastewater delivered to the facility by the proposed sewer collection system will not cause any flow or effluent quality limits of the individual permit for the facility to be exceeded.
    - b. If the facility is classified as a groundwater protection permit facility under A.R.S. § 49-241.01(C), or if no flow or effluent limits are applicable, the owner or operator shall affirm that the design flow of the facility will not be exceeded.
  2. If the proposed sewage collection system delivers wastewater to a downstream sewer collection system under different ownership or control, a statement, signed by the owner or operator of the downstream sewer collection system, affirming that the downstream system can maintain the performance required by subsection (B) if it receives the increased flows associated with the new system or the expansion;
  3. A general site plan showing the boundaries and key aspects of the project;
  4. Construction quality drawings that provide overall details of the site and the engineered works comprising the project including:
    - a. Relevant plans and profiles of sewer lines, force mains, manholes, and lift stations with sufficient detail to allow Department verification of design and performance characteristics;
    - b. Relevant cross sections showing construction details and elevations of key components of the sewer collection system to allow Department verification of design and performance characteristics, including the slope of each gravity sewer segment stated as a percentage; and
    - c. Drainage features and controls, and erosion protection as applicable, for the components of the project.
  5. Documentation of design flows for significant components of the sewage collection system and the basis for calculating the design flows;
  6. An operation and maintenance plan if the project has a design flow of more than 10,000 gallons per day;
  7. Drawings, reports, and other information that are clear, reproducible, and in a size and format specified by the Department. The applicant may submit the drawings in a Department-approved electronic format; and
  8. Design documents, including plans, specifications, drawings, reports, and calculations that are signed and sealed by an Arizona-registered professional engineer unless prohibited by law. The designer shall use good engineering judgement following engineering standards of practice, and rely on appropriate engineering methods, calculations, and guidance.
- D. Design requirements.**
1. **General Provisions.** An applicant shall ensure that the design, installation, and testing of a new sewage collection system or an expansion to an existing sewage collection system involving new construction complies with the following rules. An applicant shall:
    - a. Base design flows for components of the system on unit flows specified in Table 1, Unit Daily Design Flows. If documented by the applicant, the Department may accept lower unit flow values in the served area due to significant use of low flow fixtures.
    - b. Use the "Uniform Standard Specifications for Public Works Construction," referenced in this Section and published by the Maricopa Association of Governments, revisions through 2000, or the "Pima County Wastewater Management," November 1994 Edition, as the applicable design and construction criteria, unless the Department approved alternative design standards or specifications authorized by a delegation agreement under A.R.S. § 49-107.
    - c. Use gravity sewer lines, if appropriate. The applicant shall design gravity sewer lines and all other sewer collection system components, including force mains, manholes, lift stations, and appurtenant devices and structures to accommodate maximum sewage flows as determined by the method specified in subsections (D)(1)(c)(i) or (D)(1)(c)(ii) that yields the greatest calculated flow:
      - i. Any point in a sewer main when flowing full can accommodate an average flow of 100 gallons per capita per day for all populations upstream from that point, or
      - ii. Any point in a sewer collection system can accommodate a peak flow for all populations upstream from that point as tabulated below:

Upstream Population	Peaking Factor
100	3.62
200	3.14
300	2.90
400	2.74
500	2.64
600	2.56
700	2.50
800	2.46
900	2.42
1000	2.38
1001 to 10,000	$PF = (6.330 \times p^{-0.231}) + 1.094$
10,001 to 100,000	$PF = (6.177 \times p^{-0.233}) + 1.128$
More than 100,000	$PF = (4.500 \times p^{-0.174}) + 0.945$
PF = Peaking Factor p = Upstream Population	

- d. Ensure the separation of sewage collection system components from drinking water distribution system components under R18-4-502.
- e. Request review and approval of an alternative to a design feature specified in this Section by following the requirements of R18-9-A312(G).
- 2. Gravity sewer lines. An applicant shall:
  - a. Ensure that any sewer line that runs between manholes, if not straight, is of constant horizontal curvature with a radius of curvature not less than 200 feet;
  - b. Cover each sewer line with at least three feet of backfill meeting the requirements of subsection (D)(2)(h)(i). The applicant shall:
    - i. Include at least one note specifying this requirement in construction plans;
    - ii. If site-specific limitations prevent three feet of earth cover, provide the maximum cover attainable, and construct the sewer line of ductile iron pipe or other materials of equivalent or greater tensile and compressive strength;
    - iii. If ductile iron pipe is not used, design and construct the sewer line pipe with restrained joints or an equivalent feature; and
    - iv. Ensure that the design of the pipe and joints can withstand crushing or shearing from any expected load. Construction plans shall note locations requiring these measures.
  - c. If sewer lines cross floodways, place the lines at least two feet below the 100-year storm scour depth and construct the lines using ductile iron pipe or pipe with equivalent tensile strength, compressive strength, shear resistance, and scour protection. The applicant shall ensure that sewer lines constructed in this manner extend at least 10 feet beyond the boundary of the 100-year storm scouring. Construction plans shall note locations requiring these measures.
  - d. Ensure that each sewer line is eight inches in diameter or larger except:
    - i. The first 400 feet of a dead end sewer line with no potential for extension may be six inches in diameter if the design flow criteria specified in subsection (D)(1)(c) are met. If the line is ever extended, the applicant seeking the extension shall replace the entire length with larger pipe to accommodate the new design flow; or

- ii. The sewer lines for a sewage collection system for a manufactured home, mobile home, or recreational vehicle park are not less than four-inches in diameter for up to 20 units, five-inches in diameter for 21 to 36 units, and six-inches in diameter for 37 to 60 units.
- e. Design sewer lines with at least the minimum slope calculated from Manning's Formula using a coefficient of roughness of 0.013 and a sewage velocity of two feet per second when flowing full.
  - i. An applicant may request a smaller minimum slope under R18-9-A312(G) if the smaller slope is justified by a quarterly program of inspections, flushings, and cleanings.
  - ii. If a smaller minimum slope is requested, the slope shall not be less than 50% of that calculated from Manning's formula using a coefficient of roughness of 0.013 and a sewage velocity of two feet per second.
- f. Design sewer lines to avoid a slope that creates a sewage velocity greater than 10 feet per second. The applicant shall construct any sewer line carrying a flow with a normal velocity of greater than 10 feet per second using ductile iron pipe or pipe with equivalent erosion resistance, and structurally reinforce the receiving manhole or sewer main.
- g. Design and install sewer lines, connections, and fittings with materials that meet or exceed manufacturer's specifications not inconsistent with this Chapter to:
  - i. Limit inflows, infiltration, and exfiltration;
  - ii. Resist corrosion in the project electrochemical environment;
  - iii. Withstand anticipated live and dead loads; and
  - iv. Provide internal erosion protection.
- h. Indicate trenching and bedding details applicable for each pipe material and size in the design plans. Sewer lines shall be placed in trenches and bedded following the specifications established in subsections (D)(2)(h)(i) and (D)(2)(h)(ii). This material is incorporated by reference and does not include any later amendments or editions of the incorporated matter. Copies of the incorporated material are available for inspection at the Department of Environmental Quality and the Office of the Secretary of State, or may be obtained from the Maricopa Association of Governments, 302 N. 1st Avenue, Suite 300, Phoenix, Arizona 85003, or from Pima County Wastewater Management, 201 N. Stone Avenue, Tucson, Arizona 85701-1207.
  - i. "Trench Excavation, Backfilling, and Compaction" (Section 601), published in the "Uniform Standard Specifications for Public Works Construction," published by the Maricopa Association of Governments, revisions through 2000; and
  - ii. "Rigid Pipe Bedding for Sanitary Sewers" (WWM 104), and "Flexible Pipe Bedding for Sanitary Sewers" (WWM 105), published by Pima County Wastewater Management, revised November 1994.
- i. Perform a deflection test of the total length of all sewer lines made of flexible materials to ensure that the installation meets or exceeds the manufacturer's recommendations and record the results.

# ATTACHMENT 2

## Section 11 WWTP

<b>Month:</b>	<b>Average MGD Flow:</b>
January,06	1.48
February,06	1.41
March,06	1.36
April,06	1.22
May,06	1.24
June,06	1.21
July,06	1.29
August,06	1.4
September,06	1.55*
October,06	1.58*
November,06	1.51*
December,06	1.52*

\*Includes effluent flows from the San Tan WWTP

# ATTACHMENT 3



Janet Napolitano  
Governor

# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

1110 West Washington Street • Phoenix, Arizona 85007  
(602) 771-2300 • www.azdeq.gov



Stephen A. Owens  
Director

November 15, 2006

Mr. Brian Tompsett, Executive Vice President  
Johnson Utilities L.L.C.  
d/b/a Johnson Utilities Company  
5230 East Shea Blvd.  
Scottsdale, Arizona 85254

**Re: Annual Compliance Inspection of the Johnson Utilities Section 11 Wastewater Treatment Plant (WWTP), Inventory No. 103081, Aquifer Protection Permit (APP) No. P103081, Reuse Permit No. R105412, Middle Gila River Watershed, Inspection ID No. 94095**

Dear Mr. Tompsett:

The Water Quality Field Services (WQFSU) of the Arizona Department of Environmental Quality (ADEQ) has enclosed an inspection report regarding the inspection conducted at the above referenced facility on November 8, 2006. The inspection was conducted to determine compliance with Arizona Revised Statute (A.R.S.) Title 49, Chapter 2, Article 9 and Arizona Administrative Code (A.A.C.) Title 18, Chapter 2, and pursuant to the authority in A.R.S. §49-203(B)(1) and A.A.C. R18-9-110 (A).

As indicated in the enclosed "Summary of Inspection," no deficiencies were observed during the inspection and during the review of ADEQ records by WQFSU staff. No ADEQ action will result from this inspection.

ADEQ appreciates your efforts in protecting the environment.

Sincerely,

William J. Hare, E.P.S.  
Water Quality Field Services Unit

cc: Pinal County Health Department

CTS#142394

Northern Regional Office  
1801 West Route 66 • Suite 117 • Flagstaff, AZ 86001  
(928) 779-0313

Southern Regional Office  
400 West Congress Street • Suite 433 • Tucson, AZ 85701  
(520) 628-6733

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY  
WATER QUALITY DIVISION - WATER QUALITY COMPLIANCE SECTION  
Field Services Unit

SUMMARY OF INSPECTION - WASTEWATER

Facility: Section 11 WWTP

Place ID No: 142

Aquifer Protection Permit: P103081

AZPDES Permit No: N/A

Reuse Permit No: Type 3 General Permit, R105412

Inventory No: 103081

Inspected by: William J. Hare, E.P.S.

Inspection Date: November 8, 2006

Accompanied by: Gary Larsen, Greg Brown  
John Gibbons

Report Date: November 14, 2006

YES   NO   N/A   UNKNOWN

1. WWTF quality meets the following permit requirements:
  - A. Aquifer Protection Permit
  - B. Reuse Permit
  - C. AZPDES Permit
2. A certified operator is employed by the owner per ADEQ regulations.
3. This system meets APP requirements for operation and maintenance.

X			
X			
		X	
X			
X			

Inspection Purpose and Scope:

This was the annual inspection to determine compliance with the existing APP and Reuse Permits.

Facility Description:

The Johnson Utilities Section 11 wastewater treatment plant (WWTP) is located adjacent to Hunt Highway, approximately nine miles southeast of Queen Creek. The WWTP has the capacity to collect and treat up to a maximum monthly average flow of 1.6 million gallons per day (MGD) of wastewater received from residences and small businesses located in the central and southern portions of the Johnson Utilities service area. The treatment process consists of a headworks with a bar screen, a flow splitter box, four aerated lagoons, 16 wetland cells, liquid chlorine disinfection and an effluent pump station.

All of the aerated lagoons and 16 wetland cells of the WWTP have a permeability of less than 550 gallons per day per acre. The WWTP process employs nitrification-denitrification to achieve an effluent Total Nitrogen level of 10 mg/L and chlorine disinfection.

#### Current Permit Status, LTF No. 35634

On April 10, 2006, Johnson Utilities Company (JU) was issued an amended APP, LTF No. 35634 that authorized the replacement of the existing wetland treatment facility of 1.6 MGD capacity with a new extended aeration WWTP of 2.0 MGD capacity. The new WWTP will be located within the existing WWTP site.

Once the new WWTP is constructed, the permittee will be authorized to operate a 2.0 million MGD WWTP. The WWTP process will consist of head works with screens, an equalization basin, anoxic and aeration basins for nitrification-denitrification, secondary clarifiers, filters, ultraviolet (UV) disinfection system, aerobic sludge digesters, sludge belt press thickeners, and an effluent pump station. The equalization basin will also be used to store wastewater during emergencies. The WWTP will also have a provision of chemical addition in conjunction with filtration. The effluent will be disposed by recharge or reuse under a valid reuse permit. All of the sludge including screenings, grit, and scum, will be hauled off-site.

#### APP Inspection, LTF 35634

#### **General Information and Observations:**

The inspection noted that the lagoon system continued to be operational and the construction of the 2.0 MGD AeroMod activated sludge WWTP had not commenced. The construction of the new mechanical AeroMod Plant is not anticipated until the 2007.

JU reported a total of 15,000 residential hookups for all residential service areas that the company provides sewer service. The Section 11 WWTP averaged 1.55 MGD during September of 2006. Peak flows at the Section 11 WWTP have reached 1.9 MGD on two occasions during the 3<sup>rd</sup> quarter of 2006. However, JU reported that some of the San Tan WRP effluent was discharged to the Section 11 Plant during this timeframe. This was done when the San Tan Plant was undergoing a minor upset and to prevent any permit violations. The San Tan WRP effluent was re-treated at the Section 11 WWTP. The APP limits flow to 1.6 MGD as the monthly average.

JU has computed the average residential flow rate at approximately 140 g.p.d. per residential hookup. This number has remained fairly consistent.

The effluent is either discharged to the nine hole Oasis Golf Course as authorized in the Type 3 Reclaimed Water General Permit or into five recharge basins located at the WWTP as authorized in the APP. On the day of the inspection, the Section 11 WWTP was discharging 50% of the effluent to irrigate the Oasis Golf Course, located close to the WWTP.

The remaining 50% was being discharged into the recharge basins. On the day of the inspection, three of the five recharge basins contained effluent and were being utilized.

#### **Compliance Schedule in the APP:**

The inspection noted that the facility was in compliance with the compliance schedule (CS) in the APP. These included items 2 and 4 listed in the CS. Copies of the letters were provided verifying the compliance action taken by JU. The respective letters had been sent to ADEQ's Water Permits Section (WPS) to comply with these respective items in the allotted time frame listed in the APP. The remaining items, including items 3, 5 and 6, are pending ADEQ's response by the WPS.

#### **Operation and Maintenance (O & M) Inspection:**

The inspection of the aerated lagoons did not reveal any deficiencies. The water level was about 7 feet deep with 3 feet of freeboard. The color of the lagoons was good. No septic odors were present. All of the aerators were operational. The dissolved oxygen (DO) levels in the aerated lagoons were reported to range from 1.5 - 2.0 mg/L. There was no sign of any organic overloading in the aerated lagoons.

#### **Bella Vista Liftstation:**

The motors in the liftstation were previously upgraded with impeller and grinder mechanisms and an increased horsepower from 7 ½ to 18 horsepower. This has help prevent any sanitary sewer overflows (SSOs). The software in the (Supervisory Control And Data Acquisition) SCADA system was also upgraded for better notifications in the event of an operational upset. The utility has not experienced any spills from this liftstation during the review period.

#### **Wetland Cells:**

The 16 wetland cells were also inspected and found to be functioning adequately. The water level was adequate. Many of the bare areas in cells had been repaired from the previous inspection. Reeds had been planted in the bare areas to enhance the denitrification process. The short circuiting of the wetland cells, which caused excessive water levels in some areas, appears to have been corrected. This short circuiting had previously hampered the denitrification process. JU is routinely cleaning the header pipe for the wetland cells in an effort to prevent the periodic plugging of the pipe for a more even distribution of the effluent.

#### **Chlorine Contact Chamber**

The chlorine contact chamber appeared to be functioning adequately. JU and its supplier of liquid chlorine had previously installed a radio controlled SCADA system and modem, that alerts the supplier when the level of liquid chlorine is low and in need of replacement. This upgrade has prevented any problems with the disinfection process. The eight feet container of liquid chlorine contained 2 feet of liquid at the time of the inspection.

Effluent monitoring

The inspection entailed an examination of the most recent data from the 2<sup>nd</sup> and 3<sup>rd</sup> quarters of 2006.

The most recent data for effluent monitoring for Total Nitrogen indicates compliance with the APP. The examination of the SMRFs did not reveal any deficiencies as noted below:

Date	TKN	Nitrate-Nitrite	Total N Mg/L	Five month geometric/DL
June 2006	1.9 mg/L	5.3 mg/L	7.2 mg/L	6.0 mg/L
July 2006	1.3 mg/L	0 mg/L	4.34 mg/L	5.9 mg/L
August 2006	1.7 mg/L	5.49 mg/L	7.49 mg/L	5.9 mg/L
September 2006	0 mg/L	6.89 mg/L	6.89 mg/L	6.10 mg/L

\*The discharge limit (DL) in the APP is 10 mg/L for the five month rolling geometric mean.

Groundwater monitoring

Ground water monitoring for the various constituents did not reveal any deficiencies. The groundwater monitoring well was reported to have static water levels at 260 feet in recent months. Nitrogen levels have ranged from 4-7 mg/L. The AQL for Total Nitrogen is currently reserved and will be set in a later permit amendment.

Reuse Inspection, LTF No. 31083, Permit No. R105412

On October 1, 2003, ADEQ's Water Permits Section issued a Type 3 Reclaimed Water General Permit (Agent) authorizing the facility to irrigate several sites with Class B+ reclaimed water generated by the Section 11 WWTP. This Type 3 Reclaimed Water General Permit authorization supersedes the individual reclaimed wastewater reuse permit previously issued to JU on September 2, 1998 under file No. R103081. The monitoring requirements in the old reuse permit have been incorporated in the APP P103081.

The end users listed in the referenced Reclaimed Water General Permit include the Oasis Golf Course located at 5764 Hunt Highway, Florence, Arizona. JU reported during the inspection that effluent has been discharged to the Oasis Golf Course and no other reuse sites. JU was in compliance with the operational irrigation practices at Oasis Golf Course.

The referenced permit requires an annual report on water consumption rates to the various reuse sites. This report is due to ADEQ by the end of the 2006 calendar year.

Improvements:

JU informed that the utility had purchased sophisticated software for the SCADA system to allow remote monitoring of the various components (including motors and pumps). This will improve response time to any alarms and/or operational problems.

Findings:

The inspection did not uncover any deficiencies. The inspection noted the continued good overall operation and maintenance of the WWTP. Housekeeping at the WWTP was also very good.

Compliance Summary:

**(1) Monitoring and Reporting Requirements.**

(a) The APP No. P103081 requires daily monitoring of the influent for pH and flow. Effluent monitoring is required when discharges occur from the effluent pump station. Effluent is monitored daily for Fecal Coliform, monthly for Total Nitrogen, and quarterly for heavy metals and VOCs. Groundwater monitoring is required monthly for the water level within the well and Total Nitrogen and quarterly for heavy metals and VOCs. The facility conducted the necessary monitoring and no exceedances or violations were noted.

(b) Groundwater monitoring is also required. No violations were noted during the review of the groundwater monitoring data.

(c) Type 3 Reclaimed Water General Permit- The monitoring requirements for reclaimed water have been incorporated in the APP. However, an annual report is due to ADEQ. The report should address the total volume of reclaimed water delivered to the reuse sites. No deficiencies were noted regarding this inspection of this permit.

**2. Operator Certification Requirements.** The WWTF is classified as a Class 2 WWTF and the collection system is classified as a Class 2 Collection System. The operator, Rod Spencer, holds a Grade 3 WWT and Greg Brown holds a Grade 4WWC license issued by ADEQ.

**3. Operation & Maintenance (O&M) Requirements.** The facility was in compliance with the operational requirements noted in the APP including freeboard for the ponds and water depth in the wetland cells and proper operation of the motors and pumps.

**END OF REPORT**

# ATTACHMENT 4



# ATTACHMENT 5

APR 17 2006



Janet Napolitano  
Governor

ARIZONA DEPARTMENT  
OF  
ENVIRONMENTAL QUALITY

1110 West Washington Street • Phoenix, Arizona 85007  
(602) 771-2300 • www.azdeq.gov



Stephen A. Owens  
Director

April 12, 2006

Johnson Utilities Company  
Brian Tompsett  
5230 E. Shea Blvd., Suite 200  
Scottsdale, AZ 85254

**Re: Section 11 Wastewater Treatment Plant (WWTP)  
Signed Aquifer Protection Permit (APP) # 103081**

Dear Mr. Tompsett:

Enclosed is a signed copy of the amended APP with Fact Sheet for the above referenced facility. The permit conditions shall apply from April 10, 2006 which is the date of the Water Quality Division Director's signature, and shall be valid for the life of the facility (operational, closure, and post-closure periods).

Thank you for your cooperation in protecting the water quality of the State of Arizona. If you have any questions about the permit or need further assistance, please contact me at (800) 234-5677 ext.771- 4683 or (602) 771-4683.

Sincerely,

Asif Majeed, Manager  
Wastewater, Recharge, & Reuse Unit  
Water Permits Section, Water Quality Division

Enclosures (2): Permit & Executive Summary

cc: Roman Diaz, Field Services Manager, ADEQ  
Matthew Hodge, Mgr., Water Quality Data Unit, ADEQ  
Robert Casey, Mgr., Water Quality Enforcement Unit, ADEQ  
Lynne Dekarske, Administrative Assistant, Water Programs Section, ADEQ

WRR05:0240

Northern Regional Office  
1515 East Cedar Avenue • Suite F • Flagstaff, AZ 86004  
(928) 779-0313

Southern Regional Office  
400 West Congress Street • Suite 433 • Tucson, AZ 85701  
(520) 628-6733



## Fact Sheet

Aquifer Protection Permit 103081  
 Place ID #142, LTF # 35634  
 SIGNIFICANT AMENDMENT  
 Section 11 Wastewater Treatment Plant

The Arizona Department of Environmental Quality (ADEQ) proposes to issue an amendment to the aquifer protection permit for the subject facility that covers the life of the facility, including operational, closure, and post closure periods unless suspended or revoked pursuant to Arizona Administrative Code (A.A.C.) R18-9-A213. This document gives pertinent information concerning the issuance of the permit. The requirements contained in this permit will allow the permittee to comply with the two key requirements of the Aquifer Protection Program: 1) meet Aquifer Water Quality Standards at the Point of Compliance; and 2) demonstrate Best Available Demonstrated Control Technology (BADCT). BADCT's purpose is to employ engineering controls, processes, operating methods or other alternatives, including site-specific characteristics (i.e., the local subsurface geology), to reduce discharge of pollutants to the greatest degree achievable before they reach the aquifer or to prevent pollutants from reaching the aquifer.

### I. FACILITY INFORMATION

#### Name and Location

Permittee's Name:	Johnson Utilities LLC
Mailing Address:	Johnson Utilities LLC 5230 E. Shea Blvd. Suite 200 Scottsdale, AZ 85254
Facility Name and Location:	Section 11 Wastewater Treatment Plant (WWTP) 5632 E. Hunt Hwy Queen Creek, AZ 85242

#### Regulatory Status

An Aquifer Protection Permit (APP) was issued on September 4, 1998. A Significant Amendment to the APP was issued on June 12, 2002 and a Minor Amendment was issued on February 19, 2004. An application for another Significant Amendment was received on March 8, 2005.

The following is a compliance history and list of Notice of Violations (NOVs) that were issued to the Section 11 WWTP:

- A Consent Order (CO) was issued on May 12, 1999 for failure to construct the Johnson Ranch Main Wastewater Collection, Treatment and Disposal System in accordance with plans approved by ADEQ. An Amendment to the CO was issued on October 8, 1999 to amend the compliance schedule to reflect the status of the Johnson Utilities Wastewater Treatment Facilities and the Johnson Utilities compliance with the remaining obligations described in the order. The CO and the Amendment to the CO were closed on April 26, 2000
- A Notice of Violation (NOV) was issued on September 2, 2004 for the following actions:
  - 1 – Exceedances of fecal coliform during the 2<sup>nd</sup> quarter on 58 occasions.
  - 2 – During the months of April, May and June of 2004, the discharge limit (DL) for fecal coliform was exceeded on 58 occasions.
  - 3 – During the months of December 2003, January 2004, and February 2004 the facility had exceedances of total nitrogen.
  - 4 – The permittee did not conduct verification sampling within 24 hours of becoming aware of DL exceedances.

The NOV was closed on March 15, 2005.

- An NOV was issued on January 3, 2005 for the following actions:
  - 1 – During the 3<sup>rd</sup> quarter of 2004 the facility exceeded the single sample maximum of fecal coliform effluent monitoring on 29 occasions.
  - 2 – During the weeks commencing on July 1, 2004, July 8, 2004, and July 29, 2004 the facility exceeded the DL for effluent monitoring for fecal coliform of 200 cfu/100 mL on at least four or more occasions.

The NOV was closed on March 15, 2005.

- An NOV was issued on April 6, 2005 for operation of a surface impoundment without an aquifer protection permit. The NOV was closed on April 28, 2005.
- An NOV was issued on July 26, 2005 for total nitrogen discharge limit exceedances. The NOV was closed on September 13, 2005.

### Facility Description

This permit is for the existing plant and the new plant that will be constructed.

The existing Johnson Utilities Section 11 Wastewater Treatment Plant (WWTP) has the capacity to collect and treat up to a maximum monthly average flow of 1.6 million gallons per day (MGD) wastewater received from residences and small businesses from the central and southern portions of Johnson Utilities service area and reverse osmosis discharge from the water treatment plant located at 968 E. Hunt Hwy. The wastewater treatment process consists of headworks with a bar screen, a flow splitter box, aeration lagoons, wetland cells, ultraviolet disinfection, and an effluent pump station. All the lagoons and wetland cells of the WWTP, and the effluent storage lakes, located at the golf courses, are lined with liners that have a permeability of less than 550 gallons per day per acre. Effluent is disposed by reuse under a valid reuse permit and/or by percolation into the soil through recharge basins. Sludge and wetland harvest is hauled off-site for disposal.

This amendment is for replacing the above existing wetland treatment facility of 1.6 MGD capacity with a new extended aeration WWTP of 2.0 MGD capacity. The new WWTP will be located within the existing WWTP site.

Once the new WWTP is constructed, the permittee will be authorized to operate a 2.0 million gallons per day (MGD) wastewater treatment plant (WWTP). The WWTP process will consist of head works with screens, an equalization basin, anoxic and aeration basins for nitrification- denitrification, secondary clarifiers, filters, ultraviolet (UV) disinfection system, aerobic sludge digesters, sludge belt press thickeners, and an effluent pump station. The equalization basin will also be used to store wastewater during emergencies. The WWTP will also have a provision of chemical addition in conjunction with filtration. The effluent will be disposed by recharge or reuse under a valid reuse permit. All of the sludge including screenings, grit, and scum, will be hauled off-site.

Upon construction and operation of the new WWTP, monitoring for the existing plant (Table IA and IB) will be discontinued, and the facility shall submit a closure plan for the existing plant as per Section 3.7

The existing and new facility is located in the East Salt River sub-basin, over groundwater of the Phoenix Active Management Area. The subsurface geology consists of typical alluvial deposits: the Upper Alluvial Unit (approximately 100 feet thick) contains approximately 80 percent sand and gravel; the Middle Alluvial Unit (approximately 200 feet thick) contains approximately 45 percent sand and gravel (the remaining consisting of silt and siltstone); the Lower Alluvial Unit (approximately 300 feet overlying bedrock) contains approximately 75 percent sand and gravel. The depth to groundwater is approximately 297 feet below the WWTP and the direction of groundwater flow is towards the northeast. The WWTP is

designed and constructed according to plans approved by the ADEQ Wastewater, Recharge, & Reuse Unit.

The WWTP's can accept sewage from the Anthem at Merrill Ranch development, via vault and haul, with flows up to 3,000 gallons per day (gpd).

### **Amendment Description**

This amendment is for replacing the existing wetland treatment facility of 1.6 MGD capacity with a new extended aeration WWTP of 2.0 MGD capacity as well as some changes to the APP for the existing WWTP. This amendment was done at the request of the applicant.

Listed below are the changes to the permit as a result of this amendment:

1. Section 2.1, Facility Description (existing WWTP) – Removed references to reuse sites and reuse permits so that the permittee has the ability to reuse reclaimed water at multiple sites under a valid reclaimed water permit.
2. Section 2.1, Facility Description – Stated that this amendment is for replacing the existing wetland treatment facility of 1.6 MGD capacity with a new extended aeration WWTP of 2.0 MGD capacity and changes to the APP for the existing WWTP.
3. Section 2.2.5, Wastewater Treatment Plant Classification: Added classification language for new WWTP (class A+).
4. Section 2.3, Discharge Limitations: Added language for new 2.0 MGD WWTP.
5. Section 4.0, Tables of Monitoring Requirements – In the Discharge Monitoring Table IA (existing WWTP), removed footnote #4 requiring continuous recording meter for pH. Also added Table IC and ID for new WWTP monitoring.
6. Section 4.0, Tables of Monitoring Requirements - Reclaimed Water Monitoring Table ID: Added table for Class A+ monitoring.
7. Section 4.0, Tables of Monitoring Requirements – Operational Monitoring Table III (existing WWTP): Removed the “minimum of 1 foot water level depth in all lagoons” monitoring requirement. The above requirement was included in the original permit to prevent the degradation of the lagoon liner in sunlight due to the initial low flows expected at the facility. But as the WWTP is currently producing normal flows, this requirement is therefore being deleted.
8. Other changes include change in permit language to conform to the latest framework language.

## **II. BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY**

The existing WWTP process employs nitrification-denitrification to achieve an effluent total nitrogen level of 10 mg/l and chlorine disinfection to achieve an effluent fecal coliform level of 800/200 CFU. All the lagoons and wetland cells of the WWTP, and the effluent storage lakes, located at the golf courses, are lined with liners that have a permeability of less than 550 gallons per day per acre.

For the new WWTP, the denitrified effluent will be disinfected by UV and filtered prior to disposal. The effluent will be reused on golf courses and recharged by basins. All the WWTP units will be constructed of reinforced concrete. The equalization basin/emergency storage basin will be lined with a 20 mil PVC liner. Therefore, there will be no leakage of wastewater anywhere in the WWTP. All treatment units upstream of the filters will be covered with concrete or aluminum covers and air scrubbers will be provided for odor control. All pumps, blowers, and electrical equipment will be housed within buildings for noise control. The WWTP site will be surrounded by 6 ft chain link fence.

## **III. COMPLIANCE WITH AQUIFER WATER QUALITY STANDARDS**

### **Monitoring and Reporting Requirements**

The existing and new facility is located over groundwater of the Phoenix Active Management Area. The depth to groundwater is approximately 297 feet below land surface (bls) and the direction of groundwater flow is generally to the northeast (toward a cone of depression cause by local pumping). The nearest points of use in the aquifer are a cluster of production/domestic wells located approximately ¼ mile northeast of the facility. A hazardous Point of Compliance (POC) was selected to be protective of all downgradient uses of the aquifer. The applicant has been collecting groundwater quality samples from an existing well located at the POC. However, this well is not a typical monitor well and so (under a permit compliance schedule) the applicant will propose a monitor well which can be used as a POC monitor well.

To ensure that the site operations do not impact either the surface water or the groundwater, discharge and groundwater monitoring will be required for total nitrogen, metals, and VOCs, as described in the permit. The facility will be required to meet the aquifer water quality standards (AWQS) in the discharge and in the groundwater. Therefore, the facility is not likely to exceed AWQS at the POC.

**Point(s) of Compliance (P.O.C)**

The Point of Compliance is established by the following monitoring location:

P.O.C #	P.O.C. Locations	Latitude	Longitude
1	Located at the northeastern corner of the site.	33° 06' 12" N	111° 30' 05" W

The hazardous POC will be monitored for nitrate, coliform at a monthly frequency, metals at a quarterly frequency, and organics (VOCs) at a semi-annual frequency.

Groundwater quality monitoring at the POC will be conducted from a monitor well which must first be approved under the permit compliance schedule.

**IV. STORM WATER AND SURFACE WATER CONSIDERATIONS**

The nearest surface water body is the Gila River, located approximately six miles south of the facility.

The facility is located outside of the 100-year flood plain.

**V. COMPLIANCE SCHEDULE**

Upon commencement of the operations from the new WWTP, the existing WWTP will be closed. The facility shall submit a closure plan to ADEQ within 90 days of closure of the existing WWTP. The permittee will also be required to propose a monitor well for the POC.

**VI. OTHER REQUIREMENTS FOR ISSUING THIS PERMIT**

**Technical Capability**

Johnson Utilities Company has demonstrated the technical competence necessary to carry out the terms and conditions of the permit in accordance with A.R.S. § 49-243(N) and A.A.C. R18-9-A202(B).

The WWTP was designed as per the design report prepared and stamped, dated, and signed (sealed) by Gregory H. Brown, P.E. (Professional Engineer), Specific Engineering, Inc., dated March 04, 2005, and subsequent sealed submittals that served as additions to the design report.

ADEQ requires that appropriate documents be sealed by an Arizona registered geologist or professional engineer. This requirement is a part of an on-going demonstration of technical capability. The permittee is expected to maintain

technical capability throughout the life of the facility. A certified operator will be retained for the operation and maintenance of the WWTP.

### **Financial Capability**

Johnson Utilities Company has demonstrated the financial responsibility necessary to carry out the terms and conditions of the permit in accordance with A.R.S. § 49-243(N) and A.A.C. R18-9-A203. The permittee is expected to maintain financial capability throughout the life of the facility.

The permittee submitted a closure cost estimate of \$134,000.00. The permittee provided a statement and a report according to rule R18-9-A203(B)(2) to demonstrate financial capability.

### **Zoning Requirements**

The Section 11 WWTP has been properly zoned for the permitted use and the permittee has complied with all Pinal County zoning ordinances in accordance with A.R.S. § 49-243(O) and A.A.C. R18-9-A201(A)(2)(c).

## **VII. ADMINISTRATIVE INFORMATION**

### **Public Notice (A.A.C. R18-9-108(A))**

The public notice is the vehicle for informing all interested parties and members of the general public of the contents of a draft permit or other significant action with respect to a permit or application. The basic intent of this requirement is to ensure that all interested parties have an opportunity to comment on significant actions of the permitting agency with respect to a permit application or permit. This permit will be public noticed in a local newspaper after a pre-notice review by the applicant and other affected agencies.

### **Public Comment Period (A.A.C. R18-9-109(A))**

The aquifer protection program rules require that permits be public noticed in a newspaper of general circulation within the area affected by the facility or activity and provide a minimum of 30 calendar days for interested parties to respond in writing to ADEQ. After the closing of the public comment period, ADEQ is required to respond to all significant comments at the time a final permit decision is reached or at the same time a final permit is actually issued.

**Public Hearing (A.A.C R18-9-109(B))**

A public hearing may be requested in writing by any interested party. The request should state the nature of the issues proposed to be raised during the hearing. A public hearing will be held if the Director determines there is a significant amount of interest expressed during the 30-day public comment period, or if significant new issues arise that were not considered during the permitting process.

**VIII. ADDITIONAL INFORMATION**

Additional information relating to this proposed permit may be obtained from:

Arizona Department of Environmental Quality  
Water Quality Division – Wastewater, Recharge & Reuse Unit  
Attn: Matthew Hodge  
1110 W. Washington St., Mail Code 5415B-3  
Phoenix, Arizona 85007  
Phone: (602) 771- 4513

**STATE OF ARIZONA**  
**AQUIFER PROTECTION PERMIT NO. P-103081**  
**PLACE ID 142, LTF 35634**  
**SIGNIFICANT AMENDMENT**

**1.0 AUTHORIZATION**

In compliance with the provisions of Arizona Revised Statutes (A.R.S.) Title 49, Chapter 2, Articles 1, 2 and 3, Arizona Administrative Code (A.A.C.) Title 18, Chapter 9, Articles 1 and 2, A. A. C. Title 18, Chapter 11, Article 4 and amendments thereto, and the conditions set forth in this permit, Johnson Utilities LLC is hereby authorized to operate the Johnson Utilities Section 11 Wastewater Treatment Plant located at 5632 E. Hunt Highway, Queen Creek, Arizona in Pinal County, over groundwater of the Phoenix Active Management Area (AMA), in Township 4 S, Range 8 E, NW1/4 of Section 11, Gila and Salt River meridian.

This permit becomes effective on the date of the Water Quality Division Director's signature and shall be valid for the life of the facility (operational, closure, and post-closure periods), unless suspended or revoked pursuant to A.A.C. R18-9-A213. The permittee shall construct, operate and maintain the permitted facilities:

1. Following all the conditions of this permit including the design and operational information documented or referenced below, and
2. Such that Aquifer Water Quality Standards (AWQS) are not violated at the applicable point(s) of compliance (POC) set forth below or if an AWQS for a pollutant has been exceeded in an aquifer at the time of permit issuance, that no additional degradation of the aquifer relative to that pollutant and as determined at the applicable POC occurs as a result of the discharge from the facility.

**1.1 PERMITTEE INFORMATION**

<b>Facility Name:</b>	Section 11 Wastewater Treatment Plant	
<b>Permittee:</b>	<b>Mailing Address:</b>	<b>Facility Street Address:</b>
Johnson Utilities LLC	5230 E. Shea Blvd. Suite 200 Scottsdale, AZ 85254	5632 E. Hunt Hwy Queen Creek, AZ 85242

**Facility Contact:** Brian Tompsett, P.E.

**Emergency Telephone Number:** (480) 987-9870

**Latitude:** 33° 06' 06" N

**Longitude:** -111° 30' 16" W

**Legal Description:** Township 04 S, Range 08 E, Section 11 - Gila and Salt River Base Line and Meridian.

**1.2 AUTHORIZING SIGNATURE**

  
\_\_\_\_\_

Joan Card, Director  
Water Quality Division  
Arizona Department of Environmental Quality  
Signed this 10<sup>th</sup> day of April, 2006

**THIS PERMIT SUPERCEDES ALL PREVIOUS PERMITS**

**2.0 SPECIFIC CONDITIONS [A.R.S. §§ 49-203(4), 49-241(A)]**

**2.1 Facility / Site Description [A.R.S. § 49-243(K)(8)]**

This permit is for the existing plant and the new plant that will be constructed.

The existing Johnson Utilities Section 11 Wastewater Treatment Plant (WWTP) has the capacity to collect and treat up to a maximum monthly average flow of 1.6 million gallons per day (MGD) wastewater received from residences and small businesses from the central and southern portions of Johnson Utilities service area and reverse osmosis discharge from the water treatment plant located at 968 E. Hunt Hwy. The wastewater treatment process consists of headworks with a bar screen, a flow splitter box, aeration lagoons, wetland cells, ultraviolet disinfection, and an effluent pump station. All the lagoons and wetland cells of the WWTP, and the effluent storage lakes, located at the golf courses, are lined with liners that have a permeability of less than 550 gallons per day per acre. Effluent is disposed by reuse under a valid reuse permit and/or by percolation into the soil through recharge basins. Sludge and wetland harvest is hauled off-site for disposal.

This amendment is for replacing the existing wetland treatment facility of 1.6 MGD capacity with a new extended aeration WWTP of 2.0 MGD capacity as well as some changes to the APP for the existing WWTP. The new WWTP will be located within the existing WWTP site. The existing WWTP will be closed as per Section 3.7.

Once the new WWTP is constructed, the permittee will be authorized to operate a 2.0 million gallons per day (MGD) wastewater treatment plant (WWTP). The WWTP process will consist of head works with screens, an equalization basin, anoxic and aeration basins for nitrification-denitrification, secondary clarifiers, filters, ultraviolet (UV) disinfection system, aerobic sludge digesters, sludge belt press thickeners, and an effluent pump station. The equalization basin will also be used to store both sewage influent and treated effluent during emergencies. The WWTP will also have a provision of chemical addition in conjunction with filtration.

The effluent from the new WWTP will be disposed in 6 basins by recharge or reuse under a valid reuse permit. All of the sludge including screenings, grit, and scum, will be hauled off-site. The depth to groundwater is approximately 297 feet below the WWTP and the direction of groundwater flow is towards the northeast. The WWTP is designed and constructed according to plans approved by the ADEQ Wastewater, Recharge, & Reuse Unit.

The WWTP's can accept sewage from the Anthem at Merrill Ranch development, via vault and haul, with flows up to 3,000 gallons per day (gpd).

The site includes the following permitted discharging facilities:

Facility	Latitude	Longitude
Existing WWTP	33° 06' 06" N	111° 30' 16" W
New WWTP	33° 06' 06" N	111° 30' 16" W
Six (6) Recharge Basins at New WWTP	33° 06' 06" N	111° 30' 16" W

**Annual Registration Fee [A.R.S. § 49-242(D)]**

The Annual Registration Fee for this permit is established by A.R.S. § 49-242(D) and is payable to ADEQ each year. The design flow is 2.0 MGD.

**Financial Capability [A.R.S. § 49-243(N) and A.A.C. R18-9-A203 ]**

The permittee has demonstrated financial capability under A.R.S. § 49-243(N) and A.A.C. R18-9-A203. The permittee shall maintain financial capability throughout the life of the facility. The estimated dollar amount demonstrated for financial capability is \$134,000.00. The financial capability was demonstrated through R18-9-A203(B)(2).

**2.2 Best Available Demonstrated Control Technology  
[A.R.S. § 49-243(B) and A.A.C. R18-9-A202(A)(5)]**

The WWTP's are designed to meet the treatment performance criteria for new facilities as specified in Arizona Administrative Code R18-9-B204.

The facility meets the requirements for the pretreatment by conducting monitoring as per: R18-9-B204(A)(6)(b)(iii).

All industrial hookups and other non-residential hookups to the treatment system shall be authorized according to the applicable federal, state or local regulations.

**2.2.1 Engineering Design**

The new WWTP was designed as per the design report prepared and stamped, dated, and signed (sealed) by Gregory H. Brown, P.E. (Professional Engineer), Specific Engineering, Inc., dated March 04, 2005, and subsequent sealed submittals that served as additions to the design report.

**2.2.2 Site-specific Characteristics**

Not Applicable.

**2.2.3 Pre-Operational Requirements**

Within 60 days of the completion of construction, the operator shall inspect the facility to verify that all components function as designed. The permittee shall provide written certification within 90 days following final completion of the construction to ADEQ Water Quality Compliance, that inspection of all components was performed. The results of inspection should also be indicated.

**2.2.4 Operational Requirements**

1. The permittee shall maintain a copy of the up-to-date O & M manual at the WWTP site at all times and shall be available upon request during inspections by ADEQ personnel.
2. The pollution control structures shall be inspected for the items listed in Section 4.0, Table III and IV - FACILITY INSPECTION.
3. If any damage of the pollution control structures is identified during inspection, proper repair procedures shall be performed. All repair procedures and material(s) used shall be documented on the Self-Monitoring Report Form submitted quarterly to the ADEQ Water Quality Compliance.

**2.2.5 Wastewater Treatment Plant Classification  
A.C. R18-9-703(C)(2)(a), A.A.C. R18-11-303 THROUGH 307]**

The existing WWTP will produce reclaimed water meeting Class B+ Reclaimed Water Standards (A.A.C. R18-11, article 3) and can be used for any allowable use under that class.

The new WWTP will produce reclaimed water meeting Class A+ Reclaimed Water Standards (A.A.C. R18-11, article 3) and can be used for any allowable use under that class.

**2.3 Discharge Limitations [A.R.S. §§ 49-201(14), 49-243 and A.A.C. R18-9-A205(B)]**

1. The permittee is authorized to operate the existing WWTP with a maximum average monthly flow of 1.6 MGD.
2. The permittee is authorized to operate the new WWTP with a maximum average monthly flow of 2.0 MGD.
3. At any given time, the permittee shall operate either the existing WWTP or the new WWTP. Both plants shall not be operated at the same time.
4. The permittee shall notify all users that the materials authorized to be disposed of through the WWTP are typical household sewage and shall not include motor oil, gasoline, paints, varnishes, hazardous wastes, solvents, pesticides, fertilizers or other materials not generally associated with toilet flushing, food preparation, laundry facilities and personal hygiene.
5. Specific discharge limitations are listed in Section 4.0, Table IA, IB, IC and ID.

**2.4 Points of Compliance (P.O.C.) [A.R.S. § 49-244]**

The Point of Compliance is established by the following monitoring location:

P.O.C.#	P.O.C. Locations	Latitude	Longitude
1	Located at the northeastern corner of the site	33° 06' 12" N	111° 30' 05" W

Groundwater monitoring is required at the point of compliance well.

The Director may amend this permit to designate additional points of compliance if information on groundwater gradients or groundwater usage indicates the need.

**2.5 Monitoring Requirements [A.R.S. § 49-243(K)(1), A.A.C. R18-9-A206(A)]**

All monitoring required in this permit shall continue for the duration of the permit, regardless of the status of the facility. All sampling, preservation and holding times shall be in accordance with currently accepted standards of professional practice. Trip blanks, equipment blanks and duplicate samples shall also be obtained, and chain of custody procedures shall be followed, in accordance with currently accepted standards of professional practice. The permittee shall consult the most recent version of the ADEQ Quality Assurance Project Plan (QAPP) and EPA 40 CFR PART 136 for guidance in this regard. Copies of laboratory analyses and chain of custody forms shall be maintained at the permitted facility. Upon request these documents shall be made immediately available for review by ADEQ personnel.

**2.5.1 Discharge Monitoring**

The permittee shall monitor the wastewater from the existing WWTP according to Section 4.0, Tables IA and IB. A representative sample of the wastewater shall be collected at the point of discharge from the effluent pump station.

The permittee shall monitor the wastewater from the new WWTP according to Section 4.0, Tables IC and ID. A representative sample of the wastewater shall be collected at the point of discharge from the effluent pump station.

**2.5.1.1 Reclaimed Water Monitoring**

For the existing and new WWTP's the permittee shall monitor the parameters listed under Table 1C and ID in addition to the routine discharge monitoring parameters listed in Table IA and 1B.

**2.5.2 Facility / Operational Monitoring**

Operational monitoring inspections shall be conducted according to Section 4.0, Tables III and IV.

- a. If any damage of the pollution control structures is identified during inspection, proper repair procedures shall be performed. All repair procedures and materials used shall be documented on the Self-Monitoring Report Form (SMRF) submitted quarterly to the ADEQ Water Quality Compliance. If none of the conditions occur, the report shall say "no event" for a particular reporting period. If the facility is not in operation, the permittee shall indicate that fact in the SMRF.
- b. The permittee shall submit data required in Section 4.0, Tables III and IV regardless of the operating status of the facility unless otherwise approved by the Department or allowed in this permit.

**2.5.3 Groundwater Monitoring and Sampling Protocols**

The permittee shall monitor the groundwater according to Section 4.0, Table II.

Static water levels shall be measured and recorded prior to sampling. Wells shall be purged of at least three borehole volumes (as calculated using the static water level) or until field parameters (pH, temperature, conductivity) are stable, whichever represents the greater volume. If evacuation results in the well going dry, the well shall be allowed to recover to 80% of the original borehole volume, or for 24 hours, whichever is shorter, prior to sampling. If after 24 hours there is not sufficient water for sampling, the well shall be recorded as "dry" for the monitoring event. An explanation for reduced pumping volumes, a record of the volume pumped, and modified sampling procedures shall be reported and submitted with the Self-Monitoring Report Form (SMRF).

**2.5.4 Surface Water Monitoring and Sampling Protocols**

Routine surface water monitoring is not required under the terms of this permit.

**2.5.5 Analytical Methodology**

All samples collected for compliance monitoring shall be analyzed using Arizona state approved methods. If no state approved method exists, then any appropriate EPA approved method shall be used. Regardless of the method used, the detection limits must be sufficient to determine compliance with the regulatory limits of the parameters specified in this permit. Analyses shall be performed by a laboratory licensed by the Arizona Department of Health Services, Office of Laboratory Licensure and Certification. For results to be considered valid, all analytical work shall meet quality control standards specified in the approved methods. A list of Arizona State certified laboratories can be obtained at the address below:

Arizona Department of Health Services  
Office of Laboratory Licensure and Certification  
250 North 17<sup>th</sup> Ave.  
Phoenix, AZ 85007  
Phone: (602) 364-0720

### 2.5.6 Installation and Maintenance of Monitoring Equipment

Monitoring equipment required by this permit shall be installed and maintained so that representative samples required by the permit can be collected. If new groundwater wells are determined to be necessary, the construction details shall be submitted to the ADEQ Water Permits Section for approval prior to installation and the permit shall be amended to include any new points.

## 2.6 Contingency Plan Requirements

[A.R.S. § 49-243(K)(3), (K)(7) and A.A.C. R18-9-A204 and R18-9-A205]

### 2.6.1 General Contingency Plan Considerations

At least one copy of the approved contingency and emergency response plan(s) submitted in the application shall be maintained at the location where day-to-day decisions regarding the operation of the facility are made. The permittee shall be aware of and follow the contingency and emergency plans.

Any alert level (AL) that is exceeded or any violation of an aquifer quality limit (AQL), discharge limit (DL), or other permit condition shall be reported to ADEQ following the reporting requirements in Section 2.7.3.

Some contingency actions involve verification sampling. Verification sampling shall consist of the first follow-up sample collected from a location that previously indicated a violation or the exceedance of an AL. Collection and analysis of the verification sample shall use the same protocols and test methods to analyze for the pollutant or pollutants that exceeded an AL or violated an AQL. The permittee is subject to enforcement action for the failure to comply with any contingency actions in this permit. Where verification sampling is specified in this permit, it is the option of the permittee to perform such sampling. If verification sampling is not conducted within the timeframe allotted, ADEQ and the permittee shall presume the initial sampling result to be confirmed as if verification sampling has been conducted. The permittee is responsible for compliance with contingency plans relating to the exceedance of an AL or violation of a DL, AQL or any other permit condition.

#### 2.6.1.1 Overtopping of Impoundments

The permittee shall comply with the freeboard requirements as specified in Tables III and IV to prevent the overtopping of an impoundment. If an impoundment is overtopped, the permittee shall follow the requirements in Section 2.6.5.3.

### 2.6.2 Exceeding of Alert Levels/Performance Levels

#### 2.6.2.1 Exceeding of Performance Levels (PL) Set for Operational Conditions

1. If the operational PL set in Section 4.0, Tables III and IV has been exceeded (permit condition violated) the permittee shall:
  - a. Notify the ADEQ Water Quality Compliance Section within five (5) days of becoming aware of a violation of any permit condition in Tables III and IV.
  - b. Submit a written report within thirty (30) days after becoming aware of a violation of a permit condition. The report shall document all of the following:
    1. A description of the violation and its cause;

2. the period of violation, including exact date(s) and time(s), if known, and the anticipated time period during which the violation is expected to continue;
  3. any action taken or planned to mitigate the effects or the violation, or the spill, or to eliminate or prevent recurrence of the violation;
  4. any monitoring activity or other information which indicates that any pollutants would be reasonably expected to cause a violation of an Aquifer Water Quality Standard; and
  5. any malfunction or failure of pollution control devices or other equipment or process.
2. The facility is no longer on alert status once the operational indicator no longer indicates that a PL is being exceeded. The permittee shall, however, complete all tasks necessary to return the facility to its pre-alert operating condition.

#### **2.6.2.2 Exceeding of Alert Levels Set for Discharge Monitoring**

1. If an AL set in Section 4.0, Table IA and IB has been exceeded, the permittee shall immediately investigate to determine the cause of the AL being exceeded. The investigation shall include the following:
  - a. Inspection, testing, and assessment of the current condition of all treatment or pollutant discharge control systems that may have contributed to the AL being exceeded.
  - b. Review of recent process logs, reports, and other operational control information to identify any unusual occurrences;
  - c. Pretreatment source control for industrial pollutants.
2. The permittee shall initiate actions identified in the approved contingency plan referenced in Section 5.0 and specific contingency measures identified in Section 2.6 to resolve any problems identified by the investigation which may have led to an AL being exceeded. To implement any other corrective action the permittee shall obtain prior approval from ADEQ according to Section 2.6.6.
3. Within thirty (30) days after an AL being exceeded, the permittee shall submit the laboratory results to the ADEQ Water Quality Compliance Section, Data Unit, along with a summary of the findings of the investigation, the cause of the AL being exceeded, and actions taken to resolve the problem.
4. Upon review of the submitted report, the Department may amend the permit to require additional monitoring, increased frequency of monitoring, amendments to permit conditions or other actions.
5. Upon exceedance of the AL for Flow for two consecutive monthly averages as indicated in Table I, the permittee shall submit a letter to the addresses listed in Section 2.7.5, outlining the measures the permittee will take to prevent exceedance of a Discharge Limit (DL) for flow.

**2.6.2.3 Exceeding of Alert Levels in Groundwater Monitoring**

**2.6.2.3.1 Alert Levels for Indicator Parameters**

Not required at time of permit issuance.

**2.6.2.3.2 Alert Levels for Pollutants with Numeric Aquifer Water Quality Standards**

1. If an AL for a pollutant set in Section 4.0, Table II has been exceeded, the permittee may conduct verification sampling within 5 days of becoming aware of an AL being exceeded. The permittee may use results of another sample taken between the date of the last sampling event and the date of receiving the result as verification.
2. If verification sampling confirms the AL being exceeded or if the permittee opts not to perform verification sampling, then the permittee shall increase the frequency of monitoring to 'Daily', 'Weekly', and 'Monthly' for constituents that have a permit monitoring frequency of 'Weekly', 'Monthly', and 'Quarterly', 'Semi-Annual' or 'Annual' respectively. In addition, the permittee shall immediately initiate an investigation of the cause of the AL being exceeded, including inspection of all discharging units and all related pollution control devices, review of any operational and maintenance practices that might have resulted in an unexpected discharge, and hydrologic review of groundwater conditions including upgradient water quality.
3. The permittee shall initiate actions identified in the approved contingency plan referenced in Part 5.0 and specific contingency measures identified in Part 2.6 to resolve any problems identified by the investigation which may have led to an AL being exceeded. To implement any other corrective action the permittee shall obtain prior approval from ADEQ according to Section 2.6.6. Alternatively, the permittee may submit a technical demonstration, subject to written approval by the Water Permits Section, that although an AL is exceeded, pollutants are not reasonably expected to cause a violation of an AQL. The demonstration may propose a revised AL or monitoring frequency for approval in writing by the Water Permits Section.
4. Within thirty (30) days after confirmation of an AL being exceeded, the permittee shall submit the laboratory results to the Water Quality Compliance Section, Data Unit along with a summary of the findings of the investigation, the cause of the AL being exceeded, and actions taken to resolve the problem.
5. Upon review of the submitted report, the Department may amend the permit to require additional monitoring, increased frequency of monitoring, amendments to permit conditions or other actions.
6. The increased monitoring required as a result of ALs being exceeded may be reduced to Section 4.0, Table II frequencies,

if the results of four sequential sampling events demonstrate that no parameters exceed the AL.

**2.6.2.3.3 Alert Levels to Protect Downgradient Users from Pollutants without Numeric Aquifer Water Quality Standards**

Not required at time of issuance.

**2.6.3 Discharge Limitations (DL) Violations**

1. If a DL set in Section 4.0, Table IA, IB, IC and ID has been violated, the permittee shall immediately investigate to determine the cause of the violation. The investigation shall include the following:
  - a. Inspection, testing, and assessment of the current condition of all treatment or pollutant discharge control systems that may have contributed to the violation;
  - b. Review of recent process logs, reports, and other operational control information to identify any unusual occurrences;
  - c. Sampling of individual waste streams composing the wastewater for the parameters in violation.

The permittee also shall submit a report according to Section 2.7.3, which includes a summary of the findings of the investigation, the cause of the violation, and actions taken to resolve the problem. The permittee shall consider and ADEQ may require corrective action that may include control of the source of discharge, cleanup of affected soil, surface water or groundwater, and mitigation of the impact of pollutants on existing uses of the aquifer. Corrective actions shall either be specifically identified in this permit, included in an ADEQ approved contingency plan, or separately approved according to Section 2.6.6.

2. Upon review of the submitted report, the Department may amend the permit to require additional monitoring, increased frequency of monitoring, amendments to permit conditions or other actions.

**2.6.4 Aquifer Quality Limit (AQL) Violation**

1. If an AQL set in Section 4.0, Table II has been exceeded, the permittee may conduct verification sampling within 5 days of becoming aware of an AQL being exceeded. The permittee may use results of another sample taken between the date of the last sampling event and the date of receiving the result as verification.
2. If verification sampling confirms that the AQL is violated for any parameter or if the permittee opts not to perform verification sampling, then, the permittee shall increase the frequency of monitoring to 'Daily', 'Weekly', and 'Monthly' for constituents that have a permit monitoring frequency of 'Weekly', 'Monthly', and 'Quarterly', 'Semi-Annual' or 'Annual' respectively. In addition, the permittee shall immediately initiate an evaluation for the cause of the violation, including inspection of all discharging units and all related pollution control devices, and review of any operational and maintenance practices that might have resulted in unexpected discharge.

The permittee also shall submit a report according to Section 2.7.3, which includes a summary of the findings of the investigation, the cause of the violation, and actions taken to resolve the problem. A verified exceedance of an AQL will be considered a violation unless the permittee demonstrates within 30 days that the exceedance was not caused or contributed to by pollutants discharged from the facility. Unless the

permittee has demonstrated that the exceedance was not caused or contributed to by pollutants discharged from the facility, the permittee shall consider and ADEQ may require corrective action that may include control of the source of discharge, cleanup of affected soil, surface water or groundwater, and mitigation of the impact of pollutants on existing uses of the aquifer. Corrective actions shall either be specifically identified in this permit, included in an ADEQ approved contingency plan, or separately approved according to Section 2.6.6.

3. Upon review of the submitted report, the Department may amend the permit to require additional monitoring, increased frequency of monitoring, amendments to permit conditions or other actions.

## **2.6.5 Emergency Response and Contingency Requirements for Unauthorized Discharges pursuant to A.R.S. § 49-201(12) and 49-241]**

### **2.6.5.1 Duty to Respond**

The permittee shall act immediately to correct any condition resulting from a discharge pursuant to A.R.S. § 49-201(12) if that condition could pose an imminent and substantial endangerment to public health or the environment.

### **2.6.5.2 Discharge of Hazardous Substances or Toxic Pollutants**

In the event of any unauthorized discharge pursuant to A.R.S. § 49-201(12) of suspected hazardous substances (A.R.S. § 49-201(18)) or toxic pollutants (A.R.S. § 49-243(I)) on the facility site, the permittee shall promptly isolate the area and attempt to identify the spilled material. The permittee shall record information, including name, nature of exposure and follow-up medical treatment, if necessary, on persons who may have been exposed during the incident. The permittee shall notify the ADEQ Water Quality Field Service Unit at (602) 771-4841 within 24-hours upon discovering the discharge of hazardous material which: a) has the potential to cause an AWQS or AQL to be exceeded; or b) could pose an endangerment to public health or the environment.

### **2.6.5.3 Discharge of Non-hazardous Materials**

In the event of any unauthorized discharge pursuant to A.R.S. § 49-201(12) of non-hazardous materials from the facility, the permittee shall promptly attempt to cease the discharge and isolate the discharged material. Discharged material shall be removed and the site cleaned up as soon as possible. The permittee shall notify the ADEQ Water Quality Field Services Unit at (602) 771-4841, within 24-hours upon discovering the discharge of non-hazardous material which: a) has the potential to cause an AQL to be exceeded; or b) could pose an endangerment to public health or the environment.

### **2.6.5.4 Reporting Requirements**

The permittee shall submit a written report for any unauthorized discharges reported under Sections 2.6.5.2 and 2.6.5.3 to ADEQ Water Quality Field Services Unit, Mail Code: 5415B-1, 1110 West Washington Street, Phoenix, AZ, within thirty days of the discharge or as required by subsequent ADEQ action. The report shall summarize the event, including any human exposure, and facility response activities and include all information specified in Section 2.7.3. If a notice is issued by ADEQ subsequent to the discharge notification, any additional information requested in the notice shall also be submitted within the time frame specified in that notice. Upon review of the submitted report, ADEQ may require additional monitoring or corrective actions.

### 2.6.6 Corrective Actions

Specific contingency measures identified in Part 2.6 have already been approved by ADEQ and do not require written approval to implement.

With the exception of emergency response actions taken under Section 2.6.5, the permittee shall obtain written approval from the Water Permits Section prior to implementing a corrective action to accomplish any of the following goals in response to exceeding an AL or violation of an AQL, DL, or other permit condition:

1. Control of the source of an unauthorized discharge;
2. Soil cleanup;
3. Cleanup of affected surface waters;
4. Cleanup of affected parts of the aquifer;
5. Mitigation to limit the impact of pollutants on existing uses of the aquifer.

Within 30 days of completion of any corrective action, the operator shall submit to the ADEQ Water Quality Compliance Section, a written report describing the causes, impacts, and actions taken to resolve the problem.

### 2.7 Reporting and Recordkeeping Requirements

[A.R.S. § 49-243(K)(2) and A.A.C. R18-9-A206(B) and R18-9-A207]

#### 2.7.1 Self Monitoring Report Forms (SMRF)

1. The permittee shall complete the SMRFs provided by ADEQ, and submit them to the Water Quality Compliance Section, Data Unit.
2. The permittee shall complete the SMRF to the extent that the information reported may be entered on the form. If no information is required during a quarter, the permittee shall enter "not required" on the SMRF and submit the report to ADEQ. The permittee shall use the format devised by ADEQ.
3. The tables contained in Sections 4.0 list the parameters to be monitored and the frequency for reporting results for groundwater compliance monitoring. Monitoring methods shall be recorded on the SMRFs.
4. In addition to the SMRF, the information contained in A.A.C. R18-9-A206(B)(1) and Section 6.7 shall be included for exceeding an AL or violation of an AQL, DL, or any other permit condition being reported in the current reporting period.

#### 2.7.2 Operation Inspection / Log Book Recordkeeping

A signed copy of this permit shall be maintained at all times at the location where day-to-day decisions regarding the operation of the facility are made. A log book (paper copies, forms or electronic data) of the inspections and measurements required by this permit shall be maintained at the location where day-to-day decisions are made regarding the operation of the facility. The log book shall be retained for ten years from the date of each inspection, and upon request, the permit and the log book shall be made immediately available for review by ADEQ personnel. The information in the log book shall include, but not be limited to, the following information as applicable:

1. Name of inspector;
2. Date and shift inspection was conducted;

3. Condition of applicable facility components;
4. Any damage or malfunction, and the date and time any repairs were performed;
5. Documentation of sampling date and time;
6. Any other information required by this permit to be entered in the log book, and
7. Monitoring records for each measurement shall comply with R18-9 A206(B)(2).

### 2.7.3 Permit Violation and Alert Level Status Reporting

1. The permittee shall notify the Water Quality Compliance Section, Enforcement Unit in writing within five days (except as provided in Section 2.6.5) of becoming aware of a violation of any permit condition, discharge limitation or of an Alert Level being exceeded.
2. The permittee shall submit a written report to the Water Quality Compliance Section, Enforcement Unit within 30 days of becoming aware of the violation of any permit condition or discharge limitation. The report shall document all of the following:
  - a. Identification and description of the permit condition for which there has been a violation and a description of its cause.
  - b. The period of violation including exact date(s) and time(s), if known, and the anticipated time period during which the violation is expected to continue.
  - c. Any corrective action taken or planned to mitigate the effects of the violation, or to eliminate or prevent a recurrence of the violation.
  - d. Any monitoring activity or other information which indicates that any pollutants would be reasonably expected to cause a violation of an Aquifer Water Quality Standard.
  - e. Proposed changes to the monitoring which include changes in constituents or increased frequency of monitoring.
  - f. Description of any malfunction or failure of pollution control devices or other equipment or processes.

### 2.7.4 Operational, Other or Miscellaneous Reporting

The permittee shall complete the Self-Monitoring Report Form provided by the Department to reflect facility inspection requirements designated in Section 4.0, Tables III and IV and submit to the ADEQ, Water Quality Compliance quarterly along with other reports required by this permit. Facility inspection reports shall be submitted no less frequently than quarterly, regardless of operational status.

The permittee shall submit the results of water quality testing for total nitrogen, fecal coliform, turbidity and flow volumes to any of the following in accordance with A.A.C. R18-9-703(C)(2)(c):

1. Any reclaimed water agent who has contracted for delivery of reclaimed water from the permittee;
2. Any end user who has not waived interest in receiving this information.

**2.7.5 Reporting Location**

All SMRFs shall be submitted to:

Arizona Department of Environmental Quality  
 Water Quality Compliance Section, Data Unit  
 Mail Code: 5415B-1  
 1110 W. Washington Street  
 Phoenix, AZ 85007  
 Phone (602) 771-4681

All documents required by this permit to be submitted to the Water Quality Compliance Section shall be directed to:

Water Quality Compliance Section, Enforcement Unit  
 Mail Code: 5415B-1  
 1110 W. Washington Street  
 Phoenix, AZ 85007  
 Phone (602) 771-4614

All documents required by this permit to be submitted to the Water Permits Section shall be directed to:

Arizona Department of Environmental Quality  
 Water Permits Section  
 Mail Code: 5415B-3  
 1110 W. Washington Street  
 Phoenix, AZ 85007  
 Phone (602) 771-4428

**2.7.6 Reporting Deadline**

The following table lists the quarterly report due dates:

Monitoring conducted during quarter	Quarterly Report due by:
January-March	April 30
April-June	July 30
July-September	October 30
October-December	January 30

**2.7.7 Changes to Facility Information in Section 1.0**

The Water Permits Section and Water Quality Compliance Section shall be notified within 10 days of any change of facility information including Facility Name, Permittee Name, Mailing or Street Address, Facility Contact Person or Emergency Telephone Number.

**2.8 Temporary Cessation [A.R.S. § 49-243(K)(8) and A.A.C. R18-9-A209(A)]**

The permittee shall give written notice to the Water Quality Compliance Section before ceasing operation of the facility for a period of 60 days or greater. The permittee shall take the following measures upon temporary cessation:

1. If applicable, direct the wastewater flows from the facility to another State approved wastewater treatment facility.
2. Correct the problem that caused the temporary cessation of the facility.
3. Notify ADEQ with a monthly facility Status Report describing the activities conducted on the WWTP to correct the problem

At the time of notification the permittee shall submit for ADEQ approval a plan for maintenance of discharge control systems and for monitoring during the period of temporary cessation. Immediately following ADEQ's approval, the permittee shall implement the approved plan. If necessary, ADEQ shall amend permit conditions to incorporate conditions to address temporary cessation. During the period of temporary cessation, the permittee shall provide written notice to the Water Quality Compliance Section of the operational status of the facility every three years. If the permittee intends to permanently cease operation of any facility, the permittee shall submit closure notification, as set forth in Section 2.9 below.

## **2.9 Closure [A.R.S. §§ 49-243(K)(6), 49-252 and A.A.C. R18-9-A209(B)]**

For a facility addressed under this permit, the permittee shall give written notice of closure to the Water Quality Compliance Section of the permittee's intent to cease operation without resuming activity for which the facility was designed or operated.

### **2.9.1 Closure Plan**

Within 90 days following notification of closure, the permittee shall submit for approval to the Water Permits Section, a Closure Plan which meets the requirements of A.R.S. § 49-252 and A.A.C. R18-9-A209(B)(1)(a).

If the closure plan achieves clean closure immediately, ADEQ shall issue a letter of approval to the permittee. If the closure plan contains a schedule for bringing the facility to a clean closure configuration at a future date, ADEQ may incorporate any part of the schedule as an amendment to this permit.

### **2.9.2 Closure Completion**

Upon completion of closure activities, the permittee shall give written notice to the Water Permits Section indicating that the approved Closure Plan has been implemented fully and providing supporting documentation to demonstrate that clean closure has been achieved (soil sample results, verification sampling results, groundwater data, as applicable). If clean closure has been achieved, ADEQ shall issue a letter of approval to the permittee at that time. If any of the following conditions apply, the permittee shall follow the terms of Post Closure stated in this permit:

1. Clean closure cannot be achieved at the time of closure notification or within one year thereafter under a diligent schedule of closure actions;
2. Further action is necessary to keep the facility in compliance with aquifer water quality standards at the applicable point of compliance;
3. Continued action is required to verify that the closure design has eliminated discharge to the extent intended;
4. Remedial or mitigative measures are necessary to achieve compliance with Title 49, Ch. 2;
5. Further action is necessary to meet property use restrictions.

**2.10 Post-Closure [A.R.S. §§ 49-243(K)(6), 49-252 and A.A.C. R18-9 A209(C)]**

Post-closure requirements shall be established based on a review of facility closure actions and will be subject to review and approval by the Water Permits Section.

In the event clean closure cannot be achieved pursuant to A.R.S. § 49-252, the permittee shall submit for approval to the Water Permits Section a Post-Closure Plan that addresses post-closure maintenance and monitoring actions at the facility. The Post-Closure Plan shall meet all requirements of A.R.S. §§ 49- 201(29) and 49-252 and A.A.C. R18-9-A209(C). Upon approval of the Post-Closure Plan, this permit shall be amended or a new permit shall be issued to incorporate all post-closure controls and monitoring activities of the Post-Closure Plan.

**2.10.1 Post-Closure Plan**

A specific post closure plan may be required upon the review of the closure plan.

**2.10.2 Post-Closure Completion**

Not required at the time of permit issuance.

**3.0 COMPLIANCE SCHEDULE [A.R.S. § 49-243(K)(5) and A.A.C. R18-9-A208]**

For each compliance schedule item listed below, the permittee shall submit the required information, including a cover letter that lists the compliance schedule items, to the Water Permits Section. A copy of the cover letter must also be submitted to the Water Quality Compliance Section, Data Unit.

1. The permittee shall submit an annual report summarizing water quality for all forms of nitrogen, total coliform, and water level data in a tabular and graphical form. The report shall also discuss any known impacts to the surrounding groundwater and land users as a result of the recharge operations. The report shall be due on January 30<sup>th</sup> of each year for the prior year.
2. Within 45 days from the signature date of this permit, the permittee shall submit to the Water Permits Section a preliminary design drawing of a proposed monitor well for the facility's Point of Compliance. The proposed well shall not be constructed (or modified if existing) until the Water Permits Section has approved the well design. Upon receiving approval of the monitor well design, the permittee shall immediately begin construction (or modification) of the well.
3. Within 60 days of receiving approval of the well design from the Water Permits Section, the permittee shall have completed construction (or modification) of the monitor well and shall commence routine sampling per Section 4.0, Table II. The permittee shall also submit an as-built (or final design) drawing of the completed monitor well to the Water Permits Section.
4. Within 90 days of the signature date of the permit, the permittee shall submit a site map with the location of the facility and of an upgradient monitor well which will be used to collect upgradient groundwater quality data.
5. Within 15 days of receiving approval for the upgradient groundwater monitor well, the permittee shall commence sampling and analyzing the water in the upgradient well for nitrate and total nitrogen and continue sampling each month for 8 consecutive months.
6. Within 30 days of the final sampling event, the permittee shall submit a summary of the groundwater quality data and an analytical report on the findings and significance of the groundwater quality data collected from the upgradient groundwater monitoring well. The permittee shall also include a request to amend the permit and propose numeric aquifer quality limits for nitrate and total nitrogen in Table II. If a particular parameter exceeds the Aquifer Water Quality Standard, then the numeric Aquifer Quality Limit for that parameter shall be equal to the mean of the data plus two standard deviations.
7. Upon commencement of the operations from the new WWTP, the existing WWTP will be closed. The facility shall submit a closure plan for the existing WWTP to ADEQ within 90 days of cessation of the discharge from the existing WWTP. The permittee shall report annually on their plans for constructing the new WWTP.

## 4.0 TABLES OF MONITORING REQUIREMENTS

**TABLE IA**  
**ROUTINE DISCHARGE MONITORING<sup>1</sup>**  
(Existing WWTP)

Sampling Point Number	Sampling Point Identification		Latitude	Longitude	
<b>1</b>	Influent pump station		33° 09' 18" N	111° 33' 26" W	
Parameter	AL <sup>2</sup>	DL <sup>3</sup>	Units	Sampling Frequency	Reporting Frequency
Flow: Daily	Not Established <sup>4</sup>	Not Established	MGD <sup>5</sup>	Daily <sup>6</sup>	Quarterly
Flow: Average Monthly	1.5	1.6	MGD	Monthly <sup>7</sup>	Quarterly
Flow: Reuse Daily	Not Established	Not Established	MGD	Daily	Quarterly
Flow: Reuse average Monthly	1.5	1.6	MGD	Monthly	Quarterly

Sampling Point Number	Sampling Point Identification		Latitude	Longitude	
<b>2</b>	Effluent pump station		33° 06' 12" N	111° 30' 11" W	
Parameter	AL	DL	Units	Sampling Frequency	Reporting Frequency
Fecal Coliform: Single sample maximum	Not Established	23.0	CFU or MPN <sup>8</sup>	Daily <sup>9</sup>	Quarterly
Fecal Coliform: four (4) of seven (7) samples in a week <sup>10</sup>	Not Established	Non-Detect <sup>11</sup>	CFU or MPN	Daily	Quarterly
Total Nitrogen <sup>12</sup> : 5-sampling rolling geometric mean.	8.0	10.0	mg/l	Monthly <sup>13</sup>	Quarterly

<sup>1</sup> Monitoring under this Table will be discontinued once the new WWTP is constructed and operational, and all the flows and liquids from the existing WWTP have been diverted to the new WWTP. The facility shall submit a letter to Water Quality Compliance Data Unit at the address specified in Section 2.7.5, informing ADEQ about the completion of the new WWTP along with the first set of SMRFs submitted for the new WWTP.

<sup>2</sup> AL = Alert Level.

<sup>3</sup> DL = Discharge Limit.

<sup>4</sup> Not Established = Monitoring required but no limits have been specified at time of permit issuance.

<sup>5</sup> MGD = Million Gallons per Day.

<sup>6</sup> Flow shall be measured using a continuous recording flow meter.

<sup>7</sup> Monthly = Calculated value = Average of daily flows in a month.

<sup>8</sup> CFU = Colony Forming Units / 100 ml sample. MPN = Most Probable Number / 100 ml sample. For CFU, a value of <1 shall be considered to be non-detect. For MPN, a value of <2.2 shall be considered to be non-detect.

<sup>9</sup> "Daily" means at least 4 samples per week must be analyzed and must meet the standard

<sup>10</sup> "Week" means a seven-day period starting on Sunday and ending on the following Saturday.

<sup>11</sup> If at least four (4) of the daily samples are non-detect, report "yes" in the appropriate space on the SMRF (indicating that the standard has been met). If at least four (4) of the daily have detections of fecal coliform, report "no" in the appropriate space on the SMRF (indicating that the standard has not been met).

<sup>12</sup> Total Nitrogen = Nitrate as N + Nitrite as N + Total Kjeldahl Nitrogen.

4.0 TABLES OF MONITORING REQUIREMENTS

**TABLE IA**  
**ROUTINE DISCHARGE MONITORING (Continued)**

Parameter	AL	DL	Units	Sampling Frequency	Reporting Frequency
<b>Metals (Total):</b>					
Antimony	0.0048	0.006	mg/l	Quarterly	Quarterly
Arsenic	0.04	0.05	mg/l	Quarterly	Quarterly
Barium	1.60	2.00	mg/l	Quarterly	Quarterly
Beryllium	0.0032	0.004	mg/l	Quarterly	Quarterly
Cadmium	0.004	0.005	mg/l	Quarterly	Quarterly
Chromium	0.08	0.1	mg/l	Quarterly	Quarterly
Cyanide (As free cyanide)	0.16	0.2	mg/l	Quarterly	Quarterly
Fluoride	3.2	4.0	mg/l	Quarterly	Quarterly
Lead	0.04	0.05	mg/l	Quarterly	Quarterly
Mercury	0.0016	0.002	mg/l	Quarterly	Quarterly
Nickel	0.08	0.1	mg/l	Quarterly	Quarterly
Selenium	0.04	0.05	mg/l	Quarterly	Quarterly
Thallium	0.0016	0.002	mg/l	Quarterly	Quarterly

Parameter	AL	DL	Units	Sampling Frequency	Reporting Frequency
<b>Volatile Organic Compounds (VOCs):</b>					
Benzene	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Carbon tetrachloride	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
o-Dichlorobenzene	0.48	0.6	mg/l	Semi-Annually	Semi-Annually
para-Dichlorobenzene	0.06	0.075	mg/l	Semi-Annually	Semi-Annually
1,2-Dichloroethane	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
1,1-Dichloroethylene	0.0056	0.007	mg/l	Semi-Annually	Semi-Annually
cis-1,2-Dichloroethylene	0.05	0.07	mg/l	Semi-Annually	Semi-Annually
trans-1,2-Dichloroethylene	0.08	0.1	mg/l	Semi-Annually	Semi-Annually
Dichloromethane	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
1,2-Dichloropropane	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Ethylbenzene	0.56	0.7	mg/l	Semi-Annually	Semi-Annually
Monochlorobenzene	0.08	0.1	mg/l	Semi-Annually	Semi-Annually
Styrene	0.08	0.1	mg/l	Semi-Annually	Semi-Annually
Tetrachloroethylene	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Toluene	0.8	1.0	mg/l	Semi-Annually	Semi-Annually
Trihalomethanes (total) <sup>14</sup>	0.08	0.1	mg/l	Semi-Annually	Semi-Annually
1,1,1-Trichloroethane	0.16	0.2	mg/l	Semi-Annually	Semi-Annually
1,2,4 - Trichlorobenzene	0.056	0.07	mg/l	Semi-Annually	Semi-Annually
1,1,2 - Trichloroethane	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Trichloroethylene	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Vinyl Chloride	0.0016	0.002	mg/l	Semi-Annually	Semi-Annually
Xylenes (Total)	8.0	10.0	mg/l	Semi-Annually	Semi-Annually

<sup>13</sup> A 5-Month Geometric Mean of the results of the 5 most recent samples.

<sup>14</sup> Total Trihalomethanes comprises of Bromoform, Bromodichloromethane, Chloroform, and Dibromochloromethane.

4.0 TABLES OF MONITORING REQUIREMENTS

**TABLE IB**  
**RECLAIMED WATER MONITORING TABLE - CLASS B+<sup>15</sup>**  
(Existing WWTP)

Sampling Point Number	Sampling Point Identification		Latitude	Longitude
1	Effluent pump station		33° 06' 12" N	111° 30' 11" W
Parameter	DL <sup>16</sup>	Units	Sampling Frequency	Reporting Frequency
Fecal Coliform: Single-sample maximum	800	CFU or MPN <sup>17</sup>	Daily <sup>18</sup>	Quarterly
Fecal Coliform: Four (4) of last seven (7) samples	200 <sup>19</sup>	CFU or MPN	Daily	Quarterly

<sup>15</sup> Reclaimed water monitoring under Table 1B will be performed anytime effluent is discharged to the reuse site and is in addition to routine discharge monitoring required under Table 1A. If no discharge has occurred during the reporting period, "no flow" should be entered on the SMRF.

<sup>16</sup> DL = Discharge Limit.

<sup>17</sup> CFU = Colony Forming Units per 100 ml; MPN = Most Probable Number per 100 ml. For CFU, a value of <1 shall be considered to be non-detect. For MPN, a value of <2.2 shall be considered to be non-detect.

<sup>18</sup> For Fecal Coliform, "daily" sampling means every day in which a sample can practicably be obtained and delivered in sufficient time for proper analysis, provided that no less than four (4) samples in each calendar week are obtained and analyzed.

<sup>19</sup> If at least four (4) out of the last seven (7) samples are less than 200 CFU, report "yes" in the appropriate space on the SMRF (indicating that the standard has been met). However, if at least four (4) out of the last seven (7) samples are greater than or equal to 200 CFU, report "no" in the appropriate space on the SMRF (indicating that the standard has not been met).

4.0 TABLES OF MONITORING REQUIREMENTS

**TABLE IC**  
**ROUTINE DISCHARGE MONITORING<sup>20</sup>**  
(New WWTP)

Sampling Point Number	Sampling Point Identification		Latitude	Longitude	
1	Point of discharge from the UV disinfection unit		33° 06' 06" N	111° 30' 16" W	
Parameter	AL <sup>21</sup>	DL <sup>22</sup>	Units	Sampling Frequency	Reporting Frequency
Flow: Daily	Not Established <sup>23</sup>	Not Established	MGD <sup>24</sup>	Daily <sup>25</sup>	Quarterly
Flow: Average Monthly	1.9	2.0	MGD	Monthly <sup>26</sup>	Quarterly
Flow: Reuse Daily	Not Established	Not Established	MGD	Daily	Quarterly
Flow: Reuse average Monthly	1.9	2.0	MGD	Monthly	Quarterly

Sampling Point Number	Sampling Point Identification		Latitude	Longitude	
1	Point of discharge from the UV disinfection unit		33° 06' 06" N	111° 30' 16" W	
Parameter	AL	DL	Units	Sampling Frequency	Reporting Frequency
Fecal Coliform: Single sample maximum	Not Established	23.0	CFU or MPN <sup>27</sup>	Daily <sup>28</sup>	Quarterly
Fecal Coliform: four (4) of seven (7) samples in a week <sup>29</sup>	Not Established	Non-Detect <sup>30</sup>	CFU or MPN	Daily	Quarterly
Total Nitrogen <sup>31</sup> : 5-sampling rolling geometric mean.	8.0	10.0	mg/l	Monthly <sup>32</sup>	Quarterly

- <sup>20</sup> Monitoring not required until the new WWTP is constructed and operational.
- <sup>21</sup> AL = Alert Level.
- <sup>22</sup> DL = Discharge Limit.
- <sup>23</sup> Not Established = Monitoring required but no limits have been specified at time of permit issuance.
- <sup>24</sup> MGD = Million Gallons per Day.
- <sup>25</sup> Flow shall be measured using a continuous recording flow meter.
- <sup>26</sup> Monthly = Calculated value = Average of daily flows in a month.
- <sup>27</sup> CFU = Colony Forming Units / 100 ml sample. MPN = Most Probable Number / 100 ml sample. For CFU, a value of <1 shall be considered to be non-detect. For MPN, a value of <2.2 shall be considered to be non-detect.
- <sup>28</sup> "Daily" means at least 4 samples per week must be analyzed and must meet the standard
- <sup>29</sup> "Week" means a seven-day period starting on Sunday and ending on the following Saturday.
- <sup>30</sup> If at least four (4) of the daily samples are non-detect, report "yes" in the appropriate space on the SMRF (indicating that the standard has been met). If at least four (4) of the daily have detections of fecal coliform, report "no" in the appropriate space on the SMRF (indicating that the standard has not been met).
- <sup>31</sup> Total Nitrogen = Nitrate as N + Nitrite as N + Total Kjeldahl Nitrogen.
- <sup>32</sup> A 5-Month Geometric Mean of the results of the 5 most recent samples.

4.0 TABLES OF MONITORING REQUIREMENTS

**TABLE IC**  
**ROUTINE DISCHARGE MONITORING (Continued)**

Parameter	AL	DL	Units	Sampling Frequency	Reporting Frequency
<b>Metals (Total):</b>					
Antimony	0.0048	0.006	mg/l	Quarterly	Quarterly
Arsenic	0.04	0.05	mg/l	Quarterly	Quarterly
Barium	1.60	2.00	mg/l	Quarterly	Quarterly
Beryllium	0.0032	0.004	mg/l	Quarterly	Quarterly
Cadmium	0.004	0.005	mg/l	Quarterly	Quarterly
Chromium	0.08	0.1	mg/l	Quarterly	Quarterly
Cyanide (As free cyanide)	0.16	0.2	mg/l	Quarterly	Quarterly
Fluoride	3.2	4.0	mg/l	Quarterly	Quarterly
Lead	0.04	0.05	mg/l	Quarterly	Quarterly
Mercury	0.0016	0.002	mg/l	Quarterly	Quarterly
Nickel	0.08	0.1	mg/l	Quarterly	Quarterly
Selenium	0.04	0.05	mg/l	Quarterly	Quarterly
Thallium	0.0016	0.002	mg/l	Quarterly	Quarterly

Parameter	AL	DL	Units	Sampling Frequency	Reporting Frequency
<b>Volatile Organic Compounds (VOCs):</b>					
Benzene	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Carbon tetrachloride	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
o-Dichlorobenzene	0.48	0.6	mg/l	Semi-Annually	Semi-Annually
para-Dichlorobenzene	0.06	0.075	mg/l	Semi-Annually	Semi-Annually
1,2-Dichloroethane	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
1,1-Dichloroethylene	0.0056	0.007	mg/l	Semi-Annually	Semi-Annually
cis-1,2-Dichloroethylene	0.05	0.07	mg/l	Semi-Annually	Semi-Annually
trans-1,2-Dichloroethylene	0.08	0.1	mg/l	Semi-Annually	Semi-Annually
Dichloromethane	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
1,2-Dichloropropane	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Ethylbenzene	0.56	0.7	mg/l	Semi-Annually	Semi-Annually
Monochlorobenzene	0.08	0.1	mg/l	Semi-Annually	Semi-Annually
Styrene	0.08	0.1	mg/l	Semi-Annually	Semi-Annually
Tetrachloroethylene	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Toluene	0.8	1.0	mg/l	Semi-Annually	Semi-Annually
Trihalomethanes (total) <sup>33</sup>	0.08	0.1	mg/l	Semi-Annually	Semi-Annually
1,1,1-Trichloroethane	0.16	0.2	mg/l	Semi-Annually	Semi-Annually
1,2,4 - Trichlorobenzene	0.056	0.07	mg/l	Semi-Annually	Semi-Annually
1,1,2 - Trichloroethane	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Trichloroethylene	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Vinyl Chloride	0.0016	0.002	mg/l	Semi-Annually	Semi-Annually
Xylenes (Total)	8.0	10.0	mg/l	Semi-Annually	Semi-Annually

<sup>33</sup> Total Trihalomethanes comprises of Bromoform, Bromodichloromethane, Chloroform, and Dibromochloromethane.

4.0 TABLES OF MONITORING REQUIREMENTS

**TABLE ID**  
**RECLAIMED WATER MONITORING TABLE - CLASS A+<sup>34</sup>**  
(New WWTP)

Sampling Point Number	Sampling Point Identification		Latitude	Longitude
1	Point of discharge from disinfection unit		33° 06' 06" N	111° 30' 16" W
Parameter	DL <sup>35</sup>	Units	Sampling Frequency	Reporting Frequency
Fecal Coliform: Single-sample maximum	23	CFU or MPN	Daily <sup>36</sup>	Quarterly
Fecal Coliform: Four (4) of last seven (7) samples	Non-detect <sup>37</sup>	CFU or MPN	Daily	Quarterly
Turbidity <sup>38</sup> Single reading	5	NTU <sup>39</sup>	Everyday <sup>40</sup>	Quarterly
Turbidity: 24-hour average	2	NTU	Everyday	Quarterly

<sup>34</sup> Reclaimed water monitoring under Table 1D will be performed anytime effluent is discharged to the reuse site and is in addition to routine discharge monitoring required under Table 1C. If no discharge has occurred during the reporting period, "no flow" should be entered on the SMRF.

<sup>35</sup> Discharge Limit

<sup>36</sup> For Fecal Coliform, "daily" sampling means every day in which a sample can practicably be obtained and delivered in sufficient time for proper analysis, provided that no less than four (4) samples in each calendar week are obtained and analyzed.

<sup>37</sup> If at least four (4) out of the last seven (7) samples are non-detect, report "yes" in the appropriate space on the SMRF (indicating that the standard has been met). However, if at least four (4) out of the last seven (7) samples have detections of Fecal Coliform, report "no" in the appropriate space on the SMRF (indicating that the standard has not been met).

<sup>38</sup> Turbidity shall be measured with an instrument with a signal averaging time not exceeding 120 seconds. An occasional spike due to back-flushing or instrument malfunction shall not be considered an exceedance. All exceedances must be explained and submitted to the Department with the corresponding quarterly SMRF.

<sup>39</sup> Nephelometric Turbidity Units

<sup>40</sup> For the single turbidity reading, "everyday" means the maximum reading during the 24-hour period.

## 4.0 TABLES OF MONITORING REQUIREMENTS

**TABLE II**  
**ROUTINE GROUNDWATER MONITORING**  
 (Both WWTP's)

Sampling Point Number	Sampling Point Identification		Latitude	Longitude	
2	Located at the northeastern corner of the facility		33° 06' 12" N	111° 30' 05" W	
Parameter	AL <sup>41</sup>	AQL <sup>42</sup>	Units	Sampling Frequency	Reporting Frequency
Total Nitrogen <sup>43</sup> :	Not Established <sup>44</sup>	Not Established	mg/l	Monthly	Quarterly
Nitrate-Nitrite as N	Not Established	Not Established	mg/l	Monthly	Quarterly
Total Kjeldahl Nitrogen (TKN)	Not Established	Not Established	mg/l	Monthly	Quarterly
Total Coliform	Absence	Absence <sup>45</sup>	CFU or MPN <sup>46</sup>	Monthly	Quarterly
Indicator Parameters					
Total Dissolved Solids (TDS)	Not Established	Not Established	mg/l	Quarterly	Quarterly
Calcium	Not Established	Not Established	mg/l	Quarterly	Quarterly
Carbonate	Not Established	Not Established	mg/l	Quarterly	Quarterly
Chloride	Not Established	Not Established	mg/l	Quarterly	Quarterly
Magnesium	Not Established	Not Established	mg/l	Quarterly	Quarterly
Potassium	Not Established	Not Established	mg/l	Quarterly	Quarterly
Sodium	Not Established	Not Established	mg/l	Quarterly	Quarterly
Sulfate	Not Established	Not Established	mg/l	Quarterly	Quarterly

<sup>41</sup> AL = Alert Level

<sup>42</sup> AQL = Aquifer Quality Limit

<sup>43</sup> Total Nitrogen is equal to nitrate as N plus nitrite as N plus TKN.

<sup>44</sup> Not Established = Monitoring required but no limits have been specified at time of permit issuance.

<sup>45</sup> A positive result for total coliform may be verified with an analysis for fecal coliform. A positive result for fecal coliform shall be considered an exceedance of the AQL for total coliform.

<sup>46</sup> CFU = Colony Forming Units per 100 ml, MPN = Most Probable Number per 100 ml.

## 4.0 TABLE OF MONITORING REQUIREMENTS

**TABLE II**  
**ROUTINE GROUNDWATER MONITORING (Continued)**

Parameter	AL	AQL	Units	Sampling Frequency	Reporting Frequency
<b>Metals (Total):</b>					
Antimony	0.0048	0.006	mg/l	Quarterly	Quarterly
Arsenic	0.04	0.05	mg/l	Quarterly	Quarterly
Barium	1.60	2.00	mg/l	Quarterly	Quarterly
Beryllium	0.0032	0.004	mg/l	Quarterly	Quarterly
Cadmium	0.004	0.005	mg/l	Quarterly	Quarterly
Chromium	0.08	0.1	mg/l	Quarterly	Quarterly
Cyanide (As free cyanide)	0.16	0.2	mg/l	Quarterly	Quarterly
Fluoride	3.2	4.0	mg/l	Quarterly	Quarterly
Lead	0.04	0.05	mg/l	Quarterly	Quarterly
Mercury	0.0016	0.002	mg/l	Quarterly	Quarterly
Nickel	0.08	0.1	mg/l	Quarterly	Quarterly
Selenium	0.04	0.05	mg/l	Quarterly	Quarterly
Thallium	0.0016	0.002	mg/l	Quarterly	Quarterly

Parameter	AL	AQL	Units	Sampling Frequency	Reporting Frequency
<b>Volatile Organic Compounds (VOCs):</b>					
Benzene	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Carbon tetrachloride	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
o-Dichlorobenzene	0.48	0.6	mg/l	Semi-Annually	Semi-Annually
para-Dichlorobenzene	0.06	0.075	mg/l	Semi-Annually	Semi-Annually
1,2-Dichloroethane	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
1,1-Dichloroethylene	0.0056	0.007	mg/l	Semi-Annually	Semi-Annually
cis-1,2-Dichloroethylene	0.05	0.07	mg/l	Semi-Annually	Semi-Annually
trans-1,2-Dichloroethylene	0.08	0.1	mg/l	Semi-Annually	Semi-Annually
Dichloromethane	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
1,2-Dichloropropane	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Ethylbenzene	0.56	0.7	mg/l	Semi-Annually	Semi-Annually
Monochlorobenzene	0.08	0.1	mg/l	Semi-Annually	Semi-Annually
Styrene	0.08	0.1	mg/l	Semi-Annually	Semi-Annually
Tetrachloroethylene	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Toluene	0.8	1.0	mg/l	Semi-Annually	Semi-Annually
Trihalomethanes (total) <sup>47</sup>	0.08	0.1	mg/l	Semi-Annually	Semi-Annually
1,1,1-Trichloroethane	0.16	0.2	mg/l	Semi-Annually	Semi-Annually
1,2,4 - Trichlorobenzene	0.056	0.07	mg/l	Semi-Annually	Semi-Annually
1,1,2 - Trichloroethane	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Trichloroethylene	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Vinyl Chloride	0.0016	0.002	mg/l	Semi-Annually	Semi-Annually
Xylenes (Total)	8.0	10.0	mg/l	Semi-Annually	Semi-Annually

<sup>47</sup> Total Trihalomethanes comprises of Bromoform, Bromodichloromethane, Chloroform, and Dibromochloromethane.

4.0 TABLES OF MONITORING REQUIREMENTS

**TABLE III**  
**FACILITY INSPECTION**  
(Existing WWTP)

<b>Pollution Control Structures/Parameter</b>	<b>Performance Levels</b>	<b>Inspection Frequency</b>
Pump Integrity	Good Working Condition	Weekly
Free board in all lagoons	Minimum of three feet	Monthly
Treatment Plant Components	Good Working Condition	Weekly
Resident vegetation in wetlands	Healthy and preferred species predominating	Monthly

**TABLE IV**  
**FACILITY INSPECTION**  
(New WWTP)

<b>Pollution Control Structures/Parameter</b>	<b>Performance Levels</b>	<b>Inspection Frequency</b>
Pump Integrity	Good Working Condition	Weekly
Free board in all basins	Minimum of three feet	Monthly
Treatment Plant Components	Good Working Condition	Weekly

## 5.0 REFERENCES AND PERTINENT INFORMATION

The terms and conditions set forth in this permit have been developed based upon the information contained in the following, which are on file with the Department:

1. APP Application dated: August 31, 1996 (APP, signed on 9/4/98)  
September 27, 2001 (Sig. Amendment-1, signed on 6/12/02)  
February 19, 2004 (Minor Amendment)  
March 8, 2005 (Sig. Amendment-2)
2. Contingency Plan, dated: August 31, 1996 (APP)  
September 27, 2001 (Sig. Amendment-1)  
March 8, 2005 (Sig. Amendment-2)
3. Final Hydrologist Report dated: October 11, 2005 (Sig. Amendment-2)
4. Final Engineering Report dated: October 5, 2005 (Sig. Amendment-2)
5. Public Notice dated: July 2, 1998 (APP)  
March 1, 2002 (Sig. Amendment-1)  
November 2, 2005 (Sig. Amendment-2)
6. Re-Public Notice dated: November 14, 2005 (Sig. Amendment-2)
7. Public Hearing, dated: N/A
8. Responsiveness Summary, dated: N/A

## 6.0 NOTIFICATION PROVISIONS

### 6.1 Annual Registration Fees

The permittee is notified of the obligation to pay an Annual Registration Fee to ADEQ. The Annual Registration Fee is based upon the amount of daily influent or discharge of pollutants in gallons per day as established by A.R.S. § 49-242(D).

### 6.2 Duty to Comply [A.R.S. §§ 49-221 through 263]

The permittee is notified of the obligation to comply with all conditions of this permit and all applicable provisions of Title 49, Chapter 2, Articles 1, 2 and 3 of the Arizona Revised Statutes, Title 18, Chapter 9, Articles 1 through 4, and Title 18, Chapter 11, Article 4 of the Arizona Administrative Code. Any permit non-compliance constitutes a violation and is grounds for an enforcement action pursuant to Title 49, Chapter 2, Article 4 or permit amendment, suspension, or revocation.

### 6.3 Duty to Provide Information [A.R.S. §§ 49-243(K)(2) and 49-243(K)(8)]

The permittee shall furnish to the Director, or an authorized representative, within a time specified, any information which the Director may request to determine whether cause exists for amending or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

### 6.4 Compliance with Aquifer Water Quality Standards [A.R.S. §§ 49-243(B)(2) and 49-243(B)(3)]

The permittee shall not cause or contribute to a violation of an aquifer water quality standard at the applicable point of compliance for the facility. Where, at the time of issuance of the permit, an aquifer already exceeds an aquifer water quality standard for a pollutant, the permittee shall not discharge that pollutant so as to further degrade, at the applicable point of compliance for the facility, the water quality of any aquifer for that pollutant.

### 6.5 Technical and Financial Capability [A.R.S. §§ 49-243(K)(8) and 49-243(N) and A.A.C. R18-9-A202(B) and R18-9-A203(E) and (F)]

The permittee shall have and maintain the technical and financial capability necessary to fully carry out the terms and conditions of this permit. Any bond, insurance policy, trust fund, or other financial assurance mechanism provided as a demonstration of financial capability in the permit application, pursuant to A.A.C. R18-9-A203(D), shall be in effect prior to any discharge authorized by this permit and shall remain in effect for the duration of the permit.

### 6.6 Reporting of Bankruptcy or Environmental Enforcement [A.A.C. R18-9-A207(C)]

The permittee shall notify the Director within five days after the occurrence of any one of the following:

1. The filing of bankruptcy by the permittee.
2. The entry of any order or judgment not issued by the Director against the permittee for the enforcement of any environmental protection statute or rule.

**6.7 Monitoring and Records [A.R.S. § 49-243(K)(8) and A.A.C. R18-9-A206]**

The permittee shall conduct any monitoring activity necessary to assure compliance with this permit, with the applicable water quality standards established pursuant to A.R.S. §§ 49-221 and 49-223 and §§ 49-241 through 49-252.

**6.8 Inspection and Entry [A.R.S. §§ 49-203(B) and 49-243(K)(8)]**

In accordance with A.R.S. §§ 41-1009 and 49-203(B), the permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to enter and inspect the facility as reasonably necessary to ensure compliance with Title 49, Chapter 2, Article 3 of the Arizona Revised Statutes, and Title 18, Chapter 9, Articles 1 through 4 of the Arizona Administrative Code and the terms and conditions of this permit.

**6.9 Duty to Modify [A.R.S. § 49-243(K)(8) and A.A.C. R18-9-A211]**

The permittee shall apply for and receive a written amendment before deviating from any of the designs or operational practices authorized by this permit.

**6.10 Permit Action: Amendment, Transfer, Suspension & Revocation [A.R.S. §§ 49-201, 49-241 through 251, A.A.C. R18-9-A211, R18-9-A212 and R18-9-A213]**

This permit may be amended, transferred, renewed, or revoked for cause, under the rules of the Department.

The permittee shall notify the Water Permits Section in writing within 15 days after any change in the owner or operator of the facility. The notification shall state the permit number, the name of the facility, the date of property transfer, and the name, address, and phone number where the new owner or operator can be reached. The operator shall advise the new owner or operators of the terms of this permit and the need for permit transfer in accordance with the rules.

**7.0 ADDITIONAL PERMIT CONDITIONS**

**7.1 Other Information [A.R.S. § 49-243(K)(8)]**

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, the permittee shall promptly submit the correct facts or information.

**7.2 Severability [A.R.S. §§ 49-201, 49-241 through 251, A.A.C. R18-9-A211, R18-9-A212 and R18-9-A213]**

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby. The filing of a request by the permittee for a permit action does not stay or suspend the effectiveness of any existing permit condition.

**7.3 Permit Transfer**

This permit may not be transferred to any other person except after notice to and approval of the transfer by the Department. No transfer shall be approved until the applicant complies with all transfer requirements as specified in A.A.C. R18-9-A212(B) and (C).

# ATTACHMENT 6



Janet Napolitano  
Governor

# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

1110 West Washington Street • Phoenix, Arizona 85007  
(602) 771-2300 • www.azdeq.gov



Stephen A. Owens  
Director

July 12, 2006

Mr. Greg Brown  
Specific Engineering  
5230 East Shea Blvd., Suite 220  
Scottsdale, Arizona 85254

**Re: Johnson Utilities-Anthem at Merrill Ranch Water Reclamation Plant (WRP)  
Signed Permit - Aquifer Protection Permit (APP) # 105646, LTF # 36819**

Dear Mr. Brown:

Enclosed is a copy of the signed Aquifer Protection Permit Other Amendment, and the Executive Summary for the above referenced facility. The APP conditions shall apply from June 30, 2006 which is the date of the Water Quality Division Director's signature, and shall be valid for the life of the facility (operational, closure, and post-closure periods).

Thank you for your cooperation in protecting the water quality of the State of Arizona. If you have any questions about the permit or need further assistance, please contact me at (800) 234-5677 ext.771- 4683 or (602) 771-4683.

Sincerely,

  
Asif Majeed, Manager  
Wastewater, and APP Unit  
Groundwater Section, Water Quality Division

Enclosures (2): Permit & Executive Summary

cc: Henry Darwin, Acting Manager, Water Quality Compliance Section  
Matthew Hodge, Mgr., Water Quality Data Unit, ADEQ  
Robert Casey, Manager, Water Quality Enforcement Unit, ADEQ  
Lynne Dekarske, Administrative Assistant III, Groundwater Section, ADEQ  
Marcy Mullins, Wastewater, and APP Unit (letter only)  
Jean Black, Technical Support Unit (letter only)

MWWR06:0437

Northern Regional Office  
1515 East Cedar Avenue • Suite F • Flagstaff, AZ 86004  
(928) 779-0313

Southern Regional Office  
400 West Congress Street • Suite 433 • Tucson, AZ 85701  
(520) 628-6733



## Fact Sheet

Aquifer Protection Permit (APP)105646  
Place ID #91546, LTF # 36819  
Anthem at Merrill Ranch Water  
Reclamation Plant

The Arizona Department of Environmental Quality (ADEQ) proposes to issue an aquifer protection permit for the subject facility that covers the life of the facility, including operational, closure, and post closure periods unless suspended or revoked pursuant to Arizona Administrative Code (A.A.C.) R18-9-A213. This document gives pertinent information concerning the issuance of the permit. The requirements contained in this permit will allow the permittee to comply with the two key requirements of the Aquifer Protection Program: 1) meet Aquifer Water Quality Standards at the Point of Compliance; and 2) demonstrate Best Available Demonstrated Control Technology (BADCT). BADCT's purpose is to employ engineering controls, processes, operating methods or other alternatives, including site-specific characteristics (i.e., the local subsurface geology), to reduce discharge of pollutants to the greatest degree achievable before they reach the aquifer or to prevent pollutants from reaching the aquifer.

### I. FACILITY INFORMATION

#### Name and Location

Permittee's Name:	Johnson Utilities, LLC
Mailing Address:	Johnson Utilities, LLC 5230 E. Shea Blvd. Suite 200 Scottsdale, AZ 85254
Facility Name and Location:	Anthem at Merrill Ranch Water Reclamation Plant, 8465 W. Ocotillo Dr., Florence, AZ 85232, located ¼ mile west of the intersection of Della Road and Hunt Highway, in the Town of Florence, Pinal County

#### Regulatory Status

This is new facility. An APP application was received on June 21, 2005. Therefore there is no compliance history for this facility.

The development known as Anthem at Merrill Ranch was originally developed as Rancho Sendero in 2003. According to the WLB Group, Rancho Sendero was approved by Pinal County for development of a maximum of 4317 dwellings on approximately 1220 acres with 172 acres of public/open space. The facility was expanded and renamed Merrill Ranch in 2004 when Farley Farms was included in the development plan. Merrill Ranch is proposed to contain 6507 dwellings on 1677 acres supporting an estimated population of 14,304 and 209 acres of common areas

and schools. Farley Farms is proposed to contain 6182 dwellings on 1592 acres supporting an estimated population of 16,073 and 76 acres of common areas and schools.

### **Facility Description**

The Anthem at Merrill Ranch Water Reclamation Plant (WRP) has the capacity at completion to treat, and dispose a maximum average monthly flow of 3.0 million gallons per day (MGD) of wastewater. The WRP shall be constructed in two phases. Phase I will be constructed with a treatment capacity of 1.5 MGD, using two trains. The permittee is authorized to operate the first phase upon ADEQ receipt and approval of the Engineering Completion Report by the facility's Arizona Registered Engineer. Phase II will be constructed with two additional trains with a capacity of 1.5 MGD, which will increase the total treatment capacity to 3.0 MGD, in accordance with the Compliance Schedule listed in Section 3.0 of this permit. The permittee is authorized to operate both phases upon ADEQ receipt and approval of the Engineering Completion Report for Phase II prepared and sealed by the facility's Arizona Registered Engineer.

The WRP treatment process consists of an influent lift station, and the treatment for each of the four trains consist of headworks with barscreen, extended aeration with nitrification-denitrification, clarifiers, filters, and ultraviolet (UV) disinfection. All treatment trains deliver sludge to digesters, sludge dewatering belt filter press, and effluent to an effluent pump station. Chemical feed facilities are available to assist in maintaining the turbidity limits for reclaimed water. All the WRP units will be constructed of either reinforced concrete or steel. All odor and noise producing units which include the headworks, the extended aeration process, the blower room, and the sludge dewatering belt filter press will be enclosed inside a metal building with odor control scrubbers installed on all vents. The entire WRP will be surrounded by a combination of an eight-foot high concrete block wall and an 8-foot chain link fence.

Disposal of the effluent will be by reuse irrigation of the nearby golf course and the landscaped areas and trees within the Anthem development and any other reuse site as regulated under valid Reclaimed Water Reuse Permits and to recharge basins and/or vadose zone wells, located within the plant's fenced location. The sludge, including the screenings, grit, and scum, will be hauled off-site for disposal at a landfill.

All industrial hookups and other non-residential hookups to the treatment system shall be authorized according to the federal pretreatment program, or as otherwise approved by federal, state or local regulations. The WRP is designed and constructed according to plans approved by the ADEQ, APP & Reuse Unit.

In addition to the APP conditions pertaining to treatment and disposal of sewage sludge, the permittee must also comply with the requirements for any sewage sludge disposal in 40 Code of Federal Regulations (C.F.R) Part 503 and Title 18 A.A.C. Chapter 9, Article 10.

## II. BEST AVAILABLE DEMONSTRATED CONTROL TECHNOLOGY

The existing WRP process employs nitrification-denitrification to achieve an effluent total nitrogen level of 10 mg/l and UV disinfection to achieve an effluent fecal coliform level of 23/non-detect CFU/100ml. All the lagoons and wetland cells of the WRP, and the effluent storage lakes, located at the golf courses, are lined with liners that have a permeability of less than 550 gallons per day per acre.

The denitrified effluent will be disinfected by UV and filtered prior to disposal. The effluent will be reused on a nearby golf course and recharged by basins, and/or recharge wells. All the WRP units will be constructed of reinforced concrete. All treatment units upstream of the filters will be covered with concrete or aluminum covers and air scrubbers will be provided for odor control. All pumps, blowers, and electrical equipment will be housed within buildings for noise control. The entire WRP will be surrounded by a combination of an eight-foot high concrete block wall and an 8-foot chain link fence.

The WRP meets the 350-foot setback from the nearest adjacent property line, the minimum distance for a facility that has noise, odor, or aesthetic controls. In accordance with this permit, no development of residential lots is allowed within the 350-foot setback boundary.

The ultimate disposal options will be determined based on site specific soil data and infiltration rate data. This information will be used to determine the number and size of recharge basins and injection wells that will be needed for disposal of the effluent. Based on the site geology four acres recharge basins totaling 14.85 acres and 7 vadose and/or direct injection wells may be needed to infiltrate all effluent into the subsurface. Two basins will be constructed immediately with the additional two basins, vadose zone wells or injection wells constructed, as needed, in the future. Site specific data for soil type will be collected and optimum infiltration rates will be determined during the first year of operation of the recharge basins.

## III. COMPLIANCE WITH AQUIFER WATER QUALITY STANDARDS

### Monitoring and Reporting Requirements

The Anthem at Merrill Ranch WWRP is located within the Basin and Range Physiographic Province, which formed as a result of extensional tectonics ~15 million years ago. The site is located in the northern portion of a north-trending alluvial basin designated as the Eloy sub-basin of the Pinal Active Management Area (AMA) within the Middle Gila Watershed.

The Eloy sub-basin is divided into the three units called the Upper Alluvial Unit, the Middle Silt and Clay Unit and the Lower Conglomerate Unit. Groundwater is present in two aquifers within the basin that may be connected. The Upper Aquifer is located primarily within the Upper Alluvial Unit, may be partially confined, is generally

flowing northeast, and has a depth to groundwater of ~145 feet below the ground surface with groundwater first detected at about 170 feet. Infiltration and recharge of rainwater and river water after very wet winter conditions such as that which occurred in 1983 and 1993 can cause groundwater levels in the area to rise abruptly (less than one year) up to 100 feet and to gradually decline to pre-flood conditions. The groundwater flow direction north of the river may flow predominantly northeast. However, during a prolonged drought, groundwater may be flowing southwest. Groundwater in the Lower Alluvial Unit may be present under confined or unconfined conditions. Near the facility, it appears that the groundwater in the Lower Aquifer may be confined because groundwater was first detected at about 240 feet yet the potentiometric surface is ~145 feet and groundwater is generally flowing northeast.

The site is located in or near a known area of subsidence according to Figure 3: Land subsidence and Fissures from Pinal County. There are no known fissures in the area; however, the data is over 10 years old.

To ensure that the site operations do not impact either the surface water or the groundwater, quarterly discharge and groundwater monitoring will be required for total nitrogen, metals, and VOCs, as described in the permit. The facility will be required to meet the aquifer water quality standards (AWQS) in the discharge and in the groundwater. Therefore, the facility is not likely to exceed AWQS at the point of compliance (POC).

The permit requires the permittee to inspect the WRP site for signs of on-site fissures on a monthly basis. Visual inspections must be performed by personnel trained in identification of surficial features of earth fissures. Inspections must be made of the buffer zone surrounding the wastewater recharge site to a distance of 300 feet from the recharge site, where practicable. If surficial features that could indicate the presence of earth fissures are observed, the observations will be confirmed by a third party professional engineer or geologist. If the third party inspection confirms the possibility that the surficial features indicate a fissure, the features will be documented with sketches, maps and photographs as appropriate, indicating the nature of the feature, dimensions, and orientation. Documentation will also include any incremental changes in a feature previously documented. Contingency language in the permit requires that all this information be submitted in a report to the ADEQ, within 60 days of the confirmation of the presence of fissures. The report must consist of observations and interpretations and potential endangerment of pollutant contamination to the environment and public health.

If the alert level (AL) for average monthly flow in Section 4.0, Table IA or IB is exceeded, the permittee shall submit an application for an APP amendment within 90 day of such an exceedance to expand the WRP.

**Point(s) of Compliance (P.O.C)**

Two hazardous/ non-hazardous points of compliance have been designated for this facility as identified below:

P.O.C #	P.O.C. Locations	Latitude	Longitude
1	~50 feet north of the northeast corner of the NE Recharge Basin	33°03'10.786" N	111°29'15.924" W
2	~50 feet south of the southeast corner of the SE Recharge Basin	33°02'59.819" N	111°29'15.982" W

Two monitor wells are proposed to be installed to monitor the impacts of recharge. The well design will be determined as per the compliance schedule in Section 3.0

The Director may designate addition points of compliance if information on groundwater gradients or groundwater usage indicates the need.

**MONITORING REQUIREMENTS**

Effluent and groundwater monitoring are required for this facility. Effluent and groundwater are recommended to be monitored as follows

Sampling Point #	Facility/Monitoring Point	Descriptive Location	Latitude	Longitude
1	Effluent Lift Station/ Effluent discharge monitoring point	~100 feet east of center of WRP site	33°03'05" N	111°29'19"W
2	POC #1	~50 feet north of the northeast corner of the of the NE Recharge Basin	33°03'11" N	111°29'16" W
3	POC #2	~50 feet south of the southeast corner of the of the NE Recharge Basin	33°02'59" N	111°29'16" W

Parameter	Effluent	Ambient Groundwater	Routine Groundwater
Flow: daily to reuse and recharge, and total monthly to reuse and recharge, and total discharge flow from the WRP	Daily	Not applicable	Not applicable
bacteria: fecal and total coliform	Daily	Not Applicable	Monthly
nutrients: nitrate, nitrite, TKN	Monthly	Monthly for 8 months	Monthly

Parameter	Effluent	Ambient Groundwater	Routine Groundwater
depth to groundwater	Not applicable	Monthly for 8 months	Monthly
inorganic chemicals: metals, cyanide, fluoride as listed in A.A.C R18-9-11-406.B	Semi-annually	Not applicable	Semi-annually
VOCs and semi-VOCs per A.A.C R-18-11-406.C	Semi-annually	Not applicable	Semi-annually

Discharge limits are set equivalent to the applicable AWQS. ALs are set at 80% of the discharge limits for all water quality constituents unless indicated otherwise. Ambient groundwater quality data will be collected monthly from the two new monitor wells in order to determine existing groundwater quality because data from the public water supply wells indicates the potential for exceedances of the AWQS for nitrates in the uppermost aquifer. The limits in Table II have been set as reserved for total nitrogen, and nitrates to allow for the collection of ambient data. After collection of the ambient data, Aquifer Quality Limit (AQLs) and ALs will be set for all total nitrogen and nitrates.

#### IV. STORM WATER AND SURFACE WATER CONSIDERATIONS

Storm water / surface water considerations considered included whether the facility was located within the 100-year flood plain and whether the discharge had the potential to impact adjacent surface water drainages located downgradient of the WRP and recharge facility.

The facility is located in the Paisano Wash - Middle Gila River (HUC-10) sub-basin within the Middle Gila River Surface Water Basin. The nearest surface water features include an unnamed ephemeral wash trending north to south located ~0.5 miles east of the WRP; the North Side Canal which flows from northeast to southwest located ~1.0 mile south of the WRP; and the ephemeral Gila River, trending northeast to southwest located ~2.5 miles south of the WRP. The ephemeral wash and the North Side Canal drain into the Gila River.

The facility is not located in a 100-year flood plain and will be protected from run-on during storm events.

Monitoring of nearby drainages was not included as a permit condition because the facility does not directly discharge to any surface water.

#### V. COMPLIANCE SCHEDULE

The following compliance schedule is provided for the construction of groundwater wells, ambient monitoring and construction of recharge basins and recharge contingency wells.

Compliance Item		Schedule
<b>Monitor Well</b>		
1	Drill borings for the POC well.	Within 30 days of the date of permit issuance
2	Using the geophysical data, determine appropriate well design. Submit proposed design to ADEQ for approval prior to completing the wells.	Within 30 days of drilling the borings.
3	Install monitor well at both POCs	Within 30 days of receiving ADEQ approval
4	Submit monitoring well construction completion documentation including well driller's log, construction materials used, and actual latitude and longitude of the completed well.	Within 30-days after well completion
5	Collect ambient groundwater quality data from POC wells.	Monthly for 8 months minimum.
6	Submit ambient groundwater quality data for nitrates and total nitrogen as required by Section 4.0, Table II, and a report, upon completion of all ambient sampling, showing the results of the monitoring. Submit an application for an Other APP Amendment with proposals for the groundwater permit monitoring requirements. This report must propose ALs and AQLs for nitrates and total nitrogen in Table II, and provide calculations and statistical methods used to develop the ALs and AQLs.	Within 90 days of last monthly ambient sample collection and no later than 13 months after permit issuance.
<b>Recharge Basins</b>		
7	Construct two recharge basins for effluent recharge.	Prior to operation of the WRP.
8	Complete testing to determine optimum infiltration and drying schedules.	Within one year of initial use of basins or when 1 year of recharge data can be obtained.
9	Submit report documenting testing for optimum infiltration and drying schedules. This report may propose construction of additional recharge basins or alternative disposal methods.	Within 60 days of obtaining the recharge data
10	If required, construct two additional recharge basins or implement contingency recharge well requirement below.	Based on design parameters or to be determined based on testing – Notify ADEQ 90 days before construction, the number of basins or recharge wells to be constructed.
<b>Contingency Recharge Wells or Direct Injection Wells</b>		
11	If required propose recharge well design	Within 30 days of determining the need for recharge wells
12	Upon ADEQ approval, construct one recharge well and perform a test for determining recharge rates.	Within 30 days of construction
13	Submit the well completion report, including a determination if additional wells are needed	Within 90 days from the end of the 30-day start-up test, identifying how many and type of wells to be constructed
14	Construct up to six additional wells and submit well completion reports	When actual flows exceed 80% of the existing recharge capacity or earlier if desired.
<b>WRP</b>		
15	Construct Phase I WRP	Start within of one year of permit issuance
16	Submit Arizona Registered Engineer's Certification of Construction for Phase I and obtain ADEQ approval before putting this phase into full operation.	Within 60 days after completion of construction and prior operation of phase I.
17	Notify ADEQ, Water Permits Section of intent to construct Phase II of the WRP (Expand to 3.0 MGD design treatment flow).	At least 90 days prior to start of construction
18	Construct Phase II WRP	When daily WRP effluent flows reach 1.125 MGD.
19	Submit Arizona Registered Engineer's Certification of Construction for Phase II and obtain ADEQ approval before putting this phase into full operation.	Within 60 days after completion of construction and prior operation of phase II.
20	When the facility is completely constructed, some of the tables relevant to Phase I may no longer be needed. The facility may request an "other" amendment to delete the non-relevant Phase I monitoring tables in section 4.0, or other parts of this permit, that are no longer applicable.	Upon completion of all phases and ADEQ approval prior to operation.

## **VI. OTHER REQUIREMENTS FOR ISSUING THIS PERMIT**

### **Technical Capability**

Johnson Utilities, L.L.C. has demonstrated the technical competence necessary to carry out the terms and conditions of the permit in accordance with A.R.S. § 49-243(N) and A.A.C. R18-9-A202(B).

The WRP will be designed as per the design report prepared and stamped, dated, and signed (sealed) by Gregory H. Brown, P.E. (Professional Engineer), Specific Engineering, Inc., dated June 17, 2005, and subsequent sealed submittals that served as additions to the design report.

ADEQ requires that appropriate documents be sealed by an Arizona registered geologist or professional engineer. This requirement is a part of an on-going demonstration of technical capability. The permittee is expected to maintain technical capability throughout the life of the facility. A certified operator will be retained for the operation and maintenance of the WRP.

### **Financial Capability**

Johnson Utilities L.L.C. has demonstrated the financial responsibility necessary to carry out the terms and conditions of the permit in accordance with A.R.S. § 49-243(N) and A.A.C. R18-9-A203. The permittee is expected to maintain financial capability throughout the life of the facility.

The permittee provided a statement outlining the costs of construction, operation, closure and post-closure costs. The permittee submitted a closure cost estimate of \$119,500.00, and furnished a letter of credit from a financial institution as per R18-9-A203 (C)(5) to demonstrate financial capability.

### **Zoning Requirements**

The Anthem Merrill WRP has been properly zoned for the permitted use and the permittee has complied with all Town of Florence zoning ordinances in accordance with A.R.S. § 49-243(O) and A.A.C. R18-9-A201(A)(2)(c).

## **VII. ADMINISTRATIVE INFORMATION**

### **Public Notice (A.A.C. R18-9-108(A))**

The public notice is the vehicle for informing all interested parties and members of the general public of the contents of a draft permit or other significant action with respect to a permit or application. The basic intent of this requirement is to ensure that all interested parties have an opportunity to comment on significant actions of the permitting agency with respect to a permit application or permit. This permit will be

public noticed in a local newspaper after a pre-notice review by the applicant and other affected agencies.

**Public Comment Period (A.A.C. R18-9-109(A))**

The aquifer protection program rules require that permits be public noticed in a newspaper of general circulation within the area affected by the facility or activity and provide a minimum of 30 calendar days for interested parties to respond in writing to ADEQ. After the closing of the public comment period, ADEQ is required to respond to all significant comments at the time a final permit decision is reached or at the same time a final permit is actually issued.

**Public Hearing (A.A.C R18-9-109(B))**

A public hearing may be requested in writing by any interested party. The request should state the nature of the issues proposed to be raised during the hearing. A public hearing will be held if the Director determines there is a significant amount of interest expressed during the 30-day public comment period, or if significant new issues arise that were not considered during the permitting process.

**VIII. ADDITIONAL INFORMATION**

Additional information relating to this proposed permit may be obtained from:

Arizona Department of Environmental Quality  
Water Quality Division – APP & Reuse Unit  
Attn: Asif Majeed  
1110 W. Washington St., Mail Code 5415B-3  
Phoenix, Arizona 85007  
Phone: (602) 771-4683

**STATE OF ARIZONA**  
**AQUIFER PROTECTION PERMIT NO. P-105646**  
**PLACE ID 91546, LTF 36819**

**1.0 AUTHORIZATION**

In compliance with the provisions of Arizona Revised Statutes (A.R.S.) Title 49, Chapter 2, Articles 1, 2 and 3, Arizona Administrative Code (A.A.C.) Title 18, Chapter 9, Articles 1 and 2, A. A. C. Title 18, Chapter 11, Article 4 and amendments thereto, and the conditions set forth in this permit, Johnson Utilities, L.L.C. is hereby authorized to operate the Anthem at Merrill Ranch Water Reclamation Plant located at 8465 W. Ocotillo Dr., Florence, AZ 85232, ¼ mile west of the intersection of Della Road and Hunt Highway over the groundwater of the Eloy Sub-basin within the Pinal Active Management Area (AMA) in Township 4 S, Range 8 E, Section 25, SW 1/4, NW, of the Gila and Salt River Base Line and Meridian.

This permit becomes effective on the date of the Water Quality Division Director's signature and shall be valid for the life of the facility (operational, closure, and post-closure periods), unless suspended or revoked pursuant to A.A.C. R18-9-A213. The permittee shall construct, operate and maintain the permitted facilities:

1. Following all the conditions of this permit including the design and operational information documented or referenced below, and
2. Such that Aquifer Water Quality Standards (AWQS) are not violated at the applicable point(s) of compliance (POC) set forth below, or if an AWQS for a pollutant has been exceeded in an aquifer at the time of permit issuance, that no additional degradation of the aquifer relative to that pollutant, and as determined at the applicable POC, occurs as a result of the discharge from the facility.

**1.1 PERMITTEE INFORMATION**

**Facility Name:** Anthem at Merrill Ranch Water Reclamation Plant (WRP)

<b>Permittee:</b> Johnson Utilities, L.L.C. (480) 998-3300	<b>Mailing Address:</b> Johnson Utilities, L.L.C. 5230 E. Shea Blvd. #200 Phoenix, AZ 85254	<b>Facility's Street Address:</b> 8465 W. Ocotillo Dr., Florence, AZ 85232. Located ¼ west of the intersection of Della Road and Hunt Highway in the Town of Florence, Pinal County.
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**Facility Contact:** Gary Larsen , Johnson Utilities, L.L.C., Tel: (480) 987-9870

**Emergency Telephone Number:** (480) 797-2660

**Latitude:** 33° 03' 04.788" N

**Longitude:** 111° 29' 20.424" W

**Legal Description:** Township 4 S, Range 8 E, Section 25, SW ¼

**1.2 AUTHORIZING SIGNATURE**

  
\_\_\_\_\_  
Joan Card, Director  
Water Quality Division  
Arizona Department of Environmental Quality

Signed this 20<sup>th</sup> day of June, 2006

2.0 SPECIFIC CONDITIONS

[A.R.S. §§ 49-203(4), 49-241(A)]

2.1 Facility / Site Description [A.R.S. § 49-243(K)(8)]

The Anthem at Merrill Ranch Water Reclamation Plant (WRP) has the capacity at completion to treat, and dispose a maximum average monthly flow of 3.0 million gallons per day (MGD) of wastewater. The WRP shall be constructed in two phases. Phase I will be constructed with a treatment capacity of 1.5 MGD, using two trains. The permittee shall be authorized to operate the first phase upon ADEQ receipt and approval of the Engineering Completion Report by the facility's Arizona Registered Engineer. Phase II shall be constructed with two additional trains with a capacity of 1.5 MGD, which will increase the total treatment capacity to 3.0 MGD, in accordance with the Compliance Schedule listed in Section 3.0 of this permit. The permittee shall be authorized to operate both phases upon ADEQ receipt and approval of the Engineering Completion Report for Phase II by the facility's Arizona Registered Engineer.

The WRP treatment process shall consist of an influent lift station, and the treatment for each of the four trains shall consist of a headworks with barscreen, extended aeration with nitrification-denitrification, clarifiers, filters, and ultraviolet (UV) disinfection. All treatment trains shall deliver sludge to digesters, sludge dewatering belt filter press, and effluent to an effluent pump station. Chemical feed facilities shall be available to assist in maintaining the turbidity limits for reclaimed water. All the WRP units shall be constructed of either reinforced concrete or steel. All odor and noise producing units which include the headworks, the extended aeration process, the blower room, and the sludge dewatering belt filter press shall be enclosed inside a metal building with odor control scrubbers installed on all vents. The entire WRP will be surrounded by a combination of an eight-foot high concrete block wall and an 8-foot chain link fence.

Disposal of the effluent shall be by reuse irrigation on the nearby golf course and the landscaped areas and trees within the Anthem development and any other reuse site as regulated under valid Reclaimed Water Reuse Permits and to recharge basins and/or vadose zone wells, located within the plant's fenced location, and constructed as per the compliance schedule in Section 3.0 of the permit. The sludge, including the screenings, grit, and scum, shall be hauled off-site for disposal at a landfill.

All industrial hookups and other non-residential hookups to the treatment system shall be authorized according to the federal pretreatment program, or as otherwise approved by federal, state or local regulations.

The site includes the following permitted discharging facilities:

Facility	Latitude	Longitude
Water Reclamation Plant	33° 03' 04.79" N	111° 29' 20.42" W
NW Recharge Basin	33° 03' 07.71" N	111° 29' 23.81" W
SW Recharge Basin	33° 03' 01.68" N	111° 29' 23.81" W
NE Recharge Basin	33° 03' 09.07" N	111° 29' 18.30" W
SE Recharge Basin	33° 03' 07.77" N	111° 29' 17.87" W
Recharge Well # 1	33° 03' 09.63" N	111° 29' 25.52" W
Recharge Well # 2	33° 03' 06.63" N	111° 29' 25.49" W
Recharge Well # 3	33° 03' 6.73" N	111° 29' 25.50" W
Recharge Well # 4	33° 03' 00.74" N	111° 29' 25.50" W
Recharge Well # 5	33° 03' 59.00" N	111° 29' 25.41" W
Recharge Well # 6	33° 02' 58.98" N	111° 29' 22.35" W
Recharge Well # 7	33° 02' 58.95" N	111° 29' 19.02" W

**Annual Registration Fee [A.R.S. § 49-242(D)]**

The Annual Registration Fee for this permit is established by A.R.S. § 49-242(E) and is payable to ADEQ each year. The design flow is 3.0 MGD.

**Financial Capability [A.R.S. § 49-243(N) and A.A.C. R18-9-A203 ]**

The permittee has demonstrated financial capability under A.R.S. § 49-243(N) and A.A.C. R18-9-A203. The permittee shall maintain financial capability throughout the life of the facility. The estimated dollar amount is \$119,500 for closure and post-closure and was demonstrated by the providing a letter of credit, as per A.A.C. R18-9-A203(C)(5).

**2.2 Best Available Demonstrated Control Technology  
[A.R.S. § 49-243(B) and A.A.C. R18-9-A202(A)(5)]**

The WRP shall be designed, constructed, operated and maintained to meet the treatment performance criteria for new facilities as specified in Arizona Administrative Code R18-9-B204.

The facility shall meet the requirements for the pretreatment by conducting monitoring as per A.A.C. R18-9-B204(A)(6)(b)(i).

All the treatment units shall be constructed from steel or reinforced concrete to maintain a maximum seepage rate less than 550 gpd per acre.

All industrial hookups and other non-residential hookups to the treatment system shall be authorized according to the applicable federal, state or local regulations.

The WRP shall meet the 350-foot setback from the nearest adjacent property line, the minimum distance for a facility that has noise, odor, or aesthetic controls. In accordance with this permit, no development of residential lots shall take place within the 350-foot setback boundary.

All treatment units upstream of the filters shall be covered with concrete or aluminum covers and air scrubbers will be provided for odor control. All pumps, blowers, and electrical equipment shall be housed within buildings for noise control. The entire WRP will be surrounded by a combination of an eight-foot high concrete block wall and an 8-foot chain link fence.

**2.2.1 Engineering Design**

The Anthem at Merrill Ranch WRP shall be designed as per the design report prepared by Gregory H. Brown, P.E., dated June 17, 2005. The facility shall be constructed, operated and maintained in accordance with this design report.

**2.2.2 Site-specific Characteristics**

Site specific characteristics were not used to determine BADCT for the WRP. The size, number, and proposed operation of the recharge basins/injection wells/vadose zone wells will use site specific data for soil type and infiltration rates as part of the demonstration. Based on the site geology, approximately four acres of recharge basins totaling 14.85 acres and 7 vadose and/or direct injection wells may be needed to infiltrate all effluent into the subsurface. Two basins will be constructed immediately with the additional two basins, vadose zone wells or injection wells constructed, as needed, in the future. Site specific data for soil type will be collected and optimum infiltration rates will be determined during the first year of operation of the recharge basins.

**2.2.3 Pre-Operational Requirements**

The permittee shall submit a signed, dated, and sealed Engineer's Certificate of Completion in a format approved by the Department per the Compliance Schedule in Section 3.0.

**2.2.4 Operational Requirements**

1. The permittee shall maintain a copy of the O & M manual at the WRP site at all times and shall be available upon request during inspections by ADEQ personnel.
2. The pollution control structures shall be inspected for the items listed in Section 4.0, TABLE III – Facility Inspection (Operational Monitoring).
3. If any damage of the pollution control structures is identified during inspection, proper repair procedures shall be performed. All repair procedures and material(s) used shall be documented on the Self-Monitoring Report Form submitted quarterly to the ADEQ Water Quality Compliance Section.

**2.2.5 Water Reclamation Plant Classification**

[A.A.C. R18-9-703(C)(2)(a), A.A.C. R18-11-303 THROUGH 307]

The WRP produces reclaimed water meeting Class A+ Reclaimed Water Quality Standards (A.A.C. R18-11, article 3) and may be delivered for beneficial use under a valid reclaimed water permit under A.A.C. R18-9 Article 7.

**2.3 Discharge Limitations [A.R.S. §§ 49-201(14), 49-243 and A.A.C. R18-9-A205(B)]**

1. The permittee is authorized to operate the WRP with a maximum average monthly flow of 1.5 MGD upon ADEQ approval of the engineer's certificate of completion. Upon ADEQ approval of the engineer's certificate of completion for Phase II, the permittee is authorized to operate the WRP with a maximum average monthly flow of 3.0 MGD.
2. The permittee shall notify all users that the materials authorized to be disposed through the Water Reclamation Plant are typical household sewage and shall not include motor oil, gasoline, paints, varnishes, hazardous wastes, solvents, pesticides, fertilizers or other materials not generally associated with toilet flushing, food preparation, laundry facilities and personal hygiene.
3. The permittee shall operate and maintain all permitted facilities to prevent unauthorized discharges pursuant to A.R.S. § 49-201(12) resulting from failure or bypassing of BADCT pollutant control technologies including liner failure<sup>1</sup>, uncontrollable leakage, overtopping (e.g., exceeding the maximum storage capacity, defined as a fluid level exceeding the crest elevation of a permitted impoundment), of basins, lagoons, impoundments or sludge drying beds, berm breaches, accidental spills, or other unauthorized discharges.
4. Specific discharge limitations are listed in Section 4.0, Tables IA, IB and IC.

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<sup>1</sup>Liner failure in a single-lined impoundment is any condition that would result in leakage exceeding 550 gallons per day per acre.

**2.4 Point(s) of Compliance (P.O.C.) [A.R.S. § 49-244]**

The Point of Compliance wells for the WRP shall be constructed in accordance with the compliance schedule in Section 3.0 of this permit, within 60 days of the issuance of this permit at the following monitoring location:

P.O.C. Locations	Latitude	Longitude
POC # 1: NE Corner of Plant (hazardous/non-hazardous)	33° 03' 10.786" N	111° 29' 15.924" W
POC # 2: SE Corner of Plant (hazardous/non-hazardous)	33° 02' 58.819" N	111° 29' 15.982" W

Groundwater monitoring shall be initiated at the POC well in accordance with the Compliance Schedule, Section 3.0, of this permit within 30 days of completion of the construction of these wells. Additional groundwater monitoring wells and POCs may be required as the volumes of recharge increase through the phases of this permit and the groundwater mounds created by those recharge volumes increase.

The Director may amend this permit to designate additional points of compliance if information on groundwater gradients or groundwater usage indicates the need.

**2.5 Monitoring Requirements [A.R.S. § 49-243(K)(1), A.A.C. R18-9-A206(A)]**

All monitoring required in this permit shall continue for the duration of the permit, regardless of the status of the facility. All sampling, preservation and holding times shall be in accordance with currently accepted standards of professional practice. Trip blanks, equipment blanks and duplicate samples shall also be obtained, and chain of custody procedures shall be followed, in accordance with currently accepted standards of professional practice. The permittee shall consult the most recent version of the ADEQ Quality Assurance Project Plan (QAPP) and EPA 40 CFR PART 136 for guidance in this regard. Copies of laboratory analyses and chain of custody forms shall be maintained at the permitted facility. Upon request these documents shall be made immediately available for review by ADEQ personnel.

**2.5.1 Discharge Monitoring**

The permittee shall monitor the wastewater according to Section 4.0, TABLE IA, IB and IC. A representative sample of the treated wastewater shall be collected at the effluent pump station.

**2.5.1.1 Reclaimed Water Monitoring**

The permittee shall monitor the parameters listed under Table IC in addition to the routine discharge monitoring parameters listed in Table IA and IB.

**2.5.2 Facility / Operational Monitoring**

Operational monitoring inspections shall be conducted according to Section 4.0, TABLE III

- a. If any damage of the pollution control structures is identified during inspection, proper repair procedures shall be performed. All repair procedures and materials used shall be documented on the Self-Monitoring Report Form (SMRF) submitted quarterly to the ADEQ Water Quality Compliance. If none of the conditions occur, the report shall say "no event" for a particular reporting period. If the facility is not in operation, the permittee shall indicate that fact in the SMRF.

- b. The permittee shall submit data required in Section 4.0, TABLE III regardless of the operating status of the facility unless otherwise approved by the Department or allowed in this permit.

### **2.5.3 Groundwater Monitoring and Sampling Protocols**

Groundwater monitoring shall be conducted as per Section 4.0, Table II. The facility shall submit eight months of sampling data for total nitrogen and nitrates. After the data is received and reviewed by ADEQ, the AQLs and ALs will be established for these constituents.

### **2.5.4 Surface Water Monitoring and Sampling Protocols**

Routine surface water monitoring is not required under the terms of this permit.

### **2.5.5 Analytical Methodology**

All samples collected for compliance monitoring shall be analyzed using Arizona state approved methods. If no state approved method exists, then any appropriate EPA approved method shall be used. Regardless of the method used, the detection limits must be sufficient to determine compliance with the regulatory limits of the parameters specified in this permit. Analyses shall be performed by a laboratory licensed by the Arizona Department of Health Services, Office of Laboratory Licensure and Certification. For results to be considered valid, all analytical work shall meet quality control standards specified in the approved methods. A list of Arizona state certified laboratories can be obtained at the address below:

Arizona Department of Health Services  
Office of Laboratory Licensure and Certification  
250 North 17th Avenue  
Phoenix, AZ 85007  
Phone: (602) 364-0720

### **2.5.6 Installation and Maintenance of Monitoring Equipment**

Monitoring equipment required by this permit shall be installed and maintained so that representative samples required by the permit can be collected. If new groundwater wells are determined to be necessary, the construction details shall be submitted to the ADEQ Groundwater Section for approval prior to installation and the permit shall be amended to include any new monitoring points.

## **2.6 Contingency Plan Requirements**

[A.R.S. § 49-243(K)(3), (K)(7) and A.A.C. R18-9-A204 and R18-9-A205]

### **2.6.1 General Contingency Plan Requirements**

At least one copy of the approved contingency and emergency response plan submitted in the application shall be maintained at the location where day-to-day decisions regarding the operation of the facility are made. The permittee shall be aware of and follow the contingency and emergency plans.

Any alert level (AL) that is exceeded or any violation of an aquifer quality limit (AQL), discharge limit (DL), or other permit condition shall be reported to ADEQ following the reporting requirements in Section 2.7.3.

Some contingency actions involve verification sampling. Verification sampling shall consist of the first follow-up sample collected from a location that previously indicated a violation or the exceedance of an AL. Collection and analysis of the verification sample shall use the same protocols and test methods to analyze for the pollutant or pollutants that exceeded an AL or violated an AQL or DL. The permittee is subject to enforcement action for the failure to comply with any contingency actions in this permit. Where verification sampling is specified in this permit, it is the option of the permittee to perform such sampling. If verification sampling is not conducted within the timeframe allotted, ADEQ and the permittee shall presume the initial sampling result to be confirmed as if verification sampling has been conducted. The permittee is responsible for compliance with contingency plans relating to the exceedance of an AL or violation of a DL, AQL or any other permit condition.

#### **2.6.1.1. Specific Contingencies (Fissures)**

The permittee shall inspect the facility for fissures that may impact the treatment and disposal processes on a monthly basis. Visual inspections shall be performed by personnel trained in identification of surficial features of earth fissures. Inspections shall be made of the buffer zone surrounding the wastewater recharge site to a distance of 300 feet from the recharge site, where practicable. If the surficial features that could indicate the presence of earth fissures are observed, the observations shall be confirmed by a third party professional engineer or geologist. If the third party inspection confirms the possibility that the surficial features indicate an active fissure, the features will be documented with sketches, maps and photographs as appropriate, indicating the nature of the feature, dimensions, and orientation. Documentation will also include any incremental changes in a feature previously documented. All this information shall be submitted in a report to the ADEQ, within 60 days of the confirmation of the presence of fissures. The report shall consist of observations and interpretations and potential endangerment of pollutant contamination to the environment and public health.

#### **2.6.2 Exceeding of Alert Levels/Performance Levels**

##### **2.6.2.1 Exceeding of Performance Levels (PL) Set for Operational Conditions**

1. If the operational PL set in Section 4.0, Table III has been exceeded the permittee shall:
  - a. Notify the ADEQ Water Quality Compliance Section within five (5) days of becoming aware of an exceedance of any permit condition in Table III.
  - b. Submit a written report within thirty (30) days after becoming aware of an exceedance of a permit condition. The report shall document all of the following:
    1. a description of the exceedance and its cause;
    2. the period of the exceedance, including exact date(s) and time(s), if known, and the anticipated time period during which the exceedance is expected to continue;
    3. any action taken or planned to mitigate the effects or the exceedance, or the spill, or to eliminate or prevent recurrence of the exceedance;

4. any monitoring activity or other information which indicates that any pollutants would be reasonably expected to cause a violation of an Aquifer Water Quality Standard; and
  5. any malfunction or failure of pollution control devices or other equipment or process.
2. The facility is no longer on alert status once the operational indicator no longer indicates that PL is being exceeded. The permittee shall, however, complete all tasks necessary to return the facility to its pre-alert operating condition.

#### **2.6.2.2 Exceeding of Alert Levels Set for Discharge Monitoring**

1. If an AL set in Section 4.0, TABLES IA or IB has been exceeded, the permittee shall immediately investigate to determine the cause of the AL being exceeded. The investigation shall include the following:
  - a. Inspection, testing, and assessment of the current condition of all treatment or pollutant discharge control systems that may have contributed to the AL being exceeded;
  - b. Review of recent process logs, reports, and other operational control information to identify any unusual occurrences;
  - c. Pretreatment source control for industrial pollutants.
2. The permittee shall initiate actions identified in the approved contingency plan referenced in Section 5.0 and specific contingency measures identified in Section 2.6 to resolve any problems identified by the investigation which may have led to an AL being exceeded. To implement any other corrective action the permittee shall obtain prior approval from ADEQ according to Section 2.6.6.
3. Within thirty (30) days of an AL being exceeded, the permittee shall submit the laboratory results to the ADEQ Water Quality Compliance Section, Enforcement Unit, along with a summary of the findings of the investigation, the cause of the AL being exceeded, and actions taken to resolve the problem.
4. Upon review of the submitted report, the Department may amend the permit to require additional monitoring, increased frequency of monitoring, amendments to permit conditions or other actions.
5. If the depth to groundwater in any of the wells listed in Section 4.0, Table II, reaches the AL of 50 feet below ground surface, the permittee shall immediately cease recharge and dispose the effluent using an alternative method. The permittee shall submit a report indicating the date of exceedance and the measures taken to remedy the water level rise, and specifying the method of alternative disposal. This report shall be submitted within five days of such exceedance

##### **2.6.2.2.1 Exceeding Permit Flow Limit**

1. If the AL for average monthly flow in Section 4.0, Table I is exceeded, the permittee shall submit an application for an APP amendment within 90 days of such exceedance to expand the WRF

or submit a report detailing the reasons that the expansion is not necessary.

2. Acceptance of the report instead of an application for expansion requires ADEQ approval.

### **2.6.2.3 Exceeding of Alert Levels in Groundwater Monitoring**

#### **2.6.2.3.1 Alert Levels for Indicator Parameters**

Not required at time of permit issuance.

#### **2.6.2.3.2 Alert Levels for Pollutants with Numeric Aquifer Water Quality Standards**

1. If an AL for a pollutant set in Section 4.0, Table II has been exceeded, the permittee may conduct verification sampling within 5 days of becoming aware of an AL being exceeded. The permittee may use results of another sample taken between the date of the last sampling event and the date of receiving the result as verification.
2. If verification sampling confirms the AL being exceeded or if the permittee opts not to perform verification sampling, then the permittee shall increase the frequency of monitoring to Daily', 'Weekly', and 'Monthly' for constituents that have a permit monitoring frequency of 'Weekly', 'Monthly', and 'Quarterly', 'Semi-Annual' or 'Annual' respectively. In addition, the permittee shall immediately initiate an investigation of the cause of the AL being exceeded, including inspection of all discharging units and all related pollution control devices, review of any operational and maintenance practices that might have resulted in an unexpected discharge, and hydrologic review of groundwater conditions including upgradient water quality.
3. The permittee shall initiate actions identified in the approved contingency plan referenced in Part 5.0 and specific contingency measures identified in Part 2.6 to resolve any problems identified by the investigation which may have led to an AL being exceeded. To implement any other corrective action the permittee shall obtain prior approval from ADEQ according to Section 2.6.6. Alternatively, the permittee may submit a technical demonstration, subject to written approval by the Groundwater Section, that although an AL is exceeded, pollutants are not reasonably expected to cause a violation of an AQL. The demonstration may propose a revised AL or monitoring frequency for approval in writing by the Groundwater Section.
4. Within thirty (30) days after confirmation of an AL being exceeded, the permittee shall submit the laboratory results to the Water Quality Compliance Section, Data Unit along with a summary of the findings of the investigation, the cause of the AL being exceeded, and actions taken to resolve the problem.

5. Upon review of the submitted report, the Department may amend the permit to require additional monitoring, increased frequency of monitoring, amendments to permit conditions or other actions.
6. The increased monitoring required as a result of ALs being exceeded may be reduced to Section 4.0, Table I frequencies, if the results of four sequential sampling events demonstrate that no parameters exceed the AL.

**2.6.2.3.3 Alert Levels to Protect Downgradient Users from Pollutants Without Numeric Aquifer Water Quality Standards**

Not required at time of permit issuance.

**2.6.3 Discharge Limitation (DL) Violations**

1. If a DL set in Section 4.0, Table I has been violated, the permittee shall immediately investigate to determine the cause of the violation. The investigation shall include the following:
  - a. Inspection, testing, and assessment of the current condition of all treatment or pollutant discharge control systems that may have contributed to the violation;
  - b. Review of recent process logs, reports, and other operational control information to identify any unusual occurrences;
  - c. Sampling of individual waste streams composing the wastewater for the parameters in violation.

The permittee also shall submit a report according to Section 2.7.3, which includes a summary of the findings of the investigation, the cause of the violation, and actions taken to resolve the problem. The permittee shall consider and ADEQ may require corrective action that may include control of the source of discharge, cleanup of affected soil, surface water or groundwater, and mitigation of the impact of pollutants on existing uses of the aquifer. Corrective actions shall either be specifically identified in this permit, included in an ADEQ approved contingency plan, or separately approved according to Section 2.6.6.

2. The permittee shall operate the recharge basins to prevent the overtopping. If overtopping occurs, the permittee shall follow the requirements in Section 2.6.5.3. and the reporting requirements of Section 2.7.3.
3. Upon review of the submitted report, the Department may amend the permit to require additional monitoring, increased frequency of monitoring, or other actions.

**2.6.4 Aquifer Quality Limit (AQL) Violation**

1. If an AQL set in Section 4.0, Table II has been exceeded, the permittee may conduct verification sampling within five (5) days of becoming aware of an AQL being exceeded. The permittee may use results of another sample taken between the date of the last sampling event

and the date of receiving the result as verification.

2. If verification sampling confirms that the AQL is violated for any parameter or if the permittee opts not to perform verification sampling, then, the permittee shall increase the frequency of monitoring to 'Daily', 'Weekly', and 'Monthly' for constituents that have a permit monitoring frequency of 'Weekly', 'Monthly', and 'Quarterly', 'Semi-Annual' or 'Annual' respectively. In addition, the permittee shall immediately initiate an evaluation for the cause of the violation, including inspection of all discharging units and all related pollution control devices, and review of any operational and maintenance practices that might have resulted in unexpected discharge.

The permittee also shall submit a report according to Section 2.7.3, which includes a summary of the findings of the investigation, the cause of the violation, and actions taken to resolve the problem. A verified exceedance of an AQL will be considered a violation unless the permittee demonstrates within 30 days that the exceedance was not caused or contributed to by pollutants discharged from the facility. Unless the permittee has demonstrated that the exceedance was not caused or contributed to by pollutants discharged from the facility, the permittee shall consider and ADEQ may require corrective action that may include control of the source of discharge, cleanup of affected soil, surface water or groundwater, and mitigation of the impact of pollutants on existing uses of the aquifer. Corrective actions shall either be specifically identified in this permit, included in an ADEQ approved contingency plan, or separately approved according to Section 2.6.6.

3. Upon review of the submitted report, the Department may amend the permit to require additional monitoring, increased frequency of monitoring, amendments to permit conditions or other actions.

## **2.6.5 Emergency Response and Contingency Requirements for Unauthorized Discharges pursuant to A.R.S. § 49-201(12) and pursuant to A.R.S. § 49-241**

### **2.6.5.1 Duty to Respond**

The permittee shall act immediately to correct any condition resulting from a discharge pursuant to A.R.S. § 49-201(12) if that condition could pose an imminent and substantial endangerment to public health or the environment.

### **2.6.5.2 Discharge of Hazardous Substances or Toxic Pollutants**

In the event of any unauthorized discharge pursuant to A.R.S. § 49-201(12) of suspected hazardous substances (A.R.S. § 49-201(18)) or toxic pollutants (A.R.S. § 49-243(I)) on the facility site, the permittee shall promptly isolate the area and attempt to identify the discharged material. The permittee shall record information, including name, nature of exposure and follow-up medical treatment, if necessary, on persons who may have been exposed during the incident. The permittee shall notify the ADEQ Water Quality Field Service Unit at (602) 771-4841 within 24 hours upon discovering the discharge of hazardous material which: a) has the potential to cause an AWQS or AQL exceedance; or b) could pose an endangerment to public health or the environment.

### **2.6.5.3 Discharge of Non-hazardous Materials**

In the event of any unauthorized discharge pursuant to A.R.S. § 49-201(12) of non-hazardous materials from the facility, the permittee shall promptly attempt to cease the discharge and isolate the discharged material. Discharged material shall be removed

and the site cleaned up as soon as possible. The permittee shall notify the ADEQ Water Quality Field Services Unit at (602) 771-4841, within 24 hours upon discovering the discharge of non-hazardous material which: a) has the potential to cause an AQL exceedance; or b) could pose an endangerment to public health or the environment.

#### **2.6.5.4 Reporting Requirements**

The permittee shall submit a written report for any unauthorized discharges reported under Sections 2.6.5.2 and 2.6.5.3 to the ADEQ Water Quality Field Services Unit, Mail Code 5415B-1, 1110 West Washington Street, Phoenix, Arizona, 85007, within thirty days of the discharge or as required by subsequent ADEQ action. The report shall summarize the event, including any human exposure, and facility response activities and include all information specified in Section 2.7.3. If a notice is issued by ADEQ subsequent to the discharge notification, any additional information requested in the notice shall also be submitted within the time frame specified in the notice. Upon review of the submitted report, ADEQ may require additional monitoring or corrective actions.

#### **2.6.5 Corrective Actions**

Specific contingency measures identified in Section 2.6 have already been approved by ADEQ and do not require written approval to implement.

With the exception of emergency response actions taken under Section 2.6.5, the permittee shall obtain written approval from the Groundwater Section prior to implementing a corrective action to accomplish any of the following goals in response to exceeding an AL or violation of an AQL, DL, or other permit condition:

1. Control of the source of an unauthorized discharge;
2. Soil cleanup;
3. Cleanup of affected surface waters;
4. Cleanup of affected parts of the aquifer;
5. Mitigation to limit the impact of pollutants on existing uses of the aquifer.

Within 30 days of completion of any corrective action, the operator shall submit to the ADEQ Water Quality Compliance Section, a written report describing the causes, impacts, and actions taken to resolve the problem.

**2.7 Reporting and Recordkeeping Requirements**

[A.R.S. § 49-243(K)(2) and A.A.C. R18-9-A206(B) and R18-9-A207]

**2.7.1 Self Monitoring Report Forms (SMRF)**

1. The permittee shall complete the SMRFs provided by ADEQ, and submit them to the Water Quality Compliance Section, Data Unit.
2. The permittee shall complete the SMRF to the extent that the information reported may be entered on the form. If no information is required during a quarter, the permittee shall enter "not required" on the SMRF and submit the report to ADEQ. The permittee shall use the format devised by ADEQ.
3. The tables contained in Sections 4.0 list the parameters to be monitored and the frequency for reporting results for compliance monitoring. Monitoring and Analytical methods shall be recorded on the SMRFs.
4. In addition to the SMRF, the information contained in Section 6.9.3 shall be included for exceeding an AL or violation of an AQL, DL, or any other permit condition being reported in the current reporting period.

**2.7.2 Operation Inspection / Log Book Recordkeeping**

A signed copy of this permit shall be maintained at all times at the location where day-to-day decisions regarding the operation of the facility are made. A log book (paper copies, forms or electronic data) of the inspections and measurements required by this permit shall be maintained at the location where day-to-day decisions are made regarding the operation of the facility. The log book shall be retained for ten (10) years from the date of each inspection, and upon request, the permit and the log book shall be made immediately available for review by ADEQ personnel. The information in the log book shall include, but not be limited to, the following information as applicable:

1. Name of inspector;
2. Date and shift inspection was conducted;
3. Condition of applicable facility components;
4. Any damage or malfunction, and the date and time any repairs were performed;
5. Documentation of sampling date and time;
6. Any other information required by this permit to be entered in the log book, and
7. Monitoring records for each measurement shall comply with R18-9 A206(B)(2).

**2.7.3 Permit Violation and Alert Level Status Reporting**

1. The permittee shall notify the Water Quality Compliance Section, Enforcement Unit in writing within five (5) days (except as provided in Section 2.6.5) of becoming aware of a violation of any permit condition, discharge limitation or of an Alert Level (AL) being exceeded.
2. The permittee shall submit a written report to the Water Quality Compliance Section, Enforcement Unit within 30 days of becoming aware of the violation of any permit condition or discharge limitation. The report shall document all of the following:
  - a. Identification and description of the permit condition for which there has been a violation and a description of its cause.

- b. The period of violation including exact date(s) and time(s), if known, and the anticipated time period during which the violation is expected to continue.
- c. Any corrective action taken or planned to mitigate the effects of the violation, or to eliminate or prevent a recurrence of the violation.
- d. Any monitoring activity or other information which indicates that any pollutants would be reasonably expected to cause a violation of an Aquifer Water Quality Standard.
- e. Proposed changes to the monitoring which include changes in constituents or increased frequency of monitoring.
- f. Description of any malfunction or failure of pollution control devices or other equipment or processes.

**2.7.4 Operational, Other or Miscellaneous Reporting**

The permittee shall complete the Self-Monitoring Report Form provided by the Department to reflect facility inspection requirements designated in Section 4.0, TABLE III and submit to the ADEQ, Water Quality Compliance Section quarterly along with other reports required by this permit. Facility inspection reports shall be submitted no less frequently than quarterly, regardless of operational status.

**2.7.5 Reporting Location**

All SMRFs shall be submitted to:

Arizona Department of Environmental Quality  
Water Quality Compliance Section, Data Unit  
Mail Code: 5415B-1  
1110 W. Washington Street  
Phoenix, AZ 85007  
Phone (602) 771-4681

All documents required by this permit to be submitted to the Water Quality Compliance Section shall be directed to:

Arizona Department of Environmental Quality  
Water Quality Compliance Section, Enforcement Unit  
Mail Code: 5415B-1  
1110 W. Washington Street  
Phoenix, AZ 85007  
Phone (602) 771-4614

All documents required by this permit to be submitted to the Groundwater Section shall be directed to:

Arizona Department of Environmental Quality  
Groundwater Section  
Mail Code: 5415B-3  
1110 W. Washington Street  
Phoenix, AZ 85007  
Phone (602) 771-4428

**2.7.6 Reporting Deadline**

The following table lists the quarterly report due dates:

Monitoring conducted during quarter:	Quarterly Report due by:
January-March	April 30
April-June	July 30
July-September	October 30
October-December	January 30

**2.7.7 Changes to Facility Information in Section 1.0**

The Groundwater Section and Water Quality Compliance Section shall be notified within 10 days of any change of facility information including Facility Name, Permittee Name, Mailing or Street Address, Facility Contact Person or Emergency Telephone Number.

**2.8 Temporary Cessation [A.R.S. § 49-243(K)(8) and A.A.C. R18-9-A209(A)]**

The permittee shall give written notice to the Water Quality Compliance Section upon ceasing operation of the facility for a period of 60 days or greater. The permittee shall take the following measures upon temporary cessation:

1. If applicable, direct the wastewater flows from the facility to another State approved Water Reclamation facility.
2. Correct the problem that caused the temporary cessation of the facility.
3. Notify ADEQ with a monthly facility Status Report describing the activities conducted on the WRP to correct the problem

At the time of notification the permittee shall submit for ADEQ approval a plan for maintenance of discharge control systems and for monitoring during the period of temporary cessation. Immediately following ADEQ's approval, the permittee shall implement the approved plan. If necessary, ADEQ shall amend permit conditions to incorporate conditions to address temporary cessation. If the facility ceases operation, the permittee shall submit closure notification, as set forth in Section 2.9 below.

**2.9 Closure [A.R.S. §§ 49-243(K)(6), 49-252 and A.A.C. R18-9-A209(B)]**

The permittee shall give written notice of closure to the Water Quality Compliance Section before closing, or before ceasing use of a facility addressed under this permit if the cessation is projected to last more than three years.

Within 90 days following notification of closure, the permittee shall submit for approval to the Groundwater Section, a detailed Closure Plan which meets the requirements of A.R.S. § 49-252 and A.A.C. R18-9-A209(B)(1)(a).

If the closure plan achieves clean closure immediately, ADEQ shall issue a letter of approval to the permittee. If the closure plan contains a schedule for bringing the facility to a clean closure configuration at

a future date, ADEQ may incorporate any part of the schedule as an amendment to this permit.

Upon completion of closure activities, the permittee shall give written notice to the Groundwater Section indicating that the approved Closure Plan has been implemented fully. If clean closure has been achieved, ADEQ shall issue a letter of approval to the permittee at that time. If any of the following conditions apply, the permittee shall follow the terms of Post-Closure stated in this permit:

1. Clean closure cannot be achieved at the time of closure notification or within one year thereafter under a diligent schedule of closure actions;
2. Further action is necessary to keep the facility in compliance with aquifer water quality standards at the applicable point of compliance;
3. Continued action is required to verify that the closure design has eliminated discharge to the extent intended;
4. Remedial or mitigative measures are necessary to achieve compliance with Title 49, Ch. 2;
5. Further action is necessary to meet property use restrictions.

**2.9.1 Closure Plan**

A specific closure plan is required within 180 days of closure of the facility that meets the requirements of A.A.C R18-9-A306.

**2.9.2 Closure Completion**

Not required at time of permit issuance.

**2.10 Post-Closure [A.R.S. §§ 49-243(K)(6), 49-252 and A.A.C. R18-9 A209(C)]**

Post-closure requirements shall be established based on a review of facility closure actions and will be subject to review and approval by the Groundwater Section.

In the event clean closure cannot be achieved pursuant to A.R.S. § 49-252, the permittee shall submit for approval to the Groundwater Section a Post-Closure Plan that addresses post-closure maintenance and monitoring actions at the facility. The Post-Closure Plan shall meet all requirements of A.R.S. §§ 49-201(29) and 49-252 and A.A.C. R18-9-A209(C). Upon approval of the Post-Closure Plan, this permit shall be amended or a new permit shall be issued to incorporate all post-closure controls and monitoring activities of the Post-Closure Plan.

**2.10.1 Post-Closure Plan**

A specific post-closure plan may be required upon the review of the closure plan.

**2.10.2 Post-Closure Completion**

Not required at the time of permit issuance.

**3.0 COMPLIANCE SCHEDULE [A.R.S. § 49-243(K)(5) and A.A.C. R18-9-A208]**

For each compliance schedule item listed below, the permittee shall submit the required information, including a cover letter that lists the compliance schedule items, to the Groundwater Section. A copy of the cover letter must also be submitted to the Water Quality Compliance Section, Enforcement Unit.

Compliance Item		Schedule
<b>Monitor Well</b>		
1	Drill borings for the POC well.	Within 30 days of the date of permit issuance
2	Using the geophysical data, determine appropriate well design. Submit proposed design to ADEQ for approval prior to completing the wells.	Within 30 days of drilling the borings.
3	Install monitor well at both POCs.	Within 30 days of receiving ADEQ approval
4	Submit monitoring well construction completion documentation including well driller's log, construction materials used, and actual latitude and longitude of the completed well.	Within 30-days after well completion
5	Collect ambient groundwater quality data from POC Wells.	Monthly for 8 months minimum.
6	Submit ambient groundwater quality data for nitrates and total nitrogen as required by Section 4.0, Table II, and a report, upon completion of all ambient sampling, showing the results of the monitoring. Submit an application for an Other APP Amendment with proposals for the groundwater permit monitoring requirements. This report must propose ALs and AQLs for nitrates and total nitrogen in Table II, and provide calculations and statistical methods used to develop the ALs and AQLs.	Within 90 days of last monthly ambient sample collection and no later than 13 months after permit issuance.
<b>Recharge Basins</b>		
7	Construct two recharge basins for effluent recharge.	Prior to operation of the WRP.
8	Complete testing to determine optimum infiltration and drying schedules.	Within one year of initial use of basins or when one year of recharge data can be obtained.
9	Submit report documenting testing for optimum infiltration and drying schedules. This report may propose construction of additional recharge basins or alternative disposal methods.	Within 60 days of obtaining the recharge data.
10	If required, construct two additional recharge basins or implement contingency recharge well requirement below.	Based on design parameters or to be determined based on testing – Notify ADEQ 90 days before construction, the number of basins or recharge wells to be constructed.
<b>Contingency Recharge Wells or Direct Injection Wells</b>		
11	If required propose recharge well design	Within 30 days of determining the need for recharge wells.
12	Upon ADEQ approval, construct one recharge well and perform a test for determining recharge rates.	Within 30 days of construction
13	Submit the well completion report, including a determination if additional wells are needed	Within 90 days from the end of the 30-day start-up test, identifying how many and type of wells to be constructed.
14	Construct up to six additional wells and submit well completion reports.	When actual flows exceed 80% of the existing recharge capacity or earlier if desired.
<b>WRP</b>		
15	Construct Phase I WRP	Start within of one year of permit issuance
16	Submit Arizona Registered Engineer's Certification of Construction for Phase I and obtain ADEQ approval before putting this phase into full operation.	Within 60 days after completion of construction and prior operation of phase I.
17	Notify ADEQ, Water Permits Section of intent to construct Phase II of the WRP (Expand to 3.0 MGD design treatment flow).	At least 90 days prior to start of construction
18	Construct Phase II WRP	When daily WRP effluent flows reach 1.125 MGD.
19	Submit Arizona Registered Engineer's Certification of Construction for Phase II and obtain ADEQ approval before putting this phase into full operation.	Within 90 days after completion of construction and prior operation of phase II.
20	When the facility is completely constructed, some of the tables relevant to Phase I may no longer be needed. The facility may request an "other" amendment to delete the non-relevant Phase I monitoring tables in section 4.0, or other parts of this permit, that are no longer applicable.	Upon completion of all phases and ADEQ approval prior to operation.

4.0 TABLES OF MONITORING REQUIREMENTS  
PHASE I (For Flows 1.5 MGD or less)

TABLE IA  
ROUTINE DISCHARGE MONITORING<sup>2</sup>

Sampling Point Number	Sampling Point Identification		Latitude	Longitude	
1	Effluent pump station		33° 03' 05.213" N	111° 29' 19.321" W	
Parameter	AL <sup>3</sup>	DL <sup>4</sup>	Units	Sampling Frequency	Reporting Frequency
Total Flow <sup>5</sup> : Daily <sup>6</sup>	Not Established <sup>7</sup>	Not Established	MGD <sup>8</sup>	Daily <sup>9</sup>	Quarterly
Total Flow: Average Monthly	1.425	1.5	MGD	Monthly <sup>10</sup>	Quarterly
Reuse Flow: Daily	Not Established	Not Established	MGD	Daily	Quarterly
Reuse Flow: Average Monthly	Not Established	Not Established	MGD	Monthly	Quarterly
Recharge Flow: Daily	Not Established	Not Established	MGD	Daily	Quarterly
Recharge Flow: Average Monthly	Not Established	Not Established	MGD	Monthly	Quarterly
Fecal Coliform Single sample maximum	Not Established	23	CFU or MPN <sup>11</sup>	Daily <sup>12</sup>	Quarterly
Fecal Coliform: four (4) seven (7) samples in a week <sup>13</sup>	Not Established	Non-detect <sup>14</sup>	CFU or MPN	Daily	Quarterly
Total Nitrogen <sup>15</sup> : 5-sampling rolling geometric mean.	8.0	10.0	mg/l	Monthly <sup>16</sup>	Quarterly

<sup>2</sup> Flows of greater than 1.5 MGD monthly average are not allowed.

<sup>3</sup> AL = Alert Level.

<sup>4</sup> DL = Discharge Limit.

<sup>5</sup> Total flow is the sum of flows to the reuse and recharge site.

<sup>6</sup> Total flow is measured in million gallons per day (MGD).

<sup>7</sup> Reserved = Monitoring required but no limits have been specified at time of permit issuance.

<sup>8</sup> MGD = Million Gallons per Day.

<sup>9</sup> Flow shall be measured using a continuous recording flow meter that totals the flow daily.

<sup>10</sup> Monthly = Calculated value = Average of daily flows in a month.

<sup>11</sup> CFU = Colony Forming Units per 100 ml: MPN = Most Probable Number per 100 ml. For CFU, a value of <1 shall be considered to be non-detect. For MPN, a value of <2.2 shall be considered to be non-detect.

<sup>12</sup> "Daily" means at least 4 samples per week must be analyzed and must meet the standard.

<sup>13</sup> "Week" means a seven day period starting on Sunday and ending on the following Saturday

<sup>14</sup> If at least four (4) of the daily samples are non-detect, report "yes" in the appropriate space on the SMRF (indicating that the standard has been met). If at least four (4) of the daily have detections of fecal coliform, report "no" in the appropriate space on the SMRF (indicating that the standard has not been met).

<sup>15</sup> Total Nitrogen = Nitrate as N + Nitrite as N + Total Kjeldahl Nitrogen.

<sup>16</sup> Monthly = 5-Month Geometric Mean calculated from the results of the 5 most recent samples.

4.0 TABLES OF MONITORING REQUIREMENTS

**TABLE IA**  
**ROUTINE DISCHARGE MONITORING (Continued)**

Parameter	AL	DL	Units	Sampling Frequency	Reporting Frequency
<b>Metals (Total):</b>					
Antimony	0.0048	0.006	mg/l	Quarterly	Quarterly
Arsenic	0.04	0.05	mg/l	Quarterly	Quarterly
Barium	1.60	2.00	mg/l	Quarterly	Quarterly
Beryllium	0.0032	0.004	mg/l	Quarterly	Quarterly
Cadmium	0.004	0.005	mg/l	Quarterly	Quarterly
Chromium	0.08	0.1	mg/l	Quarterly	Quarterly
Cyanide (As free cyanide)	0.16	0.2	mg/l	Quarterly	Quarterly
Fluoride	3.2	4.0	mg/l	Quarterly	Quarterly
Lead	0.04	0.05	mg/l	Quarterly	Quarterly
Mercury	0.0016	0.002	mg/l	Quarterly	Quarterly
Nickel	0.08	0.1	mg/l	Quarterly	Quarterly
Selenium	0.04	0.05	mg/l	Quarterly	Quarterly
Thallium	0.0016	0.002	mg/l	Quarterly	Quarterly

## 4.0 TABLES OF MONITORING REQUIREMENTS

TABLE IA  
ROUTINE DISCHARGE MONITORING (Continued)

Parameter	AL	DL	Units	Sampling Frequency	Reporting Frequency
<b>Volatile Organic Compounds (VOCs):</b>					
Benzene	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Carbon tetrachloride	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
o-Dichlorobenzene	0.48	0.6	mg/l	Semi-Annually	Semi-Annually
para-Dichlorobenzene	0.06	0.075	mg/l	Semi-Annually	Semi-Annually
1,2-Dichloroethane	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
1,1-Dichloroethylene	0.0056	0.007	mg/l	Semi-Annually	Semi-Annually
cis-1,2-Dichloroethylene	0.05	0.07	mg/l	Semi-Annually	Semi-Annually
trans-1,2-Dichloroethylene	0.08	0.1	mg/l	Semi-Annually	Semi-Annually
Dichloromethane	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
1,2-Dichloropropane	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Ethylbenzene	0.56	0.7	mg/l	Semi-Annually	Semi-Annually
Hexachlorobenzene	0.0008	0.001	mg/l	Semi-Annually	Semi-Annually
Hexachlorocyclopentadiene	0.04	0.05	mg/l	Semi-Annually	Semi-Annually
Monochlorobenzene	0.08	0.1	mg/l	Semi-Annually	Semi-Annually
Styrene	0.08	0.1	mg/l	Semi-Annually	Semi-Annually
Tetrachloroethylene	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Toluene	0.8	1.0	mg/l	Semi-Annually	Semi-Annually
Trihalomethanes (total) <sup>17</sup>	0.08	0.1	mg/l	Semi-Annually	Semi-Annually
1,1,1-Trichloroethane	0.16	0.2	mg/l	Semi-Annually	Semi-Annually
1,2,4 - Trichlorobenzene	0.056	0.07	mg/l	Semi-Annually	Semi-Annually
1,1,2 - Trichloroethane	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Trichloroethylene	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Vinyl Chloride	0.0016	0.002	mg/l	Semi-Annually	Semi-Annually
Xylenes (Total)	8.0	10.0	mg/l	Semi-Annually	Semi-Annually

<sup>17</sup>Total Trihalomethanes are comprised of Bromoform, Bromodichloromethane, Chloroform, and Dibromochloromethane.

4.0 TABLES OF MONITORING REQUIREMENTS  
 PHASE II (For Flows 3.0 MGD or less)

TABLE IB  
 ROUTINE DISCHARGE MONITORING<sup>18</sup>

Sampling Point Number	Sampling Point Identification		Latitude	Longitude	
1	Effluent pump station		33° 03' 05.213" N	111° 29' 19.321" W	
Parameter	AL <sup>19</sup>	DL <sup>20</sup>	Units	Sampling Frequency	Reporting Frequency
Total Flow: Daily <sup>21</sup>	Not Established <sup>22</sup>	Not Established	MGD <sup>23</sup>	Daily <sup>24</sup>	Quarterly
Total Flow <sup>25</sup> : Average Monthly	2.85	3.0	MGD	Monthly <sup>26</sup>	Quarterly
Reuse Flow: Daily	Not Established	Not Established	MGD	Daily	Quarterly
Reuse Flow: Average Monthly	Not Established	Not Established	MGD	Monthly	Quarterly
Recharge Flow: Daily	Not Established	Not Established	MGD	Daily	Quarterly
Recharge Flow: Average Monthly	Not Established	Not Established	MGD	Monthly	Quarterly
Fecal Coliform Single sample maximum	Not Established	23	CFU or MPN <sup>27</sup>	Daily <sup>28</sup>	Quarterly
Fecal Coliform: four (4) seven (7) samples in a week <sup>29</sup>	Not Established	Non-detect <sup>30</sup>	CFU or MPN	Daily	Quarterly
Total Nitrogen <sup>31</sup> : 5-sampling rolling geometric mean.	8.0	10.0	mg/l	Monthly <sup>32</sup>	Quarterly

<sup>18</sup> Flows of greater than 3.0 MGD monthly average are not allowed.

<sup>19</sup> AL = Alert Level.

<sup>20</sup> DL = Discharge Limit.

<sup>21</sup> Total flow is measured in million gallons per day (MGD)

<sup>22</sup> Reserved = Monitoring required but no limits have been specified at time of permit issuance.

<sup>23</sup> MGD = Million Gallons per Day.

<sup>24</sup> Flow shall be measured using a continuous recording flow meter that totals the flow daily.

<sup>25</sup> Total flow is the sum of flows to the reuse and recharge site

<sup>26</sup> Monthly = Calculated value = Average of daily flows in a month.

<sup>27</sup> CFU = Colony Forming Units per 100 ml: MPN = Most Probable Number per 100 ml. For CFU, a value of <1 shall be considered to be non-detect. For MPN, a value of <2.2 shall be considered to be non-detect.

<sup>28</sup> "Daily" means at least 4 samples per week must be analyzed and must meet the standard

<sup>29</sup> "Week" means a seven day period starting on Sunday and ending on the following Saturday

<sup>30</sup> If at least four (4) of the daily samples are non-detect, report "yes" in the appropriate space on the SMRF (indicating that the standard has been met). If at least four (4) of the daily have detections of fecal coliform, report "no" in the appropriate space on the SMRF (indicating that the standard has not been met).

<sup>31</sup> Total Nitrogen = Nitrate as N + Nitrite as N + Total Kjeldahl Nitrogen.

<sup>32</sup> Monthly = 5-Month Geometric Mean calculated from the results of the 5 most recent samples.

4.0 TABLES OF MONITORING REQUIREMENTS

**TABLE IB**  
**ROUTINE DISCHARGE MONITORING (Continued)**

Parameter	AL	DL	Units	Sampling Frequency	Reporting Frequency
<b>Metals (Total):</b>					
Antimony	0.0048	0.006	mg/l	Quarterly	Quarterly
Arsenic	0.04	0.05	mg/l	Quarterly	Quarterly
Barium	1.60	2.00	mg/l	Quarterly	Quarterly
Beryllium	0.0032	0.004	mg/l	Quarterly	Quarterly
Cadmium	0.004	0.005	mg/l	Quarterly	Quarterly
Chromium	0.08	0.1	mg/l	Quarterly	Quarterly
Cyanide (As free cyanide)	0.16	0.2	mg/l	Quarterly	Quarterly
Fluoride	3.2	4.0	mg/l	Quarterly	Quarterly
Lead	0.04	0.05	mg/l	Quarterly	Quarterly
Mercury	0.0016	0.002	mg/l	Quarterly	Quarterly
Nickel	0.08	0.1	mg/l	Quarterly	Quarterly
Selenium	0.04	0.05	mg/l	Quarterly	Quarterly
Thallium	0.0016	0.002	mg/l	Quarterly	Quarterly

## 4.0 TABLES OF MONITORING REQUIREMENTS

**TABLE IB**  
**ROUTINE DISCHARGE MONITORING (Continued)**

Parameter	AL	DL	Units	Sampling Frequency	Reporting Frequency
<b>Volatile Organic Compounds (VOCs):</b>					
Benzene	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Carbon tetrachloride	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
o-Dichlorobenzene	0.48	0.6	mg/l	Semi-Annually	Semi-Annually
para-Dichlorobenzene	0.06	0.075	mg/l	Semi-Annually	Semi-Annually
1,2-Dichloroethane	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
1,1-Dichloroethylene	0.0056	0.007	mg/l	Semi-Annually	Semi-Annually
cis-1,2-Dichloroethylene	0.05	0.07	mg/l	Semi-Annually	Semi-Annually
trans-1,2-Dichloroethylene	0.08	0.1	mg/l	Semi-Annually	Semi-Annually
Dichloromethane	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
1,2-Dichloropropane	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Ethylbenzene	0.56	0.7	mg/l	Semi-Annually	Semi-Annually
Hexachlorobenzene	0.0008	0.001	mg/l	Semi-Annually	Semi-Annually
Hexachlorocyclopentadiene	0.04	0.05	mg/l	Semi-Annually	Semi-Annually
Monochlorobenzene	0.08	0.1	mg/l	Semi-Annually	Semi-Annually
Styrene	0.08	0.1	mg/l	Semi-Annually	Semi-Annually
Tetrachloroethylene	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Toluene	0.8	1.0	mg/l	Semi-Annually	Semi-Annually
Trihalomethanes (total) <sup>33</sup>	0.08	0.1	mg/l	Semi-Annually	Semi-Annually
1,1,1-Trichloroethane	0.16	0.2	mg/l	Semi-Annually	Semi-Annually
1,2,4 - Trichlorobenzene	0.056	0.07	mg/l	Semi-Annually	Semi-Annually
1,1,2 - Trichloroethane	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Trichloroethylene	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Vinyl Chloride	0.0016	0.002	mg/l	Semi-Annually	Semi-Annually
Xylenes (Total)	8.0	10.0	mg/l	Semi-Annually	Semi-Annually

<sup>33</sup>Total Trihalomethanes are comprised of Bromoform, Bromodichloromethane, Chloroform, and Dibromochloromethane.

## 4.0 TABLES OF MONITORING REQUIREMENTS

**TABLE IC**  
**RECLAIMED WATER MONITORING TABLE – CLASS A+<sup>34</sup>**

Sampling Point Number	Sampling Point Identification	Latitude	Longitude
1	Effluent pump station	33° 03' 05.213" N	111° 29' 19.321" W

Parameter	DL	Units	Sampling Frequency	Reporting Frequency
Total Nitrogen <sup>35</sup> : Five-sample rolling geometric mean	10.0	mg/l	Monthly	Quarterly
Fecal Coliform: Single-sample maximum	23	CFU or MPN <sup>36</sup>	Daily <sup>37</sup>	Quarterly
Fecal Coliform: Four (4) of last seven (7) samples	Non-detect <sup>38</sup>	CFU or MPN	Daily	Quarterly
Turbidity <sup>39</sup> : Single reading	5.0	NTU <sup>40</sup>	Everyday <sup>41</sup>	Quarterly
Turbidity: 24-hour average	2.0	NTU	Everyday	Quarterly

<sup>34</sup> Reclaimed water monitoring is in addition to routine discharge monitoring.

<sup>35</sup> Nitrate N, plus Nitrite N, plus Total Kjeldahl Nitrogen (TKN)

<sup>36</sup> CFU = Colony Forming Units per 100 ml: MPN = Most Probable Number per 100 ml. For CFU, a value of <1 shall be considered to be non-detect. For MPN, a value of <2.2 shall be considered to be non-detect.

<sup>37</sup> For fecal coliform, "daily" sampling means every day in which a sample can practicably be obtained and delivered in sufficient time for proper analysis, provided that no less than four (4) samples in each calendar week are obtained and analyzed.

<sup>38</sup> If at least four (4) of the last seven (7) samples are non-detect, report "yes" in the appropriate space on the SMRF (indicating that the standard has been met). If at least four (4) of the last seven (7) samples have detections of fecal coliform, report "no" in the appropriate space on the SMRF (indicating that the standard has **not** been met).

<sup>39</sup> Turbidimeter shall have a signal averaging time not exceeding 120 seconds. Occasional spikes due to back-flushing or instrument malfunction shall not be considered an exceedance. All exceedances must be explained and submitted to the Department with the corresponding quarterly SMRF.

<sup>40</sup> Nephelometric Turbidity Units

<sup>41</sup> For the single turbidity reading, "everyday" means the maximum reading during the 24 hour period.

4.0 TABLES OF MONITORING REQUIREMENTS

**TABLE II  
GROUNDWATER MONITORING**

Sampling Point Number	Sampling Point Identification		Latitude	Longitude	
2	MW #1		33° 03' 10.786" N	111° 29' 15.924" W	
3	MW #2		33° 02' 58.819" N	111° 29' 15.982" W	
Parameter	AL	AQL <sup>42</sup>	Units	Sampling Frequency	Reporting Frequency
Total Nitrogen <sup>43</sup>	Reserved <sup>44</sup>	Reserved	mg/l	Monthly	Quarterly
Nitrate-Nitrite as N	Reserved	Reserved	mg/l	Monthly	Quarterly
Total Kjeldahl Nitrogen	Reserved	Reserved	mg/l	Monthly	Quarterly
Total Coliform	Not Established	Absence <sup>45</sup>	CFU or MPN <sup>46</sup>	Monthly	Quarterly
Depth to Groundwater	50	Not established	Feet (bgs)	Monthly	Quarterly

<sup>42</sup> AQL = Aquifer Quality Limit

<sup>43</sup> Total Nitrogen is equal to nitrate as N plus nitrite as N plus TKN

<sup>44</sup> Reserved means, no limits have been set at the time of permit issuance. The limits will be set according to the Compliance schedule outlined in Section 3.0 for the construction and sampling of the POC well.

<sup>45</sup> A positive result for total coliform may be verified with an analysis for fecal coliform. A positive result for fecal coliform shall be considered an exceedance of the AQL for total coliform.

<sup>46</sup> CFU = Colony Forming Units per 100 ml, MPN = Most Probable Number per 100 ml.

.0 TABLE OF MONITORING REQUIREMENTS

**TABLE II**  
**GROUNDWATER MONITORING (Continued)**

Parameter	AL	AQL	Units	Sampling Frequency	Reporting Frequency
<b>Metals (Total)<sup>47</sup>:</b>					
Antimony	0.0048	0.006	mg/l	Quarterly	Quarterly
Arsenic	0.04	0.05	mg/l	Quarterly	Quarterly
Barium	1.60	2.00	mg/l	Quarterly	Quarterly
Beryllium	0.0032	0.004	mg/l	Quarterly	Quarterly
Cadmium	0.004	0.005	mg/l	Quarterly	Quarterly
Chromium	0.08	0.1	mg/l	Quarterly	Quarterly
Cyanide (As free cyanide)	0.16	0.2	mg/l	Quarterly	Quarterly
Fluoride	3.2	4.0	mg/l	Quarterly	Quarterly
Lead	0.04	0.05	mg/l	Quarterly	Quarterly
Mercury	0.0016	0.002	mg/l	Quarterly	Quarterly
Nickel	0.08	0.1	mg/l	Quarterly	Quarterly
Selenium	0.04	0.05	mg/l	Quarterly	Quarterly
Thallium	0.0016	0.002	mg/l	Quarterly	Quarterly

<sup>47</sup>

If the AQL for listed pollutants has not been exceeded in all of eight (8) consecutive quarters, the owner or operator may apply to ADEQ's Groundwater Section to request this permit so as to reduce sampling and reporting frequencies for these pollutants.

## 4.0 TABLES OF MONITORING REQUIREMENTS

TABLE II  
GROUNDWATER MONITORING (Continued)

Parameter	AL	AQL	Units	Sampling Frequency	Reporting Frequency
<b>Volatile Organic Compounds (VOCs):</b>					
Benzene	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Carbon tetrachloride	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
o-Dichlorobenzene	0.48	0.6	mg/l	Semi-Annually	Semi-Annually
para-Dichlorobenzene	0.06	0.075	mg/l	Semi-Annually	Semi-Annually
1,2-Dichloroethane	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
1,1-Dichloroethylene	0.0056	0.007	mg/l	Semi-Annually	Semi-Annually
cis-1,2-Dichloroethylene	0.05	0.07	mg/l	Semi-Annually	Semi-Annually
trans-1,2-Dichloroethylene	0.08	0.1	mg/l	Semi-Annually	Semi-Annually
Dichloromethane	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
1,2-Dichloropropane	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Ethylbenzene	0.56	0.7	mg/l	Semi-Annually	Semi-Annually
Hexachlorobenzene	0.0008	0.001	mg/l	Semi-Annually	Semi-Annually
Hexachlorocyclopentadiene	0.04	0.05	mg/l	Semi-Annually	Semi-Annually
Monochlorobenzene	0.08	0.1	mg/l	Semi-Annually	Semi-Annually
Styrene	0.08	0.1	mg/l	Semi-Annually	Semi-Annually
Tetrachloroethylene	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Toluene	0.8	1.0	mg/l	Semi-Annually	Semi-Annually
Trihalomethanes (total) <sup>48</sup>	0.08	0.1	mg/l	Semi-Annually	Semi-Annually
1,1,1-Trichloroethane	0.16	0.2	mg/l	Semi-Annually	Semi-Annually
1,2,4 - Trichlorobenzene	0.056	0.07	mg/l	Semi-Annually	Semi-Annually
1,1,2 - Trichloroethane	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Trichloroethylene	0.004	0.005	mg/l	Semi-Annually	Semi-Annually
Vinyl Chloride	0.0016	0.002	mg/l	Semi-Annually	Semi-Annually
Xylenes (Total)	8.0	10.0	mg/l	Semi-Annually	Semi-Annually

<sup>48</sup>Total Trihalomethanes are comprised of Bromoform, Bromodichloromethane, Chloroform, and Dibromochloromethane.

4.0 TABLES OF MONITORING REQUIREMENTS

TABLE III  
FACILITY INSPECTION (Operational Monitoring)

Pollution Control Structures/Parameter	Performance Levels	Inspection Frequency
Pump Integrity	Good Working Condition	Weekly
Treatment Plant Components	Good Working Condition	Weekly
Visual Inspection of effects of Subsidence and Fissuring on the WRP structures, the surrounding land, and the effluent disposal sites	Not enough to cause leakage of greater than 550 gpd/acre or facility failure	Monthly
Recharge Basins	Maintain Desired Recharge Rates	Monthly
Recharge Wells	Maintain Desired Recharge Rates	Monthly

## 5.0 REFERENCES AND PERTINENT INFORMATION

The terms and conditions set forth in this permit have been developed based upon the information contained in the following, which are on file with the Department:

- 1 APP Application dated: June 17, 2005
- 2 Engineering Approval : October 17, 2005
- 3 Hydrology Approval: February 6, 2006
- 4 Public Notice, dated: February 23, 2006
- 5 Public Hearing, dated: N/A
- 6 Responsiveness Summary: N/A

**6.0 GENERAL CONDITIONS AND RESPONSIBILITIES****6.1 Annual Registration Fees**

The permittee is notified of the obligation to pay an Annual Registration Fee to ADEQ. The Annual Registration Fee is based upon the amount of daily influent or discharge of pollutants in gallons per day as established by A.R.S. § 49-242(D).

**6.2 Duty to Comply [A.R.S. §§ 49-221 through 263]**

The permittee is notified of the obligation to comply with all conditions of this permit and all applicable provisions of Title 49, Chapter 2, Articles 1, 2 and 3 of the Arizona Revised Statutes, Title 18, Chapter 9, Articles 1 through 4, and Title 18, Chapter 11, Article 4 of the Arizona Administrative Code. Any permit non-compliance constitutes a violation and is grounds for an enforcement action pursuant to Title 49, Chapter 2, Article 4 or permit amendment, suspension, or revocation.

**6.3 Duty to Provide Information [A.R.S. §§ 49-243(K)(2) and 49-243(K)(8)]**

The permittee shall furnish to the Director, or an authorized representative, within a time specified, any information which the Director may request to determine whether cause exists for amending or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

**6.4 Compliance with Aquifer Water Quality Standards [A.R.S. §§ 49-243(B)(2) and 49-243(B)(3)]**

The permittee shall not cause or contribute to a violation of an aquifer water quality standard at the applicable point of compliance for the facility. Where, at the time of issuance of the permit, an aquifer already exceeds an aquifer water quality standard for a pollutant, the permittee shall not discharge that pollutant so as to further degrade, at the applicable point of compliance for the facility, the water quality of any aquifer for that pollutant.

**6.5 Technical and Financial Capability [A.R.S. §§ 49-243(K)(8) and 49-243(N) and A.A.C. R18-9-A202(B) and R18-9-A203(E) and (F)]**

The permittee shall have and maintain the technical and financial capability necessary to fully carry out the terms and conditions of this permit. Any bond, insurance policy, trust fund, or other financial assurance mechanism provided as a demonstration of financial capability in the permit application, pursuant to A.A.C. R18-9-A203(D), shall be in effect prior to any discharge authorized by this permit and shall remain in effect for the duration of the permit.

**6.6 Reporting of Bankruptcy or Environmental Enforcement [A.A.C. R18-9-A207(C)]**

The permittee shall notify the Director within five days after the occurrence of any one of the following:

1. The filing of bankruptcy by the permittee.
2. The entry of any order or judgment not issued by the Director against the permittee for the enforcement of any environmental protection statute or rule.

**6.7 Monitoring and Records [A.R.S. § 49-243(K)(8) and A.A.C. R18-9-A206]**

The permittee shall conduct any monitoring activity necessary to assure compliance with this permit, with the applicable water quality standards established pursuant to A.R.S. §§ 49-221 and 49-223 and §§ 49-241 through 49-252.

**6.8 Inspection and Entry [A.R.S. §§ 49-203(B) and 49-243(K)(8)]**

In accordance with A.R.S. §§ 41-1009 and 49-203(B), the permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to enter and inspect the facility as reasonably necessary to ensure compliance with Title 49, Chapter 2, Article 3 of the Arizona Revised Statutes, and Title 18, Chapter 9, Articles 1 through 4 of the Arizona Administrative Code and the terms and conditions of this permit.

**6.9 Duty to Modify [A.R.S. § 49-243(K)(8) and A.A.C. R18-9-A211]**

The permittee shall apply for and receive a written amendment before deviating from any of the designs or operational practices authorized by this permit.

**6.10 Permit Action: Amendment, Transfer, Suspension & Revocation [A.R.S. §§ 49-201, 49-241 through 251, A.A.C. R18-9-A211, R18-9-A212 and R18-9-A213]**

This permit may be amended, transferred, renewed, or revoked for cause, under the rules of the Department.

The permittee shall notify the Groundwater Section in writing within 15 days after any change in the owner or operator of the facility. The notification shall state the permit number, the name of the facility, the date of property transfer, and the name, address, and phone number where the new owner or operator can be reached. The operator shall advise the new owner or operators of the terms of this permit and the need for permit transfer in accordance with the rules.

**7.0 ADDITIONAL PERMIT CONDITIONS****7.1 Other Information [A.R.S. § 49-243(K)(8)]**

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, the permittee shall promptly submit the correct facts or information.

**7.2 Severability [A.R.S. §§ 49-201, 49-241 through 251, A.A.C. R18-9-A211, R18-9-A212 and R18-9-A213]**

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby. The filing of a request by the permittee for a permit action does not stay or suspend the effectiveness of any existing permit condition.

**7.3 Permit Transfer**

This permit may not be transferred to any other person except after notice to and approval of the transfer by the Department. No transfer shall be approved until the applicant complies with all transfer requirements as specified in A.A.C. R18-9-A212(B) and (C).

# ATTACHMENT 7

**Town of Florence**  
775 N. Main St.  
P.O. Box 2670  
Florence, AZ 85232

(520) 868-7500  
fax (520) 868-7501  
TDD (520) 868-7502  
www.town.florence.az.us

**TOWN SERVICES**

Building Inspection  
868-7556

Finance  
868-7624

Fire  
868-7609

Grants  
868-7554

Library  
868-0788

Municipal Court  
868-7514

Personnel  
868-7553

Parks & Recreation  
868-4835

Planning & Zoning  
868-7540

Police  
868-7681

Public Works  
868-7620

Senior Center  
868-7622

Town Hall  
868-7500

Town Manager's Office  
868-7558

Utility Billing  
868-7680

December 4, 2006

Brian P. Tompsett  
Johnson International, Inc.  
5230 E. Shea Boulevard, Suite 200  
Scottsdale, AZ 85254

**RE: WATER AND SEWER SERVICE TO MONTERRA**

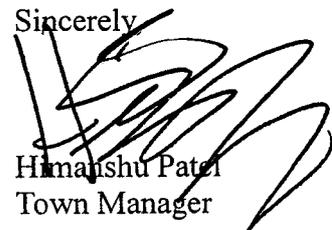
Dear Mr. Tompsett:

The Town of Florence supports Johnson Utilities to provide water and wastewater services to the Monterra project as referenced in the attached legal description.

Even though the site is within the town limits of Florence, Florence supports Johnson Utilities's service of sewer and water to the project under our cooperative agreements for utility service. Please feel free to contract with Monterra for the utility services.

Please feel free to contact me with questions or comments.

Sincerely,

  
Himanshu Patel  
Town Manager

cc: James Mannato, Town Attorney  
Wayne Costa, Public Works Director  
Steve Tomita, Omega Management

## LEGAL DESCRIPTION

### MONTERRA

Monterra North, East and South Overall Exterior Legal Description:

PORTIONS OF THE SOUTH HALF OF THE SOUTHWEST QUARTER OF SECTION 29, SECTION 31 AND THE WEST HALF OF SECTION 32, TOWNSHIP 4 SOUTH, RANGE 9 EAST, AND OF THE NORTHEAST QUARTER OF SECTION 6, TOWNSHIP 5 SOUTH, RANGE 9 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, PINAL COUNTY, ARIZONA, DESCRIBED AS FOLLOWS:

BEGINNING AT THE WEST QUARTER CORNER OF SAID SECTION 31, WHICH IS MONUMENTED BY A BRASS CAP, FROM WHICH THE FOLLOWING CORNERS BEAR FOR A BASIS OF BEARINGS:

1. THE SOUTHWEST CORNER OF SAID SECTION 31, WHICH IS MONUMENTED BY A BRASS CAP IN A HAND HOLE, BEARS SOUTH 00 DEGREES 26 MINUTES 24 SECONDS EAST, 2,644.09 FEET,
2. THE EAST QUARTER CORNER OF SAID SECTION 31, WHICH IS MONUMENTED BY A 5/8-INCH REBAR, BEARS NORTH 89 DEGREES 58 MINUTES 50 SECONDS EAST, 5,232.23 FEET;
3. THE NORTHWEST CORNER OF SAID SECTION 31, WHICH IS MONUMENTED BY A BRASS CAP, BEARS NORTH 00 DEGREES 25 MINUTES 51 SECONDS WEST, 2,643.50 FEET;

THENCE FROM SAID WEST QUARTER CORNER OF SAID SECTION 31, NORTH 00 DEGREES 25 MINUTES 51 SECONDS WEST, ALONG THE WEST LINE OF THE NORTHWEST QUARTER OF SAID SECTION 31, 1,706.61 FEET;

THENCE NORTH 89 DEGREES 34 MINUTES 09 SECONDS EAST, 96.00 FEET;

THENCE NORTH 79 DEGREES 40 MINUTES 38 SECONDS EAST, 330.95 FEET TO A POINT OF CURVATURE OF A CURVE CONCAVE TO THE NORTHWEST, HAVING A RADIAL BEARING OF NORTH 10 DEGREES 19 MINUTES 22 SECONDS WEST, A RADIUS OF 700.00 FEET, A CHORD BEARING OF NORTH 67 DEGREES 43 MINUTES 03 SECONDS EAST, A CHORD DISTANCE OF 290.11 FEET AND A CENTRAL ANGLE OF 23 DEGREES 55 MINUTES 10 SECONDS;

THENCE NORTHEASTERLY, ALONG THE ARC OF SAID CURVE, 292.23 FEET TO A POINT OF TANGENCY;

THENCE NORTH 55 DEGREES 45 MINUTES 28 SECONDS EAST, A DISTANCE OF 567.96 FEET TO A POINT OF CURVATURE OF A CURVE CONCAVE TO THE

NORTHWEST, HAVING A RADIAL BEARING OF NORTH 34 DEGREES 14 MINUTES 32 SECONDS WEST, A RADIUS OF 200.00 FEET, A CHORD BEARING OF NORTH 38 DEGREES 25 MINUTES 53 SECONDS EAST, A CHORD DISTANCE OF 119.13 FEET AND A CENTRAL ANGLE OF 34 DEGREES 39 MINUTES 10 SECONDS;

THENCE NORTHEASTERLY, ALONG THE ARC OF SAID CURVE, 120.96 FEET TO A POINT ON A NON-TANGENT LINE;

THENCE SOUTH 89 DEGREES 57 MINUTES 26 SECONDS EAST, 1,382.41 FEET TO A POINT ON THE WEST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 31, FROM WHICH THE NORTH QUARTER CORNER OF SAID SECTION 31, WHICH IS MONUMENTED BY AN ALUMINUM CAP, BEARS NORTH 00 DEGREES 24 MINUTES 32 SECONDS WEST, 353.01 FEET;

THENCE SOUTH 00 DEGREES 24 MINUTES 32 SECONDS EAST, ALONG SAID WEST LINE OF THE NORTHEAST QUARTER OF SECTION 31, 967.32 FEET TO THE NORTHWEST CORNER OF THE SOUTH HALF OF THE NORTHEAST QUARTER OF SECTION 31, FROM WHICH THE SOUTH QUARTER CORNER OF SECTION 31, WHICH IS MONUMENTED BY A REBAR WITH CAP, BEARS SOUTH 00 DEGREES 24 MINUTES 32 SECONDS EAST, 3,960.62 FEET;

THENCE SOUTH 89 DEGREES 59 MINUTES 33 SECONDS EAST, ALONG THE NORTH LINE OF SAID SOUTH HALF OF THE NORTHEAST QUARTER OF SECTION 31, 2,611.92 FEET TO THE NORTHEAST CORNER OF SAID SOUTH HALF OF THE NORTHEAST QUARTER OF SECTION 31, FROM WHICH THE NORTHWEST CORNER OF SAID SECTION 32, WHICH IS MONUMENTED BY AN ALUMINUM CAP, BEARS NORTH 00 DEGREES 26 MINUTES 41 SECONDS WEST, 1,319.10 FEET, AND FROM WHICH SAID EAST QUARTER CORNER OF SECTION 31 BEARS SOUTH 00 DEGREES 26 MINUTES 41 SECONDS EAST, 1,319.10 FEET;

THENCE NORTH 89 DEGREES 53 MINUTES 15 SECONDS EAST, ALONG THE SOUTH LINE OF THE NORTHWEST QUARTER OF THE NORTHWEST QUARTER OF SAID SECTION 32, 1,310.29 FEET TO THE SOUTHEAST CORNER OF SAID NORTHWEST QUARTER OF THE NORTHWEST QUARTER OF SECTION 32;

THENCE NORTH 00 DEGREES 26 MINUTES 01 SECOND WEST, ALONG THE EAST LINE OF THE NORTHWEST QUARTER OF THE NORTHWEST QUARTER OF SAID SECTION 32, 1,319.57 FEET TO THE NORTHEAST CORNER OF SAID NORTHWEST QUARTER OF THE NORTHWEST QUARTER OF SECTION 32, FROM WHICH THE NORTH QUARTER CORNER OF SAID SECTION 32, WHICH IS MONUMENTED BY A ½-INCH REBAR, BEARS NORTH 89 DEGREES 52 MINUTES 01 SECOND EAST, 1,310.54 FEET;

THENCE SOUTH 89 DEGREES 52 MINUTES 01 SECOND WEST, ALONG THE NORTH LINE OF SAID NORTHWEST QUARTER OF THE NORTHWEST QUARTER OF SECTION 32, 1,310.54 FEET TO SAID NORTHWEST CORNER OF SECTION 32;

THENCE NORTH 00 DEGREES 00 MINUTES 02 SECONDS EAST, ALONG THE WEST LINE OF THE SOUTH HALF OF THE SOUTHWEST QUARTER OF SECTION 29, 1,321.09 FEET TO THE NORTHWEST CORNER OF SAID SOUTH HALF OF THE SOUTHWEST QUARTER OF SECTION 29, FROM WHICH THE WEST QUARTER CORNER OF SECTION 29, WHICH IS MONUMENTED BY A G.L.O. BRASS CAP, BEARS NORTH 00 DEGREES 00 MINUTES 02 SECONDS EAST, 1,321.09 FEET;

THENCE NORTH 89 DEGREES 52 MINUTES 53 SECONDS EAST, ALONG THE NORTH LINE OF SAID SOUTH HALF OF THE SOUTHWEST QUARTER OF SECTION 29, 2,618.40 FEET TO THE NORTHEAST CORNER OF SAID SOUTH HALF OF THE SOUTHWEST QUARTER OF SECTION 29, FROM WHICH THE NORTH QUARTER CORNER OF SECTION 29, WHICH IS MONUMENTED BY A G.L.O. BRASS CAP, BEARS NORTH 00 DEGREES 06 MINUTES 57 SECONDS WEST, 3,962.09 FEET;

THENCE SOUTH 00 DEGREES 06 MINUTES 57 SECONDS EAST, ALONG THE EAST LINE OF SAID SOUTH HALF OF THE SOUTHWEST QUARTER OF SECTION 29, 1,320.44 FEET TO SAID NORTH QUARTER CORNER OF SECTION 32;

THENCE SOUTH 00 DEGREES 25 MINUTES 22 SECONDS EAST, ALONG THE EAST LINE OF THE WEST HALF OF SAID SECTION 32, 3,960.66 FEET TO THE NORTHEAST CORNER OF THE SOUTH HALF OF THE SOUTHWEST QUARTER OF SAID SECTION 32, FROM WHICH THE SOUTH QUARTER CORNER OF SAID SECTION 32, WHICH IS MONUMENTED BY A 1-INCH IRON PIPE, BEARS SOUTH 00 DEGREES 25 MINUTES 22 SECONDS EAST, 1,320.60 FEET;

THENCE SOUTH 89 DEGREES 55 MINUTES 13 SECONDS WEST, ALONG THE NORTH LINE OF SAID SOUTH HALF OF THE SOUTHWEST QUARTER OF SECTION 32, 592.51 FEET

THENCE SOUTH 32 DEGREES 17 MINUTES 51 SECONDS WEST, 502.29 FEET;

THENCE SOUTH 37 DEGREES 05 MINUTES 50 SECONDS WEST, 490.61 FEET;

THENCE SOUTH 70 DEGREES 21 MINUTES 02 SECONDS WEST, 406.16 FEET;

THENCE SOUTH 85 DEGREES 17 MINUTES 03 SECONDS WEST, 228.72 FEET;

THENCE NORTH 82 DEGREES 11 MINUTES 11 SECONDS WEST, 188.02 FEET;

THENCE SOUTH 84 DEGREES 58 MINUTES 14 SECONDS WEST, 428.10 FEET;

THENCE SOUTH 73 DEGREES 14 MINUTES 04 SECONDS WEST, 240.96 FEET TO A POINT ON THE EAST LINE OF THE SOUTHEAST QUARTER OF SAID SECTION 31, FROM WHICH THE SOUTHEAST CORNER OF SAID SECTION 31, WHICH IS MONUMENTED BY AN ALUMINUM CAP, BEARS SOUTH 00 DEGREES 27 MINUTES 44 SECONDS EAST, 270.08 FEET, AND FROM WHICH SAID EAST QUARTER CORNER OF SECTION 31 BEARS NORTH 00 DEGREES 27 MINUTES 44 SECONDS WEST, 2,370.00 FEET;

THENCE CONTINUING SOUTH 73 DEGREES 14 MINUTES 04 SECONDS WEST, 17.33 FEET;

THENCE SOUTH 66 DEGREES 43 MINUTES 53 SECONDS WEST, 296.87 FEET;

THENCE SOUTH 52 DEGREES 55 MINUTES 37 SECONDS WEST, 245.51 FEET TO A POINT ON THE SOUTH LINE OF THE SOUTHEAST QUARTER OF SAID SECTION 31, FROM WHICH THE SOUTHEAST CORNER OF SAID SECTION 31 BEARS NORTH 89 DEGREES 58 MINUTES 32 SECONDS EAST, 487.38 FEET;

THENCE SOUTH 89 DEGREES 58 MINUTES 32 SECONDS WEST, ALONG THE SOUTH LINE OF THE SOUTHEAST QUARTER OF SAID SECTION 31, 200.69 FEET TO A POINT, FROM WHICH SAID SOUTH QUARTER CORNER OF SECTION 31 BEARS SOUTH 89 DEGREES 58 MINUTES 32 SECONDS WEST, 1,927.13 FEET, SAID POINT ALSO BEING A POINT ON A NON-TANGENT CURVE, CONCAVE TO THE EAST, HAVING A RADIAL BEARING OF SOUTH 65 DEGREES 06 MINUTES 43 SECONDS EAST, A RADIUS OF 770.54 FEET, A CHORD BEARING OF SOUTH 16 DEGREES 31 MINUTES 16 SECONDS WEST, A CHORD DISTANCE OF 224.24 FEET AND A CENTRAL ANGLE OF 16 DEGREES 44 MINUTES 02 SECONDS;

THENCE SOUTHERLY, ALONG THE ARC OF SAID CURVE, 225.04 FEET TO A POINT OF TANGENCY;

THENCE SOUTH 08 DEGREES 09 MINUTES 15 SECONDS WEST, 176.65 FEET TO A POINT OF CURVATURE ON A CURVE, CONCAVE TO THE NORTHWEST, HAVING A RADIAL BEARING OF NORTH 81 DEGREES 50 MINUTES 45 SECONDS WEST, A RADIUS OF 295.98 FEET, A CHORD BEARING OF SOUTH 42 DEGREES 12 MINUTES 07 SECONDS WEST, A CHORD DISTANCE OF 331.43 FEET AND A CENTRAL ANGLE OF 68 DEGREES 05 MINUTES 43 SECONDS;

THENCE SOUTHWESTERLY, ALONG THE ARC OF SAID CURVE, 351.77 FEET TO A POINT OF TANGENCY;

THENCE SOUTH 76 DEGREES 14 MINUTES 58 SECONDS WEST, 297.84 FEET;

THENCE SOUTH 77 DEGREES 33 MINUTES 14 SECONDS WEST, 265.27 FEET;

THENCE SOUTH 74 DEGREES 50 MINUTES 07 SECONDS WEST, 147.12 FEET;

THENCE SOUTH 86 DEGREES 00 MINUTES 59 SECONDS WEST, 93.74 FEET TO A POINT ON A NON-TANGENT CURVE, CONCAVE TO THE SOUTH, HAVING A RADIAL BEARING OF SOUTH 03 DEGREES 59 MINUTES 05 SECONDS EAST, A RADIUS OF 332.92 FEET, A CHORD BEARING OF SOUTH 71 DEGREES 51 MINUTES 18 SECONDS WEST, A CHORD DISTANCE OF 162.89 FEET AND A CENTRAL ANGLE OF 28 DEGREES 19 MINUTES 13 SECONDS;

THENCE WESTERLY, ALONG THE ARC OF SAID CURVE, 164.56 FEET TO A POINT OF TANGENCY;

THENCE SOUTH 57 DEGREES 41 MINUTES 42 SECONDS WEST, 21.13 FEET TO A POINT ON A NON-TANGENT CURVE, CONCAVE TO THE NORTH, HAVING A RADIAL BEARING OF NORTH 27 DEGREES 48 MINUTES 59 SECONDS WEST, A RADIUS OF 488.56 FEET, A CHORD BEARING OF SOUTH 69 DEGREES 04 MINUTES 12 SECONDS WEST, A CHORD DISTANCE OF 117.16 FEET AND A CENTRAL ANGLE OF 13 DEGREES 46 MINUTES 24 SECONDS;

THENCE WESTERLY, ALONG THE ARC OF SAID CURVE, 117.44 FEET TO A POINT ON A NON-TANGENT LINE;

THENCE SOUTH 75 DEGREES 57 MINUTES 28 SECONDS WEST, 240.06 FEET TO A POINT ON A NON-TANGENT CURVE, CONCAVE TO THE NORTH, HAVING A RADIAL BEARING OF NORTH 14 DEGREES 00 MINUTES 33 SECONDS WEST, A RADIUS OF 205.59 FEET, A CHORD BEARING OF NORTH 83 DEGREES 45 MINUTES 17 SECONDS WEST, A CHORD DISTANCE OF 142.35 FEET AND A CENTRAL ANGLE OF 40 DEGREES 30 MINUTES 31 SECONDS;

THENCE WESTERLY, ALONG THE ARC OF SAID CURVE, 145.35 FEET TO A POINT OF TANGENCY;

THENCE NORTH 63 DEGREES 30 MINUTES 01 SECOND WEST, 122.12 FEET;

THENCE NORTH 65 DEGREES 16 MINUTES 13 SECONDS WEST, 52.68 FEET TO A POINT ON THE WEST LINE OF SAID NORTHEAST QUARTER OF SECTION 6;

THENCE NORTH 01 DEGREE 11 MINUTES 22 SECONDS WEST, ALONG THE WEST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 6, 877.81 FEET TO SAID SOUTH QUARTER CORNER OF SECTION 31;

THENCE SOUTH 89 DEGREES 53 MINUTES 51 SECONDS WEST, ALONG THE SOUTH LINE OF THE SOUTHWEST QUARTER OF SAID SECTION 31, 2,618.04 FEET TO SAID SOUTHWEST CORNER OF SECTION 31;

THENCE NORTH 00 DEGREES 26 MINUTES 24 SECONDS WEST, ALONG THE WEST LINE OF THE SOUTHWEST QUARTER OF SAID SECTION 31, 2,644.09 FEET TO SAID WEST QUARTER CORNER OF SECTION 31 BAND THE POINT OF BEGINNING.

# ATTACHMENT 8

**Town of Florence**  
775 N. Main St.  
P.O. Box 2670  
Florence, AZ 85232

(520) 868-7500  
fax (520) 868-7501  
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**TOWN SERVICES**

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868-7622

Town Hall  
868-7500

Town Manager's Office  
868-7558

Utility Billing  
868-7680

December 4, 2006

Brian P. Tompsett  
Johnson International, Inc.  
5230 E. Shea Boulevard, Suite 200  
Scottsdale, AZ 85254

**RE: WATER AND SEWER SERVICE TO MONTESSA**

Dear Mr. Tompsett:

The Town of Florence supports Johnson Utilities to provide water and wastewater services to the Montessa project as referenced in the attached legal description.

Even though the site is within the town limits of Florence, Florence supports Johnson Utilities's service of sewer and water to the project under our cooperative agreements for utility service. Please feel free to contract with Montessa for the utility services.

Please feel free to contact me with questions or comments.

Sincerely,

  
Himanshu Patel  
Town Manager

cc: James Mannato, Town Attorney  
Wayne Costa, Public Works Director  
Bryan Morganstern, Hogan & Associates

**LEGAL DESCRIPTION**

**MONTESSA**

THE SOUTHEAST QUARTER OF THE NORTHEAST QUARTER SECTION 36,  
TOWNSHIP 4 SOUTH, RANGE 8 EAST OF THE GILA AND SALT RIVER BASE  
AND MERIDIAN, PINAL COUNTY, ARIZONA:

EXCEPT THAT PORTION DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF THE SOUTHEAST QUARTER  
OF THE NORTHEAST QUARTER OF SAID SECTION 36,

THENCE NORTH 269.25 FEET THENCE WEST 809 FEET

THENCE SOUTH 269.25 FEET

THENCE EAST 809 FEET TO THE POINT OF BEGINNING, AND

EXCEPT THAT PORTION AS CONVEYED IN WARRANTY DEED RECORDED IN  
INSTRUMENT NO. 03-70323 AND RE-RECORDED IN INSTRUMENT NO. 04-  
11194, DESCRIBED AS FOLLOWS:

THE SOUTH 269.25 FEET OF THE SOUTHEAST QUARTER OF THE NORTHEAST  
QUARTER OF SECTION 36, TOWNSHIP 4 SOUTH, RANGE 8 EAST OF THE GILA  
AND SALT RIVER BASE AND MERIDIAN, PINAL COUNTY, ARIZONA; EXCEPT  
THE EAST 809.00 FEET THEREOF; AND

EXCEPT ANY AND ALL MINERALS, ORES AND METALS OF EVERY KIND  
AND CHARACTER, AND ALL COAL, ASPHALTUM, OIL, GASES, FERTILIZERS,  
FOSSILS AND OTHER LIKE SUBSTANCES IN OR UNDER SAID LAND AS  
RESERVED TO THE STATE OF ARIZONA IN PATIENT TO SAID LAND.

# ATTACHMENT 9

**Preliminary Water and Sewer Report**  
for  
**MONTESSA**

**Town of Florence**  
**PINAL COUNTY, ARIZONA**

**Prepared for:** **B & B2 LLC**  
**699 S. Mill Ave., #320**  
**Tempe, AZ 85281**  
**(480) 929-0444**  
**Contact: Blake McKee**

**Prepared by:** **Sunrise Engineering, Inc.**  
**2152 South Vineyard, Suite 123**  
**Mesa, Arizona 85210**  
**(480) 768-8600**  
**Contact: Joel A. Watson, P.E.**

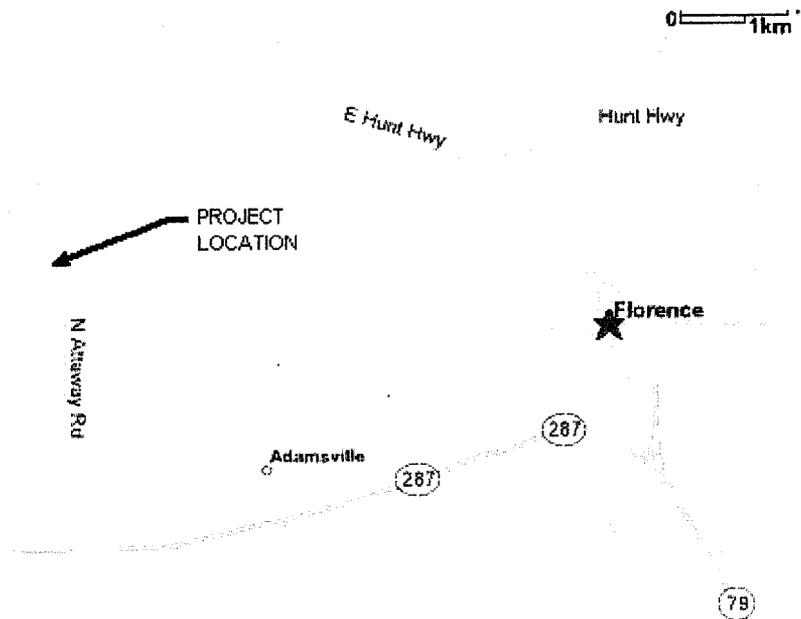
**Date:** **January, 2007**

## 1.0 Introduction

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The purpose of this report is to present preliminary findings with respect to water and sewer service for the proposed development known as Montessa.

The project site is located within the Southeast Quarter of the Northeast Quarter of Section 36, Township 4 South, Range 8 East (Gila and Salt River Meridian, Maricopa County, Arizona). More specifically, the site is on the West side of Attaway Road approximately 1400' South of the intersection of Attaway Road and Hunt Highway in Pinal County Arizona. See map below.



## **2.0 Existing Conditions and Offsite Connections**

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The existing condition is level undeveloped desert. There are no water and sewer facilities that front the parcel nor are there any facilities nearby.

It is early in the development of this parcel. Sewer service will most likely come through the future Monterra subdivision currently in the planning stages. Monterra is located directly across Attaway Road from this parcel. Water service will be provided by Johnson Utilities.

Sewer service for Monterra will ultimately be owned by the Town of Florence.

A Wastewater Treatment Plant (WWTP) is currently under design as part of the Merrell Ranch subdivision. The WWTP will be located at the eastern boundary of Monterra. Completion is expected August of 2006.

Sewer service within Monterra will be by gravity running to the south of the site where 1 or more lift stations will convey wastewater to the new WWTP.

### 3.0 Design

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All design shall adhere to Town of Florence, Johnson Utilities and/or ADEQ standards as applicable.

A 12" main will be extended south on Attaway Road from Johnson Utilities existing system. Within the subdivision all water lines will be 8" with some fire hydrant runs being 6".

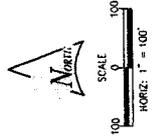
The alignment and sizes of the proposed waterlines are as shown in the Water and Sewer Exhibit. The water lines are located within the right of way or easement and service all the lots in the subdivision.

The minimum water line pipe diameter size of six inches is required to accommodate fire hydrants. The minimum waterline diameter is eight inches for dead-end hydrant lines longer than 300'. Sewer/Water Crossings were avoided when possible. However, all crossings shall conform to ADEQ APP R18-4-502.C. The water lines and sewer lines must have a minimum wall to wall horizontal separation of 6 feet and vertical separation of 2 feet in accordance with MAG Standard Detail 404.

During a shutdown, no more than 30 homes nor two fire hydrants shall be out of service. The maximum spacing for fire hydrants shall be 500 feet for this subdivision. Fire hydrants shall be constructed per MAG Standard Detail 360.

There is a minimum of three valves at all crosses, two at all tees, and one at each fire hydrant tee. No more than four valves shall be required to shut down any section of waterline in the system. All valve blocking shall be constructed per MAG Standard Detail 301.

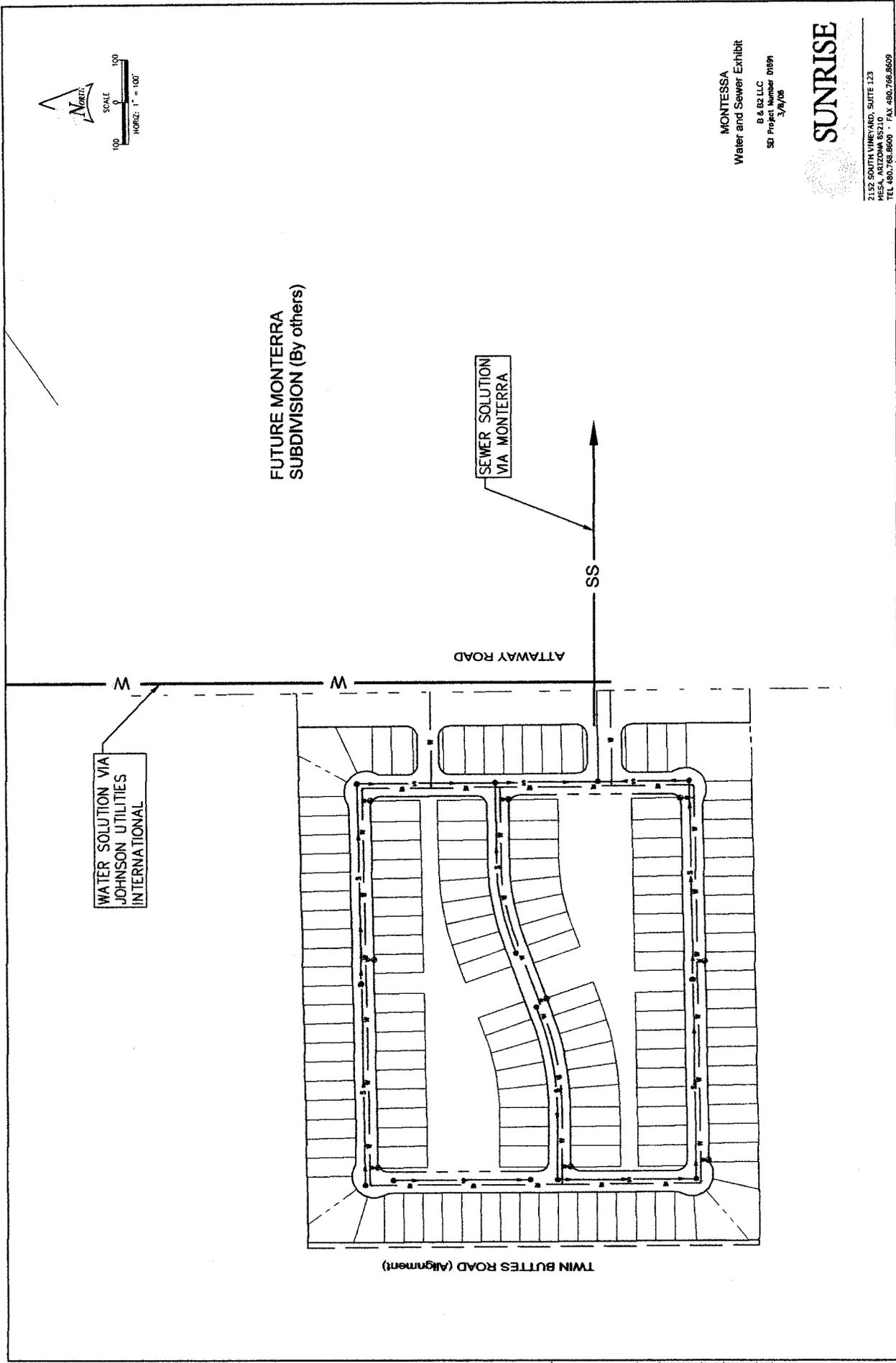
The system shall be capable of sustaining the required amount of pressure during peak flows. There must also be available fire flow to the system given the required demand of 1,000 gallons per minute (gpm) per the Uniform Fire Code. An approximate minimum pressure of 20 pounds per square inch (psi) is desirable at all junctions in the system given this fire flow demand.



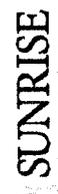
WATER SOLUTION VIA  
JOHNSON UTILITIES  
INTERNATIONAL

FUTURE MONTESSA  
SUBDIVISION (By others)

SEWER SOLUTION  
VIA MONTESSA



MONTESSA  
Water and Sewer Exhibit  
B & G, LLC  
SD Project Number 0899  
3/9/08



2152 SOUTH VINEYARD, SUITE 123  
MESA, ARIZONA 85210  
TEL 480.768.8600 • FAX 480.768.8609  
www.sunrise-vg.com

# ATTACHMENT 10



# ATTACHMENT 11

**EXHIBIT A**

**LEGAL DESCRIPTION**

**WALKER BUTTE**

THE NORTHWEST QUARTER OF SECTION 14, TOWNSHIP 4 SOUTH, RANGE 8 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, PINAL COUNTY, ARIZONA; AND

THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER; AND THE SOUTHWEST QUARTER OF SECTION 14, TOWNSHIP 4 SOUTH, RANGE 8 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, PINAL COUNTY, ARIZONA;

EXCEPT THERE FROM ANY PORTION LYING WITHIN THE SOUTHERN PACIFIC RAILROAD RIGHT OF WAY; AND

A PARCEL OF LAND, BEING WITHIN A PORTION OF THE NORTH HALF (N1/2) OF SECTION 3, TOWNSHIP 5 SOUTH, RANGE 8 EAST, GILA AND SALT RIVER MERIDIAN, PINAL COUNTY, ARIZONA DESCRIBED AS FOLLOWS:

THE NORTHWEST QUARTER OF SAID SECTION 3.

# ATTACHMENT 12

**LEGAL DESCRIPTION**

**MONTESSA**

THE SOUTHEAST QUARTER OF THE NORTHEAST QUARTER SECTION 36,  
TOWNSHIP 4 SOUTH, RANGE 8 EAST OF THE GILA AND SALT RIVER BASE  
AND MERIDAN, PINAL COUNTY, ARIZONA:

EXCEPT THAT PORTION DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF THE SOUTHEAST QUARTER  
OF THE NORTHEAST QUARTER OF SAID SECTION 36,

THENCE NORTH 269.25 FEET THENCE WEST 809 FEET

THENCE SOUTH 269.25 FEET

THENCE EAST 809 FEET TO THE POINT OF BEGINNING, AND

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AND SALT RIVER BASE AND MERIDIAN, PINAL COUNTY, ARIZONA; EXCEPT  
THE EAST 809.00 FEET THEREOF; AND

EXCEPT ANY AND ALL MINERALS, ORES AND METALS OF EVERY KIND  
AND CHARACTER, AND ALL COAL, ASPHALTUM, OIL, GASES, FERTILIZERS,  
FOSSILS AND OTHER LIKE SUBSTANCES IN OR UNDER SAID LAND AS  
RESERVED TO THE STATE OF ARIZONA IN PATIENT TO SAID LAND.