

MAG 208 Amendment

For the Town of Cave Creek Water Reclamation Facility

prepared for

**Town of Cave Creek
37622 North Cave Creek Road
Cave Creek, Arizona 85331**

April, 2008





SETTLED 1870 · INCORPORATED 1986

March 5, 2008

Ms. Julie Hoffman
Maricopa Association of Governments
302 North 1st Avenue, Suite 300
Phoenix, AZ 85003

RE: MAG 208 Plan Amendment
Town of Cave Creek Water Reclamation Facility Construction
Cave Creek, Arizona

Dear Ms. Hoffman,

The Town of Cave Creek is pleased to submit this request to begin the MAG 208 Amendment process for our new water reclamation facility ("Water Ranch") construction. The Town of Cave Creek is a member of MAG, and the new water reclamation facility is located within Maricopa County. We request that the approval process begin as soon as possible with the scheduling of a meeting with the MAG Water Quality Advisory Committee.

If you have any questions, or require additional information, please contact Jessica Marlow, Utilities Manager for the Town of Cave Creek, at 480-488-6618, or Roger Greaves with Burns & McDonnell, at 602-977-2623. We look forward to working with you, and appreciate your assistance in facilitating the MAG approval process for this 208 Plan Amendment.

Sincerely,

Jessica Marlow, P.E.
Utilities Manager
Town of Cave Creek

37622 NORTH CAVE CREEK ROAD ★ CAVE CREEK, ARIZONA 85331

ADMINISTRATION	480/488-1400	BUILDING / SAFETY	480/488-1414	MARSHAL	480/488-6636
COURT	480/488-1409	PLANNING & ZONING	480/595-1930		
ENGINEERING	480/595-1935	FAX	480/488-2263		

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EXECUTIVE SUMMARY

The Maricopa Association of Governments (MAG) is the Designated Regional Water Quality Management Planning Agency, in accordance with Section 208 of the Clean Water Act and has the authority required to implement the area-wide waste treatment management plan for the Maricopa County Planning Area. The Town of Cave Creek is requesting an amendment to the MAG 208 Water Quality Management Plan to include a new Cave Creek Water Reclamation Facility (WRF) to serve the existing Cave Creek service area. Once the new WRF is operational the existing Cave Creek waste water treatment plant (WWTP) will be decommissioned.

The new WRF will have an ultimate capacity of 2.25 mgd, with an initial phase of 0.75 mgd. The new WRF is to be located on property purchased by the Town of Cave Creek. The property extends from 44th street on the east to Cave Creek Wash on the west and from Carefree Highway on the south to Cave Creek Wash on the north.

The first phase of implementing the plan includes the following:

- Design and construct Phase 1 of the proposed WRF, with a capacity of 0.75 mgd.
- Design and construct the raw wastewater conveyance pipeline. This pipeline will convey raw wastewater that originally was sent to the existing WWTP to the proposed WRF.
- Design and construct the effluent forcemain. This forcemain will convey the treated effluent to golf course ponds at the Rancho Mañana Golf Course for irrigation use.
- Decommission the existing WWTP and reclaim the property that the existing WWTP sits on.

The Town of Cave Creek will finance the design, construction and operations of the new WRF, effluent forcemain and raw wastewater mainline.

The new Cave Creek WRF will produce Class A+ reclaimed water. The effluent disposal options are to use the effluent for reuse on golf courses or other open areas, or discharge to an AZPDES permitted point of discharge in Cave Creek Wash or one of its tributaries, Galloway Wash. Sources of wastewater will be commercial and residential. No industrial pre-treatment program is currently needed. If future sewer users require industrial pre-treatment, a plan will be implemented.

The CWA Section 208 Checklist on the following pages provides a summary of the amendment application requirements and how these issues are addressed within the document.

208 AMENDMENT CHECKLIST
Section 208 Clean Water Act
40 CFR Part 130.6

REQUIREMENT	PROVIDE BRIEF SUMMARY OF HOW REQUIREMENTS ARE ADDRESSED	ADDRESSED ON PAGE:
<p><u>AUTHORITY</u> Proposed Designated Management Agency (DMA) shall self certify that it has authorities required by Section 208(c) (2) of the Clean Water Act to implement the plan for its proposed planning and service areas. Self-certification shall be in the form of a legal opinion by the DMA or entity attorney.</p>	<p>The Designated Planning Agency (DPA) for Maricopa County is Maricopa Association of Governments (MAG). The Town of Cave Creek is an incorporated municipality and has owned and operated a wastewater collection and treatment system for over ten years. Per Town Code, the Town has the authority to carry out all functions pertaining to the wastewater system.</p>	<p>1 (1.0)</p>
<p><u>20-YEAR NEEDS</u> {Clearly describe the existing wastewater treatment (WWT) facilities} Describe existing WWT facilities.</p>	<p>The Town of Cave Creek currently owns and operates a WWTP on Rancho Mañana Blvd.. The WWTP has a permitted capacity of 0.133 mgd and is located within the Town of Cave Creek planning area. The existing WWTP will be removed from service once the new WRF is operational.</p>	<p>1 (2.1)</p>
<p>Show WWT certified and service areas for private utilities and sanitary district boundaries if appropriate</p>	<p>There are no private utilities or sanitary districts within the Town of Cave Creek Planning Area.</p>	<p>6 (2.2.6)</p>
<p>{Clearly describe alternatives and the recommended WWT plan.} Provide POPTAC population estimates (of COG-approved estimates only where POPTAC not available) over 20-year period.</p>	<p>The Town of Cave Creek is projected to grow to 9,656 by 2030 according MAG projections.</p>	<p>2 (2.2.3)</p>
<p>Provide wastewater flow estimates over the 20-year planning period</p>	<p>The total 20-year wastewater flow projection for the Cave Creek WRF is 1.79 mgd. The ultimate capacity will be 2.25 mgd.</p>	<p>3 (2.2.4)</p>
<p>Illustrate the WWT planning and service areas.</p>	<p>The service area for the new Cave Creek WRF will encompass the Town of Cave Creek Municipal Planning Area.</p>	<p>Appendix A (Fig. 3)</p>
<p>Describe the type and capacity of the recommended WWT Plant.</p>	<p>The WRF will be consist of screening, grit removal, secondary treatment with biological nutrient removal, tertiary filtration, and chlorination/dechlorination. The biosolids will be aerobically digested and mechanically dewatered. Odor control equipment will also be utilized. The initial capacity will be 0.75 mgd. Ultimate capacity will be 2.25 mgd</p>	<p>3 (2.2.5)</p>
<p>Identify water quality problems, consider alternative control measures, and recommend solution for implementation.</p>	<p>No water quality problems are anticipated. Effluent quality will meet the Class A+ reclaimed water standards and will meet limits established by APP and AZPDES permits.</p>	<p>5 (2.2.5.1)</p>

<p>If private WWT utilities with certificated areas are within the proposed regional service area, define who (municipal or private utility) serves what area and when. Identify whose sewer lines can be approved in what areas and when?</p>	<p>There are no private WWT utilities within the proposed service area.</p>	<p>6 (2.2.6)</p>
<p>Describe method of effluent disposal and reuse sites (if appropriate).</p>	<p>Effluent from the WRF will be disposed of, initially, in two methods: 1) irrigation of the Rancho Mañana Golf Course, 2) discharge into Galloway Wash (tributary to Cave Creek Wash) through an AZPDES permit. Future disposal options are listed in the document and include additional reuse in landscape areas and AZPDES permitted discharge into Cave Creek Wash.</p>	<p>5 (2.2.5.1) 6 (2.3)</p>
<p>If Sanitary Districts are within a proposed planning or service area, describe who serves the Sanitary Districts and when.</p>	<p>There are no sanitary districts within the proposed service area or planning area.</p>	<p>6 (2.2.6)</p>
<p>Describe ownership of land proposed for plant sites and reuse areas.</p>	<p>The land for the WRF is owned by the Town of Cave Creek. The golf course is privately owned.</p>	<p>1 (2.1)</p>
<p>Address time frames in the development of the treatment works.</p>	<p>The plant is designed for an initial capacity of 0.75 mgd and is anticipated to be operational by October of 2009. Additional expansions will take place as growth occurs within the service area. The ultimate capacity of the WRF is to be 2.25 mgd.</p>	<p>8 (3.1) & Appendix B</p>
<p>Address financial constraints in the development of the treatment works.</p>	<p>There are no financial constraints in the development of the treatment facility.</p>	<p>8 (4.1)</p>
<p>Describe how discharges will comply with EPA municipal and industrial stormwater discharge regulations (Section 405, CWA).</p>	<p>All storm water from a 100 year, 2 hour event will be contained on-site. Storm water above the 100 year 2 hour event will be discharged to Cave Creek wash and will be subject to AZPDES permitting requirements.</p>	<p>6 (2.2.5.2)</p>
<p>Describe how open areas & recreational opportunities will result from improved water quality and how those will be used.</p>	<p>The reuse of the effluent will safely enhance the golf course while minimizing the use of groundwater for irrigation.</p>	<p>5 (2.2.5.1)</p>
<p>Describe potential use of lands associated with treatment works and increased access to water-based recreation, if applicable.</p>	<p>Not applicable.</p>	
<p>REGULATIONS Describe types of permits needed, including NPDES, APP and reuse.</p>	<p>The WRF will require APP, AZPDES, Air Quality, Reuse, ATC, and AOC.</p>	<p>7 (2.4)</p>
<p>Describe restrictions on NPDES permits, if needed, for discharge and sludge disposal.</p>	<p>The quality of the effluent will meet requirements of the Clean Water Act and Arizona Title 18, Class A+ treated effluent. Sludge will be dewatered and hauled to an approved disposal site.</p>	<p>5 (2.2.5.1) & 7 (2.6)</p>

<p>Provide documentation of communication with ADEQ Permitting Section 30 to 60 days prior to public hearing regarding the need for specific permits.</p>	<p>The Town and the DBO team met with ADEQ on May 8, 2007 to discuss the project. Burns & McDonnell is working on obtaining an APP for the new WRF.</p>	<p>Appendix D</p>
<p>Describe pretreatment requirements and method of adherence to requirements (Section 208 (b)(2)(D), CWA).</p>	<p>There are currently no industrial users that would discharge to the WRF. An industrial pre-treatment program will be developed if and when it becomes necessary.</p>	<p>7 (2.5)</p>
<p>Identify, if appropriate, specific pollutants that will be produced from excavations and procedures that will protect ground and surface water quality (Section 208(b)(2)(K) and Section 304, CWA).</p>	<p>Not applicable.</p>	
<p>Describe alternatives and recommendation in the disposition of sludge generated. (Section 405 CWA)</p>	<p>Sludge will be mechanically dewatered and disposed at a permitted landfill.</p>	<p>7 (2.6)</p>
<p>Define any non-point issues related to the proposed facility and outline procedures to control them.</p>	<p>Not applicable.</p>	
<p>Describe process to handle all mining runoff, orphan sites and underground pollutants, if applicable.</p>	<p>Not applicable.</p>	
<p>If mining related, define where collection of pollutants has occurred, and what procedures are going to be initiated to contain contaminated areas.</p>	<p>Not applicable.</p>	
<p>If mining related, define what specialized procedures will be initiated for orphan sites, if applicable</p>	<p>Not applicable.</p>	
<p><u>CONSTRUCTION</u> Define construction priorities and time schedules for initiation and completion.</p>	<p>Construction of the initial phase of the WRF is scheduled to commence in the 2nd qtr of 2008 and be operational by October of 2009.</p>	<p>8 (3.1) & Appendix B</p>
<p>Identify agencies who will construct, operate and maintain the facilities and otherwise carry out the plan.</p>	<p>The DBO team of Burns & McDonnell/Garney Construction/Arizona American will design, construct and operate the initial phase of the WRF. The operations are for a period of two years after WRF startup. Thereafter, the Town of Cave Creek will operate and maintain the WRF, or continue with contract operations.</p>	<p>8 (3.1)</p>
<p>Identify construction activity-related sources of pollution and set forth procedures and methods to control, to the extent feasible, such sources.</p>	<p>Construction related pollution sources include fugitive dust, which will be controlled under air quality permit requirements, and inert construction materials, which will be collected and disposed at a permitted landfill. Construction water run-off will be addressed in a general AZPDES Construction Stormwater Permit</p>	<p>8 (3.2)</p>

<p><u>FINANCING AND OTHER MEASURES NECESSARY TO CARRYOUT THE PLAN</u></p> <p>If the plan proposes to take over certificated private utility, describe how, when and financing will be managed.</p>	<p>Not applicable.</p>	<p>8 (4.1)</p>
<p>Describe any significant measures necessary to carry out the plan, e.g., institutional, financial, economic, etc.</p>	<p>The Town of Cave Creek has obtained funding from WIFA to finance the design and construction of the first phase of the WRF. Future phases will be financed through user fees, connection fees, development fees and sales tax revenue.</p>	<p>8 (4.1)</p>
<p>Describe proposed method(s) of community financing.</p>	<p>The Town will collect user fees, connection fees, impact fees, and sales tax.</p>	<p>8 (4.1)</p>
<p>Provide financial information to assure DMA has financial capability to operate and maintain wastewater system over its useful life.</p>	<p>A letter from the Town of Cave Creek indicating their capacity to operate and maintain the WRF is included herein.</p>	<p>Appendix C</p>
<p>Provide a time line outlining period necessary for carrying out plan implementation.</p>	<p>The first phase of the WRF will be operational by October 2009. The subsequent expansion will take place as growth occurs within the service area.</p>	<p>9 (5.1)</p>
<p>Provide financial information indicating the method and measures necessary to achieve project financing, (Section 201 CWA or Section 604 may apply.)</p>	<p>The Town of Cave Creek is providing the financing for the project. A letter of financial assurance is included in Appendix C.</p>	<p>8 (4.1)</p>
<p><u>IMPLEMENTABILITY</u></p> <p><i>Describe impacts and implementability of Plan:</i></p> <p>Describe impacts on existing wastewater (WW) facilities, e.g., Sanitary district, infrastructure/facilities and certificated areas.</p>	<p>The existing WWTP will be decommissioned and will achieve clean closure once the new WRF is operational. Pipelines will be constructed to convey the raw wastewater from the existing WWTP to the new WRF. Additionally, effluent pipelines will be constructed.</p>	<p>9 (5.1)</p>
<p>Describe how and when existing package plants will be connected to a regional system.</p>	<p>The existing WWTP will not be connected to the new WRF.</p>	<p>9 (5.1)</p>
<p>Describe the impact on communities and businesses affected by the plan.</p>	<p>No impacts to communities or businesses are anticipated.</p>	<p>9 (5.2)</p>
<p>If a municipal wastewater (WWT) system is proposed, describe how WWT service will be provided until the municipal system is completed: i.e., will package plants and septic systems be allowed and under what circumstances. (Interim services).</p>	<p>The existing WWTP will remain in service until the new WRF is operational. Those homes not currently served by the wastewater collection system are on septic systems and will remain at least until the new WRF is operational.</p>	<p>2 (2.1) & 9 (5.1)</p>
<p><u>PUBLIC PARTICIPATION</u></p> <p>Submit copy of mailing list used to notify the public of the public hearing on the 208 amendment. (40 CFR, Chapter 1, Part 25.5)</p>	<p>All public notifications will be satisfied through MAG.</p>	<p>9 (6.0)</p>

List location where documents are available for review at least 30 days before public hearing.	All public notifications will be satisfied through MAG.	9 (6.0)
Submit copy of the public notice of the public hearing as well as an official affidavit of publication from the area newspaper. Clearly show the announcement appeared in the newspaper at least 45 days before the hearing.	All public notifications will be satisfied through MAG.	9 (6.0)
Submit affidavit of publication for official newspaper publication.	All public notifications will be satisfied through MAG.	9 (6.0)
Submit responsiveness summary for public hearing.	All public notifications will be satisfied through MAG.	9 (6.0)

1.0 AUTHORITY

The Maricopa Association of Governments (MAG) is the Designated Regional Water Quality Management Planning Agency, in accordance with Section 208 of the Clean Water Act for Maricopa County. The proposed facility is to be located within the planning area for the Town of Cave Creek.

2.0 20 YEAR NEEDS

2.1 DESCRIPTION OF EXISTING WASTEWATER TREATMENT FACILITIES

The Town of Cave Creek (Town) owns an existing wastewater treatment plant (WWTP) located on Rancho Mañana Boulevard, within the town limits, approximately 1/3 of a mile west of Cave Creek Road. The location of the WWTP is in a residential neighborhood and sits adjacent to the Rancho Mañana Golf Course. The existing WWTP was constructed in 1998 and was permitted to treat up to 0.233 million gallons per day (mgd). Due to excessively high BOD and TSS loadings, primarily from restaurants, the WWTP has been de-rated by Maricopa County for a maximum capacity of 0.133 mgd. The WWTP consists of a Smith and Loveless packaged treatment facility, tertiary multi-media filters and chlorine disinfection. Currently, only a small portion of the service area has actual sewer service. The highest concentration of sewered properties lies within the commercial corridor along Cave Creek Road and in the Rancho Mañana Golf Course Development. There are approximately 230 acres of land which is currently sewered. Treated effluent is pumped to storage ponds on the Rancho Mañana Golf Course. The golf course uses the effluent for irrigation. See Figure 1 in Appendix A. The existing WWTP will be decommissioned once the new water reclamation facility is operational.

2.2 DESCRIPTION OF PROPOSED CAVE CREEK WATER RECLAMATION FACILITY

2.2.1 Site Location and Property Ownership

The proposed location for the new Cave Creek WRF is in the southwest quarter of Section 6 in Township 5 North, Range 4 East of the Gila and Salt River Base and Meridian, Town of Cave Creek, Arizona. The property is owned by the Town of Cave Creek and encompasses approximately 76 acres. See Figures 2 and 3 in Appendix A. The location of the WRF lies outside of the 100 year floodplain. See Figure 4 in Appendix A.

The service area for the facility coincides with the Town's Municipal Planning Area, see Figure 5 in Appendix A. As stated previously, only a small portion of the service area has actual sewer service. The

highest concentration of sewer properties lies within the commercial corridor along Cave Creek Road and in the Rancho Mañana Golf Course Development. There are approximately 230 acres of land which is currently sewer. In addition to the currently sewer areas, there are a number of newer developments that have been sewer with dry sewers, in anticipation of a new treatment facility with expanded capacity. These dry sewer areas comprise approximately 260 acres and 588 possible dwelling units. It is anticipated that once the proposed facility is operational, the homeowners in the dry sewer areas will begin to connect to the system and decommission the septic tanks currently in use. Not all existing developed areas within the service area will be sewer. It is not feasible to provide service to many areas within the Cave Creek service area due to the undulating, hilly terrain. Additionally, these areas also tend to have large lots and the homes are some distance from each other, making the cost per connection very high for existing homes. Any future developments within the planning area will be connected to the sewer system.

2.2.2 Topographic Conditions

The existing grade in the Cave Creek service area slopes generally to the south at an approximate slope of 0.14 ft/ft. The service area is a mixed use area with some commercial use along the Cave Creek road corridor, residential, rural residential and undeveloped native desert. The major roadway intersecting the service area is Cave Creek Road, which passes through the center of the service area from north to south and east to west, see Figure 5 in Appendix A. Cave Creek Wash is the major hydrologic feature that passes through the area from northeast to southwest. The proposed WRF is located adjacent to Cave Creek Wash.

2.2.3 Service Area and Population Estimates

Population projections from the MAG document “Socioeconomic Projections of Population, Housing and Employment by Municipal Planning Area and Regional Analysis Zone”, May 2007, indicate the population of Cave Creek at the end of the twenty year planning period to be 9,656. The housing unit projection, for the same time period, is 4,522.

The proposed Cave Creek WRF will have a service area identical to the existing WWTP, which coincides with the Town’s Municipal Planning Area, see Figure 5 in Appendix A. The Municipal Planning Area encompasses approximately 42 square miles, is bounded on the north by the Tonto National Forest and on the east by the Town of Carefree. The area is bounded on the west by the 28th street alignment from Carefree Highway to Joy Ranch Road then along the 24th Street alignment to the northern boundary at the

Tonto National Forest. There is a small irregular area south of Carefree Highway, bounded by 40th Street on the west, Montgomery Road on the south, and 56th Street on the east.

2.2.4 Wastewater Flow Estimates

The wastewater flow estimates provided here are derived from historic data from the existing Cave Creek wastewater treatment facility. Table 2-1 summarizes the hydraulic design criteria for the ultimate capacity of the new Cave Creek WRF. The wastewater flow generation per housing unit is taken from the “Sanitary Sewer Master Plan” prepared by CH2MHill for the Town of Cave Creek. The number was arrived at utilizing the Town’s water meter records. The same method was used to determine the commercial wastewater generation.

Table 2-1: Wastewater Generation

Component	Value	
2030 Residential Population ¹	9,656	persons
2030 Housing Unit Count ¹	4,522	HU
Wastewater Flow Generation ²	226	gal/HU/day
Sub-Total Residential Wastewater Generation	1,021,972	gal/day
2030 Commercial Acreage ³	807	acres
Wastewater Flow Generation ³	950	gal/acre
Sub-Total Commercial Wastewater Generation	766,650	gal/day
Total Projected Wastewater Flow - Year 2030^{3,4}	1,788,622	gal/day

1 - Taken from MAG Population Projections

2 - Taken from Town Records

3 - Taken from Sanitary Sewer Master Plan, prepared for Cave Creek, CH2MHill, October 2006

4 - Equates to 80% of the ultimate treatment capacity of 2.25 mgd.

2.2.5 Water Reclamation Facility Description

The proposed Cave Creek WRF will consist of the following unit processes.

- **Influent Pump Station** – the influent pump station lifts the raw wastewater as it enters the plant site to an elevation that will allow for gravity flow through the headworks. Provisions will be made in the design of Phase 1 to accommodate expansion for the ultimate capacity.
- **Influent Screen** – the influent screen will be a mechanical device which will screen out particles larger than 6 mm from the wastewater. Additionally, there will also be a screen bypass channel that will be fitted with a manually cleaned bar rack. The bypass will be used in the event that the mechanical screen must be taken out of service. The influent screen will be sized to accommodate the ultimate capacity.

- Grit Removal – following the screen will be a vortex type grit removal device. The grit removal takes out a large portion of the sand and grit material, washes and dewateres the material, and disposes of it in a dumpster located adjacent to the device. The grit removal will be sized to accommodate the ultimate capacity.
- Sequencing Batch Reactor – the SBR is the heart of the treatment process. The SBR performs pre-equalization, secondary treatment, biological nutrient removal, and clarification. This installation will consist of two SBR basins. The basins will run sequentially. As one basin is treating a batch of wastewater, the other basin will be filling with wastewater influent. Following the SBR basins is a post-equalization basin. The equalization basin will equalize the flow out of the SBR basins prior to going to the tertiary filters. The SBR basins will be sized to accommodate the first phase of the WRF. Provisions will be made in the piping to the SBRs for the expansion to the ultimate capacity.
- Tertiary Filters – following the SBR process will be tertiary filters. The filters will filter out the remaining particulate matter. The filters will be sized for the first phase of the WRF. Additional filters will be installed for the ultimate capacity.
- Disinfection – chlorination/dechlorination will be used to provide disinfection of the effluent. A chlorine contact basin will provide the needed contact time prior to final discharge. The disinfection system will be sized for the first phase of the WRF. Additional disinfection facilities will be installed for the ultimate capacity.
- Effluent Pump Station - the effluent pump station will pump the treated effluent off of the plant site for final disposal. The effluent pump station will be sized for the first phase of the WRF. Provisions will be made for the expansion of the pump station for the ultimate capacity.
- Sludge Holding Tank – the sludge that settles out of the treatment process in the SBRs will be pumped into a sludge holding tank. The volume of the sludge will be reduced and will also be conditioned for better dewatering. The sludge holding tank will be sized for the first phase of the WRF. Additional storage facilities will be installed for the ultimate capacity.
- Biosolids Dewatering – the liquid sludge from the sludge holding tank will be dewatered, with a belt filter press, for final disposal. The dewatered biosolids will be deposited into a container for removal and disposal. The belt filter press will be sized for the first phase of the WRF. Additional dewatering equipment will be installed for the ultimate capacity.
- Odor Control – there will be odor control equipment treating foul air from the headworks and dewatering rooms as well as the SBR basins and the sludge holding tank. Wet chemical scrubbers will be used. During the first phase, one wet scrubber will be dedicated to the headworks and dewatering rooms. Another wet scrubber will be dedicated to the SBR basins and

the sludge holding tank. The wet scrubbers will use sodium hydroxide and sodium hypochlorite to remove the odor causing constituents from the air stream.

- Standby Power Generation – an emergency generator will be installed to provide the required power to the essential treatment components during a power outage. The essential treatment components include the influent pump station, the headworks equipment, the SBR basins, the tertiary filters, the disinfection system, and the effluent pump station.
- Noise Control – all significant noise producing equipment within the WRF will be housed in building or come with sound attenuating enclosures, such as the standby generator. Additionally, the WRF is located outside of a 350' setback from the property line.

A site plan of the proposed WRF is included as Figure 6 in Appendix A. Figure 7 in Appendix A is a conceptual flow diagram for Phase 1 and for ultimate capacity of the WRF.

2.2.5.1 Effluent Disposal and Quality Requirements

Effluent from the existing Cave Creek WWTP is currently used for irrigation at the Rancho Mañana Golf Course. The proposed Cave Creek WRF will also discharge reclaimed water to the Rancho Mañana Golf Course. An effluent forcemain pipeline will be constructed to pump the reclaimed water to the golf course storage ponds through the effluent pump station. The golf course storage ponds have an emergency overflow which discharges into Galloway Wash. This point of discharge, the Galloway Wash, was permitted through an AZPDES permit for the existing WWTP to send treated effluent to the golf course ponds. An AZPDES permit will be requested to allow discharge at the same emergency overflow into Galloway Wash from the golf course ponds. In both cases the Town is the AZPDES permittee. Galloway Wash is a tributary to Cave Creek Wash.

Additional disposal options for the new Cave Creek WRF include:

- Water amenities and irrigation of public landscape areas, parks, schools and other open space common areas. As the demand for reclaimed water at the golf course fluctuates with season and weather, the Town is exploring other areas that can receive the reclaimed water.
- An additional AZPDES permit allowing discharge to Cave Creek Wash at or near the WRF. This would create two points of discharge, one at the golf course ponds into Galloway Wash and one into Cave Creek Wash at the WRF.

The effluent quality will meet Class A+ Reclaimed Water requirements as stated in A.A.C. Title 18, Chapter 11, Article 3. As the Cave Creek area grows and more effluent is generated the additional

disposal options discussed will be implemented. Reuse of the treated effluent at the golf course will be sufficient for the initial phase of the WRF. The additional expansions will require the Town to investigate the options listed above and implement them as needed.

2.2.5.2 Discharges

On-site stormwater retention will be provided to accommodate a 100 year, 2 hour storm event. Stormwater discharge in excess of the 100 year, 2 hour storm event will be diverted to Cave Creek Wash. The plant site will not receive run-off from adjacent properties through the use of grading and berming around the site. Stormwater discharges from the plant site will be subject to AZPDES stormwater permitting requirements when design flows exceed 1 mgd. The flows will be addressed through the implementation of a Stormwater Pollution Prevention Plan.

2.2.6 Sanitary Districts, Private Utilities, and Wastewater Treatment Service Area

The location of the proposed Cave Creek WRF and its service area are shown in Figures 2, 3 and 5 in Appendix A. There are no existing sanitary districts, private utilities, or wastewater treatment services that would be impacted by the construction of the WRF, conveyance pipelines, or effluent pipelines. There is a proposed sewer improvement district in the Desert Hills area, west of the WRF location along Carefree Highway that will need a treatment option once the District is formed. The Cave Creek WRF would have sufficient capacity to treat the wastewater generated from the District. An additional 208 Plan Amendment would need to be approved to include the District in the Cave Creek service area.

2.3 SUMMARY OF ALTERNATIVES

In order to accommodate future growth in the Cave Creek planning area, the Town of Cave Creek must increase their capacity to treat wastewater and to dispose of the reclaimed water. The existing treatment plant site is not large enough to accommodate expansion. The Town's only viable option is to construct a new WRF on a larger parcel of land. The proposed WRF will have the capacity to meet the projected growth within the service area for the 20 year planning timeframe.

Due to the increasing value of reclaimed water, the Town would like to have as many disposal options as possible. A summary of those disposal alternatives is as follows:

- Water amenities and irrigation of public landscape areas, parks, schools and other open space common areas.

- An AZPDES permit allowing discharge to Cave Creek wash at or near the treatment facility.

2.4 ENVIRONMENTAL PERMITTING REQUIREMENTS

The Cave Creek WRF will require the following permits:

Table 2-2: Permits and Regulatory Agencies

Requirement	Regulatory Agency
Approval to Construct	Maricopa County Env. Services Dept.
Approval of Construction	Maricopa County Env. Services Dept.
Aquifer Protection Permit	AZ Dept. of Env. Quality
AZPDES Permit	AZ Dept. of Env. Quality
Air Quality Permit	Maricopa County Air Quality Dept.
208 Plan Amendment	Town of Cave Creek, MAG Water Quality Advisory Committee, MAG Management Committee, MAG Regional Council, State WQMWG, ADEQ, EPA
Annual Operating Permit	Maricopa County Env. Services Dept.
Building Permit	Town of Cave Creek

2.5 PRETREATMENT REQUIREMENTS

40 CFR Section 403.8 requires POTW's with capacity greater than 5.0 mgd and that receive discharge from industrial users to establish an approved pretreatment program. There are no industrial users anticipated to discharge to the proposed Cave Creek WRF and the ultimate capacity is anticipated to be less than 5.0 mgd. Therefore, no pretreatment program is required for the Cave Creek WRF. The Town does, however, have a pretreatment ordinance. The intent of the ordinance is to control high strength discharges into the sanitary sewer system from mostly commercial users. If it becomes necessary, the Town will enact pretreatment ordinances which address discharges from industrial users.

2.6 SLUDGE MANAGEMENT REQUIREMENTS

Sludge will be wasted from the SBR's to a sludge holding tank. The holding tank is sized to accommodate the average day maximum month flow. The solids retention time in the tank will be approximately 6 days. The solids will be unclassified. From the holding tank, the sludge will be mechanically dewatered and hauled to an approved disposal site by a permitted sludge hauler.

3.0 CONSTRUCTION

3.1 CONSTRUCTION AND OPERATION RESPONSIBILITY

The Town of Cave Creek has contracted with the team of Garney Constructors/Burns & McDonnell /Arizona American to design/build/operate the first phase of the new Cave Creek WRF. It is anticipated that the construction will be completed in October of 2009. The first phase of the WRF will have a capacity of 0.75 mgd. After the construction is complete, Arizona American will operate the WRF for a period of two years. After the two year operations period, the Cave Creek WRF will be turned over to the Town of Cave Creek for operations and maintenance. The Town may continue to contract with Arizona American for operations and maintenance, contract with another private operations company or provide Town personnel to operate and maintain the WRF. Regardless of who operates the WRF, the Town of Cave Creek will be the responsible for permit compliance. A project schedule for the first phase is included in Appendix B.

The second phase of the WRF will entail expansion to 1.5 mgd. The expansion will be dependent upon growth within the service area. The timing of the expansion will be determined by the Town of Cave Creek. The ultimate build-out of the WRF will also be determined by the Town of Cave Creek.

3.2 SOURCES OF POLLUTION

Construction of the new Cave Creek WRF and effluent forcemain will not be a pollution intensive activity. Anticipated pollutants may include dust from construction activities, construction related solid waste, and disposal of inert materials. New construction will be conducted under an Air Quality Permit issued by Maricopa County Air Quality Department and an AZPDES permit issued by ADEQ for construction water run-off. Any wastes produced during construction will be properly managed and disposed of at an appropriate facility.

4.0 FINANCING

4.1 FINANCING PLAN

The Town of Cave Creek is financing the design and construction of the new Cave Creek WRF. The residents of Cave Creek approved a bond election, authorizing the Town to incur debt for the purpose of replacing the wastewater treatment facilities. The Town has obtained financing from the Water Infrastructure Financing Authority of Arizona to pursue the design and construction of the first phase of the WRF. The Town will utilize user fees, connection fees, development fees, and sales tax revenue to

repay the WIFA financing. Future phases of development at the WRF will be financed with user fees, connection fees, development fees and sales tax revenue. Operations and maintenance will be financed with user fees. A letter of financial assurance from the Town of Cave Creek is included in Appendix C.

5.0 IMPACTS AND IMPLEMENTATION PLAN

5.1 IMPLEMENTATION PLAN

The initial phase of the new Cave Creek WRF will have a capacity of 0.75 mgd and is anticipated to be operational in October of 2009. A detailed startup plan will be developed for the first phase of construction during design. The existing Cave Creek WWTP will be decommissioned once the new WRF is operational.

The expansion of the WRF will be undertaken when 80% of the average day maximum month capacity has been reached with construction completed on the expansion when 90% of the original phase capacity has been reached and is dependent on the future growth and development within the service area. The final build-out capacity is anticipated at 2.25 mgd. The Town of Cave Creek will determine the timing of the expansion(s) to the WRF.

5.2 IMPACTS OF PROPOSED PLAN

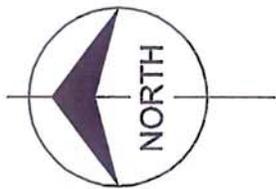
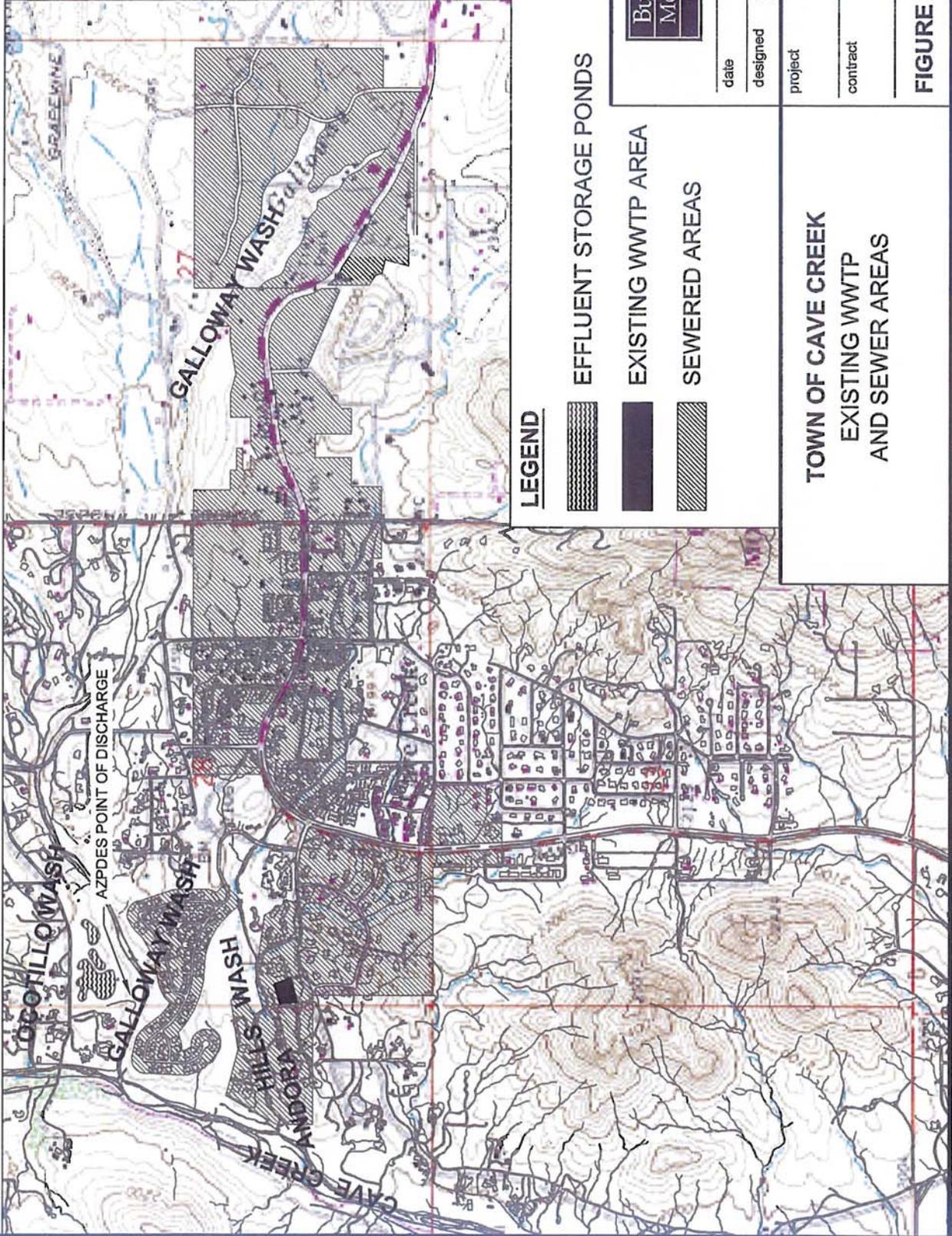
The implementation of the proposed Cave Creek WRF is not anticipated to have any impact on adjacent municipalities, existing service areas, sanitary districts, communities, or businesses. The discharge or reuse of the treated effluent is not anticipated to increase odor or vector concern.

6.0 PUBLIC PARTICIPATION

MAG is responsible, with cooperation from the Town of Cave Creek, for ensuring that the required public participation requirements are followed as outlined in 40 CFR 25. The following are the minimum requirements:

- Submittal of a mailing list used to notify the public of the public hearing.
- Listing of locations where documents are available for review at least 30 days prior to the public hearing.
- Publication of the public notice of the public hearing at least 45 days prior to the public hearing.
- Submittal of an affidavit of publication for official newspaper publication.
- Submittal of a responsiveness summary for public hearing.

APPENDIX A - FIGURES



date	11/02/07
designed	R. BOHRER
project	47045
contract	

**TOWN OF CAVE CREEK
EXISTING WWTP
AND SEWER AREAS**

FIGURE - 1

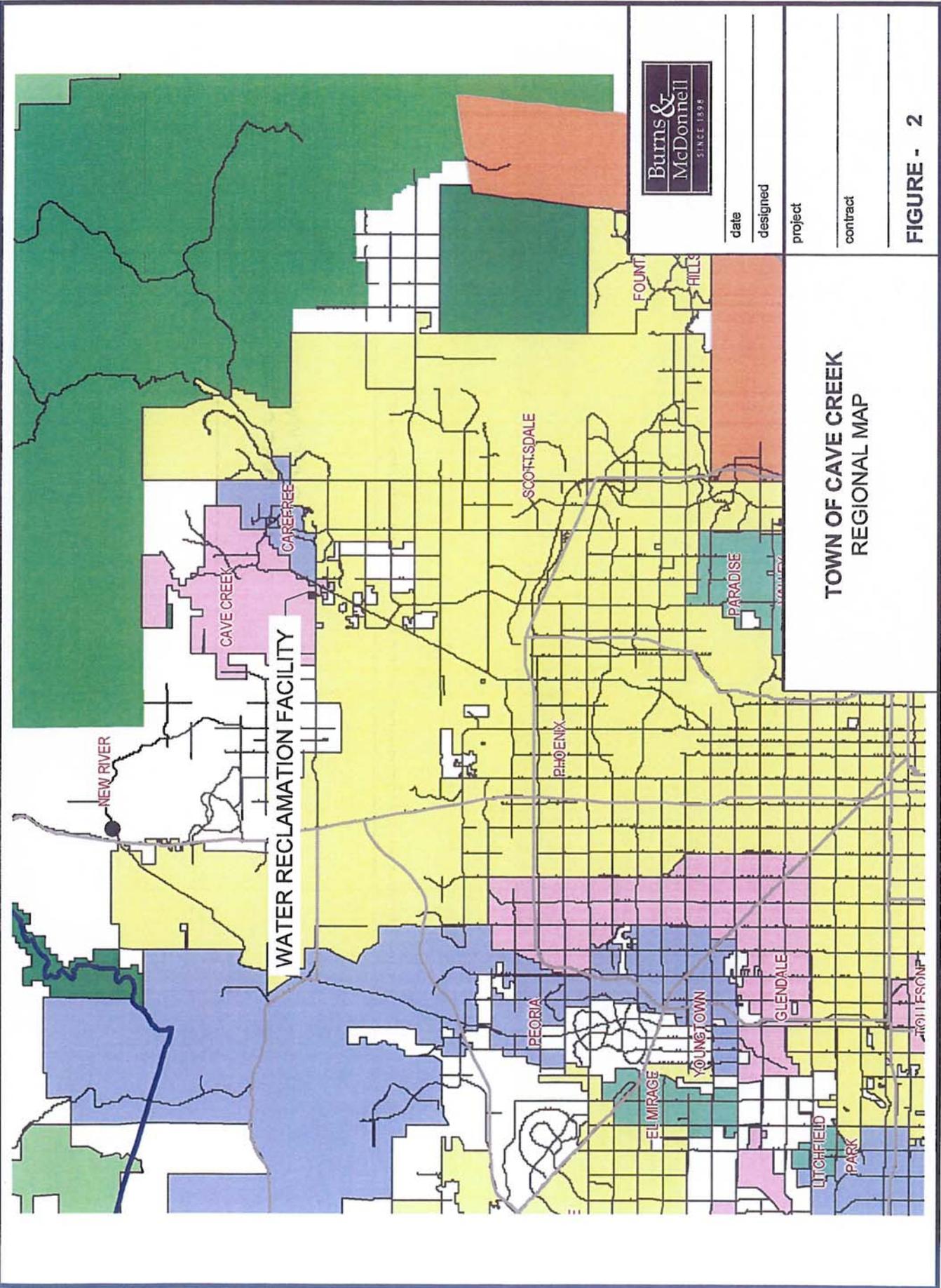
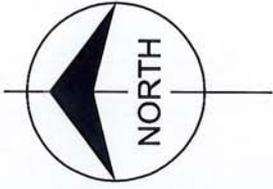


FIGURE - 2



date 07/11/08

designed R. BOHRER

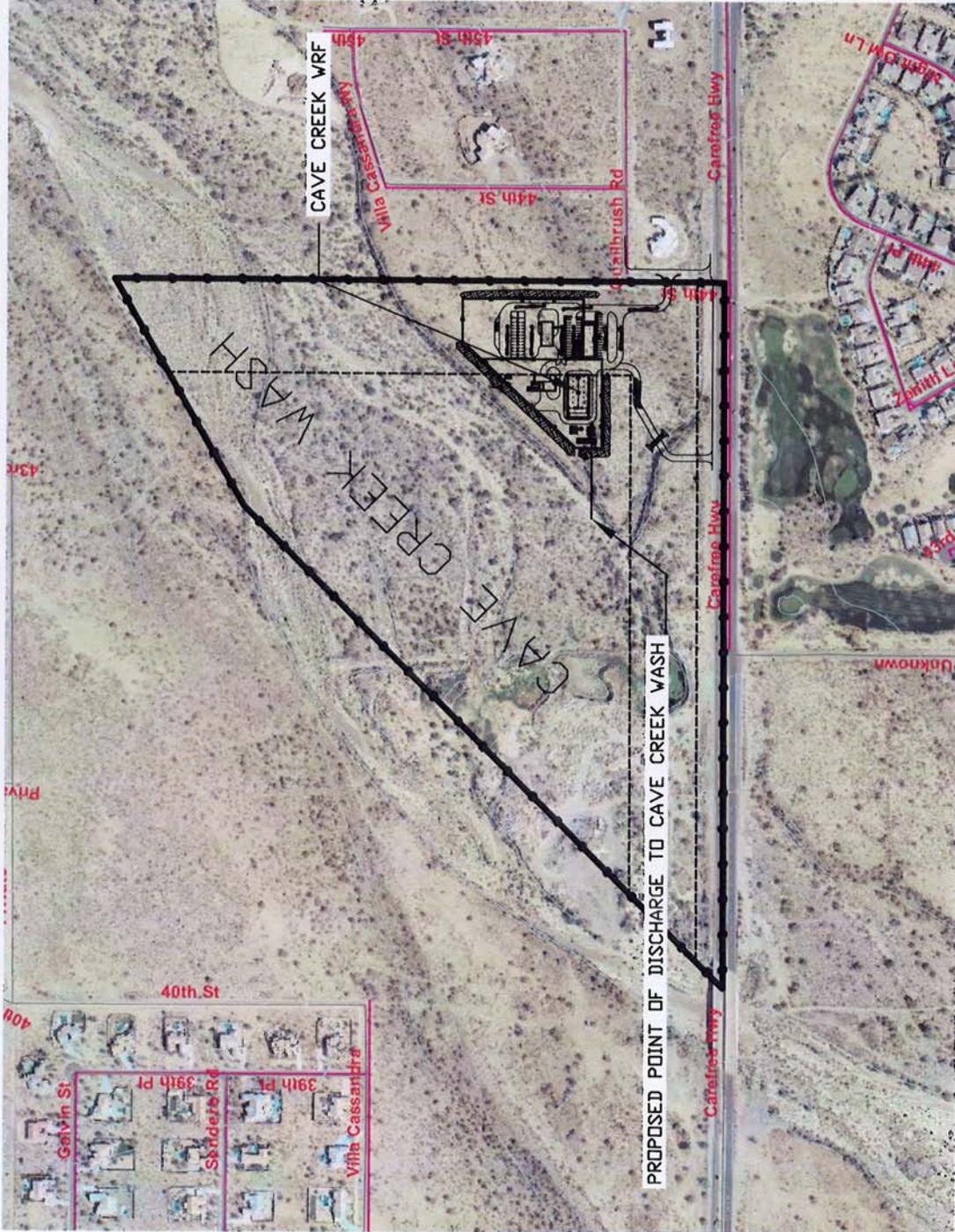
project

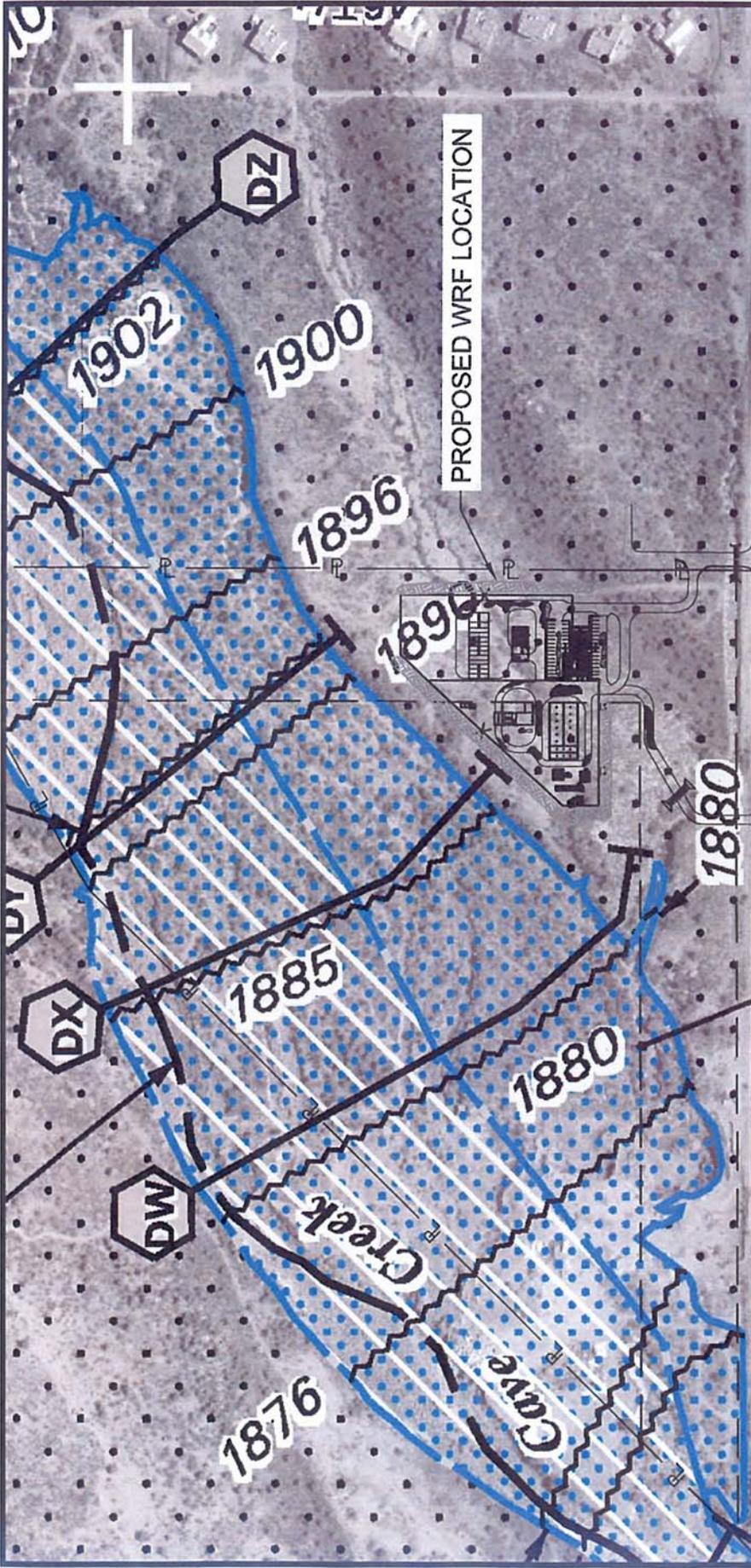
47045

contract

FIGURE - 3

TOWN OF CAVE CREEK
WATER RECLAMATION FACILITY
LOCATION MAP





date 2/13/08

designed

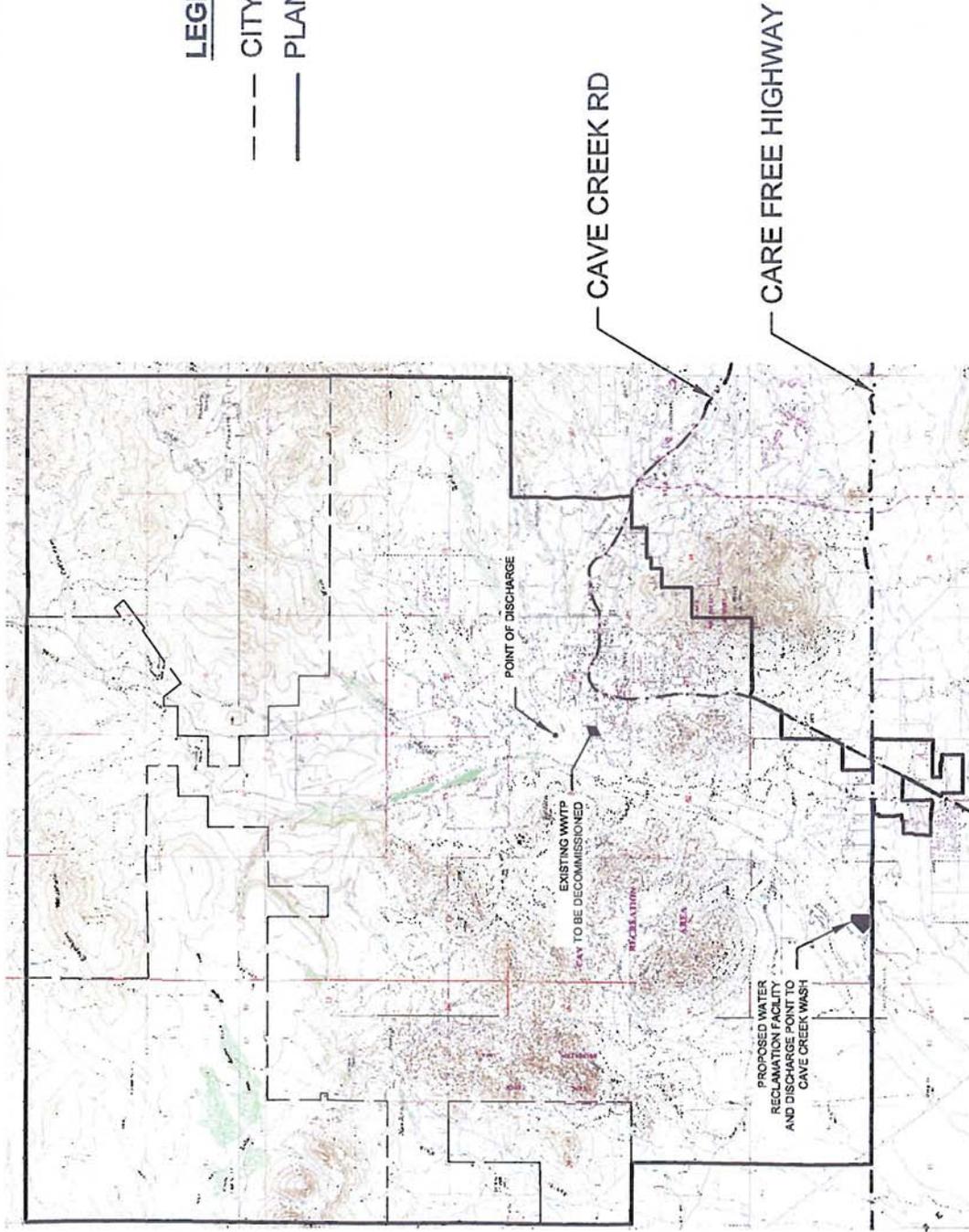
project 47045

contract

FIGURE - 4

TOWN OF CAVE CREEK
 WATER RECLAMATION FACILITY
 FLOODPLAIN DELINEATION

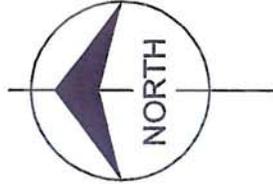
ZONE
 AE



LEGEND

--- CITY LIMITS

— PLANNING/SERVICE AREA



date 11/14/07

designed D. PANTOJA

project

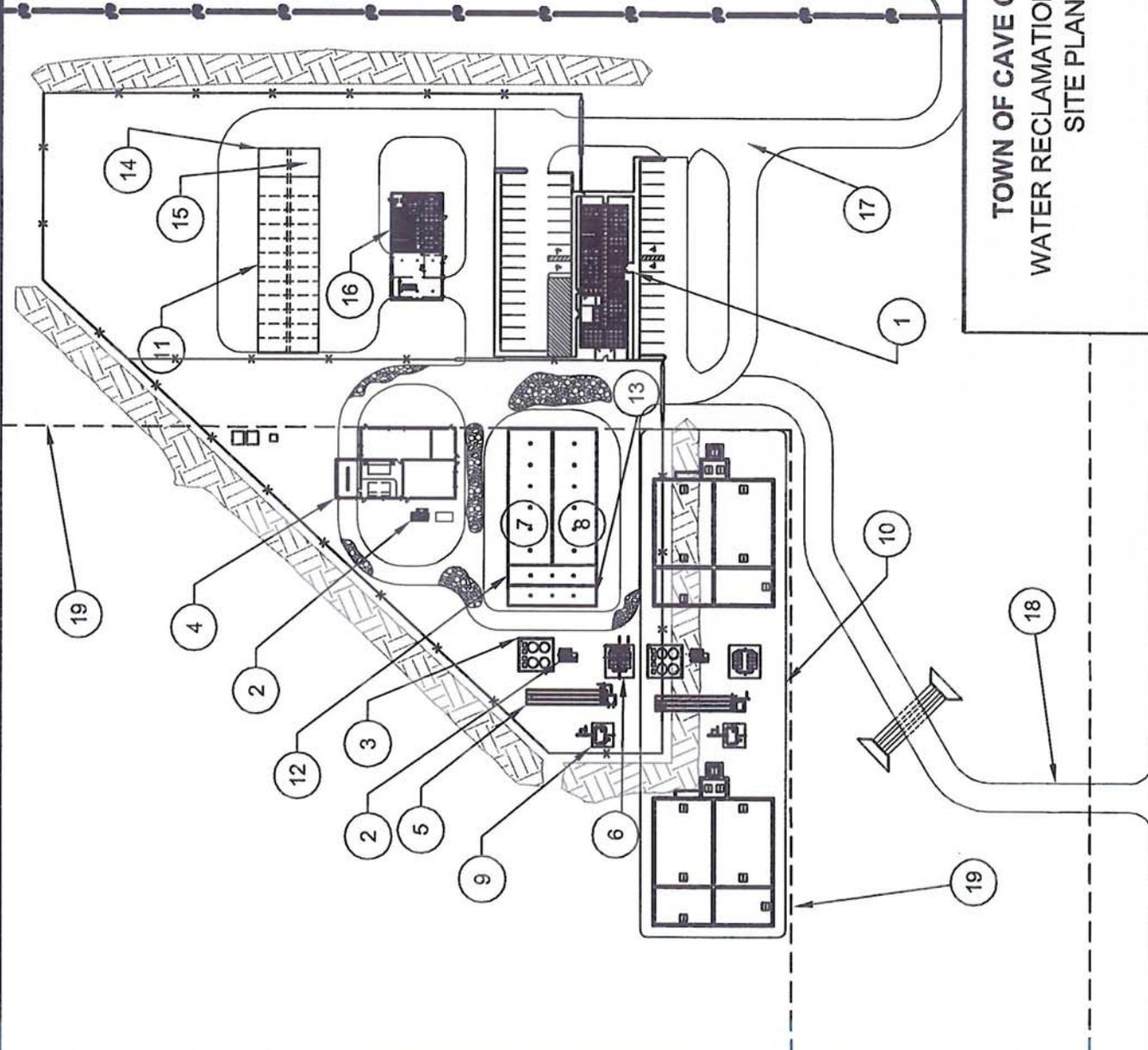
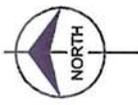
47045

contract

FIGURE - 5

**TOWN OF CAVE CREEK
EXISTING CITY LIMITS
AND PLANNING/SERVICE AREA**

- KEYNOTES**
- 1 ADMINISTRATION BUILDING
 - 2 ODOR CONTROL
 - 3 CHEMICAL STORAGE
 - 4 PROCESS BUILDING: HEADWORKS AND DEWATERING
 - 5 CHLORINE CONTACT BASIN
 - 6 TERTIARY FILTER
 - 7 SBR 1
 - 8 SBR 2
 - 9 RECLAIMED WATER P.S.
 - 10 PHASE 2 AND 3 EXPANSIONS
 - 11 COVERED PARKING
 - 12 SLUDGE HOLDING TANK
 - 13 POST EQUALIZATION
 - 14 VEHICLE WASH STATION
 - 15 WELDING STATION
 - 16 MAINTENANCE BUILDING
 - 17 PERMANENT ENTRANCE
 - 18 SECONDARY ENTRANCE
 - 19 350' SETBACK FROM PROPERTY LINE



date 11/02/07

designed R. BOHRER

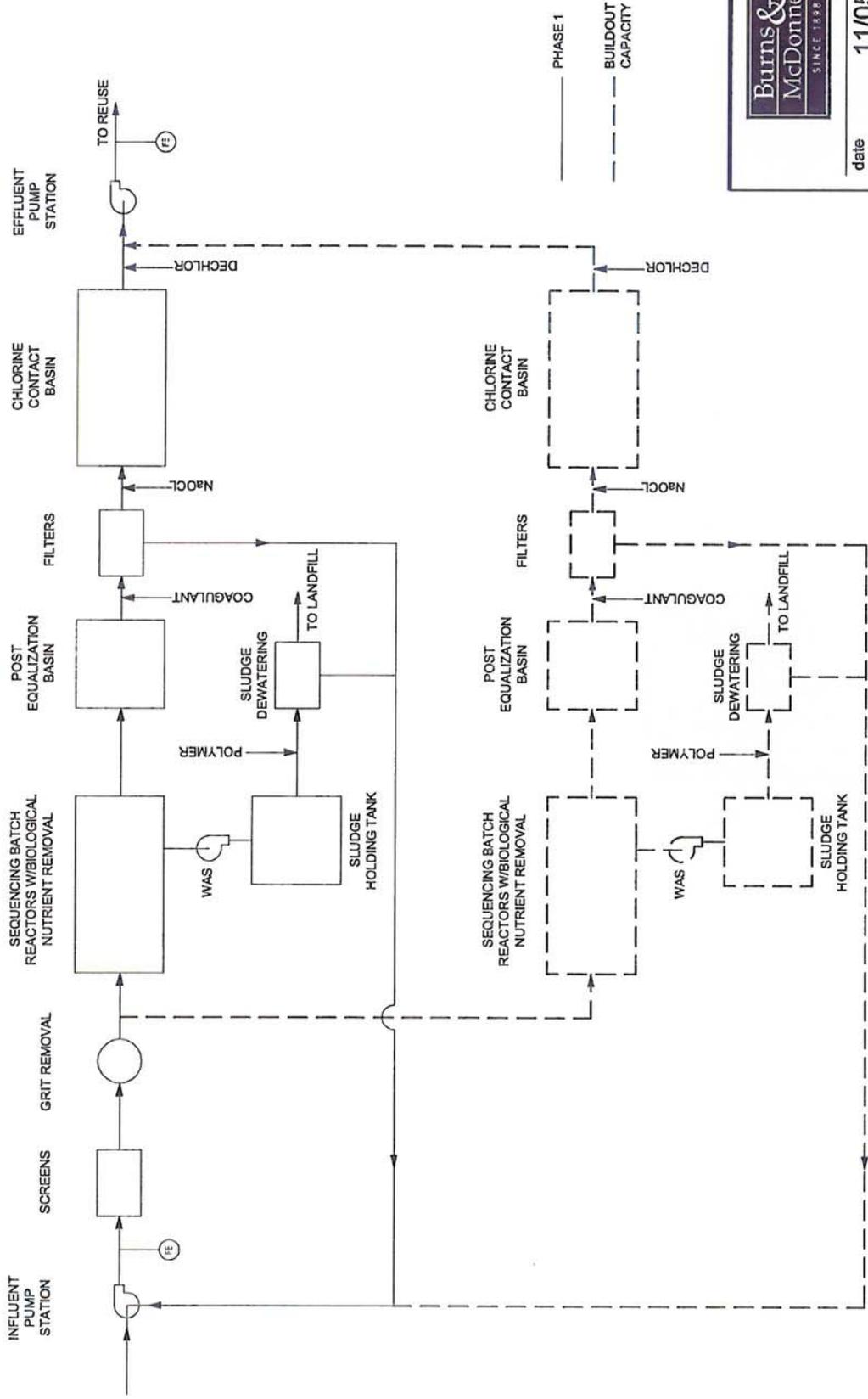
project

47045

contract

**TOWN OF CAVE CREEK
WATER RECLAMATION FACILITY
SITE PLAN**

FIGURE - 6



date 11/05/07
 designed R. BOHRER
 project
 contract 47045

FIGURE - 7

TOWN OF CAVE CREEK
 208 PLAN AMENDMENT
 WRF FLOW SCHEMATIC

APPENDIX B – PHASE 1 PROJECT SCHEDULE

APPENDIX C – FINANCIAL ASSURANCE



SETTLED 1870 · INCORPORATED 1986

November 21, 2007

Ms. Julie Hoffman
Maricopa Association of Governments
302 North 1st Avenue, Suite 300
Phoenix, AZ 85003

RE: MAG 208 Plan Amendment - Town of Cave Creek Water Ranch
Financial Assurance

Dear Ms. Hoffman;

The Town of Cave Creek is responsible for the construction, operation and maintenance of the new Cave Creek Water Ranch located within the Town of Cave Creek. The Town is also responsible for the closure of the existing Rancho Mañana Wastewater Treatment Plant (WWTP) once the new Water Ranch is operational.

The primary source of funding for the new Water Ranch design and construction, and for decommissioning the existing WWTP will come from two Water Infrastructure Finance Authority (WIFA) loans. The remainder of the funding will come from the Town General Fund and development fees. Operation and maintenance of the facility will be paid for by monthly user fees and a ½ cent sales tax that is dedicated to the wastewater treatment plant operation.

The total estimate cost for the design, construction and decommissioning of the facilities is approximately \$28.9 million dollars.

As part of a Design-Build-Operate contract that the Town has entered into with Garney Construction, Arizona American Water will be responsible for the operation of the existing plant until its closure, and operation of the new plant for 2 years after start-up. The annual operating cost for the existing WWTP is approximately \$270,000, and for the new Water Ranch is approximately \$835,000.

Please feel free to contact me with any questions regarding the financial capacity of the Town.

Sincerely,

Marian Groeneveld
Town Accountant

37622 NORTH CAVE CREEK ROAD ★ CAVE CREEK, ARIZONA 85331

ADMINISTRATION	480/488-1400	BUILDING / SAFETY	480/488-1414	MARSHAL	480/488-6636
COURT	480/488-1409	PLANNING & ZONING	480/595-1930		
ENGINEERING	480/595-1935	FAX	480/488-2263		

APPENDIX D – ADEQ MEETING

Cave Creek
5/8/07

<u>Name</u>	<u>Affiliation</u>	<u>Phone</u>
Maribeth Greenstade	ADEQ-APP	602-771-4578
Roger Greaves	BMD	602-977-2623
Wayne Anderson	Town of Cave Creek	(480) 488-6626
Jacqueline Maye	ADEQ	602 771 4607
Don Bell	ADEQ	602-221-4613
Bob Schulz	BMD	602-977-2623
Shela Chen	Hydro Systems, Inc.	480-517-9050
"Mary" Small	"	"
Meredith J. Hester	ADEQ-APP	(602) 771-4869

APPENDIX E – LETTERS OF “NO OBJECTION”

**TOWN OF CAREFREE
MARICOPA COUNTY
CITY OF PHOENIX
CITY OF SCOTTSDALE**



TOWN OF CAREFREE

100 EASY STREET
P.O. BOX 740
CAREFREE, ARIZONA 85377
(480) 488-3686 • FAX (480) 488-3845

December 14, 2007

Ms. Jessica Marlow, P.E.
Utilities Manager
Town of Cave Creek
37622 North Cave Creek Road
Cave Creek, Arizona 85331

Re: Town of Cave Creek Proposed Water Reclamation Facility

Dear Ms. Marlow:

As per your November 26, 2007 letter, the Town of Carefree does not object to the proposed water reclamation facility and supports the MAG 208 Plan Amendment. The water reclamation facility will be beneficial to the Town of Cave Creek and the region.

If you have any questions, please contact me at 480-488-3686.

Sincerely,

Jonathan H. Pearson
Town Administrator

CC: Carefree Mayor and Town Council



Maricopa County

Environmental Services

Water and Waste Management Division

COPY

March 28, 2008

1001 N. Central Ave., Suite 150
Phoenix, AZ 85004
Phone: (602) 506-6666
Fax: (602) 506-6925
TDD: (602) 506 6704
www.maricopa.gov/envsvc

Maricopa Association of Governments
302 North 1st Avenue, Suite 300
Phoenix, AZ 85003

Attention: Ms. Lindy Bauer, Environmental Director

Re: Town of Cave Creek Water Reclamation Facility
Clean Water Act, MAG 208 Amendment

Dear Ms. Bauer:

In a letter dated February 13, 2008, the Town of Cave Creek (Town) submitted the document: *MAG 208 Amendment for the Town of Cave Creek Water Reclamation Facility, February, 2008*, to Maricopa County Environmental Services Department (Department). The application proposes constructing a new water reclamation facility (WRF) to serve the Town's Municipal Planning Area (MPA) of approximately 42 square miles. The first phase of the WRF will have a capacity of 0.75 MGD and the ultimate capacity will be 2.25 MGD.

The Town's new WRF will be located on a triangular parcel northeast of the intersection of Carefree Highway and Cave Creek Wash in Township 5N, Range 4E, Section 6. The Town's existing 0.133-MGD package wastewater treatment plant will be decommissioned once the new WRF is operational. Effluent will continue to be used to fill lakes at Rancho Mañana Golf Course where it will be used for irrigation. The existing plant's AZPDES Permit will be amended to allow greater overflow from the golf course lakes to Galloway Wash, a tributary to Cave Creek Wash.

The Cave Creek WRF will have sufficient capacity to serve a potential sewer improvement district in the Desert Hills area that is west of the WRF location and outside the Town's service area. This option would be brought to MAG as a separate 208 Amendment application.

The document was submitted to the Department because the project is located within three miles of unincorporated areas of Maricopa County. The Town of Carefree, City of Phoenix, and City of Scottsdale are also located within three miles of the Town's MPA.

Based on a review of the proposed 208 MAG 208 Amendment prepared by Burns & McDonnell, February 2008, the Department has determined that the proposed WRF does not conflict with Maricopa County plans for the area.

Page 2 of 2
March 28, 2008
Ms. Lindy Bauer
Town of Cave Creek WRF MAG 208 Amendment Valley Planning Area

Please note that the Department has not reviewed, nor approved, the design of the facilities as part of the 208 review. Any technical issues that remain will need to be resolved during the design phase of the project. Approval to Construct (ATC) and Approval of Construction (AOC) must be obtained from this Department prior to start of construction and startup, respectively, of all treatment, discharge, recharge, and reuse facilities, including all conveyance facilities and final end user facilities.

If you have any questions or comments, please contact me at 506-6666.

Sincerely,

A handwritten signature in black ink that reads "Kevin Chadwick". The signature is written in a cursive, flowing style.

Kevin Chadwick, P.E.
Division Manager

cc: Roger Greaves, P.E., Project Manager, Burns & McDonnell
Jessica Marlow, P.E., Utilities Manager, Town of Cave Creek
John Power, P.E., Manager, MCESD
Dale G. Bodiya, P.E., Manager, MCESD, W&WM, Treatment Plant Section
File



City of Phoenix
Water Services Department

April 2, 2008

Ms. Julie Hoffman
Maricopa Association of Governments
302 North 1st Avenue, Suite 300
Phoenix, AZ 85003

Dear Ms. Hoffman:

**Re: MAG 208 Amendment - Town of Cave Creek Water Reclamation Facility
February 2008
Letter of No Objection**

The Town of Cave Creek submitted a Clean Water Act Section 208 Plan Amendment to the Maricopa Association of Governments in November 2007 and revised the Amendment in February 2008. Part of the process is for the agency requesting the Amendment to obtain letters of no objection from agencies within three miles of the activity that is the subject of the Amendment. The facility described by the Amendment is within three miles of the City of Phoenix limits.

The City of Phoenix had concerns with the November 2007 Amendment, primarily with the proposed aquifer recharge disposal method. Aquifer recharge was removed as a disposal option in the February 2008 Amendment. As a result, the City of Phoenix has no objection to the MAG 208 Amendment for the Town of Cave Creek Water Reclamation Facility dated February 2008.

We look forward to continue working with you toward completing the approval process.

Sincerely,

A handwritten signature in black ink, appearing to read "T. Perkins", written over a horizontal line.

Tammy J. Perkins
Acting Water Services Director

TJP:bh:cw:CCLetterofnoobjection0308

c: Robert Hollander



A Century of Superior Water Services In Phoenix

200 West Washington Street, 9th Floor • Phoenix, AZ 85003-1611 Phone (602) 262-6627 Fax (602) 495-5542



Water Resources

9388 E. San Salvador Dr.
Scottsdale, AZ 85258

PHONE 480-312-5685
FAX 480-312-5615

March 5, 2008

Ms. Jessica Marlow, P.E.
Utilities Manager, Town of Cave Creek
37622 North Cave Creek Road
Cave Creek, AZ 85331

Re: Request for letter of "No Objection" from the City of Scottsdale

Dear Ms. Marlow,

The purpose of this letter is to act as the City of Scottsdale's response to your request for a "Letter of No Objection" for the Town of Cave Creek's "*MAG 208 Amendment for the Town of Cave Creek Proposed Water Reclamation Facility*" submittal, prepared for the Town of Cave Creek by Burns & McDonnell dated February, 2008.

Because the Town of Cave Creek has removed recharge as a disposal option in this submittal, the City of Scottsdale has no objection to the proposed location of the Water Reclamation Facility (WRF) and the reuse of the Class A+ reclaimed water produced on golf courses or other open areas as described in the report.

Comments

The City of Scottsdale Water Resources Department is very supportive of recharge efforts. We feel that it is critically important to artificially recharge high quality waters within the northeast portion of the Paradise Valley Sub-basin to slow the long-term decline of the water table elevation.

If and when additional expansions to the proposed WRF are required, the City of Scottsdale would be very interested in discussing suitable recharge options with the Town of Cave Creek that could serve as both a beneficial and cost-effective method of using excess effluent generated from this facility.

Sincerely,

Maurice A. Tatlow

Maurice A. Tatlow, R.G.
Hydrogeologist, City of Scottsdale Water Resources Department
9388 E. San Salvador Drive
Scottsdale, AZ 85258
480-312-5268
mtatlow@scottsdaleaz.gov